

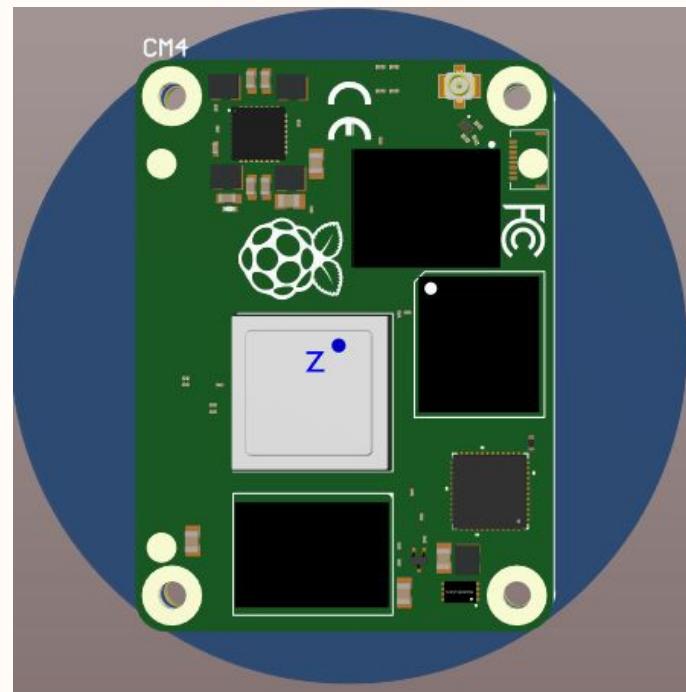
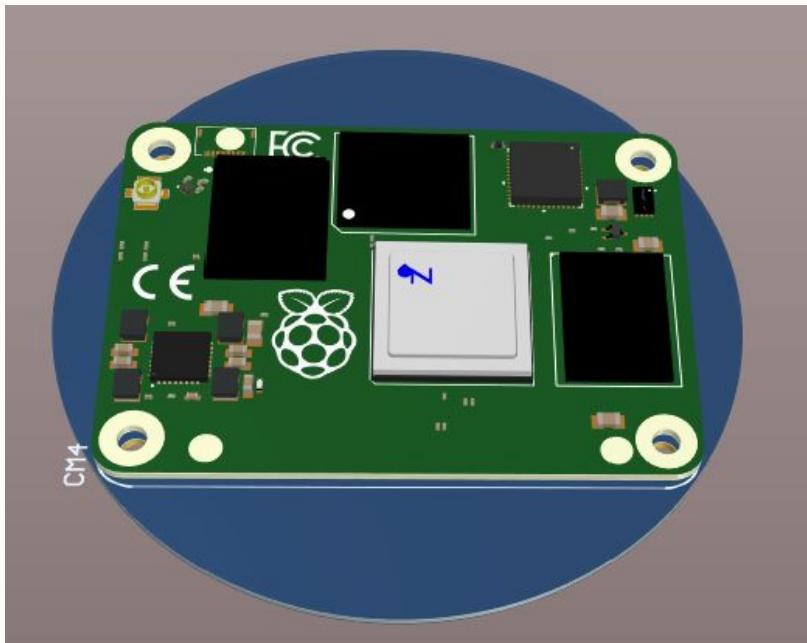
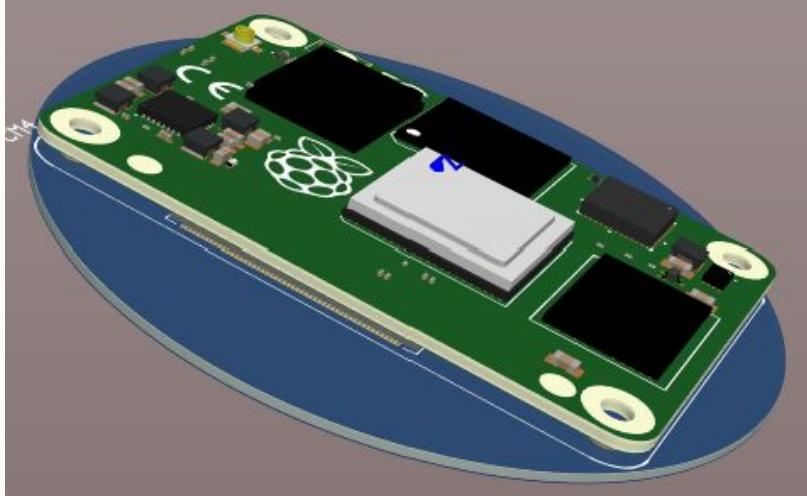
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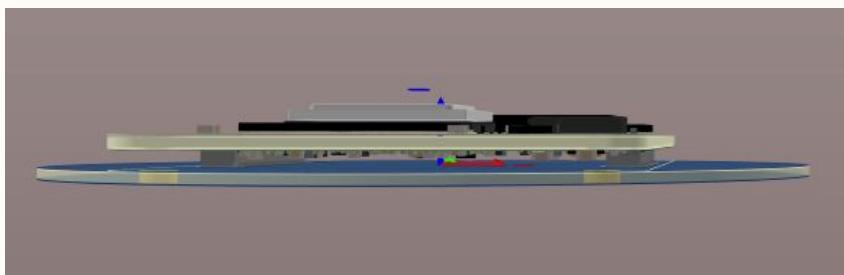
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4

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library



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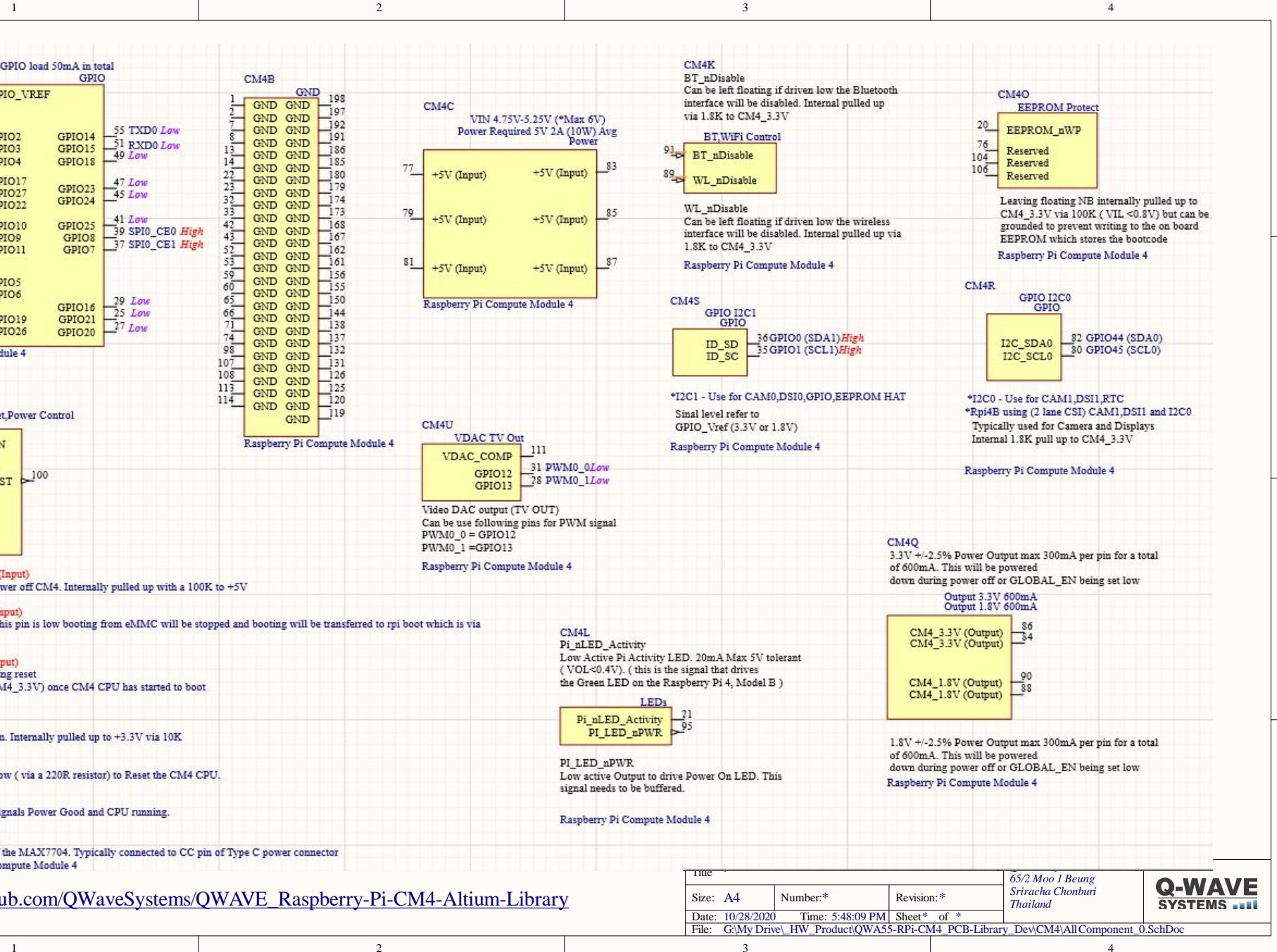
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Size: A4	Number: * Revision: *
Date: 10/28/2020	Time: 5:48:09 PM Sheet*: * Thailand
File: G:\My Drive\HW_Product\QWA55-RPi-CM4_PCB-Library_Dev\CM4\3D_Board_View.SchDoc	Q-WAVE SYSTEMS

1

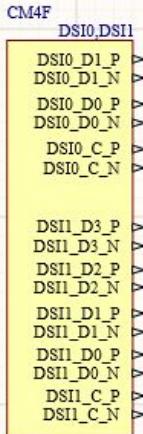
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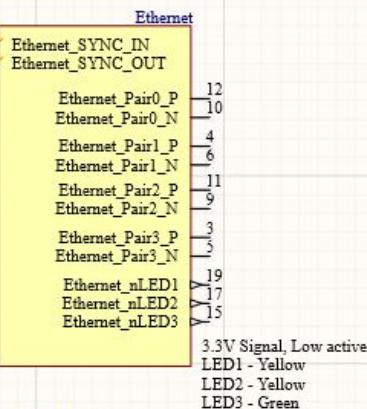
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https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library



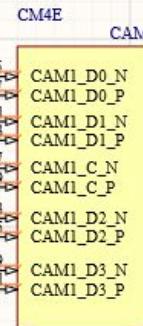
CM4P
A
1.8V signal
IEEE1588 SYNC
Input/outputpin



The CM4 supports two camera ports; CAM0 (2 lanes) and CAM1 (4 lanes).

Camera sensors supported by the official Raspberry Pi firmware are; the OmniVision OV5647, Sony IMX219 and Sony IMX477, no security device is required on Compute Module devices to use these camera sensors.

Raspberry Pi Compute Module 4



The CM4 supports two camera ports; CAM0 (2 lanes) and CAM1 (4 lanes).

Camera sensors supported by the official Raspberry Pi firmware are; the OmniVision OV5647, Sony IMX219 and Sony IMX477, no security device is required on Compute Module devices to use these camera sensors.

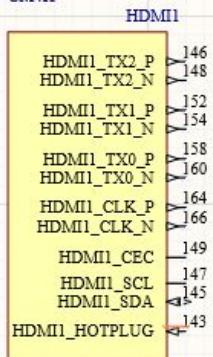
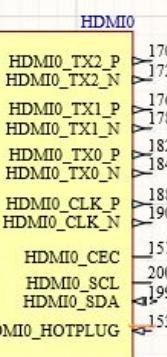
Raspberry Pi Compute Module 4

CM4T
A
CAM_GPIO
Camera_GPIO 97 GPIOx
CM4_3.3V signalling. Typically used to Shutdown the camera to reduce power

Raspberry Pi Compute Module 4

The CM4 supports two display ports; DSI0, DSI1, HDMI0, HDMI1. Each lane supports a maximum of data rate per

CM4 lane of 1Gbit/s.
CEC Raspberry Pi Compute Module 4 K pullup resistor is included in the CM4.



HDMI0_HOTPLUG
Input HDMI0 Hotplug Internally pulled down with a 100K_5V tolerant.

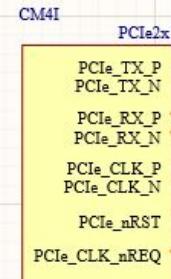
HDMI0_SDA,SCL
Bidir HDMI0 SDA Internally pulled up with a 1.8K_5V tolerant

Raspberry Pi Compute Module 4

HDMI1_HOTPLUG
Input HDMI1 Hotplug Internally pulled down with a 100K_5V tolerant.

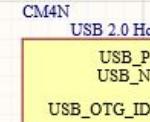
HDMI1_SDA,SCL
Bidir HDMI1 SDA Internally pulled up with a 1.8K_5V tolerant

Raspberry Pi Compute Module 4



The CM4 has an internal PCIe 2.0 xl host controller

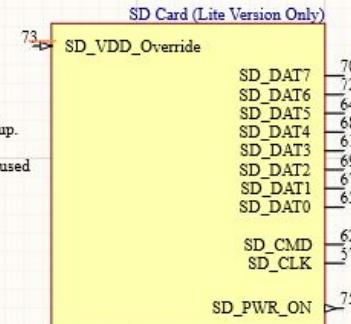
Raspberry Pi Compute Module 4



Input (3.3V signal) USB OTG Pin. Internal pulled up. When grounded the CM4 becomes a USB host but the correct OS driver also needs to be used

Raspberry Pi Compute Module 4

CM4J
When SD_VDD_override is high, this signal is used to force 1.8v signalling on the SDIO interface. Typically this is used with eMMC memory



The SD_PWR_ON signal is used to enable an external power switch to turn on power to the SDCARD

Raspberry Pi Compute Module 4

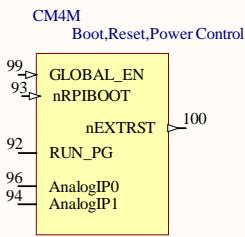
https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

Title *	Q-Wave Systems Co.,Ltd
Size: A4	65/2 Moo 1 Beung
Number:*	Sriracha Chonburi
Revision:*	Thailand
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File: G:\My Drive\HW_Product\QWA55-RPi-CM4_PCB-Library\Dev\CM4\All Component_1.SchDoc	

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

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A



GLOBAL_EN (Input)

Drive low to power off CM4. Internally pulled up with a 100K to +5V

nRPI_BOOT (Input)

During boot if this pin is low booting from eMMC will be stopped and booting will be transferred to rpi boot which is via

nEXTRST (Output)

Driven low during reset

Driven high (CM4_3.3V) once CM4 CPU has started to boot

RUN_PG

Bidirectional pin. Internally pulled up to +3.3V via 10K

>Input

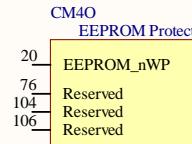
Can be driven low (via a 220R resistor) to Reset the CM4 CPU.

