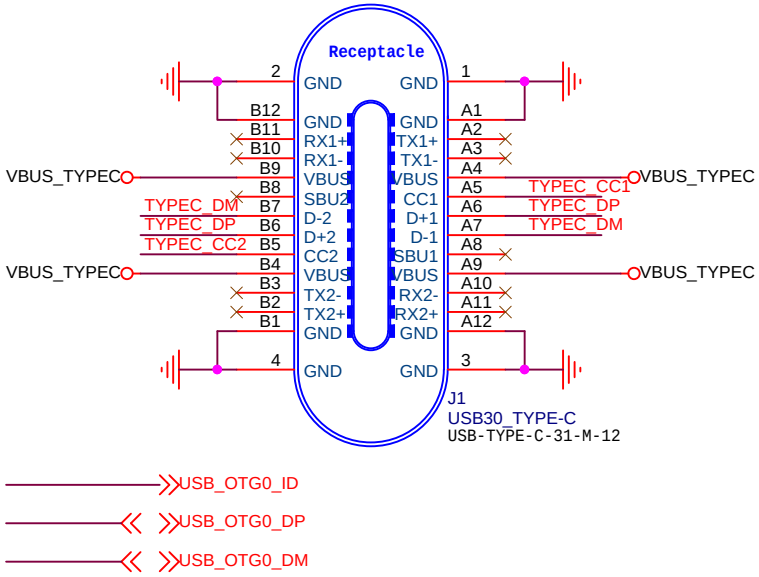
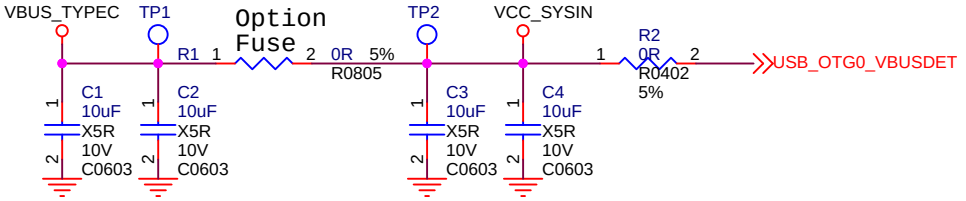
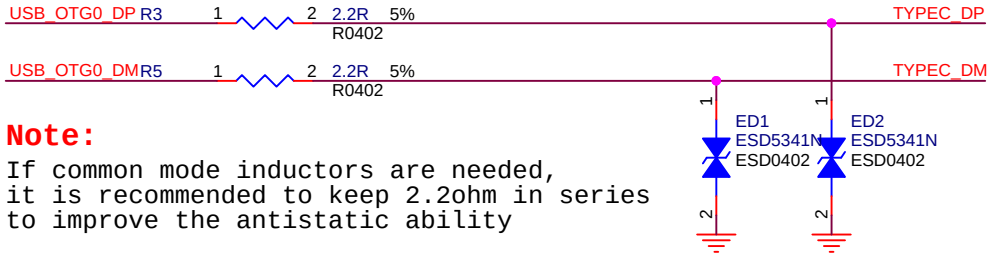
USB Type-C Port



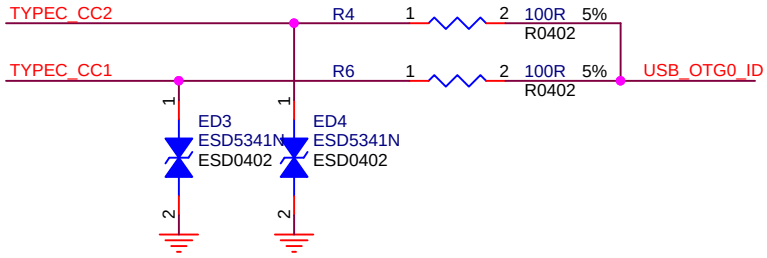


ESD



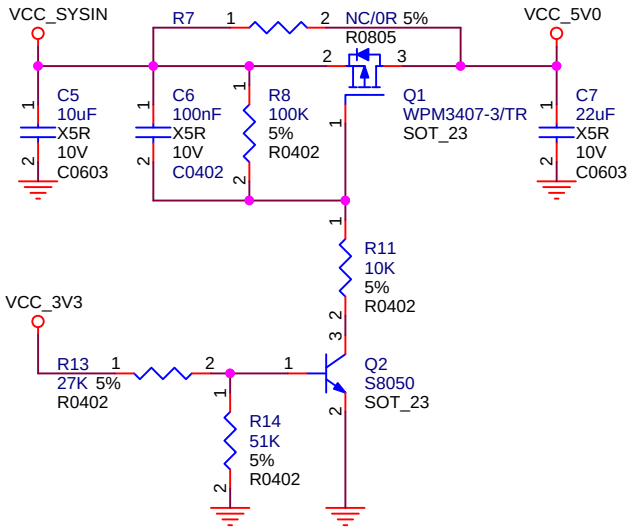
Note:

If common mode inductors are needed,
it is recommended to keep 2.2ohm in series
to improve the antistatic ability

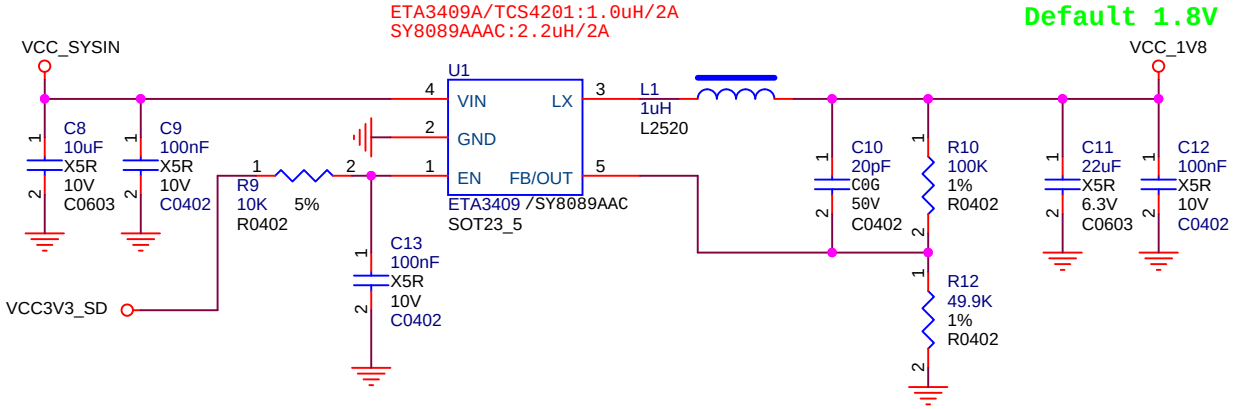


HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	00.Power_Part1_Type-C_PD				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	1 of 13

