

# 3 Installing the LPM30, System Memory, CPUs, and Peripherals

This section explains how to install the LPM30 system board, SIMMs, CPUs, and peripherals.

***Warning:***

***Before installing or removing any peripherals or components, make sure you have a clear work space and that you adhere to all anti-static precautions described on page 2-1. Micronics recommends that 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 LPM30

The installation of the LPM30 system board depends on the type of case you use. The LPM30 is an integrated, low profile LPX system board which should be limited to installation in a low profile chassis.

Prior to installing the LPM30, 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 LPM30:

- ⊞ 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 LPM30 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 style keyboard and mouse.
- ⊞ Eight ohm speaker.
- ⊞ Standard ribbon cables for internal connections.
- ⊞ Standard power cord (grounded).
- ⊞ Heat sink with cooling fan.

# System Memory

System memory devices, commonly known as SIMMs (Single Inline Memory Modules) are necessary to operate the LPM30 system board. The LPM30 has four SIMM sockets and can be upgraded to 128 Megabytes of RAM. This section will explain the type of SIMMs supported, list the memory configurations supported, and show how to physically install the new SIMMs.

## **SIMMs Supported**

The LPM30 supports the following 72 pin, 60 or 70ns SIMMs:

4MB (1Mx36 or 1Mx32)

8MB (2Mx36 or 2Mx32)

16MB (4Mx36 or 4Mx32)

32MB (8Mx36 or 8Mx32)

### *Note:*

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

## Memory Configurations

The following table (Table 3-1) lists the most common memory configurations supported.

Memory	Bank 0	Bank 1	Bank 2	Bank 3
4MB	1MBx36			
8MB	2MBx36			
8MB	1MBx36	1MBx36		
12MB	1MBx36	1MBx36	1MBx36	
16MB	1MBx36	1MBx36	1MBx36	1MBx36
16MB	4MBx36			
16MB	2MBx36	2MBx36		
24MB	2MBx36	2MBx36	2MBx36	
24MB	2MBx36	2MBx36	1MBx36	1MBx36
32MB	8MBx36			
32MB	4MBx36	4MBx36		
32MB	2MBx36	2MBx36	2MBx36	2MBx36
40MB	4MBx36	4MBx36	1MBx36	1MBx36
48MB	4MBx36	4MBx36	2MBx36	2MBx36
48MB	4MBx36	4MBx36	4MBx36	
64MB	8MBx36	8MBx36		
64MB	4MBx36	4MBx36	4MBx36	4MBx36
72MB	8MBx36	8MBx36	1MBx36	1MBx36
80MB	8MBx36	8MBx36	2MBx36	2MBx36
96MB	8MBx36	8MBx36	8MBx36	
96MB	8MBx36	8MBx36	4MBx36	4MBx36
128MB	8MBx36	8MBx36	8MBx36	8MBx36

**Table 3-1 Common Memory Configurations**

## Installing the SIMMs

To install the SIMMs, locate the SIMM sockets on the system board.

Start with bank 0 and perform the following steps to install the SIMMs:

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).

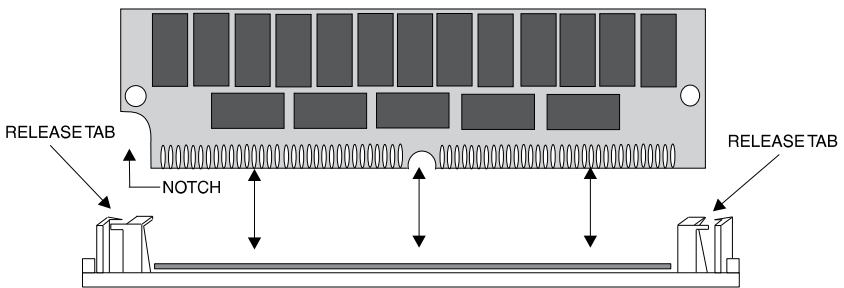


Figure 3-1 Installing a 72-Pin SIMM

## 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 LPM30 is specifically designed to support a large variety of CPU's from Intel, AMD, and Cyrix. To install an upgrade processor, perform the following steps:

1. Locate the ZIF socket on the board (Figure 3-2).
2. Lift the lever of the socket.
3. Insert the new processor into the socket. Make sure pin 1 on the CPU lines up with pin 1 on the socket. Refer to Figure 3-2 for pin 1 location.
4. Push the lever down to its original position.
5. Configure the board using the tables in Chapter 2.

