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Electronic Display

Marquette Universiy Senior Design 2018, Group E44

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

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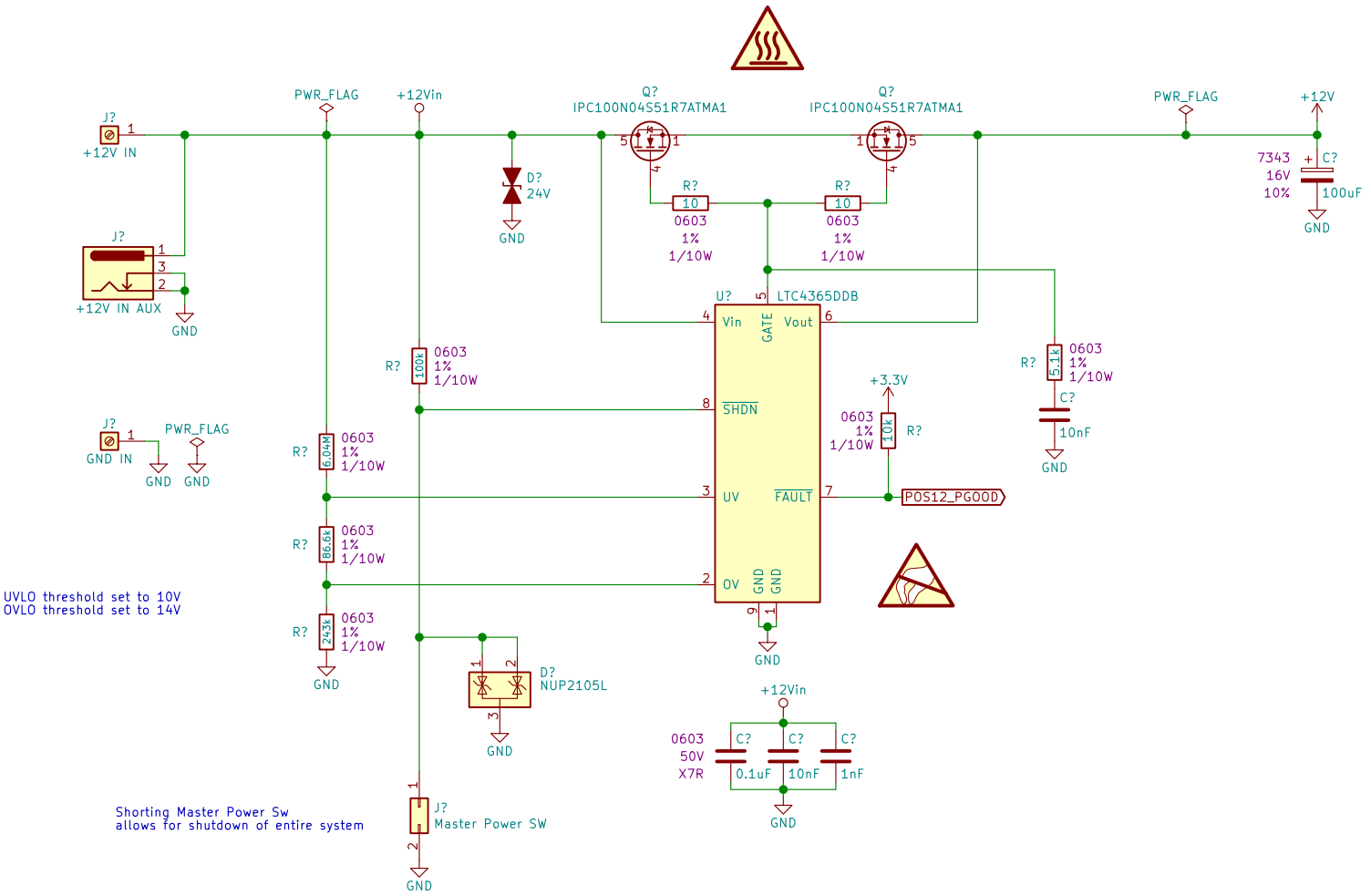
To Do List:
* Assign Refdes's
* Verify pinouts
* Verify peripheral wiring on micro
* Draw custom footprints
* Assign footprints
* Assign Digi-Key Partnumbers
* Run ERC, resolve errors
* Generate netlist
* Generate BOM
* Layout PCB

Sheet: /
File: LED_Display_Controller.sch

Title:

Size: A	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 1/31

02. Power Input



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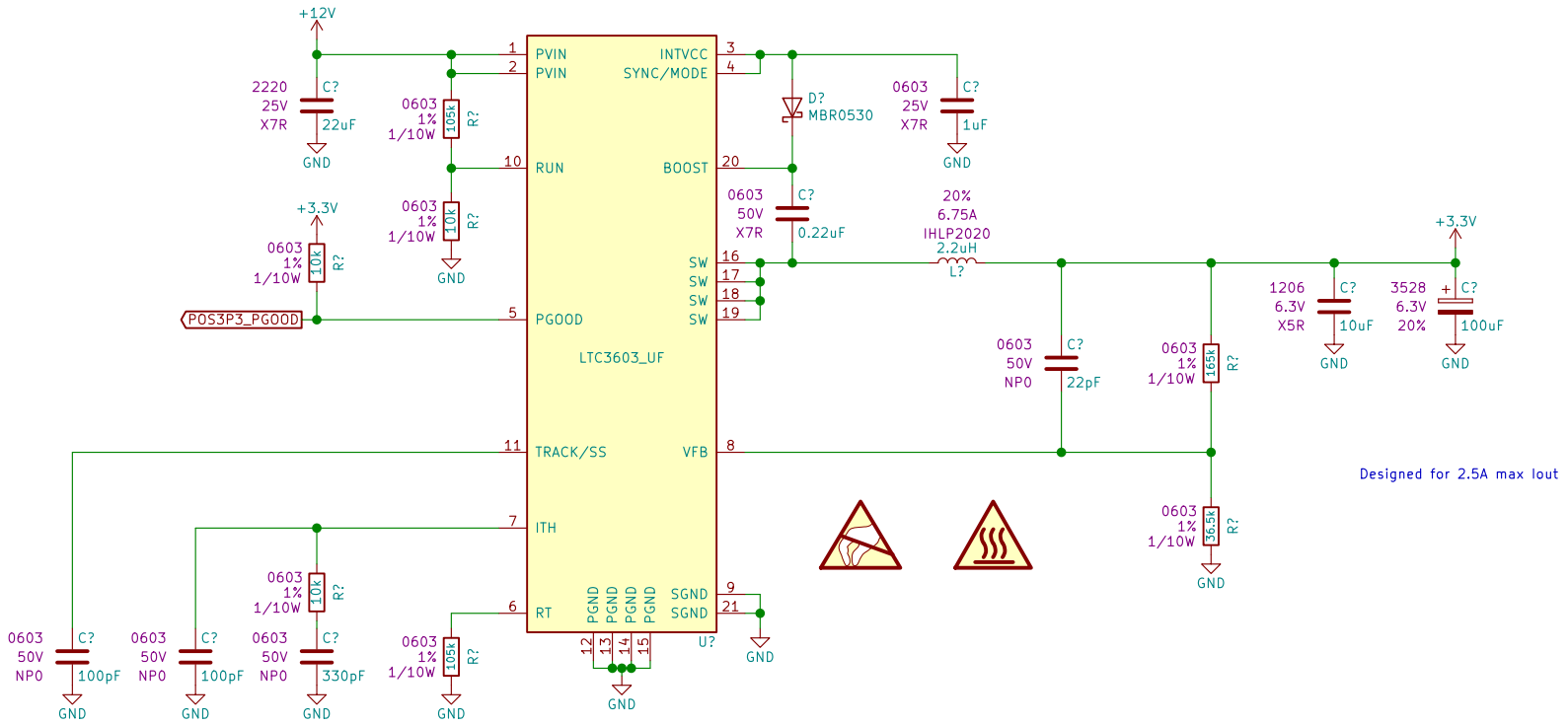
03. +3.3V Power Supply



