MangOH Red Platform

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SHEET 10 – WIFI and BT

I2C Address List

08h = 3503 USB hub
3Eh = I/O expander
51h = EEPROM with Board ID
64h = Battery gauge
68h = 6 Axis IMU
6Bh = Buck+batt charger
71h = I2C Hub
76h = Pressure Sensor

Variants description

DNI = Do Not Install
MIC_OMTP = OMTP headphones config (do not define MIC_CTIA)
MIC_CTIA = CTIA/AHJ headphones config (do not define MIC_OMTP)

Sheet: 2. CF3 Socket

File: cf3_socket.sch

Sheet: 3. RF, USB, IOT connectors

File: rf_usb_iot_connectors.sch

Sheet: 4. RESET, CTRL switch, I2C HUB

File: reset_ctrl_switch_i2c_hub.sch

Sheet: 5. AUDIO (ANALOG & PCM)

File: audio.sch

Sheet: 6. SIM cards, SD card, SDIO mux

File: simcard_sdcard_sdio_mux.sch

Sheet: 7. USB HUB, GPIO Expander, FTDI conv

File: usb_hub_gpio_expander_ftdi_conv.sch

Sheet: 8. Battery Charger and USB power

File: battery_charger_usb_power.sch

Sheet: 9. 1V8,3V3,5V0 Power Supply

File: power_supply.sch

Sheet: 10. WIFI and BT

File: wifi_bluetooth.sch

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leoheck@gmail.com
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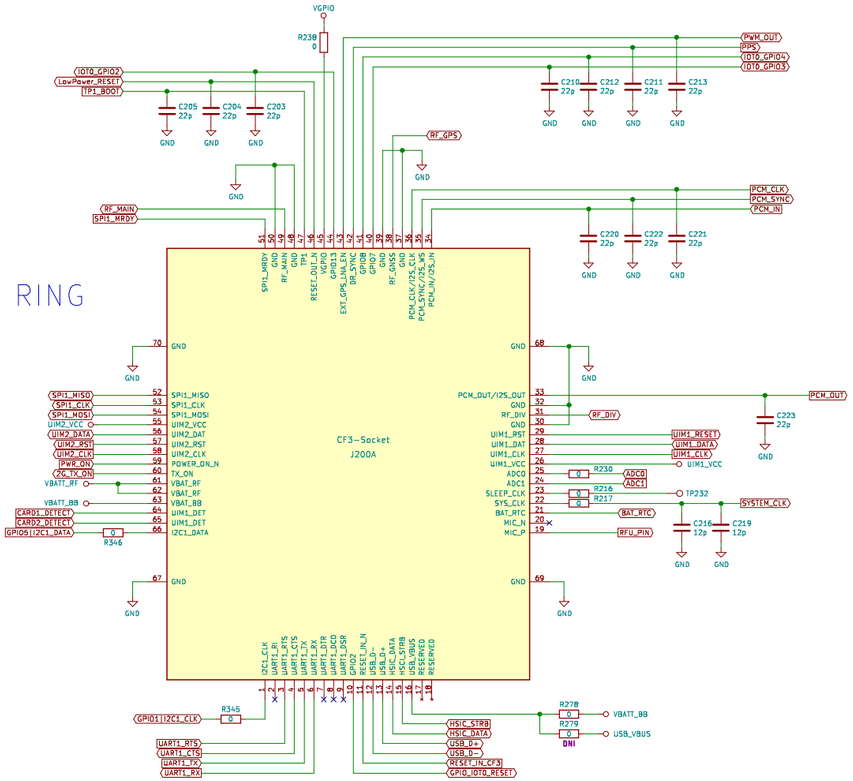
Sheet: /
File: mangoh_red_board.sch

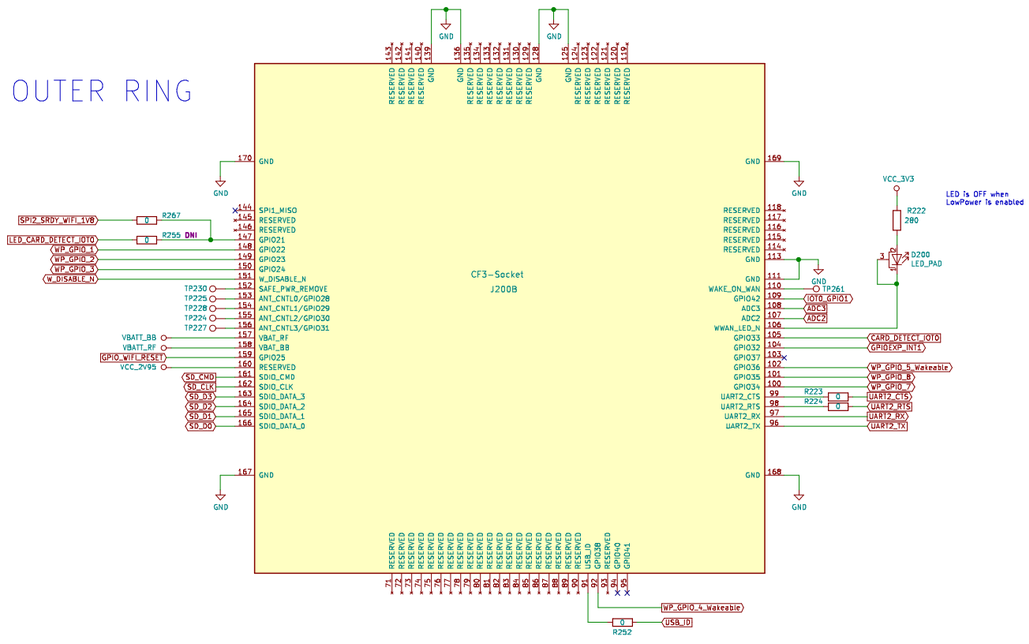
Title: MangOH Red

Size: B	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A.	kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1	Id: 1/10

