01. Table of Contents

Electronic Display Logic Board

Marquette Universiy Senior Design 2018, Group E44

Drew Maatman, Kevin Etta, Logan Wedel, Caroline Gilger, Tuoxuan Ren

To Do List:
* Verify pinouts
* Draw custom footprints (SRAM, power supply ICs, etc)
* Assign footprints
* Assign Digi-Key Partnumbers
* Run ERC, resolve errors
* Generate netlist
* Generate BOM
* Layout PCB

Sheet: /
File: LED_Display_Controller.sch

Title:

Size: A | Date: | **Rev:**

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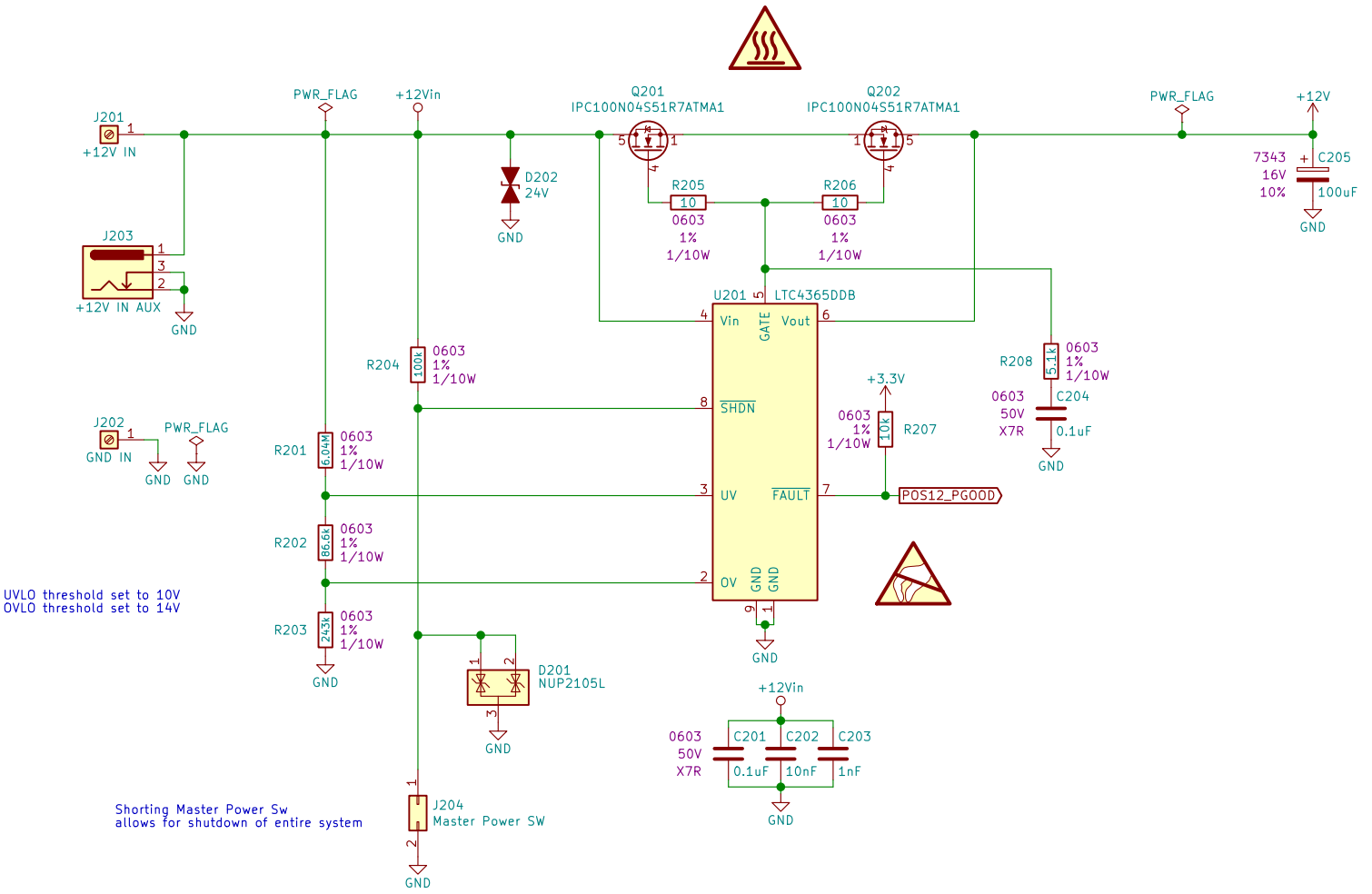
02. Power Input



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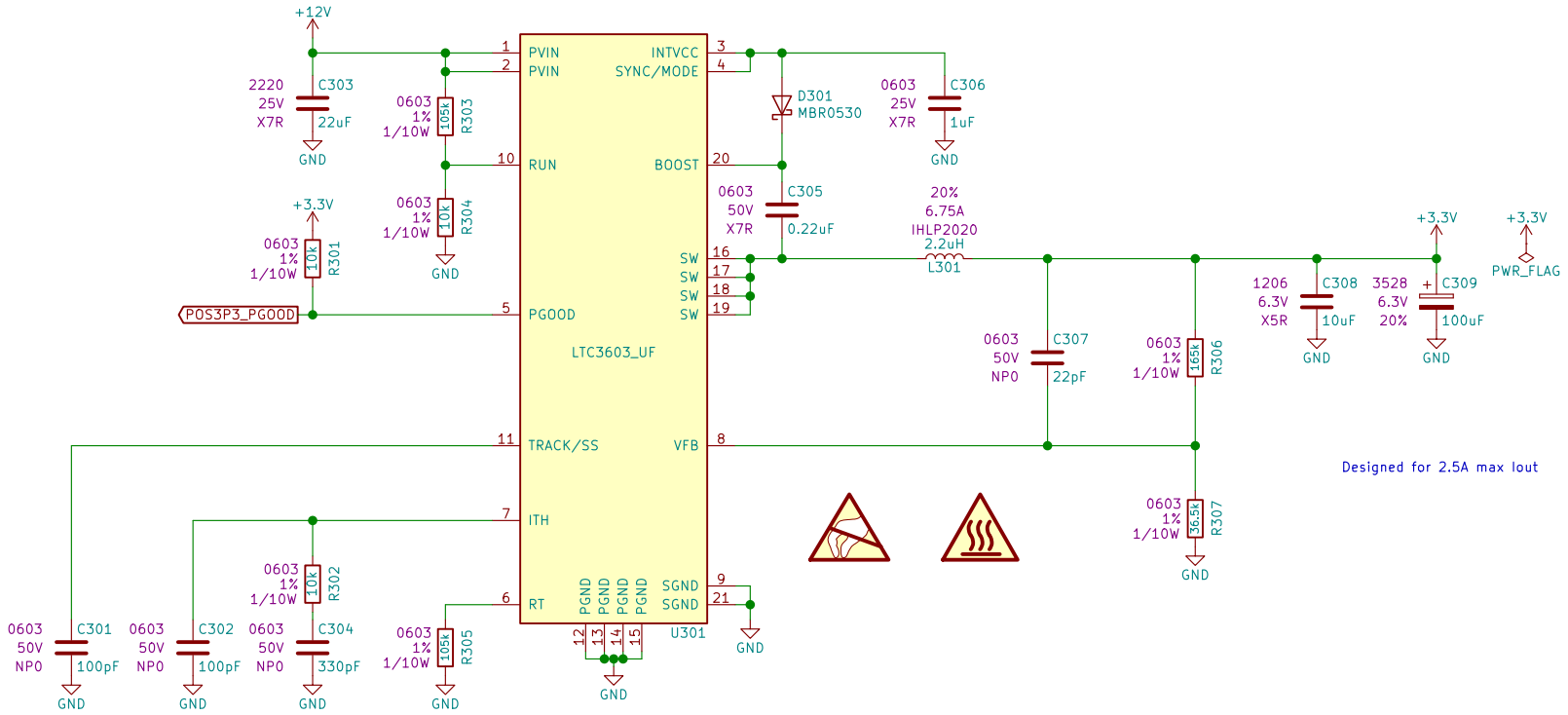
03. +3.3V Power Supply



