

---

# SUPRAM 500RX OPERATOR'S MANUAL

Congratulations on purchasing the high-performance SupraRAM 500RX™ for the Amiga® 500. The SupraRAM 500RX lets you add up to 8MB of FAST RAM to your system, allowing you to create large, very fast RAM disks and run larger and more sophisticated programs. It easily plugs onto the Amiga 500 expansion port, and its own Amiga bus pass-through lets you connect additional Amiga bus devices to your system as well. Although you probably won't need it, you can rest assured that if you connect multiple Amiga bus devices and risk overloading your Amiga's power supply, you can easily add an optional external power supply to the 500RX.

The 500RX is flexible in other ways, too. Expanding it is easy: simply start with a small amount of RAM, and add more RAM as your needs and budget allow. 1/2, 1, and 2MB configurations use 256K x 4 ZIP DRAM, and 2, 4, and 8MB configurations use 1Mb x 4 ZIP DRAM. (Both use 120 nanosecond or faster chips.) And if you want to, you can easily disable the RAM by flipping the switch on the back of the 500RX case.

And the 500RX is designed for maximum performance. Its four-layer board reduces noise and the chances for memory errors that other boards can have. Plus, the 500RX uses zero wait states and hidden refresh for optimal speed. The 500RX test mode and diagnostic software simplify troubleshooting, and if you need it, Supra Technical Support is available to help you.

Plus, all these features fit in a sturdy, compact case that attractively matches your Amiga's styling, comes with a one year warranty, and is made in the U.S.A.

---

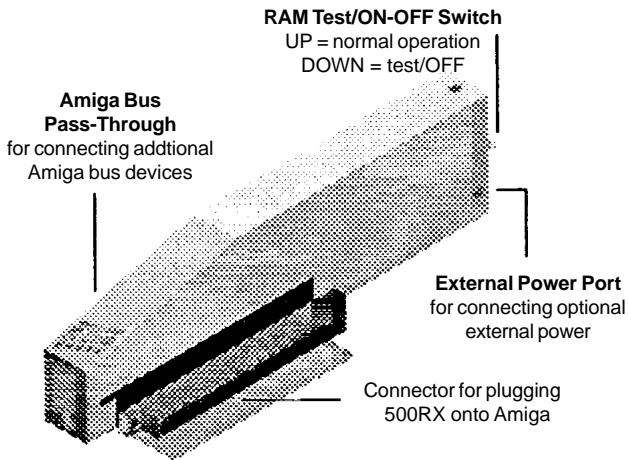
# CONTENTS

<b>1: SUPRAM 500RX OVERVIEW.....</b>	<b>3</b>
<b>2: GETTING STARTED.....</b>	<b>4</b>
UNPACKING YOUR SUPRAM 500RX.....	4
CONNECTING YOUR SUPRAM 500RX.....	4
TURNING YOUR SYSTEM.....	5
<b>3: CONFIGURATION OPTIONS.....</b>	<b>6</b>
USING OTHER AMIGA BUS PERIPHERALS.....	6
DISABLING YOUR 500RX.....	6
ADDING RAM TO YOUR 500RX	
Installation Instructions.....	7
Inserting the RAM Chips.....	8
Up to 2MB with 256K x 4 DRAM.....	8
2MB or More with 1Mbit x 4 DRAM.....	9
Setting the RAM Size Jumpers.....	9
Testing RAM.....	10
<b>4: TROUBLESHOOTING.....</b>	<b>11</b>
SOLVING PROBLEMS YOURSELF.....	11
Do This First.....	11
System Won't Boot, or System Locks Up.....	11
SupraRAMTest Errors & RAM Problems.....	12
System Not Using Available Memory.....	12
Guru or Computer's Red Light Blinks.....	12
CONTACTING SUPRA TECHNICAL SUPPORT.....	13
ONE YEAR LIMITED WARRANTY.....	13

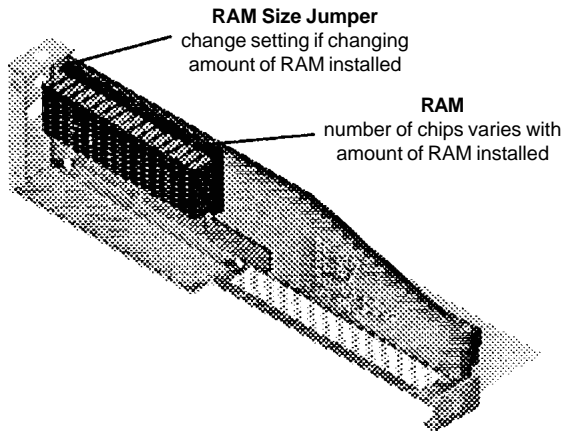
# 1

## SUPRARAM 500RX OVERVIEW

### SUPRARAM 500RX EXTERNAL VIEW



### SUPRARAM 500RX INTERNAL VIEW



# 2

---

## GETTING STARTED

### UNPACKING YOUR SUPRAM 500RX

The following items should be in your 500RX package:

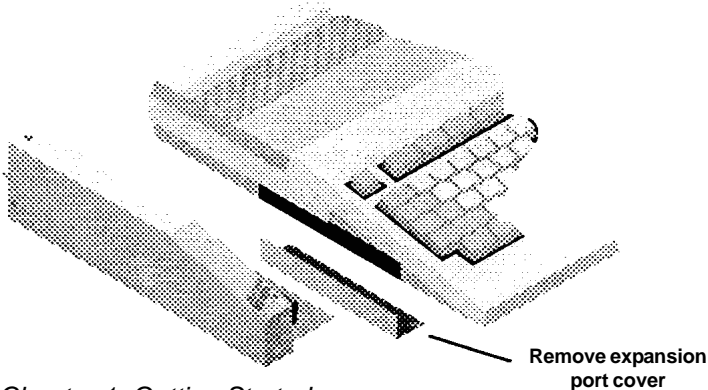
- SupraRAM 500RX
- SupraRAM test software floppy disk
- manual
- warranty card

Before using your 500RX, please make a back-up copy of the SupraRAM test software disk. For your convenience, it is not copy protected.

### CONNECTING YOUR SUPRAM 500RX

To connect your SupraRAM 500RX:

1. Turn off your computer.
2. Remove the cover from your Amiga 500's expansion slot (it's on the left side of your Amiga).
3. Plug your 500RX onto the expansion slot, as shown below. *Make sure the 500RX and computer are parallel.*



## TURNING YOUR SYSTEM ON & OFF

### SupraRAM 500RX WITHOUT an External Power Source

To turn on your system, simply turn on your Amiga.

After you turn on your Amiga, the Amiga start-up sequence will run. When it is completed, you'll see the **Workbench** screen, and your 500RX is ready to use. If the **Workbench** screen does not appear, refer to Chapter 4.

To turn off your system, simply turn off your computer to turn off your entire system.

### SupraRAM 500RX WITH an External Power Source

It is very unlikely that you will need an external power source. But if you do, be sure to follow these instructions when turning your system on and off.

To turn your system on, turn on your 500RX, and then turn on your Amiga. (If both are connected to a power strip, you can turn on both simultaneously by flipping the power strip switch.) *Do not turn on your Amiga before you turn on your 500RX, or you may damage your system.*

After you turn on your Amiga, the Amiga start-up sequence will run. When it is completed, you'll see the Workbench screen, and your 500RX is ready to use. If the Workbench screen does not appear, refer to Chapter 4.

To turn your system off, turn off your Amiga, and then turn off your 500RX. (Or, if you have them both connected to a power strip, turn them both off at once by flipping the power strip switch.) *Never turn off the 500RX before turning off the Amiga. If you turn off the 500RX first, you may damage your Amiga bus.*

# 3

---

## CONFIGURATION OPTIONS

### USING OTHER AMIGA BUS PERIPHERALS

In addition to the SupraRAM, you can connect other Amiga bus peripherals to your Amiga's expansion bus (where the SupraRAM 500RX connects). If you choose to connect additional Amiga bus peripherals, you may need to experiment to determine the ideal order of peripherals so that each peripheral works properly. Peripherals that don't allow additional expansion devices to be attached must be connected to the 500RX's Amiga pass-through port.

### DISABLING YOUR 500RX

Unfortunately, some software (mostly games) doesn't work well when used with expansion devices on the Amiga. Most of the time, these problems occur because of the copy protection schemes that the software uses. Also, some software does not work with any additional RAM. (This is fairly rare.) The 500RX has been designed to let you get around these problems by disabling the RAM.

To disable the RAM, flip the switch on the back of the SupraRAM 500RX DOWN and reboot your system. To use the RAM again, flip the switch UP, and reboot.

## ADDING RAM TO YOUR 500RX

In addition to the RAM installed in the SupraRAM 500RX, you can use other RAM boards that install in your computer. When adding RAM to your system, remember that the maximum amount of Fast RAM your system can use is 8MB.

