

3 Installing the M4Li, System Memory, CPUs, and Peripherals

This section explains how to install the M4Li 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 M4Li

The installation of the M4Li system board depends on the type of case you use. The M4Li is a Mini AT system board and can be installed in most cases.

Prior to installing the M4Li, 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 M4Li:

- ⊞ 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 M4Li for a typical configuration:

- ⊞ Chassis with standard hardware.
- ⊞ 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 for a noisy AC power source.
- ⊞ AT style keyboard and mouse (AT version).
- ⊞ PS/2 style keyboard and mouse (PS/2 version).
- ⊞ Eight ohm speaker.
- ⊞ Standard ribbon cables for internal connections.
- ⊞ Standard power cord (grounded).
- ⊞ CPU heat sink.

System Memory

System memory devices, commonly known as SIMMs (Single Inline Memory Modules) are necessary to operate the M4Li system board. The M4Li 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 M4Li 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).

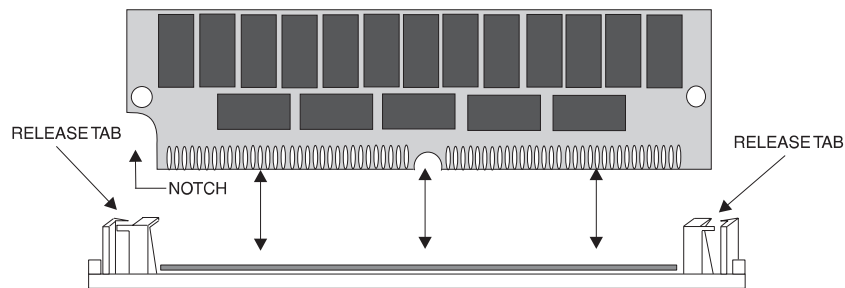


Figure 3-1 Installing a 72-Pin SIMM

4. After you have installed the SIMMs, the BIOS will automatically configure the memory size. You do not need to configure any jumpers.

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 M4Li 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. Power off the system and locate the M4Li's ZIF socket (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.

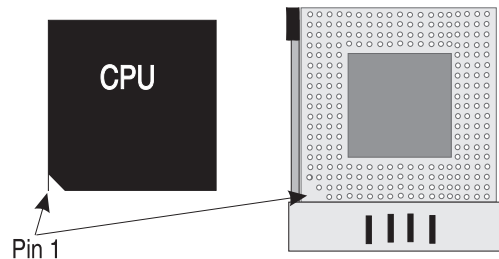


Figure 3-2 Installing a CPU

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.

Installing 128K of Cache Memory

To upgrade to 128K cache, carefully install five 32Kx8-15ns SRAMs into SRAM sockets U8, U9, U10, U11, and U16 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.

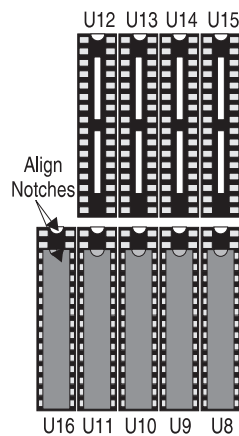


Figure 3-3 Installing 128K External Cache

Installing 256K of Cache Memory

To upgrade to 256K cache, carefully install four 64Kx8-15ns SRAMs into sockets U8, U9, U10, and U11 and one 32Kx8-15ns SRAM into socket U12 (Figure 3-4). After installing the cache upgrade, refer to Table 2-4 for the correct external cache jumper settings.

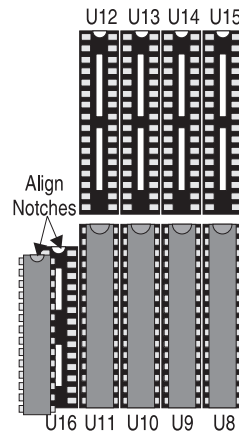


Figure 3-4 Installing 256K of Cache Memory (1 Bank)

Or, install one 32Kx8-15ns SRAM into each of the M4Li SRAM sockets (Figure 3-5).

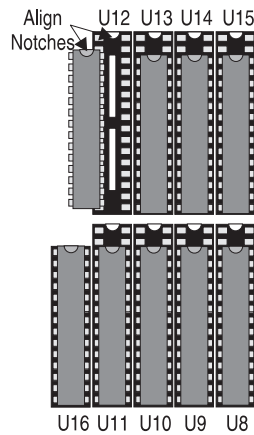


Figure 3-5 Installing 256K of Cache Memory (2 Banks)

Installing 512K of Cache Memory

To upgrade to 512K cache, carefully install four 128Kx8-15ns SRAMs into sockets U8, U9, U10, and U11 and one 32Kx8-15ns SRAM into socket U12 (Figure 3-6). After installing the cache upgrade, refer to Table 2-4 for the correct external cache jumper settings.

