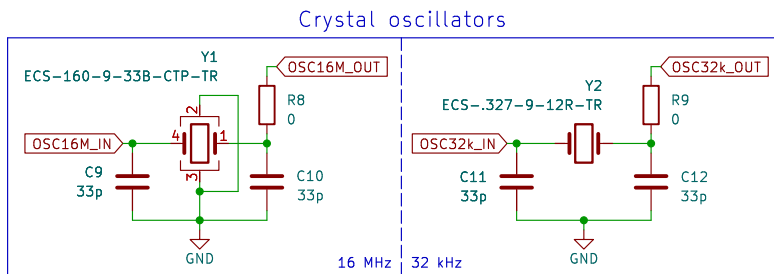
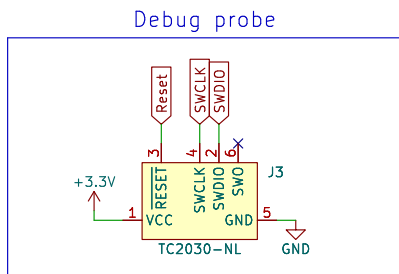
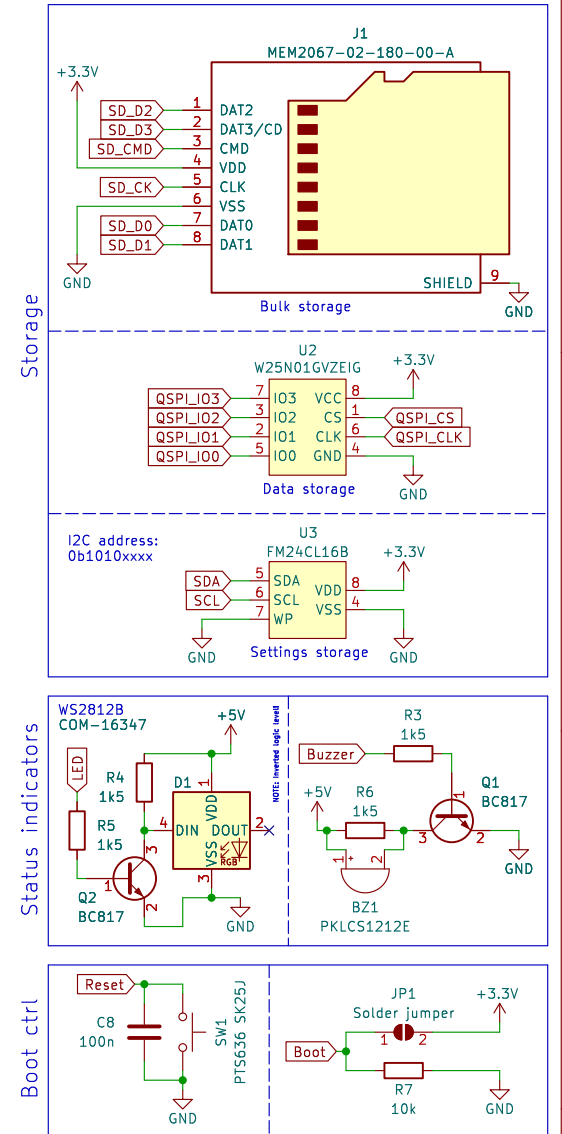
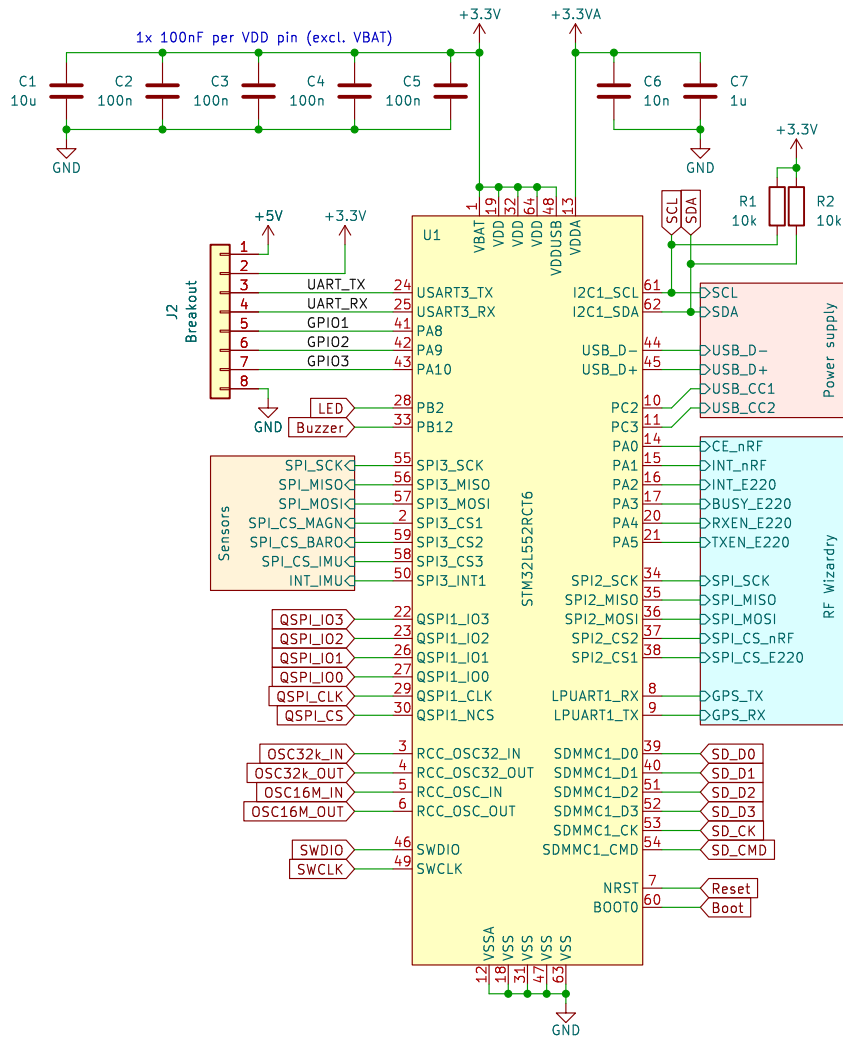