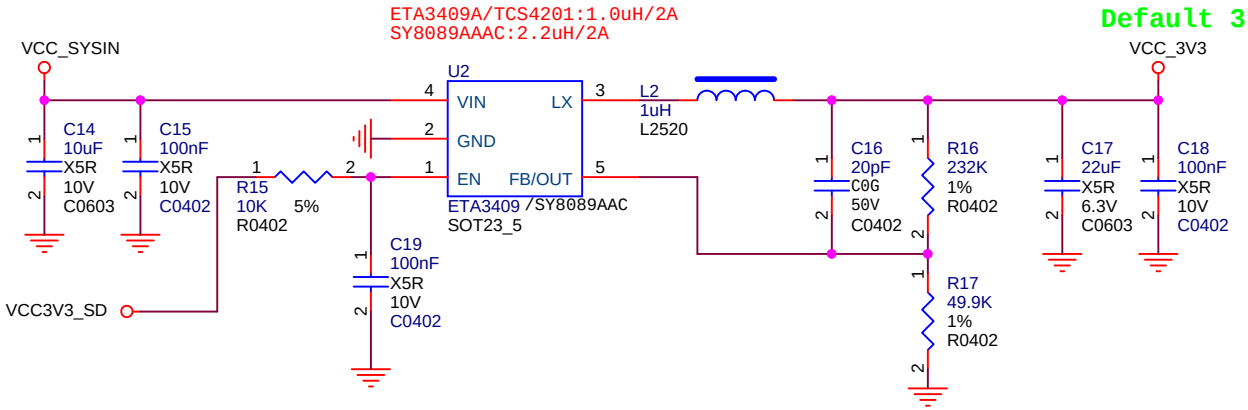
VCC_5V0



VCC_1V8



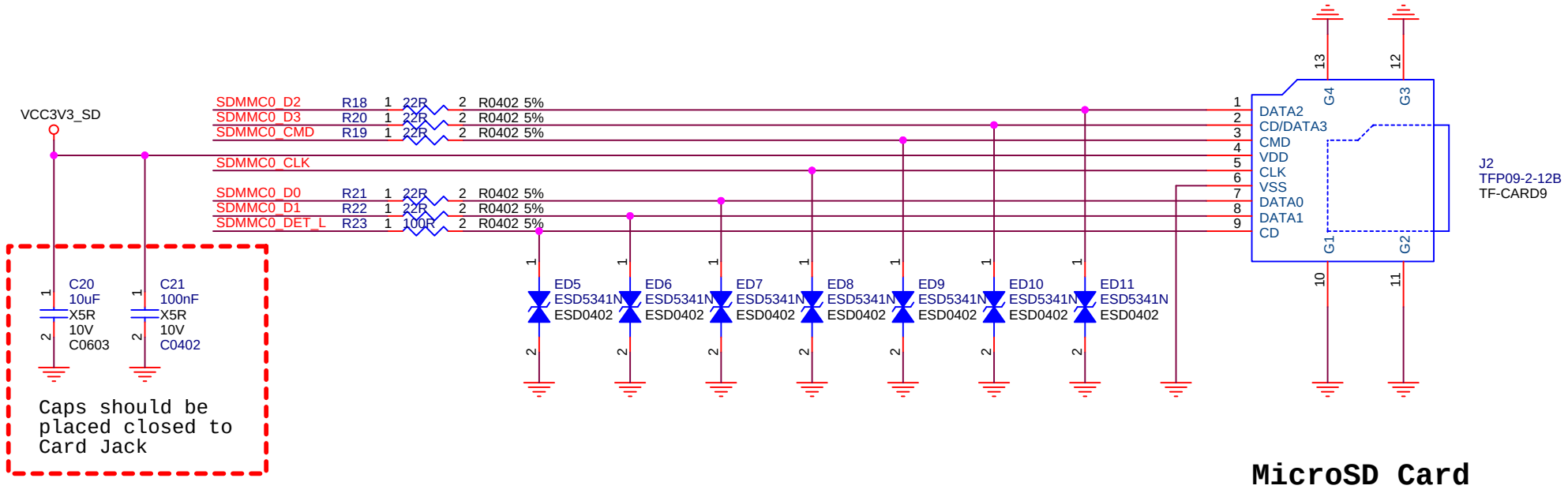
VCC_3V3



HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	01.Power_Part2_Extension				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	2 of 13

SDMMC0_D0
SDMMC0_D1
SDMMC0_D2
SDMMC0_D3
SDMMC0_CMD
SDMMC0_CLK
SDMMC0_DET_L

Note:
Take care of the type of MicroSD Card Jack,
The type here follow the logic below:
DET is float @ card ejected; the internal pull up decided the IO pin status
DET is connected to GND @ card inserted
If other type of Jack is used, need to shift the status of DET.



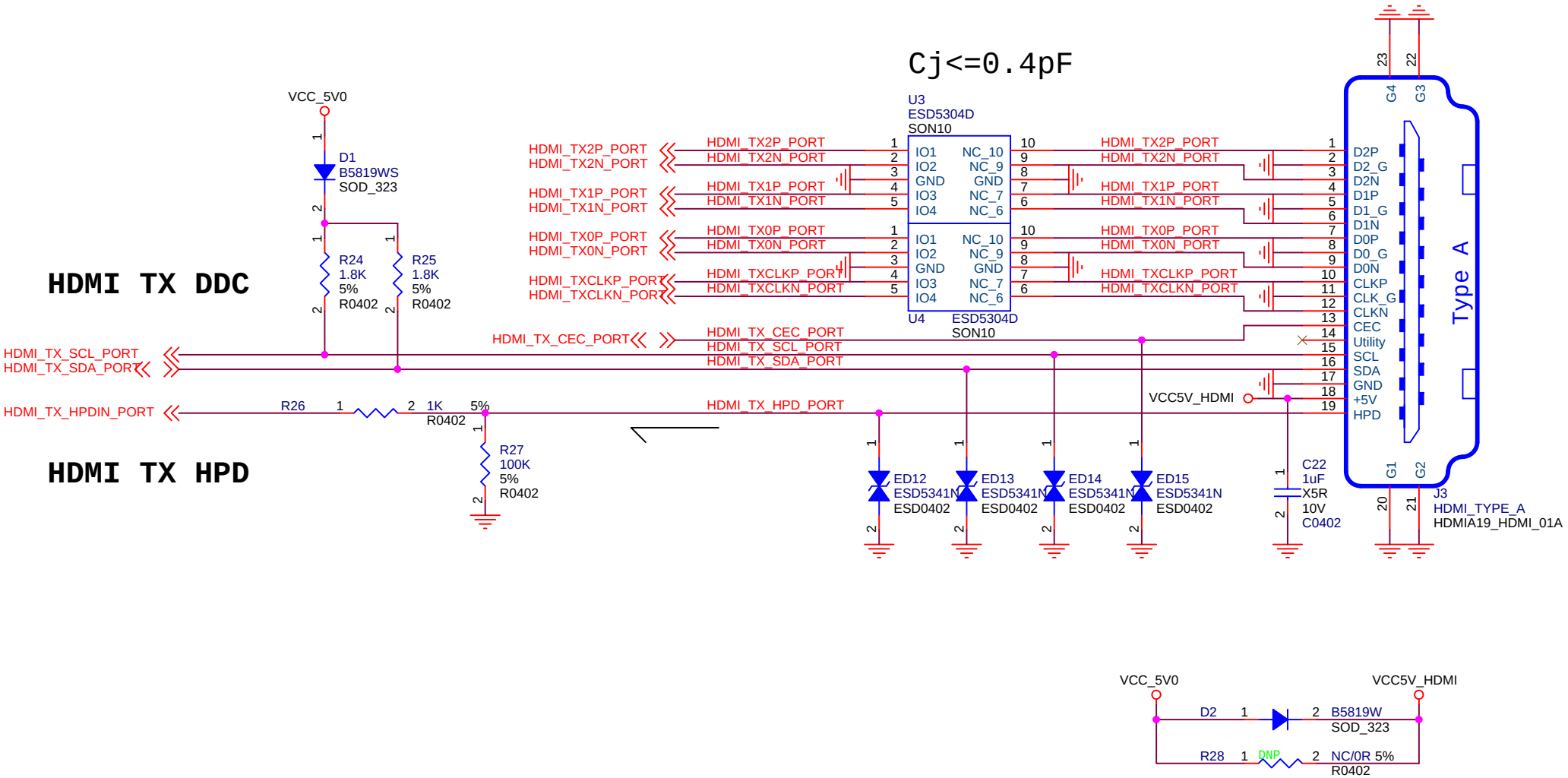
Caps should be placed closed to Card Jack

MicroSD Card

System Card(Primary)

HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	02.Flash-MicroSD_Card				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	3 of 13

