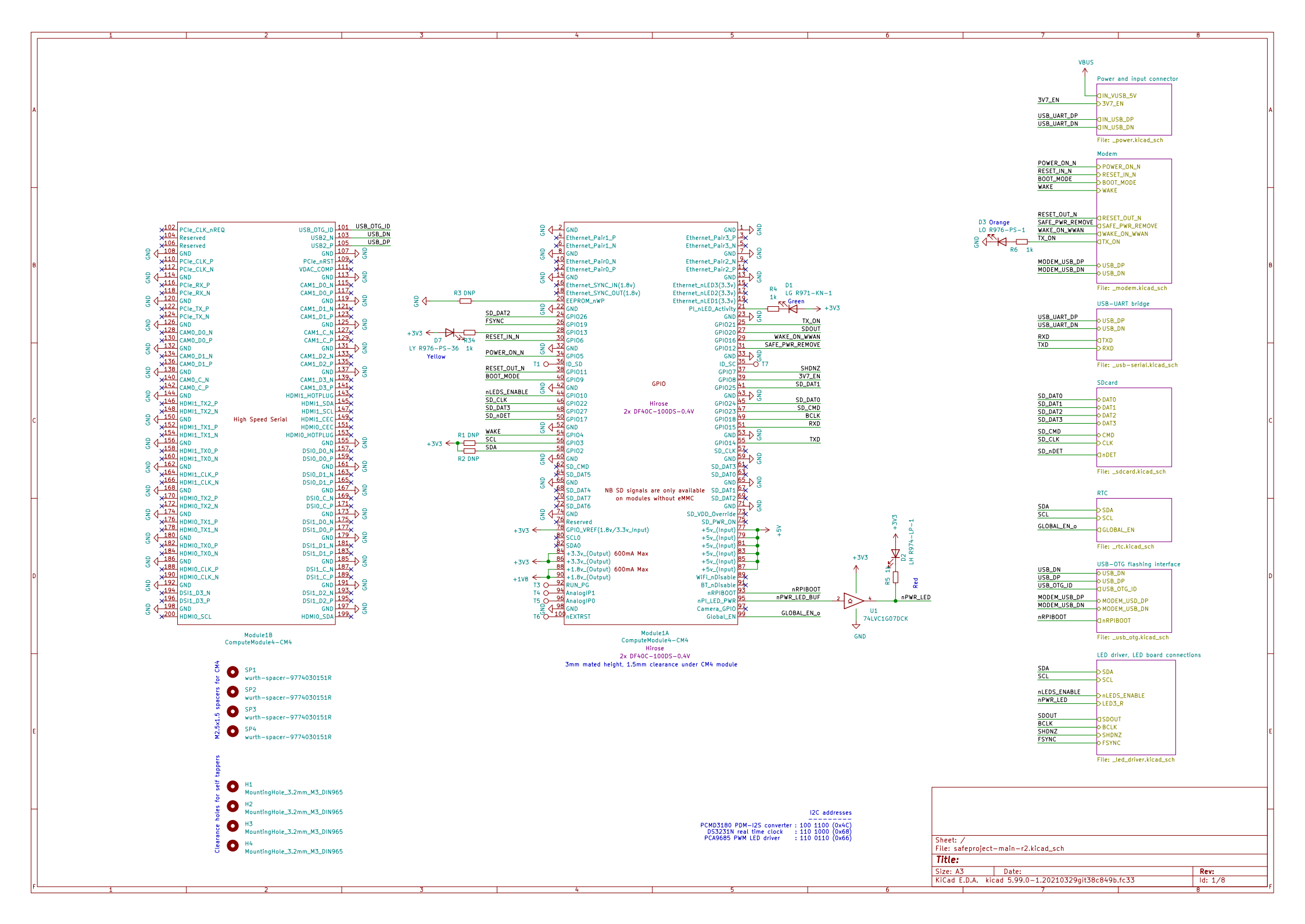
