# HS-7002

**800MHz FSB Pentium® 4**
**Industrial Single Board Computer**

**• Full-size • 800MHz FSB • DDR •**
**• CRT/LVDS Panel • TV-Out • Dual Giga LAN •**
**• Audio • Serial ATA • ATA/33/66/100 •**
**• RS-232/422/485 • 4 COM • PC/104 • IrDA •**
**• USB2.0 • WDT • H/W Monitor •**
**• PICMG Bus Industrial Single Board computer •**

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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 handling the HS-7002 to protect yourself from the discharge of 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 COMPONENT WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.*

# *Chapter 1*

## General Description
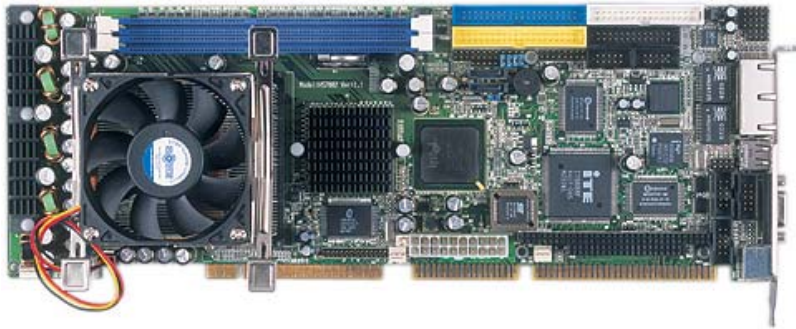


The HS-7002 is an Intel® 82865GV/82801EB chipset-based board designed for PICMG Bus PGA 478 Intel® Pentium® 4 CPU with speed of up to 3.2GHz CPU. The combination of these features makes the HS-7002 an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CRT/LVDS Panel, TV-Out, dual Giga LAN, audio, serial ATA, 4 COM port interface, and more.

Its onboard ATA/33/66/100 connected to IDE drive interface architecture allows the HS-7002 to support data transfers of 33, 66 or 100MB/sec. for each IDE drive connection. Designed with the Intel® 82865GV/82801EB core logic chipset, the board supports all PGA 478 Pentium® 4 CPU series with Intel® Hyper-Threading Technology clocking up to 3.2GHz. The display controller is Intel 82865GV with 1MB/8MB/16MB memory supporting CRT display up to 1600 x 1200 x 32-bit at 60Hz.

Serial ATA is the revolutionary ATA interface that provides scalable performance for IDE device. With up to 150MB/sec. data transfer rate, serial ATA is faster than the current parallel ATA and delivers superior input/output performance. In addition, the serial ATA interface is furnished with RAID 0/1 function for extra performance enhancement and data protection.

System memory is also sufficient with the two DDR sockets that can support DDR-266/333/400 up to 2GB. 800MHz FSB CPU can support DDR-400, 533MHz FSB CPU, can support DDR-333, and 400MHz FSB CPU can support DDR-266.

Additional onboard connectors include an advanced USB2.0 and IrDA port providing faster data transmission, and two external RJ-45 connectors for use of one 100/1000 and one 10/100 OR two 10/100 Base-TX Ethernet interfaces.

# 1.1   Major Features
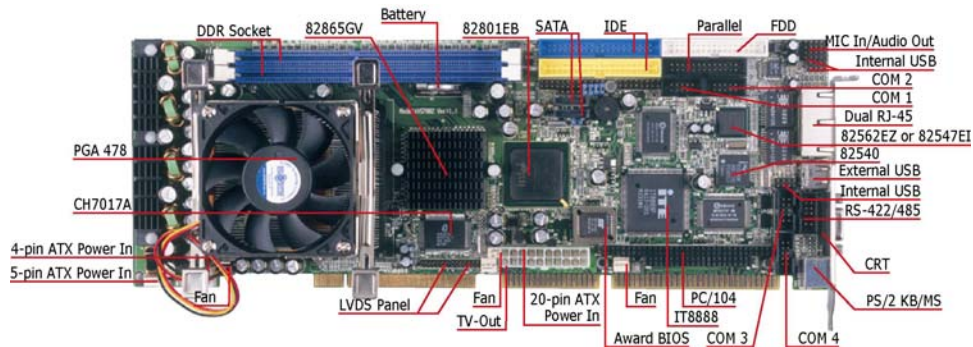


The HS-7002 comes with the following features:
- PGA 478 for Intel® Pentium® 4 CPU with Hyper-Threading Technology clocking up to 3.2GHz
- Supports 400/533/800MHz FSB
- Two DDR sockets with a max. capacity of 2GB
- Intel 82865GV/82801EB system chipset
- Winbond W83627 super I/O chipset
- Intel® 82865GV display controller
- Intel® 82562EZ (or 82547EI) and 82540 LAN controller
- AC97 3D audio controller
- Serial ATA controller
- Fast PCI ATA/33/66/100 IDE controller
- Four COM, seven USB2.0, PC/104 connector
- Hardware Monitor function
- LVDS Panel display interface (optional)
- TV-Out function (optional)

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## 1.2 Specifications

- **CPU:** PGA 478 for Intel$^®$ Pentium$^®$ 4 CPU with Hyper-Threading Technology up to 3.2GHz
- **Bus Interface:** PICMG Bus
- **Front Side Bus:** Supports 400/533/800MHz FSB
- **Memory:** Two DDR sockets supporting DDR-266/333/400 up to 2GB
- **Chipset:** Intel$^®$ 82865GV/82801EB
- **I/O Chipset:** Winbond W83627
- **ISA Bridge:** ITE IT8888 (16-bit)
- **VGA:** Intel$^®$ 82865GV with 1MB/8MB/16MB shared main memory supporting CRT display up to 1600 x 1200 at 32-bit colors at 60Hz
- **LVDS Panel:** Supports LVDS interface (optional)
- **TV-Out:** Supports PAL or NTSC TV systems (optional)
- **LAN:** Intel$^®$ 82562EZ 10/100 Based (or 82547EI 100/1000 Based) and 82540 100/1000 Based LAN
- **Audio:** AC97 3D audio controller
- **Serial ATA:** Intel$^®$ ICH5 controller and with two ports supporting transfer rate up to 150MB/sec.
- **IDE:** Four IDE disk drives supporting ATA/33/66/100 and with transfer rates of up to 33/66/100MB/sec.
- **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-232/422/485 x 1 and RS-232 x 3 serial ports with 16-byte FIFO
- **PC/104:** PC/104 connector for 16-bit ISA Bus
- **IrDA:** One IrDA TX/RX header
- **USB:** Seven USB2.0 ports, six internal and one external
- **Keyboard/Mouse:** PS/2 6-pin Mini DIN
- **BIOS:** Award PnP Flash BIOS
- **Watchdog Timer:** Software programmable time-out intervals from 1~256sec.
- **CMOS:** Battery backup
- **Temperature:** 0~60°C (operating)
- **Hardware Monitor:** Winbond W83627
- **Board Size:** 33.8(L) x 12.1(W) cm

## 1.3 Board Dimensions
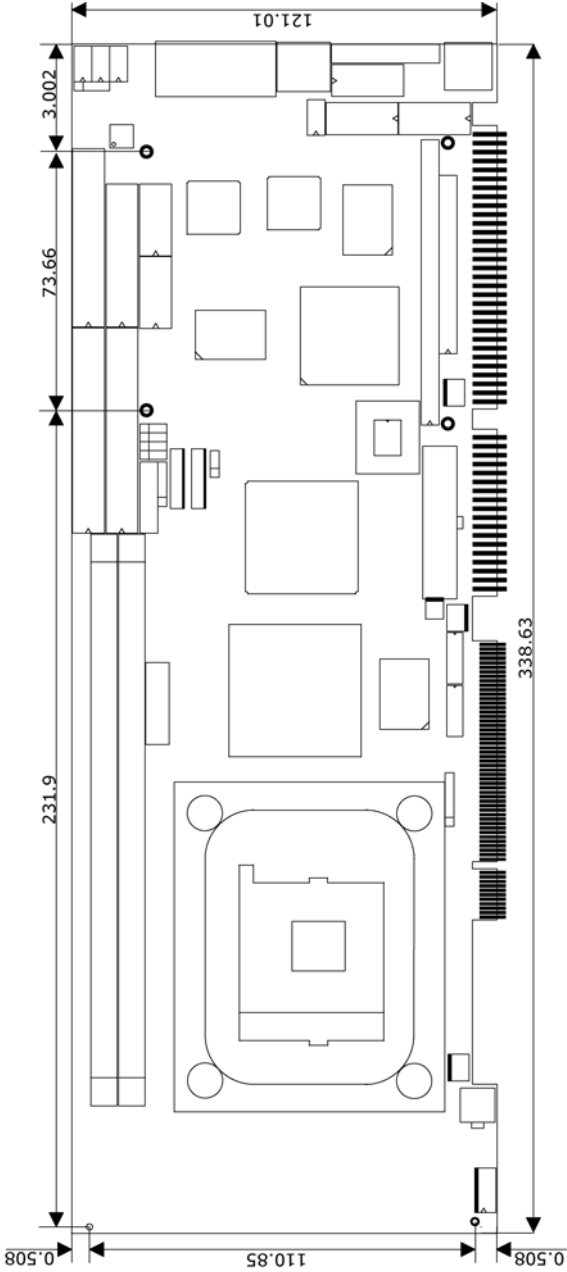
# *Chapter 2*

## Unpacking

### 2.1 Opening the Delivery Package

The HS-7002 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. Make sure all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip are firmly seated. The HS-7002 delivery package contains the following items:

- HS-7002 Board x 1
- Utility CD Disk x 1
- Cables Package x 1
- Cooling Fan x 1
- Jumper Bag x 1
- User's Manual
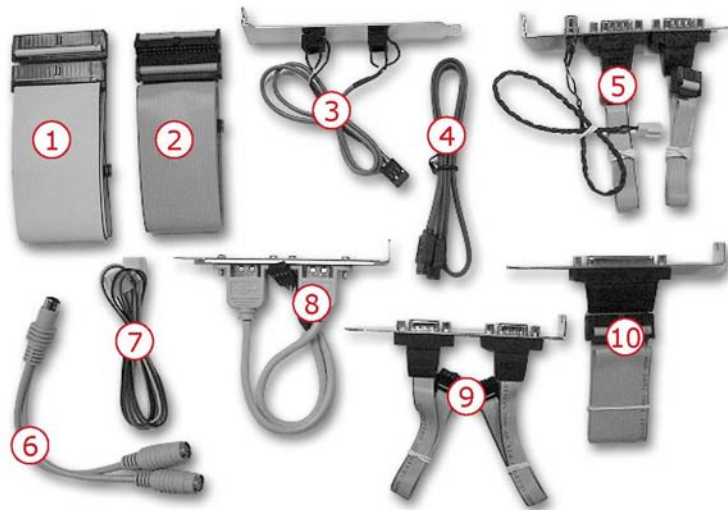
| Cables Package | |
|:---:|:---|
| **NO.** | **Description** |
| 1 | ATA/100 IDE flat cable x 2 |
| 2 | Floppy flat cable x 1 |
| 3 | MIC/Audio 8-pin cable + 2 phone jacks x 1 |
| 4 | Serial ATA cable x 1 |
| 5 | Two COM + RCA jack x 1 |
| 6 | PS/2 KB/MS transfer cable x 1 |
| 7 | 5-pin ATX power cable x 1 |
| 8 | 8-pin USB split type cable with bracket x 1 |
| 9 | Two COM flat cable with bracket x 1 |
| 10 | Parallel port flat cable with bracket x 1 |

It is recommended that you keep all the parts of the delivery package intact and store them in a safe/dry place for any unforeseen event requiring the returned 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-7002. This chapter also contains information related to jumper settings of switch, 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 JP3 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 in 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 you use is for P4 only. One of 4-pin connectors is for +12V lead which should be connected to CN1 connector of the HS-7002.

