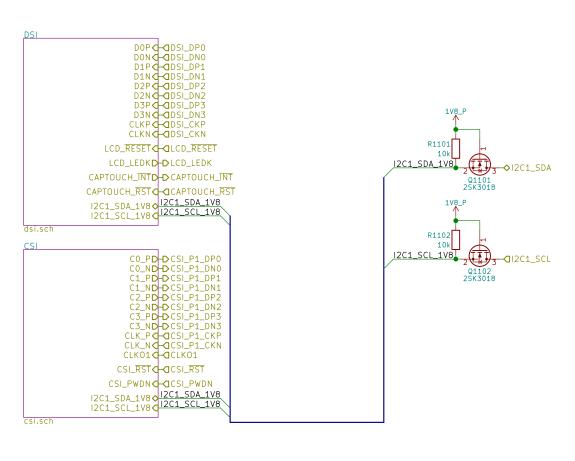
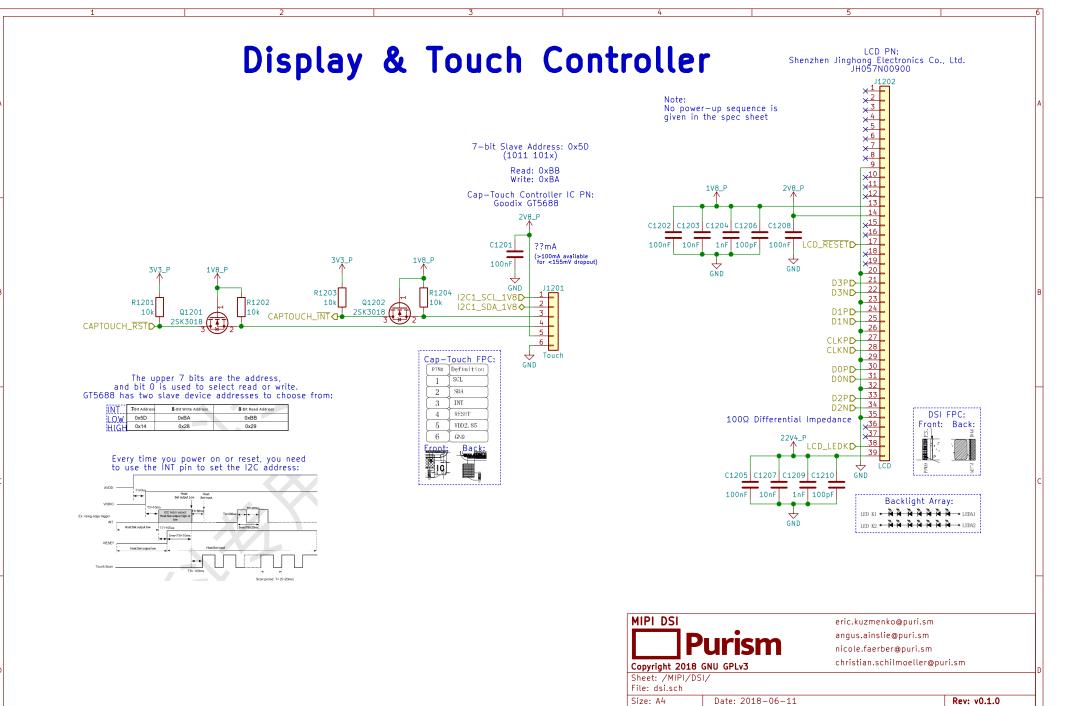


MIPI

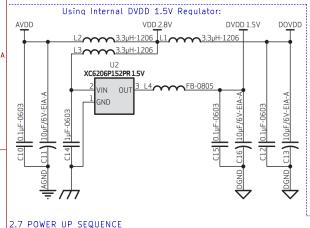


MIPI		eric.kuzmenko@puri.sm		
Purism		angus.ainslie@puri.sm nicole.faerber@puri.sm		
Copyright 2018	GNU GPLv3	christian.schilmoeller@puri.sm		
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Camera