# NOVA

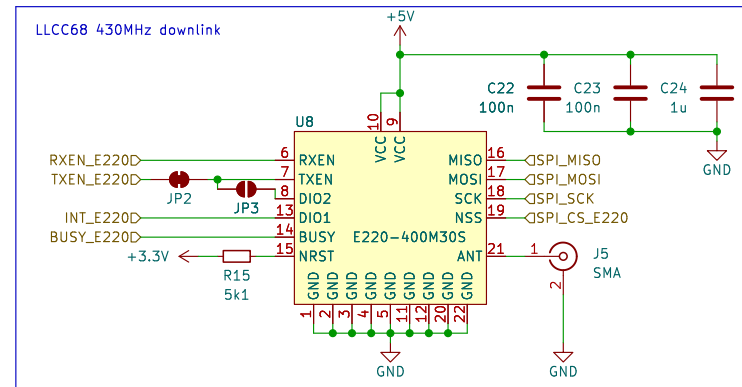
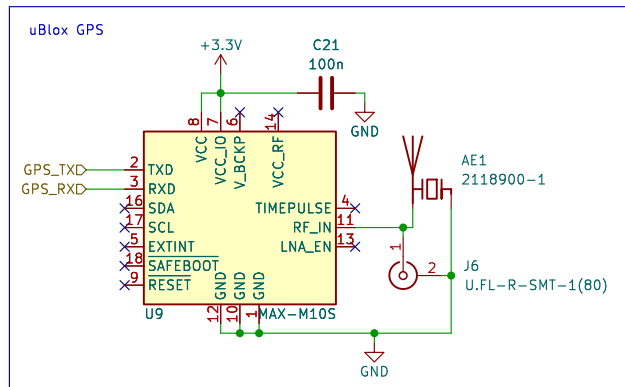
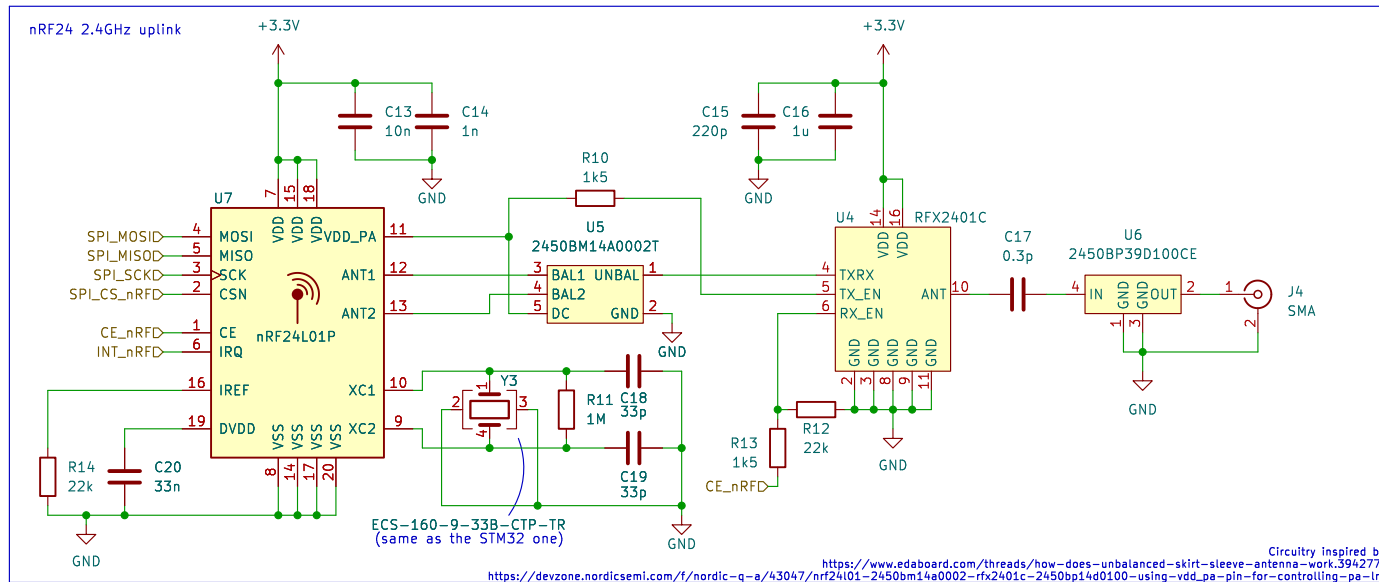
## Flight computer



