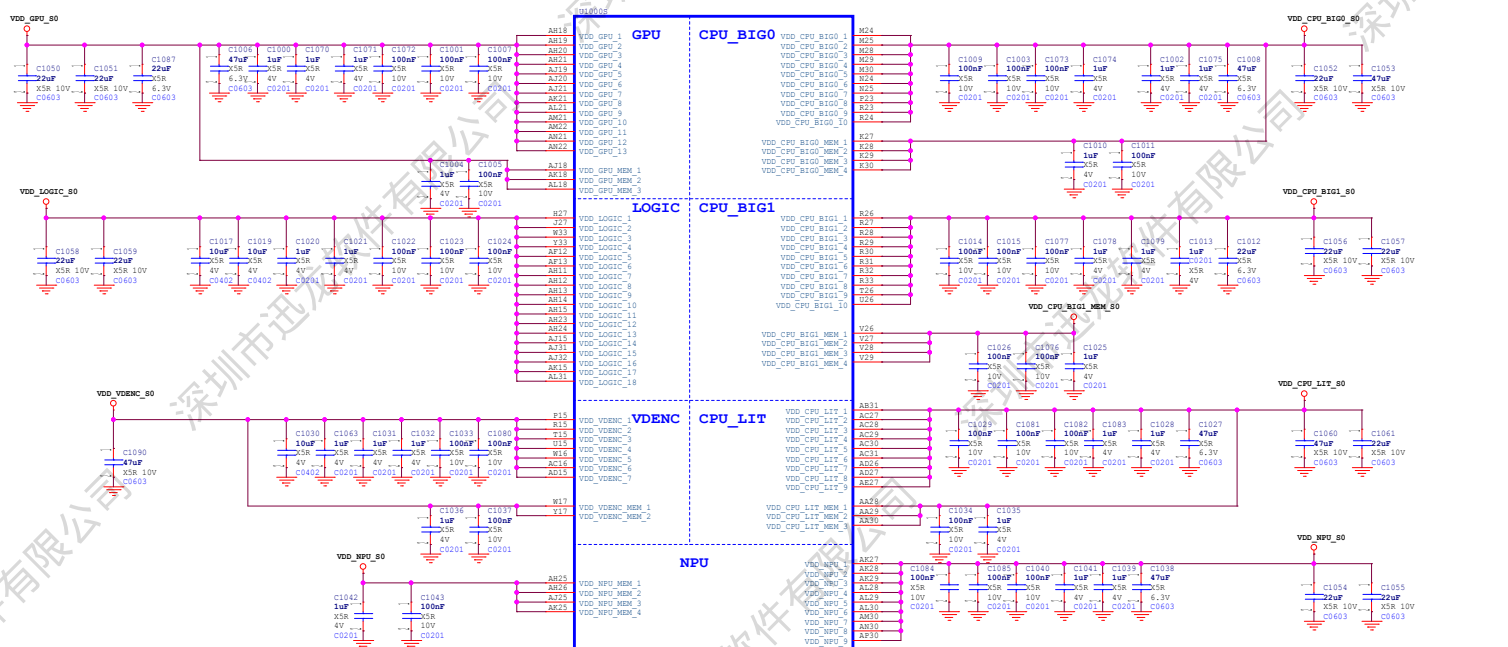
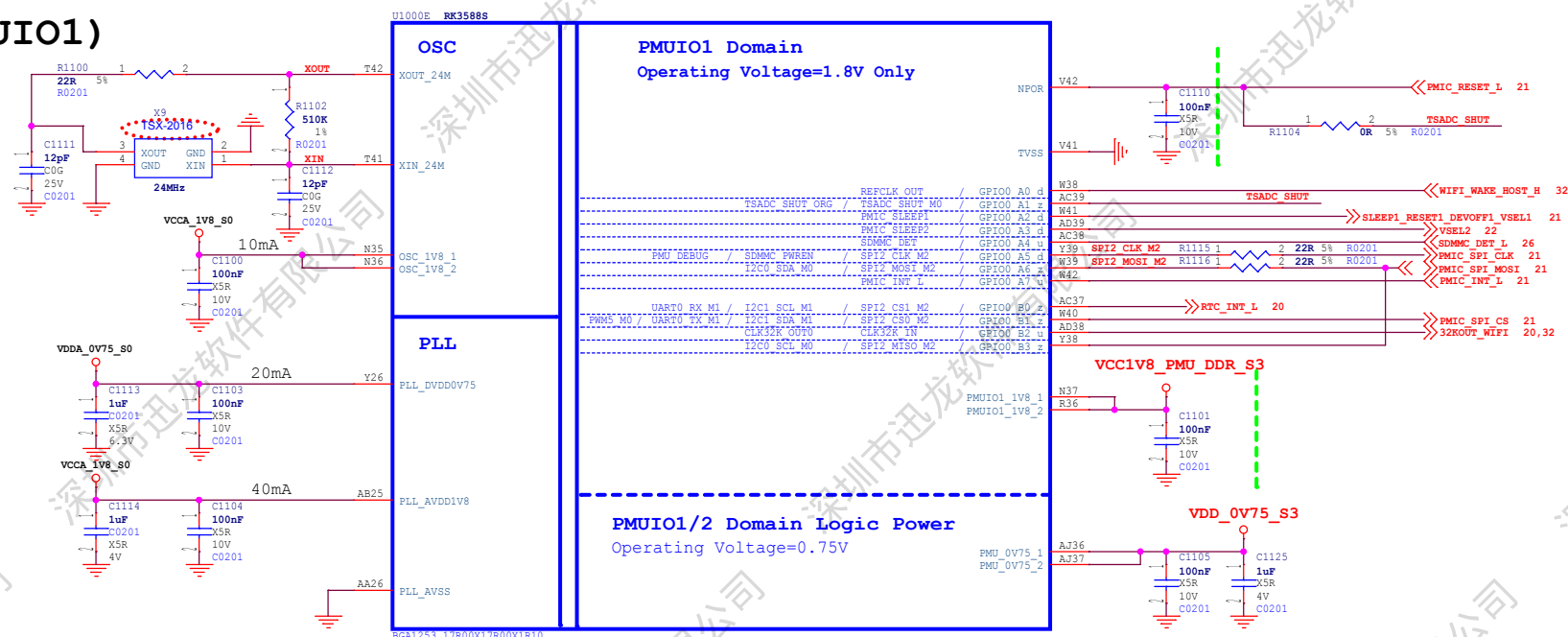


RK3588S (Power&Gnd)

