

HW DESIGN BLOCK DIAGRAM

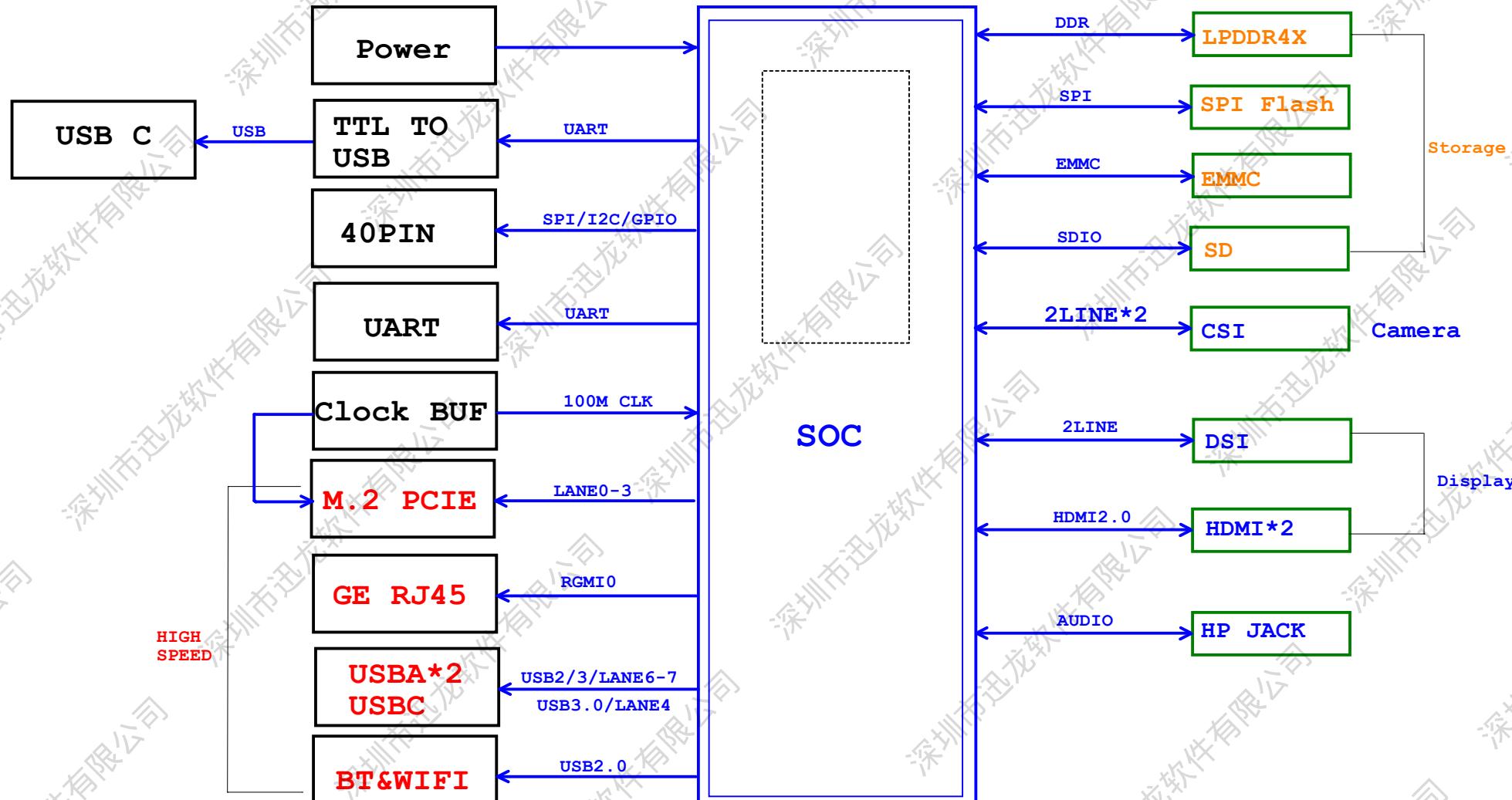
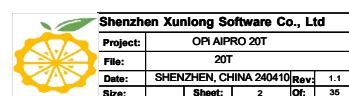
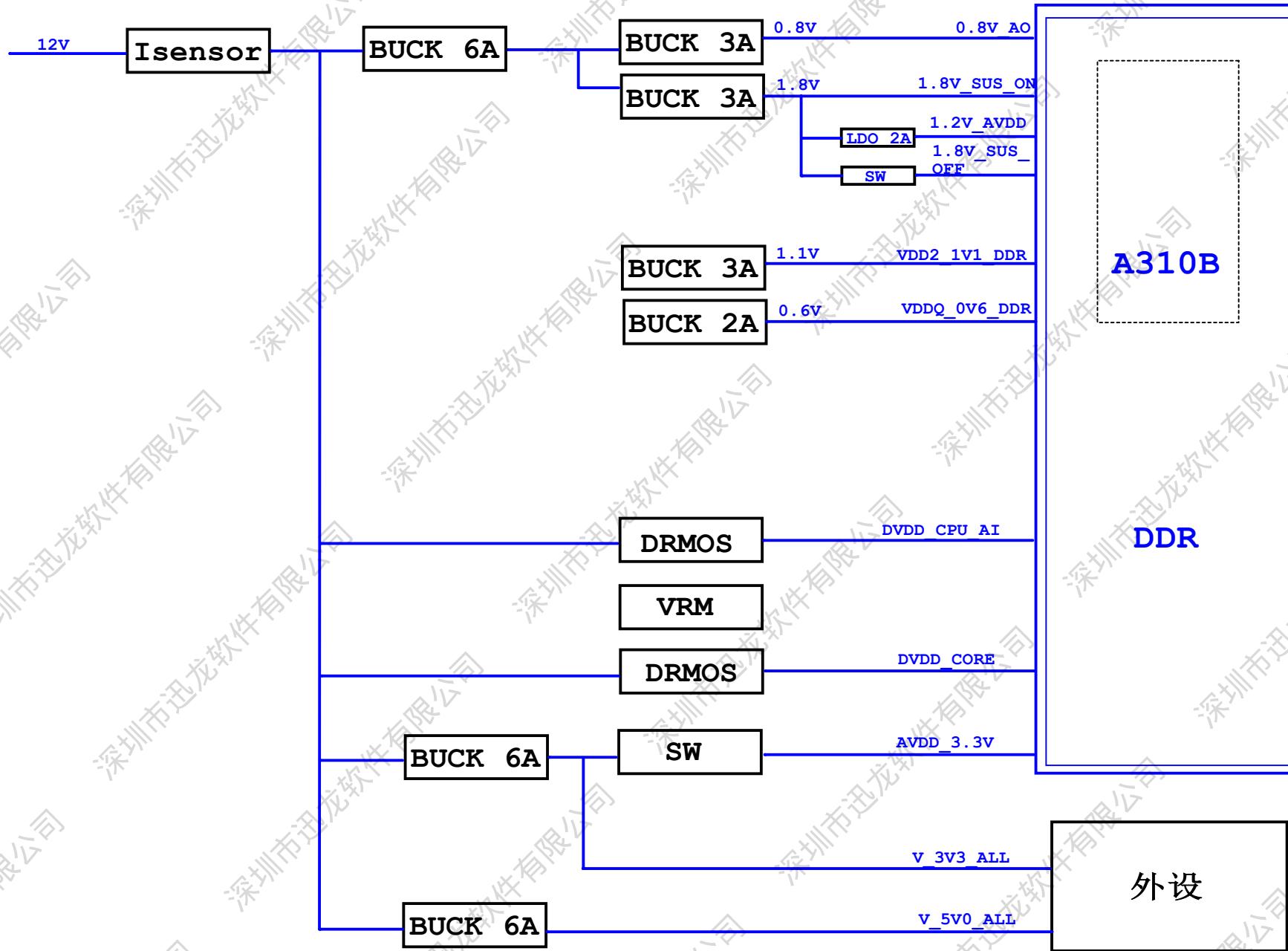
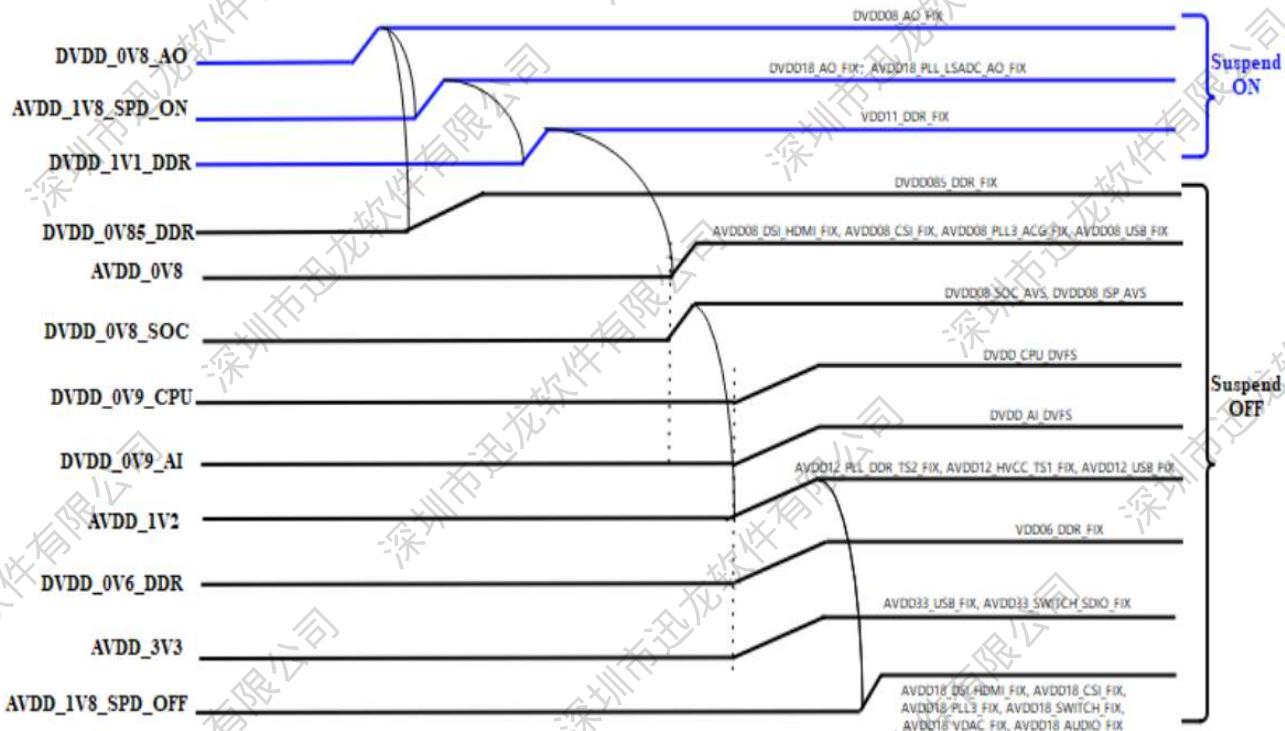


TABLE OF CONTENTS







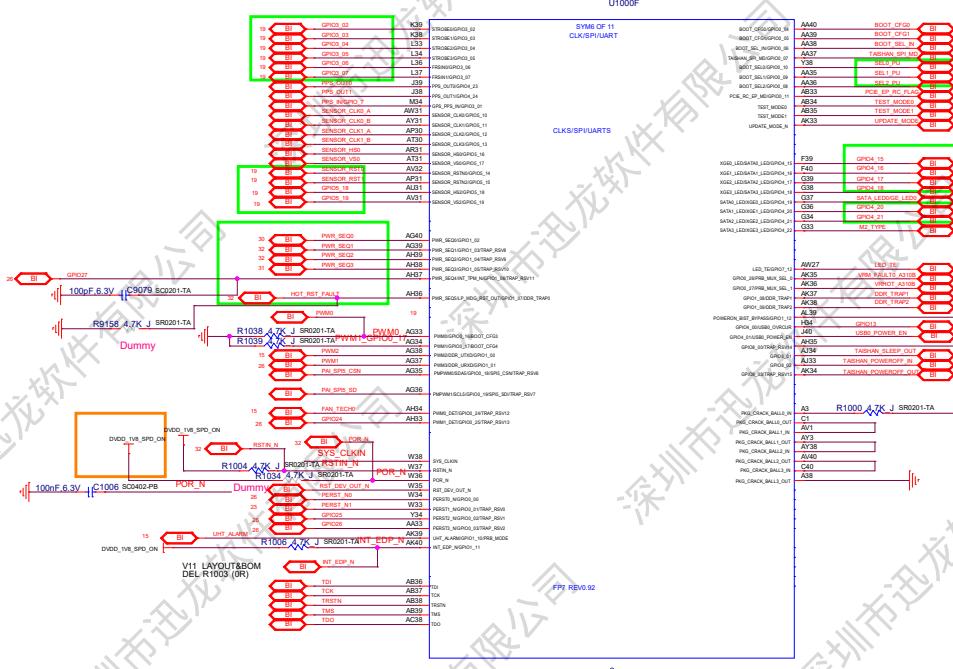
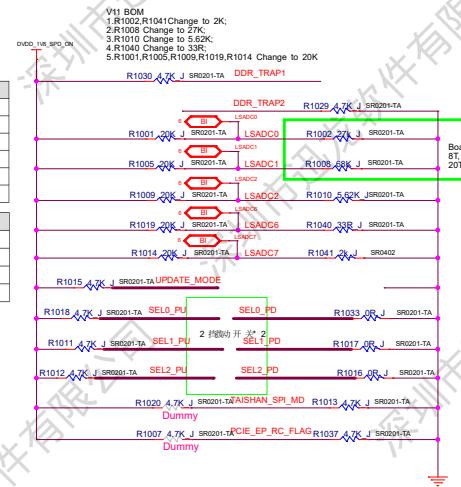


表 3-2 推荐分压电阻

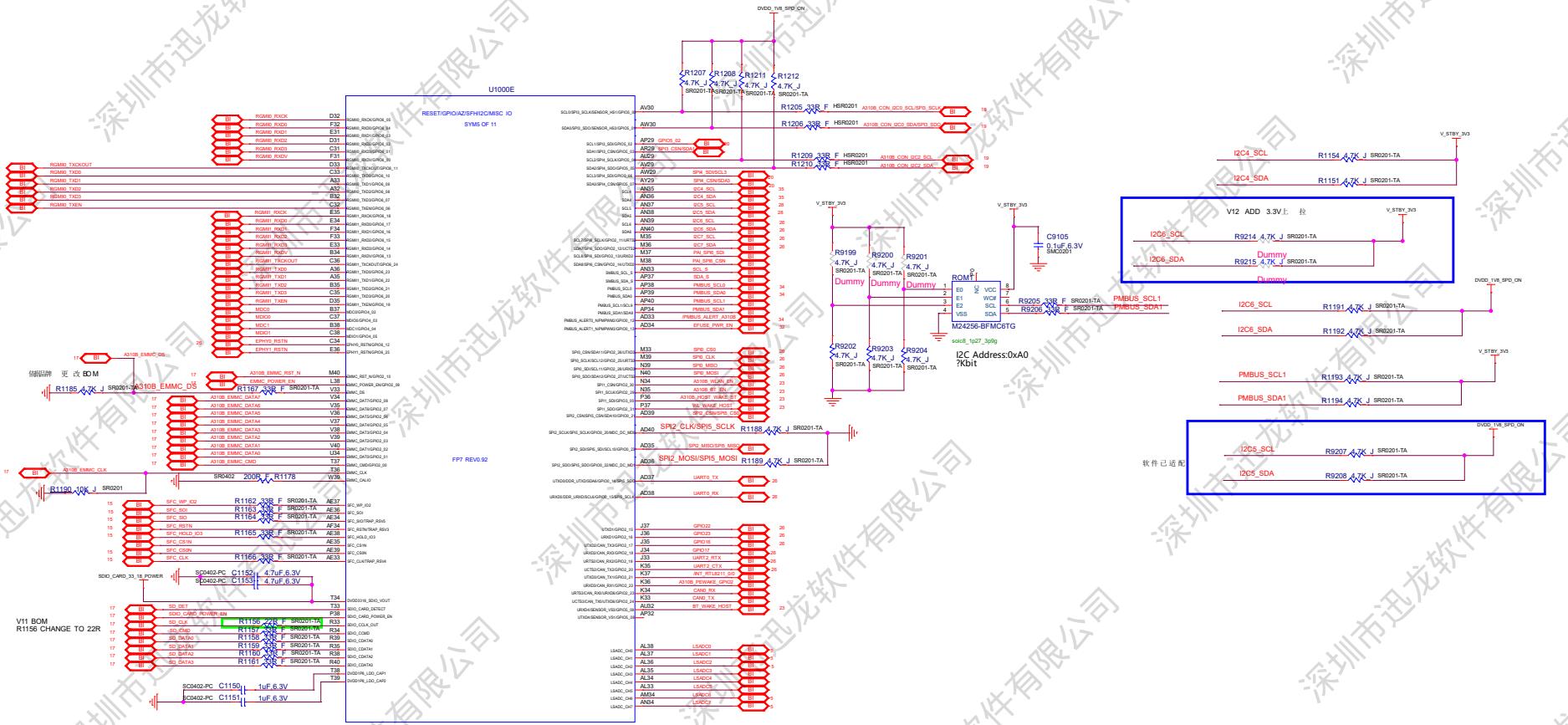
样带取值	上拉电阻R1 (kohm)	下拉电阻R2 (kohm)
0	20	0
1		2
2		5.6
3		10
4		15
5		27

