ASUS® *Terminator*

Barebone System

Installation Guide

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FCC/CDC Statements

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:

- Reorient 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.

This class B digital apparatus complies with Canadian ICES-003.

Table of Contents

System Package Contents

The following checklist enumerates the components included in the standard system package.

1) System Chassis
2) Motherboard
3) Switching Power Supply
4) 1.44MB Floppy Disk Drive
5) CD-ROM Drive (optional)
6) 56K PCI Modem Card (optional)
7) Support CD with Drivers and Utilities
8) Installation Guide

> **NOTE**
>
> If you are assembling the system by yourself, make sure to prepare all the components before starting. It saves you a lot of time not having to hunt down components when you need them.

Introduction

You are reading the ASUS Terminator Barebone System Installation Guide. This guide provides general information and installation instructions about the Terminator Barebone System.

"About This Guide" contains an introduction on the contents of this document that include target audience and chapter description.

About This Guide

Audience

This installation guide is intended for experienced users and integrators with hardware knowledge of personal computers.

Contents Description

This installation guide contains the following parts:

1. **Introduction: About This Guide**
   This part contains an introduction on the contents of this document that include target audience and chapter description.

2. **Chapter 1: System Introduction**
   This chapter gives a general description of the ASUS Terminator barebone system. It includes introduction on the front and rear panel features, and the internal features.
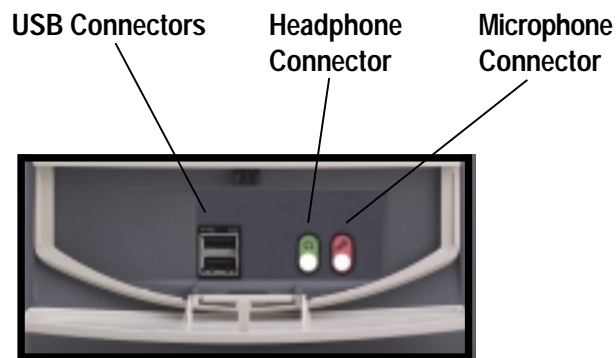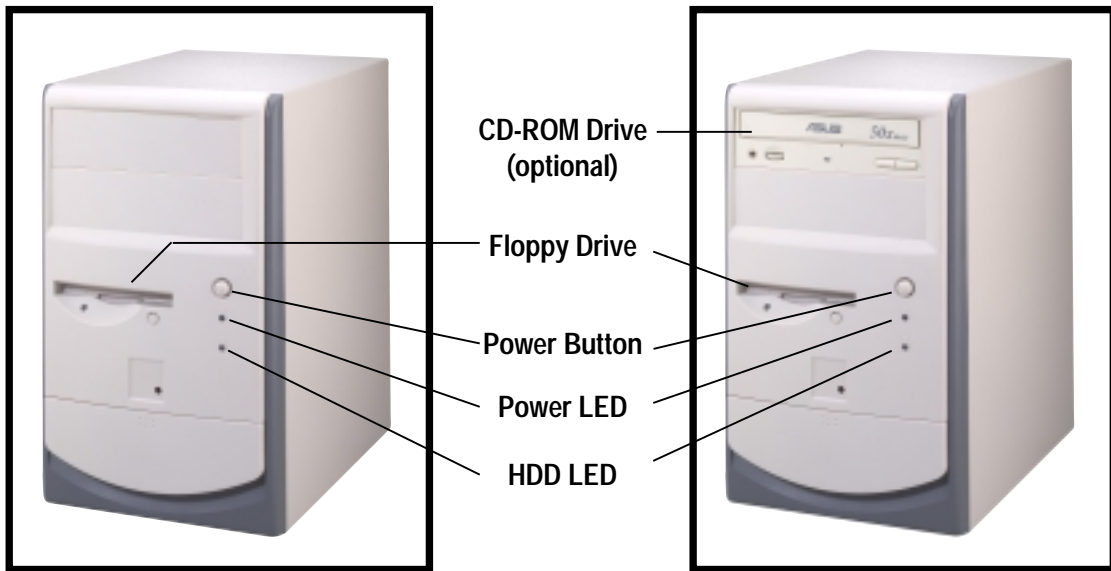
3. **Chapter 2: Basic Installation**
   This chapter tells how to install components into the barebone system through illustrated step-by-step instructions.

4. **Chapter 3: Motherboard Information**
   This chapter gives information about the CUSC motherboard that comes with the ASUS Terminator Barebone System.This chapter includes the motherboard layout, jumper settings, and connector locations. It also includes information on the USB/audio board located on the front panel.

Chapter 1

This chapter gives a general description of the ASUS Terminator barebone system. It includes introduction on the front and rear panel features, and the internal features.

System Introduction

1.1 Front Panel Features

The ASUS Terminator barebone system is composed of the ASUS CUSC motherboard, a power supply, and a floppy disk drive in the ASUS TriOptix form factor chassis.

The following figures show the front panel features.

> **NOTE**
>
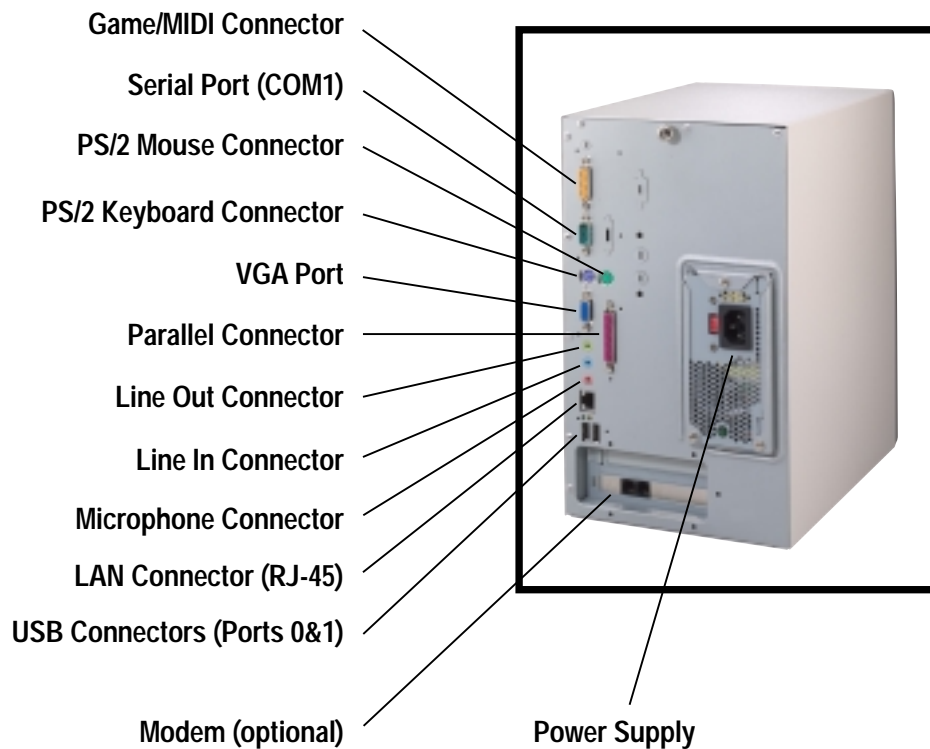> The CD-ROM drive and modem card are optional items and may not come installed in some models.

