



**AT&T UNIX™ PC**

**EIA/RAM Combo Board**  
Installation Guide

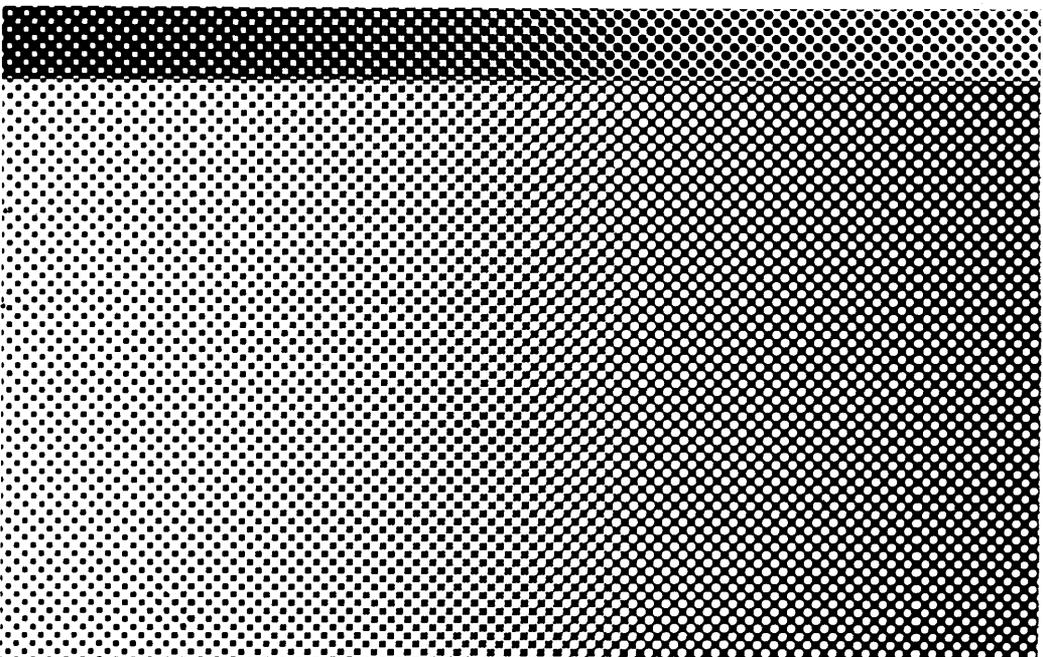


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**EIA/RAM Combo Board**

Installation Guide



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Certified to comply with Class B limits, Part 15 of FCC Rules. See instructions if interference to radio operation is suspected.



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## Installation of EIA/RAM Combo Expansion Boards

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This AT&T UNIX PC Installation Guide tells you how to install any of the following expansion options:

- o 0.5MB RAM Expansion Board (no EIA ports)
- o 2.0MB Expansion Board (no EIA ports)
  
- o 0.5MB EIA/RAM Combo Board
- \*o 1.0MB EIA/RAM Combo Board
- \*o 1.5MB EIA/RAM Combo Board
  
- o 0.5MB RAM chip set
- o Two 0.5MB RAM chip sets
  
- o Dual EIA Port Board (no RAM)

\*Before installing these boards in your system, you must insert the ICs included in the RAM chip sets in their proper locations on the boards according to the following procedures. If you are installing any of the other boards, which do not require insertion of additional ICs, follow the instructions in the installation section in this manual.

Once you have installed the EIA/RAM Combo Board turn to "Setting Up Expansion Ports" in the Owner's Manual.

### Pinouts for RS-232 Ports J1 and J2 on Combo Cards

#### J & J2

Pin	Signal
2-----	TX
3-----	RX
4-----	RTS
5-----	CTS
6-----	
7-----	GND
8-----	CD
20-----	DTR
24-----	CLK OUT
15-----	TXCK
17-----	RXCK

## Installation of EIA/RAM Combo Expansion Boards

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### Required Tools

- o Small Phillips-head screwdriver (3/16") for removal and replacement of expansion slot covers (Xcelite model X-101 or Xst-101 or equivalent).
- o Chip insertion/removal tool. This is required for relocation and installation of RAM chips on the 1.0 and 1.5 EIA/RAM Combo board.
- o Pliers (for RAM only boards).

