SY-D6IGA
Motherboard

****

Single or Dual Xeon ™processor supported
(Pentium®II Xeon ™& Pentium®III Xeon™)

82440 GX AGP/PCI Motherboard

100MHz Front Side Bus supported

Custom ATX Form Factor

LAN Chip onboard (10/100 Mbps)

Ultra2 SCSI onboard

****

User's Guide
&
Technical Reference

SOYO ™   SY-D6IGA

About This Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the motherboard. Information in this guide has been carefully checked for reliability; however, no guarantee is given as to the correctness of the contents. The information in this document is subject to change without notice.

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If you need any further information, please come to our home page on the Internet. The address is **"http://www.soyo.com.tw"**.

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Version 1.0
D6IGA SERIAL

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

100% POST CONSUMER
RECYCLED PAPER

Table of Contents

THE SY-D6IGA MOTHERBOARD

PS/2 Mouse
PS/2 Keyboard
USB 2
USB 1
COM 1
ParallelPort
COM 2
Ethernet Port RJ45 - 100Mbps
DIMM 1
DIMM 2
DIMM 3
DIMM 4
LAN Card Onboard
PCI Slot #1
Multi I/O Chipset
PCI Slot #2
PCI Slot #3
APIC Interrupt Controller
PCI Slot #4
2Mbit Flash BIOS
PCI Slot #5
PCI Slot #6
Hardware Monitoring
ISA Slot (1x)

Slot 2 #2
Dual 300-pin Slot 2 for Xeon processors
Slot 2 #1
ATX Power Conn.
Intel 82443GX AGPSet
FDC (Floppy Conn.)
IDE1
Dual-channel IDE
IDE2
AGP Slot
Intel PCI-To-PCI Bridge
Adaptec AIC-3860 SCSI Transceiver
Adaptec AIC-7890 PCI-To-Ultra2 SCSI Host adapter
Intel 82371EB PIIX4E Accelerator
Adaptec RAIDport (Optional)
50-pin Ultra Fast SCSI
68-pin Ultra2 SCSI
68-pin Ultra SCSI
Front Panel Conn.

1

SY-D6IGA MOTHERBOARD LAYOUT

PS/2 KB Connector PS/2 Mouse Connector

JP10
3   1

SLOT2 #2 *for Second Xeon™ Processor or Termination Card*

USB 1   USB 2

PRT

CPUFAN   CHAFAN2   SLOT2 #1 *for First Xeon™ Processor*

COM 1

DRMFAN1

ATX Power

1
DRMFAN2

COM 2

Intel® 82443GX

Ethernet RJ-45

FDC   IDE 1   IDE 2
CHAFAN1

Intel® 82558 LAN Controller

DIMM 1
DIMM 2
DIMM 3
DIMM 4

3V Lithium Battery

AGP Slot

PCI Slot #1

JP5
1   3
CMOS Clear Jumper

I/O 83977AW WINBOND

PCI-to-PCI Bridge

PCI Slot #2

IR
JP11   PCI Slot #3

82093A APIC

adaptec AIC – 7890AB Ultra2 SCSI

adaptec AIC – 3860Q

Intel® 82371 EB

SB-LINK™
PCI Slot #4

WOL Header
3
1
JP44

PCI Slot #5

SCSI II
Wide SCSI (68-pin)
1

Hardware Monitoring
W83781D 628AC

PCI Slot #6

Narrow SCSI (50-pin)

Wide SCSI (68-pin)
Power LED Keylock Speaker

ISA Slot

Turbo
PWRBT   LED   HDD LED

Back Panel   **SY-D6IGA Platform**

Chapter 1

INTRODUCTION

The **SY-D6IGA** AGP/PCI motherboard is a high-performance, **Single or Dual Pentium® II Xeon™ & Pentium® III Xeon™ processor** supported, custom ATX form-factor system board. **SY-D6IGA** uses the 82440 GX Chipset technology and supports most Xeon™ class processors. This motherboard is fully compatible with industry standards and adds many technical enhancements.

1-1 KEY FEATURES

Supports Single or Dual Xeon™ processor supported
  ➢   Pentium® II Xeon™ processor (400/450 MHz)
  ➢   Pentium® III Xeon™ processor (500/550 MHz)
Auto-detect CPU voltage
Soft CPU settings in BIOS with the "SOYO COMBO Setup"
Ultra2 SCSI adapter and SCSI port onboard
PC98, APM, ACPI, Ultra DMA/33
Supports system memory up to 2GB
Power-on by modem or alarm
Supports Wake-On-LAN (WOL)
Supports Power-On by PS/2 keyboard
Supports Creative SB-LINK™ (PC-PCI) for PCI audio
Supports onboard hardware monitoring
and includes Hardware Doctor™ utility
LAN chip onboard supports dual mode 10BASE-T/100BASE-TX
1 x 32-bit AGP slot
6 x 32-bit bus mastering PCI slots
2 x USB ports onboard
1 x IrDA port
Supports multiple-boot function
Y2K compliant
ATX power connector
Power failure resume

SY-D6IGA PLATFORM FEATURES

Board Size	6-layer PCB, 28x30.5cm (11" x 12"), Custom ATX Form Factor
Slot2	2 x Slot2 for Xeon ™ processors

➤ Supports Single or Dual Xeon ™ processor

➤ Supports the following processors
with 100MHz FSB:
Pentium® II Xeon ™ 400/450 MHz
Pentium® III Xeon ™ 500/550 MHz

➤ Supports both boxed and non-boxed type of CPUs

➤ Includes one FSB Termination Card

➤ Includes one DRM (Dual Retention Mechanism)
assembly

➤ Also includes one CPU Heat-Sink & Fan assembly

➤ Features Auto-detection of CPU voltage

Chipset	82440 GX AGP/PCI Set
ATX Power	20-pin Male Connector
CPUFAN	Slot2 #1 CPU: 3-pin CPU Cooling Fan Connector
DRMFA1,2	DRM Assembly Cooling Fan Connectors (2x)
CHAFA1,2	Chassis Cooling Fan Connectors (2x)
Memory	DIMM Bank (DIMM1~4)

➤ Four strips of 168-pin Unbuffered and Registered
SDRAM DIMM

➤ Supports 8/16/32/64/128/256/512MB
DIMM modules in each bank

➤ Provides up to 2 Gbytes of main memory

➤ Supports ECC configuration

BIOS	System BIOS built-in, Award BIOS

➤ APM, ACPI and "Plug-and-Play" functions

➤ Supports multiple-boot function

➤ Onboard FLASH memory for easy upgrade

➤ DMI utility

Bus Controller	Compliant with v2.1 PCI specifications

PCI Slots	6 x 32-bit Bus Mastering PCI Slots
AGP Slot	1 x 32-bit AGP Slot
ISA Slot	1 x 16-bit ISA Slot
IDE1, IDE2	2 x 40-pin Bus Mastering E-IDE/ATAPI Ports

> ➢ IDE1: Primary IDE Device Connector
> ➢ IDE2: Secondary IDE Device Connector
> ➢ Supports Ultra DMA/33

FDC	1 Floppy Disk Drive (FDD) Port

(Supports 1.2MB/1.44MB/2.88MB and LS120/3-mode FDD)

IR	5-pin Serial Infrared Device Header
Keylock	5-pin KeyLock Header
Reset	2-pin Reset Switch Header
Speaker	4-pin PC Speaker Header
TB_LED	2-pin Turbo LED Header
HDD_LED	2-pin IDE Device LED Header
PWRBT	ATX Power On/Off Switch 2-pin Header
JP5	CMOS Clear Jumper
JP10	Power-On by PS/2 Keyboard Jumper
JP11	Power Button Enable Jumper
JP44	WOL (Wake-On-LAN) 3-pin Header
SBLINK ™	PCI Audio Card Header, (PC-PCI)
Ultra2 SCSI	68-pin SCSI II Connector onboard
Wide SCSI	68-pin Wide SCSI Connector onboard
Narrow SCSI	50-pin Narrow SCSI Connector onboard

SY-D6IGA BACK-PANEL FEATURES

PRT	1 x Onboard 25-pin Female Parallel Printer Port

> ➢ ECP/EPP/SPP multi-mode parallel printer port

COM1, COM2	2 x Onboard RS-232 Serial Ports

> ➢ Feature 2 x high-speed UARTs (with 16550 FIFO)

PS/2 KB	1 x Onboard PS/2 Keyboard Connector
PS/2 Mouse	1 x Onboard PS/2 Mouse Connector
USB1, USB2	2 x Onboard USB (Universal Serial Bus) Connectors
RJ-45	Direct Ethernet connection with 10/100 Mbps indicator

5

1-2 HANDLING THE MOTHERBOARD

To avoid damage to your motherboard, follow these simple rules while unpacking:

➢ Before handling the motherboard, ground yourself by grasping an unpainted portion of the system's metal chassis.

➢ Remove the motherboard from its anti-static packaging. Hold the motherboard by the edges and avoid touching its components.

➢ Check the motherboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

Warning: Do not apply power if the motherboard appears damaged. If there is damage to the board, contact your dealer immediately.

1-3 ELECTROSTATIC DISCHARGE PRECAUTIONS

Make sure to ground yourself before handling the motherboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precautions when handling the motherboard in dry or air-conditioned environment.

To protect your equipment from electrostatic discharge, take the following precautions:

➢ Do not remove the anti-static packaging until you are ready to install.

➢ Ground yourself before removing any system component from its protective anti-static packaging. (To ground yourself, grasp the expansion slot covers or other unpainted portions of the computer chassis.)

➢ Frequently ground yourself while working or use a grounding strap.

➢ Handle the motherboard by its edges and avoid touching its components.

Chapter 2

HARDWARE SETUP

Congratulations on your purchase of **SY-D6IGA** Motherboard. You are about to install and connect your new motherboard.

Note: Do not unpack the motherboard from its protective anti-static packaging until you have made the following preparations.

2-1 PREPARATIONS

Gather and prepare all the following hardware equipment to complete the installation successfully:

1.   Single or Dual Pentium® II Xeon ™& Pentium® III Xeon™ processor with or without built-in CPU cooling fan.

Note: Preferably use the CPU cooling fan & heat sink assembly included with this motherboard.

2.   DIMM memory module

3.   Computer case and chassis with adequate power supply unit

4.   Monitor

5.   PS/2 Keyboard

6.   Pointing Device (PS/2 mouse)

7.   Speaker(s) (optional)

8.   Disk Drives: HDD, CD-ROM, Floppy drive …

9.   External Peripherals: Printer, Plotter, and Modem (optional)

10.   Internal Peripherals: Modem and LAN cards (optional)

11.   Internal SCSI Devices: Hard/Floppy/CD-ROM Drives, Tape Drives, Removable Media Drives, etc. *(optional)*

2-2 UNPACKING THE MOTHERBOARD

When unpacking the motherboard, check for the following items:

- ➢   The **SY-D6IGA** 82440 GX AGP/PCI Motherboard
- ➢   The *Quick Start Guide* *
- ➢   The Installation CD-ROM *
- ➢   Three SCSI Driver Installation Diskettes
       labeled "7800 Family Manager Set V3.02"
- ➢   One DRM (Dual Retention Mechanism) Assembly
- ➢   One IDE Device Flat Cable
- ➢   One Floppy Disk Drive Flat Cable
- ➢   One 50-pin Narrow SCSI Cable
- ➢   One 68-pin Wide SCSI Cable
- ➢   One 68-pin Ultra2 SCSI Cable with Terminator

* If your board comes with a driver disc and a paper manual, the Quick Start Guide
and the CD-ROM are not included in the package.

Warning: Do not unpack the motherboard from its anti-
static packaging until you are ready to install it.

Like most electronic equipment, your motherboard may be damaged
by electrostatic discharge. To avoid permanent damage to
components ground yourself while working by using a grounding
strap. Otherwise, ground yourself frequently by touching the
unpainted portion of the computer chassis to drain the static
charges.
Handle the motherboard carefully, holding it by the edges.
You are now ready to start the installation.

2-3 INSTALLATION GUIDE

We will now begin the installation of the motherboard. Please follow the step-by-step procedure designed to lead you to a complete and correct installation.

> *Warning:* Turn off the power to the motherboard, system chassis, and peripheral devices before performing any work on the motherboard or system.

Step 1. Single or Dual CPU Installation

> *Notice 1 (Dual processor):* When installing two processors (Dual CPU), please make sure the front side bus, working frequency, and the specification number are identical for both processors.
>
> *Notice 2 (Single processor):* If you are using a single processor, preferably install the processor in Slot2 #1, then insert the FSB Termination Card in the available Slot2 #2.

Your SY-D6IGA motherboard comes with a DRM (Dual Retention Mechanism) Assembly. The DRM Assembly is used to hold both Single or Dual Pentium® II Xeon ™& Pentium® III Xeon™ processors attached to the Slot2 #1 or Slot2 #2 slot connectors on the motherboard.

Follow these instructions to install your Xeon ™processor correctly.

1. Mount the Motherboard on the Computer Chassis

You must first install the SY-D6IGA motherboard on the computer chassis. The motherboard should be **bare (without DRM and CPU)** and **disconnected** from any power source.

Position the motherboard with its mounting holes facing the corresponding attachment holes on the chassis and tighten the motherboard mounting screws.

DRM Mounting Holes

Chassis Mounting Holes
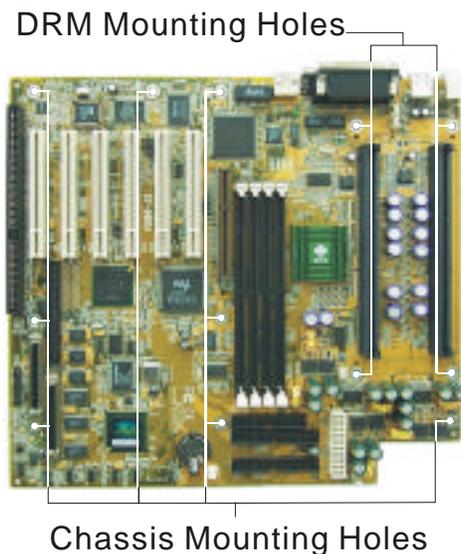
2. Check the Parts Required for CPU Installation

❑ **Part 1: DRM (Dual Retention Mechanism)**
This motherboard is shipped with a **DRM (Dual Retention Mechanism)** assembly to hold the single or dual Xeon™ processor in Slot2 #1 and Slot2 #2.

Dual Retention Mechanism (DRM)

DRM Top Bar (2x)

DRM Stand (without fan)   DRM Stand (with two fans)
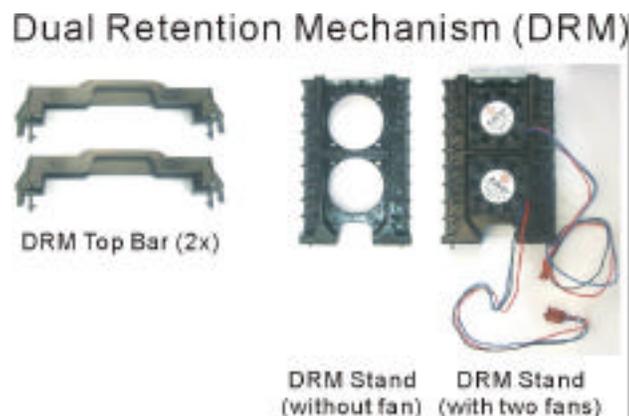
❑   **Part 2:** **CPU Heat Sink & Fan**
      SOYO has also included a heavy-
      duty *Heat Sink & Fan* assembly for
      better heat dissipation of the CPU.
      We recommend that you use this
      instead of the heat sink that comes
      with your CPU.
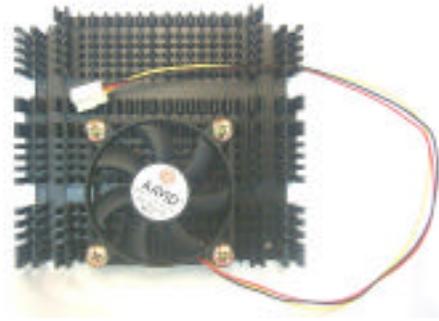
❑   **Part 3:** **FSB Termination Card**
      The *FSB (Front Side Bus)*
      Termination Card must be
      inserted in the unoccupied Slot2
      connector #2 in a Single processor
      configuration. If you install only one
      processor, fit it in Slot2 #1, and
      insert the FSB Termination Card in
      the available Slot2 #2.

FSB Termination Card
(To be inserted in Slot2 #2)

3.   Mount the CPU Heat Sink & Fan Assembly

The CPU Heat Sink & Fan assembly provided by SOYO provides
better heat dissipation capability. Remove the original heat sink at
the back of the CPU SEC cartridge and affix SOYO's Heat Sink &
Fan assembly by securing the four mounting screws to the CPU's
thermal plate.

CPU Thermal Plate

Mounting Screws (4x)
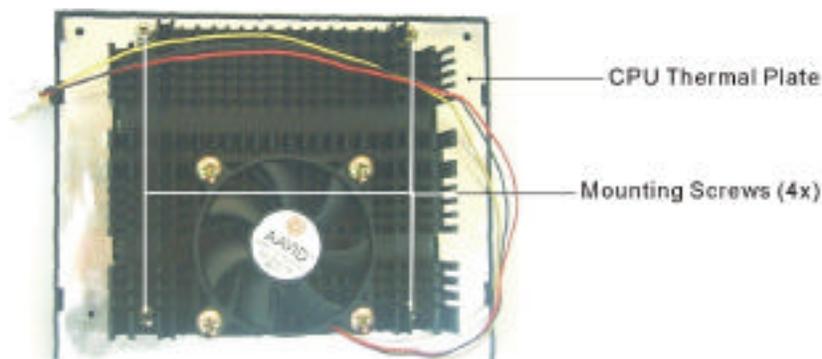
Heat Sink & Fan Assembly Mounted on Xeon™ Processor

4. Install the DRM Assembly

4(a) Locate Slot2 #1 & Slot2 #2 connectors and the DRM mounting holes on the motherboard. Note that Slot2 #1 is located closer to the middle of the motherboard while Slot2 #2 is situated near the edge of the board.

Position of Slot2 & Fan Connectors
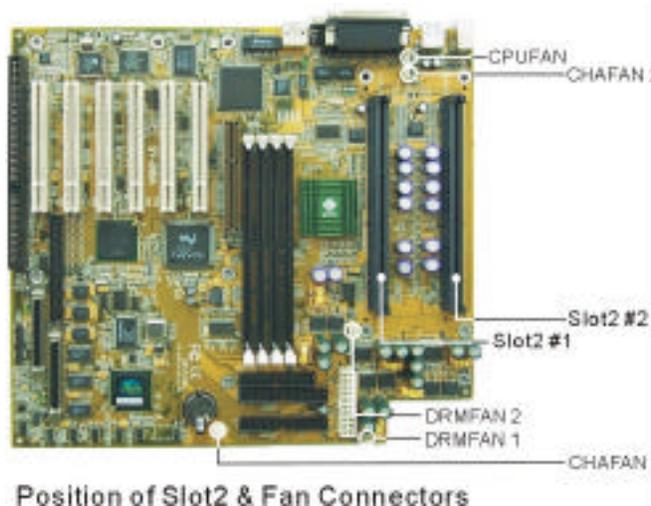
4(b) Attach the two fan cables of the DRM Stand (the one equipped with 2 fans) to the fan power connectors labeled *DRMFAN 1 & 2* on the motherboard.

4(c) Affix this DRM Stand (the one equipped with 2 fans) to the motherboard and then fix the DRM Stand by securing two DRM mounting screws at the base of the DRM Stand to the chassis.
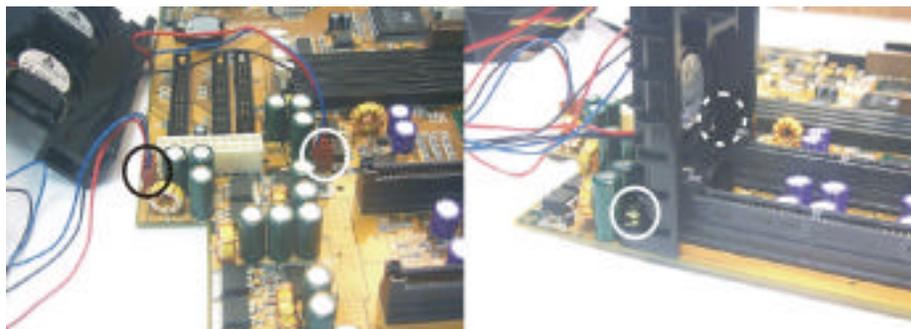
Plug the DRM Stand fan cables to the DRMFAN 1 & 2 connectors

Use the two mounting screws to secure the base of the DRM Stand

4(d) Mount the second DRM Stand (the one without fans) opposite from the DRM fans (between the back panel connectors and Slot2 sockets) and use two DRM mounting screws to secure its base to the motherboard.

*Note:*If your system is using two chassis cooling fans, plug the second fan cable to the chassis fan power connector labeled CHAFAN 2, *now.* Once the second DRM Stand is mounted, it will block the CHAFAN 2 connector, providing insufficient clearance to either attach or remove the fan power connector cable.

