

HS-7238

**Intel® Pentium® 4 processor
PCI-ISA Bus Single Board Computer**

- 533MHz FSB • Mini PCI • DDR •
- DVI-I/CRT • Dual LAN • Wireless LAN •
- Audio • ATA/33/66/100 • USB2.0 •
- WDT • H/W Monitor •

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Safety Instructions

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

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components. Fasten the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please wear and connect the strap before handle the product to ensure harmlessly discharge any static electricity through the strap.
- Please use an anti-static pad when putting down any components or parts or tools outside the computer. You may also use an anti-static bag instead of the pad. Please inquire from your local supplier for additional assistance in finding the necessary anti-static gadgets.

NOTE: *DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTIONS.*

Chapter 1

General Description



The HS-7238 is an Intel® 845GV GMCH/ICH4 chipset-based board designed. The HS-7238 series is ideal all-in-one PCI-ISA Bus single board computer. Additional features include an enhanced I/O with DVI-I/CRT, dual LAN, wireless LAN, audio and USB2.0 interfaces.

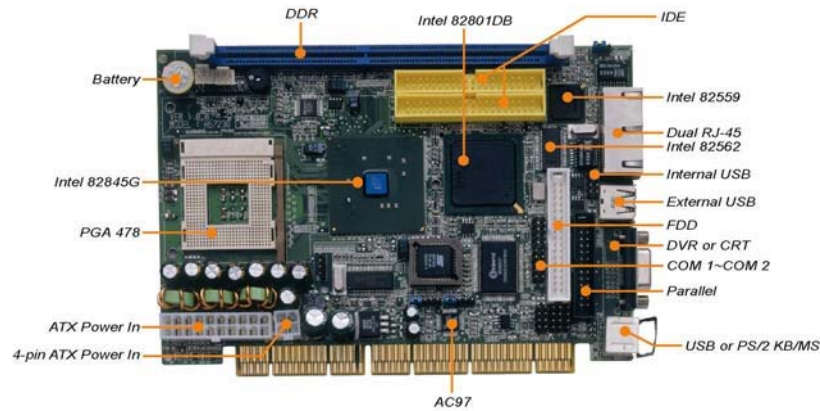
Its onboard ATA/33/66/100 to IDE drive interface architecture allows the HS-7238 to support data transfers of 33, 66 or 100MB/sec. to one IDE drive connection. The HS-7238 supports all PGA478 Intel® Pentium® 4 processor up to 2.6GHz.

The display controller is Intel® 845GV with 1MB or 8MB (default) shared main memory supporting CRT display up to 1920 x 1200 x 32-bit at 60Hz. It also provides DVI display interface.

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

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

1.1 Major Features



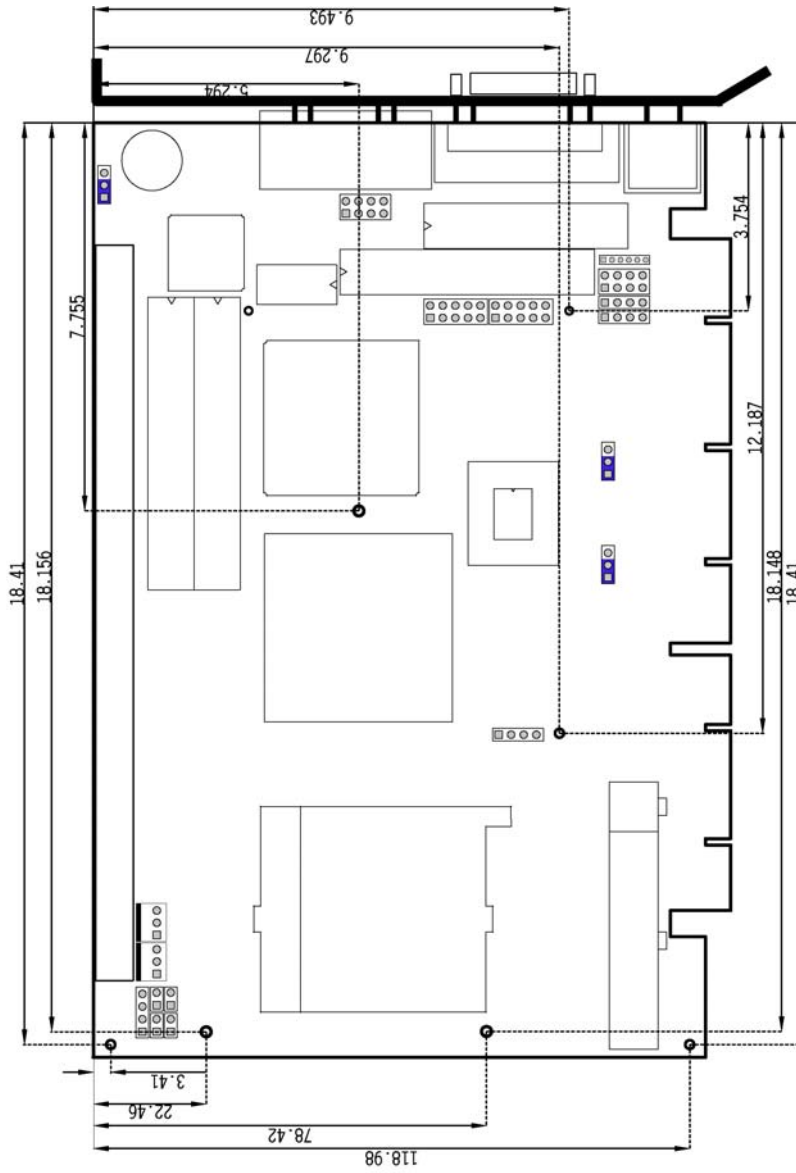
The HS-7238 comes with the following features:

- Intel® Pentium® 4 processor 2.0A~2.6GHz
- Supports 400/533MHz FSB
- One DDR socket with a max. capacity of 1GB
- Intel® 82845GV GMCH/ICH4 chipset
- Winbond W83627, ITE IT8888 super I/O chipset
- Intel® 82845GV graphics controller
- Intel® 82559 and 82562 dual fast Ethernet controller
- AC97 3D audio controller
- Fast PCI ATA/33/66/100 IDE controller
- 2 COM, 3 USB2.0 ports
- Hardware Monitor function
- Wireless LAN module (optional)

1.2 Specifications

- **CPU:** Intel® Pentium® 4 processor 2.0A~2.6GHz
- **Front Side Bus:** 400/533MHz FSB
- **Memory:** One DDR socket supporting up to 1GB
- **Chipset:** Intel® 845GV GMCH/ICH4
- **I/O Chipset:** Winbond W83627, ITE IT8888
- **VGA:** Intel® 82845GV with 1MB/8MB shared main memory supporting DVI-I/CRT display up to 1920 x 1200 at 32-bit colors (DVI-I and CRT connector is optional)
- **Ethernet:** Intel® 82562 and 82559 10/100 Based LAN
- **Wireless LAN:** Provides wireless LAN module (optional)
- **Audio:** AC97 3D audio controller
- **IDE:** Two 2.54-pitch 40-pin IDE connectors
- **FDD:** Supports up to two floppy disk drives
- **Parallel:** One enhanced bi-directional parallel port supporting SPP/ECP/EPP
- **Serial Port:** 16C550 UART-compatible RS-232 x 2 serial ports with 16-byte FIFO
- **USB:** 3 internal USB2.0 ports
- **Keyboard/Mouse:** PS/2 6-pin Mini DIN
- **BIOS:** Award PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256 sec.
- **CMOS:** Battery backup
- **Temperature:** 0~60°C (operating)
- **Hardware Monitor:** Winbond W83627HF
- **Board Size:** 18.6(L) x 12.2(W) cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The HS-7238 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-7238 delivery package contains the following items:

- HS-7238 Board x 1
- Utility CD Disk x 1
- Cables Package x 1
- Cooling Fan & Heat Sink x 1
- Jumper Bag x 1
- User's Manual

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.

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Chapter 3

Hardware Installation

This chapter provides the information on how to install the hardware using the HS-7238. This chapter also contains information related to jumper settings of switch, and watchdog timer selection etc.