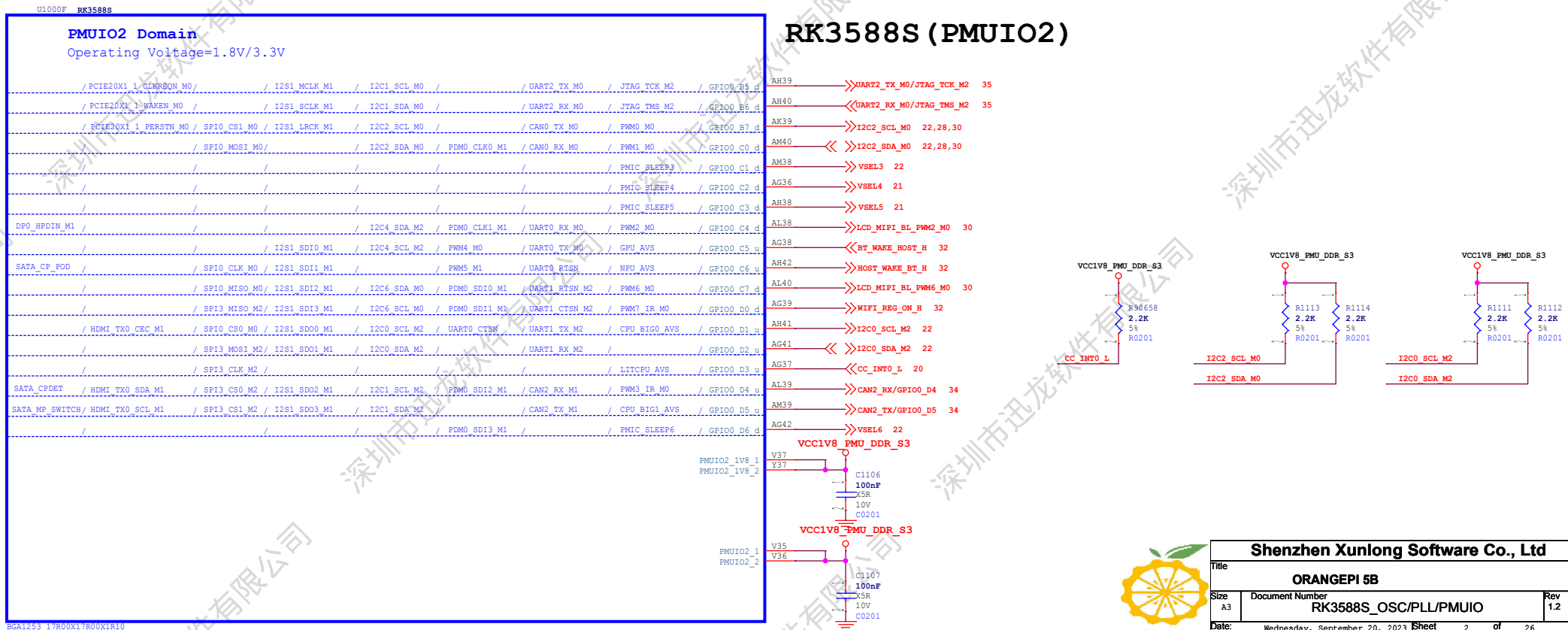


U1000T			G9			U1000V			U1000W			U1000X			U1000Y																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
A1	YES	511	G10	YES	151	V10	YES	201	P10	YES	251	A10	YES	301	AP10	YES	351	A11	YES	401	A12	YES	451	AP12	YES	501	AVES	11	A13	YES	551	AVES	12	AVES	13	AVES	14	AVES	15	AVES	16	AVES	17	AVES	18	AVES	19	AVES	20	AVES	21	AVES	22	AVES	23	AVES	24	AVES	25	AVES	26	AVES	27	AVES	28	AVES	29	AVES	30	AVES	31	AVES	32	AVES	33	AVES	34	AVES	35	AVES	36	AVES	37	AVES	38	AVES	39	AVES	40	AVES	41	AVES	42	AVES	43	AVES	44	AVES	45	AVES	46	AVES	47	AVES	48	AVES	49	AVES	50	AVES	51	AVES	52	AVES	53	AVES	54	AVES	55	AVES	56	AVES	57	AVES	58	AVES	59	AVES	60	AVES	61	AVES	62	AVES	63	AVES	64	AVES	65	AVES	66	AVES	67	AVES	68	AVES	69	AVES	70	AVES	71	AVES	72	AVES	73	AVES	74	AVES	75	AVES	76	AVES	77	AVES	78	AVES	79	AVES	80	AVES	81	AVES	82	AVES	83	AVES	84	AVES	85	AVES	86	AVES	87	AVES	88	AVES	89	AVES	90	AVES	91	AVES	92	AVES	93	AVES	94	AVES	95	AVES	96	AVES	97	AVES	98	AVES	99	AVES	100	AVES	101	AVES	102	AVES	103	AVES	104	AVES	105	AVES	106	AVES	107	AVES	108	AVES	109	AVES	110	AVES	111	AVES	112	AVES	113	AVES	114	AVES	115	AVES	116	AVES	117	AVES	118	AVES	119	AVES	120	AVES	121	AVES	122	AVES	123	AVES	124	AVES	125	AVES	126	AVES	127	AVES	128	AVES	129	AVES	130	AVES	131	AVES	132	AVES	133	AVES	134	AVES	135	AVES	136	AVES	137	AVES	138	AVES	139	AVES	140	AVES	141	AVES	142	AVES	143	AVES	144	AVES	145	AVES	146	AVES	147	AVES	148	AVES	149	AVES	150	AVES	151	AVES	152	AVES	153	AVES	154	AVES	155	AVES	156	AVES	157	AVES	158	AVES	159	AVES	160	AVES	161	AVES	162	AVES	163	AVES	164	AVES	165	AVES	166	AVES	167	AVES	168	AVES	169	AVES	170	AVES	171	AVES	172	AVES	173	AVES	174	AVES	175	AVES	176	AVES	177	AVES	178	AVES	179	AVES	180	AVES	181	AVES	182	AVES	183	AVES	184	AVES	185	AVES	186	AVES	187	AVES	188	AVES	189	AVES	190	AVES	191	AVES	192	AVES	193	AVES	194	AVES	195	AVES	196	AVES	197	AVES	198	AVES	199	AVES	200	AVES	201	AVES	202	AVES	203	AVES	204	AVES	205	AVES	206	AVES	207	AVES	208	AVES	209	AVES	210	AVES	211	AVES	212	AVES	213	AVES	214	AVES	215	AVES	216	AVES	217	AVES	218	AVES	219	AVES	220	AVES	221	AVES	222	AVES	223	AVES	224	AVES	225	AVES	226	AVES	227	AVES	228	AVES	229	AVES	230	AVES	231	AVES	232	AVES	233	AVES	234	AVES	235	AVES	236	AVES	237	AVES	238	AVES	239	AVES	240	AVES	241	AVES	242	AVES	243	AVES	244	AVES	245	AVES	246	AVES	247	AVES	248	AVES	249	AVES	250	AVES	251	AVES	252	AVES	253	AVES	254	AVES	255	AVES	256	AVES	257	AVES	258	AVES	259	AVES	260	AVES	261	AVES	262	AVES	263	AVES	264	AVES	265	AVES	266	AVES	267	AVES	268	AVES	269	AVES	270	AVES	271	AVES	272	AVES	273	AVES	274	AVES	275	AVES	276	AVES	277	AVES	278	AVES	279	AVES	280	AVES	281	AVES	282	AVES	283	AVES	284	AVES	285	AVES	286	AVES	287	AVES	288	AVES	289	AVES	290	AVES	291	AVES	292	AVES	293	AVES	294	AVES	295	AVES	296	AVES	297	AVES	298	AVES	299	AVES	300	AVES	301	AVES	302	AVES	303	AVES	304	AVES	305	AVES	306	AVES	307	AVES	308	AVES	309	AVES	310	AVES	311	AVES	312	AVES	313	AVES	314	AVES	315	AVES	316	AVES	317	AVES	318	AVES	319	AVES	320	AVES	321	AVES	322	AVES	323	AVES	324	AVES	325	AVES	326	AVES	327	AVES	328	AVES	329	AVES	330	AVES	331	AVES	332	AVES	333	AVES	334	AVES	335	AVES	336	AVES	337	AVES	338	AVES	339	AVES	340	AVES	341	AVES	342	AVES	343	AVES	344	AVES	345	AVES	346	AVES	347	AVES	348	AVES	349	AVES	350	AVES	351	AVES	352	AVES	353	AVES	354	AVES	355	AVES	356	AVES	357	AVES	358	AVES	359	AVES	360	AVES	361	AVES	362	AVES	363	AVES	364	AVES	365	AVES	366	AVES	367	AVES	368	AVES	369	AVES	370	AVES	371	AVES	372	AVES	373	AVES	374	AVES	375	AVES	376	AVES	377	AVES	378	AVES	379	AVES	380	AVES	381	AVES	382	AVES	383	AVES	384	AVES	385	AVES	386	AVES	387	AVES	388	AVES	389	AVES	390	AVES	391	AVES	392	AVES	393	AVES	394	AVES	395	AVES	396	AVES	397	AVES	398	AVES	399	AVES	400	AVES	401	AVES	402	AVES	403	AVES	404	AVES	405	AVES	406	AVES	407	AVES	408	AVES	409	AVES	410	AVES	411	AVES	412	AVES	413	AVES	414	AVES	415	AVES	416	AVES	417	AVES	418	AVES	419	AVES	420	AVES	421	AVES	422	AVES	423	AVES	424	AVES	425	AVES	426	AVES	427	AVES	428	AVES	429	AVES	430	AVES	431	AVES	432	AVES	433	AVES	434	AVES	435	AVES	436	AVES	437	AVES	438	AVES	439	AVES	440	AVES	441	AVES	442	AVES	443	AVES	444	AVES	445	AVES	446	AVES	447	AVES	448	AVES	449	AVES	450	AVES	451	AVES	452	AVES	453	AVES	454	AVES	455	AVES	456	AVES	457	AVES	458	AVES	459	AVES	460	AVES	461	AVES	462	AVES	463	AVES	464	AVES	465	AVES	466	AVES	467	AVES	468	AVES	469	AVES	470	AVES	471	AVES	472	AVES	473	AVES	474	AVES	475	AVES	476	AVES	477	AVES	478	AVES	479	AVES	480	AVES	481	AVES	482	AVES	483	AVES	484	AVES	485	AVES	486	AVES	487	AVES	488	AVES	489	AVES	490	AVES	491	AVES	492	AVES	493	AVES	494	AVES	495	AVES	496	AVES	497	AVES	498	AVES	499	AVES	500	AVES	501	AVES	502	AVES	503	AVES	504	AVES	505	AVES	506	AVES	507	AVES	508	AVES	509	AVES	510	AVES	511	AVES	512	AVES	513	AVES	514	AVES	515	AVES	516	AVES	517	AVES	518	AVES	519	AVES	520	AVES	521	AVES	522	AVES	523	AVES	524	AVES	525	AVES	526	AVES	527	AVES	528	AVES	529	AVES	530	AVES	531	AVES	532	AVES	533	AVES	534	AVES	535	AVES	536	AVES	537	AVES	538	AVES	539	AVES	540	AVES	541	AVES	542	AVES	543	AVES	544	AVES	545	AVES	546	AVES	547	AVES	548	AVES	549	AVES	550	AVES	551	AVES	552	AVES	553	AVES	554	AVES	555	AVES	556	AVES	557	AVES	558	AVES	559	AVES	560	AVES	561	AVES	562	AVES	563	AVES	564	AVES	565	AVES	566	AVES	567	AVES	568	AVES	569	AVES	570	AVES	571	AVES	572	AVES	573	AVES	574	AVES	575	AVES	576	AVES	577	AVES	578	AVES	579	AVES	580	AVES	581	AVES	582	AVES	583	AVES	584	AVES	585	AVES	586	AVES	587	AVES	588	AVES	589	AVES	590	AVES	591	AVES	592	AVES	593	AVES	594	AVES	595	AVES	596	AVES	597	AVES	598	AVES	599	AVES	600	AVES	601	AVES	602	AVES	603	AVES	604	AVES	605	AVES	606	AVES	607	AVES	608	AVES	609	AVES	610	AVES	611	AVES	612	AVES	613	AVES	614	AVES	615	AVES	616	AVES	617	AVES	618	AVES	619	AVES	620	AVES	621	AVES	622	AVES	623	AVES	624	AVES	625	AVES	626	AVES	627	AVES	628	AVES	629	AVES	630	AVES	631	AVES	632	AVES	633	AVES	634	AVES	635	AVES	636	AVES	637	AVES	638	AVES	639	AVES	640	AVES	641	AVES	642	AVES	643	AVES	644	AVES	645	AVES	646	AVES	647	AVES	648	AVES	649	AVES	650	AVES	651	AVES	652	AVES	653	AVES	654	AVES	655	AVES	656	AVES	657	AVES	658	AVES	659	AVES	660	AVES	661	AVES	662	AVES	663	AVES	664	AVES	665	AVES	666	AVES	667	AVES	668	AVES	669	AVES	670	AVES	671	AVES	672	AVES	673	AVES	674	AVES	675	AVES	676	AVES	677	AVES	678	AVES	679	AVES	680	AVES	681	AVES	682	AVES	683	AVES	684	AVES	685	AVES	686	AVES	687	AVES	688	AVES	689	AVES	690	AVES	691	AVES	692	AVES	693	AVES	694	AVES	695	AVES	696	AVES	697	AVES	698	AVES	699	AVES	700	AVES	701	AVES	702	AVES	703	AVES	704	AVES	705	AVES	706	AVES	707	AVES	708	AVES	709	AVES	710	AVES	711	AVES	712	AVES	713	AVES	714	AVES	715	AVES	716	AVES	717	AVES	718	AVES	719	AVES	720	AVES	721	AVES	722	AVES	723	AVES	724	AVES	725	AVES	726	AVES	727	AVES	728	AVES	729	AVES	730	AVES	731	AVES	732	AVES	733	AVES	734	AVES	735	AVES	736	AVES	737	AVES	738	AVES	739	AVES	740	AVES	741	AVES	742	AVES	743	AVES	744	AVES	745	AVES	746	AVES	747	AVES	748	AVES	749	AVES	750	AVES	751	AVES	752	AVES	753	AVES	754	AVES	755	AVES	756	AVES	757	AVES	758	AVES	759	AVES	760	AVES	761	AVES	762	AVES	763	AVES	764	AVES	765	AVES	766	AVES	767	AVES	768	AVES	769	AVES	770	AVES	771	AVES	772	AVES	773	AVES	774	AVES	775	AVES	776	AVES	777	AVES	778	AVES	779	AVES	780	AVES	781	AVES	782	AVES	783	AVES	784	AVES	785	AVES	786	AVES	787	AVES	788	AVES	789	AVES	790	AVES	791	AVES	792	AVES	793	AVES	794	AVES	795	AVES	796	AVES	797	AVES	798	AVES	799	AVES	800	AVES	801	AVES	802	AVES	803	AVES	804	AVES	805	AVES	806	AVES	807	AVES	808	AVES	809	AVES	810	AVES	811	AVES	812	AVES	813	AVES	814	AVES	815	AVES	816	AVES	817	AVES	818	AVES	819	AVES	820	AVES	821	AVES	

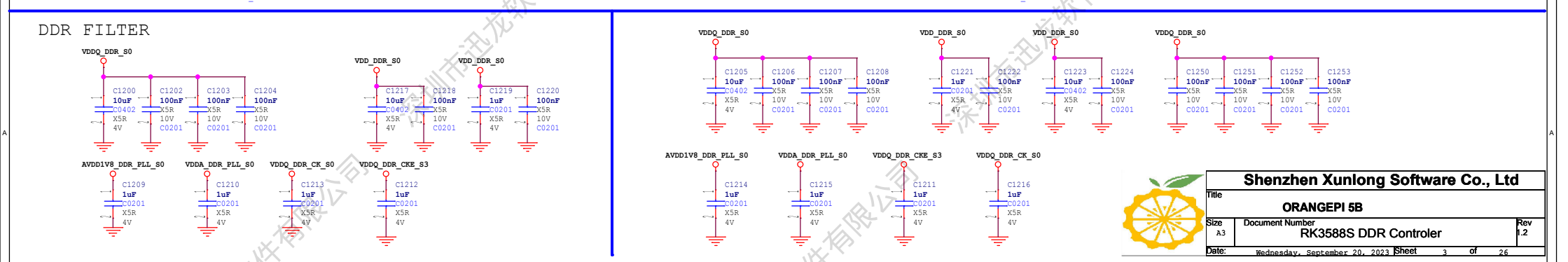
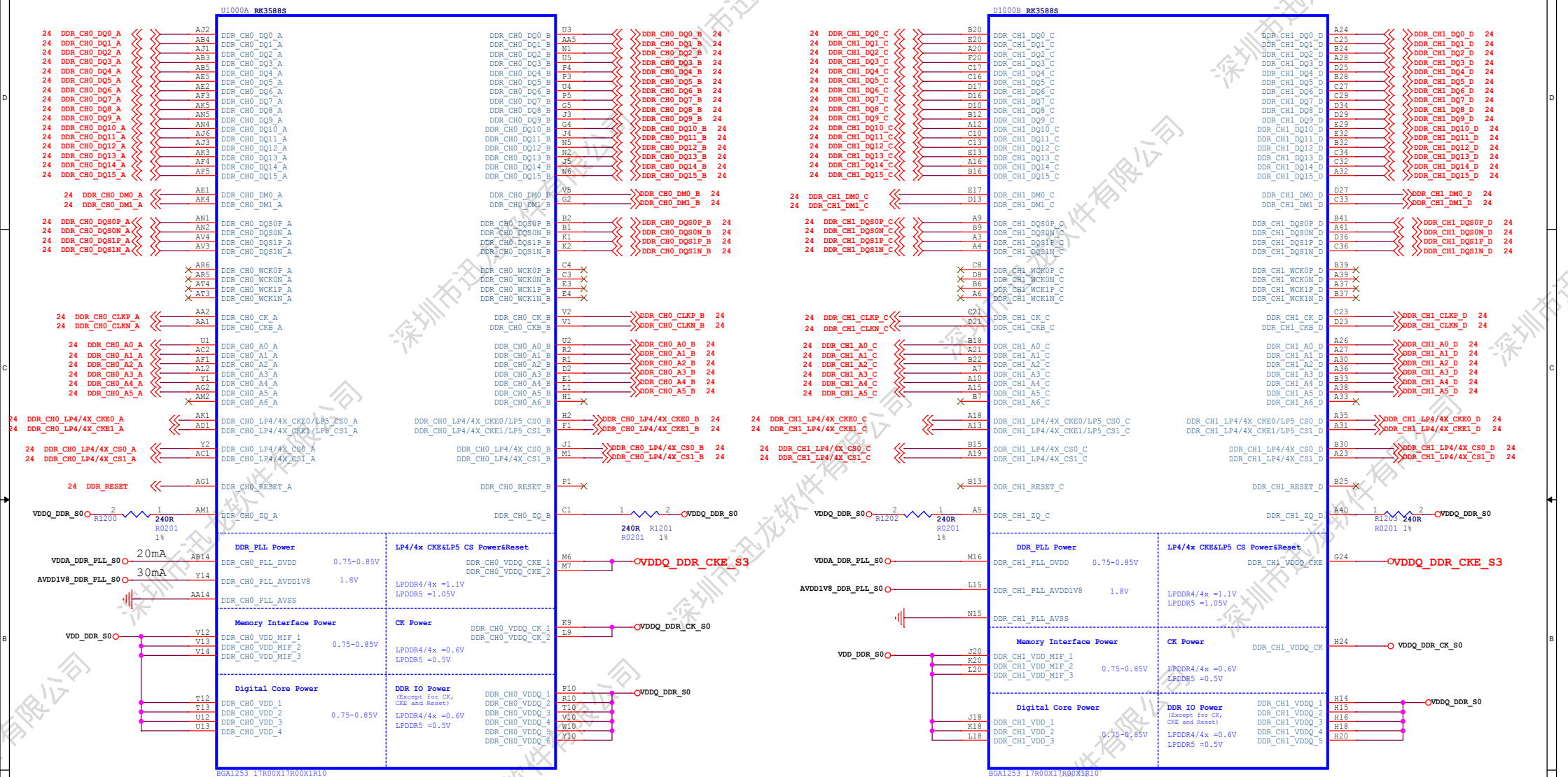
RK3588S (OSC/PLL/PMUIO1)



