



BIGTREE TECH

深圳市必趣科技3D打印机G0B1项目



BIGTREE TECH


BIGTREETECH_Manta_M4P_V2.0_220506

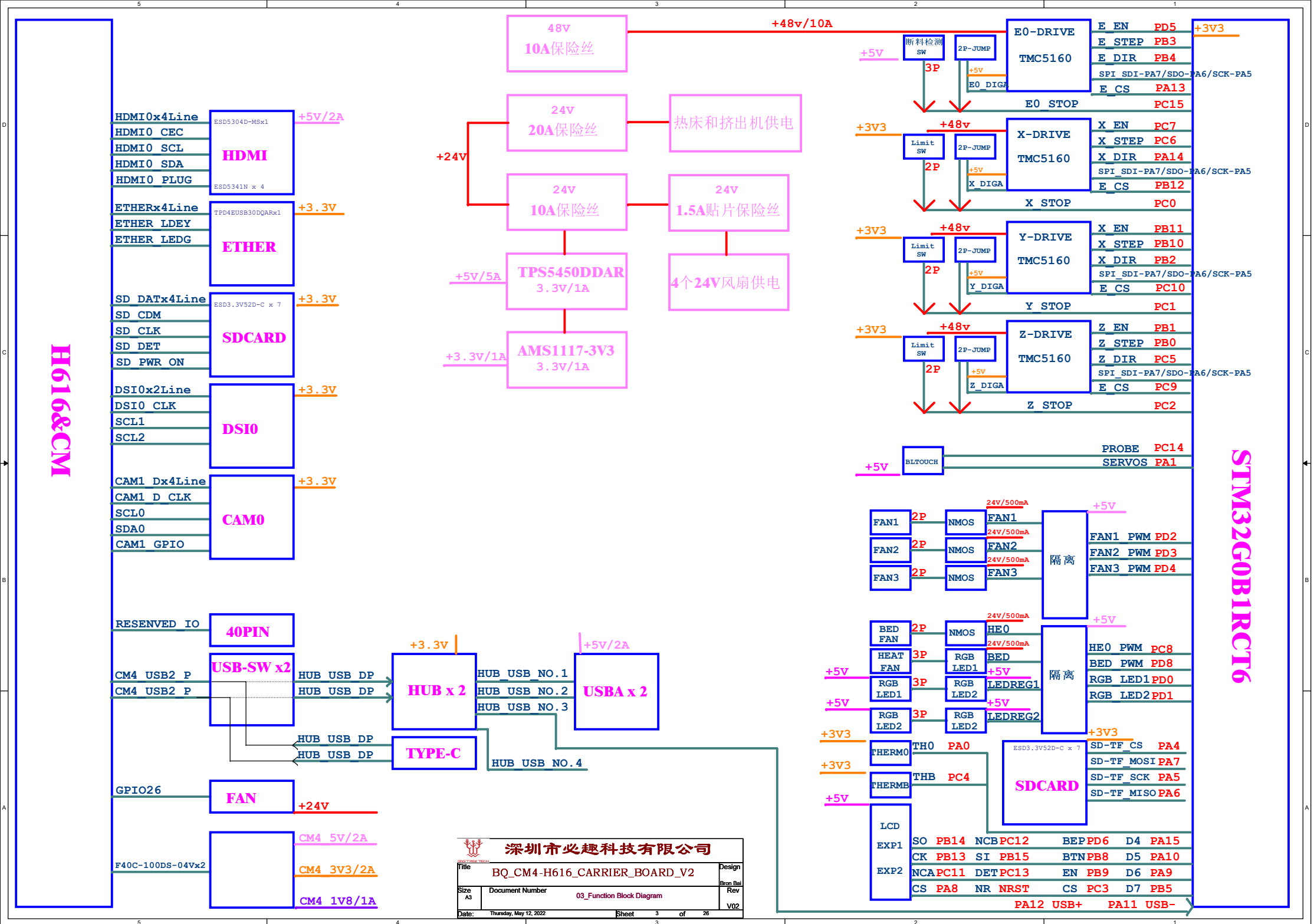
MCU: STM32G0B1RCT6
MODULE: RPI-CM4Lite-R1-3 or H616
DCDC: TPS5450DDAR
LDO: AMS1117-3V3
DIRVE: TMC5160
USB_HUB: FE1-1S-QFN28BCN

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Title	
BQ_CM4-H616_CARRIER_BOARD_V2	
Design	
Bron Bai	
Rev	
V02	
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A	01_Cover Page
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- 24_CM4-H616_USB-OTG

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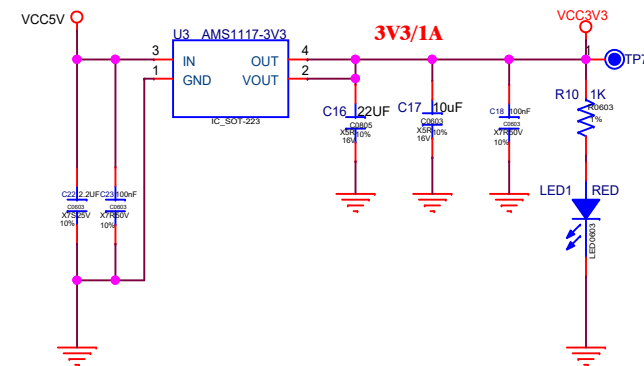
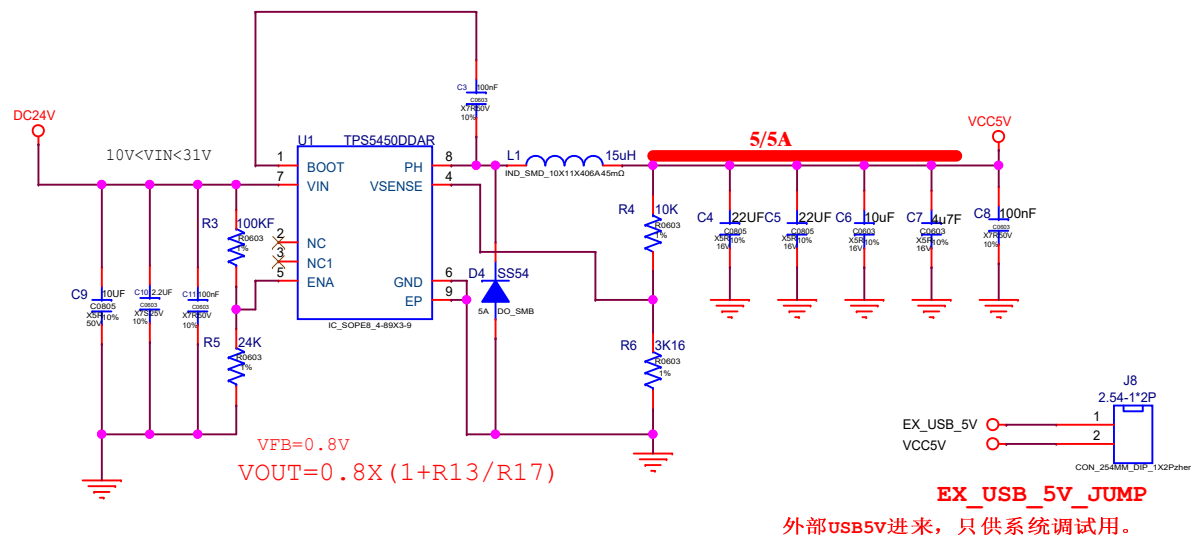
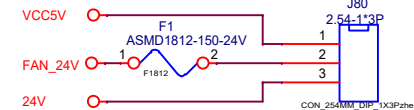
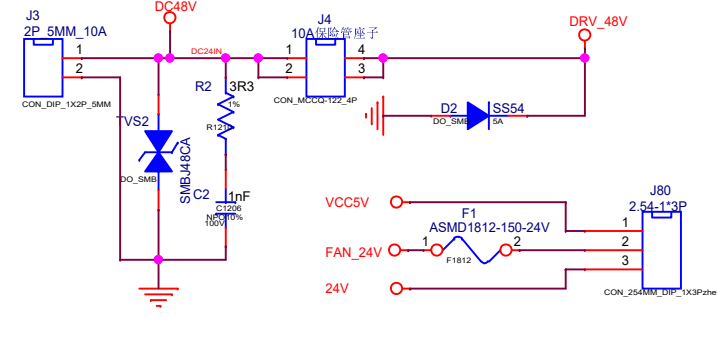
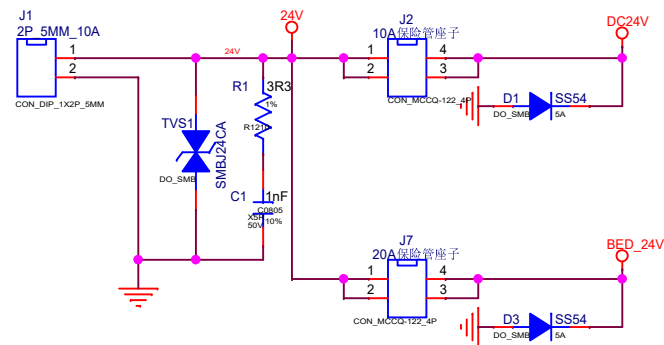
Revision History

