

**ASUS<sup>®</sup> P/I P65UP8**  
Baseboard for CPU Cards

**USER'S MANUAL**

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# FCC & DOC COMPLIANCE

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## ***Federal Communications Commission Statement***

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

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

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**WARNING!** The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## ***Canadian Department of Communications Statement***

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

# I. INTRODUCTION

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## How this Manual is Organized

This manual is divided into the following sections:

- I. Introduction:** Manual information and checklist
- II. Features:** Information and specifications concerning this product
- III. Installation:** Instructions on setting up the baseboard
- IV. VGA Installation:** Instructions on setting up the onboard VGA

## Item Checklist

Please check that your package is complete. If you discover damaged or missing items, please contact your retailer.

- (1) ASUS Baseboard
- (1) 9pin male serial + 25pin male serial external connector set
- (1) 25pin female parallel + 6pin female PS/2 mouse external connector set
- (1) IDE ribbon cable for master and slave drives
- (1) Floppy ribbon cable for (1) 5.25inch floppy and (2) 3.5inch floppies
- (1) bag of spare jumpers
- (1) Motherboard User's Manual
- (1) SCSI Utilities User's Manual
- (1) C-P6ND or C-PKND CPU card
- (1) Infrared module (optional)

## II. FEATURES

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### Features of the ASUS P/I-P65UP8 Baseboard

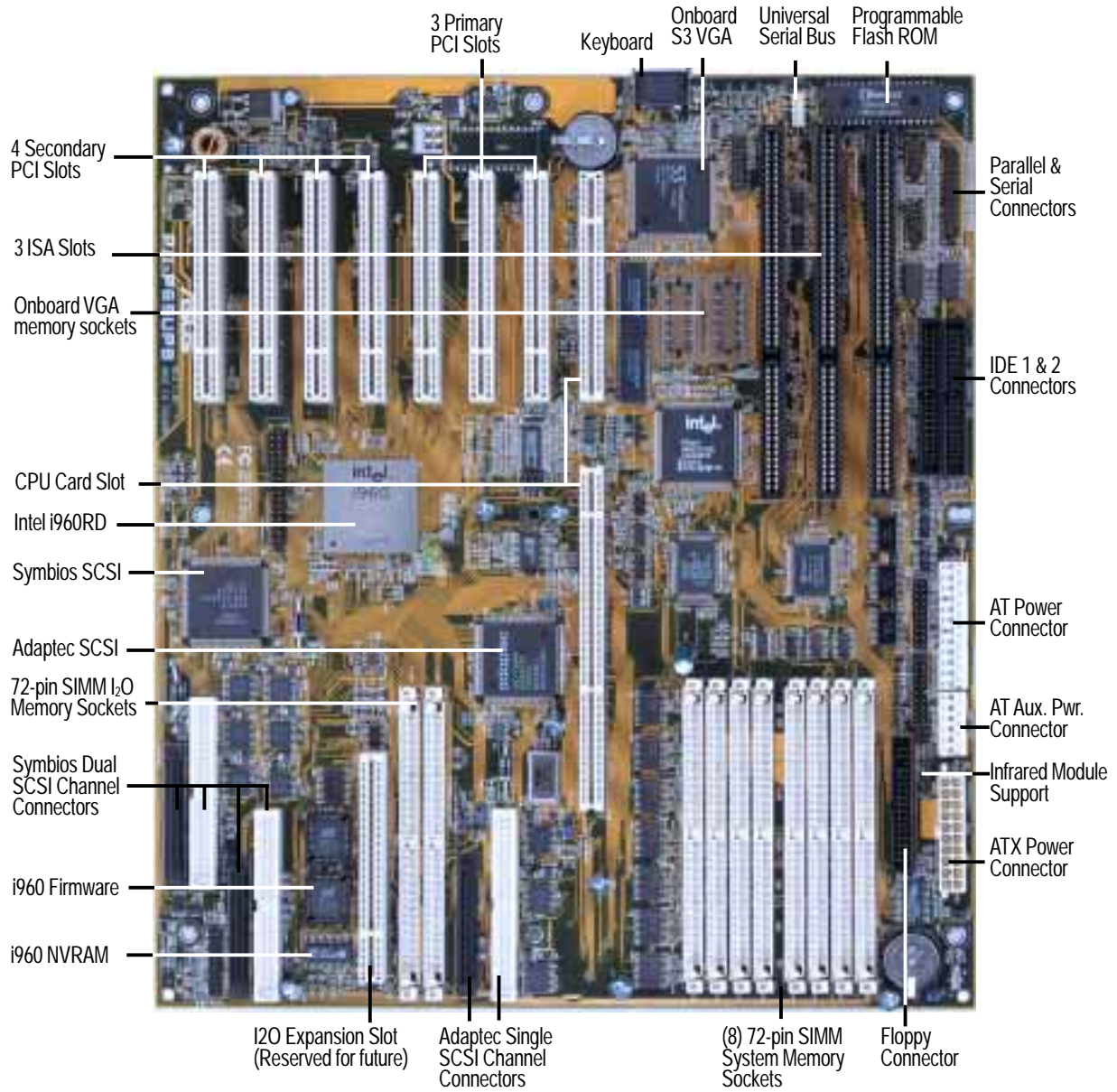
The P/I-P65UP8 is carefully designed for the demanding PC user who wants great versatility in a computer system. This baseboard:

- **Versatile Processor Support:** Supports dual 150–200MHz Pentium Pro or dual 233–333MHz Pentium II processors.
- **I2O:** Includes onboard Intel's i960RD I/O processor with 32KB NVRAM, 2x512KB Flash EPROM, and 2SIMM slots for up to 256MB memory.
- **VGA:** Includes onboard S3Trio64 VGA with 1MB DRAM upgradable to 2MB.
- **SCSI:** Includes onboard Adaptec AIC 7880 for one primary and Symbios 53C896 for two secondary SCSI channels for a maximum of 45 SCSI devices.
- **Dual Power Supply:** Has both AT and ATX power connectors onboard to support an AT or ATX power supply with soft-on/off features.
- **Versatile DRAM Memory Support:** Supports eight 72-pin SIMMs of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB to form a memory size between 8MB to 1GB. Supports both Fast Page Mode (FPM), and Extended Data Output (EDO) SIMMs. Burst Extended Data Output (BEDO) supported with the C-P6ND CPU card.
- **ISA and PCI Expansion Slots:** Provides three 16-bit ISA slots and seven 32-bit PCI slots.
- **Super Multi-I/O:** Provides two high-speed UART-compatible serial ports and one parallel port with EPP and ECP capabilities. Supports two of either 5.25- or 3.5-inch disk drives (1.44MB or 2.88MB) without an external card.
- **PCI Bus Master IDE Controller:** Comes with an onboard PCI Bus Master IDE controller with two connectors that supports four IDE devices in two channels, supports PIO Modes 3 and 4 and Bus Master IDE DMA Mode 2, and supports Enhanced IDE devices such as Tape Backup and CD-ROM drives. Supports two drives of either 5.25-inch (360KB or 1.2MB) or 3.5-inch (720KB, 1.44MB, or 2.88MB) disk drives. Supports Japanese "Floppy 3 mode" (3.5-inch disk drive: 1.2MB) and LS-120 floppy disk drives (3.5-inch disk drive: 120 MB, 1.44MB, 720K). BIOS supports IDE CD-ROM or SCSI device boot-up.
- **Desktop Management Interface (DMI):** Supports DMI through BIOS which allows hardware to communicate within a standard protocol creating a higher level of compatibility. (Requires DMI-enabled components.)
- **Easy Installation:** Is equipped with BIOS that supports auto detection of hard drives, PS/2 mouse, and Plug and Play devices to make setup of hard drives, expansion cards, and other devices virtually automatic.
- **Optional IrDA Module:** Supports an optional infrared port module for wireless file transfers and communication.