CD-ROM Drive (optional)
Floppy Drive
Power Button
Power LED
HDD LED

USB Connectors
Headphone Connector
Microphone Connector

The lower part of the front panel is a door that covers accessible I/O features that include two USB connectors (Ports 2&3), a headphone connector, and a microphone connector. Push the dotted area of the door to open it and show the connectors as in the above figure.

1.2 Rear Panel Features

The rear panel of the ASUS Terminator barebone system includes the standard PC99 I/O connectors for external devices, power supply socket, and optional modem connectors.

The following figure shows the rear panel features.

Game/MIDI Connector
Serial Port (COM1)
PS/2 Mouse Connector
PS/2 Keyboard Connector
VGA Port
Parallel Connector
Line Out Connector
Line In Connector
Microphone Connector
LAN Connector (RJ-45)
USB Connectors (Ports 0&1)

Modem (optional)   Power Supply

Voltage Selector

The switching power supply that came with the system has a voltage selector switch beside the power socket. Use this switch to select the appropriate voltage according to the voltage supply in your area.

If the voltage supply in your area is 100-127V, set the switch to 115V.

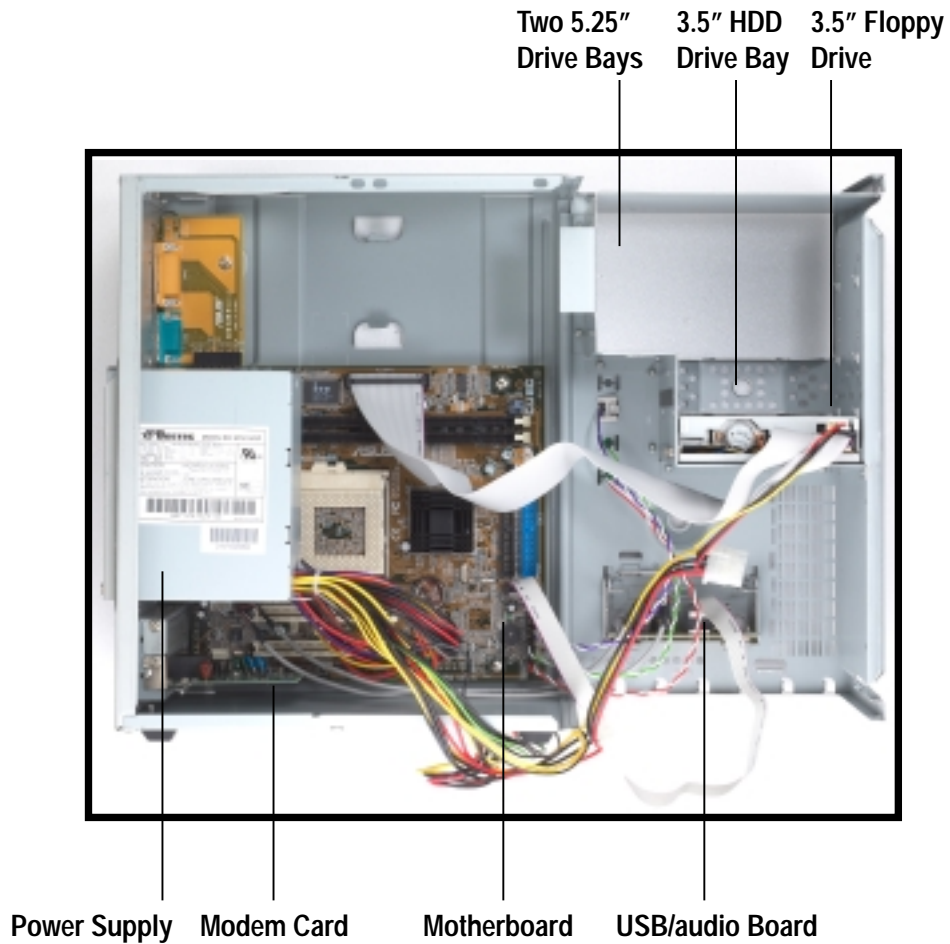If the voltage supply in your area is 200-240V, set the switch to 230V.
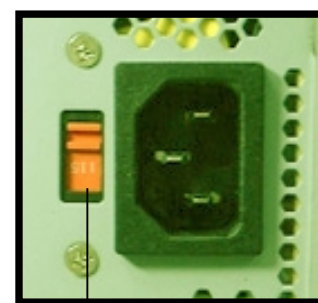
115V/230V
Voltage Selector

> **CAUTION!**
>
> Setting the switch to 115V in a 230V environment will seriously damage the system.

1.3 Internal Features

The figure below shows the internal view of the system when you remove the cover and flip out the drive frame. You will see here the standard components that come already installed in the system and the places where you can install the other required components to get the system running.

Two 5.25″ Drive Bays   3.5″ HDD Drive Bay   3.5″ Floppy Drive

Power Supply   Modem Card   Motherboard   USB/audio Board

Chapter 2

This chapter tells how to install components into the barebone system through illustrated step-by-step instructions.

Basic Installation

2.1 Remove the Cover

The chassis cover is secured by a thumbscrew located on the rear panel.
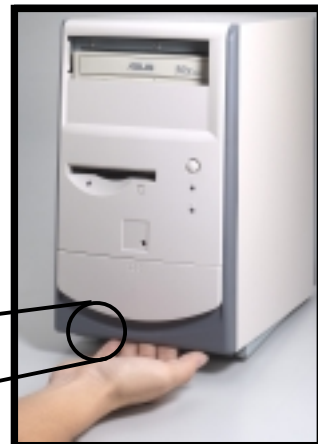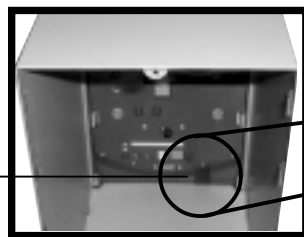
Follow these steps to remove the chassis cover.

1. Turn the captive thumbscrew counter-clockwise to release the cover. You don't have to remove the thumbscrew from the chassis.

Thumbscrew
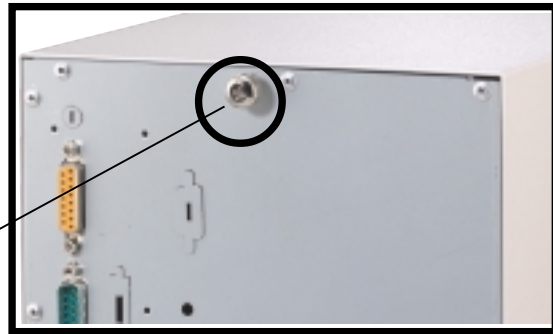
2. Place your hand underneath the front panel and push up the locking tab that secures the panel to the chassis.

