B1_EVB_P1_V10

Revision	Date	Change Description
V1.0	20241111	Initial version

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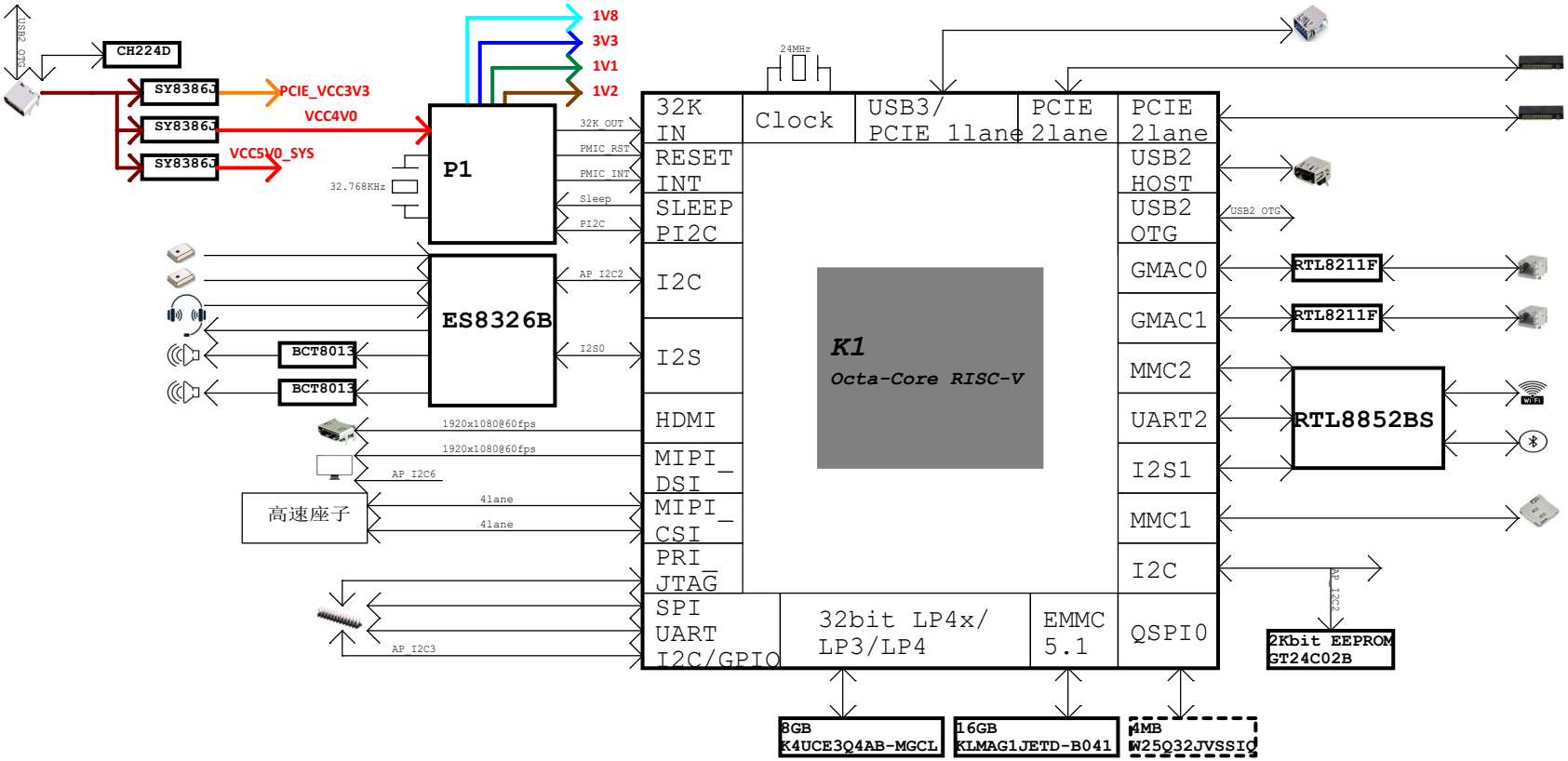
BLOCK



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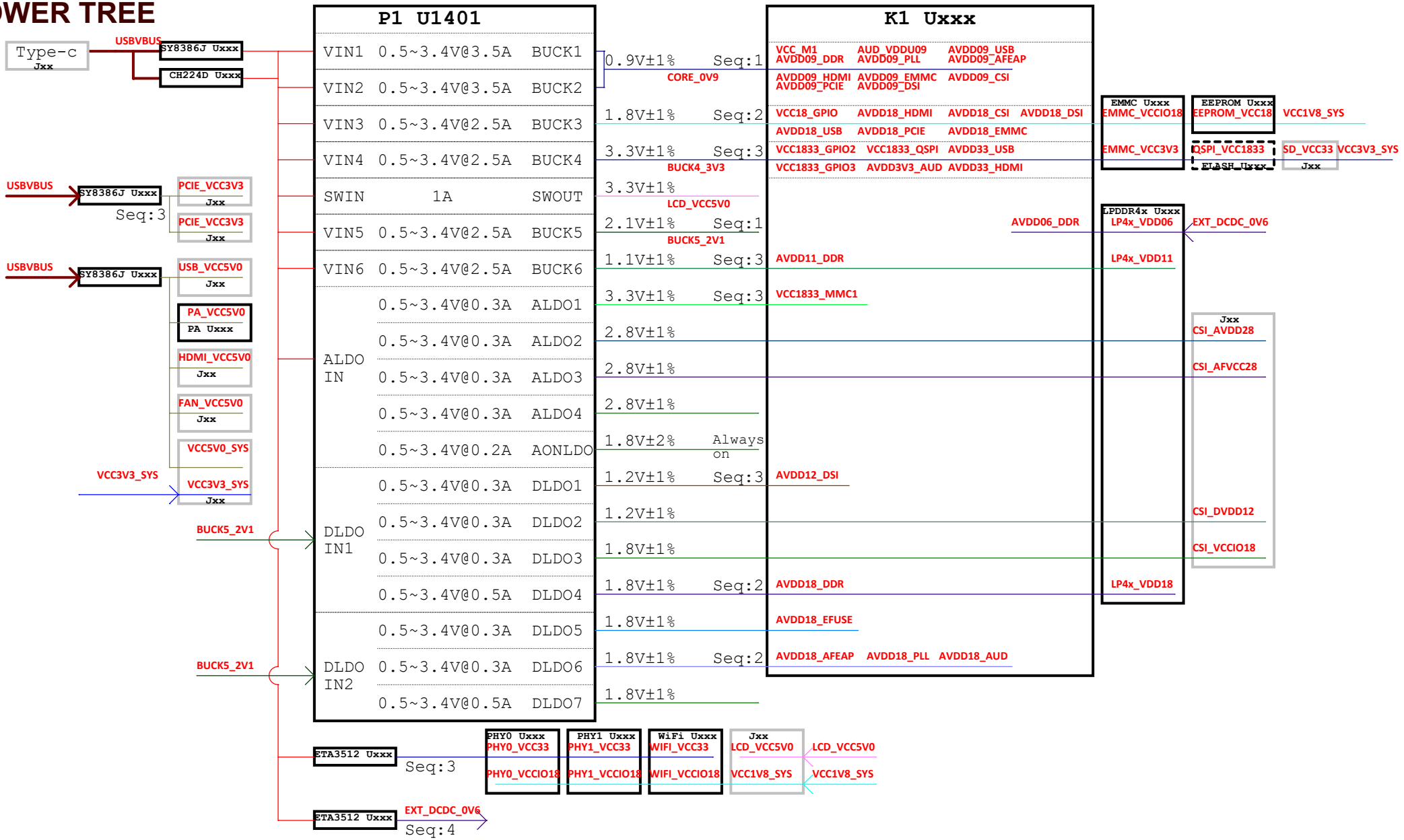
POWER TREE



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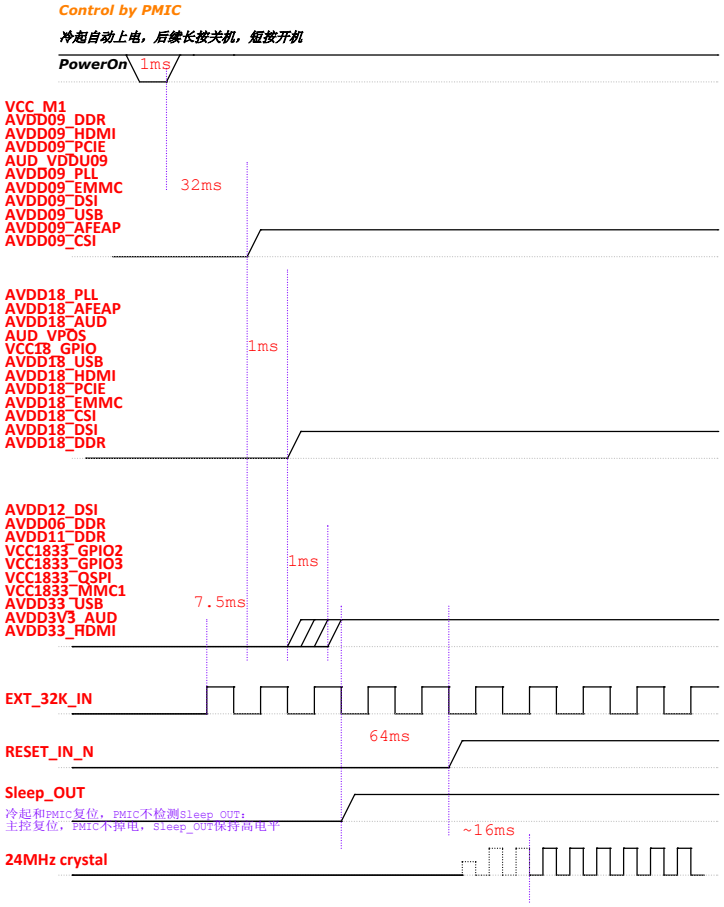
POWER SEQUENCE



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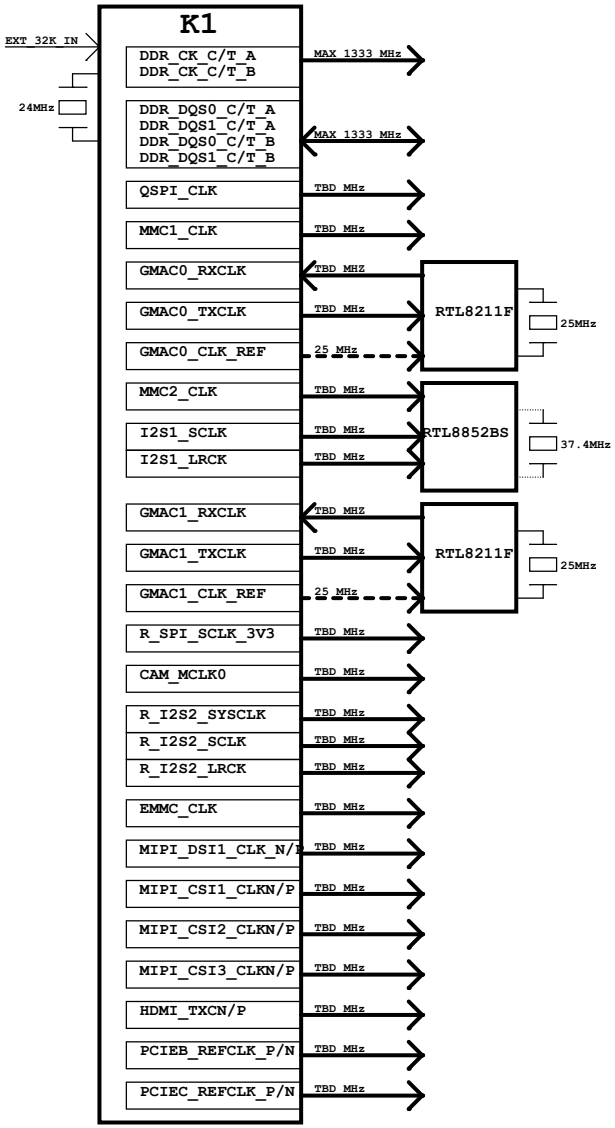
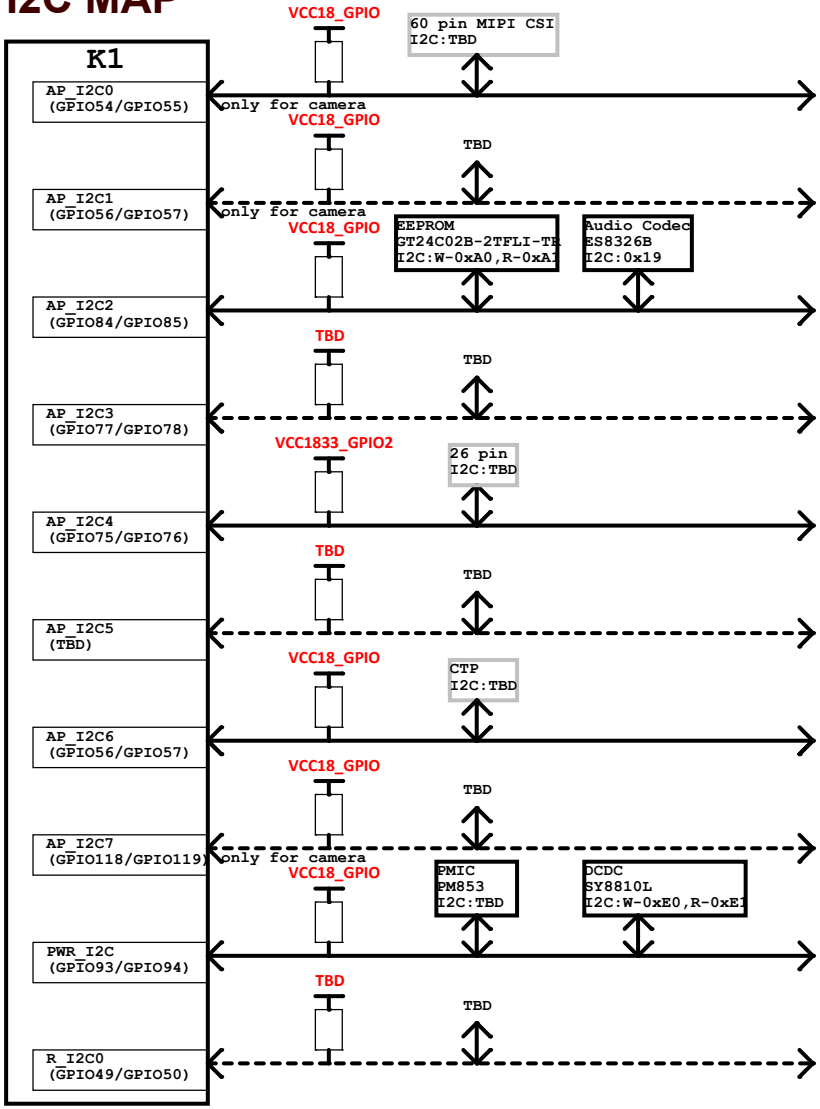
CLOCK MAP