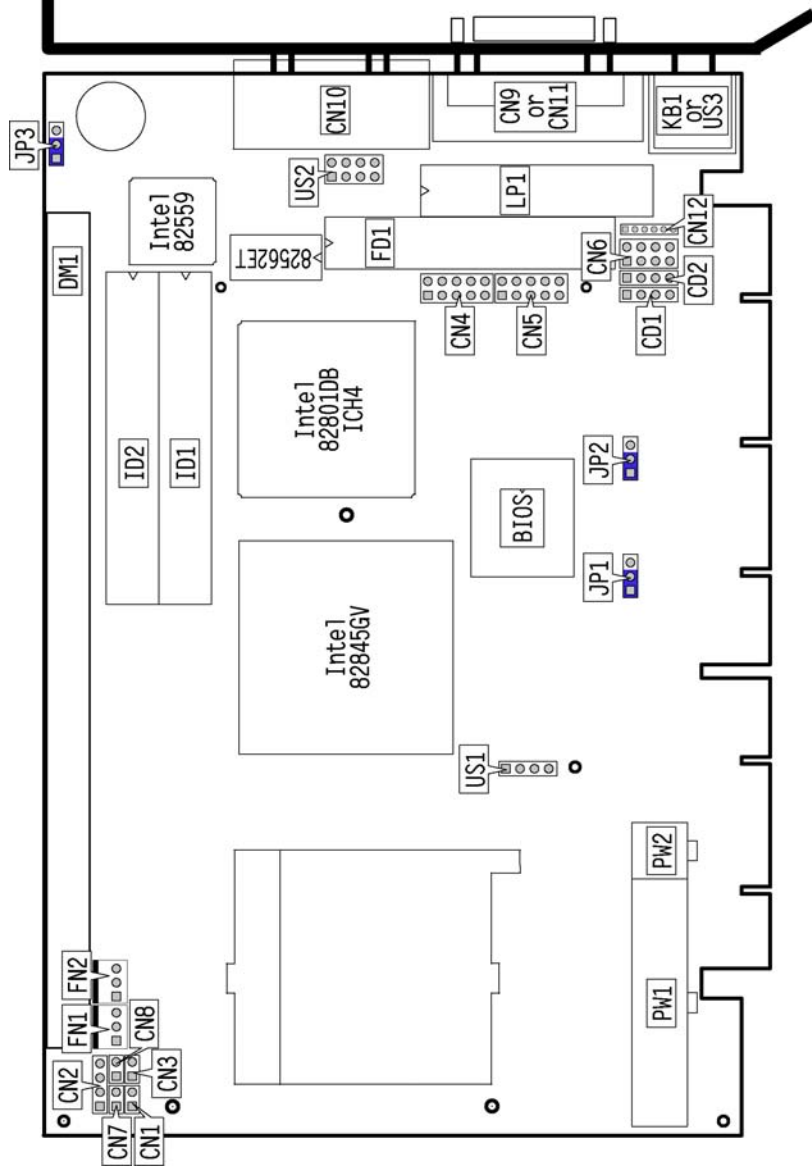
3.1 Before Installation

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

1. Make sure that all jumper settings match their default settings and CMOS setup correctly. Refer to the sections on this chapter for the default settings of each jumper. (set JP2 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.
4. Make sure your power supply is using for P4 only. One of 4-pin connectors is for +12V lead which should connect to PW2 connector of HS-7238

NOTE: *Since AD22 has been assigned for ISA bridge at HS-7238, please make sure do not use this address for other PCI cards to avoid confliction. In order to get detailed information, please contact technical support engineer.*

3.2 Board Layout



3.3 Jumper List

| Jumper | Default Setting | Setting | Page |
|------------|--|-----------|------|
| JP1 | System Frequency Select: <i>Auto</i> | Short 1-2 | 10 |
| JP2 | Clear CMOS: <i>Normal Operation</i> | Short 1-2 | 16 |
| JP3 | Onboard LAN 2 Enabled/Disabled Select: <i>Enabled</i> | Short 1-2 | 15 |

3.4 Connector List

| Connector | Definition | Page |
|--------------------|-------------------------------------|------|
| CD1 | CD Analog Input Connector | 20 |
| CD2 | Line In Connector | 20 |
| CN1 | Reset Connector | 18 |
| CN2 | Speaker Connector | 18 |
| CN3 | Green LED Connector | 18 |
| CN4/CN5 | COM 2/COM 1 Connector (5x2 header) | 13 |
| CN6 | MIC In/Line Out Connector | 20 |
| CN7 | 2-pin ATX Power On/Off Switch | 16 |
| CN8 | HDD LED Connector | 18 |
| CN10 | Dual RJ-45 Connector | 15 |
| CN11 | CRT or DVI-I Connector | 11 |
| CN12 | 6-pin KB/MS Connector | 17 |
| DM1 | DDR Socket | 11 |
| FD1 | Floppy Connector | 13 |
| FAN1/FAN2 | Fan Power In Connector | 16 |
| ID1/ID2 | Primary/Secondary IDE Connector | 12 |
| KB1 | PS/2 6-pin Mini DIN KB/MS Connector | 17 |
| LP1 | Parallel Port | 14 |
| PW1/PW2 | 20-pin/4-pin ATX Power In Connector | 16 |
| US1/US2/US3 | USB Ports | 15 |
| PC1 | Mini PCI Connector | 22 |

3.5 Configuring the CPU

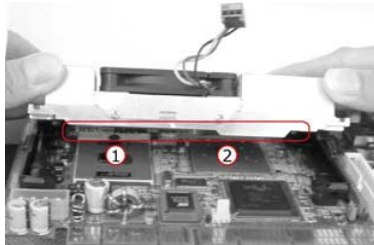
The HS-7238 offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the HS-7238 automatically identifies the frequency and clock speed of the installed microprocessor chip, thereby eliminating the need for user to do additional CPU configuration or hardware settings related to it..

- **JP1: System Frequency Select**

| Options | Settings |
|------------------------------|-----------|
| Auto Detect (default) | 1-2 Short |
| 100MHz FSB | 2-3 Short |
| 133MHz FSB | Open |

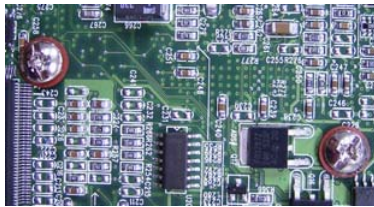


Heat Sink Installation



Please smear the heat sink paste over CPU and 845GV uniformly. Then secure the heat sink as the picture above.

When lock the screw, please DO NOT too tight to locking, if too tight the PCB will be curved, it may cause the board damage.



3.6 System Memory

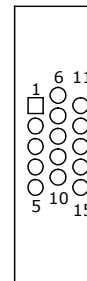
The HS-7238 provides one DDR socket at locations *DM1*. The maximum capacity of the onboard memory is 1GB.

3.7 VGA Controller

The onboard Intel® 845GV with 1MB or 8MB share main memory supports CRT display up to 1920 x 1200 x 32-bit at 60Hz. The HS-7238 provides two methods of connecting VGA device. *CN11* offers a single standard CRT connector or DVI-I connector.

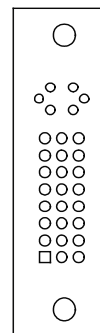
- **CN11: 15-pin CRT Connector**

| 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 | SCL | | |



- **CN11: DVI-I Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | TDC2J | 2 | TDC2 |
| 3 | GND | 4 | N/C |
| 5 | N/C | 6 | DDCCLK |
| 7 | DDCDATA | 8 | VSYNC |
| 9 | TDC1J | 10 | TDC1 |
| 11 | GND | 12 | N/C |
| 13 | N/C | 14 | VCC5 |
| 15 | GND | 16 | HPDET |
| 17 | TEC0- | 18 | TDC0 |
| 19 | GND | 20 | N/C |
| 21 | N/C | 22 | GND |
| 23 | TLC | 24 | TLC1 |
| 25 | RED | 26 | GREEN |
| 27 | BLUE | 28 | HSYNC |
| 29 | GND | | |

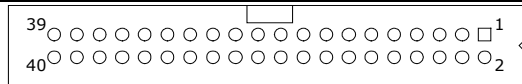


3.8 PCI E-IDE Drive Connector

ID1 and ID2 are standard 2.54-pitch 40-pin connector daisy-chain driver connector serves the PCI E-IDE drive. A maximum of four ATA/33/66/100 IDE drives can be connected to the HS-7238 via ID1 and ID2.

- ID1/ID2: Primary/Secondary IDE Connector

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

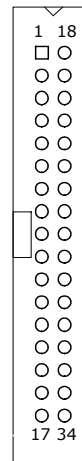


3.9 Floppy Disk Drive Connector

The HS-7238 a standard 34-pin connector, *FD1*, for floppy disk drive connection. A total of two FDD drives may be connected to *FD1* at any given time.

- **FD1: FDD Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | DRV DEN0 |
| 3 | GND | 4 | N/C |
| 5 | GND | 6 | DRV DEN1 |
| 7 | GND | 8 | INDEX# |
| 9 | GND | 10 | MTR0# |
| 11 | GND | 12 | DS1# |
| 13 | GND | 14 | DS0# |
| 15 | GND | 16 | MTR1# |
| 17 | GND | 18 | DIR# |
| 19 | GND | 20 | STEP# |
| 21 | GND | 22 | WDATA# |
| 23 | GND | 24 | WGATE# |
| 25 | GND | 26 | TRAK00# |
| 27 | GND | 28 | WRTPRT# |
| 29 | N/C | 30 | RDATA# |
| 31 | GND | 32 | HDSEL# |
| 33 | N/C | 34 | DSKCHG# |



3.10 Serial Port Connectors

The HS-7238 offers NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and internal 10-pin headers.

