

OMNI 128HQ

Omni 128HQ Computer set based on New Harlequin board from Don SuperFo with:

128K RAM,
integrated divMMC double SD card interface,
two joystick 9 pin ports,
RGB out,
Composite out,
HDMI option*,
power button,
reset switch button,
battery option*



*„Instead of 128 GB... 128kb! Instead of 3.5Ghz... 3.5 Mhz! instead of HDD/SSD... SD/TF card reader! Instead of super overpriced graphic card with 16 GB ram... 256*192 pixels and 16kb for video ram! Instead of kids nightmare after playing bloody VR game... Quiet night with smile on the face! Manic Miner, Jet set Willy, Chuckie Egg... Human computer for Humans!” 😊*

„When Djordje gets the displays out to us you'll be able to play with your Omni on the bus, the train, the plane, in the park, wherever you like. Can't do that with an ordinary Speccy! That was what sold me on the Omni.”

Faceplate:

- The only thing is that the top foil (where the commands are printed) does not stick correctly - it bulges quite a lot.
- The face plate supplied is loose, I'm guessing because Djordje wanted us to have the option of replacing it easily. What's the best way to fix these plates on, double sticky sided tape?
- Okay, so I'm not the only one. I was not sure.
- I really need to figure out how to fix this upper part of faceplate... Hmm. Was fixed nice here in China.
- Double sided tape if you can get it to stick. Or I had success with hot glue.
- It's a copy of Sinclair's design... Which also did not stick properly... :D
- I tried hot glue, it worked well.
- Hot air gun... Hair dryer... And plastic card like lever.
- The problem is there is only a tiny half millimetre strip of overlap between the case and the faceplate at the top edge. Sinclair's design was flawed, hence they added metal tabs to the faceplate on issue 4a onwards
- This finally solve the problem? Metal tabs...
- Yep. Just T shaped strips, with the top horizontal part of the T glued to the back of the faceplate. The vertical part of the T bends away from the faceplate and goes through the membrane slots.
- I used 150W gun, and made the faceplate hot during application, for longer working time. Some glue on the top and bottom, a lot of glue on the sides. Then hold and stretch tight horizontally for a long time while the glue sets. Better to use slightly too much than too little, no wiping, then cut excess with a razor blade after it is completely set.
- I use this method.... And works... But I will make it more easy... Just need time

HDMI:

- How do I get a picture via HDMI, any picture?

- HDMI is optional... Not active at the moment... Was mentioned before... RGB to HDMI adapter will be finished soon...

RGB to HDMI adapter:

<https://www.ebay.com/itm/SCART-HDMI-To-HDMI-HD-Video-Converter-Box-720P-1080P-3-5mm-Coaxial-Audio-Out-New/122939530327?hash=item1c9fc45c57%3Am%3Ampgv-nvqub5FcspkGaBPY3g>

Batteries/Power Supply:

The correct insertion of the battery is shown on page 32.

- Yeah, is love to know what that „blue light“ blinking means! :) Djordje Mitic, any ideas?

- No battery...

- BMS indication light... from Battery management system microcontroller

- Plus and Minus is injected in plastic case/holder for batteries... Inside... Left and right up corner

- Present battery technology can provide 3600-3800mA per this package.. 18650.. The best quality on the market is from Panasonic, LG, Samsung... Chinese suppliers usually cheat with numbers... :) Referent working time on batteries for Omni is about 3 hours... Full load... This is referent for!

- Red light is full charging mode

- During the time will change to violet-blue... Blinking... Charging is near to end... Or charging with low current.

- Battery Management System (BMS... Little green PCB with SET position on it) is equipped with dedicated microcontroller that monitoring charging process... On the end of the charging cycle... Charging will stop... Of course

- Purpose of J18 is for future... battery capacity control point DON'T PUT ANY JUMPER ON IT! Do not Short connect it!!! With battery inside this will damage your computer!!!

- Like I mention... Power supply that I ship out is not "good enough"... He is the cause of the heating! Will send new one for laptop users... Heating will stop... In meantime you can try with some good switching power supply... Like 9V 2/3A

- BTW... Power supply that arrived with OMNI is perfect for Omni without batteries inside... Keep it!

- Good batteries will provide continuous work of 15-20 hours without lcd screen... With screen about 3 hours

- Can it work without batteries?

- Yes, with the provided psu it will work without batteries.

- What happens if SET not soldered?

- It doesn't run on batteries

- I just noticed that my omni PSU has center positive polarity. Does board "support" both polarities or regular PSU won't do?

- Onboard has bridge diode so it supports both polarities.

recommended batteries:

<https://www.ebay.co.uk/itm/4x-Genuine-Panasonic-18650-3400mAh-3-7v-Rechargeable-Lion-Battery-Vape-Flat-Top/172331169512?epid=1391067608&hash=item281fbcf6e8%3Ag%3AzzoAAOSwdlFXzZAn>

<https://www.ebay.co.uk/itm/1x-Genuine-LG-MJ1-High-Drain-Rechargeable-Battery-18650-3500mAh-Flat-Top-UK/122888798751?hash=item1c9cbe421f%3Ag%3AXyAAAOSwY~1aSlSF>

SD cards:

- What size of sd card is supported by omni?

- Use the smallest you can get. The entire collection of everything ever written for the Spectrum will fit on a 4GB card.
- SD card formatted by FAT 32 cluster size 4096.
- Micro SD Card is fully connected, for ESXDOS we can boot from either SDs. But for UnoDOS, it boots to the first SD only (the regular one)
- uSD slot should work the same way as regular SD.

- Is it possible to use both the SD and Micro-SD slots at once? IE, a card in each, or is just one usable at a time?

Thanks!

- As I mean then you can on card select port active both Cards in same time, but it's not good... because both cards use same signals and here may be collision. System Esxdos active always only one card.
- You can use both at the same time, it uses different card select signals. One maybe esxdos system and the other is games.
- It can boot from either SD or uSD, UnoDos can use only SD card slot.
- Interesting. Do you know why that's the case?
- I am not sure, at least it can't boot from 2nd SD (uSD) while esxdos can boot from either one.

Scart Cable:

Anyone find all the colors using RGB via SCART to be with BRIGHT 1 all the time ie no difference on screen if BRIGHT is on or not?

- I suspect the SCART cable might need some resistors in series on R, G and B lines.
- Have a look at the Omni picture through RGB you will notice everything is bright all the time. I suspect the voltages on the r g b lines are too high. Like do paper 6 with bright and off on both and compare.

10 PAPER 6: BRIGHT 1: PRINT " ";

20 PAPER 6: BRIGHT 0: PRINT " ";

30 GO TO 10

- My suspicion is that the voltages are too high all the time on the Omni output and need to be dropped down. In Ben Versteeg's document for the toastrack and +2a/+3 models the SCART cables have resistors in series with the R, G and B pins and this is indeed the case for the cable on my +2A.
- Check R19, 20, 21 if they are 0 ohm need to change to 68 ohm.
- Yep think easier to do inside the SCART cable itself, I don't have the tools for SMD components I will add 68 ohm resistors on each color pin.
- Yes, that original plan, maybe Djordje forgot to change the resistors

Mission accomplished I put 68 ohm resistors on each color pin inside the SCART cable now I get all the colors over RGB.

- It's actually in the faq posted but it's not very clear this is what it was talking about.
- If you have the skills you can change the SMD resistors on the OMNI board itself but I wouldn't easier just to use three normal size 68 Ohm resistors in the SCART cable itself on each R, G and B color pin. That's 7, 11 and 15 on the SCART end.
- Does this mean omni laptop users won't see the different brightness on the LCD screen?
- The internal jumper j9 has two positions, the top one gives your composite and RGB. The bottom position gives you RGB only.
- Soldering is beyond me- is it correct that I could instead use a mega drive2 rgb scart cable (that has resistors built in)?

- worth a shot, it will either work or you won't see anything. Meaning the resistors inside are too high. But you can't break anything.
- Do the md2 cables fit? Thought it was a different din on the Omni? Could be wrong like...
- We use MD 2 cable connection like standard for Omni.... Only difference is... One pin of mini din connector is use to supply 9 v for lcd screen... But not connected in scart cable
- Megadrive cable is correct it seems I bought one for composite output it works fine so the din side of the connector is the same.
- Yes Omni is compatible with mega drive cable

[OMNI 128 HQ High Quality RGB Scart TV Lead Video Cable](#)

Joystick ports:

rear joystick sinclair 56780, front joystick kempston

- **Do not plug in amstrad joysticks!**
- Amstrad wired their joysticks differently. The Omni accepts the atari type.
- There is a difference between a 'Sinclair joystick' and a Sinclair interface.
- The interface and the joysticks are different. The omni has a sinclair / kempston interface. Which accepts Atari type joysticks.
- The interface type is Kempston (using port 31) or Sinclair (using number keys)
- A mix of Kempston and Sinclair is good as it'll let you use a standard joystick on most games including ones where you can redefine keys.
- Can we use the Sega Megadrive controller on the omni?
- Yes, if you connect SEGA gamepad to Omni, then is usable as classic kempston joystick. If you connect gamepad to external K-MOUSE on OMNI then is usable as controller with two fire buttons and with special software driver is possible detect/support up to 8 extra buttons.

