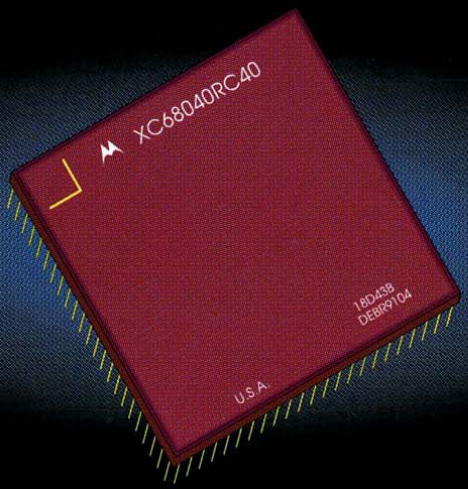
USER MANUAL





POWER CHANGER

HARDITAL

MICROCOMPUTER & PERIPHERALS DESIGN

PowerChanger040

USER MANUAL

Professional Accelerating Board for
A4000, A3000, A3000 Tower

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PREFACE

Congratulation on your purchase of the Power Changer 040 accelerator card for your Amiga 4000 and 3000 series computer. The HARDITAL Power Changer 040 brings the high-speed processing power of the leading edge Motorola 68040 at 28, 35 and 40 MHz processor to your Amiga computer.

HARDWARE INSTALLATION

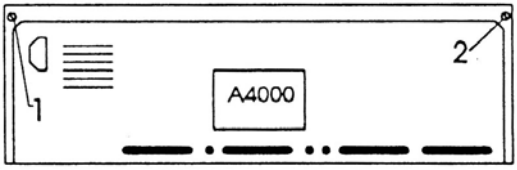
To install the POWER CHANGER board is very easy, but it does requires that you disassemble your computer to have access to its motherboard. If you are uncomfortable with this procedure, you may want to have a qualified Amiga technician install the board for you. The following instructions describe how to do this.

Amiga 4000

1-Switch off your computer

2-Disconnet all cable from your computer (keyboard, mouse, monitor, interfaces, etc.)

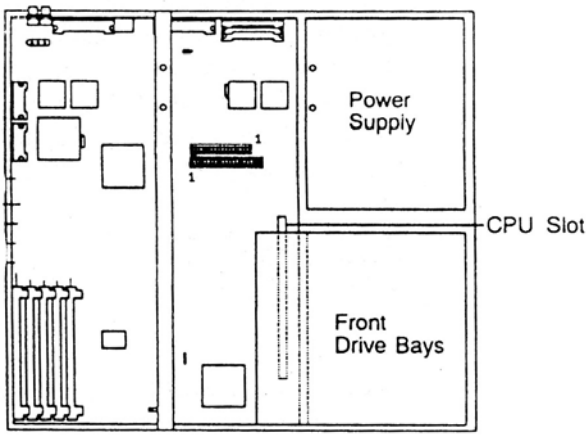
3-Remove the two screws which secure the casing cover . They are located on the back panel at the top left and right.



4-Lifts off the panel carefully.

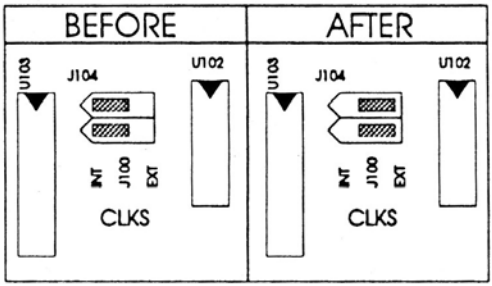
5-Remove with a screwdriver the 4 fixing screws of the hard disk, and then lift the hard disk out of its holder.

6-Remove the old CPU-board module out of the computer. Tilt the board slightly to remove it from the CPU-connector.



7-Move the two plastic spacer on the computer mother board and insert them close U152 and J850.

8-Move the two jumpers J100 and J104 from CLKS INT to CLKS EXT, as in accordance to annexed figure.