### Expansion Memory Installation

The IC insertion/removal tool is required to install the expansion memory chip set.

For the 1MB Combo board, you will have to first relocate memory ICs installed at the factory. See Table 1 for jumper and memory population.

Table 1. Jumper and IC Locations

RAM	W1	W2	W3	Rows Populated with ICs
0.0	OFF	OFF	OFF	NONE
0.5	OFF	ON	ON	5 & 6
1.0	ON	OFF	ON	7 through 10
1.5	ON	ON	OFF	5 through 10

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The additional memory ICs must be installed in specified sections of the memory expansion board. To install the memory ICs, carefully follow the guidelines in the remainder of this document:

## Installation of EIA/RAM Combo Expansion Boards

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### Caution

Before handling the expansion board or the memory chip set, ground yourself by touching an electrically grounded metal surface. A static charge could damage the memory. Always avoid touching the printed side of the board. Keep one hand on a metal surface (for example, the base of the UNIX PC) while installing the memory IC set.

The memory ICs must be properly oriented when they are installed. The notch in the IC must point towards the flat connector located on the edge of the expansion board. Do not assume that the printing on the top of the module will orient it correctly. See Figures 1 and 2 for proper orientation of the memory ICs.

When installing the additional memory ICs, work on a clean, flat surface that will support the expansion board while you are pressing the ICs into place.

### One MB Combo

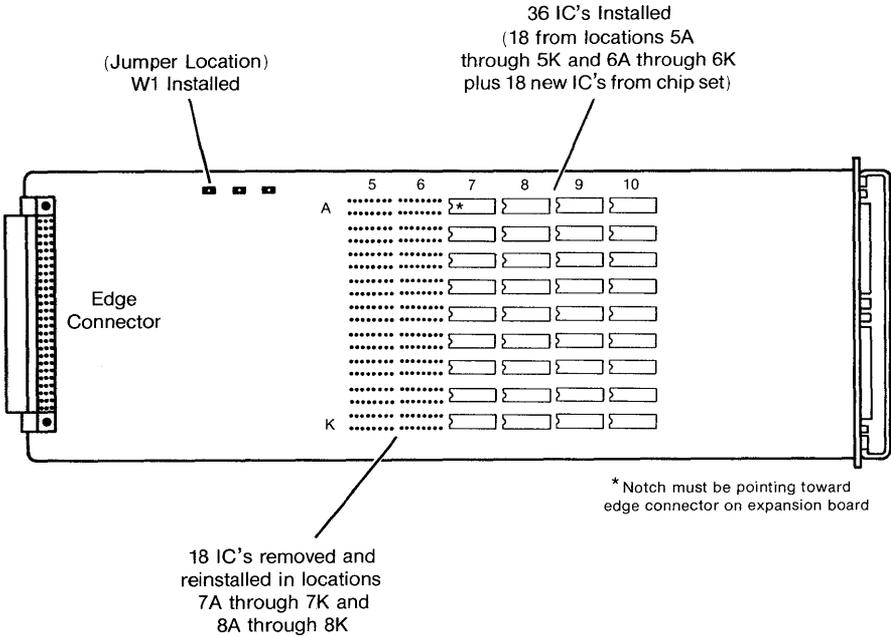
- 1 To install the memory chip set for 1.0MB first determine the locations where the jumper(s) and the ICs must be placed (see Table 1 and Figure 1).

### Caution

Jumper locations and pins on the ICs must not be bent. Jumpers and ICs must be positioned carefully and then pressed firmly into place.

- 2 Carefully remove the jumper at W2 and place it in jumper position W1.