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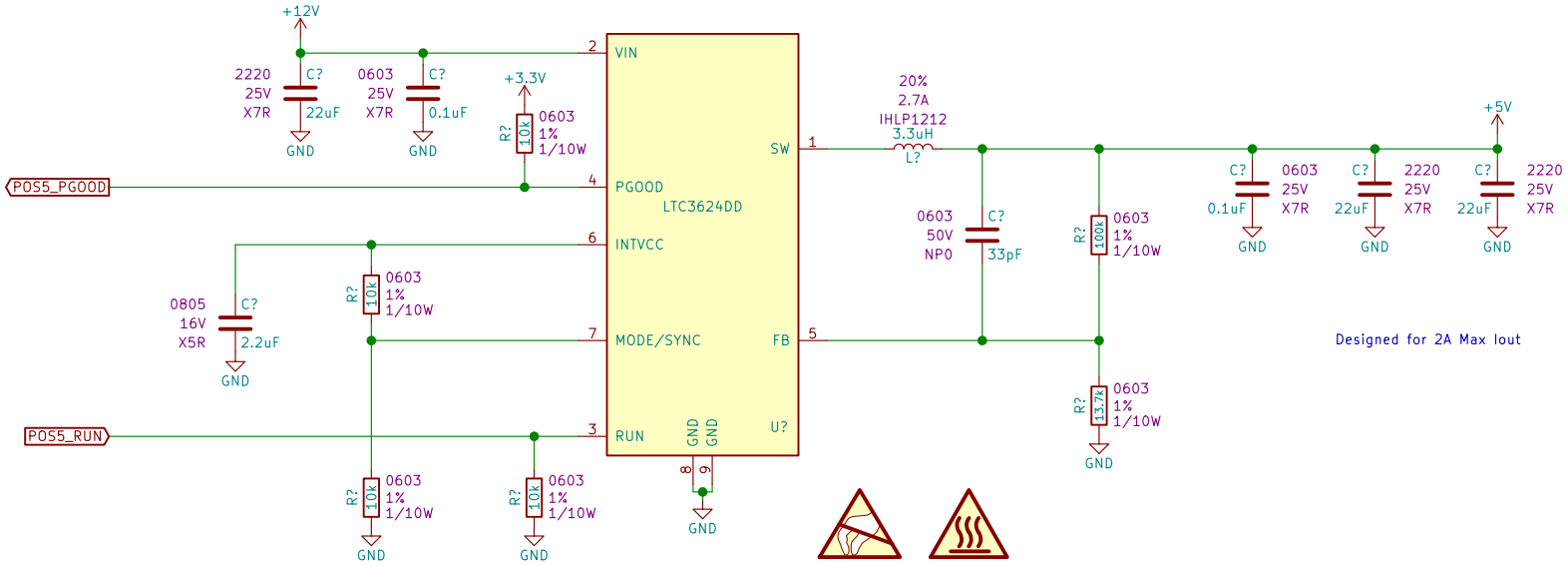
04. +5V Power Supply



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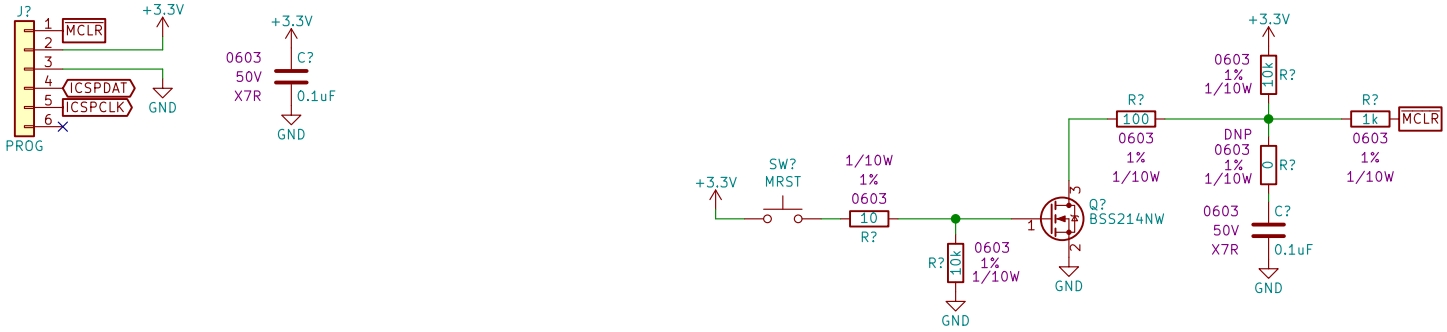
05. Microcontroller Programming



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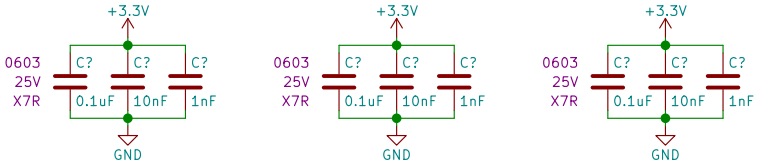
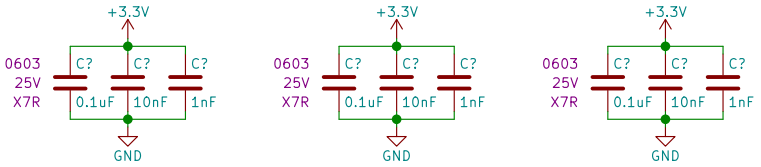
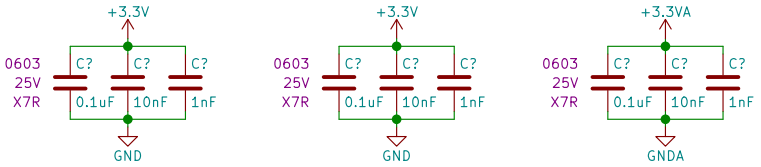
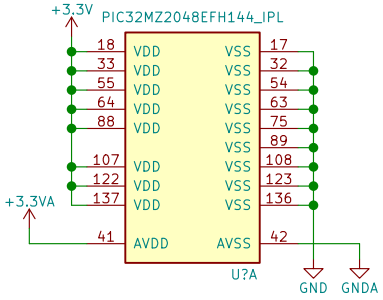
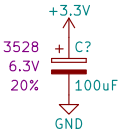
06. Microcontroller Power

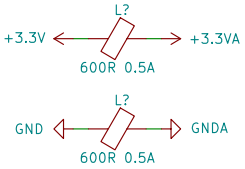












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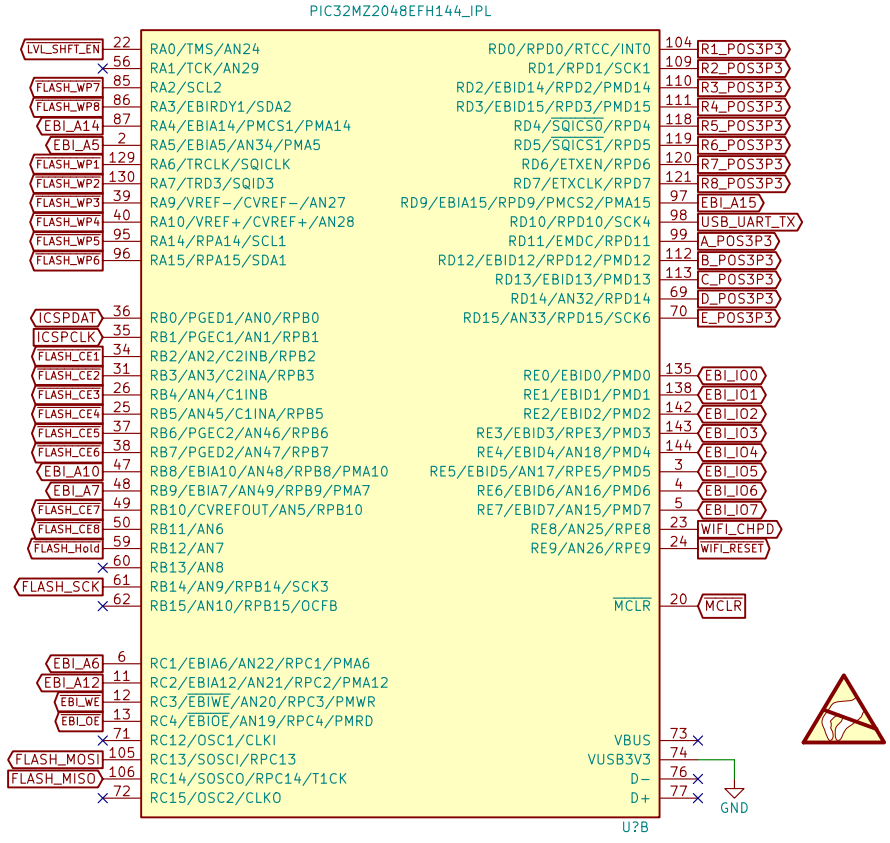
07. Microcontroller IO Bank 1



