

BBS-1080S

**19" 1U Height Half-size Bare Bone System
with Pentium 4 Embedded Engine Board
& 180W P4 ATX P/S**

- **19" 1U Height Half-size Rackmount Chassis •**
 - **HS-4701 Embedded Engine Board •**
 - **Celeron 2GHz CPU • 128MB DDR •**
 - **BS-667 Capture Card • 3.5" 80G HDD •**
 - **180W P4 ATX Power Supply •**

Copyright Disclaimers

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

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

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

Trademarks

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

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

Intel is a registered trademark of Intel Corporation.

Award is a registered trademark of Award Software, Inc.

AMI is a registered trademark of American Megatrends, Inc.

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



**© Copyright 2003 BOSER Technology Co., Ltd.
All Rights Reserved.
Edition 1.1, November 28, 2003**

Table of Contents

| | | |
|------------------|---------------------------------------|-----------|
| Chapter 1 | General Description..... | 1 |
| 1.1 | Hardware Features | 2 |
| 1.2 | System Features..... | 2 |
| 1.3 | Relay Specifications | 2 |
| 1.4 | Hardware Specifications..... | 3 |
| 1.5 | Software Functions | 3 |
| 1.6 | Dimensions | 5 |
| 1.7 | I/O Outlets | 5 |
| Chapter 2 | Unpacking..... | 7 |
| 2.1 | Opening the Delivery Package..... | 7 |
| 2.2 | Inspection..... | 7 |
| Chapter 3 | Hardware Installation..... | 9 |
| 3.1 | Open the Cover..... | 9 |
| 3.2 | Close the Cover | 10 |
| 3.3 | HDD and PCI Card Setup | 10 |
| 3.4 | A-1048 Expansion Card Setup | 13 |
| Chapter 4 | SBC Hardware Installation..... | 17 |
| 4.1 | Before Installation | 17 |
| 4.2 | Board Layout | 18 |
| 4.3 | Jumper List | 19 |
| 4.4 | Connector List | 19 |
| 4.5 | Configuring the CPU | 20 |
| 4.6 | System Memory | 20 |
| 4.7 | VGA Controller..... | 20 |
| 4.8 | PCI E-IDE Drive Connector | 22 |
| 4.9 | Floppy Disk Drive Connector | 24 |
| 4.10 | Serial Port Connectors | 25 |
| 4.11 | Parallel Connector..... | 26 |
| 4.12 | Ethernet Connector | 27 |
| 4.13 | USB Connector..... | 27 |
| 4.14 | CMOS Data Clear | 28 |
| 4.15 | Power and Fan Connectors..... | 28 |
| 4.16 | Keyboard/Mouse Connectors | 29 |
| 4.17 | System Front Panel Connectors..... | 29 |
| 4.18 | External Speaker | 30 |

| | |
|--|-----------|
| 4.19 Audio Connectors | 30 |
| 4.20 Digital Input/Output..... | 31 |
| 4.21 TV Out Function..... | 32 |
| 4.22 Mini AGP Connector | 32 |
| 4.23 PCI Expansion Slot | 32 |
| Chapter 5 Award BIOS Setup..... | 33 |
| 5.1 Starting Setup..... | 33 |
| 5.2 Using Setup..... | 34 |
| 5.2.1 Getting Help | 34 |
| 5.3 Main Menu | 35 |
| 5.4 Standard CMOS Setup | 36 |
| 5.5 Advanced CMOS Setup | 37 |
| 5.6 Advanced Chipset Setup | 38 |
| 5.7 Power Management Setup..... | 39 |
| 5.8 PCI / Plug and Play Setup..... | 40 |
| 5.9 Peripheral Setup..... | 41 |
| 5.10 PC Health Status..... | 42 |
| 5.11 Frequency/Voltage Control | 42 |
| Chapter 6 Software Utilities..... | 43 |
| 6.1 IDE Driver Installation | 43 |
| 6.1.1 Installing Intel Chipset Software Utility | 43 |
| 6.1.2 Installing Intel Application Accelerator | 46 |
| 6.2 VGA Driver Installation | 49 |
| 6.2.1 Win 98..... | 49 |
| 6.2.2 Win NT | 52 |
| 6.2.3 Win 2000 | 55 |
| 6.3 LAN Driver Installation..... | 58 |
| 6.3.1 Win 95/98 | 58 |
| 6.3.2 Win NT | 61 |
| 6.4 Audio Driver Installation..... | 67 |
| Appendix A Power Supply..... | 71 |
| A.1 Safety Approvals | 71 |
| A.1.1 EMI Regulatory | 71 |
| A.1.2 Safety | 71 |
| A.2 Physical Requirements..... | 72 |
| A.2.1 Mechanical Specifications | 72 |
| A.2.2 Connector Specifications..... | 72 |
| A.2.3 Connector PIN Designations | 72 |
| A.3 Electrical Requirements | 73 |
| A.4 Environmental Requirements | 76 |
| A.5 Safety | 77 |
| A.6 Electromagnetic Compatibility | 77 |

| | |
|-------------------------------|----|
| A.7 Labeling | 77 |
| A.8 Reliability | 77 |
| A.9 Safety Requirements | 78 |
| A.10 Dimensions | 78 |

Appendix B Capture Card.....79

| | |
|---|----|
| B.1 Features..... | 79 |
| B.2 Frame Rate | 79 |
| B.3 Image Acquisition..... | 80 |
| B.4 I/O Lines | 80 |
| B.5 Watchdog Timer | 80 |
| B.6 Applications | 80 |
| B.7 Software Supporting WDM Driver..... | 80 |

Safety Instructions

Before getting started, read the following important cautions.

- 1.** The BBS-1080S does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
- 2.** Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
- 3.** Disconnect the power core from the BBS-1080S before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the BBS-1080S is properly grounded.
- 4.** The brightness of the flat panel display decreases with usage. However, hours of use vary depending on the application environment.
- 5.** The flat panel display is not susceptible to shock or vibration. When assembling the BBS-1080S, make sure it is securely installed.
- 6.** Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.

When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Safety Approvals

- ◆ **CE Marking**
- ◆ **FCC**

FCC Compliance

This equipment has been tested and complies with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. If not installed and used in accordance with proper instructions, this equipment might generate or radiate radio frequency energy and cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.
5. Shielded interface cables must be used in order to comply with emission limits.

Chapter 1

General Description



Enclosed in a 19" 1U height half-size chassis structure, the physical appearance of the BBS-1080S may seem to be identical to a high-powered DC power supply, but do not let its physical attributes mislead you. This bare bone houses a semi-functional system based on the HS-4701 SBC that supports Pentium 4 CPU.

Powered by an 180W ATX power supply, the BBS-1080S's front panel incorporates various six LEDs, and back panel provides connectors for VGA, LAN, 4COM, audio, capture in, USB, I/O module, keyboard and mouse for user can friendly connections. The chassis can also accommodate one 3.5" 80G HDD and four channels real-time capture card.

1.1 Hardware Features

The BBS-1080S comes with the following hardware features:

- Built-in Celeron 2GHz CPU, 128MB DDR, 180W P4 ATX power supply
- Intel® 82845GE/82801DB system chipset
- Intel 82845GE CRT display controller
- Intel 82562 10/100 Based LAN
- AC97 3D audio controller
- Four COM, two USB2.0 connectors
- Four channels real-time video capture in
- One 3.5" 80G HDD
- Two 4cm ball bearing cooling fans (optional)
- Supports I/O module function

1.2 System Features

The BBS-1080S comes with the following system features:

- Operation System: Embedded Linux
- Four Video input connectors (BNC)
- Total Frame Rate: 120fps(NTSC) or 100fps(PAL)
- Video Compression: MPEG4 with high video quality and low data rate
- Video Data Rate: 40k~500kbps channel at full frame rate
- Audio Compression: GSM
- Audio Data Rate: 12kbp at 8k sample rate
- Video and audio synchronizes recording & playback
- Embedded HTTP server for web access

1.3 Relay Specifications

■ Contact Capacity:

- NO:** 10A at 125VAC
5A at 250VAC
5A at 30VDC
- NC:** 5A at 125VAC
3A at 250VAC

1.4 Hardware Specifications

- **System Board:** HS-4701 industrial Embedded engine board
- **CPU:** P4 Celeron 2GHz CPU (400FSB)
- **Memory:** Two DDR sockets supporting up to 2GB
- **Chipset:** Intel® 82845GE/82801DB
- **VGA:** Intel® 82845GE with 1MB or 8MB memory supporting CRT display up to 1280 x 1024 at 32-bit colors
- **Capture:** BS-667 four channels real-time capture card
- **LAN:** Intel® 82562 10/100 Based LAN
- **Audio:** AC97 3D audio controller
- **I/O Module:** 8-bit digital input and 4-bit relay output
- **FDD/HDD/CD-ROM:** One 3.5" 80G HDD
- **Serial Port:** One RS-232/422/485 and three RS-232, OR four RS-232
- **USB:** Two USB2.0 connectors
- **Keyboard:** PS/2 6-pin Mini DIN
- **Mouse:** PS/2 6-pin Mini DIN
- **Watchdog Timer:** Software program time-out intervals from 1~256 sec.
- **Thermal Solution:** Two 4cm ball bearing cooling fans (optional)
- **Power Supply:** 180W P4 ATX power supply
- **Dimensions/Weight:** 44.0 x 4.4 x 27.0 cm/7kgs.

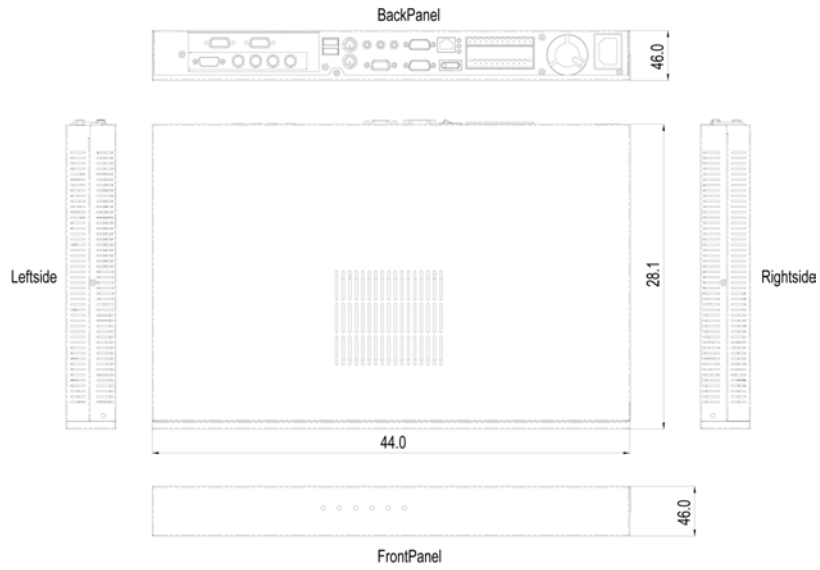
1.5 Software Functions

- **Recording**
 - ◆ **Time Scheduled:** Multiple schedules per camera
 - ◆ **Triggered:** Motion alarm can trigger multiple camera recording and output reaction, such as turn on the siren. OR any sensor alarm can trigger multiple camera recordings and output reaction
 - ◆ **On-demand:** From local GUI or web page
 - ◆ **Pre-alarm & post alarm recording**
- **Replay**
 - ◆ **Replay on local GUI, web page, or while recording**
- **PTZ Camera Control**
 - ◆ **Supports the PTZ control on local GUI or web pages**
- **Internet Connection**
 - ◆ **Ethernet for ADSL or cable modem (TCP/IP)**
 - ◆ **RS-232C with external modem (PPP) can dial-out or dial-in**

- **Digital Input**
 - ◆ Any input can be assigned with multiple alarm reactions which can be a camera recording or a relay output
- **Replay Output**
 - ◆ **Reaction Control:** Triggered by sensor alarm or motion detection alarm
 - ◆ **Time Scheduled Control:** Any replay output can be assigned with multiple schedules to control the external equipment
- **Alarm Forwarding**
 - ◆ Send the e-mail with video clip or few images when there is an alarm
 - ◆ Send the SMS and MMS when there is alarm
- **Web Page Operation**
 - ◆ Access live video (one or four video at a time)
 - ◆ Browse the alarm list or the recording list and play the selected recording
 - ◆ Download any of recordings
 - ◆ Check the I/O point status
 - ◆ Execute the output and PTZ control
 - ◆ Configure and reboot the DVR
- **Supported Web Browser**
 - ◆ IE 5.5 or above for PC
 - ◆ IE for PDA (Pocket PC system)
- **Requirement of PC Client**
 - ◆ Windows 98/NT/2000 or XP with IE browser 5.5 or above
 - ◆ DirectX, latest version
 - ◆ Multimedia Player 8.0 or above

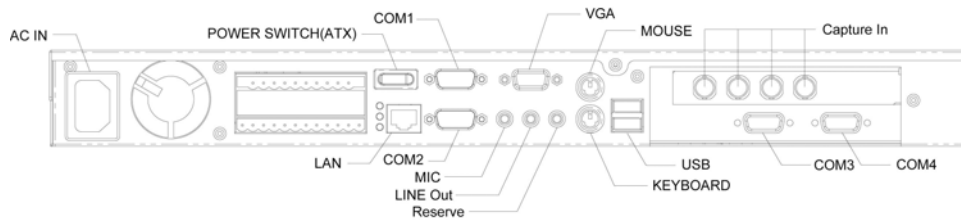
1.6 Dimensions

The BBS-1080S chassis size is shown below:



1.7 I/O Outlets

The following figure shows the I/O arrangement of the BBS-1080S.