- **CN5: COM 1/COM 2 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 |

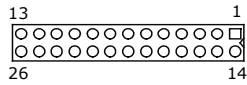


3.11 Parallel Port

LP1 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the HS-7238.

- **LP1: Parallel Port**

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

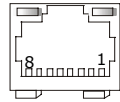


3.12 Ethernet Connector

The HS-7238 provides two external RJ-45 interface connectors. Please refer to the following for its pin information.

- **CN10: Dual RJ-45 Connector**

| PIN | Description |
|-----|-------------|
| 1 | TX+ |
| 2 | TX- |
| 3 | RX+ |
| 4 | R/C GND |
| 5 | R/C GND |
| 6 | RX- |
| 7 | R/C GND |
| 8 | R/C GND |



- **JP3: Onboard LAN 2 Enabled/Disabled Select**

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



3.13 USB Connector

The HS-7238 provides internal USB port at location *US1* and *US2*.

- **US1: Internal USB Port**

| PIN | Description |
|-----|-------------|
| 1 | VCC |
| 2 | BD0- |
| 3 | BD0+ |
| 4 | GND |



- **US2: Internal USB2.0 Port**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | BD1- | 4 | BD2- |
| 5 | BD1+ | 6 | BD2+ |
| 7 | GND | 8 | GND |




3.14 CMOS Data Clear

The HS-7238 has a Clear CMOS jumper on *JP2*.

- **JP2: 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 *JP2* to Short 1-2 for normal operation.

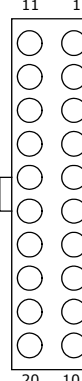
3.15 Power and Fan Connectors

HS-7238 provides one 20-pin and one 4-pin ATX power connectors at *PW1* and *PW2*. HS-7238 must use P4 power supply. One of 4-pin Connector is for +12V lead which should be connected to *PW2*.

20-pin ATX power in connector can be connected to Backplane or to *PW1*.

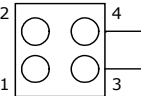
- **PW1: 20-pin ATX Power In Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | +3.3V | 11 | +3.3V |
| 2 | +3.3V | 12 | -12V |
| 3 | GND | 13 | GND |
| 4 | +5V | 14 | PS_ON |
| 5 | GND | 15 | GND |
| 6 | +5V | 16 | GND |
| 7 | GND | 17 | GND |
| 8 | Power OK | 18 | -5V |
| 9 | 5VSB | 19 | +5V |
| 10 | +12V | 20 | +5V |



- **PW2: 4-pin +12V ATX Power In Connector**

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



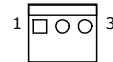
- **CN7: 2-pin ATX Power On/Off Switch**

| PIN | Description |
|-----|----------------------|
| 1 | Pull 220Ω to VCCSTBY |
| 2 | PANSWIN |



- **FAN1/FAN2: Fan Power In Connector**

| PIN | Description |
|-----|-------------|
| 1 | GND |
| 2 | +12V |
| 3 | Fan In 2 |



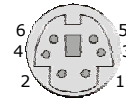
Connector *FN2* onboard HS-7250/HS-7650 series is a 3-pin fan power output connector.

3.16 Keyboard/Mouse Connectors

The HS-7238 offers two methods for keyboard/mouse connections. The connections are done via *KB1* for an external PS/2 type keyboard/mouse connection, and *CN12* for 6-pin keyboard/mouse header.

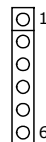
- **KB1: PS/2 6-pin Mini DIN Keyboard/Mouse Connector**

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



- **CN12: 6-pin Keyboard/Mouse Connector**

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



3.17 System Front Panel Control

The HS-7238 has one LED at location *CN3* that indicates the system front panel status. This visual feature of the HDD LED may also be connected to an external HDD LED via connector *CN8*. At location *CN1* is reset button.

- **CN1: Reset Button Connector**

| PIN | Description |
|-----|-------------|
| 1 | GND |
| 2 | Reset |



- **CN8: HDD LED Connector**

| PIN | Description |
|-----|------------------|
| 1 | Pull 150Ω to +5V |
| 2 | HDD LED |



- **CN3: Green LED Connector**

| PIN | Description |
|-----|------------------|
| 1 | Pull 150Ω to +5V |
| 2 | GND |



3.18 Speaker

Aside from the buzzer at location *BZ1*, the HS-7238 also offers a connector for an external speaker connection. The table below lists the pin assignments of *CN2*.

- **CN2: External Speaker**

| PIN | Description |
|-----|-------------|
| 1 | +5V |
| 2 | GND |
| 3 | GND |
| 4 | Speak In |



3.19 Watchdog Timer

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

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

```
.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    02Eh    ;W83627H Chipset port
datao   equ    02Fh    ;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

        mov     dx,port    ; W83627H
        mov     al,087H    ; Unlock register
        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    ; register
        out     dx,al
        jmp     $+2

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

```

        jmp     $+2

        mov     dx,port    ; set CRF5
        mov     al,0f5H   ;
        out     dx,al
        jmp     $+2

        mov     dx,datao  ; set CRF5 to secend
        mov     al,00H    ;
        out     dx,al
        jmp     $+2

        mov     dx,port    ; set CRF6 time
        mov     al,0f6H   ;
        out     dx,al
        jmp     $+2

        mov     dx,datao  ; set CRF6 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 = Disable, 01H = 1sec, 02H=2sec....FFH = 255sec.

3.20 Audio Connectors

The HS-7238 has an onboard AC97 3D audio controller. The following tables list the pin assignments of the Line In/Line Out connector.

- **CD1: CD-ROM Analog Input Connector**

| PIN | Description |
|-----|-------------|
| 1 | CD_R |
| 2 | CD_REF |
| 3 | CD_REF |
| 4 | CD_L |



- **CD2: Line In Analog Input Connector**

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



- **CN6: MIC In/Line Out Connector**

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



3.21 Mini PCI Connector

The HS-7238 provides a Type I mini PCI interface which is a very popular notebook computer expansion interface for Modem, Video, LAN, etc. The mini PCI onboard HS-7238 is at location *PC1*.

Chapter 4

Award BIOS Setup

The HS-7238 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.

4.1 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 in one of two ways:

1. By pressing immediately after switching the system on, or
2. By pressing the 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 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.

CMOS Setup Utility – Copyright© 1984-2001 Award Software

| | |
|---|-----------------------------|
| ▶ Standard CMOS Features | ▶ Frequency/Voltage Control |
| ▶ Advanced BIOS Features | Load Fail-Safe Defaults |
| ▶ Advanced Chipset Features | Load Optimized Defaults |
| ▶ Integrated Peripherals | Set Supervisor Password |
| ▶ Power Management Setup | Set User Password |
| ▶ PnP/PCI Configurations | Save & Exit Setup |
| ▶ PC Health Status | Exit Without Saving |
| Esc: Quit F9: Menu in BIOS ↑ ↓ ← →: Select Item | |
| F10: Save & Exit Setup | |

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

4.4 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.

CMOS Setup Utility – Copyright© 1984-2001 Award Software
Standard CMOS Features

| | | |
|--|---------------------|-----------|
| Date (mm:dd:yy) | Mon, Aug 9 2004 | Item Help |
| Time (hh:mm:ss) | 10 : 32 : 57 | |
| ▶ IDE Primary Master | [Auto] | |
| ▶ IDE Primary Slave | [Auto] | |
| ▶ IDE Secondary Master | [Auto] | |
| ▶ IDE Secondary Slave | [Auto] | |
| Drive A | [1.44M, 3.5in.] | |
| Drive B | [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 | | |

4.5 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.

CMOS Setup Utility – Copyright© 1984-2001 Award Software
Advanced CMOS Features

| | | |
|--|-------------|-----------|
| Virus Warning | [Disabled] | Item Help |
| CPU L1 & L2 Cache | [Enabled] | |
| Hyper-Threading Technology | [Enabled] | |
| Quick Power On Self Test | [Enabled] | |
| First Boot Device | [Floppy] | |
| Second Boot Device | [Hard Disk] | |
| Third Boot Device | [CDROM] | |
| Boot Other Device | [Enabled] | |
| Boot Up Floppy Seed | [Enabled] | |
| Boot Up NumLock Status | [On] | |
| Gate A20 Option | [Fast] | |
| Typematic Rate Setting | [Disabled] | |
| Typematic Rate (Chars/Sec) | 6 | |
| Typematic Delay (Msec) | 250 | |
| Security Option | [Setup] | |
| APIC Mode | [Enabled] | |
| MPS Version Control For OS | [1.4] | |
| OS Select For DRAM > 64MB | [Non-OS2] | |
| Report No FDD For WIN 95 | [No] | |
| Small Logo(EPA) Show | [Enabled] | |
| ↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

4.6 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.