I2C MAP



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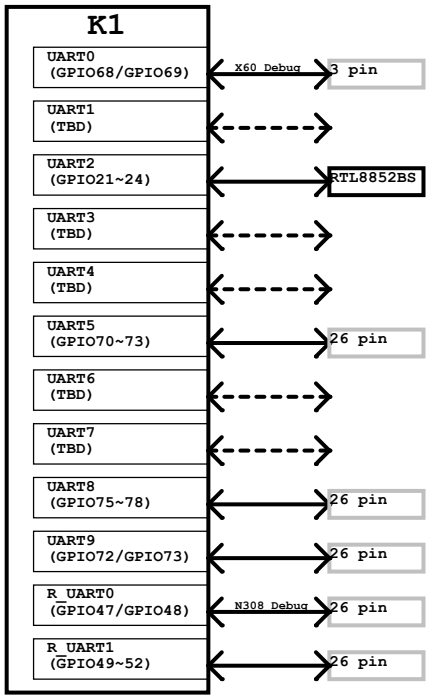
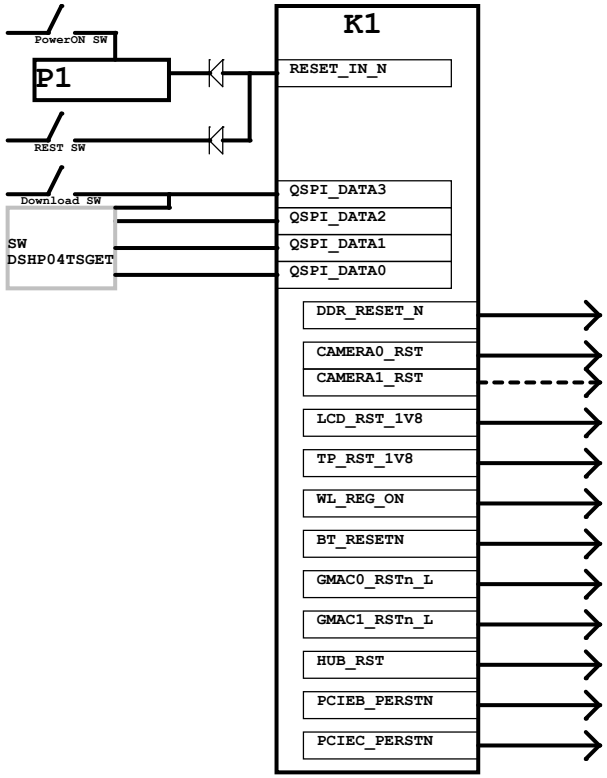
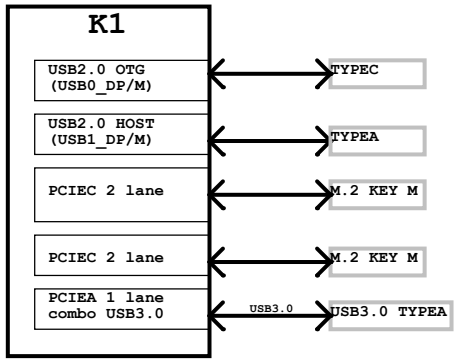
UART MAP



SW&RESET MAP



PCIE/USB MAP



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GPIO ASSIGNMENT

PIN	Define	CFG	Function
GPIO0	GMAC0_RXDV	1	Ethernet -GMAC0
GPIO1	GMAC0_RXD0	1	
GPIO2	GMAC0_RXD1	1	
GPIO3	GMAC0_RXCLK	1	
GPIO4	GMAC0_RXD2	1	
GPIO5	GMAC0_RXD3	1	
GPIO6	GMAC0_TXD0	1	
GPIO7	GMAC0_TXD1	1	
GPIO8	GMAC0_TXCLK	1	
GPIO9	GMAC0_TXD2	1	
GPIO10	GMAC0_TXD3	1	
GPIO11	GMAC0_TXEN	1	
GPIO12	GMAC0_MDC	1	
GPIO13	GMAC0_MDIO	1	
GPIO14	GMAC0_INT_N	1	
GPIO15	MMC2_DATA3	1	WiFi/BT
GPIO16	MMC2_DATA2	1	
GPIO17	MMC2_DATA1	1	
GPIO18	MMC2_DATA0	1	
GPIO19	MMC2_CMD	1	
GPIO20	MMC2_CLK	1	
GPIO21	UART2_TXD	1	
GPIO22	UART2_RXD	1	
GPIO23	UART2_CTS_N	1	
GPIO24	UART2_RTS_N	1	
GPIO25	I2S1_SCLK	1	
GPIO26	I2S1_LRCK	1	
GPIO27	I2S1_TXD	1	
GPIO28	I2S1_RXD	1	
GPIO29	GMAC1_RXDV	1	Ethernet -GMAC1
GPIO30	GMAC1_RXD0	1	
GPIO31	GMAC1_RXD1	1	
GPIO32	GMAC1_RXCLK	1	
GPIO33	GMAC1_RXD2	1	
GPIO34	GMAC1_RXD3	1	
GPIO35	GMAC1_TXD0	1	
GPIO36	GMAC1_TXD1	1	
GPIO37	GMAC1_TXCLK	1	
GPIO38	GMAC1_TXD2	1	
GPIO39	GMAC1_TXD3	1	
GPIO40	GMAC1_TXEN	1	
GPIO41	GMAC1_MDC	1	
GPIO42	GMAC1_MDIO	1	
GPIO43	GMAC1_INT_N	1	
GPIO44	LCD_BL_PWM_1V8	4	LCD/CTP
GPIO45	GMAC0_CLK_REF	1	GMAC0
GPIO46	GMAC1_CLK_REF	1	GMAC1

PIN	Define	CFG	Function
GPIO110	GMAC0_RSTn_L	0	GMAC0
GPIO115	GMAC1_RSTn_L	0	GMAC1
GPIO116	WL_DIS_N	0	WiFi/BT
GPIO117	PCIEC_CLKREQN	4	PCIEC
GPIO118	I2S0_SCLK	3	Audio Codec
GPIO119	I2S0_LRCK	3	
GPIO120	I2S0_OUT	3	
GPIO121	I2S0_IN	3	
GPIO122	I2S0_SYSCLK	3	
GPIO123	HUB_PWREN	0	USB3_HUB
GPIO124	HUB_RST	0	
GPIO125	VBUS_ON0	1	USB2
GPIO126	CODEC_IRQ	0	Audio Codec
GPIO127	PA_SHUTDOWN	0	

PIN	Define	CFG	Function
GPIO53	CAM_MCLK0	1	CAMERA0
GPIO54	CAM_I2C0_SCL	1	
GPIO55	CAM_I2C0_SDA	1	
GPIO56	AP_I2C6_SCL	5	LCD/CTP
GPIO57	AP_I2C6_SDA	5	
GPIO58	TP_INT_1V8	0	
GPIO111	CAMERA0_RST	1	CAMERA0
GPIO112	PCIEC_WAKEN	3	PCIEC
GPIO113	CAMERA0_PDN	1	CAMERA0
GPIO114	TP_RST_1V8	0	LCD/CTP
GPIO63	BT_RESETN	0	WiFi/BT
GPIO64	AP_WAKE_BT	0	
GPIO65	BT_WAKE_AP	0	
GPIO66	WL_WAKE_AP	0	
GPIO67	WL_REG_ON	0	
GPIO68	UART0_TXD	2	X60 Debug
GPIO69	UART0_RXD	2	

PIN	Define	CFG	Function
GPIO59	PCIEB_PERSTN	4	PCIEB
GPIO60	PCIEB_WAKEN	4	
GPIO61	PCIEB_CLKREQN	4	
GPIO62	PCIEC_PERSTN	4	PCIEC
GPIO70	GPIO70	1	26 pin
GPIO71	GPIO71	1	
GPIO72	GPIO72	1	
GPIO73	GPIO73	1	
GPIO74	GPIO74	0	

红色字体GPIO表示默认、持续上拉，等效上拉电阻约60K。需要软件修改才能解除默认上拉状态

PIN	Define	CFG	Function
GPIO93	PI2C_SCL	0	PMIC
GPIO94	PI2C_SDA	0	
GPIO95	SLEEP_OUT	0	
GPIO96	GPIO96	1	LED
GPIO97	USB3_PWREN	1	USB3_HUB
GPIO81	LCD_RST_1V8	0	LCD/CTP
GPIO82	LCD_BL_EN_1V8	0	
GPIO83	LCD_PWR_EN_1V8	0	
GPIO84	AP_I2C2_SCL	4	EEPROM Audio
GPIO85	AP_I2C2_SDA	4	
GPIO86	HDMI_SCL	1	HDMI_OUT
GPIO87	HDMI_SDA	1	
GPIO88	HDMI_CEC	1	
GPIO89	HDMI_HPD	1	
GPIO90	GPIO90	0	26 pin
GPIO91	GPIO91	0	
GPIO92	GPIO92	0	

PIN	Define	CFG	Function
GPIO98	QSPI_DATA3	0	SPI FLASH
GPIO99	QSPI_DATA2	0	
GPIO100	QSPI_DATA1	0	
GPIO101	QSPI_DATA0	0	
GPIO102	QSPI_CLK	0	
GPIO103	QSPI_CS1	0	

PIN	Define	CFG	Function
GPIO104	MMC1_DATA3	0	TF CARD
GPIO105	MMC1_DATA2	0	
GPIO106	MMC1_DATA1	0	
GPIO107	MMC1_DATA0	0	
GPIO108	MMC1_CMD	0	
GPIO109	MMC1_CLK	0	

PIN	Define	CFG	Function
GPIO75	SPI3_SCLK_3V3	2	26 pin
GPIO76	SPI3_CS_3V3	2	
GPIO77	SPI3_MOSI_3V3	2	
GPIO78	SPI3_MISO_3V3	2	
GPIO79	FAN_PWM	2	FAN
GPIO80	SD_CD_3V3	1	TF CARD

PIN	Define	CFG	Function
GPIO47	R_UART0_TXD_3V3	1	26 pin
GPIO48	R_UART0_RXD_3V3	1	
GPIO49	GPIO_49_3V3	0	
GPIO50	GPIO_50_3V3	0	
GPIO51	AP_I2C4_SCL_3V3	4	
GPIO52	AP_I2C4_SDA_3V3	4	

