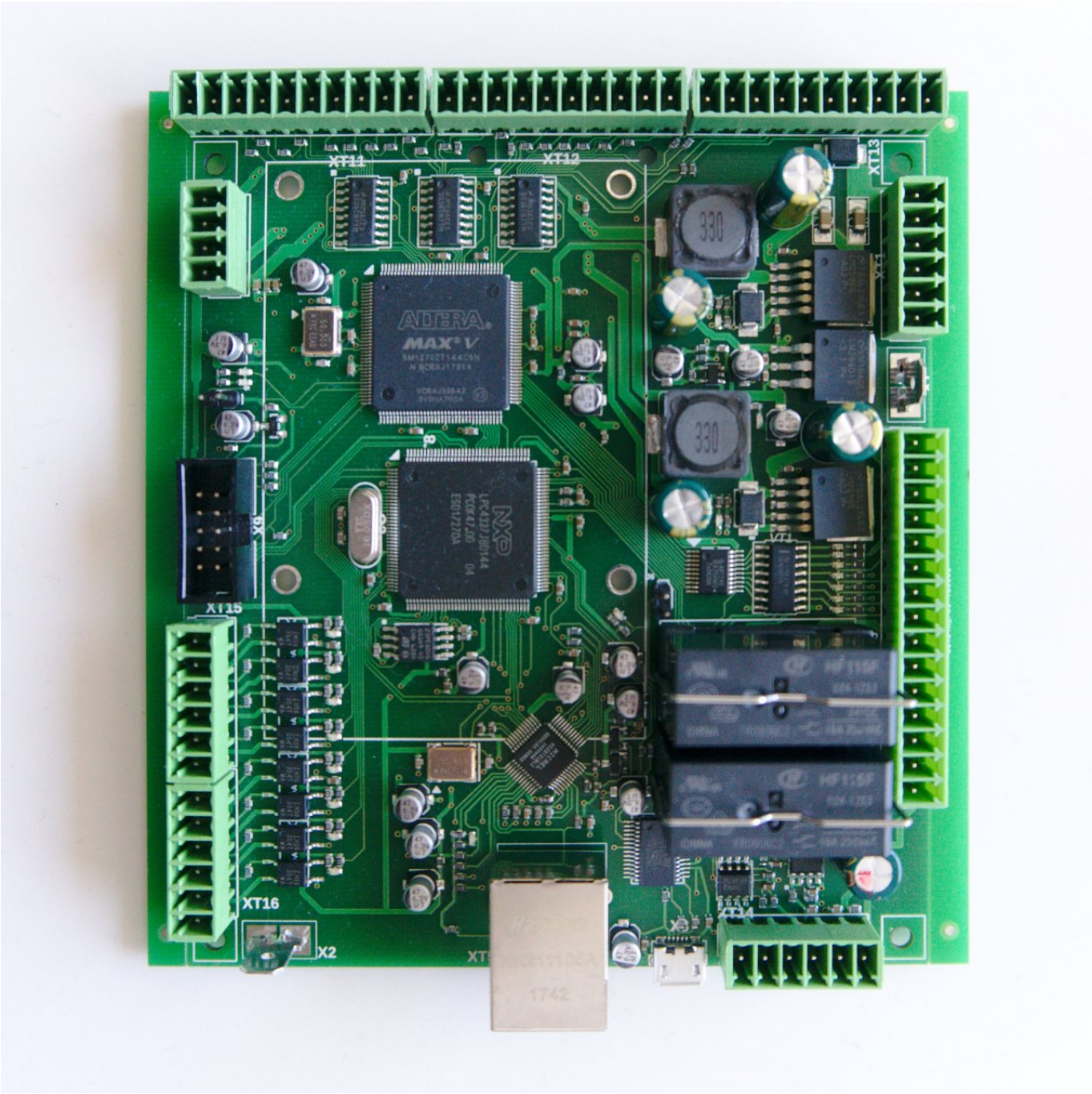
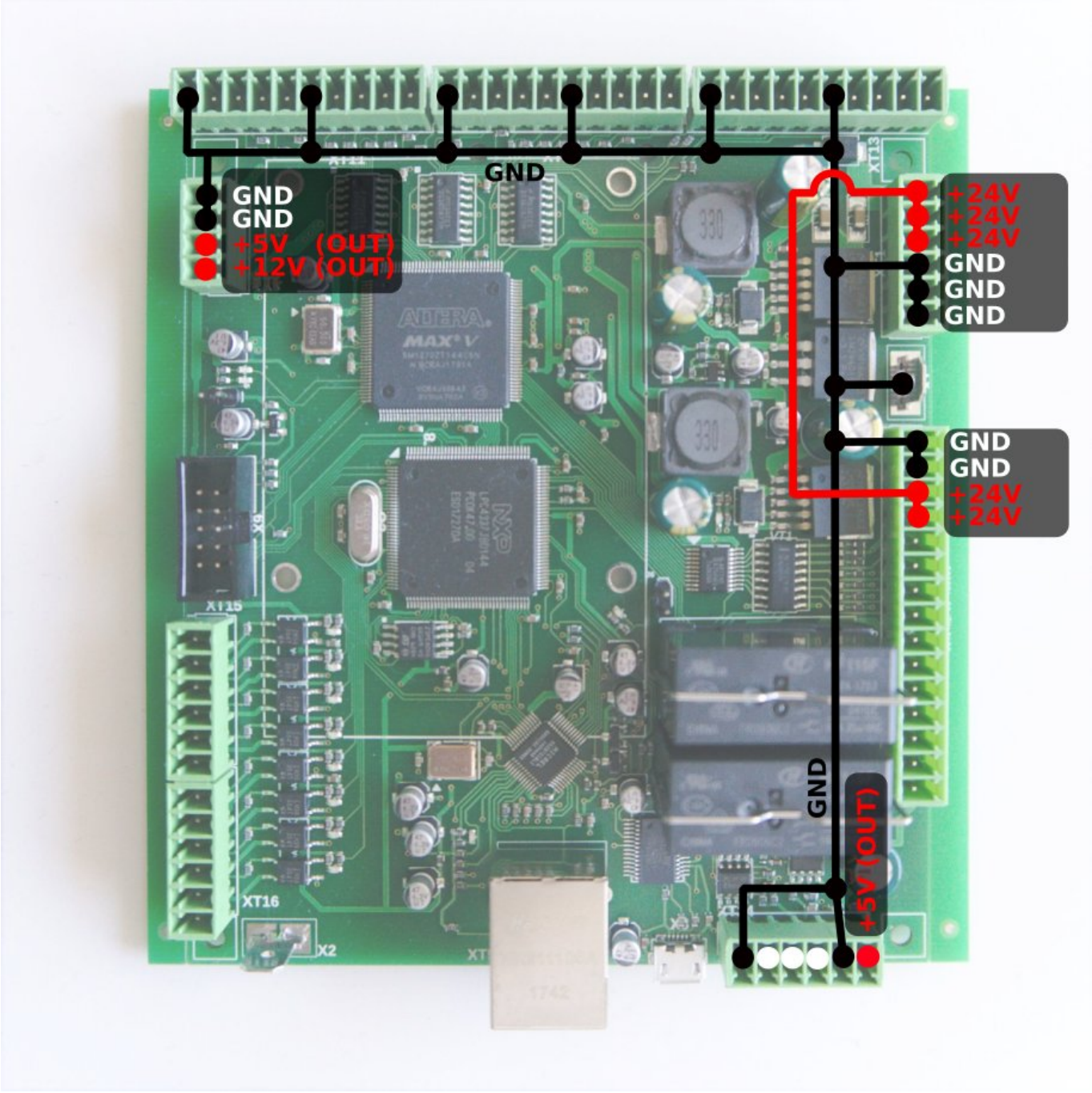
myCNC-ET6 CNC controller

ET6 Top View



Power supply connection

24V DC is used to supply myCNC-ET6 control board. Power consumption depends on external peripherals you have connected to open collector outputs and +12V/+5V outputs. Normally power supply 24V/2A should be enough to power up the controller based kit with single board computer and 15'6“ TFT screen. However, step-down converters on the ET6 board consume start current about 1.5A and 24V/1A power supply might be not enough to supply the single ET6 board.

