2. Installation

This Chapter provides information on how to install and configure the CB647M-LX/EX motherboard.

Check List

The standard packing of the CB647M-LX/EX should include :

- ☑ CB647M-LX/EX motherboard
- ☑ 1 IDE cable
- ☑ 1 Floppy cable
- ☑ CB647M-LX/EX User's Manual
- ☑ Device driver CD
- ☑ Universial Retention Mechanism (URM) Kit

Installation Steps

Installing of the CB647M-LX/EX motherboard depends on the type of case you use. The CB647M-LX/EX motherboard is designed for the Micro ATX form factor and must be installed in an Micro ATX chassis.

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

1. Set Jumpers
2. Installing the System Memory
3. Installing the CPU
4. Installing Cables
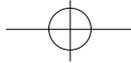
Set Jumpers

Serveral hardware settings are made through the use of jumper cap to connect jumper pins on the motherboard. See motherboard layout on page 1-5 for location of jumpers. The jumper settings will be described numerically such as '1-2', '2-3' or 'On(Short)', 'Off(Open)'.

Warning!

Computer motherboards and Add-on cards contain very delicate IC chips. To protect them against damage from static electricity, you should follow some precaution whenever you work on your computer.

1. *Unplug your computer when working on the inside.*
2. *Use a grounded wrist strap before handing 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 such the IC chips, leads or connectors, or other components.*
4. *Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.*

---

1. Clear CMOS RAM(JP10)

The CMOS RAM is powered by the onboard coin-cell battery or power supply. To clear the CMOS Data : (1) Turn off your computer and unplug your AC power, (2) Close pins 2-3, wait five seconds and place the jumper back on pins 1-2. (The jumper must be placed back on pins 1-2 for the system to function properly), (3) Turn on your computer.

2. CPU Core : BUS Frequency Multiple

To install the CPU at its correct frequency, Please refer the following table to set up CPU frequency.
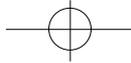
CPU Freq.	Clock Multiplier	Host Clock	JP6	JP7	JP8	JP9
233MHz	3.5	66MHz	Short	Open	Open	Short
266MHz	4	66MHz	Short	Short	Short	Open
300MHz	4.5	66MHz	Short	Open	Short	Open
333MHz	5	66MHz	Short	Short	Open	Open

Table 2-1. Pentium II CPU Frequency

Installing the System Memory

The CB647M-LX/EX motherboard has two 3.3V unbuffered 64/72-bit, 168-pin DIMM socket for maximum of 256MB of EDO and SDRAM memory.

1. Adding Memory

The following is a list of rules to follow when installing DIMMs. If you follow these rules, your upgrade should be trouble-free :

Use 10ns or faster SDRAM or 60ns or faster EDO DIMMs.
Single-side and double-side memory module are supported.
Different memory types and sized in separate banks will cause the performance of the memory to run at the speed of the slowest RAM installed, and/or cause operating system stability problems.

2. Memory Configuration

DIMM memory configuration is auto-banking and therefore does not need to be installed in any particular order. The following table lists a number of possible memory configurations.
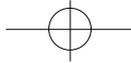
DIMM		TOTAL
DIMM1	DIMM2	
8MB	8MB	DIMM1+ DIMM2 The combination of memory size is from 8MB to maximum 256MB. All DIMM sockets can use either SDRAM or EDO memory.
16MB	16MB	
32MB	32MB	
64MB	64MB	
128MB	128MB	

Table 2-2. CB647M-LX/EX Memory Configurations

3. Installing and Removing DIMMs

To install the DIMMs, locate the memory banks on the motherboard and perform the following steps :

1. Hold the DIMM so that notched edge is aligned with the notch on the DIMM socket(Figure 2-1).

2. Insert the DIMM at a 90 degree angle.

3. Gently push the DIMM straight down until it locks into place(past the release tabs).
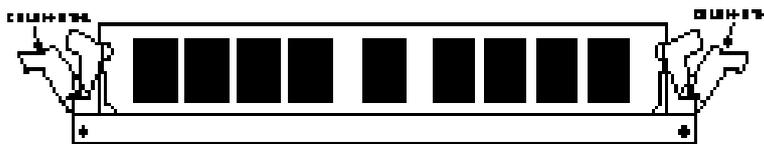
Figure 2-1. Installing a 168-pin DIMM

To remove DIMMs, follow the steps below:
1. With both thumbs (or fingers), press the release tabs away from the socket.
2. With the DIMM free from the release tabs, lift the memory module up and place in the anti-static bag or package.
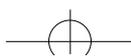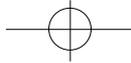
Installing the CPU

The CB647M-LX/EX is designed to support single Pentium II processor or celeron processor. The Pentium II processor comes installed in a Single Edge Contact Cartridge (SECC) that connects into "Slot 1" on the motherboard. Add the celeron processor comes installed in a Single Edge Processor Package(SEEP) that connects into "Slot 1" on the motherboard.

