HS-2615

VIA V4 Eden processor
Embedded Engine Board

• CompactFlash • 8-bit I/O • CRT/LVDS/DVI-I • TV-Out •
• Dual LAN • Audio • SATA • ATA/33/66/100 •
• RS-232/422/485 • 4 COM • 6 USB2.0 •
• PC/104 • WDT • H/W Monitor •

Copyright Disclaimers

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

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

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

Trademarks

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

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

Intel is a registered trademark of Intel Corporation.

Award is a registered trademark of Award Software, Inc.

AMI is a registered trademark of AMI Software, Inc.

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

Edition 2.1, January 28, 2011

Table of Contents

Chapter 1 General Description 1
1.1 Major Features 2
1.2 Specifications 3
1.3 Board Dimensions 5

Chapter 2 Unpacking 5
2.1 Opening the Delivery Package 5
2.2 Inspection 5

Chapter 3 Hardware Installation 7
3.1 Before Installation 7
3.2 Board Layout 8
3.3 Jumper List 9
3.4 Connector List 9
3.5 Configuring the CPU 10
3.6 System Memory 10
3.7 VGA Controller 10
3.8 IDE Drive Connector 12
3.9 Serial ATA Connector 13
3.10 Parallel Connector 13
3.11 Serial Port Connectors 14
3.12 Ethernet Connector 15
3.13 USB Port 15
3.14 CMOS Data Clear 16
3.15 Power and Fan Connectors 16
3.16 Keyboard/Mouse Connectors 17
3.17 System Front Panel Control 17
3.18 Watchdog Timer 18
3.19 TV-Out Function 21
3.20 PC/104 Connectors 21
3.21 Audio Connectors 24
3.22 CompactFlash™ Connector 24
3.23 8-bit I/O Function 26

Chapter 4 AMI BIOS Setup 29
4.1 Starting Setup 29
4.2 Using Setup 30
4.3 Main Menu 31
4.4 Advanced Settings 32
4.5 Advanced PCI/PnP Settings 37
4.6 Boot Settings 38
4.7 Security Settings 39
4.8 Advanced Chipset Settings 40
4.9 Exit Options 43

Chapter 5 Award BIOS Setup 45
5.1 Starting Setup 45
5.2 Using Setup 46
5.3 Main Menu 47
5.4 Standard CMOS Features 48
5.5 Advanced BIOS Features 49
5.6 Advanced Chipset Features 50
5.7 Integrated Peripherals 52
5.8 Power Management Setup 54
5.9 PnP/PCI Configurations 55
5.10 PC Health Status 56
5.11 Frequency/Voltage Control 56

Chapter 6 Software Utilities 57
6.1 VGA Driver Installation 58
6.2 Audio Driver Installation 59
6.3 LAN Driver Installation 63
6.4 USB2.0 Driver Installation 65

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-2615***	
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

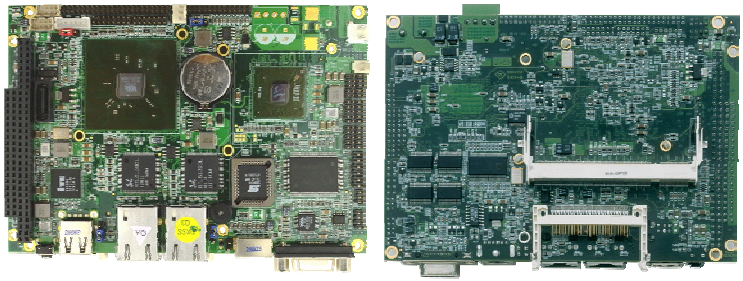
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- 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 HS-2615 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



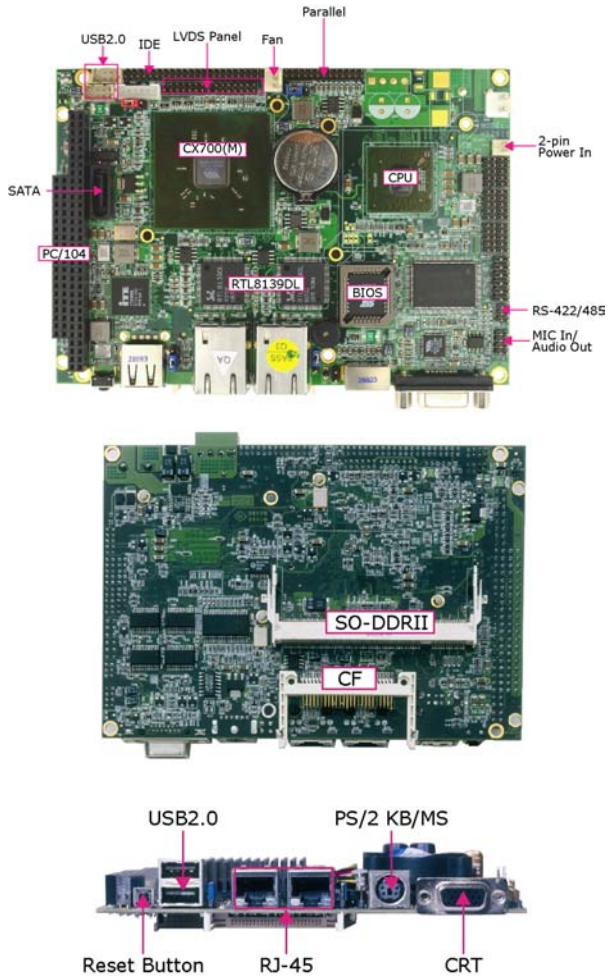
The HS-2615 is a VIA CX700(M) chipset-based board designed. The HS-2615 is an ideal all-in-one embedded engine board. Additional features include an enhanced I/O with CF, 8-bit I/O, CRT/LVDS, TV-Out, dual LAN, audio, SATA, 4 COM, 6 USB2.0, and PC/104 interfaces.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the HS-2615 to support data transfers of 33 or 66MB/sec. to one IDE drive connection. Designed with the VIA CX700(M), the board supports VIA V4 Eden 1GHz CPU.

The VIA CX700(M) with 32/64/128MB shared main memory supports CRT/Panel displays up to 1920 x 1440. It also supports 24-bit single/dual-channel LVDS interface supporting up to 1600 x 1200. System memory is also sufficient with the one SO-DDRII socket that can support up to 1G.

Additional onboard connectors include 6 USB2.0 ports providing faster data transmission. And two RJ-45 connectors for 10/100 Based Ethernet uses. To ensure the reliability in an unmanned or standalone system, the watchdog timer (WDT) onboard HS-2615 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-2615 comes with the following features:

- VIA V4 Eden processor 1GHz, supports 400MHz FSB
- 1 x SO-DIMM up to 1GB DDR2 SDRAM
- VIA CX700(M) system chipset
- VIA CX700(M) integrated VGA for CRT & LVDS
- 2 x 10/100 Mbps ethernet
- AC'97 audio codec
- Supports CF, 1 x SATA, 4 x COM, 6 x USB2.0, PC/104

- Supports 24-bit LVDS, TV-Out, 8-bit I/O, H/W Monitor function, Single +5V or +10~+30V wide range single DC power in
- Option for DVI-I display

1.2 Specifications

- **System**
  - **CPU:**
    VIA V4 Eden processor 1.0GHz
  - **FSB:**
    400MHz FSB
  - **BIOS:**
    Award PnP Flash BIOS
  - **System Chipset:** VIA CX700(M)
  - **I/O Chipset:** Winbond W83697UG
  - **System Memory:**
    1 x 200-pin SO-DIMM socket DDR2 533MHz up to 1GB
  - **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:**
    PC/104
  - **Power In:**
    +10~+30V wide range single DC power in (supports ATX power function) or single +5V power in (PCB ver:0.4 above)
  - **Operating Temperature:**
    0~60 degrees C
  - **Operating Humidity:**
    0~95%, non-condensing
  - **Size (L x W):**
    145 x 102 mm