# II. FEATURES

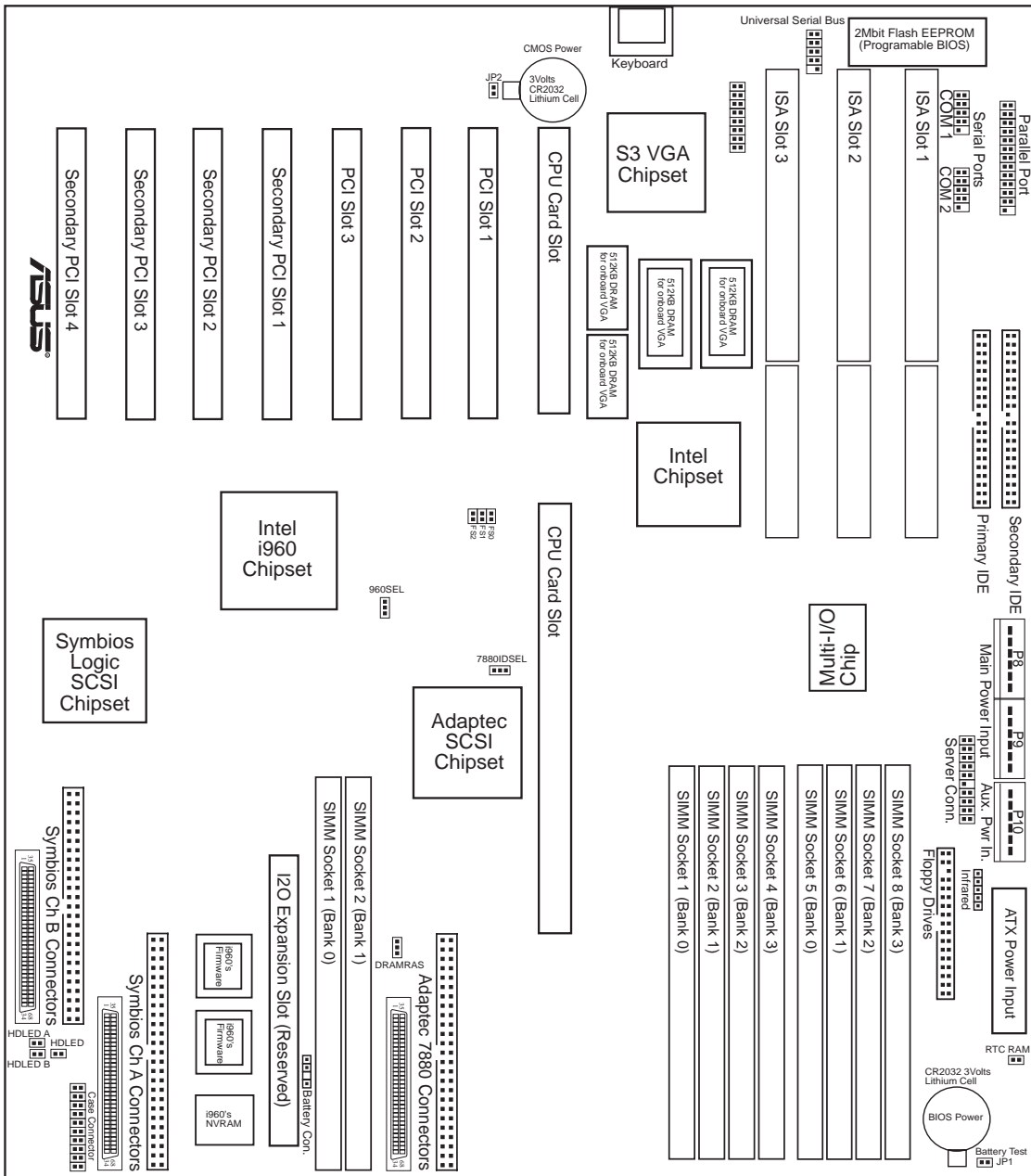
## Parts of the ASUS Baseboard



## II. FEATURES (Parts of Board)

# III. INSTALLATION

## ASUS Baseboard Layout



**III. INSTALLATION**  
(Board Layout)

# III. INSTALLATION

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## **Jumpers**

- |                  |  |
|------------------|--|
| 1) 960SEL        | p. 13 i960 Setting (I2O/Bridge)                  |
| 2) DRAMRAS       | p. 13 DRAM RAS Setting (Single/Double)           |
| 3) 7880IDSEL     | p. 14 Adaptec 7880 ID Setting (9/15)             |
| 4) RTCLR         | p. 15 Real Time Clock RAM (Operation/Clear CMOS) |
| 5) JP1, JP2      | p. 15 Battery Test Leads                         |
| 6) FS0, FS1, FS2 | p. 16 CPU External Frequency (BUS) Selection     |

## **Expansion Slots**

- |                             |   |
|-----------------------------|---|
| 1) SIMM1–SIMM8              | p. 18 72-Pin SIMM System Memory Sockets       |
| 2) I-SIMM1, I-SIMM2         | p. 18 72-Pin SIMM i960 Memory Sockets         |
| 3) CPU1, CPU2               | p. 20 Central Processing Unit (CPU) Card Slot |
| 4) PCI1-3, Secondary PCI1-4 | p. 22 32-bit PCI and I2O Bus Expansion Slots  |
| 5) SLOT1, SLOT2, SLOT3      | p. 23 16-bit ISA Bus Expansion Slots          |

## **Connectors**

- |                             |   |
|-----------------------------|---|
| 1) KB                       | p. 24 Keyboard Connector (5-pin female)                   |
| 2) FLOPPY                   | p. 24 Floppy Disk Drive Connector (34-pin block)          |
| 3) PRINTER                  | p. 25 Parallel Port Connector (26-pin block)              |
| 4) COM1, COM2               | p. 25 Serial Port Connectors (10-pin blocks)              |
| 5) PRIMARYIDE, SECONDARYIDE | p. 26 Primary/Secondary IDE Connectors (40-pin blocks)    |
| 6) HD LED                   | p. 26 SCSI and IDE Activity LED                           |
| 7) VGA Connector            | p. 27 VGA Connector (16 pins)                             |
| 8) VGA Memory               | p. 27 Two VGA Memory Expansion Sockets                    |
| 9) IR                       | p. 28 Second Infrared Port Module Connector (5-pin block) |
| 10) USB                     | p. 28 USB Module Connector (18-pin block)                 |
| 11) SERVER_CON              | p. 29 Server Management Module Connector (20-1 pins)      |
| 12) CHASSIS                 | p. 29 Chassis Intrusion Alarm Connector (4-1 pins)        |
| 13) SMI (PANEL)             | p. 30 SMI Suspend Switch Lead (2 pins)                    |
| 14) PWR (PANEL)             | p. 30 ATX Power Switch (2 pins)                           |
| 15) RESET (PANEL)           | p. 30 Reset Switch Lead (2 pins)                          |
| 16) PWR LED (PANEL)         | p. 30 System Power LED Lead (3 pins)                      |
| 17) KEYLOCK (PANEL)         | p. 30 Keyboard Lock Switch Lead (2 pins)                  |
| 18) SPEAKER (PANEL)         | p. 30 Speaker Output Connector (4 pins)                   |
| 19) SCSI-50, SCSI-68        | p. 31 Ultra-Fast and Ultra-Wide SCSI Connectors           |
| 20) PWRCON, PWR-CON2        | p. 32 AT Power Supply Connector (12-pin block)            |
| 21) ATXPOWER                | p. 32 ATX Power Supply Connector (20-pin block)           |







# III. INSTALLATION

## Installation Steps

Before using your computer, you must complete the following steps:

1. Set Jumpers on the Baseboard
2. Install DRAM Memory Modules
3. Install the Central Processing Unit (CPU) Card
4. Install Expansion Cards
5. Connect Ribbon Cables, Cabinet Wires, and Power Supply
6. Setup the BIOS Software (see the CPU Card BIOS section)

### 1. Jumpers

Several hardware settings are made through the use of jumper caps to connect jumper pins (JP) on the baseboard. See “Baseboard Layout” on page 10 for locations of jumpers. The jumper settings will be described numerically such as [----], [1-2], [2-3] for no connection, connect pins 1&2, and connect pins 2&3 respectively. Pin 1 for our baseboards is usually on top  or on the left  when holding the baseboard with the keyboard connector away from yourself. A “1” is written besides pin 1 on jumpers with three pins. The jumpers will also be shown graphically such as  to connect pins 1&2 and  to connect pins 2&3. Jumpers with two pins will be shown as  for short (On) and  for open (Off). For manufacturing simplicity, the jumpers may be sharing pins from other groups. Use the diagrams in this manual instead of following the pin layout on the board. Settings with two jumper numbers require that both jumpers be moved together. To connect the pins, simply place a plastic jumper cap over the two pins as diagramed.

**WARNING!** Computer motherboards, baseboards and components, such as SCSI cards, contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not to touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the component whenever the components are separated from the system.

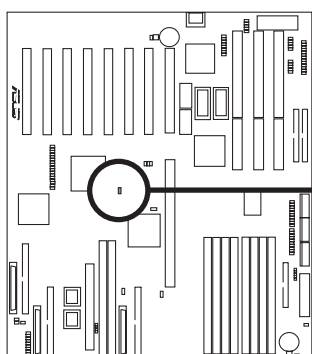
# III. INSTALLATION

## Jumper Settings

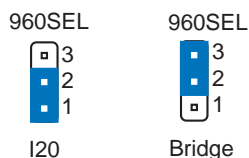
### 1. i960 Bridge Setting

The secondary PCI slots can function as standard PCI slots when the i960 is set to “Bridge” mode. When the i960 is set to “I2O” mode, the secondary PCI slots are controlled by the i960 and only intelligent I/O (I2O) cards can be used on the secondary PCI slots. Additional memory is required for the “I2O” mode.

<u>960SEL</u>	<u>Setting</u>
I2O	[1-2]
Bridge	[2-3]



**i960 Setting**

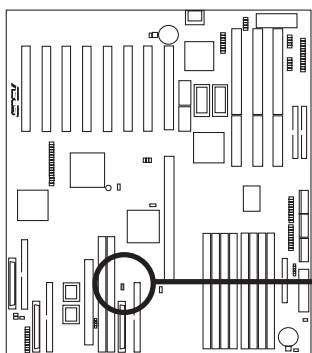


**Caution!** The jumper numbering is reversed

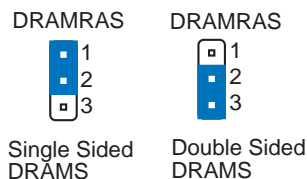
### 2. i960 Local DRAM RAS Setting

When the i960 is set to I2O, the i960 chip acts as a processor and at least one SIMM memory module is required. When using a single memory module, this jumper does not need setting. When using two memory modules, this jumper needs to be set according to the number of sides used by the chips mounted on the memory modules.

