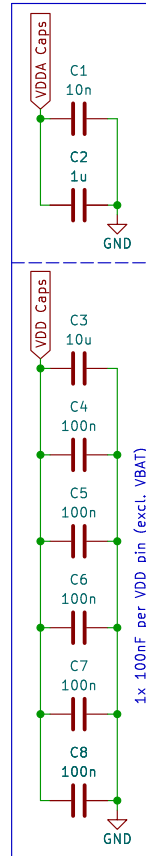


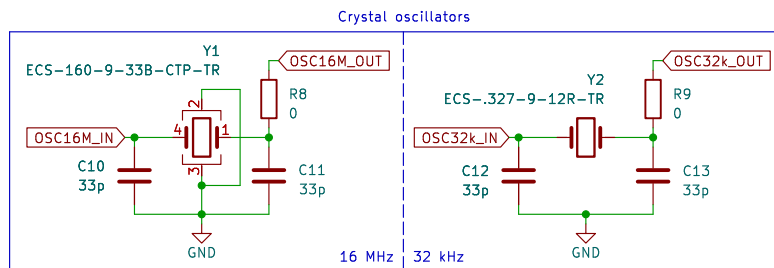
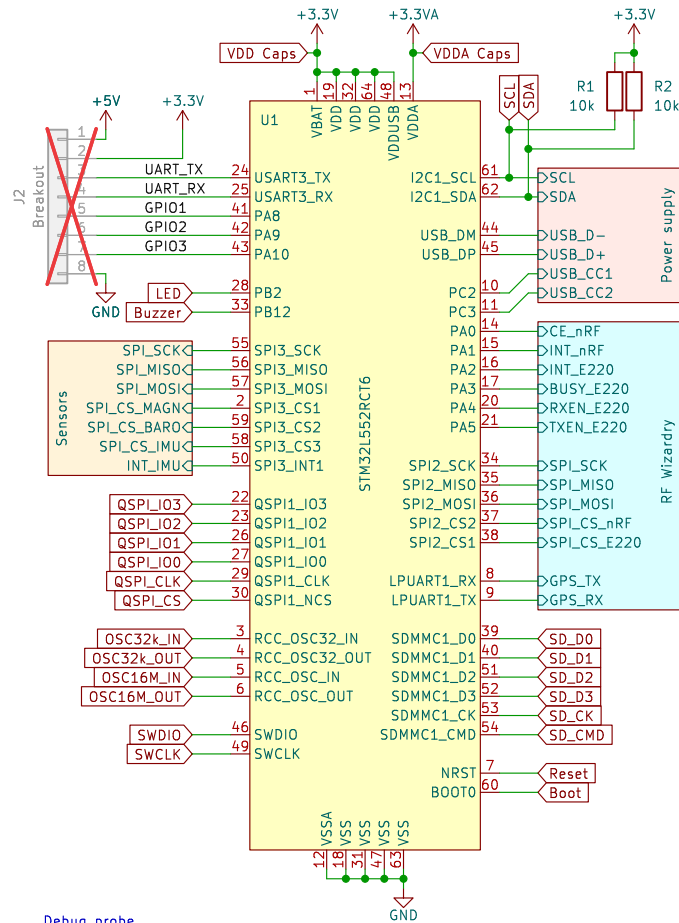
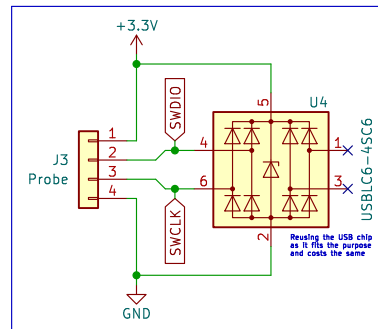
NOVA