I/O Interface

- **MIO:**
  3 x RS-232
  1 x RS-232/422/485
  6 x USB2.0 (4 x internal, 2 x external)
  1 x IDE
  1 x Parallel
  1 x SATA
  1 x PS/2 for KB/MS
- **DI/O:**
  8-bit input/output

Display

- **Chipset:**
  VIA CX700(M)
- **Display Memory:**
  32/64/128MB video memory
- **LVDS:**
  24-bit single/dual-channel
- **TV-Out:**
  Provides PAL or NTSC TV systems
- **DVI Chipset:**
  VIA CX700(M) (option)
- **Resolution:**
  CRT Mode: 1920 x 1440
  LVDS Mode: 1600 x 1200

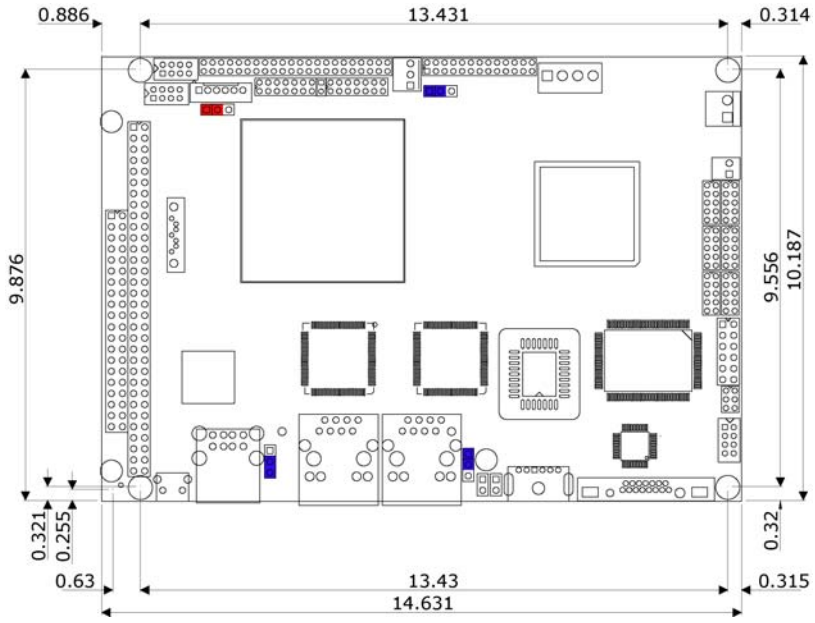
Audio

- **Chipset:**
  VIA VT1708A
- **Audio Interface (w/pin header):**
  MIC In, Line Out

Ethernet

- **Chipset:**
  Dual RealTek RTL8139DL 10/100 Mbps LAN
- **Ethernet Interface:**
  2 x RJ-45

1.3 Board Dimensions



This page is the blank page.

Chapter 2

Unpacking

2.1 Opening the Delivery Package

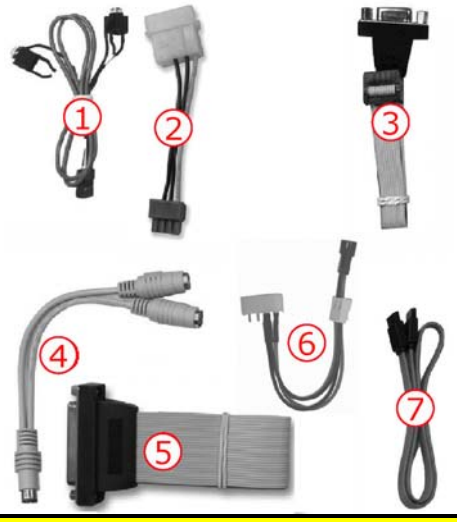
The HS-2615 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

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-2615 delivery package contains the following items:

- **HS-2615 Board x 1**
- **Utility CD Disk x 1 including User's Manual**
- **Cables (as following table)**
- **Jumper Bag x 1**



Cables Package		
NO.	**Description**	**QTY.**
1	SPK 8-pin(2.0-pitch) phone jack x 2	1
2	4-pin to 4-pin terminal block power cable (for +12V version only)	1
3	COM DB9-10P (2.0-pitch)	2
4	1-to-2 Mini DIN cable	1
5	DB25-26P Printer cable	1
6	2-pin to 4-pin power cable (for +5V version only)	1
7	SATA device 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	SATA power cable
2	1-to-2 USB cable with bracket
3	COM DB9-10P (2.0-pitch)
4	40-pin to 44-pin IDE flat cable

Chapter 3

Hardware Installation

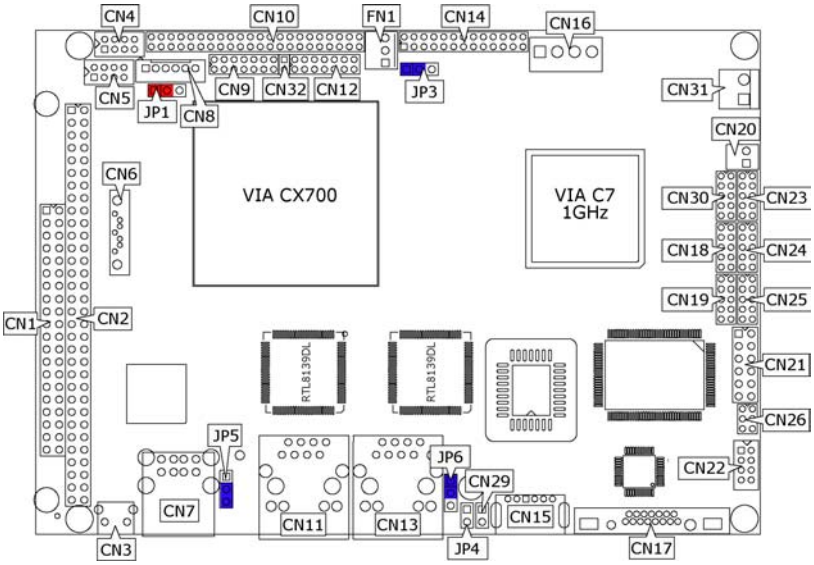
This chapter provides the information on how to install the hardware using the HS-2615. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

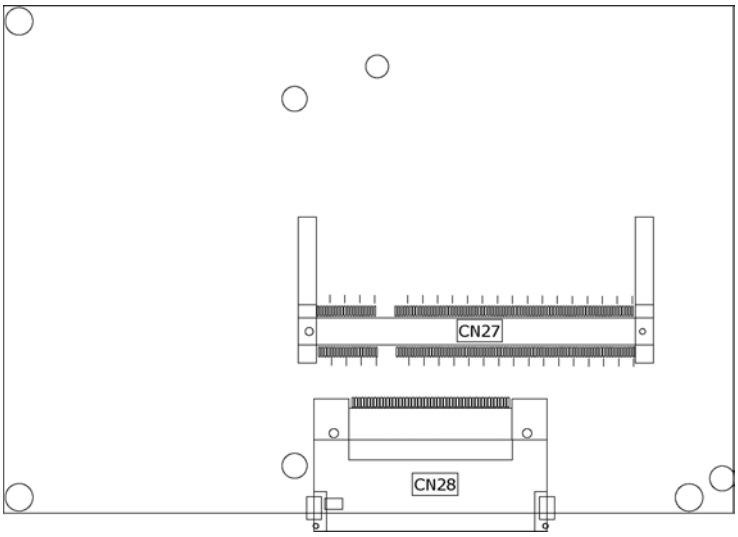
3.1 Before Installation

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. (JP3 short 1-2)
2. Go through the connections of all external devices and make sure that they are installed properly and configured correctly within the CMOS setup. Refer to the sections on this chapter for the detailed information on the connectors.
3. Keep the manual and diskette in good condition for future reference and use.