Addons:

- I heard on one of the review videos the ext port isn't compatible with speccy addons... Is this true? Has anyone tried it out?

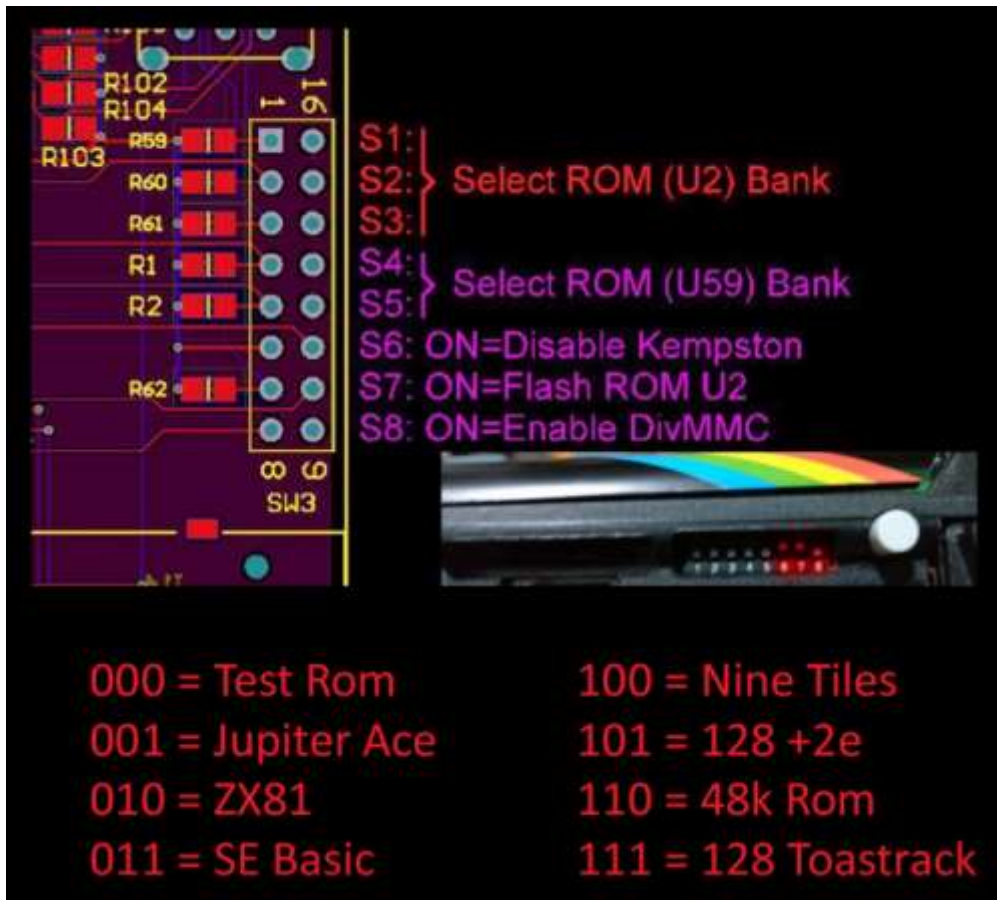
- Omni use zx compatible zx bus. Here is only some limits:
- if you use +3 rom then may be problems with some external interfaces with own external memory. Using zx128 or 48rom cause better compatibility.
- if you enable kempston joystick in Omni then you can't use external devices with active own kempston or old original kempston mouse.
- if you enable Divmmc in Omni, then is impossible use other external interfaces with own external memory.
- Cool... That clears that up then... If something doesn't work using internal divmmc.. switch to external!!
- But sorry, it's impossible connect external Divmmc, only Divide may be external
- Is possible disable only internal Divmmc memory, but SD card ports will be always enable then connection of external Divmmc cause always data collisions. Only original Divide interface may be used - only with some systems as esxdos, fatware 0.12, some old versions of Demfir, +divide. Other systems use mapram mode and cause incompatibility with internal Divmmc in Omni.
- Is impossible on Omni use external Divmmc, also if you disable internal Divmmc via dipswitch. But you can test external Divide interface (but need disable internal Divmmc in Omni)
- How complete is the bus though? Does it bother with ROM/CS? Does it have the power input line? Does it put the video signals on the bus?
- Omni bus not contain video signal and use only one romcs as original zx128
- Divide2k14 works well with internal divmmc disabled

- Divide and Divmmc use identical memory paging port 227. Other ports are different. Then is possible use in same time on divide 2x CF card, Hdd pata/sata, Cd, Dvd + 2x SD cards on Divmmc. Is not so hard connect divmmc esxdos with any other ide system on divide. Theoretically is possible use and switch between both systems. But for this must be used small adapter on zx bus or k-mouse 2017lp also may support direct connection of divide to Omni without limits. And both systems must contain small patch. Theoretically you can use unlimited number of systems, but practically (with easy method) up to 2 systems on Omni.

BASIC SETUP:

- the DIP switches are labelled backwards. Either the circuit diagram is of the underside of the board or its backwards.

" There is switches try to switch on/off... Gentle... With wooden tooth stick... Without sharp edge.. "



Here is more clarity for setting S3-S2-S1: **on=1=up**

on-on-on = 128K
on-on-off = 48K
on-off-on = +2E
on-off-off = SeBasic
off-on-on = Derby Plus
off-on-off = ZX81
off-off-on = Ace
off-off-off = Test Rom

- How do I load the +2 grey rom (with boot menu)?

- Switch off esx/divmmc

- It seems the Test ROM, Jupiter Ace and ZX81 ROMs are not working. Any ideas?

- For other than Spectrum ROM, need to disable DivMMC

- Switch 1 off to disable DivMMC

1 = divMMC enable*
2 = divMMC ROM write enable
3 = Kempston joystick enable

4/5 = divMMC firmware select

00 = UnoDOS 3

01 = UnoDOS 3

10 = esxDOS 0.8.5

11 = esxDOS 0.8.6

6/7/8 = ROM set

000 = Diagnostics

001 = Jupiter ACE emulator

010 = ZX81 emulator

011 = 128 BASIC (1985)*

100 = SE Basic 3.2

101 = +2e BASIC*

110 = 48 BASIC

111 = 128 BASIC (1986)*

* With divMMC enabled USR0 mode is active.

ESXDOS:

This is just a quick guide in getting the ZX Omni up and running

01. Format your SD Card into FAT32

02. Once you have done that move everything thats inside the folder "system and games" onto the memory card.

03. Make sure that on the right hand side your dip switches are as follows 1, 4, 6, 8 must be all on and the rest must be off.

05. Connect your Onmi up and push the memory card into the machine

06. Turn it on and once you come to a white screen press the NMI button (its the button on the right hand side)

07. Use 6, 7 and Enter key you can move around the menus and select what you want

08. If you want to add more games and apps to the card remember that it will only take .TAP .Z80 .SNA and .TRD

I SELECTED A .TRD DISK IN THE SELECTOR, BUT NOW I GET A WHITE SCREEN

Dont worry its very easy from here on in

type the following

.dir

Look for the program that as a B at the end of it as this is what we will load. Then type load "name of game" Obviosly where the "name of game" is where you will type the file name. Type it in as you see it so if you see MANICM thats what you will type.

NOT ALL GAMES WILL WORK WITH THE ZX OMNI AT THIS TIME, BUT MOST WILL IF

ONE DID ESCAPE ME LET ME KNOW AND I WILL SEE HOW I CAN GET IT TO LOAD

[EsxDos manual](#)

[EsxDos Homepage](#)

Download EsxDos starter pack:

[EsxDos](#)

UNODOS:

This is just a quick guide in getting the ZX Omni up and running

01. Format your SD Card into FAT32

02. Once you have done that move everything thats inside the folder system onto the memory card.

03. Make sure that on the right hand side your dip switches are as follows 1, 5, 6, 8 must be all on and the rest must be off.

05. Connect your Onmi up and push the memory card into the machine

06. Turn it on and once you come to a white screen press the NMI button (its the button on the right hand side)

07. Use 6, 7 and Enter key you can move around the menus and select what you want

08. If you want to add more games and apps to the card remember that it will only take .TAP .Z80 .SNA and .TRD

WHAT CAN I DO IF A GAME DOESNT WORK?

You can try typing in one of 3 commands

.MODE 48

.MODE 128

.MODE 128+

Press ENTER after the command and then Press the NMI button and select

the game again. If the game still does not work you can always try to

find a .TRD version and it will mostly work.