Version	Date	Author	Change Note	Approved
V01	2022.01.06	Byron Bai	1. BTT E3 SKR MINI V3.0的基础上修改 。 2. 树莓派模组RPI-CM4Lite-R1-3作为核心算发板。 3. 所有的IO口保护由压敏电阻改为ESD。 3. 所有的器件增加描述、厂商PN、厂商名称等。 <div>注：V02只是修改PCB外形</div>	
M4P_V1.0	2022.03.30	Byron Bai	<div>MCU</div> <div>1. X轴的 CS 和 DIR 所用的 MCU 的 IO 交换一下。（即X轴的DIR和下载口 SWCLK复用，之前CS和下载口SWCLK不在一起复用，单IO口使用）。</div> <div>2. SPI1 的 MISO, MOSI, SCK 没有连接到MCU上（与板载的 MicroSD 卡公用，即TMC5160的SPI1 MISO, SPI1 MOSI, SPI1 SCK, 分别用SD-TF MOSI 【PA7】 SD-TF MISO 【PA6】 SD-TF CS 【PA5】连接；J58 的SPI1 MISO, SPI1 MOSI, SPI1 SCK也是如此连接）。</div> <div>3. 增加驱动高低压选择跳线帽没有 24V和48V转换。加2.54mm3P插针。</div> <div>4. 更改RGB 线序。正常的是 5V 信号线。（已经更改）。</div> <div>5. 驱动的 CS (UART) 脚没有隔离。用MOS+3个10电阻。</div> <div>6. 改变热床、挤出机的开关NMOS封装为DFN和TO252。</div> <div>7. 风扇的保险改为3A/F1812。</div> <div>SoC</div> <div>1. CSI、DSI 改为15pin 1.0mm间距，全部都用2Line 【 朝上接】</div> <div>2. USB hub 换封装为QFN24。</div> <div>3. CM4和H616统一改为 USB hub 挂载 USB 设备。</div> <div>4. HDMI旁边要放USB，使用HDMI屏幕时插USB触摸用的。</div> <div>5. 40pin GPIO尽量保留并且与树莓派线序一致。尽量。</div> <div>6. 取消PCIE和PCIE 12V DCDC。图纸P6&P17，待决定。</div> <div>7. 取消J73，只保留nRFIBOOT EEPROM nWP增加拨码开关，GLOBAL_EN加个上拉电阻 (NC) RUN_PG加个下拉电阻 (NC)。</div> <div>8.取消RTC。图纸P25。</div> <div>9.取消HUB的灯。图纸P20。</div> <div>10.HOST USB去掉一个电解电容。</div> <div>11.取消HUB电源开关。</div> <div>注：第三版由"BQ_CM4-H616_Carrier_Board_v2"更改为"BIGTREETECH_Manta_M4P_V1"</div>	
M4P_V2.0	2022.05.06	Byron Bai	1. TF CARD电源由CM4SD 3v3变更为"CM4_3V3"; 2. 变更J75的支持A型USB直插座子封装。 3. 变更了USB开关，电压启动方式。 4. 变更了J63右边的孔径，跟板厂沟通要走正公差。 5. J48/J51/J1/J3的1.1mm孔径不变，跟板厂沟通要走正公差。 7. J46由3PIN插针更改为3P 2.54mm插座。 8. J59 78PIN, 连接CM4_3V3.供CM4内部3.3v参考电压,同时核心板H616_PC16NC。 9. 电机使能R150,R154,R153,R159由下拉变更为上拉 3.3V。 10. Q7,Q15,Q10,Q11,Q12,Q13,源极上拉由10K 变更为 0R. 源极下拉和漏极上拉由10K变更为 1.8 K。 11. HUB U16的晶振电容贴错，拆掉保留位置，预留12PF负载电容位置。 12. DSI插座和CSI插座，增加丝印标识。 13. Q14 R161接"HEATING"这端变更为接地下拉。	



