***Project:*** ***DM1090***
***Current Revision:*** ***R3M0E3***

## *DM1090 Revision History:*

| Date | Revision | Reason for Change | Changes Implemented |
|---|---|---|---|
| 12/28/2020 | R1M1E2 -> R0M0E0 | 1) ESD protection<br>2) FFC connector stronger mechanics<br>3) Updating board with overvoltage protection and ideal diode to or USB VBUS and Barrel jack 5V<br>4) Outdated stack<br>5) Unused reset circuit<br>6) Unused strobe configuration resistors | 1) Added protection diodes to MIPI lines<br>2) Changed FFC with Molex 505278 series<br>3) Added ideal diodes and zener diode for protection<br>4) Standarized 4L stackup rerouted all diferential pairs and tuned lengths<br>5) Deleted reset circuit and its components and rerouted signals<br>6) Deleted strobe configuration resistors with coresponding silk and tracks |
| 02/12/2020 | DM1098FFC R0M0E0 -> DM1090FFC R0M0E0 | 1) Add IMU<br>2) Change FFC connectors type and pinout to ArduCam standard so that camera modules from Arducam can be connected directly without board adapter<br>3) Add BOOT_SEL button to PCB | 1) Added IMU from OAK-D and modified length tunning for SPi to connector<br>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.<br>Changed 3V3 power rail LDO with switcher with higher ampacity to supply camera modules<br>3) Added push-button connected to 1V8 and BOOT_SEL pin on BW1099 connector |
| | DM1090FFC R0M0E0 -> DM1090FFC R1M1E1 | 1) move CBA connectors closer to the edge (collision with J3 JTAG connector on SoM)<br>2) Slow plug issue (add 1uF capacitor)<br>3) Update USB type-C switch | 1) updated FFC connectors footprint and moved to the edge<br>2) Added 1uF capacitor to USB detect<br>3) Updated USB type-C switch part number |
