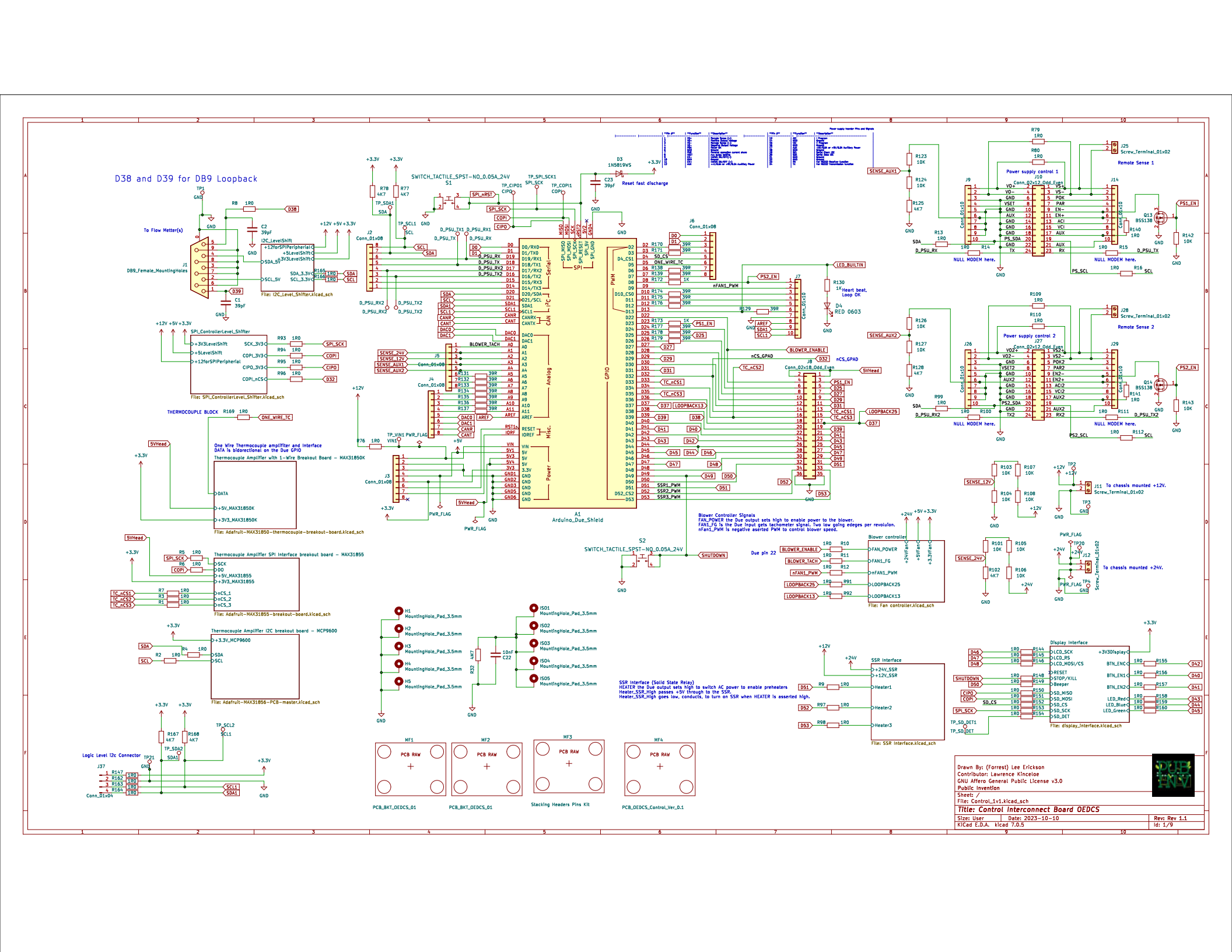
D38 and D39 for DB9 Loopback
A1
Arduino_Due_Shield
SPI
Serial
I²C
Analog
PWM
GPIO
Power
Blower Controller Signals
FAN_POWER the Due output sets high to enable power to the blower.
FAN1_FG is the Due Input gets tachometer signal. Two low going edeges per revolution.
nFan1_PWM is negative asserted PWM to control blower speed.
SSR Interface (Solid State Relay)
HEATER the Due output sets high to switch AC power to enable preheaters
Heater_SSR_High passes +5V through to the SSR.
Heater_SSR_High goes low, conducts, to turn on SSR when HEATER is asserted high.
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Contributor: Lawrence Kincelow
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Sheet: /
File: Control_1v1.kicad_sch
Title: Control Interconnect Board OEDCS
Size: User
Date: 2023-10-10
Rev: Rev 1.1
KiCad E.D.A. kicad 7.0.5
Id: 1/9

Each board will be addressed by parts on our main board.
The daughter boards will need the addressing traces CUT.