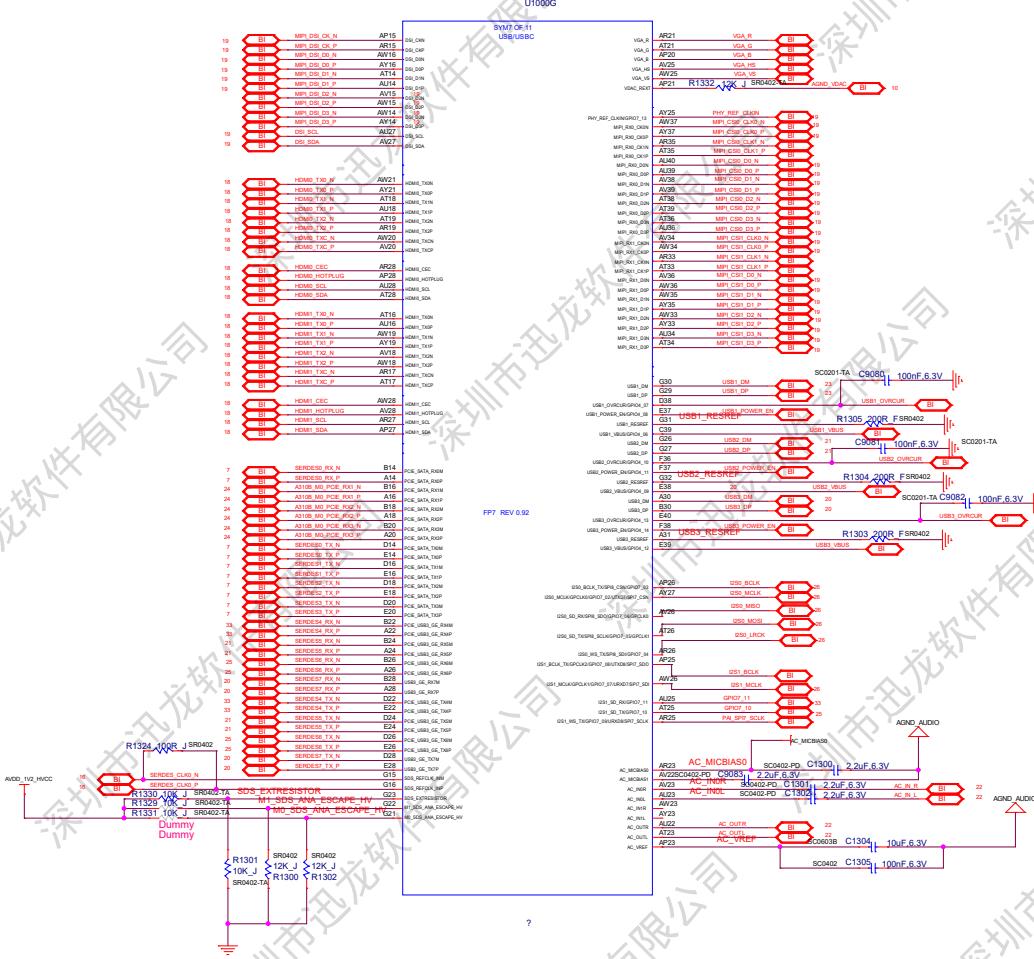
样带取值	上拉电阻R1 (kohm)	下拉电阻R2 (kohm)
6	47	47
7		68
8		200
9		NC



BOOT_SEL2	BOOT_SEL1	BOOT_SELO	启动方式
0	0	0	SPI NOR Flash
0	0	1	SPI NOR Flash + UFS
0	1	0	NOR Flash + PCIe
0	1	1	SPI NOR Flash + SSD/SATA
1	0	0	SPI NOR Flash + eMMC
1	0	1	SPI NOR Flash + SD卡
1	1	0	SPI NOR Flash + USB
1	1	1	SPI NOR Flash + UART/GE







兼容不同厂家SATA盘设计方案，
硬盘端串有10nF电容时上件0ohm电阻（07091470-001），
硬盘端无10nF电容时在底板上件10nF电容（08072292-001）



Ascend 硬件指南

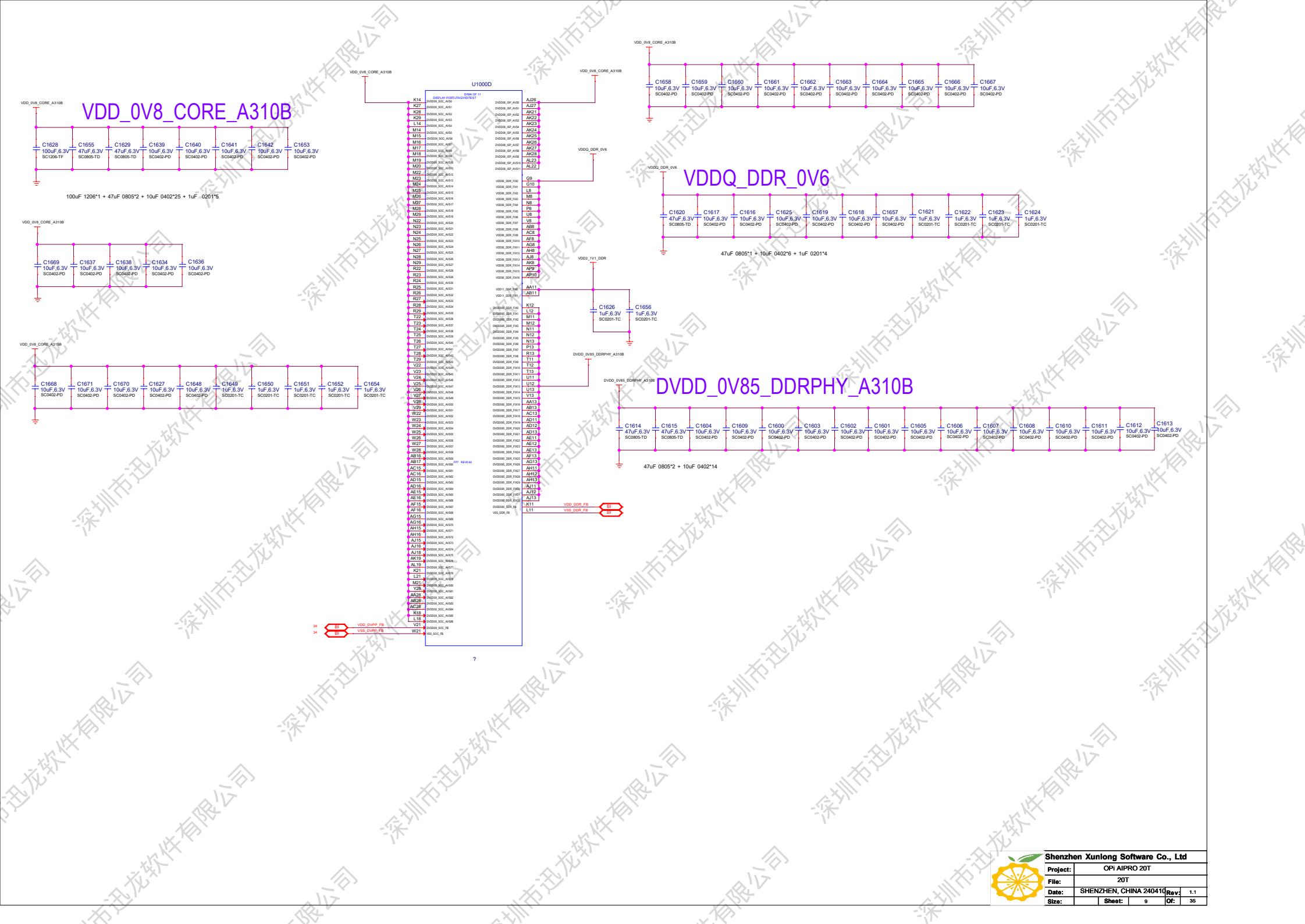
图6-20 Ascend 310B 支持的 serdes 复用关系

场景说明	Macro 0				Macro 1			
	LANE0	LANE1	LANE2	LANE3	LANE4	LANE5	LANE6	LANE7
NVR 64路	SATA	SATA	SATA	SATA	PCIEx1	GE	USB3.0	USB3.0
ITS全息路口	PCIEx1 (RC)	SATA	SATA	SATA	PCIEx1	GE	USB3.0	USB3.0
输电线/抓拍机							PCIEx1	USB3.0
配电房巡检	SATA	SATA	SATA	SATA	PCIEx1	GE	USB3.0	USB3.0
工业制造1	PCIEx1 (RC)	SATA	SATA	PCIEx1	USB3.0	USB3.0	USB3.0	USB3.0
工业制造2	PCIEx1 (RC)	SATA	SATA	PCIEx1	GE	USB3.0	USB3.0	USB3.0
V2X车路协同	PCIEx1 (RC)	PCIEx4 (RC)	PCIEx4 (EP)	C1300	USB3.0 (device)	PCIEx1	USB3.0	USB3.0
开发者生态1								
标卡								

SSD 2.5G 网口 2.5G 网口 TYPE-C USB HUB

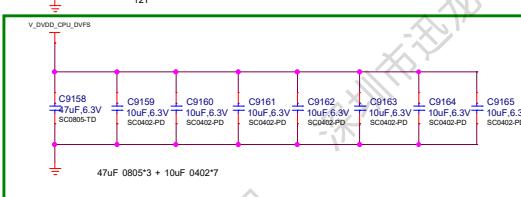
须知





V_DVDD_CPU_DVFS

CPU: 8T-0 8V 20T-0 9V



DVDD_1V8_SPD_ON

DVDD_1V8_SPD_ON

C1759 (2.2uF, 6.3V), C1751 (2.2uF, 6.3V), C1758 (2.2uF, 6.3V), C1799 (2.2uF, 6.3V), C1754 (1uF, 6.3V), C1752 (1uF, 6.3V), C1753 (1uF, 6.3V), C1750 (1uF, 6.3V)

SC0402-PD, SC0402-PD, SC0402-PD, SC0402-PD, SC0201-TC, SC0201-TC

DVDD_0V8_AO

DVDD_0V8_AO

C1815 (1uF, 6.3V), C1816 (1uF, 6.3V), C1814 (1uF, 6.3V), C1813 (1uF, 6.3V)

SC0201-TC, SC0201-TC, SC0201-TC, SC0402-PD

AVDD_0V8_FIX_A310B

AVDD_0V8_FIX_A310B

C1817 (1uF, 6.3V), C1819 (1uF, 6.3V), C1816 (1uF, 6.3V), C1820 (1uF, 6.3V), C1822 (0.01uF, 6.3V), C1821 (0.01uF, 6.3V)

SC0201-TC, SC0201-TC, SC0201-TC, SC0201-TC, SC0402-PD, SC0201-TC

AVDD_1V2_HVCC

AVDD_1V2_HVCC

C1811 (10uF, 6.3V), C1812 (1uF, 6.3V), C1807 (1uF, 6.3V), C1809 (1uF, 6.3V), C1810 (100nF, 16V), C1808 (100nF, 16V), C1795 (1uF, 6.3V)

SC0402-PD, SC0201-TC, SC0201-TC, SC0201-TC, SC0402, SC0201-TC, SC0402

AVDD_3V3

AVDD_3V3

C1787 (10uF, 6.3V), C1788 (1uF, 6.3V), C1789 (100nF, 16V), C1785 (1uF, 6.3V), C1756 (100nF, 16V), C1755 (1uF, 6.3V)

SC0402, SC0402, SC0402, SC0402, SC0402

V_DVDD_AI_DVFS

AI: 8T-0 75V 20T-0 9V

C1757 (100uF, 6.3V), C1823 (100uF, 6.3V), C1828 (100uF, 6.3V), C1831 (100uF, 6.3V)

SC0201-TC, SC0201-TC, SC0201-TC, SC0201-TC

C1966 (7uF, 6.3V), C1967 (7uF, 6.3V), C1968 (7uF, 6.3V), C1969 (7uF, 6.3V)

SC0805-TD, SC0805-TD, SC0805-TD, SC0805-TD

C1970 (7uF, 6.3V), C1971 (10uF, 6.3V)

SC0201-PD, SC0201-PD

100uF*3+47uF*7+10uF*1

V_DVDD_AI_DVFS

Change value

C1757 (100uF, 6.3V), C1823 (100uF, 6.3V), C1828 (100uF, 6.3V), C1831 (100uF, 6.3V)

SC0201-TC, SC0201-TC, SC0201-TC, SC0201-TC

C1966 (7uF, 6.3V), C1967 (7uF, 6.3V), C1968 (7uF, 6.3V), C1969 (7uF, 6.3V)

SC0805-TD, SC0805-TD, SC0805-TD, SC0805-TD

C1970 (7uF, 6.3V), C1971 (10uF, 6.3V)

SC0201-TC, SC0201-TC, SC0201-TC, SC0201-TC

100uF*3+47uF*7+10uF*1

V_DVDD_AI_DVFS

ADD

C1966 (7uF, 6.3V), C1967 (7uF, 6.3V), C1968 (7uF, 6.3V), C1969 (7uF, 6.3V)

SC0805-TD, SC0805-TD, SC0805-TD, SC0805-TD

C1970 (7uF, 6.3V), C1971 (10uF, 6.3V)

SC0201-TC, SC0201-TC, SC0201-TC, SC0201-TC

100uF*3+47uF*7+10uF*1

V_DVDD_AI_DVFS

AVDD_1V8_SWITCH

AVDD_1V8_SWITCH

SLD402C 220ohm/100MHz/2.3A

LB1755

SLD402C 1uF, 6.3V

C1833

SLD402C 1uF, 6.3V

C1796

AVDD_1V8

AVDD_1V8_SWITCH

SLD402C 220ohm/1.4A

LB1751

SLD402C 220ohm/1.4A

LB1750

SLD402C 220ohm/1.4A

LB1754

AVDD_1V8_SPD_ON

AVDD_1V8_SPD_OFF

DVDD_1V8_FUSE_A310B

C1791 (1uF, 6.3V)

