LED Panel Controller

Sheet: +12V Input
File: POS12_Input.sch

Sheet: +12V Telemetry
File: POS12_Telemetry.sch

Sheet: +3.3V Power Supply
File: POS3P3_Power_Supply.sch

Sheet: +3.3V Telemetry
File: POS3P3_Telemetry.sch

Sheet: +5V Power Supply
File: POS5_Power_Supply.sch

Sheet: +5V Telemetry
File: POS5_Telemetry.sch

Sheet: PIC32MZ Programming
File: PIC32MZ_Programming.sch

Sheet: PIC32MZ Bypass
File: PIC32MZ_Bypass.sch

Sheet: PIC32MZ Clocking
File: PIC32MZ_Clocking.sch

Sheet: PIC32MZ
File: PIC32MZ.sch

Sheet: Config Hardstraps
File: config_hardstraps.sch

Sheet: I2C Boost
File: I2C_Boost.sch

Sheet: Platform ETC
File: Platform_ETC.sch

Sheet: USB UART Bridge
File: USB_UART_Bridge.sch

Sheet: SD Card Slot
File: SD_Card_Slot.sch

Sheet: WiFi Module
File: WiFi_Module.sch

Sheet: PGOOD LEDs
File: PGOOD_LEDs.sch

Sheet: Status LEDs
File: Status_LEDs.sch

Sheet: Backup RTC
File: Backup_RTC.sch

Sheet: Pushbuttons
File: Pushbuttons.sch

Sheet: Mode LEDs
File: Mode_LEDs.sch

Sheet: SPI Flash 0
File: SPI_Flash_0.sch

Sheet: SPI Flash 1
File: SPI_Flash_1.sch

Sheet: SPI Flash 2
File: SPI_Flash_2.sch

Sheet: SPI Flash 3
File: SPI_Flash_3.sch

Sheet: SPI Flash 4
File: SPI_Flash_4.sch

Sheet: SPI Flash 5
File: SPI_Flash_5.sch

Sheet: SPI Flash 6
File: SPI_Flash_6.sch

Sheet: SPI Flash 7
File: SPI_Flash_7.sch

Sheet: Panel Level Shifters
File: Panel_Level_Shifters.sch

Sheet: Panel Connectors
File: Panel_Connectors.sch

Sheet: Mechanical
File: Mechanical.sch

Sheet: USB Telemetry
File: USB_Telemetry.sch

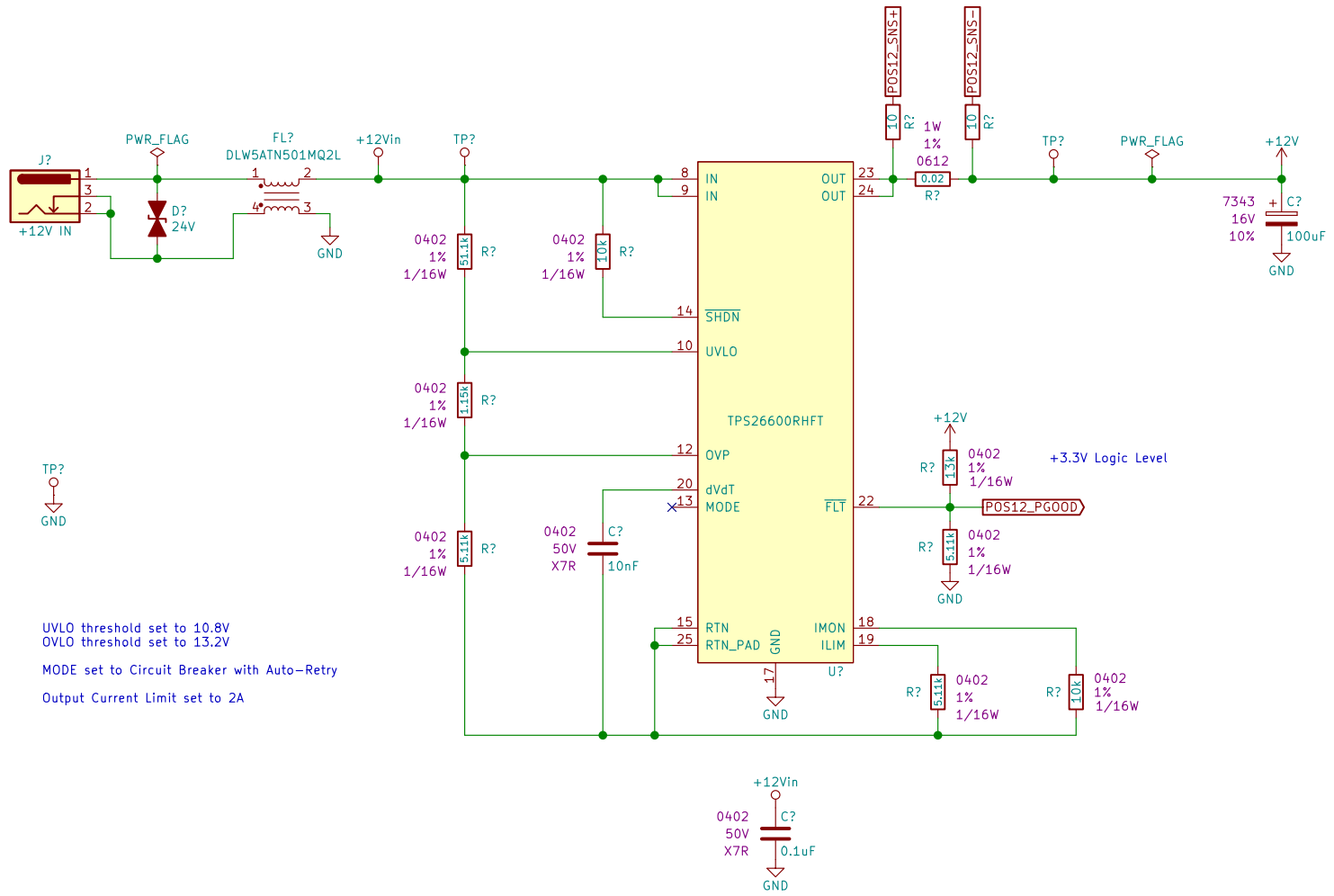
TODO:
- Determine actual +12V current draw, reevaluate input pro
- Input EMI filter? - Drew
- Determine image size, external flash size- 16,384 bytes
- Determine +5V current draw, decide on converter - Drew
- Determine +3.3V Current Draw, decide on converter - Dre
- Remove high frequency PIC32MZ bypass caps - Drew
- Figure out panel connectors - Drew
* Figure out panel level shifting - Logan
- Figure out SPI flash circuit - Drew
* Figure out screen modes/mode LEDs
- Draw SD card sheet - Logan
* Draw WiFi module sheet
- Draw I2C boost sheet with LTC1694 - Drew
* Determine what will be configurable, add hardstraps
* What will pushbuttons do?
* What PIC32MZ SKU will we use? Should be highest memor
- Change PGOOD LEDs sheet to use +3.3V_PGL global powe
* Add USB Telemetry sheet

Drew Maatman, Logan Wedel

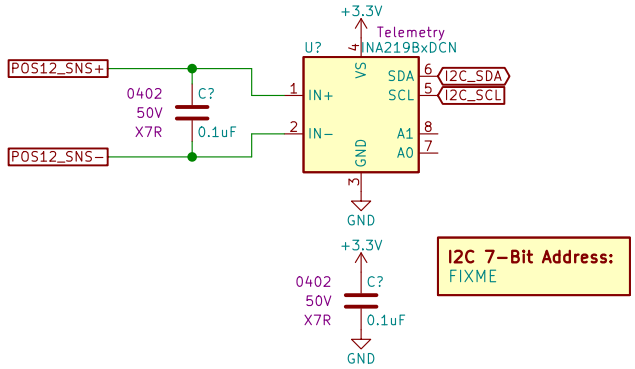
Sheet: /
File: LED_Panel_Controller.sch

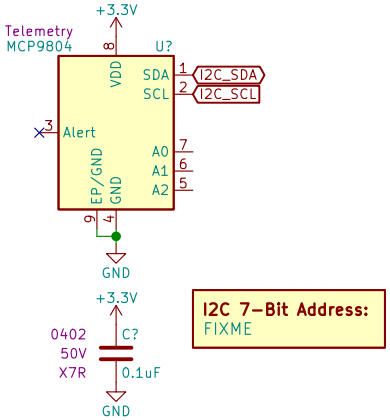
Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 1/34