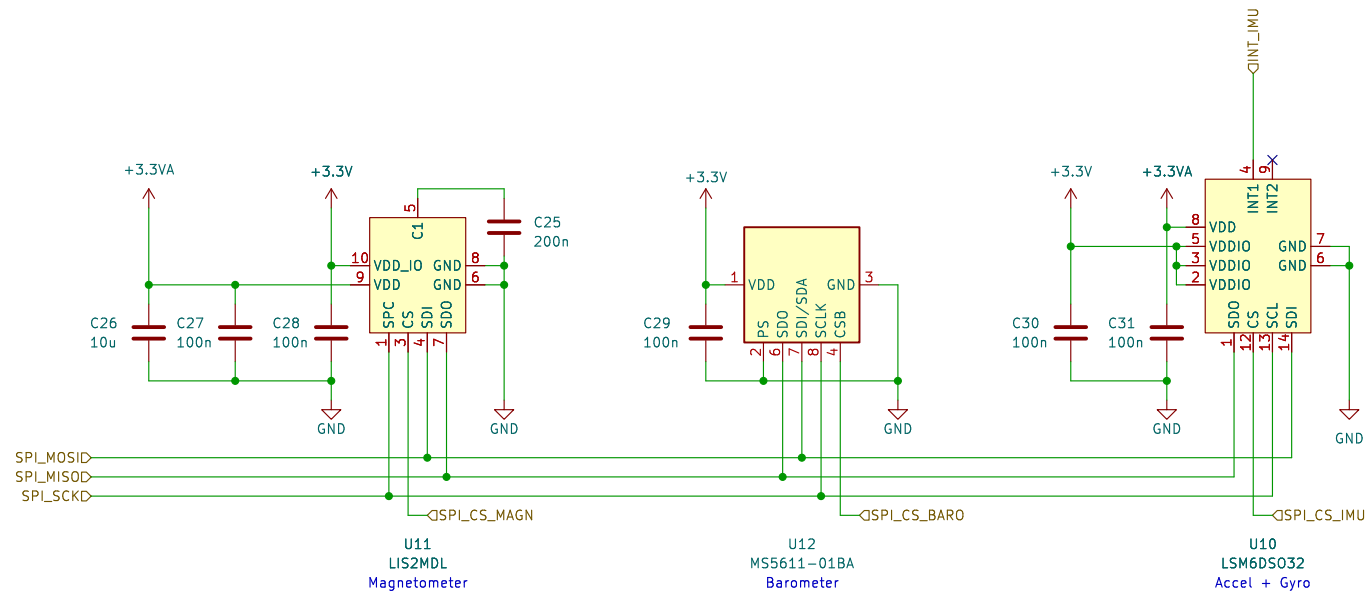
Til Blechschmidt  
**UCD Aerospace Engineering Team**  
 Sheet: /  
 File: Nova.kicad\_sch  
**Title: NOVA Flight computer**  
 Size: A4 Date: 2023-03-22  
 KiCad E.D.A. kicad 7.0.1-0  
 Rev: v0.0.1  
 Id: 1/4

CL = 2 \* (C\_load - C\_stray)  
 C\_stray ~ 3-5pF  
 C\_load = Crystal datasheet

# RF Wizardry



# Sensors



Til Blechschmidt

**UCD Aerospace Engineering Team**

Sheet: /Sensors/

File: Sensors.kicad\_sch

**Title: NOVA Flight computer**

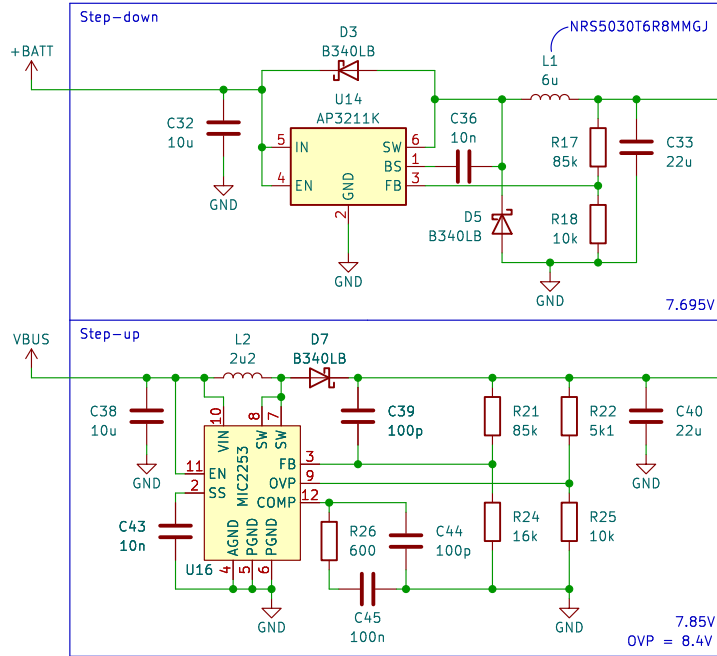
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KiCad E.D.A. kicad 7.0.1-0