3.2 Board Layout





3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Panel Voltage Select: *+3.3V*	Short 1-2	10
JP3	Clear CMOS: *Normal Operation*	Short 1-2	16
JP5	CF Use Master/Slave Select: *Slave*	Short 2-3	23
JP6	Display Out Function Select: *CRT*	Short 1-2	20
CN23	COM4 Use RS-232 or RS-422/485 Select: *RS-232*	Open	14

3.4 Connector List

Connector	Definition	Page
CN1/CN2	PC/104 Bus 40-pin/64-pin Connector	20
CN3	Reset Button	16
CN4/CN5/CN7	USB2.0 Port	15
CN6	Serial ATA Connector	12
CN8	Inverter Power In Connector	10
CN9/CN12	LVDS Panel Connector	10
CN10	IDE Connector	12
CN11/CN13	RJ-45 Connector	15
CN14	Parallel Port	13
CN15	PS/2 6-pin Mini DIN	17
CN16	4-pin Power In Connector	16
CN17	15-pin CRT Connector	10
CN24/CN18/CN19/CN25	COM 1~COM 4 Connector (5x2 header)	14
CN20	2-pin ATX Power In Connector	16
CN21	System Front Panel Control	17
CN22	MIC In/Line Out Connector	23
CN26	RS-422/485 Connector	14
CN27	SO-DDRII Socket	10
CN28	CompactFlash Connector	23
CN29	TV-Out Connector	20
CN30	8-bit Input/Output	25
CN31	2-pin Power In Connector	16
CN32	DVI SM Bus	10
FN1	Fan Power In Connector	16

3.5 Configuring the CPU

The HS-2615 embedded with VIA V4 Eden processor 1.0GHz. User don't need to adjust the frequently and check speed of CPU.

3.6 System Memory

The HS-2615 provides one SO-DDRII socket at locations *CN27*. The maximum capacity of the onboard memory is 1GB.

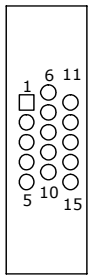
3.7 VGA Controller

The HS-2615 provides two connection methods of a VGA device. *CN17* offers an internal 15-pin CRT connector and *CN9/CN12* are the LVDS interface connectors onboard reserved for flat panel installation.

HS-2615 also provides DVI function. There is an optional cable for this function use (*CN9* + *CN32*).

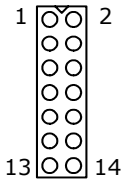
- **CN17: 15-pin CRT Connector**

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	SDC		



- **CN9/CN12: LVDS Interface Connector**

PIN	Description	PIN	Description
1	V_{LCD}	2	V_{LCD}
3	GND	4	GND
5	A0-/B0-	6	A0+/B0+
7	A1-/B1-	8	A1+/B1+
9	A2-/B2-	10	A2+/B2+
11	CLK1-/CLK2-	12	CLK1+/CLK2+
13	A3-/B3-	14	A3+/B3+



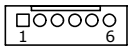
NOTE: *LVDS cable should be produced very carefully. A0- & A0+ have to be fabricated in twister pair (A1- & A1+, A2- & A2+ and so on) otherwise the signal won't be stable. Please set the proper voltage of your panel using JP1 before proceeding on installing it.*

- **CN32: DVI SM Bus**

PIN	Description
1	SPD1
2	SPCLK1

- **CN8: Inverter Power In Connector**

PIN	Description
1	N/C
2	N/C
3	VCC
4	BK_EN
5	ENVDD
6	GND



NOTE: *If use CN9 only, it just supports 24-bit single channel LVDS panel; If you want to use 48-bit dual channel LVDS panel, please use CN9 and CN12 combined.*

The HS-2615 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper *JP1* offers two voltage settings for the user.

- **JP1: Panel Voltage Select**

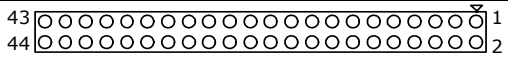
Options	Settings
+3.3V (default)	Short 1-2
+5V	Short 2-3

3.8 IDE Drive Connector

CN10 is a 2.0-pitch 44-pin connector which support 2 ATA/33/66/100 IDE drives can be connected to the HS-2615 via *CN10*.

- **CN10: IDE Connector**

PIN	Description	PIN	Description
1	Reset	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	PDREQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	PIORDY	28	PR1PD1-
29	RPDACK-	30	GND
31	Interrupt	32	N/C
33	RPDA1-	34	PATA66
35	RPDA0-	36	RPDA2-
37	RPCS1-	38	RPCS3-
39	HDD Active	40	GND
41	VCC	42	VCC
43	GND	44	N/C

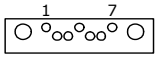


3.9 Serial ATA Connector

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.

- **CN6: Serial ATA Connector**

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

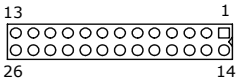


3.10 Parallel Connector

CN14 is a standard 26-pin flat cable connector designed to accommodate onboard parallel port connection.

- **CN14: Parallel Connector**

PIN	Description	PIN	Description
1	Strobe	14	Auto From Feed
2	DATA0	15	ERROR#
3	DATA1	16	Initialize
4	DATA2	17	Printer Select LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	Acknowledge	23	GND
11	Busy	24	GND
12	Paper Empty	25	GND
13	Printer Select	26	GND



3.11 Serial Port Connectors

The HS-2615 offers NS16C550 compatible UARTs with Read/ Receive 16-byte FIFO serial ports and four internal 10-pin headers and one RS-422/485 connector.

- **CN24/CN18/CN19/CN25: COM 1 ~ COM 4 Connector (5x2 Header)**

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

- **CN26: RS-422/485 Connector (3x2 Header, COM 4)**

PIN	Description	PIN	Description
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	N/C

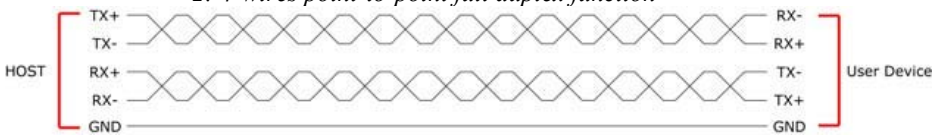
NOTE: *The terminal resistance of RX & TX is set at 180Ω.*

- **CN23: COM 4 use RS-232 or RS-422/485 Select**

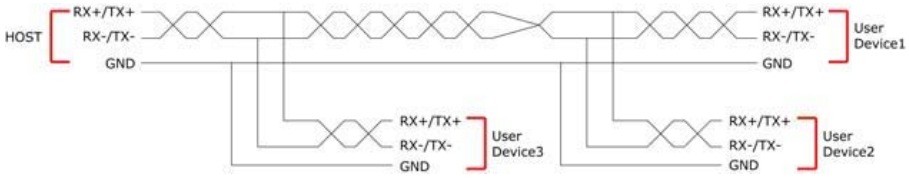
Options	Settings
RS-232 (default)	Open
RS-485 by Transmit Only (*1)	Short 1-2, 3-4, 5-7, 8-10
RS-485 by –RTS (*-1)	Short 1-2, 3-4, 7-9, 8-10
RS-422/485 Full Duplex (*2)	Short 1-2, 3-4, 6-8

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

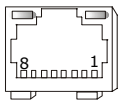
3.12 Ethernet Connector

The HS-2615 provides two RJ-45 connectors for 10/100 Based LAN. Please refer to the following for its pin information.

When installs OS, this driver namely can automatically install. User does not need to renewal.

- **CN11/CN13: RJ-45 Connector**

PIN	Description	PIN	Description
1	TCT	10	TX+
2	TX-	11	RX+
3	RX-	12	N/C
4	N/C	13	N/C
5	N/C	14	RCT
6	Link LED	15	330Ω pull VCC3
7	ACT LED	16	330Ω pull VCC3
8	SHIELD	17	SHIELD
9	SHIELD	18	SHIELD

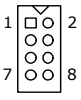


3.13 USB Port

The HS-2615 provides three connectors, at location *CN4/CN5/CN7*, for six USB2.0 ports.

