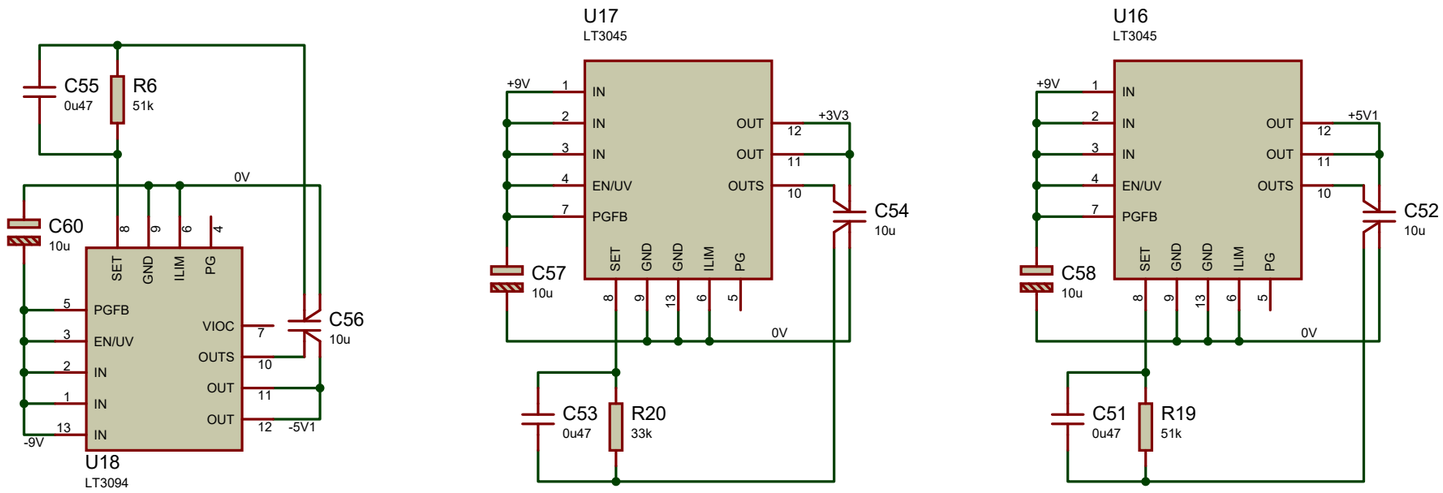
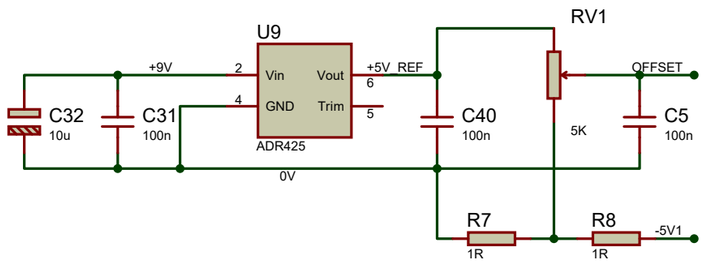
Power supplies and voltage references



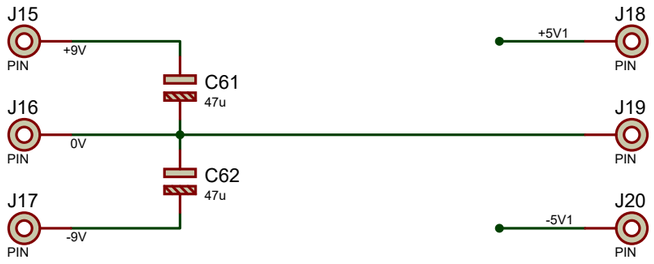
Power supplies: +5V1, +3V3, -5V1 @500mA each

Reference voltages for ADC: 5V and variable offset



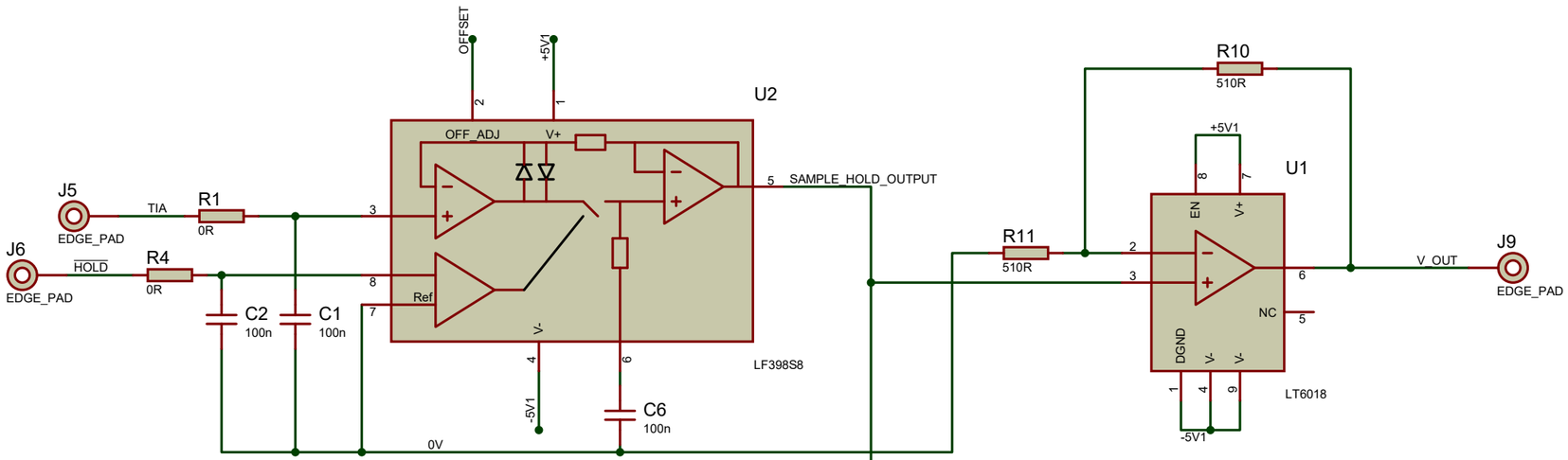
If a positive offset is required, fit R7 and remove R8. If negative, reverse.