9-Align the Power Changer board so that its 200 pins connector is aligned directly over the CPU slot connector on the motherboard.

10-When it is correctly aligned, press down on the card module directly over the connector, and firmly but gently plug the board into the CPU slot.

11-Connect the CPU cooler fan to the appropriate power connector.

12-Reclose the computer doing backwards all the previous steps.

13-Do not modify your start-up sequence. You have only to verify that the “68040.library” shall be in the “libs” directory.

Amiga3000

To disassemble the computer please refer to the Chapter 4 of introducing the Amiga 3000 which came with your computer.

The AmigaDOS ROMs 2.04 must be installed and tested prior to installing the Power Changer board. The Power Changer will not operate with bootROM. If your Amiga 3000 is not equipped with AmigaDOS 2.04 ROM you can obtain a set from your local Amiga dealer o directly from Hardital.

1-Disconnect the power from the computer and remove the cover.

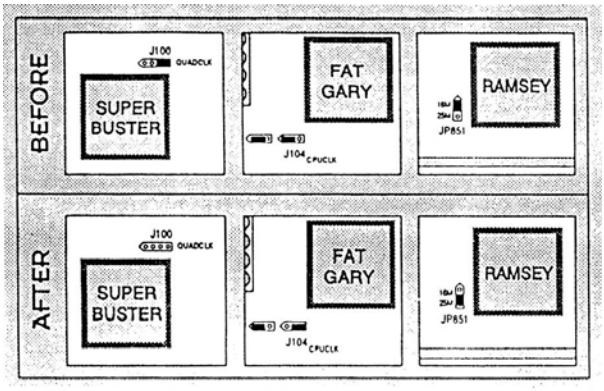
2-Remove the daughter board, the equipment platform and disconnect all equipment cables from the motherboard; this includes SCSI cables, floppy drive cables and power cables. Pay attention to the orientation of the red line on these cables, they signify pin 1 of each cable, and will have to be put back in the correct direction

3-Orient the A3000 motherboard so that the CPU slot connector is nearest you.

Amiga 3000 Desktop

4-Locate jumper J100 (4 pin) and J104 (3 pin) on the motherboard.

5-Remove the J100 jumper, and move the J104 jumper from pins 1-2 to pins 2-3. If you have a 16MHz A3000, you'll have to change jumper J851 from 16M to 25M. Go to step 10.



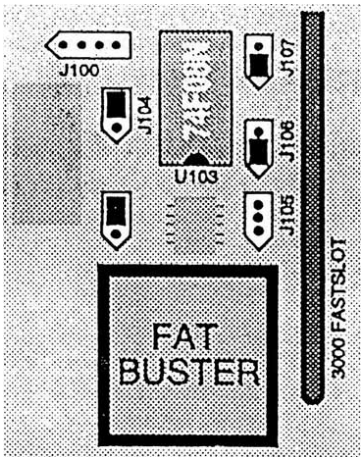
Amiga 3000 Tower

6-Locate jumper J100 (4pin), J104 (3pin), J106 (3pin), J107(3 pin), and the empty socket U103.

7-Plug a 74F08 chip into socket U103, notch down.

8-Add jumpers to positions J106 and J107, jumpering pins 1&2 in each block

9-Remove the jumper from J100 and move the jumper J104 from pins 1&2 to pins 2&3.



10-Align the Power Changer and CPU slot connector and firmly but gently plug the board into the CPU slot.

11-Connect the cooling fan to the appropriate power connector.

12-Reconnect all equipment cables and reattach the equipment platform, don't forget to reconnect the daughter board (only A3000 Desktop) before powering up, otherwise you will get a yellow screen. Once all the internal hardware is reassembled, reconnect the power to the system and turn it on.

13-The system will start or if you not have the SCSI drive cable plugged in, see if the system will boot to the 2.04 ROMs. If, upon bootup, you see the Insert Workbench graphic, then the card is working fine. If instead you find a black screen or encounter any problem, remove and reseat the card and try again.