<u>DRAMRAS</u>	<u>Setting</u>
Single Sided DRAM	[1-2]
Double Sided DRAM	[2-3]



**DRAM RAS Setting**

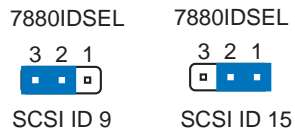
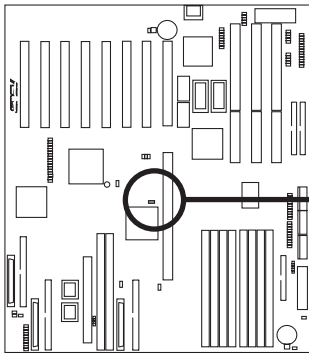


# III. INSTALLATION

## 3. 7880 ID Setting

Set to SCSI ID 9, if you wish for the onboard Adpatec 7880 SCSI device to boot.  
Set to SCSI ID 15, if you wish for the onboard Symbios 53C876 device to boot.

<u>7880IDSEL</u>	<u>Setting</u>
ID 9-Boot	[2-3]
ID 15-No boot	[1-2]



7880 ID Setting

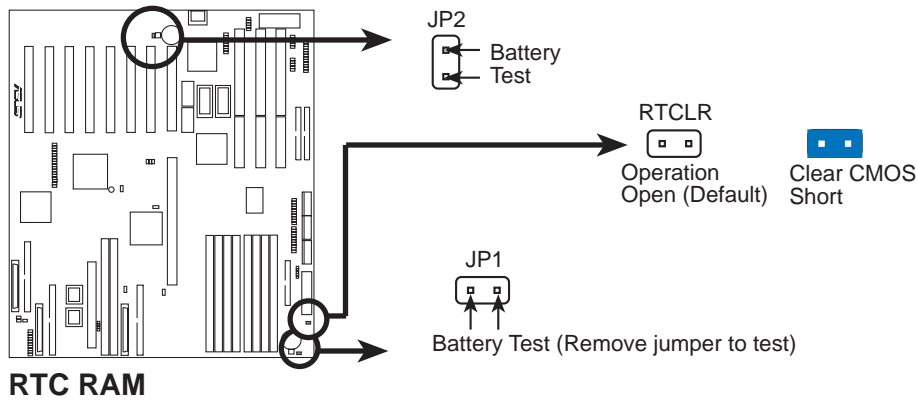
#### 4. Real Time Clock (RTC) RAM (RTCLR)

This clears the user-entered information stored in the CMOS RAM of the Real Time Clock such as hard disk information and passwords. To clear the RTC data: (1) Turn off your computer and unplug the AC power, (2) Move this jumper to *Clear CMOS*, (3) Power on the computer, (4) Power off the computer, (5) Remove this jumper, (6) Power on the computer, (7) Hold down <Delete> during bootup and enter BIOS setup to re-enter user preferences.

**Selections**      **RTCLR**

Operation      [open] (Default)

Clear CMOS    [short] (momentarily)



#### 5. Battery Test Jumper (JP1, JP2)

You can test the battery's current by removing the jumper and attaching a current meter to the two pins.

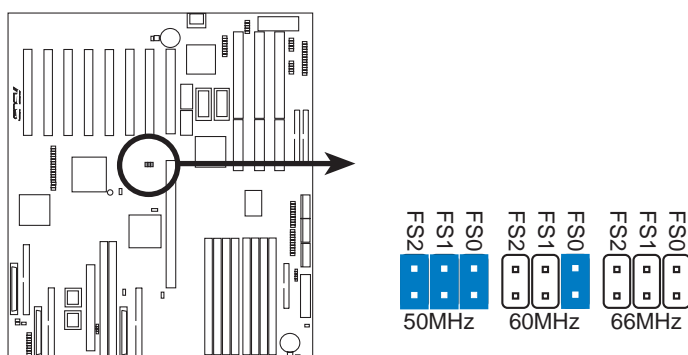
**WARNING!** You must unplug the power cord to your power supply to ensure that there is no power to your baseboard. The CMOS RAM containing the BIOS setup information *may* be cleared by this action. You *must* enter BIOS to “Load Setup Defaults” and re-enter any user information after removing and reapplying this jumper.

# III. INSTALLATION

## 6. CPU External (BUS) Frequency Selection (FS0, 1, 2) (Baseboard)

These jumpers tells the clock generator what frequency to send to the CPU. These allow the selection of the CPU's *External* frequency (or *BUS Clock*). The *BUS Clock* multiplied by the *BUS Ratio* equals the CPU's *Internal* frequency (the advertised CPU speed).

<u>BUS Freq.</u>	<u>FS2</u>	<u>FS1</u>	<u>FS0</u>
50MHz	[ON]	[ON]	[ON]
60MHz	[----]	[----]	[ON]
66MHz	[----]	[----]	[----]



CPU External Clock (BUS) Frequency Setting

III. INSTALLATION  
(Jumpers)

### Jumper settings on CPU Card

#### *Intel Pentium Pro (P6) Processor:*

CPU	BUS (CPU Card BUS Ratio)	JP13	JP14	JP15	JP16
<u>Internal</u>	<u>Ratio</u>				
200MHz	3.0x	[ON]	[ON]	[----]	[ON]
180MHz	3.0x	[ON]	[ON]	[----]	[ON]
166MHz	2.5x	[ON]	[----]	[ON]	[ON]
150MHz	2.5x	[ON]	[----]	[ON]	[ON]

(Chipset Freq  
on CPU Card)

JP6	JP7
[ON]	[----]
[----]	[ON]
[ON]	[----]
[----]	[ON]

### Settings on Baseboard

Ext. Freq.	CPU Ext. Freq on Baseboard		
	FS2	FS1	FS0
66MHz	[----]	[----]	[----]
60MHz	[----]	[----]	[ON]
66MHz	[----]	[----]	[----]
60MHz	[----]	[----]	[ON]

#### *Intel Pentium II Processor:*

CPU	BUS (CPU Card BUS Ratio)	JP1	JP2	JP3	JP4
<u>Internal</u>	<u>Ratio</u>				
333MHz	5.0x	[short]	[open]	[open]	[short]
300MHz	4.5x	[open]	[short]	[open]	[short]
266MHz	4.0x	[short]	[short]	[open]	[short]
233MHz	3.5x	[open]	[open]	[short]	[short]

Ext. Freq.	CPU Ext. Freq on Baseboard		
	FS2	FS1	FS0
66MHz	[----]	[----]	[----]
66MHz	[----]	[----]	[----]
66MHz	[----]	[----]	[----]
66MHz	[----]	[----]	[----]



# III. INSTALLATION

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# III. INSTALLATION

## 2. System Memory (DRAM)

This baseboard supports eight 72-pin SIMMs (Single Inline Memory Modules) of 4MB, 8MB, 16MB, 32MB, 64MB, 128MB to form a memory size between 8MB to 1GB. The DRAM can be either 60ns or 70ns Fast Page Mode (Asymmetric or Symmetric), Extended Data Output (EDO), or Burst Extended Data Output (BEDO) (with C-P6ND only). SIMMs must be installed in pairs so that each bank contains two of the same size memory modules. To support ECC, you must use *true* (opposed to phantom parity generated by TTL chips) 36-bit parity-type SIMM (e.g. 8 chips + 4 parity chips) in pairs for all modules. Mixing 32-bit non-parity SIMM (e.g. 8 chips) and 36-bit SIMM (e.g. 12 chips) will work minus the ECC feature.

**IMPORTANT:** Memory setup is required in “Auto Configuration” in the CHIPSET FEATURES SETUP of the BIOS software. Each bank must have the same size memory installed in pairs.

*Install memory in any or all of the banks in any combination as follows:*

Bank	Memory Module		Total Memory
Bank 0 SIMM Slots 1&2	4, 8, 16, 32, 64, 128MB 72-pin FPM, EDO, BEDO SIMM	x2	
Bank 1 SIMM Slots 3&4	4, 8, 16, 32, 64, 128MB 72-pin FPM, EDO, BEDO SIMM	x2	
Bank 2 SIMM Slots 5&6	4, 8, 16, 32, 64, 128MB 72-pin FPM, EDO, BEDO SIMM	x2	
Bank 3 SIMM Slots 7&8	4, 8, 16, 32, 64, 128MB 72-pin FPM, EDO, BEDO SIMM	x2	
Total System Memory (Max 1GB)		=	

**NOTE:** Memory on socket 1 has a clearance of 5.0 cm when the C-PKND and C-P6ND CPU cards are installed and 5.5 cm when the C-P55T2D CPU card is installed.

**IMPORTANT:** Each bank must have the same size memory installed in pairs. Do not use memory modules with more than 24 chips per module. Modules with more than 24 chips exceed the design specifications of the memory subsystem and will be unstable.

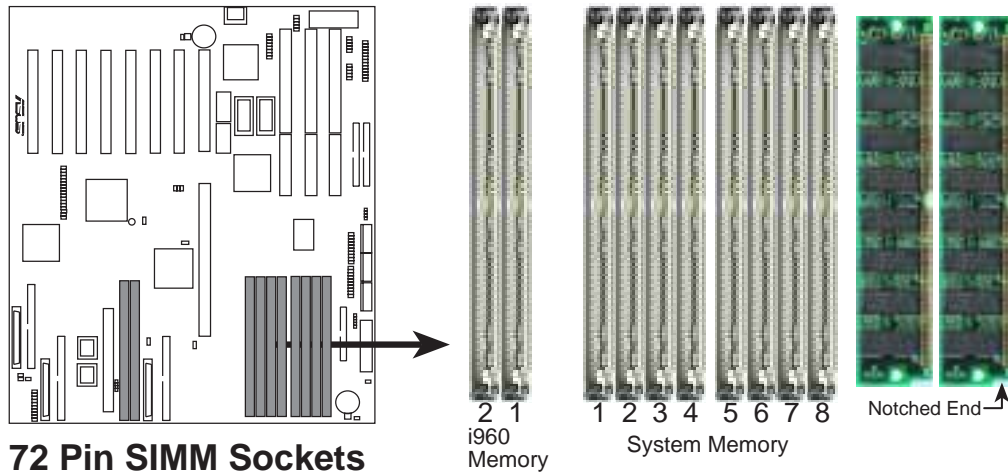
**i960 Local DRAM:** The i960 requires 4MB to 256MB (16MB recommended) memory using one or two EDO DRAM modules when 960SEL jumper is set to “I2O.” The i960 does not require memory in the “Bridge” mode. Use i960 SIMM socket 1 when using only one module. The i960 does not support parity or ECC.