# Installation of EIA/RAM Combo Expansion Boards



**Figure 1 One MB Expansion IC Installation Location**

- 3 With the IC removal tool, remove the memory IC's located at 5A through 5K and 6A through 6K on the expansion board.
- 4 Reinstall these ICs in locations 7A through 7K and 8A through 8K respectively.
- 5 Remove 18 additional ICs from their packaging. Inspect the ICs and ensure that their pins are straight.

## Installation of EIA/RAM Combo Expansion Boards

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### Note

There are 20 ICs in the chip set. Store the two extra ICs in a safe place for use as spares.

- 6 Install these 18 ICs in locations 9A through 9K and 10A through 10K.
- 7 Install the expansion board as described in the installation section of this manual.

### One and one half MB Combo

- 1 To install the memory chip set for 1.5MB first determine the locations where the jumper(s) and the ICs must be placed (see Table 1 and Figure 2).
- 2 Leave the jumper at W2 and move the jumper from W3 to W1.
- 3 Remove the 36 additional ICs from their packaging. Inspect the ICs and ensure that their pins are straight.

### Note

There are 20 ICs in each chip set. Store the four extra ICs in a safe place for use as spares.

- 4 Install these ICs in locations 7A through 7K, 8A through 8K, 9A through 9K and 10A through 10K.
- 5 Install the expansion board as described in the installation section of this manual.

# Installation of EIA/RAM Combo Expansion Boards

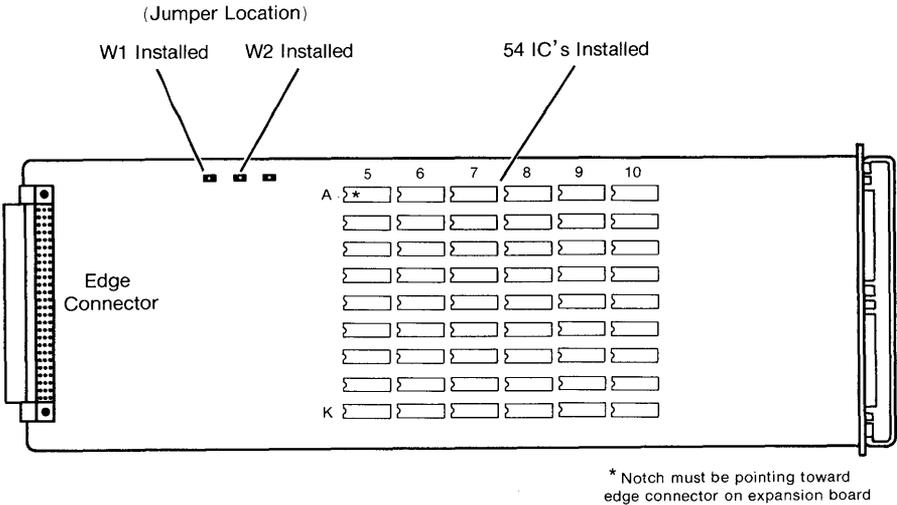


Figure 2 One and One Half MB Expansion IC Location

## Installing an Expansion Board

The location information given in Appendix A must be followed carefully when installing expansion boards into the **UNIX** PC. Select the expansion slots you are going to use before continuing with this procedure.

Also, if there are expansion boards already installed on your **UNIX** PC, you may have to relocate them according to Appendix A. For expansion board removal follow the expansion board removal procedures in this manual.

## **The Expansion Slots**

The **UNIX** PC has three expansion slots in the back of the system. Each slot is covered by a metal plate located on the rear of the unit (see Figure 3). They are numbered as 1, 2, and 3 from left to right as viewed from the rear of the machine.