The SupraRAM 500RX comes with 512K, or 1, 2, 4, or 8MB of RAM installed. If your 500RX contains less than 8MB of RAM, you can add more RAM when it's convenient for your needs or budget. If you want to add RAM, follow the instructions below.

---

**CAUTION**— It is strongly recommended that only someone with electronics experience (i.e. your computer dealer) add the RAM chips to the SupraRAM. Improper installation can ruin the board and/or the chips!

---

Before installing RAM, do all of the following:

1. Turn off your computer.
2. Unplug the 500RX from the computer.
3. Remove all six (6) screws from the 500RX case.
4. Carefully remove your 500RX case top.

---

**CAUTION** — Make sure that you ground yourself (discharge static electricity) before touching the RAM or the 500RX interface. Then ground yourself several more times while installing the RAM.

The easiest way to ground yourself is to touch grounded metal. To avoid generating additional static electricity, do not perform the installation in a room with carpeted floors. If you must be in a carpeted room, don't move your feet much during the installation

---

To install RAM in the 500RX, you'll perform three basic steps:

1. Insert the RAM chips.
2. Set the RAM size jumpers.
3. Test the RAM.

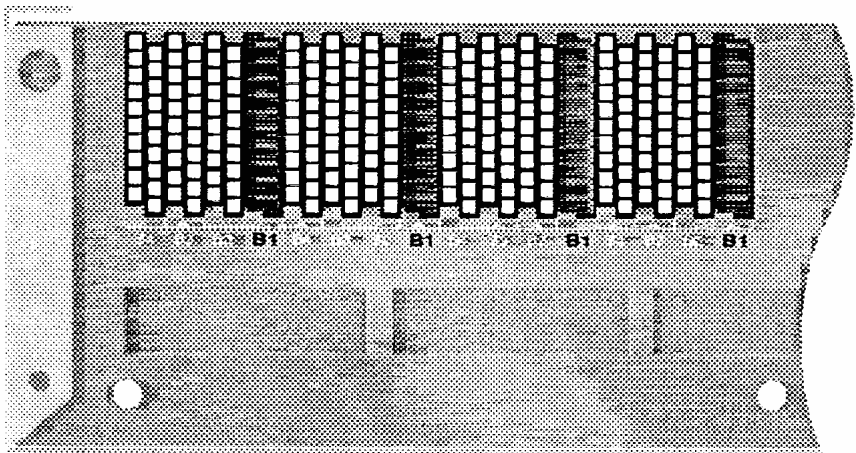
## Inserting the RAM Chips

The SupraRAM 500RX is designed to use two different kinds of memory chips for expansion. Using 256K x 4 ZIP DRAMs (1 megabit), you can configure the 500RX with 512K, 1MB, or 2MB of RAM. For expansion above 2MB, you must use all 1Mbit x 4 ZIP DRAMs (4 megabit). These DRAMs allow 2MB, 4MB, and 8MB configurations.

### Up to 2MB with 256K x 4 DRAM

The RAM used for 512K, 1MB, and 2MB configurations must be 256 Kbit x 4 ZIP DRAM chips, 120 nanoseconds or faster. For 512K, you'll need 4 chips; for 1MB, you'll need 8 chips; and for 2MB, you'll need 16 chips. If you need assistance obtaining RAM chips, please contact Supra Corporation Sales or your local computer dealer.

The RAM chips are inserted in the sockets toward the back of the 500RX. (Be sure to place each RAM chip so that its notched or indented end (pin 1) is down, toward the bottom of the 500RX.) To install 512K, insert the four chips in the sockets next to the **B1** labels, as shown.



To install 1MB, fill all 8 sockets next to the **B1** labels and the **B2** labels. To install 2MB, fill all 16 sockets.

After inserting the RAM chips, follow the instructions in the upcoming section called "Setting the RAM Size Jumpers."



## 2MB or More with 1Mbit x 4 DRAM

For 2, 4, or 8MB RAM configurations, the 500RX is designed to accept 1 Mbit x 4 ZIP DRAM chips (4 megabit), 120 nanoseconds or faster. For 2MB, you'll need 4 chips; for 4MB, you'll need 8 chips; and for 8MB, you'll need 16 chips. If you need assistance obtaining RAM chips, please contact Supra Corporation Sales or your local computer dealer.