Use the two mounting screws to secure the DRM Stand (without fan)   View of the DRM Assembly
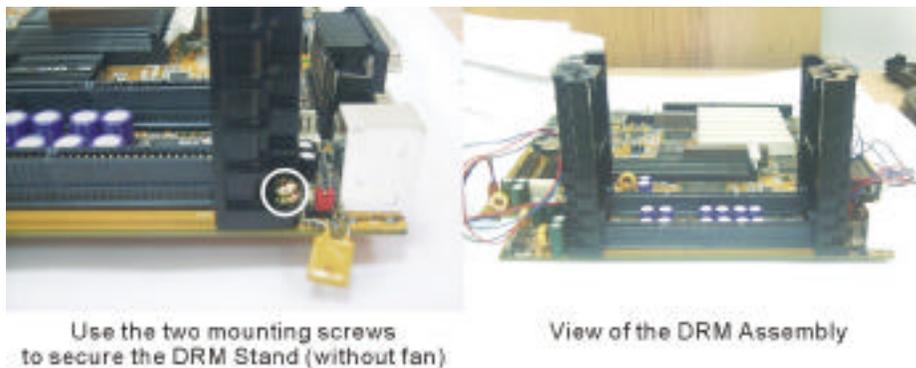
5. Install the First Processor in Slot2 #1

Record the working frequency and specification number of your CPU that should be clearly marked on the CPU cover.

Pentium® II Xeon ™Processor	Pentium® III Xeon ™Processor
❑ 400 MHz (100 x 4.0)	❑ 500 MHz (100 x 5.0)
❑ 450 MHz (100 x 4.5)	❑ 550 MHz (100 x 5.5)
❑	❑
S/N:	S/N:

5(a) Clip the DRM Top onto the processor with the DRM Top mounting holes facing away from the processor's heat sink assembly.

5(b) Slide-in the processor into the DRM Assembly and insert it in Slot2 #1, while making sure that the heat sink assembly is facing towards the center of the motherboard.
Important: The Slot2 connector is directionally keyed, and the processor will not go in unless it is properly oriented, as shown in the figure.

Clip the DRM Top bar onto the processor

Insert the processor in Slot2 #1
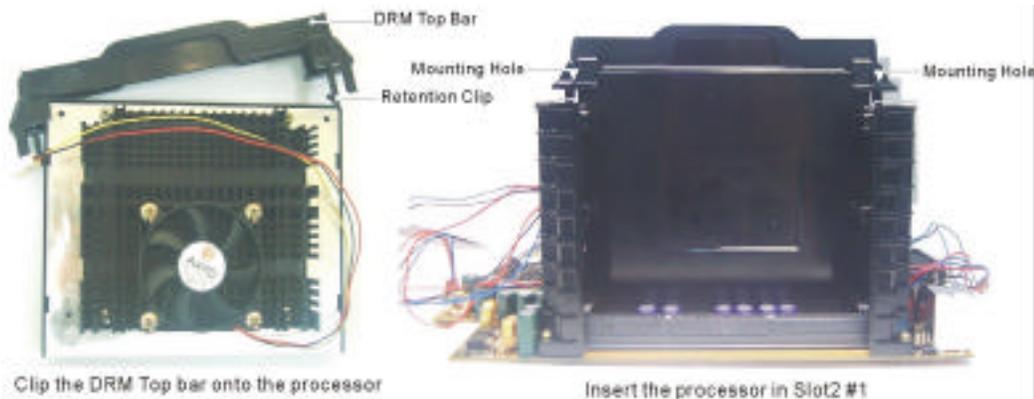
5(c) Secure the DRM Top bar to both DRM stands by using two mounting screws.

5(d) Connect the processor cooling fan cable to the CPU fan power connector labeled ***CPUFAN*** on the motherboard.

Use two screws to secure the top bar to the DRM stands

Plug the heat sink fan power cable to the CPUFAN connector

14
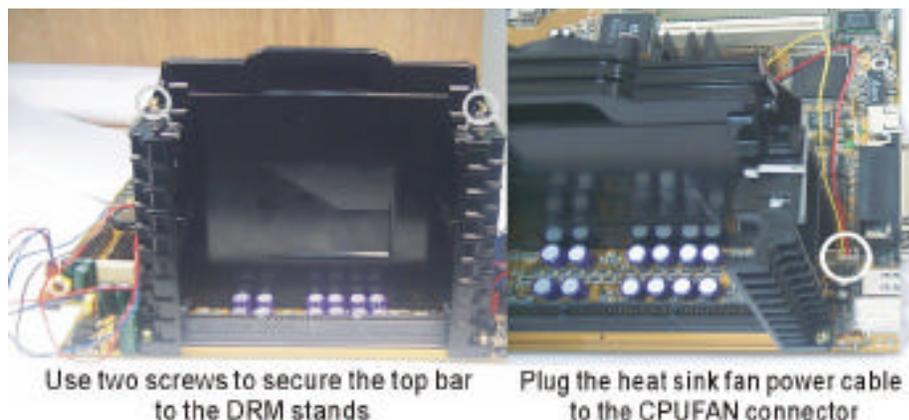
6.   (Dual Processor Configuration)
Install the Second Processor in Slot2 #2

If you are installing a second processor in Slot2 #2, apply the same procedure as in *step 5.* However, in *step 5(a),* clip the DRM Top onto the processor with the mounting holes facing **towards** the heat sink.

Notice 1: When installing two processors, make sure the front side bus and working frequency are identical for both processors. Do NOT install different types of CPU at the same time, for example, Pentium®II Xeon ™(400/450 MHz) and Pentium®III Xeon™ (500/550 MHz) processors may not work properly when installed together in a dual configuration. We strongly recommend using two processors with the same specification number in dual processor configuration.

Notice 2: If two processors are installed in the DRM assembly, then the clearance between processors will be insufficient and not allow the use of a heat sink & fan assembly on the second processor (the one installed in Slot2 #2). Cooling of the second processors will be provided by the two DRM fans. If you install a heat sink on the second processor, only use a narrow gage heat sink so as not to obstruct the flow of air between the two processors.

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7.   (Single Processor Configuration)
Install the Termination Card in Slot2 #2

If only one processor is installed in your system, you are required to insert the **FSB Termination Card** in the available Slot2 #2.
Note: If you are using a single processor, you must install the **processor in Slot 2 #1,** then insert the **Termination Card in Slot 2 #2,** in this order.

7(a) Insert the termination card in Slot2 #2, while making sure
that the two notches at the base of the card align perfectly
with the keys in Slot2 #2 connector.

Important: The Slot2 connector is directionally keyed, and
the termination card will not go in unless it is properly
oriented, as shown in the figure.

Step 2. SDRAM Memory Module Installation

This motherboard features 4 x DIMM Banks for 168-pin 3.3V
unbuffered and registered DIMM modules.

DIMM 1
DIMM 2
DIMM 3
DIMM 4
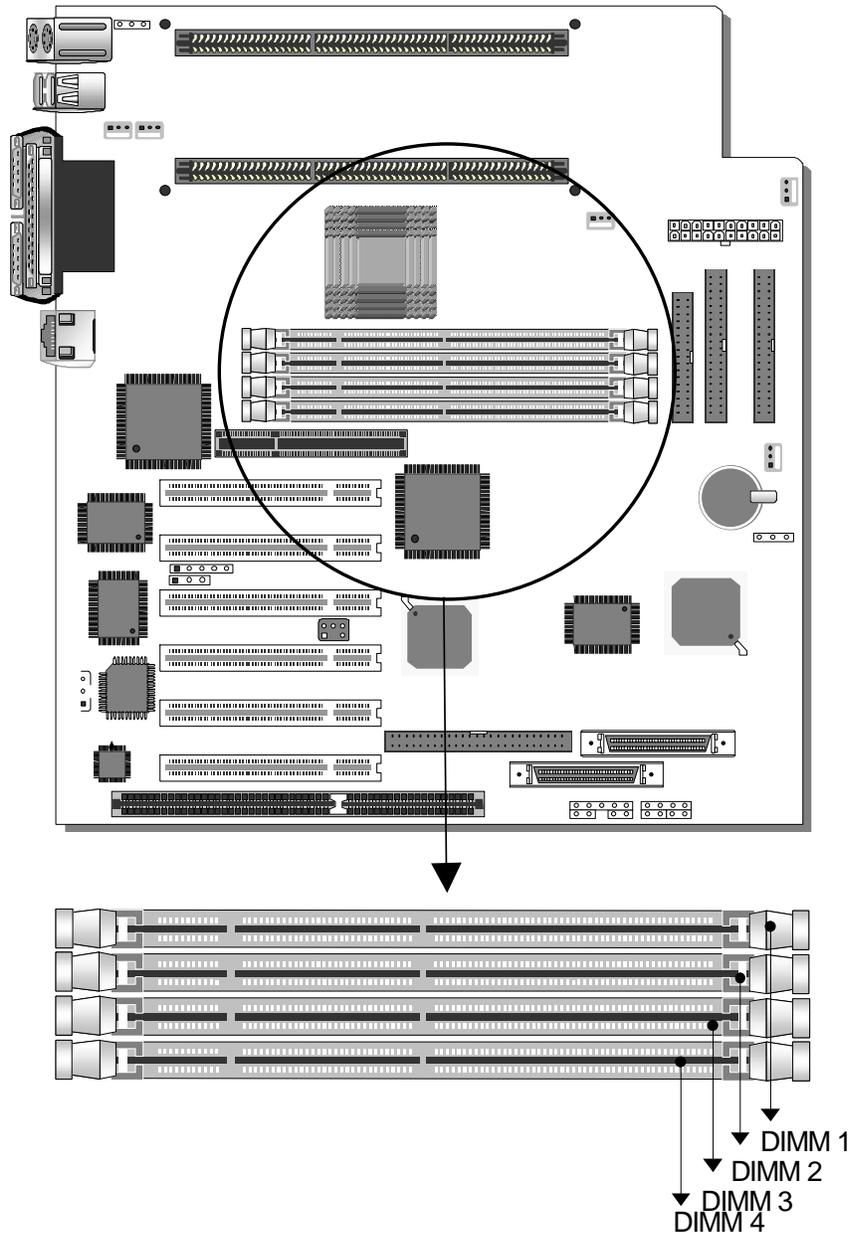
Your board comes with four DIMM sockets, providing support for up to *2GB* of main memory using DIMM modules from 8MB to 512MB. Use only 8ns (100MHz, PC100 compliant) or faster memory.

Memory Configuration

Number of Memory Modules	DIMM 1	DIMM 2	DIMM 3	DIMM 4
1	1st			
2	1st	2nd		
3	1st	2nd	3rd	
4	1st	2nd	3rd	4th
RAM Type	SDRAM			
Memory Module Size (MB)	8/16/32/64/128/256/512 Mbytes			

Notice 1: 256 & 512 MB memory modules only available on PC registered DIMM.

Notice 2: Always install memory modules in the order prescribed in this table.

Notice 3: Do not install unbuffered and registered memory modules together.

STOP *Important:* It is of prime importance that you install DIMM modules as outlined in the table above in order to preserve signal integrity on 100MHz front side bus systems.

Step 3. IDE Device Installation (HDD, CD-ROM)

This motherboard offers two primary and secondary IDE device connectors (IDE1, IDE2.) It can support up to four high-speed HDD or CD-ROM.

Connect one side of the 40-pin flat cable to the IDE device (HDD or CD-ROM) and plug the other end to the primary (IDE1) or secondary (IDE2) directionally keyed IDE connector on the motherboard. This motherboard can support up to four HDDs.

Step 4. Floppy Drive Installation

The system supports 5 possible floppy drive types: 720 KB, 1.2 MB, 1.44 MB, 2.88 MB, and LS-120. In addition, this motherboard supports a 3-mode (720KB/1.2MB/1.44MB) floppy commonly used in Japan.

Connect one side of the 34-pin flat cable to the floppy drive and plug the other end to the floppy drive connector on the motherboard. This motherboard can support up to 2 floppy drives.

Step 5. Front Panel Connections
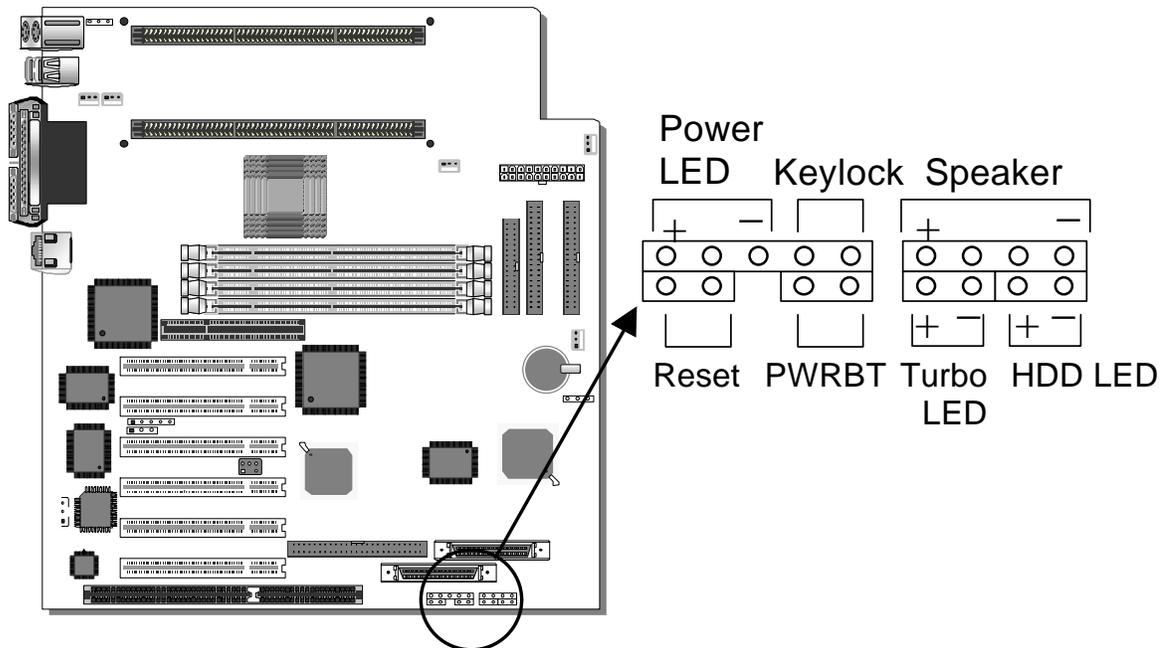
Plug the computer case's front panel devices to the corresponding headers on the motherboard.

1. Power LED & KeyLock

Plug the Power LED cable into the 5-pin Keylock header.
Some systems may feature a KeyLock function with a front panel switch for enabling or disabling the keyboard. Connect the KeyLock switch to the 5-pin Keylock header on the motherboard, according to the following pin assignment: pin 1,3 are for Power LED and pin 4,5 are for Keylock.

19

2. Reset

Plug the Reset push-button cable into the 2-pin Reset header on the motherboard. Pushing the Reset button on the front panel will cause the system to restart the boot-up sequence.

3. Speaker

Attach the 4-pin PC speaker cable from the case to the Speaker header on the motherboard.

4. Turbo LED

Connecting the 2-pin Turbo LED cable to the corresponding Turbo LED header will cause the LED to light whenever the system is in Turbo mode.

The manufacturer has permanently set this motherboard in Turbo mode due to most hardware and software compliance to turbo mode.

5. IDE LED

Attach the 2-pin IDE device LED cable to the corresponding IDE LED header on the motherboard. This will cause the LED to lighten when an IDE (HDD, CD-ROM) device is active.

6. ATX Power On/Off Switch

Attach the 2-pin momentary type switch to the PWRBT header for turning On or Off your ATX power supply.

Step 6. Back Panel Connections

All external devices such as the PS/2 keyboard, PS/2 mouse, printer, modem, USB can be plugged directly onto the motherboard back panel.

Only after you have fixed and locked the motherboard to the computer case can you start connecting the external peripheral devices.

When connecting an external device, use the following figure to locate and identify which back panel connector to plug the device to.
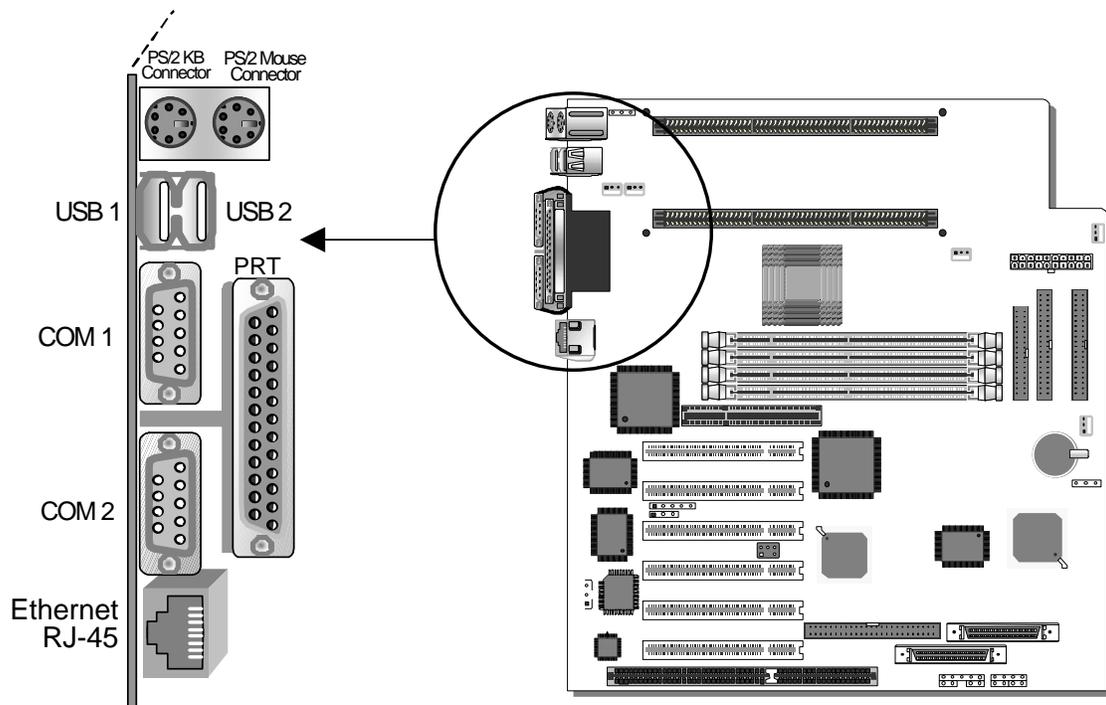
1.   Onboard Serial Ports COM1/COM2

External peripherals that use serial transmission scheme include:

- serial mouse,
- and modem.

Plug the serial device cables directly into the COM1/COM2 9-pin male connectors located at the rear panel of the motherboard.

2. Parallel Port PRT

This parallel port is used to connect the printer or other parallel devices.

Plug the parallel device cable into the 25-pin female connector located at the rear panel of the motherboard.

3. PS/2 Keyboard

Plug the keyboard jack directly into the 6-pin female PS/2 keyboard connector located at the rear panel of the motherboard.

4. PS/2 Mouse

Similarly, plug the mouse jack directly into the 6-pin female PS/2 mouse connector.

5. Universal Serial Bus USB1/USB2

This motherboard provides two USB ports for your additional devices. Plug the USB device jack into the available USB connector USB1 or USB2.

- USB devices under Win98 are allowed.
- With Win95, use the flow UHCI specifications.

Step 7. Other Connections

1. Wake-On-LAN (WOL)

Attach the 3-pin connector from the LAN card which supports the Wake-On-LAN (WOL) function to the JP44 header on the motherboard. This WOL function lets users wake up the connected computer through the LAN card.

Please install according to the following pin assignment:

Wake-On-LAN
JP44 Pin Assignment

```
      ┌─── MP - Wake-up
○ │3 ─┘
○  2 ─── GND
■ │1 ─┐
      └─── 5VSB
```
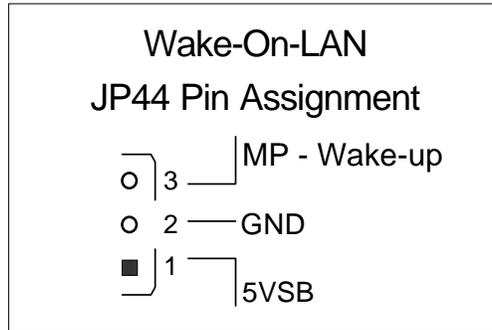
2. Infrared (IR1)

Plug the 5-pin infrared device cable to the IR1 header. This will enable the infrared transfer function. This motherboard meets both the ASKIR and HPSIR specifications.

Please install according to the following pin assignment:

Infrared (IR) Connector
IR1 Pin Assignment

```
VCC___        IRRX GND ___ IRTX
      │        │    │   │
    ┌─────────────────────┐
    │  ■      ○   ○   ○  │
    └─────────────────────┘
      1   2    3   4   5
```
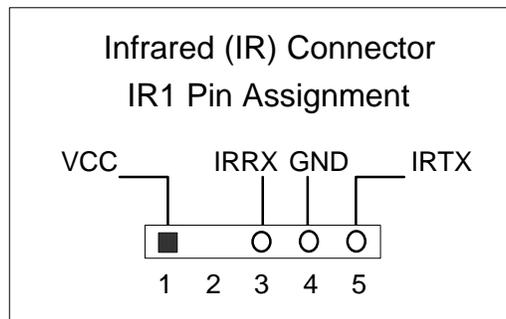
Step 8. Cooling Fan Installation

1. CPU Cooling Fan (CPUFAN)

After you have seated the first processor properly in Slot2 #1, attach the 3-pin fan cable from the CPU Heat & Fan Assembly to the corresponding CPUFAN connector on the motherboard.

