Project: ***DM1090FFC***
Current Revision: ***R0M0E0***

DM1090FFC Revision History:

Date	Revision	Reason for Change	Changes Implemented
12/28/2020	R1M1E2 -> R0M0E0	1) ESD protection 2) FFC connector stronger mechanics 3) Updating board with overvoltage protection and ideal diode to or USB VBUS and Barrel jack 5V 4) Outdated stack 5) Unused reset circuit 6) Unused strobe configuration resistors	1) Added protection diodes to MIPI lines 2) Changed FFC with Molex 505278 series 3) Added ideal diodes and zener diode for protection 4) Standarized 4L stackup rerouted all diferential pairs and tuned lengths 5) Deleted reset circuit and its components and rerouted signals 6) Deleted strobe configuration resistors with coresponding silk and tracks
02/12/2020	DM1098FFC R0M0E0 -> DM1090FFC R0M0E0	1) Add IMU 2) Change FFC connectors type and pinout to ArduCam standard so that camera modules from Arducam can be connected directly without board adapter 3) Add BOOT_SEL button to PCB	1) Added IMU from OAK-D and modified length tunning for SPi to connector 2)Changed FFC connectors to ArduCam standard pinout, updated all connections to the conenctors. Cameras from Arducam can be connected with same side dedicated FFC. Changed 3V3 power rail LDO with switcher with higher ampacity to supply camera modules 3) Added push-button connected to 1V8 and BOOT_SEL pin on BW1099 connector

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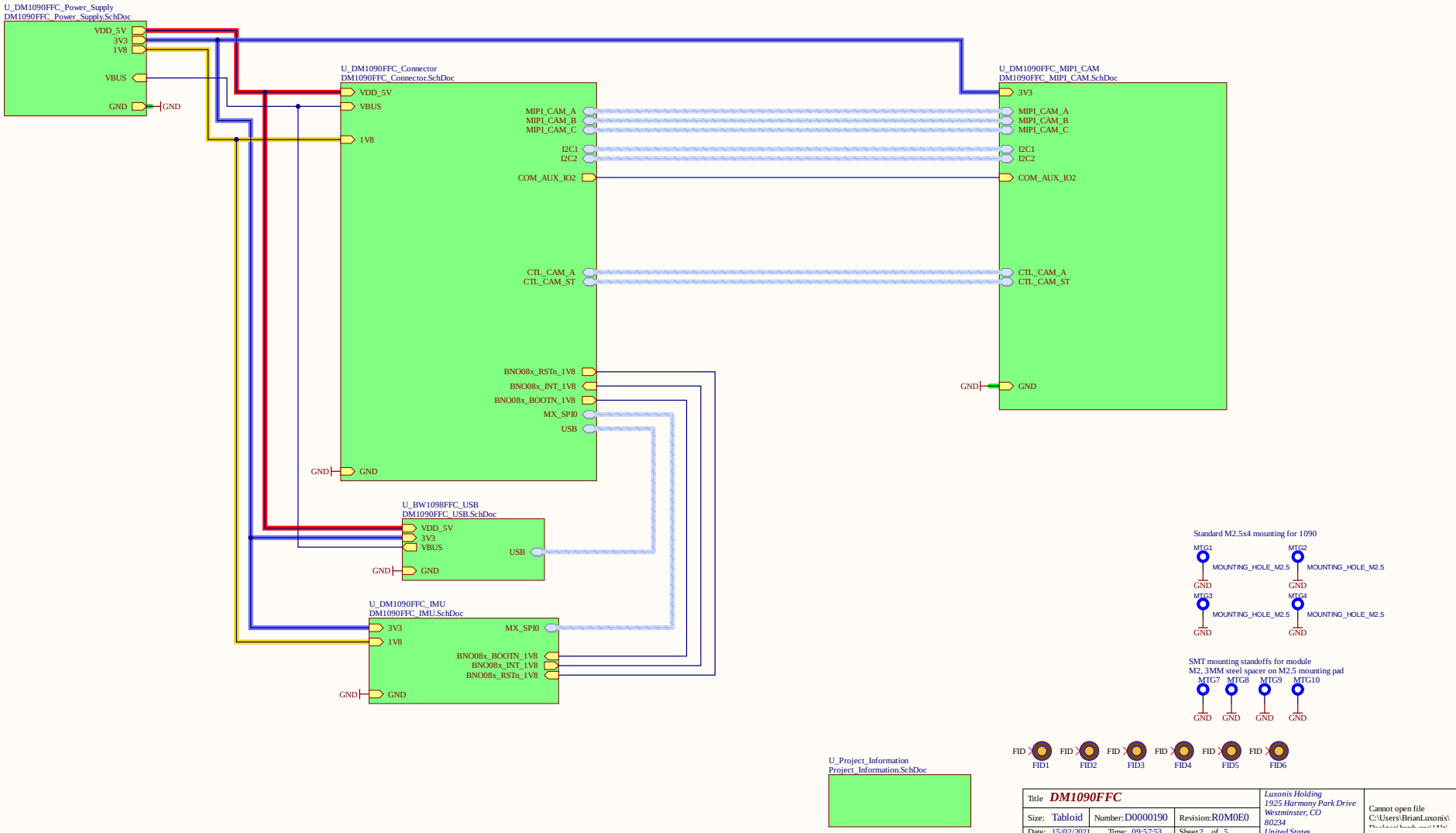
Drawn by: ***David Malovrh***				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DM1090FFC_Power_Supply.SchDoc
VDD_5V
3V3
1V8
VBUS
GND
GND
U_DM1090FFC_Connector
DM1090FFC_Connector.SchDoc
VDD_5V
VBUS
1V8
MIPI_CAM_A
MIPI_CAM_B
MIPI_CAM_C
I2C1
I2C2
COM_AUX_IO2
CTL_CAM_A
CTL_CAM_ST
BNO08x_RSTn_1V8
BNO08x_INT_1V8
BNO08x_BOOTN_1V8
MX_SPI0
USB
GND
GND
U_DM1090FFC_MIPI_CAM
DM1090FFC_MIPI_CAM.SchDoc
3V3
MIPI_CAM_A
MIPI_CAM_B
MIPI_CAM_C
I2C1
I2C2
COM_AUX_IO2
CTL_CAM_A
CTL_CAM_ST
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GND
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DM1090FFC_USB.SchDoc
VDD_5V
3V3
VBUS
USB
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GND
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DM1090FFC_IMU.SchDoc
3V3
