FAT TRAPPER

FatTrapper™

4MB Memory Expansion Board For The Amiga 500

Installation Manual

FastTrapper™

4MB Memory Expansion Board
For The Amiga 500

Installation Manual

TABLE OF CONTENTS

1.0 Introduction.

2.0 Configuring FatTrapper.

3.0 FatTrapper Installation.

4.0 Testing FatTrapper.

5.0 Using The FatTrapper Support Software.

6.0 Miscellaneous.

1.0 INTRODUCTION

1.1 General Product Information.

Thank you for choosing the FatTrapper memory expansion card. In choosing the FatTrapper you have selected a very reliable and cost effective path for expanding the memory capabilities of your Amiga 500 computer. The FatTrapper memory card is one of many in the family of Spirit's fine memory expansion products available for all Amigas. We have spent much time in developing FatTrapper to deliver the best performance possible with your Amiga 500 computer system.

As you may know, there are many software packages now available for your Amiga that may require more than 1 megabyte to run. Some software will even give you greater work-space capacity and expanded features with the addition of expansion memory. No need to worry about a limited choice of software. With as little as 1 megabyte on the FatTrapper you can run almost anything you may have wanted but couldn't, because of the limitations of memory in your Amiga system.

The FatTrapper memory expansion card will expand your Amiga 500 computer system up to 4.5 megabytes (including the A500's 512K). You may add memory to the FatTrapper in 512K increments.

In the FatTrapper packaging you should have received the following items:

- FatTrapper Memory Card.
- CPU host Board.
- Narrow Flat Ribbon Cable.
- A Small Parts Packet.
- Software Support Disk.
- Instruction Manual.

If you did not receive any of the above mentioned items then immediately contact the place of purchase.

1.2 FatTrapper Features.

The following is a feature list for the FatTrapper memory card.

- Add up to 4MB of INTERNAL fast memory!
- Free up your expansion port.
- Easy solderless installation into the A500 and TrapDoor expansion port. With easy to follow instruction manual.
- All memory banks are socketed for easy population.
- Unlike the competition, FatTrapper allows you to add more memory and set configuration switches without opening your computer.
- Opening your Amiga is only required for initial installation.
- Intelligent memory management and test software included.
- Compatible with the normal or Fatter Agnus chip. Also compatible with 1.2 or greater Kickstart versions.
- Compatible with other Spirit products (except the SC501 which it replaces).
- Full year limited warranty on all parts and labor.

2.0 CONFIGURING FATTRAPPER

2.1 Selecting Memory Chips For FatTrapper.

The FatTrapper uses 256Kx4 DRAMs (256 kilobytes by 4, dynamic RAMs) in a DIP (dual inline package) form. These chips have 20 pins and come in a variety of different speeds. The FatTrapper has been designed to work efficiently with a chip speed of 150ns. This is typical for 16 bit memory expansion boards.

The FatTrapper has been tested with many different manufacturers of 256Kx4 chips and chip speeds. Typically 120ns or 100ns chips are more commonly found and will work fine with FatTrapper. The faster the chips the more expensive they become. Any speed chip faster than 150ns may be used in populating FatTrapper, although no performance increase will be noticed. You may also safely mix chip speeds and manufacturers. When choosing chips it is also recommended that CMOS parts be used. In using CMOS parts, power consumption can be greatly reduced on FatTrapper. The acronym CMOS indicates that the part uses very little power to operate.

Use the following table to determine the quantity of memory chips needed for different levels of population.

Memory Population And Number Of DRAMs Needed

0.5 MB	4 Chips
1.0 MB	8 Chips
1.5 MB	12 Chips
2.0 MB	16 Chips
2.5 MB	20 Chips
3.0 MB	24 Chips
3.5 MB	28 Chips
4.0 MB	32 Chips

2.2 Adding Ram Chips To FatTrapper.

Before installing the ram chips onto FatTrapper, it is first recommended that you obtain the appropriate tool for installation. A chip inserter can easily be obtained from any electronics supplier. While it is not required to have this tool for the installation of ram chips, this inexpensive tool can make the task of adding chips much easier. The chip inserter tool will prevent bent or broken pins.

