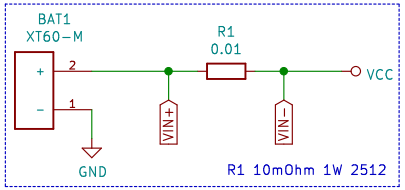
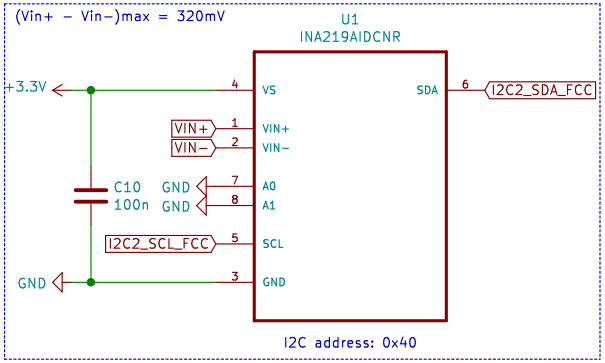
Power

Maximum input voltage: 26V

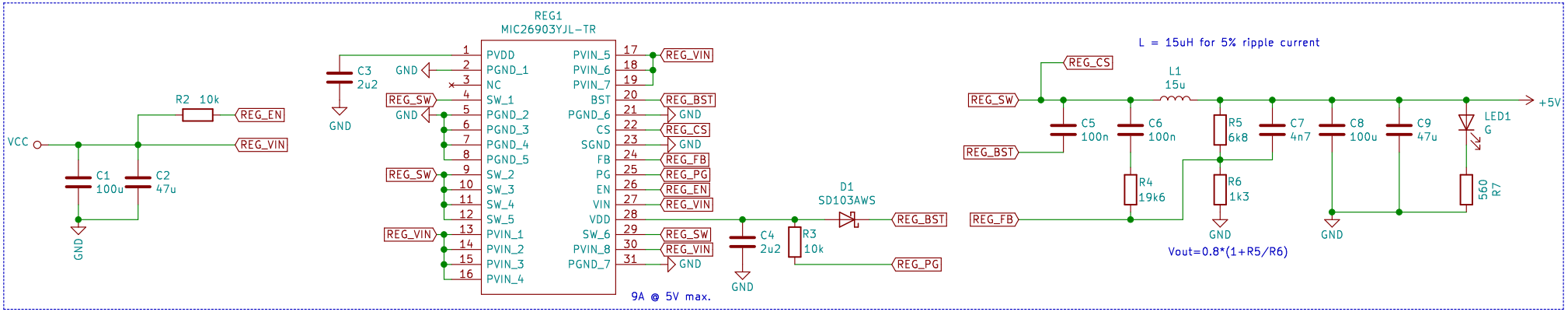


Battery Input and
Current Sense Resistor

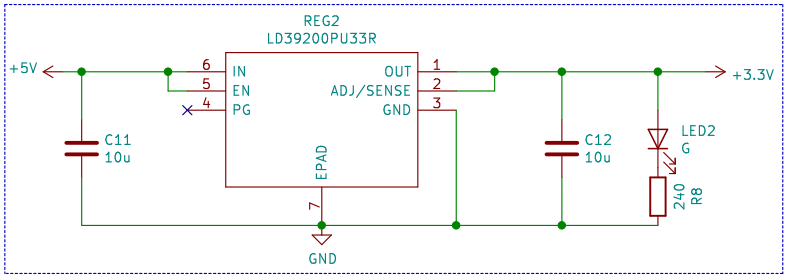


Voltage/Current/Power Sense IC

C1, C8 are Al Electrolytics
C2, C9 are 1210 ceramics
C1, C2 rated at >= 35V



Keep SGND and PGND separate - connect only at one location!