| | R1M1E1 -> R2M1E1 | 1) Since multiple options for connecting cameras RGB text should be changed for CAM_C on silkscreen | 1) RGB text changed for CENTER camera on silkscreen |
| | R2M1E1 -> R3M1E2 | 1) Change USB switch with NXP part | 1) Changed USB switch with NXP part (100nF caps added) |
| 02/14/2022 | R3M1E2 -> R3M1E3 | 1) Lower the series resistor value (resistance) on the FSYNC line | 1) Changed R14 from 10k to 22R |

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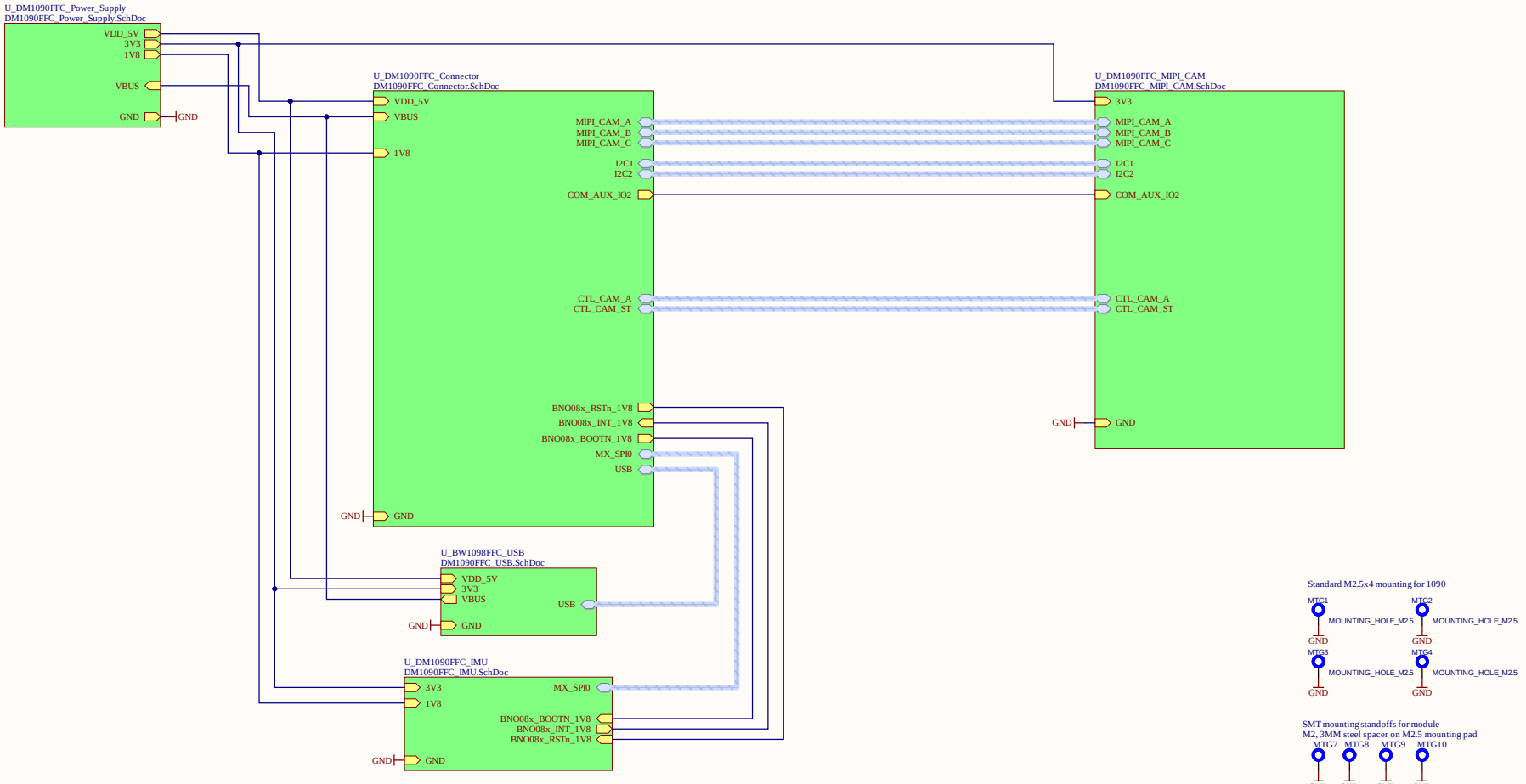
| Title ***DM1090*** | | | ***Luxonis Holding*** | |
| Size: Tabloid | Number:DXXXX | Revision:R3M0E3 | ***1925 Harmony Park Drive*** | Cannot open file C:\Users\BrianLuxonis\ |
| Date: 14/02/2022 Time: 19:47:02 | | Sheet 1 of 5 | ***Westminster, CO*** ***80234*** ***United States*** | |
| Drawn by: ***David Malovrh*** | | | | |


U_DM1090FFC_Power_Supply
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
