

RK3576_AIOT_REF_SCH_V11

Modify_Notes_CN

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更新记录

修订记录累积了每次文档更新的说明，最新版本的文档包含以前所有文档版本的更新内容。

版本	修改人	修改日期	修改说明	备注
V1.0	Wesley Huang	2024.03.22	First edition for RK3576	
V1.1	Wesley Huang	2024.05.30	具体修改记录请见下面内容。	

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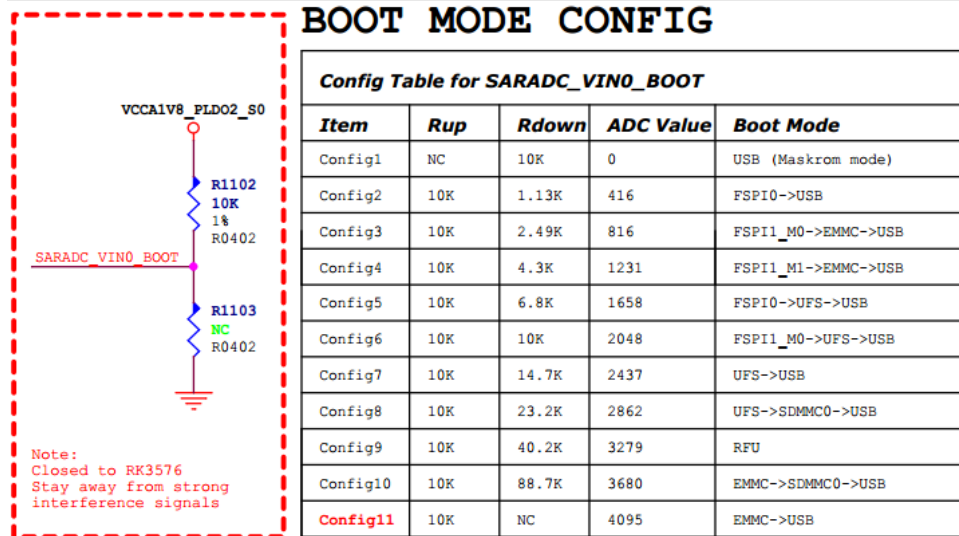
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RK3576 量产芯片的厚度变薄 0.1mm，相应 PCB 封装名修改为 BGA698_16R1X17R2X1R08

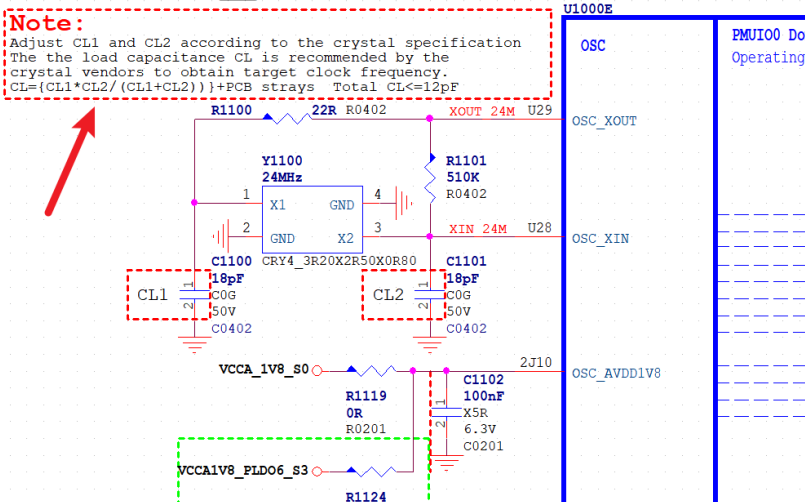
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2									RK_EVB1_RK3576_LP	W020373949				ANT6400	RF Jack				ANT5_SMA_ST_EMI	
3									RK_EVB1_RK3576_LP	W020373771				ANT6401	RF Jack				ANT5_SMA_ST_EMI	
4									RK_EVB1_RK3576_LP	W020722361				ANT6402	ANT				ANT JACK	
5									RK_EVB1_RK3576_LP	W020724637				J2400					BAT_CR1229	
6									RK_EVB1_RK3576_LP	W020308241				U4000B	NAND_FLASH				BGA153_130X11R5X0R9L_ZL	
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84									RK_EVB1_RK3576_LP											