Locking Tab

> **TIP**
>
> Another way to release the cover is to push on the CD-ROM area with your thumbs while holding the upper part of the front panel. Then lift it up.

3. Pull up the front panel for about an inch after unlocking the tab.

4. While still holding the front panel, place your other hand on the top rear edge of the cover and carefully lift the cover from the chassis.
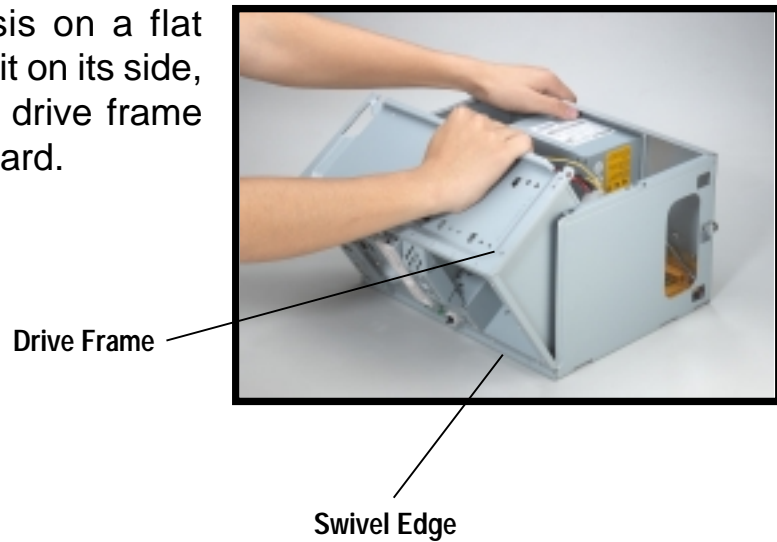
2.2 Detach the Drive Frame

After removing the chassis cover, detach the disk drive frame to access the components beneath it.

Follow these steps to detach the drive frame.

1. Place the chassis on a flat surface and turn it on its side, then unlatch the drive frame by pulling it outward.

Drive Frame

Swivel Edge

NOTE

The drive frame has a swivel (hinge-like) edge that is attached to the main chassis. It is not necessary to completely detach the drive frame from the chassis when installing components.

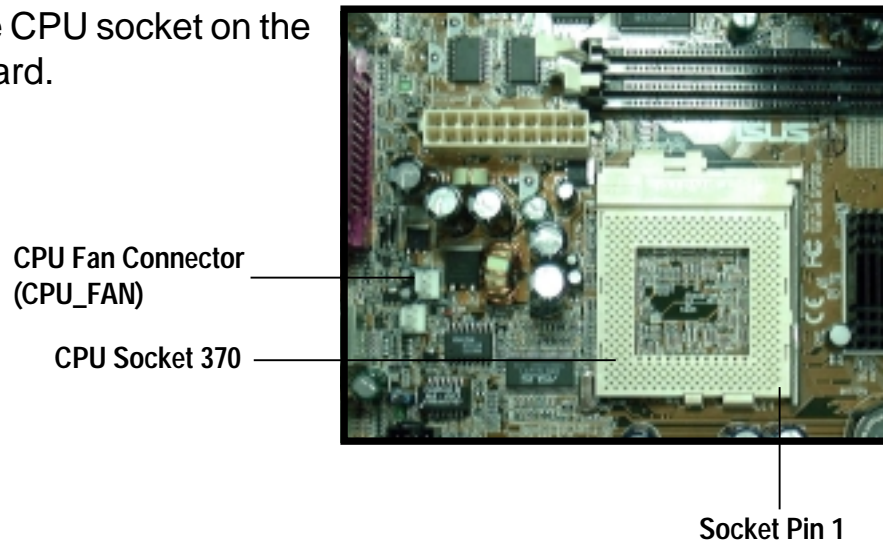2. Carefully lay the drive frame alongside the main chassis frame.
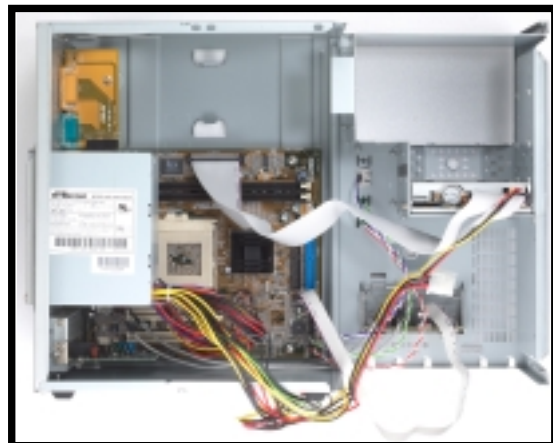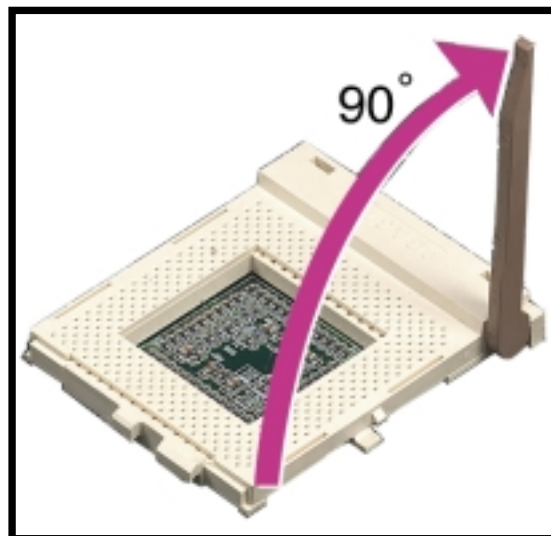
2.3 Install a CPU

The ASUS CUSC motherboard that comes installed in the chassis has a Socket 370 that supports an Intel Pentium III/Celeron processor.

Follow these steps to install a CPU.

1. Locate the CPU socket on the motherboard.

CPU Fan Connector
(CPU_FAN)

CPU Socket 370

Socket Pin 1

2. Unlock the socket by pressing the lever sideways then lifting it up to a 90°-100° angle.

2.3 Install a CPU

3. Position the CPU above the socket such that its notched or marked corner matches the Socket Pin 1, while making sure that the CPU is parallel to the socket.