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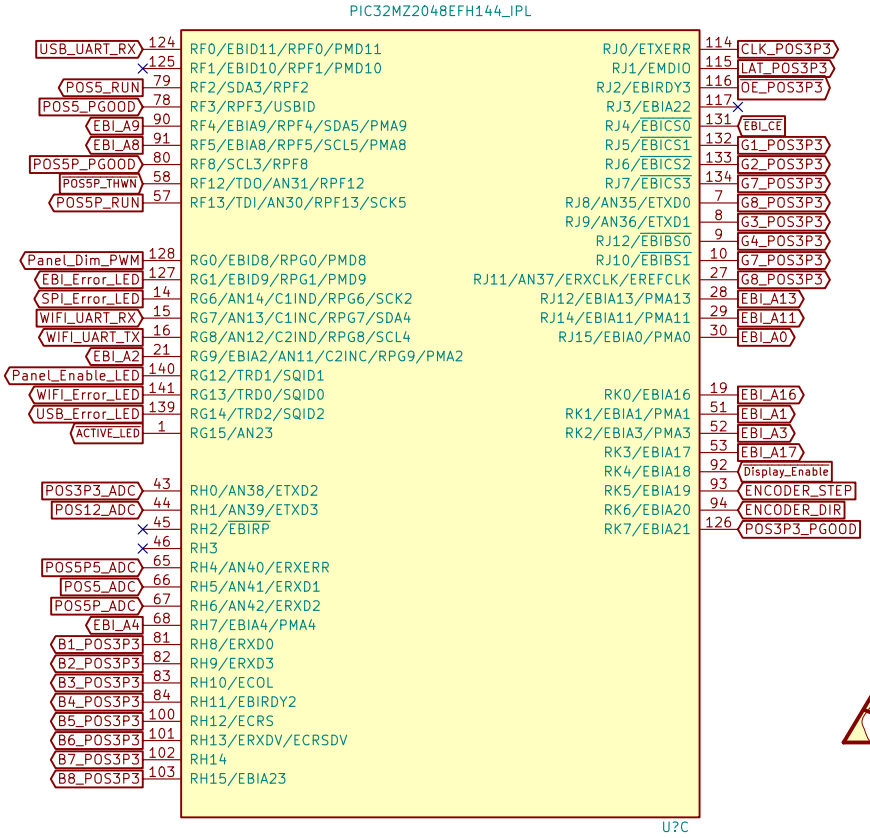
08. Microcontroller IO Bank 2



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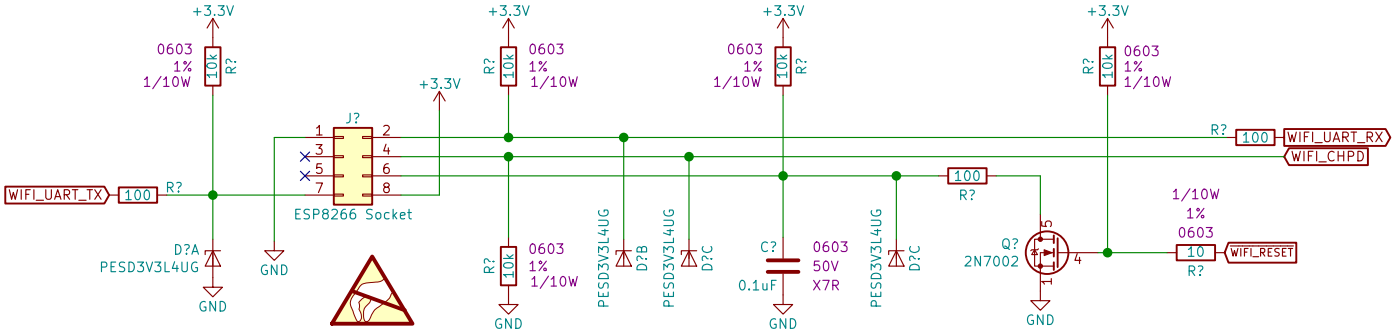
09. WiFi Module



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

Sheet: /WiFi Module/		
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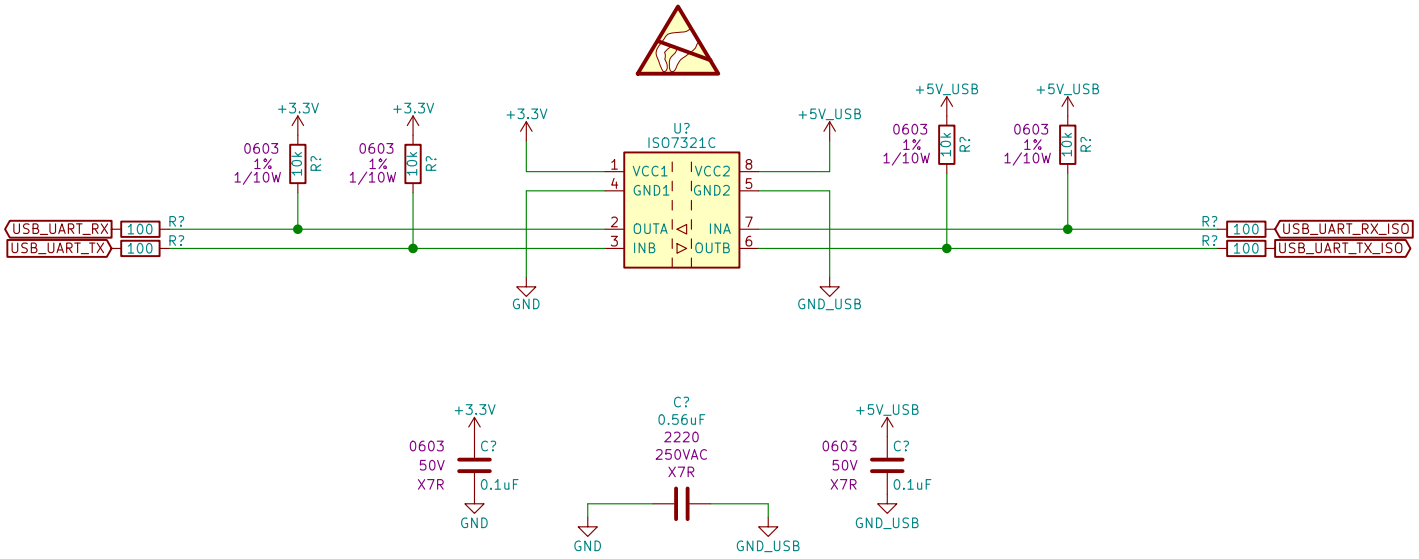
10. USB UART Digital Isolation



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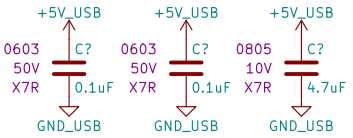
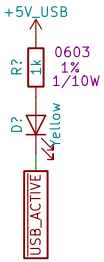
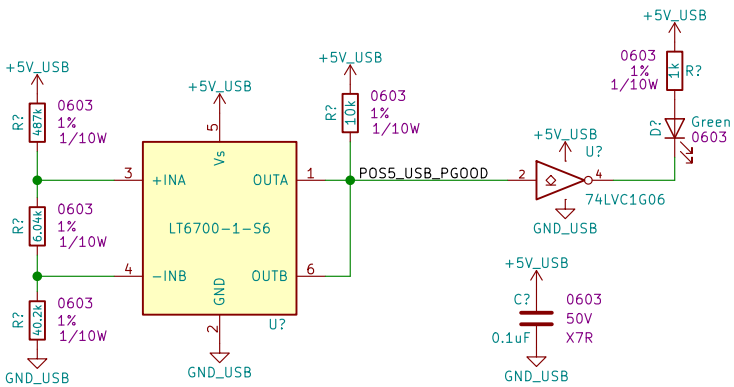
Size: A	Date:
KiCad E.D.A. kicad (5.0.1)-3	Id: 10/31

11. USB UART Bridge







USB Virtual COM Port Settings:

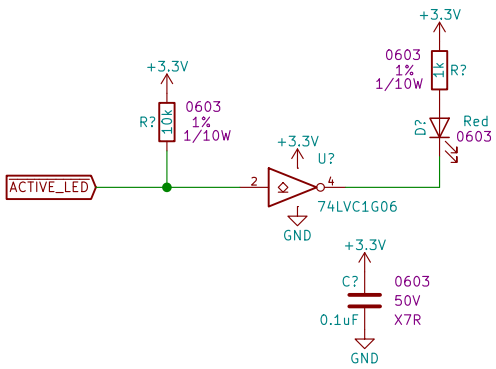
Baud Rate:	921600 bps
Data Length:	8 bit
Parity:	None
Stop Bits:	1
Flow Control:	None

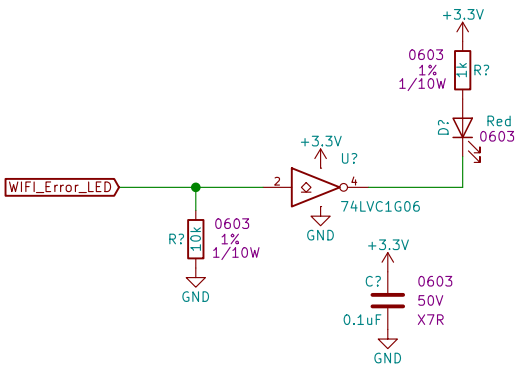
Sheet: /USB UART Bridge/
File: USB_UART_Bridge.sch

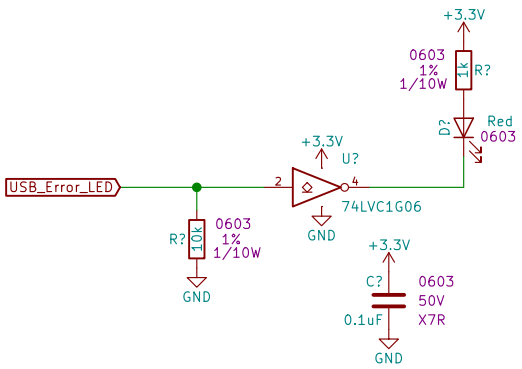
Title:

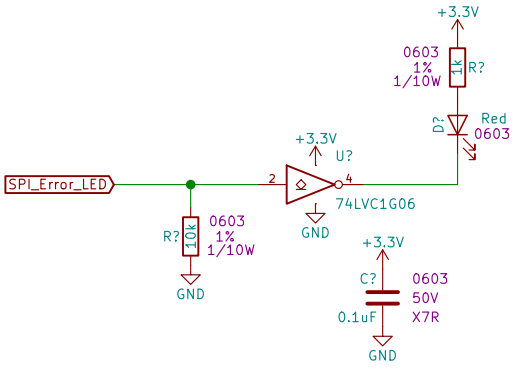
Size: A	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 11/31

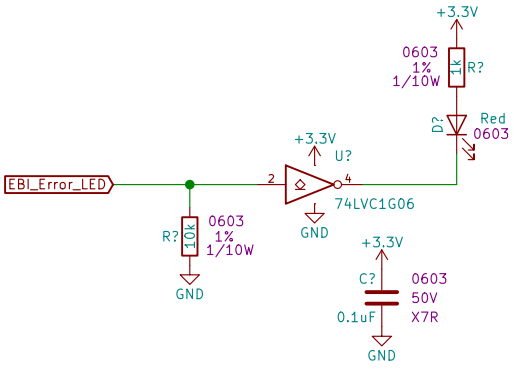
12. Status LEDs Bank 1

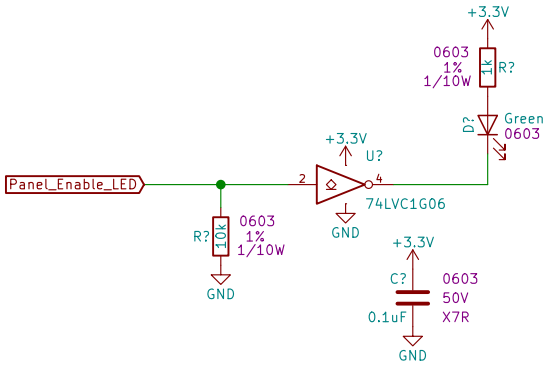












Sheet: /Status LEDs 1/
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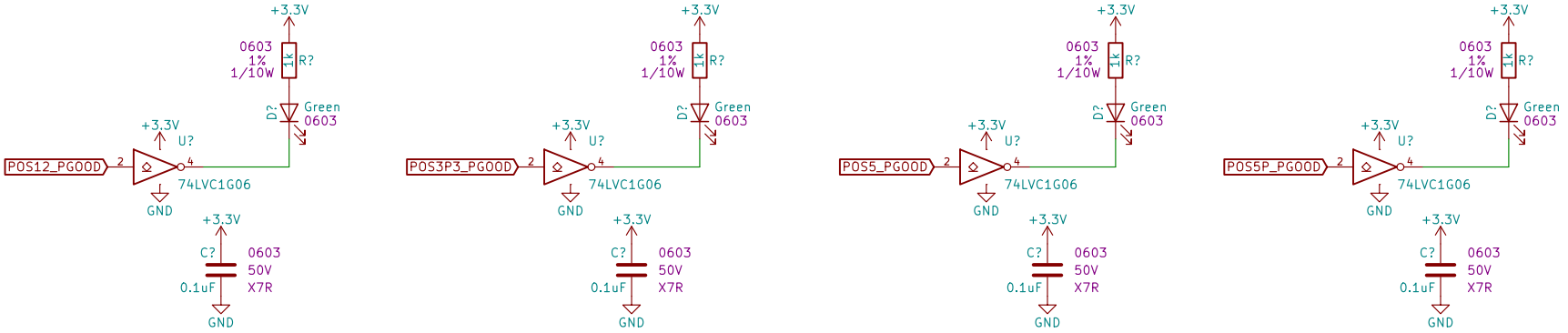
Title:

Size: A	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 12/31

13. Status LEDs Bank 2



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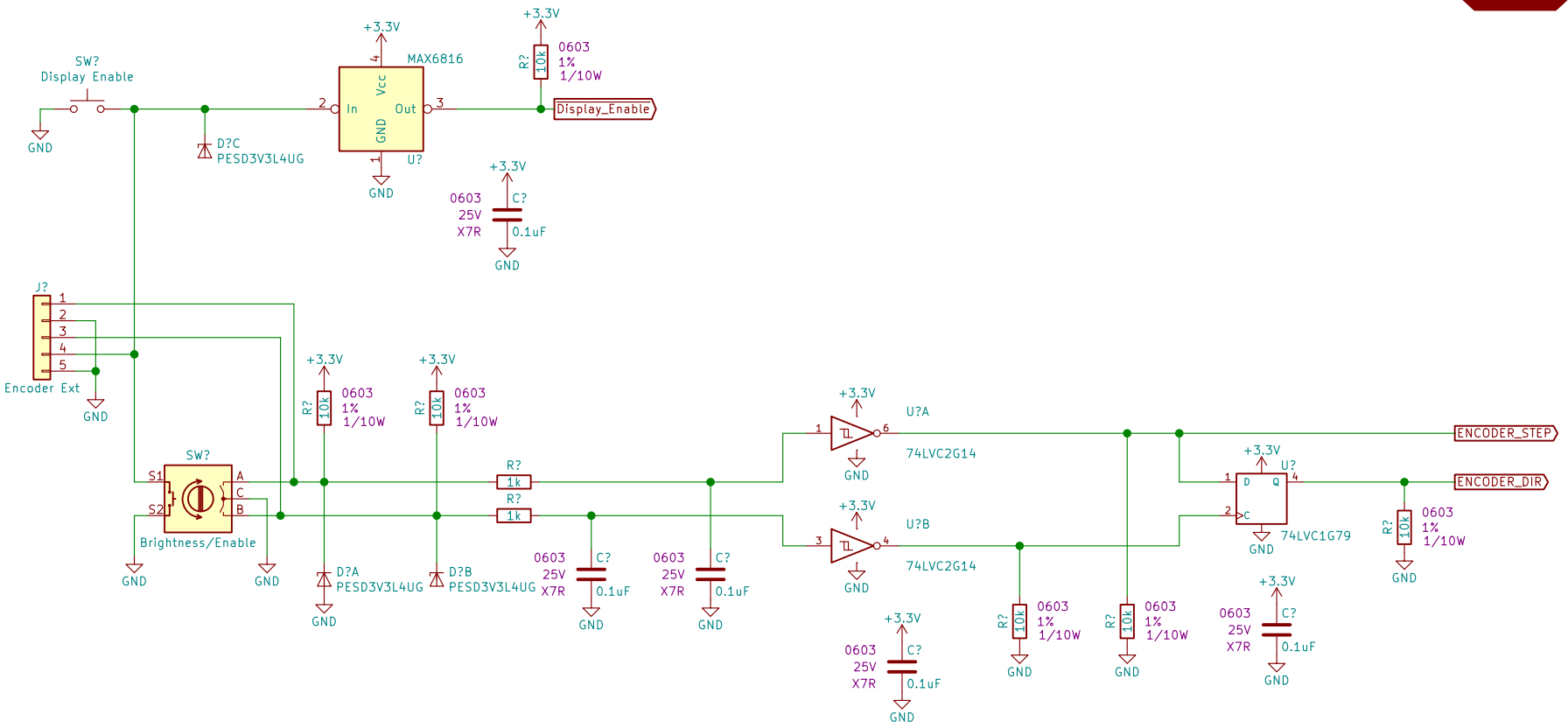
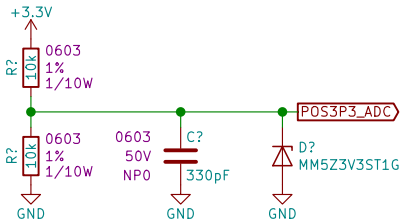
14. Pushbuttons

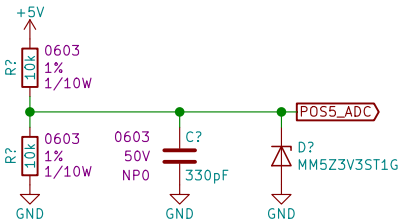


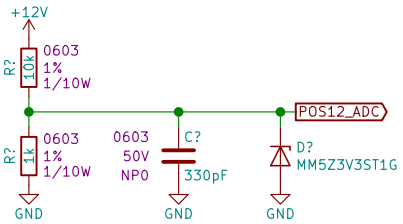
Turning rotary encoder will adjust display master brightness
Pressing encoder switch will toggle display on/off state

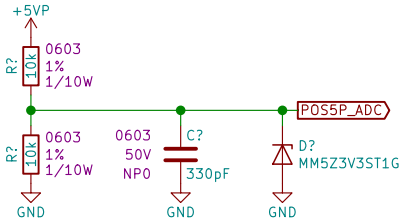
Sheet: /Pushbuttons/		
File: Pushbuttons.sch		
Title:		
Size: A	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 14/31