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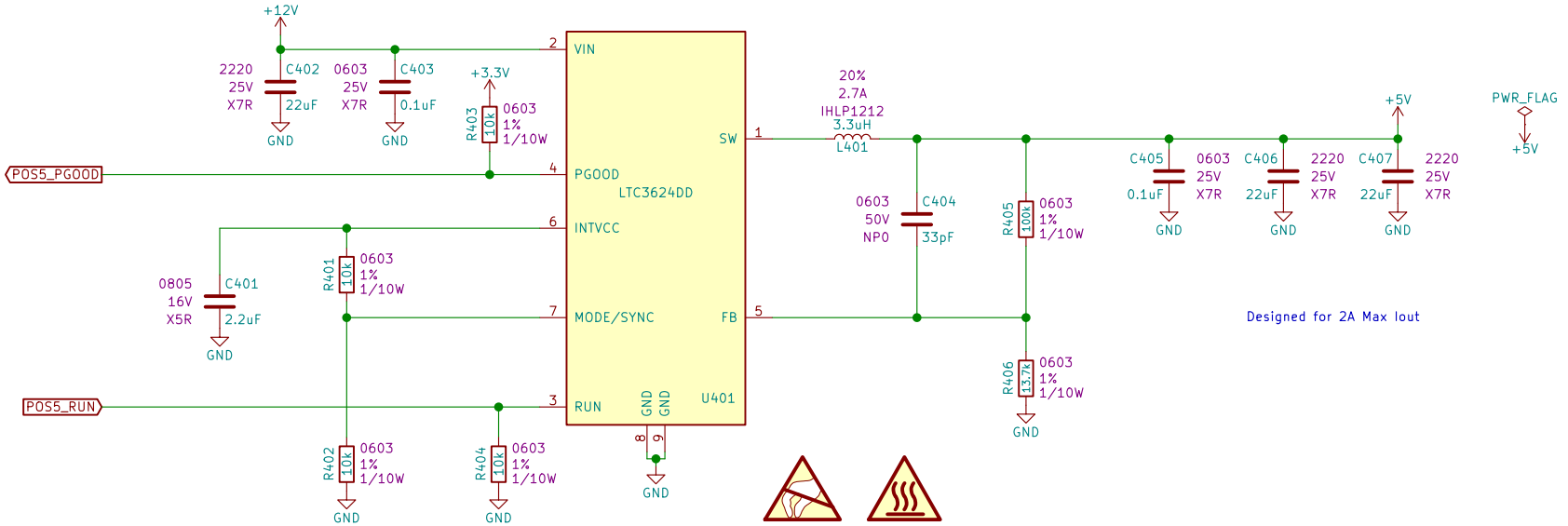
KiCad E.D.A. kicad (5.0.1)-3		Id: 3/31

04. +5V Power Supply



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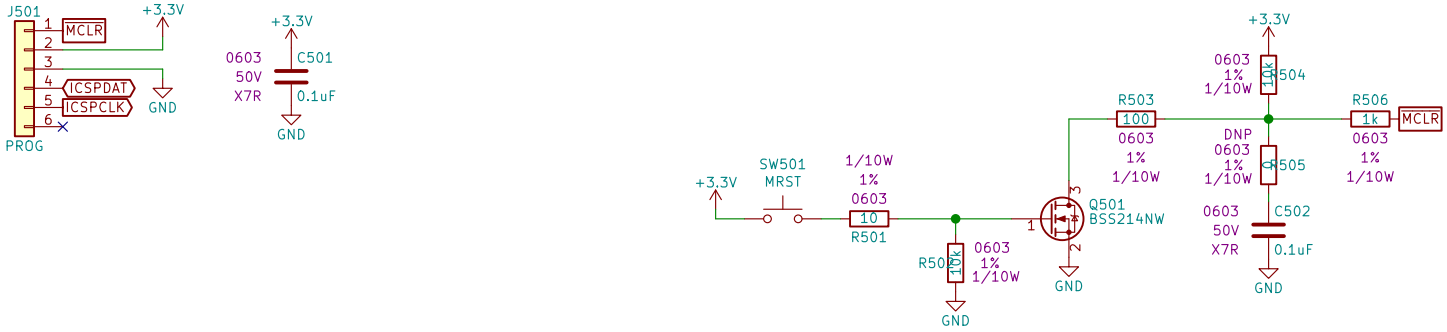
KiCad E.D.A. kicad (5.0.1)-3		Id: 4/31

05. Microcontroller Programming



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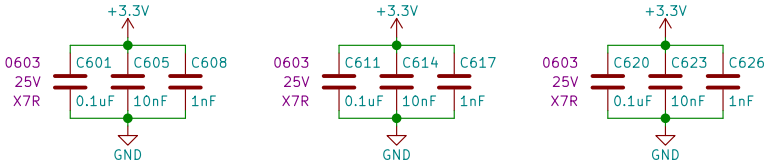
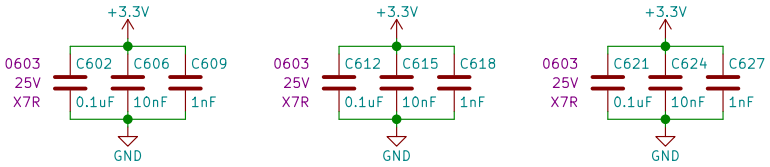
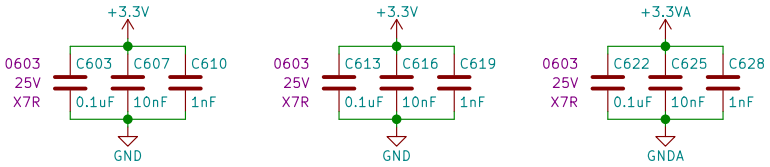
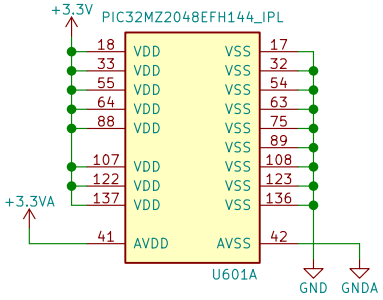
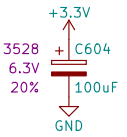
06. Microcontroller Power

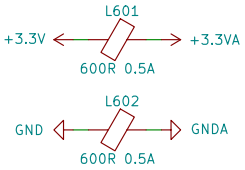












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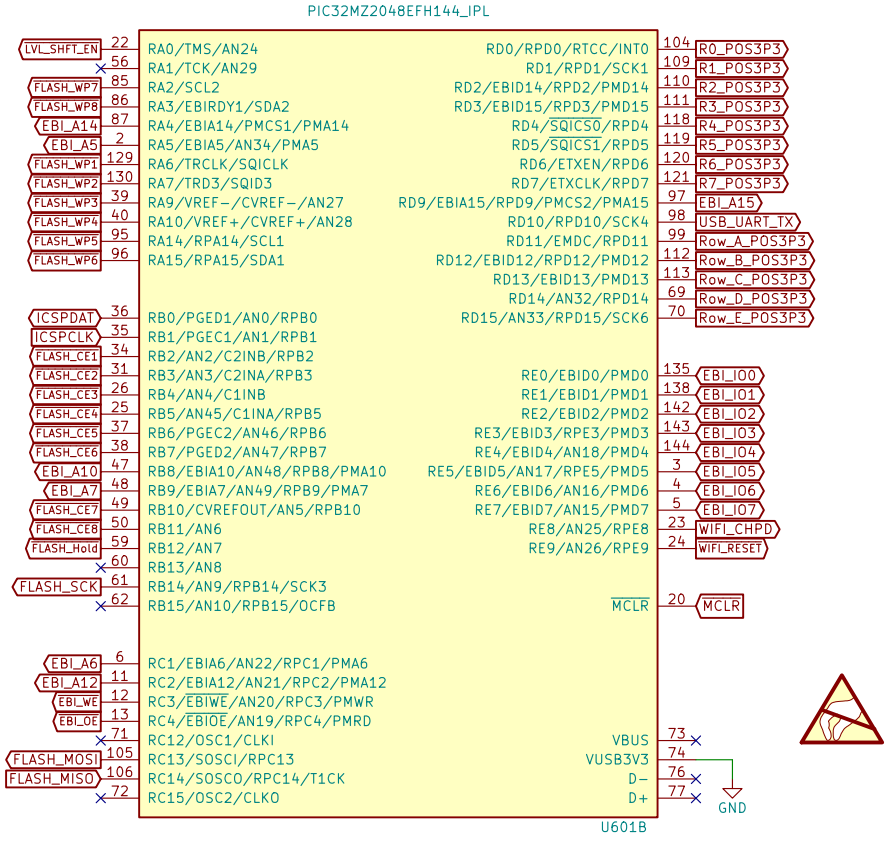
KiCad E.D.A. kicad (5.0.1)-3		Id: 6/31

07. Microcontroller IO Bank 1



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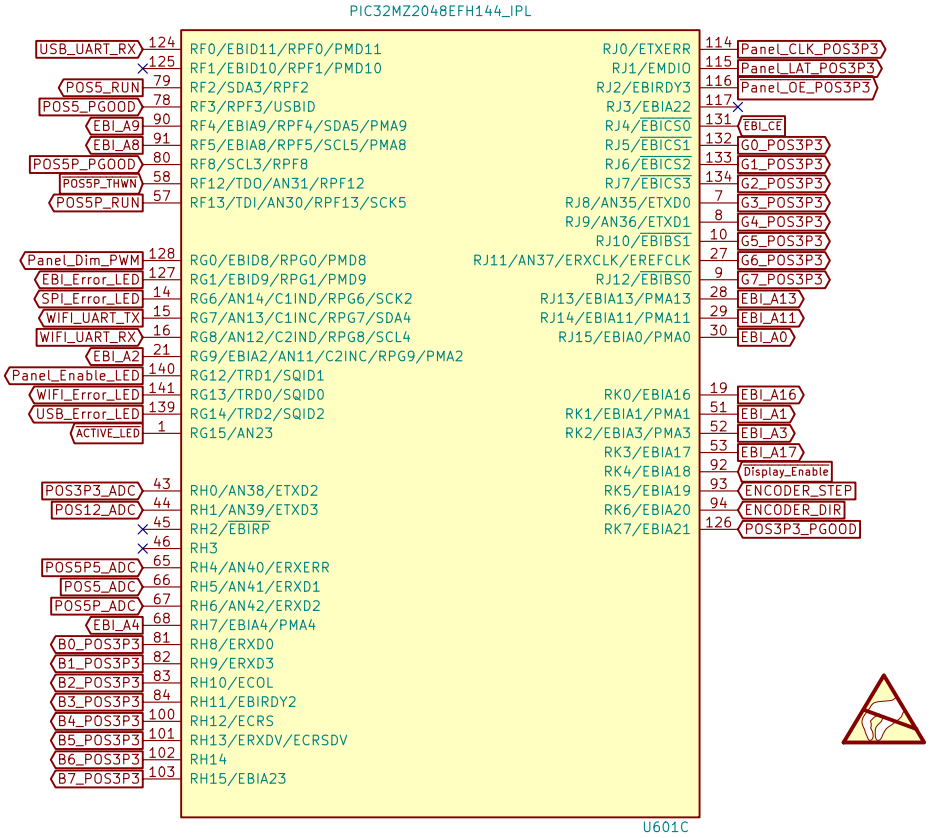
KiCad E.D.A. kicad (5.0.1)−3		Id: 7/31