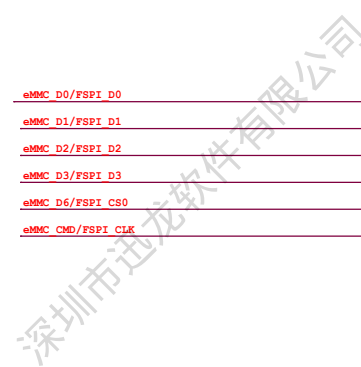
RK3588S (PMUIO2)



RK3588S (DDR PHY)



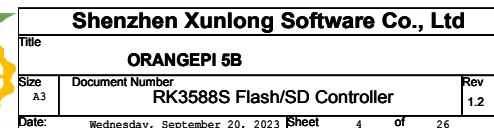
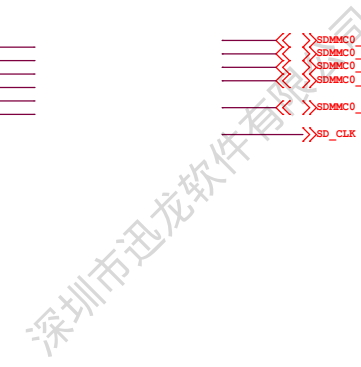
3



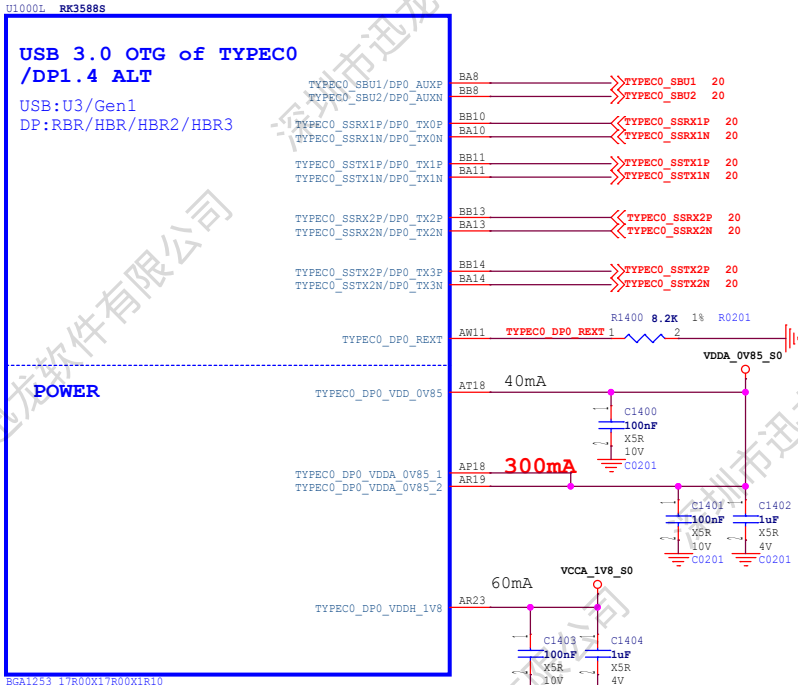
BGA1253_17R00X

588S (VCCIO2 D

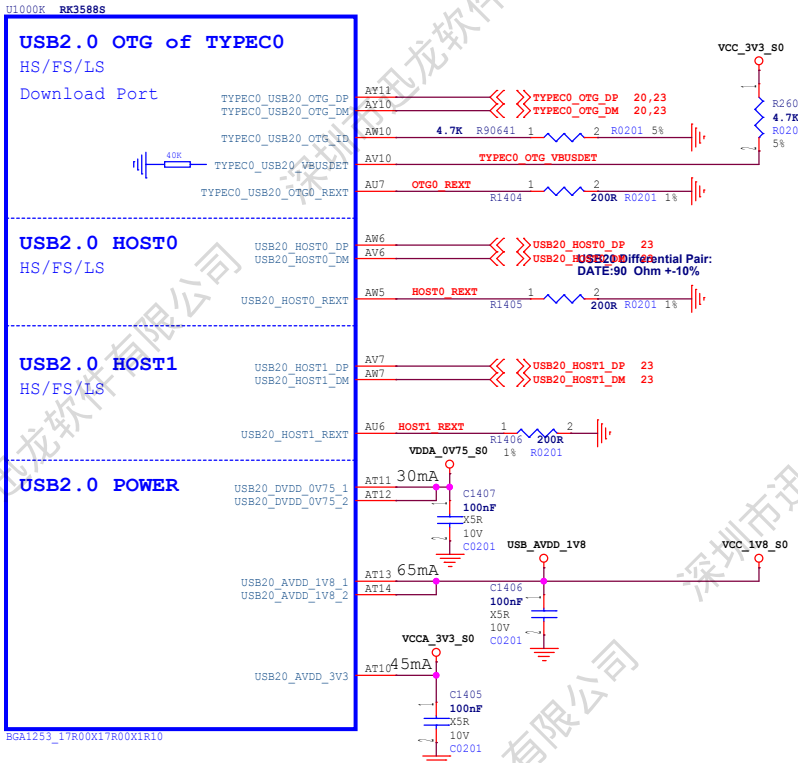
U1000D



RK3588S (USB3.0/DP1.4)



RK3588S (USB2.0)



Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number	Rev	
A3	RK3588S_USB20/USB30/DP PHY	1.2	
Date:	Wednesday, September 20, 2023	Sheet	5 of 26

```

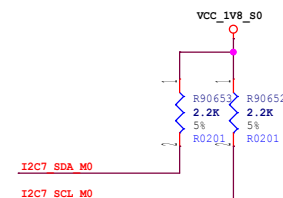
-->> SARADC_VIN2_LCD_ID    30
-->> SARADC_VIN4_LCD_ID    30
-->> SARADC_VIN3_HP_HOOK    33

```



Item	Rup	Rdown	ADC	BOOT MODE(saradc_in5)
LEVEL1	DNP	100K	0	USB (Maskrom mode)
LEVEL2	100K	20K	682	SD Card-USB
LEVEL3	100K	51K	1365	EMMC-USB
LEVEL4	100K	100K	2047	FSPI M0-USB
LEVEL5	100K	200K	2730	FSPI M1-USB
LEVEL6	100K	499K	3412	FSPI M2-USB
LEVEL7	100K	DNP	4095	FSPI M2-FSPI M0-EMMC -SD Card-USB

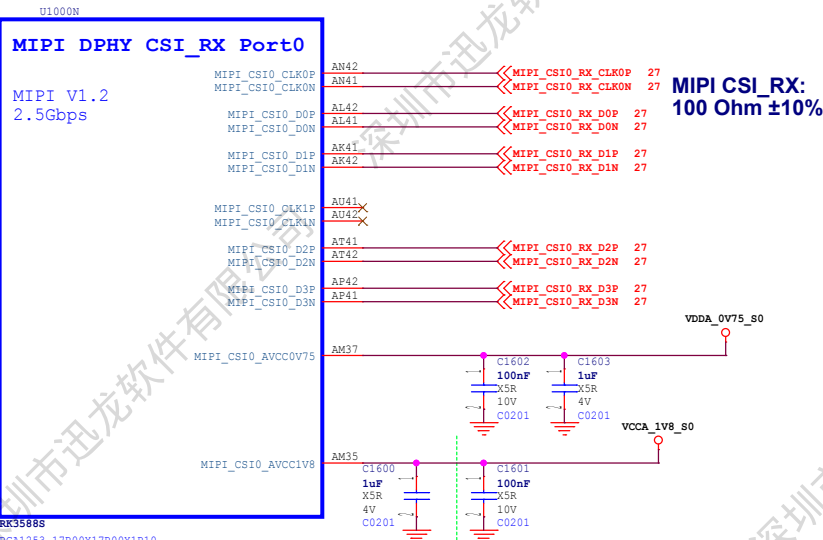
VCCIO1 Domain
Operating Voltage=1.8V Only



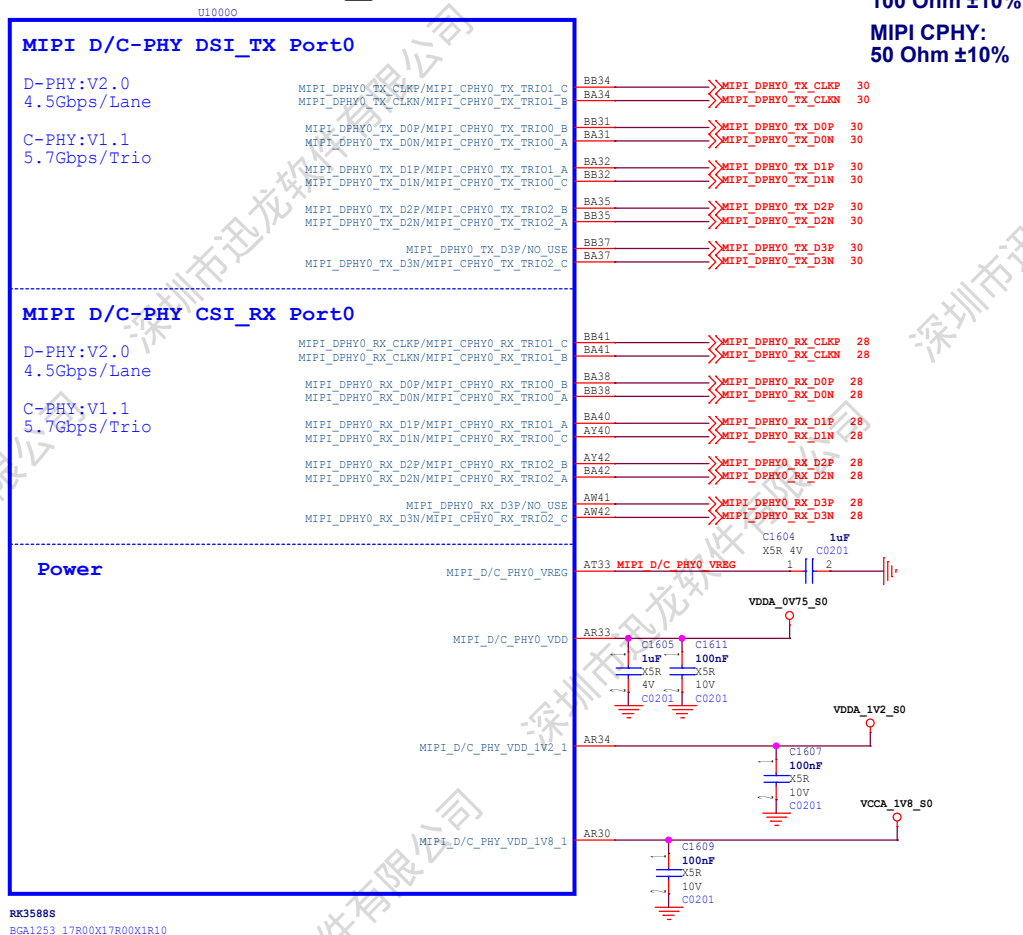
Note:
Caps of between dashed green lines and U1000 should be placed under the U1000 package



