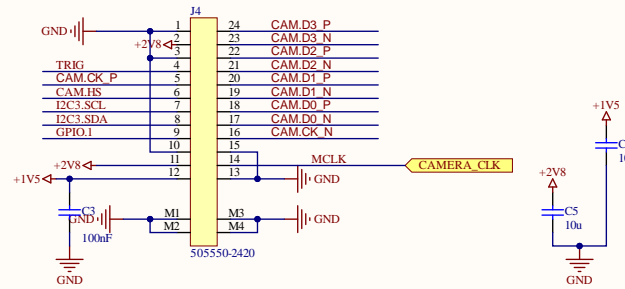


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Title: Portenta Vision Shield		Revision: 4.0	
ID: SL-ASX00026	Date: 1/26/2021	Time: 4:36:05 PM	Sheet 1 of 9
File: TOPView.SchDoc	Author: francesca Cenna		Rev: author

### HM01B0 (F view)



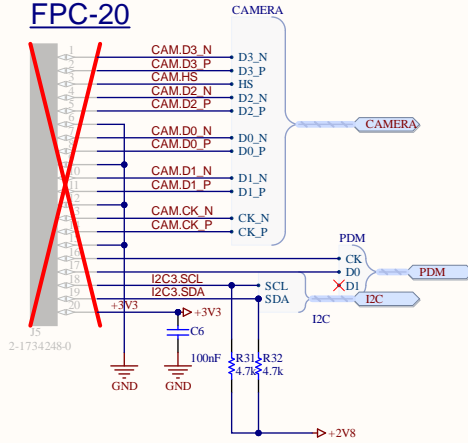
### HM01B0 Pinout

Pin no.	Pin name	Type	Description
1	AGND	Ground	Analog ground.
2	AVDD28	Power	Analog power. (2.8V)
3	DGND	Ground	Digital ground.
4	TRIG	In	Frame trigger input. (Internal pull down / Active high)
5	FLVD	Out	Frame valid output.
6	LVLd	Out	Line valid output.
7	SCL	In	I2C serial clock.
8	SDA	In/Out	Serial data I/O. (Open drain)
9	INT	Out	Interrupt output. (Active high)
10	DGND	Ground	Digital ground.
11	IOVDD18	Power	IO power. (1.8V)
12	DVDD15	Power	Core digital power. (1.5V)
13	DGND	Ground	Digital ground.
14	MCLK	In	Master clock input.
15	DGND	Ground	Digital ground.
16	PCLK	Out	Pixel clock
17	D0	Out	Data 0 output.
18	D1	Out	Data 1 output.
19	D2	Out	Data 2 output.
20	D3	Out	Data 3 output.
21	D4	Out	Data 4 output.
22	D5	Out	Data 5 output.
23	D6	Out	Data 6 output.
24	D7	Out	Data 7 output.

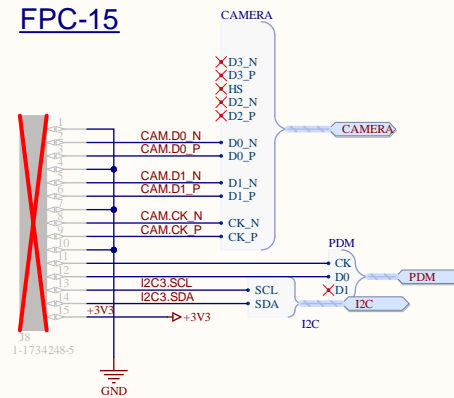
Note: (1) HM01B0 sensor default slave address: 0x24.

