

1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

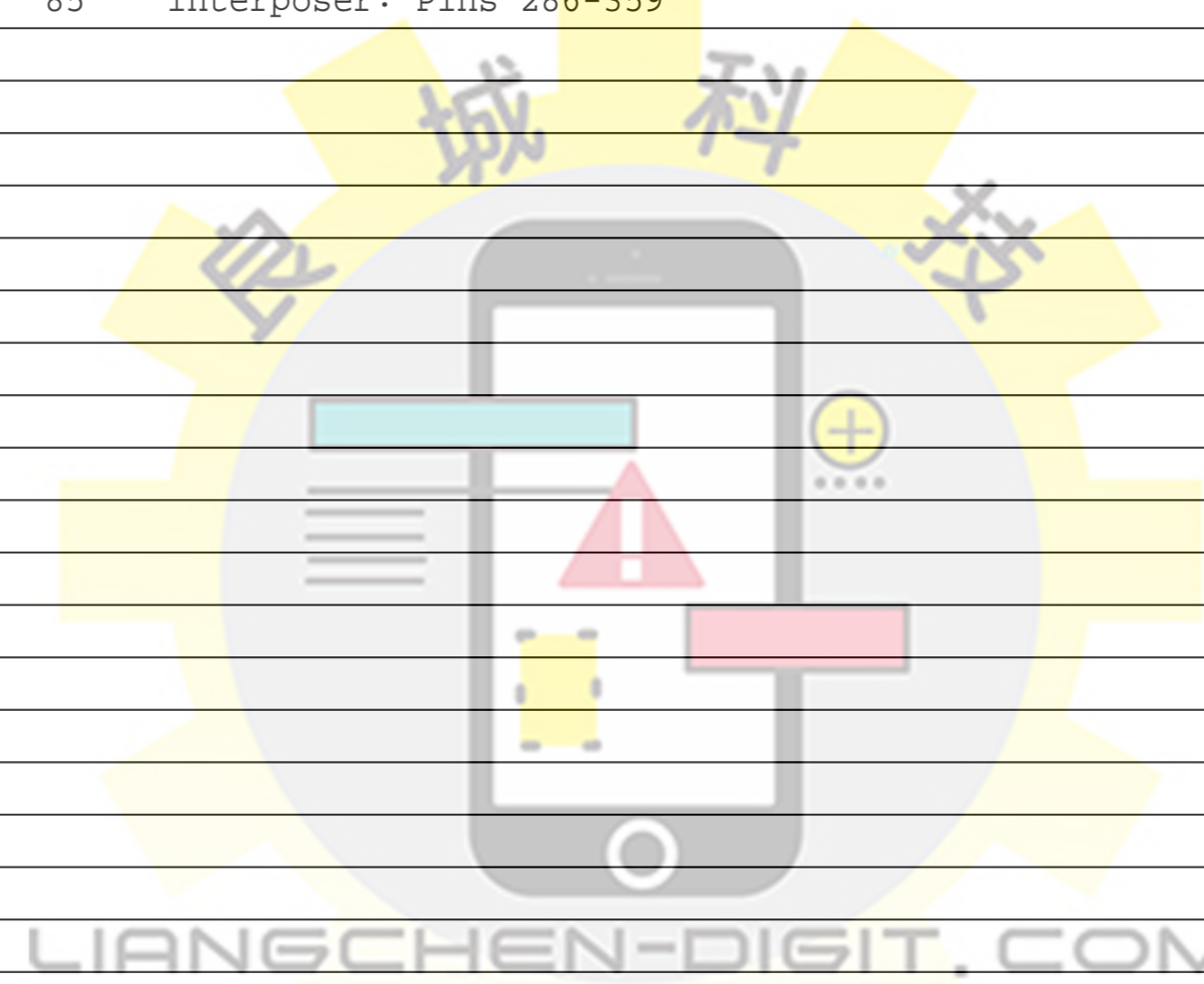
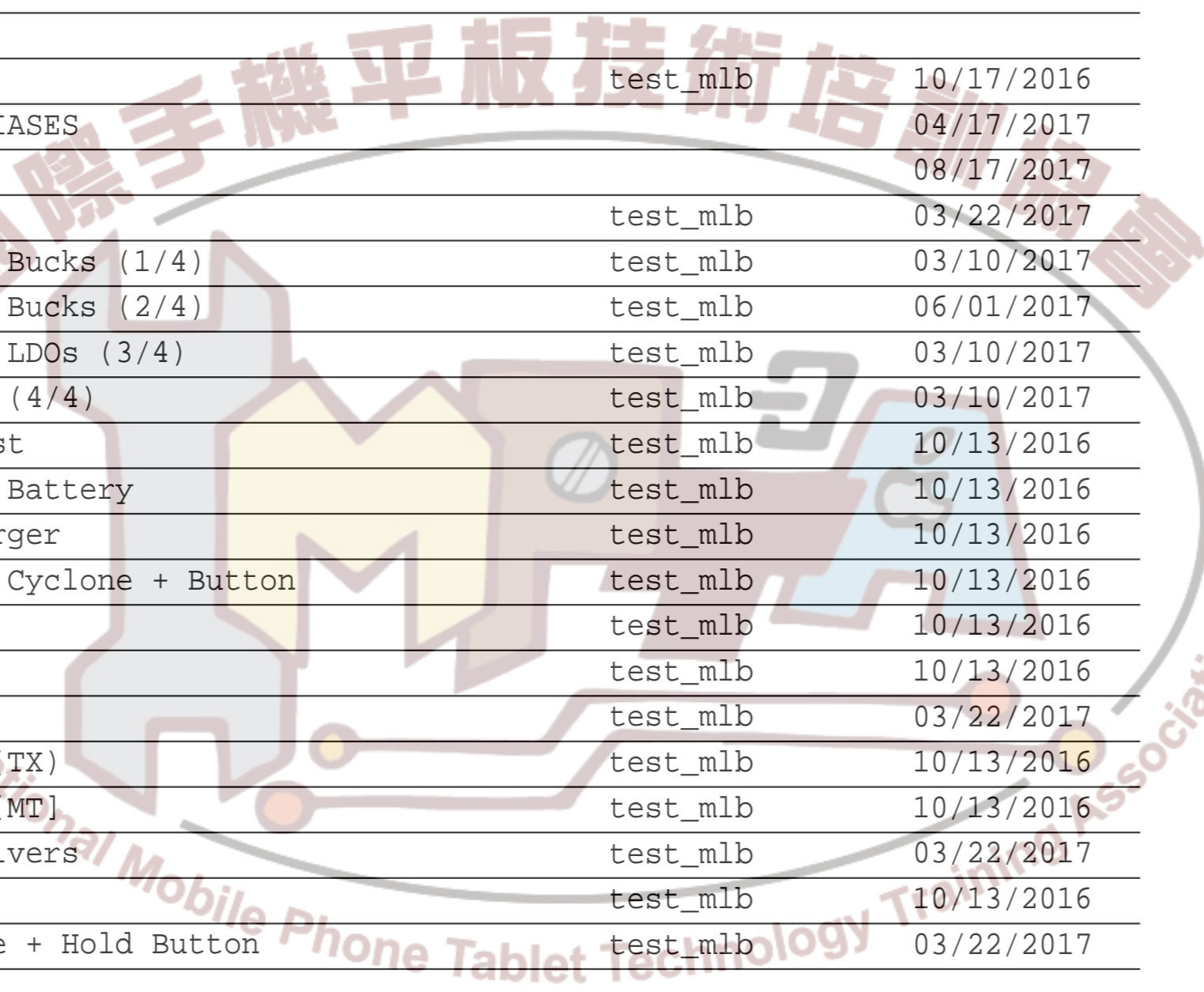
REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
7	0011175308	ENGINEERING RELEASED		2018-02-05

D32/D33 Top MLB: EVT (D32 Build)

LAST_MODIFICATION=Wed Jan 31 16:37:18 2018

PAGE	CSA	CONTENTS	SYNC	DATE
1	1	TABLE OF CONTENTS		
2	2	SYSTEM:BOM Tables	test_mlb	10/13/2016
3	3	SYSTEM:BOM Tables FF Specific		08/09/2017
4	4	SYSTEM: Mechanical Components		
5	5	SYSTEM: Testpoints (Top)	test_mlb	10/13/2016
6	6	BOOTSTRAPPING	test_mlb	10/13/2016
7	10	SOC: JTAG,USB,XTAL	test_mlb	10/17/2016
8	11	SOC: PCIE		04/07/2017
9	12	SOC: MIPI		
10	13	SOC: LPDP	test_mlb	10/13/2016
11	14	SOC: SERIAL	test_mlb	04/05/2017
12	15	SOC: GPIO & UART	test_mlb	04/05/2017
13	16	SOC: AOP		
14	17	SOC: POWER (1/3)		
15	18	SOC: POWER (2/3)		
16	19	SOC: POWER (3/3)	test_mlb	10/17/2016
17	20	SOC: DEV BOARD ALIASES		04/17/2017
18	21	SOC: LPDP ALIASES		08/17/2017
19	26	NAND	test_mlb	03/22/2017
20	27	SYSTEM POWER: PMU Bucks (1/4)	test_mlb	03/10/2017
21	28	SYSTEM POWER: PMU Bucks (2/4)	test_mlb	06/01/2017
22	29	SYSTEM POWER: PMU LDOs (3/4)	test_mlb	03/10/2017
23	30	SYSTEM POWER: PMU (4/4)	test_mlb	03/10/2017
24	31	SYSTEM POWER: Boost	test_mlb	10/13/2016
25	32	SYSTEM POWER: B2B Battery	test_mlb	10/13/2016
26	33	SYSTEM POWER: Charger	test_mlb	10/13/2016
27	35	SYSTEM POWER: B2B Cyclone + Button	test_mlb	10/13/2016
28	36	SENSORS	test_mlb	10/13/2016
29	37	CAMERA: PMU (1/2)	test_mlb	10/13/2016
30	38	CAMERA: PMU (2/2)	test_mlb	03/22/2017
31	39	CAMERA: B2B Wide (TX)	test_mlb	10/13/2016
32	40	CAMERA: B2B Tele [MT]	test_mlb	10/13/2016
33	41	CAMERA: Strobe Drivers	test_mlb	03/22/2017
34	42	CAMERA: B2B Fcam	test_mlb	10/13/2016
35	43	CAMERA: B2B Strobe + Hold Button	test_mlb	03/22/2017
36	44	PEARL: Power		
37	45	PEARL: B2B Romeo + Juliet	test_mlb	10/13/2016
38	46	PEARL: B2B Rosaline + Sensor	test_mlb	10/13/2016
39	47	AUDIO: CODEC (1/2)	test_mlb	10/13/2016
40	48	AUDIO: CODEC (2/2)	test_mlb	10/13/2016
41	49	AUDIO: SOUTH SPKAMP		04/05/2017
42	50	AUDIO: NORTH SPKAMP		04/05/2017
43	51	ARC: AMP		04/05/2017
44	57	CG: B2B Display	test_mlb	10/13/2016
45	59	I/O: Overvoltage Cut-Off Circuit		

PAGE	CSA	CONTENTS	SYNC	DATE
46	60	I/O: LDCM	test_mlb	06/06/2017
47	61	I/O: Gecko	test_mlb	10/17/2016
48	62	I/O: USB PD	test_mlb	10/13/2016
49	63	I/O: Hydra	test_mlb	10/13/2016
50	64	I/O: B2B Dock	test_mlb	10/13/2016
51	65	B2B: Interposer Bot		08/30/2017
52	66	SYSTEM: AP I2C		
53	67	SYSTEM: ISP I2C		
54	68	SYSTEM: AOP/SMC I2C		
55	70	SYSTEM: SOC/PMU GPIOs		05/09/2017
56	71	SYSTEM: AOP GPIOs		05/09/2017
57	81	Interposer: Pins 1-144		08/29/2017
58	82	Interposer: Pins 145-285		08/30/2017
59	83	Interposer: Top Aliases		08/17/2017
60	85	Interposer: Pins 286-359		08/30/2017



BOM:639-03991 (Ultimate)
 BOM:639-03992 (Extreme)
 BOM:639-03990 (Max)
 MCO:056-05750

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-02545	1	SCH_MLB_TOP_D32	SCH	CRITICAL	?
820-00997	1	PCB_MLB_TOP_D32	PCB	CRITICAL	?

TABLE OF CONTENTS

DRAWING TITLE SCH, MLB, TOP, D32			
	DRAWING NUMBER 051-02545	SIZE D	
	REVISION 7.0.0	BRANCH	
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			SHEET 1 OF 60

Display CMC's

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S00415	155S00391	ALT_PARTS	ALL	CMC, 3502M, 7MG+, MDR

NAND Ultimate

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S00340	1	HYNIX, 3DV4, ULTIMATE	U2600	CRITICAL	ULTIMATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S00359	335S00340	ALT_PARTS	U2600	TOSHIBA, BICS3, ULT
335S00286	335S00340	ALT_PARTS	U2600	SANDISK, BICS3, ULT
335S00288	335S00340	ALT_PARTS	U2600	SAMSUNG, 3DV4, ULT

Global R/C Alternates

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0648	138S0652	ALT_PARTS	ALL	OSP, 208, 4, 700, A, 10, 4, 4000, 440, 2010
138S0739	138S0706	ALT_PARTS	ALL	OSP, 208, 208, 0, 200, 201, 4, 10, 201
138S00049	138S0831	ALT_PARTS	ALL	OSP, 208, 208, 1, 200, 201, 4, 10, 201

Yangtze Inductors

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00872	152S00918	ALT_PARTS	ALL	IND, MLD, 0, 470H, 20H
152S00847	152S00918	ALT_PARTS	ALL	IND, MLD, 0, 470H, 20H

CRITICAL PART#	COMMENT
152S00918	IND, MLD, 0, 220H, 20H, 5, 6A, 4000RM, H= .65, 1608

Extreme

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S00342	1	HYNIX, 3DV4, Extreme	U2600	CRITICAL	EXTREME

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S00247	335S00342	ALT_PARTS	U2600	SANDISK, BICS3, SUPREME
335S00276	335S00342	ALT_PARTS	U2600	SAMSUNG, 3DV4, SUPREME
335S00358	335S00342	ALT_PARTS	U2600	TOSHIBA, 3DV4, SUPREME

Denali Inductors

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00878	152S00831	ALT_PARTS	ALL	IND, MLD, 0, 220H, 20H, 5, 6A, 4000RM, H= .65, 1608
152S00818	152S00831	ALT_PARTS	ALL	IND, MLD, 0, 220H, 20H, 5, 6A, 4000RM, H= .65, 1608
152S00835	152S00822	ALT_PARTS	ALL	IND, MLD, 0, 470H, 20H, 4, 5A, 4700RM, H= .8, 2012
152S00827	152S00822	ALT_PARTS	ALL	IND, MLD, 0, 470H, 20H, 4, 5A, 4700RM, H= .8, 2012
152S00877	152S00817	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00829	152S00817	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00825	152S00823	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00833	152S00819	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00824	152S00819	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00834	152S00820	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00828	152S00820	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00826	152S00821	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00866	152S00821	ALT_PARTS	ALL	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016

CRITICAL PART#	COMMENT
152S00831	IND, MLD, 0, 220H, 20H, 5, 6A, 4000RM, H= .65, 1608
152S00822	IND, MLD, 0, 470H, 20H, 4, 5A, 4700RM, H= .8, 2012
152S00817	IND, MLD, 0, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00823	IND, MLD, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00819	IND, MLD, 100H, 20H, 3, 2A, 6000RM, H= .65, 2016
152S00820	IND, MLD, 0, 470H, 20H, 3, 2A, 4200RM, H= .80, 2012
152S00821	IND, MLD, 100H, 20H, 2, 2A, 6000RM, H= .80, 2012

Max

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S00343	1	HYNIX, 3DV4, MAX	U2600	CRITICAL	MAX

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S00339	335S00343	ALT_PARTS	U2600	SAMSUNG, 3DV4, MAX

XTAL Alternate

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00148	138S00149	ALT_PARTS	ALL	0402-3T, 10.5uF@1V, Kyocera
138S00150	138S00149	ALT_PARTS	ALL	0402-3T, 10.5uF@1V, SEMCO
138S00151	138S00149	ALT_PARTS	ALL	0402-3T, 10.5uF@1V, TY

CRITICAL PART#	COMMENT
138S00149	0402-3T, 10.5uF@1V

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S00612	197S00118	ALT_PARTS	Y1000	XTAL, 24K, 1612
197S00120	197S00118	ALT_PARTS	Y1000	XTAL, 24K, 1612

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00143	138S00144	ALT_PARTS	ALL	0402, 16uF@1V, Kyocera
138S00163	138S00144	ALT_PARTS	ALL	0402, 16uF@1V, TY

CRITICAL PART#	COMMENT
138S00144	0402, 16uF@1V

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00138	138S00139	ALT_PARTS	ALL	0201, 3uF@1V, Kyocera
138S00164	138S00139	ALT_PARTS	ALL	0201, 3uF@1V, TY

CRITICAL PART#	COMMENT
138S00139	0201, 3uF@1V

NEON Alternate

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00721	152S00876	ALT_PARTS	14120, 14120	TY, 1SD

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00221	138S00146	ALT_PARTS	ALL	0402, 5.1uF@3V, Kyocera

CRITICAL PART#	COMMENT
138S00146	0402, 5.1uF@3V

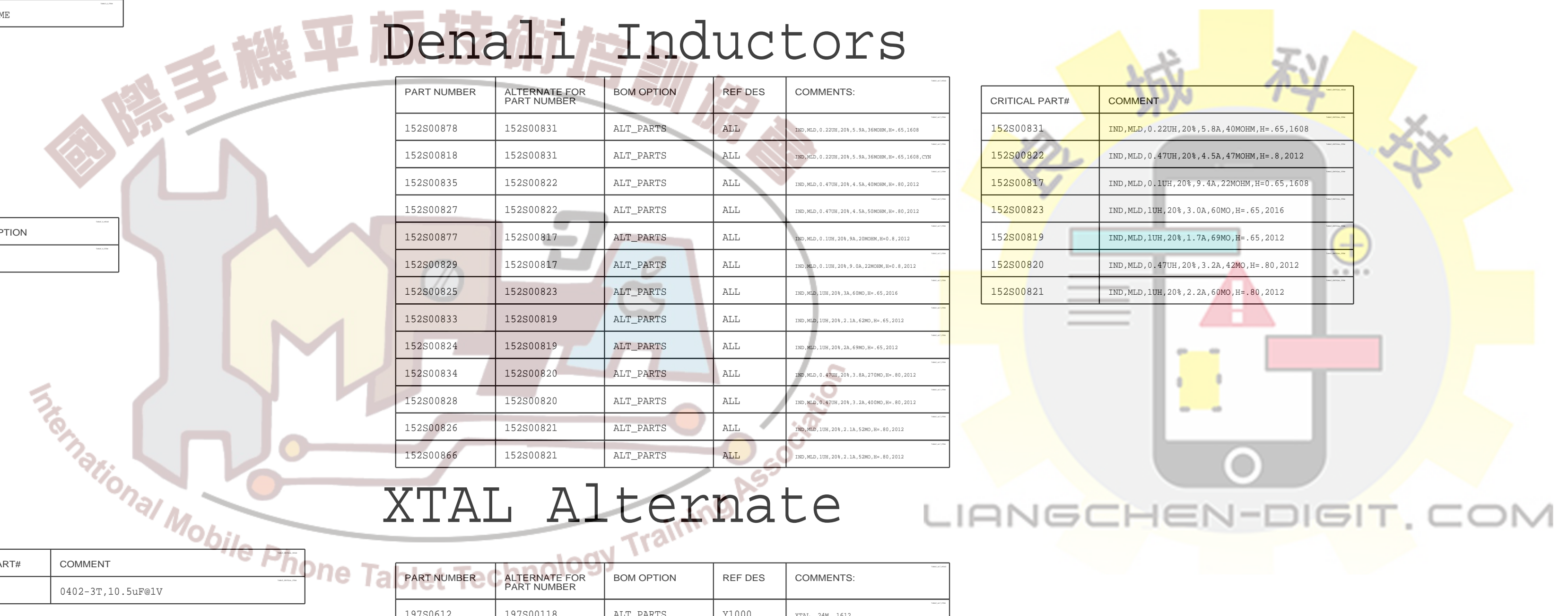
ANSEL Alternate

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152S00716	152S00875	ALT_PARTS	13700	TY, 1SD

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00140	138S00141	ALT_PARTS	ALL	0201, 1.1uF@3V, Kyocera
138S00142	138S00141	ALT_PARTS	ALL	0201, 1.1uF@3V, SEMCO
138S00166	138S00141	ALT_PARTS	ALL	0201, 1.1uF@3V, Taisy

CRITICAL PART#	COMMENT
138S00141	0201, 1.1uF@3V

PAGE TITLE			
SYSTEM:BOM Tables			
DRAWING NUMBER		051-02545	SIZE
REVISION		7.0.0	D
BRANCH			
PAGE		2 OF 85	
SHEET		2 OF 60	
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EEEE Codes

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-7691	1	EEEE FOR (MLB_TOP,639-03991,ULTIMATE)	EEEE_HMV1	CRITICAL	ULTIMATE
825-7691	1	EEEE FOR (MLB_TOP,639-03992,EXTREME)	EEEE_HMV2	CRITICAL	EXTREME
825-7691	1	EEEE FOR (MLB_TOP,639-03990,MAX)	EEEE_HMV0	CRITICAL	MAX

Cyprus OMIT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339800510	1	CYPRUS 4GB Micron	U1000	CRITICAL	SOC

Cyprus ALTs

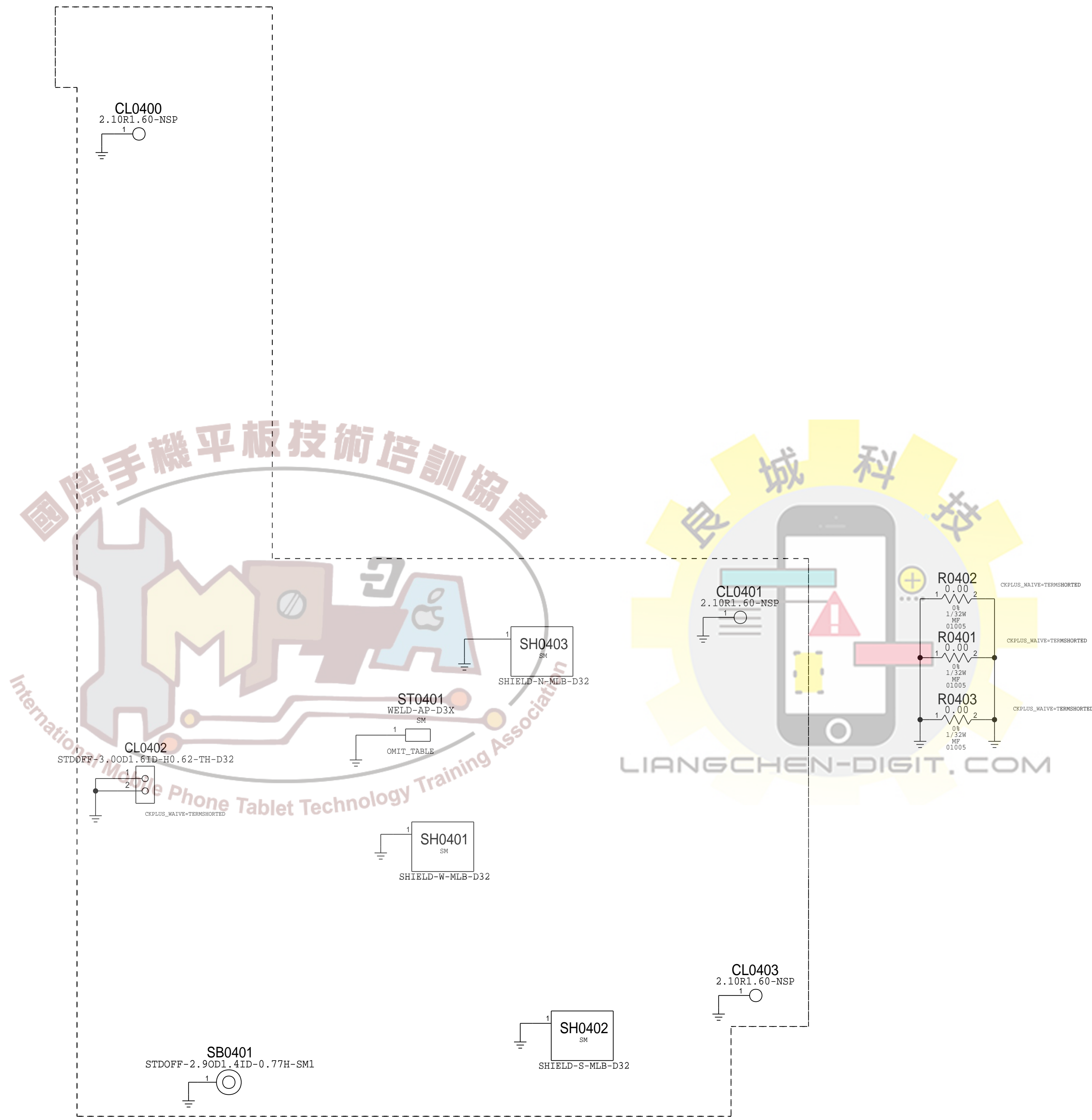
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339800511	339800510	ALT_PARTS	U1000	CYPRUS 4GB Hynix
339800512	339800510	ALT_PARTS	U1000	CYPRUS 4GB Samsung

Combo Stiffener

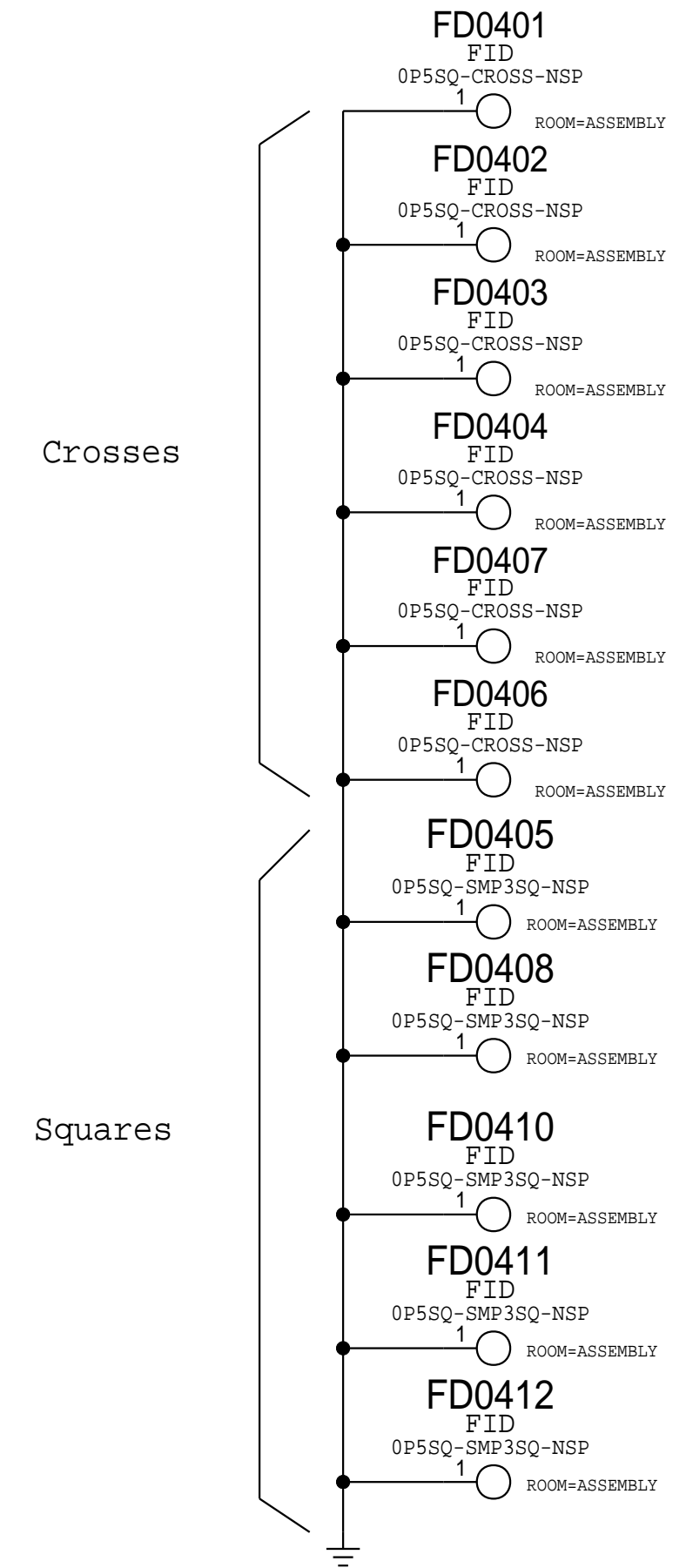
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604-19651	1	Combo Stiffener	ST0401	CRITICAL	ALL



PAGE TITLE		SYSTEM:BOM Tables FF Specific	
DRAWING NUMBER	051-02545	SIZE	D
	REVISION		7.0.0
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III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		3 OF 60	
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FIDUCIALS



PAGE TITLE		
SYSTEM: Mechanical Components		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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		4 OF 85
		SHEET
		4 OF 60

D

C

B

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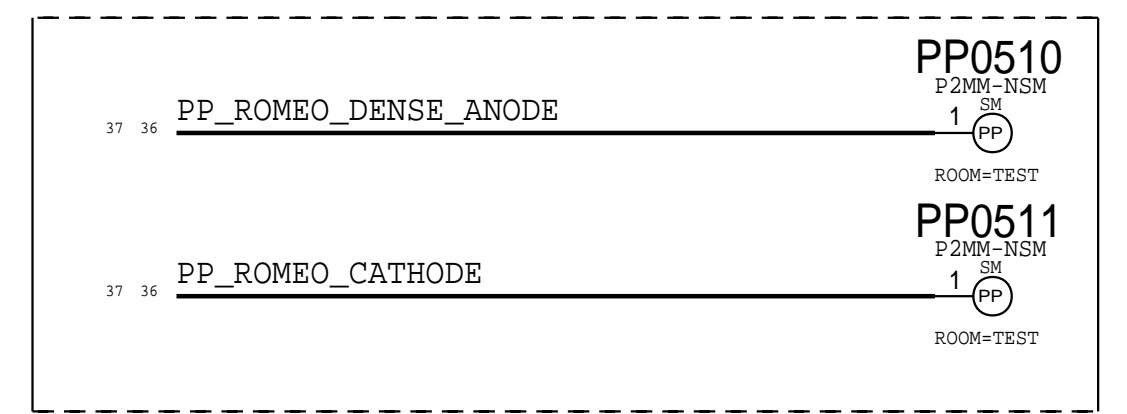
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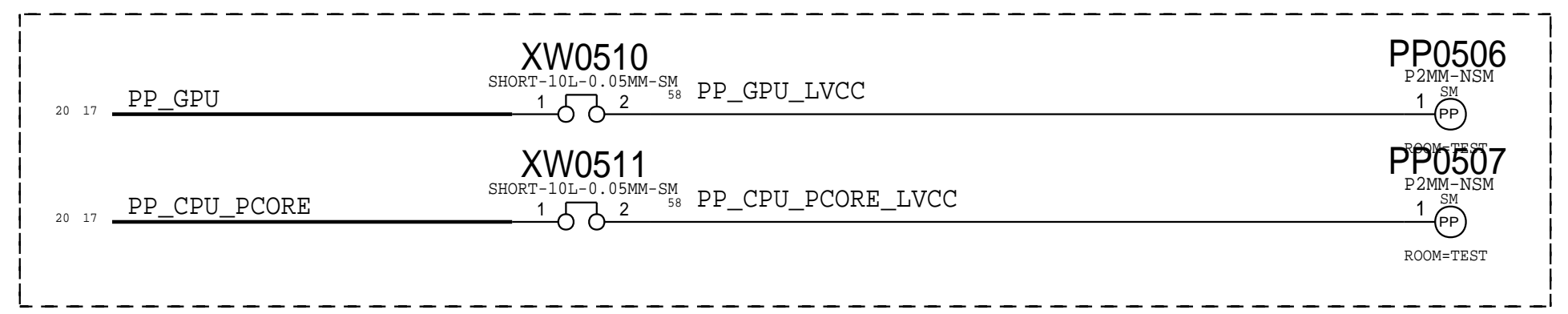
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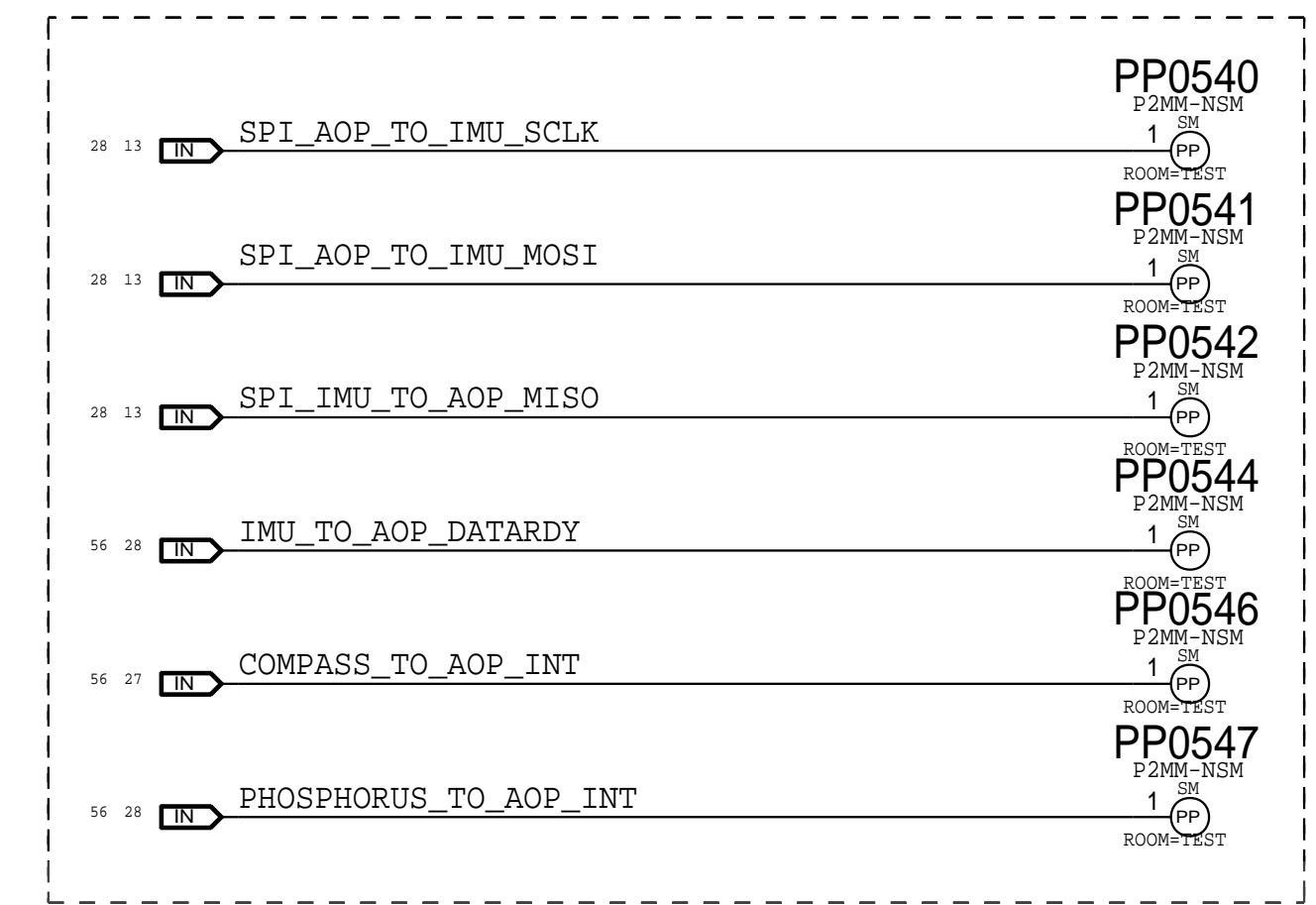
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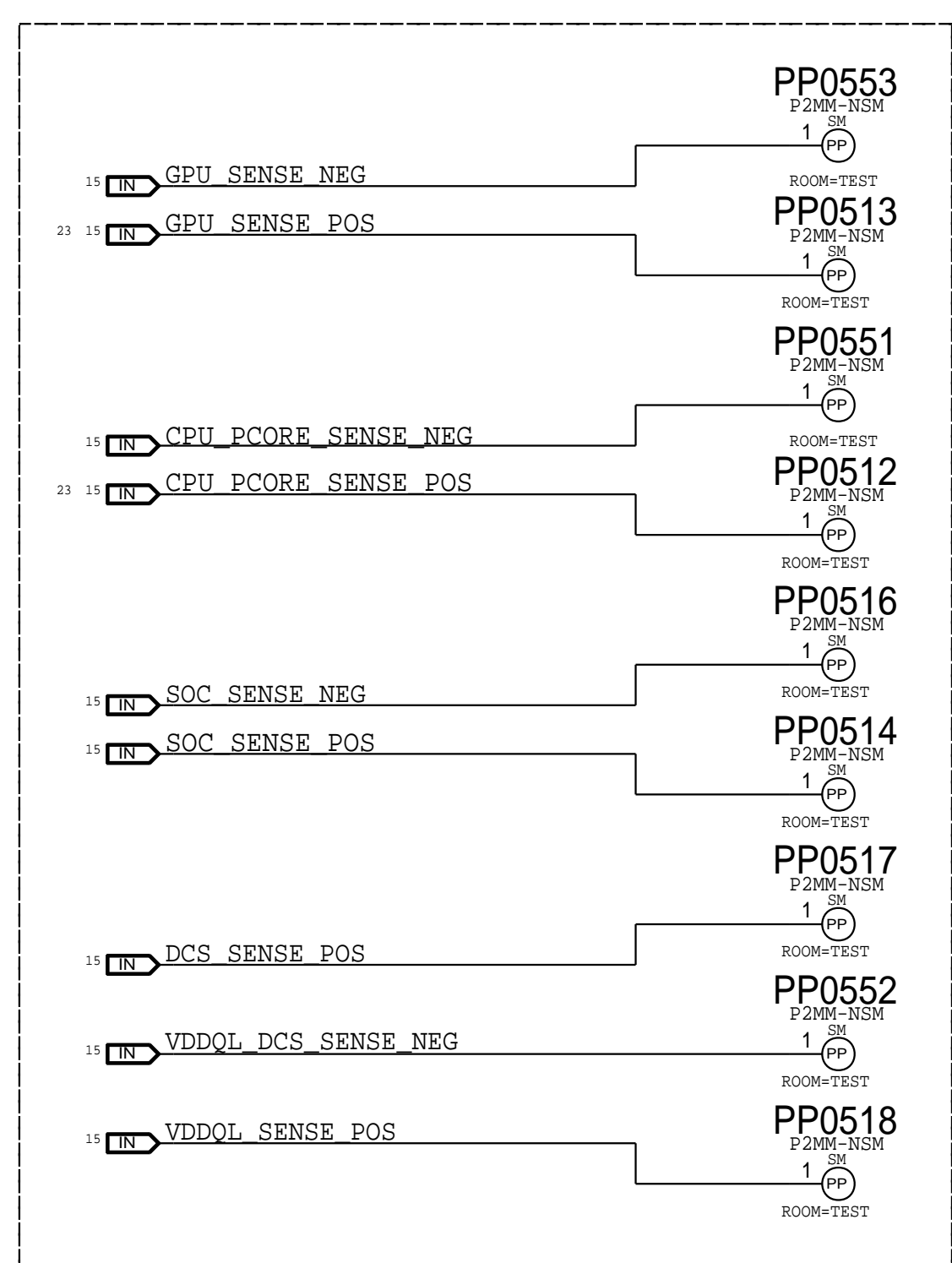
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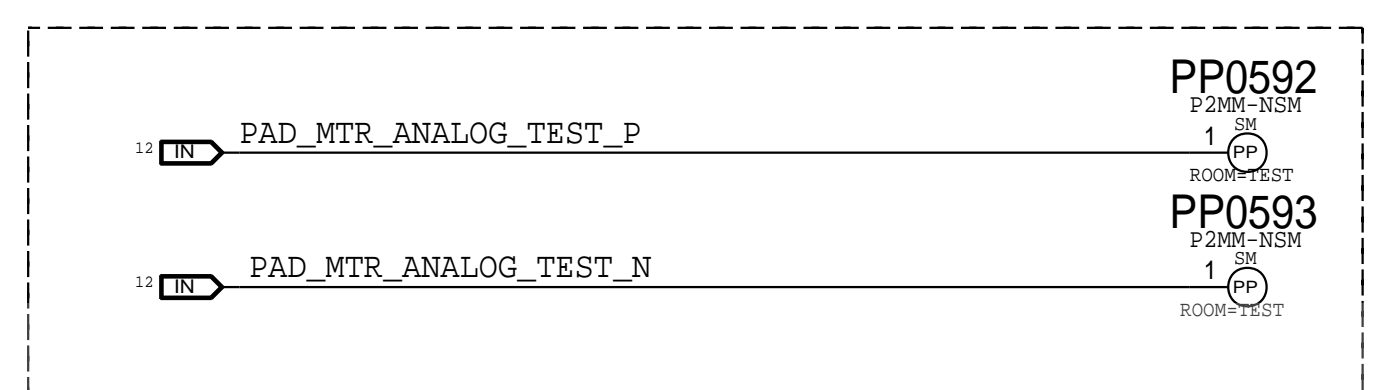
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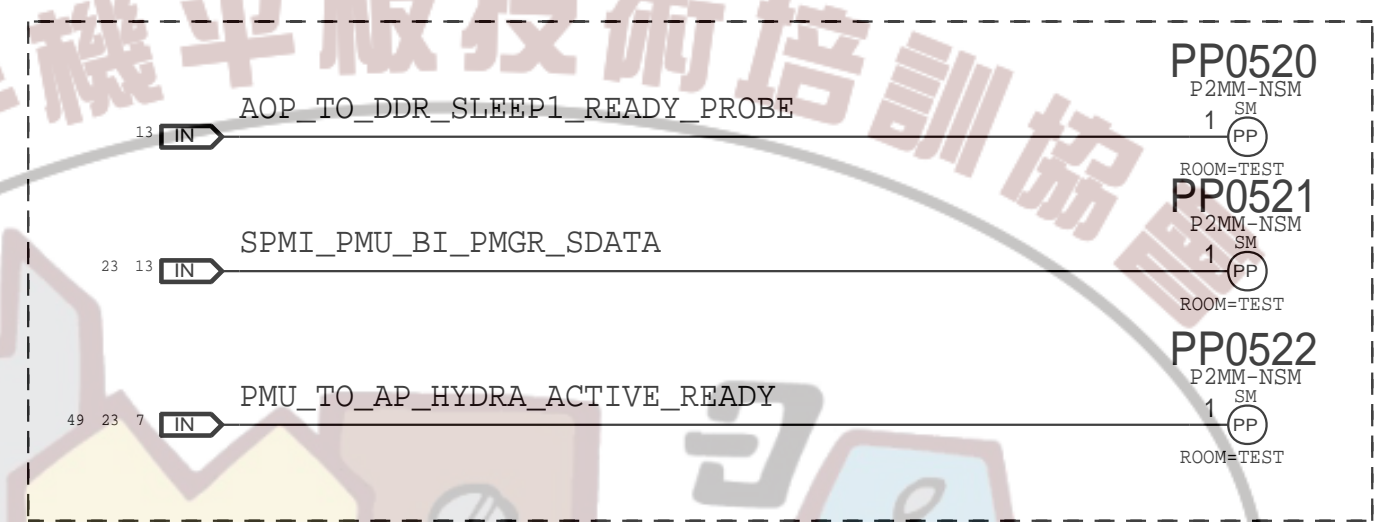
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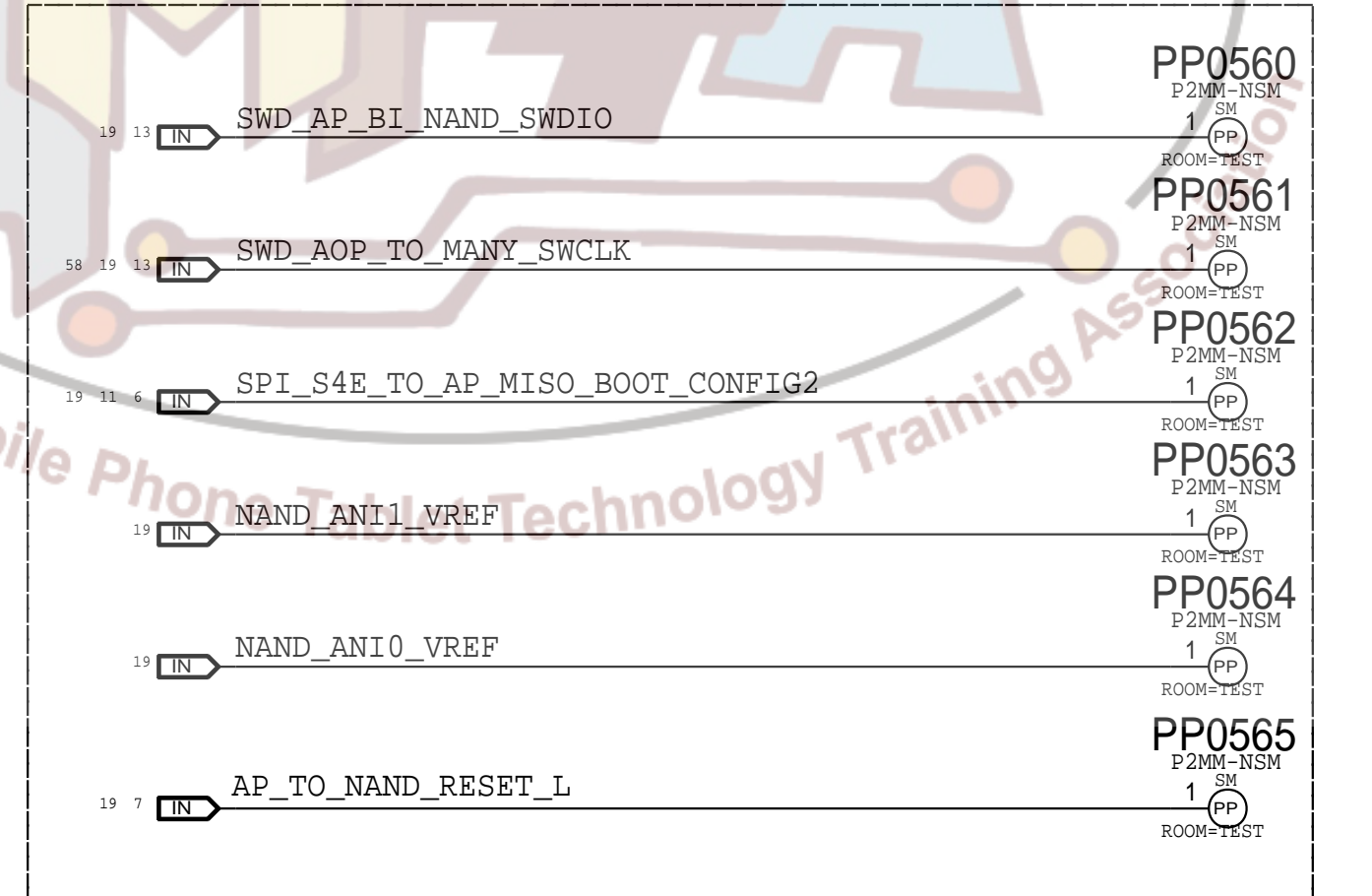
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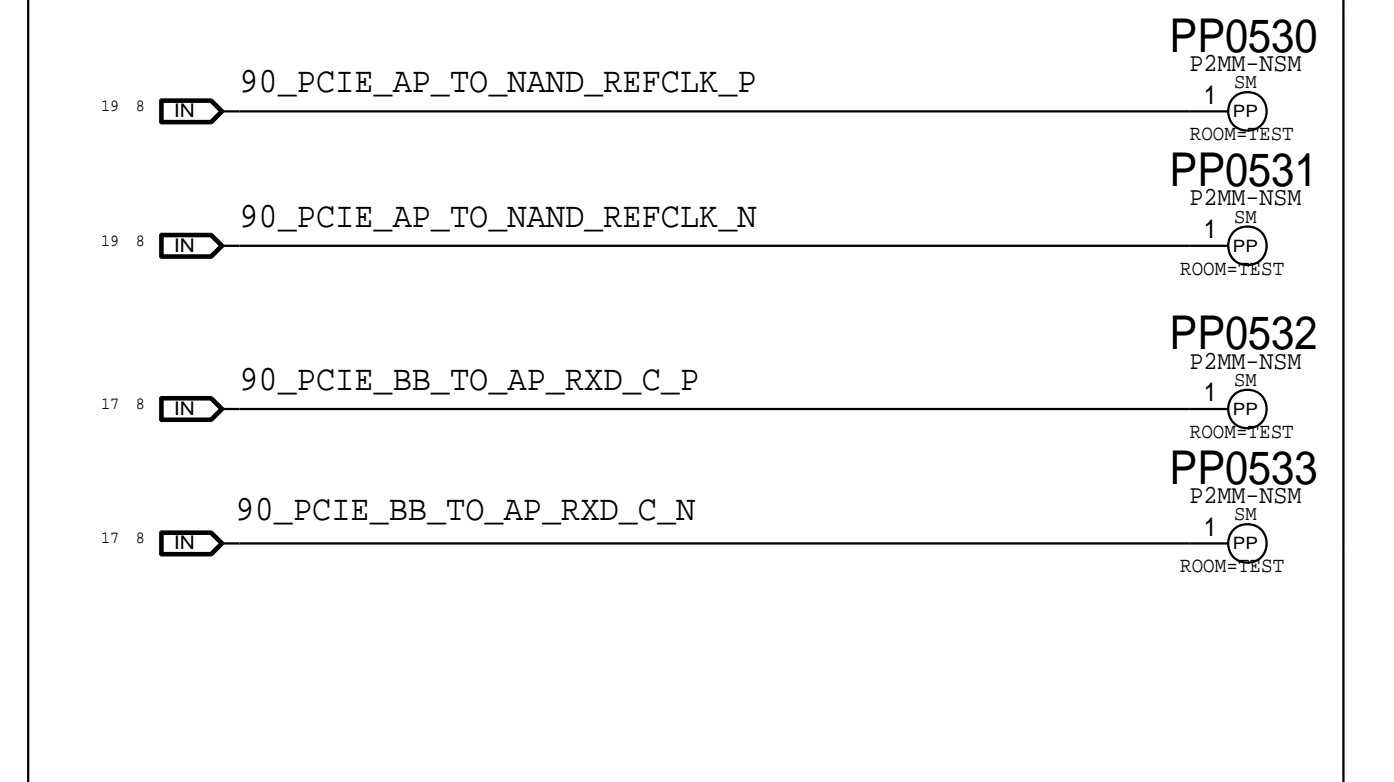
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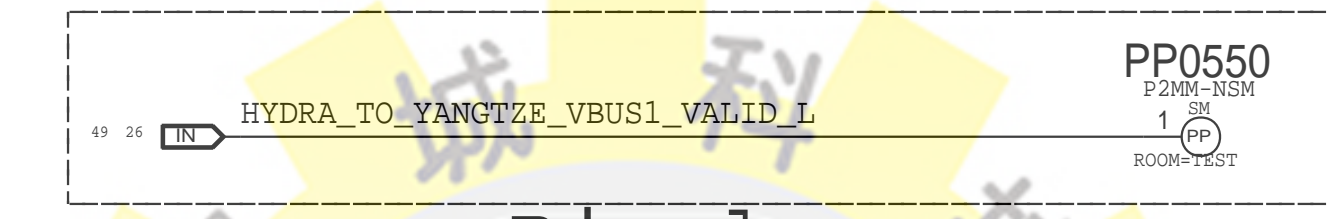
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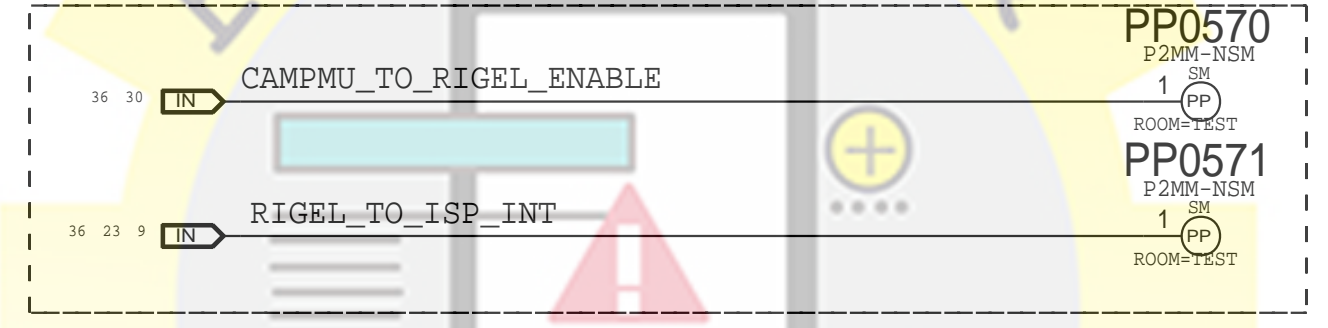
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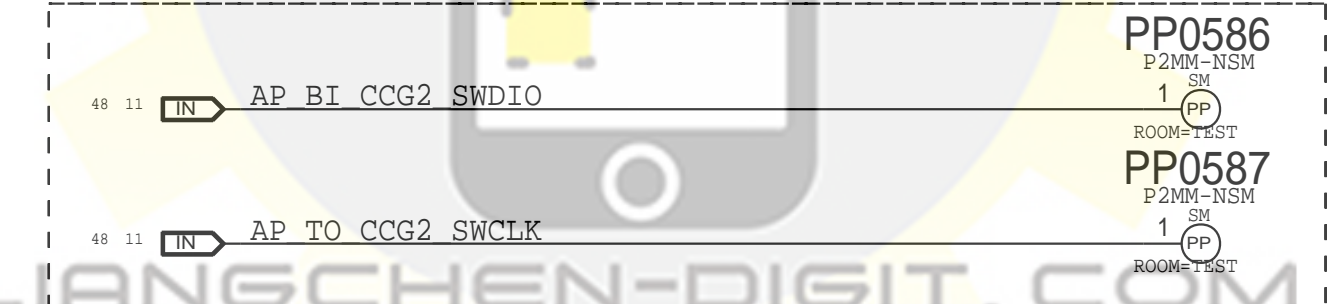
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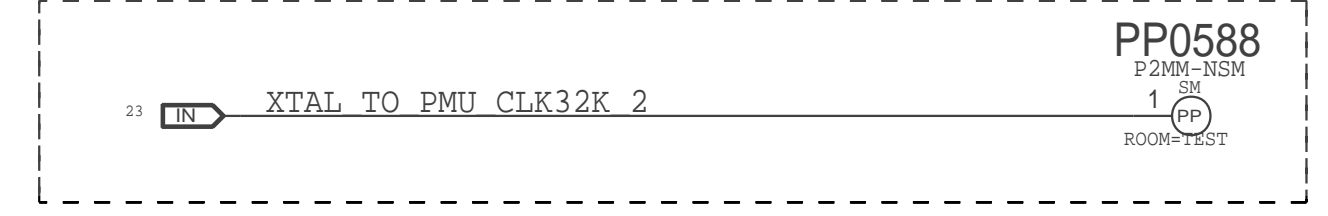
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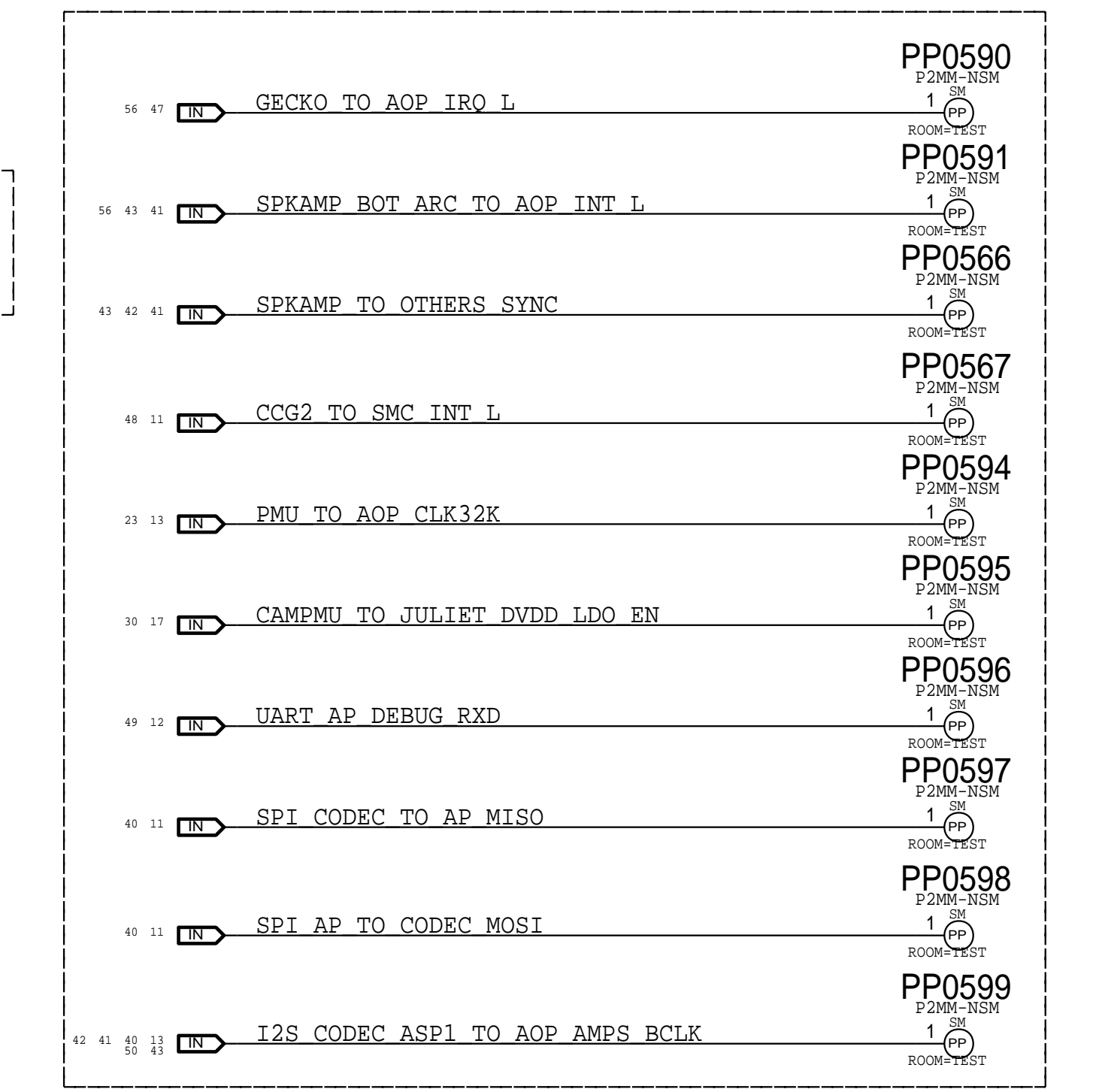
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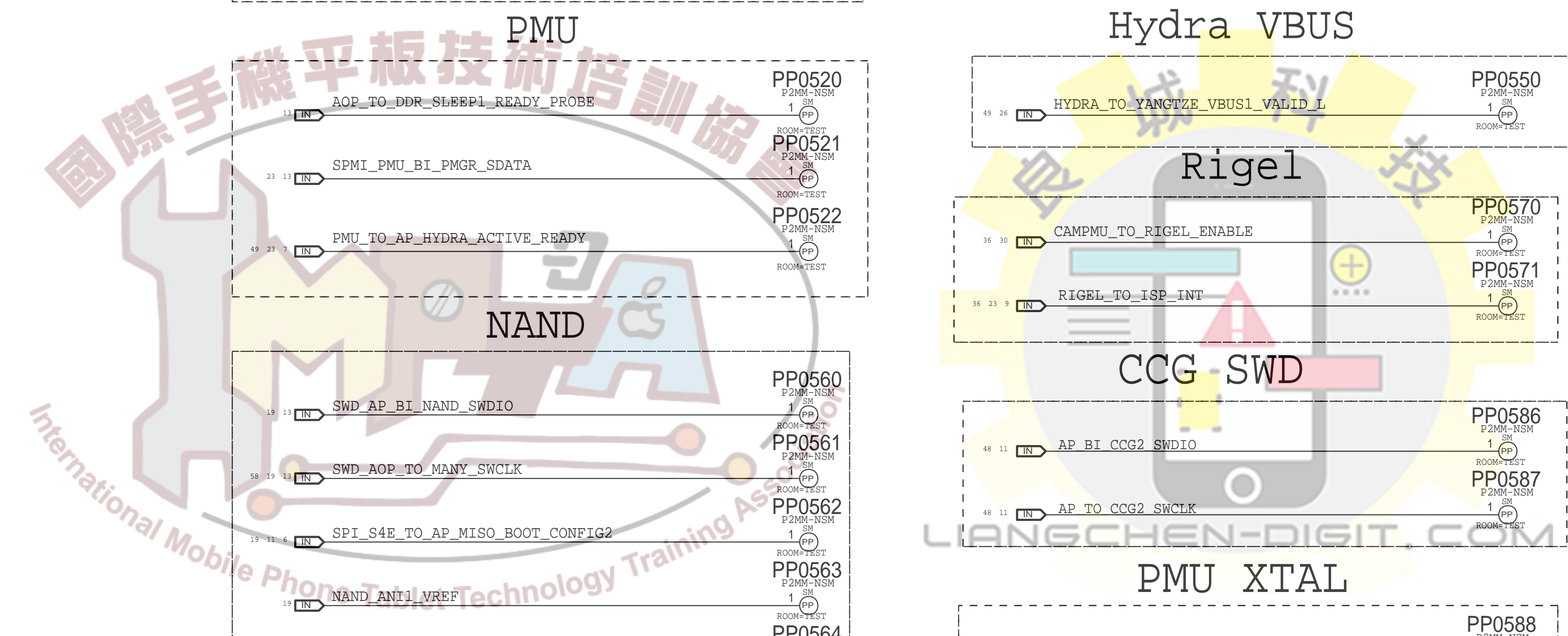
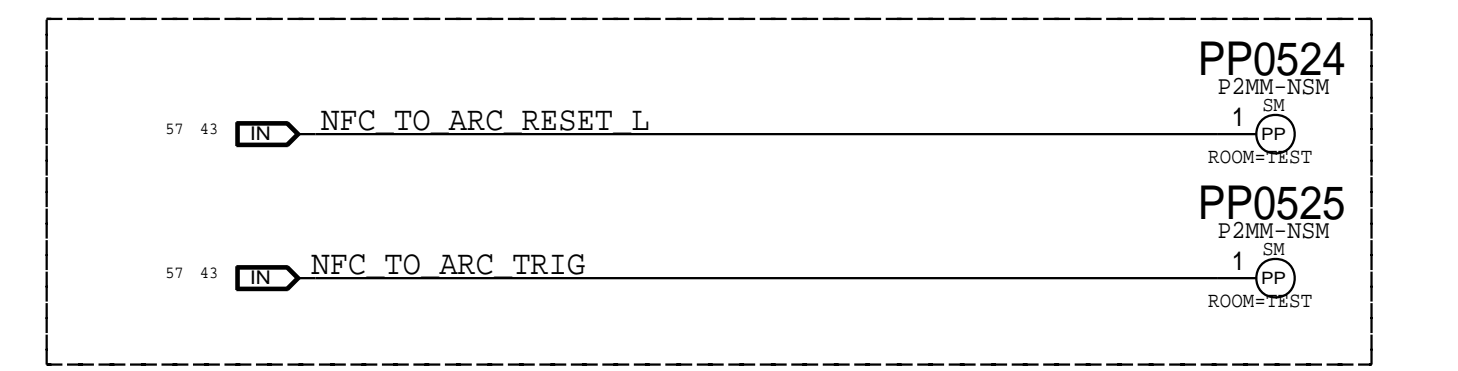
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VALIDATION PP'S



