# HS-4610

**VIA V4 Eden processor**
**Embedded Engine Board**

**• CompactFlash • DDRII • PCI Slot •**
**• CRT/LVDS • TV-Out • Dual GB LAN •**
**• Audio • Serial ATA • ATA/33/66/100 •**
**• RS-232/422/485 • 4 COM • 6 USB2.0 •**
**• PC/104 • WDT • H/W Monitor •**

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***Edition 1.4, May 19, 2009***

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# Declaration of Conformity -- CE Mark

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

| | | |
|---|---|---|
| **Equipment Class:** | *Information Technology Equipment* | |
| **Product Model Series:** | ***HS-4610*** | |
| **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

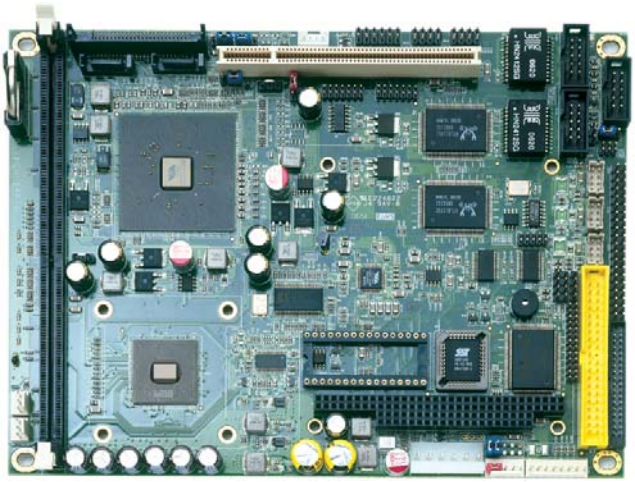
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- 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-4610 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-4610 is a VIA CX700(M) chipset-based board designed. The HS-4610 is an ideal all-in-one embedded engine board. Additional features include an enhanced I/O with CF, CRT/LVDS, TV-Out, dual GB LAN, audio, SATA, 4 COM, USB2.0, and PC/104 interfaces.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the HS-4610 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.

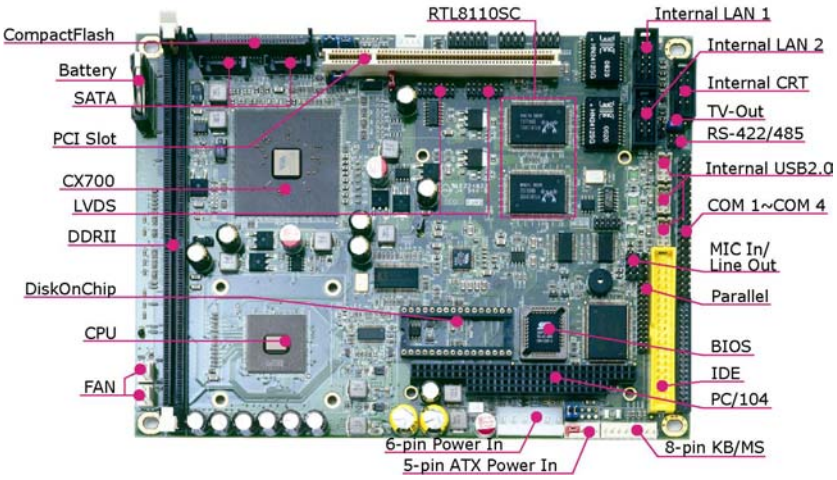
The VIA CX700(M) with 32/64/128MB shared main memory supporting CRT/Panel displays up to 1920 x 1440. It also supports 24-bit single channel/48-bit dual channel LVDS interface supporting up to 1600 x 1200.

System memory is also sufficient with the one DDRII socket that can support up to 1G.

Additional onboard connectors include an advanced USB2.0 port providing faster data transmission. And two internal 10-pin connectors for 10/100/1000 Based Ethernet uses.

To ensure the reliability in an unmanned or standalone system, the watchdog timer (WDT) onboard HS-4610 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



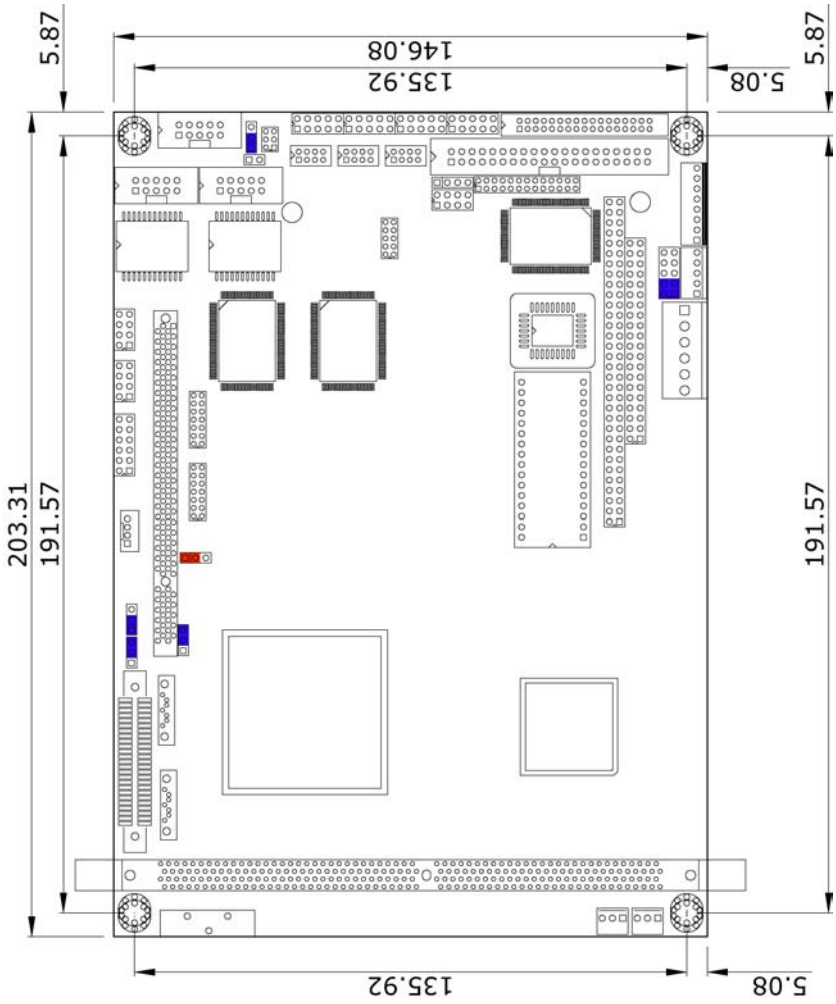

The HS-4610 comes with the following features:

- VIA V4 Eden processor 1GHz
- One DDRII socket with a max. capacity of 1GB
- VIA CX700(M) system chipset
- Winbond W83697UF super I/O chipset
- VIA CX700(M) graphics controller
- 24-bit/48-bit LVDS Panel display interface
- Dual RealTek RTL8110SC Gigabit Ethernet controller
- VIA VT1708A HD audio controller
- VIA CX700(M) Serial ATA controller
- Fast PCI ATA/33/66/100 IDE controller
- CF card adapter, 4 COM, 6 USB2.0, PC/104
- DOC socket supporting memory sizes of up to 288MB
- TV-Out function
- Hardware Monitor function

## 1.2 Specifications

- **CPU:** VIA V4 Eden processor 1.0GHz
- **Front Side Bus:** Supports 400MHz FSB
- **Memory:** One DDRII socket supporting up to 1GB
- **Chipset:** VIA CX700(M)
- **I/O Chipset:** Winbond W83697UF
- **CompactFlash:** One, Type I/II IDE interface adapter
- **PCI Slot:** One standard PCI slot
- **8-bit I/O:** 8-bit input/output (parallel port)
- **VGA:** VIA CX700(M) with 32/64/128MB shared main memory supporting CRT/Panel displays up to 1920 x 1440
- **LVDS Panel:** Supports 24-bit single channel/48-bit dual channel LVDS interface up to 1600 x 1200
- **TV-Out:** Supports PAL or NTSC TV systems
- **Ethernet:** Dual RealTek RTL8110SC 10/100/1000 Based LAN
- **Audio:** VIA VT1708A HD audio controller
- **Serial ATA:** VIA CX700(M) controller and with two ports supporting a transfer rate up to 150MB/sec.
- **IDE:** One 2.54-pitch 40-pin IDE connector
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP (for PCB v0.3 or above)
- **Serial Port:** 16C550 UART-compatible RS-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO
- **PC/104:** PC/104 Bus connector for 16-bit ISA Bus
- **USB:** 6 internal USB2.0 ports
- **Keyboard/Mouse:** 8-pin connector
- **DiskOnChip:** DiskOnChip socket supporting memory sizes of up to 288MB
- **BIOS:** AMI PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256 sec.
- **CMOS:** Battery backup
- **Hardware Monitor:** Winbond W83L784 (only for PCB v0.3 or above)
- **Board Size:** 20.3(L) x 14.6(W) cm

## 1.3 Board Dimensions



# Chapter 2

# Unpacking

## 2.1 Opening the Delivery Package

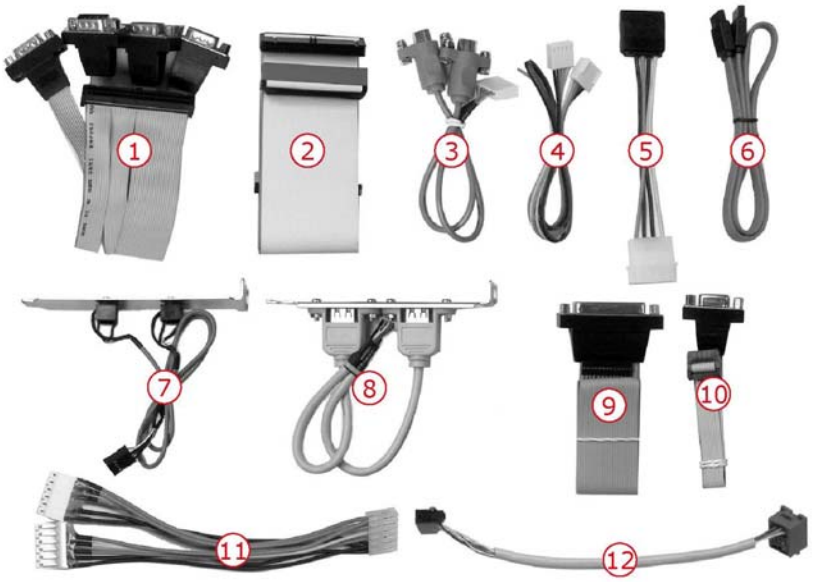
The HS-4610 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

## 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-4610 delivery package contains the following items:

- **HS-4610 Board x 1**
- **Utility CD Disk x 1**
- **Cables Package x 1**
- **Jumper Bag x 1**
- **User's Manual**




| Cables Package | |
|---|---|
| **NO.** | **Description** |
| **1** | 4 COM flat cable x 1 |
| **2** | IDE flat cable (optional) |
| **3** | Keyboard/Mouse transfer cable x 1 |
| **4** | 5-pin power cable x 1 |
| **5** | SATA power cable x 1 |
| **6** | SATA cable x 1 |
| **7** | Audio cable x 1 |
| **8** | 2 USB cable with bracket x 1 |
| **9** | Parallel flat cable x 1 |
| **10** | 10-pin to 15-pin CRT cable x 1 |
| **11** | 6-pin to P8&P9 power cable x 1 |
| **12** | 10-pin to RJ-45 cable x 2 |

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.