Table 2.1: Pin map and description of camera module

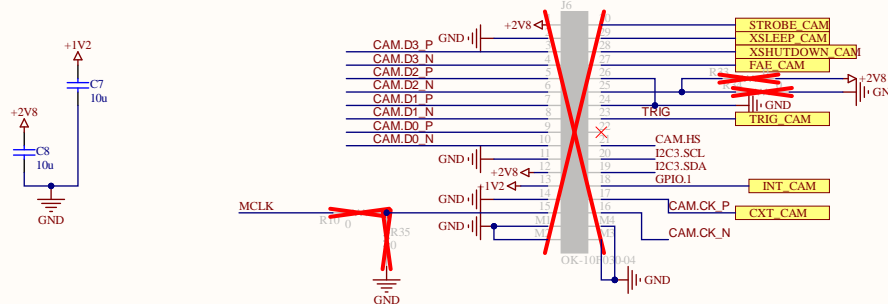
### FPC-20



### FPC-15



### HM0360 (F View)



### HM0360 Pinout

Pin no.	Pin name	Type	Description
1	AVDD	Power	Analog power. (2.8V)
2	GND	Ground	Ground
3	D7	Out	Data 7 output.
4	D6	Out	Data 6 output.
5	D5	Out	Data 5 output.
6	D4	Out	Data 4 output.
7	D3	Out	Data 3 output.
8	D2	Out	Data 2 output.
9	D1	Out	Data 1 output.
10	D0	Out	Data 0 output.
11	GND	Ground	Ground
12	IOVDD	Power	IO power. (1.8V / 2.8V)
13	DVDD	Power	Digital power. (1.2V)
14	GND	Ground	Ground
15	MCLK	In	Master clock input. (Connected to DGND when using internal oscillator)
16	PLCK	Out	Pixel clock / Serial clock output.
17	CXT_SEL	In	Context switching selection. (Internal pull low)
18	INT	Out	Interrupt output. (Active High)
19	SDA	In/Out	Serial Data I/O. (Open drain)
20	SCL	In	I2C serial clock.
21	HVLd	Out	Line valid output.
22	FVLd	Out	Frame valid output.
23	TRIGGER	In	Frame trigger input. (Internal pull low / Active high)
24	GND	Ground	Ground
25	CLK_SEL	In	Clock source select. (Internal pull low, Low: Oscillator, High: MCLK, connect to ground for oscillator mode)
26	RTC	In	Real time clock source input. (Must not be left floating, connected to DGND without RTC clock input)
27	FAE	In	Exposure meter enable pin. (Internal pull low / Active high)
28	XSHUTDOWN	In	Reset and power down control pin. (Active low)
29	XSLLEEP	In	Low power sleep mode. (Active low)
30	STROBE	Out	Strobe output.

Note: (1) HM0360 sensor default slave address: 0x24.

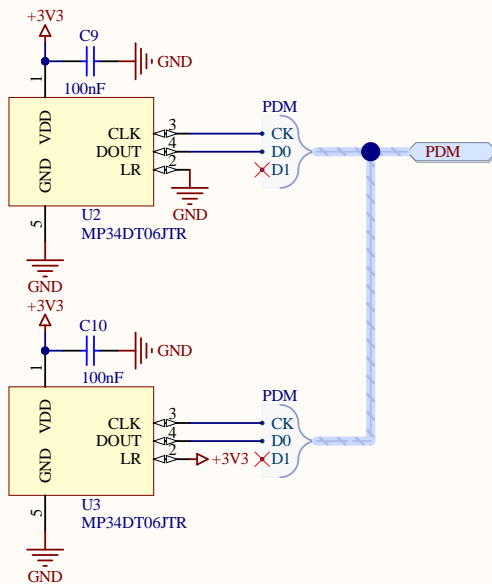
Table 2.1: Pin map and description of camera module

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Title: Portenta Vision Shield		Revision: 4.0	
Date: 1/26/2021	Time: 4:36:06 PM	Sheet 3 of 9	
File: CameraSchDoc	Author: francesca Cenna	Rev: author	





