HDD Clock V4.0 LED Board

This is the schematic for the LED board of my HDD Persistence of Vision clock.
This LED Board is used with the V4.0, V4.1 Driver Board.

Main improvements over V3.0:

1. New optical sensor. The other sensor was wired wrong and is very difficult to source.

APA102-2020 LEDs

IR Reflective Sensor

I2C Board Temp Sensor

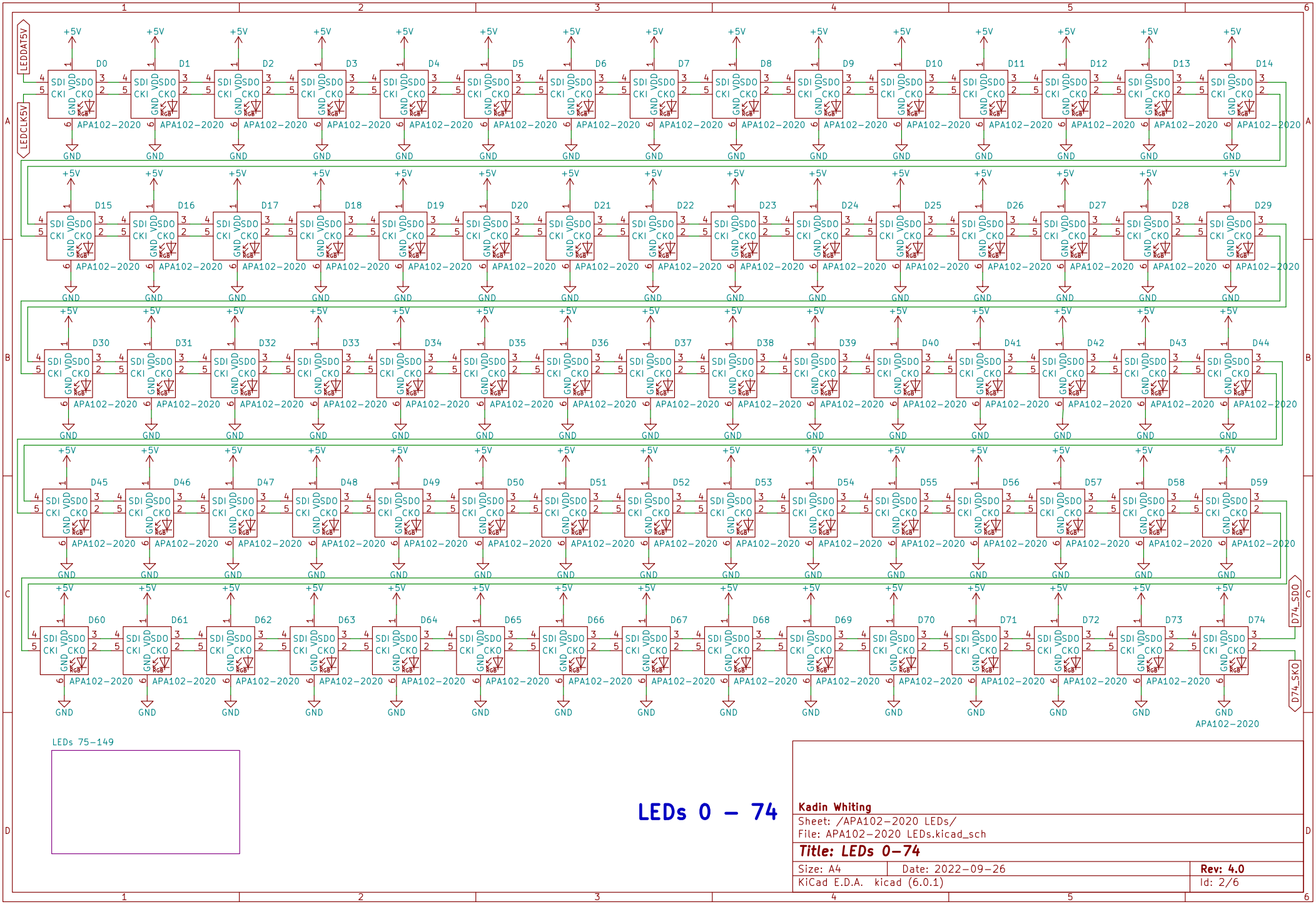
Connections to Driver Board

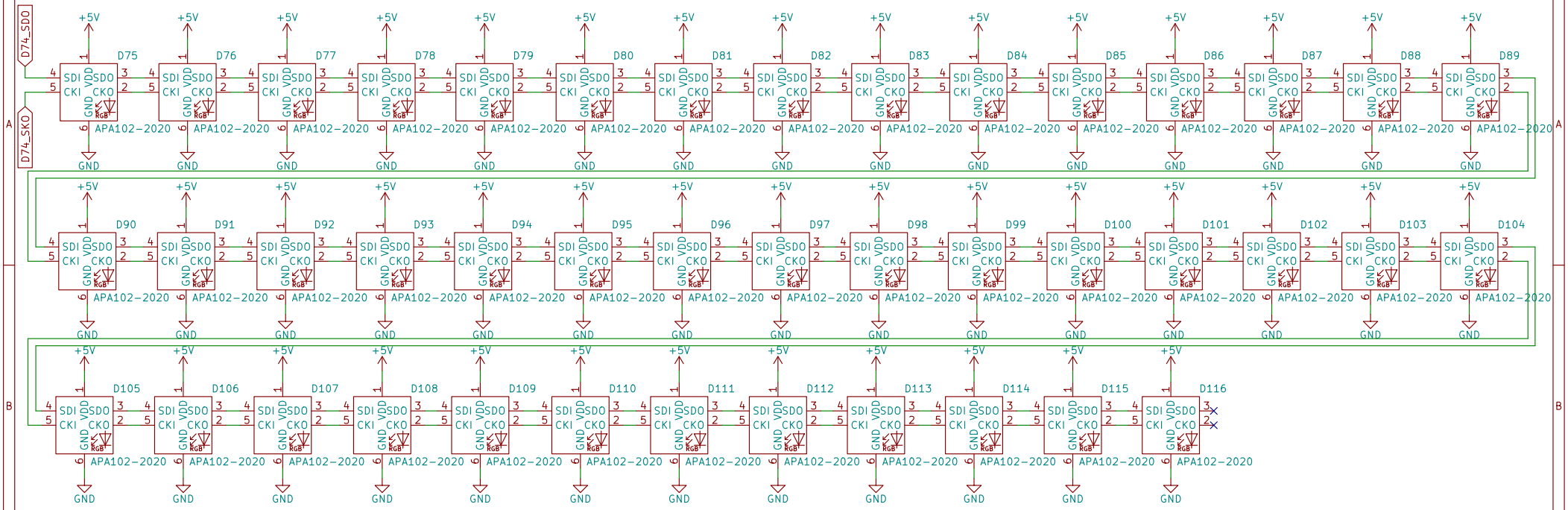
Kadin Whiting

Sheet: /
File: HDD Clock V4.0_LED Board.kicad_sch

Title: LED Board Main Page

Size: A4	Date: 2022-09-26	**Rev: 4.0**
KiCad E.D.A. kicad (6.0.1)		Id: 1/6


LEDDATA5V
LEDCLK5V
D74_SDO
D74_SKO
+5V
GND
SDI VDD SDO
CKI VSS CKO
APA102-2020
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14
D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29
D30 D31 D32 D33 D34 D35 D36 D37 D38 D39 D40 D41 D42 D43 D44
D45 D46 D47 D48 D49 D50 D51 D52 D53 D54 D55 D56 D57 D58 D59
D60 D61 D62 D63 D64 D65 D66 D67 D68 D69 D70 D71 D72 D73 D74
LEDs 75-149
LEDs 0 - 74
Kadin Whiting
Sheet: /APA102-2020 LEDs/
File: APA102-2020 LEDs.kicad_sch
Title: LEDs 0-74
Size: A4
Date: 2022-09-26
Rev: 4.0
KiCad E.D.A. kicad (6.0.1)
Id: 2/6



LEDs 75–116