UNIT 1 will have all three amplifiter boards as subaddress 0x00
UNITs beyound will have subaddress as 0x01, 0x02 and 0x04.



Three Adafruit-MAX31850-thermocouple
Thermocouple Amplifier with 1-Wire Breakout Board - MAX31850K

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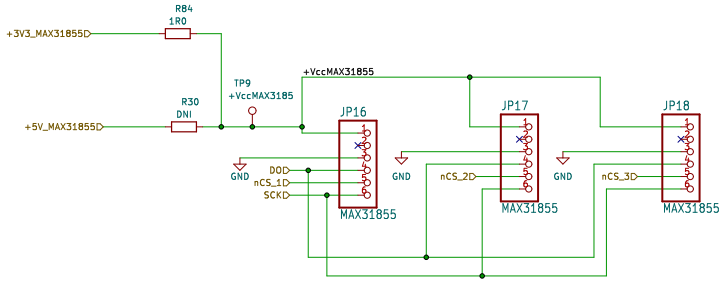
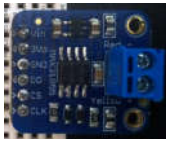
Sheet: /Thermocouple Amplifier with 1-Wire Breakout Board - MAX31850K/
File: Adafruit-MAX31850-thermocouple-breakout-board.kicad_sch

Title: Control Interconnect Board OEDCS

Size: USLedger | Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5	Id: 2/9





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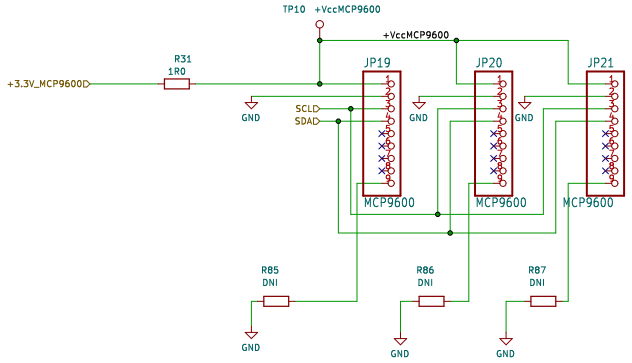
Sheet: /Thermocouple Amplifier SPI Interface breakout board – MAX31855 /
File: Adafruit-MAX31855-breakout-board.kicad_sch

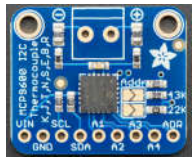
Title: Control Interconnect Board OEDCS

Size: USLedger | Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5	Id: 3/9

TO DO:
Solder on the modules directly to set subaddress.
Default is 0x67.



MCP9600 Pin Descriptions
1 Vin
2 GND
3 SCL
4 SDA
5 Alert 1
6 Alert 2
7 Alert 3
8 Alert 4
9 ADR