I SELECTED A .TRD DISK IN THE SELECTOR, BUT NOW I GET A WHITE SCREEN

Dont worry its very easy from here on in

type the following

.dir

Look for the program that as a B at the end of it as this is what we will load. Then type load "name of game"

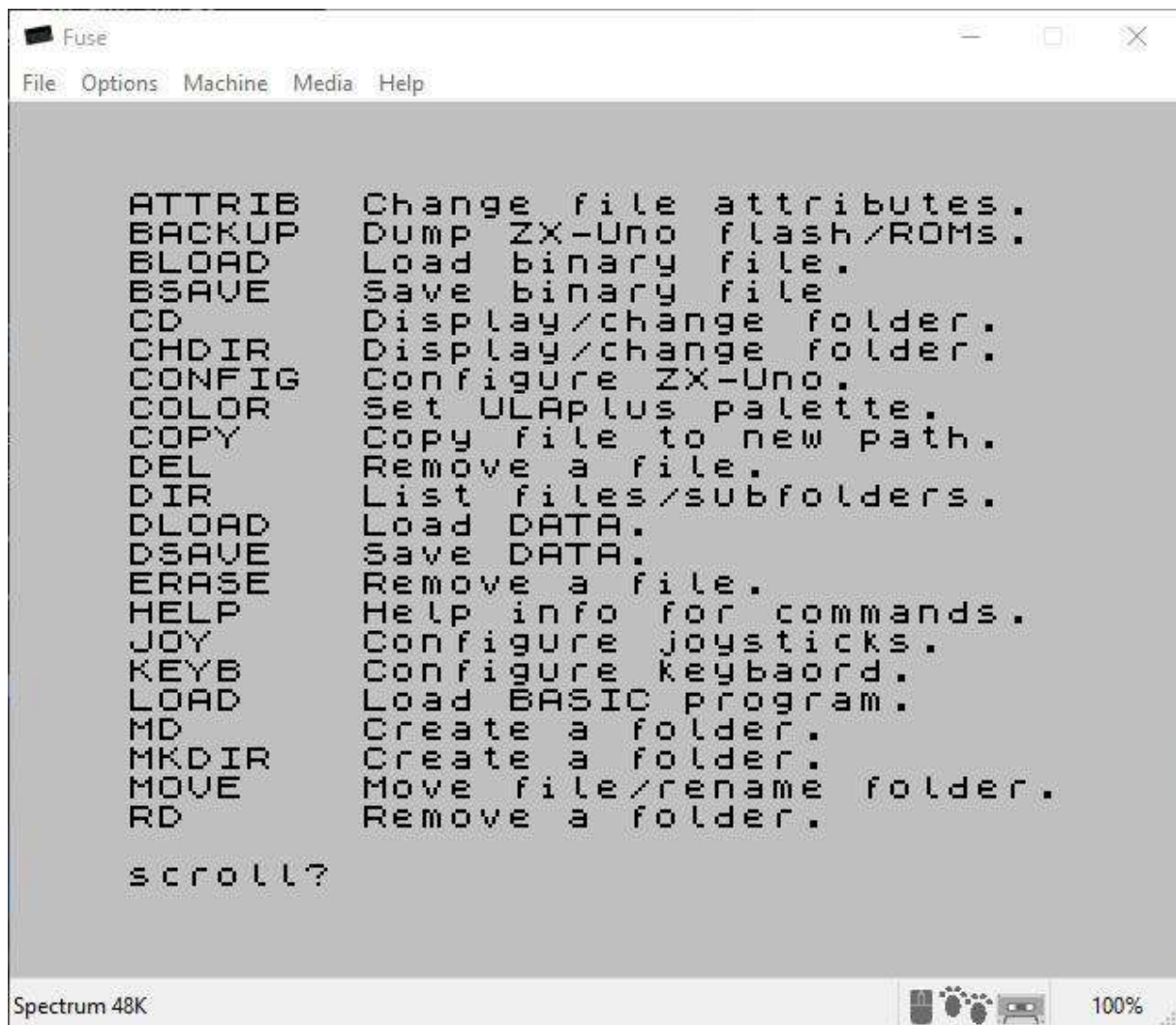
Obviosly where the "name of game" is where you will type the file name.

Type it in as you see it so if you see MANICM thats what you will type.

NOT ALL GAMES WILL WORK WITH THE ZX OMNI AT THIS TIME, BUT MOST WILL IF

ONE DID ESCAPE ME LET ME KNOW AND I WILL SEE HOW I CAN GET IT TO LOAD.

Unodos command:



[UnoDOS 3 command \(put it in the DOS folder\)](#)

Use:

.MODE 48 (48 compatibility mode, e.g. to run Jet Pac)

.MODE 128 (128 compatibility mode, e.g. to run Xelda)

[UnoDos 3 manual](#)

[UnoDOS homepage](#)

Download UnoDos starter pack:

[UnoDos](#)

Software questions and answers:

- **What was the OUT command to make ultimate games run on the omni?** *OUT 32765,48*
- This works for any ultimate game.

For example: .tapein underwur.tap
OUT 32765,48
LOAD ""

- **Where do I enter commands like .MODE 128? On basic prompt?** In UnoDOS, regardless what I type in after .MODE (e.g. .MODE 127), I get the standard basic OK message and nothing else happens (i.e. I don't see the standard 128K menu, also not after issuing a NEW)
- **From the BASIC prompt.** There are only two options with .MODE (48 or 128). You should only get an OK message. It doesn't make any changes to the ROM, it just sets some system variables / ports that enable tricky titles to run. For example, you need .MODE 128 to run "Xelda". You need .MODE 48 to run "Jet Pac".

- If you have been trying to load Gimmick Yumetaro Odyssey then you would know that it crashes at the end of loading. This is because it uses a certain game engine which is not compatible with the divMMC.

All hope is not lost because if you do the following steps then the game works without fault.

First of all turn on the ZX Omni and then press the NMI button

Find the game and then go over it with the select bar

Press i and then press space to go back into BASIC

type POKE 23388,18 : load "" and press enter

The game now loads up and plays like a champ.

If you want to download the game then it's on the developers website:

<http://retroporuntubo.com/gimmick-yumetaro-odyssey-zx-spectrum-128k-2-a-b/>

- **How can I save memory content to the card? For example: saving game at certain stage or if I type something in basic.**
- **You can use esxdos feature to create snapshot.** Press NMI button and then press "S" if I remember correctly. It will create SNA file. Press "H" for help it will be all there.
- And in basic you can save to tap file. But first you have to open a tap file for saving using .tapeout command (with the dot)
- Above is true for esxdos. With UnoDOS it's different.
- esxDOS has support for loading and saving BASIC to disk without using tapes. It overrides the normal LOAD and SAVE commands. But it can't handle DATA, so if you need that you have to use virtual tapes. UnoDOS doesn't use overrides. If you are working with BASIC you use .LOAD and .SAVE commands (e.g. .SAVE MYPROG.BAS). It doesn't support loading individual arrays, but you can save the entire set of data in RAM with .DSAVE and load it back with .DLOAD. This is very useful if you're short on RAM as you don't need to have the DATA statements and the DATA in RAM at the same time. Just remember not to do any CLEARs.
- Anyway to see what is in TAP in esxDOS?
- There is a command to display a list of files. I don't remember what it is though. I don't use virtual tapes at all.
- It's .lstap in ESXDOS
- Using esxDOS, You can save your BASIC program just like saving to disk or .tap. It's best to avoid the snapshot method mentioned above. To save to divMMC memory card, use SAVE *"name". To save to a virtual tape that already exists, use .tapein name.tap, to attach a .tap, then you can just SAVE "name" To save the progress of a game, you will need to take a snapshot like described above.

- **Can somebody explain what this OUT actually does?** It disables RAM and ROM paging.
- Now I just need to figure out what is paging. Why regular spectrum did not need this?
- because Z80A processor can only directly address 64kb of memory. On normal Speccy first 16k is ROM the rest is RAM.
- All the 128k models used paging to access the other 64k. What page of the "extended" currently being used is shown by the bits at memory address 32765 so any program must be careful not to write to this address or weird things will happen.
- You can't count on 32765 holding the correct value. It only gets set if paging is done via the ROM. It would have been better to make reading port 7FFD return the last value written to it.

Hardware solutions with pictures:

How to assemble your OMNI 128HQ laptop





Unscrew 4 side screws.



Keep this one in the middle!



Keep your short screws... 4 of them.



Take out your long screws and rubber pads from the plastic bag.