SC0201-TC

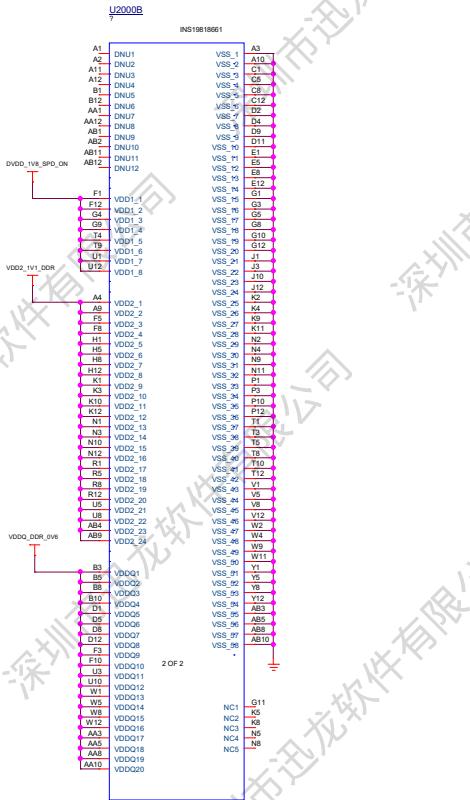
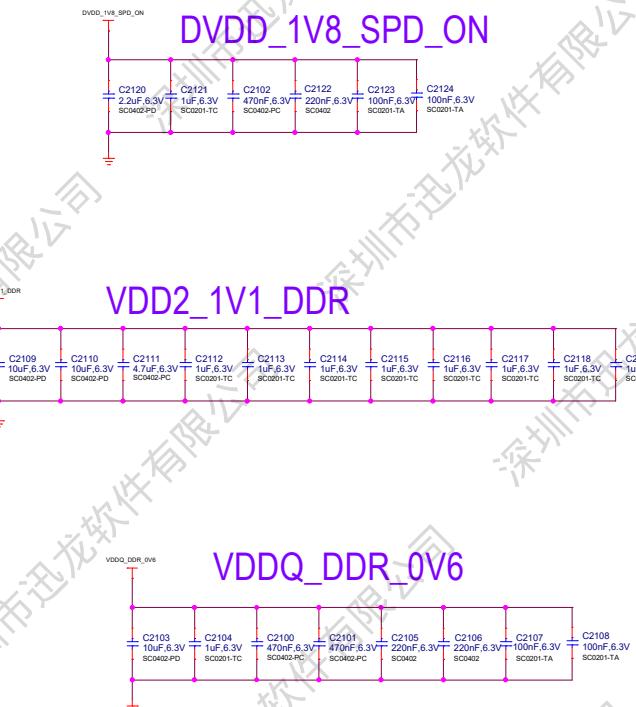
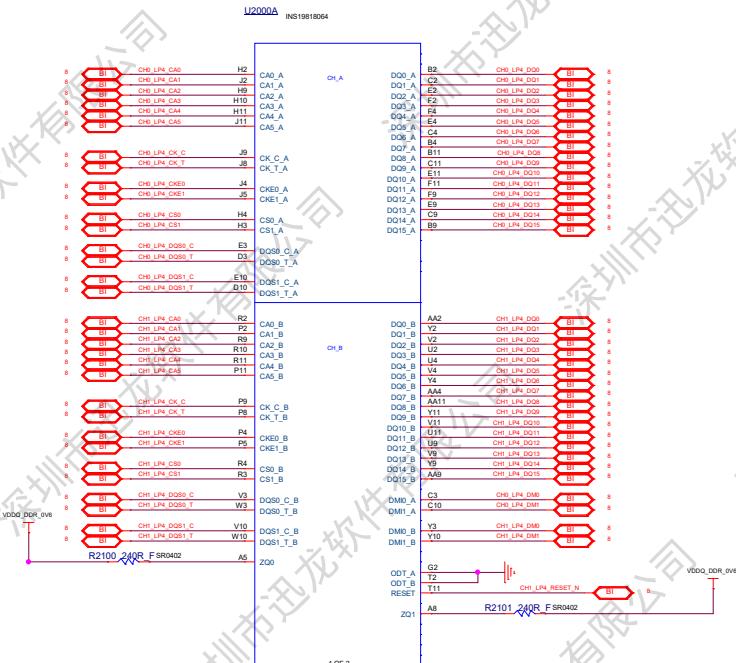
100uF, 6.3V

SC0201-TC

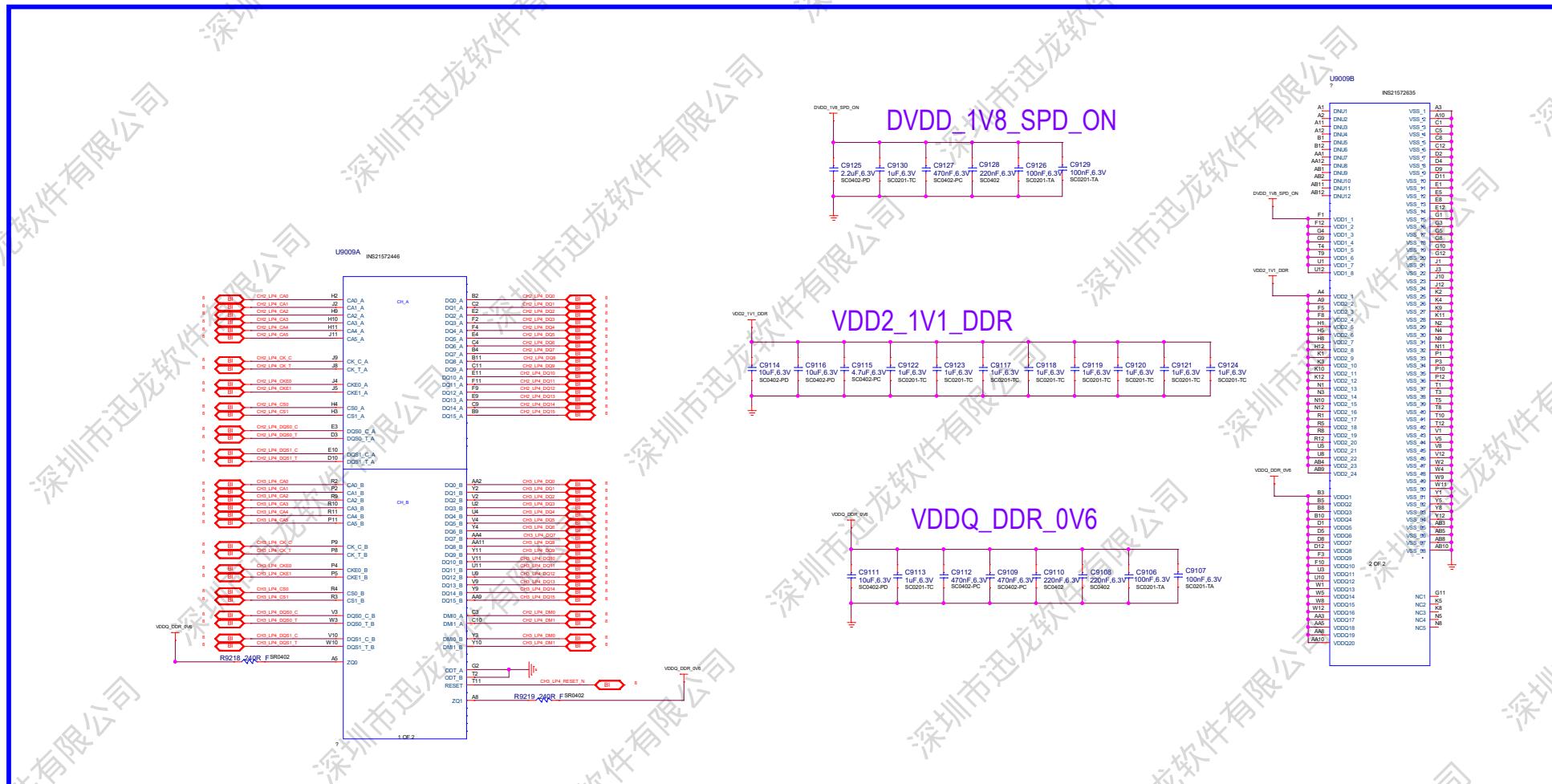
100uF,

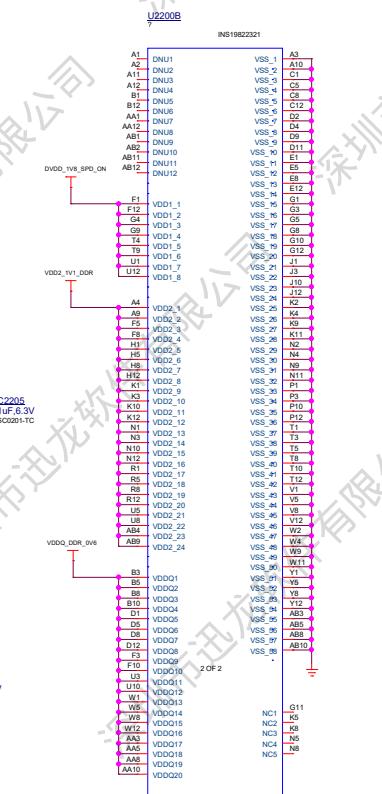
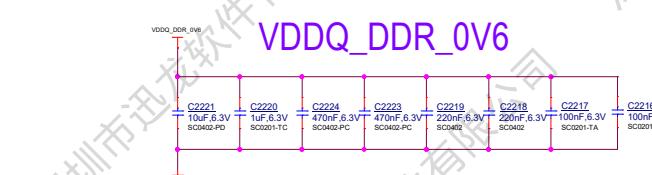
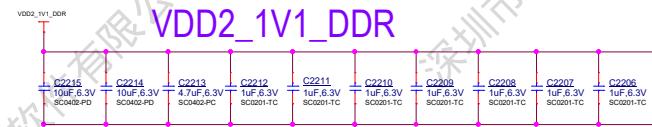
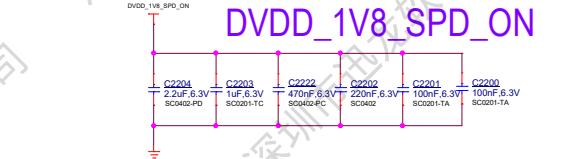


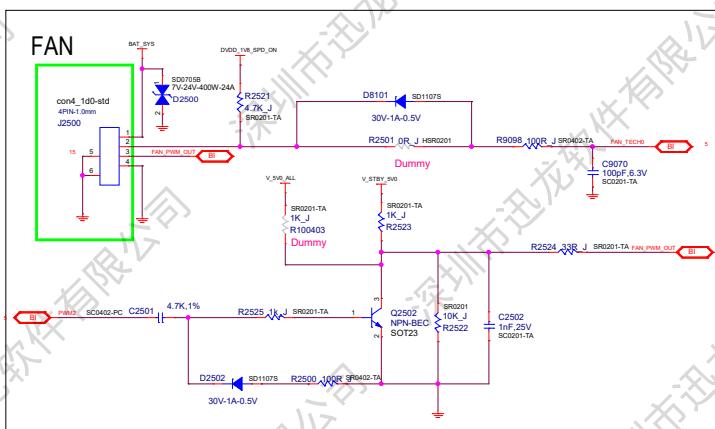
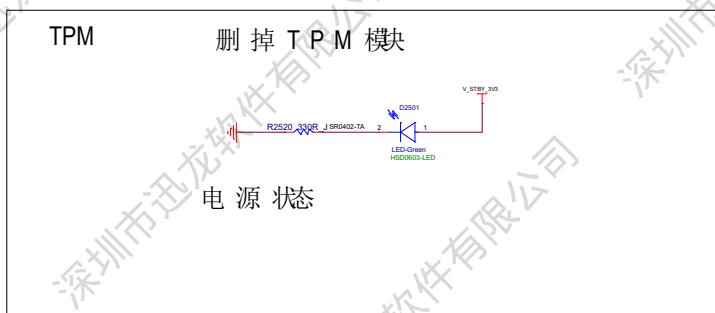
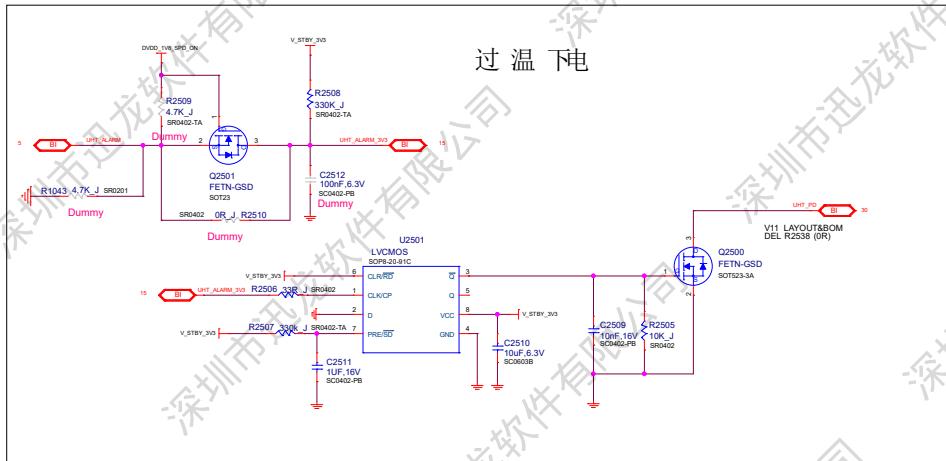
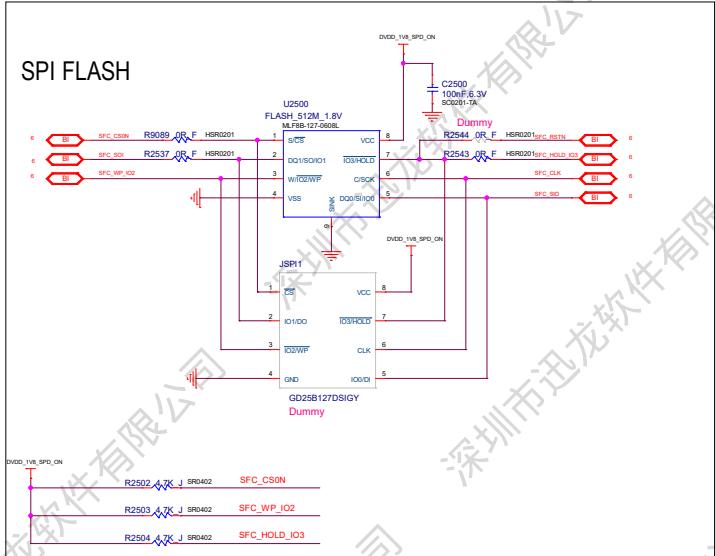
	Shenzhen Xunlong Software Co., Ltd.	
Project:	OPI AIPRO 20T	
File:	20T	
Date:	SHENZHEN, CHINA 240410	Rev: 1.1
Size:	Sheet: 11	Of: 35