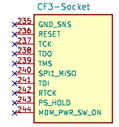
INNER RING



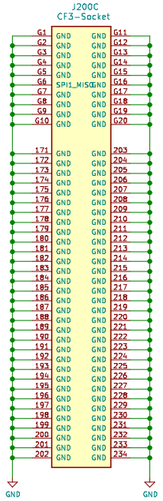
OUTER RING

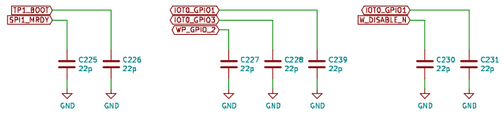


JTAG

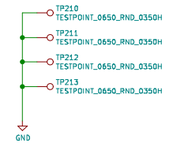


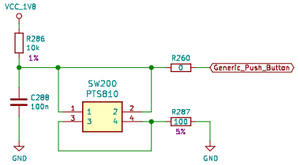
GROUND SLUG





Mounting Holes





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leoheck@gmail.com
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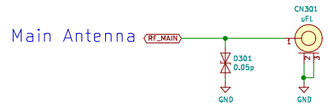
Sheet: /2. CF3 Socket/
File: cf3_socket.sch

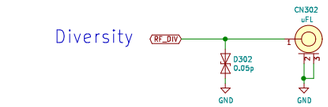
Title: MangOH Red

Size: C	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 2/10

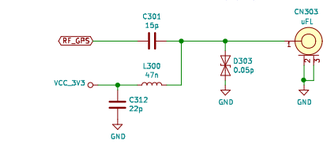
Main Antenna



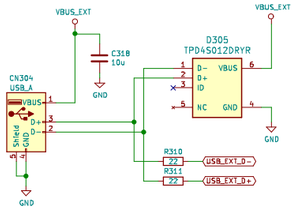
Diversity

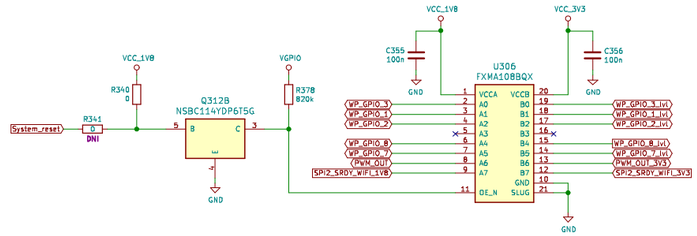


GPS Active Antenna Supply



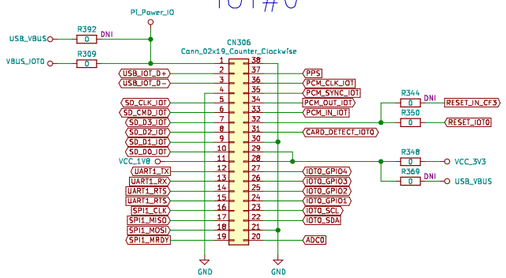
USB Host

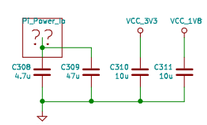


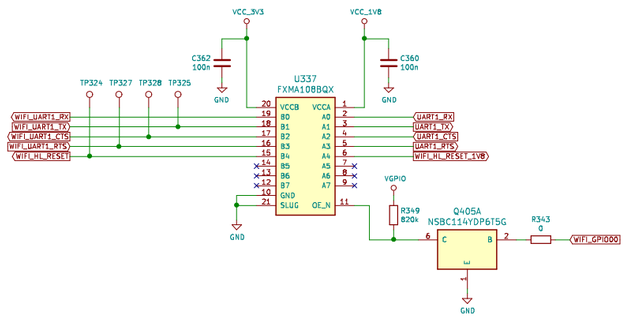


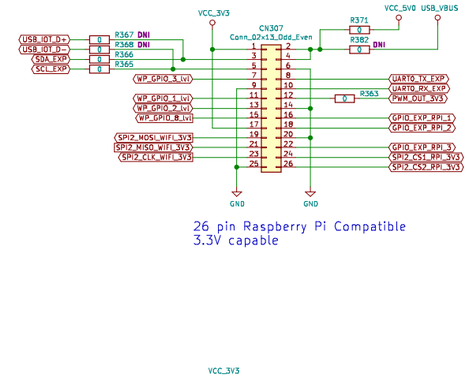
IOT Connector
1.8V capable

IOT#0

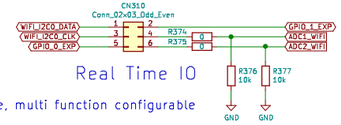






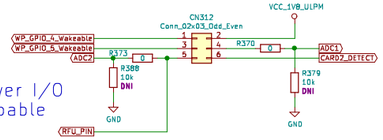


26 pin Raspberry Pi Compatible
3.3V capable



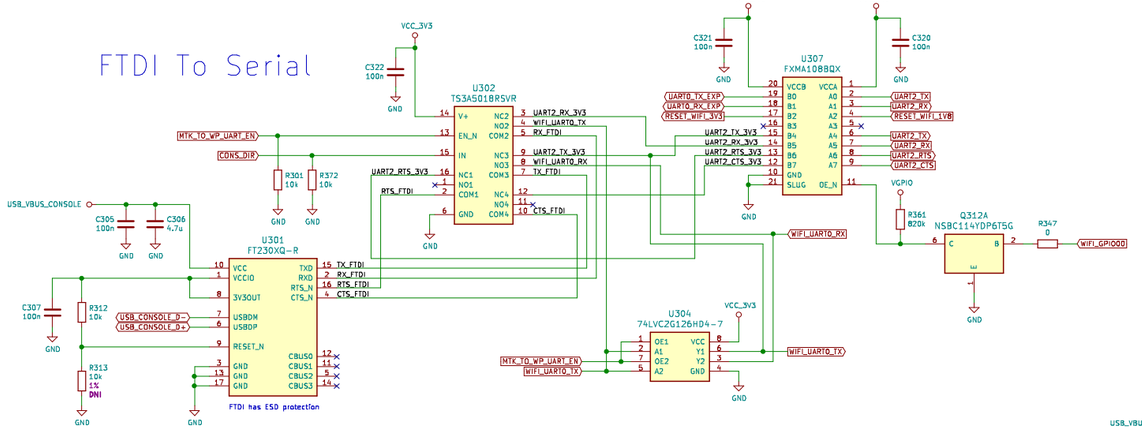
Real Time IO

3.3V capable, multi function configurable

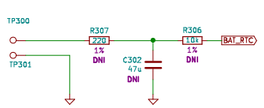


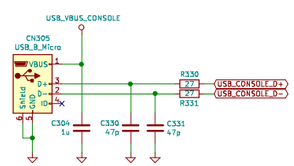
Low Power I/O
1.8V capable

FTDI To Serial



VBACKUP/DISCHARGE





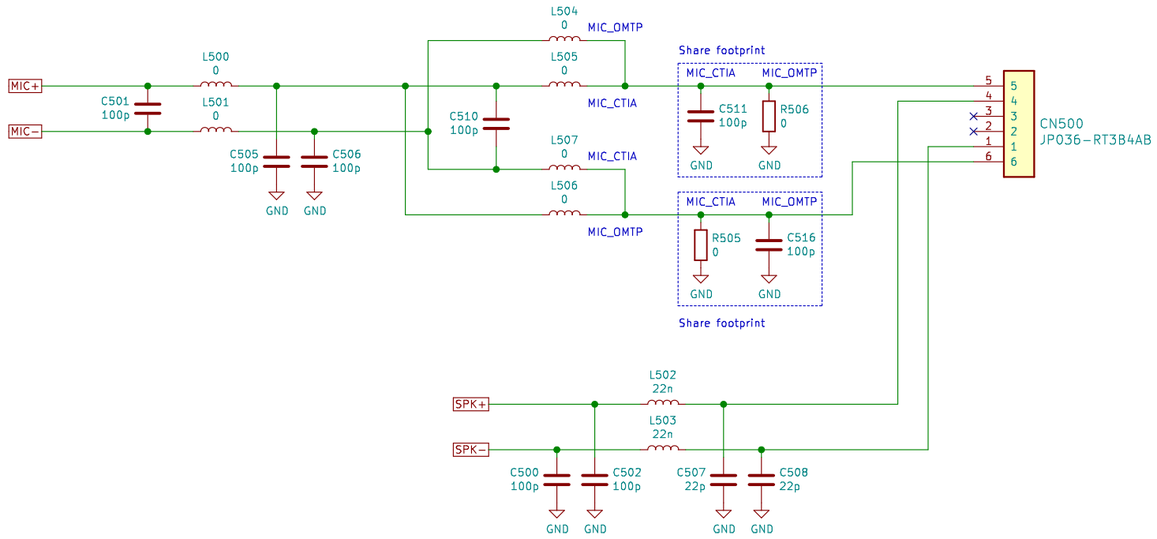
Converted by Leandro Heck
leaheck@gmail.com
Sierra Wireless