## 3.2 Board Layout
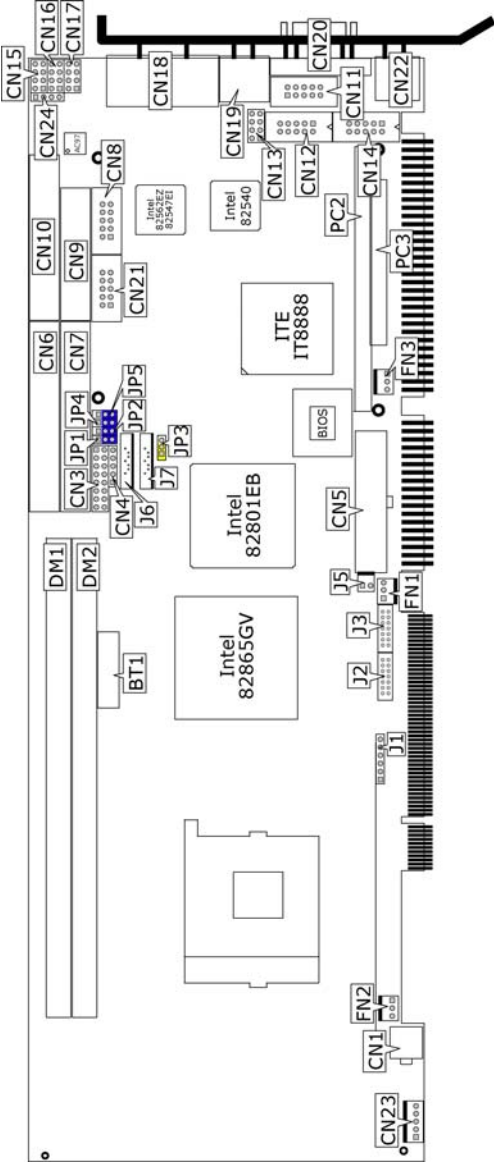
## 3.3   Jumper List

| Jumper | Default Setting | Setting | Page |
|---|---|---|---|
| **JP1/JP2/JP4/JP5** | Use RS-232 or RS-422/485 Select: *RS-232* | 2-3 Short | 16 |
| **JP3** | Clear CMOS: *Normal Operation* | 1-2 Short | 20 |

## 3.4   Connector List

| Connector | Definition | Page |
|---|---|---|
| **CN1/CN5** | 4-pin/20-pin ATX Power Connectors | 20 |
| **CN3(1-3-5-7)** | Speaker Connector | 22 |
| **CN3(9-11)** | Reset Button Connector | 22 |
| **CN3(13-15)** | HDD LED Switch | 22 |
| **CN3(2-4-6-8)** | Power LED Connector | 22 |
| **CN3(10-12)** | 2-pin ATX Power ON/OFF Connector | 22 |
| **CN3(14-16)** | Green LED Connector | 22 |
| **CN4** | IrDA Connector | 17 |
| **CN7/CN6** | Primary/Secondary IDE Connectors | 13 |
| **CN21/CN8/CN12/CN14** | COM1~COM4 Connectors (5x2 header) | 16 |
| **CN9** | Parallel Connector | 18 |
| **CN10** | FDD Connector | 15 |
| **CN11** | RS-422/485 Connector (5x2 header) | 16 |
| **CN13/CN16/CN17** | USB2.0 Connectors | 19 |
| **CN15** | MIC In/Audio Out Connector | 24 |
| **CN18** | Dual RJ-45 Connector | 19 |
| **CN19** | External USB Connector | 19 |
| **CN20** | 15-pin CRT Connector | 10 |
| **CN22** | PS/2 6-pin Mini DIN KB/MS Connector | 22 |
| **CN23** | 5-pin ATX Power Connector | 20 |
| **CN24** | Line In Connector | |
| **DM1/DM2** | DDR Sockets | 10 |
| **J1** | Inverter Power Connector | 10 |
| **J2** | LVDS Connector | 10 |
| **J3** | LVDS Connector | 10 |
| **J5** | TV-Out Connector | 24 |
| **J6 / J7** | Serial ATA Connector | 12 |
| **FN1 / FN2 / FN3** | Fan Power Connector | 20 |
| **PC2 / PC3** | PC/104 64-pin/40-pin Connector | 25 |

## 3.5 Configuring the CPU

The HS-7002 offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the HS-7002 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.

The HS-7002 provides 400MHz/533MHz/800MHz FSB, and the all-in-one solution for the latest Intel® Pentium 4 processor with 800MHz FSB and Hyper-Threading Technology.

**NOTE:** *CPU Vcore should be located in the range of 0.8375V to 1.6V, otherwise system won't boot.*

## 3.6 System Memory

The HS-7002 provides two DDR sockets at locations *DM1* and *DM2*. The maximum capacity of the onboard memory is 2GB. 800MHz FSB CPU can support DDR-266/333/400, 533MHz FSB CPU can support DDR-266/333, and 400MHz FSB CPU can support DDR-266.

| FSB \ Memory CLK | DDR-266 | DDR-333 | DDR-400 |
|---|---|---|---|
| 800MHz FSB | Yes | Yes | Yes |
| 533MHz FSB | Yes | Yes | No |
| 400MHz FSB | Yes | No | No |

## 3.7 VGA Controller

The onboard Intel® 82865GV with 1MB/8MB/16MB (default) memory supports CRT displays up to 1600 x 1200 x 32-bit. The HS-7002 provides two methods of connecting VGA device. *CN20* offers a single standard CRT connector (DB15). And *J2, J3* offers LVDS Panel connectors.

● **CN20: 15-pin CRT Connector (DB15)**

| 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 | | |
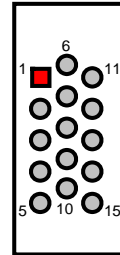
● **J1: Inverter Power Connector**

| PIN | Description |
|-----|-------------|
| 1 | VCC12 |
| 2 | VCC12 |
| 3 | VCC5 |
| 4 | ENABKL |
| 5 | ENAVDD |
| 6 | GND |
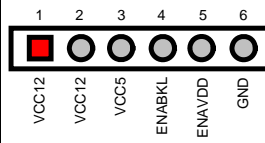
● **J3: LVDS Panel Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC3 | 2 | VCC3 |
| 3 | GND | 4 | GND |
| 5 | A0M | 6 | A0P |
| 7 | A1M | 8 | A1P |
| 9 | A2M | 10 | A2P |
| 11 | CLK1M | 12 | CLK1P |
| 13 | A3M | 14 | A3P |
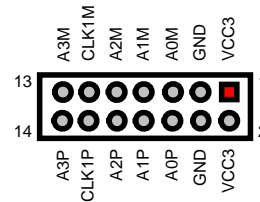
● **J2: LVDS Panel Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC3 | 2 | VCC3 |
| 3 | GND | 4 | GND |
| 5 | A4M | 6 | A4P |
| 7 | A5M | 8 | A5P |
| 9 | A6M | 10 | A6P |
| 11 | CLK2M | 12 | CLK2P |
| 13 | A7M | 14 | A7P |

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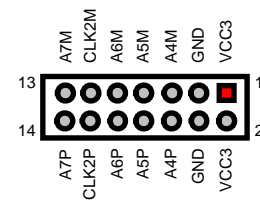
# 3.8 Serial ATA Function

You can connect the Serial ATA device to this connector which provides you high speed 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.

● **J7: Serial ATA Connector**

| PIN | Description |
|-----|-------------|
| 1 | GND |
| 2 | SATA0TXP |
| 3 | SATA0TXN |
| 4 | GND |
| 5 | SATA0RXN |
| 6 | SATA0RXP |
| 7 | GND |

● **J6: Serial ATA Connector**

| PIN | Description |
|-----|-------------|
| 1 | GND |
| 2 | SATA1TXP |
| 3 | SATA1TXN |
| 4 | GND |
| 5 | SATA1RXN |
| 6 | SATA1RXP |
| 7 | GND |
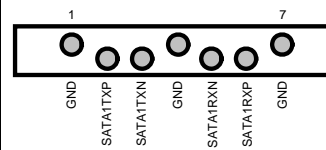
## IDE and Serial ATA Device Configurations

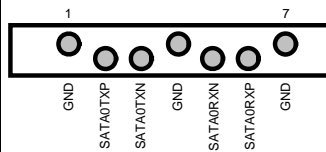Following are the IDE and Serial ATA device configurations supported by Intel ICH5 specifications.

Native operating systems (OS) are Windows 2000/XP. ICH5 supports a maximum of six devices using these OS.

Legacy OS are MS-DOS, Windows 95/98/Me/NT4.0. ICH5 supports a maximum of four devices using these OS.

| Operating System | IDE | Serial ATA |
|------------------|-----|------------|
| WIN 2000/XP | Primary/Secondary | Port0/Port1 |
| WIN 95/98/Me/NT4.0 | Primary | Port0/Port1 |
| | Secondary | Port0/Port1 |
| | Primary/Secondary | ---- |

# 3.9 PCI E-IDE Drive Connector

*CN7* and *CN6* are standard 40-pin daisy-chain driver connectors that serve the PCI E-IDE drive provisions onboard the HS-7002. A maximum of four ATA/33/66/100 IDE drives can be connected to the HS-7002 via *CN7* and *CN6*.