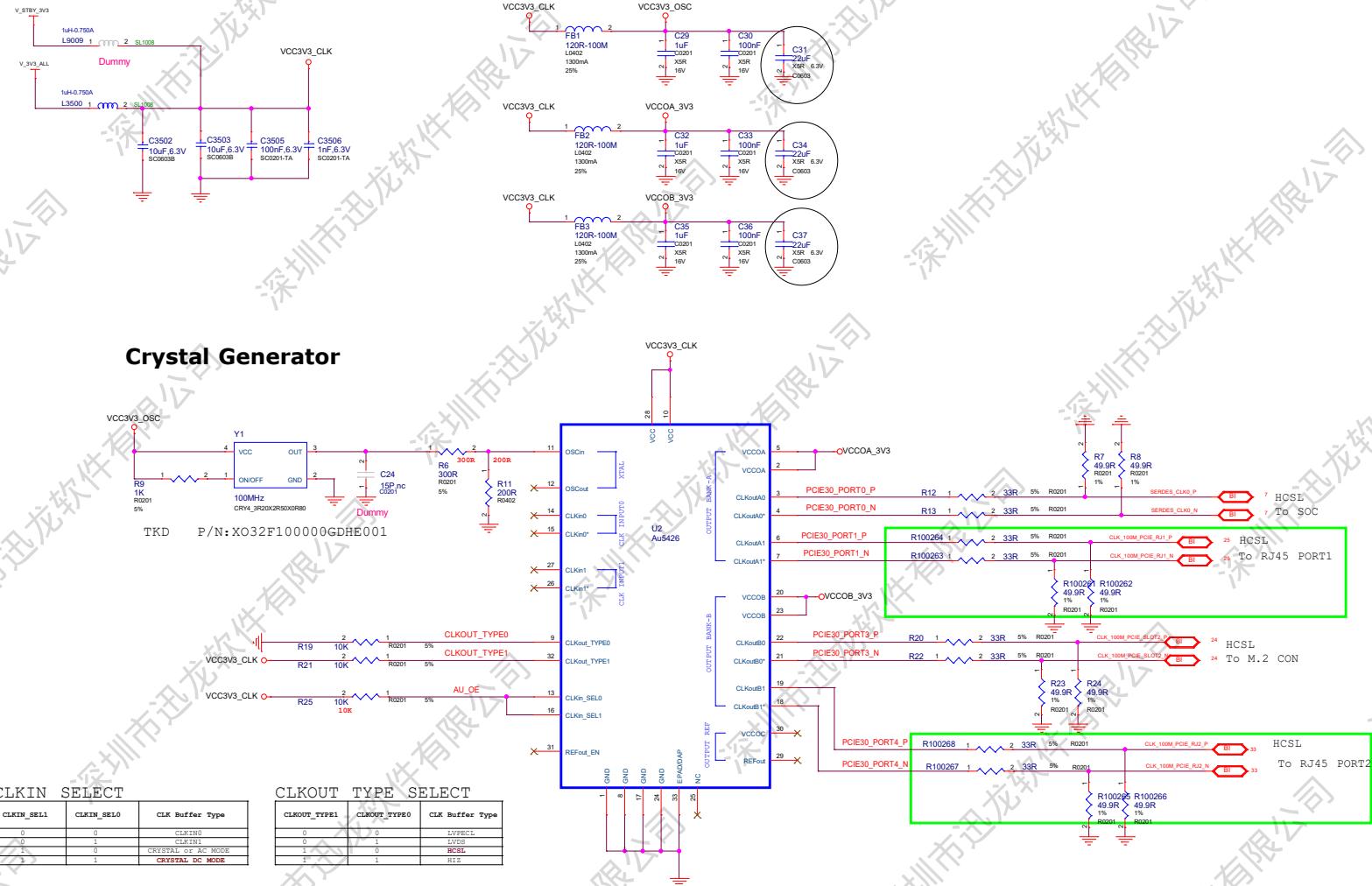


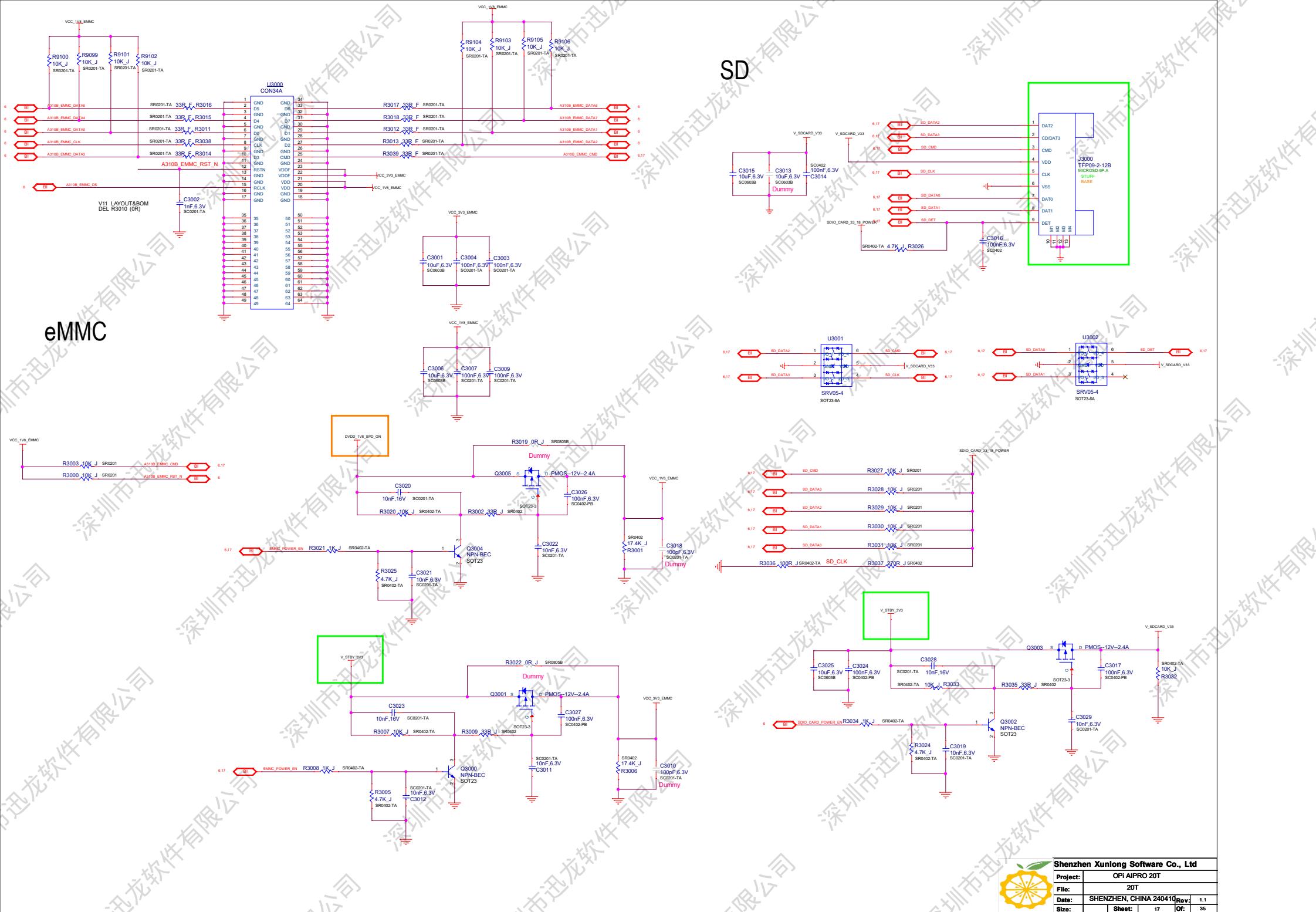
最大支持到8T 删掉CH2/CH3通道的DDR



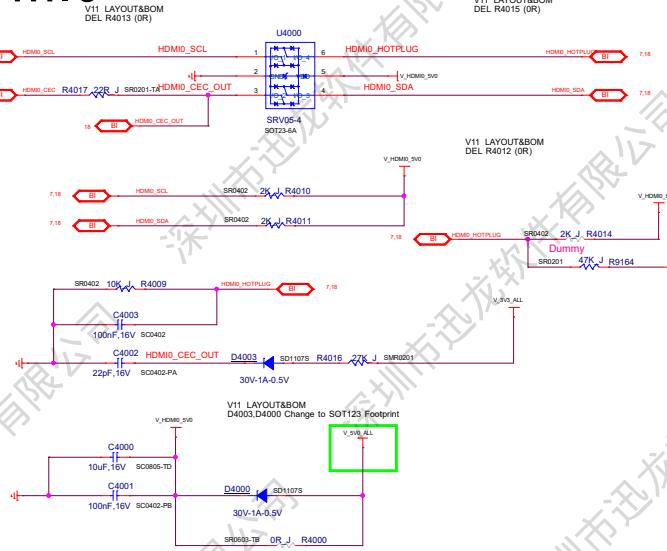




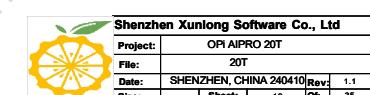
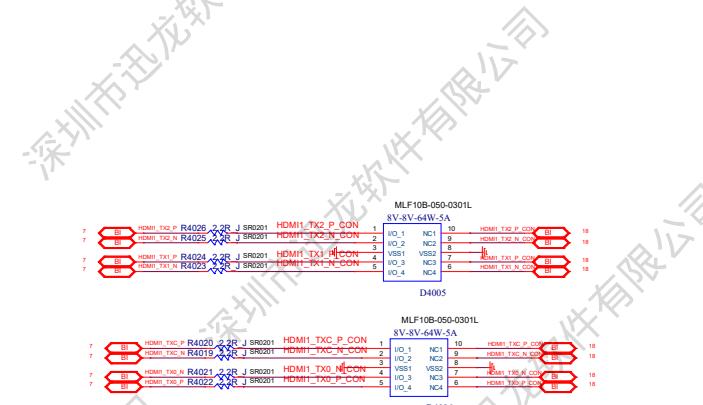
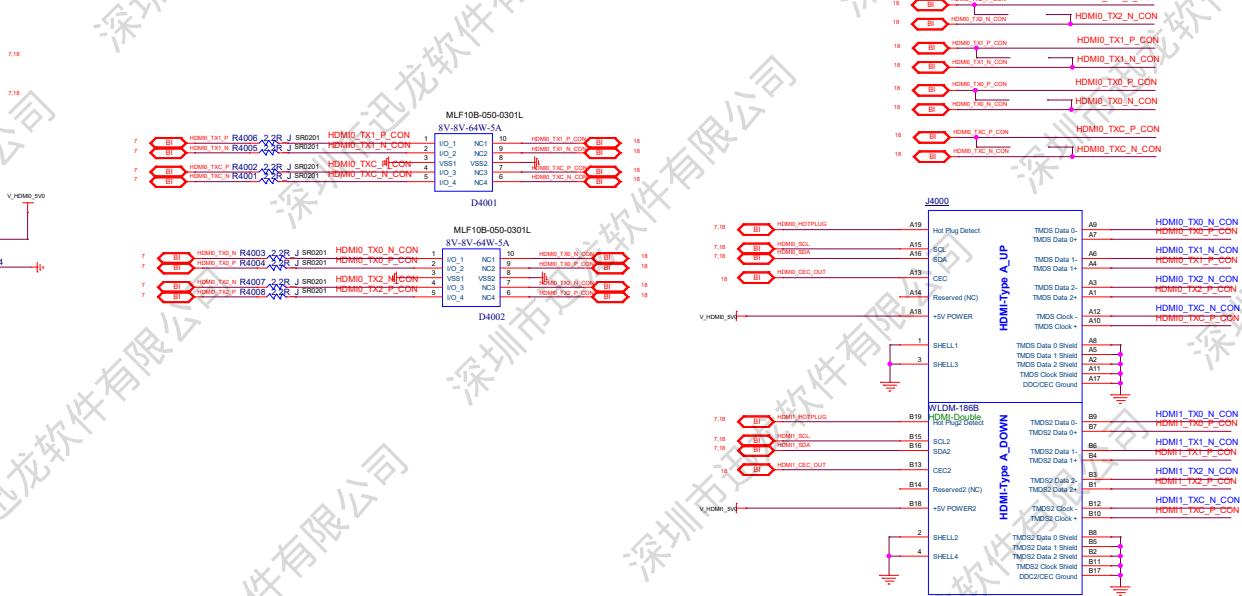
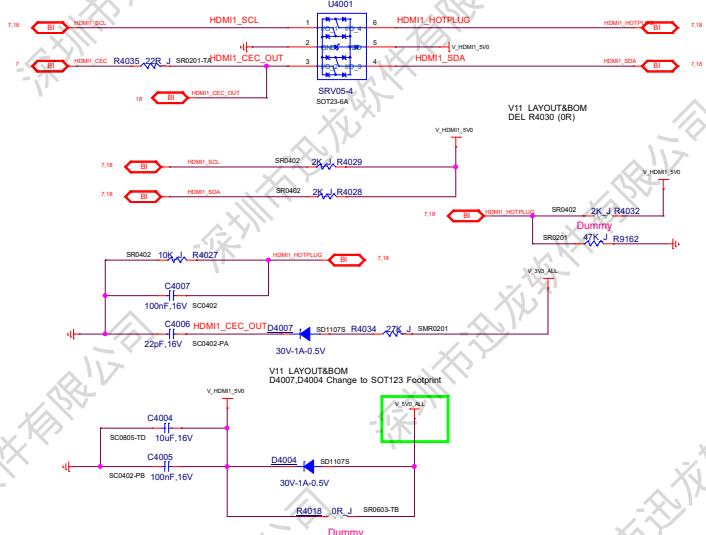




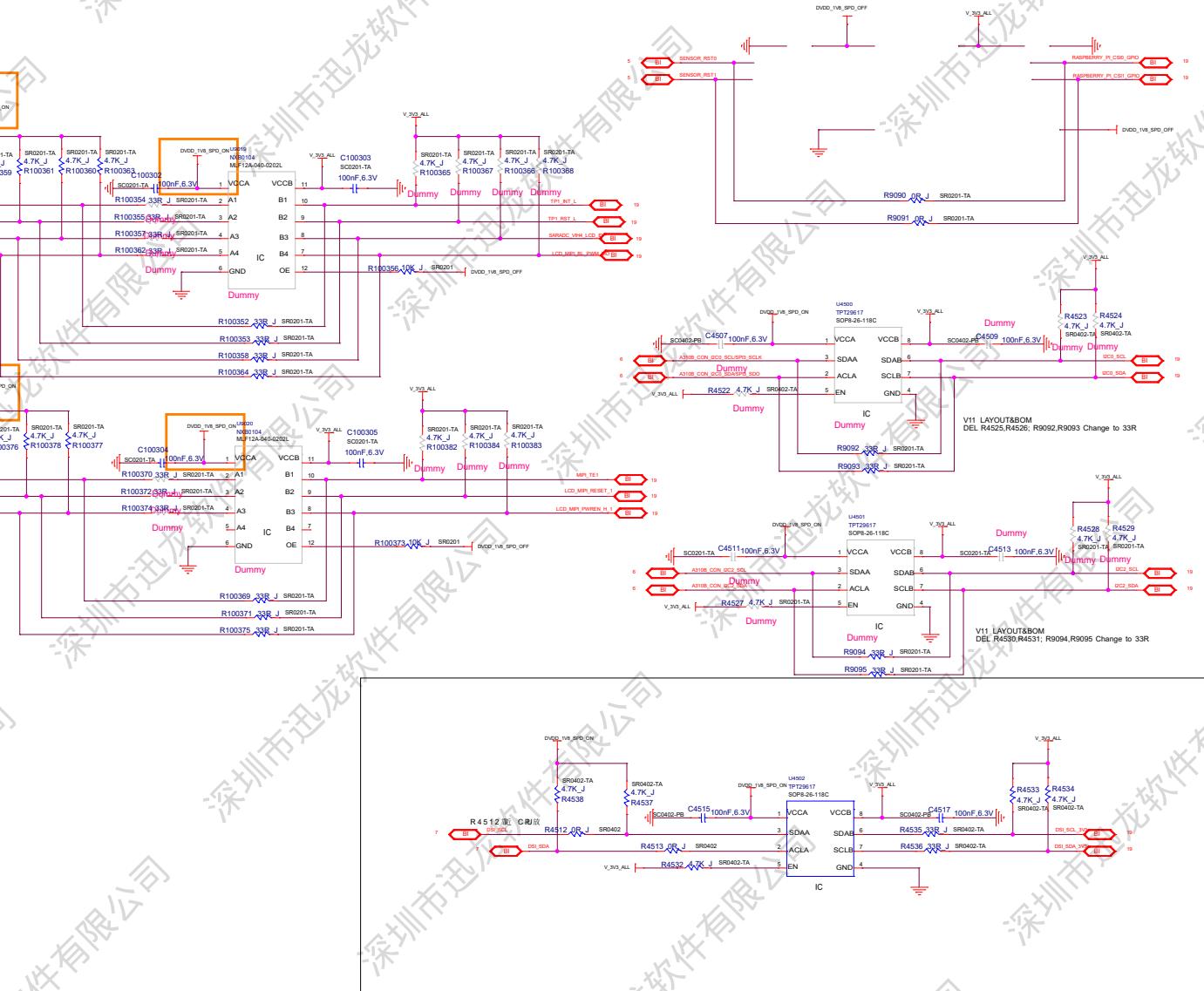
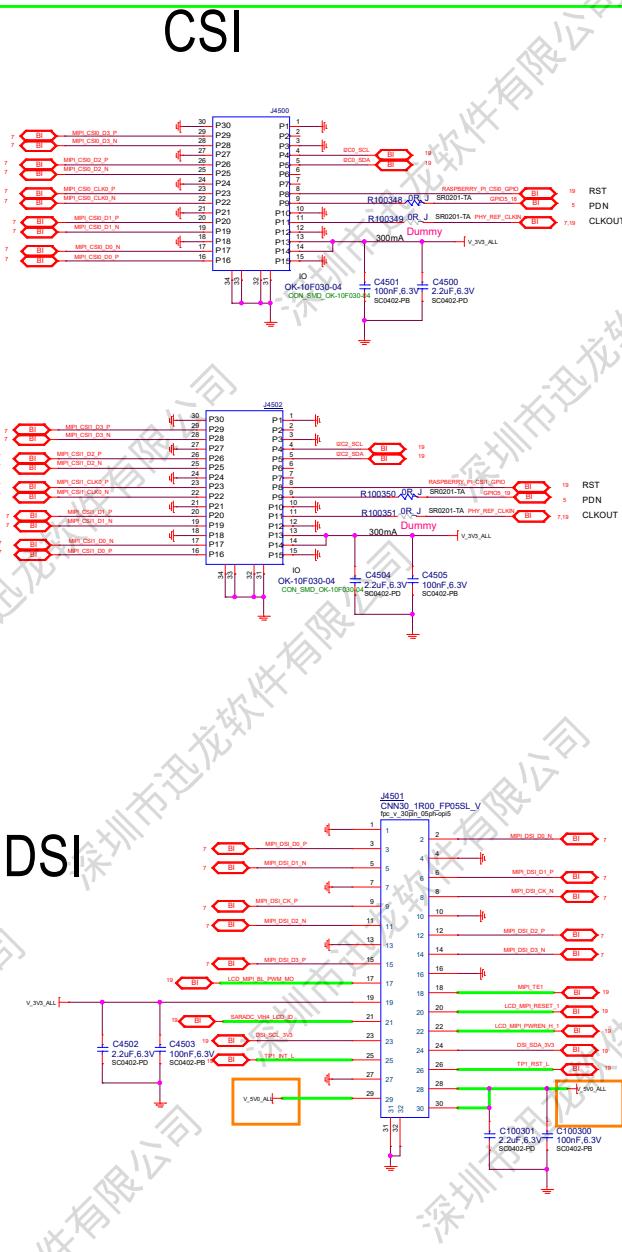
HDMI 0
V1.4