The CPU fan will stop when the system enters into Suspend Mode. (Suspend mode can be enabled from the BIOS Setup Utility, [POWER MANAGEMENT] menu.)

23

To avoid damage to the system, install according to the following pin assignment:

Slot2 #1 CPU Cooling Fan
CPUFAN Pin Assignment
GND___ 12V ___SENSOR
      1   2   3
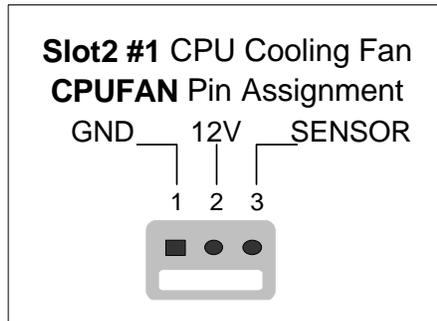
2. DRM Cooling Fans (DRMFA1, DRMFA2)

Attach the two fan cables from the DRM Assembly to the fan power connectors labeled DRMFAN 1 & 2 on the motherboard. Install according to the following pin assignment:

DRM Assembly Cooling Fan
DRMFA2 Pin Assignment
GND___ 12V ___SENSOR
      1   2   3

DRM Assembly Cooling Fan
DRMFA1 Pin Assignment

SENSOR __3
12V_____2
GND_____1
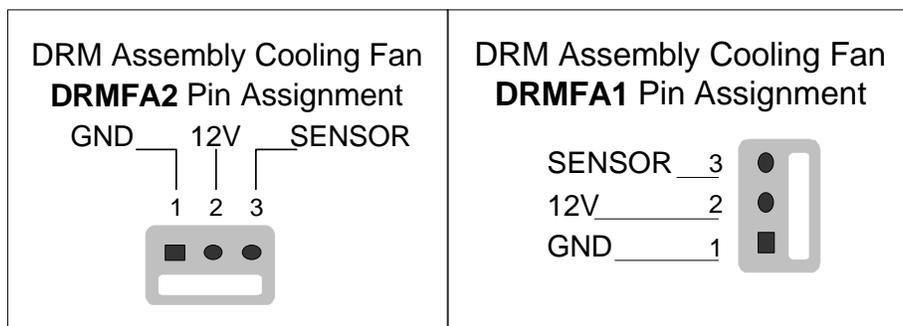
3. Chassis Cooling Fans (CHAFA1, CHAFA2)

Some chassis also include one to two cooling fans. This motherboard features two connectors (CHAFA1, CHAFA2) to provide 12V power to the chassis fans. Connect the cables from the chassis fans to the 3-pin connectors on the motherboard, according to the following pin assignment:

Chassis Cooling Fan
CHAFA2 Pin Assignment
GND___ 12V ___NC
      1   2   3

Chassis Cooling Fan
CHAFA1 Pin Assignment

NC_____3
12V_____2
GND_____1

24
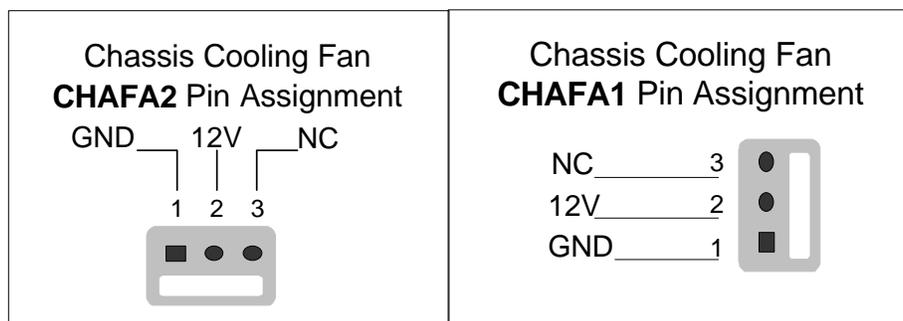
Step 9. AGP VGA Card

Insert the AGP VGA card into the AGP slot. Then connect the monitor information cable to the AGP card back plane external connector.

Follow the manufacturer's instructions to perform the AGP VGA drivers installation.

Other Display Cards: Insert other types of VGA cards into the PCI or ISA expansion slots according to card specifications.

Step 10. PCI Audio Card

Some PCI soundcards require a PC-PCI DMA channel. Attach the 5-pin cable from your Creative sound blaster PCI audio card to the SB-LINK ™ header on the motherboard. The SB-LINK™ will forward requests for legacy DMA channel to the PCI Bus.

Step 11. ATX Power Supply

Plug the connector from the power directly into the 20-pin male ATX PW connector on the motherboard, as shown in the following figure.
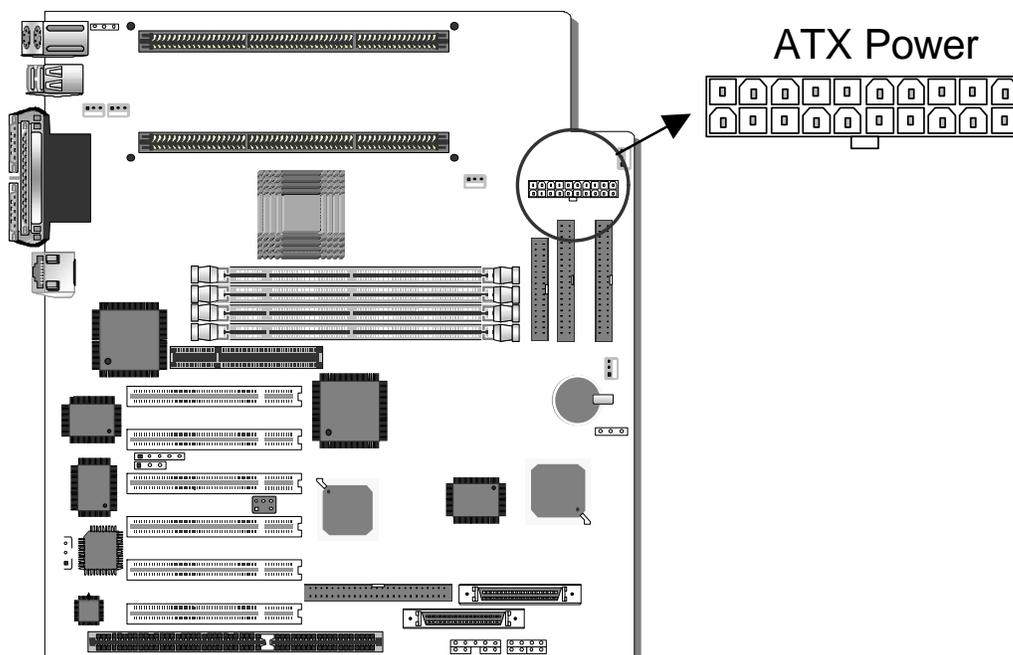
ATX Power

Warning: Follow these precautions to preserve your motherboard from any remnant currents when connecting to ATX power supply:

Turn off the power supply and unplug the power cord of the ATX power supply before connecting to ATX PW connector.

This motherboard requires a power supply with a "power good" signal. Make sure the ATX power supply can meet the following power requirements:

Motherboard Power Requirements					
+3.3V	³	20.0A	-5V	³	0.2A
+5V	³	35.0A	+12V	³	5.5A
+5VSB	³	1A	-12V	³	0.25

Please install the ATX power according to the following pin assignment and power requirements:

ATX Power
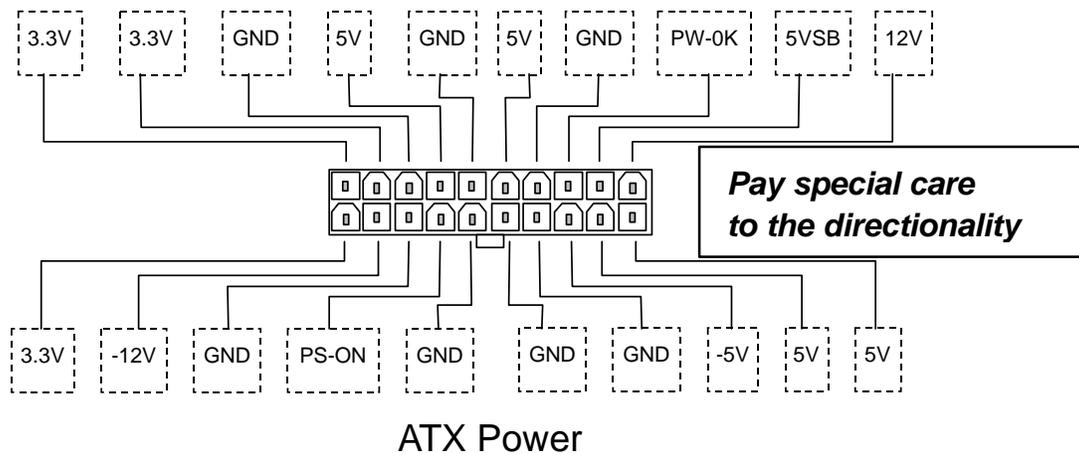
Step 12. CMOS Clearing (JP5)

After you have turned off your computer, clear the CMOS memory by momentarily shorting pins 2-3 on jumper JP5, for a few seconds. Then restore JP5 to the initial 1-2 jumper setting in order to recover and retain the default settings.

After you have turned off your computer, clear the CMOS memory by momentarily shorting pin 2-3 on jumper JP5 for at least 5 seconds. Then permanently short pin 1-2 to retain new settings.

Jumper JP5 can be easily identified by its white colored cap.

CMOS Clearing	Retain CMOS Data	Clear CMOS Data
JP5 Setting	Short pin 1-2 to retain the new CMOS settings. 1 2 3	Short pin 2-3 for ***at least 5 seconds*** to clear the CMOS. 1 2 3
Note: You must unplug the ATX power cable from the ATX power connector when performing the CMOS Clear operation.		

Step 13. Power-On by PS/2 Keyboard Jumper (JP10)

You can choose to enable the Power-On by PS/2 Keyboard function by shorting pin 2-3 on jumper JP10; otherwise, short pin 1-2 to disable this function.

Power-On by PS/2 Keyboard	Enable	Disable
JP10 Setting	Short pin 2-3 to enable the Power-On by PS/2 Keyboard function. 1 2 3	Short pin 1-2 to disable the Power-On by PS/2 Keyboard function. 1 2 3

Note: When using the Power-On by PS/2 Keyboard function, please make sure the ATX power supply can take at least 1A load on the 5V Standby lead (5VSB).

Step 14. Power Button Enable (JP11)

Your system can be powered on either by pressing the power switch or by entering a system password at the prompt. (Note that the system password can be configured in the BIOS "SOYO COMBO Setup").

In case you forget the system password, you will be denied access to the system. To avoid this, you can short pin 1-2 on jumper JP11, which will override the password and always enable the power button function.

Power Button Enable	Always Enable The Power Button	Power Button Function According to BIOS Setting
JP11 Setting	Short pin 1-2 to always enable the Power Button function.	Short pin2-3 for a Power Button function according to BIOS setting.
	⊙—⊙ ○ 1 2 3	○ ⊙—⊙ 1 2 3
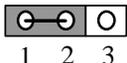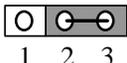
Step 15. Power On

You have now completed the hardware installation of your motherboard successfully.

1. Turn the power on

2. To enter the BIOS Setup Utility, press the <DEL> key while the system is performing the diagnostic checks,

> *Note:* If you fail to enter the BIOS, wait until the boot up sequence is completed. Then push the RESET button and press <DEL> key again at the beginning of boot-up, during diagnostic checks.

Repeat this operation until you get the following screen.

28

3. The BIOS Setup screen appears:

```
                    ROM PCI/ISA BIOS
                  CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.

  SOYO COMBO SETUP           INTEGRATED PERIPHERALS
  STANDARD CMOS SETUP        SUPERVISOR PASSWORD
  BIOS FEATURES SETUP        USER PASSWORD
  CHIPSET FEATURES SETUP     IDE HDD AUTO DETECTION
  POWER MANAGEMENT SETUP     SAVE & EXIT SETUP
  PNP/PCI CONFIGURATION      EXIT WITHOUT SAVING
  LOAD SETUP DEFAULTS

  Esc  : Quit                ↑↓→←   : Select Item
  F10  : Save & Exit Setup   (Shift) F2   : Change Color
                  Time, Date, Hard Disk Type…
```

Step 16. Quick BIOS Setup

This motherboard does not use any hardware jumpers to set the CPU frequency. Instead, CPU settings are software configurable with the BIOS **[SOYO COMBO SETUP]**. The [SOYO COMBO SETUP] menu combines the main parameters that you need to configure, all in one menu, for a quick setup in BIOS.

After the hardware installation is complete, turn the power switch on, then press the <DEL> key during the system diagnostic checks to enter the Award BIOS Setup program. The CMOS SETUP UTILITY will display on screen. Follow these steps to configure the CPU settings.

1. Select [LOAD SETUP DEFAULT]

Select the "LOAD SETUP DEFAULT" menu and type "Y" at the prompt to load the BIOS optimal setup.

2. Select [STANDARD CMOS SETUP]

Set [Date/Time] and [Floppy drive type], then set [Hard Disk Type] to "Auto".

3. Select [SOYO COMBO SETUP]

Move the cursor to the [CPU Frequency] field to set the CPU working frequency, as shown in the following display.

```
                    ROM PCI/ISA BIOS
                    SOYO COMBO SETUP
                    AWARD SOFTWARE, INC.
   CPU Speed          : Manual        Current CPU1 Temperature   : 29°C/84°F
   CPU Ratio          : x 5  = 500 MHz  Current CPU2 Temperature : 29°C/84°F
   CPU Frequency      : 100 MHz       Current CPUFAN1 Speed      : 4891 RPM
                                       Current CPUFAN2 Speed      : 4891 RPM
                                       Current CPUFAN3 Speed      : 6553 RPM
                                     (  )  : 2.81 V   CPU2(V) : 2.81V
                                        3.40 V        +5  V   : 5.25V
                                        2.16V         -12  V  : -12.15V
                                        5.26V
                                             Temperature       : 29°C/84°F
                                             Temperature       : 29°C/84°F

                                       ↑↓→←     : Select Item
                                 elp   PU/PD/+/-  : Modify
                                 d Values  (Shift) F2  : Color
                               F6  : Load BIOS Defaults
                               F7  : Load Setup Defaults
```

CPU Speed	: Manual
CPU Ratio	: x 5 = 500 MHz
CPU Frequency	: 100 MHz

Available [CPU Speed] settings on your SY-D6IGA Motherboard are detailed in the following table. If you set this field to [Manual], you are then required to fill in the next two consecutive fields: (1) the CPU Ratio, and (2) the CPU Frequency.

CPU Frequency	
☐ 400MHz (100 x 4.0)	Select the working frequency of your Xeon ™processor among these preset values.
☐ 450MHz (100 x 4.5)	***Note:*** ☑ Mark the checkbox that corresponds to the working frequency of your Xeon ™processor in case the CMOS configuration should be lost.
☐ 500MHz (100 x 5.0)	
☐ 550MHz (100 x 5.5)	
☐	You can also write your own frequency combination in the space provided.

4. Select [SAVE & EXIT SETUP]

Press **<Enter>** to save the new configuration to the CMOS memory, and continue the boot sequence.

Step 17. **Power Off**

There are two possible ways to turn off the system:

1. Use the **Shutdown** command in the **Start Menu** of Windows 95/98 to turn off your computer.

2. Press the mechanical power-button and **hold down for over 4 seconds,** to shutdown the computer. If you press the power-button for less than 4 seconds, then your system will enter into **Suspend Mode.**

Troubleshooting at First Start

● *What should I do if the motherboard refuses to start?*

The 350MHz setting is used as default so whenever the BIOS settings are erased or reset, the board will be able to boot up.
If the CPU speed was set too high and the motherboard refuses to start up, you can always load the default values by pressing the [Ins] key during boot up.

● *Over-clocking may cause system malfunctions!*

The SY-D6IGA motherboard provides over-clocking capability. Due to the over-clocking setting your system may fail to boot up or hang during run time. If this occurs, please perform the following steps to recover your system from the abnormal situation:

1. Turn off system power. (If you use an ATX power supply, and depending on your system, you may have to press the power button for more than 4 seconds to shut down the system.)

2. Press and hold down the <Insert> key while turning on the system power. Keep holding down the <Insert> key until you see the message of the CPU type and frequency (133MHz or 200MHz) appear on screen.

3. Press the <Del> key during the system diagnostic checks to enter the Award BIOS Setup program.

4. From the BIOS main menu, select [SOYO COMBO SETUP] and move the cursor to the [CPU Frequency] field to set the proper working frequency.

5. Select [Save & Exit SETUP] and press <Enter> to save the configuration to the CMOS memory, and continue the boot sequence.

> *Note:* SOYO *does not* guarantee system stability if the user over clocks the system. Any malfunctions due to over-clocking *are not* covered by the warranty.

32

Chapter 3

BIOS SETUP UTILITY

This motherboard's BIOS setup program uses the ROM PCI/ISA BIOS program from Award Software Inc.

To enter the Award BIOS program's Main Menu:

1. Turn on or reboot the system.
2. After the diagnostic checks, press the [Del] key to enter the Award BIOS Setup Utility.

ROM PCI/ISA BIOS	
CMOS SETUP UTILITY	
AWARD SOFTWARE, INC.	
SOYO COMBO SETUP	INTEGRATED PERIPHERALS
STANDARD CMOS SETUP	SUPERVISOR PASSWORD
BIOS FEATURES SETUP	USER PASSWORD
CHIPSET FEATURES SETUP	IDE HDD AUTO DETECTION
POWER MANAGEMENT SETUP	SAVE & EXIT SETUP
PNP/PCI CONFIGURATION	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
Esc : Quit	↑↓→← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type…	

Selecting items

● Use the arrow keys to move between items and select fields.

● From the Main Menu press arrow keys to enter the selected submenu.

Modifying selected items

● Use the [Up]/[Down] keys to modify values within the selected fields. Some fields let you enter values directly.

33

Hot Keys: Function keys give you access to a group of commands throughout the BIOS utility.

Function	Command	Description
F1	Help	Gives the list of options available for each item.
Shift F2	Color	Change the color of the display window.
F5	Old values	Restore the old values. These are the values that the user started the current session with.
F6	Load BIOS Defaults	Loads all options with the BIOS Setup default values.
F7	Load Setup Defaults	Loads all options with the Power-On default values.
F10	Save & Exit Setup	Saves your changes and reboots the system.
[Esc]	Quit	Lets you return at anytime and from any location to the Main Menu.

SAVE AND EXIT SETUP

Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.

```
              R O M   P C I/I S A   B I O S
              C M O S   S E T U P   U T I L I T Y
              A W A R D   S O F T W A R E , I N C .
 S T A N D
 B I O S   F
 C H I P S E
 P O W E R          SAVE to CMOS and EXIT (Y/N)? _
 P N P / P C
 L O A D   S
 L O A D   B I O S   D E F A U L T S

 E s c   : Q u i t                    ↑ ↓  →  ←   : S e l e c t   I t e m
 F 1 0   : S a v e  &  E x i t S e t u p        (S h i f t)  F 2   : C h a n g e   C o l o r
              T i m e ,  D a t e ,  H a r d   D i s k   T y p e …
```
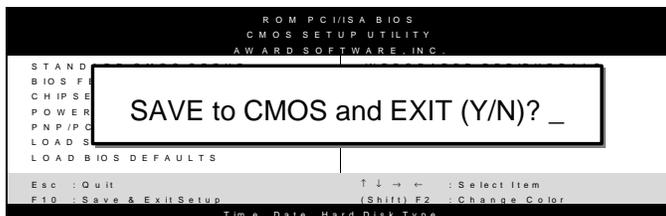
Type [Y] to save the changes and exit or [N] to return to the Main Menu and keep current values.

EXIT WITHOUT SAVING

Selecting the [EXIT WITHOUT SAVING] option allows you to abandon all data and exit setup, therefore ignoring all your changes.

```
              R O M   P C I/I S A   B I O S
              C M O S   S E T U P   U T I L I T Y
              A W A R D   S O F T W A R E ,   I N C .
 S T A N D A R D   C M O S   S E T U P         I N T E G R A T E D   P E R I P H E R A L S
 B IO
 C H
 P O          Quit Without Saving (Y/N)? _
 P N
 L O
 L O

 E s c   : Q u i t                    ↑ ↓  →  ←   : S e l e c t   I t e m
 F 1 0   : S a v e  &  E x i t S e t u p        (S h i f t)  F 2   : C h a n g e   C o l o r
              T i m e ,  D a t e ,  H a r d   D i s k   T y p e …
```
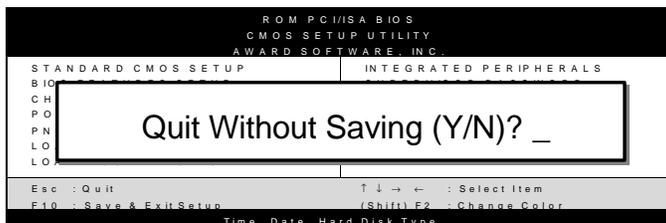
Type [Y] to abandon changes and exit or [N] to return to the Main Menu and keep current values.