● **CN7: Primary IDE Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | RESET | 2 | GND |
| 3 | PDATA 7 | 4 | PDATA 8 |
| 5 | PDATA 6 | 6 | PDATA 9 |
| 7 | PDATA 5 | 8 | PDATA 10 |
| 9 | PDATA 4 | 10 | PDATA 11 |
| 11 | PDATA 3 | 12 | PDATA 12 |
| 13 | PDATA 2 | 14 | PDATA 13 |
| 15 | PDATA 1 | 16 | PDATA 14 |
| 17 | PDATA 0 | 18 | PDATA 15 |
| 19 | GND | 20 | N/C |
| 21 | PDREQ | 22 | GND |
| 23 | PIOW# | 24 | GND |
| 25 | PIOR# | 26 | GND |
| 27 | PIORDY | 28 | PR1PD1- |
| 29 | RPDACK- | 30 | GND |
| 31 | Interrupt | 32 | N/C |
| 33 | PDA1- | 34 | PATA66 |
| 35 | PDA0- | 36 | PDA2- |
| 37 | PDCS1- | 38 | RPCS3- |
| 39 | HDD Active P | 40 | GND |
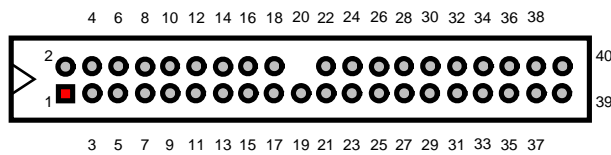
## CN6: Secondary IDE Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | RESET | 2 | GND |
| 3 | SDATA 7 | 4 | SDATA 8 |
| 5 | SDATA 6 | 6 | SDATA 9 |
| 7 | SDATA 5 | 8 | SDATA 10 |
| 9 | SDATA 4 | 10 | SDATA 11 |
| 11 | SDATA 3 | 12 | SDATA 12 |
| 13 | SDATA 2 | 14 | SDATA 13 |
| 15 | SDATA 1 | 16 | SDATA 14 |
| 17 | SDATA 0 | 18 | SDATA 15 |
| 19 | GND | 20 | N/C |
| 21 | SDREQ | 22 | GND |
| 23 | SIOW# | 24 | GND |
| 25 | SIOR# | 26 | GND |
| 27 | SIORDY | 28 | PR1SD1- |
| 29 | SDDACK- | 30 | GND |
| 31 | Interrupt | 32 | N/C |
| 33 | SDA1- | 34 | SATA66 |
| 35 | SDA0- | 36 | SDA2- |
| 37 | SDCS1- | 38 | SDCS3- |
| 39 | HDD Active S | 40 | GND |
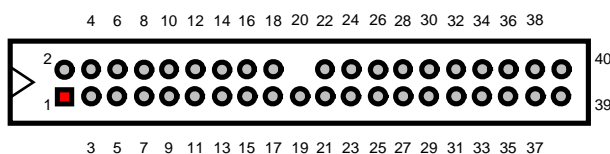
## 3.10 Floppy Disk Drive Connector

The HS-7002 uses a standard 34-pin header connector, *CN10*, for floppy disk drive connection. A total of two FDD drives may be connected to *CN10* at any given time.

● **CN10: FDD Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|------------|
| 1 | GND | 2 | DRVDEN0 |
| 3 | GND | 4 | N/C |
| 5 | GND | 6 | DRVDEN1 |
| 7 | GND | 8 | INDEX# |
| 9 | GND | 10 | MTR0# |
| 11 | GND | 12 | DS1# |
| 13 | GND | 14 | DS0# |
| 15 | GND | 16 | MTR1# |
| 17 | GND | 18 | DIR# |
| 19 | GND | 20 | STEP# |
| 21 | GND | 22 | WDATA# |
| 23 | GND | 24 | WGATE# |
| 25 | GND | 26 | TRAK00# |
| 27 | GND | 28 | WRTPRT# |
| 29 | GND | 30 | RDATA# |
| 31 | GND | 32 | HDSEL# |
| 33 | GND | 34 | DSKCHG# |
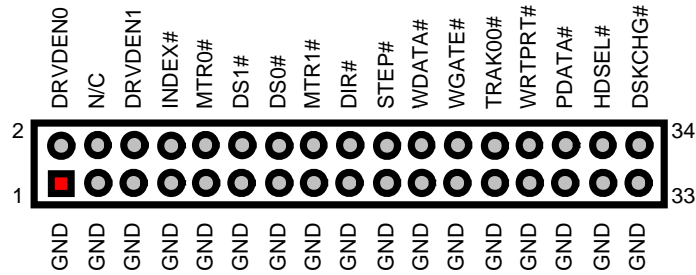
# 3.11 Serial Port Connectors

The HS-7002's *CN21*, *CN8*, *CN12* and *CN14* provide four high speed NS16C550 compatible UART with Read/Receive 16 byte FIFO serial ports.
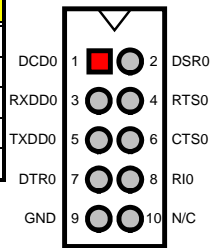
- ● **CN21: COM1 Connector (5x2 Header)**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD0 | 2 | DSR0 |
| 3 | RXDD0 | 4 | RTS0 |
| 5 | TXDD0 | 6 | CTS0 |
| 7 | DTR0 | 8 | RI0 |
| 9 | GND | 10 | N/C |

- ● **CN8: COM2 Connector (5x2 Header)**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD1 | 2 | DSR1 |
| 3 | RXDD1 | 4 | RTS1 |
| 5 | TXDD1 | 6 | CTS1 |
| 7 | DTR1 | 8 | RI1 |
| 9 | GND | 10 | N/C |
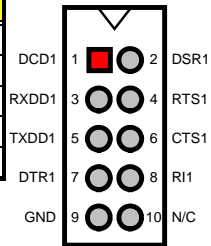
- ● **CN12: COM3 Connector (5x2 Header)**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD2 | 2 | DSR2 |
| 3 | RXDD2 | 4 | RTS2 |
| 5 | TXDD2 | 6 | CTS2 |
| 7 | DTR2 | 8 | RI2 |
| 9 | GND | 10 | N/C |

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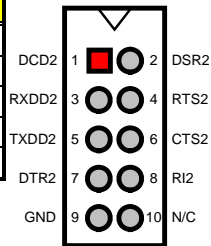
- **CN14: COM4 Connector (5x2 Header)**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD3 | 2 | DSR3 |
| 3 | RXDD3 | 4 | RTS3 |
| 5 | TXDD3 | 6 | CTS3 |
| 7 | DTR3 | 8 | RI3 |
| 9 | GND | 10 | N/C |
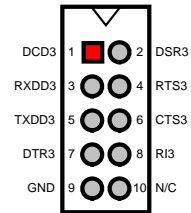
The onboard COM2 may be configured as RS-232, RS-422, or RS-485.

- **CN11: RS-422/485 Connector (5x2 Header)**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | TX- | 2 | TX+ |
| 3 | RX+ | 4 | RX- |
| 5 | GND | 6 | RTS- |
| 7 | RTS+ | 8 | CTS+ |
| 9 | CTS- | 10 | N/C |
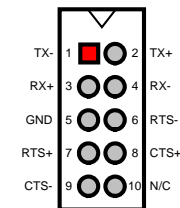
- **JP1/JP2/JP4/JP5: COM2 Use RS-232 or RS-422/485 Select**

| Options | Settings |
|---------|----------|
| **RS-232 (default)** | Short 2-3 |
| **RS-422/485** | Short 1-2 |

# 3.12 IrDA Connector

*CN4* is a 5-pin internal FIR communication connector for connection of an IrDA device.

- **CN4: IrDA Connector**

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

17

# 3.13 Parallel Connector

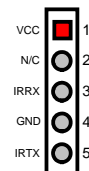*CN9* is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the HS-7002.

● **CN9: Parallel Connector**

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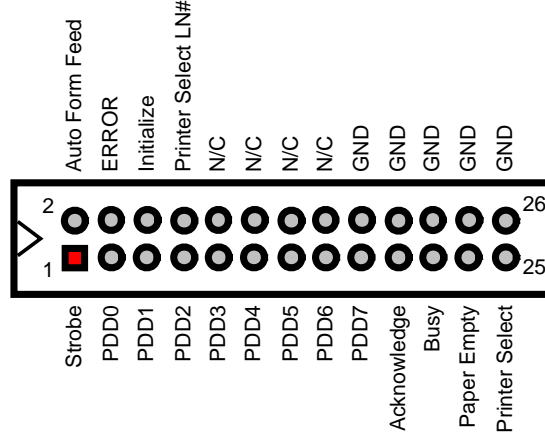
# 3.14 Ethernet Connector

The HS-7002 provides one 10/100 and one 100/1000 OR two 10/100 Base-TX LAN interface connectors. Please refer to the following for its pin information.

- **CN18: Dual RJ-45 Connector**

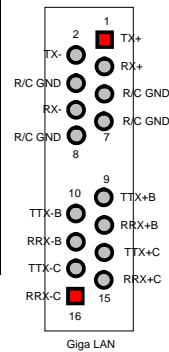| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | TX+ | 2 | TX- |
| 3 | RX+ | 4 | R/C GND |
| 5 | R/C GND | 6 | RX- |
| 7 | R/C GND | 8 | R/C GND |
| 9 | TTX+B | 10 | TTX-B |
| 11 | RRX+B | 12 | RRX-B |
| 13 | TTX+C | 14 | TTX-C |
| 15 | RRX+C | 16 | RRX-C |

# 3.15 USB Connector

The HS-7002 provides three internal 8-pin USB2.0 and one 4-pin external USB2.0 connectors, at locations *CN13*, *CN16*, *CN17* and *CN19* for seven USB2.0 connections to the HS-7002.