Notched Corner
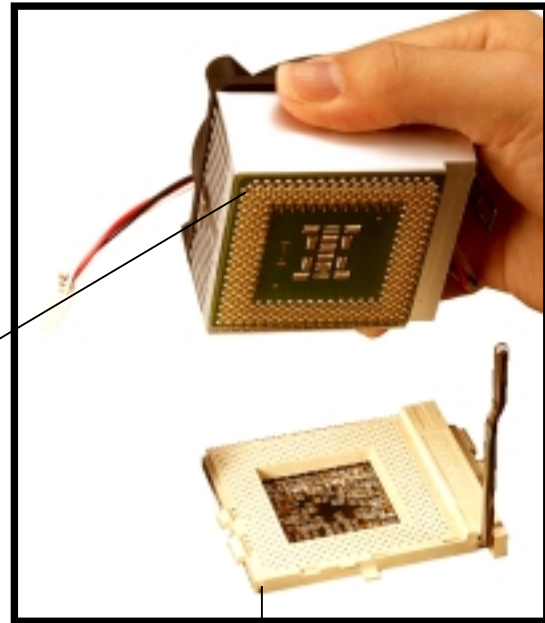
Socket Pin 1

4. Carefully insert the CPU into the socket until it fits in place.

5. Push down the lever to secure the CPU. The lever clicks in place indicating that the socket is locked.

6. Connect the CPU fan cable to the 3-pin CPU_FAN connector on the motherboard. Refer to the picture in step 1.

CPU Fan Cable

WARNING!

The CPU fits only in one orientation. DO NOT force the CPU into the socket to prevent bending the pins and damaging the CPU. If the CPU does not fit completely, check its orientation or check for bent pins.
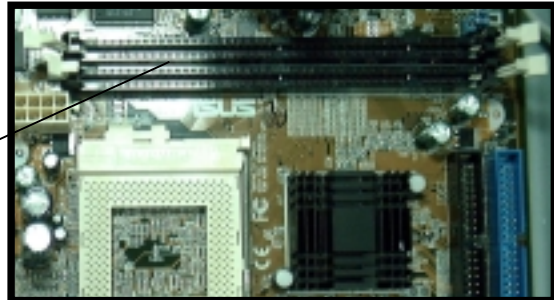
2.4   Install System Memory

The motherboard includes two 168-pin Dual Inline Memory Module (DIMM) sockets. The sockets support up to 1GB system memory using PC133-compliant Synchronous Dynamic Random Access Memory (SDRAM) DIMMs.
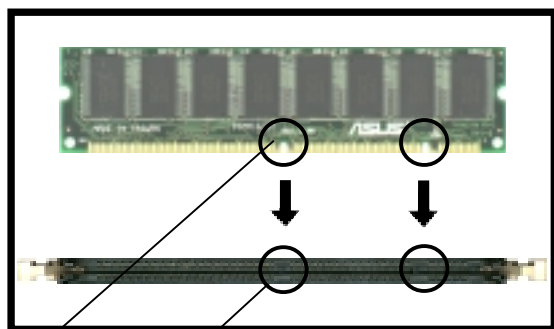
Follow these steps to install a DIMM.

1. Locate the DIMM sockets on the motherboard.

DIMM Sockets

2. Unlock a DIMM socket by pressing the retaining clips outward. Align a DIMM on the socket such that the notches on the DIMM match the breaks on the socket.
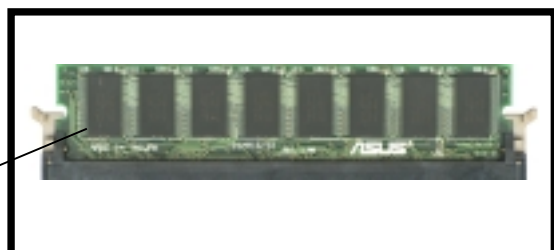

DIMM Notch

Socket Break

CAUTION!

DIMMs are keyed with notches so that they fit in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.

3. Firmly insert the DIMM in the socket until the retaining clips snap back in place and the DIMM is properly seated.

Installed DIMM

2.5 Install a Hard Disk Drive

The chassis has one 3.5-inch hard disk drive (HDD) bay right under the 5.25-inch bay. The following figures show the internal and external views of the HDD bay location.

Internal View

External View
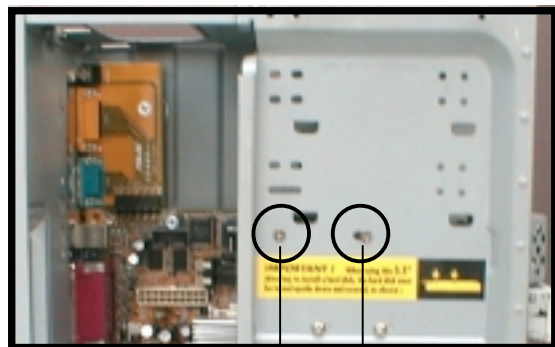

5.25-inch Drive Bay

3.5-inch HDD Drive Bay
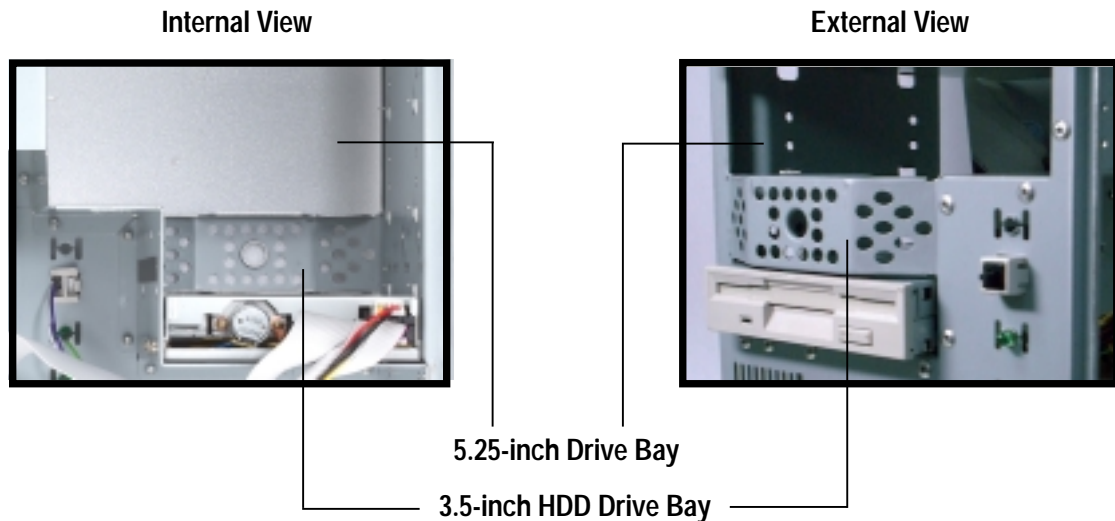
Follow these steps to install an IDE HDD.

1. Place the chassis upright.

2. With its component side up, carefully insert the HDD into the 3.5-inch bay.

HDD Component Side

3. Carefully push the HDD into the bay until its screw holes align with the holes on the bay.

4. Secure the HDD with two screws on each side of the bay.

HDD Screws

2.5 Install a Hard Disk Drive

5. Connect a power cable from the power supply to the power connector at the back of the HDD. Use the cable with the white connector labeled HDD.

