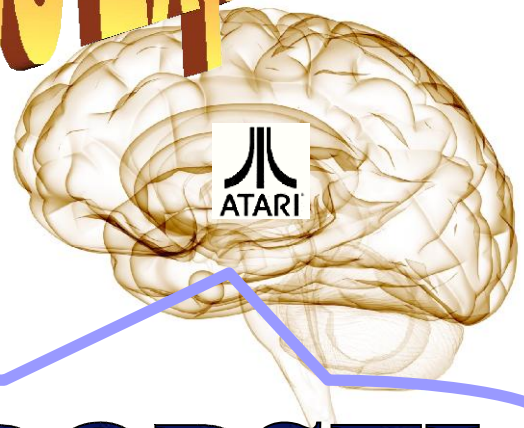


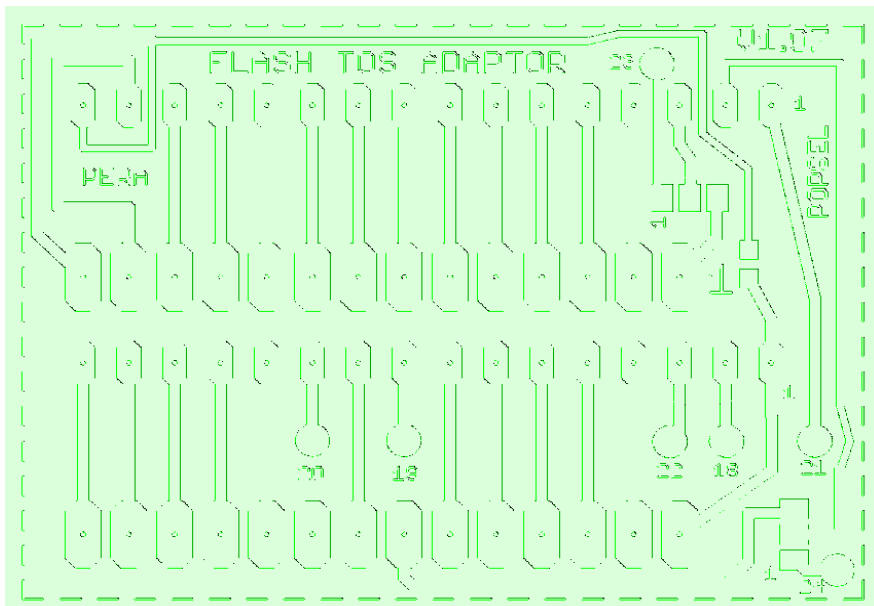
ATARI ST

Version 1.07

Flashable TOS Expansion



PPERA & POPSEL



ATARI ST

IDE - INTERFACE V2.00

FLASHABLE TOS EXPANSION

PCB Version 1.07

Documentation 21. November 2008

This guide shows the schematics for the ATARI ST IDE V2.0 interface
FLASHABLE TOS EXPANSION ADAPTER V1.07