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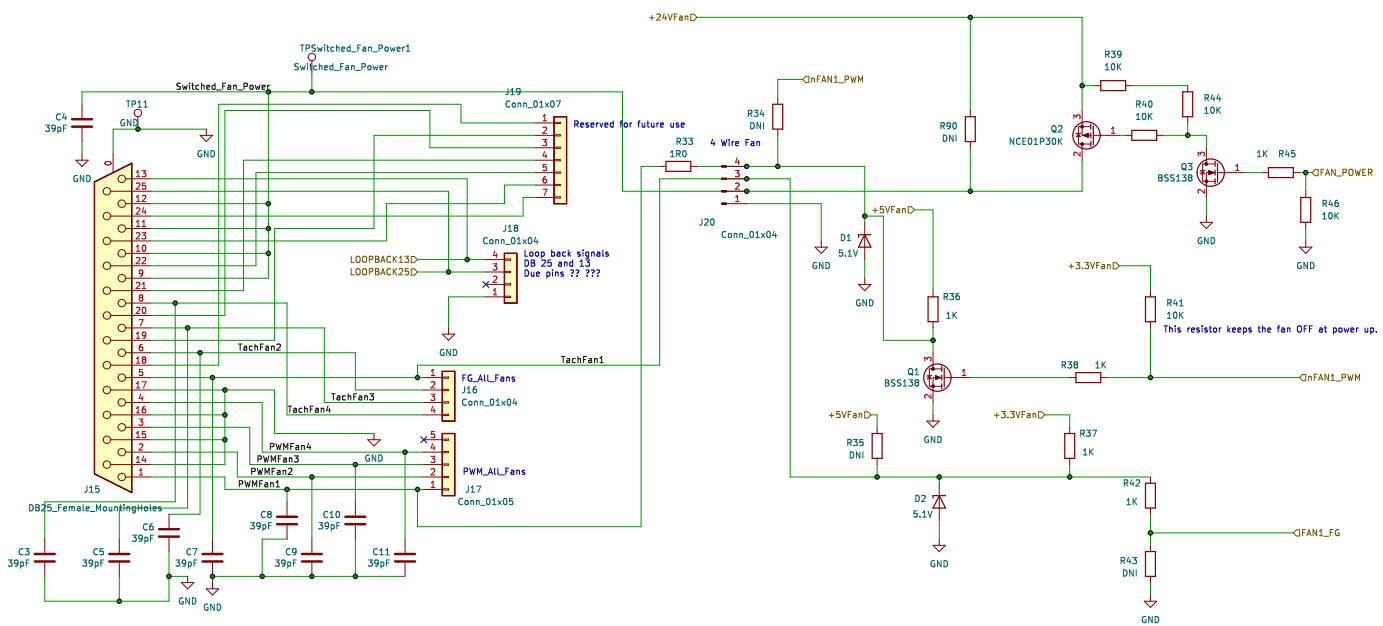
Sheet: /Thermocouple Amplifier I2C breakout board - MCP9600/
File: Adafruit-MAX31856-PCB-master.kicad_sch

Title: Control Interconnect Board OEDCS

Size: USLedger | Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5	Id: 4/9



Unit 1 Wring Notes:

Fan Breakout	Signal-Function	DB25 MALE Pin #	DB25 FEMALE Pin #	Other	Due Pin	Due Signal
1	+24V Switched (fans)	2-5	9-12		???	FAN_POWER
2	GND for all fans	22-25	14-17		GND	NA
3	#1 PWM	13	1	J10-1	D9	nFAN1_PWM
4	#1 Tach	9	5	J9-1	A0	FAN1_FG
5	#2 PWM	12	2	J10-2		nFAN2_PWM
6	#2 Tach	8	6	J9-2		FAN2_FG
7	#3 Tach	11	3	J10-3		nFAN3_PWM
8	#3 PWM	7	7	J9-3		FAN3_FG
9	#4 Tach	10	4	J10-4		nFAN4_PWM
10	#4 PWM	6	8	J9-4		FAN4_FG
			25	J11-3		
			13	J11-4		
			18	J12-1		
			19	J12-2		
			20	J12-3		
			21	J12-4		
			22	J12-5		
			23	J12-6		
			24	J12-7		

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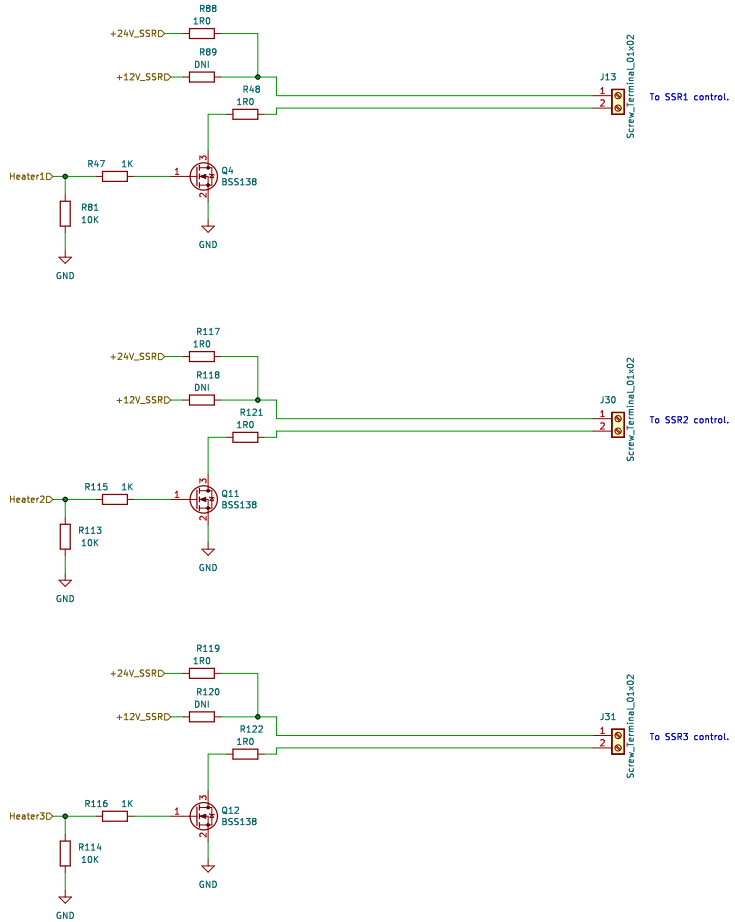
Sheet: /Blower controller/
File: Fan controller.kicad_sch