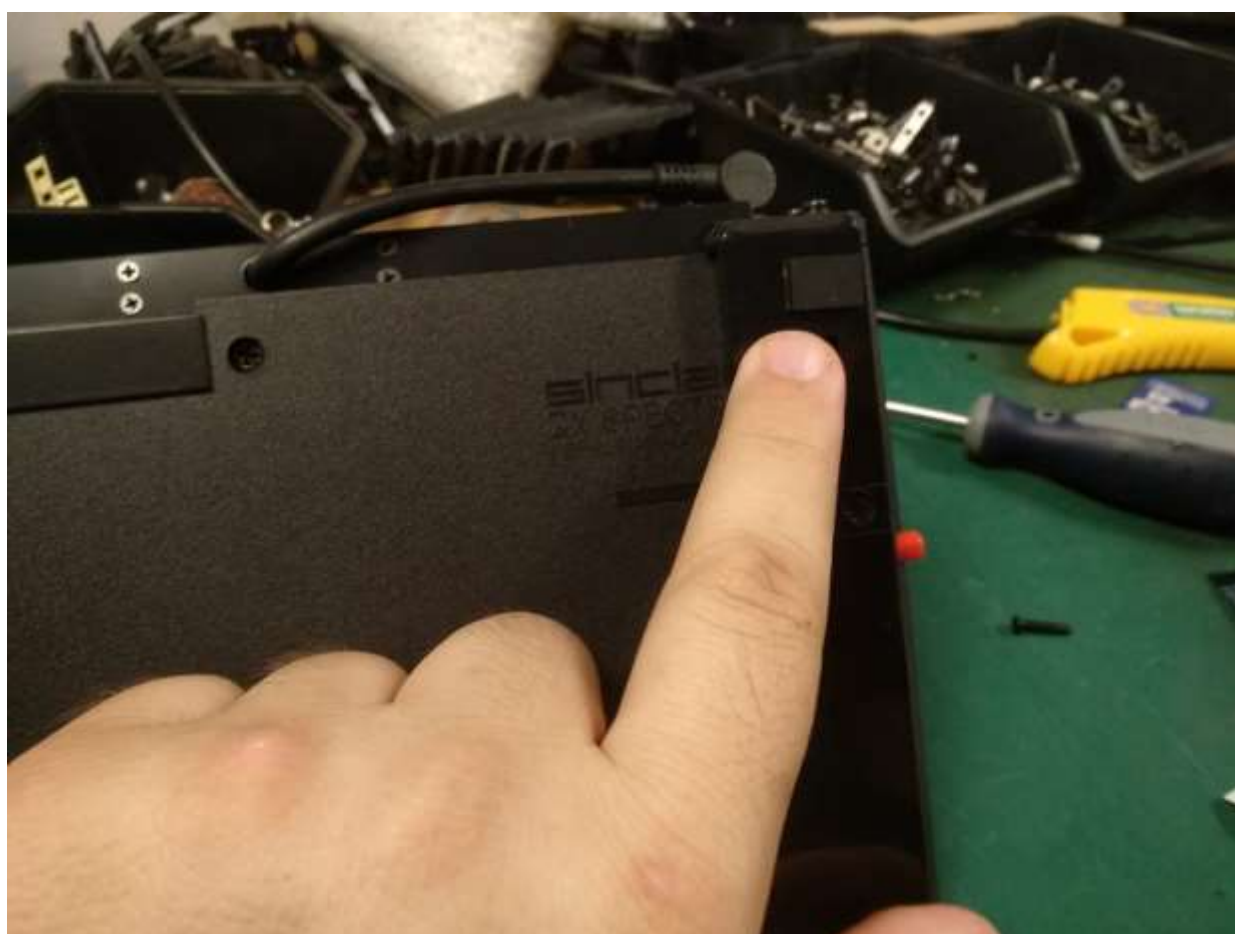
Put desktop and LCD with exoskeleton in this kind of position.... Or whatever you like.



Srew holders of LCD with long screws to the body of Omni desktop... Firstly not so much.
After with little bit force!



Rubber pads can be installed before or after.... Just stick them.





9 pin minidin cable need to be installed in this direction... firmly push to the end.



Done!





More hardware tips:

Quick question before adding batteries do I need to set a switch solder something? Seem to recall it wasn't just a simple case of putting batteries in and away you go?

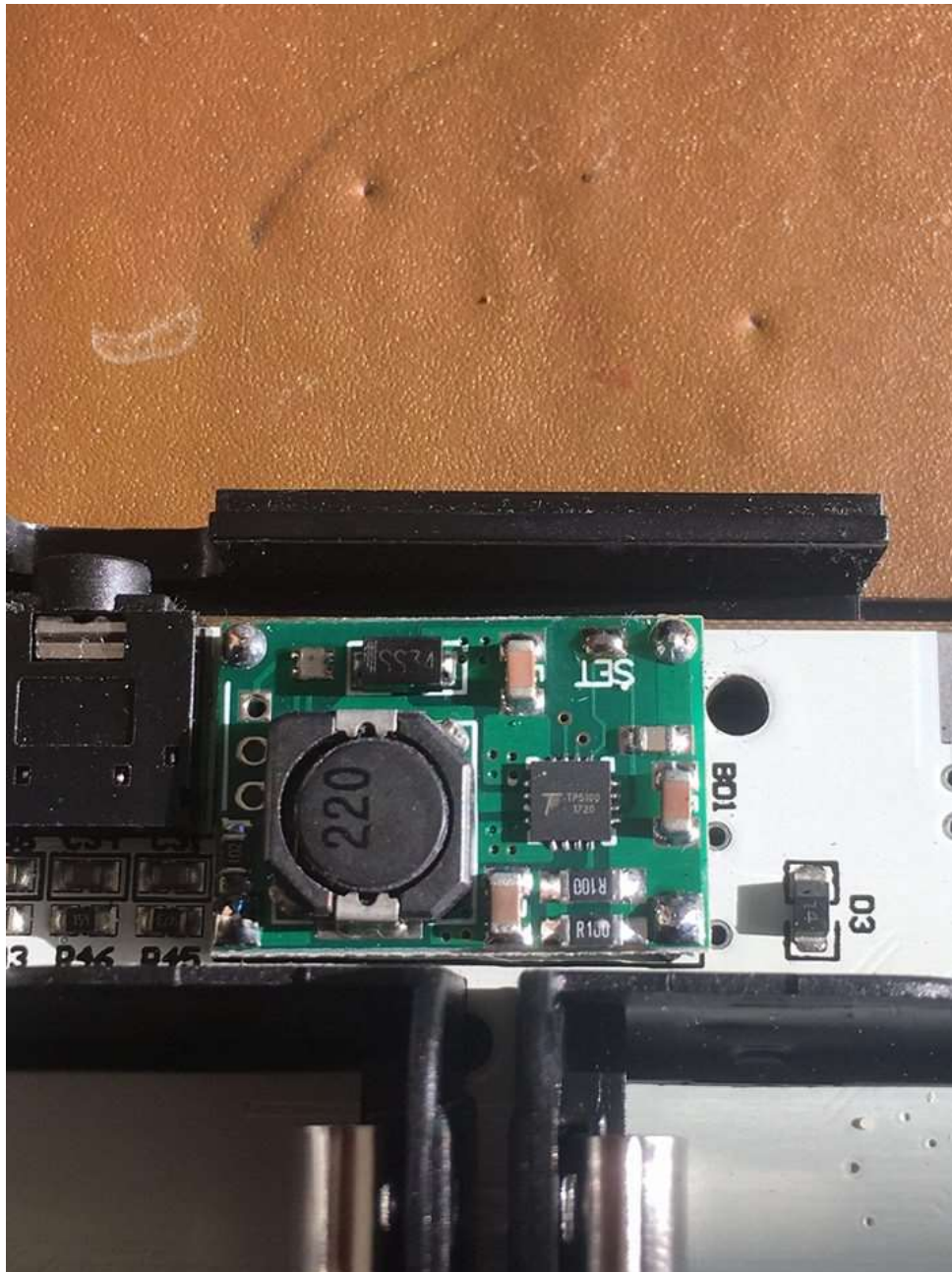
It wont do it any harm to put them in. Some of the regulators were missing a solder link

How can I check to see if I need to fix missing solder? Check "SET" point.

