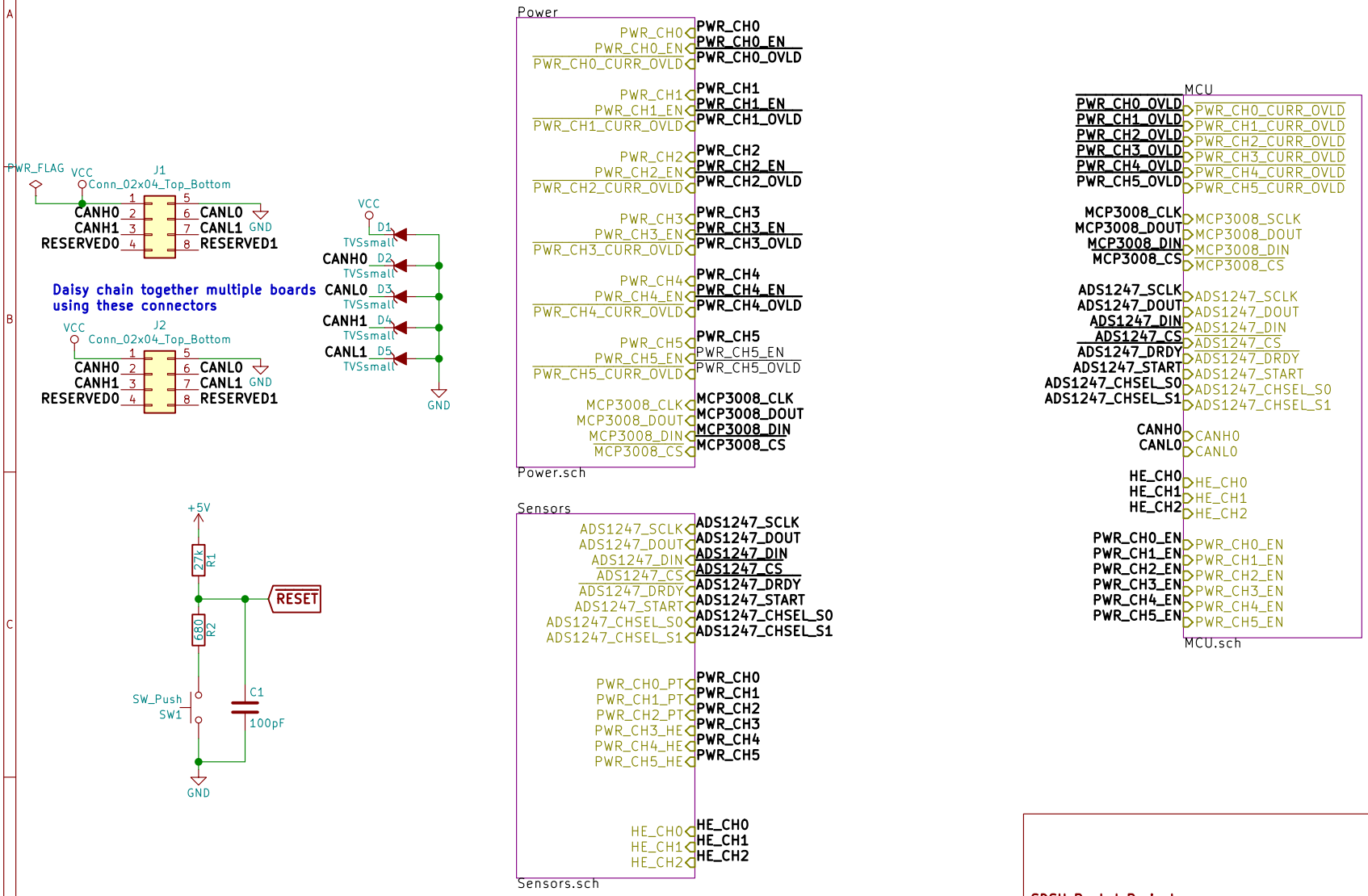


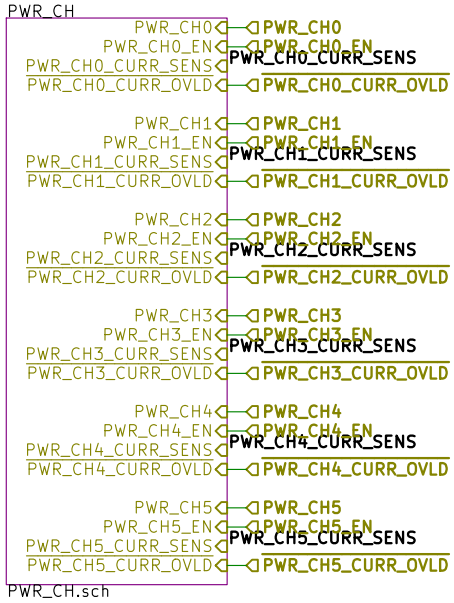
SDSU Rocket Project

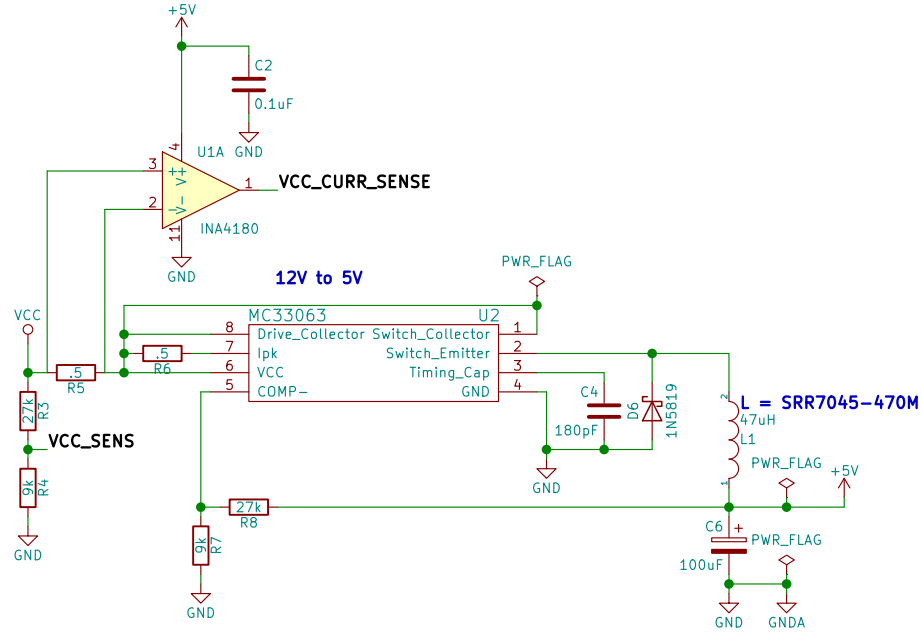
Sheet: /

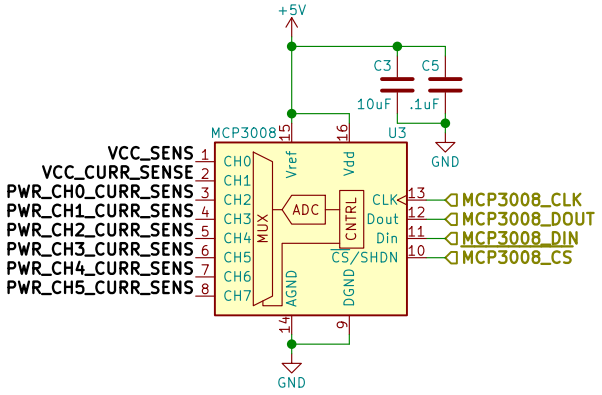
File: Extention Boards.sch

Title: HELIX Extension Board

Size: A4	Date: 2019-07-11	**Rev: A**
KiCad E.D.A. kicad (5.1.0)-1		Id: 1/9







