

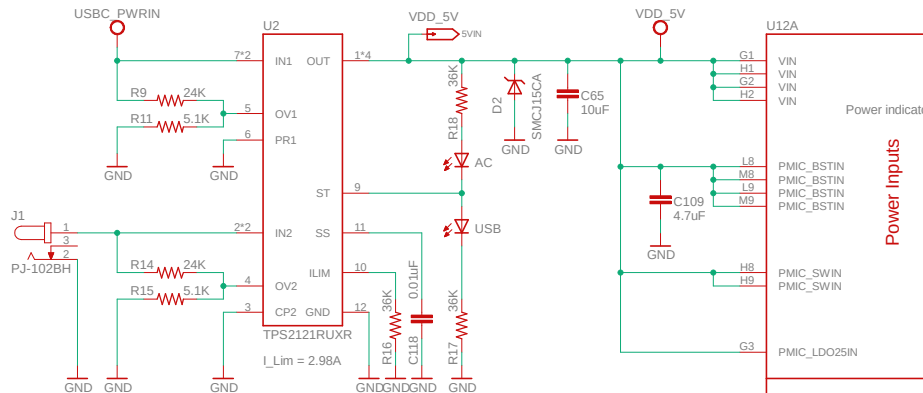
# Power & Reset

Octavo Systems OSD32MP15x RED Platform

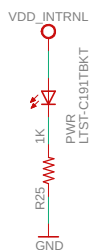
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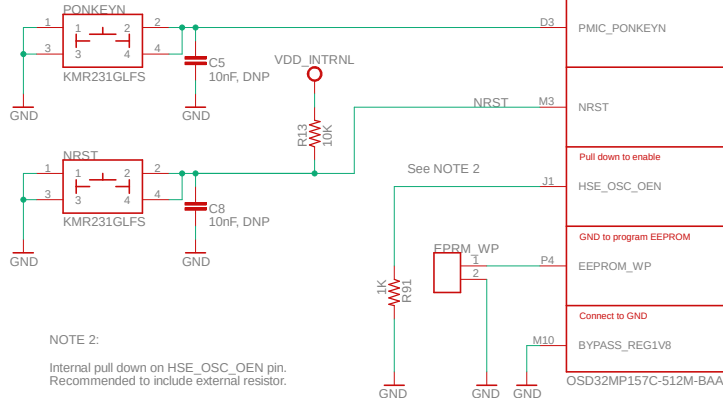
## Power Input Mux



## Power LED

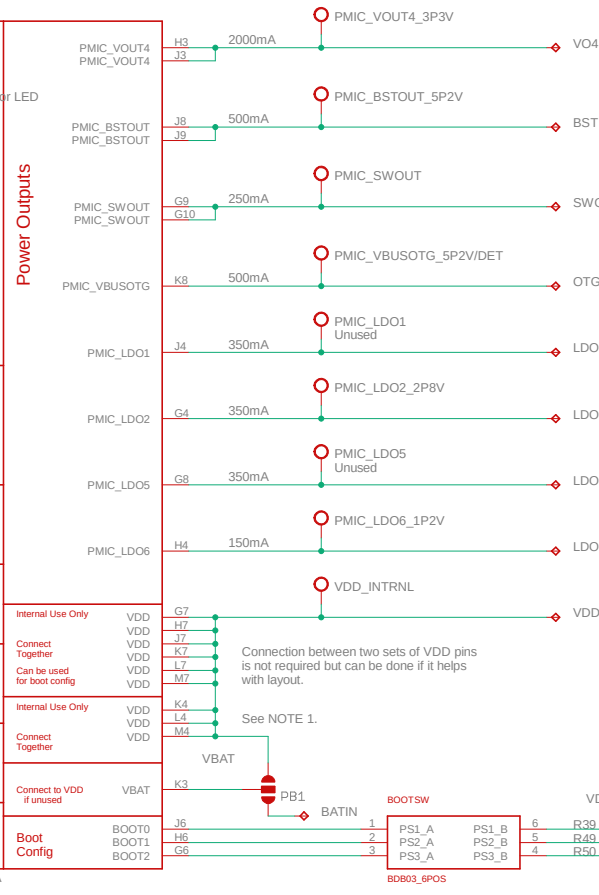


## Power On / Reset Buttons

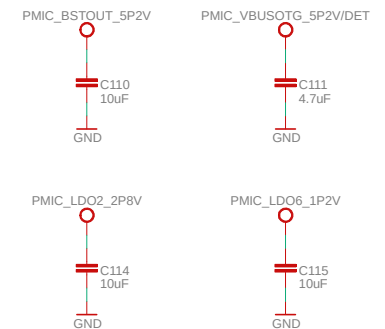


NOTE 2:  
Internal pull down on HSE\_OSC\_OEN pin.  
Recommended to include external resistor.

## Power Outputs



## External Power Caps



NOTE 1:

By default, VBAT is connected to VDD.

The VBAT power domain contains RTC, backup registers, retention RAM and backup SRAM. This domain is automatically supplied by VDD to optimize battery life when PDR\_ON is enabled.

