K1_DVP_BOARD

Revision History

Rev. Code	Date	By	Description
V1.0	2024-08-01	Bzliu	Initial version
V1.1	2028-01-18	Bzliu	1.Change Ethernet socket. 2.Optimized some power supplies and packaging.
V1.2	2025-02-10	Bzliu	1.ADD eMMC

INDEX/NOTES

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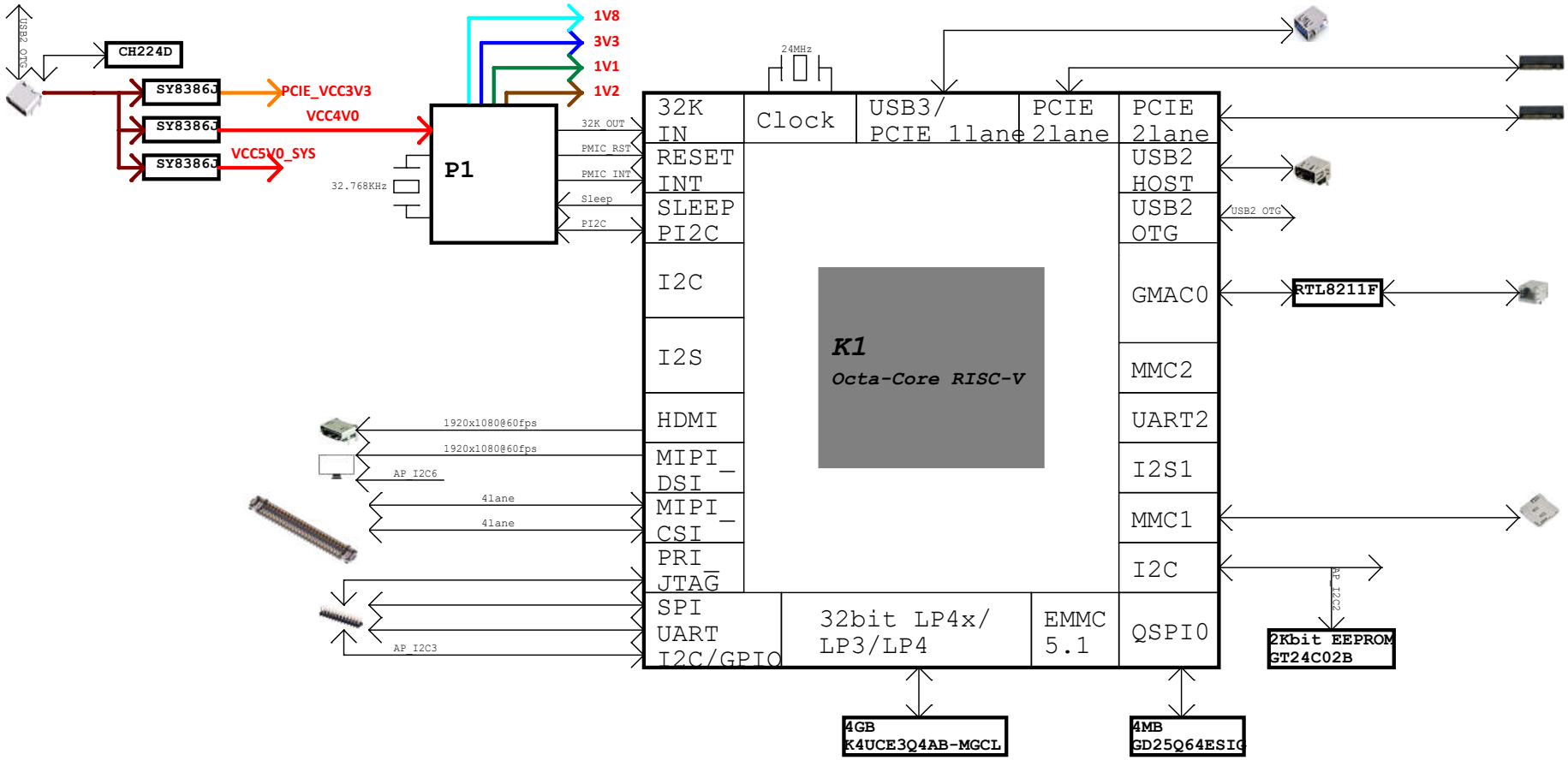
BLOCK



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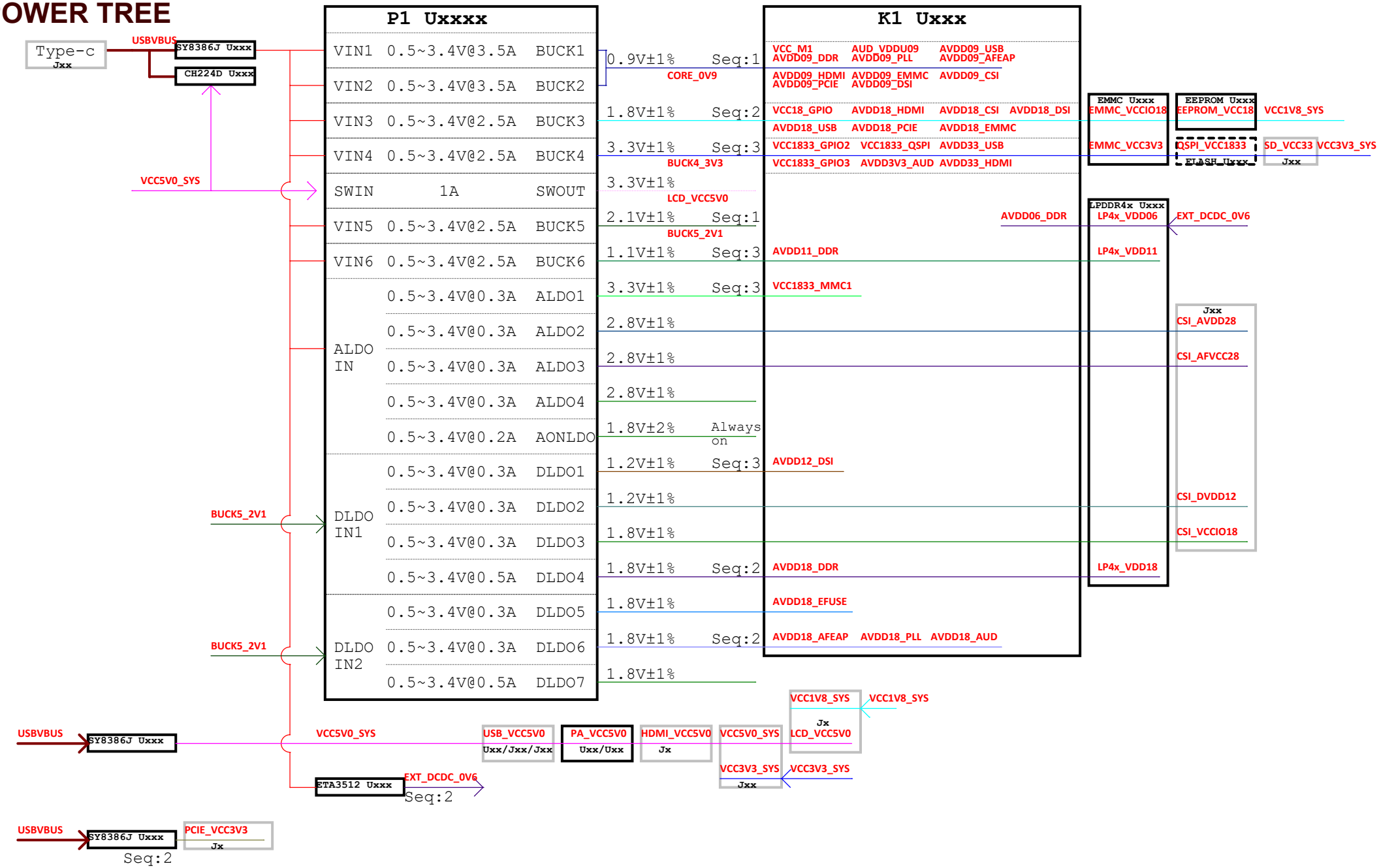
POWER TREE



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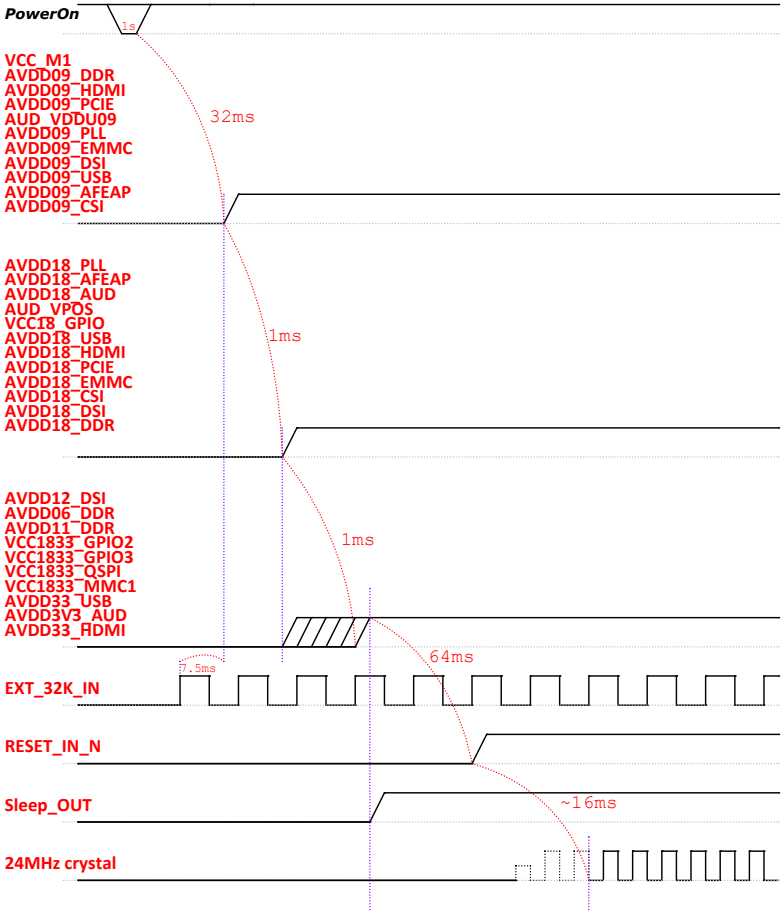
POWER SEQUENCE

