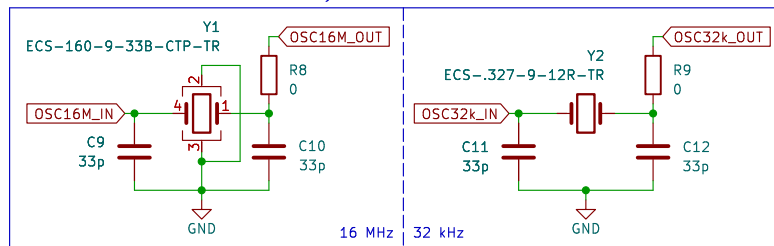
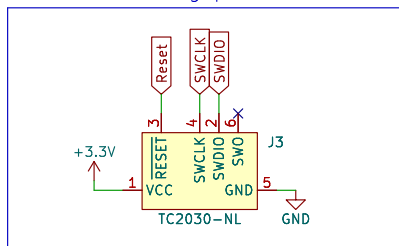
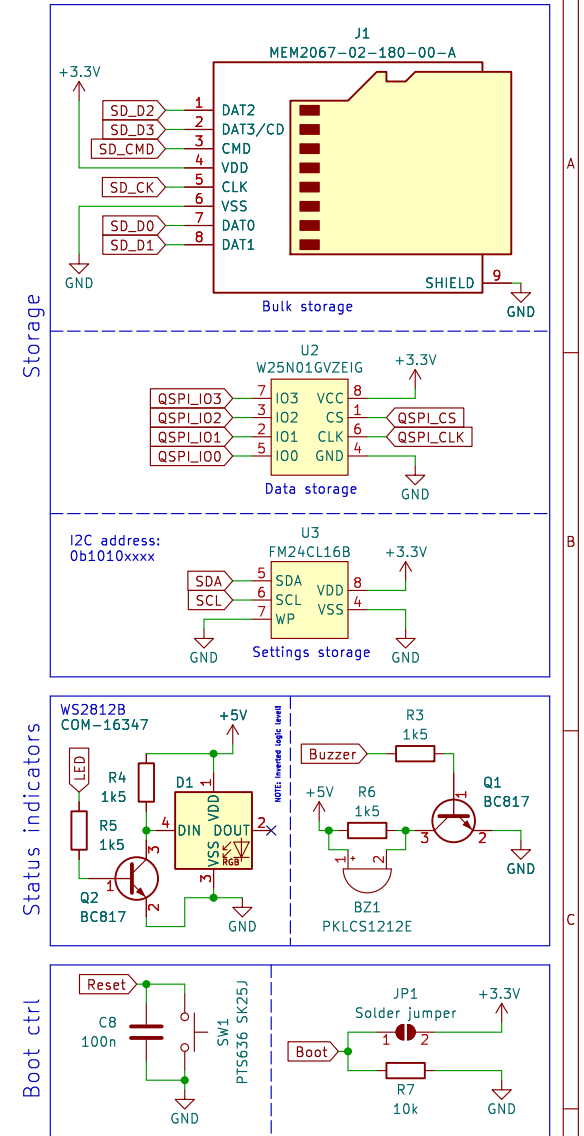
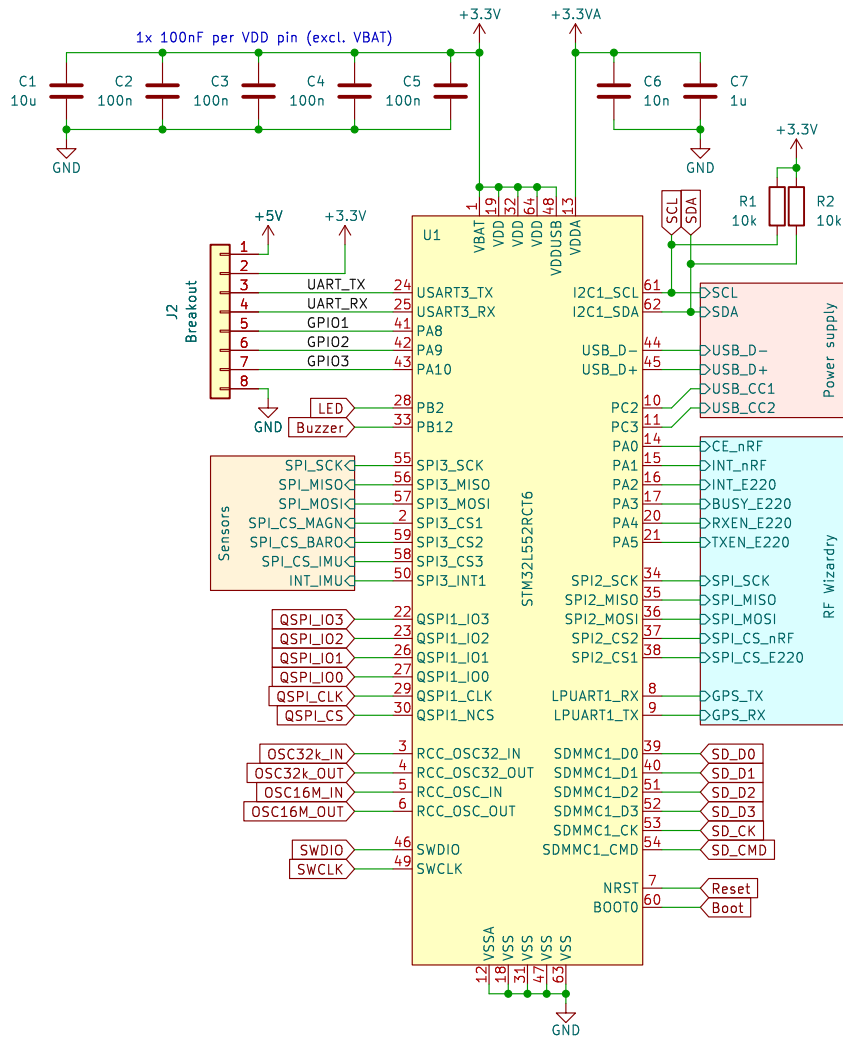