6. Connect one end of the IDE hard disk ribbon cable to the IDE interface at the back of the HDD, matching the red stripe on the cable with Pin 1 on the IDE interface.
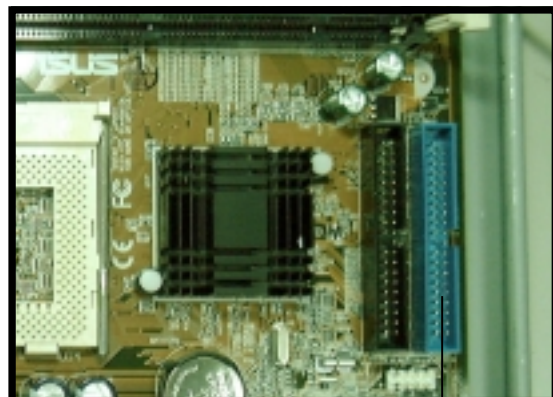
IDE Ribbon Cable

Red Stripe to Pin 1

Power Cable (HDD)

7. Connect the other end of the IDE ribbon cable to the primary IDE connector (blue connector labeled IDE1) on the motherboard.

Primary IDE Connector (IDE1)

2.6   Install a CD-ROM Drive

A CD-ROM drive is an optional item in the Terminator barebone system. Refer to the instructions in this section if you acquired a model without a CD-ROM.

Follow these steps to install a CD-ROM drive.

1. Place the chassis upright.

2. Insert the CD-ROM drive into the upper 5.25-inch bay.

5.25-inch Drive Bay

3. Carefully push the CD-ROM drive into the bay until its screw holes align with the holes on the bay as shown.

4. Secure the CD-ROM with two screws on each side of the bay.

CD-ROM Screws

2.6   Install a CD-ROM Drive

5. Connect a power cable from the power supply to the power connector at the back of the CD-ROM. Use the cable with the white connector labeled P6.

6. Connect one end of the IDE ribbon cable to the IDE interface at the back of the CD-ROM, matching the red stripe on the cable with Pin 1 on the IDE interface.

7. Connect one end of the CD-ROM audio cable to the 4-pin connector at the back of the CD-ROM.
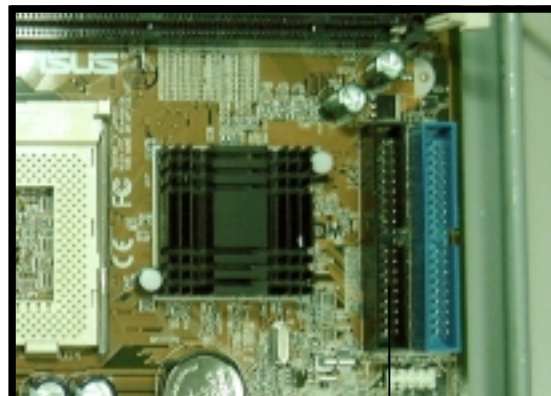
CD-ROM Audio Cable

IDE Ribbon Cable

Red Stripe to Pin 1

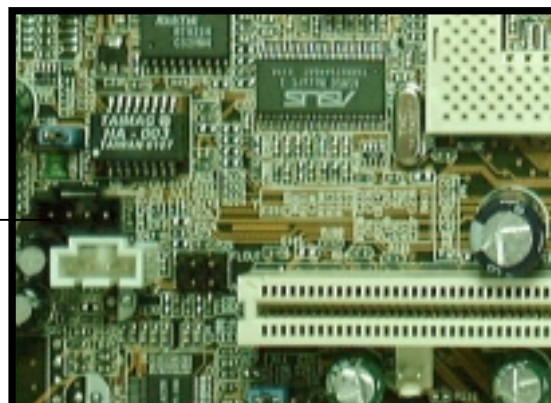Power Cable (P6)

8. Connect the other end of the IDE ribbon cable to the secondary IDE connector (black connector labeled IDE2) on the motherboard.

Secondary IDE Connector (IDE2)

9. Connect the other end of the audio cable to the black 4-pin connector labeled CD on the motherboard.

CD-ROM Connector (CD)

2.7 Install a Modem Riser Card

The motherboard includes an AMR slot that supports a modem riser card. The modem riser card is an optional item in the Terminator barebone system. Refer to the instructions in this section if you acquired a model without a modem riser card.

The figure on the right shows a modem riser card that you can install on the AMR slot.

Connect to a
Telephone Line

Connect to a
Telephone Set
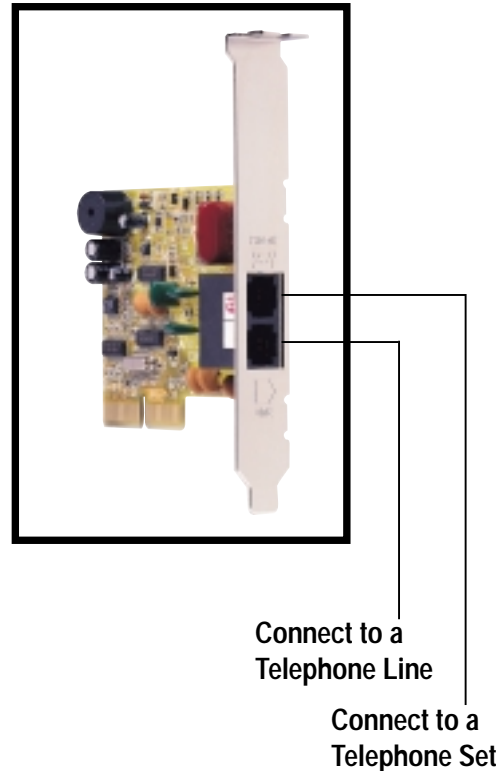
Follow these steps to install a modem riser card.

1. Place the chassis on its side.
2. Remove the metal bracket cover opposite the AMR expansion slot.
3. Align the modem card golden fingers to the AMR slot and its metal bracket to the slot opening on the chassis.
4. Press the card firmly until the it is properly seated on the slot.
5. Secure the card to the chassis with a bracket screw.
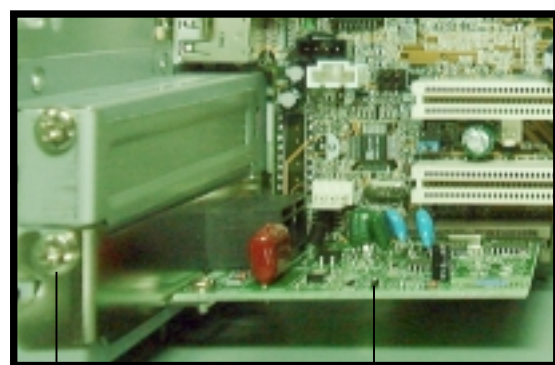
Bracket Screw   Modem Riser Card
                     Installed on the AMR Slot

2.8 Install a PCI Expansion Card

The motherboard has two 32-bit PCI slots (one shared with AMR slot). If you wish to install a PCI card, refer to the instructions in this section.

The figure on the right shows a sample PCI network card that you can install on the PCI slot.

Follow these steps to install a PCI expansion card.

1. Place the chassis on its side.
2. Remove the metal bracket cover opposite the PCI slot marked PCI1.

   > **NOTE**
   >
   > If you have installed a modem riser card, PCI2 is not available.