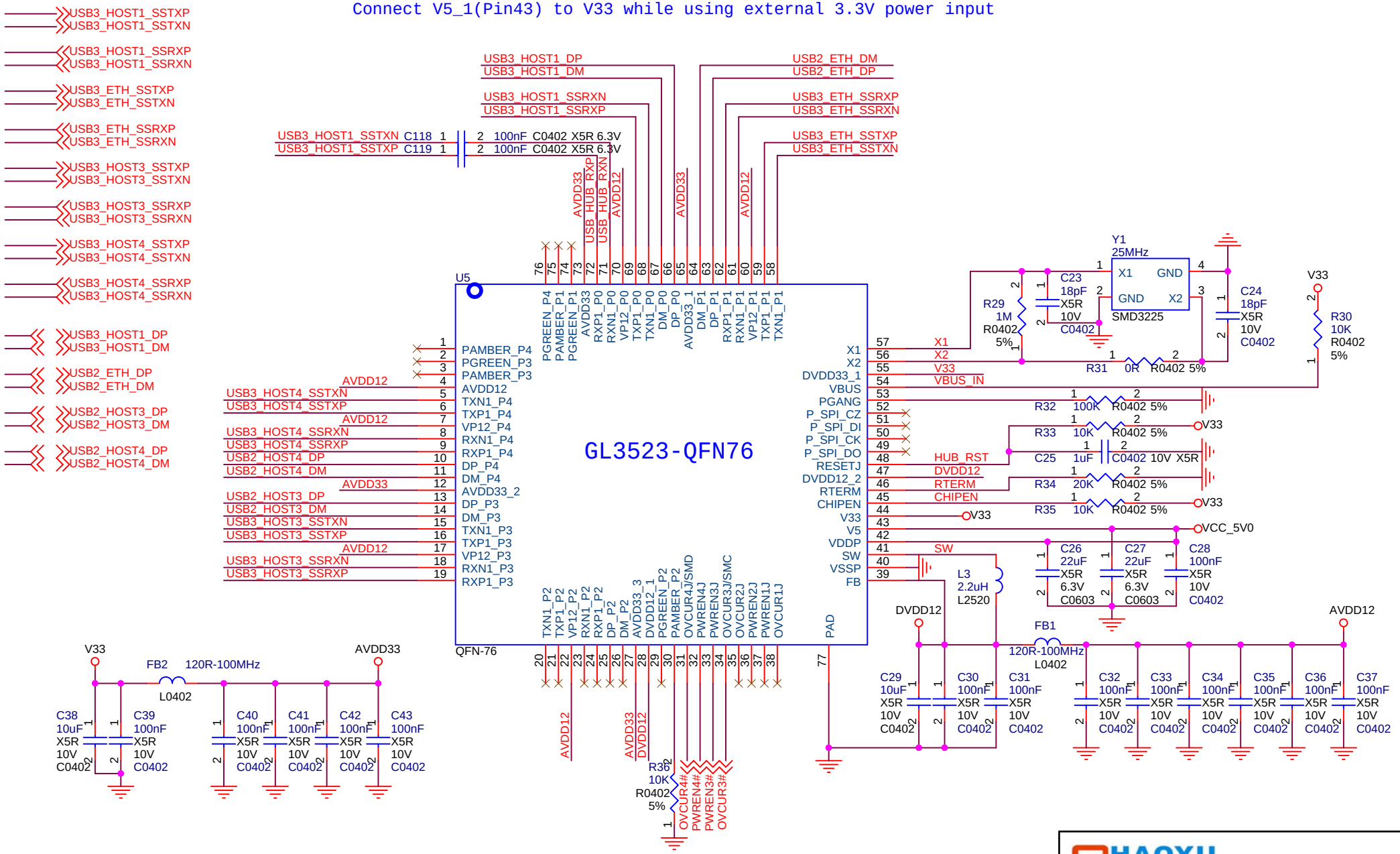
HDMI2.0_TX



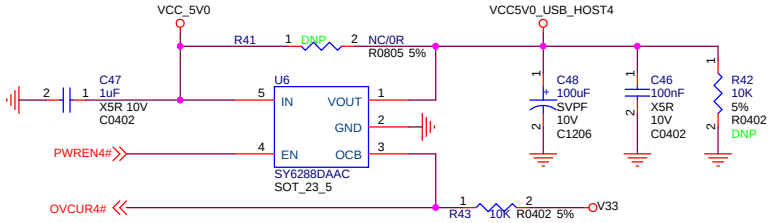
HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	03.VO-HDMI2.0 TX				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	4 of 13

USB3.1 Gen1 HUB

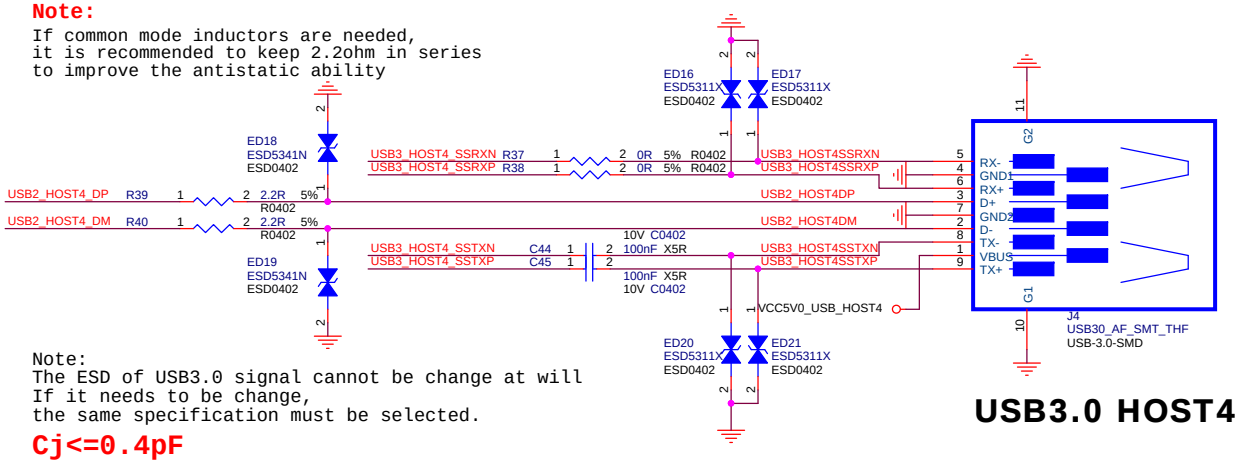
Connect V5_1(Pin43) to V33 while using external 3.3V power input



HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	04.USB2/USB3 HUB				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	5 of 13



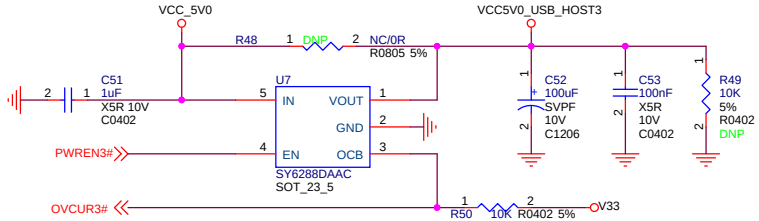
Note:
If common mode inductors are needed,
it is recommended to keep 2.2ohm in series
to improve the antistatic ability



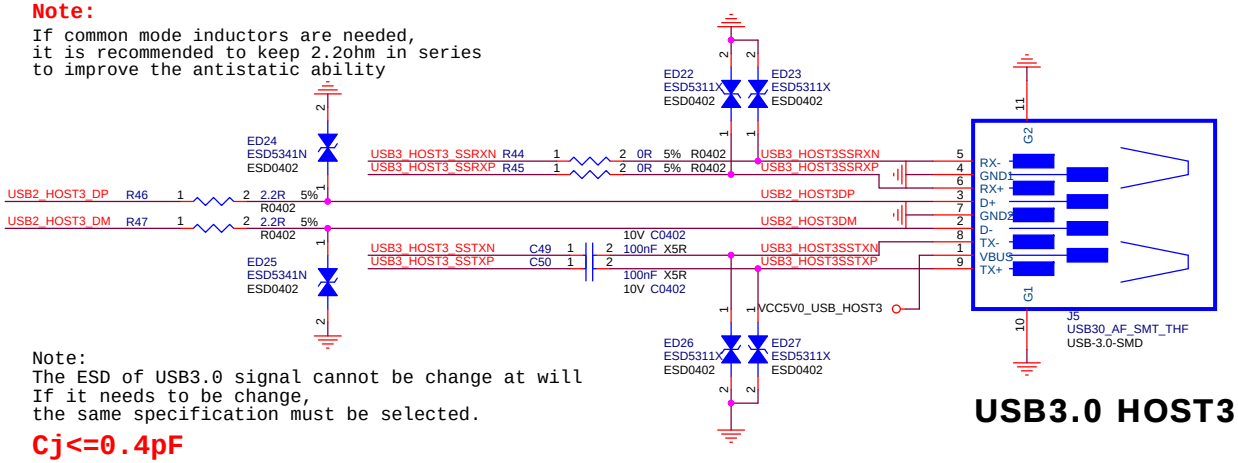
Note:
The ESD of USB3.0 signal cannot be change at will
If it needs to be change,
the same specification must be selected.