34

3-1 SOYO COMBO SETUP

This motherboard does not use any hardware jumpers to set the CPU frequency. Instead, CPU settings are software configurable with the BIOS **[SOYO COMBO SETUP].**

```
                          ROM PCI/ISA BIOS
                         SOYO COMBO SETUP
                        AWARD SOFTWARE, INC.

CPU Speed          : Manual        Current CPU1 Temperature  : 29◦C/84◦F
CPU Ratio          : x 5 = 500 MHz Current CPU2 Temperature  : 29◦C/84◦F
CPU Frequency      : 100 MHz       Current CPUFAN1 Speed     : 4891 RPM
                                   Current CPUFAN2 Speed     : 4891 RPM
Boot Sequence      : A,C,SCSI      Current CPUFAN3 Speed     : 6553 RPM
Quick Power On Self Test : Enabled CPU1(V)  : 2.81 V  CPU2(V) : 2.81V
                                    +3.3 V  : 3.40 V     +5  V : 5.25V
POWER ON Function  : BUTTON ONLY   +12  V   : 12.16V     -12 V : -12.15V
KB Power ON Password : Enter       - 5  V   : - 5.26V
Hot Key Power ON   : Ctrl-F1       Current CPU1 Temperature  : 29◦C/84◦F
                                   Current CPU2 Temperature  : 29◦C/84◦F
Soft-Off by PWR-BTTN : Instant-Off
Power-On by Ring/LAN : Enabled
Power-On by Alarm  : Disabled
                                   ESC : Quit        ↑↓→← : Select Item
                                   F1  : Help        PU/PD/+/- : Modify
                                   F5  : Old Values   (Shift) F2 : Color
                                   F6  : Load BIOS Defaults
                                   F7  : Load Setup Defaults
```

After the hardware installation is complete, turn the power switch on, then press the <DEL> key during the system diagnostic checks to enter the Award BIOS Setup program. The CMOS SETUP UTILITY will display on screen. Then, select the [SOYO COMBO SETUP] option from the main menu and press the <Enter> key.

The [SOYO COMBO SETUP] menu combines the main parameters that you need to configure, all in one menu, for a quick setup in BIOS.

3-1.1 Quick CPU Speed Settings

Quick CPU Speed Settings	Setting	Description	Note
CPU Speed *(*Default)*	Manual 350MHz (100 x 3.5) 400MHz (100 x 4) 450MHz (100 x 4.5) 500MHz (100 x 5) 550MHz (100 x 5.5) 600MHz (100 x 6) 650MHz (100 x 6.5) 700MHz (100 x 7) 750MHz (100 x 7.5) 800MHz (100 x 8)	Select the working frequency of your Pentium$^®$ II Xeon ™or Pentium$^®$ III Xeon ™ processor among these preset values. Note: Setting this field to [Manual] requires you to fill in the next two consecutive fields: (1) the [CPU Ratio], (2) the [CPU Frequency].	
If [CPU Speed] field is set to [Manual]			
CPU Frequency	103 MHz 112 MHz 133 MHz 100 MHz	Select the host clock of your Pentium$^®$ II Xeon ™or Pentium$^®$ III Xeon ™ processor among these values. ***Note:*** For the GX chipset, the FSB specification is 100MHz. The system stability is not guaranteed for other frequencies due to the limitations of this chipset.	
If [CPU Speed] field is set to [Manual]			
CPU Ratio	After you have selected the host clock, choose the right multiplier for the CPU. Options are: [2, 2.5, 3., 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8]. The CPU frequency is then defined as [host clock freq.]x[multiplier], and should match the working frequency of your Pentium$^®$ II Xeon ™ or Pentium$^®$ III Xeon ™processor.		

3-1.2 System Boot Control Settings

System Boot Control Settings	Setting	Description	Note
Boot Sequence	A,C,SCSI C,A,SCSI C,CD-ROM,A CD-ROM,C,A D,A,SCSI E,A,SCSI F,A,SCSI SCSI,A,C SCSI,C,A C only LS/ZIP,C	Choose the boot sequence adapted to your needs, for example: ● [A,C,SCSI] means the BIOS will look for an operating system first in drive A, then in drive C, and eventually in SCSI device.	
Quick Power On Self Test	Disabled		
	Enabled	Provides a fast POST (Power-On Self Test) at boot-up.	Default

3-1.3 Power Management

PM Events	Setting	Description	Note
POWER ON Function	BUTTON-ONLY	Disables the Wake-Up by Keyboard function.	Default
	KB Power ON Password	Enables you to wake-up the system by entering a password at the keyboard.	
	Hot Key	You can wake-up the system by pressing the key combination of your choice (Ctrl-F1~F12).	
If [POWER ON Function] is set to [KB Power ON Password]			
KB Power ON Password	Enter (your password)	Set the password that will wake-up your system.	
If [POWER ON Function] is set to [Hot Key]			
KB Power ON Password	Ctrl-F1~F12	Choose the key combination that will wake-up the system. [Ctrl-F1 to Ctrl-F12]	
Soft-Off by PWR-BTTN	Instant-off		Default
	Delay 4 Sec.	Turns off the system power 4 seconds after pushing the power button.	
Power-On by Ring/LAN	Disabled		
	Enabled	The system will self-power on me when the modem is ringing.	Default
Power-On by Alarm	Disabled	The system ignores the alarm.	Default
	Enabled	Set alarm to power on the system by the date (1-31) or time (hh:mm:ss). If the date is set to [0], the system will self-power on by alarm everyday at the set time.	

38

3-1.4 CPU Device Monitoring

CPU Device Monitoring	Setting	Description	Note
Current CPU1 Temperature	°C/°F	Shows the current status of the CPU1 temperature.	**Slot2 #1**
Current CPU2 Temperature	°C/°F	Shows the current status of the CPU2 temperature.	**Slot2 #2**
Current CPUFAN1 Speed	°C/°F	Shows the current status of CPU Fan speed for CPU1.	**Slot2 #1**
Current CPUFAN2 Speed	°C/°F	Shows the current status of CPU Fan speed for CPU2.	**Slot2 #2**
Current CPUFAN3 Speed	°C/°F	Shows the current status of the Chassis Fan speed	
CPU1(V), +3.3V, +12V, -5V	V	Shows the current voltage status on CPU1.	**Slot2 #1**
CPU2(V), +5V, -12V	V	Shows the current voltage status on CPU2.	**Slot2 #2**

39

3-2 STANDARD CMOS SETUP

Select the [STANDARD CMOS SETUP] option from the Main Menu and press [Enter] key.

```
                        ROM PCI/ISA BIOS
                      STANDARD CMOS SETUP
                      AWARD SOFTWARE, INC.
  Date (mm:dd:yy)     : Mon, Feb 22 1999
  Time (hh:mm:ss)     : 11 : 30 : 33

  HARD DISKS          TYPE     SIZE   CYLS  HEAD   PRECOMP   LANDZ   SECTOR   MODE
  Primary Master   :  AUTO      0      0     0        0        0        0    AUTO
  Primary Slave    :  None      0      0     0        0        0        0    - - - -
  Secondary Master :  None      0      0     0        0        0        0    - - - -
  Secondary Slave  :  None      0      0     0        0        0        0    - - - -

  Drive A : 1.44M, 3.5 in.                      Base Memory:      640K
  Drive B : None                            Extended Memory:    31744K
  Floppy 3 Mode Support : Disabled              Other Memory:      384K

  Video   :   EGA/VGA
  Halt On   :   All Errors                      Total Memory:    32768K

  Esc   : Quit          ↑↓→←      : Select Item      PU/PD/+/-    : Modify
  F1    : Help         (Shift) F2   : Change Color      F3          : Toggle Calendar
```

This screen allows you to modify the basic CMOS settings.

After you have completed the changes, press [Esc] key to return to the Main Menu.

3-2.1 Date & Time

	Display	**Setting**	**Please Note**
Date	mm/dd/yyyy	Type the current date	You can also press the PUp/PDn keys to toggle between values.
Time	hh:mm:ss	Type the current time	24-hour clock format 3:15 PM is displayed as 15:15:00

3-2.2 Hard Disks Type & Mode

Choose the type and mode for the hard disks that you have already installed.

Primary (Secondary) Master & Slave	Setting	Description		Note
Type	Auto	BIOS detects hard disk type automatically.		Default
	User	User defines the type of hard disk.		
	None			
Mode	Auto	BIOS detects hard disk mode automatically.		Default
	Normal	Normal IDE hard disk		<528MB
	LBA	Enhanced IDE hard disk		>528MB
	Large	Large IDE hard disk (for certain hard disk)		

Note: If you have any questions on your hard disk type or mode, ask your hard disk provider or previous user for details.

3-2.3 Floppy Drives

Floppy Drives	Setting	Description	Note
Drives A & B	360KB, 5.25 in.		
	1.2MB, 5.25 in.		
	720KB, 3.5 in.		
	1.44MB, 3.5 in.		Default
	2.88MB, 3.5 in.		
	None	Not installed	
Floppy 3-Mode Support	Disabled		Default
	Drive A Drive B Both	Supports 3-mode floppy diskette: 740KB/1.2MB/ 1.44MB on selected disk drive.	Special disk drive commonly used in Japan

3-2.4 Video

Select the video mode: EGA/VGA (Default), CGA 40, CGA 80, MONO (Monochrome).

3-2.5 Halt On

When the BIOS detects system errors, this function will stop the system. Select which type of error will cause the system halt: All Errors (Default), No Errors, All But Keyboard, All But Diskette, All But Disk/Key.

3-3 BIOS FEATURES SETUP

Select the [BIOS FEATURES SETUP] option from the Main Menu
and press [Enter] key.

```
                        ROM PCI/ISA BIOS
                      BIOS FEATURES SETUP
                      AWARD SOFTWARE, INC.

Virus Warning                : Disabled    Video    BIOS Shadow   : Enabled
CPU Internal Cache           : Enabled     C8000-CBFFF Shadow    : Disabled
External Cache               : Enabled     CC000-CFFFF Shadow    : Disabled
Processor Number Feature     : Disabled    D0000-D3FFF Shadow    : Disabled
Swap Floppy Drive            : Disabled    D4000-D7FFF Shadow    : Disabled
Boot Up NumLock Status       : On          D8000-DBFFF Shadow    : Disabled
Typematic Rate Setting       : Disabled    DC000-DFFFF Shadow    : Disabled
Typematic Rate (Chars/Sec)   : 6
Typematic Delay (Msec)       : 250
Security Option              : Setup
PCI/VGA Palette Snoop        : Disabled
Assign IRQ for VGA           : Enabled
MPS Version Control For OS    : 1.4         ESC  : Quit        ↑↓→←   : Select Item
OS Select for DRAM > 64MB     : Non-OS2    F1   : Help        PU/PD/+/-  : Modify
HDD S.M.A.R.T. capability     : Disabled   F5   : Old Values  (Shift) F2  : Color
Report No FDD For WIN 95      : Yes        F6   : Load BIOS Defaults
                                          F7   : Load Setup Defaults
```

After you have completed the changes, press [Esc] key and follow
the instructions on your screen to save your settings or exit without
saving.

3-3.1 Virus Warning

	Setting	Description	Note
Virus Warning	Disabled		Default
	Enabled	Enable this option to protect the boot sectors and partition tables of your hard disk. Any attempt to write to them will the system to halt and display a warning message.	

3-3.2 Cache Memory Options

CPU Internal Cache	Setting	Description	Note
	Disabled		
	Enabled	Enables the CPU's internal cache.	Default
External Cache			
	Disabled		
	Enabled	Enables the external memory.	Default

3-3.3 Processor Number Feature

Processor Number Feature	Setting	Description	Note
	Disabled		Default
	Enabled	This function enables your motherboard to automatically read and display the *Specification Number* of your Pentium® III CPU.	

3-3.4 System Boot Control Settings

System Boot Control Settings	Setting	Description	Note
Swap Floppy Drive	Disabled		Default
	Enabled	Changes the sequence of A and B drives.	
Boot Up NumLock Status	On	Puts numeric keypad in NumLock mode at boot-up.	Default
	Off	Puts numeric keypad in arrow key mode at boot-up.	

44

3-3.5 Typematic Settings

Typematic Settings	Setting	Description	Note
Typematic Rate Setting	Disabled		Default
	Enabled	Enables to adjust the keystroke repeat rate.	
The following [Typematic Rate] and [Typematic Delay] fields are active only if [Typematic Rate Setting] is set to [Enabled]			
Typematic Rate	6 (Char/sec) 8 (Char/sec) 10 (Char/sec) 12 (Char/sec) 15 (Char/sec) 20 (Char/sec) 24 (Char/sec) 30 (Char/sec)	Choose the rate at which a character is repeated when holding down a key.	Default
Typematic Delay	250 (msec) 500 (msec) 750 (msec) 1000 (msec)	Choose how long after you press a key down the character begins repeating.	Default

3-3.6 Security Option

Use this feature to prevent unauthorized system boot-up or use of BIOS Setup. The following table describes the security settings.

	Setting	Description	Note
Security Option	System	Each time the system is booted, the password prompt appears.	
	Setup	If a password is set, the password prompt only appears when you attempt to enter the BIOS Setup program.	Default

45

3-3.7 Other Control Options

Other Control Options	Setting	Description	Note
PCI/VGA Palette Snoop	Disabled		Default
	Enabled		
	The color of the monitor may be altered when using an MPEG card. Enable this option to restore the monitor's normal color.		
Assign IRQ For VGA	Disabled		
	Enabled	Use this default setting.	Default
MPS Version Control For OS	1.1	To specify which MPS version to use.	
	1.4		Default
OS Select for DRAM>64MB	OS2	When using an OS2 operating system.	
	Non-OS2	When using another, non-OS2 operating system.	Default
HDD S.M.A.R.T. capability	Disabled		Default
	Enabled	Enable this field when your HDD supports the S.M.A.R.T. function. Consult your HDD provider for details.	
Report No FDD For WIN 95	Yes	Windows will release IRQ line 6 (normally used by the Floppy Disk Drive) after you disable your on-board FDD and set this field to [Yes].	Default
	No	Windows will reserve INT 6 for your FDD, whether it is disabled or not.	

46

Other Control Options (continued)

Other Control Options	Setting	Description	Note
Video BIOS Shadow	Disabled		
	Enabled		Default
	The BIOS is shadowed in a 16K segment if it is enabled and if it has BIOS present. These 16 segments can be shadowed from ROM to RAM. BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.		
C8000-CBFFF/ CC000-CFFFF/ D0000-D3FFF/ D4000-D7FFF/ D8000-DBFFF/ DC000-DFFFF/ Shadow	Disabled		Default
	Enabled	The ROM data at the specified address range will be copied to RAM.	

47

3-4 CHIPSET FEATURES SETUP

Caution: Change these settings only if you are already familiar with the Chipset.

The [CHIPSET FEATURES SETUP] option changes the values of the chipset registers. These registers control the system options in the computer.

```
                        ROM PCI/ISA BIOS
                      CHIPSET FEATURES SETUP
                       AWARD SOFTWARE, INC.

 SDRAM CAS latency Time      : 3
 DRAM Data Integrity Mode    : Non-ECC
 System BIOS Cacheable       : Disabled
 Video BIOS Cacheable        : Disabled
 Video RAM Cacheable         : Disabled
 8 Bit I/O Recovery Time     : 1
 16 Bit I/O Recovery Time    : 1
 Memory Hole At 15M-16M      : Disabled
 Passive Release             : Enabled
 Delayed Transaction         : Enabled
 AGP Aperture Size (MB)      : 64
 Spread Spectrum Modulated   : Disabled    ESC  : Quit          ↑↓→←   : Select Item
                                           F1   : Help          PU/PD/+/- : Modify
                                           F5   : Old Values    (Shift) F2 : Color
                                           F6   : Load BIOS Defaults
                                           F7   : Load Setup Defaults
```

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

The following table describes each field in the CHIPSET FEATURES SETUP Menu and how to configure each parameter.

CHIPSET FEATURES SETUP

CHIPSET FEATURES	Setting	Description	Note
SDRAM Cache Latency Time	3 2	Use the default setting	Default
DRAM Data Integrity Mode	Non-ECC ECC	Choose according to the DRAM type you have.	Default
System BIOS Cacheable	Disabled		Default
	Enabled	The ROM area F0000H-FFFFFH is cacheable.	
Video BIOS Cacheable	Disabled		Default
	Enabled	The video BIOS C0000H-C7FFFH is cacheable.	
Video RAM Cacheable	Disabled		Default
	Enabled	The ROM area A0000-BFFFF is cacheable.	
8 BIT I/O Recovery Time	1 2-8,NA	Use the default setting	Default
16 BIT I/O Recovery Time	1 2-4,NA	Use the default setting	Default
Memory Hole At 15M-16M	Disabled		Default
	Enabled	Some interface cards will map their ROM address to this area. If this occurs, select [Enabled] in this field.	

49

CHIPSET FEATURES SETUP (Continued)

CHIPSET FEATURES	Setting	Description	Note
Passive Release	Enabled	Use the default setting	Default
Delayed Transaction	Enabled	Use the default setting	Default
AGP Aperture Size	64 4-256MB	AGP could use the DRAM as its video RAM. Choose the DRAM size that you wish to allocate as video RAM.	Default
Spread Spectrum Modulated	Disabled		Default
	Enabled	When using Spread Spectrum modulated 1.5% or 6% for FCC or DOC testing.	

3-5 POWER MANAGEMENT SETUP

The [POWER MANAGEMENT SETUP] sets the system's power saving functions.

```
                          ROM PCI/ISA BIOS
                     POWER MANAGEMENT SETUP
                       AWARD SOFTWARE, INC.

  Power Management      : User Define      ** Reload Global Timer Events **
  PM Control by APM     : Yes              IRQ [3-7,9-15], NMI   : Enabled
  Video Off Method      : V/H SYNC+Blank   Primary IDE 0         : Disabled
  Video Off After       : Standby          Primary IDE 1         : Disabled
  MODEM Use IRQ         : 3                Secondary IDE 0       : Disabled
  Doze Mode             : Disable          Secondary IDE 1       : Disabled
  Standby Mode          : Disable          Floppy Disk           : Disabled
  Suspend Mode          : Disable          Serial Port           : Enabled
  HDD Power Down        : Disable          Parallel Port         : Disabled
  PCI/VGA Act-Monitor   : Disabled
  CPUFAN Off In Suspend : Enabled
  IRQ 8 Break Suspend   : Disabled
                                          ────────────────────────────────
                                          ESC  : Quit         ↑↓→←  : Select Item
                                          F1   : Help         PU/PD/+/- : Modify
                                          F5   : Old Values   (Shift) F2  : Color
                                          F6   : Load BIOS Defaults
                                          F7   : Load Setup Defaults
```

After you have completed the Power Management Setup, press [Esc] to return to the Main Menu.

51

3-5.1 Power Management Controls

Power Management Controls	Setting	Description			Note
Power Management	User Define	Lets you define the HDD and system power down times.			Default
	Disable	Disables the Green PC Features.			
		Doze timer	Standby timer	Suspend timer	HDD power down
	Min Saving	1 Hour	1 Hour	1 Hour	15 Min
	Max Saving	1 Min	1 Min	1 Min	1 Min
PM Control by APM	Yes	To use Advanced Power Management (APM) you must run [power.exe] under DOS V6.0 or later version.			Default
	No				
Video Off Method	V/H Sync+Blank	Selects the method by which the monitor is blanked.			Default
	Blank Screen				
	DPMS				
Video Off After	Standby	Choose the PM mode you want video to go off after the mode is being active.			Default
	Suspend				
	Doze				
	NA				
MODEM Use IRQ	3	Assigns an IRQ# to the modem device.			Default
	3-11,NA				

3-5.2 PM Timers

PM Timers	Setting	Description	Note
The following [Doze Mode] field may be configured only if [Power Management] is set to [User Define]			
Doze Mode	Disable		Default
	1Min-1Hour	When the set time has elapsed, BIOS sends a command to the system to enter Doze Mode.	System clock drops to 33MHz.
The following [Standby Mode] field may be configured only if [Power Management] is set to [User Define]			
Standby Mode	Disable		Default
	1Min-1Hour	When the set time has elapsed, BIOS sends a command to the system to enter Standby Mode.	
The following [Suspend Mode] field may be configured only if [Power Management] is set to [User Define]			
Suspend Mode	Disable		Default
	1Min-1Hour	In Suspend mode, the CPU stops completely (no instructions are executed.)	Only an SL-Enhanced (or SMI) CPU can enter this mode.
HDD Power Down	Disabled		Default
	1-15Min	When the set time has elapsed, BIOS sends a command to the HDD to power down. This turns off the HDD motor.	Some older model HDDs may not support this advanced function.

53

3-5.3 PM Events

PM Events	Setting	Description	Note
PCI/VGA Act-Monitor	Disabled		Default
	Enabled	Enables the power management timers when a [no activity] event is detected on the PCI device and monitor.	
CPUFAN Off In Suspend	Disabled	Disables the PM timer.	
	Enabled	Switches off the CPU Fan when the system enters Suspend Mode.	Default
IRQ 8 Break Suspend	Disabled		Default
	Enabled	Alarm function is active.	

3-5.4 Reload Global Timer Events

Power Down & Resume Events	Setting	Description	Note
IRQ [3-7,9-15], NMI	Disabled		
	Enabled	The system monitors these elements for activity. The system will resume if an [IRQ activity] is detected.	Default
IDE0, IDE1 ➢ **Primary** ➢ **Secondary**	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected.	
Floppy Disk	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected on the floppy disk drive.	
Serial Port	Disabled		
	Enabled	Enables the PM timers when [No Activity Event] is detected on the serial port.	Default
Parallel Port	Disabled		Default
	Enabled	Enables the PM timers when [No Activity Event] is detected on the parallel port.	