Slot Opening for PCI1

PCI Slot 1 (PCI1)

PCI Slot 2 (PCI2)

3. Align the PCI card golden fingers to the PCI slot and its metal bracket to the slot opening on the chassis.
4. Press the card firmly until the it is properly seated on the slot.
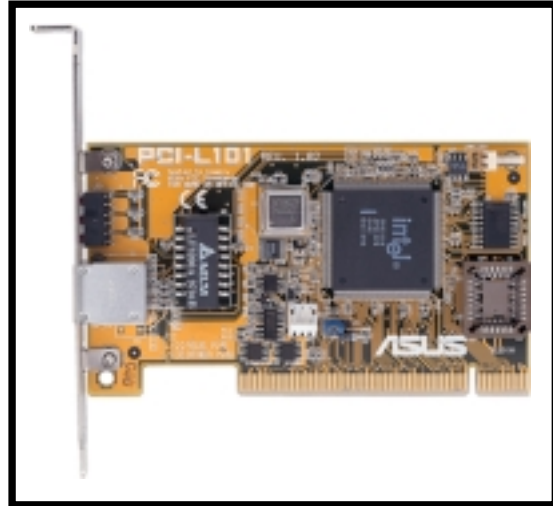5. Secure the card to the chassis with a bracket screw.

2.9   Re-connect Cables

You may have disconnected some cables when you were installing components. You must re-connect these cables before you replace the chassis cover.

The figures below show the front panel cables and their corresponding connectors on the motherboard.

Power Switch
Power LED
HDD LED
Line Out / Mic

USB Connector (USB2P)
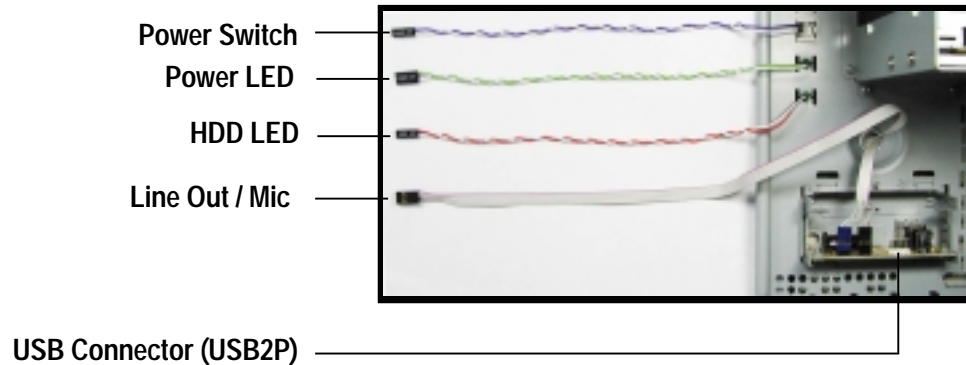
1. Connect the power switch and power LED cables to their respective leads in the PANEL connector on the motherboard.
2. Connect the HDD LED cable to the 2-pin lead marked IDELED.
3. Connect the Line Out/Mic cable to the FLOUT/MIC2 connector on the motherboard, matching the red pin stripe with Pin 1.
4. Connect the USB2P cable to the USB1 connector on the motherboard, matching the red pin stripe with Pin 1.

USB1 Connector

Speaker Connector

Speaker — Ground — Reset SW
Ground — Reset
Ground
+5V — Ground — ATX Power Switch*
PWR
Ground — SMI Lead
ExtSMI#
Power LED — PLED — TB_LED — Message LED
+5 V — +5 V
+5 V

PANEL Connector   * Requires an ATX power supply.

IDELED Lead

Pin 1

FLOUT Lead (for Line Out Cable)

MIC2 Lead (for Microphone Cable)
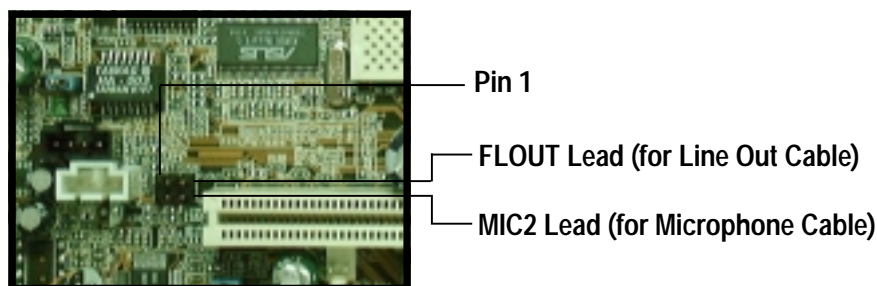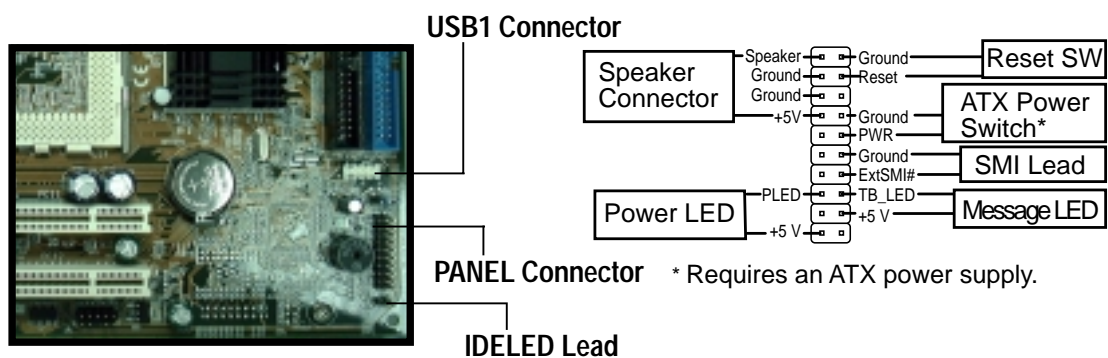
2.10 Replace the Cover

After you have installed all the internal components and you have connected all the necessary cables, you are now ready to put the system back together.

Follow these steps to re-assemble the system.

1. With the chassis lying on its side, hook the swivel edge of the drive frame to the main chassis.

2. Sway the drive frame inward until it fits completely. The protruding tabs on both ends of the drive frame should snap perfectly to the chassis edge.