Ouput >

Output a high signals Power Good and CPU running.

Analog IP0,IP1

Analog input of the MAX7704. Typically connected to CC pin of Type C power connector
Raspberry Pi Compute Module 4



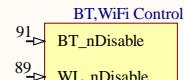
Leaving floating NB internally pulled up to CM4_3.3V via 100K (VIL<0.8V) but can be grounded to prevent writing to the on board EEPROM which stores the bootcode

Raspberry Pi Compute Module 4

CM4K

BT_nDisable

Can be left floating if driven low the Bluetooth interface will be disabled. Internal pulled up via 1.8K to CM4_3.3V



WL_nDisable

Can be left floating if driven low the wireless interface will be disabled. Internal pulled up via 1.8K to CM4_3.3V

Raspberry Pi Compute Module 4

A

B

C

D

Title: *	Q-Wave Systems Co.,Ltd
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Date: 10/28/2020	Time: 5:48:09 PM
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Q-WAVE SYSTEMS

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

CMIO Board reference design 4 Layer PCB

Board thickness : 1.56mm

Finished copper weight inners : 1oz

Finished copper weight outers : 1oz

Board finish : OSP

Material type : FR4

Colour of solder resists : Green

Colour of silk screens : White Only on the top side

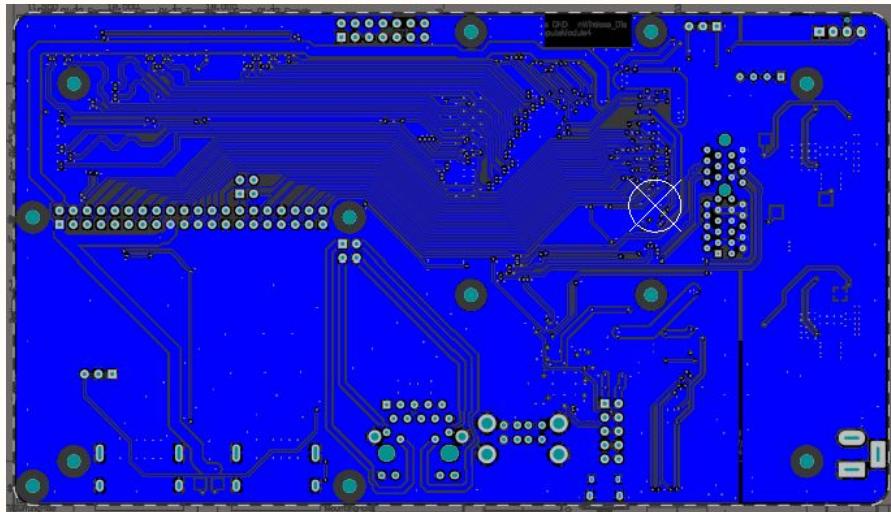
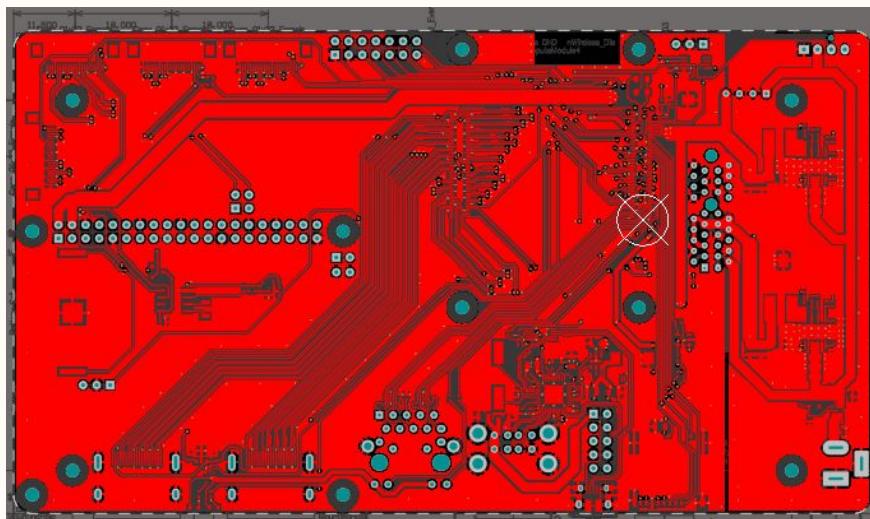
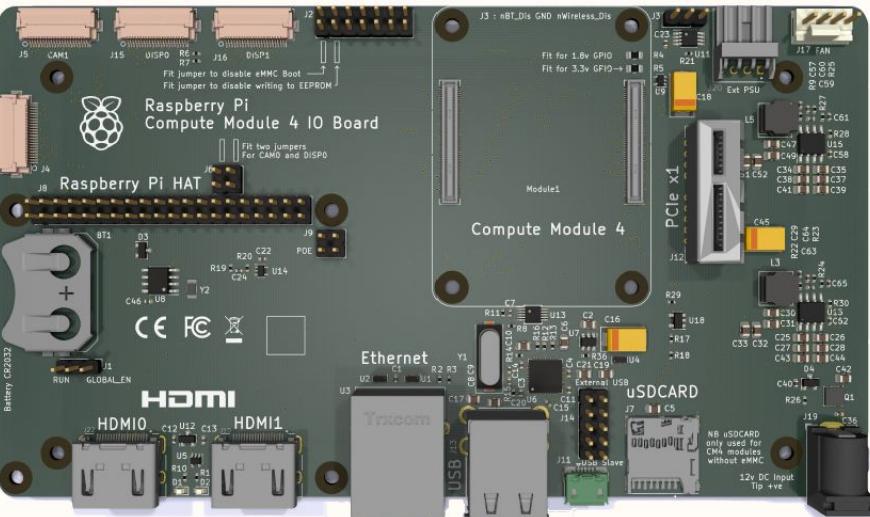
Board to : UL94-V0

TG >=130

50R trace width 0.13mm@ 3GHz

90R diff pair width 0.147 spacing 0.253mm @ 2.5GHz

100R diff pair width 0.127 spacing 0.253mm @ 2GHz



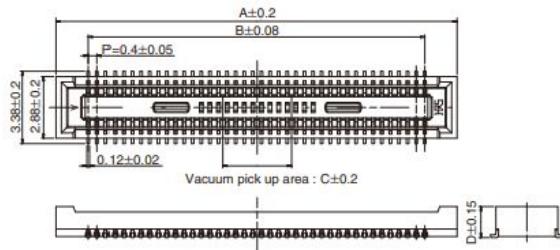
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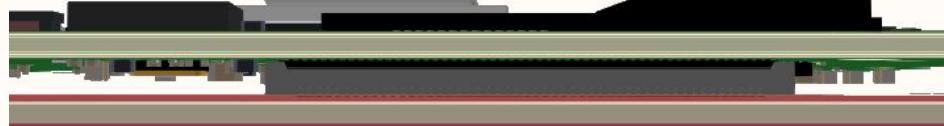
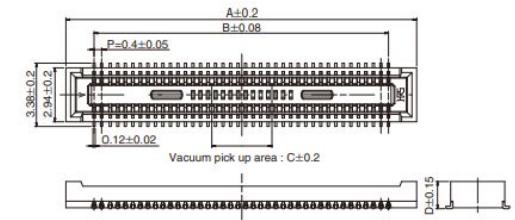
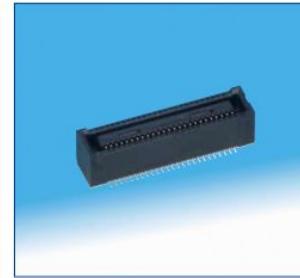
1.5mm with mating connector (clearance under CM4 0mm) : DF40C-100DS-0.4v

[DF40C-100DS-0.4V](#)

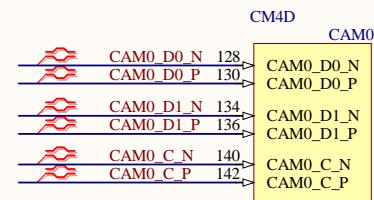


3.0mm with mating connector (clearance under CM4 1.5mm): DF40HC(3.0)-100DS-0.4v

[DF40HC\(3.0\)-100DS-0.4V](#)



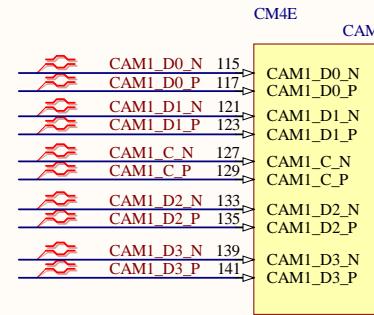
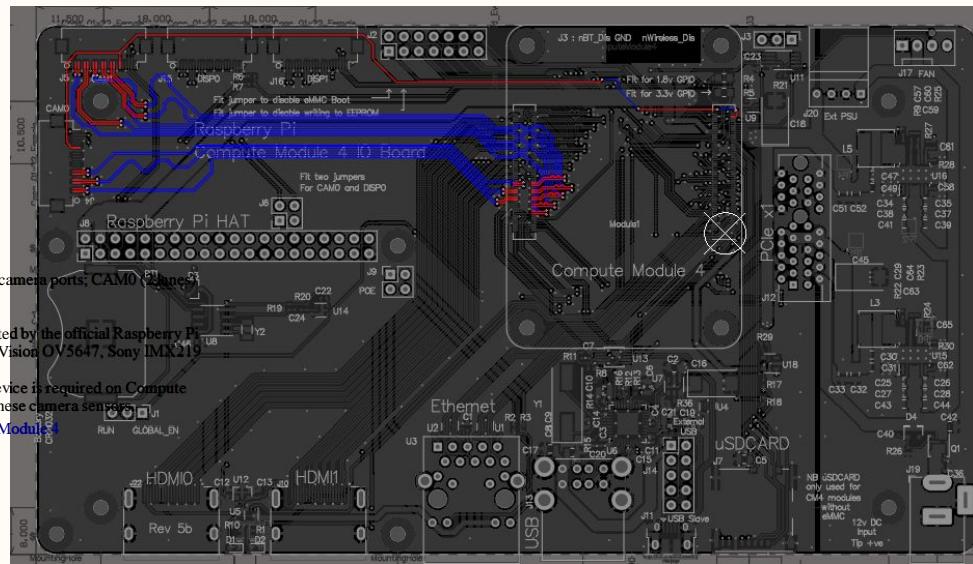
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Date: 10/28/2020	Time: 5:48:09 PM	Sheet*: * of *			
File: G:\My Drive\HW_Product\QWA55-RPi-CM4_PCB-Library\Dev\CM4\Connector.SchDoc					



The CM4 supports two camera ports; CAM0 (2 lanes) and CAM1 (4 lanes).

Camera sensors supported by the official Raspberry Pi firmware are; the OmniVision OV5647, Sony IMX219 and Sony IMX477, no security device is required on Compute Module devices to use these camera sensors.

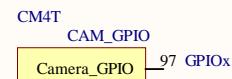
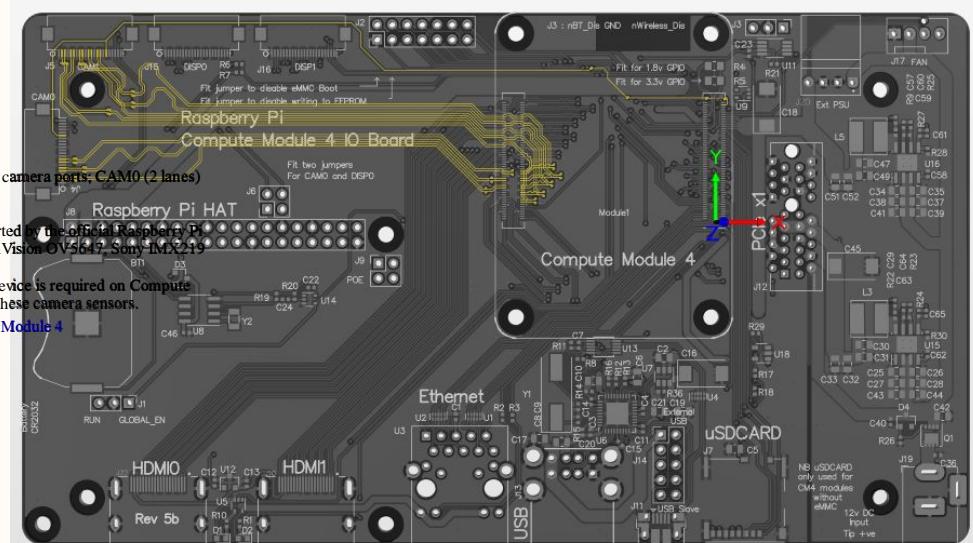
Raspberry Pi Compute Module 4



The CM4 supports two camera ports; CAM0 (2 lanes) and CAM1 (4 lanes).

