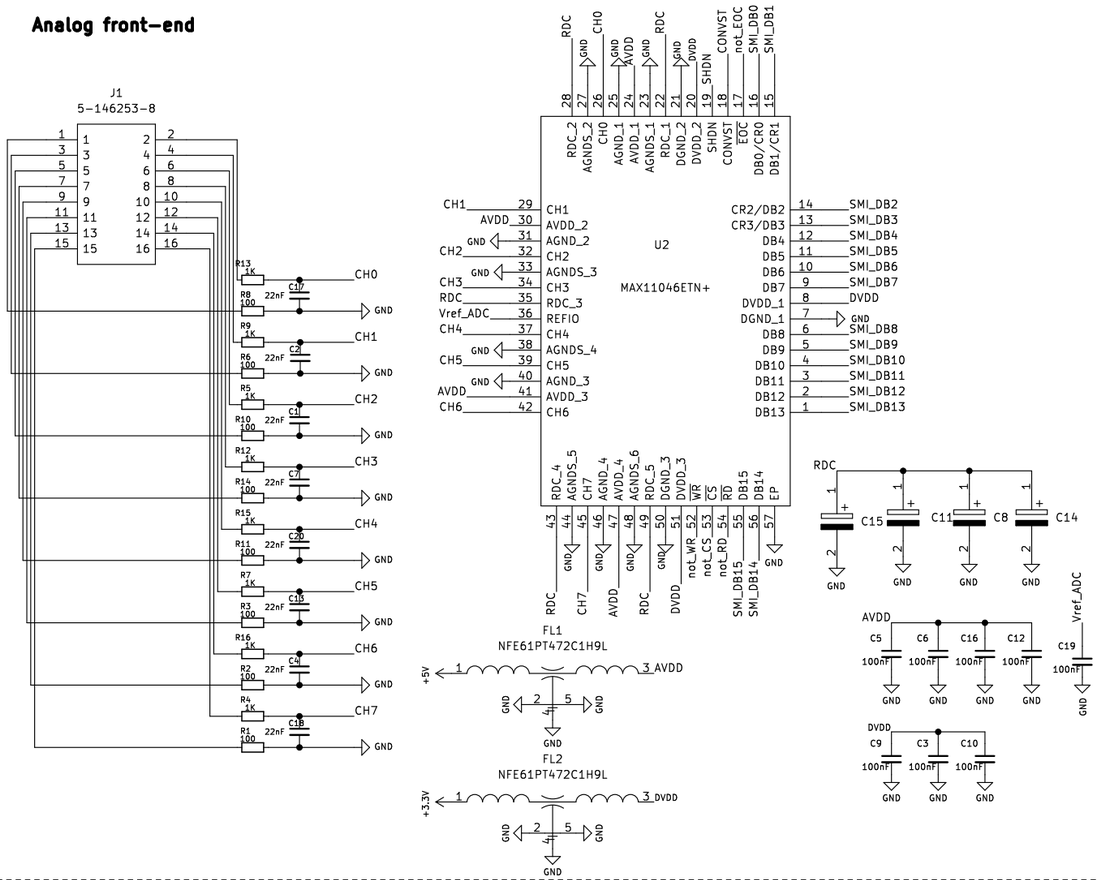
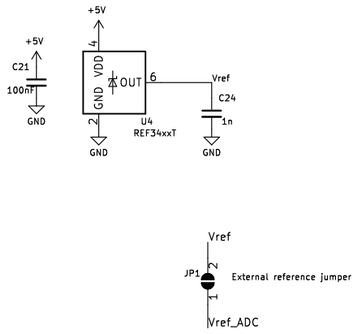
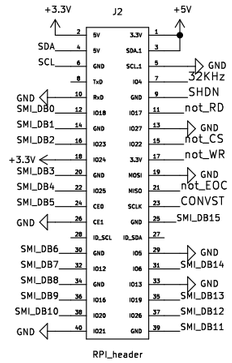
Analog front-end



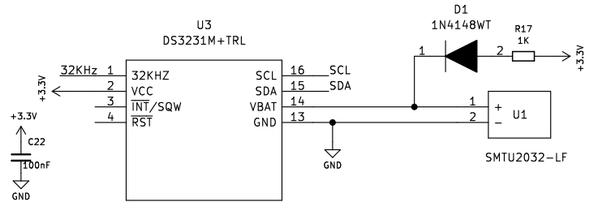
Reference voltage source

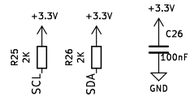


Raspberry Pi connector (pins are mirrowed)



Real Time Clock





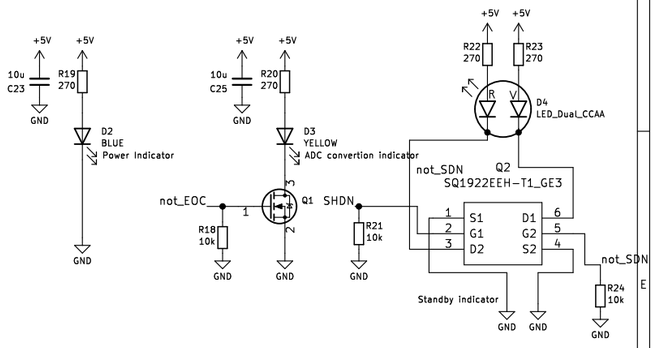
Notes

ADC header has 16 pins: 8 x ADC inputs and 8 x GNDs
The RC-LPF filter at the each chanel input has a cut frequency of 45KHz
Each channel ground is nonnected to the board ground not directly but via f 100 Ohm resistor.
This is done because if the device from where the measured signal comes by any chance has some high voltage level at it's ground so the short circuit current will be limited
by the 100 Ohm resistor or only this resistor will burn out but not the Raspberry Pi
If you want to connect directly to ground replace 100 Ohm resistors with jumpers.

R25 and R26 are not compulsory because Raspberry Pi must have the same pullups.

Short circuit the JP1 if you want to use external reference voltage for ADC chip.

Status Indicators



Author: Carlo Guarnieri Calò Carducci
Institute for Automation of Complex Power Systems – E.ON ERC – RWTH Aachen University

Sheet: /
File: smuHAT.kicad_sch

Title: smuHAT

Size: A3	Date: 2021-11-11	**Rev: 2.2**
KiCad E.D.A. kicad (6.0.9)		Id: 1/1