# III. INSTALLATION

## DRAM Memory Installation Procedures

**IMPORTANT: Install memory modules in symmetric pairs.**

1. The SIMM memory modules will only fit in one orientation as shown because of a “Plastic Safety Tab” on one end of the SIMM slots which requires the “Notched End” of the SIMM memory modules.



2. Press the memory module firmly into place starting from a 45 degree angle making sure that all the contacts are aligned with the slot.
3. With your finger tips, rock the memory module into a vertical position so that it clicks into place.



4. The plastic guides should go through the two mounting holes on the sides and the clips should snap on the other side.
5. To release the memory module, squeeze both clips outward and rock the module out of the clips.

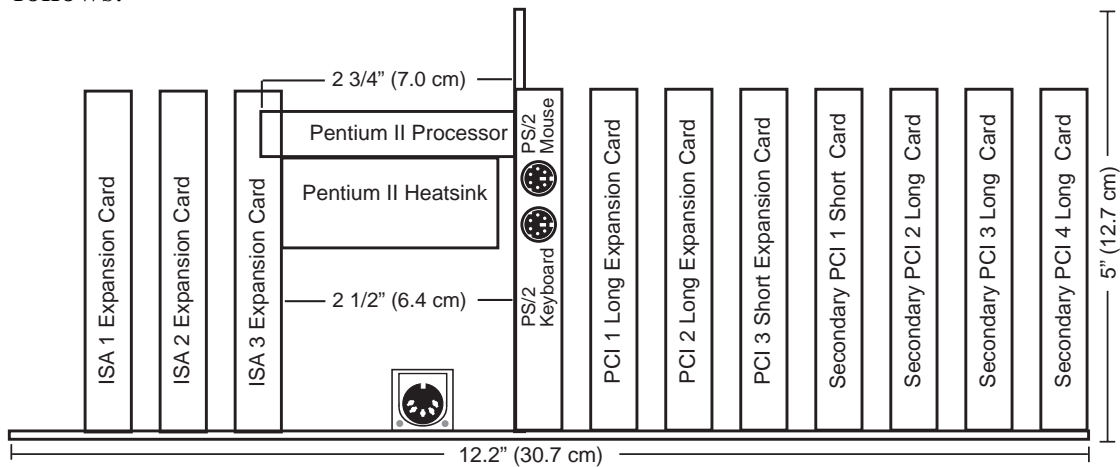
# III. INSTALLATION

## 3. Central Processing Unit

The P/I-P65UP8 baseboard provides a CPU card slot that can be used with the ASUS C-PKND or C-P6ND CPU cards, which are available separately. You must purchase any one of these CPU cards (see next page for a brief description) to complete the system's board.

### System Case

The system case must be a full-size tower or server case to give a clearance as follows:



System Cabinet Clearance Area Requirement for the P/I-P65UP8 + CPU Card

**NOTE:** The C-P6ND Pentium Pro CPU card can easily fit in the given space, but the C-PKND Pentium II CPU card will block the ISA 3 slot.

# III. INSTALLATION

---

One end of the CPU card has a bracket, which should slide into the system case front panel. Be sure that the system case can support a long PCI card on the first slot and that a groove is available for the bracket. Refer to your respective CPU card's documentation for details.

## **General Installation Procedures for the ASUS CPU Card:**

1. Remove the CPU card from its packaging without touching the integrated circuit (IC) chips, connectors, and other components. Place it onto the antistatic bag.
2. Follow instructions in the CPU card manual on installing the processor/s, support bracket, and setting jumpers.
3. Remove the expansion slot cover for the first slot.
4. Carefully align the CPU card over the CPU Card Slot (CPU SLOT A and CPU SLOT B).
5. Be sure that the card is perpendicular to the baseboard. Firmly press one end of the card halfway in, the other end halfway in, then the first end completely in, and finally, the second end completely in. Be sure that all the connectors are evenly inserted into the slots.
6. Screw in the metal bracket to the system case.

**WARNING!** Move the system carefully and only with the power off because the CPU card is heavy as well as delicate.

**NOTE:** The BIOS on the CPU cards are different. When adding a CPU card, find the BIOS chip that came with the CPU card and replace it with the one on the baseboard, if one is present.

# III. INSTALLATION

## 4. Expansion Cards

First read your expansion card documentation on any hardware and software settings that may be required to set up your specific card.

**WARNING!** Unplug your power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your baseboard and expansion cards.

### *Expansion Card Installation Procedure*

1. Read the documentation for your expansion card.
2. Set any necessary jumpers on your expansion card.
3. Remove your computer system's cover.
4. Remove the bracket on the slot you intend to use. Keep the bracket for possible future use.
5. Carefully align the card's connectors and press firmly.
6. Secure the card on the slot with the screw you removed in step 4.
7. Replace the computer system's cover.
8. Set up the BIOS if necessary  
(such as *IRQ xx Used By ISA: Yes* in PNP AND PCI SETUP)
9. Install the necessary software drivers for your expansion card.

### *Assigning IRQs for Expansion Cards*

**IMPORTANT:** Interrupt requests are shared as shown by the following table:

	INT-A	INT-B	INT-C	INT-D
PCI slot 1	shared	--	--	--
PCI slot 2	--	shared	--	--
PCI slot 3	--	--	shared	--
Onboard VGA	--	--	shared	--
7880 SCSI	--	shared	--	--
i960 processor	--	--	--	shared
2nd-PCI slot 1	--	--	--	shared
2nd-PCI slot 2	shared	--	--	--
2nd-PCI slot 3	--	--	--	--
2nd-PCI slot 4	--	--	--	--
Symbios SCSI	shared ch.2	--	--	shared ch.1

If using PCI cards on shared slots, make sure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

# III. INSTALLATION

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Some expansion cards need to use an IRQ to operate. Generally an IRQ must be exclusively assigned to one use. In a standard design there are 16 IRQs available but most of them are already in use, leaving 6 IRQs free for expansion cards.

Both ISA and PCI expansion cards may require to use IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards. The original ISA expansion card design, now referred to as legacy ISA cards, requires that you configure the card's jumpers manually and then install it in any available slot on the ISA bus. You may use Microsoft Diagnostics (MSD.EXE) utility located in the Windows directory to see a map of your used and free IRQs. If you use Windows 95, the **Resources** tab under **Device Manager** displays the resource settings being used by a particular device (to gain access, double-click the **System** icon under the **Control Panel** program). Ensure that no two devices share the same IRQs or your computer will experience problems when those two devices are in use at the same time.

To simplify this process, the baseboard complies with the Plug and Play (PnP) specification, which was developed to allow automatic system configuration whenever a PnP-compliant card is added to the system. For PnP cards, IRQs are assigned automatically from those available.

If the system has both legacy and PnP ISA cards installed, IRQs are assigned to PnP cards from those not used by legacy cards. The PCI and PNP configuration section of the BIOS setup utility can be used to assign which IRQs are being used by legacy cards. For older legacy cards that do not work with the BIOS, you may contact your vendor for an ISA Configuration Utility.

An IRQ number is automatically assigned to PCI expansion cards after those used by legacy and PnP ISA cards. In the PCI bus design, the BIOS automatically assigns an IRQ to a PCI slot that contains a card requiring an IRQ. To install a PCI card, you need to set the INT (interrupt) assignment. Since all the PCI slots on this baseboard use an INTA #, set the jumpers on your PCI cards to INT A.

## *Assigning DMA Channels for ISA Cards*

Some ISA cards, both legacy and PnP, may also need to use a DMA (Direct Memory Access) channel. DMA assignments for this baseboard are handled the same way as the IRQ assignment process described earlier. You can select a DMA channel in the PCI and PnP configuration section of the BIOS Setup utility.

**IMPORTANT:** To avoid conflicts, reserve the necessary IRQs and DMAs for legacy ISA cards (under PNP AND PCI SETUP of the BIOS SOFTWARE, choose *Yes* in *IRQ xx Used By ISA* and *DMA x Used By ISA* for those IRQs and DMAs you want to reserve).

# III. INSTALLATION

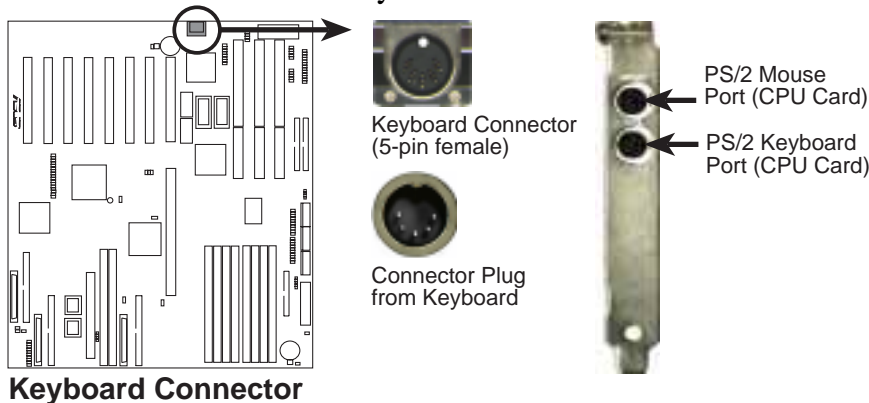
## 5. External Connectors

**WARNING!** Some pins are used for connectors or power sources. These are clearly differentiated from jumpers as shown in the baseboard layout on page 10. Placing jumper caps over these pins will cause damage to your baseboard.