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Raspberry Pi Compute Module 4



CM4_3.3V signalling. Typically used to Shutdown the camera to reduce power

Raspberry Pi Compute Module 4

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

+12v	30	n/a	0	190.815	0
+3.3v	37	n/a	0	490.278	0
/PCIe-connectt	17	n/a	0	97.998	0
AIN0	2	58.984	0	58.984	0
BT_nDis	2	60.709	0	60.709	0
CAM0_C_N	2	84.268	0	84.268	0
CAM0_C_P	2	84.268	0	84.268	0
CAM0_D0_N	2	84.224	0	84.224	0
CAM0_D0_P	2	84.224	0	84.224	0
CAM0_D1_N	2	84.244	0	84.244	0
CAM1_C_N	2	106.407	0	106.407	0
CAM1_C_P	2	106.308	0	106.345	0
CAM1_D0_N	2	106.68	0	106.68	0
CAM1_D0_P	2	106.581	0	106.618	0
CAM1_D1_N	2	106.335	0	106.335	0
CAM1_D1_P	2	106.235	0	106.272	0
CAM1_D2_N	2	106.596	0	106.596	0
CAM1_D2_P	2	106.496	0	106.533	0
CAM1_D3_N	2	106.038	0	106.038	0
CAM1_D3_P	2	105.939	0	105.976	0
CAM_GPIO	3	n/a	0	147.344	0
DSI0_C_N	2	86.257	0	85.919	0
DSI0_C_P	2	86.149	0	85.928	0
DSI0_D0_N	2	86.33	0	85.992	0
DSI0_D0_P	2	86.224	0	86	0
DSI0_D1_N	2	85.892	0	85.892	0
DSI1_C_N	2	68.253	0	68.253	0
DSI1_C_P	2	68.154	0	68.191	0
DSI1_D0_N	2	69.871	0	69.871	0

+3.3v	37	n/a	0	490.278	0
/PCIe-connectt	17	n/a	0	97.998	0
AIN0	2	58.984	0	58.984	0
AIN1	2	60.709	0	60.709	0
BT_nDis	2	20.367	0	19.837	0
CAM0_C_N	2	84.268	0	84.268	0
CAM0_C_P	2	84.268	0	84.268	0
CAM0_D0_N	2	84.224	0	84.224	0
CAM0_D0_P	2	84.224	0	84.224	0
CAM0_D1_N	2	84.244	0	84.244	0
CAM0_D1_P	2	84.244	0	84.244	0
CAM1_C_N	2	106.407	0	106.407	0
CAM1_C_P	2	106.308	0	106.345	0
CAM1_D0_N	2	106.68	0	106.68	0
CAM1_D0_P	2	106.581	0	106.618	0
CAM1_D1_N	2	106.335	0	106.335	0
CAM1_D1_P	2	106.235	0	106.272	0
CAM1_D2_N	2	106.596	0	106.596	0
CAM1_D2_P	2	106.496	0	106.533	0
CAM1_D3_N	2	106.038	0	106.038	0
CAM1_D3_P	2	105.939	0	105.976	0
CAM_GPIO	3	n/a	0	147.344	0
DSI0_C_N	2	86.257	0	85.919	0
DSI0_C_P	2	86.149	0	85.928	0
DSI0_D0_N	2	86.33	0	85.992	0
DSI0_D0_P	2	86.224	0	86	0
DSI0_D1_N	2	85.892	0	85.892	0
DSI1_C_N	2	68.253	0	68.253	0
DSI1_C_P	2	68.154	0	68.191	0
DSI1_D0_N	2	69.871	0	69.871	0

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Number:*	Sriracha Chonburi
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Q-WAVE SYSTEMS

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

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Differential Pair 90 ohm

- PCIe (Gen2) x1 5Gbps
- USB2.0 480 Mbps

90Ω Differential Pairs signal lengths

On the CM4 all differential pairs are matched to better than 0.05mm (P/N signals).

Differential Pair 100 ohm

- MIPI CSI 1Gbps
- MIPI DSI 1Gbps
- HDMI 2.0
- Ehternet 1Gbps

100Ω Differential pairs signal lengths

On the CM4 all differential pairs are matched to better than 0.05mm (P/N signals).

Table 21 High-Speed Differential Trace Parameters

Interface	Max Symbol Rate (approximate)	Sym Width	Zo Diff (PS)	Zo SE (ohms)	Max Length (mils)	Max Length (mm)	Pair Match (mils)	Pair Match (mm)	Group Match (mils)	Group Match (mm)	TX/RX Match (mils)	TX/RX Match (mm)
PCIe	8 Gbps (Gen 3)	125	85	50	5,000	127	5	0.1225	0	2000	50.8	
	5 Gbps (Gen 2)	200 (+-15%)			10,000	254		0		0	0	
	2.5 Gbps (Gen 1)	500			12,000	305		0		0	0	
SATA	6 Gbps (Gen 3)	167	85	50	3,000	76	5	0.1225	0	2000	50.8	
	3 Gbps (Gen 2)	333 (+-20%)	(+-15%)		6,000	152		0		0	0	
	1.5 Gbps (Gen 1)	667			8,000	203		0		0	0	
HDMI	3.4 Gbps (HDMI 1.3)	294	90	45	5,000	127	10	0.245	830	21.082		
	1.6 Gbps (HDMI 1.2)	625				0		0		0	0	
	1.6 Gbps (HDMI 1.1)	625				0		0		0	0	
	1.6 Gbps (HDMI 1.0)	625				0		0		0	0	
CSI	1 Gbps (CSI-2)	1000	90	45	9,000	229	100	2.45	100	2.54	0	
	208 Mbps (CSI)	4808				0		0		0	0	
LVDS	770 Mbps (24b 110 MHz)	1299	100	50	6,750	171	20	0.49	20	0.508	0	
	280 Mbps (24b 40 MHz)	3571 (+-20%)				0		0		0	0	
USB 2.0	480 Mbps (HS)	2083	90	45	10,000	254	100	2.45				
	12 Mbps (FS)	23333				0		0				
USB 3.0	5 Gbps	N/A	85	50	4,500	114	5	0.1225				
			(+-10%)	(+-15%)		0		0		0	0	
GBE	250 Mbps	N/A	100	50	4,000	102	5	0.1225	30	0.762	0	
	DP++	8.1 Gbps	N/A	85	50	3,200	81	5	0.1225	1000	25.4	0
					(+-10%)	(+-10%)						

Reference Plane: Clearance to other traces:

GND is preferred 20 mil or more

https://sget.org/wp-content/uploads/2018/09/SMARC_DG_V2.pdf
Page116

Title: *	Q-Wave Systems Co.,Ltd		
Size: A4	Number:*	Revision:*	65/2 Moo 1 Beung
Date: 10/28/2020	Time: 5:48:09 PM	Sheet*: of *	Sriracha Chonburi
File: G:\My Drive\HW_Product\QWA55-RPi-CM4_PCB-Library\Dev\CM4\	Differential Pair match spec.SchDoc		Thailand

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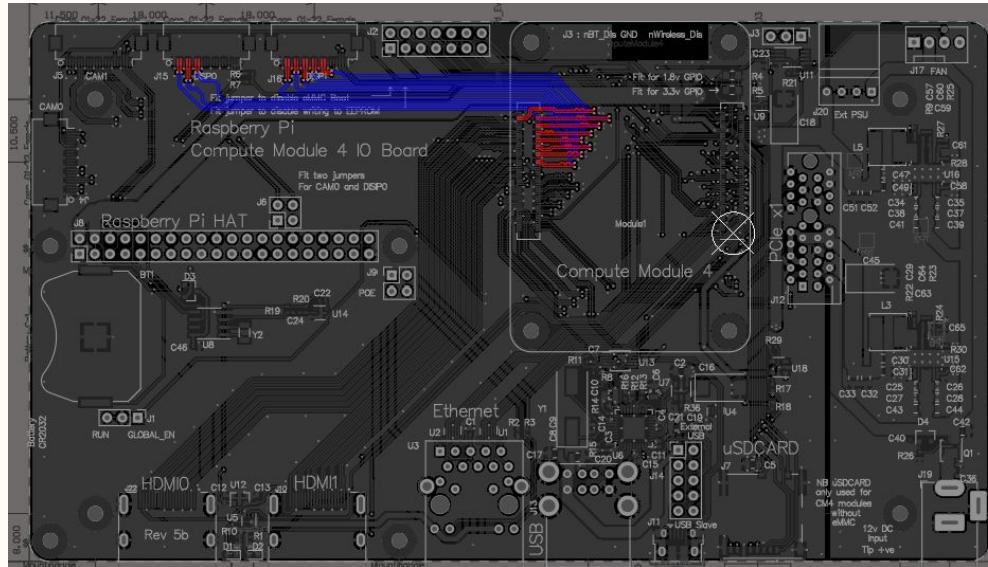
CM4F

DSI0_D1_P	165	DSI0_D1_P
DSI0_D1_N	163	DSI0_D1_N
DSI0_D0_P	159	DSI0_D0_P
DSI0_D0_N	157	DSI0_D0_N
DSI0_C_P	171	DSI0_C_P
DSI0_C_N	169	DSI0_C_N

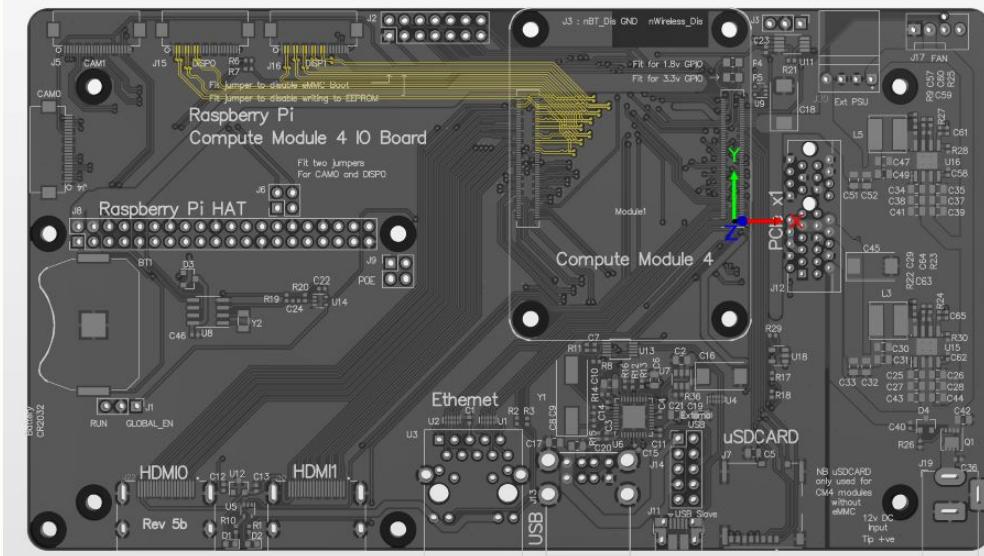
DSII_D3_P	196	DSII_D3_P
DSII_D3_N	194	DSII_D3_N
DSII_D2_P	195	DSII_D2_P
DSII_D2_N	193	DSII_D2_N
DSII_D1_P	183	DSII_D1_P
DSII_D1_N	181	DSII_D1_N
DSII_D0_P	177	DSII_D0_P
DSII_D0_N	175	DSII_D0_N
DSII_C_P	189	DSII_C_P
DSII_C_N	187	DSII_C_N

The CM4 supports two display ports: DISP0 (2 lanes) and DISP1 (4 lanes). Each lane supports a maximum of data rate per lane of 1Gbit/s.

Raspberry Pi Compute Module 4



CAM1_D2_N	2	106.596	0	106.596	0
CAM1_D2_P	2	106.496	0	106.533	0
CAM1_D3_N	2	106.038	0	106.038	0
CAM1_D3_P	2	105.939	0	105.976	0
CAM_GPI	3	n/a	0	147.344	0
DSI0_C_N	2	86.257	0	85.919	0
DSI0_C_P	2	86.149	0	85.928	0
DSI0_D0_N	2	86.33	0	85.992	0
DSI0_D1_N	2	85.892	0	85.892	0
DSI0_D1_P	2	85.793	0	85.83	0
DSI1_C_N	2	68.253	0	68.253	0
DSI1_C_P	2	68.154	0	68.191	0
DSI1_D0_N	2	69.871	0	69.871	0
DSI1_D0_P	2	69.764	0	69.828	0
DSI1_D1_N	2	68.504	0	68.167	0
DSI1_D1_P	2	68.399	0	68.175	0
DSI1_D2_N	2	68.912	0	68.912	0
DSI1_D2_P	2	68.813	0	68.85	0
DSI1_D3_N	2	65.648	0	65.648	0
DSI1_D3_P	2	65.548	0	65.586	0
EPPROM_nWP	2	70.039	0	70.039	0
ETH_LED	2	59.381	0	59.381	0
ETH_LEDY	2	59.278	0	59.278	0
GLOBAL_EN	4	n/a	0	201.513	0
GND	258	n/a	0	1081.165	0
GPIO2	2	123.948	0	123.983	0
GPIO3	2	120.852	0	120.886	0
GPIO4	2	117.487	0	117.521	0
GPIO5	2	86.719	0	86.754	0
GPIO6	2	83.835	0	83.87	0
GPIO7	2	97.541	0	97.541	0



CAM1_D3_N	2	106.038	0	106.038	0
CAM1_D3_P	2	105.939	0	105.976	0
CAM_GPI	3	n/a	0	147.344	0
DSI0_C_N	2	86.257	0	85.919	0
DSI0_C_P	2	86.149	0	85.928	0
DSI0_D0_N	2	86.33	0	85.992	0
DSI0_D0_P	2	86.224	0	86	0
DSI0_D1_N	2	85.892	0	85.892	0
DSI0_D1_P	2	85.793	0	85.83	0
DSI1_C_N	2	68.253	0	68.253	0
DSI1_C_P	2	68.154	0	68.191	0
DSI1_D0_N	2	69.871	0	69.871	0
DSI1_D0_P	2	69.764	0	69.828	0
DSI1_D1_N	2	68.504	0	68.167	0
DSI1_D1_P	2	68.399	0	68.175	0
DSI1_D2_N	2	68.912	0	68.912	0
DSI1_D2_P	2	68.813	0	68.85	0
DSI1_D3_N	2	65.648	0	65.648	0
DSI1_D3_P	2	65.548	0	65.586	0
EPPROM_nWP	2	70.039	0	70.039	0
ETH_LED	2	59.381	0	59.381	0
ETH_LEDY	2	59.278	0	59.278	0
GLOBAL_EN	4	n/a	0	201.513	0
GND	258	n/a	0	1081.165	0
GPIO2	2	123.948	0	123.983	0
GPIO3	2	120.852	0	120.886	0
GPIO4	2	117.487	0	117.521	0
GPIO5	2	86.719	0	86.754	0
GPIO6	2	83.835	0	83.87	0
GPIO7	2	97.541	0	97.541	0

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https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