3.3V 2A Regulator (MCUs and Sensors)

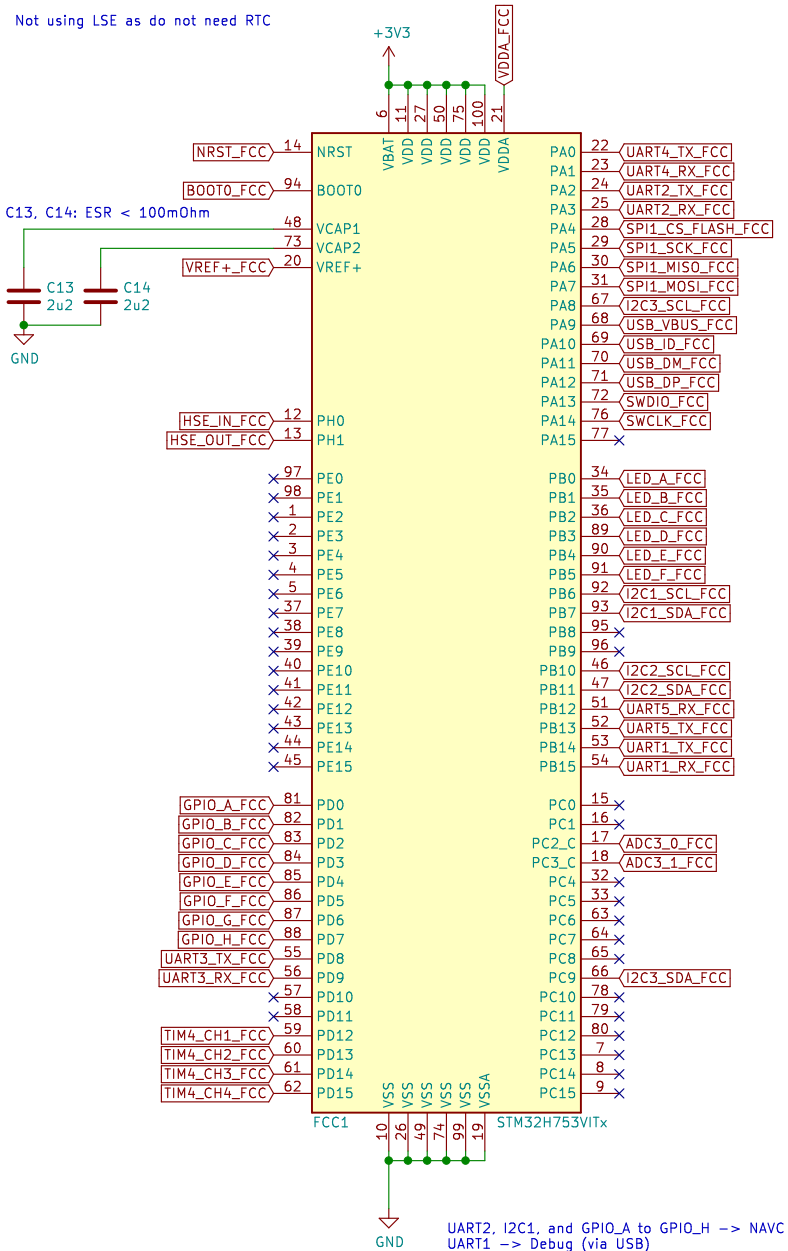
Philip M. Salmony		
Sheet: /		
File: Hades.sch		
Title: Power		
Size: A4	Date: 2019-10-27	**Rev: 0.1**
KiCad E.D.A. kicad (5.1.5)-3		Id: 1/6

Flight Control Computer (FCC)

STM32H7: see AN4938

Not using LSE as do not need RTC

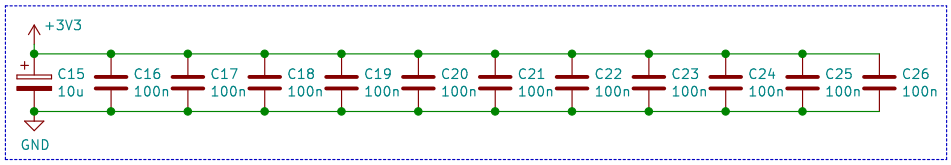
C13, C14: ESR < 100mOhm



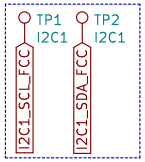
UART2, I2C1, and GPIO_A to GPIO_H -> NAVC
UART1 -> Debug (via USB)
TIM4 -> PWM/PPM input

AN2606 (Bootloaders): USART1 Bootloader (PB14/PB15)