This page intentionally left blank.

Chapter 2

Unpacking

2.1 Opening the Delivery Package

The BBS-1080S is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The BBS-1080S delivery package contains the following items:

- ◆ BBS-1080S Bare Bone System x 1
- ◆ AC Power Core x 1
- ◆ Utility Disc
- ◆ User's Manual

The BBS-1080S system along with its accessories is packed in several bags and boxes, all packed in one carton. Before you start, carefully read the safety instructions in front of this 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.

This page intentionally left blank.

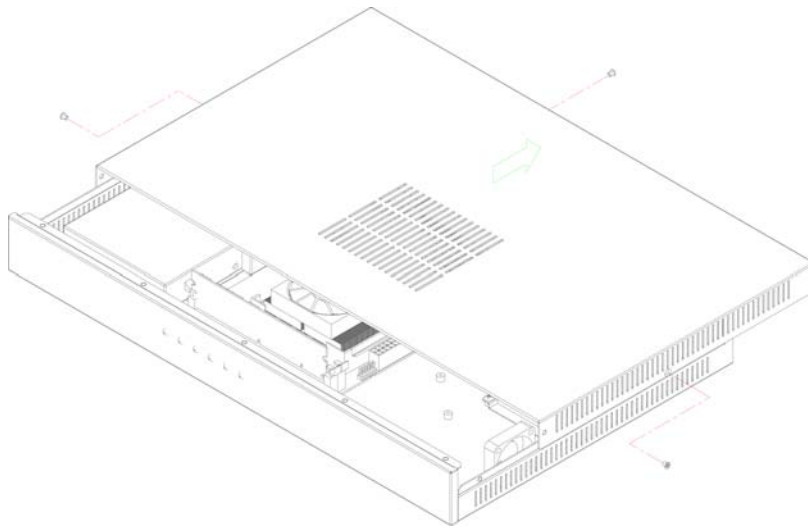
Chapter 3

Hardware Installation

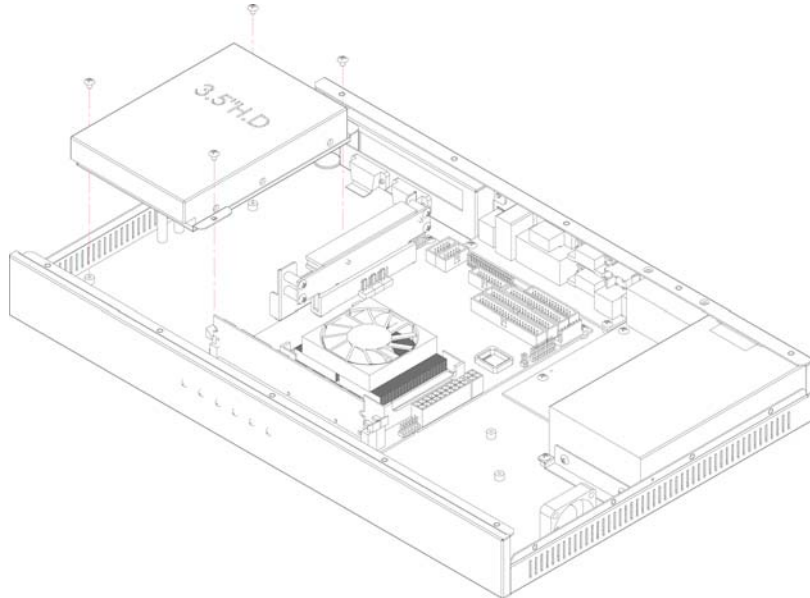
This chapter tells how to install components into the Bare Bone system. External Interface please refers to SBC's manual.

3.1 Open the Cover

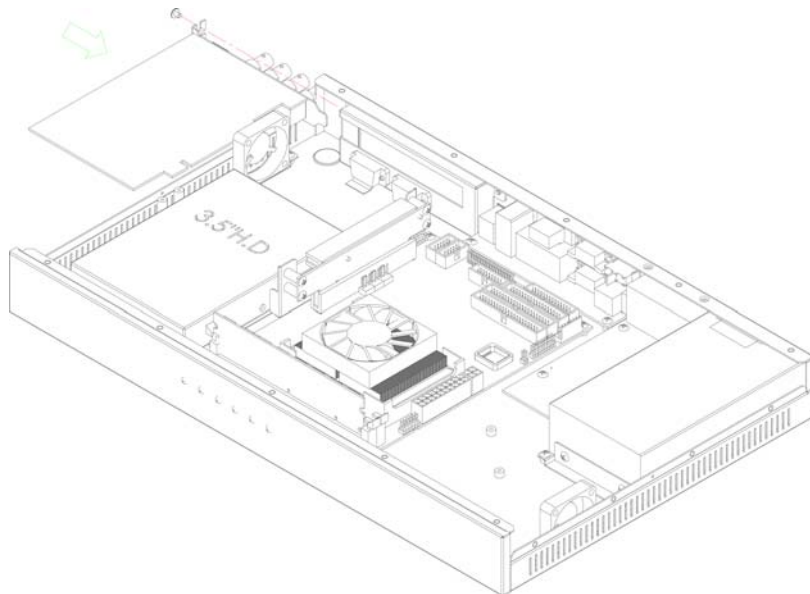
1. Please loose 3 screws, and open the cover



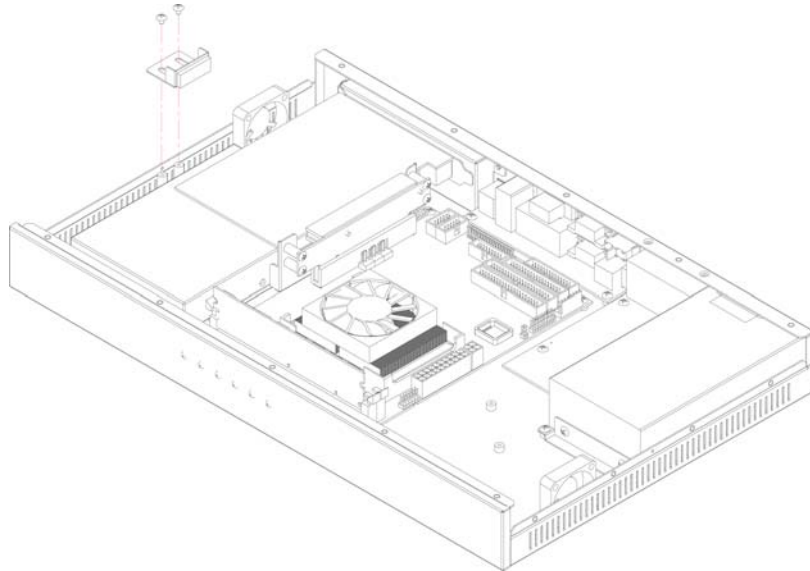
2. Place the whole HDD set on the chassis.



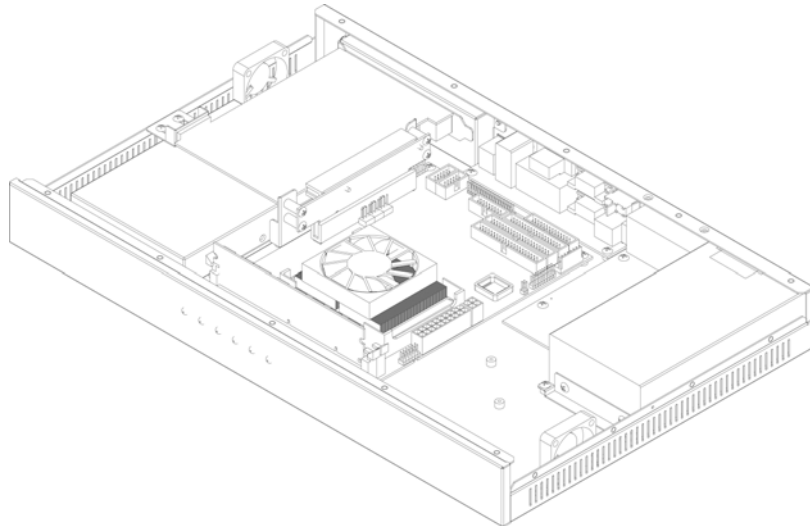
3. Insert PCI card to PCI extension slot, and fix it with a screw.



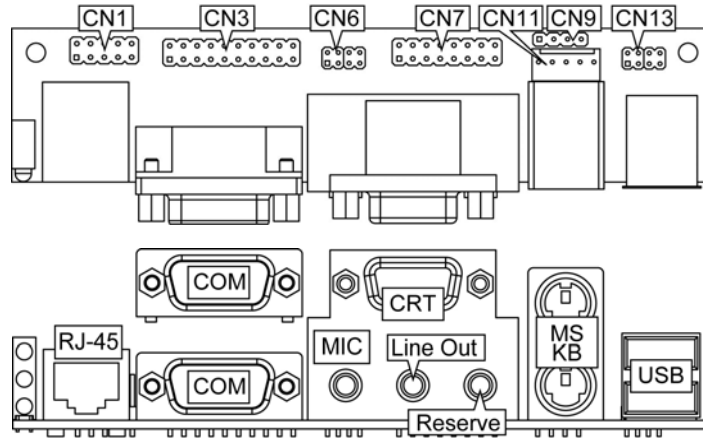
4. Screw the PCI stopper on the chassis



5. Completed assembly of HDD & PCI card as the following picture.

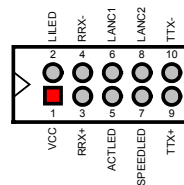


3.4 A-1048 Expansion Card Setup



- **CN1: Internal LAN Connector (5x2 Header)**

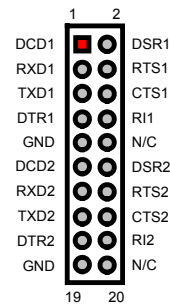
| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | LILED |
| 3 | RRX+ | 4 | RRX- |
| 5 | ACTLED | 6 | LANC1 |
| 7 | SPEEDLED | 8 | LANC2 |
| 9 | TTX+ | 10 | TTX- |



- **CN2: RJ-45 Connector**

- **CN3: Internal Serial Port Connector (10x2 Header)**

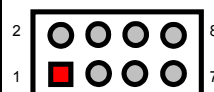
| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | DCD1 | 2 | DSR1 |
| 3 | RXD1 | 4 | RTS1 |
| 5 | TXD1 | 6 | CTS1 |
| 7 | DTR1 | 8 | RI1 |
| 9 | GND | 10 | N/C |
| 11 | DCD2 | 12 | DSR2 |
| 13 | RXD2 | 14 | RTS2 |
| 15 | TXD2 | 16 | CTS2 |
| 17 | DTR2 | 18 | RI2 |
| 19 | GND | 20 | N/C |



- **CN4: Dual Serial Port Connector (DB9)**

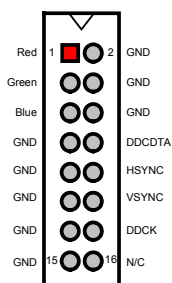
- **CN6: Internal MIC In/Audio Out Connector**

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



- **CN7: Internal CRT Connector (8x2 Header)**

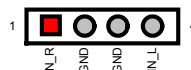
| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | Red | 2 | GND |
| 3 | Green | 4 | GND |
| 5 | Blue | 6 | GND |
| 7 | GND | 8 | DDCDTA |
| 9 | GND | 10 | HSYNC |
| 11 | GND | 12 | VSYNC |
| 13 | GND | 14 | DDCK |
| 15 | GND | 16 | N/C |



- **CN8: CRT Connector + Audio Jack Connector**

- **CN9: Internal Audio In Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | IN_R | 2 | GND |
| 3 | GND | 4 | IN_L |

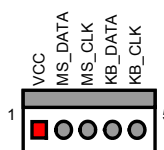


- **CN10: PS/2 6-pin Mini DIN Mouse Connector**

- **CN11: PS/2 6-pin Mini DIN Keyboard Connector**

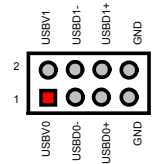
- **CN12: Internal KB/MS Connector**

| PIN | Description |
|-----|-------------|
| 1 | VCC |
| 2 | MS_DATA |
| 3 | MS_CLK |
| 4 | KB_DATA |
| 5 | KB_CLK |



- **CN13: Internal USB Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | USBV0 | 2 | USBV1 |
| 3 | USBD0- | 4 | USBD1- |
| 5 | USBD0+ | 6 | USBD1+ |
| 7 | GND | 8 | GND |



- **CN14: Dual USB Connector**

This page intentionally left blank.

