HS-7001

PGA 478 Pentium® 4

Industrial Single Board Computer

• Full-size • Giga LAN • CRT • ATA/33/66/100 •

• Dual LAN • Audio • 4COM • PC/104 • IrDA •

• USB2.0 • DOC • WDT • H/W Monitor •

• PICMG Bus Industrial Single Board computer •

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Edition 1.0, January 03, 2003

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Safety Instructions

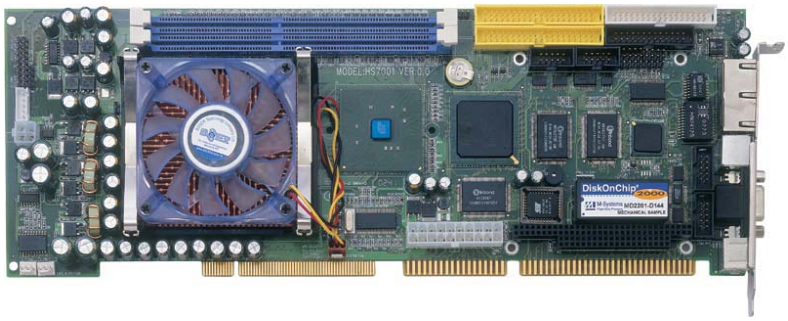
Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- 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 HS-7001 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 PROTECTION.*

Chapter 1

General Description



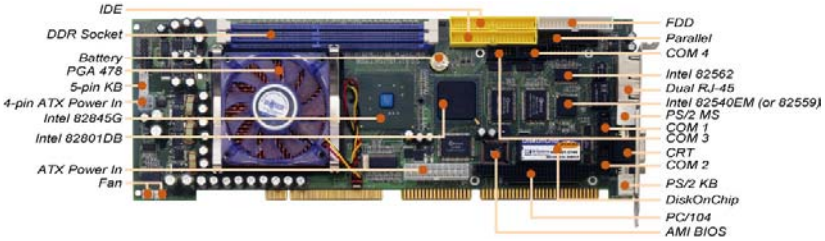
The HS-7001 is an Intel® 82845G/82801DB chipset-based board designed for PICMG Bus PGA 478 Intel® Pentium® 4 up to 2.8GHz CPU compatibility. These features combine and make the HS-7001 an ideal all-in-one industrial single board computer. Additional features include an enhanced I/O with CRT, Dual LAN, audio and 4 COM ports interface.

Its onboard ATA/33/66/100 to IDE drive interface architecture allows the HS-7001 to support data transfers of 33, 66 or 100MB/sec. to each IDE drive connection. Designed with the Intel® 82845G/82801DB core logic chipset, the board supports all PGA 478 Pentium® 4 CPU series operating up to 2.8GHz. The CRT display controller is Intel 82845G with 1MB or 8MB memory supporting CRT display up to 1920 x 1200 x 32-bit at 60Hz.

System memory is also sufficient with the two DDR sockets that can support up to 2GB(DDR-333). While using 533MHz FSB CPU, it could support DDR-333, but using 400MHz FSB CPU, it only could support DDR-266.

Additional onboard connectors include an advanced USB and IrDA ports providing faster data transmission, a DOS-compatible DiskOnChip™ socket with a maximum capacity of 288MB, and two external RJ-45 or two internal 5x2 connectors for one 100/1000 and one 10/100 OR two 10/100 Base-TX Ethernet use.

1.1 Major Features



The HS-7001 comes with the following features:

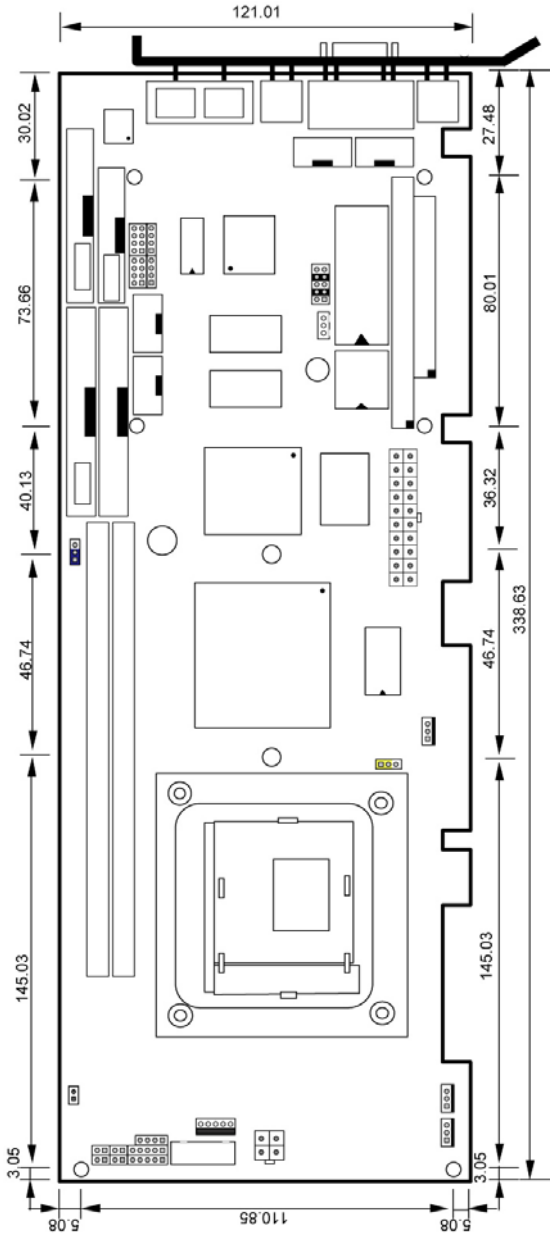
- PGA 478 for Intel® Pentium® 4 up to 2.8GHz CPU
- Intel 82845G/82801DB system chipset
- Two DDR sockets with a max. capacity of 2GB
- Winbond W83627 super I/O chipset x 2
- Fast PCI ATA/33/66/100 IDE controller
- Four RS-232 serial ports
- PC/104 Bus connector
- Intel® 82845G CRT display controller
- Intel® 82540EM 10/100 Based (or Intel® 82551 10/100 Based) and Intel® 82562 10/100 Based LAN
- AC97 3D audio controller
- DiskOnChip™ socket supporting memory sizes of up to 288MB
- Supports USB2.0, two USB connectors
- Supports Hardware Monitor function

1.2 Specifications

- **CPU:** PGA 478 for Intel® Pentium® 4 up to 2.8GHz CPU (400MHz FSB up to 2.4GHz, 533MHz FSB up to 2.8GHz)
- **Bus Interface:** PICMG Bus
- **Memory:** Two DDR sockets supporting up to 2GB(DDR-333)
- **Chipset:** Intel® 82845G/82801DB
- **I/O Chipset:** Winbond W83627 x 2
- **VGA:** Intel® 82845G with 1MB or 8MB supporting CRT display up to 1920 x 1200 x 32-bit at 60Hz
- **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
- **LAN:** One Intel® 82540EM 100/1000 Based(or one Intel® 82551 10/100 Based) and one Intel® 82562 10/100 Based LAN
- **Audio:** AC97 3D audio controller

- **Serial Port:** 16C550 UART-compatible RS-232 x 4 serial ports with 16-byte FIFO
- **PC/104:** PC/104 connector for 8-bit x 2clock ISA Bus
- **IrDA:** One IrDA TX/RX header
- **USB:** Supports USB2.0, two USB connectors
- **Keyboard:** PS/2 6-pin Mini DIN or 5-pin connector
- **Mouse:** PS/2 6-pin Mini DIN
- **DiskOnChip™:** DiskOnChip™ socket supporting memory sizes of up to 288MB
- **BIOS:** Award PnP Flash BIOS
- **CMOS:** Battery backup
- **Power Connector:** One 4-pin and one 20-pin ATX power connector
- **Operating Temperature:** 0~60°C
- **Hardware Monitor:** Winbond W83627
- **Board Size:** 33.6 x 12.2 cm

1.3 Board Dimensions



Chapter 2

Unpacking

2.1 Opening the Delivery Package

The HS-7001 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. ExAwardne all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The HS-7001 delivery package contains the following items:

- **HS-7001 Board x 1**
- **Utility CD Disk x 1**
- **ATA/100 IDE flat cable x 2**
- **FDD flat cable x 1**
- **Printer cable with bracket x 1**
- **Two RS-232 COM Port cable with bracket x 2**
- **8-pin USB split type cable with bracket x 1**
- **5-pin ATX power cable x 1**
- **MIC/Audio 8-pin cable + 2 phone jacks 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.

Chapter 3

Hardware Installation

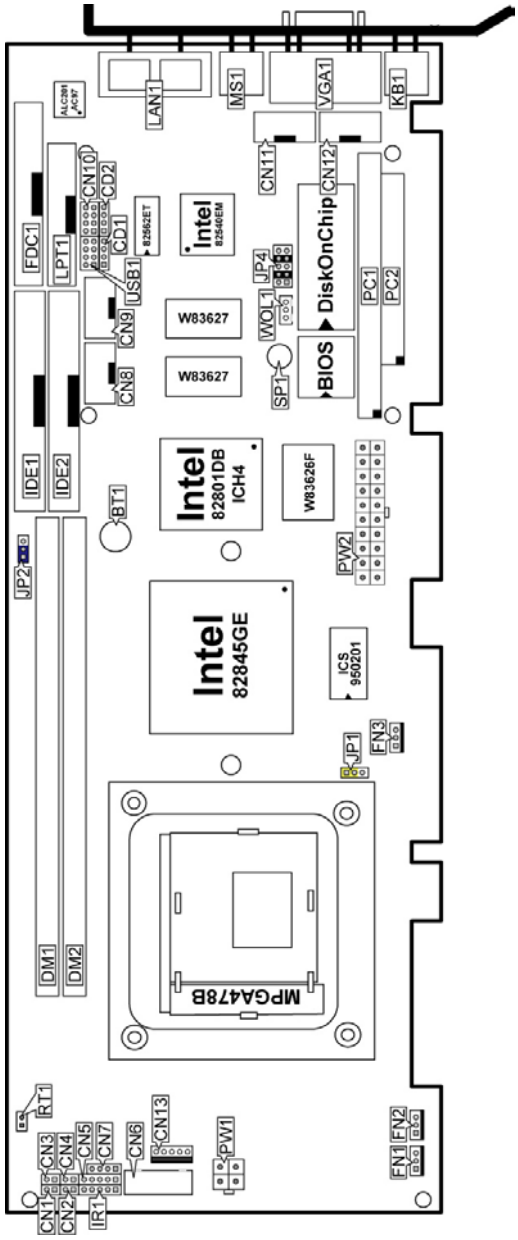
This chapter provides the information on how to install the hardware using the HS-7001. This chapter also contains information related to jumper settings of switch, watchdog timer, and the DiskOnChip™ address selection etc.

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 connector is for +12V lead which should connect to PW1 connector of HS-7001.