When VDD is not available (i.e., when VDD drops below PDR threshold level), the VBAT power domain is sourced from VBAT pin which can receive power from a battery or supercap or externally through VDD.

When PDR\_ON is connected to GND, VBAT functionality is no longer available and VBAT must be connected to VDD externally.

	Boot2	Boot1	Boot0
SD-Card	1	0	1
eMMC	0	1	0
UART/USB (flashing SD)	0	0	0
Rsvd (flashing SD)	1	0	0

"0" - floating/grounded boot pin  
"1" - boot pin tied to VDD

To Print: Use 8.5"x11"  
paper in landscape;  
0.69 scaling factor.



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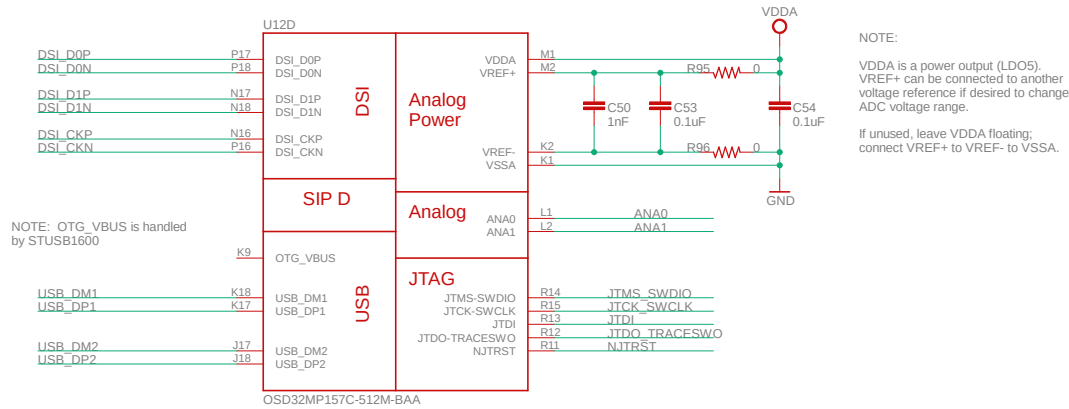
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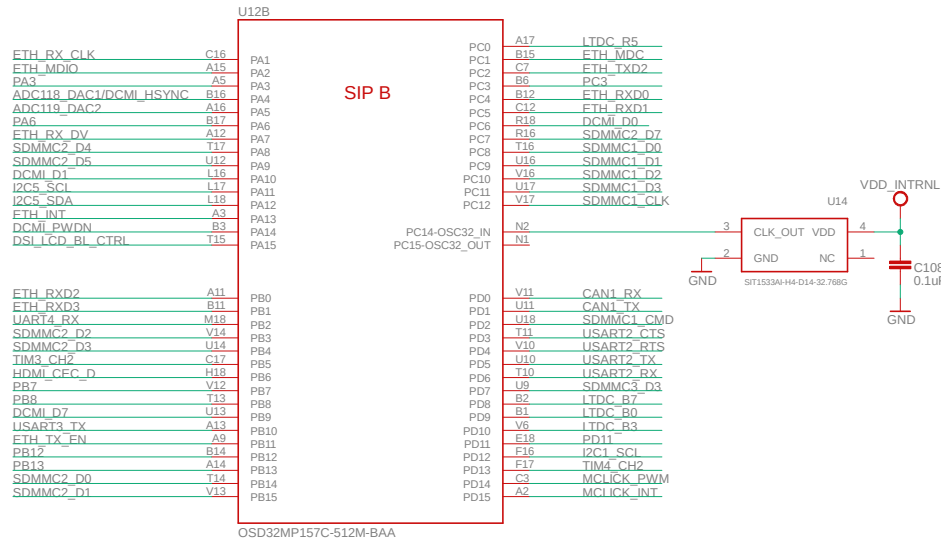
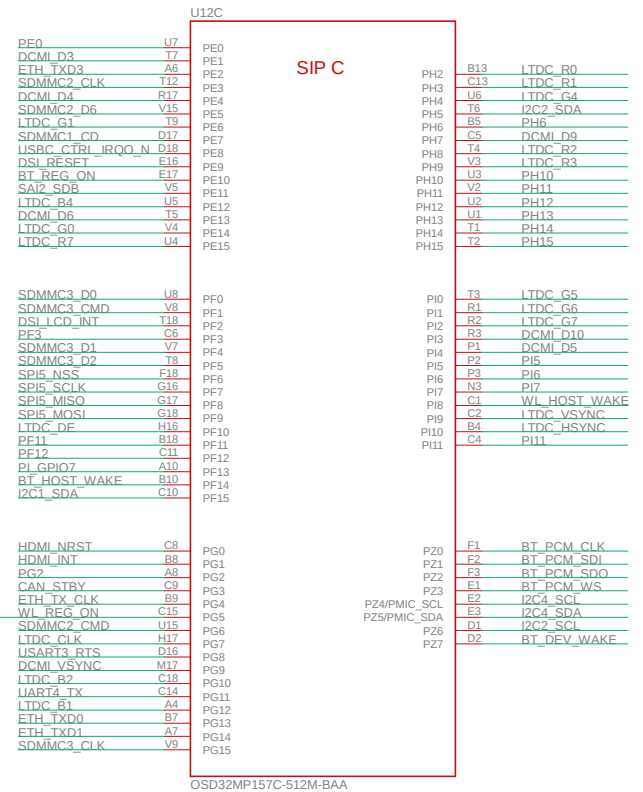
# USB, Analog & I/O



NOTE:

VDDA is a power output (LDO5). VREF+ can be connected to another voltage reference if desired to change ADC voltage range.