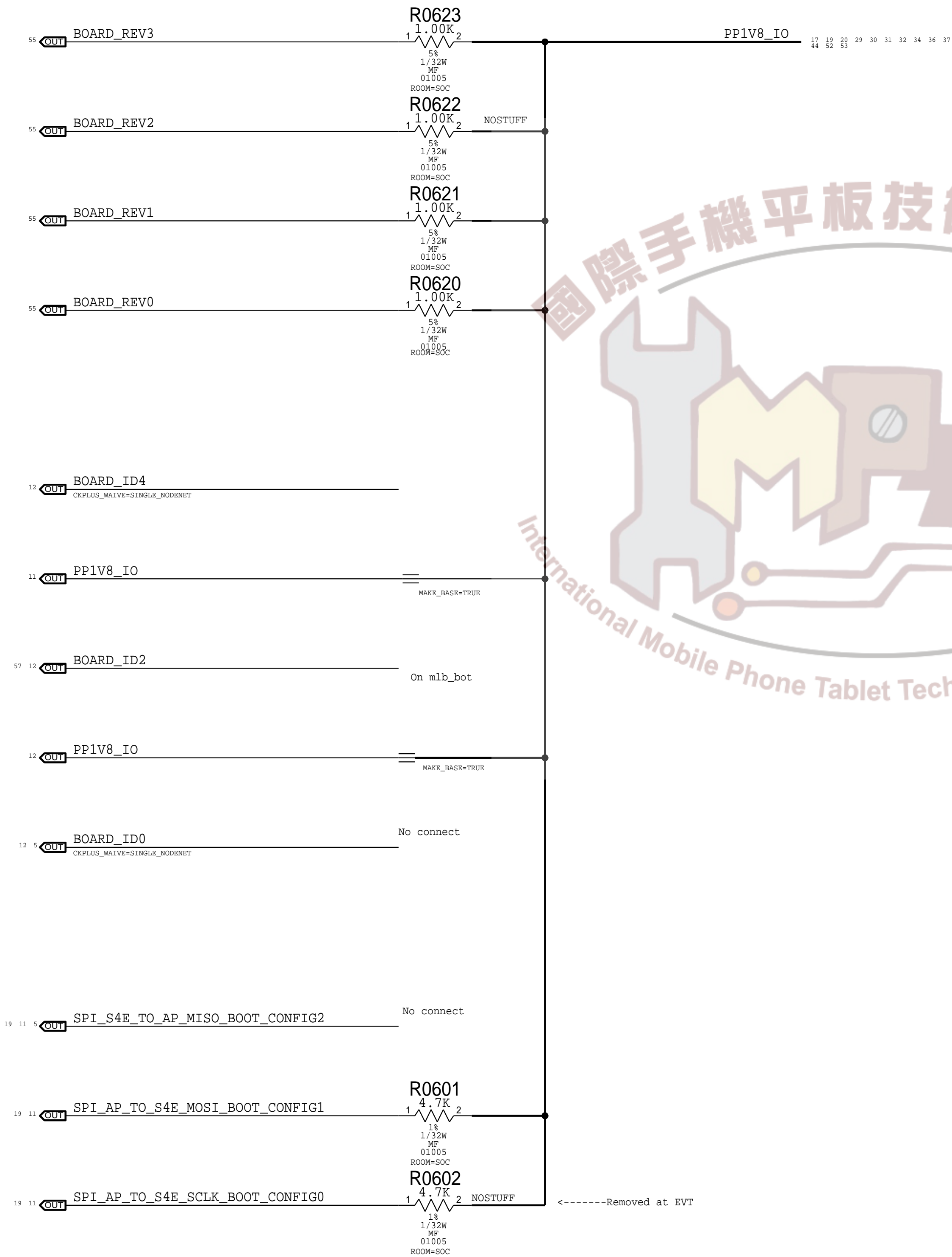
WALLET MODE



PAGE TITLE		
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Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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	PAGE	5 OF 85
	SHEET	5 OF 60

TOP BOARD ONLY CONFIGURATION IS D33 MLB MAV BOTTOM BOARD SELECTS ICE/MAV and D32/D33

BOOTSTRAPPING: BOARD REV
BOARD ID
BOOT CONFIG



SELECTED -->

DEFAULT -->

POR -->

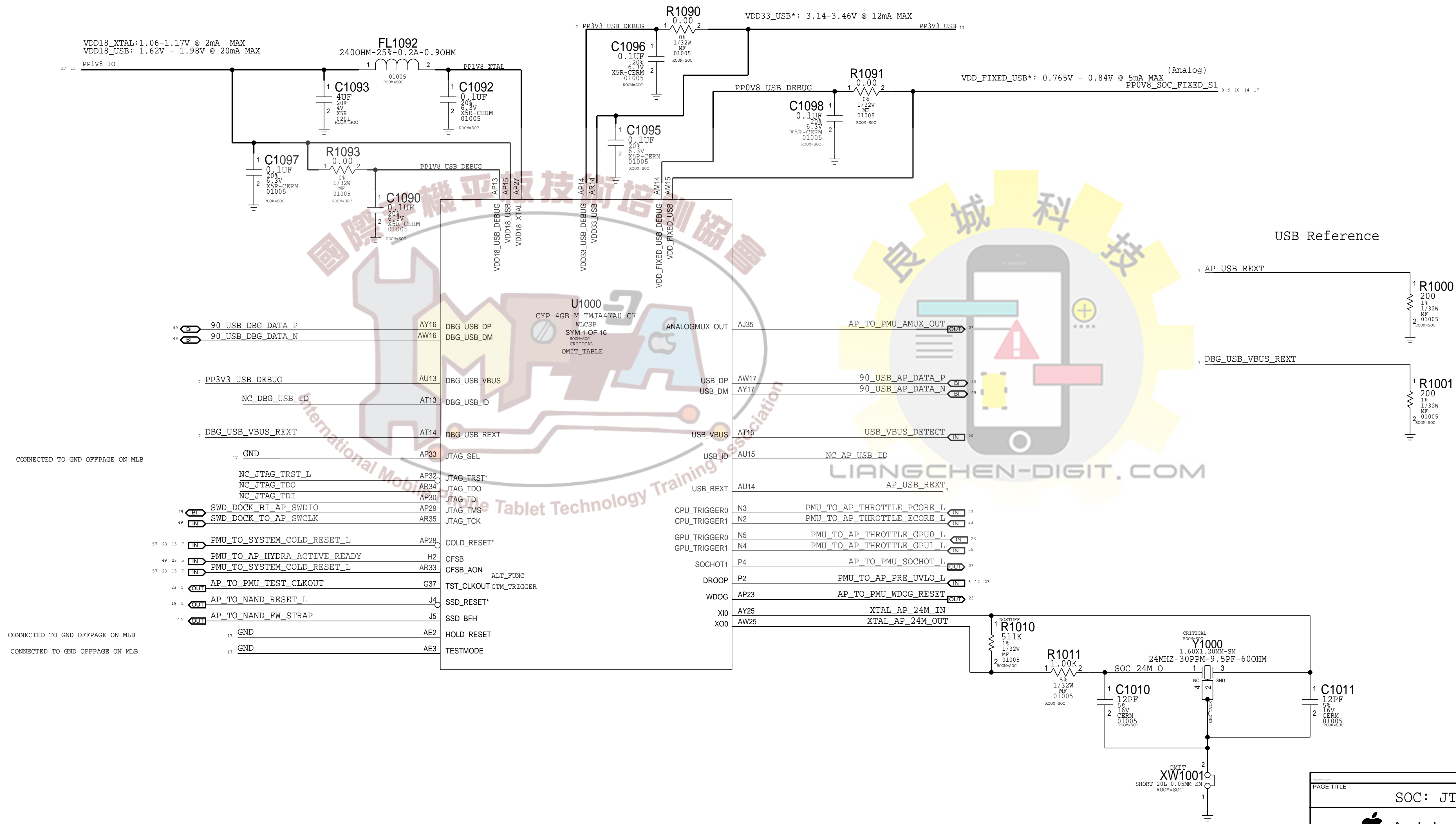
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Float = Low PU = High				
	3	2	1	0
	Build Major		Build Minor	
Proto 1	1	1	1	1
(Spare)	1	1	1	0
Proto 2	1	1	0	1
(Spare)	1	1	0	0
EVT	1	0	1	1
(Spare)	1	0	1	0
Carrier	0	1	1	1
(Spare)	0	1	1	0
DVT	0	0	1	1
(Spare)	0	0	1	0
(Spare)	0	0	0	1
PVT	0	0	0	0

Board ID[4:0]					
Float = Low PU = High					
	4	3	2	1	0
	Denali = 0, Imola = 1		Mav = 0, Ice = 1		00=Open 01=D33 10=N84 11=D32
	MLB = 0, Dev = 1				
D32 MLB	0	0	1	1	0
D32p MLB	1	0	1	1	0
D32 Dev	0	0	1	1	1
D32p Dev	1	0	1	1	1
D321 MLB	0	1	1	1	0
D321p MLB	1	1	1	1	0
D321 Dev	0	1	1	1	1
D321p Dev	1	1	1	1	1
D33 MLB	0	0	0	1	0
D33p MLB	1	0	0	1	0
D33 Dev	0	0	0	1	1
D33p Dev	1	0	0	1	1
D331 MLB	0	1	0	1	0
D331p MLB	1	1	0	1	0
D331 Dev	0	1	0	1	1
D331p Dev	1	1	0	1	1

Boot Config [2:0]			
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	2	1	0
SPI NOR on SPI0 12 MHz	0	0	0
SPI NOR on SPI0 12 MHz Test	0	0	1
SPI NAND on SPI0 12 MHz	0	1	0
SPI NAND on SPI0 12 MHz Test	0	1	1
SPI NOR on SPI0 40 MHz	1	0	0
SPI NOR on SPI0 40 MHz Test	1	0	1
SPI NOR on SPI0 6 MHz	1	1	0
SPI NOR on SPI0 6 MHz Test	1	1	1

PAGE TITLE		
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	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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SOC - USB, JTAG, XTAL



CONNECTED TO GND OFFPAGE ON MLB

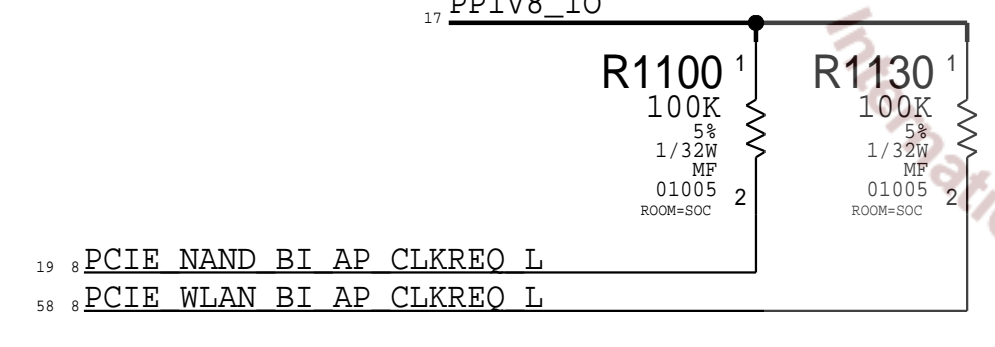
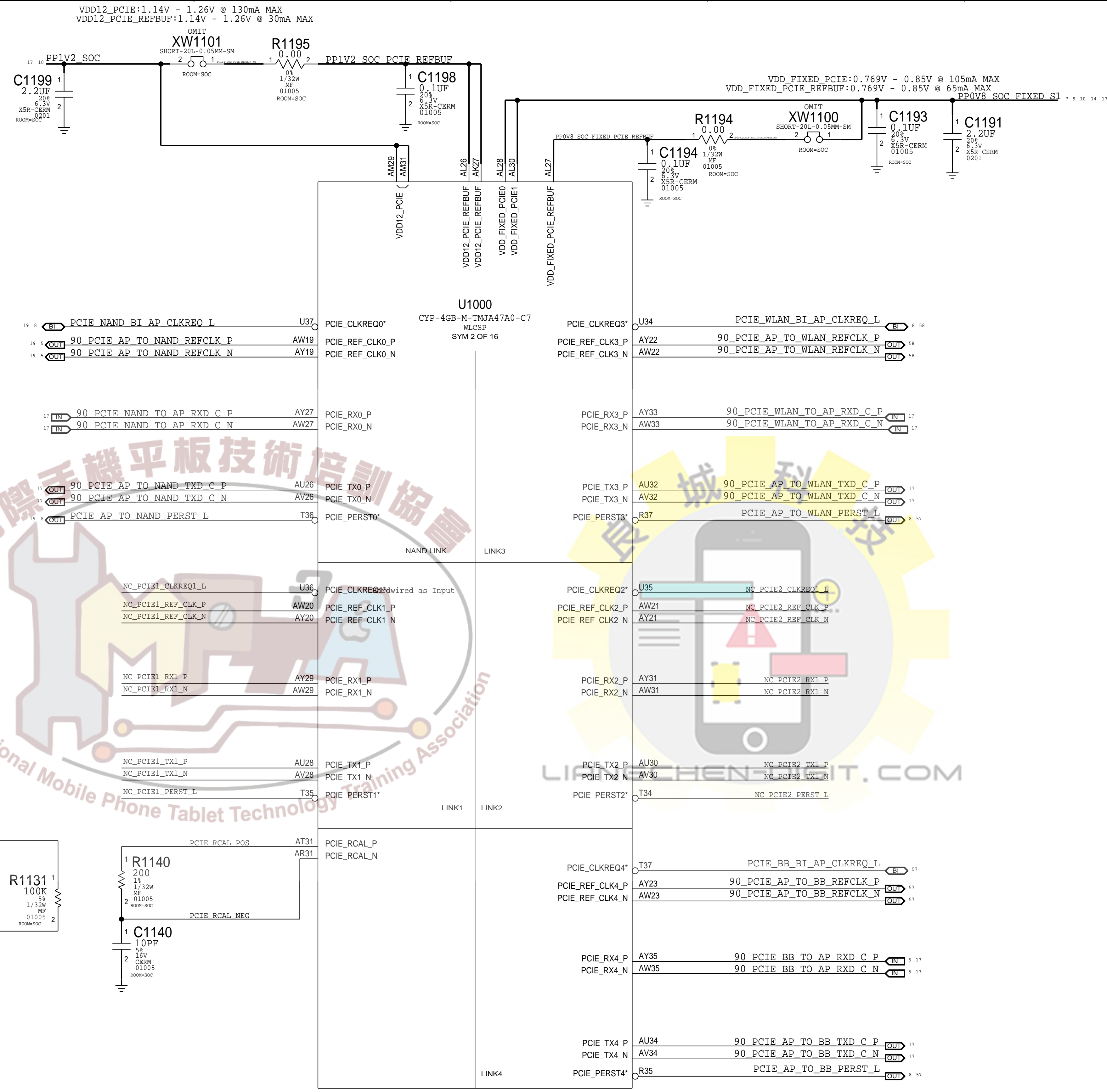
CONNECTED TO GND OFFPAGE ON MLB

CONNECTED TO GND OFFPAGE ON MLB

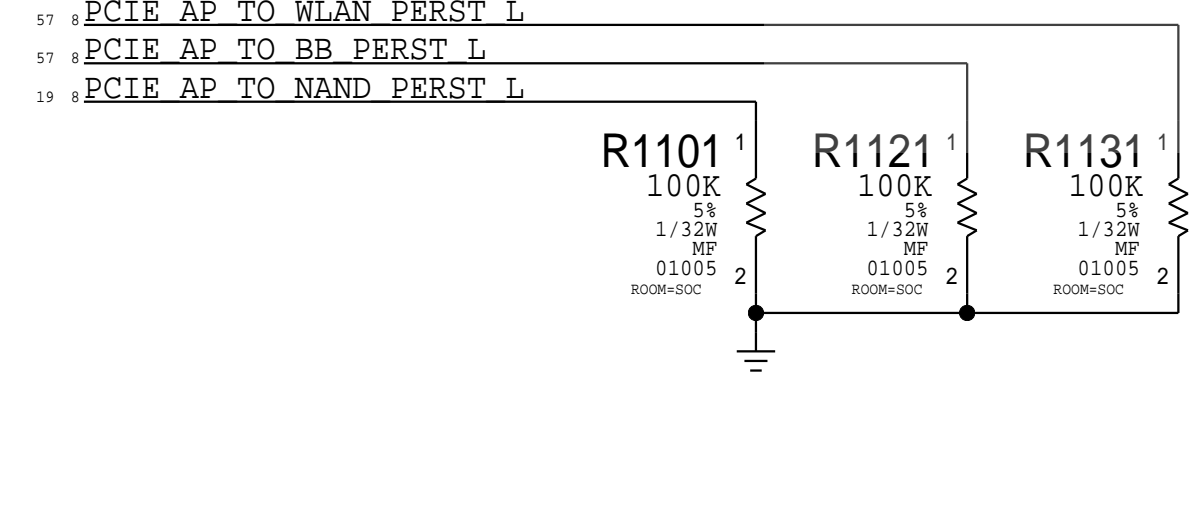
USB Reference

PAGE TITLE		
SOC: JTAG, USB, XTAL		
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SHEET	7 OF 60	

SOC - PCIE



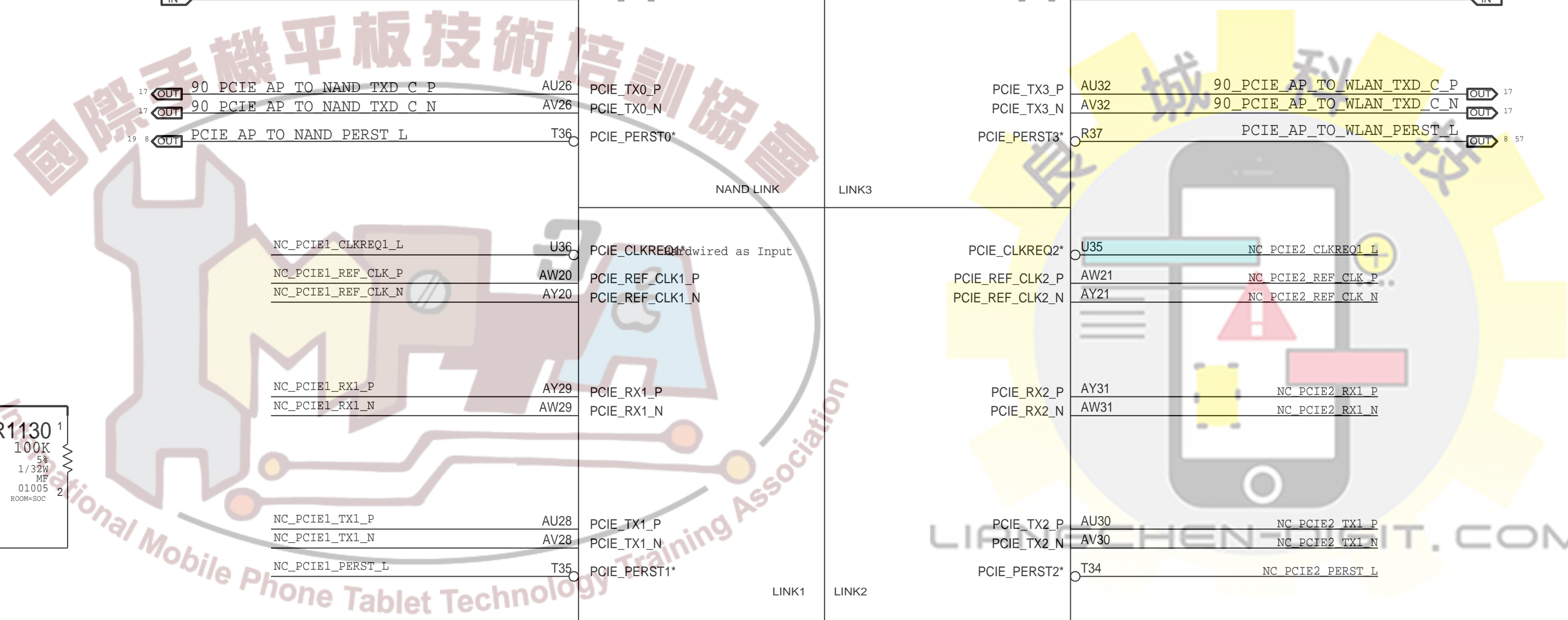
PCie Reset Pull-Downs



PCIE LINK 0

PCIE LINK 3

PCIE LINK 4



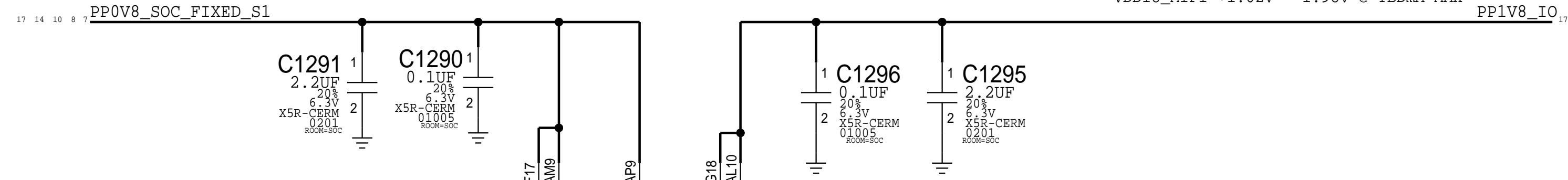
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SOC - MIPI

NEED MIPI LANE AND POLAIRTY SWAPPING MAP

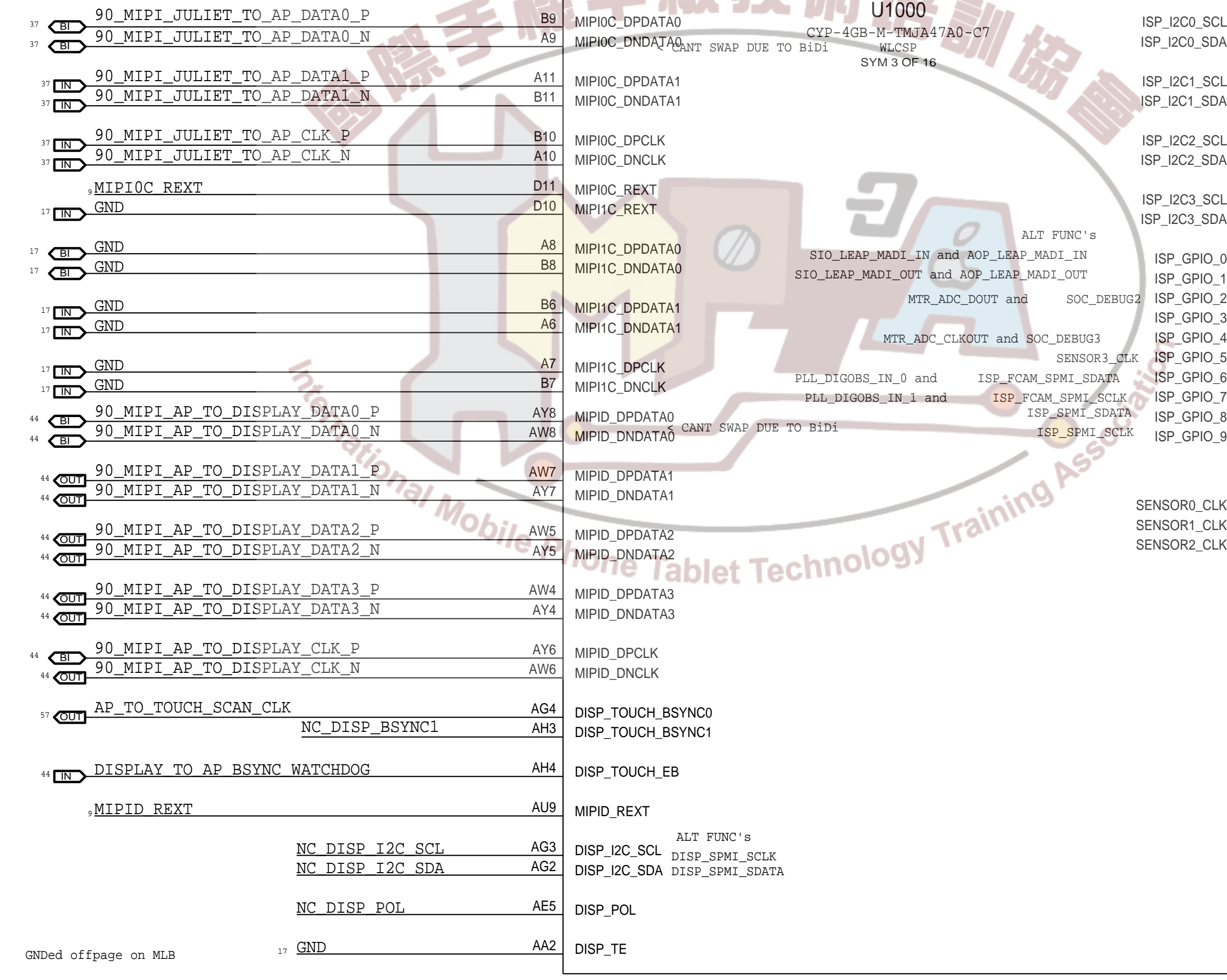
(Analog)
 VDD_FIXED_MIPID 0.769V - 0.85V @ TBDmA MAX
 VDD_FIXED_MIPIC 0.769V - 0.85V @ TBDmA MAX
 VDD_FIXED_MIPID_PLL 0.769V - 0.85V @ TBDmA MAX

VDD18_MIPI*:1.62V - 1.98V @ TBDmA MAX



MIPI lanes can all flip polarity for routing purposes

Juliet MIPI

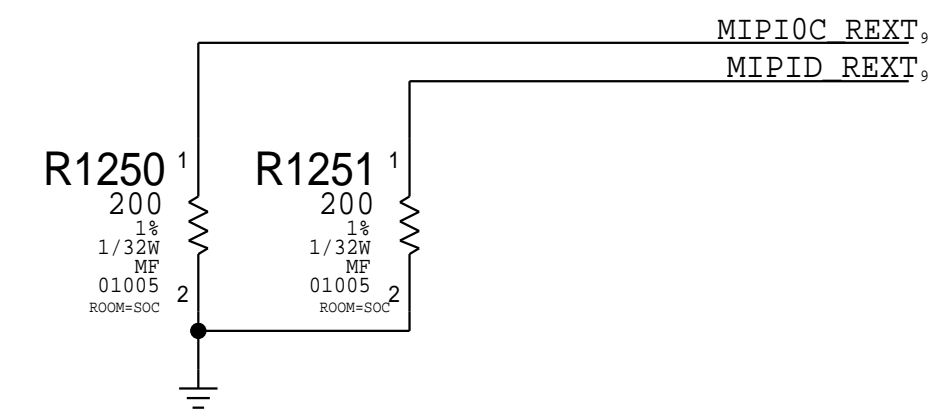


GNDed offpage on MLB

Display MIPI

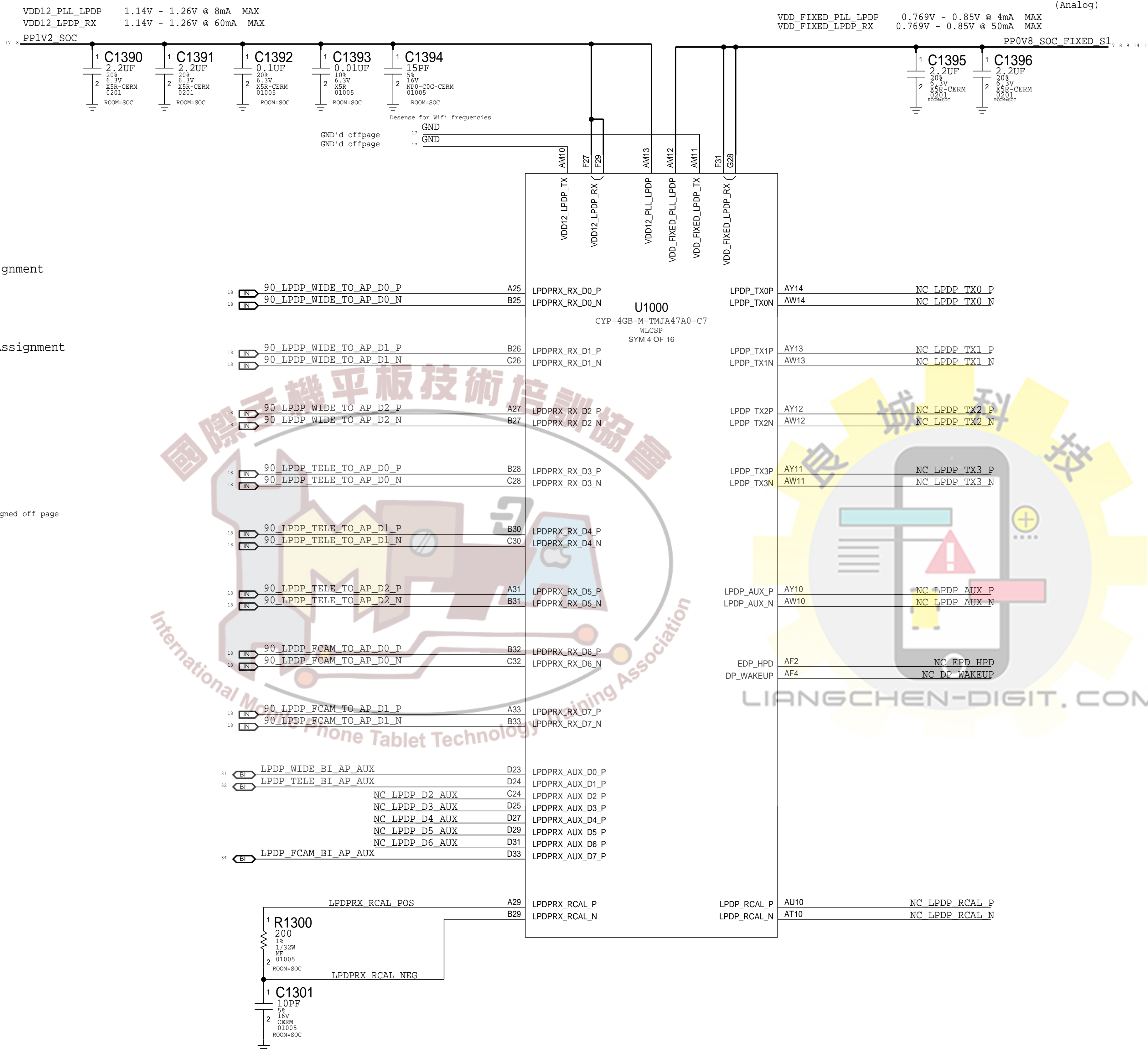
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MIPI Reference



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SOC: MIPI		
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	SHEET	9 OF 60

SOC - LPDP



Dan LPDP Lane Assignment

Wide: 0-2
 Tele: 3-5
 Fcam: 6-7

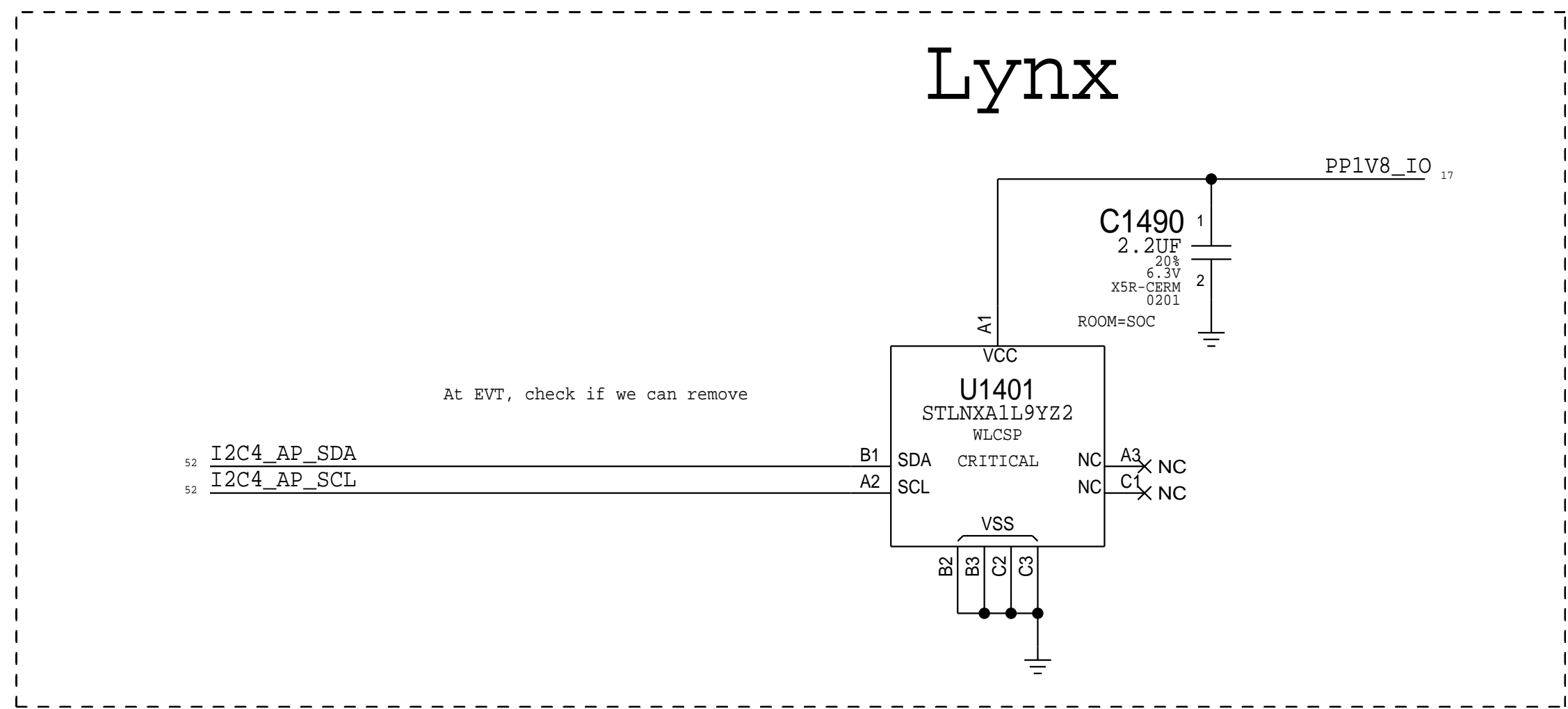
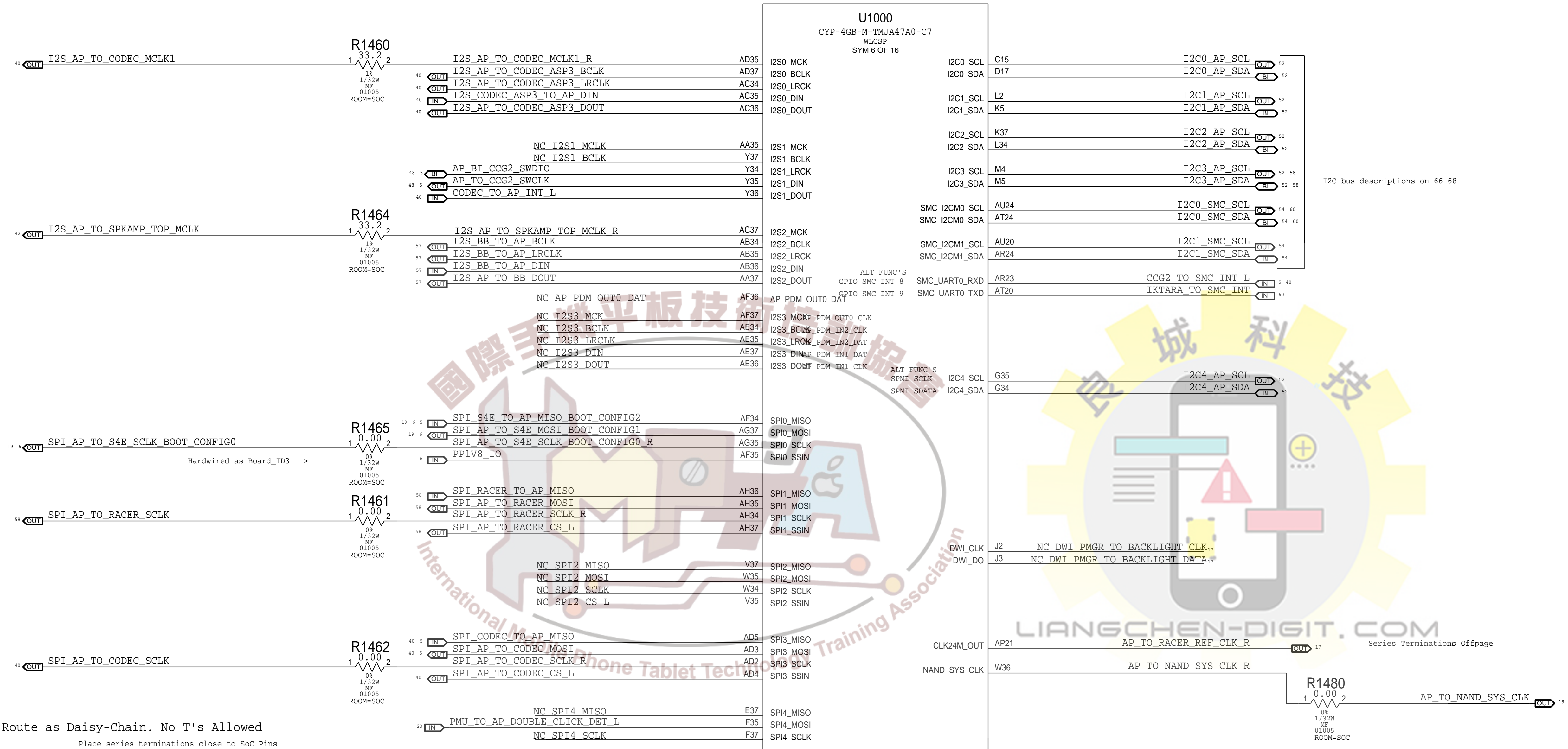
Justin LPDP Lane Assignment

Wide: 2-4
 Tele: 5-7
 Fcam: 0-1

LPD Assigned off page

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SOC: LPDP		
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SHEET	10 OF 60	

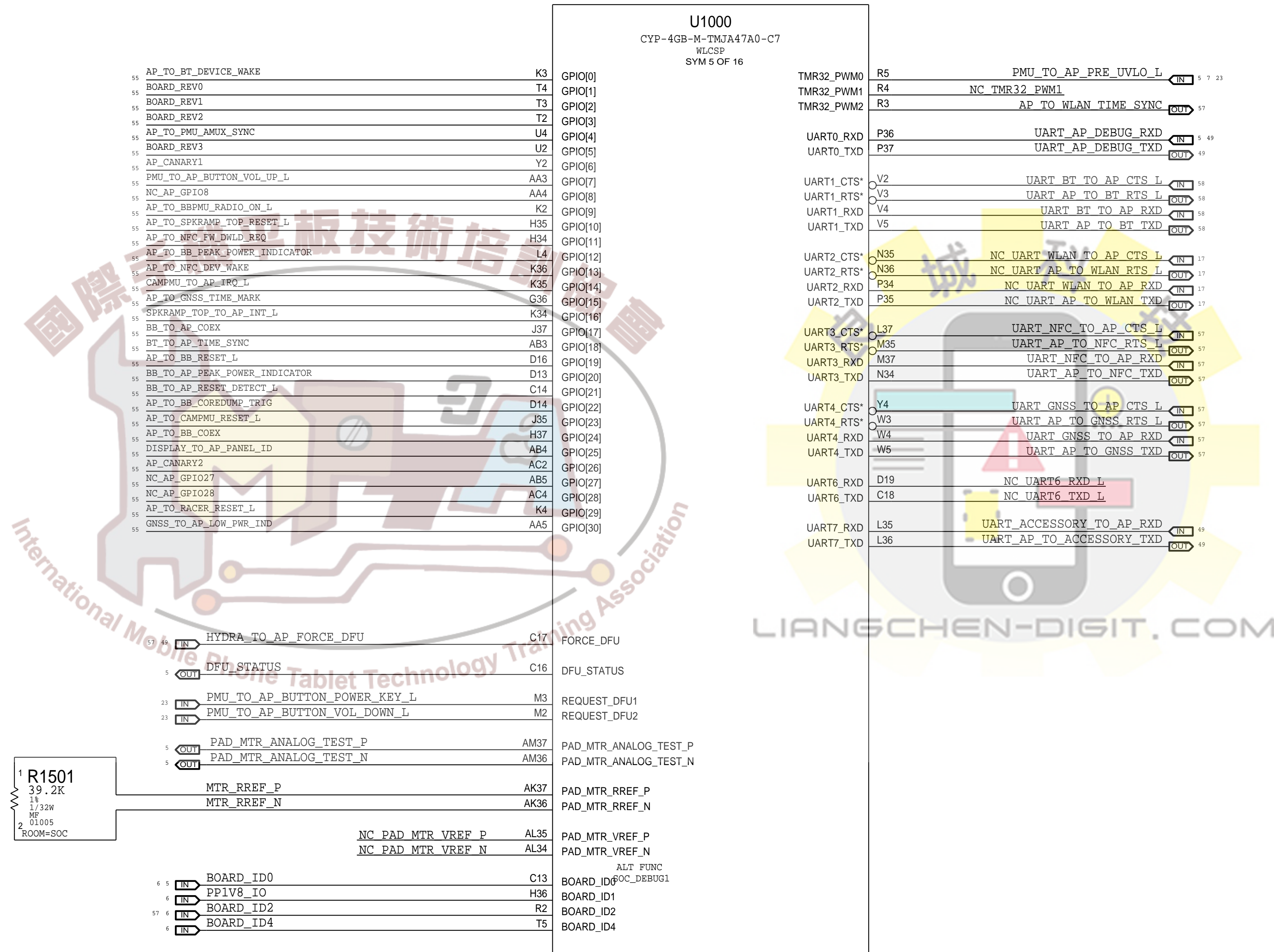
SOC - SERIAL INTERFACES



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SOC: SERIAL		
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	SHEET	11 OF 60

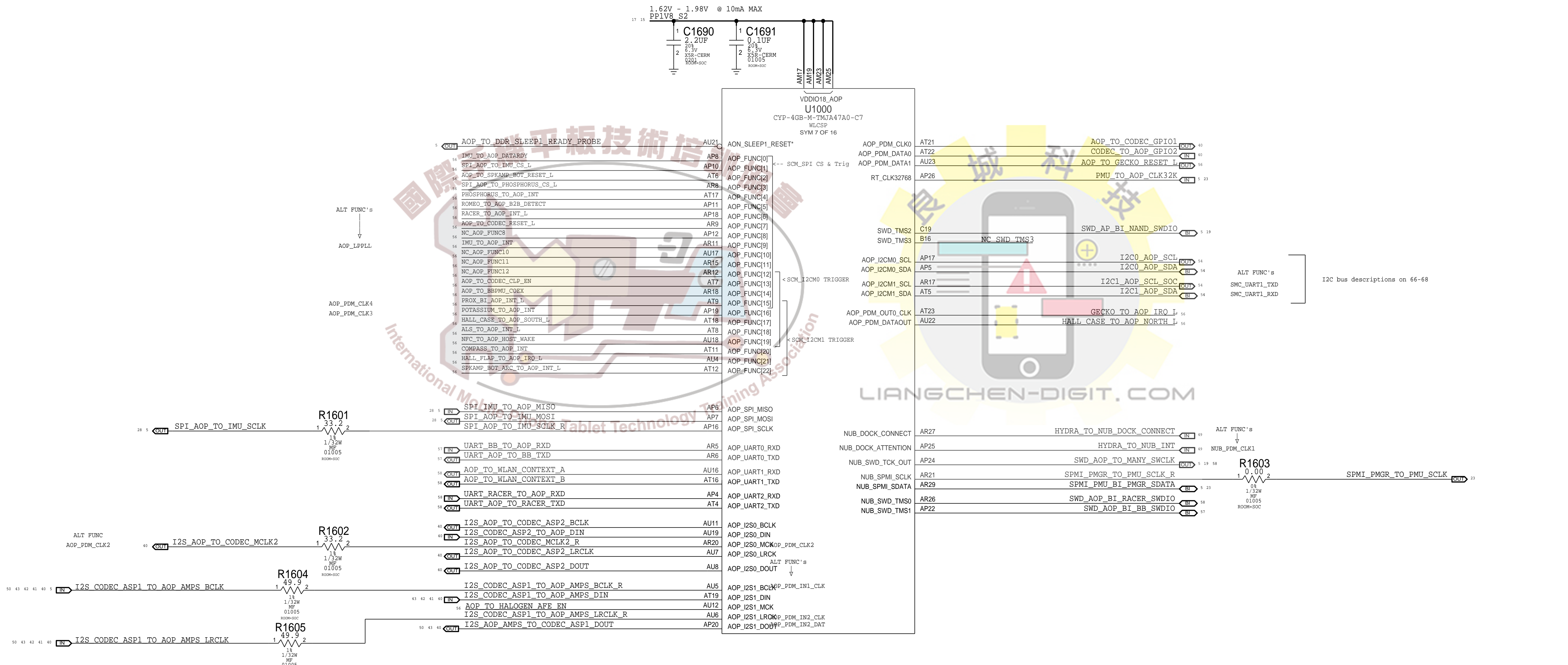
SOC - GPIO INTERFACES

GPIOs are wired on page 70



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SOC: GPIO & UART		
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SOC - AOP



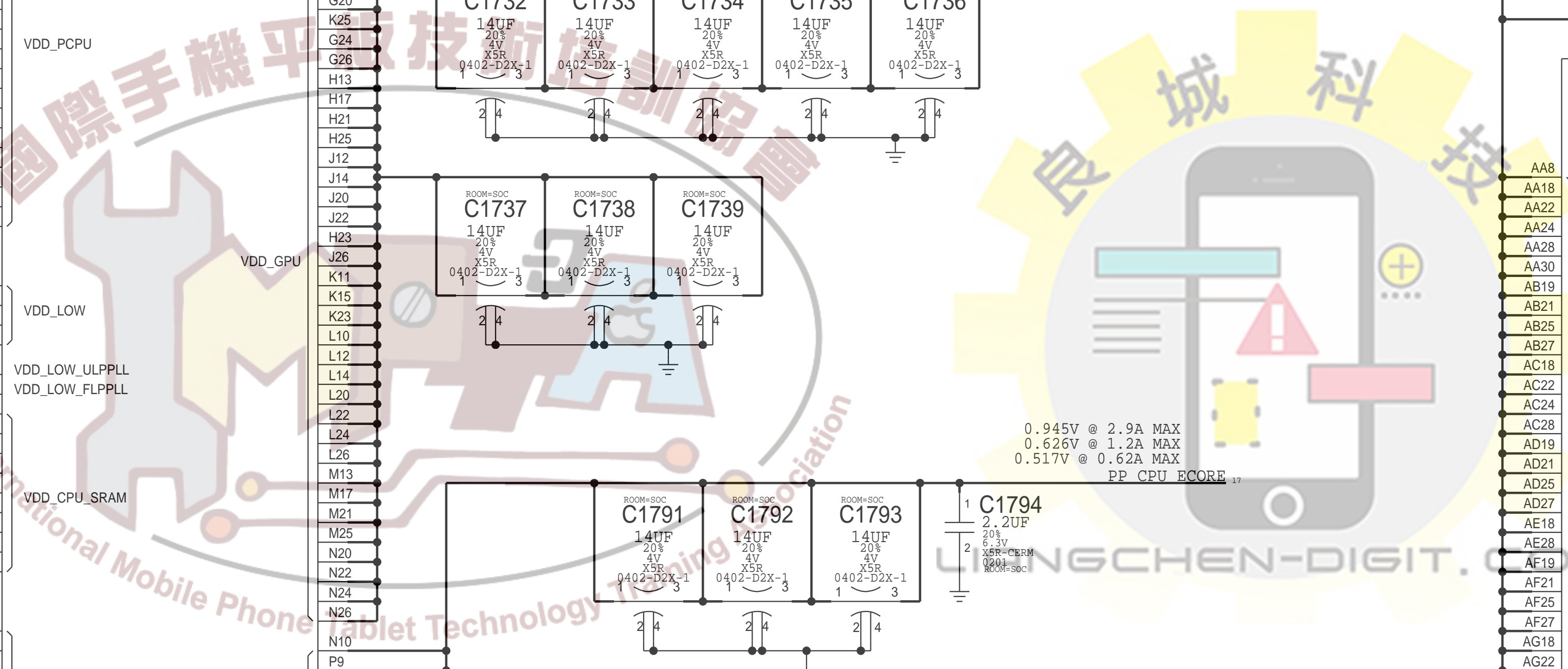
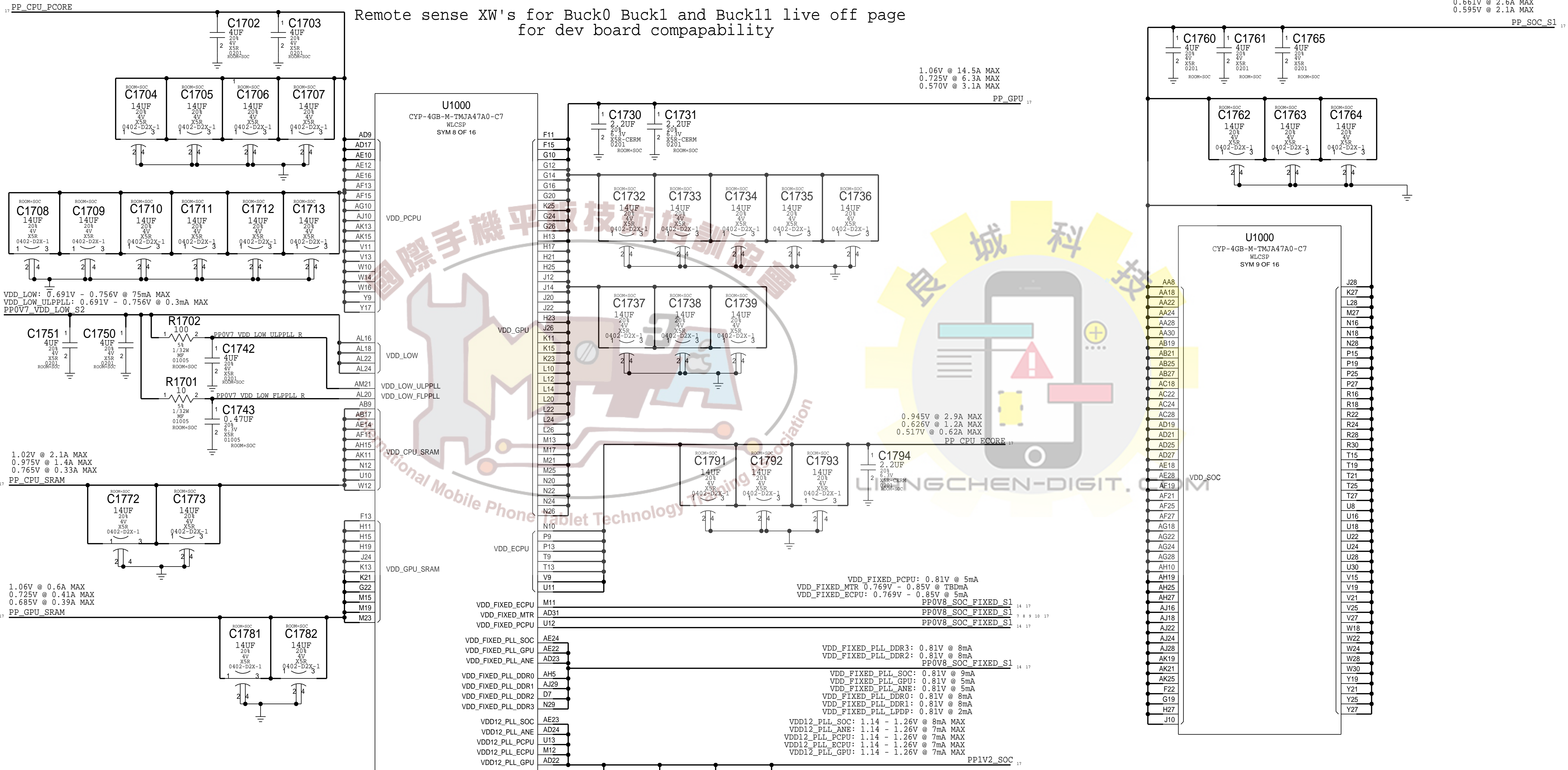
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SHEET	13 OF 60	

SOC - CPU, GPU & SOC RAILS

1.06V @ 13.8A MAX
 0.905V @ 12.9A MAX
 0.527V @ 2.4A MAX

0.783V @ 4.2A MAX
 0.661V @ 2.6A MAX
 0.595V @ 2.1A MAX

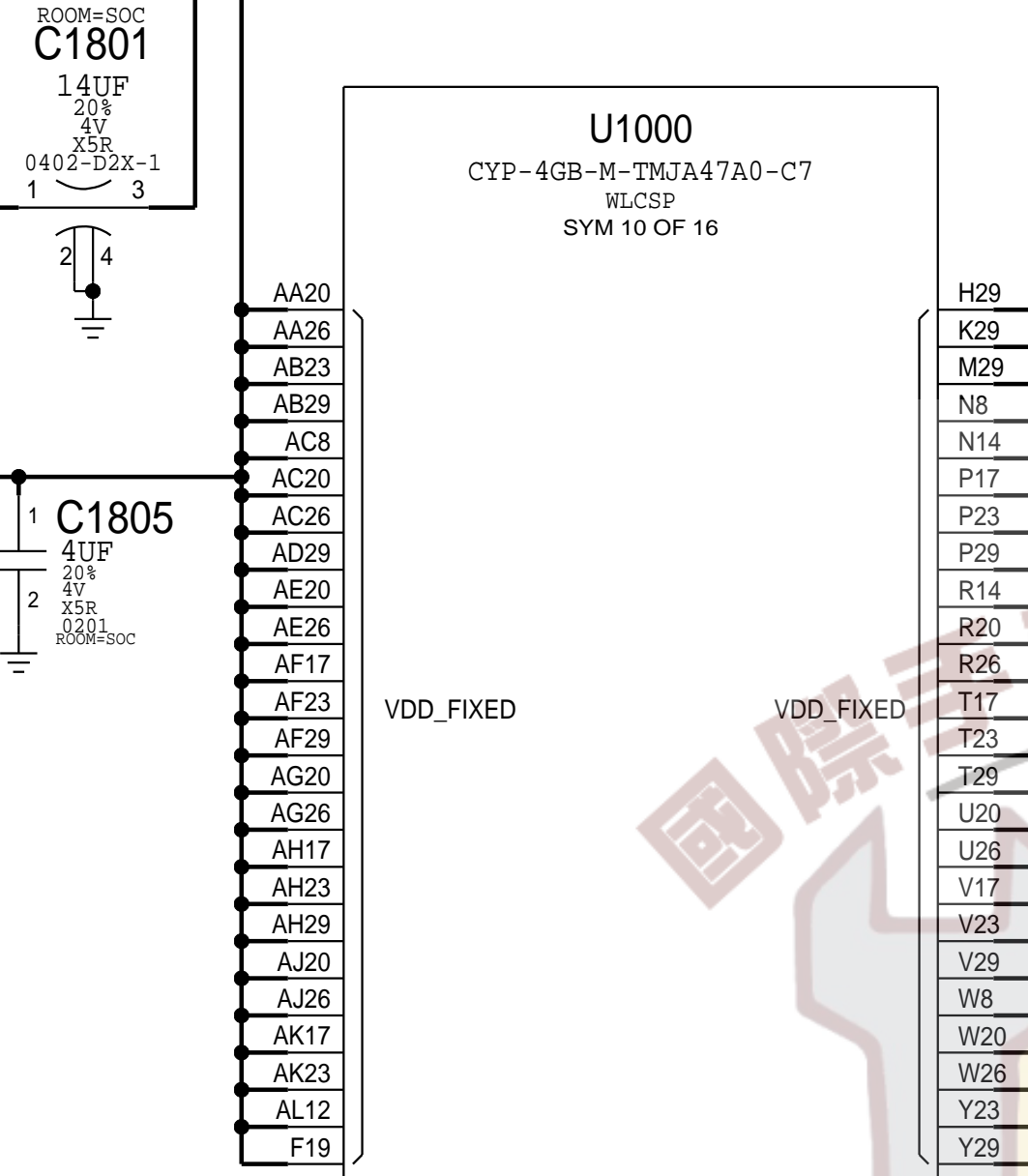
Remote sense XW's for Buck0 Buck1 and Buck11 live off page for dev board compapability



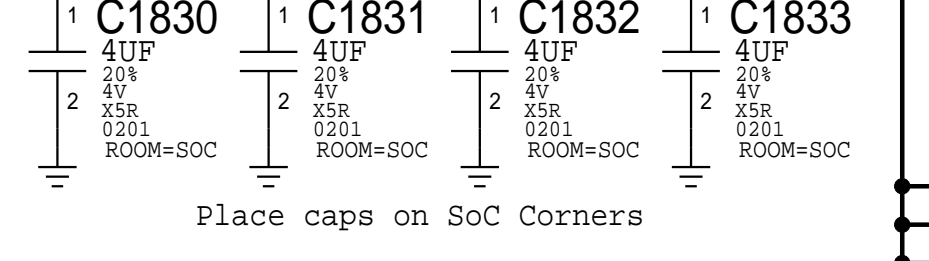
PAGE TITLE		
SOC: POWER (1/3)		
Apple Inc.	DRAWING NUMBER	051-02545
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	SHEET	14 OF 60

SOC - CPU, GPU & SOC RAILS

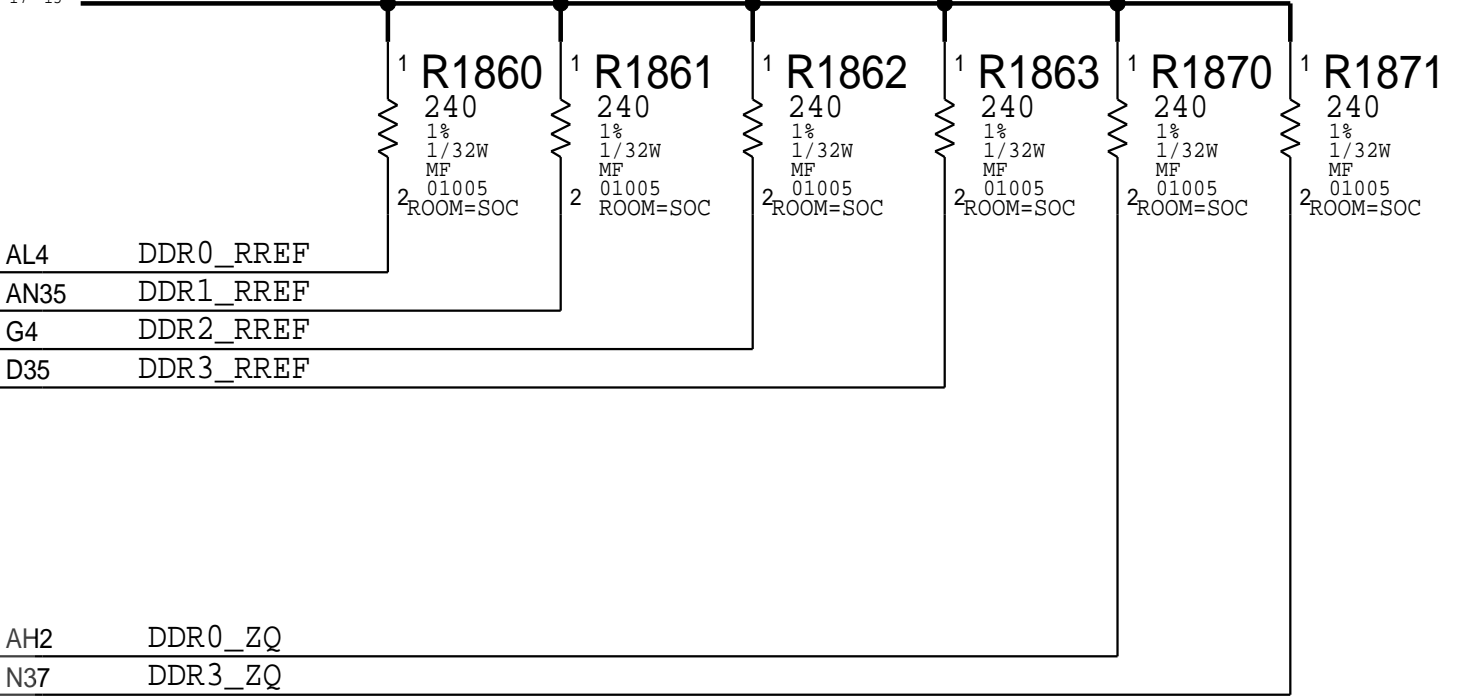
0.8V @ 900mA MAX
PP0V8_SOC_FIXED_S1



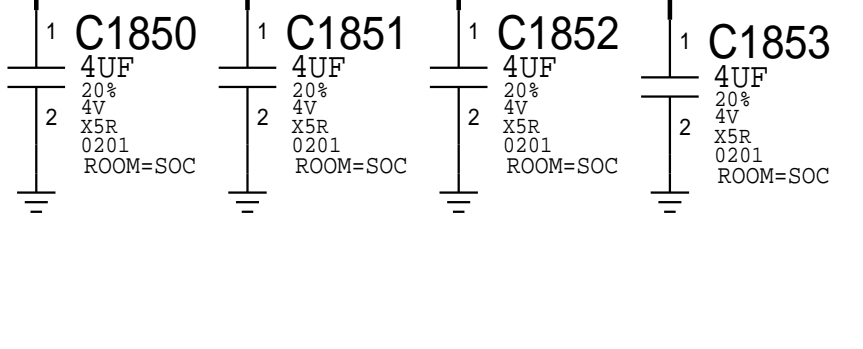
VDDQL* TOTAL: 0.573V - 0.63V @ 620mA MAX
PP0V6_VDDQL_S1