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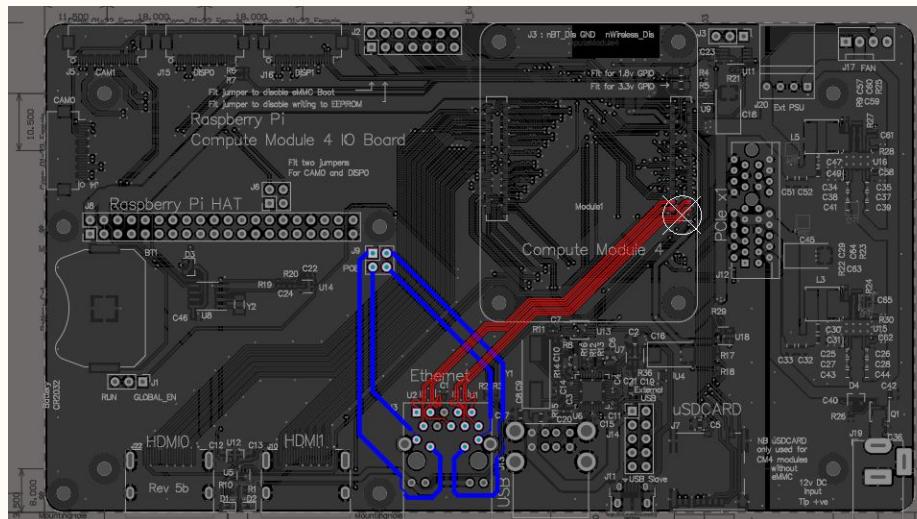
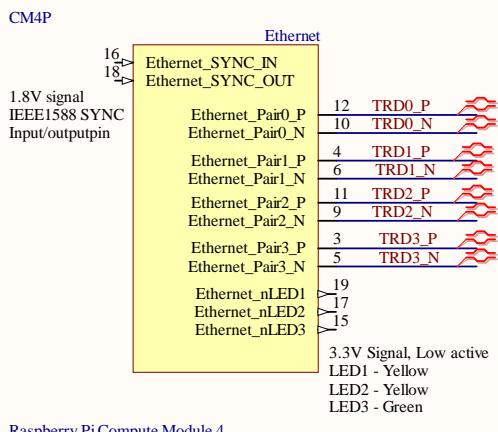
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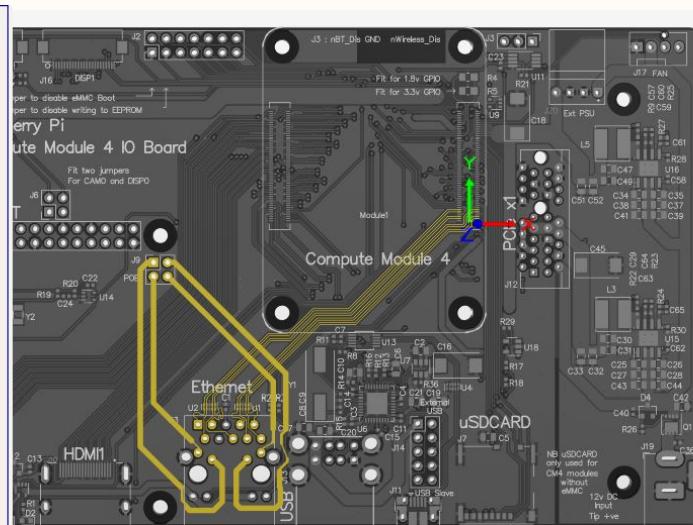
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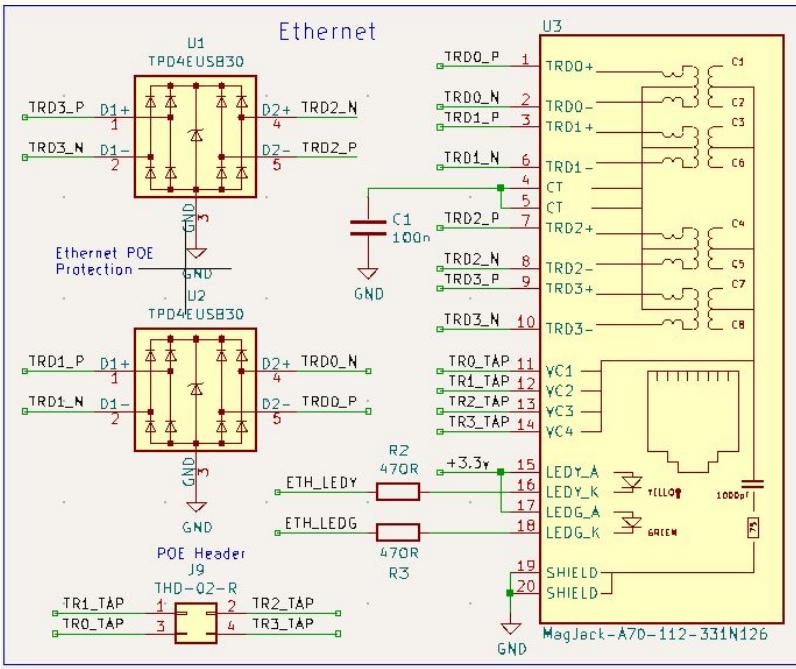
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SCL0	5	n/a	0	209.886	0
SCL1	4	n/a	0	63.204	0
SDA0	5	n/a	0	203.153	0
SDA1	4	n/a	0	67.57	0
SD_CLK	2	69.601	0	69.601	0
SD_CMD	2	78.039	0	77.883	0
SD_DATA0	2	71.394	0	71.394	0
SD_DATA1	2	72.538	0	72.538	0
SD_DATA2	2	73.032	0	73.032	0
SD_DATA3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0
SYNC_IN	2	67.784	0	67.784	0
SYNC_OUT	2	61.152	0	61.152	0
TR0_TAP	2	35.215	0	34.513	0
TR1_TAP	2	65.417	0	65.185	0
TR2_TAP	2	72.163	0	77.868	0
TR3_TAP	2	40.873	0	42.917	0
TRD0_N	4	n/a	0	66.697	0
TRD0_P	4	n/a	0	67.37	0
TRD1_N	4	n/a	0	69.71	0
TRD1_P	4	n/a	0	68.881	0
TRD2_N	4	n/a	0	64.884	0
TRD2_P	4	n/a	0	65.432	0
TRD3_N	4	n/a	0	64.291	0
TRD3_P	4	n/a	0	63.603	0
TV_OUT	2	57.654	0	57.639	0
USB2_N	2	34.71	0	34.71	0
USB2_P	2	34.71	0	34.71	0
USB2_N	4	n/a	0	45.538	0



C

SCL0	5	n/a	0	209.886	0
SCL1	4	n/a	0	63.204	0
SDA0	5	n/a	0	203.153	0
SDA1	4	n/a	0	67.57	0
SD_CLK	2	69.601	0	69.601	0
SD_CMD	2	78.039	0	77.883	0
SD_DATA0	2	71.394	0	71.394	0
SD_DATA1	2	72.538	0	72.538	0
SD_DATA2	2	73.032	0	73.032	0
SD_DATA3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0
SYNC_IN	2	67.784	0	67.784	0
SYNC_OUT	2	61.152	0	61.152	0
TR0_TAP	2	35.215	0	34.513	0
TR1_TAP	2	65.417	0	65.185	0
TR2_TAP	2	72.163	0	77.868	0
TR3_TAP	2	40.873	0	42.917	0
TRD0_N	4	n/a	0	66.697	0
TRD0_P	4	n/a	0	67.37	0
TRD1_N	4	n/a	0	69.71	0
TRD1_P	4	n/a	0	68.881	0
TRD2_N	4	n/a	0	64.884	0
TRD2_P	4	n/a	0	65.432	0
TRD3_N	4	n/a	0	64.291	0
TRD3_P	4	n/a	0	63.603	0
TV_OUT	2	57.654	0	57.639	0
USB2_N	2	34.71	0	34.71	0
USB2_P	2	34.71	0	34.71	0



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https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

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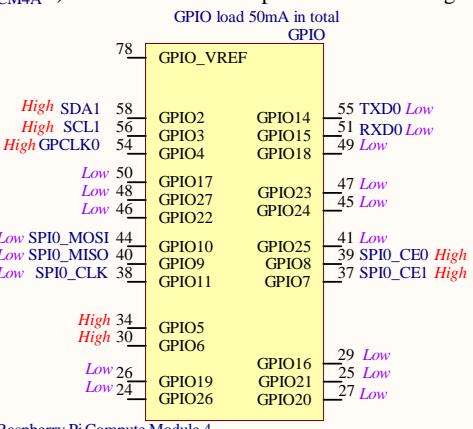
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GPIO_VREF Must be connected to CM4_3.3V (pins 84 and 86) for 3.3V GPIO or
CM4_1.8V (pins 88 and 90) for 1.8V GPIO. This pin cannot be floating or connected to ground.



Raspberry Pi Compute Module 4

Raspberry Pi 4 B J8 GPIO Header

Pin#	NAME	NAME	Pin#
01	3.3v DC Power	DC Power 5v	02
03	GPIO02 (SDA1, I ² C)	DC Power 5v	04
05	GPIO03 (SCL1, I ² C)	Ground	06
07	GPIO04 (GPCLK0)	(TXD0, UART) GPIO14	08
09	Ground	(RXD0, UART) GPIO15	10
11	GPIO17	(PWM0) GPIO18	12
13	GPIO27	Ground	14
15	GPIO22	GPIO23	16
17	3.3v DC Power	GPIO24	18
19	GPIO10 (SPI0_MOSI)	Ground	20
21	GPIO09 (SPI0_MISO)	GPIO25	22
23	GPIO11 (SPI0_CLK)	(SPI0_CE0_N) GPIO08	24
25	Ground	(SPI0_CE1_N) GPIO07	26
27	GPIO00 (SDA0, I ² C)	(SCL0, I ² C) GPIO01	28
29	GPIO05	Ground	30
31	GPIO06	(PWM0) GPIO12	32
33	GPIO13 (PWM1)	Ground	34
35	GPIO19	GPIO16	36
37	GPIO26	GPIO20	38
39	Ground	GPIO21	40

Raspberry Pi 4 B J14 PoE Header

01	TR01	TR00	02
03	TR03	TR02	04

Pinout Grouping Legend

Inter-Integrated Circuit Serial Bus (I²C) Serial Peripheral Interface Bus (SPI)
 Ungrouped/Un-Allocated GPIO Universal Asynchronous Receiver-Transmitter (UART)
 Reserved for EEPROM Receiver-Transmitter (RTS/CTS)
 Rev. 2
 19/06/2019 CGS
www.element14.com/RaspberryPi

	Bank	Pull	ALT0	ALT1	ALT2	ALT3	ALT4	ALT5	RPi4 signal name	RPi4 connection
GPIO0	0	High	SDA0	SA5	PCLK	SPI3_CE0_N	TxD2		SDA6	J8-27
GPIO1	0	High	SCL0	SA4	DE	SPI3_MISO	RxD2		SCL6	J8-28
GPIO2	0	High	SDA1	SA3	LCD_VSYNC	SPI3_MOSI	CTS2		SDA3	J8-03
GPIO3	0	High	SCL1	SA2	LCD_HSYNC	SPI3_SCLK	RTS2		SCL3	J8-05
GPIO4	0	High	GPCLK0	SA1	DPI_D0	SPI4_CE0_N	TxD3		SDA3	J8-07
GPIO5	0	High	GPCLK1	SA0	DPI_D1	SPI4_MISO	RxD3		SCL3	J8-29
GPIO6	0	High	GPCLK2	SOE_N / SE	DPI_D2	SPI4_MOSI	CTS3		SDA4	J8-31
GPIO7	0	High	SPI0_CE1_N	SWE_N / SRW_N	DPI_D3	SPI4_SCLK	RTS3		SCL4	J8-26
GPIO8	0	High	SPI0_CE0_N	SD0	DPI_D4	I2CSL_CE_N	TxD4		SDA4	J8-24
GPIO9	0	Low	SPI0_MISO	SD1	DPI_D5	I2CSL_SD1 / MISO	RxD4		SCL4	J8-21
GPIO10	0	Low	SPI0_MOSI	SD2	DPI_D6	I2CSL_SDA / MOSI	CTS4		SDA5	J8-19
GPIO11	0	Low	SPI0_SCLK	SD3	DPI_D7	I2CSL_SCL / SCLK	RTS4		SCL5	J8-23
GPIO12	0	Low	PWM0_0	SD4	DPI_D8	SPI0_CE0_N	TxD5		SDA5	J8-32
GPIO13	0	Low	PWM0_1	SD5	DPI_D9	SPI0_MISO	RxD5		SCL5	J8-33
GPIO14	0	Low	TXD0	SD6	DPI_D10	SPI0_MOSI	CTS5		TXD1	J8-08
GPIO15	0	Low	RXD0	SD7	DPI_D11	SPI0_SCLK	RTS5		RXD1	J8-10
GPIO16	0	Low	FL0 (?)	SD8	DPI_D12	CTS0	SPI1_CE1_N		CTS1	J8-36
GPIO17	0	Low	FL1 (?)	SD9	DPI_D13	RTS0	SPI1_CE0_N		RTS1	GPIO_GEN0
GPIO18	0	Low	PCM_CLK	SD10	DPI_D14	SPI1_CE0_N	SPI1_CE1_N		PWM0_0	GPIO_GEN1
GPIO19	0	Low	PCM_FS	SD11	DPI_D15	SPI1_MISO	SPI1_MOSI			J8-35
GPIO20	0	Low	PCM_DIN	SD12	DPI_D16	SPI1_MOSI	SPI1_MISO		GPCLK0	J8-38
GPIO21	0	Low	PCM_DOUT	SD13	DPI_D17	SPI1_SCLK	SPI1_SCLK		GPCLK1	J8-40
GPIO22	0	Low	SD0_CLK	SD14	DPI_D18	SD1_CLK	ARM_TRST		SDA6	GPIO_GEN3
GPIO23	0	Low	SD0_CMD	SD15	DPI_D19	SD1_CMD	ARM_RTCK		SCL6	GPIO_GEN4
GPIO24	0	Low	SD0_DAT0	SD16	DPI_D20	SD1_DAT0	ARM_TDO		SPI1_CE1_N	GPIO_GEN5
GPIO25	0	Low	SD0_DAT1	SD17	DPI_D21	SD1_DAT1	ARM_TCK		SPI1_CE1_N	GPIO_GEN6
GPIO26	0	Low	SD0_DAT2	TE0 (?)	DPI_D22	SD1_DAT2	ARM_TDI		SPI1_CE1_N	J8-37
GPIO27	0	Low	SD0_DAT3	TE1 (?)	DPI_D23	SD1_DAT3	ARM_TMS		SPI1_CE1_N	GPIO_GEN2

https://elinux.org/RPi_BCM2711_GPIOs**Creative Commons CC-BY-SA 4.0.**

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Q-WAVE SYSTEMS

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CEC is also supported, an internal 27K pullup resistor is included in the CM4.