Title: Control Interconnect Board OEDCS

Size: USLedger	Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5		Id: 5/9

SSR Interface (Solid State Relay)
HEATER the Due output sets high to switch AC power to enable preheaters
Heater_SSR_High passes +5V through to the SSR.
Heater_SSR_High goes low, conducts, to turn on SSR when HEATER is asserted high.



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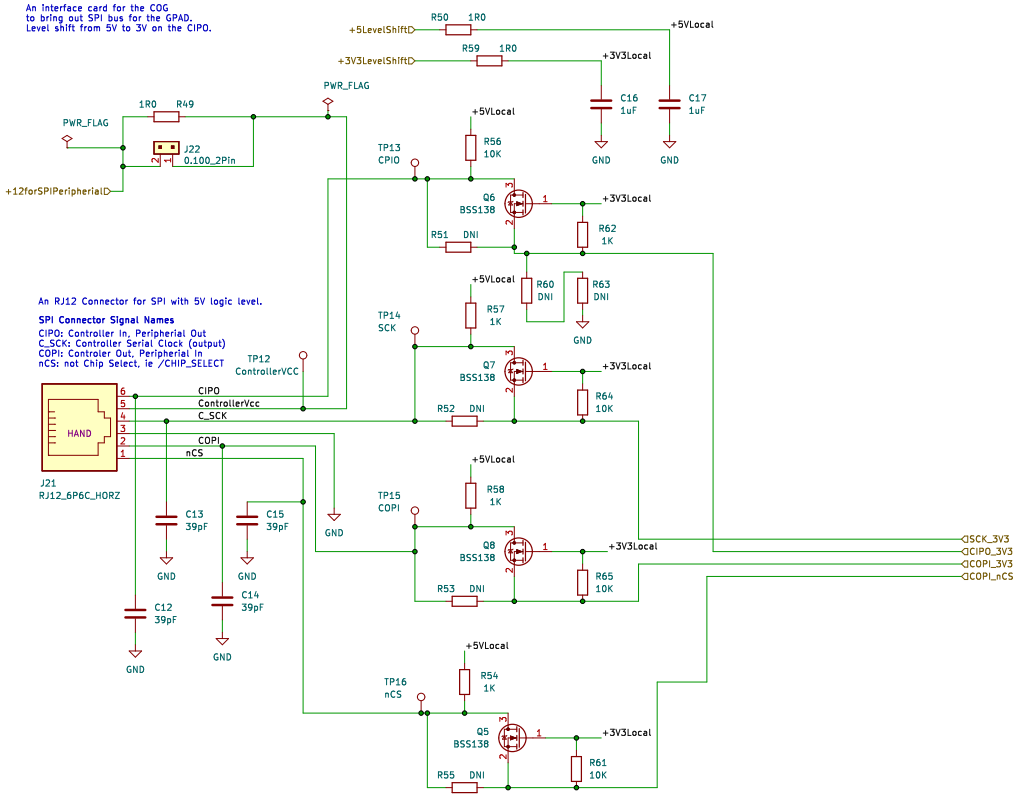
Sheet: /SSR Interface/
File: SSR Interface.kicad_sch

Title: Control Interconnect Board OEDCS

Size: USLedger | Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5	Id: 6/9

SPI 3V3 to 5V Controller Interface

An interface card for the COG
to bring out SPI bus for the GPAD.
Level shift from 5V to 3V on the CIPO.