Chapter 4

SBC Hardware Installation

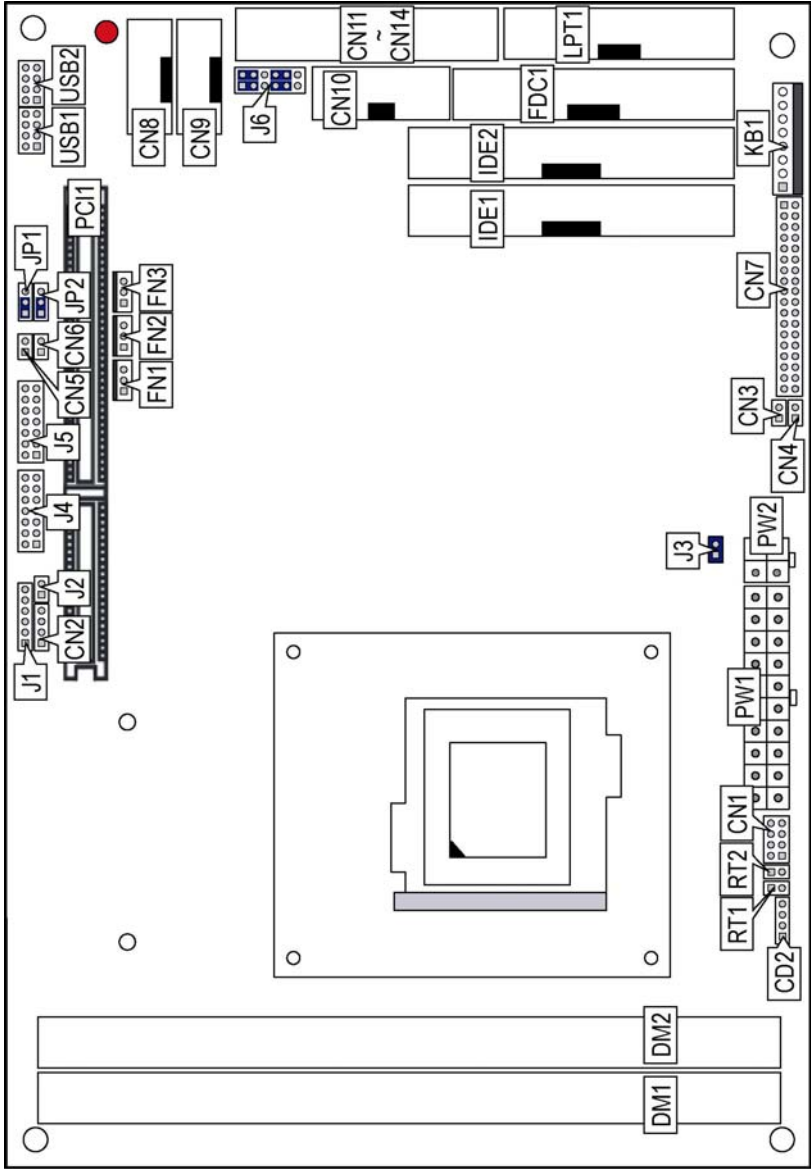
This chapter provides the information on how to install the hardware using the HS-4701.

4.1 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.
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 PW2 and 20-pin ATX connector to PW1.

4.2 Board Layout



4.3 Jumper List

| Jumper | Default Setting | Setting | Page |
|------------|---|------------------------------|------|
| JP1 | Bus Clock Rate Select: <i>Auto Detect</i> | Short 1-2 | 20 |
| JP2 | Clear CMOS: <i>Normal Operation</i> | Short 1-2 | 28 |
| J3 | Only for Debug | ---- | ---- |
| J6 | Use RS-232 or RS-422/485 Select: <i>RS-232</i> | Short 1-3, 2-4, 7-9, 8-10 | 25 |

4.4 Connector List

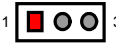
| Connector | Definition | Page |
|--------------------|-------------------------------|------|
| CN1 | MIC In/Audio Out Connector | 30 |
| CD2 | Line In Connector | 30 |
| CN2 | External Speaker Connector | 30 |
| CN3 | HDD LED Connector | 29 |
| CN4 | 2-pin ATX Power On/Off Switch | 28 |
| CN5 | Reset Connector | 29 |
| CN6 | Green LED Connector | 29 |
| CN7 | Digital I/O Connector | 31 |
| CN8 | Internal LAN Connector | 27 |
| CN9 | RS-422/485 Connector | 25 |
| CN10 | Internal CRT Connector | 20 |
| CN11 | COM 1 Connector | 25 |
| CN12 | COM 2 Connector | 25 |
| CN13 | COM 3 Connector | 25 |
| CN14 | COM 4 Connector | 25 |
| DM1/DM2 | 188-pin DDR Sockets | 20 |
| FDC1 | FDD Connector | 24 |
| FN1/FN2/FN3 | Fan Connectors | 28 |
| IDE1/IDE2 | IDE Connectors | 22 |
| J1 | Inverter Power Connector | 20 |
| J2 | TV-Out Connector | 31 |
| J4 | LVDS Connector | 20 |
| J5 | LVDS Connector | 20 |
| J7 | Mini AGP Connector | 31 |
| PW1 | 20-pin ATX Connector | 28 |
| PW2 | 4-pin ATX Connector | 28 |
| PCI1 | PCI Expansion Slot | 31 |
| KB1 | 8-pin KB/MS Connector | 29 |
| LPT1 | Parallel Connector | 26 |
| USB1/USB2 | USB Connectors | 27 |

4.5 Configuring the CPU

The HS-4701 offers the convenience in CPU installation with its auto-detect feature. After installing a new microprocessor onboard, the HS-4701 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: Bus Clock Rate Select**

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



4.6 System Memory

The HS-4701 provides two DDR sockets at locations *DM1* and *DM2*. The maximum capacity of the onboard memory is 2GB.

4.7 VGA Controller

NOTE 1: *HS-4701 does not support DSTN/STN Panel.*

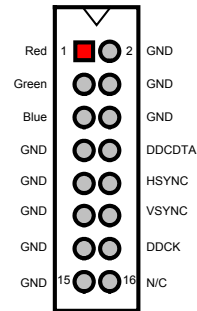
NOTE 2: *HS-4701 does not support 640*480 TFT Panel.*

NOTE 3: *There are specific panel cable and inverter for each different LCD. If clients need for others LCD (different from TOSHIBA LTM10C348F), please contact with your sales.*

The onboard Intel 82845GE with 1MB or 8MB memory supporting CRT display up to 1280 x 1024 at 32-bit colors. The HS-4701 provides two connection methods of CRT and LVDS Panel device. *CN10* offers an internal CRT connector, and *J4*, *J5* offer two LVDS Panel connectors.

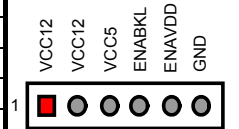
● **CN10: Internal CRT Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | Red | 2 | GND |
| 3 | Green | 4 | GND |
| 5 | Blue | 6 | GND |
| 7 | GND | 8 | DDCDTA |
| 9 | GND | 10 | HSYNC |
| 11 | GND | 12 | VSYNC |
| 13 | GND | 14 | DDCK |
| 15 | GND | 16 | N/C |



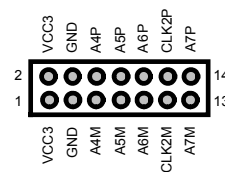
● **J1: Inverter Connector**

| PIN. | Description |
|------|-------------|
| 1 | VCC12 |
| 2 | VCC12 |
| 3 | VCC5 |
| 4 | ENABKL |
| 5 | ENAVDD |
| 6 | GND |



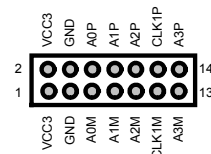
● **J4: LVDS Connector**

| 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 |



● **J5: LVDS 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 |

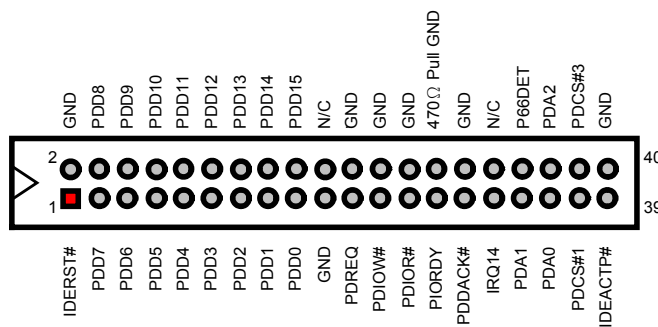


4.8 PCI E-IDE Drive Connector

IDE1 and *IDE2* are standard 40-pin connector daisy-chain driver connector serves the PCI E-IDE drive provisions onboard the HS-4701. A maximum of four ATA/33/66/100 IDE drives can connect to the HS-4701 via *IDE1* and *IDE2*.

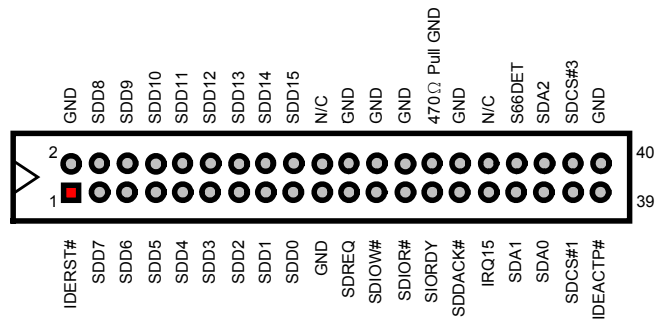
- **IDE1: Primary IDE Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|---------------|
| 1 | IDERST# | 2 | GND |
| 3 | PDD7 | 4 | PDD8 |
| 5 | PDD6 | 6 | PDD9 |
| 7 | PDD5 | 8 | PDD10 |
| 9 | PDD4 | 10 | PDD11 |
| 11 | PDD3 | 12 | PDD12 |
| 13 | PDD2 | 14 | PDD13 |
| 15 | PDD1 | 16 | PDD14 |
| 17 | PDD0 | 18 | PDD15 |
| 19 | GND | 20 | N/C |
| 21 | PDREQ | 22 | GND |
| 23 | PDIOW# | 24 | GND |
| 25 | PDIOR# | 26 | GND |
| 27 | PIORDY | 28 | 470Ω Pull GND |
| 29 | PDDACK# | 30 | GND |
| 31 | IRQ14 | 32 | N/C |
| 33 | PDA1 | 34 | P66DET |
| 35 | PDA0 | 36 | PDA2 |
| 37 | PDCS#1 | 38 | PDCS#3 |
| 39 | IDEACTP# | 40 | GND |



● IDE2: Secondary IDE Connector

| PIN | Description | PIN | Description |
|-----|-------------|-----|---------------|
| 1 | IDERST# | 2 | GND |
| 3 | SDD7 | 4 | SDD8 |
| 5 | SDD6 | 6 | SDD9 |
| 7 | SDD5 | 8 | SDD10 |
| 9 | SDD4 | 10 | SDD11 |
| 11 | SDD3 | 12 | SDD12 |
| 13 | SDD2 | 14 | SDD13 |
| 15 | SDD1 | 16 | SDD14 |
| 17 | SDD0 | 18 | SDD15 |
| 19 | GND | 20 | N/C |
| 21 | SDREQ | 22 | GND |
| 23 | SDIOW# | 24 | GND |
| 25 | SDIOR# | 26 | GND |
| 27 | SIORDY | 28 | 470Ω Pull GND |
| 29 | SDDACK# | 30 | GND |
| 31 | IRQ15 | 32 | N/C |
| 33 | SDA1 | 34 | S66DET |
| 35 | SDA0 | 36 | SDA2 |
| 37 | SDCS#1 | 38 | SDCS#3 |
| 39 | IDEACTP# | 40 | GND |

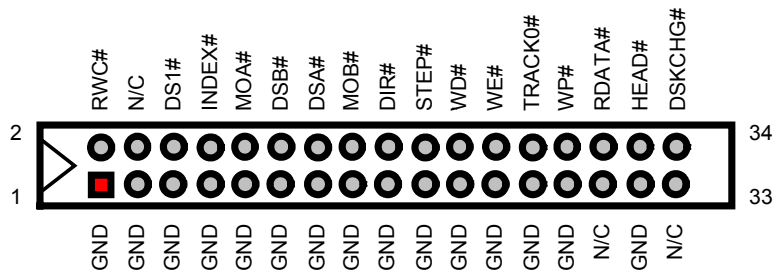


4.9 Floppy Disk Drive Connector

The HS-4701 uses a standard 34-pin header connector, *FDC1*, for floppy disk drive connection. A total of two FDD drives may be connected to *FDC* at any given time.

- **FDC1: FDD Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | GND | 2 | RWC# |
| 3 | GND | 4 | N/C |
| 5 | GND | 6 | DS1# |
| 7 | GND | 8 | Index# |
| 9 | GND | 10 | MOA# |
| 11 | GND | 12 | DSB# |
| 13 | GND | 14 | DSA# |
| 15 | GND | 16 | MOB# |
| 17 | GND | 18 | DIR# |
| 19 | GND | 20 | STEP# |
| 21 | GND | 22 | WD# |
| 23 | GND | 24 | WE# |
| 25 | GND | 26 | TRACK0# |
| 27 | GND | 28 | WP# |
| 29 | N/C | 30 | RDATA# |
| 31 | GND | 32 | HEAD# |
| 33 | N/C | 34 | DSKCHG# |

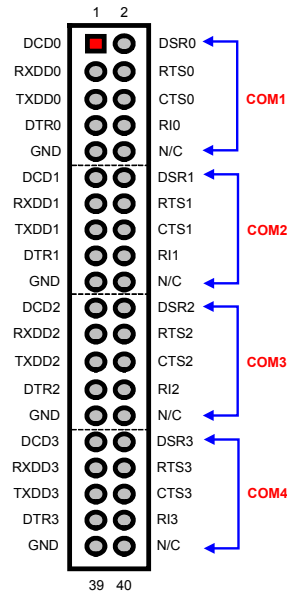


4.10 Serial Port Connectors

The HS-4701 offers two NS16C550 compatible UARTs with Read/Receive 16-byte FIFO serial ports and four internal 10-pin headers. There is one RS-422/485 connector.