# Mics



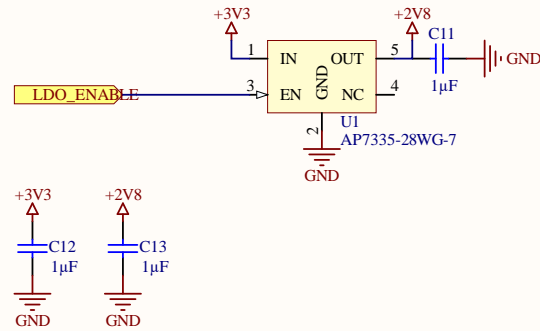
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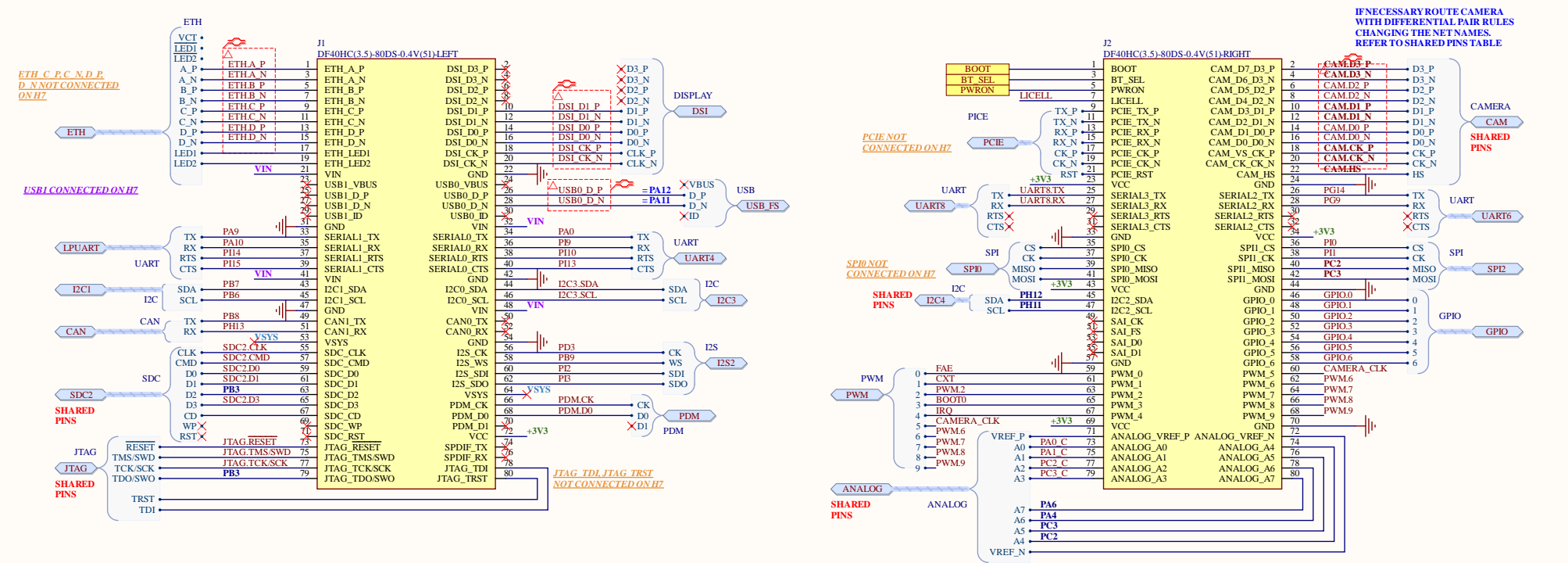
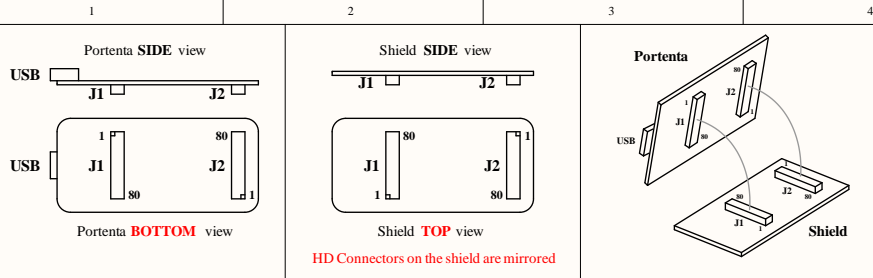
Title: <b>Portenta Vision Shield</b>			
ID: *	Revision: <b>4.0</b>		
Date: <b>1/26/2021</b>	Time: <b>4:36:07 PM</b>	Sheet# <b>of 9</b>	
File: <b>Mics.SchDoc</b>	Author: <b>Francesca Cenna</b>	RevAuthor: *	

# LDOs



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Title: <b>Portenta Vision Shield</b>				
ID: *	Revision <b>4.0</b>			
Date: <b>1/26/2021</b>	Time: <b>4:36:08 PM</b>	Sheet <b>5</b> of <b>9</b>	RevAuthor: *	
File: <b>LDOs.SchDoc</b>	Author: <b>Francesca Cenna</b>			



IF NECESSARY ROUTE CAMERA WITH DIFFERENTIAL PAIR RULES CHANGING THE NET NAMES. REFER TO SHARED PINS TABLE

**SHARED PINS TABLE**

NET	BUS 1	BUS 2
PB3	JTAG	SDC2
CAM.D1_N	CAM	I2C4
CAM.D1_P	CAM	I2C4
CAM.CK_P	CAM	SAI2A
CAM.D3_N	CAM	SAI2A
CAM.D3_P	CAM	SAI2A
CAM.HS	CAM	ANALOG
CAM.CK_N	CAM	ANALOG
PC2	ANALOG	SP1Z
PC3	ANALOG	SP1Z