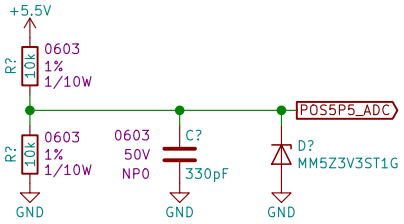
15. Internal Rail Monitoring











Sheet: /Internal Rail Monitoring/
File: Internal_Rail_Monitoring.sch

Title:

Size: A	Date:	**Rev:**
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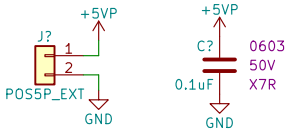
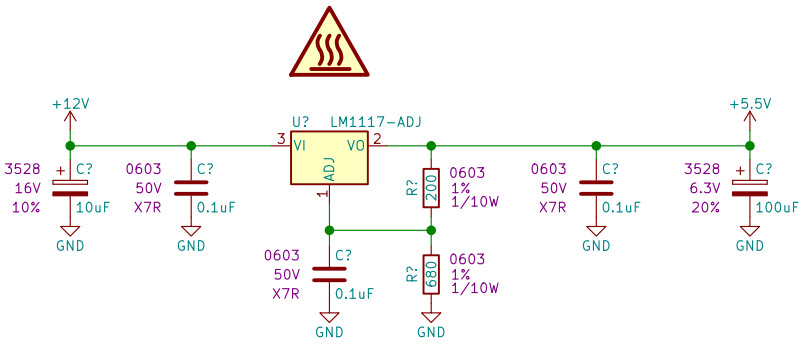
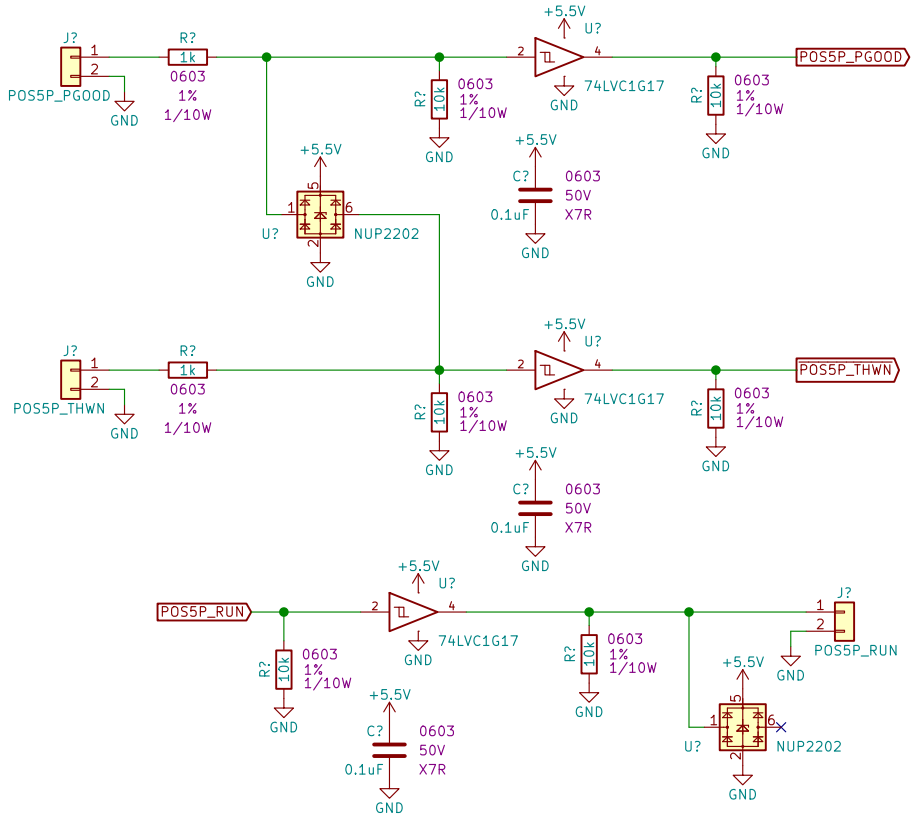
16. LED Power Supply Monitoring







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

Sheet: /LED POS5 Monitoring/		
File: LED_POS5_Monitoring.sch		
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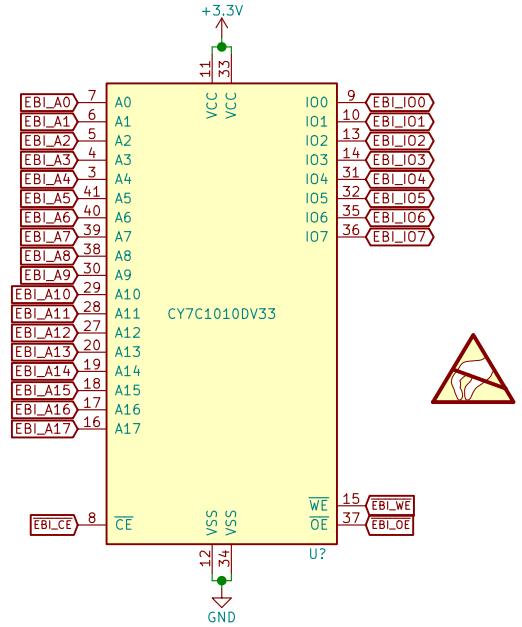
Size: A	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 16/31

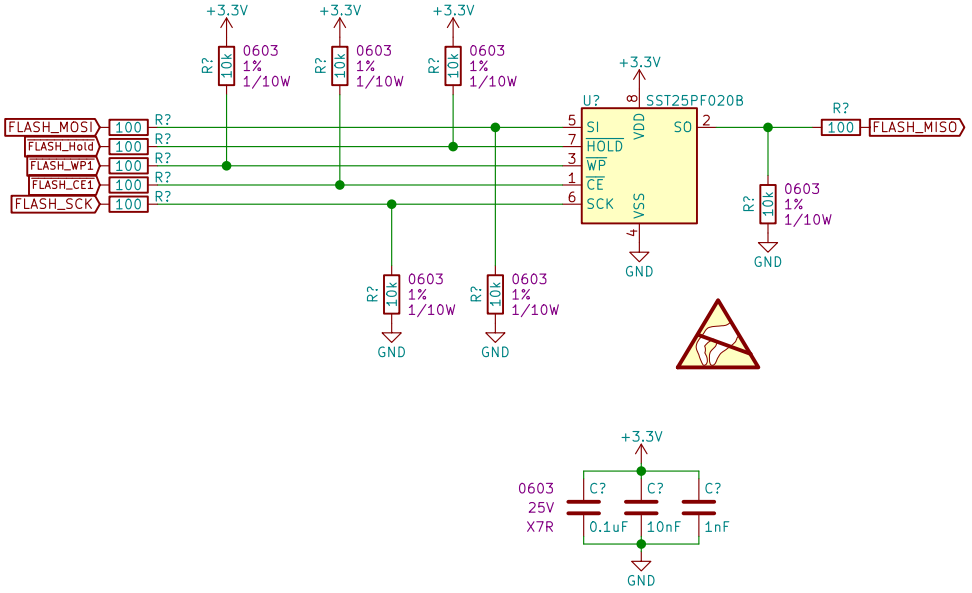
17. External SRAM



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:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 17/31

18. External FLASH 1



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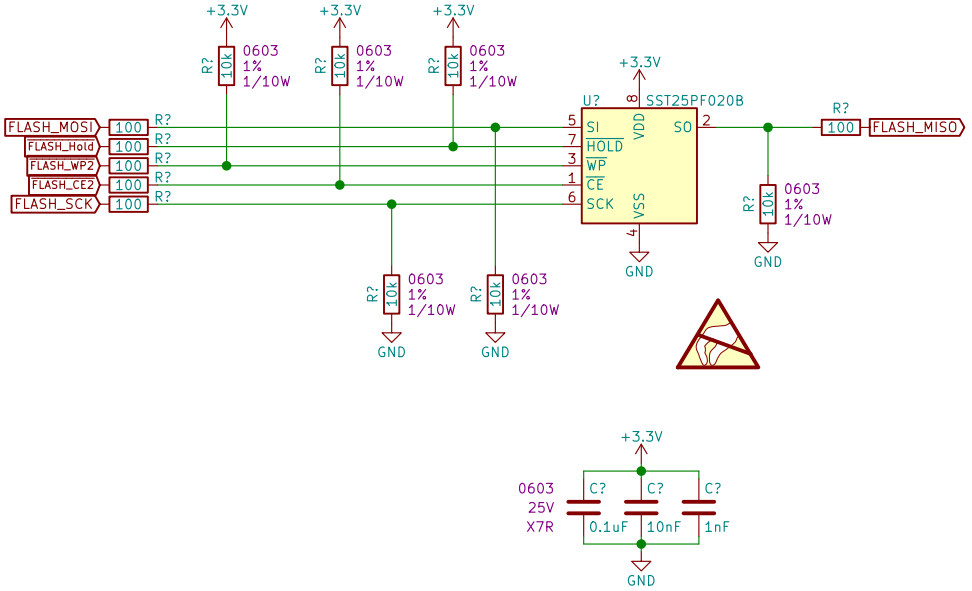
Title:		
Size: A	Date:	**Rev:**
KiCad E.D.A. kicad (5.0.1)-3		Id: 18/31