54

3-6 PNP/PCI CONFIGURATION SETUP

This option sets the motherboard's PCI Slots.

```
                         ROM PCI/ISA BIOS
                      PNP/PCI CONFIGURATION
                      AWARD SOFTWARE, INC.

 PnP OS Installed          : No          Used MEM base addr    : N/A
 Resources Controlled By   : Manual
 Reset Configuration Data  : Disabled     Assign IRQ For USB    : Enabled


 IRQ-3     assigned to   : Legacy ISA*
 IRQ-4     assigned to   : Legacy ISA*
 IRQ-5     assigned to   : PCI/ISA PnP*
 IRQ-7     assigned to   : PCI/ISA PnP*
 IRQ-9     assigned to   : PCI/ISA PnP*
 IRQ-10    assigned to   : PCI/ISA PnP*
 IRQ-11    assigned to   : PCI/ISA PnP*
 IRQ-12    assigned to   : PCI/ISA PnP*
 IRQ-14    assigned to   : PCI/ISA PnP*
 IRQ-15    assigned to   : PCI/ISA PnP*
 DMA-0     assigned to   : PCI/ISA PnP*
 DMA-1     assigned to   : PCI/ISA PnP*   ESC  : Quit        ↑↓→←  : Select Item
 DMA-3     assigned to   : PCI/ISA PnP*   F1   : Help        PU/PD/+/-  : Modify
 DMA-5     assigned to   : PCI/ISA PnP*   F5   : Old Values  (Shift) F2  : Color
 DMA-6     assigned to   : PCI/ISA PnP*   F6   : Load BIOS Defaults
 DMA-7     assigned to   : PCI/ISA PnP*   F7   : Load Setup Defaults
```

> *Note:* Starred (*) items will disappear when the [Resources Controlled By] option is set to [Auto].

After you have completed the PCI Slot Configuration, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

3-6.1 PNP/PCI Configuration Controls

PNP/PCI Controls	Setting	Description	Note
PnP OS Installed	Yes	Set this field to [Yes] if you are running Windows 95/98, which are PnP compatible.	
	No	If the OS you are running does not support PnP configuration.	Default (If there is any doubt, set this field to [No])
Resources Controlled By	Manual	BIOS does not manage PCI/ISA PnP card IRQ assignment. Requires to assign IRQ-# and DMA-# to PCI or ISA PnP manually. IRQ-3,4,5,7,9,10,11,12,14,15 assigned to: _ DMA-0,1,3,5,6,7 assigned to: _	
	Auto	The Plug-and-Play BIOS auto manages PCI/ISA PnP card IRQ assignment automatically.	**Recommended**
Reset Configuration Data	Disabled	Retain PnP configuration data in BIOS.	Default
	Enabled	Reset PnP configuration data in BIOS.	

56

3-6.2 PNP/PCI Configuration Setup

PNP/PCI Setup	Setting	Description	Note
If [Resources Controlled By] is set to [Manual]			
IRQ-# and DMA-# assigned to:	PCI/ISA PnP	Choose IRQ-# and DMA-# assigned to PCI/ISA PnP card.	IRQ-3,4,5,7,9,10, 11,12,14,15 DMA-0,1,3,5,6,7
	Legacy ISA	Choose IRQ-# and DMA-# assigned to Legacy ISA card.	IRQ-3,4,5,7,9,10, 11,12,14,15 DMA-0,1,3,5,6,7
Used MEM base addr	N/A		Default
	I/O address	C800,CC00,D000,D 400,D800,DC00. (Asking card provider for the exactly I/O address of this add-on card.)	Use this function only when problems occur while using some certain add-on cards.
Used MEM Length	Memory length	8K,16K,32K,64K. (Please ask your card provider for the exactly memory length of this add-on card.)	This item appears only when the [Used MEM base addr] field is set to I/O address.
Assign IRQ For USB	Enabled	BIOS will assign IRQ for USB port.	Default
	Disabled	BIOS won't assign IRQ for USB port.	

3-7 LOAD SETUP DEFAULTS

Select the [LOAD SETUP DEFAULTS] option from the Main Menu to load the system values you have previously saved. This option is recommended if you need to reset the system setup and to retrieve the old values.

```
ROM PCI/ISA BIOS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.
```
```
SOYO COMBO SETUP              INTEGRATED PERIPHERALS
STANDARD CMOS SETUP           SUPERVISOR PASSWORD
BIOS FEATURES SETUP           USER PASSWORD
CHIP
POW   Load SETUP Defaults (Y/N)? _
PNP/PCI CONFIGURATION         EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS

Esc  : Quit                   ↑↓→←  : Select Item
F10  : Save & Exit Setup      (Shift) F2  : Change Color
              Time, Date, Hard Disk Type…
```

Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.

> **STOP**
>
> ***Warning:*** If you run into any problem after changing the BIOS configuration, please load the SETUP DEFAULTS for stable performance.

3-8 INTEGRATED PERIPHERALS

Caution: Change these settings only if you are already familiar with the Chipset.

The [INTEGRATED PERIPHERALS] option changes the values of the chipset registers. These registers control the system options in the computer.

The following screen shows setup default settings.

```
                    ROM PCI/ISA BIOS
                 INTEGRATED PERIPHERALS
                  AWARD SOFTWARE, INC.

IDE HDD Block Mode        : Enabled    Onboard FDC Controller   : Enabled
IDE Primary Master PIO    : Auto       Onboard Serial Port 1    : 3F8/IRQ4
IDE Primary Slave PIO     : Auto       Onboard Serial Port 2    : 2F8/IRQ3
IDE Secondary Master PIO  : Auto       URART Mode Select        : Normal
IDE Secondary Slave PIO   : Auto       RxD , TxD Active         : Hi,Lo
IDE Primary Master UDMA   : Auto       IR Transmission Delay    : Enabled
IDE Primary Slave UDMA    : Auto       Onboard Parallel Port    : 378/IRQ7
IDE Secondary Master UDMA : Auto       Parallel Port Mode       : SPP
IDE Secondary Slave UDMA  : Auto       ECP Mode Use DMA         : 3
On-Chip Primary PCI IDE   : Enabled    EPP Mode Select          : EPP1.7
On-Chip Secondary PCI IDE : Enabled
Onboard PCI SCSI Chip     : Enabled
USB Keyboard Support      : Disabled   ESC : Quit        ↑↓→← : Select Item
Init Display First        : PCI Slot   F1  : Help        PU/PD/+/- : Modify
KBC Input Clock           : 12         F5  : Old Values   (Shift) F2 : Color
                                       F6  : Load BIOS Defaults
                                       F7  : Load Setup Defaults
```

The following tables describe each field in the INTEGRATED PERIPHERALS Menu and provide instructions on how to configure the IDE controls, FDC controls, and the onboard serial and parallel ports.

3-8.1 IDE Device Controls

IDE Controls	Setting	Description	Note
IDE HDD Block Mode	Disabled		
	Enabled	Invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.	Default
IDE ➤ **Primary Master PIO** ➤ **Primary Slave PIO** ➤ **Secondary Master PIO** ➤ **Secondary Slave PIO**	mode 0-4	0 is the slowest speed 4 is the fastest speed	
	Auto	For better performance and stability, we suggest you use the Auto setting to set the HDD control timing.	Default
IDE ➤ **Primary Master UDMA** ➤ **Primary Slave UDMA** ➤ **Secondary Master UDMA** ➤ **Secondary Slave UDMA**	Disabled		
	Auto	Select Auto to enable Ultra DMA Mode support.	Default
On-Chip PCI IDE ➤ **Primary** ➤ **Secondary**	Disabled	Turn off the on-board IDE	
	Enabled	Use the on-board IDE	Default

3-8.2 Onboard SCSI Subsystem Controls

SCSI Subsystem Controls	Setting	Description	Note
Onboard PCI SCSI Chip	Disabled		
	Enabled	Enables the on-board SCSI function. Also, allows you to configure the SCSISelect ™BIOS utility. (Press **<Ctrl-A>** during boot-up to enter the SCSI BIOS utility.)	Default

60

3-8.3 USB Keyboard Support

USB Keyboard	Setting	Description	Note
USB Keyboard Support	Disabled		Default
	Enabled	Use a USB keyboard	

3-8.4 Display Controls

Display Controls	Setting	Description	Note
Init Display First	PCI Slot	Choose which card – AGP Display card or PCI VGA card – to initialize first.	Default
	AGP		

3-8.5 Keyboard Controls

Keyboard Controls	Setting	Description	Note
KBC Input Clock	6	Controls the frequency of the clock signal (MHz) of the keyboard. Set this value to 8 (MHz) if experiencing problems with your keyboard.	
	8		
	12		Default
	16		

61

3-8.6 FDC Controls

FDC Controls	Setting	Description	Note
Onboard FDC controller	Disabled	Turn off the on-board floppy controller	
	Enabled	Use the on-board floppy controller	Default

3-8.7 Onboard Serial Ports

Onboard Serial Ports	Setting	Description	Note
Onboard ➢ **Serial Port 1** ➢ **Serial Port 2**	Disabled		
	3F8/IRQ4	Choose serial port 1 & 2's I/O address.	Default (port 1)
	2F8/IRQ3	Do not set port 1 & 2 to the same address	Default (port 2)
	3E8/IRQ4	except for [Disabled] or [Auto].	
	2E8/IRQ3		
	Auto		
UART Mode Select	Normal	Supports a Standard serial infrared IrDA.	Default
	IrDA 1.0		
	ASKIR	Supports a Sharp serial interface format.	
	FIR	Fast Infrared Interface	
VxD,TxD Active	Hi,Lo/Lo,Hi/Lo, Lo/Hi,Hi	Check with your IR-device provider for exact setting.	
IR Transmission Delay	Enabled	Check with your IR-device provider for exact setting.	Default
	Disabled		

3-8.8 Onboard Parallel Ports

Onboard Parallel Ports	Setting	Description	Note
Onboard Parallel Port	378/IRQ7	Choose the printer I/O address.	Default
	3BC/IRQ7		
	278/IRQ5		
	Disable		
Parallel Port Mode	ECP/EPP	The mode depends on your external parallel device that connects to this port.	
	SPP		Default
	ECP		
	EPP		
If [Parallel Port Mode] is set to [ECP] or [ECP/EPP] mode			
ECP Mode use DMA	3	Choose DMA3	Default
	1	Choose DMA1	
If [Parallel Port Mode] is set to [EPP] or [ECP/EPP] mode			
EPP Mode Select	EPP1.7	Select the correct EPP operating mode of your on-board parallel port. (This setting should match your parallel device requirements.)	Default
	EPP1.9		

3-8.9 MULTI I/O ADDRESSES

Default settings for multi-I/O addresses are as follows:

Port	I/O Address	IRQ	Status
LPT1	378	7	SPP
COM1	3F8	4	
COM2	2F8	3	

Warning: If a default I/O address conflicts with other I/O cards such as sound card, you must change one of the I/O addresses to remedy to this address conflict. (I/O addresses can be adjusted from the BIOS Setup Utility)

63

3-9 SUPERVISOR PASSWORD

Based on the setting you have made in the [Security Option] of the [BIOS FEATURES SETUP] section, the password prevents access to the system or the setup program by unauthorized users. Follow this procedure to set a new password or disable the password:

1. Choose [BIOS FEATURES SETUP] in the Main Menu and press [Enter]. Select the [Security Options] item and set the field to:

   a. [System]: The password is required every time the system is booted. This means only a person who knows the password can use this computer.

   b. [Setup]: The password is required only when you attempt to enter the BIOS Setup program.

2. Choose [SUPERVISOR PASSWORD] from the Main Menu and press [Enter]. The following prompt appear:

   > Enter Password:

   Warning: If you forget or lose the password, the only way to access the system is to set jumper JP5 to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.

   Note: If you do not wish to use the password function, press [Enter] directly and the following message appears:

   > Password Disabled!!

3.   Enter your new password and press [Enter]. The following
      message appears, prompting to confirm the new password:

> Confirm Password:

4.   Re-enter your password and then press [Enter] to exit to the
      Main Menu.

This diagram outlines the password selection procedure:

**Type the Password
and Press: <Enter>**

ROM PCI/ISA BIO
CMOS SETUP UTIL
AWARD SOFTWARE.

**Press <Enter> without
entering the password**

STANDARD CMO   Enter Password: RIPHERALS
BIOS FEATUR S S   PAS WORD

Enter Password: *****   Password Disabled!!

Confirm Password: *****

SAVE & EXIT SETUP
EXIT WITHOUT SAVING

Esc : Quit
F10 : Save & Exit Se   olor

**After you confirm the password,
press <Esc> to exit**

Time, Date, Hard Disk Type…
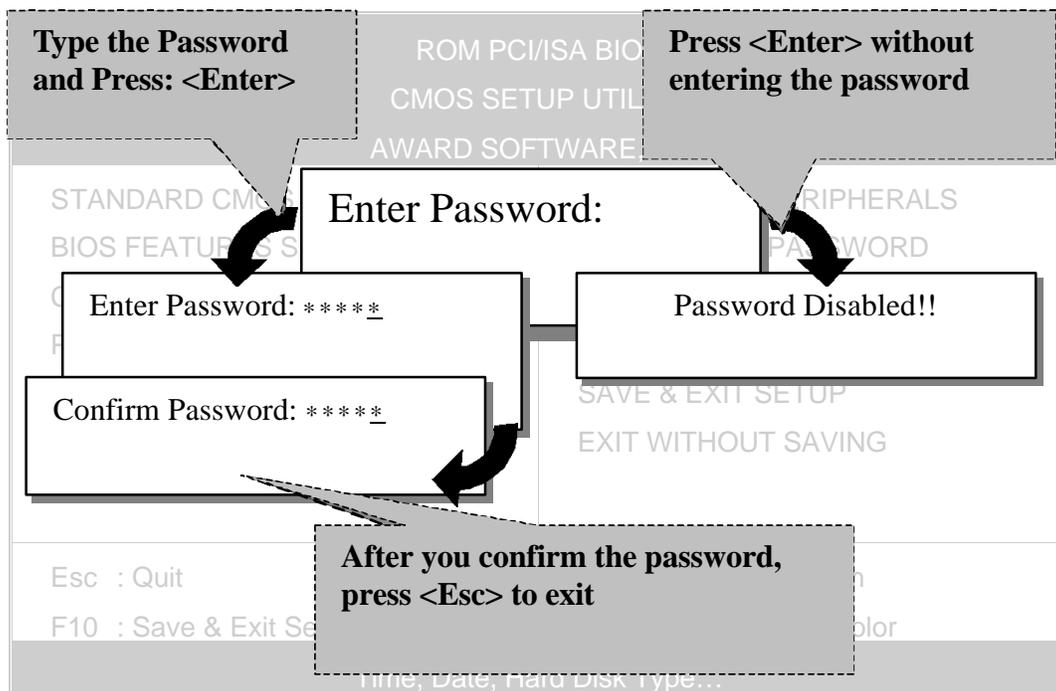
3-10 USER PASSWORD

When the user password option is on, you are not allowed to change
any setting in the [CMOS SETUP UTILITY] except for changing the
user's password.

The password setting procedure is similar to that for the
[SUPERVISOR PASSWORD] (Refer to section 3-9).

3-11 IDE HDD AUTO DETECTION

This Main Menu function automatically detects the hard disk type
and configures the STANDARD CMOS SETUP accordingly.

```
                    ROM PCI/ISA BIOS
                    CMOS SETUP UTILITY
                    AWARD SOFTWARE, INC.

HARD DISKS          TYPE  SIZE  CYLS  HEAD  PRECOMP   LANDZ   SECTOR  MODE
Primary Master    :

          Select Primary Master   Option (N=Skip)  :  N
     OPTIONS    SIZE    CYLS   HEAD   PRECOMP   LANDZ   SECTOR    MODE
     2(Y)       1707    827    64          0    3308       63 LBA
     1          1707    3309   16      65535    3308       63 NORMAL
     3          1707    827    64      65535    3308       63 LARGE
Note: Some Oses( SCO-UNIX Before v5.0) must use "NORMAL" for installation
                          ESC : Skip
```

Note: This function is only valid for IDE type of hard disk drives.

Chapter 4

DRIVERS INSTALLATION

Your SY-D6IGA Motherboard comes with a CD-ROM labeled "SOYO CD." The SOYO CD contains the user's manual file for your new motherboard, the drivers software available for installation, and a database in HTML format with information on SOYO motherboards and other products.

The SOYO CD Start Up Program automatically detects which SOYO motherboard you own and displays the corresponding model name.

Step 1. Insert the SOYO CD into the CD-ROM drive
The SOYO CD will auto-run, and the SOYO CD Start Up Menu will display as shown below.

Step 2. Install Drivers

Click the ***Install Drivers*** button to display the list of drivers software that can be installed with your motherboard. The Start Up program displays the drivers available for the particular model of motherboard you own. We recommend that you only install those drivers.

To display the list of all drivers software available with SOYO motherboards, click the ***Display all drivers on the SOYO CD*** button. Please make sure to install only the drivers adapted to your system, or otherwise this cause system malfunctions.

The following drivers are available for ***Windows® 95.***
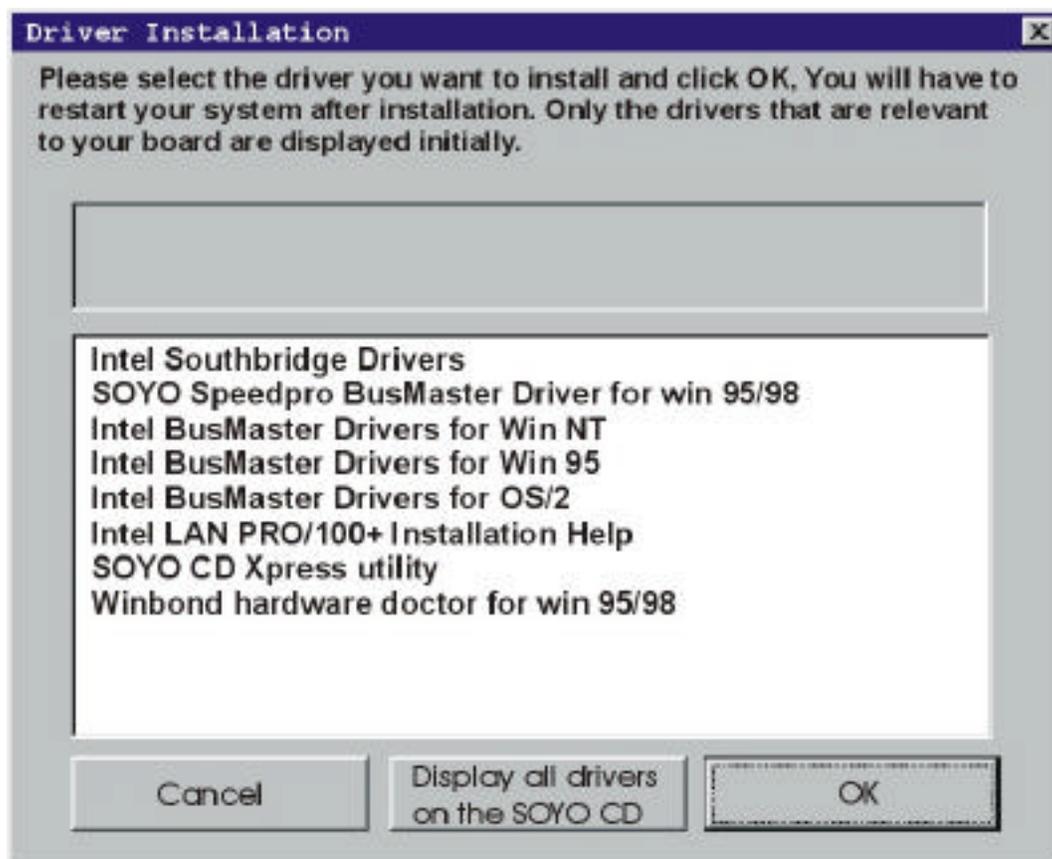
The following drivers are available for *Windows® 98.*
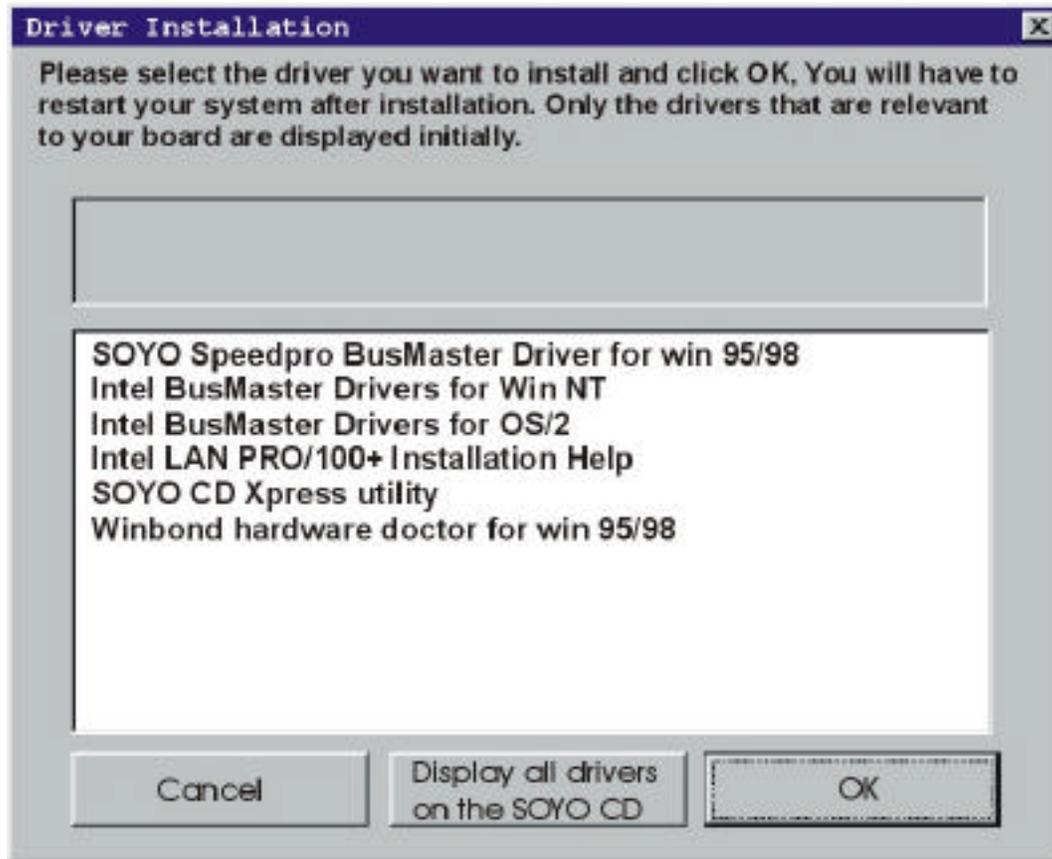
A short description of all available drivers follows:

➢ **Intel Southbridge Drivers**

Because Windows 95 does not recognize the Southbridge of the newer Intel chipsets (TX, BX, ZX etc) this utility has to be run, it will update the necessary Windows files. (Only for Windows 95)

➢ **SOYO SpeedPro Busmaster Driver for Win 95/98**

Without the busmaster drivers the CPU will need to be involved every time data is read from or written to the Harddisk. The busmaster drivers make use of DMA (Direct Memory Access) to relieve the CPU of this burden, thus speeding up the system.