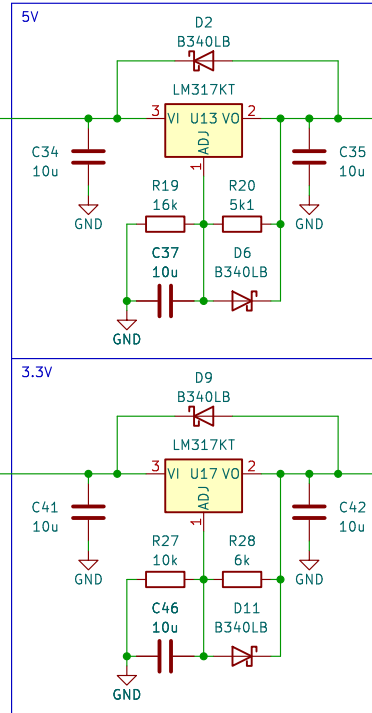
**Rev: v0.0.1**

Id: 3/4

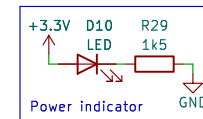
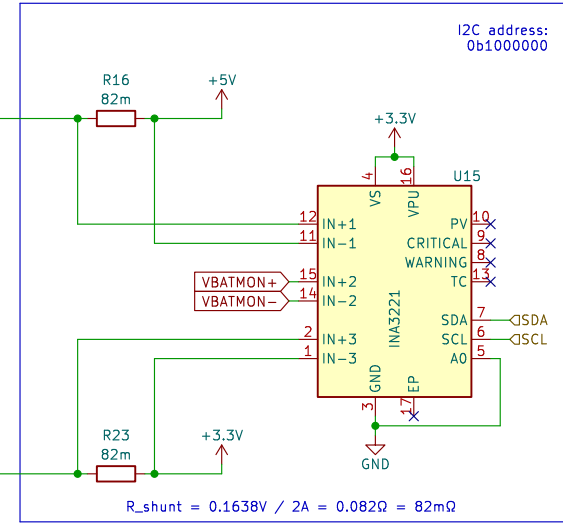
## Switching regulators (7.7V)



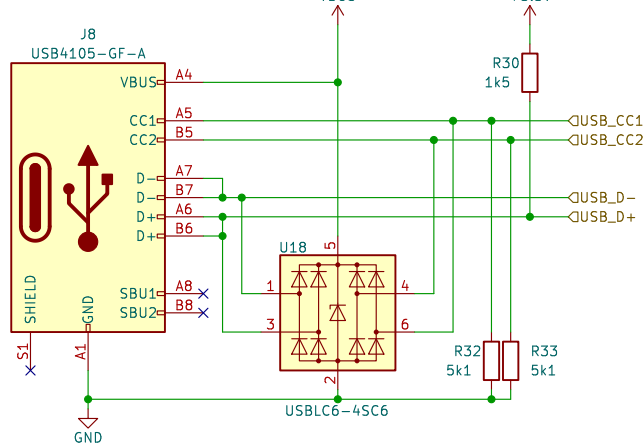
## Linear regulators



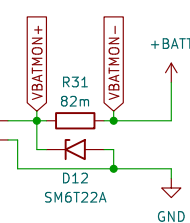
## Bus voltage & current monitoring



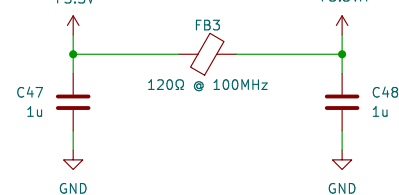
## USB connection (power + data)



## Battery connection



## Analog VDD filtering



# Power supply

Power is sourced from two different inputs: Battery & USB  
Both have wildly different voltages (-12V vs. 5V) and they are outside the range where we could directly use a linear regulator.

A switching power supply is used for each source to reach 7-8V.

After that, linear regulators are used to produce the 5V and 3.3V bus voltages.  
Due to the high current requirements of the RF chips, two per bus are used in parallel.

Finally, a monitoring IC is added to keep tabs on voltage and current.

Til Blechschmidt  
UCD Aerospace Engineering Team

Sheet: /Power supply/  
File: Power.kicad\_sch

**Title: NOVA Flight computer**

Size: A4 Date: 2023-03-22

KiCad E.D.A. kicad 7.0.1-0

Rev: v0.0.1

Id: 4/4

<https://electronics.stackexchange.com/a/327946>  
<https://hackaday.com/2023/01/04/all-about-usb-c-resistors-and-emarkers/>