08. Microcontroller IO Bank 2



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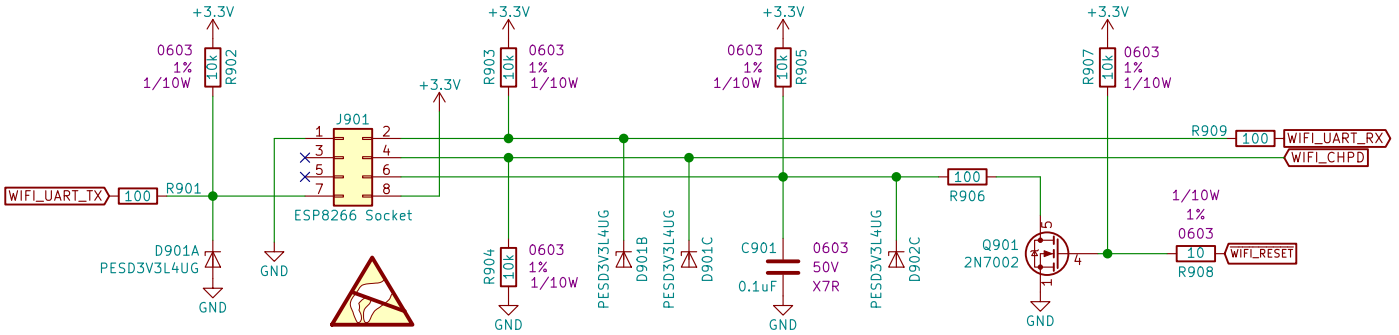
09. WiFi Module



ESP8266 Pinout does not match default KiCad pin socket footprint.
Alter the pin numbers in layout

Sheet: /WiFi Module/		
File: Wi_Fi_Module.sch		
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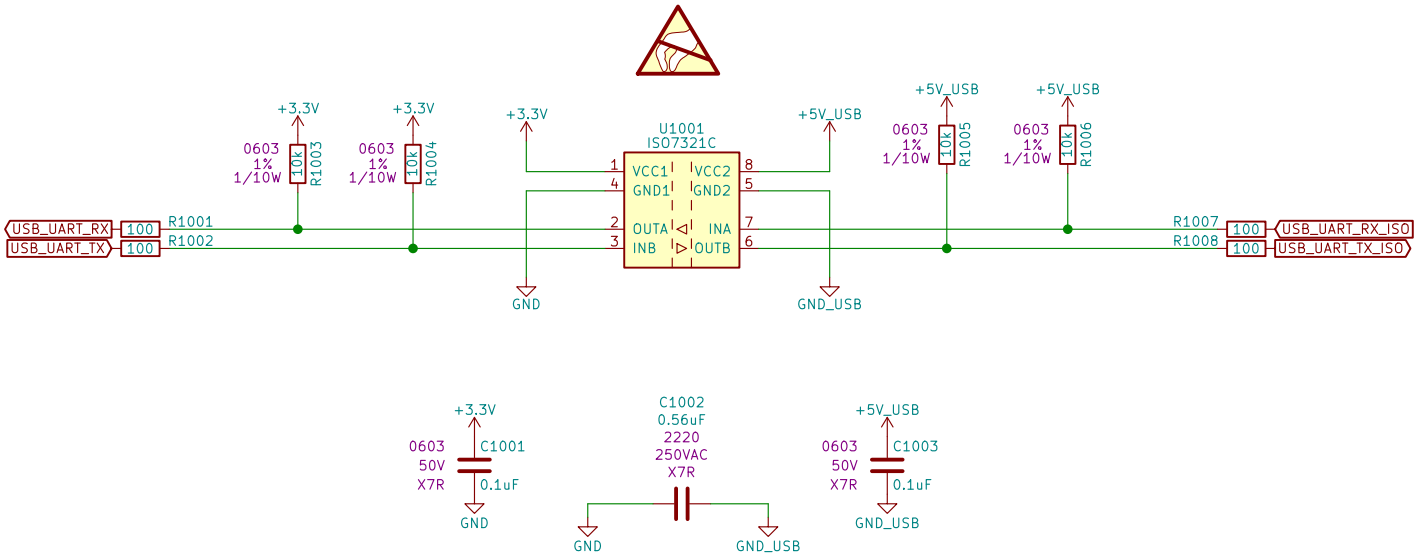
10. USB UART Digital Isolation



Sheet: /USB UART Isolation/		
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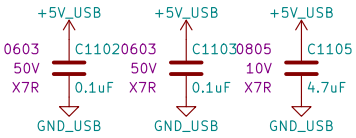
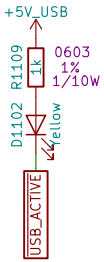
KiCad E.D.A. kicad (5.0.1)-3		Id: 10/31

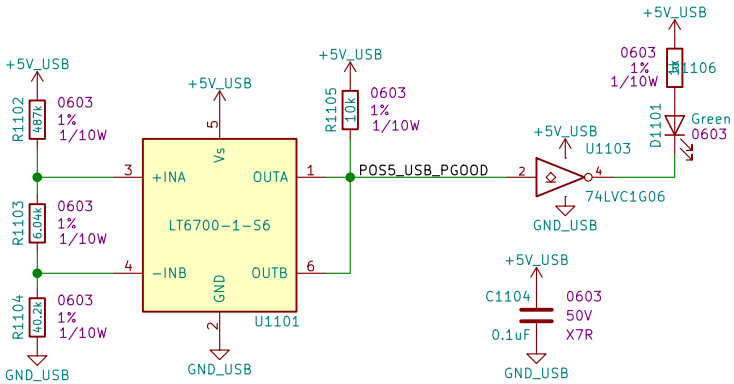
11. USB UART Bridge





USB Virtual COM Port Settings:

Baud Rate:	921600 bps
Data Length:	8 bit
Parity:	None
Stop Bits:	1
Flow Control:	None



Sheet: /USB UART Bridge/	
File: USB_UART_Bridge.sch	
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Size: A	Date:
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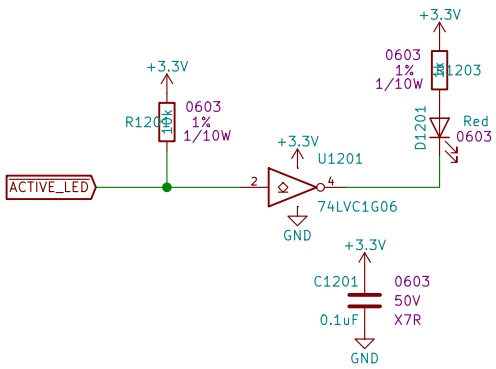
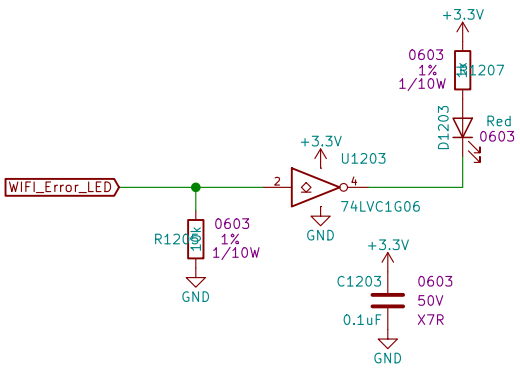
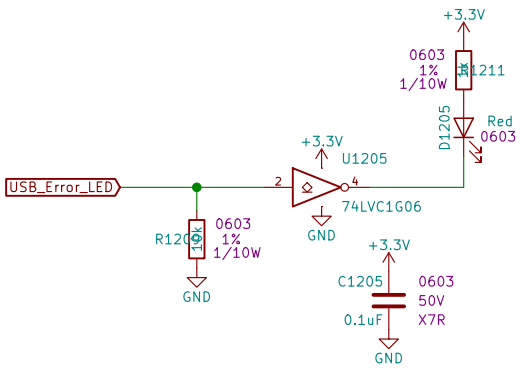
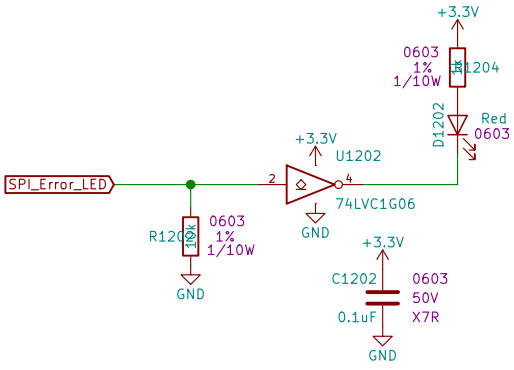
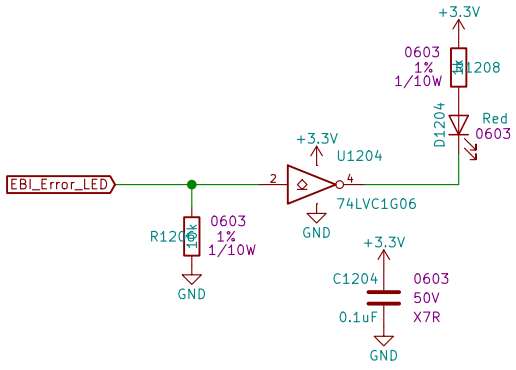
12. Status LEDs Bank 1