Before you begin working with any electronic component, it is very important that you are in a static free environment. To make sure there will be no static discharge it is best to work on non carpeted floors (cement or linoleum) and before you touch any static sensitive device make sure you touch something connected to ground. A static discharge to any electronic component (especially ram chips) can cause permanent damage.

FatTrapper should be populated in the following order:

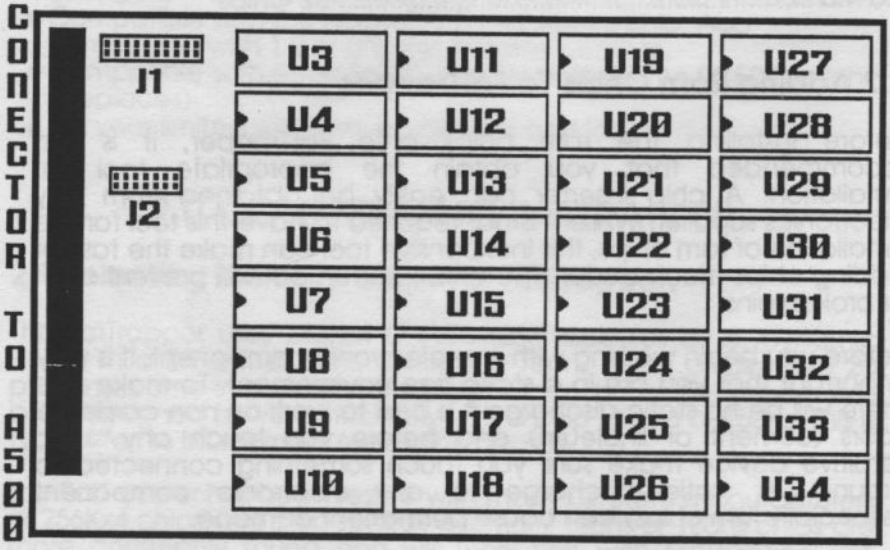
Bank 1, Bank 2, Bank 3, Bank 4, Bank 5, Bank 6, Bank 7, Bank 8.

Each bank consists of 4 ram chips totaling 512K. Bank layout on the FatTrapper is different from most memory expansion boards. Use the following table to determine which socket locations to populate for each bank of 512K.

Chip Location For Bank Population

Bank 1 = Socket U3, Socket U7, Socket U19, Socket U23.
Bank 2 = Socket U4, Socket U8, Socket U20, Socket U24.
Bank 3 = Socket U5, Socket U9, Socket U21, Socket U25.
Bank 4 = Socket U6, Socket U10, Socket U22, Socket U26.
Bank 5 = Socket U15, Socket U11, Socket U27, Socket U31.
Bank 6 = Socket U16, Socket U12, Socket U28, Socket U32.
Bank 7 = Socket U17, Socket U13, Socket U29, Socket U33.
Bank 8 = Socket U18, Socket U14, Socket U30, Socket U34.

Use the diagram below to help you locate each socket on the FatTrapper memory board for bank population.



Inspect each ram chip before attempting insertion into its socket. Make sure all pins are straight and aligned, if not straight, gently adjust with needle nose pliers. You may need to adjust the width between the rows of pins on each ram chip for proper seating into their socket, adjust the width between the rows of pins by gently pressing one side at a time against a flat surface (like the edge of a table). This is not necessary if you have a chip inserter.

NOTE: When installing the ram chips it is very important to make sure the notch or any other identifying indent or mark on the ram chip matches the notch in one end of the ram chip socket. All notches should be pointing towards the left, where the flat ribbon cable plugs into the memory board. Incorrect installation will result in damaged ram chips if powered on.

Make sure that FatTrapper is evenly supported on a flat surface to distribute pressure equally. Be sure you protect the work area surface from the solder side pins of FatTrapper. Insert the chips into their sockets with a firm, uniform pressure. Chips should click into place and be evenly seated.

Double check your work before proceeding.