Read: 0xF1 Write 0xF0 2V8_P Max ~42mA Note: All switches' pins C1303 can be swapped e.g. 2 < -> 3100nF or 1<->3 (+mic) 12C1 SCL 1V8D 23 DC0_N 22 DC0_P $2->1 = 0N 1V8_P$ 2->3 = 0FF100nF I2C1_SDA_1V8 > R1303 10k 21 DB2J209 Active-HIGH SW1301A D1303 19 | **O**CLK_P V_IH(min)=1.26V DPDT CSL_PWDND U1301 18 DPDT with 17 DC1_N 4LVC1G32 microphone 16 DC1_P 100k C1301 GND 0V5640 100k GND GND Input pins are interchangeable **X-D** C2_P GND GND **X**—**D** C2_N **X**→**D** C3_P **X**—**D** C3_N

Camera PN: Truly CO8725-B5SA-E

7-bit Slave Address: 0x78 (1111 000x)

OV5640 CMOS Image Sensor Datasheet: https://cdn.sparkfun.com/datasheets/ Sensors/LightImaging/OV5640_datasheet.pdf

Based on the system power configuration (1.8V or 2.8V for I/O power, using external DVDD or internal DVDD, requiring access to the I2C during power up period or not), the power up sequence will differ. If 1.8V is used for I/O power, using the internal DVDD is preferred. If 2.8V is used for I/O power, due to a high voltage drop at the internal DVDD regulator, there is a potential heat issue. Hence, for a 2.8V power system, OmniVision recommends using an external DVDD source. Due to the higher power down current when using an external DVDD source. OmniVision strongly recommends cutting off all powers, including the external DVDD, when the sensor is not in use in the case of 2.8V I/O and external DVDD.

2.7.1 POWER UP WITH INTERNAL DVDD

For powering up with the internal DVDD and I2C access during the power ON period, the following conditions must occur:

1. when DOVDD and AVDD are turned ON, make sure DOVDD becomes stable before AVDD becomes stable 2. PWDN is active high with an asynchronized design (does not need clock) 3. PWDN pin tied to digital ground if it is not controlled. 4. If PWDN pin is controlled as below, for PWDN to go low, power must first become stable

5640 DS 2 2

(AVDD to PWDN ≥ 5 ms)

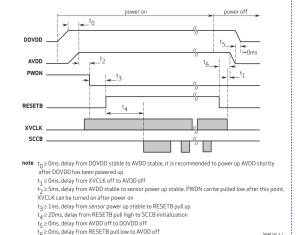
5. RESETB is active low with an asynchronized design

6. master clock XVCLK should provide at least 1 ms before host accesses the sensor's registers

7. host can access I2C bus (if shared) during entire period. 20ms after RESETB goes high,