GND
GND
U_BW1098FFC_USB
DM1090FFC_USB.SchDoc
VDD_5V
3V3
VBUS
USB
GND
GND
U_DM1090FFC_IMU
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
Title DM1090
Size: Tabloid
Number:DXXXX
Revision:R3M0E3
Date: 14/02/2022
Time: 19:47:02
Sheet 2 of 5
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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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| Date: | 14/02/2022 | Time: 19:47:02 | Sheet 3 of 5 |
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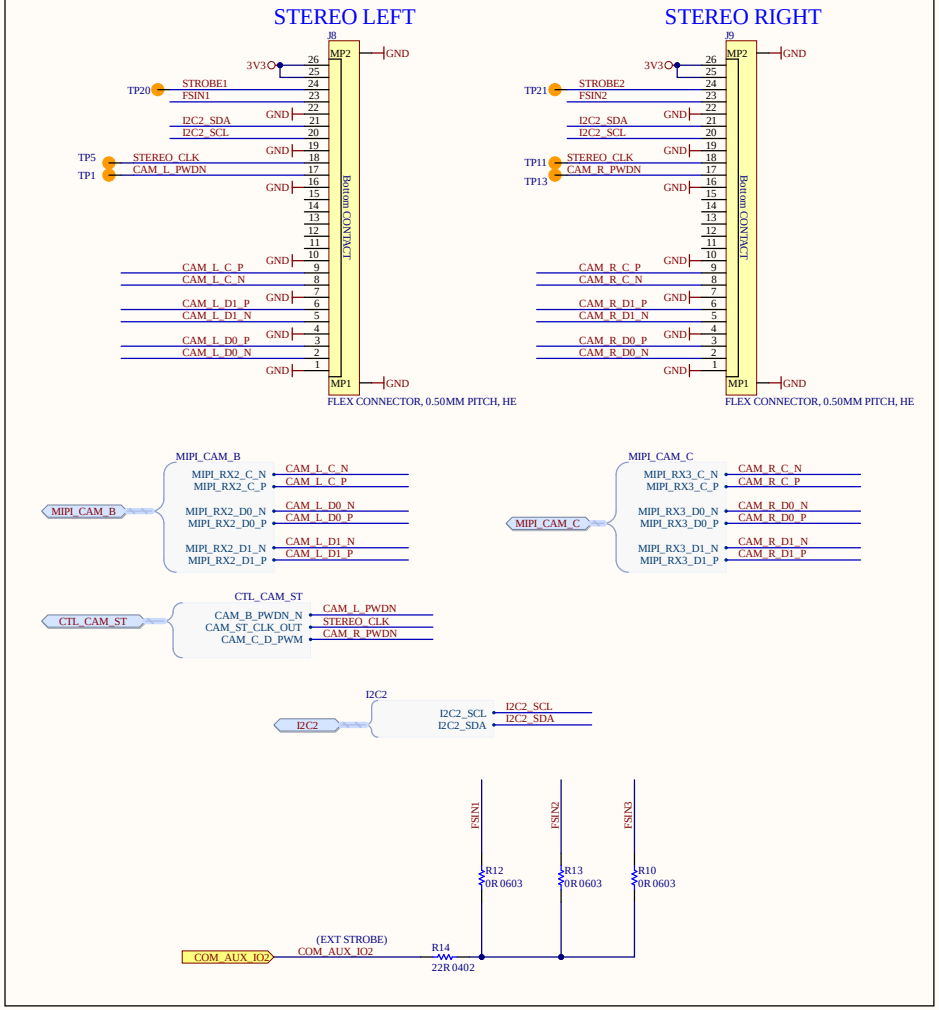
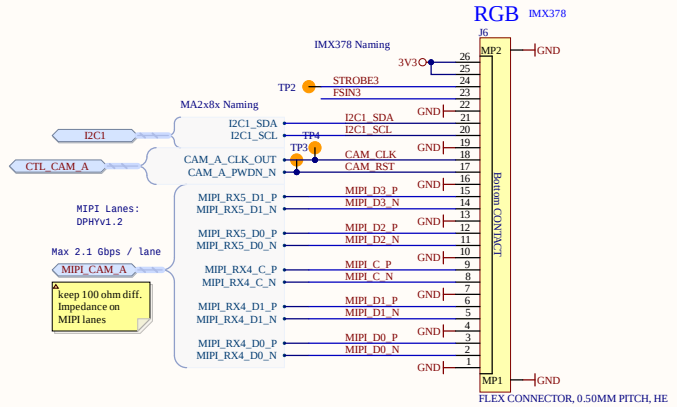
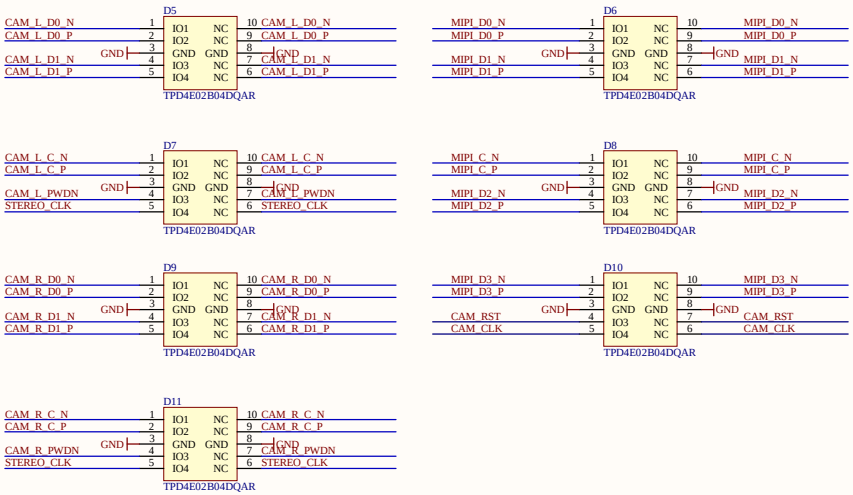
## STEREO CAMERA PAIR




## RGB CAMERA




## ESD PROTECTION

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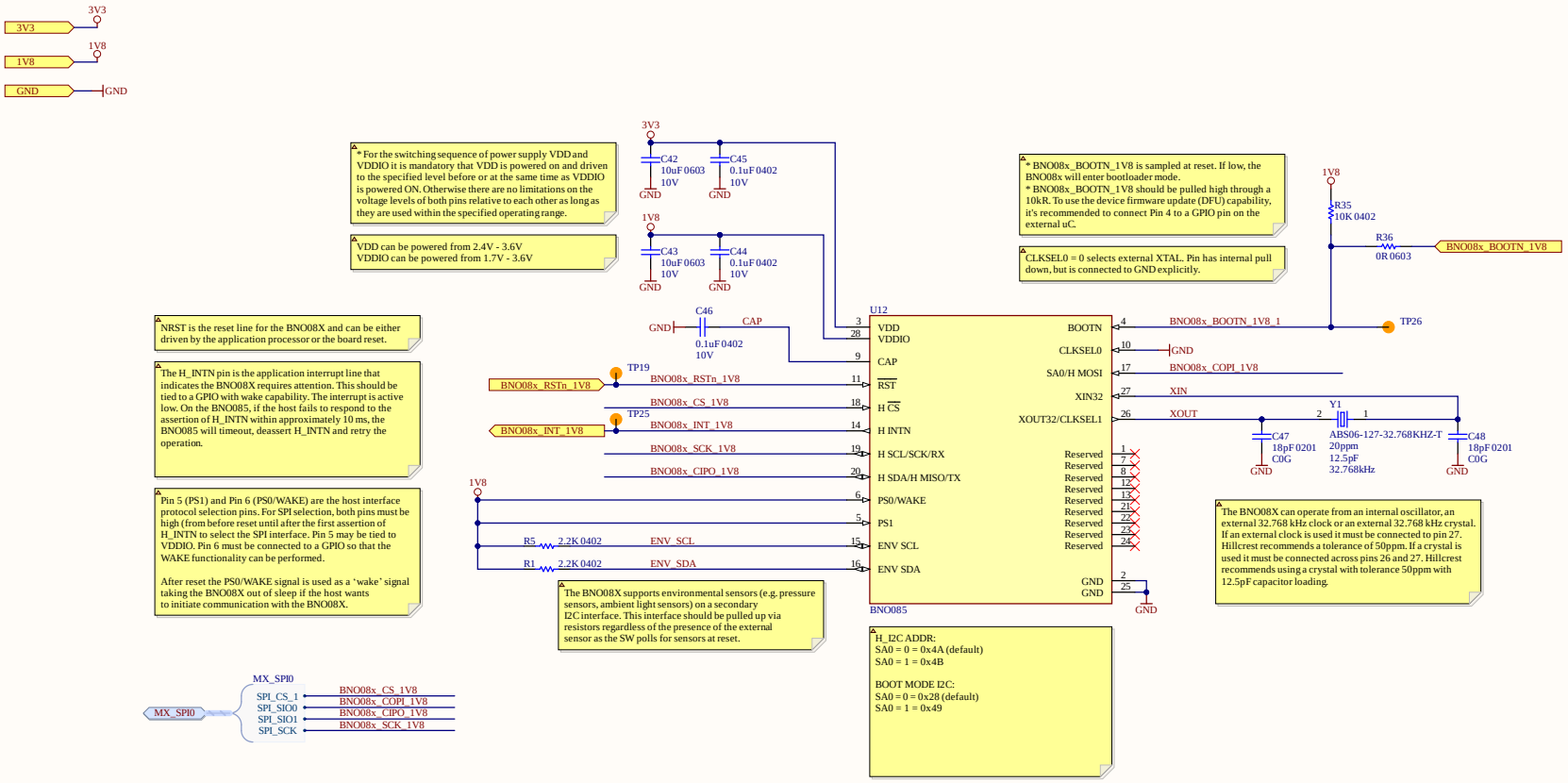


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| Size: Tabloid | Number: DXXXX | Revision: R3M0E3 | Cannot open file C:\Users\BrianLuxonis\ |