2.3 Configuration Notes.

The FatTrapper memory card is designed to work with both the normal Fat-Agnus and the new Fatter-Agnus. This is determined by a PAL chip on the FatTrapper CPU host board. Before you install the FatTrapper into your Amiga 500, you will want to make sure that you have the correct PAL chip on the FatTrapper. This will assure compatibility with the type of Agnus chip you have in your A500. The PAL is located on the FatTrapper CPU host board in location U3. This location is right next to the CPU socket. If the PAL is marked with the number 468, then you have the PAL programmed for use with the Fat-Agnus. If the PAL is marked with the number 4468, then you have the PAL programmed for use with Fatter-Agnus.

If you are uncertain which Agnus chip is installed in your A500, then you may use a utility program on the FatTrapper support disk named CheckECS. The CheckECS utility will inform you which Agnus and Denise chip you have installed. To run the CheckECS utility, first boot the FatTrapper support disk and double click on the disk icon. After waiting a few seconds you will see a window of various icons. Simply double click the CheckECS icon to run the program.

NOTE: The CheckECS program will refer to the Fatter-Agnus chip as the ECS (Enhanced Chip Set) Agnus chip. The new Denise chip is referred to as the ECS Denise.

If you have the FatTrapper PAL that is compatible with your Agnus chip, then you must set switch 5. Switch 5 should be ON for the Fat-Agnus or OFF for the Fatter-Agnus. The configuration switches are located on the solder side of the memory board. Read section 2.4 to gain further knowledge on switch settings.

Before you continue with the installation, make sure that you have the appropriate FatTrapper PAL for the type of Agnus chip you have installed in your A500. If you do not have the correct PAL then one will need to be obtained from your local Spirit dealer or directly from Spirit Technology Corp. If you are required to install a different PAL chip, then you may easily remove the PAL by inserting a small flat-head screw driver between the chip and socket, and carefully pry upward. To install the new PAL simply plug it into the empty socket (U3). If you have any questions or problems please contact Spirit Tech-Support at (801) 485-4275.

2.4 FatTrapper Dip Switch Information.

On the back-side (solder side) of the FatTrapper memory board you will find a set of five dip switches. These switches control various aspects of FatTrapper. The following is a description of each switch and what its setting should be.

Switch 1: This switch is used in disabling or enabling specific memory banks on the FatTrapper memory board. If you have the 468 PAL (for Fat-Agnus) installed then banks 4, 5, 6, 7, and 8 are effected. If you have the 4468 PAL (for Fatter-Agnus) installed then banks 5, 6, 7, and 8 are effected. If you have no memory chips installed in any of the effected banks, then this switch should be set to OFF. If there is memory populated in any of the effected banks, then this switch should be ON.

Switch 2: This switch is identical to switch 1 except that the effected memory banks are different. If you have the 468 PAL (for Fat-Agnus) installed then banks 1, 2, and 3 are effected. If you have the 4468 PAL (for Fatter-Agnus) installed then banks 2, 3, and 4 are effected. If you have no memory chips installed in any of the effected banks, then this switch should be set to OFF. If there is memory populated in any of the effected banks, then this switch should be ON.

Switch 3: This switch tells FatTrapper which Kickstart ROM you have installed in your A500. For Kickstart 1.3 this switch should be in the ON position. For Kickstart 1.2 this switch should be in the OFF position.

Switch 4: Switch 4 is not used.

Switch 5: This switch determines the presence of the Fat or Fatter Agnus chip in your A500. This switch should be in the ON position if you have the Fat-Agnus or in the OFF position if you have the Fatter Agnus.

3.0 FATTRAPPER INSTALLATION

3.1 Opening The Amiga 500.

Opening the Amiga 500 is required so that you can install the FatTrapper CPU host board. The following tools are needed to open the A500 and install the FatTrapper.

- Torx head screw driver or allen wrench of appropriate size.
- Phillips head screw driver (medium tip).
- Chip puller or flat head screw driver (medium tip).
- Needle nose pliers.

The next 6 steps will guide you in opening the Amiga.

1. Remove 6 torx head screws located on the underside of the computer (3 screws along the front edge and 3 screws along the back edge). You can use the torx driver or small allen wrench for removing the screws. After removing the screws, group them separately so they will be easy to locate for re-installation. Place the Amiga 500 (keyboard up) on your work area.