host can access the sensor's registers to initialize sensor

figure 2-3 power up timing with internal DVDD

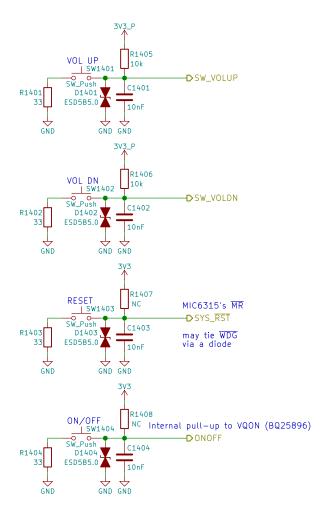




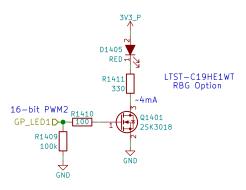
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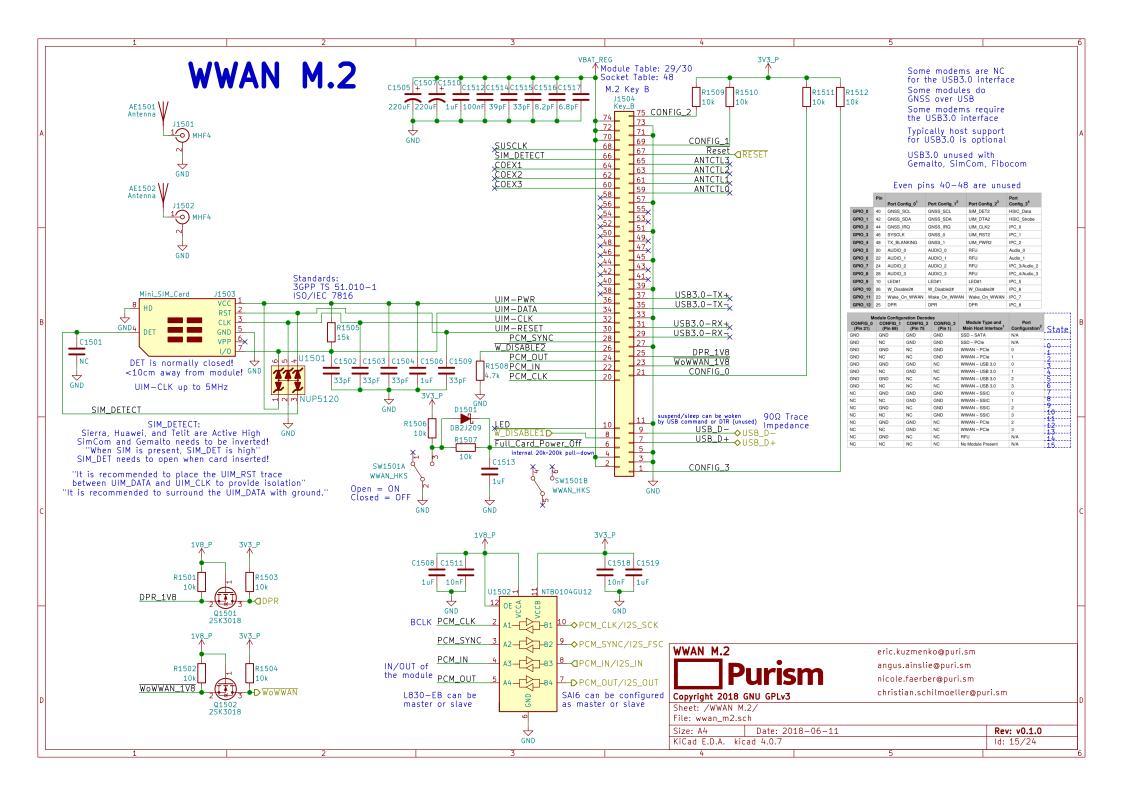
Buttons & LED