Protruding Tab

3. Turn the chassis upright.

4. Place the cover over the chassis leaving about two inches from the rear panel.

2.10 Replace the Cover

5. Fit the rail tabs on the sides and bottom of the cover to the edges of the chassis.

Rail Tabs
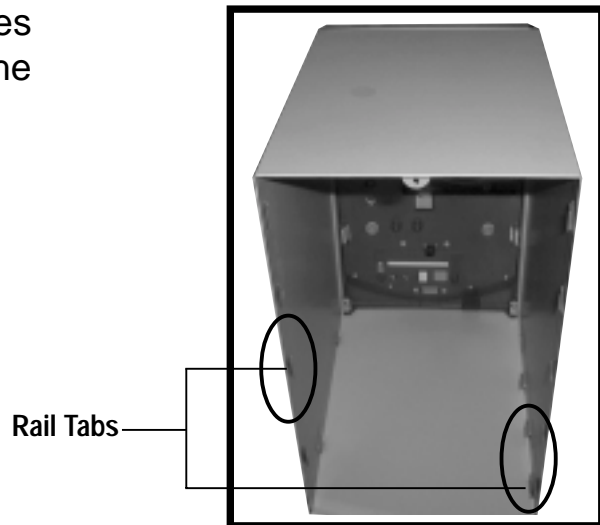
6. Push the cover towards the rear until it fits. The locking tab snaps into the hole on the chassis indicating that the cover is in place.

Locking Tab

Locking Tab Hole
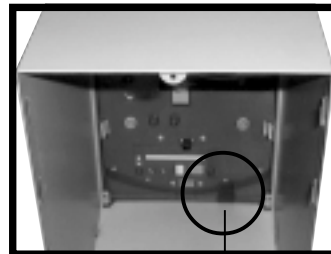
IMPORTANT

Firmly push the cover to ensure that it is fully engaged to the chassis.

7. Lock the cover with the captive thumbscrew on the rear panel.

2.11 Connect External Devices

The figure below shows the specific connectors and devices that you can connect to the rear panel ports.

Serial

PS/2 KB

VGA

Line Out

Line In

Mic

RJ-45

Game/MIDI

PS/2 Mouse

AC

Parallel

USB
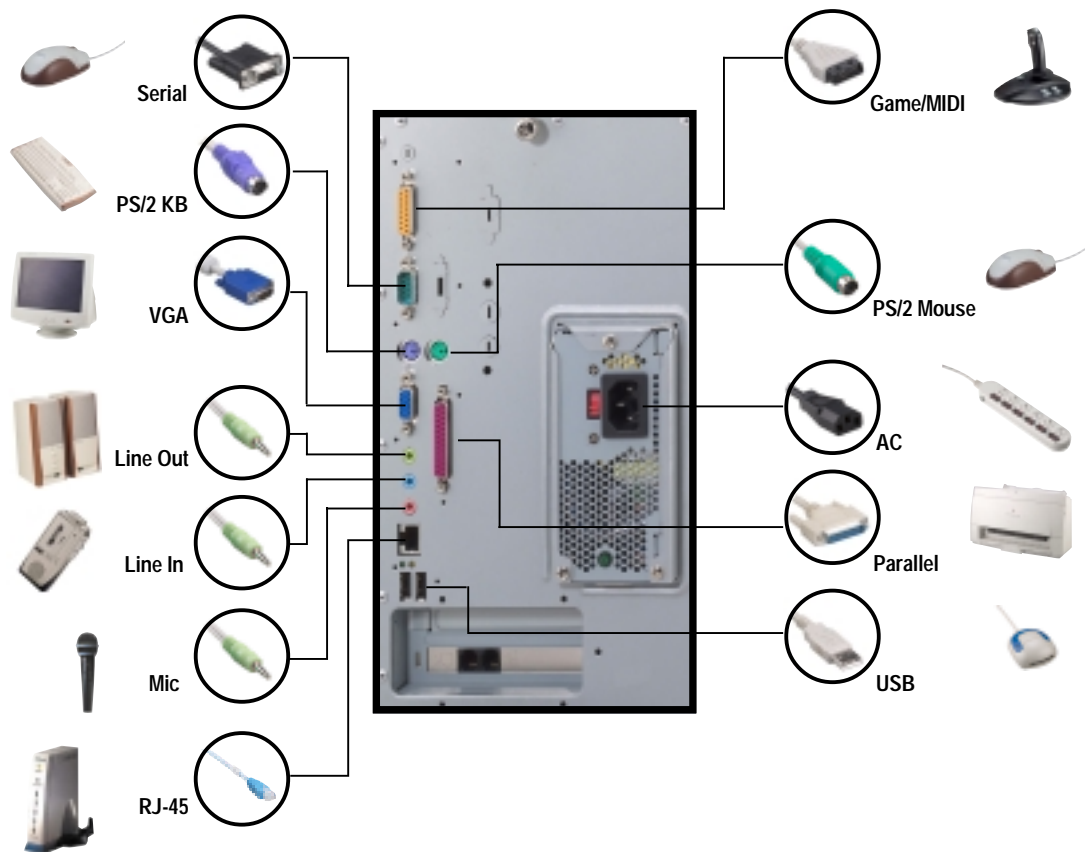
Chapter 3

This chapter gives information about the CUSC motherboard that comes with the ASUS Terminator Barebone System.This chapter includes the motherboard layout, jumper settings, and connector locations. It also includes information on the USB/audio board located on the front panel.

In cases when changing motherboard settings require corresponding BIOS settings adjustments, enter BIOS Setup by pressing the Delete key <Del> during boot up (Power-On Self Test).

M/B Information

3.1 Motherboard Layout

Refer to the layout below to locate specific motherboard components. The motherboard has a side connector for a detachable extension module (CGAEX) that includes a serial port (COM1) and Game/MIDI port.

GAME

COM1

CGAEX

IOC_DC

22.9cm (9.01in)

IOC_MB

PS/2
T: Mouse
B: Keyboard

Flash BIOS

Super I/O

FLOPPY

JP0 JP1 JP2

CUSC

COM1

DIMM Socket 2 (64/72-bit, 168-pin module) 2:3

DIMM Socket 2 (64/72-bit, 168-pin module) 0:1

PARALLEL PORT

ATX Power Connector

Line Out

Line In

Socket 370

SiS630(E) 3C Integration Single Chip

Primary IDE

Mic In

CPU_FAN

RJ-45

CH_FAN

ASUS Mozart

Secondary IDE

18.9cm (7.44in)

LANLED

USBPWR1

CR2032 3V Lithium Cell CMOS Power

USB
T: Port0
B: Port1

CD   FLOUT

USB1

AUX   MIC2

PCI Slot 1

USBPWR

Audio Codec

PDN   WOR

MODEM

PCI Slot 2

CLRTC

PANEL

Audio Modem Riser (AMR)

WOL_CON   IR

IDELED

3.2 USB/Audio Board Layout

The USB/audio board is located on the front panel to support externally accessible connectors including two USB, headphone, and microphone connectors.

