

# RPi-CAM-MIPI

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1. Interrupted lines coded with the same letter or letter combinations are electrically connected.
2. Device type number is for reference only. The number varies with the manufacturer.
3. Special signal usage:  
\_B Denotes - Active-Low Signal  
<> or [] Denotes - Vectored Signals
4. Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.


**Preliminary - Subject to Change without Notice!**

This board was designed for maximum flexibility in software development and demonstrates multiple functions possible with i.MX processors. Although best design practices have been applied, some areas may not be suitable for a mass-production design.

# IAS Camera to Raspberry Pi Adapter

## Revision History

Rev. Code	Date	By	Description
A	2022-1-22	nxa22324	Initial version
A1	2022-6-21	nxa22324	Change R2,R62 to FB 220OHM Add L3 FB 220OHM, C75 on U12 VIN to prevent sensor discrete layer display issue Add R84 as PWR backup Change C68 to 10uF, C2 to 22uF, reserve for AF usage Add C76 C77 to avoid WM8960 (MCIMX93 EVK BB) I2C probe issue with 30cm FPC cable.
A2	2022-8-05	nxa22324	Update C6, C7 to 22uF on VAA to avoid AR0144 yellow color issue Change U12 to high PSRR LDO NCP164ASNADJT1G for color issue Update C5, C8 to 4.7uF Change U5, U8 to LSF0204 to avoid I2C Level shifter glitch



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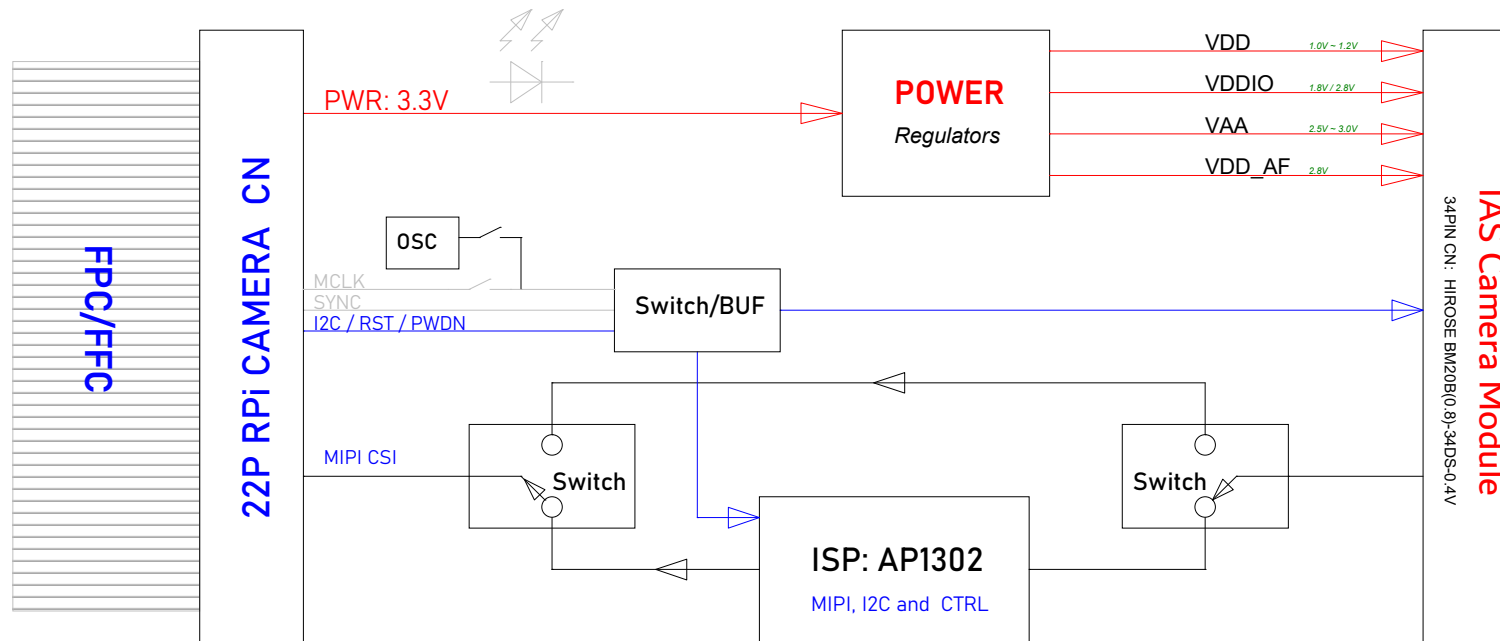
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ICAP Classification: CP: IUD: X PUB:

Designer: nxa22324  
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Approved: <Approver>  
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Date: Thursday, August 11, 2022 Sheet 1 of 7

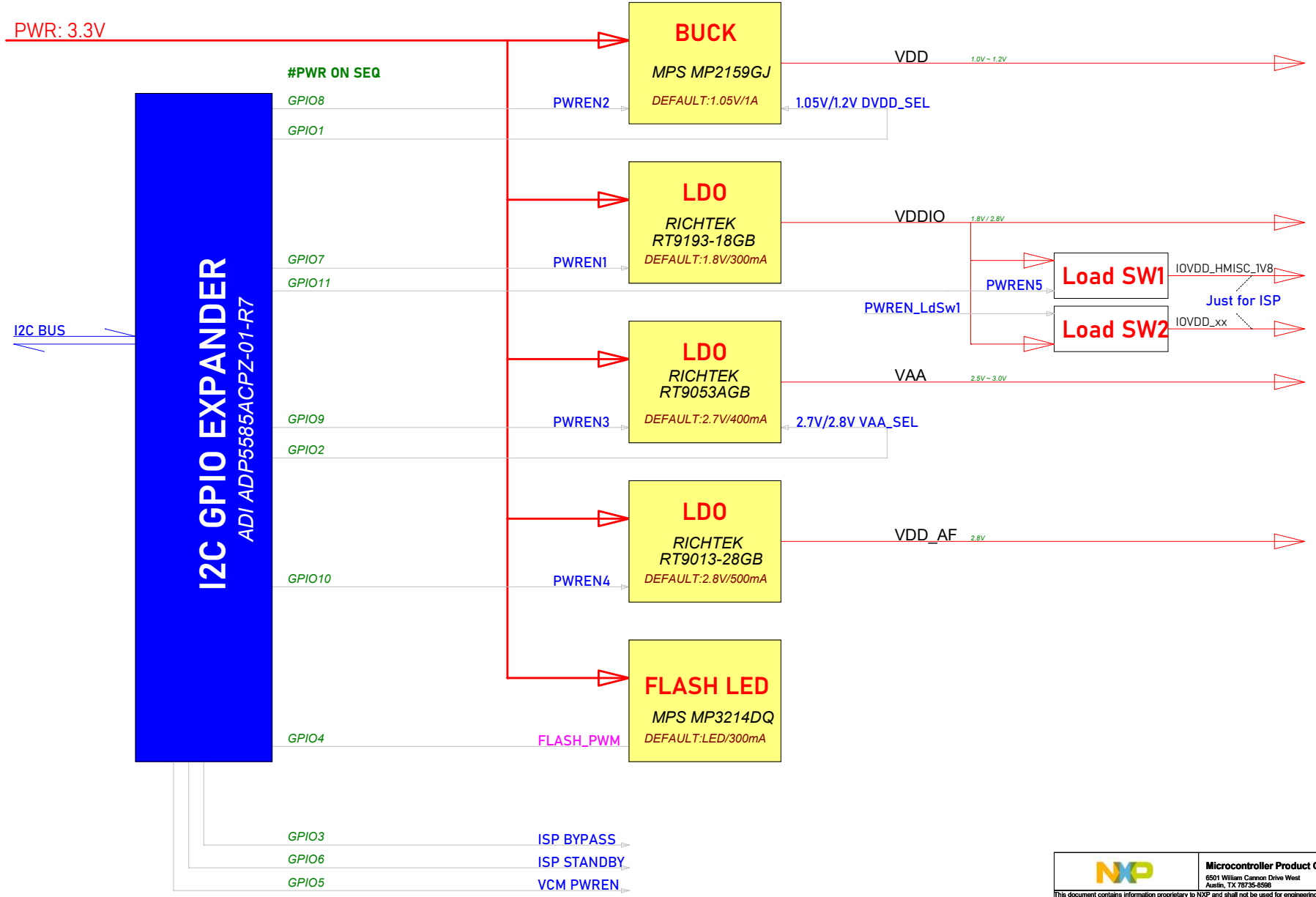
Rev A2

# Block Diagram

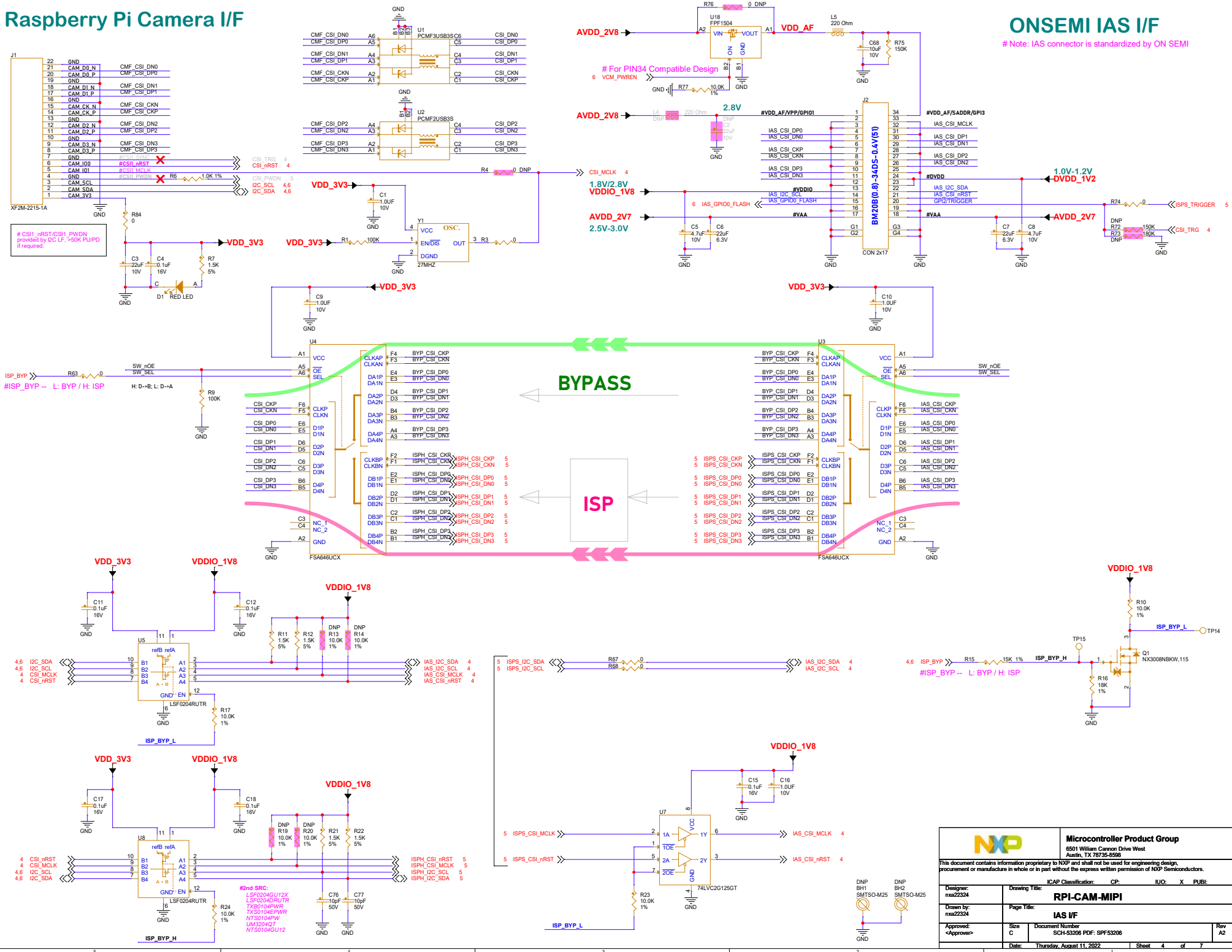



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# PWR TREE



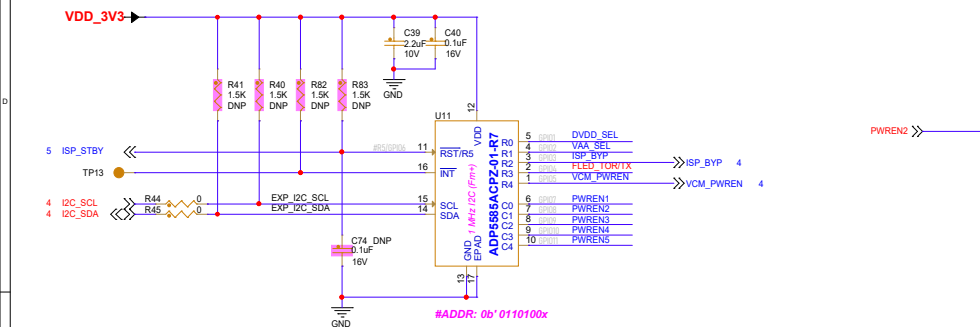