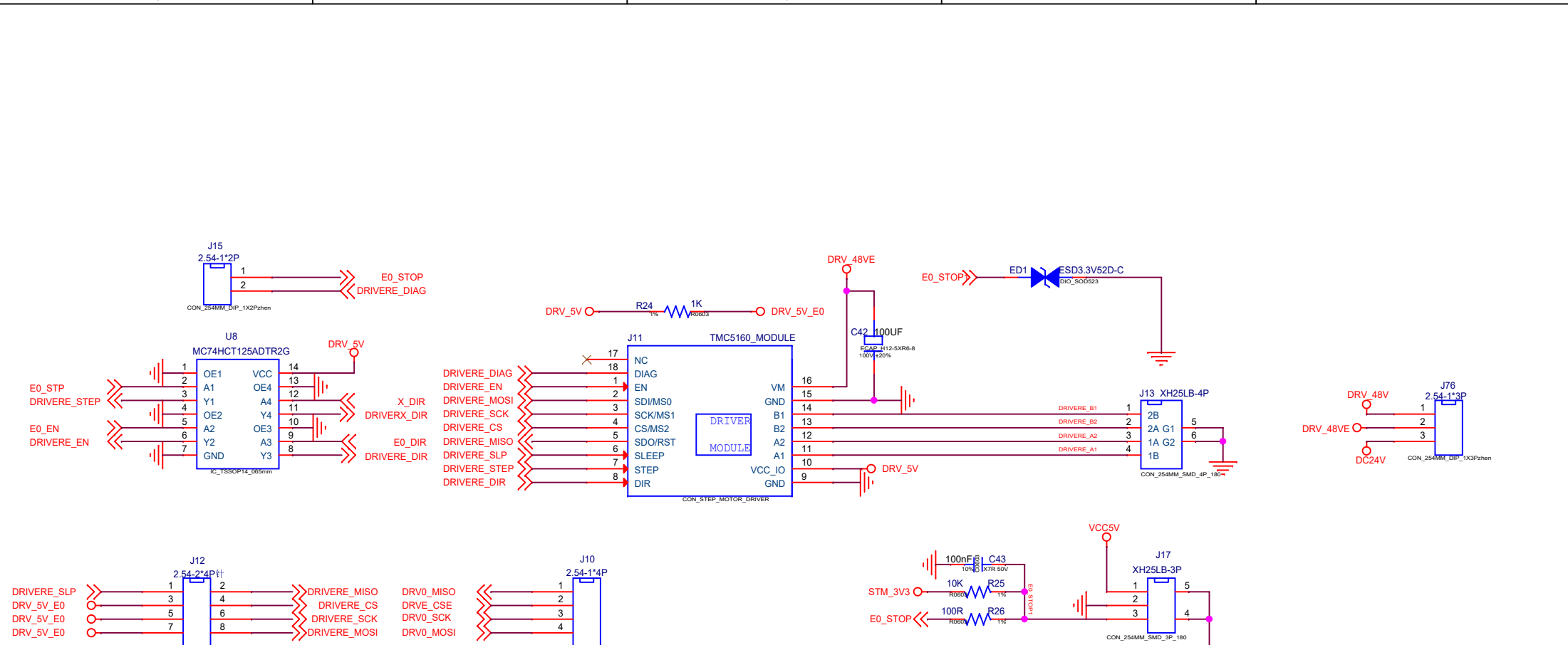
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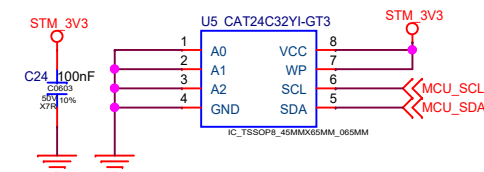
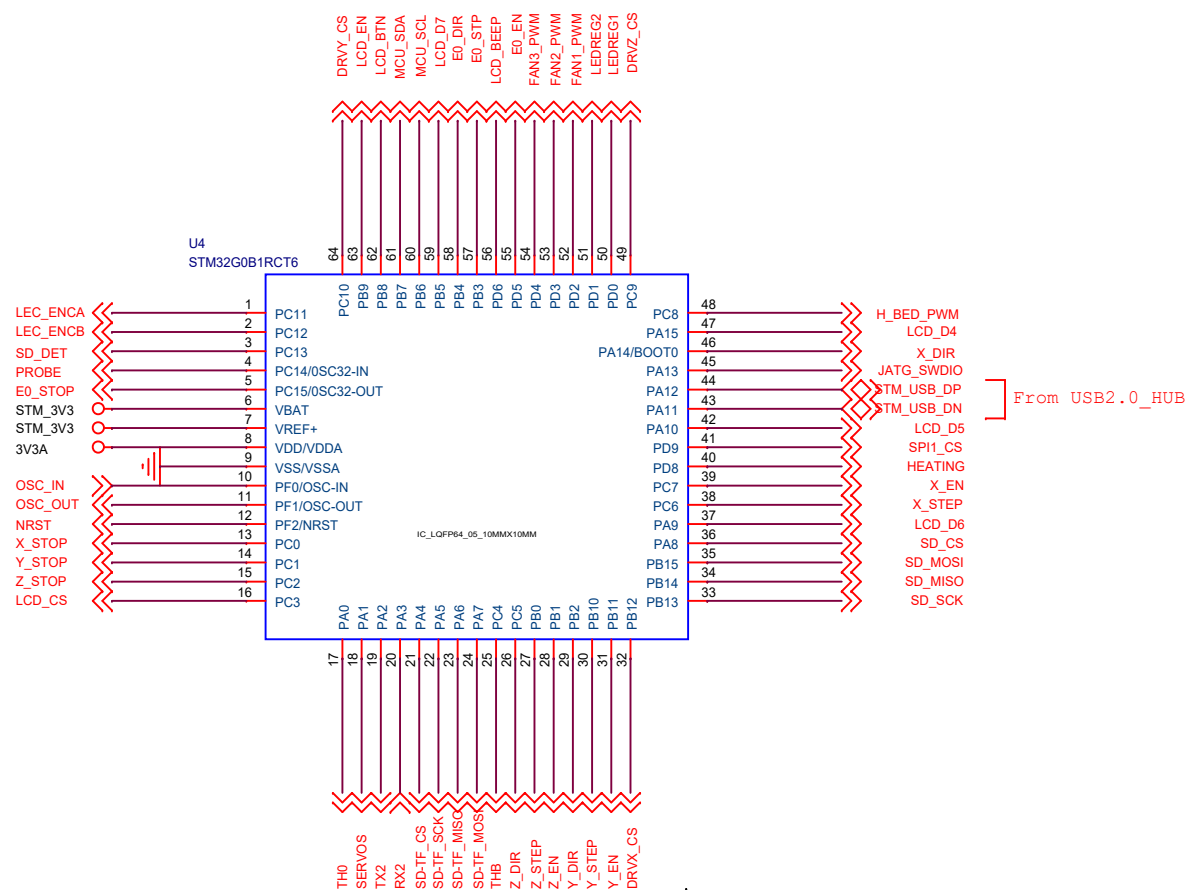


JUMP

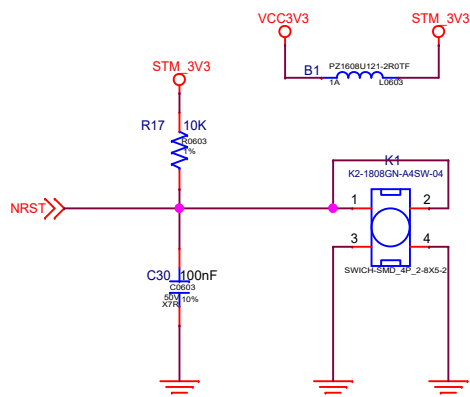
挤出电机驱动

断物料检测

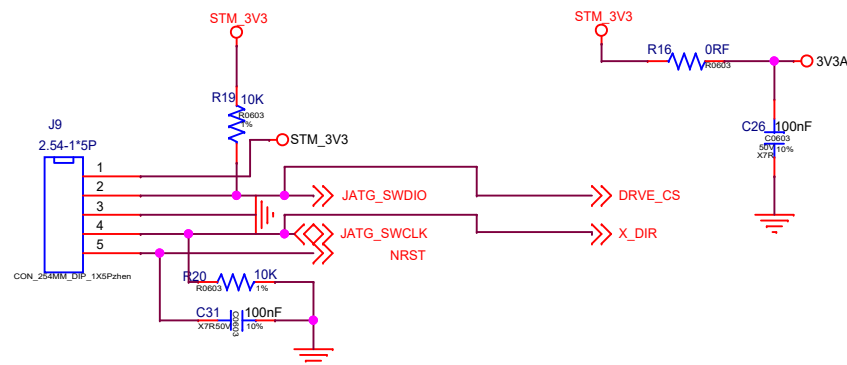
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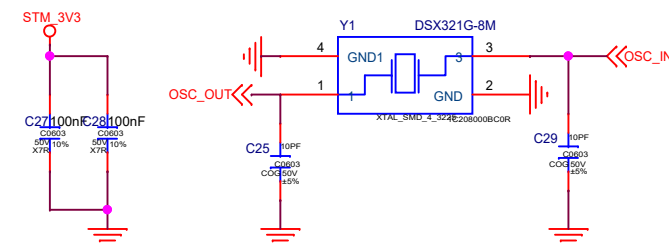
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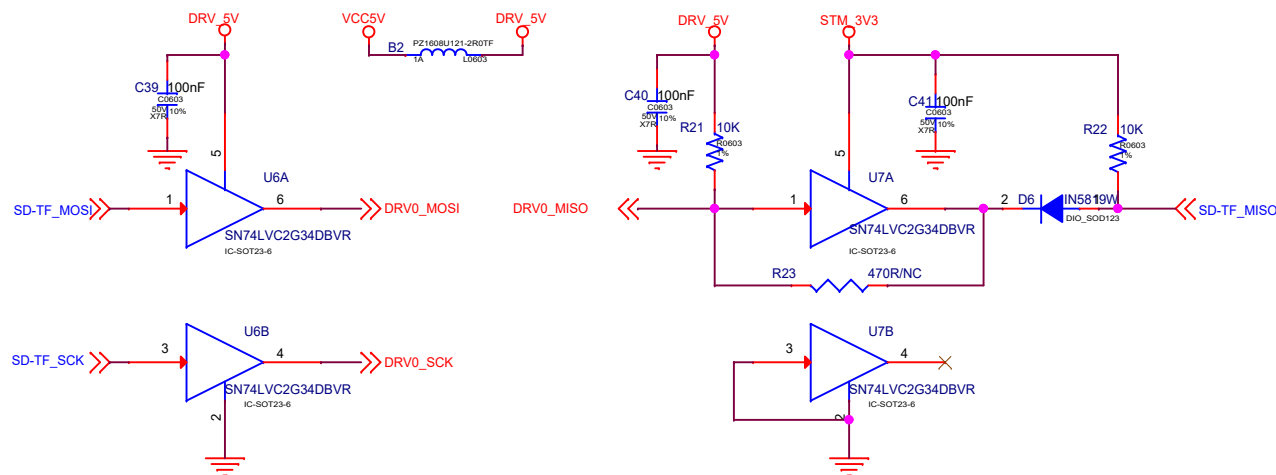
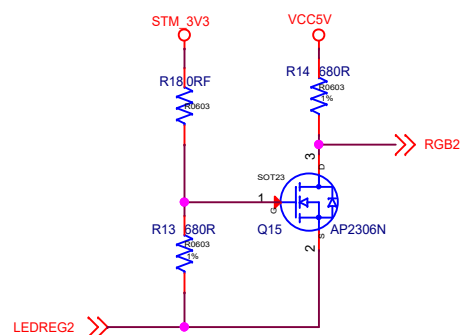