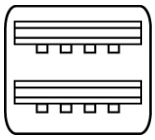
- **CN4/CN5: Internal USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBD0-/USBD2-	4	USBD1-/USBD3-
5	USBD0+/USBD2+	6	USBD1+/USBD3+
7	GND	8	GND



- **CN7: External USB2.0 Port**

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



3.14 CMOS Data Clear

The HS-2615 has a Clear CMOS jumper on *JP3.*

- **JP3: Clear CMOS**

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

IMPORTANT: *Before turn on the power of system, please set JP3 to Short 1-2 for normal operation.*

3.15 Power and Fan Connectors

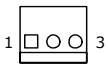
HS-2615 provides one 4-pin power in at *CN16.* Connector *FN1* onboard HS-2615 is a 3-pin fan power connector.

- **CN20: 2-pin ATX Power In Connector**

PIN	Description
1	PS_ON
2	5VSB

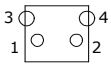
- **FN1: Fan Power In Connector**

PIN	Description
1	GND
2	VCC
3	Fan In



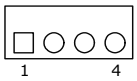
- **CN3: External Reset Button**

PIN	Description
1	GND
2	Reset Switch
3	GND
4	GND



- **CN16: 4-pin Power In Connector**

PIN	Description
1	DC In
2	GND
3	GND
4	DC In



- **CN31: 2-pin Power In Connector**

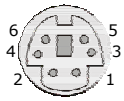
PIN	Description
1	VCC
2	GND

3.16 Keyboard/Mouse Connectors

The *CN15* is a PS/2 6-pin Mini DIN connector for HS-2615.

- **CN15: 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



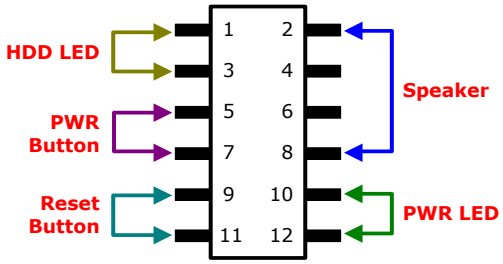
3.17 System Front Panel Control

The HS-2615 has front panel control at location *CN21* that indicates the power-on status.

- **CN21: System Front Panel Control**

PIN	Description	PIN	Description
1	330Ω pull VCC	2	Speaker
3	HDD LED	4	N/C
5	PWR Button	6	GND
7	GND	8	330Ω pull VCC
9	Reset Switch	10	330Ω pull 3.3V
11	GND	12	GND

Connector CN21 Orientation



3.18 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.

W83697UF Watch Dog Timer

1. Assembly sample code:

Extended function mode

MOV DX,4EH
MOV AL,87H
OUT DX,AL
OUT DX,AL

Configure logical device 8

MOV DX,4EH
MOV AL,07H
OUT DX,AL
MOV DX,4FH
MOV AL,08H
OUT DX,AL

```
MOV DX,4EH ; Define WDT
MOV AL,2BH
OUT DX,AL
MOV DX,4FH
MOV AL,00H
OUT DX,AL
MOV DX,4EH
MOV AL,30H ; Enable WDT
OUT DX,AL
MOV DX,4FH
MOV AL,01H
OUT DX,AL
-------------------------------------
Configure time mode
-------------------------------------
MOV DX,4EH
MOV AL,F3H
OUT DX,AL
MOV DX,4FH
MOV AL,00H ; Setup second mode, 08H for minute mode
OUT DX,AL
-------------------------------------
Configure reset time interval
-------------------------------------
MOV DX,4EH
MOV AL,F4H
OUT DX,AL
MOV DX,4FH
MOV AL,05H ; Setup reset time 5, User can setup from 1~255
OUT DX,AL
```

2. DOS Debug Command

---

o 4e,87
o 4e,87
o 4e,07
o 4f,08
o 4e,30
o 4f,01
o 4e,f3
o 4f,00
o 4e,f4
o 4f,05

3.19 TV-Out Function

The HS-2615 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).

- **CN29: TV-Out Connector**

PIN	Description
1	CVBS
2	GND

- **JP6: Display Out Function Select**

Options	Settings
TV-Out	Short 2-3
CRT (default)	Short 1-2

3.20 PC/104 Connectors

The PC/104 expansion bus offers provisions to connect all types of PC/104 modules. With the PC/104 bus being known as the new generation of industrial embedded 16-bit PC standard bus, thousands of PC/104 modules from multiple venders can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors *CN2* and *CN1* are listed on the following tables:

NOTE1: *The PC/104 connector allows direct plugging or stack-through piling of PC/104 modules without requiring the PC/104 mounting kit.*

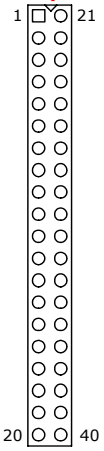
NOTE2: *PC/104 Bus connector only for 16-bit ISA Bus, DO NOT support DMA mode.*

NOTE3: *There is a special fanless heatsink for HS-2615 to integrate the PC/104 module, need more information, please contact with your sales.*

- **CN1: PC/104 40-pin Connector**

PIN	Description	PIN	Description
1	GND	21	GND
2	-MEMCS16	22	-SBHE
3	-IOSC16	23	SA23
4	IRQ10	24	SA22
5	IRQ11	25	SA21
6	IRQ12	26	SA20
7	IRQ15	27	SA19
8	IRQ14	28	SA18
9	-DACK0	29	SA17
10	DRQ0	30	-MEMR
11	-DACK5	31	-MEMW
12	DRQ5	32	SD8
13	-DACK6	33	SD9
14	DRQ6	34	SD10
15	-DACK7	35	SD11
16	DRQ7	36	SD12
17	+5V	37	SD13
18	-MASTER	38	SD14
19	GND	39	SD15
20	GND	40	N/C

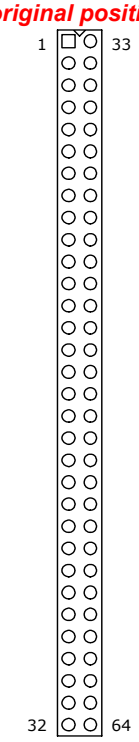
Connector diagram rotated 90 degrees clockwise from original position



- **CN2: PC/104 64-pin Connector**

PIN	Description	PIN	Description
1	-IOCHECK	33	GND
2	SD7	34	RESETDRV
3	SD6	35	+5V
4	SD5	36	IRQ9
5	SD4	37	N/C
6	SD3	38	DRQ2
7	SD2	39	-12V
8	SD1	40	N/C
9	SD0	41	+12V
10	IOCHRDY	42	GND
11	AEN	43	-SMEMW
12	SA19	44	-SMEMR
13	SA18	45	-IOW
14	SA17	46	-IOR
15	SA16	47	-DACK3
16	SA15	48	DRQ3
17	SA14	49	-DACK1
18	SA13	50	DRQ1
19	SA12	51	-REFRESH
20	SA11	52	SYSCLK
21	SA10	53	IRQ7
22	SA9	54	IRQ6
23	SA8	55	IRQ5
24	SA7	56	IRQ4
25	SA6	57	IRQ3
26	SA5	58	-DACK2
27	SA4	59	TC
28	SA3	60	BALE
29	SA2	61	+5V
30	SA1	62	OSC
31	SA0	63	N/C
32	GND	64	GND

Connector diagram rotated 90 degrees clockwise from original position



3.21 Audio Connectors

The HS-2615 has an onboard VIA VT1708A High Definition Audio CODEC. The following tables list the pin assignments of the Line In/Audio Out connector.