The RAM chips are inserted in the sockets toward the back of the SupraRAM. (Be sure to place each RAM chip so that its notched or indented end (pin 1) down, toward the bottom of the 500RX.) To install 2MB, insert the four chips in the sockets next to the **B1** labels, just like the 1MB configuration shown in the previous section. To install 4MB, fill all 8 sockets next to the **B1** labels and the **B2** labels. To install 8MB, fill all 16 sockets.

After inserting the RAM chips, follow the instructions in the upcoming section called "Setting the RAM Size Jumpers."

## Setting the RAM Size Jumpers

After installing RAM, you need to set the **J1**, **J2**, and **J3** jumpers appropriately. These jumpers are near the back of the SupraRAM, above the RAM test switch. Set the RAM size jumpers as shown below. "ON" means the jumper is on the header.

Total RAM in 500RX	J1	J2	J3
0	OFF	OFF	OFF
512K	OFF	ON	ON
1MB	OFF	ON	OFF
2MB (256K x 4 DRAM)	OFF	OFF	ON
2MB (1Mbit x 4 DRAM)	ON	OFF	ON
4MB	ON	OFF	OFF
8MB	ON	ON	ON

## Testing RAM

After installing the RAM, test it by following the steps below.

1. Locate the RAM test switch on the back of the SupraRAM 500RX case. This switch is used to change the RAM between Test Mode and Run Mode. Move this switch DOWN (putting the RAM in Test Mode).
2. Without replacing the 500RX case top, connect your 500RX to your Amiga 500, make sure that nothing is touching the inside of the interface, and power up your system.
3. Run **SupraRAMTest**. Let the RAM test program run for at least one pass, which takes from 2 to 32 minutes, depending on how much RAM is installed.

If SupraRAMTest reports a problem with your RAM, refer to Chapter 4 for information on correcting the problem.

4. When you are done testing the RAM, turn off your system.
5. Disconnect the 500RX from your computer.
6. Move the RAM test switch switch UP, so the RAM is in Run Mode.
7. Replace the 500RX case top, and replace the screws that hold the case together.
8. Connect the 500RX to your computer, and your RAM is ready to use.

# 4

---

## TROUBLESHOOTING

### SOLVING PROBLEMS YOURSELF

If you have trouble connecting or using your SupraRAM 500RX and you have followed the instructions in this manual, please try the potential solutions in this section. If you still have trouble, please refer to the section called “Contacting Supra Technical Support” toward the end of this chapter.

#### **Do This First**

*Before trying any other idea,* verify that the 500RX connector that attaches to the Amiga is clean (ensuring a complete connection) and that there is ample airflow around the SupraRAM. Then make sure your 500RX is securely connected to the Amiga, and that the 500RX and the computer are parallel.

#### **System Won't Boot, or System Locks Up**

First, try testing the RAM as described in Chapter 3.

If you are using other Amiga bus peripherals in addition to your 500RX, and your system is not working properly, try the suggestions in the section in Chapter 3 called “Using Other Amiga Bus Peripherals With Your SupraRAM.”

It's unlikely, but you may be draining too much power from your Amiga 500. In this case, you need to add an external power supply to one or more of your expansion devices. To get an external power supply, please contact your local dealer or Supra Corporation's Sales Department.

## SupraRAMTest Errors & RAM Problems

If you get errors when you run **SupraRAMTest**, check all of the possibilities listed below. They are the most likely causes of RAM problems:

- Bent under RAM chip pins. This is the number 11 cause of problems. VERY carefully straighten the pins and place the chips in the sockets.
- RAM chip orientation. Refer to the “Adding RAM to Your SupraRAM 500RX” section in Chapter 3 to learn proper chip orientation.
- Chips that were “zapped” by static electricity during handling. Contact your local dealer to obtain new RAM chips.
- RAM size jumpers set incorrectly. Refer to the “Adding RAM to Your SupraRAM 500RX” section in Chapter 3 for the correct settings.

If you still have problems after trying these possibilities, please contact your local computer dealer or Supra Technical Support for assistance.

The following information is provided for those with previous experience troubleshooting RAM boards. If this information is not clear to you, please contact your local dealer or Supra Technical Support for assistance.

The following is an example **SupraRAMTest** error message:

### **BAD BIT 3 AT ADDRESS 20XXX**

“BAD BIT” indicates which chip is bad, and the first 2 numbers of the address indicate which bank of memory is bad.

Using the following table, find the address range for the type of memory chips used. Then read across to find the bank number.