Flight computer

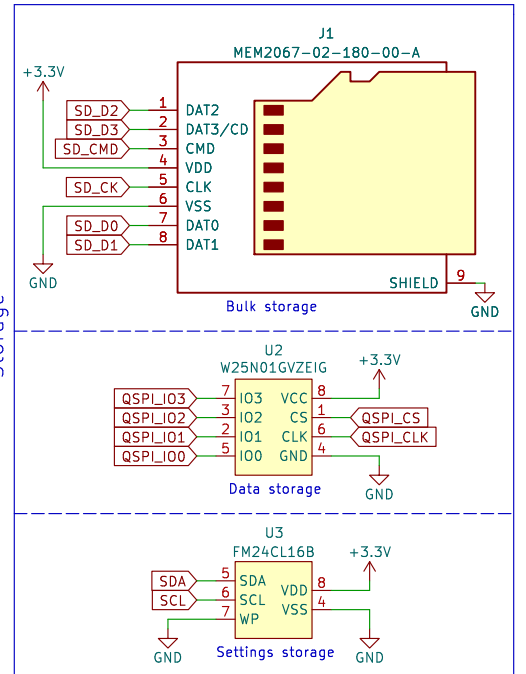
Supply decoupling



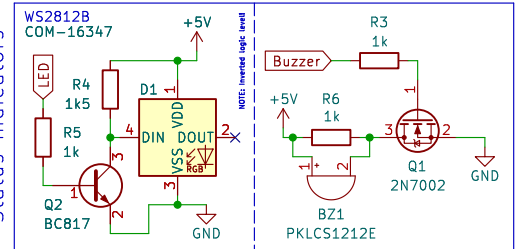
Debug probe



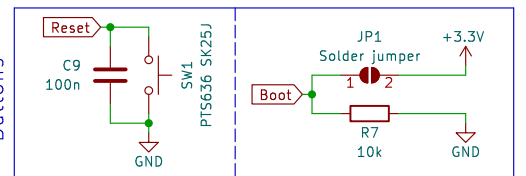
Storage



Status indicators



Buttons



Til Blechschmidt
UCD Aerospace Engineering Team

Sheet: /
File: Nova.kicad_sch

Title: NOVA Flight computer

Size: A4 Date: 2023-03-22

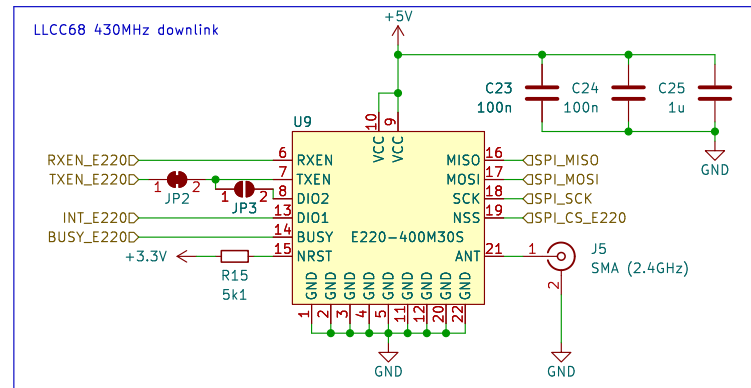
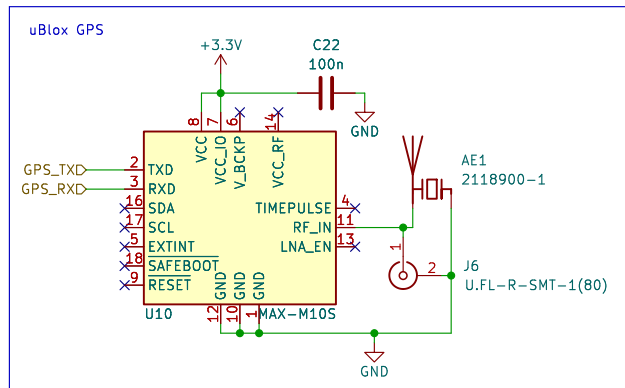
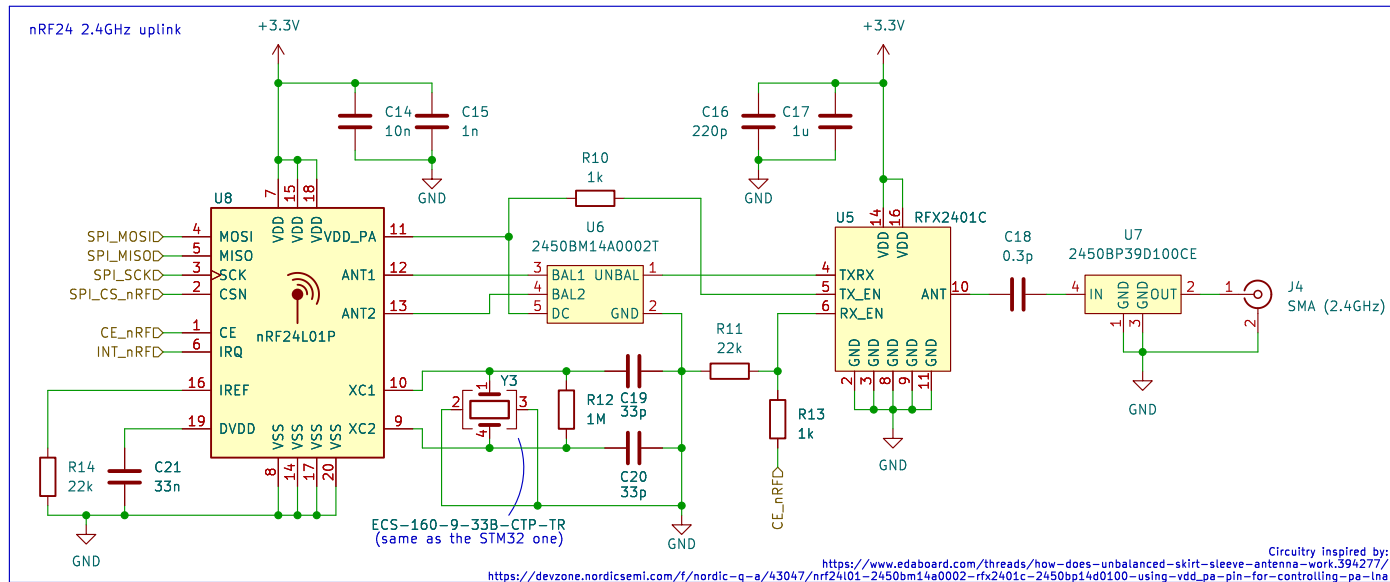
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Rev: v0.0.1