- 4 stereo DACs support 24-bit, 192KHz samples
- DAC with 100dB S/N Ratio
- 2 stereo ADCs support 24-bit, 192KHz samples
- ADC with 95dB S/N ratio
- 8-channels of DAC support 16/20/24-bit PCM format for 7.1 audio solution

- **CN22: MIC In/Line Out Connector**

PIN	Description	PIN	Description
1	AOUTL	2	AOUTR
3	GND	4	GND
5	MIC IN L	6	LINE R
7	GND	8	LINE L

3.22 CompactFlash™ Connector

The HS-2615 also offers a Type I/II CompactFlash™ connector is IDE interface located at the solder side of the board. The designated *CN28* connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card.

Inserting a CompactFlash™ card into the adapter is not a difficult task. The socket and card are both keyed and there is only one direction for the card to be completely inserted. Refer to the diagram on the following page for the traditional way of inserting the card.

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

Options	Setting
Master	Short 1-2
Slave (default)	Short 2-3

- **CN28: CompactFlash™ Connector**

PIN	Description	PIN	Description
1	GND	2	DATA3
3	DATA4	4	DATA5
5	DATA6	6	DATA7
7	SDCS1#	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	SDA2
19	SDA1	20	SDA0
21	DATA0	22	DATA1
23	DATA2	24	470Ω pull GND
25	N/C	26	N/C
27	DATA11	28	DATA12
29	DATA13	30	DATA14
31	DATA15	32	SDCS3#
33	N/C	34	UOR
35	IOW	36	EWE0
37	IRQ	38	VCC
39	CS	40	N/C
41	RESET	42	IORDY
43	DACK	44	REQ
45	IDE LED	46	PDIAG
47	DATA8	48	DATA9
49	DATA10	50	GND

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

3.23 8-bit I/O Function

The HS-2615 offers one 8-bit input/output port by parallel port.

- **CN30: 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

W83697

Digital I/O Assembly sample code

```
-----------------------------------
Extended function mode
-----------------------------------
MOV DX,4EH
MOV AL,87H
OUT DX,AL
OUT DX,AL
-----------------------------------
Configure logical device 7
-----------------------------------
MOV DX,4EH
MOV AL,07H
OUT DX,AL
MOV DX,4FH
MOV AL,07H
OUT DX,AL
MOV DX,4EH
MOV AL,30H    ; Enable GPIO1
OUT DX,AL
MOV DX,4FH
MOV AL,01H
```

```
OUT DX,AL
--------------------------------------
Configure input / output
--------------------------------------
MOV DX,4EH
MOV AL,F0H
OUT DX,AL
MOV DX,4FH
MOV AL,FEH   ; Setup GPIO bit0 as output, 0: output 1: input
OUT DX,AL
```

This page is the blank page.

Chapter 4

AMI BIOS Setup

The HS-2615 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

AMI BIOS

Version : 08.00.14
Build Date : 10/18/07
ID : HS261500

Processor

Type : VIA Esther processor 1000MHz
Speed : 1000MHz
Count : 1

System Memory

Size : 448MB

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

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

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
- ► ACPI Configuration
- ► APM Configuration
- ► Hardware Health Configuration
- ► MPS Configuration
- ► PCI Express Configuration
- ► Smbios Configuration
- ► USB 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

Configure advanced CPU settings

Module Version:3F.01

Manufacturer	: VIA	
VIA Esther processor 1000MHz		
Frequency	: 1.00GHz	
FSB Speed	: 400MHz	
Cache L1	: 128 KB	
Cache L2	: 128 KB	
Ratio Actual Value	: 10	
CMPXCHG8B instruction support		[Enabled]
VIA Processor Power Management		[Enabled]

←	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

IDE Configuration

Parallel ATA IDE device		
► Primary IDE Master	:	[Not Detected]
► Primary IDE Slave	:	[Not Detected]
► Secondary IDE Master	:	[Not Detected]
► Secondary IDE Slave	:	[Not Detected]
Parallel ATA IDE Controller		[Both]
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

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

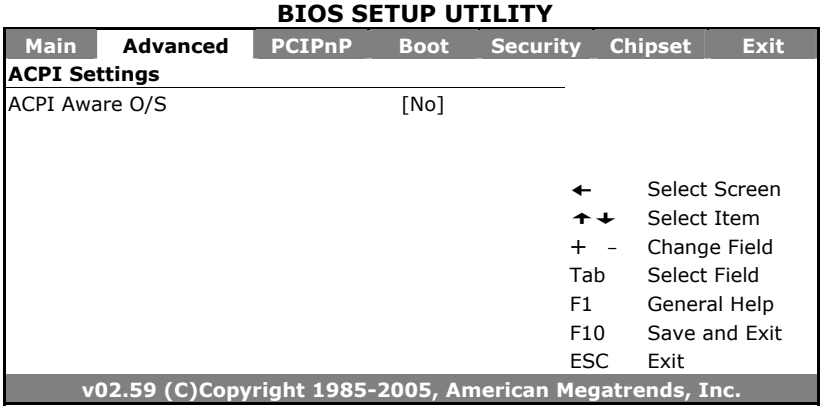
Configure WIN697UF Super IO Chipset

OnBoard Floppy Controller	[Disabled]
Floppy Drive Swap	[Disabled]
Serial Port1 Address	[3F8/IRQ4]
Serial Port2 Address	[2F8/IRQ3]
Serial Port3 Address	[3E8]
Serial Port3 IRQ Select	[IRQ11]
Serial Port4 Address	[2E8]
Serial Port4 IRQ Select	[IRQ10]
Parallel Port Address	[378]
Parallel Port Mode	[Normal]
Parallel Port IRQ	[IRQ7]

←	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



BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Power Management/APM	[Enabled]		
Power Button Mode	[On/Off]		
Suspend Power Saving Type	[C3]		
Restore on AC/Power Loss	[Last State]		
Manual Throttle Ratio	[50%-56.25%]		
System Thermal	[Disabled]		
Thermal Active Temperature	[65°C/149°F]		
THRM throttle Ratio	[50%-56.25%]		
Standby Time Out	[Disabled]		
Suspend Time Out	[Disabled]		
Hard Disk Time Out (Minute)	[Disabled]		
Green PC Monitor Power State	[Suspend]		
Video Power Down Mode	[Suspend]		
Hard Disk Power Down Mode	[Suspend]		
Advanced Monitor Events Controls			
Display Activity	[Ignore]		
Monitor IRQ3	[Monitor]		
Monitor IRQ4	[Ignore]		
Monitor IRQ5	[Ignore]		
Monitor IRQ7	[Ignore]		
Monitor IRQ9	[Ignore]		
Monitor IRQ10	[Ignore]		
Monitor IRQ11	[Ignore]		
Monitor IRQ13	[Ignore]		
Monitor IRQ14	[Monitor]		
Monitor IRQ15	[Ignore]		
Advanced Resume Events Controls		←	Select Screen
Resume On Ring	[Disabled]	↑ ↓	Select Item
Resume On PME#	[Disabled]	+ -	Change Field
Resume On KBC	[Disabled]	Tab	Select Field
Wake-Up Key	[Any Key]	F1	General Help
Resume On PS/2 Mouse	[Disabled]	F10	Save and Exit
Resume On RTC Alarm	[Disabled]	ESC	Exit

BIOS SETUP UTILITY

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

H/W Health Function	[Enabled]		
CPU Temperature	:		
System Temperature	:		
Fan 1 Reading	:		
	:		
Vcore(VIN1)	:		
+3.3V(VIN2)	:	←	Select Screen
VBAT(VIN3)	:	↑↓	Select Item
VCC	:	+ -	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

USB Configuration

Module Version – 2.24.0-11.4			
USB Devices Enabled:			
None			
USB 1.1 Ports Configuration	[USB 6 Ports]		
USB 2.0 Ports Enable	[Enabled]		
Legacy USB Support	[Enabled]	←	Select Screen
Port 64/60 Emulation	[Disabled]	↑↓	Select Item
USB 2.0 Controller Mode	[HiSpeed]	+ -	Change Field
BIOS EHCI Hand-Off	[Enabled]	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