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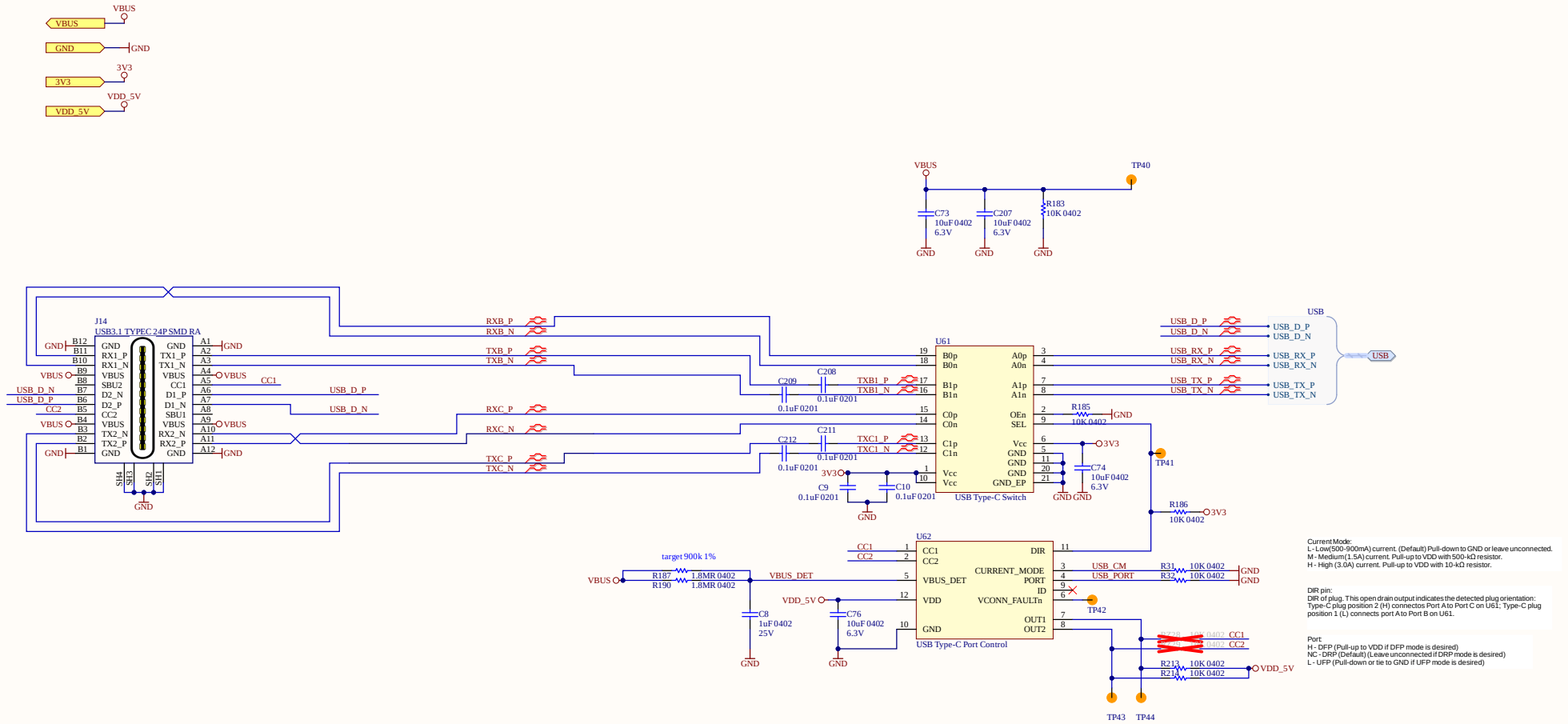
VBUS
GND
3V3
VDD_5V
J14
USB3.1 TYPEC 24P SMD RA
U61
USB Type-C Switch
U62
USB Type-C Port Control
TP40
TP41
TP42
TP43
TP44
C73 10uF 0402 6.3V
C207 10uF 0402 6.3V
R183 10K 0402
C208
C209 0.1uF 0201
C211
C212 0.1uF 0201
C9 0.1uF 0201
C10 0.1uF 0201
C74 10uF 0402 6.3V
R185 10K 0402
R186 10K 0402
target 900k 1%
R187 1.8MR 0402
R190 1.8MR 0402
C8 1uF 0402 25V
C76 10uF 0402 6.3V
R31 10K 0402
R32 10K 0402
R213 10K 0402
R214 10K 0402
RXB_P
RXB_N
TXB_P
TXB_N
RXC_P
RXC_N
TXC_P
TXC_N
USB_D_P
USB_D_N
USB_RX_P
USB_RX_N
USB_TX_P
USB_TX_N
USB
VBUS_DET
USB_CM
USB_PORT
CC1
CC2
Current Mode:
L - Low(500-900mA) current. (Default) Pull-down to GND or leave unconnected.
M - Medium (1.5A) current. Pull-up to VDD with 500-kΩ resistor.