Sheet: /3. RF, USB, IOT connectors/
File: rf_usb_iot_connectors.sch

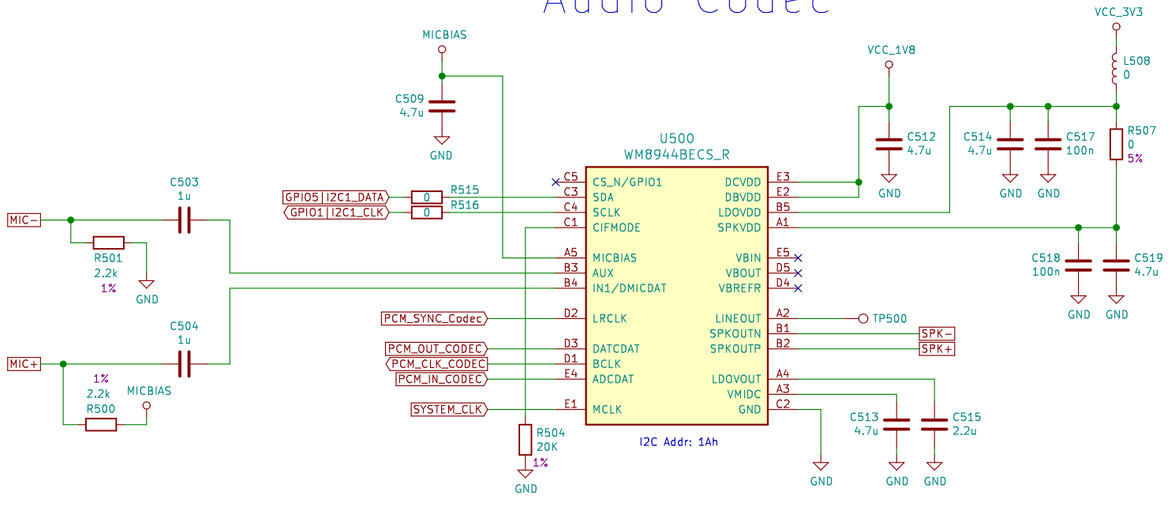
Title: MangOH Red

Size: C	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 3/10

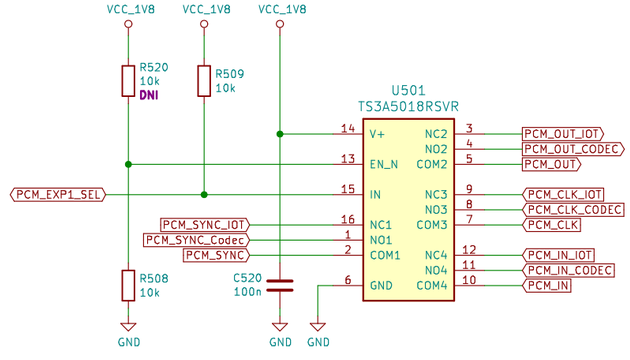
Audio Source Selection



Audio Codec



PCM Expansion #1



Default config = PCM to mangoh Red Codec

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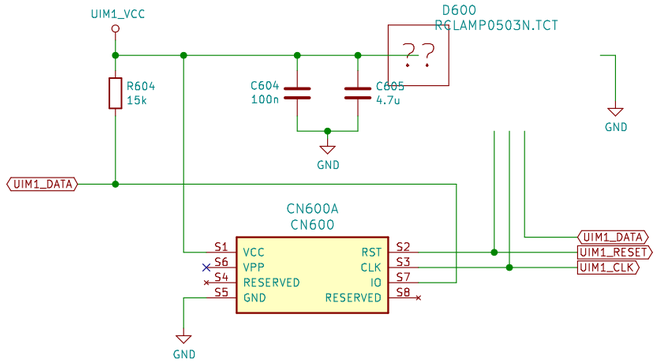
Sheet: /5. AUDIO (ANALOG & PCM)/
File: audio.sch

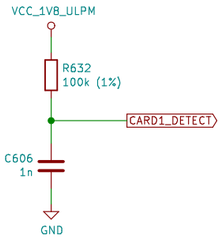
Title: MangOH Red

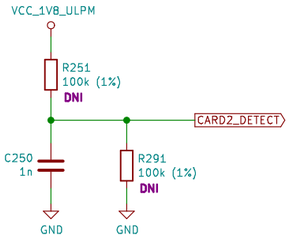
Size: B	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 4/10