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

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.6 Boot Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Boot Settings

► Boot Settings 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

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

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

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
			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

Advanced Chipset Settings

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

► NorthBridge VIA CX700 Configuration
► SouthBridge VIA CX700 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

NorthBridge VIA CX700 Configuration

► DRAM Clock/Timing Configuration
► AGP & P2P Bridge Configuration
► V-Link & PCI Bus Configuration
► OnChip VGA Configuration

Top Performance	[Disabled]
Software Reset E2 issue	[Escape Patch]
Change DCLK using RDCKM	[Program]

←	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

DRAM Frequency/Timing Configuration

DRAM Frequency	[Auto]	
DRAM Timing	[Auto]	
DRAM Command Rate	[2T Command]	
RDSAIT/RDSBIT mode	[Auto]	
Memory Chip Driving	[Normal]	
DDR2 Memory Chip ODT	[Auto]	
DDR DQSBAR	[Disabled]	
BA0 SEL	[A13]	
BA1 SEL	[A14]	
BA2 SEL	[A15]	
BA Scramble	[Disabled]	← Select Screen
DQSO scanning mode	[Disabled]	↑↓ 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

AGP & P2P Bridge Configuration

Primary Graphics Adapter	[PCI]	
AGP Aperture Size	[128MB]	
AGP 3.0 Mode	[8X]	
AGP Driving Control	[Auto]	
AGP Fast Write	[Enabled]	
AGP Master 1 WS Read	[Disabled]	
AGP Master 1 WS Write	[Disabled]	
AGP 3.0 Calibration cycle	[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.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

V-Link & PCI Bus Configuration

PCI Master 0 WS Write	[Enabled]		
V-Link mode selection	[Auto]		
V-Link 8X Supported	[Enabled]		
V-Link Data 2X Support	[Disabled]		
DRDY Timing	[Default]		
RCONV	[Enabled]	←	Select Screen
Dynamic CKE select	[Auto]	↑↓	Select Item
Dynamic Clock Stop Control	[FB]	+ –	Change Field
PCI Read Caching Select	[EE]	Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

OnChip VGA Configuration

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

VGA Frame Buffer Size	[64MB]		
CPU Direct Access Frame Buffer	[Enabled]		
Select Display Device	[CRT]		
Panel Type	[01]	←	Select Screen
Outport port	[DI0]	↑↓	Select Item
Dithering	[Disabled]	+ –	Change Field
TV H/W Layout	[Default]	Tab	Select Field
TV Type	[NTSC]	F1	General Help
TV Output Connector	[CVBS (Composite)]	F10	Save and Exit
		ESC	Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

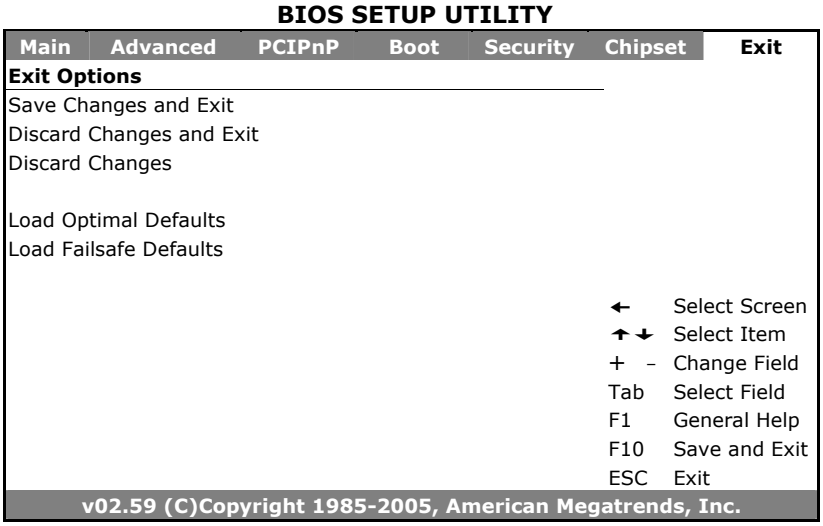
SouthBridge VIA CX700 Configuration

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

* Serial ATA IDE Controller	[IDE]		
* High Definition Audio	[Auto]		
		←	Select Screen
		↑↓	Select Item
PCI Delay Transaction	[Disabled]	+ –	Change Field
		Tab	Select Field
		F1	General Help
		F10	Save and Exit
		ESC	Exit

v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

4.9 Exit Options



This page is the blank page.

Chapter 5

AWARD BIOS Setup

The HS-7280 uses AWARD BIOS for the system configuration. The AWARD BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

5.1 Starting Setup

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

While the BIOS is in control, the Setup program can be activated 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 you want to change BIOS setting anytime, the system must re-start and follow the action as above.

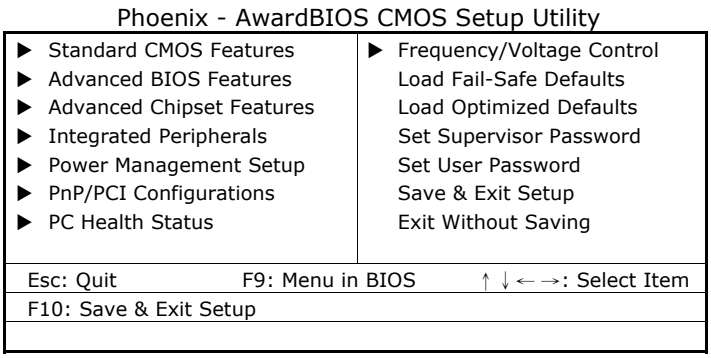
5.2 Using Setup

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	General Help
F5 key	Load Previous Values
F6 key	Load Fail-Safe Defaults
F7 key	Load Optimized Defaults
F10 key	Save all the CMOS changes, only for Main Menu

5.3 Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to enter the sub-menu.



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

5.4 Standard CMOS Features

The standard CMOS is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the IDE hard disk drive you are using is larger than 528MB, you must set the HDD mode to LBA mode. Please use the IDE setup utility in BIOS setup to install the HDD correctly.

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

	Date (mm:dd:yy)	Thu, Jun 26 2008	Item Help
	Time (hh:mm:ss)	10 : 32 : 57	
▶	IDE Channel 0 Master	[None]	
▶	IDE Channel 0 Slave	[None]	
▶	IDE Channel 1 Master	[None]	
▶	IDE Channel 1 Slave	[None]	
	Video	[EGA/VGA]	
	Halt On	[All, But Keyboard]	
	Base Memory	640K	
	Extended Memory	252928K	
	Total Memory	253952K	

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

5.5 Advanced BIOS Features

This section allows you to configure your system for the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced CMOS Features

▶	CPU Feature	[Press Enter]	Item Help
▶	Hard Disk Boot Priority	[Press Enter]	
	Virus Warning	[Disabled]	
	CPU L1 & L2 Cache	[Enabled]	
	CPU L2 Cache ECC Checking	[Enabled]	
	Quick Power On Self Test	[Enabled]	
	First Boot Device	[Hard Disk]	
	Second Boot Device	[CDROM]	
	Third Boot Device	[LS120]	
	Boot Other Device	[Enabled]	
	Boot Up NumLock Status	[On]	
	Typematic Rate Setting	[Disabled]	
X	Typematic Rate (Chars/Sec)	6	
X	Typematic Delay (Msec)	250	
	Security Option	[Setup]	
	MPS Version Control For OS	[1.4]	
	OS Select For DRAM > 64MB	[Non-OS2]	
	Video BIOS Shadow	[Enabled]	
	Full Screen LOGO Show	[Disabled]	
	Small Logo(EPA) Show	[Disabled]	