14-You do not to have to change anythings in your startup-sequence, you have only to verify the follow:

-68040.library shall be present in subdirectory libs. If not you have to get a copy of that from a Workbench 3.0 diskette.

-One of the first comand line in the startup-sequence file shall be :Setpatch.

15-To verify that the system is up and running, double-click on the CPU-Control icon. If all the caches are on, then you are up and running. If

Copyback is off, then you have an old version of Setpatch. You have to recopy an update Setpatch version from a Workbench 3.0 version or later.

If you find that after 10 to 20 minutes the machines locks-up, gurus or worse, reports back with checksum errors, the odds are that you have an old overheating DMAC chip, and it will have to be replaced. Generally the errors occur, during drive access, as the DMAC is accessed. Most errors are erroneous though, and letting the system cool and then reboot will give the hard disk a chance to safely revalidate themselves.

DMAC chip (390537-04) are generally available from your dealer or directly from the HARDITAL.

Do not attempt to change on the Power Changer card, the factory DIP-switch setting that shall be as follows:

- **1-ON**
- **2-ON**
- **3-OFF**
- **4-ON**

SOFTWARE UTILITIES

Additional software utilities enable and disable specific processor function, such as instruction and data caching, and Copyback mode. The utilities disk also include some utilities, that provide information about the system software, speed comparisation between your Amiga and other Amiga system, available memory, available drives and libraries, and internal hardware.The complete list of the utilities programme is as follows:

- **-CPUControl**
- **-SYSInfo**
- **-AIBB**
- **-CPU_Speed**

DEVELOPING SOFTWARE FOR THE 68040

Most code written for the 68000 processor will run on the 68040 as well. There is, however, some software that will not run properly. Programming that have self-modyfing code may not run with instruction Cache or Copyback on. Any programme wich by-passes the operating system may not run when the Data Cache is in Copyback mode. You should follow the precaution below when writing software on the 68040:

-Don’t use the upper 8 bits of 68000 addresses to store tables. The 68040 uses all 32 bits of each address.

-Base time dependant code on a system clock instead of the CPU speed. Since processors can have different clock speed.

WARRANTY

For a period of one year, the HARDITAL Microcomputer warrant that the equipment shall remain free of manufacturing defects.

If a defect should occur during the first year, the unit must be returned to HARDITAL Microcomputer.

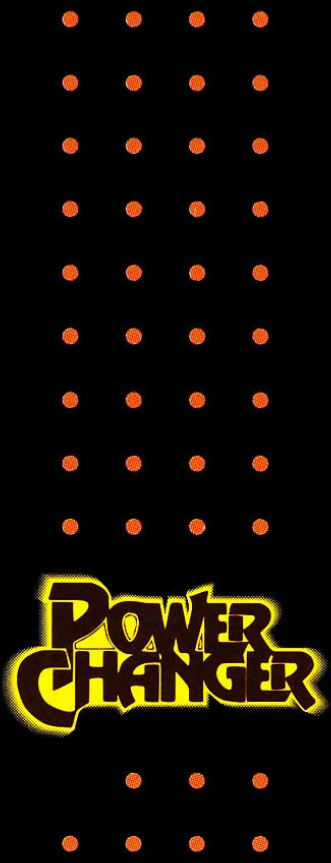
This warranty is voided if the equipment has been altered or modified, accident, abuse, misuse, failure or electrical power, repairs or modifications attempted by any unathorized person or agency.

The warranty does not apply to any product having an altered, defaced, or missing serial number label.

Before returning the product, contact HARDITALcustomer service department to obtain a Return Merchandise Authorization (RMA) number. No returns will be accepted unless the shipping label or outer box is clearly marked with the RMA number. We are not responsible for any damage caused by or delivered from the installation of this hardware product.

In no event shall HARDITAL Microcomputer SRL be liable for loss or profits or benefits, indirect, special, consequential or other similar dama-

ges arising out of any breach of this warranty or otherwise.


POWER
CHANGER

Amiga Hardware World

Everything about Amiga hardware...

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http://amiga.resource.cx