UIM1

SIM card destected only if present at startup

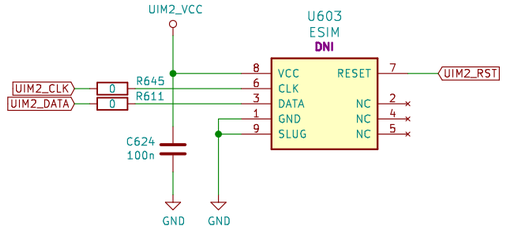




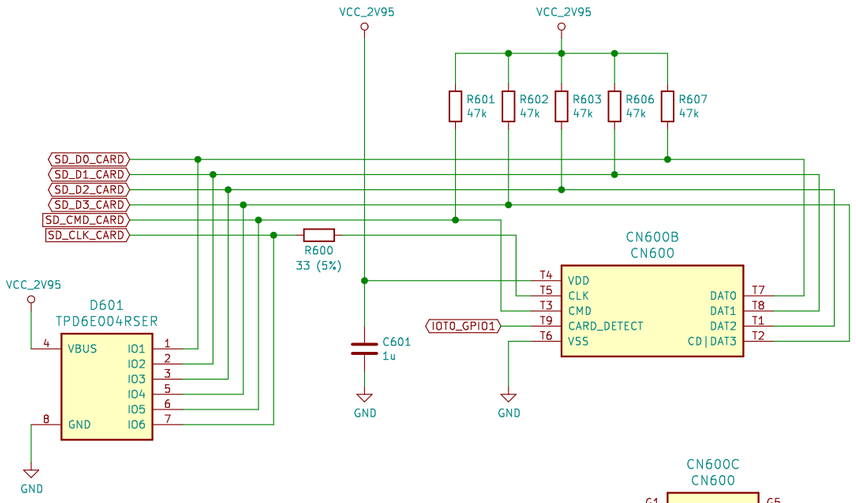


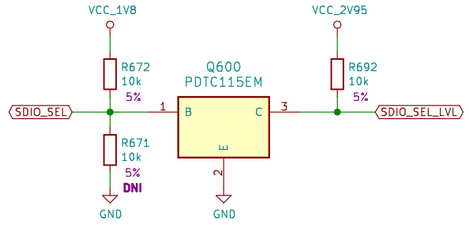
ESIM

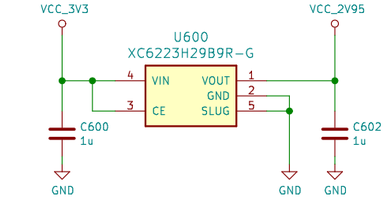
DNI

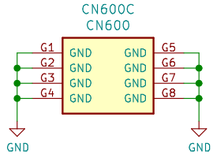


SD Card Connector

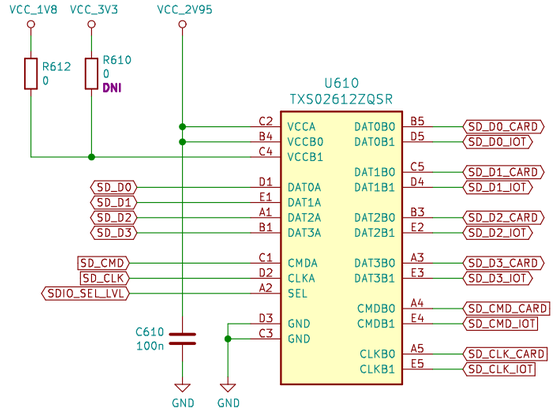








SDIO Expansion



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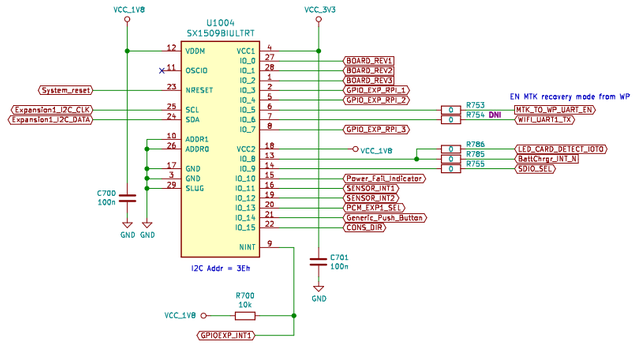
leoheck@gmail.com
Sierra Wireless

Sheet: /6. SIM cards, SD card, SDIO mux/
File: simcard_sdcard_sdio_mux.sch

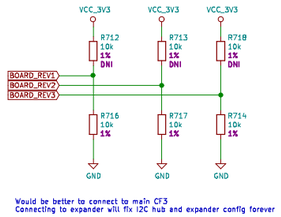
Title: MangOH Red

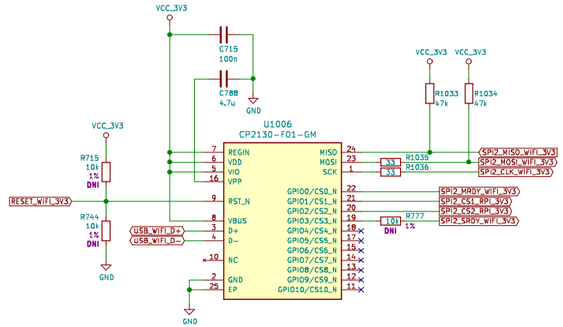