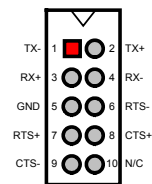
- **CN11~CN14: COM1~COM4 Connectors (5x2 Header)**

| 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 |
| 11 | DCD1 | 12 | DSR1 |
| 13 | RXDD1 | 14 | RTS1 |
| 15 | TXDD1 | 16 | CTS1 |
| 17 | DTR1 | 18 | RI1 |
| 19 | GND | 20 | N/C |
| 21 | DCD2 | 22 | DSR2 |
| 23 | RXDD2 | 24 | RTS2 |
| 25 | TXDD2 | 26 | CTS2 |
| 27 | DTR2 | 28 | RI2 |
| 29 | GND | 30 | N/C |
| 31 | DCD3 | 32 | DSR3 |
| 33 | RXDD3 | 34 | RTS3 |
| 35 | TXDD3 | 36 | CTS3 |
| 37 | DTR3 | 38 | RI3 |
| 39 | GND | 40 | N/C |



- **CN9: RS-422/485 Connector**

| 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 |



- **J6: Use RS-232 or RS-422/485 Select**

| Options | Settings |
|-------------------------|-----------------------------|
| RS-232 (default) | Short 1-3, 2-4, 7-9, 8-10 |
| RS-422/485 | Short 3-5, 4-6, 9-11, 10-12 |

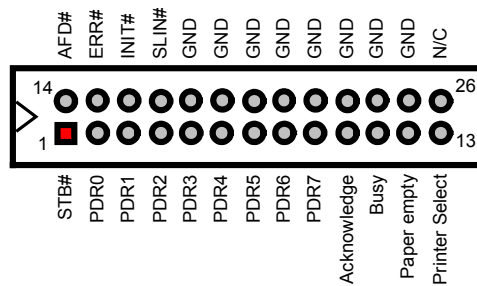


4.11 Parallel Connector

LPT1 is a standard 26-pin flat cable connector designed to accommodate parallel port connection onboard the HS-4701.

- **LPT1: Parallel Connector**

| PIN | Description | PIN | Description |
|-----------|----------------|-----------|-------------|
| 1 | STB# | 14 | AFD# |
| 2 | PDR0 | 15 | ERR# |
| 3 | PDR1 | 16 | INIT# |
| 4 | PDR2 | 17 | SLIN# |
| 5 | PDR3 | 18 | GND |
| 6 | PDR4 | 19 | GND |
| 7 | PDR5 | 20 | GND |
| 8 | PDR6 | 21 | GND |
| 9 | PDR7 | 22 | GND |
| 10 | Acknowledge | 23 | GND |
| 11 | Busy | 24 | GND |
| 12 | Paper Empty | 25 | GND |
| 13 | Printer Select | 26 | N/C |

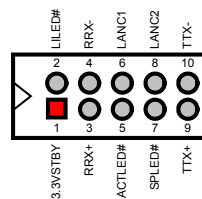


4.12 Ethernet Connector

The HS-4701 has Intel® 82562 10/100 Based LAN controller and provides one 10-pin internal connector. Please refer to the following for its pin information.

- **CN8: LAN Connector (Intel 82562)**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | 3.3VSTBY | 2 | LILED# |
| 3 | RRX+ | 4 | RRX- |
| 5 | ACTLED# | 6 | LANC1 |
| 7 | SPLED# | 8 | LANC2 |
| 9 | TTX+ | 10 | TTX- |

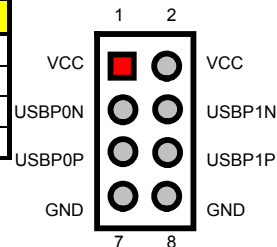


4.13 USB Connector

The HS-4701 provides four USB ports, at locations *USB1* and *USB2*, for four USB connections to the HS-4701.

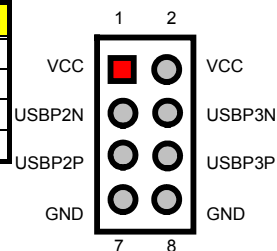
- **USB1: USB Connector**

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



- **USB2: USB Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC | 2 | VCC |
| 3 | USBP2N | 4 | USBP3N |
| 5 | USBP2P | 6 | USBP3P |
| 7 | GND | 8 | GND |

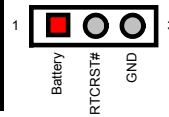


4.14 CMOS Data Clear

The HS-4701 has a Clear CMOS jumper on *JP2*.

- **JP2: Clear CMOS**

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



IMPORTANT: Before you turn on the power of your system, please set *JP2* to short 1-2 for normal operation.

4.15 Power and Fan Connectors

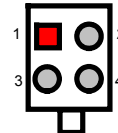
HS-4701 provides one 20-pin and one 4-pin ATX power connectors at *PW1* and *PW2*.

HS-4701 must using P4 power supply. One of 4-pin connector is for +12V lead which should connect to *PW2*.

20-pin ATX Power Connector can connect to Backplane or to *PW1*.

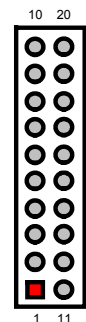
- **PW2: 4-pin ATX Power In Connector**

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




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

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



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

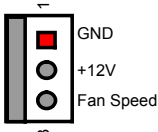
| PIN | Description |
|-----|--------------|
| 1 | 5VSTBY |
| 2 | Power On/Off |



Connector *FN1*, *FN2* and *FN3* onboard HS-4701 are 3-pin fan connectors.

- **FN1, FN2 and FN3: Fan Connectors**

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

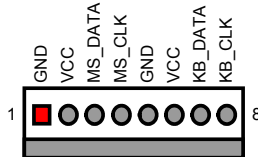


4.16 Keyboard/Mouse Connectors

The HS-4701 offers one possibility for keyboard/mouse connection is via *KB1*.

- **KB1: 8-pin Keyboard/Mouse Connector**

| PIN | Description |
|-----|-------------|
| 1 | GND |
| 2 | VCC |
| 3 | MS_DATA |
| 4 | MS_CLK |
| 5 | GND |
| 6 | VCC |
| 7 | KB_DATA |
| 8 | KB_CLK |



4.17 System Front Panel Connectors

The HS-4701 has one LED at location *CN3* that indicates the HDD status.

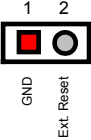
- **CN3: HDD LED Connector**

| PIN | Description |
|-----|---------------|
| 1 | 150Ω Pull +5V |
| 2 | HDD ACTIVE# |

CN5 is the Reset Button connector onboard. The *CN6* is Green function LED indicates.

- **CN5: Reset Button Connector**

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



- **CN6: Green LED Connector**

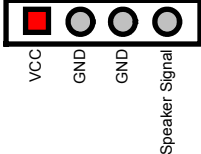
| PIN | Description |
|-----|---------------|
| 1 | 150Ω Pull +5V |
| 2 | ACTIVE# |

4.18 External Speaker

Aside from the buzzer at location *BZ1* onboard, the HS-4701 also offers a connector (*CN2*) for an external speaker connection. The table below lists the pin assignments of *CN2*.

- **CN2: External Speaker Connector**

| PIN | Description |
|-----|----------------|
| 1 | VCC |
| 2 | GND |
| 3 | GND |
| 4 | Speaker Signal |

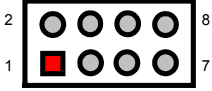


4.19 Audio Connectors

The HS-4701 has an onboard AC97 3D audio interface. The following table list the pin assignments of the MIC In / Audio Out and Line In connector.

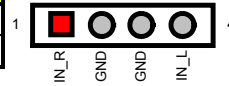
- **CN1: MIC In / Audio Out Connector**

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



- **CD2: Line In Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | IN_R | 2 | GND |
| 3 | GND | 4 | IN_L |

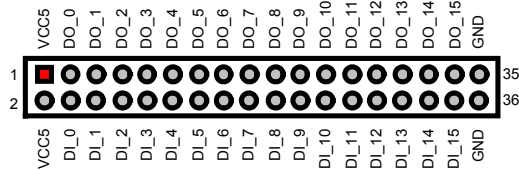


4.20 Digital Input/Output

The HS-4701 provides a CN7 connector for Digital I/O function.

- **CN7: Digital I/O Connector**

| PIN | Description | PIN | Description |
|-----|-------------|-----|-------------|
| 1 | VCC5 | 2 | VCC5 |
| 3 | DO_0 | 4 | DI_0 |
| 5 | DO_1 | 6 | DI_1 |
| 7 | DO_2 | 8 | DI_2 |
| 9 | DO_3 | 10 | DI_3 |
| 11 | DO_4 | 12 | DI_4 |
| 13 | DO_5 | 14 | DI_5 |
| 15 | DO_6 | 16 | DI_6 |
| 17 | DO_7 | 18 | DI_7 |
| 19 | DO_8 | 20 | DI_8 |
| 21 | DO_9 | 22 | DI_9 |
| 23 | DO_10 | 24 | DI_10 |
| 25 | DO_11 | 26 | DI_11 |
| 27 | DO_12 | 28 | DI_12 |
| 29 | DO_13 | 30 | DI_13 |
| 31 | DO_14 | 32 | DI_14 |
| 33 | DO_15 | 34 | DI_15 |
| 35 | GND | 36 | GND |



4.21 TV Out Function

HS-4701 can support TV-Out function which 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).

- **J2: TV-Out Connector**

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

4.22 Mini AGP Connector

HS-4701 provides one Mini AGP expansion slot, has at location J7, you can use slot for expansion when necessary.

4.23 PCI Expansion Slot

HS-4701 provides one standard PCI expansion slot at PCI1.

Chapter 5

Award BIOS Setup

The HS-4701 uses Award BIOS for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options that could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

5.1 Starting Setup

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

While the BIOS is in control, the Setup program can be activated in one of two ways:

1. By pressing immediately after switching the system on, or
2. By pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press DEL to enter SETUP.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

5.2 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the <PageUp> and <PageDown> keys to change entries, 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 |

5.2.1 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.

5.3 Main Menu

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

| | | |
|-----------------------------|-------------------------------|--------------------|
| ▶ 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 | Time, Date, Hard Disk Type... | |

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

5.4 Standard CMOS Setup

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 | | |
| Date (mm:dd:yy) | Wed, Oct 31 2001 | Item Help |
| Time (hh:mm:ss) | 10 : 32 :57 | Menu Level ▶ |
| ▶ IDE Primary Master | | Change the day, month, year and century |
| ▶ IDE Primary Slave | | |
| ▶ IDE Secondary Master | | |
| ▶ IDE Secondary Slave | | |
| Drive A | [1.44M, 3.5in.] | |
| Drive B | [None] | |
| Video | [EGA/VGA] | |
| Halt On | [All, But Keyboard] | |
| Base Memory | 640K | |
| Extended Memory | 65472K | |
| Total Memory | 1024K | |
| ↑↓→←: Select Item + / - /PU/PD: Value F10: Save ESC: Quit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

5.5 Advanced CMOS Setup

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 ► |
| Hyper-Threading | [Enabled] | |
| Quick Power On Self Test | [Enabled] | |
| First Boot Device | [Floppy] | Allows you to choose |
| Second Boot Device | [HDD-0] | the VIRUS warning |
| Third Boot Device | [LS120] | feature for IDE Hard |
| Boot Other Device | [Enabled] | Disk boot sector |
| Swap Floppy Drive | [Disabled] | protection. If this |
| Boot Up Floppy Seek | [Enabled] | function is enabled |
| Boot Up Num Lock Status | [On] | and someone attempt to |
| Gate A20 Option | [Fast] | write data into this |
| Typematic Rate Setting | [Disabled] | area, BIOS will show |
| Typematic Rate (Chars/Sec) | 6 | a warning message on |
| Typematic Delay (Msec) | 250 | screen and alarm beep |
| Security Option | [Setup] | |
| APIC Mode | [Enabled] | |
| MPS Version Control For OS | [1.4] | |
| OS Select For DRAM > 64MB | [Non-OS2] | |
| Report No 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 | | |

5.6 Advanced Chipset Setup

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

| | | |
|---|------------|--------------|
| DRAM Timing Selectable | [By SPD] | Item Help |
| CAS Latency Time | [1.5] | Menu Level ▶ |
| Active to Precharge Delay | [7] | |
| DRAM RAS# to CAS# Delay | [3] | |
| DRAM RAS# Precharge | [3] | |
| Turbo Mode | [Disabled] | |
| Memory Frequency For | [Auto] | |
| System BIOS Cacheable | [Enabled] | |
| Video BIOS Cacheable | [Enabled] | |
| Memory Hole At 15M-16M | [Disabled] | |
| Delayed Transaction | [Enabled] | |
| Delay Prior to Thermal | [16Min] | |
| AGP Aperture Size (MB) | [64] | |
| ** ON-chip VGA Setting ** | | |
| On-chip VGA | [Enabled] | |
| On-chip Frame Buffer size | [8MB] | |
| Boot Display | [CRT] | |
| Panel Scaling | [Auto] | |
| Panel Number | [1] | |
| ↑↓→←: Select Item + / - /PU/PD: Value F10: Save ESC: Quit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults | | |

NOTE: Panel Number: 1 (Default Panel 1: TOSHIBA LTM10C348F)

5.7 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 id S3 Resume | Auto | |
| Power Management | [Use Define] | |
| Video off Method | [DPMS] | |
| Video off In Suspend | [Yes] | |
| Suspend Type | [Stop Grant] | |
| MODEM Use IRQ | [Modify] | |
| 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 | [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 | | |

5.8 PCI / Plug and Play Setup

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

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)] | Select Yes if you are using a plug and play capable operating system. Select No if you need the BIOS to configure non-boot devices |
| 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 | | |

5.9 Peripheral Setup

The IDE hard drive controllers can support up to four 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.

