

Display CMC's

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S00415	155S00391	ALT_PARTS	ALL	CMC, 350SM, 780x, MIR

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

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

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

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, SMDCO
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:
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

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

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, SMDCO
138S00166	138S00141	ALT_PARTS	ALL	0201,1.1uF@3V, Taiyo

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

Global R/C Alternates

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0648	138S0652	ALT_PARTS	ALL	050,20K,4,70H,6,10,0,69MD,040,780TD
138S0739	138S0706	ALT_PARTS	ALL	050,05K,05K,0,220P,05H,6,10,05H
138S00049	138S0831	ALT_PARTS	ALL	050,05K,05K,0,220,05H,6,10,0501

Yangtze Inductors

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00872	152S00918	ALT_PARTS	ALL	IND,MILD,0,220H,20H,5.8A,40MOHM,H=,65,1608
152S00847	152S00918	ALT_PARTS	ALL	IND,MILD,0,470H,CYN

CRITICAL PART#	COMMENT
152S00918	IND,MILD,0,220H,20H,5.8A,40MOHM,H=,65,1608

Denali Inductors

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00878	152S00831	ALT_PARTS	ALL	IND,MILD,0,220H,20H,5.8A,40MOHM,H=,65,1608
152S00818	152S00831	ALT_PARTS	ALL	IND,MILD,0,220H,20H,5.8A,40MOHM,H=,65,1608,CYN
152S00835	152S00822	ALT_PARTS	ALL	IND,MILD,0,470H,20H,4.5A,40MOHM,H=,65,1608
152S00827	152S00822	ALT_PARTS	ALL	IND,MILD,0,470H,20H,4.5A,40MOHM,H=,65,1608
152S00877	152S00817	ALT_PARTS	ALL	IND,MILD,0,100H,20H,4.5A,40MOHM,H=,65,1608
152S00829	152S00817	ALT_PARTS	ALL	IND,MILD,0,100H,20H,4.5A,40MOHM,H=,65,1608
152S00825	152S00823	ALT_PARTS	ALL	IND,MILD,0,100H,20H,3.0A,60MD,H=,65,2012
152S00833	152S00819	ALT_PARTS	ALL	IND,MILD,10H,20H,2.1A,60MD,H=,65,2012
152S00824	152S00819	ALT_PARTS	ALL	IND,MILD,10H,20H,2A,60MD,H=,65,2012
152S00834	152S00820	ALT_PARTS	ALL	IND,MILD,0,470H,20H,3.0A,570MD,H=,65,2012
152S00828	152S00820	ALT_PARTS	ALL	IND,MILD,0,470H,20H,3.2A,400MD,H=,65,2012
152S00826	152S00821	ALT_PARTS	ALL	IND,MILD,10H,20H,2.1A,53MD,H=,65,2012
152S00866	152S00821	ALT_PARTS	ALL	IND,MILD,10H,20H,2.1A,53MD,H=,65,2012

CRITICAL PART#	COMMENT
152S00831	IND,MILD,0,220H,20H,5.8A,40MOHM,H=,65,1608
152S00822	IND,MILD,0,470H,20H,4.5A,47MOHM,H=,65,2012
152S00817	IND,MILD,0,100H,20H,9.4A,22MOHM,H=0,65,1608
152S00823	IND,MILD,10H,20H,3.0A,60MD,H=,65,2016
152S00819	IND,MILD,10H,20H,1.7A,69MD,H=,65,2012
152S00820	IND,MILD,0,470H,20H,3.2A,42MD,H=,60,2012
152S00821	IND,MILD,10H,20H,2.2A,60MD,H=,60,2012

XTAL Alternate


PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0612	197S00118	ALT_PARTS	Y1000	XTAL, 24M, 1612
197S00120	197S00118	ALT_PARTS	Y1000	XTAL, 24M, 1612

NEON Alternate

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00721	152S00876	ALT_PARTS	14010, 14010	TY, 1MD

ANSEL Alternate

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00716	152S00875	ALT_PARTS	13700	TY, 1MD

PAGE TITLE			
SYSTEM:BOM Tables			
 Apple Inc.	DRAWING NUMBER	051-02545	SIZE D
	REVISION	7.0.0	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE I NOT TO REPRODUCE OR COPY IT I NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	2 OF 85
		SHEET	2 OF 60

EEEE Codes

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-7691	1	EEEE FOR (MLB_TOP,639-03991,ULTIMATE)	EEEE_HWV1	CRITICAL	ULTIMATE
825-7691	1	EEEE FOR (MLB_TOP,639-03992,EXTREME)	EEEE_HWV2	CRITICAL	EXTREME
825-7691	1	EEEE FOR (MLB_TOP,639-03990,MAX)	EEEE_HWV0	CRITICAL	MAX

Cyprus OMIT


PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S00510	1	CYPRUS 4GB Micron	U1000	CRITICAL	SOC

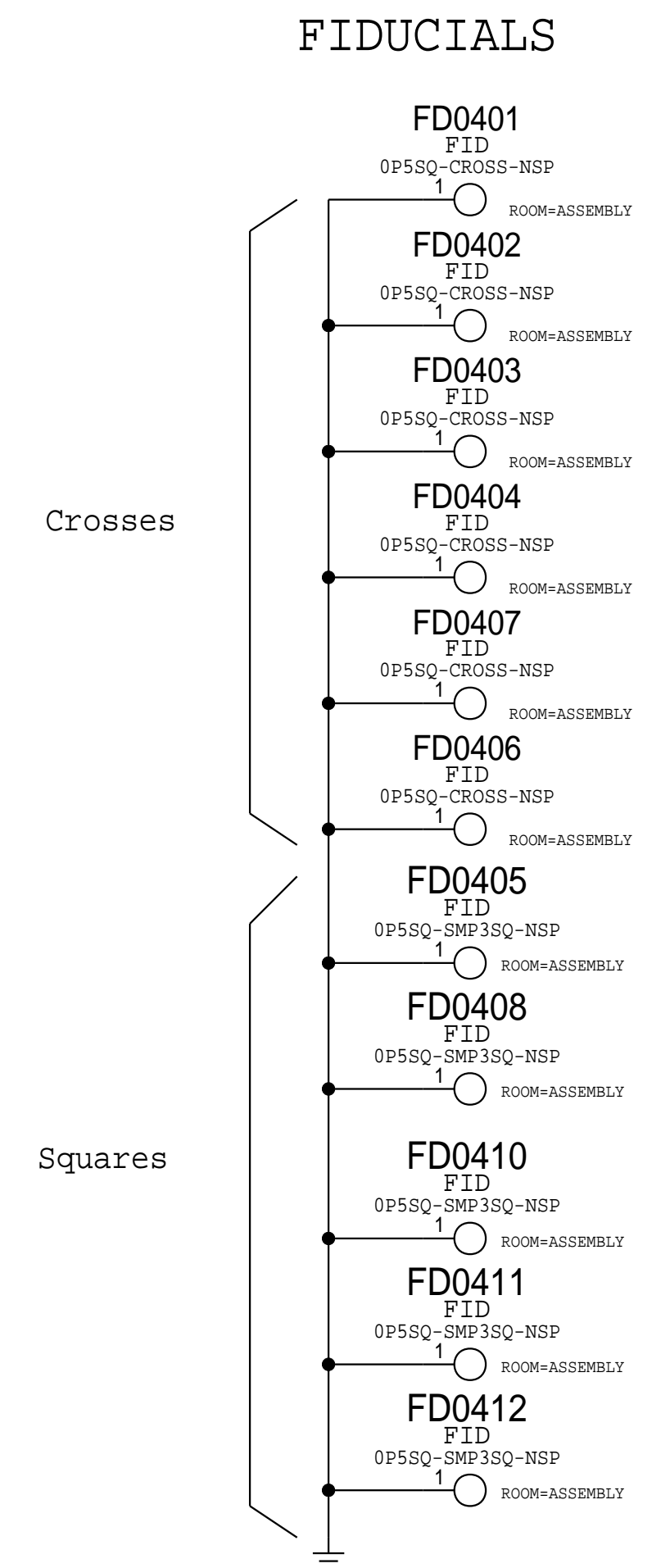
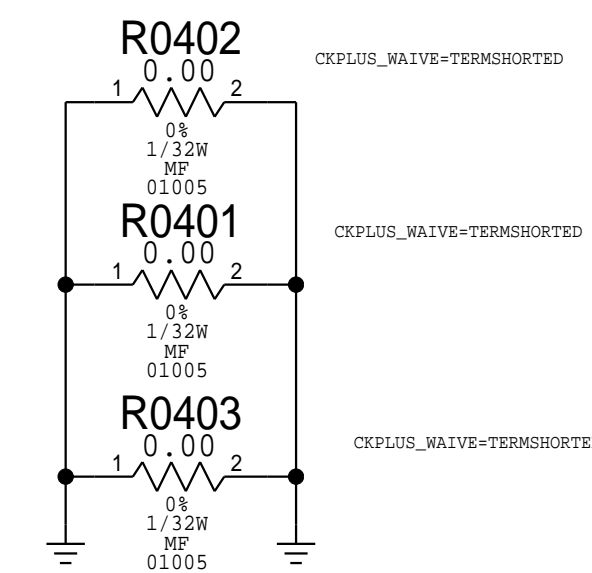
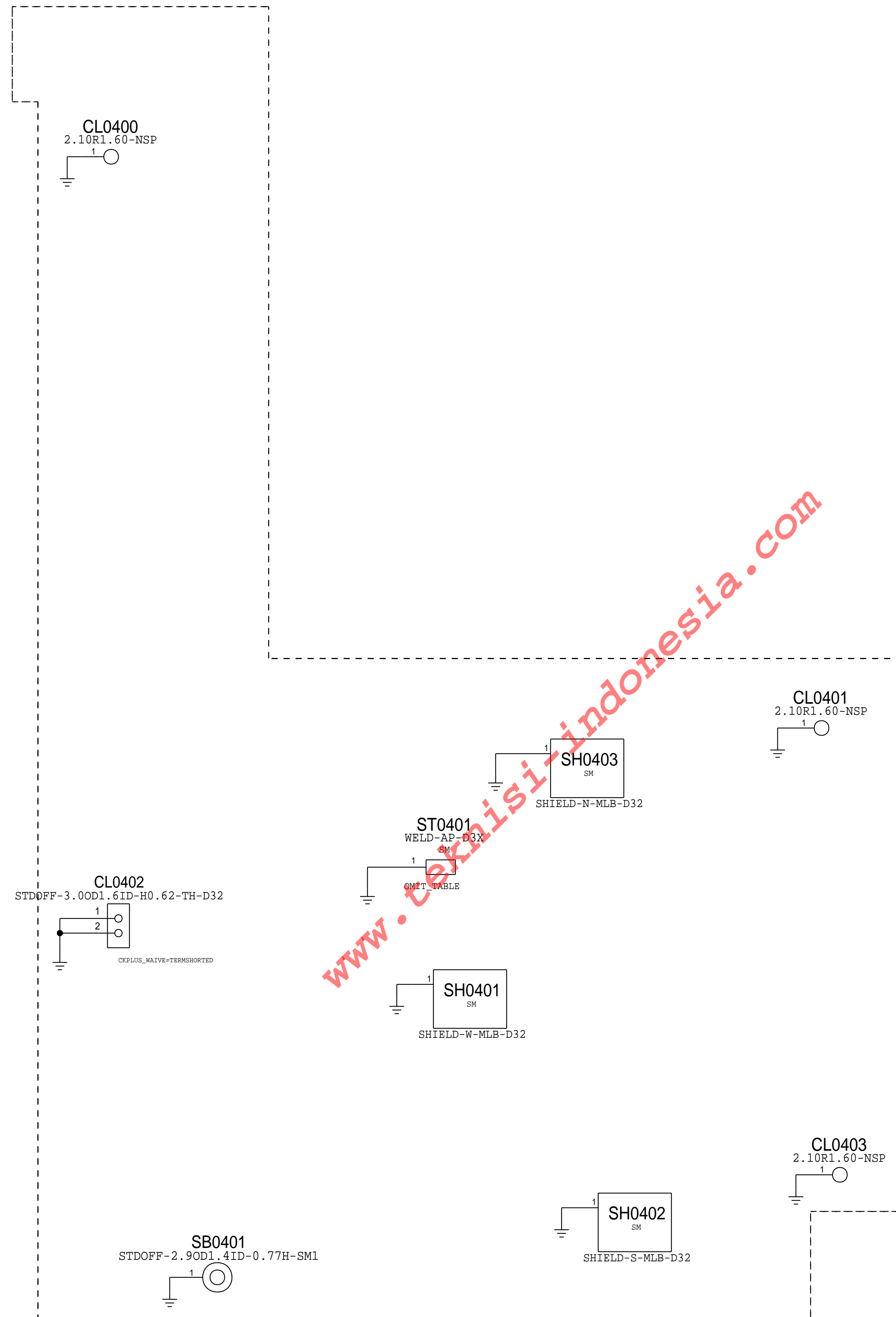
Cyprus ALTs


PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00511	339S00510	ALT_PARTS	U1000	CYPRUS 4GB Hynix
339S00512	339S00510	ALT_PARTS	U1000	CYPRUS 4GB Samsung

Combo Stiffener

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
604-19651	1	Combo Stiffener	ST0401	CRITICAL	ALL

SYNC_MASTER=		SYNC_DATE=08/09/2017	
PAGE TITLE			
SYSTEM:BOM Tables FF Specific			
 Apple Inc.	DRAWING NUMBER		SIZE
	051-02545		D
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	REVISION		
	7.0.0		
	BRANCH		
	PAGE		
		3	OF 85
		SHEET	
		3	OF 60



PAGE TITLE			
SYSTEM: Mechanical Components			
 Apple Inc.	DRAWING NUMBER 051-02545		SIZE D
	REVISION 7.0.0		
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE 4 OF 85	
		SHEET 4 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 -->


Board Rev[3:0]				
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]			
Float = Low PU = High			
	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

BOOTSTRAPPING

 Apple Inc.

THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
II NOT TO REPRODUCE OR COPY IT
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
IV ALL RIGHTS RESERVED

DRAWING NUMBER
051-02545

REVISION
7.0.0

BRANCH

PAGE
6 OF 85

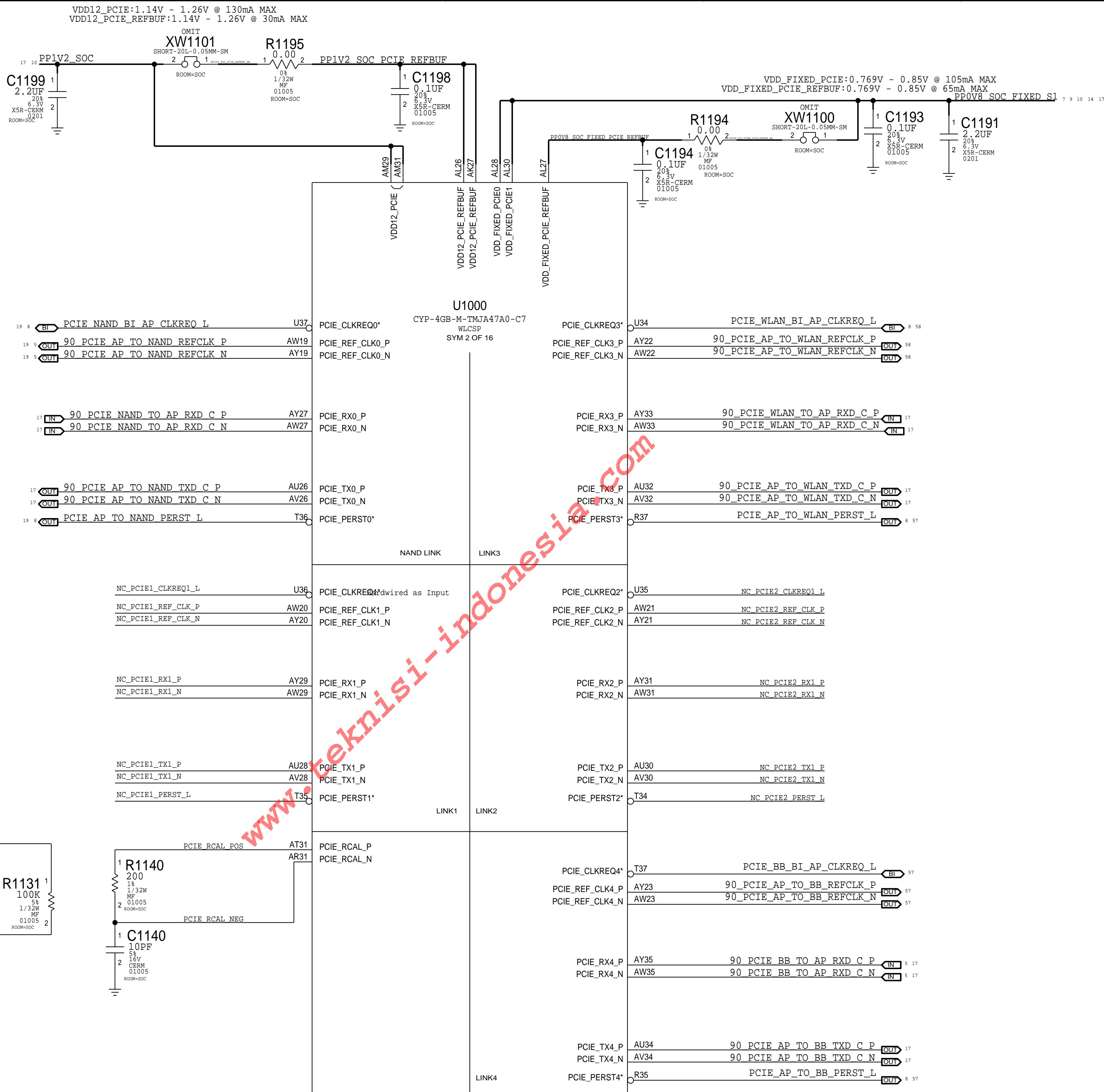
SHEET
6 OF 60

SIZE
D

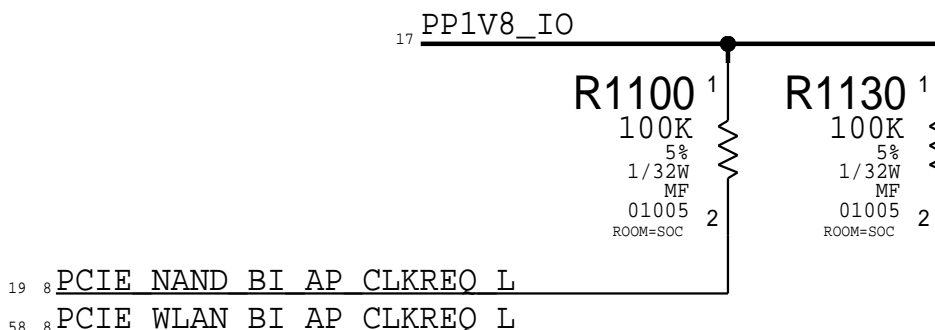
D

B

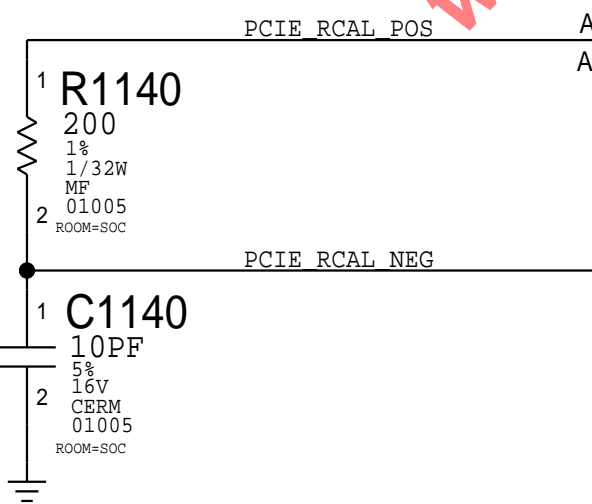
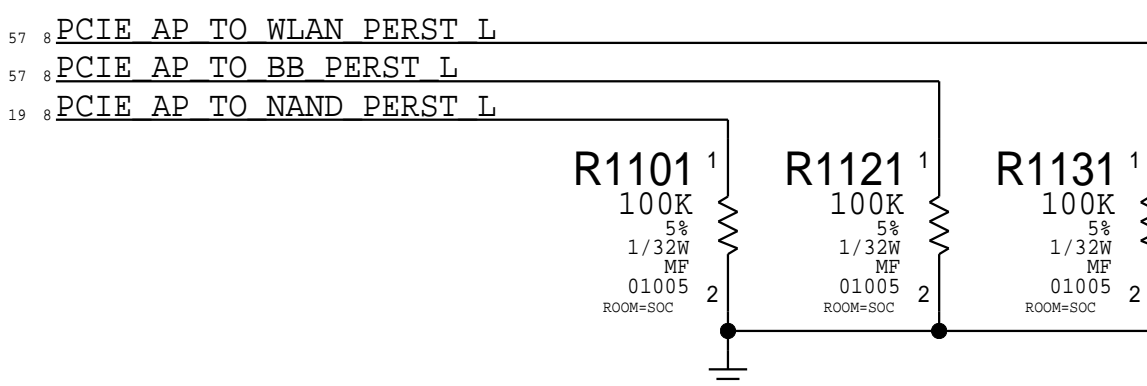
SOC - PCIE




PCie BB CLKREQ PU on BB domain
PCie Clock Request Pull-Ups



PCie Reset Pull-Downs



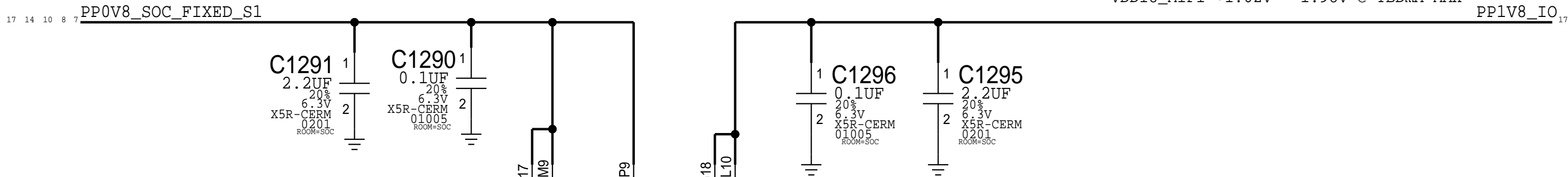
PAGE TITLE			
SOC: PCIE			
 Apple Inc.	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		11 OF 85	
I NOT TO REPRODUCE OR COPY IT		SHEET	
I NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		8 OF 60	
I ALL RIGHTS RESERVED			

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

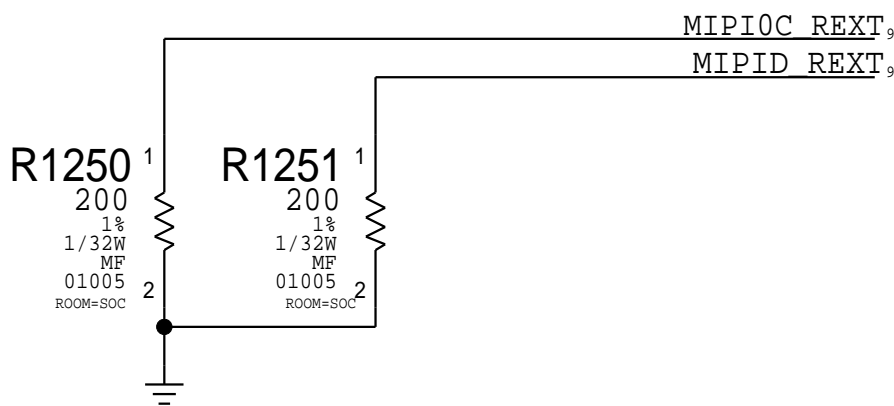
Juliet MIPI


Display MIPI

GNDED offpage on MLB

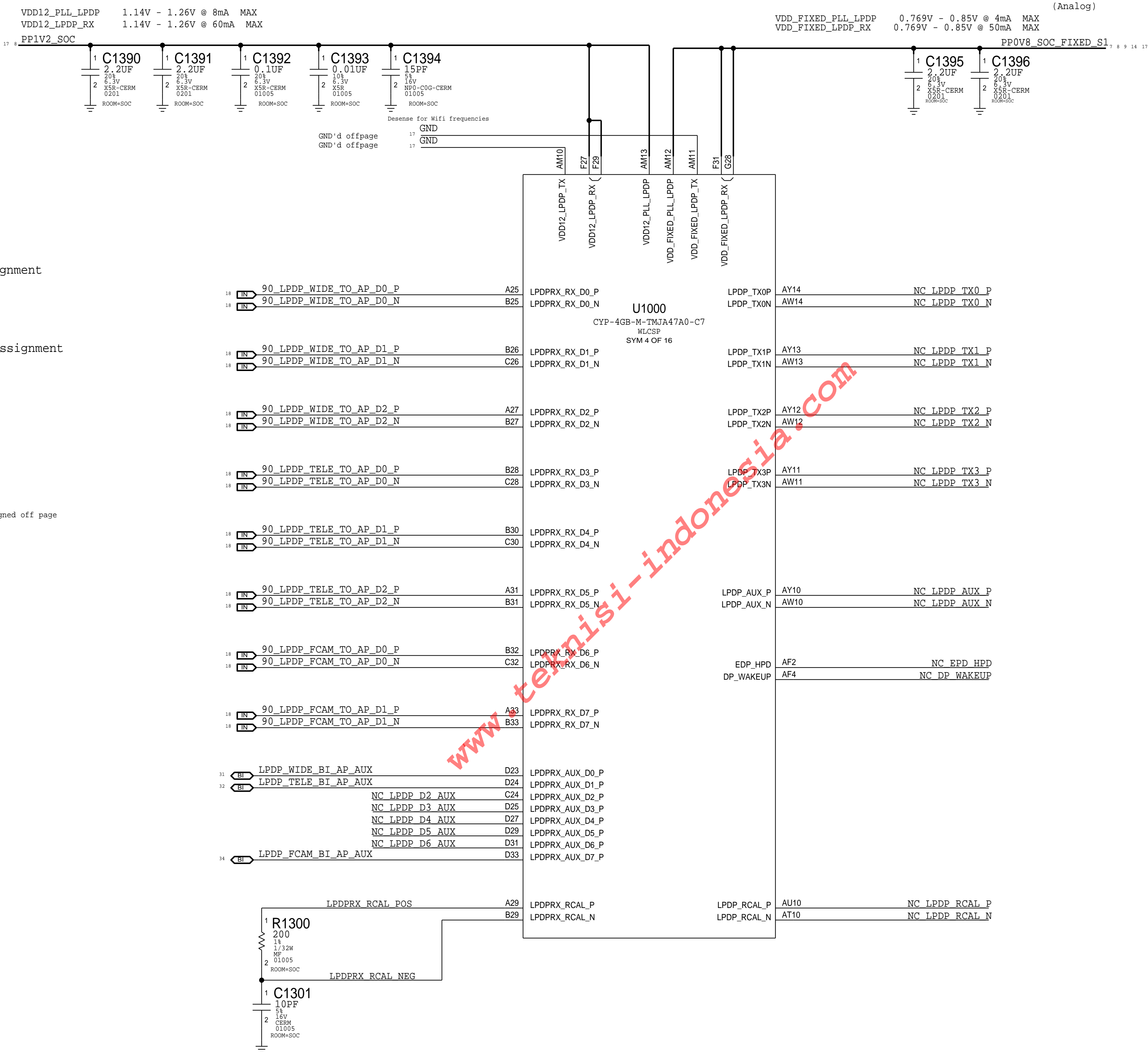
GNDED offpage on MLB

MIPI Reference



PAGE TITLE		
SOC: MIPI		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE I NOT TO REPRODUCE OR COPY IT I NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	12 OF 85
	SHEET	9 OF 60