Size: B	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A.	kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1	Id: 5/10

GPIO Expander#1

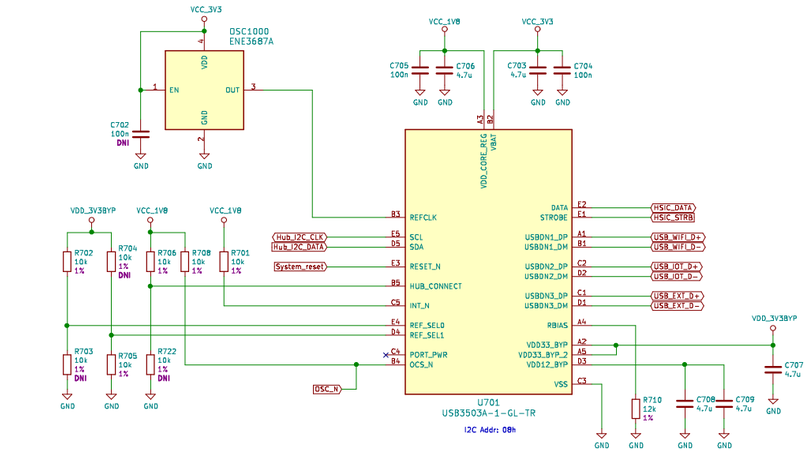


Board Rev

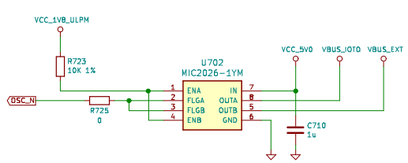


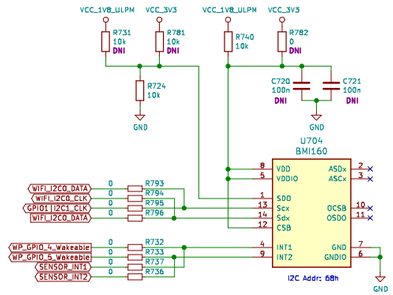


USB 3503

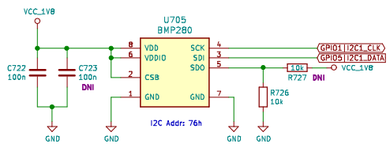


USB Downstream Power

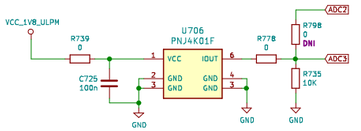




Accelerometer and Gyroscope Presure Sensor



Light Sensor



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leoheck@gmail.com

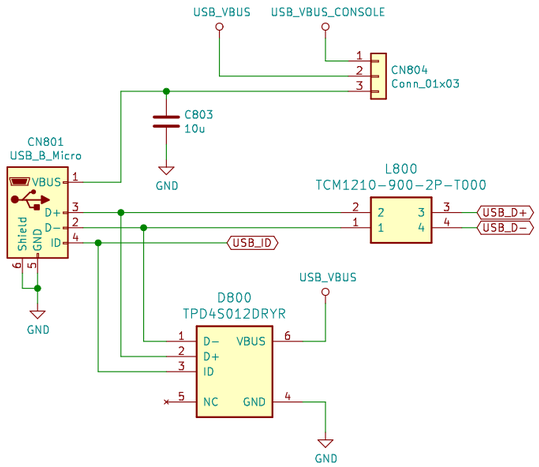
Sierra Wireless

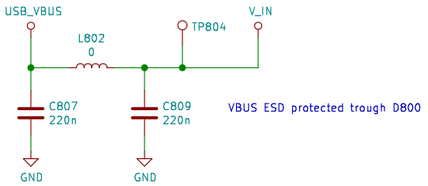
Sheet: /7. USB HUB, GPIO Expander, FTDI conv/
File: usb_hub_gpio_expander_ftdi_conv.sch