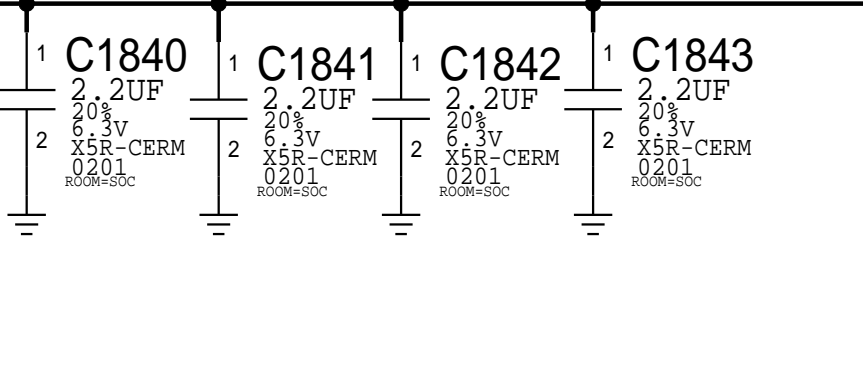
DDR IMPEDANCE CONTROL



VDD1_DDR*: 1.70V - 1.95V @ 220mA MAX
PP1V8_S2



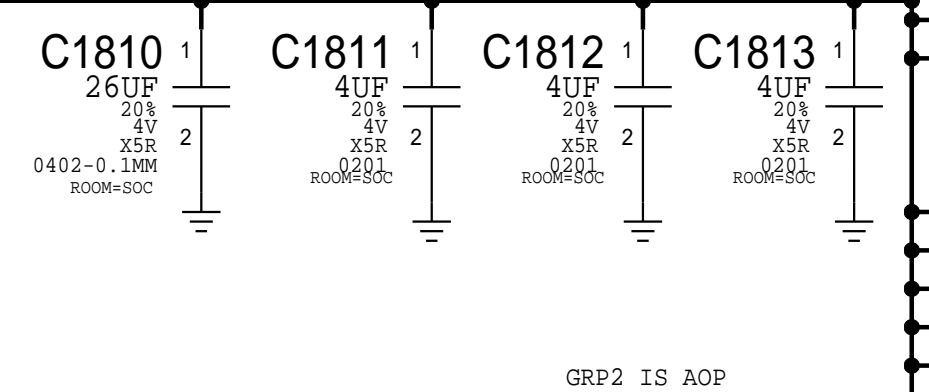
VDD2_DDR*: 1.06V - 1.17V @ 2.2A MAX
PP1V1_S2



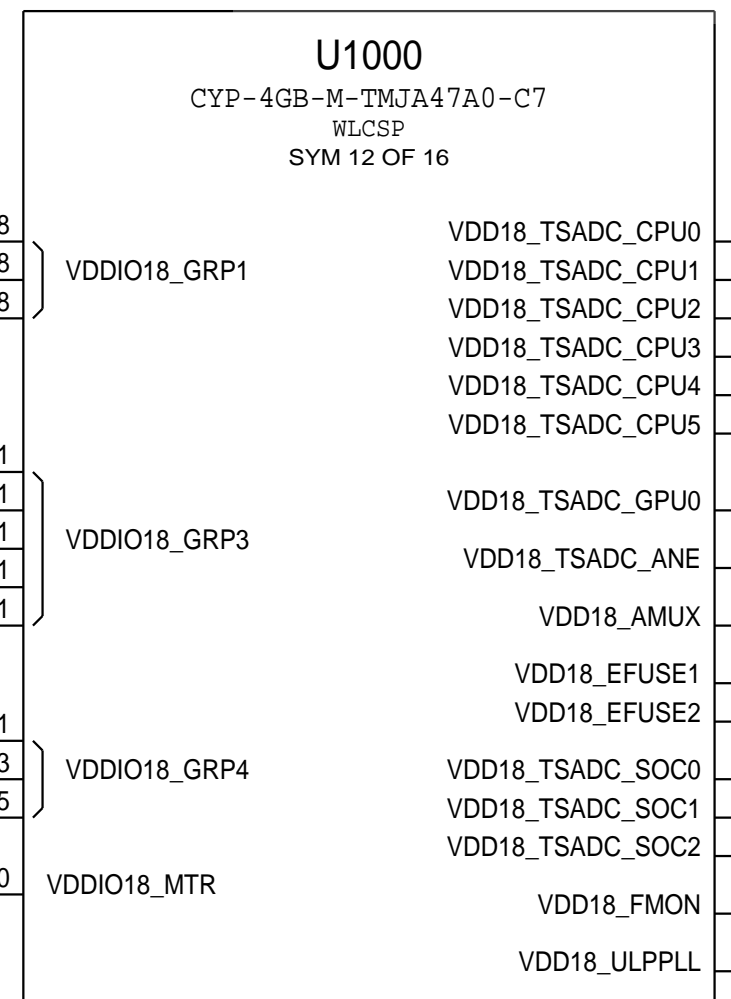
VDD12_PLL_DDR* Total: 1.14V - 1.26V @ 10mA MAX
PP1V2_SOC



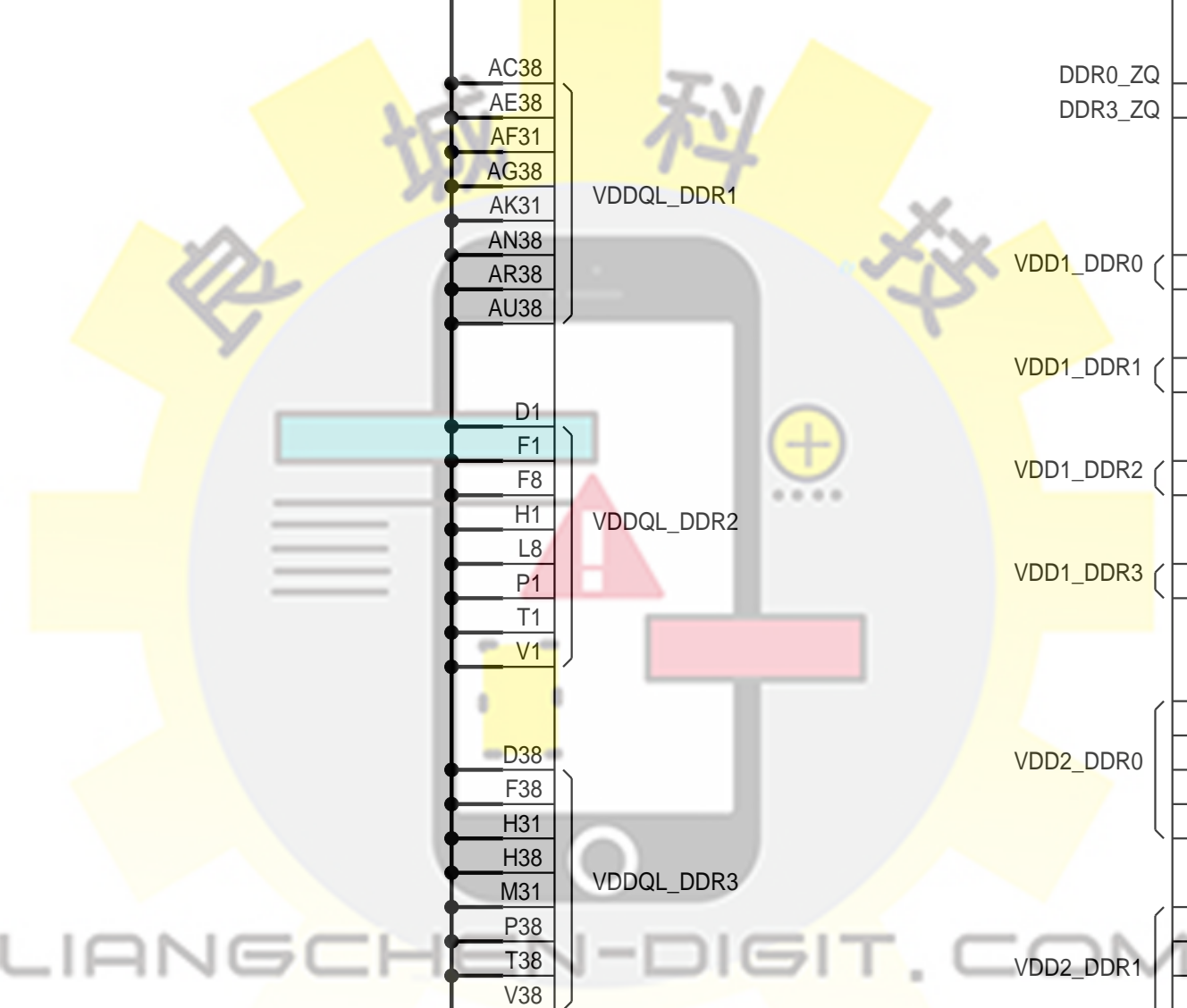
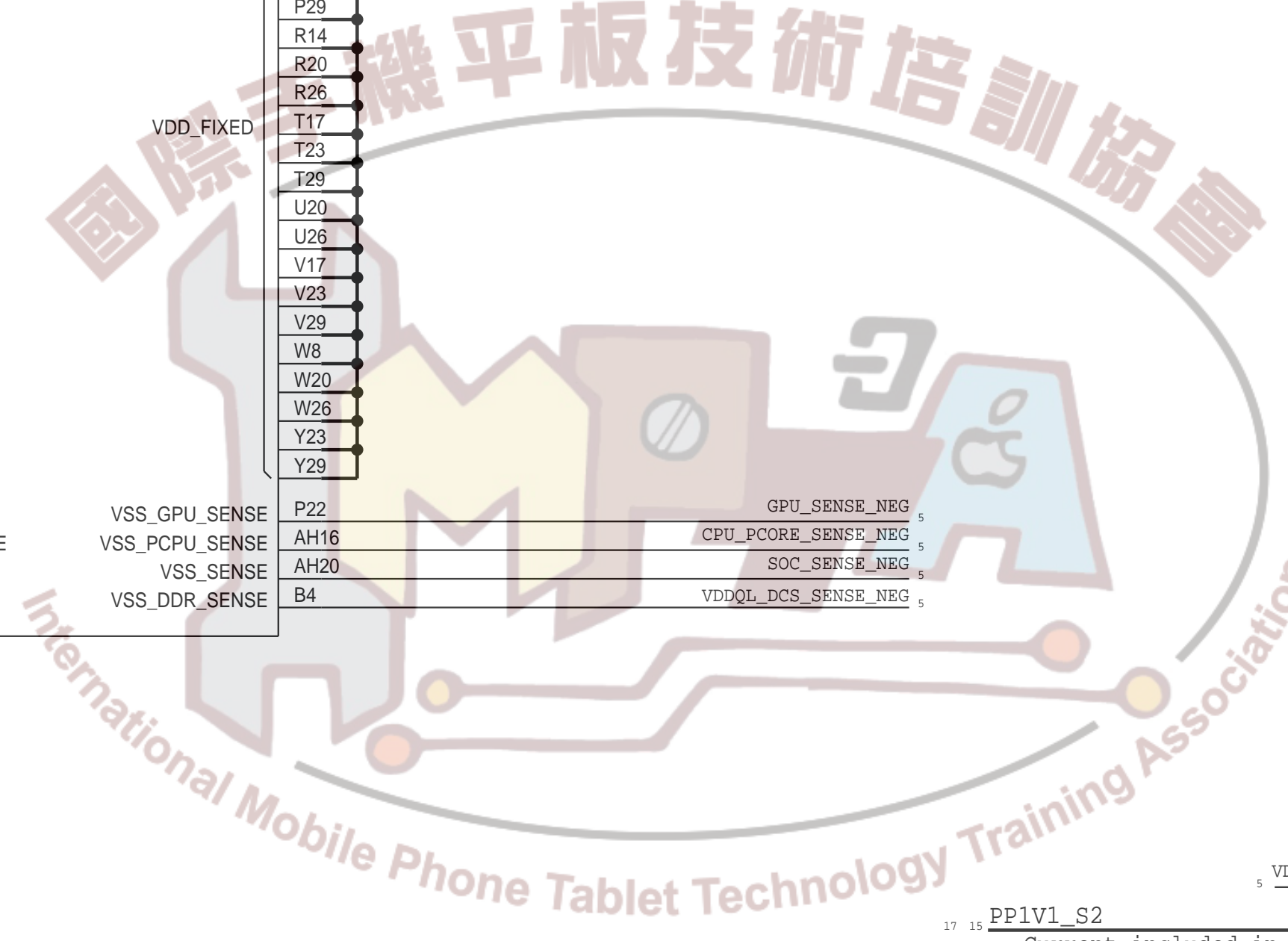
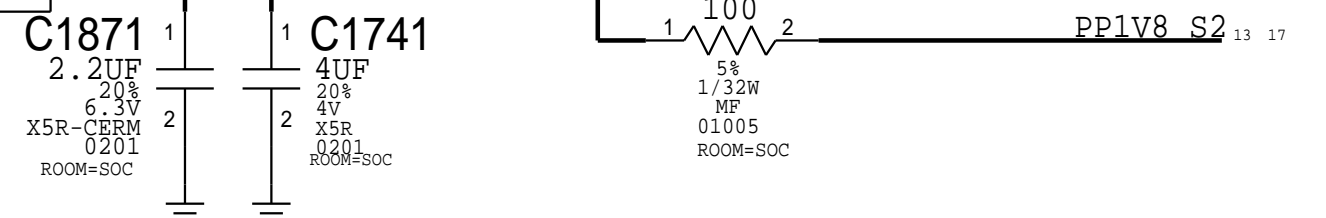
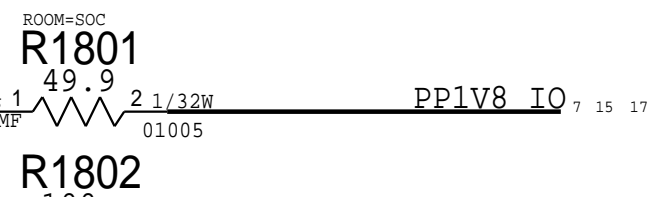
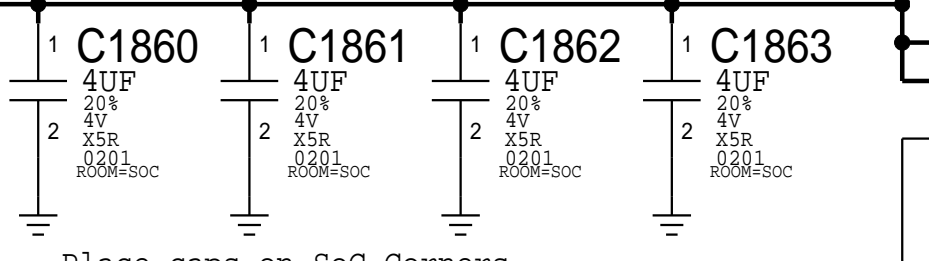
1.8V @ 75mA MAX (GRP)
1.8V @ 0.03mA MAX (MTR)
PP1V8_IO



1.8V @ 5.3mA MAX (CPU)
1.8V @ 1.1mA MAX (GPU)
1.8V @ 3.3mA MAX (SOC)
1.8V @ 0.3mA MAX (AMUX)
1.8V @ 1.5mA MAX (TSADC_SOC)
1.8V @ 1mA MAX (FMON)
1.8V @ 0.03mA MAX (ULPPLL)

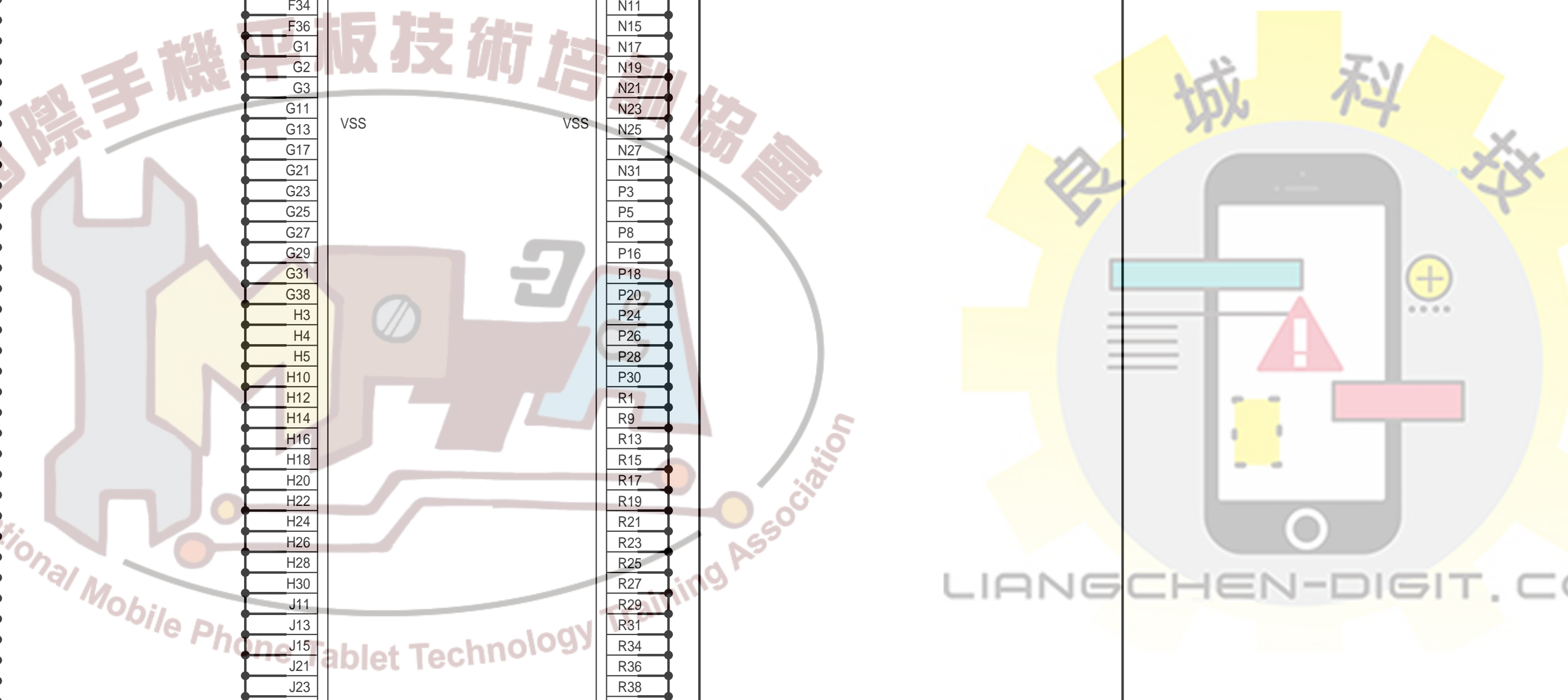
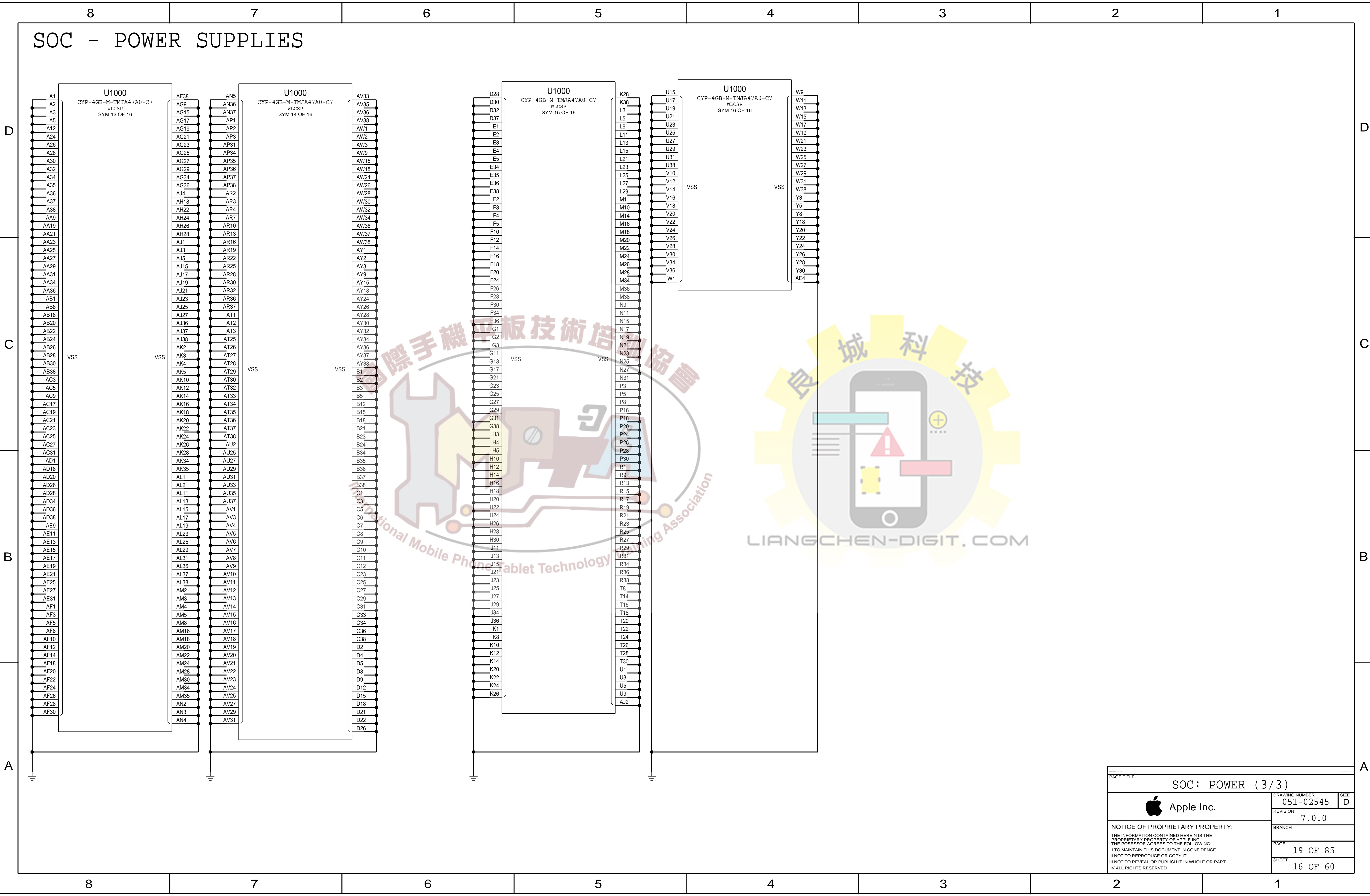


0.912V @ 950mA MAX
0.761V @ 600mA MAX
0.631V @ 350mA MAX
PP_DCS_S1



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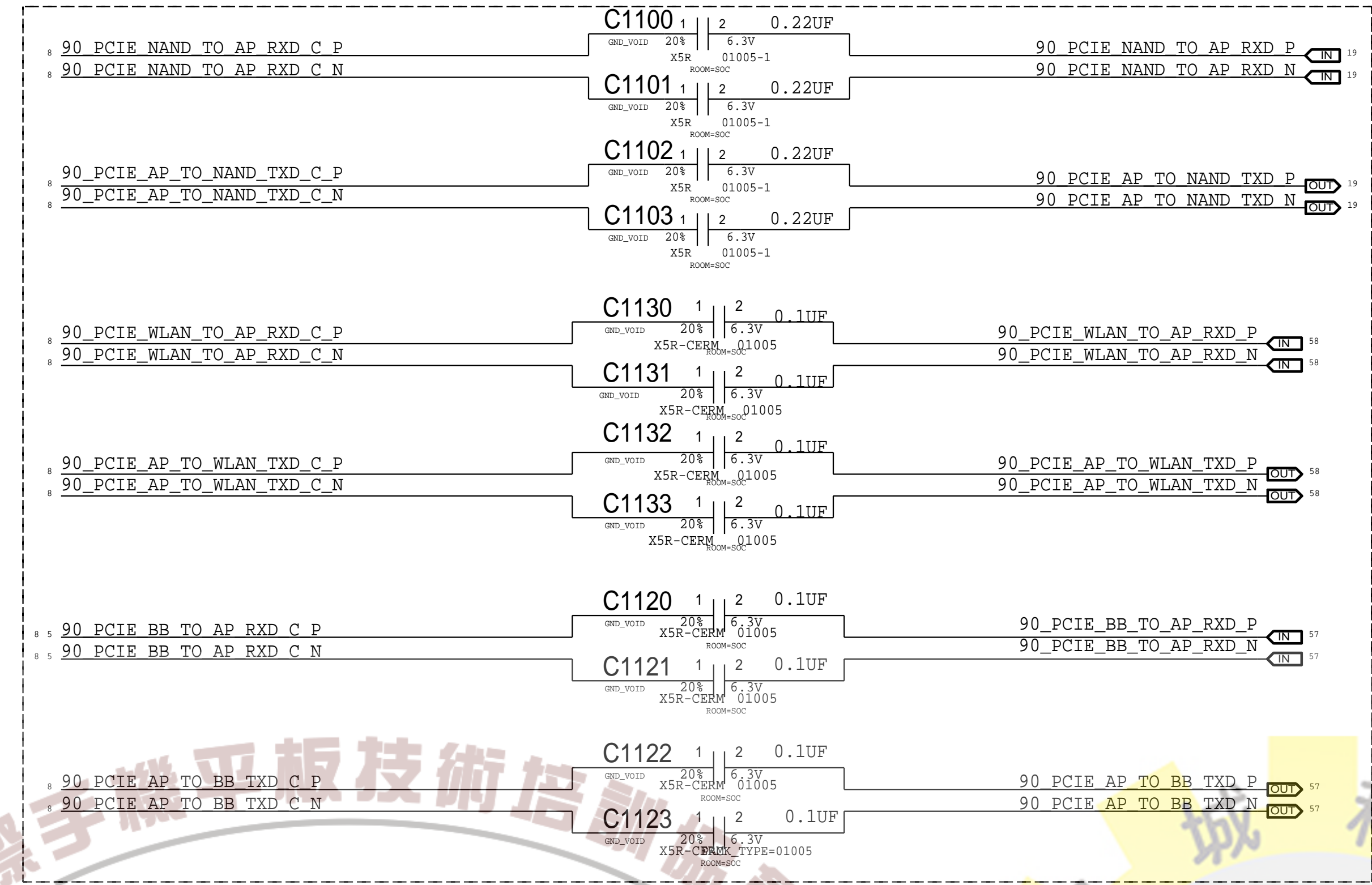
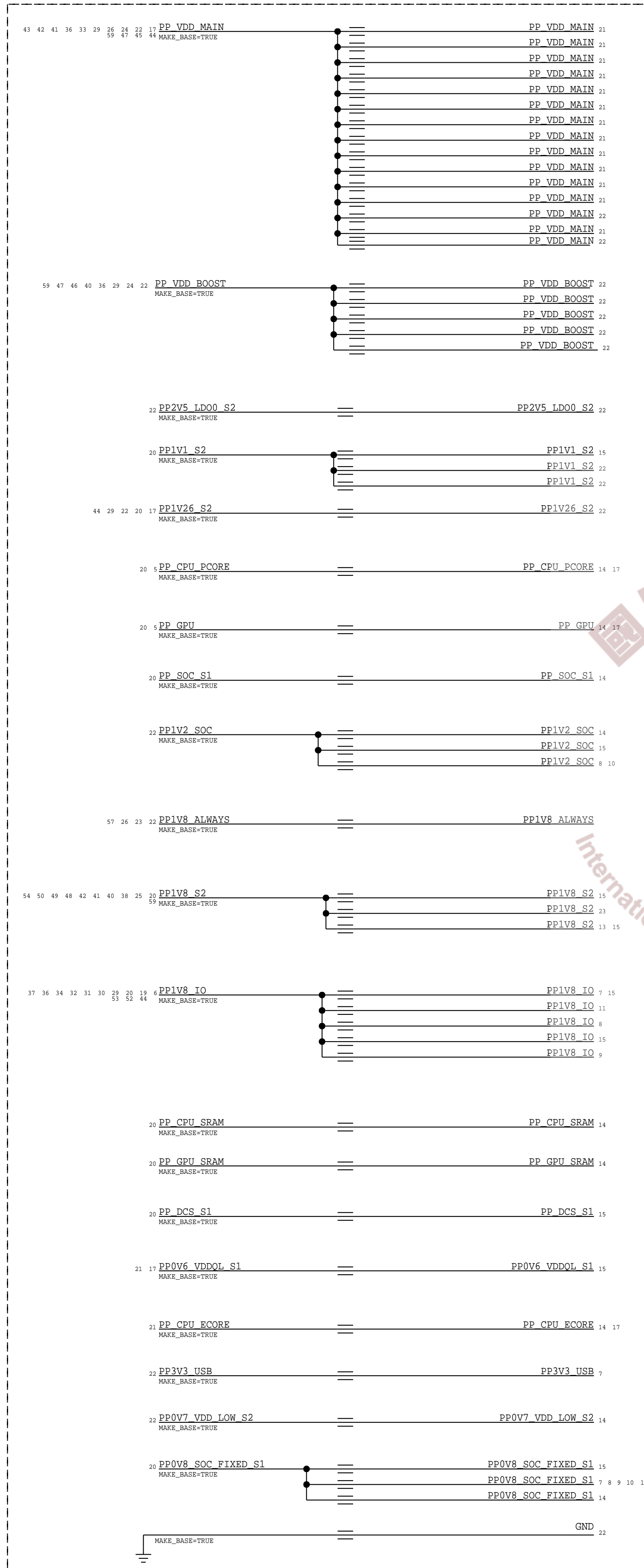
SOC - POWER SUPPLIES



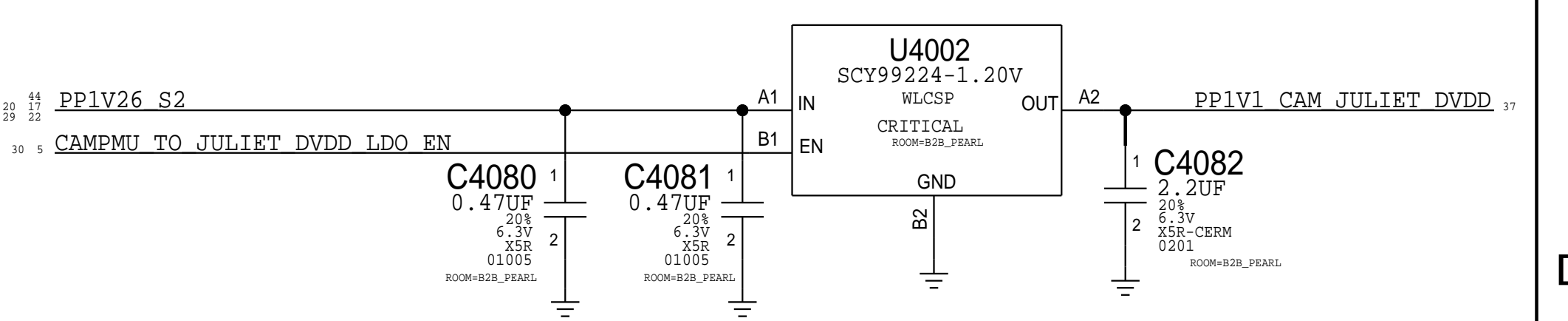
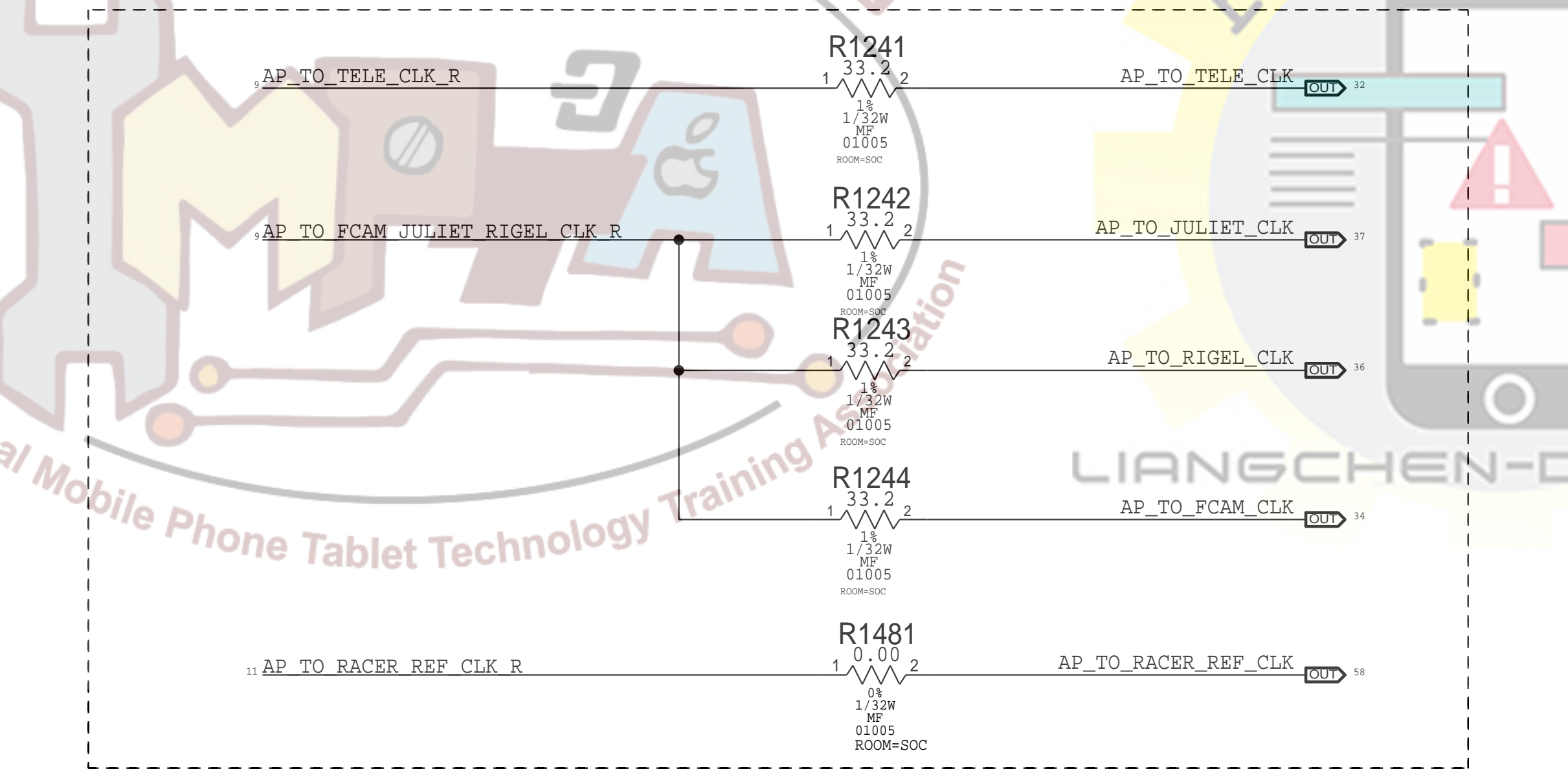
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Medusa Compatibility

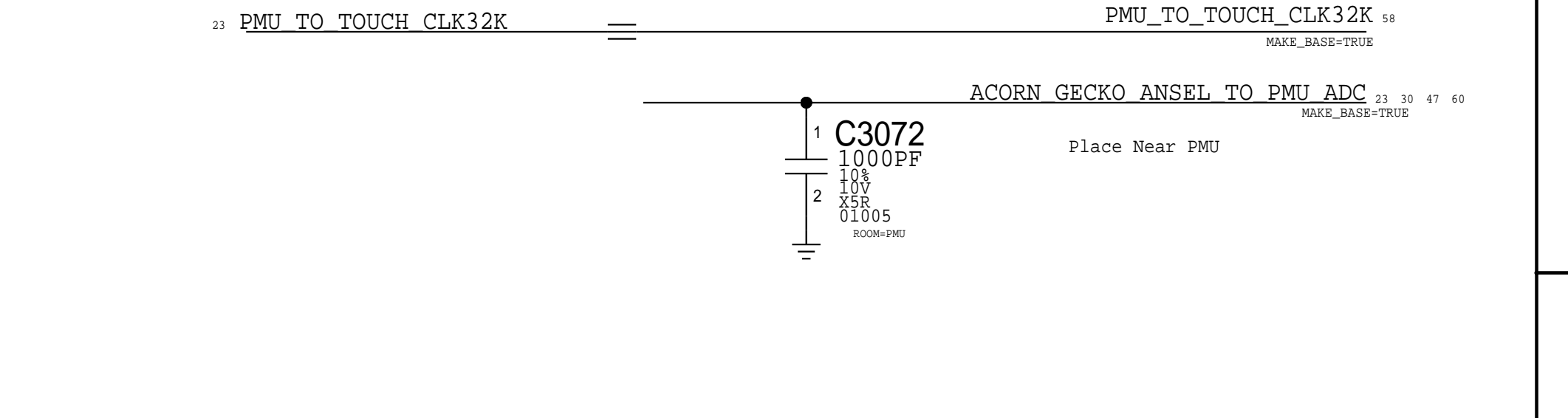
PCIE Series Caps



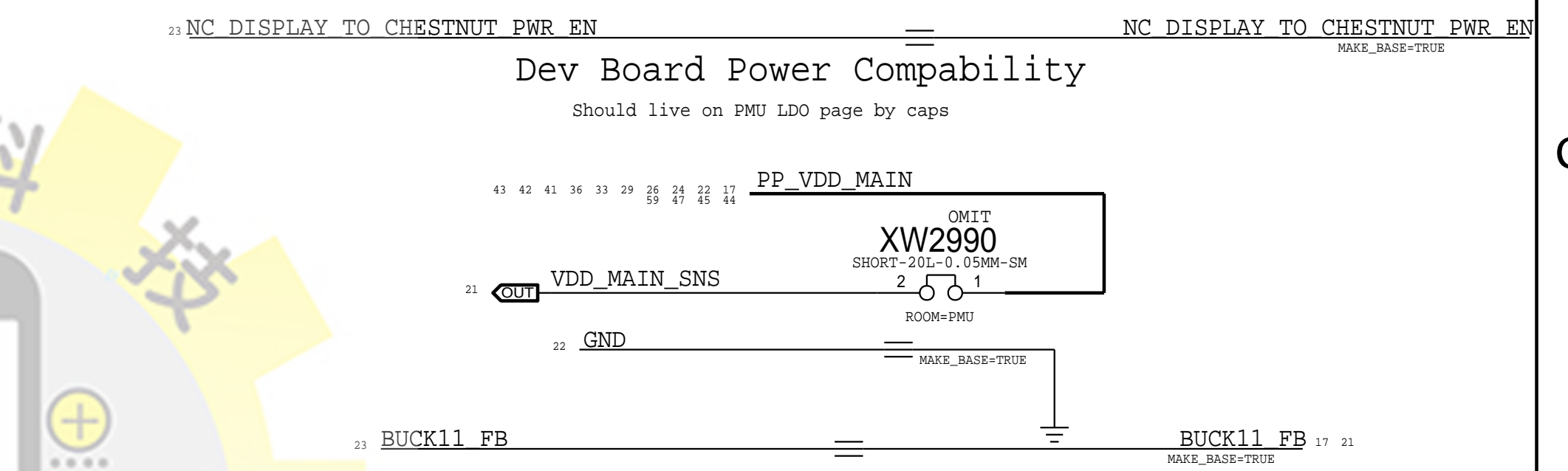
FF Specific CLK Series Terminations



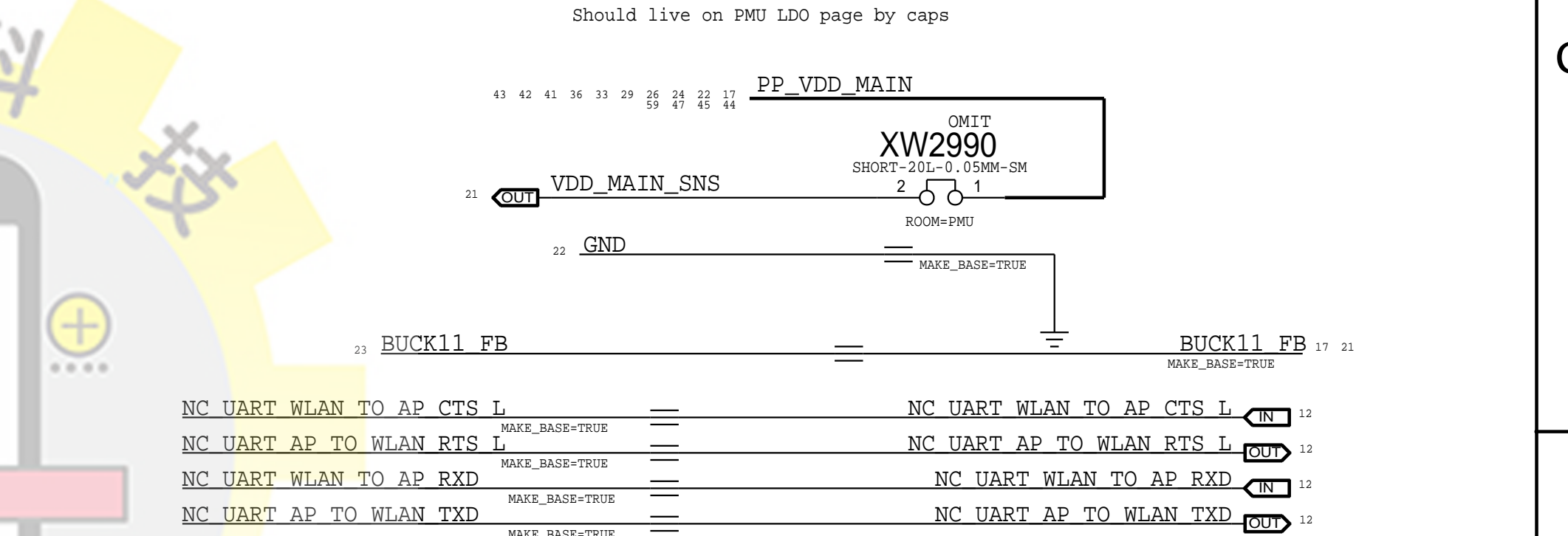
FF Touch Compatibility



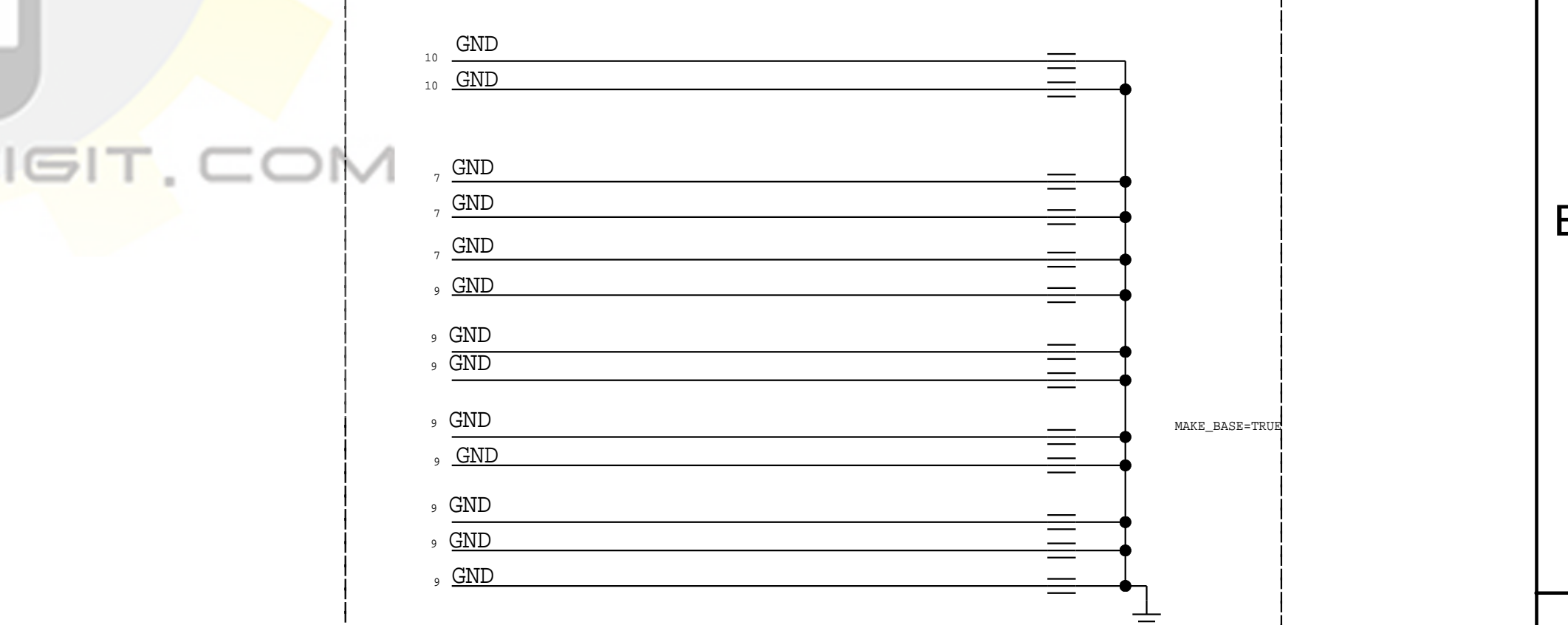
FF Display Compatibility



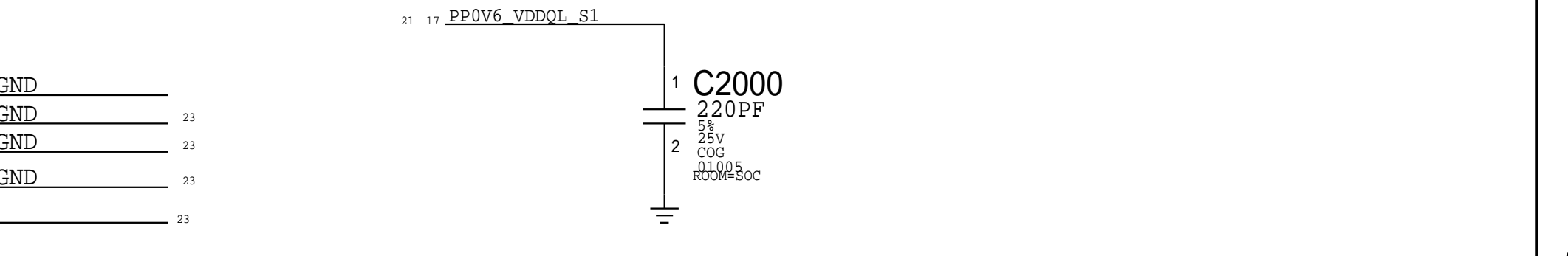
Dev Board Power Compatibility



Dev Board Compatibility GNDs

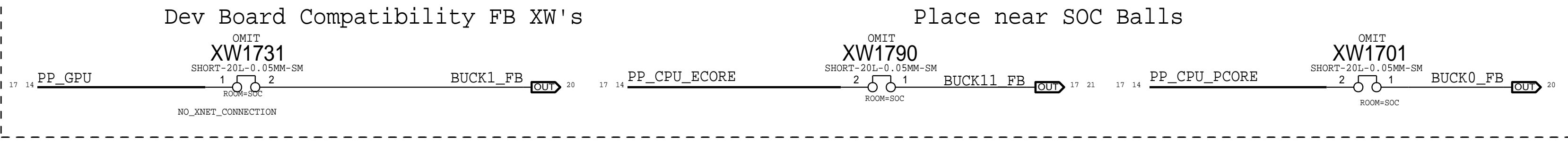


UF Dam Caps

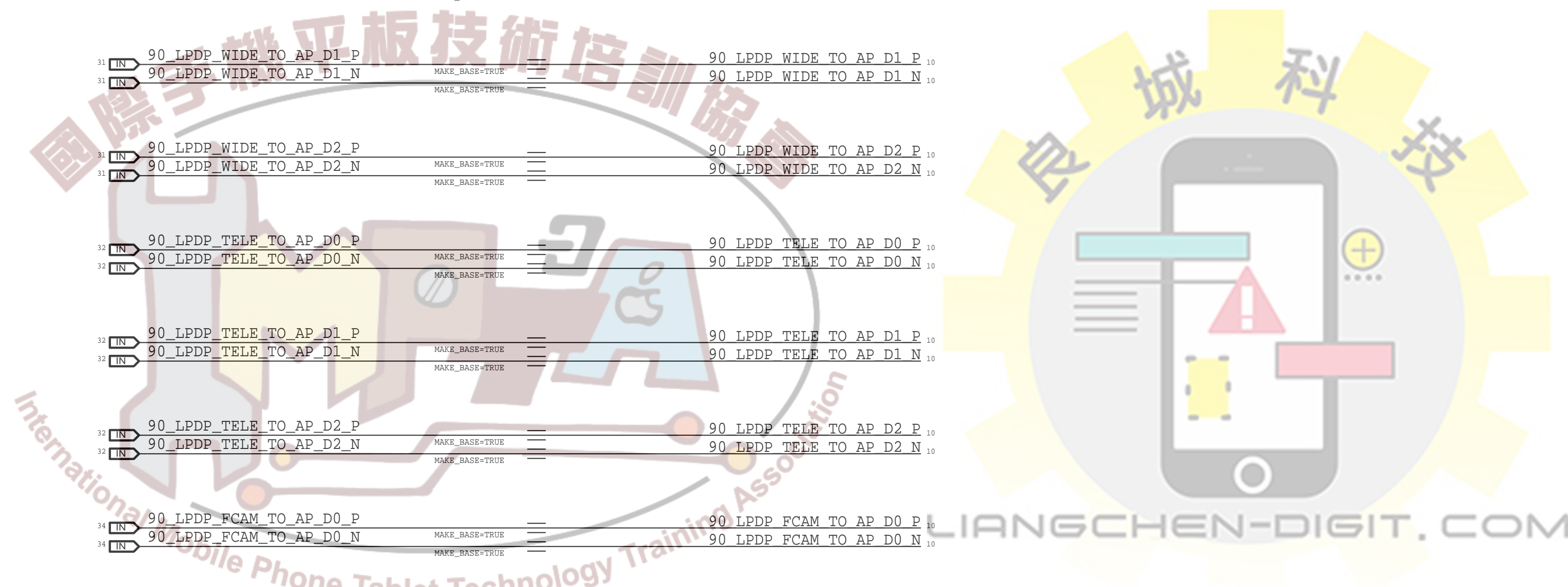
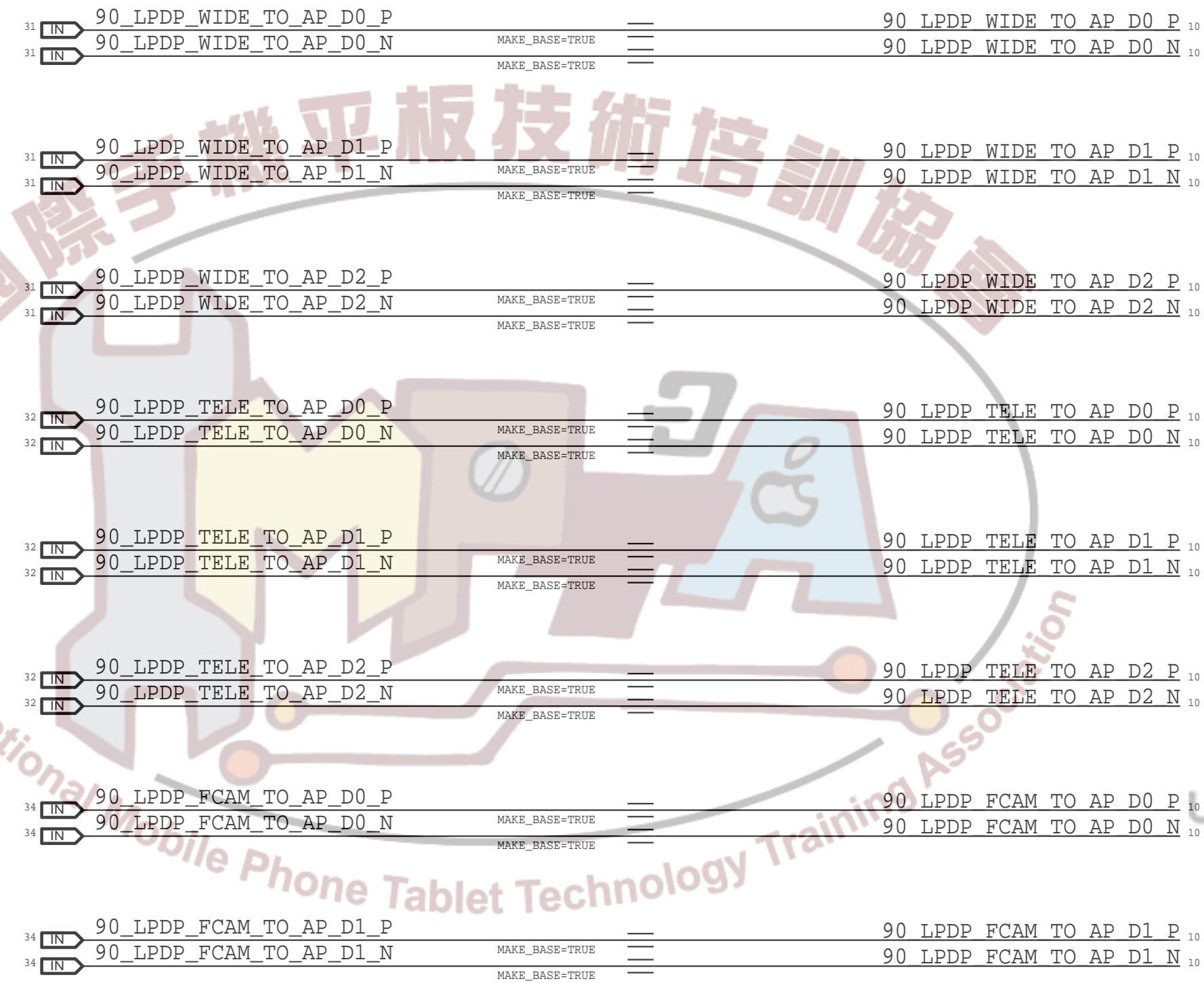


Dev Board Compatibility FB XW's

Place near SOC Balls

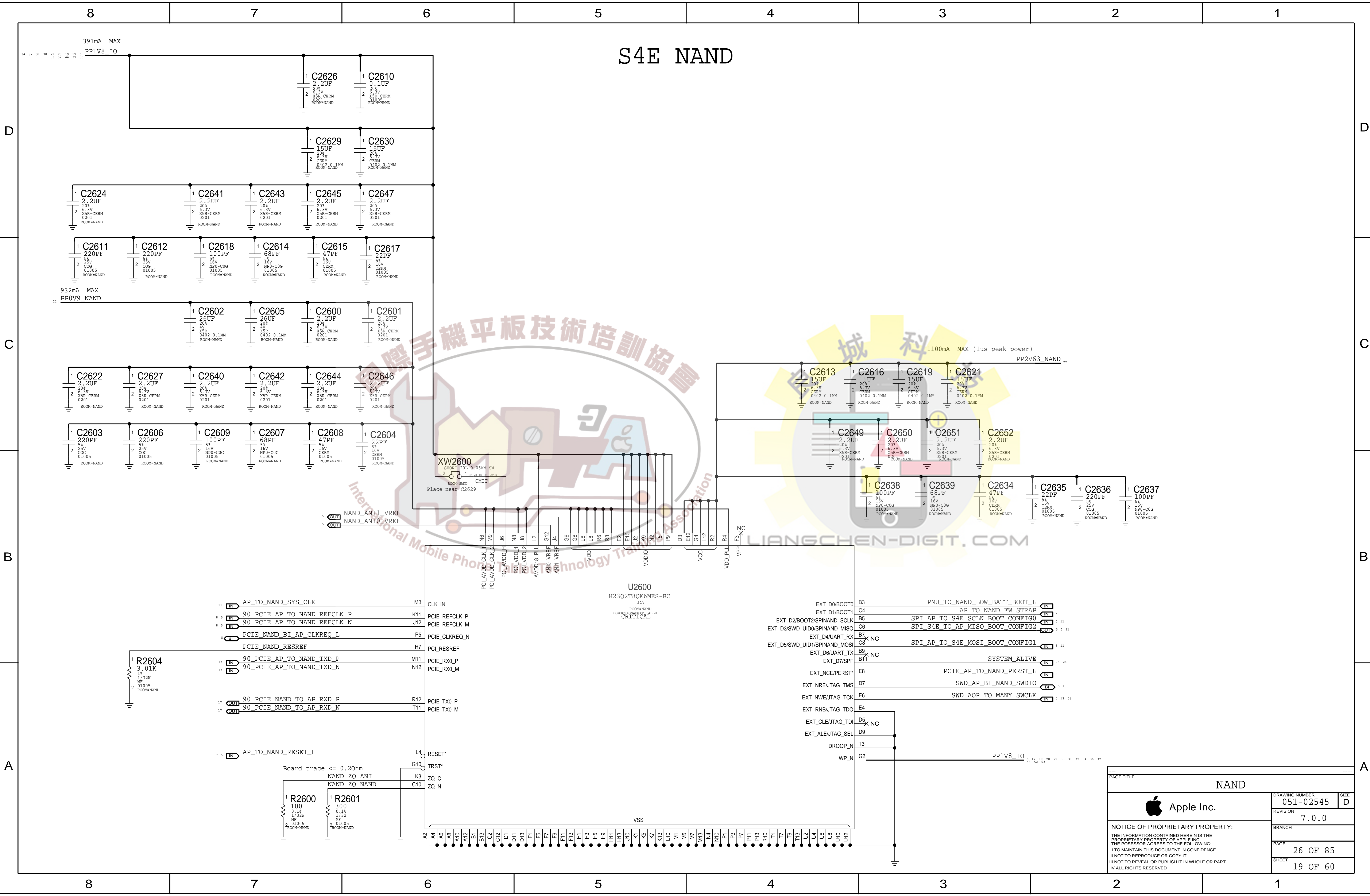


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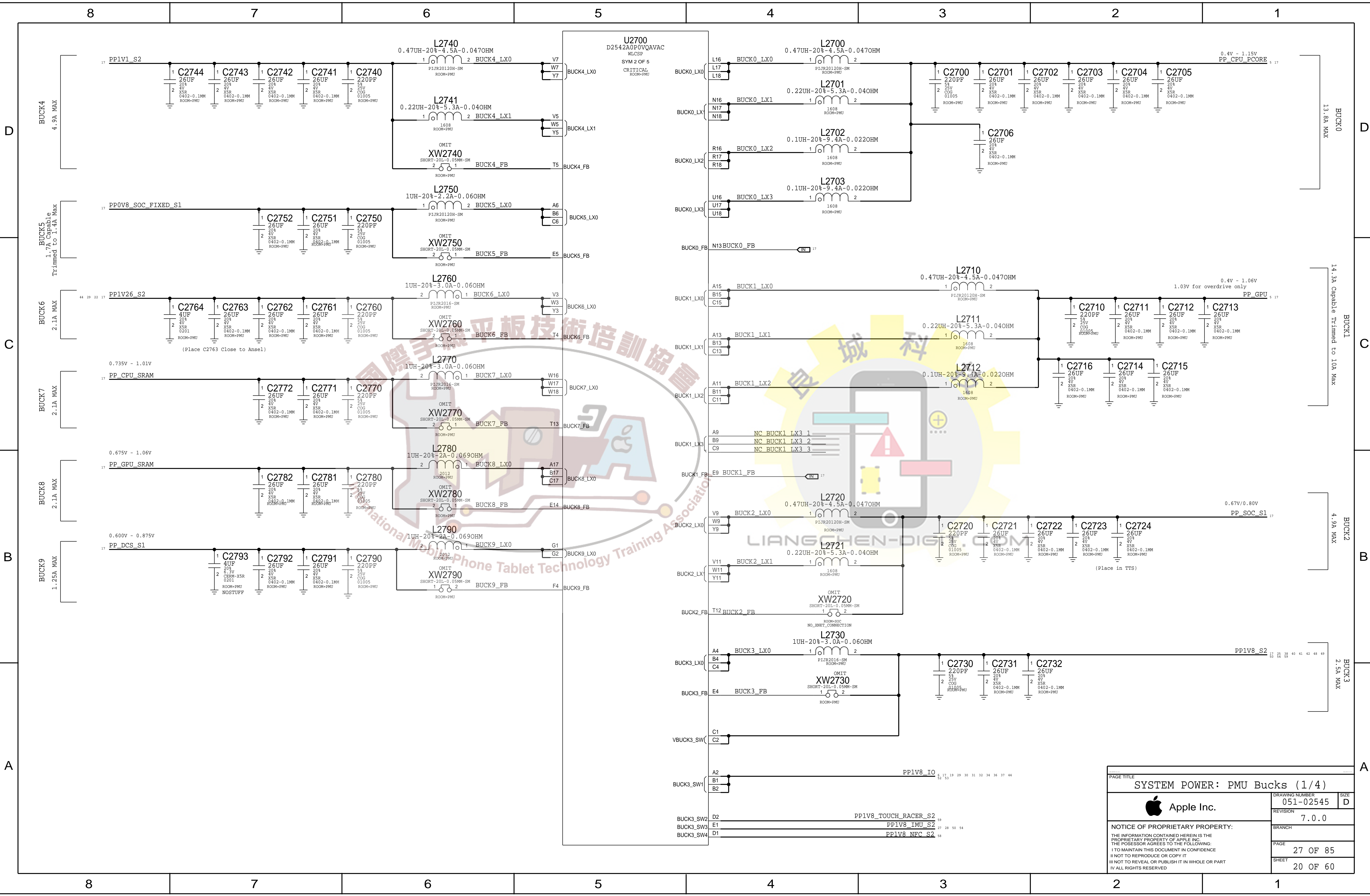