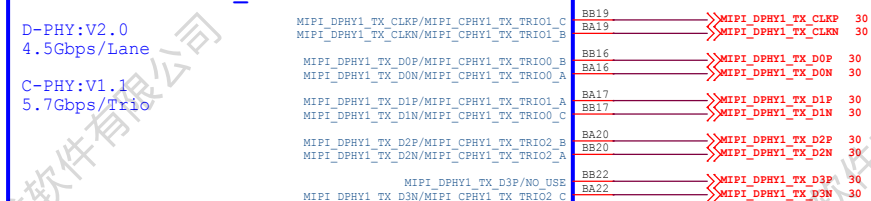
RK3588S (MIPI_CSI)



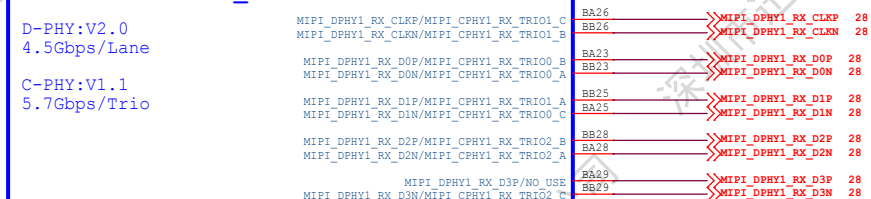
RK3588S (MIPI_D/C PHY)



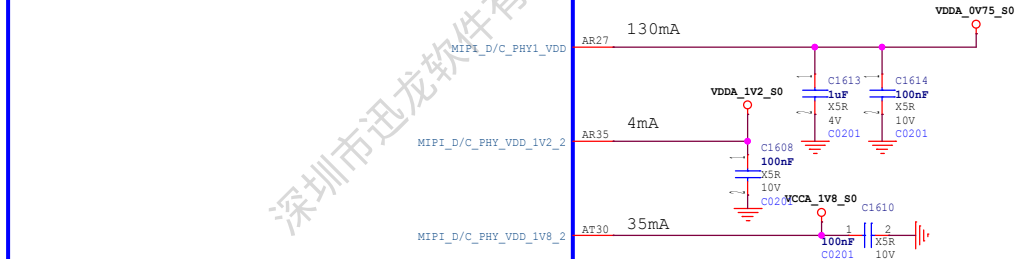
MIPI D/C-PHY DSI_TX Port1



MIPI D/C-PHY CSI_RX Port1



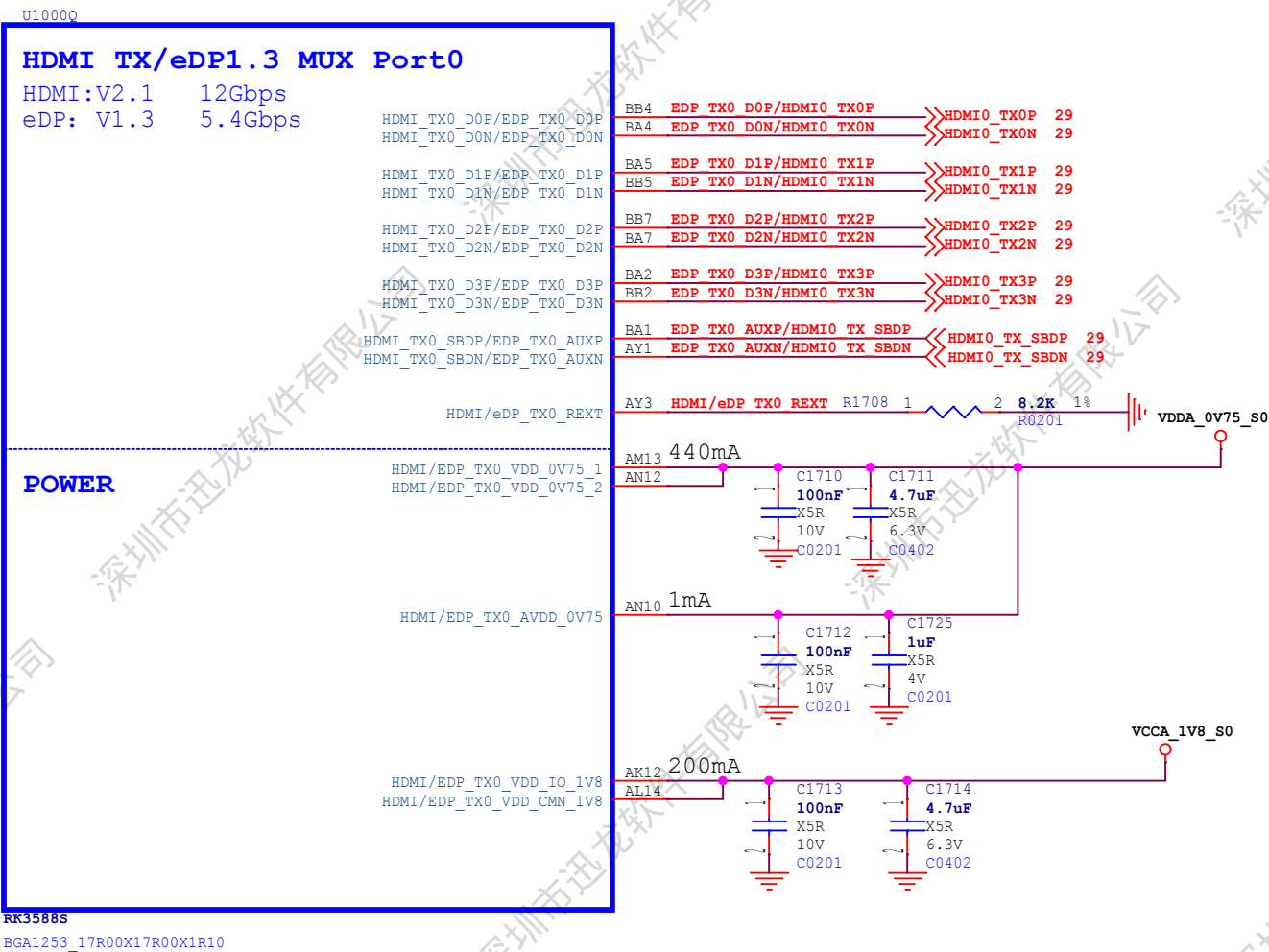
Power



Shenzhen Xunlong Software Co., Ltd

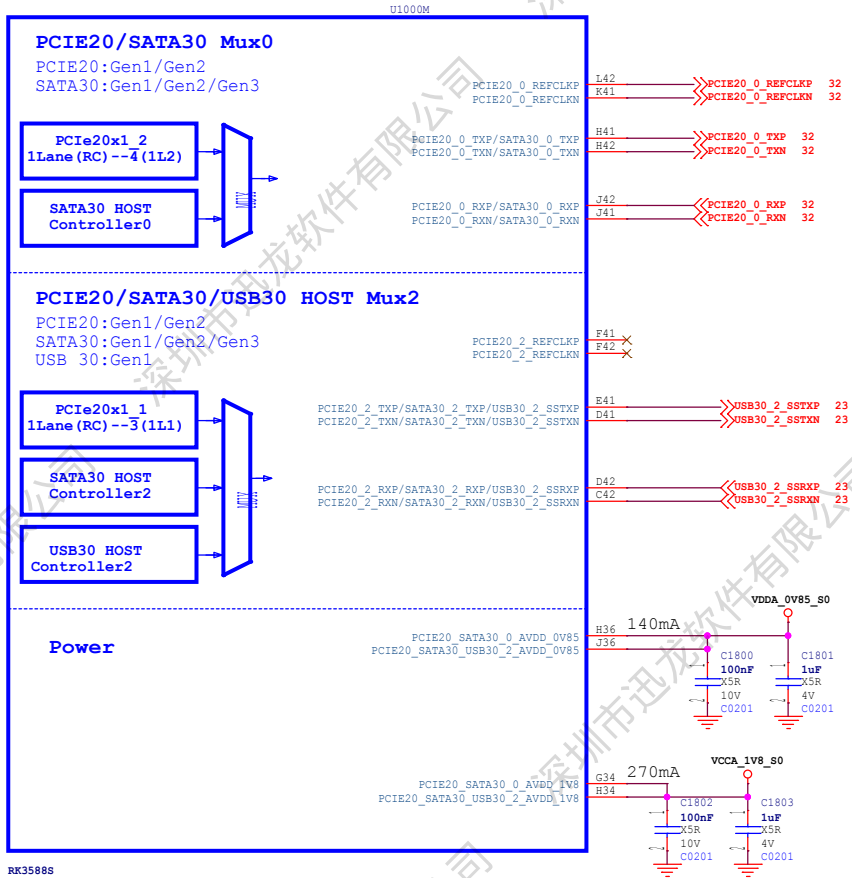
ORANGEPI 5B			
Size	Document Number	Rev	
A3	RK3588S_MIPI Interface	1.2	
Date:	Wednesday, September 20, 2023	Sheet	7 of 26

RK3588S (HDMI2.1 TX/eDP1.3 TX)



Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number		Rev
A4	RK3588S_HDMI/eDP Interface		1.2
Date:	Wednesday, September 20, 2023		
	Sheet	8	of 27

RK3588S (PCIE20/SATA30/USB30)



RK3588S
BGA1253_17R00X17R00X1R10



Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number		Rev
A3	RK3588S PCIE2/SATA3/USB3 PHY		1.2
Date:	Wednesday, September 20, 2023 Sheet 9 of 26		

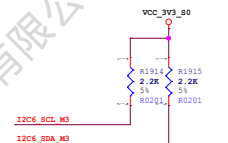
RK3588S (VCCIO4 Domain)