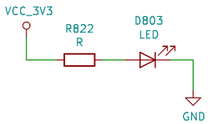
Title: MangOH Red

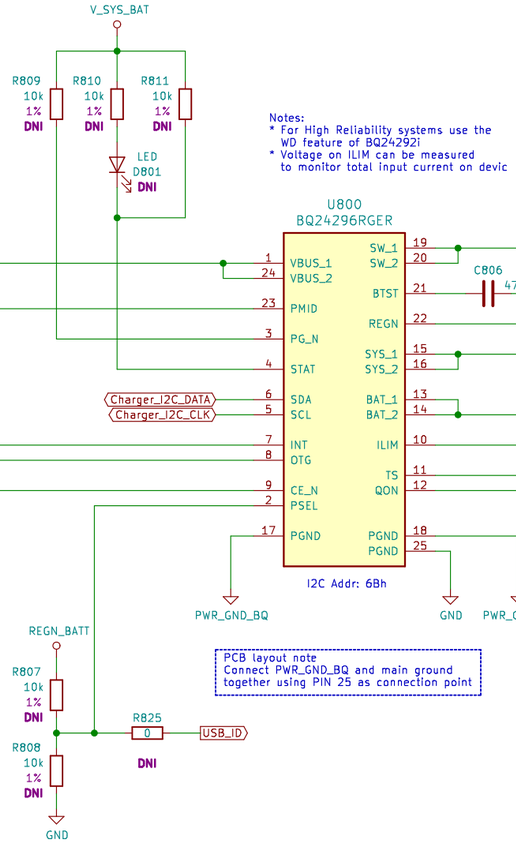
Size: C	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 6/10

PSU Front End and 3.7V DC/DC converter

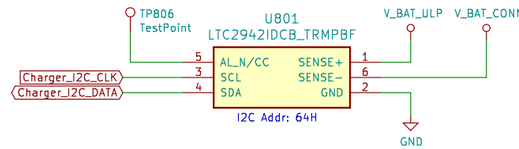


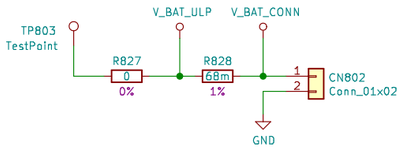






Only visible when battery connected





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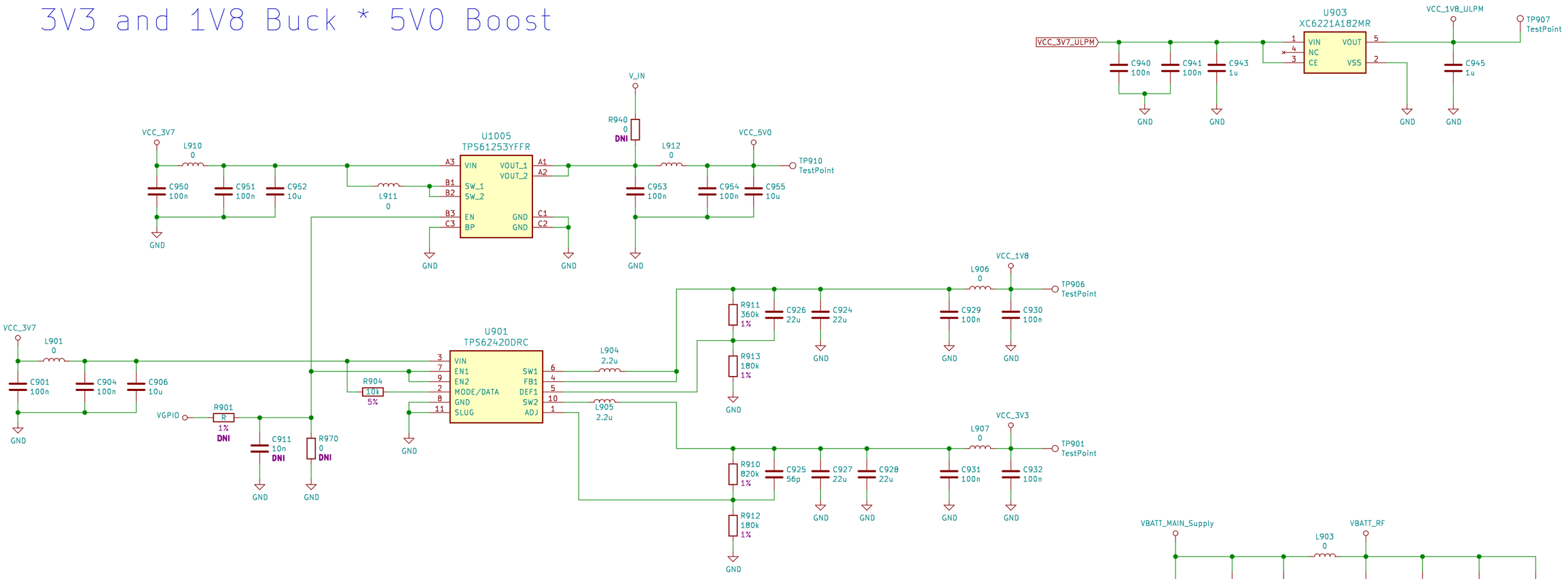
leoheck@gmail.com
Sierra Wireless