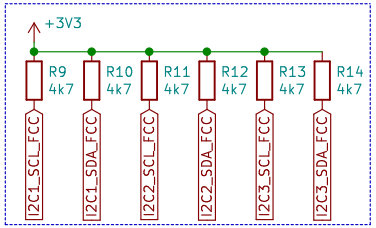
C15, C27, C29 Tantalum



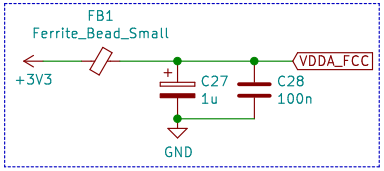
Decoupling Capactors



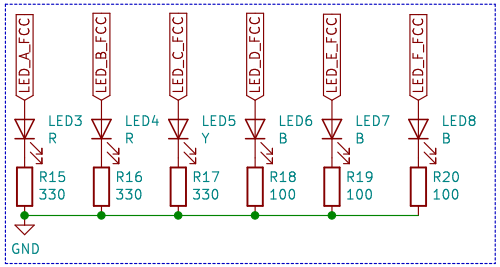
Test Points (I2C2)



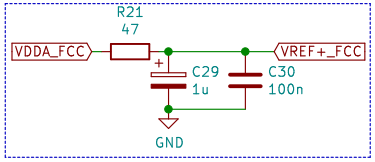
I2C Pull-Up Resistors



VDDA Filter

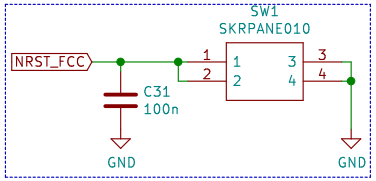


Indicator LEDs



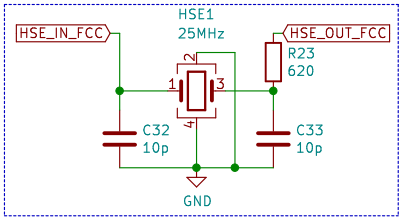
VREF+ Filter

STM32H7 has internal NRST pull-up resistor (40k)