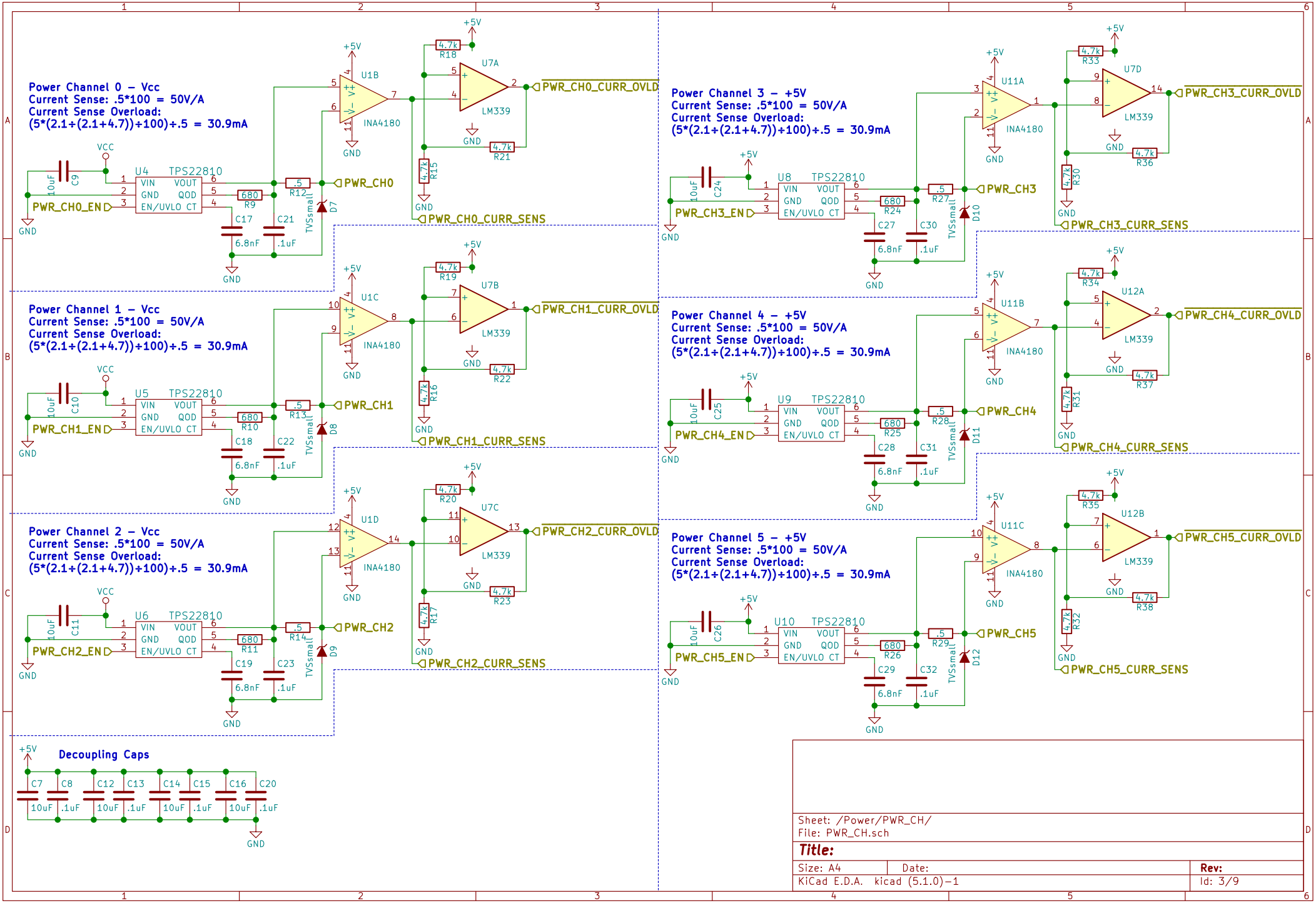
SDSU Rocket Project

Sheet: /Power/

File: Power.sch

Title: HELIX Extension Board

Size: A4	Date: 2019-07-11	Rev: A
KiCad E.D.A. kicad (5.1.0)-1		Id: 2/9


Power Channel 0 – Vcc
Current Sense: .5*100 = 50V/A
Current Sense Overload:
(5*(2.1÷(2.1+4.7))÷100)÷.5 = 30.9mA
Power Channel 1 – Vcc
Current Sense: .5*100 = 50V/A