The SOYO SpeedPro driver makes use of an advanced caching algorithm, which gives it an advantage over other busmaster drivers.

➢ **Intel Busmaster Drivers for Windows 95**

➢ **Intel Busmaster Drivers for Win NT**

➢ **Intel Busmaster Drivers for OS/2**

These are the official busmaster drivers as supplied by Intel.

Note: Do NEVER install two types of busmaster drivers on your system, this will lead to conflicts and system instability. Therefore, if you install the SOYO SpeedPro Busmaster driver you can NOT install the Intel Busmaster drivers. Before installing a new busmaster driver first UNINSTALL the old busmaster driver.

➢ **Intel LAN PRO/100+ Installation Help**

These are the electronic help files as provided by Intel, for more information on the installation of the Intel LAN PRO/100+ drivers, select this item and click 'OK'.

➢ **SOYO CD Xpress Utility**

This utility will enhance your CD-ROM Drive data-thoughput by using space on the Harddisk as cache. This way application programs can access data faster. This utility is suitable for Windows 95/98.

➢ **Winbond hardware doctor for Windows xx**

Your motherboard comes with a hardware monitoring IC. By installing this utility Temperature, Fan speed and Voltages can be monitored. It is also possible to set alarms when current system values exceed or fall below pre-set values.

Because the Hardware monitor comes with default monitoring settings that may not be appropriate to the configuration of the actual system, it is possible that the user will have to change some of these settings.

● **Core voltage**

The core voltage differs between generations of Intel CPUs, if the Hardware monitor gives a warning, the settings for the safe range of the core voltage has to be adjusted. This can be done by simply clicking and dragging the upper and lower limit bars.

For example:

Newer Slot 1 CPUs have a core voltage of 2.0V. Therefore, set the CPU Vcore limits to 1.8V and 2.2V. For 2.8V core voltage CPUs the limits would be 2.6V and 3.0V.

● **Fan speed**

The Hardware monitor can keep track of three fans. If the user does not use all fans, the fans that are not in use should be disabled in the Hardware monitor program, Otherwise the Hardware monitor will give an alarm. If this happens, make sure to disable monitoring for that fan.

***Note 1:* EZ-SCSI Utility**

The SOYO CD contains a SCSI utility (EZ-SCSI) for use with the onboard Adaptec® SCSI chip. The *EZ-SCSI Utility* is located in the *\drivers\EZ-SCSI* directory and is suitable for DOS or Windows 3.1 environment only. The manual file in PDF format for the EZ-SCSI Utility can be found at the following location: *Manual\EZ-SCSI.pdf* .

Note 2: However, to display the list of all drivers software available with SOYO Motherboards, click the ***Display all drivers on the SOYO CD*** button. Please make sure to install only the drivers adapted to your system, or otherwise this cause system malfunctions.

Step 3. Check the Latest Releases

Click the 'Check the latest Releases' button to go the SOYO Website to automatically find the latest BIOS, manual and driver releases for your motherboard. This button will only work if your computer is connected to the internet through a network or modem connection. Make sure to get your modem connection up before clicking this button.

Step 4. Select which driver you want to install and click *OK*

Notice 1: You may click ***Cancel*** to abort the driver installation and return to the main menu.

Notice 2: Once you have selected a driver, the system will automatically exit the SOYO CD to begin the driver installation program. When the installation is complete, most drivers require you to restart your system before they can become active.

Chapter 5

PRO/100+ ™LAN ADAPTER INSTALLATION

This section contains the installation notes for PRO/100+ Server and Client Adapters in **Microsoft, Novell,** and **Unix** operating systems.

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PRO/100+™ - Microsoft Installation Notes

Contents

- **Installing the PRO/100+ Driver When Installing Windows NT**
  - ➢ General Instructions
- **Windows NT 4.0 Installation Notes**
  - ➢ General Instructions
- **Windows NT 3.51 Installation Notes**
  - ➢ General Instructions
- **Windows 98 Installation Notes**
  - ➢ Manually Adding an Adapter in Windows 98
- **Windows 95 Installation Notes**
  - ➢ Determining Your Version of Windows 95
  - ➢ Advanced Configuration Parameters
  - ➢ Manually Adding an Adapter in Windows 95
  - ➢ Hints and Tips
- **Changing Adapter Settings with PROSet**
  - ➢ Other Settings
- **Windows for Workgroups 3.11 Installation Notes**
  - ➢ General Instructions
  - ➢ Hints and Tips

Installing the PRO/100+ Driver
When Installing Windows NT

This section describes how to install the PRO/100+ LAN driver when your are performing a first time Windows NT installation.

The *PRO/100+ LAN driver* is **not** embedded in the Windows NT 3.51 and 4.0 operating systems. Therefore, you must install this driver manually from the PRO/100+ adapter disk or CD.

Note: The *PRO/100+ LAN* driver for Windows NT (all versions) is contained in the *SOYO CD* that ships with your motherboard.

General Instructions

To complete the PRO/100+ LAN driver installation while installing Windows NT, follow these steps:

1. From the *Windows NT Setup* screen, select *Windows NT Server Setup.*

2.   To begin the search for network adapters in *Windows NT Server Setup,* click [Select from list ..].

3.   The list of network adapters embedded in the Windows NT installation disk appears.
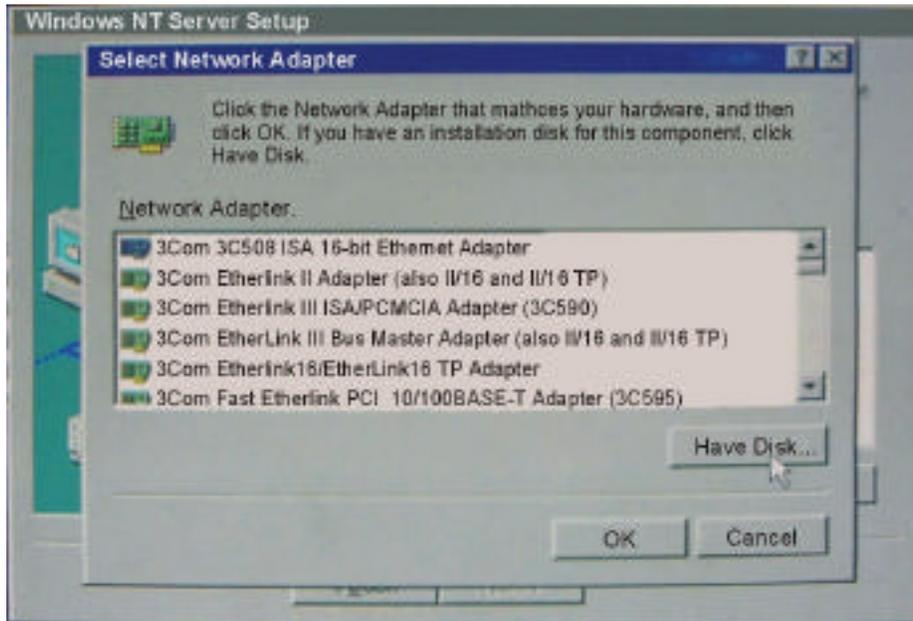
4.   Do ***not*** select an adapter from this list. Instead click [Have Disk ..] to select from the driver disk.
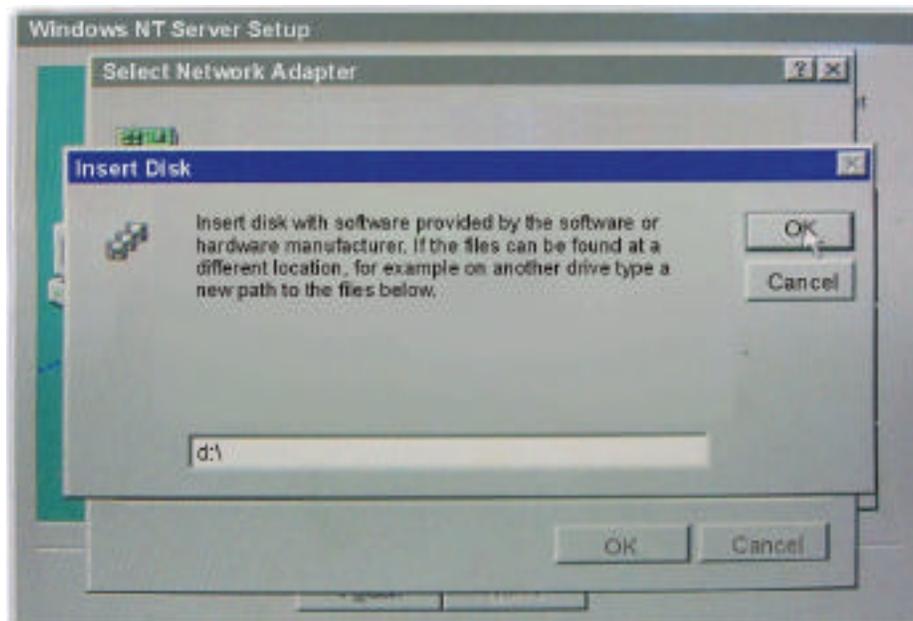
5. Type **"d:\"** in the *Insert Disk* dialog box, insert the *SOYO CD* into the appropriate CD-ROM drive, and click [OK].

6. When the list of adapter appears in the *Select OEM Option* dialog box, select **Intel® PRO Adapter** and click [OK].
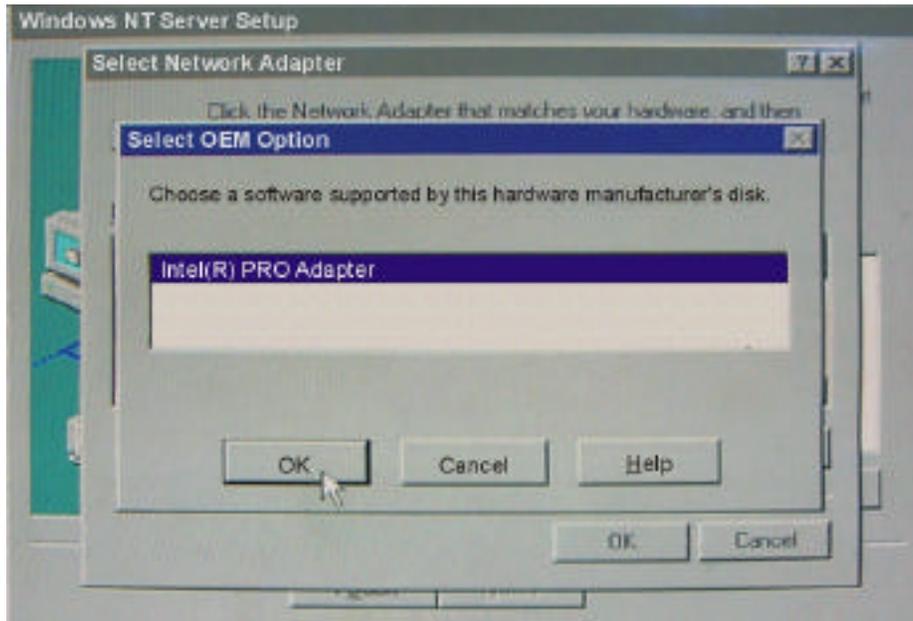
7. As *Windows NT Server Setup* screen returns, make sure that the *Network Adapters* dialog box displays *Intel® PRO Adapter.* If *Intel® PRO Adapter* is not checked, click once in the checkbox to mark it as ☑.
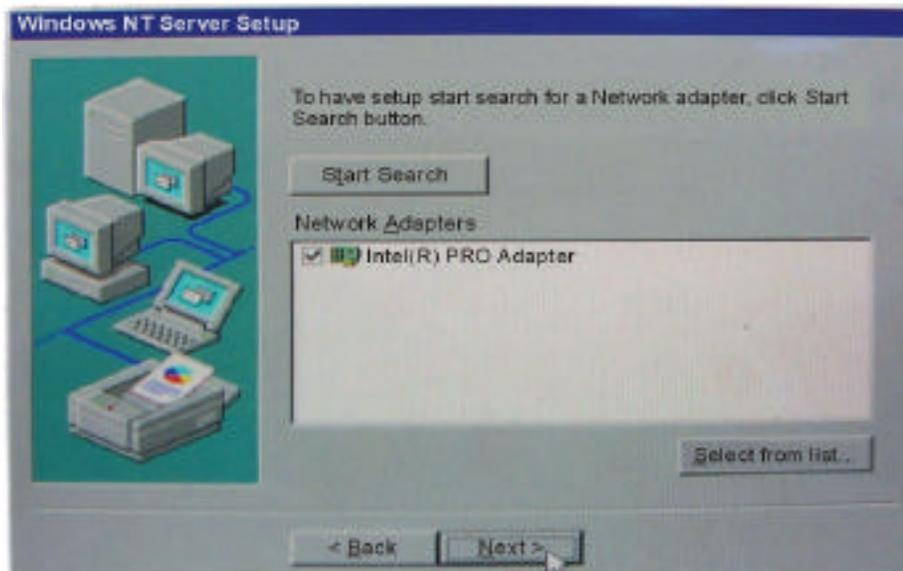
8.   Click [Next] to complete the driver installation.

9.   Take out the *SOYO CD* and insert the *Windows NT Installation CD* to continue the Windows setup process.
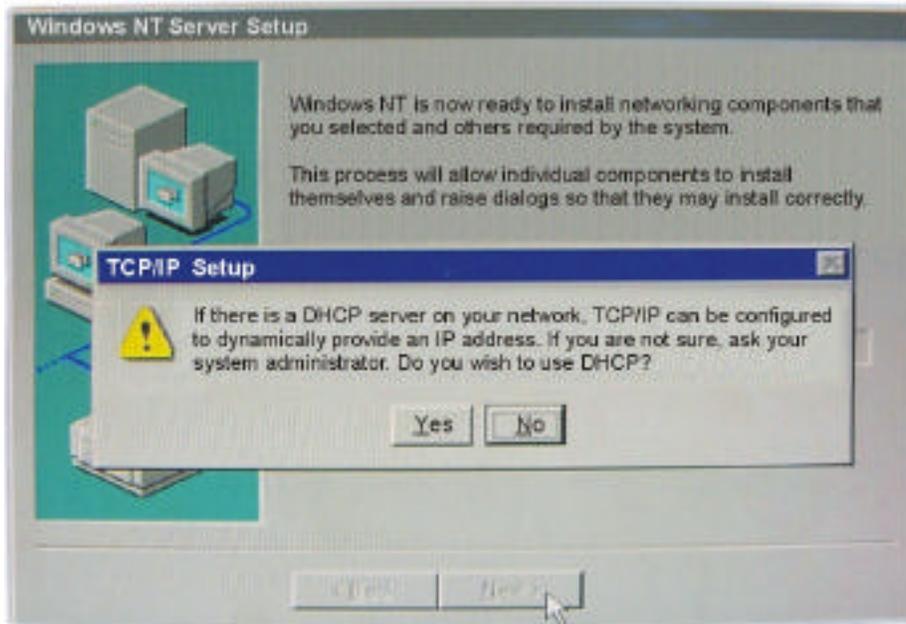
Windows® NT 4.0 Installation Notes

Location of Driver: **\ NT\E100BNT.SY_ (NDIS 4.0 compressed)**
                    \OEMSETUP.INF

Note: NT 4.0 ships with a driver for the *PRO/100B* adapter. However, you **must** install the more recent driver from the *PRO/100+* adapter disk or CD.

General Instructions

After installing the adapter in the computer, you will need to configure it under *Windows NT,* as instructed below:

1. Double-click the [Network] icon in the [Control Panel].

2. Select the *Adapter* tab.

3. Click [Add]. You will see a list of adapters.

4. Do **not** select an adapter from this list. Instead, insert the PRO/100+ adapter disk or CD into the appropriate drive and click [Have Disk].

5. Type *"D:\"* (for CD) or *"A:\"* (for floppy) in the dialog box and click [OK]. Then follow the prompts to complete installation. When the adapter is added you will see a new adapter listed in the *Network Adapters* list.

6. Click [Close] to finish and configure any protocols as prompted.

7. Restart Windows NT when prompted.

Windows® NT 3.51 Installation Notes

Location of Driver: **\E100B.SY_ (NDIS 3 compressed)**
                    \OEMSETUP.INF

General Instructions

After installing the adapter in the computer, you will need to configure it under *Windows NT,* as instructed below:

1.   Double-click the [Network] icon in the [Control Panel].

2.   Click the [Add Adapter] button.

3.   Do **NOT** select an Intel adapter from the list. Instead, scroll to the end of the list and select:
     [Other] *(Requires disk from manufacturer.)*

4.   Click the [Continue] button.

5.   Insert the Intel PRO/100+ disk or CD into the corresponding drive, specify that drive, and click [OK].

6.   Select the name that corresponds to the adapter you are installing and click [OK].

7.   Click [OK] in the *Network Settings* dialog. Other configuration screens may appear. Configure as desired. When prompted, restart Windows NT.

Note: The NDIS 3 miniport driver will automatically get installed in Windows NT 3.51.

Windows® 98 Installation Notes

Location of Driver: **\E100BNT5.SY_ (NDIS 5.0 compressed)**
Location of Setup File: **\NET82557.INF**

Manually Adding an Adapter in Windows 98

If the *New Hardware Found* dialog box does not appear at startup and you cannot connect to the network, check the *Device Manager* list to verify if the new adapter is present. If it is missing from the *Device Manager* list, follow these steps to configure the new adapter:

1. From the [Control Panel], double-click the [System] icon.

2. Click the *Device Manager* tab.

3. Double-click [Other Devices] or [Network Adapters] in the list area.

4. Double-click a *PCI Ethernet Controller.*

5. Click the *Driver* tab, then click [Update Driver].

6. Click [Next] at the *Update Device Driver Wizard.*

7. Select *"Search for a better driver..."* and click [Next].

8. Insert the PRO/100+ adapter disk and select *"Specify a location",* then enter the appropriate drive for your disk media (*A:, D:\,* etc.), and Click [Next].

9. The *Update Wizard* displays the message that it has found the driver *D:\ NET82557.INF* (where *D:* is your media drive). Click [Next].

10. Click [Finish].

11. Now restart your computer.

Note: At this point, you may be required to insert the Windows 95/98 CD. Insert the CD when prompted by the system.

Windows® 95 Installation Notes

Location of Driver: **\NT\E100BNT.SY_ (NDIS 4.0 compressed)**
Location of Setup File: **\NET82557.INF**

Determining Your Version of Windows 95
Follow the steps below to determine which version of Windows 95 is running on your system:

1.　Click on the [Start] button.

2.　Select [Settings].

3.　Select the [Control Panel].

4.　Double-click on the [System] icon. The *System Properties* dialog box opens.

5.　Select the *General* tab. Information about your system is displayed, including the version of Windows 95 you are running, under *System.*

Advanced Configuration Parameters
An advanced configuration utility called **PROSet** was installed on your system when you installed the PRO/100+ adapter. To start *PROSet,* double-click on the [PROSet] icon in the Windows control panel. For additional information, click [Help] in the *PROSet* window. The defaults specified for the adapter work correctly for most configurations. When making changes to any adapter settings, be sure to use **PROSet** rather than the *Advanced* tab under *Properties* in the Network control panel.