USB
T: Port0
B: Port1

USB2P

UAEX

Connect to USB1 Connector
on the Motherboard

Front Panel
Connectors

LOUT

LO2

Connect to FLOUT Lead
on the Motherboard

MIC

MIC2

Connect to MIC2 Lead
on the Motherboard
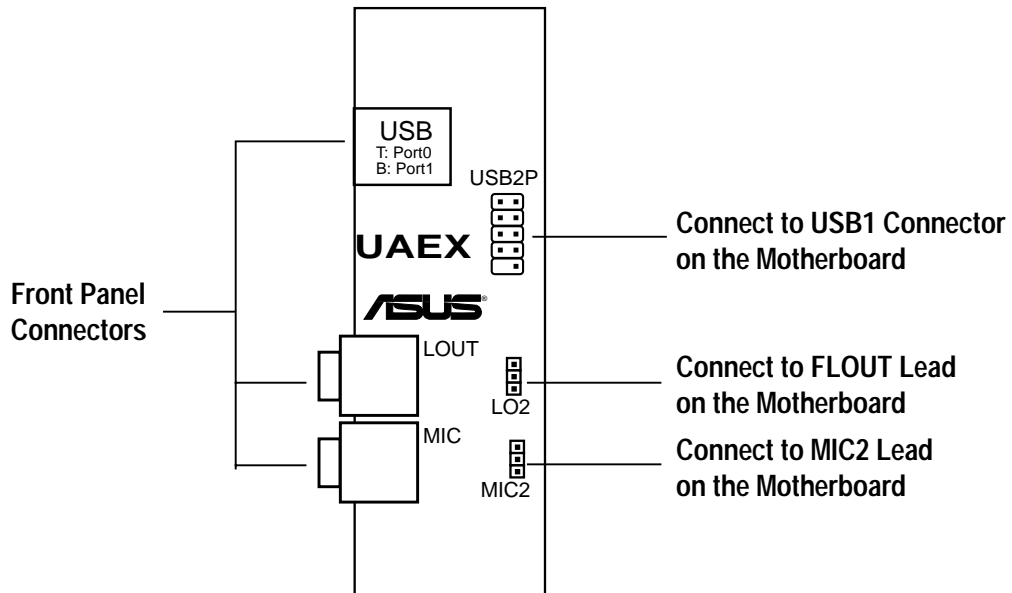
3.3 Jumper Settings

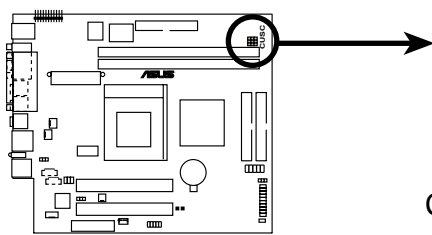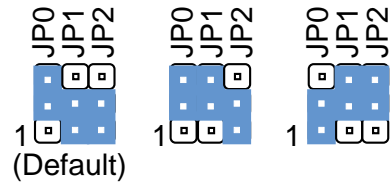The following jumper settings are for your reference in case you accidentally pull out jumper caps. DO NOT change the jumper settings to ensure stable system operation.

1. **External Frequency Selection.** These jumper settings tell the clock generator what frequency to send to the CPU, DRAM, and PCI buses.

CUSC External Clock (BUS) Frequency Selection

	(Default)		
CPU	66.6MHz	100.0MHz	133.3MHz
SDRAM	100.0MHz	133.3MHz	133.3MHz
PCI	33.3MHz	33.3MHz	33.3MHz

2. **USB Device Wake Up.** Set these jumpers to +5V to allow wake up from S1 sleep state (CPU stopped; RAM refreshed; system running in low power mode) using the connected USB devices. Set to +5VSB to allow wake up from S3 state (no power to CPU; RAM in slow refresh; power supply in reduced power mode).
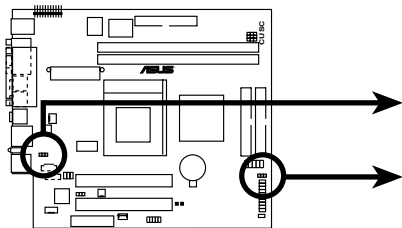
CUSC USB Device Wake Up

USBPWR
USBPWR1

1 2   2 3
+5VSB   +5V

3.3   Jumper Settings

3. **PDN Setting.** This jumper allows you to select the primary and secondary Audio Modem Riser (AMR) device. Set to 1-2 to use a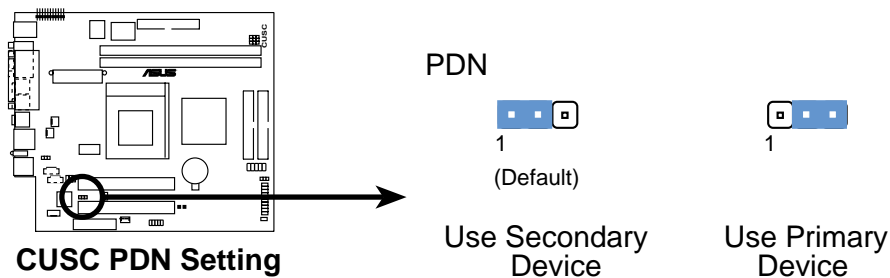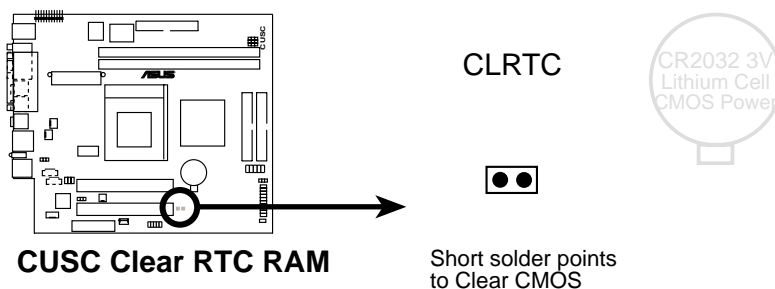 secondary AMR device, or set to 2-3 to use a primary AMR device. Disable the onboard AC97 audio parameter in BIOS when you use a primary AMR.

CUSC PDN Setting

PDN

1
(Default)

Use Secondary Device

1

Use Primary Device

4. **Clear RTC RAM.** This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The RAM data in CMOS, that include system setup information such as system passwords, is powered by the onboard button cell battery.

To erase the RTC RAM:

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery.
3. Short the jumper.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

CUSC Clear RTC RAM

CLRTC

CR2032 3V
Lithium Cell
CMOS Power

Short solder points
to Clear CMOS

3.4 Connectors

CD (Black)

Right Audio Channel
Ground
Left Audio Channel

AUX (White)

Right Audio Channel
Ground
Left Audio Channel

Modem-In (to Modem)
Ground
Modem-Out (from Modem)

MODEM

CUSC Internal Audio Connectors

CUSC Infrared Module Connector

+5V
(NC)
IRRX
GND
IRTX

SIR

CIR

(NC)
GND
CIRRX
CIR+5V

Standard Infrared (SIR)
Front View   Back View

IRTX
GND
IRRX
+5V
(NC)

CUSC USB Ports

USB Power
USBP2–
USBP2+
GND
NC

1   5

6   10

USB Power
USBP3–
USBP3+
GND

CUSC System Panel Connectors

Speaker Connector

Speaker
Ground
Ground
+5V

Ground
Reset

Reset SW

Ground
PWR

ATX Power Switch*

Ground
ExtSMI#

SMI Lead

Power LED

PLED
+5 V

TB_LED
+5 V

Message LED

* Requires an ATX power supply.