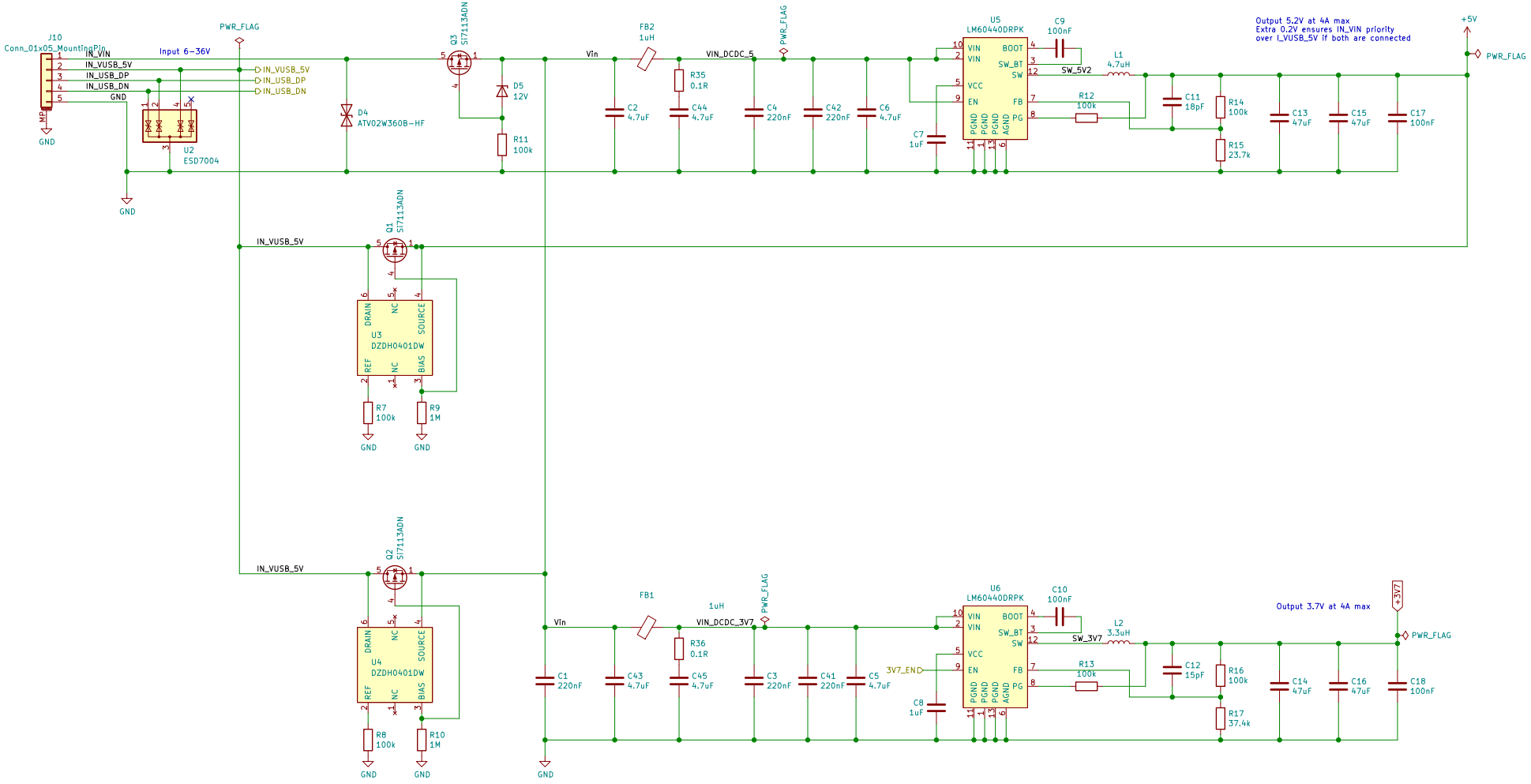
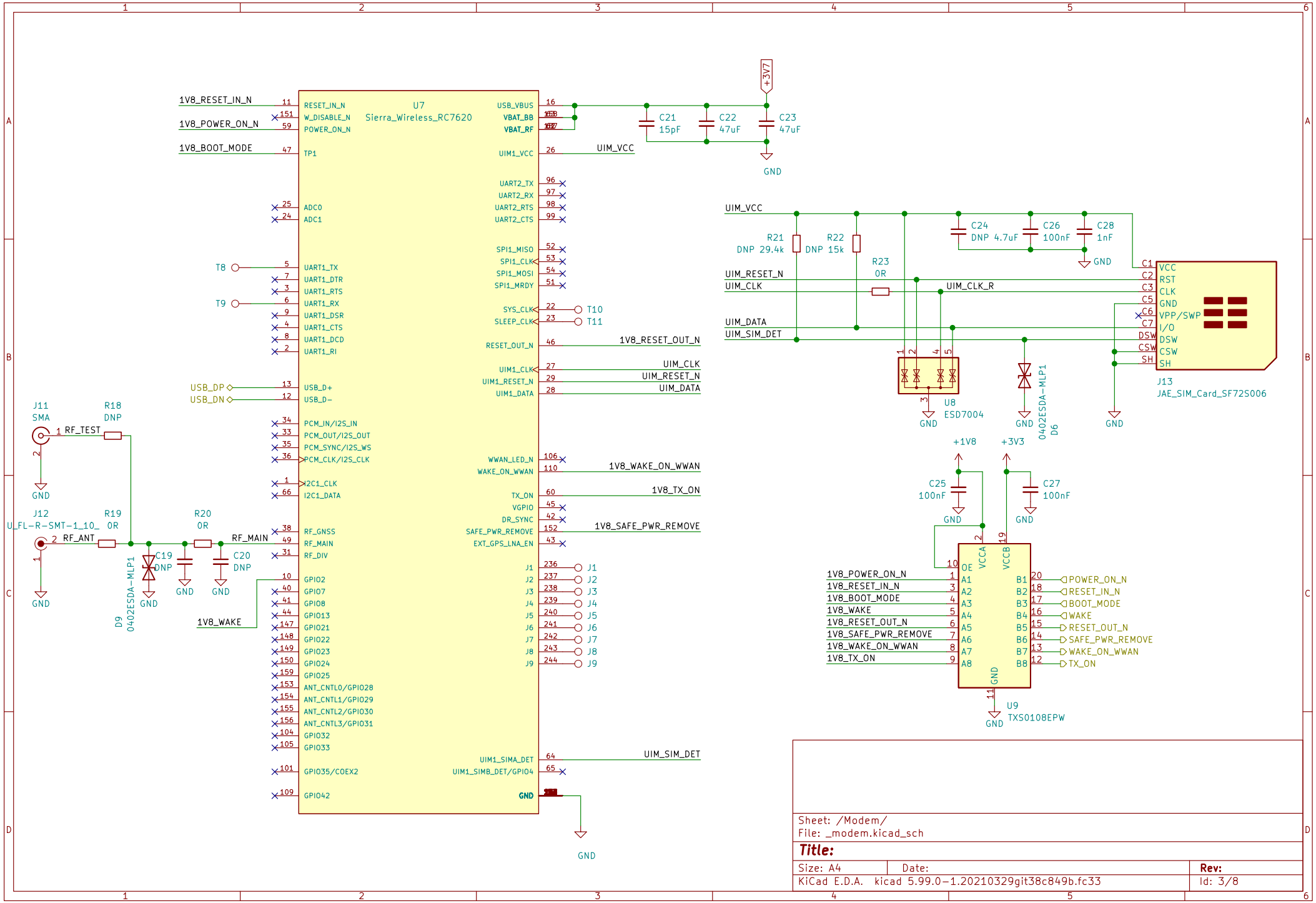