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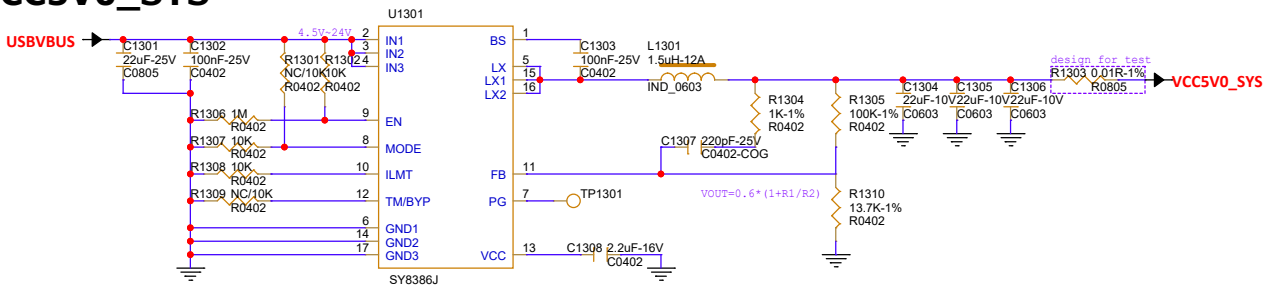
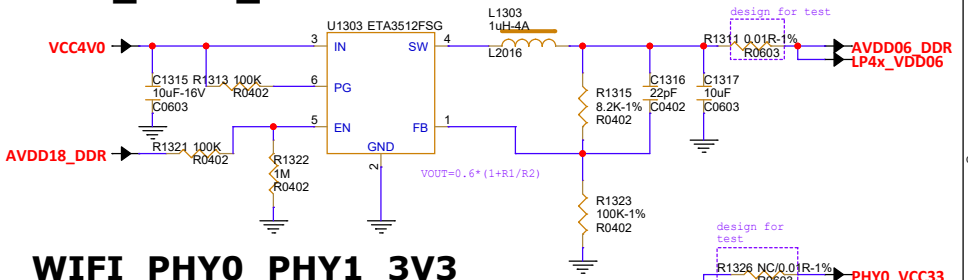
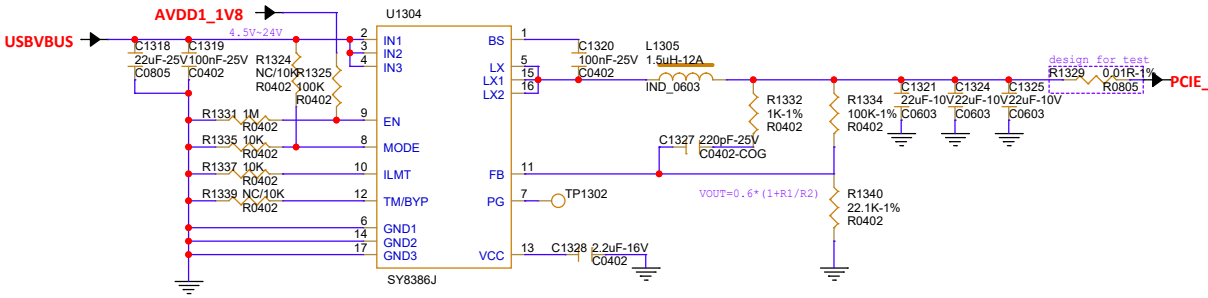
VCC5V0_SYS



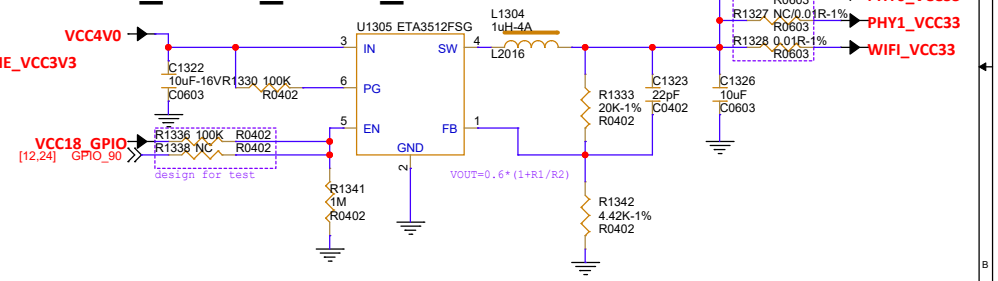
EXT_DCDC_0V6



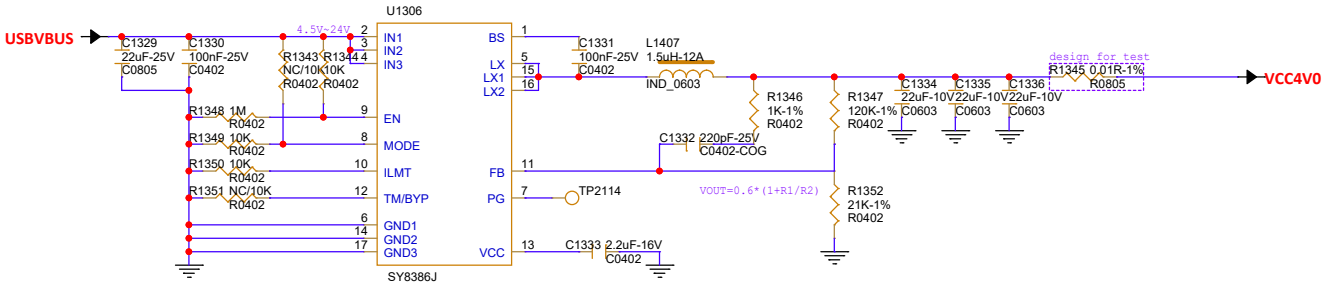
PCIE_VCC3V3



WIFI_PHY0_PHY1_3V3



PMIC_VCC4V0



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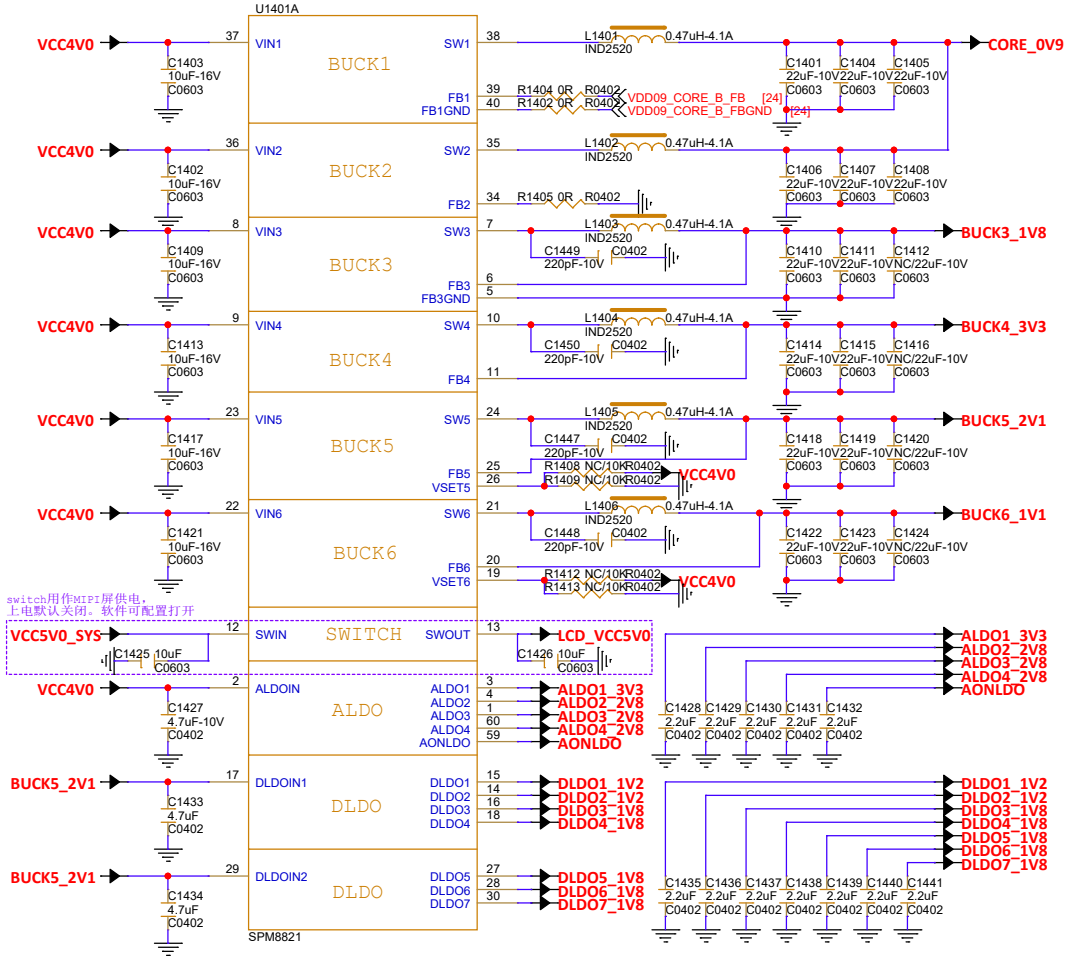
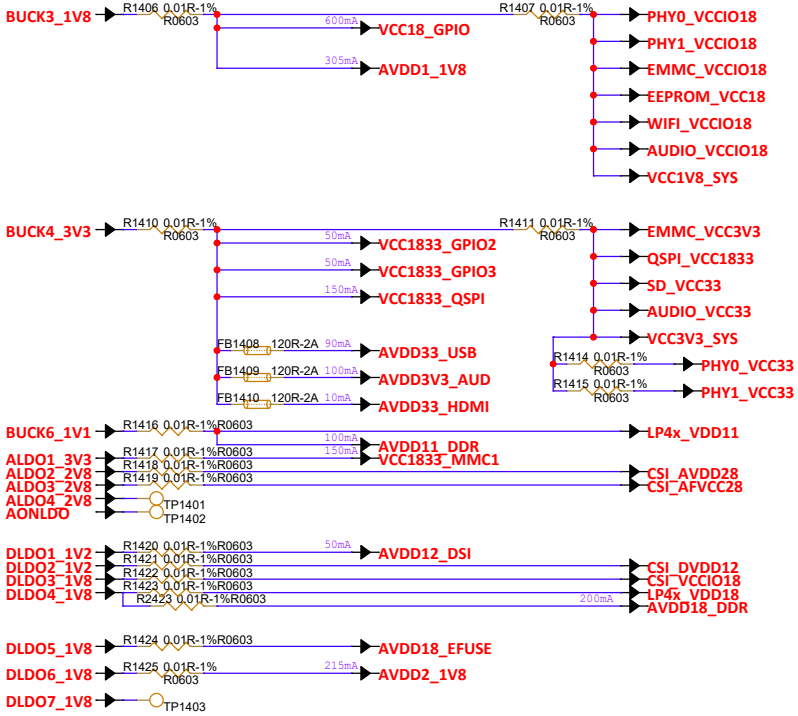
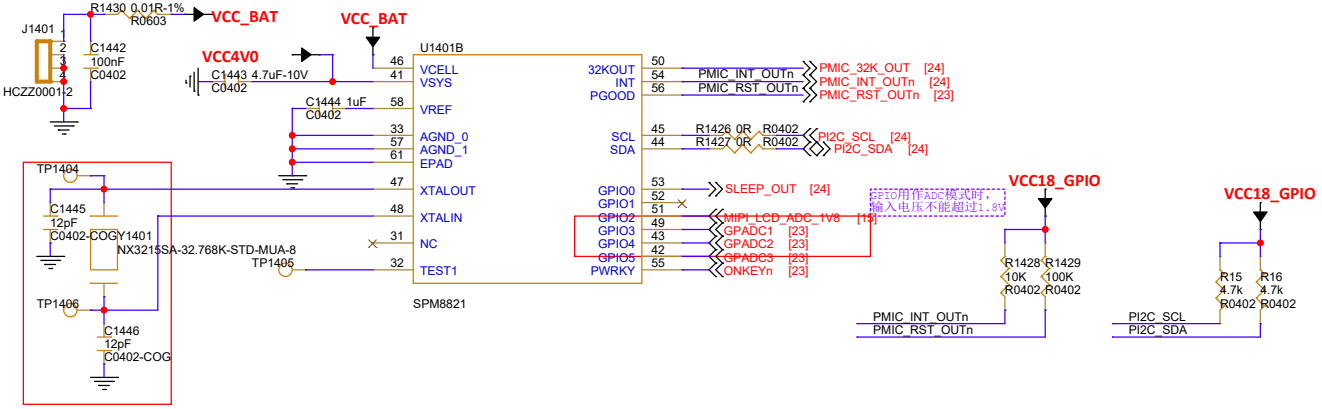
SPM8821