Sheet: /8. Battery Charger and USB power/
File: battery_charger_usb_power.sch

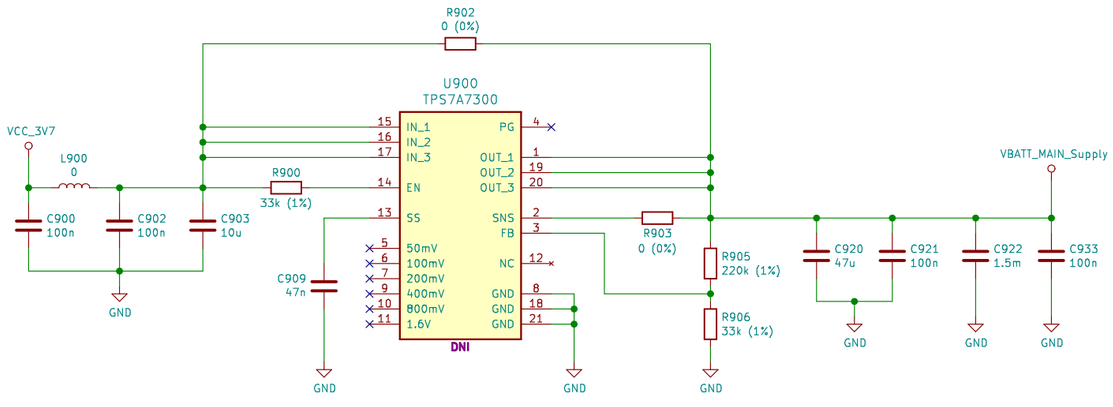
Title: MangOH Red

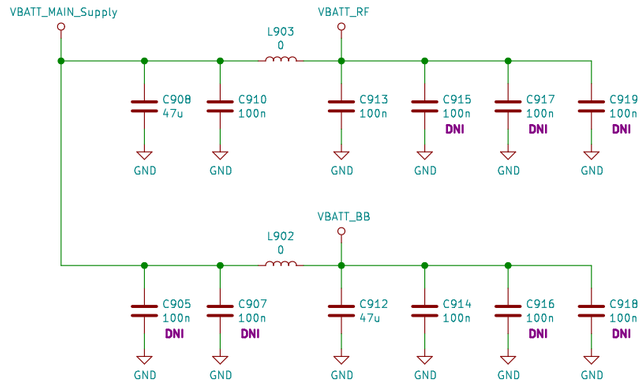
Size: B	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 7/10

3V3 and 1V8 Buck * 5V0 Boost



CF3 LDO





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leoheck@gmail.com
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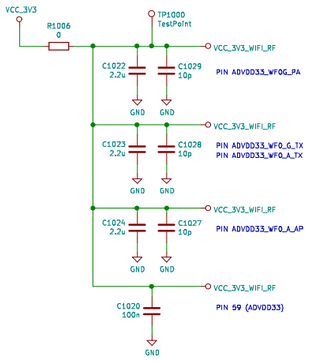
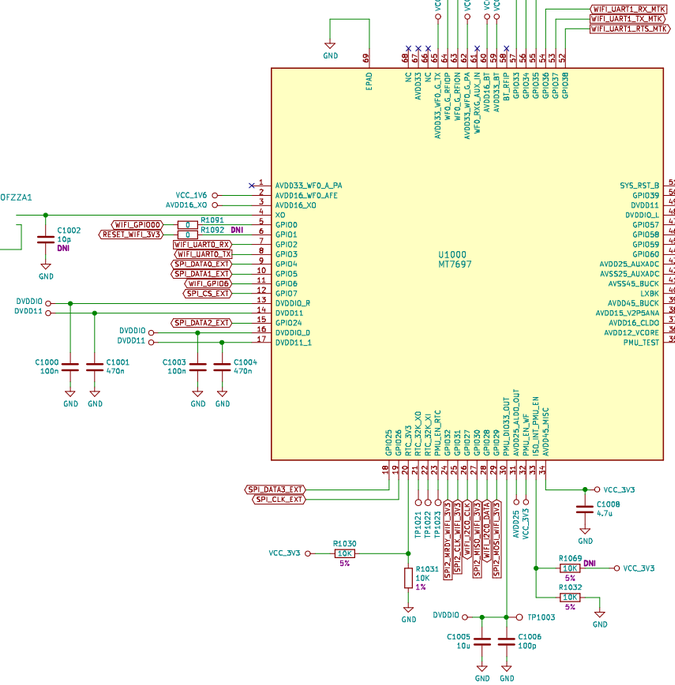
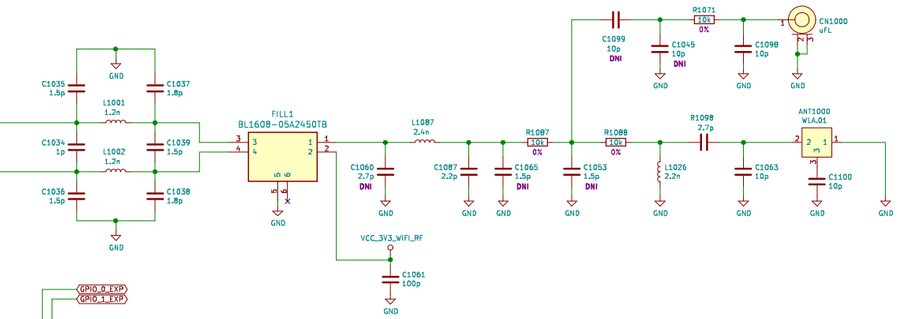
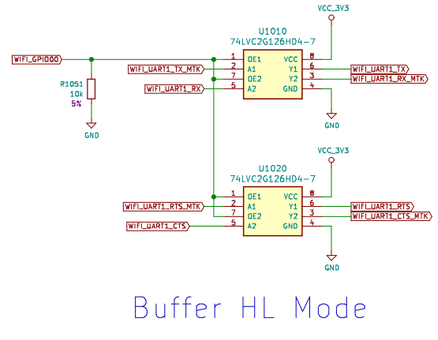
Sheet: /9. 1V8,3V3,5V0 Power Supply/		
File: power_supply.sch		
Title: MangOH Red		
Size: B	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 8/10