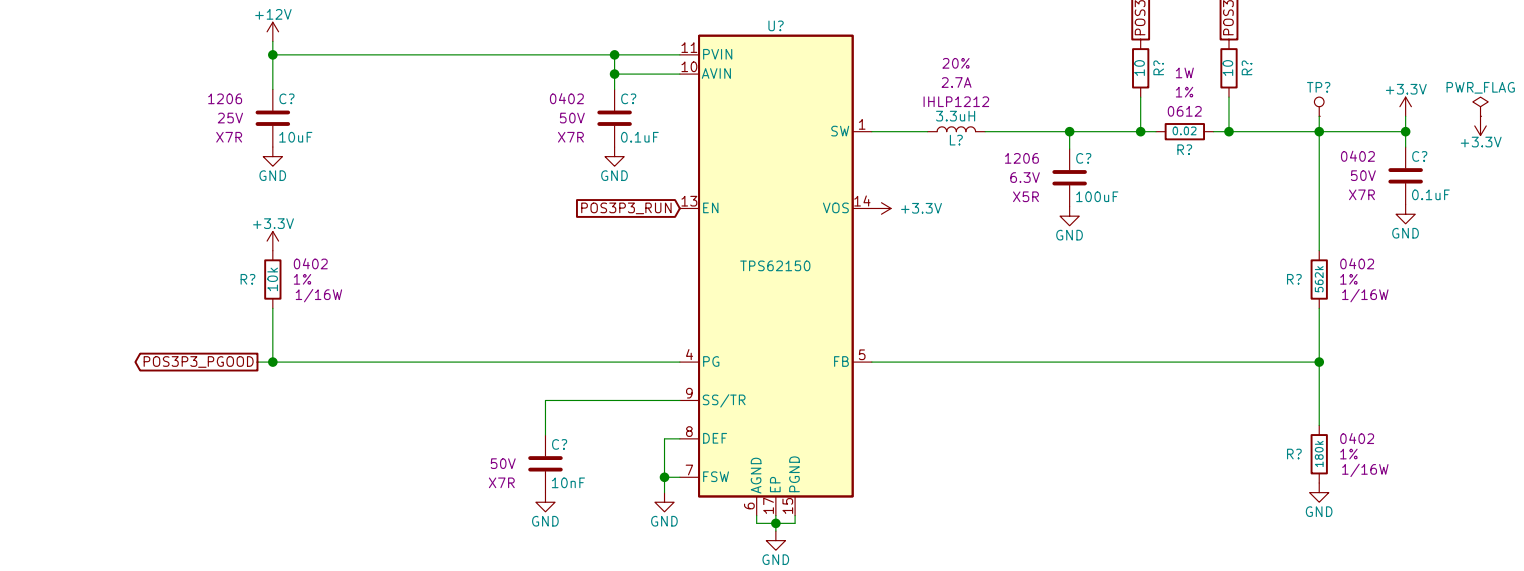


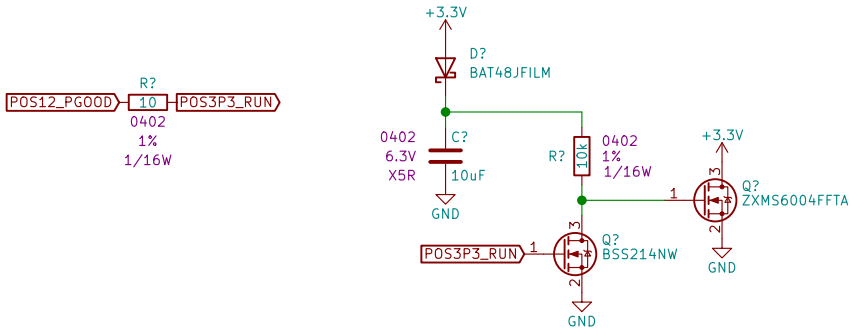
Drew Maatman, Logan Wedel		
Sheet: /+12V Input/		
File: POS12_Input.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 2/34



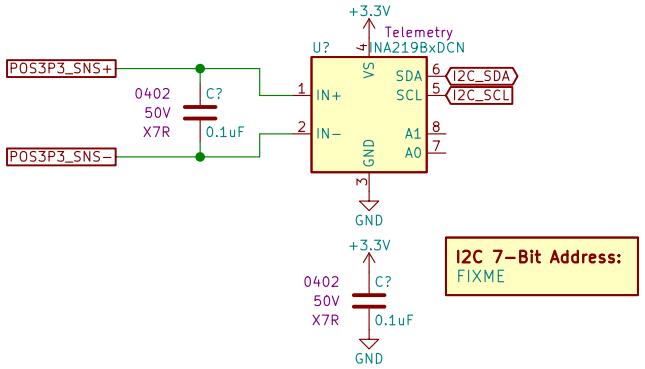


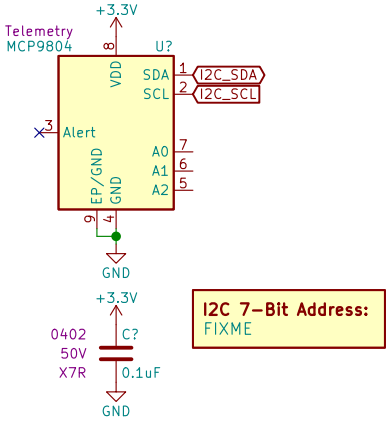
Drew Maatman, Logan Wedel		
Sheet: /+12V Telemetry/		
File: POS12_Telemetry.sch		
Title: LED Panel Controller		
Size: A	Date: 2020−12−23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)−1		Id: 3/34



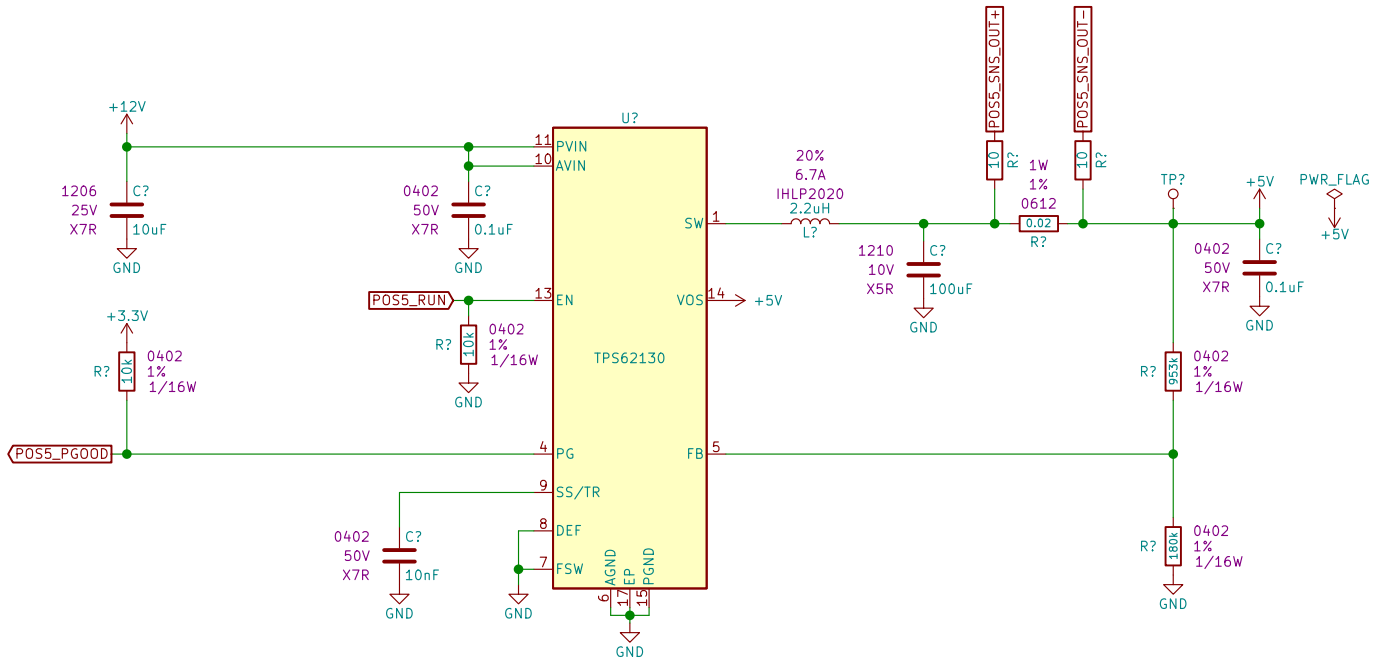


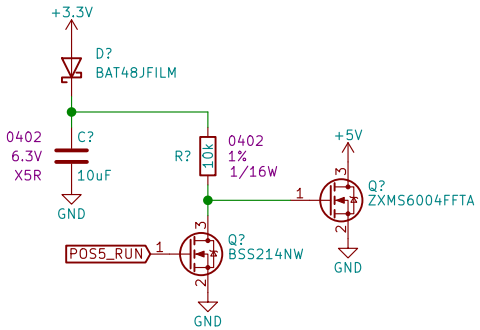
Drew Maatman, Logan Wedel		
Sheet: /+3.3V Power Supply/		
File: POS3P3_Power_Supply.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 4/34