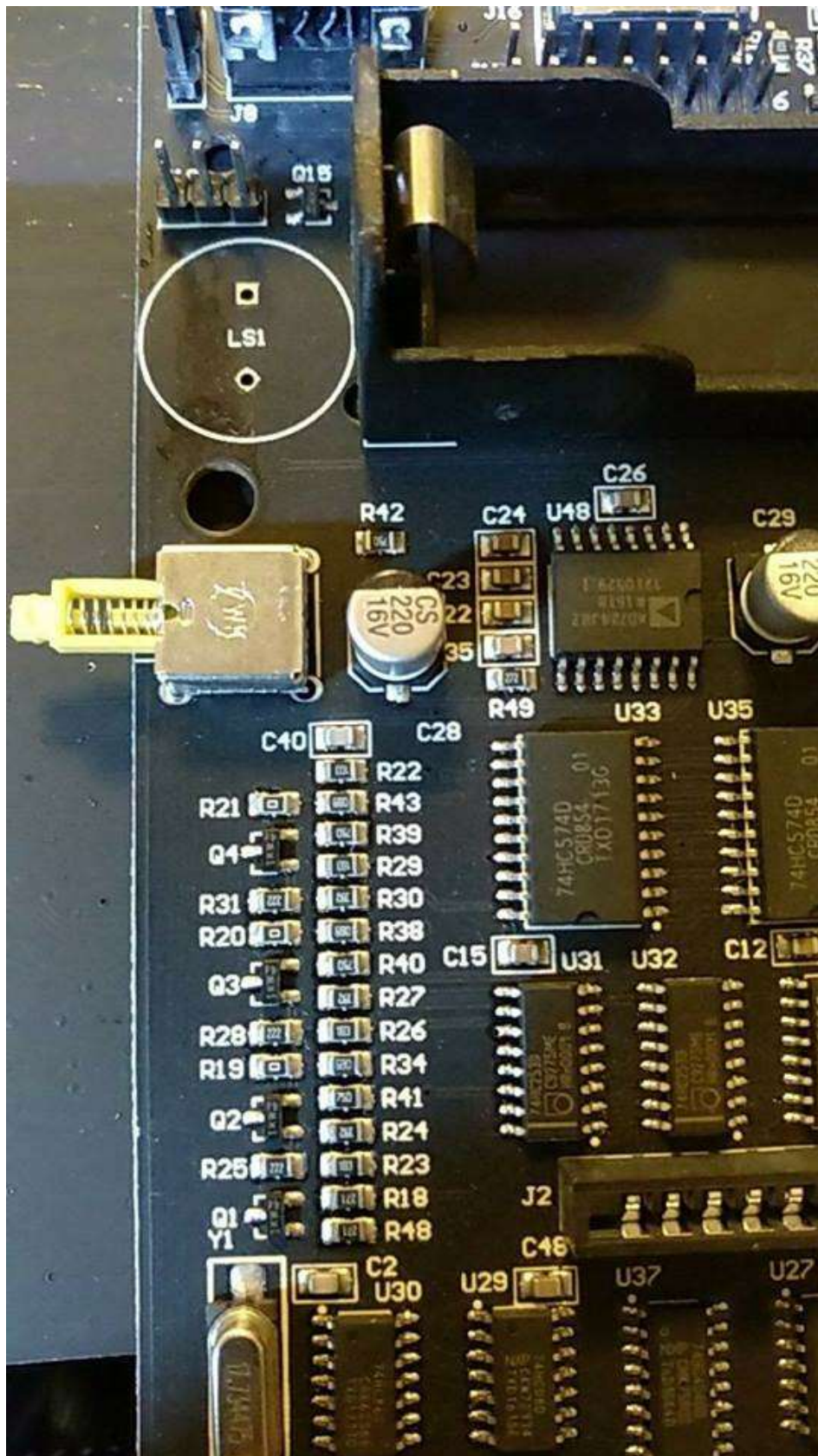
Need to be soldered like on the picture! No harm if is not! Just no charging battery!

Excellent, thanks Djordje. :) It's just bridging those two points in the top right when batteries are fitted, right?

Yes... Two pads... Just connect them... Solder it together! Mine were already bridged. It works great.



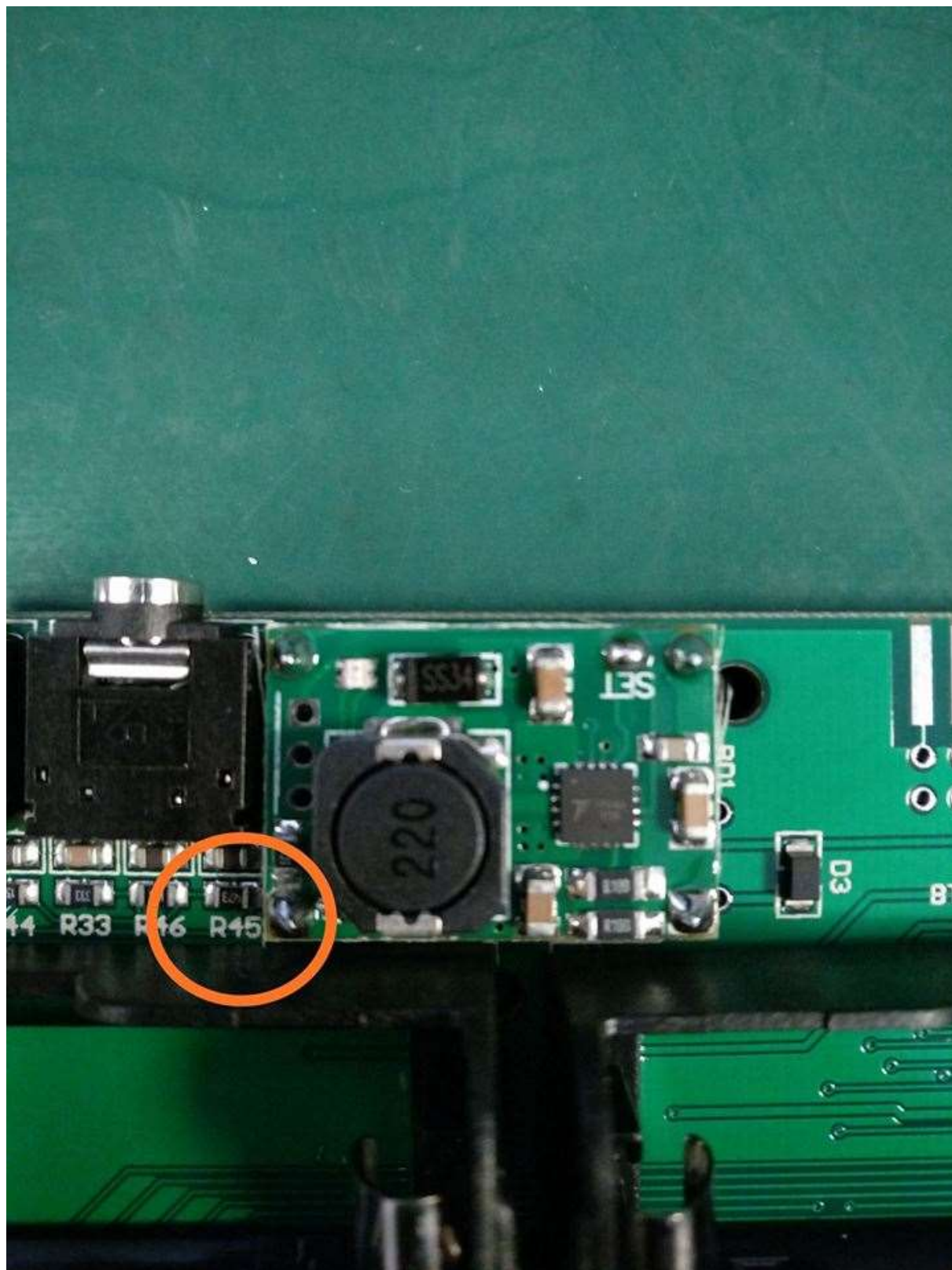
„If you have problem with colours... replace next resistors... R19, R20, R21, value 0 ohms with 68-75 ohms.”



I've noticed the beeper is significantly quieter than the AY. Is there an easy fix for this?

You can change a resistor to alter the sound balance.