Cj<=0.4pF

USB3.0 HOST4



Note:
If common mode inductors are needed,
it is recommended to keep 2.2ohm in series
to improve the antistatic ability



Note:
The ESD of USB3.0 signal cannot be change at will
If it needs to be change,
the same specification must be selected.

Cj<=0.4pF

USB3.0 HOST3

HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	05.USB2/USB3 HOST Port				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	6 of 13

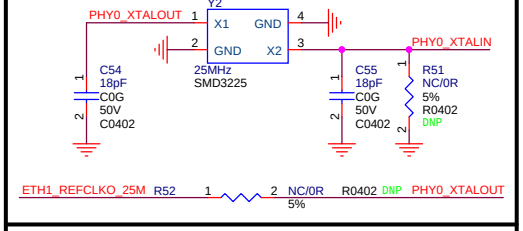
RGMII TO RJ45

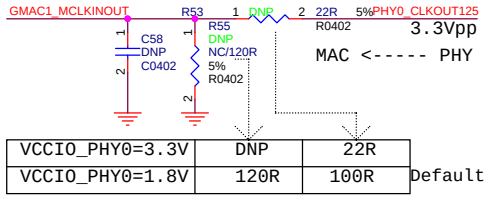
GMAC1_TXD0
GMAC1_TXD1
GMAC1_TXD2
GMAC1_TXD3
GMAC1_TXEN
GMAC1_TXCLK

GMAC1_RXD0
GMAC1_RXD1
GMAC1_RXD2
GMAC1_RXD3
GMAC1_RXDV_CRS

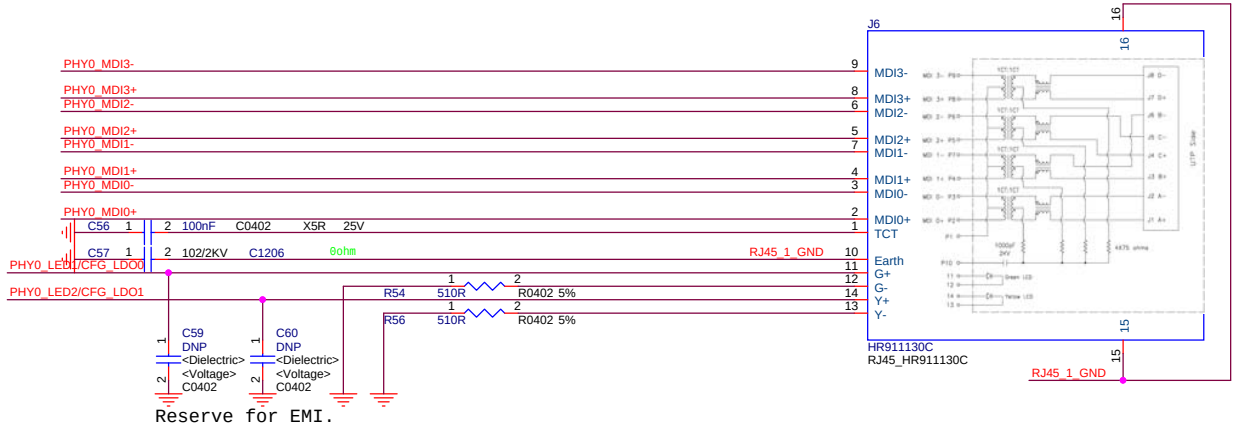
GMAC1_RXCLK
ETH1_REFCLKO_25M
GMAC1_MCLKINOUT
GMAC1_MDC
GMAC1_MDIO

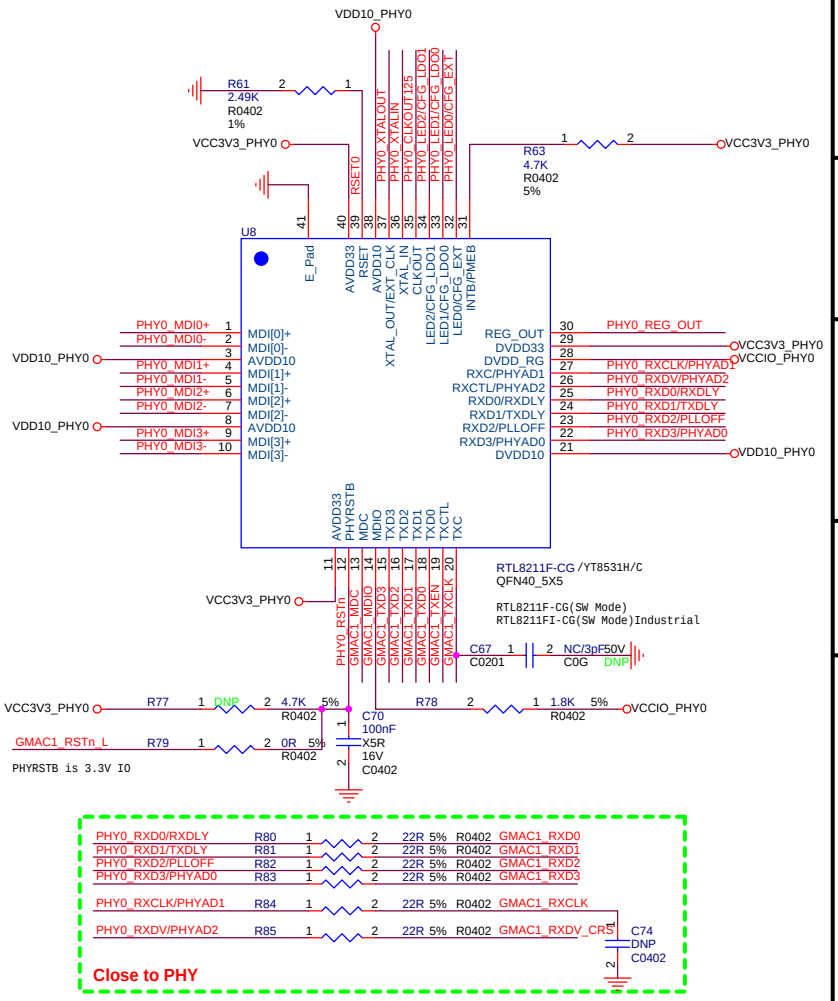
GMAC1_RSTn_L

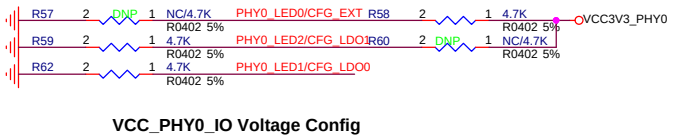




VCCIO_PHY0=3.3V	DNP	22R	
VCCIO_PHY0=1.8V	120R	100R	Default

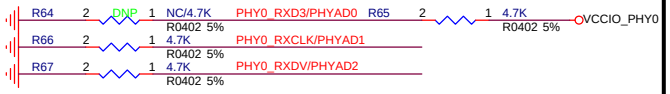






VCC_PHY0_IO Voltage Config

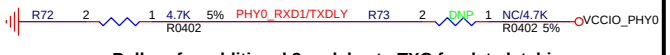
RGMII Power Source	CFG_EXT	CFG_LDO[1:0]	
External 3.3V(default)	1'b1	2'b00	CFG_EXT: 1:External Power Source for IO pad. 0:Integrated LDO for IO pad CFG_LDO(1:0) 10:1.8V 00:3.3V
External 1.8V	1'b1	2'b10	
Internal 1.8V	1'b0	2'b10	



PHY Address Config

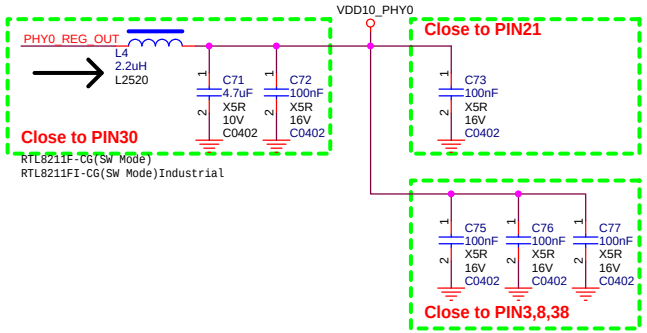
PHY Address	PHYAD[2:0]
1 (default)	3'b001