- **CN16: USB0/USB1 Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | BD0- | 4 | BD1- |
| 5 | BD0+ | 6 | BD1+ |
| 7 | GND | 8 | GND |
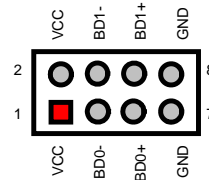
- **CN17: USB2/USB3 Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | BD3- | 4 | BD2- |
| 5 | BD3+ | 6 | BD2+ |
| 7 | GND | 8 | GND |

19
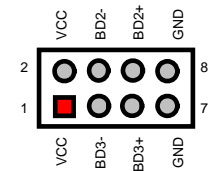
● **CN13: USB4/USB5 Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | BD5- | 4 | BD4- |
| 5 | BD5+ | 6 | BD4+ |
| 7 | GND | 8 | GND |
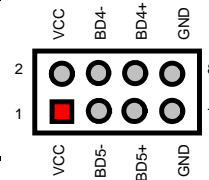
● **CN19: External USB Connector**

| PIN | Description |
|-----|-------------|
| 1 | VCC |
| 3 | BD6- |
| 5 | BD6+ |
| 7 | GND |
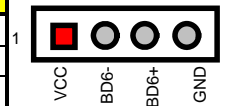
# 3.16 CMOS Data Clear

The HS-7002 has a Clear CMOS jumper on *JP3.*

● **JP3: Clear CMOS**

| Optional | 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.*

# 3.17 Power and Fan Connectors

The HS-7002 provides one 4-pin and one 20-pin ATX power connectors at *CN1* and *CN5.*
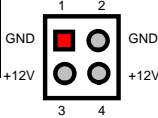
The HS-7002 must use P4 power supply. One of 4-pin connectors is for +12V lead which should be connected to *CN1.*

A 20-pin ATX Power Connector can be connected to Backplane or to *CN5.* If a 20-pin ATX Power Connector connects to Backplane, please make sure *CN23* and Backplane's 5-pin ATX controller is connected together!

**IMPORTANT:** *Please plug CN1 (4-pin ATX power connector) before CN5 (20-pin ATX power connector) for protecting hardware circuit.*

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● **CN1: 4-pin ATX Power Connector**

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

● **CN5: 20-pin ATX Power Connector**

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | +3.3V | 11 | +3.3V |
| 2 | +3.3V | 12 | -12V |
| 3 | GND | 13 | GND |
| 4 | +5V | 14 | PS_ON |
| 5 | GND | 15 | GND |
| 6 | +5V | 16 | GND |
| 7 | GND | 17 | GND |
| 8 | PWORK | 18 | -5V |
| 9 | +5Vsb | 19 | +5V |
| 10 | +12V | 20 | +5V |
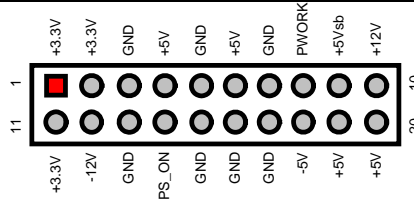
● **CN23: 5-pin ATX Power Connector**
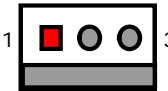
| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | VCC | 2 | 5Vsb |
| 3 | +12V | 4 | PS_ON |
| 5 | GND | | |

Connector *FN1*, *FN2* and *FN3* onboard HS-7002 are 3-pin fan power connectors.

● **FN1~FAN3: Fan Power Connectors**

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

21
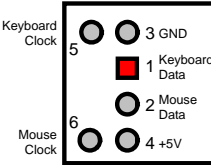
# 3.18 Keyboard/Mouse Connector

The HS-7002 offers one possibility for keyboard/mouse connection. The connections are done via *CN22* for an external PS/2 type keyboard/mouse.

● **CN22: PS/2 6-pin Mini DIN Keyboard Connector**

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

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

# 3.19 System Front Panel Connectors

The HS-7002 has one system front panel connectors at location *CN3* that indicates the power-on status. This visual feature of the IDE LED may also be connected to an external IDE LED via connector *CN3(13-15)*.

## Connector CN3 Orientation

SPEAKER  
PWR LED  
RST_SW  
PWR Button  
HDD_LED  
Green LED

1 2  
3 4  
5 6  
7 8  
9 10  
11 12  
13 14  
15 16
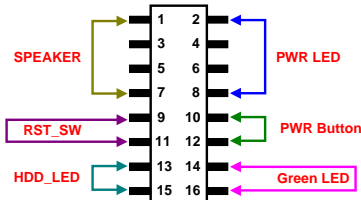
● **CN3: System Front Panel Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | GND | 4 | VCC |
| 5 | N/C | 6 | GND |
| 7 | CDR | 8 | GND |
| 9 | GND | 10 | PS_ON |
| 11 | Reset | 12 | 5VSB |
| 13 | VCC | 14 | VCC |
| 15 | HDD_LED | 16 | Green_LED |

## 3.20  Watchdog Timer

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

The following sample programs show how to Enable, Disable and Refresh the Watchdog Timer:

```
;---------------------------------------------------------------------------
; Enter the WDT function mode, interruptible double-write
;---------------------------------------------------------------------------
        MOV     DX, 2EH
        MOV     AL, 87H
        OUT     DX, AL
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, 07H
        OUT     DX, AL
        MOV     DX, 2FH
        MOV     AL, 08H
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, F5H
        OUT     DX, AL              ; select CRF0
        MOV     DX, 2FH
        MOV     AL, 80H
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, F7H
        OUT     DX, AL
        MOV     DX, 2FH

        MOV     AL, 00H
        OUT     DX, AL
        MOV     DX, 2EH
        MOV     AL, F6H
        OUT     DX, AL
        MOV     DX, 2FH
        MOV     AL, 00H             ; * 00H=Disabled
        OUT     DX, AL
;---------------------------------------------------------------------------
; Exit extended function mode
;----------- ---------------------------------------------------------------
        MOV     DX, 2EH
        MOV     AL, AAH
        OUT     DX, AL
```
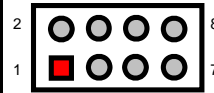
* User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H = 2sec…..FFH = 255sec.

# 3.21  Audio Connectors

The HS-7002 has an onboard AC97 3D audio interface. The following table list the pin assignments of the MIC In/Audio Out connector.

● **CN15: MIC In/Audio Out Connector**

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

● **CN24: Line In Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | Line R | 3 | GND |
| 2 | GND | 4 | Line L |

# 3.22  TV-Out Function

The HS-7002 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).

● **J5: TV-Out Connector**

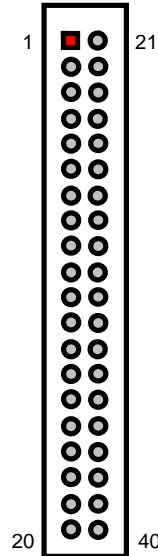| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | TVCVB |

## 3.23 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 8-bit PC standard bus, thousands of PC/104 modules from multiple vendors can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors *PC2* and *PC3* are listed on the following tables:

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

● **PC3: 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 | GND |

*Connector diagram rotated 90 degrees clockwise from original position*

- **PC2: 64-pin PC/104 Expansion Slot**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | IOCHECK* | 33 | GND |
| 2 | SD7 | 34 | RESETDRV |
| 3 | SD6 | 35 | +5V |
| 4 | SD5 | 36 | IRQ9 |
| 5 | SD4 | 37 | -5V |
| 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 | IRQ6 |
| 23 | SA8 | 55 | IRQ5 |
| 24 | SA7 | 56 | IRQ4 |
| 25 | SA6 | 57 | IRQ3 |
| 26 | SA5 | 58 | DACK2* |
| 27 | SA4 | 59 | TC |
| 28 | SA3 | 60 | BALE |
| 29 | SA2 | 61 | +5V |
| 30 | SA1 | 62 | OSC |
| 31 | SA0 | 63 | N/C |
| 32 | GND | 64 | GND |

*Connector diagram rotated 90 degrees clockwise from original position*

1     33

32    64
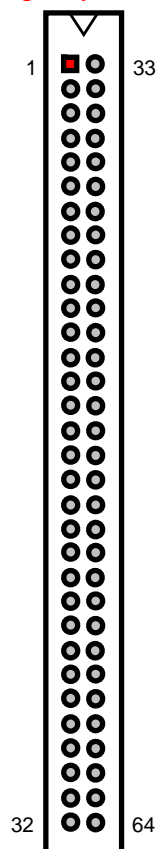
# *Chapter 4*

# Award BIOS Setup

The HS-7002 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 <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 by turning it OFF and 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 again 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, press <F1> for help and press <Esc> to quit. The following table provides more details about how to navigate in the Setup program using the keyboard.

| | |
|---|---|
| **Up arrow** | Move to previous item |
| **Down arrow** | Move to next item |
| **Left arrow** | Move to the item in the left hand |
| **Right arrow** | Move to the item in the right hand |
| **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** | Increase the numeric value or make changes |
| **PgDn key** | Decrease the numeric value or make changes |
| **+ key** | Increase the numeric value or make changes |
| **- key** | Decrease the numeric value or make changes |
| **F1 key** | General help, only for Status Page Setup Menu and Option Page Setup Menu |
| **(Shift)F2 key** | Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward |
| **F3 key** | Calendar, only for Status Page Setup Menu |
| **F4 key** | Reserved |
| **F5 key** | Restore the previous CMOS value from CMOS, only for Option Page Setup Menu |
| **F6 key** | Load the default CMOS value from BIOS default table, only for Option Page Setup Menu |
| **F7 key** | Load the default |
| **F8 key** | Reserved |
| **F9 key** | Reserved |
| **F10 key** | Save all the CMOS changes, only for Main Menu |

## 4.2.1   Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

# 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.

**Phoenix – AwardBIOS CMOS Setup Utility**

| | |
|---|---|
| ▶ 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    F10：Save & Exit Setup | ↑↓→←：Select Item |
| Time, Date, Hard Disk Type… | |

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

# 4.4   Standard CMOS Features

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

**Phoenix – AwardBIOS CMOS Setup Utility**
**Standard CMOS Features**

| | | Item Help |
|---|---|---|
| Date (mm:dd:yy) | Mon, Mar 8 2004 | |
| Time (hh:mm:ss) | 13 : 48 : 22 | Menu Level ▶ |
| ▶ IDE Primary Master | [None] | |
| ▶ IDE Primary Slave | [None] | Change the day, month, |
| ▶ IDE Secondary Master | [None] | year and century |
| ▶ IDE Secondary Slave | [None] | |
| Drive A | [1.44M, 3.5in.] | |
| Drive B | [None] | |
| Video | [EGA/VGA] | |
| Halt On | [All, Errors] | |
| 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.