## Installation of EIA/RAM Combo Expansion Boards

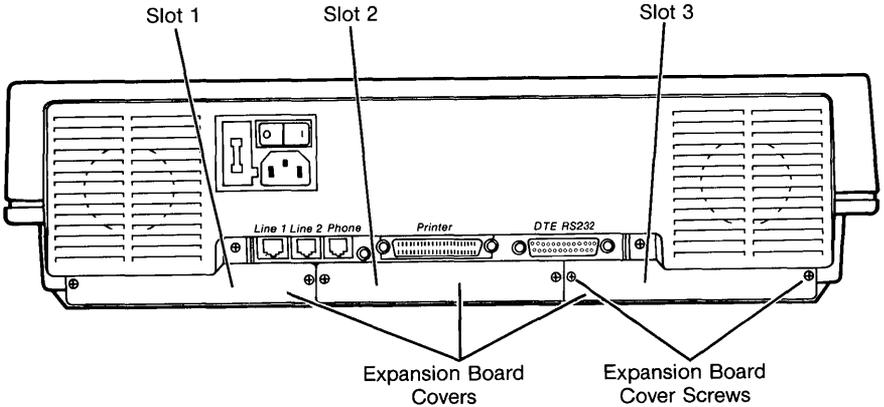


Figure 3 Rear View of UNIX PC

The only tool needed to install an expansion board is a small Phillips-head screwdriver with a blade diameter of about 3/16" (Xcelite model X-101 or XST-101 are examples).

- 1 Before you begin the installation procedure, close all open windows except the Office. Select |Shutdown| from the Office command menu, press <Enter>, wait for Ready to turn power Off, press return to reboot message and then turn the UNIX PC off.

Since RAM boards are static sensitive, it is a good idea to leave the PC plugged in so the equipment is continually grounded.

- 2 Remove the two screws from the cover(s) of the expansion slot(s) you have selected. (Be careful not to strip the screws.) The covers come off easily. Retain the covers and screws; you will use the screws to hold the Combo boards in place. For other boards, covers and screws will be replaced at the end of installation.

## Installation of EIA/RAM Combo Expansion Boards

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### Caution

Before handling an expansion board, ground yourself by touching an electrically grounded metal surface. A static charge could damage the memory, so always avoid touching the printed side of the board. If possible, keep one hand on a metal surface (for example, the base of the UNIX PC) while installing the board.

- 3 Grasp the board from the component side, allowing your fingers to rest on the edges only.
- 4 With the edge connector entering the slot first, component side up, fit the board edges into the grooves in the side tracks of the expansion slot, and slide the board in (see Figure 4).

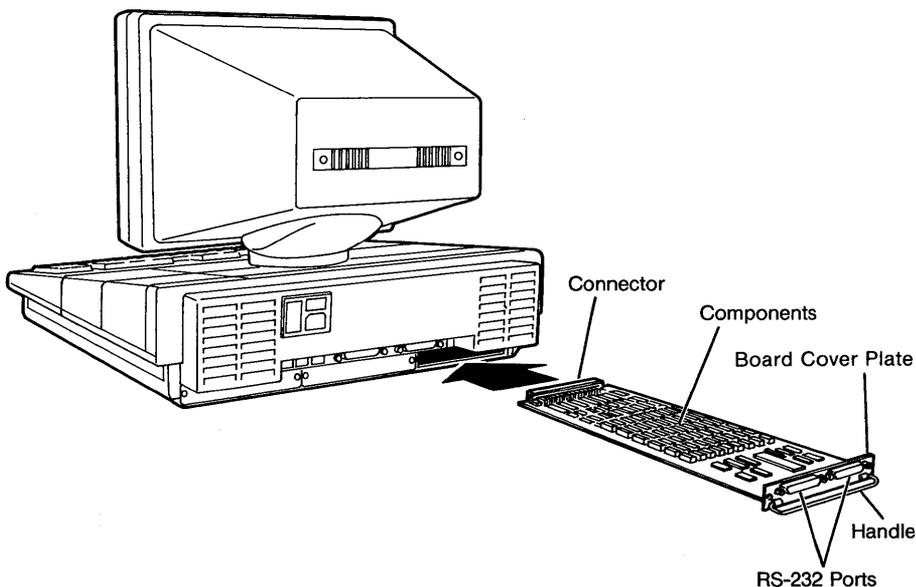
It should slide in easily. If it binds, there may be a defect in the board or slot, or you may have inserted the board incorrectly.