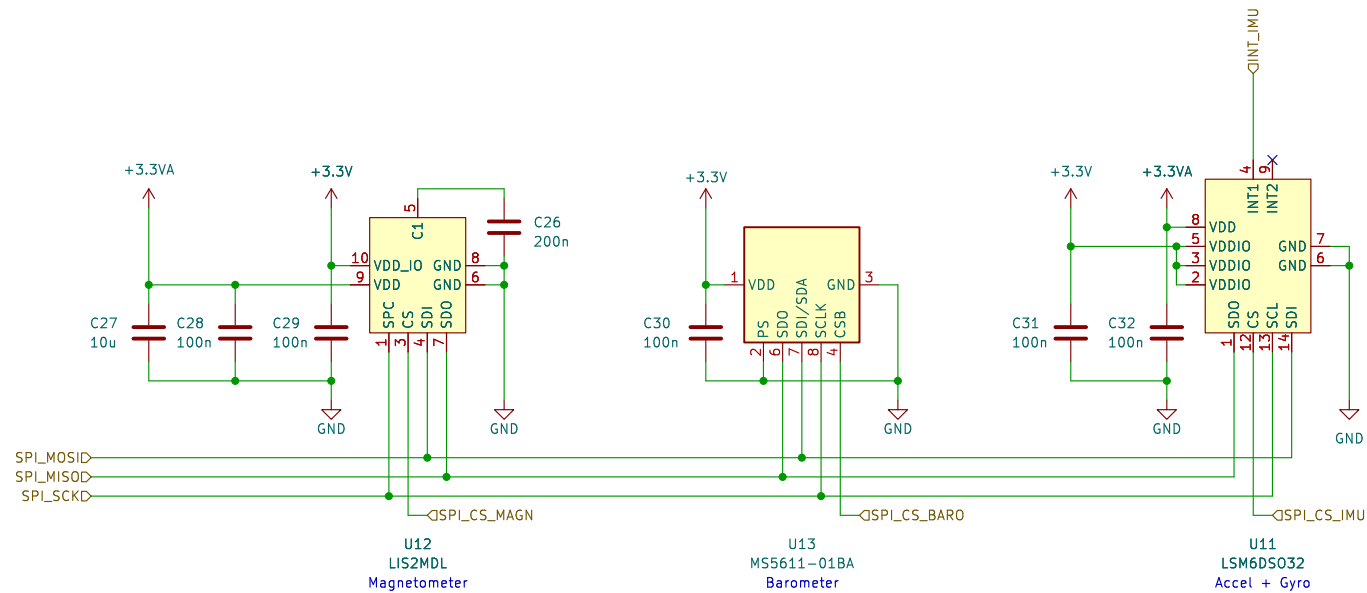
Id: 1/4

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

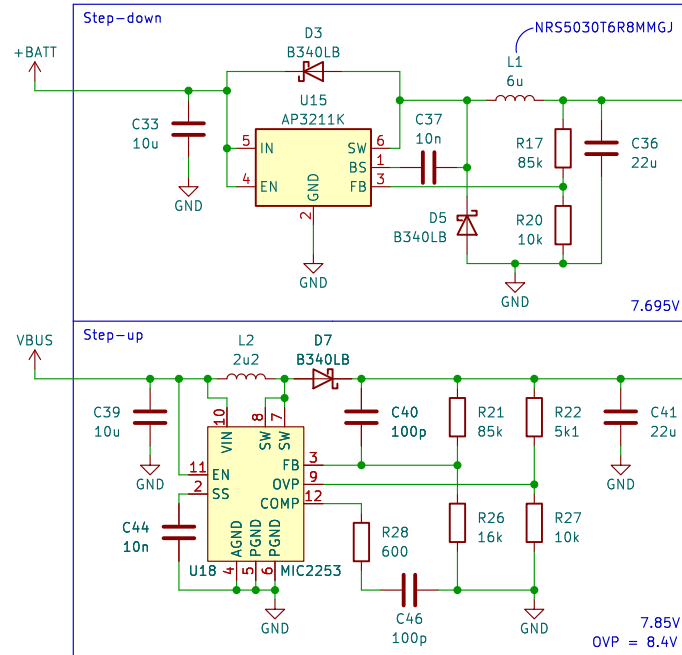
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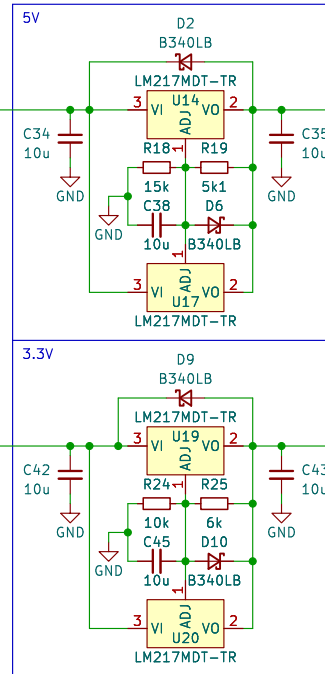
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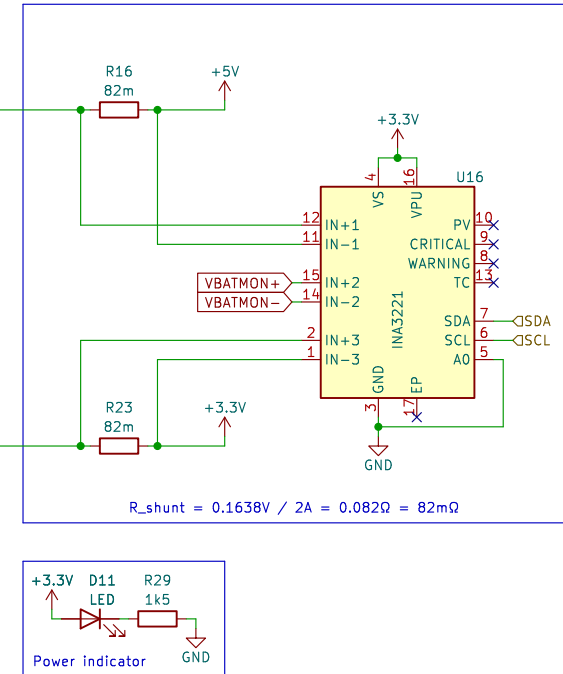
Switching regulators (7.7V)