SOC - LPDP




Dan LPDP Lane Assignment

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

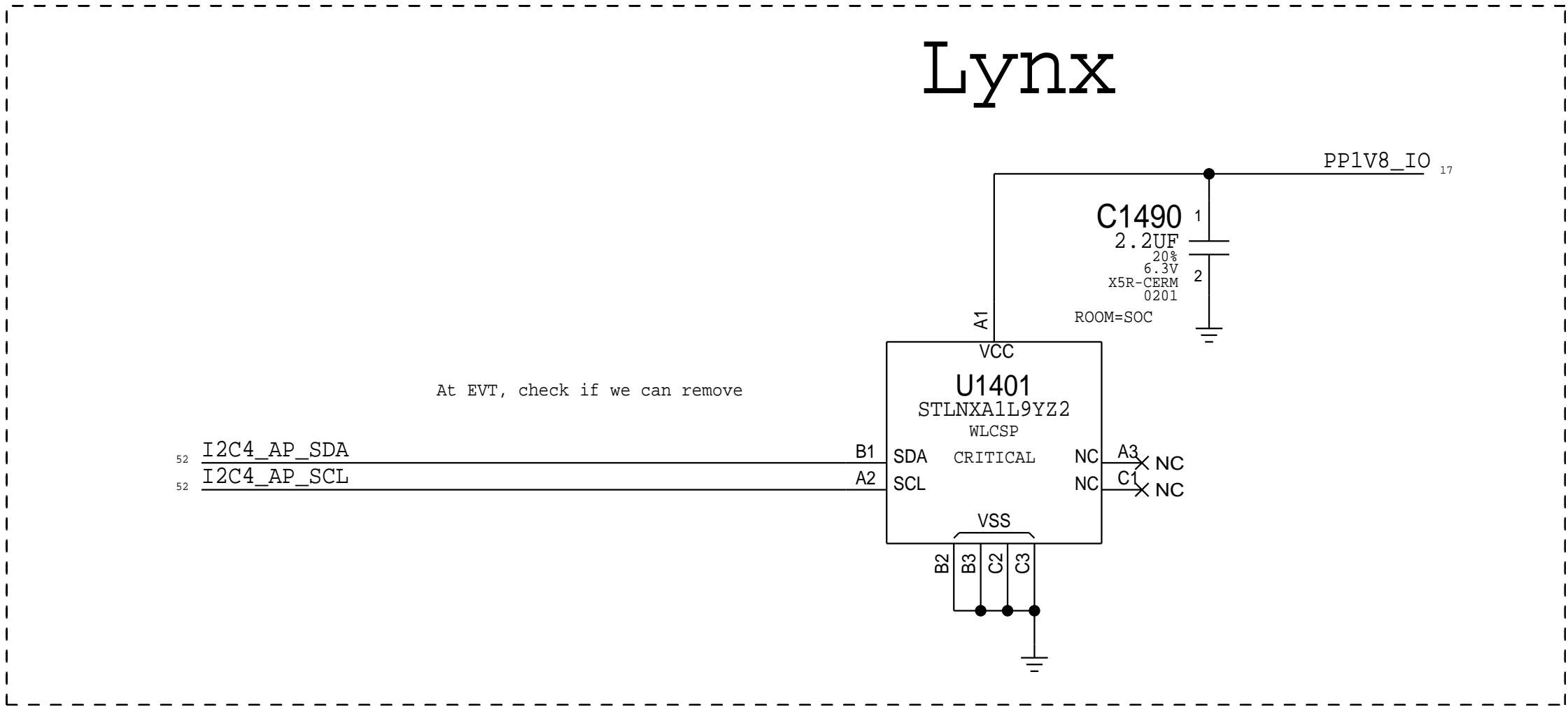
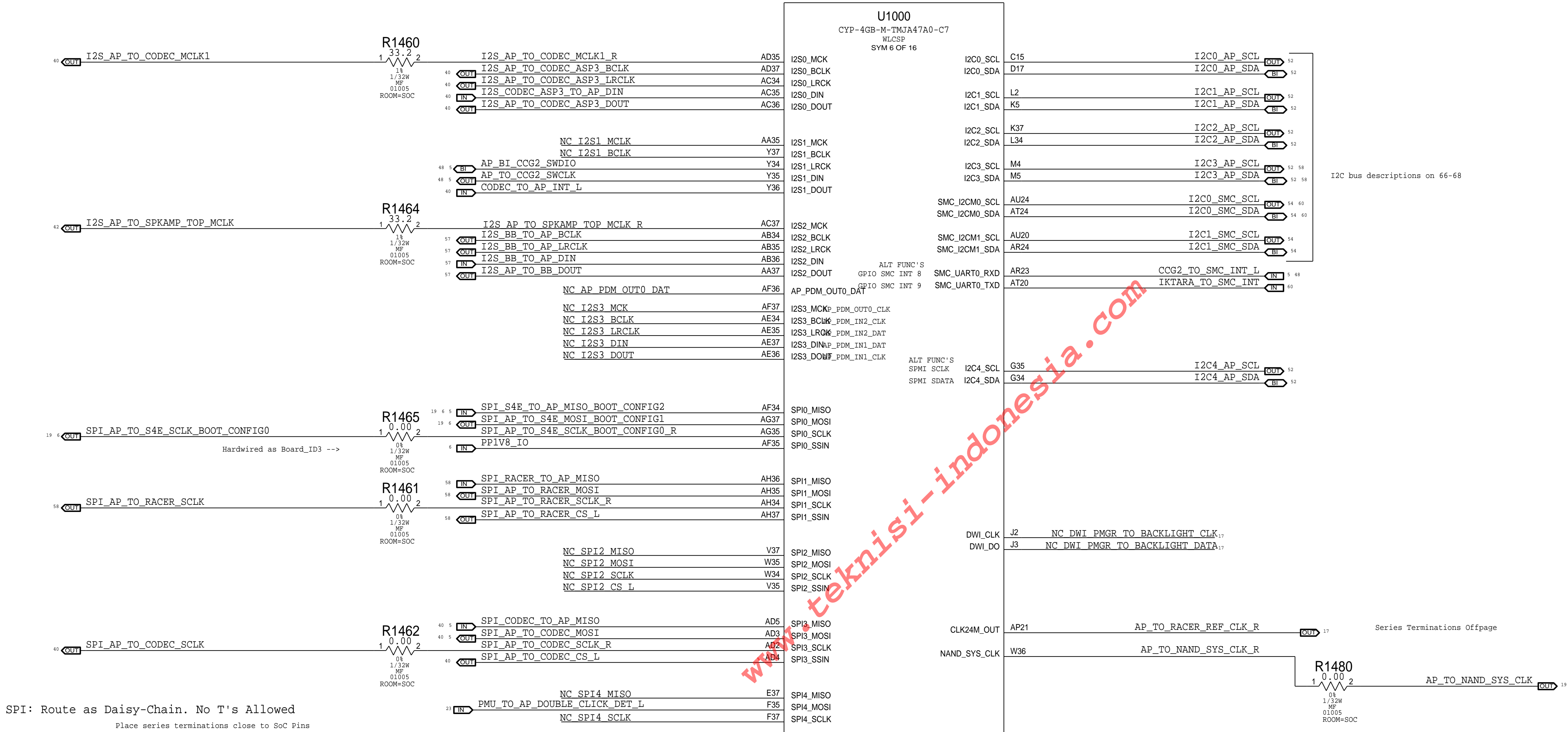
Justin LPDP Lane Assignment

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

LPD Assigned off page

PAGE TITLE		
SOC: LPDP		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	13 OF 85
	SHEET	10 OF 60

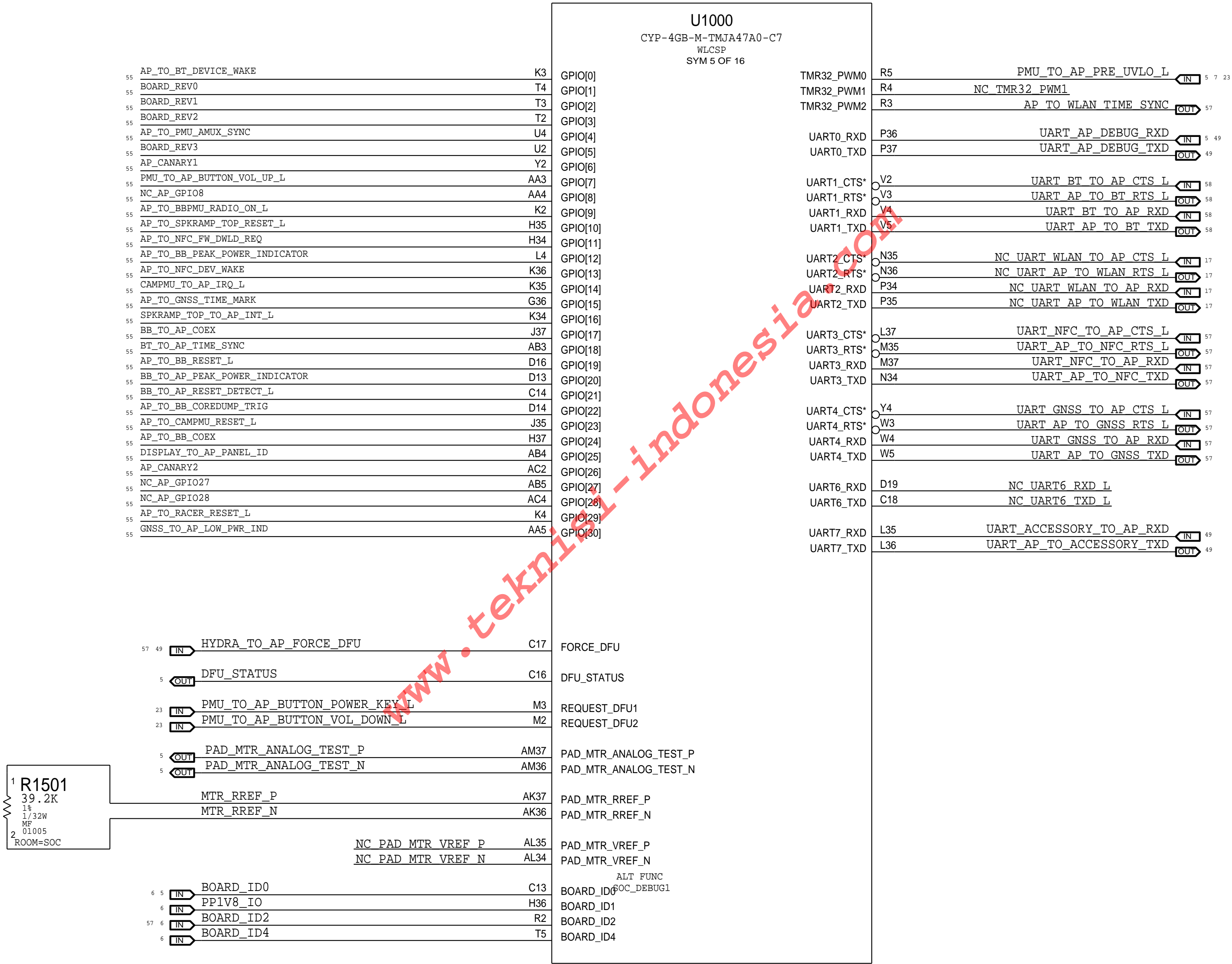
SOC - SERIAL INTERFACES



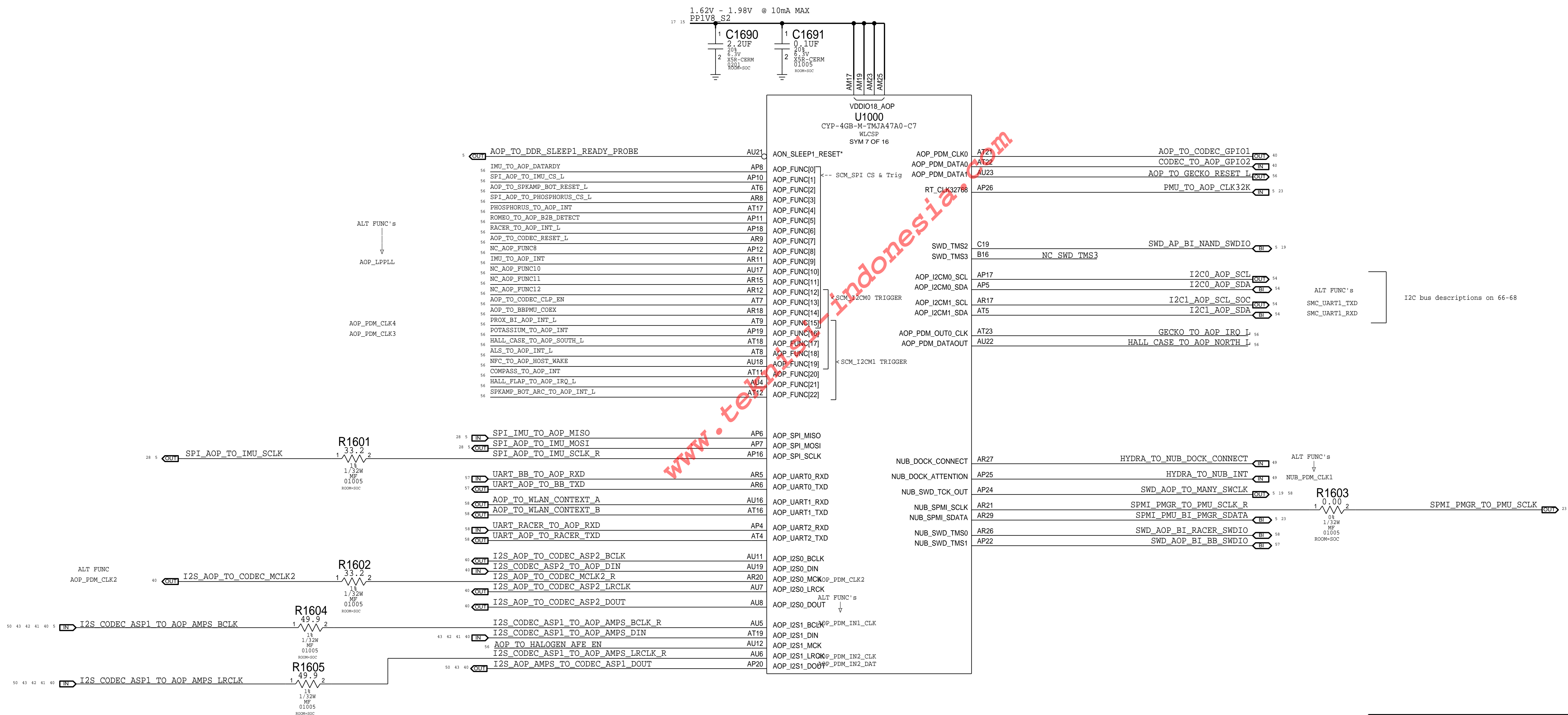
PAGE TITLE			
SOC: SERIAL			
	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:			
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			
PAGE		14 OF 85	
SHEET		11 OF 60	

SOC - GPIO INTERFACES

GPIOs are wired on page 70



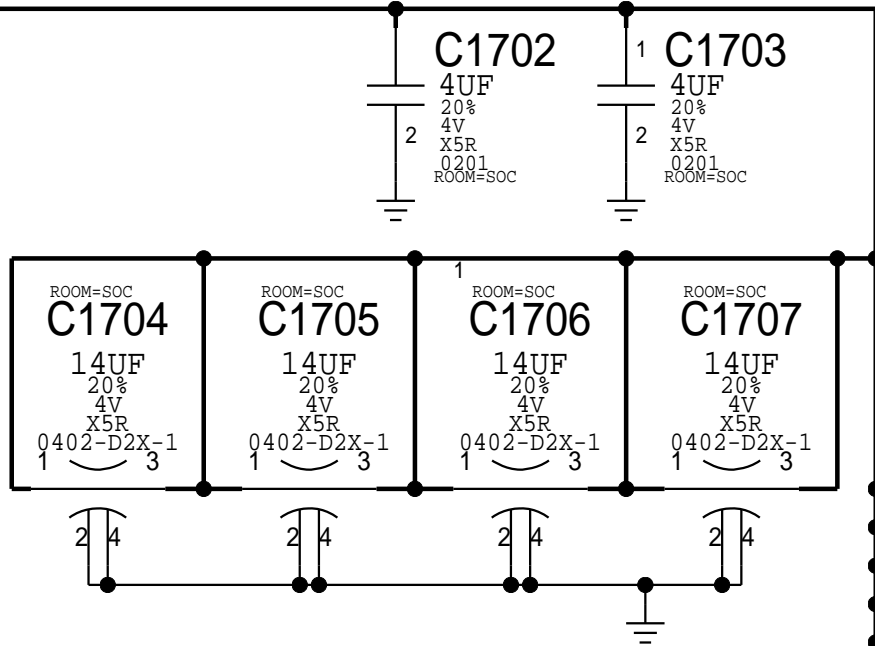
SOC – AOP



SOC - CPU, GPU & SOC RAILS

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

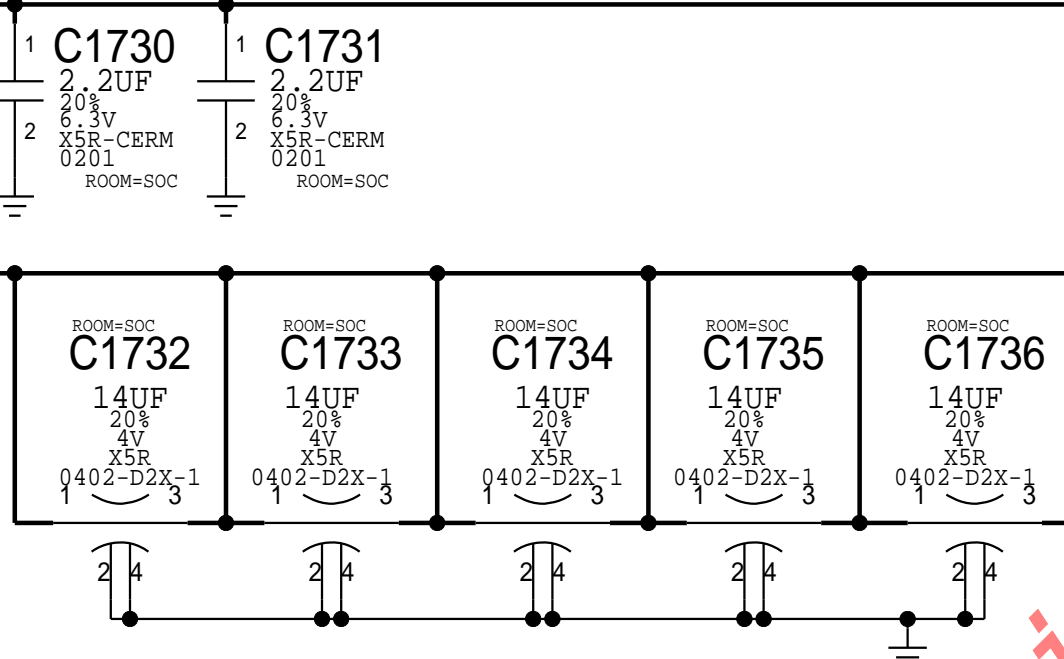
PP_CPU_CORE



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

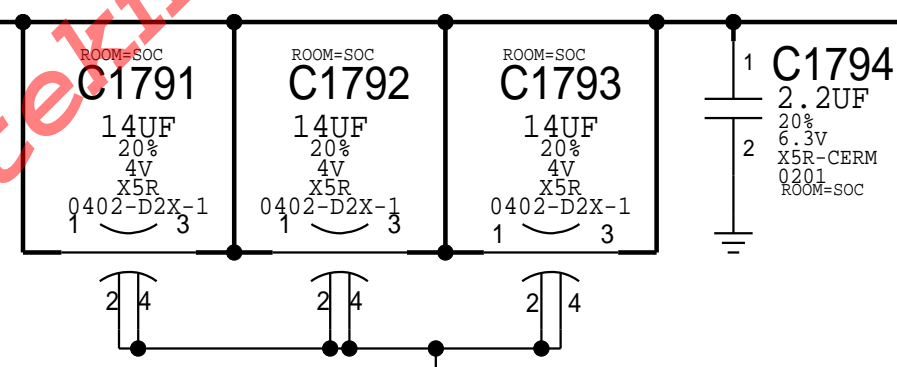
1.06V @ 14.5A MAX
0.725V @ 6.3A MAX
0.570V @ 3.1A MAX

PP_GPU



0.945V @ 2.9A MAX
0.626V @ 1.2A MAX
0.517V @ 0.62A MAX

PP_CPU_CORE



VDD_FIXED_PCPU: 0.81V @ 5mA
VDD_FIXED_MTR: 0.769V - 0.85V @ TBDmA
VDD_FIXED_ECPU: 0.769V - 0.85V @ 5mA

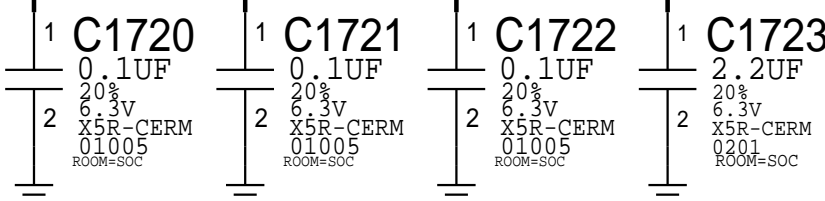
PP0V8_SOC_FIXED_S1
PP0V8_SOC_FIXED_S1
PP0V8_SOC_FIXED_S1

VDD_FIXED_PLL_DDR3: 0.81V @ 8mA
VDD_FIXED_PLL_DDR2: 0.81V @ 8mA
PP0V8_SOC_FIXED_S1

VDD_FIXED_PLL_SOC: 0.81V @ 9mA
VDD_FIXED_PLL_GPU: 0.81V @ 5mA
VDD_FIXED_PLL_ANE: 0.81V @ 5mA
VDD_FIXED_PLL_DDR0: 0.81V @ 8mA
VDD_FIXED_PLL_DDR1: 0.81V @ 8mA
VDD_FIXED_PLL_LPDP: 0.81V @ 2mA

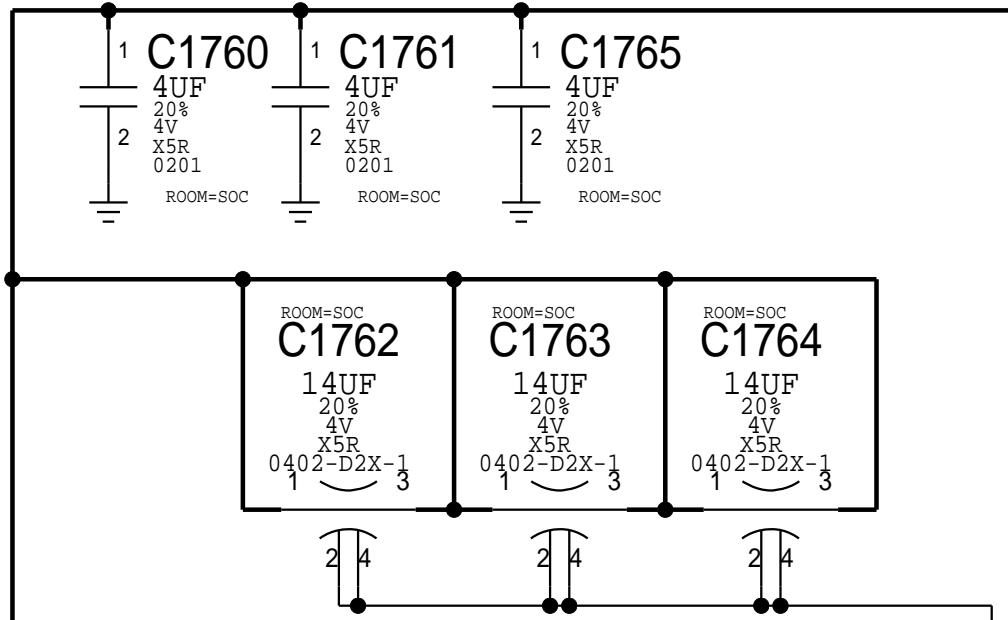
VDD12_PLL_SOC: 1.14 - 1.26V @ 8mA MAX
VDD12_PLL_ANE: 1.14 - 1.26V @ 7mA MAX
VDD12_PLL_PCPU: 1.14 - 1.26V @ 7mA MAX
VDD12_PLL_ECPU: 1.14 - 1.26V @ 7mA MAX
VDD12_PLL_GPU: 1.14 - 1.26V @ 7mA MAX

PP1V2_SOC



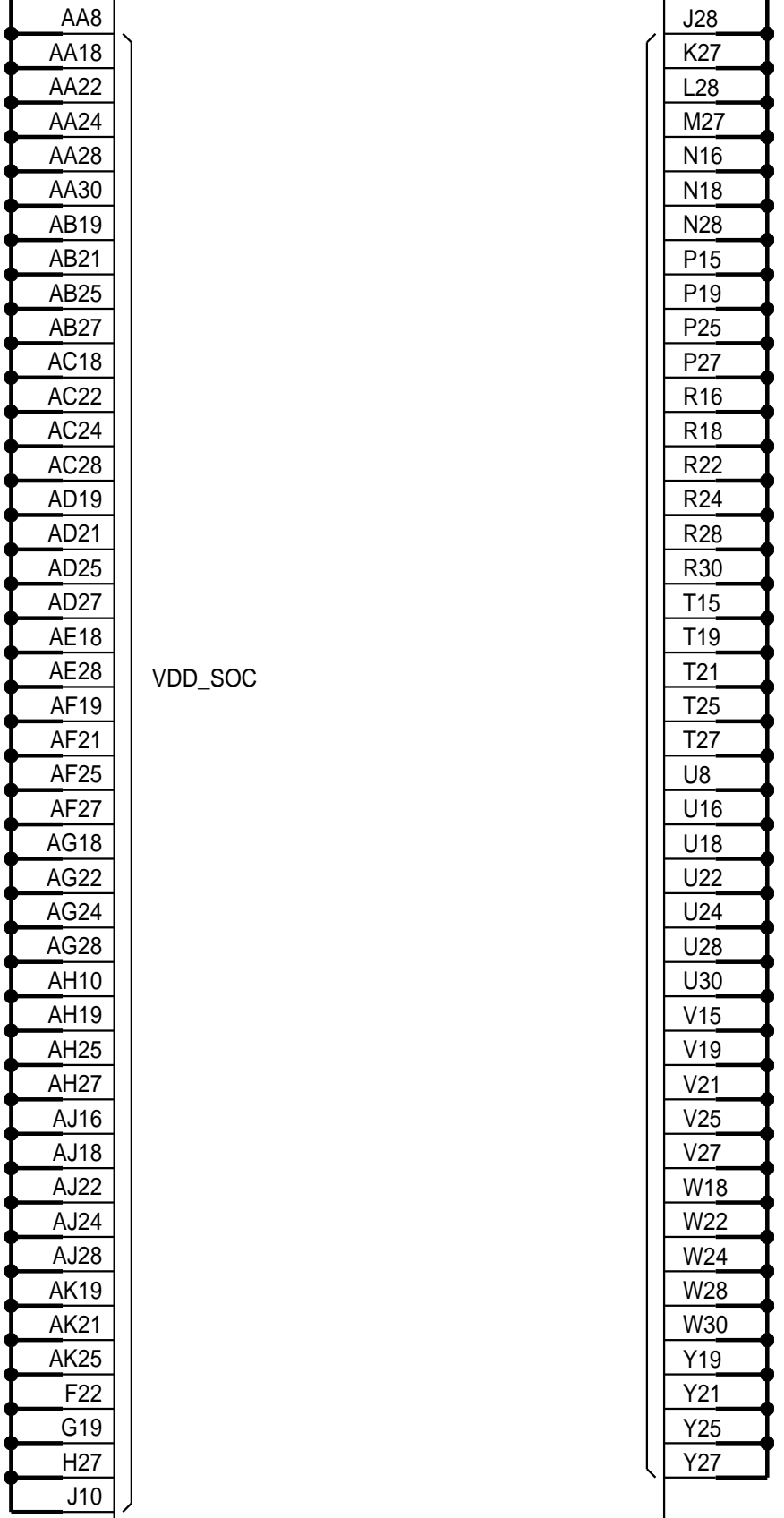
0.783V @ 4.2A MAX
0.661V @ 2.6A MAX
0.595V @ 2.1A MAX

PP_SOC_S1



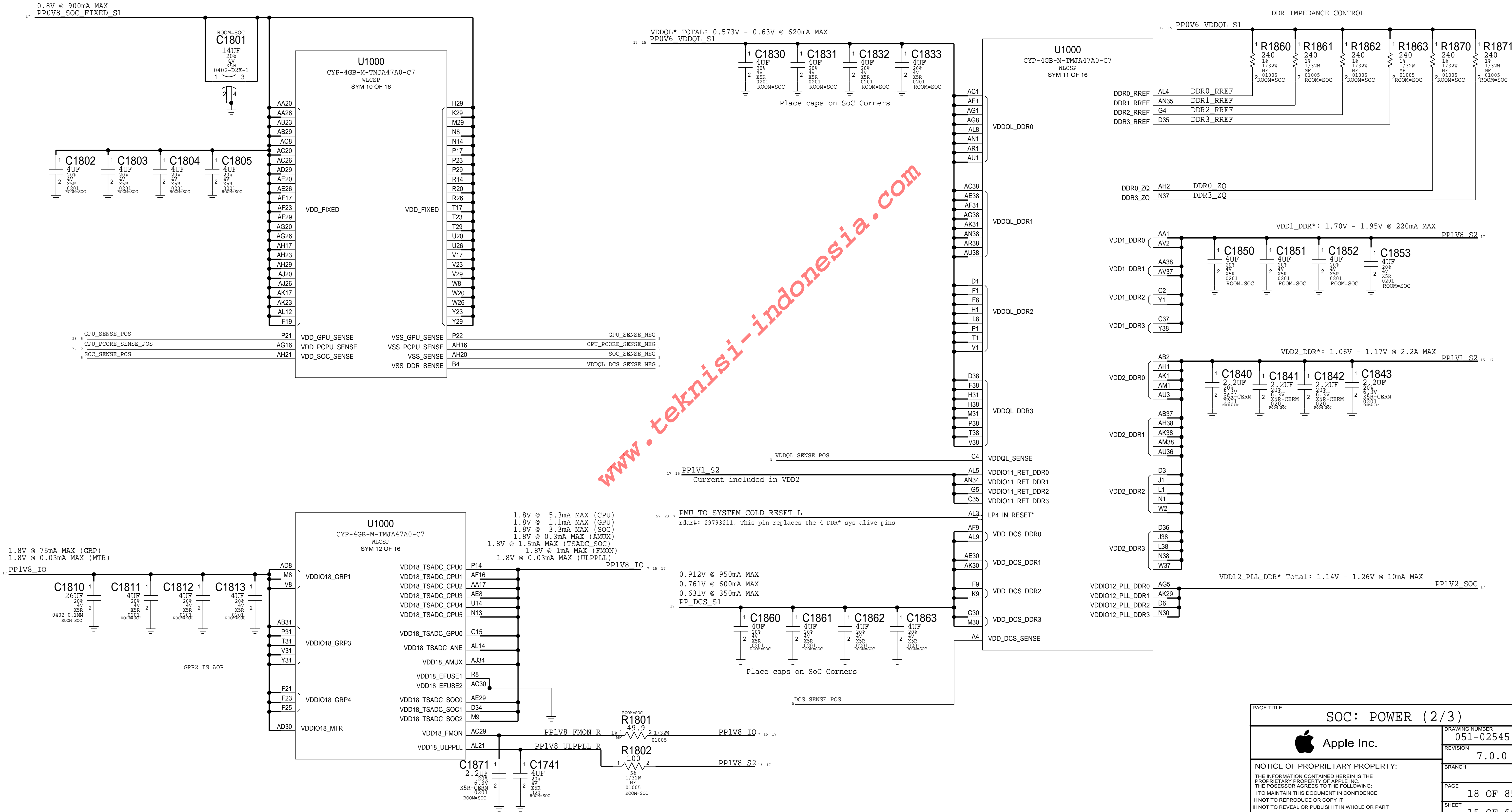
U1000
CYP-4GB-M-TMJA47A0-C7
WLCSP
SYM 9 OF 16