Current Sense Overload:
(5*(2.1÷(2.1+4.7))÷100)÷.5 = 30.9mA
Power Channel 2 – Vcc
Current Sense: .5*100 = 50V/A
Current Sense Overload:
(5*(2.1÷(2.1+4.7))÷100)÷.5 = 30.9mA
Power Channel 3 – +5V
Current Sense: .5*100 = 50V/A
Current Sense Overload:
(5*(2.1÷(2.1+4.7))÷100)÷.5 = 30.9mA
Power Channel 4 – +5V
Current Sense: .5*100 = 50V/A
Current Sense Overload:
(5*(2.1÷(2.1+4.7))÷100)÷.5 = 30.9mA
Power Channel 5 – +5V
Current Sense: .5*100 = 50V/A
Current Sense Overload:
(5*(2.1÷(2.1+4.7))÷100)÷.5 = 30.9mA
Decoupling Caps
U4 TPS22810
U5 TPS22810
U6 TPS22810
U8 TPS22810
U9 TPS22810
U10 TPS22810
U1B U1C U1D U11A U11B U11C
INA4180
U7A U7B U7C U7D U12A U12B
LM339
PWR_CH0_EN
PWR_CH1_EN
PWR_CH2_EN
PWR_CH3_EN
PWR_CH4_EN