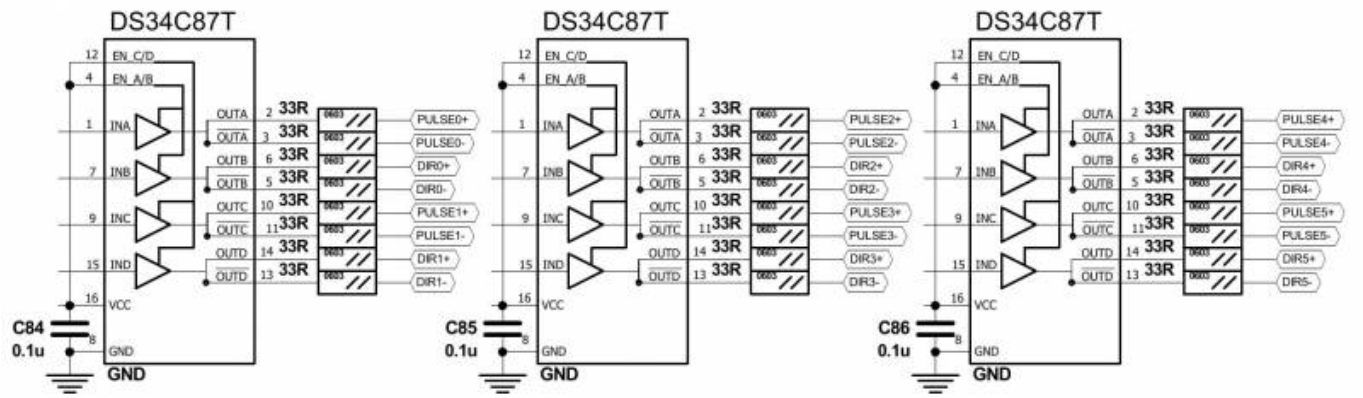


Pulse-Dir outputs

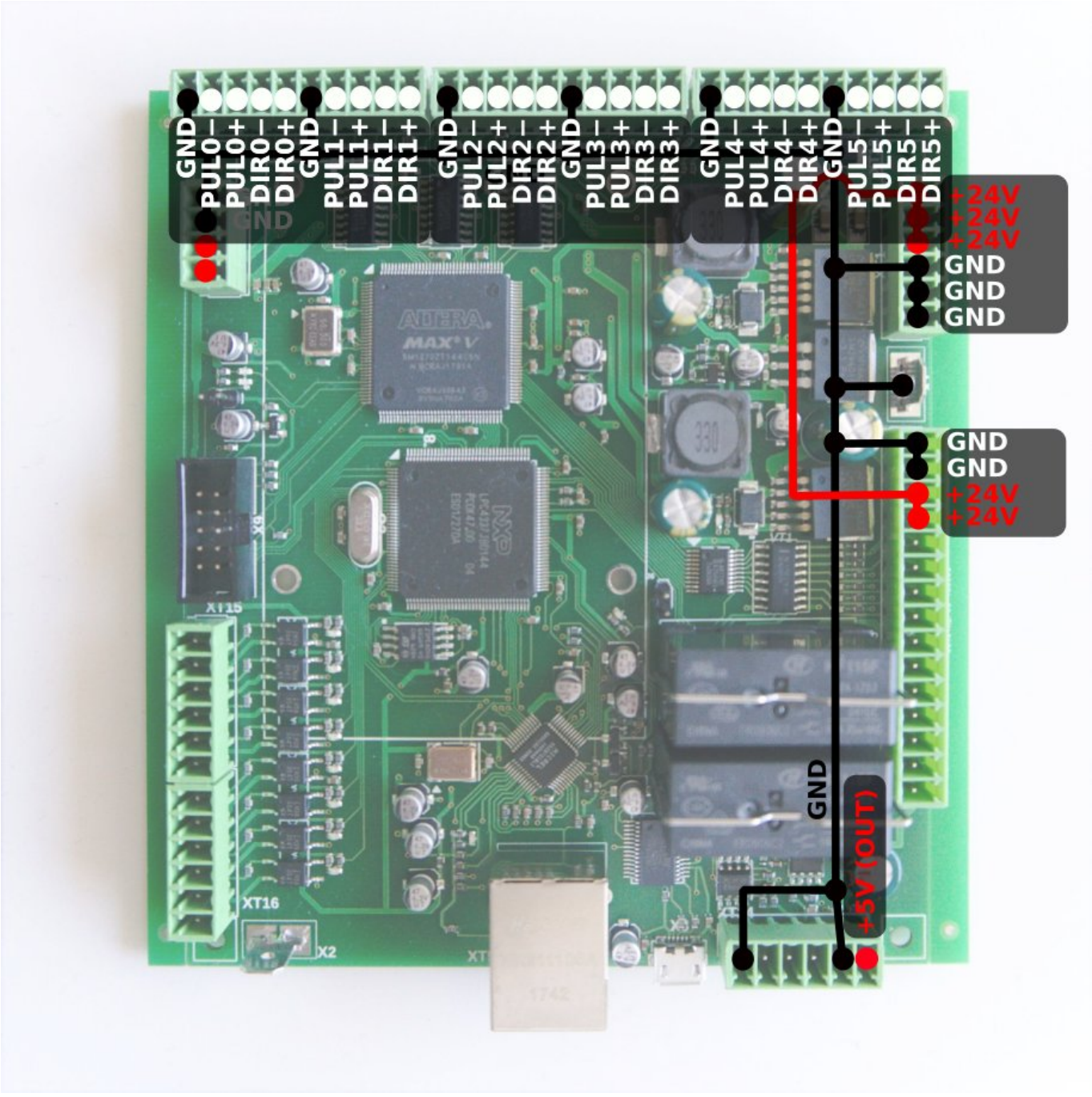
ET6 has 6 channel pulse/dir outputs, 3MHz max pulses frequency.

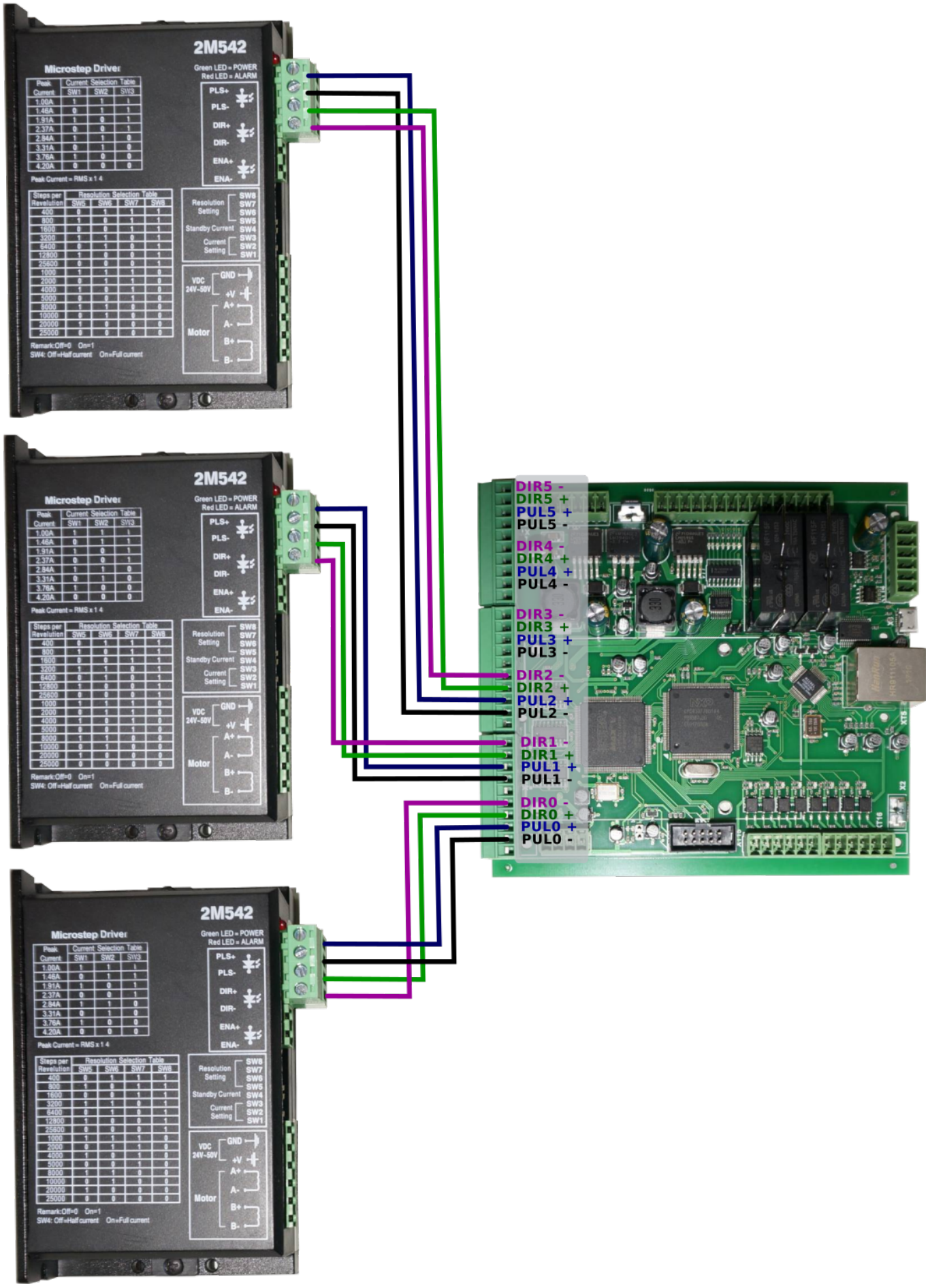
ET6 pulse dir outputs conforms RS422 standard and compatible with most of servo and stepper drivers (line driver with paraphase signals positive and negative polarity). Internal schematic for pulse-dir is shown on a picture below.