3.2 Board Layout



3.3 Jumper List

Jumper	Default Setting	Setting	Page
JP1	Clock Speed Select: *CPU Select*	1-2 Short	10
JP2	Clear CMOS: *Normal Operation*	1-2 Short	19
JP4	DiskOnChip Address Select: *D000H~D1FFH*	3-4, 7-8 Short	10

3.4 Connector List

Connector	Definition	Page
CD1	CD Analog Input Connector	25
CD2	Line In Analog Input Connector	25
COM1	COM1 Connector (DB9)	16
CN1	Green LED Connector	22
CN2	Reset Connector	22
CN3	HDD LED Connector	22
CN4	2-pin ATX Power ON/OFF Switch	20
CN5	Keylock Connector	22
CN6	5-pin Keyboard Connector	22
CN7	Speaker Connector	23
CN8	COM3 Connector (5x2 header)	16
CN9	COM4 Connector (5x2 header)	16
CN10	MIC In/Line Out Connector	25
CN11	COM1 Connector (5x2 header)	16
CN12	COM2 Connector (5x2 header)	16
CN13	5-pin ATX Power Connector	20
DM1 & DM2	DDR Socket	10
FDC1	Floppy Connector	15
FN1 & FN2 & FN3	Chassis/CPU/System Fan	20
IDE1 & IDE2	IDE Connectors	13
IR1	IrDA Connector	17
KB1	PS/2 6-pin Mini DIN Keyboard Connector	22
LN1A & LN1B	Dual RJ-45 Connector	19
LPT1	Parallel Connector	18
MS1	PS/2 6-pin Mini DIN Mouse Connector	22
PC1	PC/104 64-pin Connector	26
PC2	PC104 40-pin Connector	26
PW1	4-pin ATX Power Connector	20
PW2	20-pin ATX Power Connector	20
USB1	USB 2.0 Connector	19
VGA1	CRT Connector	12

3.5 Configuring the CPU

The HS-7001 offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the HS-7001 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: Clock Speed Select**

Setting	Description
1-2 Short	CPU Select
2-3 Short	100MHz
Empty	133MHz

3.6 System Memory

The HS-7001 provides two DDR sockets at locations *DM1* and *DM2*. The maximum capacity of the onboard memory is 2GB. While using 533MHz FSB CPU, it could support DDR-333, but using 400MHz FSB CPU, it only could support DDR-266.

3.7 DiskOnChip™ Address Setting

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

The DiskOnChip™ module socket is location on U15 on the HS-7001. Jumper *JP4* assigns the starting memory address of the installed module. If you have another memory device that has a similar memory capacity with that of the DOC in your system, please set both at different memory address mapping to avoid the mapping area conflicts. Failing to do so will not make the HS-7001 and the additional memory device function properly.

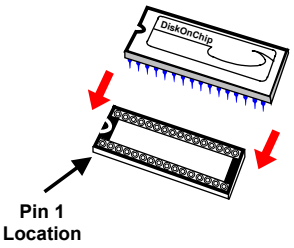
- **JP4: DiskOnChip™ Address Select**

Address	JP4
C800H-C9FFH	1-2, 7-8 Short
CC00H-CDFFH	1-2, 9-10 Short
D000H-D1FFH	3-4, 7-8 Short
D400H-D5FFH	3-4, 9-10 Short
D800H-D9FFH	5-6, 7-8 Short
DC00H-DDFFH	5-6, 9-10 Short

3.7.1 Installing DiskOnChip™ Modules

When installing a DiskOnChip™ module onto your board, please take note of the following:

1. Orient yourself properly with the location of the DiskOnChip™ socket. Try to locate the pin 1 location on your socket. Pin numbers are usually printed on either the component side or the solder side of your board.
2. Locate the Pin 1 location on your DiskOnChip™ module. More often than not, Pin 1 can be found on the lower right corner of the chip. Please refer to the diagram for the exact location.
3. Once you have figured out where the pin 1 locations are on both chip and socket, align the module's pins on an upright angle against the socket. Using both thumbs, gently press the module into the socket until all the pins are secured to their designations.



4. The installation is now complete and your module is now ready for use.

NOTE: *If you encounter difficulty installing your DiskOnChip™ module, please consult a qualified technician or engineer to perform the installation.*

3.7.2 Removing DiskOnChip™ Modules

When removing a DiskOnChip™ module from its socket, please take note of the following:

1. Loosen the contact of the module from its socket using a screwdriver.
2. Insert the screwdriver's flat head into a gap on either end of the socket. Do not insert the screwdriver head on either side where the pins are located. Doing so might damage the pins in the process.
3. Slowly lift the screwdriver handle upwards. This will disengage the module from its socket.

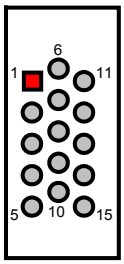
NOTE: *If you encounter difficulty removing your DiskOnChip™ module, please consult a qualified technician or engineer to remove it for you.*

3.8 VGA Controller

The onboard Intel 82845G with 1MB or 8MB memory supporting CRT display up to 1280 x 1024 x 32-bit. The HS-7001 provides one connection method of a VGA device. *VGA1* offers a single standard CRT connector (DB15).

- **VGA1: 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		

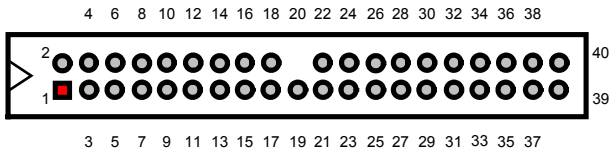


3.9 PCI E-IDE Drive Connector

IDE1 and *IDE2* are standard 40-pin connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the HS-7001. A maximum of four ATA/33/66/100 IDE drives can connect to the HS-7001 via *IDE1* and *IDE2*.

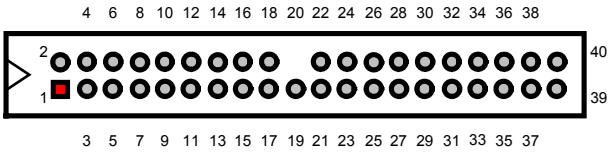
- **IDE1: Primary IDE Connector**

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



- **IDE2: 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

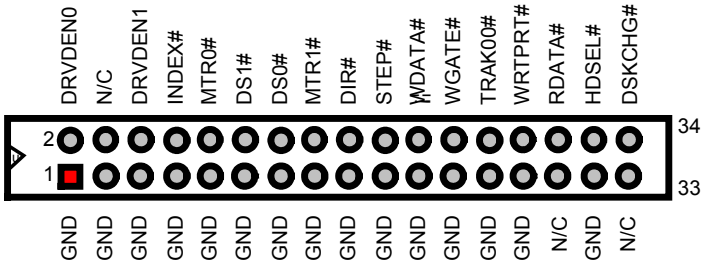


3.10 Floppy Disk Drive Connector

The HS-7001 uses a standard 34-pin header connector, *FDC1*, for floppy disk drive connection. A total of two FDD drives may be connected to *FDC1* at any given time.

- **FDC1: 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	N/C	30	RDATA#
31	GND	32	HDSEL#
33	N/C	34	DSKCHG#

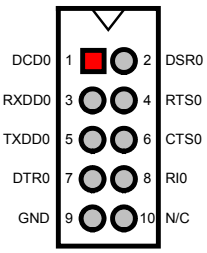


3.11 Serial Port Connectors

The HS-7001 offers two NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and four internal 10-pin headers.

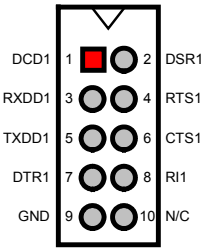
- **CN11: COM1 Connector (5x2 Header)**

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



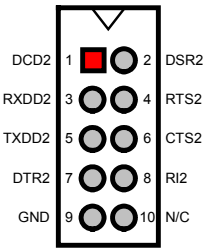
- **CN12: COM2 Connector (5x2 Header)**

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



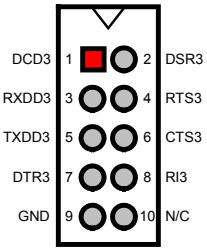
- **CN8: COM3 Connector (5x2 Header)**

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



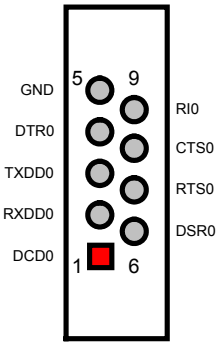
- **CN9: COM4 Connector (5x2 Header)**

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



- **COM1: COM1 Connector (DB9)**

PIN	Description
1	DCD0
2	RXDD0
3	TXDD0
4	DTR0
5	GND
6	DSR0
7	RTS0
8	CTS0
9	RI0

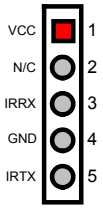


3.12 IrDA Connector

IR1 is a 5-pin internal FIR communication connector for connection of an IrDA device.

- **IR1: IrDA Connector**

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

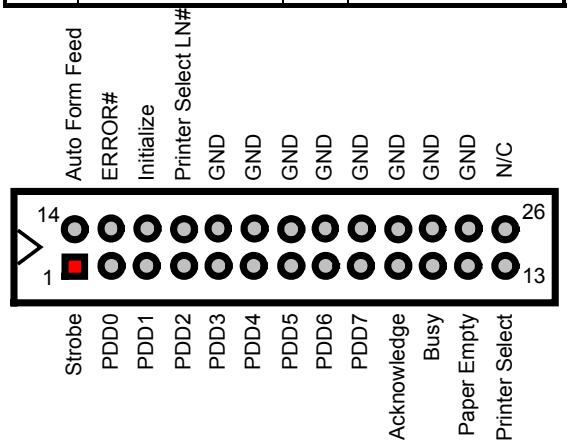


3.13 Parallel Connector

LPT1 is a standard 26-pin flat cable connector deigned to accommodate parallel port connection onboard the HS-7001.

- **LPT1: 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	N/C

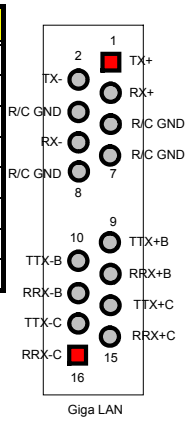


3.14 Ethernet Connector

The HS-7001 provides one 10/100 and one 100/1000 OR two 10/100 Base-TX LAN interface connector. Please refer to the following for its pin information.

- **LN1A and LN1B: 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



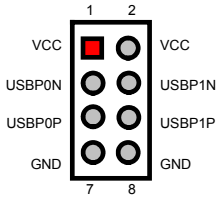
Giga LAN

3.15 USB Connector

The HS-7001 provides one 8-pin USB2.0 connectors, at locations *USB1*, for two USB connections to the HS-7001.

- **USB1: USB2.0 Connector**

PIN	Description	PIN	Description
1	VCC	2	VCC
3	USBP0N	4	USBP1N
5	USBP0P	6	USBP1P
7	GND	8	GND



3.16 CMOS Data Clear

The HS-7001 has a Clear CMOS jumper on *JP2.*

- **JP2: Clear CMOS**

Options	Settings
Normal Operation	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.*

3.17 Power and Fan Connectors

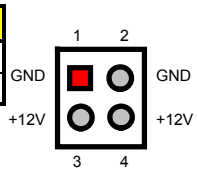
HS-7001 provides one 4-pin and one 20-pin ATX power connectors at *PW1* and *PW2.*

HS-7001 must using P4 power supply. One of 4-pin connector is for +12V lead which should connect to *PW1*.

20-pin ATX Power Connector can connect to Backplane or to *PW2*. If 20-pin ATX Power Connector connects to Backplane, please make sure *CN13* and Backplane's 5-pin ATX controller is connected together!