1V8
MX_SPI0
BNO08x_BOOTN_1V8
BNO08x_INT_1V8
BNO08x_RSTn_1V8
GND
GND
Standard M2.5x4 mounting for 1090
MTG1
MTG2
MTG3
MTG4
MOUNTING_HOLE_M2.5
GND
SMT mounting standoffs for module
M2, 3MM steel spacer on M2.5 mounting pad
MTG7
MTG8
MTG9
MTG10
FID
FID1
FID2
FID3
FID4
FID5
FID6
U_Project_Information
Project_Information.SchDoc
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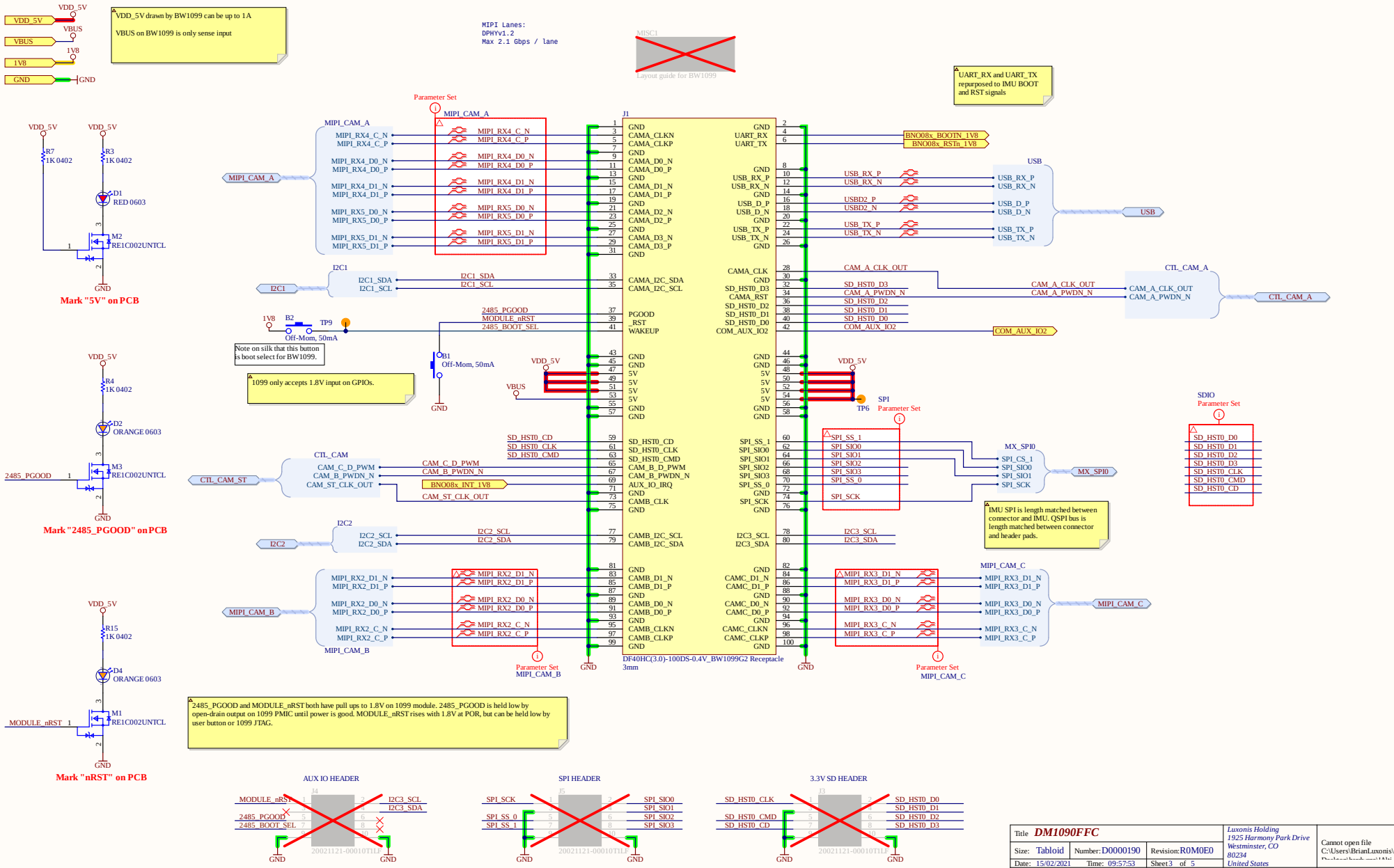
VDD_5V drawn by BW1099 can be up to 1A
VBUS on BW1099 is only sense input
MIPI Lanes:
DPHYv1.2
Max 2.1 Gbps / lane
Layout guide for BW1099
UART_RX and UART_TX repurposed to IMU BOOT and RST signals
Mark "5V" on PCB
Mark "2485_PGOOD" on PCB
Mark "nRST" on PCB
Note on silk that this button is boot select for BW1099.
1099 only accepts 1.8V input on GPIOs.
IMU SPI is length matched between connector and IMU. QSPI bus is length matched between connector and header pads.
2485_PGOOD and MODULE_nRST both have pull ups to 1.8V on 1099 module. 2485_PGOOD is held low by open-drain output on 1099 PMIC until power is good. MODULE_nRST rises with 1.8V at POR, but can be held low by user button or 1099 JTAG.