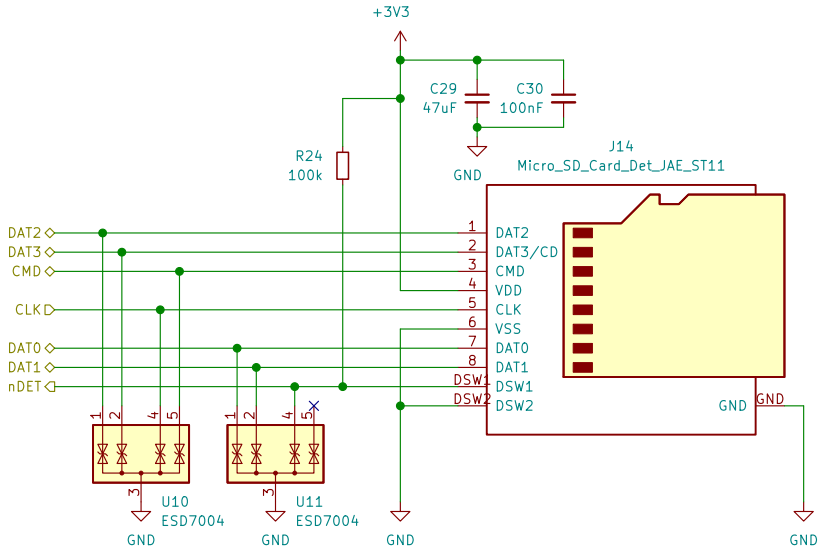