Reset Switch

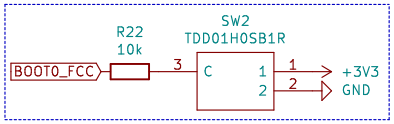
ABM8G-25.000MHZ-4Y-T3



High Speed External Crystal

C32 = C33 = 2 * (CL - Cstray) Rext = 1/(2*pi*f*CL2)
Cstray = {2pF, 5pf}

TDD01H0SB1R = SPDT



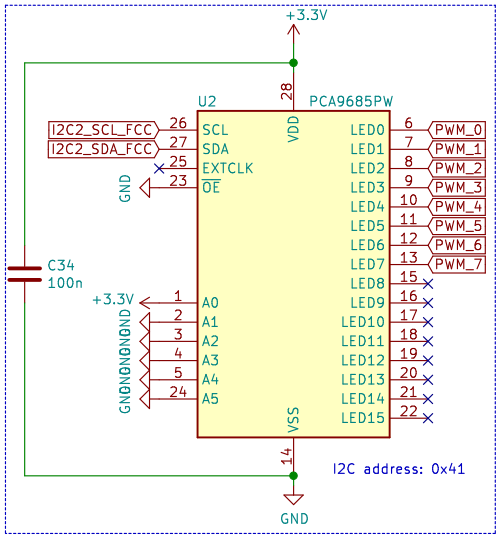
Bootmode Switch

Sheet: /FlightControlComputer/
File: FCC.sch

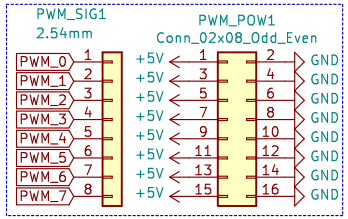
Title: Flight Control Computer

Size: A4	Date: 2019-10-27	**Rev: 0.1**
KiCad E.D.A. kicad (5.1.5)-3		Id: 2/6

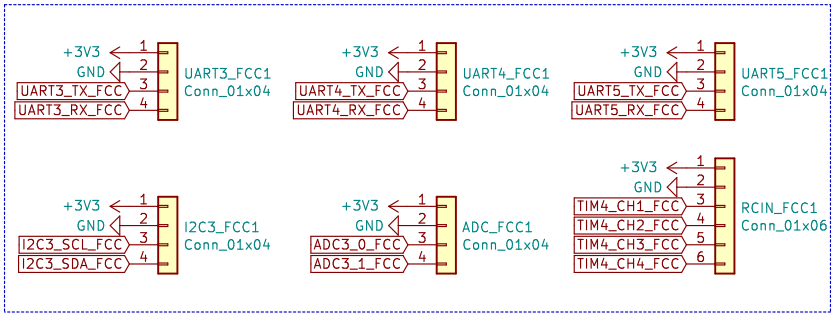
FCC Peripherals



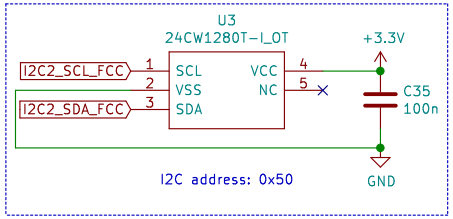
PWM Driver



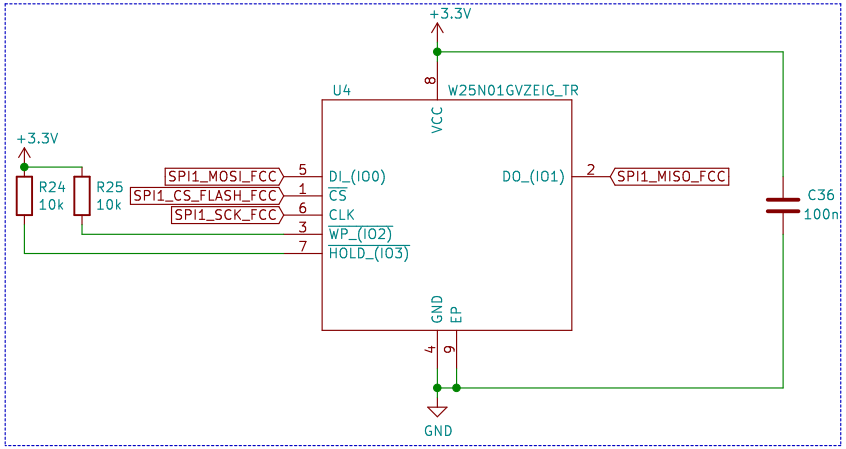
Servo Connector
(3 Rows, 8 Cols, 2.54mm Pitch)



Board To Wire Connectors
(Molex PicoBlade)



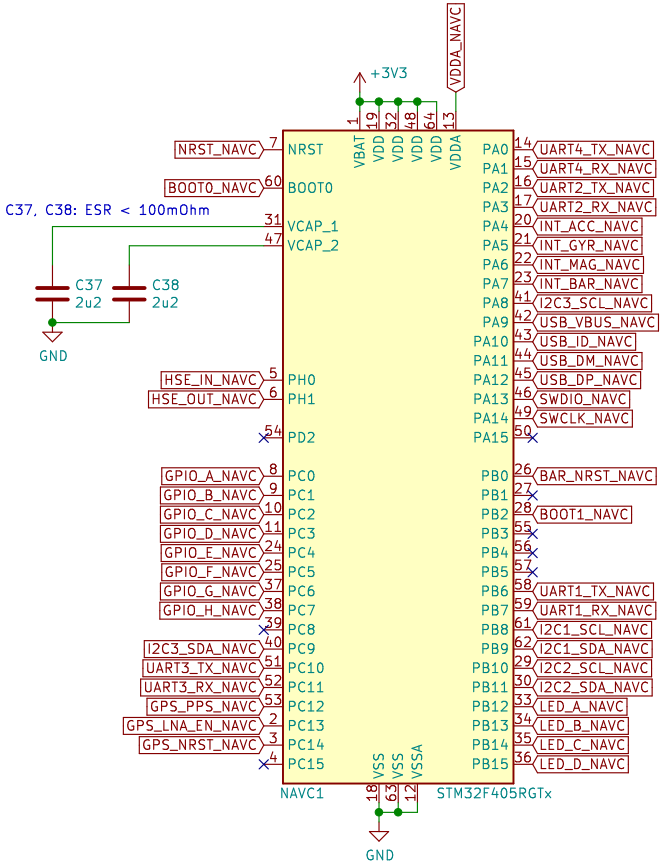
EEPROM



FLASH Memory

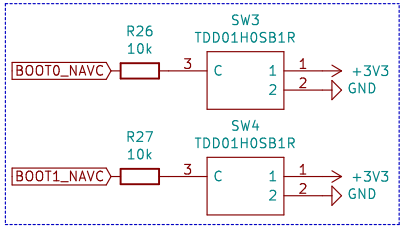
Sheet: /FCCPeripherals/		
File: FCCPeripherals.sch		
Title: FCC Peripherals		
Size: A4	Date: 2019-10-27	**Rev: 0.1**
KiCad E.D.A. kicad (5.1.5)-3		Id: 3/6