2. Remove the top cover by holding the corner seams and pulling upwards. A flat blade screw driver may be inserted into the seam at each rear corner of the A500 chassis and gently twisted to help in removing the top cover. After removal place the cover to one side. This now exposes the internal FCC radiation shield and keyboard.

3. Remove the keyboard assembly by first disconnecting the keyboard cable. Remove the cable by unplugging it from the A500 mother-board. Note the orientation of the black wire on the keyboard connector, it point towards the left side of the A500. Now simply pick-up the top edge of the keyboard and set it to the right side of the A500, this can be done with the grounding wire still attached to the keyboard.

CAUTION: When re-installing the keyboard make sure the black wire on the keyboard connector is pointing towards the left side (where the 68000 CPU is located) of the A500. Failure to do so can result in serious damage to your keyboard if turned on.

4. Remove the FCC radiation shield by removing four torx screws at the front left of the shielding cover. Keep these screws separated from the others.

5. Using the needle nose pliers, bend the four metal retaining tabs (located around the shielding edges) until they will clear the slots in the FCC cover.

6. Using a little rocking action from rear to front, the FCC cover can now be removed and placed aside.

NOTE: When re-installing the shielding it will be necessary to bend one of the legs out of the way of the FatTrapper CPU board.

Now that your Amiga is open, you are ready to continue with the installation of FatTrapper.

3.2 Installing The FatTrapper CPU Host Board.

The FatTrapper memory system consists of two separate boards, the CPU host board and the memory board. Both boards install into the Amiga in different locations. The CPU host board plugs into the 68000 socket and the memory card plugs into the A500's trapdoor expansion slot. The two FatTrapper cards are linked via a narrow flat ribbon cable.

The first phase of FatTrapper installation is to install the FatTrapper CPU host board. The CPU host board is the smaller of the two boards and plugs into the Amiga's 68000 socket. The following 6 steps will guide you through this procedure.

PRECAUTIONS FOR HANDLING THE CPU

- The CPU is a static sensitive component, be careful not to touch the pins unless you are static free!
- Do not pry between the socket fitting and the mother-board. Pry between the socket and the 68000 chip.
- Do not lever the screw driver down into the A500 mother-board under the 68000 or you may damage the circuit board traces.
- Do not bend the pins on the 68000 or you may have trouble re-installing it into the FatTrapper CPU host board.
- Note the orientation of the 68000. The notch in one end is pointing towards the front of the A500.

1. The 68000 chip must be removed from the Amiga and re-installed onto the FatTrapper CPU card. The 68000 chip is the largest chip in the computer and is located on the left side of the Amiga mother-board, next to the left side expansion connector. Using a flat blade screw driver, or a chip puller, very carefully pry the 68000 from its socket.

2. Install the 68000 chip that was removed from the Amiga into the CPU socket (location U2) on the FatTrapper CPU host card. Remember to make sure the notch in one end of the 68000 matches the notch drawn on the board. When the CPU host board is installed into the computer the notch should be facing toward the front of your Amiga.

3. The FatTrapper CPU host board pins should now be examined to make sure the tips are perfectly straight and the rows are even. They have been aligned at the factory but bending can occur in shipping. If the pins look straight, then carefully place the CPU host board pins so that they are in alignment with the 68000 socket. A flashlight may need to be used to examine each pin for proper alignment.

4. Exert a firm even downward pressure until the CPU host board pins are fully seated into the empty Amiga 68000 socket.

5. Check both rows of pins on the underside of the FatTrapper CPU host board to make sure that they are fully seated into the 68000 socket.

6. Install the two nylon spacers and two long phillips screws which were included in your FatTrapper package. Notice the holes in the FatTrapper CPU host board, one located on each side of the 86 pin Amiga expansion port. Place the nylon spacers between the Amiga mother-board (with the FCC shielding expansion port strip in place), and the FatTrapper CPU host board. Then insert the screws through the CPU host board, down through the nylon spacers and into the Amiga's threaded holes, gently tighten using a phillips head screwdriver. Now the FatTrapper CPU host board will be securely installed into the Amiga's 68000 socket.

This completes the installation of the CPU host board.