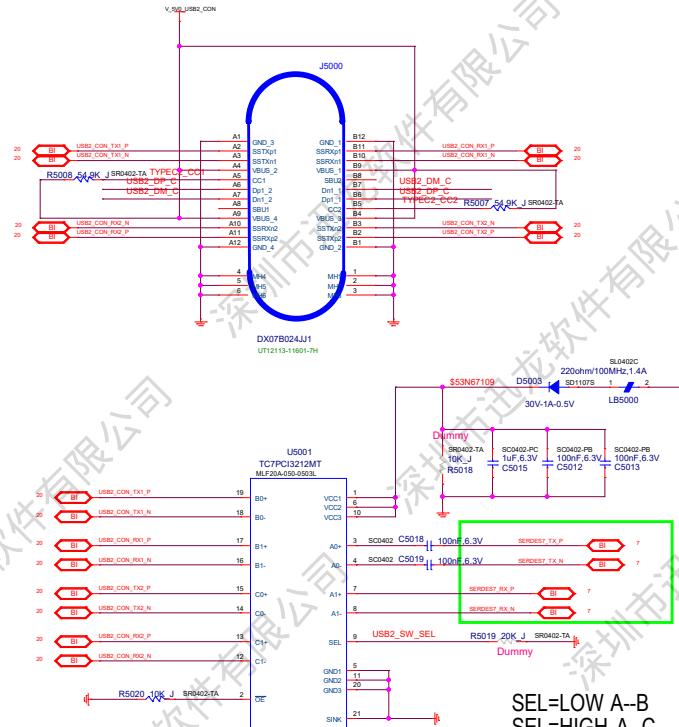


HDMI1

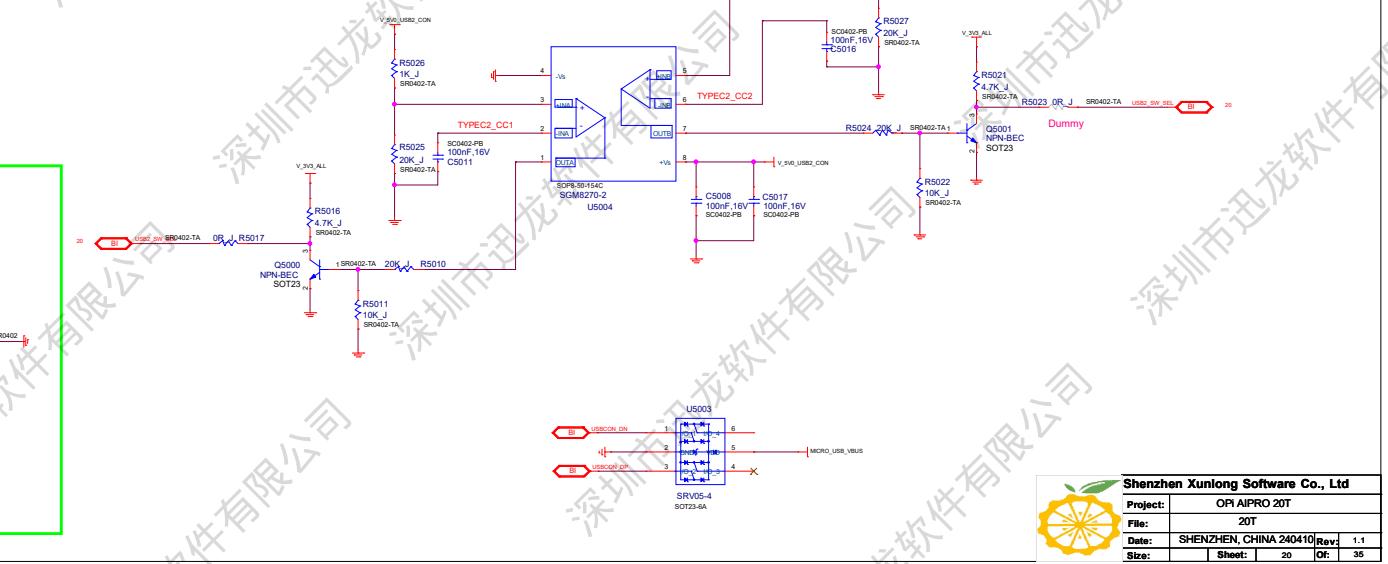
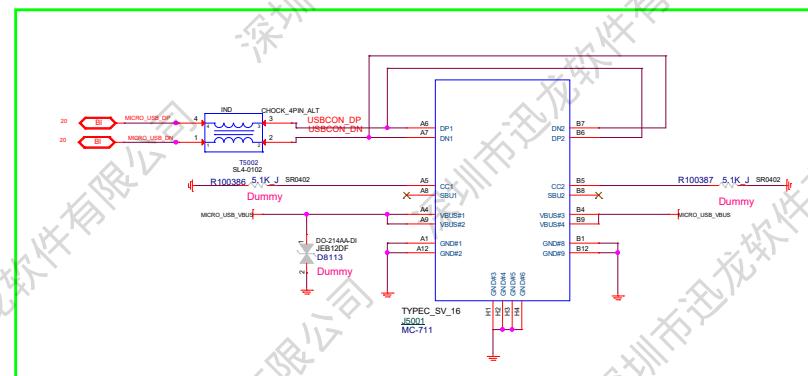
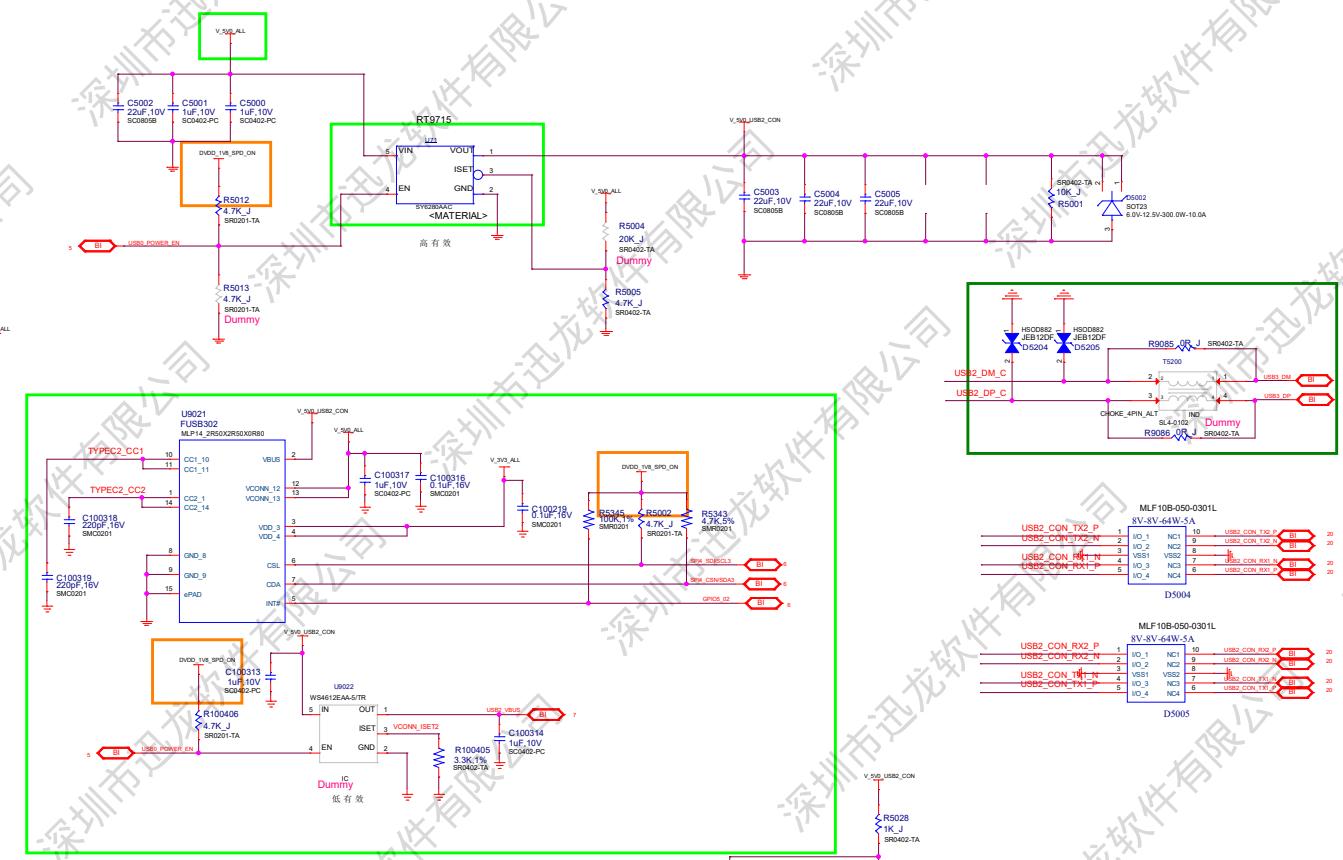


CSI

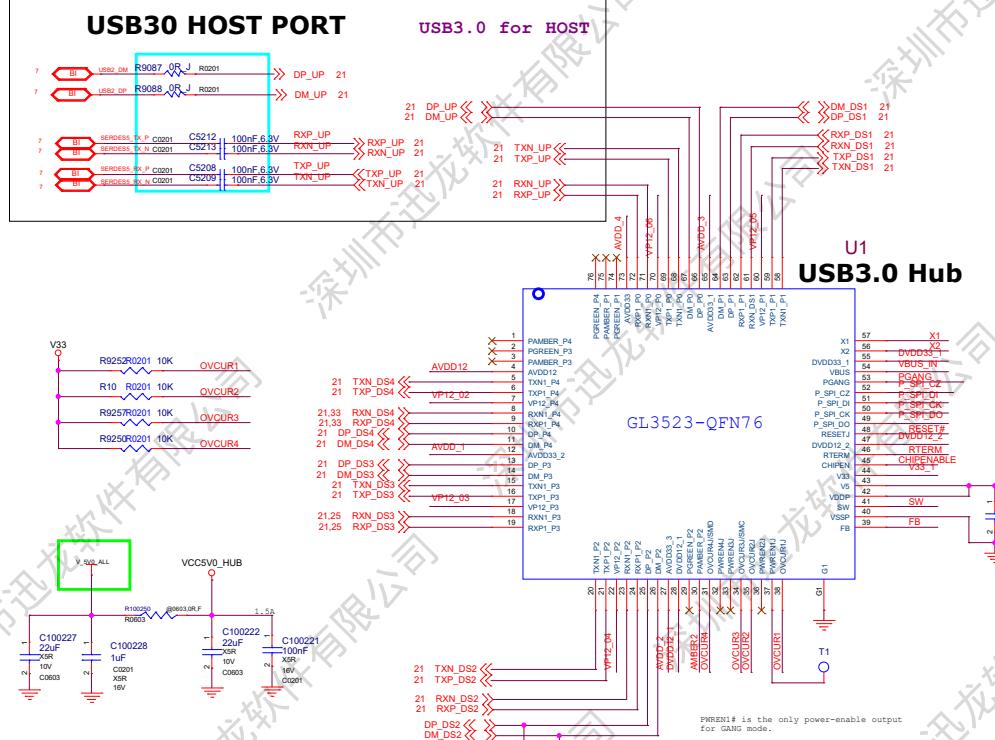




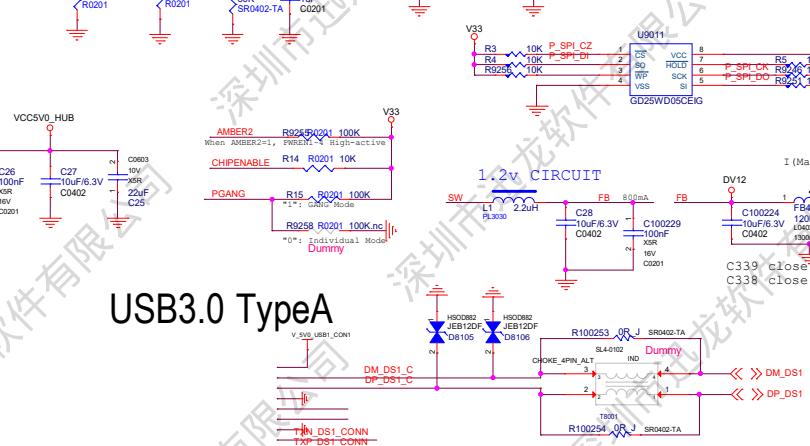
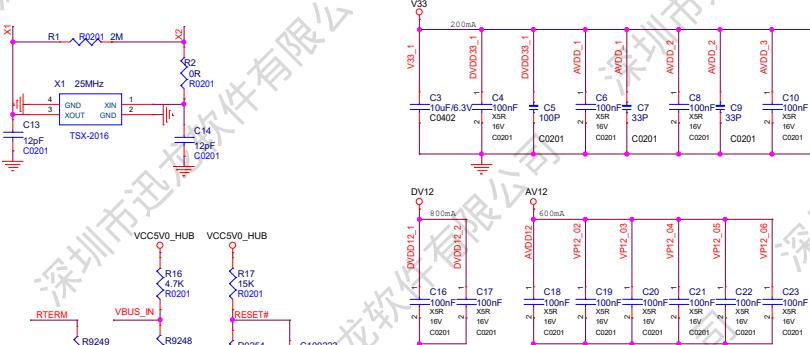
SEL=LOW A--B
SEL=HIGH A--C