- 5 Using your thumbs, put slight pressure on the back edge of the board until the board snaps into place.

When properly seated, the screw holes in the board's cover plate (if any) will line up with the screw holes in the expansion slot.

## Installation of EIA/RAM Combo Expansion Boards

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**Figure 4 Inserting an Expansion Board**

- 6 For Combo boards, replace the cover screws (being careful not to strip the screws) to hold the expansion board in place. Retain expansion board cover for future use. For RAM boards, replace expansion board covers and screws.
- 7 Turn the power on.

You should see the copyright screen, followed by a message similar to the following:

**Release X.0**

```
real mem = xxxxxxxx  
avail mem = xxxxxxx
```

The actual numbers displayed will be different depending upon the amount of memory you have installed.

## Installation of EIA/RAM Combo Expansion Boards

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### Note

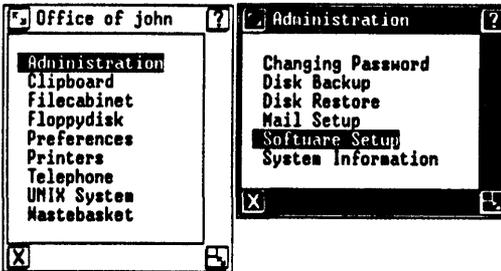
If you do not see the previous message, or you receive a "panic" error message, you may have installed a defective expansion board. Contact your authorized AT&T computer dealer, or if purchased directly from AT&T Information Systems, your AT&T Account Executive for further information.

### Installing Expansion Software

If you have installed expansion boards with RS-232 ports, you must install the software contained on a single diskette labelled AT&T UNIX PC Combo Board Set Version 3.0 Disk 1 of 1.

To install the software:

- 1 Log in as **install**. Point to |Administration| in the Office window.
- 2 Press <Enter> or <B1>.
- 3 Point to |Software Setup|.



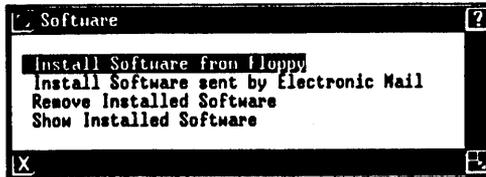
- 4 Press <Enter> or <B1>.

The Software menu is displayed.

## Installation of EIA/RAM Combo Expansion Boards

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- 5 Point to |Install Software from Floppy|.



- 6 Press <Enter> or <B1>.

You are asked to insert the first floppy disk.

- 7 Insert the floppy disk, and then press <Enter> or <B1>.

The system checks the floppy disk for a size file that determines the amount of disk space required by the application.

The system reads the floppy disk, and then requests that you enter any other floppy disks in order. In this case there is only one floppy disk.

- 8 Press <Enter> or <B1>.

You see the message **Install in progress** as the software is being installed.

You are notified when to remove the floppy disk and that the software has been installed.

- 9 Refer to "Setting Up a Remote Connection" in the UNIX PC Remote Access User's Guide. Perform the procedures for making an RS-232 connection.

You are notified to remove the floppy

## Installation of EIA/RAM Combo Expansion Boards

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### Removing a Board

To remove an expansion board:

- 1 Before you begin the removal procedure, close all open windows except Office. Select |Shutdown| from the Office command menu, press <Enter>, wait for **Ready to turn power OFF, press return to reboot.** Then turn the UNIX PC off.

Since RAM boards are static sensitive, it is a good idea to leave the UNIX PC plugged in so the equipment is continually grounded.