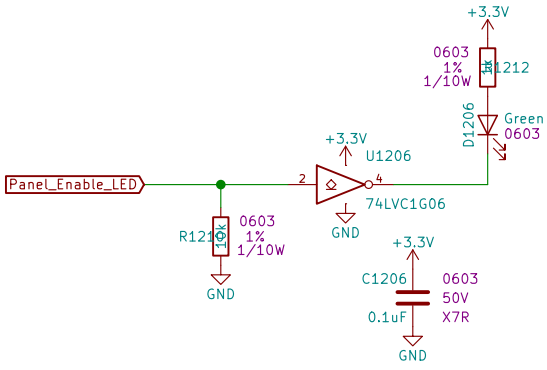












Sheet: /Status LEDs 1/		
File: Status_LEDs_1.sch		
Title:		
Size: A	Date:	**Rev:**
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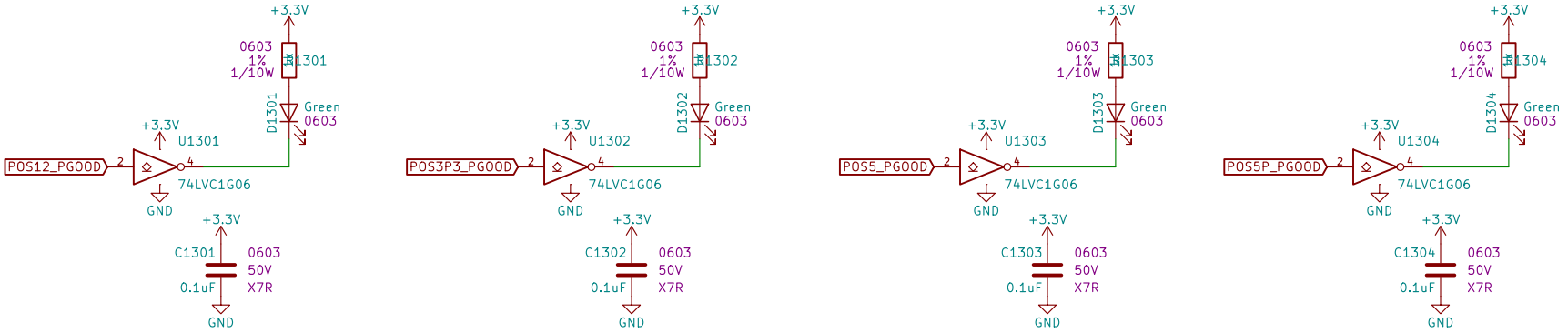
13. Status LEDs Bank 2



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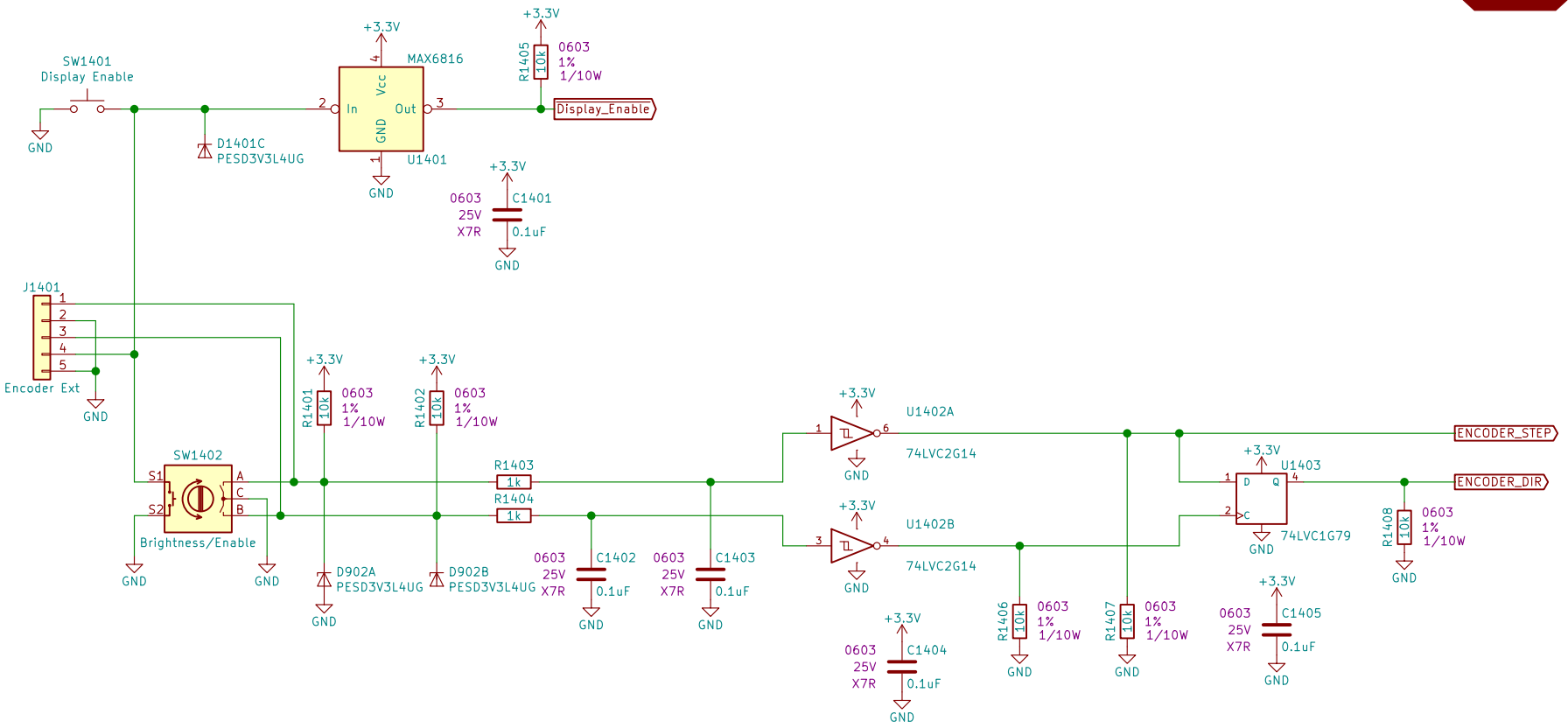
KiCad E.D.A. kicad (5.0.1)-3		Id: 13/31

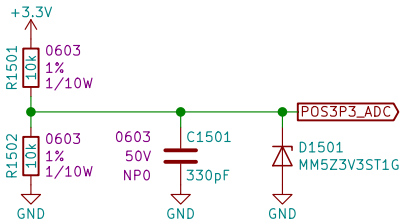
14. Pushbuttons

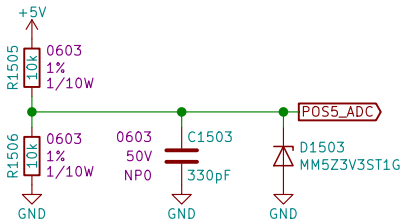


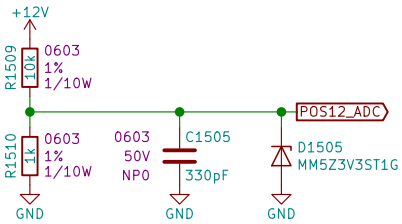
Turning rotary encoder will adjust display master brightness
Pressing encoder switch will toggle display on/off state

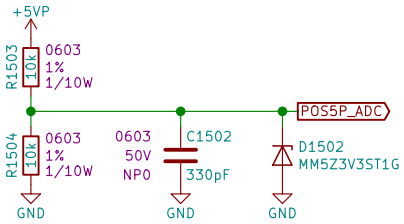
Sheet: /Pushbuttons/	
File: Pushbuttons.sch	
Title:	
Size: A	Date:
KiCad E.D.A. kicad (5.0.1)-3	Id: 14/31