Module1B
ComputeModule4-CM4
High Speed Serial
Module1A
ComputeModule4-CM4
Hirose
2x DF40C-100DS-0.4V
3mm mated height, 1.5mm clearance under CM4 module
GPIO
Hirose
2x DF40C-100DS-0.4V
NB SD signals are only available on modules without eMMC
M2.5x1.5 spacers for CM4
SP1
wurth-spacer-9774030151R
SP2
wurth-spacer-9774030151R
SP3
wurth-spacer-9774030151R
SP4
wurth-spacer-9774030151R
Clearance holes for self tappers
H1
MountingHole_3.2mm_M3_DIN965
H2
MountingHole_3.2mm_M3_DIN965
H3
MountingHole_3.2mm_M3_DIN965
H4
MountingHole_3.2mm_M3_DIN965
I2C addresses
PCMD3180 PDM-I2S converter : 100 1100 (0x4C)
DS3231N real time clock : 110 1000 (0x68)
PCA9685 PWM LED driver : 110 0110 (0x66)
VBUS
Power and input connector
File: _power.kicad_sch
Modem
File: _modem.kicad_sch
USB-UART bridge
File: _usb-serial.kicad_sch
SDcard
File: _sdcard.kicad_sch
RTC
File: _rtc.kicad_sch
USB-OTG flashing interface
File: _usb_otg.kicad_sch
LED driver, LED board connections
File: _led_driver.kicad_sch
D3 Orange
LO R976-PS-1
R6 1k
R4 1k
D1
LG R971-KN-1
Green
R3 DNP
D7
LY R976-PS-36
Yellow
R34 1k
R1 DNP
R2 DNP
U1
74LVC1G07DCK
D2
LH R974-LP-1
Red
R5 1k
Sheet: /
File: safeproject-main-r2.kicad_sch
Title:
Size: A3
Date:
Rev:
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33
Id: 1/8