Control by PMIC

冷起自动上电，后续长按关机，短按开机



P1

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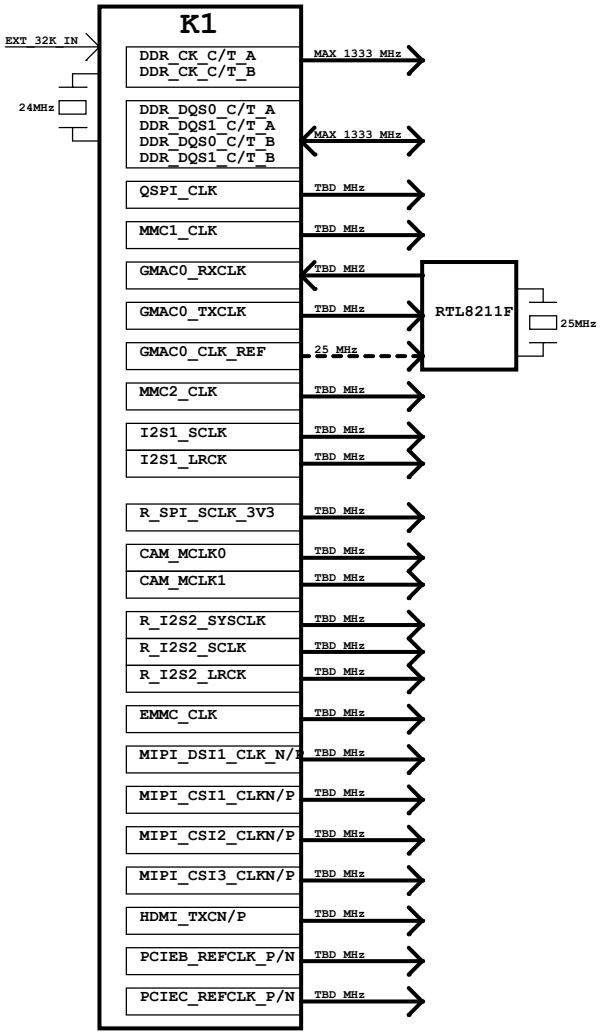
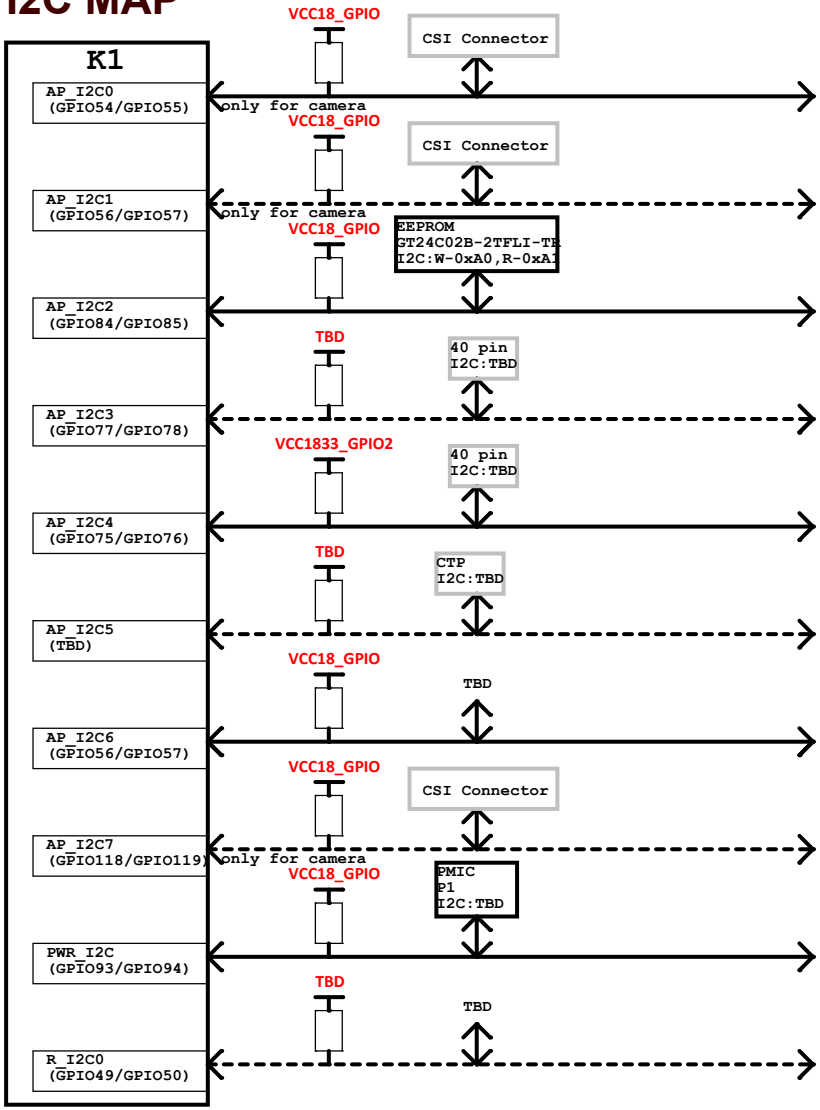
CLOCK MAP



I2C MAP



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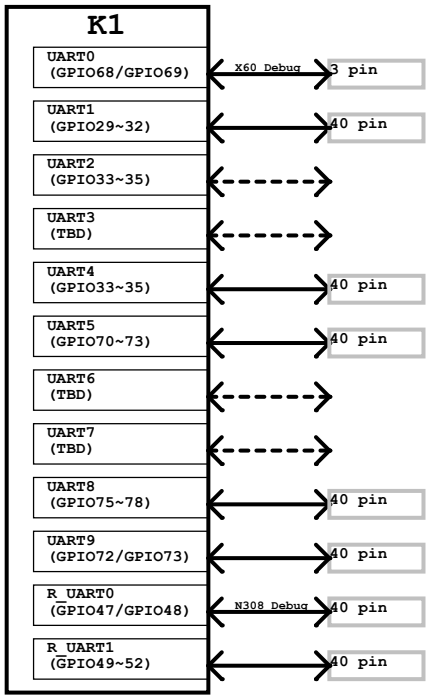
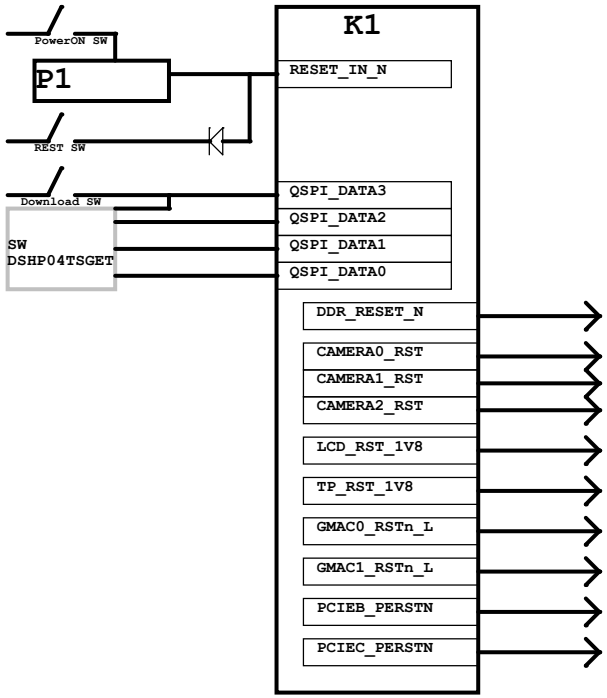
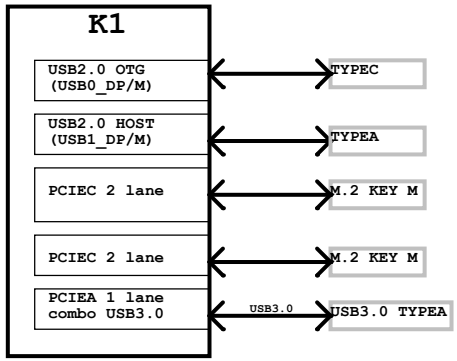
UART MAP



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	NA
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	GPIO29	0	40 pin
GPIO30	GPIO30	0	
GPIO31	GPIO31	0	
GPIO32	GPIO32	0	
GPIO33	GPIO33	0	
GPIO34	GPIO34	0	
GPIO35	GPIO35	0	
GPIO36	PCIEC_WAKEN	4	PCIEC
GPIO37	GPIO37	0	40 pin
GPIO38	AP_I2C3_SCL	2	
GPIO39	AP_I2C3_SDA	2	
GPIO40	LCD_BL_EN_1V8	0	LCD/CTP
GPIO41	LCD_RST_1V8	0	
GPIO42	CAMERA2_RST	0	NA
GPIO43	CAMERA2_PDN	0	
GPIO44	LCD_BL_PWM_1V8	4	LCD/CTP
GPIO45	GMAC0_CLK_REF	1	GMAC0
GPIO46	GPIO46	0	40 pin

PIN	Define	CFG	Function
GPIO110	GMAC0_RSTn_L	0	GMAC0
GPIO115	GPIO115	0	TP
GPIO116	WL_DIS_N	0	
GPIO117	PCIEC_CLKREQN	4	PCIEC
GPIO118	I2S0_SCLK	3	TP
GPIO119	I2S0_LRCK	3	
GPIO120	CAM_MCLK2	2	CAMERA2
GPIO121	CAMERA2_RST	0	
GPIO122	CAMERA2_PDN	0	
GPIO123	USB2_PWREN	0	USB2
GPIO124	TP_INT_1V8	0	LCD/CTP
GPIO125	AP_WAKE_BT	0	NA
GPIO126	CODEC_IRQ	0	
GPIO127	PA_SHUTDOWN	0	

PIN	Define	CFG	Function
GPIO53	CAM_MCLK0	1	CAMERA0
GPIO54	CAM_I2C0_SCL	1	
GPIO55	CAM_I2C0_SDA	1	
GPIO56	CAM_I2C1_SCL	1	CAMERA1
GPIO57	CAM_I2C1_SDA	1	
GPIO58	CAM_MCLK1	1	LCD/CTP
GPIO111	CAMERA0_RST	1	CAMERA0
GPIO112	CAMERA1_RST	1	CAMERA1
GPIO113	CAMERA0_PDN	1	CAMERA0
GPIO114	CAMERA1_PDN	1	CAMERA1
GPIO63	BT_RESETN	0	NA
GPIO64	VBUS_ON0	1	USB2
GPIO65	BT_WAKE_AP	0	NA
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	40 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	TP_RST_1V8	0	LCD/CTP
GPIO81	AP_I2C5_SCL	5	
GPIO82	AP_I2C5_SDA	5	
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	40 pin
GPIO91	GPIO91	0	
GPIO92	GPIO92	0	

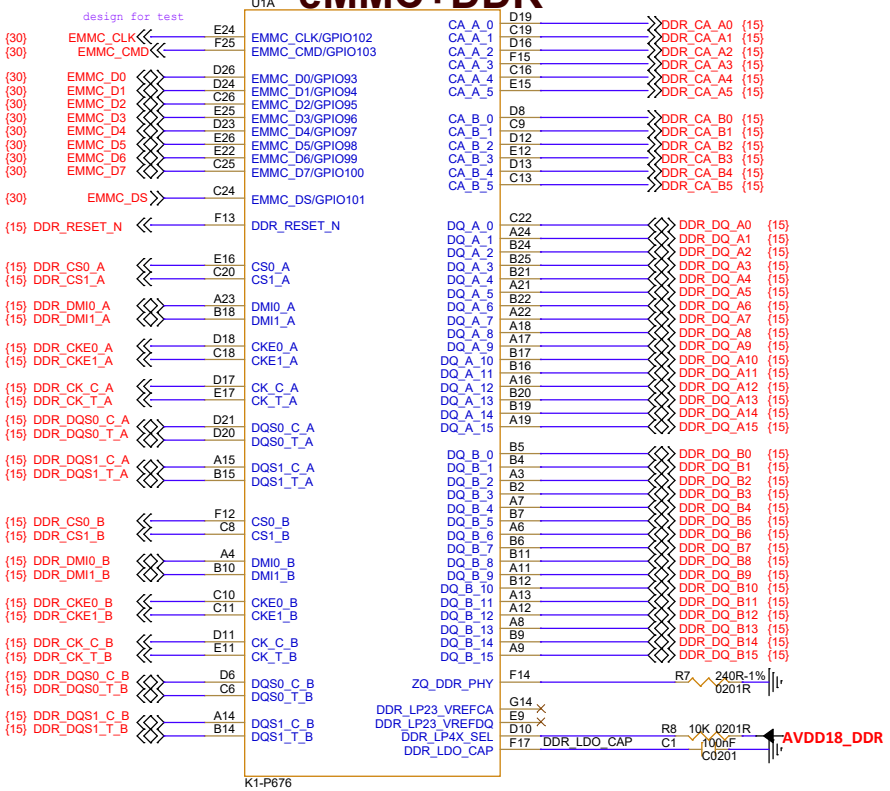
PIN	Define	CFG	Function
GPIO98	QSPI_DATA3	0	SPI FLASH
GPIO99	QSPI_DATA2	0	
GPIO100	QSPI_DATA1	0	
GPIO101	QSPI_DATA0	0	
GPIO102	QSPI_CLK	0	
GPIO103	QSPI_CS1	0	

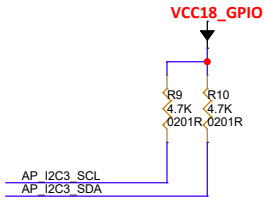
PIN	Define	CFG	Function
GPIO104	MMC1_DATA3	0	TF CARD
GPIO105	MMC1_DATA2	0	
GPIO106	MMC1_DATA1	0	
GPIO107	MMC1_DATA0	0	
GPIO108	MMC1_CMD	0	
GPIO109	MMC1_CLK	0	

PIN	Define	CFG	Function
GPIO75	SPI3_SCLK_3V3	2	40 pin
GPIO76	SPI3_CS_3V3	2	
GPIO77	SPI3_MOSI_3V3	2	
GPIO78	SPI3_MISO_3V3	2	
GPIO79	USB3_PWREN	0	USB3
GPIO80	SD_CD_3V3	1	TF CARD

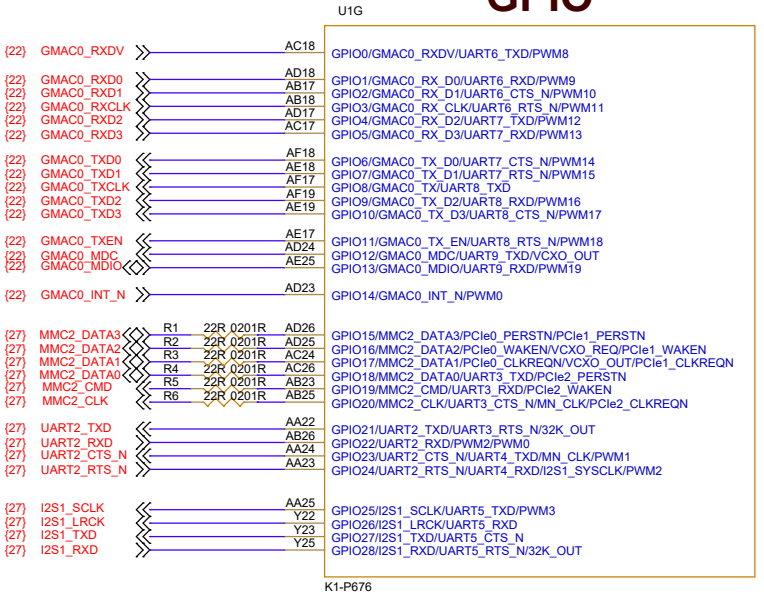
PIN	Define	CFG	Function
GPIO47	R_UART0_TXD_3V3	1	40 pin
GPIO48	R_UART0_RXD_3V3	1	
GPIO49	GPIO_49_3V3	0	
GPIO50	GPIO_50_3V3	0	
GPIO51	AP_I2C4_SCL_3V3	4	
GPIO52	AP_I2C4_SDA_3V3	4	