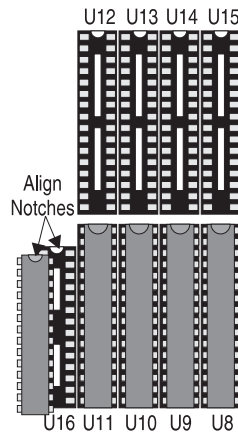


Figure 3-6 Installing 512K of Cache Memory (1 Bank)

Or, install eight 64Kx8-15ns SRAMs into sockets U8 through U15 and one 32Kx8-15ns SRAM into socket U16 (Figure 3-7).

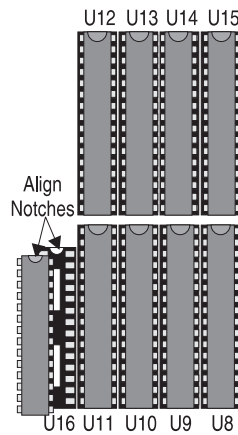


Figure 3-7 Installing 512K of Cache Memory (2 Banks)

Installing the M4Li IDE Drivers

The M4Li IDE drivers are optional drivers that enhance the performance of Mode 3 IDE hard drives.

After you have physically installed an IDE hard drive in your system, locate the README.NOW file on the IDE Drivers diskette and open it as a text file in any word processor. It contains up to date information on whether or not you will need to install the drivers. If you require these drivers, print the README.NOW file.

To install the drivers, follow the instructions below:

1. Insert the IDE Drivers diskette into Drive A: and type A:INSTALL.
2. Select Install Driver. Choose the drivers for the operating systems and environments you will be using (Figure 3-8).

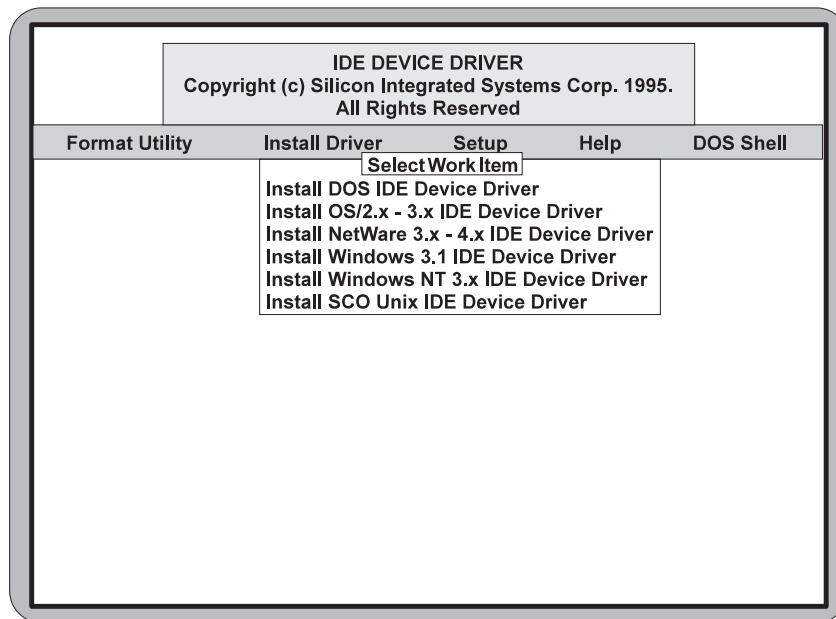


Figure 3-8 M4Li IDE Driver Screen

3. The drivers will automatically be installed for DOS and Windows. For other operating systems, you will receive detailed installation instructions.
4. Exit the utility and reboot the system. The drivers are now installed.

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. **Never insert the card at an angle!**
4. Carefully push the card straight down, making 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.

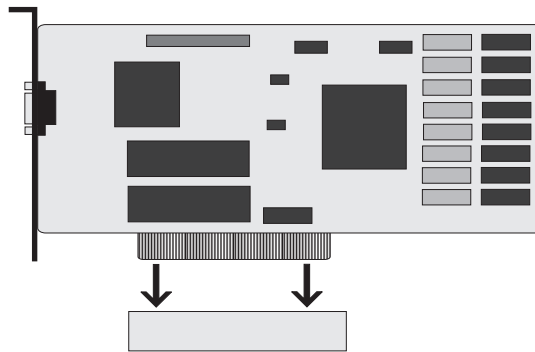


Figure 3-9 Installing a PCI Card

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. **Never insert the card at an angle!**
4. Carefully push the card straight down, making 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.

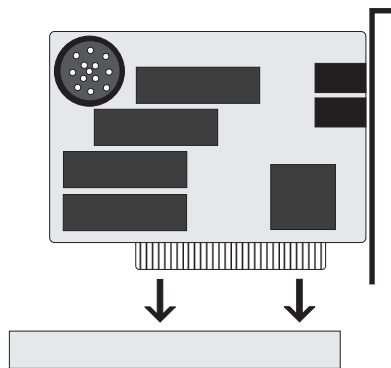


Figure 3-10 Installing an ISA Card