**IMPORTANT:** Connect ribbon cables such that the red stripe is on the pin 1 side of the connector. The four corners of the connectors are labeled on the baseboard. Pin 1 is the side closest to the power connector on hard and floppy disk drives. IDE ribbon cable must be less than 18in. (46cm), with the second drive connector no more than 6in. (15cm) from the first connector.

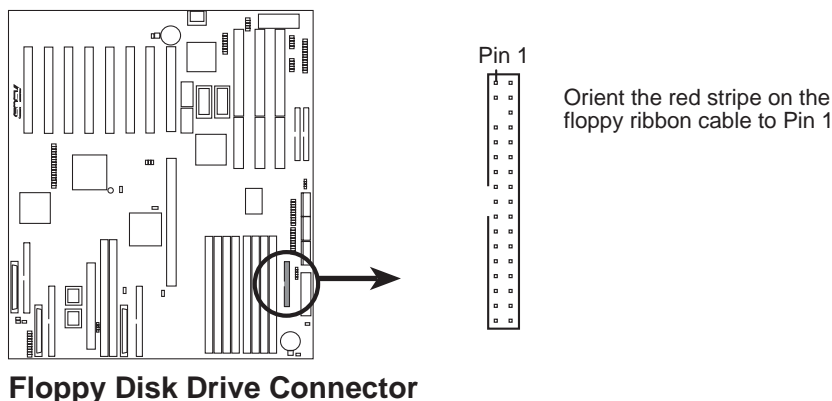
### 1. Keyboard Connector (5-pin KBCON)

This connector is for either a standard IBM-compatible, 101/102-key, or 104-key (Windows 95-compatible) keyboard. Use either the AT keyboard connector on the baseboard or PS/2 keyboard connector on the CPU card.



### 2. Floppy Disk Drive Connector (34-1 pin FLOPPY)

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the board, connect the two plugs on the other end to the floppy drives. (**Pin 5 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 5 plugged**).

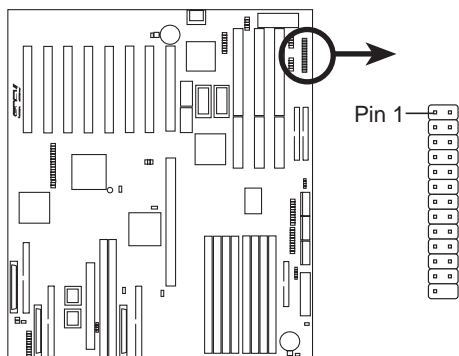




# III. INSTALLATION

## 3. Parallel Printer Connector (26-pin PRINTER)

This connector supports the included parallel port ribbon cable with mounting bracket. Connect the ribbon cable to this connector and mount the bracket to the case on an open slot. You can make available the parallel port and choose the *IRQ Onboard Parallel Port* in **Chipset Features** of the BIOS SOFTWARE. **(Pin 26 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 26 plugged)**



Parallel Port Connector

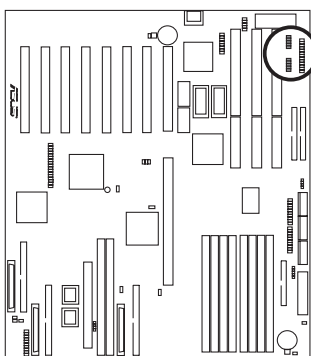
Pin 1 —  
Orient the red stripe on the parallel ribbon cable to Pin 1

For the parallel port connector to be available, connect the included parallel (25-pin female) cable set to a free expansion port.

**TIP:** You may also remove the bracket connectors and mount them directly to the case to save expansion slot space.

## 4. Serial Port COM1 and COM2 Connectors (Two 10-1 pin COM1 & COM2)

These connectors support the provided serial port ribbon cables with mounting bracket. Connect the ribbon cables to these connectors and mount the bracket to the case on an open slot. You can make available the serial port and choose the *IRQ Onboard Serial Port* in **Chipset Features** of the BIOS SOFTWARE. **(Pin 10 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 10 plugged)**



Serial Port Connectors

Pin 1 —  
Orient the red stripe on the serial ribbon cable to Pin 1

COM 2

Pin 1 —  
For the serial port connectors to be available, connect the included serial cable set from COM1 (using 9-pin male) and COM2 (using 25-pin male) to a free expansion port.

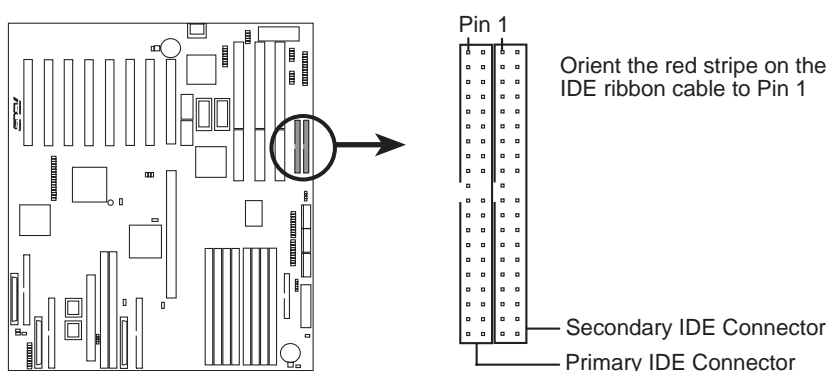
COM 1

**TIP:** You may also remove the bracket connectors and mount them directly to the case to save expansion slot space.

# III. INSTALLATION

## 5. Primary/Secondary IDE Connectors (Two 40-1 pin IDE1 & IDE2)

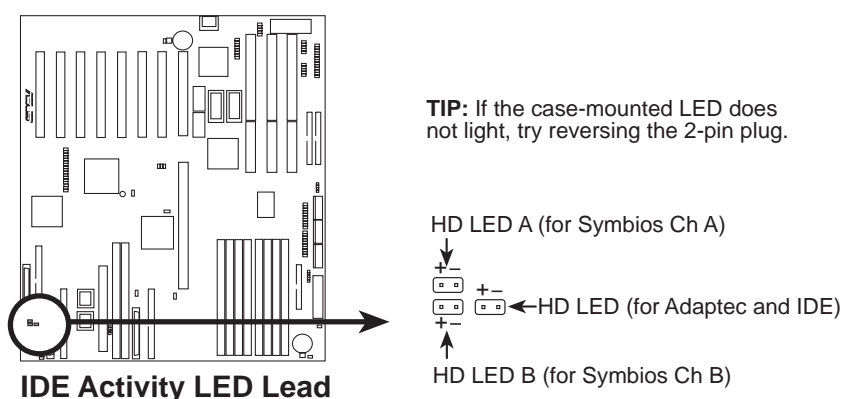
These connectors support the provided IDE hard disk ribbon cable. After connecting the single end to the board, connect the two plugs at the other end to your hard disk(s). If you install two hard disks on one connector (channel), then you must configure a second drive as Slave mode by setting its jumper according to your hard disk jumper diagram. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another on the secondary IDE connector. A new BIOS feature allows SCSI hard drive bootup (see “HDD Sequence SCSI/IDE First” in the BIOS FEATURES SETUP of the BIOS software). **(Pin 20 is removed to prevent inserting in the wrong orientation when using ribbon cables with pin 20 plugged).**



IDE (Hard Disk Drive) Connectors

## 6. SCSI and IDE Activity LED (2-pin HD LED)

This connector connects to the hard disk activity indicator light on the system cabinet. Read and write activity by devices connected to the Primary or Secondary IDE connectors will cause the HD LED to light.

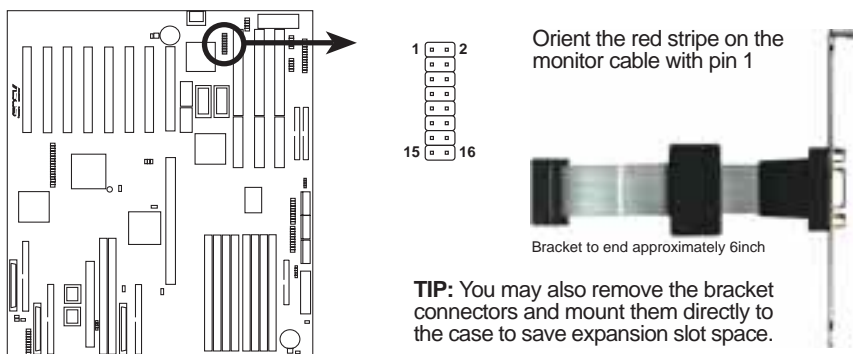


IDE Activity LED Lead

# III. INSTALLATION

## 7. VGA Connector (16 pin VGA CON)

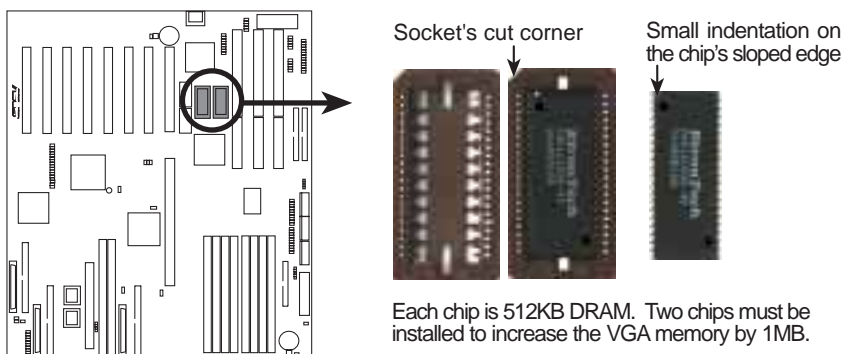
To use the onboard VGA, you must attach the provided VGA cable to this connector and mount the bracket to the system cabinet on a free expansion slot or remove the bracket and mount to the system cabinet's serial port opening. The VGA cable then provides a standard 15-pin D-Sub connector for a monitor.