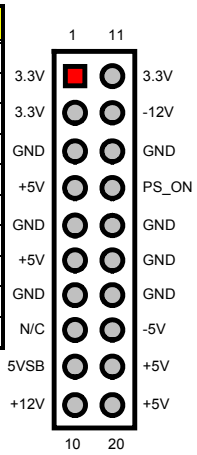
- **PW1: 4-pin ATX Power Connector**

PIN	Description	PIN	Description
1	GND	2	GND
3	12V	4	12V



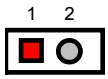
- **PW2: 20-pin ATX Power Connector**

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	N/C	18	-5V
9	5Vsb	19	+5V
10	+12V	20	+5V



- **CN4: 2-pin ATX Power On/Off Switch**

PIN	Description
1	Pull 220Ω to VCC5SBY
2	ATX On/Off



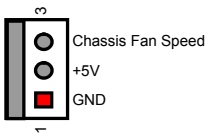
- **CN13: 5-pin ATX Power Control (Connector to BOSER's HPCI or HPP serial backplane)**

PIN	Description	PIN	Description
1	GND	2	PS_ON
3	N/C	4	VCC5SBY
5	+5V		

Connector *FN1*, *FN2* and *FN3* onboard HS-7001 are 3-pin chassis, CPU, System fan connector.

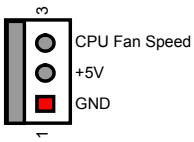
- **FN1: Chassis Fan Connector**

PIN	Description
1	GND
2	+12V
3	Chassis Fan Speed



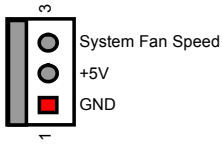
- **FN2: CPU Fan Connector**

PIN	Description
1	GND
2	+12V
3	CPU Fan Speed



- **FN3: System Fan Connector**

PIN	Description
1	GND
2	+12V
3	System Fan Speed

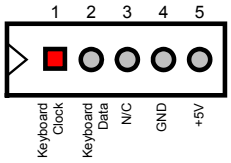


3.18 Keyboard Connectors

The HS-7001 offers two possibilities for keyboard connections. The connections are via *KB1* for an external PS/2 type keyboard or via *CN6* for an internal 5-pin cable converter to an AT keyboard.

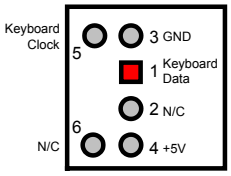
- **CN6: 5-pin Keyboard Connector**

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



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

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

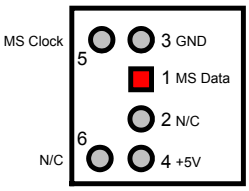


3.19 PS/2 Mouse Connector

MS1 is a 6-pin Mini DIN connector for connections to an external PS/2 mouse connector.

- **MS1: PS/2 6-pin Mini DIN Mouse Connector**

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



3.20 System Front Panel Connectors

The HS-7001 has one LED 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*.

- **CN3: IDE LED Connector**

PIN	Description
1	150Ω Pull +5V
2	HDD Active #

CN5 and *CN2* are the Keylock and Reset Button connectors onboard. The *CN1* is Green function LED indicates.

- **CN1: Green LED Connector**

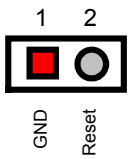
PIN	Description
1	150Ω Pull +5V
2	Suspend LED

- **CN5: Keylock Connector**

PIN	Description
1	+5V
2	N/C
3	GND
4	Keylock
5	GND

- **CN2: Reset Button Connector**

PIN	Description
1	GND
2	Reset



3.21 External Speaker

Aside from the buzzer at location *BZ1* onboard, the HS-7001 also offers a connector (*CN7*) for an external speaker connection. The table below lists the pin assignments of *CN7*.