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			SHEET	18 OF 60	

S4E NAND

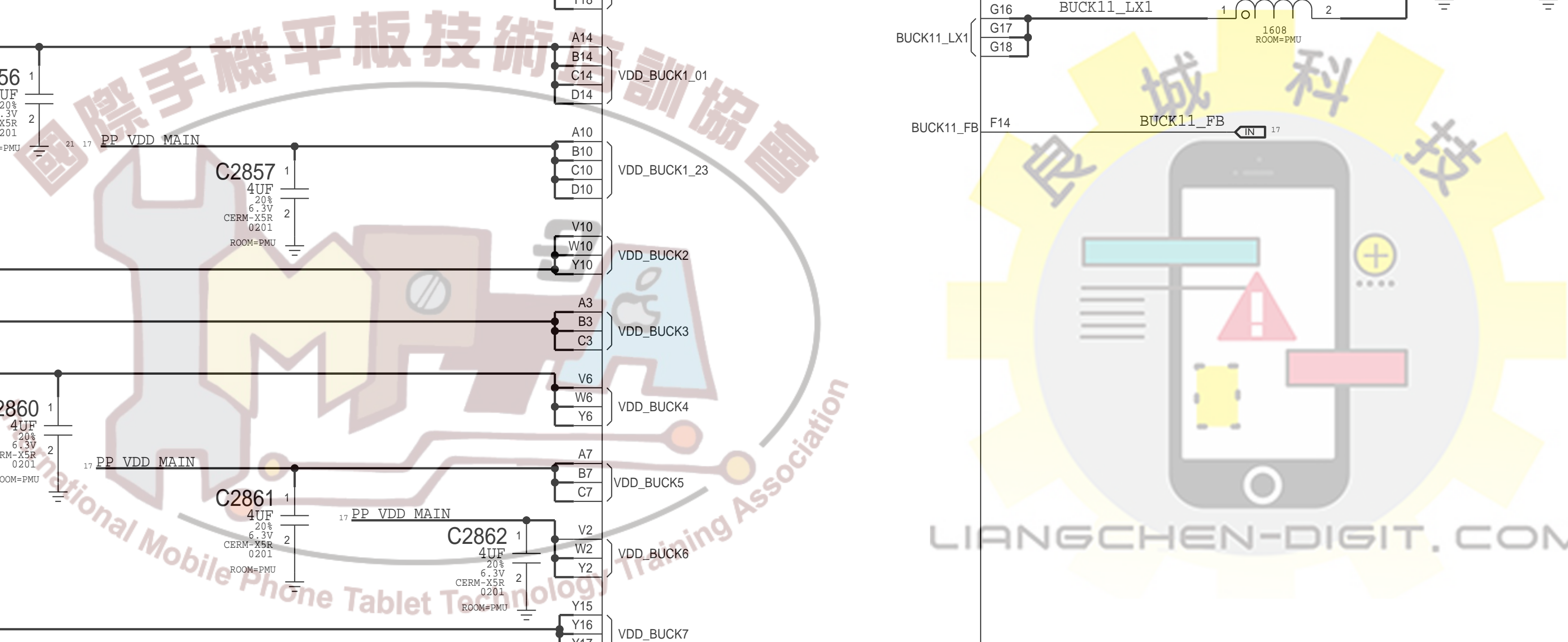
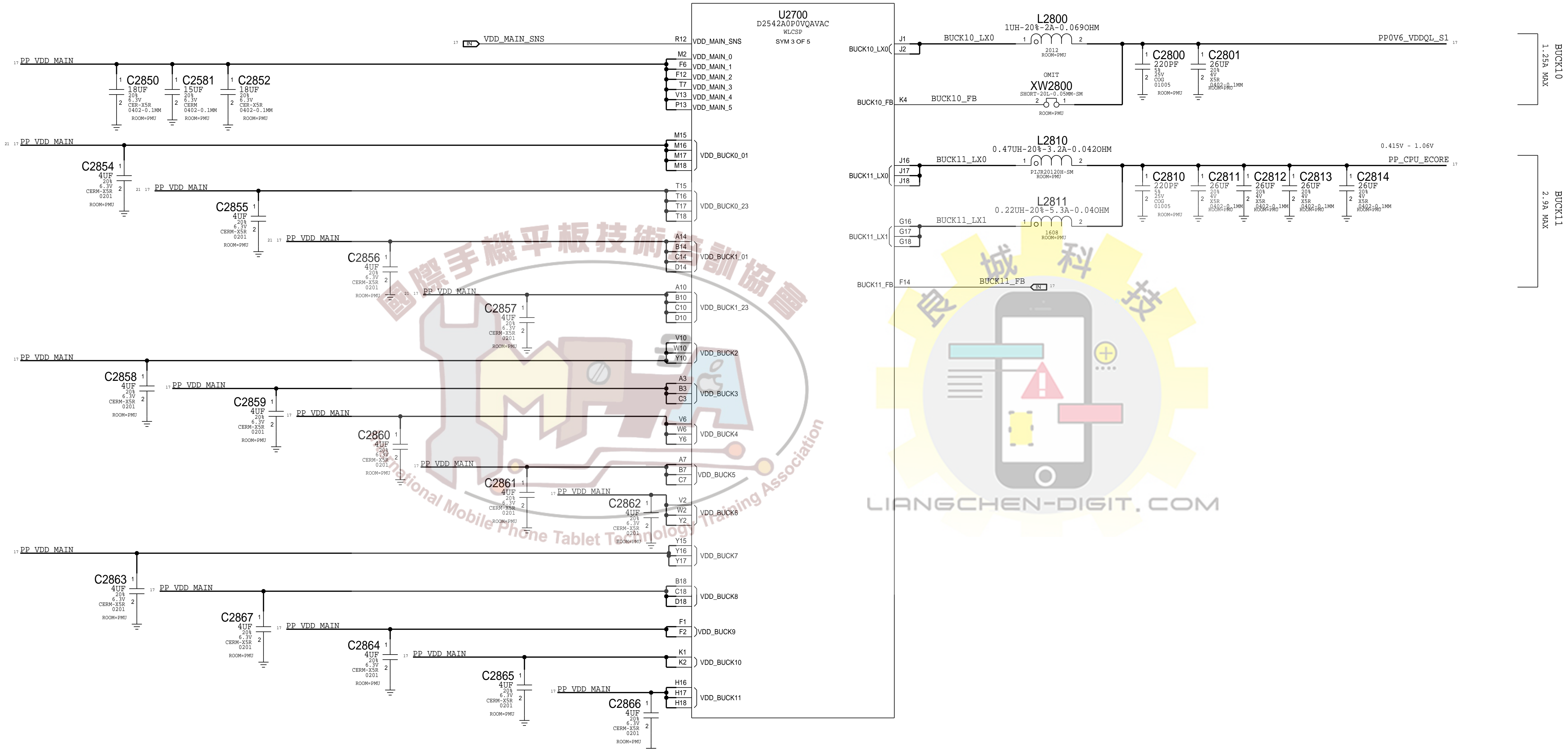


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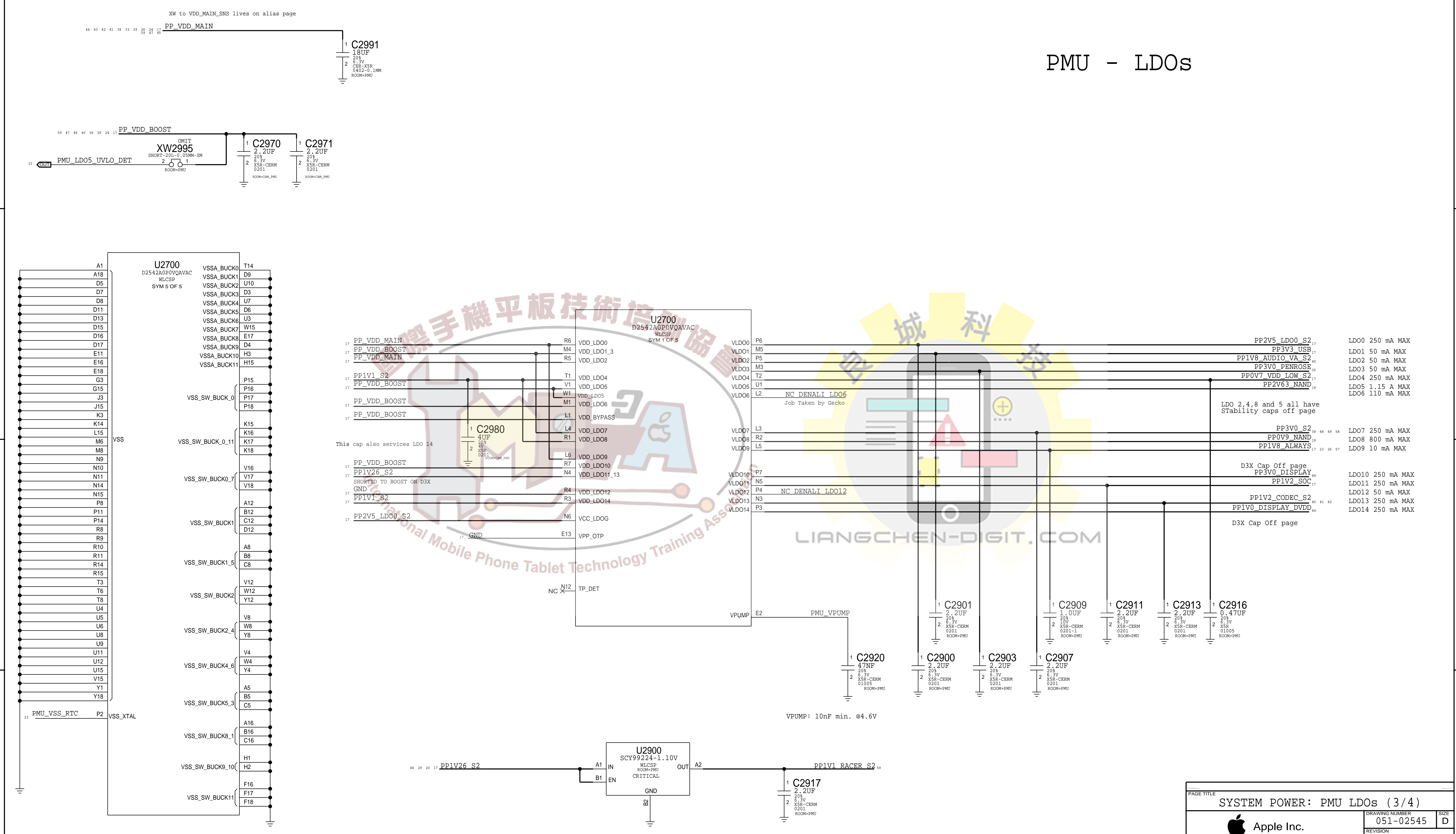
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PMU - BUCKS



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SHEET	21 OF 60	

PMU - LDOs



This cap also services LDO 14

LDO 2, 4, 8 and 5 all have Stability caps off page

D3X Cap Off page

D3X Cap Off page

LIANGCHEN-DIGIT.COM

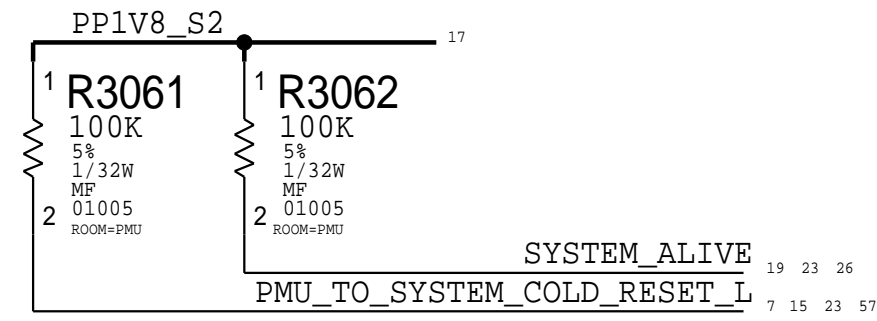
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	PAGE	29 OF 85
	SHEET	22 OF 60

PMU - GPIOs

TODO: Update
CONTROL PIN NOTES:

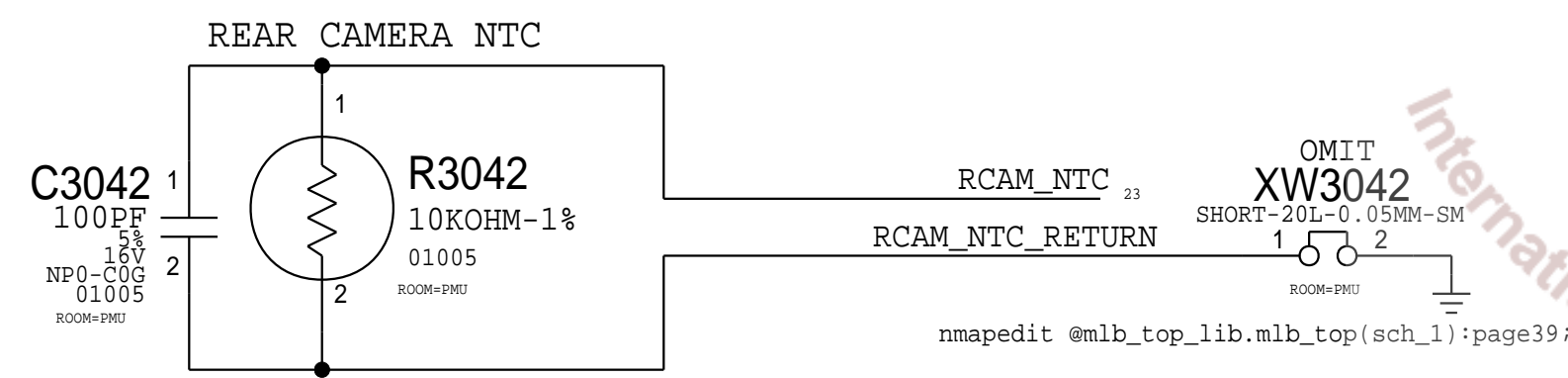
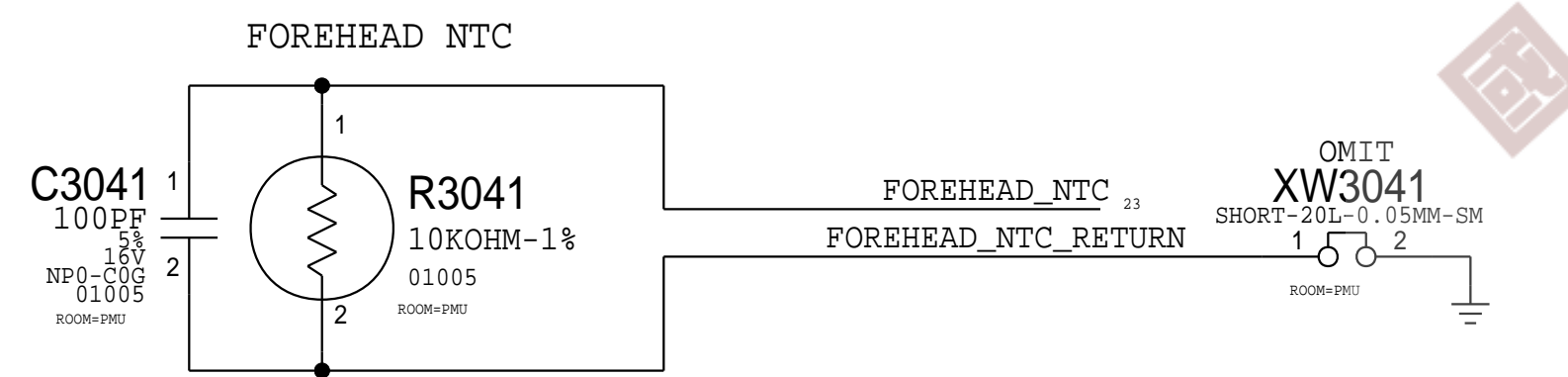
- NOTE (1): INPUT PULL-DOWN 100-300k
- NOTE (2): INPUT PULL-DOWN 1M
- NOTE (3): INPUT PULL-UP OR DOWN 100k-300k
- NOTE (4): OUTPUT OPEN-DRAIN, REQUIRES PULL-UP

COLD_RESET & SYSTEM_ALIVE

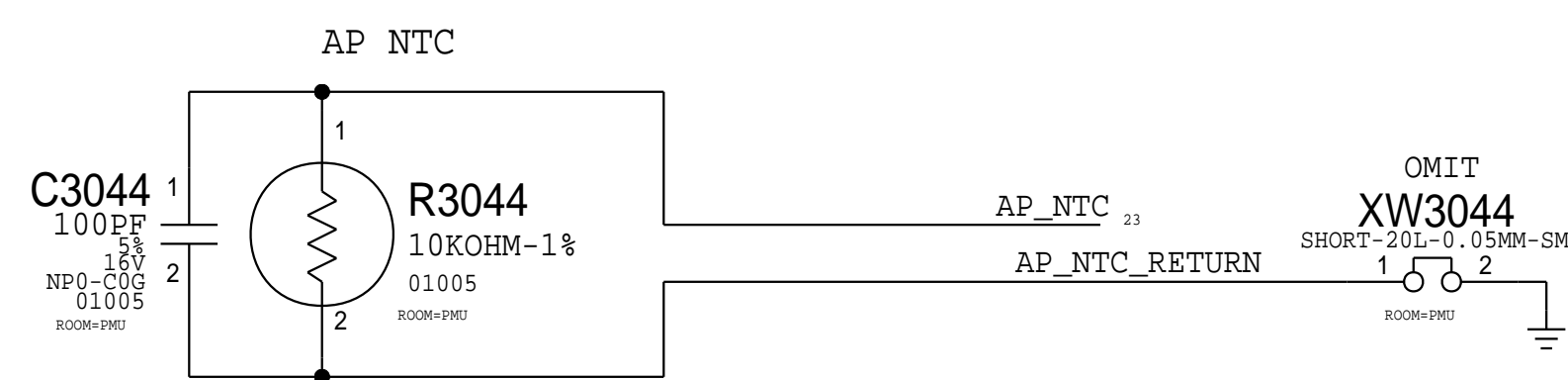
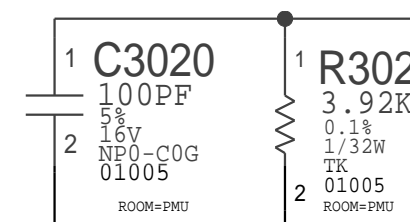


Only has DS control when powered by VBUCK3
Only has DS control when powered by VBUCK3

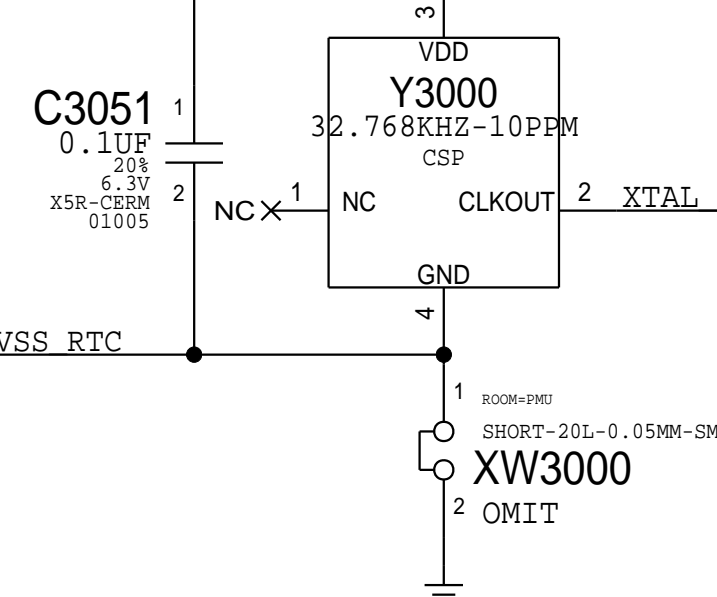
NTCs



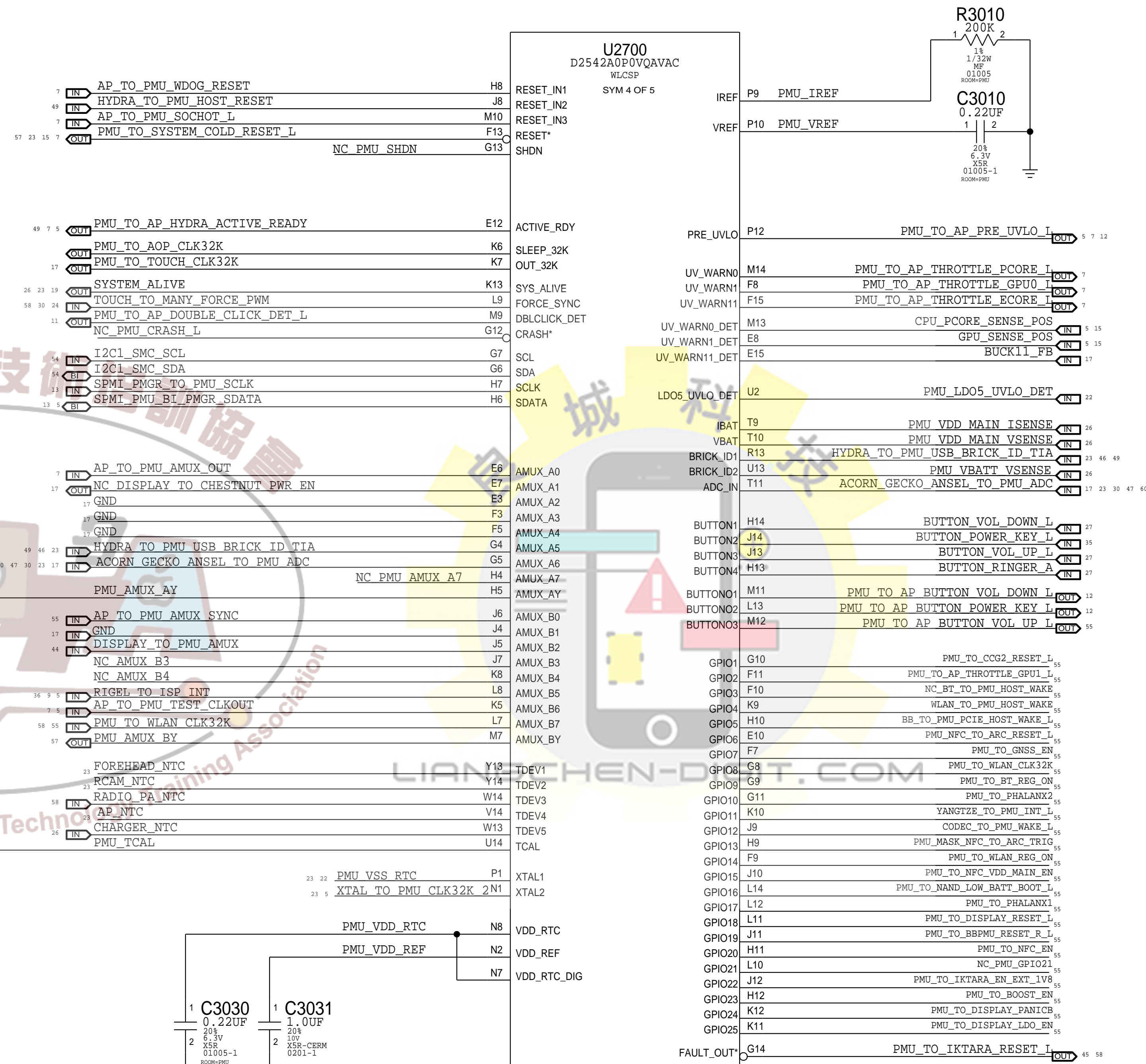
RADIO PA NTC on MLB Bottom



CHARGER NTC on Charger Page

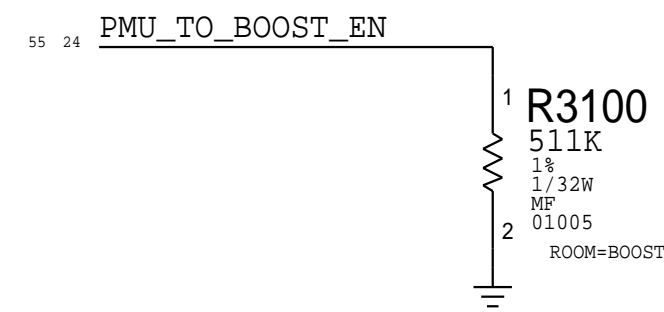


NOTE:100PF CAPS ARE THE SAMPLING CAPS FOR PMU ADC



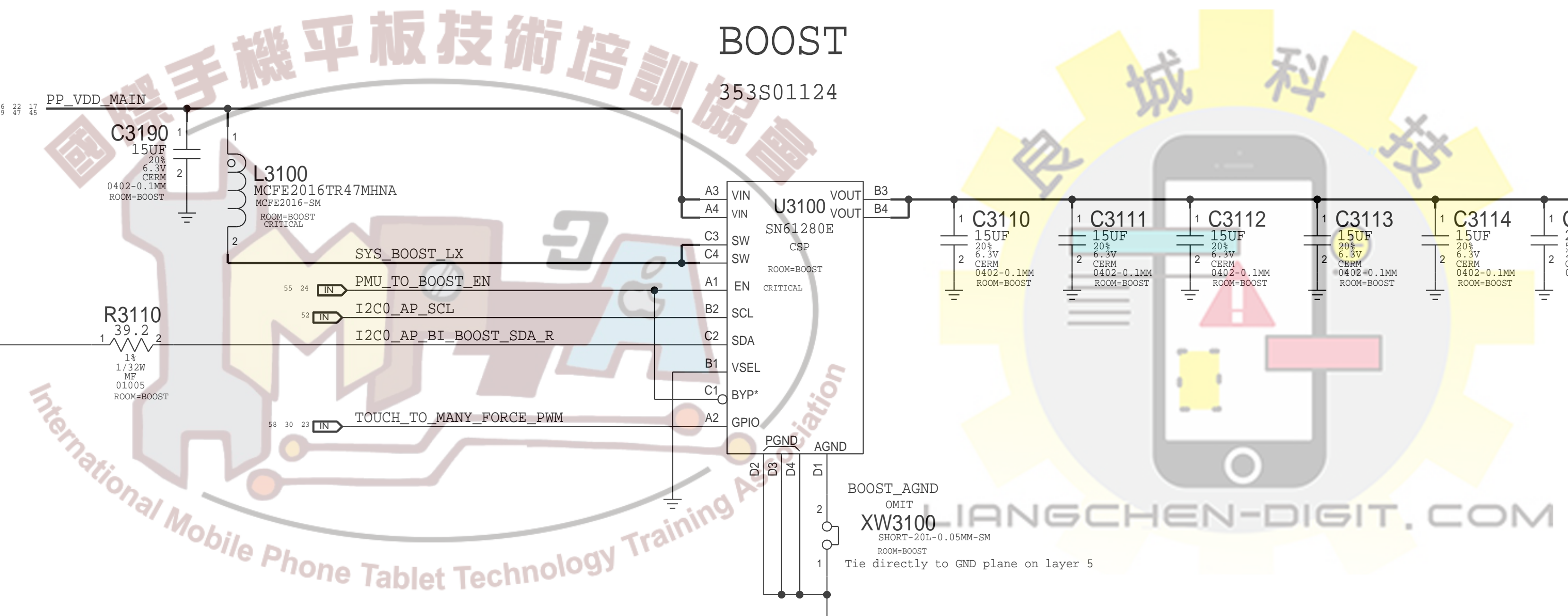
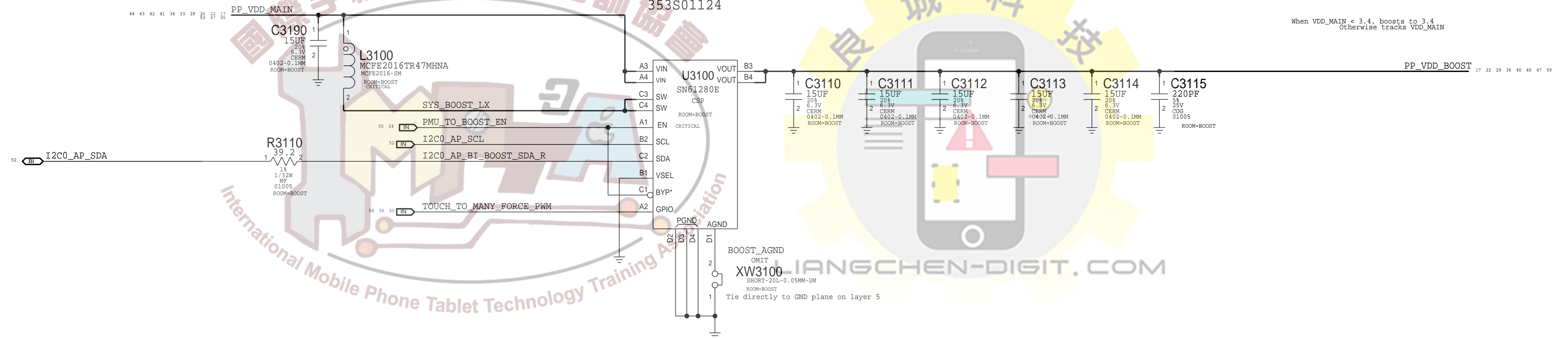
PAGE TITLE		
SYSTEM POWER: PMU (4/4)		
Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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	PAGE	30 OF 85
	SHEET	23 OF 60

Boost Enable Pull



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
152S00871	152S00869	ALT_PARTS	L3100	BOOST IND ALT, CYN
152S00873	152S00869	ALT_PARTS	L3100	BOOST IND ALT, YBK

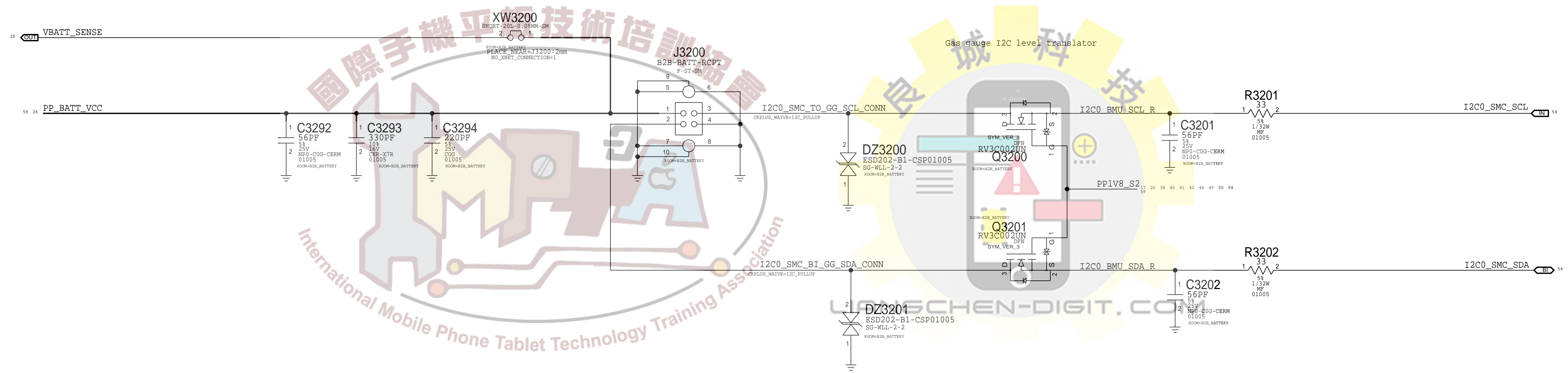
BOOST



PAGE TITLE		
SYSTEM POWER: Boost		
Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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	PAGE	31 OF 85
	SHEET	24 OF 60

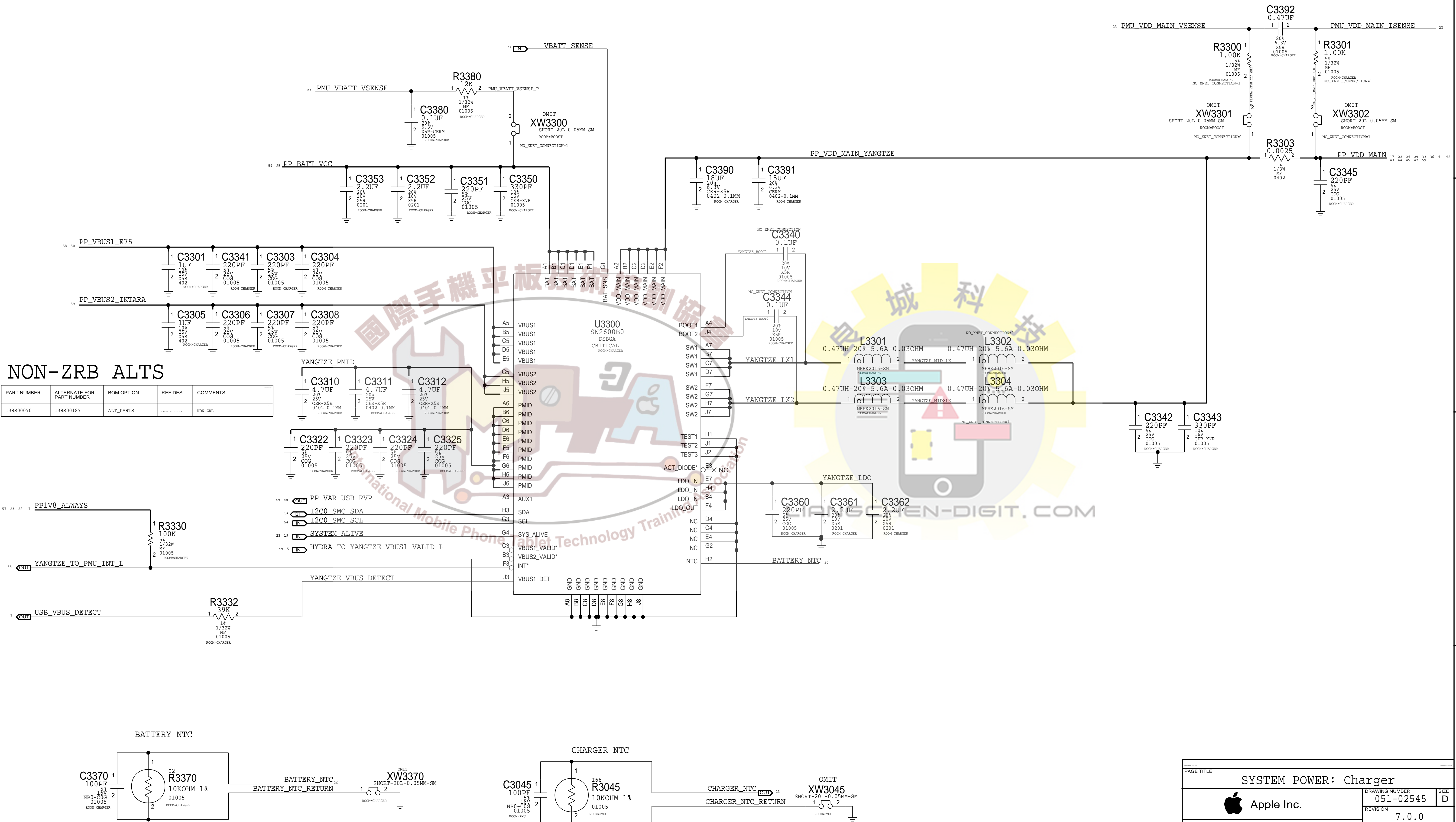
BATTERY CONNECTOR

Rcpt: 516S00232
 Plug: 516S00233



PAGE TITLE		
SYSTEM POWER: B2B Battery		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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BRANCH	PAGE	32 OF 85
SHEET		25 OF 60

YANGTZE CHARGER



NON-ZRB ALTS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00070	138S00187	ALT_PARTS	YANGTZE_PMID	NON-ZRB

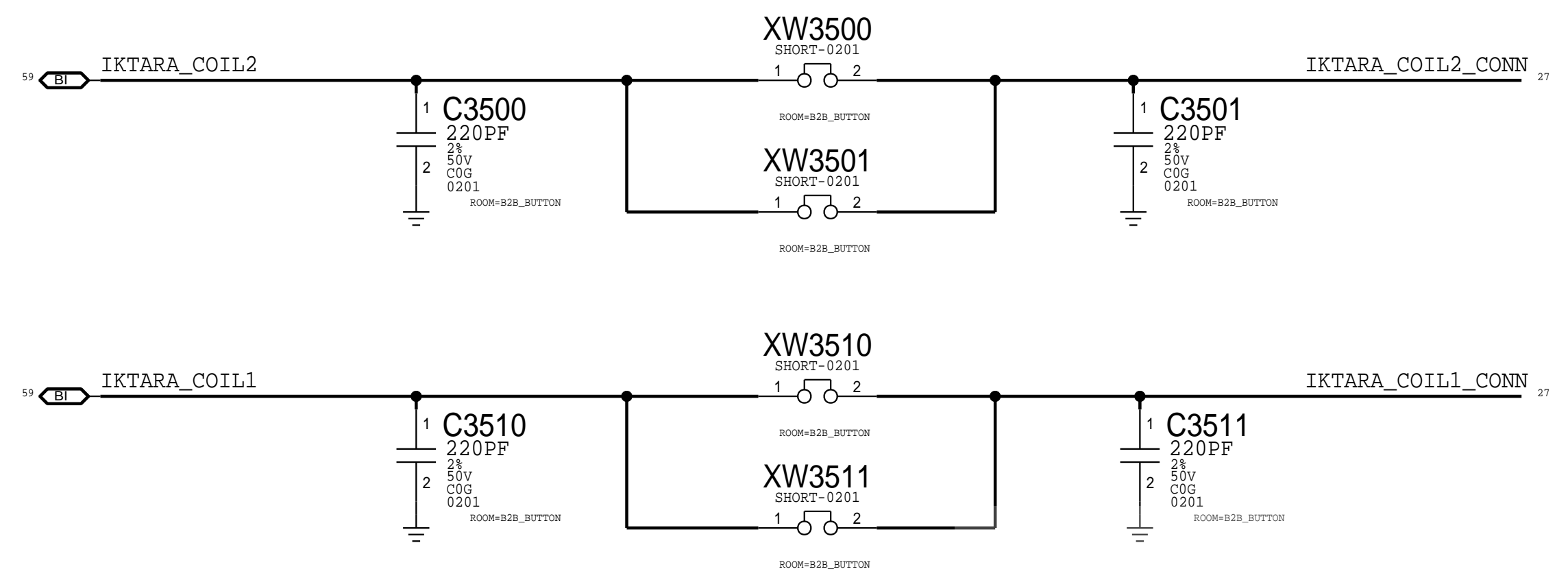
PAGE TITLE		SYSTEM POWER: Charger	
DRAWING NUMBER		051-02545	SIZE D
REVISION		7.0.0	
BRANCH			
PAGE		33 OF 85	
SHEET		26 OF 60	

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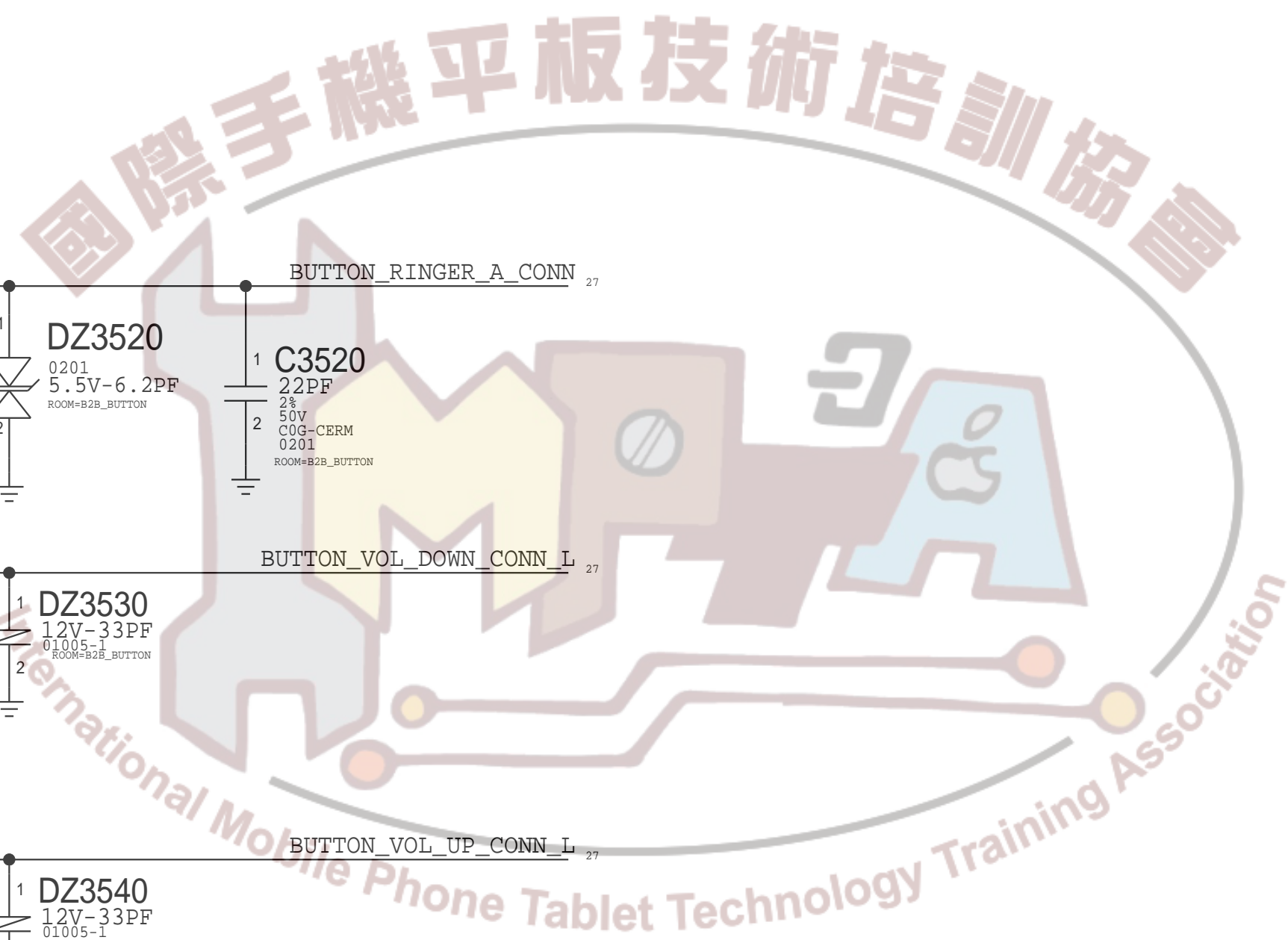
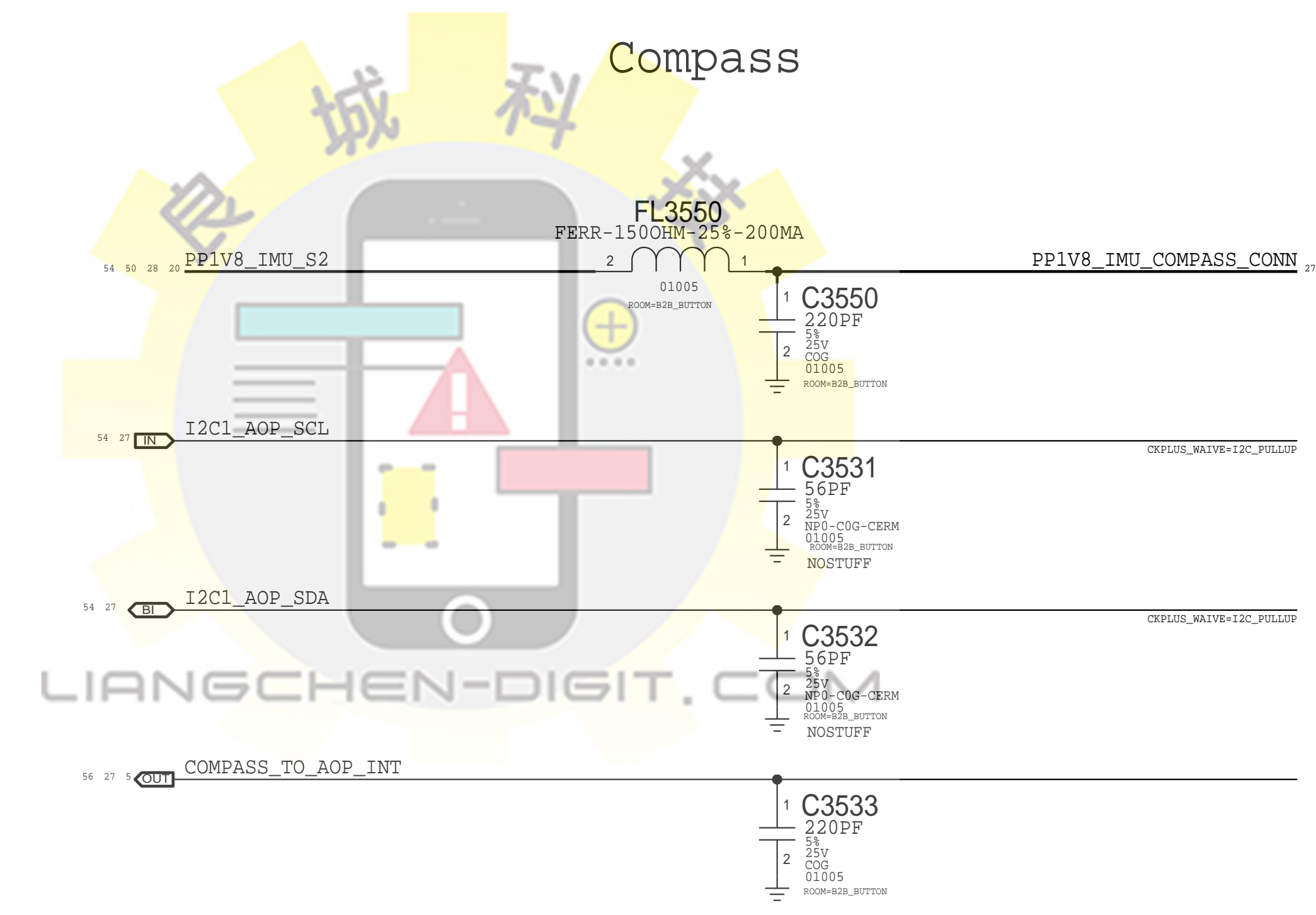
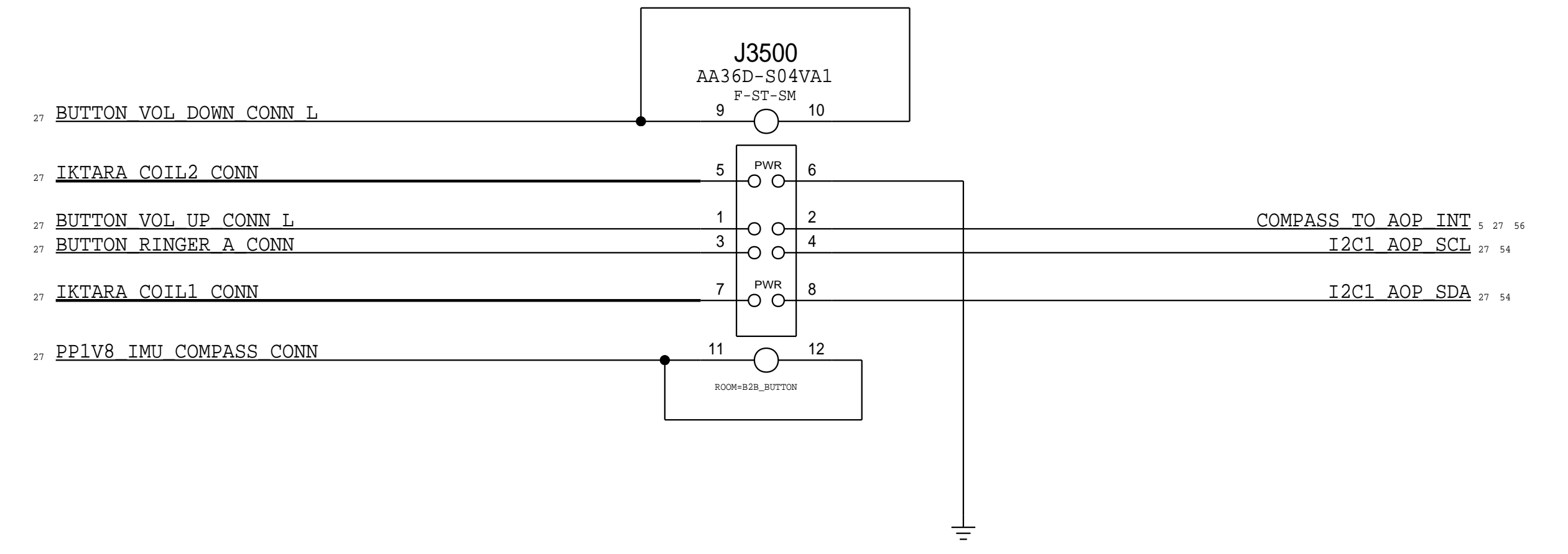
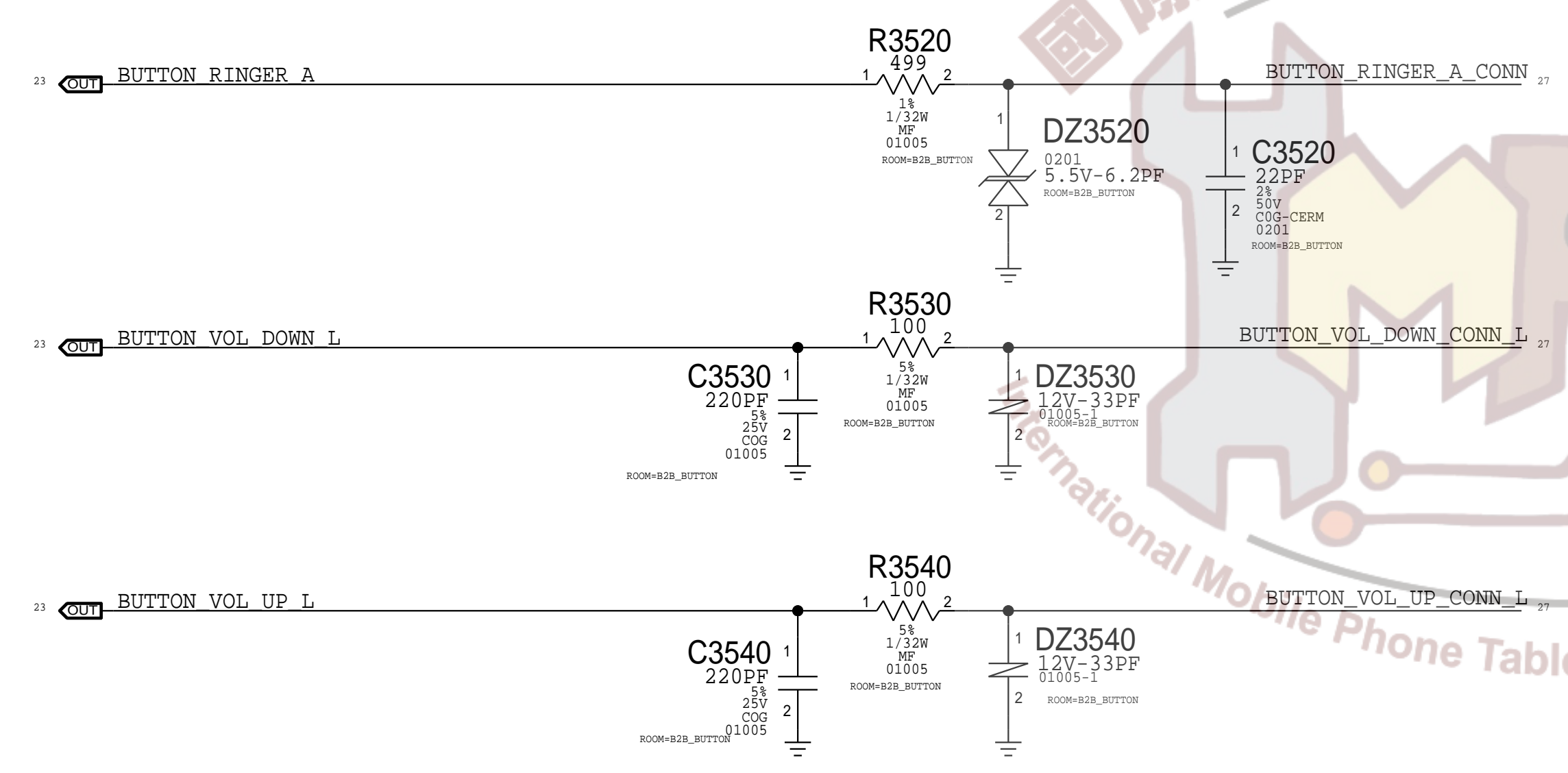
Cyclone + Button Connector

Rcpt: 516S00289 <-- This one on MLB
 Plug: 516S00290

Cyclone Filtering



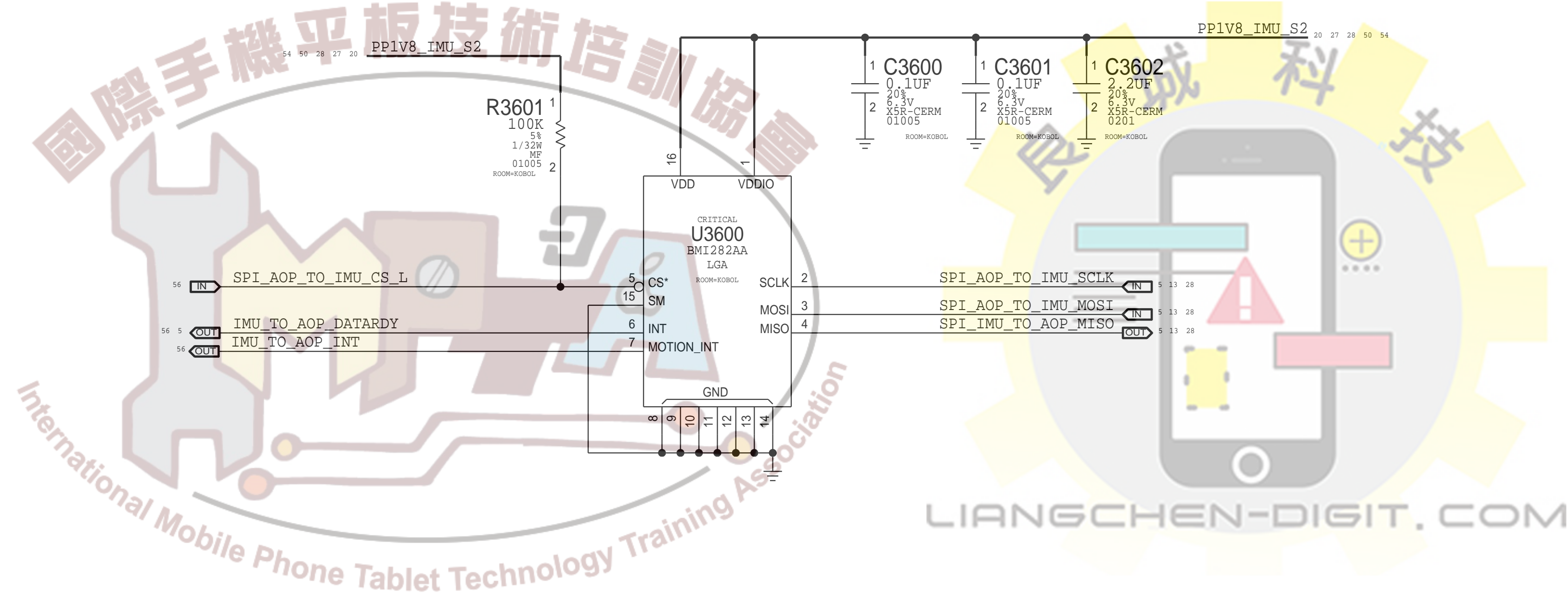
BUTTONS



PAGE TITLE		
SYSTEM POWER: B2B Cyclone + Button		
Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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	PAGE	35 OF 85
	SHEET	27 OF 60

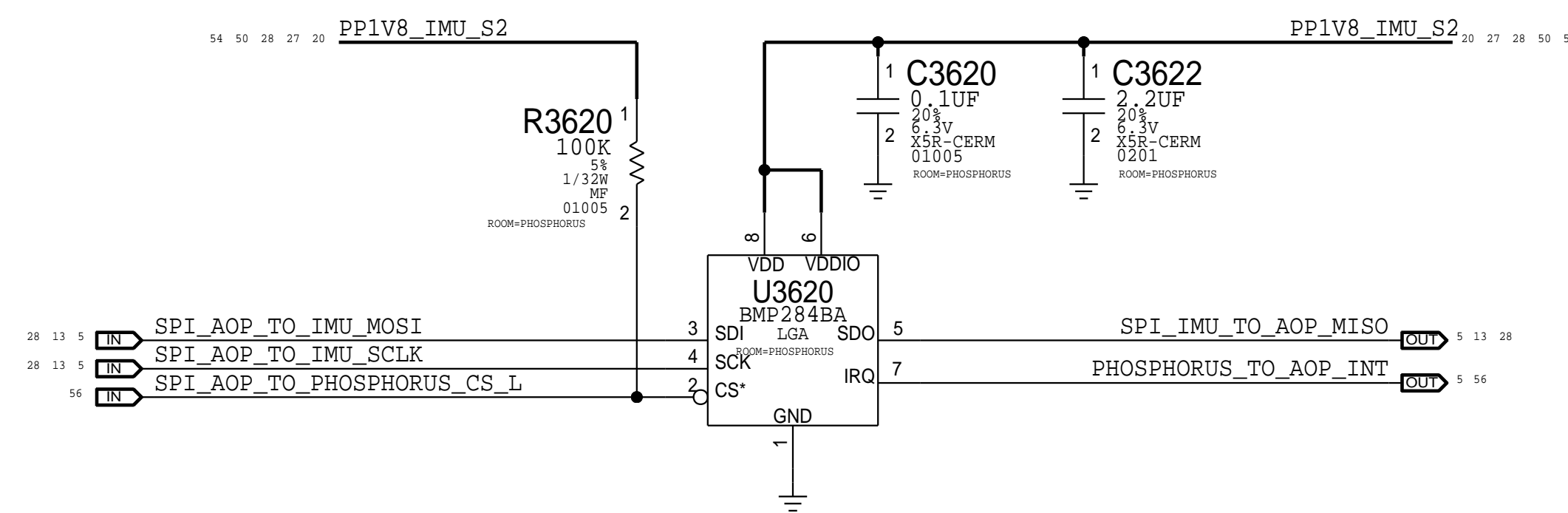
Kobol - Accel & Gyro

APN: 338S00367



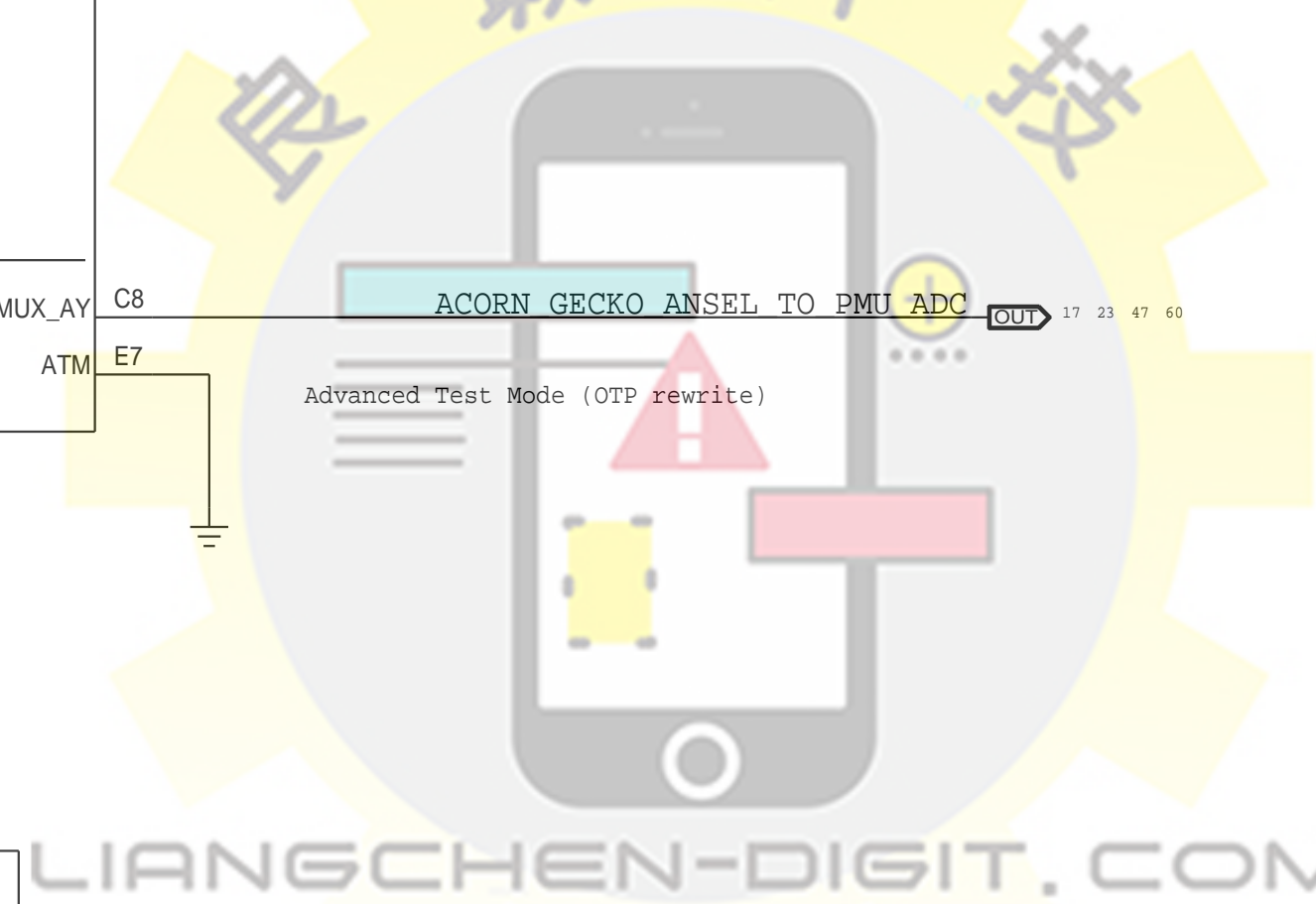
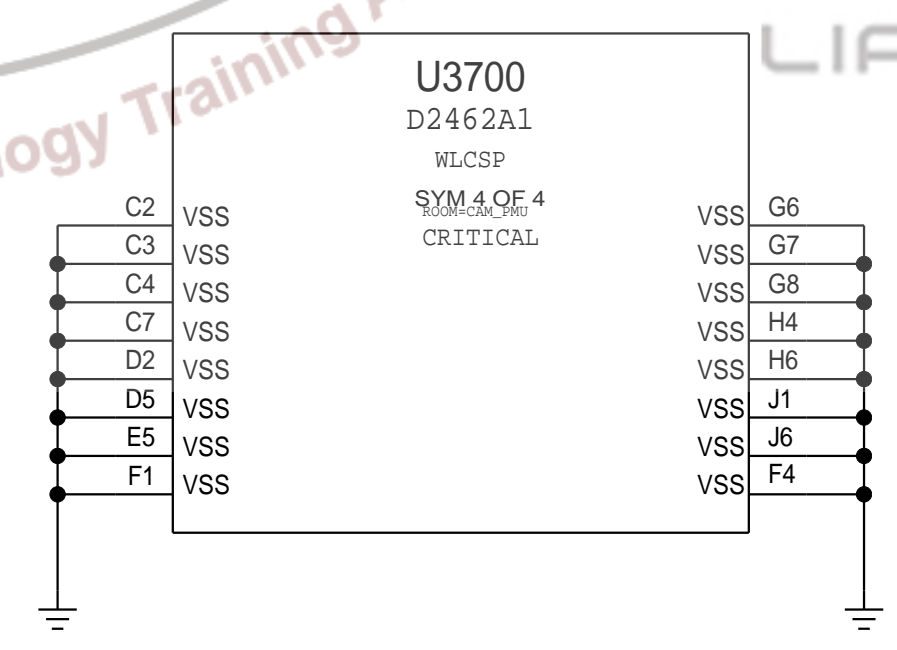
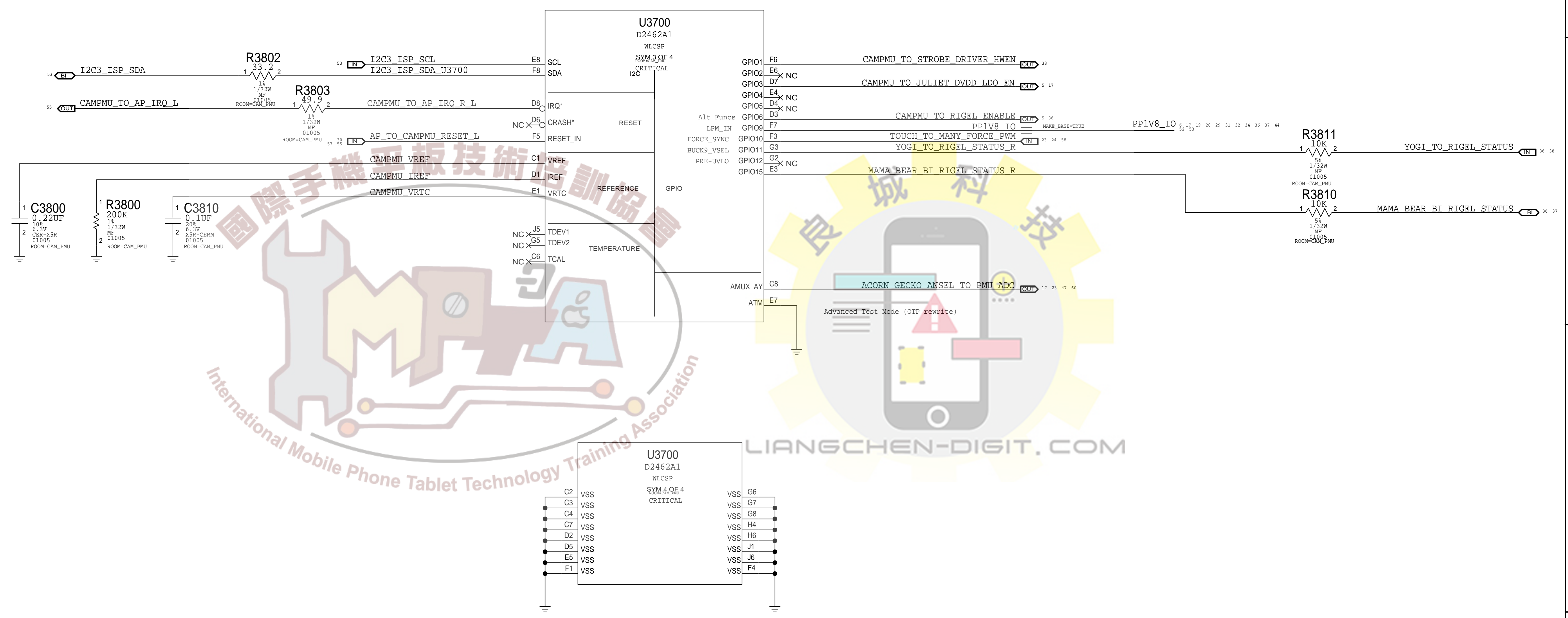
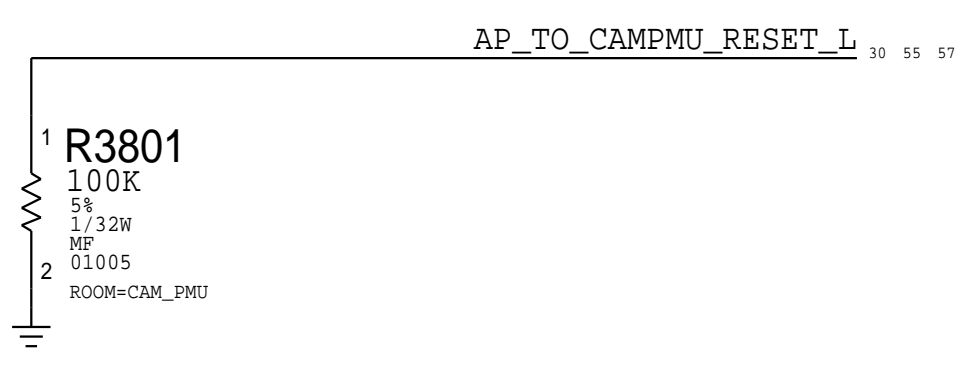
Phosphorus