If unused, leave VDDA floating; connect VREF+ to VREF- to VSSA.



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## A

## B



## A



C

D

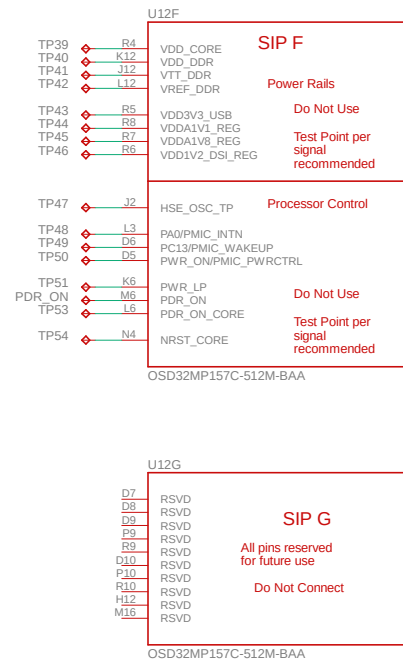
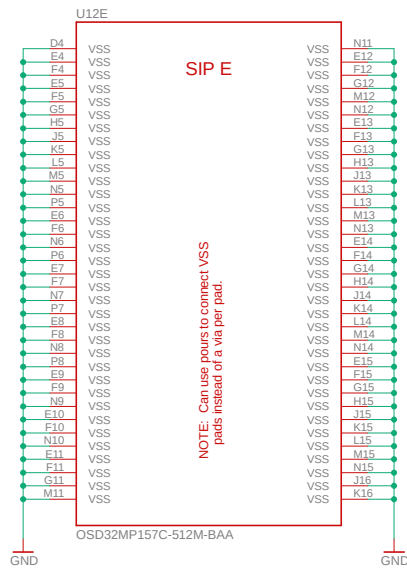
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# SiP GND & Misc



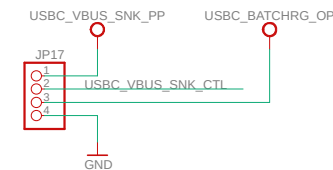
# USB-C 4S Battery Charger Support

The External Charger Header and Power Select jumper will allow the USB-C controller to interface with an external 4S battery charger. The jumper taps the power path between USB-C sink power path and VDD\_5V input of OSD32MP15x.

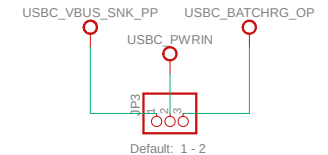
When the Power Select jumper is in pos 1-2, the input power from USB-C (in client mode) will directly be fed to OSD32MP15x.

When the Power Select jumper is in pos 2-3, the input power from USB-C (in client mode) will flow through an the External Charger Header to an attached battery charger and 5V regulator to generate the input power for the OSDMP15x (not provided by Octavo Systems).

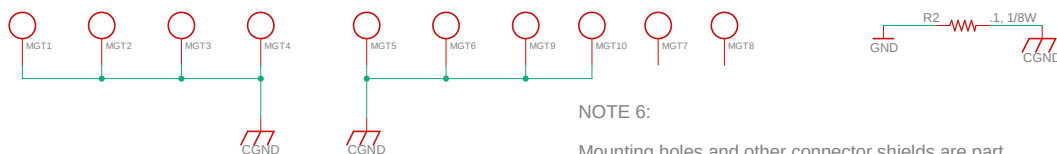
## External Charger Header



## USB-C Power Select



# Mounting Holes



NOTE 6:

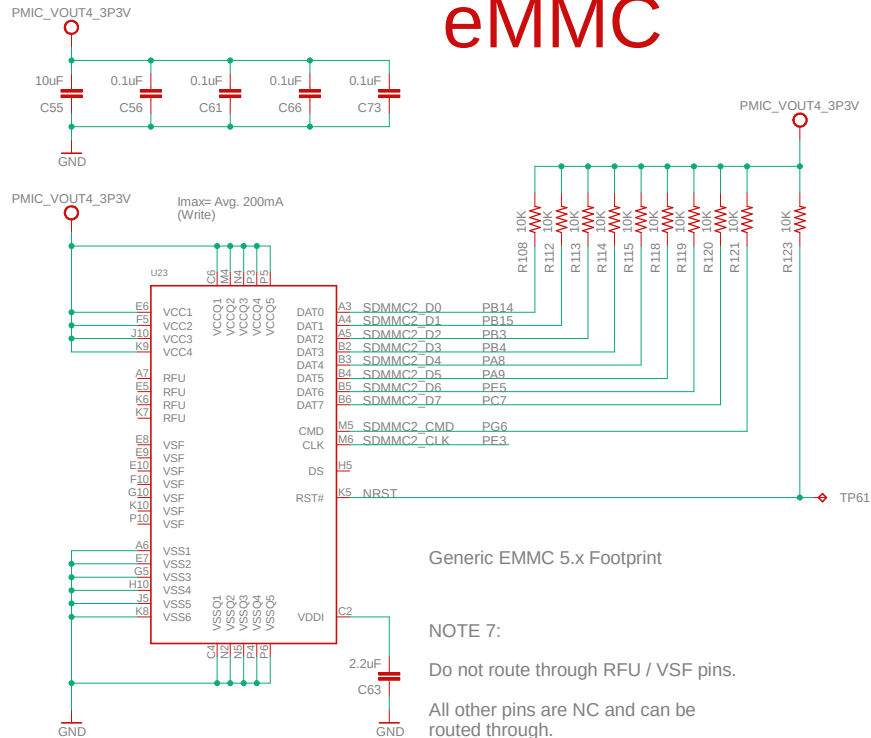
Mounting holes and other connector shields are part of a ground ring, CGND. This ring is connected to ground via a low ohm, high watt resistor.

# Fiducials



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## eMMC



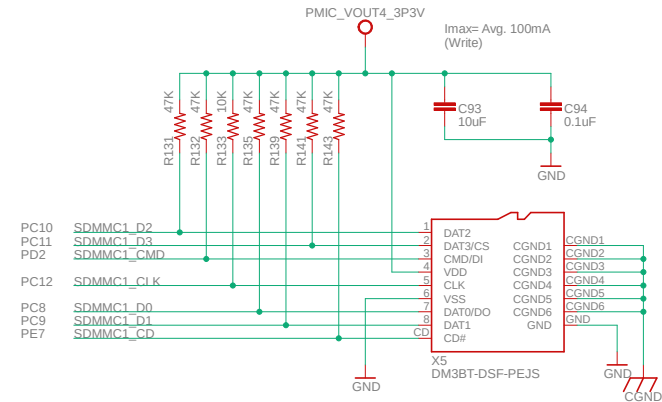
Generic EMMC 5.x Footprint

NOTE 7:

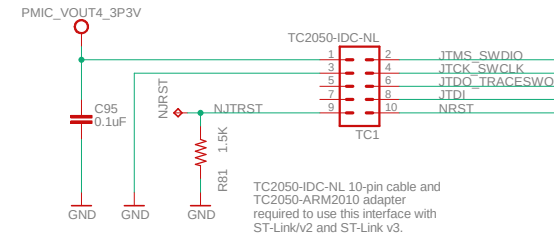
Do not route through RFU / VSF pins.

All other pins are NC and can be routed through.

## Micro SD card



## JTAG Header



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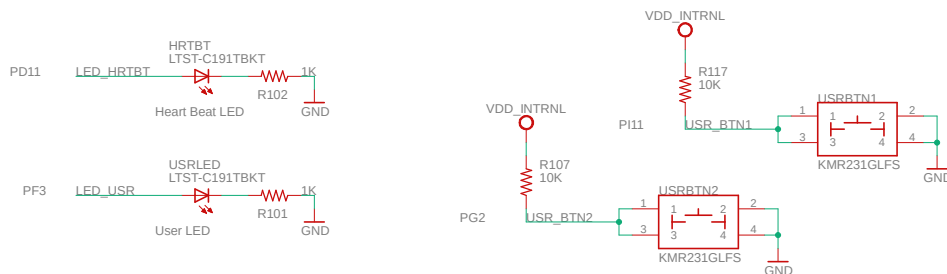
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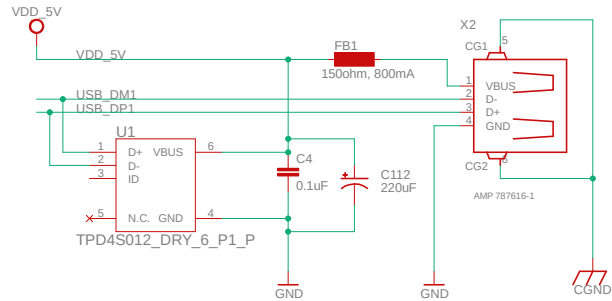
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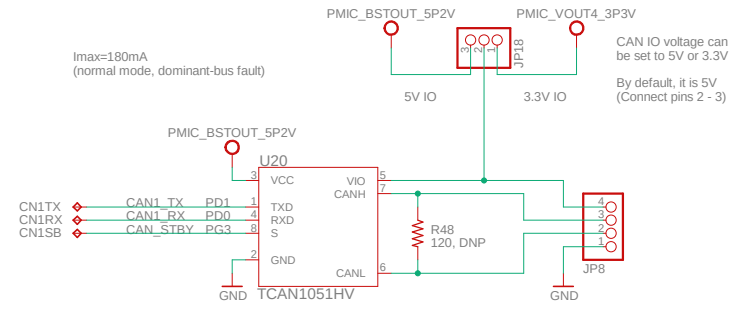
## User LEDs and btns



