TopRAM

1 Megabyte Memory Card for the Apple IIGs

Owner's Guide

PARALLAX

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Contents

Introduction..... 1

Installing TopRAM 2

Using TopRAM as a RAM Disk..... 4
Setting RAM disk size 5
Addressing the RAM disk..... 7
Using the RAM disk 8
Formatting theRAMdisk 9
Copy Ing an application to the RAM disk 9
Starting up from the RAM disk 10
Saving a document to the RAM disk..... 11

TopRAM Expansion Ports..... 12

Technical Information..... 13

Introduction

TopRAM adds 1 Megabyte of memory to the 256K of RAM built into the Apple IIGS.

Many applications designed especially for the Apple IIGS will use the extra memory on TopRAM automatically - as an extension of the memory that's built into the computer. You don't have to know anything special to use the card in this way; just Install it and leave the rest up to the application.

You can also use the memory on TopRAM as a RAM disk - memory that you access like a disk. The advantage of using the card as a RAM disk is that when you copy an application to the RAM disk and run it from there, the computer can access different parts of the application much more quickly than it can when the application is on a regular disk. And if you copy several applications to the RAM disk, you can switch between those applications much more quickly than if the computer had to get the next application from a regular disk.

Installing TopRAM

The following explains how to Install TopRAM in your Apple IIGS.

Important: If your computer's power is on, turn it off and wait at at least 30 seconds before Installing or removing TopRAM.

1) Make sure the Apple IIGS power switch is turned off but leave the power cord plugged into a grounded outlet. This keeps your computer system grounded.

2) Remove the Apple IIGS lid. The easiest way to remove the lid is to wrap your hands around the rear comers of the case and hold the lid latches in with your index fingers while you push up on the lid with your thumbs. When you feel the lid release, lift it all the way off the case and put It to one side.

3) Take TopRAM out of the box and remove the protective wrapping. When you handle the card, avoid touching the gold "fingers" along the bottom edge of the card. The moisture from your fingers can attract dust that would weaken the card's connection to the computer.

4) Touch the power supply case inside the computer to discharge any static electricity that may be on your clothes or body.

5) Carefully Insert TopRAM into the Memory Expansion Slot (the slot near the front-right comer of the computer). You'll have to exert some pressure to get the card into the slot, but don't wiggle the card from side to side. Rock it forward and back until it's firmly seated in the slot.

6) Replace the Apple IIGS lid by laying the front edge of the lid in the groove in the front of the Apple IIGS case and lowering the back edge of the lid into place. Press down on the back comers of the lid until you hear the latches click shut.

7) Go to the Control Panel Program (turn on the power while holding down the Option key) and choose the RAM disk option from the menu. The number next to "Largest Selectable" should be "1024K." If it isn't, turn off the computer and repeat the Installation process. If "Largest Selectable" still isn't "1024K," consult your Apple dealer.

Using TopRAM as a RAM Disk

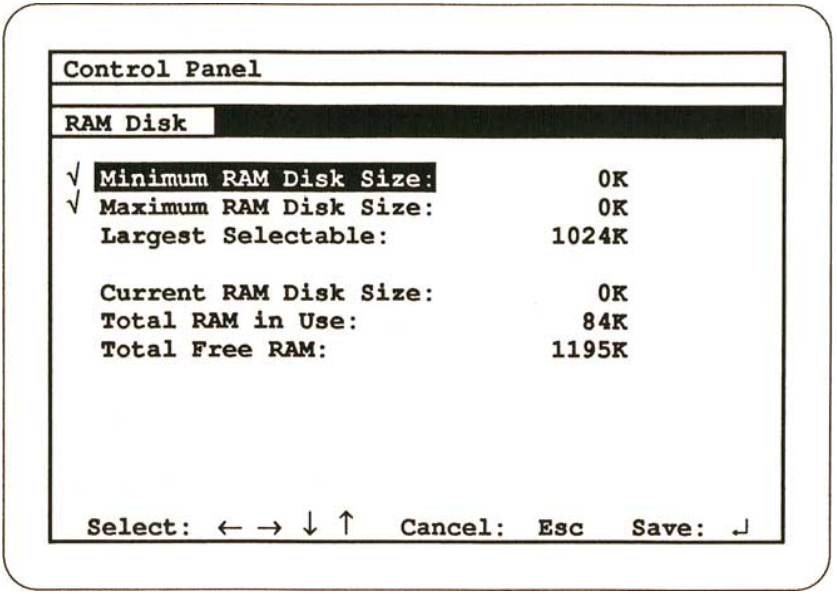
Many applications designed especially for the Apple IIGS take advantage of the extra memory on TopRAM automatically. In some cases you can't use the application - or can't take advantage of all the application's features - without adding extra memory.