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

5.6 Advanced Chipset Features

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

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

▶	DRAM Clock/Drive Control	[Press Enter]	Item Help
▶	AGP & P2P Bridge Control	[Press Enter]	
▶	CPU & PCI Bus Control	[Press Enter]	
	Memory Hole	[Disabled]	
	System BIOS Cacheable	[Enabled]	
	Video RAM Cacheable	[Disabled]	
	Init Display First	[PCI Slot]	

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

Phoenix - AwardBIOS CMOS Setup Utility
DRAM Clock/Drive Control

	Current FSB Frequency	100MHz	Item Help
	Current DRAM Frequency	200MHz	
	DRAM Timing	[Auto By SPD]	
X	SDRAM CAS Latency [DDR/DDR	2.5/4	
X	Bank Interleave	Disabled	
X	Precharge to Active(Trp)	4T	
X	Active to Precharge(Tras)	07T	
X	Active to CMD(Trcd)	4T	
X	REF to ACT/REF(Trfc)	25T	
X	ACT(0) to ACT(1) (TRRD)	3T	
	Read to Precharge (Trtp)	[2T]	
	Write to Read CMD (Twtr)	[1T/2T]	
	Write Recovery Time (Twr)	[4T]	
	DRAM Command Rate	[2T Command]	
	RDSAIT mode	[Auto]	
X	RDSAIT selection	03	

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

Phoenix - AwardBIOS CMOS Setup Utility
AGP & P2P Bridge Control

AGP Aperture Size	[128M]	Item Help
AGP3.0 Mode	[8X]	
AGP Driving Control	[Auto]	
AGP Driving Value	DA	
AGP Fast Write	[Disabled]	
AGP Master 1 WS Write	[Enabled]	
AGP Master 1 WS Read	[Enabled]	
AGP 3.0 Calibration cycle	[Enabled]	
VGA Share Memory Size	[64M]	
Direct Frame Buffer	[Enabled]	
Select Display Device	[CRT]	
Panel Type	[00]	
Outport Port	[DIO]	
Dithering	[Disabled]	
TV_Layout	[Default]	
TV_type	[NTSC]	
TV_Connector	[CVBS]	

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

Phoenix - AwardBIOS CMOS Setup Utility
CPU & PCI Bus Control

PCI Master 0 WS Write	[Enabled]	Item Help
PCI Delay Transaction	[Enabled]	
DRDY_Timing	[Optimize]	

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

5.7 Integrated Peripherals

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship that is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers – a primary and a secondary – so you can install up to four separate hard disks.

PIO means Programmed Input/Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. This is much simpler and more efficient (also faster).

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶	VIA OnChip IDE Device	[Press Enter]	Item Help
▶	VIA OnChip PCI Device	[Press Enter]	
▶	SuperIO Device	[Press Enter]	
	KBC input clock	[8 MHz]	
	Onboard Serial Port 3	[3E8]	
	Onboard Serial Port 4	[2E8]	
	Serial Port 3 Use IRQ	[IRQ11]	
	Serial Port 4 Use IRQ	[IRQ10]	
▶	USB Device Setting	[Press Enter]	

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

Phoenix - AwardBIOS CMOS Setup Utility
VIA OnChip IDE Device

SATA Controller	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	
On-Chip IDE Channel1	[Enabled]	
IDE Prefetch Mode	[Enabled]	
Secondary Master PIO	[Auto]	
Secondary Slave PIO	[Auto]	
Secondary Master UDMA	[Auto]	
Secondary Slave UDMA	[Auto]	
IDE HDD Block Mode	[Enabled]	

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

Phoenix - AwardBIOS CMOS Setup Utility
VIA OnChip PCI Device

	Azaliz HDA Controller	[Auto]	Item Help
↑ ↓ ← →: Select Item	+/-/PU/PD: Value	F10: Save	Esc: Quit F1: General Help
F5: Previous Values	F6: Fail-Safe Defaults		F7: Optimized Defaults

Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device

	Onboard Serial Port 1	[3F8/IRQ4]	Item Help
	Onboard Serial Port 2	[2F8/IRQ3]	
	UART Mode Select	[Normal]	
X	RxD, TxD Active	Hi, Lo	
X	IR Transmission Delay	Enabled	
X	UR2 Duplex Mode	Half	
X	Use IR Pins	IR-Rx2Tx2	
	Onboard Parallel Port	[378/IRQ7]	
	Parallel Port Mode	[SPP]	
X	EPP Mode Select	EPP1.7	
X	ECP Mode Use DMA	3	
↑ ↓ ← →: Select Item	+/-/PU/PD: Value	F10: Save	Esc: Quit F1: General Help
F5: Previous Values	F6: Fail-Safe Defaults		F7: Optimized Defaults

Phoenix - AwardBIOS CMOS Setup Utility
USB Device Setting

	USB 1.0 Controller	[Enabled]	Item Help
	USB 2.0 Controller	[Enabled]	
	USB Operation Mode	[High Speed]	
	USB Keyboard Function	[Enabled]	
	USB Mouse Function	[Enabled]	
	USB Storage Function	[Enabled]	
	*** USB Mass Storage Device Boot Setting ***		
↑ ↓ ← →: Select Item	+/-/PU/PD: Value	F10: Save	Esc: Quit F1: General Help
F5: Previous Values	F6: Fail-Safe Defaults		F7: Optimized Defaults

5.8 Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

	ACPI function	[Disabled]	Item Help
	ACPI Suspend Type	[S1&S3]	
	Power Management Option	[User Define]	
	HDD Power Down	[Disable]	
	Suspend Mode	[Disable]	
	Video Off Option	[[Suspend => Off]	
	Video Off Method	[V/H SYNC+Blank]	
	MODEM Use IRQ	[3]	
	Soft-Off by PWRBTN	[[Instant-Off]	
	Run VGABIOS if S3 Resume	[Auto]	
	Ac Loss Auto Restart	[Off]	
▶	Wakeup Event Detect	[Press Enter]	

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

5.9 PnP/PCI Configurations

This section describes the configuration of the PCI bus system. Peripheral Components Interconnect (PCI), is a system that allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

	PNP OS Installed	[No]	Item Help
	Reset Configuration Data	[Disabled]	
	Resources Controlled By	[Auto(ESCD)]	
X	IRQ Resources	Press Enter	
	PCI/VGA Palette Snoop	[Disabled]	
	Assign IRQ For VGA	[Enabled]	
	Assign IRQ For USB	[Enabled]	
	** PCI Express relative items **		
	Maximun ASPM supported	[L0s&L1]	
	Maximum Payload Size	[4096]	

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

5.10 PC Health Status

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

Current CPU Temperature	Item Help
Current System Temp.	
Current CPUFAN1 Speed	
Vcore	
+3.3V	
+5V	
VBAT(V)	
↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help	
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

5.11 Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	[10 X]	Item Help
Auto Detect PCI Clk	[Enabled]	
Spread Spectrum	[Disabled]	
CPU Clock	[100MHz]	
↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help		
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Chapter 6

Software Utilities

This chapter contains the detailed information about installation procedures of chipset, VGA, LAN, audio and other drivers. The utility CD disk that comes with the package contains an auto-run program that invokes the installation programs for the chipset, VGA, LAN and audio drivers. The following sections describe the installation procedures of each driver based on WinXP operating systems. Other operation system may be slightly different.

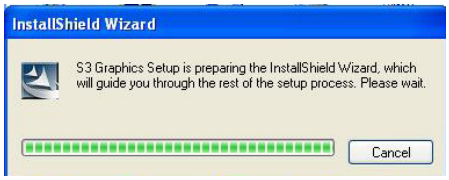
NOTE: *When O.S. is WIN2K, please make sure you have already installed Service Pack 4.*

If O.S. is WINXP, please make sure you have already installed Service Pack 2.