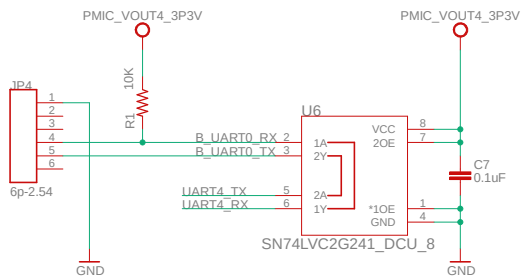
# USB Host



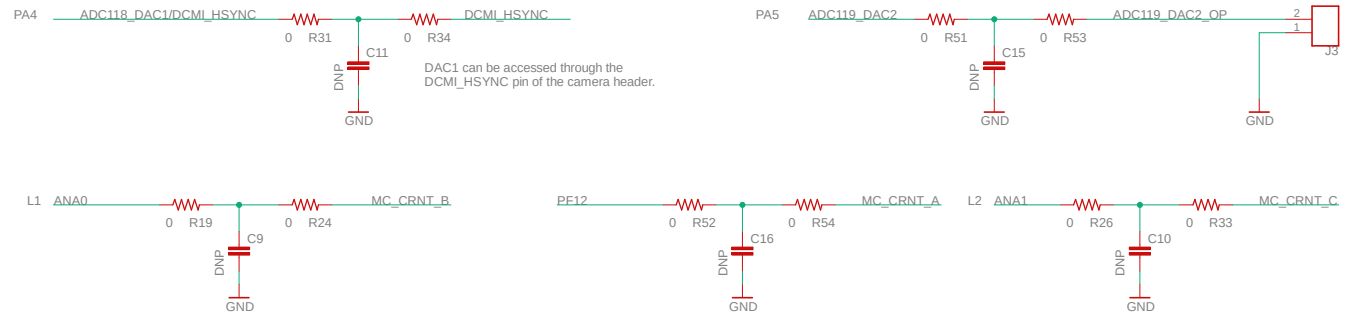
# CAN FD



# UART4



# ADC/DAC



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# HDMI

**Pin Definitions:**

Pin	Signal	Pin	Signal	Pin	Signal
PB6	HDMI_CEC_D	50	CEC_D	71	HDMI_CEC
PD9	LTDC_B0	32	D0	67	HDMI_TX2-
PG12	LTDC_B1	31	D1	68	HDMI_TX2+
PG10	LTDC_B2	30	D2		
PD10	LTDC_B3	29	D3		
PE12	LTDC_B4	28	D4		
PA3	LTDC_B5	27	D5	49	HDMI_DSCL
PB8	LTDC_B6	25	D6	48	HDMI_DSDA
PD8	LTDC_B7	24	D7		
PE14	LTDC_B8	23	D8		
PE6	LTDC_G1	20	D9	64	HDMI_TX1-
PH13	LTDC_G2	19	D10	65	HDMI_TX1+
PH14	LTDC_G3	18	D11		
PH4	LTDC_G4	17	D12		
PI0	LTDC_G5	16	D13		
PI1	LTDC_G6	15	D14		
PI2	LTDC_G7	14	D15	54	HDMI_HPD
PH2	LTDC_R0	13	D16	61	HDMI_TX0-
PH3	LTDC_R1	11	D17	62	HDMI_TX0+
PH8	LTDC_R2	10	D18		
PH9	LTDC_R3	9	D19		
PH10	LTDC_R4	8	D20		
PC0	LTDC_R5	7	D21	59	HDMI_TXC+
PH12	LTDC_R6	6	D22	58	HDMI_TXC-
PE15	LTDC_R7	4	D23		
PG7	LTDC_CLK	22	IDCK	56	R122 5.1K
PF10	LTDC_HSYNC	34	HSYNC		
PI9	LTDC_VSYNC	35	VSYNC		
PB13	I2S2_CLK	36	SPDIF	5	CVCC12
PB12	I2S2_WS	44	SCK	12	CVCC12
PC3	I2S2_SDO	41	WS	26	CVCC12
		40	SD0	42	CVCC12
		39	SD1	47	CVCC12
		37	SD2	53	CVCC12
		38	SD3	43	CGND
			MCLK	3	IOVCC
PG1	HDMI_INT	52	INT	46	IOVCC
PD12	I2C1_SCL	1	CSCL	57	IOVCC
PF15	I2C1_SDA	2	CSDA	60	IOGND
PG0	HDMI_NRST	51	RESET#	66	AVCC12
		72	RSVDL	63	AVCC12
		69	IO_SEL	55	AGND
			SI19022	70	RSVDL
				71	VDIO
				72	PAD

