Gravitum Flight Control System

Version 0.1.1

Power_Supply

File: power_supply.kicad_sch

Navigation_Unit

File: navigation_unit.kicad_sch

Navigation_Peripherals

File: navigation_peripherals.kicad_sch

Flight_Control_Unit

File: flight_control_unit.kicad_sch

Flight_Control_Peripherals

File: flight_control_peripherals.kicad_sch

Other_Connections

File: other_connections.kicad_sch

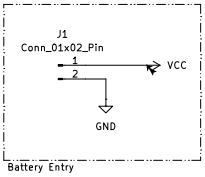
Breno Soares Alves

Sheet: /
File: aircraft.kicad_sch

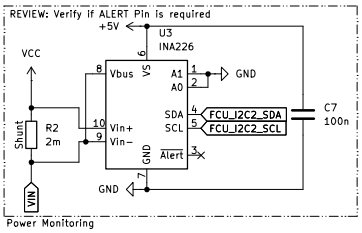
Title: Gravitum Flight Control System

Size: A4	Date:	**Rev: 0.1.0**
KiCad E.D.A. 9.0.6		Id: 1/7

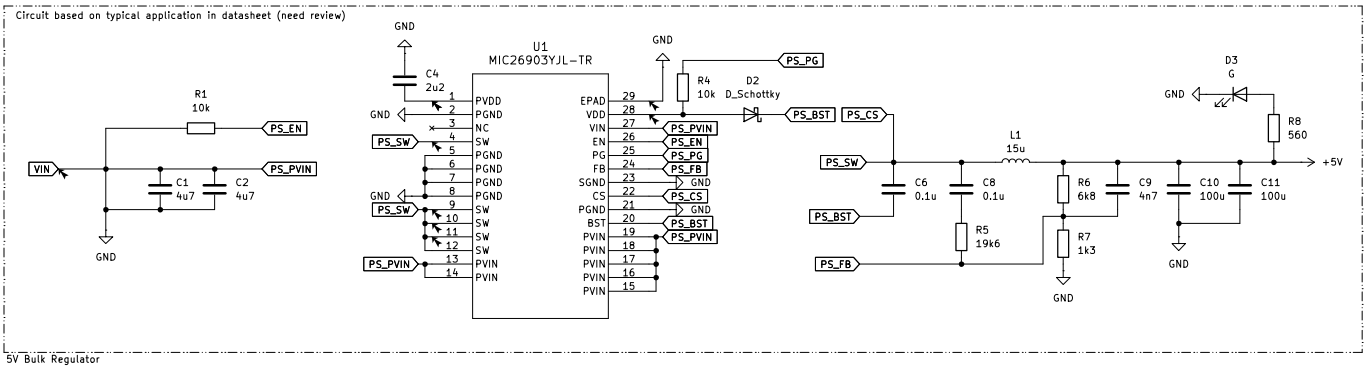
Power Supply



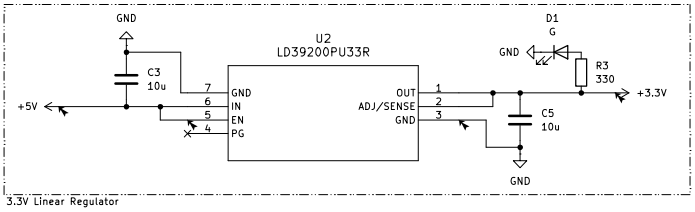
Battery Entry



Power Monitoring



5V Bulk Regulator



3.3V Linear Regulator

Breno Soares Alves		
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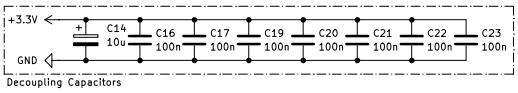
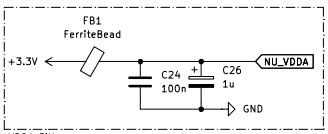
Title: Power Supply		
Size: A4	Date:	**Rev: 0.1.0**
KiCad E.D.A. 9.0.6		Id: 2/7

Navigation Unit

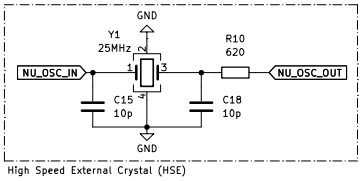
AN4488 – Getting started with STM32F4xxxx MCU hardware development
AN2606 – Introduction to system memory boot mode on STM32 MCUs
AN2867 – Guidelines for oscillator design on STM8AF/AL/S and STM32 MCUs/MPUs