## Raspberry Pi Camera I/F



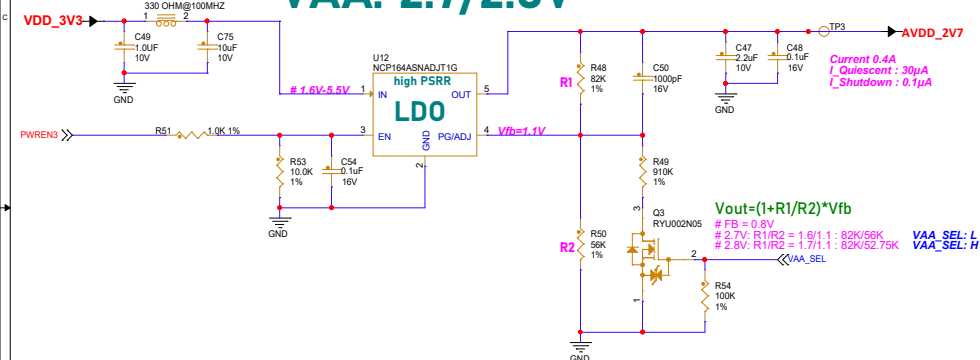
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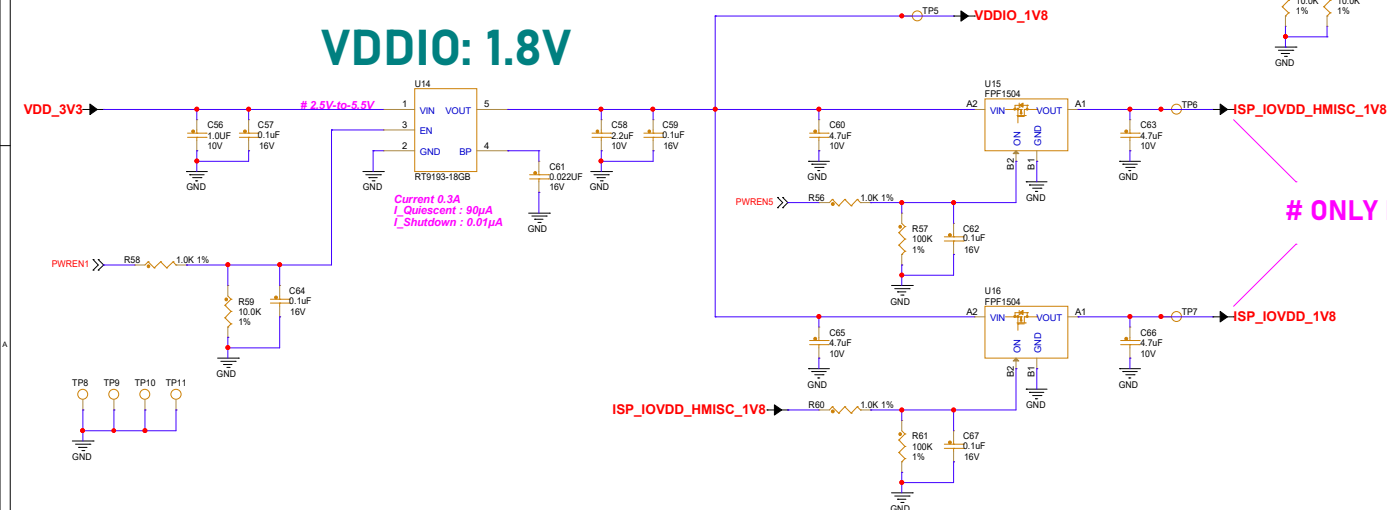
# PWR SEQ CTRL