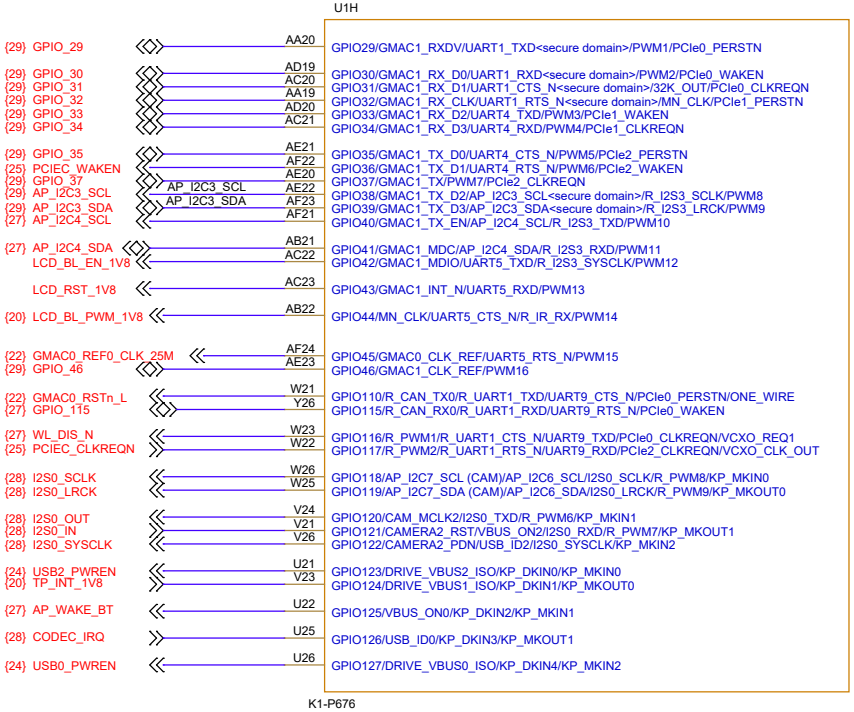
eMMC+DDR





GPIO





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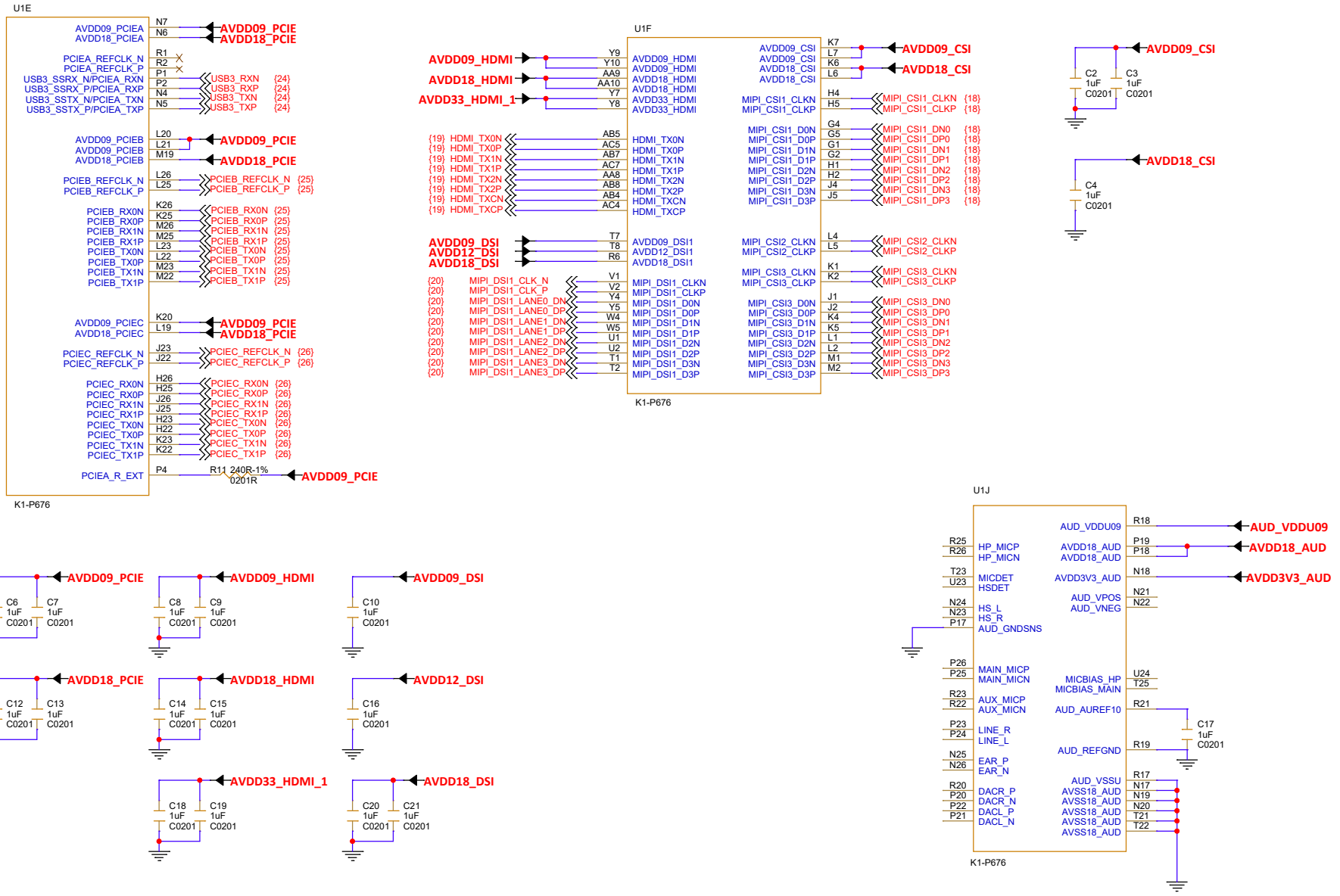

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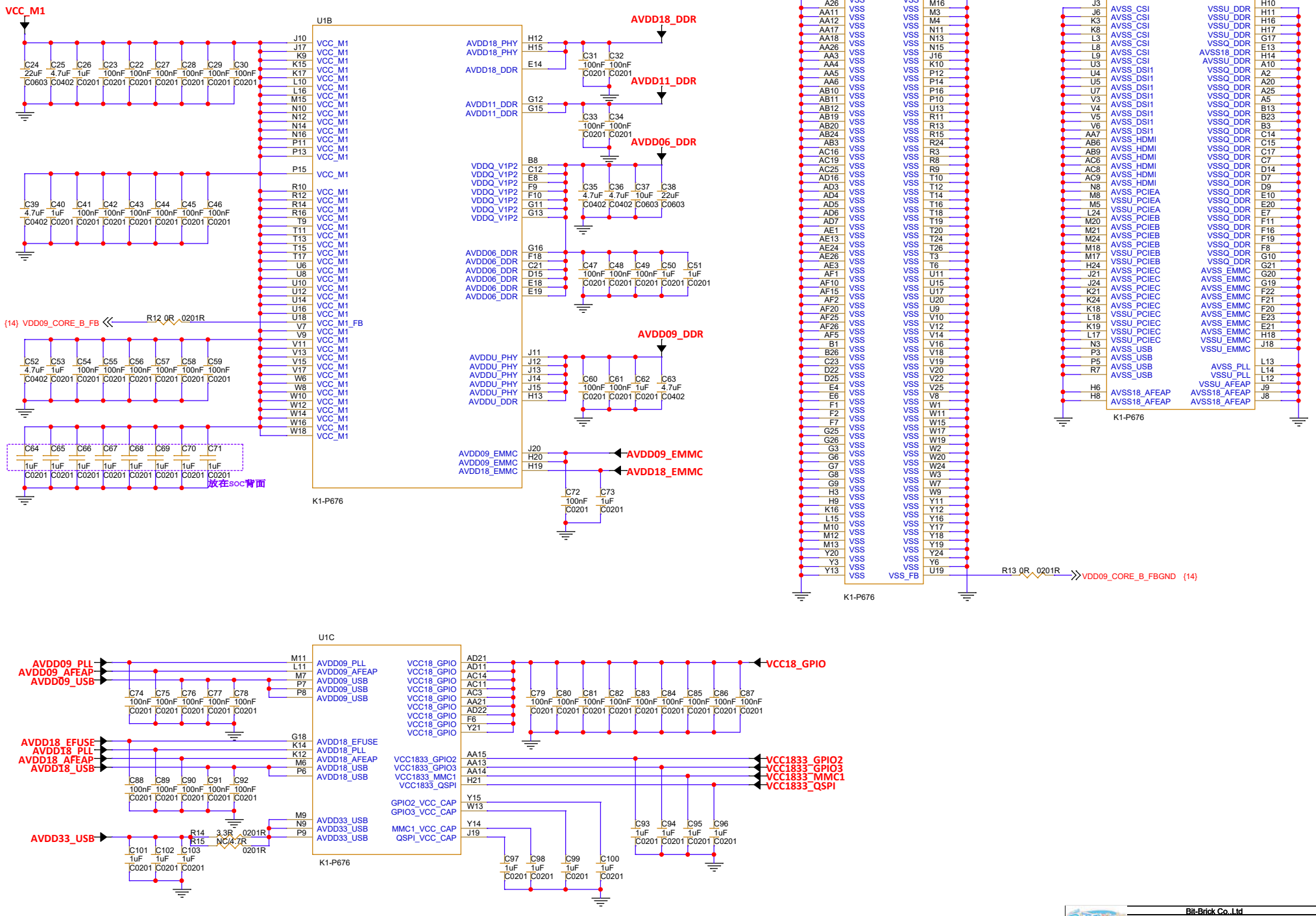
CPU-PWR



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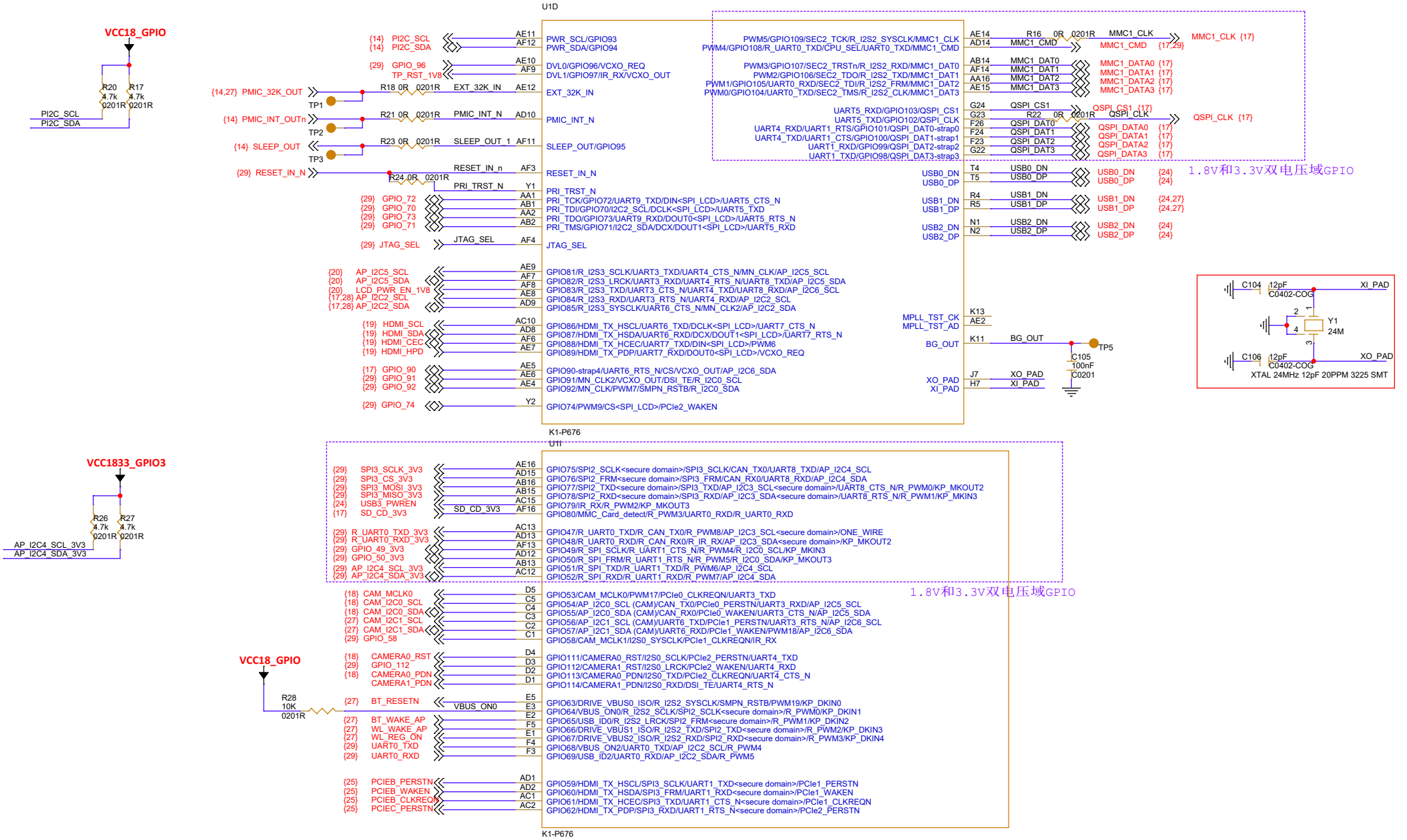
SYS-GPIO