**Component Values:**

- R126: 1.5K
- R127: 1.5K
- R122: 5.1K
- R21: 4.7K
- R22: 0
- C19: 47uF
- C57: 0.1uF
- C79: 0.1uF
- C83: 0.1uF
- C87: 0.1uF
- C89: 0.1uF
- C69: 0.1uF
- C62: 0.1uF
- C64: 0.1uF
- C75: 0.1uF

**Inductors:**

- L133
- L134

**PMIC Connections:**

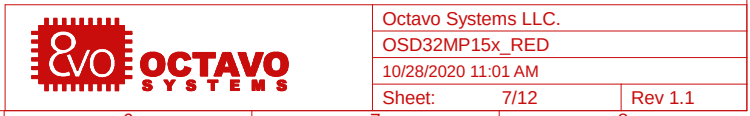
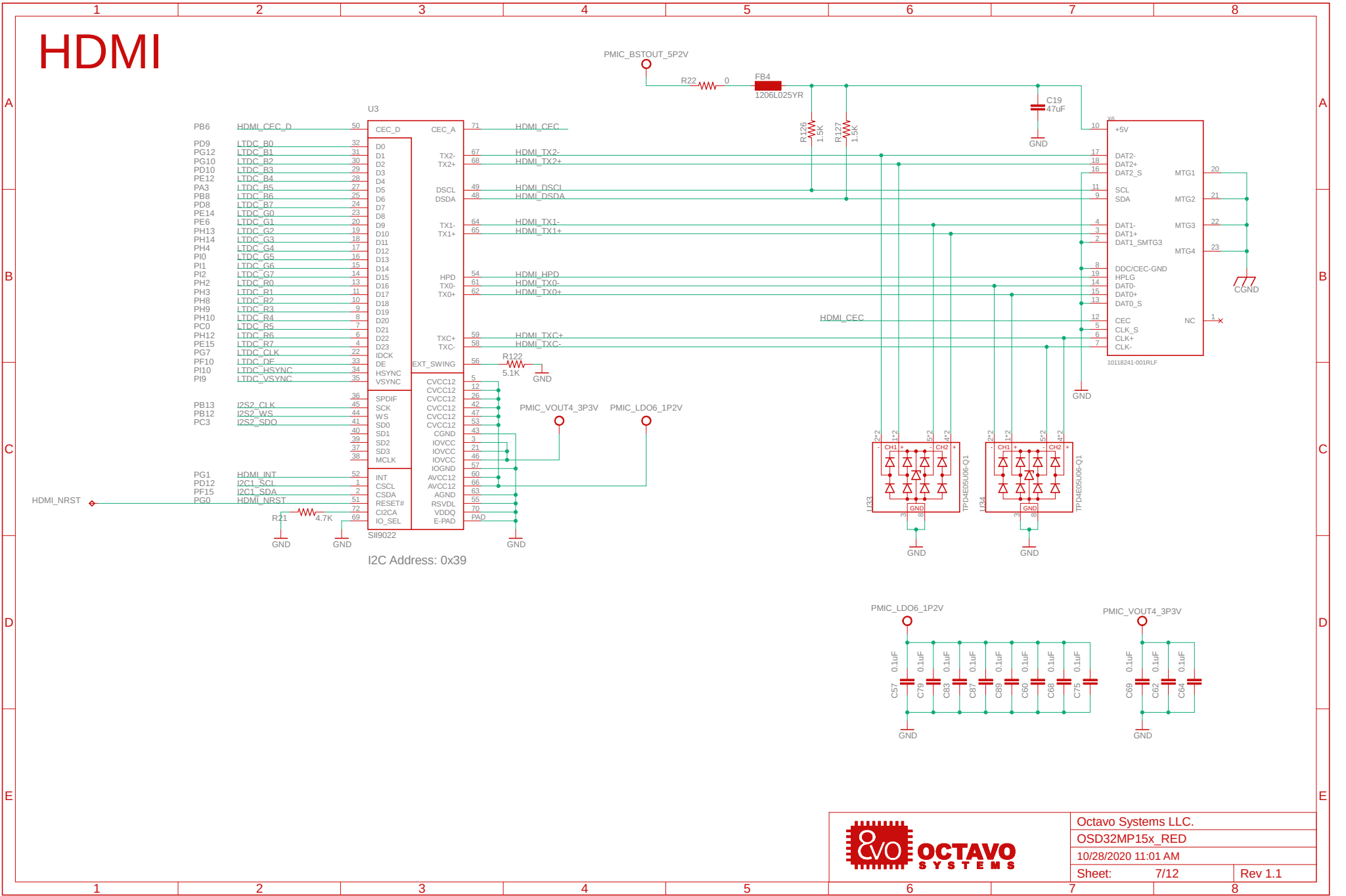
- PMIC\_BSTOUT\_5P2V
- PMIC\_VOUT4\_3P3V
- PMIC\_LDO6\_1P2V