**Phoenix – AwardBIOS CMOS Setup Utility**
**Advanced BIOS Features**

| | | |
|---|---|---|
| Virus Warning | Disabled | Item Help |
| CPU L1 & L2 Cache | Enabled | Menu Level  ▶ |
| CPU L3 Cache | Enabled | |
| Hyper-Threading Technology | Enabled | |
| Quick Power On Self Test | Enabled | |
| First Boot Device | Floppy | |
| Second Boot Device | HDD-0 | Change the day, month, |
| Third Boot Device | CDROM | year and century |
| Boot Other Device | Enabled | |
| Swap Floppy Drive | Disabled | |
| Boot Up Floppy Seek | Enabled | |
| Boot Up Num Lock 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 | |
| Full Screen LOGO Show | Disabled | |
| Small Logo (EPA) Show | Disabled | |

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

# 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 might consider and make any changes only if you discover that the data has been lost while using your system.

**Phoenix – AwardBIOS CMOS Setup Utility**
**Advanced Chipset Features**

| | | Item Help |
|---|---|---|
| DRAM Timing Selectable | By SPD | |
| CAS Latency Time | 2 | Menu Level ▶ |
| Active to Precharge Delay | 8 | |
| DRAM RAS# to CAS# Delay | 4 | |
| DRAM RAS# Precharge | 4 | Change the day, month, |
| Memory Frequency For | Auto | year and century |
| System BIOS Cacheable | Enabled | |
| Video BIOS Cacheable | Enabled | |
| Memory Hole At 15M-16M | Disabled | |
| Delay Prior to Thermal | 16 Min | |
| AGP Aperture Size (MB) | 128 | |
| Init Display First | PCI Slot | |
| ** ON-chip VGA Setting ** | | |
| On-chip VGA | Enabled | |
| On-chip Frame Buffer size | 16MB | |
| Boot Display | Auto | |
| Panel Scaling | Auto | |
| Panel Number | 1 | |
| TV Standard | Off | |
| Video Connector | Automatic | |
| TV Format | Auto | |

↑↓→←: 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

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

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

**Phoenix – AwardBIOS CMOS Setup Utility**
**Integrated Peripherals**

| | | |
|---|---|---|
| OnChip IDE Device | [Press Enter] | Item Help |
| Onboard Device | [Press Enter] | Menu Level ▶ |
| SuperIO Device | [Press Enter] | |

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

**Phoenix – AwardBIOS CMOS Setup Utility**
**OnChip IDE Device**

| | | |
|---|---|---|
| IDE HDD Block Mode | [Enabled] | Item Help |
| On-Chip Primary PCI IDE | [Enabled] | Menu Level ▶ |
| 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 | [Auto] | |
| IDE Secondary Master PIO | [Auto] | |
| IDE Secondary Slave PIO | [Auto] | |
| IDE Secondary Master UDMA | [Auto] | |
| IDE Secondary Slave UDMA | [Auto] | |
| *** On-Chip Serial ATA Setting *** | | |
| On-Chip Serial ATA | [Auto] | |
| Serial ATA Port0 Mode | [Primary Master] | |
| Serial ATA Port1 Mode | [Primary Master] | |

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

**Phoenix – AwardBIOS CMOS Setup Utility**
**Onboard Device**

| | | |
|---|---|---|
| USB Controller | [Enabled] | Item Help |
| USB 2.0 Controller | [Enabled] | Menu Level ▶ |
| USB Keyboard Support | [Enabled] | |
| USB Mouse Support | [Disabled] | |
| AC97 Audio | [Auto] | |

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

**Phoenix – AwardBIOS CMOS Setup Utility**
**SuperIO Device**

| | | |
|---|---|---|
| POWER ON Function | [BUTTON ONLY] | Item Help |
| KB Power ON Password | [Enter] | Menu Level ▶ |
| 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] | |
| IT Transmission Delay | [Enabled] | |
| UR2 Duplex Mode | [Half] | |
| Use IR Pins | [IR-RX2TX2] | |
| Onboard Parallel Port | [378/IRQ7] | |
| Parallel Port Mode | [SPP] | |
| ECP Mode Select | [EPP1.7] | |
| ECP Mode Use DMA | [3] | |
| PWRON After PWR-Fail | [Off] | |
| Mini Port Address | [Disabled] | |
| Mini Port IRQ | 5 | |
| Onboard Serial Port 3 | [3E8] | |
| Serial Port 3 Use IRQ | [IRQ10] | |
| Onboard Serial Port 4 | [2E8] | |
| Serial Port 4 Use IRQ | [IRQ11] | |

↑↓→←: 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
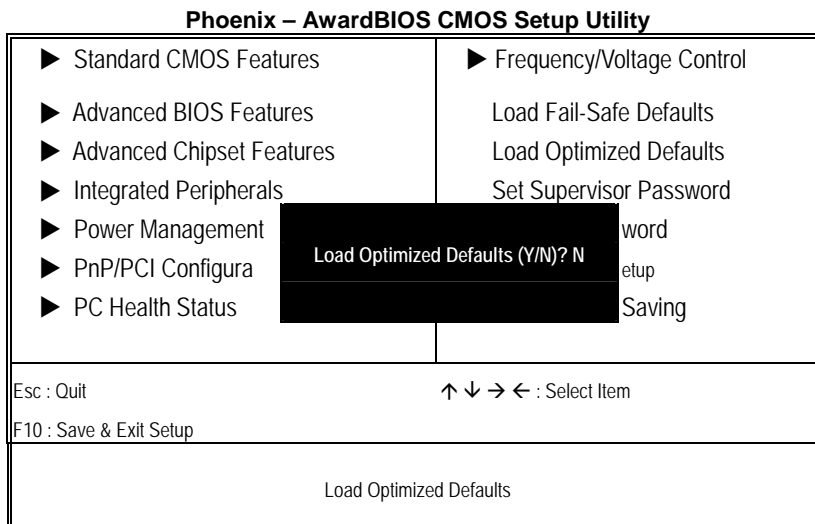
The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

**Phoenix – AwardBIOS CMOS Setup Utility**
**Power Management Setup**

| | | |
|---|---|---|
| ACPI function | [Enabled] | Item Help |
| ACPI Suspend Type | [S1(POS)] | Menu Level ▶ |
| Run VGABIOS if S3 Resume | Auto | |
| Power Management | [User Define] | |
| Video off Method | [DPMS] | Change the day, month, |
| Video off In Suspend | [Yes] | year and century |
| 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 | [Enabled] | |
| Power On by Ring | [Enabled] | |
| Wake Up On LAN | [Enabled] | |
| 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, LPT Port | [Disabled] | |
| PCI PIRQ[A-D]# | [Disabled] | |

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

# 4.9  PnP/PCI Configurations

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

**Phoenix – AwardBIOS CMOS Setup Utility**
**PnP/PCI Configurations**

| | | |
|---|---|---|
| PNP OS Installed | [No] | Item Help |
| Reset Configuration Data | [Disabled] | Menu Level ▶ |
| | | |
| Resources Controlled By | [Auto(ESCD)] | |
| IRQ Resources | Press Enter | |
| DMA Resources | Press Enter | |
| | | |
| 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

**Phoenix – AwardBIOS CMOS Setup Utility**
**PC Health Status**

| | | |
|---|---|---|
| CPU Warning Temperature | [Disabled] | Item Help |
| Current System Temp. | | Menu Level ▶ |
| Current CPU1 Temperature | | |
| Current System FAN Speed: | | |
| Current CPU FAN Speed | | |
| Current Chassis FAN Speed | | |
| Vcore | | |
| +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

**Phoenix – AwardBIOS CMOS Setup Utility**
**Frequency/Voltage Control**

| | | Item Help |
|---|---|---|
| CPU Clock Ratio | [8X] | |
| Auto Detect DIMM/PCI Clk | [Enabled] | Menu Level ▶ |
| Spread Spectrum | [Disabled] | |
| | | Change the day, month, year and century |

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

## 4.12 Load Fail-Safe Defaults

When you press <Enter> on this item you will get a confirmation dialog box with a message shown below. This option allows you to load/restore the BIOS default values permanently stored in the BIOS ROM. Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

**Phoenix – AwardBIOS CMOS Setup Utility**

| | |
|---|---|
| ▶ 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 | word |
| ▶ PnP/PCI Configura | etup |
| ▶ PC Health Status | Saving |

**Load Fail-Safe Defaults (Y/N)? N**

Esc : Quit                    ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup

Load Fail-Safe Defaults

# 4.13 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to the figure below. This option allows you to load/restore the default values to your system configuration, optimizing and enabling all high performance features. Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

**Phoenix – AwardBIOS CMOS Setup Utility**

| ▶ 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 | word |
| ▶ PnP/PCI Configura | Load Optimized Defaults (Y/N)? N | etup |
| ▶ PC Health Status | Saving |

Esc : Quit                           ↑ ↓ → ← : Select Item

F10 : Save & Exit Setup

Load Optimized Defaults

# 4.14  Set Supervisor/User Password

**Phoenix – AwardBIOS CMOS Setup Utility**

| | |
|---|---|
| ▶ 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 Configurati      Enter Password : | t Setup |
| ▶ PC Health Status | ut Saving |

Esc : Quit          ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup

Change / Set / Disable Password

You can set either supervisor or user password, or both of them. The differences between are:

- **supervisor password:** can enter and change the options of the setup menus.

- **user password:** just can only enter but do not have the right to change the options of the setup menus.

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

**ENTER PASSWORD:**

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

**PASSWORD DISABLED.**

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password and then will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

# 4.15  Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted.

**Phoenix – AwardBIOS CMOS Setup Utility**

| | |
|---|---|
| ▶ 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          SAVE to CMOS and EXIT (Y/N)? N | word |
| ▶ PnP/PCI Configura | etup |
| ▶ PC Health Status | Saving |

Esc : Quit                                        ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup

Save Data to CMOS

## 4.16  Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

**Quit without saving (Y/N)?** Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

**Phoenix – AwardBIOS CMOS Setup Utility**

| | |
|---|---|
| ▶ 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 | word |
| ▶ PnP/PCI Configura | Quit Without Saving (Y/N)?  N: | etup |
| ▶ PC Health Status | Saving |

Esc : Quit                              ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup

Abandon all Data

**This Page is intentionally left blank.**

# Chapter 5

## Software Utilities

This chapter contains the detailed information of IDE, VGA, LAN and Audio driver installation procedures. The utility disk that came 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

### 5.1.1　Installing Intel Chipset Software Utility

1.　Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7002** button to launch the installation program.
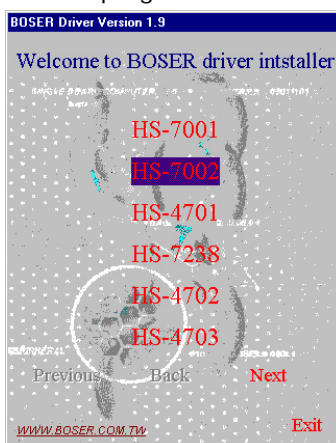
2. Click on the **ICH5 Driver** button to continue.