Sheet: /Power and input connector/		
File: _power.kicad_sch		
Title:		
Size: A3	Date:	**Rev:**
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33		Id: 2/8

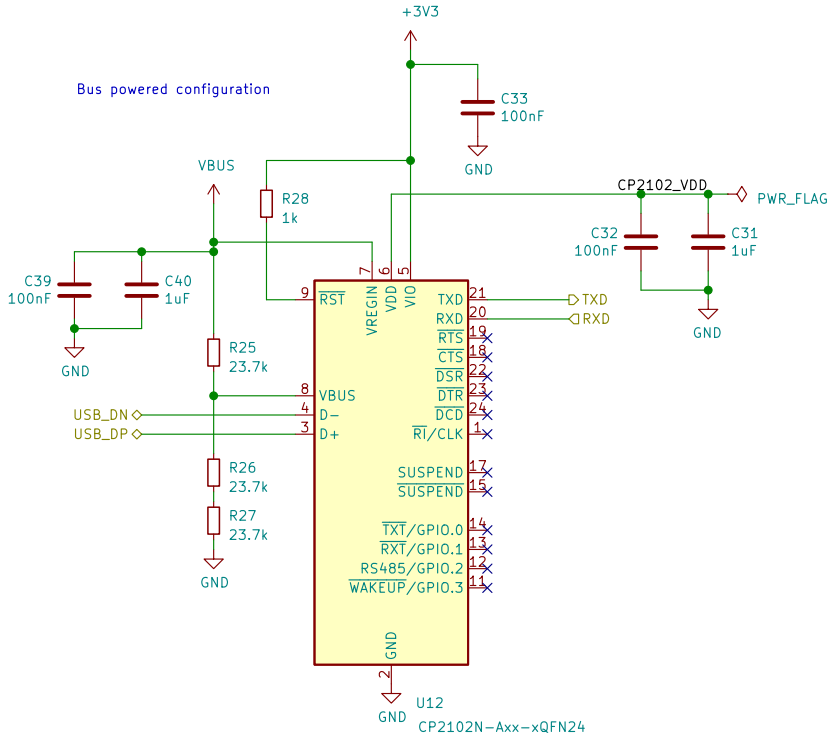

U7
Sierra_Wireless_RC7620
1V8_RESET_IN_N
1V8_POWER_ON_N
1V8_BOOT_MODE
RESET_IN_N
W_DISABLE_N
POWER_ON_N
TP1
USB_VBUS
VBAT_BB
VBAT_RF
UIM1_VCC
+3V7
C21
15pF
C22
47uF
C23
47uF
GND
UIM_VCC
UART2_TX
UART2_RX
UART2_RTS
UART2_CTS
ADC0
ADC1
SPI1_MISO
SPI1_CLK
SPI1_MOSI
SPI1_MRDY
T8
T9
UART1_TX
UART1_DTR
UART1_RTS
UART1_RX
UART1_DSR
UART1_CTS
UART1_DCD
UART1_RI
SYS_CLK
SLEEP_CLK
T10
T11
RESET_OUT_N
1V8_RESET_OUT_N
UIM1_CLK
UIM1_RESET_N
UIM1_DATA
UIM_CLK
UIM_RESET_N
UIM_DATA
USB_DP
USB_DN
USB_D+
USB_D−
PCM_IN/I2S_IN
PCM_OUT/I2S_OUT
PCM_SYNC/I2S_WS
PCM_CLK/I2S_CLK
I2C1_CLK
I2C1_DATA
WWAN_LED_N
WAKE_ON_WWAN
1V8_WAKE_ON_WWAN
TX_ON
1V8_TX_ON
VGPIO
DR_SYNC
SAFE_PWR_REMOVE
EXT_GPS_LNA_EN
1V8_SAFE_PWR_REMOVE
RF_GNSS
RF_MAIN
RF_DIV
GPIO2
GPIO7
GPIO8
GPIO13
GPIO21
GPIO22
GPIO23
GPIO24
GPIO25
ANT_CNTL0/GPIO28
ANT_CNTL1/GPIO29
ANT_CNTL2/GPIO30
ANT_CNTL3/GPIO31
GPIO32
GPIO33
GPIO35/COEX2
GPIO42
J1
J2
J3
J4
J5
J6
J7
J8
J9
UIM1_SIMA_DET
UIM1_SIMB_DET/GPIO4
UIM_SIM_DET
GND
J11
SMA
R18
DNP
RF_TEST
J12
U.FL-R-SMT-1_10_
R19
0R
R20
0R
RF_ANT
RF_MAIN
C19
DNP
C20
DNP
D9
0402ESDA-MLP1
1V8_WAKE
UIM_VCC
R21
DNP 29.4k
R22
DNP 15k
R23
0R
C24
DNP 4.7uF
C26
100nF
C28
1nF
UIM_RESET_N
UIM_CLK
UIM_CLK_R
UIM_DATA
UIM_SIM_DET
U8
ESD7004
D6
0402ESDA-MLP1
J13
JAE_SIM_Card_SF72S006
VCC
RST
CLK
GND
VPP/SWP
I/O
DSW
CSW
SH
+1V8
+3V3
C25
100nF
C27
100nF
U9
TXS0108EPW
VCCA
VCCB
OE
1V8_POWER_ON_N
1V8_RESET_IN_N
1V8_BOOT_MODE
1V8_WAKE
1V8_RESET_OUT_N
1V8_SAFE_PWR_REMOVE
1V8_WAKE_ON_WWAN
1V8_TX_ON
POWER_ON_N
RESET_IN_N
BOOT_MODE
WAKE
RESET_OUT_N
SAFE_PWR_REMOVE
WAKE_ON_WWAN
TX_ON
Sheet: /Modem/
File: _modem.kicad_sch
Title:
Size: A4
Date:
Rev:
KiCad E.D.A. kicad 5.99.0−1.20210329git38c849b.fc33
Id: 3/8



Sheet: /SDcard/
File: _sdcard.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33		Id: 4/8



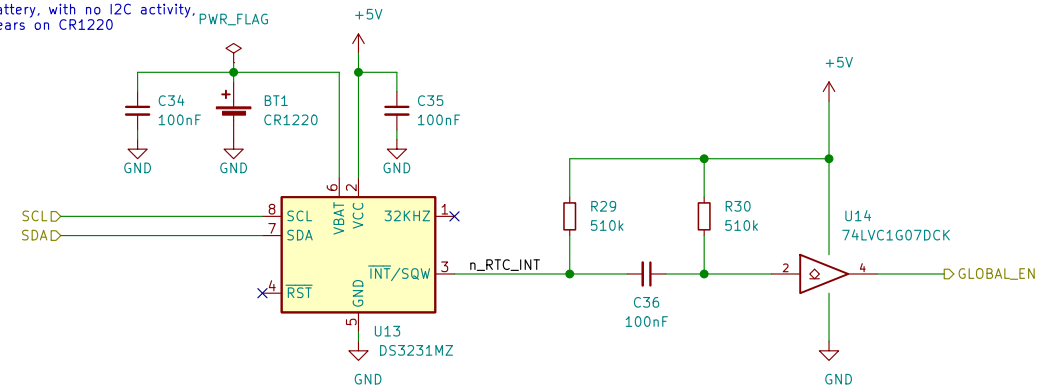
Sheet: /USB-UART bridge/
File: _usb-serial.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33		Id: 5/8