(2) SARADC_VIN0_BOOT 配置的电阻阻值等比例缩小，以增强抗干扰能力



(3) 增加系统OSC的负载电容要求文字说明:

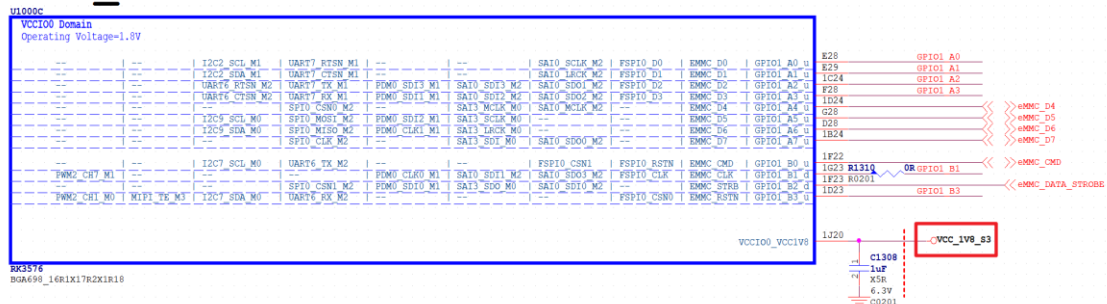
RK3576_E (PMUIO0/1)



2.6 Page 14--13.RK3576-eMMC/UFS/SD

针对待机功耗要求不高的项目，可以将EMMC的VCCIO0电源域供电改为待机常供电VCC_1V8_S3，也就是EMMC待机常供电，此时系统的VCC_1V8_S0供电可不需要采用带放电电阻的load switch(详见2.7 Page 23--24.Power-Ext Discrete/RTC IC)。如果待机功耗要求较高，比如带电池的产品—平板和电子书等，建议EMMC待机时下电来减少功耗，此时需要采用带放电电阻的load switch。

RK3576_C (VCCIO0)



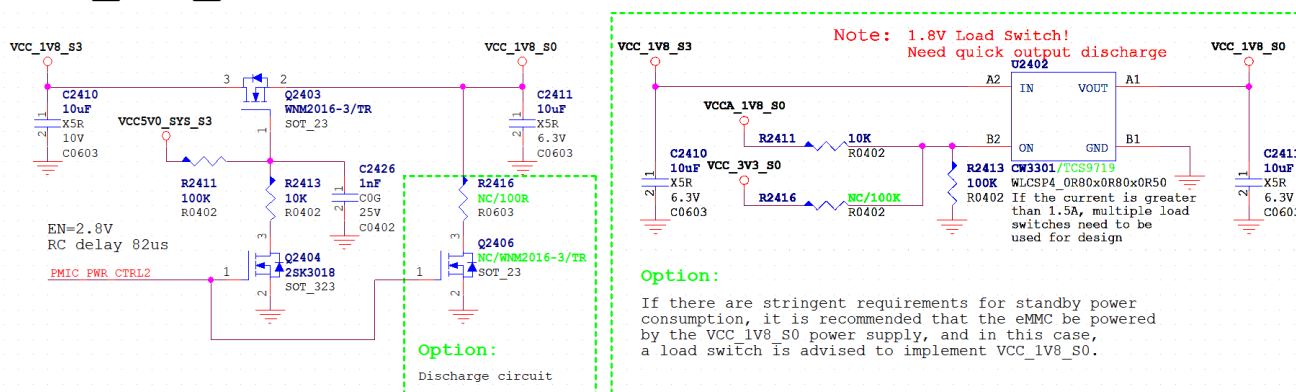
2.7 Page 23--24. Power-Ext Discrete/RTC IC

1.8V的带放电电阻的load switch成本较高。

针对待机功耗要求不高时，EMMC待机时可不下电，此时对系统的VCC_1V8_S0供电要求不高，VCC_1V8_S0供电修改为采用MOS管的方案，如下图左侧图所示，其中放电电路为option电路。