Pulse-dir schematic



Pulse-Dir connectors pinout shown below




2M542
Microstep Driver
Green LED = POWER
Red LED = ALARM
PLS+
PLS-
DIR+
DIR-
ENA+
ENA-
Resolution Setting
Standby Current
Current Setting
VDC 24V-50V
GND
+V
A+
A-
B+
B-
Motor
DIR5 -
DIR5 +
PUL5 +
PUL5 -
DIR4 -
DIR4 +
PUL4 +
PUL4 -
DIR3 -
DIR3 +
PUL3 +
PUL3 -
DIR2 -
DIR2 +
PUL2 +
PUL2 -
DIR1 -
DIR1 +
PUL1 +
PUL1 -
DIR0 -
DIR0 +
PUL0 +
PUL0 -

ET6 Output pins

ET6 board contains 7 output pins-

- 2 relay outputs (OUT#0, OUT#1)
- 2 open collector outputs (OUT#2, OUT#3)
- 3 PWM outputs (PWM#1, PWM#2, PWM#3)

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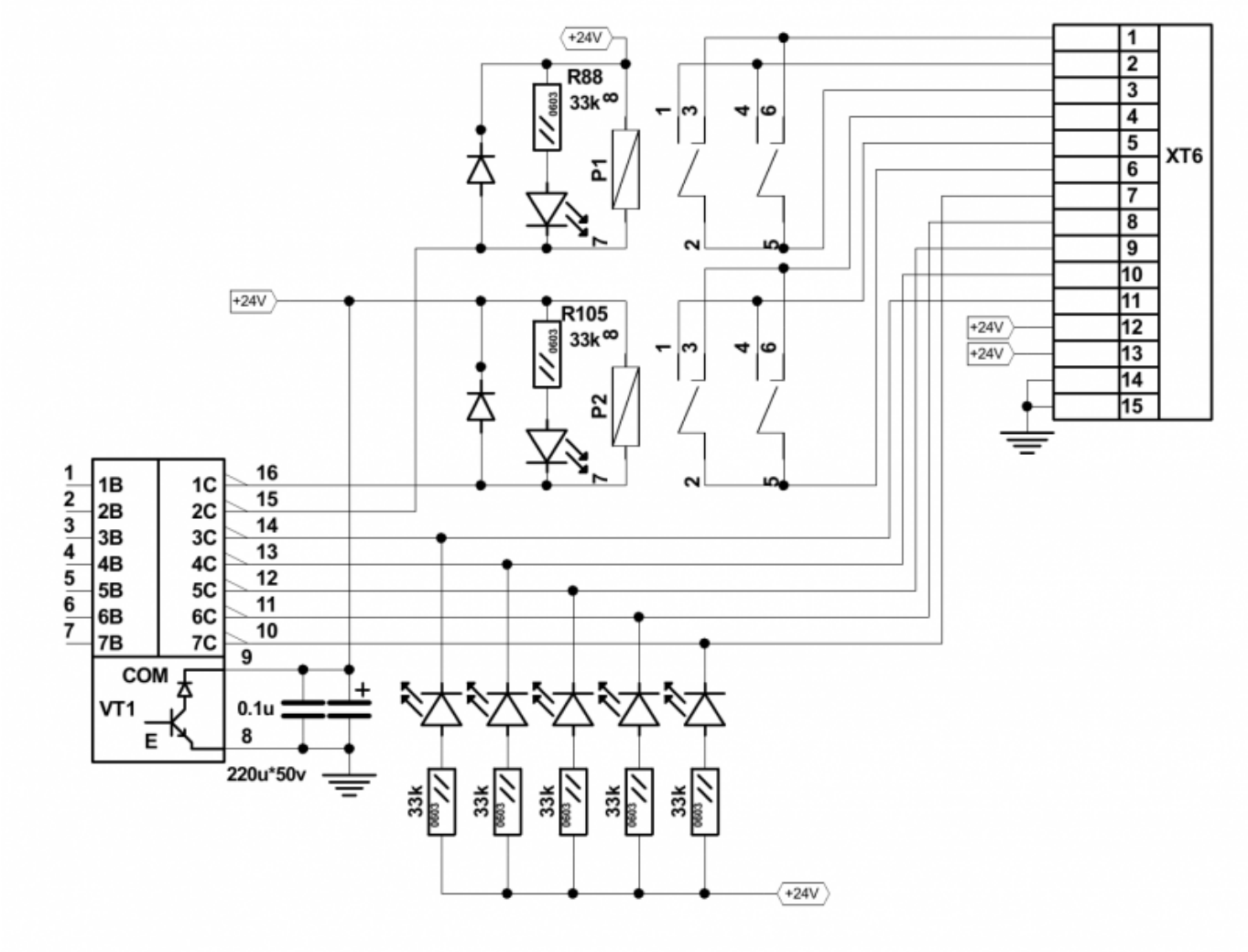
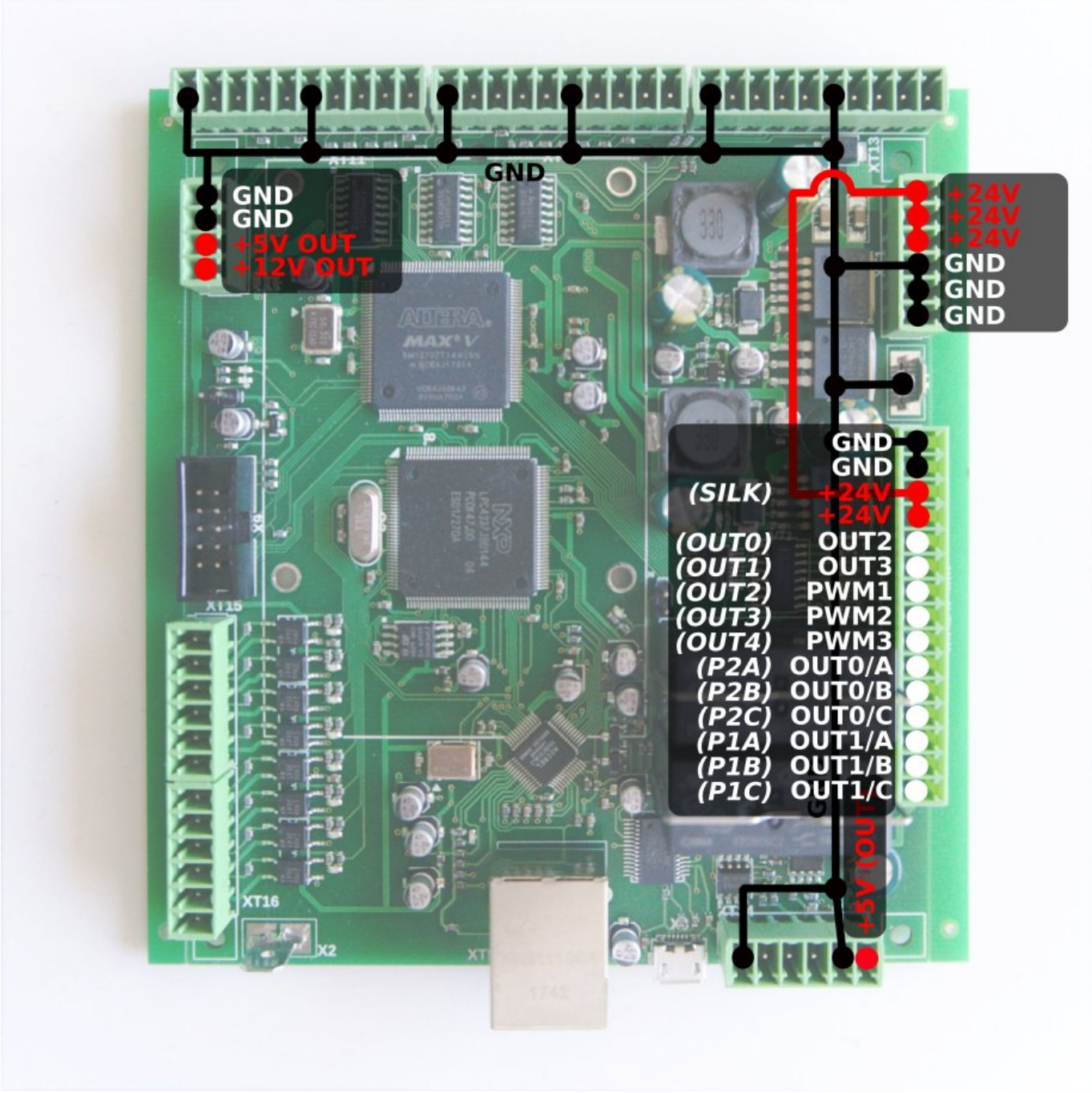
WARNING: ET6 board rev.1 has Output pin names printed on Botton side of the board.
This names are NOT correct and differs from actual output addresses.
