

# 3 Installing the LPX54, System Memory, CPUs and Peripherals

This section explains how to install the LPX54 system board, SIMMs, CPUs, and peripherals.

***Warning:***

***Before installing or removing any peripherals or components, make sure you have a clear work space and adhere to all anti-static precautions described on page 2-1. Micronics recommends only trained technicians operate on the system board. Damage which occurs to the board while adding or removing peripherals or components may void the warranty.***

***If problems arise while installing peripherals, contact the computer outlet where you purchased the peripheral or Micronics' Technical Support Department.***

# Installation of the LPX54

The installation of the LPX54 system board depends on the type of case you use. The LPX54 is an integrated, low profile LPX system board and should be limited to installation in a low profile chassis.

Prior to installing the LPX54, make sure you have a clear work space available and adhere to all anti-static precautions.

If you are unfamiliar with installing a system board, Micronics highly recommends you read the computer user's manual or contact your dealer's technical support department.

## Tools Required

Micronics recommends using the following tools to install the LPX54:

- ⊗ Small Phillips screwdriver.
- ⊗ Tweezers or a pair of needle-nose pliers.
- ⊗ Tray (to hold loose screws).

## Equipment Required

Micronics recommends using the following equipment with the LPX54 for a typical configuration:

- ⊗ LPX or Low Profile Chassis.
- ⊗ A high quality power supply capable of providing continuous power within a 5 volt range, plus or minus 5% (eg. 4.75 to 5.25). A power filter may be used with a noisy AC power source.
- ⊗ PS/2 or compatible keyboard.
- ⊗ Eight ohm speaker.
- ⊗ Standard ribbon cables for internal connections.
- ⊗ Standard power cord (grounded).
- ⊗ Heat sink with cooling fan (required).

# System Memory

System memory devices, commonly known as SIMMs (Single Inline Memory Modules), are necessary to operate the LPX54 system board. The LPX54 has four SIMM sockets and can be upgraded to 128 Megabytes of RAM. This section will explain the type of SIMMs supported, list the rules of adding memory to the LPX54, give some examples of common memory configurations, and show how to physically install the new SIMMs.

## SIMMs Supported

The LPX54 supports the following 72 pin, 60ns or 70ns SIMMs:

4MB (1Mx36)  
 8MB (2Mx36)  
 16MB (4Mx36)  
 32MB (8Mx36)

*Note:*

*For long term reliability, Micronics recommends using SIMMs with gold-plated contacts. The use of tin-plated contacts may conflict with the gold on the SIMM socket.*

## Upgrading Rules

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

- ⊞ Use 70ns or faster SIMMs.
- ⊞ Upgrade SIMMs one bank at a time. Each bank must contain two SIMMs of the same size and preferably from the same manufacturer. To add 16MB of memory to the system board, install two 8MB SIMMs into the same bank.
- ⊞ When installing SIMMs, fill bank 0, then bank 1.

### Common Memory Configurations

The following table (Table 3-1) lists the most common memory configurations. The LPX54 will accept any combination of SIMMs as long as the rules in the previous section are followed.

Memory	Bank 0	Bank 1
8MB	(2) 1MBx36	
16MB	(2) 1MBx36	(2) 1MBx36
16MB	(2) 2MBx36	
24MB	(2) 2MBx36	(2) 1MBx36
32MB	(2) 4MBx36	
32MB	(2) 2MBx36	(2) 2MBx36
40MB	(2) 4MBx36	(2) 1MBx36
48MB	(2) 4MBx36	(2) 2MBx36
64MB	(2) 8MBx36	
64MB	(2) 4MBx36	(2) 4MBx36
72MB	(2) 8MBx36	(2) 1MBx36
80MB	(2) 8MBx36	(2) 2MBx36
96MB	(2) 8MBx36	(2) 4MBx36
128MB	(2) 8MBx36	(2) 8MBx36

**Table 3-1 Common Memory Configurations**

## Installing the SIMMs

To install the SIMMs, locate the memory banks on the system board and perform the following steps:

1. Hold the SIMM so that the notched edge is aligned with the notch on the SIMM socket (Figure 3-1).
2. Insert the SIMM at a 45 degree angle.
3. Gently push the SIMM into an upright position until it locks into place (past the release tabs).

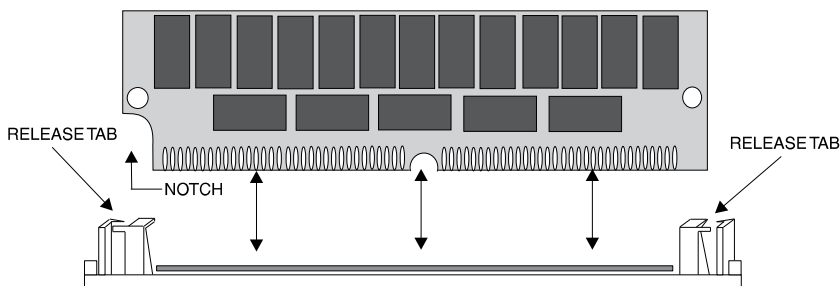


Figure 3-1 Installing a 72-Pin SIMM

## Removing SIMMs

Perform the following steps to remove SIMMs, if necessary:

1. With both thumbs (or fingers), press the release tabs away from the socket.
2. With the SIMM free from the release tabs, lift the module up and place in an anti-static bag or package.