BOSCH (APN:338S00334)



PAGE TITLE			SENSORS		
	DRAWING NUMBER	051-02545	SIZE	D	
	REVISION	7.0.0			
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			36 OF 85		
			SHEET		
			28 OF 60		

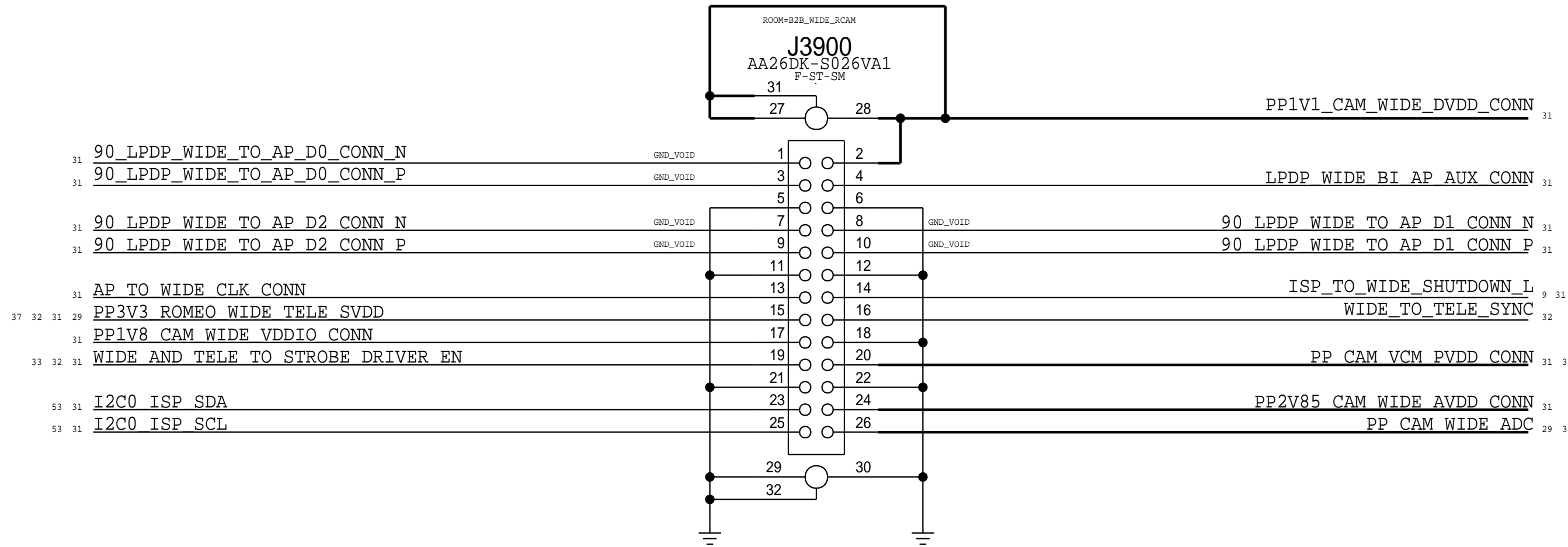
Pull Downs



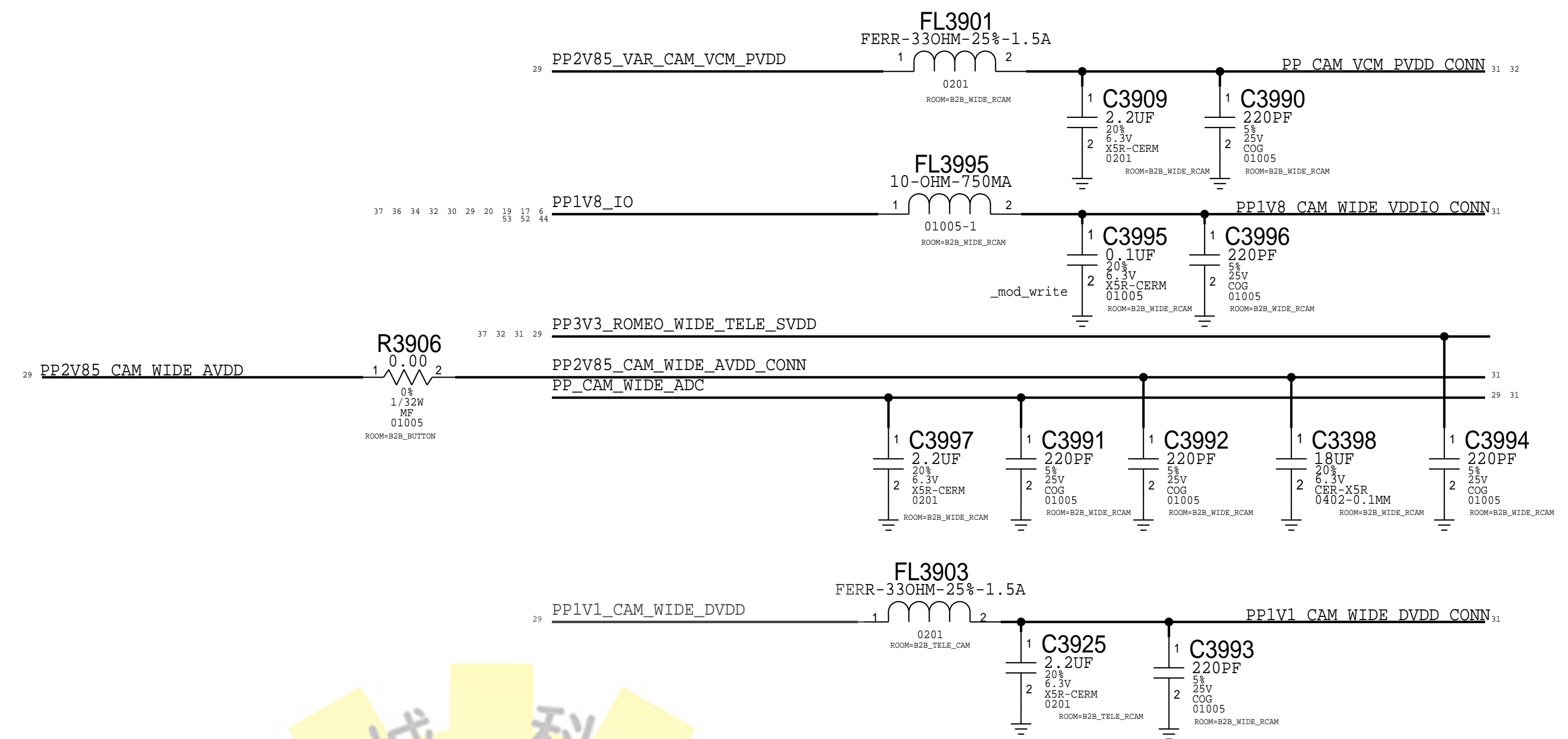
PAGE TITLE CAMERA: PMU (2/2)		
	DRAWING NUMBER 051-02545	SIZE D
	REVISION 7.0.0	
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BRANCH		PAGE 38 OF 85
SHEET		30 OF 60

Wide Camera Connector

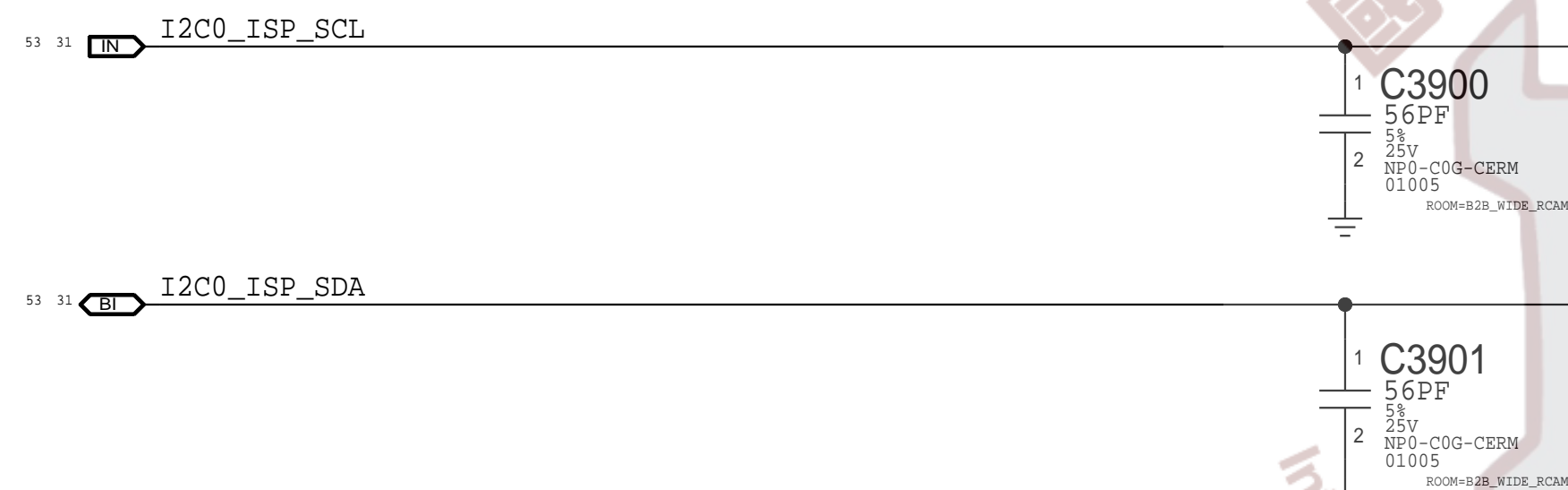
Rcpt: 516S00313 <-- This one on MLB
 Plug: 516S00314



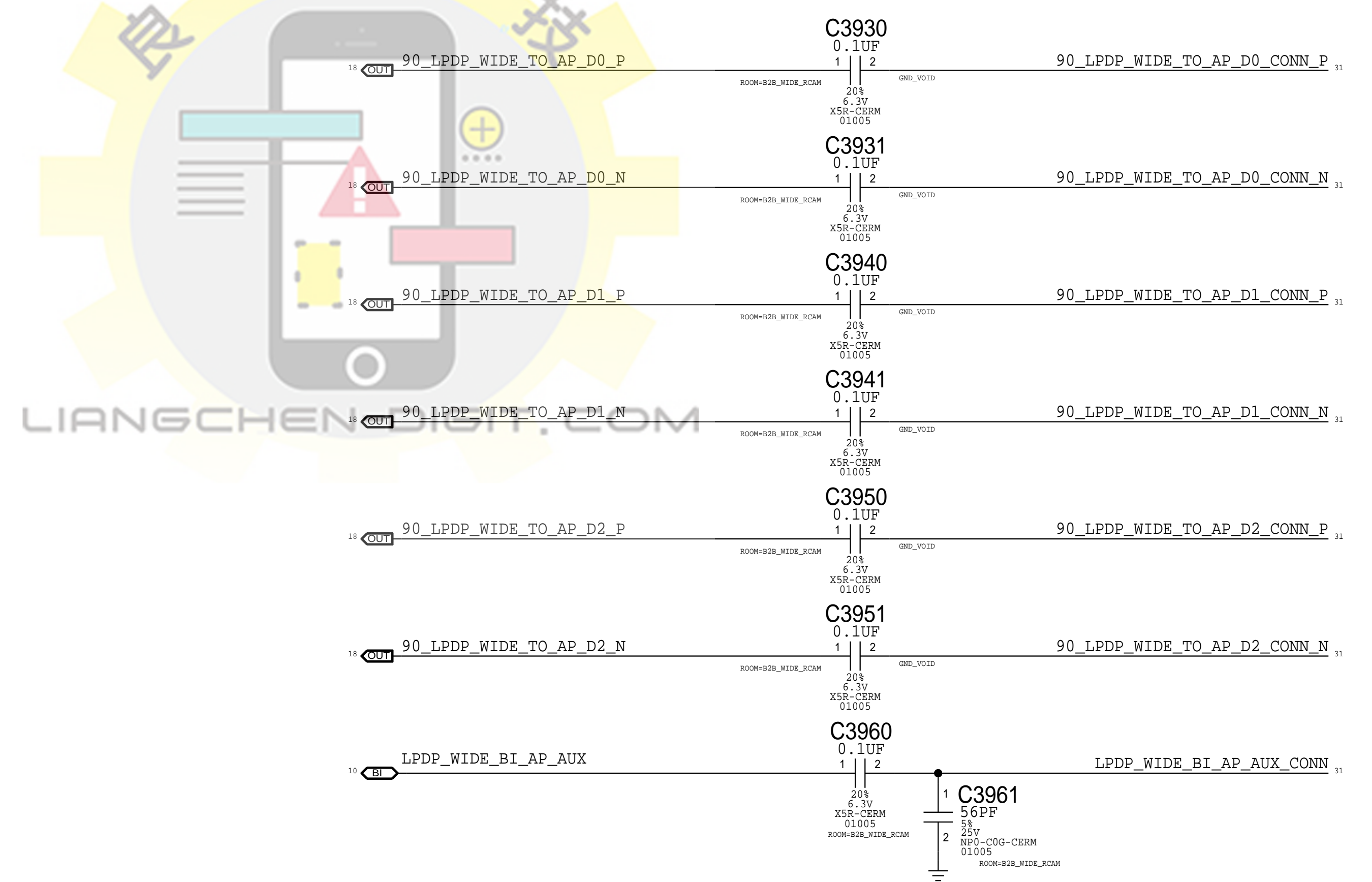
Power Filtering



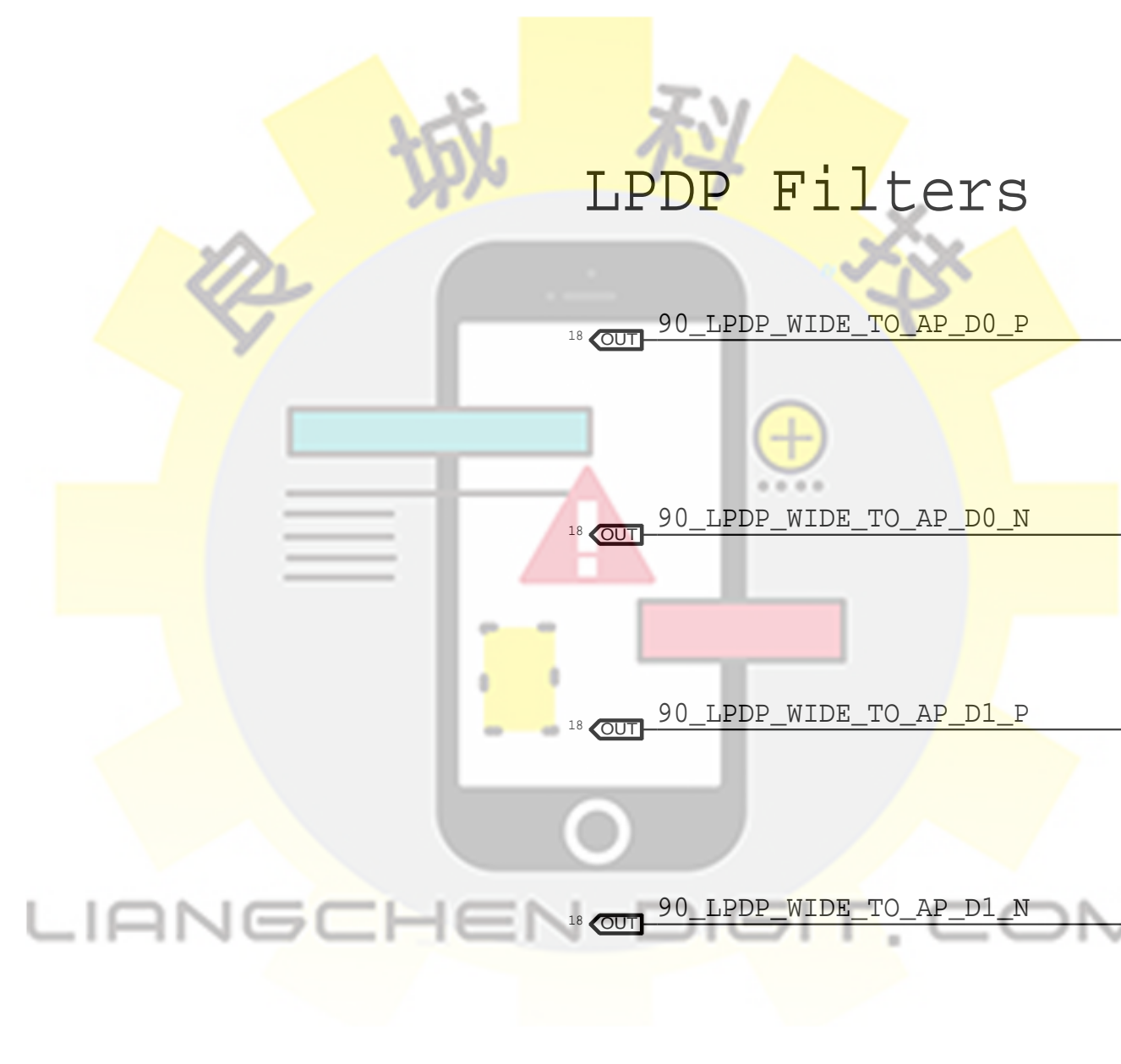
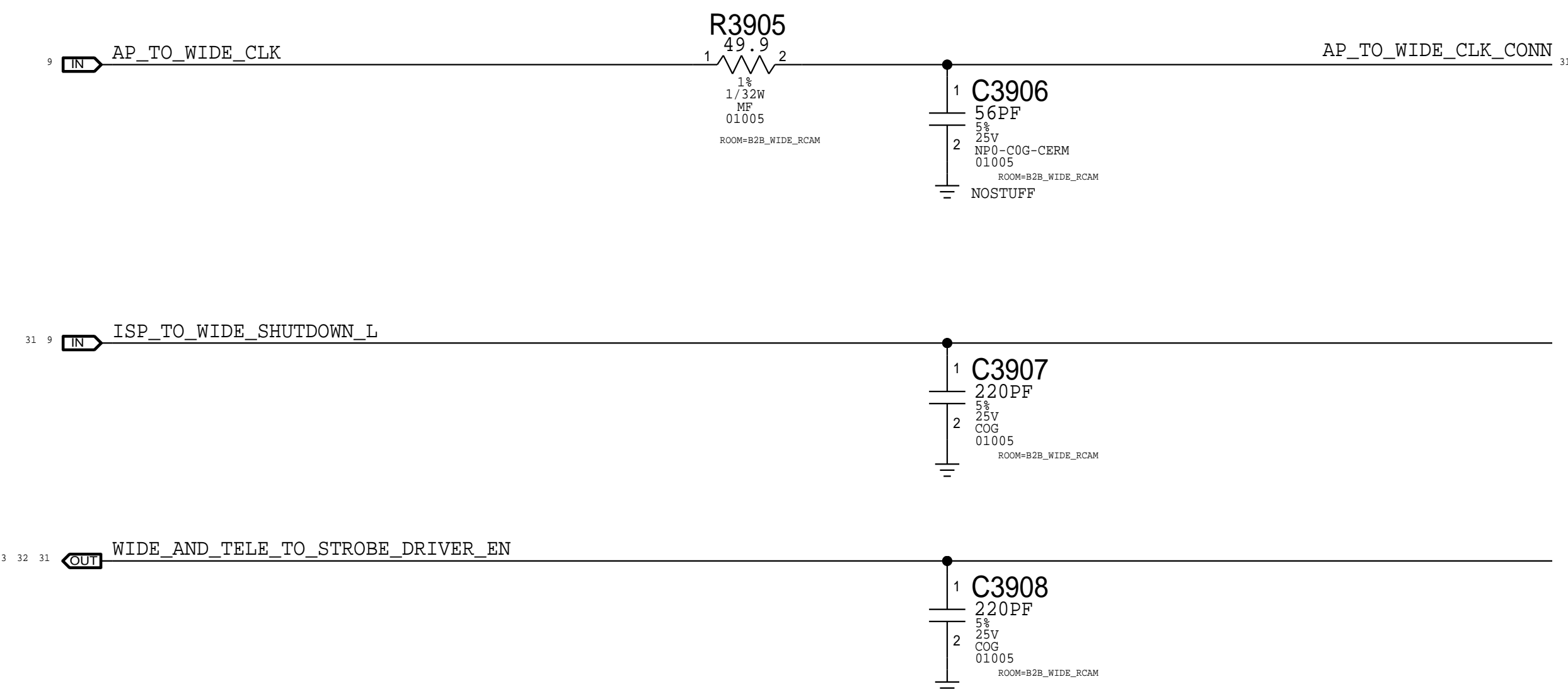
ISP I2C



LPDP Filters



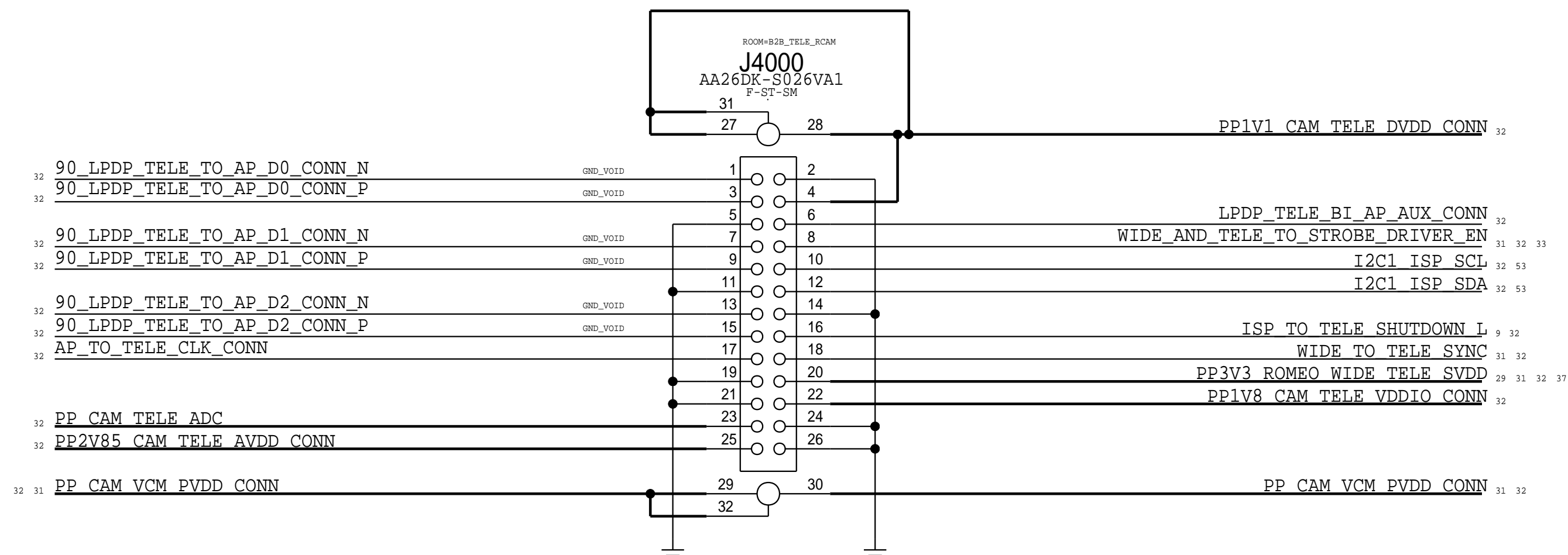
IO Filters



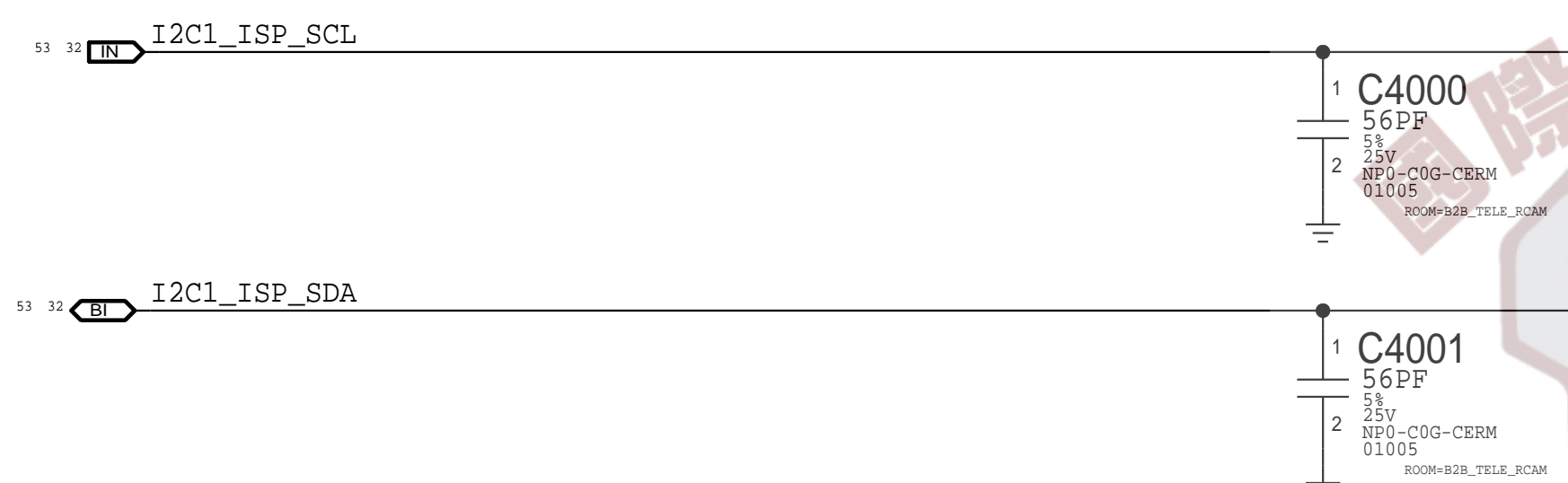
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CAMERA: B2B Wide (TX)		
Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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	PAGE	39 OF 85
	SHEET	31 OF 60
	SIZE	D

Tele Camera Connector

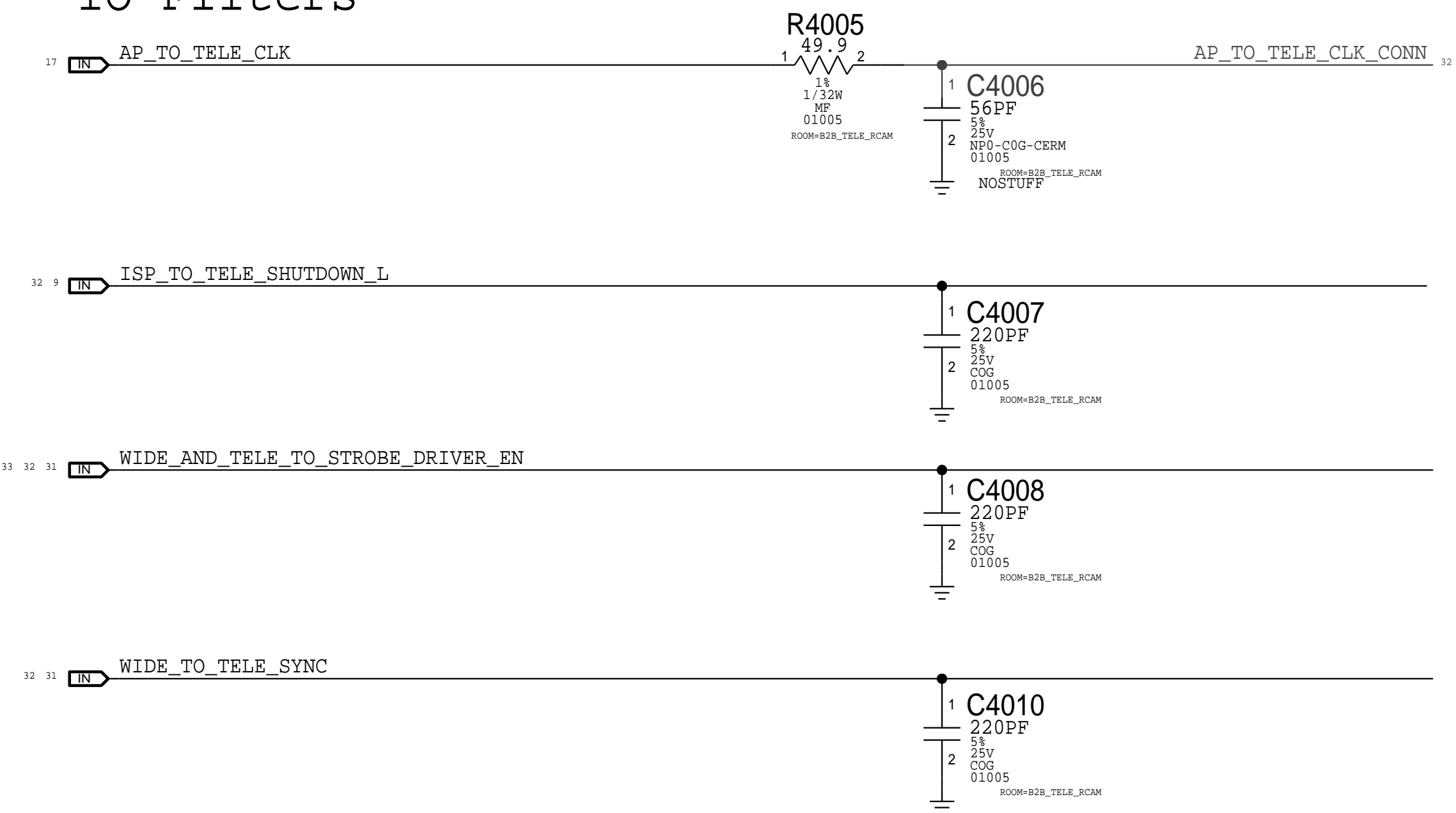
Rcpt: 516S00313 <-- This one on MLB
 Plug: 516S00314



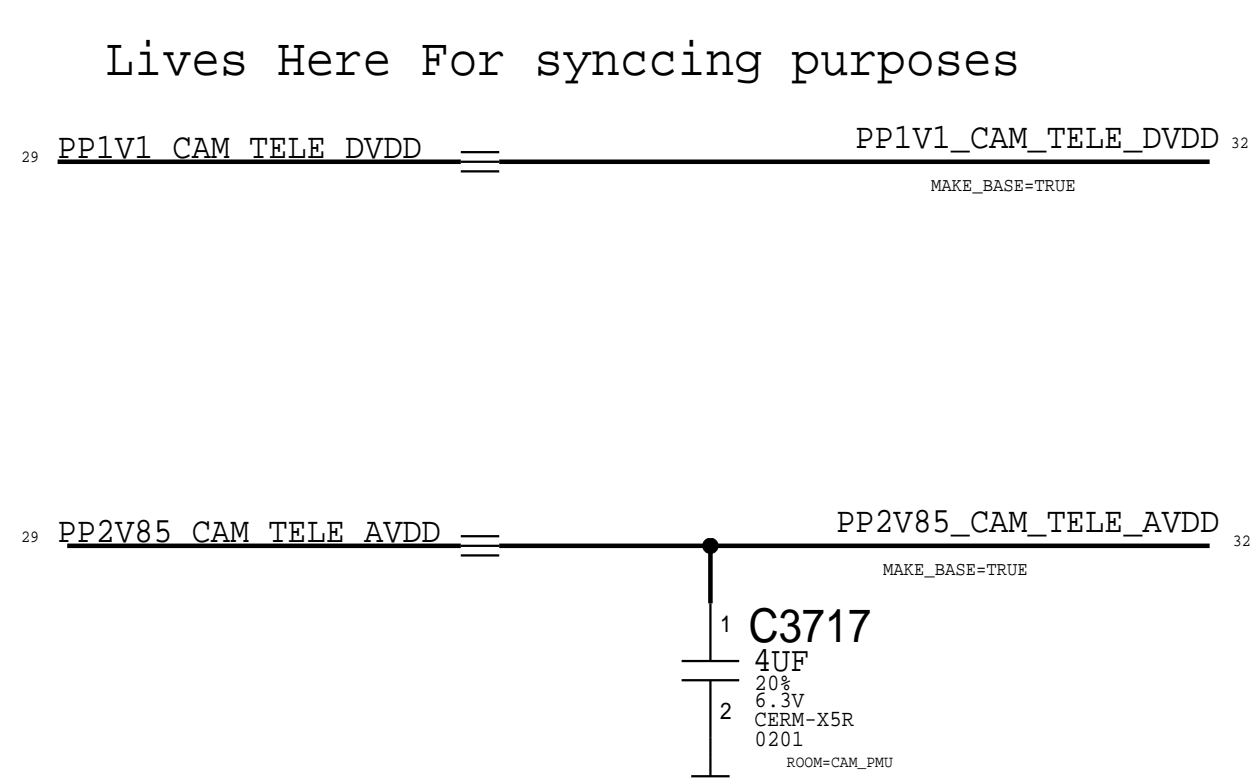
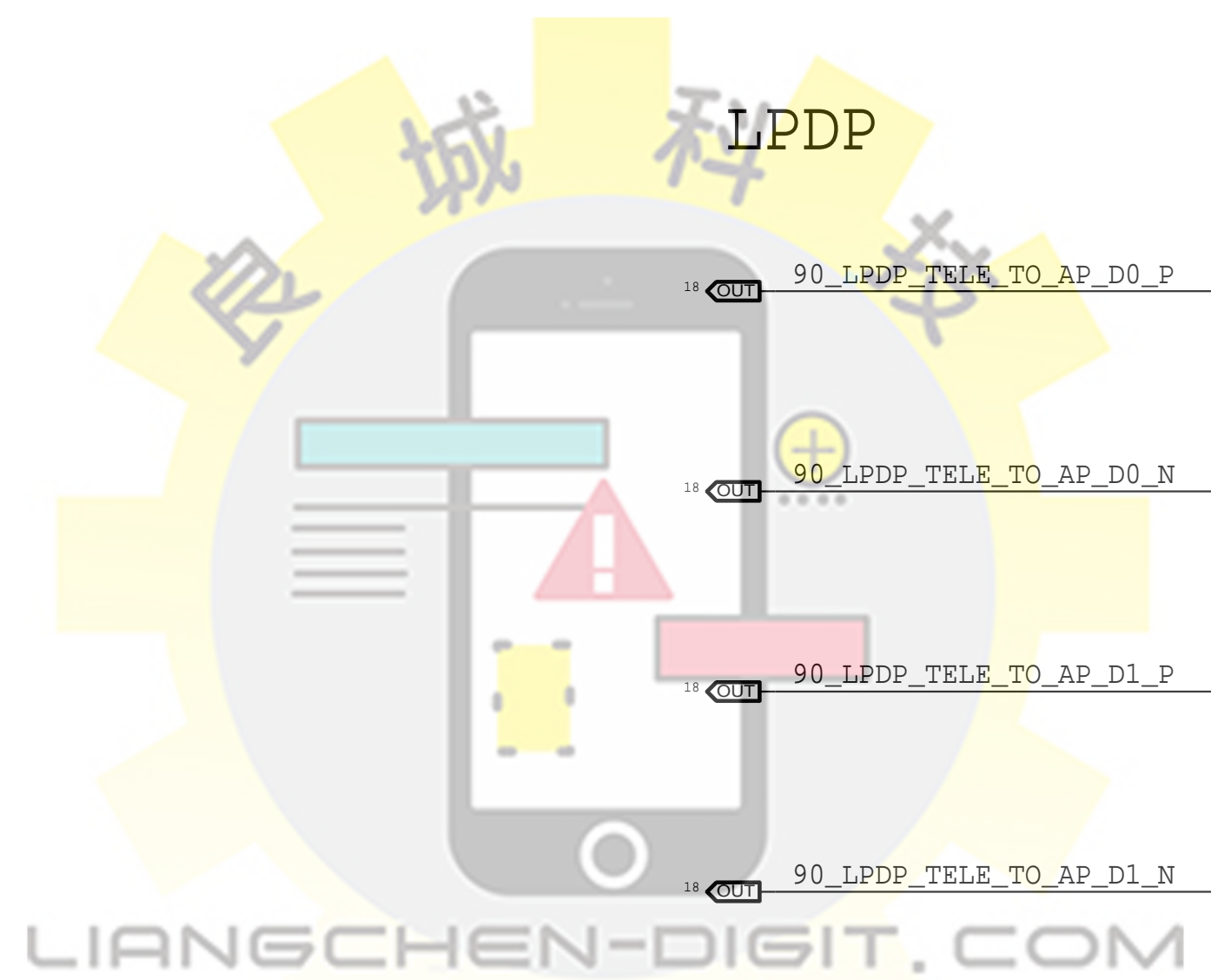
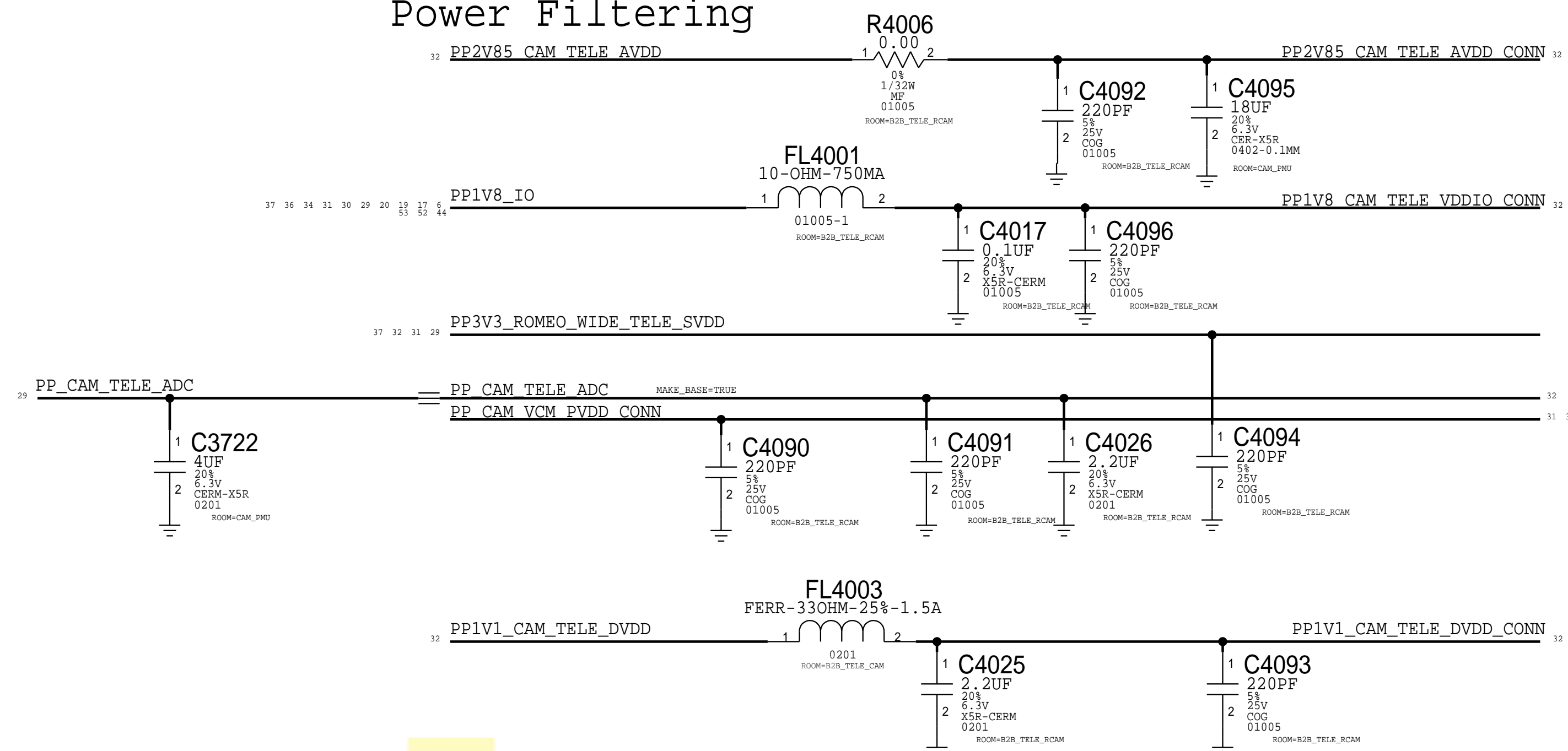
ISP I2C



IO Filters



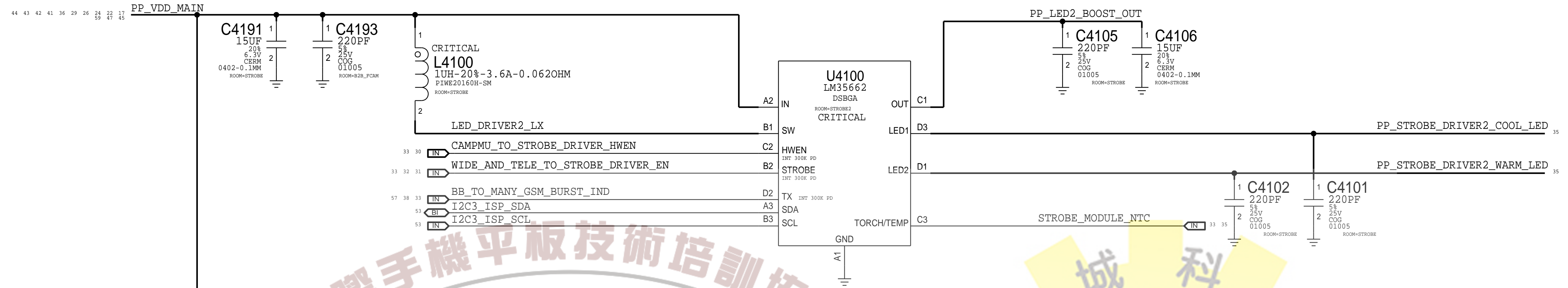
Power Filtering



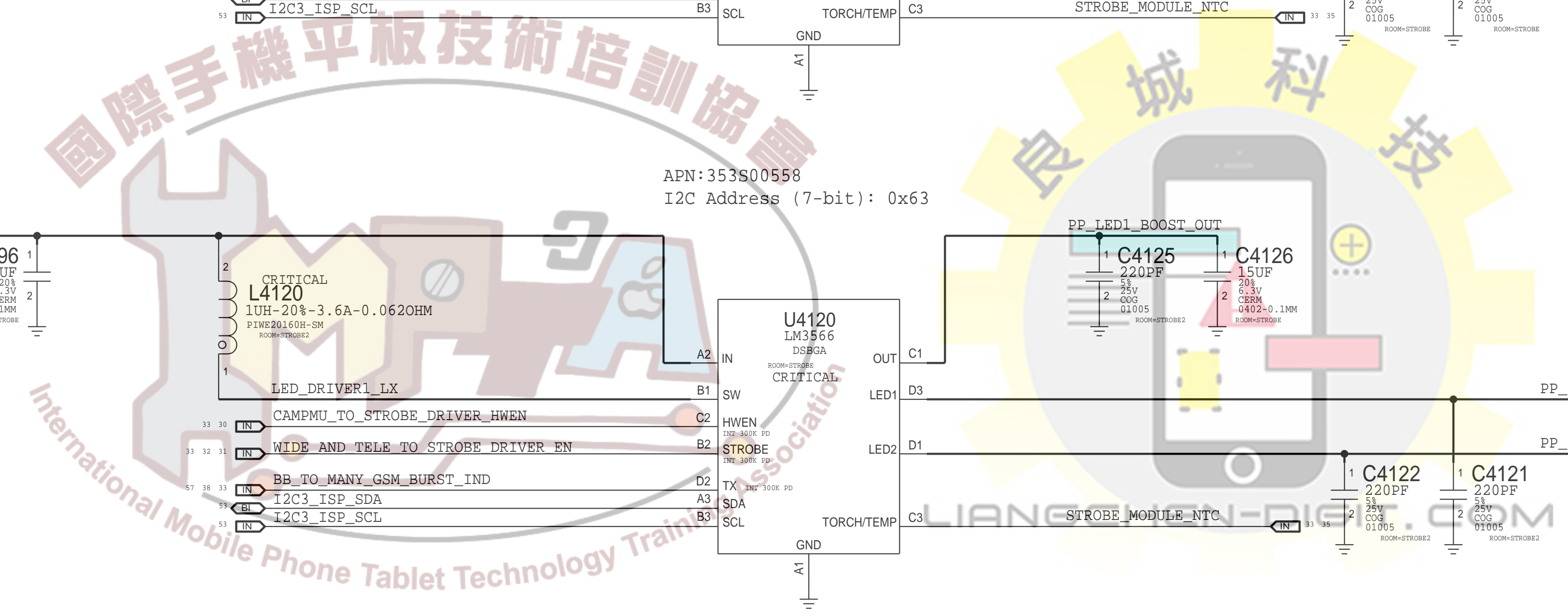
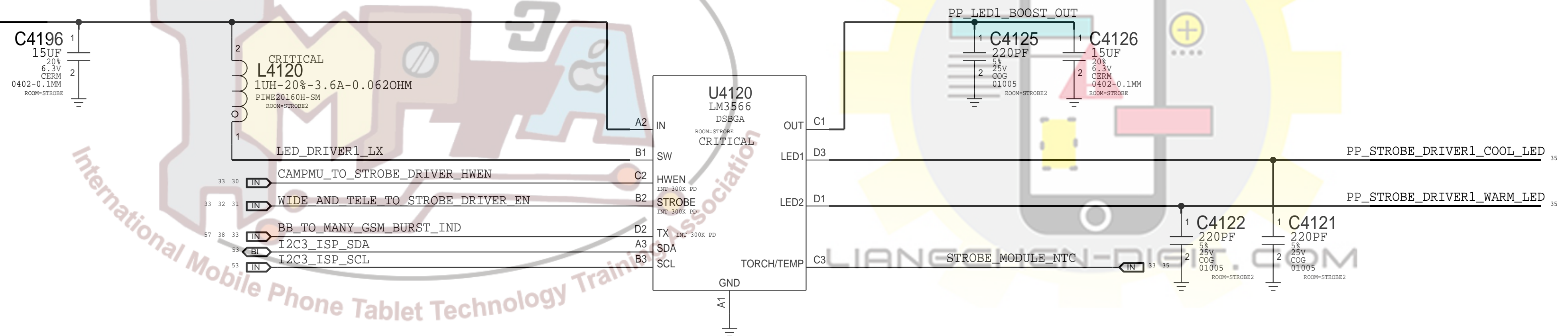
PAGE TITLE		
CAMERA: B2B Tele [MT]		
DRAWING NUMBER	051-02545	SIZE
		D
REVISION	7.0.0	BRANCH
PAGE	40 OF 85	SHEET
		32 OF 60
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LED STROBE DRIVERS (NEON)

APN: 353S00868
I2C Address (7-bit): 0x67

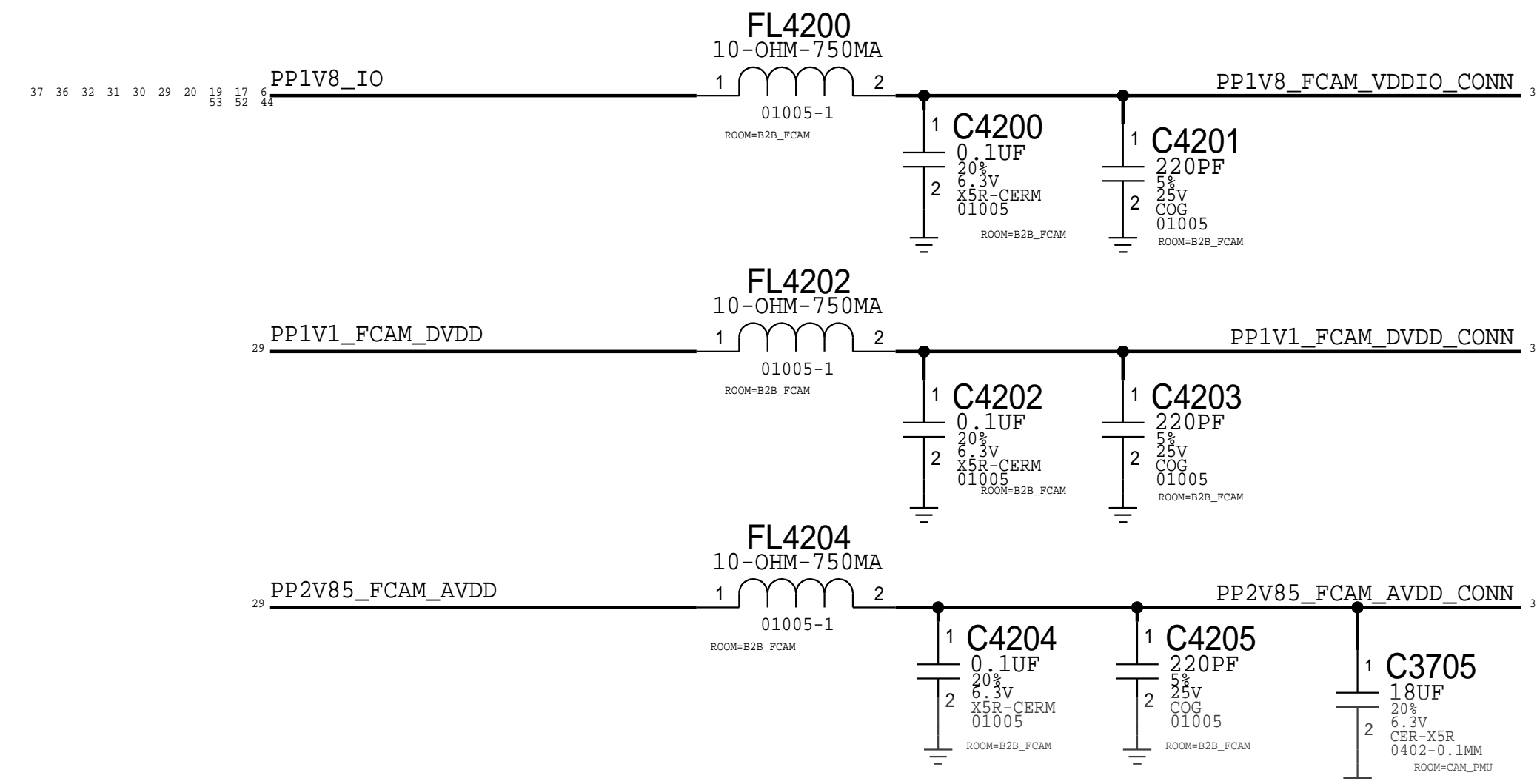


APN: 353S00558
I2C Address (7-bit): 0x63



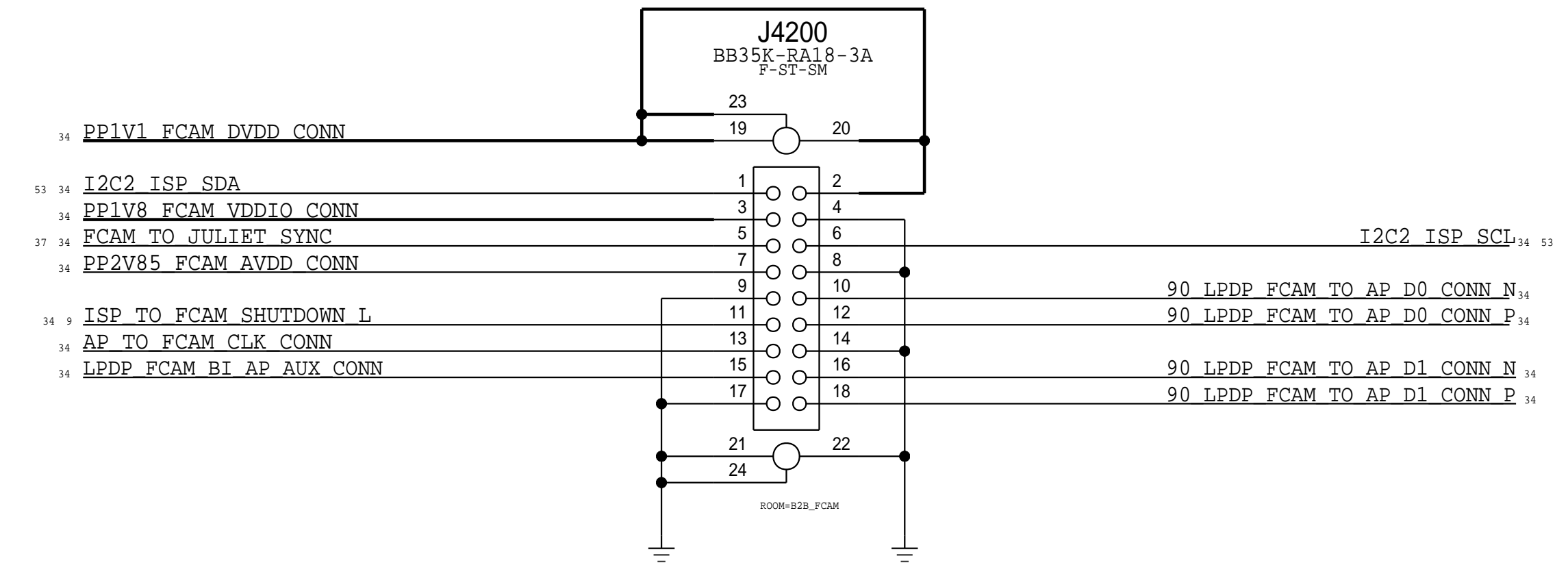
PAGE TITLE CAMERA: Strobe Drivers		
	DRAWING NUMBER 051-02545	SIZE D
	REVISION 7.0.0	
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BRANCH		PAGE 41 OF 85
SHEET		33 OF 60

LONG ISLAND POWER

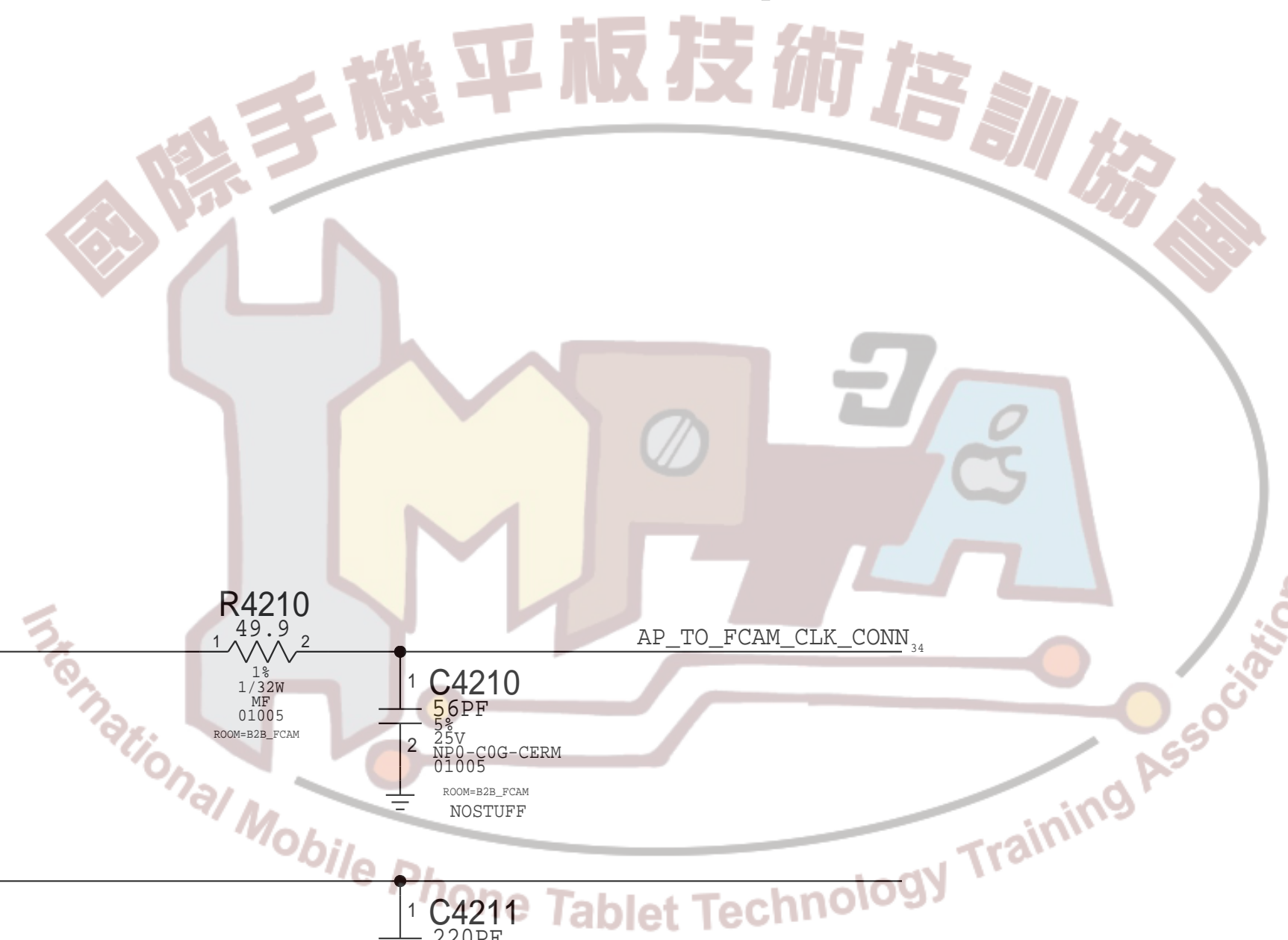
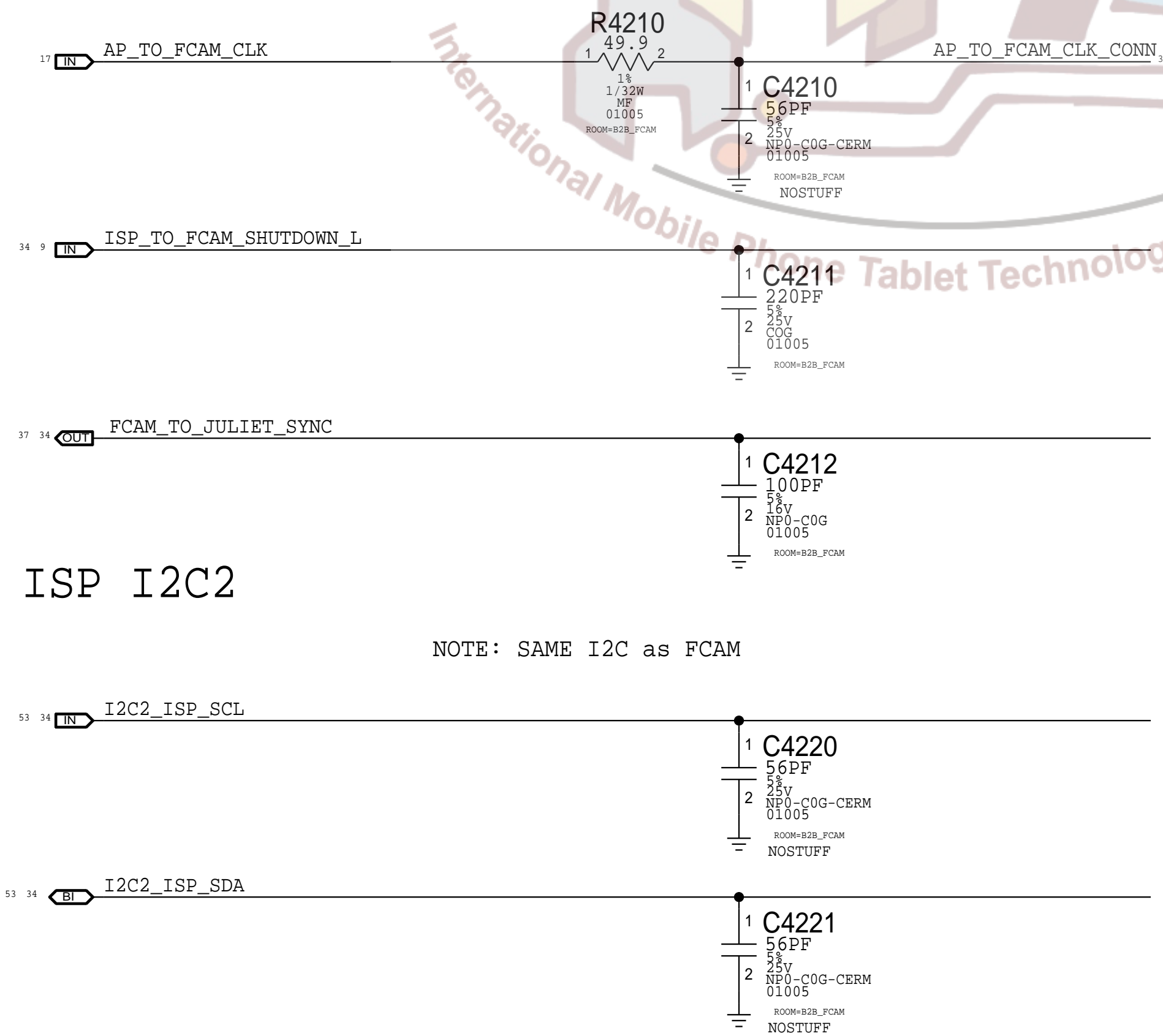