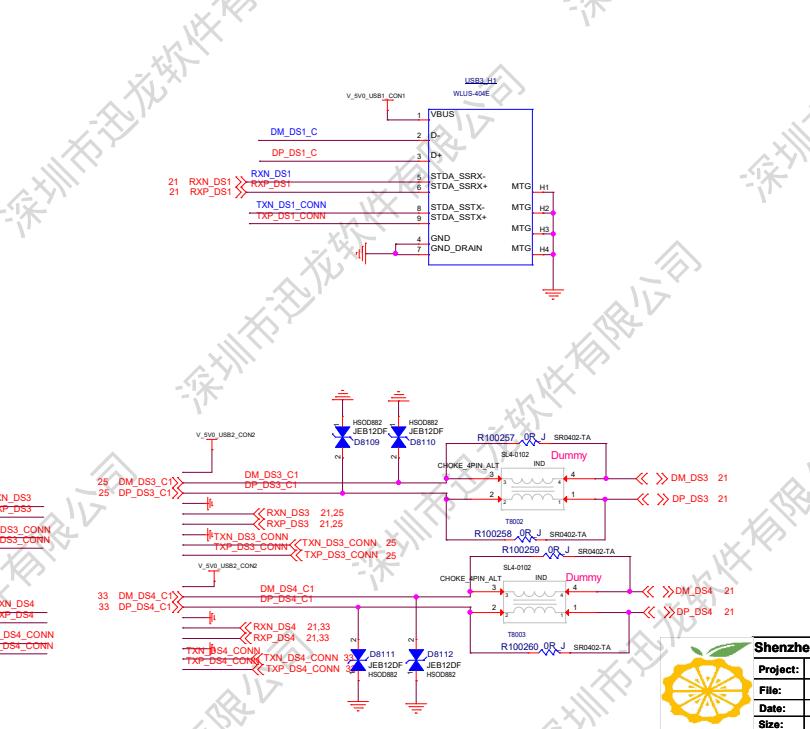
USB30 HOST PORT



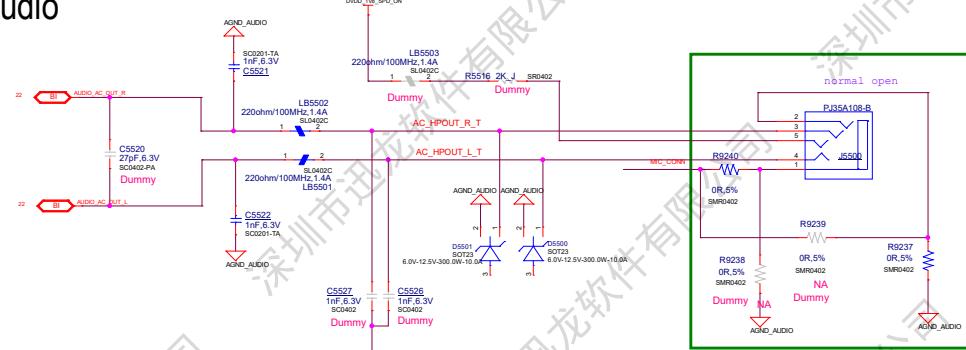
USB3.0 TypeA



USB3.0 TypeA

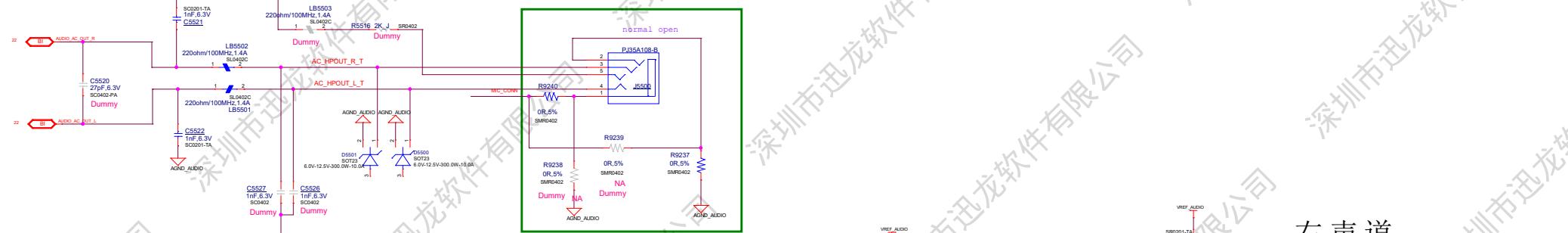
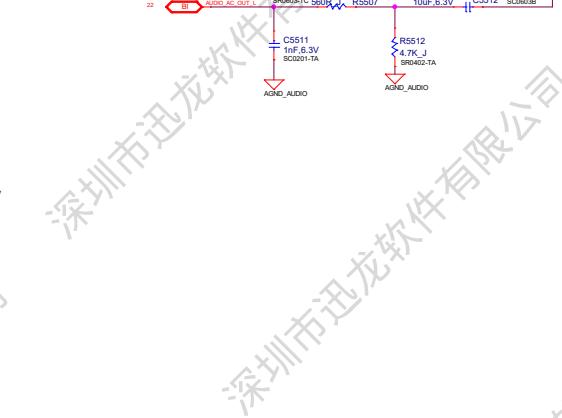
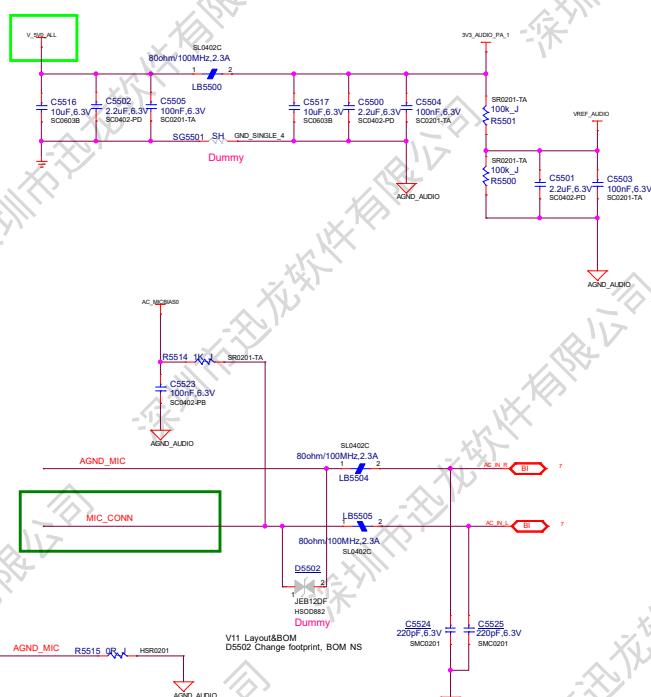


Audio

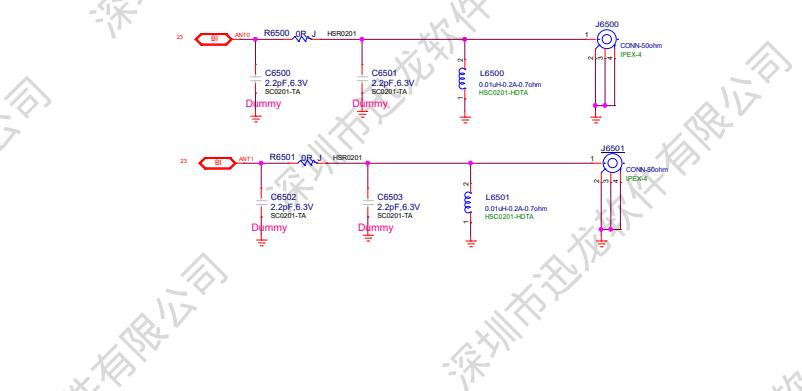
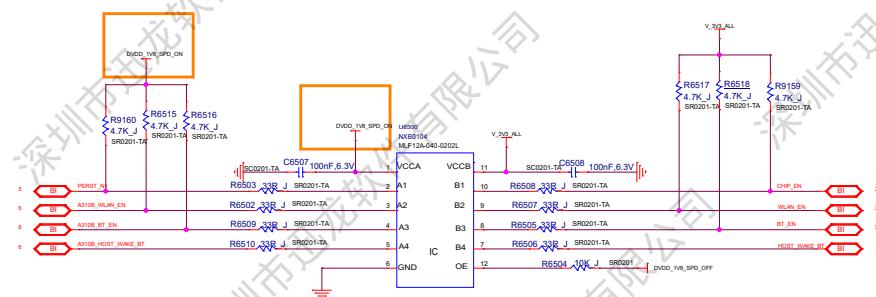
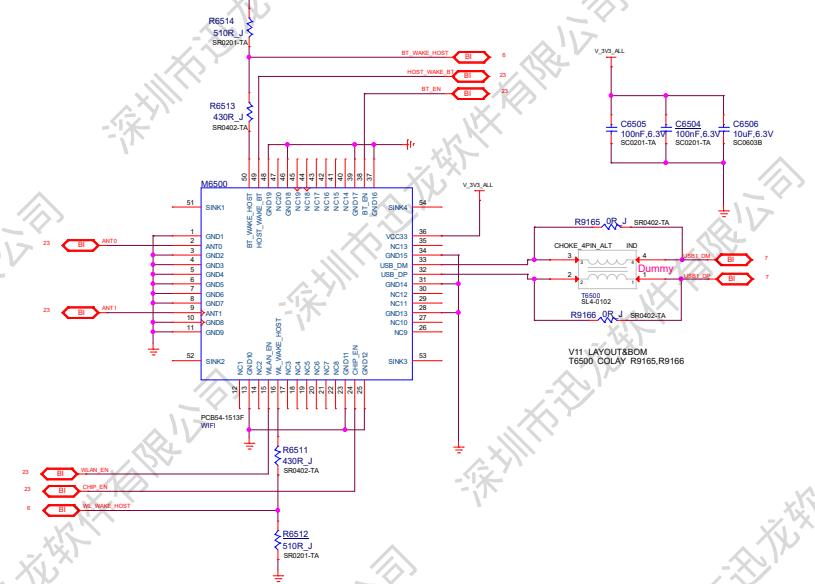


左声道

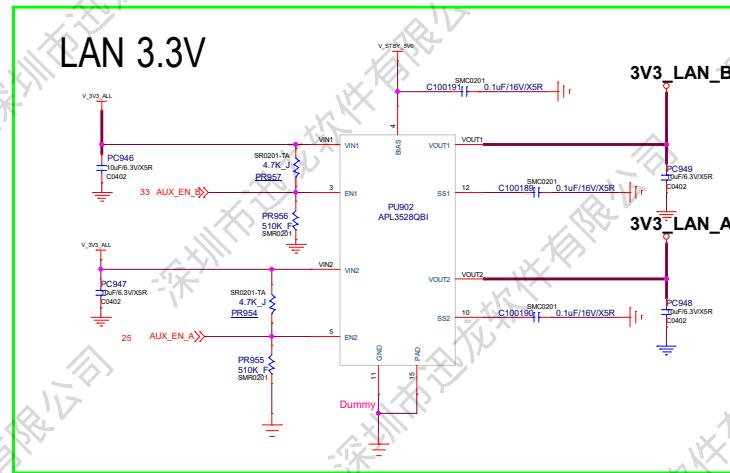
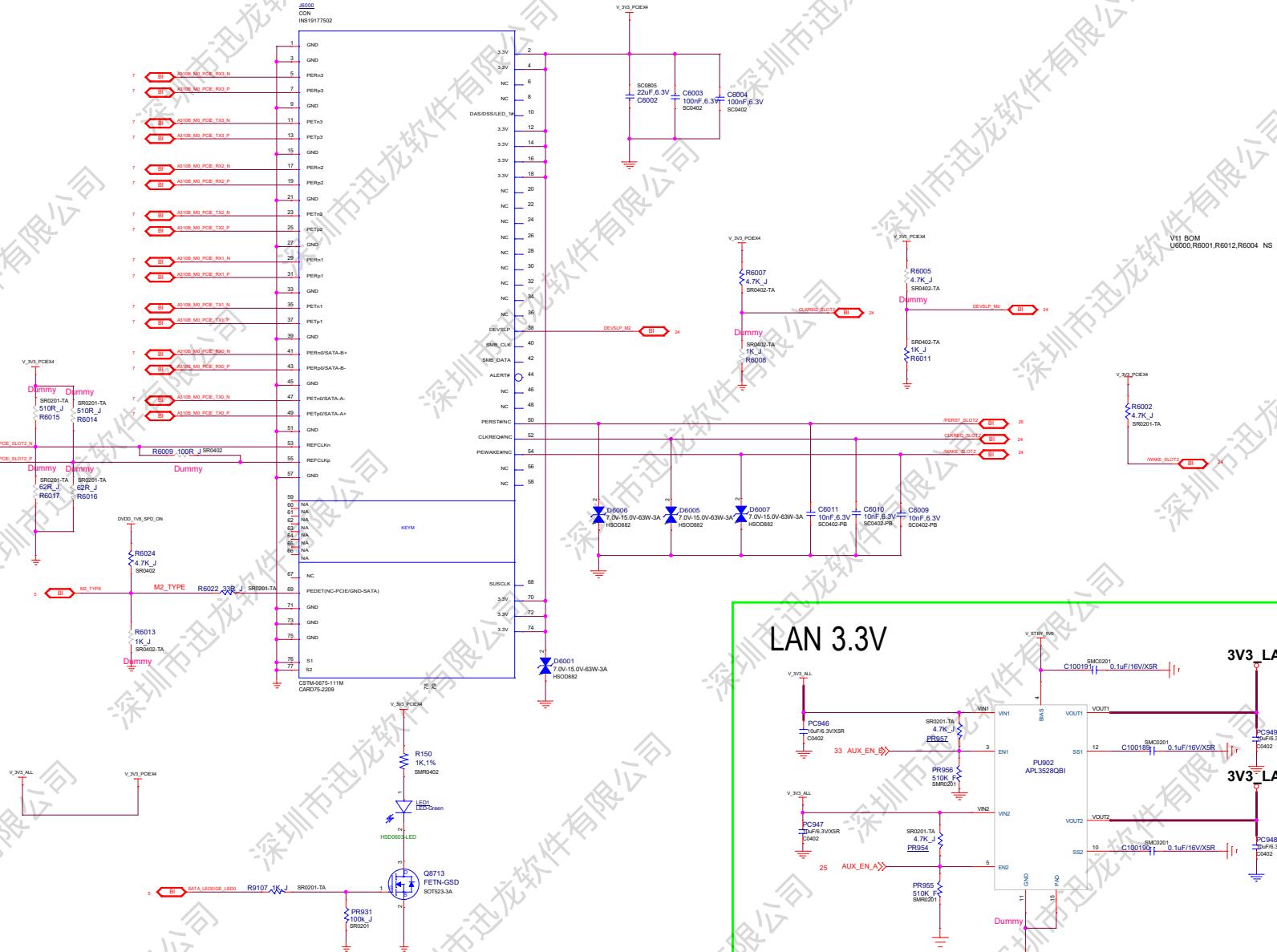
power