3. Click on the **Windows 9X** button to continue.
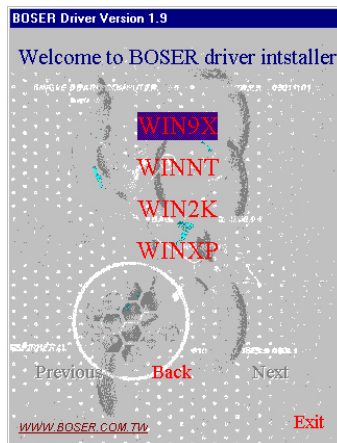
4. Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.
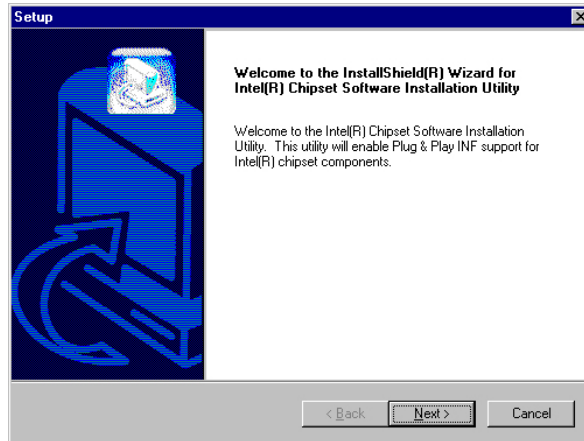


5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.
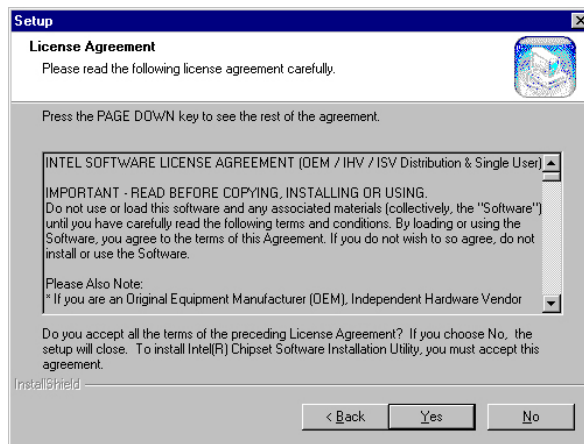
6.  When the Readme Information dialog box pops up, just click on the **<u>N</u>ext** button to proceed.
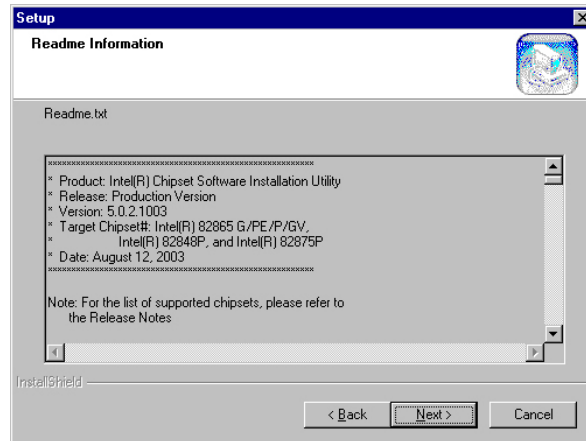


7.  Once the Install Shield Wizard finishes updating your system, it will prompt you to restart the computer. Tick on the **"Yes, I want to restart my computer now"** followed by a click on the **<u>F</u>inish** button to reboot. Only after your computer boots will the new settings take effect.

## 5.2 VGA 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-7002** button to launch the installation program.
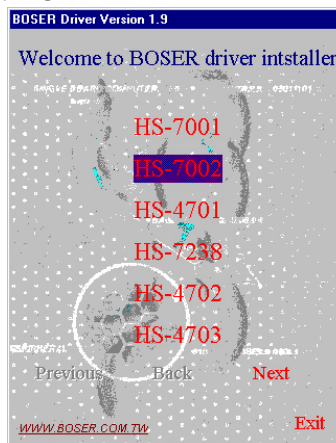


2. Click on the **VGA Driver** button to continue.
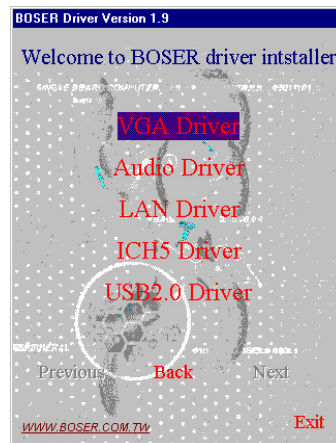
3. Click on the OS button to continue.



4. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.
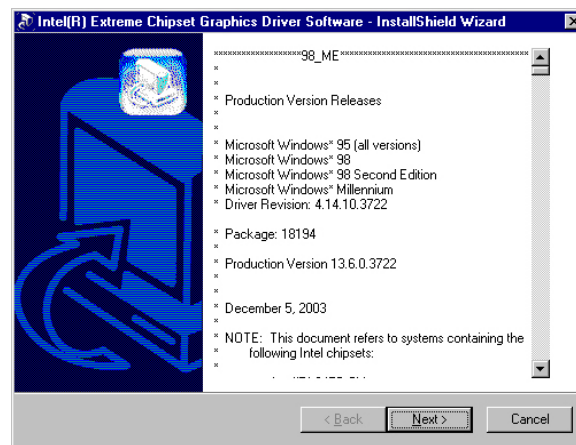
5.  Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.
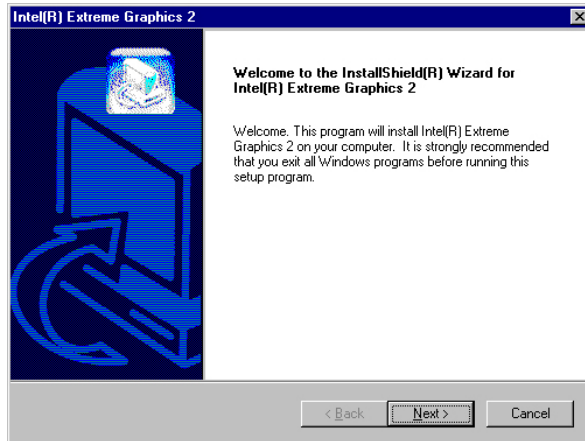


6.  The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.
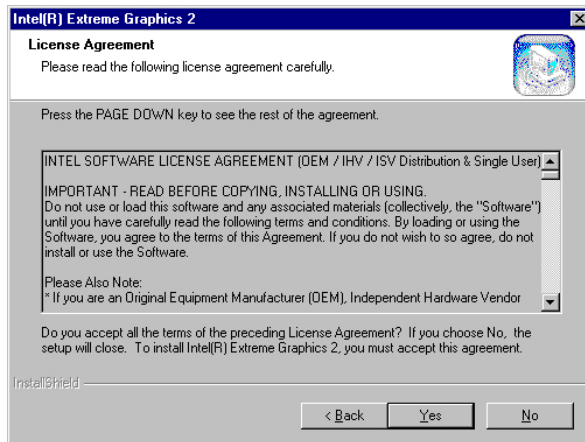
7. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **"Yes, I want to restart my computer now"** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.
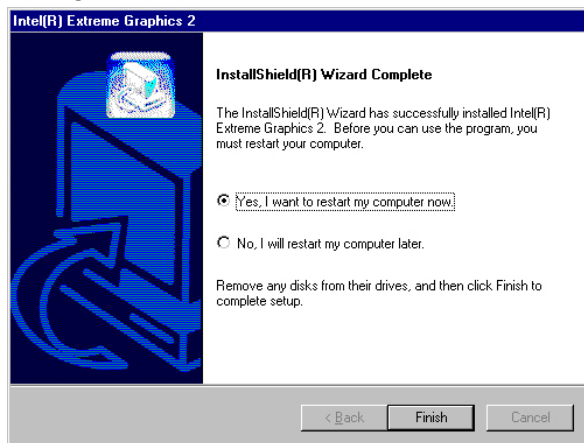


# 5.3   LAN Driver Installation

## 5.3.1  Win 95/98/2K/XP

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7002** button to launch the installation program.

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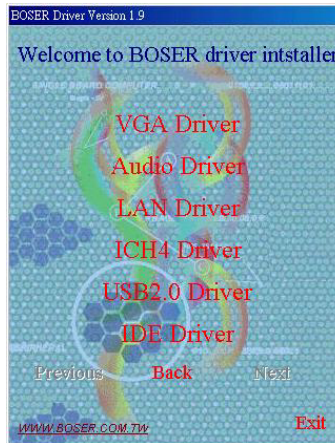


3. Click on the **WIN9X/WIN2K/WINXP** button to continue.

4. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.
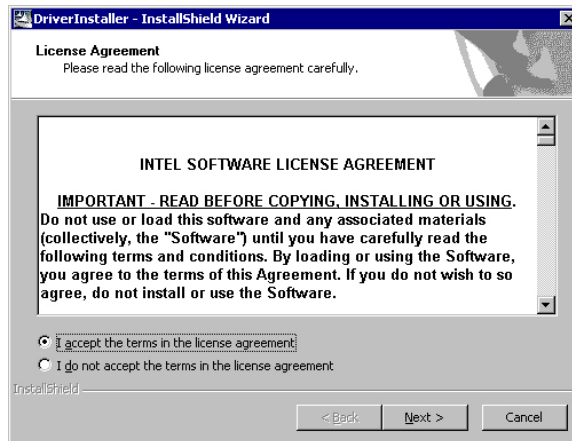


5. When the dialog box below appears, make sure the folder you'll save file in, then Click on the **Next >**
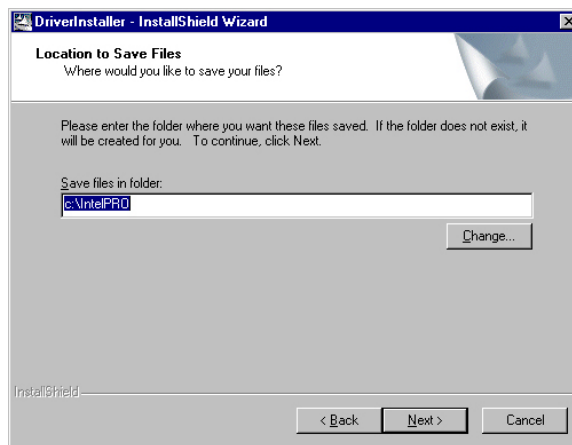
6. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Install Base Driver** button to proceed.