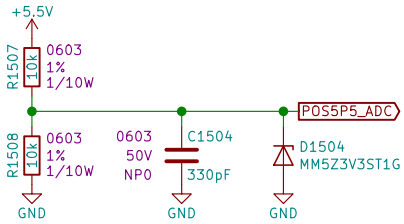
15. Internal Rail Monitoring











Sheet: /Internal Rail Monitoring/		
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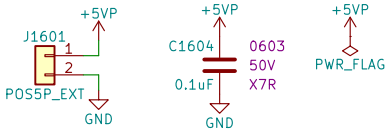
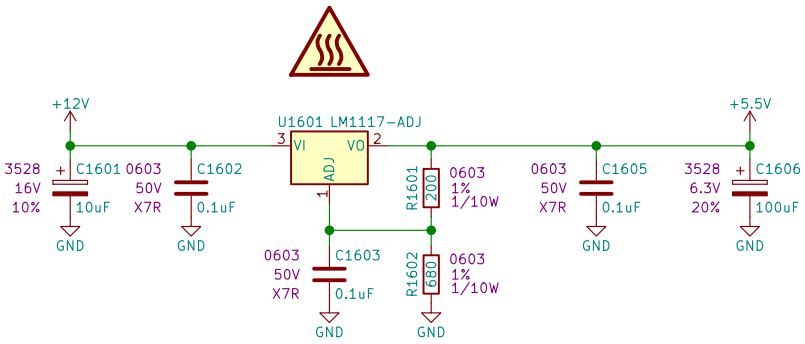
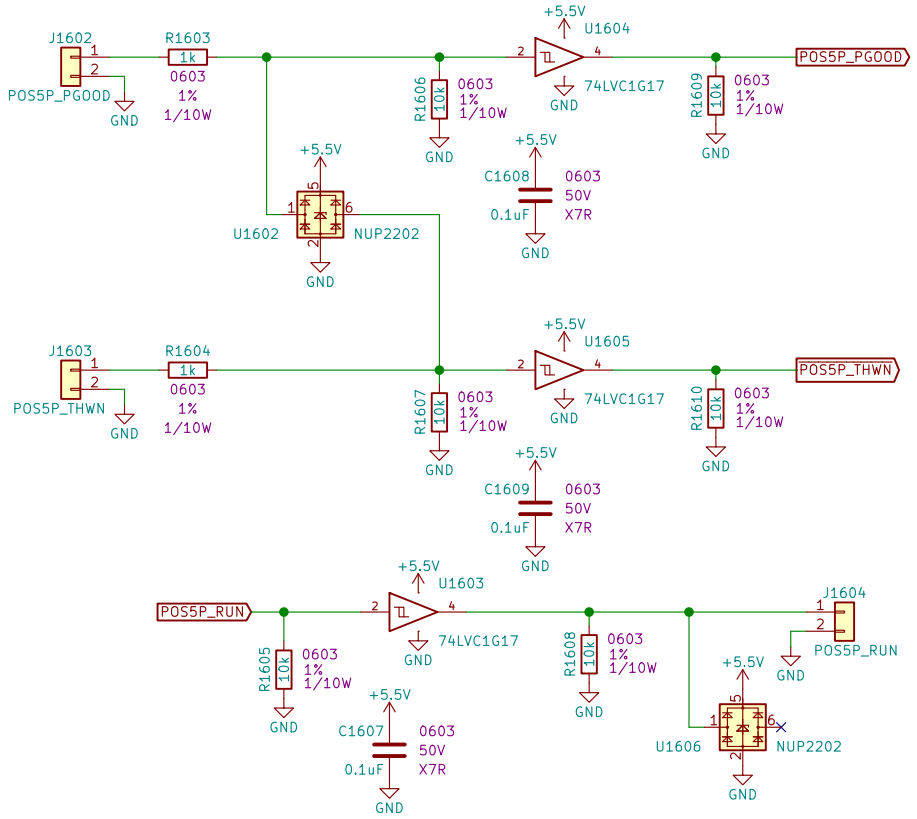
16. LED Power Supply Monitoring







All headers on this sheet interface with power board to power panels

Sheet: /LED POS5 Monitoring/		
File: LED_POS5_Monitoring.sch		
Title:		
Size: A	Date:	**Rev:**
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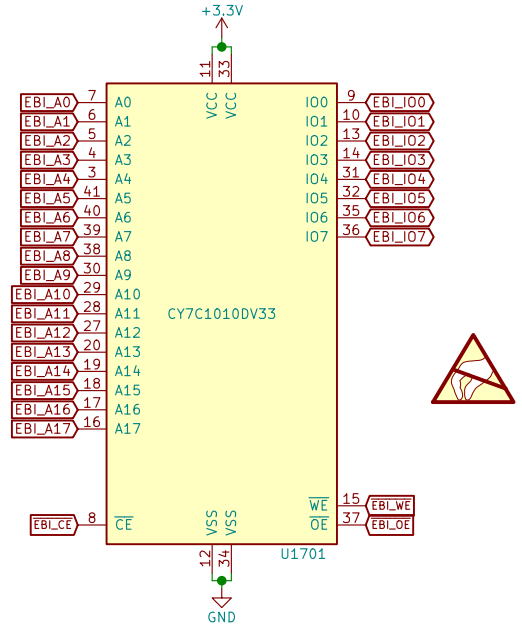
17. External SRAM



External SRAM stores the current slide being displayed
Each of the eight programmed slides are stored in external serial flash

Sheet: /External SRAM/		
File: External_SRAM.sch		
Title:		
Size: A	Date:	**Rev:**
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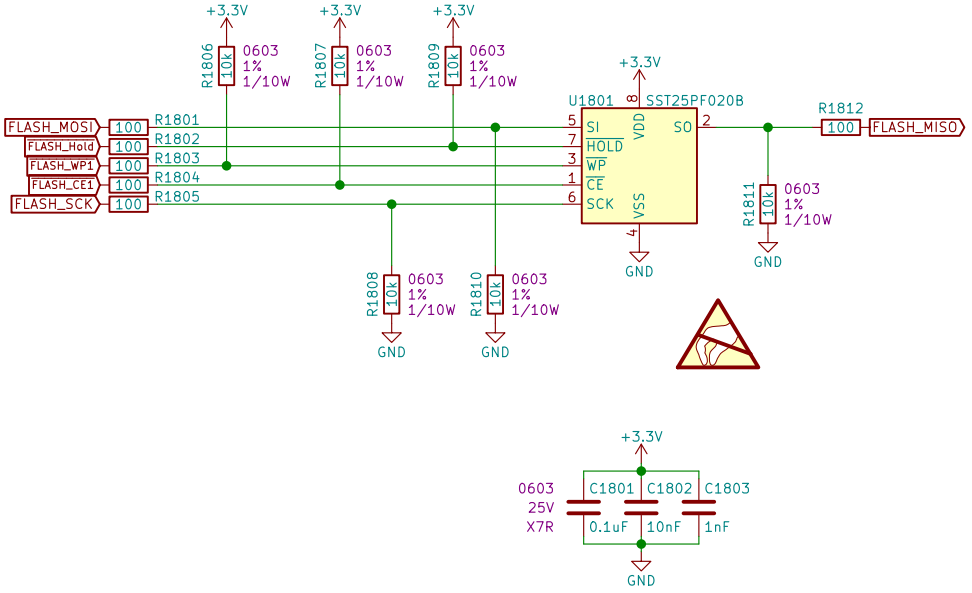
18. External FLASH 1



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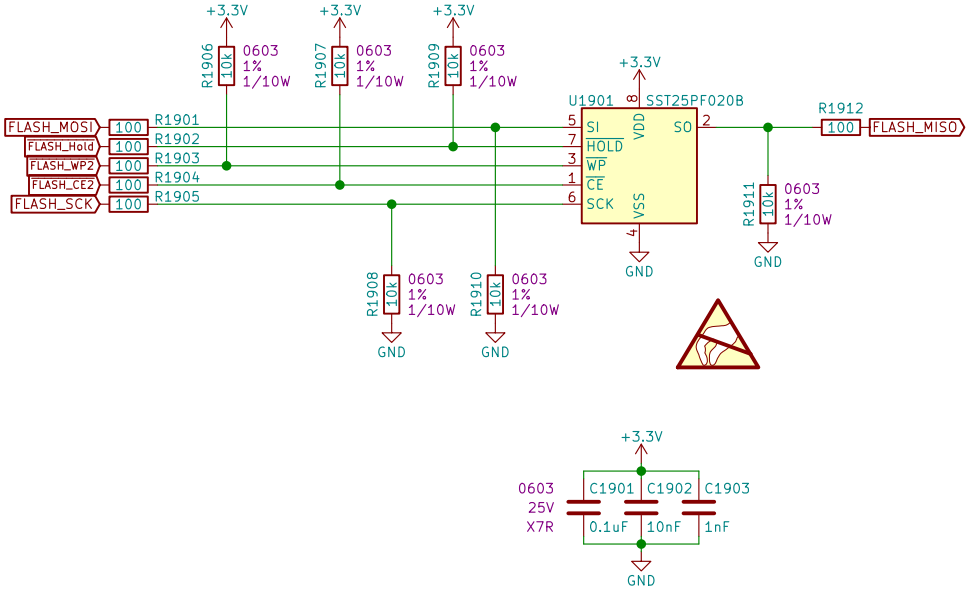
KiCad E.D.A. kicad (5.0.1)-3		Id: 18/31