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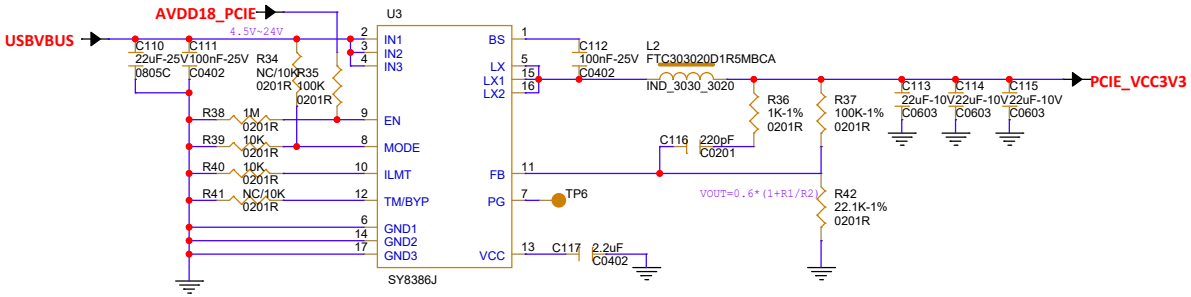
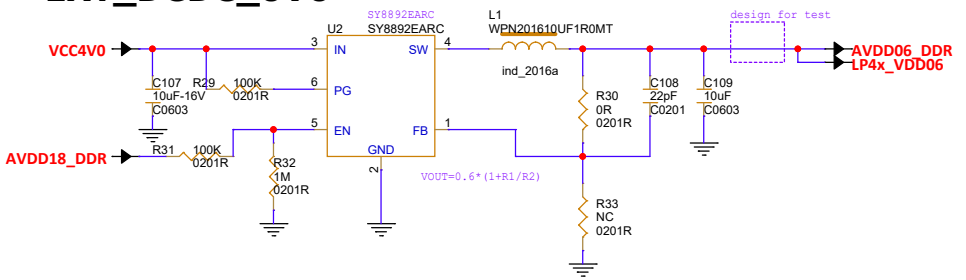
VCC5V0_SYS

PCIE_VCC3V3

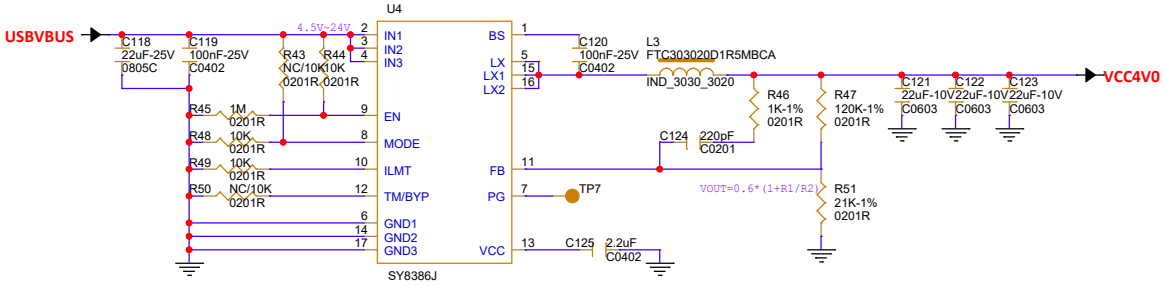
USBVBUS → VCC5V0_SYS



EXT_DCDC_0V6



PMIC_VCC4V0



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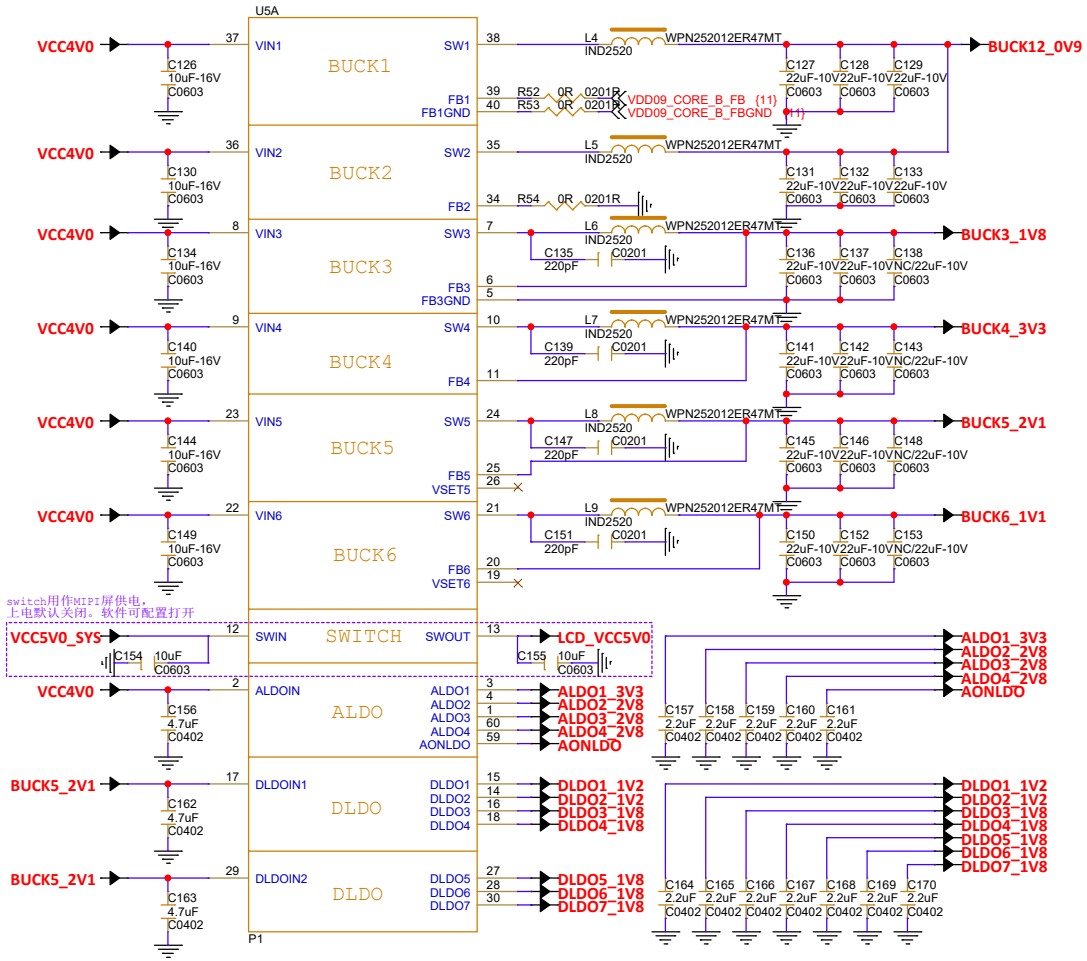