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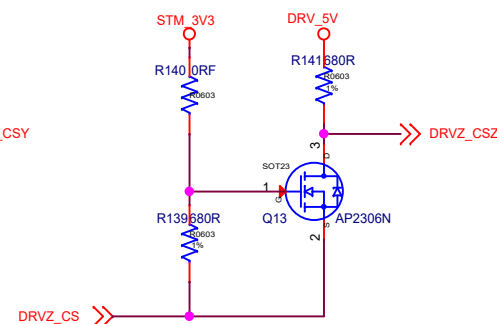
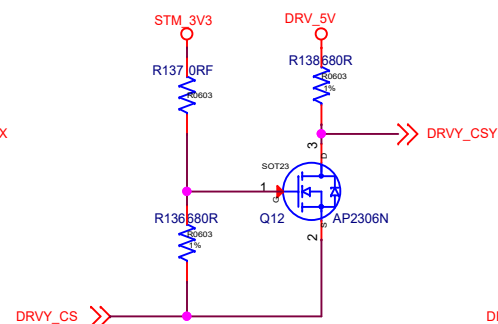
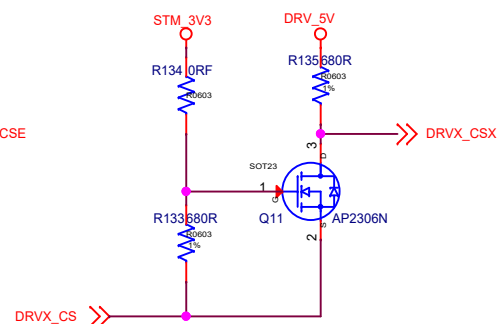
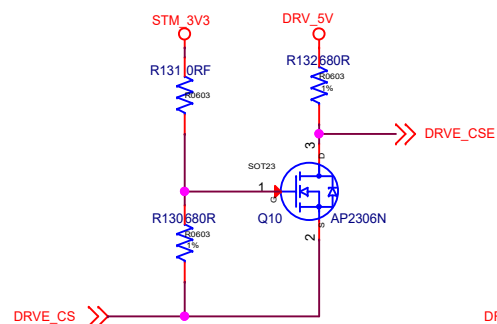


DONWLOAD





TMC5160 SPI IO转换

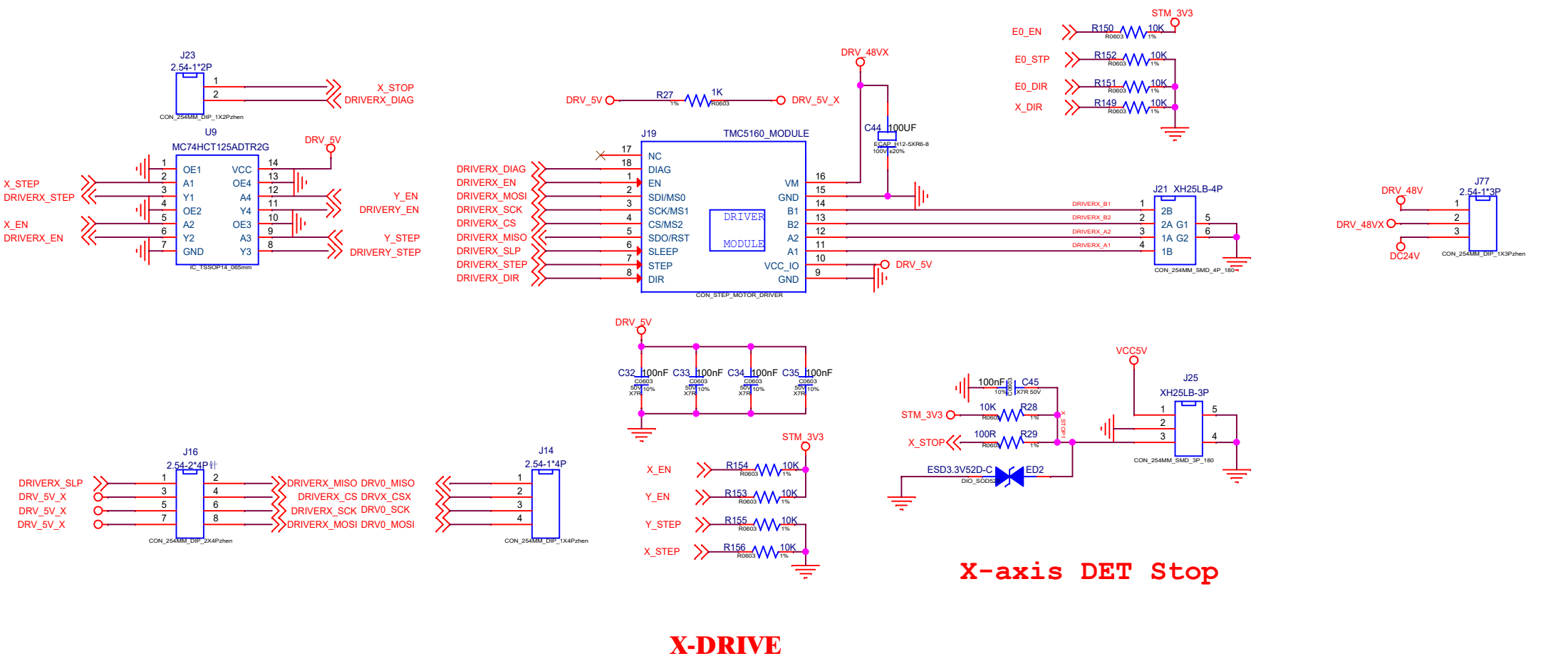


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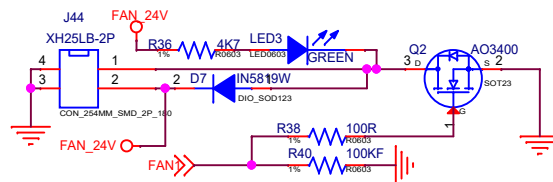
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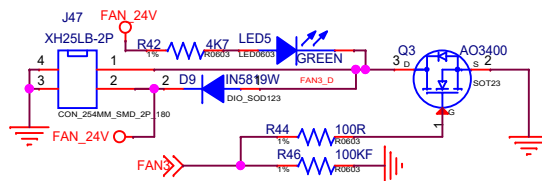


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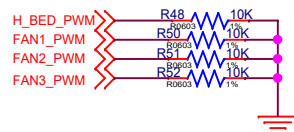
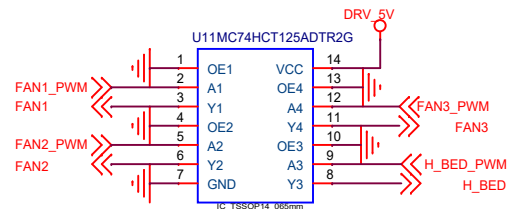
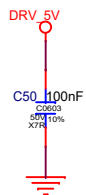