CMOS Setup Utility – Copyright© 1984-2001 Award Software
Advanced Chipset Features

| | | |
|--|------------|-----------|
| DRAM Timing Selectable | [By PSD] | Item Help |
| CAS Latency Time | [1.5] | |
| Active to Precharge Delay | [7] | |
| DRAM RAS# to CAS# Delay | [3] | |
| DRAM RAS# to Precharge | [3] | |
| Turbo Mode | [Disabled] | |
| Memory Frequency For | [Auto] | |
| System BIOS Cacheable | [Enabled] | |
| Video BIOS Cacheable | [Enabled] | |
| Memory Hole At 15M-16M | [Disabled] | |
| Delayed Transaction | [Enabled] | |
| Delay Prior to Thermal | [16 Min] | |
| AGP Aperture Size (MB) | [64] | |
| ** ON-chip VGA Setting ** | | |
| On-chip VGA | [Enabled] | |
| On-chip Frame Buffer size | [8MB] | |
| ↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

4.7 Integrated Peripherals

CMOS Setup Utility – Copyright© 1984-2001 Award Software
Integrated Peripherals

| | | |
|--|---------------|-----------|
| On-Chip Primary PCI IDE | [Enabled] | Item Help |
| IDE Primary Master PIO | [Auto] | |
| IDE Primary Slave PIO | [Auto] | |
| IDE Primary Master UDMA | [Auto] | |
| IDE Primary Slave UDMA | [Auto] | |
| On-Chip Secondary PCI IDE | [Enabled] | |
| IDE Secondary Master PIO | [Auto] | |
| IDE Secondary Slave PIO | [Auto] | |
| IDE Secondary Master UDMA | [Auto] | |
| IDE Secondary Slave UDMA | [Auto] | |
| USB Controller | [Enabled] | |
| USB 2.0 Controller | [Enabled] | |
| USB Keyboard Support | [Enabled] | |
| USB Mouse Support | [Enabled] | |
| AC97 Audio | [Auto] | |
| Init Display First | [Onboard/AGP] | |
| IDE HDD Block Mode | [Enabled] | |
| POWER ON Function | [BUTTON ONLY] | |
| KB Power ON Password | [Enter] | |
| Hot Key Power On | [Ctrl-F1] | |
| Onboard FDC Controller | [Enabled] | |
| Onboard Serial Port 1 | [3F8/IRQ4] | |
| Onboard Serial Port 2 | [2F8/IRQ3] | |
| UART Mode Select | [Normal] | |
| RxD, TxD Active | [Hi, Lo] | |
| IR Transmission Delay | [Enabled] | |
| UR2 Duplex Mode | [Half] | |
| Use IR Pins | [IR-Rx2Rx2] | |
| Onboard Parallel Port | [378/IRQ7] | |
| Parallel Port Mode | [SPP] | |
| EPP Mode Select | [EPP1.7] | |
| ECP Mode Use DMA | [3] | |
| POWER After PWR-Rail | [Off] | |
| ↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

4.8 Power Management Setup

The power management setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his owns style of computer use.

CMOS Setup Utility – Copyright© 1984-2001 Award Software

Power Management Setup

| | | |
|--|---------------|-----------|
| ACPI Function | [Enabled] | Item Help |
| ACPI Suspend Type | [S1(POS)] | |
| Run VGABIOS If S3 Resume | Auto | |
| Power Management | [User Define] | |
| Video Off Method | [DPMS] | |
| Video Off In Suspend | [Yes] | |
| Suspend Type | [Stop Grant] | |
| MODEM Use IRQ | [3] | |
| Suspend Mode | [Disabled] | |
| HDD Power Down | [Disabled] | |
| Soft-Off by PWR-BTTN | [Instant-Off] | |
| CPU THRM-Throttling | [50.0%] | |
| Wake-Up by PCI Card | [Disabled] | |
| Power On by Ring | [Disabled] | |
| Wake Up On LAN | [Disabled] | |
| USB KB Wake-Up From S3 | Disabled | |
| Resume by Alarm | [Disabled] | |
| Date(of Month) Alarm | 0 | |
| Time(hh:mm:ss) Alarm | 0 : 0 : 0 | |
| ** Reload Global Timer Events ** | | |
| Primary IDE 0 | [Disabled] | |
| Primary IDE 1 | [Disabled] | |
| Secondary IDE 0 | [Disabled] | |
| Secondary IDE 1 | [Disabled] | |
| FDD, COM, LTP Port | [Disabled] | |
| PCI PIRQ[A-D]# | [Disabled] | |
| +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F6: Fail-Safe Defaults F7: Optimized Defaults | | |

4.9 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.

CMOS Setup Utility – Copyright© 1984-2001 Award Software
PnP/PCI Configurations

| | | |
|--|--------------|-----------|
| PNP OS Installed | [No] | Item Help |
| Reset Configuration Date | [Disabled] | |
| Resources controlled By | [Auto(ESCD)] | |
| IRQ Resources | Press Enter | |
| DMA Resources | Press Enter | |
| IRQ-3 Assigned to | PCI Device | |
| IRQ4 | PCI Device | |
| IRQ5 | PCI Device | |
| IRQ7 | PCI Device | |
| IRQ9 | PCI Device | |
| IRQ10 | PCI Device | |
| IRQ11 | PCI Device | |
| IRQ12 | PCI Device | |
| IRQ13 | PCI Device | |
| IRQ14 | PCI Device | |
| IRQ15 | PCI Device | |
| PCI/VGA Palette Snoop | [Disabled] | |
| ↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

4.10 PC Health Status

CMOS Setup Utility – Copyright© 1984-2001 Award Software
PC Health Status

| | | |
|--|------------|-----------|
| CPU Warning Temperature | [Disabled] | Item Help |
| Current System Temp | | |
| Current CPU Temperature | | |
| Current CPUFAN Speed | | |
| Current SYSTEM FAN Speed | | |
| V CORE | | |
| +3.3V | | |
| +5V | | |
| +12V | | |
| -12V | | |
| -5V | | |
| VBAT(V) | | |
| 5VSB(V) | | |
| Shutdown Temperature | [Disabled] | |
| ↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

4.11 Frequency/Voltage Control

CMOS Setup Utility – Copyright© 1984-2001 Award Software
Frequency/Voltage Control

| | | |
|--|------------|-----------|
| CPU Clock Ratio | [8x] | Item Help |
| Auto Detect PCI Clk | [Enabled] | |
| Spread Specturm | [Disabled] | |
| ↑ ↓ ← →: Select Item +/-/PU/PD: Value F10: Save Esc: Quit F1: General Help | | |
| F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

Chapter 5

Software Utilities

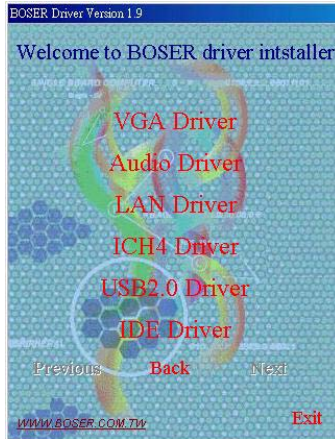
This chapter contains the detailed information of IDE, VGA, LAN, audio and USB2.0 driver installation procedures. The utility disk that comes with the delivery package contains an auto-run program that invokes the installation programs for the IDE, VGA, LAN and Audio drivers. The following sections describe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

5.1 IDE Driver Installation

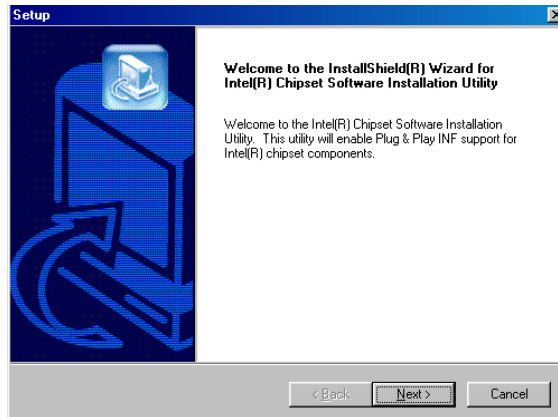
1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



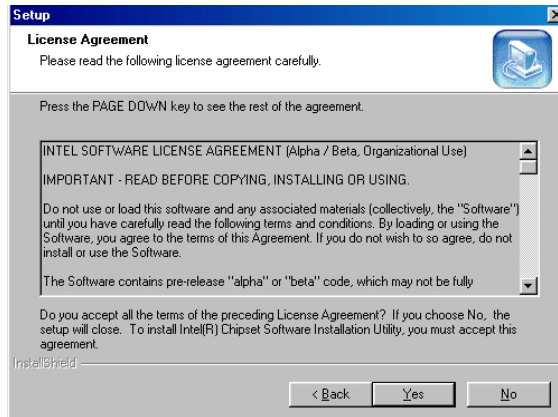
2. Click on the **ICH4 Driver** button to continue.