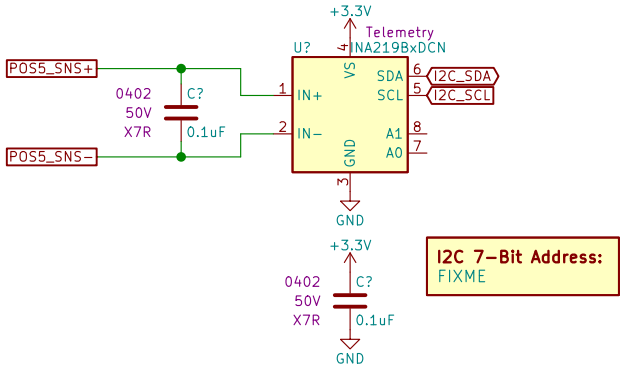


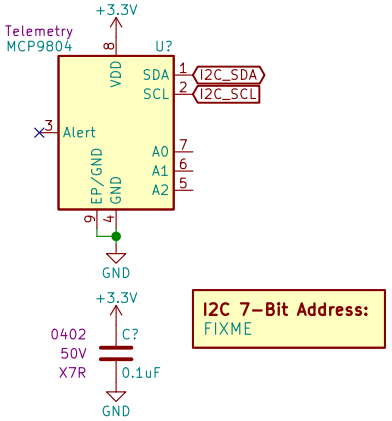
Drew Maatman, Logan Wedel		
Sheet: /+3.3V Telemetry/		
File: POS3P3_Telemetry.sch		
Title: LED Panel Controller		
Size: A	Date: 2020−12−23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)−1		Id: 5/34



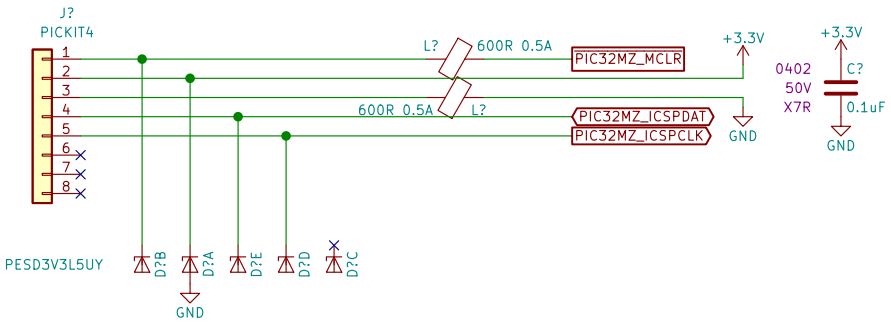


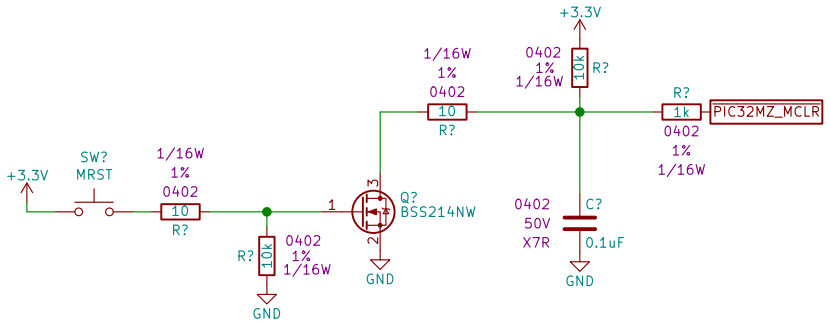
Drew Maatman, Logan Wedel	
Sheet: /+5V Power Supply/	
File: POS5_Power_Supply.sch	
Title: LED Panel Controller	
Size: A	Date: 2020-12-23
KiCad E.D.A. kicad (5.1.8)-1	Id: 6/34



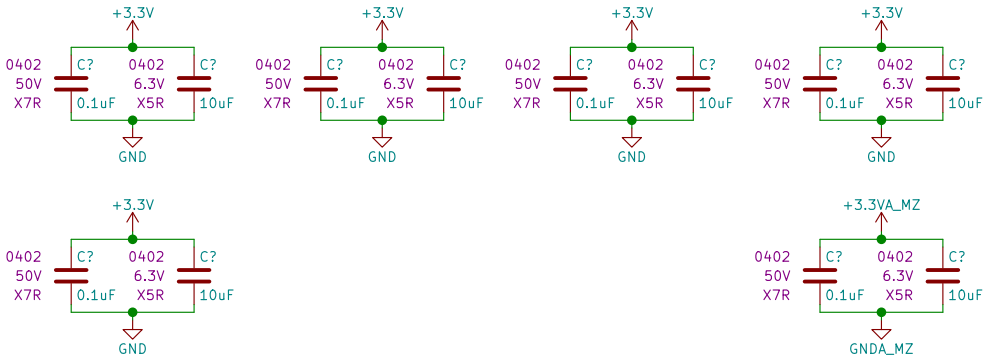


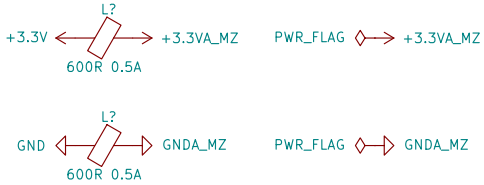
Drew Maatman, Logan Wedel		
Sheet: /+5V Telemetry/		
File: POS5_Telemetry.sch		
Title: LED Panel Controller		
Size: A	Date: 2020−12−23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)−1		Id: 7/34



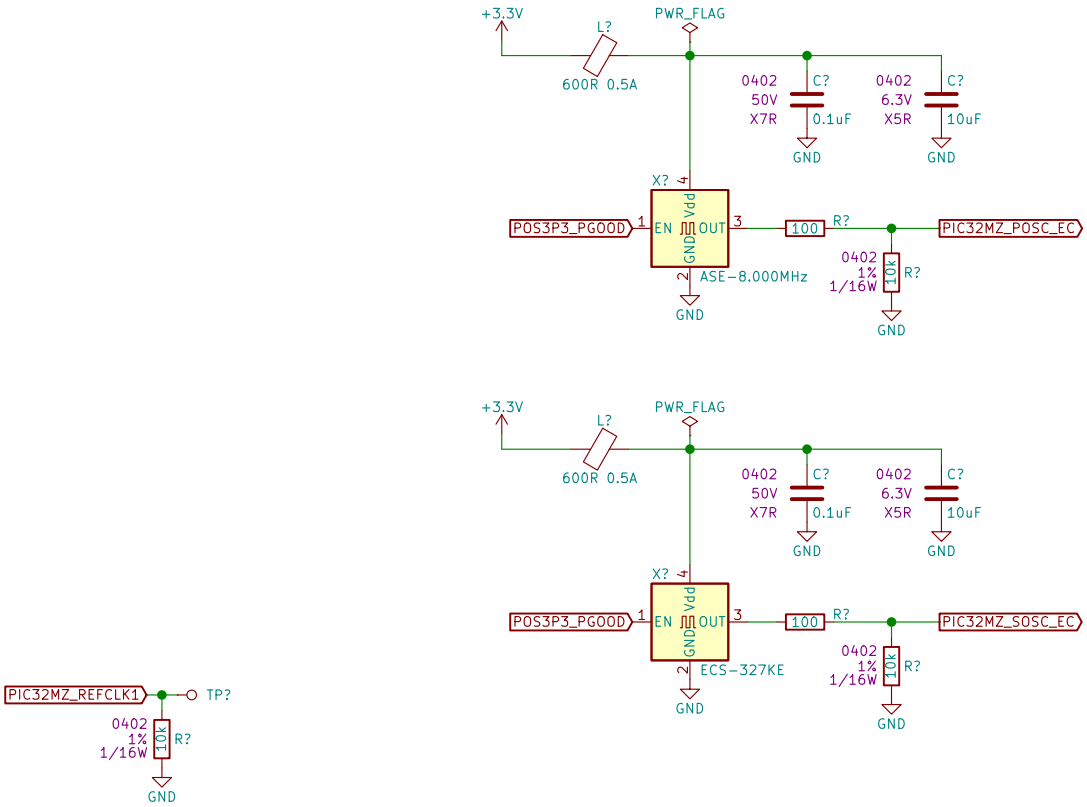


Drew Maatman, Logan Wedel		
Sheet: /PIC32MZ Programming/		
File: PIC32MZ_Programming.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 8/34