19. External FLASH 2



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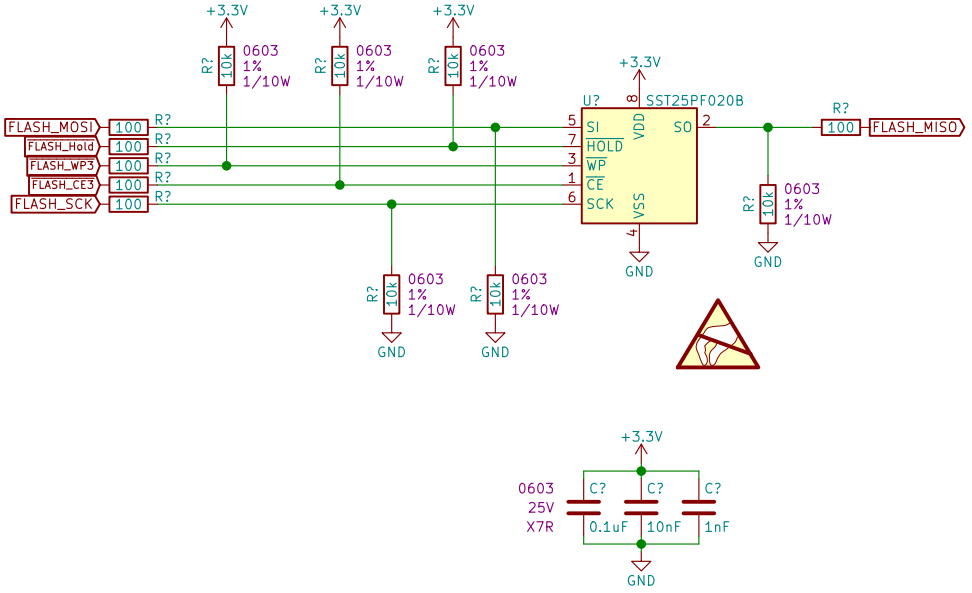
20. External FLASH 3



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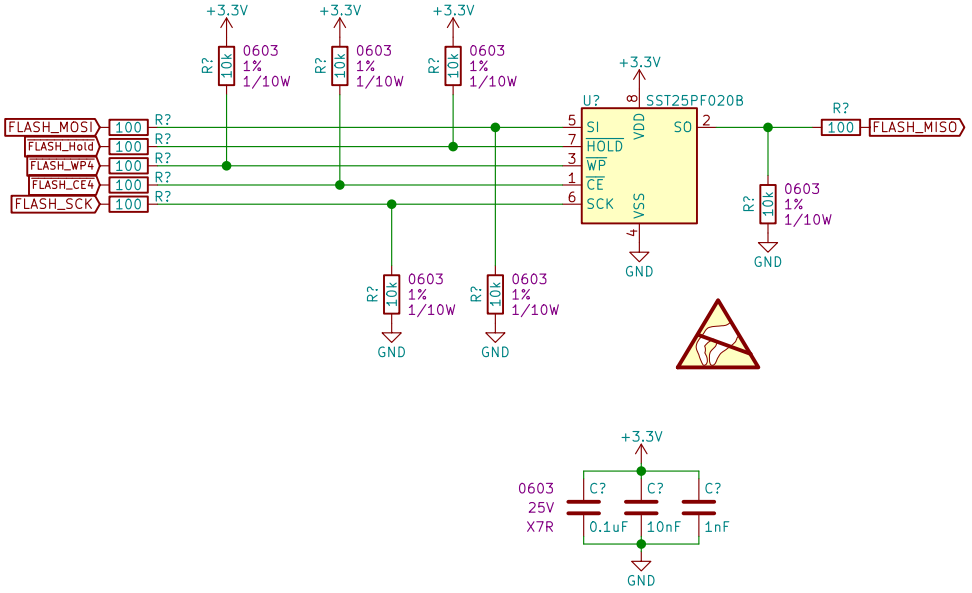
21. External FLASH 4



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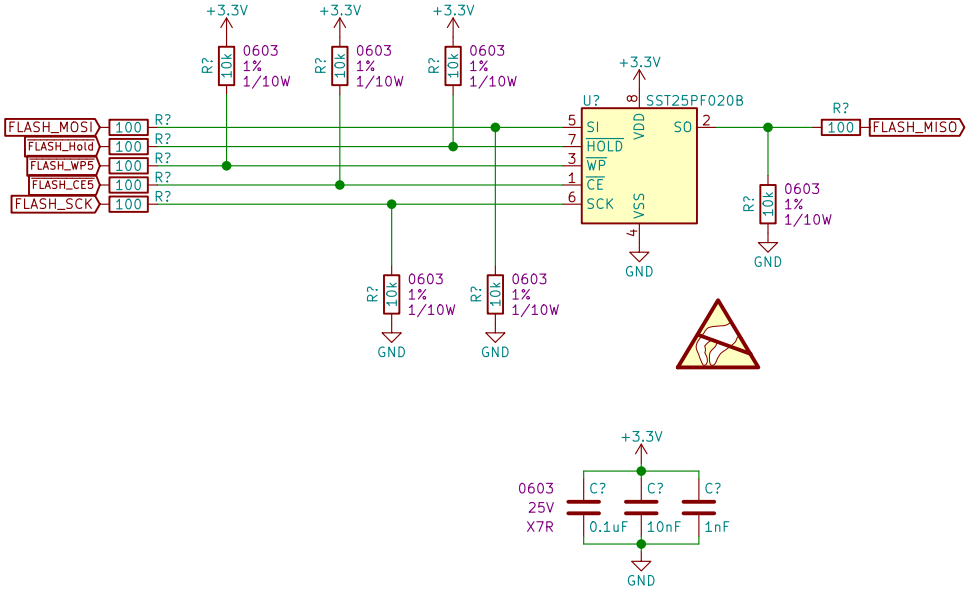
22. External FLASH 5



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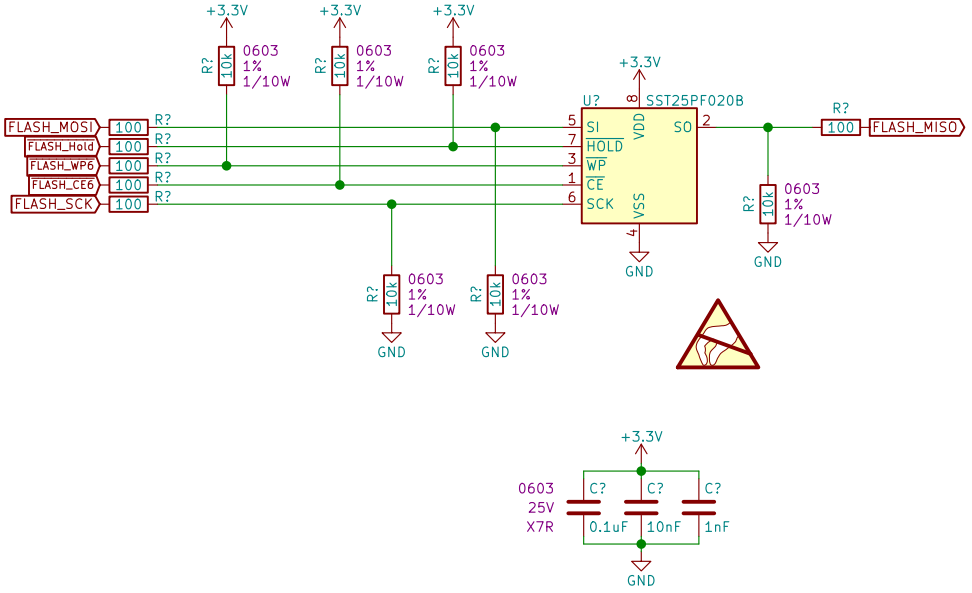
23. External FLASH 6