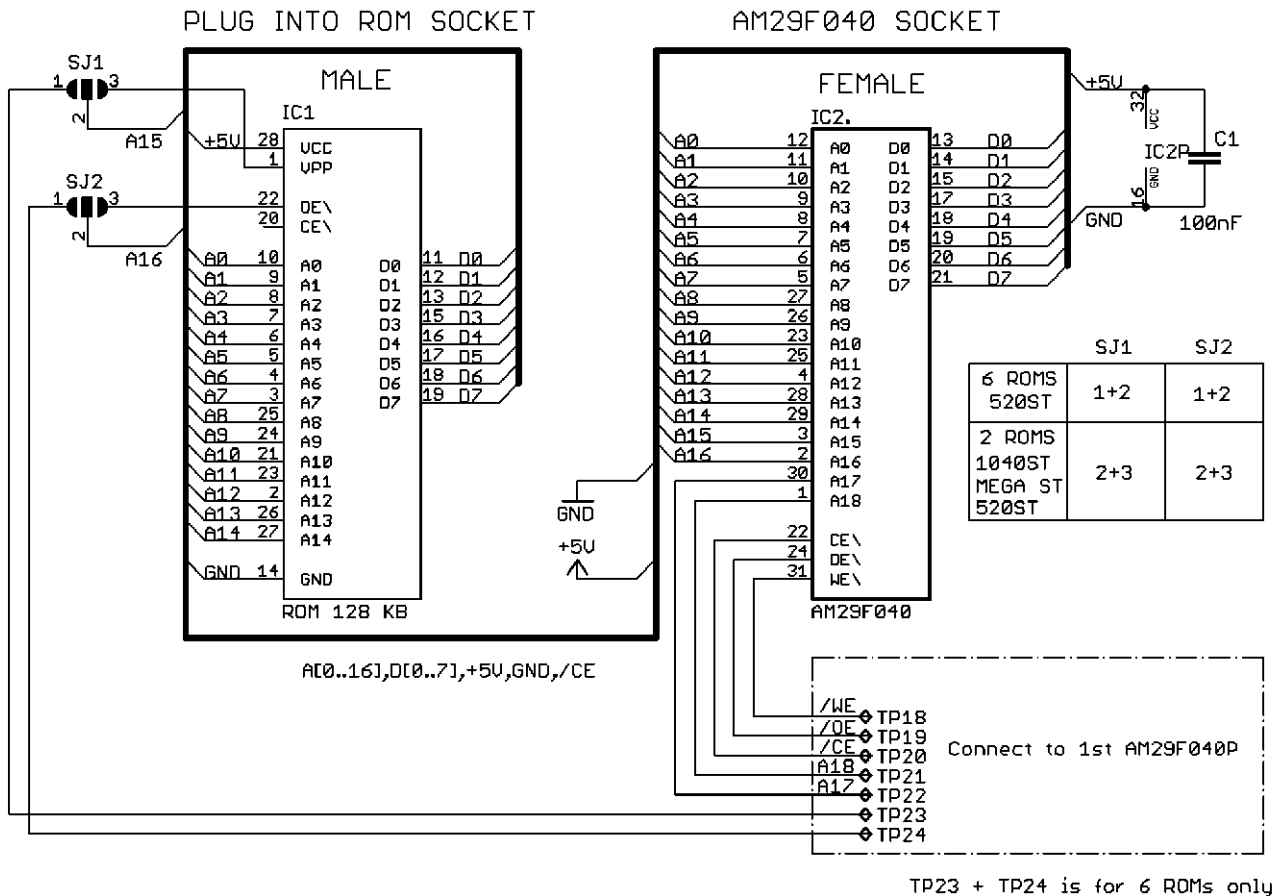
PARTSLIST

Menge	Wert	Device	Bauteile
1	100nF	C-EUC0603	C1
1	AM29F040	AM29F040	IC2
1	ROM 128 KB Socket	IC1	Socket

Some isolated wire

ATARI ST FLASHABLE TOS x4 ADAPTER

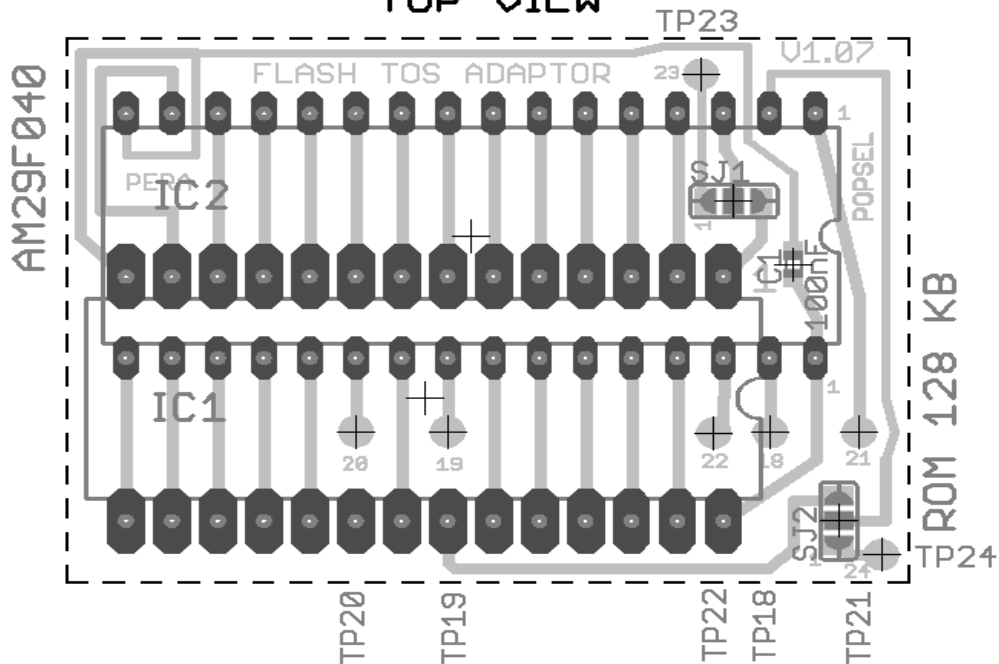
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ATARI ST FLASHABLE TOS x4 ADAPTER