Please check table below to find out actual output address
```

SILK print	Actual Output Pin Address
OUT0	OUT2
OUT1	OUT3
OUT2	PWM1
OUT3	PWM2
OUT4	PWM3
P2A	OUT0 (A)
P2B	OUT0 (B)
P2C	OUT0 (C)
P1A	OUT1 (A)
P1B	OUT1 (B)
P1C	OUT1 (C)

Schematic for ET6 outputs is shown below



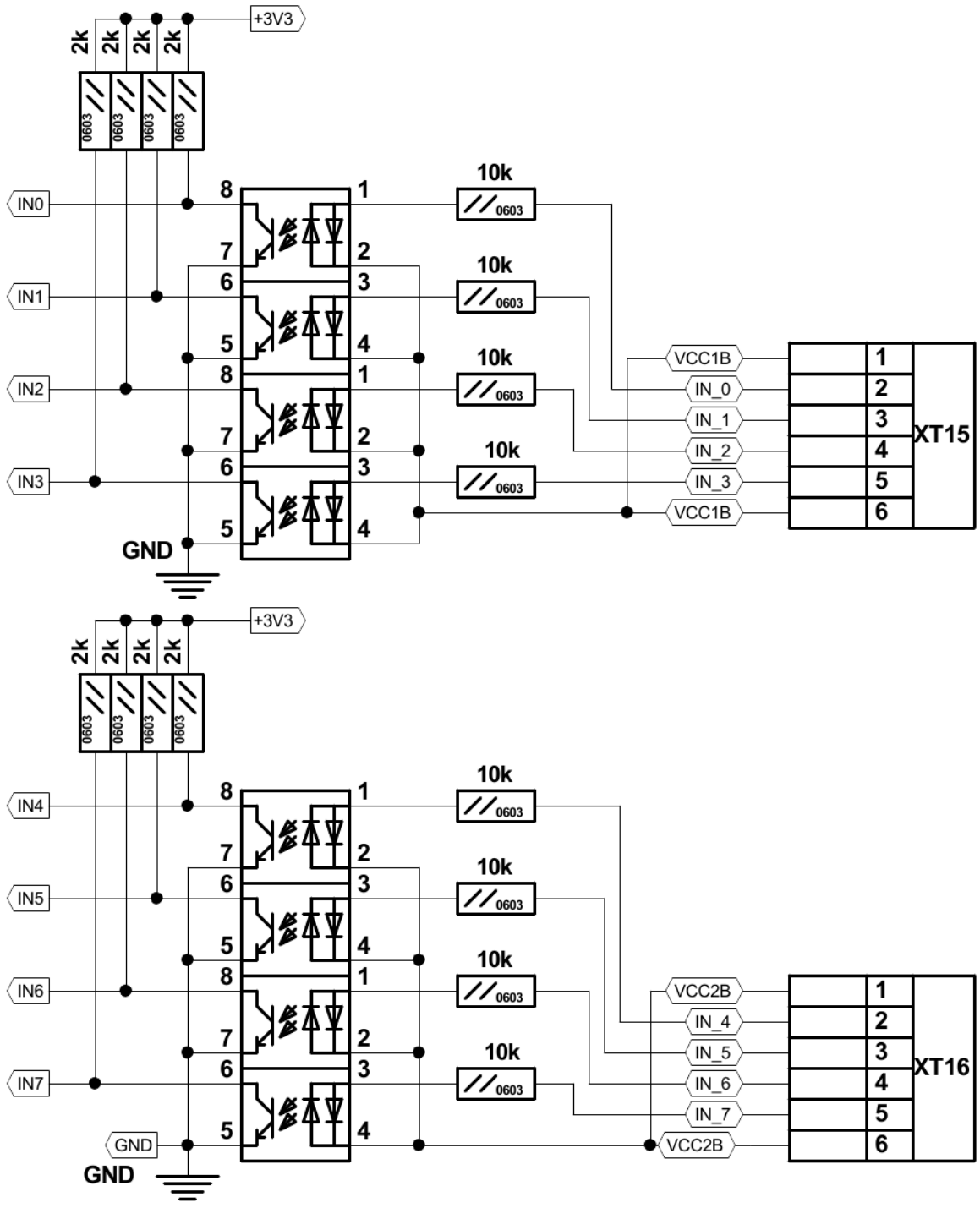
Connector pinouts for ET6 outputs pin shown on a picture below



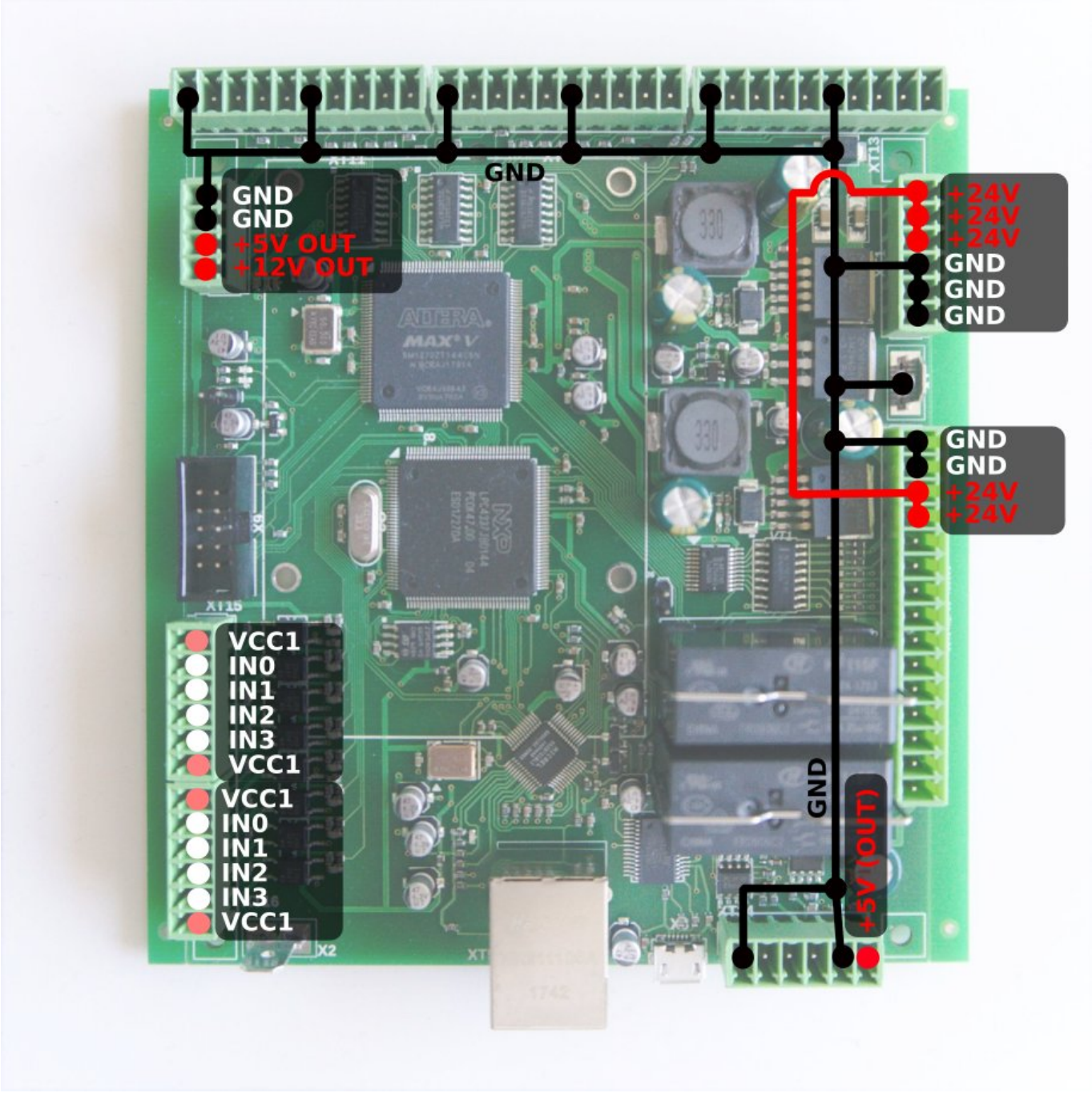
Galvanic isolated inputs

ET6 control board has 8 galvanic isolated binary inputs, 2 groups of 4 inputs each. Each group has separate power supply pins so inputs can be powered from different power sources. Using PNP and NPN sensors simultaneously if possible too.