**VGA (Monitor) Connector**

## 8. VGA Memory Upgrade Sockets

This baseboard comes with 1MB VGA memory. Two sockets are provided to upgrade the VGA memory to 2MB by adding two EDO DRAM's.



**VGA Memory Sockets**

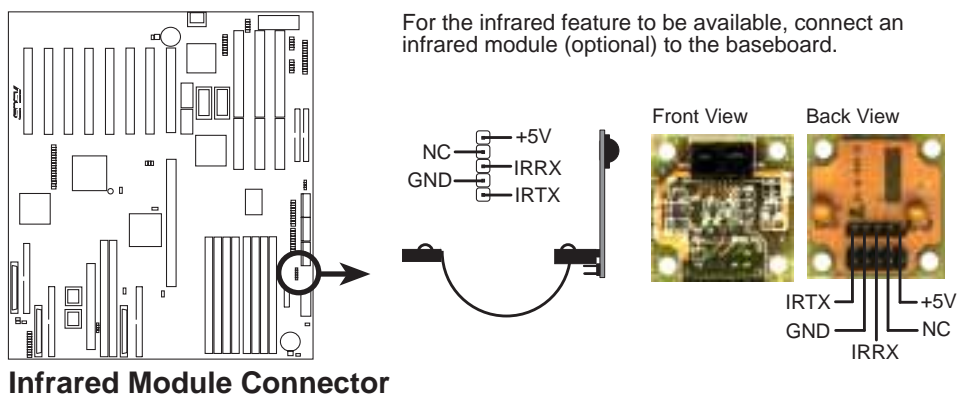
**NOTE:** The indentations are shown white for visibility, they are normally black.

Match the small indentation on the chip's sloped edge with the socket's cut corner. Place the chip flat and evenly into the socket and press firmly but carefully so that the chip enters evenly. When installed, the chip should be flush with the socket.

# III. INSTALLATION

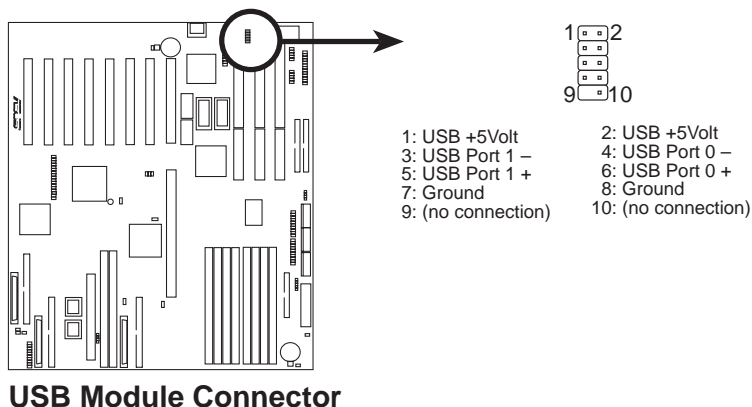
## 9. IrDA-compliant Infrared Module Connector (5-pin IR)

This connector supports the optional wireless transmitting and receiving infrared module. This module mounts to a small opening on system cases that support this feature. You must also configure the setting through BIOS setup in **Chipset Features** to select whether UART2 is directed for use with COM2 or IrDA. Use the five pins (as defined by Intel) as shown below (Back View) and connect a ribbon cable from the module to the baseboard according to the pin definitions. The ribbon cable that may be supplied may either have five or ten pins (for other standards). If using a ten-pin ribbon cable, use only the top five row of the ribbon cable plug.



## 10. USB Module Connector (10-1 pin USB)

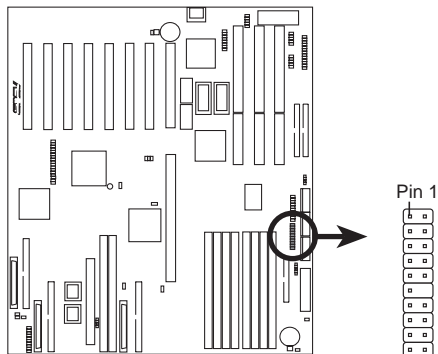
If you want to use the universal serial bus (USB), you need to purchase an external connector set. The external connector connects to the 9-pin block.



# III. INSTALLATION

## 11. ASUS System Monitoring Module Connector (20-1 pin SERVER\_CON)

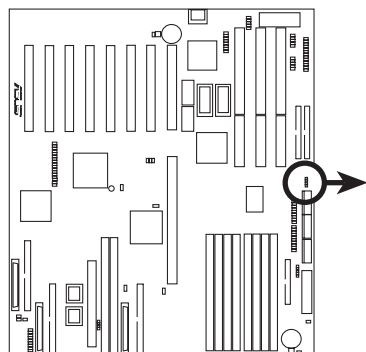
This connector is for an optional ASUS System Monitoring Module for monitoring system temperature and fan RPM.



Server Connector

## 12. Chassis Open Alarm Connector (4-1 pin CHASSIS)

This connector is for an optional ASUS System Monitoring Module for monitoring chassis open/close status. A high level signal to the chassis signal lead will indicate to the system that the chassis has been opened.



Chassis Connector

- Power (+3V/+5V)
- Chassis Signal
- Ground

For the chassis open alarm feature to work, you must connect the optional ASUS Server Management Module to these pins.

The +5V power comes from the power supply, when the A/C is connected. With the A/C power disconnected, the +3V power comes from the onboard button cell battery.

# III. INSTALLATION

## 13. SMI Suspend Switch Lead (SMI)

This allows the user to manually place the system into a suspend mode or “Green” mode where system activity will be instantly decreased to save electricity and expand the life of certain components when the system is not in use. This 2-pin connector (see the figure below) connects to the case-mounted suspend switch. If you do not have a switch for the connector, you may use the “Turbo Switch” since it does not have a function. SMI is activated when it detects a *short to open* moment and therefore leaving it shorted will not cause any problems. May require one or two pushes depending on the position of the switch. Wake-up can be controlled by settings in the BIOS but the keyboard will always allow wake-up (the SMI lead cannot wake-up the system). If you want to use this connector, “Suspend Switch” in the **Power Management Setup** of the BIOS SOFTWARE section should be on the default setting of *Enable*.

## 14. ATX Power Switch / Soft Power Switch (PWR SW.) (ATX Power Req.)

The system power can be controlled by a momentary switch connected to this lead. Pushing the button once will switch the system between ON and OFF. The system power LED shows the status of the system’s power.

## 15. Reset Switch Lead (RESET)

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch. This is a preferred method of rebooting in order to prolong the life of the system’s power supply.

## 16. System Power LED (PWR.LED) or (TB.LED)

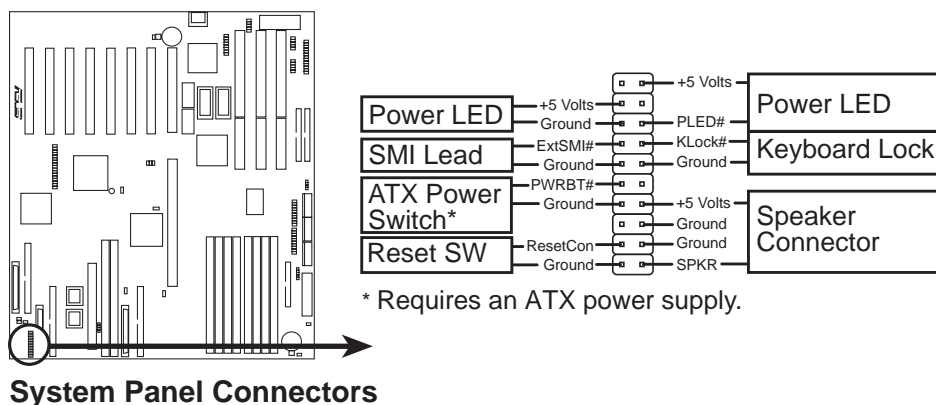
This 3-pin (PWR.LED) or 2-pin (TB.LED) connector connects to the system power LED, which lights when the system is powered on and blinks when it is in sleep (suspend) mode.

## 17. Keyboard Lock Switch Lead (KEYLOCK)

This 2-pin connector connects to the case-mounted key switch to allow keyboard locking.

## 18. Speaker Connector (SPEAKER)

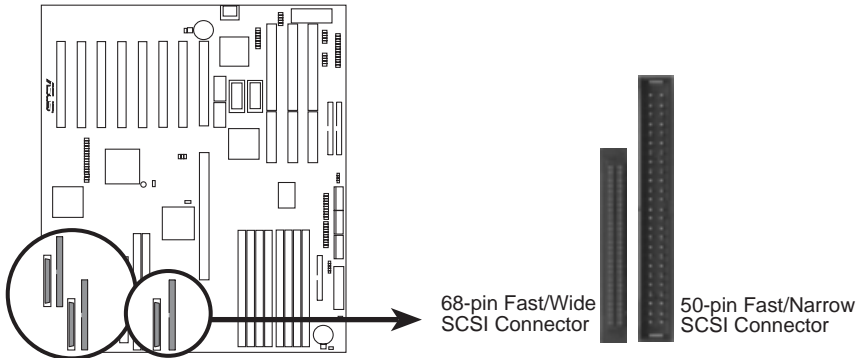
This 4-pin connector connects to the case-mounted speaker.