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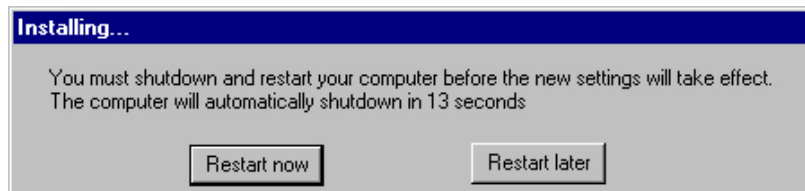


### 5.3.2 Win NT

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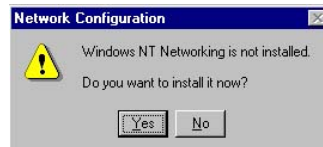
2. Tick on the **Wired to Network** once the following screen appears. Click on **Next >** to proceed.
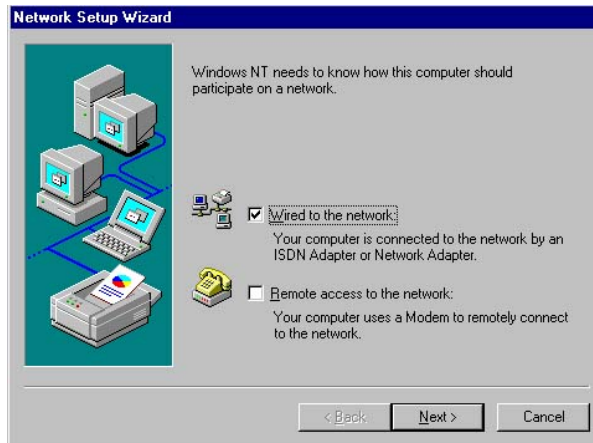


3. Click on the **Start Search** button for the program to locate the Network Adapter.
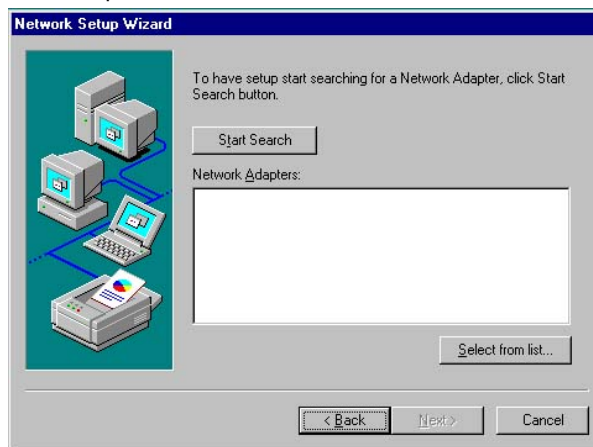
4.  Once setup finishes the search, it will list a number of adapters for you to choose from. Press on the **Have Disk** button to assign the driver path location.
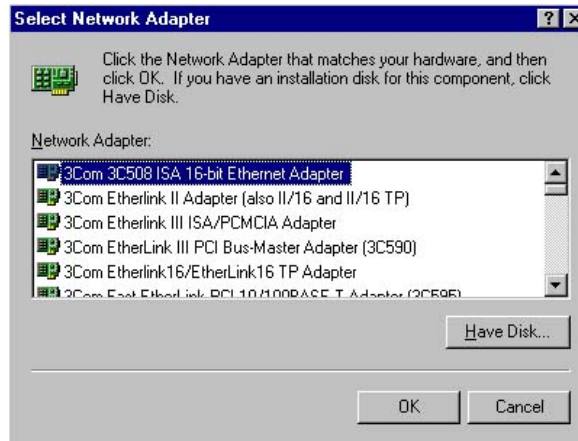


5.  Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.
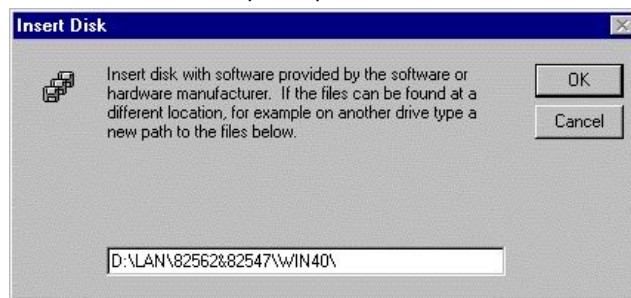
6. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. If using 82562EZ, please choose **"Intel(R) PRO/100 Family Adapter"**. If using 82540EM or 82547EI, please choose **"Intel(R) PRO/1000 Family Adapter"**. Press on the **OK** button to accept and proceed.



7. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **Next** to continue.
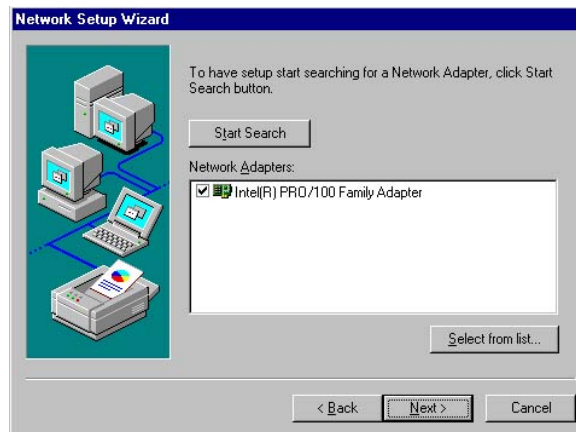
8. The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.
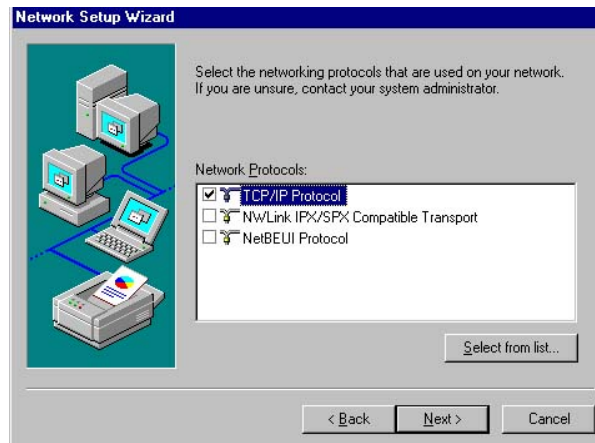


9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next** button once you are sure of your devices.
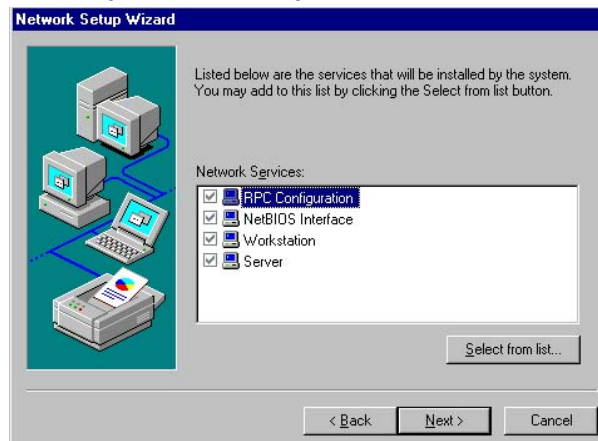
10. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path and then press **Continue**.
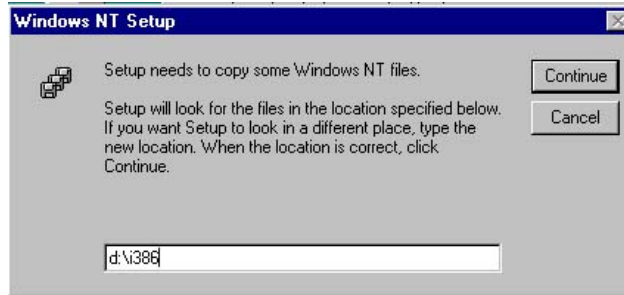


11. When Setup asks if you wish to change the TCP/IP settings of your system, select them appropriately. The default choice is **No**.
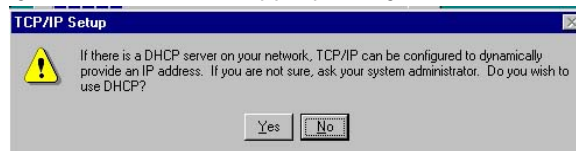


12. Setup then starts the Networking installation and copies the files.

13. When the screen below appears, click on **Next** to continue.
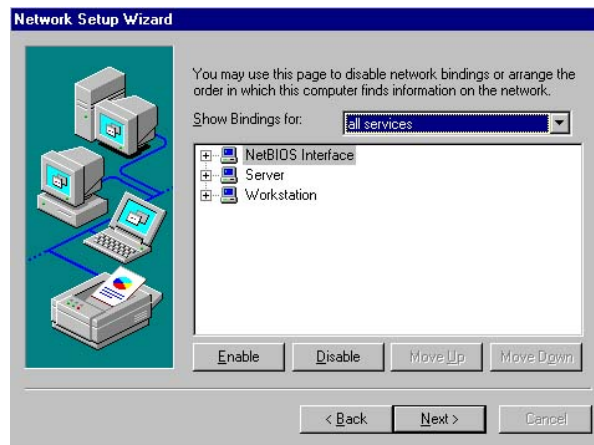
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **Next** to continue.
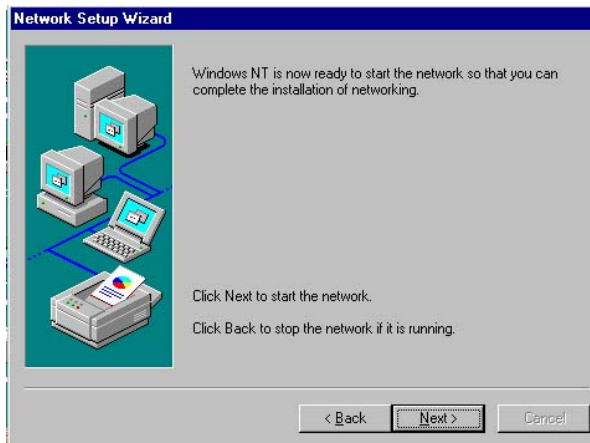


15. Assign the workgroup or domain setting of your computer. Click on Next to continue.
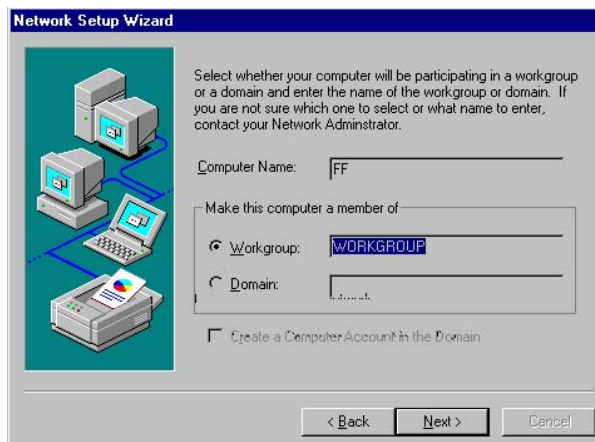
16. Click on the **Yes** button to restart your computer. The LAN1 driver installation for WIN NT4.0 is now complete.