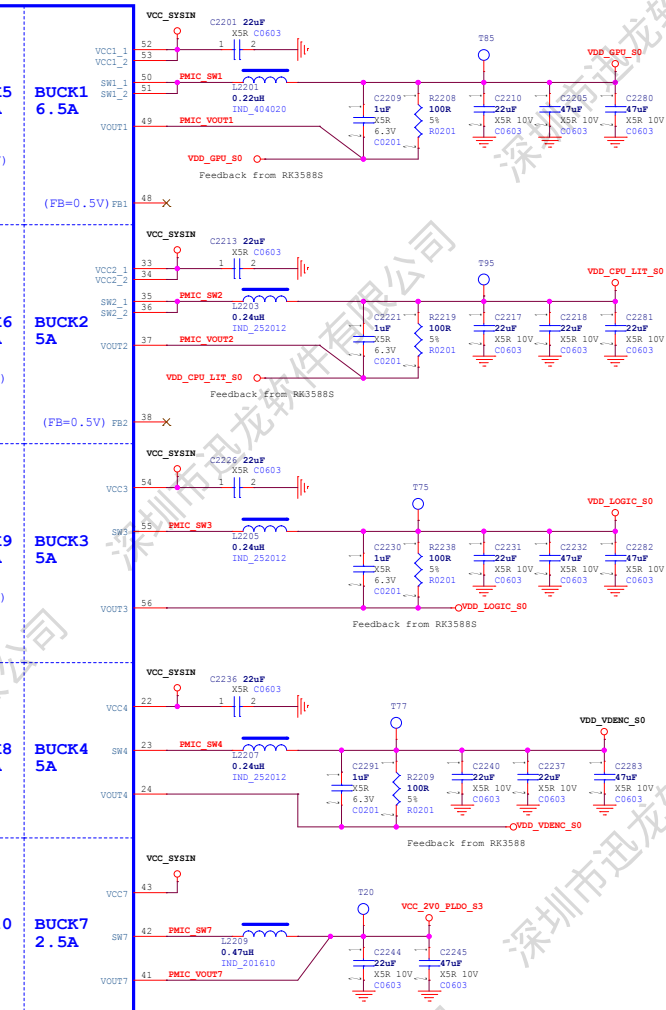
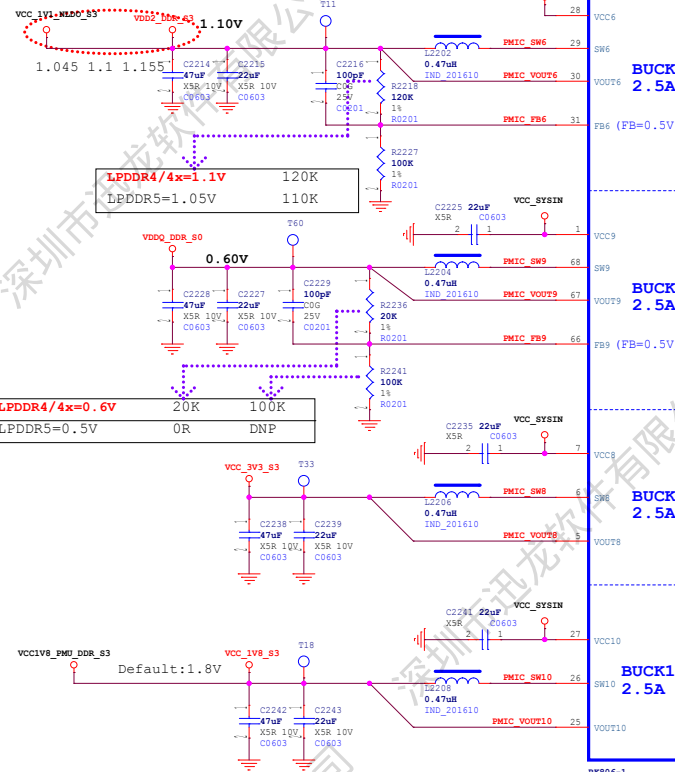
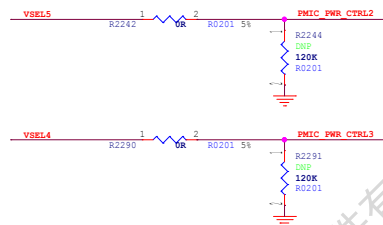
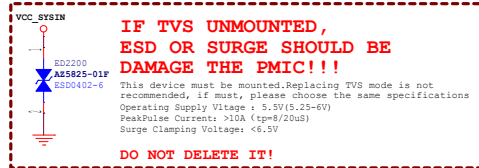
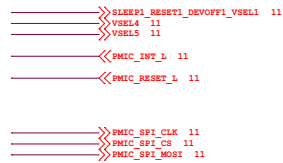
RK3588S (VCCIO5 Domain)



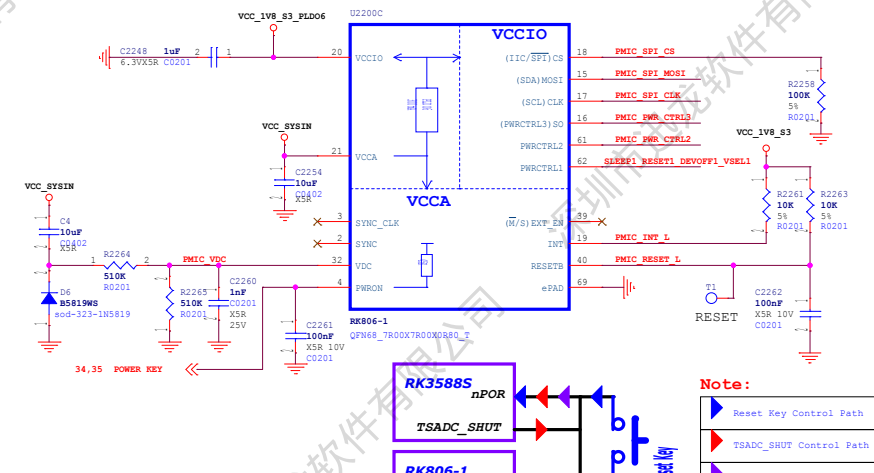
RK3588S (VCCIO6 Domain)



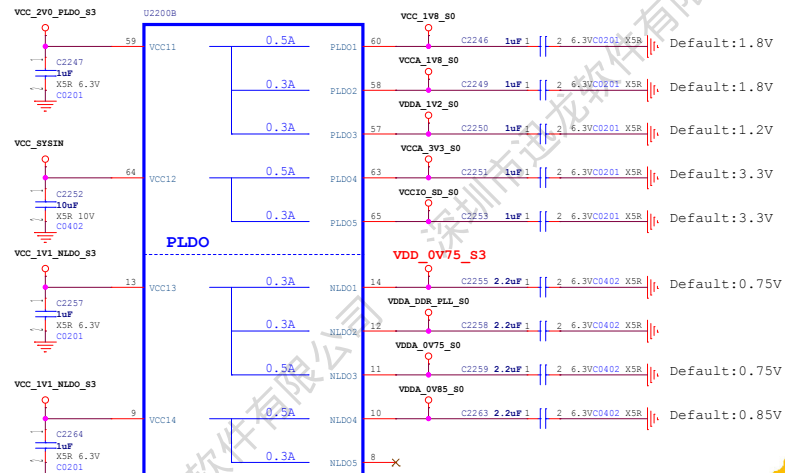
PMIC RK806-1 BUCK



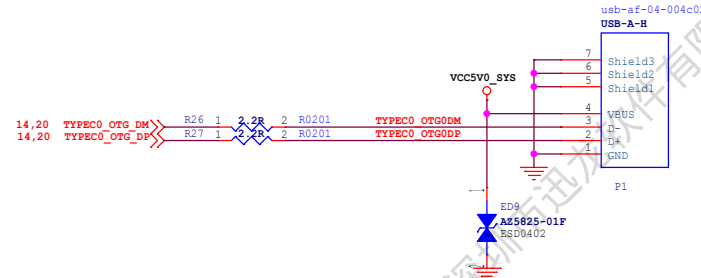
PMIC RK806-1 Managerment



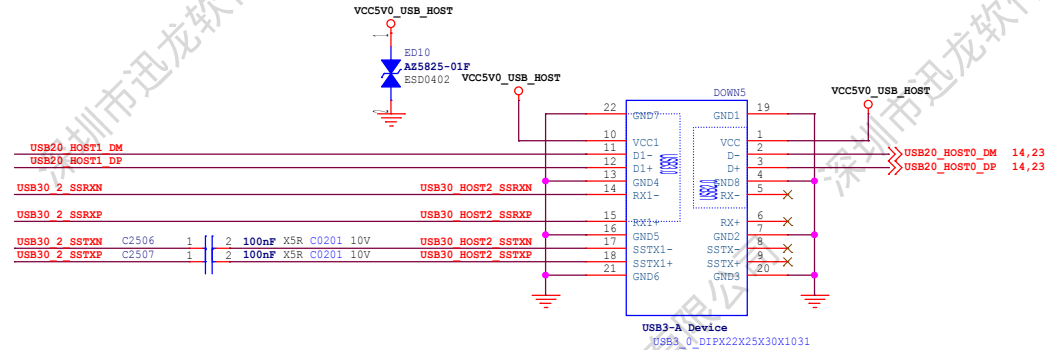
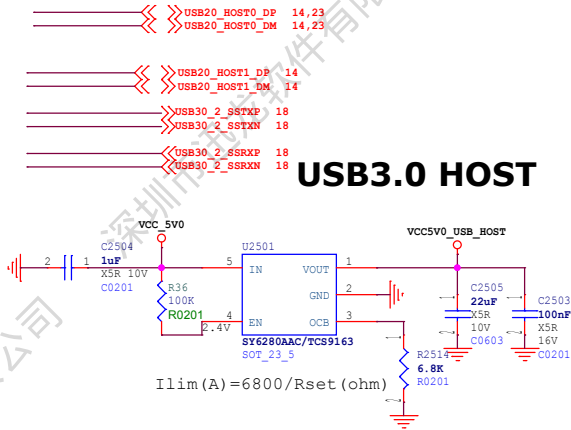
PMIC RK806-1 LDO



USB2.0 Type-A Port

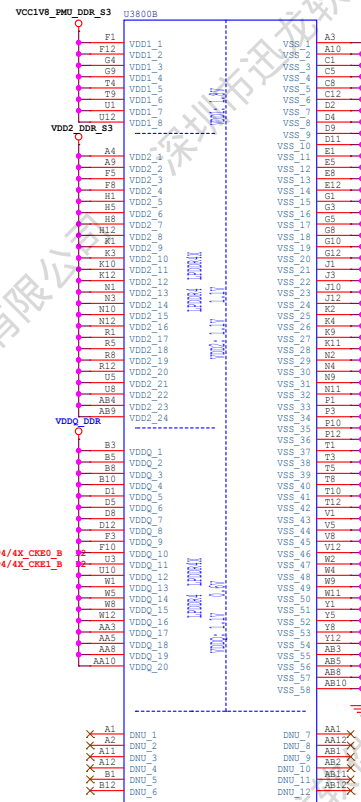


USB3.0 HOST



Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number		Rev
A3	USB20/USB30 HOST Port		1.2
Date:	Wednesday, September 20, 2023 Sheet 14 of 26		