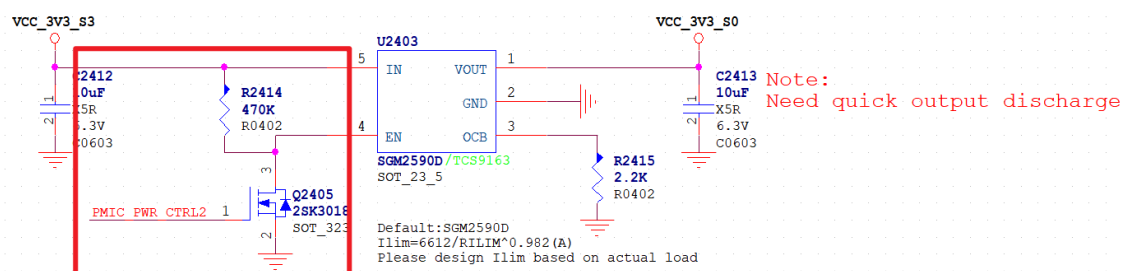
如果待机功耗要求较高，比如带电池的产品——平板和电子书等，建议EMMC待机时下电来减少功耗，此时需要采用带放电电阻的load switch，如下图右侧的绿色虚框方案。

VCC_1V8_S0



VCC_3V3_S0的使能改用PMIC_PWR_CTRL2和NMOS管来控制，以保证VCC_3V3_S0待机时和VCCA_1V8_S0的压差不大于2V(以满足USB的下电要求)

VCC_3V3_S0



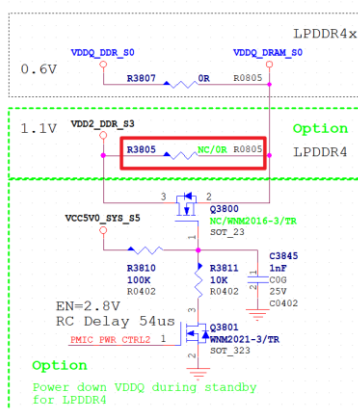
2.8 Page 27-- 28. USB1-USB20_HUB+USB3.0 HOST

由于HUB出来的4个USB公用一路5V供电，为避免总电容太大，上电瞬间把电源拉下来，将USB20接口的供电电源电容从120uF改为47uF。



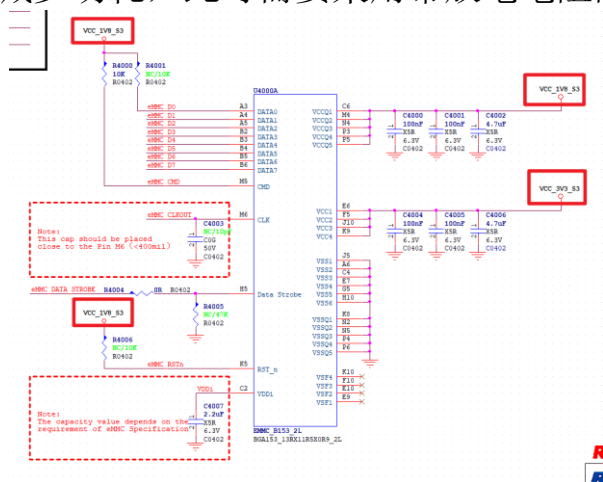
2.10 Page 29--38.DRAM-LPDDR4X_1X32bit_200P

LPDDR4颗粒的VDDQ_DRAM_S0供电增加VDD2_DDR_S3直通电阻方案，针对待机功耗要求不高时，可以选用VDD2_DDR_S3供电，减少器件数量。



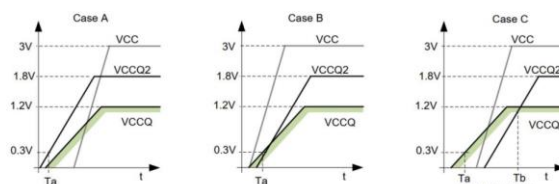
2.11 Page 31--40.Flash-eMMC

针对待机功耗要求不高的项目，可以将EMMC的颗粒供电改为待机常供电VCC_1V8_S3，也就是EMMC待机常供电，此时系统的VCC_1V8_S0供电可不需要采用带放电电阻的load switch(详见2.7 Page 23--24.Power-Ext Discrete/RTC IC)。如果待机功耗要求较高，比如带电池的产品——平板和电子书等，建议EMMC待机时下电来减少功耗，此时需要采用带放电电阻的load switch。