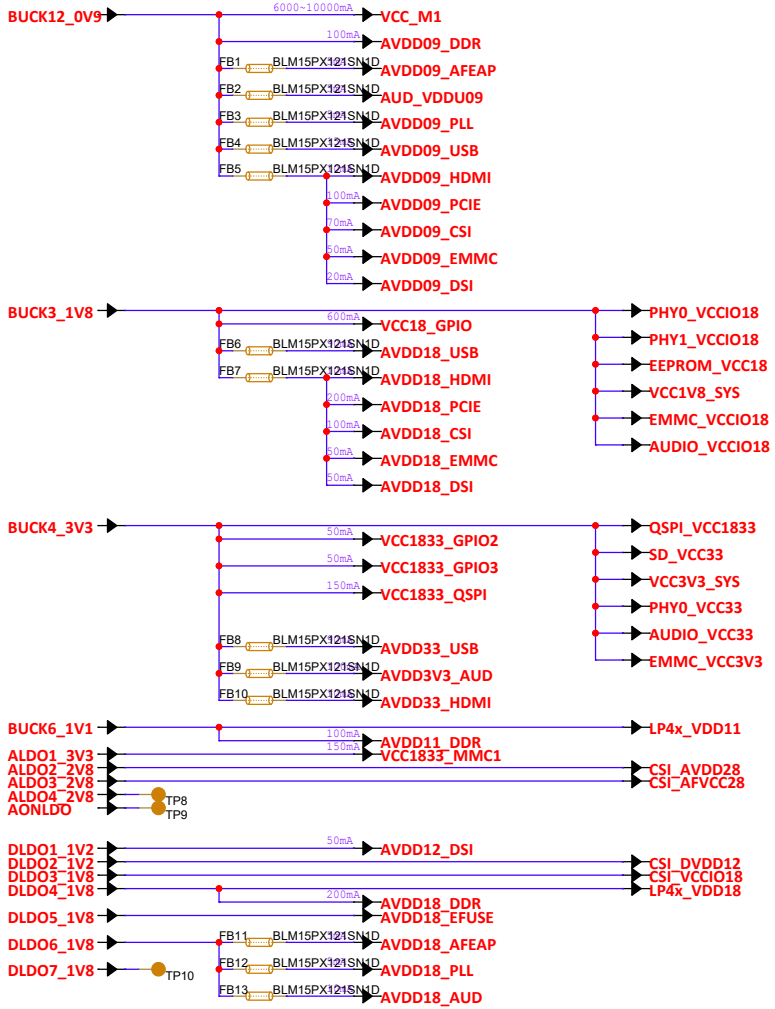

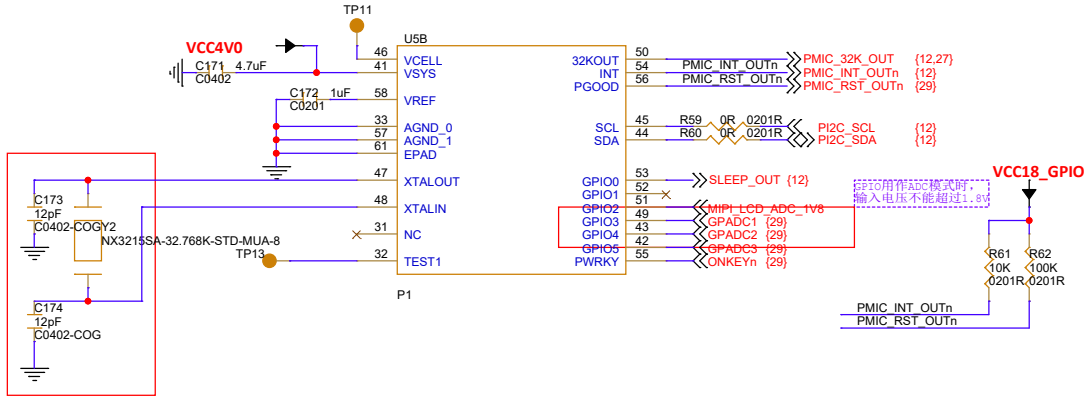

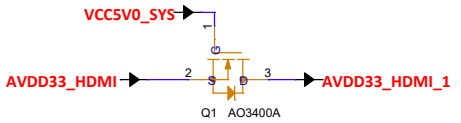

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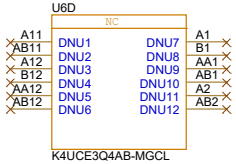
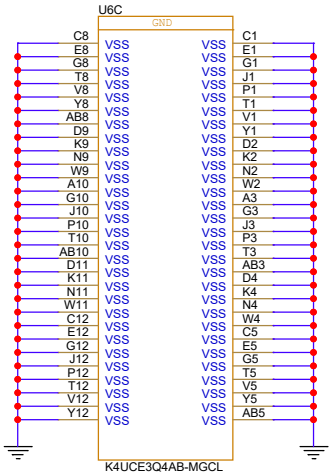
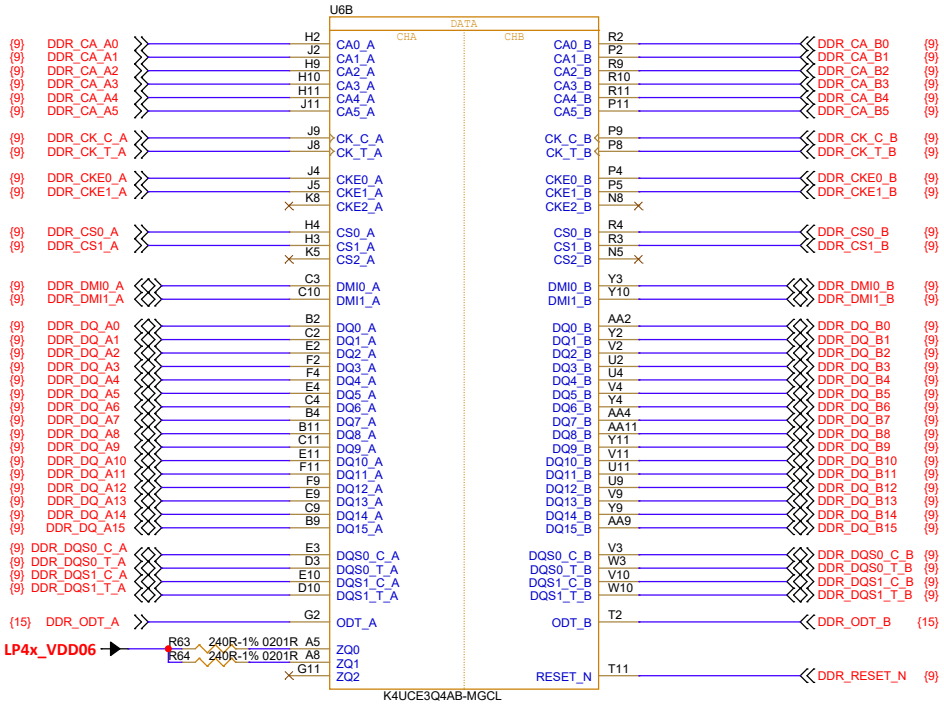
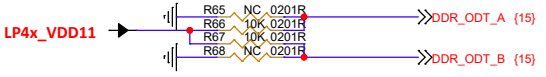
LPDDR4X

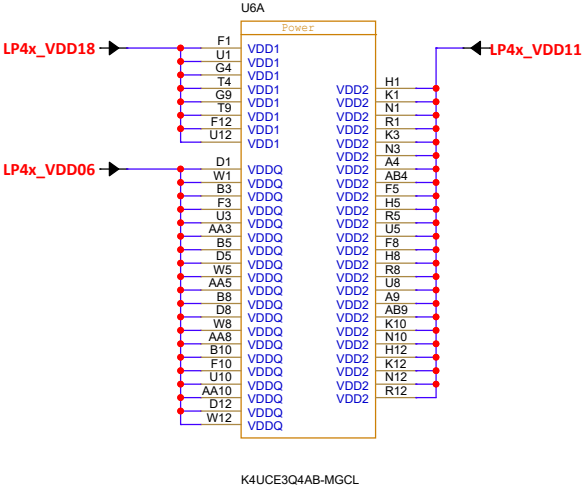
NOTE:CKE2/CS2/ZQ2 NC IN SUMSUNG

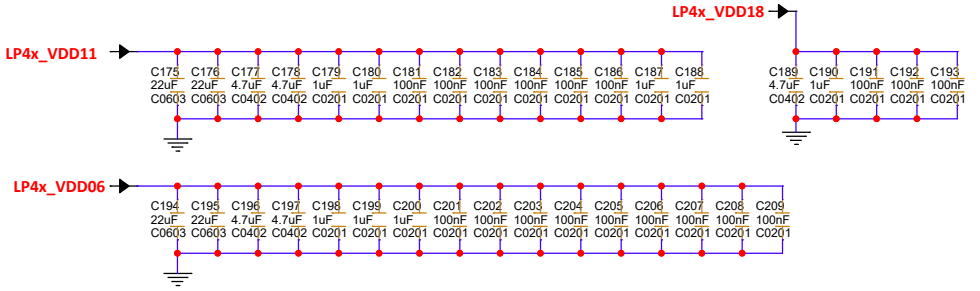












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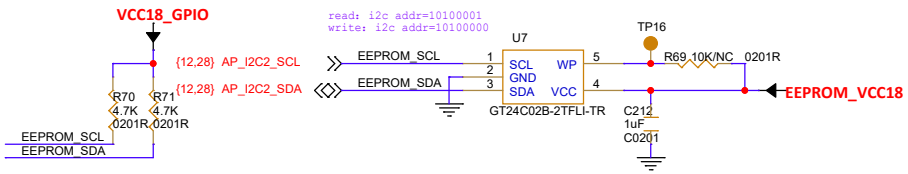
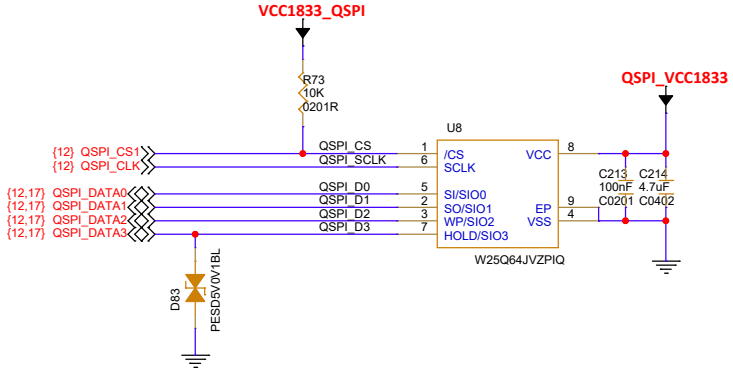
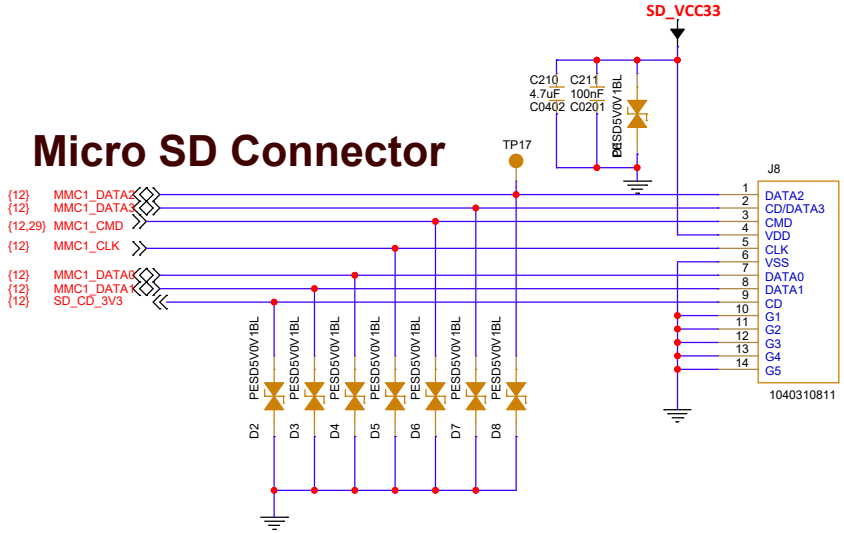
EEPROM



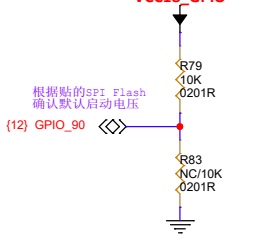
SPI FLASH



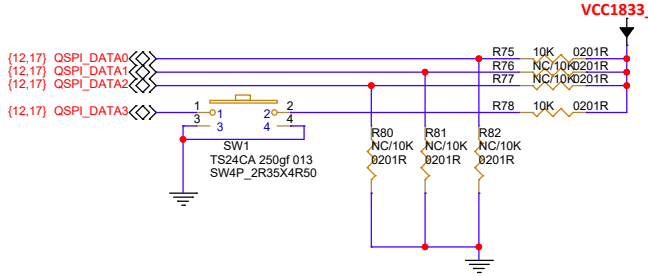
Micro SD Connector



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	1	TF Card -> SPI NOR
1	0	TF Card -> SPI NAND
1	1	TF Card -> SD

Bit-Brick Co.,Ltd			
K1_DVP_BOARD			
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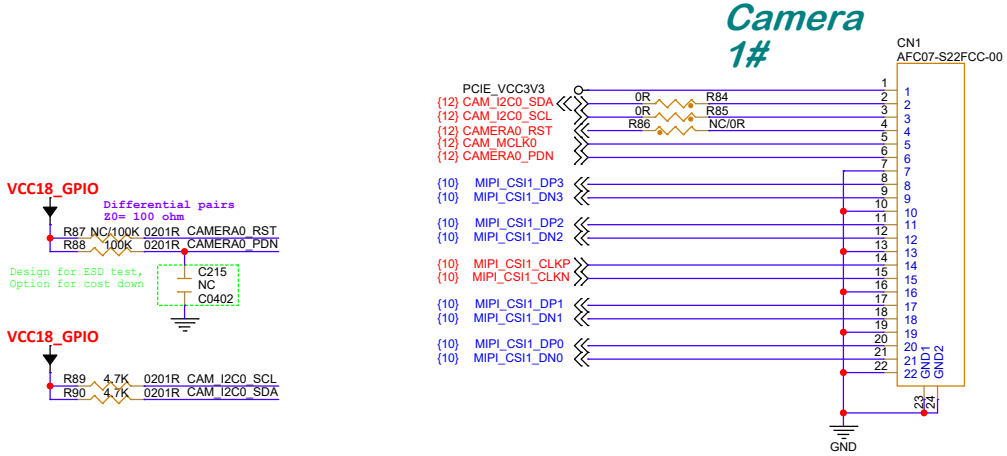
CAMERA



		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

NOTE:

1.The working voltage and current of power need determine according to the peripheral specification.

2.AFVCC-CSI has timing requirements, don't share the same power with DOVDD-CSI.

3.The front and rear cameras need to consider the compatibility of DVDD-CSI voltage.

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K1_DVP_BOARD			
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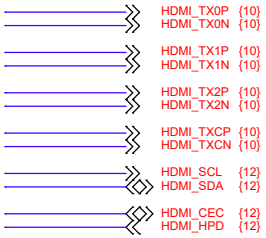
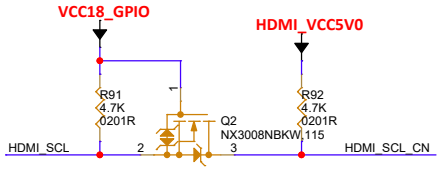
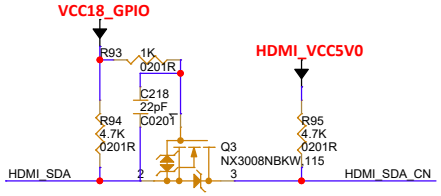
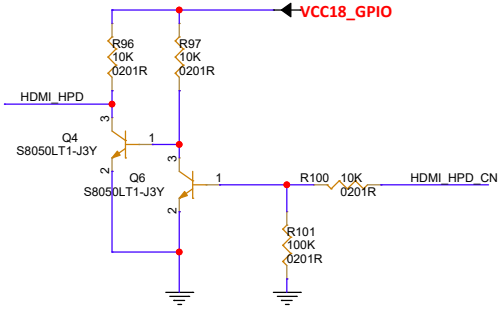
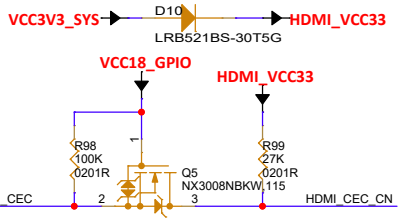
HDMI