# III. INSTALLATION

## 19. Ultra-Fast SCSI & Ultra-Wide SCSI Connectors

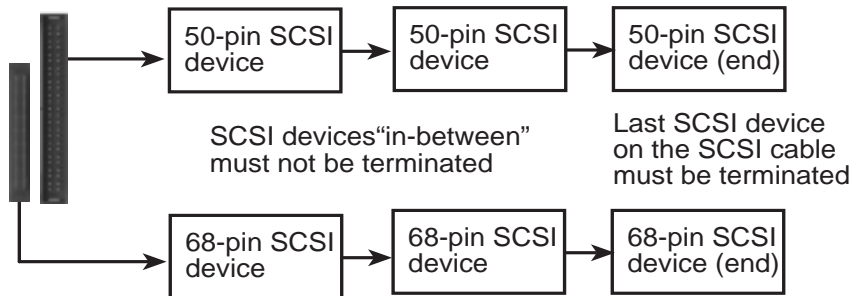
This motherboard provides three onboard 50-Pin Ultra-Fast SCSI connector for 8-bit SCSI devices and three 68-Pin Ultra-Wide SCSI connector for 16-bit SCSI devices.



**Onboard SCSI Connectors**

### Ultra-Fast SCSI & Ultra-Wide SCSI Connection Example

Up to 15 devices can be connected on each channel using either 50-Pin Fast-SCSI and/or 68-Pin Ultra-Wide SCSI connections. Three channels are provided on this motherboard.

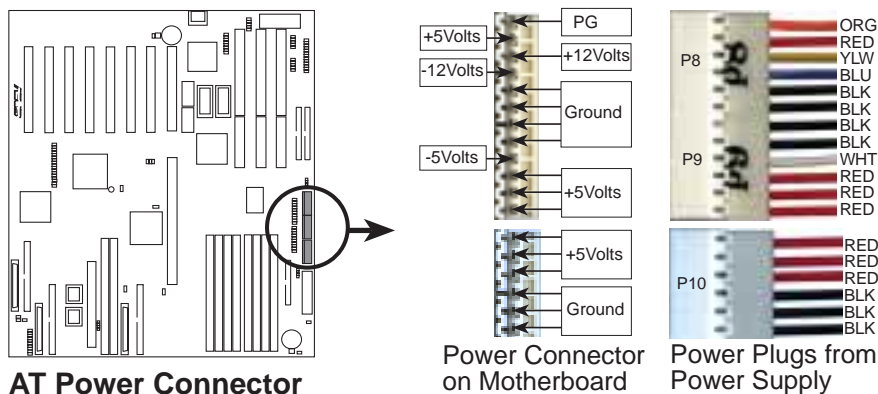


SCSI device connection on one channel (two types of connectors are provided). Connect one chain of 50-pin SCSI devices and/or one chain of 68-pin SCSI device not to exceed a maximum of 15 SCSI devices on each channel.

# III. INSTALLATION

## 20. Main and Auxilliary AT Power Connectors (12-pin & 6-pin PWRCON)

This connector connects to a standard 5 Volt power supply. To connect the leads from the power supply, ensure first that the power supply is not plugged. Most power supplies provide two plugs (P8 and P9), each containing six wires, two of which are black. An auxilliary connector (P10) is provided in case the power supplied through the main connectors are insufficient. Orient the main connectors so that the black wires are located in the middle.

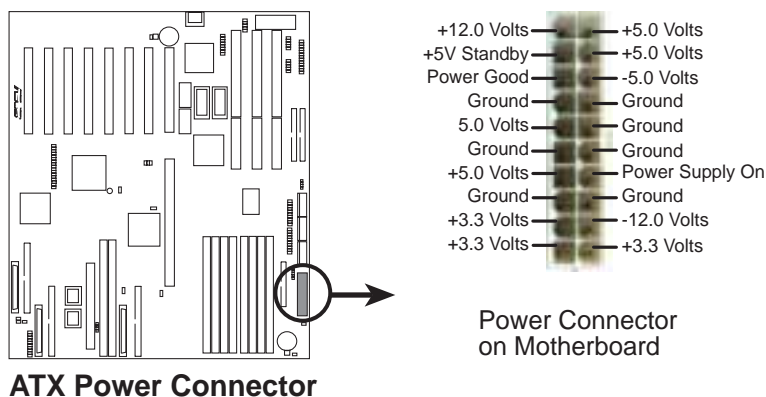


Using a slight angle, align the plastic guide pins on the lead to their receptacles on the connector. Once aligned, press the lead onto the connector until the lead locks into place.

## 21. ATX Power Supply Connector (20-pin ATXPWR)

This connector connects to a ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.

**IMPORTANT: Be sure that the ATX power supply can take at least 10mAmp load on the 5volt standby lead (5VSB). You may experience difficulty in powering on your system without this.**





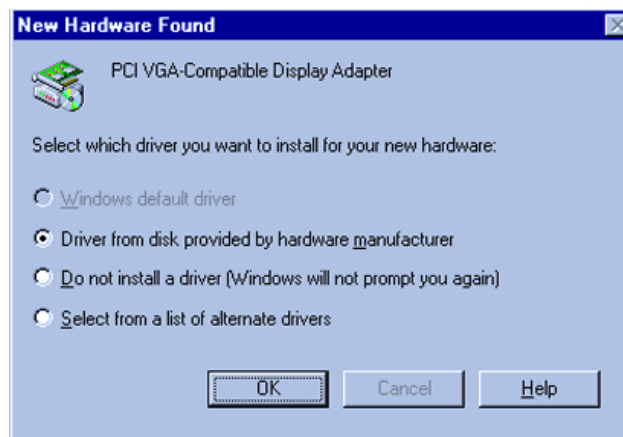
# IV. VGA Installation

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## Windows 95 Video Driver Installation

### Installing Video drivers in Windows 95 (New Hardware Found)

If you are installing the S3 Trio64 graphics device for Windows 95 for the first time, a **New Hardware Found** window will appear:



1. Click **OK** to use the default selection: **Driver from disk provided by hardware manufacturer**
2. Insert ASUS support CD and click **Browse** button - Open window appears
3. Select your CD-ROM drive in the **Drives:** box
4. Select **VGA\WIN95**
5. Click the **OK** button - Install from Disk appears - Click **OK** button again
6. After restarting Windows, your S3 Trio64 graphics device should be automatically detected.

# IV. VGA Installation

## Windows 95 Video Driver Installation

### Using Control Panel

1. Start Windows 95, switch display to VGA mode, then restart.
2. Press right key of mouse on your desktop and select **Properties**. Click the **Settings** tab.



3. Select **Change Display Type**.
4. Click **Change..**
5. Click **Have Disk**. Insert the ASUS support CD. Type **D:\VGA\WIN95** (assuming your CD-ROM drive is letter D) or click **Browse** button to select the path of the display driver for Windows 95. Click **OK**. You will see a list of ASUS VGA devices. Select the appropriate VGA device and press **OK** to start installation.
6. When all files are copied, return to **Display Properties** window by clicking **Close**. Press **Apply..** Click **Yes** to restart Windows.