RF SECTION

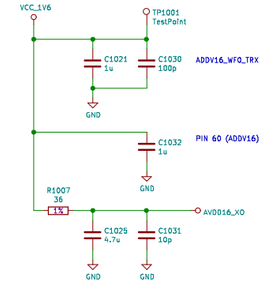




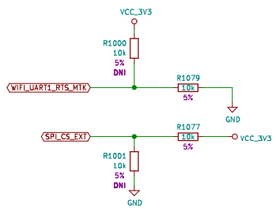




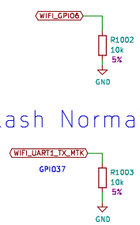
Buffer HL Mode



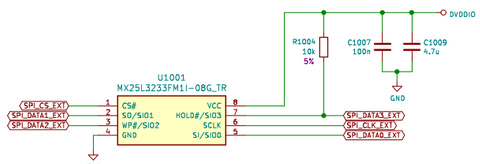
26MHz XTAL Config

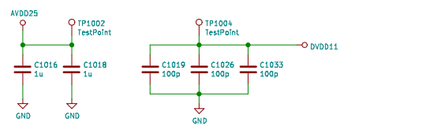


32KHz Clock
derived from XTAL



Flash Normal Mode





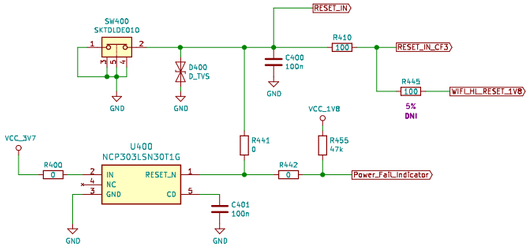
Converted by Leandro Heck
leoheck@gmail.com
Sierra Wireless

Sheet: /10. WIFI and BT/
File: wifi_bluetooth.sch

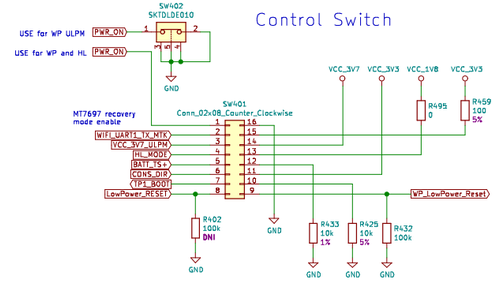
Title: MangOH Red

Size: C	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A.	kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1	Id: 9/10

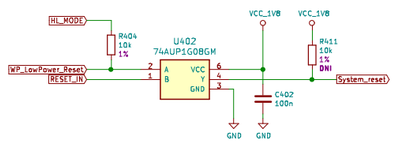
OPHW Platform



Control Switch

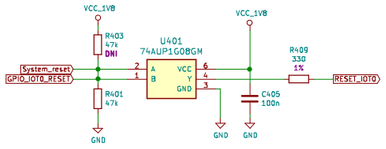


System Reset

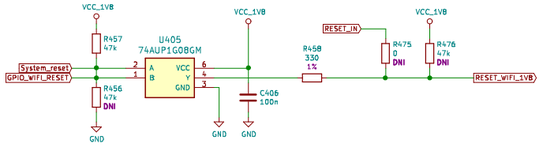


R403=ON, R404=DNI -> System_reset is HIGH during startup and when LowPowerReset=HIZ
R403=DNI, R404=ON -> System_reset is LOW during startup and when LowPowerReset=HIZ

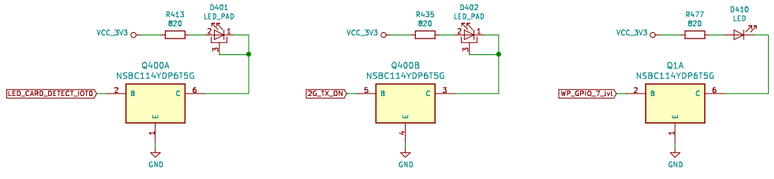
RESET_IOT#0



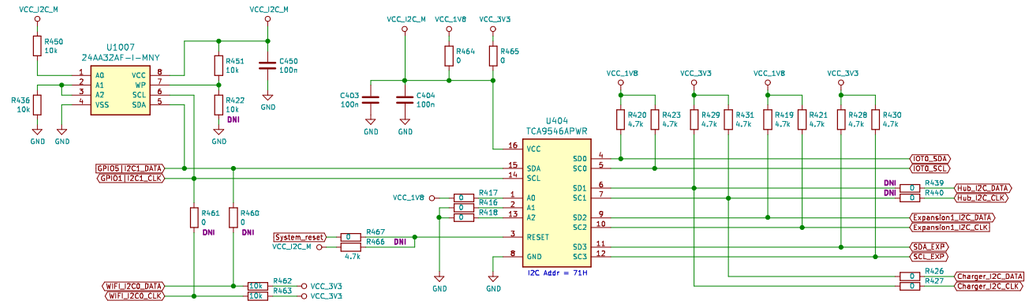
RESET_WIFI/BT



LEDS



uC Debug



Converted by Leandro Heck
leaheck@gmail.com
Sierra Wireless

Sheet: /4. RESET, CTRL switch, I2C HUB/
File: reset_ctrl_switch_I2c_hub.sch

Title: MangOH Red

Size: C	Date: 2018-07-08	**Rev: 50**
KiCad E.D.A. kicad 6.0.0-rc1-unknown-c0615c565ubuntu18.04.1		Id: 10/10