U3800A	
CH A	CH B



Sequence: VDD1-VDD2-VDDQ

VDDQ_DDR

VDD2_DDR_S3

VCC1V8_PMU_DDR_S3

VDDQ_DDR_CKE_S3

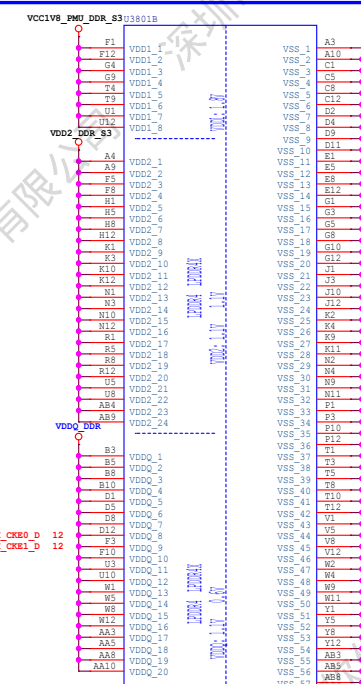
VDDQ_DDR_CK_S0

VDDQ_DDR

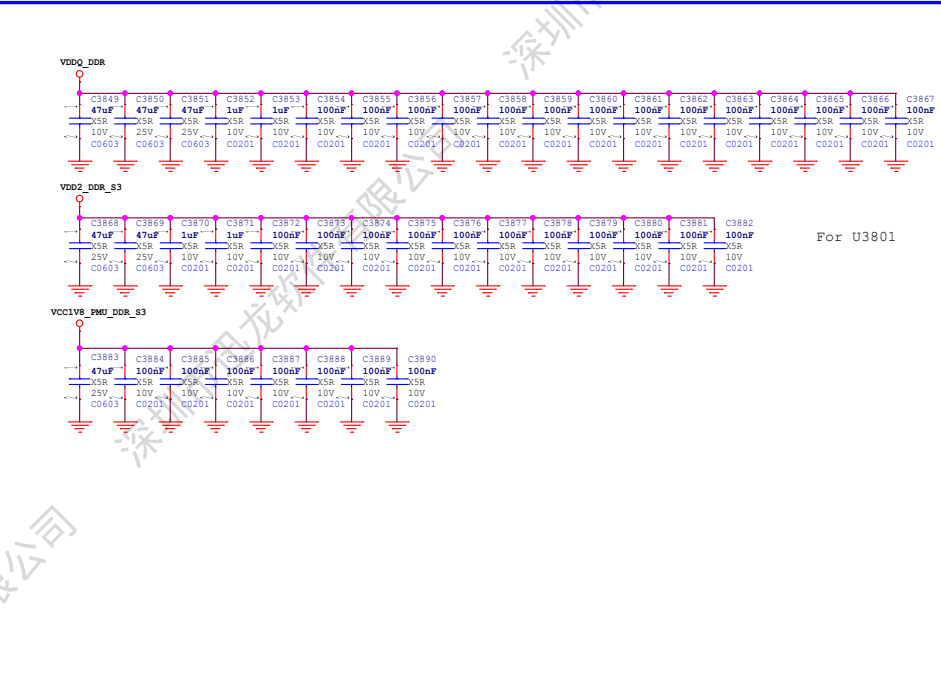
0.6V

1.1V

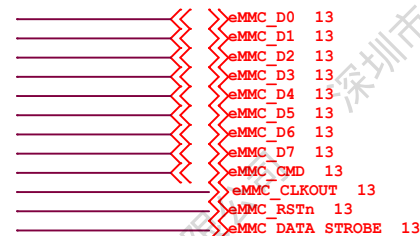
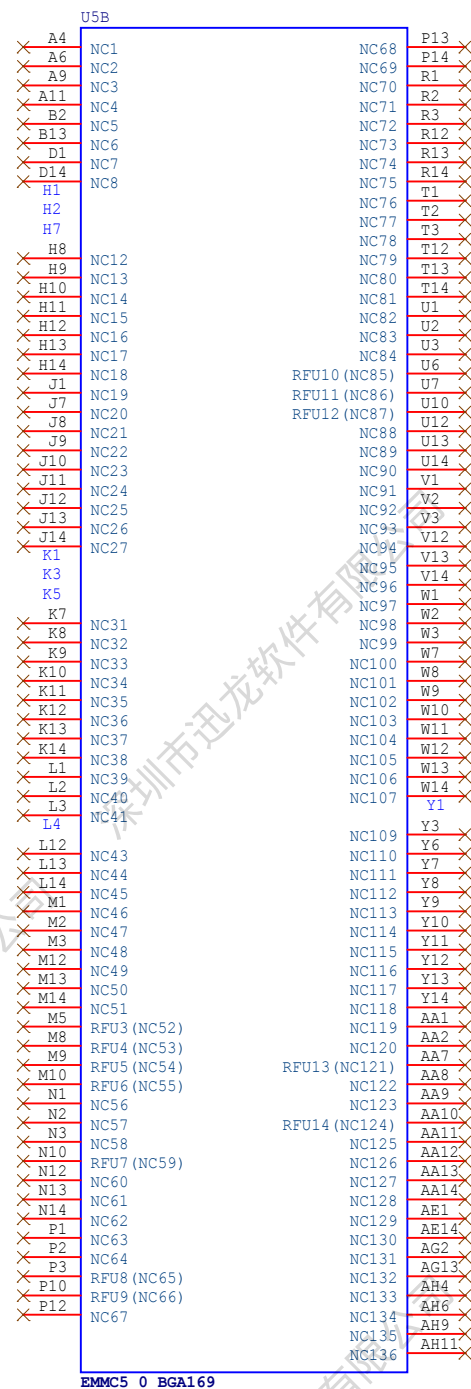
LPDDR4x	0R	DNP
LPDDR4	DNP	0R



For U3801



eMMC Flash

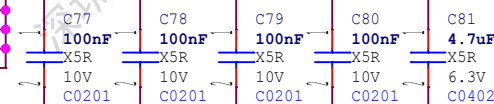
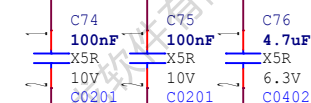
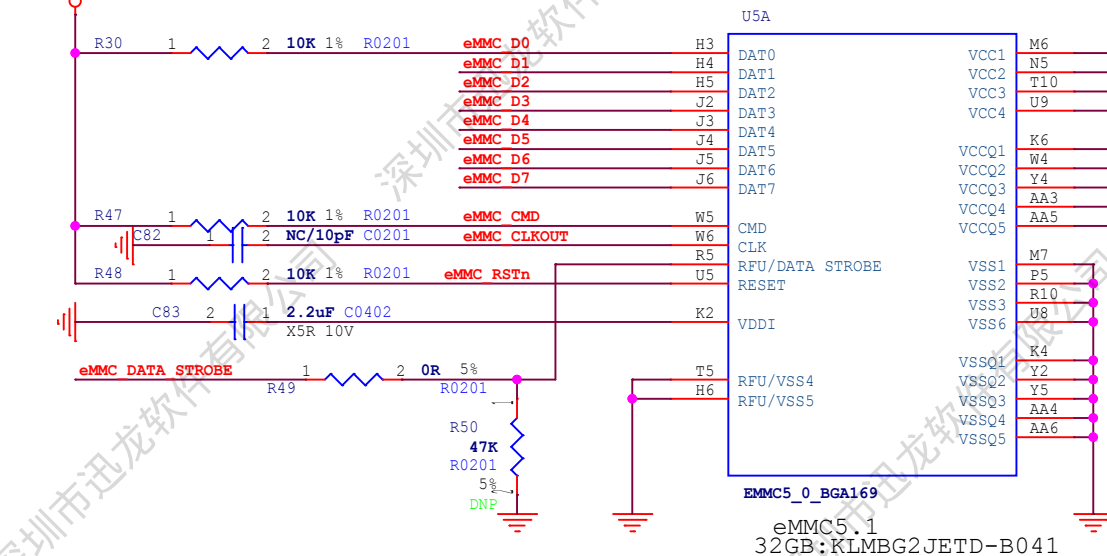


VCC_1V8_S3 VCCIO_FLASH

VCC_3V3_S0 VCC3V3_FLASH

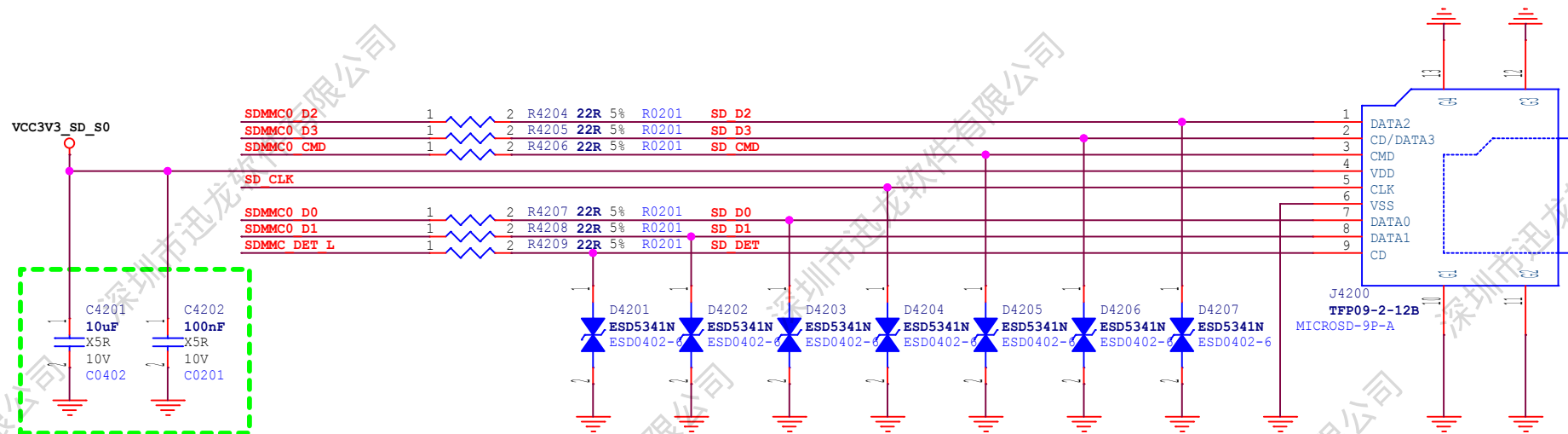
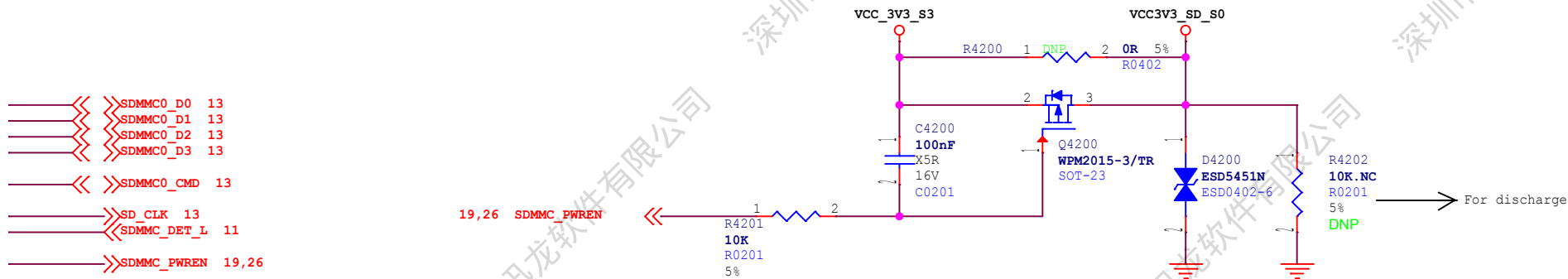
VCC3V3_FLASH

VCCIO_FLASH



Shenzhen Xunlong Software Co., Ltd		
Title		
ORANGEPI 5B		
Size	Document Number	Rev
A4	eMMC Flash	1.2
Date: Wednesday, September 20, 2023		
Sheet 16 of 26		