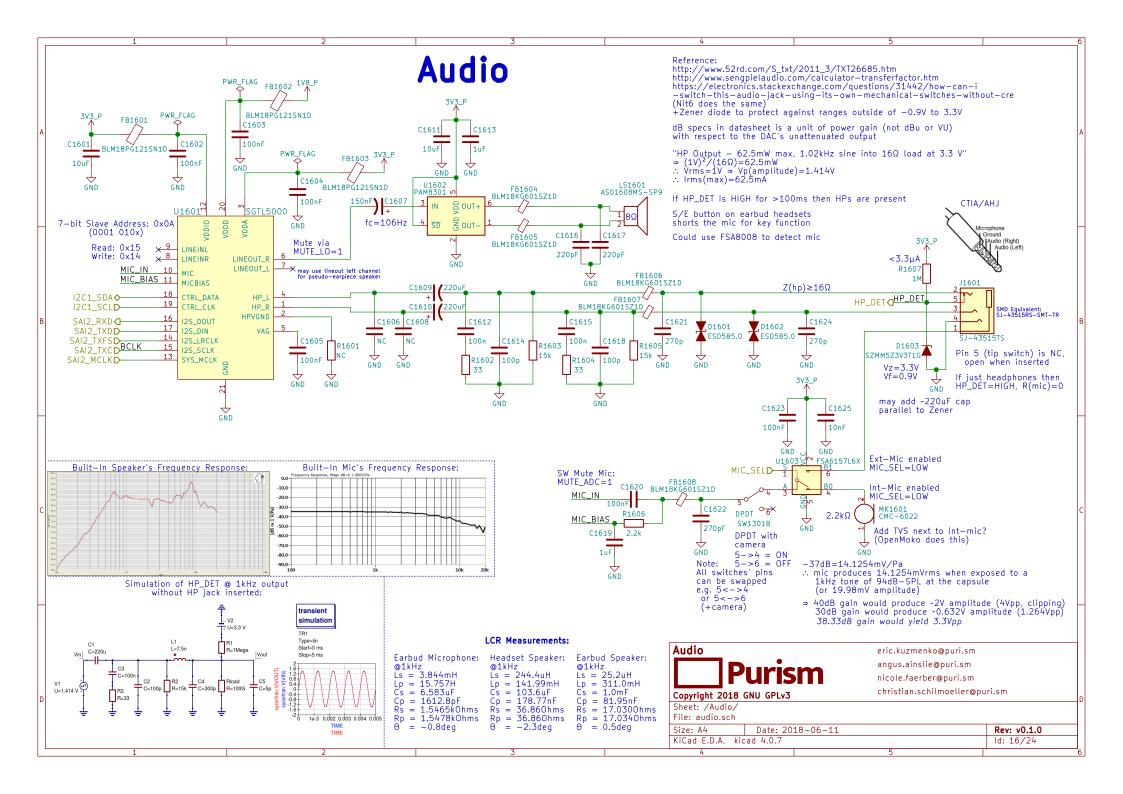


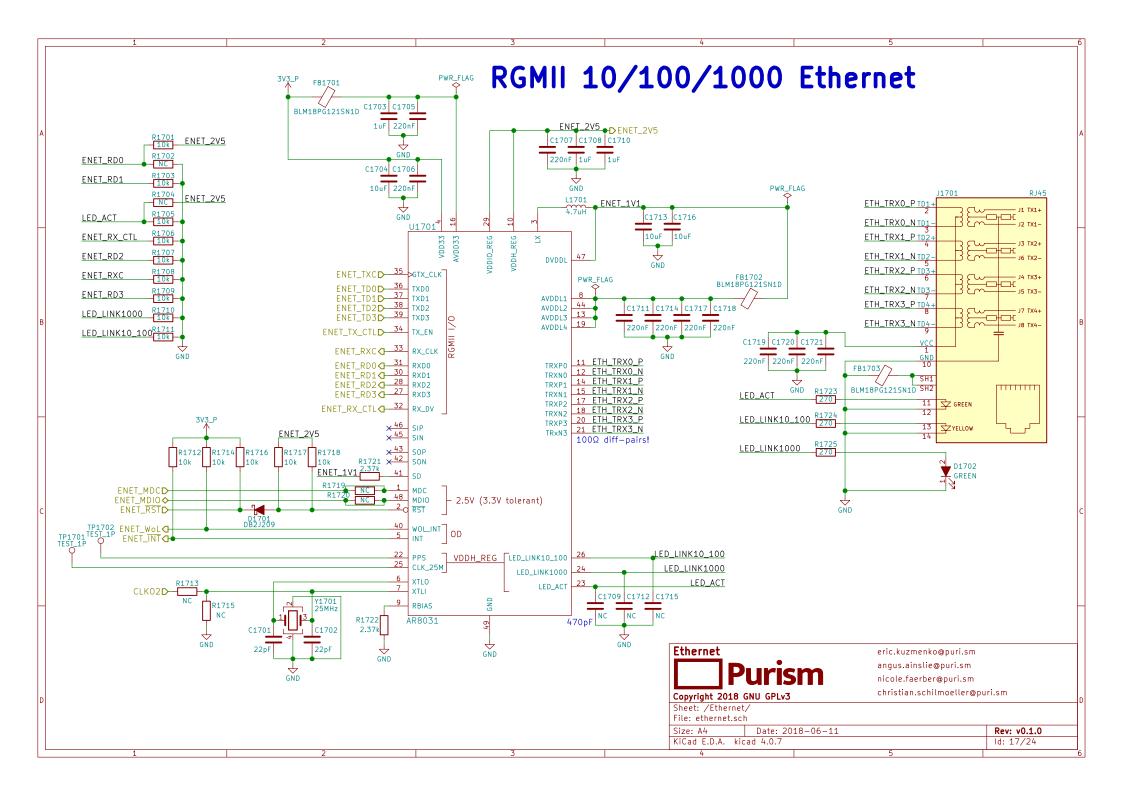
Use PWM2_PWMSAR to set the compare value (duty cycle)
Use PWM2_PWMCR[15:4] to set the PRESCALER (frequency)
Use PWM2_PWMPR to set the top of the counter (frequency)