Navigation Computer (NAVC)



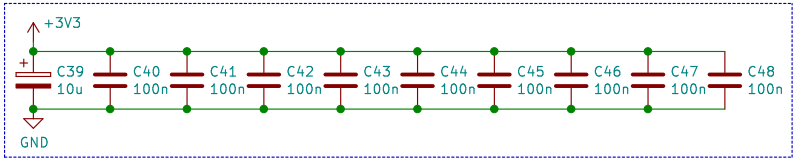
UART2, I2C2, and GPIO_A to GPIO_H -> FCC
UART3 -> Debug (via USB)

AN2606 (Bootloaders): USART3 Bootloader PC10/PC11



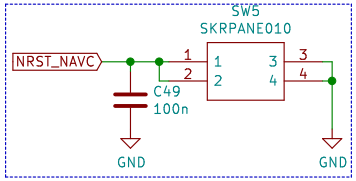
Bootmode Switches

C39, C50 Tantalum

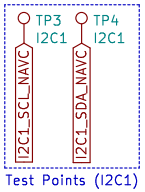


Decoupling Capactors

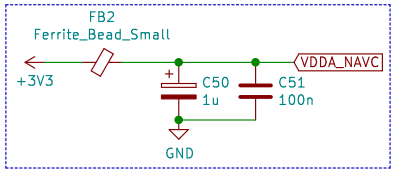
STM32F4 has internal
NRST pull-up resistor (40k)



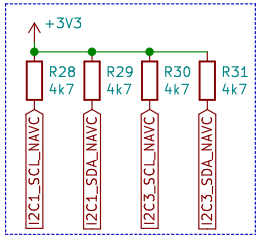
Reset Switch



Test Points (I2C1)



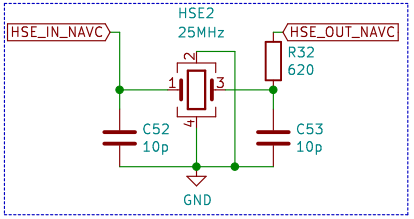
VDDA Filter



I2C Pull-Up Resistors

I2C2_NAVC already pulled up by I2C1_FCC resistors!

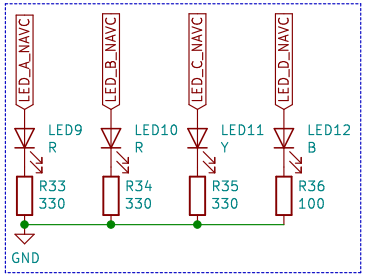
ABM8G-25.000MHZ-4Y-T3



High Speed External Crystal

C52 = C53 = 2 * (CL - Cstray)
Cstray = {2pF, 5pf}

Rext = 1/(2*pi*f*CL2)



Indicator LEDs

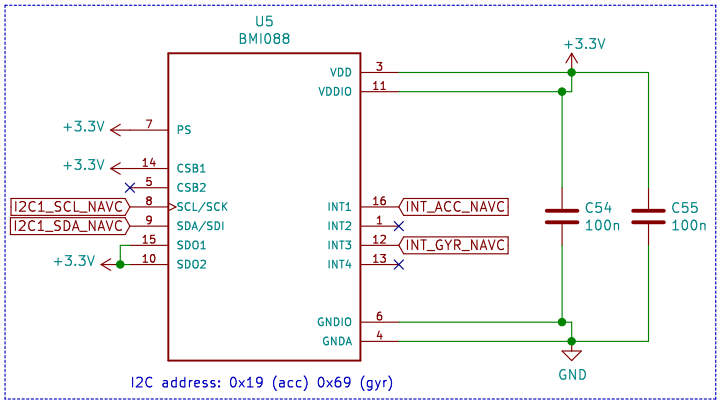
Sheet: /NavigationComputer/
File: NAVC.sch

Title: Navigation Computer

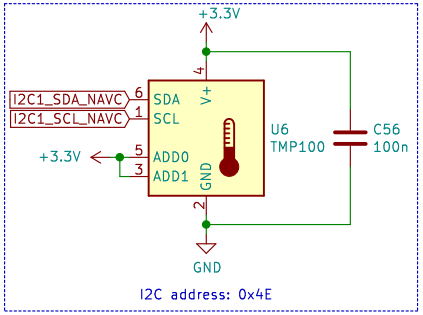
Size: A4	Date: 2019-10-27	**Rev: 0.1**
KiCad E.D.A. kicad (5.1.5)-3		Id: 4/6