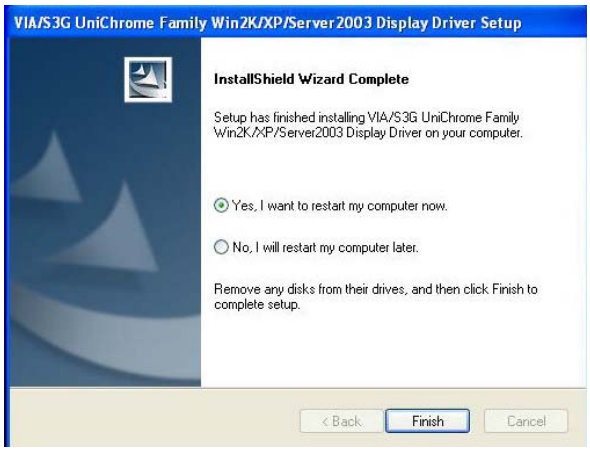
6.1 VGA Driver Installation

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

2. When the display below appears on your screen, setup is ready to install and copy the related files onto your hard drive.



3. After the installation finishes, you will be prompted to restart your system. We recommend you to reboot your computer to allow the new settings to take effect. Click on the **Finish** button to reboot.

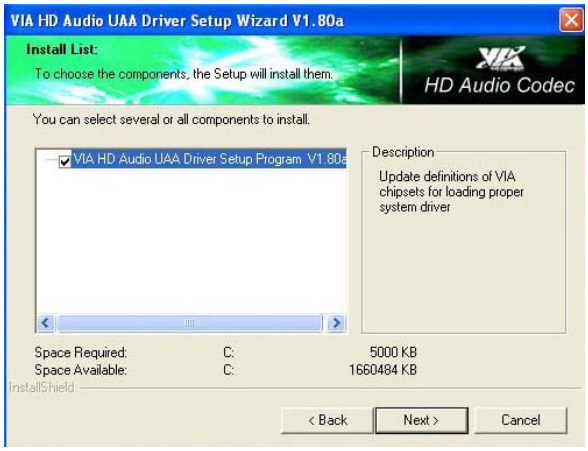


6.2 Audio Driver Installation

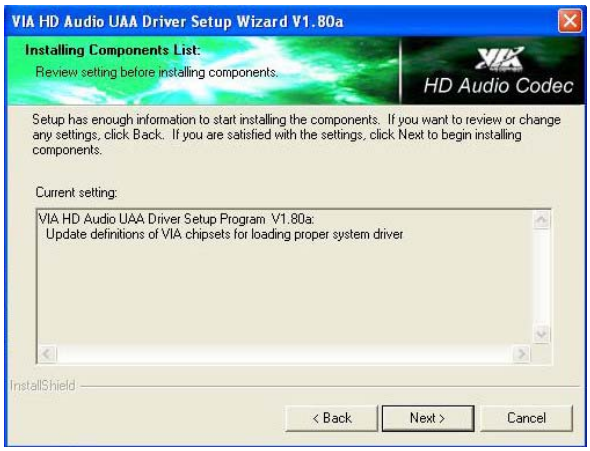
1. Insert the CD that comes with the board into the CD-ROM drive. Click **Audio** to install VIA audio driver.

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

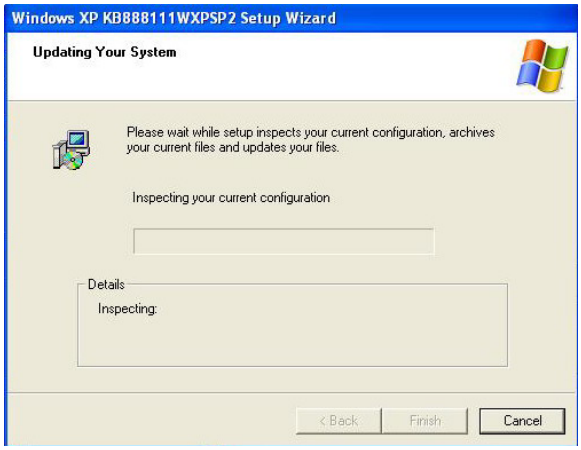
3. Setup Wizard will display the install list. Select on **VIA HD…… V1.80a**, and then click on **Next>** to continue.



4. Make sure the Current Setting is ok, and then click on Next> button.



5. After the audio driver installation finishes, select the **Finish** button to complete the installation process.



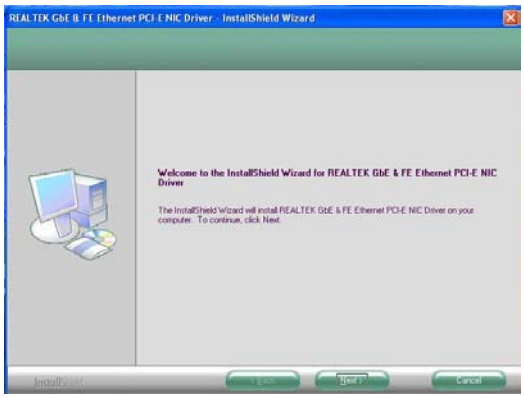
6. When the display below appears on your screen, tick on Yes, this time only, and then click on Next> to continue.

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

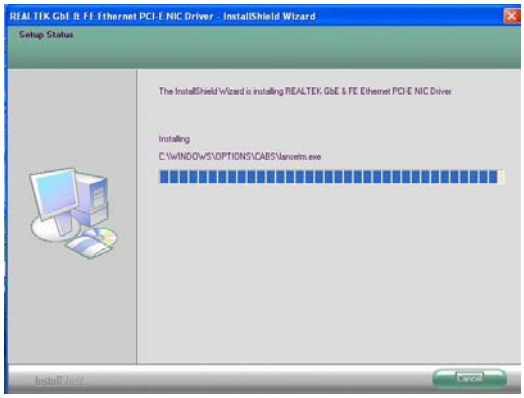
6.3 LAN Driver Installation

1. Insert the CD that comes with the board into the CD-ROM drive. Click **LAN** to install RTL8139 LAN driver.

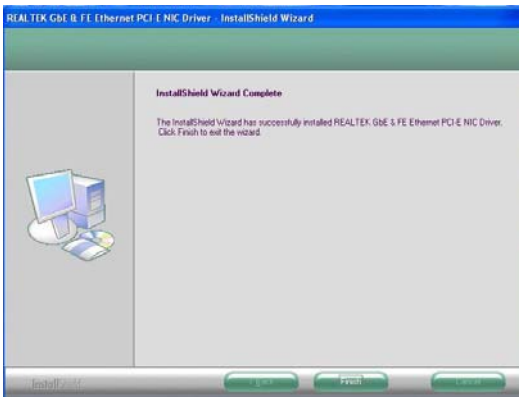
2. When the dialog box below appears, make sure you close all other Windows applications and click **"Next>"** to proceed.



3. The *Setup Status* dialog box then appears on the screen.



4. When setup is finished, please reboot your computer to take the effect.

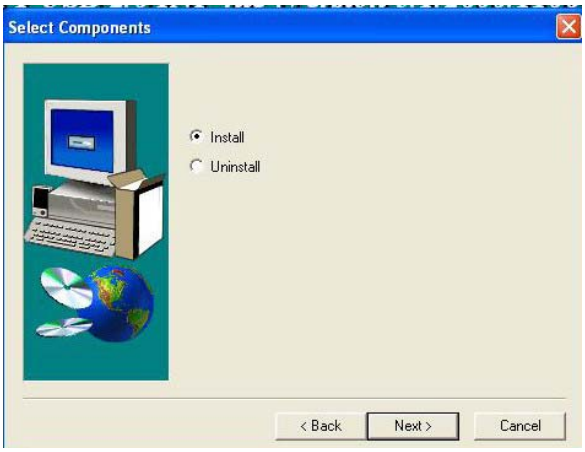


6.4 USB2.0 Driver Installation

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

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

3. The **Select Components** dialog box is now displayed. Select on Install and then click on **Next>**.



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