Normally run from 5V because 3.3V is off when Pi is sleeping

Running only on battery, with no I2C activity,
Ibatt = 2uA = 2 years on CR1220

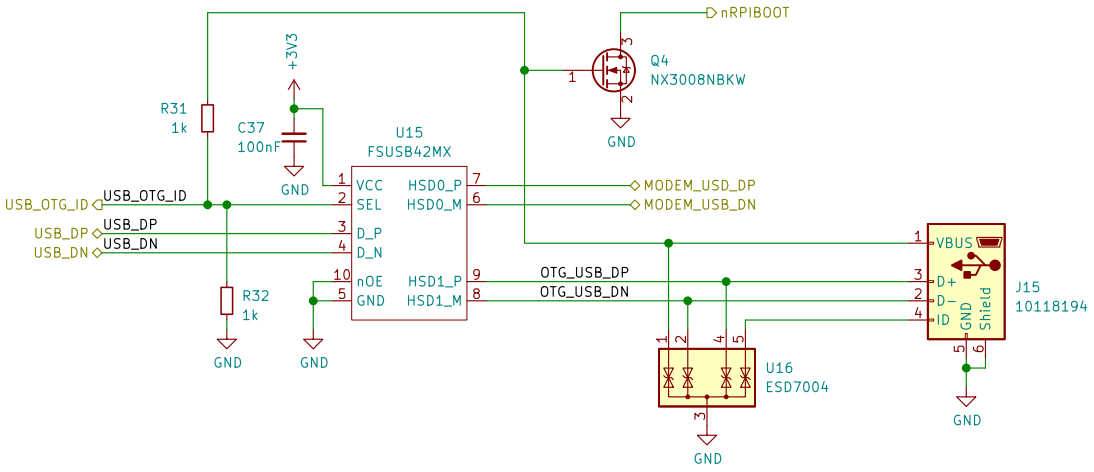


Generates a pulse in the 10's of ms range.
GLOBAL_EN requires minimum pulse of 1ms to start the CM4

Sheet: /RTC/		
File: _rtc.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33		Id: 6/8

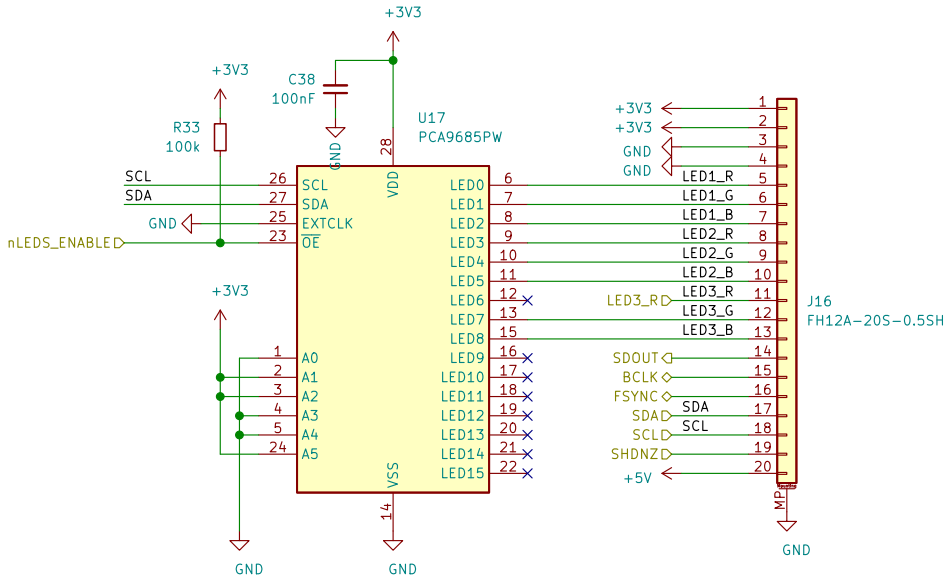
Switch USB lines from modem to OTG interface when
micro-USB cable is connected to permit firmware flashing.

Also hold the Pi in USB bootloader mode



ID not used, but connected to TVS just in case

Sheet: /USB-OTG flashing interface/ File: _usb_otg.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33		Id: 7/8



Address 110 0110 (0x66)

Sheet: /LED driver, LED board connections/
File: _led_driver.kicad_sch

Title:

Size: A4	Date:	**Rev:**
KiCad E.D.A. kicad 5.99.0-1.20210329git38c849b.fc33		Id: 8/8