NAVC Peripherals

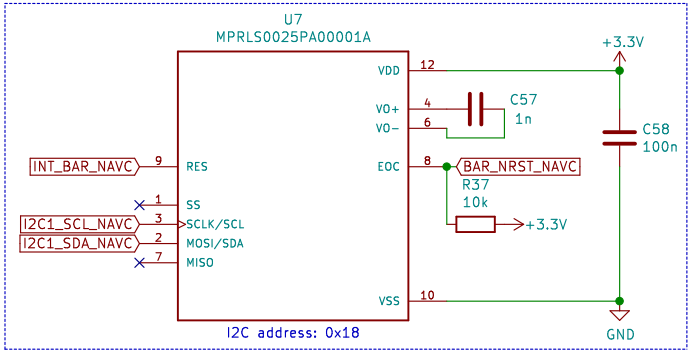
RESET AND INTERRUPT PINS ARE MIXED UP!!!!!



Inertial Measurement Unit (Accelerometer + Gyroscope)

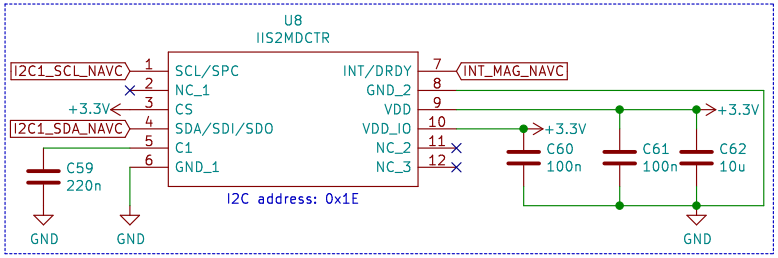


Temperature Sensor

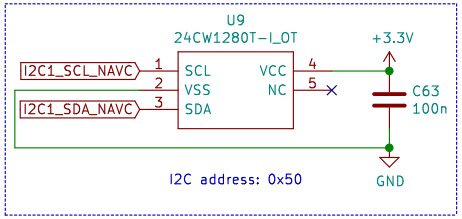


Absolute Pressure Sensor

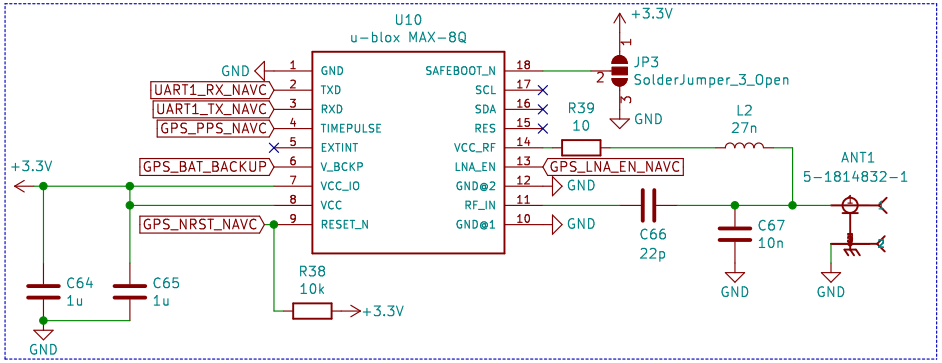
C59 ESR < 200mOhm



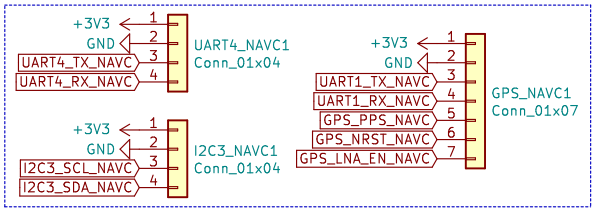
Magnetometer



EEPROM



GPS Receiver and SMA Antenna Connector



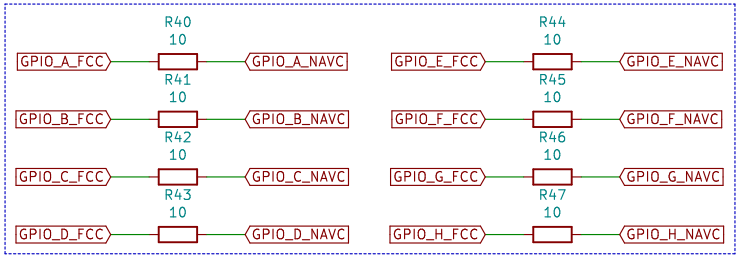
Board To Wire Connectors
(Molex PicoBlade)