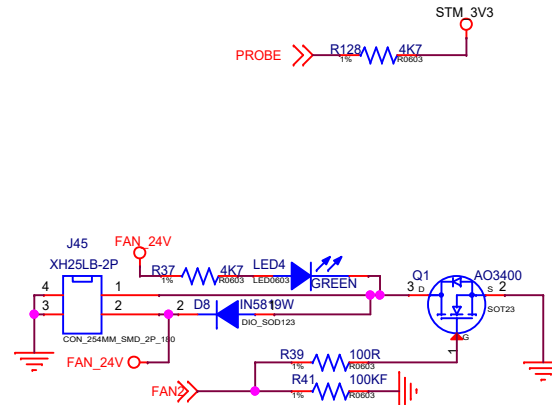
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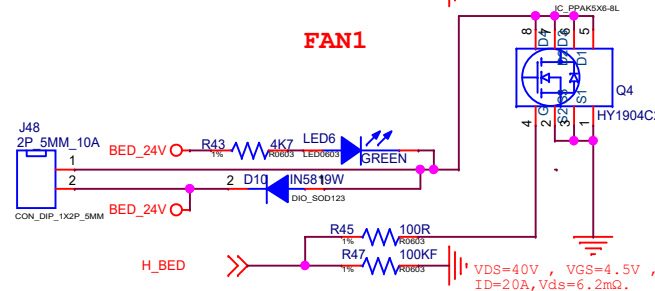
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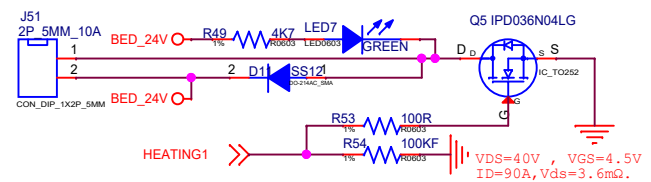
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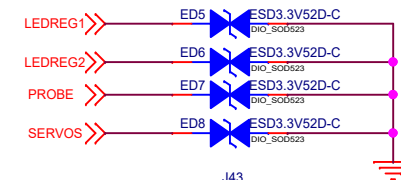
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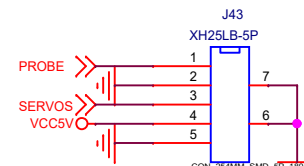
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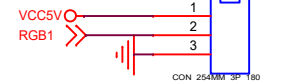
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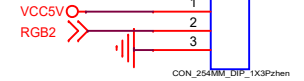
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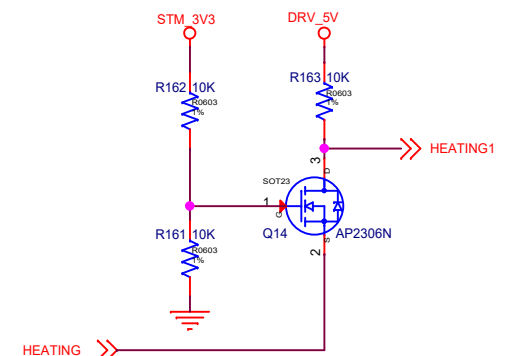
RGBLED1



RGBLED2



RGB_LED



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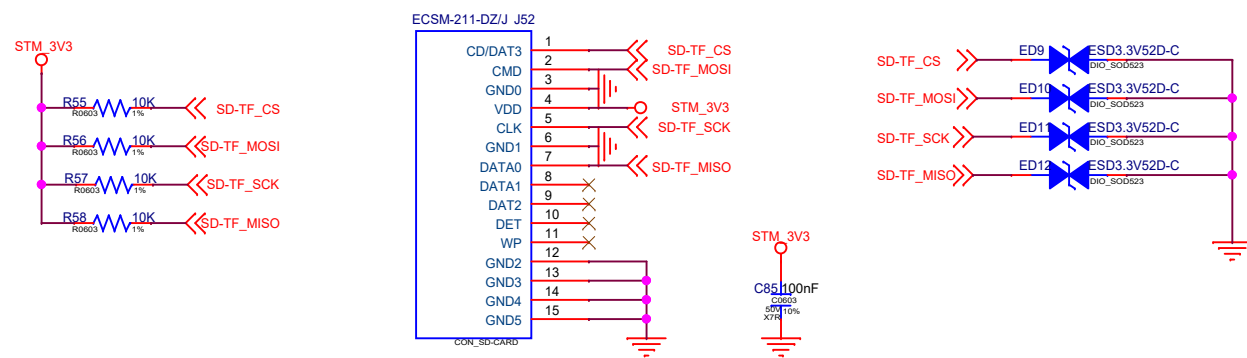
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说明：板载SD卡、驱动SPI、拓展SPI 共用硬件 SPI1（PA4、PA5、PA6、PA7）

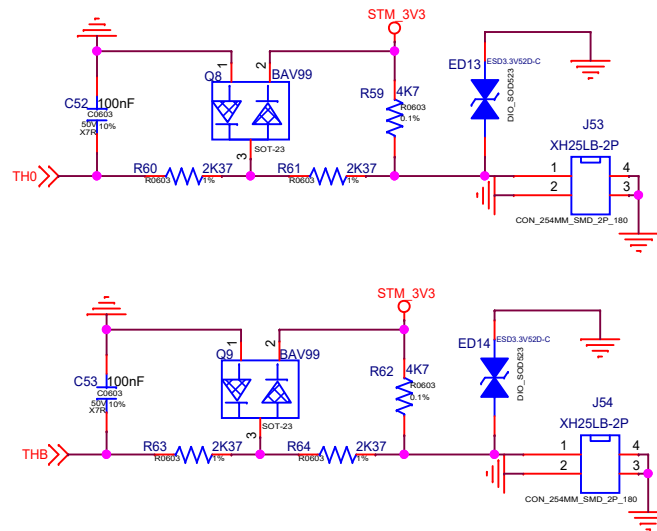
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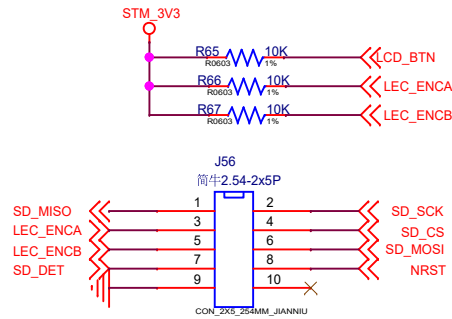
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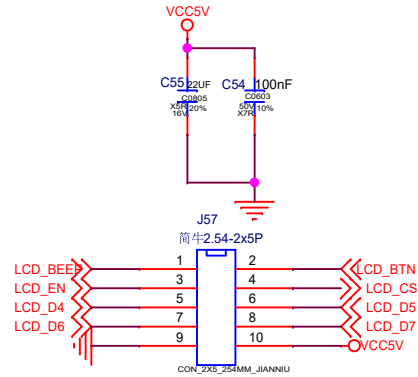
Thermistor

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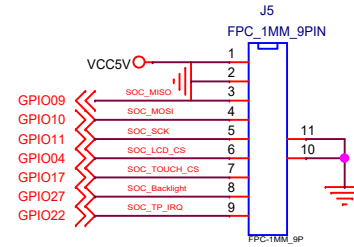
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EXP-2 中的SPI用硬件 SPI2 (PB13、PB14、PB15、PA8)