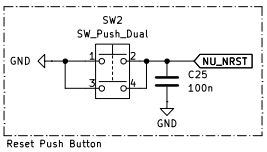
Decoupling Capacitors



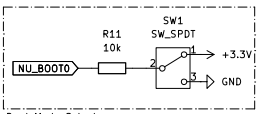
VDDA Filter



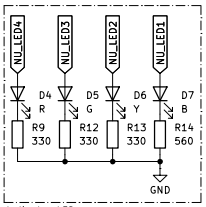
High Speed External Crystal (HSE)



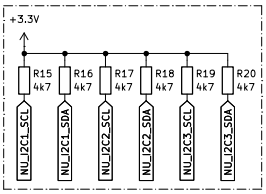
Reset Push Button



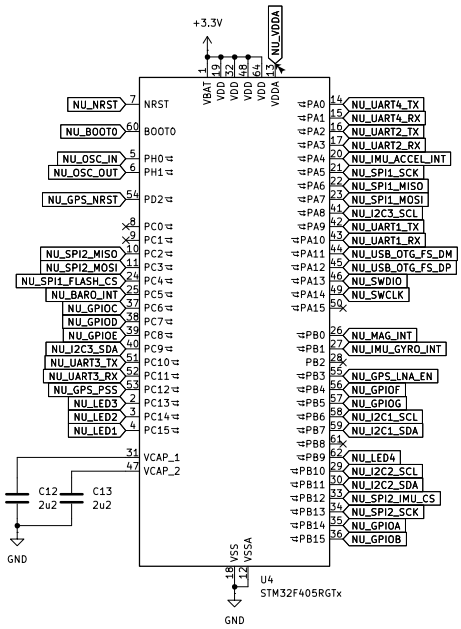
Boot Mode Selector



Indicator LEDs



I2C Pull-ups



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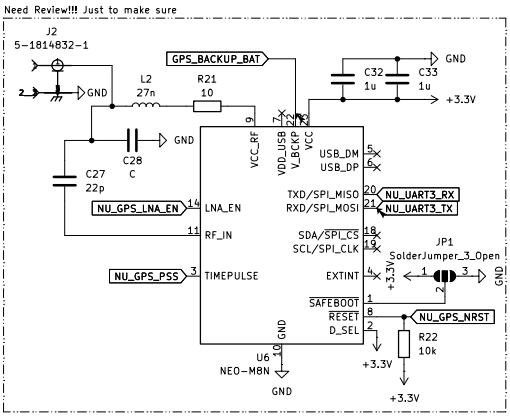
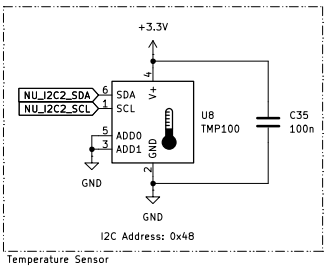
Sheet: /Navigation_Unit/
File: navigation_unit.kicad_sch

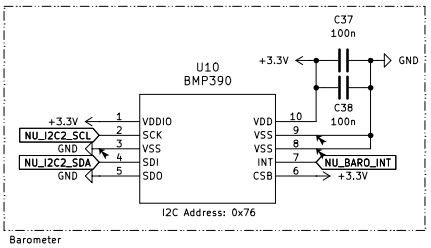
Title: Navigation Unit

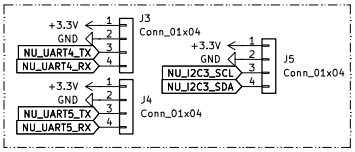
Size: A4	Date:	**Rev: 0.1.0**
KiCad E.D.A. 9.0.6		Id: 3/7