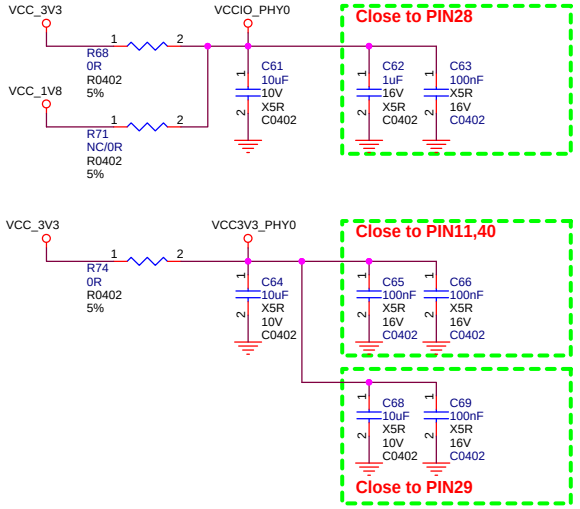
Pull-up for additional 2ns delay to RXC for data latching



Pull-up for additional 2ns delay to TXC for data latching

Pull-up to disable PLL @ ALDPS mode(Low power mode)

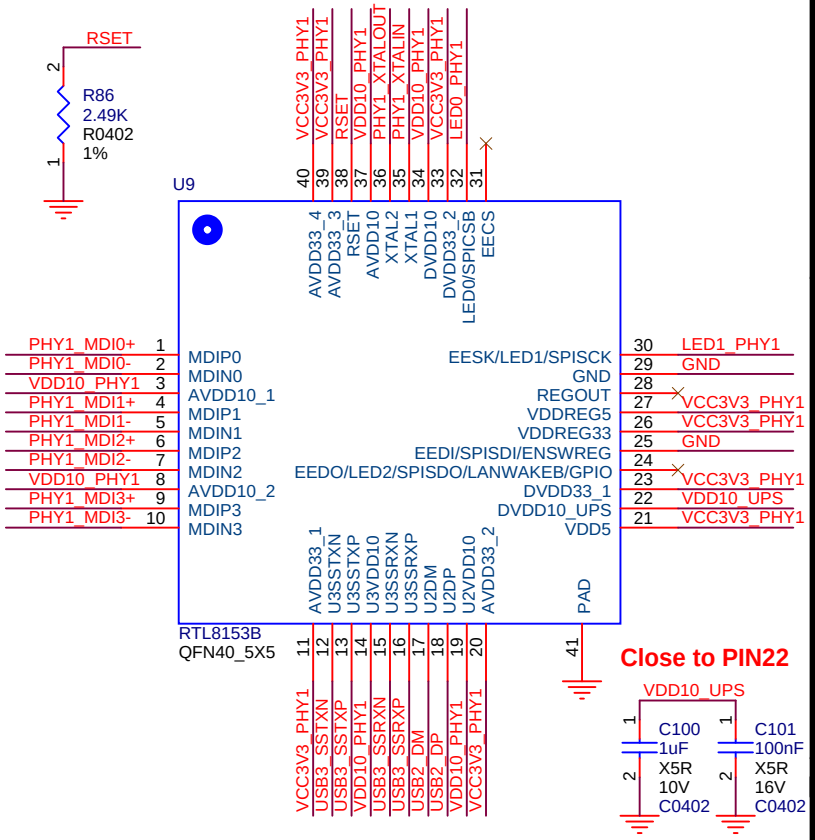


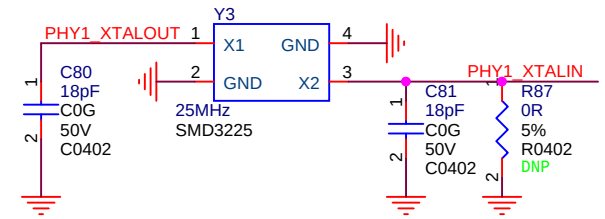


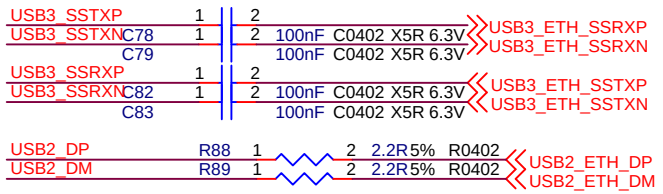
HAOYU ELECTRONICS HAOYU Electronics Co., Ltd

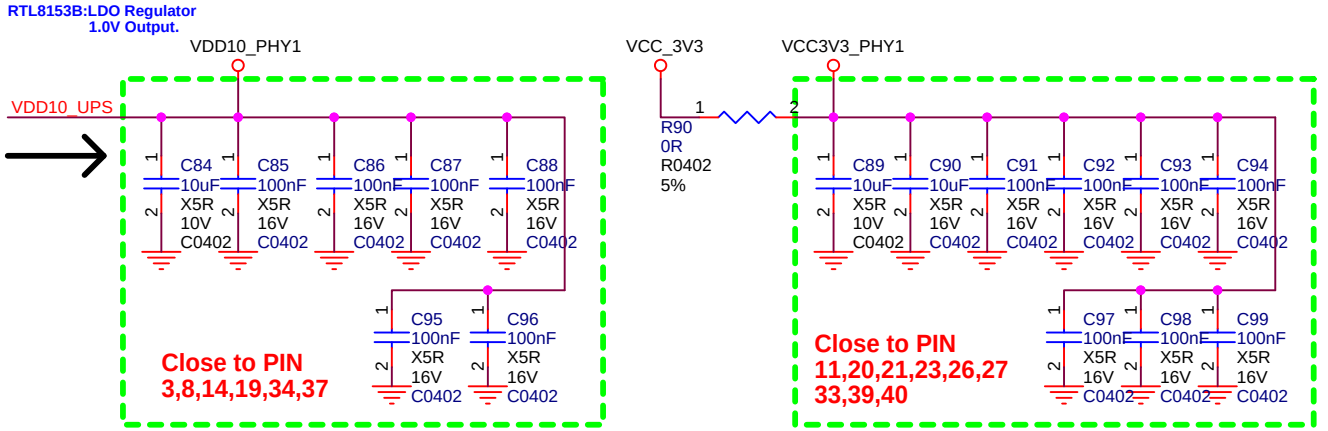
Project:	Main_Board				
File:	06.Ethernet-GPHY_RGMII1				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	7 of 13