Another way you can use the memory on TopRAM is as a RAM disk. This requires a little more effort on your part, but it's worth the effort if you want to speed up access to applications that aren't designed to use the extra memory on the card automatically. Just keep in mind that if you use memory on the card as a RAM disk, that memory isn't available for use by applications designed to use the memory automatically.

To use the memory on TopRAM as a RAMdisk, you need to know how to copy applications to the RAM disk and how to start them up from there. You may also want to know how to save documents to the RAM disk. This is not a substitute for saving documents on a disk, because the memory on the card is temporary just like the RAM that's built into your computer. But saving documents to the RAM on TopRAM can be useful if you have more than one application that uses the same data or If you refer to certain data regularly.

Setting RAM Disk Size

Before you can use the memory on TopRAM as a RAM disk, you need to use the Control Panel Program *(the Apple IIGS Owner's Guide explains how to change Control Panel settings)* to tell the computer how much of the memory on the card you want to set aside for use as a RAM disk (see below).



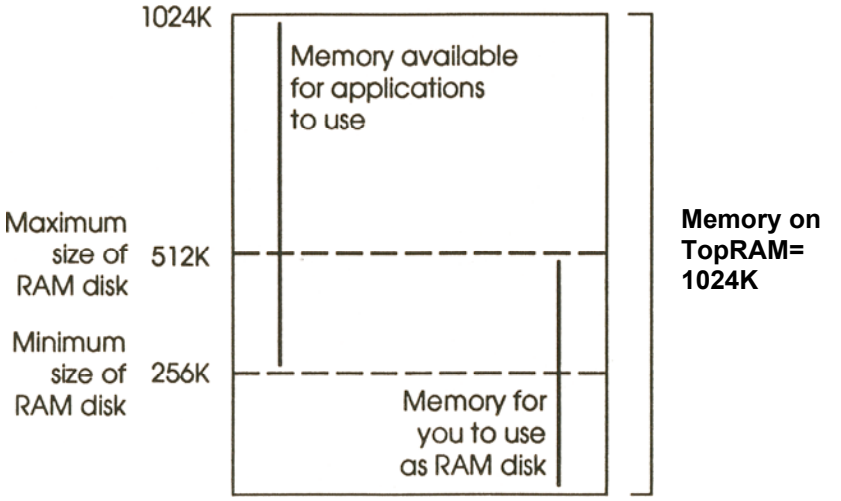
• RAM disk screen in Control Panel Program •

If you won't be copying applications to the card or saving documents to the card, don't designate any of the memory on the card for use as a RAM disk. This leaves all of the memory on the card for use by applications that use the memory automatically. If you will be copying applications to the card and saving documents on the card. use the Control Panel Program to designate the maximum and minimum RAM disk size. Setting an upper limit restricts the amount of memory on the card that you can use as a RAM disk. Setting a

minimum amount restricts the amount of memory that applications can use; it guarantees that there will always be a certain amount of memory available for you to use as a RAM disk.

Important: If your application uses a version of ProDOS earlier than 1.2. you must set the minimum and maximum RAM disk size to the some number.

In the example shown below, there is 1024K (1 Megabyte) available on TopRAM. The minimum RAM disk size has been designated as 256K, and the maximum RAM disk size has been designated as 512K. That means that applications will have a minimum of 512K (1024 - 512) to use and can use as much as 768K (1024 - 256) If you aren't already using that memory as a RAM disk.