The new CPU is now ready to operate. The system board detects the installed CPU after it is inserted and configured.

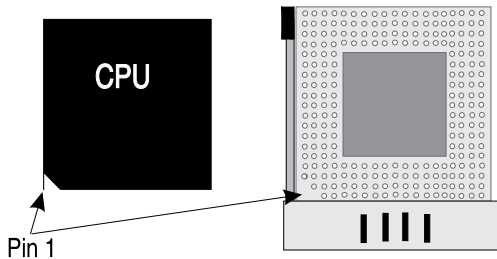


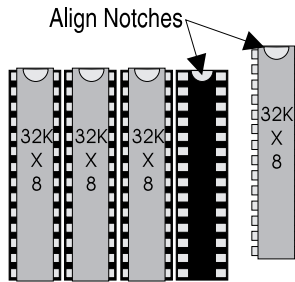
Figure 3-2 Installing a CPU

## **Warning:**

***If the new processor includes a heat sink or cooling fan, be certain to install the device according to the manufacturer's instructions. Failure to provide adequate cooling of the processor may seriously affect system performance or cause permanent damage.***

## Upgrading to 256K of Cache Memory

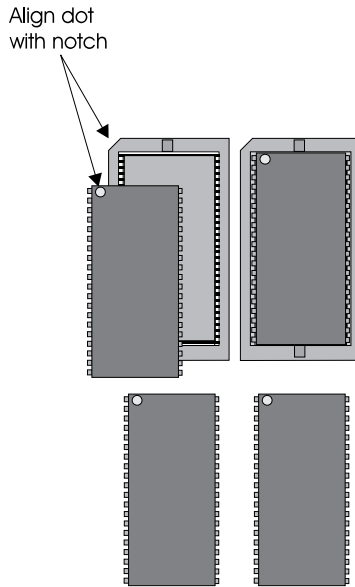
To upgrade to 256K cache, carefully install four 32Kx8-15ns SRAMs into the open SRAM sockets on the lower right-hand corner of the system board (Figure 3-3). After installing the cache upgrade, refer to Table 2-4 for the correct external cache jumper settings.



**Figure 3-3 Upgrading to 256K External Cache**

## Video Memory - Upgrading to 2 MB

The LPM30 comes standard with 1MB of video memory. To upgrade to 2MB of video memory, install 256Kx16-60ns video memory chips into Socket U22 and Socket U23 (Figure 3-4).



**Figure 3-4 Upgrading to 2MB of Video RAM**

*Note:*

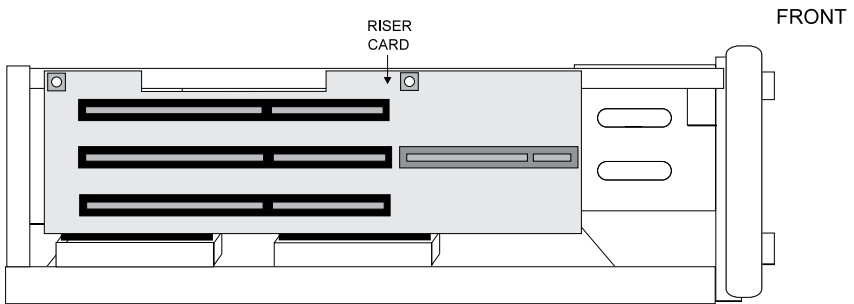
*Make sure the notches on the video memory match the notches on the sockets.*



# Installing a VL-Bus Riser Card

To install the LPM30 VL-Bus riser card, perform the following steps:

1. Locate the LPM30's slot (refer to Figure 2-1).
2. Make sure no peripherals are installed on the riser card.
3. Insert the card with the bottom edge level. **Never insert the card at an angle.**
4. 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.
5. Make sure the card is fully inserted and use the case screws to secure the riser card in place.