3.3 Installing The FatTrapper Memory Board.

The FatTrapper memory board installs into the Amiga trap-door bay. The trap-door bay is located on the right bottom side of the Amiga mother-board, just below the internal floppy disk drive. Remove the plastic trap-door cover on the bottom of the A500 and simply plug the FatTrapper memory board (chip side facing up) into the trap-door pin connector. Make sure the board is securely installed.

NOTE: Before closing the trap-door cover, you will find it necessary to cut off the two small stand-off legs on the inner side of the trap-door plastic cover. You can easily cut the stand-off legs off by using a set of diagonal cutters, or you can snap them off by using a set of pliers.

Inspect the flat ribbon cable to make sure that it is securely connected to both the CPU host board and the memory board. The flat ribbon cable has been attached and sealed to each board for a good solid connection. If for any reason the flat ribbon cable becomes disconnected from either board, the following instructions will provide the necessary information for re-connection. When properly routed the flat cable will form the letter "Z" as it lays over the A500 mother-board.

The flat ribbon cable installs at location J1 on the CPU host board to J1 on the memory board. When installing the flat ribbon cable to the CPU host board, make sure the red stripe on the cable is facing towards the PAL chip in location U3.

When installing the flat ribbon cable to the memory board, make sure the red stripe on the cable is facing towards the 56 pin connector and away from the memory chips.

Before you close your Amiga, you will need to test the FatTrapper memory. See section 4.1 for more information.

This completes the installation of FatTrapper.

4.0 TESTING FATTRAPPER

4.1 Testing The FatTrapper Memory.

If you suspect that you might have a problem with FatTrapper, adding additional memory, or installing FatTrapper for the first time, it is recommended to perform a memory test. Before you can run the memory test program "TrapTest", you must set switch 3 (on the solder side of the FatTrapper memory board) if ON, to the OFF position.

The TrapTest utility is located on the FatTrapper software support disk and can be run from Workbench by double clicking on its icon. After waiting a few seconds to load, you will see the program begin testing FatTrapper memory.

All installed banks are tested except for bank 1. This is because bank 1 memory is AutoConfigured and used by the Amiga. If there is a problem in bank 1 your computer may not boot or will display a green screen.

If any errors occur, note the address of the error(s) and check the configuration tables in Appendix "A". This will help you determine the location of the bad chip(s).

If the TrapTest passes with no errors, then you need to power off the A500 and return switch 3 to its proper setting (see section 2.4 for switch information). You are now ready to use your memory.

If you are installing FatTrapper for the first time, you can now close your Amiga by following the steps in section 3.1 in reverse order.

5.0 USING THE FATTRAPPER SUPPORT SOFTWARE

5.1 Using The AddTrap Software Utility.

With standard external memory expansion the A500 can AutoConfig up to 8 megabytes. With FatTrapper and similar memory systems being plugged into trap-door expansion bay, the A500 can only AutoConfig a total of 2 megabytes (with Kickstart 1.3 and Fatter Agnus installed), and the remaining memory must be configured via software. There are certain disadvantages associated with this method (adding memory after boot time). One of the disadvantages would be the inability to boot from the Commodore RAD: (recoverable ram) device. The AddTrap program offers a unique method in which this limitation is handled. AddTrap automatically senses the amount of non-AutoConfiguring memory, adds it to the system and then creates a resident module which will survive warm boots and add memory very early in the boot process (simulating AutoConfig). This resolves any disadvantages related to normal AddMem.

NOTE: It is not necessary to use AddTrap in certain configurations. If you only have 2 megabytes of memory installed on FatTrapper and you have Kickstart 1.3 and the Fatter-Agnus installed, All memory will be AutoConfiguring therefore eliminating the need to use the AddTrap software utility. Look at the configuration tables in Appendix "A" to see if you need to use AddTrap for your configuration.

You can install AddTrap onto any standard AmigaDOS disk, and execute the program from the Startup-Sequence. This is necessary for adding the non-AutoConfiguring memory for use with your software.

There is a program on the support disk called Install-AddTrap. This program will automatically install the AddTrap utility onto your program disks. To run Install-AddTrap simply double click on its icon and follow the screen prompts. The next time you boot the installed disk, the AddTrap command will automatically be run from the Startup-Sequence.