# Chapter 3

# Hardware Installation

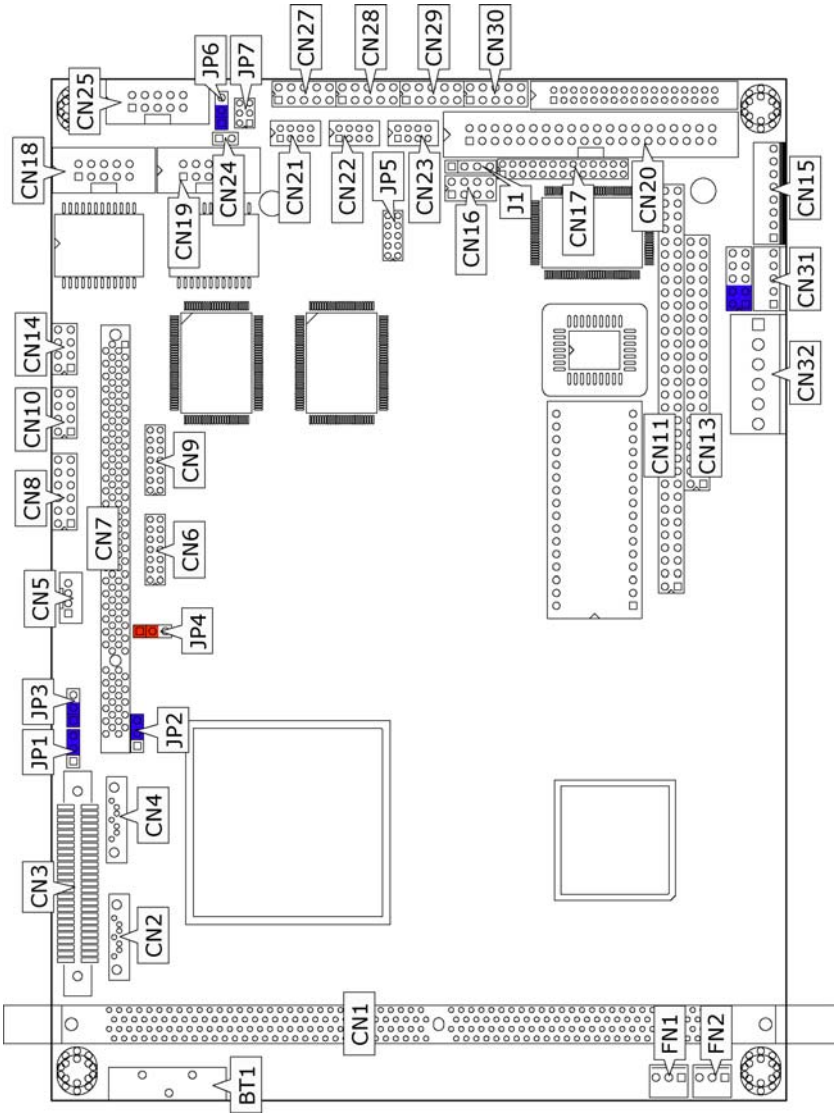
This chapter provides the information on how to install the hardware using the HS-4610. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

## 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 | Display Out Function Select: *CRT* | Short 2-3 | 19 |
| JP6 | | Short 1-2 | 19 |
| JP2 | CF Use Master/Slave Select: *Slave* | Short 2-3 | 22 |
| JP3 | Clear CMOS: *Normal Operation* | Short 1-2 | 16 |
| JP4 | Panel Voltage Select: *+3.3V* | Short 1-2 | 10 |
| JP5 | COM4 Use RS-232 or RS-422/485 Select: *RS-232* | Open | 13 |
| JP9 | DOC Address Select: *D000* | Short 1-2 | 24 |

## 3.4 Connector List

| Connector | Definition | Page |
|---|---|---|
| CN1 | DDRII Socket | 10 |
| CN2/CN4 | Serial ATA Connector | 12 |
| CN3 | CompactFlash Connector | 22 |
| CN5 | Inverter Power In Connector | 10 |
| CN6/CN9 | LVDS Panel Connector | 10 |
| CN7 | Standard PCI Slot | --- |
| CN8 | System Front Panel Control | 17 |
| CN10/CN14 | External LAN LED Connector | 15 |
| CN11/CN13 | PC/104 Bus 64-pin/40-pin Connector | 20 |
| CN15 | 8-pin KB/MS Connector | 17 |
| CN16 | MIC In/Line Out Connector | 22 |
| CN17 | Parallel Port | 13 |
| CN18/CN19 | Internal LAN Connector (5x2 header) | 15 |
| CN20 | IDE Connector | 11 |
| CN21/CN22/CN23 | Internal USB2.0 Port | 15 |
| CN24 | TV-Out Connector | 19 |
| CN25 | Internal CRT Connector (5x2 header) | 10 |
| CN27~CN30 | COM 1~COM 4 Connector (5x2 header) | 13 |
| CN31 | 5-pin ATX Power In Connector | 16 |
| CN32 | 6-pin Power In Connector | 16 |
| FN1~FN2 | Fan Power In Connector | 16 |
| J1 | 4-pin Line In Connector | 22 |
| JP7 | RS-422/485 Connector | 13 |

## 3.5 Configuring the CPU

The HS-4610 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

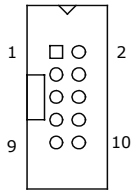
The HS-4610 provides one DDRII socket at locations *CN1*. The maximum capacity of the onboard memory is 1GB.

## 3.7 VGA Controller

The HS-4610 provides two connection methods of a VGA device. *CN25* offers an internal 10-pin CRT connector and *CN6/CN9* are the LVDS interface connectors onboard reserved for flat panel installation.

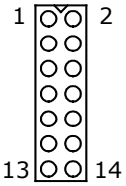
- **CN25: Internal CRT Connector (5x2 header)**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | RED | 2 | GND |
| 3 | GREEN | 4 | GND |
| 5 | BLUE | 6 | GND |
| 7 | HSYNC | 8 | SDA |
| 9 | VSYNC | 10 | SDC |




- **CN6/CN9: LVDS Interface Connector**

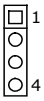
| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | $V_{LCD}$ | 2 | $V_{LCD}$ |
| 3 | GND | 4 | GND |
| 5 | A0-/B0- | 6 | A0+/B0+ |
| 7 | A1-/B1- | 8 | A1+/B1+ |
| 9 | A2-/B2- | 10 | A2+/B2+ |
| 11 | CLK1-/CLK2- | 12 | CLK1+/CLK2+ |
| 13 | A3-/B3- | 14 | A3+/B3+ |




**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 JP4 before proceeding on installing it.*

- **CN5: Inverter Power In Connector**

| PIN | Description |
|---|---|
| 1 | +12V |
| 2 | +12V |
| 3 | BK_EN |
| 4 | GND |




**NOTE:** *If use CN6 only, it just supports 24-bit single channel LVDS panel; If you want to use 48-bit dual channel LVDS panel, please use CN6 and CN9 combined.*

The HS-4610 has an onboard jumper that selects the working voltage of the flat panel connected to the system. Jumper *JP4* offers two voltage settings for the user.