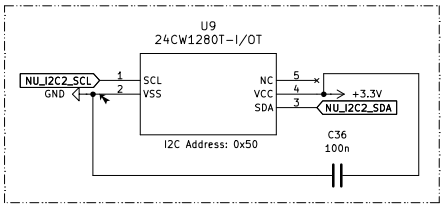
Navigation Unit — Peripherals

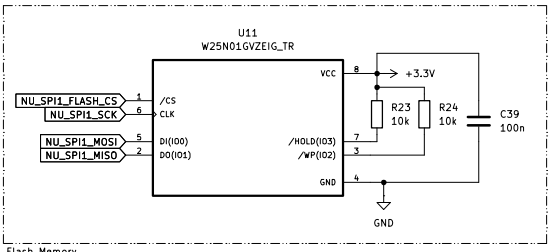


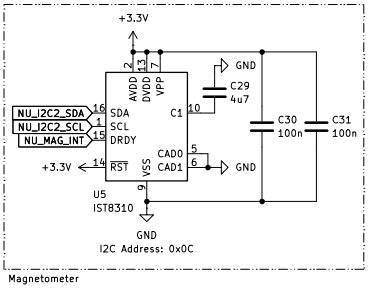


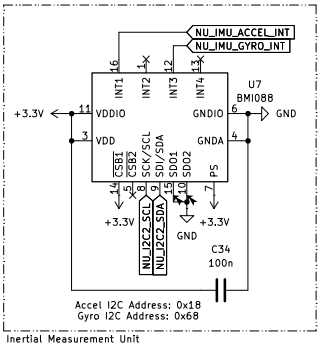












All I2C Address refers to 7-bit

Breno Soares Alves		
Sheet: /Navigation_Peripherals/		
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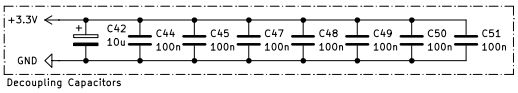
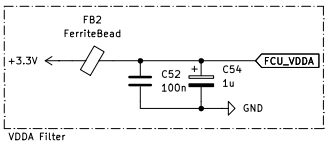
Title: Navigation Unit — Peripherals		
Size: A4	Date:	**Rev: 0.1.0**
KiCad E.D.A. 9.0.6		Id: 4/7

Flight Control Unit

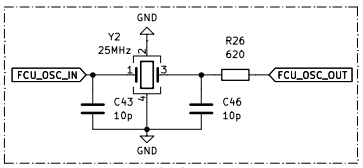
AN4488 – Getting started with STM32F4xxxx MCU hardware development
AN2606 – Introduction to system memory boot mode on STM32 MCUs
AN2867 – Guidelines for oscillator design on STM8AF/AL/S and STM32 MCUs/MPUs



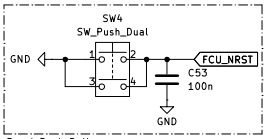
Decoupling Capacitors



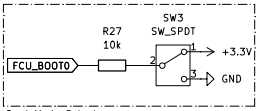
VDDA Filter



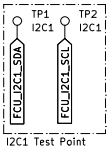
High Speed External Crystal (HSE)



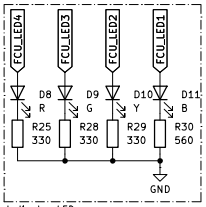
Reset Push Button



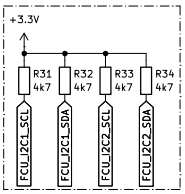
Boot Mode Selector



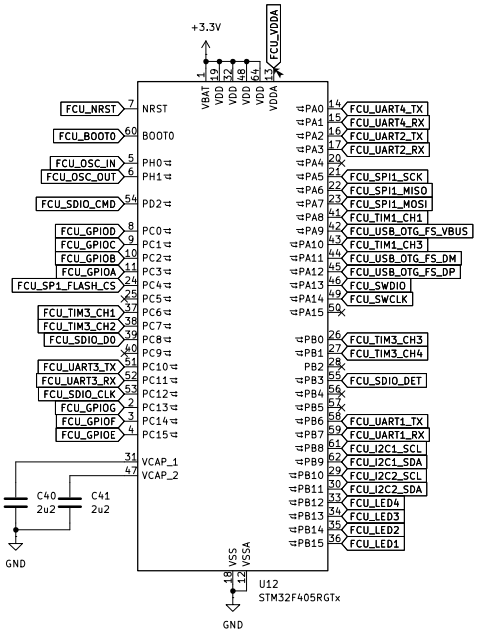
I2C1 Test Point



Indicator LEDs



I2C Pull-ups



Breno Soares Alves

Sheet: /Flight_Control_Unit/		
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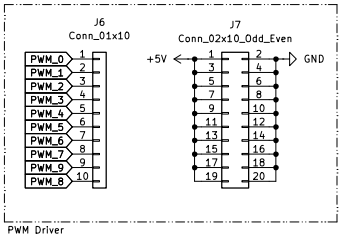
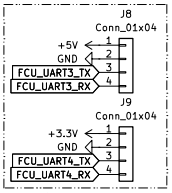
Title: Flight Control Unit		
Size: A4	Date:	**Rev: 0.1.0**
KiCad E.D.A. 9.0.6		Id: 5/7