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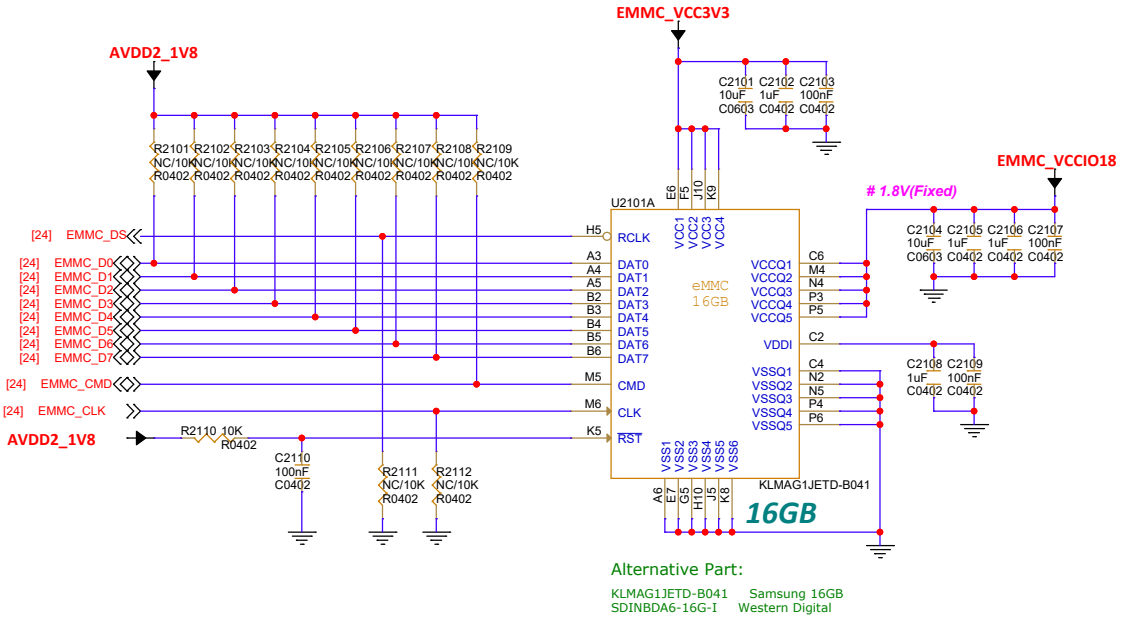
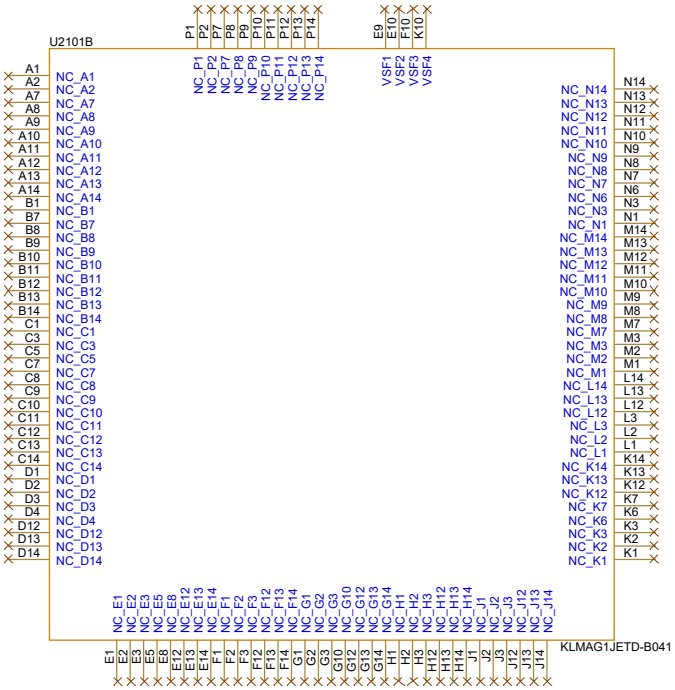
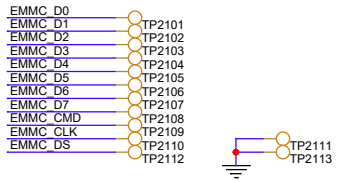
EMMC





Alternative Part:

KLMAG1JETD-B041 Samsung 16GB
SDINBDA6-16G-I Western Digital



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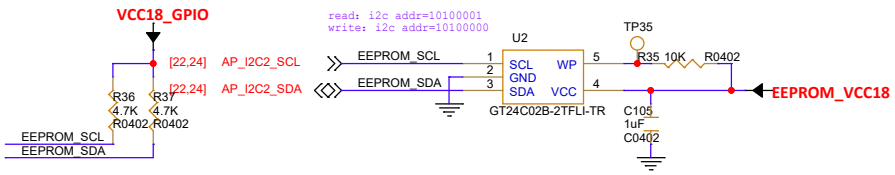
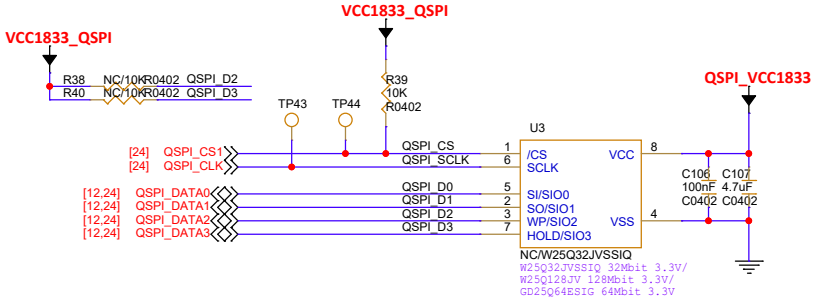
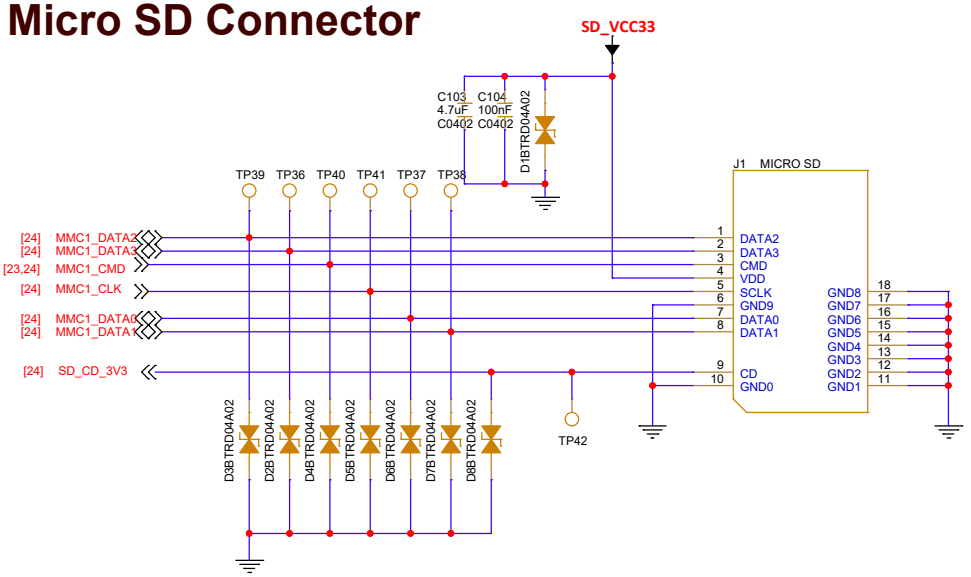
EEPROM



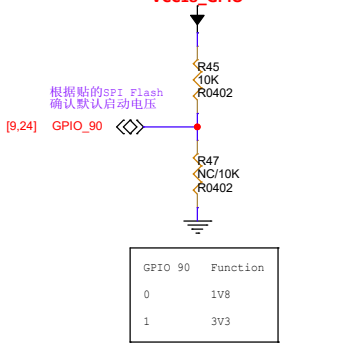
SPI FLASH



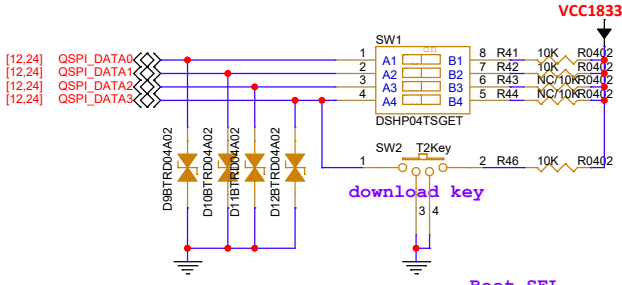
Micro SD Connector



Flash Boot voltage sel



GPIO_90	Function
0	1V8
1	3V3



boot download sel

QSPI_DATA3	Function
0	启动
1	下载

download sel

QSPI_DATA2	Function
0	USB
1	UART

Boot SEL

QSPI_DATA1	QSPI_DATA0	Function
0	0	TF Card -> EMMC
0	1	TF Card -> SPI NOR
1	0	TF Card -> SPI NAND
1	1	TF Card -> SD

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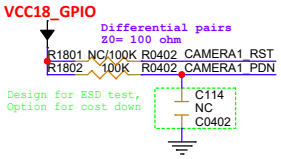
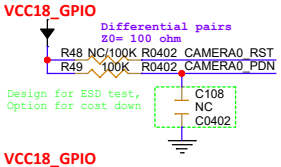
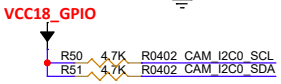
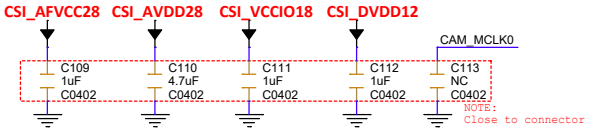
CAMERA

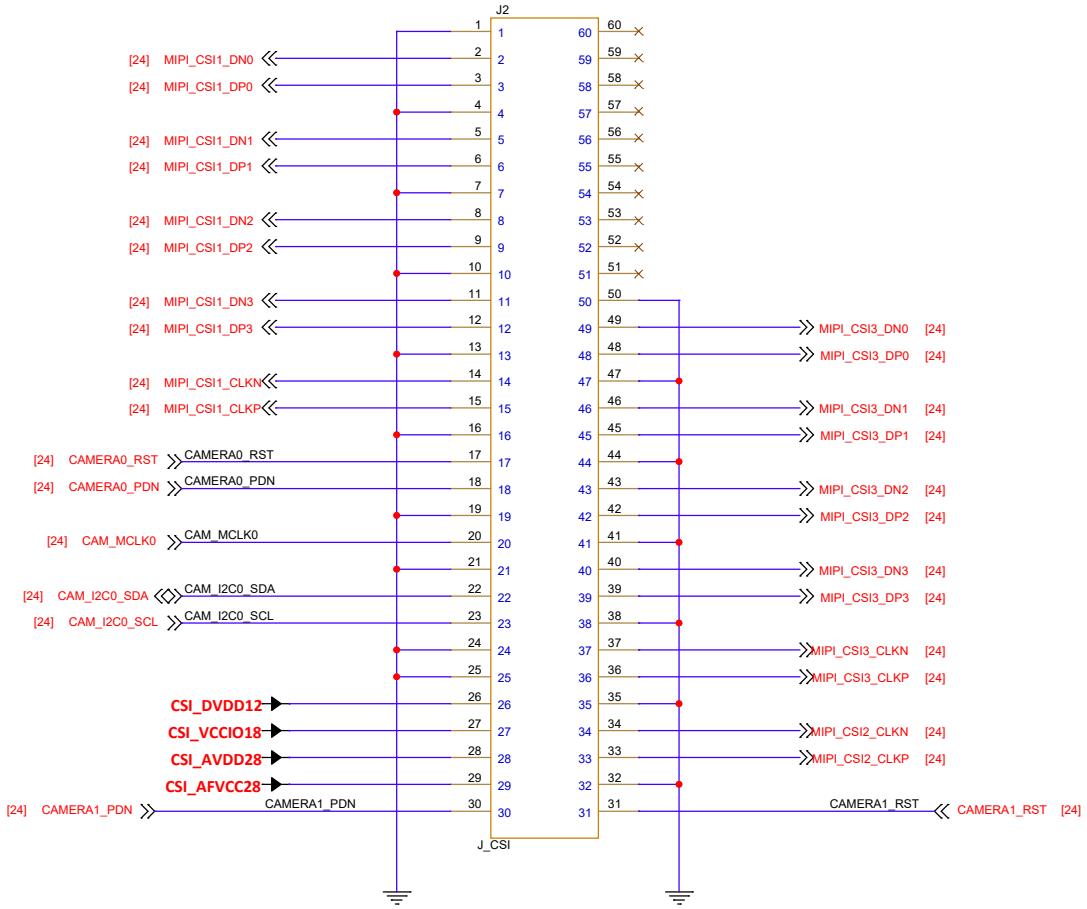






CSI1、2、3共用一组MCLK和I2C，
CSI2、3共用一组RST、PDN；
因此在自营SBC大尺寸中仅可单摄使用





		信号	时钟	I2C	RST&PDN
4+2+2	CSI1	MIPI_CSI1_D0 MIPI_CSI1_D1 MIPI_CSI1_D2 MIPI_CSI1_D3	CAM_MCLK0 MIPI_CSI1_CLK	CAM_I2C0	CAMERA0_PDN CAMERA0_RST
	CSI2	MIPI_CSI3_D2 MIPI_CSI3_D3	CAM_MCLK1 MIPI_CSI2_CLK	CAM_I2C1	CAMERA1_PDN CAMERA1_RST
	CSI3	MIPI_CSI3_D0 MIPI_CSI3_D1	CAM_MCLK2 MIPI_CSI3_CLK	CAM_I2C2	CAMERA2_PDN CAMERA2_RST