CM4G HDMI0	
HDMI0_TX2_P	170 HDMI0_TX2_P
HDMI0_TX2_N	172 HDMI0_TX2_N
HDMI0_TX1_P	176 HDMI0_TX1_P
HDMI0_TX1_N	178 HDMI0_TX1_N
HDMI0_TX0_P	182 HDMI0_TX0_P
HDMI0_TX0_N	184 HDMI0_TX0_N
HDMI0_CLK_P	188 HDMI0_CLK_P
HDMI0_CLK_N	190 HDMI0_CLK_N
HDMI0_CEC	151
HDMI0_SCL	200
HDMI0_SDA	199
HDMI0_HOTPLUG	153

Raspberry Pi Compute Module 4

HDMI0_HOTPLUG
Input HDMI0 Hotplug Internally pulled down with a 100K, 5V tolerant.

HDMI0_SDA,SCL
Bidir HDMI1 SDA Internally pulled up with a 1.8K, 5V tolerant

CM4H HDMI1

CM4H HDMI1	
HDMI1_TX2_P	146 HDMI1_TX2_P
HDMI1_TX2_N	148 HDMI1_TX2_N
HDMI1_TX1_P	152 HDMI1_TX1_P
HDMI1_TX1_N	154 HDMI1_TX1_N
HDMI1_TX0_P	158 HDMI1_TX0_P
HDMI1_TX0_N	160 HDMI1_TX0_N
HDMI1_CLK_P	164 HDMI1_CLK_P
HDMI1_CLK_N	166 HDMI1_CLK_N
HDMI1_CEC	149
HDMI1_SCL	147
HDMI1_SDA	145
HDMI1_HOTPLUG	143

Raspberry Pi Compute Module 4

HDMI1_HOTPLUG
Input HDMI1 Hotplug Internally pulled down with a 100K, 5V tolerant.

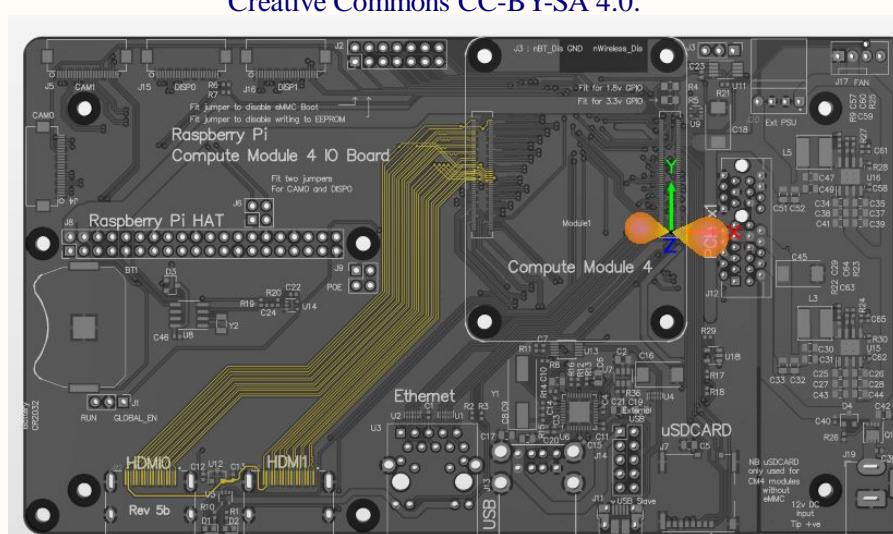
HDMI1_SDA,SCL
Bidir HDMI1 SDA Internally pulled up with a 1.8K, 5V tolerant

HDMI signals should be routed as 100Ω differential pairs, each signal within a pair should ideally be matched to better

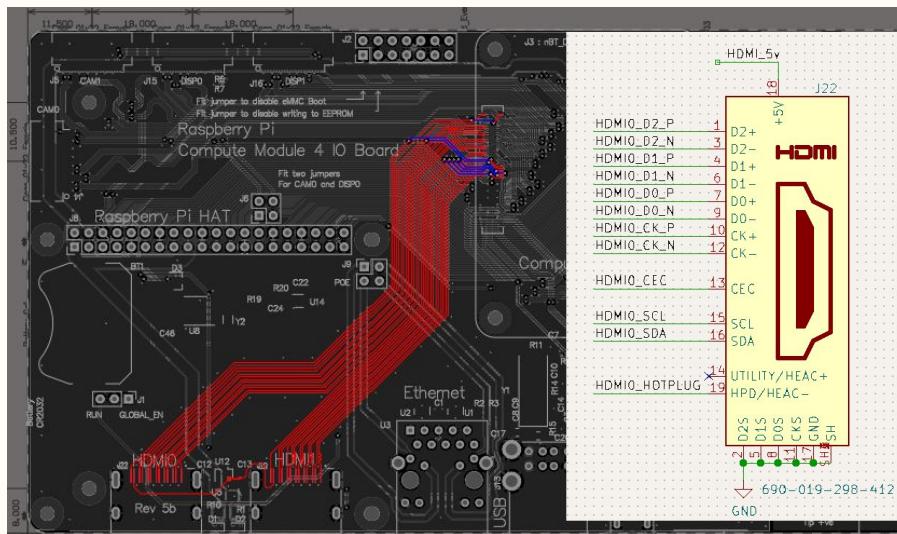
than 0.15mm. Pairs don't typically need any extra matching as they only have to be matched to 25mm.

CEC is also supported, an internal 27K pullup resistor is included in the CM4.

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HD4_N	2	20.328	0	20.3	0
HD4_P	2	20.623	0	20.278	0
HDMI0_KEC	2	106.336	0	106.294	0
HDMI0_CK_N	2	99.566	0	99.566	0
HDMI0_CK_P	2	99.477	0	99.588	0
HDMI0_D0_N	2	97.735	0	98.235	0
HDMI0_D0_P	2	97.641	0	98.2	0
HDMI0_D1_N	2	95.748	0	95.748	0
HDMI0_D1_P	2	95.726	0	95.751	0
HDMI0_D2_N	2	93.751	0	93.751	0
HDMI0_D2_P	2	93.676	0	93.713	0
HDMI0_HOTPLU	2	110.095	0	110.095	0
HDMI0_SCL	2	101.913	0	101.913	0
HDMI0_SDA	2	108.949	0	108.949	0
HDMI1_KEC	2	80.003	0	80.003	0
HDMI1_CK_N	2	73.398	0	73.398	0
HDMI1_CK_P	2	73.851	0	73.898	0
HDMI1_D0_N	2	71.459	0	71.459	0
HDMI1_D0_P	2	71.385	0	71.422	0
HDMI1_D1_N	2	69.462	0	69.462	0
HDMI1_D1_P	2	69.363	0	69.4	0
HDMI1_D2_N	2	67.524	0	67.524	0
HDMI1_D2_P	2	67.504	0	67.543	0
HDMI1_HOTPLU	2	82.982	0	82.929	0
HDMI1_SCL	2	82.58	0	82.58	0
HDMI1_SDA	2	82.168	0	82.168	0
HDMI1_5v	4	n/a	0	34.438	0
ID_SC	3	n/a	0	92.006	0



HD4_N	2	20.328	0	20.3	0
HD4_P	2	20.623	0	20.278	0
HDMI0_KEC	2	106.336	0	106.294	0
HDMI0_CK_N	2	99.566	0	99.566	0
HDMI0_CK_P	2	99.477	0	99.588	0
HDMI0_D0_N	2	97.735	0	98.235	0
HDMI0_D0_P	2	97.641	0	98.2	0
HDMI0_D1_N	2	95.748	0	95.748	0
HDMI0_D1_P	2	95.726	0	95.751	0
HDMI0_D2_N	2	93.751	0	93.751	0
HDMI0_D2_P	2	93.676	0	93.713	0
HDMI0_HOTPLU	2	110.095	0	110.095	0
HDMI0_SCL	2	101.913	0	101.913	0
HDMI0_SDA	2	108.949	0	108.949	0
HDMI1_KEC	2	80.003	0	80.003	0
HDMI1_CK_N	2	73.398	0	73.398	0
HDMI1_CK_P	2	73.851	0	73.898	0
HDMI1_D0_N	2	71.459	0	71.459	0
HDMI1_D0_P	2	71.385	0	71.422	0
HDMI1_D1_N	2	69.462	0	69.462	0
HDMI1_D1_P	2	69.363	0	69.4	0
HDMI1_D2_N	2	67.524	0	67.524	0
HDMI1_D2_P	2	67.504	0	67.543	0
HDMI1_HOTPLU	2	82.982	0	82.929	0
HDMI1_SCL	2	82.58	0	82.58	0
HDMI1_SDA	2	82.168	0	82.168	0
HDMI1_5v	4	n/a	0	34.438	0
ID_SC	3	n/a	0	92.006	0

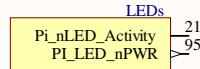
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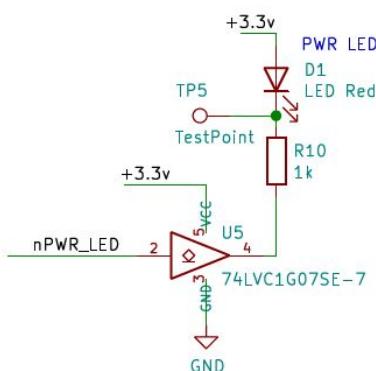
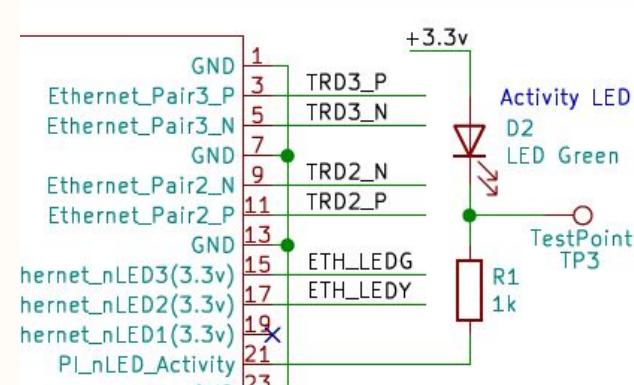
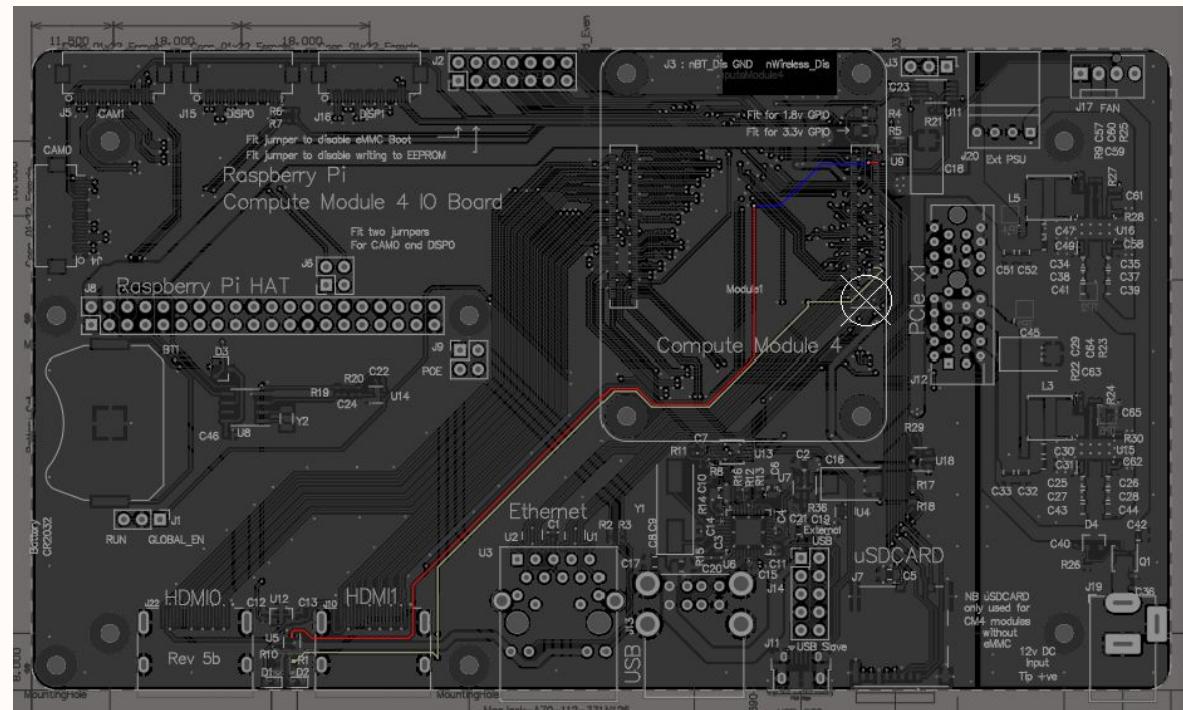
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CM4L
Pi_nLED_Activity
Low Active Pi Activity LED, 20mA Max 5V tolerant
(VOL<0.4V). (this is the signal that drives
the Green LED on the Raspberry Pi 4, Model B)



PL_LED_nPWR
Low active Output to drive Power On LED. This
signal needs to be buffered.