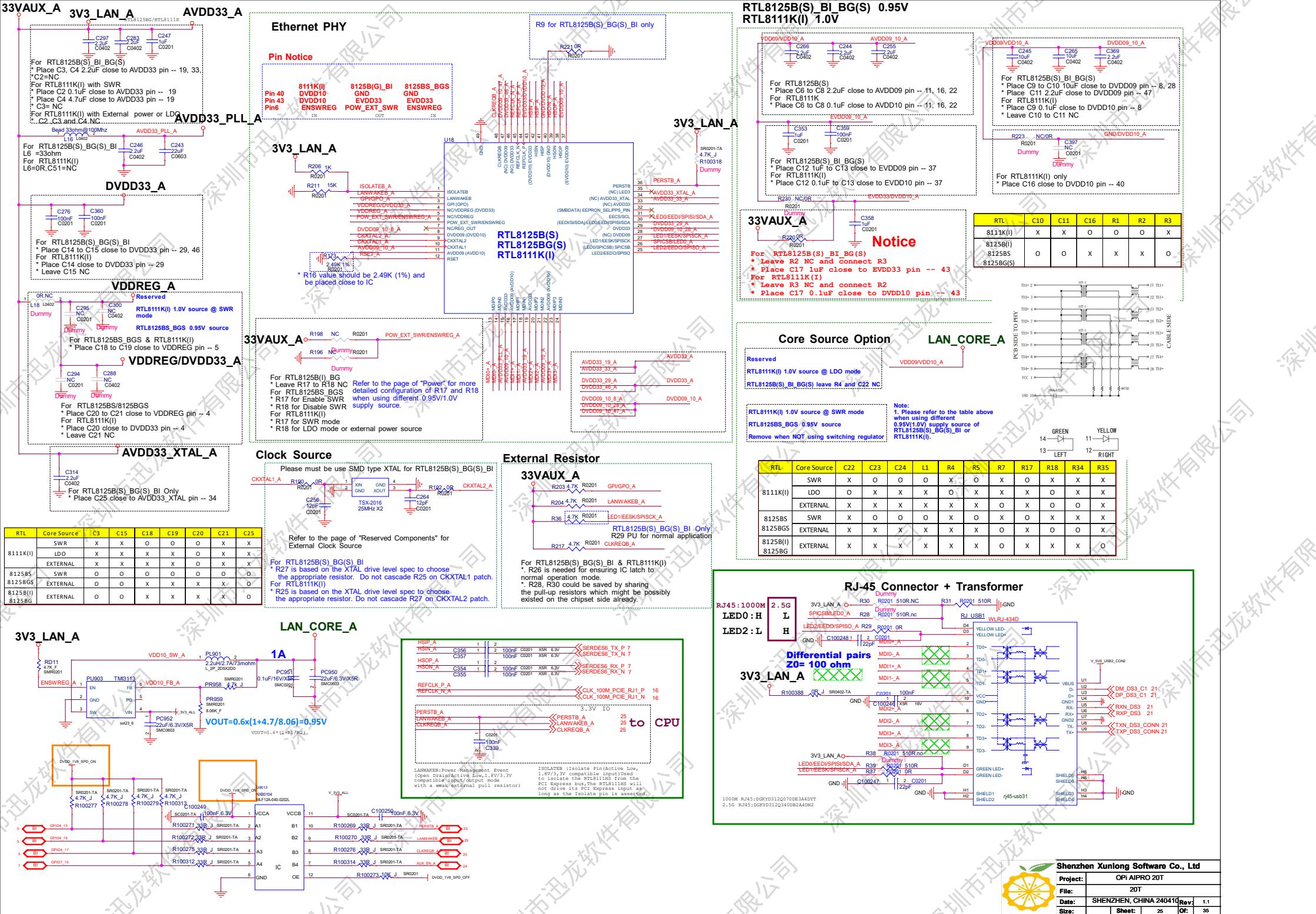


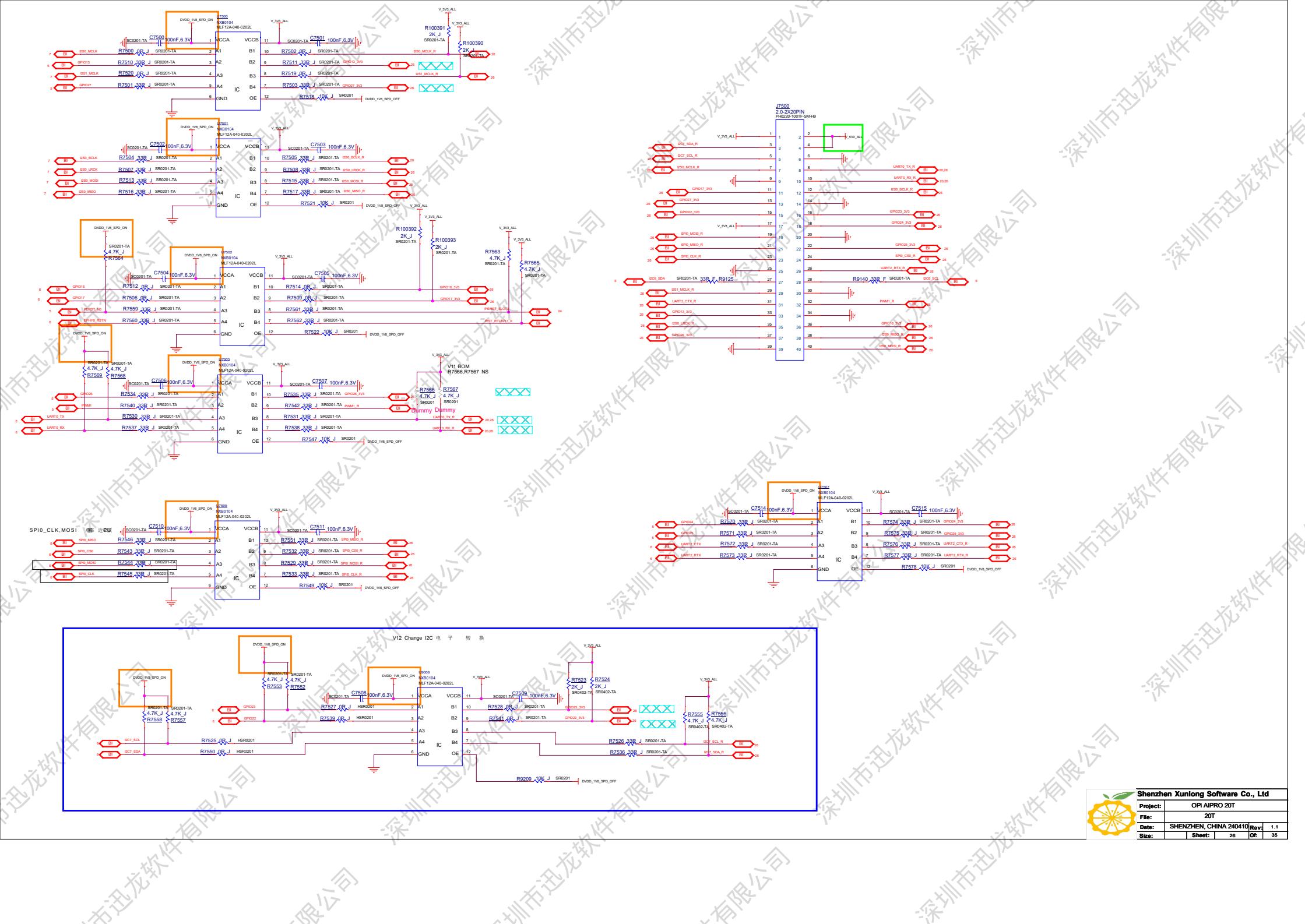
右声道

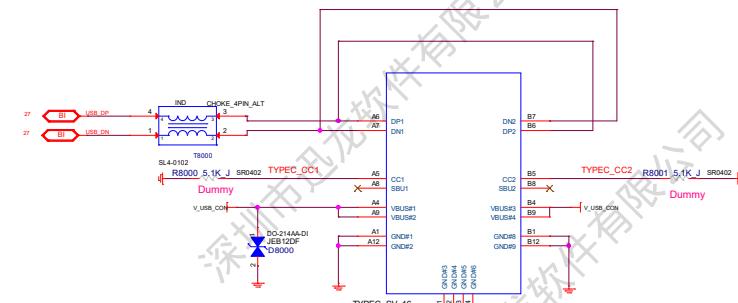


PCIE x4 M.2 Slot

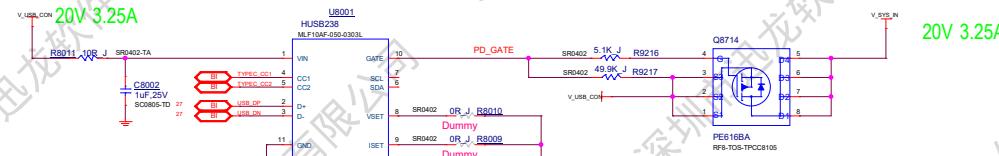
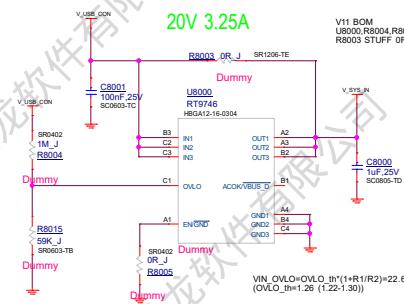




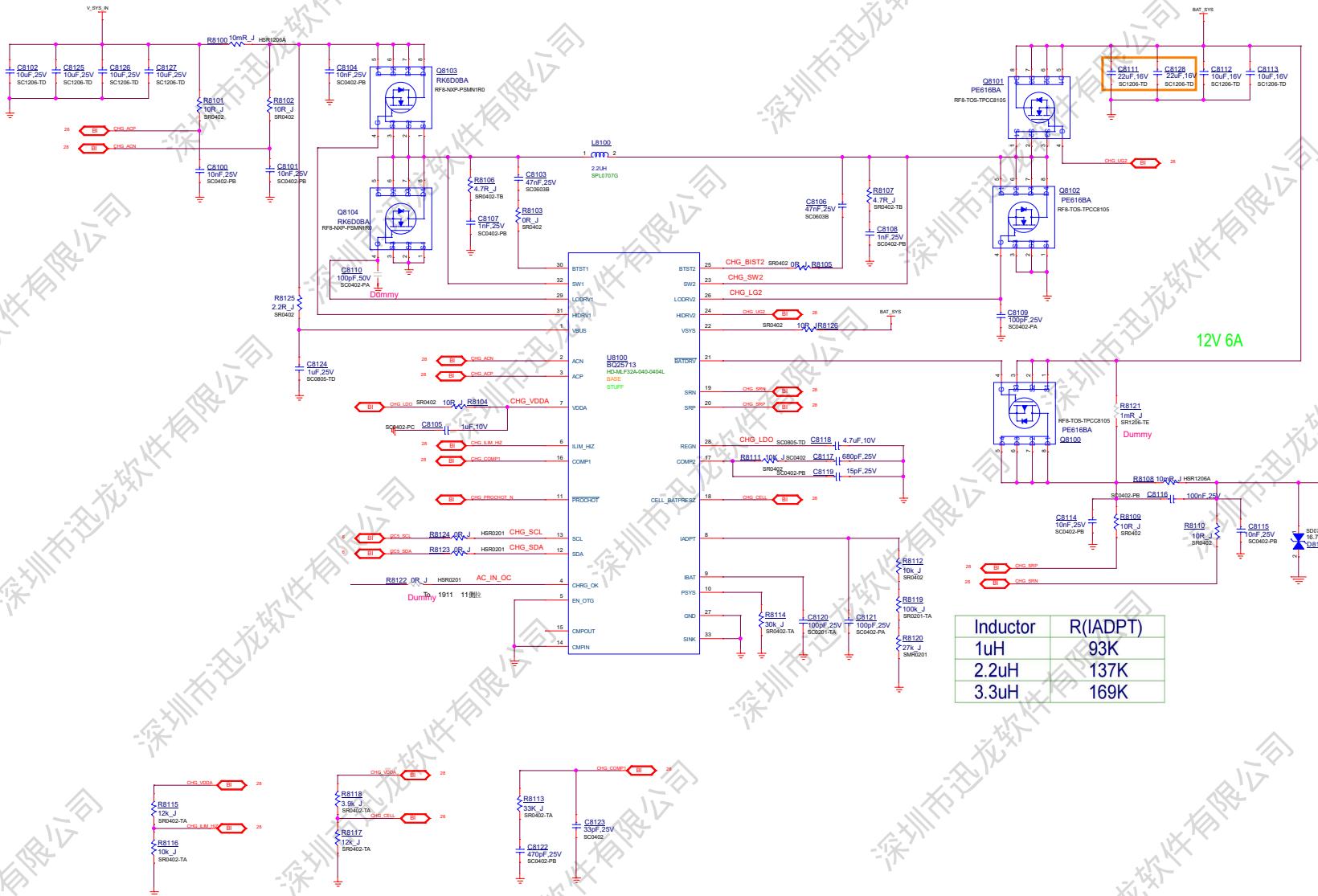




最低的 CC 线电压 (大约 0.41V) -- (USB 2.0 的 500mA 或 USB 3.0 的 900mA);
较高的 CC 线电压 (大约 0.92V) -- 5V 1.5A;
最高的 CC 线电压 (大约 1.68V) -- 5V 3A。



VSET	Voltage(V)	ISET	CURRENT(A)
0	5	0	1.25
6.04	9	4.53	1.5
10	12	7.5	1.75
14	15	10.5	2
17.8	18	13.7	2.25
OPEN	20	16.5	2.5
		19.6	2.75
		22.6	3
		OPEN	3.25



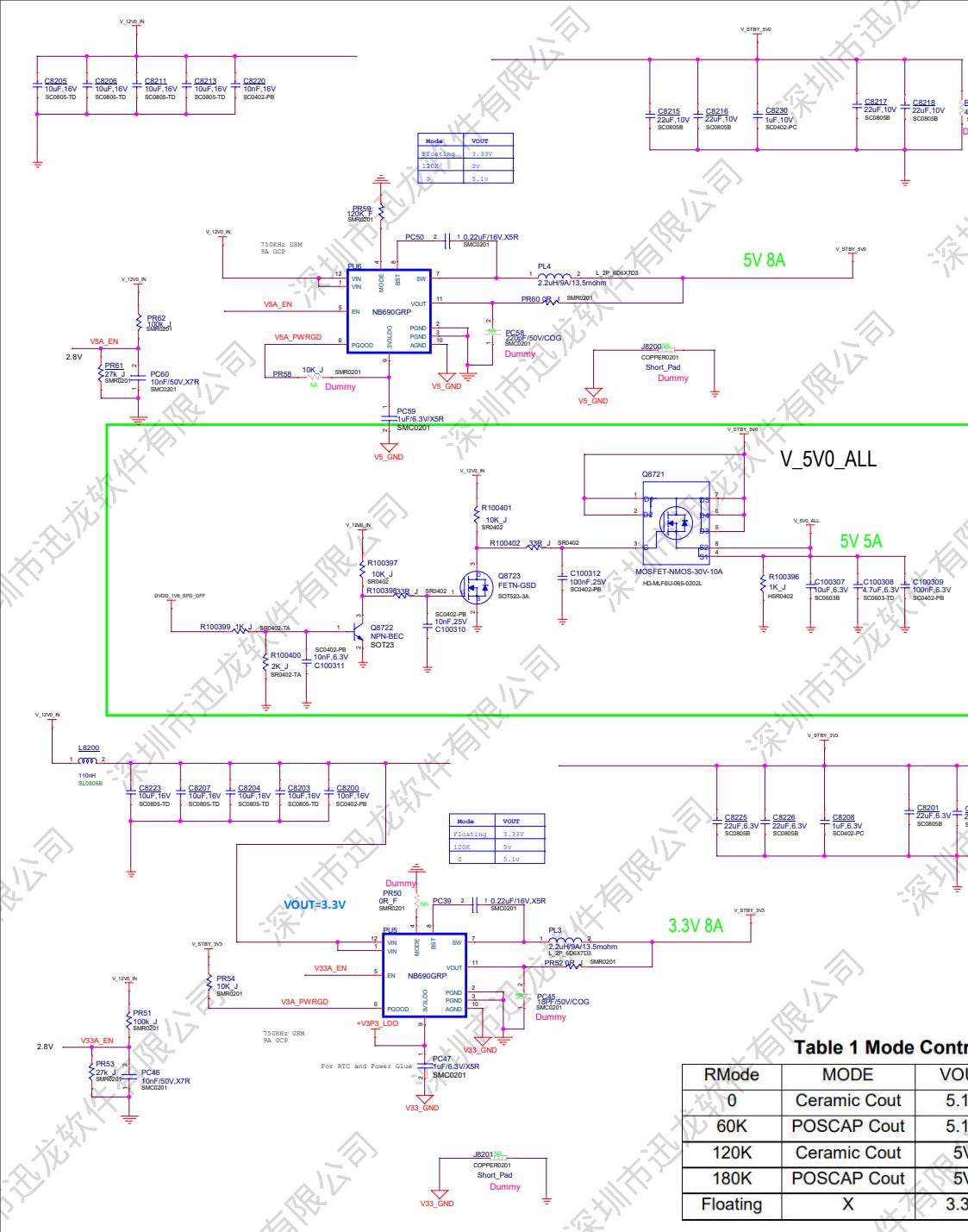


Table 1 Mode Control

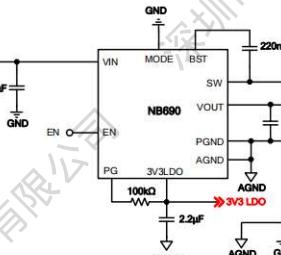
RMode	MODE	VOUT	3V3LDO
0	Ceramic Cout	5.1V	3.3V
60K	POSCAP Cout	5.1V	3.3V
120K	Ceramic Cout	5V	3.3V
180K	POSCAP Cout	5V	3.3V
Floating	X	3.3V	3.3V