7. When Windows starts up, your VGA device is now ready to use.

# IV. VGA Installation

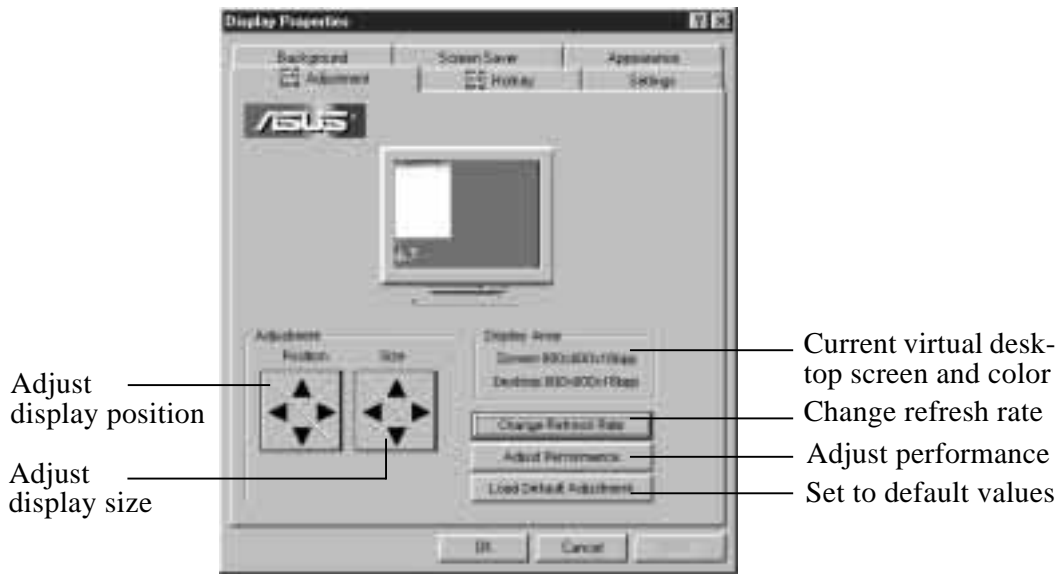
## Windows 95 Display Settings

### Changing display settings

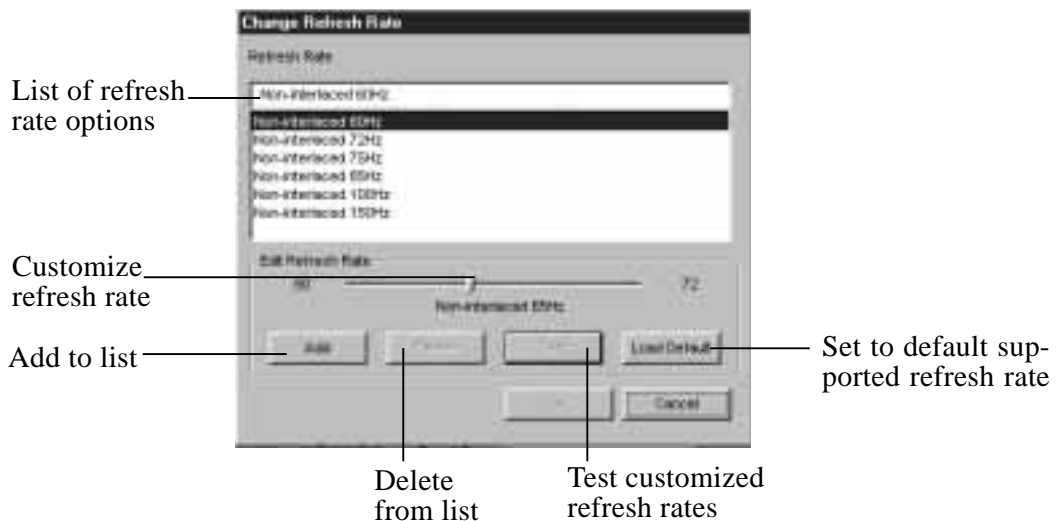
To enter the **Display Properties** at any time, right click your mouse on the desktop and select **Properties** or double click the **Display** icon in the **Control Panel**. Click the appropriate Tab as follows:

### Adjustment:

Lets you change your monitor settings, such as position, size, refresh rate and performance.

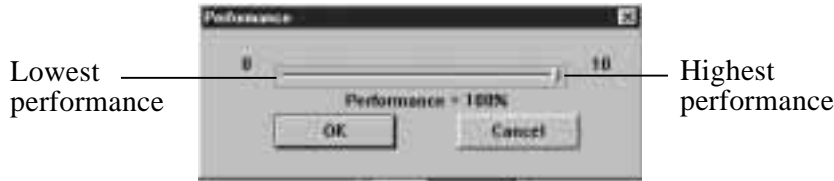


### Change Refresh Rate:



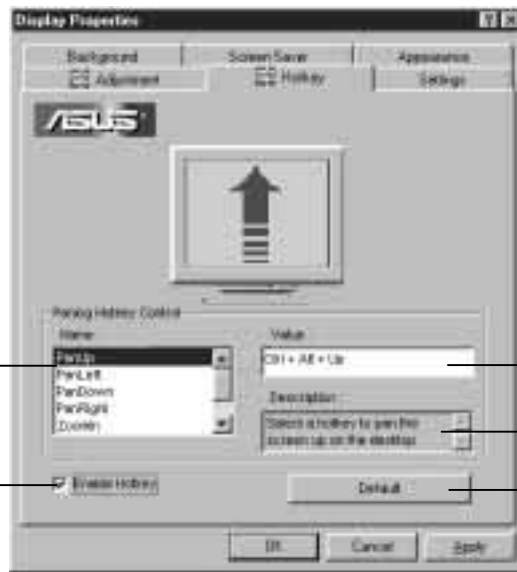
# IV. VGA Installation

## Adjust Performance



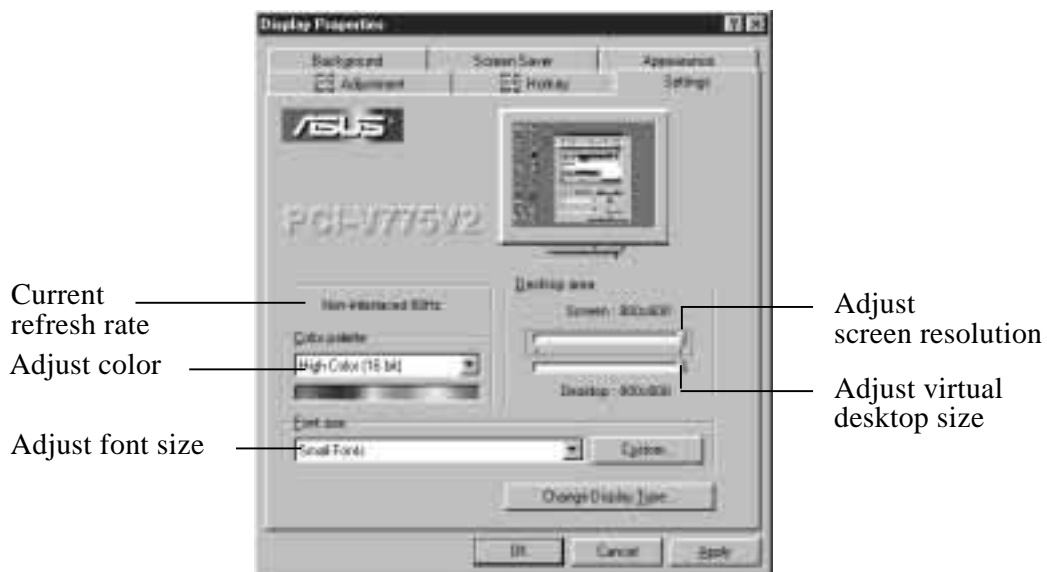
### Hotkey:

Allows you to assign hotkeys in the "Value" box to move your screen up, down, left, and right, or zoom in, zoom out in virtual desktop.



### Settings:

Allows you to change your display settings, adjust screen resolution and color depth, virtual desktop, color palette and font size.



## IV. VGA Installation

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### Windows NT 4.0 Video Driver Installation

1. Boot Windows NT in standard VGA mode (recommended).
2. Run Windows NT Display program located in the **Control Panel**, under **Settings** in the **Start** menu. Alternatively, position the cursor on the background of the desktop, click the right mouse button, then select **Properties** from the popup menu.
3. Select the **Settings** page.
4. Select **Display Type...**
5. Select **Change...** from the display options.
6. Select **Have Disk...**
7. Windows NT will prompt you for the correct path, enter the path of driver in CD-ROM such as **D:\VGA\NT40** (assuming your CD-ROM drive is letter D).
8. A list of ASUS S3 series video adapters will be displayed. Select the one you are using, then click on the **OK** button.
9. Windows NT will once again prompt for confirmation. All appropriate files are then copied to the hard disk.
10. Select **Apply** in **Control Panel**. Restart Windows NT. Windows NT will start up using the S3 drivers.
11. Windows NT will boot into a default mode and start the Display applet allowing for mode selection.

## IV. VGA Installation

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### Windows NT 3.51 Video Driver Installation

1. Boot Windows NT in standard VGA mode (recommended).
2. Double-click the **Main** icon.
3. Double-click the **Control Panel** icon.
4. Double-click the **Display** icon.
5. Click **Change Display Type** button.
6. Click **Change** button.
7. Click **Other**.
8. Insert the ASUS support CD into your CD-ROM drive. For Windows NT 3.51, type the following: **D:\VGA\NT351** (assuming your CD-ROM drive is letter D)
9. Click **OK** button.
10. Select **S3 driver**.
11. Click **Install**.
12. Click **Yes** to change your system configuration.
13. Click **Continue** to confirm the full path name.
14. After the files have been copied to your computer, click **OK**.
15. Reboot Windows NT.
16. After reboot, the **Invalid Display Settings** window appears. Click **OK**.
17. The **Display Settings** dialogue box appears. Select a desired display mode. For more detailed information about changing your display mode, click **Help**.

## IV. VGA Installation

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### IBM OS/2 Video Driver Installation

**WARNING: The S3 Trio64 device OS/2 video driver is to be used for the English version of OS/2 only.**

1. Start OS/2 using standard VGA driver
2. Double-click the **OS/2 System** folder
3. Double-click the **Command Prompts** folder
4. Double-click the **OS/2 Full Screen** object
5. Insert the ASUS support CD (assuming your CD-ROM drive is letter D)
6. Type **D:\VGA\OS2\ENGLISH** <Enter> and **SETUP.CMD** <Enter>
7. In the Monitor Configuration Selection Utility, select **Install Using Defaults for Monitor Type**
8. Click **OK** when **Display Driver Install** panel appears
9. Restart OS/2. It will default to 640x480 in 256 colors. To change screen resolution and/or color depth, see your OS/2 User's Guide.

### AutoCAD Video Driver Installation

1. Enter DOS mode
2. Insert the ASUS support CD (assuming your CD-ROM drive is letter D)
3. Change current directory to **D:\DOS\AutoCAD**, type **INSTALL** <Enter>
4. Follow the instructions to complete the installation of the drivers. Type directory name where AutoCAD drivers are located when installation program asks you. Your video drivers should be installed and ready to use.

### Microstation Video Driver Installation

1. Enter DOS mode
2. Insert the ASUS support CD (assuming your CD-ROM drive is letter D)
3. Change current directory to **D:\DOS\Mstation**, type **INSTALL** <Enter>
4. Follow the instructions to complete the installation of the drivers. Your video drivers should be installed and ready to use.

## IV. VGA Installation

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