**Figure 3-5 Inserting the LPM30 VL-Bus Riser Card**

# Installing a VL-Bus Peripheral Card

Micronics VL-Bus slots accommodate all VL-Bus cards which meet the VESA specifications. Complete the following steps to install a VL-Bus card:

1. Turn the computer system off and remove the cover.
2. Choose an unused VL-Bus slot on the riser card and remove the slot cover.
3. Insert the card with the bottom edge level to the slot. **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 cover.
7. Read the card's manual for additional instructions concerning installation and software drivers.

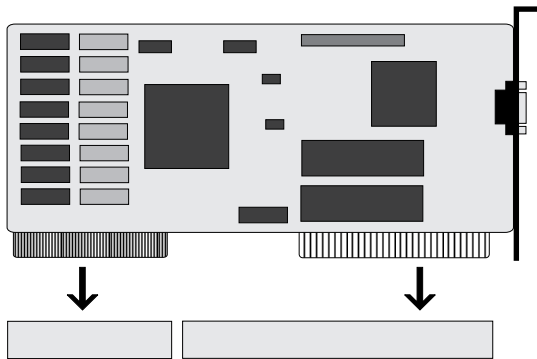
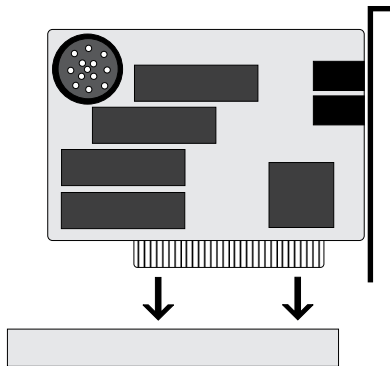


Figure 3-7 Installing a VL-Bus Peripheral Card

# Installing an ISA Peripheral Card

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

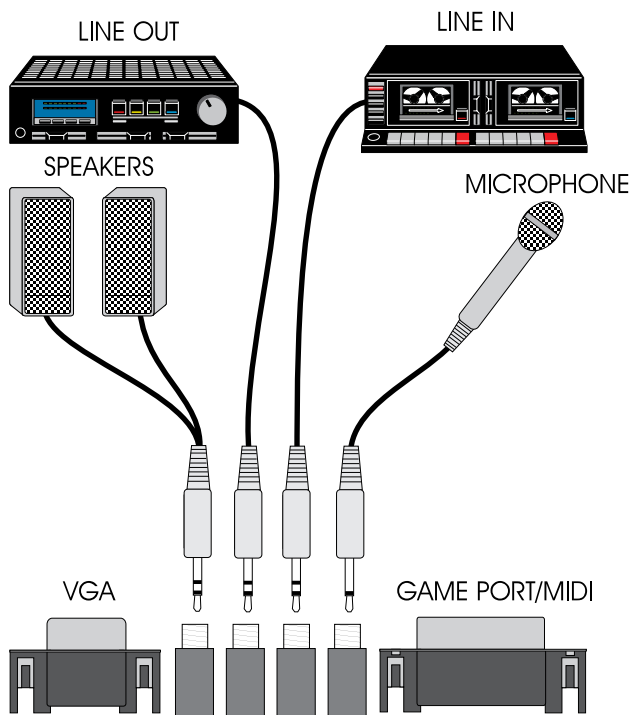
1. Turn the computer system off and remove the cover.
2. Choose an unused ISA slot on the riser card and remove the slot cover.
3. Insert the card with the bottom edge level to the slot. **Never insert the card at an angle!**
4. Carefully push the card straight in while securing the other side of the 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 cover.
7. Read the card's manual for additional instructions concerning installation and software drivers.