- **CN7: Speaker Connector**

PIN	Description
1	+5V
2	GND
3	GND
4	Speaker

3.22 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 to 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
```

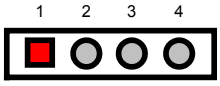
* User can also use AL, 00H's defined time for reset purposes, e.g.00H for Disable, 01H = 1sec, 02H = 2sec…..FFH = 255sec.

3.23 Audio Connectors

The HS-7001 has an onboard AC97 3D audio interface. The following tables list the pin assignments of the CD-ROM Analog Input, the Line_ In analog Input and the MIC In/Line Out connectors.

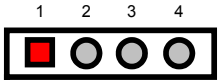
- **CD1: CD-ROM Analog Input Connector**

PIN	Description
1	CD_R
2	CD_REF
3	CD_REF
4	CD_L



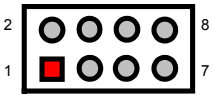
- **CD2: Line In Analog Input Connector**

PIN	Description
1	LINE_IN_R
2	GND
3	GND
4	LINE_IN_L



- **CN10: Mic In/Line Out Connector**

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



3.24 PC/104 Connectors

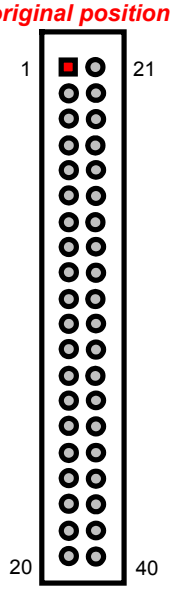
The PC/104 expansion bus offers provisions to connect all types of PC/104 modules. With the PC/104 bus being known as the new generation of industrial embedded 16-bit PC standard bus, thousands of PC/104 modules from multiple venders can be easily installed onboard. The detailed pin assignment of the PC/104 expansion bus connectors *PC1* and *PC2* 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.*

- **PC2: 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

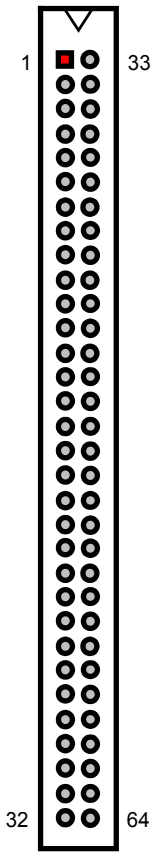
Connector diagram rotated 90 degrees clockwise from original position



- **PC1: 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



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Chapter 4

Award BIOS Setup

The HS-7001 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 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 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 detail 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.

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 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.

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Standard CMOS Features

Date (mm:dd:yy)	Wed, Jul 11 2001	Item Help
Time (hh:mm:ss)	10 : 32 :57	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, 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.

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Advanced BIOS Features

Virus Warning	Disabled	Item Help
CPU L1 & L2 Cache	Enabled	Menu Level ▶
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	Change the day, month,
Third Boot Device	LS120	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 on FDD for WIN95	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 might consider and make any changes only if you discover that the data has been lost while using your system.

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Advanced Chipset Features

DRAM Timing Selectable	By SPD	Item Help
CAS Latency Time	2.5	Menu Level ▶
Active to Precharge Delay	7	
DRAM RAS# to CAS# Delay	3	
DRAM RAS# Precharge	3	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	
Delayed Transaction	Enabled	