PWR_CH5_EN
PWR_CH0
PWR_CH1
PWR_CH2
PWR_CH3
PWR_CH4
PWR_CH5
PWR_CH0_CURR_SENS
PWR_CH1_CURR_SENS
PWR_CH2_CURR_SENS
PWR_CH3_CURR_SENS
PWR_CH4_CURR_SENS
PWR_CH5_CURR_SENS
PWR_CH0_CURR_OVLD
PWR_CH1_CURR_OVLD
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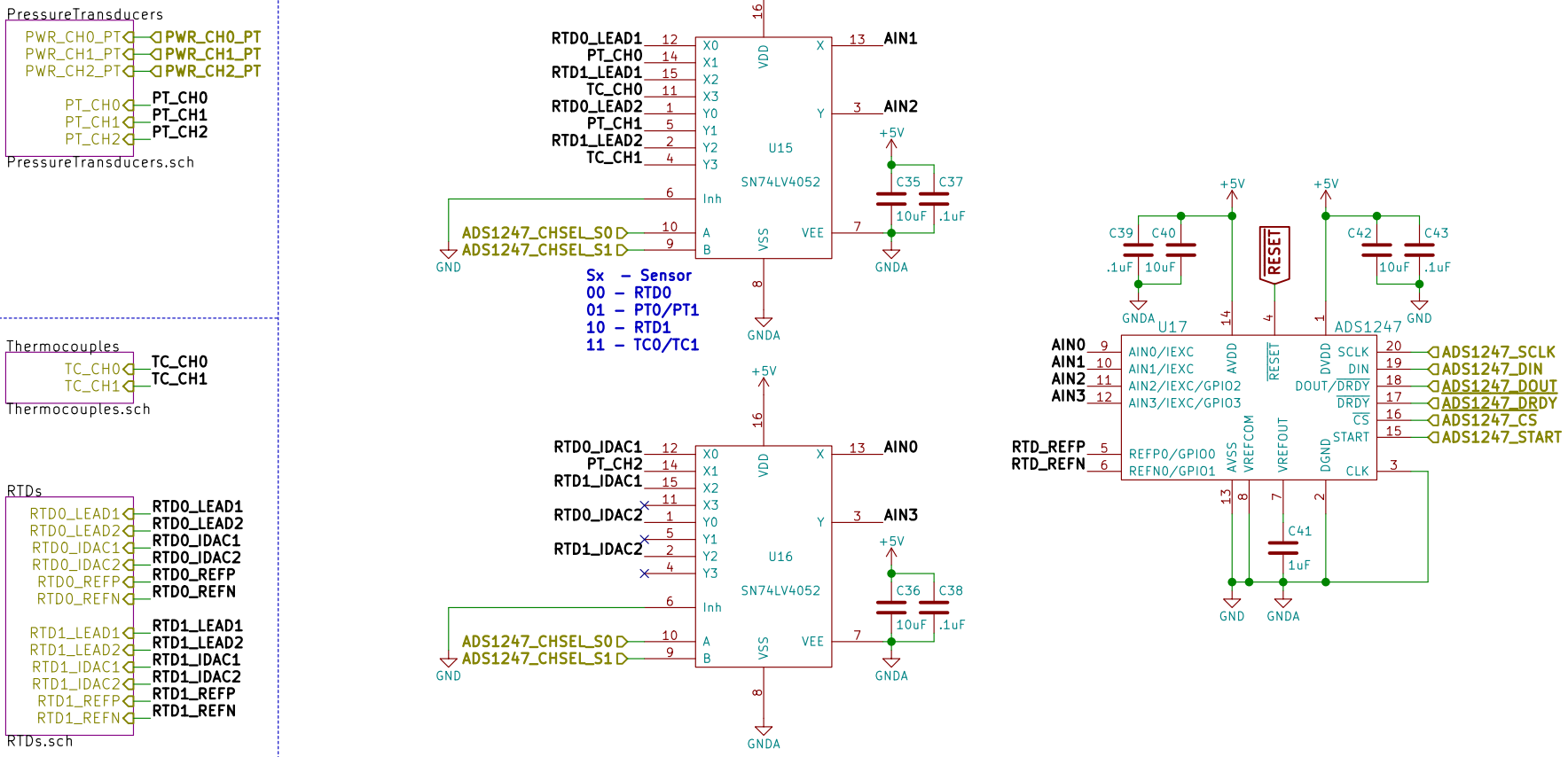
Size: A4
Date:
Rev:
KiCad E.D.A. kicad (5.1.0)-1
Id: 3/9