Schematic for ET6 inputs is shown below



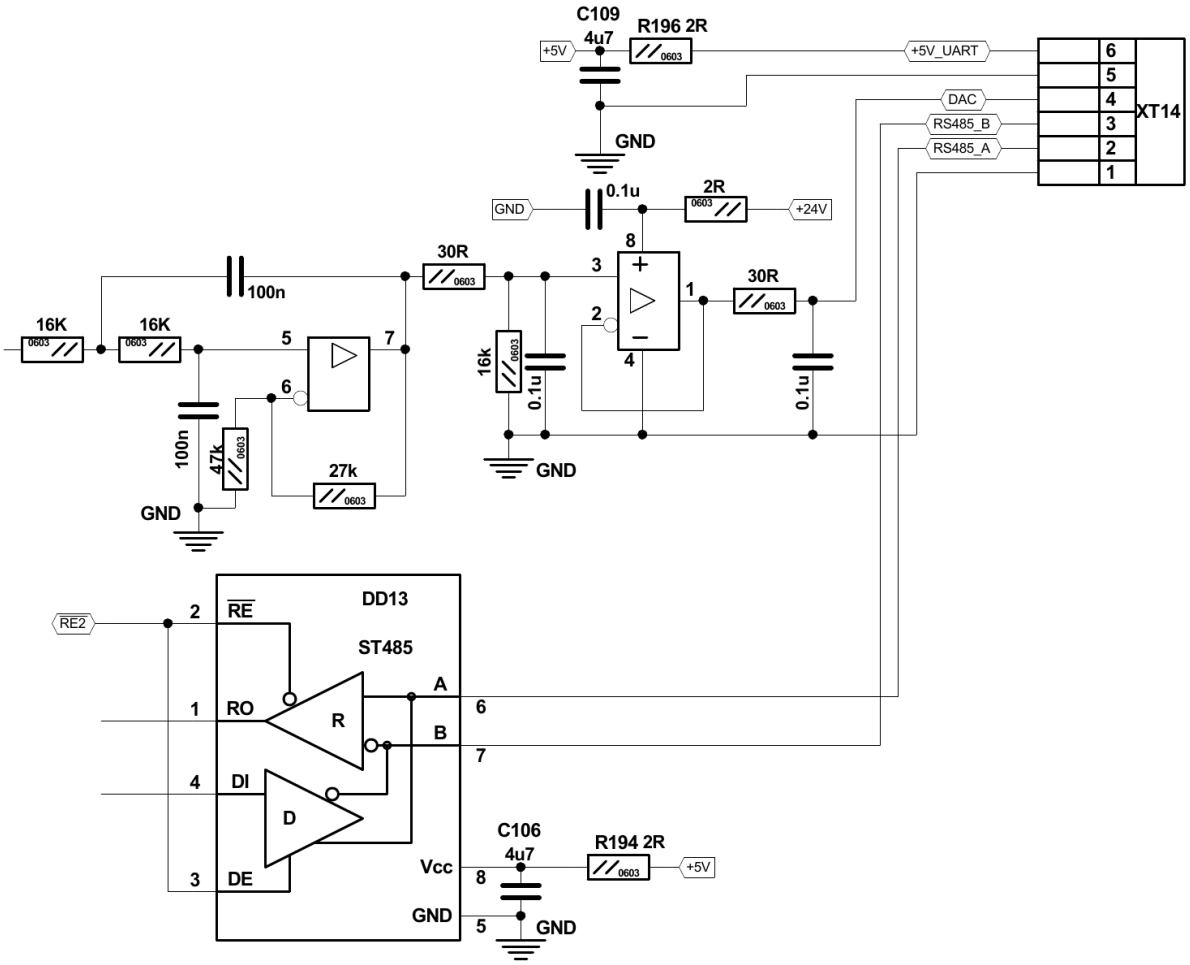
Connector pinouts for ET6 galvanic isolated inputs shown on a picture below



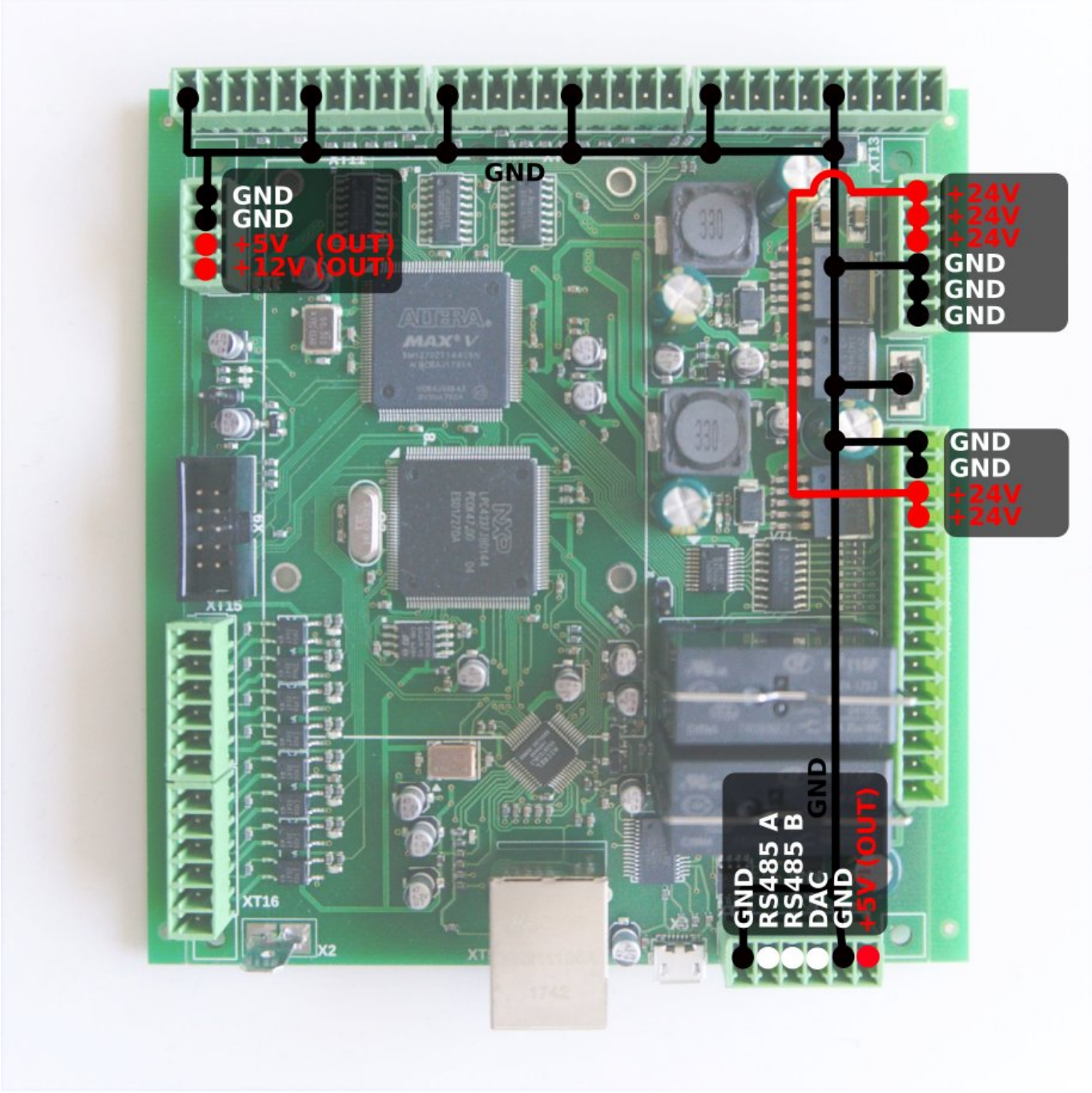
RS422/RS485 Bus

myCNC-ET6 control board has RS485 bus connector. Modbus ASCII/RTU and Hypertherm Serial communication interfaces are implemented in myCNC-ET6 control board.

RS485 bus schematic is shown below



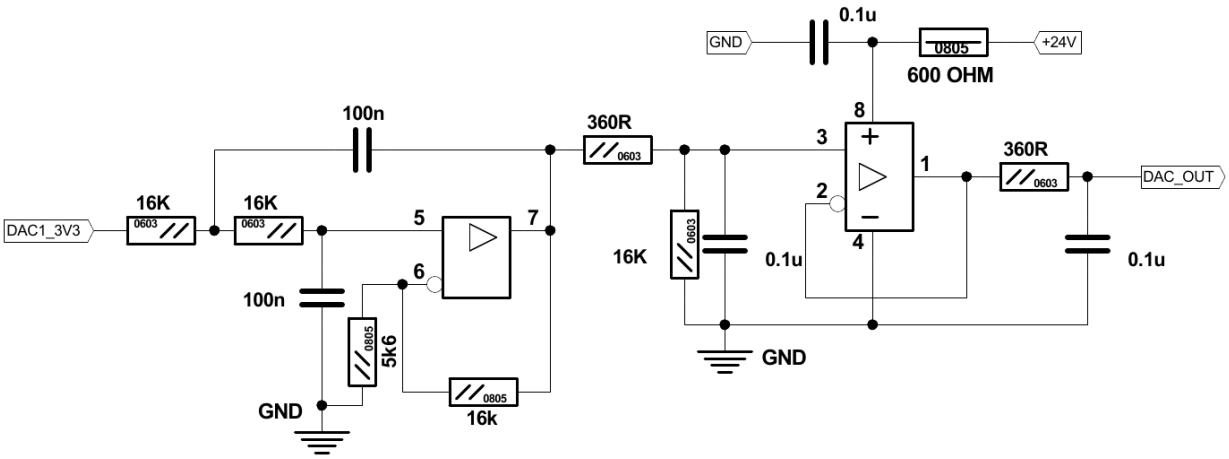
RS485 connector pinout shown below



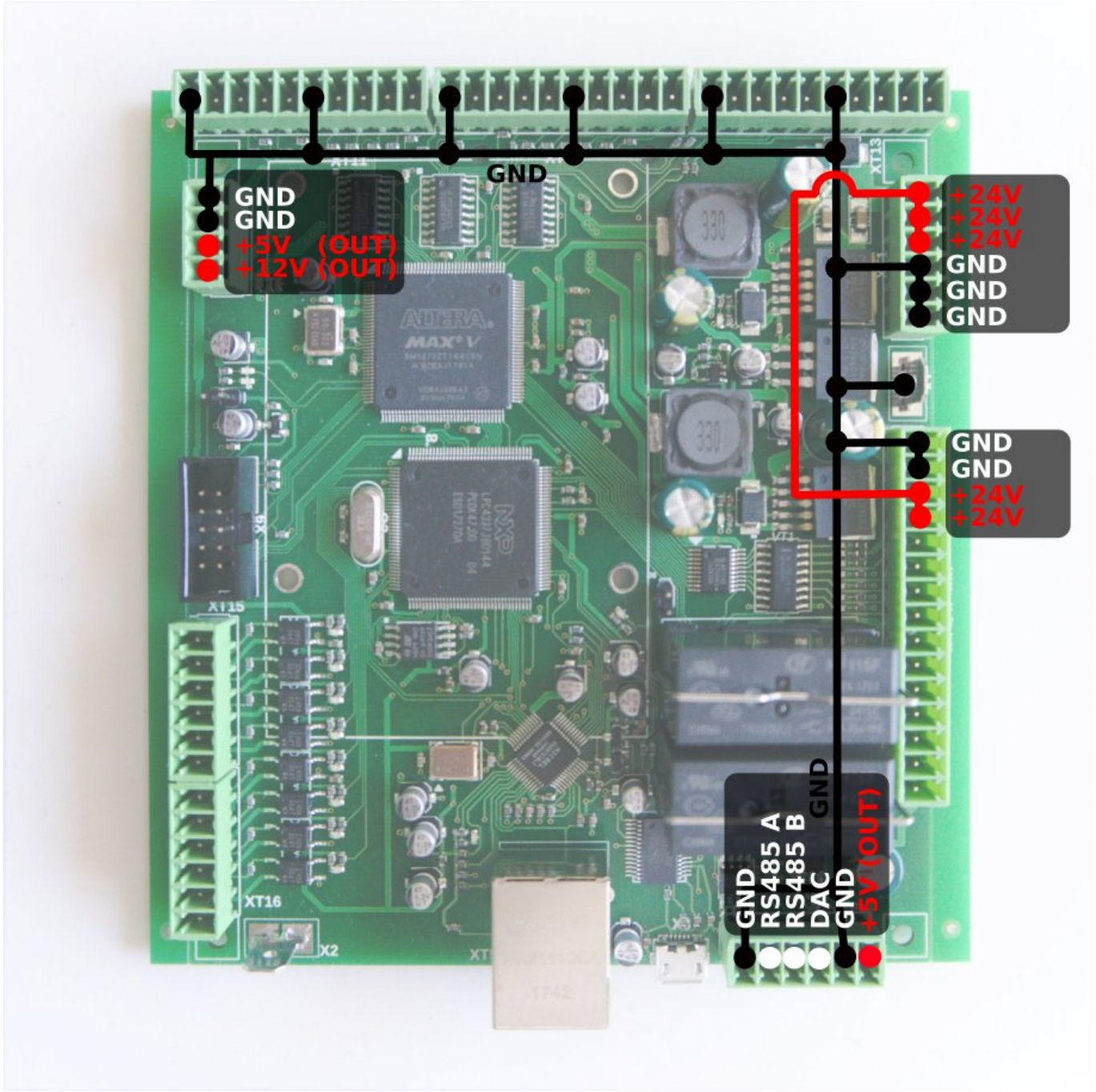
DAC output

myCNC-ET6 control board has DAC output for spindle speed control. DAC output range is 1..15V Actual Max DAC voltage (ie 10V, 5V, 6V) can be setup in the myCNC control software.