Phoenix – AwardBIOS CMOS Setup Utility 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] | |
| On-chip Secondary PCI IDE | [Enabled] | |
| IDE Secondary Master PIO | [Auto] | |
| IDE Secondary Slave PIO | [Auto] | |
| IDE Secondary Master UDMA | [Auto] | |
| IDE Secondary Slave UDMA | [Auto] | |
| USB Controller | [Enabled] | |
| USB 2.0 Controller | [Enabled] | |
| USB Keyboard Support | [Disabled] | |
| USB Mouse Support | [Disabled] | |
| AC97 Audio | [Auto] | |
| Init Display First | [PCI Slot] | |
| IDE HDD Block Mode | [Enabled] | |
| POWER ON Function | [BUTTON ONLY] | |
| KB Power ON Password | [Enter] | |
| Hot Key Power On | [Ctrl-F1] | |
| Onboard FDC Controller | [Enabled] | |
| Onboard Serial Port 1 | [3F8/IRQ4] | |
| Onboard Serial Port 2 | [2F8/IRQ3] | |
| UART Mode Select | [Normal] | |
| RxD, TxD Active | [Hi, Lo] | |
| IR Transmission delay | [Enabled] | |
| UR2 Duplex Mode | [Half] | |
| Use IR Pins | [IR-RX2TX2] | |
| Onboard Parallel Port | [378/IRQ7] | |
| Parallel Port Mode | [SPP] | |
| EPP Mode Select | [EPP1.7] | |
| ECP Mode Use DMA | [3] | |
| PWRON After PWR-Fail | [Off] | |
| Midi Port Address | [330] | |
| Midi 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 | | |

5.10 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 CPUFAN1 Speed | | |
| Current CPUFAN2 Speed | | |
| Current CPUFAN3 Speed | | |
| IN0(V) | | |
| IN1(V) | | |
| IN2(V) | | |
| +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 | | |

5.11 Frequency/Voltage Control

Phoenix – AwardBIOS CMOS Setup Utility Frequency/Voltage Control

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

Chapter 6

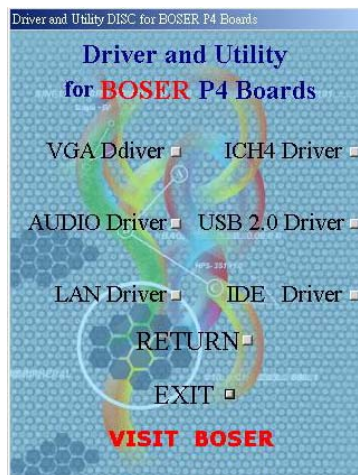
Software Utilities

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 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.

6.1 IDE Driver Installation

6.1.1 Installing Intel Chipset Software Utility

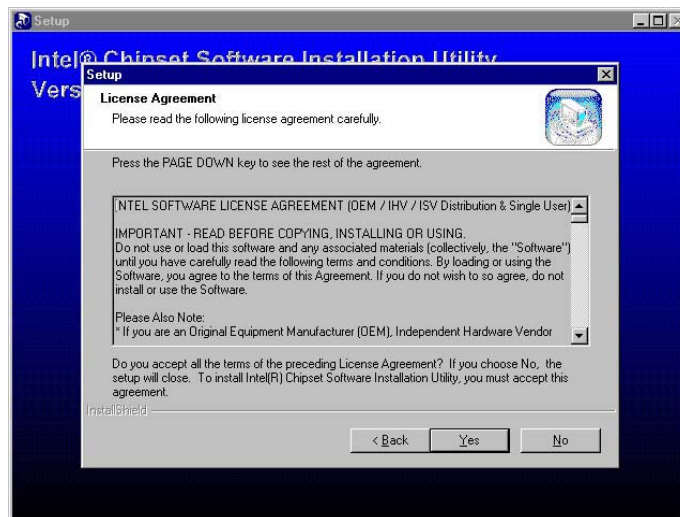
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4701** button to launch the installation program.
2. Click on the **ICH4 Driver** button to continue.



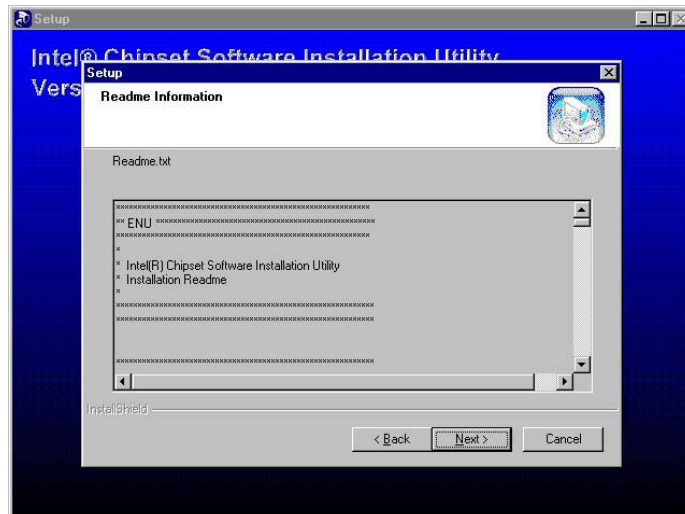
3. Immediately after clicking the IDE button in Step 1, the program launches the InstallShield Wizard that will assist you in the installation process. Click on the **Next >** button to proceed.



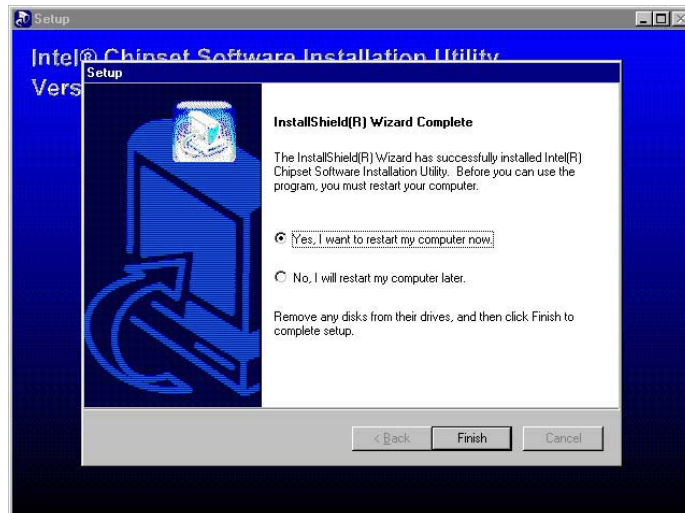
4. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Yes** to proceed.



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

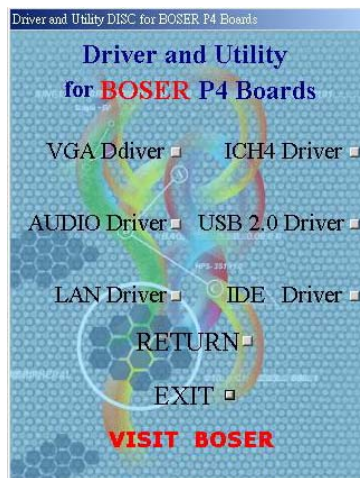


6. Once the Install Shield Wizard finishes updating your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

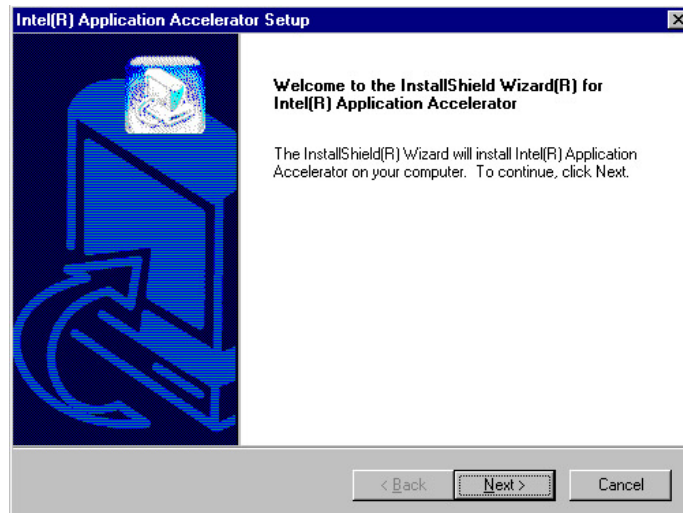


6.1.2 Installing Intel Application Accelerator

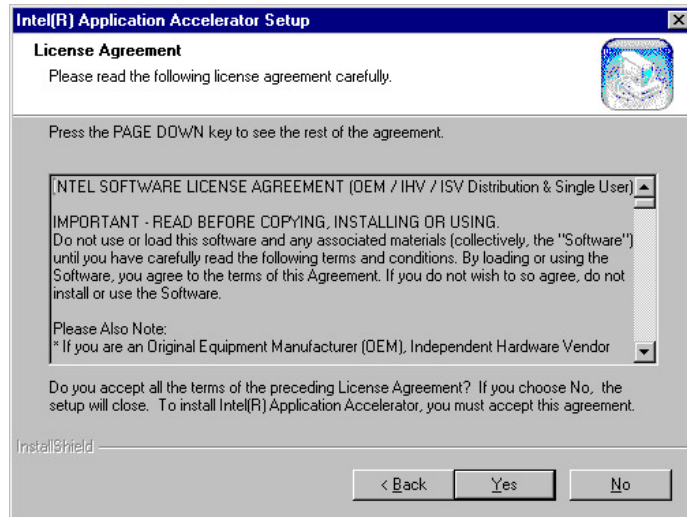
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4701** button to launch the installation program.
2. Click on the **IDE Driver** button to continue.



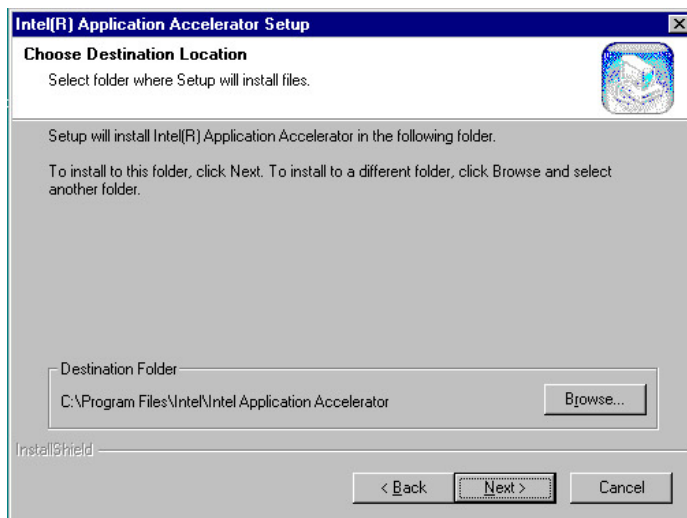
3. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



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



- 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.



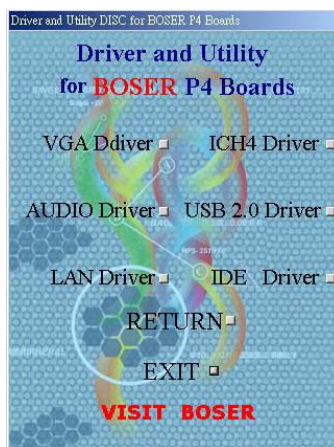
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.



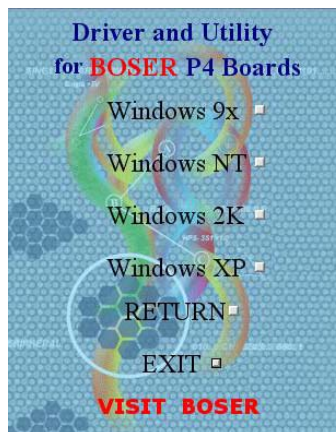
6.2 VGA Driver Installation

6.2.1 Win 98

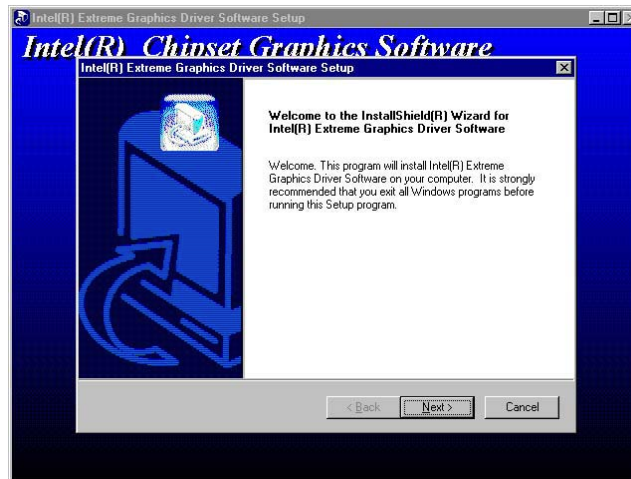
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4701** button to launch the installation program.
2. Click on the **VGA Driver** button to continue.