SDSU Rocket Project

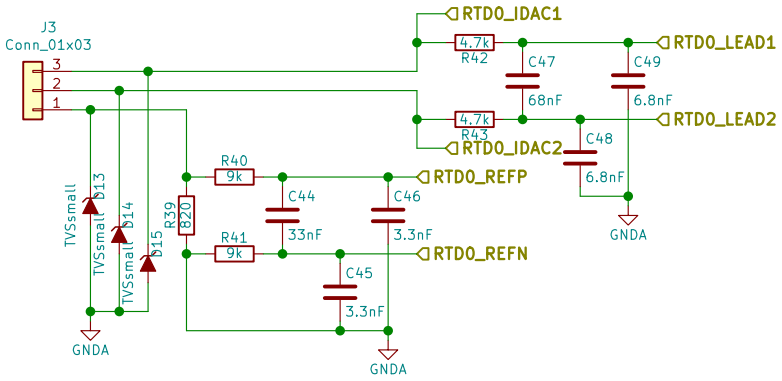
Sheet: /Sensors/

File: Sensors.sch

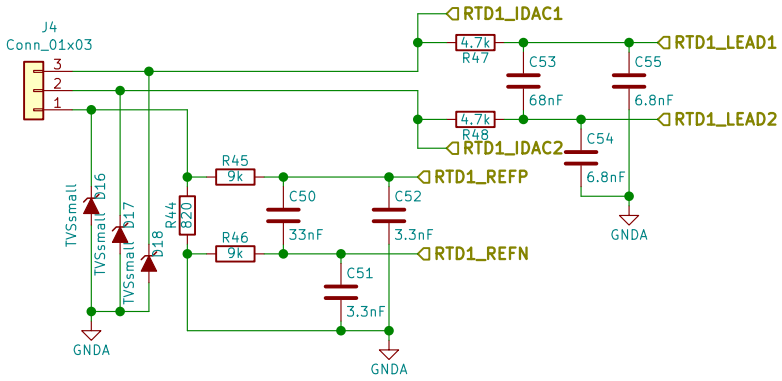
Title: HELIX Extension Board

Size: A4	Date: 2019-07-11	**Rev: A**
KiCad E.D.A. kicad (5.1.0)-1		Id: 4/9

RTD0
Excitation current: 1mA
Leave lead 3 disconnected if using a 2 wire RTD
See ADS124x datasheet section 10.2.1 for reference circuit



RTD1
Excitation current: 1mA
Leave lead 3 disconnected if using a 2 wire RTD
See ADS124x datasheet section 10.2.1 for reference circuit



SDSU Rocket Project		
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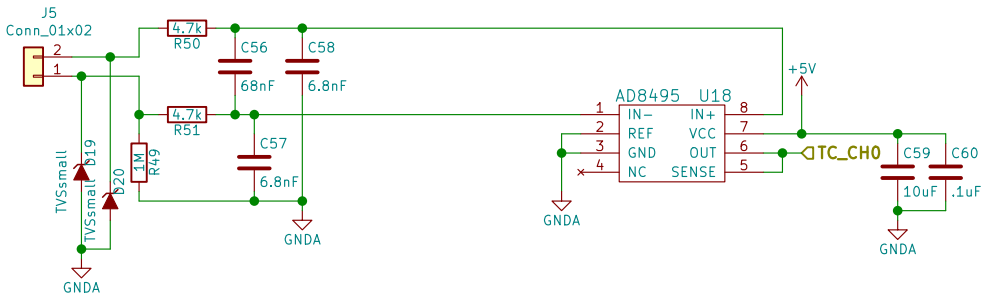
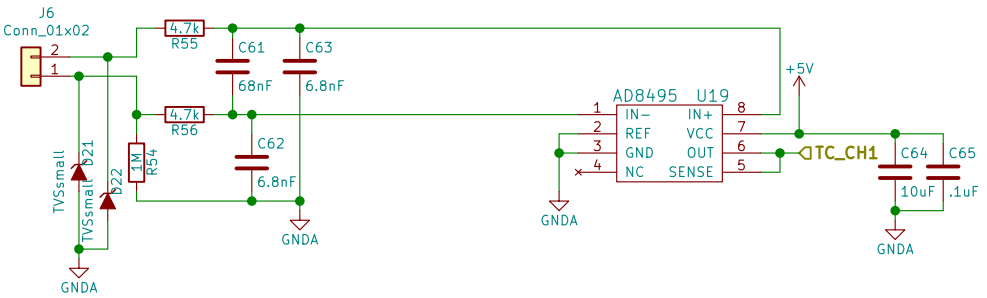
File: RTDs.sch		
Title: HELIX Extension Board		
Size: A4	Date: 2019-07-11	Rev: A
KiCad E.D.A. kicad (5.1.0)-1		Id: 5/9