• Setting RAM disk size •

If an application needs more memory than you've designated. It will tell you so, and you can use the Control Panel Program to change the maximum RAM disk size to a lower number.

Addressing the RAM Disk

Many applications will ask for the location of your RAM disk by slot and drive number. TopRAM, when used as a RAM disk, appears to be in slot 5, just as a 3.5-inch drive connected to the disk drive port appears to be in slot 5. The following rules and examples explain how to figure out where your RAM disk is in relation to your 3.5-inch drives.

Rules

1) Your startup device is always drive 1 (remember, you can change the startup device by using the Control Panel Program).

2) RAM disks come before 3.5-inch disks.

Examples

- If a RAM disk is your startup device, it is drive 1, your first 3.5-inch drive is drive 2, and your second 3.5-inch drive is drive 3.

- If a 3.5-inch drive is your startup device, it is drive 1, the RAM disk is drive 2, and the second 3.5-inch drive is drive 3.

Note; ProDOS 1.1.1 supports onty two devices per slot; so with ProDOS l.l.l-based applicatlons,"drive3"-your second 3.5-inch drive - is invisible. Applications that use ProDOS 1.2 recognize up to four devices per slot, so this isn't a problem (although it will take some getting used to, the third device is assigned to slot 2. drive 1; and the fourth device to slot 2, drive 2). See your Apple dealer to get ProDOS 1.1.1 applications upgraded to ProDOS 1.2.

Using the RAM Disk

To copy and run applications from the RAM disk, you need to:

1) (Optional) Format the RAM disk. This is necessary only if you plan to use the RAM disk as your startup device. The RAM disk is preformatted at startup for storing applications and documents.

2) Copy applications to the RAM disk.

3) (Optional) Make the RAM disk your startup device by using the Control Panel Program.

4) Start up your application from the RAM disk.

Startup device: making the RAM disk your startup device means that when you press Open Apple-Control-Reset (or type PR#5 from the BASIC programming environment), the computer will start up from the application on your RAM disk Instead of looking for a program disk in one of your disk drives.

Keep in mind that if you make the RAM disk your startup device and then turn off the power, you'll get the message Check Startup Device the next time you try to start up. That's because you lose what's on the RAM disk when you turn off the power. If this happens, go into the Control Panel and change the startup slot to one of your disk drives so you can start up.

Formatting the RAM Disk

Format the RAM disk the same way you would format a regular disk, using the formatting option on your utility disk. Choose ProDOS as the format if the applications you want to copy to the RAM disk are ProDOS-based. Choose Pascal if your applications are Pascal-based. You can name the RAM disk anything you like, but naming it / RAM5 is a good way to remind yourself that the RAM disk emulates a drive connected to slot 5.

If the formatting program asks for the slot and drive number of the RAM disk, answer slot 5 and drive 2 (this assumes that you have at least one3.5-lnch drive and that you're using a 3.5-tnch drive as your startup device. If you don't, have a 3.5-lnch drive, or If you've used the Control Panel Program to designate the RAM disk as your startup device, answer slot 5 and drive 1).

Important: You can't put DOS 3.3 applications and documents on the RAM disk, so don't try to format the disk for DOS 3.3. DOS 3.3 was designed for 5.25 inch disks with a storage capacity of 143K. It can't use the space on larger storage devices like RAM disks, 3.5-inch drives, and hard disks.

Copying an Application to the RAM Disk

Copy all the files from your application disk to the RAM disk using the Copy Files program on your utility disk.