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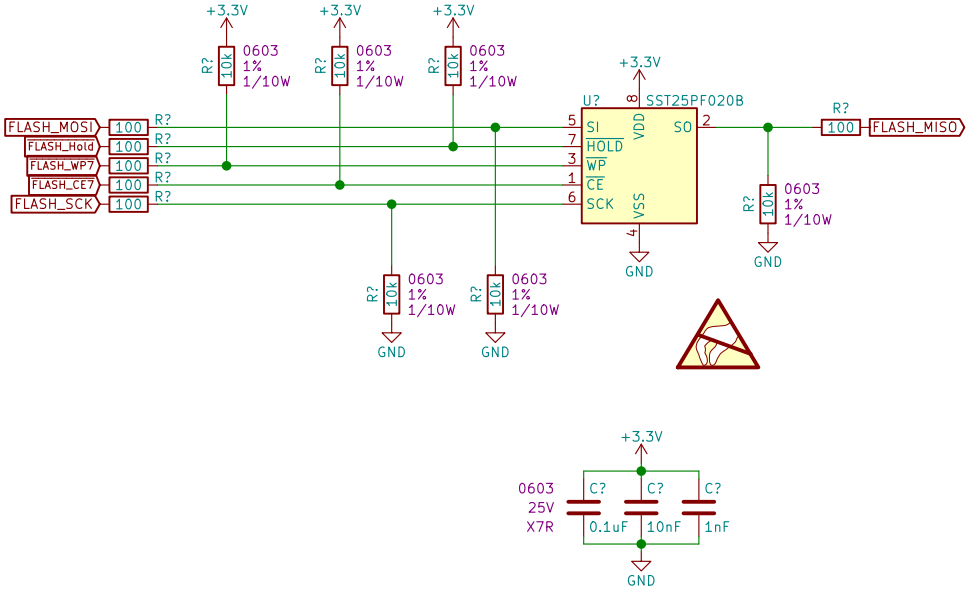
24. External FLASH 7



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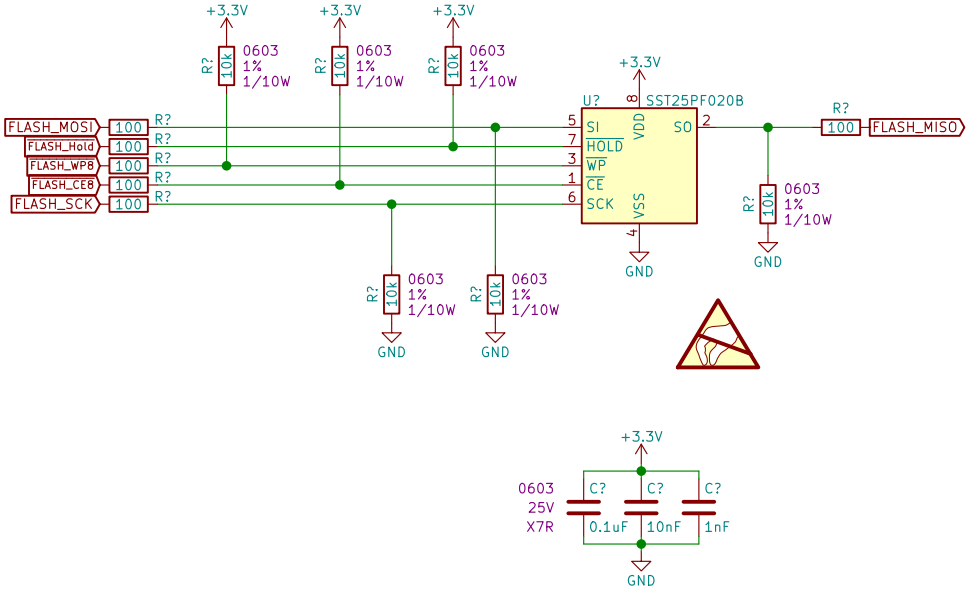
25. External FLASH 8



Sheet: /External Flash 8/		
File: External_Flash_8.sch		
Title:		
Size: A	Date:	**Rev:**
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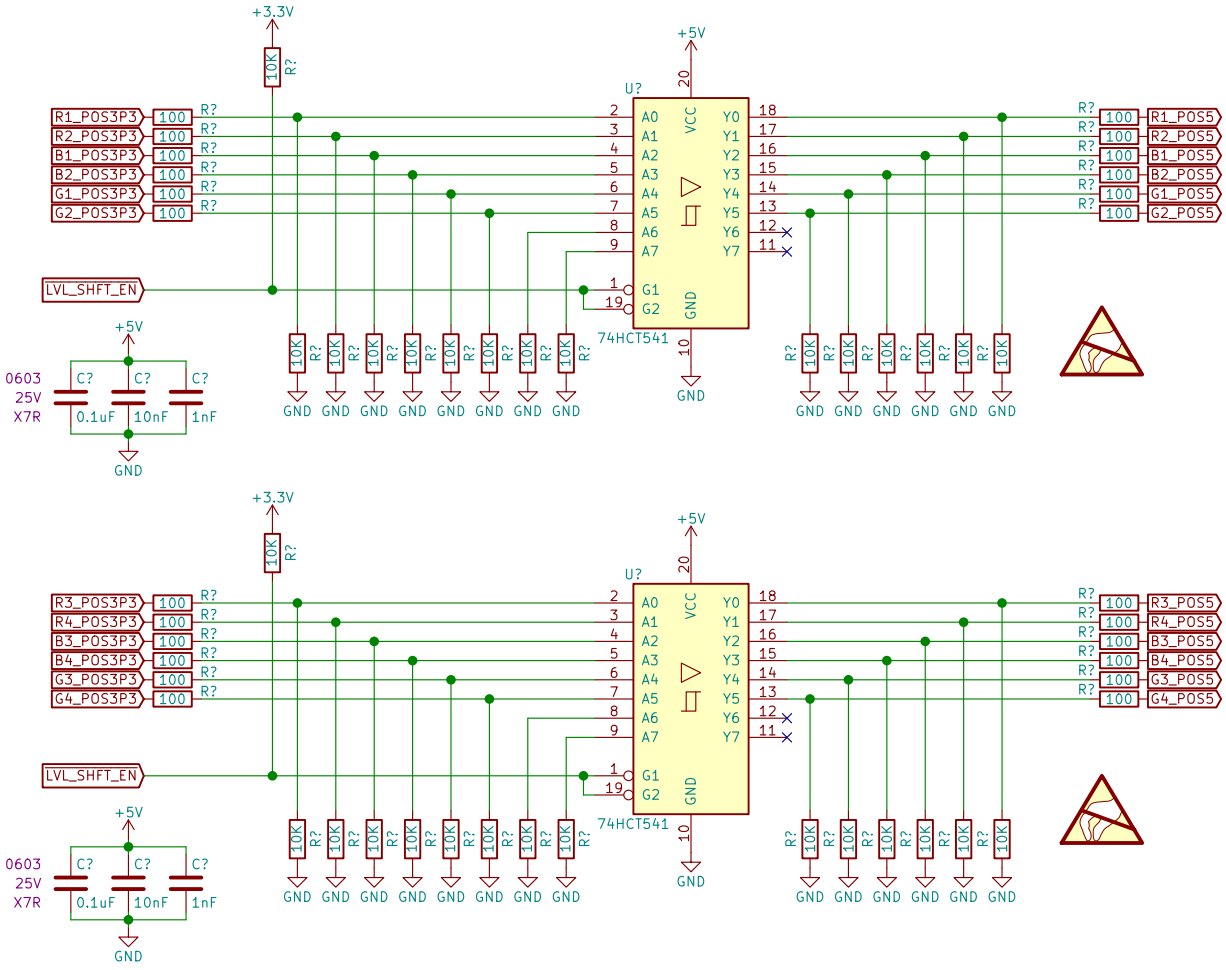
26. Panel Data Level Shifters 1