Delay Prior to Thermal	16Min	
AGP Aperture Size (MB)	64	
** ON-chip VGA Setting **		
On-chip VGA	Enabled	
On-chip Frame Buffer size	8MB	
Boot Display	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).

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Integrated Peripherals

On-chip Primary PCI IDE	Enabled	Item Help
IDE Primary Master PIO	Auto	Menu Level ▶
IDE Primary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	Change the day, month,
On-chip Secondary PCI IDE	Enabled	year and century
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	1 USB Port	
USB2.0 Controller	Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
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 Port1	3F8/IRQ4	
Onboard Serial Port2	2F8/IRQ3	
UART Mode Select	Normal	
RxD, TxD Active	Hi, Lo	
IR Transmission delay	Enabled	
UR2 Duplex Mode	Half	
Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
EPP Mode Select	EPP1.7	
ECP Mode Use DMA	3	
POWER After PWR-Rail	Off	
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.

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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	N/A	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-off by PWR-BTTN	Instant-Off	
CPU THRM-throttling	50.00%	
Wake-up by PCI card	Enabled	
Power On by Ring	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, 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**ersonal **C**omputer **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.

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

Reset Configuration Date	Disabled	Item Help
Resources controlled By	Auto (ESCD)	Menu Level ▶
IRQ Resources	Press Enter	
IRQ-3 Assigned to	PCI Device	Change the day, month,
IRQ4	PCI Device	year and century
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		Menu Level ▶
Current CPU Temperature		
Current CPU FAN Speed	XXXX RPM	
Current System FAN Speed	XXXX RPM	
Current Chassis FAN Speed	XXXX RPM	Change the day, month, year and century
Vcore		
+3.3V	3.37V	
+5V	5.08V	
+12V	12.09V	
-12V	-12.19V	
-5V	-5.04	
VBAT(V)	3.2V	
5VSB(V)	5.00V	
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

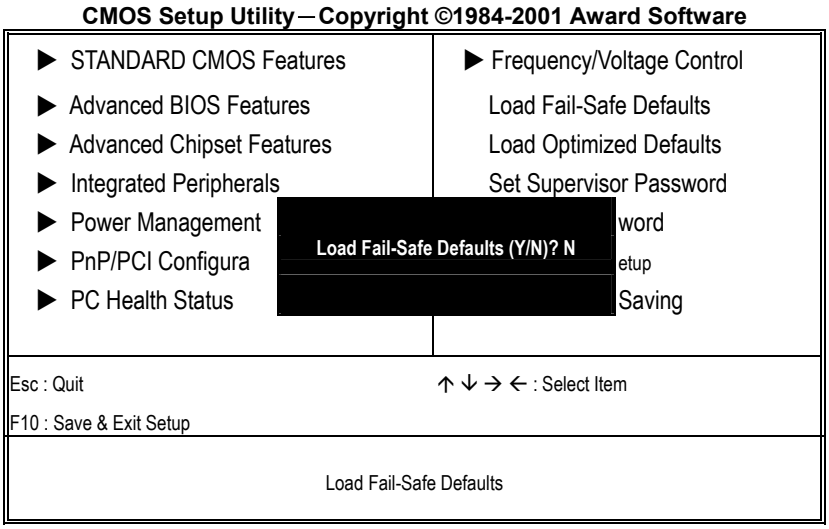
CMOS Setup Utility－Copyright ©1984-2001 Award Software
Frequency/Voltage Control

CPU Clock Ratio		Item Help
Auto Detect PCI Clk	Enabled	Menu Level ▶
Spread Specturm	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

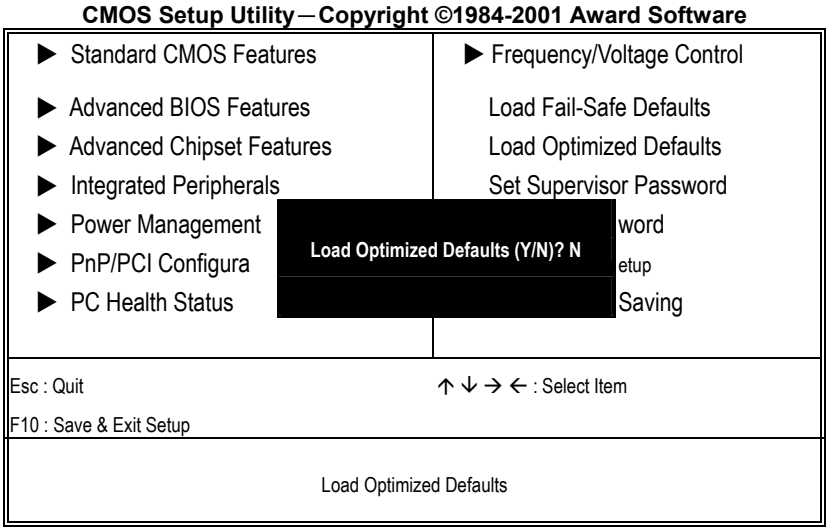
4.12 Load Fail-Safe Defaults

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.

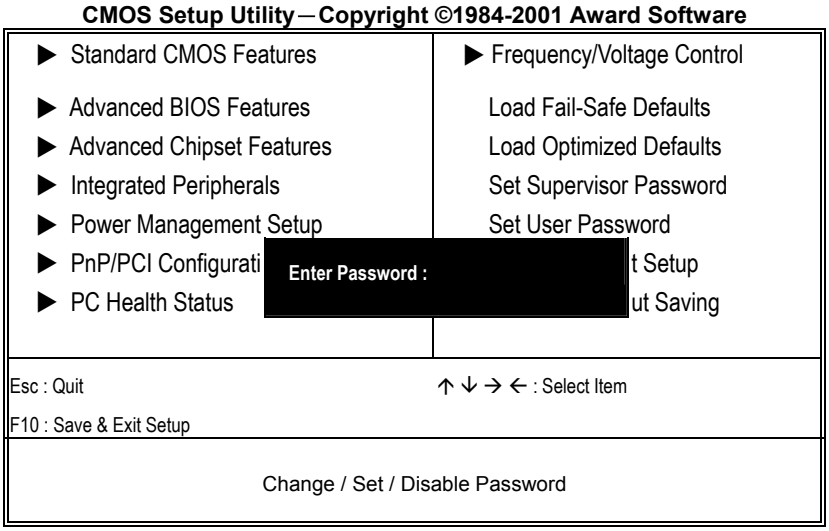


4.13 Load Optimized Defaults

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.



4.14 Set Supervisor/User Password



You can set either supervisor or user password, or both of then. 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.

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

PASSWORD DISABLED.

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.

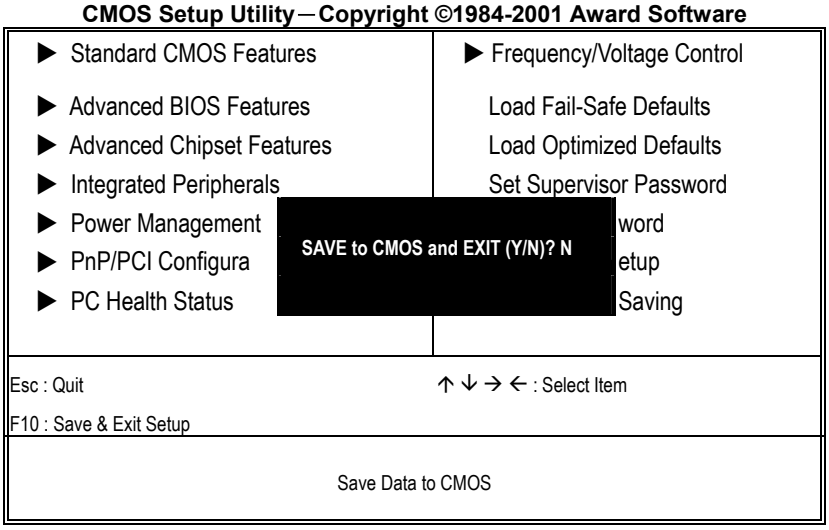
Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

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 again.

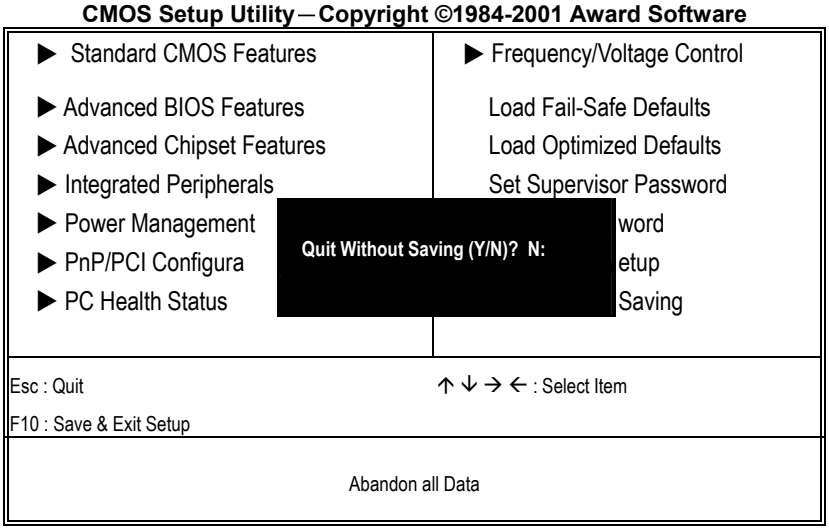