19. External FLASH 2



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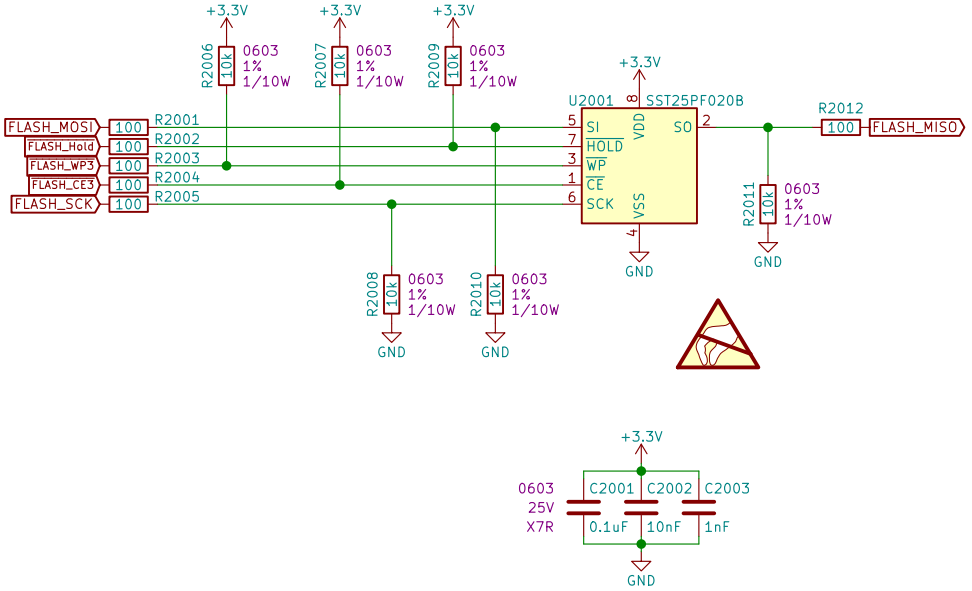
KiCad E.D.A. kicad (5.0.1)-3		Id: 19/31

20. External FLASH 3



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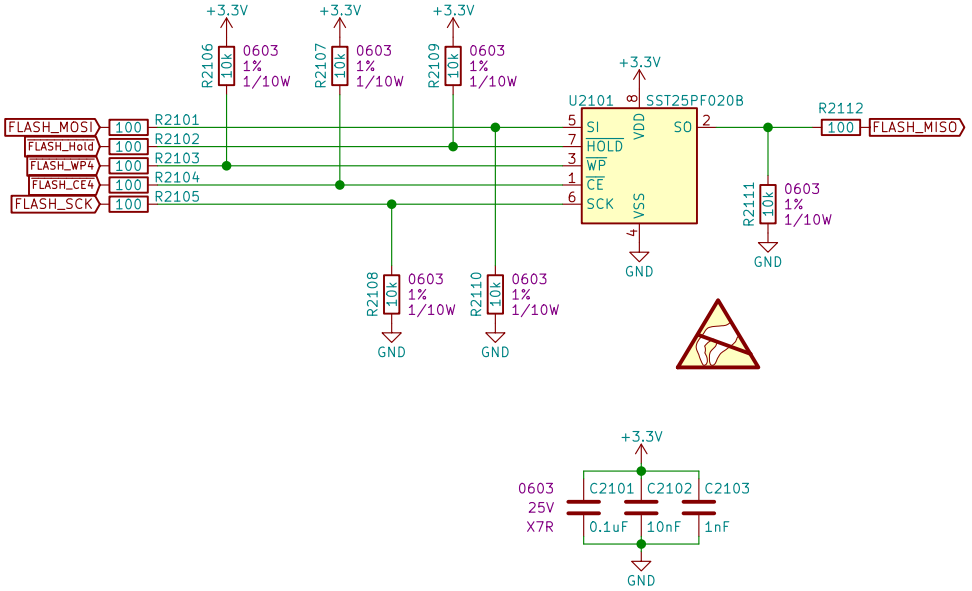
KiCad E.D.A. kicad (5.0.1)-3		Id: 20/31

21. External FLASH 4



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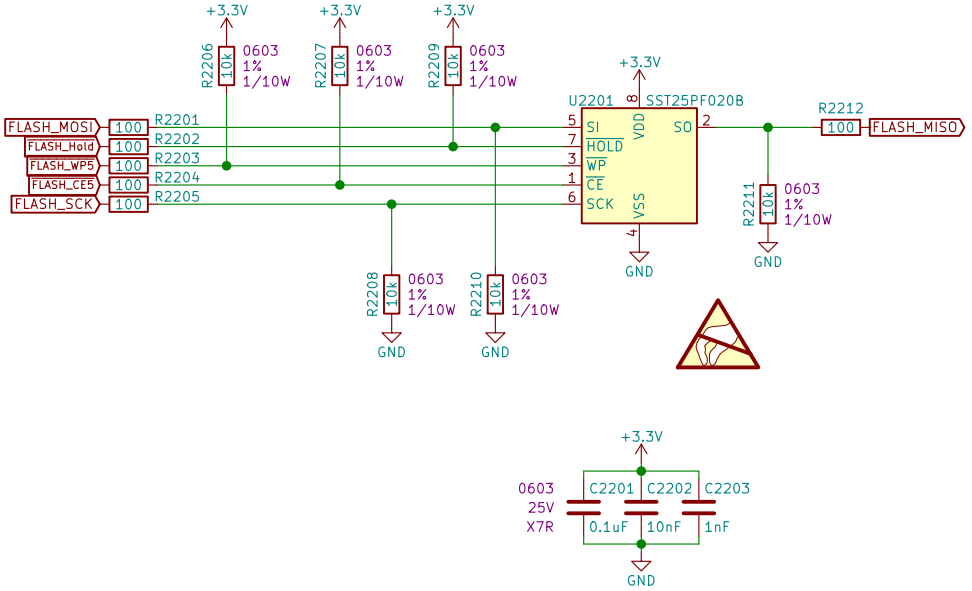
KiCad E.D.A. kicad (5.0.1)-3		Id: 21/31

22. External FLASH 5



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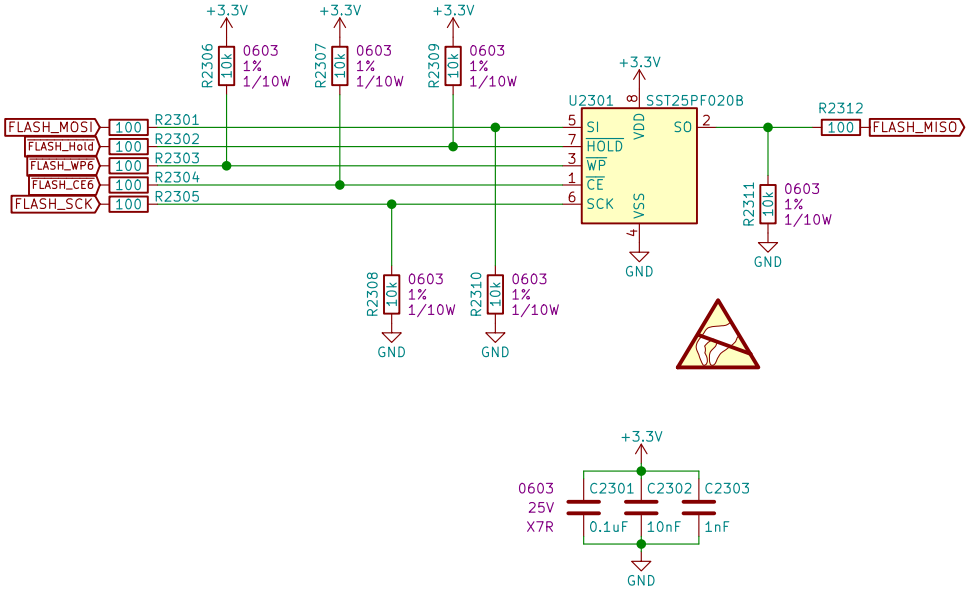
23. External FLASH 6



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File: External_Flash_6.sch		
Title:		
Size: A	Date:	**Rev:**
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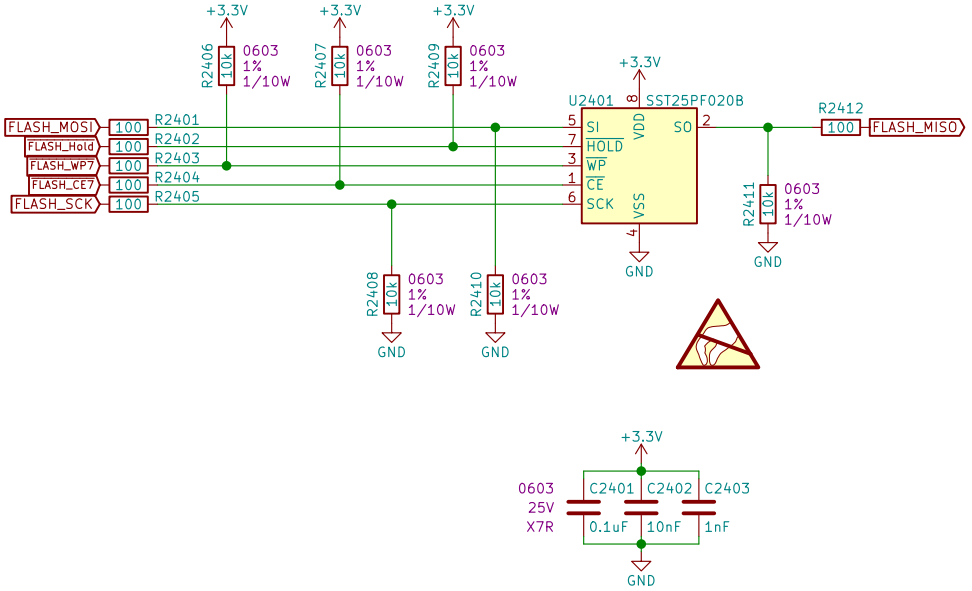
24. External FLASH 7