2.12 Page 32--41.Flash-UFS

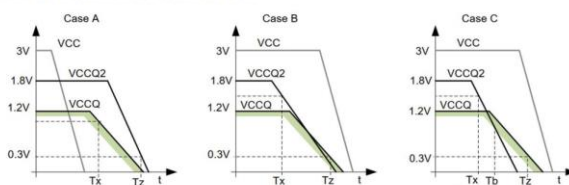
UFS 的时序要求如下:



NOTE 1 The green band represents the voltage range between VCCQ-200 mV and VCCQ.

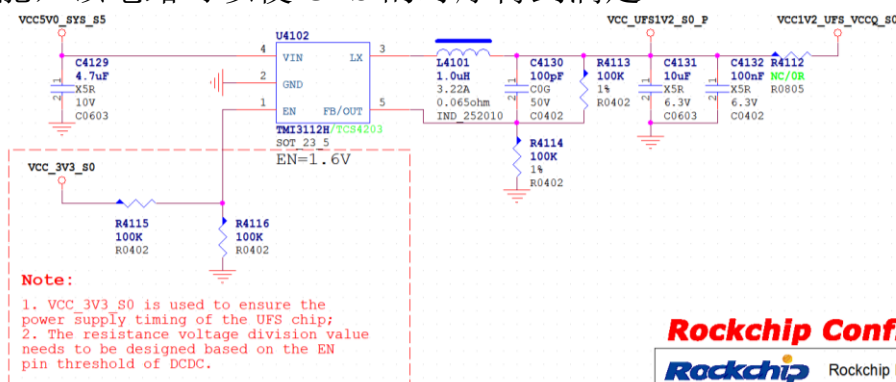
Figure 7.6 — Power up ramps

Figure 7.7 shows three power down ramp examples: case A and case B meet the requirement, while case C violates it in the time interval from T_b to T_z .



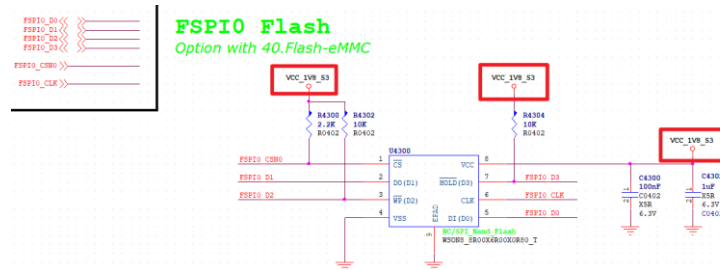
NOTE 1 The green band represents the voltage range between VCCQ-200 mV and VCCQ.

调整 UFS 的 VCC1V2_UFS_VCCQ_S0 供电的使能电路，改为用 VCC_3V3_S0 分压后来使能，该电路可以使 UFS 的时序得到满足。



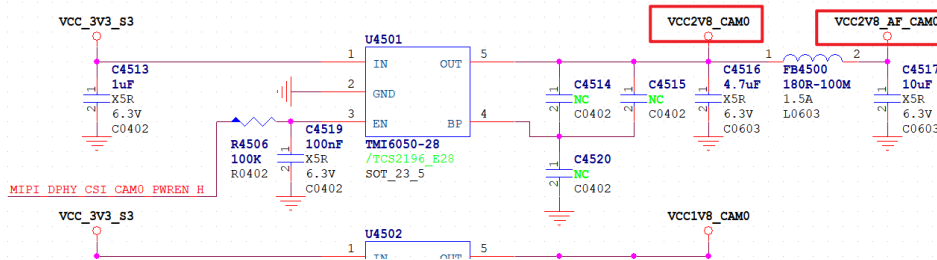
2.13 Page 34--43.Flash-SPI Flash(opt)