4.16 Exit Without Saving

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.



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Chapter 5

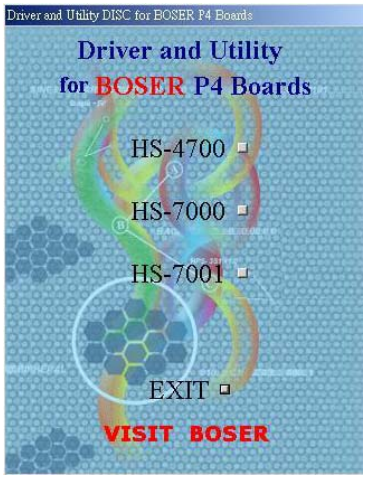
Software Utilities

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

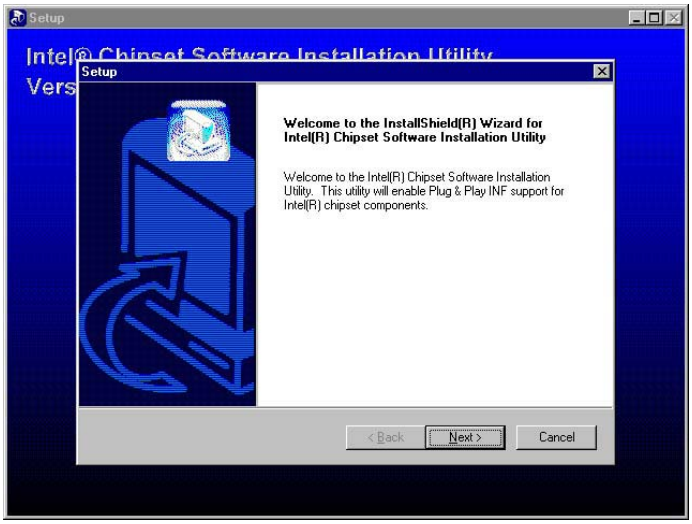
5.1.1 Installing Intel Chipset Software Utility

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.

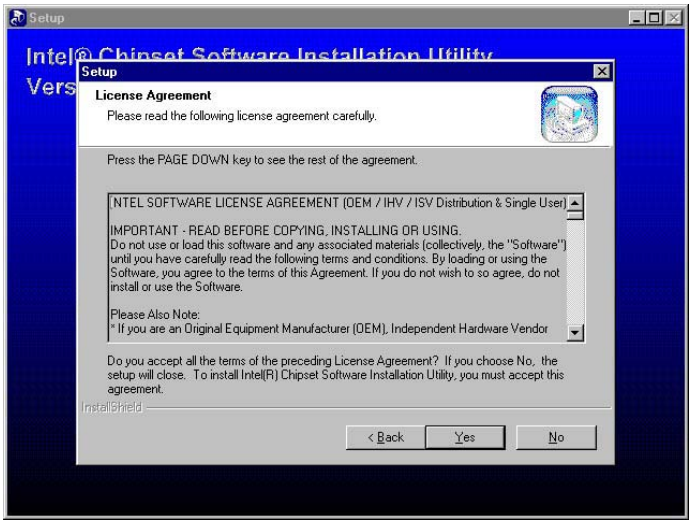


2. Click on the **ICH4 Driver** button to continue.

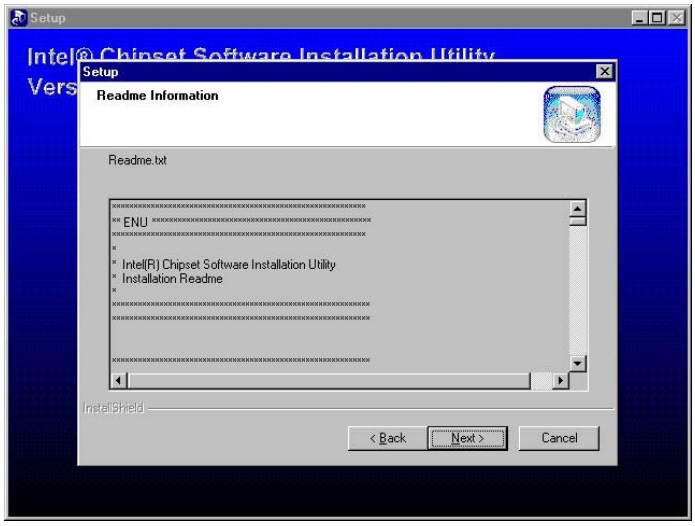
3. Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.



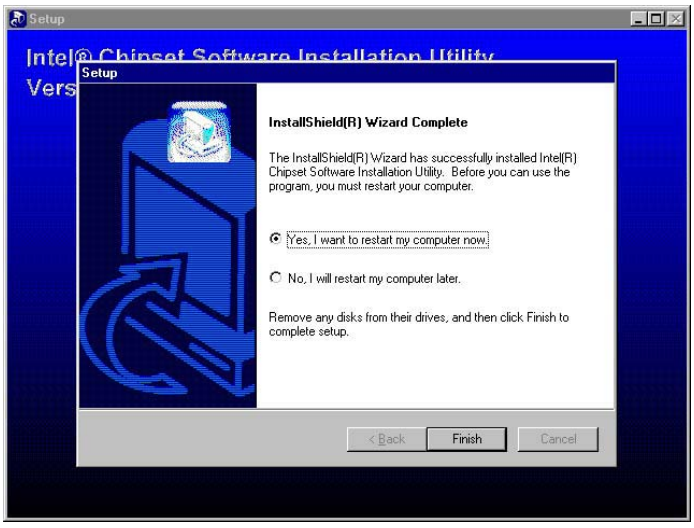
4. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



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

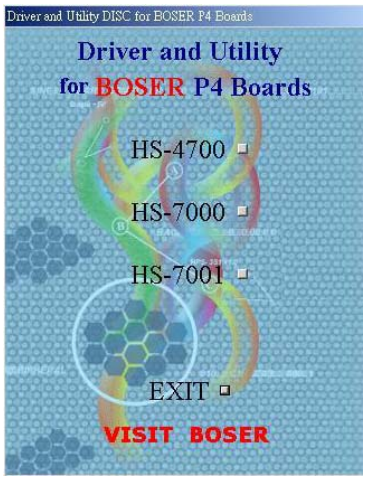


6. Once the Install Shield Wizard finishes updating your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.



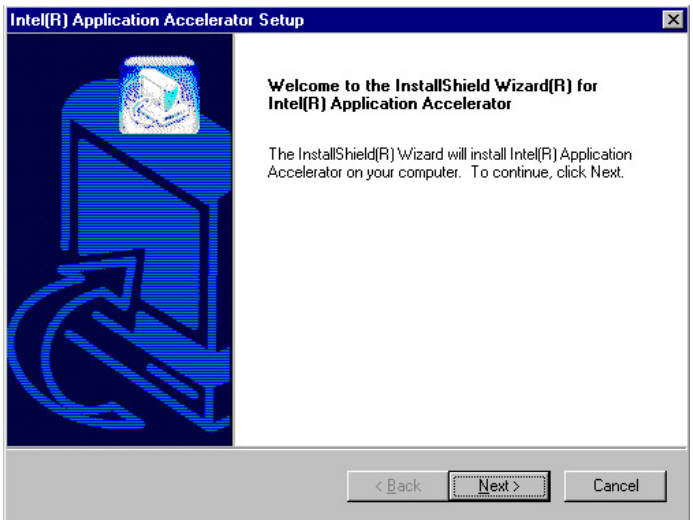
5.1.2 Installing Intel Application Accelerator

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.

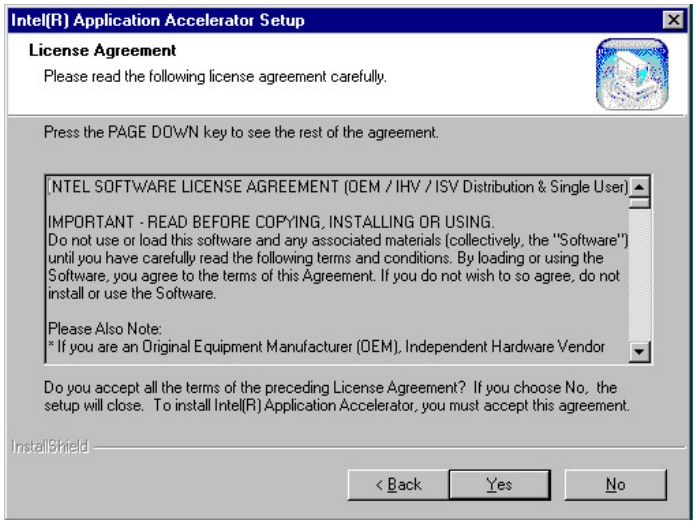


2. Click on the **IDE Driver** button to continue.

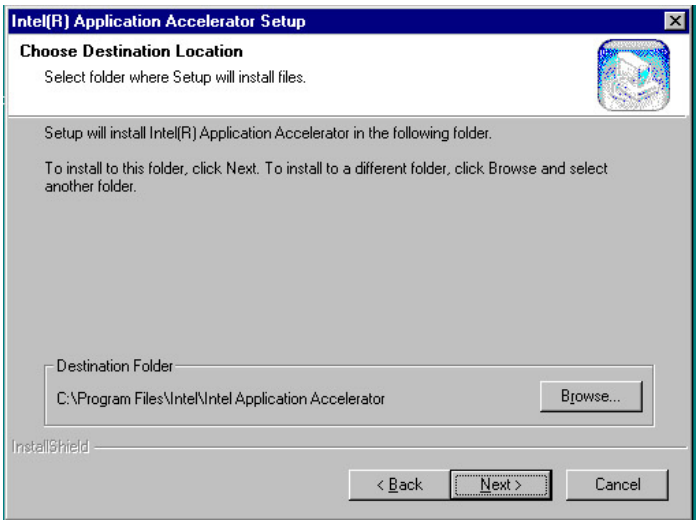
3. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



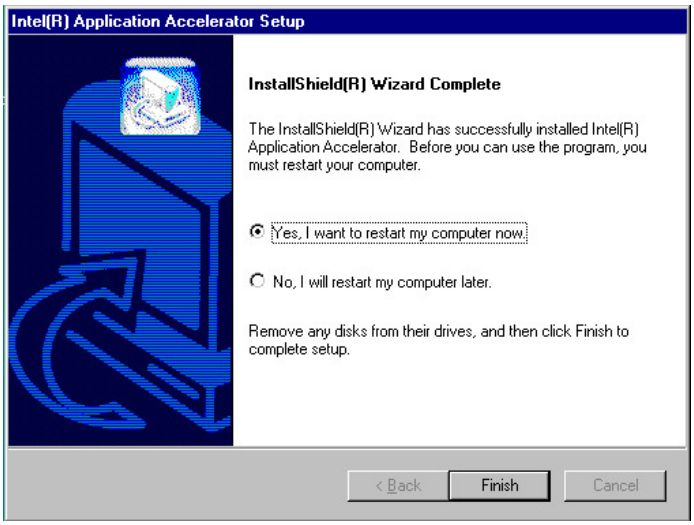
4. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



5. Setup will then prompt you to specify the path where you would like the Security driver installed. Select the **Next >** button after you have made your path/installation choice.



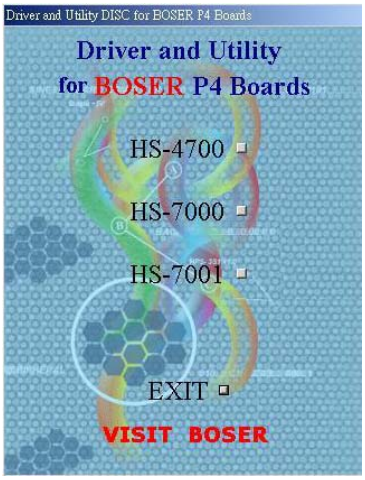
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.



5.2 VGA Driver Installation

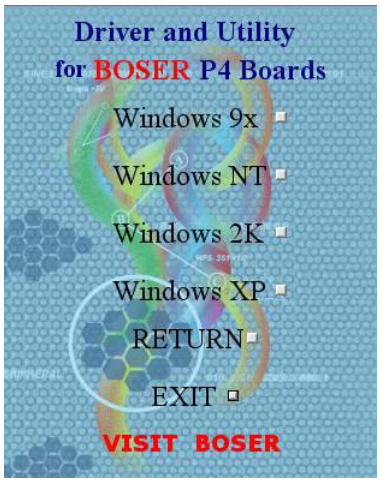
5.2.1 Win 95/98

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.



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

3. Click on the **Windows 9x** 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.

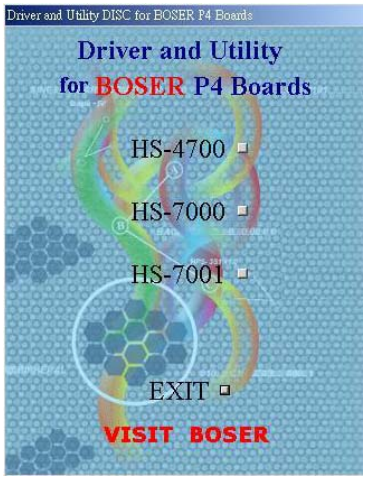
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

NOTE: *Installation procedure for Windows 98 is similar to Windows95.*

5.2.2 Win NT

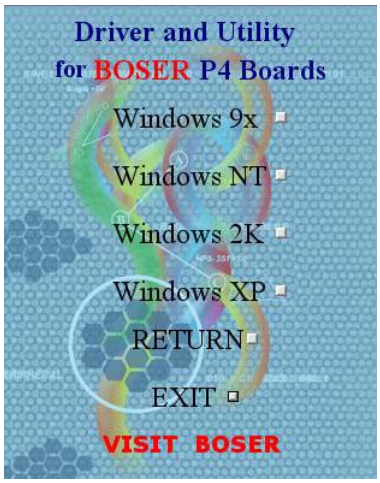
NOTE: *Please make sure you have already install **Service Pack 6.0.***

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.



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

3. Click on the **Windows NT** button to continue.



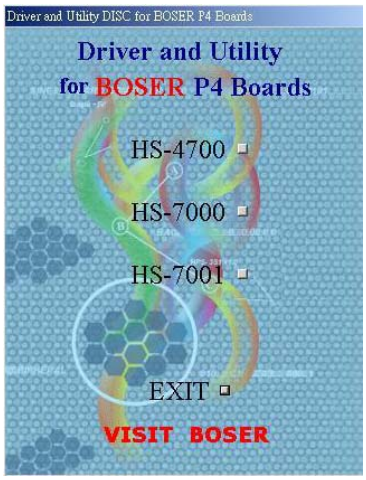
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

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. Only after your computer boots will the new settings take effect.

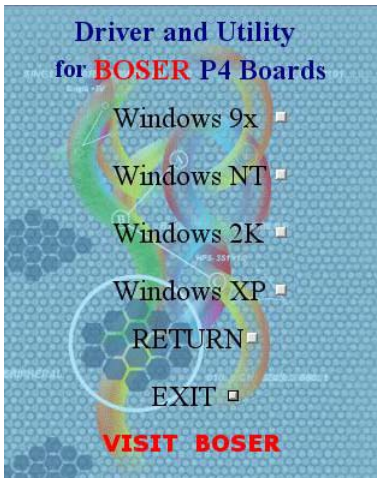
5.2.3 Win 2000

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.



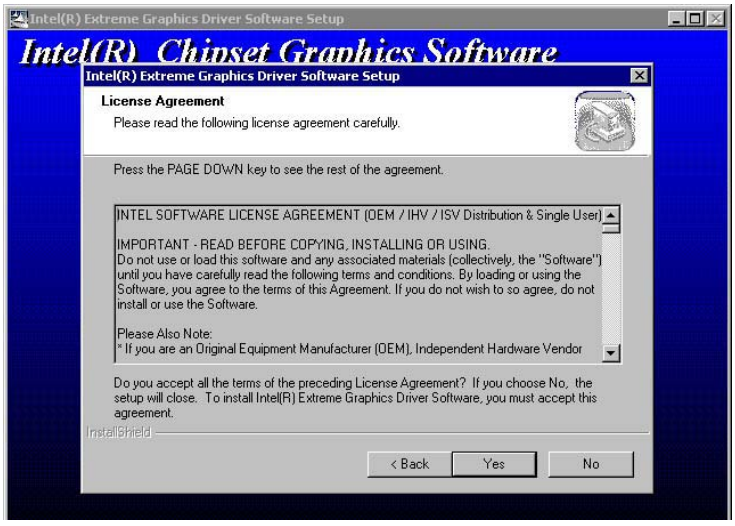
2. Click on the **VGA Driver** button to continue.

3. Click on the **Windows 2K** button to continue.

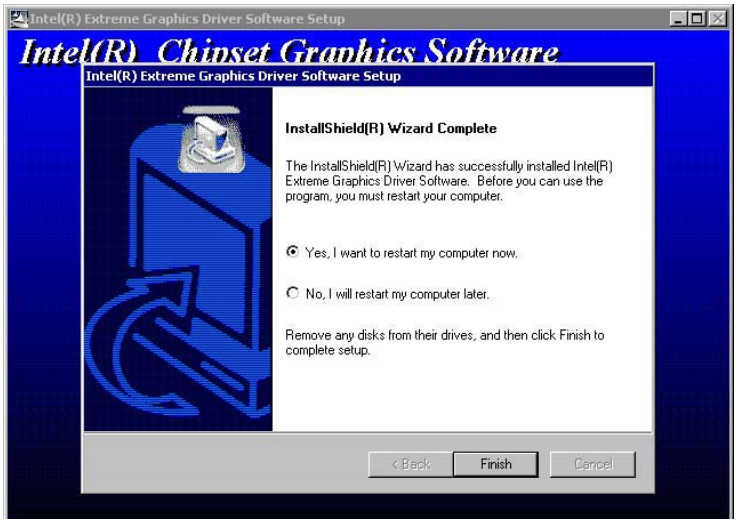


4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

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



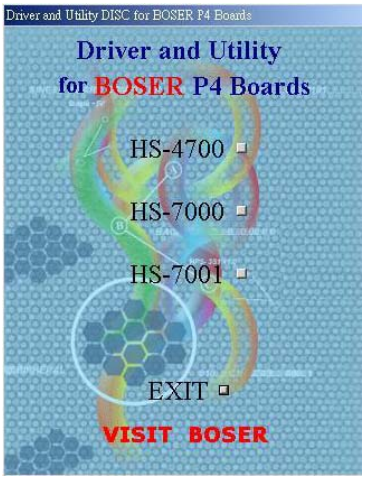
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.