		信号线		I2C	RST&PDN
4+4	CSI1	MIPI_CSI1_D0 MIPI_CSI1_D1 MIPI_CSI1_D2 MIPI_CSI1_D3	CAM_MCLK0 MIPI_CSI1_CLK	CAM_I2C0	CAMERA0_PDN CAMERA0_RST
	CSI2	MIPI_CSI3_D0 MIPI_CSI3_D1 MIPI_CSI3_D2 MIPI_CSI3_D3	CAM_MCLK1 MIPI_CSI3CLK	CAM_I2C1	CAMERA1_PDN CAMERA1_RST

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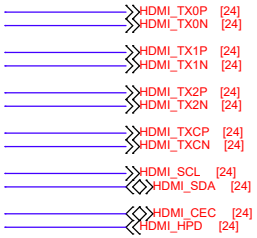
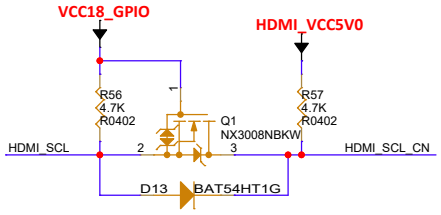
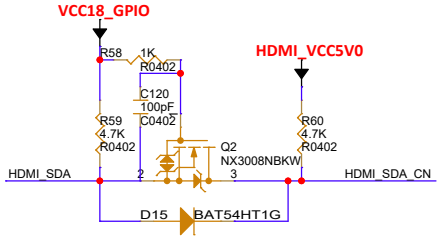
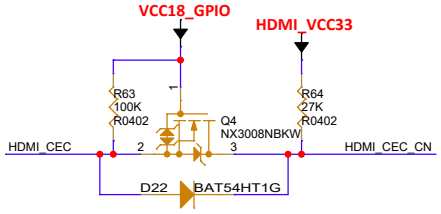
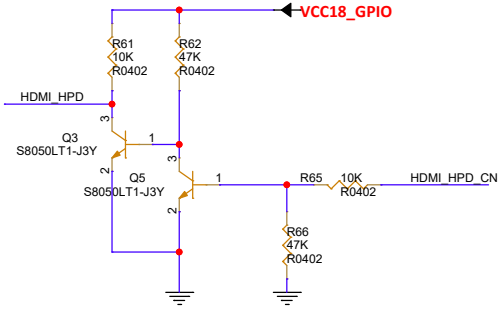
HDMI

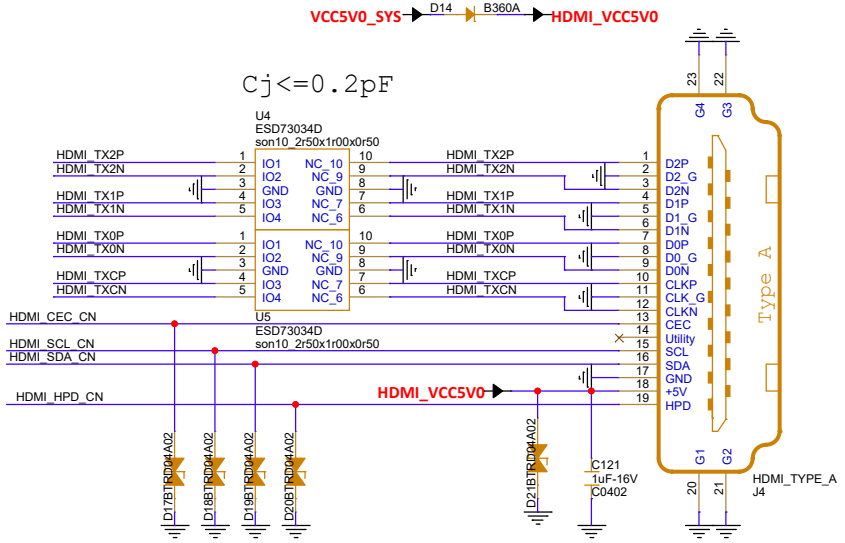












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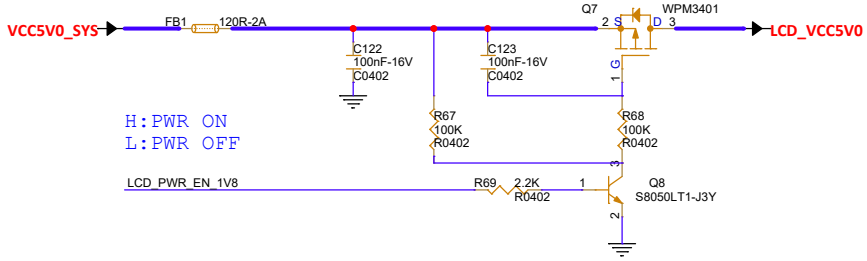
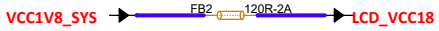
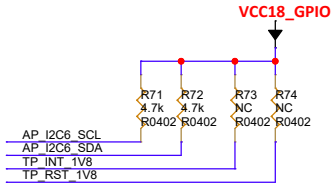
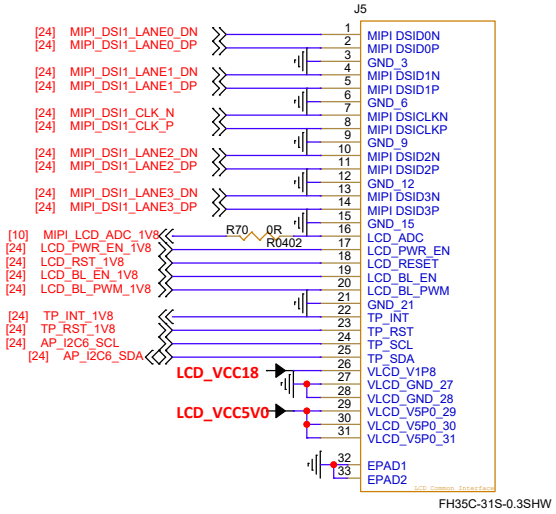
MIPI-DSI









FH35C-31S-0.3SHW

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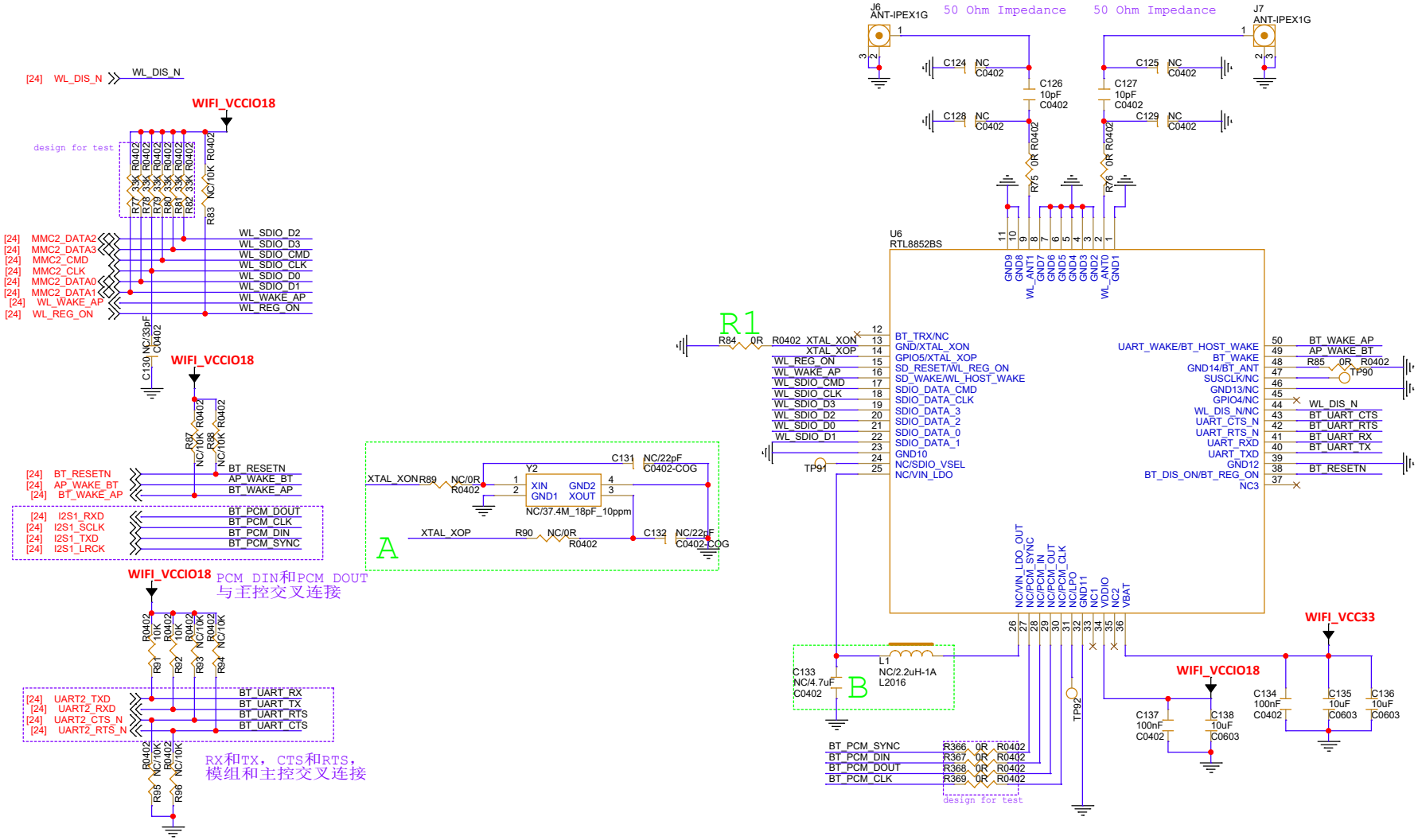
RTL8852BS