MANUALLY USING ADDTRAP

AddTrap can only be used (manually) from the CLI/Shell if you choose not to install it into your Startup-Sequence (using Install-AddTrap). The following instructions apply to the syntax and commands of AddTrap.

Syntax for use: AddTrap (-command) (-command) (-command)

All commands in brackets are optional.

ADDTRAP COMMAND DESCRIPTIONS

? = Display syntax and command information.

A = (A)dd all non-AutoConfig FatTrapper memory to available system memory.

B = Re(B)oot the Amiga after installing the resident module. Thisworks only if the -I command is specified.

I = (I)nstall the AddMemory resident module. This will make resident a program module that will add memory upon every warm reboot. This module will live in memory until removed using the -K command or until your Amiga is turned off. The resident module makes it possible to boot from any recoverable ram disk (like Commodore's RAD:). Also if you have a program that is copy protected on a non-standard AmigaDOS disk (requiring additional memory), you may utilize this feature for adding memory without needing to put the AddTrap program on that particular game or application disk.

NOTE: The resident module will appear to some virus checkers as a virus living in memory. If the virus checker asks you if it should reset or zero the KickMemPtr (or similar message) reply with NO. A reply of YES will remove the AddTrap module from memory.

K = (K)ill the AddTrap resident module. This will additionally kill all resident modules in your Amiga.

L = This command sets the (L)oop flag for testing. This works in conjunction with the -T and -Q commands. If -L is alone on the command line AddTrap will automatically begin normal testing procedures in an endless loop.

Q = This is the (Q)uick command and will perform the fills test only. This is a quick test for your FatTrapper memory. You can use the -L command in addition to -Q command for endless looping.

T = This is the (T)est command and performs the fill Test and walking bits Test. This is a more thorough Test and requires more time to complete. You can use the -L command in addition to -T for endless looping.

NOTE: All testing can be stopped by pressing the (CTRL) key and the (C) key simultaneously.

5.2 Using The Recoverable Ram Disk Software.

Your FatTrapper software support disk contains a software device driver in the DEVS: directory called "RD.device". This driver is used in making a recoverable ram disk (RD0:). This means that any files copied into RD0: will survive a system reset or in most cases even a system crash.

The following instructions explain how to setup and use the FatTrapper recoverable ram disk from your own system disk.

To install a boot disk or hard drive with the recoverable ram disk, you must first copy two files. Copy "FatTrapper:Devs/RD.device" and "FatTrapper:Devs/MountList.RD0" to your destination drive Devs: directory.

After you have copied the files, you must then edit your "S:Startup-Sequence" on the disk you copied the RD0: files on, to include the following line, "Mount RD0: From Devs:MountList.RD0". This line should be the first line in your "S:Startup-Sequence" file.

The next time you boot your disk you will be able to use the RD0: ram disk.

The RD0: ram disk uses the FastFileSystem and is written in 100% assembly code. This allows RD0: to operate at very high speeds (much faster than the VD0: ram disk and others). RD0: runs with a fixed size. This means that it will allocate all memory needed for its use. The default size for RD0: is 879K and will be allocated as soon as it is mounted. The size of RD0: can be increased or decreased by editing the "Devs:MountList.RD" and changing the "HighCyl=" value to a larger or smaller number.

5.3 Using The KillFast Software Utility.

There is a utility program on the Fat Trapper support disk called KillFast. The KillFast program is similar to NoFastMem except that it installs a resident module into Amiga chip memory (not onto the boot sector of the disk) that disables all fast memory at boot time. This is very useful for certain programs that cannot work with fast memory and have custom disk formats. When a game or any other type of program has a custom format, it is not possible to copy the NoFastMem program onto the disk. Therefore it would be impossible to disable the fast memory. With KillFast a NoFastMem resident module is installed into chip memory. This means that when you warm reboot your machine the NoFastMem resident module will be found by the Amiga operating system (in chip memory) and run, disabling all fast memory before any disks can be booted.

KillFast can be run by simply double clicking on its icon. When run, KillFast will prompt you with a requester asking if you want to install or abort. If you select install, the KillFast resident module will be installed and become active, ready to run the next time you warm reboot your Amiga. Abort is self explanatory.