由于VCCIO0电源域的供电改为S3供电，FSPI0的颗粒供电也跟着改为S3电源



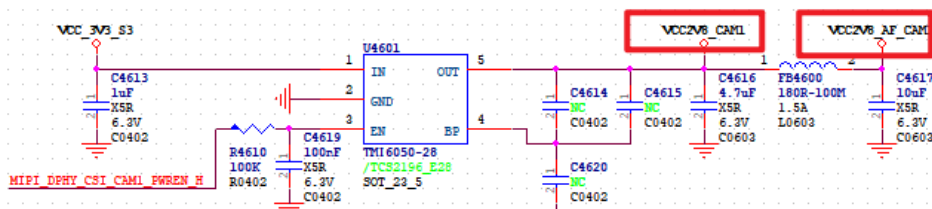
2.14 Page 35--45.VI-CAM MIPI DPHY CSI0 RX

VCC2V8_CAM0 调整到磁珠前，VCC2V8_AF_CAM0 调整到磁珠后



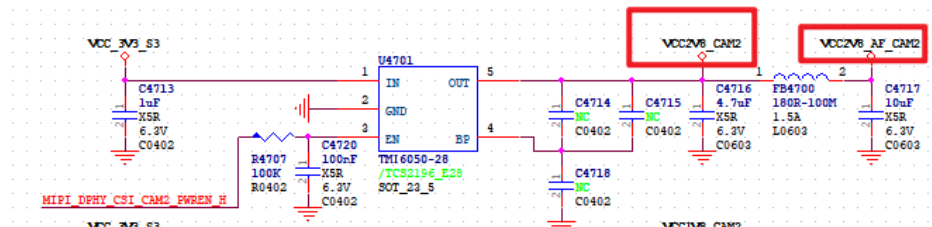
2.15 Page 36--46.VI-CAM MIPI DPHY CSI1/2 RX

VCC2V8_CAM1 调整到磁珠前，VCC2V8_AF_CAM1 调整到磁珠后



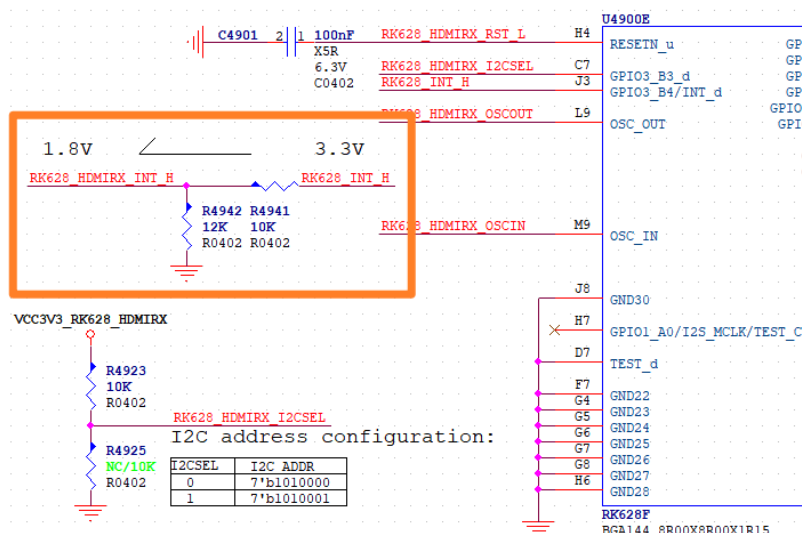
2.16 Page 37--47.VI-CAM MIPI DPHY CSI3/4 RX