Manually Adding an Adapter in Windows 95
(For version 950B Only)

If the *New Hardware Found* dialog box does not appear at startup and you cannot connect to the network, check the *Device Manager* list to see if the new adapter is present. If it is not, follow these steps:

1.   From the [Control Panel], double-click the [System] icon.

2.   Click the *Device Manager* tab.

3.   Double-click [Other Devices] (question mark icon) in the list area.

4.   Double-click a *PCI Ethernet Controller.*

5.   Click the *Driver* tab, then click [Update Driver].

6.   Insert the *Configuration and Drivers* disk or CD in the appropriate drive, and at the *Update Device Driver Wizard,* select [Yes] and click [Next].

7.   Select *"Network adapter"* and click [Next].

8.   Click [Have Disk], insert the *Configuration and Drivers* disk in the appropriate drive, type *"D:\"*, and click [OK].

9.   At the *Select Device* dialog box, select *"INTEL 82558"*, and click [OK] again.

10. Fill out the correct configuration for your network if Windows requires such information.

11. Follow any prompts for Windows 95 installation disks and restart when prompted.

Note: The Windows 95 system files are typically available on the Windows 95 CD in the *"win95"* directory (*D:\win95*).

Changing Adapter Settings with PROSet ™

There are two ways to run **PROSet** which allows changing the adapter settings.
- From the *Control Panel,* double-click on the [PROSet] icon.
- From the *Control Panel*, double-click on the [Network] icon, select the *Adapters* tab, and double-click on the *"Intel(R) PRO/100+ PCI Adapter"*.

From the main *PROSet* menu, you can click the *Advanced* tab to view and modify adapter settings. The defaults work correctly for most configurations. The following table lists the PROSet parameters that can be configured in the *Advanced* menu.

PROSet Parameter	Description
Speed Recommended Setting **[Auto Detect] (default)**	This parameter lets the PRO/100+ adapter know what speed to use on the Ethernet connection. The choices are **10 Mbps, 100 Mbps,** and **Auto Detect.** In *Auto Detect* mode, the adapter detects if its networking environment can support 100 Mbps speed. It then sets the speed to 100Mbps if so, or otherwise to 10Mbps. **Note:** If you want to choose a *Duplex Mode* other than Auto Detect, you must set the speed to either 10 Mbps or 100 Mbps.
Duplex Recommended Setting **[Auto Detect]**	**Auto Detect** **Auto Detect:** The adapter negotiates with the hub or switch how to send/ receive packets, either full or half duplex. **Full-Duplex:** The adapter sends and receives packets at the same time. This improves the performance of your adapter. Set duplex mode to full duplex only if you have a switch that also supports full duplex. **Half-Duplex:** The adapter performs one operation at a time. It either sends or receives. *Note: In order to allow changing the Duplex mode, you must set the Speed to either 10 Mbps or 100 Mbps.* The PRO/100+ adapter has the ability to send and receive packets at the same time (full-duplexing) at both 10 and 100 Mbps. In order to reap the benefits of full duplexing, you MUST have a full duplex hub or switch. The PRO/100+ adapter has the added ability to "talk" to the hub or switch and determine at which mode to communicate (either full or half duplex). This is called **auto-negotiation.** You must have an auto-negotiating hub or switch to get full duplex support with the Duplex Mode set to Auto. If you don't have an auto-negotiating hub or switch and want to run at full duplex, set Duplex Mode to Full and then set the SPEED parameter to either 100 Mbps or 10 Mbps. The PRO/100B T4 adapter can not operate in full duplex mode at 100 Mbps. The PRO/10+ PCI adapter can only operate in full duplex mode at 10 Mbps and only on the TPE connector. The PRO/10+ PCI adapter does not support auto-negotiation; it will run at half duplex unless forced.
Other Settings	**For information on other settings in the PROSet Advanced tab, use PROSet's context-sensitive online help.**

Windows®for Workgroups 3.11 Installation Notes

Location of Driver: **\WFW\E100B.38_**
Location of Setup File:**\WFW\OEMSETUP.INF**

General Instructions

Before You Begin: If your adapter was shipped with a CD, create an installation diskette from the CD before starting the installation procedure. Put the CD into your CD-ROM drive and a blank formatted diskette into a diskette drive. Run the **MAKEMS.BAT**from the *MAKEDISK* directory on your CD. The command syntax is **MAKEMS <source drive> <destination diskette>.**
Example: MAKEMS D: A:

Note: If you are running Novell NetWare on this workstation, see the *Novell NetWare* section of *Hints and Tips* below before continuing with this installation.

Follow these steps, to perform the installation for Windows Workgroups 3.11:

1.   Double-click the [Network Setup] icon in the *Network Group.*

2.   If you are replacing a previous LAN adapter, click the [Remove] button to delete that adapter.

3.   Click the [Networks] button. Select [Install Microsoft Windows Network] and click [OK].

Optional 1: To add Novell NetWare support to this workstation, click [Other], then select [Novell NetWare Shell 3.x] if you are using *NETX,* or select [Novell NetWare Shell 4.x] if you use *VLMs.* Click [OK].

Optional 2: To share files and printers on this workstation, click the [Sharing] button, then click on [OK].

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4.   Click the [Drivers] button.

5.   Click the [Add Adapter] button. Select [Unlisted or Updated Network Adapter] and click on [OK].

6.   Insert the adapter driver disk in the drive and specify the path ***<drive>:\WFW*** for the location of the driver.

7.   Select the *"Intel PRO/100+ PCI"* adapter from the list box and click [OK].

8.   Specify the correct speed for your network. If you are using the TX-based adapter, specify the correct duplex mode. If you are unsure of the correct settings, contact your Network Administrator.

Notice 1: If you set the PRO/100+ TX adapter to FULL duplex and you are running at 100 Mbps, you must change your speed setting to 100.

Notice 2: These options will not come up if you already have the NetWare ODI driver installed. These settings are set in the *NET.CFG* file.

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9.   The driver and default protocols will appear in the *Network Drivers* window. If you need to add or remove a protocol, do so here.

10.   In the *Network Drivers* window, click [Close].

11.   In the *Network Setup* window, click [OK].

12.   In the *Microsoft Windows Network Names* window, enter a unique user name, the name of your new or existing workgroup, and a unique computer name for your workstation, then click [OK].

85

13. Choose [Yes To All] when *WFW* asks if you want to replace the files currently installed with the versions you are installing now.

14. Insert the *WFW* disks, as required. If prompted for the NetWare files, insert the *Novell* disk containing the drivers for the Novell file *WINDR3.EXE.*
    If prompted for the path of *E100B.386,* insert the *Configuration and Drivers* disk into a drive and for the path, type:
    "A:\WFW" or *"D:\WFW"* if using the CD-ROM.
    If prompted for the path of *E100B.DOS,* specify: *"A:\DOS"* or *"D:\DOS"* if using the CD-ROM.

15. When finished updating the files, *WFW* reports that it modified several files. Click on [OK]. *WFW* changes your last drive to *P:.* If you want to change this setting, do so in your *CONFIG.SYS* file. *WFW* also modifies your *NET.CFG* file (for NetWare users). Check this file to make sure your frame types load in the correct order for your network.

16. When *WFW* prompts you to restart your computer for the changes to take effect, click on [Restart Computer].

Hints and Tips

General

1. If you are installing multiple *PRO/100* adapters in *WFW,* follow the instructions above for installing each adapter. Then, enter the adapter's *12-digit hexadecimal Ethernet address* in the *[IN$E100B]* and *[IN$E100B1]* sections of the *PROTOCOL.INI* file. (The Ethernet address is printed on a sticker placed on the adapter. For dual-port adapters, increment the Ethernet address by 1 for the Ethernet address of the second port.)

Novell NetWare

1. Before you begin installing driver support for *WFW* and *Novell NetWare* on the same workstation, you will need these Novell NetWare files:

    NETWARE.DRV,

    NETWARE.HLP,

    NWPOPUP.EXE,

    VIPX.386,

    and VNETWARE.386.

    You may obtain these files by one of the following ways:

    a. Download the self-extracting file *WINDR3.EXE* from *Novell NetWare forum* on CompuServe or *Novell's FTP server* on the Internet *(ftp.novell.com)* or WWW *ftp://ftp.novell.com/pub/updates/nwos/dsclnt12).*

    b. Contact *Novell* to have the files sent to you.

    c. Contact a Novell NetWare dealer in your area.

2. Set up the workstation to connect to NetWare using the *DOS ODI* client driver.

3. Load the *ODI* driver and login to your NetWare server.

4. Start *WFW* and set up the driver for the *PRO/100+* adapter by following the instructions shown above. When the driver is chosen, *WFW* detects the *ODI* driver that is already loaded and automatically installs the appropriate support. Next to the adapter name in the *Network Drivers* window, you will see [ODI/NDIS3], which indicates it recognized the *ODI* driver.

> ### *PRO/100+™ - All NetWare Products Installation Notes*

Installation Notes for PRO/100+ Server and Client Adapters in *Novell NetWare* Operating Systems.

Contents

- **Netware 3.12 and 4.10 Server Driver Installation Notes**
  - ➢ Sample Load Commands
  - ➢ General Instructions
  - ➢ Hints and Tips
- **Netware 3.11 Server Driver Installation Notes**
  - ➢ Overview
  - ➢ Sample Load Commands
  - ➢ General Instructions
  - ➢ Hints and Tips
- **Netware Client 32 for Windows 95**
  - ➢ General Instructions
- **Netware Client 32 for DOS/Windows 3.1x**
  - ➢ General Instructions
  - ➢ Hints and Tips
  - ➢ Sample Configurations
- **Netware OS/2 ODI Client Driver Installation Notes**
  - ➢ Sample Configuration Files
  - ➢ Introduction
  - ➢ General Instructions
  - ➢ Hints and Tips
  - ➢ NET.CFG Optional Parameters
  - ➢ Detailed Example
- **Netware DOS ODI Client Driver Installation Notes**
  - ➢ Quick Installation
  - ➢ Sample Configuration Files
  - ➢ General Installation for NetWare 3.11/3.12 Clients
  - ➢ General Installation for NetWare 4.1/3.12 Client with VLMs
  - ➢ NET.CFG Optional Parameters
  - ➢ Detailed Example
- **Netware Client Services for Windows NT 4.0 Using ODI Server Driver**
  - ➢ General Instructions

88

Netware 3.12 and 4.10 Server Driver Installation Notes

Location of driver: **\NWSERVER\3X4X.OLD\E100B.LAN**
                        (ODI Assembly Specification version 3.3)

Location of NLMs: **On Novell's automated services**
                      (ODI33F.EXE or greater)

Note: ODI33x.EXE is a *Novell* archive that contains the latest server *NLMs* and support files. The *x* in *ODI33x.EXE* is subject to change with each new release of the archive.

These instructions are for use with the *ODI Assembly Specification v3.31 NLMs.* The *\NWSERVER\E100B.LAN* driver on this disk is written to this specification. To load the driver on NetWare 4.10 or 3.12 requires updated *ETHERTSM, MSM* and the new *NBI.NLM.* Obtain these files from *Novell's automated services.*

● **For NetWare 4.10:**
  ➢ NBI.NLM (ver 1.64, 08/29/97 or newer)
  ➢ MSM.NLM (ver 3.71, 12/02/97 or newer)
  ➢ ETHERTSM.NLM (ver 3.61, 12/08/97 or newer)

● **For NetWare 3.12:**
  ➢ NBI31X.NLM (ver 1.64, 08/29/97 or newer)
  ➢ MSM31X.NLM (ver 3.71, 12/02/97 or newer)
  ➢ ETHERTSM.NLM (ver 3.61, 12/08/97 or newer)

Notice1: NBI.NLM (or NBI31X.NLM) must be loaded before *MSM* and *ETHERTSM.*
Notice2: NetWare 3.12 needs *MSM31X.NLM* renamed to *MSM.NLM.*

Important: When using command line options with the *.LAN* driver for *NWSERVER,* make sure the equal sign is followed by a value. Otherwise, unpredictable results may occur.

General Instructions

1. Install *NetWare 3.12* or *4.10* according to the NetWare instructions.

2. Copy the *PRO/100+* server driver *(\NWSERVER\E100B.LAN)* and any updated *NLMs,* to the NetWare server's hard drive.
   - If you can't log in to the server (before starting the server) copy the E100B.LAN driver from the \NWSERVER directory on the Configuration and Drivers disk to the root directory of the server's hard drive.
   - If you can log into the server, copy the driver to the SYSTEM subdirectory. If you do this, you won't need to specify a path on the load line. If you copy it to another directory, make sure the LOAD statement includes the correct path.

3. Start the server. At the server console, load *NBI, MSM* and *ETHERTSM* (for *NetWare 3.12* load *NBI31X, MSM31X* and *ETHERTSM*) in this order.
   Next, load and bind the server driver as follows:
   LOAD C:<PATH>\E100B SLOT=x FRAME=ETHERNET_802.2
   BIND IPX TO E100B NET=xxxxxxxx
   Where:
   SLOT=x Specifies the *NBI (NetWare Bus Interface)* slot number. Substitute **x** with the valid value for the adapter. You will be prompted with the slot number(s) of installed PRO/100+ adapters. The *NBI* numbers are different from the slot number indicated in the *SETUP.EXE* utility.

NET=xxxxxxx is the unique network address for that LAN segment.

The default frame type is *802.2*. If your workstation needs to use the *802.3* frame type, see the section later in this document about using multiple frame types on one adapter.

4. Add the load and bind statements you need to the server's *AUTOEXEC.NCF* file so the PRO/100+ adapter driver loads automatically each time the server starts.

Hints and tips

1. If the error message:

   "Loader cannot find public symbol: <symbol name>"
   is encountered then:
   Upgrade the *ETHERTSM.NLM* and *MSM31x.NLM* and be sure to rename *MSM31x.NLM* to *MSM.NLM.*

2. Installing multiple adapters:

   If you have multiple adapters in a single server, each adapter must have a different *NET* number and *SLOT* number. Also, you may want to name each adapter. For example:

   LOAD C:\E100B SLOT=3 NAME=LAN_A
   BIND IPX TO LAN_A NET=222
   LOAD C:\E100B SLOT=4 NAME=LAN_B
   BIND IPX TO LAN_B NET=333

3. If you have problems loading the driver on multiple adapters and the initialization fails due to *"Insufficient RCBs,"* increase the number of buffers allocated to the server. Add the following to *STARTUP.NCF:*

   SET MINIMUM PACKET RECEIVE BUFFERS = 100 (or larger)
   SET MAXIMUM PACKET RECEIVE BUFFERS = 500 (or larger)

The *MINIMUM* value you specify must be at least *30 times* the number of PRO/100+ adapters in the computer. Recommended settings are:

1-3 adapters: **100**

4 adapters: **150**

The *MAXIMUM* you can specify depends on the amount of memory in the server, but it must be greater than the *MINIMUM.*

4. Installing one adapter with multiple frame types:
    When binding multiple frame types to one adapter, enter a *LOAD* and *BIND* statement for each frame type. Each *LOAD* statement uses the same *SLOT* number, but each *BIND* statement needs a unique network number.
    You must also include a name on each load line to avoid being prompted for the adapter to bind *IPX* to.
    Example:
    LOAD C:\E100B SLOT=3 FRAME=ETHERNET_802.2 NAME=LAN8022
    BIND IPX TO LAN8022 NET=88888
    LOAD C:\E100B SLOT=3 FRAME=ETHERNET_802.3 NAME=LAN8023
    BIND IPX TO LAN8023 NET=77777

5. Optional *LOAD* line parameters:
    See the *NetWare Server Parameters readme (NWPARAM.TXT)* for additional information.

Netware 3.11 Server Driver Installation Notes

Location of driver: **\NWSERVER\311LAN\E100B.LAN**
                           (ODI 3.2 Assembly Specification driver)
Location of NLM's: **On Novell's automated services.**

ETHERTSM.NLM	**04-18-95**
LSLENH.NLM	**12-21-94**
PATCHMAN.NLM	**01-22-96**
MSM31X.NLM	**11-23-94**
MONITOR.NLM	**10-26-92 (v1.75 or higher, otherwise abends will occur)**

Note: *NetWare 3.1x* needs *MSM31X.NLM* renamed to *MSM.NLM.*

Overview

NetWare 3.11 requires an *ODI 3.2 Assembly Specification* driver. This driver is in the *WWSERVER\311LAN* directory of the *Configuration and Drivers* disk. The directory contains the following files:

● E100B.LAN (3.2 spec server driver)
● E100B.LDI (Installation file)
● NW311.TXT (This file)

Sample Load Commands

➢ LOAD C:<PATH>\PATCHMAN
➢ LOAD C:<PATH>\LSLENH
➢ LOAD C:<PATH>\MSM
➢ LOAD C:<PATH>\ETHERTSM
➢ LOAD C:<PATH>\E100B SLOT=n FRAME=ETHERNET_802.3
➢ BIND IPX TO E100B NET=xxxxxxxx

General Instructions

1. Install NetWare 3.11 according to the *NetWare 3.11 installation manual.*

2. Copy the *E100B.LAN* server driver and any updated *NLMs* to the *NetWare server's hard drive.*
    -   If you can't log in to the server (before starting the server) copy the *E100B.LAN* driver to the root directory of the server's hard drive.
    -   If you can log into the server, copy the files to the *SYSTEM* subdirectory. If you do this, you won't need to specify a path on the load line. If you copy it to another directory, make sure the *LOAD* statement includes the correct path.

3. Modify the server's *STARTUP.NCF* to pre-allocate server buffers with the following:
    SET MAXIMUM PHYSICAL RECEIVE PACKET SIZE = 2048 (or larger)

4. Start the server. At the server console, issue the load and bind statement.
    LOAD C:<PATH>\PATCHMAN
    LOAD C:<PATH>\LSLENH
    LOAD C:<PATH>\MSM
    LOAD C:<PATH>\ETHERTSM
    LOAD C:<PATH>\E100B SLOT=x FRAME=ETHERNET_802.3
    BIND IPX TO E100B NET=xxxxxxxx
    Where:
    SLOT=x specifies the *PCI device number.* Substitute **x** with the valid value for the adapter. You will be prompted if you don't specify a slot number.
    NET=xxxxxxxx is the unique network address for that LAN segment.
    The default frame type is *802.2.* If your workstations needs to use the *802.3* frame type, see the section later in this document about using multiple frame types on one adapter.

94

5. Add the load and bind statements you need to the server's *AUTOEXEC.NCF* file so the *PRO/100+* adapter driver loads automatically each time the server starts.

Hints and Tips

1. Installing multiple adapters:
   If you have multiple adapters in a single server, each adapter must have a different *NET* number and *SLOT* number. Also, you may want to name each adapter. For example:
   LOAD C:\E100B SLOT=3 NAME=LAN_A
   BIND IPX TO LAN_A NET=222
   LOAD C:\E100B SLOT=4 NAME=LAN_B
   BIND IPX TO LAN_B NET=333

2. If you have problems loading the driver on multiple adapters and the initialization fails due to *"Insufficient RCBs,"* increase the number of buffers allocated to the server.
   Add the following to *STARTUP.NCF:*
   SET MINIMUM PACKET RECEIVE BUFFERS = 100 (or larger)
   SET MAXIMUM PACKET RECEIVE BUFFERS = 500 (or larger)
   The *MINIMUM* value you specify must be at least *30 times* the number of *PRO/100+* adapters in the computer.
   Recommended settings are:
   1-3 adapters: 100
   4 adapters: 150
   The *MAXIMUM* you can specify depends on the amount of memory in the server, but it must be greater than the *MINIMUM.*

3. Installing one adapter with multiple frame types:
   When binding multiple frame types to one adapter, enter a *LOAD* and *BIND* statement for each frame type. Each *LOAD* statement uses the same *SLOT* number, but each *BIND* statement needs a unique network number.

You must also include a name on each load line to avoid being prompted for the board to bind *IPX* to.

Example:

LOAD C:\E100B SLOT=3 FRAME=ETHERNET_802.2 NAME=LAN8022

BIND IPX TO LAN8022 NET=88888

LOAD C:\E100B SLOT=3 FRAME=ETHERNET_802.3 NAME=LAN8023

BIND IPX TO LAN8023 NET=77777

4. Optional *LOAD* line parameters:

See readme *NWPARAM.TXT* titled *NetWare Server Parameters* for additional information.

Netware Client 32 for Windows 95

Use of *Client 32* for *Windows 95* with the 32-bit ODI driver is no longer supported by *Novell* or *Intel.* While it may still work, no testing or effort has been made to validate it. Please use the appropriate *NDIS* driver for *Client 32.*

Netware Client 32 for DOS/Windows 3.1x

General Instructions

1. From the *Novell NetWare Client 32* software, run *INSTALL.EXE.*

2. Select the *NetWare Client 32* products you want to install on your workstation from the list:

   [X] NetWare Client 32 for DOS
   [X] NetWare Client 32 for Windows
   [ ] NetWare TCP/IP protocol stack
   [ ] NetWare IP (TCP/IP Required)
   [ ] Desktop SNMP
   [ ] HOSTMIB for SNMP (SNMP Required)
   [ ] NetWare TSA for SMS

Note: "NetWare Client 32 for DOS" and *"NetWare Client 32 for Windows"* are usually selected by default.

3. From the *Customize Support for Windows* menu, specify if you want to use multiple country codes or if you want to set the shared Windows path. The default for both of these is [NO].