Starting Up from the RAM Disk

If you want to start up directly from an application on the RAM disk, use the Control Panel Program to change the startup slot to RAM disk (see below). After that, any time you press OpenApple-Control-Reset (or type PR#5 from the BASIC programming environment), the application on your RAM disk with start up

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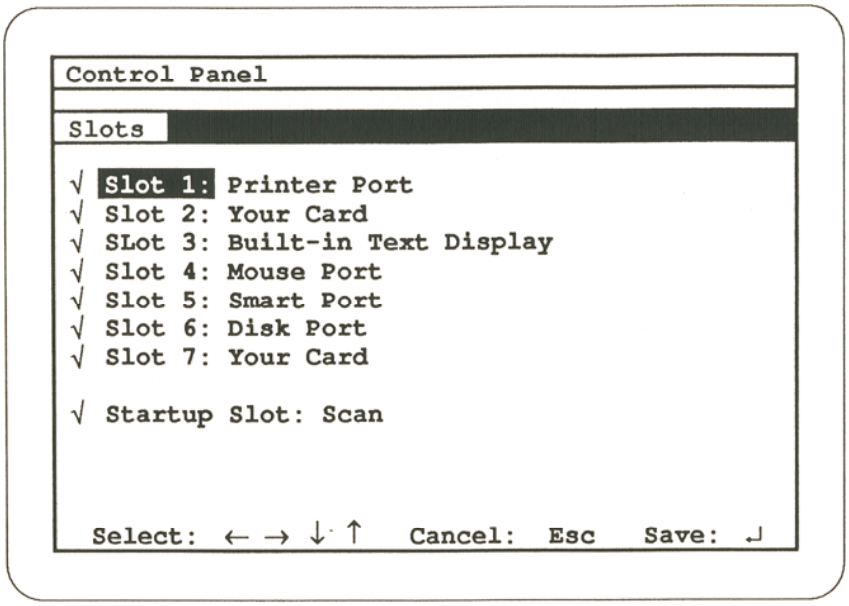

• Changing startup slot using the Control Panel Program •

If the RAM disk is not your startup device, or if you have more than one appllcation on the RAM disk, get into the BASIC programming environment and type - /RAM5/file (where RAM5 is the name of your RAM disk and file is the name ofyour application's system file). The system file is the file with the name ending in . SYSTEM (for example, to start up AppleWorks from the RAM disk, you'd type - /RAM5/ APLWORKS.SYSTEM).

Saving a Document to the RAM Disk

You can save documents on your RAM disk the same way you save them on a regular disk. Just remember that a document saved on a RAM disk is saved only temporarily.

Important: Save the contents of the RAM disk to a regular disk before you turn off the power or your documents will be gone for good.

If your application asks for the slot and drive number, answer slot 5 and drive 1 if the RAM disk is your startup device. Answer slot 5 and drive 2 if a 3.5-inch drive is your startup device (to applications, the RAM disk looks just like a disk in a drive connected to slot 5).

If the application asks for a pflthwme, type a slash, the name of your RAM disk. another slash, and the name of the document (if you didn't format the RAM disk. its name is /RAM5).

TopRAM Expansion Ports

YourTopRAM memory card is designed with two expansion ports for adding further enhancements, such as more RAM and ROM.

The first port is a 44-plnconnectorfoundjust above the gold "fingers" on the card. RAM and ROM expanders connect to this port.

The second port is a 16-pln socket found just above the first port. Normally, there's a part (a 74F139) plugged Into this socket. However, future memory partitioning hardware will plug into this socket via a cable.

Technical Information

RAM Type.....….....256Kx 1 Dynamic, 150ns

Number of Rows of RAM .....…….....4

***Memory per Row*.....…….....256K**

Memory Configurations Possible …….1024K*

Number of Expansion Ports.....……..2

Types of Expansion Possible ……....RAM, ROM, Memory Partitioning Hardware

Apple Compatabillty..……..…….....Fully Compatible

DMA Compatabillty.....……..…….....Fully Compatible

Socketing .....…….....All RAM Chips Socketed

- TopRAM is designed to work with at least 1 Megabyte of RAM. Although future expansion boards will allow RAM expansion beyond 1 Megabyte, TopRAM will not work with less than 1 Megabyte (256K or 512K).

LIMITED WARRANTY

Parallax, Inc. warrants TopRAM against defects in materials and workmanship for a period of five (5) years from the date of purchase.

If you discover a defect. Parallax will, at its option, repair, replace, or refund the purchase price of the product at no charge to you, provided you return it with a copy of the bill of sale to Parallax within the warranty period.

This warranty does not apply if the product has been modified or has been damaged by accident, abuse, or misuse.

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