The only way to remove KillFast from your system is to turn off your Amiga.

KillFast will remain in your machine forever until.... Power to your Amiga is turned off or a program that doesn't like resident modules resets all vectors (such as virus protectors).

5.4 Setting The FatTrapper Clock.

The FatTrapper built-in clock functions identically to the clock that comes installed on Commodore's A501 memory expansion board. This means that instructions found in the A500 instruction guide for setting the Commodore clock also apply to the FatTrapper clock.

To set the clock from Workbench simply use the Preferences utility and save the settings when exiting. To set the clock from the SHELL you must first use the Date command to set the current date and time. Then use the SetClock command with the Save option to store the current time and date in the clock's battery backed-up memory.

For more information on setting the clock see your A500 user's guide.

6.0 MISCELLANEOUS

6.1 Adding Memory After Installation.

The FatTrapper is designed so that adding memory after installation is very simple. All you need to do is turn off power to your A500 and turn it upside-down. Open the trapdoor and carefully remove the memory board from the A500. Do not disconnect the flat ribbon cable connecting the FatTrapper memory board to the FatTrapper CPU board. When the memory board has been removed, flip the board upright (component side up). Add the desired amount of memory (see section 2.2), then carefully re-install the board back into the A500 trapdoor bay. Use caution to not snag or twist the flat cable as you re-install the board. Re-install the trap-door cover.

The configuration switches normally do not require any changes after you have initially set them, They should be left unchanged.

If you want to test the newly installed memory, set switch 3 of the configuration switches to the OFF position (if ON), then run the TrapTest program from the FatTrapper support disk (see section 4.1). When you are finished testing FatTrapper restore switch 3 (if changed) back to the ON position.

You can now use your Amiga 500.

6.2 FatTrapper Power Requirements.

The FatTrapper memory expansion board requires very little power to operate and will work fine with other peripherals. Most power hungry peripherals have their own power supply, although it is good practice to always be aware of each peripheral you connect to your Amiga and its power requirements. The FatTrapper (fully populated) requires less than 400ma from the Amiga power supply to operate.

6.3 Technical Support.

If you encounter any problems with FatTrapper that you cannot solve, or if you have any questions regarding FatTrapper, call your place of purchase for assistance or our technical support phone line at (801) 485-4275. Technical support hours are from 9:00am to 5:00pm Mountain Time, Monday-Friday.

Or write to:

Spirit Technology Corp.
Technical Support Dept.
220 West 2950 South
Salt Lake City, UT 84115

Appendix A
Configuration Tables

FAT TRAPPER BANK LAYOUT WITH ECS AGNUS AND 1.3

The following 4 banks are AutoConfiguring.
Bank 1 = U3, U7, U19, U23 ... 512K Chip memory at $080000-$0FFFFF.
Bank 2 = U4, U8, U20, U24 ... 512K Fast memory at $C00000-$C7FFFF. Bank 3 = U5, U9, U21, U25 ... 512K Fast memory at $C80000-$CFFFFF. Bank 4 = U6, U10, U22, U26 ... 512K Fast memory at $D00000-$D7FFFF.
The following 4 banks need the AddTrap utility.
Bank 5 = U15, U11, U27, U31 ... 512K Fast memory at $800000-$87FFFF. Bank 6 = U16, U12, U28, U32 ... 512K Fast memory at $880000-$8FFFFF. Bank 7 = U17, U13, U29, U33 ... 512K Fast memory at $900000-$97FFFF. Bank 8 = U18, U14, U30, U34 ... 512K Fast memory at $980000-$9FFFFF.
Switch Settings - SW1=ON, SW2=ON, SW3=ON, SW4=NA, SW5=OFF