Schematic design of DAC output is schwn below

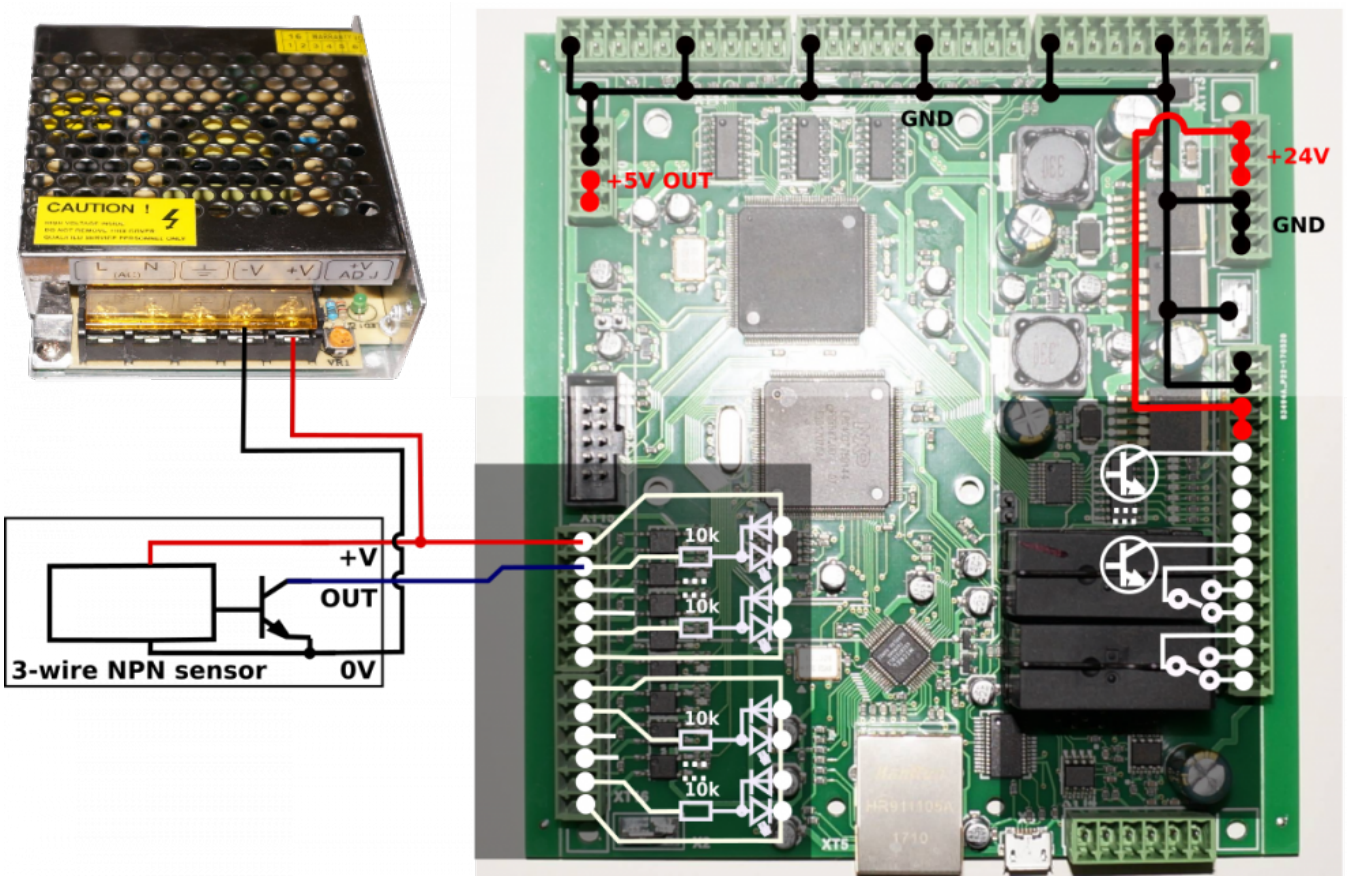


Connector pinout for DAC output

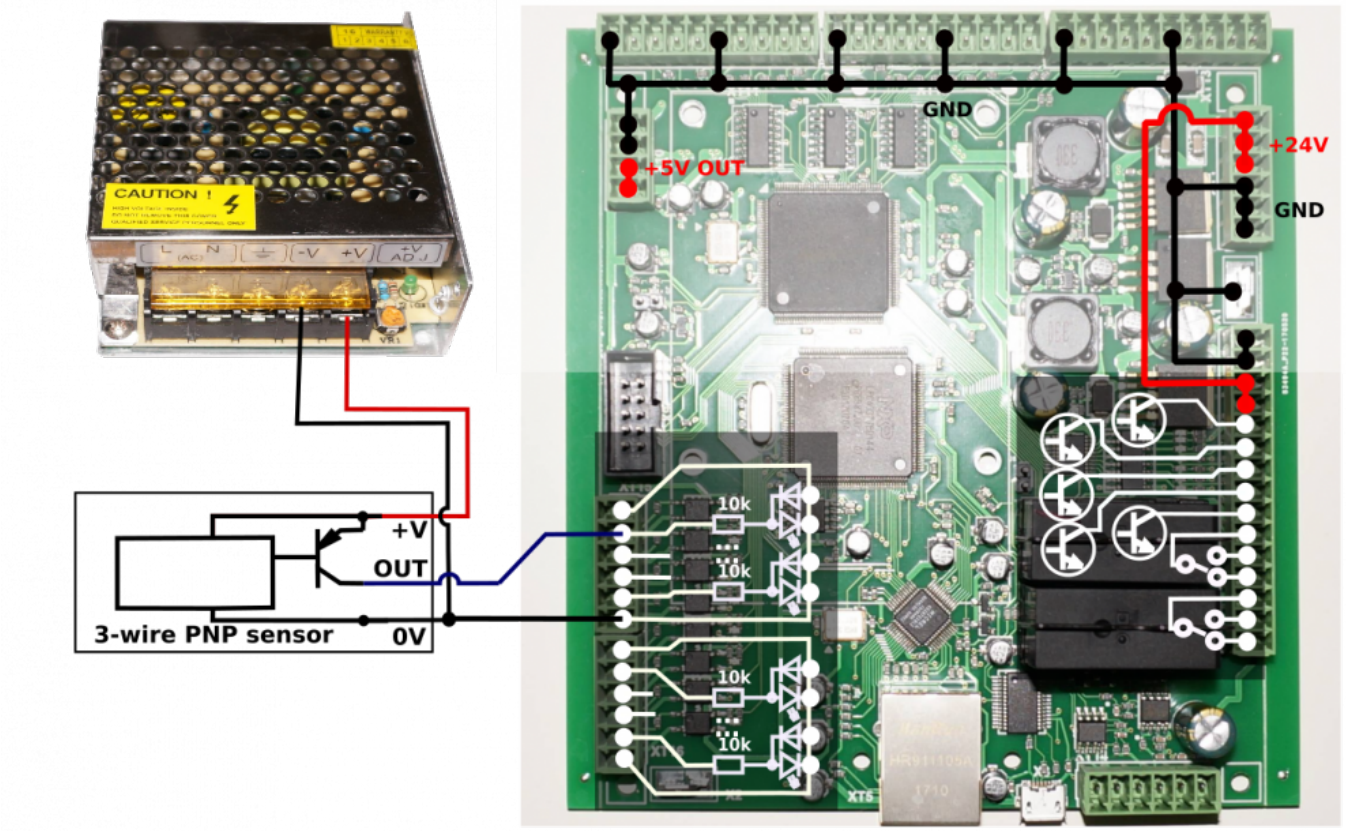


Connection Examples

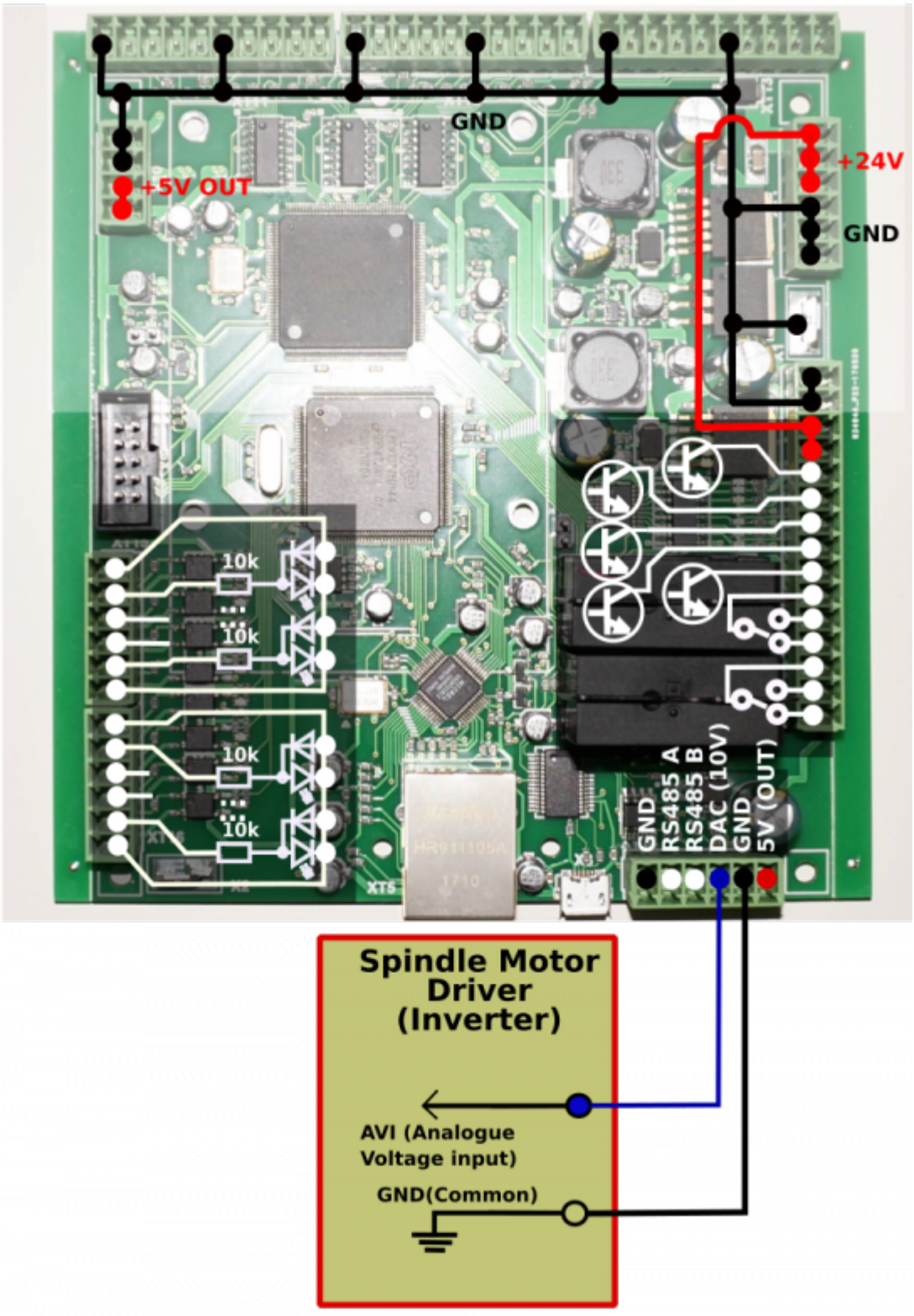
3-wire NPN sensor connection example