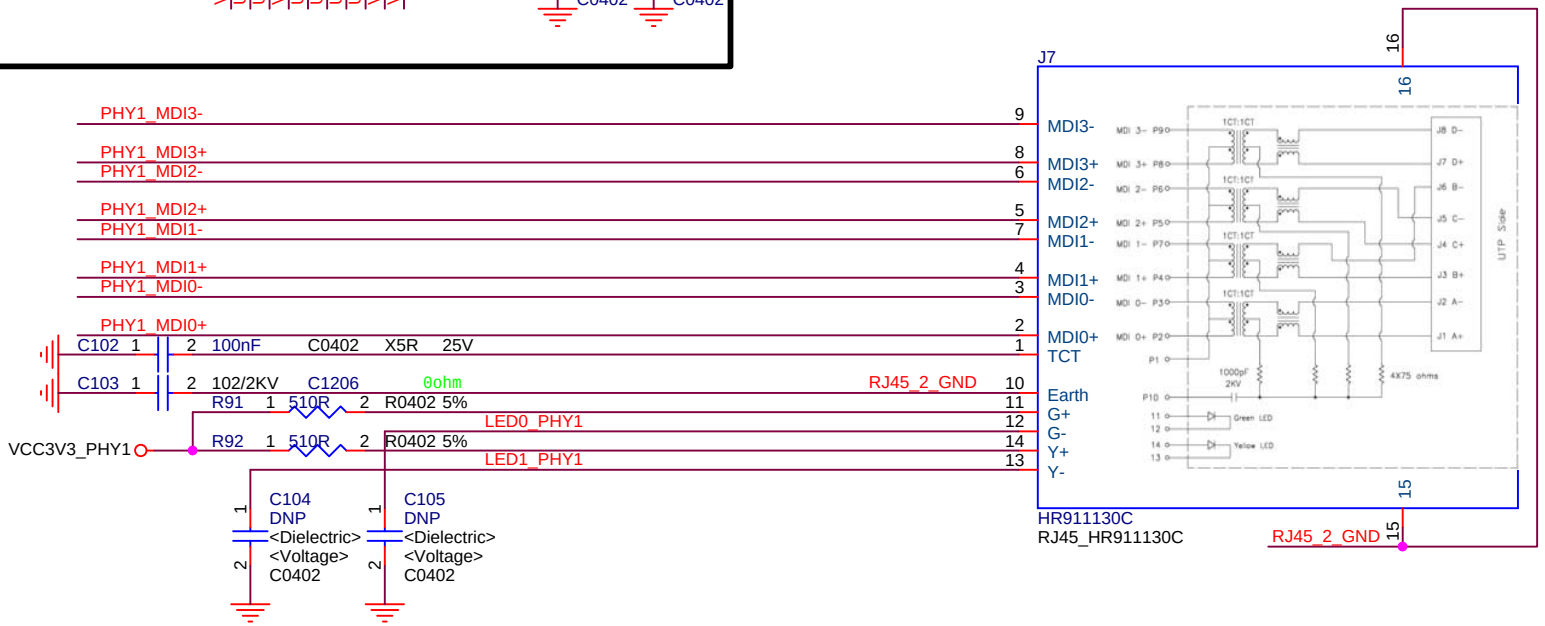
USB3.0 TO RJ45







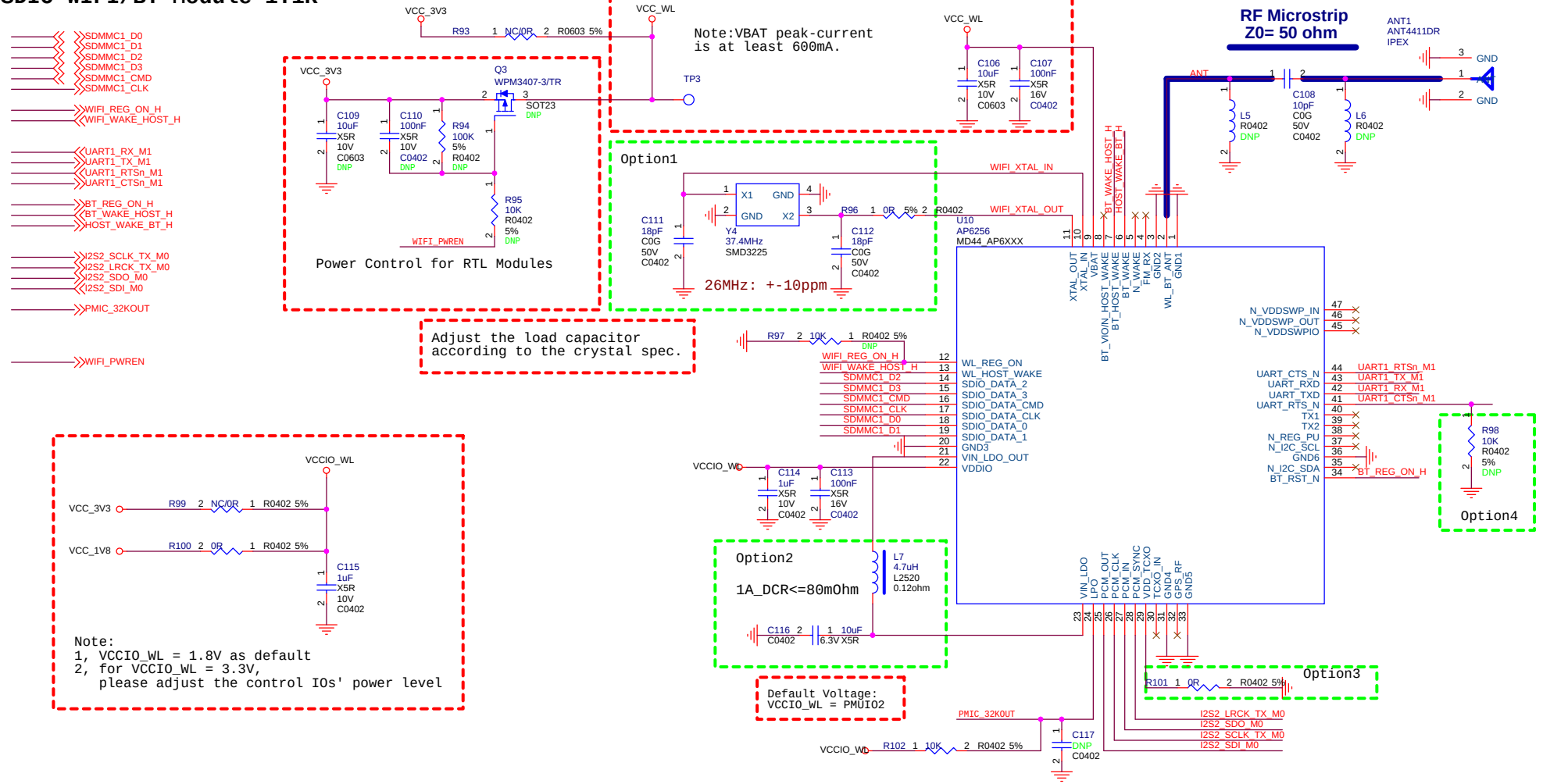




Reserve for EMI.

HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	07.Ethernet-USB3.0				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	8 of 13

SDIO WIFI/BT Module-1T1R

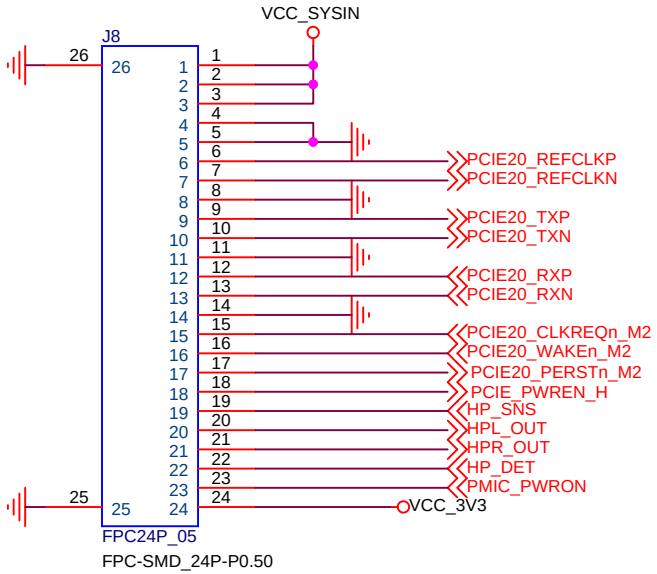


Note:
Yes: option circuit be mounted
No: option circuit not be mounted

OPTION	WIFI				BT	Crystals	VCCIO_SDIO	OPTION1	OPTION2	OPTION3	OPTION4
	a	b/g/n	ac	5GHz							
AW-CM256SM	Yes	Yes	Yes	Yes	4.2	37.4MHz	1.71-3.6V	Yes	Yes	Yes@SDIO2.0 No@SDIO3.0	No
AP6236/AP6212	No	Yes	No	No	4.2/4.0	26MHz	1.71-3.6V	Yes	Yes	No	No
AP6256/AP6255	Yes	Yes	Yes	Yes	5.0/4.2	37.4MHz	1.71-3.6V	Yes	Yes	Yes@SDIO2.0 No@SDIO3.0	No
RTL8189ETV Module F89FTSM12-W3	No	Yes	No	No	No	Module Integrated	1.8-3.3V	No	No	No	No
RTL8723DS Module 6223A-SRD	No	Yes	No	No	4.2	Module Integrated	1.62-3.6V	No	No	No	Yes
RTL8821CS Module 6221A-SRC	Yes	Yes	Yes	Yes	4.2	Module Integrated	1.7-3.45V	No	No	No	No

HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	08.WIFI/BT-SDIO_1T1R+UART				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	9 of 13