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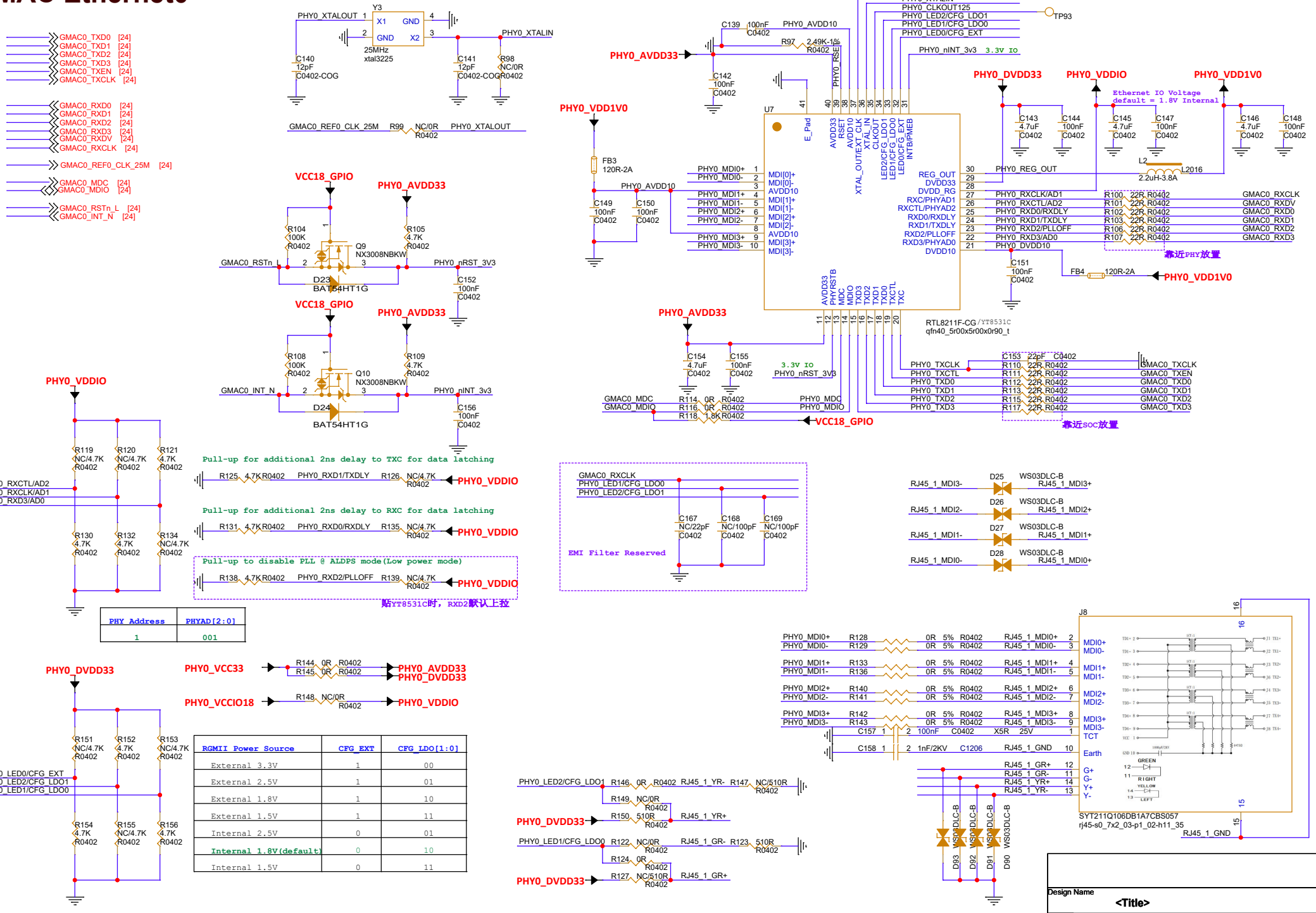
GMAC Ethernet0



PHY Address	PHYAD[2:0]
1	001

RGMII Power Source	CFG_EXT	CFG_LDO[1:0]
External 3.3V	1	00
External 2.5V	1	01
External 1.8V	1	10
External 1.5V	1	11
Internal 2.5V	0	01
Internal 1.8V(default)	0	10
Internal 1.5V	0	11

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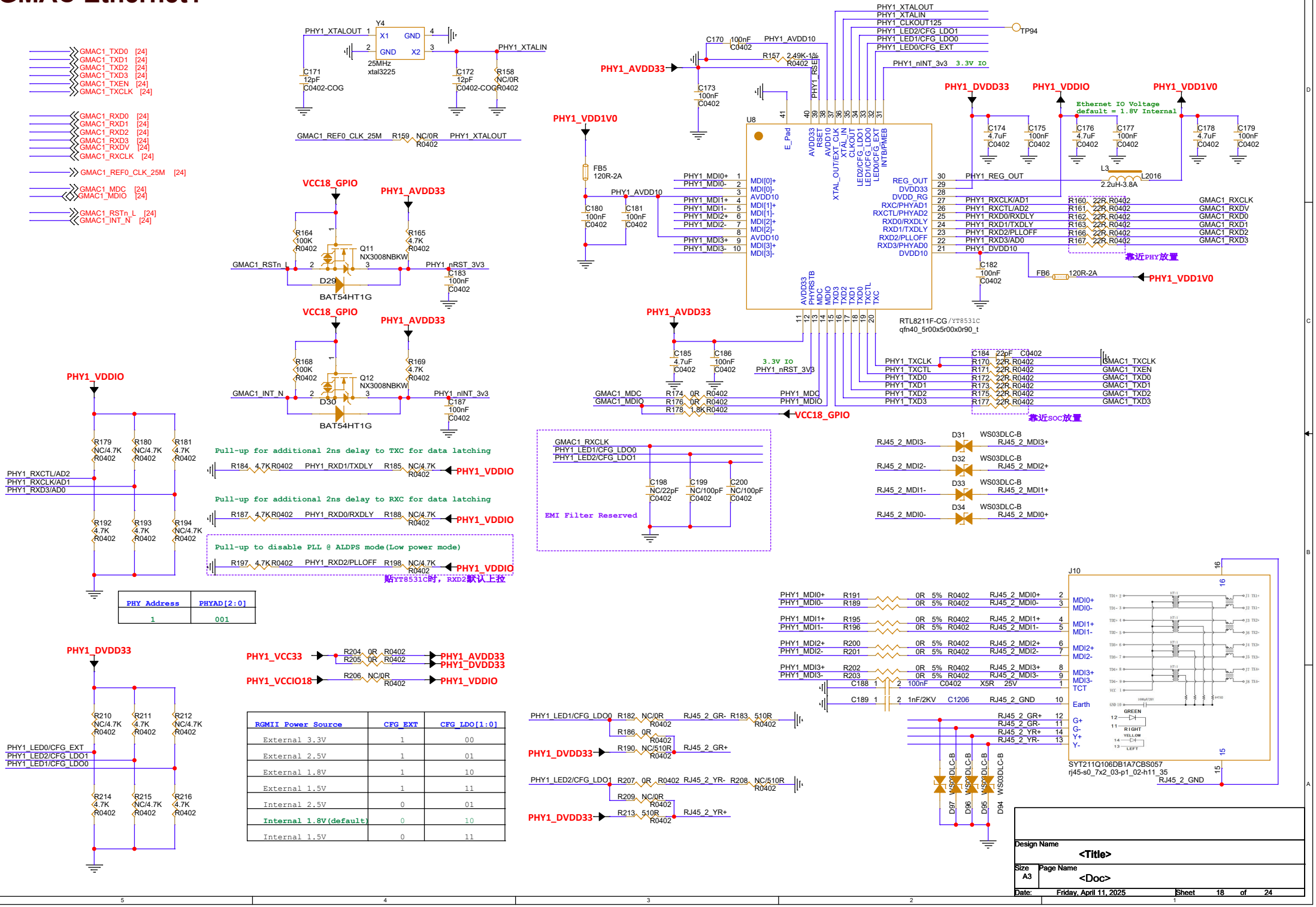
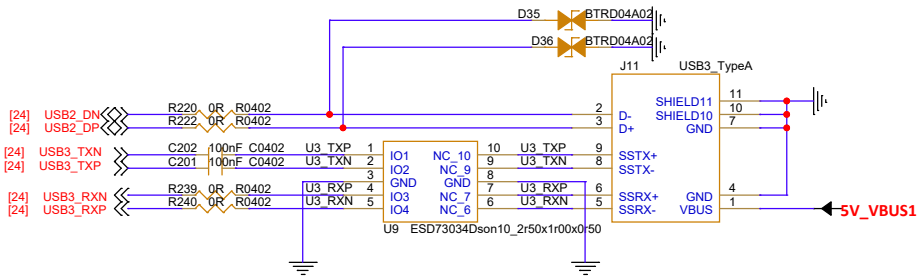
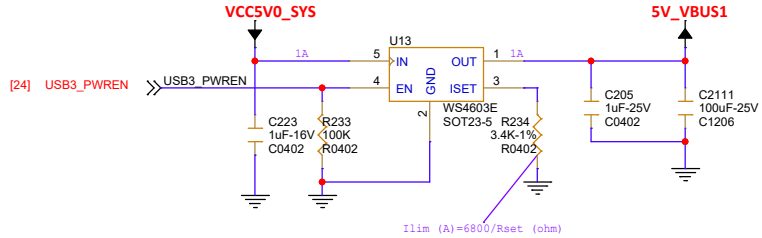
GMAC Ethernet1