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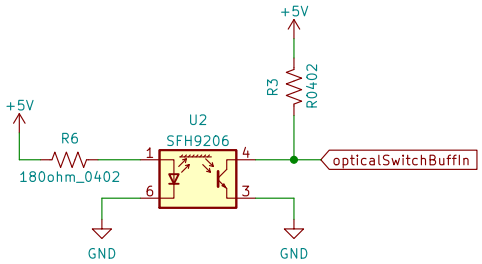
Sheet: /APA102-2020 LEDs/LEDs 75–149/	
File: LEDs 75–149.kicad_sch	
Title: LEDs 75–116	
Size: A4	Date: 2022-09-26
KiCad E.D.A. kicad (6.0.1)	Id: 3/6

Rev: 4.0



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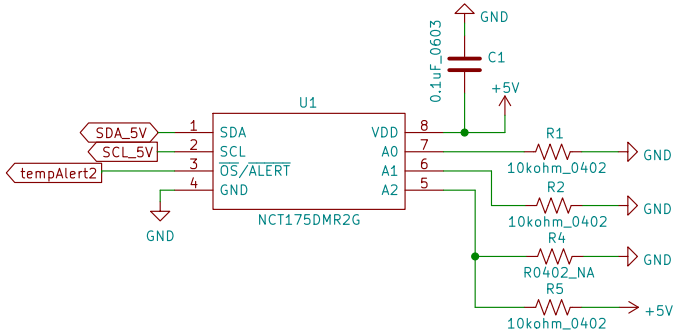
Sheet: /IR Reflective Sensor/
File: IR Reflective Sensor.kicad_sch

Title: IR Reflective Sensor(s)

Size: A4	Date: 2022-09-26	**Rev: 4.0**
KiCad E.D.A. kicad (6.0.1)		Id: 4/6

Board Temperature Sensor



Address setting resistors

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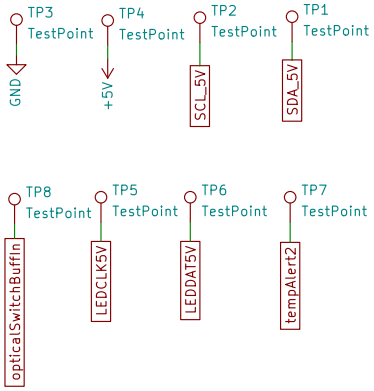
Sheet: /I2C Board Temp Sensor/
File: I2C Board Temp Sensor.kicad_sch

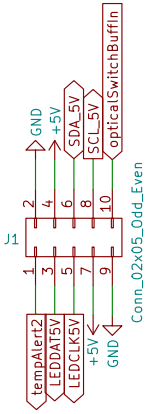
Title: I2C Board Temperature Sensor

Size: A4	Date: 2022-09-26	**Rev: 4.0**
KiCad E.D.A. kicad (6.0.1)		Id: 5/6

Test points for verifying alignment



2x4 Array of circular
SMT contact points



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Sheet: /Connections to Driver Board/ File: Connections to Driver Board.kicad_sch		
Title: Connections to Driver Board PCB		
Size: A4	Date: 2022-09-26	**Rev: 4.0**
KiCad E.D.A. kicad (6.0.1)		Id: 6/6