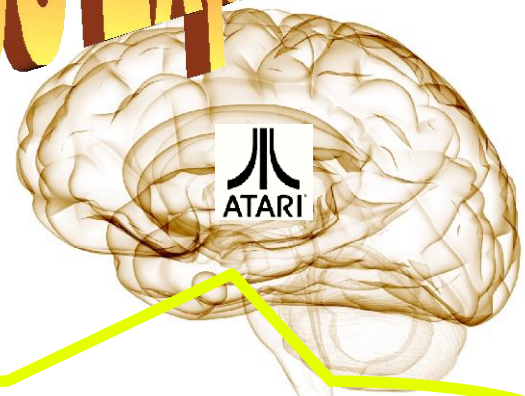
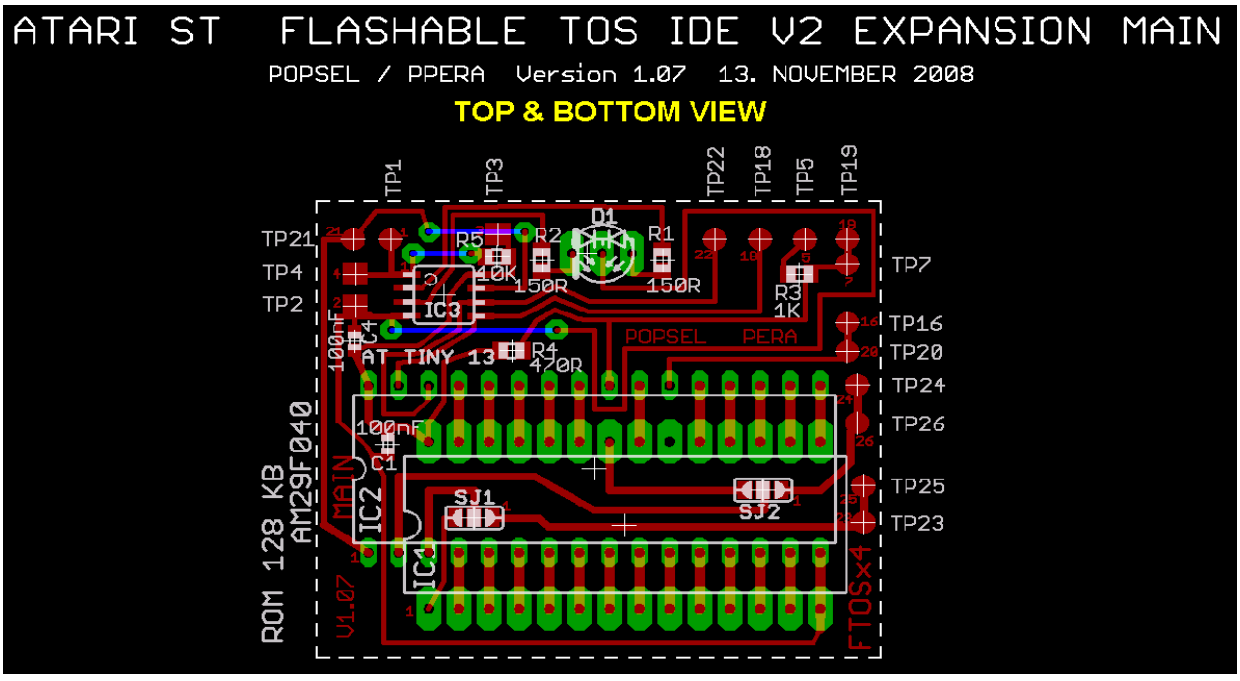
ATARI ST Version 1.07