FAT TRAPPER BANK LAYOUT WITH ECS AGNUS AND 1.2

The following 1 bank is AutoConfiguring.
Bank 1 = U3, U7, U19, U23 ... 512K Chip memory at $080000-$0FFFFF.
The following 7 banks need the AddTrap utility.
Bank 2 = U4, U8, U20, U24 ... 512K Fast memory at $680000-$6FFFFF. Bank 3 = U5, U9, U21, U25 ... 512K Fast memory at $700000-$77FFFF. Bank 4 = U6, U10, U22, U26 ... 512K Fast memory at $780000-$7FFFFF. Bank 5 = U15, U11, U27, U31 ... 512K Fast memory at $800000-$87FFFF. Bank 6 = U16, U12, U28, U32 ... 512K Fast memory at $880000-$8FFFFF. Bank 7 = U17, U13, U29, U33 ... 512K Fast memory at $900000-$97FFFF. Bank 8 = U18, U14, U30, U34 ... 512K Fast memory at $980000-$9FFFFF.
Switch Settings - SW1=ON, SW2=ON, SW3=OFF, SW4=NA, SW5=OFF

(APPENDIX "A" CONTINUES ON THE NEXT PAGE)

FAT TRAPPER BANK LAYOUT WITH NORMAL AGNUS AND 1.3

The following 3 banks are AutoConfiguring.
Bank 1 =U3, U7, U19, U23 ... 512K Chip memory at $C00000-$C7FFFF. Bank 2 =U4, U8, U20, U24 ... 512K Fast memory at $C80000-$CFFFFF. Bank 3 =U5, U9, U21, U25 ... 512K Fast memory at $D00000-$D7FFFF.
The following 5 banks need the AddTrap utility.
Bank 4 =U6, U10, U22, U26 ... 512K Fast memory at $780000-$7FFFFF. Bank 5 =U15, U11, U27, U31 ... 512K Fast memory at $800000-$87FFFF. Bank 6 =U16, U12, U28, U32 ... 512K Fast memory at $880000-$8FFFFF. Bank 7 =U17, U13, U29, U33 ... 512K Fast memory at $900000-$97FFFF. Bank 8 =U18, U14, U30, U34 ... 512K Fast memory at $980000-$9FFFFF.
Switch Settings - SW1=ON, SW2=ON, SW3=ON, SW4=NA, SW5=ON

FAT TRAPPER BANK LAYOUT WITH NORMAL AGNUS AND 1.2

The following 1 bank is AutoConfiguring.
Bank 1 =U3, U7, U19, U23 ... 512K Chip memory at $C00000-$C7FFFF.
The following 7 banks need the AddTrap utility.
Bank 2 =U4, U8, U20, U24 ... 512K Fast memory at $680000-$6FFFFF. Bank 3 =U5, U9, U21, U25 ... 512K Fast memory at $700000-$77FFFF. Bank 4 =U6, U10, U22, U26 ... 512K Fast memory at $780000-$7FFFFF. Bank 5 =U15, U11, U27, U31 ... 512K Fast memory at $800000-$87FFFF. Bank 6 =U16, U12, U28, U32 ... 512K Fast memory at $880000-$8FFFFF. Bank 7 =U17, U13, U29, U33 ... 512K Fast memory at $900000-$97FFFF. Bank 8 =U18, U14, U30, U34 ... 512K Fast memory at $980000-$9FFFFF.
Switch Settings - SW1=ON, SW2=ON, SW3=OFF, SW4=NA, SW5=ON

- NOTES -

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WARRANTY INFORMATION

Spirit Technology Corporation, warrants your new FatTrapper memory expansion board against defects in material or workmanship for a period of one year from the date of purchase. Spirit Technology will not honor the warranty if the board is damaged due to willful misuse, abuse, improper installation, or acts of god and nature. Repairs will be charged on a time and material basis in such cases. Spirit Technology reserves the right to repair or replace any product returned under warranty. For warranty repair work or service, call or write Spirit Technology Corporation to obtain an RMA (return merchandise authorization) number. This must be done before shipping the product. When shipping the product you must enclose a copy of your original invoice and write the RMA number on the outside of the package.

Use appropriate packing to avoid shipping damage to the product. Spirit Technology will not be responsible for your failure to properly protect the product. All freight charges will be paid by the customer to and from the factory.

Ship Returns To:

Spirit Technology Corporation
Service Department
220 West 2950 South
Salt Lake City, UT 84115

Phone (801) 485-4233

For international warranty information contact your local Spirit dealer or representative.

Incompatibility

Spirit Technology Corporation
220 West 2950 South
Salt Lake City, Utah 84115
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