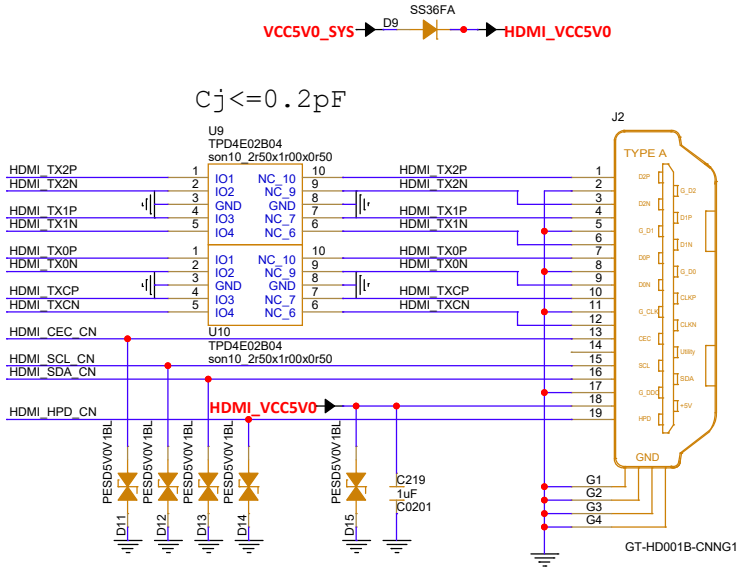












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K1_DVP_BOARD			
Size A3	Document Number: HDMI		Rev: V1.2
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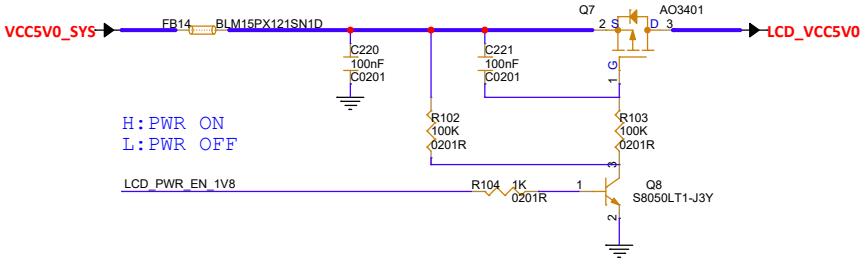
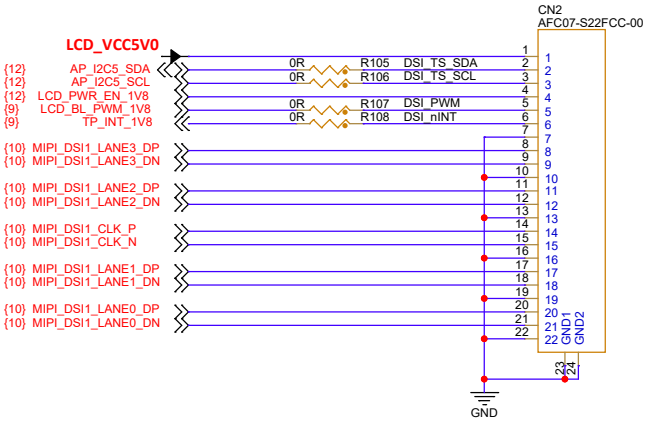
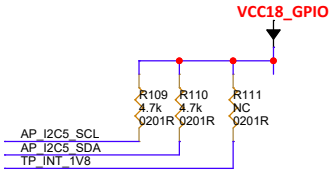
MIPI-DSI



DSI Display





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K1_DVP_BOARD			
Size A3	Document Number: DSI		Rev: V1.2
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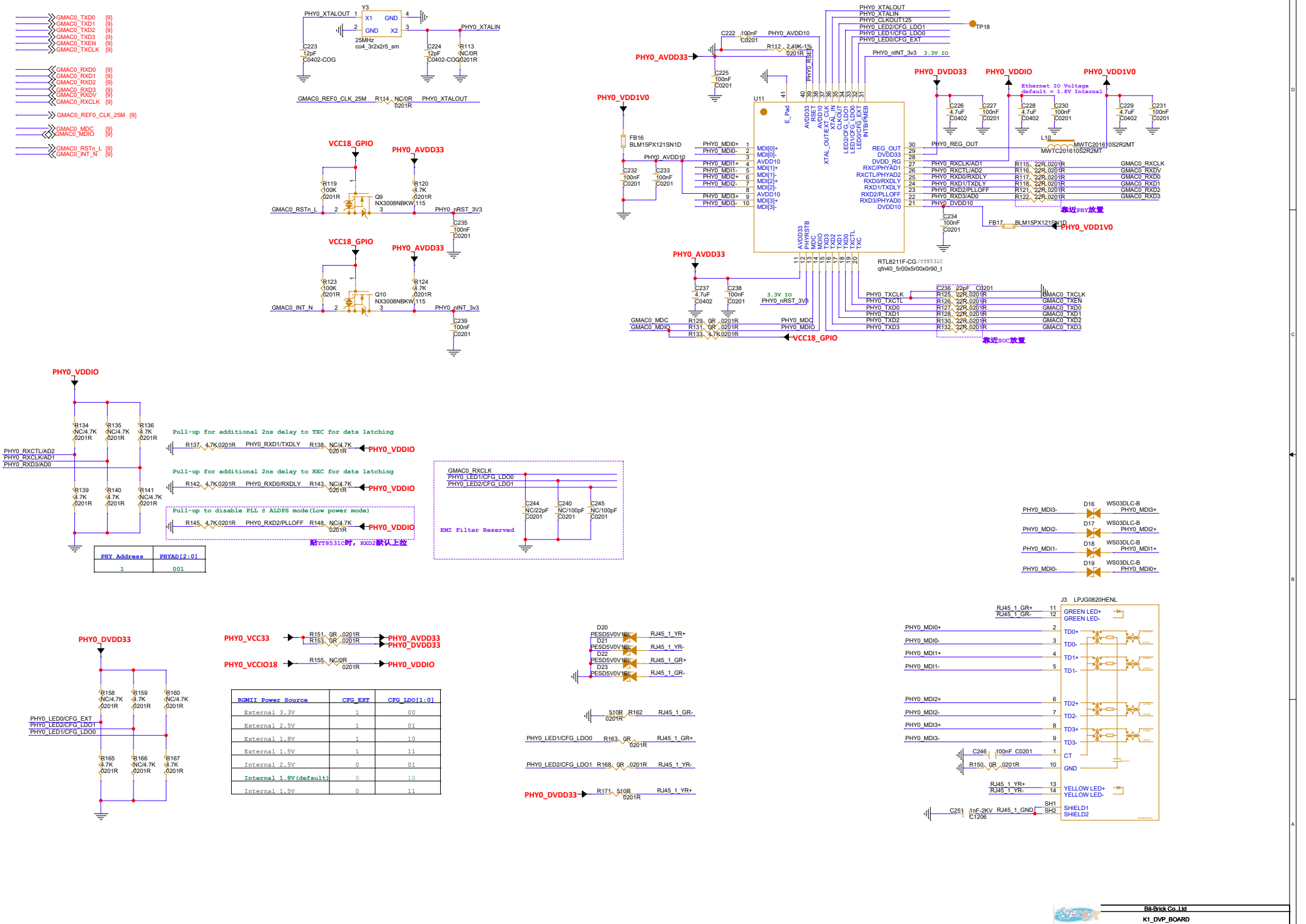
GMAC Ethernet0



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K1_DVP_BOARD		
Size C	Document Number: ETHERNET GMAC0	Rev: V1.2
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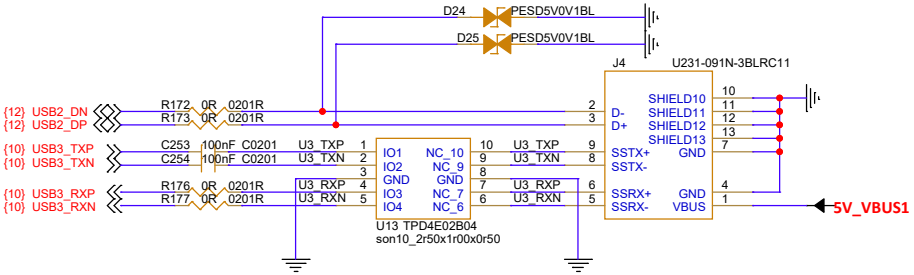
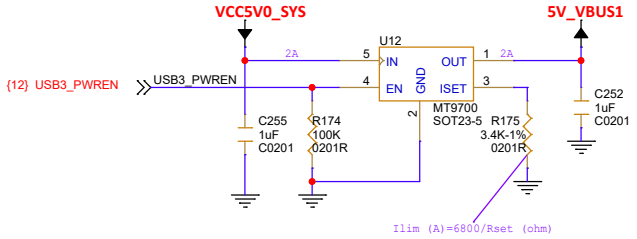
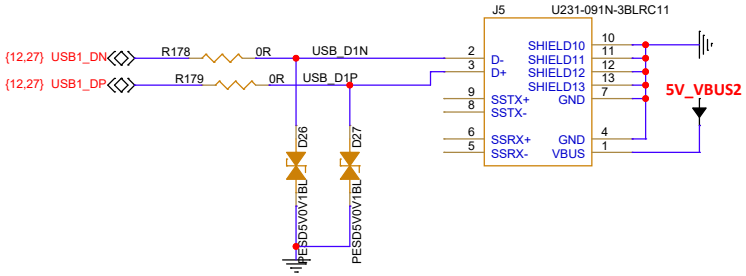
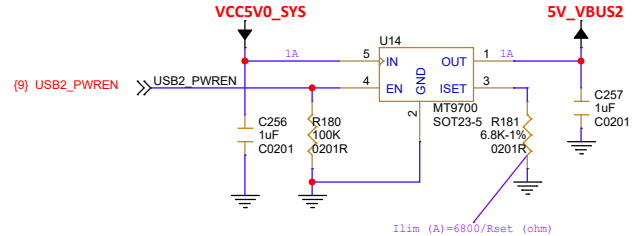
USB3.0 TYPEA

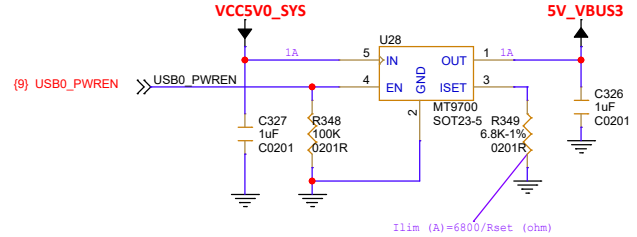




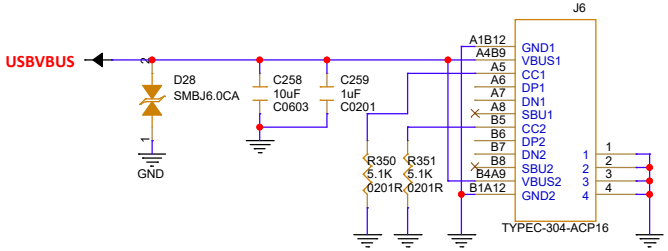
USB2.0 TYPEA-HOST

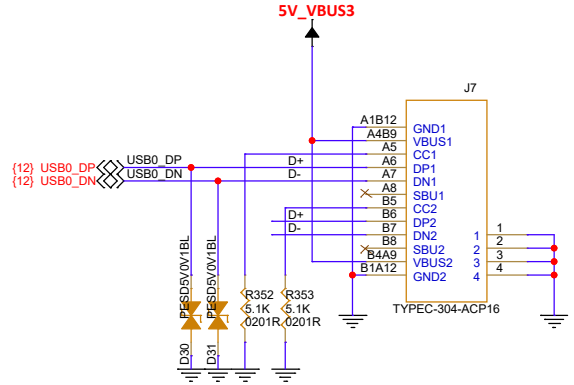






USB2.0 TYPEC





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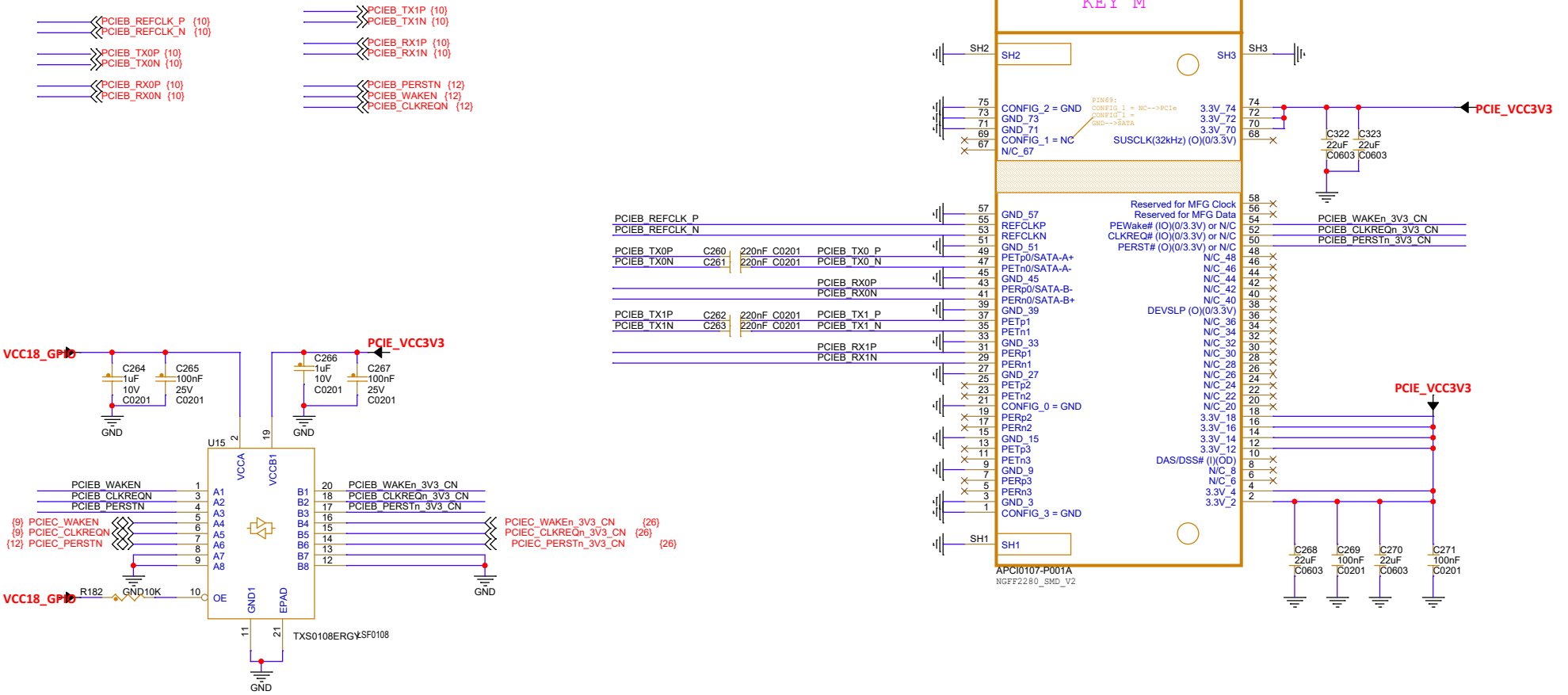
PCIEB