VDD_SOC

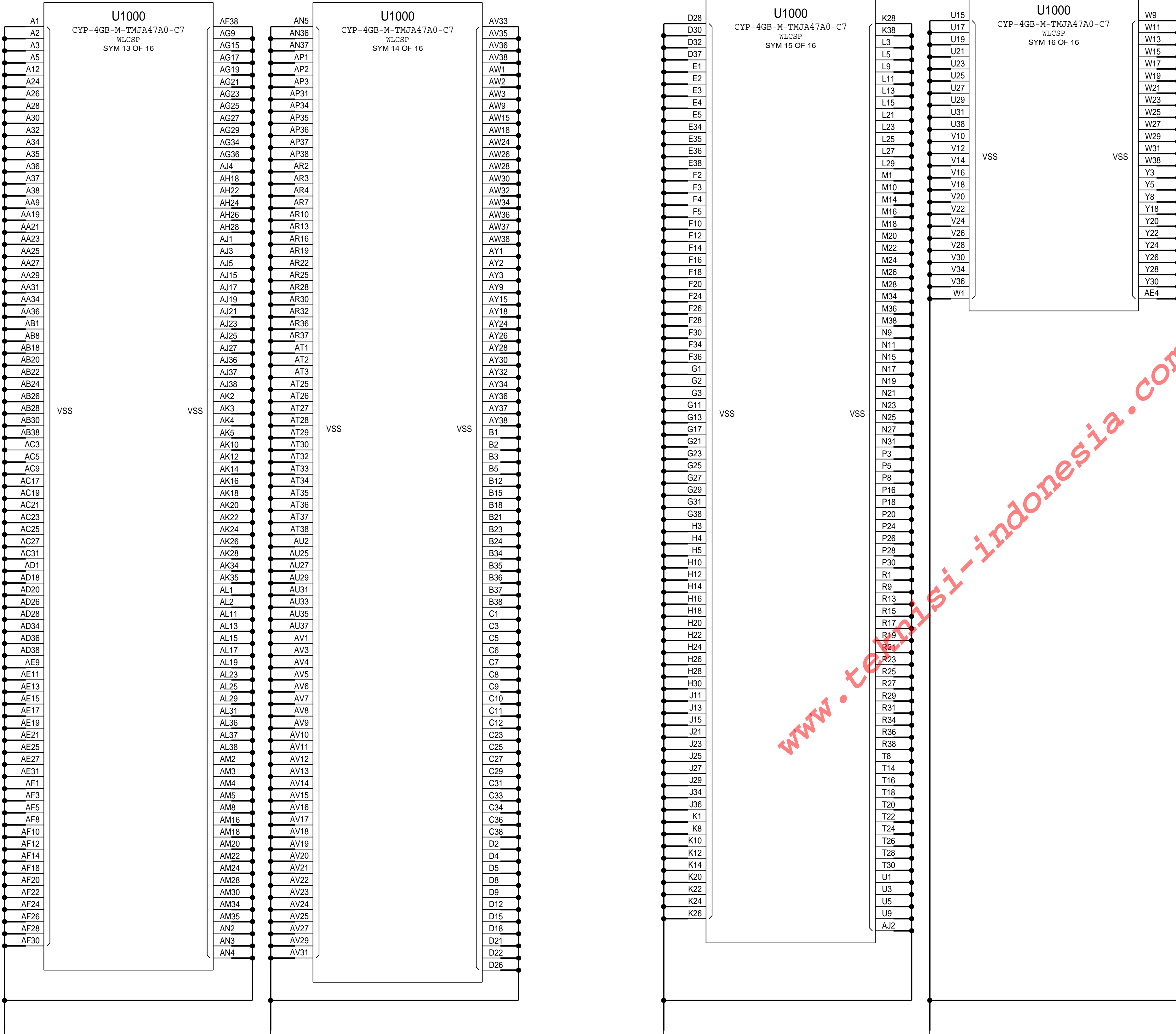


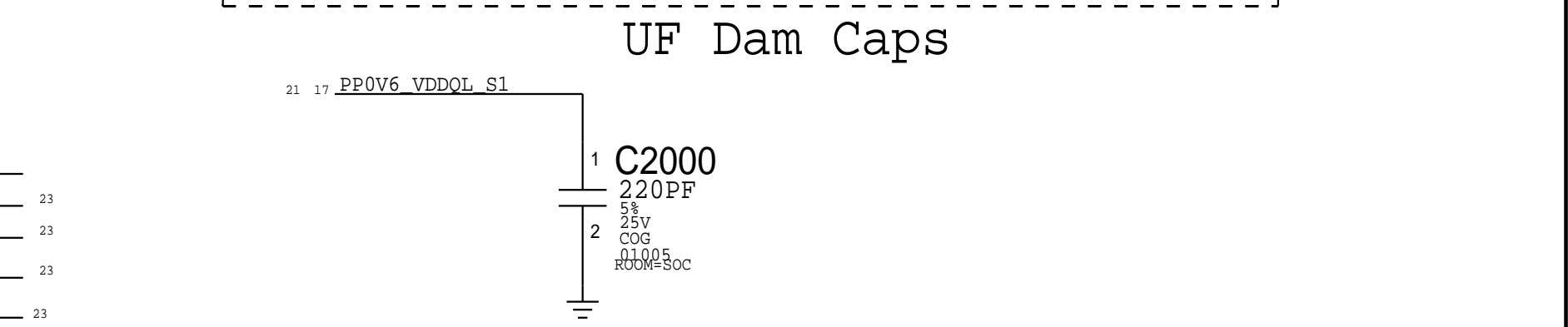
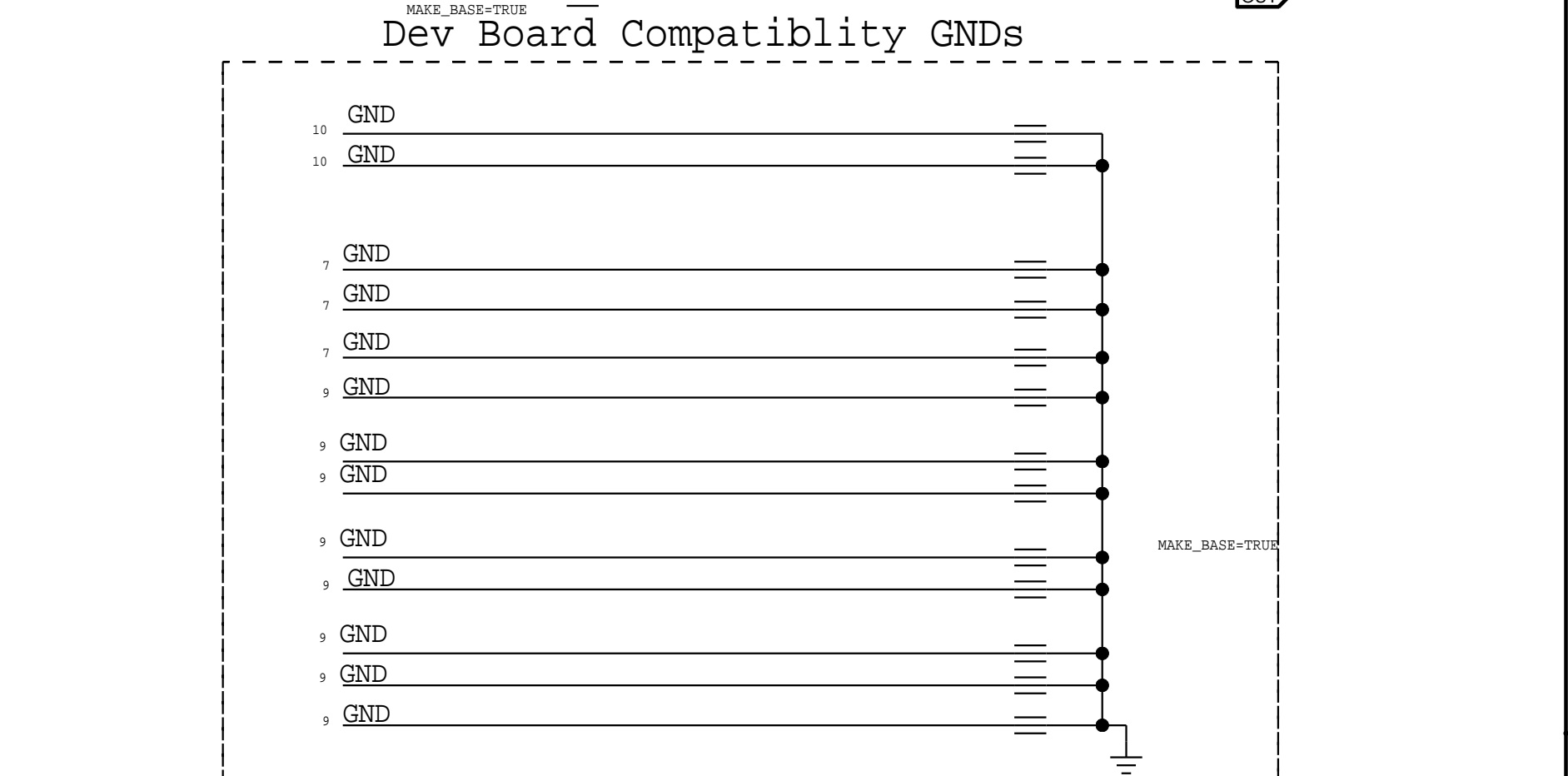
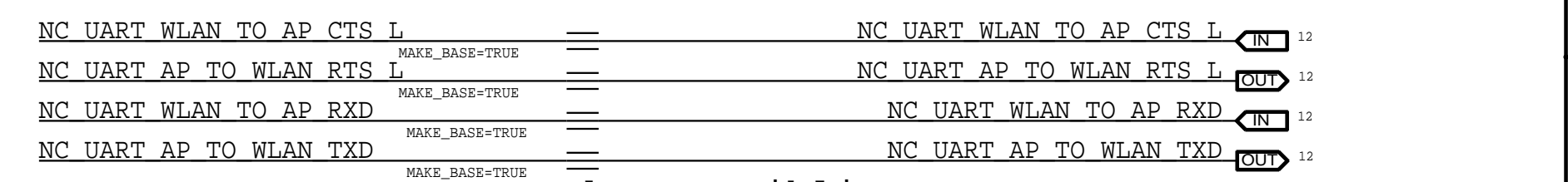
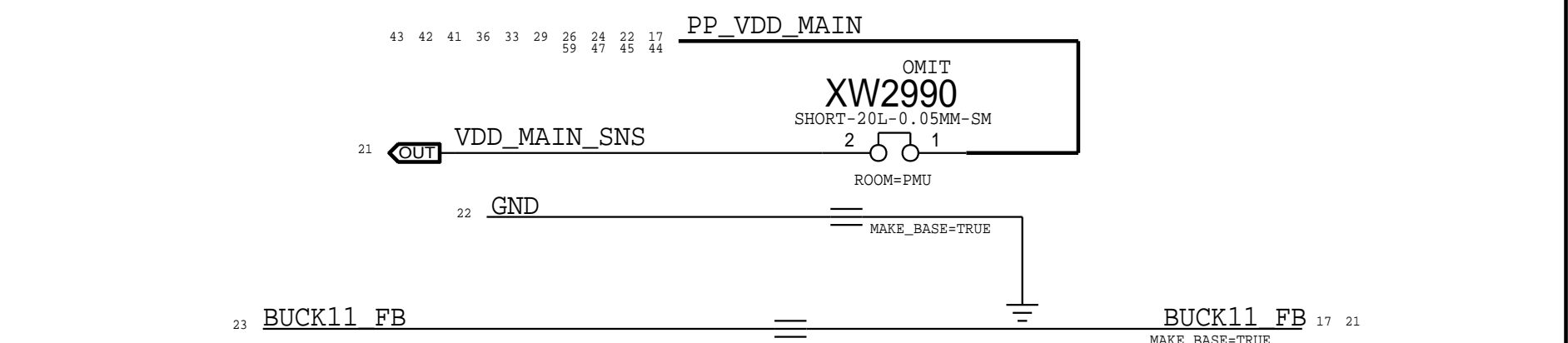
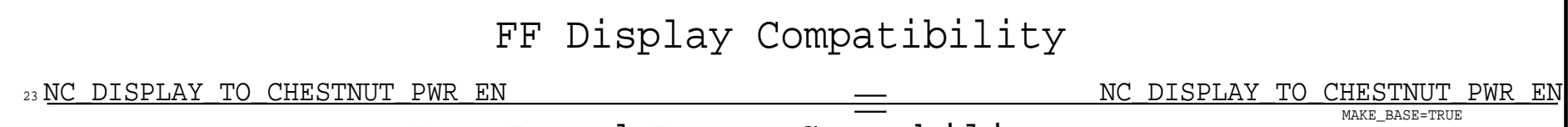
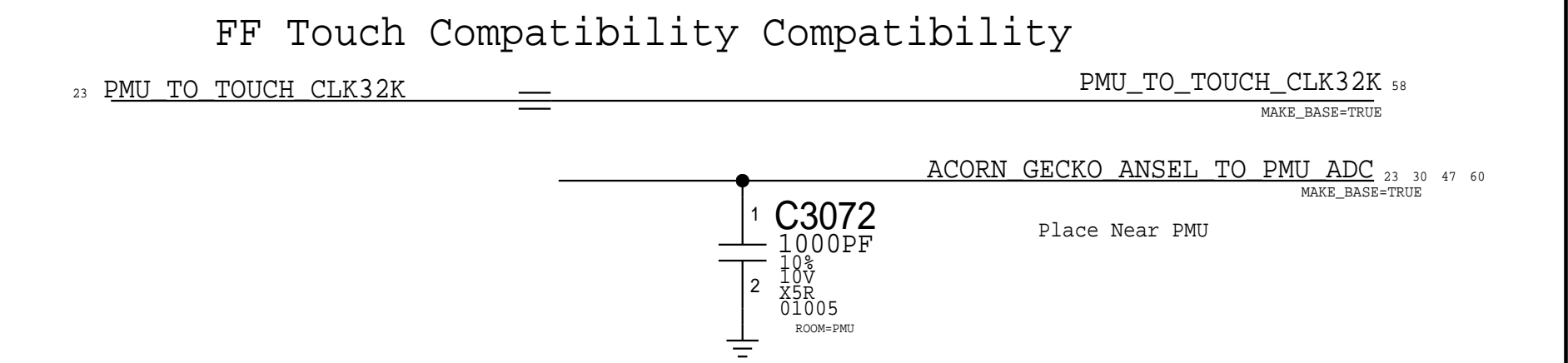
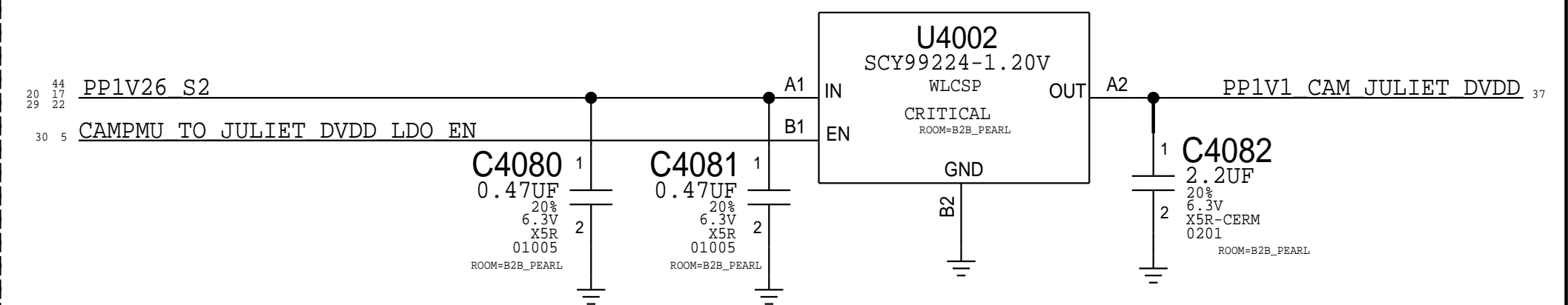
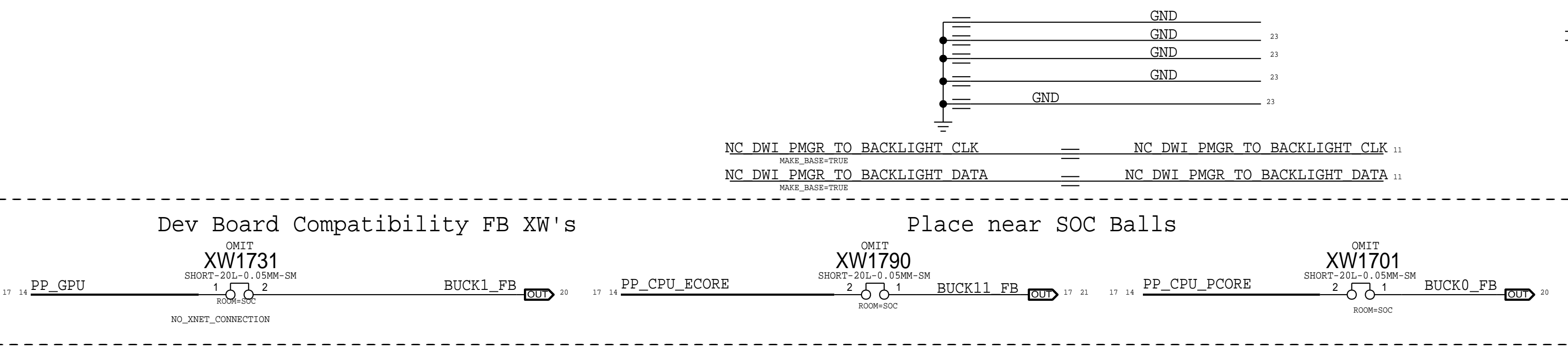
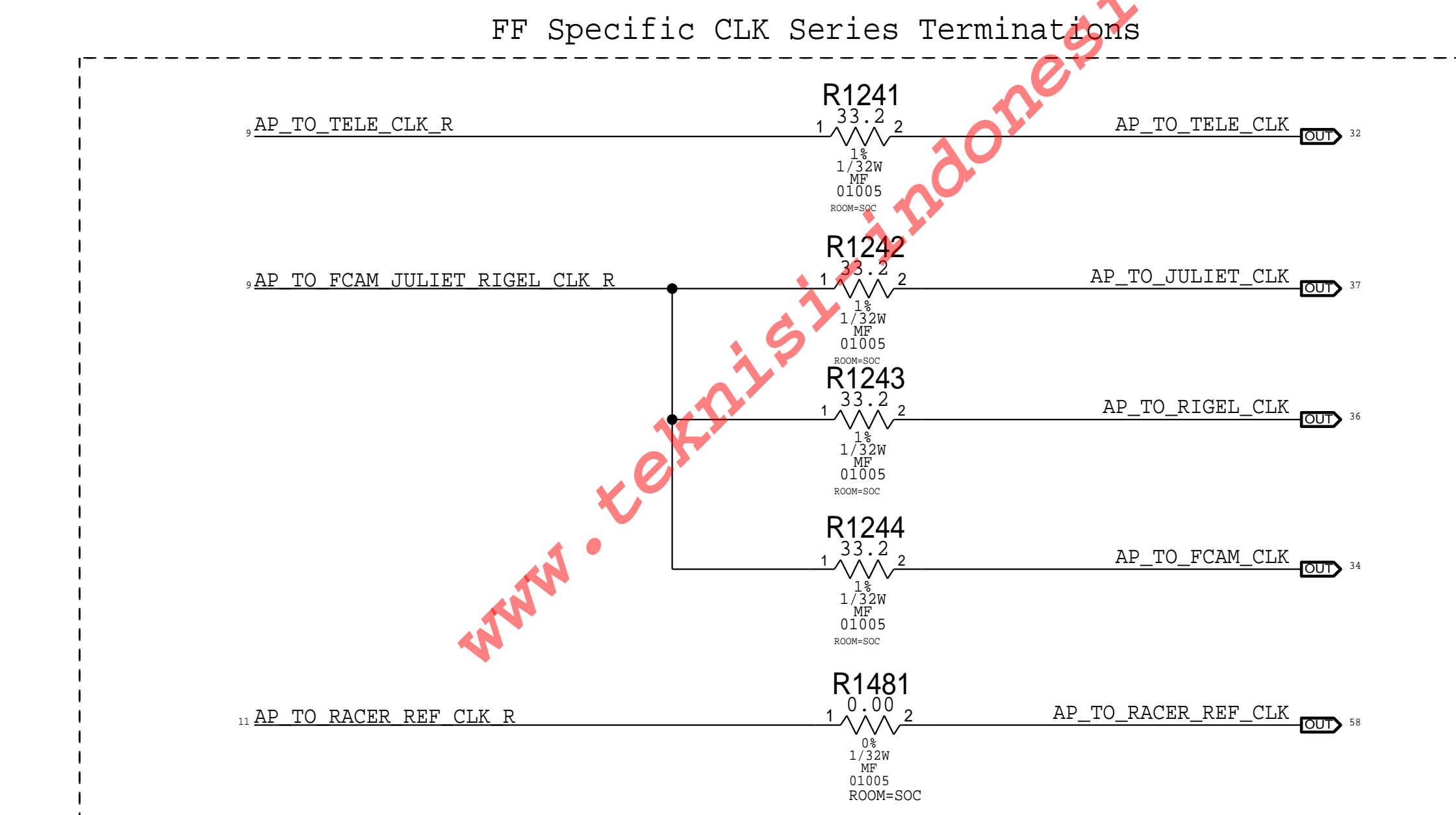
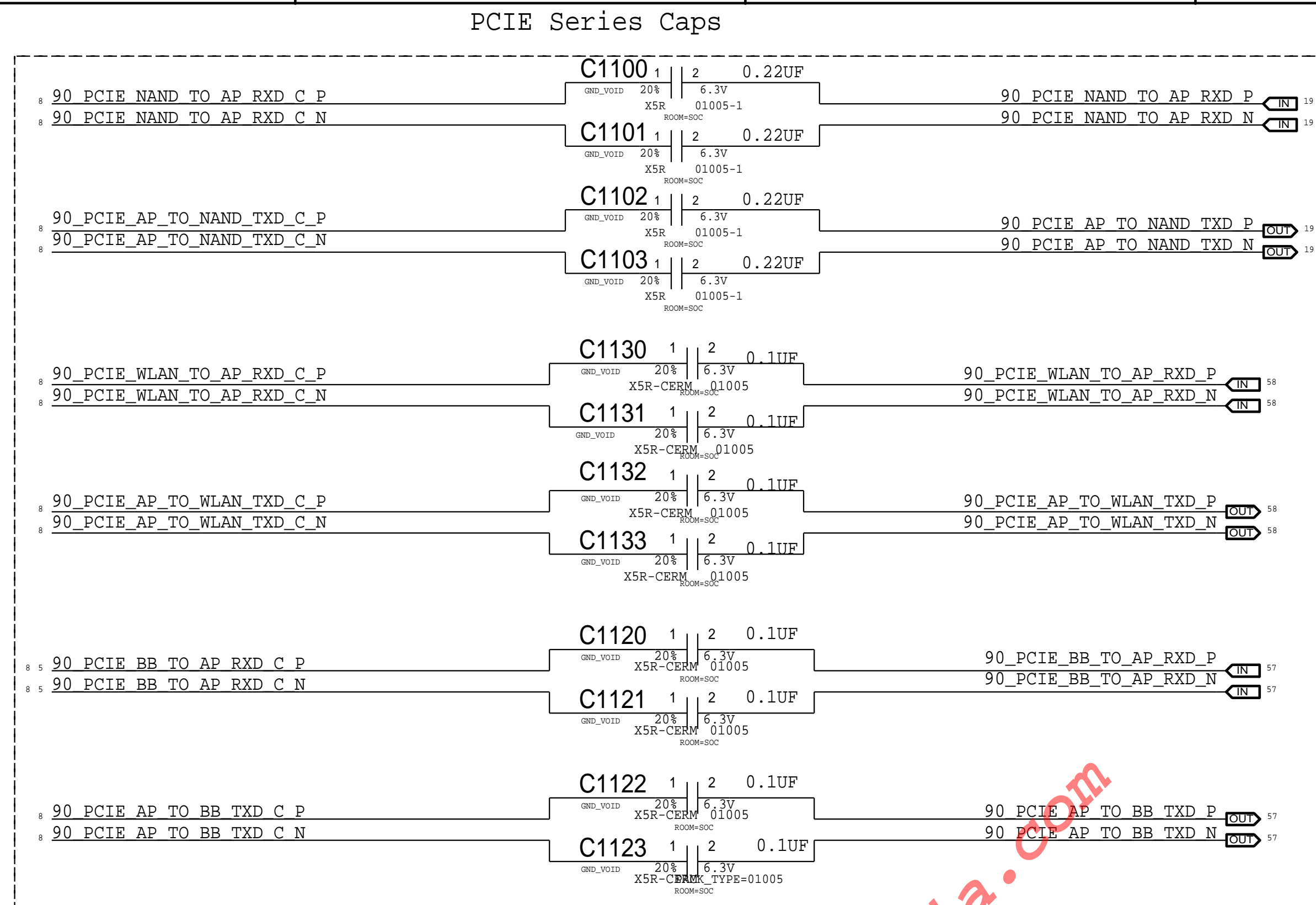
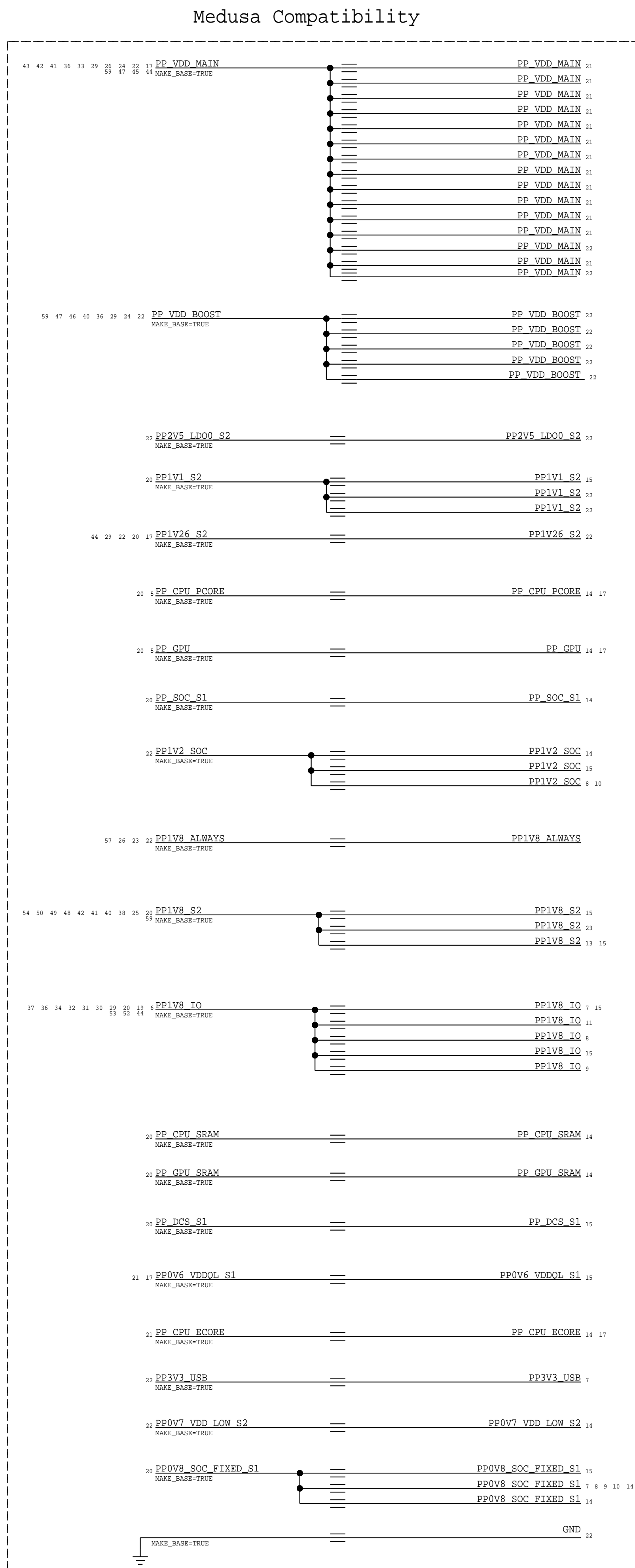
PAGE TITLE		
SOC: POWER (1/3)		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE I NOT TO REPRODUCE OR COPY IT I NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	17 OF 85
	SHEET	14 OF 60


SOC - CPU, GPU & SOC RAILS



SOC - POWER SUPPLIES






PAGE TITLE		SYNC_DATE=04/17/2017	
SOC: DEV BOARD ALIASES			
 Apple Inc.	DRAWING NUMBER 051-02545		SIZE D
	REVISION 7.0.0		
	BRANCH		
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED			
PAGE		20 OF 85	
SHEET		17 OF 60	