Sheet: /NAVCPeripherals/
File: NAVCPeripherals.sch

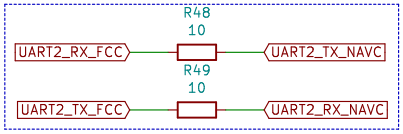
Title: NAVC Peripherals

Size: A4	Date: 2019-10-27	**Rev: 0.1**
KiCad E.D.A. kicad (5.1.5)-3		Id: 5/6

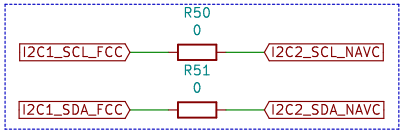
Connections (FCC <-> NAVC)



GPIO Connections

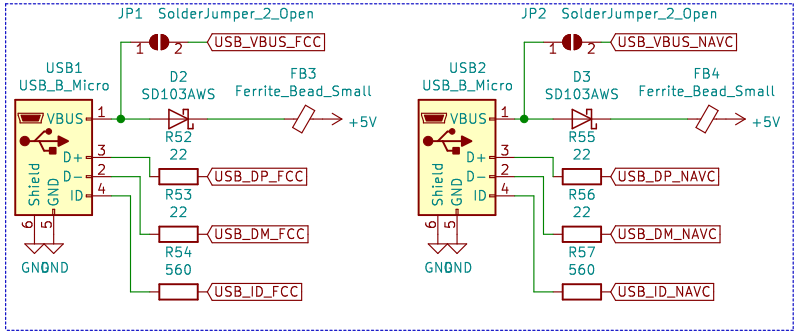


UART Connections

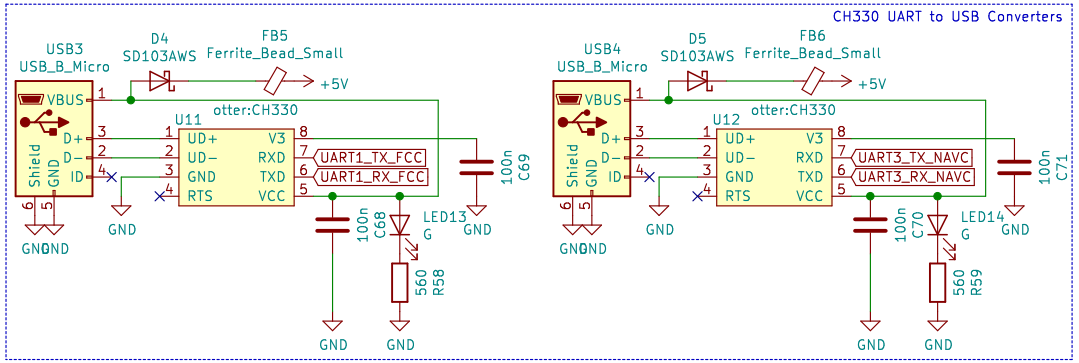


I2C Connections

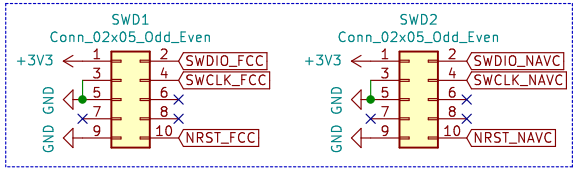
Connectors (Programming & Debug)



USB Programming



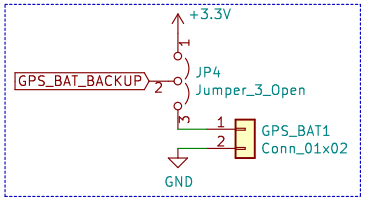
USB Debug



Serial Wire Debug

Connector: M50-3600542R

GPS Backup Battery



GPS Backup Battery Jumper and Connector

Sheet: /Connections/		
File: Connections.sch		
Title: Connections		
Size: A4	Date: 2019-10-27	**Rev: 0.1**
KiCad E.D.A. kicad (5.1.5)-3		Id: 6/6