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K1_DVP_BOARD			
Size A3	Document Number: PCIEB M.2 KEY M		Rev: V1.2
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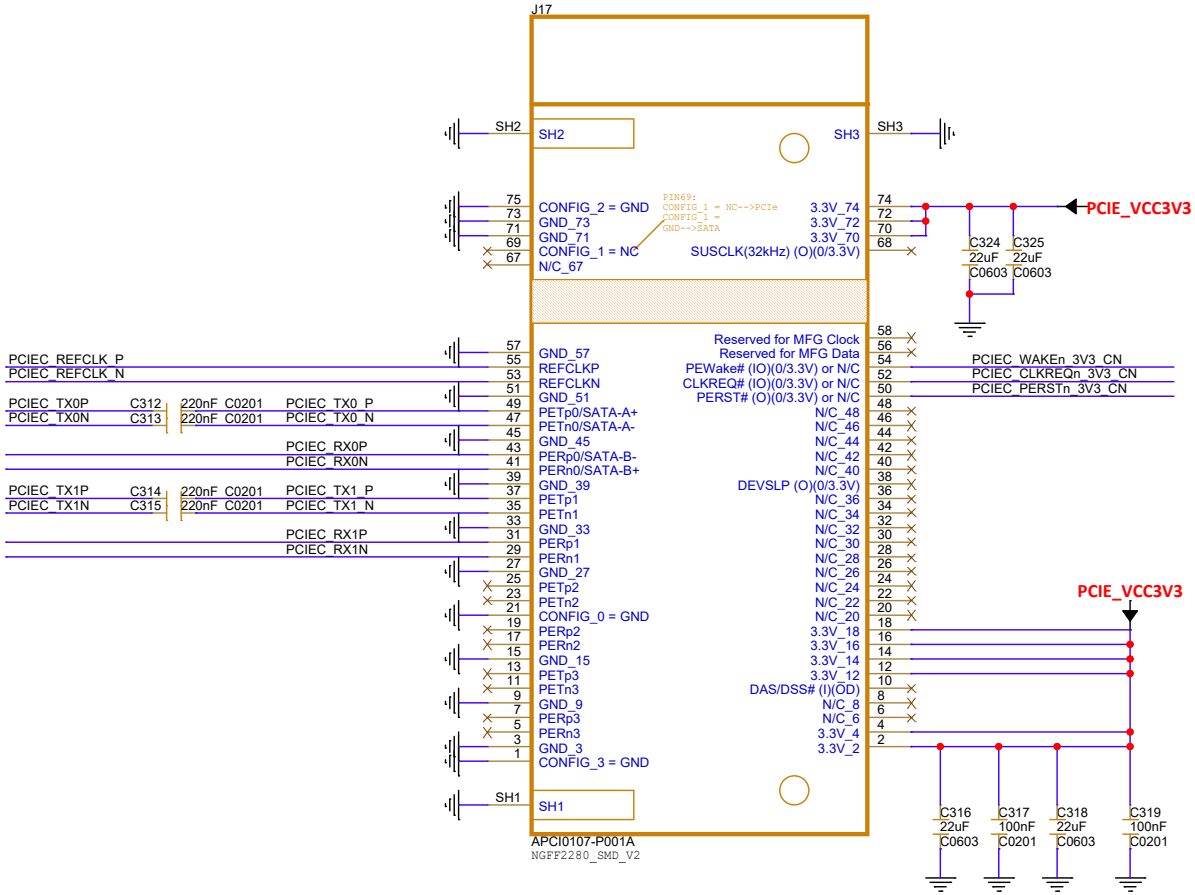
PCIEC

PCIEC_REFCLK_P {10}
PCIEC_REFCLK_N {10}
PCIEC_TX0P {10}
PCIEC_TX0N {10}
PCIEC_RX0P {10}
PCIEC_RX0N {10}
PCIEC_TX1P {10}
PCIEC_TX1N {10}
PCIEC_RX1P {10}
PCIEC_RX1N {10}

PCIEC_PERSTN {12,25}
PCIEC_WAKEN {9,25}
PCIEC_CLKREQN {9,25}

PCIEC_WAKEn_3V3_CN {25}
PCIEC_CLKREQn_3V3_CN {25}
PCIEC_PERSTn_3V3_CN {25}



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K1_DVP_BOARD		
Size B	Document Number: PCIEC M.2 KEY M	Rev: V1.2
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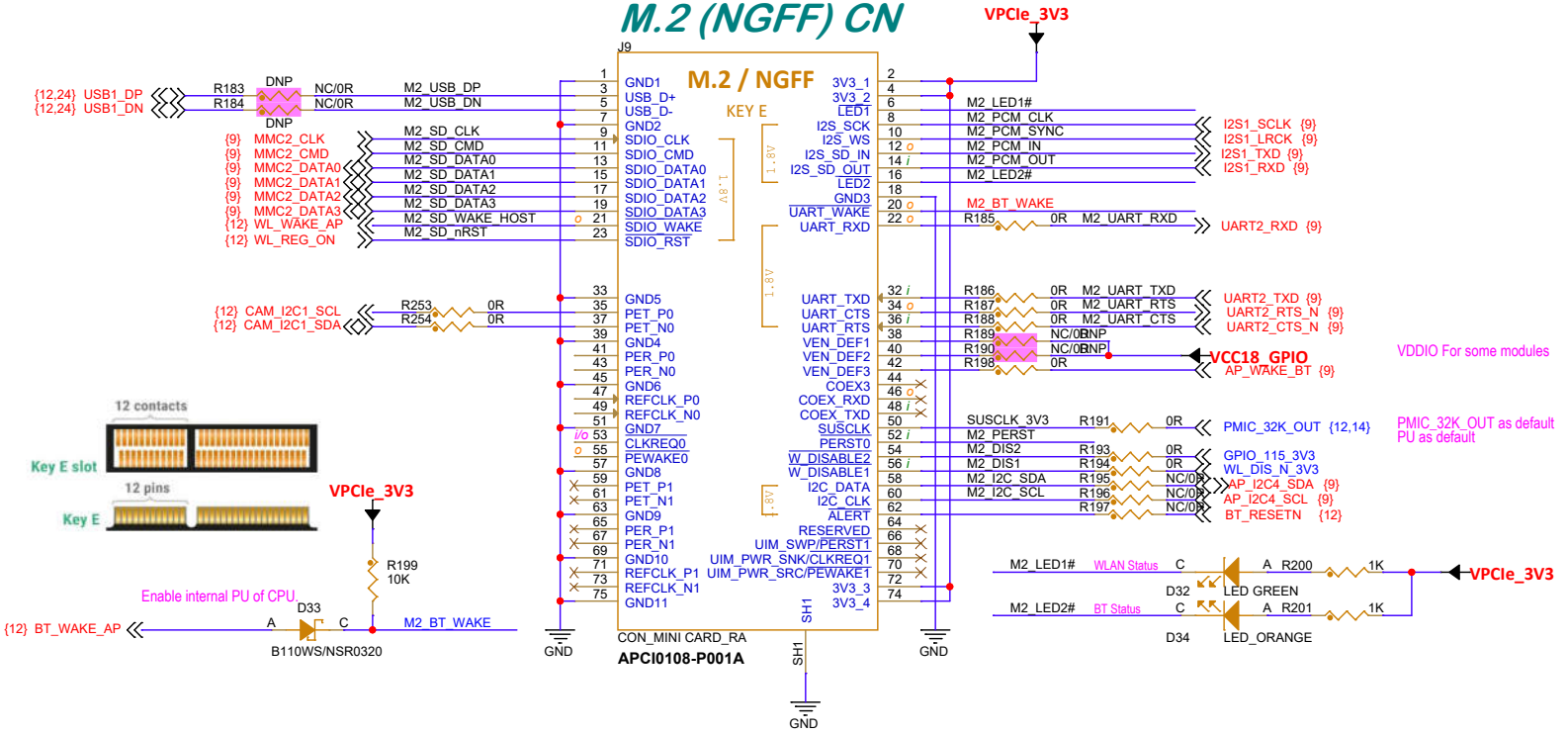
PCIEC

PCIEC_REFCLK_P {10,26}
PCIEC_REFCLK_N {10,26}
PCIEC_TX0P {10,26}
PCIEC_TX0N {10,26}
PCIEC_RX0P {10,26}
PCIEC_RX0N {10,26}
PCIEC_PERSTN {12,25}
PCIEC_WAKEN {9,25}
PCIEC_CLKREQN {9,25}
WL_DIS_N {9}
GPIO_115 {9}

M.2 (NGFF) CN



{12,24} USB1_DP — R183 DNP — NC/0R — M2_USB_DP
{12,24} USB1_DN — R184 DNP — NC/0R — M2_USB_DN
{9} MMC2_CLK — M2_SD_CLK
{9} MMC2_CMD — M2_SD_CMD
{9} MMC2_DATA0 — M2_SD_DATA0
{9} MMC2_DATA1 — M2_SD_DATA1
{9} MMC2_DATA2 — M2_SD_DATA2
{9} MMC2_DATA3 — M2_SD_DATA3
{12} WL_WAKE_AP — M2_SD_WAKE_HOST
{12} WL_REG_ON — M2_SD_nRST
{12} CAM_I2C1_SCL — R253 0R
{12} CAM_I2C1_SDA — R254 0R
M2_LED1# — I2S1_SCLK {9}
M2_PCM_CLK — I2S1_LRCK {9}
M2_PCM_SYNC — I2S1_TXD {9}
M2_PCM_IN — I2S1_RXD {9}
M2_PCM_OUT
M2_LED2#
M2_BT_WAKE
R185 0R M2_UART_RXD — UART2_RXD {9}
R186 0R M2_UART_TXD — UART2_TXD {9}
R187 0R M2_UART_RTS — UART2_RTS_N {9}
R188 0R M2_UART_CTS — UART2_CTS_N {9}
R189 NC/0R DNP
R190 NC/0R DNP
R198 0R — VCC18_GPIO — AP_WAKE_BT {9}
VDDIO For some modules
SUSCLK_3V3 — R191 0R — PMIC_32K_OUT {12,14}
PMIC_32K_OUT as default PU as default
M2_PERST
M2_DIS2 — R193 0R — GPIO_115_3V3
M2_DIS1 — R194 0R — WL_DIS_N_3V3
M2_I2C_SDA — R195 NC/0R — AP_I2C4_SDA {9}
M2_I2C_SCL — R196 NC/0R — AP_I2C4_SCL {9}
R197 NC/0R — BT_RESETN {12}

VCC18_GPIO — R288 100K 0201R — Q20 NX3008NBKW,115 — R289 10K 0201R — PCIE_VCC3V3
WL_DIS_N — WL_DIS_N_3V3
VCC18_GPIO — R290 100K 0201R — Q21 NX3008NBKW,115 — R291 10K 0201R — PCIE_VCC3V3
GPIO_115 — GPIO_115_3V3

12 contacts
Key E slot
12 pins
Key E

VPCIe_3V3 — R199 10K
Enable internal PU of CPU
{12} BT_WAKE_AP — D33 B110WS/NSR0320 — M2_BT_WAKE

M2_LED1# — WLAN Status — C — D32 LED GREEN — A — R200 1K — VPCIe_3V3
M2_LED2# — BT Status — C — D34 LED_ORANGE — A — R201 1K