- **JP4: Panel Voltage Select**

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


## 3.8 PCI E-IDE Drive Connector

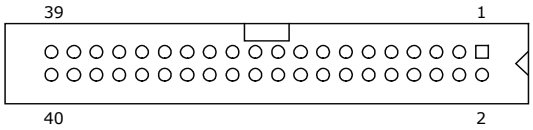
*CN20* is a standard 2.54-pitch 40-pin connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the HS-4610. A maximum of two ATA/33/66 IDE drives can be connected to the HS-4610 via *CN20*.

- **CN20: 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 |

**...MORE ON NEXT PAGE...**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 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 |

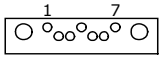



## 3.9 Serial ATA Connector

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.

- **CN2/CN4: Serial ATA Connector**

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

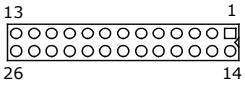


## 3.10 Parallel Connector

*CN17* is a standard 26-pin flat cable connector designed to accommodate onboard parallel port connection.

- **CN17: 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-4610 offers NS16C550 compatible UARTs with Read/ Receive 16-byte FIFO serial ports and four internal 10-pin headers and one RS-422/485 connector.

- **CN27~CN30: 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 |

- **JP7: RS-422/485 Connector (3x2 Header, COM4)**

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

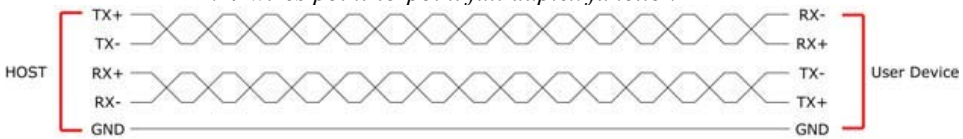

**NOTE:** *The terminal resistance of RX & TX is set at 180 Ω.*

- **JP5: COM 2 use RS-232 or RS-422/485 Select**

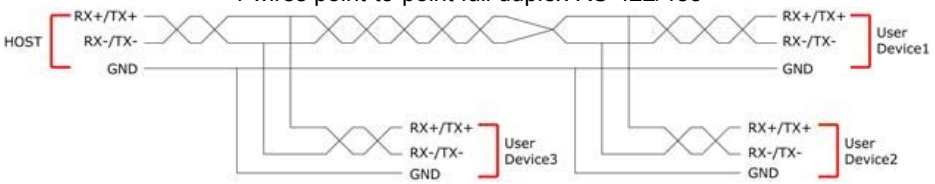
| Options | Settings |
|---|---|
| RS-232 (default) | Open |
| RS-485 by Auto (*1) | Short 1-2, 3-4, 5-7, 8-10 |
| RS-485 by –RTS (*-1) | Short 1-2, 3-4, 7-9, 8-10 |
| RS-422/485 Full Duplex (*2) | Short 1-2, 3-4, 6-8 |


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

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




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




Typical RS-485 2-wires Mutildrop Network

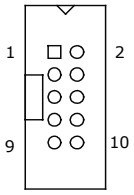
## 3.12 Ethernet Connector

The HS-4610 provides two 5x2 connectors for 10/100/1000 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.

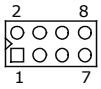
- **CN18/CN19: Internal LAN Connector**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | N/C | 2 | N/C |
| 3 | TMDI0_1+/TMDI0_2+ | 4 | TMDI0_1-/TMDI0_2- |
| 5 | TMDI1_1+/TMDI1_2+ | 5 | TMDI1_1-/TMDI1_2- |
| 7 | TMDI2_1+/TMDI2_2+ | 8 | TMDI2_1-/TMDI2_2- |
| 9 | TMDI3_1+/TMDI3_2+ | 10 | TMDI3_1-/TMDI3_2- |




- **CN10/CN14: External LAN LED Connector**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | LED0_1A/LED0_2A | 2 | +3.3V |
| 3 | LED1_1A/LED1_2A | 4 | +3.3V |
| 5 | LED2_1A/LED2_2A | 5 | +3.3V |
| 7 | LED3_1A/LED3_2A | 8 | +3.3V |

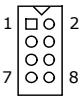



## 3.13 USB Connector

The HS-4610 provides three 8-pin connectors, at location *CN21~CN23*, for six USB2.0 ports.

- **CN21/CN22/CN23: Internal USB2.0 Connector**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | VCC | 2 | VCC |
| 3 | USBD0-<br>USBD2-<br>USBD4- | 4 | USBD1-<br>USBD3-<br>USBD5- |
| 5 | USBD0+<br>USBD2+<br>USBD4+ | 6 | USBD1+<br>USBD3+<br>USBD5+ |
| 7 | GND | 8 | GND |



## 3.14 CMOS Data Clear

The HS-4610 has a Clear CMOS jumper on *JP3.*

- **JP3: Clear CMOS**

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

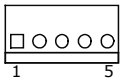

**IMPORTANT:** *Before you turn on the power of your system, please set JP3 to Short 1-2 for normal operation.*

## 3.15 Power and Fan Connectors

HS-4610 provides one 5-pin ATX power in at *CN31*, one 6-pin power in at *CN32*. Connector *FN1~FN2* onboard HS-4610 is a 3-pin fan power output connector. And HS-4610 supports +12V Fan only.