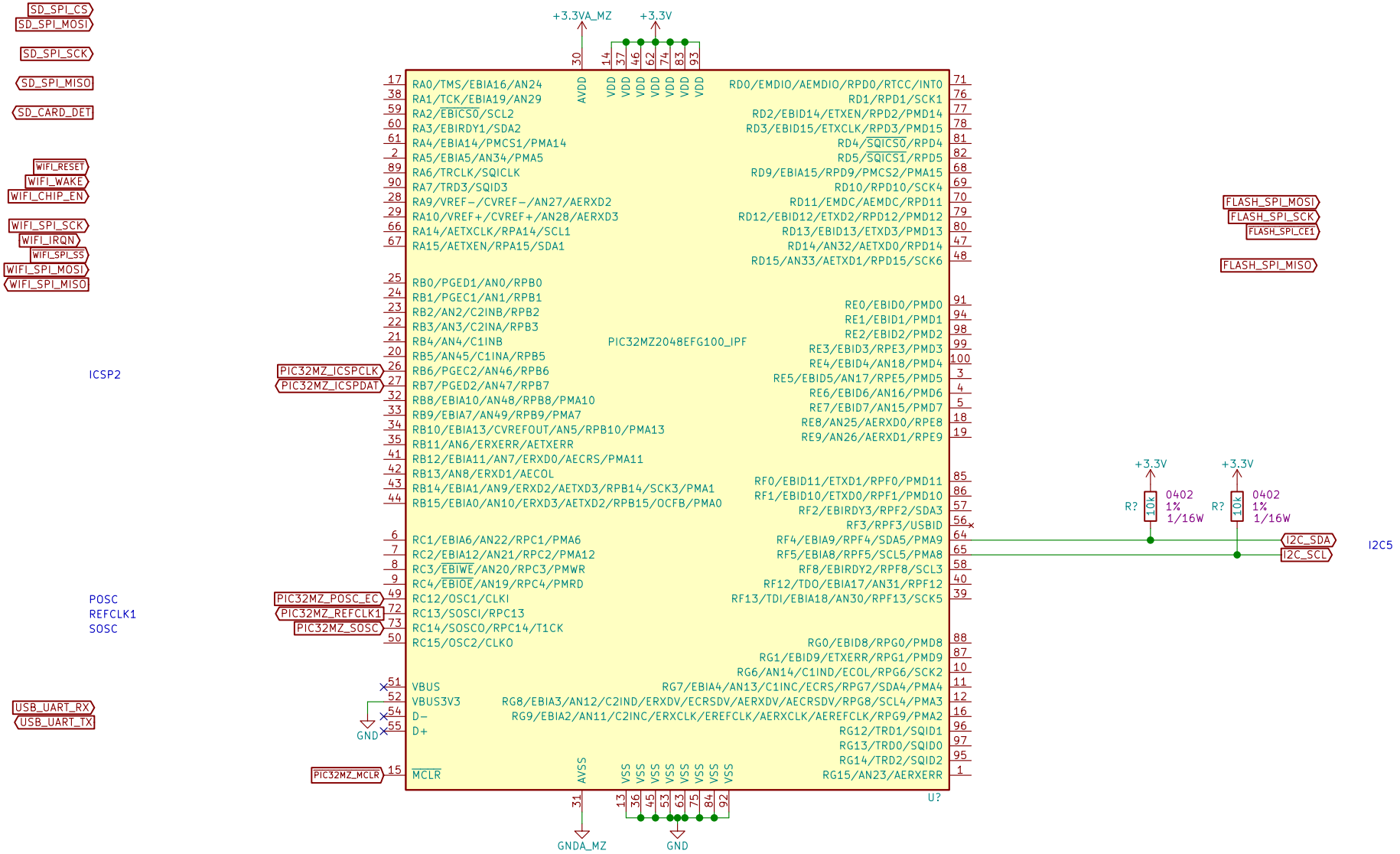




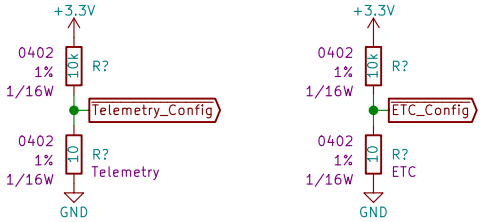
Drew Maatman, Logan Wedel		
Sheet: /PIC32MZ Bypass/		
File: PIC32MZ_Bypass.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 9/34



Drew Maatman, Logan Wedel		
Sheet: /PIC32MZ Clocking/		
File: PIC32MZ_Clocking.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 10/34



Drew Maatman, Logan Wedel		
Sheet: /PIC32MZ/		
File: PIC32MZ.sch		
Title: LED Panel Controller		
Size: A	Date: 2020−12−23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)−1		Id: 11/34

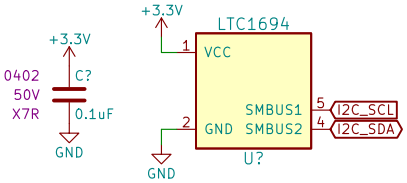


Drew Maatman, Logan Wedel

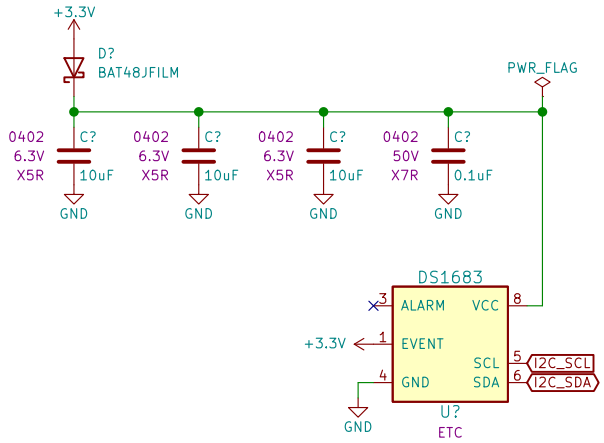
Sheet: /Config Hardstraps/
File: config_hardstraps.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 12/34



Drew Maatman, Logan Wedel		
Sheet: /I2C Boost/		
File: I2C_Boost.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 13/34