**MTG Connections:**

- MTG1: 20
- MTG2: 21
- MTG3: 22
- MTG4: 23

**I2C Address: 0x39**

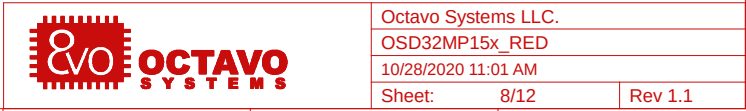
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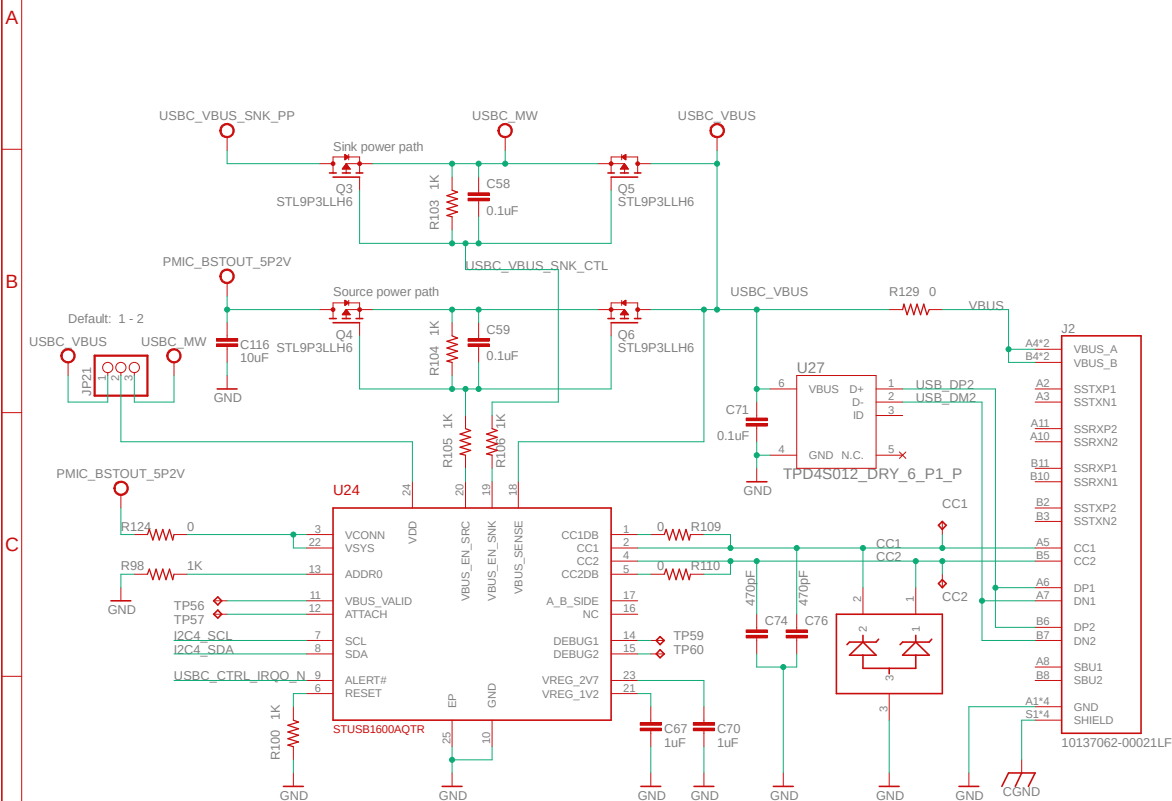


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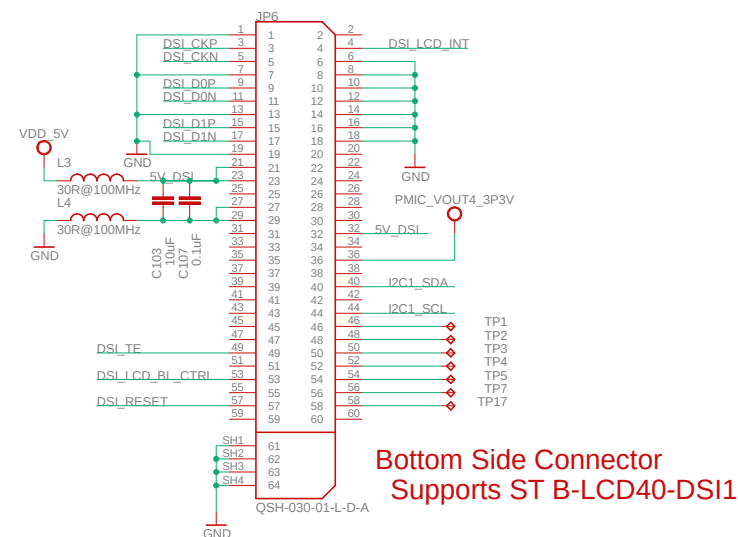
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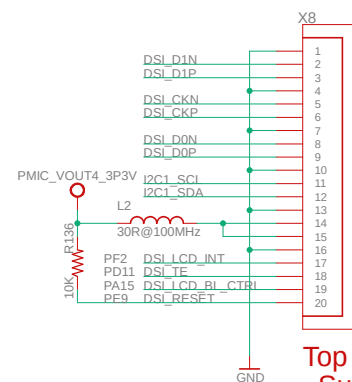
# USB-C