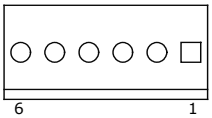
- **CN31: 5-pin ATX Power In Connector**

| PIN | Description |
|---|---|
| 1 | VCC |
| 2 | 5VSB |
| 3 | +12V |
| 4 | PS_ON |
| 5 | GND |



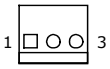

- **CN32: 6-pin Power In Connector**

| PIN | Description |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | -12V |
| 4 | +12V |
| 5 | VCC |
| 6 | VCC |




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

| PIN | Description |
|---|---|
| 1 | GND |
| 2 | +12V |
| 3 | N/C |

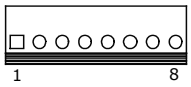


## 3.16 Keyboard/Mouse Connectors

The *CN15* is a 8-pin KB/MS connector for HS-4610.

- **CN15: 8-pin Keyboard/Mouse Connector**

| PIN | Description |
|---|---|
| 1 | GND |
| 2 | VCC |
| 3 | MS Data |
| 4 | MS CLK |
| 5 | GND |
| 6 | VCC |
| 7 | KB Data |
| 8 | KB CLK |



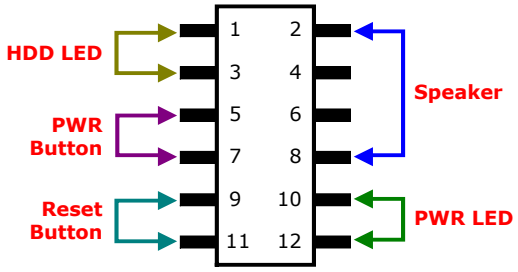

## 3.17 System Front Panel Control

The HS-4610 has front panel control at location *CN8* that indicates the power-on status.

- **CN8: 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 VCC |
| 11 | GND | 12 | GND |

### Connector CN8 Orientation



## 3.18 Watchdog Timer

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

The following sample programs show how to enable, disable and refresh the watchdog timer:

```
.286

      .MODEL SMALL
      .DATA                          ;this is data area

x1              db '-----------------------------------------------------',0ah,0dh,'$'
copyright       db '|Copyright by Boser technology write by Richard |',0ah,0dh,'$'
x2              db '-----------------------------------------------------',0ah,0dh,'$'

port    equ       04Eh       ;W83697H Chipset port
datao   equ       04Fh       ;data port

      .CODE

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

begin   proc      near
        mov       ax,@data
        mov       ds,ax
      STI
                  ; W83697H
        mov       dx,port    ; Unlock registor
        mov       al,087H    ;
        out       dx,al
        jmp       $+2
        out       dx,al
        mov       dx,port    ;
        mov       al,07H     ;
        out       dx,al
        jmp       $+2
        mov       dx,datao   ; set device 8
        mov       al,08H     ;
        out       dx,al
        jmp       $+2

        mov       dx,port    ; Watchdog IO function
        mov       al,030H    ; registor
        out       dx,al
        jmp       $+2

        mov       dx,datao   ; set 01h toactivate
        mov       al,01H     ;
        out       dx,al
```

```
        jmp     $+2

        mov     dx,port     ; set CRF3
        mov     al,0f3H     ;
        out     dx,al
        jmp     $+2

        mov     dx,datao    ; set CRF3 to secend
        mov     al,00H      ;
        out     dx,al
        jmp     $+2

        mov     dx,port     ; set CRF4 time
        mov     al,0f4H     ;
        out     dx,al
        jmp     $+2

        mov     dx,datao    ; set CRF4 time to 5 s'
        mov     al,05H      ;
        out     dx,al

        print   x1
        print   copyright
        print   x2
        mov     ah,4ch      ;go back to dos
        int     21h
        .stack
begin   endp
        end begin
```

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

## 3.19 TV-Out Function

The HS-4610 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).

- **CN24: TV-Out Connector**

| PIN | Description |
|---|---|
| 1 | CVBS |
| 2 | GND |


- **JP1/JP6: Display Out Function Select**

| Options | Settings | |
|---|---|---|
| | JP1 | JP6 |
| TV-Out | Short 1-2 | Short 2-3 |
| CRT (default) | Short 2-3 | 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 *CN11* and *CN13* are listed on the following tables:

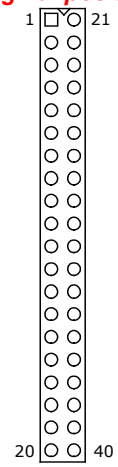
**NOTE1:** *The PC/104 connector allows direct plugging or stack-through piling of PC/104 modules without requiring the PC/104 mounting kit.*

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

- **CN13: PC/104 40-pin Connector**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | GND | 21 | GND |
| 2 | MEMCS16# | 22 | SBHE# |
| 3 | IOSC16# | 23 | LA23 |
| 4 | IRQ10 | 24 | LA22 |
| 5 | IRQ11 | 25 | LA21 |
| 6 | IRQ12 | 26 | LA20 |
| 7 | IRQ15 | 27 | LA19 |
| 8 | IRQ14 | 28 | LA18 |
| 9 | DACK0# | 29 | LA17 |
| 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 |

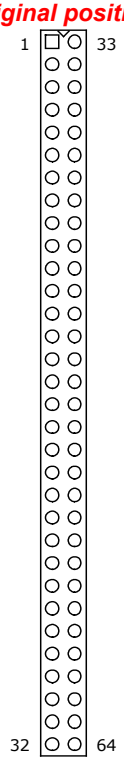
***Connector diagram rotated 90 degrees clockwise from original position***



- **CN11: 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 | 0WS# |
| 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 | SLPBTN |
| 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 | GND |
| 32 | GND | 64 | GND |

*Connector diagram rotated 90 degrees clockwise from original position*



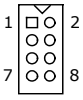
## 3.21 Audio Connectors

The HS-4610 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

### CN16: MIC In/Line Out Connector

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




### J1: 4-pin Line In Connector

| PIN | Description |
|---|---|
| 1 | LINE_R |
| 2 | GND |
| 3 | GND |
| 4 | LINE_L |


## 3.22 CompactFlash™ Connector

The HS-4610 also offers a Type I/II CompactFlash™ connector is IDE interface located at the solder side of the board (beneath the SO-DIMM connector). The designated *CN3* connector, once soldered with an adapter, can hold CompactFlash™ cards of various sizes. Please turn off the power before inserting the CF card.