DF40HC(3.0)-100DS-0.4V_BW1099G2 Receptacle
3mm
AUX IO HEADER
SPI HEADER
3.3V SD HEADER
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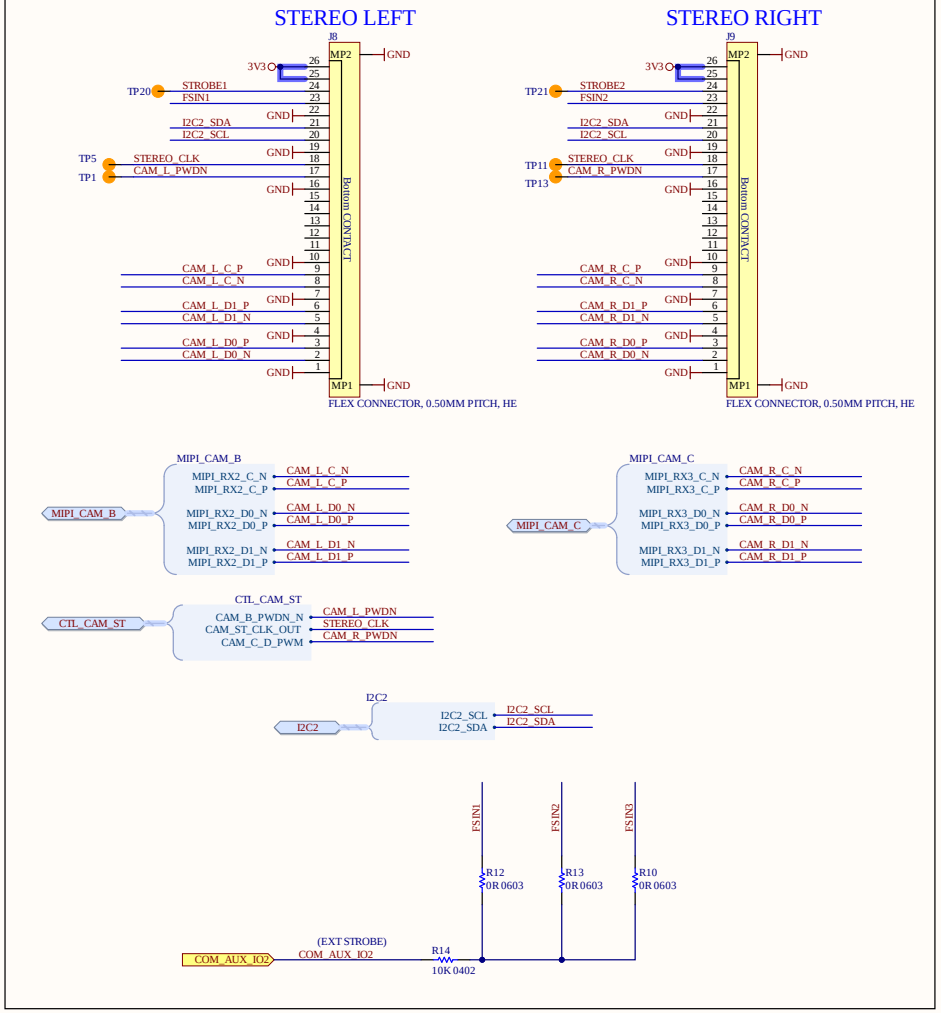
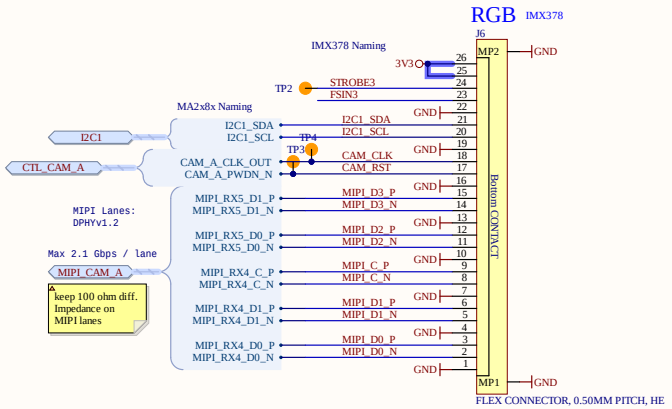