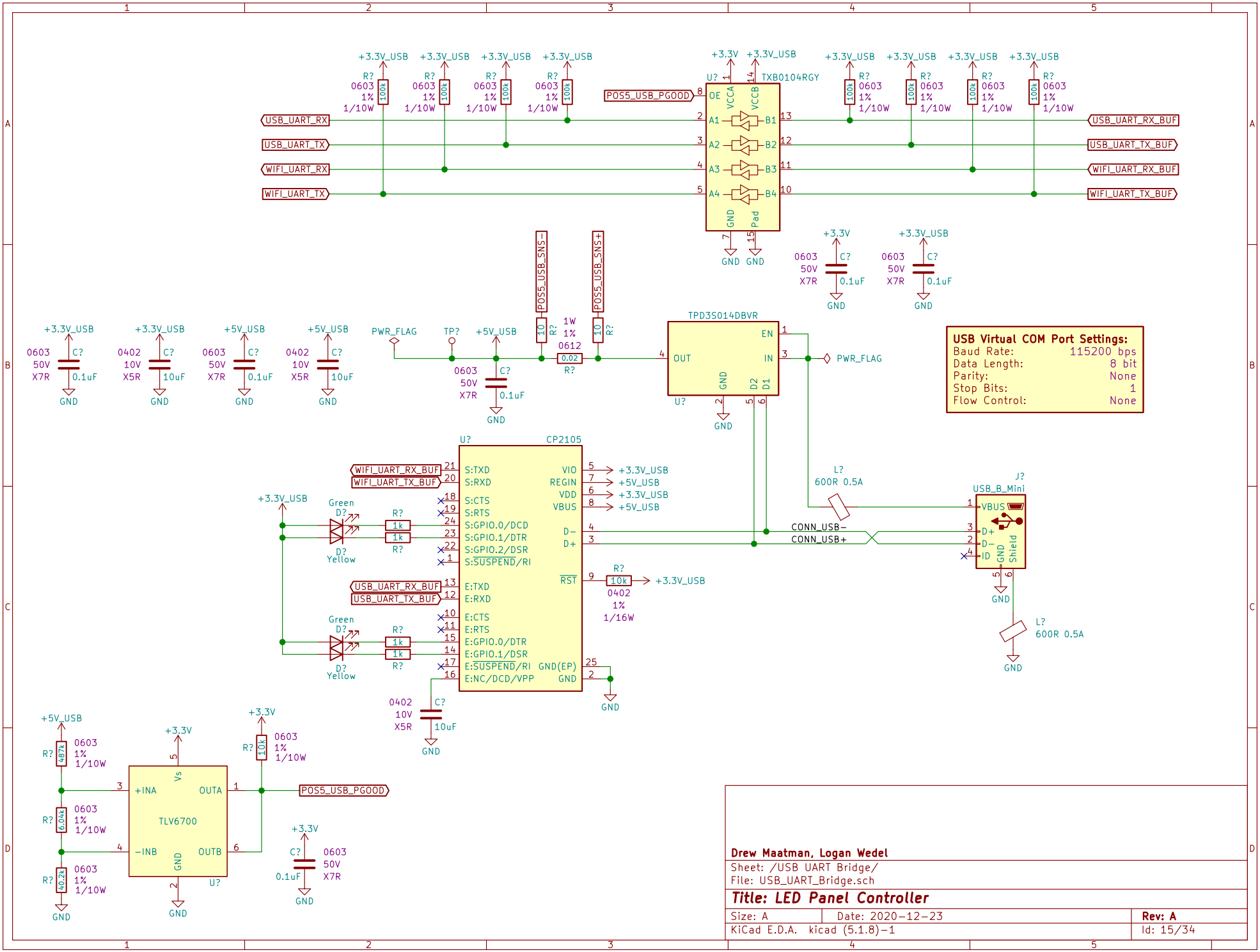
I2C 7-Bit Address:
0x6B

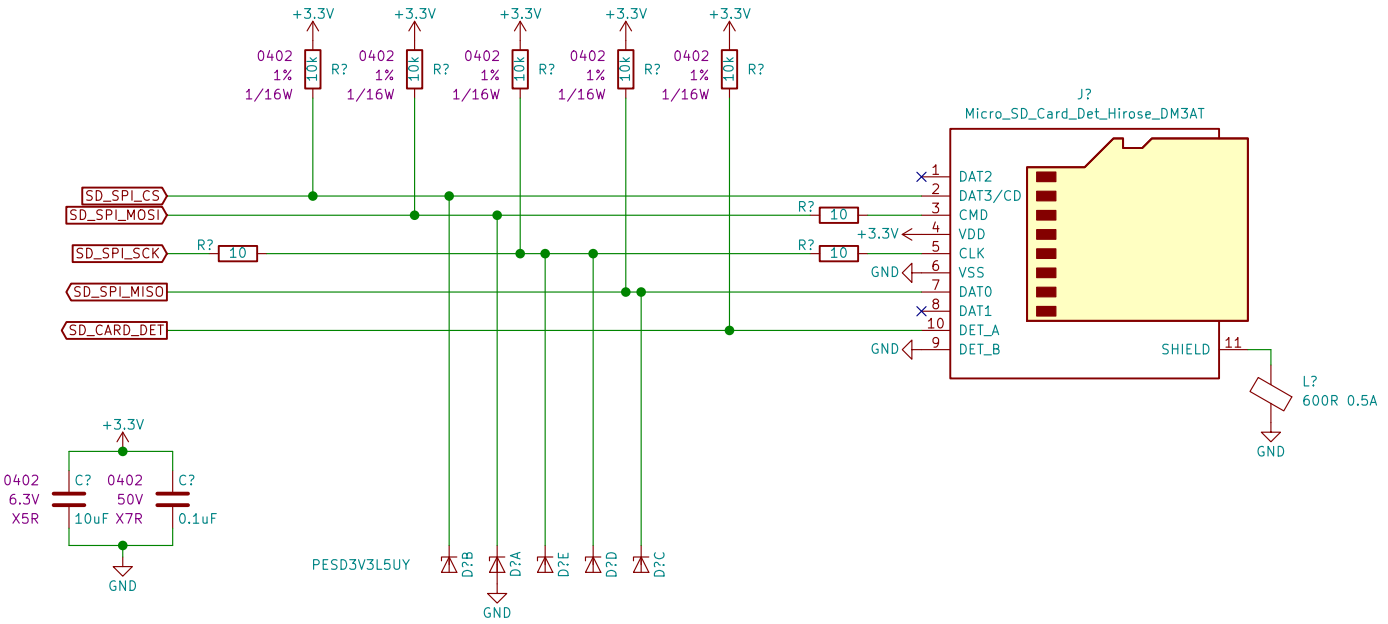
Drew Maatman, Logan Wedel

Sheet: /Platform ETC/
File: Platform_ETC.sch

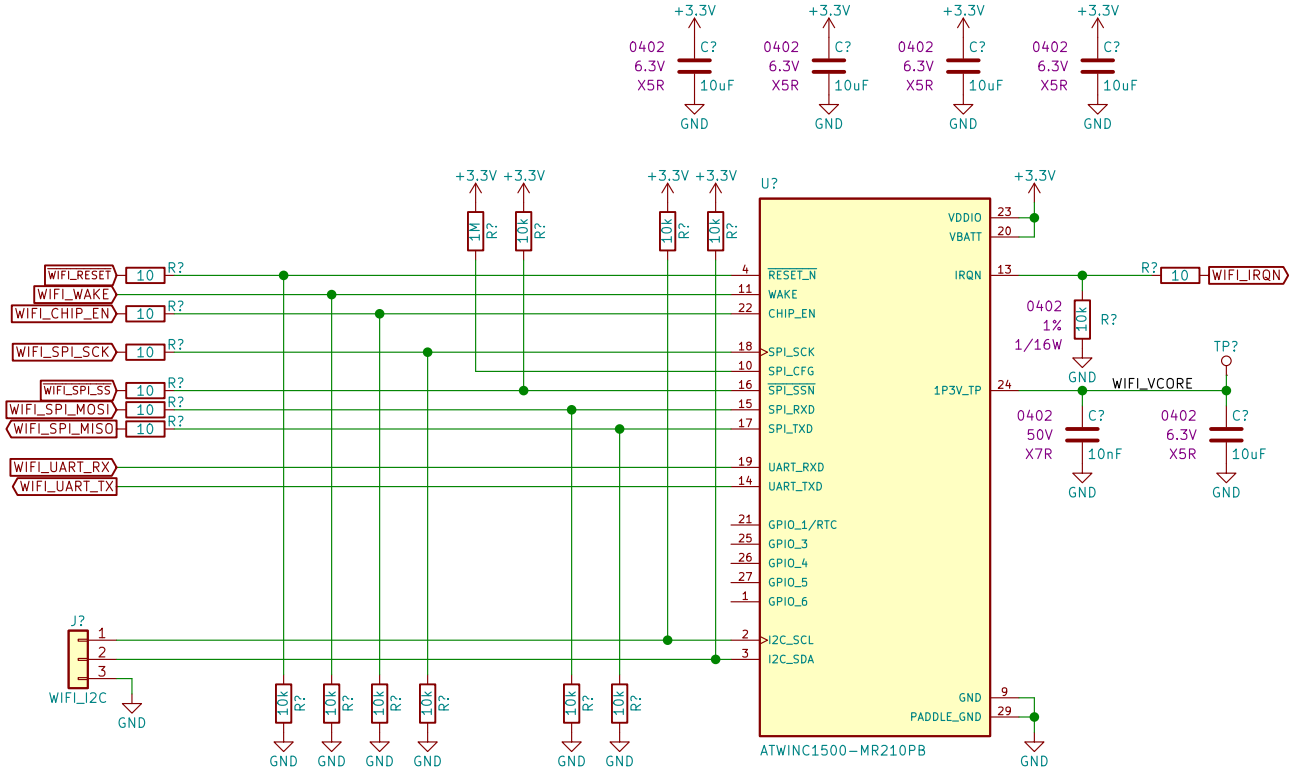
Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 14/34