NOVA

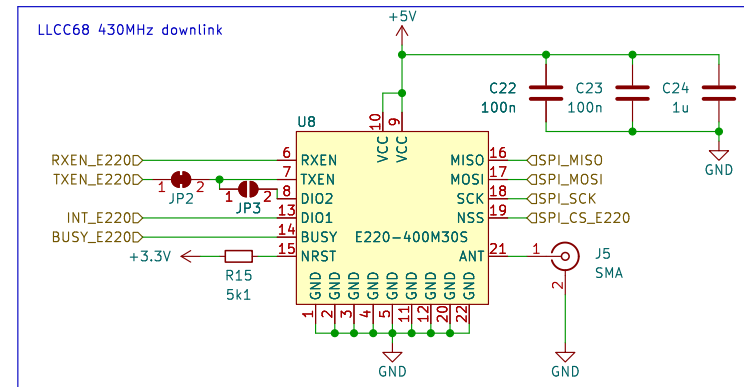
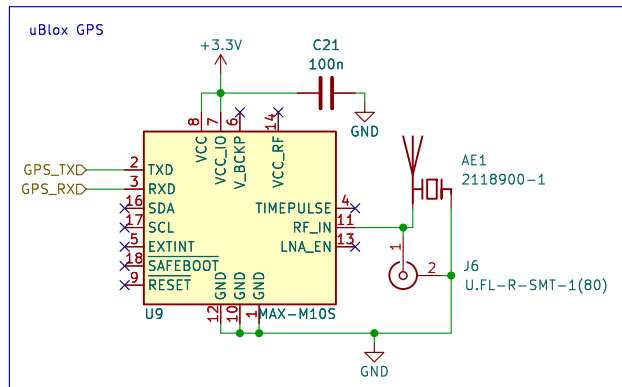
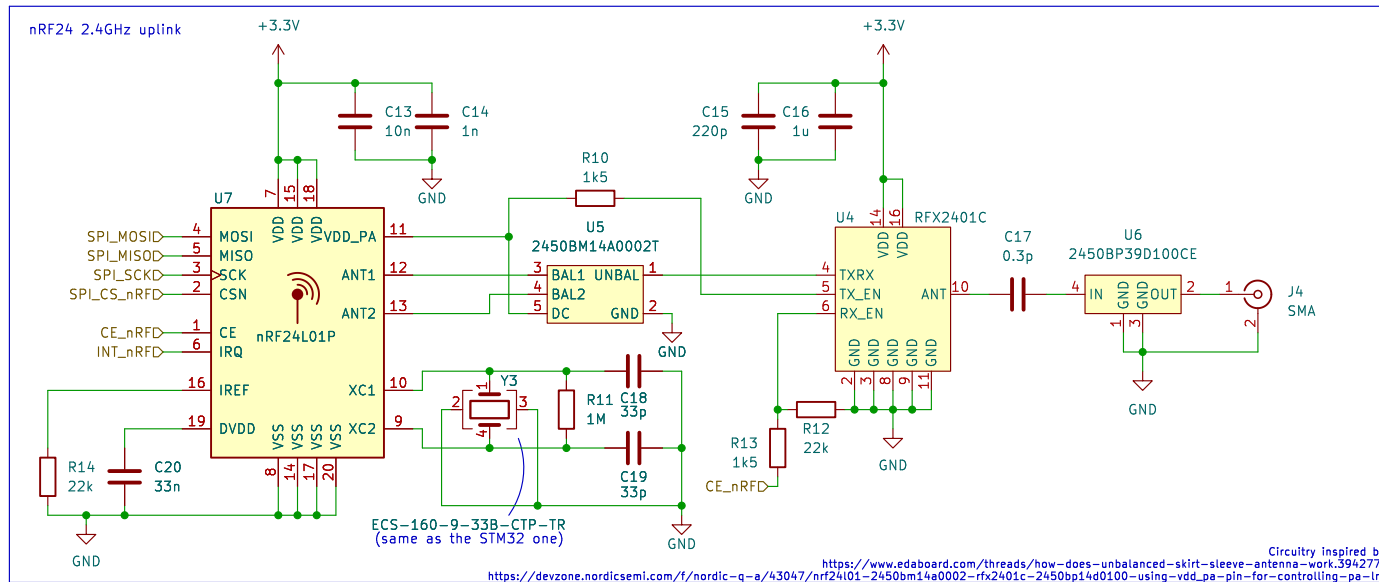
Flight computer