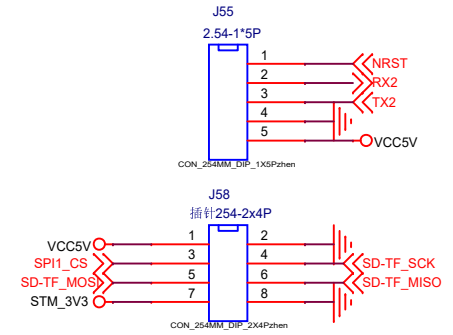


MCU_DISP_EXP1

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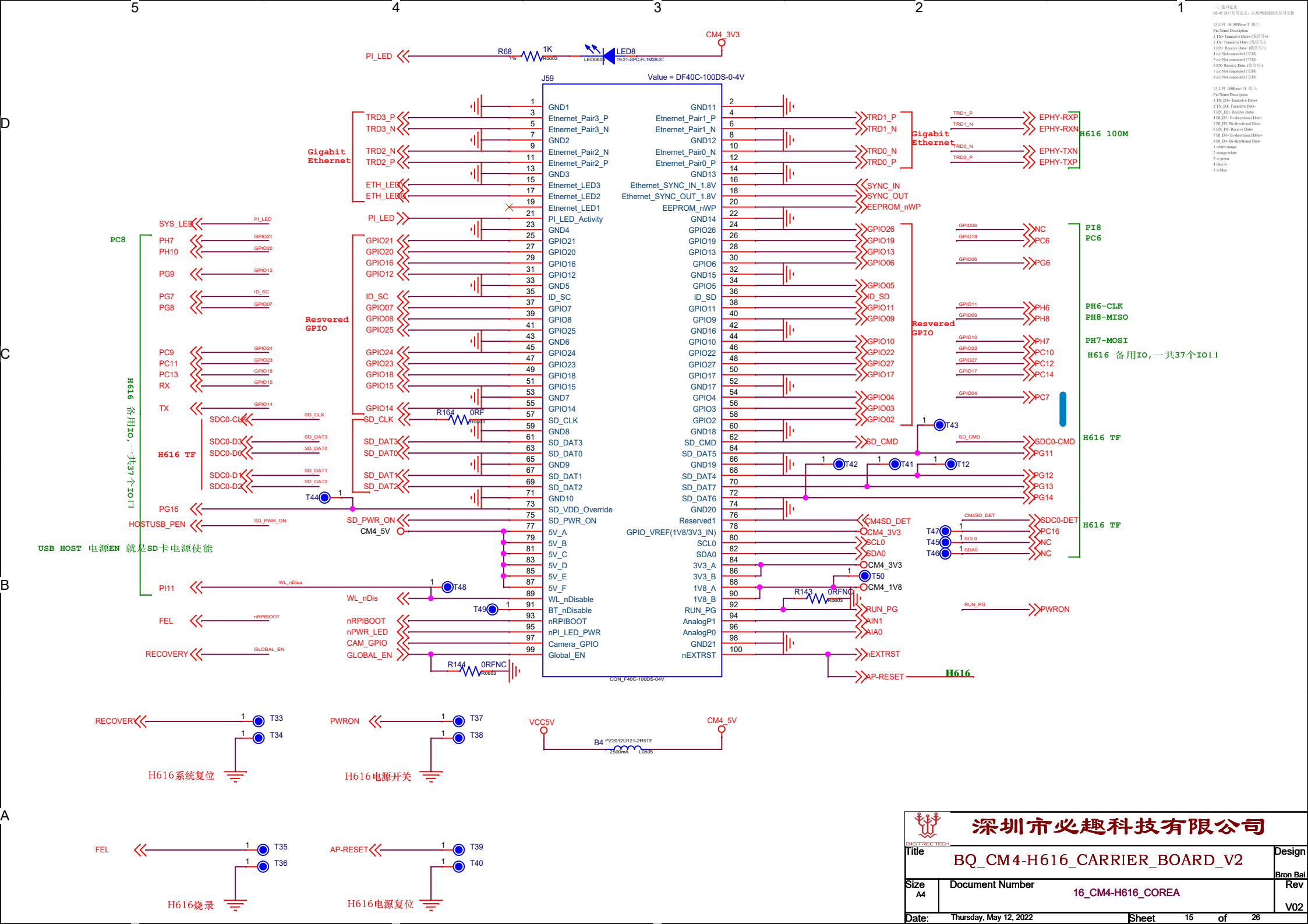
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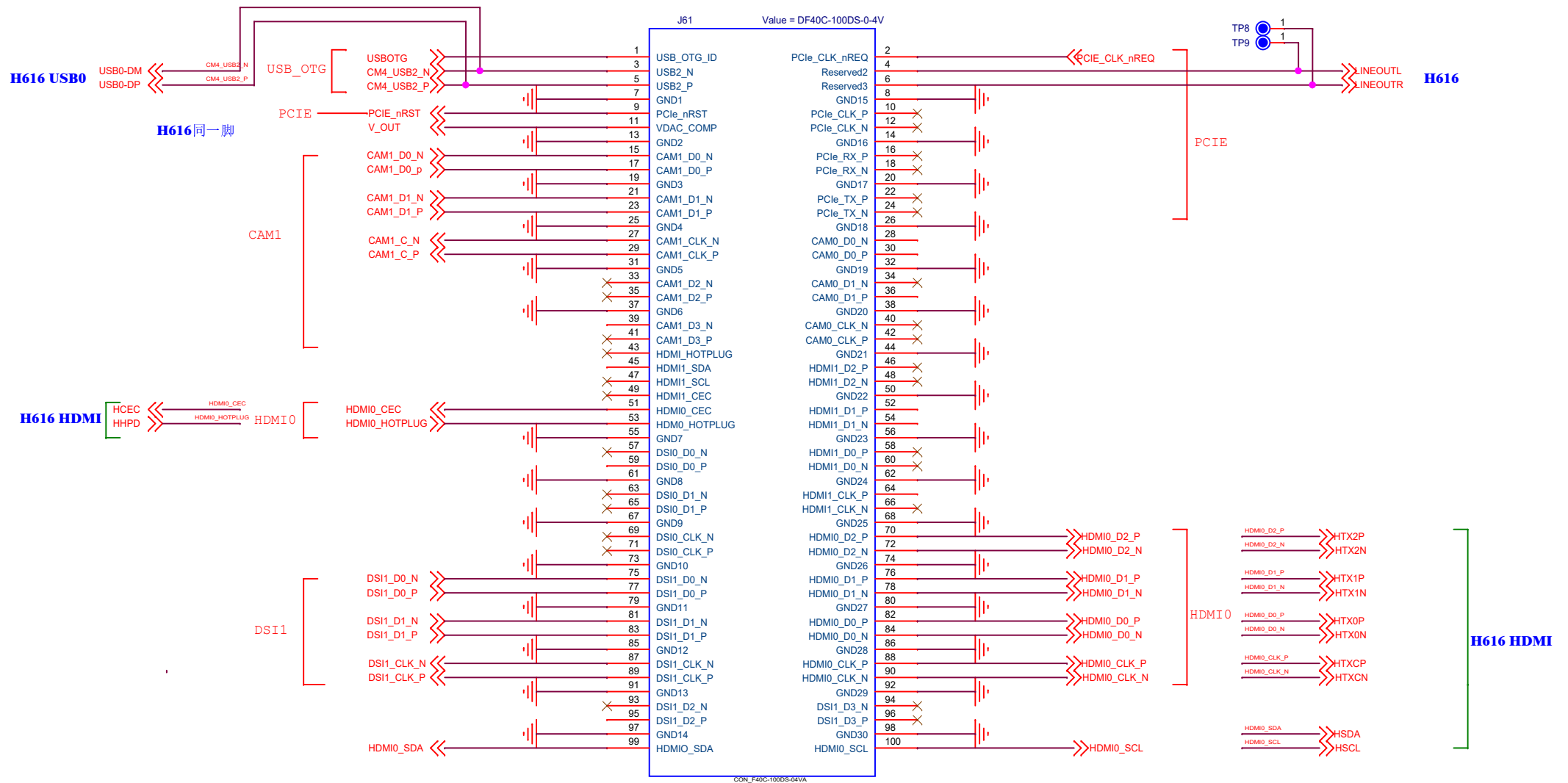
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Display



