

**a2630fix**

**COLLABORATORS**

	<i>TITLE :</i> a2630fix		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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**REVISION HISTORY**

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# Chapter 1

## a2630fix

### 1.1 A2630Fix.guide

A2630 Fix V1.00 (30-Jan-96)

Introduction

c:cpu

RAM test / monitor

U300 patch

Turning resistors

Memory connectors

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### 1.2 Introduction

This short guide should offer you some possible solutions if you have any problems with your A2630.

I had problems with constant crashes and so I started collecting patches and tried one after another. My problem was a non-working a2091/a2630-combination.

A few things to remember:

- If your system is working, do not fix it
- I am not a hardware expert, I have just collected these things and cannot guarantee for them. USE AT YOUR OWN RISK!

I am very sorry, but I do not know the original authors of all patches, so if any of the patches helps to solve your problem you may give thanks and praises to the unknown net-man.

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Please send me a mail if you find any bugs in this guide or if you have some more information:

tiemant@uni-muenster.de

or

Stefan Tiemann  
Heisstr. 20a  
D-48145 Muenster  
Germany

### 1.3 c:cpu

You may try first various combinations for the c:cpu options. Maybe something like "cpu nocache" or "cpu fastrom" can solve your problems, although it might give a worse performance. The cpu command and its options are described in the DOS book that comes with your Amiga.

### 1.4 RAM test / monitor

Maybe your problems come from one or more bad ram chips. You may use a ram test program, which can be found somewhere on aminet. You can also use the built-in ram test of the a2630. To use it you have to start the monitor of the a2630:

- reset your amiga, hold down the right mouse button and press "shift-M" before the amiga boots again
- after the monitor has started you can get a command list with "?"
- type "i" to get information about your system, most important is the address of your a2630 memory, which is from 00200000 to 00600000 on my system (the last number might be 00400000 if you have only 2MB of ram on your a2630)
- type "t 200000 600000" (replace with the addresses of your board) to start the memory test. The test will show the number of passes (first number) and the value which is currently written to and read from ram. You should let the test run for several minutes, better hours if you have the time, memory errors do not show up every time a defective ram is used. If it finds an error then it will print a third number and make a line feed. So you can let the test run unattended and look later for the result.

### 1.5 U300 patch

You might add 1K from pin 10 to 14 at U300 on the a2630. This is often done if the board is used with more than 25MHz, but might fix problems even with the original clock of 25MHz. You can find U300 in the middle of the board, if you look for it left below the jumpers.

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## 1.6 Turning Resistors

This patch finally solved my problems. But I do not know if it would have helped me, if I had not applied the other patches (U300, U605 - see below) before. I asked Dave Haynie about this patch and you can read his answer below, he explains more than I am able to understand:)

If you want to use this fix, you have to turn around the 4 resistor packages RP104-RP107 on your board. Three (RP104, RP106, RP107) can be found in the lower left part of the board, below the shield cover. RP105 is just below the right memory connector at the top of the board. If you do not find them on the board, you may try to locate them in figure E.1 in your A2630 manual. Now look if they have their common pin on the same side as the drawing on the board suggests. If not, you might turn them around...

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Subject: Re: A2630 fix question

> I had lots of problems with my 2000/Rev4.3, A2091, A2630Rev9.2  
> setup until someone told me, that there were some resistor packages  
> soldered in the wrong orientation on the A2630 (RP104-RP107). I  
> looked at the board and I saw, that they had their common pin  
> on the other side than the drawing on the board (now I know what  
> it is good for:))

That's odd...

> My question: Was there any good reason for turning the RPs or was it  
> just an error that happened during the production of the board?

I suppose it might have been intentional. I didn't do it that way, but I didn't really touch the A2630 after Rev 6. Pretty much everything done after that was to FCC certification. It's possible that these resistors, which I believe I had in there for data bus pullups, were switched around to act as pulldowns. If you lay out the resistor pack footprint right, you have +5V at pin 1, Ground on the last pin, and so you can get "proper" behavior with either orientation. I've been a big fan of pulldowns on bipolar logic (typically, bipolar output stages can drive a great deal of current low, but not so much high), but they do tend to limit the peak voltage, and occasionally over-peak spikes, when a signal swings high. This is good for FCC certification, and not bad for typical system operation in most cases. Apparently you have found one of the cases in which pulldowns can be a problem.

Or perhaps you're trying a complex fix for a simple problem already solved in most systems. I don't know what you had failing, but if it's DMA between the A2091 and A2630, there's a known problem on some A2000 motherboards. Certain vendors versions of the 74ALS245 chip used at U605 on the A2000 motherboard cause a problem, a potential glitch on the BAS\* (buffered address strobe) line of the Zorro II bus, during DMA turnaround (when the A2091 drops the bus and the A2000 logic picks it back up). This glitch is nicely shaped into a pulse by the ALS245's schmitt input, but that pulse on AS\* is ignored on the motherboard, it's not long enough to usually affect the 7MHz logic on the A2000. It

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is long enough to mess with the 25MHz logic on the A2630, however. To fix this, you add a 1K pullup between pins 11 and 20 on U605 (which you'll find between the CPU and first Zorro slots).

Maybe changing the A2630 resistor packs to pullups helps, too, I never really looked at the problem. But this resistor fix makes a very big difference, you might want do it even if your system is working find now, just to be safe.

-Dave Haynie

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## 1.7 Memory connectors

Every A2630 has two memory connectors (CN300, CN301) for expanding the board with a daughter board that can contain more RAM. These connectors should be placed on the back of the board ("solder side"), but on some A2630s they are placed on the same side as all the other parts. Moving them from the front to the back should allow you to use one of the overpriced memory boards.

If you do not want to use such a board, than you could let the connectors on either side, because it should not give any problems.

## 1.8 Other Sources Of Information

Walter Harms, who has also contributed some of the patches presented here, has collected most of the important patches for the A2000 and some other background information about it (and the A1000!). Visit his www-pages:

<http://www.uni-oldenburg.de/~u173034>

Walter.Harms@arbi.informatik.uni-oldenburg.de

Interesting stuff is spread all over aminet, but check out especially the hard/hack directory. A document to expand your A2630 RAM to 8/16 MB:

[aminet/hard/hack/RAM\\_2630.lha](#)

Lots of hardware patches/infos for all Amigas are on the MeetingPearls 3 CD-ROM (some are only in german):

Meeting\_Pearls\_III:pearls/text/Hardware

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