## Installing a CPU

The LPX54 is designed to a variety of Pentium processors. Follow the steps below to install a processor:

1. Turn off the computer and remove its cover.
2. Locate the ZIF socket illustrated in Figure 2-1.
3. Lift the lever of the socket.
4. Locate pin 1 on the processor and pin 1 on the socket (Figure 2-1). Gently set the processor into the socket, making sure pin 1 on the processor and pin 1 on the socket are aligned.
5. Push the lever down until it locks into place.
6. Make sure the speed selection jumpers are set correctly (Chapter 2).

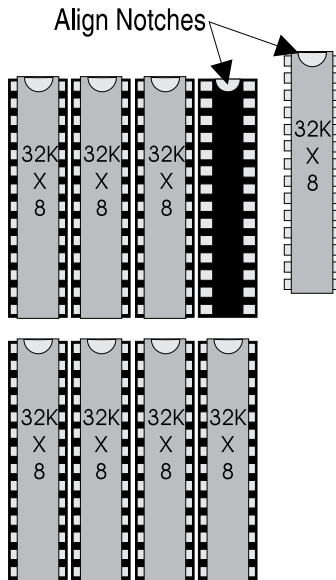
**Warning:**

***Pentium processors require a heat-sink with a cooling fan. Failure to provide adequate cooling of the processor may seriously affect system performance or cause permanent damage to the processor.***

# Installing Cache Memory

In addition to the 16K of internal (L1) cache built into the Pentium processors, the LPX54 also supports external (L2) cache. The LPX54 is available with 256K or 512K external cache.

To upgrade to 512K cache, install eight 32Kx8-15ns SRAMs into the open SRAM sockets (Figure 3-2). After installing the cache upgrade, refer to Chapter 2 for the correct external cache jumper settings.

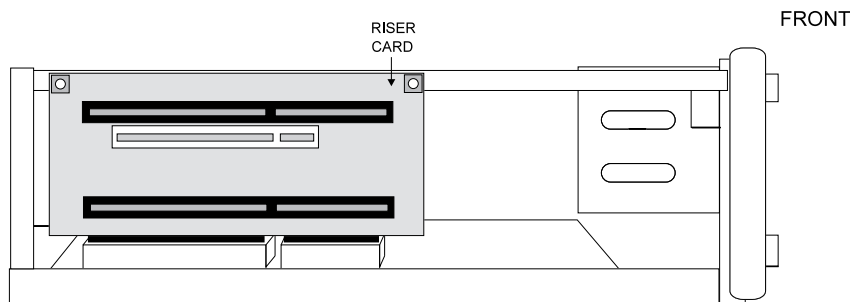


**Figure 3-2 Upgrading the External Cache**

## Installing a Riser Card

The LPX54 may include a riser card if the board is installed in a chassis. If the system board is not installed in a chassis, perform the following steps to install the riser card:

1. Locate the riser card slot (refer to Figure 2-1).
2. Insert the card with the bottom edge level. **Never insert the card at an angle.**
3. Holding the card at the center of the top edge, gently push straight in. Do not force the card. If it does not fit, take it out and try again.
4. Make sure the card is fully inserted.

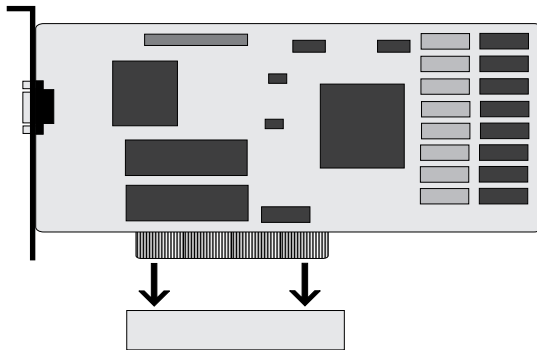


**Figure 3-3 Inserting a Riser Card**

# Installing a PCI Peripheral Card

Micronics PCI slots accommodate all PCI peripherals which adhere to the PCI 2.0 specifications. Complete the following steps to install a PCI card:

1. Turn the computer system off and remove its cover.
2. Choose an unused PCI slot and remove the slot cover.
3. Insert the card with the bottom edge level to the slot on the riser card. Never insert the card at an angle!
4. Carefully push the card straight in while securing the other side of the riser card with your free hand. Make sure the card is fully inserted.
5. Replace the screw which holds the card into place.
6. Replace the computer cover.
7. Read the card's manual for additional instructions concerning installation and software drivers.

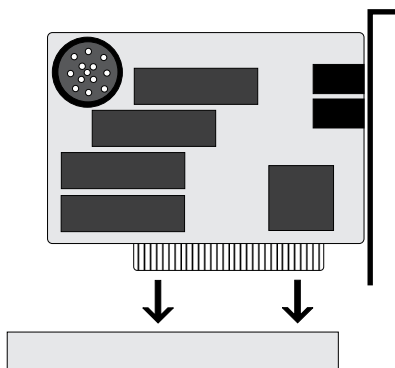


**Figure 3-4** Installing a PCI Card

# Installing an ISA Peripheral Card

Micronics ISA slots accommodate all standard ISA peripherals. Complete the following steps to install an ISA card:

1. Turn the computer system off and remove its cover.
2. Choose an unused ISA slot and remove the slot cover.
3. Insert the card with the bottom edge level to the slot on the riser card.  
**Never insert the card at an angle!**
4. Carefully push the card straight in while securing the other side of the riser card with your free hand. Make sure the card is fully inserted.
5. Replace the screw which holds the card into place.
6. Replace the computer cover.
7. Read the card's manual for additional instructions concerning installation and software drivers.



**Figure 3-5 Installing an ISA Card**