In case that you are desperate and not happy with buzzer sound of Omni 128HQ. **R45 (47K Resistor) need to change to 10K.**

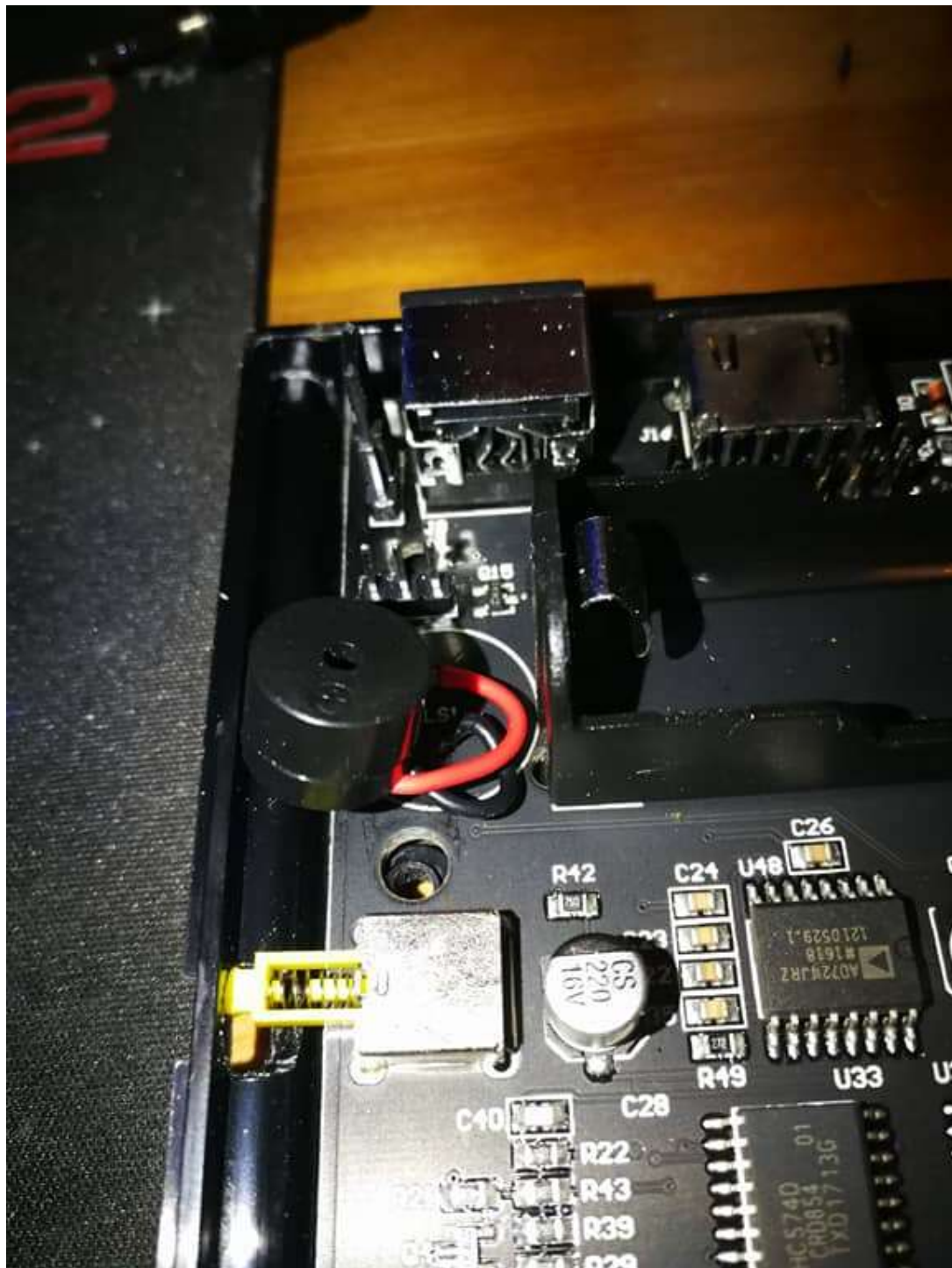


- How do I get internal speaker to work?

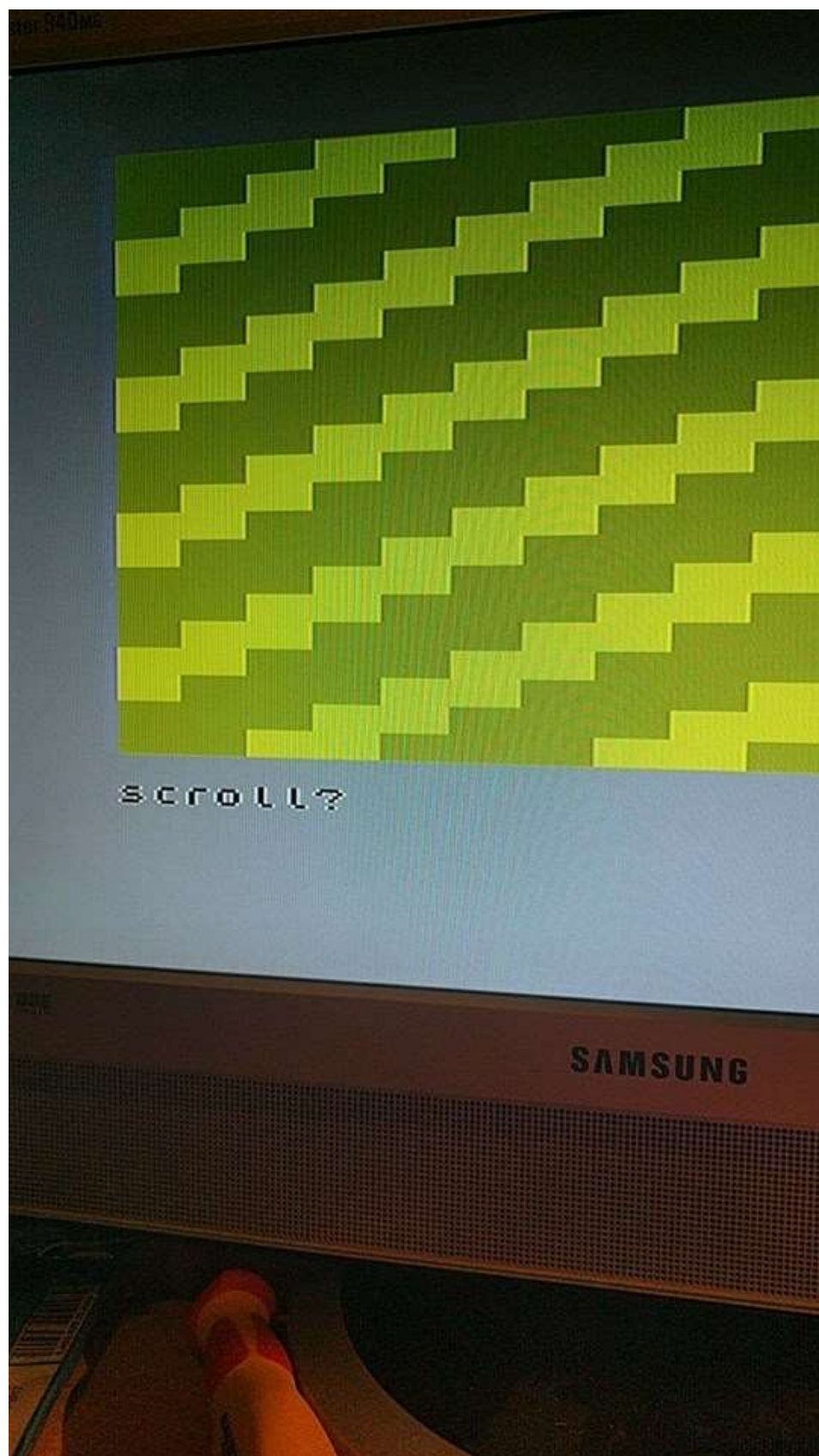
- There is no speaker on an HQ board

Pc speaker in the place. ZX Omni with small PC speaker installed

„I like it as you can hear the machine loading when you want the tv sound off and its not too loud.”



„Mission accomplished I put 68 ohm resistors on each color pin inside the SCART cable now I get all the colors over RGB.”



Real Amiga mouse or C64 mouse on OMNI 128 HQ connected to kempston joystick port.
Don't need any additional interface.