	8	7	6	5	4	3	2	1	
D									D
C									C
B									B
A									A
	8	7	6	5	4	3	2	1	

31	IN	90_LPDP_WIDE_TO_AP_D0_P				90_LPDP_WIDE_TO_AP_D0_P	10
31	IN	90_LPDP_WIDE_TO_AP_D0_N	MAKE_BASE=TRUE	==		90_LPDP_WIDE_TO_AP_D0_N	10
			MAKE_BASE=TRUE	==			
31	IN	90_LPDP_WIDE_TO_AP_D1_P				90_LPDP_WIDE_TO_AP_D1_P	10
31	IN	90_LPDP_WIDE_TO_AP_D1_N	MAKE_BASE=TRUE	==		90_LPDP_WIDE_TO_AP_D1_N	10
			MAKE_BASE=TRUE	==			
31	IN	90_LPDP_WIDE_TO_AP_D2_P				90_LPDP_WIDE_TO_AP_D2_P	10
31	IN	90_LPDP_WIDE_TO_AP_D2_N	MAKE_BASE=TRUE	==		90_LPDP_WIDE_TO_AP_D2_N	10
			MAKE_BASE=TRUE	==			
32	IN	90_LPDP_TELE_TO_AP_D0_P				90_LPDP_TELE_TO_AP_D0_P	10
32	IN	90_LPDP_TELE_TO_AP_D0_N	MAKE_BASE=TRUE	==		90_LPDP_TELE_TO_AP_D0_N	10
			MAKE_BASE=TRUE	==			
32	IN	90_LPDP_TELE_TO_AP_D1_P				90_LPDP_TELE_TO_AP_D1_P	10
32	IN	90_LPDP_TELE_TO_AP_D1_N	MAKE_BASE=TRUE	==		90_LPDP_TELE_TO_AP_D1_N	10
			MAKE_BASE=TRUE	==			
32	IN	90_LPDP_TELE_TO_AP_D2_P				90_LPDP_TELE_TO_AP_D2_P	10
32	IN	90_LPDP_TELE_TO_AP_D2_N	MAKE_BASE=TRUE	==		90_LPDP_TELE_TO_AP_D2_N	10
			MAKE_BASE=TRUE	==			
34	IN	90_LPDP_FCAM_TO_AP_D0_P				90_LPDP_FCAM_TO_AP_D0_P	10
34	IN	90_LPDP_FCAM_TO_AP_D0_N	MAKE_BASE=TRUE	==		90_LPDP_FCAM_TO_AP_D0_N	10
			MAKE_BASE=TRUE	==			
34	IN	90_LPDP_FCAM_TO_AP_D1_P				90_LPDP_FCAM_TO_AP_D1_P	10
34	IN	90_LPDP_FCAM_TO_AP_D1_N	MAKE_BASE=TRUE	==		90_LPDP_FCAM_TO_AP_D1_N	10
			MAKE_BASE=TRUE	==			

PAGE TITLE				SOC: LPDP ALIASES	
 Apple Inc.		DRAWING NUMBER		051-02545	SIZE
		REVISION		7.0.0	D
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH			
		PAGE		21 OF 85	
		SHEET		18 OF 60	

S4E NAND

D

D

C

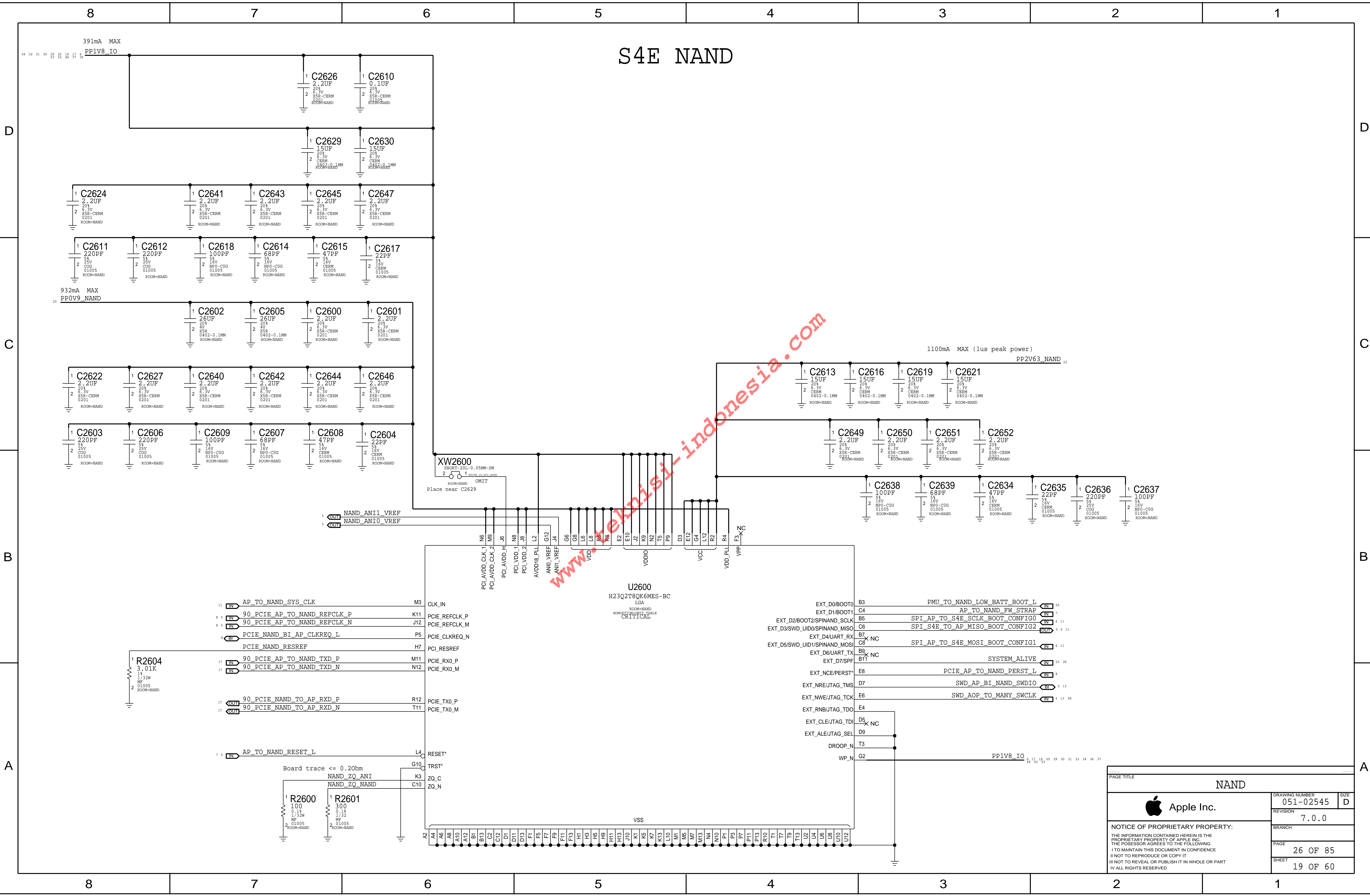
C

B

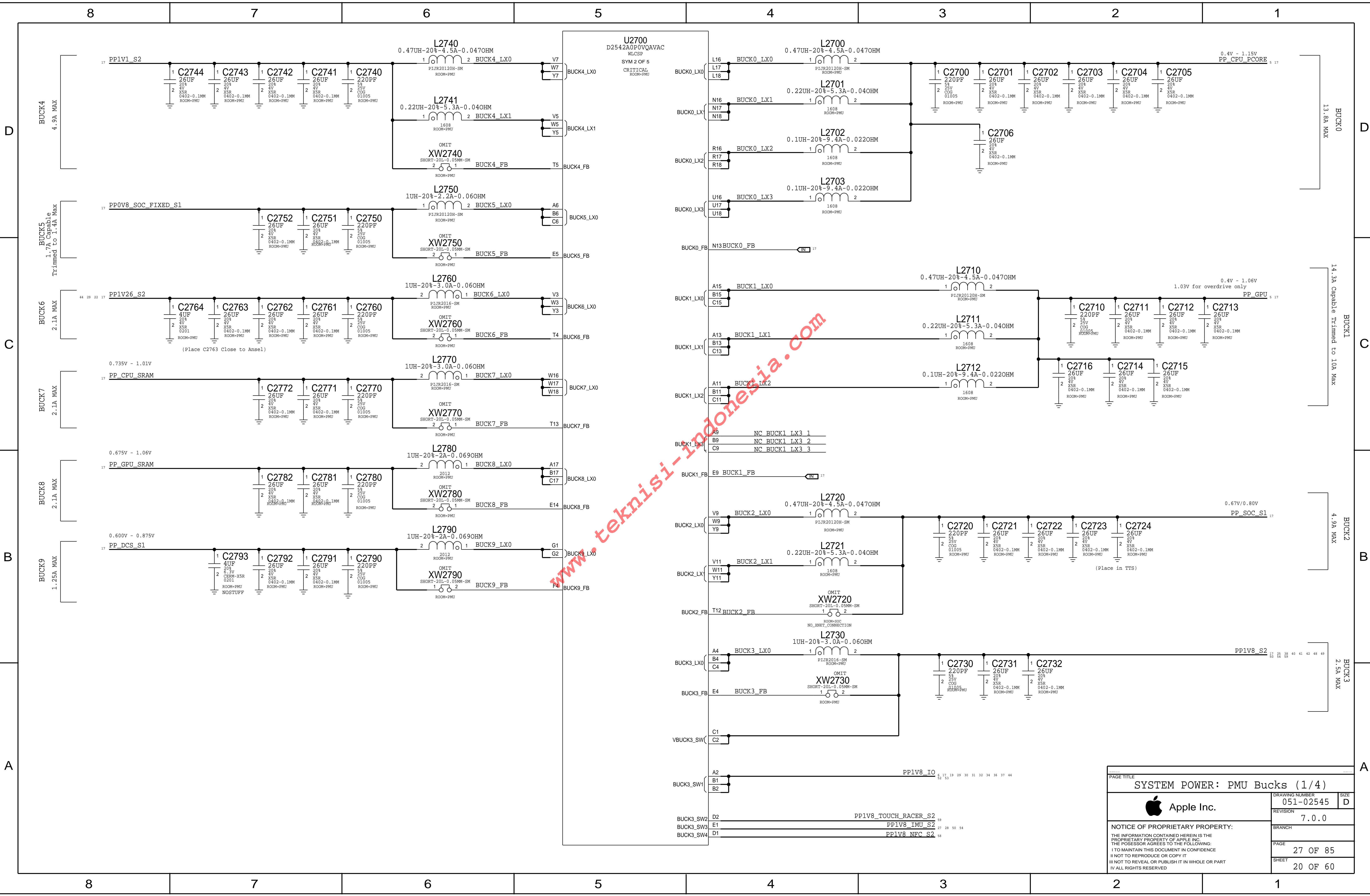
B

A

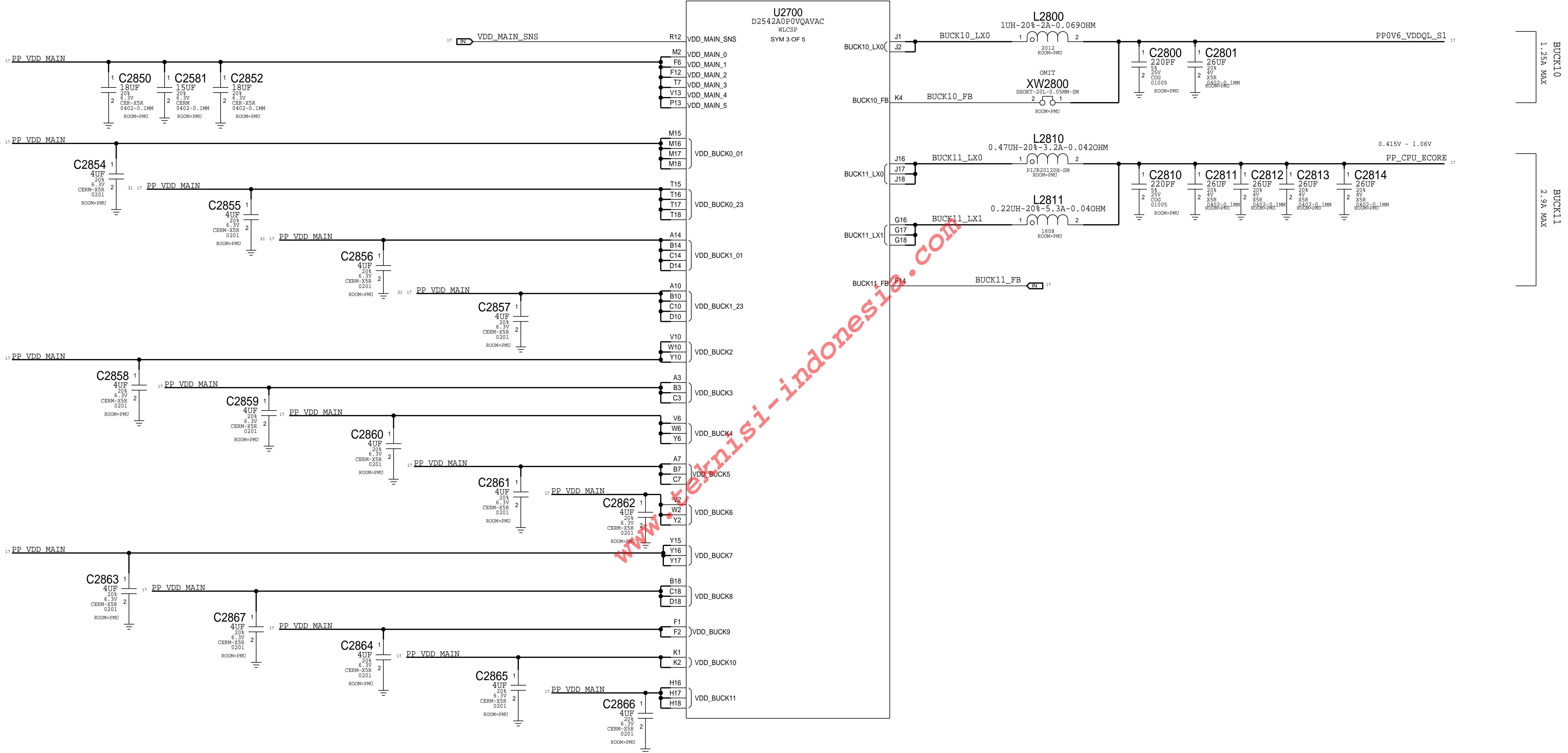
A




PAGE TITLE		
NAND		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY:		
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		
II NOT TO REPRODUCE OR COPY IT		
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		
IV ALL RIGHTS RESERVED		
BRANCH		PAGE
		26 OF 85
SHEET		19 OF 60

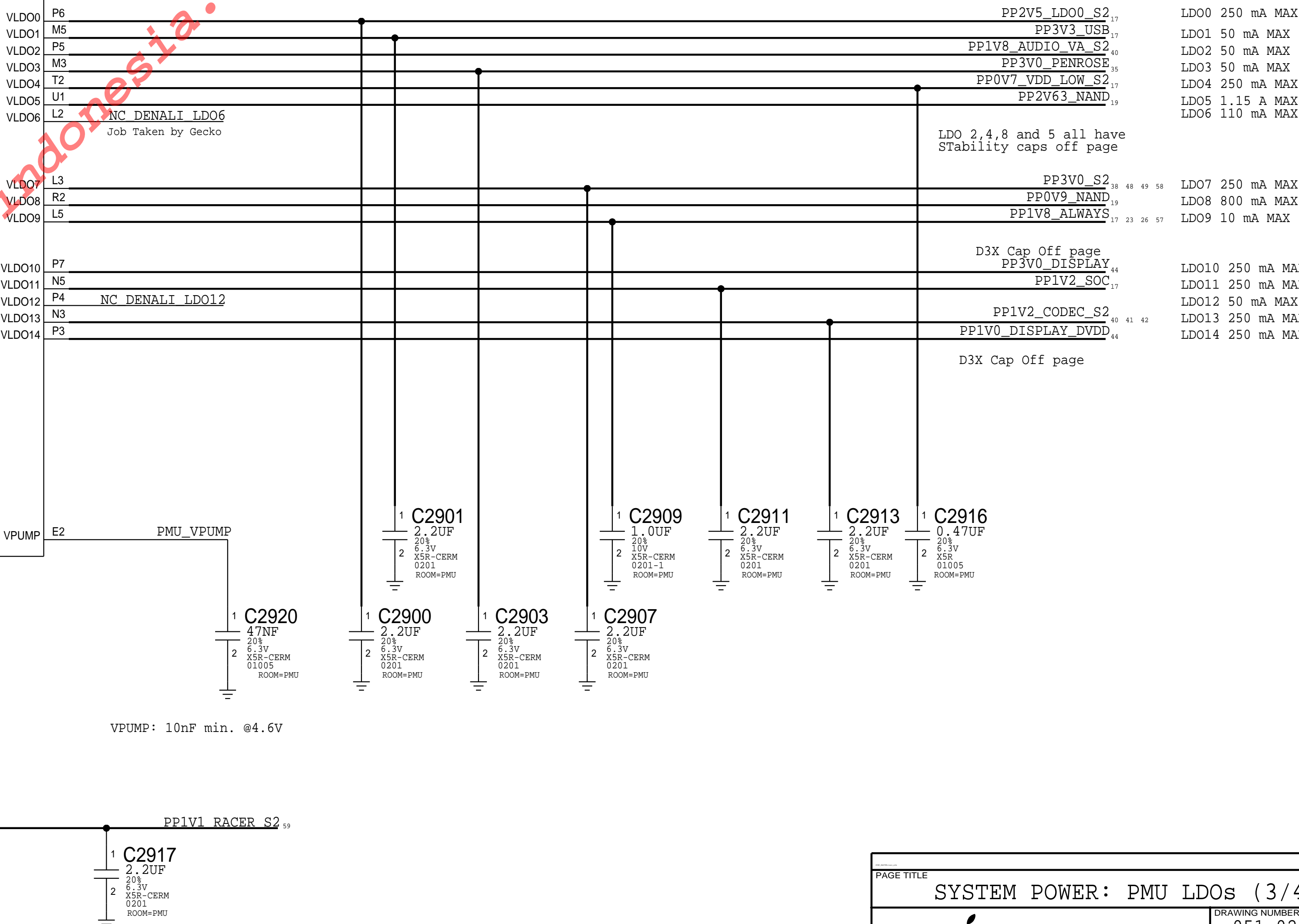
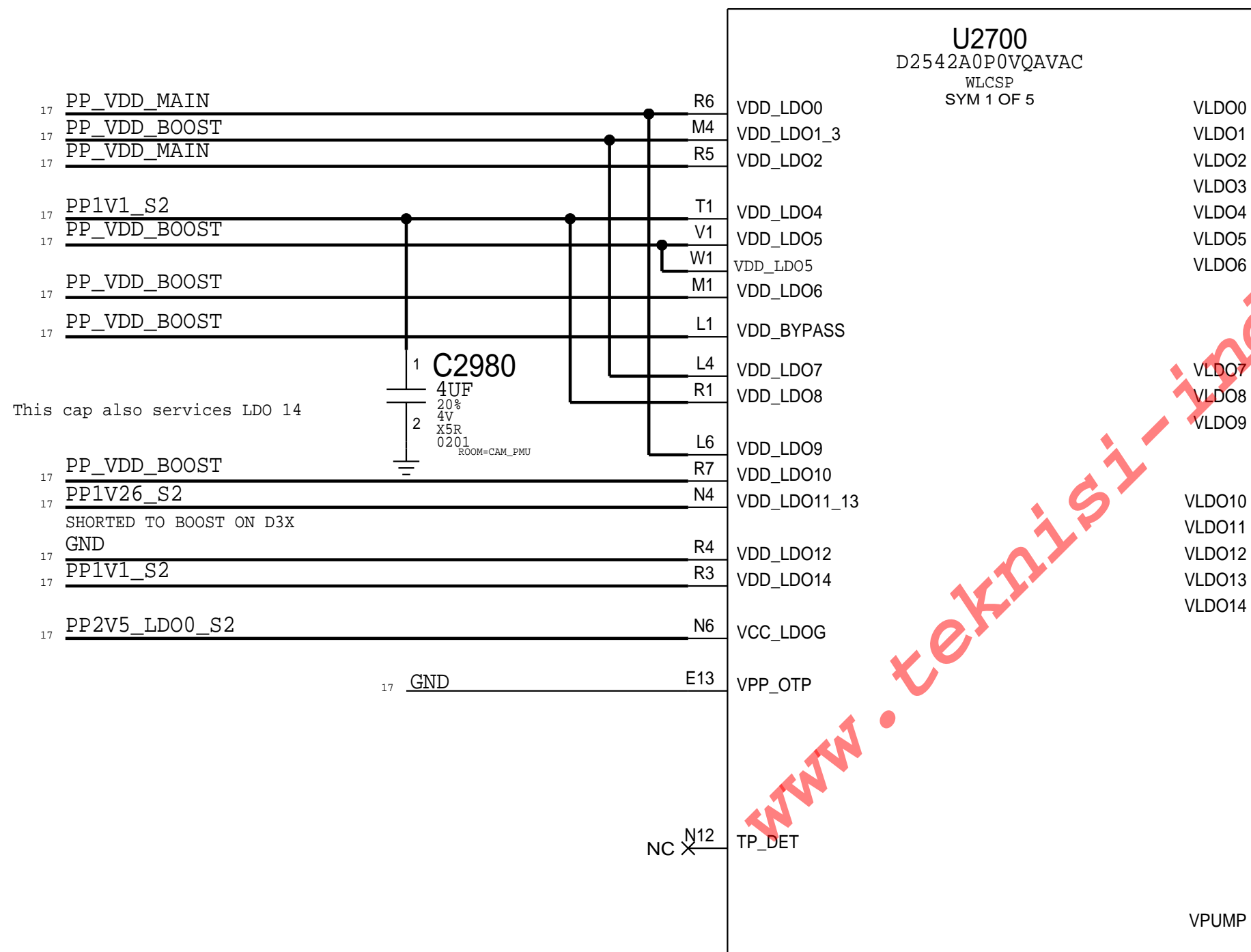
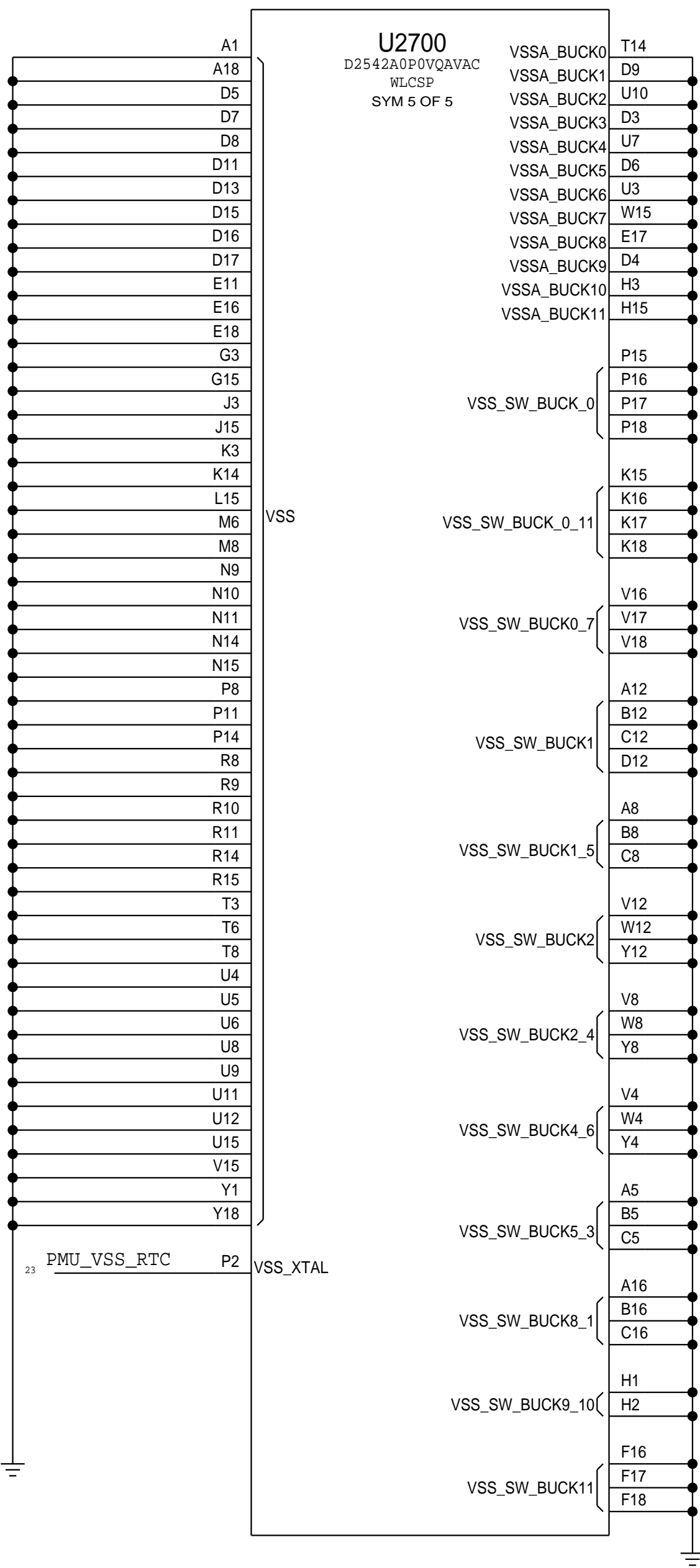
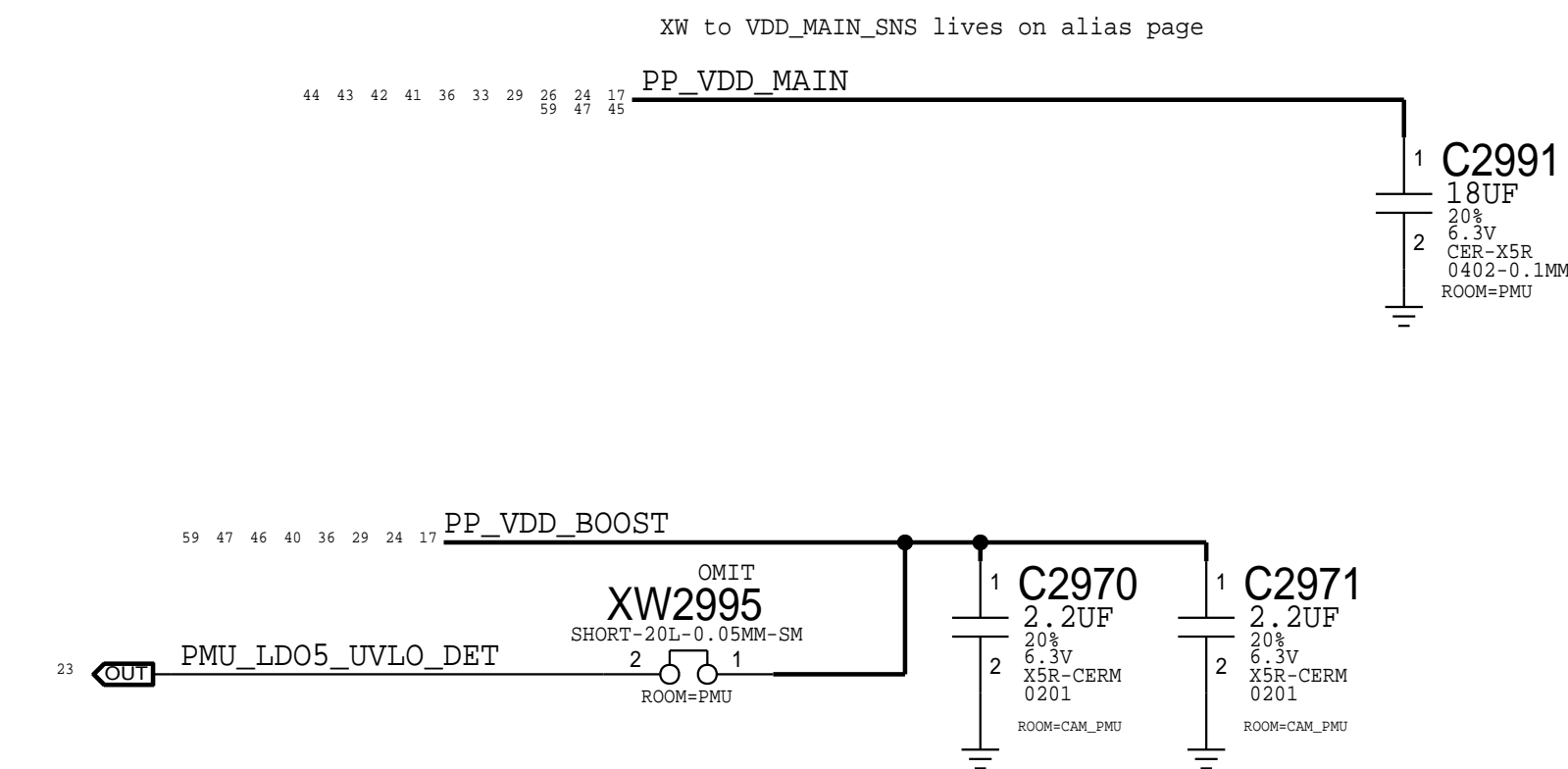



PMU - BUCKS



PAGE TITLE		
SYSTEM POWER: PMU Bucks (2/4)		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	28 OF 85
	SHEET	21 OF 60

PMU - LDOs



PAGE TITLE		
SYSTEM POWER: PMU LDOs (3/4)		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	29 OF 85
	SHEET	22 OF 60