**POWER NETS TABLE**

NET	TYPE	RANGES	DESCRIPTION
VIN	PORTENTA INPUT	4.1V to 6V.	Default 3.3V, PMIC (U10) programmable output.
+3V3	PORTENTA OUTPUT	1.1V to 3.3V in steps, max 1A.	Default 3.3V, PMIC (U10) programmable output.
VSYS	PORTENTA RESERVED OUTPUT	<b>RESERVED, DO NOT USE</b> 3.5V to 4.2V, max 600mA.	Default 4.2V, PMIC (U10) programmable output which is also the input voltage of the bucks inside the PMIC itself.
LICELL	PORTENTA INPUT	Coin cell max 3.6V, max 46uA.	Max 4uA with PMIC (U10) in coin cell mode, max 46uA with PMIC in standby/suspend mode.

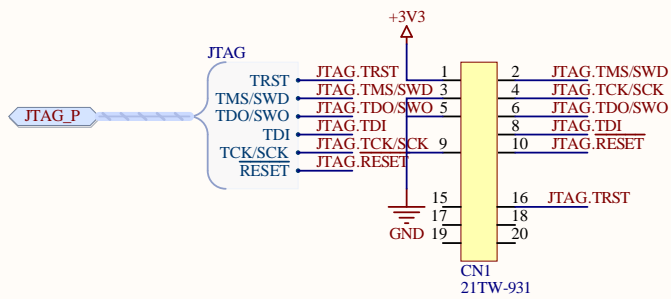
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**Title: Portenta Vision Shield**



ID: \*      Revision: 4.0

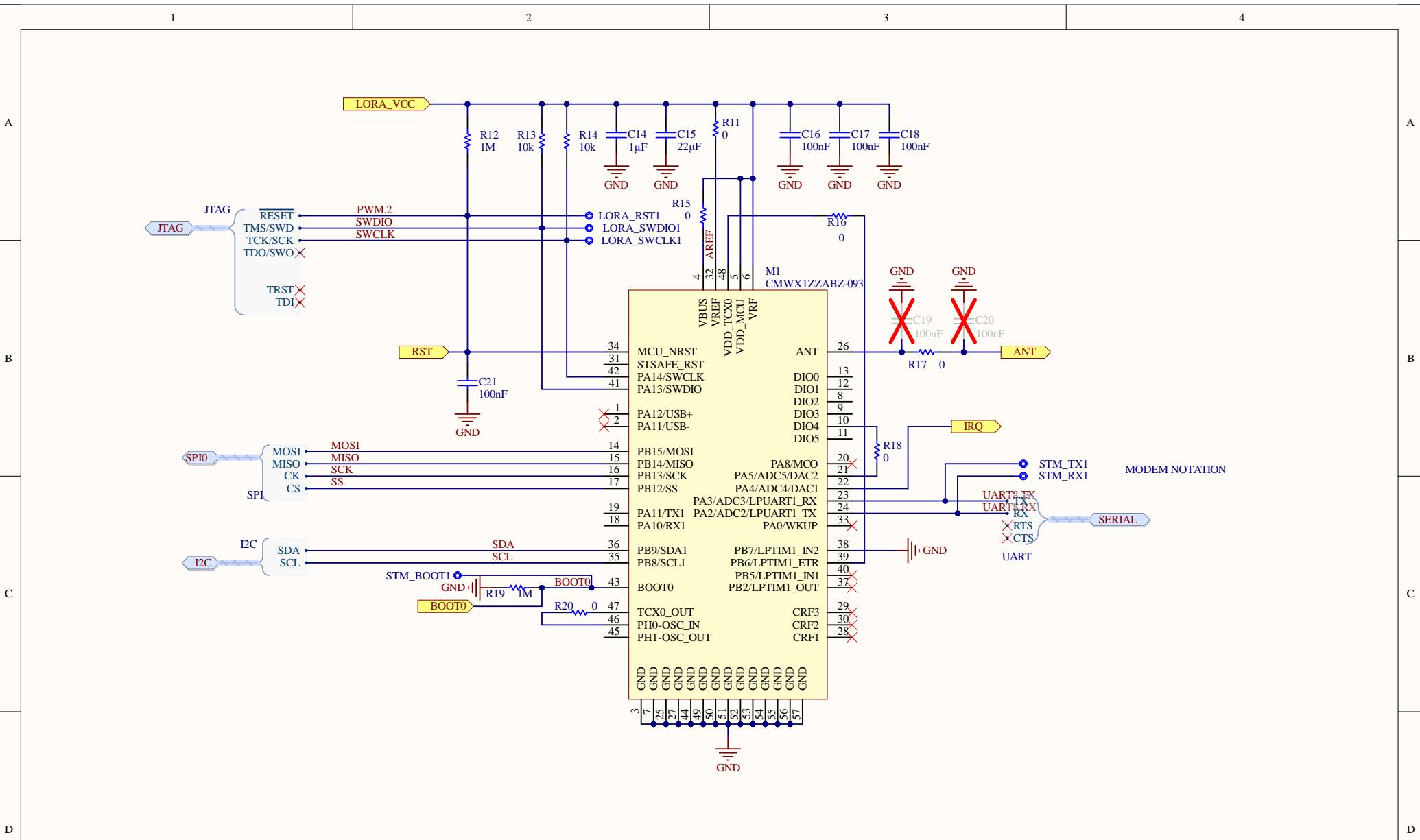
Date: 1/26/2021      Time: 4:36:09 PM      Sheet: \* of 9