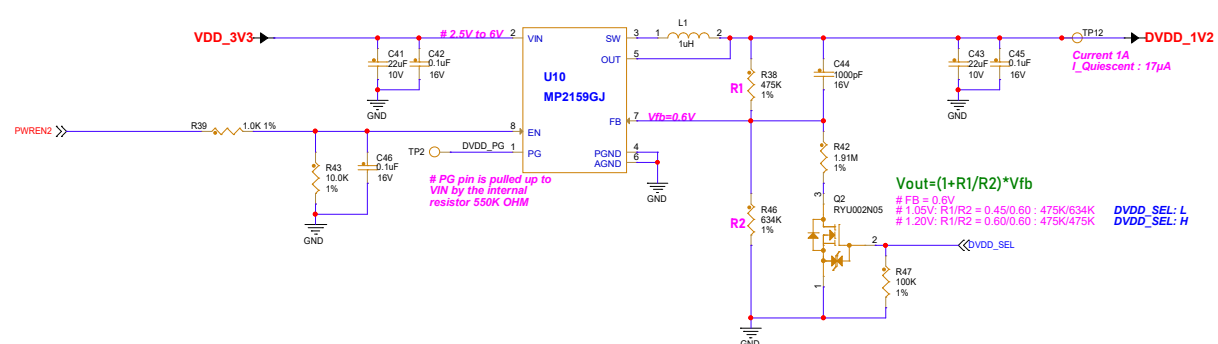
# VAA: 2.7/2.8V



# VDDIO: 1.8V

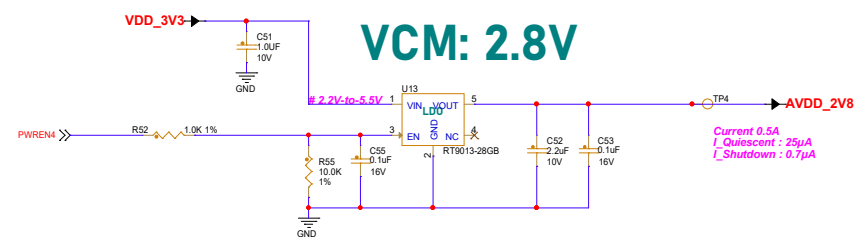


# DIG DCORE

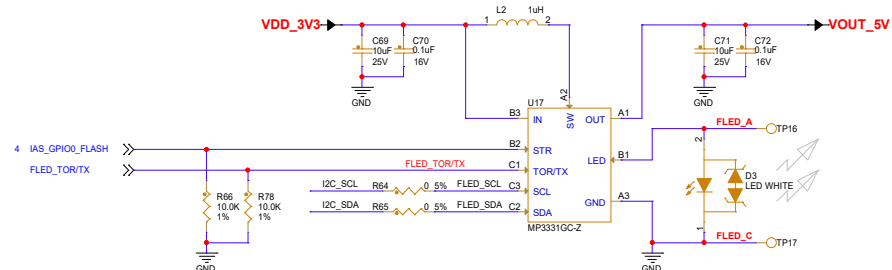


# RPi Camera PWR

# VCM: 2.8V



# FLASH / TORCH LED



# MP3331GC-Z MODE

TX/TOR	STR	LED	EN	STR	MOD	SV	MOD	LED	MOD	MODE
High	X	1	0	X	0	X	10	Torch		
X	X	1	X	X	01	X	11	Assist light		
X	X	1	X	X	11	X	11	Flash		
X	High	1	0	X	11	X	11	Flash		
High	X	1	1	X	00	X	00	Torch to flash		
X	High	1	1	X	10	X	10	Assist to flash		
X	X	X	X	X	1	X		5V		

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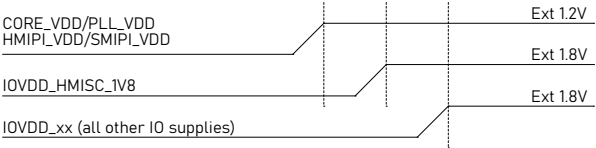
Designer: nxa22324	Drawing Title: <b>RPI-CAM-MIPI</b>	ICAP Classification:	CP:	I/O:	X	PUB:
Drawn by: nxa22324	Page Title: <b>PWR</b>	Size	C	Document Number SCH-53206 PDF: SPFS3206	Rev	A2
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I2C DEV TABLE