**Figure 3-8** Installing an ISA Peripheral Card

## Connecting Devices to the Sound Controller

In order to take advantage of the on-board sound controller, it is necessary to connect external devices to the LPM30.



**Figure 3-10 Connecting External Devices to the Sound Controller**

### External Speakers

You can connect 4 or 8 ohm external speakers or headphones to the SoundDrive 16 audio controller. The speakers and headphones plug into the Speaker jack on the back of the LPM30.

### Joystick

Plug the joystick into the 15-pin connector on the back of the LPM30.

### MIDI

If you purchased the optional MIDI interface kit, you will have an additional cable. This cable plugs into the 15-pin connector and provides MIDI IN and MIDI OUT connections, in addition to a joystick connection. Connect this

cable to the joystick port and connect any MIDI devices to the appropriate cables.

## **Microphone**

You can connect a 300-600 ohm microphone to SoundDrive 16 audio controller. Plug it into the MIC jack on the back of the LPM30.

## **Line In**

You can connect an external mono or stereo audio source to the SoundDrive 16 audio controller, such as a tape player or radio. Use the appropriate converter cable to interface to your external equipment.

## **Line Out**

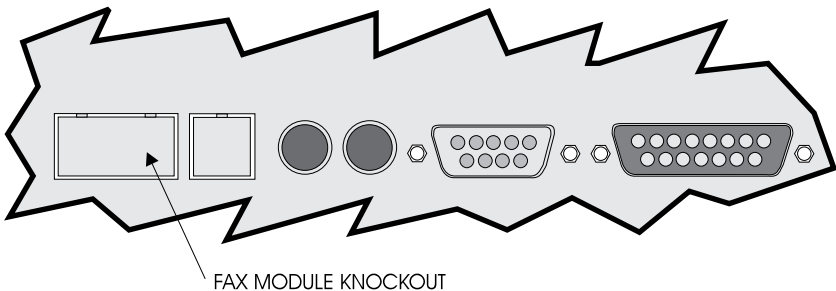
Allows you to connect the audio output of the SoundDrive 16 audio controller to your home stereo, VCR, or amplified speakers.

# **Installing the Optional Faxmodem Module**

The LPM30 supports an optional faxmodem module which can be ordered from your dealer or directly from Micronics at (510) 651-2300.

Before installing the fax module, it is important to remove the knockout on the back of the case so it may be plugged into the phone outlet (Figure 3-11).

Gently press against the knockout from the inside of the case until it is perpendicular to the back of the case. Wiggle the knockout up and down until it breaks free.



**Figure 3-11 Removing the Faxmodem Module Knockout**

After you have removed the knockout, follow the steps below:

1. Refer to the antistatic precautions described on page 2-1.
2. Read the faxmodem module's user manual and configure it for installation.
3. Turn the computer system off and remove its cover.
4. Locate the fax connector illustrated in Figure 2-1.
5. Insert the module with the bottom edge level to the connector (Figure 3-12). **Never insert the module at an angle!**
6. Carefully push the module straight down, making sure it is fully inserted.
7. Replace the computer cover.