File: HDCorr\_SchDoc      Author: \*      RevAuthor: \*



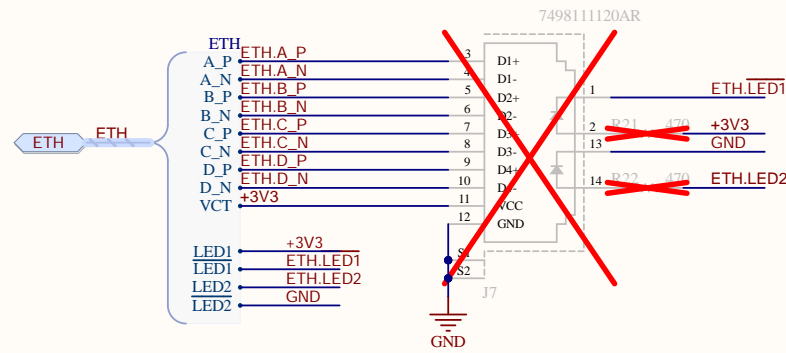
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Title: <b>Portenta Vision Shield</b>			
ID: *	Revision: <b>4.0</b>		
Date: <b>1/26/2021</b>	Time: <b>4:36:11 PM</b>	Sheet <b>of 9</b>	
File: <b>JTAG.SchDoc</b>	Author: <b>Francesca Cenna</b>	RevAuthor: *	





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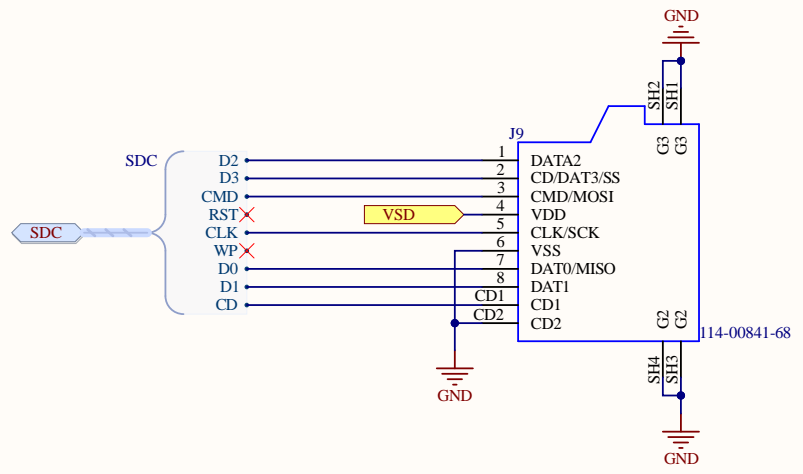
Title <b>LORA MODULE</b>				
Size:	Number: *	Revision: *		
Date: 1/26/2021	Time: 4:36:12 PM	Sheet * of 9		
File: SCH-00004-7_ann.SchDoc	Author *	Rev author		





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Title: Ethernet 749811120AR		 
ID: *	Revision:	
Date: 1/26/2021 Time: 4:36:13 PM	Sheet of 9	RevAuthor: *
File: SCH-00005-6_ann.SchDoc	Author:	





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Title: <b>CameraShield</b>			
ID: *	Revision: *		
Date: 1/26/2021	Time: 4:36:14 PM	Sheet of 9	RevAuthor: *
File: SCH-00009-2_ann.SchDoc		Author: Francesca Cenna	