A URM is supplied to anchor the processor to the motherboard. Attach the URM before inserting the processor.

## Installing the Pentium   processor

1. Installing the URM

Before you begin, verify that your URM contains the following items:
   Body (black plastic module : require 2 pieces)
   Pin (Require 4 pieces)
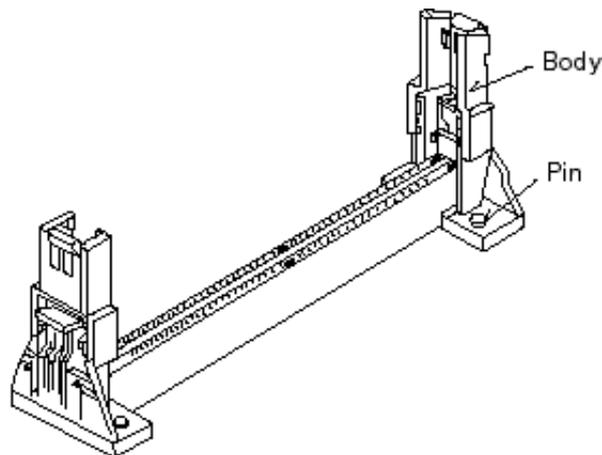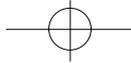
Follow the steps below to install the URM :

1. Locate the four Retention Base holes (near each end of the Slot 1 socket).
   Place the URM Body over each end of the Slot 1 connector.

2. Push down on the Pin with thumb or plastic fastener installation tool.

CB647M-LX/EX User's Manual
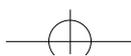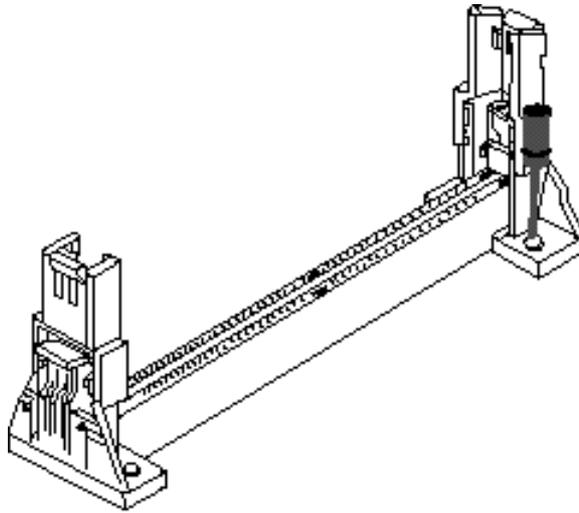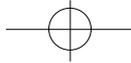
2. Installing a CPU

Follow the steps below to install the Pentium II processor:

1. Locate the Slot 1 connector.
2. If you are installing the boxed version of the Pentium II processor, follow the instructions in the section "3. Installing a CPU (Boxed version)"
3. The Heatsink supporters consist of a top bar, base and two pins. Gently insert the Heatsink base into the holes next to the Slot 1 socket. Push down until the base snaps into place.
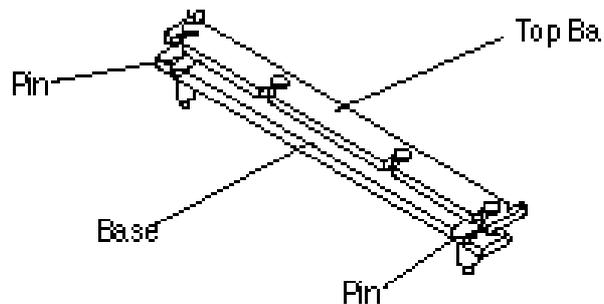
4. Lock the base into place by inserting a pin down into the base on the both sides.
5. Gently insert the processor cartridge down into the URM, making sure the connector on the processor cartridge and Slot 1 connector are aligned.
6. Push the processor cartridge down until it snaps into place.
7. Lock the processor cartridge into place by pushing outward on the tabs located on both sides of the processor cartridge. The processor cartridge is locked when the tabs snap into the holes on the side of the URM.
8. After the processor cartridge is locked into place, connect the Heatsink's top bar to the base.
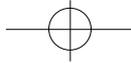
CPU Installation Overview
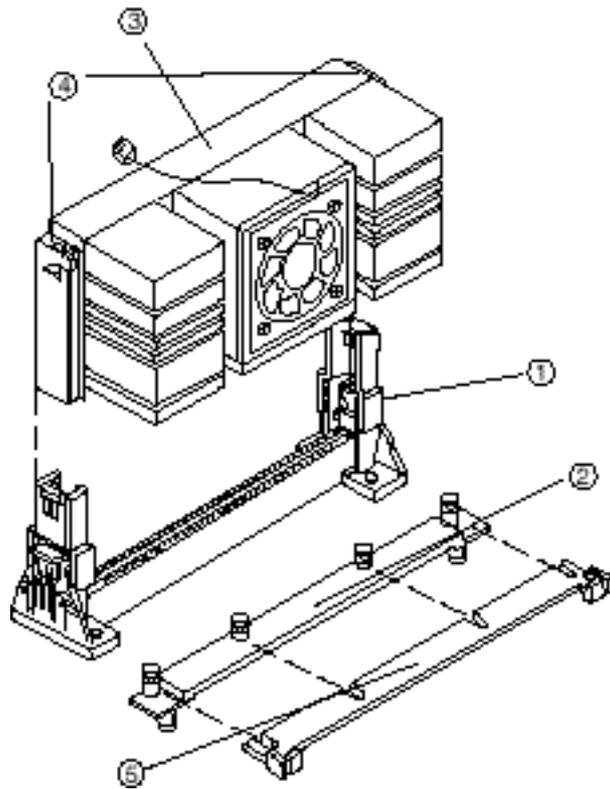
CPU Installation
Overview

1. Mount the URM for
the CPU.
2. Mount the (optional)
heatsink support base
onto the system board.
3. Slide the CPU into the
URM.
4. Lock the CPU into the
URM using the tabs.
5. Slide in the Heatsink
Top Bar, then insert the
pins to lock it in place.
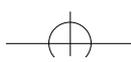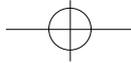
3. Installing the CPU (Boxed version)

A boxed version of the CPU is offered through Intel. This packing uses an active cooling fan. The mounting hardware is described below. For detailed instructions, please refer to the documentation that is supplied with your CPU.
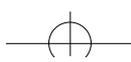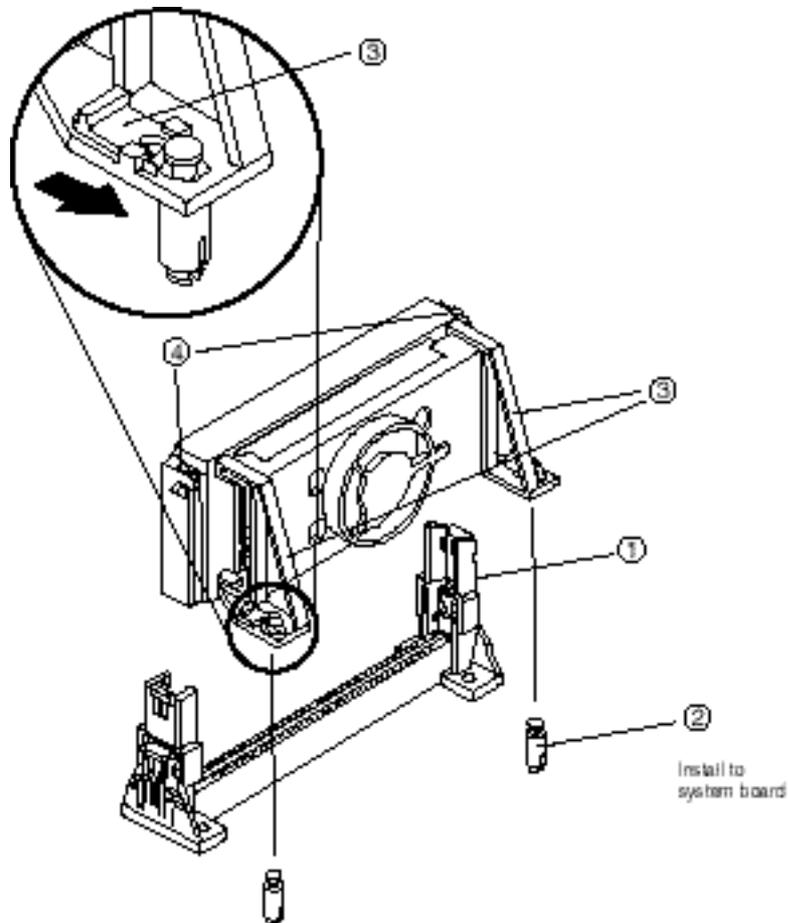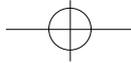
Installing the celeron processor

1. Installing the URM

Installing the URM for celeron processor is same as Installing the URM for Pentium-II processor.