Raspberry Pi Compute Module 4



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3.0mm with mating connector (clearance under CM4 1.5mm): DF40HC(3.0)-100DS-0.4v

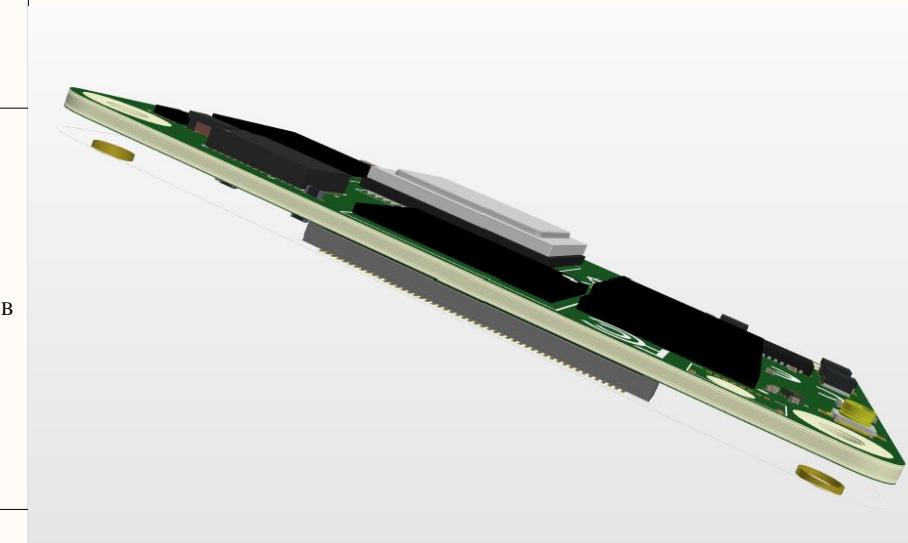
1.5mm with mating connector (clearance under CM4 0mm) : DF40C-100DS-0.4v

[DF40C-100DS-0.4V](#)

[DF40HC\(3.0\)-100DS-0.4V](#)

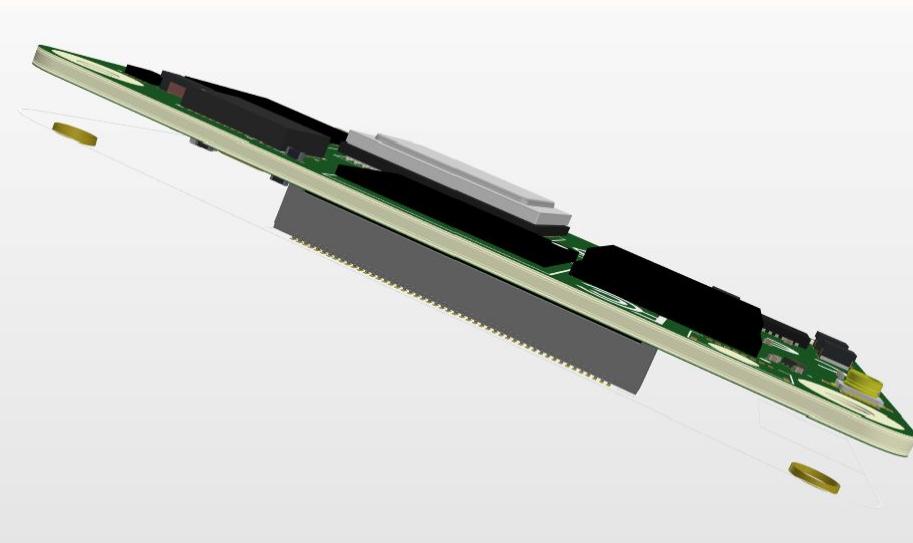
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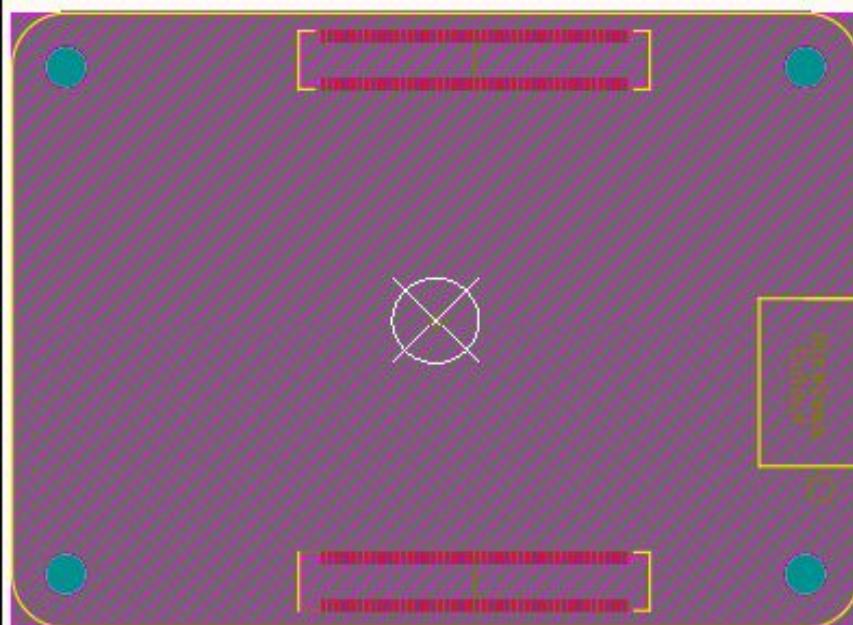
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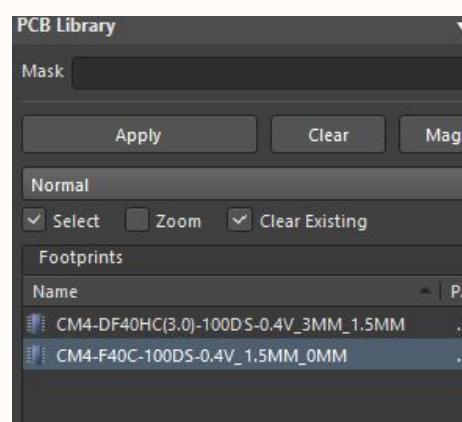
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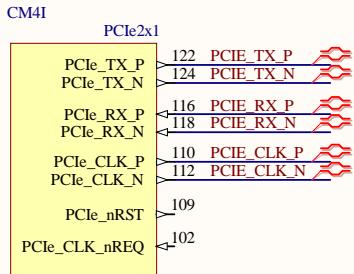
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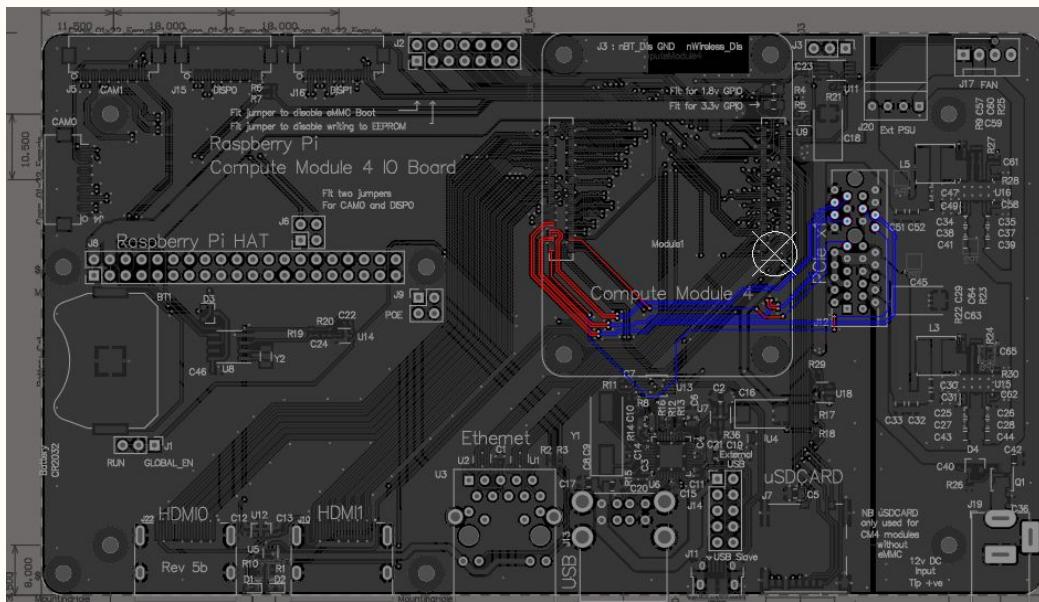
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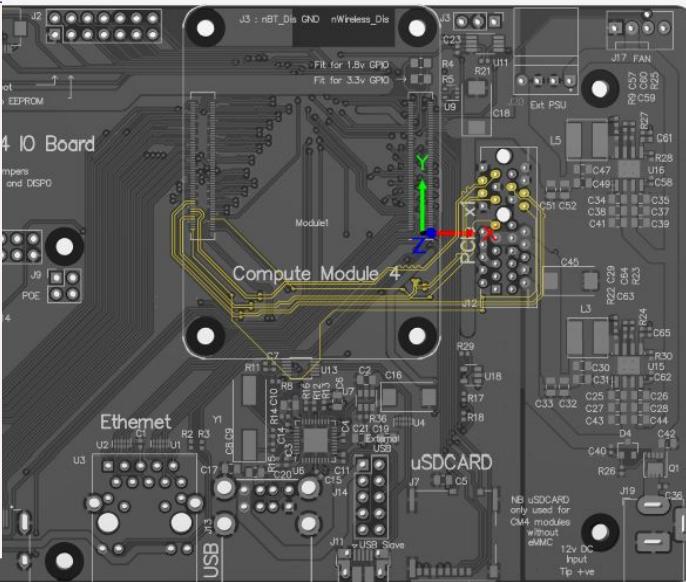
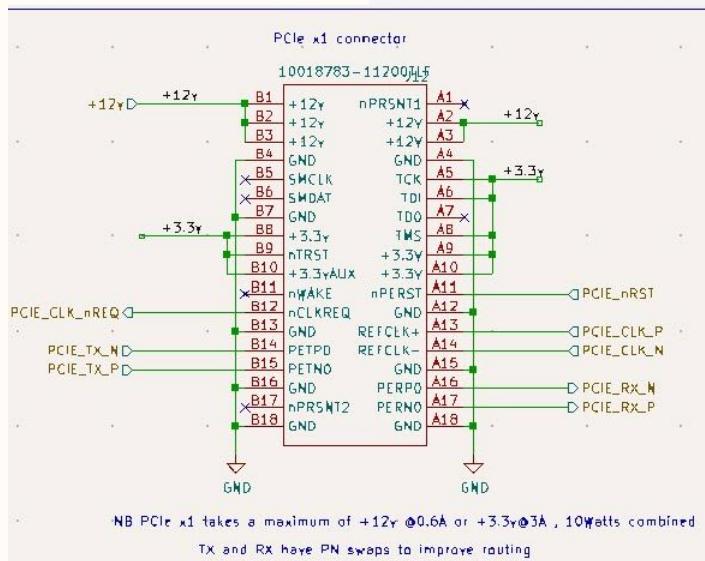
https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library



The CM4 has an internal PCIe 2.0 x1 host controller
[Raspberry Pi Compute Module 4](#)



Net-(U0-Pad0)	1	n/a	0	0	0
Net-(U11-Pad7)	1	n/a	0	0	0
Net-(U11-Pad8)	1	n/a	0	0	0
Net-(U18-Pad3)	1	n/a	0	0	0
nEXTST	2	75.015	0	75.015	0
nOCS1	5	n/a	0	19.571	0
nPWR_LED	2	131.048	0	131.048	0
nRPBOOT	2	76.413	0	76.413	0
nRTC_INT	3	n/a	0	12.045	0
PCIE_CLK_N	2	76.144	0	76.16	0
PCIE_CLK_nREC2	2	95.781	0	95.781	0
PCIE_CLK_P	2	76.188	0	76.188	0
PCIE_nRST	2	60.482	0	60.482	0
PCIE_RX_N	2	69.208	0	68.941	0
PCIE_RX_P	2	69.325	0	68.972	0
PCIE_TX_N	2	92.877	0	92.711	0
PCIE_TX_P	2	92.731	0	92.731	0
PWR1	2	11.666	0	11.54	0
RUN_PG	3	n/a	0	174.839	0
SCL0	5	n/a	0	209.886	0
SCL1	4	n/a	0	63.204	0
SDA0	5	n/a	0	203.153	0
SDA1	4	n/a	0	67.57	0
SD_CLK	2	69.601	0	69.601	0
SD_CMD	2	78.039	0	77.883	0
SD_DAT0	2	71.394	0	71.394	0
SD_DAT1	2	72.538	0	72.538	0
SD_DAT2	2	73.032	0	73.032	0
SD_DAT3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0



Net-(U11-Pad) 1	n/a	0	0	0
Net-(U11-Pad8) 1	n/a	0	0	0
Net-(U18-Pad3) 1	n/a	0	0	0
nEXTRST	2	75.015	0	75.015
nOCS1	5	n/a	0	19.571
nPWR_LED	2	131.048	0	131.048
nRPIBOOT	2	76.413	0	76.413
nRTC_INT	3	n/a	0	12.045
PCIE_CLK_N	2	76.144	0	76.16
PCIE_CLK_nREC	2	95.781	0	95.781
PCIE_CLK_P	2	76.188	0	76.188
PCIE_nRS1	2	60.482	0	60.482
PCIE_RX_N	2	69.208	0	68.941
PCIE_RX_P	2	69.325	0	68.972
PCIE_TX_N	2	92.877	0	92.711
PCIE_TX_P	2	92.731	0	92.731
PWR1	2	11.666	0	11.54
RUN_PG	3	n/a	0	174.839
SCLO	5	n/a	0	209.886
SCL1	4	n/a	0	63.204
SDA0	5	n/a	0	203.153
SDA1	4	n/a	0	67.57
SD_CLK	2	69.601	0	69.601
SD_CMD	2	78.039	0	77.883
SD_DATO	2	71.394	0	71.394
SD_DAT1	2	72.538	0	72.538
SD_DAT2	2	73.032	0	73.032
SD_DAT3	2	71.768	0	71.768
SD_DET	2	61.045	0	61.045
SD_PWR	3	n/a	0	35.645
SD_PWR_ON	3	n/a	0	39.111