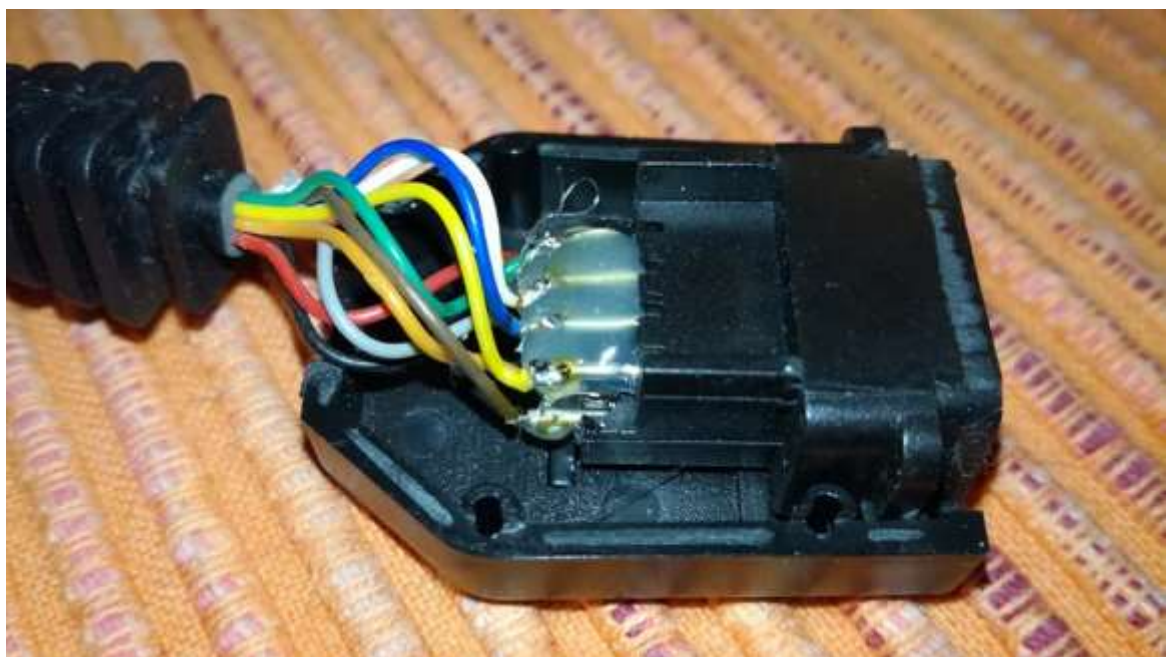


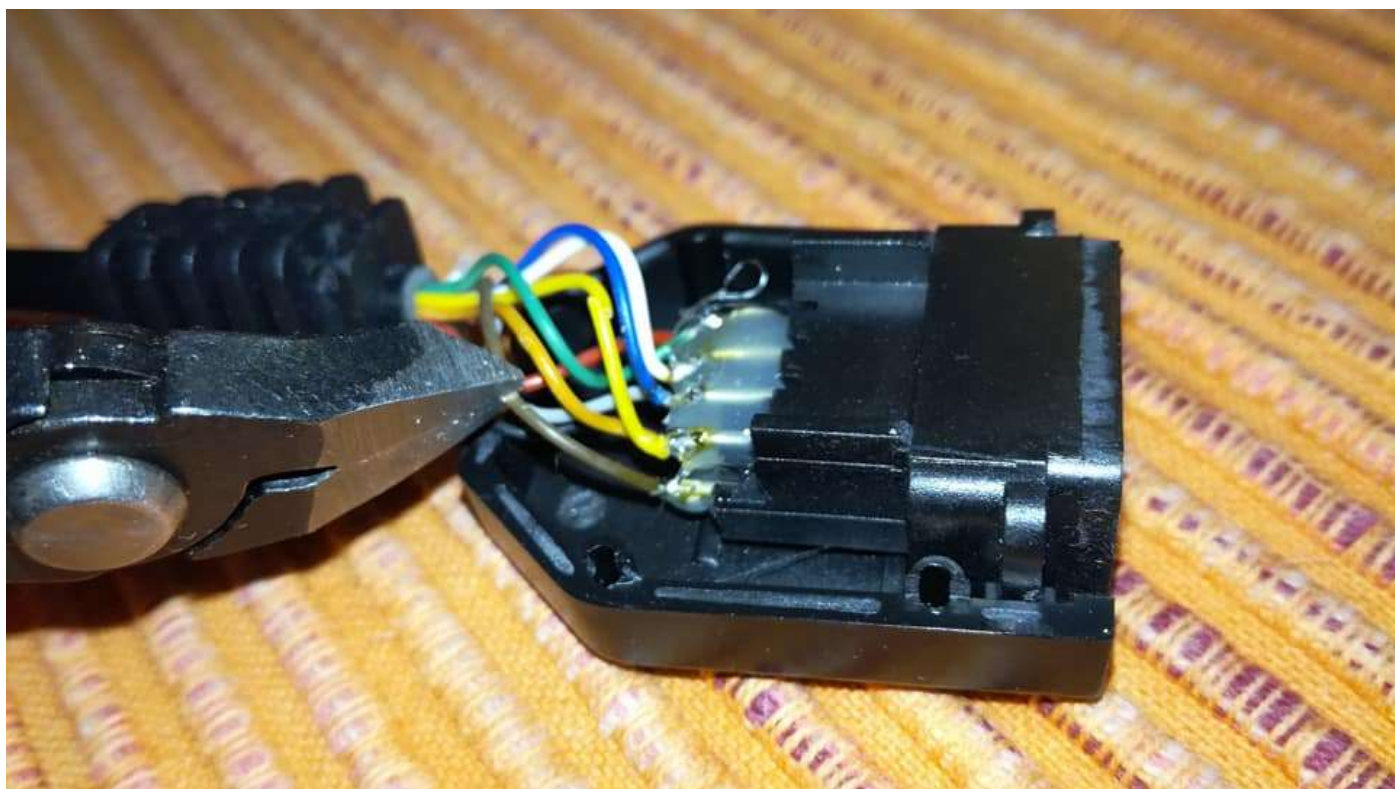
Warning !!! - please don't connect real Amiga/C64 mouse direct to joystick connector on OMNI. Mouse use too bold connector and is often impossible connect it without connector destruction. I Use extension cable from Ebay. ["9-pin extension cable sega"](#)

[And here is all software with A-MOUSE \(amiga mouse on ZX\) support.](#)

Here is step by step modification of extension cable. **You must only swap brown and yellow wires.** After modification connect cable to OMNI kempston port and Amiga mouse/C64 mouse/Sega genesis gamepad/Amiga joystick connect to end of cable. Now is fixed pinout for support also fire 2 button on Sega gamepad and a-mouse may support up to three buttons.