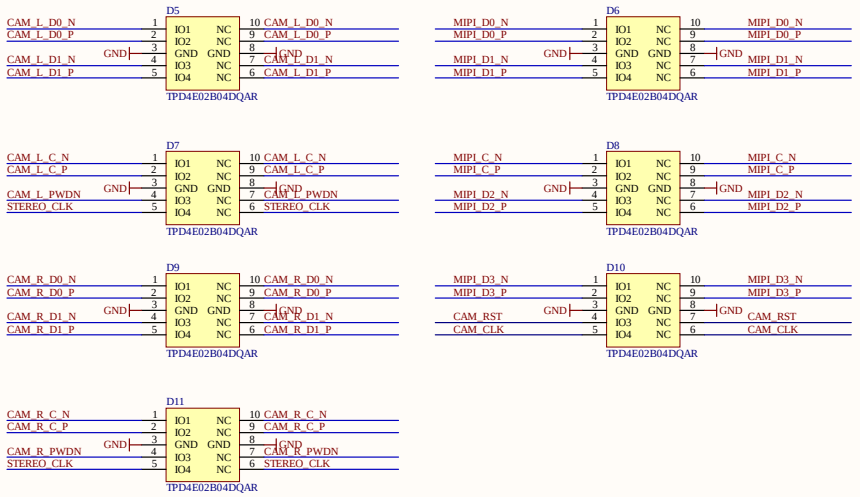
STEREO CAMERA PAIR



RGB CAMERA



ESD PROTECTION



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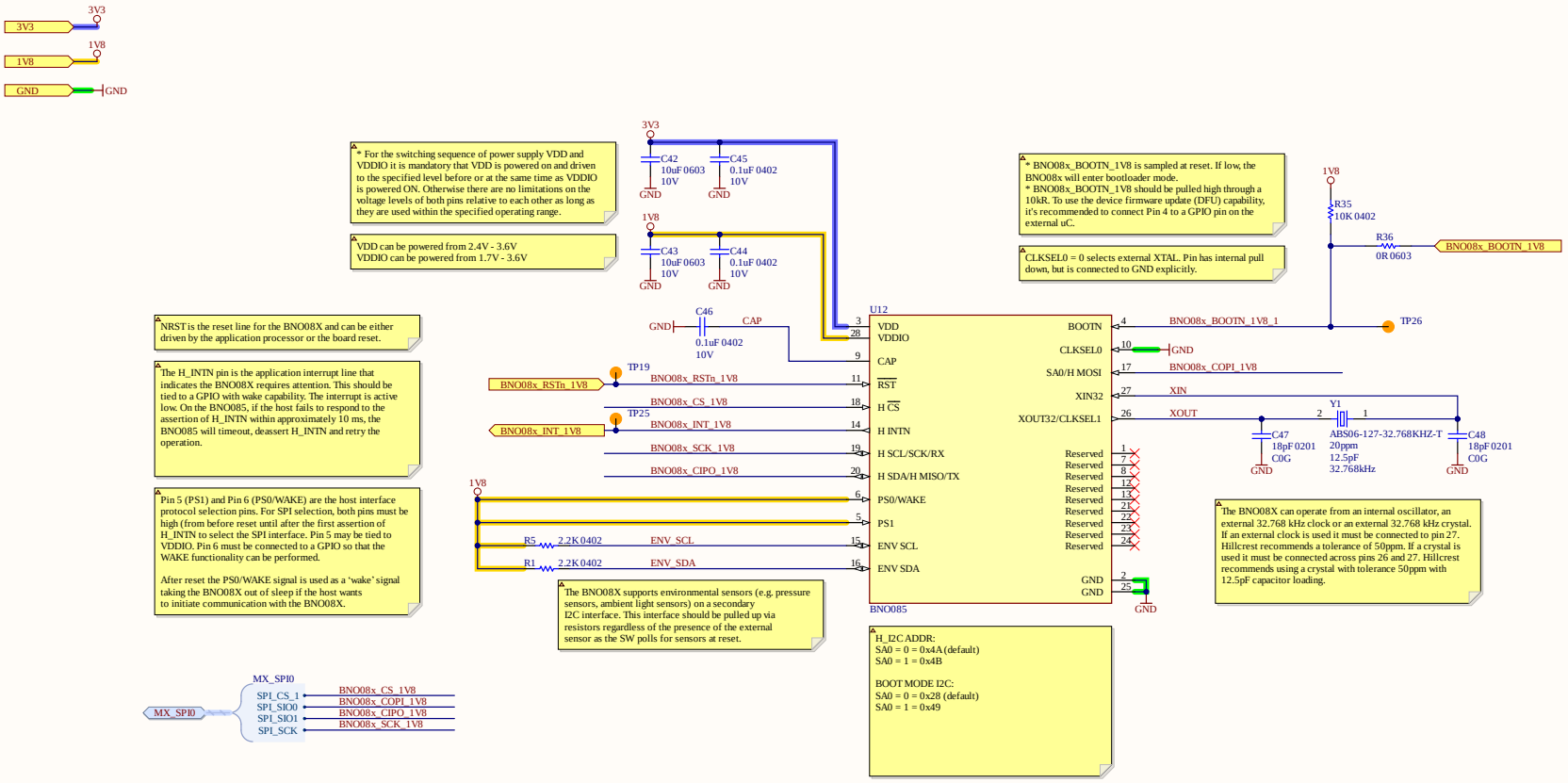