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library
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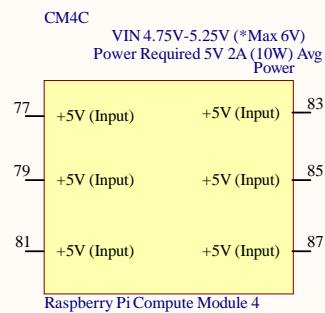
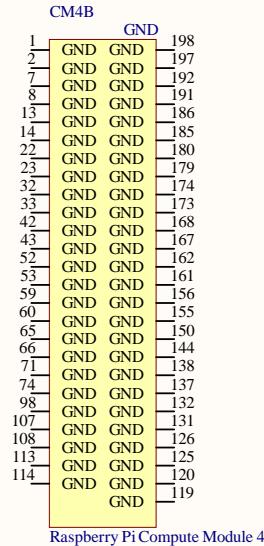
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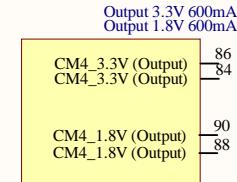
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CM4Q
 3.3V +/-2.5% Power Output max 300mA per pin for a total of 600mA. This will be powered down during power off or GLOBAL_EN being set low



1.8V +/-2.5% Power Output max 300mA per pin for a total of 600mA. This will be powered down during power off or GLOBAL_EN being set low
 Raspberry Pi Compute Module 4

Title: *	Size: A4	Number: *	Revision: *	Q-Wave Systems Co.,Ltd 65/2 Moo 1 Beung Sriracha Chonburi Thailand	Q-WAVE SYSTEMS
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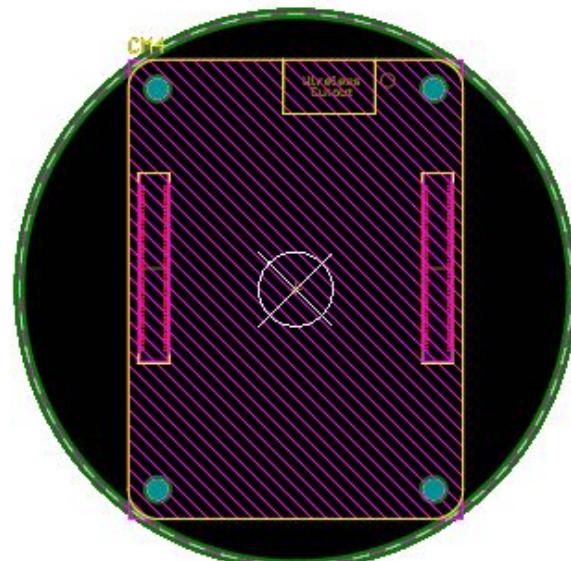
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https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

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Impedance	3GHz						
A	1	50	Single	Bottom	Calculated Impedance (Ω) 50.0000	Trace Width (mm) 0.13294	Reference Resist.
	2	50	Single	Signal	50.0000	0.17925	GND2
	3	50	Single	Top	50.0000	0.131	GND1
	10	90	304T pass	Bottom	89.9901	0.23497	GND2
	11	90	304T pass	Signal	89.9809	0.17046	2.2%
	12	90	304T pass	Top	89.9901	0.23497	GND1
	13	100	304T pass	Bottom	100.0045	0.17134	2.2%
	14	100	304T pass	Signal	100.0019	0.16246	2.2%
	15	100	304T pass	Top	100.0045	0.17134	GND1



#	Name	Material	Type	Weight	Thickness	Dk	Copper Orient...
	Top Overlay		Overlay				
	Top Solder	SM-001	Solder Mask		0.0254mm	4	
	Top Surface Fini...	Nickel, Gold	Surface Finish		0.004mm		
1	Top	CF-005	Signal	2oz	0.07mm		Above
	7628_PP1	PP-S1000H	Prepreg		0.215mm	4.58	
2	GND1	CF-005	Plane	2oz	0.07mm		Below
	2x2116_Core1	Core-S1000H	Core		0.24mm	4.48	
3	Power	CF-005	Signal	2oz	0.07mm		Below
	7628_PP2	PP-S1000H	Prepreg		0.215mm	4.58	
4	Signal	CF-005	Signal	2oz	0.07mm		Above
	2x2116_Core2	Core-S1000H	Core		0.24mm	4.48	
5	GND2	CF-005	Plane	2oz	0.07mm		Above
	7628_PP3	PP-S1000H	Prepreg		0.215mm	4.58	
6	Bottom	CF-005	Signal	2oz	0.07mm		Below
	Bottom Surface...	Nickel, Gold	Surface Finish		0.004mm		
	Bottom Solder	SM-001	Solder Mask		0.0254mm	4	
	Bottom Overlay		Overlay				

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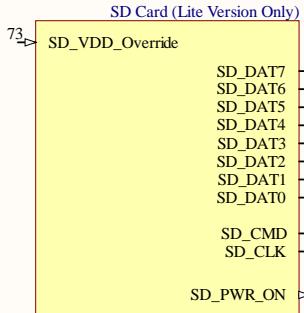
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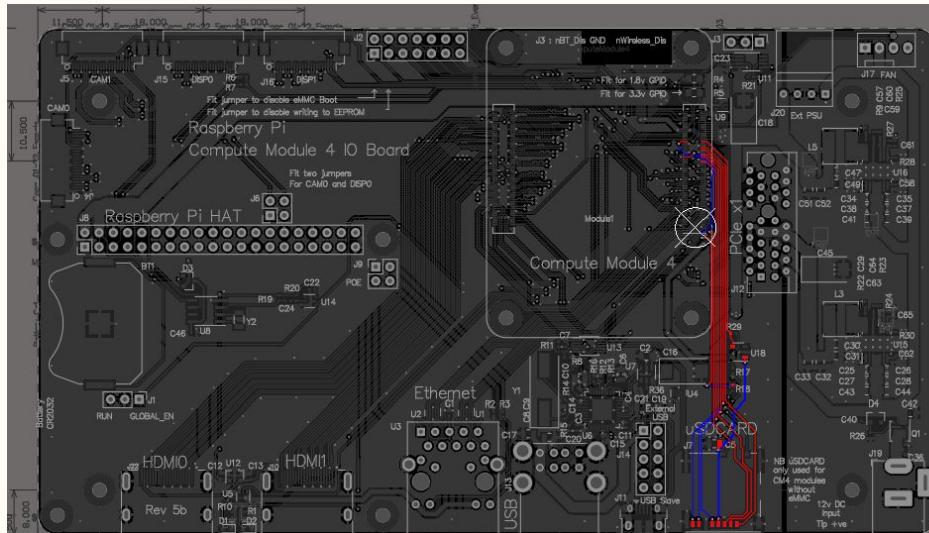
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CM4J

When SD_VDD_override is high, this signal is used to force 1.8v signalling on the SDIO interface. Typically this is used with eMMC memory

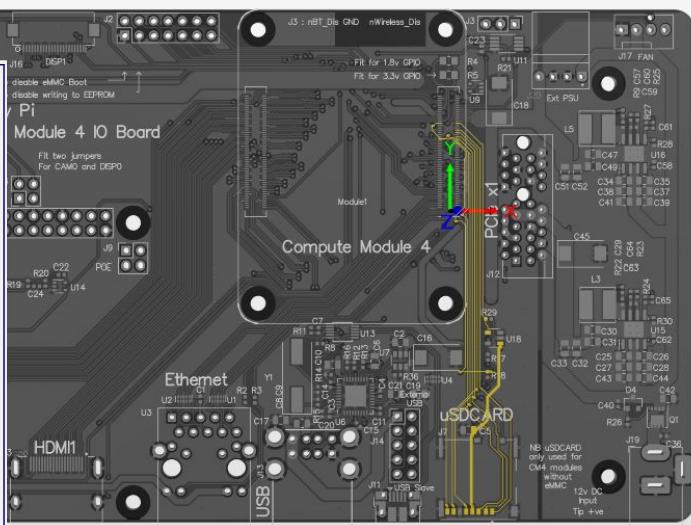
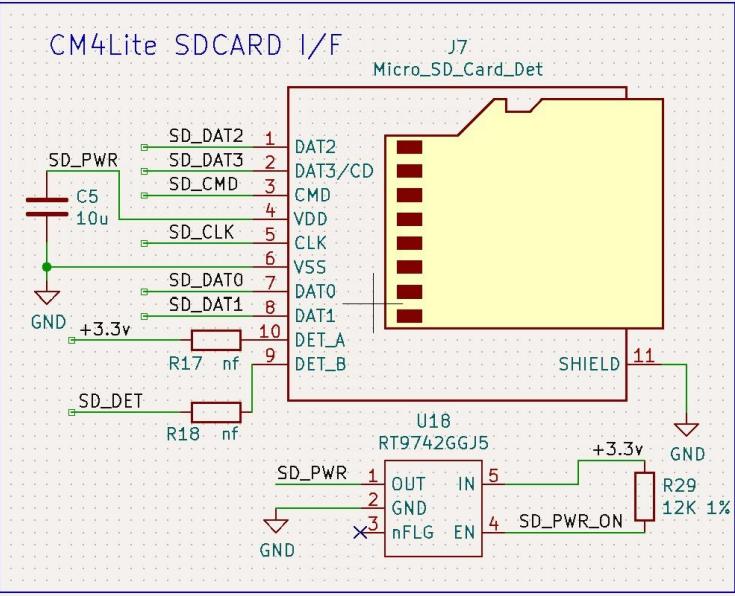


The SD_PWR_ON signal is used to enable an external power switch to turn on power to the SDCARD



RPWLED	2	T51.048	0	76.413	0
nRPIBOOT	2	76.413	0	76.413	0
nRTC_INT	3	n/a	0	12.045	0
PCIE_CLK_N	2	76.144	0	76.16	0
PCIE_CLK_nREC_2	2	95.781	0	95.781	0
PCIE_CLK_P	2	76.188	0	76.188	0
PCIE_nRST	2	60.482	0	60.482	0
PCIE_RX_N	2	69.208	0	68.941	0
PCIE_RX_P	2	69.325	0	68.972	0
PCIE_TX_N	2	92.877	0	92.711	0
PCIE_TX_P	2	92.731	0	92.731	0
PWR1	2	11.666	0	11.54	0
RUN_PG	3	n/a	0	174.839	0
SCL0	5	n/a	0	209.886	0
SCL1	4	n/a	0	63.204	0
SDA0	5	n/a	0	203.153	0
SDA1	4	n/a	0	67.57	0
SD_CLK	2	69.601	0	69.601	0
SD_CMD	2	78.039	0	77.883	0
SD_DATA0	2	71.394	0	71.394	0
SD_DATA1	2	72.538	0	72.538	0
SD_DATA2	2	73.032	0	73.032	0
SD_DATA3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0
SYNC_IN	2	67.784	0	67.784	0
SYNC_OUT	2	61.152	0	61.152	0
TR0_TAP	2	35.215	0	34.513	0
TR1_TAP	2	65.417	0	65.185	0
TR2_TAP	2	72.163	0	77.868	0
TR3_TAP	2	40.873	0	42.917	0

Raspberry Pi Compute Module 4 Reference Circuit from CMIO4



nRTC_INT	3	n/a	0	12.045	0
PCIE_CLK_N	2	76.144	0	76.16	0
PCIE_CLK_nREC_2	2	95.781	0	95.781	0
PCIE_CLK_P	2	76.188	0	76.188	0
PCIE_nRST	2	60.482	0	60.482	0
PCIE_RX_N	2	69.208	0	68.941	0
PCIE_RX_P	2	69.325	0	68.972	0
PCIE_TX_N	2	92.877	0	92.711	0
PCIE_TX_P	2	92.731	0	92.731	0
PWR1	2	11.666	0	11.54	0
RUN_PG	3	n/a	0	174.839	0
SCL0	5	n/a	0	209.886	0
SCL1	4	n/a	0	63.204	0
SDA0	5	n/a	0	203.153	0
SDA1	4	n/a	0	67.57	0
SD_CLK	2	69.601	0	69.601	0
SD_CMD	2	78.039	0	77.883	0
SD_DATA0	2	71.394	0	71.394	0
SD_DATA1	2	72.538	0	72.538	0
SD_DATA2	2	73.032	0	73.032	0
SD_DATA3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0
SYNC_IN	2	67.784	0	67.784	0
SYNC_OUT	2	61.152	0	61.152	0
TR0_TAP	2	35.215	0	34.513	0
TR1_TAP	2	65.417	0	65.185	0
TR2_TAP	2	72.163	0	77.868	0
TR3_TAP	2	40.873	0	42.917	0

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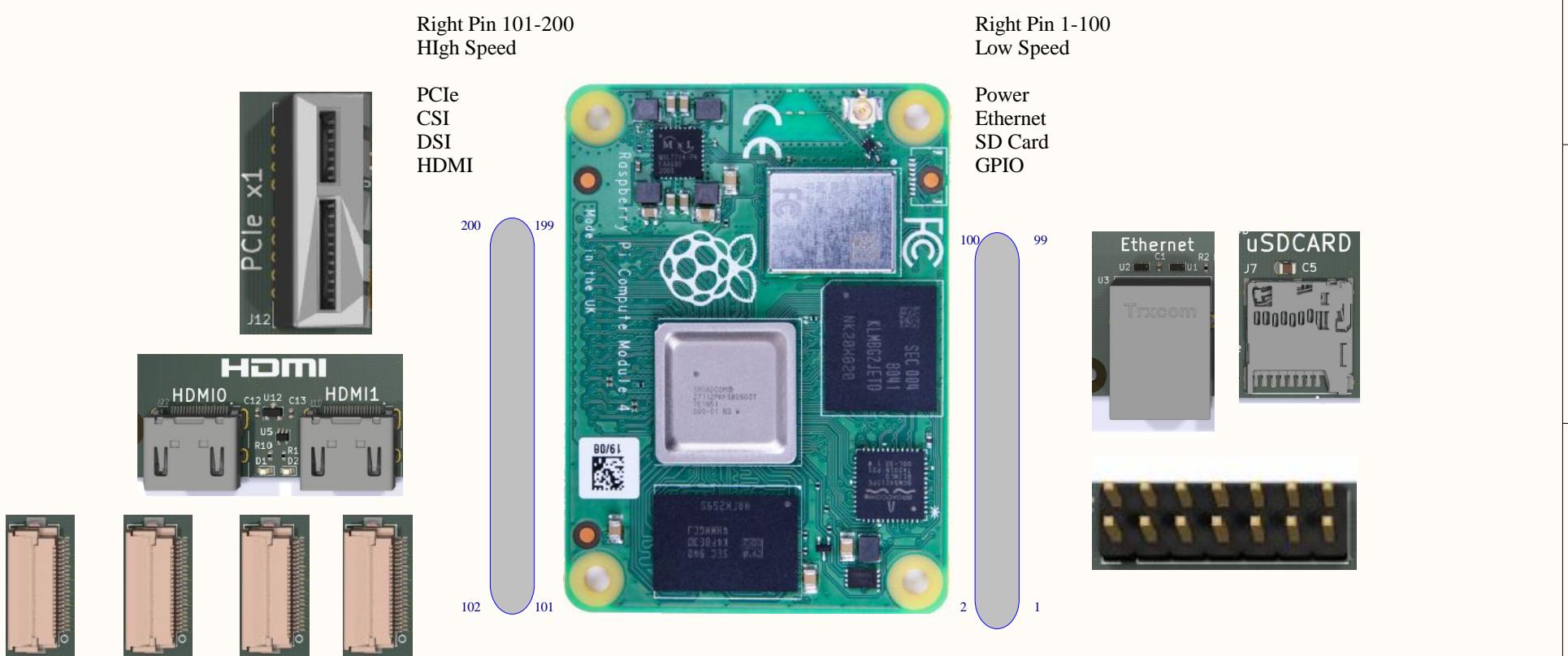
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The CM4 is a compact $40 \times 55\text{mm}$ module. The Module is 4.7mm deep, but when connected the height will be 5.078 or

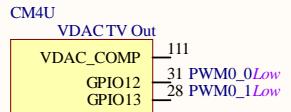
6.578 mm depending on the stacking height chosen.