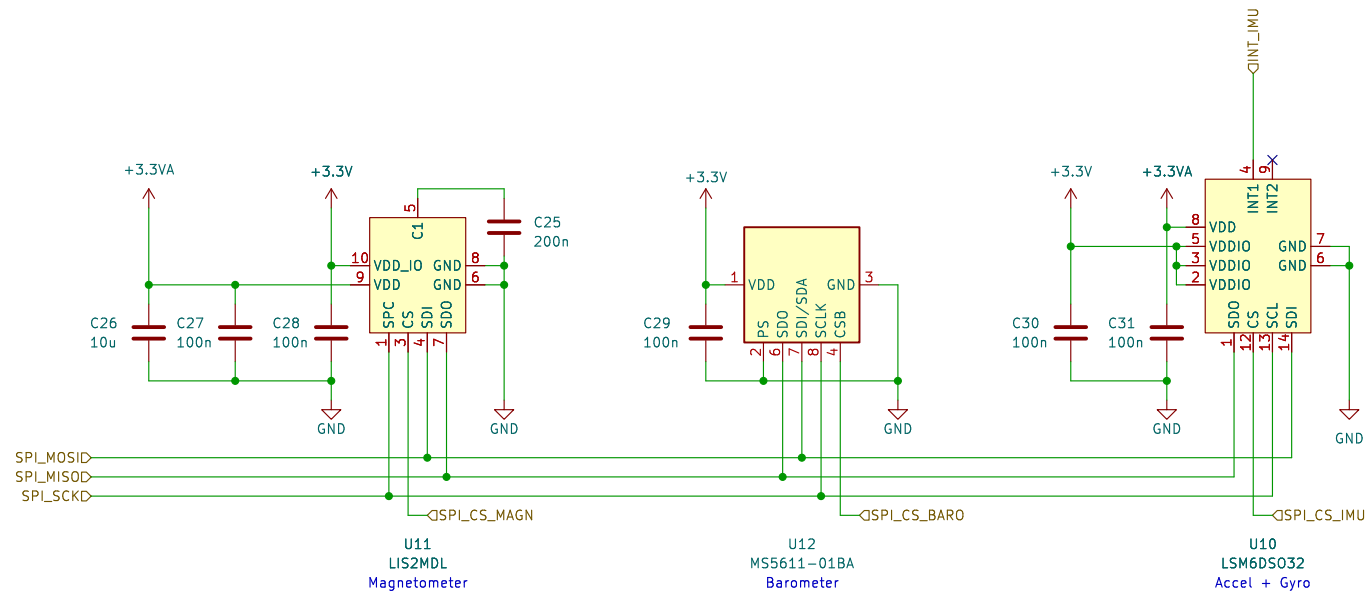
Til Blechschmidt
UCD Aerospace Engineering Team
 Sheet: /
 File: Nova.kicad_sch
Title: NOVA Flight computer
 Size: A4 Date: 2023-03-22
 KiCad E.D.A. kicad 7.0.1-0
 Rev: v0.0.1
 Id: 1/4