VCC2V8_CAM2 调整到磁珠前，VCC2V8_AF_CAM2 调整到磁珠后

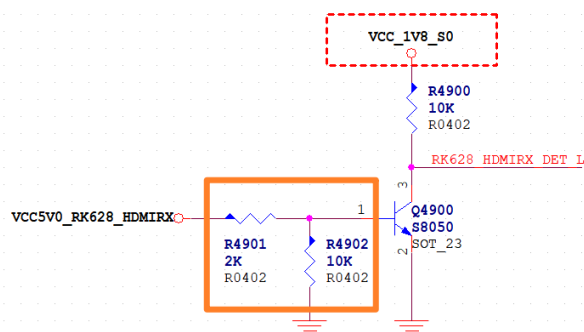


2.17 Page 38-- 49.VI-HDMI20 RX to MIPI RX(Opt)

RK628F 的 RK628_INT_H 信号是 3.3V 电平，且是高电平有效，RK3576 由于参考图中选择的 GPIO 是 1.8V 的，需要加电阻分压



分压电阻改小，加快放电速度

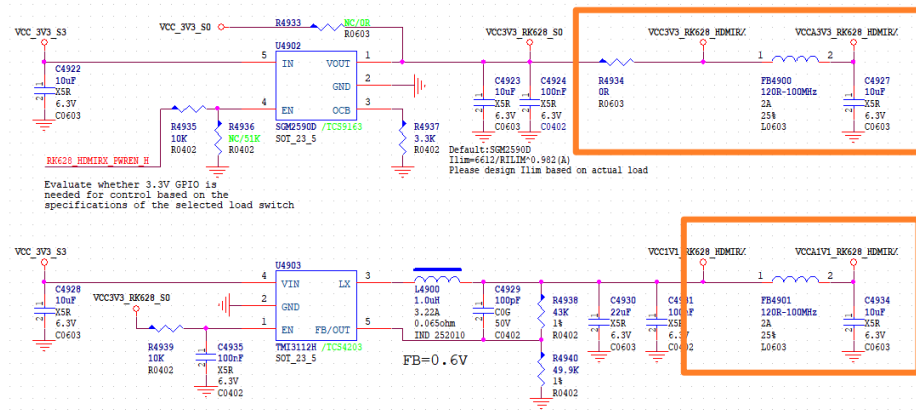


电容删减一些

RK628 Power

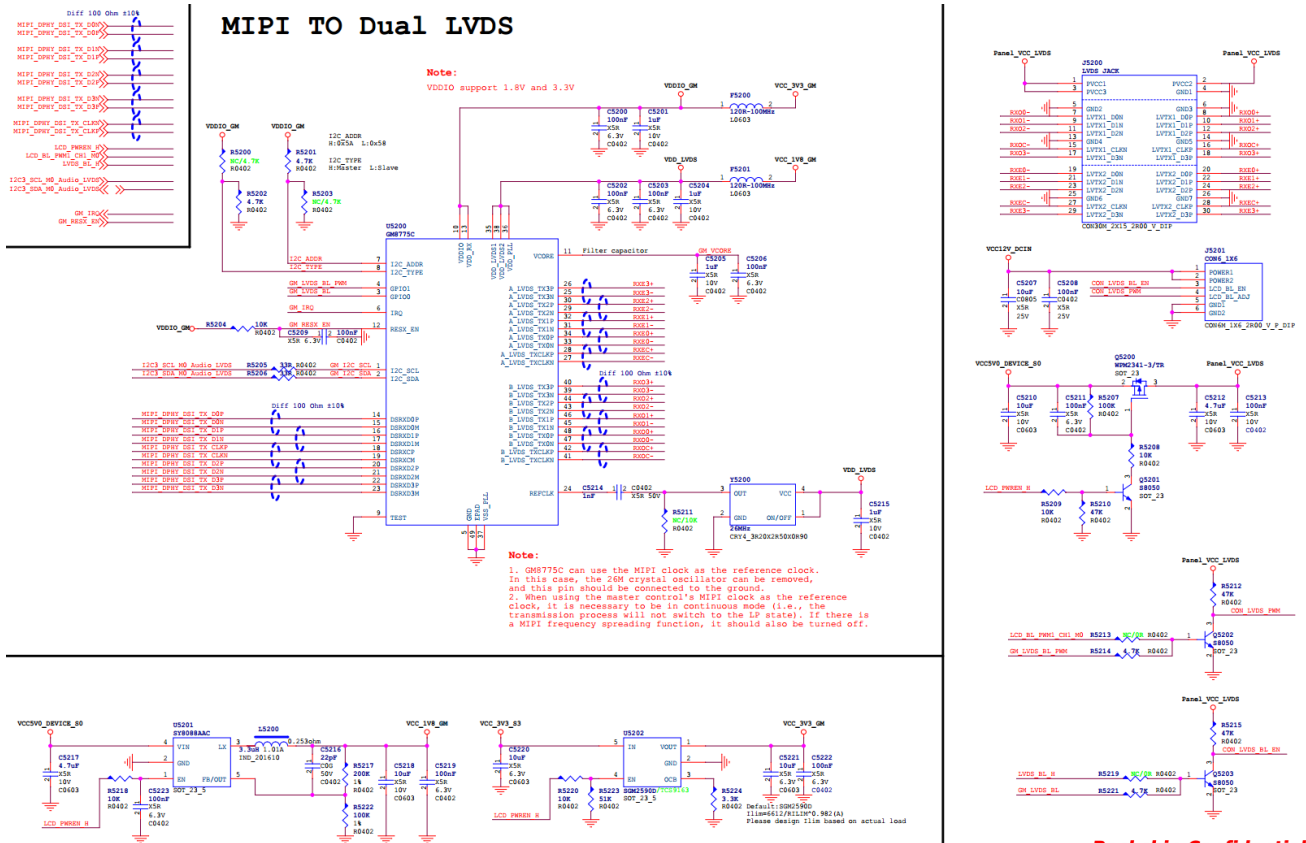
Power-on Sequence:

3V3 --> 1V1



2.18 Page 40--52.VO-MIPI to LVDS_GM8775C(新增)

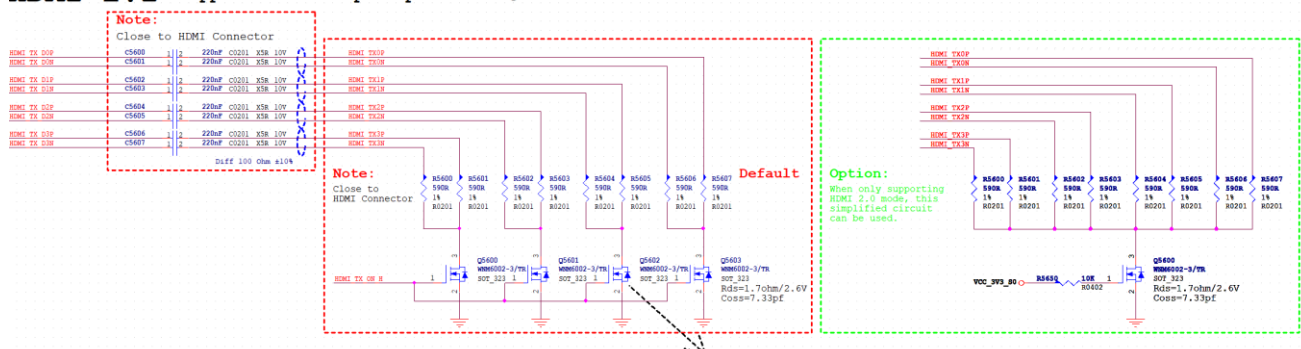
新增 MIPI 转双 LVDS 电路



2.19 Page 43--56.VO-HDMI TX

增加仅支持HDMI2.0时的MOS管简化方案，如下图绿色虚框所示。

HDMI 2.1 Support video output up to 4Kx2K@120Hz

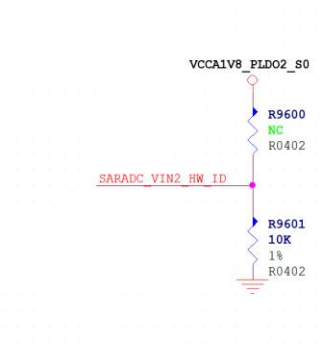


2.20 Page 63-- 96.HW_ID

SARADC上拉电源改为VCCA1V8 PLDO2 S0。

将HW ID的电阻配置等比例降低阻值，提高抗干扰能力。

HW_ID



Config Table for SARADC_VIN2_HW_ID				
Item	Rup	Rdown	ADC Value	VERSION
HW_ID1	NC	10K	0	HW_ID0
HW_ID2	10K	1.13K	416	RESERVE
HW_ID3	10K	2.49K	816	RESERVE
HW_ID4	10K	4.3K	1231	RESERVE
HW_ID5	10K	6.8K	1658	RESERVE
HW_ID6	10K	10K	2048	RESERVE
HW_ID7	10K	14.7K	2437	RESERVE
HW_ID8	10K	23.2K	2862	RESERVE
HW_ID9	10K	40.2K	3279	RESERVE
HW_ID10	10K	88.7K	3680	RESERVE
HW_ID11	10K	NC	4095	RESERVE