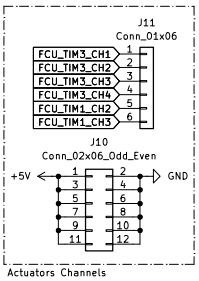
Flight Control Unit — Peripherals



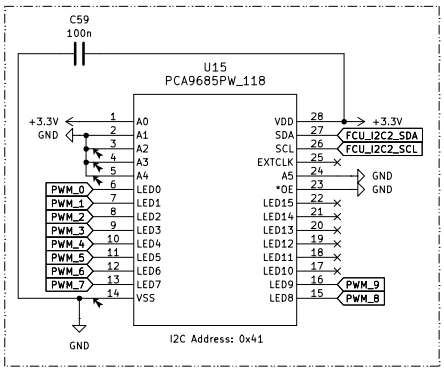
PWM Driver



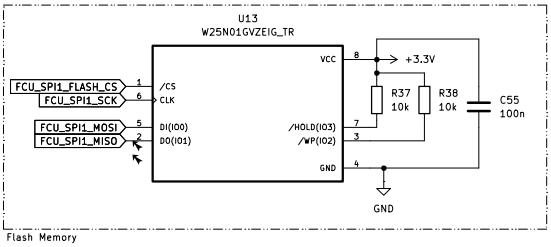
Radio / Camera Connectors



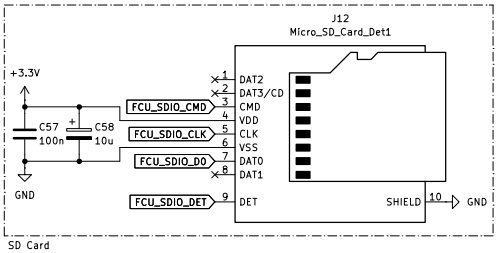
Actuators Channels



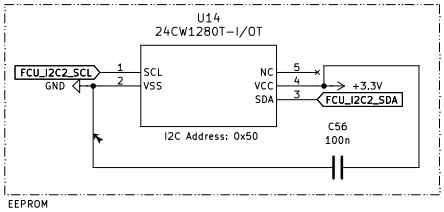
PWM Driver



Flash Memory



SD Card



EEPROM

Breno Soares Alves		
Sheet: /Flight_Control_Peripherals/		
File: flight_control_peripherals.kicad_sch		
Title: Flight Control Unit — Peripherals		
Size: A4	Date:	**Rev: 0.1.0**
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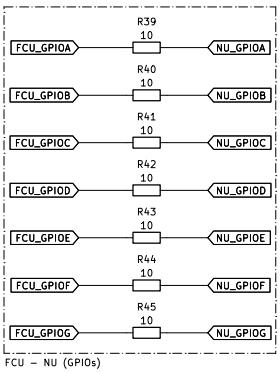
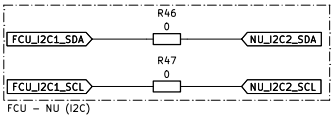
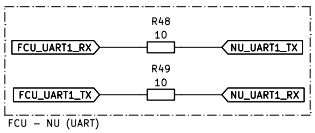
Other Connections



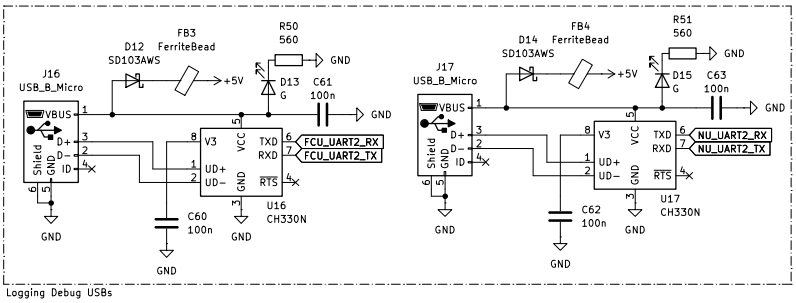
FCU - NU (GPIOs)



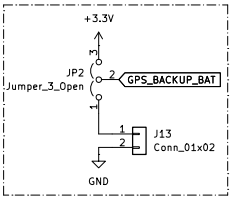
FCU - NU (I2C)



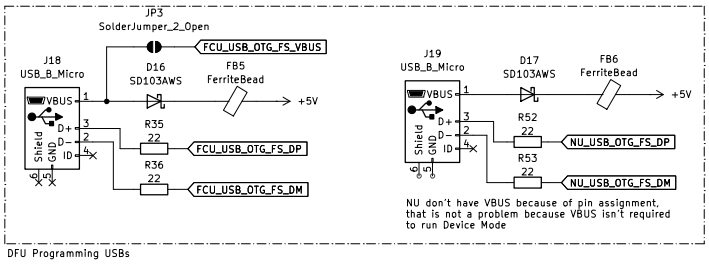
FCU - NU (UART)



Logging Debug USBs

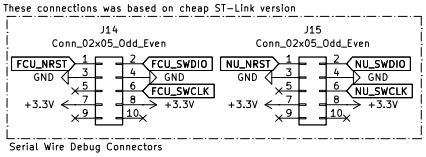


GPS Battery Backup



DFU Programming USBs

These connections was based on cheap ST-Link version



Serial Wire Debug Connectors

Breno Soares Alves

Sheet: /Other_Connections/
File: other_connections.kicad_sch

Title: Other Connections

Size: A4	Date:	**Rev: 0.1.0**
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