TC0
See AD8495 Application Information for example circuit



TC1
See AD8495 Application Information for example circuit



SDSU Rocket Project

Sheet: /Sensors/Thermocouples/
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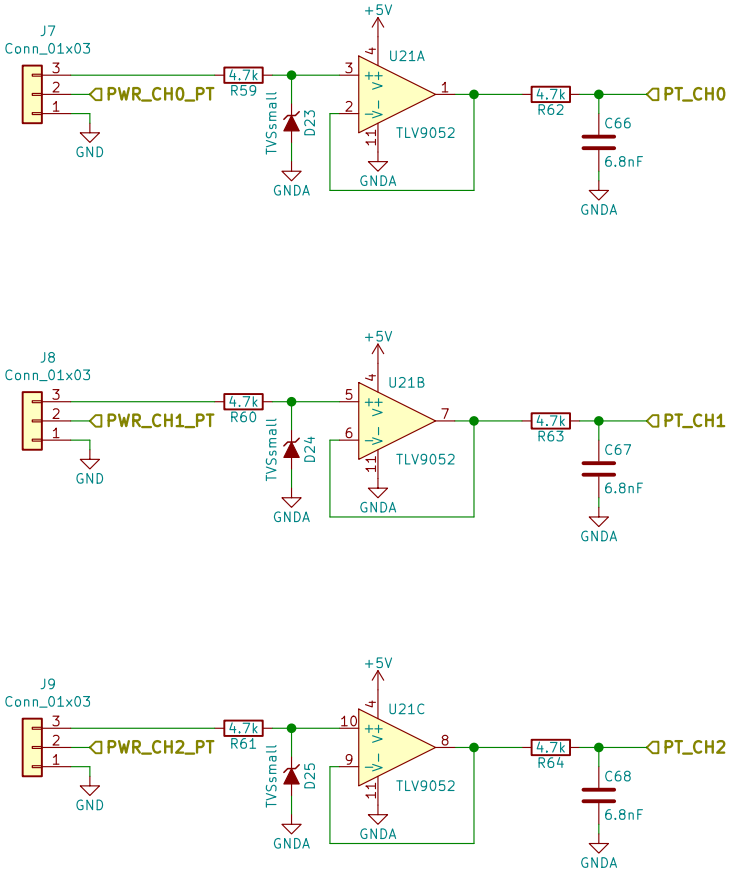
Title: HELIX Extension Board

Size: A4	Date: 2019-07-11	**Rev: A**
KiCad E.D.A. kicad (5.1.0)-1		Id: 6/9



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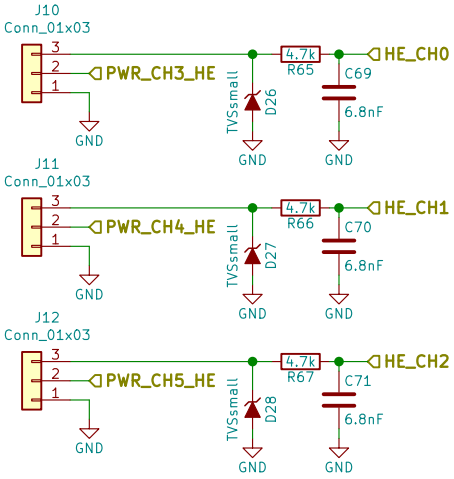
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.0)-1		Id: 7/9