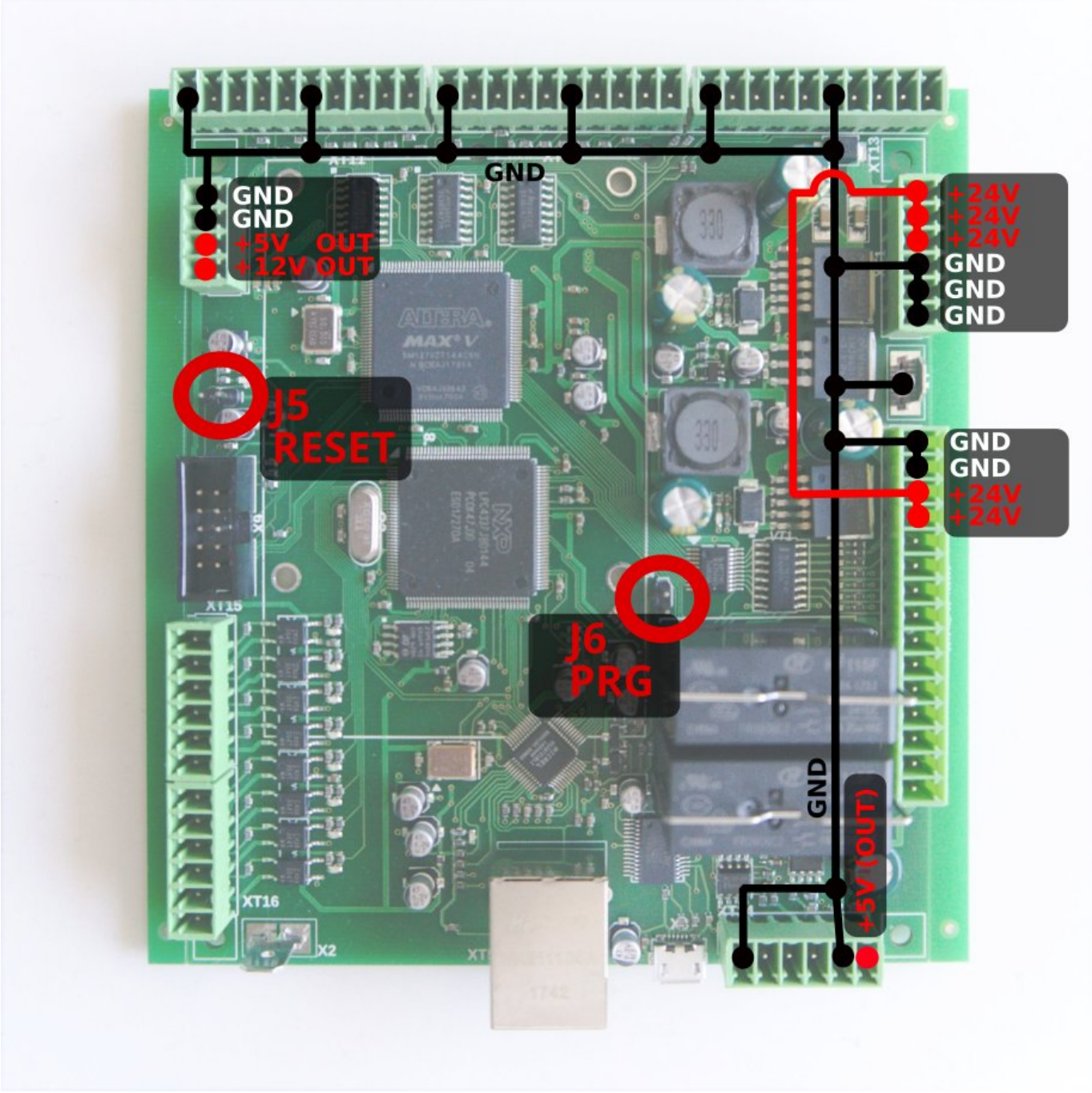
3-wire PNP sensor connection example



Spindle speed control through DAC (0-10V)



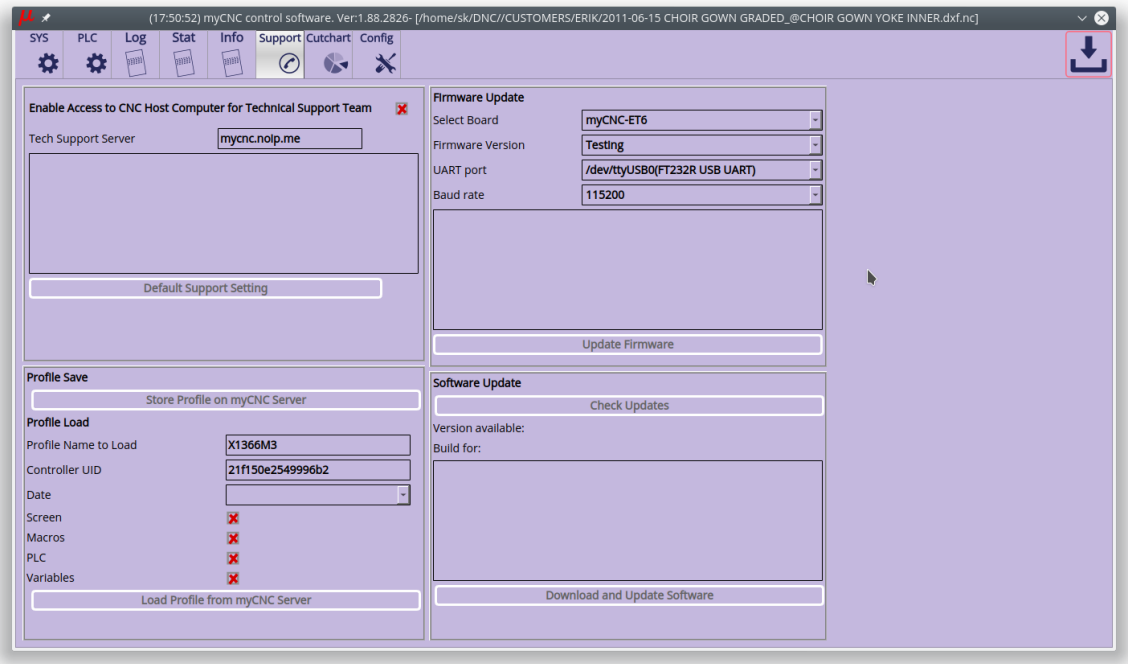
ET6 control board firmware reflash



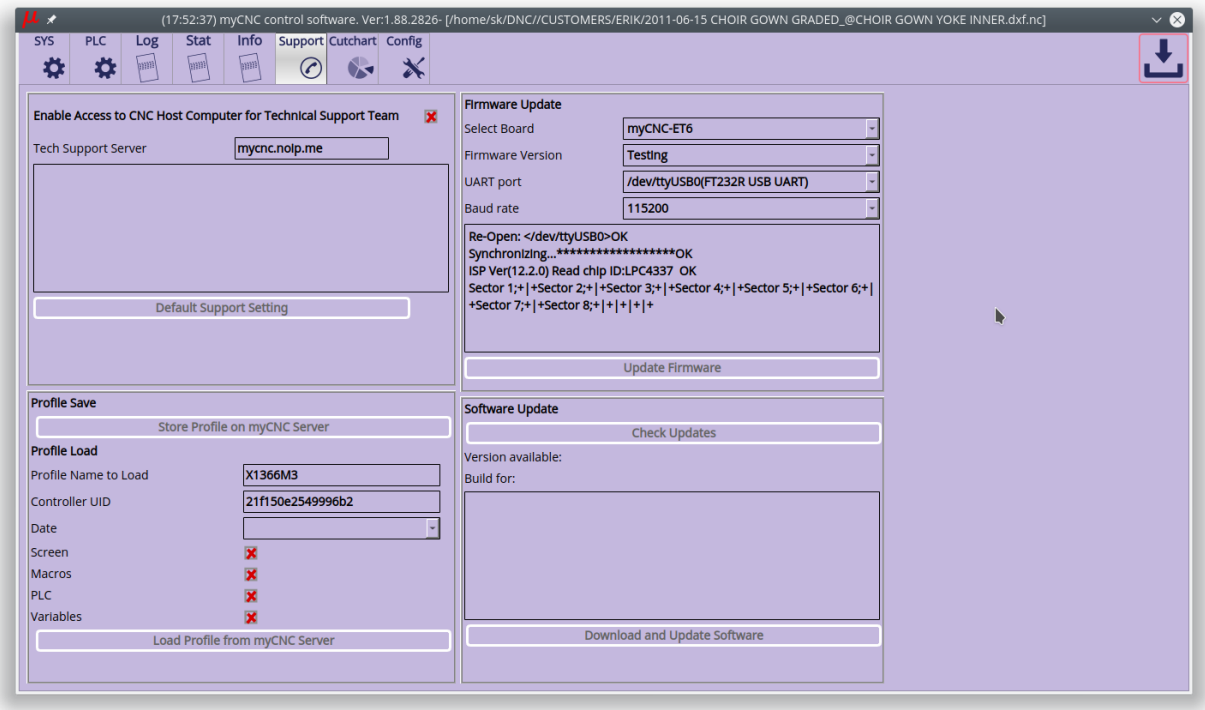
myCNC-ET6 reflashing procedure may take about 3 minutes.