<b>256K x 4</b>	<b>1MB x 4</b>	<b>Bank</b>
20-27	20-3F	1
28-2F	40-5F	2
30-37	60-7F	3
38-3F	80-9F	4

Now look at the table below, and find the appropriate bank and bit rows. Where the two rows cross indicates the chip that is bad.

		Bank			
		1	2	3	4
Bit	0-3	U1	U5	U9	U13
	4-7	U2	U6	U10	U14
	8-11	U3	U7	U11	U15
	12-15	U4	U8	U12	U16

For example, suppose you're using 256K x 4 chips, and you get an error message that says BAD DATA BIT 9 AT ADDRESS 335ED. The first table tells you bank 3 is affected. The second table shows you that where the row "Bit 8-11" and the column "Bank 3" meet is at chip U11. U11 is the bad chip.

### System Not Using Available Memory

If you have a different amount of RAM installed than your computer recognizes, your RAM might be set to Test Mode, or your RAM size jumpers might be set incorrectly.

The RAM must be set to Run Mode for your system to take advantage of it. When the RAM test switch on the back of the 500RX is UP, the RAM is in Run Mode.

The section called "Setting the RAM Size Jumpers" in Chapter 3 explains how to set these jumpers correctly.

### Guru or Computer's Red Light Blinks

If your system "Guru"s frequently or your computer's red light blinks (rather than staying solid), your RAM size jumpers may be set incorrectly, or you may have problems with your RAM. To learn the correct jumper settings, refer to the "Adding RAM to Your SupraRAM" section in Chapter 3. To test your RAM, run **SupraRAMTest** as described in the "Testing RAM" section in Chapter 3. If **SupraRAMTest** reports errors, refer to the list in the section in this chapter called "SupraRAMTest Errors and RAM Problems."

## CONTACTING SUPRA TECHNICAL SUPPORT

If you have tried the suggestions in this chapter and still cannot get your 500RX to work, please contact your local dealer, or call Supra Technical Support at (503) 967-2440 between 9 a.m. and 4 p.m. PST, Monday through Friday.

Before you call, have a pencil and paper ready to take notes, and if possible, be next to your computer when you call.

---

**NOTE** — Do not return any equipment for service without first contacting us and obtaining a Return Materials Authorization (RMA).

---

In most cases, your problem can be solved over the telephone. However, if you do need to send your 500RX to us, be sure to pack it in both the original packing materials (if available) and a *second, sturdier* box. The original 500RX packing materials are not adequate to protect the 500RX during shipping, and if you neglect to put it in a sturdier box, *you risk damaging the 500RX*.

Please note that you are responsible for paying shipping charges to and from Supra Corporation.

## ONE YEAR LIMITED WARRANTY

### **Our Warranty to you:**

Supra Corporation (Supra) warrants that for a period of one year from the date of **original** retail purchase, our products will be free from defects in material and workmanship. If you discover a defect covered by this warranty, we will repair, replace, or refund the purchase price of the product at our option using new or remanufactured components.

**Supra's liability is limited solely to the repair, replacement, or refund of the defective product.** This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

### **How to obtain service under this warranty:**

To obtain free service under this warranty you must deliver the product and the original sales receipt to the dealer you purchased this product from or to Supra Corporation. If you decide to return the product to Supra, you must first call Supra's technical support department and obtain a return materials authorization number (RMA), as explained in the previous section. You are responsible for paying shipping costs to and from Supra.

### **Product failures not covered by this warranty:**

This warranty covers defects in manufacture that arise from correct use in a home or office environment. It does not cover damage caused by abuse, misuse, improper modification or repair, moisture, corrosive environments, shipping, or high voltage surges from external sources such as power line, telephone line, or connected equipment. This warranty also does not apply to any product with an altered or defaced serial number.

### **Limits of Supra's liability:**

We are only responsible for the repair of this product. We will not be liable to you or anyone else for any damages that result from the failure of this product or from the breach of any express or implied warranties. These include damage to other equipment, lost data, lost profits, or any consequential, incidental, or punitive damages. **IN NO EVENT WILL SUPRA BE LIABLE FOR ANY AMOUNT GREATER THAN THE CURRENTLY SUGGESTED RETAIL PRICE OF THIS PRODUCT.** Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.



7101 Supra Drive S.W., Albany, OR 97321 USA  
503-967-2400

Technical Support: 503-967-2440

© 1991 *Supra Corporation*  
*SupraRAM 500RX is a trademark of Supra Corporation.*

Printed in the U.S.A.

70-0071 -0



# *Amiga Hardware World*

*Everything about Amiga hardware...*

~

*<http://amiga.resource.cx>*