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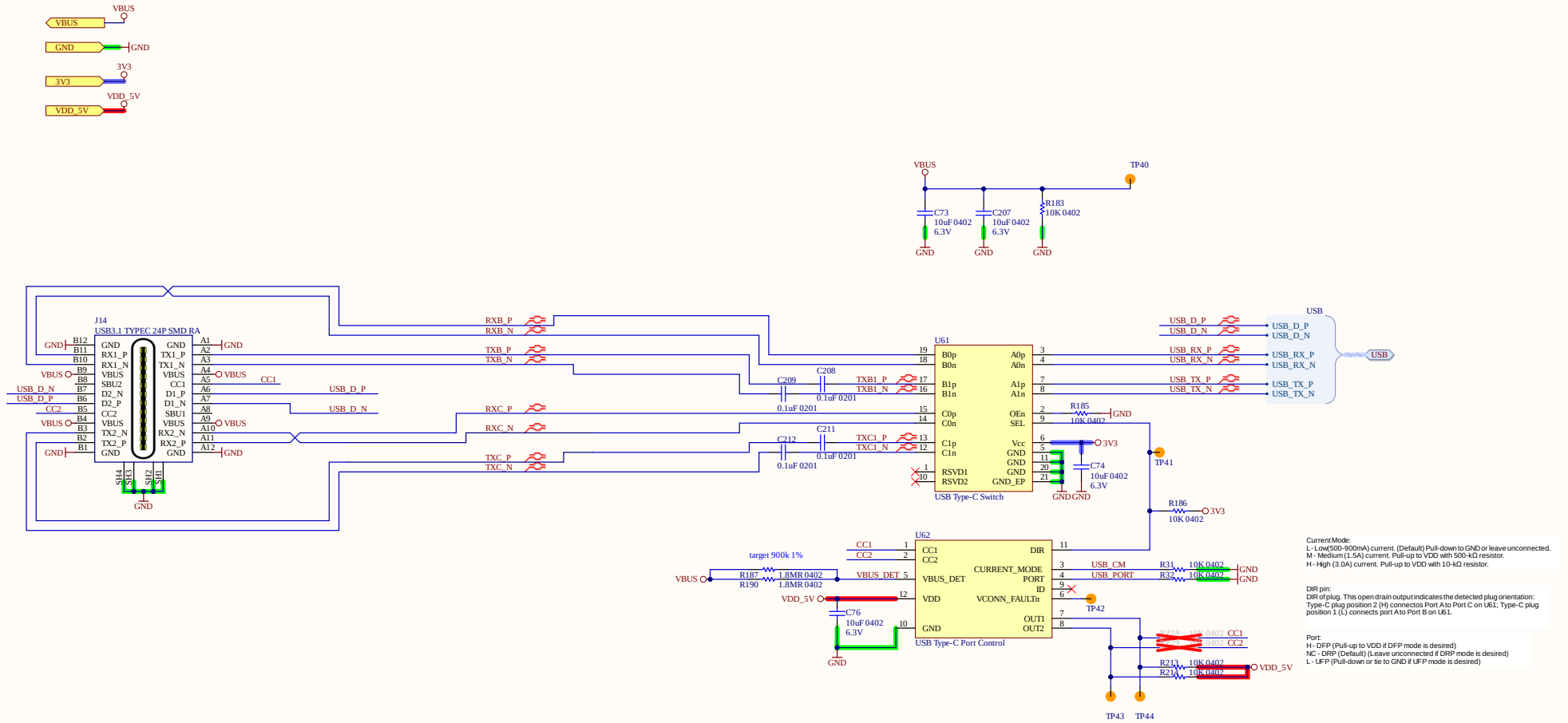

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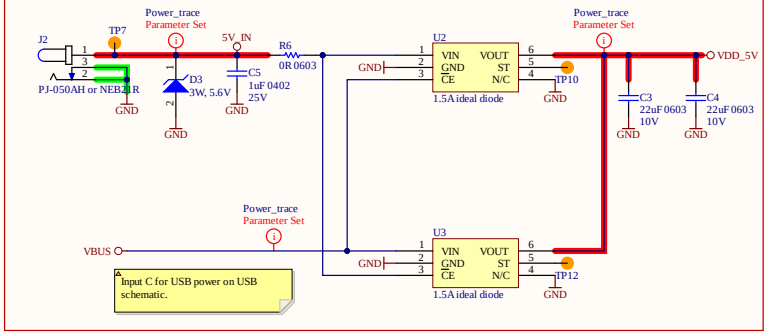
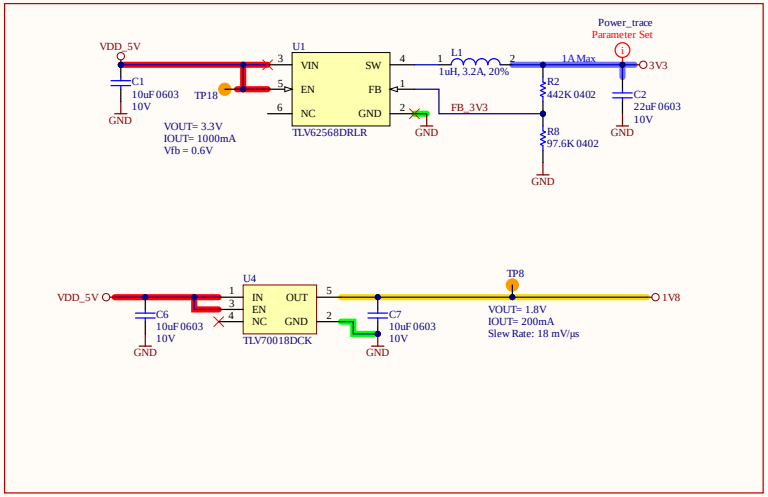
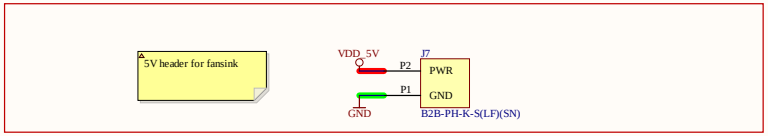
POWER INPUT - DIODE OR

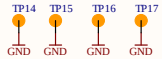


POWER REGULATION



FAN CONTROLLER





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