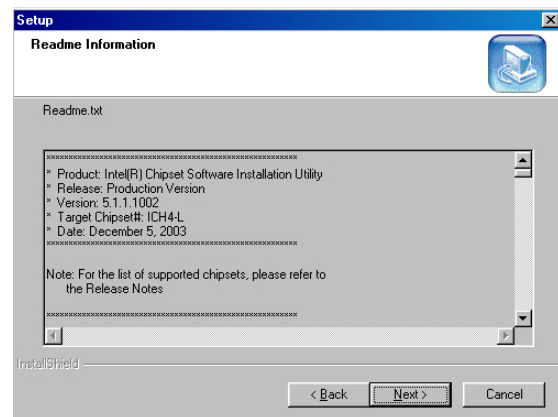
3. Immediately after clicking the IDE button in Step 1, the program launches the *Setup* that will assist you in the installation process. Click on the **Next >** button to proceed.



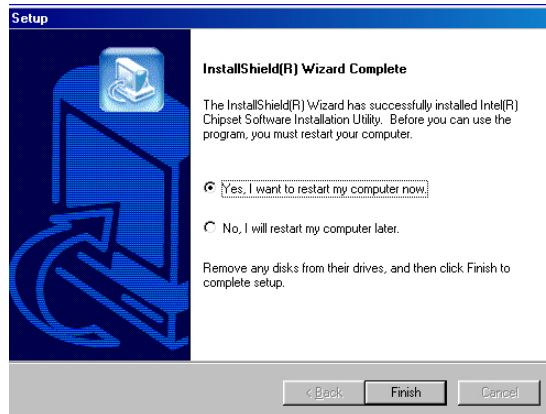
4. The *License Agreement* dialog box then appears on the screen. Choose **Yes** to proceed.



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



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



NOTE: WIN98/2K/XP IDE driver installations are the same.

5.2 VGA Driver Installation

5.2.1 WIN98

1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



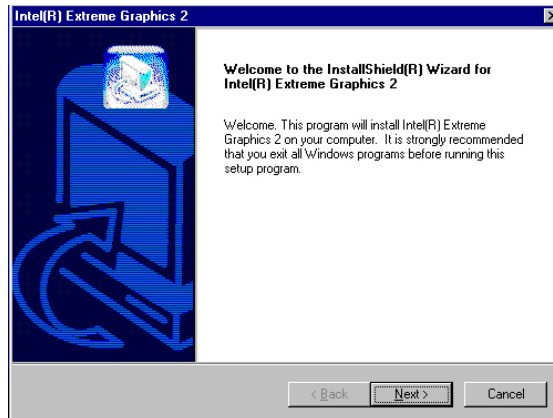
2. Click on the **VGA Driver** button to continue.



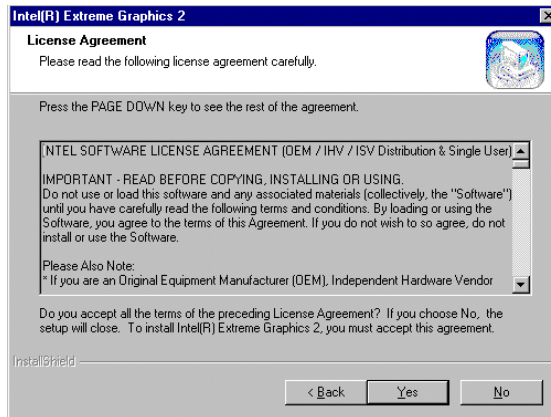
3. Click on the **WIN9X** button to continue.



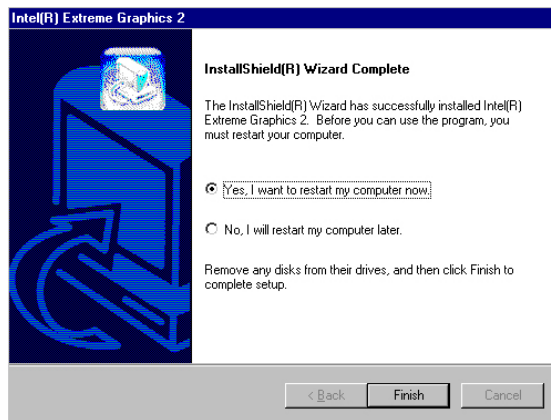
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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



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



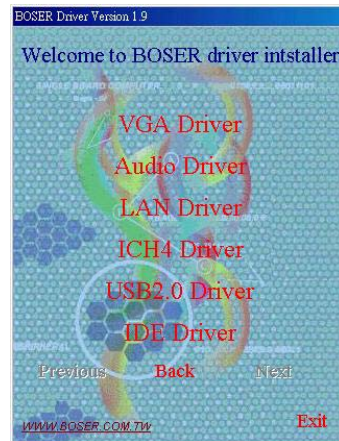
5.2.2 WIN NT

NOTE: Please make sure you have already installed *Service Pack 6.0*.

1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



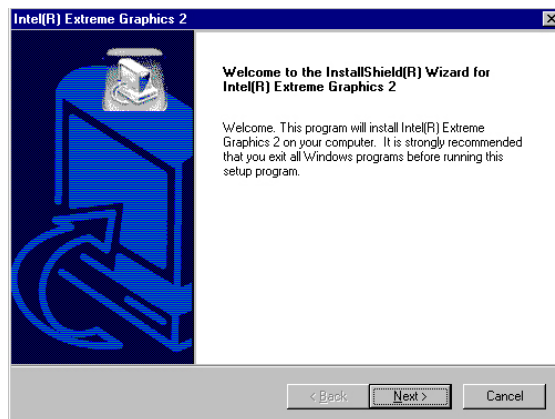
2. Click on the **VGA Driver** button to continue.



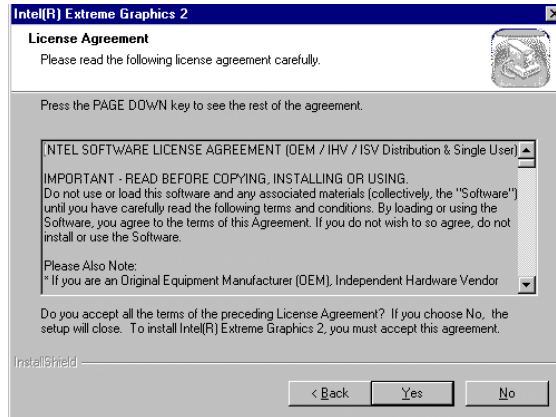
3. Click on the **WINNT** button to continue.



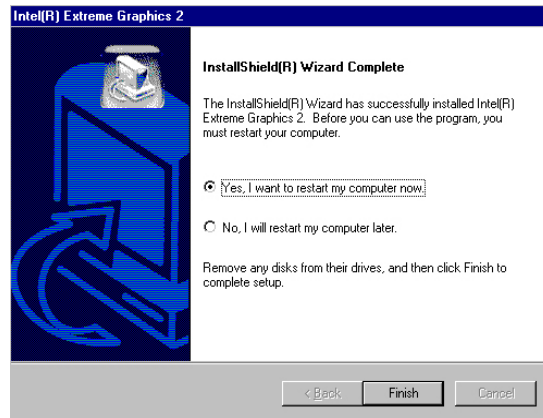
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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



6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot.



5.2.3 WIN2000/WINXP

1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



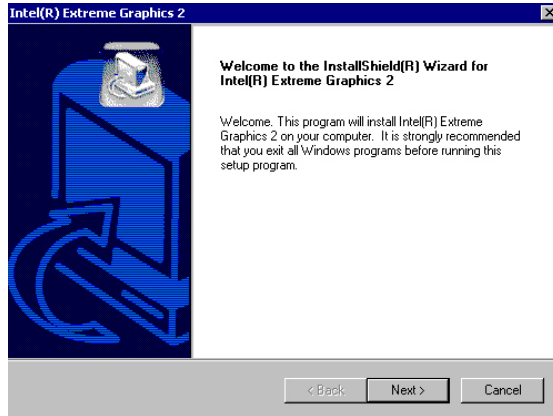
2. Click on the **VGA Driver** button to continue.



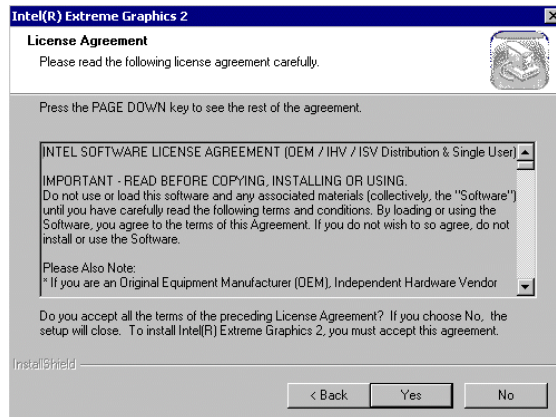
3. Click on the **WIN2K** button to continue.