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 V1.07

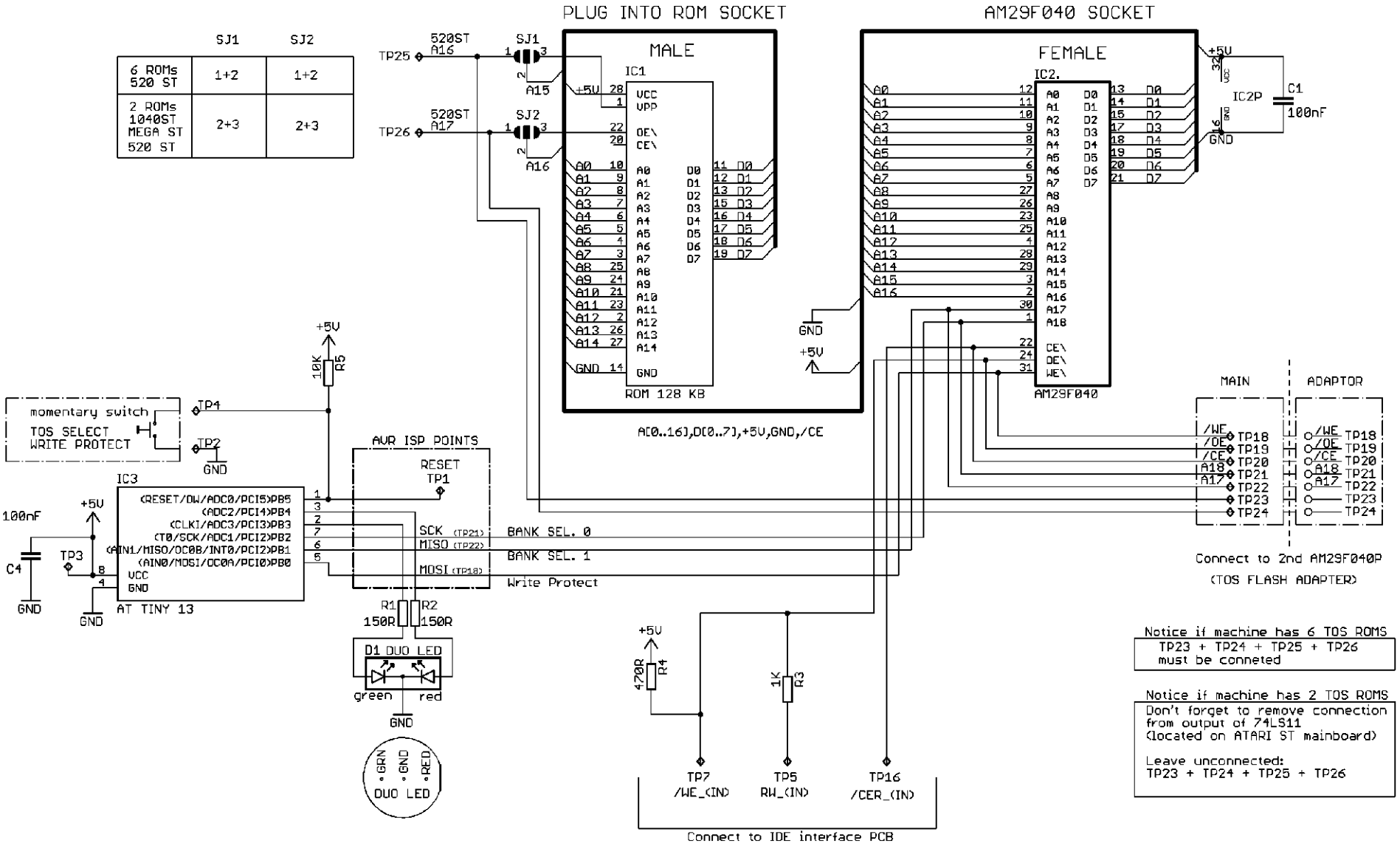
PARTSLIST

Menge	Wert	Device	Bauteile
1		DUOLED	D1 3-PIN
1	1K	R-EU_R0805	R3
1	10K	R-EU_R0805	R5
2	100nF	C-EUC0603	C1, C4
2	150R	R-EU_R0805	R1, R2
1	470R	R-EU_R0805	R4
1	AM29F040	AM29F040	IC2
1	AT TINY 13	ATTINY13-20S	IC3
1	Socket		IC1 Socket

Some isolated wire

ATARI ST FLASHABLE TOS IDE V2 EXPANSION MAIN

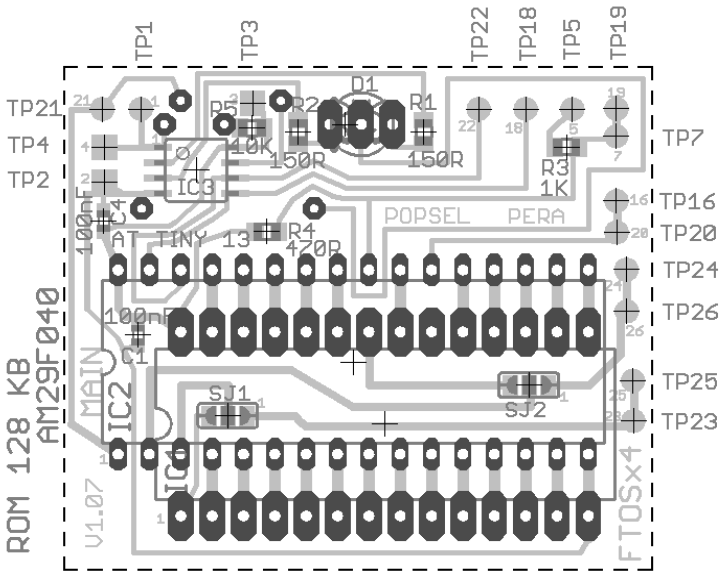
POPSEL / PPERA Version 1.07 13. NOVEMBER 2008



ATARI ST FLASHABLE TOS IDE V2 EXPANSION MAIN

POPSEL / PPERA Version 1.07 13. NOVEMBER 2008

TOP VIEW



ATARI ST FLASHABLE TOS IDE V2 EXPANSION MAIN

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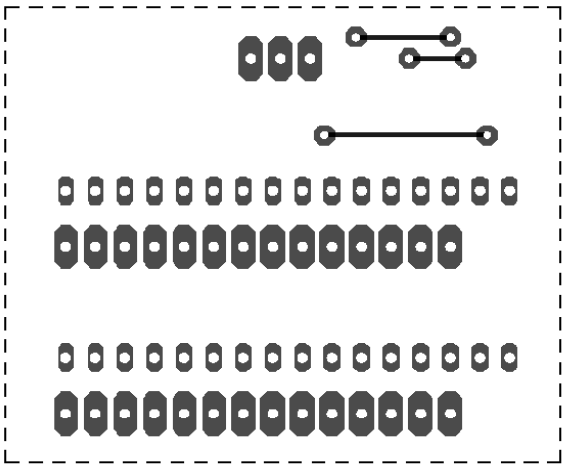
BOTTOM VIEW



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 AVRs program can be flashed from BASCOM-AVRs 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 AVRs 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 AVRs 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 sucessfully 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 archieve 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
or
ICQ #195520754

Thank you, Ppera, for support & software.

Regards

Popsel