FCAM Connector

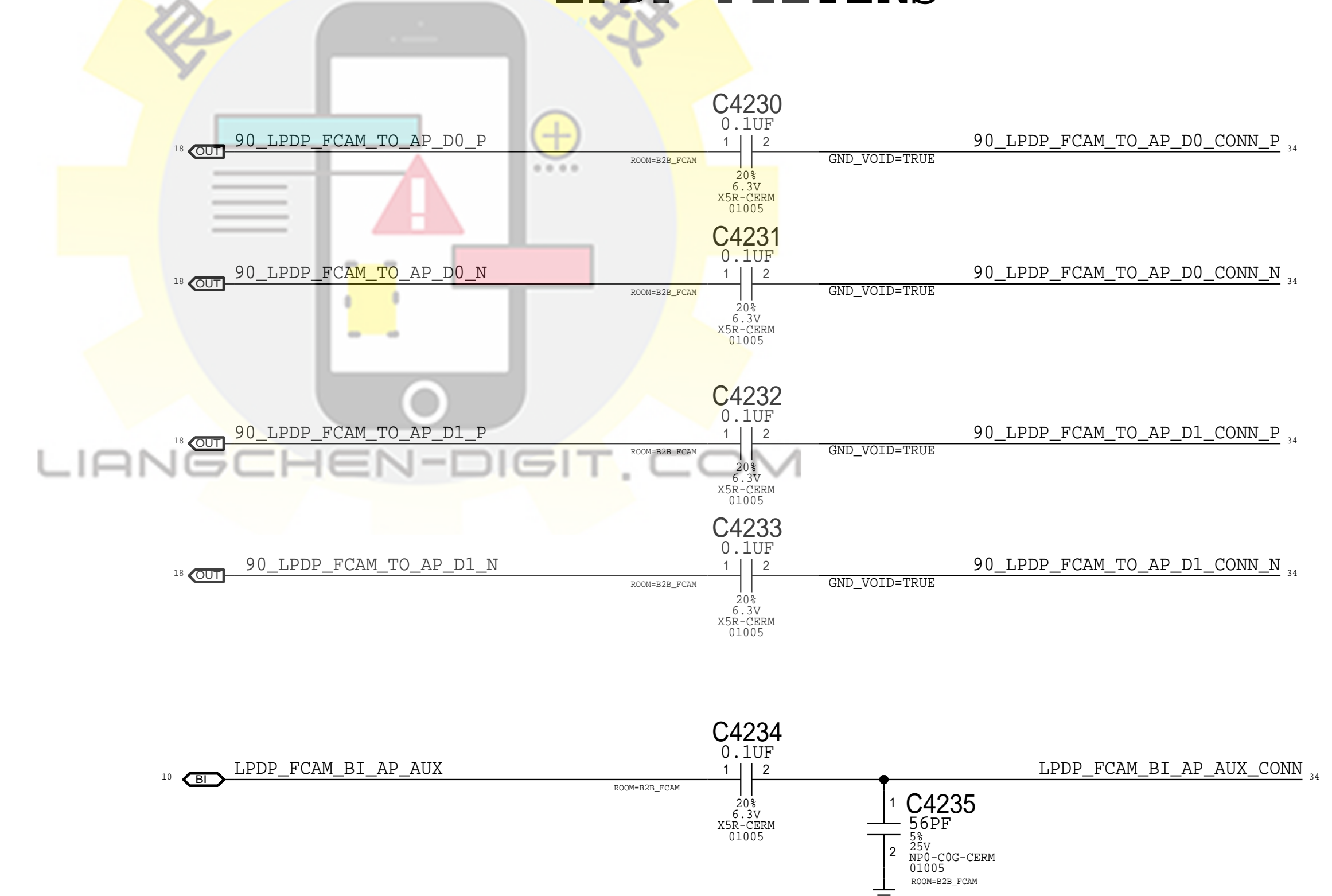
Rept: 516S00244 <-- This one on MLB
Plug: 516S00245



FCAM I/O



LPDP FILTERS



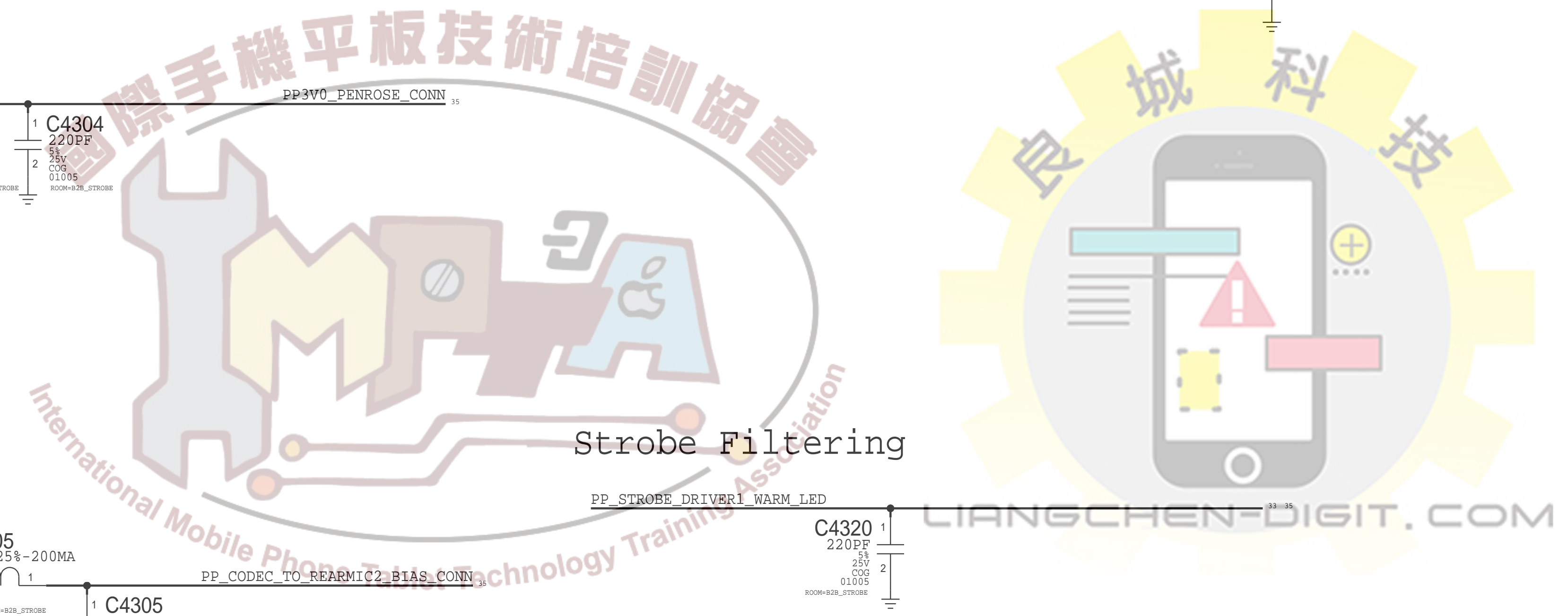
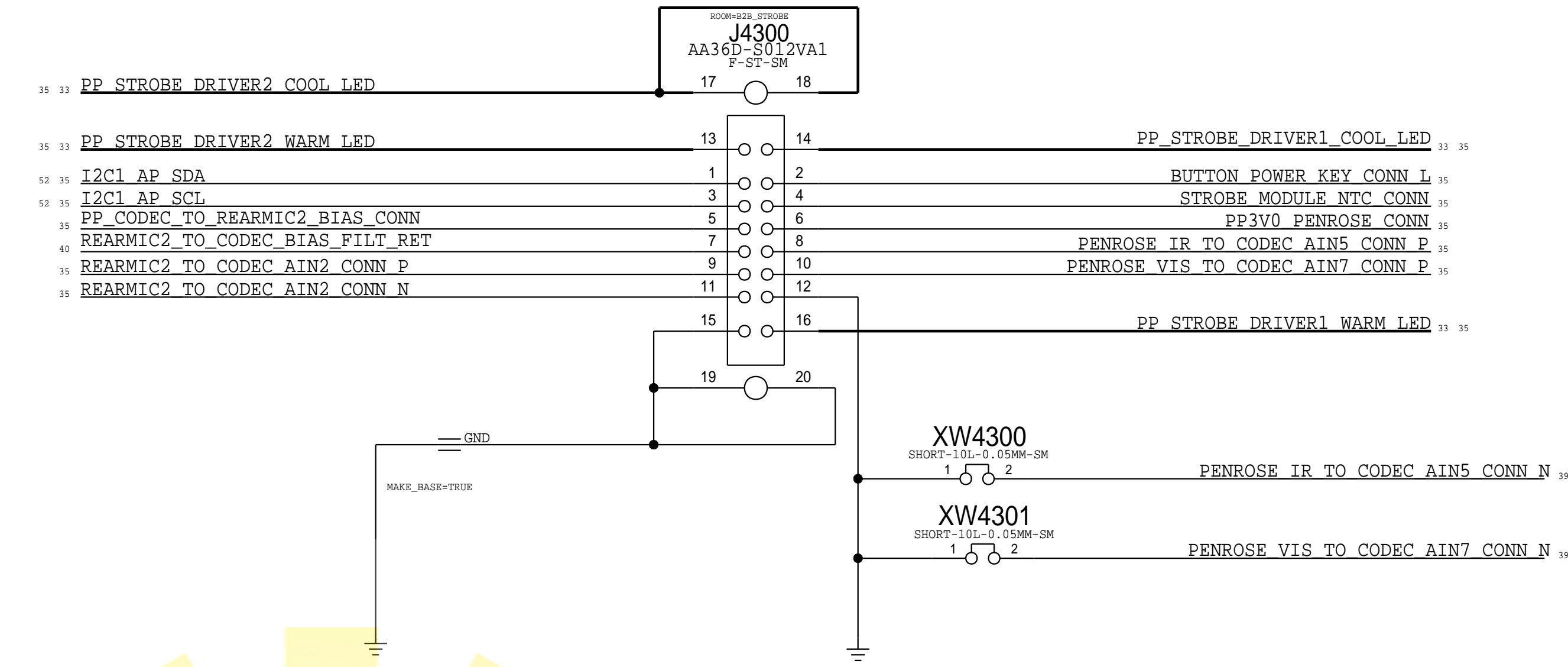
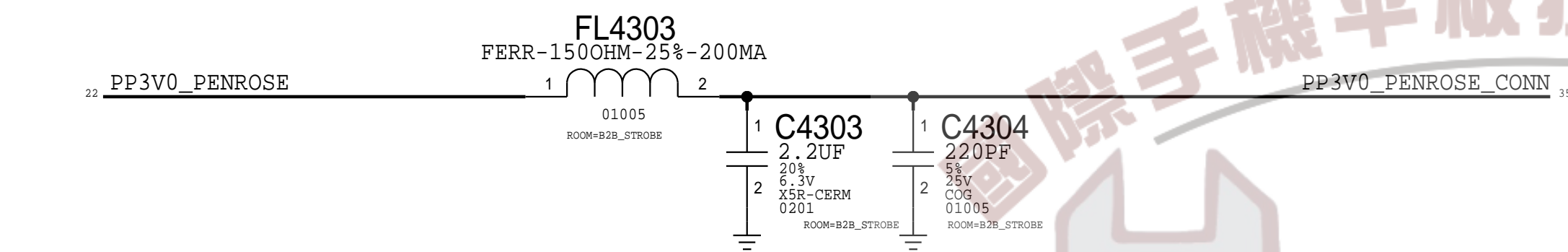
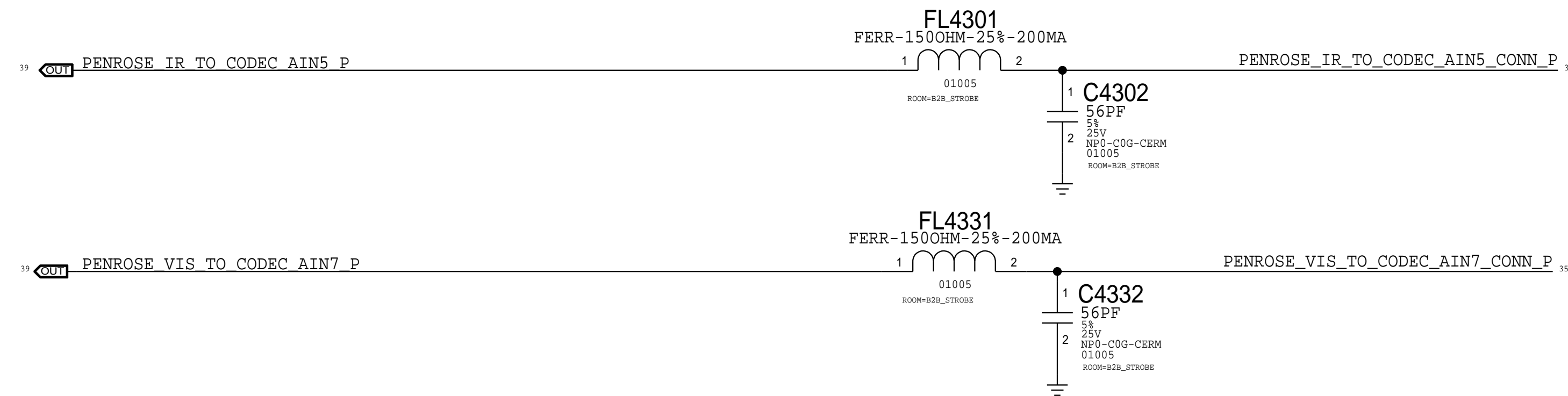
NOTE: SAME I2C as FCAM

PAGE TITLE		
CAMERA: B2B Fcam		
	DRAWING NUMBER	051-02545
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		42 OF 85
		SHEET
		34 OF 60

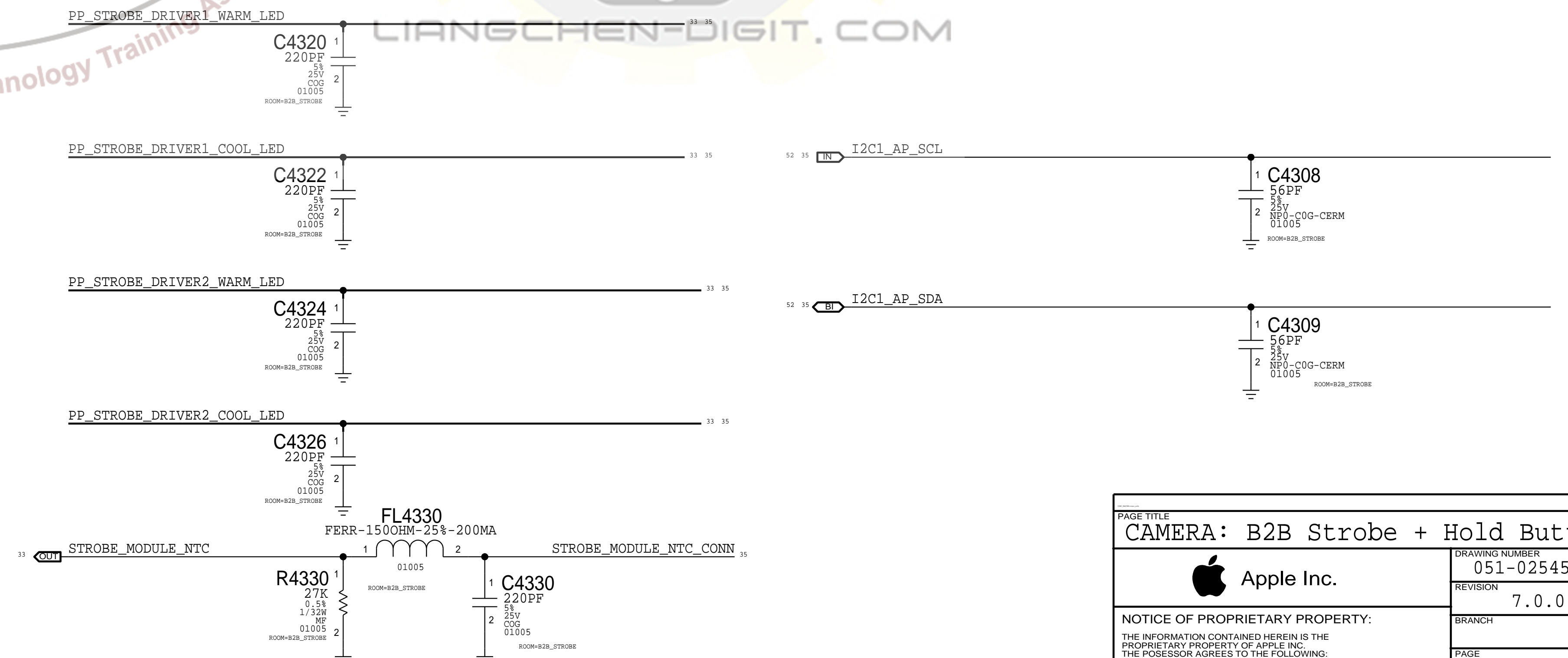
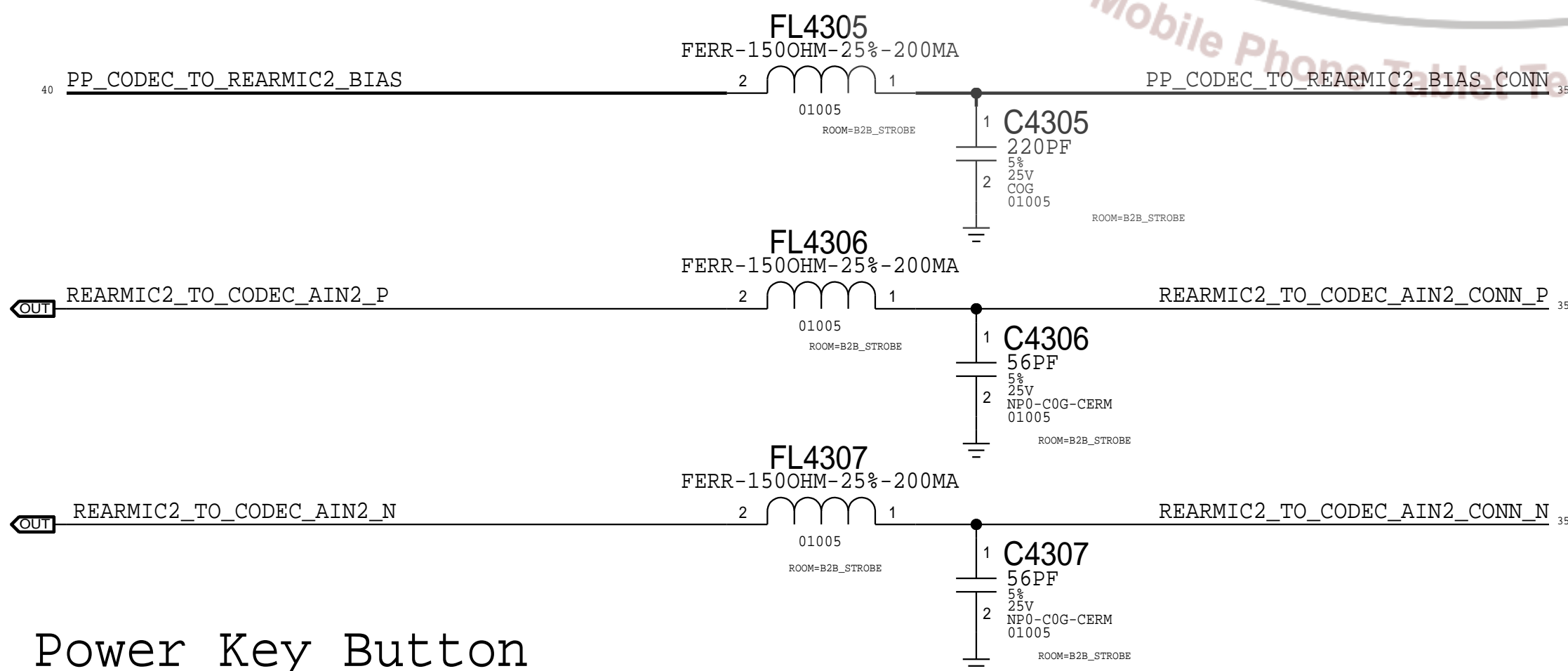
PENROSE

Strobe Connector

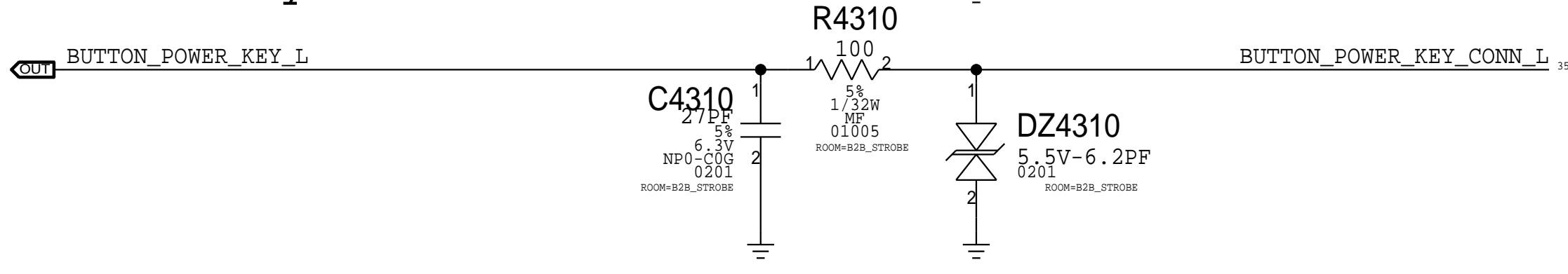
Rcpt: 516S00381 <-- This one on MLB
Plug: 516S00382



MIC2 (ANC REF)



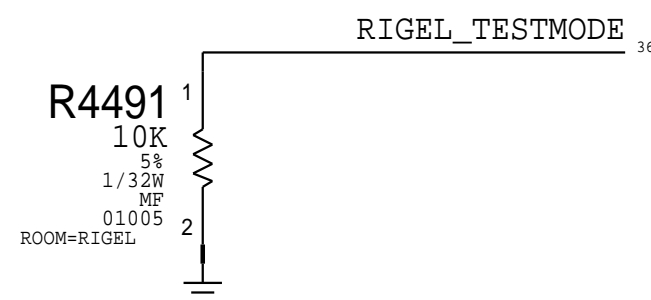
Power Key Button



PAGE TITLE CAMERA: B2B Strobe + Hold Button		
DRAWING NUMBER 051-02545		SIZE D
REVISION 7.0.0		BRANCH
PAGE 43 OF 85		SHEET 35 OF 60
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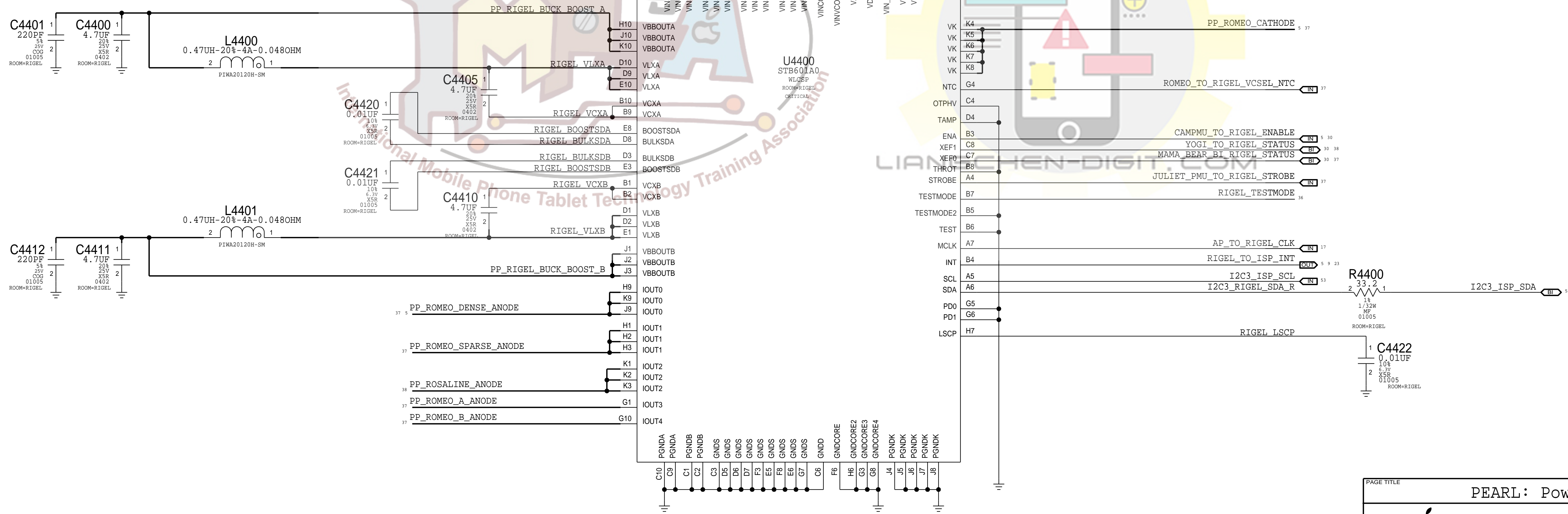
Rigel Driver

Test Mode Debugging



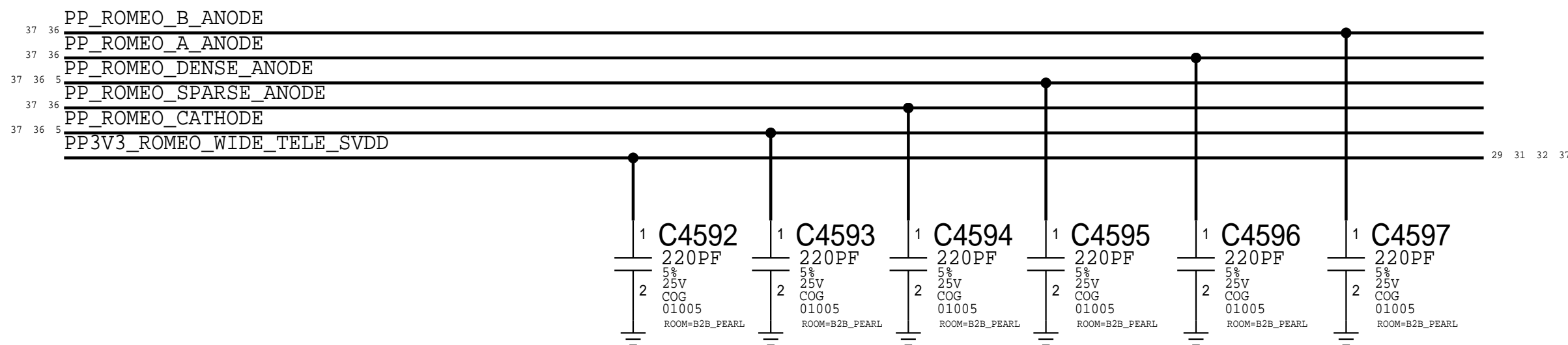
Rigel ALTs

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00720	152S00640	ALT_PARTS	L4400, L4401	RIGEL Inductors

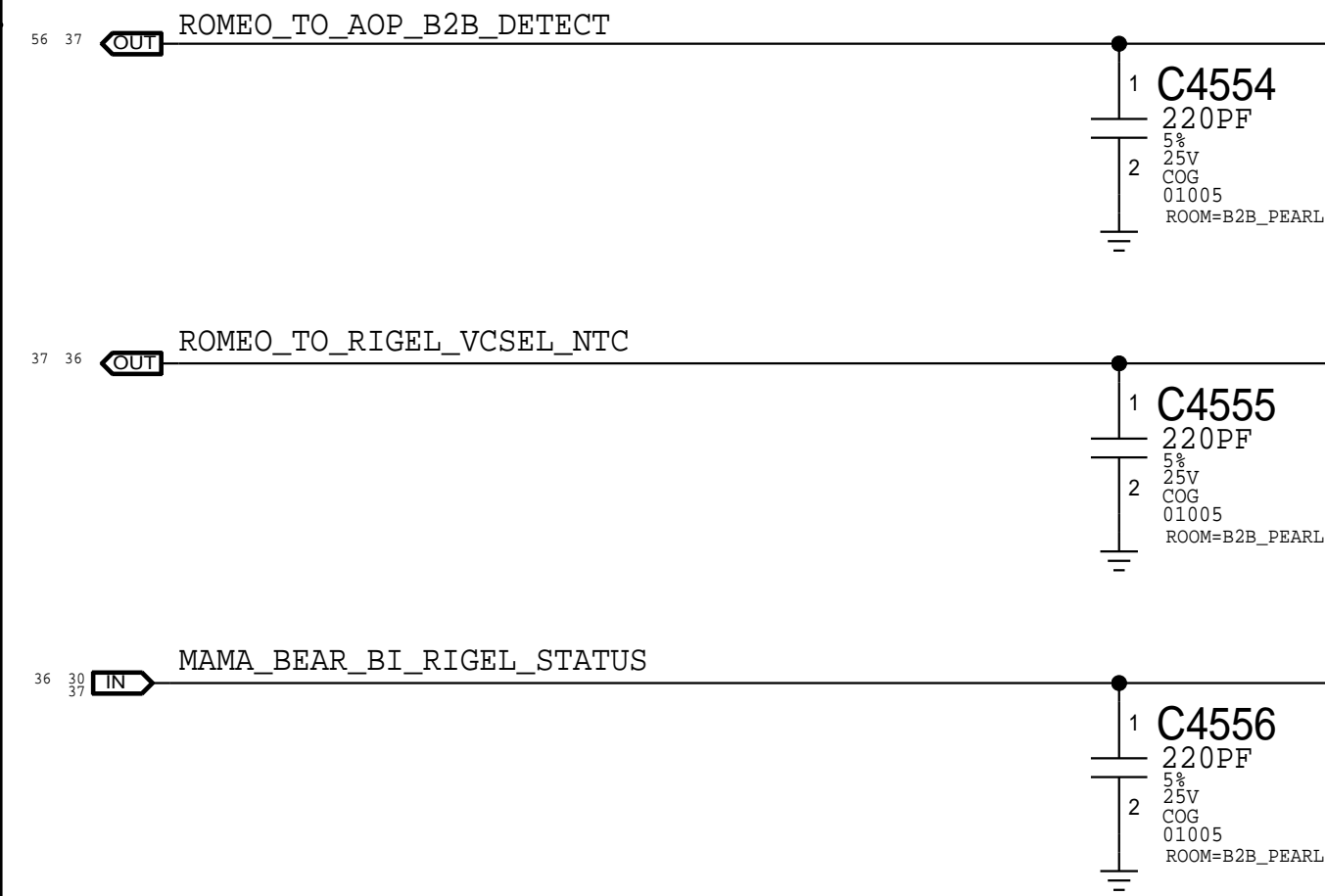


PAGE TITLE		
PEARL: Power		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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BRANCH		
PAGE	44 OF 85	
SHEET	36 OF 60	

Romeo Power Filtering



Romeo I/O

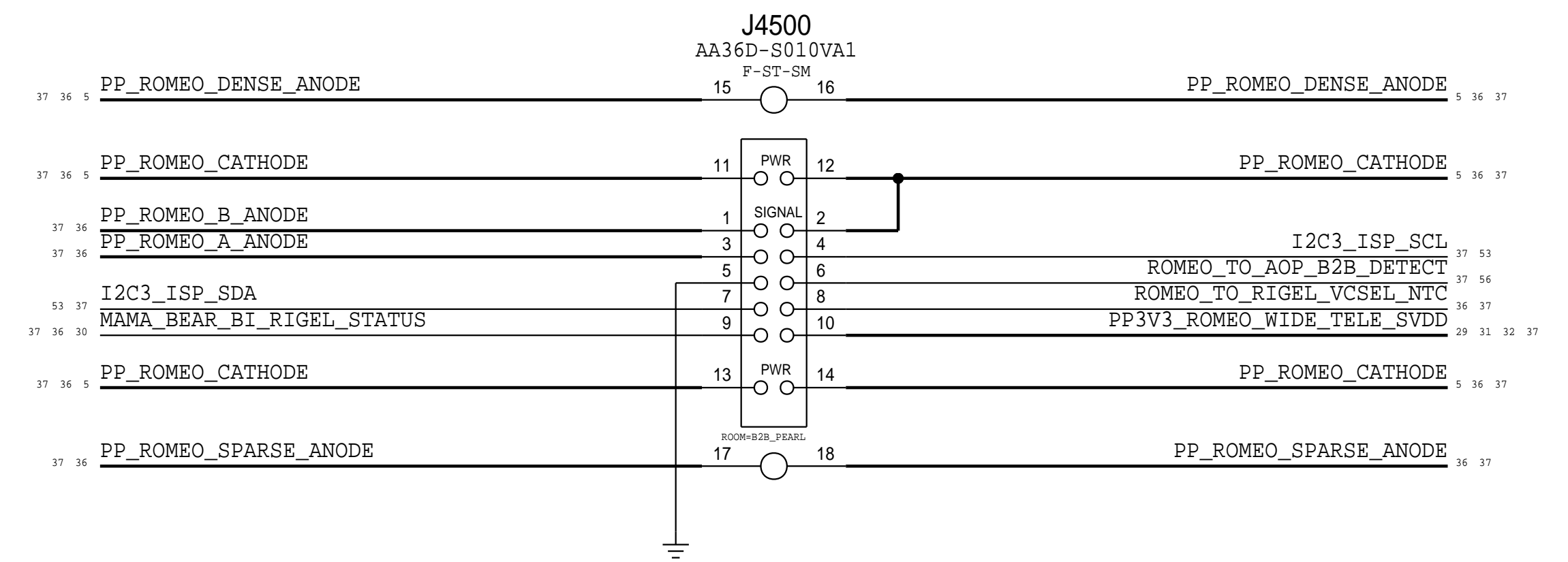


ISP I2C3



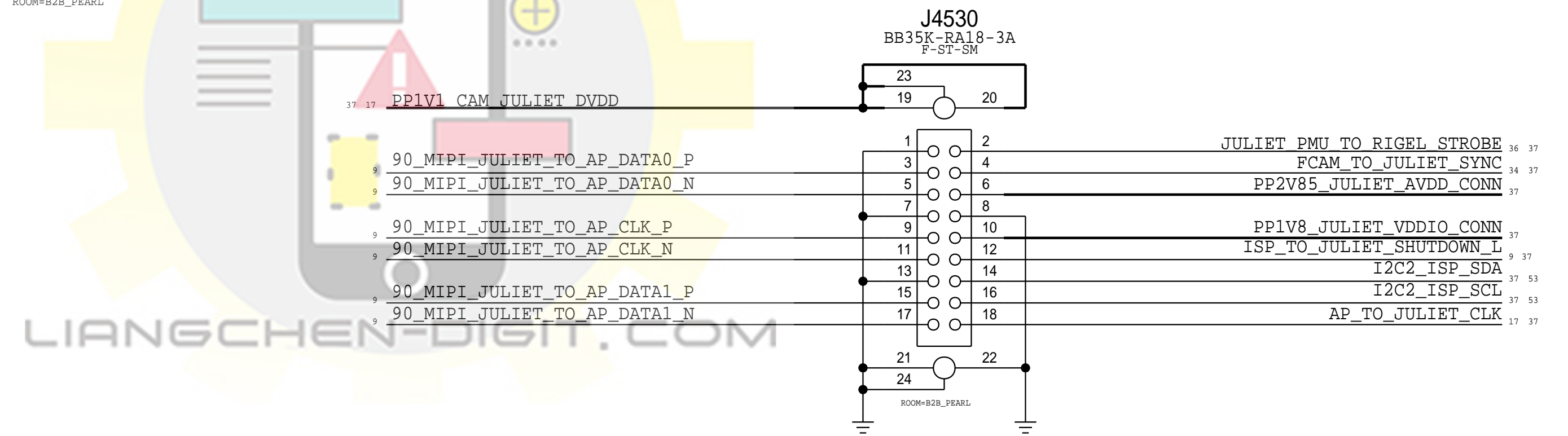
Romeo Connector

Rcpt: 516S00267 <-- This one on MLB
Plug: 516S00268

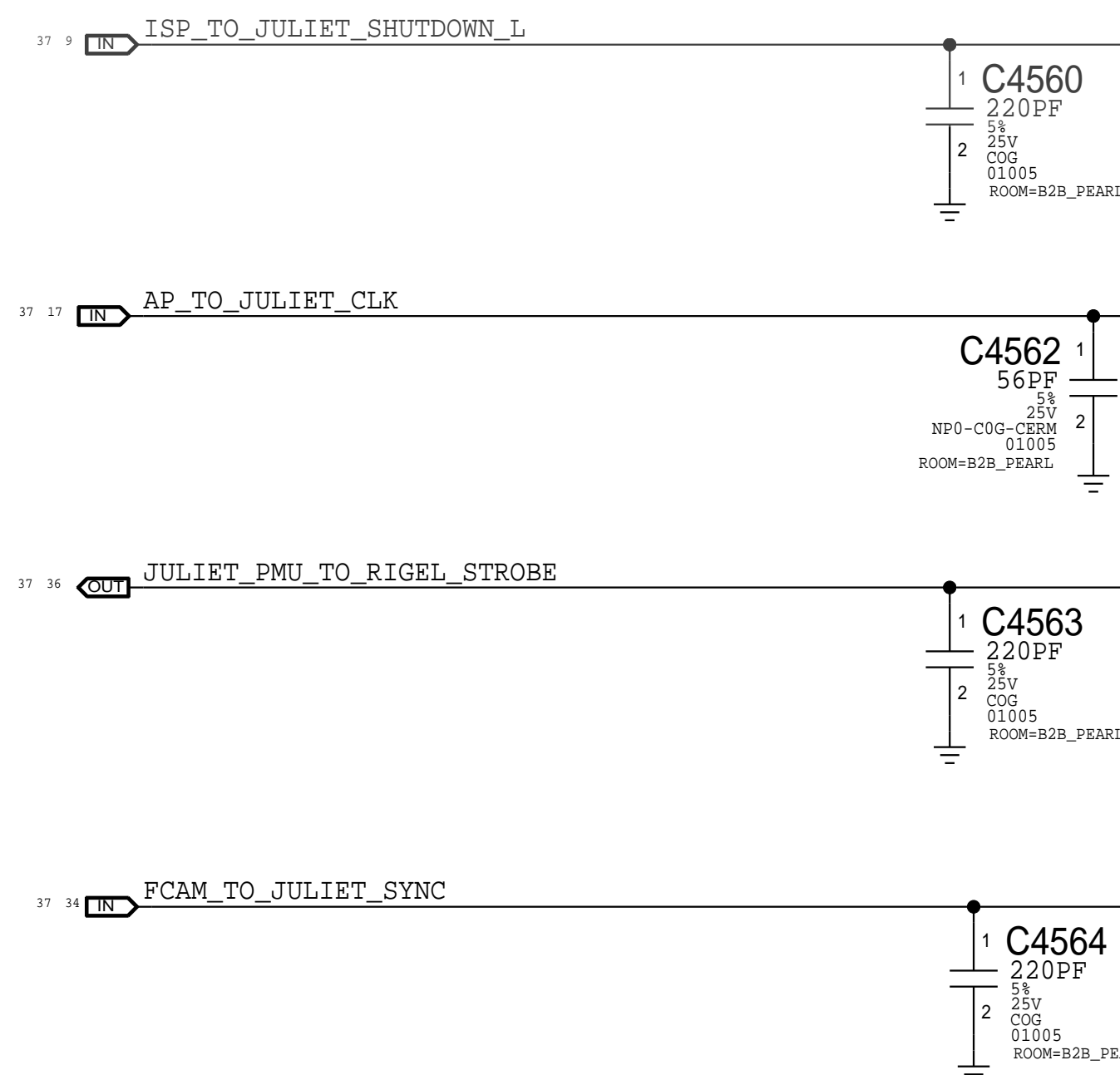
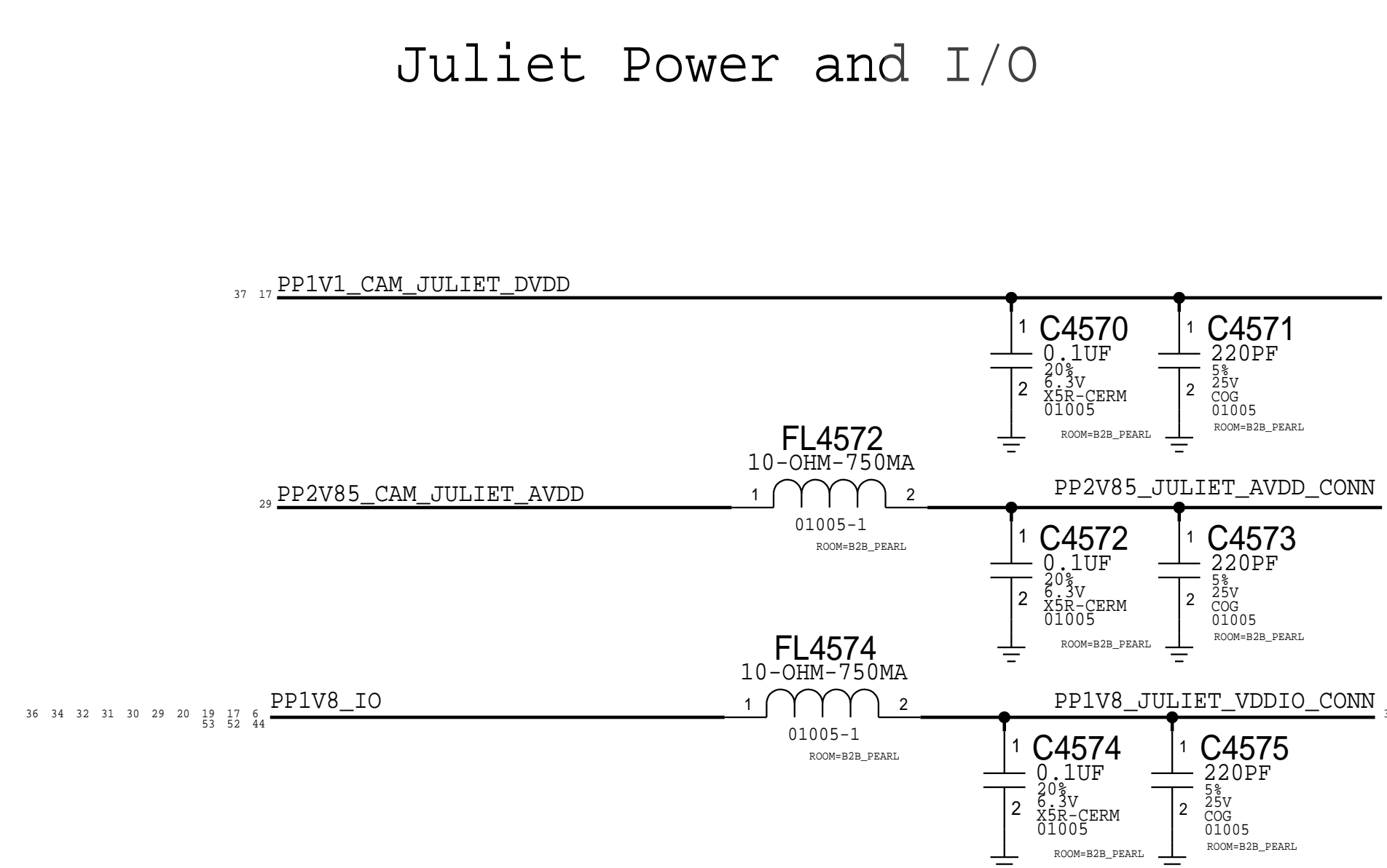


Juliet Connector

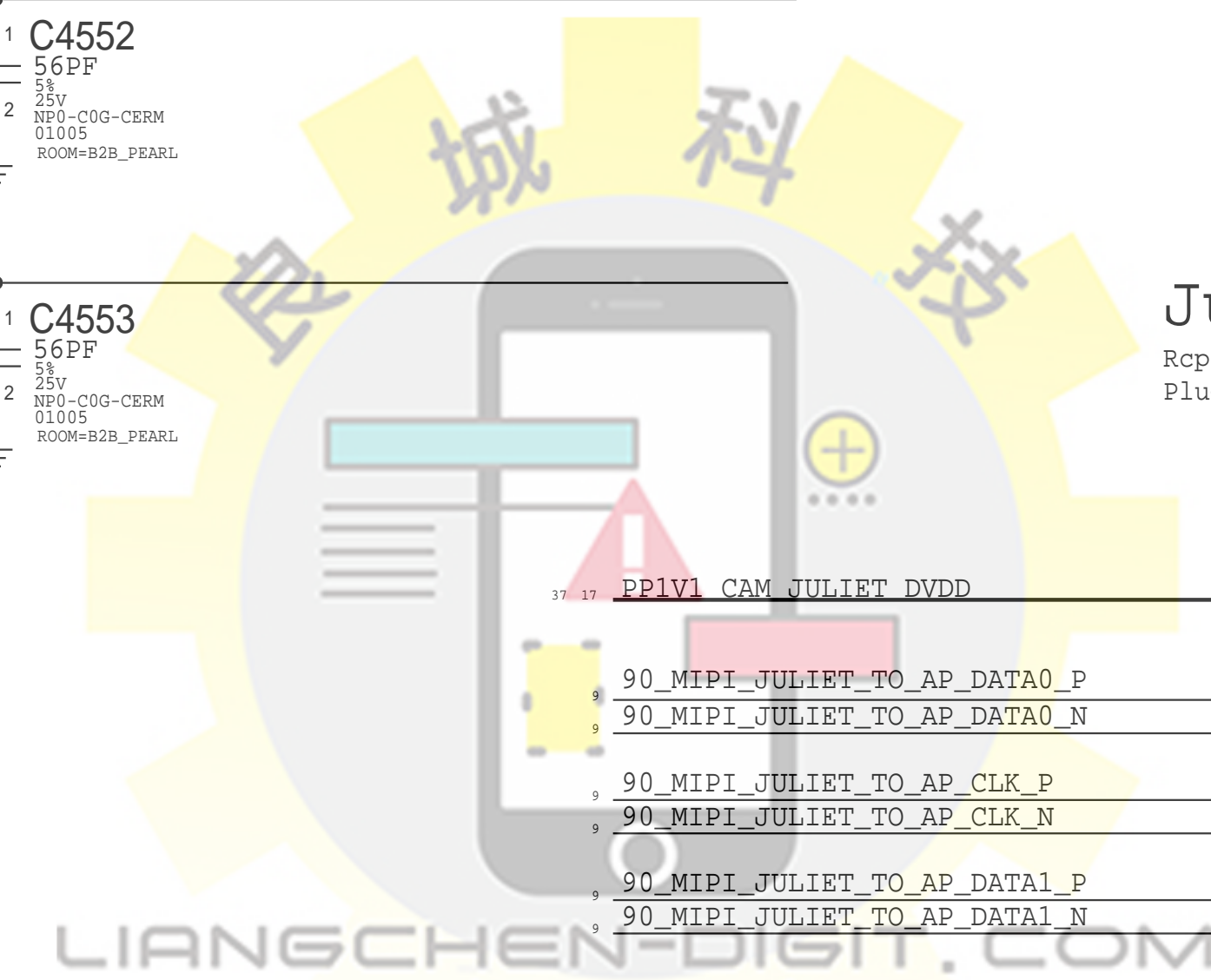
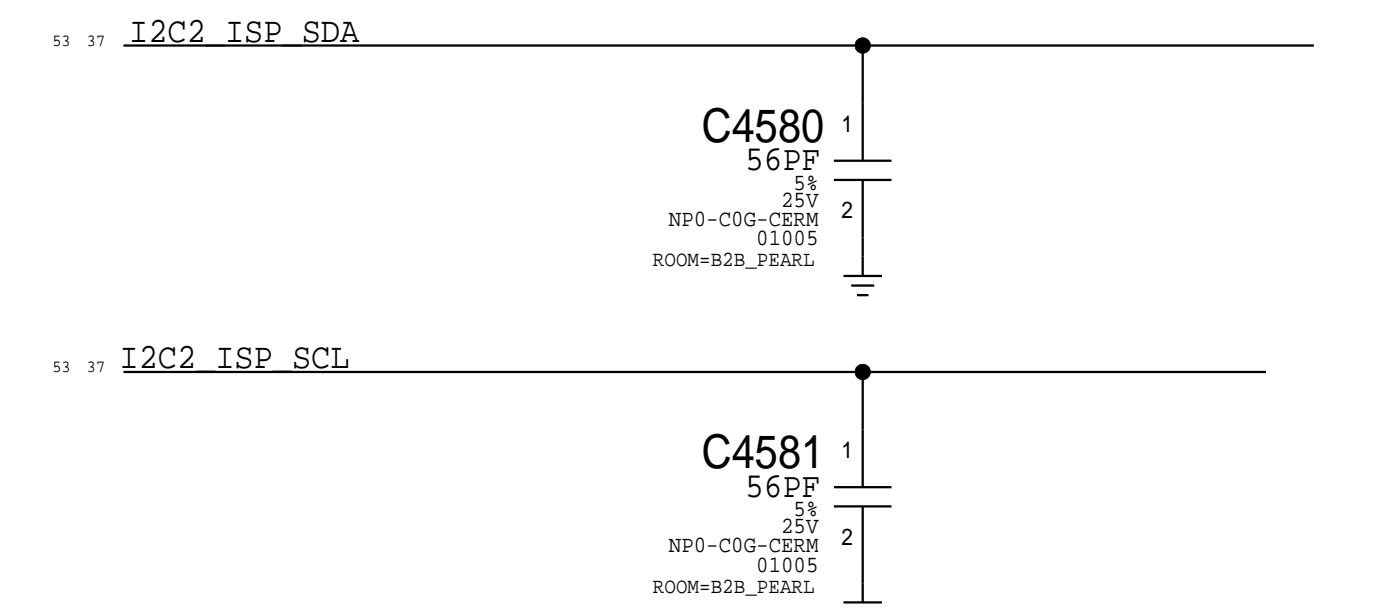
Rcpt: 516S00244 <-- This one on MLB
Plug: 516S00245



Juliet Power and I/O

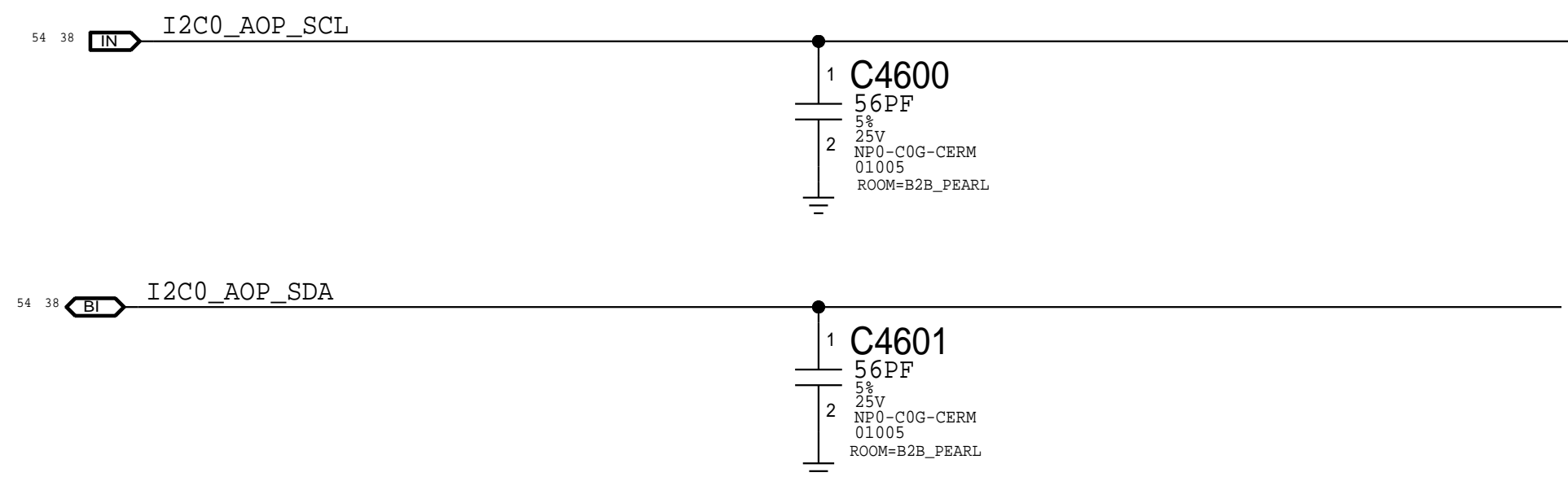


NOTE: SAME I2C as FCAM

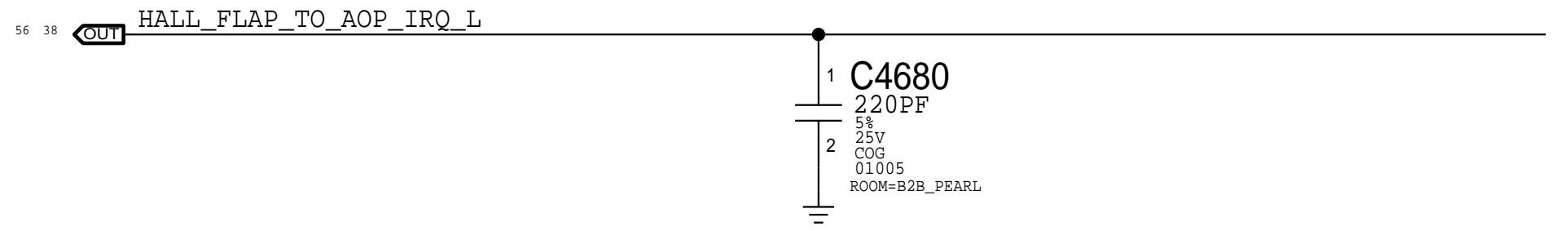


PAGE TITLE PEARL: B2B Romeo + Juliet		
Apple Inc.	DRAWING NUMBER 051-02545	SIZE D
	REVISION 7.0.0	BRANCH
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		SHEET 37 OF 60