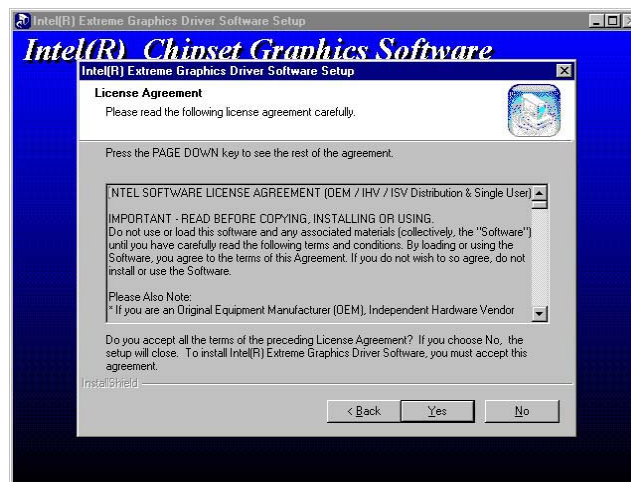
3. Click on the **Windows 9x** button to continue.



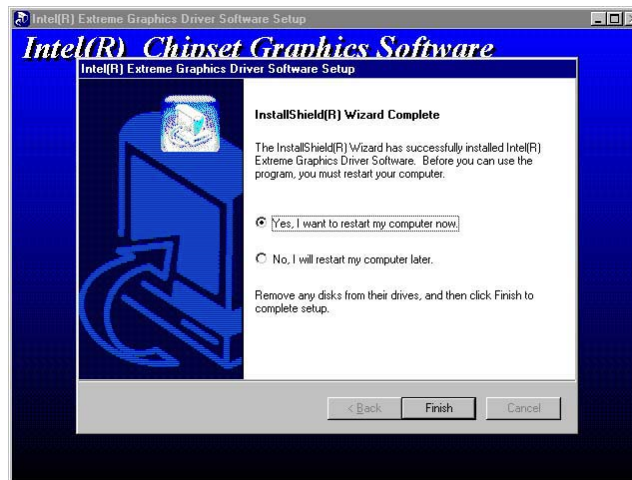
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **N**ext > button to proceed.



5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Y**es 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.

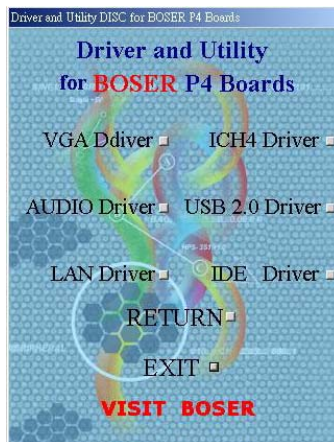


NOTE: *Installation procedure for Windows 98 is similar to Windows95.*

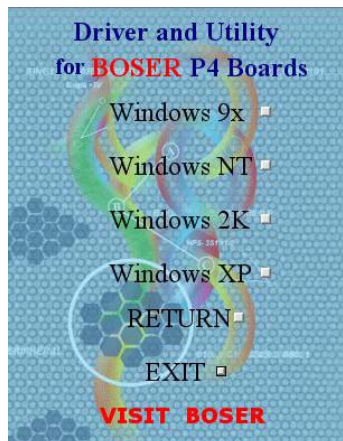
6.2.2 Win NT

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-4701** button to launch the installation program.
2. Click on the **VGA Driver** button to continue.



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



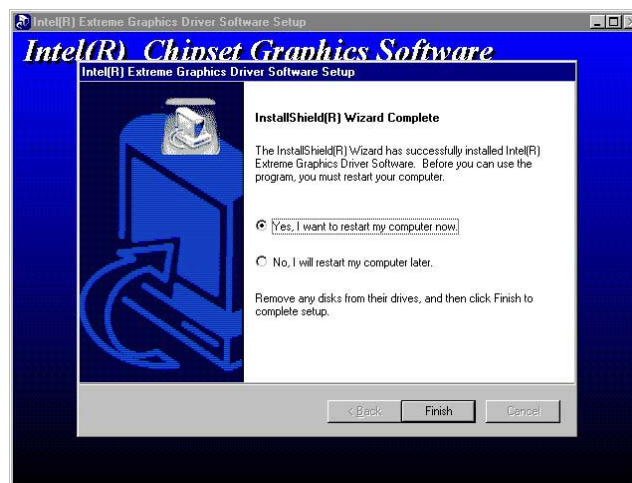
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **N**ext > button to proceed.



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

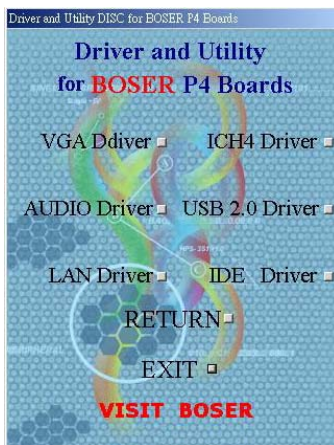


6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.

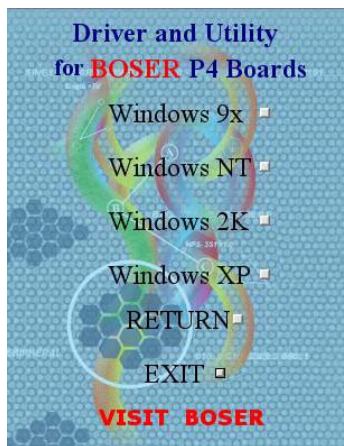


6.2.3 Win 2000

1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4701** button to launch the installation program.
2. Click on the **VGA Driver** button to continue.



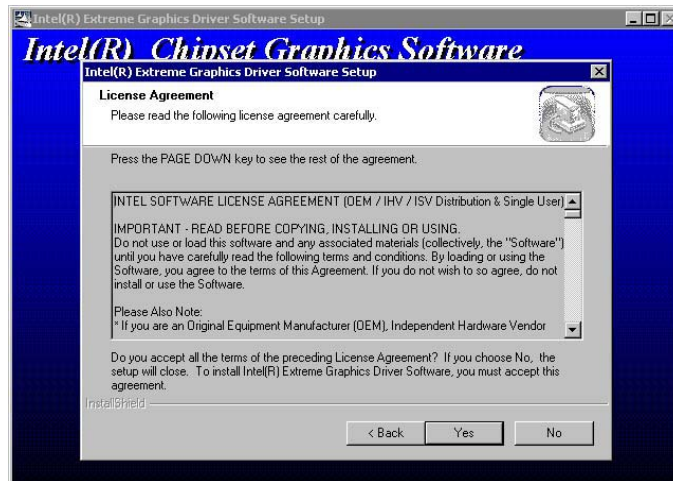
3. Click on the **Windows 2K** button to continue.



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.



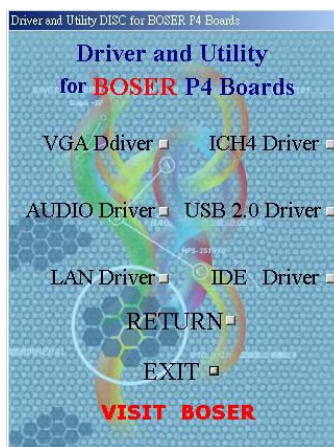
6. Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes, I want to restart my computer now** followed by a click on the **Finish** button to reboot. Only after your computer boots will the new settings take effect.



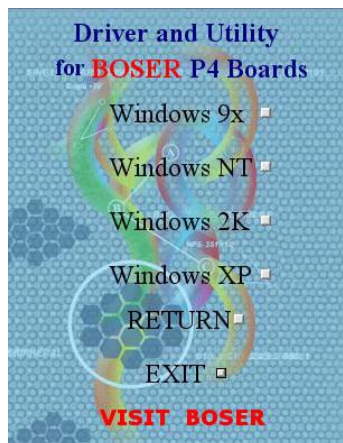
6.3 LAN Driver Installation

6.3.1 Win 95/98

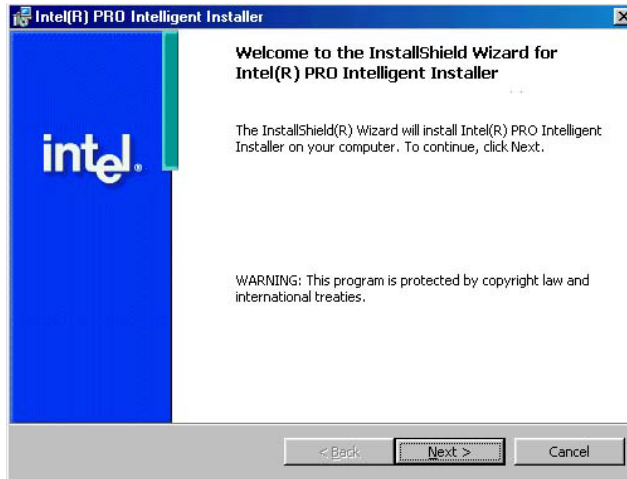
1. Insert Utility CD Disk to your CD ROM drive. The main menu will pop up as shown below. Select on the **HS-4701** button to launch the installation program.
2. Click on the **LAN Driver** button to continue.



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



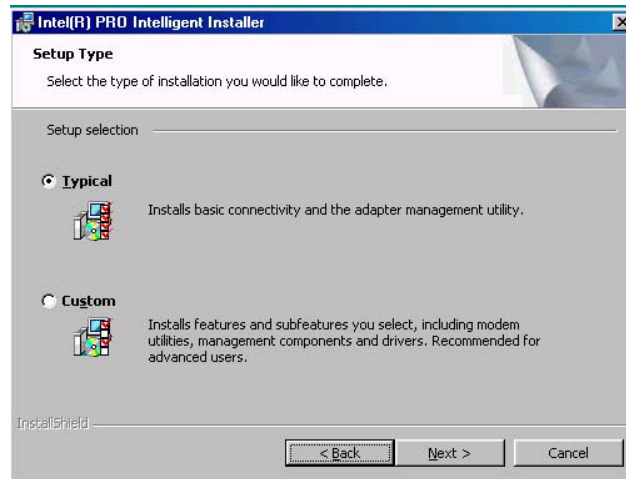
4. When the dialog box below appears, make sure you close all other Windows applications then click on the **Next >** button to proceed.



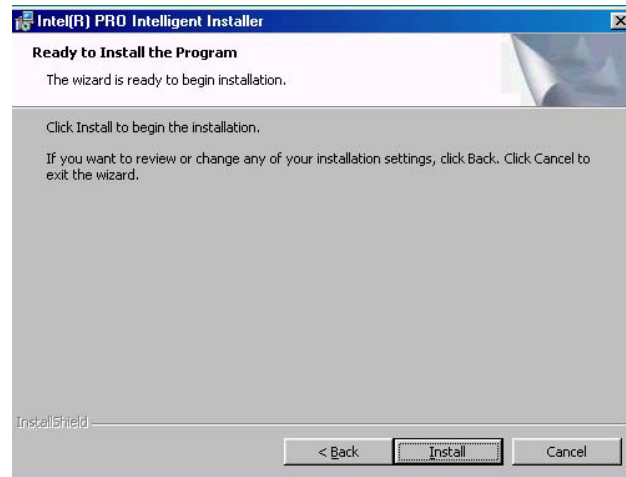
5. The Intel OEM Software License Agreement dialog box then appears on the screen. Choose **Accept** to proceed.



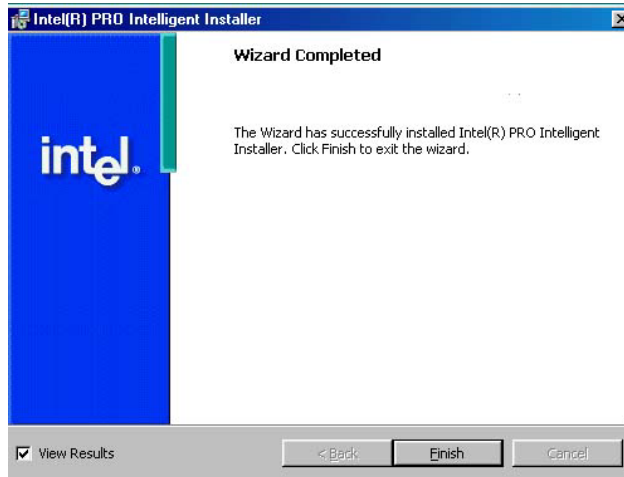
6. The Setup Type dialog box then appears on the screen. Choose **Typical** to proceed.



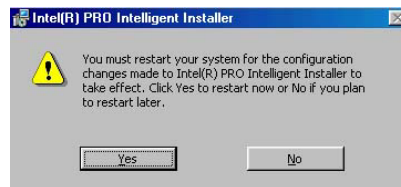
7. When the dialog box below appears, make sure you close all other Windows applications then click on the **Install** button to proceed.



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



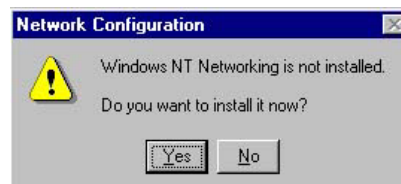
- Once the setup program finishes copying files into your system, it will prompt you to restart the computer. Tick on the **Yes** to reboot. Only after your computer boots will the new settings take effect.