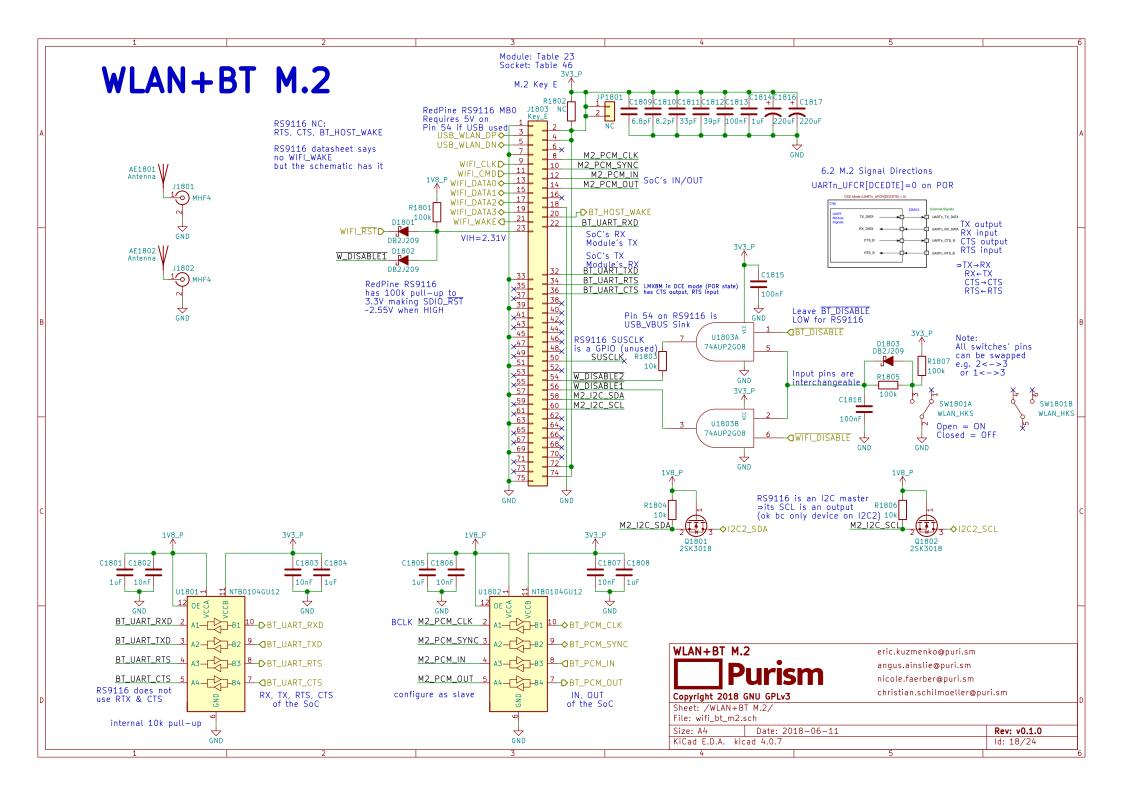


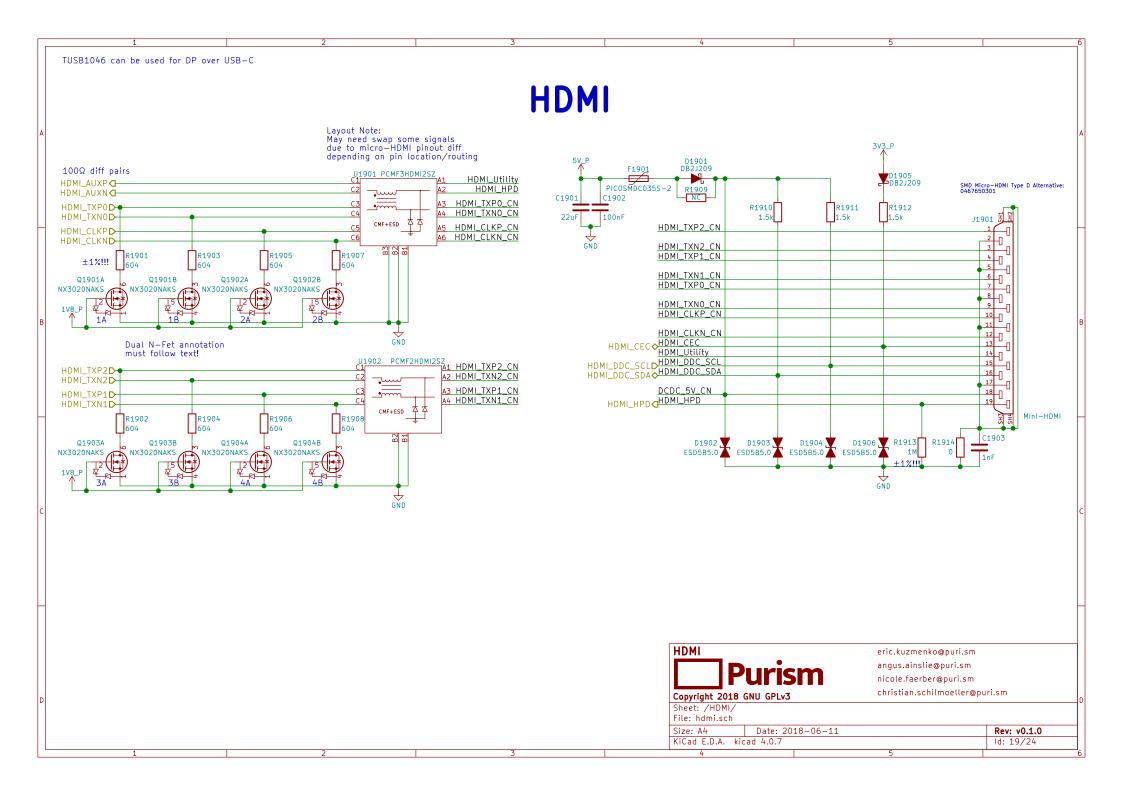






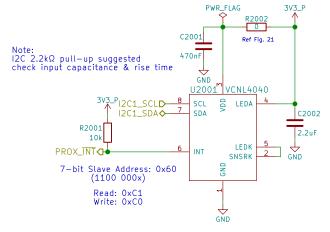




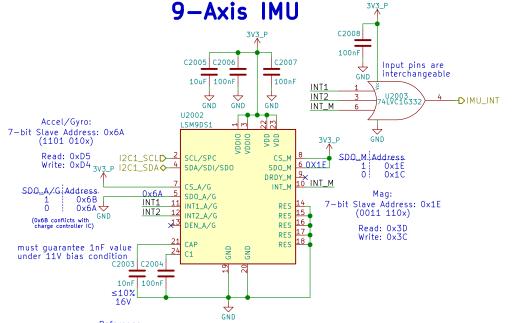