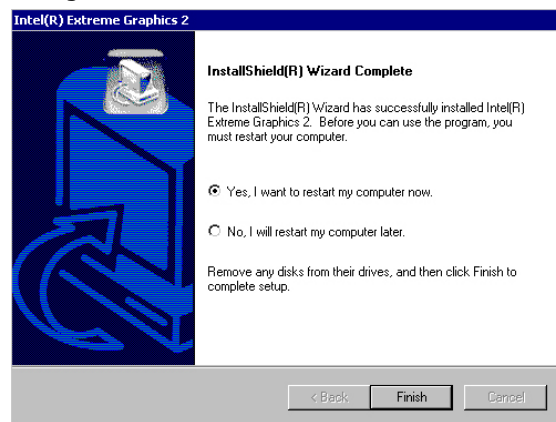
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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



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



5.3 LAN Driver Installation

5.3.1 WIN98

1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



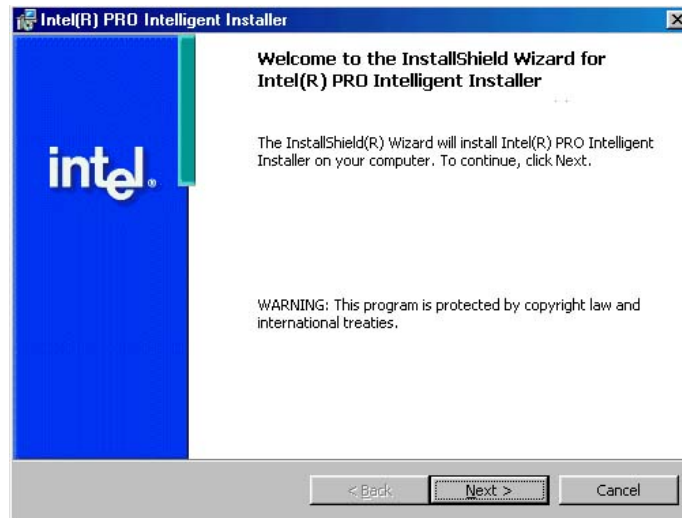
2. Click on the **LAN Driver** button to continue.



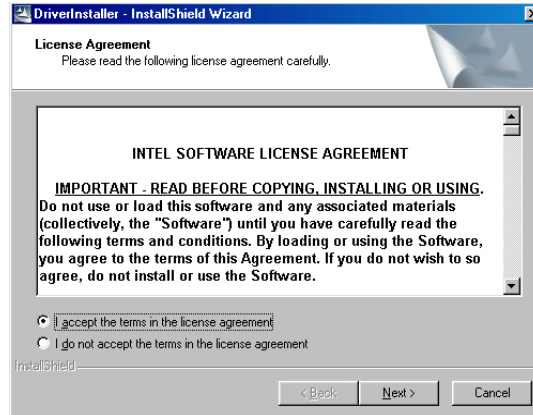
3. Click on the **WIN9X** button to continue.



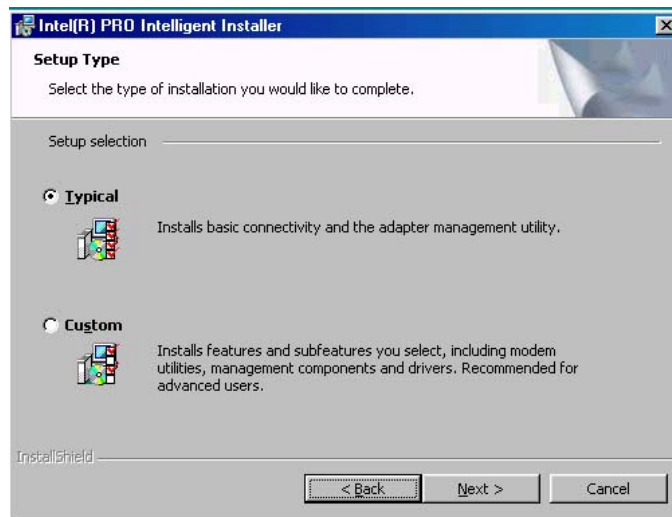
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



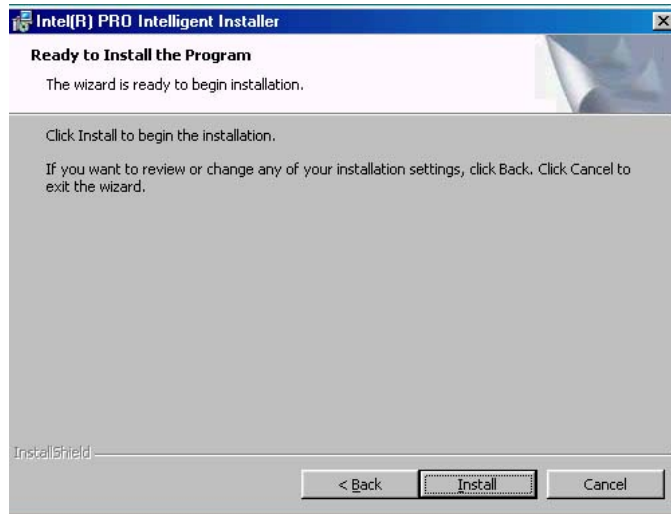
5. The Intel® OEM Software License Agreement dialog box then appears on the screen. Choose **Next >** to proceed.



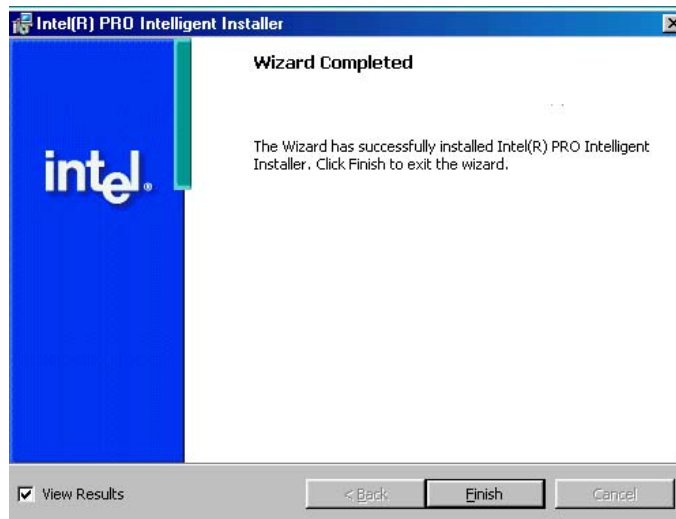
6. The Setup Type dialog box then appears on the screen. Choose **Typical** to proceed.



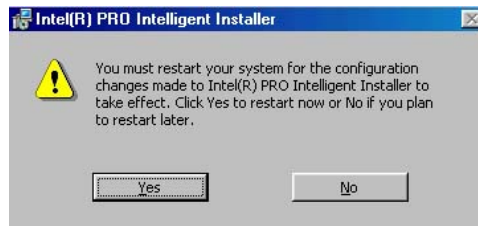
7. When the dialog box below appears, make sure you close all other Windows applications then click on the **Install** button to proceed.



8. When the dialog box below appears, it means your driver is install completed. Click **Finish** button to proceed.



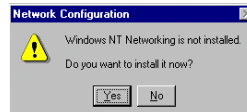
9. Once the setup program finishes copying files into your system, will prompt you to restart the computer. Tick on the Yes to reboot. Only after your computer boots will the new settings take effect.



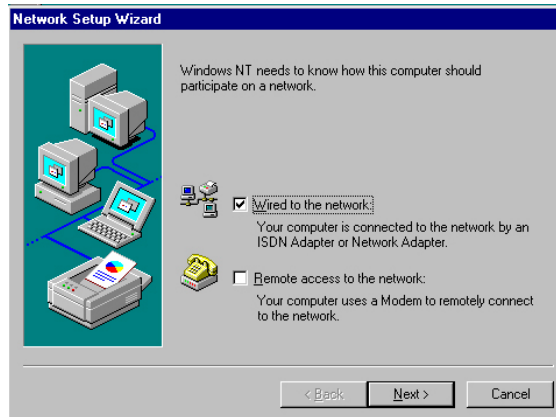
5.3.2 WINNT

NOTE: Please make sure you have already installed *Service Pack 6.0*.

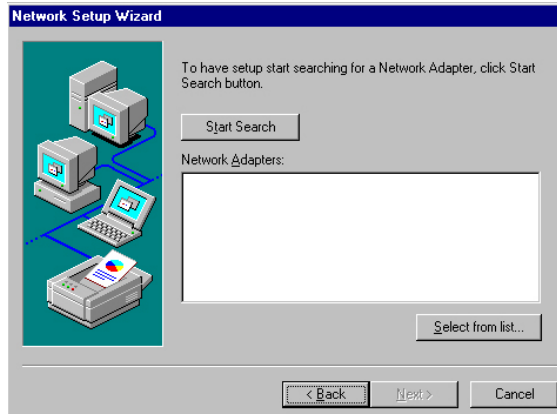
1. The system automatically detects the absence of Windows NT Networking. Click on the **Yes** button to start installation.