PCIE M.2 SSD/Audio_HP/Power Switch with LED

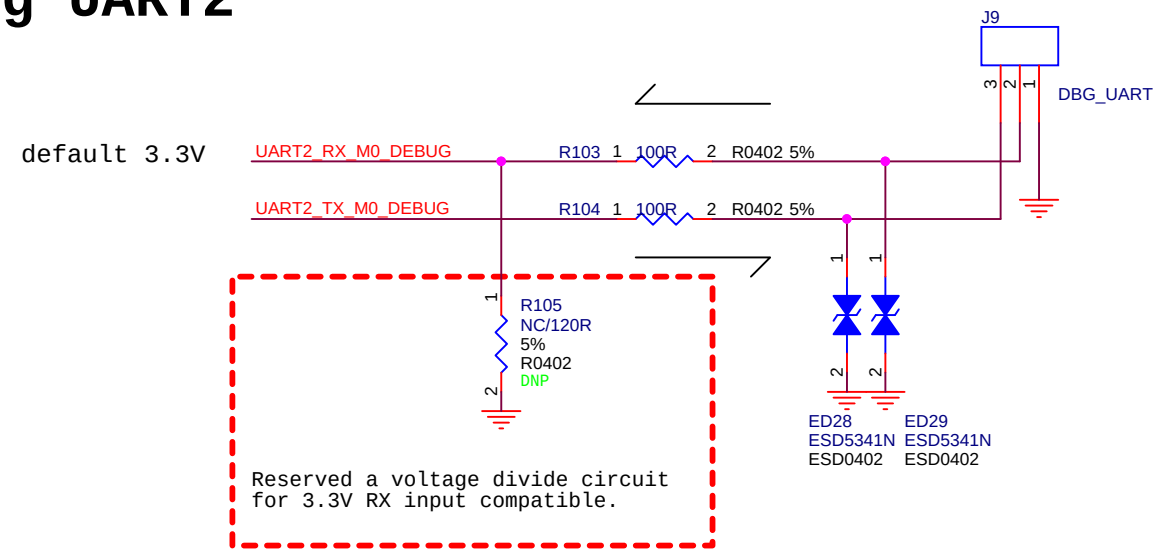


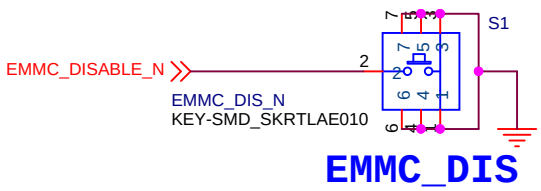
HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	09.PCIE-M.2_SSD/Audio_HP/PWR_SW				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	10 of 13

UART2_RX_M0_DEBUG

UART2_TX_M0_DEBUG

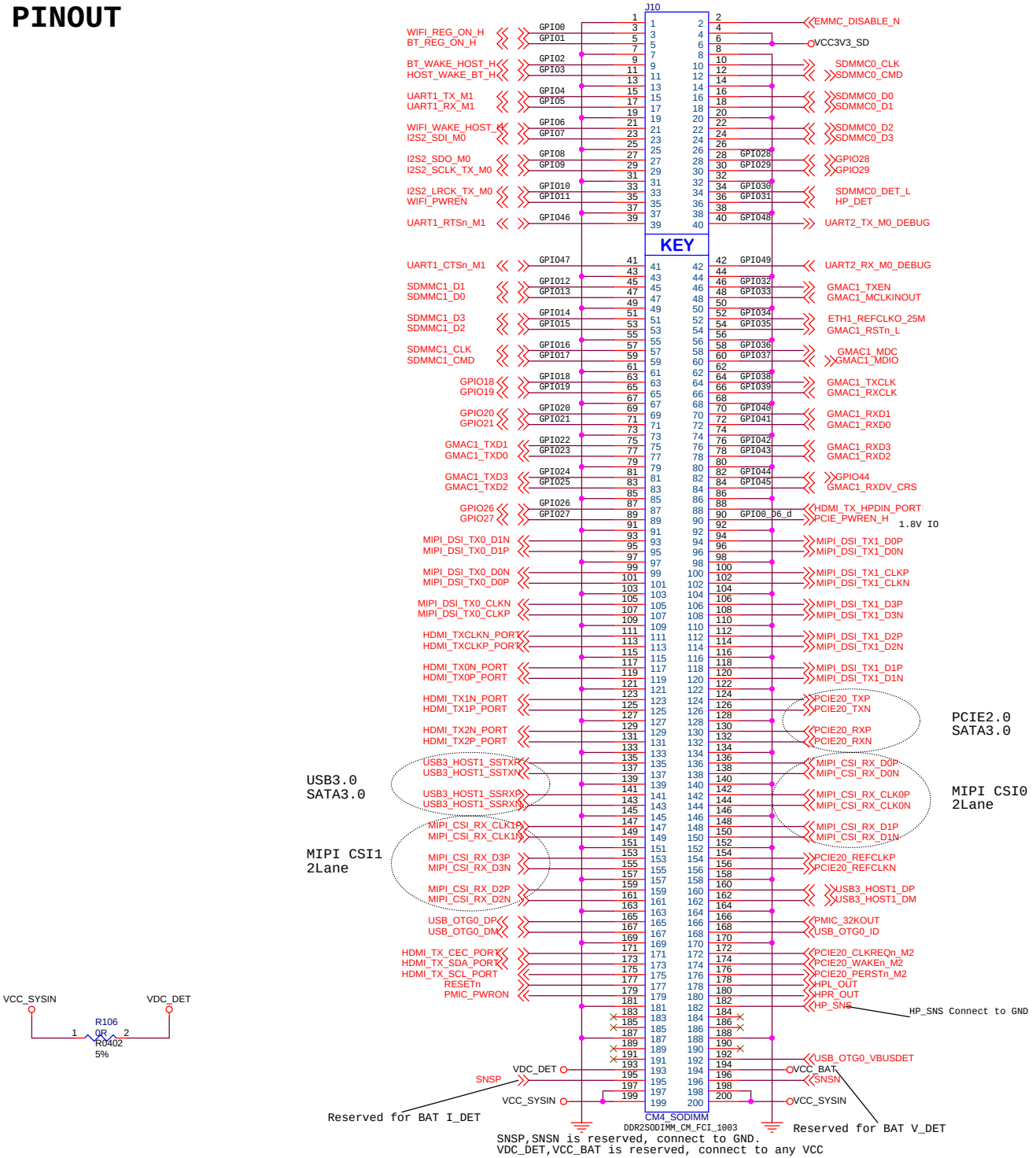
Debug UART2





HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	10.Debug_UART				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	11 of 13

CM4 SODIMM PINOUT

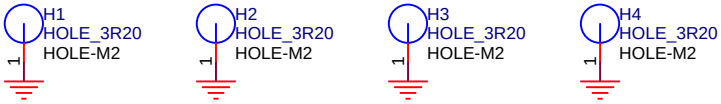


HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	11.SODIMM_Pinout				
Date:	Monday, January 30, 2023			Rev:	V1.0
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	12 of 13

Page of Accessories

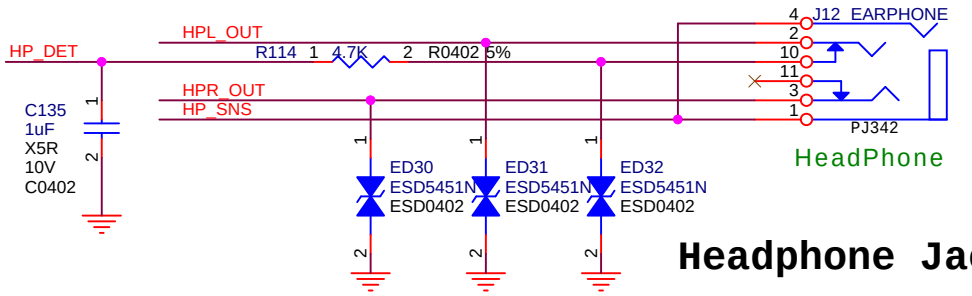
PCB Mark Point

Mechanical Hole

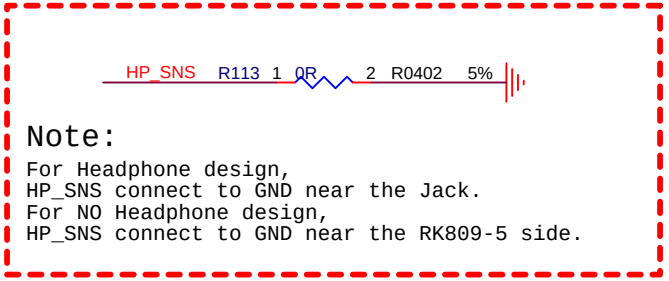


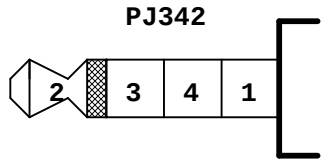
HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	Main_Board				
File:	12.Mark/Hole				
Date:	Monday, January 30, 2023			Rev:	V1.0
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	13 of 13