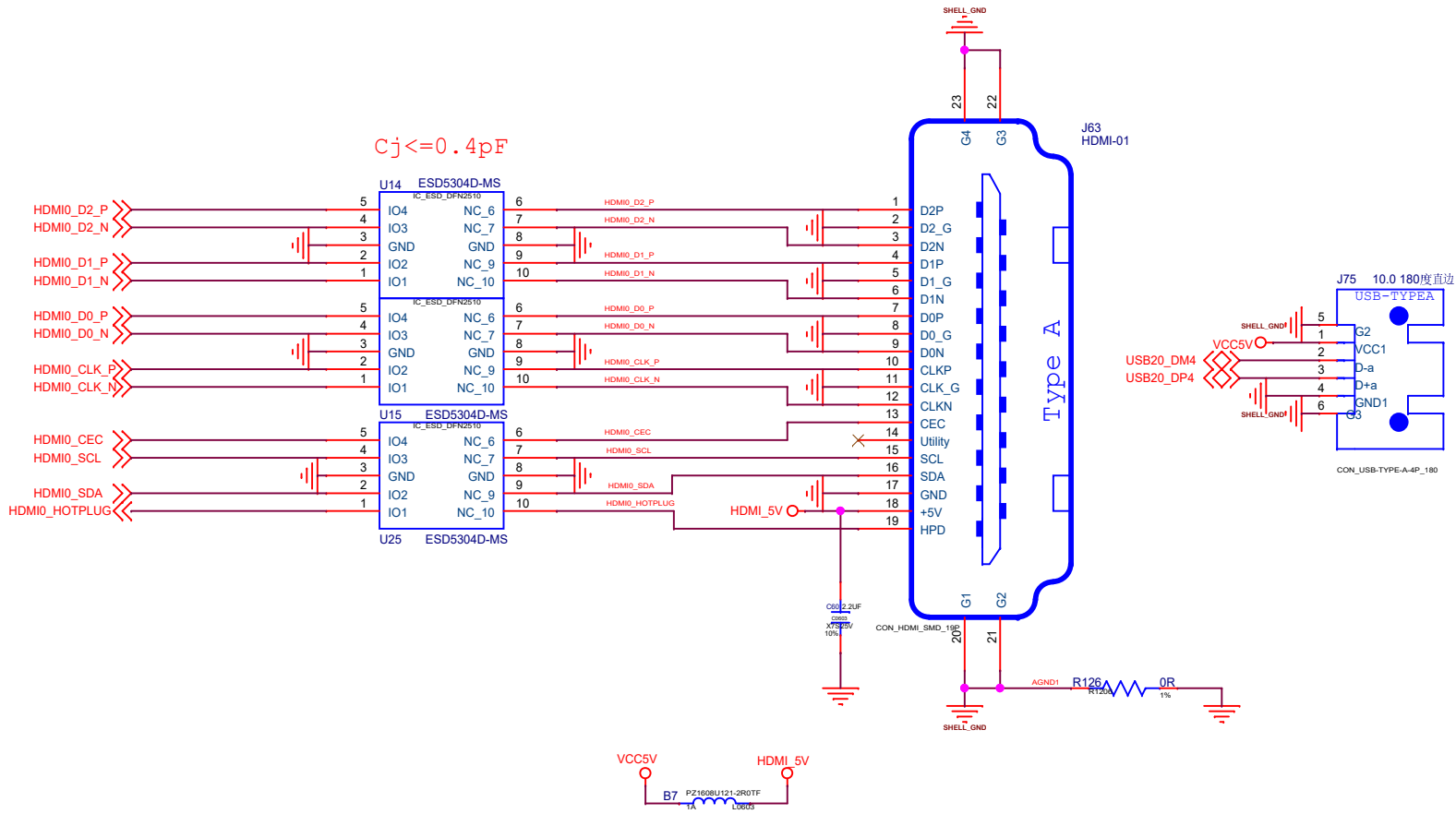
H616核心板 和CM4核心板公用



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H616核心板 和CM4核心板公用

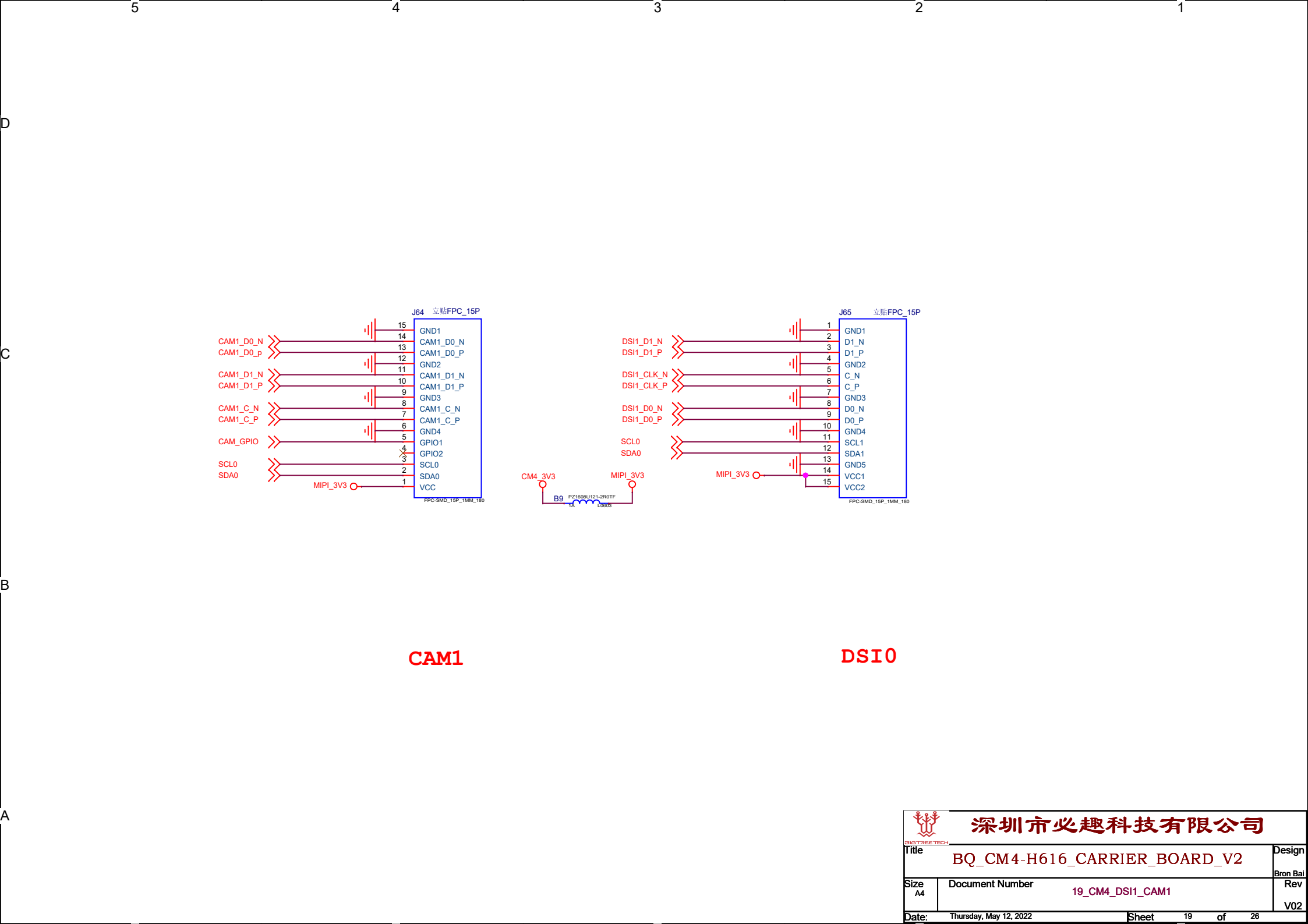


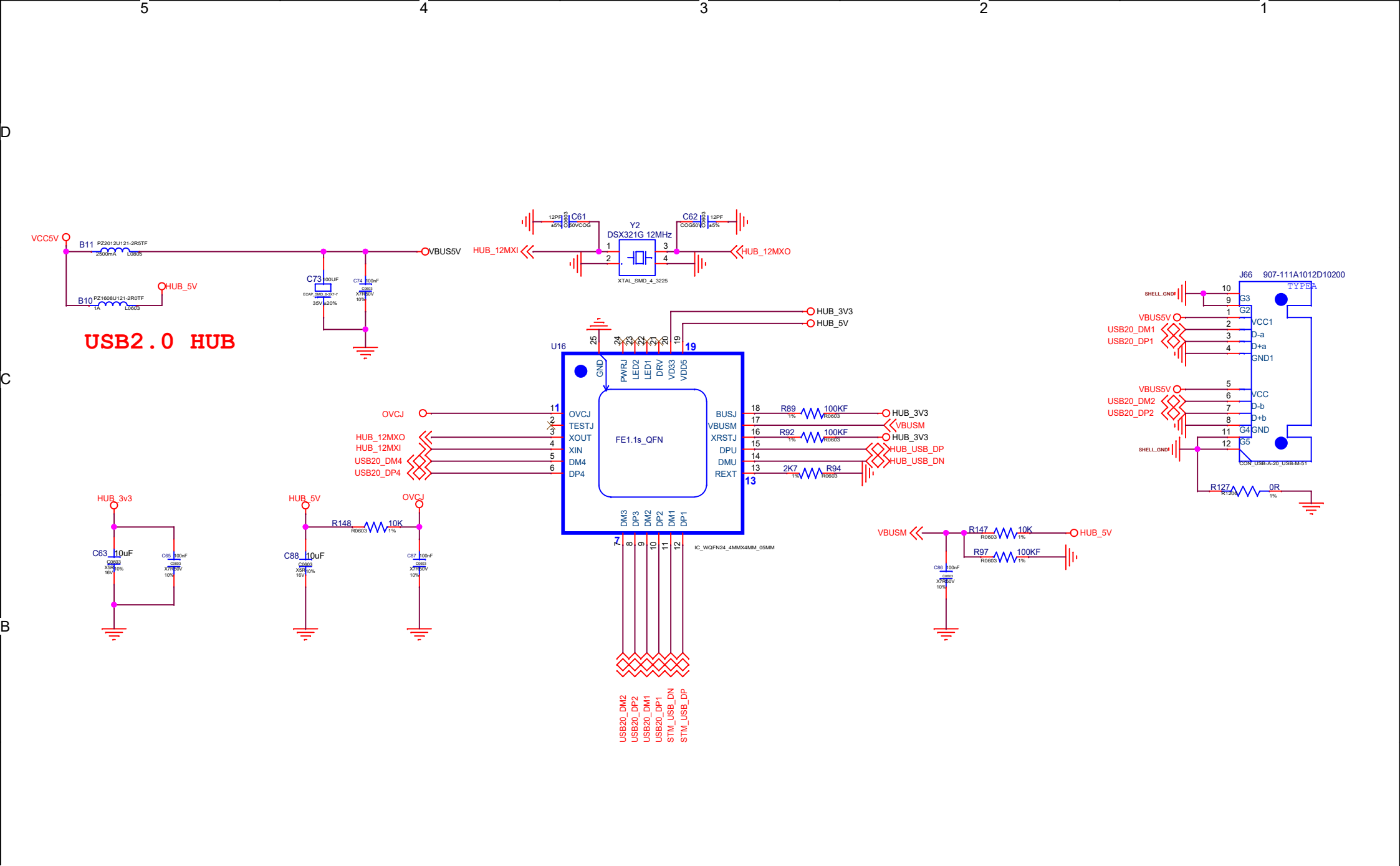
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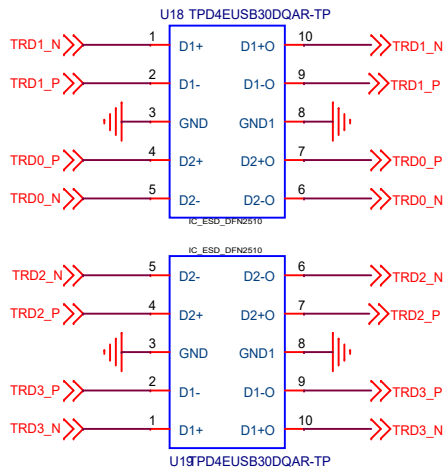


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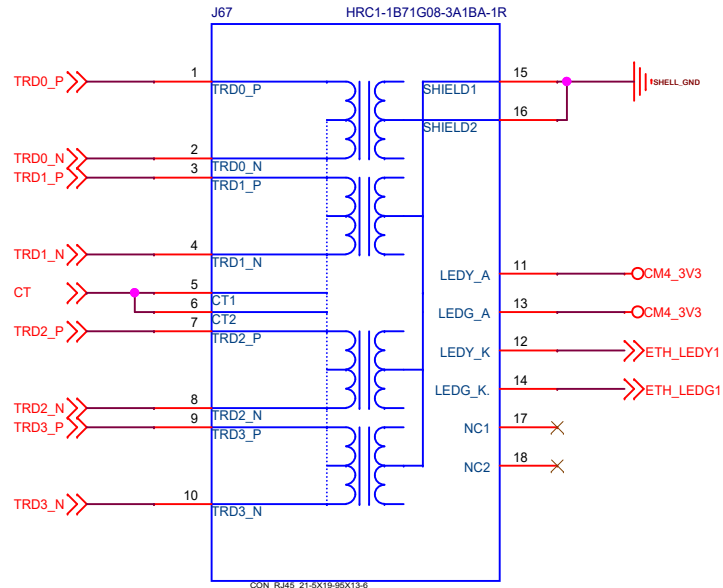






ETHERNET ESD

H616核心板 和CM4核心板公用



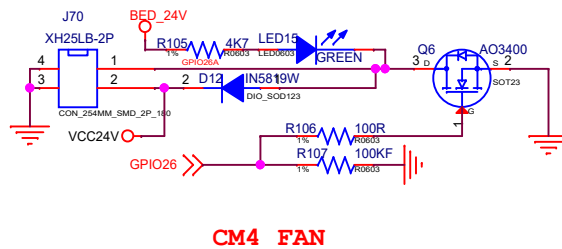
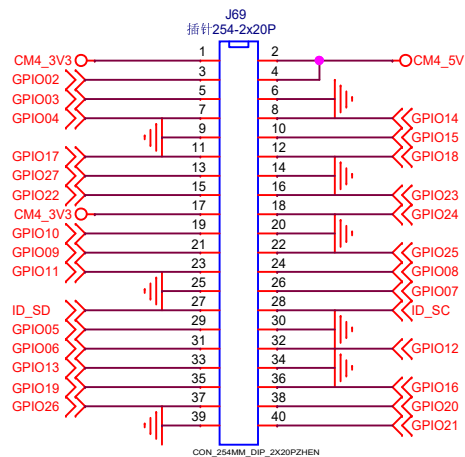