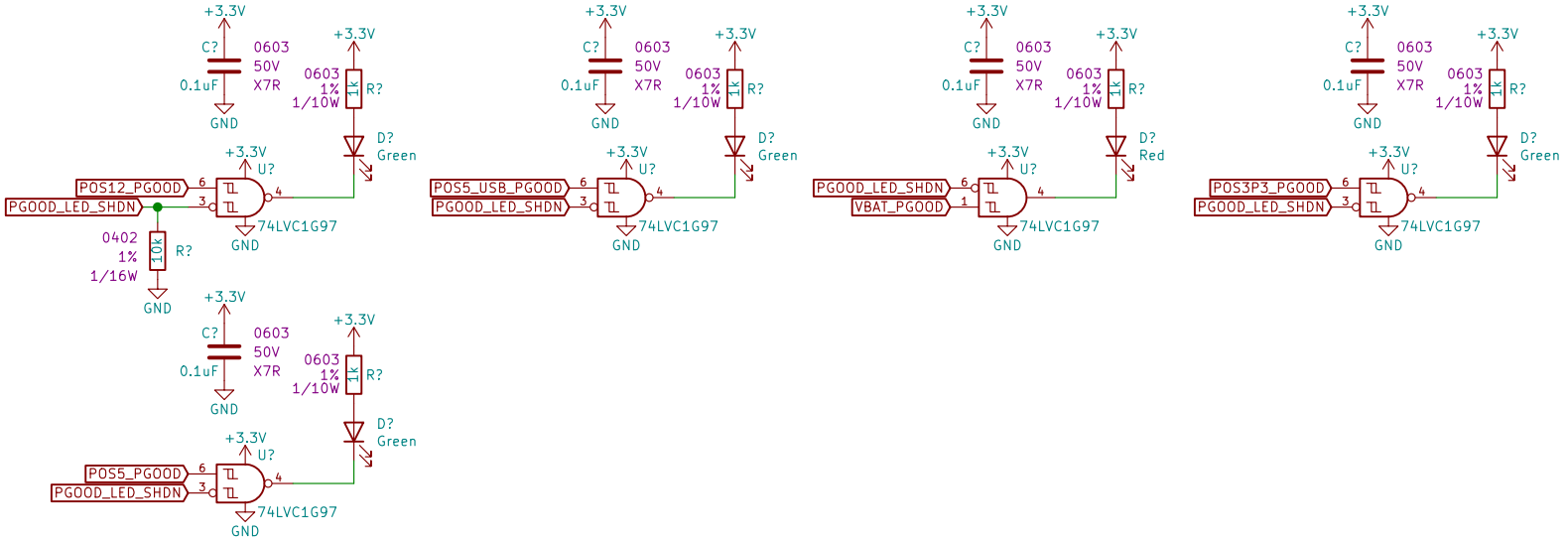

USB_UART_RX
USB_UART_TX
WIFI_UART_RX
WIFI_UART_TX
POS5_USB_PGOOD
TXB0104RGY
USB_UART_RX_BUF
USB_UART_TX_BUF
WIFI_UART_RX_BUF
WIFI_UART_TX_BUF
POS5_USB_SNS-
POS5_USB_SNS+
PWR_FLAG
TPD3S014DBVR
CP2105
CONN_USB-
CONN_USB+
USB_B_Mini
TLV6700
USB Virtual COM Port Settings:
Baud Rate: 115200 bps
Data Length: 8 bit
Parity: None
Stop Bits: 1
Flow Control: None
Drew Maatman, Logan Wedel
Sheet: /USB UART Bridge/
File: USB_UART_Bridge.sch
Title: LED Panel Controller
Size: A
Date: 2020-12-23
Rev: A
KiCad E.D.A. kicad (5.1.8)-1
Id: 15/34



Drew Maatman, Logan Wedel		
Sheet: /SD Card Slot/		
File: SD_Card_Slot.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 16/34

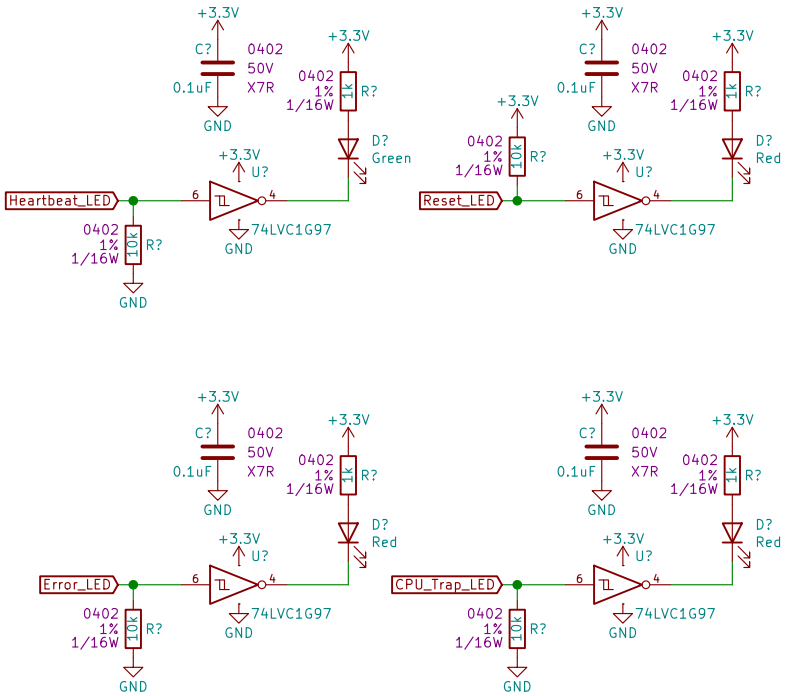


Drew Maatman, Logan Wedel		
Sheet: /WiFi Module/		
File: WiFi_Module.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 17/34