TF CARD



Close to MicroSD Card

MicroSD Card



Shenzhen Xunlong Software Co., Ltd

Title	
-------	--

ORANGEPI 5B

Size	Document Number	Rev
------	-----------------	-----

Flash-TF Card

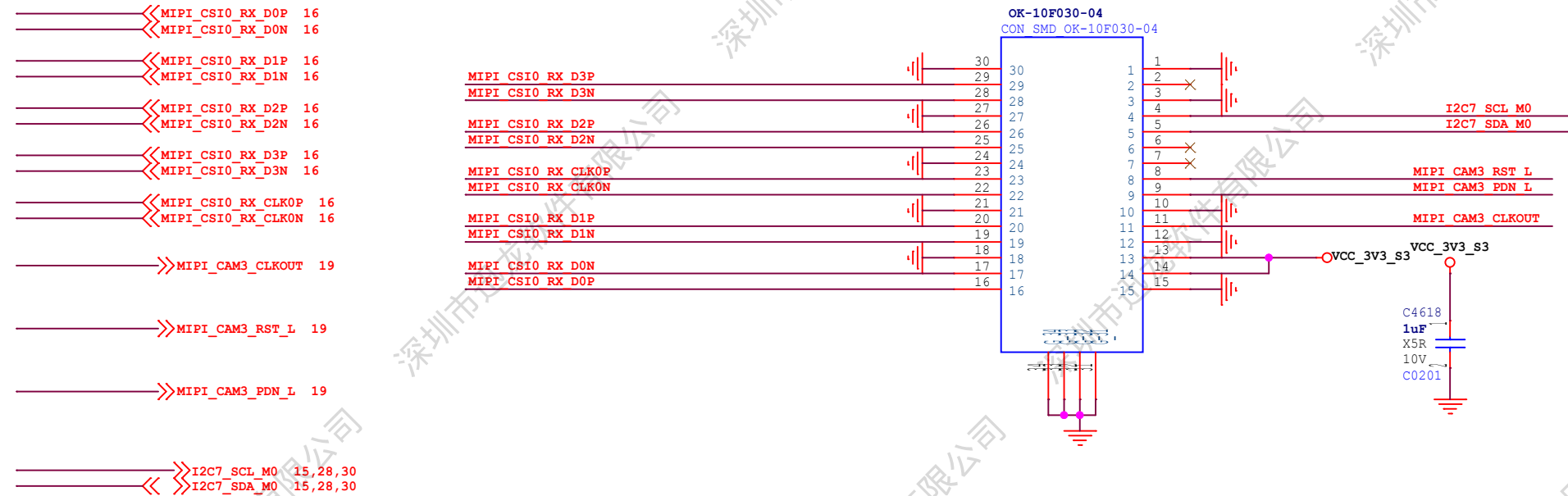
Rev
1.2

Date: Wednesday, September 20, 2023 Sheet 17 of 26

Rockchip Confidential

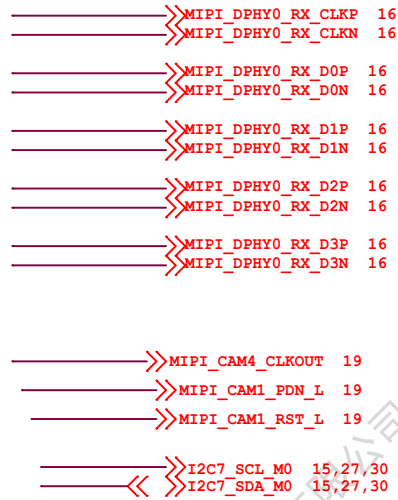
MIPI-CSIO_RX

Cam1



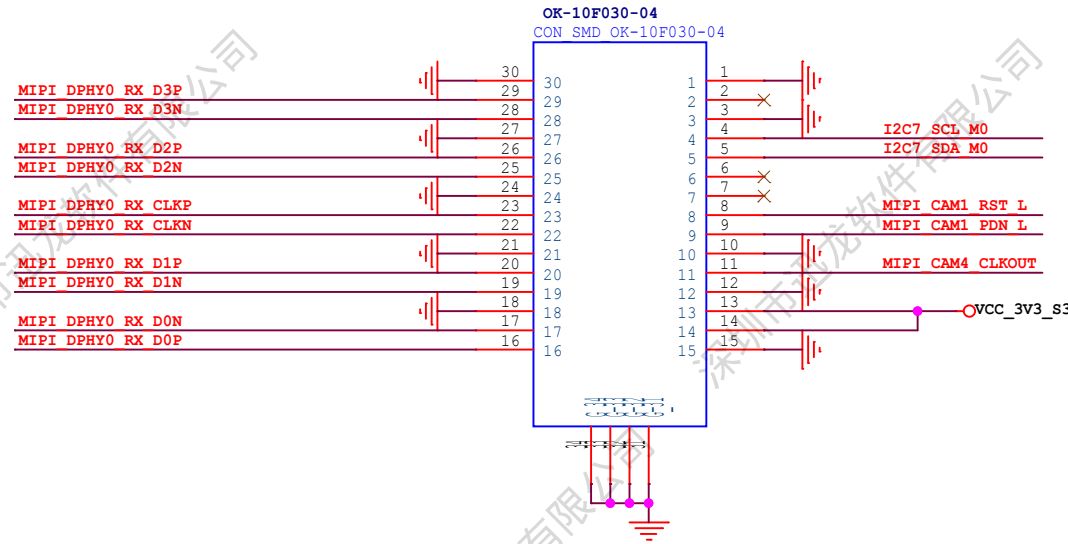
Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number		Rev
A4	VI-Camera MIPI CSI0-RX / Debug		1.2
Date:	Wednesday, September 20, 2023		
Sheet	18	of	26

VI-Camera DPHY_RX

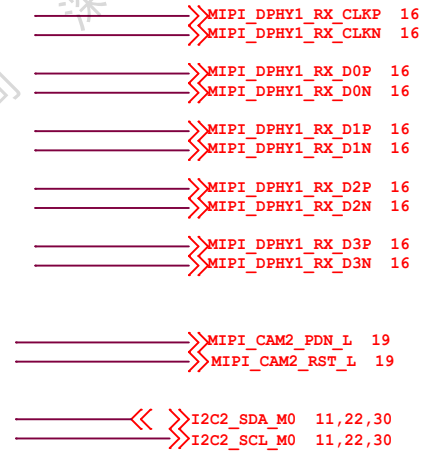


MIPI D-PHY0

Cam2

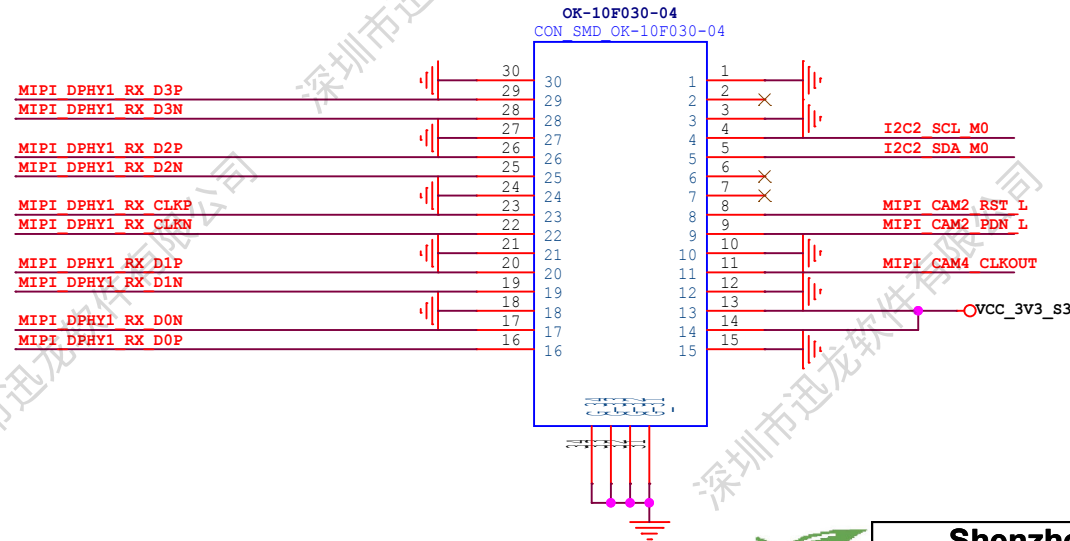


VI-Camera DPHY_RX



MIPI D-PHY1

Cam3



Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number		Rev
A4	VI-Camera_MIPI-DPHY-RX		1.2
Date:	Wednesday, September 20, 2023		
Sheet		19	of 26

```

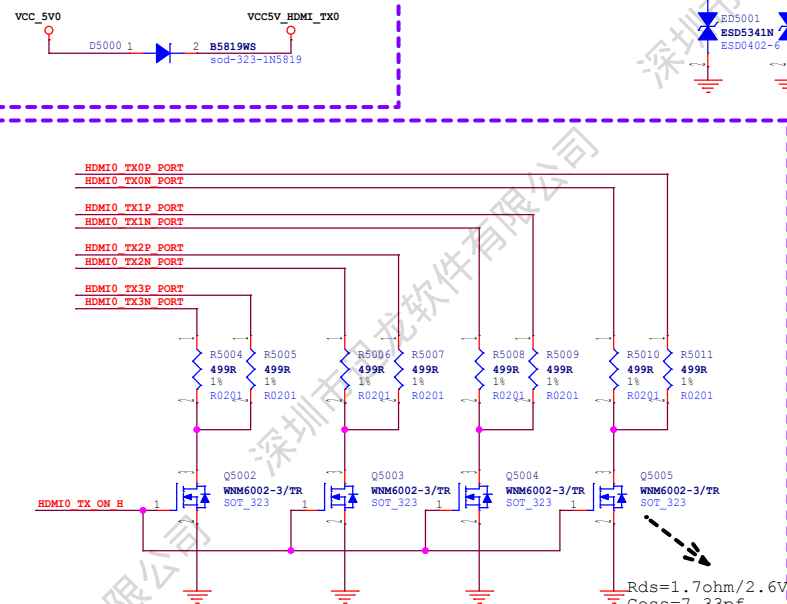
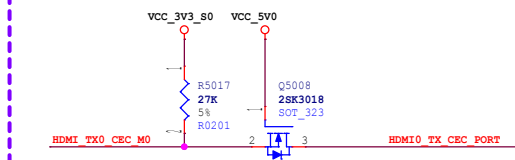
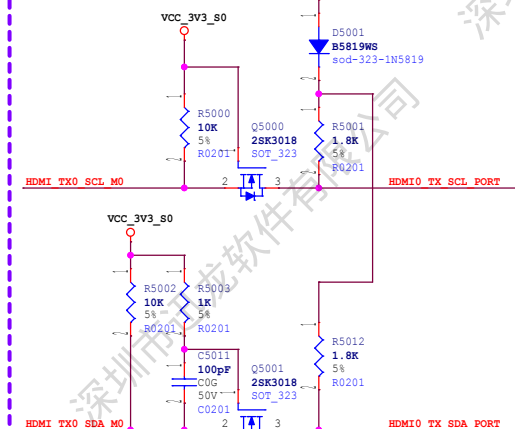
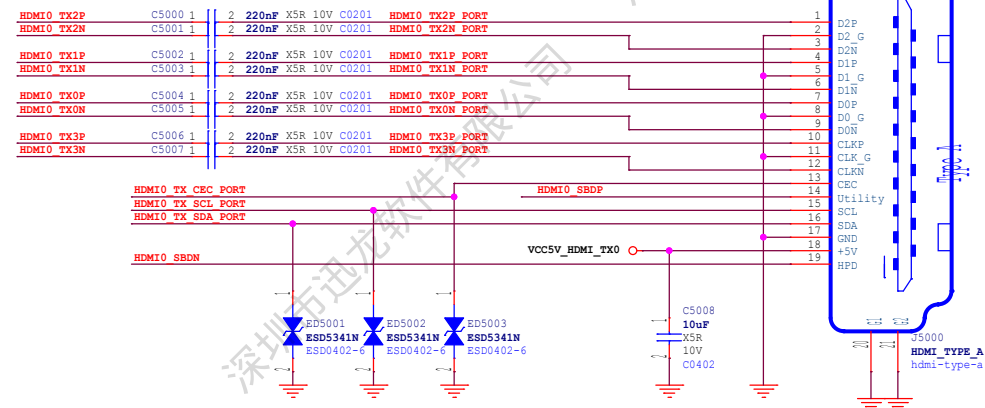
_____>>>HDMI0_TXOP_17
_____>>>HDMI0_TXON_17
_____>>>HDMI0_TXIP_17
_____>>>HDMI0_TXIN_17
_____>>>HDMI0_TX2P_17
_____>>>HDMI0_TX2N_17
_____>>>HDMI0_TX3P_17
_____>>>HDMI0_TX3N_17

_____>>>HDMI0_TX_SBDP_17
_____>>>HDMI0_TX_SBDN_17

_____>>>HDMI_TX0_SCL_MO_19
_____<<<HDMI_TX0_SDA_MO_19
_____<<<HDMI_TX0_CNC_MO_19
_____<<<HDMI_TX0_HFO_MO_19

_____>>>HDMI0_TX_ON_H_19

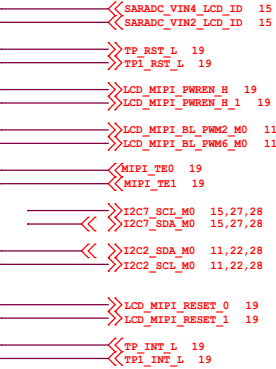
```



The controller only support AC coupled link In order to backward compatibility or to meet HDMI2.0 (1.4b) DC common mode spec and Voff, need do R based level-shift.

[illegible]

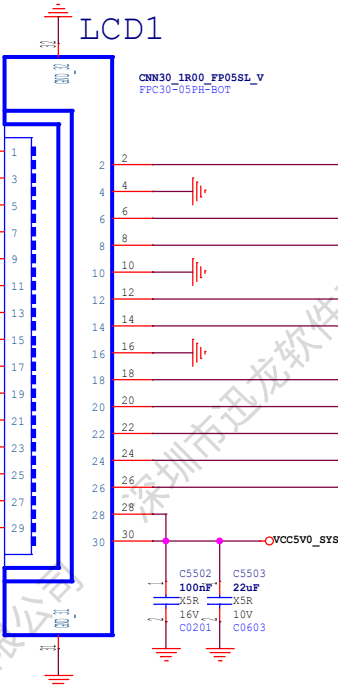
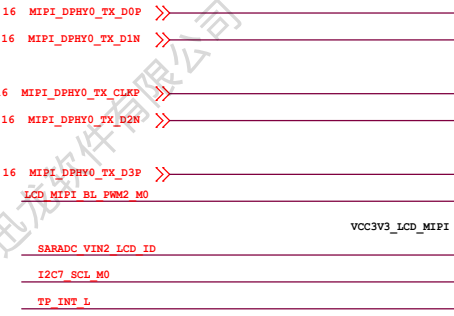
MIPI DPHY TX



Power

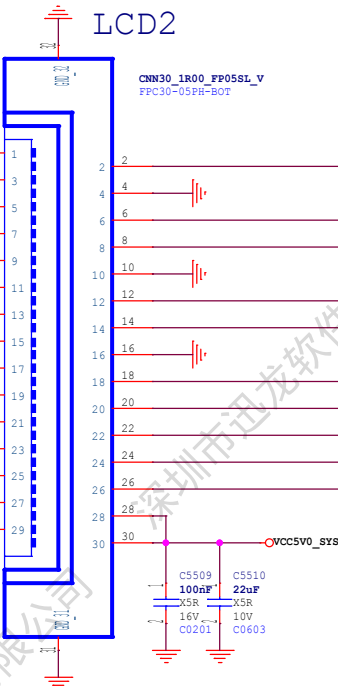
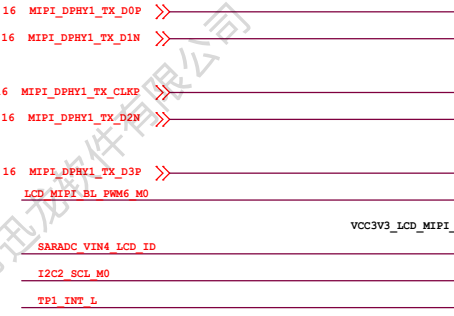