- 2 Remove the expansion board cover screws. Be careful not to strip the screws.
- 3 Grasp the expansion board handle and pull gently to unseat the board (RAM only will require pliers to remove).
- 4 Slide the board out of the slot.
- 5 Replace expansion board covers and screws.

## A Expansion Memory Locations

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This appendix is a table listing the possible memory configurations for the UNIX PC.

The columns of the table are labeled as follows:

- o Total System Memory - This is the total amount of Random Access memory (RAM) on the machine including on-board (CPU) memory and expansion memory.
- o CPU On-Board Memory - This is the amount of RAM on the UNIX PC main system board.
- o Expansion Memory Slot 1 - This is the first UNIX PC expansion slot. Facing the rear of the machine, it is located on the left side as shown in Figure 1.
- o Expansion Memory Slot 2 - This is the second UNIX PC expansion slot. Facing the rear of the machine, it is the middle slot as shown in Figure 1.
- o Expansion Memory Slot 3 - This is the third UNIX PC expansion slot. Facing the rear of the machine, it is located on the right as shown in Figure 1.

## Expansion Memory Locations

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The table also uses the following mnemonics:

<u>MNEMONIC</u>	<u>MEANING</u>
*	Empty slot or I/O card without memory
0.5 CPU	UNIX PC equipped with 0.5MB of on-board RAM
1.0 CPU	UNIX PC equipped with 1.0MB of on-board RAM
2.0 CPU	UNIX PC equipped with 2.0MB of on-board RAM
0.5 RAM	0.5MB RAM Expansion Board
2.0 RAM	2.0MB RAM Expansion Board
0.5 EIA	EIA/RAM Combo Board with 0.5MB of RAM
1.0 EIA	EIA/RAM Combo Board with 1.0MB of RAM
1.5 EIA	EIA/RAM Combo Board with 1.5MB of RAM

### How to Use this Table

The table is organized according to the total amount of memory the system will have after installing additional memory cards. The following examples illustrate how to use the table.

1. You have a UNIX PC with 0.5MB of on-board memory and you want to install a 0.5MB memory expansion board, bringing the total memory to 1.0MB. First look in the Total System Memory column for 1.0MB. Then, locate the corresponding amount of on-board memory in the next column, in this case 0.5MB. Next, look at the last three columns. You'll see that you can put your 0.5MB RAM board in expansion slot 1, 2, or 3.
2. If you want to install a second 0.5MB RAM expansion board, bringing your systems total memory to 1.5MB, you would look in the Total System Memory column for 1.5MB. Then, you would look for the same amount of on-board memory, or 0.5MB. Next, you would look at the last three columns to see where you can place the additional expansion card. In this case, the two 0.5MB RAM cards have to be placed in either expansion slots 1 and 2, or in slots 2 and 3. You cannot place them slots 1 and 3.

## Expansion Memory Locations

### Expansion Memory Locations

TOTAL SYSTEM MEMORY	CPU ON-BOARD MEMORY	EXPANSION MEMORY		
		SLOT 1	SLOT 2	SLOT 3
0.5 MB	0.5 CPU	*	*	*
1.0 MB	0.5 CPU	0.5 RAM	*	*
		* *	0.5 RAM *	* 0.5 RAM
		0.5 EIA * *	* 0.5 EIA *	* * 0.5 EIA
	1.0 CPU	*	*	*
1.5 MB	0.5 CPU	0.5 RAM *	0.5 RAM 0.5 RAM	* 0.5 RAM
		0.5 EIA *	0.5 RAM 0.5 RAM	* 0.5 EIA
		1.0 EIA * *	* 1.0 EIA *	* * 1.0 EIA
	1.0 CPU	0.5 RAM * *	* 0.5 RAM *	* * 0.5 RAM
		0.5 EIA * *	* 0.5 EIA *	* * 0.5 EIA

## Expansion Memory Locations

Expansion Memory Locations (Continued)