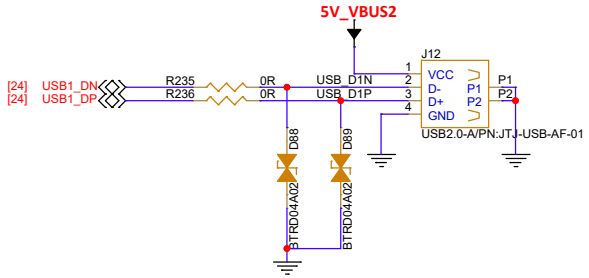


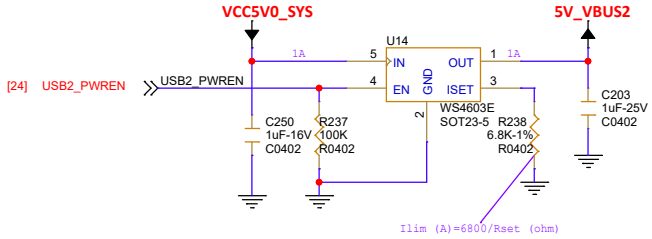
USB3.0 TYPEA



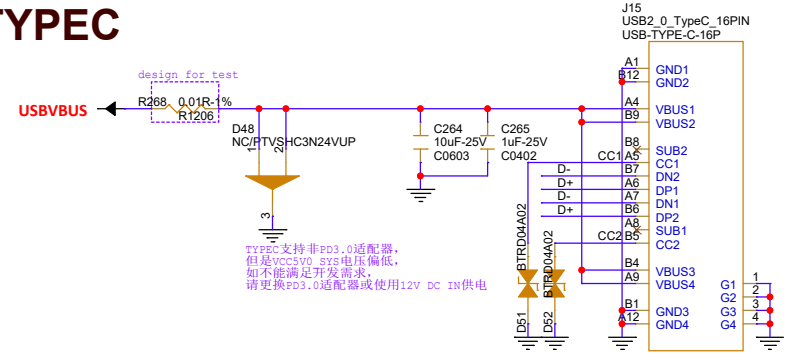


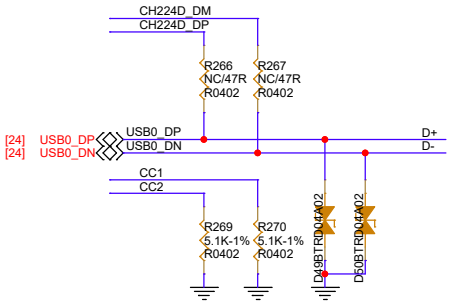
USB2.0 TYPEA-HOST

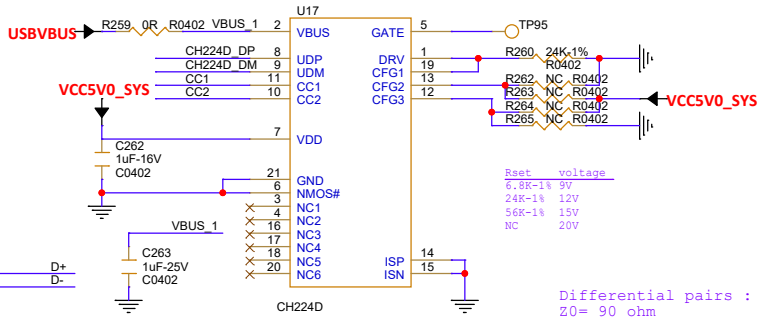




USB2.0 TYPEC







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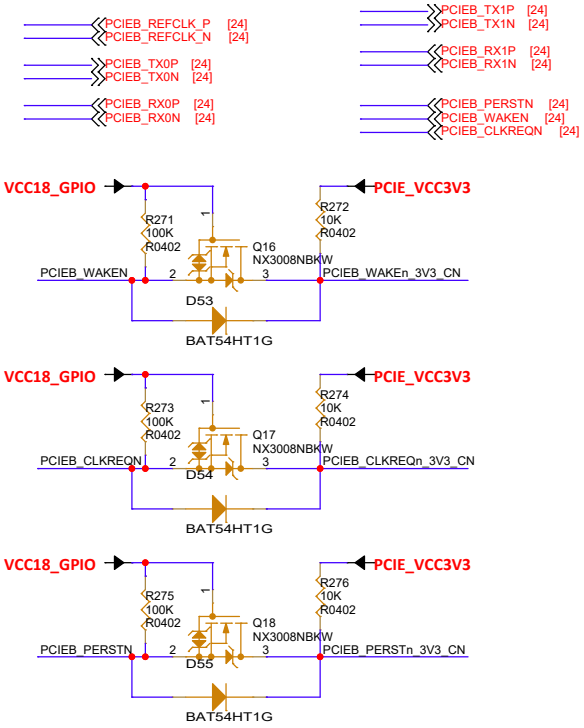
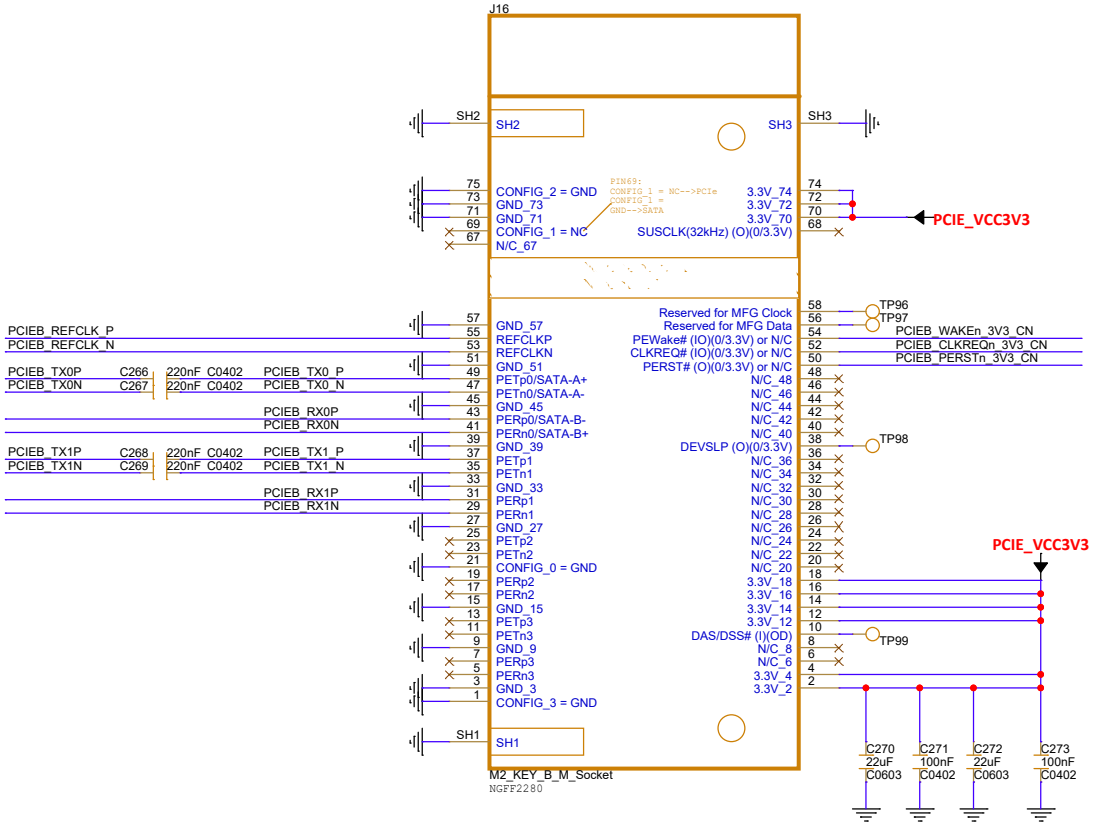
PCIEB





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PCIEC

PCIEC_REFCLK_P [24]
PCIEC_REFCLK_N [24]
PCIEC_TX0P [24]
PCIEC_TX0N [24]
PCIEC_RX0P [24]
PCIEC_RX0N [24]
PCIEC_TX1P [24]
PCIEC_TX1N [24]
PCIEC_RX1P [24]
PCIEC_RX1N [24]
PCIEC_PERSTN [24]
PCIEC_WAKEN [24]
PCIEC_CLKREQN [24]

VCC18_GPIO
R282 100K R0402
Q19 NX3008NBKW
R283 10K R0402
PCIE_VCC3V3
PCIEC_WAKEN
PCIEC_WAKEn_3V3_CN
D56 BAT54HT1G

VCC18_GPIO
R288 100K R0402
Q20 NX3008NBKW
R289 10K R0402
PCIE_VCC3V3
PCIEC_CLKREQN
PCIEC_CLKREQn_3V3_CN
D57 BAT54HT1G

VCC18_GPIO
R290 100K R0402
Q21 NX3008NBKW
R291 10K R0402
PCIE_VCC3V3
PCIEC_PERSTN
PCIEC_PERSTn_3V3_CN
D58 BAT54HT1G

J17
M2_KEY_B_M_Socket
NGFF2280

SH2 SH3 SH1

75	CONFIG_2 = GND		3.3V_74	74	
73	GND_73		3.3V_72	72	
71	GND_71		3.3V_70	70	PCIE_VCC3V3
69	CONFIG_1 = NC		SUSCLK(32kHz) (O)(0/3.3V)	68	
67	N/C_67				
			Reserved for MFG Clock	58	TP100
			Reserved for MFG Data	56	TP101
57	GND_57		PEWake# (IO)(0/3.3V) or N/C	54	PCIEC_WAKEn_3V3_CN
55	REFCLKP	PCIEC_REFCLK_P	CLKREQ# (IO)(0/3.3V) or N/C	52	PCIEC_CLKREQn_3V3_CN
53	REFCLKN	PCIEC_REFCLK_N	PERST# (O)(0/3.3V) or N/C	50	PCIEC_PERSTn_3V3_CN
51	GND_51		N/C_48	48	
49	PETp0/SATA-A+	PCIEC_TX0P C274 220nF C0402	N/C_46	46	
47	PETn0/SATA-A-	PCIEC_TX0N C275 220nF C0402	N/C_44	44	
45	GND_45		N/C_42	42	
43	PERp0/SATA-B-	PCIEC_RX0P	N/C_40	40	
41	PERn0/SATA-B+	PCIEC_RX0N	DEVSLP (O)(0/3.3V)	38	TP102
39	GND_39		N/C_36	36	
37	PETp1	PCIEC_TX1P C284 220nF C0402	N/C_34	34	
35	PETn1	PCIEC_TX1N C285 220nF C0402	N/C_32	32	
33	GND_33		N/C_30	30	
31	PERp1	PCIEC_RX1P	N/C_28	28	
29	PERn1	PCIEC_RX1N	N/C_26	26	
27	GND_27		N/C_24	24	
25	PETp2		N/C_22	22	
23	PETn2		N/C_20	20	
21	CONFIG_0 = GND		3.3V_18	18	PCIE_VCC3V3
19	PERp2		3.3V_16	16	
17	PERn2		3.3V_14	14	
15	GND_15		3.3V_12	12	
13	PETp3		DAS/DSS# (I)(OD)	10	TP103
11	PETn3		N/C_8	8	
9	GND_9		N/C_6	6	
7	PERp3		3.3V_4	4	
5	PERn3		3.3V_2	2	
3	GND_3				
1	CONFIG_3 = GND				

C286 22uF C0603
C287 100nF C0402
C289 22uF C0603
C290 100nF C0402

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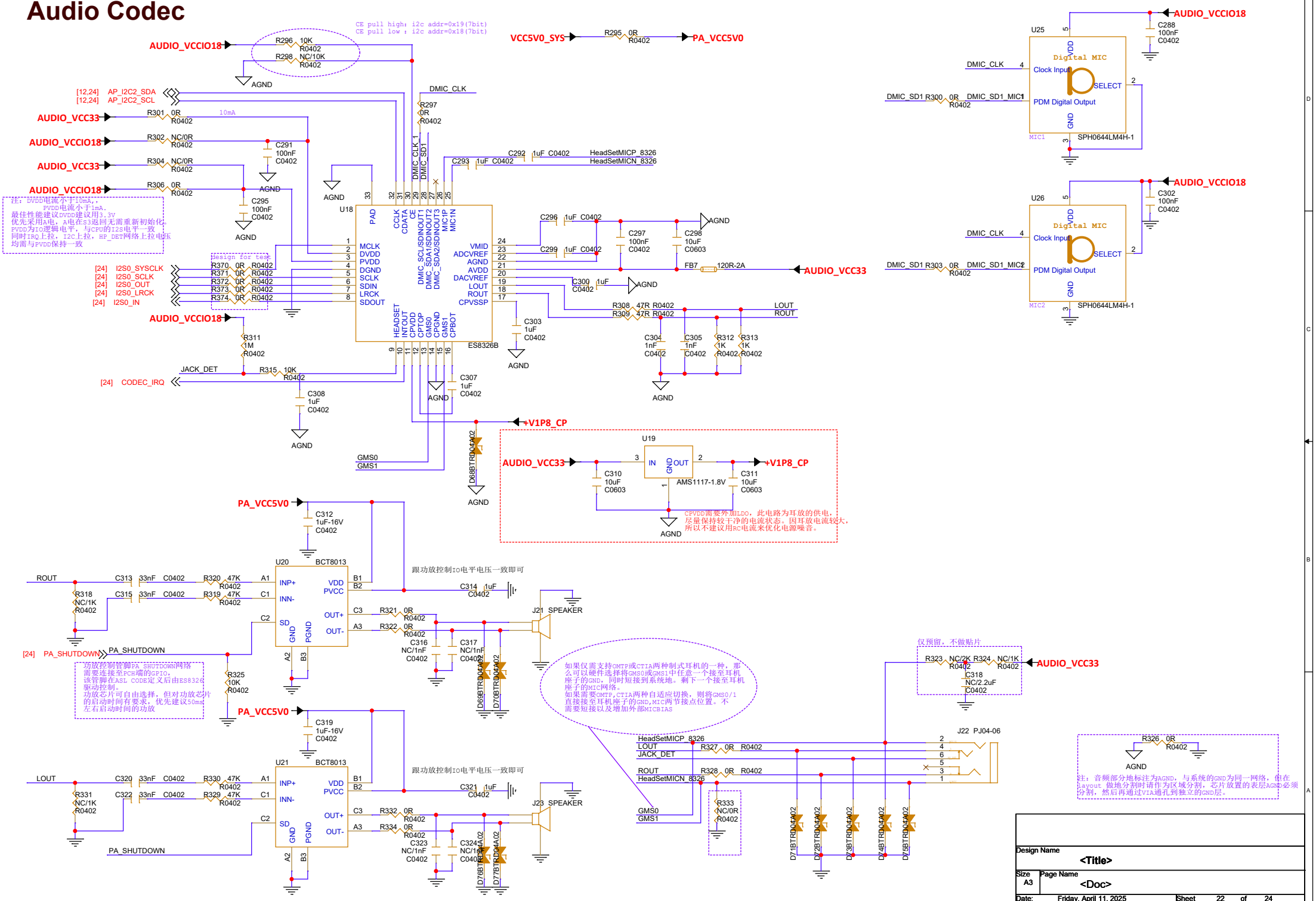
Audio Codec