- **CN3: 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 |

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.

- **JP2: CF Use Master/Slave Select**

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


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

## 3.23 DiskOnChip™ Address Setting

The DOC function allows the system to boot or operate without a FDD or a HDD. DOC modules may be formatted as drive C or A. With DOC, user may also execute DOS commands such as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP etc.

The U11 location onboard the HS-4610 is the DOC module socket. Jumper *JP9* assigns the address setting of the installed module. Setting the 4-pins of *JP9* allows you to select the starting memory devices in the system, please set both at different memory address mapping to avoid the mapping area conflicts.

- **JP9(1-4): DOC Address Select**

| Options | Settings |
|---|---|
| D000 (default) | Short 1-2 |
| D800 | Short 3-4 |

# Chapter 4

# AMI BIOS Setup

The HS-4610 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<br>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 : 08.00.13
Build Date : 11/29/06
ID : HS461000

**Processor**

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

**System Memory**

Size : 191MB

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

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

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

# 4.4 Advanced Settings

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

**BIOS SETUP UTILITY**

| Main | **Advanced** | PCIPnP | Boot | Security | Chipset | Exit |
|---|---|---|---|---|---|---|

**Advanced Settings**

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

- ► CPU Configuration
- ► IDE Configuration
- ► SuperIO Configuration
- ► ACPI Configuration
- ► APM Configuration
- ► Hardware Health Configuration
- ► USB Configuration

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

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**BIOS SETUP UTILITY**

| Main | **Advanced** | PCIPnP | Boot | Security | Chipset | Exit |
|---|---|---|---|---|---|---|

**Configure advanced CPU settings**
**Module Version –13.00**

| | | |
|---|---|---|
| Manufacturer | : | VIA |
| Brand String | : | VIA Esther processor 1000MHz |
| Frequency | : | 1.00GHz |
| FSB Speed | : | 400MHz |
| Cache L1 | : | 128 KB |
| Cache L2 | : | 128 KB |
| Ratio Status | : | Unlocked (Max:10, Min:08) |
| Ratio Actual Value | : | 10 |

CMPXCHG8B instruction support [Enabled]

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

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**BIOS SETUP UTILITY**

| Main | **Advanced** | PCIPnP | Boot | Security | Chipset | Exit |
|---|---|---|---|---|---|---|

**IDE Configuration**

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] | ← | Select Screen |
| IDE Detect Time Out (Sec) | [35] | ↑↓ | Select Item |
| ATA(PI) 80Pin Cable Detection | [Host] | + - | Change Field |
| | | Tab | Select Field |
| | | F1 | General Help |
| | | F10 | Save and Exit |
| | | ESC | Exit |

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**BIOS SETUP UTILITY**

| Main | **Advanced** | PCIPnP | Boot | Security | Chipset | Exit |
|---|---|---|---|---|---|---|

**Configure WIN697UF Super IO Chipset**

| | | | |
|---|---|---|---|
| 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] | ← | Select Screen |
| Parallel Port Address | [378] | ↑↓ | Select Item |
| Parallel Port Mode | [Normal] | + - | Change Field |
| Parallel Port IRQ | [IRQ7] | 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 |
|---|---|---|---|---|---|---|

**ACPI Settings**

| | |
|---|---|
| ACPI Aware O/S | [No] |

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

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**BIOS SETUP UTILITY**

| Main | **Advanced** | PCIPnP | Boot | Security | Chipset | Exit |
|---|---|---|---|---|---|---|

| | | | |
|---|---|---|---|
| Power Management/APM | [Enabled] | | |
| | | | |
| 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 |
|---|---|---|---|---|---|---|

**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 |
| USB 2.0 Controller Mode | [FullSpeed] | ↑↓ | 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 |
|---|---|---|---|---|---|---|

| | | | |
|---|---|---|---|
| H/W Health Function | [Enabled] | | |
| CPU Temperature | : | | |
| System Temperature | : | | |
| Fan 1 Reading | : | | |
| Fan 2 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 |

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# 4.5 Advanced PCI/PnP Settings

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

**BIOS SETUP UTILITY**

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

**Advanced PCI/PnP Settings**

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

# 4.6 Boot Settings

**BIOS SETUP UTILITY**

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

**Boot Settings**

► Boot Settings Configuration

► Boot Device Priority
► Removable Drives

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

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**BIOS SETUP UTILITY**

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

**Boot Settings Configuration**

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

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

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**BIOS SETUP UTILITY**

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

**Boot Device Priority**

| | | |
|---|---|---|
| 1st Boot Device | [1st FLOPPY DRIVE] | |
| | | ← Select Screen |
| | | ↑↓ Select Item |
| | | + - Change Field |
| | | Tab Select Field |
| | | F1 General Help |
| | | F10 Save and Exit |
| | | ESC Exit |

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**BIOS SETUP UTILITY**

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

**Removable Drives**

| | | |
|---|---|---|
| 1st Drive | [1st FLOPPY DRIVE] | |
| | | ← Select Screen |
| | | ↑↓ Select Item |
| | | + - Change Field |
| | | Tab Select Field |
| | | F1 General Help |
| | | F10 Save and Exit |
| | | ESC Exit |

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## 4.7 Security Settings

**BIOS SETUP UTILITY**

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

**Security Settings**

| | | | |
|---|---|---|---|
| Supervisor Password | : | Not Installed | |
| User Password | : | Not Installed | |
| | | | ← Select Screen |
| Change Supervisor Password | | | ↑↓ Select Item |
| Change User Password | | | + - Change Field |
| Boot Sector Virus Protection | | [Disabled] | Tab Select Field |
| | | | F1 General Help |
| | | | F10 Save and Exit |
| | | | ESC Exit |

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# 4.8 Advanced Chipset Settings