D

C

B

A

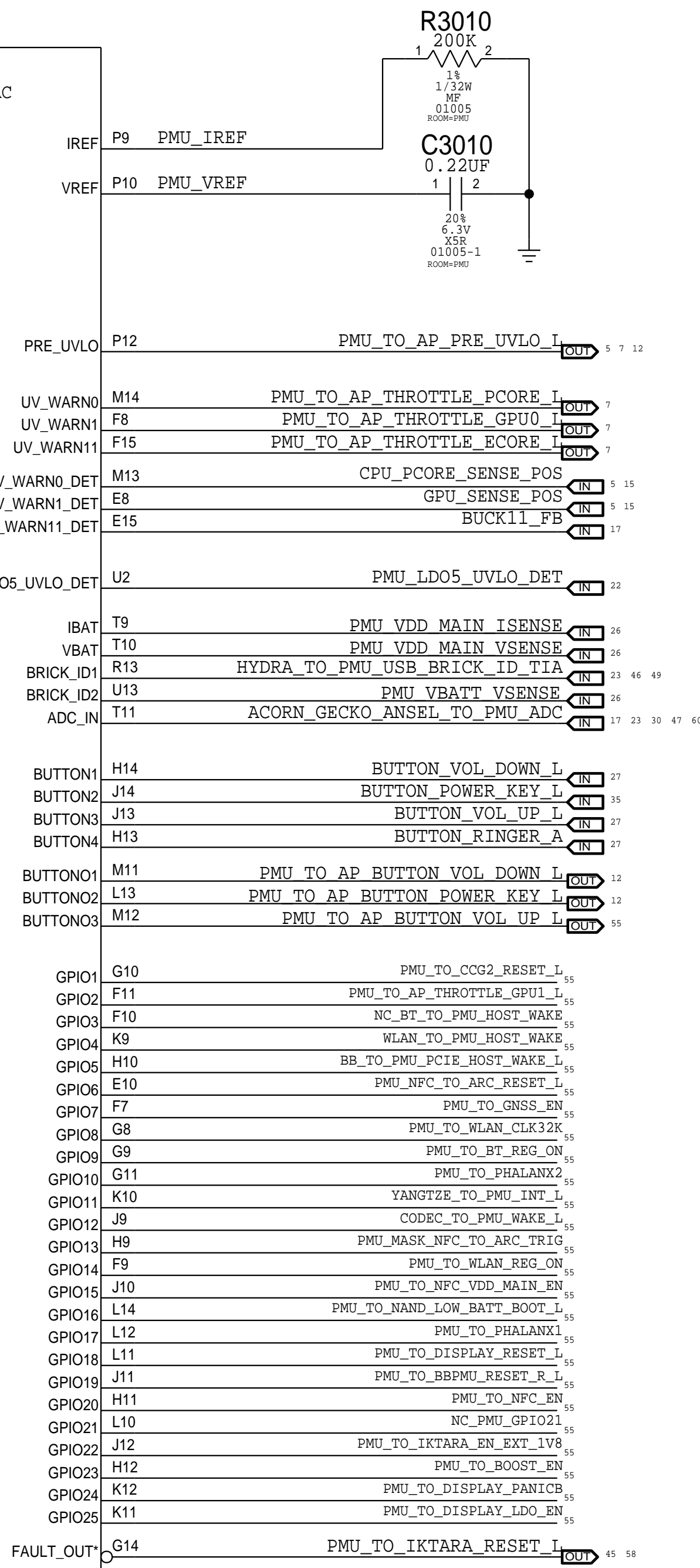
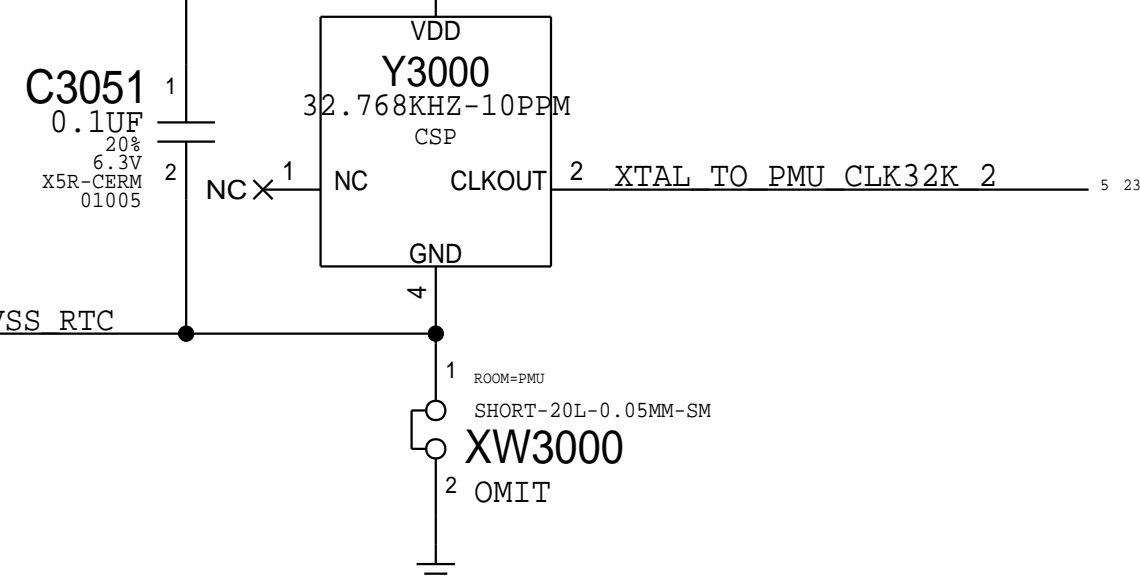
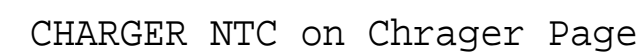
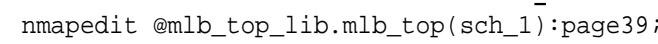
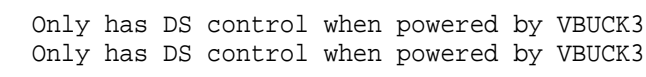
D


C

B

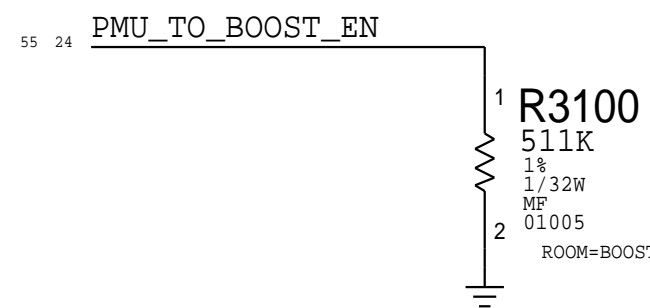
A

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



PAGE TITLE		SYSTEM POWER: PMU (4/4)	
 Apple Inc.	DRAWING NUMBER		051-02545
	REVISION		7.0.0
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		PAGE	30 OF 85
		SHEET	23 OF 60

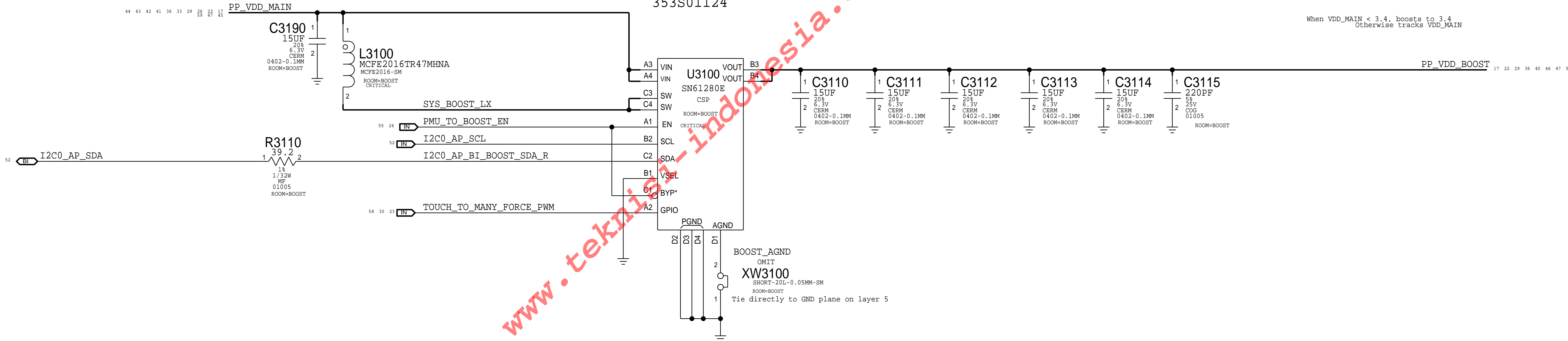
Boost Enable Pull




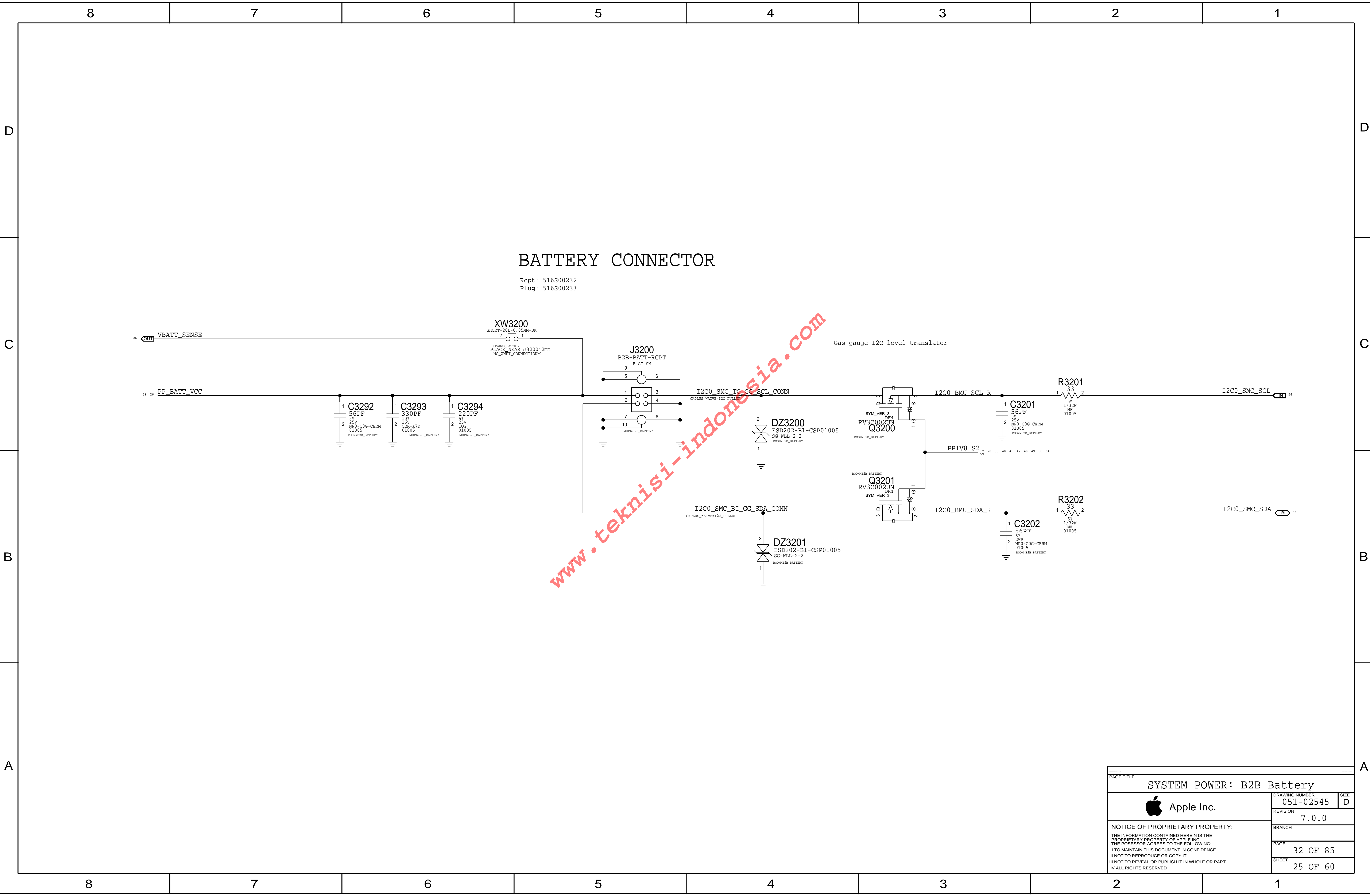
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00871	152S00869	ALT_PARTS	L3100	BOOST IND ALT, CYN
152S00873	152S00869	ALT_PARTS	L3100	BOOST IND ALT, YDK

BOOST

353S01124



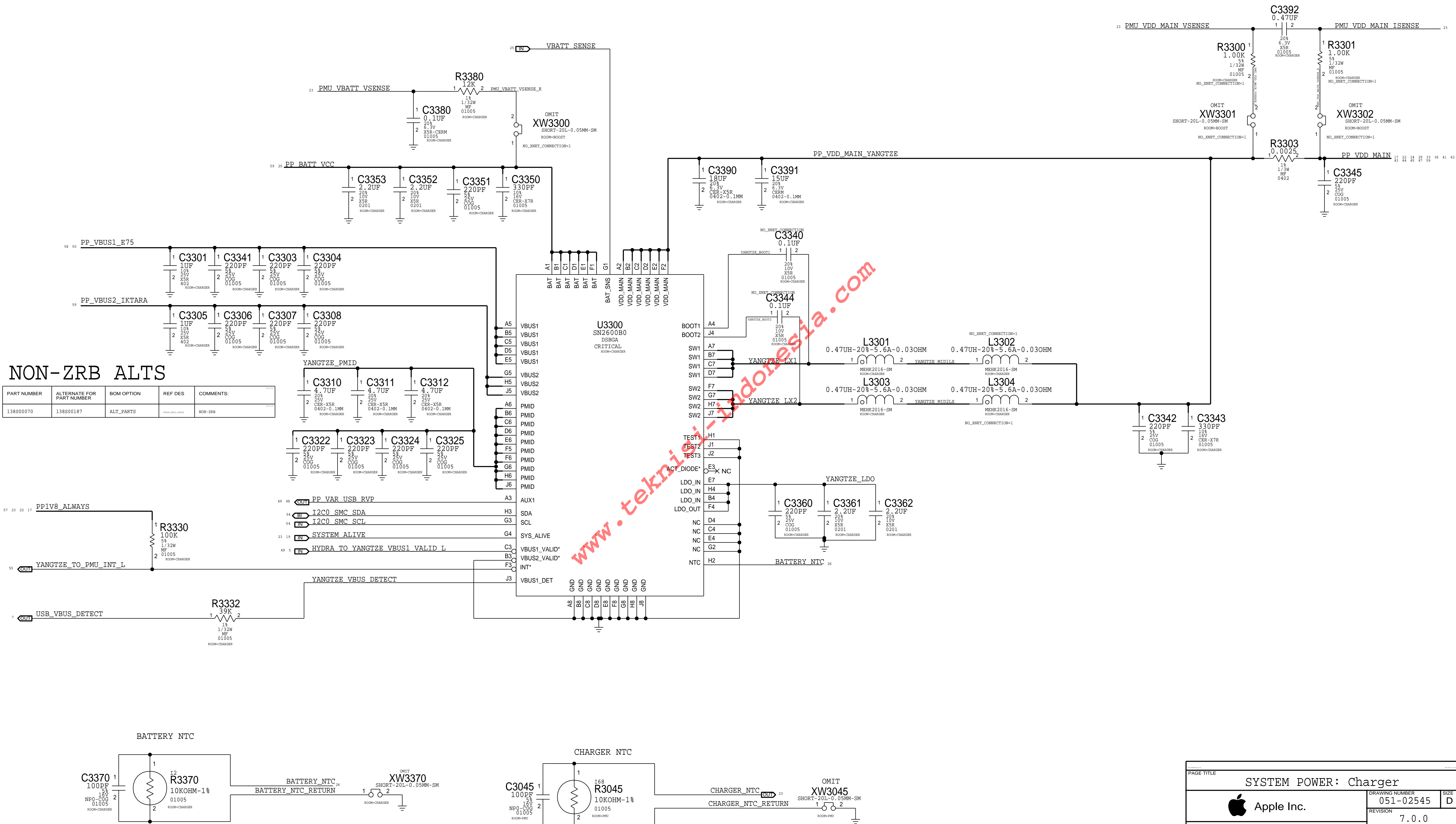
PAGE TITLE		
SYSTEM POWER: Boost		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
	BRANCH	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		PAGE 31 OF 85
		SHEET 24 OF 60



YANGTZE CHARGER

NON-ZRB ALTS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00070	138S00187	ALT_PARTS	CHRG-CHRG1	NOR-ZRB



PAGE TITLE			
SYSTEM POWER: Charger			
	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
	BRANCH		
	PAGE	33 OF 85	
NOTICE OF PROPRIETARY PROPERTY:		SHEET	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		26 OF 60	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			

D



B

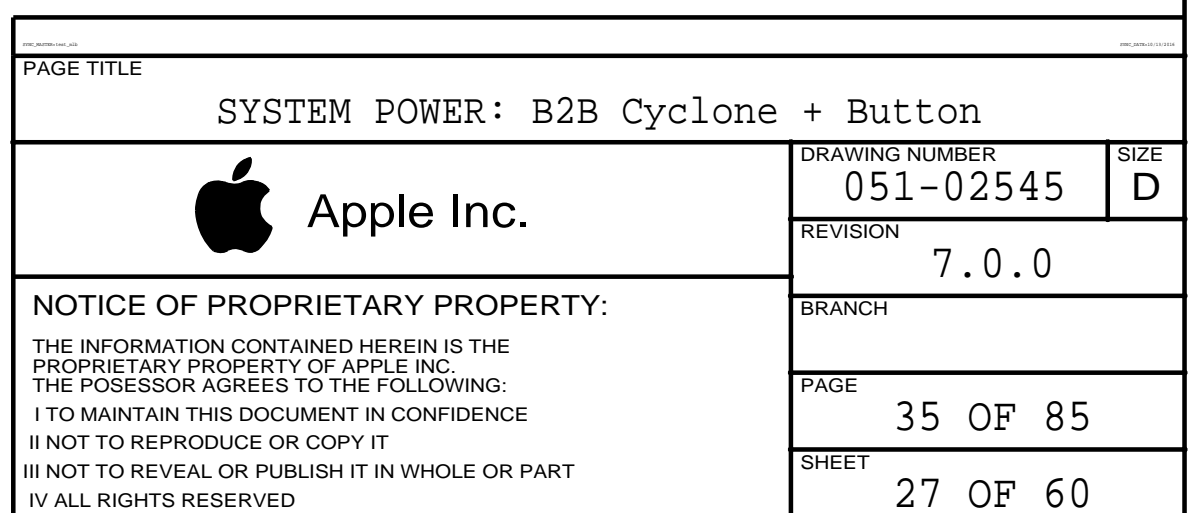


D

C

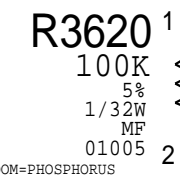



A



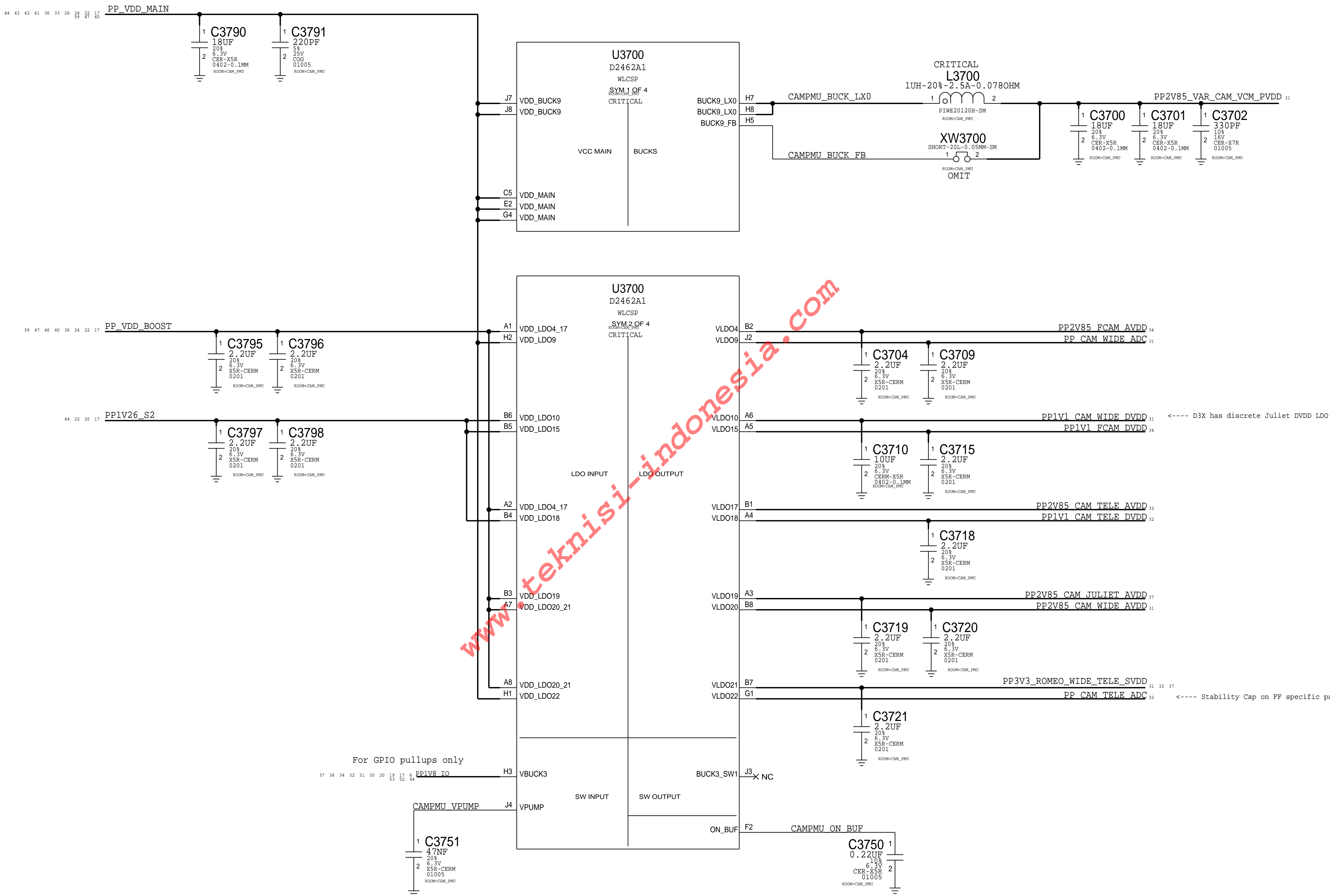
APN: 338S00367


BOSCH (APN:338S00334)



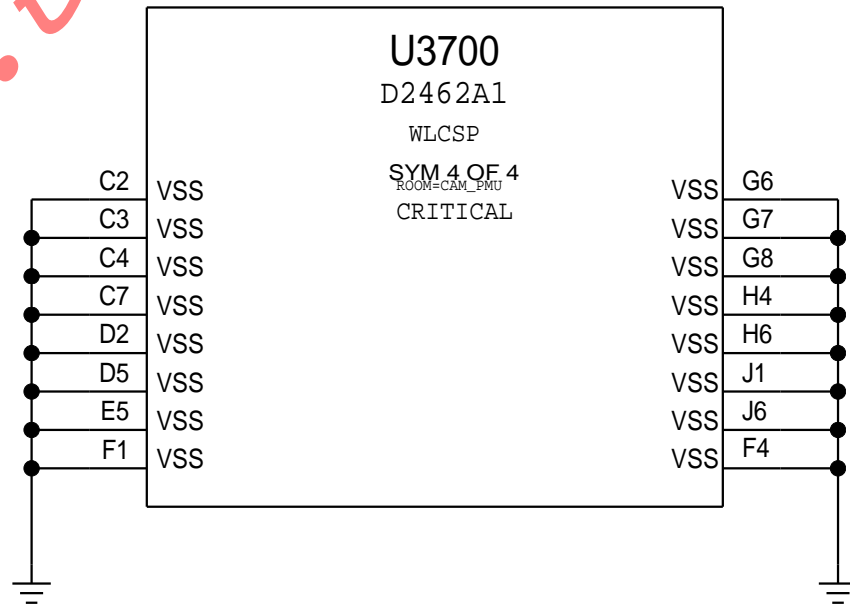
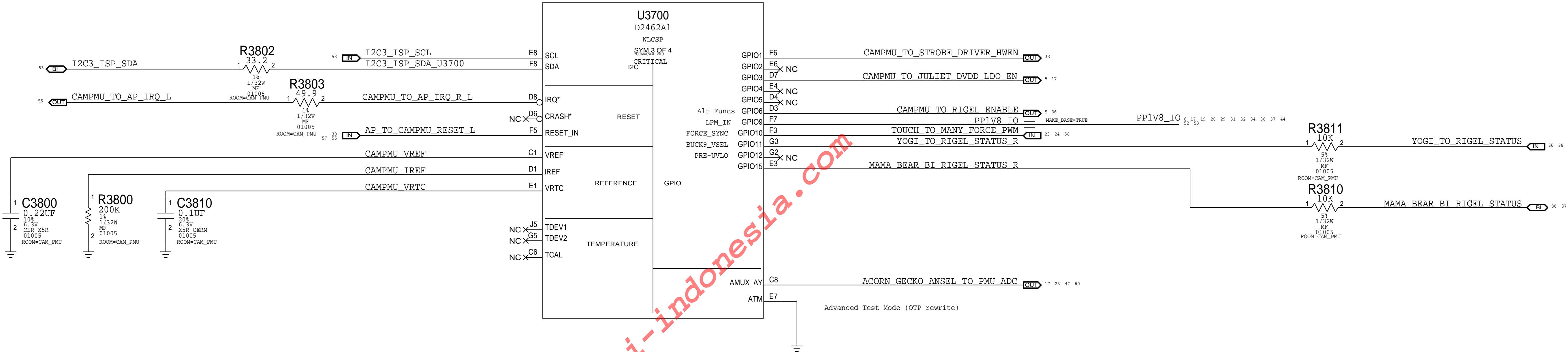
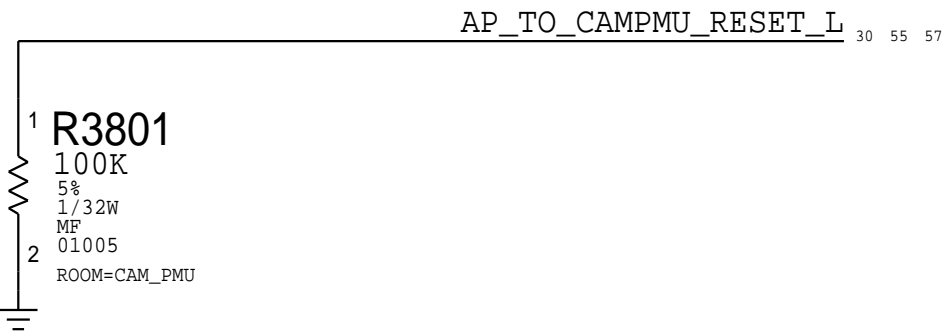
PAGE TITLE		DRAWING NUMBER		SIZE
SENSORS		051-02545	D	
 Apple Inc.		REVISION		
		7.0.0		
NOTICE OF PROPRIETARY PROPERTY:		BRANCH		
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		PAGE		
		36 OF 85		
		SHEET		
		28 OF 60		


Camera PMU

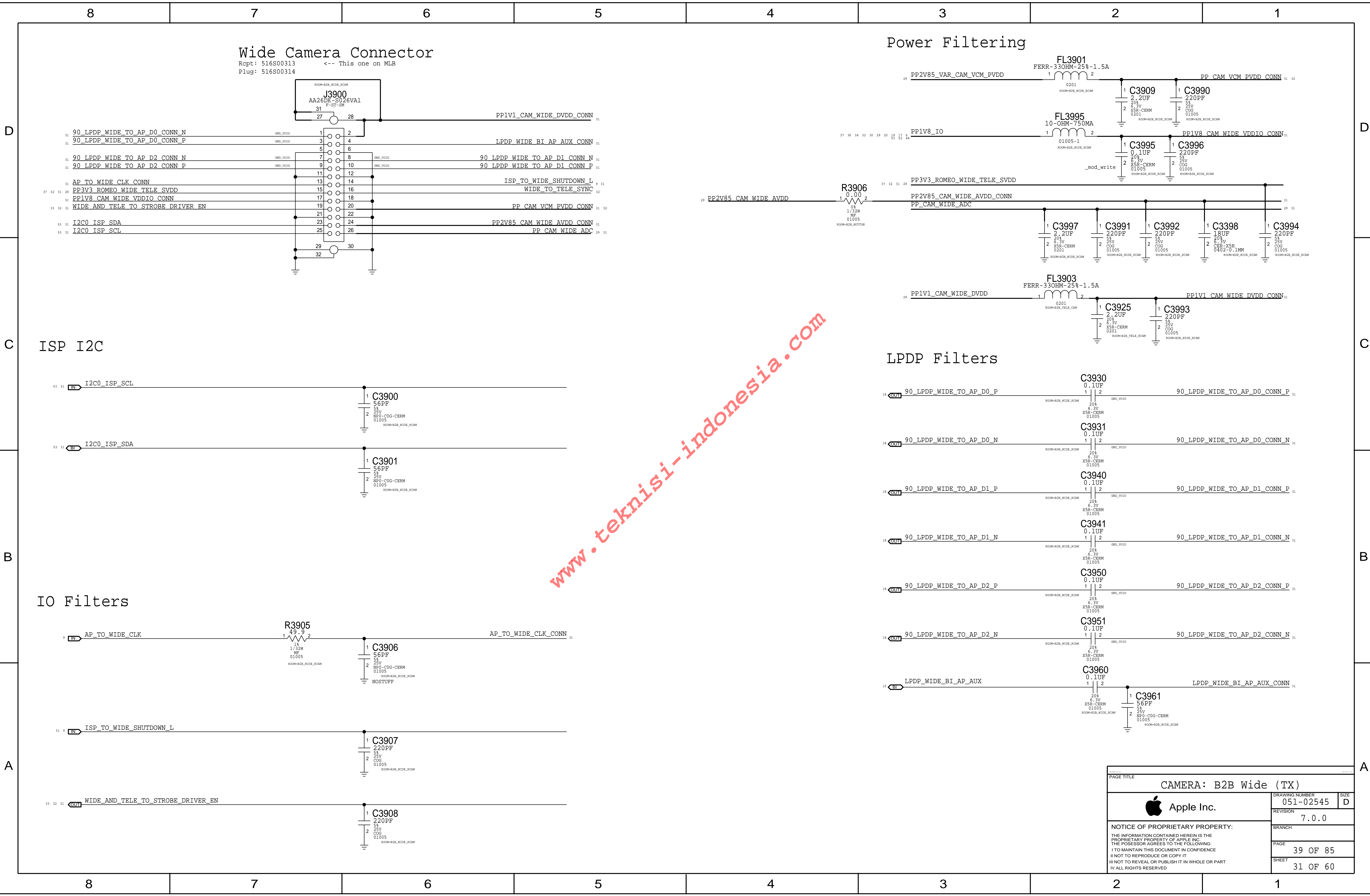


PAGE TITLE		
CAMERA: PMU (1/2)		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	37 OF 85
	SHEET	29 OF 60