RJ45-100M&1000M

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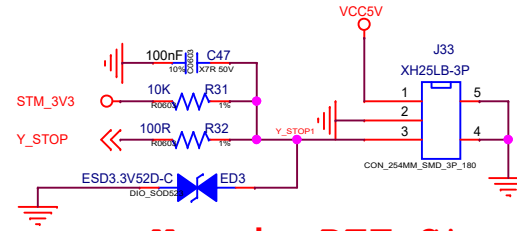
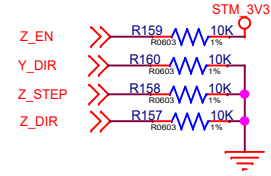
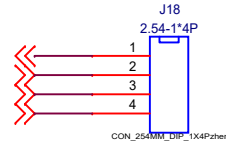
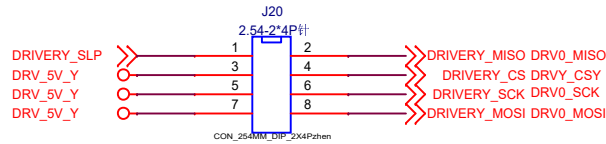
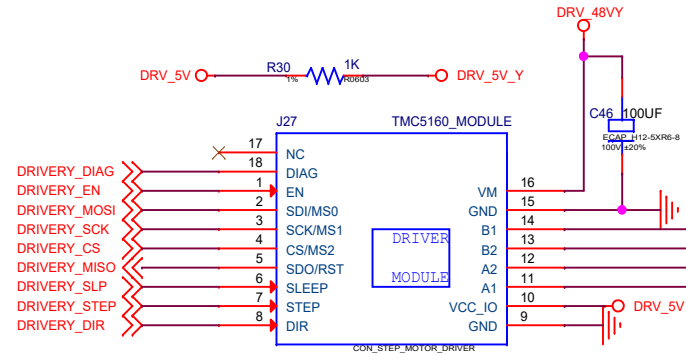
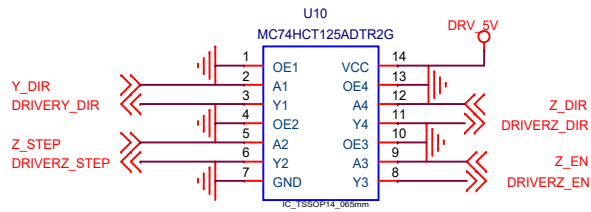
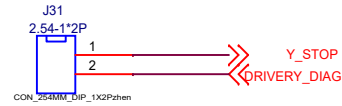


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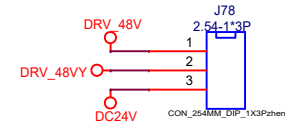
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Y-axis DET Stop



Y-DRIVE