2. Installing a CPU

Follow the steps below to install the celeron processor.

1. Locate the Slot 1 connector.
2. If you are installing the boxed version of the celeron processor, follow the instructions in the section "3. Installing a CPU(Boxed version)" <page 2-9>
3. Line up the SEEP/heatsink, ensuring that the substrate key is line up with the Slot 1 connector.
4. Insert SEPP into the guide rails along the URM. Place one hand on the SEPP/heatsink combination and push into the Slot 1 connector.
5. You will hear a click as the URM pops back, thereby firmly locking the processor into the Slot 1 connector.
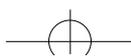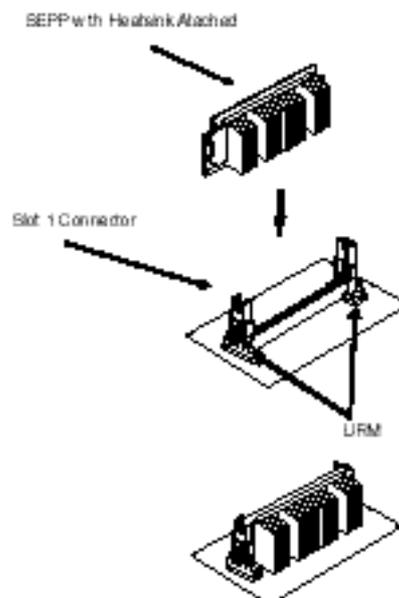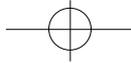
Installing Cables

1. CPU Fan connector (J27)

If you are installing Pentium-II or celeron processor with fan, you can use this header to connect the CPU's fan cable (3-pin or 2-pin)

2. Primary / Secondary IDE connectors (J18 / J19)

These connectors support the provided 40-pin ribbon cable. After connecting the single end to the motherboard, connect the two plugs at the other end to your hard disk(s).

3. FDD connector (J17)

This connector supports the provided 34-pin ribbon cable. After connecting the single end to the motherboard, connect the two plugs on the other end to the floppy drives.

4. IR connector (J22)

CB647M-LX/EX provides one connector which can support IrDA (J22) receiver module. It gives users IR wireless data exchange directly from mobile computers, printers and PDAs,...etc.

5. Wake on LAN connector (J28)

This connector supports Wake on LAN function. If you use Wake on LAN function, connect 3-pin cable between this connector and your LAN Card.
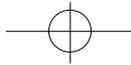
6. Internal Modem Ring connector (J24)

This connector support internal modem ring wake-up function.
If you use this function, connect 3-pin cable between this connector & your
modem.

7. Secondary Fan connector (J34)

This connector support additional system fan

8. Front Panel Switch connector (J16)

This connector supports the signals of the Power LED, HDD LED, Reset
Switch, Suspend/Resume Switch, Internal Speaker and Key Lock.

Pin Number	Description	Pin Number	Description
Pin 1	Power LED	Pin 12	Power LED
Pin 2	GND	Pin 13	N.C
Pin 3	Green LED	Pin 14	GND
Pin 4	External SMI	Pin 15	Key Lock
Pin 5	GND	Pin 16	GND
Pin 6	Green LED	Pin17	N.C
Pin 7	GND	Pin 18	N.C
Pin 8	+5V	Pin 19	+5V
Pin 9	HDD LED	Pin 20	GND
Pin 10	GND	Pin 21	GND
Pin 11	H/W Reset	Pin 22	Speaker
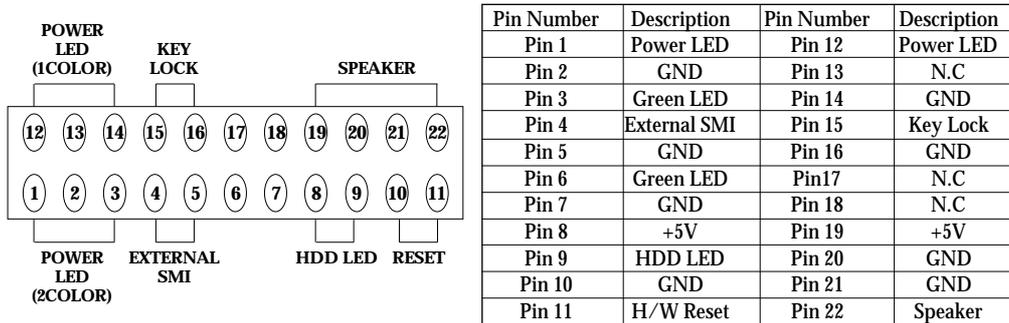
9. Modem connector (JP13)