**BIOS SETUP UTILITY**

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

**Advanced Chipset Settings**

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

► 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 |

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**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

| | | | |
|---|---|---|---|
| Top Performance | [Disabled] | | |
| Software Reset E2 issue | [Escape Patch] | ← | Select Screen |
| Change DCLK using RDCKM | [Program] | ↑ ↓ | Select Item |
| ► OnChip VGA Configuration | | + - | Change Field |
| | | Tab | Select Field |
| | | F1 | General Help |
| | | F10 | Save and Exit |
| | | ESC | Exit |

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**BIOS SETUP UTILITY**

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

**DRAM Frequency/Timing Configuration**

| | |
|---|---|
| DRAM Frequency | [400MHz] |
| 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] |
| DQSO scanning mode | [Disabled] |

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

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**BIOS SETUP UTILITY**

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

**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 |

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**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 | [00] | + - | Change Field |
| PCI Read Caching Select | [EE] | Tab | Select Field |
| | | F1 | General Help |
| | | F10 | Save and Exit |
| | | ESC | Exit |

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**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 | [02:1024X768] | ← | Select Screen |
| TV H/W Layout | [Default] | ↑↓ | Select Item |
| TV Type | [NTSC] | + - | Change Field |
| TV Output Connector | [CVBS (Composite)] | Tab | Select Field |
| | | F1 | General Help |
| | | F10 | Save and Exit |
| | | ESC | Exit |

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**SouthBridge VIA CX700 Configuration**

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

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

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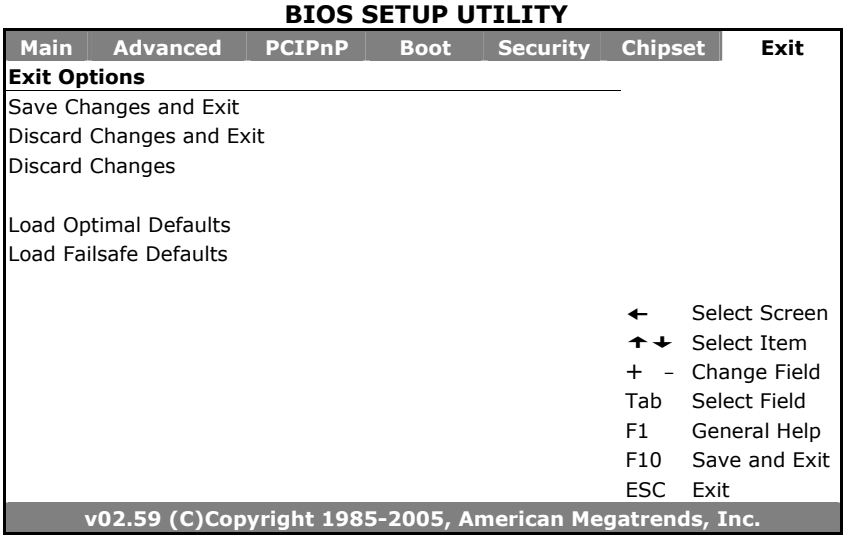
# 4.9 Exit Options



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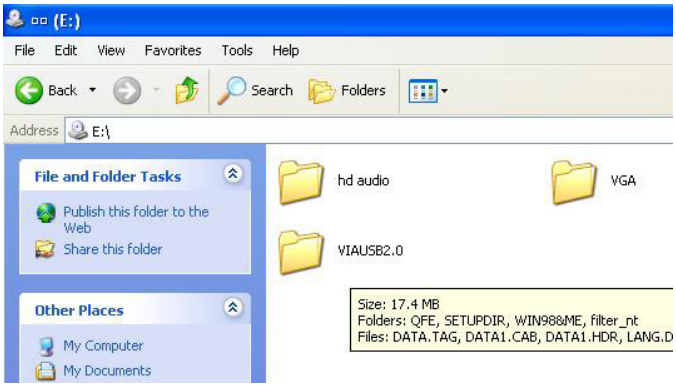
# Chapter 5

# Software Utilities

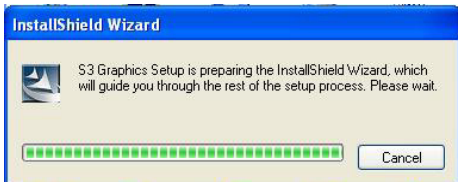
This chapter contains the detailed information of VGA, LAN, audio and USB2.0 driver installation procedures. The utility disk that comes with the delivery package contains an auto-run program that invokes the installation programs for the VGA, LAN and Audio drivers. The following sections describe the installation procedures of each driver based on Win 95/98, Win 2000/XP operating systems. It is recommended that you install the drivers matching the sections listed in this chapter.

## 5.1 VGA Driver Installation

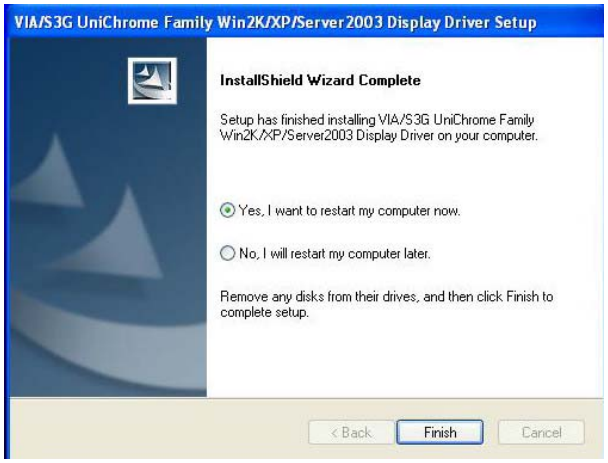
1. With the Utility CD Disk in your CD-ROM drive, open the **File Manager** and then select the CD-ROM drive. Open the VGA folder and click **Setup.exe** to start proceed.