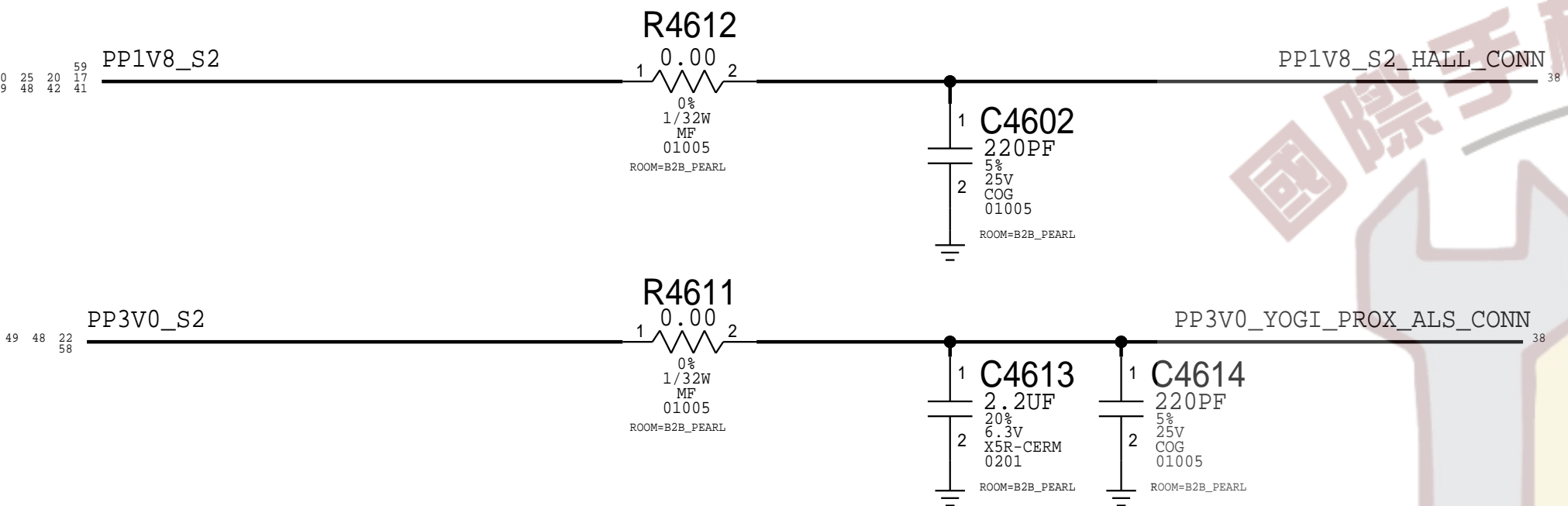
AOP I2C



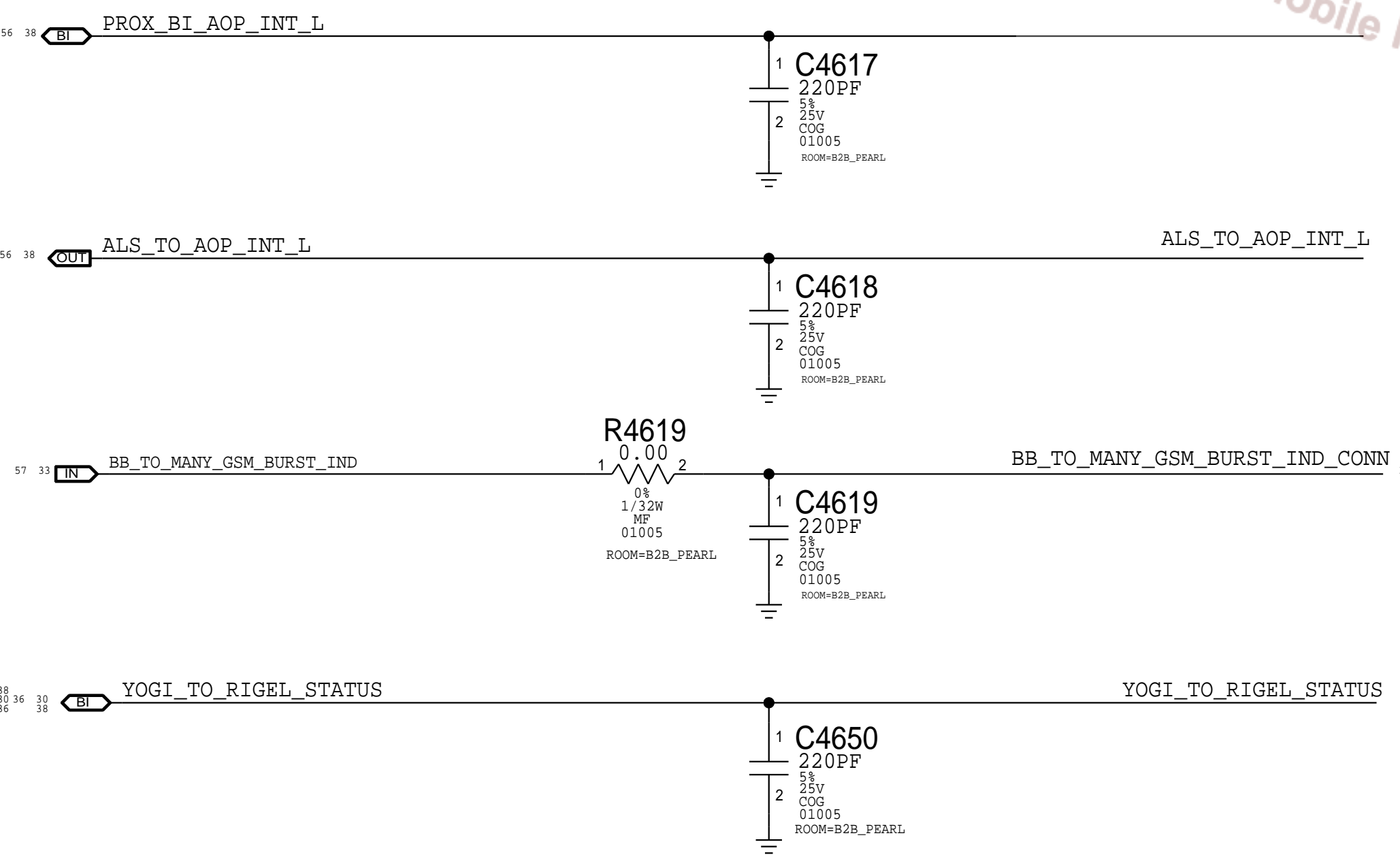
HALL I/Os



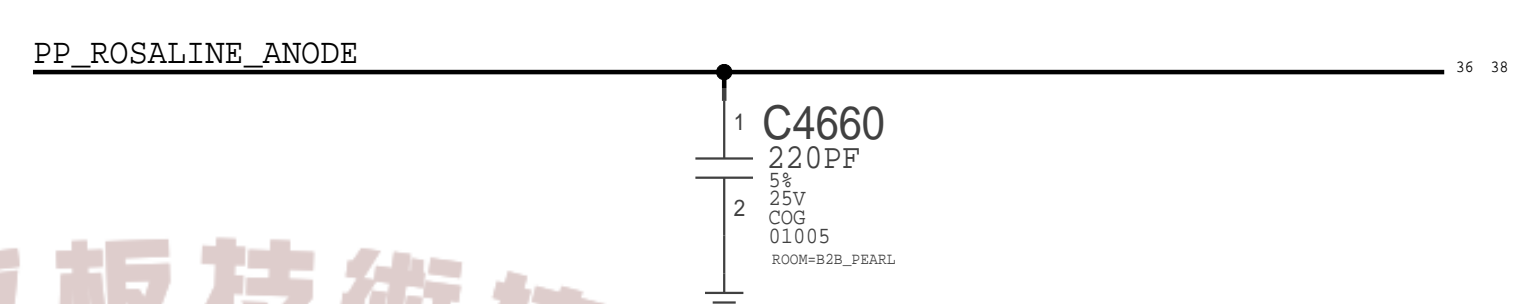
PROX & HALL POWER



PROX/ALS/YOGI I/O

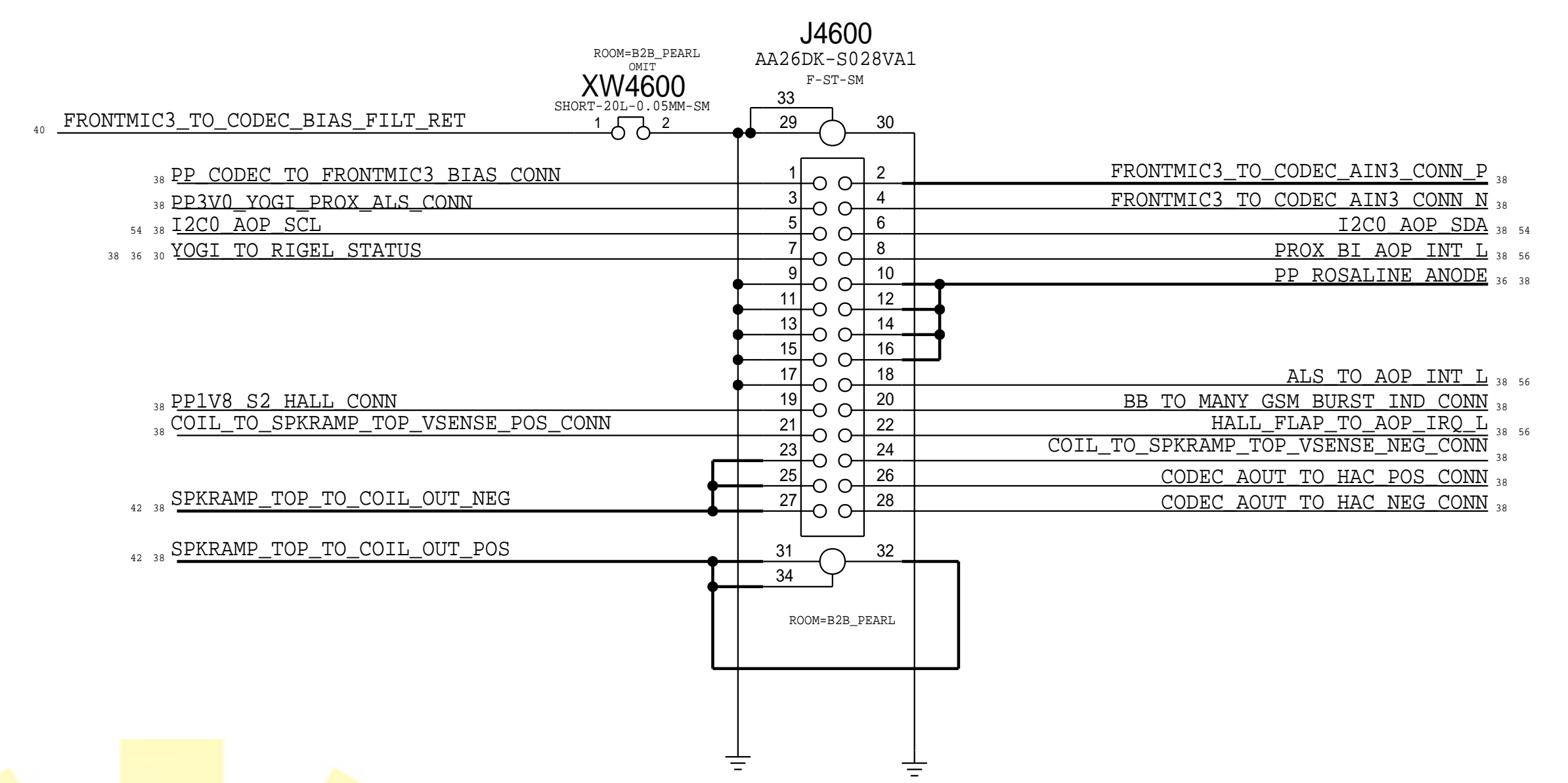


Yogi Signals

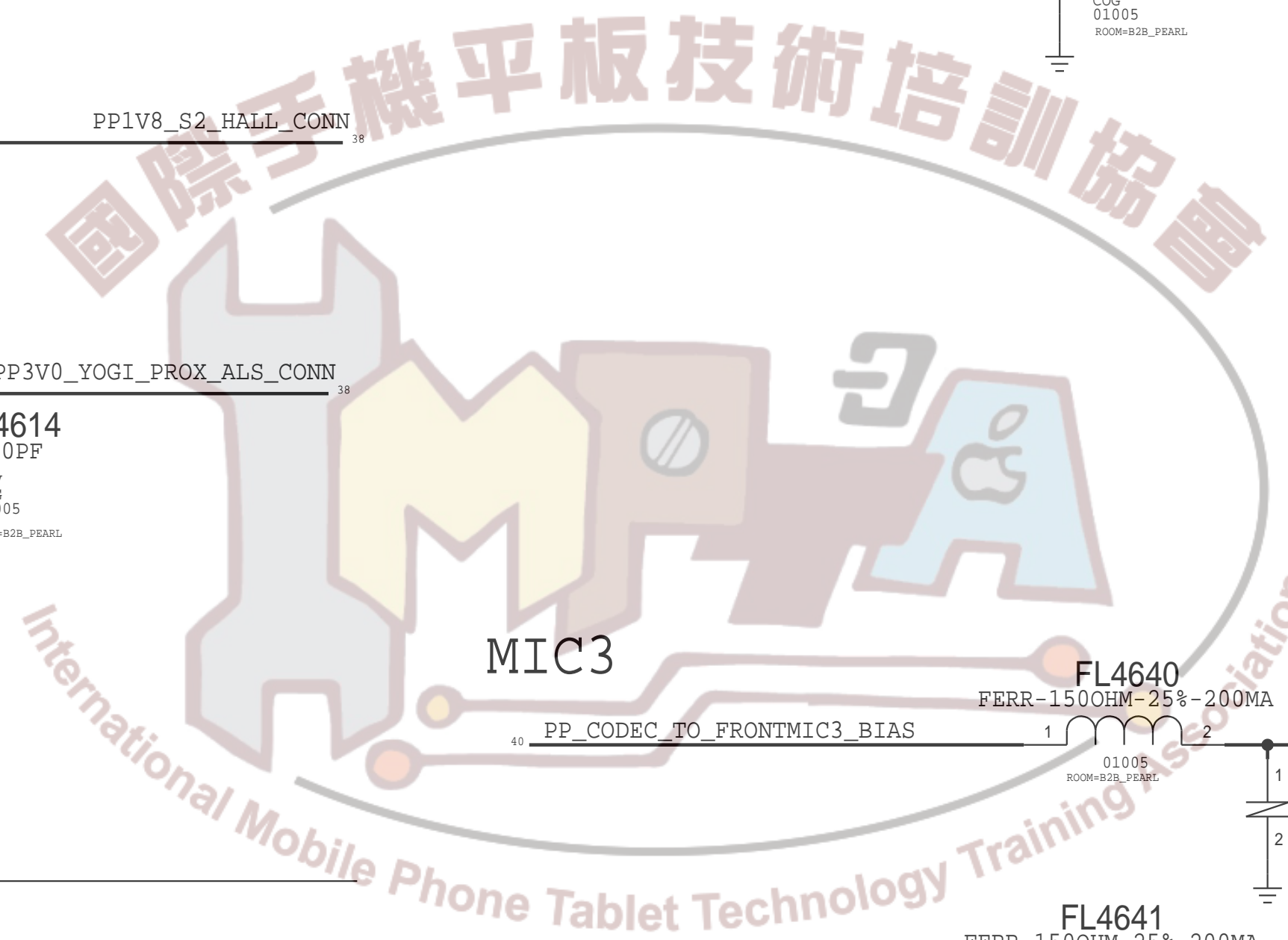
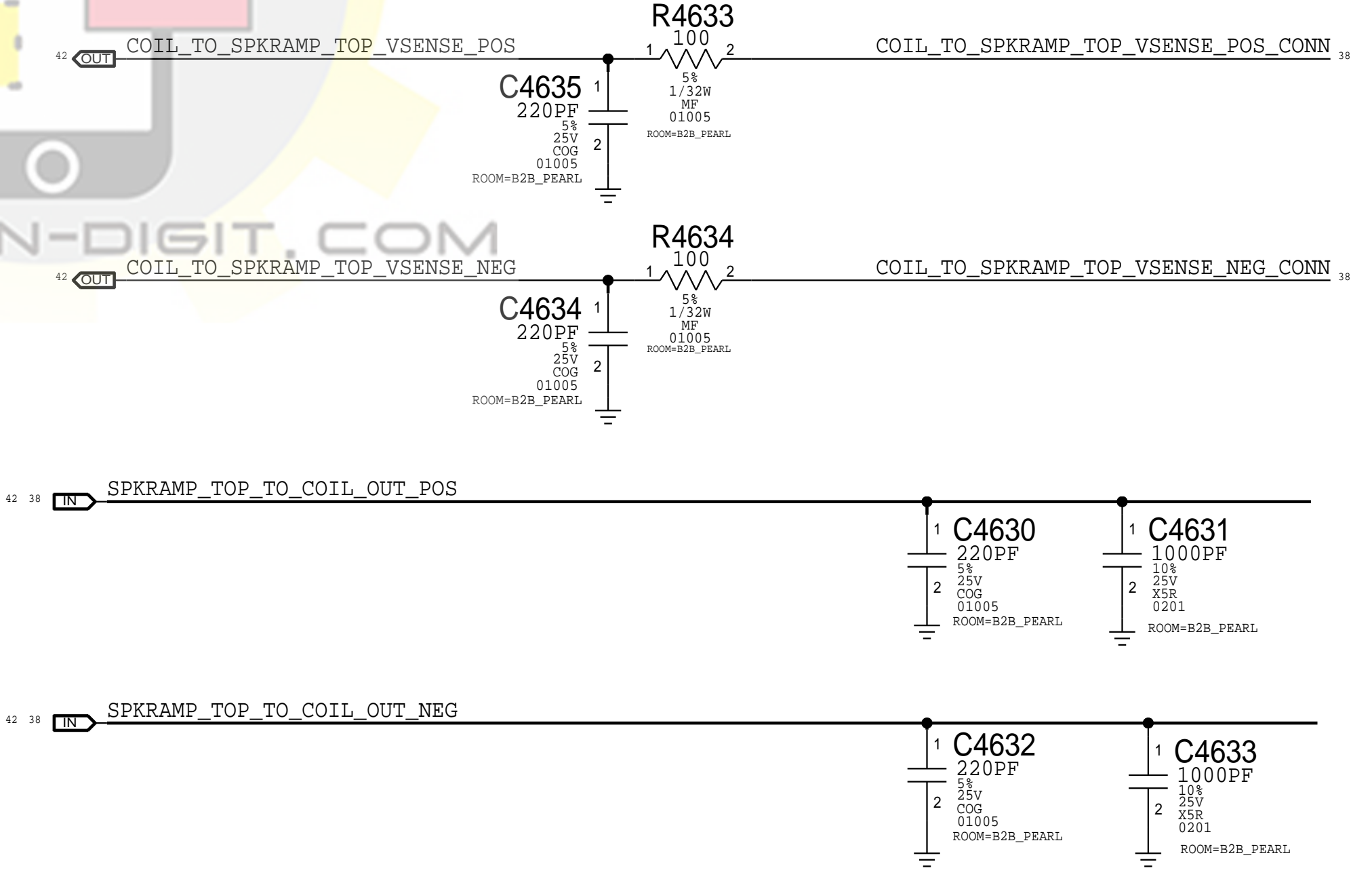


Rosaline + Sensor Connector

Rcpt: 516S00325 <-- This one on MLB
Plug: 516S00326



SPEAKER2

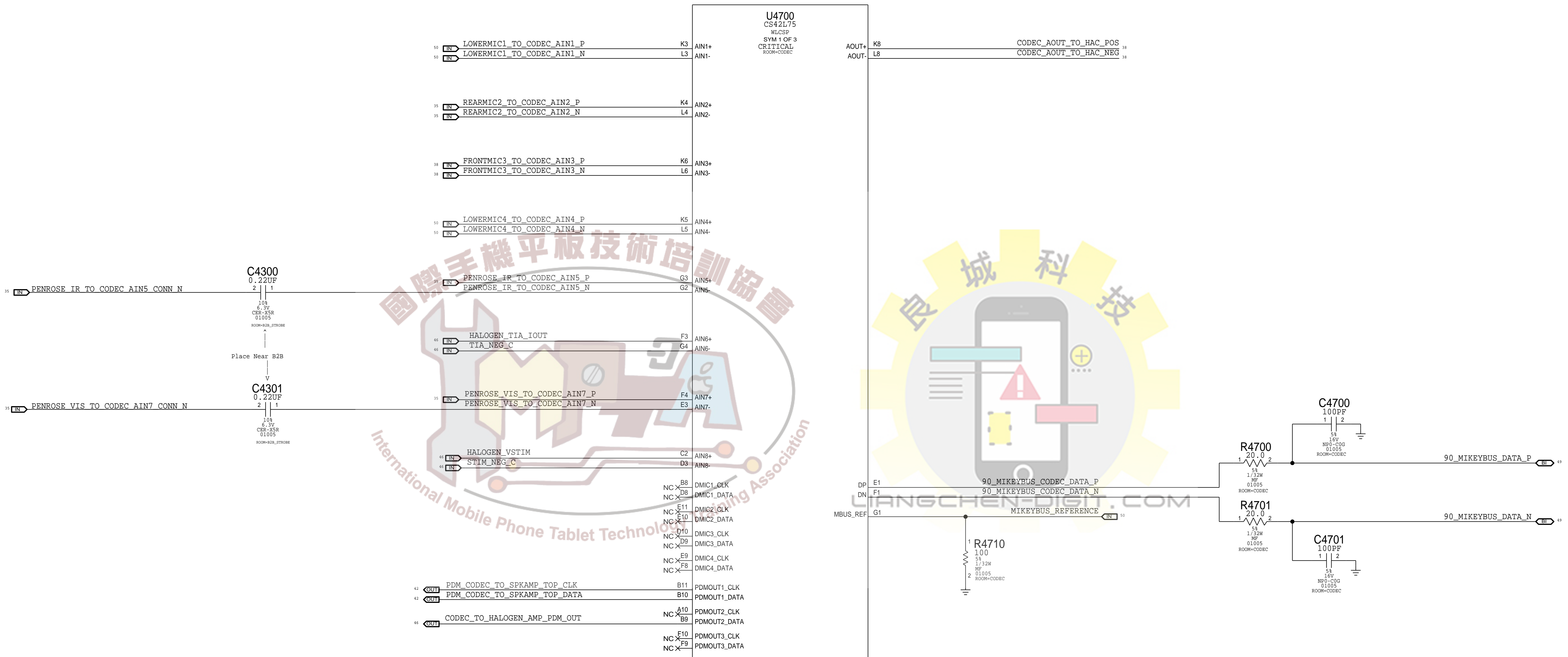


良辰科技

LIANGCHEN-DIGIT.COM

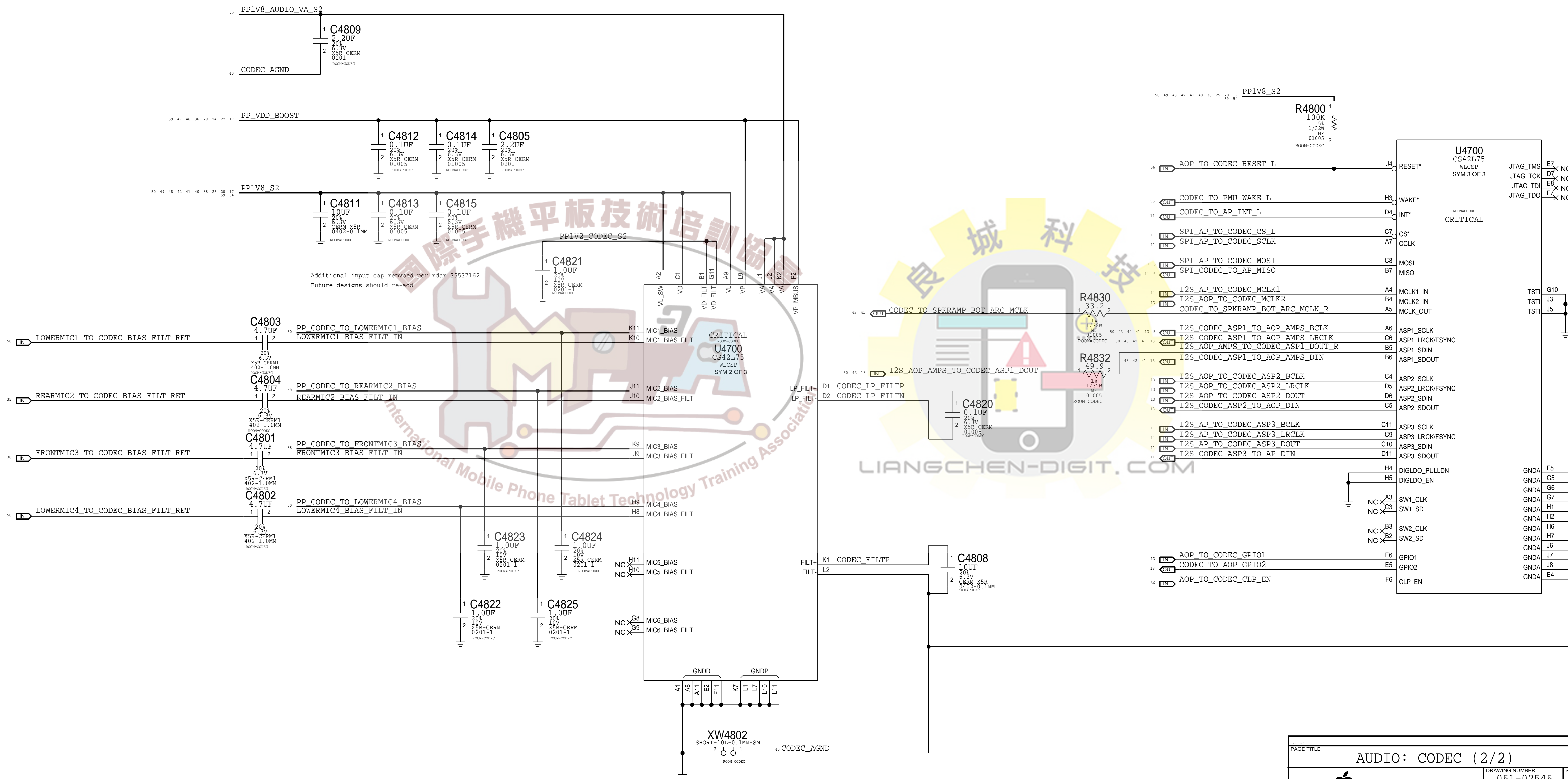
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Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
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	PAGE	46 OF 85
	SHEET	38 OF 60

CALLAN AUDIO CODEC (ANALOG INPUTS & OUTPUTS)



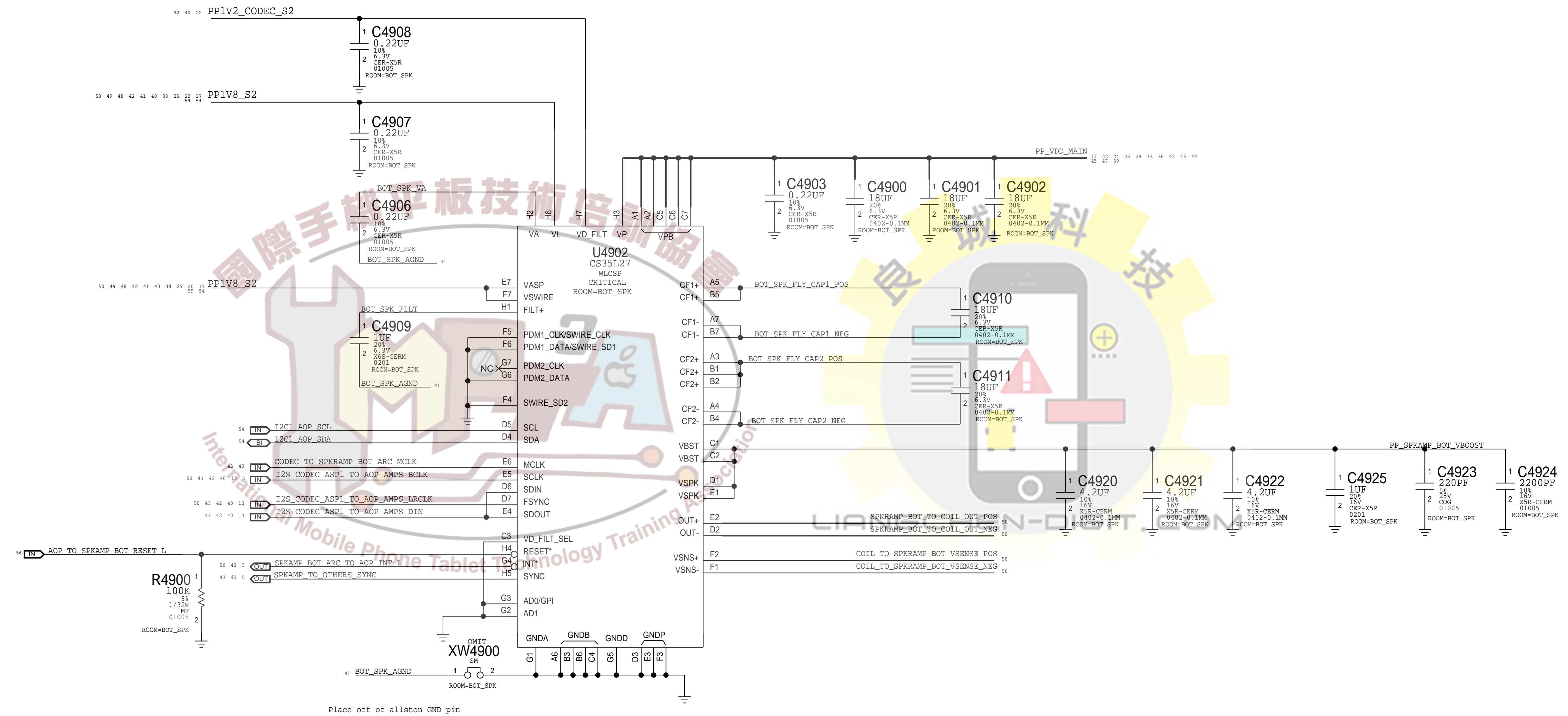
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	PAGE	47 OF 85
	SHEET	39 OF 60

CALLAN AUDIO CODEC (POWER & I/O)



PAGE TITLE		
AUDIO: CODEC (2/2)		
	DRAWING NUMBER	051-02545
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BRANCH	PAGE	48 OF 85
SHEET	40 OF 60	

	AMP	AD0	AD1	I2C_ADR	
----->	TOP	0	0	TBD1	AP I2C2
	BOT	0	0	TBD1	AOP I2C1
	ARC	0	1	TBD2	



PAGE TITLE			SYNC_DATE=04/05/2017
AUDIO: SOUTH SPKAMP			
	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
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			49 OF 85
			SHEET
			41 OF 60

D

C

B

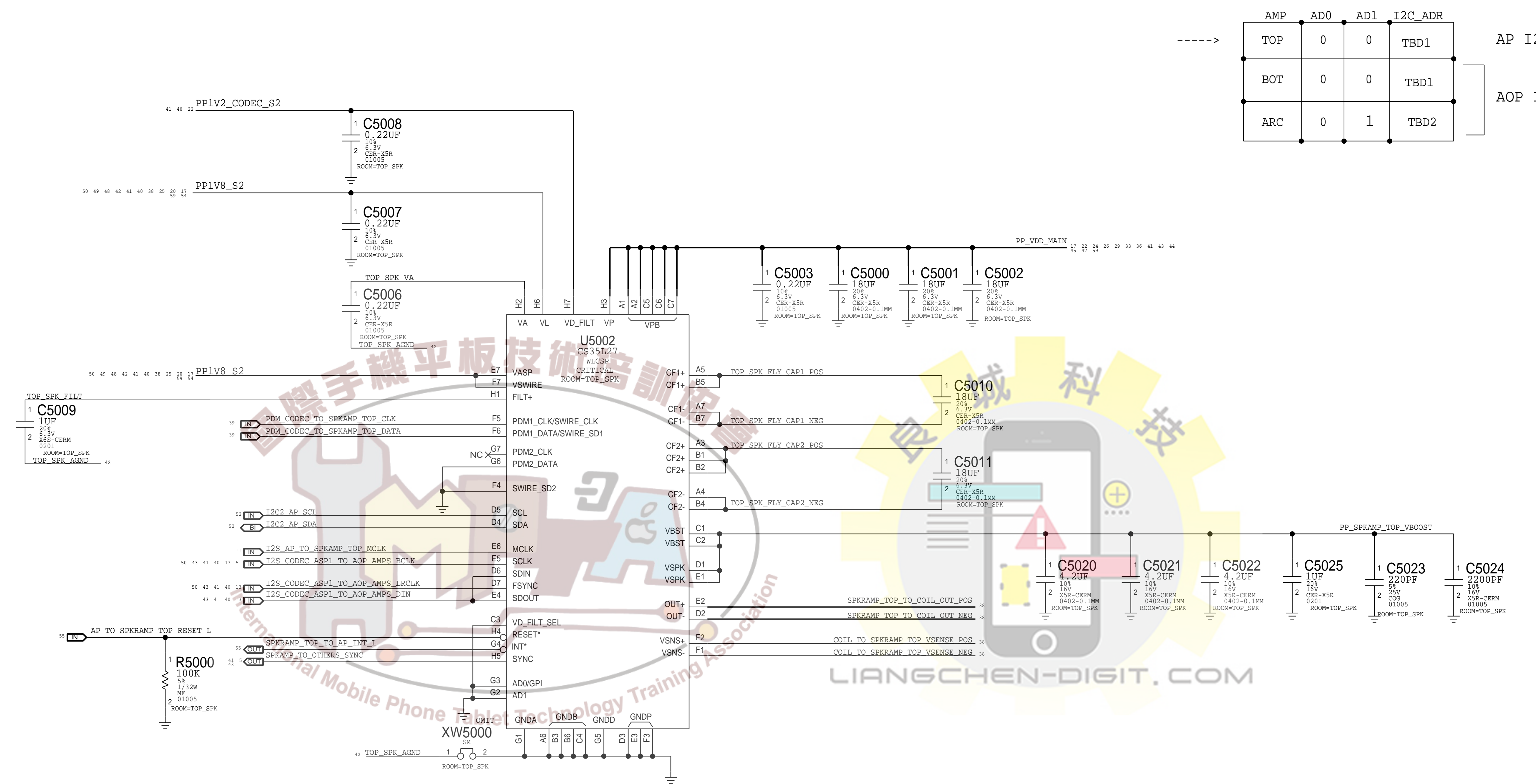
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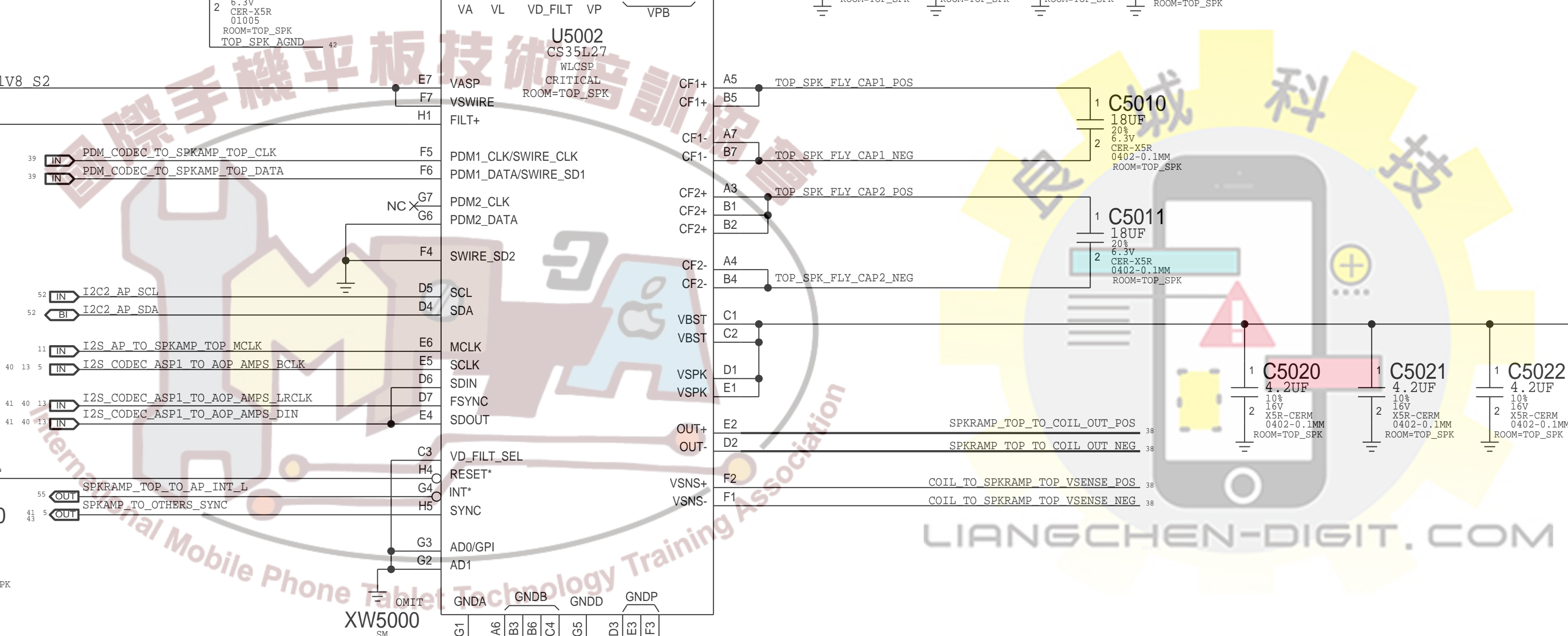
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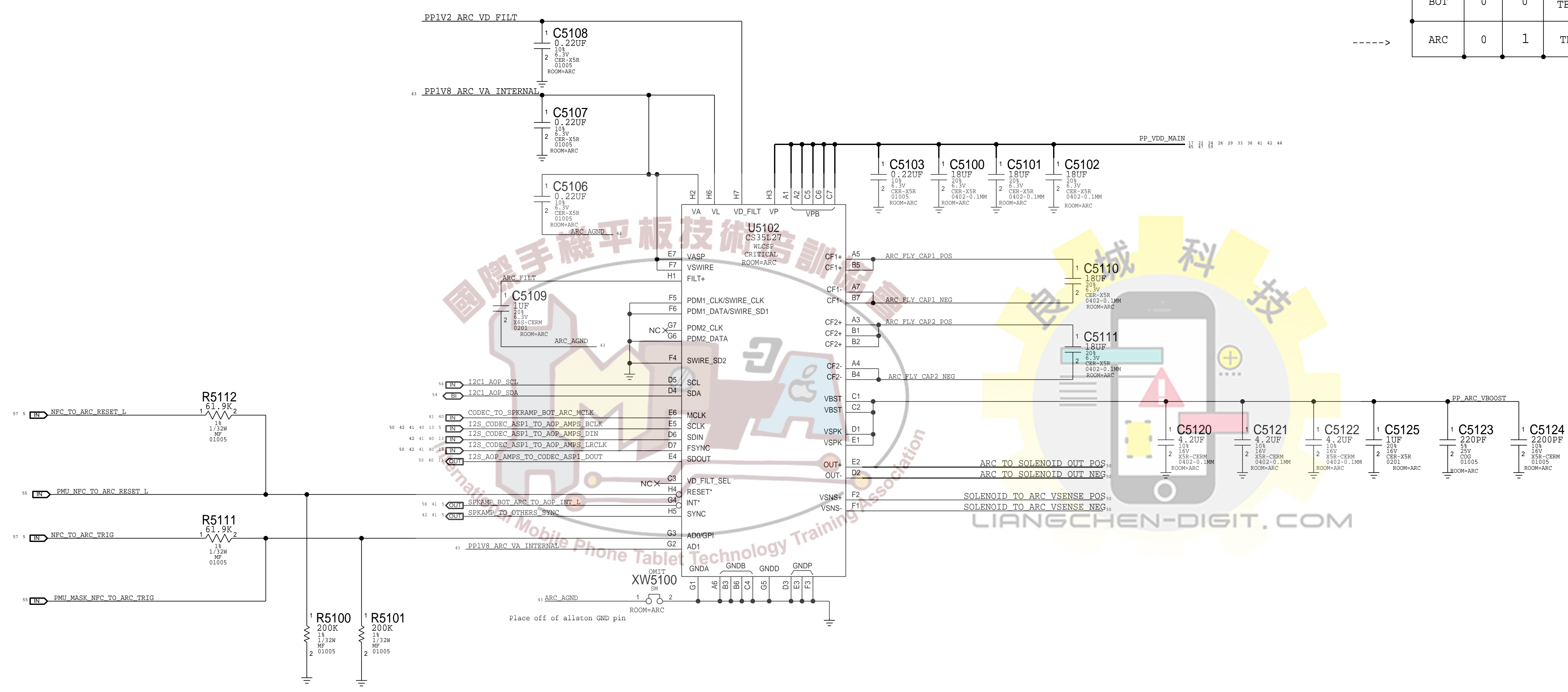


	AMP	AD0	AD1	I2C_ADR
AP I2C2	TOP	0	0	TBD1
AOP I2C1	BOT	0	0	TBD1
	ARC	0	1	TBD2



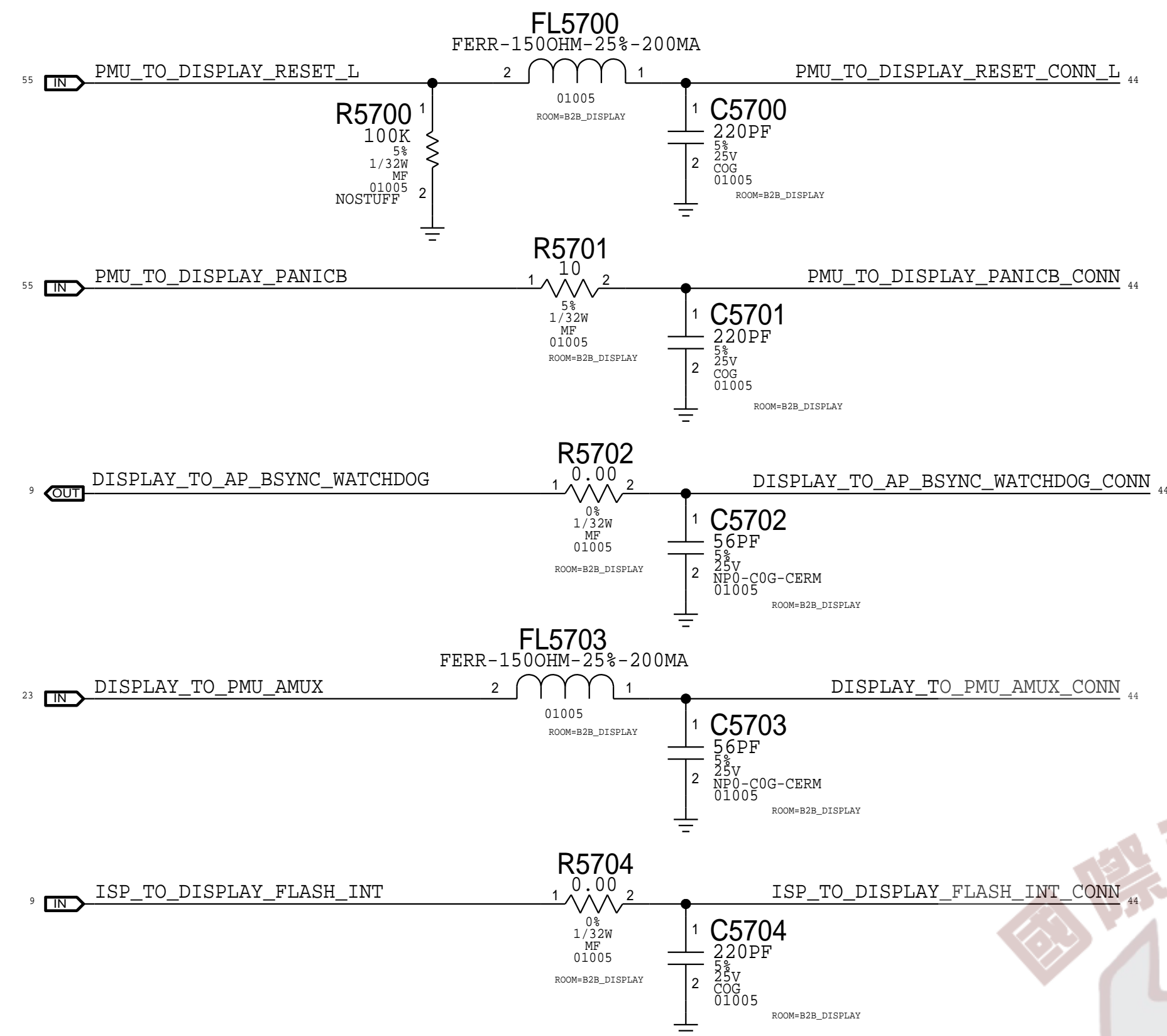
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Apple Inc.	DRAWING NUMBER	051-02545	SIZE	D
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			PAGE	50 OF 85
			SHEET	42 OF 60

	AMP	AD0	AD1	I2C_ADR	
TOP	0	0	TBD1	AP I2C2	
BOT	0	0	TBD1		
ARC	0	1	TBD2	AOP I2C1	

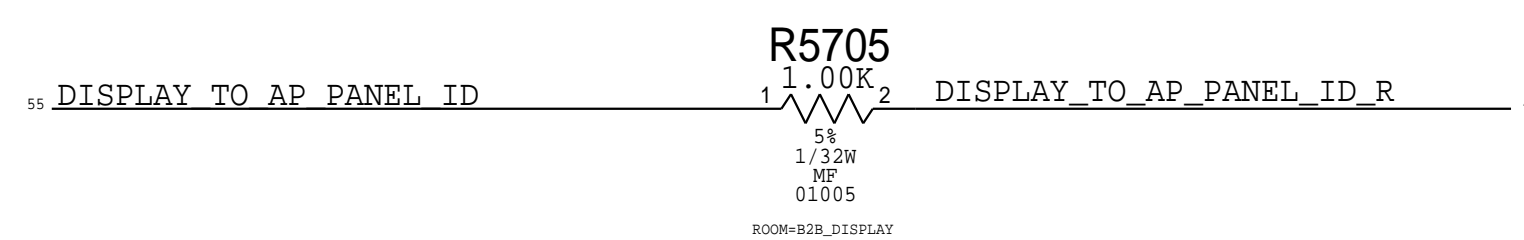


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BRANCH		
PAGE	51 OF 85	
SHEET	43 OF 60	

Display Control Signals

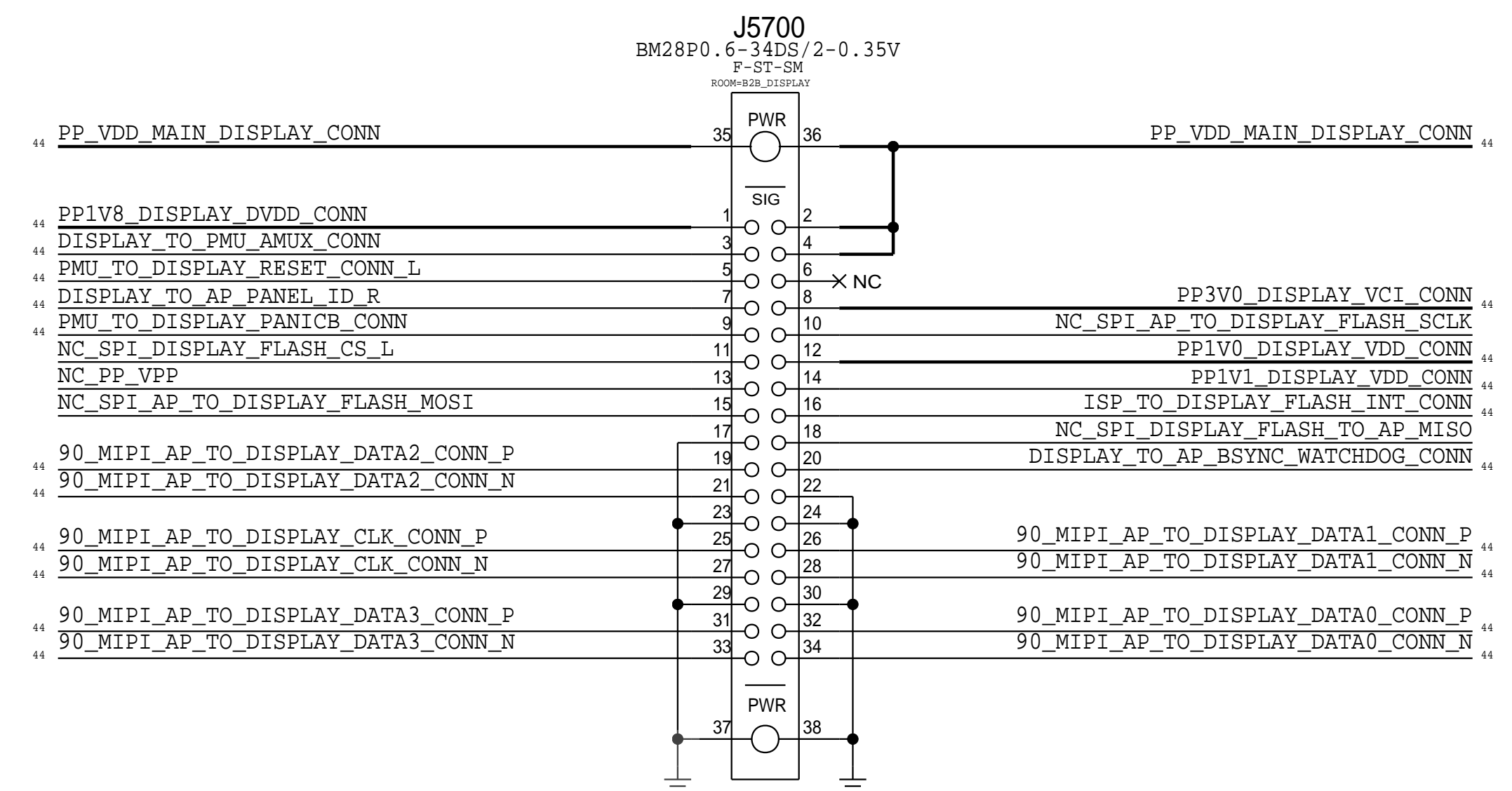


Display 1V0 LDO for D33 second display vendor
rdar: #29872369

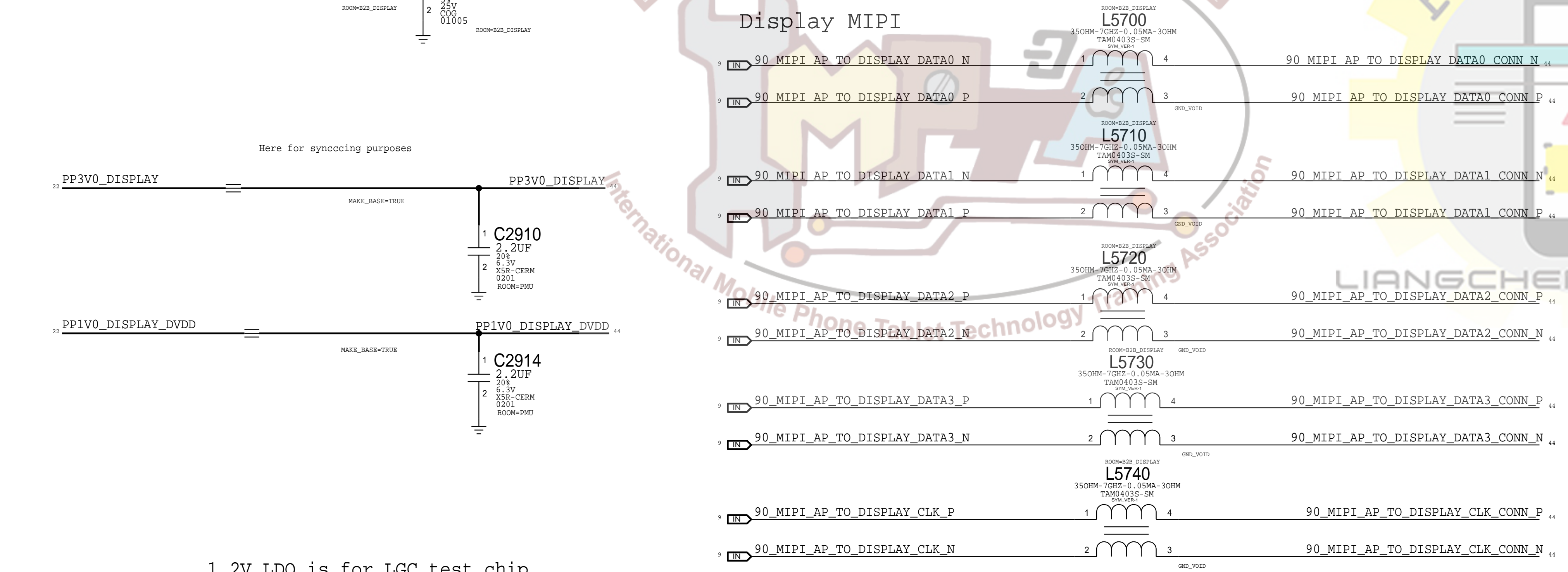


Display Flex Connector

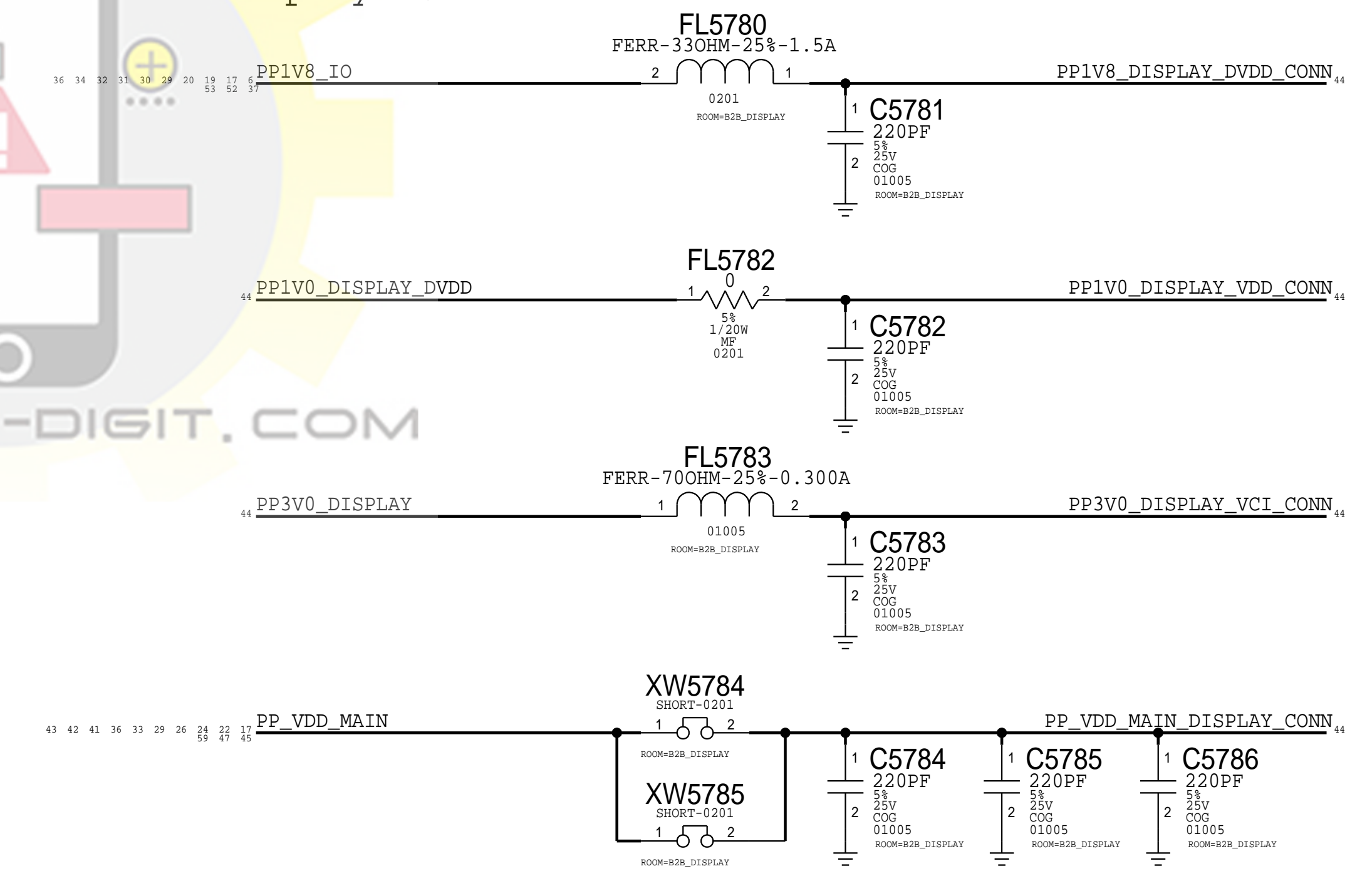
Rept: 516S00210 <-- This one on MLB
Plug: 516S00211



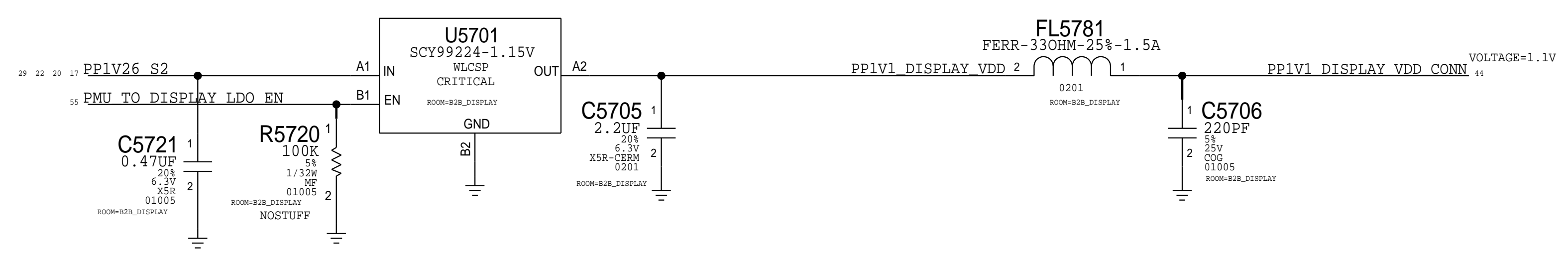
Display MIPI



Display Power

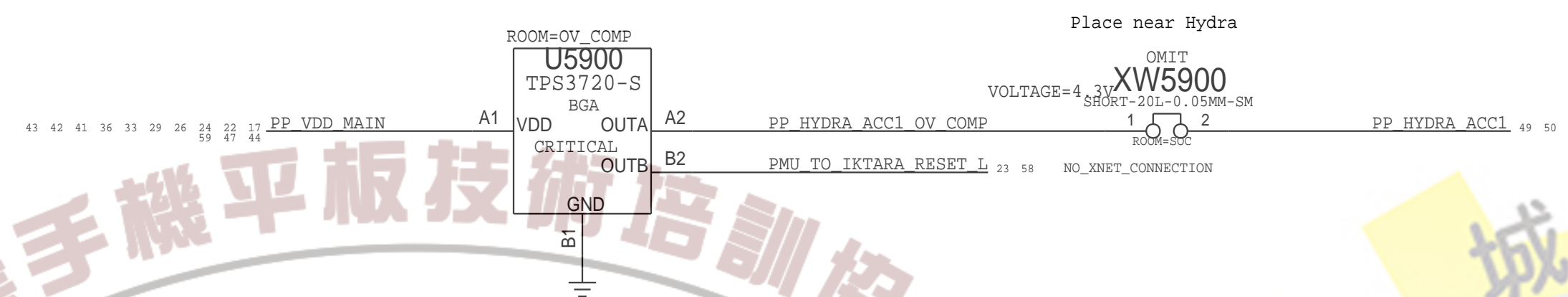


1.2V LDO is for LGC test chip
Once normal panel is available switch to 1.1V

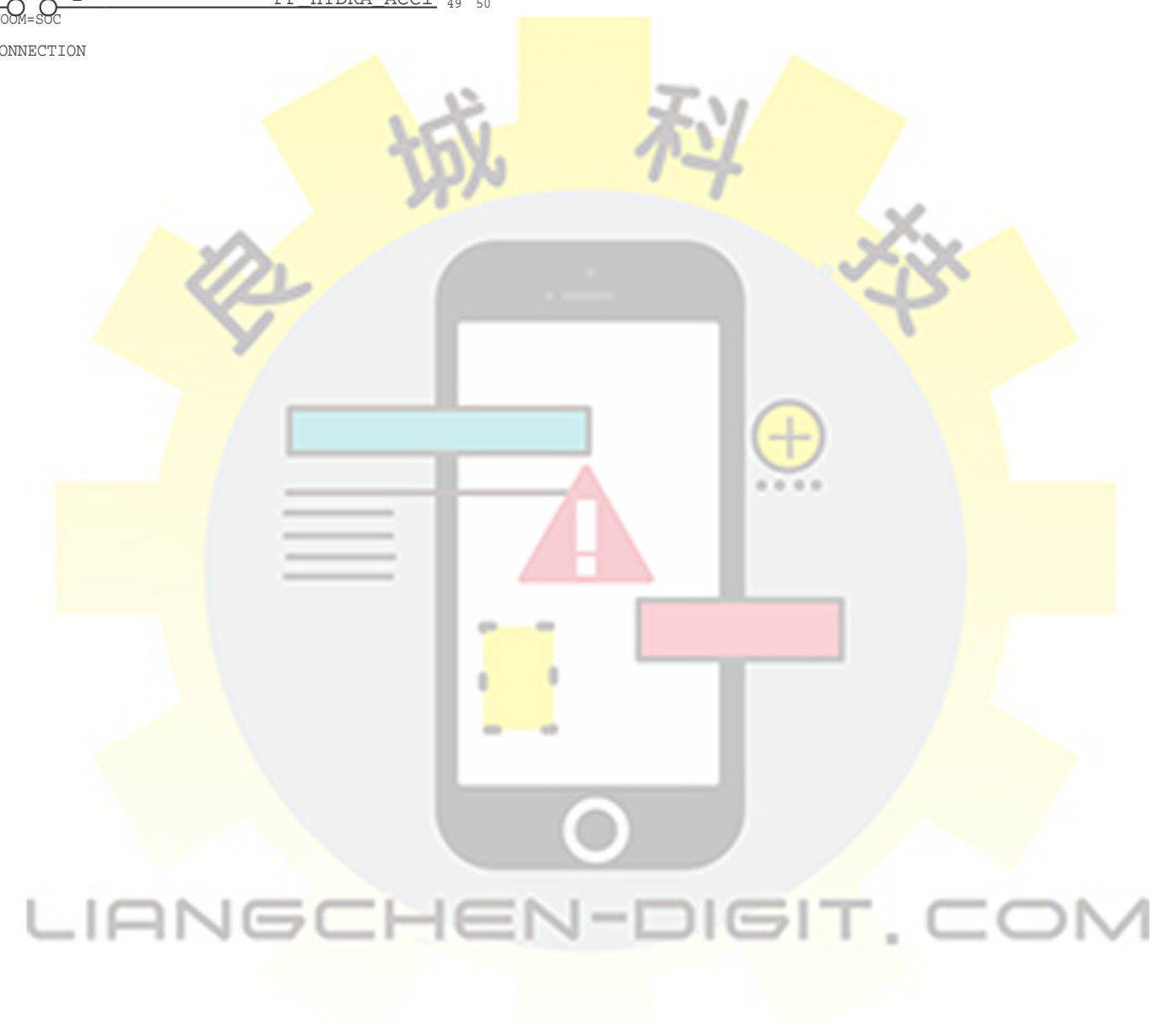
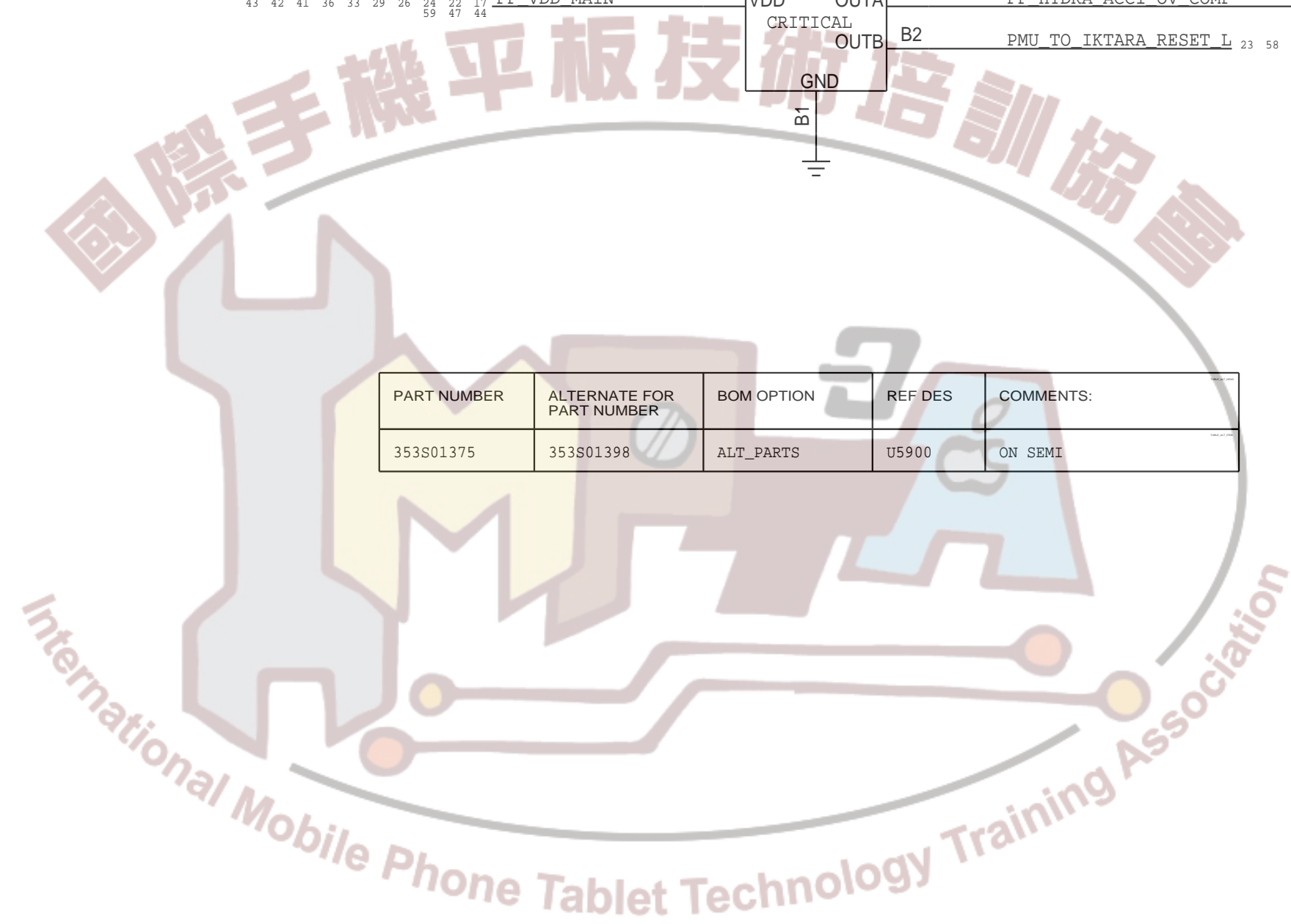


PAGE TITLE		CG: B2B Display	
		DRAWING NUMBER	051-02545
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		PAGE	57 OF 85
		SHEET	44 OF 60

VDD_MAIN OV CUT-OFF CIRCUIT

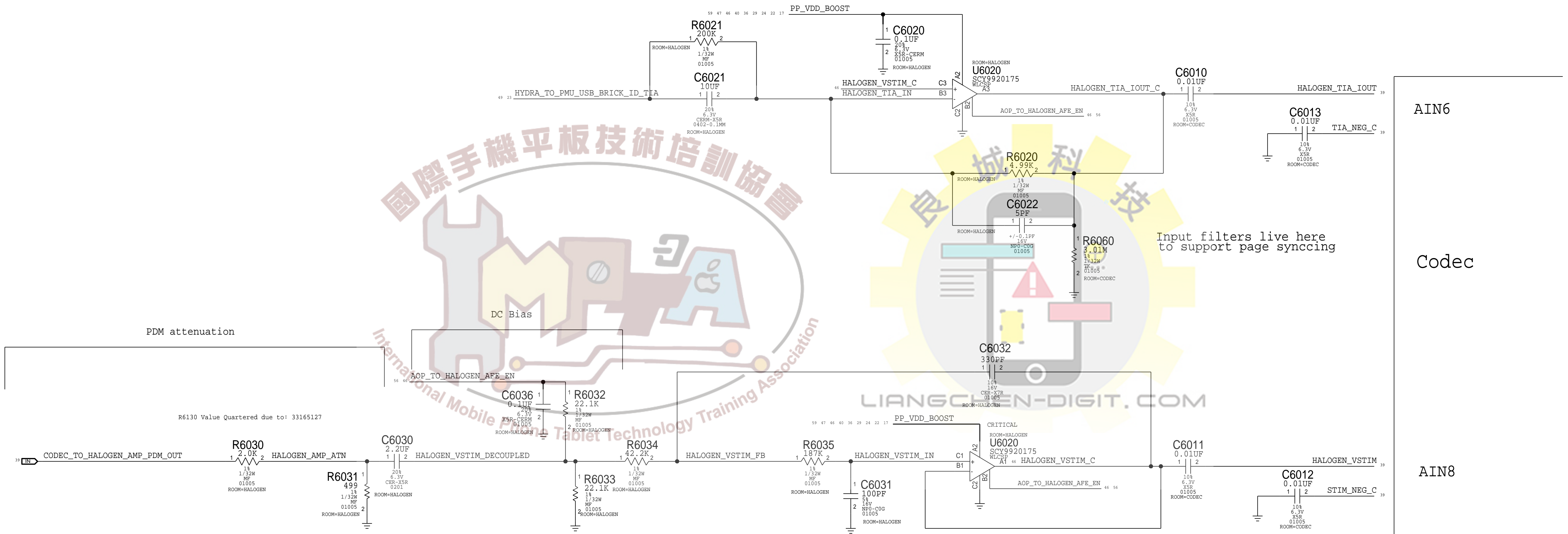


PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
353S01375	353S01398	ALT_PARTS	U5900	ON SEMI