This connector support voice MODEM.

10. CD-Input connector (JP16, JP17)

This connectors support CD-Audio input.

11. Power Switch connector (JP12)
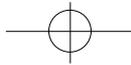
This connector is used to provide a way of the user to turn the system on. Connect it to the power on push button on the front panel.

> *<Note>*
> *In order to prevent the system from shut down by mistake, the CB647-LX/EX motherboard provides one optional item of the BIOS setup (refer to "3-4 Power Management Setup").*
> *This item is called "Soft-Off by PWR-BTTN". The function is as follows :*

Delay 4 sec:

1. Pushing the button one time will change the system from Normal operation mode to Suspend mode. Pushing the button again will wake up the system.
2. Pushing the power button more than 4 seconds will shut down the system.

Instant-Off:

Pushing the power button one time will turn the system on, pushing again will turn the system off.

12. Micro ATX Power Supply Connector (J6)

This connector connects to an Micro ATX power supply. The plug from the power supply will only insert in one orientation because of the different hole-size. Find the proper orientation and push down firmly but gently making sure that the pins aligned.

3.3V	⑪	1	3.3V
-12V	⑫	②	3.3V
GND	⑬	③	COM
PS-ON	⑭	④	5V
COM	⑮	⑤	COM
COM	⑯	⑥	5V
COM	⑰	⑦	COM
N.C	⑱	⑧	PW-OK
5V	⑲	⑨	5VSB
5V	⑳	⑩	12V

-5V is not provided by Micro ATX power supply
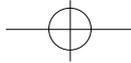
External Connectors

1. PS/2 Keyboard & Mouse Connector (J3)

The CB647M-LX/EX provides one PS/2 keyboard and one PS/2 mouse connector. Refer to the Figure 2-2 for the direction of keyboard (mouse) cable to install on keyboard (mouse) connector.

2. Serial Port COM1 & COM2 (J5 & J1)

The CB647M-LX/EX provides two sets of high speed serial port. Each serial port is 16550 UART compatible.

3. Parallel Port Printer Connector (J2)

The CB647M-LX/EX provides one set of high speed parallel port. The parallel port can support bi-direction / EPP / ECP mode.

4. USB Connector (J4)

Universal Serial Bus(USB) is a new industry standard interface for ease use of PC peripheral expansion.

5. Audio Jack (J29)

CB647M-LX/EX Motherboard provides an Advanced PCI Direct Sound Accelerator (Trident 4DWAVE-DX). It supports 4 ports (Line-in, Line-out, MIC, MIDI/JOYSTICK)
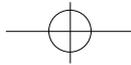
Line-in - Connect this port with cassette recorder, DAT or CD-Player. It can do playback & recording

Line-out - Connect speaker or external AMP

MIC - Mic input port

MIDI/JOY STICK - Connect MIDI Kit or Joy stick
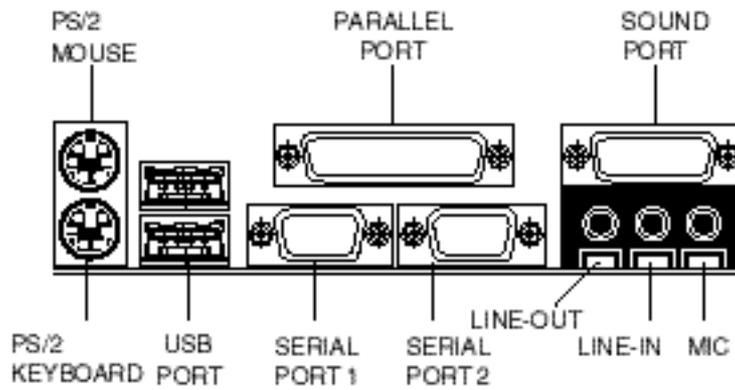
Figure 2-2 External connectors