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Size: A	Date:	**Rev:**
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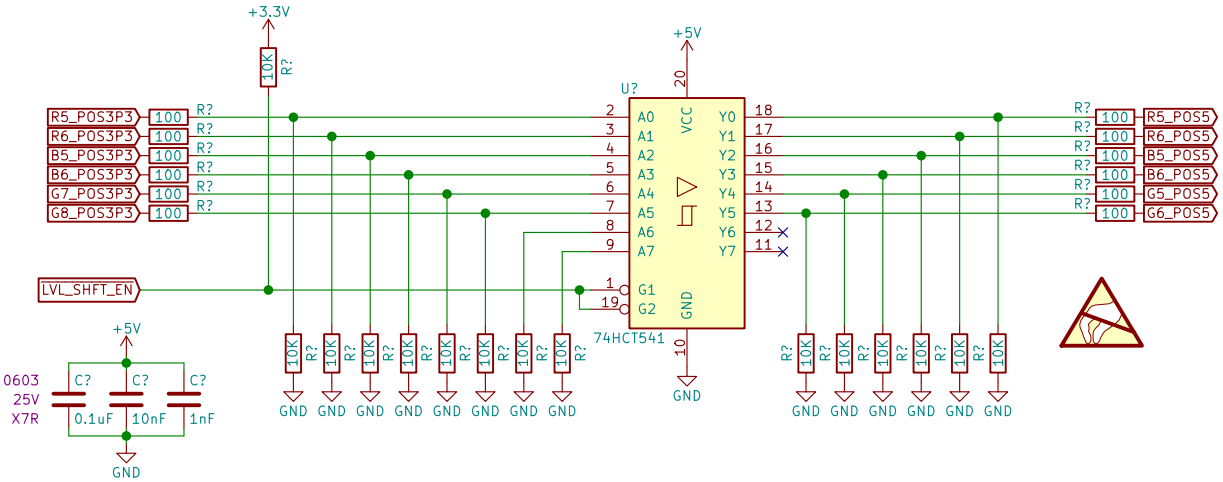
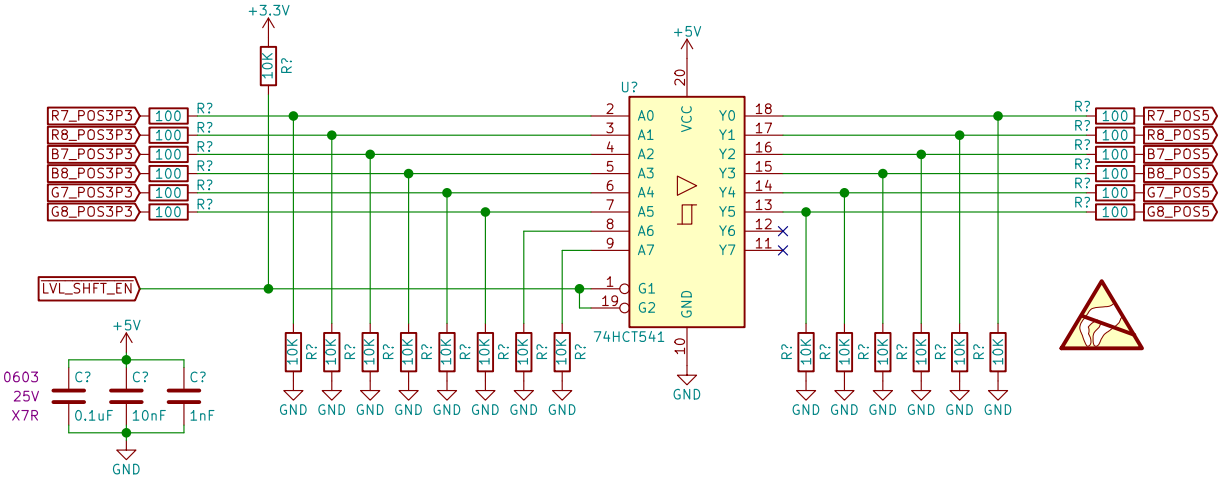
27. Panel Data Level Shifters 2





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Size: A	Date:	**Rev:**
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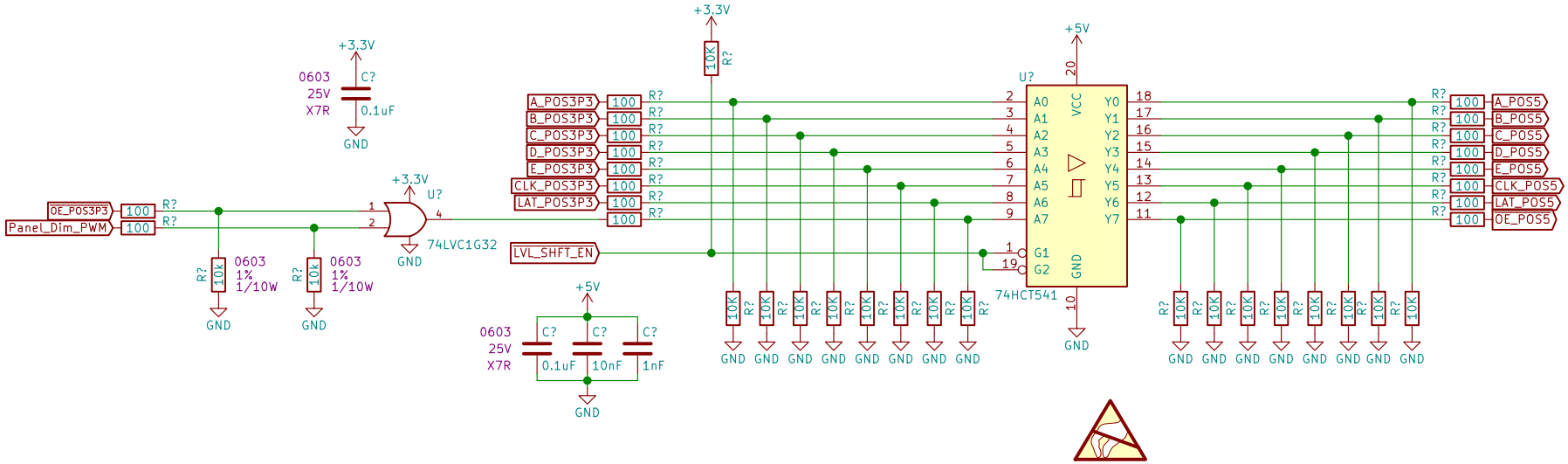
28. Panel Data Level Shifters 3



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Title:		
Size: A	Date:	**Rev:**
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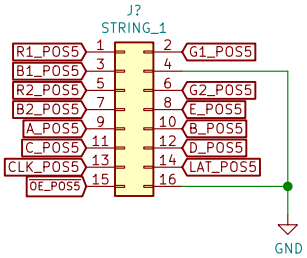
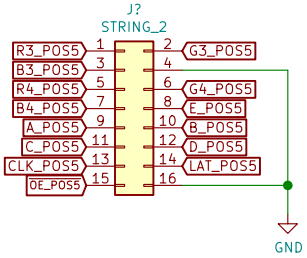
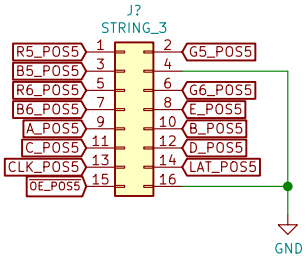
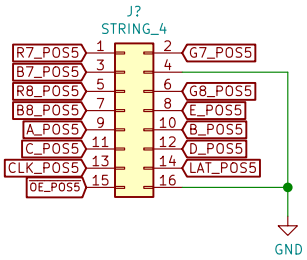
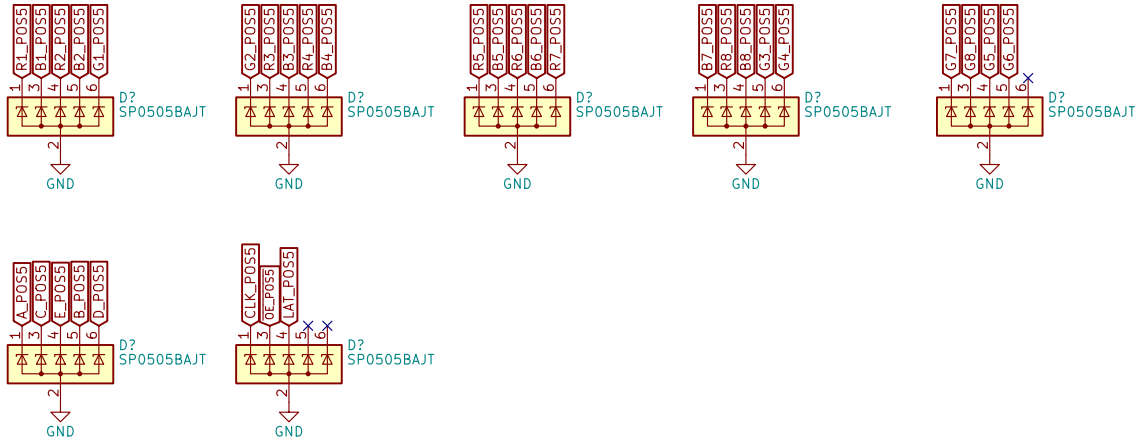
29. Panel Data Connectors











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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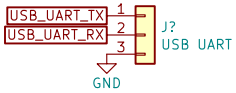
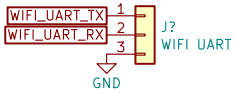
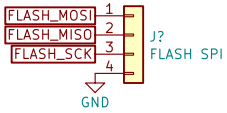
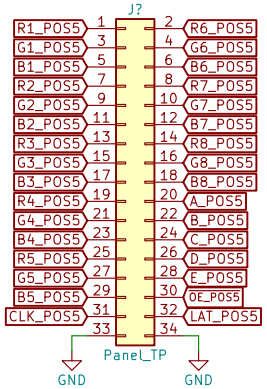
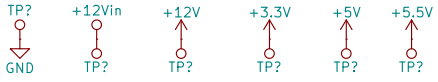
30. Test Points











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

4-40 Standoff
MK?

4-40 Standoff
MK?

4-40 Standoff
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4-40 Standoff
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4-40 Screw
MK?

4-40 Screw
MK?

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4-40 Screw
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4-40 Screw
MK?

4-40 Screw
MK?

4-40 Screw
MK?

4-40 Screw
MK?

4-40 Screw
MK?

H?
3mm Mounting Hole

H?
3mm Mounting Hole

H?
3mm Mounting Hole

H?
3mm Mounting Hole

H?
3mm Mounting Hole

H?
3mm Mounting Hole

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3mm Mounting Hole

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3mm Mounting Hole

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3mm Mounting Hole

H?
3mm Mounting Hole

Sheet: /Mechanical/
File: Mechanical.sch

Title:

Size: A	Date:	**Rev:**
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