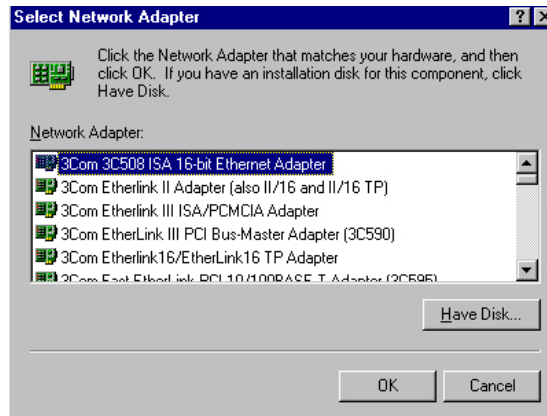
2. Tick on the **Wired to the network** once the following screen appears. Click on the **Next >** to proceed.



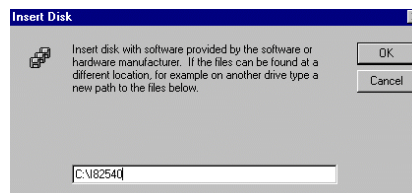
3. Click on the **Start Search** button for the program to locate the Network Adapter.



4. Once setup finishes the search, it will list a number of adapters for you to choose from. Press on the **Have Disk** button to assign the driver path location.



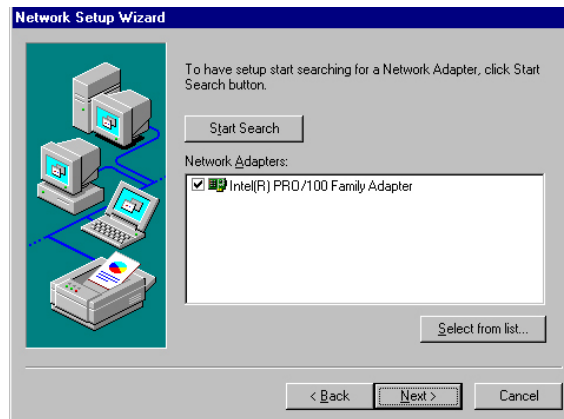
5. Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.



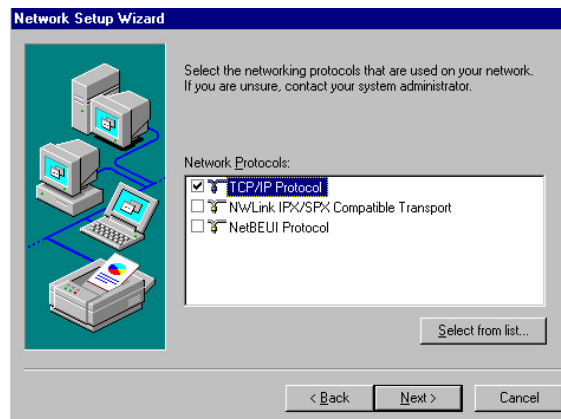
- When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. If using 82551 or 82562, please choose "**Intel(R) PRO/100 Family Adapter**". If using 82540EM, please choose "**Intel(R) PRO/1000 Family Adapter**". Press on the **OK** button to accept and proceed.



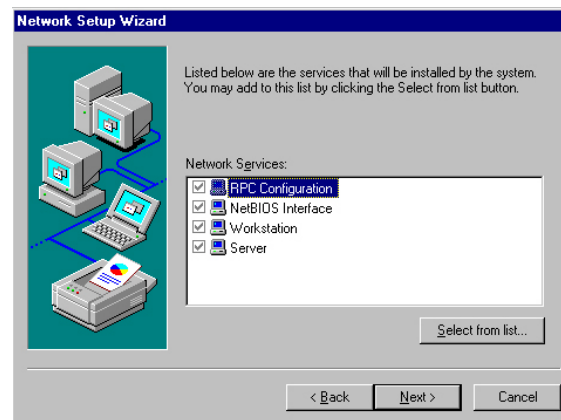
- Setup then returns to *Network Setup Wizard* screen and displays your new Network Adapter. Click on **Next >** to continue.



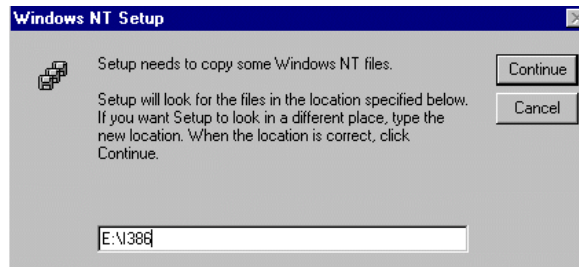
8. The *Network Setup Wizard* then allows you to set the **Network Protocols** on your network. Select the appropriate protocol and then click on **Next >** to continue.



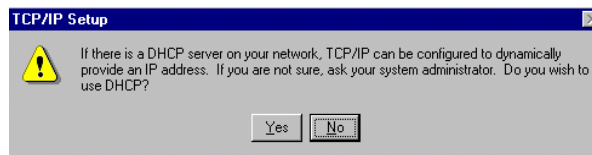
9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next >** button once you are sure of your devices.



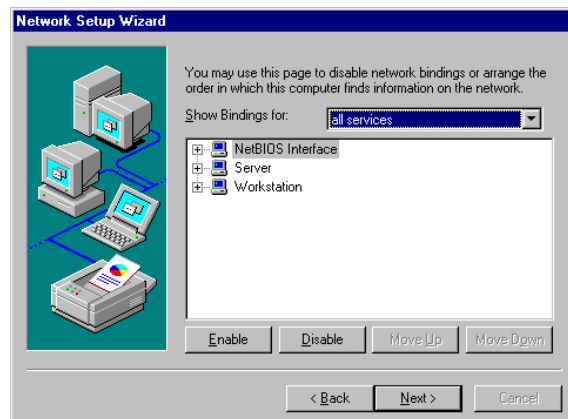
- Windows NT Setup will then need to copy files necessary to update the system information. Specify the path then press **Continue**.



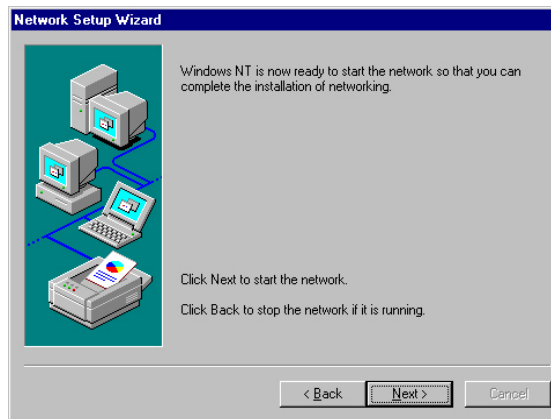
- When Setup asks if you wish to change the TCP/IP settings of your system, select them appropriately. The default choice is **No**.



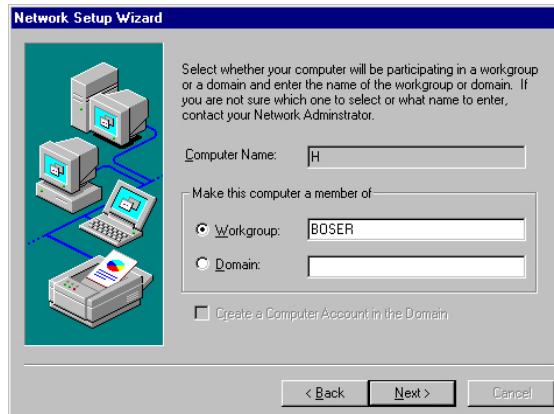
- Setup then starts the Networking installation and copies the files.
- When the screen below appears, click on **Next >** to continue.



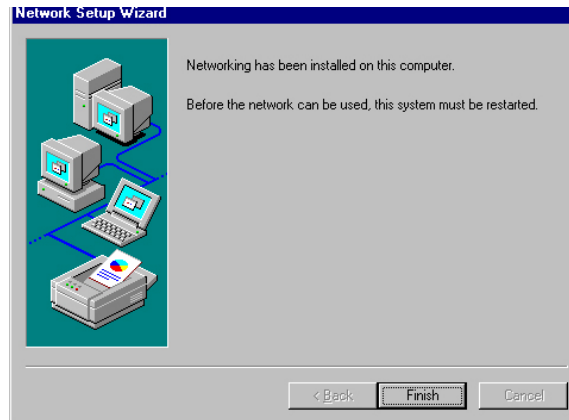
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **Next >** to continue.