MIPI DPHY0 TX



FPC Pin List	
Pin1	:GND
Pin2	:DON
Pin3	:DOP
Pin4	:GND
Pin5	:D1N
Pin6	:D1P
Pin7	:GND
Pin8	:CLKN/AUXN
Pin9	:CLKP/AUXP
Pin10	:GND
Pin11	:D2N
Pin12	:D2P
Pin13	:GND
Pin14	:D3N
Pin15	:D3P
Pin16	:GND
Pin17	:LCD_PWM_BL
Pin18	:LCD_TE
Pin19	:VCC3V3_LCD
Pin20	:LCD_RST
Pin21	:LCD_ID
Pin22	:LCD_PWREN
Pin23	:TP_I2C_SCL
Pin24	:TP_I2C_SDA
Pin25	:TP_INT
Pin26	:TP_RST
Pin27	:GND
Pin28	:5V0
Pin29	:5V0
Pin30	:5V0

MIPI DPHY1 TX

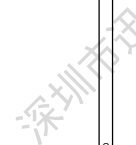


FPC Pin List	
Pin1	:GND
Pin2	:DON
Pin3	:DOP
Pin4	:GND
Pin5	:D1N
Pin6	:D1P
Pin7	:GND
Pin8	:CLKN/AUXN
Pin9	:CLKP/AUXP
Pin10	:GND
Pin11	:D2N
Pin12	:D2P
Pin13	:GND
Pin14	:D3N
Pin15	:D3P
Pin16	:GND
Pin17	:LCD_PWM_BL
Pin18	:LCD_TE
Pin19	:VCC3V3_LCD
Pin20	:LCD_RST
Pin21	:LCD_ID
Pin22	:LCD_PWREN
Pin23	:TP_I2C_SCL
Pin24	:TP_I2C_SDA
Pin25	:TP_INT
Pin26	:TP_RST
Pin27	:GND
Pin28	:5V0
Pin29	:5V0
Pin30	:5V0



Shenzhen Xunlong Software Co., Ltd			
ORANGEPI 5B			
Size	Document Number	Rev	
A3	VO-MIPI DPHY0/1-TX	1.2	
Date:	Wednesday, September 20, 2023	Sheet	21 of 26

3

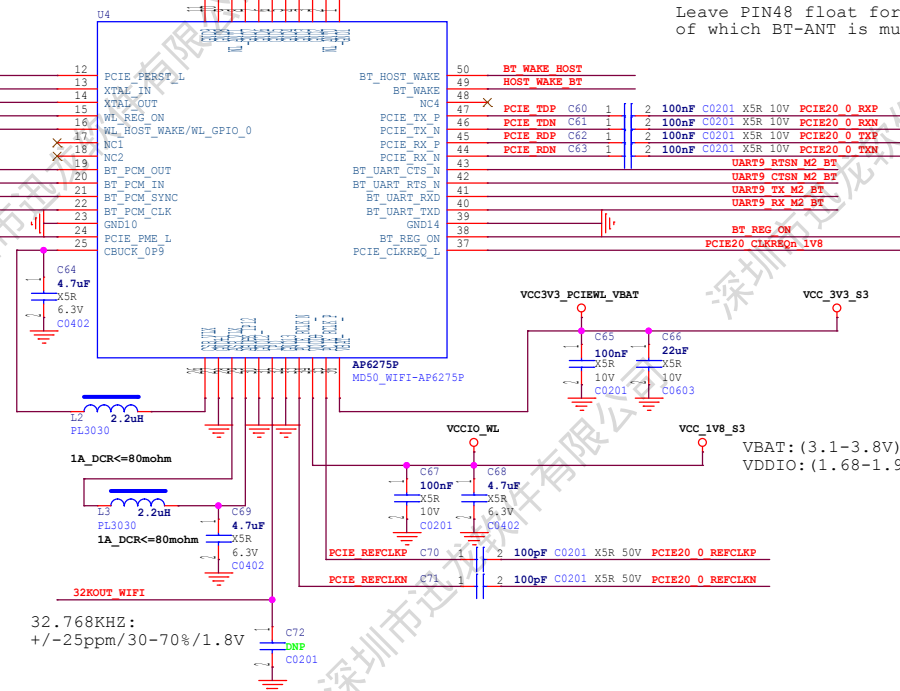


0280_SDO_M1_BT 15
 32K2OUT_WIFI 11,20
 >WIFI_REG_ON_H 11
 >WIFI_WAKE_HOST_H 11
 >BT_REG_ON_H 19
 >BT_WAKE_HOST_H 11
 >HOST_WAKE_BT_H 11

UART5
 UART5
 UART5

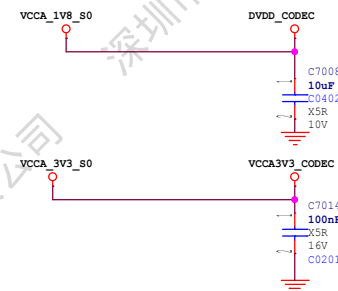
XOUT_WIFI
 C53
 12pF
 C4201
 CUG
 50V

PCIE20x1_2_CLKR
 PCIE20x1_2_WAKE

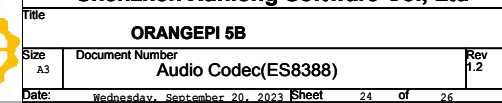
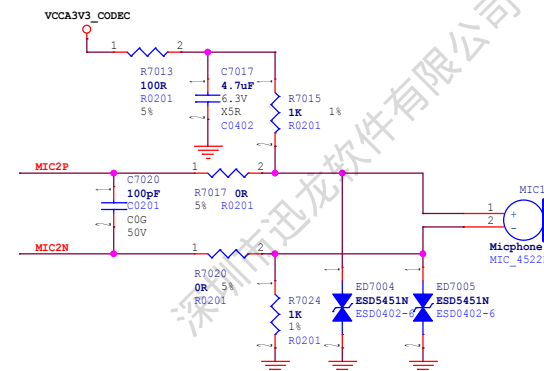


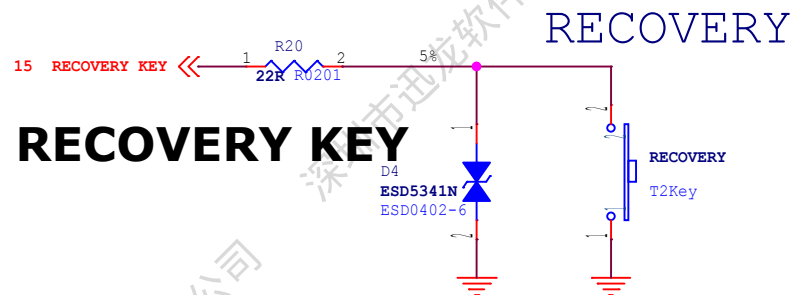
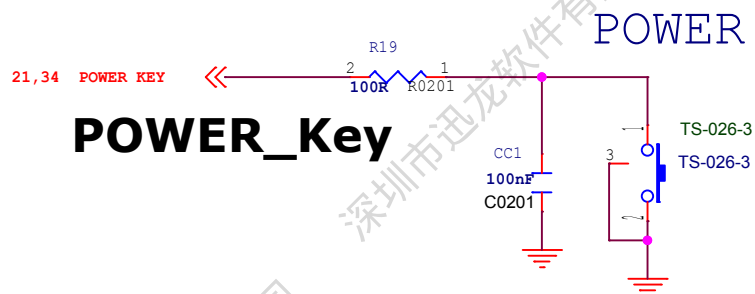
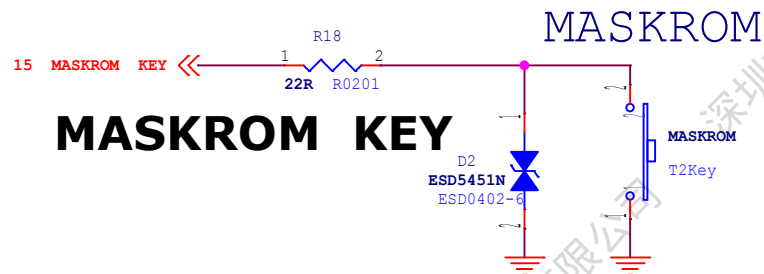
Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size A3	Document Number	Rev	
	WIFI/BT-PCIe_2T2R(AP6275PR3)	1.2	
Date:	Wednesday, September 20, 2023		
	Sheet	23	of 26

CODEC ES8388

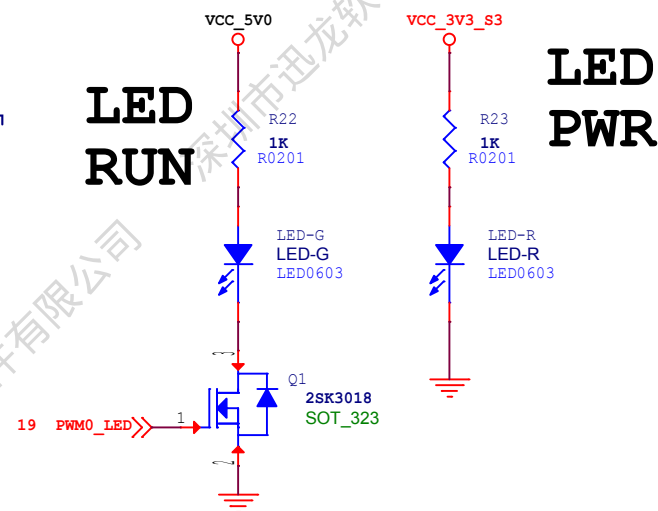
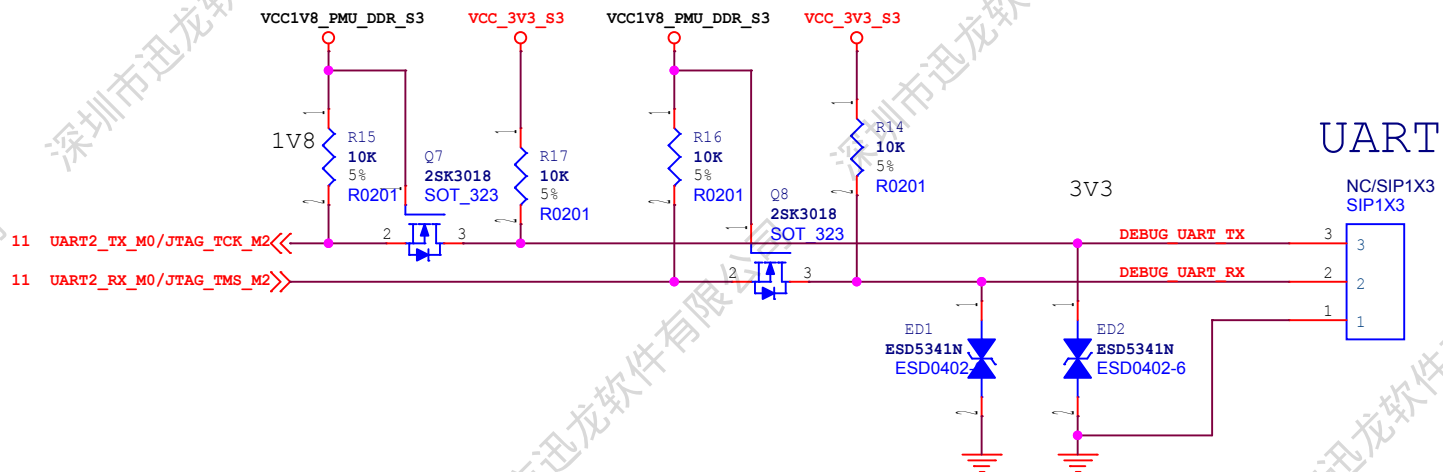


EARPHONE





UART Debug



Shenzhen Xunlong Software Co., Ltd			
Title			
ORANGEPI 5B			
Size	Document Number		Rev
A4	KEY		1.2
Date:	Wednesday, September 20, 2023		
Sheet	26	of	26