17. With the Utility CD Disk still in your CD ROM drive, we can install LAN2. Right click on "**Network Neighborhood**" icon from the desktop. Select on Properties and then proceed to the Network from the main menu. Click on **Add** to continue.
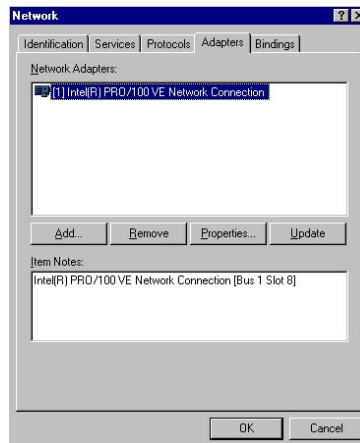


18. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **OK** to continue.

19. Click on the **Close** button. The LAN2 driver installation for WIN NT4.0 is now complete.
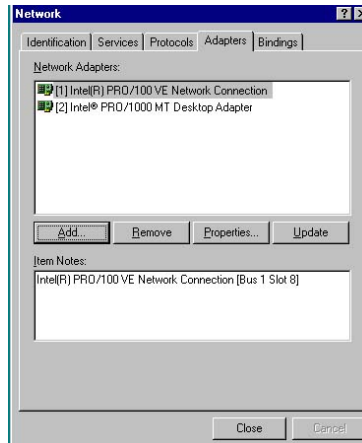


## 5.4 Audio Driver Installation

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7002** button to launch the installation program.

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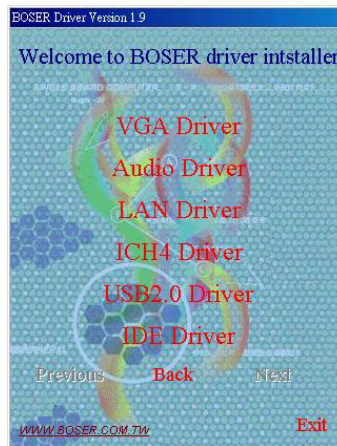


3. Click on the OS button which you use.

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



4. Once the InstallShield Wizard completes the operation and update of your AC'97 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 Win 95/98

1. Insert Utility CD Disk into your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7002** button to launch the installation program.
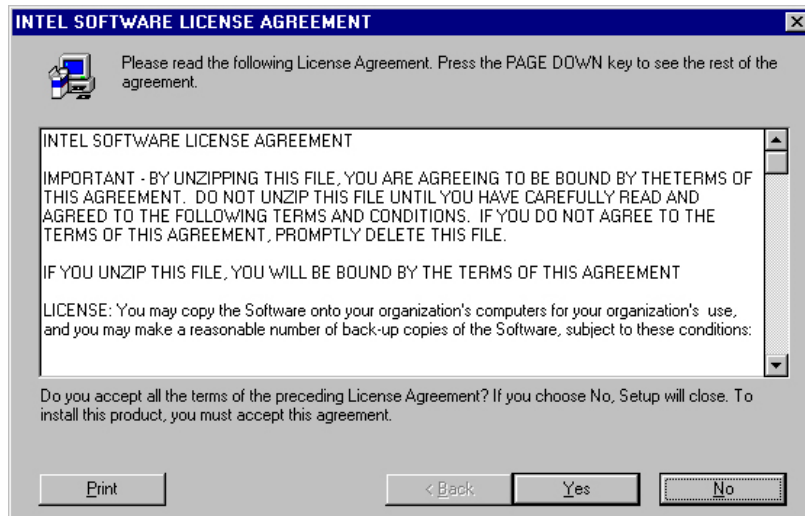


2. Click on the **USB2.0 Driver** button to continue.
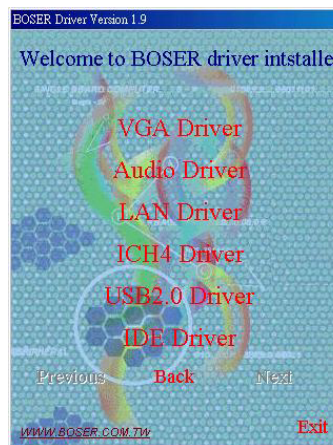
3. Click on the **WIN9x** button to continue.



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

5. 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 **Close** button to reboot. Only after your computer boots will the new settings take effect.
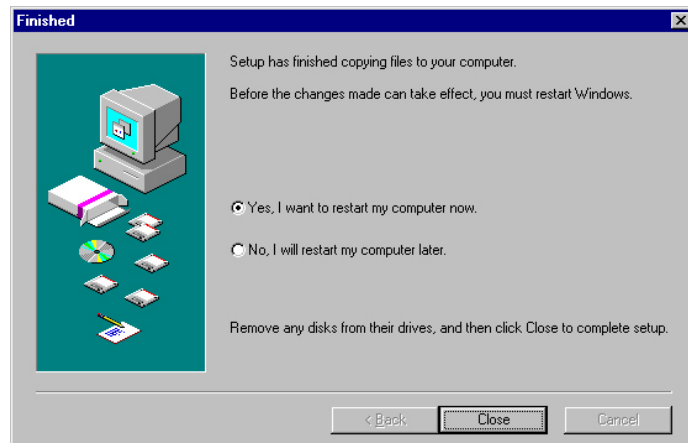


## 5.5.2  Win 2000

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 and then double-click on Universal Serial Bus (USB) Controller.
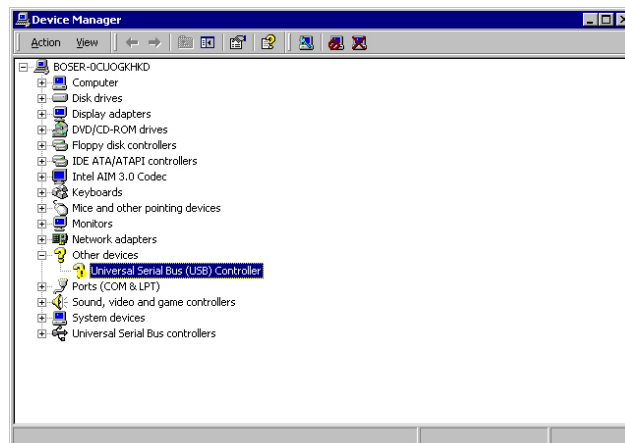
3. The Universal Serial Bus (USB) Controller Properties screen then appears, allowing you to re-install the driver. Select Update Driver from the main menu to proceed.



4. When the dialog box below appears, make sure you close all other Windows applications and then click on the **Next >** button to proceed.
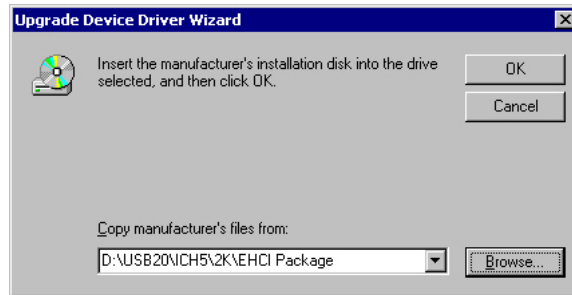
5.  Tick on the **"Search for a suitable driver for my device (recommended)"** once the following screen appears. Click on the **Next** to proceed.
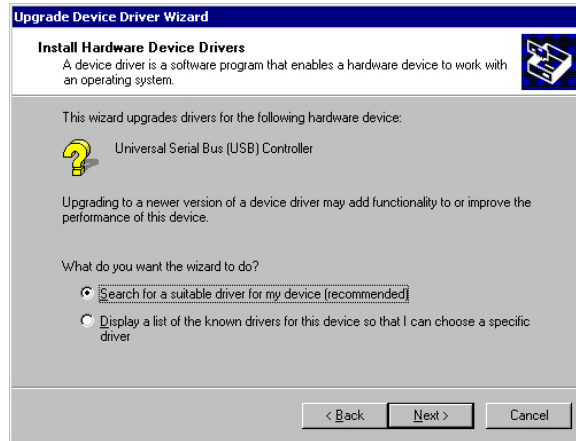


6.  Once the program returns to the Add New Hardware Wizard screen, your specified location will appear. Press on the **Next** button to continue

7.  Choose sisusb2.inf and press on the **Open** button to accept and proceed.
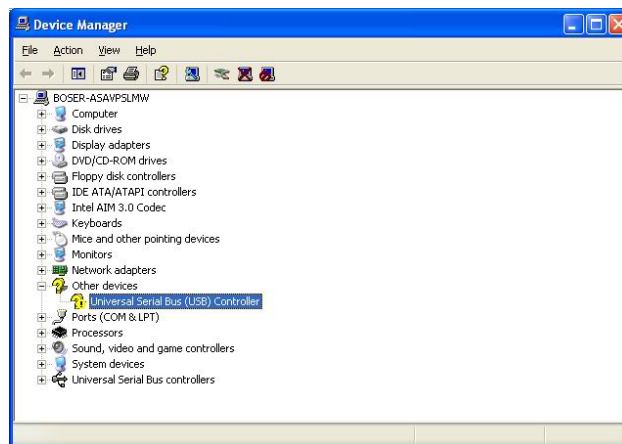


8.  Once the InstallShield Wizard completes the operation and update of your USB2.0 driver, click on the **Finish** button to complete the installation process.

### 5.5.3 Win XP

**NOTE:** *Please make sure you have already installed **Service Pack1**.*

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. Tick on the **"Install the software automatically (Recommended)"** once the following screen appears. Click on the **Next >** to proceed.

3. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver, click on the **Finish** button to complete the installation process.

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