1.5 ELECTRICAL PARAMETERS

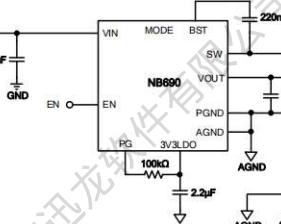
Part Number	I ₀	I _{bc}	I _{dc}	I _{SAT}	I _{SAT}	DCR	DCR
	(μ A) \pm 20%	(Amp) Max.	(Amp) Typ.	(Amp) Max.	(Amp) Typ.	(mΩ) Typ.	(mΩ) Max.
CCCA-0630-R10-M	0.10	32.0	33.0	56.0	60.0	0.85	1.1
CCCA-0630-R15-M	0.15	32.0	33.0	41.0	45.0	0.9	1.05
CCCA-0630-R22-M	0.22	24.0	24.5	35.0	40.0	2.5	3.0
CCCA-0630-R24-M	0.24	23.0	23.5	28.0	32.0	2.6	3.1
CCCA-0630-R33-M	0.33	21.0	21.5	25.0	27.0	3.0	3.5
CCCA-0630-R36-M	0.36	19.0	20.0	24.0	26.0	3.4	3.9
CCCA-0630-R47-M	0.47	18.0	19.0	20.0	22.0	3.5	4.1
CCCA-0630-R56-M	0.56	17.0	18.0	18.0	19.0	3.9	4.5
CCCA-0630-R68-M	0.68	15.5	16.0	17.0	18.0	4.8	5.3
CCCA-0630-R82-M	0.82	14.0	14.5	16.0	17.0	5.4	6.0
CCCA-0630-1R0-M	1.0	13.0	13.5	15.0	15.5	6.7	7.4
CCCA-0630-1R5-M	1.5	11.5	12.0	14.0	14.5	9.5	11.0
CCCA-0630-2R2-M	2.2	8.0	9.5	12.0	12.5	13.5	15.0

TYPICAL APPLICATION

5.1V Rail Mode



3.3V Rail Mode



TYPICAL APPLICATION

Table 3 shows design examples when ceramic capacitors are applied.

Table 3: Design Example

Vout (V)	Cout (F)	L (μH)	C4 (pF)	R4 (kΩ)	R1 (kΩ)	R2 (kΩ)	R9 (Ω)
0.6	22pF x 3	0.68	NS	NS	0	NS	NS
1.0	22pF x 3	0.68	220	NS	40.2	60.4	499
1.8	22pF x 3	1.0	220	NS	40.2	20	499
2.5	22pF x 3	1.0	220	887	84.5	24.3	499
3.3	22pF x 3	1.5	220	499	80.6	15.4	499

1.0V Output Application

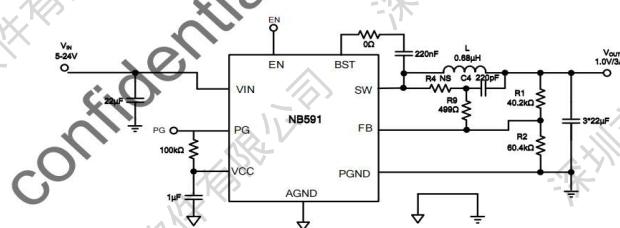


Figure 13: Typical Application with Low ESR Ceramic Output Capacitor

TYPICAL APPLICATION (continued)

1.8V Output Application

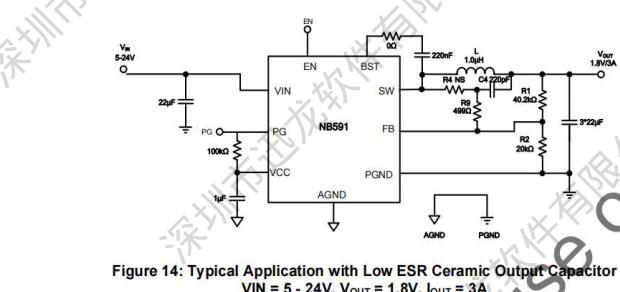


Figure 14: Typical Application with Low ESR Ceramic Output Capacitor

1.5 ELECTRICAL PARAMETERS

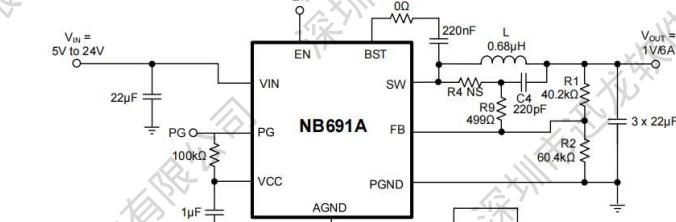
Part Number	L0 (μH) ± 20%	I0c (Amp) Max.	I0c (Amp) Typ.	IsAT (Amp) Max.	IsAT (Amp) Typ.	DCR (mΩ) @25°C	DCR (mΩ) Max.
CCHB-252012-R33-M	0.33	6.0	6.5	7.0	7.5	12.0	19.0
CCHB-252012-R47-M	0.47	5.5	6.1	6.2	6.7	17.0	23.0
CCHB-252012-R68-M	0.68	5.0	5.5	6.0	6.5	20.0	35.0
CCHB-252012-R10-M	1.0	3.8	4.2	4.5	5.0	36.0	44.0
CCHB-252012-1R5-M	1.5	3.2	3.5	3.2	4.3	64.0	77.0
CCHB-252012-2R2-M	2.2	2.3	2.7	3.0	3.5	73.0	87.0
CCHB-252012-3R3-M	3.3	1.8	2.1	2.5	3.0	110.0	135.0
CCHB-252012-4R7-M	4.7	1.5	1.8	2.0	2.5	196.0	235.0



Table 1 shows design examples for when ceramic capacitors are used.

Table 1: Design Example

V _{OUT} (V)	C _{OUT} (F)	L (μH)	C ₄ (pF)	R ₄ (kΩ)	R ₁ (kΩ)	R ₂ (kΩ)	R ₉ (Ω)
0.6	22μx 3	0.68	NS	NS	0-	NS	NS
1	22μx 3	0.68	220	NS	40.2	60.4	499
1.8	22μx 3	1 to 1.5	220	NS	40.2	20	499
2.5	22μx 4	1 to 1.5	220	887	84.5	24.3	499
3.3	22μx 4	1.5	220	499	80.6	15.4	499

Figure 13: Typical Application with Low-ESR Ceramic Output Capacitor
(VIN = 5V to 24V, V_{OUT} = 1.0V, I_{OUT} = 6A)

Part Number	L ₀		I _{DC}		I _{DC}		I _{SAT}		I _{SAT}		DCR	
	(μH) ± 20%	Max.	(Amp)	Typ.	(Amp)	Max.	(Amp)	Typ.	(Amp)	Max.	(mΩ)	Typ.
CCCA-0530-R10-M	0.10	20.0	22.0	33.0	35.0	2.4	2.8					@25°C
CCCA-0530-R20-M	0.20	14.0	15.0	24.0	26.0	3.0	3.5					@25°C
CCCA-0530-R33-M	0.33	12.0	13.0	19.5	22.5	4.5	5.5					
CCCA-0530-R47-M	0.47	9.5	10.0	16.0	18.0	7.4	8.5					
CCCA-0530-R68-M	0.68	8.5	9.0	13.0	14.5	9.3	11.0					
CCCA-0530-1R0-M	1.0	8.3	8.8	10.0	11.5	11.2	13.0					

XPL3233 Table 8. Output Voltage with Pin Programming

V _{out} (V)	50mV	100mV	200mV	400mV	800mV	1.6V	V _{out} (V)	50mV	100mV	200mV	400mV	800mV	1.6V	
0.5	Open	Open	Open	Open	Open	Open	2.1	Open	Open	Open	Open	Open	Open	GND
0.55	GND	Open	Open	Open	Open	Open	2.15	GND	Open	Open	Open	Open	Open	GND
0.6	Open	GND	Open	Open	Open	Open	2.2	Open	GND	Open	Open	Open	Open	GND
0.65	GND	GND	Open	Open	Open	Open	2.25	GND	GND	Open	Open	Open	Open	GND
0.7	Open	Open	GND	Open	Open	Open	2.3	Open	Open	GND	Open	Open	Open	GND
0.75	GND	Open	GND	Open	Open	Open	2.35	GND	Open	GND	Open	Open	Open	GND
0.8	Open	GND	GND	Open	Open	Open	2.4	Open	GND	GND	Open	Open	Open	GND
0.85	GND	Open	GND	Open	Open	Open	2.45	GND	GND	GND	Open	Open	Open	GND
0.9	Open	Open	Open	Open	Open	Open	2.5	Open	Open	Open	Open	Open	Open	GND
0.95	GND	Open	Open	Open	Open	Open	2.55	GND	Open	Open	Open	Open	Open	GND
1	Open	GND	Open	Open	Open	Open	2.6	Open	GND	Open	Open	Open	Open	GND
1.05	GND	GND	Open	Open	Open	Open	2.65	GND	GND	Open	Open	Open	Open	GND
1.1	Open	Open	GND	Open	Open	Open	2.7	Open	Open	GND	Open	Open	Open	GND
1.15	GND	Open	GND	Open	Open	Open	2.75	GND	Open	GND	Open	Open	Open	GND
1.2	Open	GND	GND	Open	Open	Open	2.8	Open	GND	GND	Open	Open	Open	GND
1.25	GND	GND	GND	Open	Open	Open	2.85	GND	GND	GND	Open	Open	Open	GND

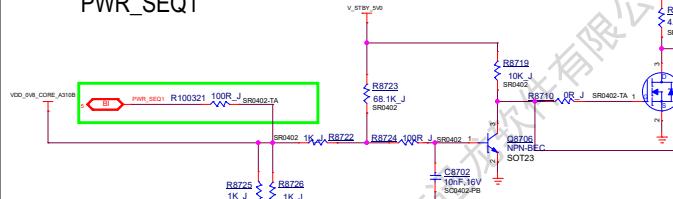
RICHTEK your power partner.

RTQ2533WGQV(2)
Evaluation BoardTable 2. V_{out} Select Pin Settings for Different Targets

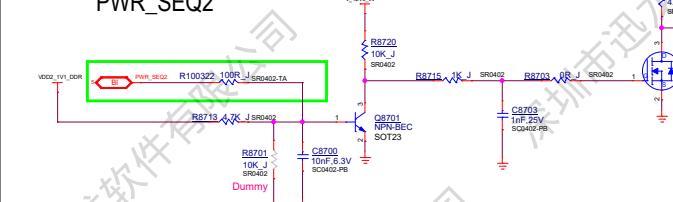
V _{out} (V)	50mV	100mV	200mV	400mV	800mV	1.6V
0.8	Open	Open	Open	Open	Open	2.4
0.85	GND	Open	Open	Open	Open	2.45
0.9	Open	GND	Open	Open	Open	2.5
0.95	GND	GND	Open	Open	Open	2.55
1.05	GND	Open	GND	Open	Open	2.6
1.1	Open	GND	GND	Open	Open	2.65
1.15	GND	GND	GND	Open	Open	2.7
1.2	Open	Open	Open	GND	Open	2.75
1.25	GND	Open	Open	GND	Open	2.85
1.3	Open	GND	Open	GND	Open	2.9
1.35	GND	Open	GND	GND	Open	2.95
1.4	Open	Open	GND	GND	Open	3
1.45	GND	Open	GND	GND	Open	3.05
1.5	Open	Open	GND	GND	Open	3.1
1.65	GND	Open	GND	GND	Open	3.15

Shenzhen Xunlong Software Co., Ltd
Project: OPI AI PRO 20T
File: 20T
Date: SHENZHEN, CHINA 240410 Rev: 1.1
Sheet: 31 Of: 35

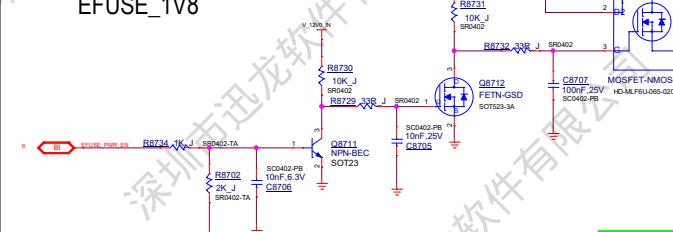
PWR_SEQ1



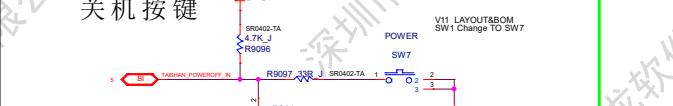
PWR_SEQ2



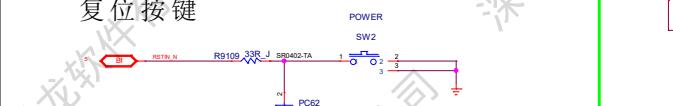
EFUSE_1V8



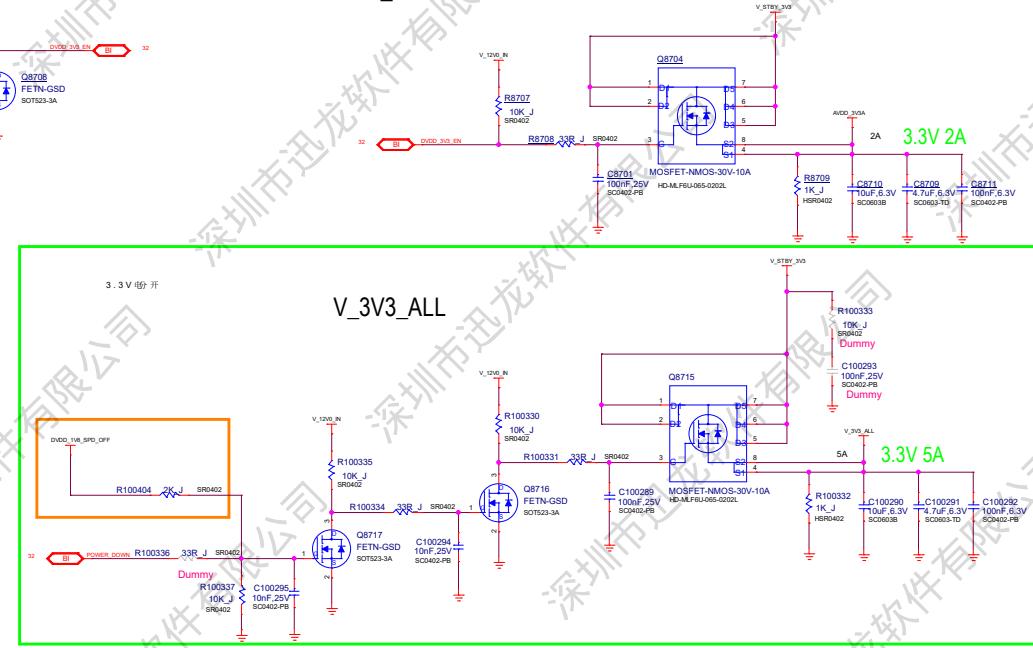
关机按键



复位按键



AVDD_3V3



V_3V3_ALL