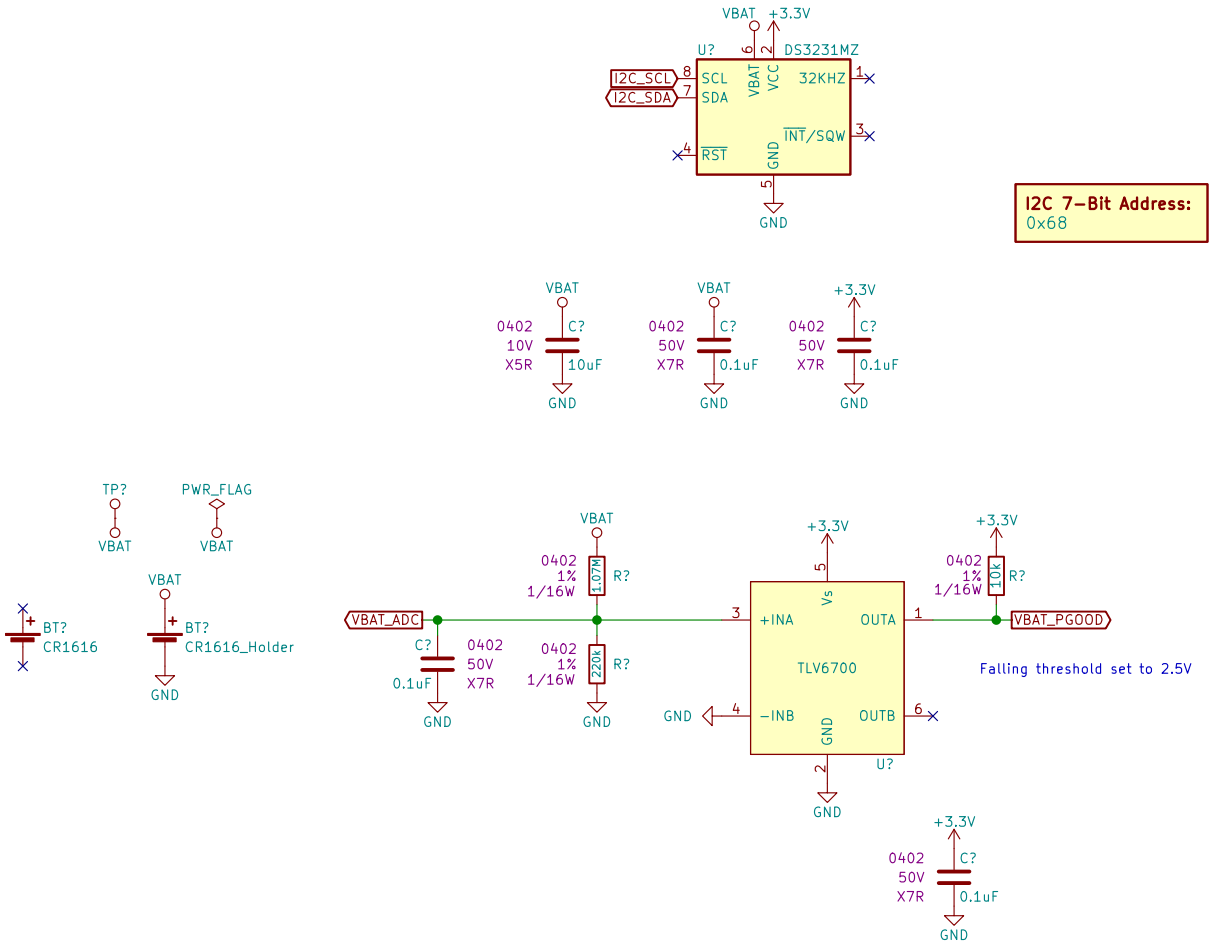


Drew Maatman, Logan Wedel	
Sheet: /PGOOD LEDs/	
File: PGOOD_LEDs.sch	
Title: LED Panel Controller	
Size: A	Date: 2020-12-23
KiCad E.D.A. kicad (5.1.8)-1	Id: 18/34

Rev: A

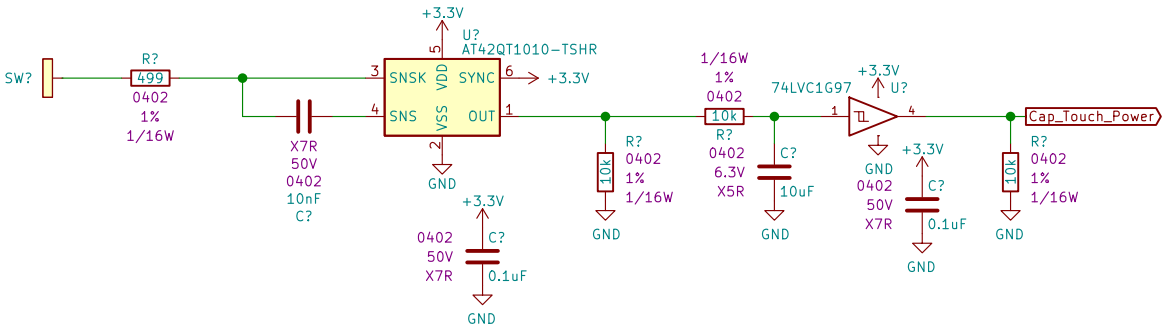


Drew Maatman, Logan Wedel		
Sheet: /Status LEDs/		
File: Status_LEDs.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 19/34



Drew Maatman, Logan Wedel	
Sheet: /Backup RTC/	
File: Backup_RTC.sch	
Title: LED Panel Controller	
Size: A	Date: 2020-12-23
KiCad E.D.A. kicad (5.1.8)-1	Id: 20/34

Rev: A



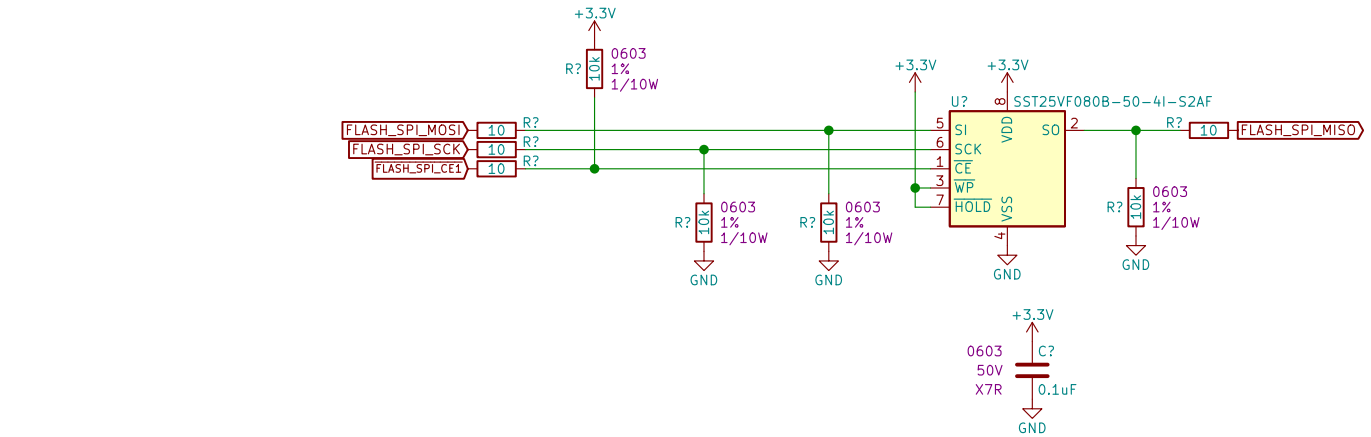
Drew Maatman, Logan Wedel		
Sheet: /Pushbuttons/		
File: Pushbuttons.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 21/34

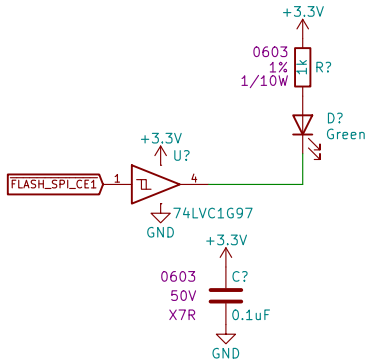
Drew Maatman, Logan Wedel

Sheet: /Mode LEDs/
File: Mode_LEDs.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 22/34





Drew Maatman, Logan Wedel		
Sheet: /SPI Flash 0/		
File: SPI_Flash_0.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 23/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 1/
File: SPI_Flash_1.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 24/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 2/
File: SPI_Flash_2.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 25/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 3/
File: SPI_Flash_3.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 26/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 4/
File: SPI_Flash_4.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 27/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 5/
File: SPI_Flash_5.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 28/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 6/
File: SPI_Flash_6.sch