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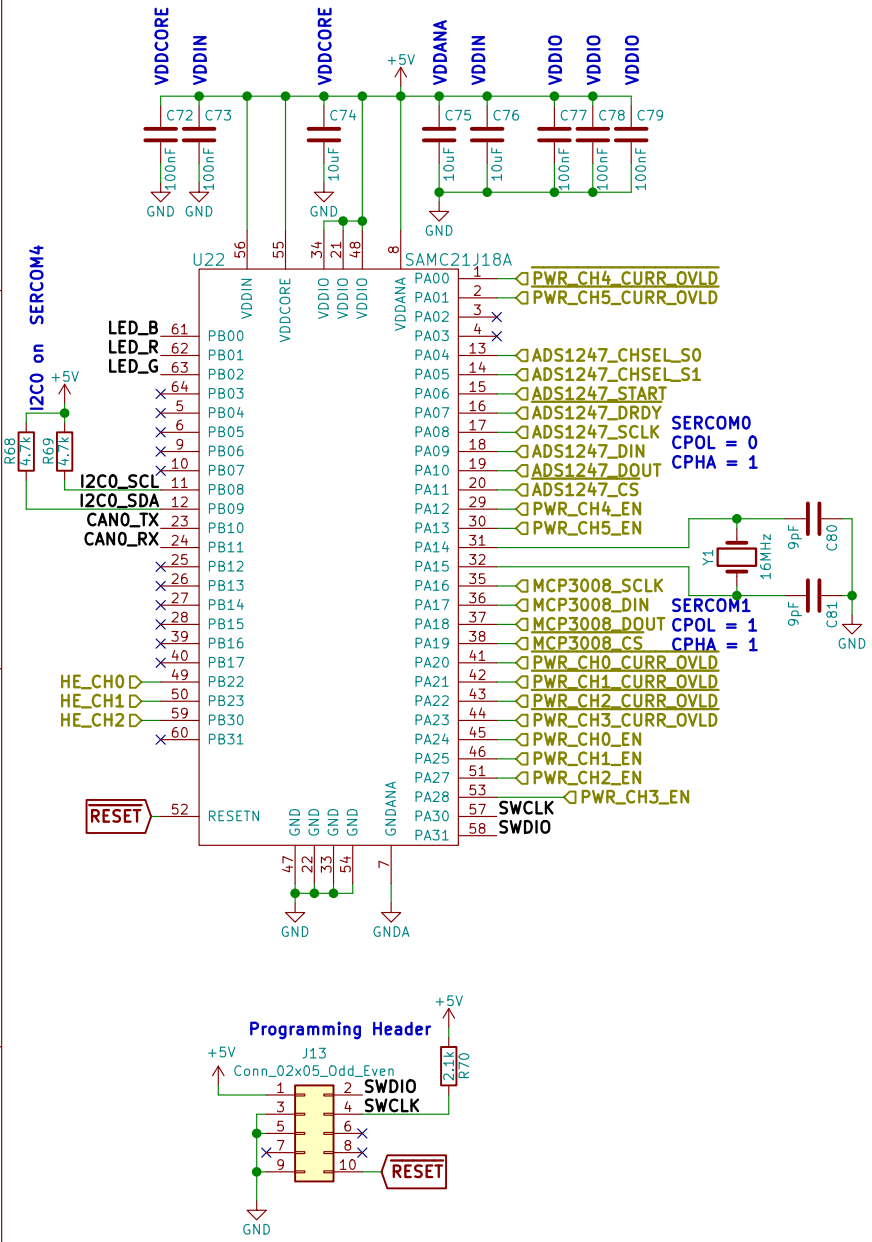
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad (5.1.0)-1		Id: 8/9

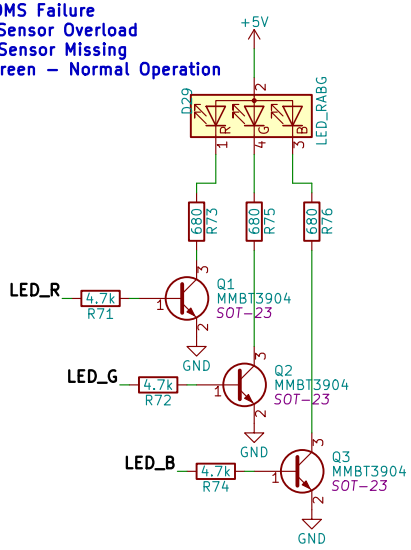
MCU



Programming Header

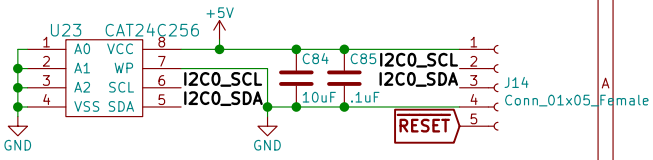
Status LED

Red – Init Failure
Blue – COMS Failure
Yellow – Sensor Overload
Purple – Sensor Missing
Blinking Green – Normal Operation

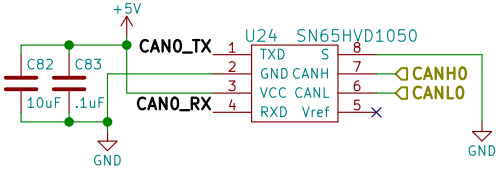


Header for programming EEPROM

Hold Reset low when flashing EEPROM



CAN0



SDSU Rocket Project		
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Title: HELIX Extension Board		
Size: A4	Date: 2019-07-11	**Rev: A**
KiCad E.D.A. kicad (5.1.0)-1		Id: 9/9