Sensors

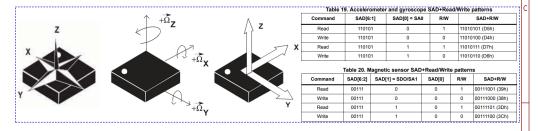
Proximity & Ambient Light



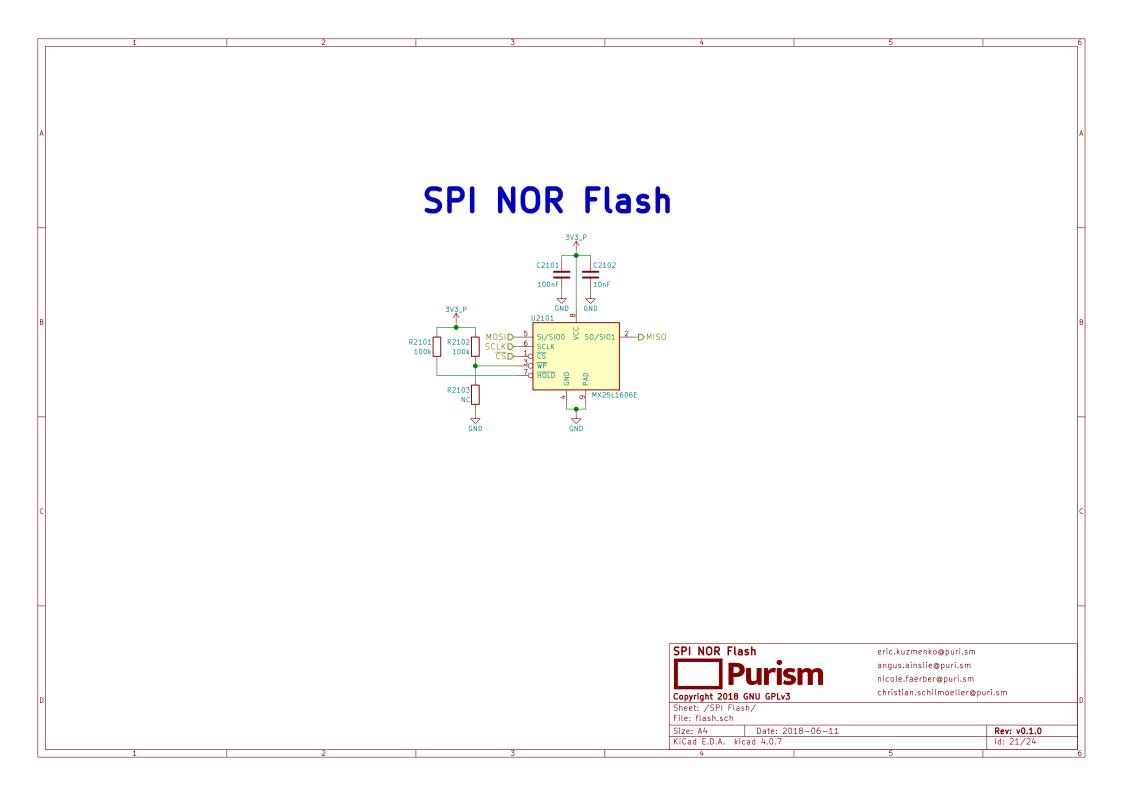
Reference: https://www.vishay.com/docs/84307/designingvcnl4040.pdf http://www.vishay.com/docs/84931/vcnl4040sensorboardfiles.pdf



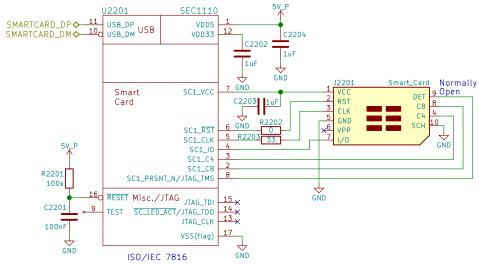
Reference: http://www.st.com/en/evaluation—tools/steval—mki159v1.html