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

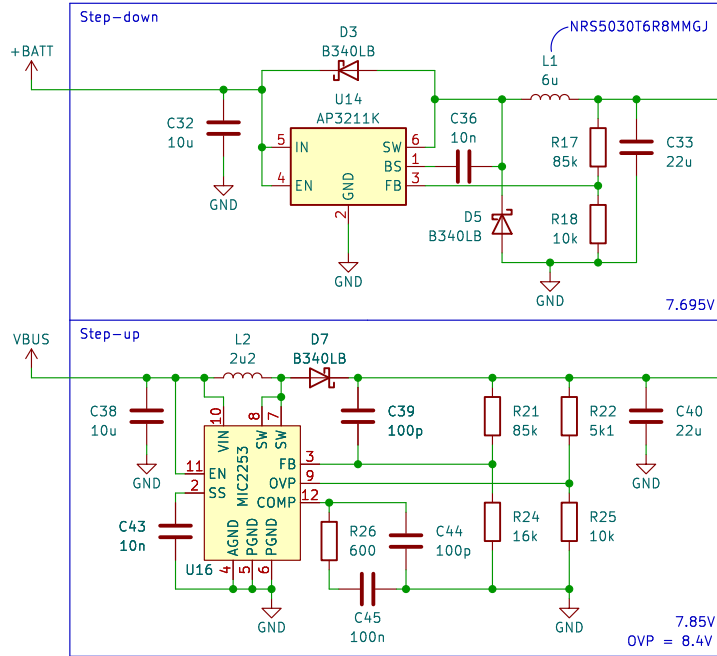
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KiCad E.D.A. kicad 7.0.1-0

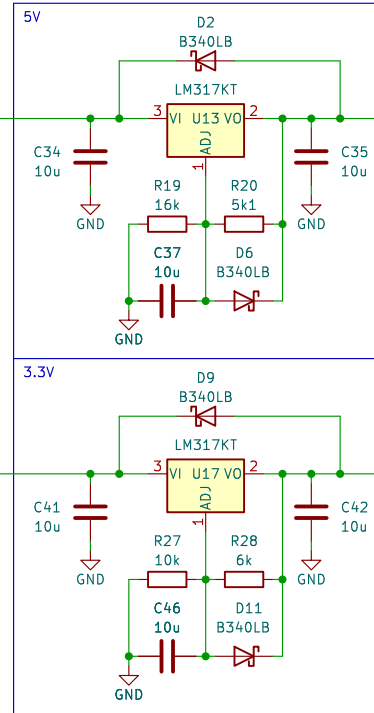
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Id: 3/4

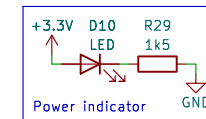
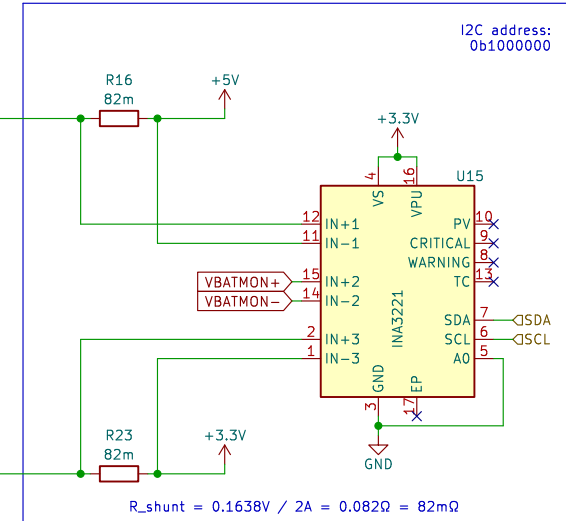
Switching regulators (7.7V)



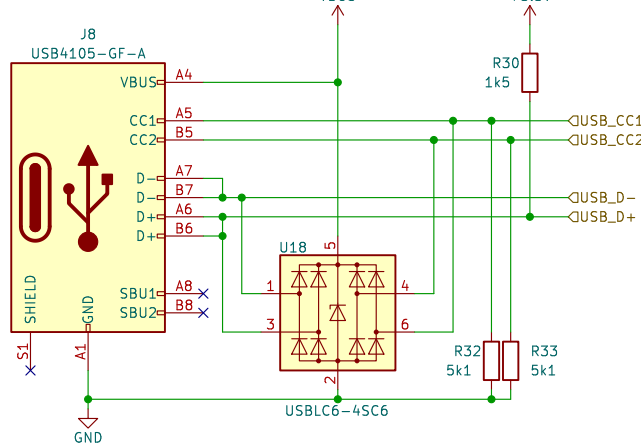
Linear regulators



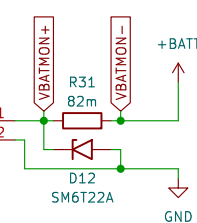
Bus voltage & current monitoring



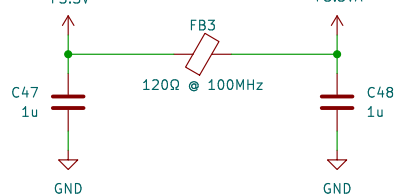
USB connection (power + data)



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/>