M.2 PWR

PCIE_VCC3V3
Q11 AO3401
VPCIe_3V3
C274 22uF C0603
C275 220nF 50V C0201
R202 47K
C276 100nF 50V C0201
R203 62R
R204 0R
- 50A Max -
Rds=10 mOhm
@ Vgs -4.5V
@ Id = -20A
Vgs(th) = -1.7V ~ -2.8V
Vds(max) = -30V
Q12 NX3008NBKW,115
Q13 NX3008NBKW,115
WL_DIS_N_3V3 — R205 1K
R206 1M
C285 100nF 25V C0201
GND

AON7421
AP90P03Q
AP60P20Q
AP30P30Q
JMTQ55P02A

VPCIe_3V3
C277 100nF 25V C0201
C278 100nF 25V C0201
C279 100nF 25V C0201
C280 100nF 25V C0201
C281 10uF 10v C0603
C282 22uF C0603
C283 22uF C0603
C284 22uF C0603
GND

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K1_DVP_BOARD

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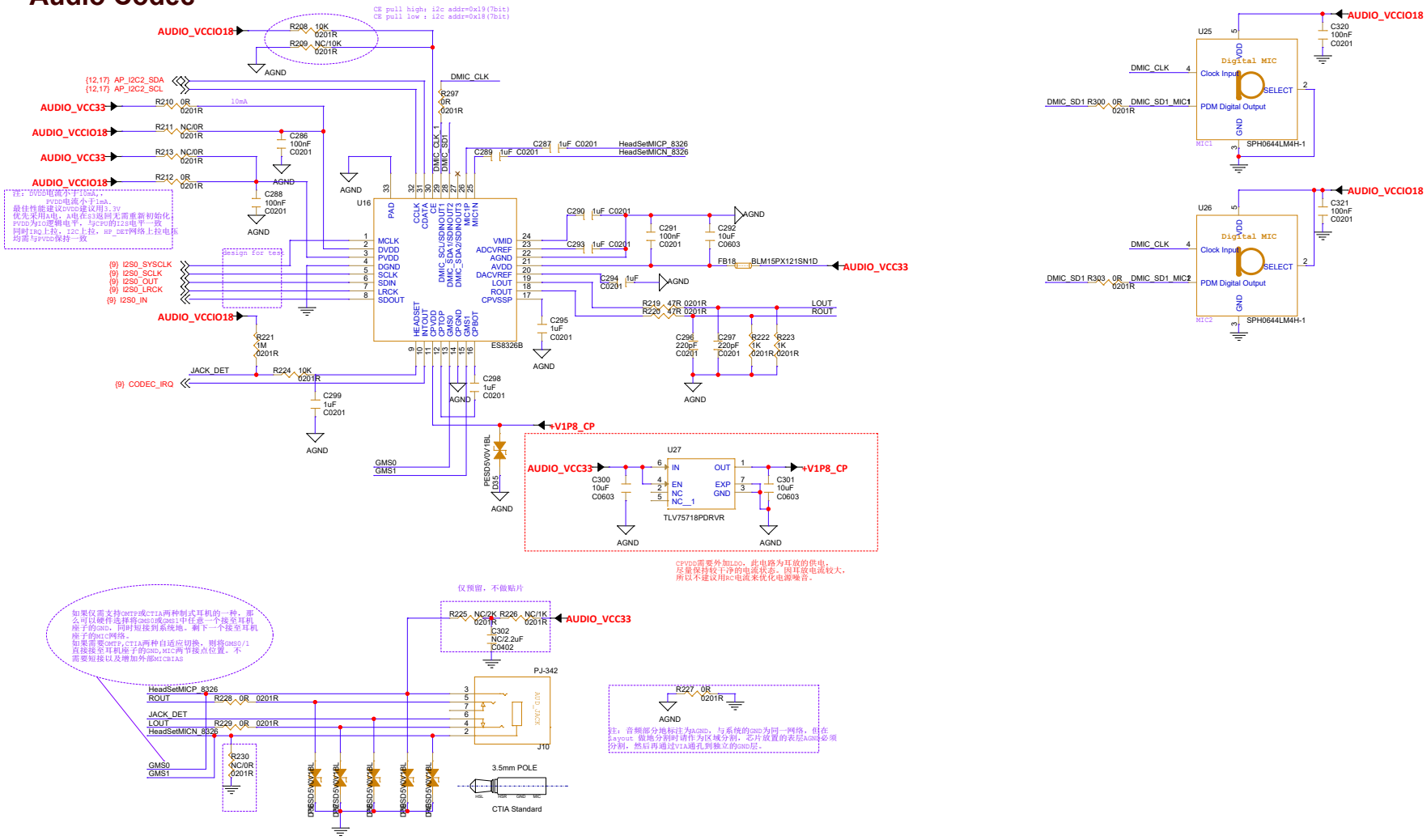
Audio Codec



Bit-Brick Co.,Ltd			
K1_DVP_BOARD			
Size C	Document Number: AUDIO ES8326B		Rev: V1.2
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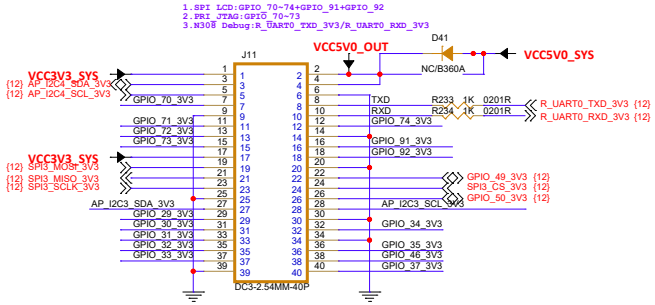
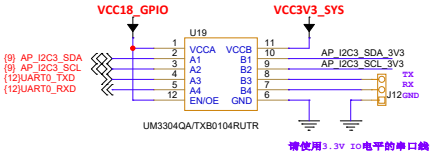
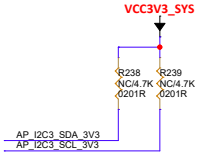
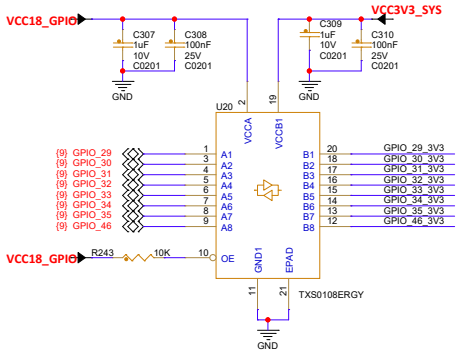
40 pin GPIO

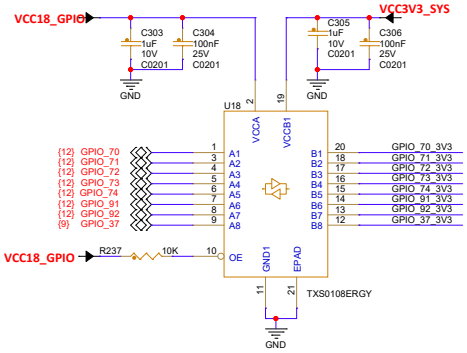




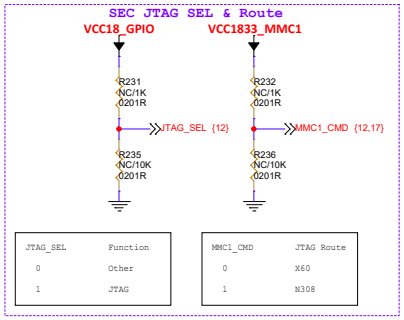
请使用3.3V IO电平的串口线



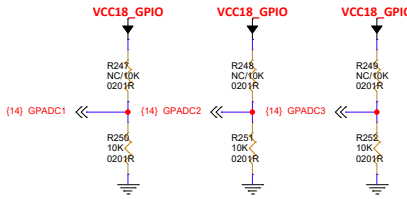




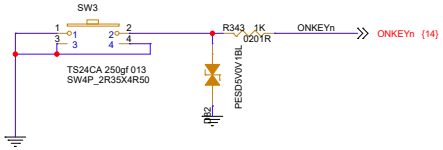
JTAG SEL



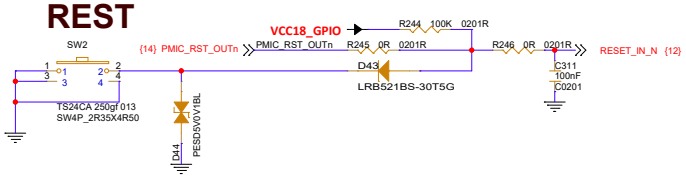
ADC



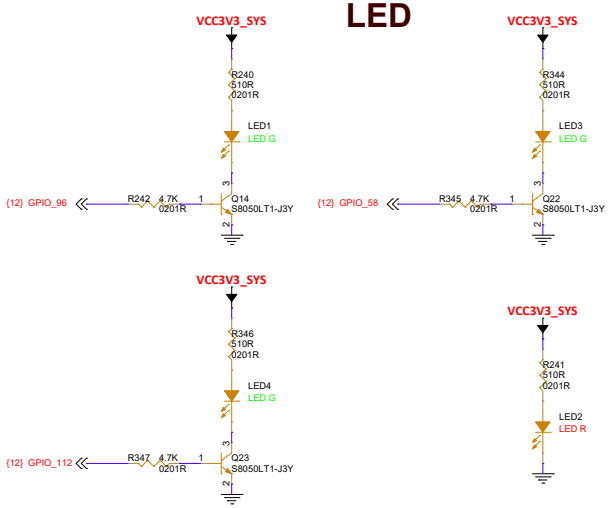
PowerON



REST



LED



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K1_DVP_BOARD			
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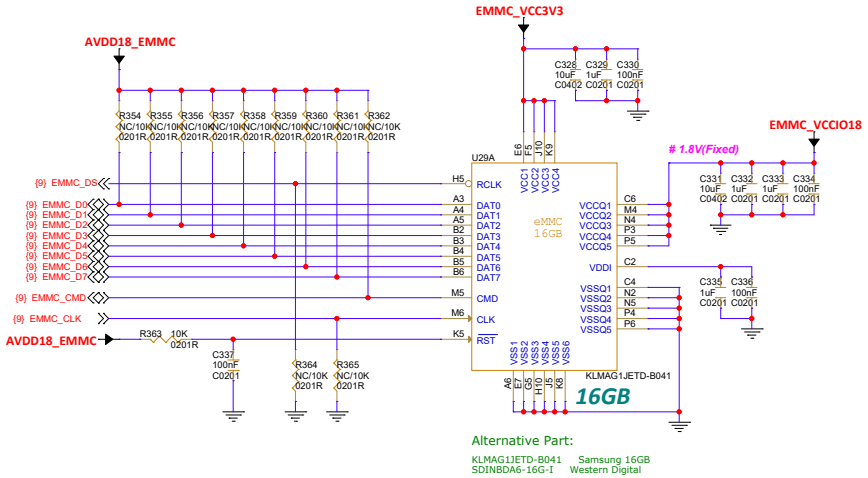
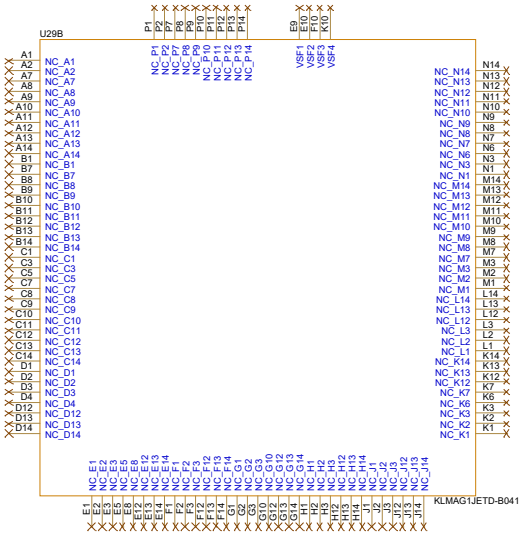


Alternative Part:

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



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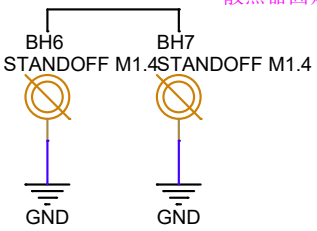
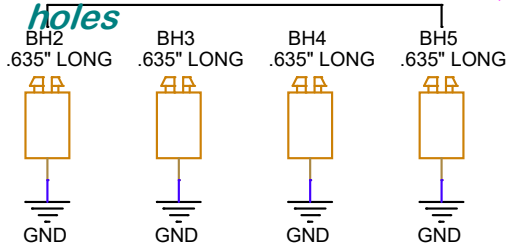
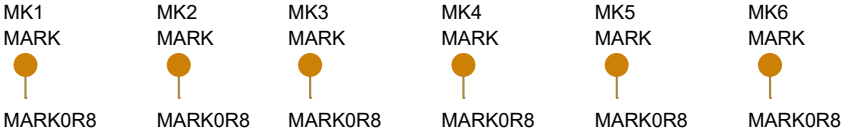
散热器固定孔



Base board screw holes

PCB四个角固定孔





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