H - High (3.0A) current. Pull-up to VDD with 10-kΩ resistor.
DIR pin:
DIR of plug. This open drain output indicates the detected plug orientation: Type-C plug position 2 (H) connectos Port A to Port C on U61; Type-C plug position 1 (L) connects port A to Port B on U61.
Port:
H - DFP (Pull-up to VDD if DFP mode is desired)
NC - DRP (Default) (Leave unconnected if DRP mode is desired)
L - UFP (Pull-down or tie to GND if UFP mode is desired)
Title DM1090
Size: Tabloid
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Revision:R3M0E3
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Sheet 5 of 5
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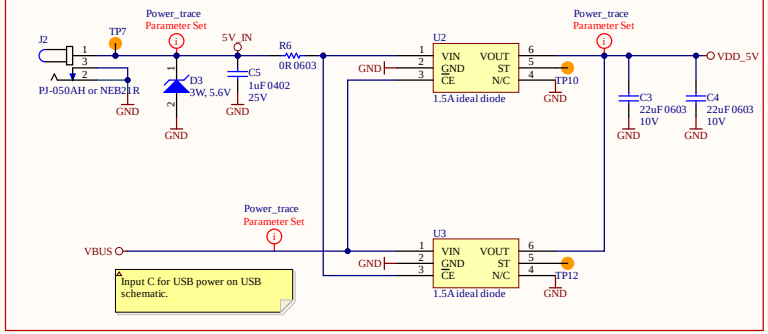
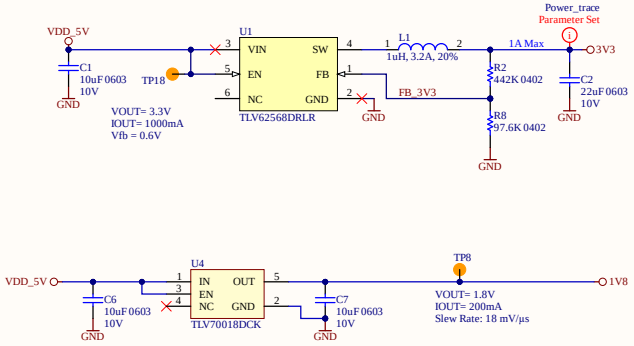
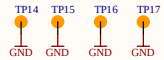
## POWER INPUT - DIODE OR




## POWER REGULATION




## FAN CONTROLLER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