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

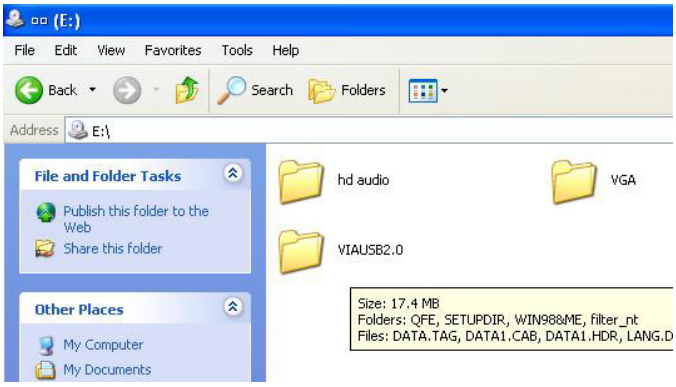



3. After the installation finishes, you will be prompted to restart your system. We recommend you to reboot your computer to allow the new settings to take effect. Click on the **Finish** button to reboot.



## 5.2 Audio Driver Installation

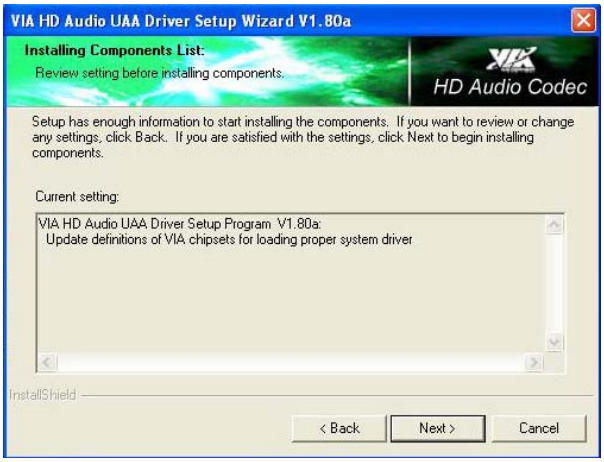
1. With the Utility CD Disk in you CD-ROM drive, open the **File Manager** and then select the CD-ROM drive. Open the **HD Audio** folder and click **Setup.exe** to start proceed.



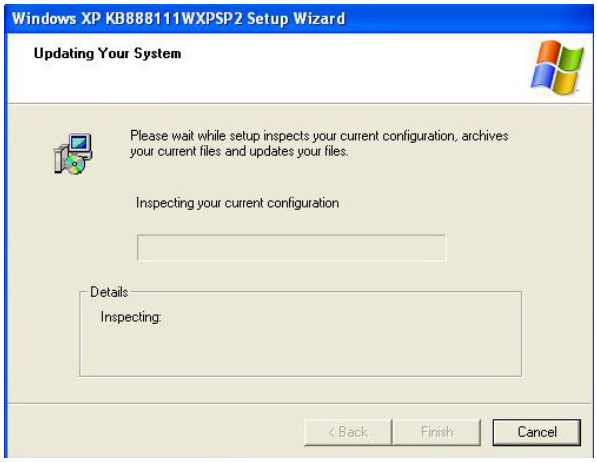

2. Once the Setup Wizard appears on the screen, make sure to close applications that are running, and then tick Install/Update, and click on the Next> button.

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.

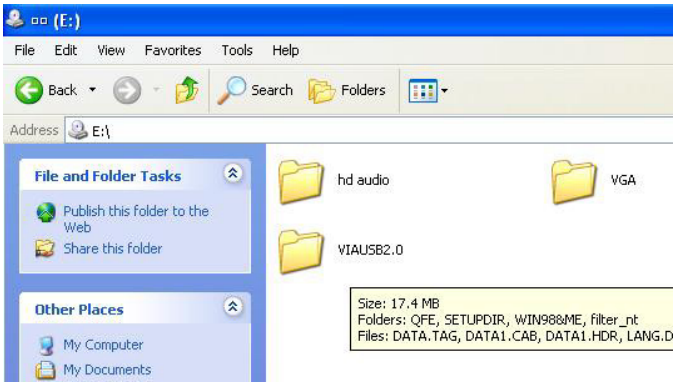



6. When the display below appears on your screen, tick on Yes, this time only, and then click on Next> to continue.

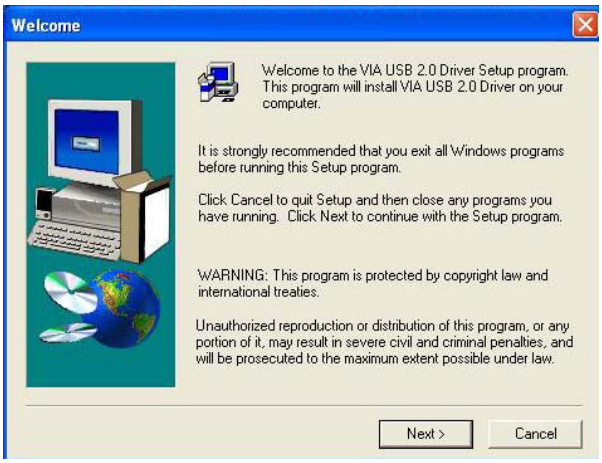
7. After all installation finish, you will be prompted to start your system, click on the **Finish** button to reboot.

## 5.3 USB2.0 Driver Installation

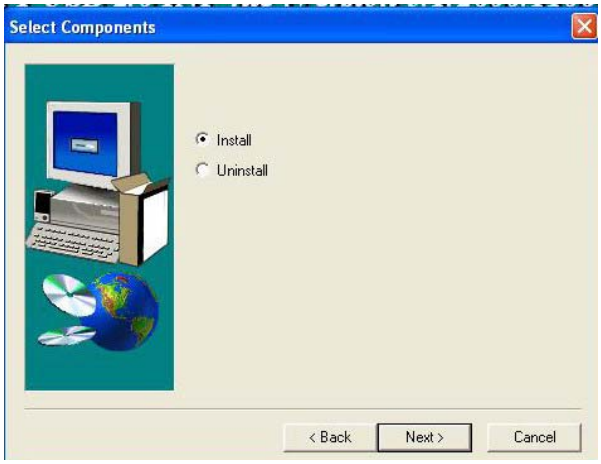
1. With the Utility CD Disk in you CD-ROM drive, open the **File Manager** and then select the CD-ROM drive. Open the **VIAUSB2.0** folder and click **Setup.exe** to start proceed.




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.