5.3 LAN Driver Installation

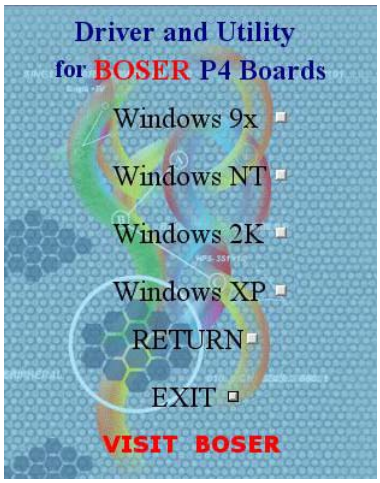
5.3.1 Win 95/98

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.

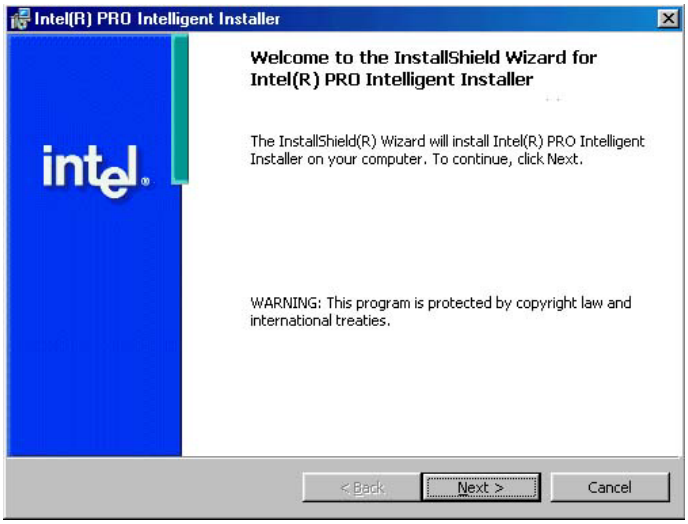


2. Click on the **LAN Driver** button to continue.

3. Click on the **Windows 9x** button to continue.

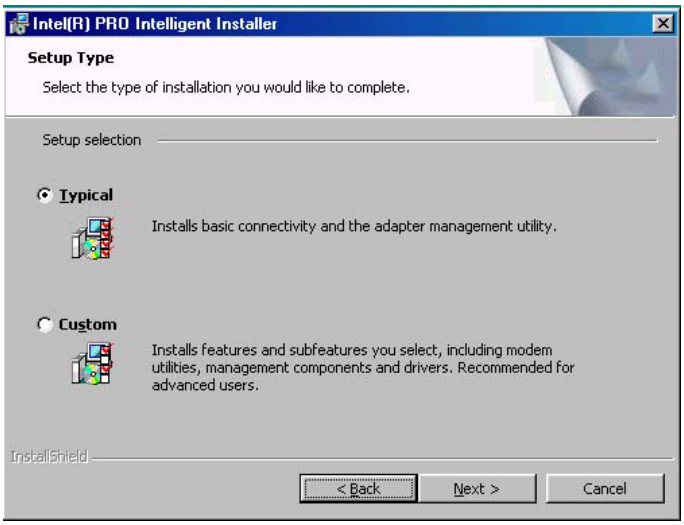


4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

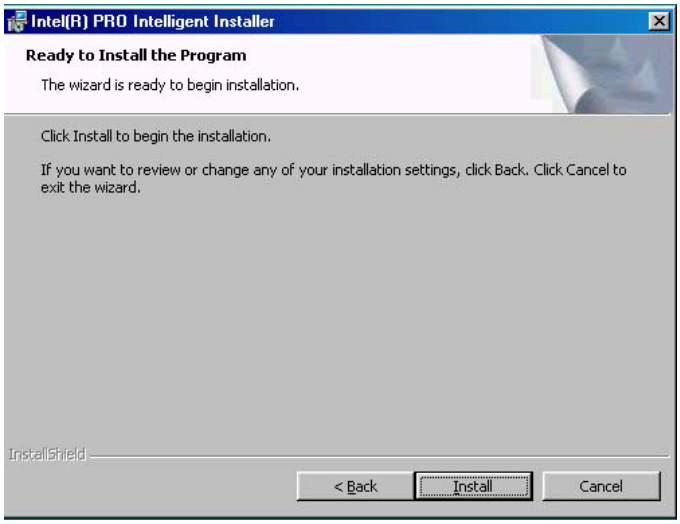


5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.

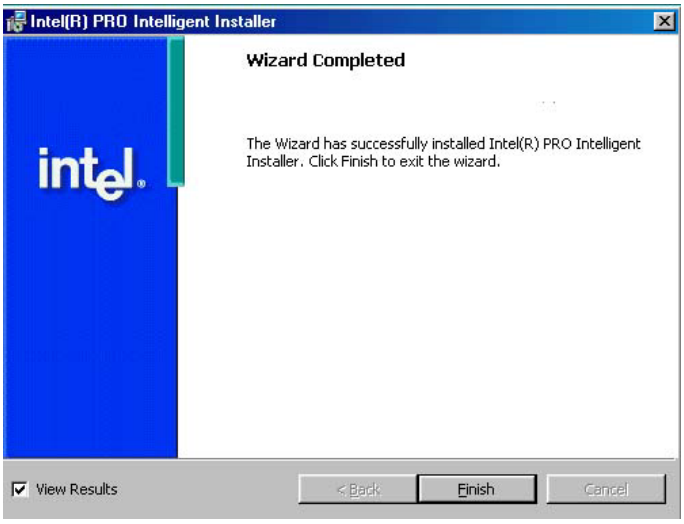
6. The Setup Type dialog box then appears on the screen. Choose **Typical** to proceed.



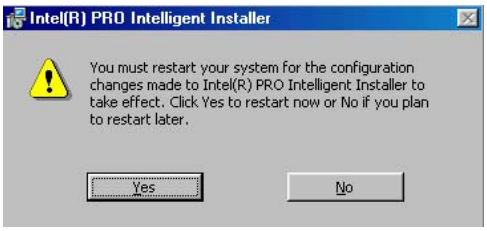
7. When the dialog box below appears, make sure you close all other Windows applications then click on the **Install** button to proceed.



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



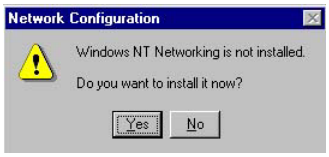
9. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes** to reboot. Only after your computer boots will the new settings take effect.



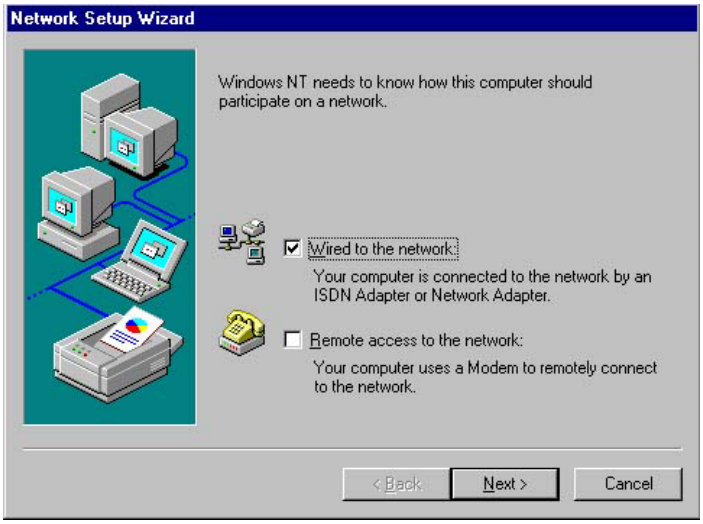
5.3.2 Win NT

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

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

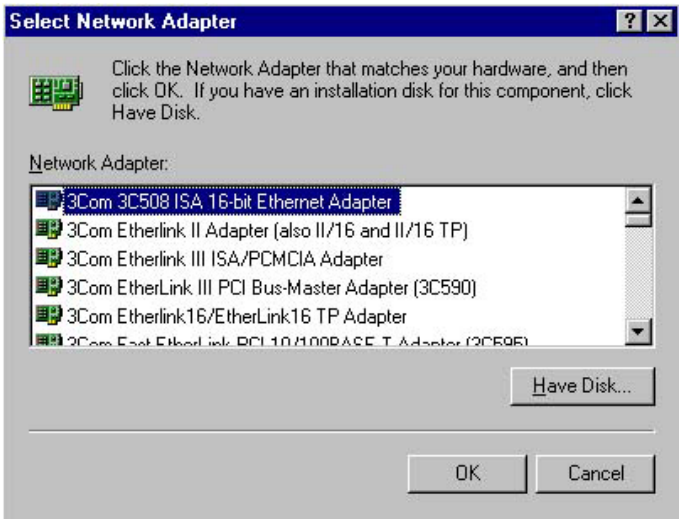


2. Tick on the **Wired to Network** once the following screen appears. Click on the Next to proceed.

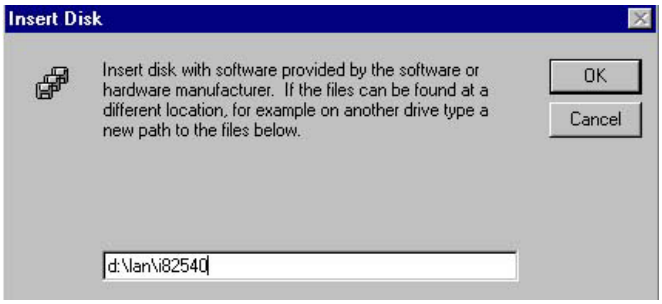


3. Click on the **Start Search** button for the program to locate the Network Adapter.

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.

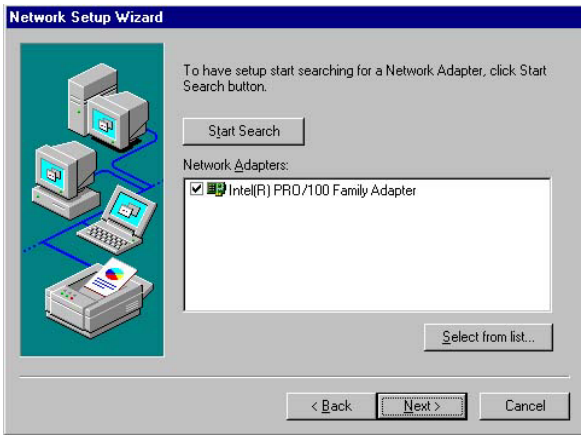


5. Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.

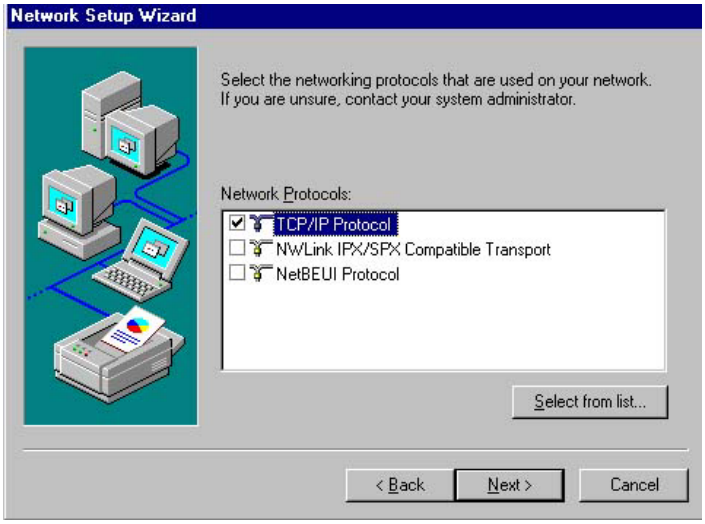


6. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. If using 82551 or 82562, please choose "**Intel(R) PRO/100 Family Adapter**". If using 82540EM, please choose "**Intel(R) PRO/1000 Family Adapter**". Press on the **OK** button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

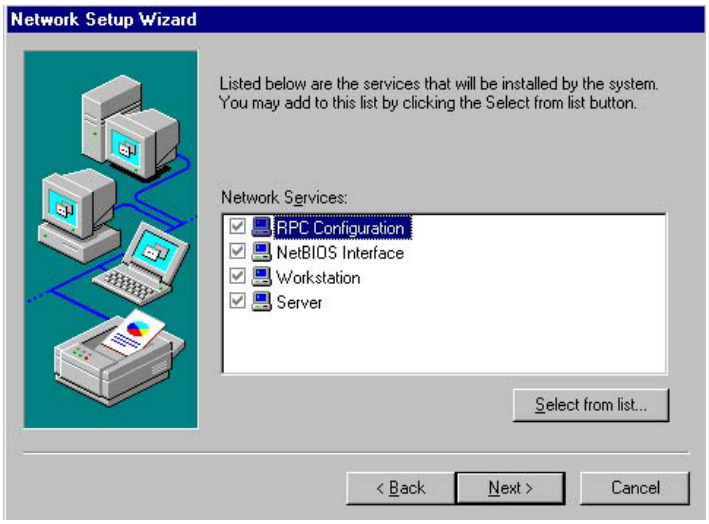
7. Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **Next** to continue.



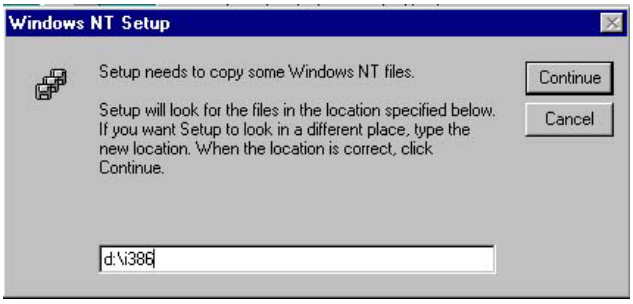
8. The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.



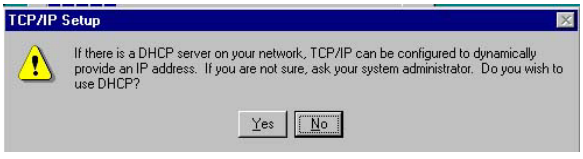
9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **Next** button once you are sure of your devices.



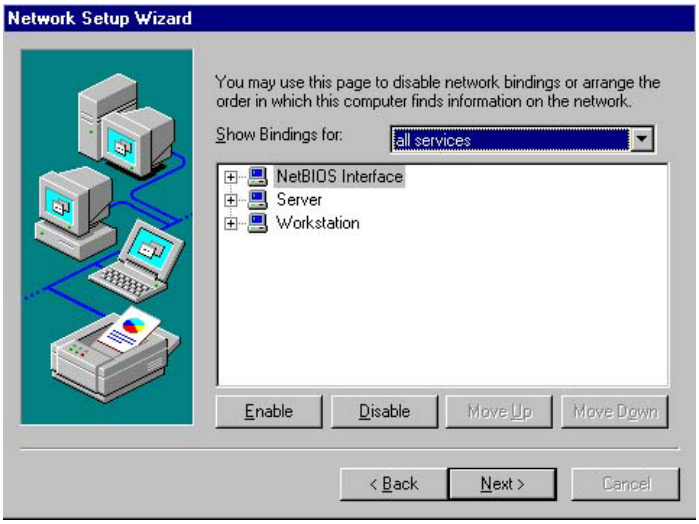
10. Windows NT Setup will then need to copy files necessary to update the system information. Specify the path then press **Continue**.



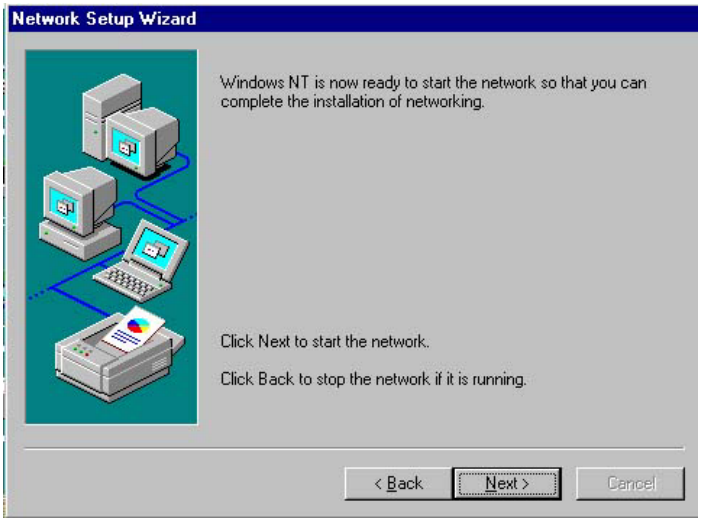
11. When Setup asks if you wish to change the TCP/IP settings of your system, select the appropriately. The default choice is **No**.



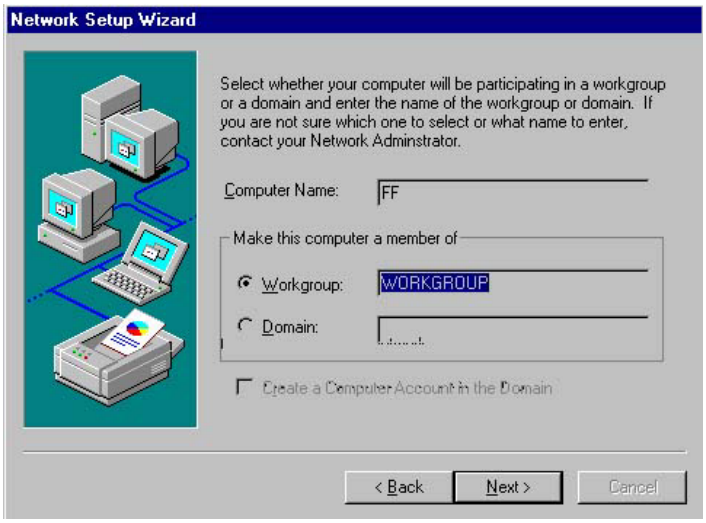
12. Setup then starts the Networking installation and copies the files.
13. When the screen below appears, click on **Next** to continue.



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

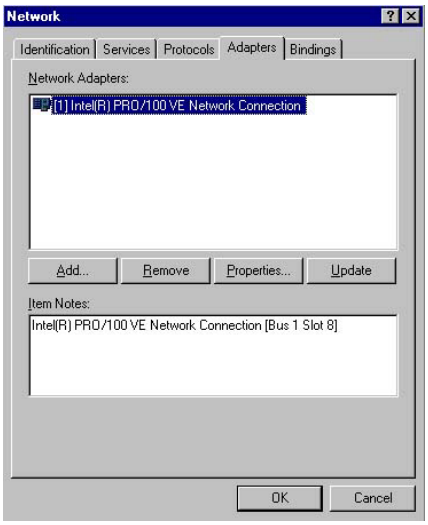


15. Assign the workgroup or domain setting of your computer. Click on Next to continue.

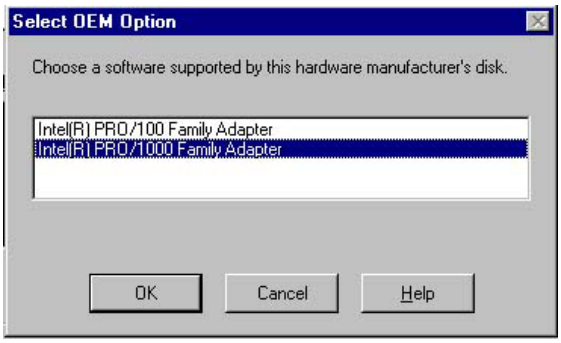