PART	DEVICE	I2C ADDR	PORT	SPEED	VOL	DESCRIPTION
U9	AP1302CSSL00SMGA0	0x3C (0b'0111100x)	RPi-I2C	1MHz Fm+/3.4 MHz HS	1.8V	Ext. ISP
U103	ADP5585ACPZ-01-R7	0x34 (0b'0110100x)	RPi-I2C	1MHz Fm+	3.3V	IO EXP for OUTPUT
CAM1	AR0144	0x10 (0b'0010000x)	RPi-I2C	400KHz	1.8V	1/4 - inch 1.0 Mp GS
CAM2	AR0430	0x36 (0b'0110110x)	RPi-I2C	1MHz Fm+	1.8V	1/3.1-Inch 4 Mp ERS
CAM3	AR1335	0x36 (0b'0110110x)	RPi-I2C	1MHz Fm+	1.8V	1/3.2-Inch 13 Mp ERS

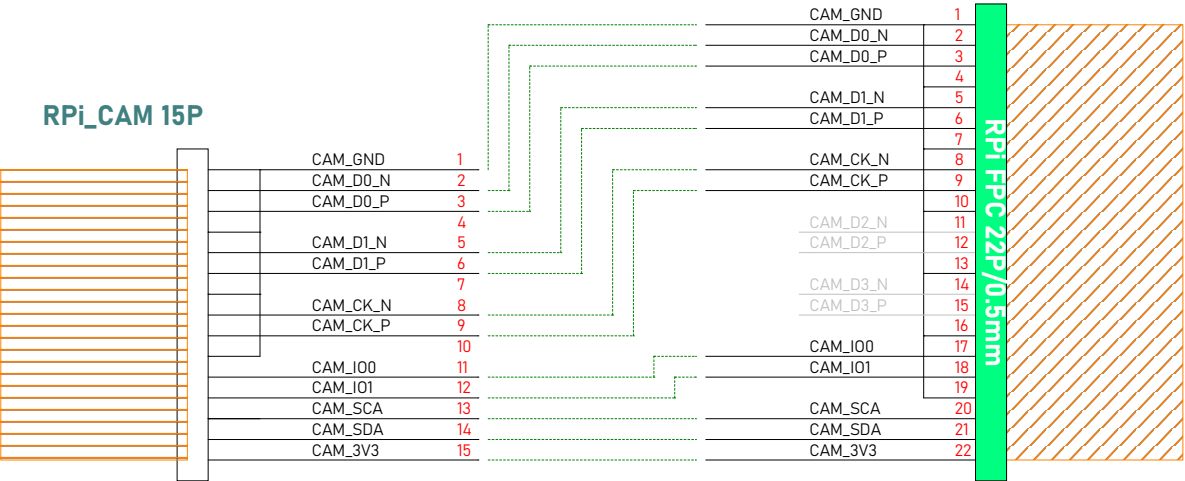
<b>AR1335</b>		
28mA	1.8 V (1.7 V < Vsupply < 1.9 V)	Ext 1.8V VDD_IO/VDDIO_ANA
130mA	1.2 V (1.14 V < Vripple < 1.3 V)	Ext 1.2V VDD/VDD_ANA/VDD_PLL/VDD_PHY
30mA	2.7 V (2.6 V < Vripple < 2.9 V)	Ext 2.7V VAA/VAA_PIX
		Ext 2.8V VCM
<b>AR0144</b>		
37mA	2.8 V	Ext 2.8V VAA/VAA_PIX
24mA	1.8 or 2.8 V	Ext 1.8V VDD_IO
51mA	1.2 V	Ext 1.2V VDD_PHY
<b>AR0430</b>		
14mA	1.8 V (1.7 V < Vsupply < 1.9 V)	Ext 1.8V VDDIO_DIG_IO/VDDIO_DIG_ACORE
185mA	1.05 V (1.00 V < Vsupply < 1.10 V)	Ext 1.05V VDD_DIG_PHY/VDD_DIG_DCORE/VDD_DIG_PHY_PLL/VDD_DIG_PLL/VDD_DIG_ACORE
56mA	2.7 V (2.6 < Vsupply < 2.9 V)	Ext 2.7V VAA_ANA_ACORE/VAA_ANA_PIX
		Ext 2.8V VCM

ISP Power-Up Sequence (1.2V-1.8V)



RPi\_CAM 22P

RPi\_CAM 15P



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