Headphone

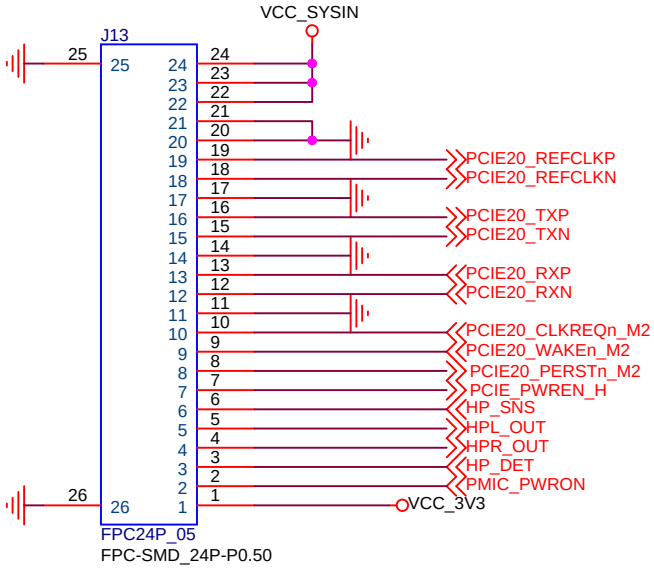


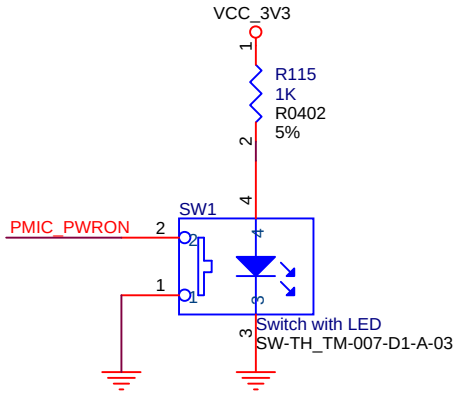
Headphone Jack





iPhone,SAMSUNG: L+R+G+M
Nokia, China etc: L+R+M+G





HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	M.2_SSD_HP_Board				
File:	01.Audio-Headphone Port				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	2 of 3

M.2 SSD_PCIe2.0 x 1Lanes

PCIE20_TXP
PCIE20_TXN
PCIE20_RXP
PCIE20_RXN
PCIE20_REFCLKP
PCIE20_REFCLKN
PCIE20_CLKREQn_M2
PCIE20_WAKEn_M2
PCIE20_PERSTn_M2
PCIE_PWREN_H

J11

		GND_84	84		
		GND_83	83		
		GND_82	82		
		GND_81	81		
		GND_80	80		
77	GND_77	Hole1	78		
75	CONFIG_2 = GND	3.3V_74	74		
73	GND_73	3.3V_72	72		
71	GND_71	3.3V_70	70	VCC3V3_PCIE	
69	CONFIG_1 = NC	SUSCLK(32kHz) (O)(0/3.3V)	68		
67	N/C_67				
	Mechanical Notch M				
		Reserved for MFG Clock	58	TP4	TP_0.7
		Reserved for MFG Data	56	TP5	TP_0.7
57	GND_57	PEWake# (IO)(0/3.3V) or N/C	54	PCIE20_WAKEn_3V3_L	
55	REFCLKP	CLKREQ# (IO)(0/3.3V) or N/C	52	PCIE20_CLKREQn_3V3_L	
53	REFCLKN	PERST# (O)(0/3.3V) or N/C	50	PCIE20_PERSTn_3V3_L	
51	GND_51	N/C_48	48		
49	PETp0/SATA-A+	N/C_46	46		
47	PETn0/SATA-A-	N/C_44	44		
45	GND_45	N/C_42	42		
43	PERp0/SATA-B-	N/C_40	40		
41	PERn0/SATA-B+	DEVSLP (O)(0/3.3V)	38	TP6	TP_0.7
39	GND_39	N/C_36	36		
37	PETp1	N/C_34	34		
35	PETn1	N/C_32	32		
33	GND_33	N/C_30	30		
31	PERp1	N/C_28	28		
29	PERn1	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	VCC3V3_PCIE	
19	RSVD	3.3V_16	16		
17	RSVD	3.3V_14	14		
15	GND_15	3.3V_12	12		
13	PETp3	DAS/DSS# (I)(OD)	10	TP7	TP_0.7
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	VCC3V3_PCIE	
3	GND_3	Hole2	79		
1	CONFIG_3 = GND				
76	GND_76				

PIN69:
CONFIG_1 = NC-->PCIe
CONFIG_1 = GND-->SATA

M2_KEY_B_M_Socket
M2_KEY_B_M

8 0 2230
8 1 2242

PCIE20_REFCLKP
PCIE20_REFCLKN
PCIE20_TXP C118 1 2 220nF C0402 X5R 10V PCIE20_TX_P
PCIE20_TXN C119 1 2 220nF C0402 X5R 10V PCIE20_TX_N
PCIE20_RXP
PCIE20_RXN

PCIE20_CLKREQn_M2 R107 1 2 22R 5% R0402 PCIE20_CLKREQn_3V3_L
PCIE20_WAKEn_M2 R108 1 2 22R 5% R0402 PCIE20_WAKEn_3V3_L
PCIE20_PERSTn_M2 R109 1 2 22R 5% R0402 PCIE20_PERSTn_3V3_L

VCC3V3_PCIE
C120 22uF X5R 6.3V C0603
C121 100nF X5R 10V C0402
VCC3V3_PCIE
C122 22uF X5R 6.3V C0603
C123 100nF X5R 10V C0402

Default 3.39V

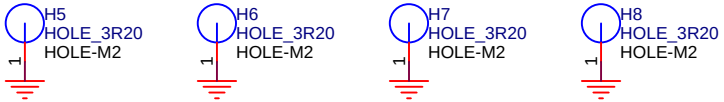
VCC_SYSIN
C124 10uF X5R 10V C0603
C125 100nF X5R 10V C0402
PCIE_PWREN_H
R110 10K 5% R0402
C127 100nF X5R 10V C0402
U11
VIN LX GND EN FB/OUT
ETA3409/ETA3446
SOT_23_5
L8 2.2uH IND_404026
C126 22pF C0G 50V C0402
R111 232K 1% R0402
R112 49.9K 1% R0402
VCC3V3_PCIE
C128 22uF X5R 6.3V C0805
C129 22uF X5R 6.3V C0805
C130 22uF X5R 6.3V C0805
C131 22uF X5R 6.3V C0805
C132 22uF X5R 6.3V C0805
C133 22uF X5R 6.3V C0805
C134 100nF X5R 10V C0402

HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	M.2_SSD_HP_Board				
File:	00.PCIE-M.2 SSD_KEY_B_M				
Date:	Monday, January 30, 2023			Rev:	V1.1
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	2 of 3

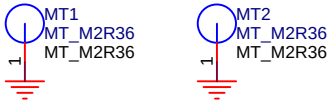
Page of Accessories

PCB Mark Point

Mechanical Hole



Mounting Hole



HAOYU ELECTRONICS	HAOYU Electronics Co., Ltd				
Project:	M.2_SSD_HP_Board				
File:	02.Mark/Hole				
Date:	Monday, January 30, 2023			Rev:	V1.0
Designed by:	Thomas	Reviewed by:	Thomas	Sheet:	3 of 3