Supply pins (via 2x chassis-mounted, filtered, pass-through pins)



Regulated output for transimpedance amplifier

Main circuit - sample and hold, ADC, & amplification

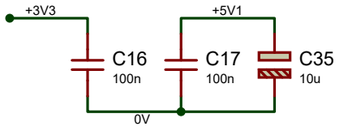


U1 prevents loading of the sample and hold circuit and provides a x2 voltage gain

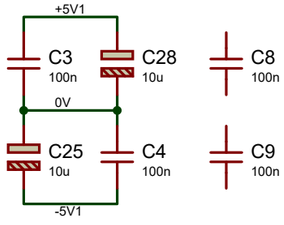
Hold capacitor C6 to be low leakage, low dielectric absorption

i.e. mica, polystyrene or polypropelene

Reduce board leakage by using the output signal to create a guard ring



Decoupling



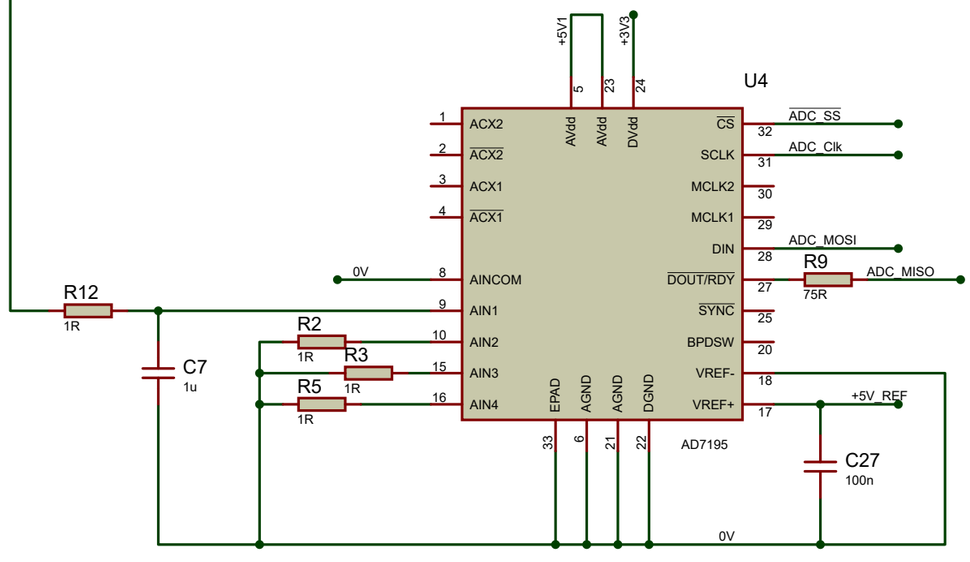
Low Pass RC filters

R12, C7 - 150kHz

Provision only

R1, C1 - do not fit C1

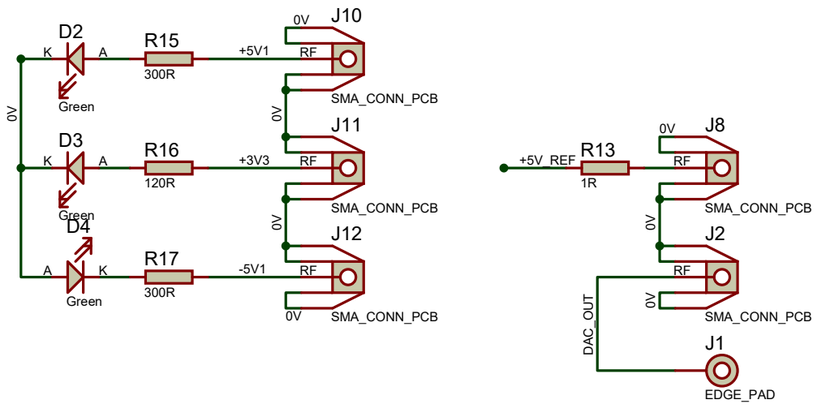
R4, C2 - do not fit C2



The reference voltages must not be greater than AVdd

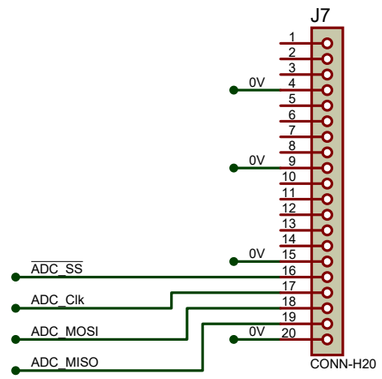
Debugging

Voltage monitoring points



MCU connectivity

To Atmel SAML22 dev board



Mounting posts and ground stitching