16. Click on the **Yes** button to restart your computer. The LAN1 driver installation for WIN NT4.0 is now complete.

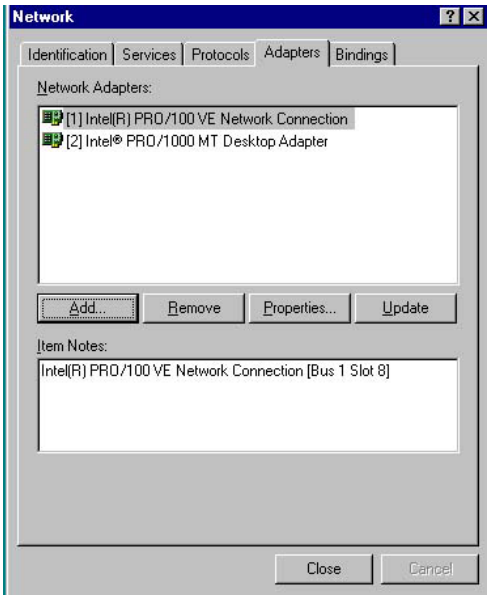
17. With the Utility CD Disk still in your CD ROM drive, we can install LAN2. Right click on "**Network Neighborhood**" icon from the desktop. Select on Properties and then proceed to the Network from the main menu. Click on **Add** to continue.



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

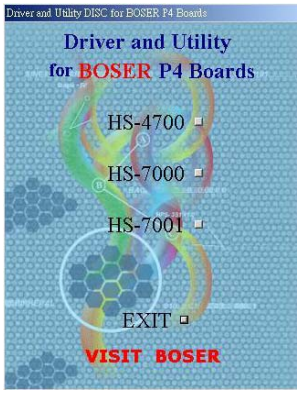


19. Click on the **Close** button. The LAN2 driver installation for WIN NT4.0 is now complete.

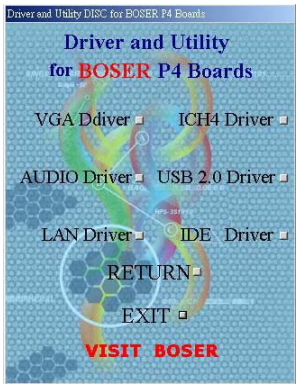


5.4 Audio Driver Installation

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.



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



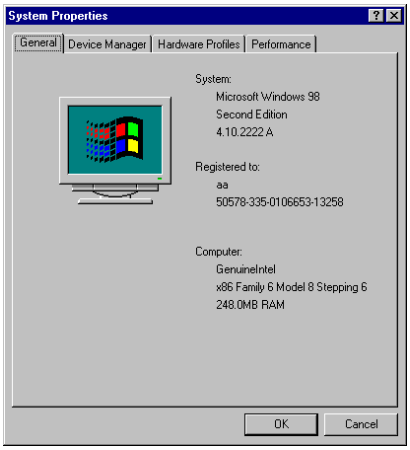
3. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

4. Once the 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.

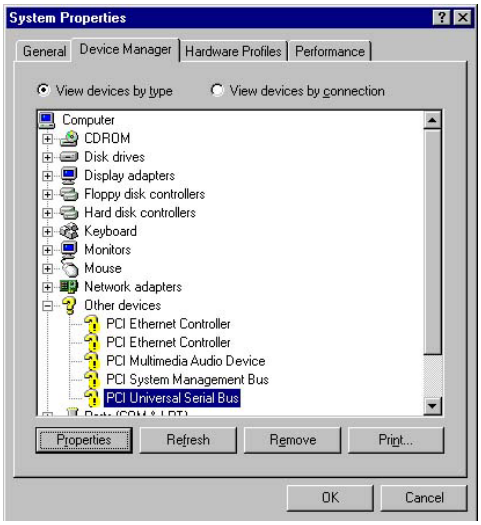
5.5 USB2.0 Driver Installation

5.5.1 Win 95/98

1. 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.

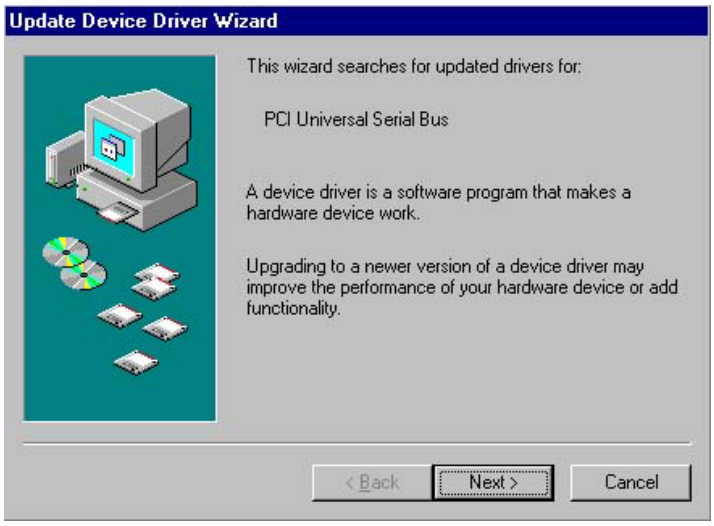


2. Select on Other Devices from the list of devices then double-click on PCI Universal Serial Bus.



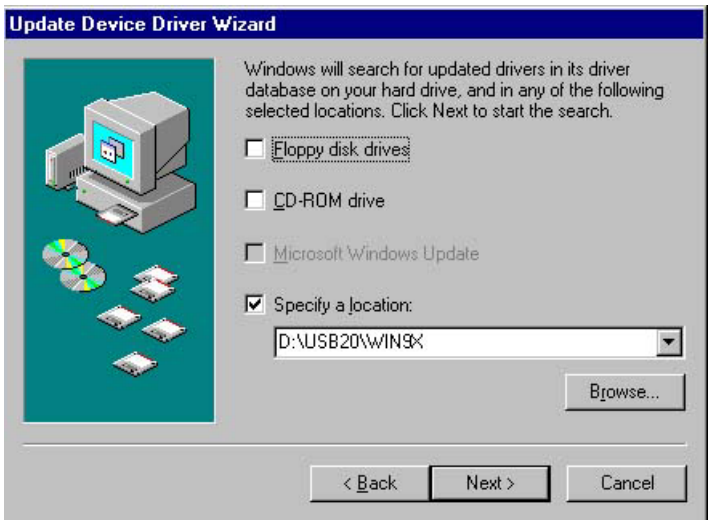
3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.

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

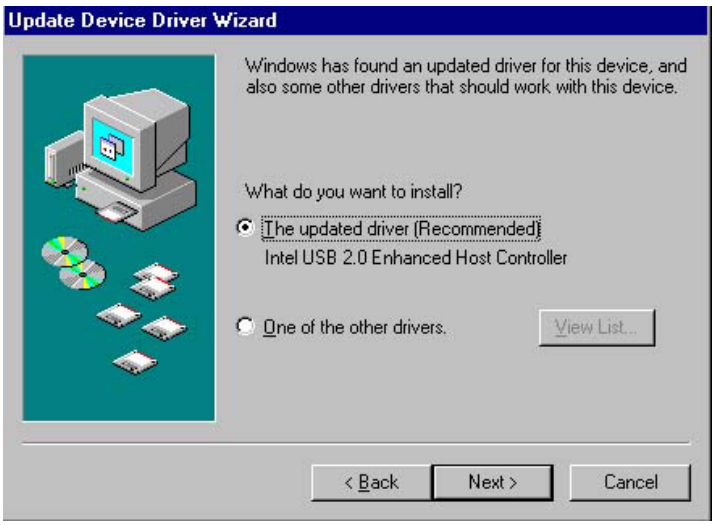


5. Tick on the "Search for a better driver" once the following screen appears. Click on the **Next** to proceed.

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



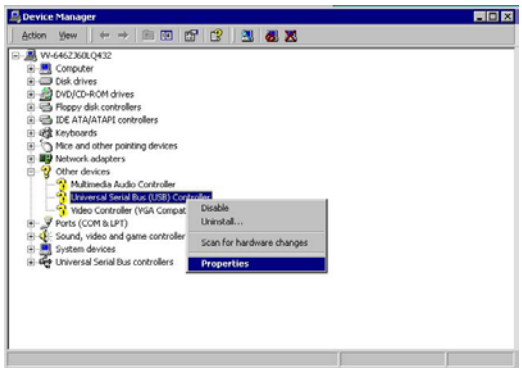
7. When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Press on the **Next** button to accept and proceed.



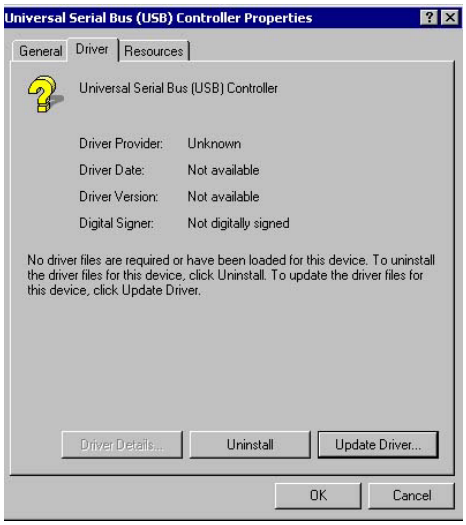
8. Once the InstallShield Wizard completes the operation and update of your USB2.0 driver. Click on the **Finish** button to complete the installation process.

5.4.2 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 then double-click on PCI Universal Serial Bus.

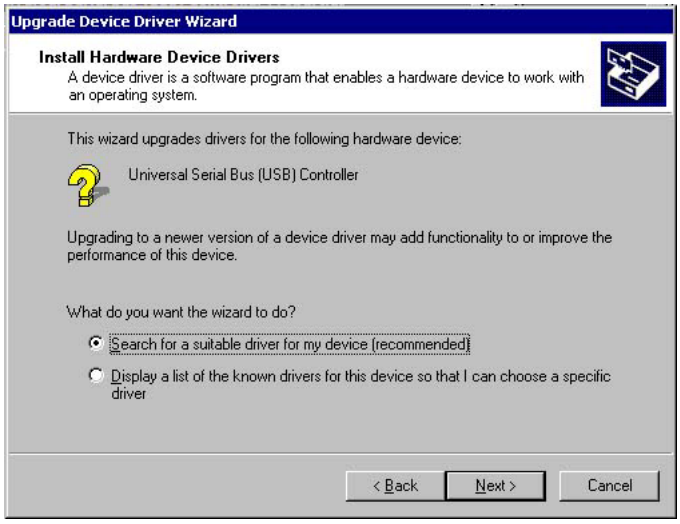


3. The PCI Universal Serial Bus Properties screen then appears, allowing you to re-install the driver. Select Driver from the main menu to proceed.

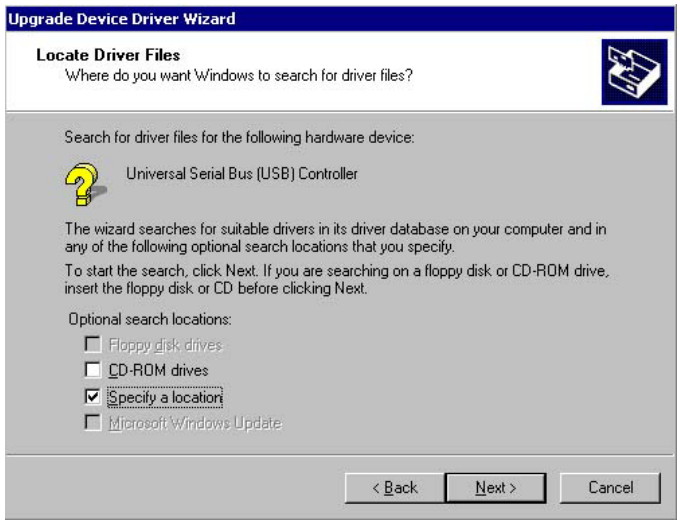


4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.

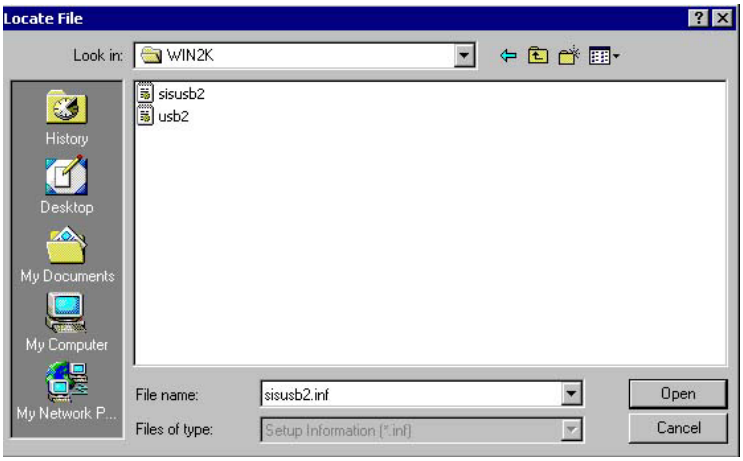
5. Tick on the "Search for a suitable driver" once the following screen appears. Click on the **Next** to proceed.



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



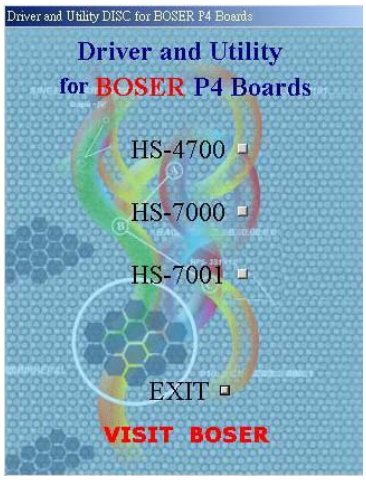
7. Choose sisusb2.inf and press on the **Open** button to accept and proceed.



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.

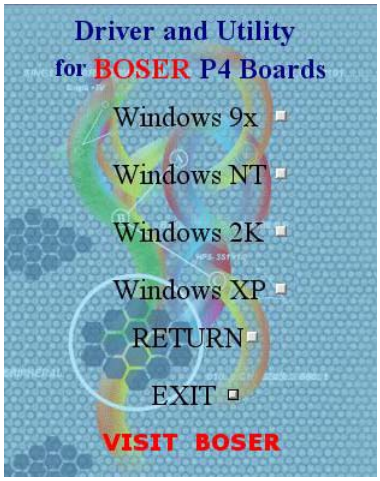
5.4.3 Win XP

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-7001** button to launch the installation program.



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

3. Click on the **Windows XP** 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 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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