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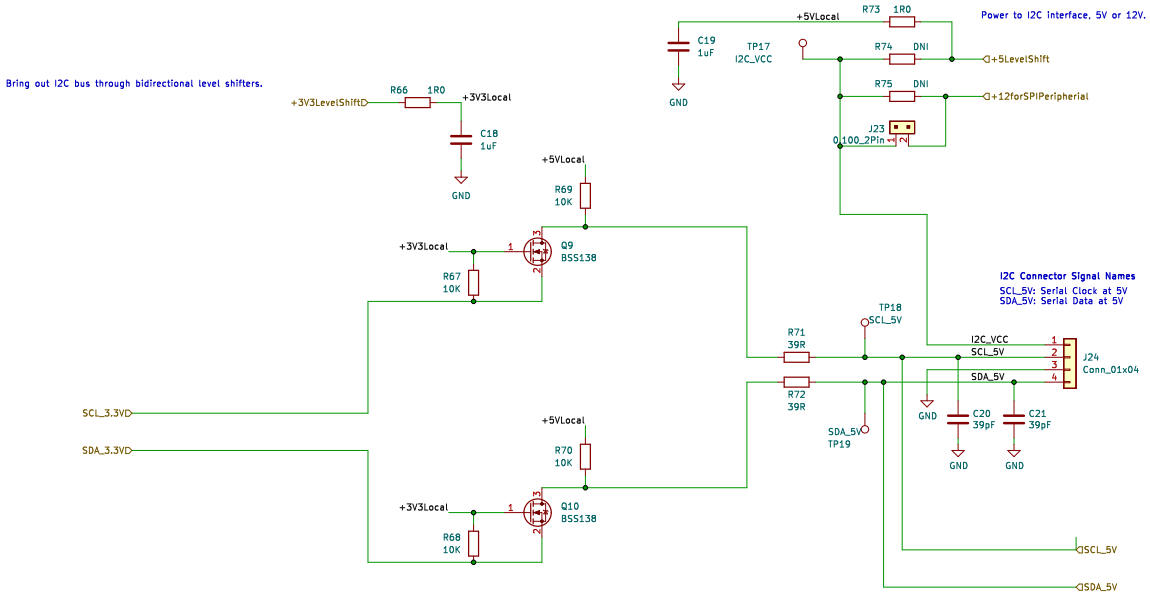
Sheet: /SPI_ControllerLevel_Shifter/
File: SPI_ControllerLevel_Shifter.kicad_sch

Title: Control Interconnect Board OEDCS

Size: USLedger | Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5	Id: 7/9



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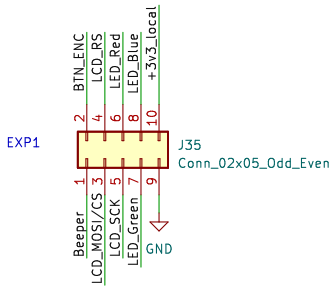
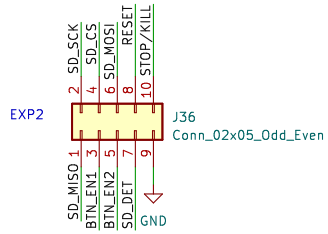
Sheet: /I2C_LevelShift/
File: I2C_Level_Shifter.kicad_sch

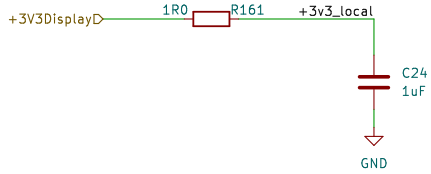
Title: Control Interconnect Board OEDCS

Size: USLedger | Date: 2023-10-10	**Rev: Rev 1.1**
KiCad E.D.A. kicad 7.0.5	Id: 8/9





RESET and Stop/Kill can be bonded on the display



EXP1

LED_Blue — LED_Blue
LED_Red — LED_Red
LCD_RS — LCD_RS
BTN_ENC — BTN_ENC

Beeper — Beeper
LCD_MOSI/CS — LCD_MOSI/CS
LCD_SCK — LCD_SCK
LED_Green — LED_Green

EXP2

STOP/KILL — STOP/KILL
RESET — RESET
SD_MOSI — SD_MOSI
SD_CS — SD_CS
SD_SCK — SD_SCK

SD_MISO — SD_MISO
BTN_EN1 — BTN_EN1
BTN_EN2 — BTN_EN2
SD_DET — SD_DET

NOTE: The headers are reversed 180 on the display vs the control board. this is because traditionally reprap display cables only plug in one direction.

https://reprap.org/wiki/RepRapDiscount_Full_Graphic_Smart_Controller
ST7920 can not share an SPI/Serial interface)
https://github.com/MarlinFirmware/Marlin/issues/10640#issuecomment-388699863

Sheet: /Display Interface/
File: display_interface.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 7.0.5		Id: 9/9