Pull Downs

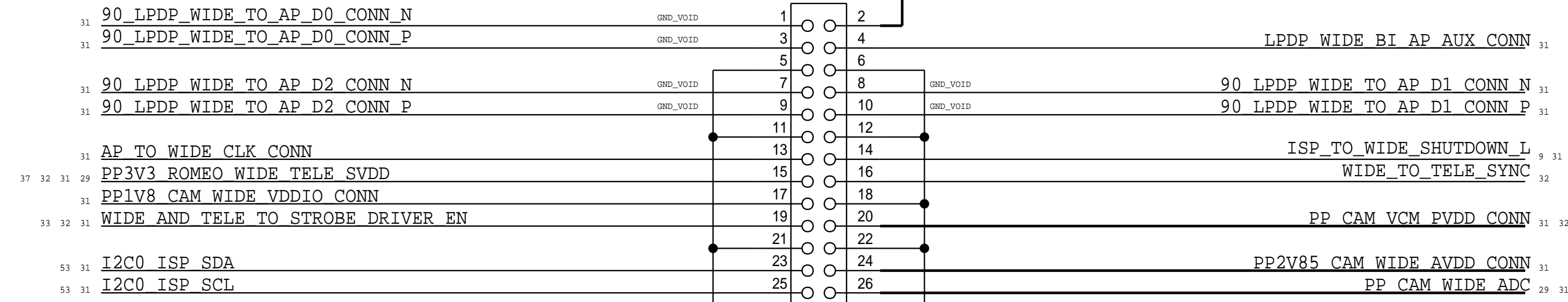
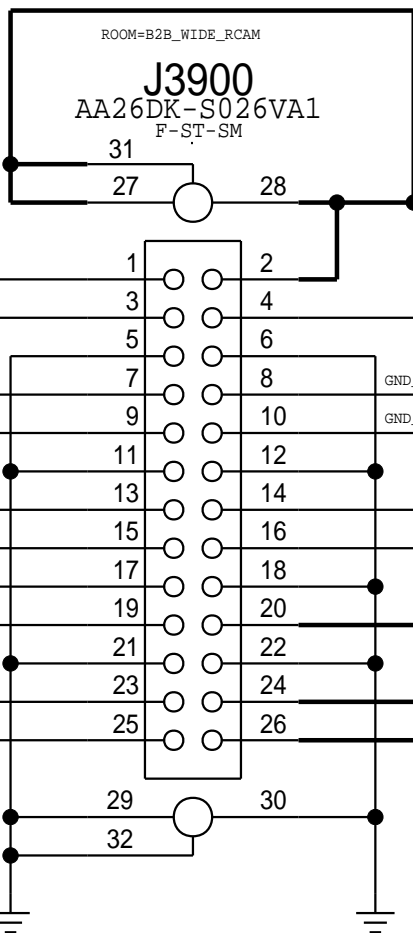


PAGE TITLE		
CAMERA: PMU (2/2)		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
	BRANCH	
NOTICE OF PROPRIETARY PROPERTY:		PAGE
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		38 OF 85
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		SHEET
II NOT TO REPRODUCE OR COPY IT		30 OF 60
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		
IV ALL RIGHTS RESERVED		

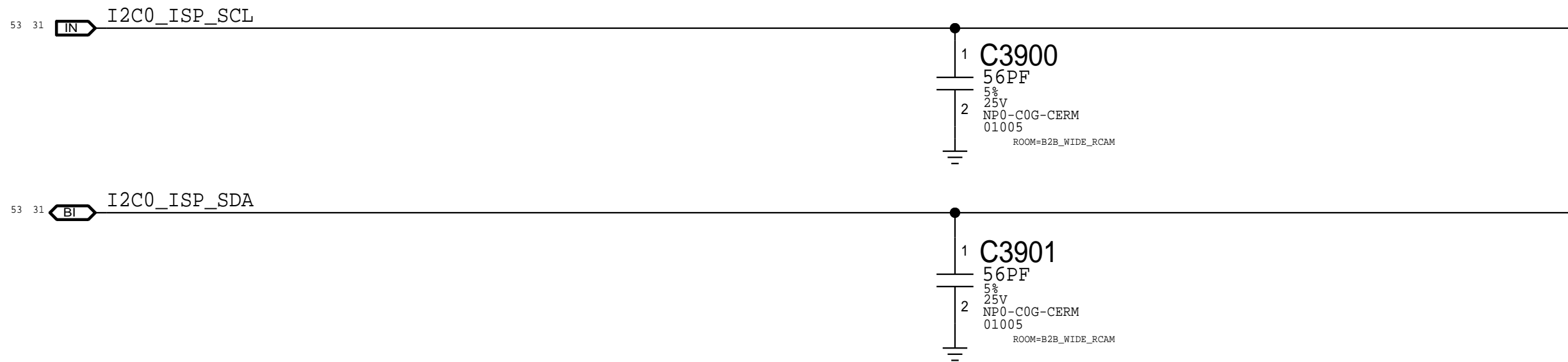


Wide Camera Connector

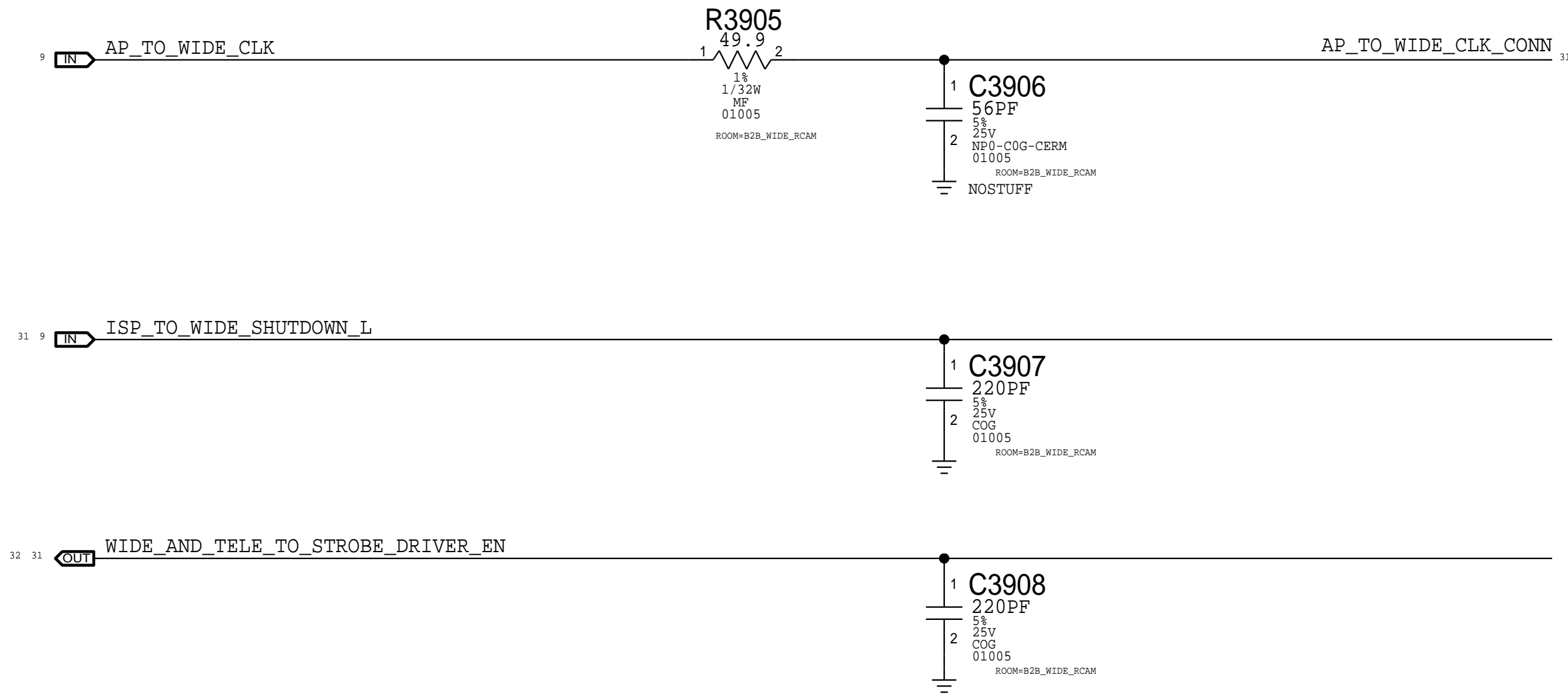
Rcpt: 516S00313 <-- This one on MLB
Plug: 516S00314



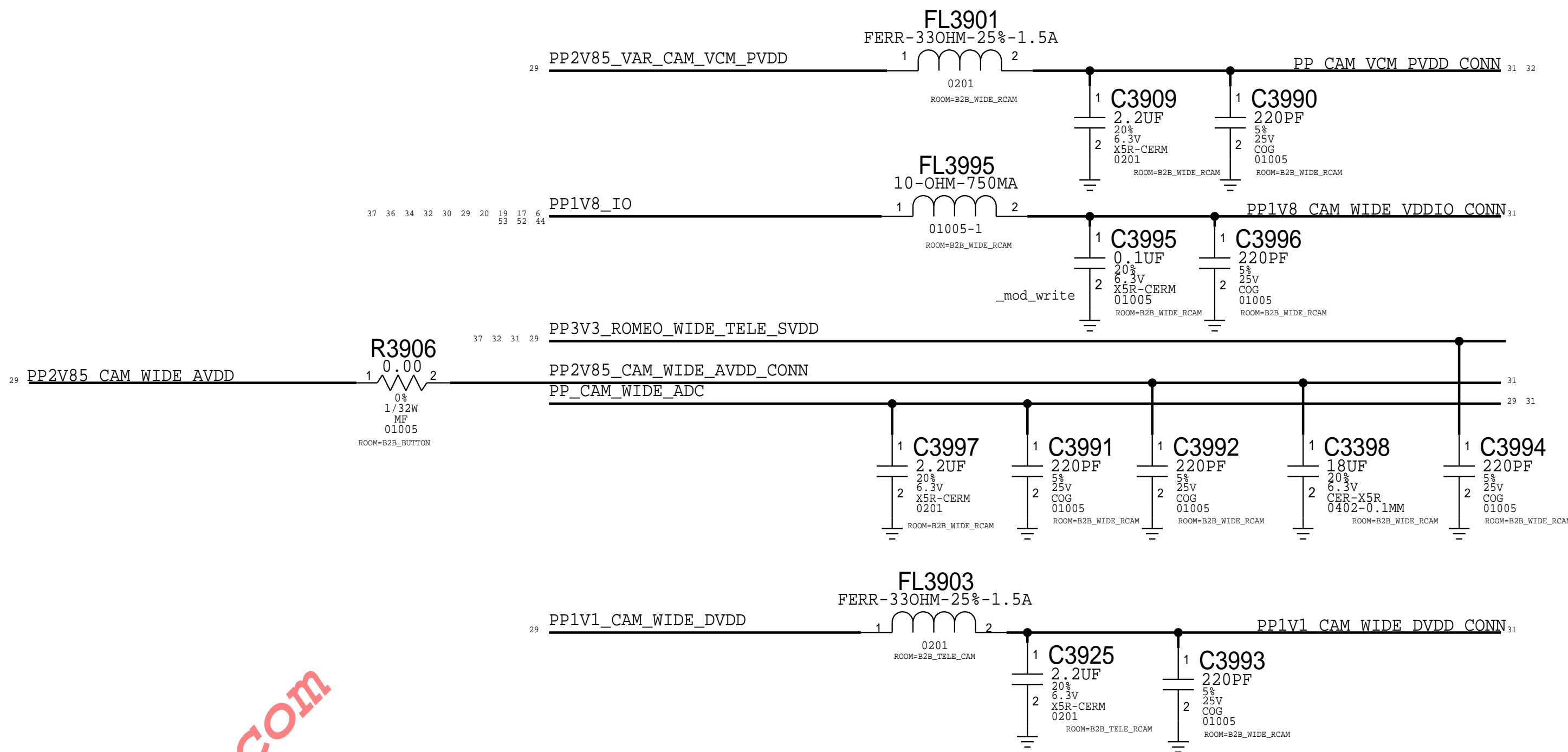
ISP I2C



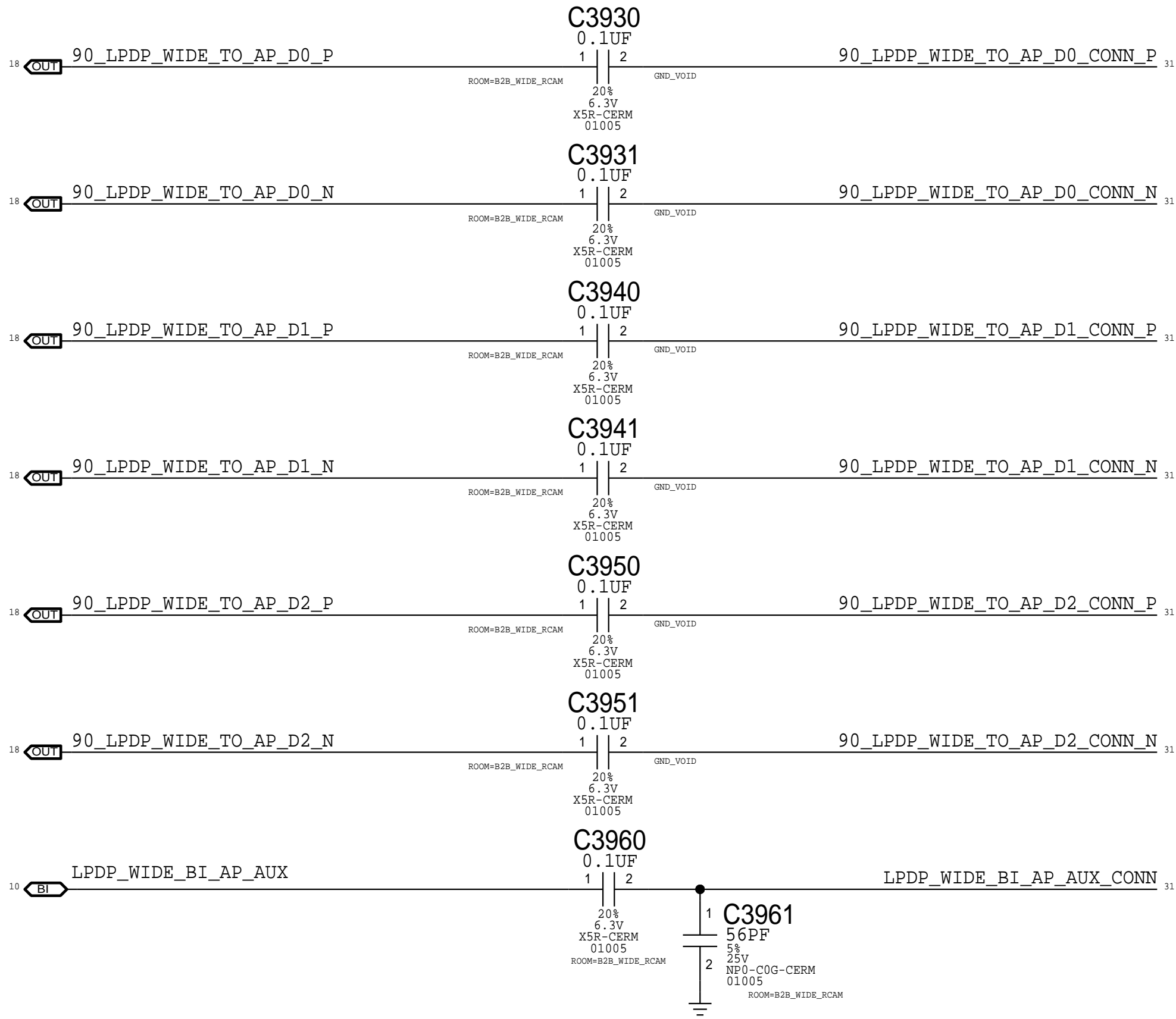
IO Filters




Power Filtering



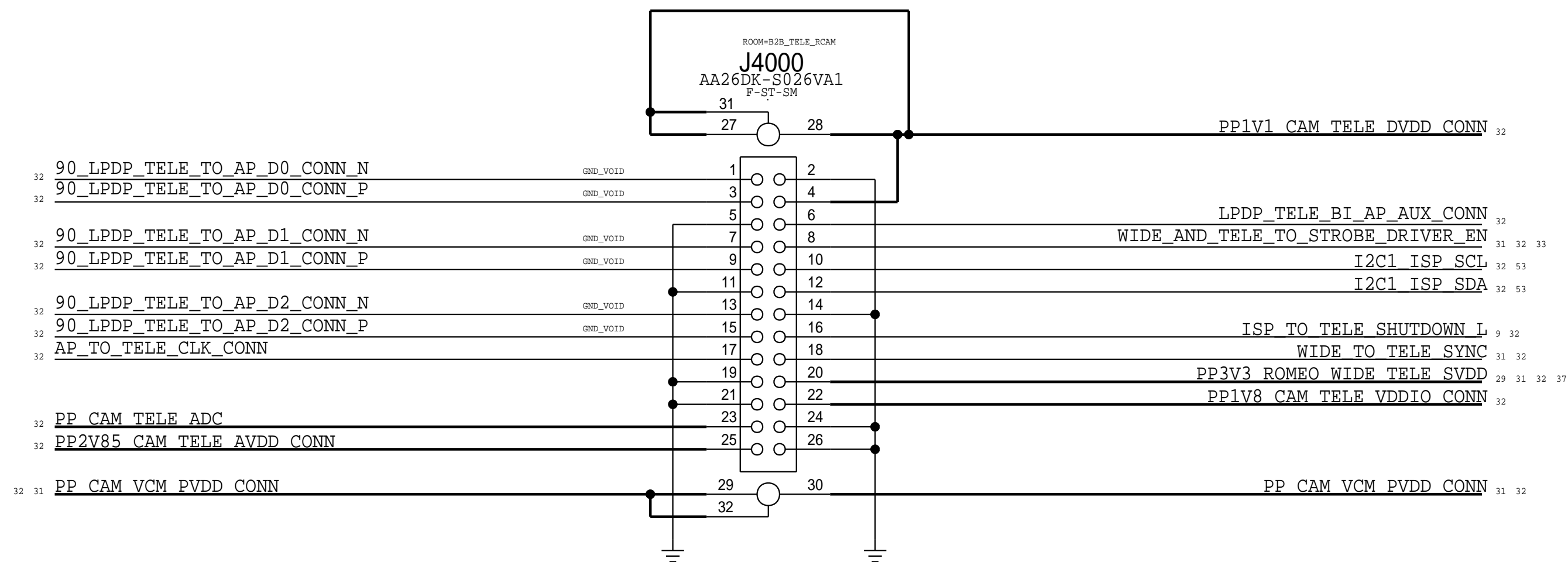
LPDP Filters



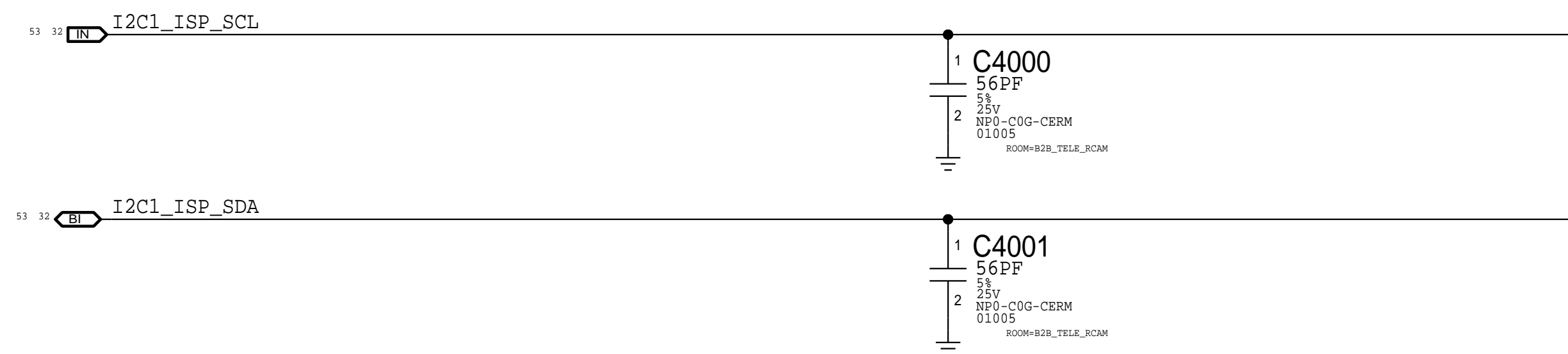
PAGE TITLE		
CAMERA: B2B Wide (TX)		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	39 OF 85
	SHEET	31 OF 60



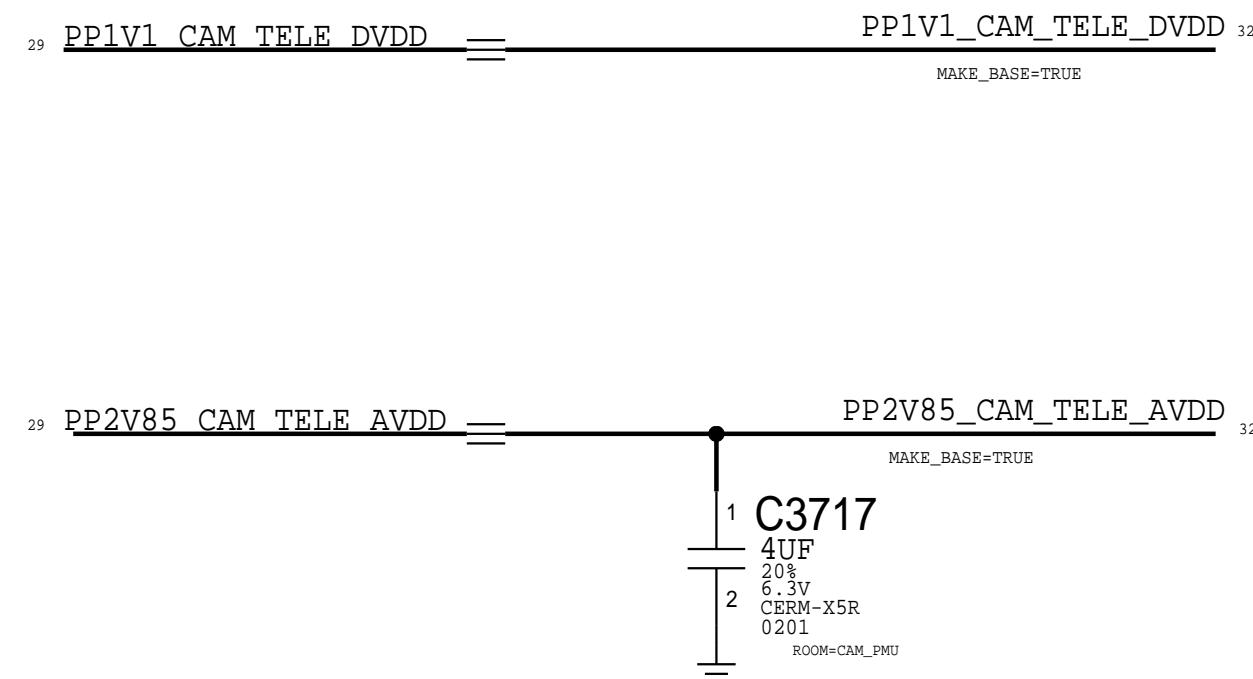
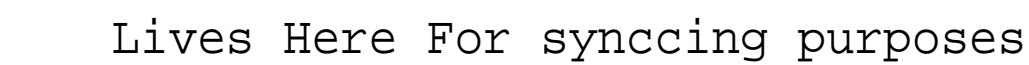
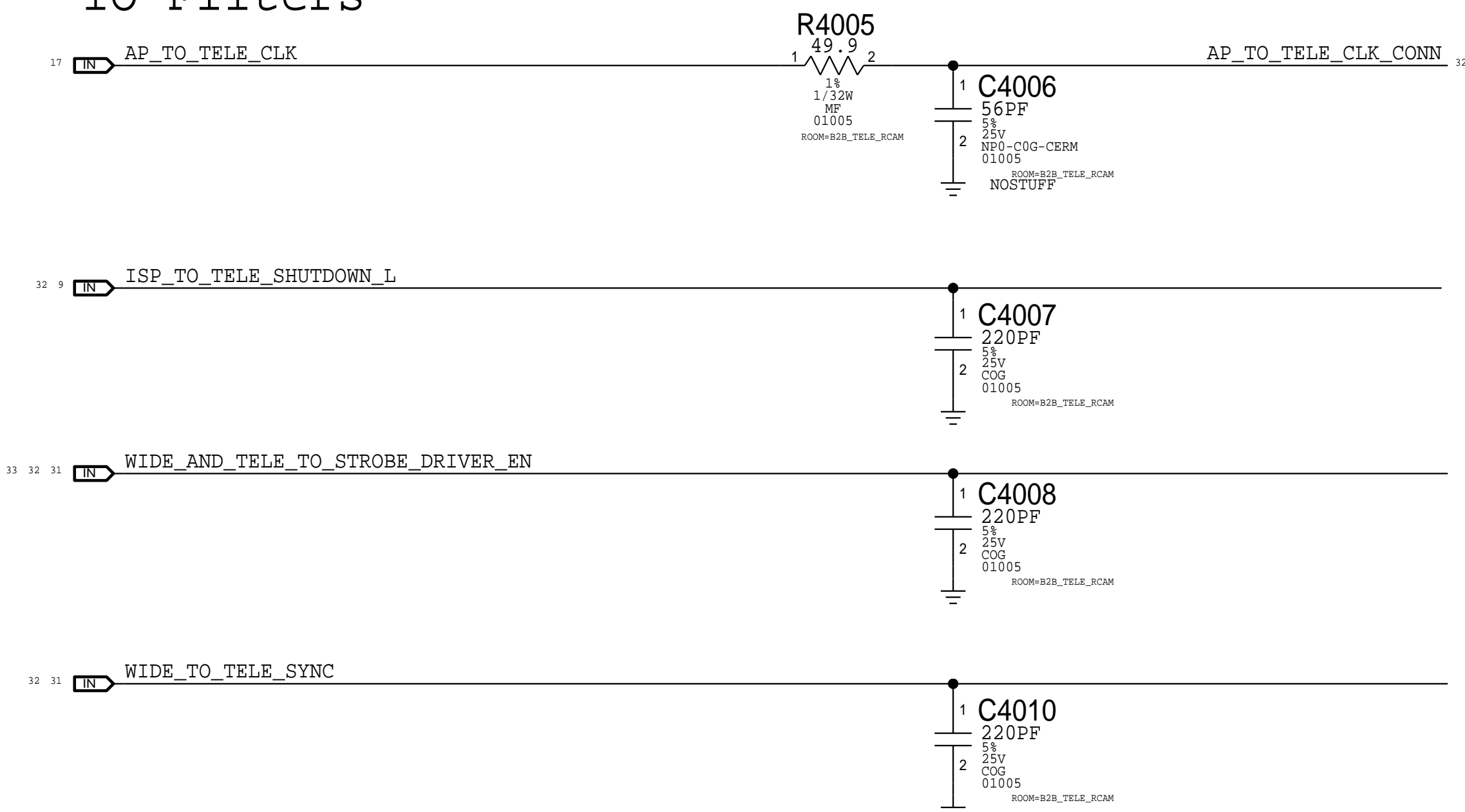
```
Rcpt: 516S00313      <-- This one on MLB
Plug: 516S00314
```