Title: LED Panel Controller

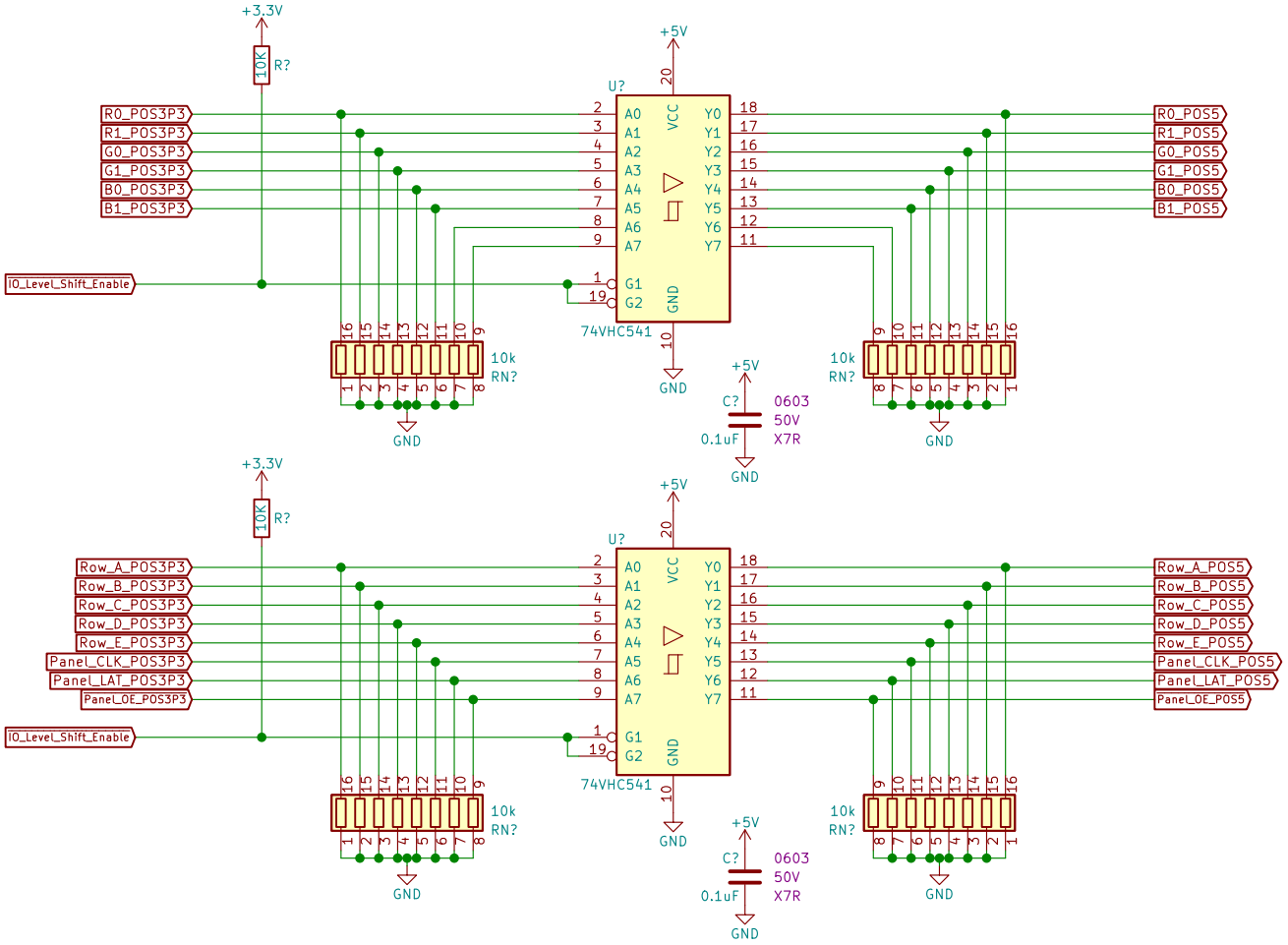
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 29/34

Drew Maatman, Logan Wedel

Sheet: /SPI Flash 7/
File: SPI_Flash_7.sch

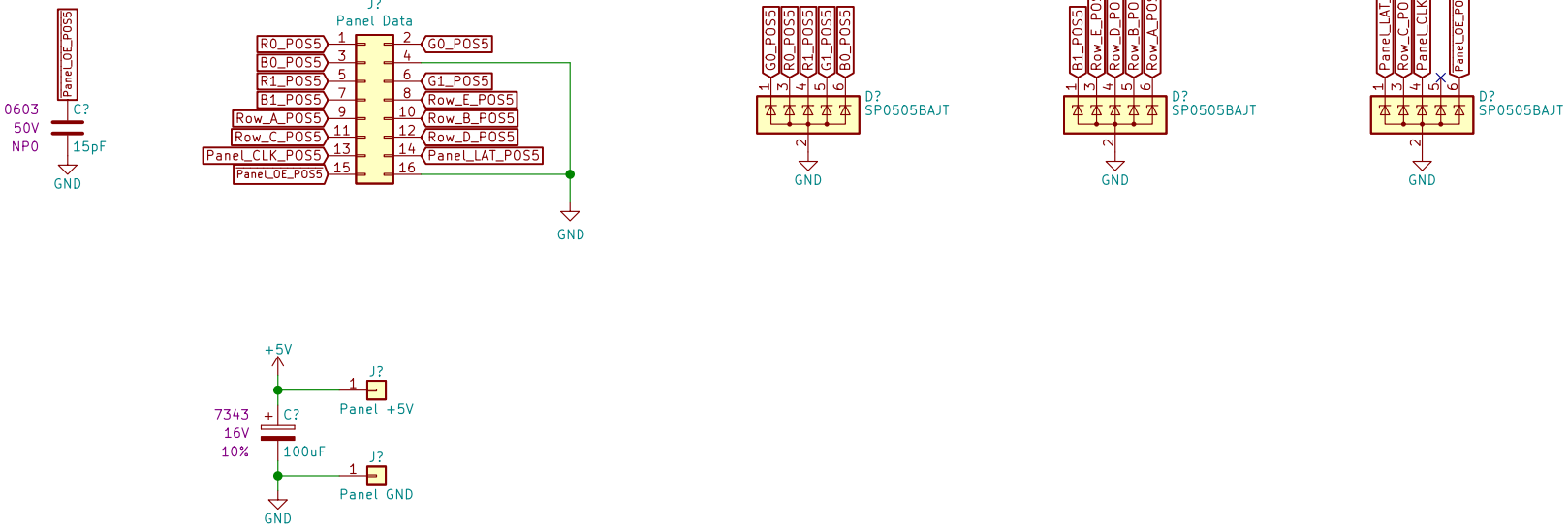
Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 30/34

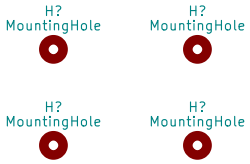


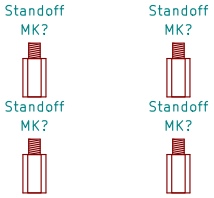
Drew Maatman, Logan Wedel	
Sheet: /Panel Level Shifters/	
File: Panel_Level_Shifters.sch	
Title: LED Panel Controller	
Size: A	Date: 2020-12-23
KiCad E.D.A. kicad (5.1.8)-1	Id: 31/34

Rev: A



Drew Maatman, Logan Wedel		
Sheet: /Panel Connectors/		
File: Panel_Connectors.sch		
Title: LED Panel Controller		
Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 32/34





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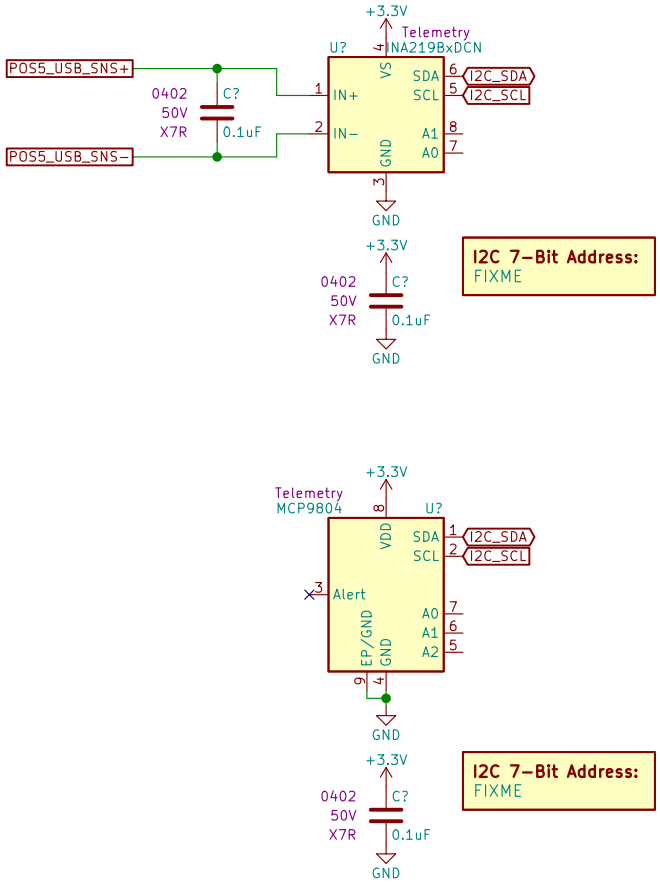
Sheet: /Mechanical/

File: Mechanical.sch

Title: LED Panel Controller

Size: A	Date: 2020-12-23	**Rev: A**
KiCad E.D.A. kicad (5.1.8)-1		Id: 33/34



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File: USB_Telemetry.sch			
Title: LED Panel Controller			
Size: A	Date: 2020−12−23		**Rev: A**
KiCad E.D.A. kicad (5.1.8)−1			Id: 34/34