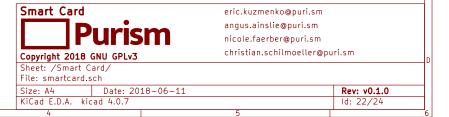


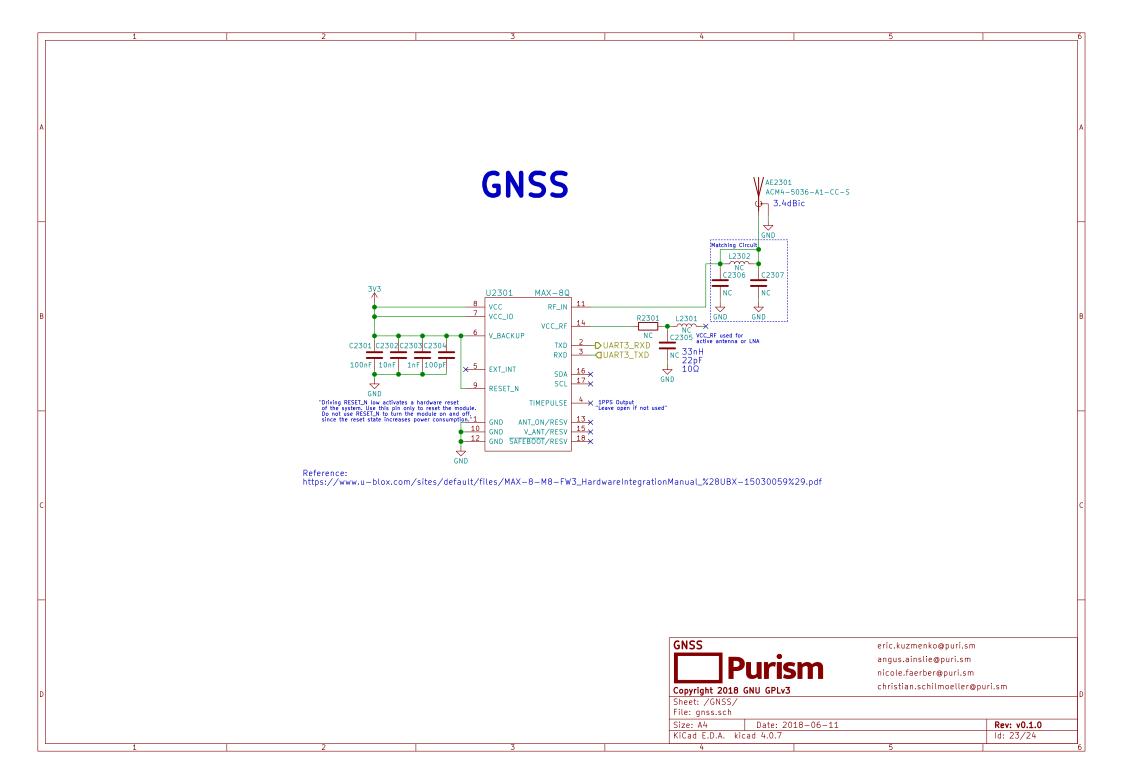


Smart Card

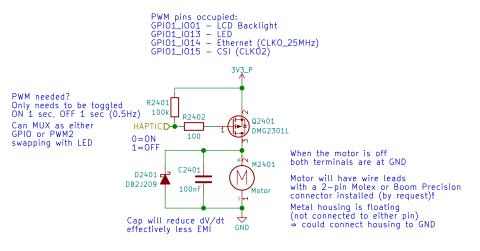


Reference: http://www.microchip.com/DevelopmentTools/ProductDetails.aspx?PartNO=EVB-SEC1110





Haptic Motor



 $\label{lem:cheaper Motor Connector: https://lcsc.com/product-detail/1-25T-Connectors_1-25T-1-2AW_C10832.html \\$

Motor Source: https://www.alibaba.com/product-detail/Coin-motor-vibration-dc-motor cellphone_1994583657.html?spm=a2700.8443308.0.0.5aa13e5f1wxHgs Motor Datasheet: https://cloud.puri.sm/s/z8JR6DJ4KrJYzoW Motor PN: BY0820Z021L20

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Size: A4	Date: 2018-06-11		Rev: v0.1.0		
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