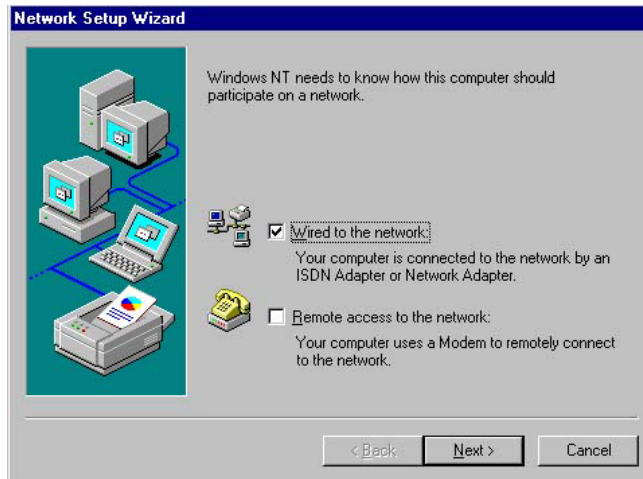
6.3.2 Win NT

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

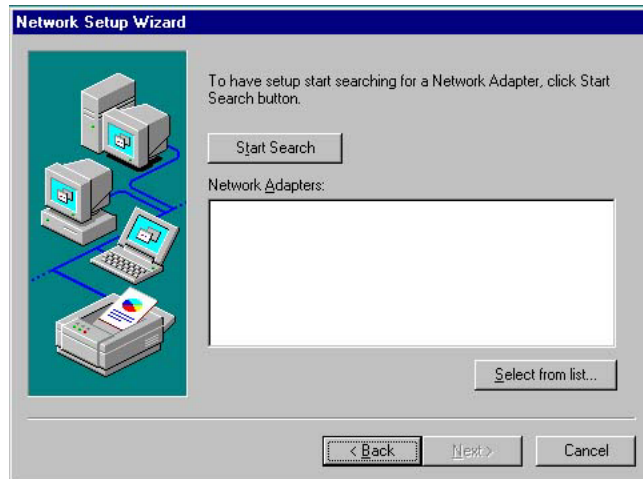
- The system automatically detects the absence of Windows NT Networking. Click on the **Yes** button to start installation.



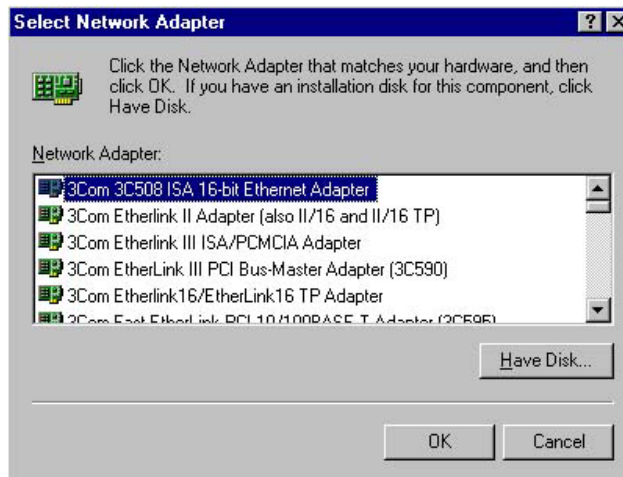
2. Tick on the **Wired to Network** once the following screen appears. Click on the Next to proceed.



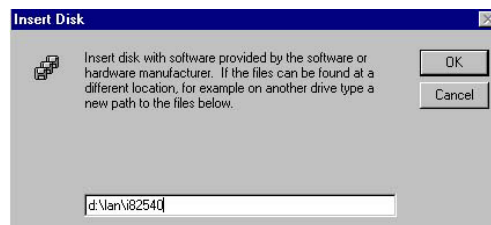
3. Click on the **Start Search** button for the program to locate the Network Adapter.



- 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.



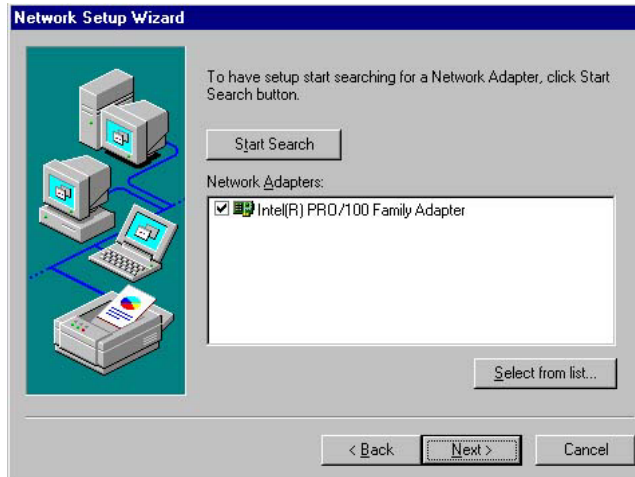
- Setup now asks you for the location of the driver. When you have entered the new driver path, press on the **OK** button to continue.



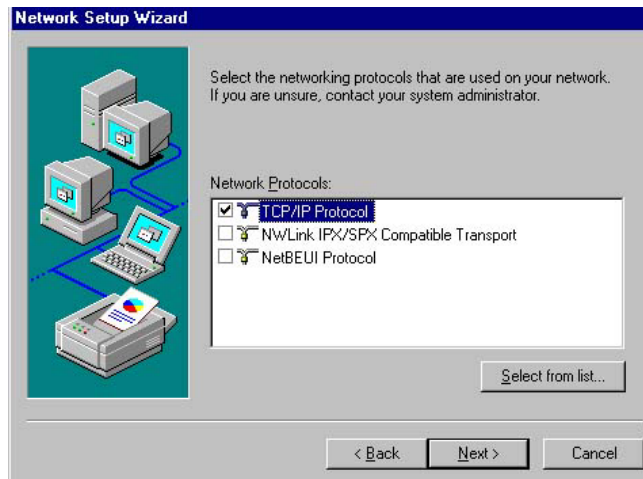
- When Setup finds the information it needs about the new driver, it will display the device it found on the following screen. Please choose "**Intel(R) PRO/100 Family Adapter**". Press on the **OK** button to accept and proceed.



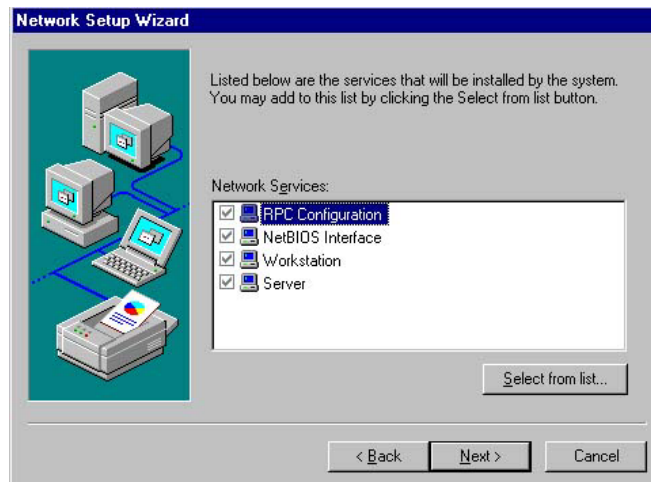
- Setup then returns to Network Setup Wizard screen and displays your new Network Adapter. Click on **Next** to continue.



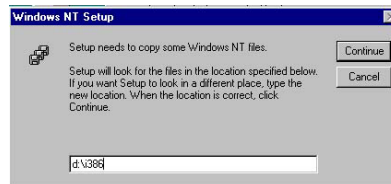
- The Network Setup Wizard then allows you to set the Network Protocols on your network. Select the appropriate protocol and then click on Next to continue.



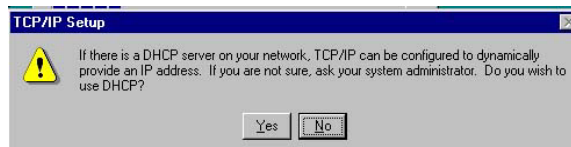
9. Before Setup starts installing the components found and the settings you made, it will give you the option to proceed or go back for changes from the following screen. Click on the **N**ext button once you are sure of your devices.



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

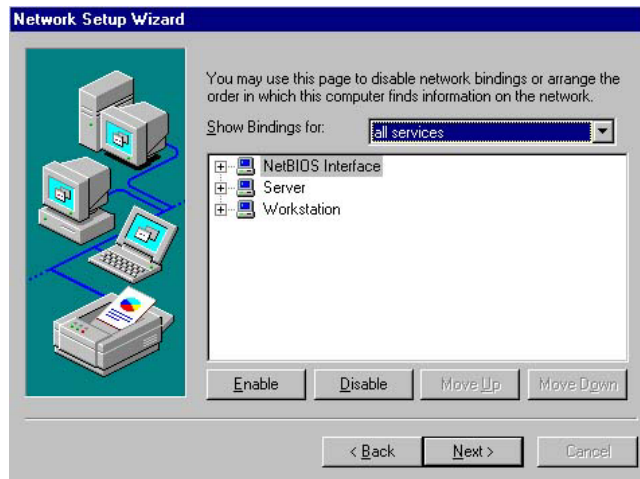


11. When Setup asks if you wish to change the TCP/IP settings of your system, select the appropriately. The default choice is **N**o.

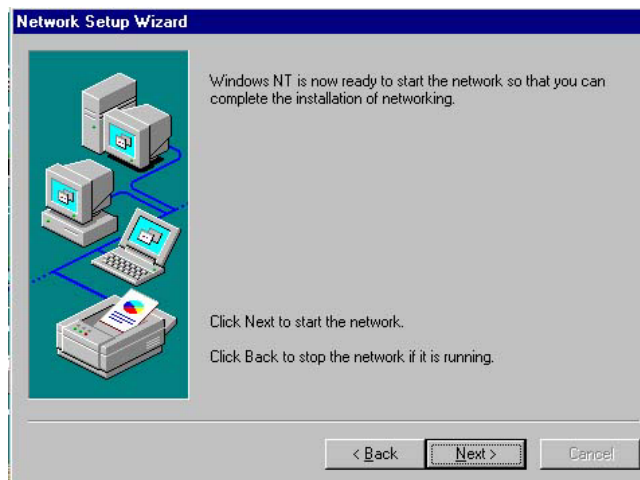


12. Setup then starts the Networking installation and copies the files.

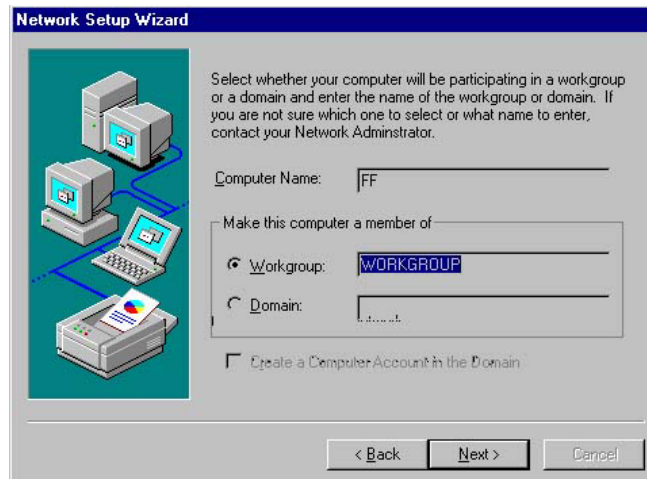
13. When the screen below appears, click on **N**ext to continue.



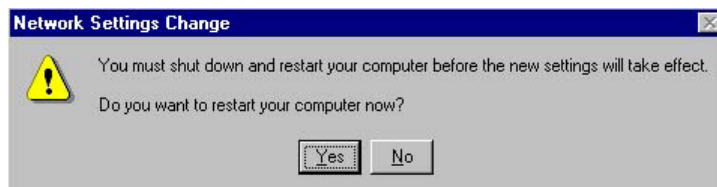
14. Setup then prompts you that it is ready to start the network. You may complete the installation thereafter. Click on **N**ext to continue.



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



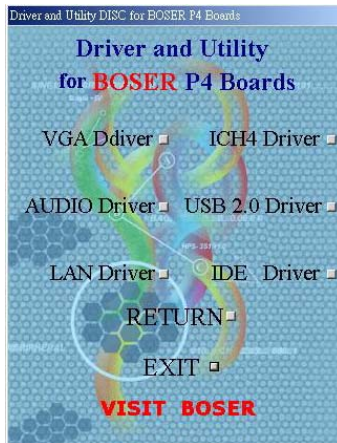
16. Click on the **Yes** button to restart your computer. The LAN driver installation for WIN NT4.0 is now complete.



6.4 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-4701** 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 AC97 driver, it will ask you to remove disks from their drives, and prompt you to restart your system. Tick on the Yes, I want to restart my computer now. Afterwards, click on the **Finish** button to complete the installation process. The system changes you made will take effect after the system restarts.



This page intentionally left blank.

Appendix A

Power Supply

This is the specification of Model FSP180-50PLA; AC-line powered switching power supply with active PFC (Power Factor Correction) circuit, meet EN61000-3-2 and with Full Range Input features.

The specification below is intended to describe as detailedly as possible the functions and performance of the subject power supply. Any comment or additional requirements to this specification from our customers will be highly appreciated and treated as a new target for us to approach.