1. $4 \times M2.5$ Mounting holes (inset 3.5mm from module edge)
2. PCB thickness $1.2\text{mm} \pm 10\%$
3. BCM2711 SOC height including solder balls $2.378 \pm 0.11\text{mm}$
4. Stacking height either:
 - a. 1.5mm with mating connector (clearance under CM4 0mm) : DF40C-100DS-0.4v
 - b. 3.0mm with mating connector (clearance under CM4 1.5mm): DF40HC(3.0)-100DS-0.4v

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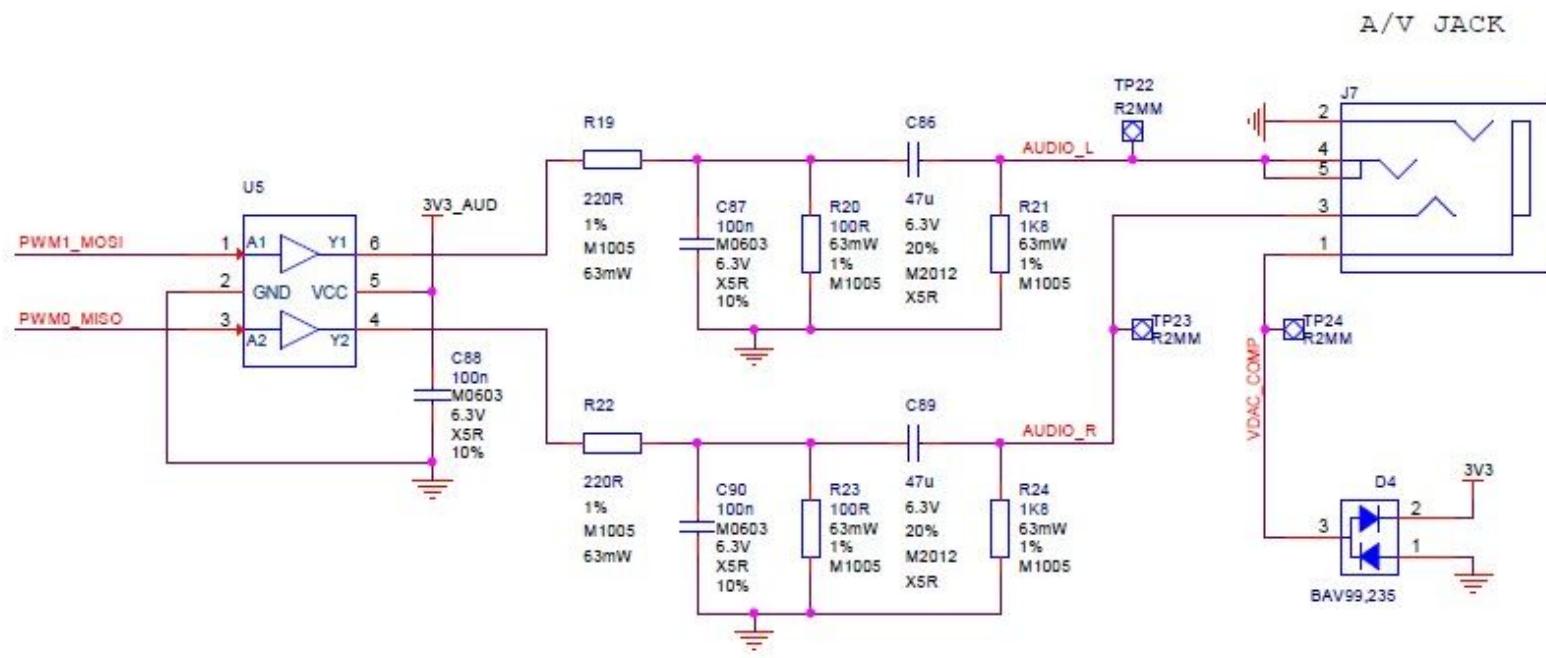
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Video DAC output (TV OUT)
Can be use following pins for PWM signal
PWM0_0 = GPIO12
PWM0_1 = GPIO13

Raspberry Pi Compute Module 4

Reference Circuit from Raspberry Pi 4B



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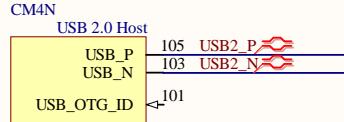
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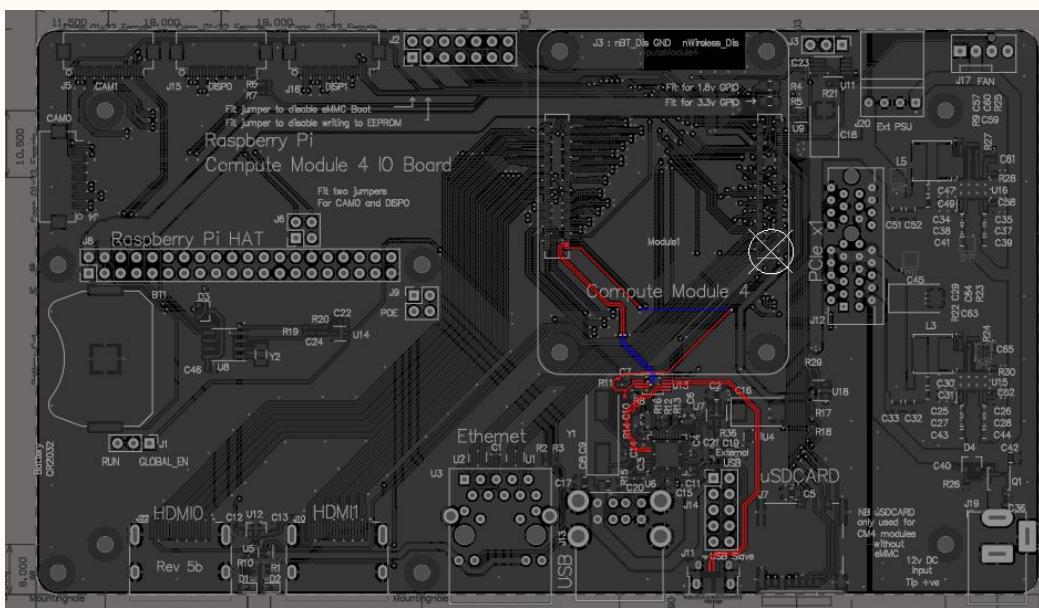
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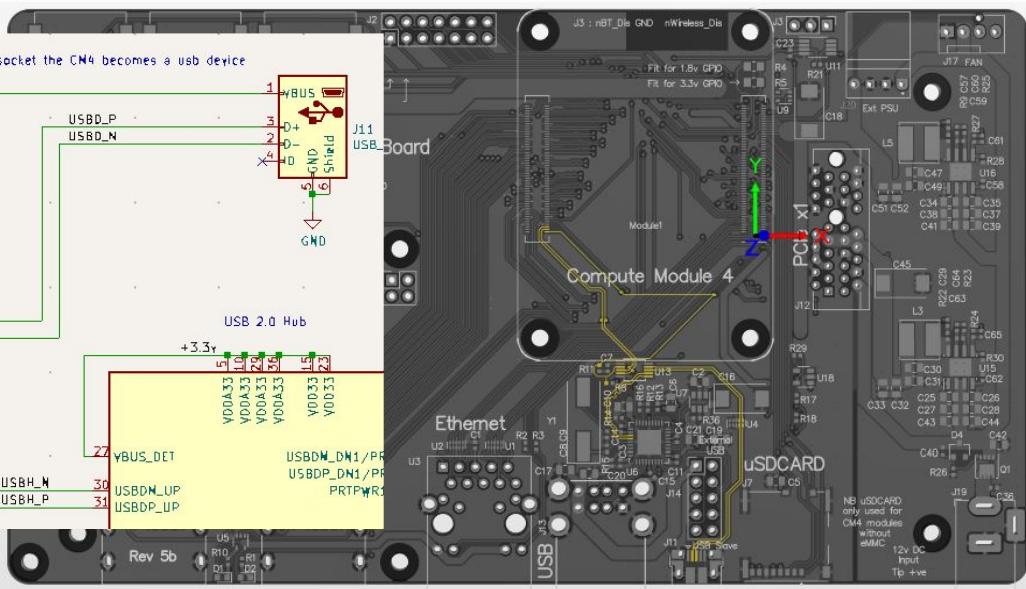
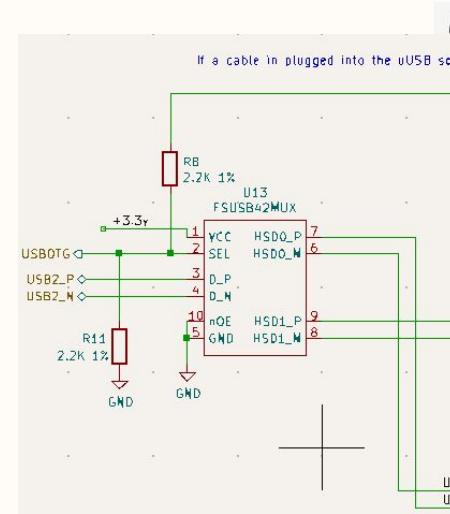
Input (3.3V signal) USB OTG Pin. Internal pulled up.
When grounded the CM4 becomes a
USB host but the correct OS driver also needs to be used

Raspberry Pi Compute Module 4



A

SD_DAT0	2	71.394	0	71.394	0
SD_DAT1	2	72.538	0	72.538	0
SD_DAT2	2	73.032	0	73.032	0
SD_DAT3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0
SYNC_IN	2	67.784	0	67.784	0
SYNC_OUT	2	61.152	0	61.152	0
TR0_TAP	2	35.215	0	34.513	0
TR1_TAP	2	65.417	0	65.185	0
TR2_TAP	2	72.163	0	77.868	0
TR3_TAP	2	40.873	0	42.917	0
TRD0_N	4	n/a	0	66.697	0
TRD0_P	4	n/a	0	67.37	0
TRD1_N	4	n/a	0	69.71	0
TRD1_P	4	n/a	0	68.881	0
TRD2_N	4	n/a	0	64.884	0
TRD2_P	4	n/a	0	65.432	0
TRD3_N	4	n/a	0	64.291	0
TRD3_P	4	n/a	0	63.603	0
TV_OUT	2	57.654	0	57.639	0
USB2_N	2	34.71	0	34.71	0
USB2_P	2	34.71	0	34.71	0
USBD_N	4	n/a	0	45.538	0
USBD_P	4	n/a	0	45.53	0
USBH_N	2	17.175	0	17.183	0
USBH_P	2	17.256	0	17.203	0
USBOTG	4	n/a	0	63.386	0
VBUS	10	n/a	0	73.427	0
WL_nDis	2	24.537	0	24.537	0



SD_DAT1	2	72.538	0	72.538	0
SD_DAT2	2	73.032	0	73.032	0
SD_DAT3	2	71.768	0	71.768	0
SD_DET	2	61.045	0	61.045	0
SD_PWR	3	n/a	0	35.645	0
SD_PWR_ON	3	n/a	0	39.111	0
SYNC_IN	2	67.784	0	67.784	0
SYNC_OUT	2	61.152	0	61.152	0
TR0_TAP	2	35.215	0	34.513	0
TR1_TAP	2	65.417	0	65.185	0
TR2_TAP	2	72.163	0	77.868	0
TR3_TAP	2	40.873	0	42.917	0
TRD0_N	4	n/a	0	66.697	0
TRD0_P	4	n/a	0	67.37	0
TRD1_N	4	n/a	0	69.71	0
TRD1_P	4	n/a	0	68.881	0
TRD2_N	4	n/a	0	64.884	0
TRD2_P	4	n/a	0	65.432	0
TRD3_N	4	n/a	0	64.291	0
TRD3_P	4	n/a	0	63.603	0
TV_OUT	2	57.654	0	57.639	0
USB2_N	2	34.71	0	34.71	0
USB2_P	2	34.71	0	34.71	0
USBD_N	4	n/a	0	45.538	0
USBD_P	4	n/a	0	45.53	0
USBH_N	2	17.175	0	17.183	0
USBH_P	2	17.256	0	17.203	0
USBOTG	4	n/a	0	63.386	0
VBUS	10	n/a	0	73.427	0
WL_nDis	2	24.537	0	24.537	0

https://github.com/QWaveSystems/QWAVE_Raspberry-Pi-CM4-Altium-Library

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