TOTAL SYSTEM MEMORY	CPU ON-BOARD MEMORY	EXPANSION MEMORY		
		SLOT 1	SLOT 2	SLOT 3
2.0 MB	0.5 CPU	0.5 RAM	0.5 RAM	0.5 RAM
		0.5 RAM	0.5 RAM	0.5 EIA
		1.0 EIA *	* 1.0 EIA	0.5 RAM 0.5 RAM
		0.5 EIA 0.5 EIA 1.0 EIA * 1.0 EIA *	1.0 EIA * 0.5 EIA 0.5 EIA * 1.0 EIA	* 1.0 EIA * 1.0 EIA 0.5 EIA 0.5 EIA
		1.5 EIA * *	* 1.5 EIA *	* * 1.5 EIA
	1.0 CPU	0.5 RAM *	0.5 RAM 0.5 RAM	* 0.5 RAM
		0.5 EIA *	0.5 RAM 0.5 RAM	* 0.5 EIA
		1.0 EIA * *	* 1.0 EIA *	* * 1.0 EIA
	2.0 CPU	*	*	*

## Expansion Memory Locations

### Expansion Memory Locations (Continued)

TOTAL SYSTEM MEMORY	CPU ON-BOARD MEMORY	EXPANSION MEMORY			
		SLOT 1	SLOT 2	SLOT 3	
2.5 MB	0.5 CPU	2.0 RAM	*	*	
		* *	2.0 RAM *	* 2.0 RAM	
	1.0 CPU	0.5 RAM	0.5 RAM	0.5 RAM	
		0.5 RAM	0.5 RAM	0.5 EIA	
		1.0 EIA *	* 1.0 EIA	0.5 RAM 0.5 RAM	
		0.5 EIA 0.5 EIA 1.0 EIA *	1.0 EIA * 0.5 EIA 0.5 EIA	* 1.0 EIA * 1.0 EIA 0.5 EIA	
		1.0 EIA *	* 1.0 EIA	0.5 EIA 0.5 EIA	
		1.5 EIA * *	* 1.5 EIA *	* * 1.5 EIA	
		2.0 CPU	0.5 RAM * *	* 0.5 RAM *	* * 0.5 RAM
			0.5 EIA * *	* 0.5 EIA *	* * 0.5 EIA

# Expansion Memory Locations

## Expansion Memory Locations (Continued)

TOTAL SYSTEM MEMORY	CPU ON-BOARD MEMORY	EXPANSION MEMORY		
		SLOT 1	SLOT 2	SLOT 3
3.0 MB	1.0 CPU	2.0 RAM * *	* 2.0 RAM *	* * 2.0 RAM
		2.0 CPU	0.5 RAM * 0.5 RAM	0.5 RAM 0.5 RAM *
		0.5 RAM 0.5 RAM 0.5 EIA * *	0.5 EIA * 0.5 RAM 0.5 RAM *	* 0.5 EIA * 0.5 EIA *
		1.0 EIA * *	* 1.0 EIA *	* * 1.0 EIA
3.5 MB	2.0 CPU	0.5 RAM	0.5 RAM	0.5 RAM
		0.5 RAM	0.5 RAM	0.5 EIA
		1.0 EIA *	* 1.0 EIA	0.5 RAM 0.5 RAM
		0.5 EIA 0.5 EIA 1.0 EIA * 1.0 EIA *	1.0 EIA * 0.5 EIA 0.5 EIA * 1.0 EIA	* 1.0 EIA * 1.0 EIA 0.5 EIA 0.5 EIA

## Expansion Memory Locations

### Expansion Memory Locations (Continued)

TOTAL SYSTEM MEMORY	CPU ON-BOARD MEMORY	EXPANSION MEMORY		
		SLOT 1	SLOT 2	SLOT 3
3.5 MB (cont'd)	2.0 CPU (cont'd)	1.5 EIA * *	* 1.5 EIA *	* * 1.5 EIA
4.0 MB	2.0 CPU	2.0 RAM * *	* 2.0 RAM *	* * 2.0 RAM

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