A.1 Safety Approvals

The subject power supply will meet the EMI requirements and obtain main safety approvals as following:

A.1.1 EMI Regulatory

- FCC Part 15 Subpart J, Class 'B' 115 Vac operation
- CISPR 22 Class 'b' 230 Vac operation

A.1.2 Safety

- NEMKO EN 60950
- TUV EN60950 OR VDE EN60950
- CSA 22.2 NO. 234 LEVEL 3
- IEC 950
- UL 1950
- CE

A.2 Physical Requirements

A.2.1 Mechanical Specifications

The mechanical drawing of the subject power supply, which indicate the form factor, location of the mounting holes, location, the length of the connectors, and other physical specifications of the subject power supply. Please refer to the attachment drawing.

A.2.2 Connector Specifications

The power supply connectors are:

AC Inlet: Standard inlet socket 10A/250V, UL/CSA/VED approved

- **P1:** The equivalent of MOLEX 39-01-2200, 20-pin connector
- **PA, PC, PD:** The equivalent of AMP 1-480424-0, 4-pin connector
- **PB:** The equivalent of AMP 171822-4, 4-pin connector
- **PE:** The equivalent of MOLEX 39-01-2040, 4-pin connector

A.2.3 Connector PIN Designations

| | P1 | | PA, PC, PD | | PB | | PE | |
|--------------|--------|--------|------------|--------|------|--------|------|--------|
| PIN1 | +3.3V | Orange | +12V | Yellow | +12V | Yellow | COM | Black |
| PIN2 | +3.3V | Orange | COM | Black | COM | Black | COM | Black |
| PIN3 | COM | Black | COM | Black | COM | Black | +12V | Yellow |
| PIN4 | +5V | Red | +5V | Red | +5V | Red | +12V | Yellow |
| PIN5 | COM | Black | | | | | | |
| PIN6 | +5V | Red | | | | | | |
| PIN7 | COM | Black | | | | | | |
| PIN8 | PW-OK | Gray | | | | | | |
| PIN9 | +5Vsb | Purple | | | | | | |
| PIN10 | +12V | Yellow | | | | | | |
| PIN11 | +3.3V | Orange | | | | | | |
| | +3.3VS | Brown | | | | | | |
| PIN12 | -12V | Blue | | | | | | |
| PIN13 | COM | Black | | | | | | |
| PIN14 | PS-ON | Green | | | | | | |
| PIN15 | COM | Black | | | | | | |
| PIN16 | COM | Black | | | | | | |
| PIN17 | COM | Black | | | | | | |
| PIN18 | N/C | N/C | | | | | | |
| PIN19 | +5V | Red | | | | | | |
| PIN20 | +5V | Red | | | | | | |

A.3 Electrical Requirements

The subject power supply will meet all electrical specifications below, over the full operation temperature range and dynamic load regulation.

● Output Rating

| Output | Nominal | Regulation | Ripple/Noise | Min. | Max. |
|--------|---------|------------|--------------|------|-------|
| 1 | +3.3V | +/-5% | 50mV | 0.3A | 16.8A |
| 2 | +5V | +/-5% | 50mV | 0.3A | 12.0A |
| 3 | +12V | +/-5% | 120mV | 1.5A | 10.0A |
| 4 | -12V | +/-10% | 120mV | 0.0A | 0.8A |
| 5 | +5VSB | +/-5% | 50mV | 0.0A | 2.0A |

NOTE: -12V, +3.3V, +5V, +12V will have the regulation to +/-10% when all load take off.

The +3.3V and +5V total output shall not exceed 61 watts. The +3.3V, +5V and +12V total output shall not exceed 165 watts and the total output for this subject power supply is 180 watts. Ripple and noise measurements shall be made under all specified load conditions through a single pole low pass filter with 20MHz cutoff frequency. Outputs shall bypassed at the connector with a 0.1uF ceramic disk capacitor and a 10uF electrolytic capacitor to simulate system loading.

● Load Capacity Specifications

| Load | STM | +3.3V | +5V | +12V | -12v |
|---------------------|------|-------|-------|-------|------|
| All Max | HHHH | 4.5A | 9.0A | 9.0A | 0.8A |
| +5V Max other Min | LHLL | 0.3A | 12.0A | 1.5A | 0.0A |
| +3.3V Max other Min | HLLL | 16.8A | 0.3A | 1.5A | 0.0A |
| +12V max other Min | LLHL | 0.3A | 0.3A | 10.0A | 0.0A |
| All Min | LLLL | 0.3A | 0.3A | 1.5A | 0.0A |

● Hold Up Timer (@Full Load)

- 115V/60Hz: 17mSec. Minimum.
- 230V/50Hz: 17mSec. Minimum.

● Output Rise Time (10% to 90% of Final Output Value, @Full Load)

- 115V-rms or 230V-rms; +5Vdc: 20mx Max.

- **Over Voltage Protection**

- +5V_{dc} output: +5.7V_{dc} min.; +6.5V_{dc} max.
- +12V_{dc} output: +13.3V_{dc} min.; +15.6V_{dc} max.
- +3.3V_{dc} output: +3.7V_{dc} min.; +4.5V_{dc} max.

- **Short Circuit Protection**

Output short circuit is defined to be a short circuit load of less than 0.1 ohm.

In the event of an output short circuit condition on +3.3V, +5V or +12V output, the power supply will shutdown and latch off. The power supply shall return to normal operation after the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

In the event of an output short circuit condition – 12V output, the power supply will not be latch off. The power supply shall return to normal operation as soon as the short circuit has been removed and the power switch has been turned off for no more than 2 seconds.

- **Overload Protection**

Overload currents defined as a 10 amp/sec fault current ramp starting from full load, applied to the +3.3V, +5V output, shall not cause that output to exceed 32 amps before the output voltage drops below 0.5 volts and is latched off. The +12V output shall not exceed 20 amps under the same ramp conditions starting at full load before it is latched off.

- **Power Good Signal**

The power good signal is a TTL compatible signal for the purpose of initiating an orderly start-up procedure under normal input operating conditions. This signal is asserted (low) until +5V_{dc} has reached 4.75 volts during power up. Characteristics:

- TTL signal asserted (low state): less than 0.5V while sinking 10mA.
- TTL signal asserted (high state): greater than 4.75V while sourcing 500uA.
- High state output impedance: less or equal to 1Kohm from output to common.

| | |
|---|----------------|
| Power Good @ 115/230V, Full Load | 100~500mSec. |
| Power Fail @ 115/230V, Full Load | 1mSec. Minimum |

- **Output Transient Load Response**

+5V and +12V must be within specification for a step change in current as specified below. The outputs will be tested one section at a time with all other sections at maximum load. The test transition will be from IA to IB and IB to IA.

| | +5V vdc | +12V vdc | +3.3V vdc |
|------------------------------------|----------------|-----------------|------------------|
| IA | 12.0 amps | 9.0 amps | 16.8 amps |
| IB | 8.4 amps | 7.0 amps | 13.0 amps |
| Volts Variation | +5V +/-5% | +12V +/-5% | +3.3V +/-5% |
| Setting Time | 10ms max. | 10ms max. | 10ms max. |
| Transient Load Slew Rate Is | 0.5A/uS | 0.1A/uS | 0.1A/uS |

NOTE: +5Vsb: 0.5A; -12V: 0.1A

- **AC Input Line Requirements**

| Parameter | Min. | Nom.⁽¹⁾ | Max. | Unit |
|---------------------------------|-------------|---------------------------|-------------|--------------------|
| V_{in} (115VAC) | 90 | 115 | 135 | VAC _{rms} |
| V_{in} (230VAC) | 180 | 230 | 265 | VAC _{rms} |
| V_{in} Frequency | 47 | ---- | 63 | HZ |

NOTE: Nominal voltages for test purposes are considered to be within +/-1.0V of nominal.

- **Inrush Current (Cold start – 25 deg. C)**

| | |
|-------------|-------------|
| 115V | 50Amps-peak |
| 230V | 80Amps-peak |

- **Input Line Current**

| | |
|-------------|---------------------|
| 115V | 4.0 Amps – rms max. |
| 230V | 2.0 Amps – rms max. |

- **Efficiency**

| | |
|---------------------------|----------|
| 115VAC @ Full Load | 68% min. |
| 230VAC @ Full Load | 68% min. |

- **PS_ON**

| | Min. | Max. |
|---|-------------|-------------|
| V_{IL}, Input Low Voltage | 0.0V | 0.8V |
| V_{IL}, Input Low Current (V_{in}=0.4V) | | -1.6mA |
| V_{IH}, Input High Voltage (I_{in}=-200uA) | 2.0V | |
| V_{IH}, Open Circuit, I_{in} =0 | | 5.25V |

A.4 Environmental Requirements

The power supply will be compliant with each item in this specification for the following Environmental conditions.

- **Temperature Range**

| | |
|------------------|-------------------|
| Operating | 0 to +50 deg. C |
| Storage | -20 to +80 deg. C |

- **Humidity**

| | |
|------------------|--------------------------|
| Operating | 5~95% RH, Non-condensing |
| Storage | 5~95% RH, Non-condensing |

- **Vibration**

The subject power supplies will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.

Vibration Operating – Sine wave excited, 0.5G maximum acceleration, 10~250Hz swept at one octave/min. Fifteen minute dwell at all resonant points, where resonance is defined as those exciting frequencies at which the device under test experiences excursions two times large than non-resonant excursions.

Plane of vibration to be along three mutually perpendicular axes.

- **Shock**

The subject power supplies will withstand the following imposed conditions without experiencing non-recoverable failure or deviation from specified output characteristics.

- **Storage:** -40G, 11mSec. Half-sine wave pulse in both directions on three mutually perpendicular axes.
- **Operating:** -10G, 11mSec. Half-sine wave pulse in both directions on three mutually perpendicular axes.

- **Cooling Specifications**

The PS is cooled by a self-contained, 40mm, 12VDC

A.5 Safety

In addition to the UL CSA and NEMKO safety requirements, the leakage current from AC to safety ground will not exceed 1mA-rms at 240Vac, 50Hz

A.6 Electromagnetic Compatibility

- **Line Conducted EMI**

The subject power supplies will meet FCC and VFG class B requirements.

- **Radiated EMI**

The subject power supplies will meet FCC and CISPR 22 requirements.

A.7 Labeling

Label marking will be permanent, legible and complied with all agency requirements.

- **Model Number Label**

Labels will be affixed to the sides of the power supply showing the following:

- Manufacturer's name and logo
- Model no., serial no., revision level, location of manufacturer
- The total power output and the maximum load for each output
- AC input rating

- **DC Output Identification**

Each output connector will be labeled.

A.8 Reliability

- **MTBF**

The power supply have a minimum predicted MTBF of 100,000 hours of continuous operation at 25 deg. C, maximum-output load, and nominal AC input voltage.

Appendix B

Capture card

BS-667 is an acquisition board designed without compromise for security and video surveillance applications. It constitutes an ideal device for PC based multiple-channel digital video recorder.

This 32-bit 33MHz PCI Bus frame grabber captures simultaneously four video analog streams in real-time. It accepts standard composite color (PAL, NTSC) or monochrome video formats (CCIR, EIA).

The resolution is programmable including the square-pixel resolution (640 * 480 or 768 * 576) and the broadcast resolution. Before transfer into the PC memory, the image can be scaled down using a selectable ratio.

Arbitrary cropping to a region of interest is possible. BS-667 generates bitmaps in all popular color formats such as RGB, YUV, planar or packed.

System integrators benefit from a watchdog for fault-tolerant applications and from easy-to-use standard connectors.

I/O connectivity is built-in. Protection circuit design for software design security issue.

B.1 Features

- Four channels full-frame real-time acquisition from four video streams
- 32-bit PCI, Rev2.2, 33MHz
- Channel expand up to 8 channels
- Applicable signal type: color-PAL/NTSC, monochrome-CCIR/EIA
- Onboard TTL I/O lines
- Built-in watchdog timer
- Protection circuit for security issue

B.2 Frame Rate

30 full-frame images acquired per second for each channel.

B.3 Image Acquisition

- **Color Image:** The color video format is compatible with the following composite video input formats
NTSC-M, NTSC-Japan, PCL-B, PAL-D, PAD-G, PAL-H, PAL-I, PAM-M, PAL-N and SECAM
- **Monochrome Images:** The monochrome video acquisition is compatible with CCIR and EIA (RS-170)
- **Optional Scaling:** The BS-667 acquire images or portions of images with optional scaling
 - Acquisition of a programmable area of interest
 - Scaling of the image (down to 1:16)
 - Adjustment of hue (for NTSC signals), contrast (0 to 200%), brightness and saturation (0 to 200% for U and V signals)
 - Automatic chrominance gain control

B.4 I/O Lines

The BS-667 is fitted with TTL compatible I/O lines protected against overloads and electrostatic discharges.

Every line may be configured as an input or output. They can be used to trigger the acquisition or report alarms signal.

B.5 Watchdog Timer

A hardware watchdog timer is available on BS-667. The watchdog timer is able to monitor the PC application operation and will automatically restart the PC after a programmable inactivity time-out. This ensures a reliable operation of remote systems.

B.6 Applications

- **PC Based Surveillance System**
- **Digital Video Recorder (DVR)**
- **Factory Monitoring System**
- **Industrial Inspection System**

B.7 Software Supporting WDM Driver

The drivers support VC++/VB programming on Windows NT/98/2000 platform with DLL..