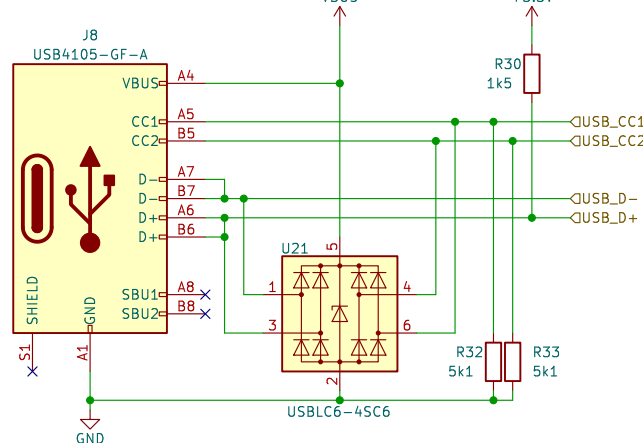
Linear regulators



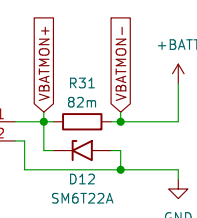
Bus voltage & current monitoring



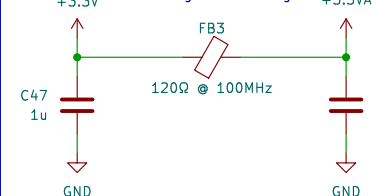
USB connection (power + data)



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.

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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/>