PAGE TITLE I/O: Overvoltage Cut-Off Circuit		
Apple Inc.	DRAWING NUMBER	051-02545
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	PAGE	59 OF 85
	SHEET	45 OF 60

LDCM



PAGE TITLE			I/O: LDCM		
	DRAWING NUMBER	051-02545	SIZE	D	
	REVISION	7.0.0			
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			PAGE	60 OF 85	
			SHEET	46 OF 60	

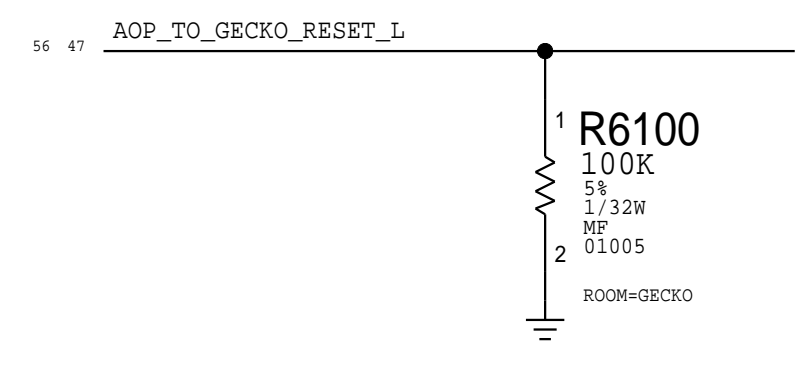
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C

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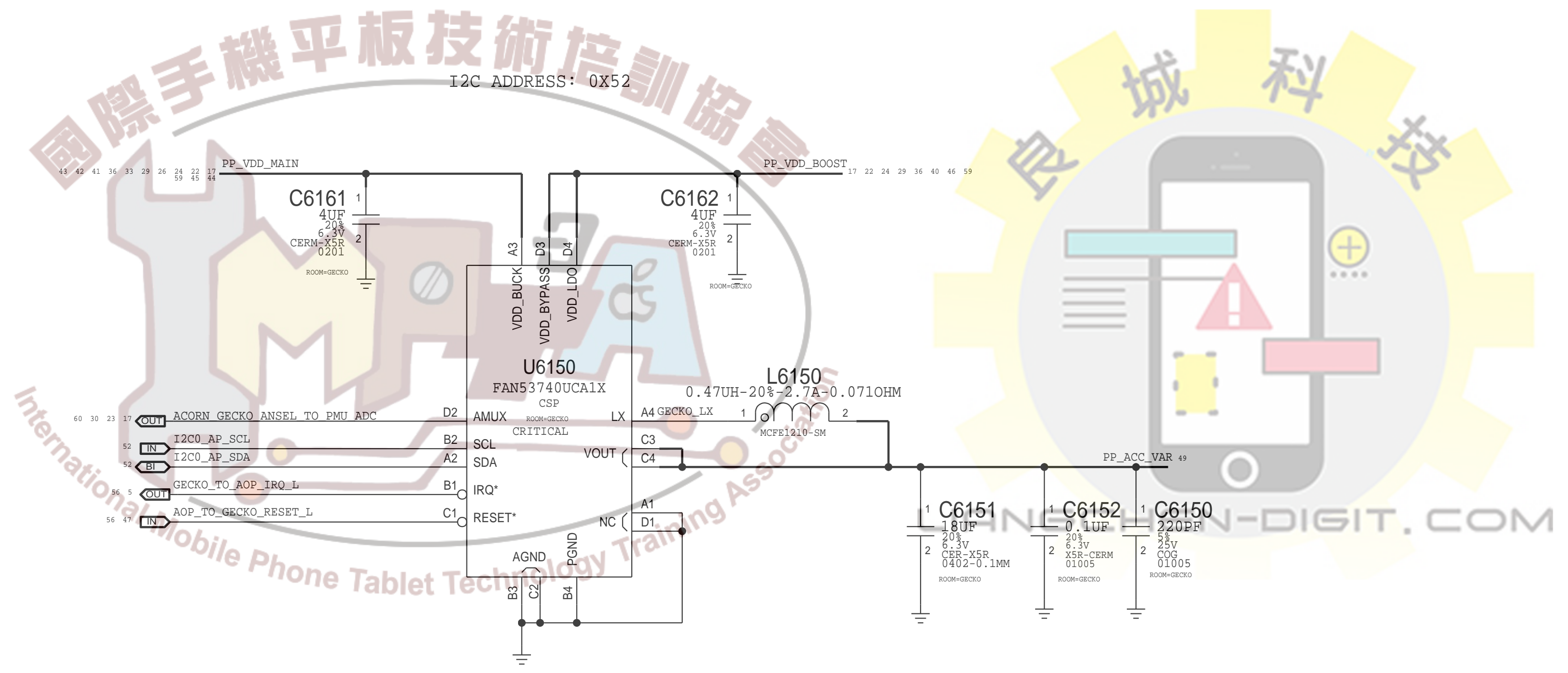
A

GECKO Reset Pull Down



Gecko

I2C ADDRESS: 0X52



IND Alternate

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152800854	152800853	ALT_PARTS	L6150	IND_PWB_0_4700_204_2_0A_CV
152800855	152800853	ALT_PARTS	L6150	IND_PWB_0_4700_204_2_10A_Moravia

PAGE TITLE			I/O: Gecko		
	DRAWING NUMBER	051-02545	SIZE	D	
	REVISION	7.0.0			
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			SHEET	47 OF 60	

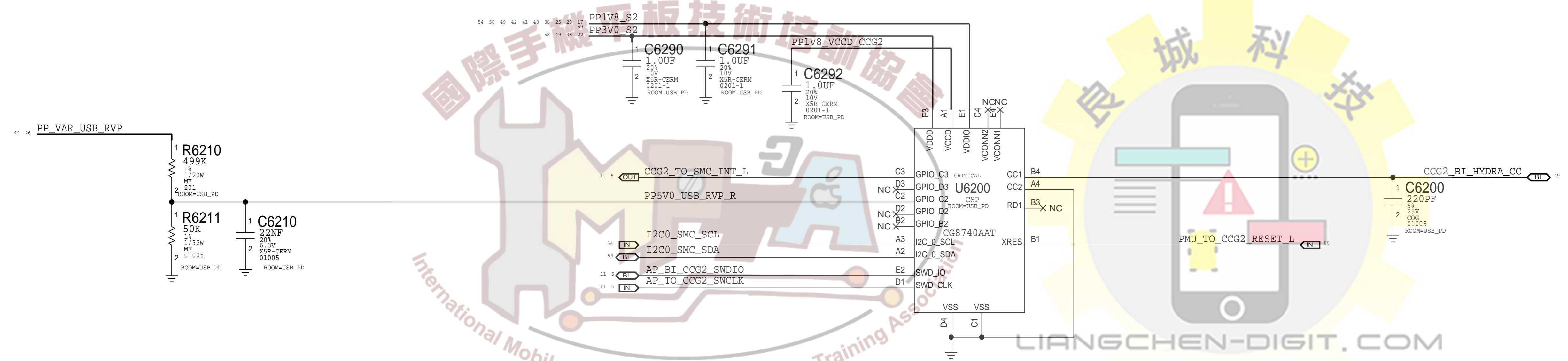
D

C

B

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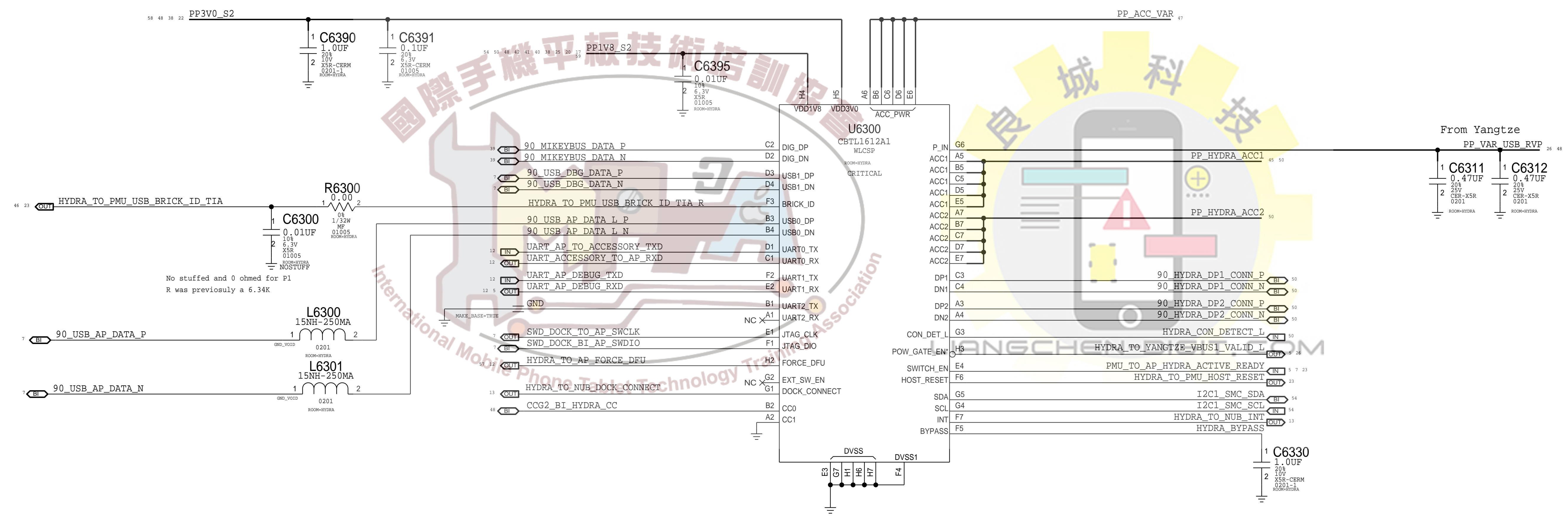
USB-PD



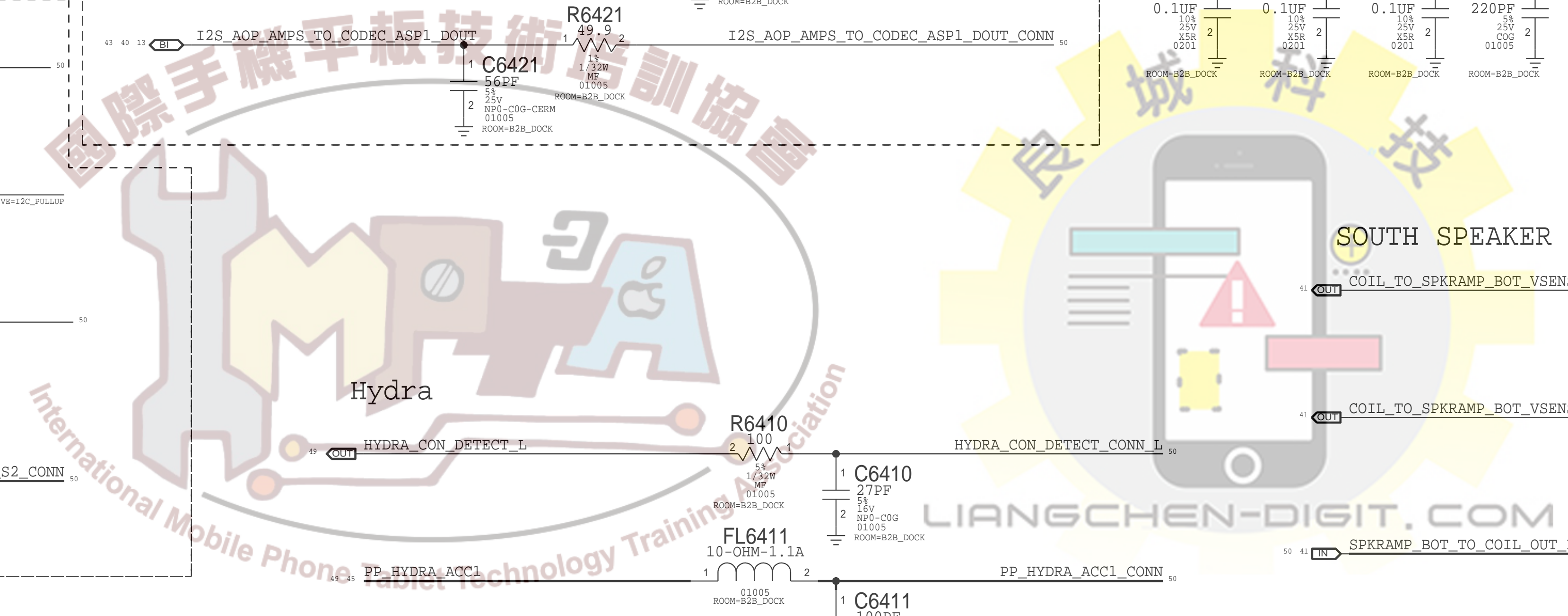
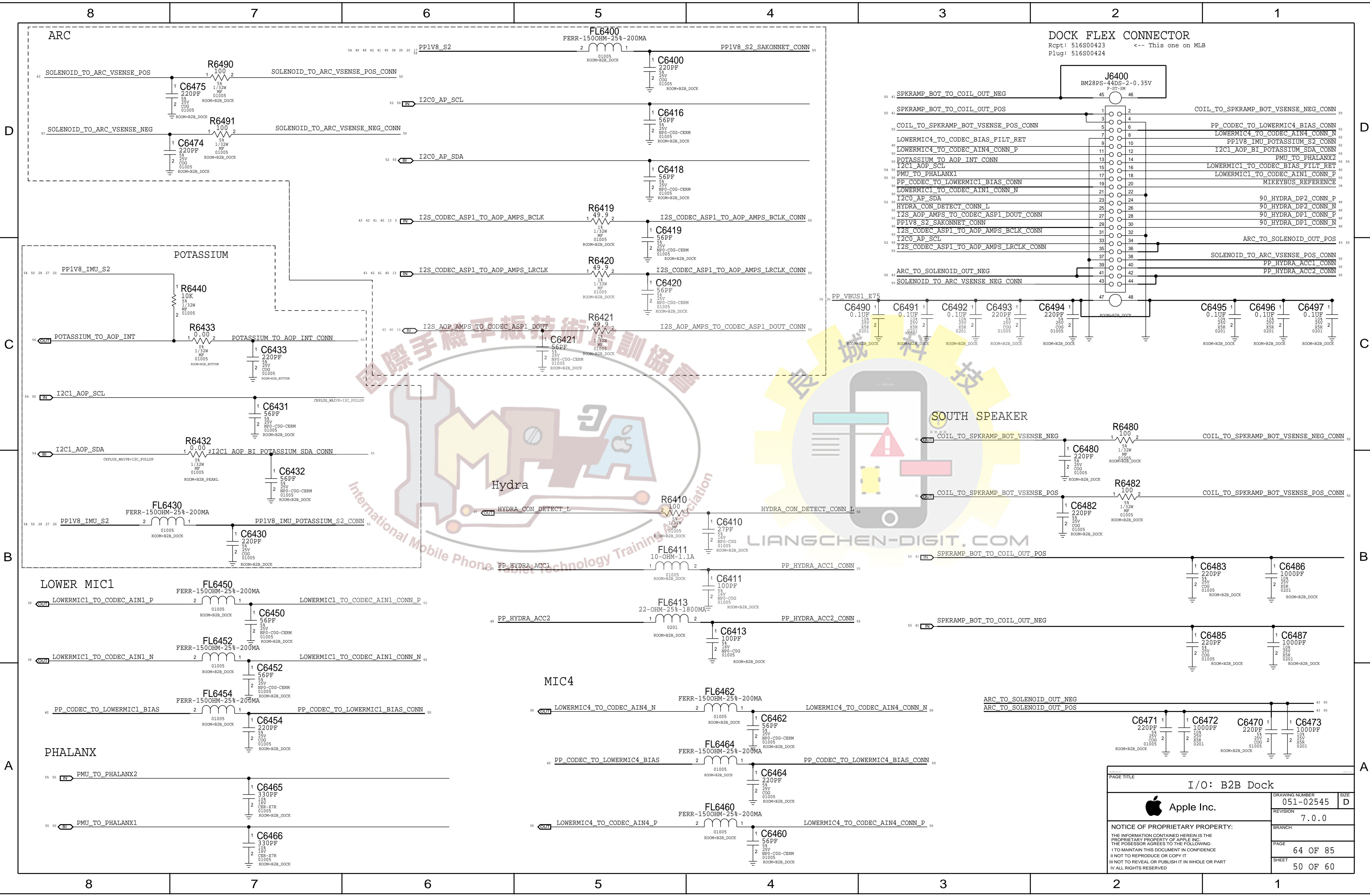
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			PAGE	62 OF 85	
			SHEET	48 OF 60	

Hydra

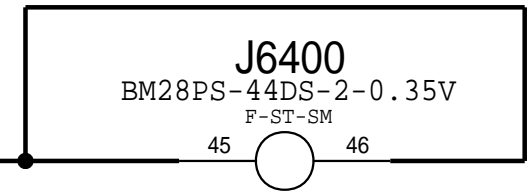
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BRANCH		
PAGE	63 OF 85	
SHEET	49 OF 60	



DOCK FLEX CONNECTOR
 Rpt: 516S00423 <-- This one on MLB
 Plug: 516S00424



PAGE TITLE		I/O: B2B Dock	
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		PAGE	64 OF 85
		SHEET	50 OF 60

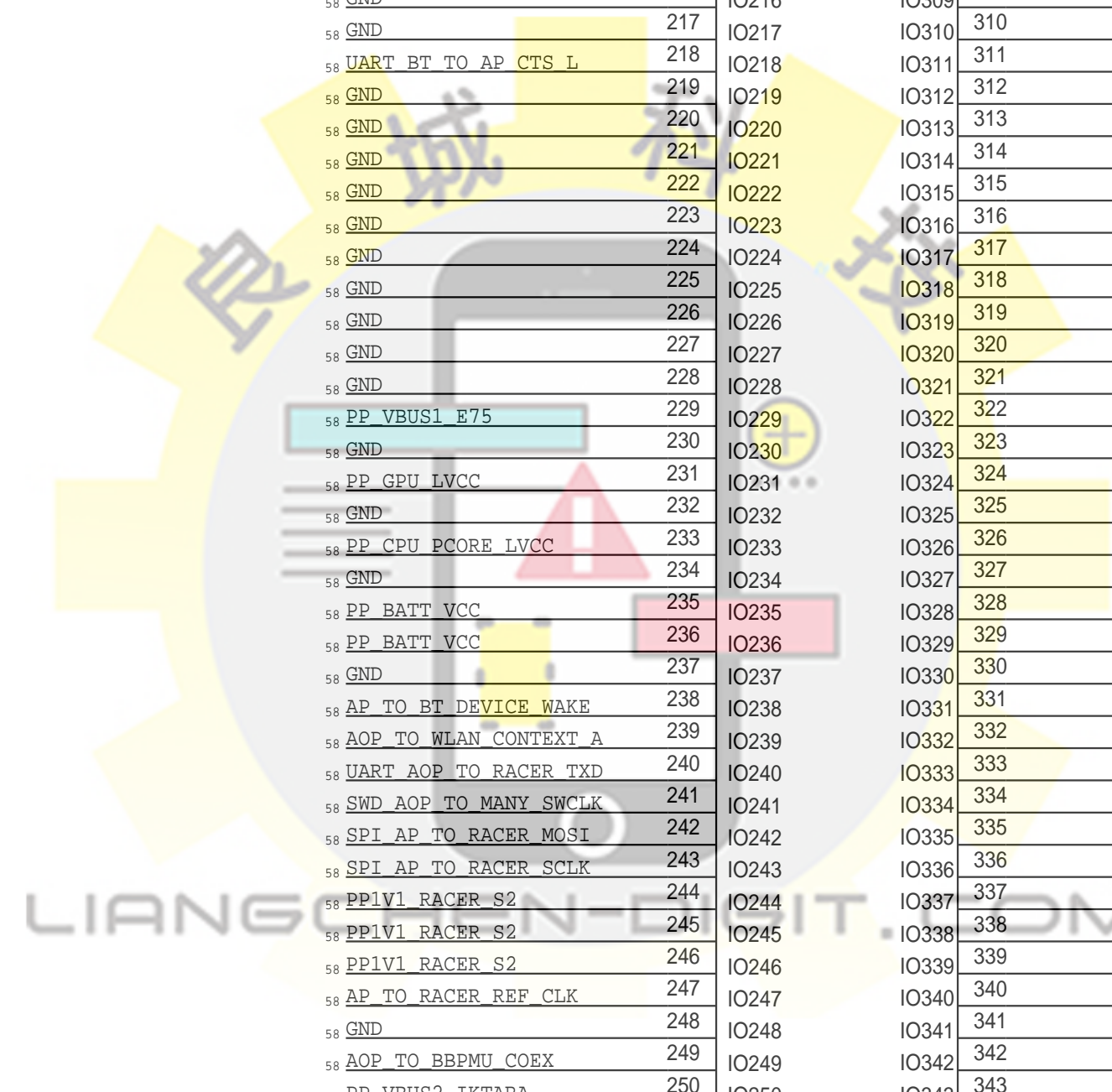
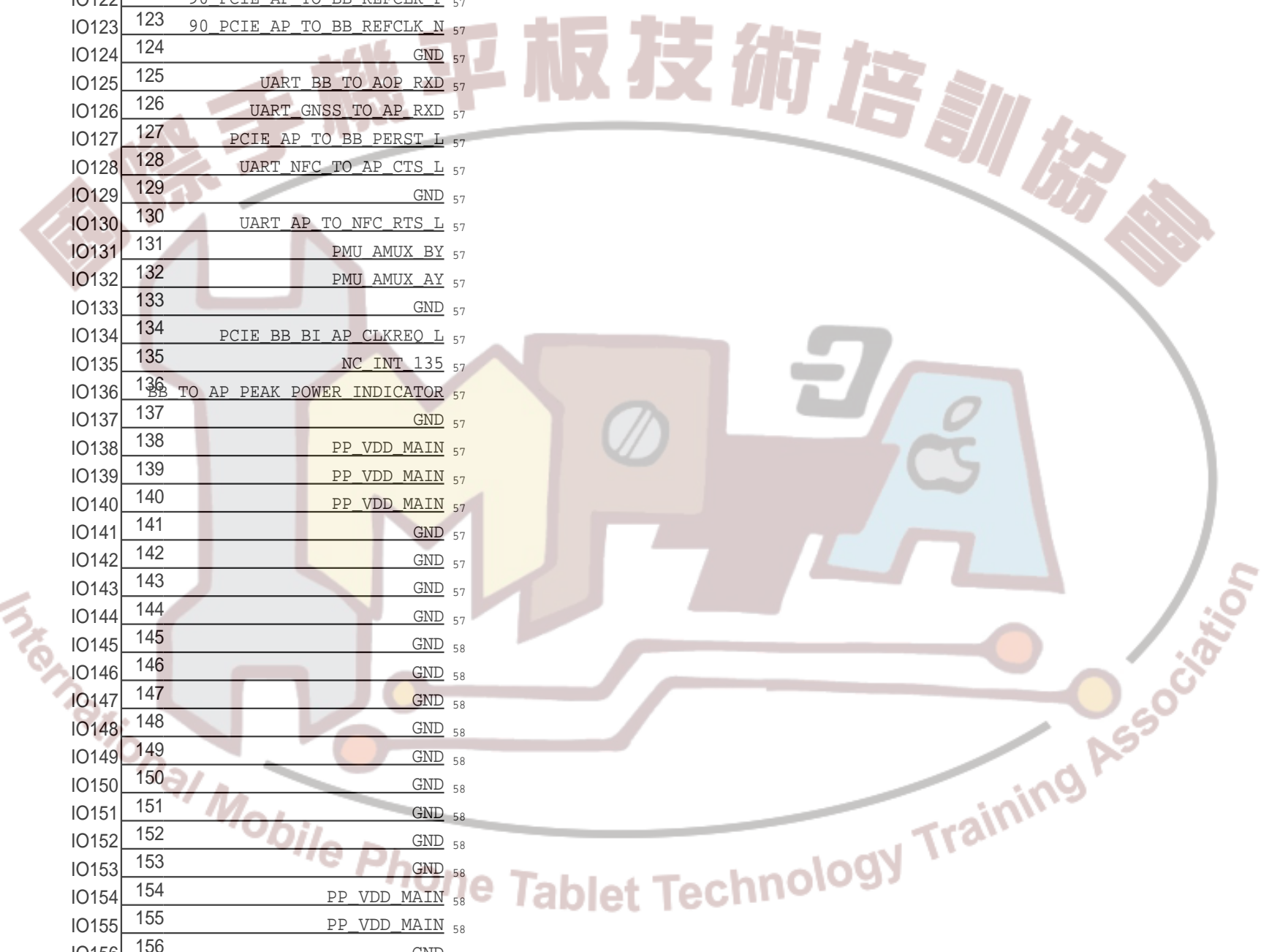
Top Board Interposer APN:998-12513 <--- STUFFED
Bot Board Interposer APN:998-12514

J_INT_BOT
SMT-PAD
SYM 1 OF 2

Table with 3 columns: Pin Number, Pin Name, and Pin Description. Rows include GND, AP TO NFC DEV_WAKE, AP TO NFC FW_DWLD_REQ, PMU TO NFC_VDD_MAIN_EN, etc.

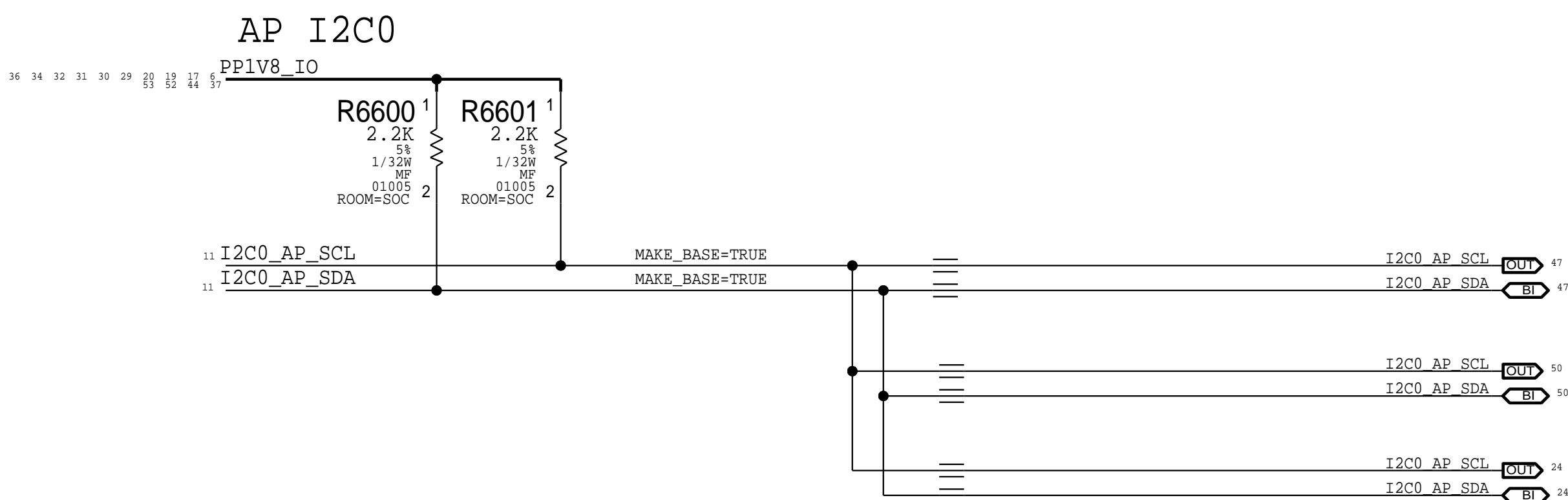
J_INT_BOT
SMT-PAD
SYM 2 OF 2

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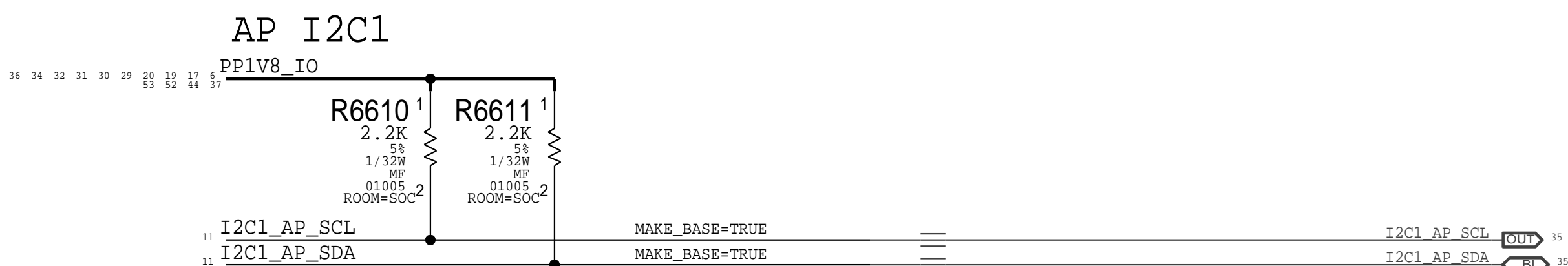


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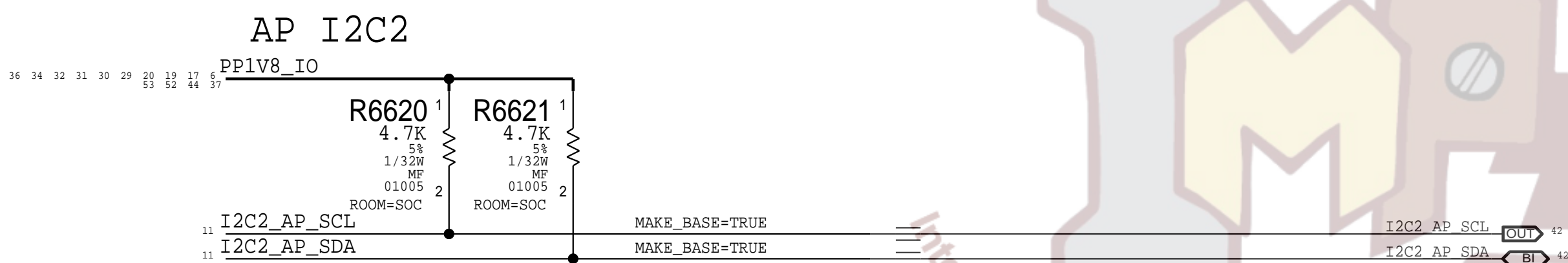
AP I2C



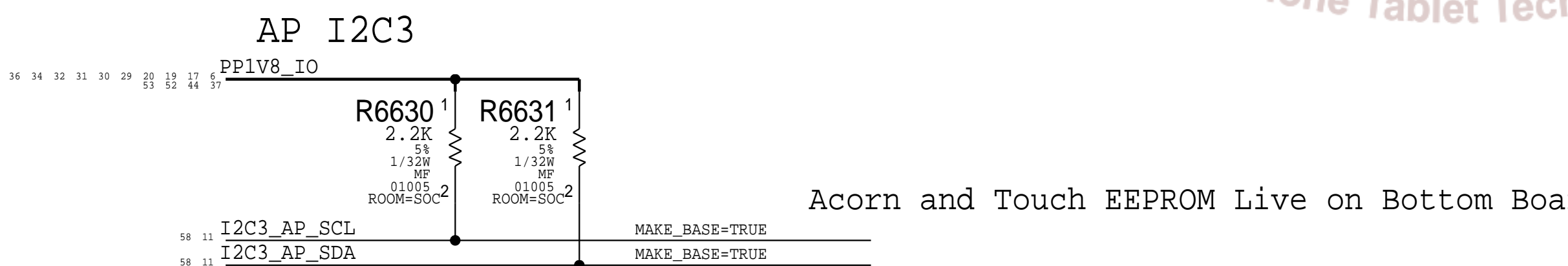
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C0	PPIV8_IO	400 kHz	GECKO	0x52	1010 010X	0xA4, 0xA5	-	1 MHz	TOP MLB
			SAKONNET	0x08	0001 000X	0x10, 0x11	-	1 MHz	Dock Flex
			BOOST	0x75	1110 101X	0xEA, 0xEB	-	400 KHz	TOP MLB
			ARC EEPROM	0x50	1010 000X	0xA0, 0xA1	-	400 KHz	Dock Flex



Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C1	PPIV8_IO	100 kHz	MIC2	0x56	1010 100X	0xA8, 0xA9	-	1 MHz	Strobe Flex

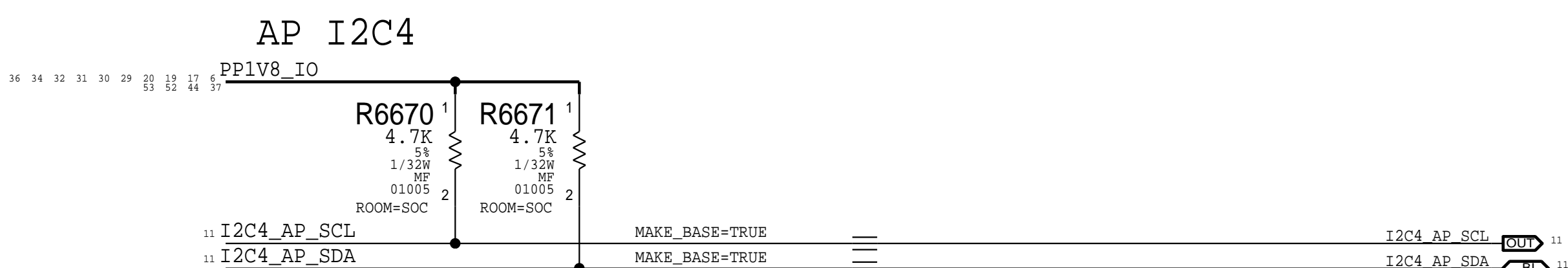


Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C2	PPIV8_IO	1 MHz	Top Speaker Amp	0x40	1000 000X	0x80, 0x81	-	1 MHz	Top MLB



Acorn and Touch EEPROM Live on Bottom Board

Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C3	PPIV8_IO	400 kHz	ACORN	0x2A	0101 010X	0x54, 0x55	-	1 MHz	Bot MLB
			TOUCH EEPROM	0x51	1010 001X	0xA2, 0xA3	-	1 MHz	Touch Flex



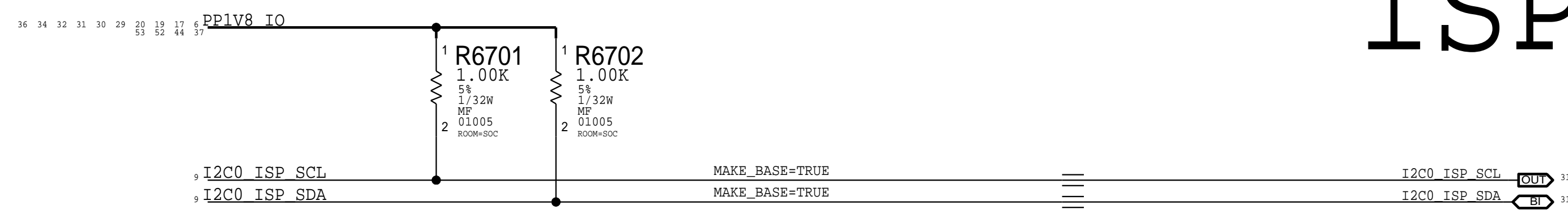
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Location
AP I2C4	PPIV8_IO	400 kHz	LYNX	0x71	Top MLB

PAGE TITLE		
SYSTEM: AP I2C		
	DRAWING NUMBER	SIZE
	051-02545	D
REVISION		
7.0.0		
BRANCH		
PAGE		
66 OF 85		
SHEET		
52 OF 60		
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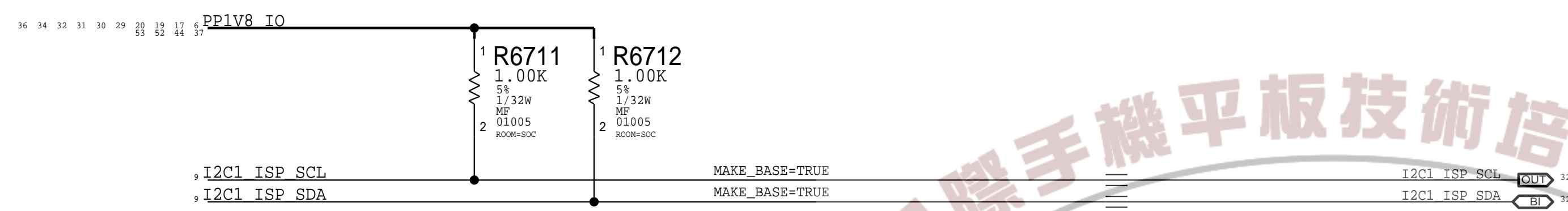
ISP I2C

ISP I2C0



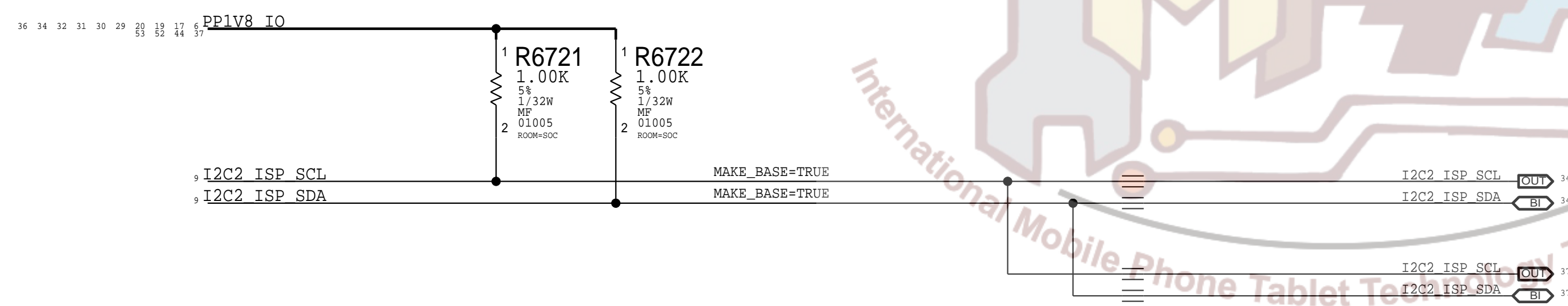
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C0	PPIV8_IO	1 MHz	Austin	0X10	0010 000X	0x20, 0x21	-	1 MHz	Wide Cam
			Raman	0X3C	0111 100X	0x78, 0x79	-	1 MHz	Wide Cam

ISP I2C1



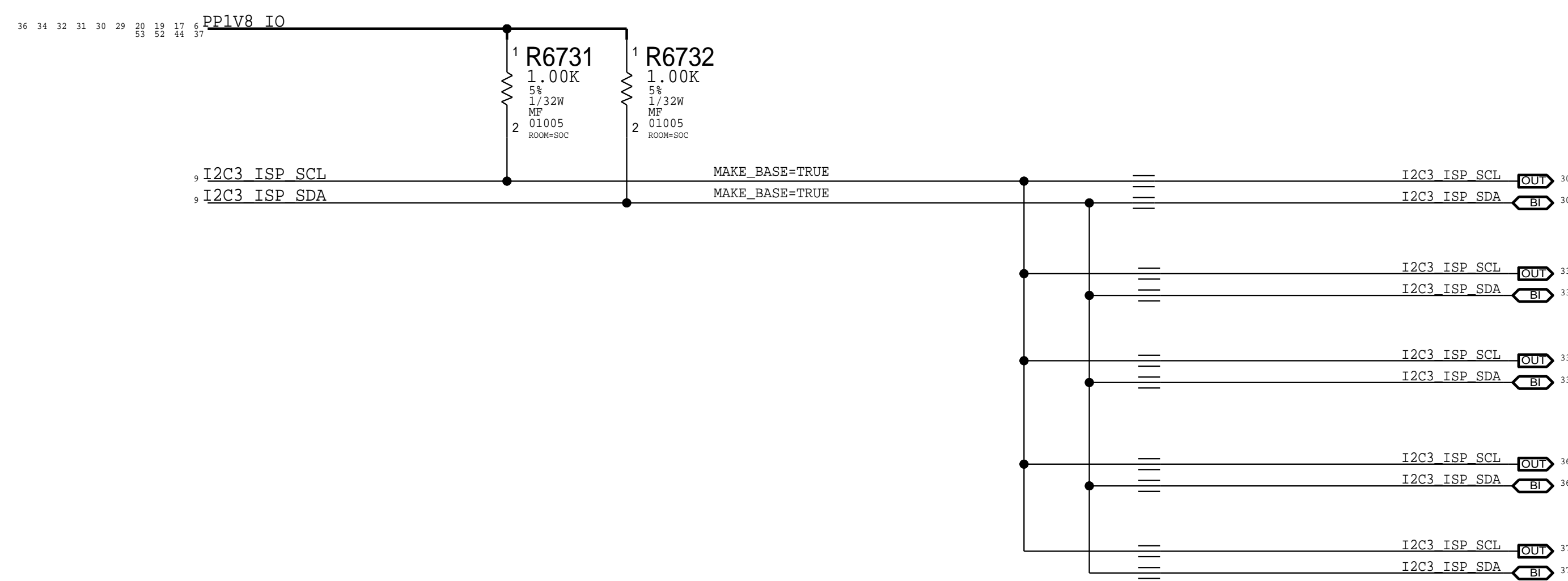
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C1	PPIV8_IO	1 MHz	Billings	0x20	0100 000X	0x40, 0x41	-	1 MHz	Tele Cam
			Grunberg	0x1C	0011 100X	0x38, 0x39	-	1 MHz	Tele Cam

ISP I2C2

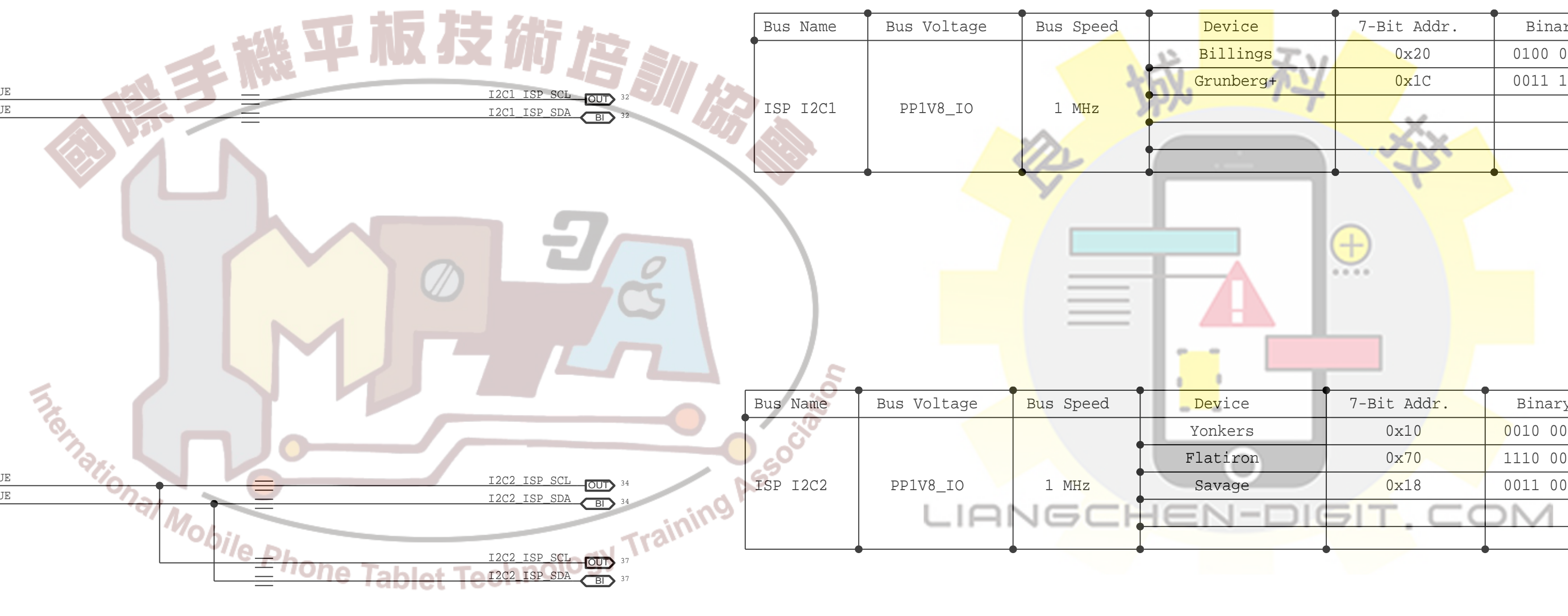


Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C2	PPIV8_IO	1 MHz	Yonkers	0x10	0010 000X	0x20, 0x21	-	1 MHz	Fcam
			Flatiron	0x70	1110 000X	0xE0, 0xE1	-	1 MHz	Fcam
			Savage	0x18	0011 000X	0x30, 0x31	-	1 MHz	Juliet Flex

ISP I2C3



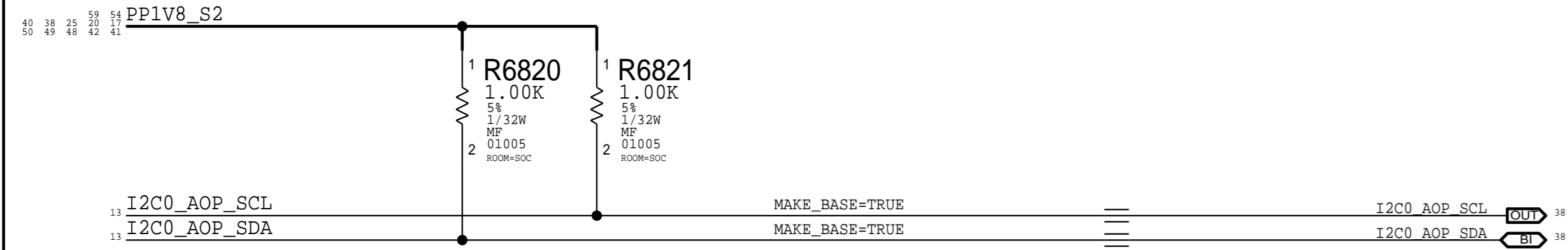
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C3	PPIV8_IO	1 MHz	Ansel	0x40	1000 000X	0x80, 0x81	-	1 MHz	Top Board
			Neon	0x63	1100 011X	0xC6, 0xC7	-	1 MHz	Top Board
			Neon	0x67	1100 111X	0xCE, 0xCF	-	1 MHz	Top Board
			Rigel	0x55	1100 011X	0xAA, 0xAB	-	1 MHz	Top Board
			Mama Bear	0x50	1010 000X	0xA0, 0xA1	-	1 MHz	Romeo Flex



PAGE TITLE		
SYSTEM: ISP I2C		
	DRAWING NUMBER	051-02545
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<small>IV ALL RIGHTS RESERVED</small>		
BRANCH		
PAGE	67 OF 85	
SHEET	53 OF 60	

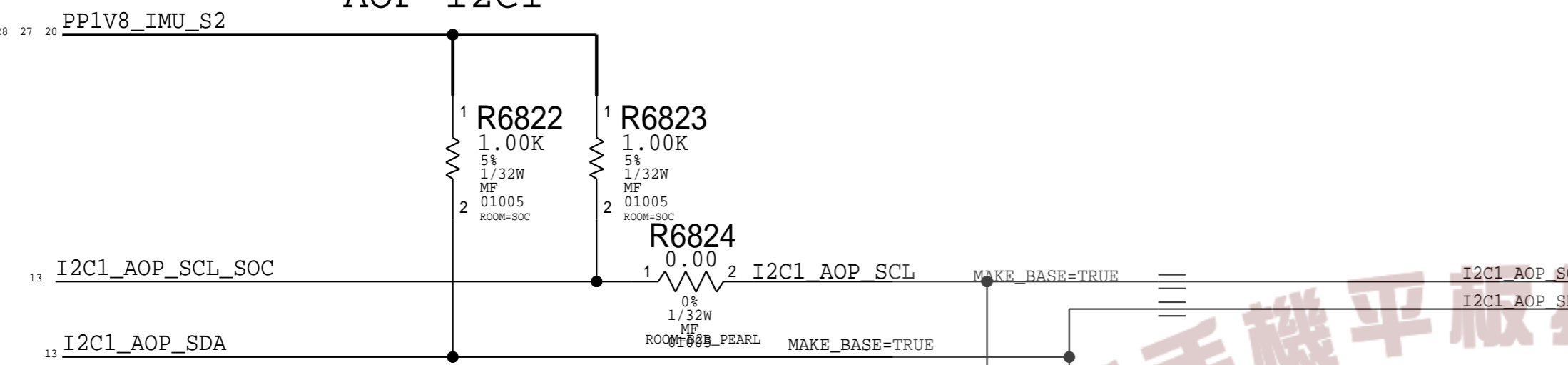
AOP / SMC I2C

AOP I2C0



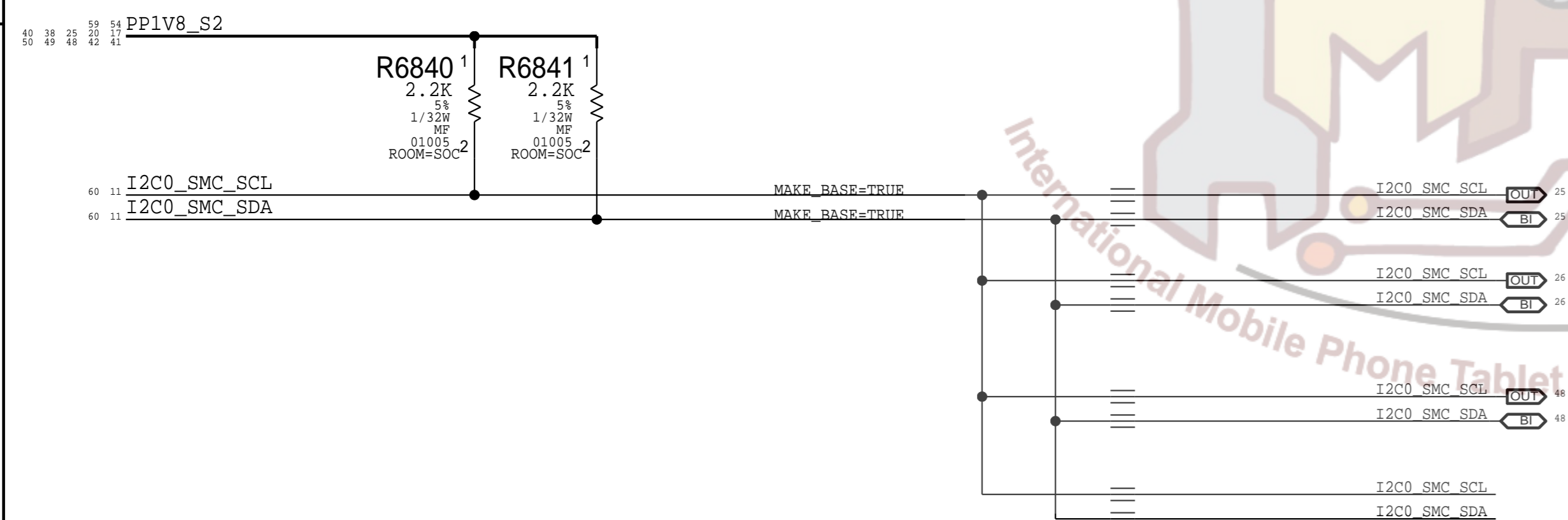
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AOP I2C0	PPIV8_S2	750 kHz	Doppler	0x58	1011 000X	0xB0, 0xB1	-	1 MHz	Sensor Flex
			Blackbird	0x29	0101 001X	0x52, 0x53	-	1 MHz	Sensor Flex
			Yogi	0x33	0110 011X	0x66, 0x67	-	1 MHz	Sensor Flex

AOP I2C1



Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AOP I2C1	PPIV8_IMU_S2	400 kHz	Arc	0x42	1000 001X	0x82, 0x83	-	1 MHz	Top Board
			Bottom Speaker	0x40	1000 000X	0x80, 0x81	-	1 MHz	Top Board
			Moly	0x0E	0001 110X	0x1C, 0x1D	-	1 MHz	Button Cyclone
			Potassium	0x76	1110 110X	0xEC, 0xED	-	1 MHz	Dock Flex

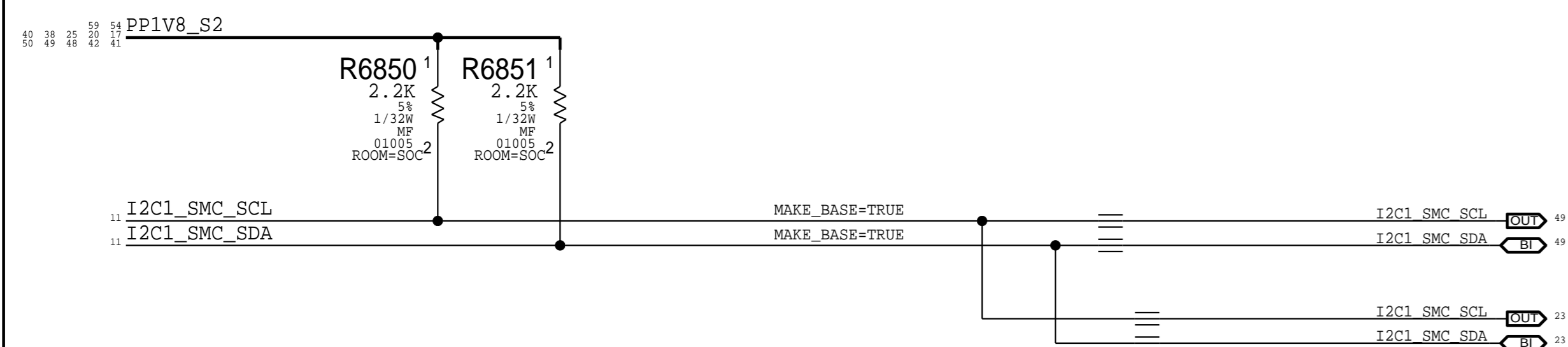
SMC I2C0



Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
SMC I2C0	PPIV8_S2	400 kHz	Yangtze	0x71	1110 001X	0xE2, 0xE3	-	400 KHz	Top Board
			Iktara	0x39	0111 001X	0x72, 0x73	-	400 KHz	Bot Board
			CCG2	0x12	0010 010X	0x24, 0x25	-	1 MHz	Top Board
			Gas Guage	0x55	0010 010X	0xAA, 0xAB	-	1 MHz	BMU Flex
			Roswell	0x10	0100 000X	0x20, 0x21	-	400 KHz	BMU Flex

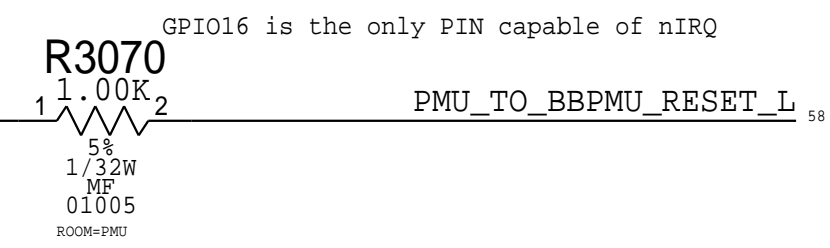
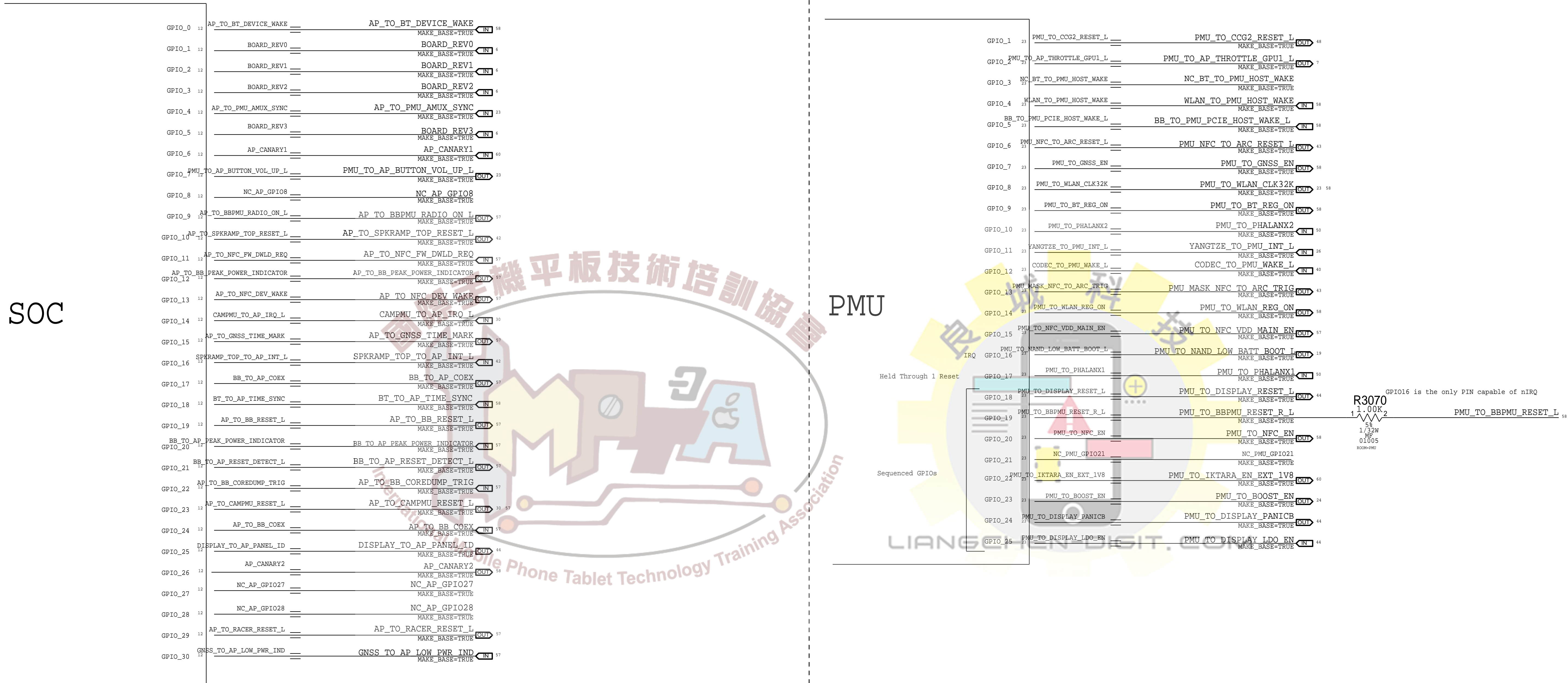
Lives on bottom board

SMC I2C1



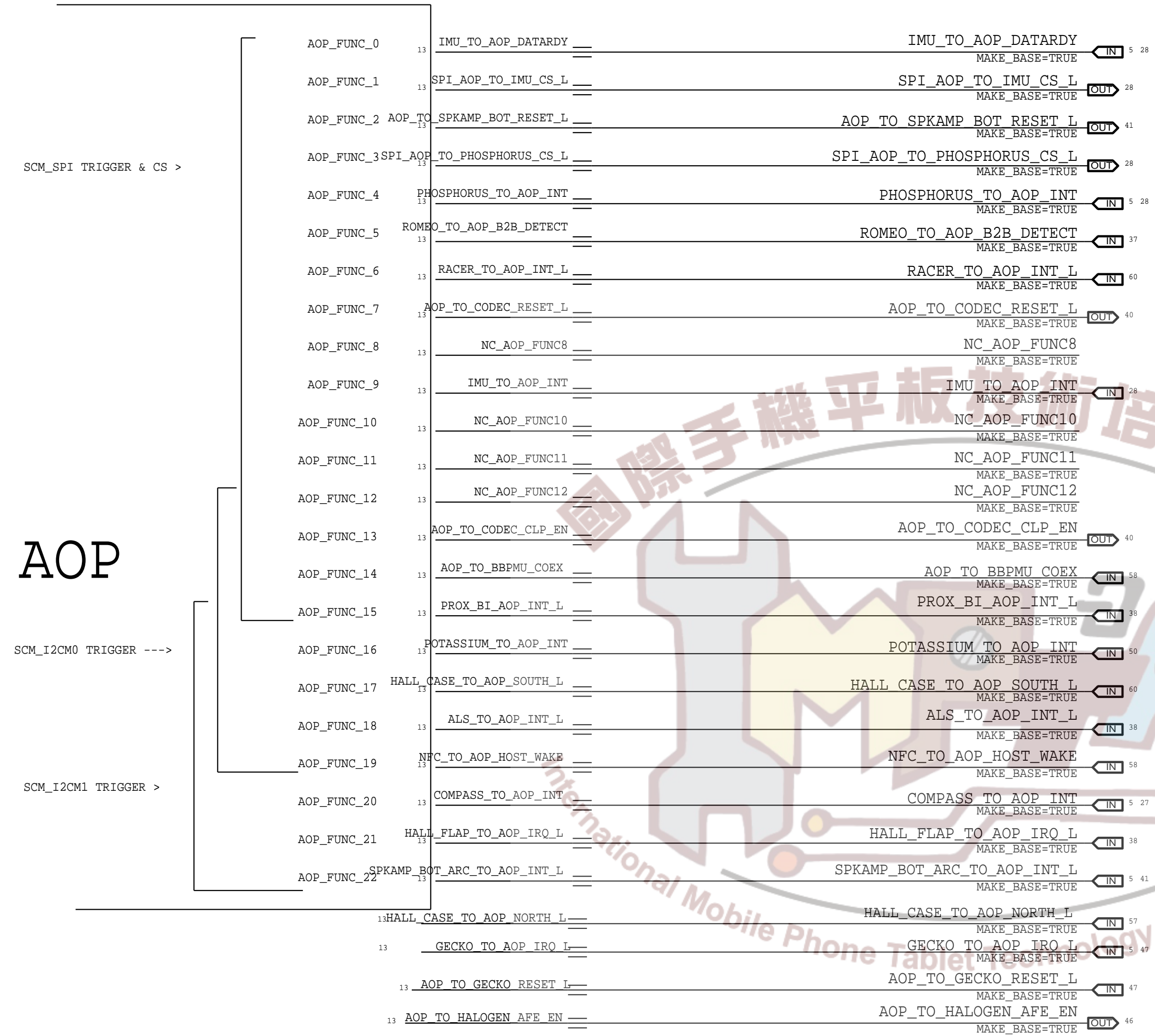
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
SMC I2C1	PPIV8_S2	400 kHz	Hydra	0x1A	0011 010X	0x34, 0x35	-	400 KHz	Top Board
			Denali	0x74	1110 100X	0xE8, 0xE9	-	400 KHz	Top Board

AP / PMU GPIOs



PAGE TITLE			SYSTEM: SOC/PMU GPIOs		
DRAWING NUMBER		051-02545	SIZE	D	
REVISION		7.0.0	BRANCH		
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			SHEET	55 OF 60	

AOP GPIOs



PAGE TITLE			SYSTEM: AOP GPIOs
Apple Inc.	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
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