Sheet: /External Flash 7/		
File: External_Flash_7.sch		
Title:		
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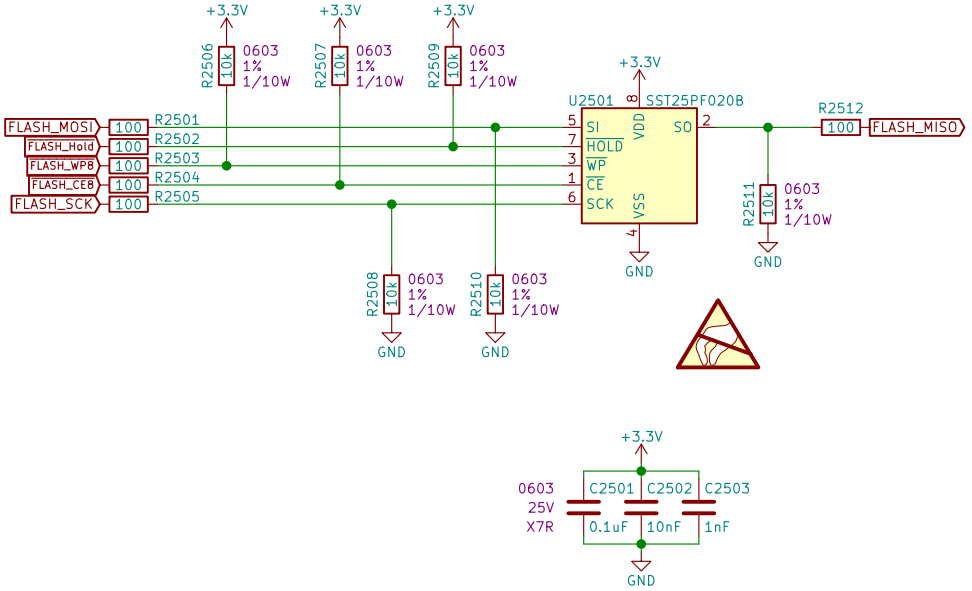
25. External FLASH 8



Sheet: /External Flash 8/		
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Size: A	Date:	**Rev:**
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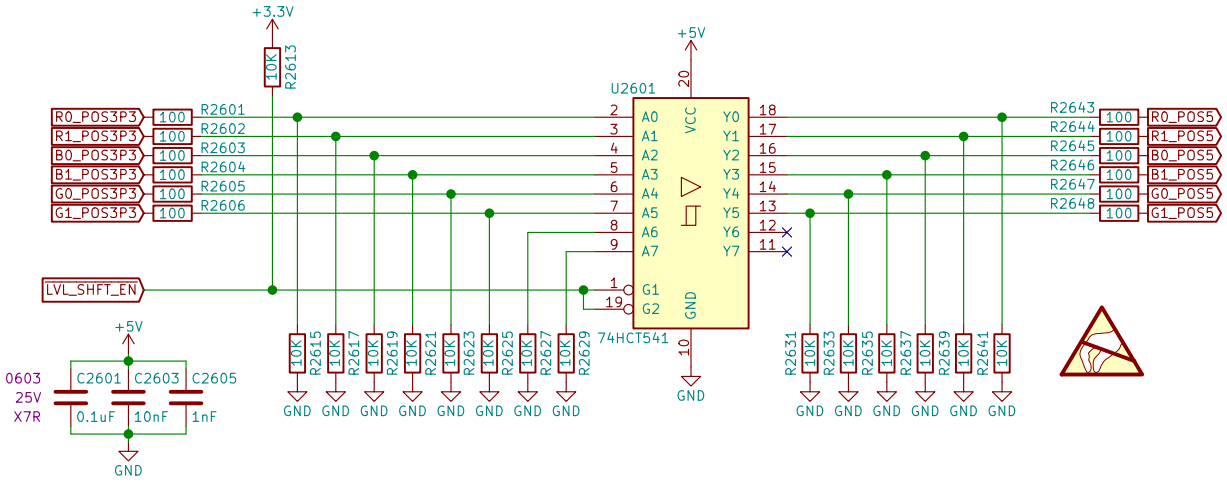
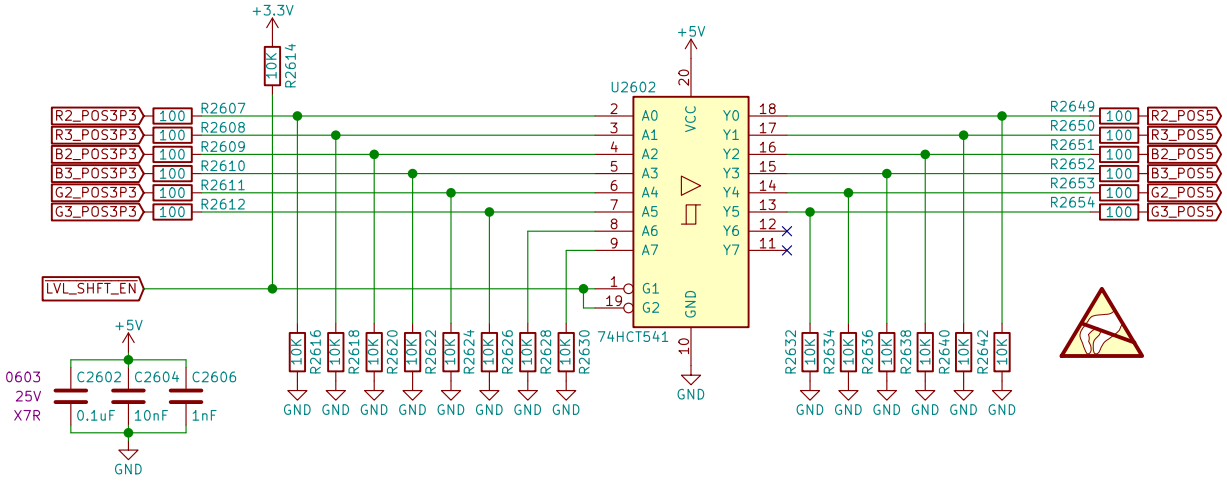
26. Panel Data Level Shifters 1





Sheet: /Panel Data Level Shifters 1/		
File: Panel_Data_Level_Shifters_1.sch		
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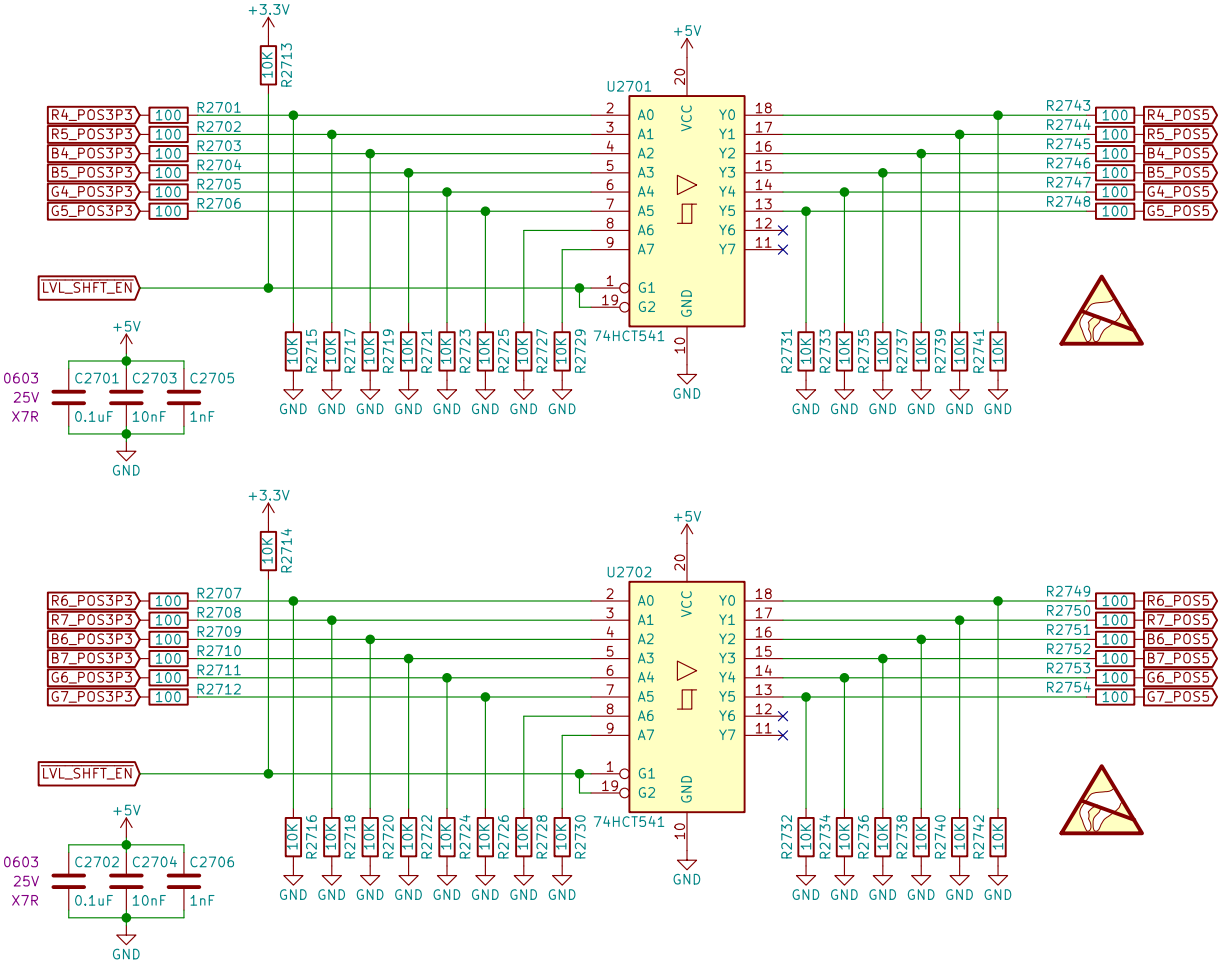
27. Panel Data Level Shifters 2