CE pull high: i2c addr=0x19(7bit)
CE pull low : i2c addr=0x18(7bit)
AUDIO_VCCIO18
R296 10K R0402
R298 NC/10K R0402
AGND
VCC5V0_SYS
R295 0R R0402
PA_VCC5V0
[12,24] AP_I2C2_SDA
[12,24] AP_I2C2_SCL
AUDIO_VCC33
R301 0R R0402 10mA
AUDIO_VCCIO18
R302 NC/0R R0402
C291 100nF C0402
AUDIO_VCC33
R304 NC/0R R0402
AUDIO_VCCIO18
R306 0R R0402
C295 100nF C0402
注：DVDD电流小于10mA，
PVDD电流小于1mA.
最佳性能建议DVDD建议用3.3V
优先采用A电，A电在S3返回无需重新初始化
PVDD为IO逻辑电平，与CPU的I2S电平一致
同时IRQ上拉，I2C上拉，HP_DET网络上拉电压
均需与PVDD保持一致
DMIC_CLK
R297 0R R0402
DMIC_CLK_1
DMIC_SD1
C293 1uF C0402
C292 1uF C0402
HeadSetMICP_8326
HeadSetMICN_8326
U18
PAD
CCLK
CDATA
CE
DMIC_SCL/SDINOUT1
DMIC_SDA1/SDINOUT2
DMIC_SDA2/SDINOUT3
MIC1P
MIC1N
MCLK
DVDD
PVDD
DGND
SCLK
SDIN
LRCK
SDOUT
VMID
ADCVREF
AGND
AVDD
DACVREF
LOUT
ROUT
CPVSSP
ES8326B
C296 1uF C0402
C299 1uF C0402
C297 100nF C0402
C298 10uF C0603
FB7 120R-2A
AUDIO_VCC33
C300 1uF C0402
R308 47R R0402
R309 47R R0402
LOUT
ROUT
C303 1uF C0402
C304 1nF C0402
C305 1nF C0402
R312 1K R0402
R313 1K R0402
design for test
[24] I2S0_SYSCLK
[24] I2S0_SCLK
[24] I2S0_OUT
[24] I2S0_LRCK
[24] I2S0_IN
R370 0R R0402
R371 0R R0402
R372 0R R0402
R373 0R R0402
R374 0R R0402
AUDIO_VCCIO18
R311 1M R0402
JACK_DET
R315 10K R0402
[24] CODEC_IRQ
C308 1uF C0402
C307 1uF C0402
HEADSET
HPOUT
DVDD
CPTOP
GMS0
CPGND
GMS1
CPBOT
GMS0
GMS1
D68BTRD04A02
+V1P8_CP
U19
AUDIO_VCC33
IN
GND
OUT
AMS1117-1.8V
C310 10uF C0603
C311 10uF C0603
+V1P8_CP
CPVDD需要外加LDO，此电路为耳放的供电，
尽量保持较干净的电流状态。因耳放电流较大，
所以不建议用RC电流来优化电源噪音。
U25
Digital MIC
Clock Input
SELECT
PDM Digital Output
VDD
GND
DMIC_CLK
DMIC_SD1
R300 0R R0402
DMIC_SD1_MIC1
MIC1
SPH0644LM4H-1
C288 100nF C0402
AUDIO_VCCIO18
U26
Digital MIC
Clock Input
SELECT
PDM Digital Output
DMIC_CLK
DMIC_SD1
R303 0R R0402
DMIC_SD1_MIC2
MIC2
SPH0644LM4H-1
C302 100nF C0402
AUDIO_VCCIO18
PA_VCC5V0
C312 1uF-16V C0402
U20
BCT8013
INP+
INN-
SD
GND
PGND
VDD
PVCC
OUT+
OUT-
ROUT
C313 33nF C0402
R320 47K R0402
C315 33nF C0402
R319 47K R0402
R318 NC/1K R0402
C2
A2
B3
A1
C1
B1
B2
C3
A3
跟功放控制IO电平电压一致即可
C314 1uF C0402
R321 0R R0402
R322 0R R0402
C316 NC/1nF C0402
C317 NC/1nF C0402
J21 SPEAKER
D69BTRD04A02
D70BTRD04A02
[24] PA_SHUTDOWN
PA_SHUTDOWN
R325 10K R0402
功放控制管脚PA_SHUTDOWN网络
需要连接至PCH端的GPIO，
该管脚在ASL CODE定义后由ES8326
驱动控制。
功放芯片可自由选择，但对功放芯片
的启动时间有要求，优先建议50ms
左右启动时间的功放
PA_VCC5V0
C319 1uF-16V C0402
U21
BCT8013
LOUT
C320 33nF C0402
R330 47K R0402
C322 33nF C0402
R329 47K R0402
R331 NC/1K R0402
跟功放控制IO电平电压一致即可
C321 1uF C0402
R332 0R R0402
R334 0R R0402
C323 NC/1nF C0402
C324 NC/1nF C0402
J23 SPEAKER
D76BTRD04A02
D77BTRD04A02
PA_SHUTDOWN
如果仅需支持OMTP或CTIA两种制式耳机的一种，那
么可以硬件选择将GMS0或GMS1中任意一个接至耳机
座子的GND，同时短接到系统地。剩下一个接至耳机
座子的MIC网络。
如果需要OMTP,CTIA两种自适应切换，则将GMS0/1
直接接至耳机座子的GND,MIC两节接点位置。不
需要短接以及增加外部MICBIAS
仅预留，不做贴片
R323 NC/2K R324 NC/1K R0402
C318 NC/2.2uF C0402
AUDIO_VCC33
HeadSetMICP_8326
LOUT
JACK_DET
R327 0R R0402
ROUT
HeadSetMICN_8326
R328 0R R0402
GMS0
GMS1
R333 NC/0R R0402
J22 PJ04-06
D71BTRD04A02
D72BTRD04A02
D73BTRD04A02
D74BTRD04A02
D75BTRD04A02
R326 0R R0402
AGND
注：音频部分地标注为AGND，与系统的GND为同一网络，但在
layout 做地分割时请作为区域分割，芯片放置的表层AGND必须
分割，然后再通过VIA通孔到独立的GND层。
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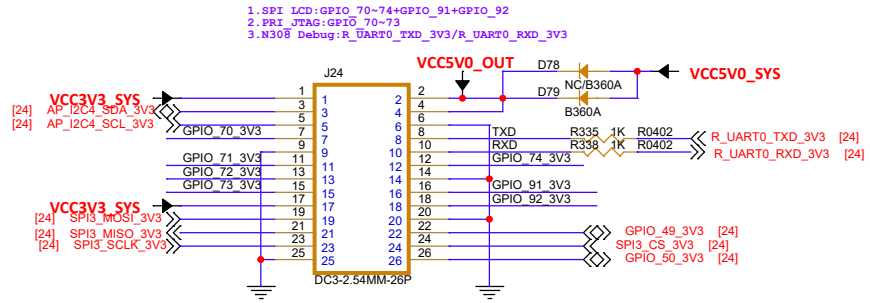
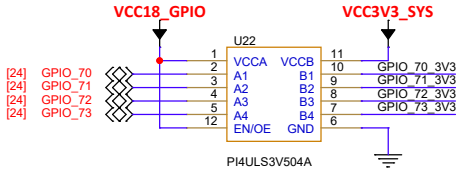
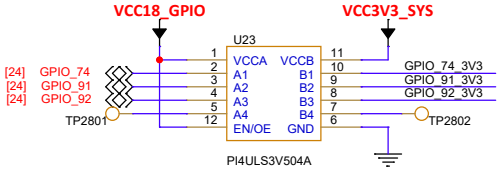
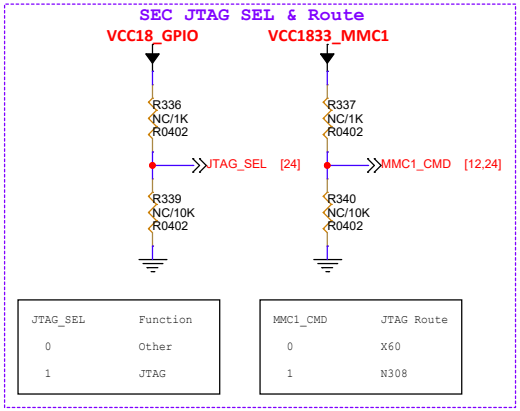
26 pin GPIO



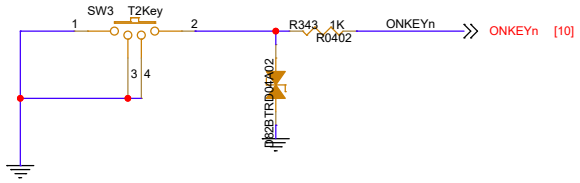




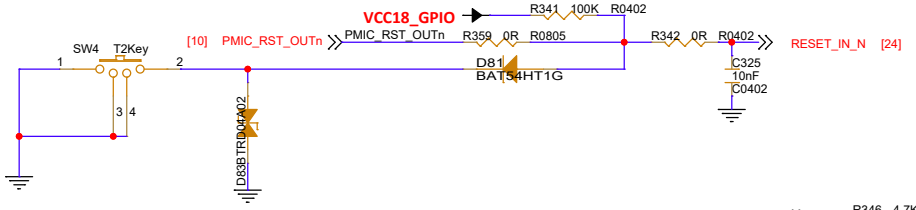
JTAG SEL



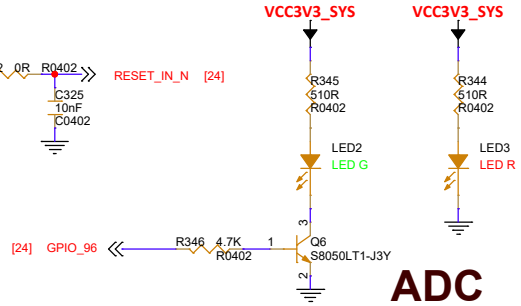
PowerON



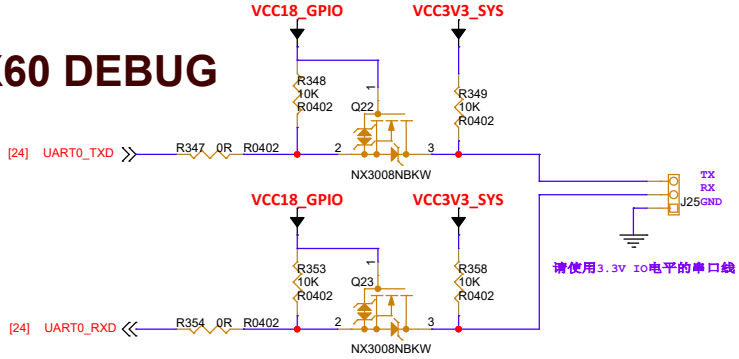
REST



LED



X60 DEBUG



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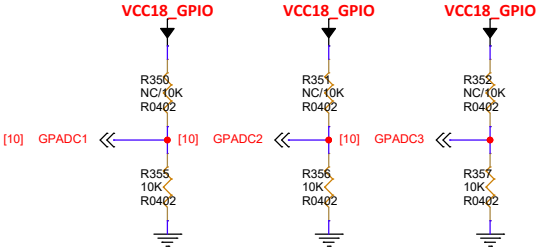
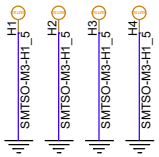


Mark Port



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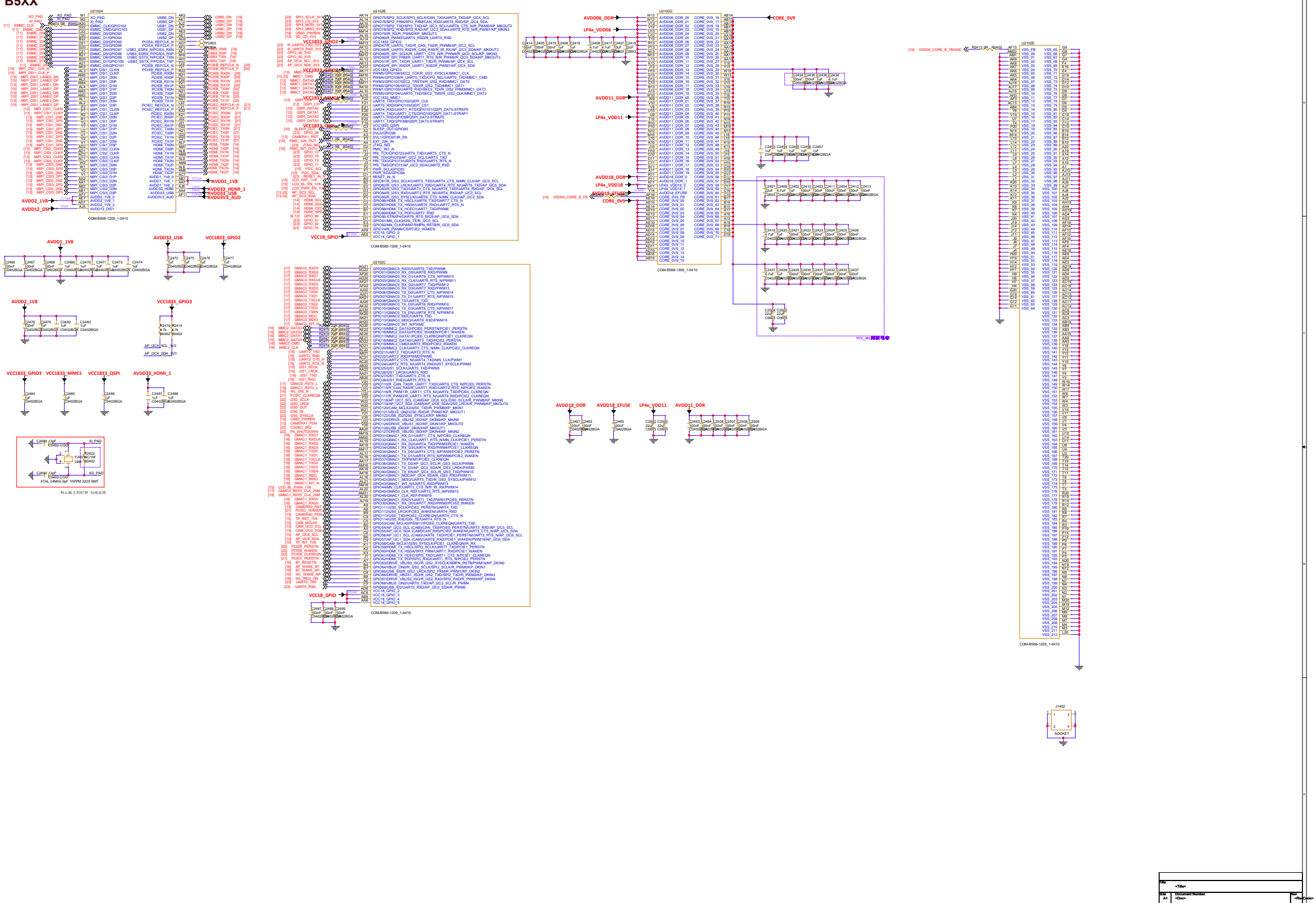

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