To reflash the board

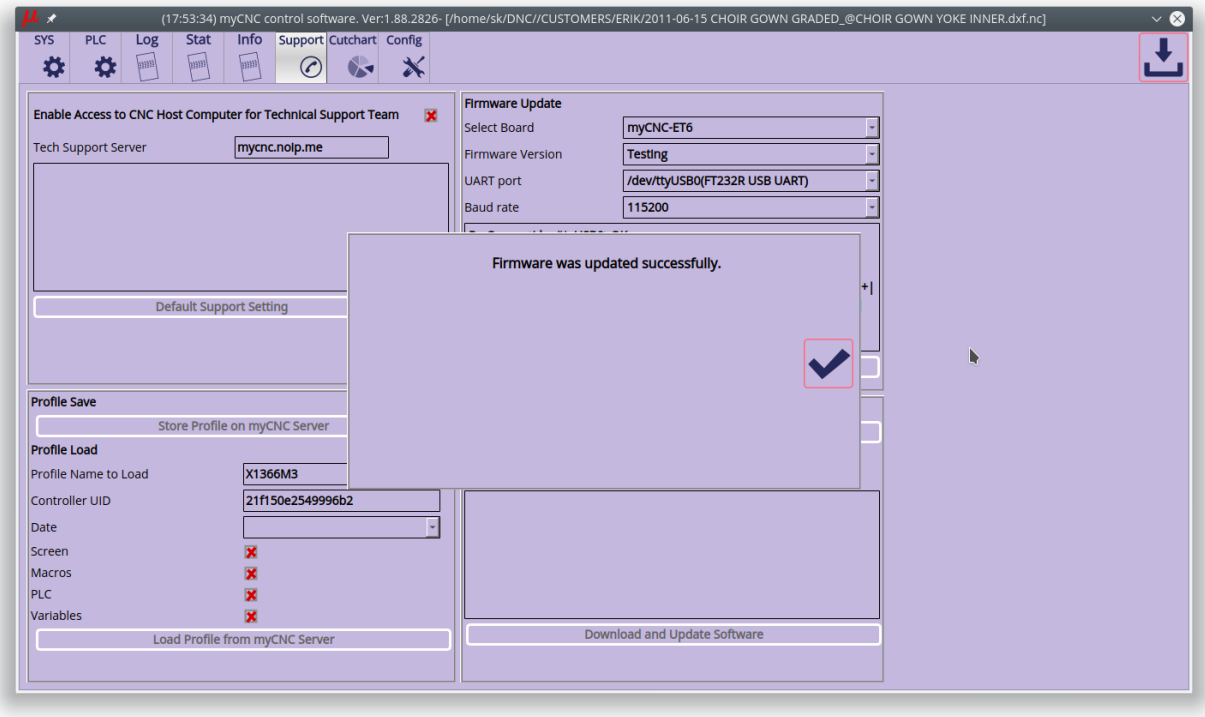
1. Plug 24V DC supply
2. Plugin micro-USB cable to ET6 & Host Computer with myCNC software installed
3. Close (short) jumpers J5(reset) & J6(programming) on myCNC control board
4. Open (remove) J5 jumper.
5. Open myCNC software on the Host computer,
    1. goto Configuration Tab → Support Tab
    2. Set “Select board” set to “myCNC-ET6”
    3. Select “Firmware version” from “Release”, “Night build” or “Testing”
    4. Set *UART port* to port with FT232 attached
    5. Set *Baud Rate* set to “115200” for ET6; other baud rate can be selected in case of problems on 115200 speed



6. Press “Update Firmware” button, Firmware download and reflashing process will be started.

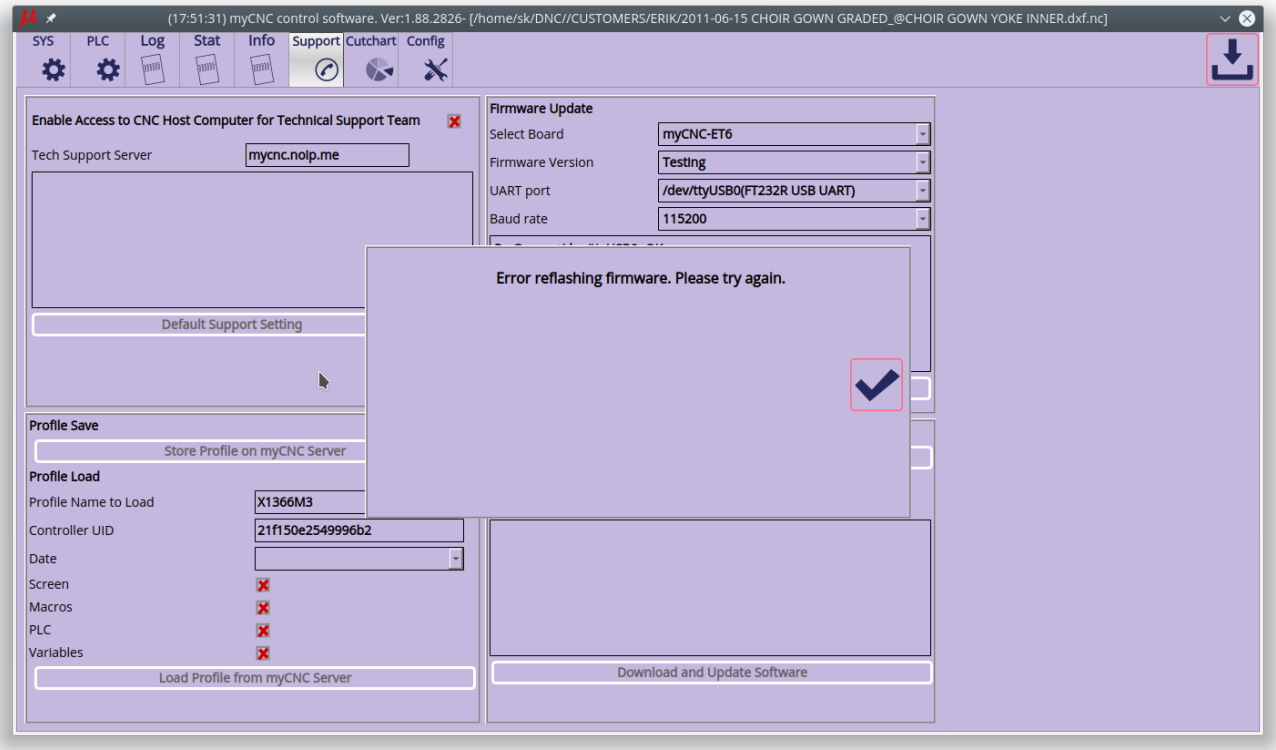


7. Sector 0 will be written at the end of process. After firmware process finished, a popup message will be shown.



8. Remove all jumpers (J5, J6) and restart the board. To restart the board you need either repower ET6 or
close Reset jumper (J5) for 1 second, then release it. The board will be restarted.

In case reflashing process failed, you get a popup message.



Please repeat procedure from #3

Board dimension

PDF : http://cnc42.com/downloads/et6-r4.pdf

DXF : http://cnc42.com/downloads/et6-r4.dxf