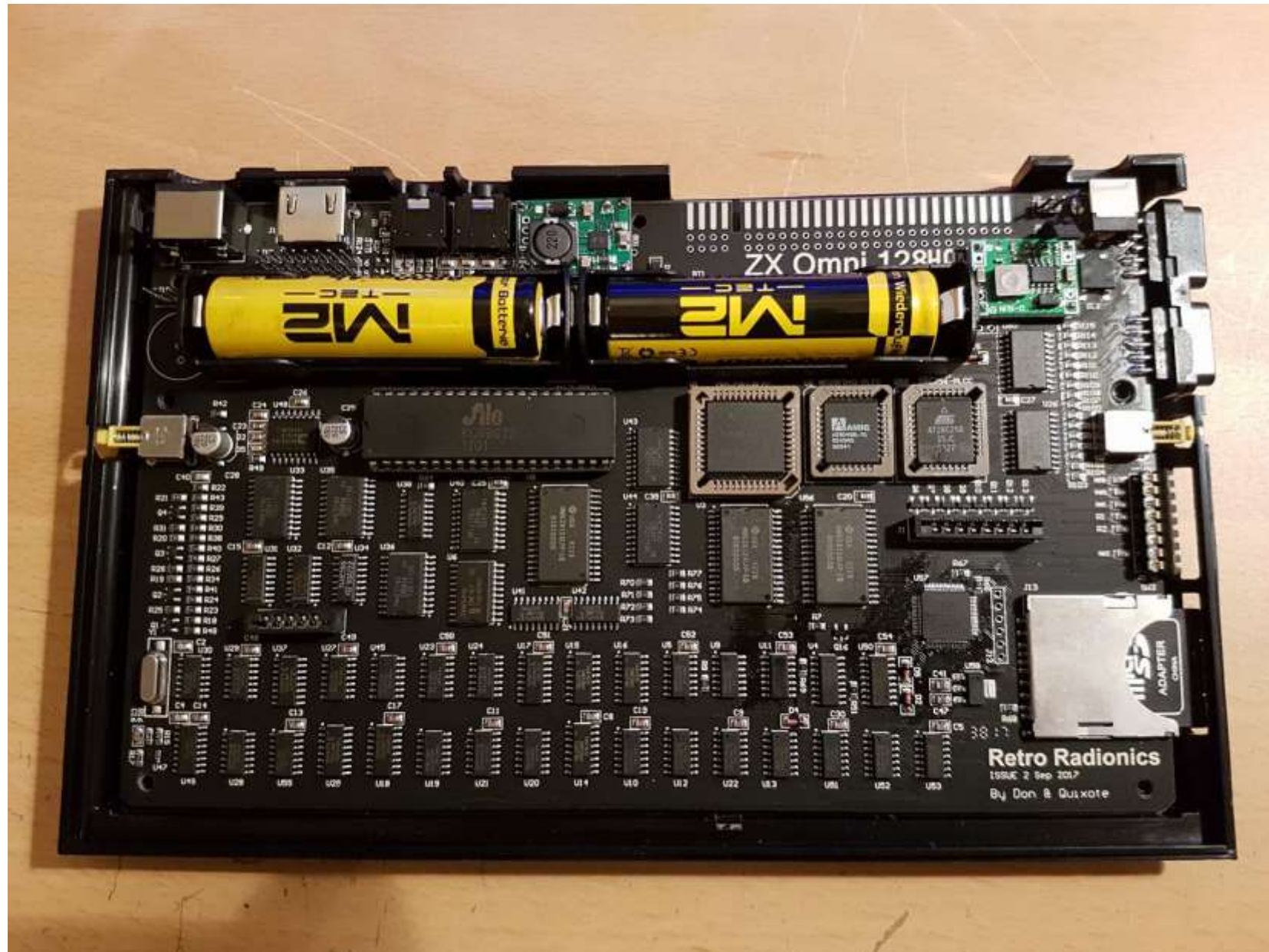




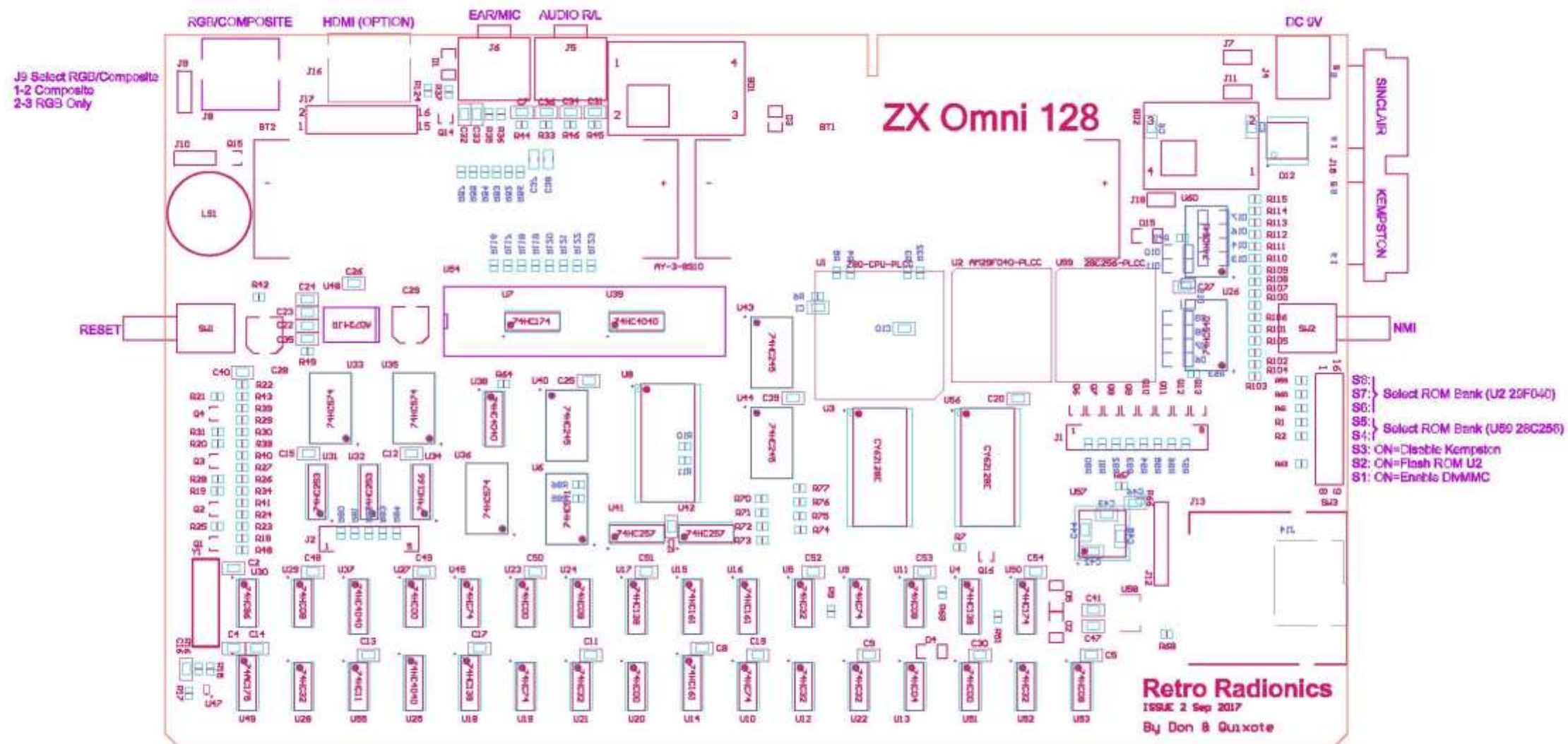
ZX81 keyboard layout:



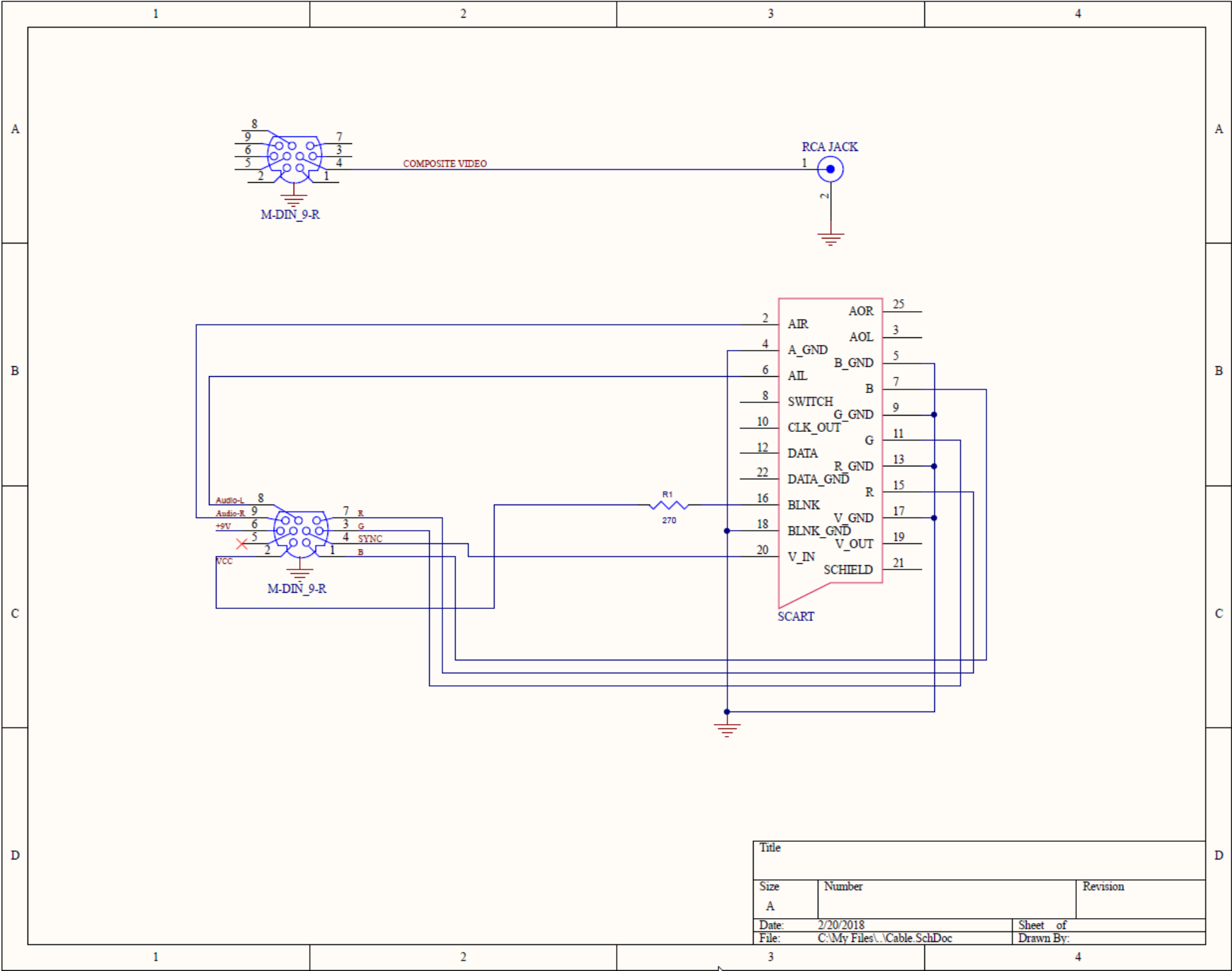
The inside of the Omni HQ desktop:



Omni 128HQ schematic diagram:



RGB to SCART cable diagram:



Appendix:

[Zx omni Issue 2 schematic](#)

[SE Basic 3 manual](#)

[Links for the **UnoDos** and **EsxDos** starter packs](#)

Interesting youtube videos about omni:

[OMNI 128 HQ FIRST IMPRESSION](#)

[ZX Spectrum Omni Review](#)

[Zx Spectrum Omni First Test](#)

[ZX Omni 128HQ test i recenzja](#)

[ZX Spectrum 128HQ \(almost a laptop\)](#)

[ZX Spectrum Omni 128 HQ Laptop Review and Hands On test. ZX Omni!](#)

[SHOCK Megademo on ZX OMNI 128 HQ](#)

[Whole on ZX Omni 128HQ](#)

[ULTRAVIOLET demo on ZX Omni 128HQ](#)

[The Spectrum Show Ep 71](#)

[ZX Spectrum Omni HQ 128 Hands on](#)