Sheet: /Panel Data Level Shifters 2/		
File: Panel_Data_Level_Shifters_2.sch		
Title:		
Size: A	Date:	**Rev:**
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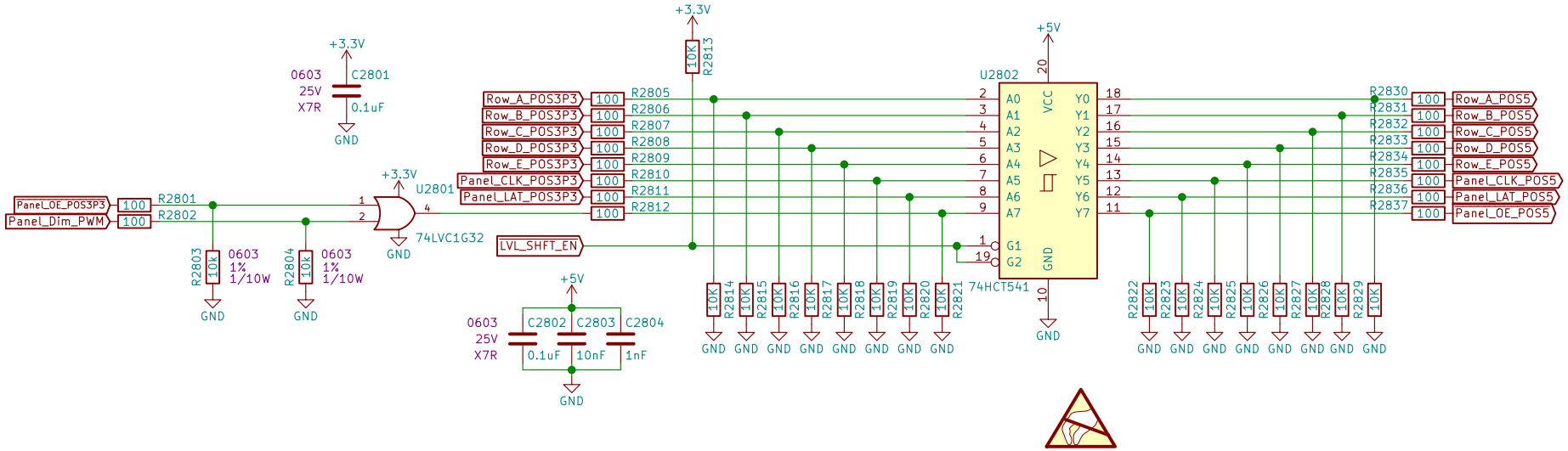
28. Panel Data Level Shifters 3



Sheet: /Panel Data Level Shifters 3/	
File: Panel_Data_Level_Shifters_3.sch	
Title:	
Size: A	Date:
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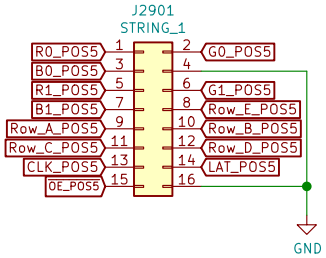
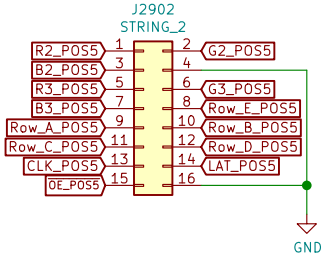
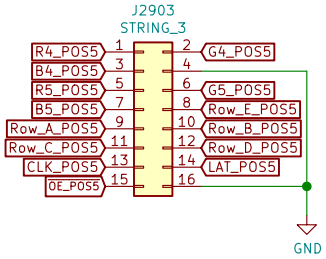
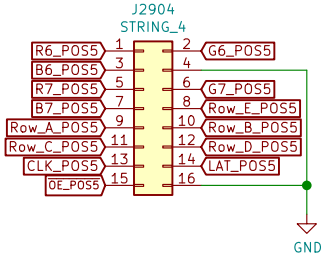
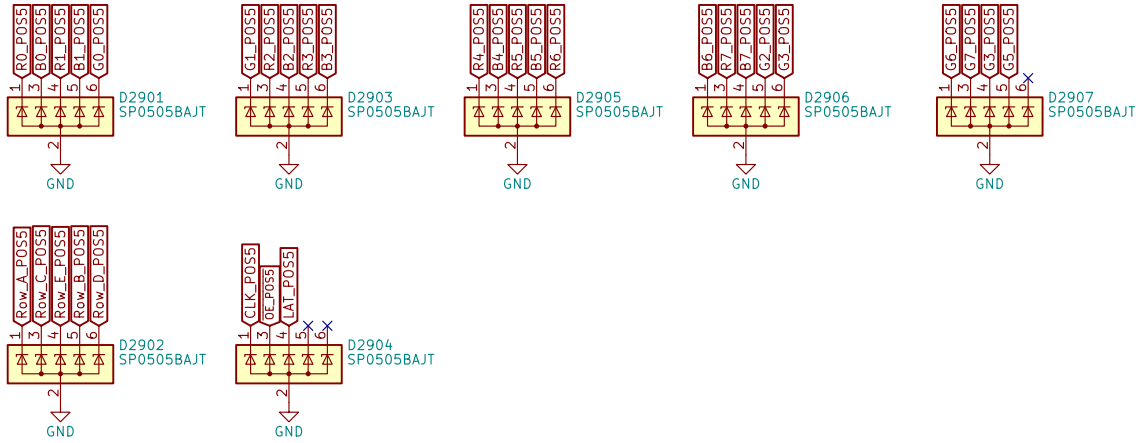
29. Panel Data Connectors











String 1 is the top string.
String 4 is the bottom string.
Each string is 5 panels long
Each panel is 64x64 pixels
This yields a 320x256 pixel overall display resolution

Sheet: /Panel Data Connectors/ File: Panel_Data_Connectors.sch		
Title:		
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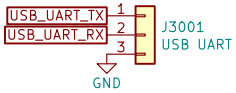
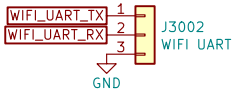
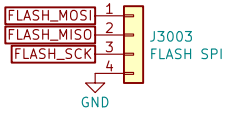
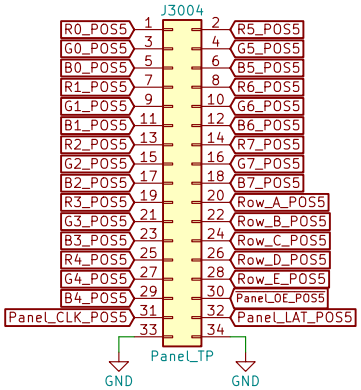
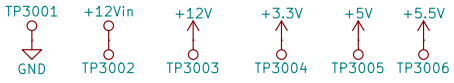
30. Test Points











Sheet: /Test Points/ File: Test_Points.sch		
Title:		
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31. Mechanical

4-40 Standoff
MK3101

4-40 Standoff
MK3105

4-40 Standoff
MK3109

4-40 Standoff
MK3113

4-40 Standoff
MK3117

4-40 Standoff
MK3121

4-40 Standoff
MK3102

4-40 Standoff
MK3106

4-40 Standoff
MK3110

4-40 Standoff
MK3114

4-40 Standoff
MK3118

4-40 Standoff
MK3122

4-40 Screw
MK3103

4-40 Screw
MK3107

4-40 Screw
MK3111

4-40 Screw
MK3115

4-40 Screw
MK3119

4-40 Screw
MK3123

4-40 Screw
MK3104

4-40 Screw
MK3108

4-40 Screw
MK3112

4-40 Screw
MK3116

4-40 Screw
MK3120

4-40 Screw
MK3124

H3101
3mm Mounting Hole

H3103
3mm Mounting Hole

H3105
3mm Mounting Hole

H3107
3mm Mounting Hole

H3109
3mm Mounting Hole

H3111
3mm Mounting Hole

H3102
3mm Mounting Hole

H3104
3mm Mounting Hole

H3106
3mm Mounting Hole

H3108
3mm Mounting Hole

H3110
3mm Mounting Hole

H3112
3mm Mounting Hole

Sheet: /Mechanical/
File: Mechanical.sch

Title:

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