4. From the *Select LAN Driver Type* menu, select *"32-bit LAN drivers".*

5. From the *32-Bit Network Board Drivers* menu, select:
   "USER SPECIFIED 32 BIT DRIVER".
   Insert the driver diskette and type *"<drive>:\NWSERVER".*
   Select:
   "Intel EtherExpress PRO/100+ LAN Adapter"

6. *(Optional)* Specify the following settings for the PRO/100+
   adapter:

Parameter	Default
Speed (100B only)	0 (auto detect)
IOMAPMODE	Memory Mapped
Forceduplex	0 (auto negotiate)
Frame Type	Ethernet_802.2 Ethernet_802.3

   Note: The default settings will work for most installations. If you
   use multiple frame types, please see *Hints and Tips* section
   below.

7. From the Installation Configuration Summary, verify the default
   settings for Client 32 are correct, or modify as necessary.
   Modify AUTOEXEC.BAT and CONFIG.SYS: **[YES]**
   Client Directory: **C:\NOVELL\CLIENT32**
   Windows Directory: **C:\WINDOWS**
   LAN driver type: **32-bit LAN drivers**
   LAN driver: **Intel EtherExpress ™PCI Adapters**

8. *Novell NetWare* will now copy the files to your workstations and
   modify the configuration files to match your selected
   configuration.

Hints and tips

1. If you are using multiple frame types, you will get the following message when you load the driver:

   "Do you want to load another frame type for a previously loaded board? Y/N"

   The way to avoid this is to add the slot number to the load line for the driver in the *STARTNET.BAT* (by default it is located in the *\NOVELL\CLIENT32* directory). The only way to determine the slot number Novell is expecting is to put an invalid value on the load line. For example (and the load line should be all on one line):

   LOAD C:\NOVELL\CLIENT32\E100B.LAN SPEED=0 IOMAPMODE=0 FORCEDUPLEX=0 FRAME=ETHERNET_802.2 SLOT=e

   When you next reboot, you will be prompted with the correct value.

   Modify the *STARTNET.CFG* again, and use that value. If the slot is not specified correctly, only the first frame type will load. You can remove the parameters for *Speed, Forceduplex* and *Iomapmode* if you want to use the default. This may make your *STARTNET.BAT* file easier to use.

2. Check for a *LASTDRIVE* statement in the *CONFIG.SYS* file. You must have *LASTDRIVE=Z* in *config.sys* when using *Client 32.*

3. Verify that you have *FIRST NETWORK DRIVE = F* in the *NET.CFG* file under the *NetWare DOS Requester* section.

Note: *NET.CFG* is position sensitive, so be careful to indent lines with one space or one tab as shown above in the example.

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4. Verify that the *PRO/100+* adapter passes the diagnostics test by running *SETUP.EXE* on the *Configuration and Drivers* disk. If the adapter fails diagnostics it will not function correctly running *Client 32.*

99

5. Using 16-bit ODI driver with Client 32 requires CLIENT32.NLM dated 10/09/96 or later. The driver will not load with older versions.

6. If you encounter the error message:

    "An attempt to load E100B.LAN failed because the module references an undefined external: MSMHardwareFailure"

    when the driver loads, you need to update the *NetWare client* files. Download *ODI33x.EXE* (where x=latest revision number) from *Novell's electronic services* and run the update utility.

Netware OS/2 ODI Client Driver Installation Notes

Introduction

To connect an *OS/2* workstation to a *NetWare* server, you must have the latest version of the *Novell NetWare Requester for OS/2* and the *PRO/100+ adapter OS/2 ODI* driver.

These installation instructions assume you're using the *INSTALL* program that ships with *Novell's OS/2 requester.* For more information about *OS/2* workstations, see the *Novell manual, "NetWare Requester for OS/2."*

Note: If you're running *IBM OS/2 2.0, 2.1* or *Warp,* you must have the *OS/2 Requester version 2.01* or later.

Before You Begin

If your adapter was shipped with a CD, you can create an installation diskette from the CD before starting the installation procedure. Put the CD into your CD-ROM drive and a blank formatted diskette into a diskette drive. Run the *MAKENW.BAT* from the *MAKEDISK* directory on your CD. The command syntax is *MAKENW <source drive> <destination diskette>.*
Example; ***"MAKENW D: A:"***

General Instructions

1.   Run Novell's *INSTALL* utility on the *OS/2 requester* disk and follow its instructions. If asked for the name of the network interface driver, enter ***"E100BODI.SYS"***.

2.   Choose the session support you need. This is based on your configuration. See the *NetWare Requester* manual if you need help.

3.   Save the configuration.

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4.   When asked for the path and filename for the driver, insert the *Configuration and Drivers* disk into the drive and press <Enter>.

5.   After completing the installation section, choose *CONFIGURATION* from the main menu. Then choose *THIS WORKSTATION.* This allows you to modify the *NET.CFG* file. (*NET.CFG* must reside in the root directory.)

Note: The default frame type for *E100BODI.SYS* is *802.2.* If you're using the *802.3* frame type, you have to include a *FRAME* statement in the *NET.CFG* file. List the *802.3 FRAME* type first in the *NET.CFG* file.

Netware DOS ODI Client Driver Installation Notes

Quick Installation

Use the *Automatic* setup option in the *SETUP* utility on the *Configuration and Drivers* disk to quickly and easily install the *ODI* driver using *NETX.* For workstations using *VLM*'s, see the *VLM client* section below.

Note: This version of *E100BODI.COM* requires *VLM client version 1.21* or higher. You can download this version from *Novell's electronic services.* It is comprised of 6 archives named *VLM121_x.EXE* where *x* equals *1-6.*

General Installation for NetWare 3.11/3.12 Clients

All the files necessary to connect to the *NetWare* servers are supplied on the *Configuration and Drivers* disk. Newer versions of the shell files *(LSL.COM, IPXODI.COM, NETX.EXE)* may be available from *Novell.*

1.   From the *\DOS* directory on the *Configuration and Drivers* disk, copy the following files onto your hard drive:
     LSL.COM, E100BODI.COM, IPXODI.COM, NETX.EXE, and **NET.CFG.**

2.   Add the commands to your *AUTOEXEC.BAT* file as shown above under the *Sample Configuration Files* section. Make sure you change to the subdirectory where the drivers are loaded before executing the files.
     In the example above, the drivers are located in the *NWCLIENT* subdirectory.

103

3.   Edit the *NET.CFG* file per your requirements.

●   If you don't know which frame type to load, type ***"CONFIG"*** at your file server console to see which frame type your file server is loading and load one of these frame types on the workstation.

●   If you list two or more *NetWare* frame types in the *NET.CFG,* the first frame type will bind to the *IPX* protocol.

●   The *NET.CFG* file should be in the same directory as the adapter driver.

●   If you're running *EMM386,* make sure you are using *v4.49* or later. It's the version that ships with *DOS 6.22.*

4.   Reboot the computer and the drivers will load and connect you to the network.

General Instructions for IntranetWare 4.11 Client with VLMs

The installation of the *NetWare 4.11* client software is much easier than earlier versions. The installation procedure transfers files to a specific directory on the workstation and creates or modifies existing configuration files to fit your specific needs. The installation utility, *INSTALL.EXE,* is located on the IntranetWare distribution CD in *\PRODUCTS\VLM\IBM_6* (or *\PRODUCTS\VLMIP\IBM_6* for the *TCP/IP* client).

The install program is also located in *\PUBLIC\CLIENT\DOSWIN* on the server. *NetWare 3.12* does not automatically create this directory on the server during installation.

General Instructions for NetWare 4.1/3.12 Client with VLMs

Installation procedure for NetWare 4.1/3.12 client with VLMs

1.   Run *INSTALL.EXE* on the workstation you are configuring. It can be found on the *NetWare Workstation for DOS* disk.

Note: *INSTALL.EXE* must be *version 1.22* or greater. This version is supplied with *IntranetWare 4.11.*

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2.   The *NetWare Client Install* program screen appears. You must complete each of the options as they are specific to your needs.

   - **Step #1:** Specifies the directory on the hard drive that you want to install the client software. The default directory is *C:\NWCLIENT.* You can specify another directory if you desire.

   - **Step #2:** Gives you the option to automatically update the *CONFIG.SYS* and the *AUTOEXEC.BAT* files or modify them at a later time manually.

   - **Step #3:** Installs *Windows* software for your system if your workstation supports *Windows* and asks you to specify the directory where *Windows* is located. You will also have the option to customize for *Windows.*

   - **Step #4:** Gives you the option to configure your workstation for backup by a *NetWare* server.

   - **Step #5:** Asks you to select a network driver and provide configuration options. It uses the specifications you select to create the *NET.CFG* file. Do **NOT** select a *Driver* from the list *Novell* provides, rather choose *OTHER DRIVER* and insert the *PRO/100+ adapter Configuration and Drivers* disk. Select the *Intel PRO/100+ LAN Adapter.*

105

There are four configurable settings:

➤ ***Frame Type:*** You must set the frame type to match the file server.

> ***Note:*** If ***Duplex Mode*** is set to [full], the *Line Speed* defaults to [10 Mbps]. Also, the *PRO/100B T4* and *PRO/10+ PCI* adapters do not support [auto-negotiate].

➤ ***Line Speed:*** *(Optional)* Sets the line speed to either [10] or [100] Mbps. If you don't use this parameter, the driver automatically detects the network speed.

● ***Step #6:*** The *install* program copies the appropriate files to your hard drive. This is the final step.

3. Be sure to add *LASTDRIVE=Z* to your *CONFIG.SYS* file and *FIRST NETWORK DRIVE=F* in the *NET.CFG* file under the *Netware DOS Requester* section.

Netware Client Services for Windows NT 4.0 Using ODI Server Driver

Use of Client 32 for Windows NT with the 32-bit ODI driver is no longer supported by Novell or Intel. While it may still work, no testing or effort has been made to validate it. Please use the appropriate NDIS driver for Client 32.

PRO/100+™ - UNIX Installation Notes

Installation Notes for *PRO/100+ Server and Client Adapters* in ***UNIX*** Operating Systems.

Contents

● **Obtaining UNIX Drivers, Installing and Configuring Them**

● **Installing the eeE Driver**
  ➢ SCO3: SCO OpenDeskTop driver (eeE.img)
  ➢ SCO5: SCO OpenServer driver (eeE.vol)
  ➢ UW2: UnixWare 2.x driver (eeE.pkg)
  ➢ UW7: UnixWare 7 driver (eeE.pkg)

Obtaining UNIX Drivers, Installing and Configuring Them

● UNIX drivers for Intel LAN controllers are provided and supported by the independent software vendor (ISV), unless otherwise noted.

● Release schedules included in this file are based on the latest information available and are subject to change. All dates are estimated for the calendar year. Products listed are trademarks of the corresponding ISV.

● Directions to specific World Wide Web addresses and archive file names, were current as of December, 1997 and are subject to change.

● SCO Unix

● SunSoft (Solaris) driver updates are currently located at this web page.

107

Installing the eeE Driver

SCO3: SCO OpenDeskTop driver (eeE.img)
Instructions for installing the *eeE Driver (eeE.img)* for *SCO OpenDeskTop.*

1. Copy the **eee.img** file to any directory, such as */tmp,* on the *SCO* system.

2. Transfer the file to a 3.5-inch floppy disk using *"dd"* command. For example:

    # dd if=/tmp/eee.img of=/dev/dsk/f03ht

3. If there is an older version of the *eeE driver* on the system, you must first remove it. To do this, run *NETCONFIG.* Remove all instances of the *"Intel ..."* adapters. Exit *NETCONFIG* without opting to relink the kernel. Run *CUSTOM.* Remove the older *Intel* adapter driver.

4. Using *CUSTOM,* install the new driver from the floppy disk. After the installation of the driver is complete, exit *CUSTOM.*

5. Run *NETCONFIG.* Add the adapters. For each adapter that is present in the system, enter the appropriate *TCP/IP* parameters. Exit *NETCONFIG* and choose to relink the kernel.

6. Reboot the system.

Note: The adapter automatically detects the *link speed* and *duplex mode.* If you want to force any of these settings, edit the file *"/etc/conf/pack.d/eeE/space.c".* Modify the value of the [eeE_LineSpeedDuplex] variable to set the line speed and duplex mode for each board in the system. (The *space.c* file has the values for setting this variable). Save the file. Rebuild the *Unix* kernel using *IDBUILD* and reboot the system.

Caution: This should be done by expert *Unix* system users only.

SCO5: SCO OpenServer driver (eeE.vol)

Instructions for installing the *eeE (eeE.vol) Driver* for *SCO OpenServer.*

1. Copy the **eee.vol** file to any directory, say */tmp,* on the *SCO* system, renaming the file as *VOL.000.000.* Also, make the file read-only by using *CHMOD.*
    For example:
    # cp eee.vol /tmp/VOL.000.000
    # chmod 444 /tmp/VOL.000.000

2. If there is an older version of the *eeE driver* on the system, you must first remove it. To do this, run *NETCONFIG.* Remove all instances of the *"Intel ..."* adapters. Exit *NETCONFIG* without opting to relink the kernel. Run *CUSTOM.* Remove the older driver for the *Intel* adapter.

3. Install the new driver using *CUSTOM.* When asked for the installation media, choose [media images], and type the directory path to the *VOL.000.000* file. (In *step 1,* if if you copied it to */tmp,* type *"/tmp"*). After the installation of the driver is complete, exit *CUSTOM.*

4. Run *NETCONFIG* and add the adapters. For each adapter that is present in the system, enter the appropriate *TCP/IP* parameters. By default, the driver automatically detects the *line speed* and *duplex mode.* If you want to force any of these settings, choose [Advanced Options] and set the speed and duplex modes. Exit *NETCONFIG* and choose to relink the kernel.

5. Reboot the system.

UW2: UnixWare 2.x driver (eeE.pkg)

To install the *eeE driver* for *UnixWare 2.x:*

1. Copy the **eee.pkg** file into any directory on the *UnixWare* system, such as in the */tmp* directory.

2. Make sure no other users are logged on and all user applications are closed.

3. If there is an older version of the *eeE driver* on the system, first run *NICCFG* and remove any configured *NICs.* Exit *NICCFG.* Remove the old driver by typing *"pkgrm eeE".* (You can find the driver version by typing *"pkginfo -l eeE".*)

4. Install the new driver using *PKGADD.*
    For example:
    # pkgadd -d /tmp/eee.pkg

5. Run *NICCFG* to add the *NICs* to the system. (Sometimes, *NICCFG* might bring up a window with an error message saying that it could not find the adapter that is being configured. If this happens, ignore the error and continue. When the system reboots in *step 7,* the driver should find the adapter.)

6. Run **etc/inet/menu** to configure *TCP/IP* parameters.

7. Reboot the system.

Note: The adapter automatically detects the *link speed* and *duplex mode.* If you want to force any of these settings, edit the file ***"/etc/conf/pack.d/eeE/space.c".*** Modify the value of the [eeE_LineSpeedDuplex] variable to set the line speed and duplex mode for each board in the system. (The *space.c* file has the values for setting this variable). Save the file. Rebuild the *Unix* kernel using *IDBUILD* and reboot the system.

Caution: This should be done by expert *Unix* system users only.

UW7: UnixWare 7 driver (eeE.pkg)
To install the *eeE driver* for *UnixWare 7:*

1. Copy the **eee.pkg** file into any directory on the *UnixWare* system, such as in the */tmp* directory.

2. Make sure no other users are logged on and all user applications are closed.

3. If there is an older version of the *eeE driver* on the system, first run *NICCFG* and remove any configured *NICs.* Exit *NICCFG.* Remove the old driver by typing *"pkgrm eeE".* (You can find the driver version by typing *"pkginfo -l eeE".*)

4. Install the new driver using *PKGADD.*
    For example:
    # pkgadd -d /tmp/eee.pkg

5. Run *NETCFG* to add and configure the *NICs.*

6. Reboot the system.

Note: The adapter automatically detects the *link speed* and *duplex mode.* If you want to force any of these settings, edit the file *"/etc/conf/pack.d/eeE/space.c".* Modify the value of the [eeE_LineSpeedDuplex] variable to set the line speed and duplex mode for each board in the system. (The *space.c* file has the values for setting this variable). Save the file. Rebuild the *Unix* kernel using *IDBUILD* and reboot the system.

Caution: This should be done by expert *Unix* system users only.

Chapter 6

ULTRA2 SCSI I/O SUBSYSTEM

Note: For details on how to perform the SCSI driver installation, refer to the *"Adaptec® 7800 Family Manager Set User's Guide"* included on the *Installation CD-ROM* that comes with your motherboard. You may also obtain additional SCSI driver information by visiting Adaptec® s Web site at: http://www.adaptec.com
Follow the instructions in Adaptec's SCSI driver installation guide to install the SCSI driver specific to your system:

- Microsoft Windows NT®
- IBM OS/2
- Microsoft Windows® 95
- SCO UNIX
- Novell NetWare
- SCO UnixWare

6-1 INTRODUCTION TO ULTRA2 SCSI

Your new **SYD6IGA** high-performance motherboard is equipped with the onboard **Adaptec® AIC-7890 Ultra2 SCSI host adapter** for your high bandwidth applications, providing data transfer rates of up to 80 Mbytes per second. The Ultra-wide SCSI is an input/output bus interface that provides a powerful multitasking interface between your computer's PCI bus and your SCSI devices.

With SCSI, you can connect a variety of devices on your computer (Hard/Floppy Disk Drives, CD-ROM Drives, Scanners, Tape Drives, Removable Media Drives, etc.) in a daisy-chain topology to a common host adapter. Daisy-chaining SCSI devices allows them to communicate with each other by sending commands and data via the SCSI bus.

The AIC-7890 Ultra2 SCSI host adapter provides maximum data transfer rates of 20 Mbytes/sec in the narrow 8-bit mode (Fast SCSI), 40 Mbytes/sec in the wide 16-bit mode (Ultra-wide SCSI), and 80 Mbytes/sec with Ultra2 SCSI.

6-2 INSTALLING SCSI DEVICES

Your motherboard features three internal SCSI connectors onboard,
and comes with one 50-pin flat cable, one 68-pin flat cable, and one
68-pin Ultra2 flat cable with terminator.

6-2.1 50-pin Fast SCSI Connector
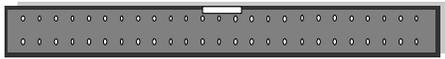
50-pin *Fast SCSI* internal connector

Narrow SCSI bus allows data transfer rates of up to 20 Mbytes/sec.
With Narrow SCSI, you can connect up to 7 internal Fast SCSI
devices to the 50-pin Fast SCSI connector on the motherboard. Use
the enclosed Narrow SCSI cable to connect up to 2 internal SCSI
devices.
If you are connecting more than 2 internal SCSI devices, you must
use an internal SCSI cable with enough connectors to
accommodate all your devices. Contact your dealer for special cable
service.
When Fast SCSI devices are connected to the bus, the total length
of all cables is not to exceed 3 meters (9.8 ft.) to ensure reliable
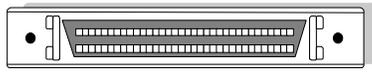operation.

6-2.2 68-pin Ultra-Wide SCSI Connector
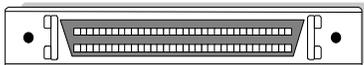
68-pin *Ultra-Wide SCSI* internal connector

Ultra-Wide SCSI bus allows you to connect up to 15 devices (7
Narrow internal and 8 Wide internal or external SCSI devices, or 15
Wide internal or external SCSI devices) to the 68-pin Ultra-Wide
SCSI connector on the motherboard. Devices that connect to the
16-bit Wide SCSI bus can transfer data at the maximum rate of 40
Mbytes/sec.

6-2.3 68-pin Ultra2 SCSI **II** Connector

68-pin *Ultra2 SCSI II* internal connector

Ultra2 SCSI bus allows you to connect up to 15 devices (7 Narrow internal and 8 Wide internal or external SCSI devices, or 15 Wide internal or external SCSI devices) to the 68-pin Ultra-Wide SCSI connector on the motherboard. Devices that connect to the 32-bit Wide SCSI bus can transfer data at the maximum rate of 80 Mbytes/sec.

6-3 CONNECTING INTERNAL SCSI DEVICES

If you are connecting several internal SCSI devices (more than 2 SCSI drives), make sure you have an internal SCSI cable with enough connectors to accommodate all of your devices. The enclosed 50-pin and 68-pin SCSI flat cables can each serve up to 2 SCSI drives while the 68-pin Ultra2 SCSI cable can accommodate up to 4 SCSI drives.

Follow these steps to ensure a proper installation of your internal SCSI devices:

1.   Prepare each CD-ROM drive for installation; configure the device **SCSI ID** and terminators (**terminate** the last internal device attached to the cable by setting its termination to the ON position; all other internal devices on the SCSI bus must have their termination set to OFF).
     Note: The *68-pin Ultra2 SCSI cable* is already equipped with a **Terminator,** therefore you do not need terminate the last SCSI drive. All SCSI device terminations must set to OFF when using this particular cable.

2.   Install the CD-ROM drive in your computer.

114

3.   Plug the connector at one end of the internal SCSI cable into the host adapter's SCSI connector on the motherboard.

Note: Make sure the cable's colored stripe is aligned with pin-1 of the host adapter's connector. Pin-1 of the SCSI connector is usually designated by a small triangle (▲), or a "1" at one corner of the connector.

4.   Connect the remaining connectors on the cable to the SCSI devices (CD-ROM drives, etc.).

Note: Make sure the cable's colored stripe is aligned with pin-1 of the SCSI device's connector.

5.   Connect a DC power cable (from your computer's power supply) to the power connector on each SCSI device.

116