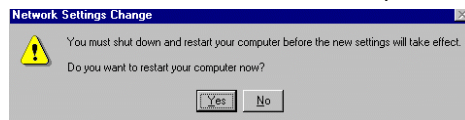
15. Assign the workgroup or domain setting of your computer. Click on **Next >** to continue.



16. When the dialog box below appears, it means your driver is install completed. Click **Finish** button to proceed.



17. Click on the **Yes** button to restart your computer. The LAN driver installation for WINNT is now complete.

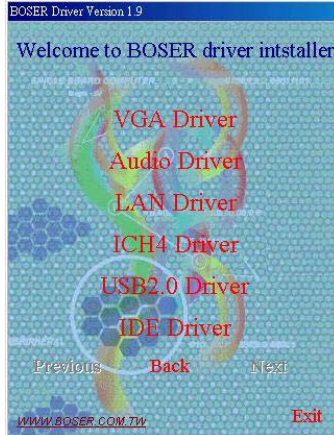


5.4 Audio Driver Installation

1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



2. Click on the **Audio Driver** button to continue.



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



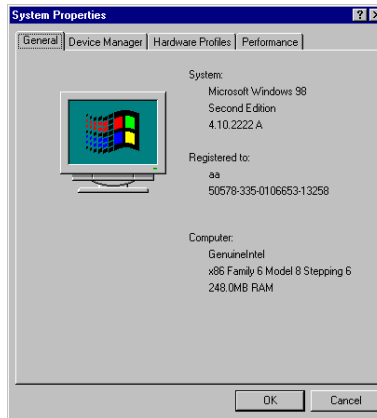
4. Once the *Install Shield Wizard* completes the operation and update of your AC97 driver, it will ask you to remove disks from their drives, and prompt you to restart your system. Tick on the **Yes, I want to restart my computer now.** Afterwards, click on the **Finish** button to complete the installation process. The system changes you made will take effect after the system restarts.



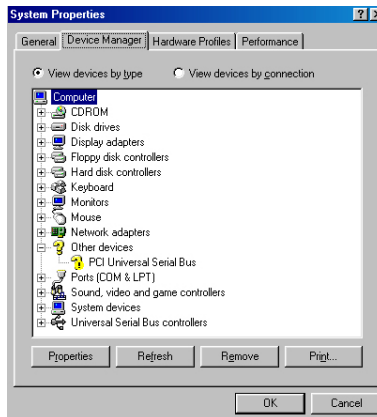
5.5 USB2.0 Driver Installation

5.5.1 WIN98

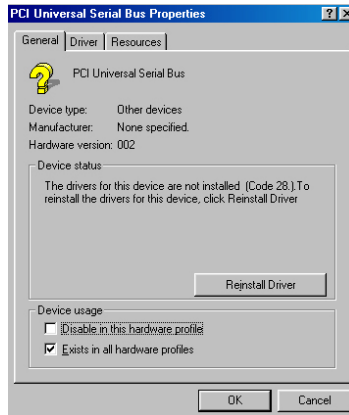
1. With the Utility CD Disk still in your CD-ROM drive, right click on **"My Computer"** icon from the Windows menu. Select on **System Properties** and then proceed to the **Device Manager** from the main menu.



2. Select on **Other Devices** from the list of devices then double-click on **PCI Universal Serial Bus**.



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



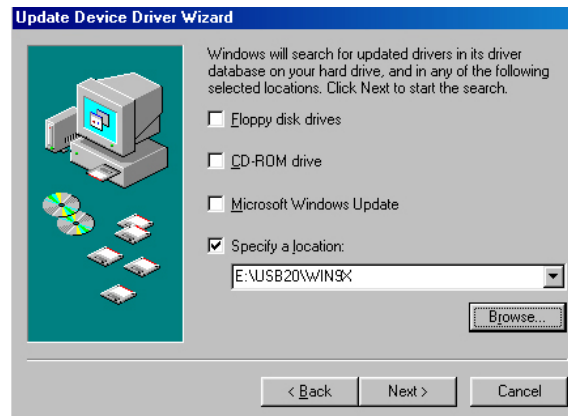
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



5. Tick on the **“Search for a better driver”** once the following screen appears, Click on the **Next >** to proceed.



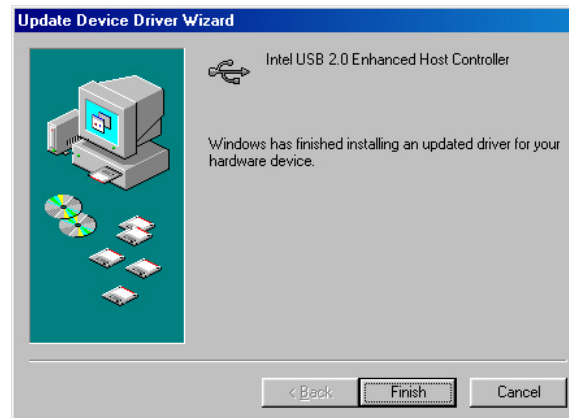
6. Once the program returns to the *Add New Hardware Wizard* screen, your specified location will appear. Press on the **Next >** button to continue.



- When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Press on the **Next >** button to accept and proceed.

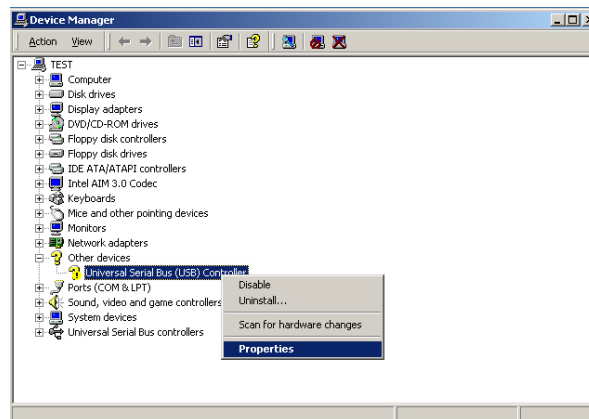


- Once the *Install Shield Wizard* completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.

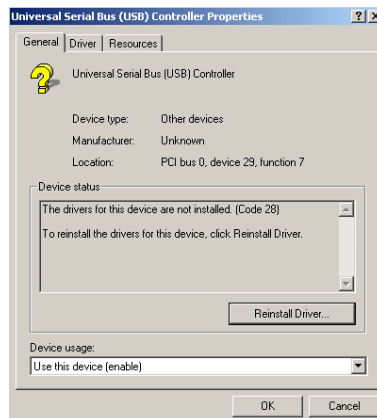


5.5.2 WIN2K

1. With the Utility CD Disk still in your CD-ROM drive, right click on **"My Computer"** icon from the Windows menu. Select on **System Properties** and then proceed to the **Device Manager** from the main menu.
2. Select on **Other Devices** from the list of devices then double-click on **PCI Universal Serial Bus**.



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



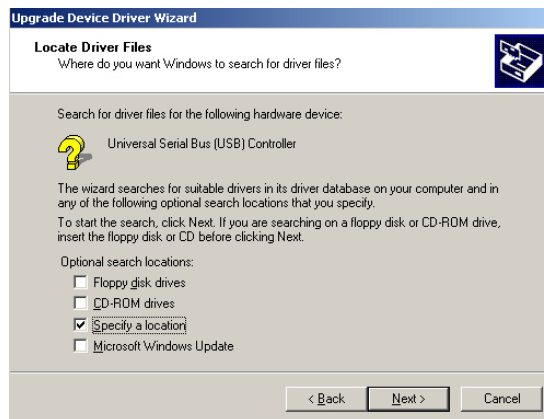
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



5. Tick on the **"Search for a better driver"** once the following screen appears, Click on the **Next >** to proceed.



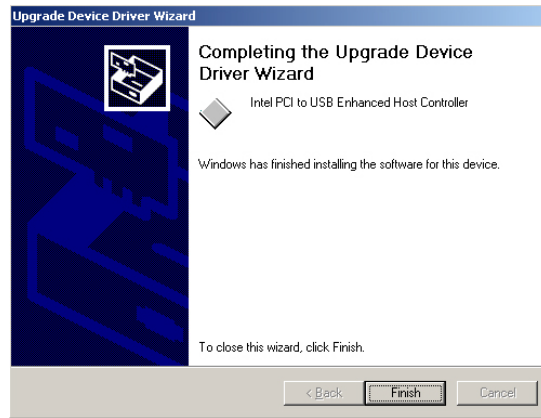
6. Once the program returns to the *Add New Hardware Wizard* screen, your specified location will appear. Press on the **Next >** button to continue.



7. Choose the driver disk location.



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



5.5.3 WINXP

1. Insert Utility CD Disk into your CD-ROM drive. The main menu will pop up as shown below. Select on the **HS-7238** button to launch the installation program.



2. Click on the **USB2.0 Driver** button to continue.



3. Click on the **WINXP** button to continue.



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



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