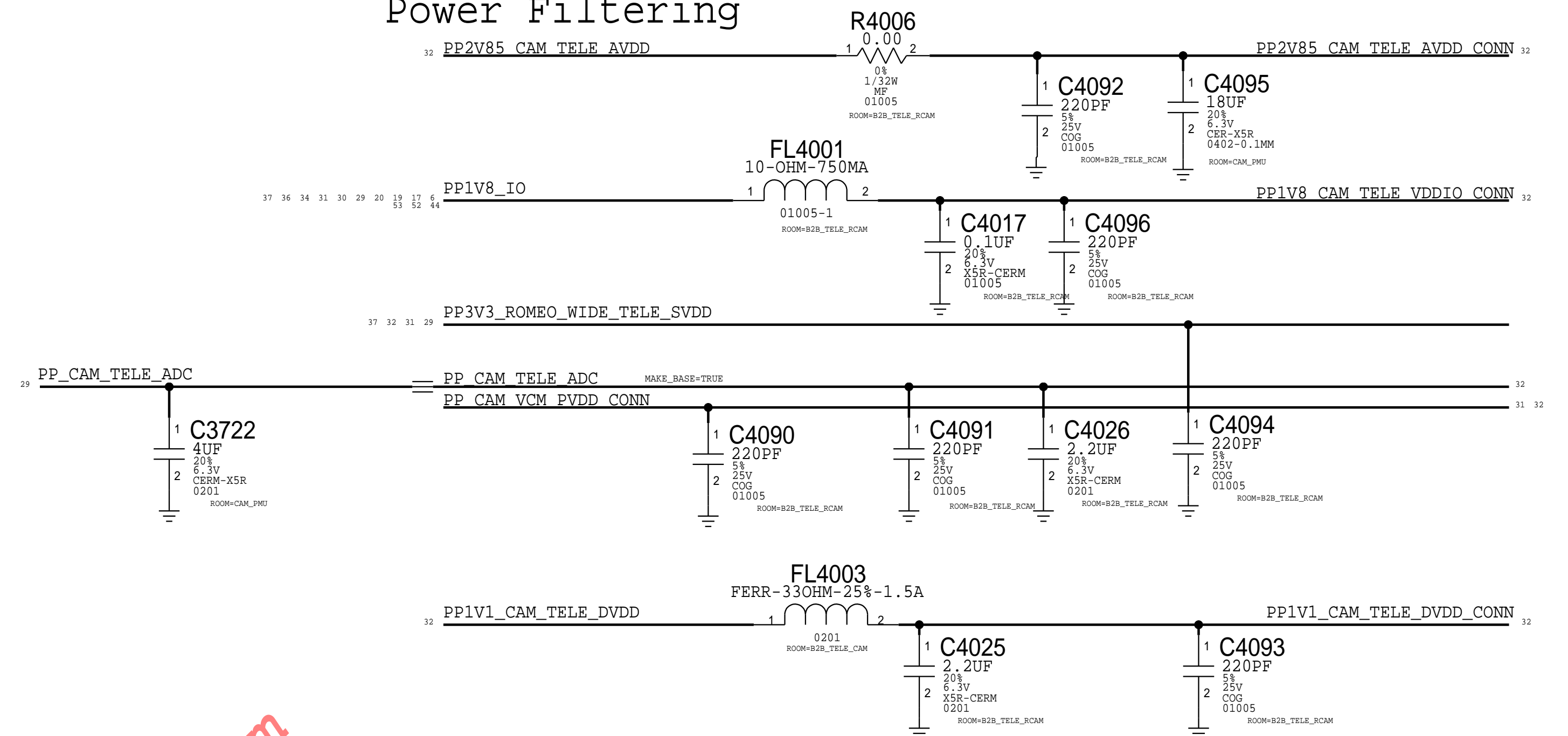
ISP I2C



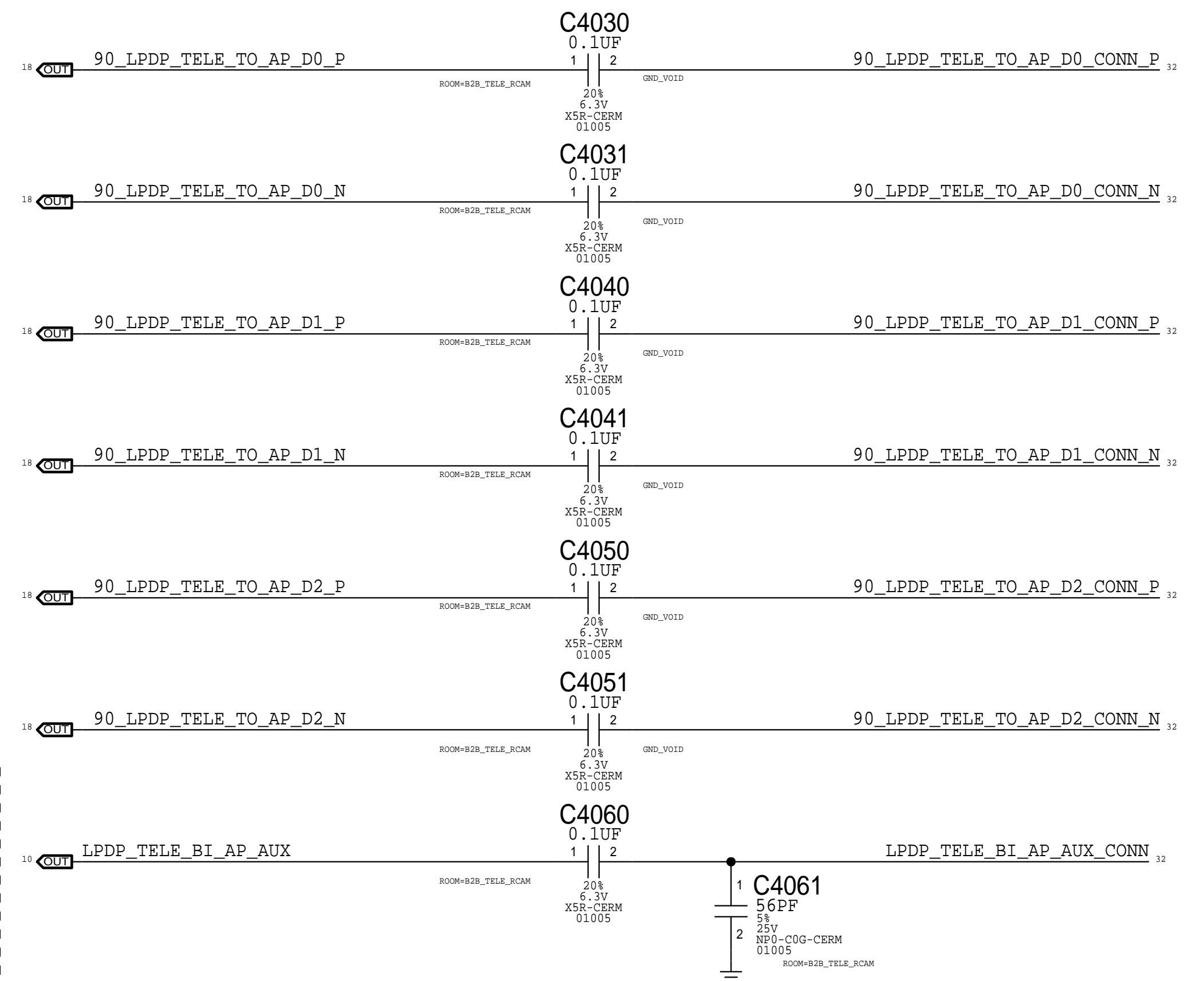
IO Filters




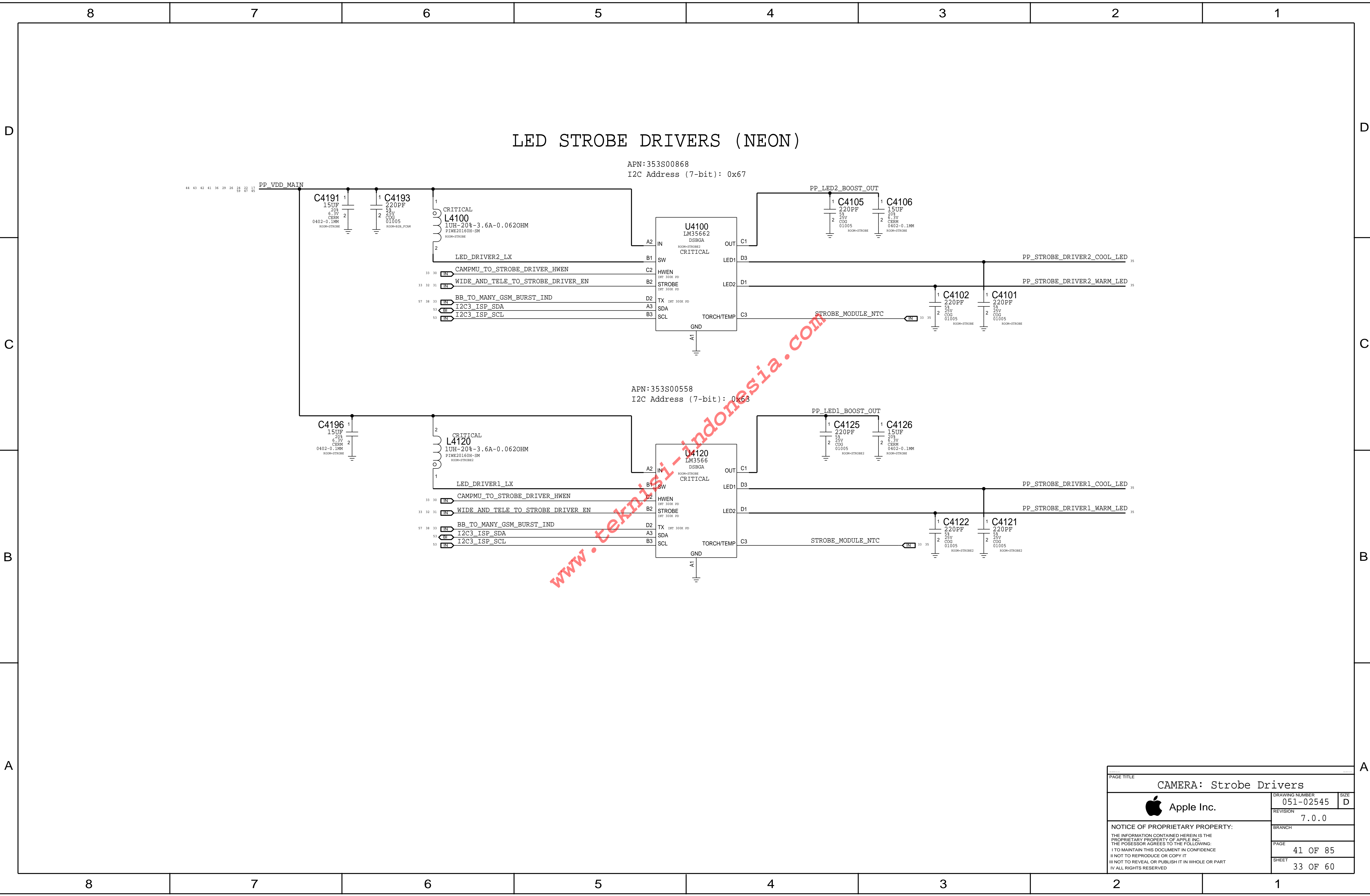
Power Filtering



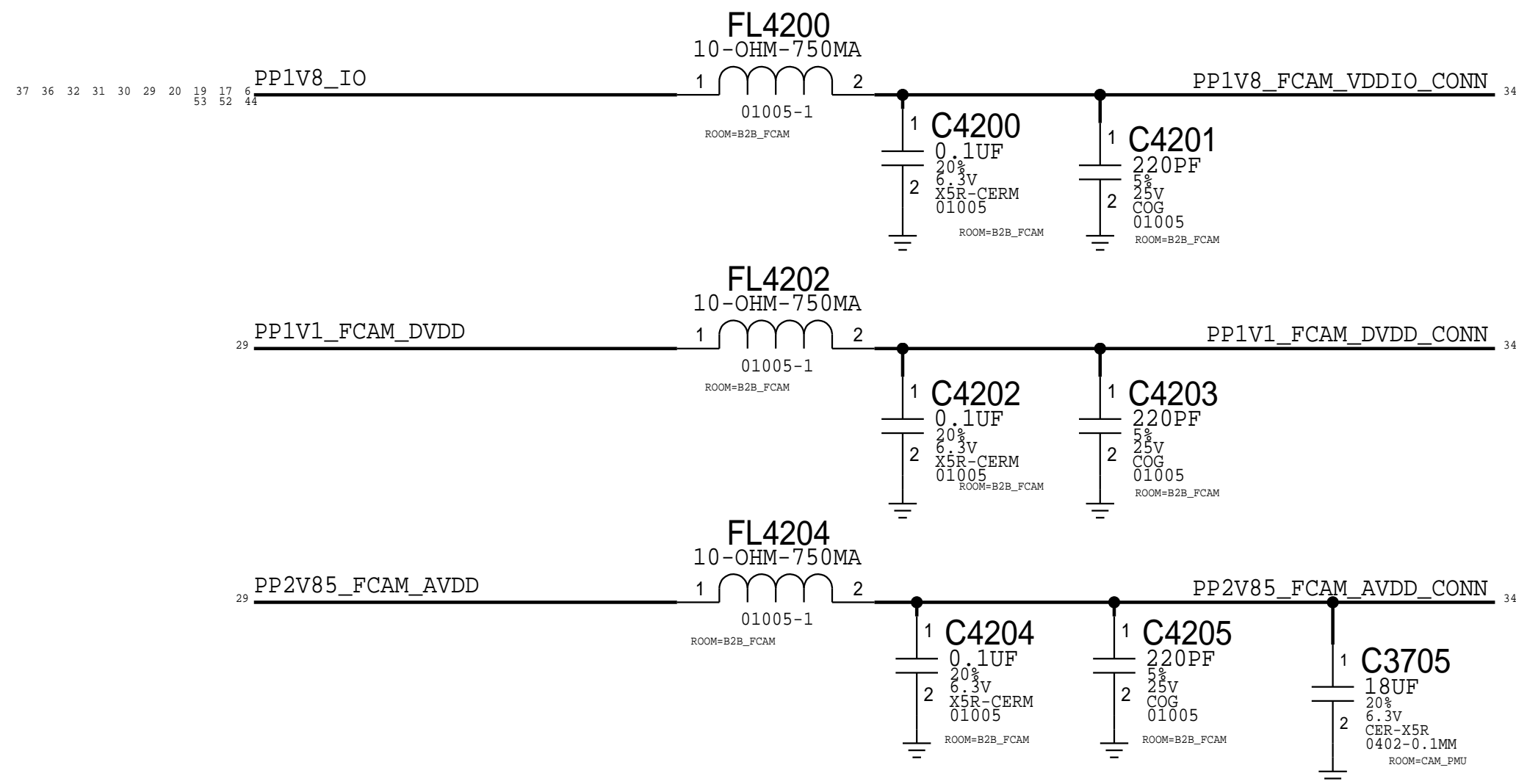
LPDP



PAGE TITLE		DRAWING NUMBER		SIZE	
CAMERA: B2B Tele [MT]		051-02545		D	
 Apple Inc.		REVISION		7.0.0	
		BRANCH			
		PAGE		40 OF 85	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		SHEET		32 OF 60	

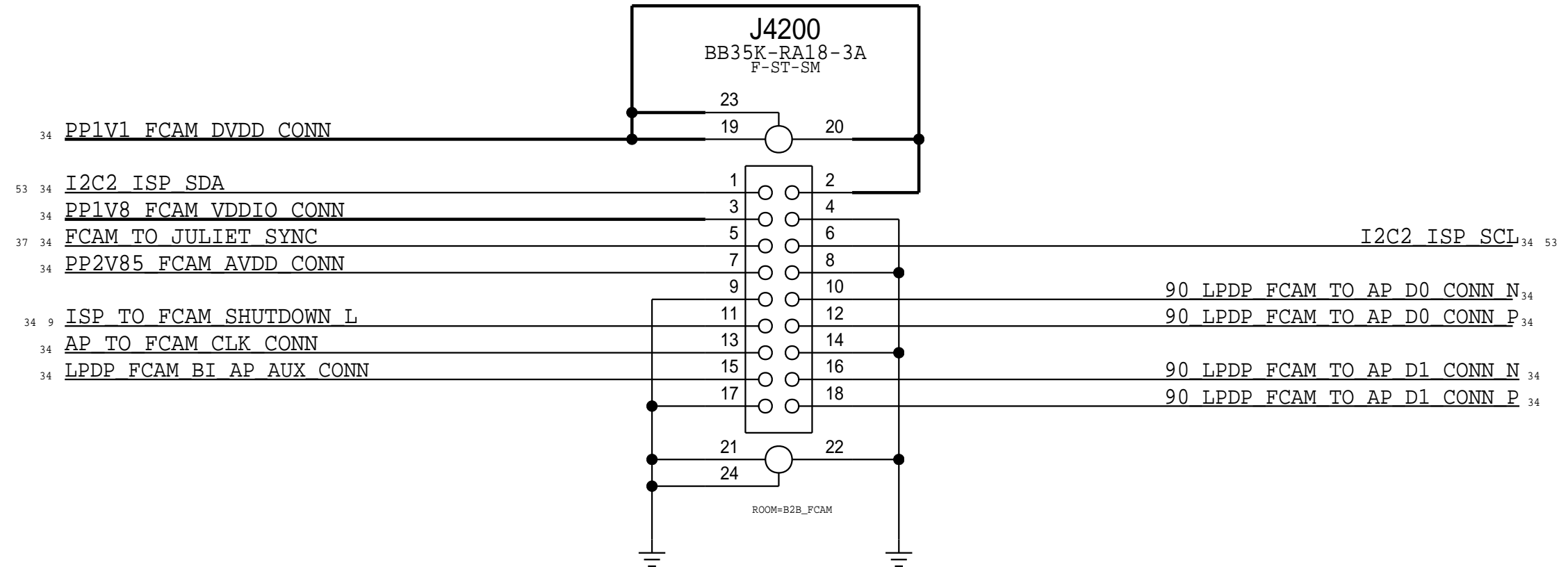


LONG ISLAND POWER

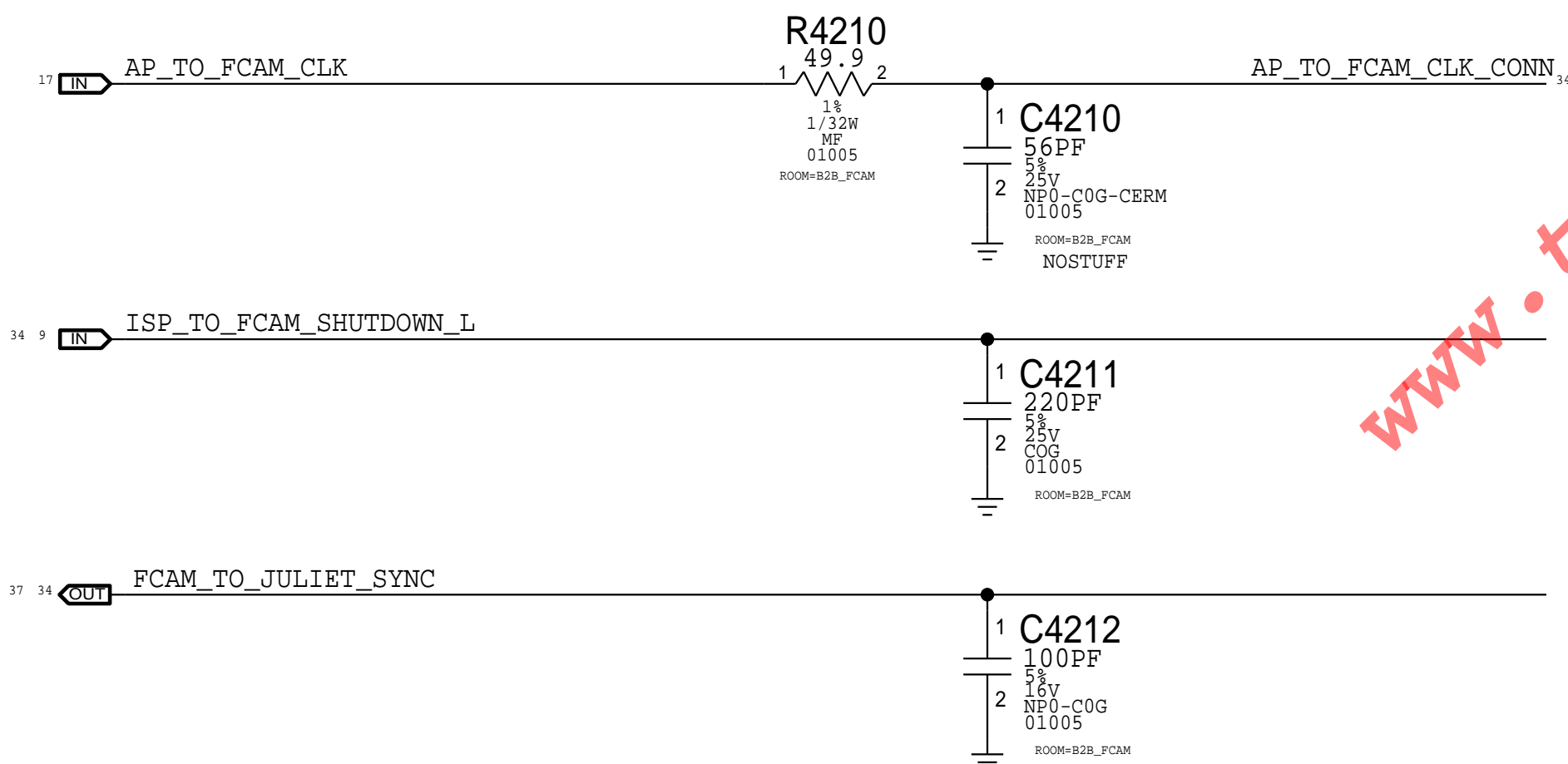


FCAM Connector

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

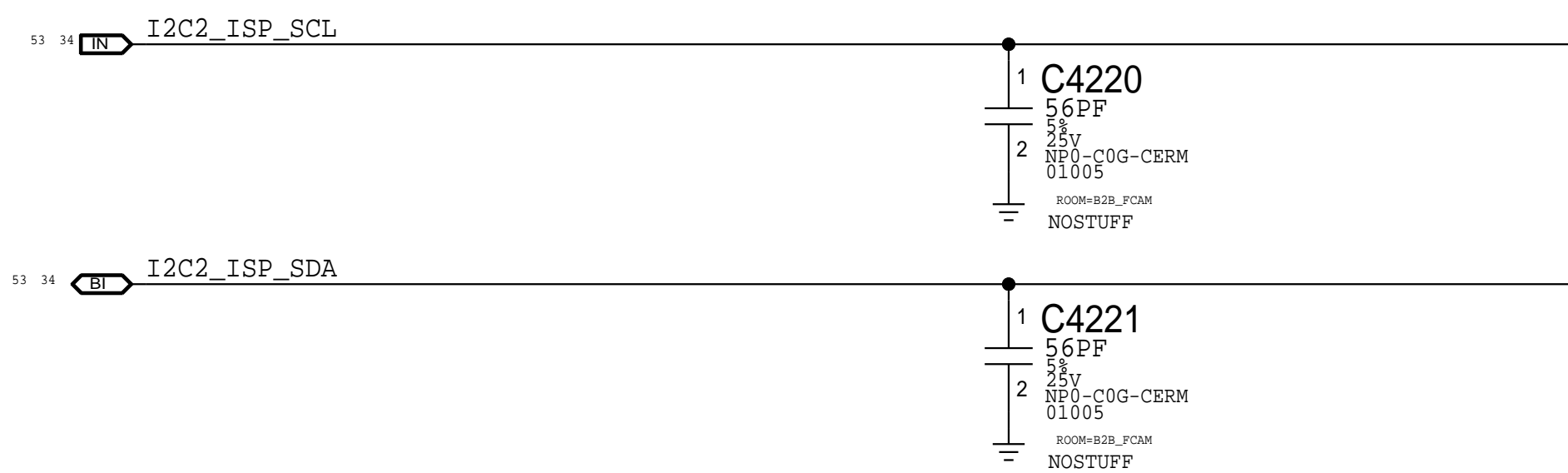


FCAM I/O

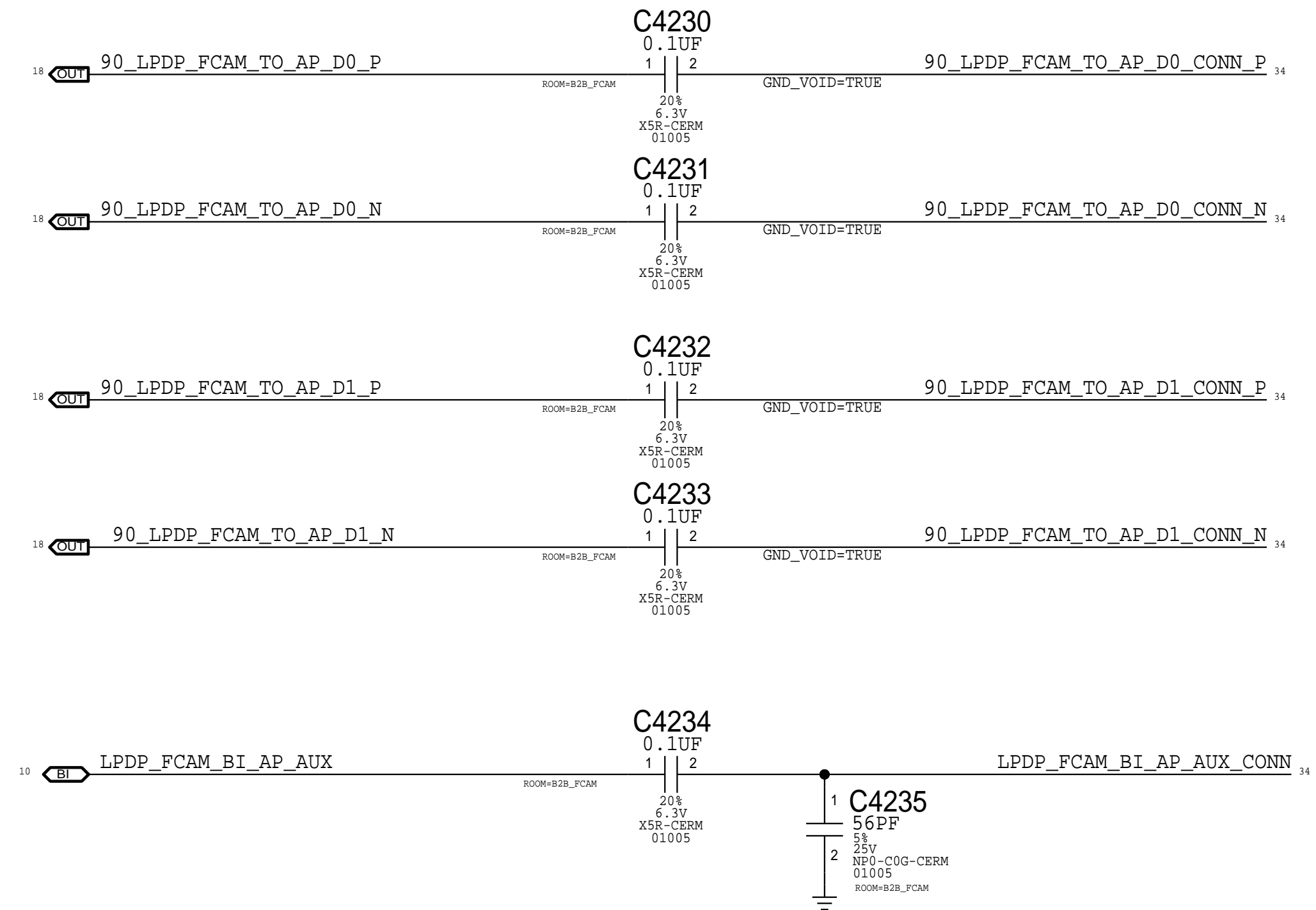


ISP I2C2

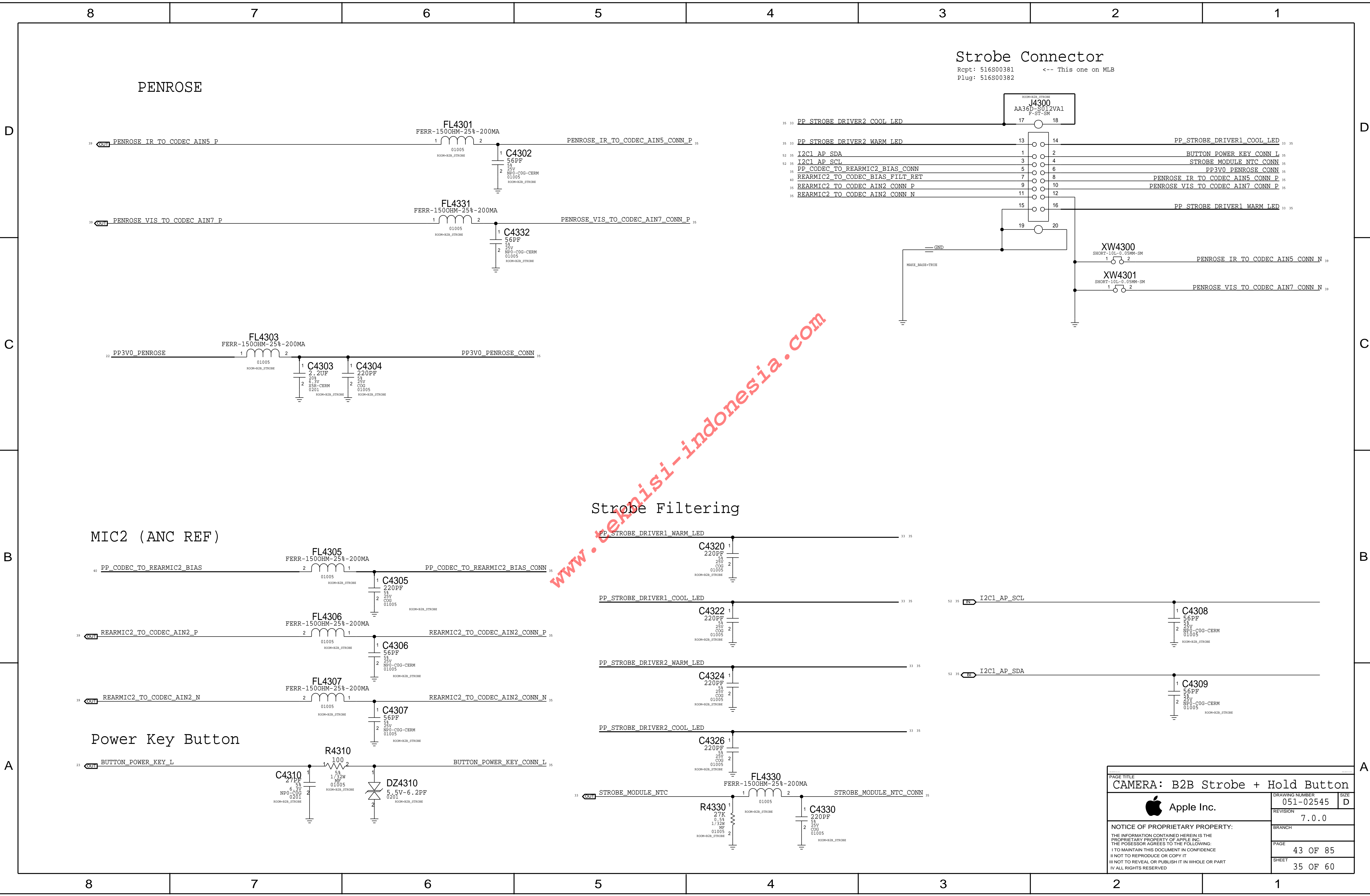
NOTE: SAME I2C as FCAM



LPDP FILTERS



PAGE TITLE		
CAMERA: B2B Fcam		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY:		
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		
II NOT TO REPRODUCE OR COPY IT		
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		
IV ALL RIGHTS RESERVED		
PAGE		42 OF 85
SHEET		34 OF 60