# DSI LCD interface



Imax = estd. ~150mA  
(panel+backlight+on board logic)



## Top Side Connector Supports DK2 Screen



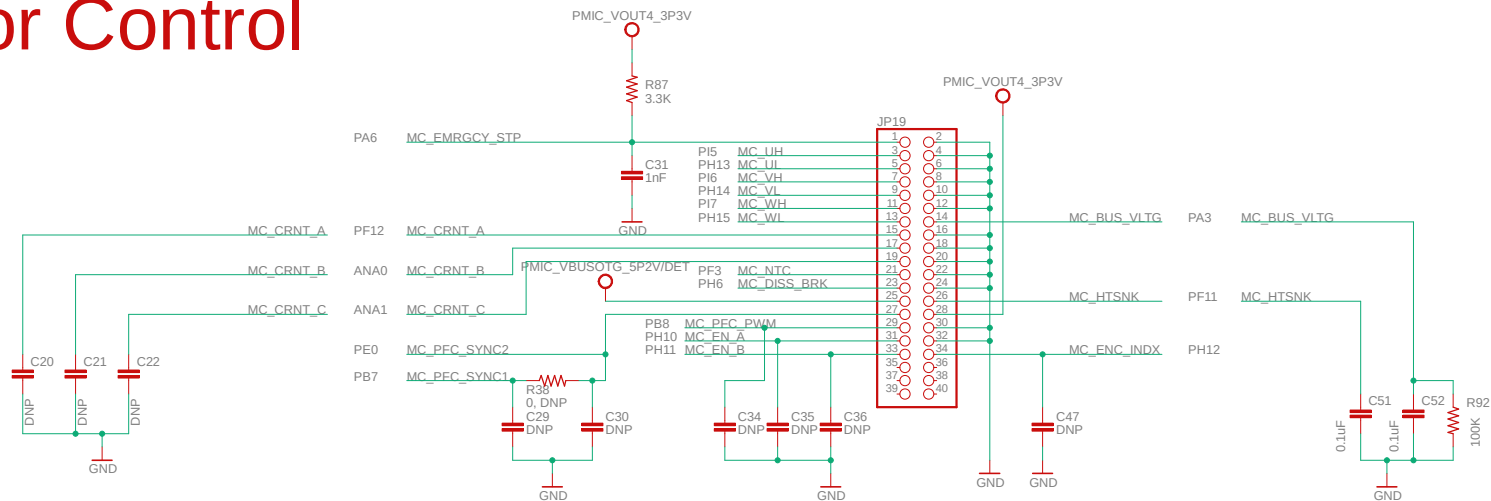
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Imax = 430ma  
(Wifi 802.11b Tx + BLE Tx, Rx in DH5)

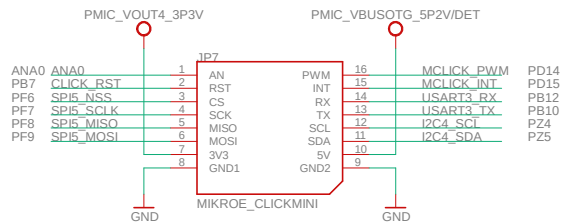


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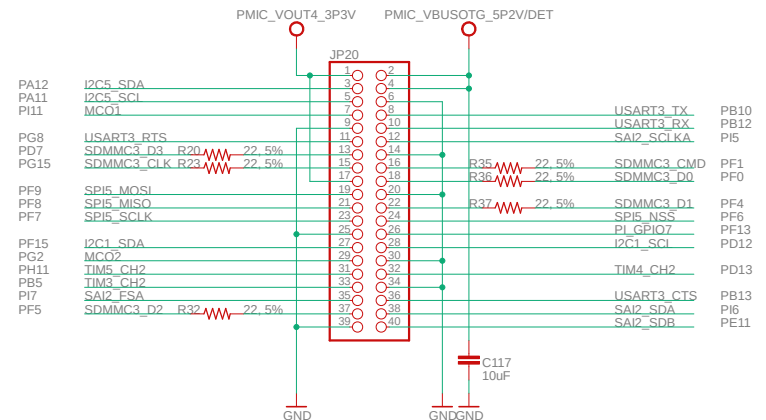
# Motor Control



# Mikro Click



# R Pi header



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# Notes

Rev 1:

- 1) Initial release for OSD32MP15x RED design

Rev 1.1:

- 1) Modified ETH\_RST / HDMI\_RST. Due to power sequencing issues, the HDMI PHY needed reset controlled by processor.
- 2) Updated U26 to use the VDD\_CAM power instead of PMIC\_LDO\_2P8V.
- 3) Added capacitance to HDMI port power and zero ohm resistor that can be modified to prevent back-current.
- 4) Swapped solder jumpers for USB-C and CAN I/O power for 3-pin headers; Changed BATIN test point to be larger.
- 5) Modified value of termination resistors R66 - R71 to 22ohms.



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