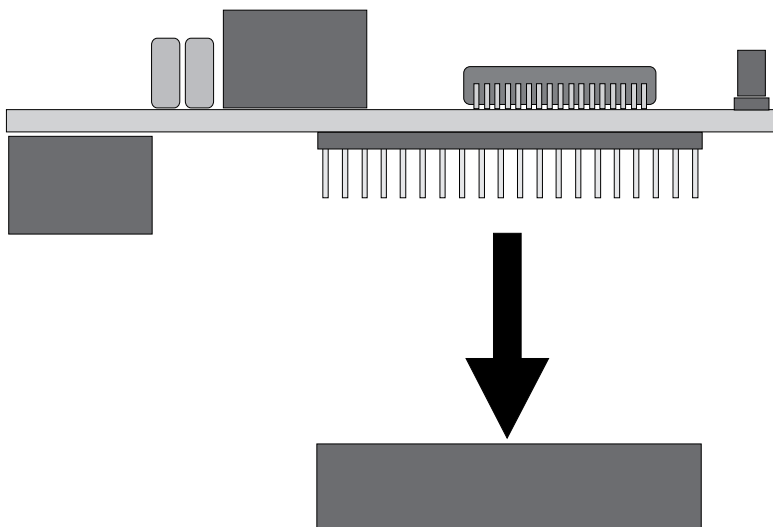


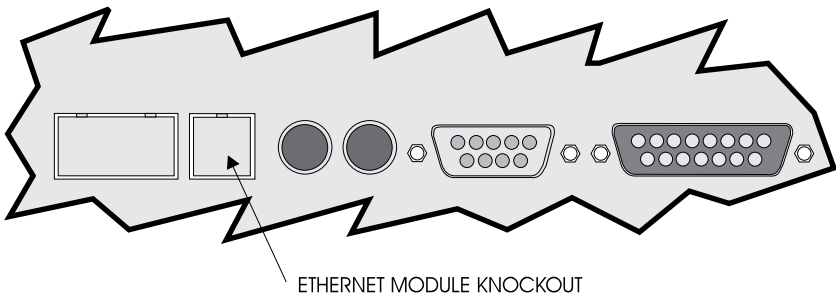
Figure 3-12 Installing the Faxmodem Module

# Installing the Optional Ethernet Module

The LPM30 supports an optional Ethernet module which can be ordered from your dealer or directly from Micronics at (510) 651-2300.

Before installing the module, it is important to remove the knockout on the back of the case so the 10 BASE-T connector may be connected to the network (Figure 3-13).

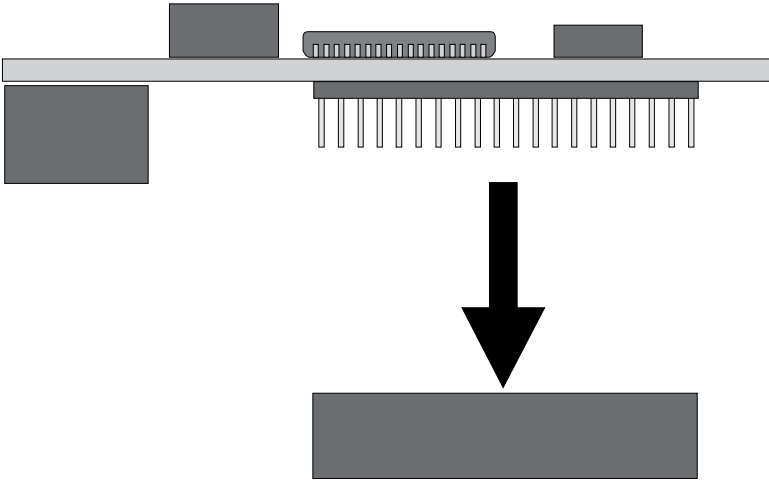
Gently press against the knockout from the inside of the case until it is perpendicular to the back of the case. Wiggle the knockout up and down until it breaks free.



**Figure 3-13 Removing the Ethernet Module Knockout**

After you have removed the knockout, follow the steps below:

1. Refer to the antistatic precautions described on page 2-1.
2. Read the Ethernet module's user manual and configure it for installation.
3. Turn the computer system off and remove its cover.
4. Locate the Net connector illustrated in Figure 2-1.
5. Insert the module with the bottom edge level to the connectors (Figure 3-14). **Never insert the module at an angle!**
6. Carefully push the module straight down, making sure it is fully inserted.
7. Replace the computer cover.



**Figure 3-14 Installing the Ethernet Module**

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