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TOP VIEW



FLASHABLE TOS IDE-EXPANSION

17. NOVEMBER 2008

Information for building the IDE V2.0 EXPANSION FLASHED TOS x4 circuit:

Don't forget to set the solder-jumpers for your ST version (2 or 6 ROMs).

After soldering the PCBs, the AVR single chip microcomputer and the EEPROMS

needs to be programmed. You need an AVR-programmer and an EEPROM-programmer

for the flash-EEPROMs. The chips needs to be programmed before the circuit

can work in the Atari ST. The flash-EEPROMs needs to be preprogrammed because

if they are empty the ST is unable to boot. After the ST is running a new TOS

can be flashed without the help of an external programmer.

To program the flash-EEPROMs first time plug them into the programmers socket.

First program the AVR and the flash-EEPROMs, then plug the PCBs in the ST.

To program the AVR solder it onto the PCB and then temporally solder wires from

the programmer to the prepared points on the PCB.

These points are: MOSI, MISO, SCK, RESET and the AVR needs +5V DC while programming.

When programming the AVR, the sockets for the flash-EEPROMs should be empty.

Don't push the TOS-SELECT-BUTTON while programming is in progress.

The AVR has built in RAM/ROM/EEPROM... in one little chip.

Therefore it needs its own program (firmware).

This firmware was written using BASCOM AVR. The BASCOM-AVR-DEMO version is good for us.

It has a built in AVR-programming software and support compiled AVR-code up to 4 kB. Get the demo version (will compile up to 4kB, but we need less than 1kB)

from: www.mcselec.com

The AVR's program can be flashed from BASCOM-AVR's build in programmer (use STK200 setting).

Before plugging the FLASHED TOS x4 PCB into the ST load the HEX file into the AVR.

Do not insert the flash EEPROMS (AM 29F040B) into their sockets while programming the AVR.

Connect the needed wires (MISO, MOSI, SCK, RESET, +5V at TP3 and GND at TP2) from the AVR programmer

to the Flashed Tos x4 PCB.

Connect the AVR's supply (+5V at TP3 and GND at TP2) via the marked solder points on the PCB.

You may get the +5V from a regulated power supply or an USB-Port.

This is very important:

First load the AVR-HEX-File into the AVR.

Next set the AVR's fuse bits besides the fusebit HIgh3 (External Reset disable).

Check everything twice.

The last step is to set the HIgh3 fusebit (External Reset disable).

From this point an error will be displayed because the serial (ISP) programmer can not longer make a connection to the AVR. This is normal.

The reset line is needed by the AVR programmer but also to connect the button.

If something went wrong you need to desolder the AVR and can flash it only with a high voltage programmer.

This hardware was successfully tested with two ATARI 1040ST (2 ROMs).

It was designed to work with a 260ST or MEGA ST, too. You should have at least 1 MB RAM for

in system flashing (I have not checked if it works with 512KB, too).

There are two PCBs to achieve biggest flexibility.

Because Atari made so many different PCBs maybe my PCBs doesn't fit in your ST.

Please check this before you start building it.

If your ATARI ST is a 2 ROM version, then don't forget to open the solder jumper marked as "CE" on Atari ST mainboard.

For further information please take a look at Ppera's site:

<http://ppera.07x.net/atari/>

If you have questions you can contact me:

www.atari-forum.com

or

[popsel @ yahoo.de](mailto:popsel@yahoo.de)

or

ICQ #195520754

Thank you, Ppera, for support & software.

Regards

Popsel