Strobe Connector

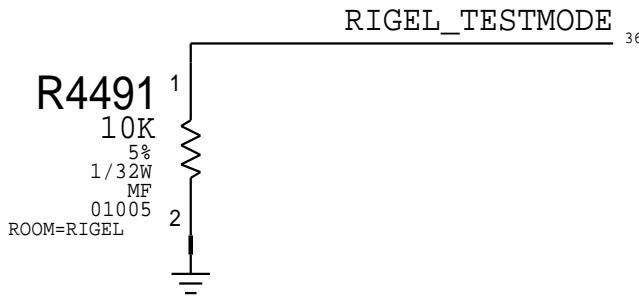
Rcpt: 516S00381 <-- This one on MLB
Plug: 516S00382

Strobe Filtering

PAGE TITLE		
CAMERA: B2B Strobe + Hold Button		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	43 OF 85
	SHEET	35 OF 60

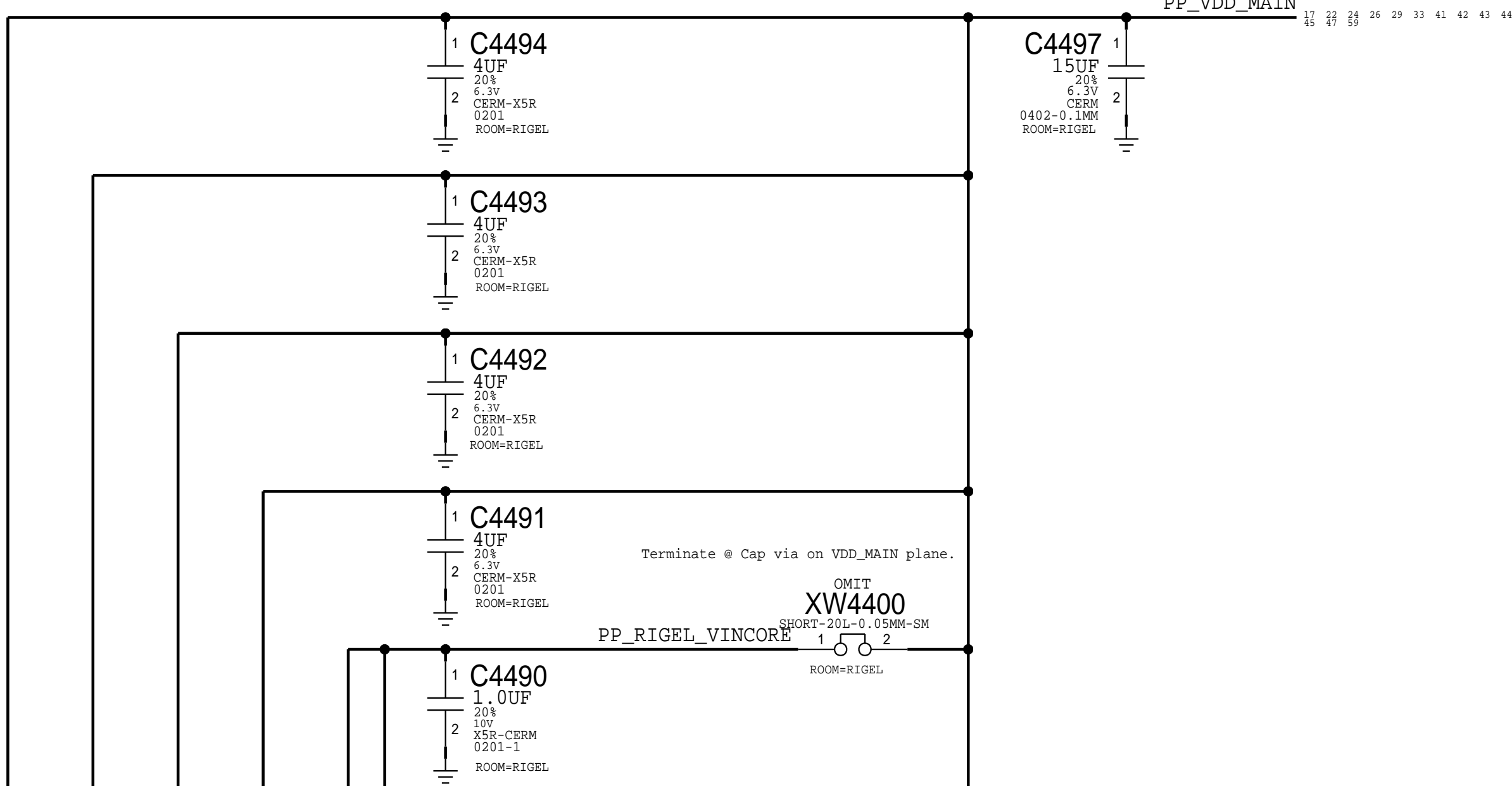
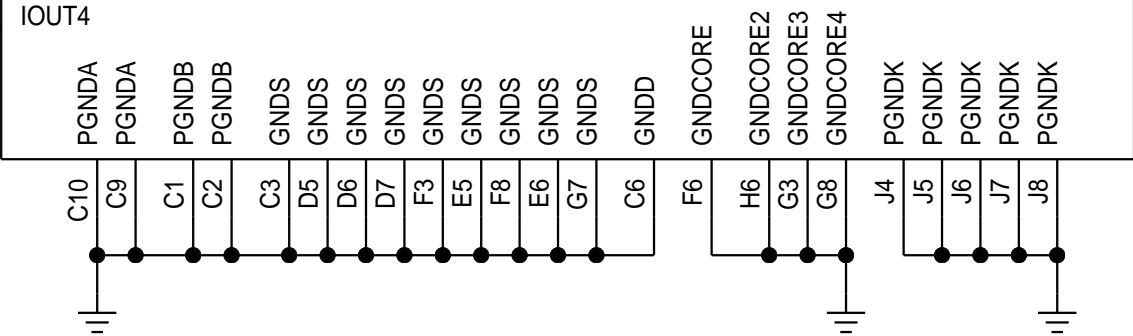
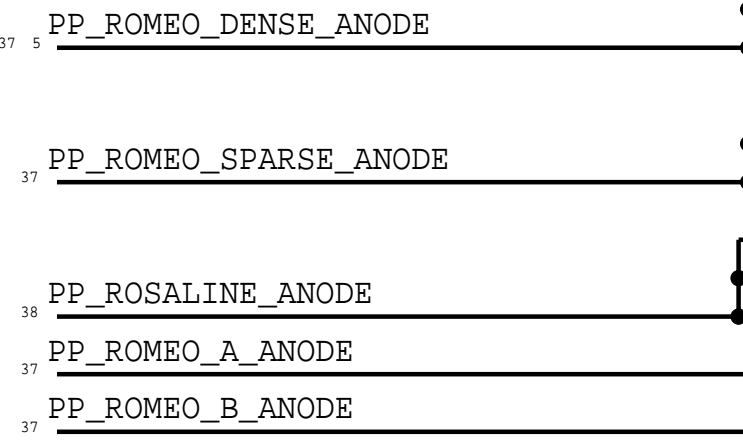
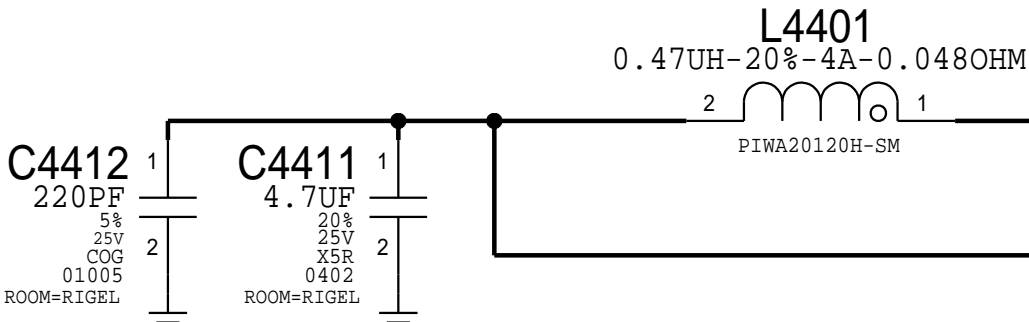
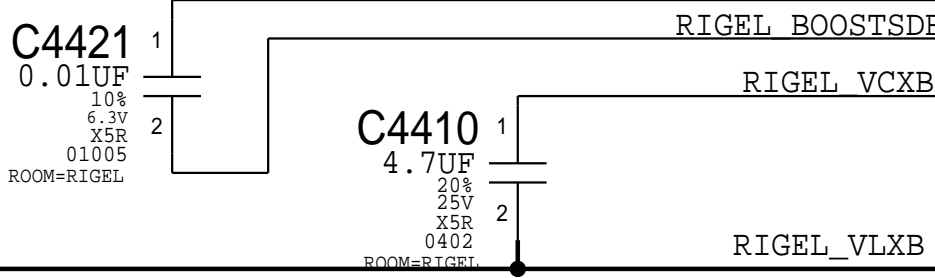
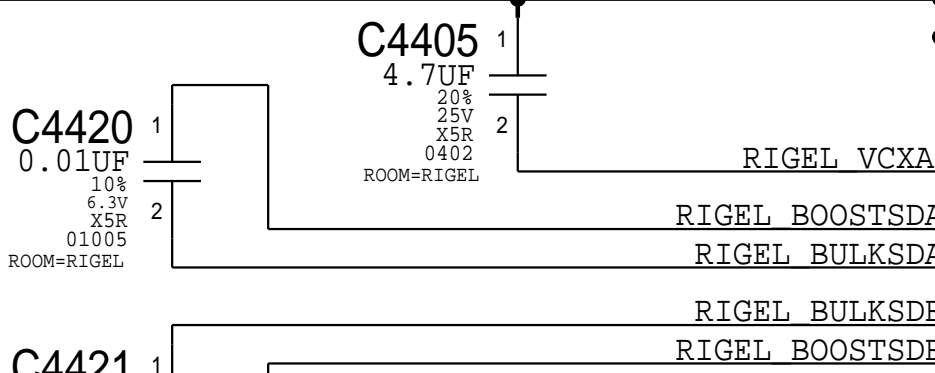
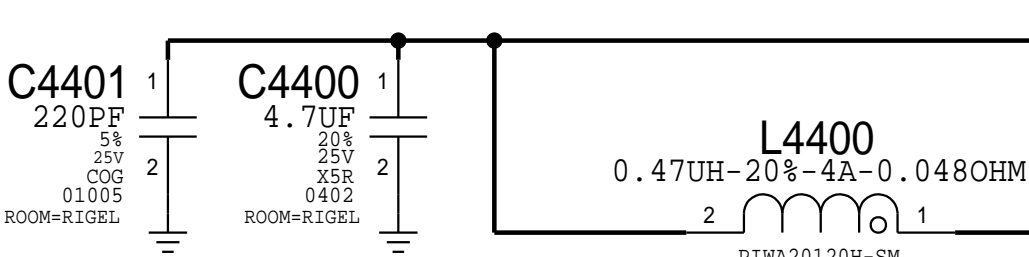
Rigel Driver

Test Mode Debugging



Rigel ALTs

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



Terminate @ Cap via on VDD_MAIN plane.

OMIT

XW4400

SHORT-20L-0.05MM-SM

PP_RIGEL_VINCORE

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

ROOM=RIGEL

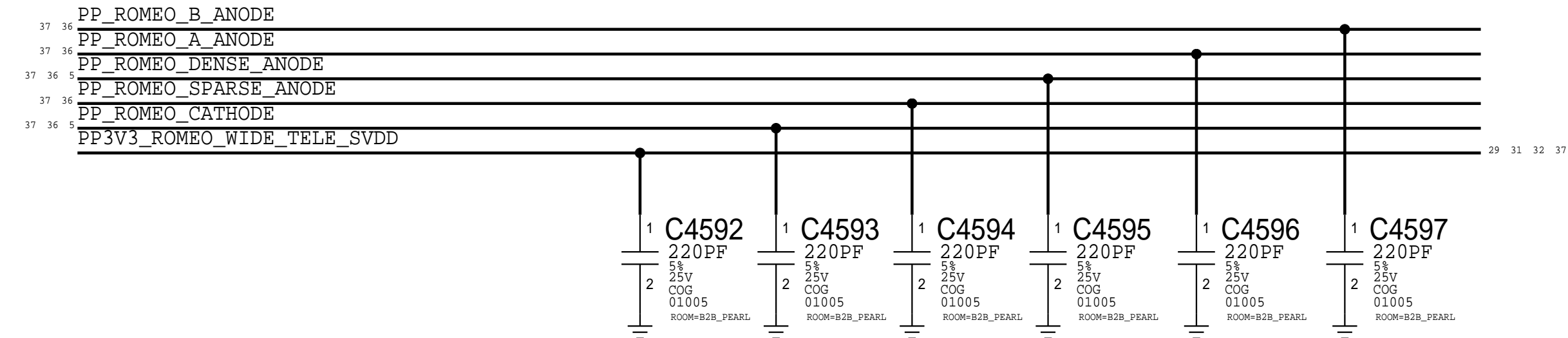
ROOM=RIGEL

ROOM=RIGEL

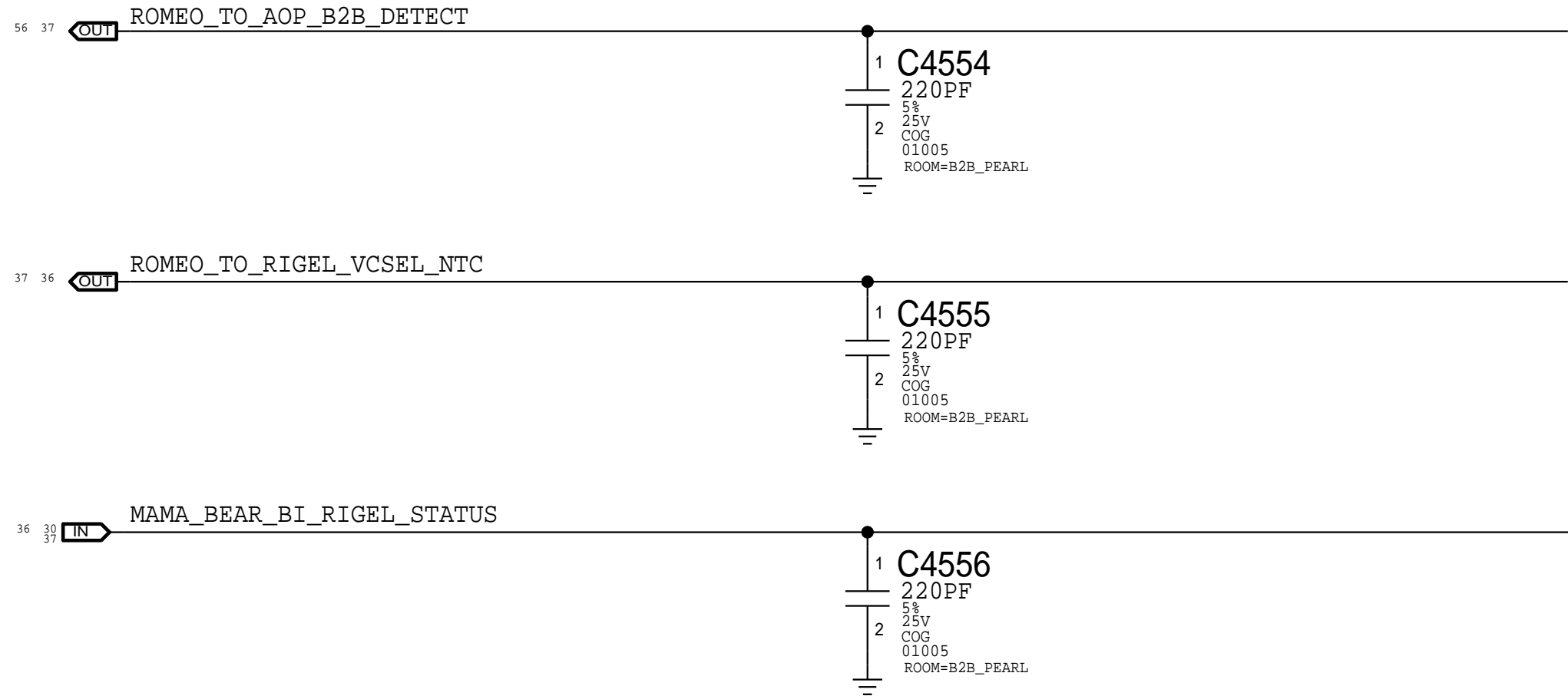
ROOM=RIGEL

ROOM=RIGEL

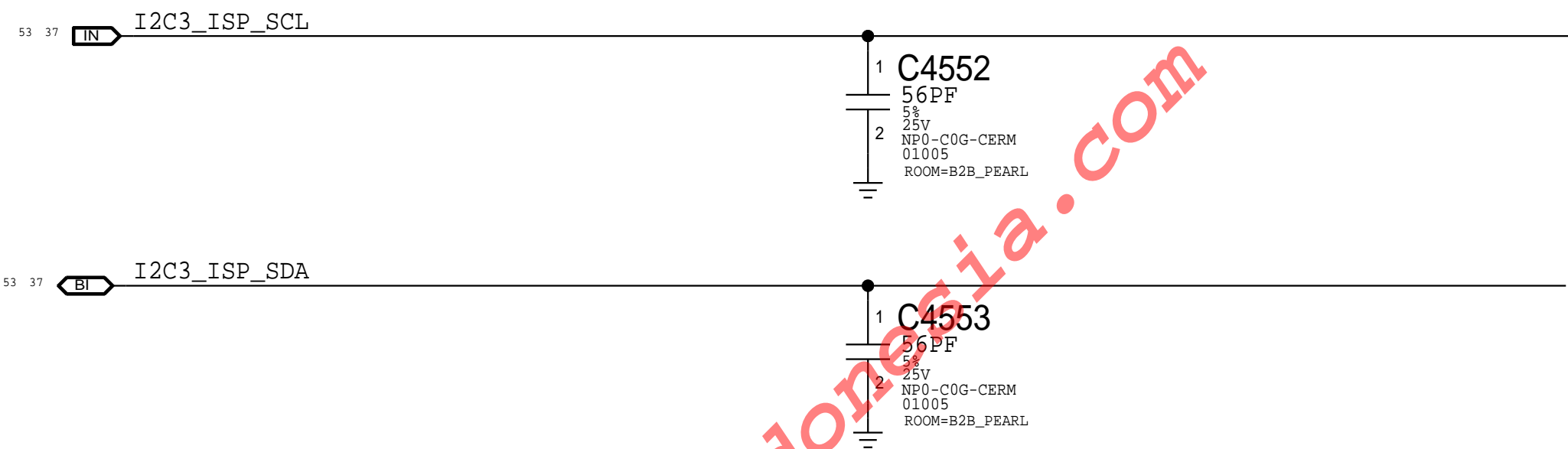
Romeo Power Filtering



Romeo I/O

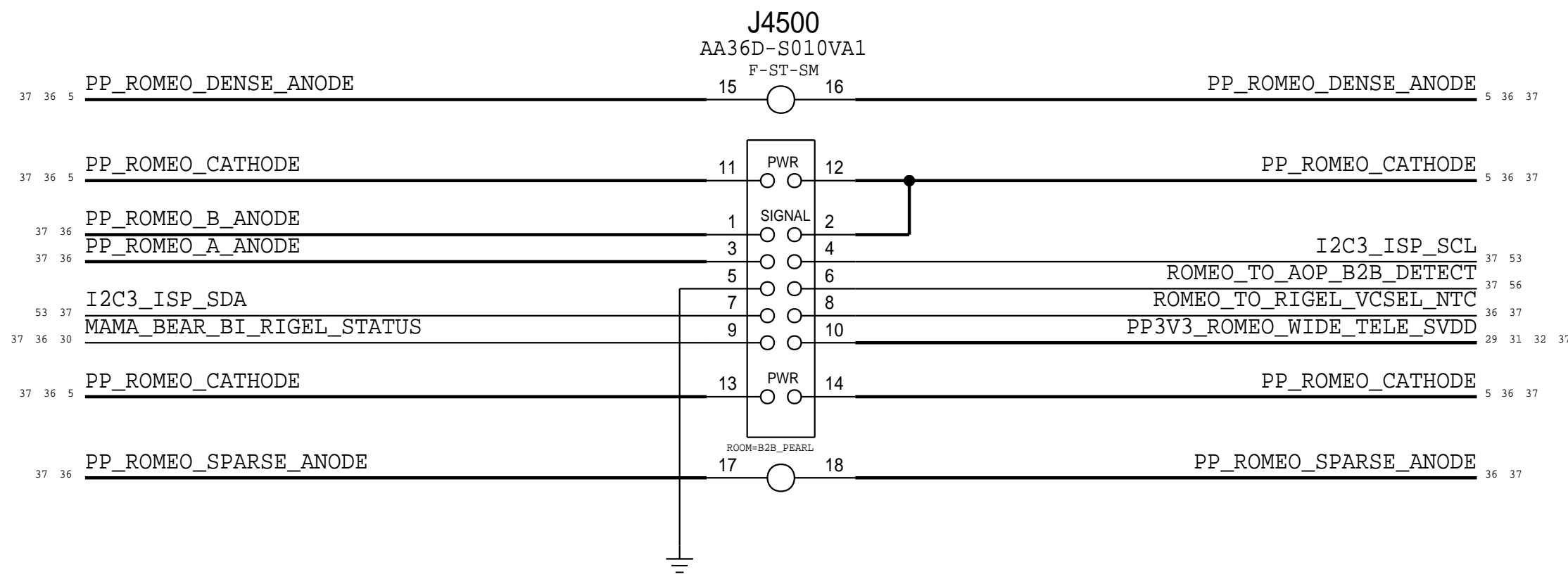


ISP I2C3



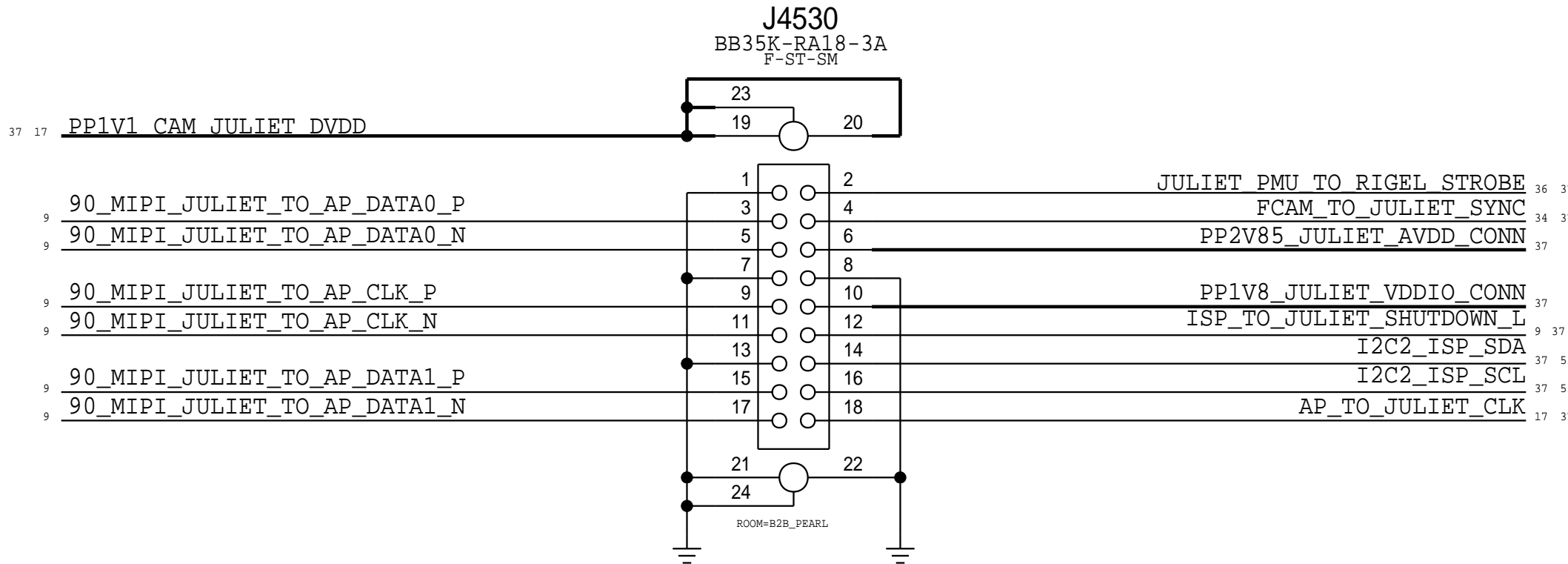
Romeo Connector

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

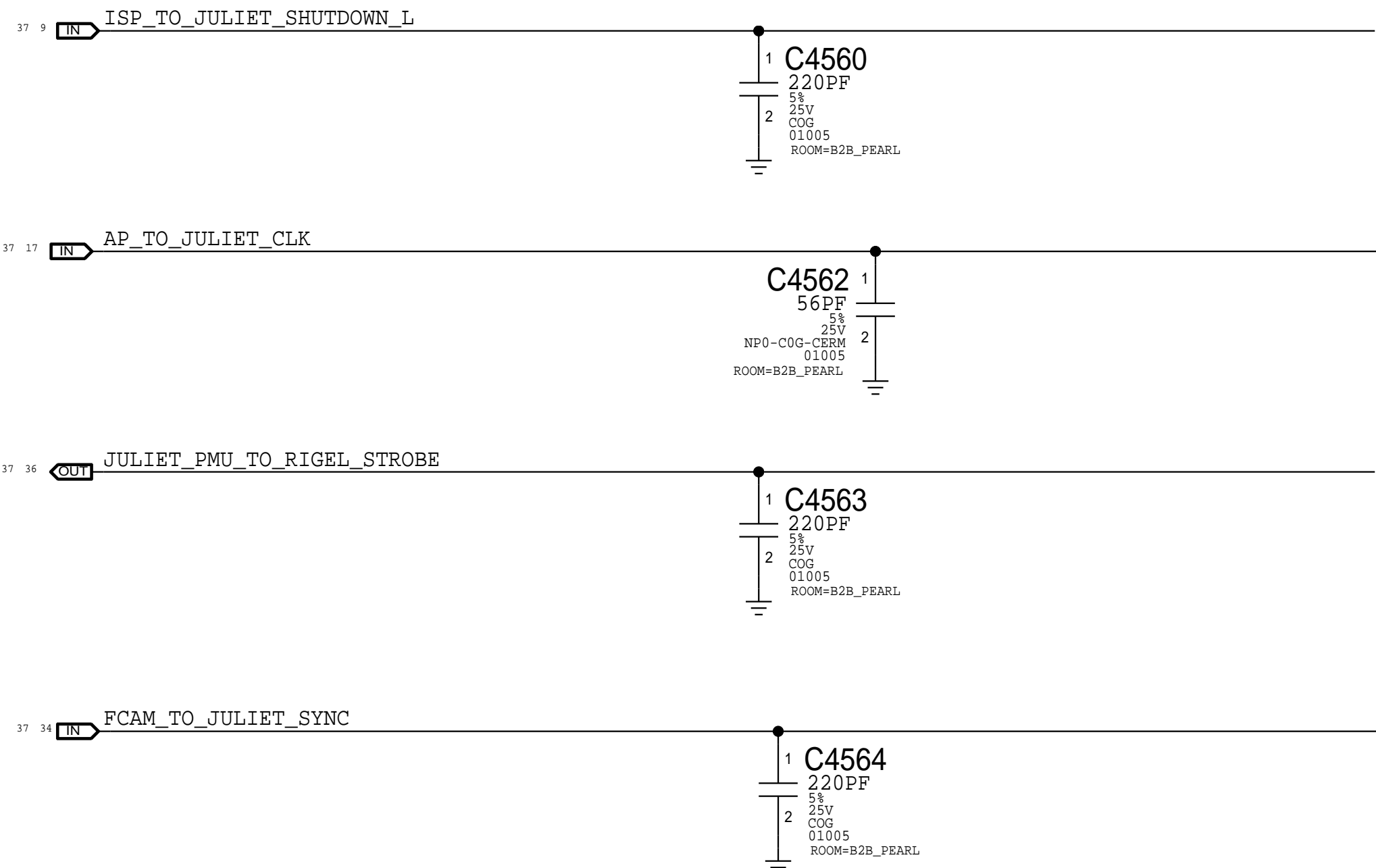
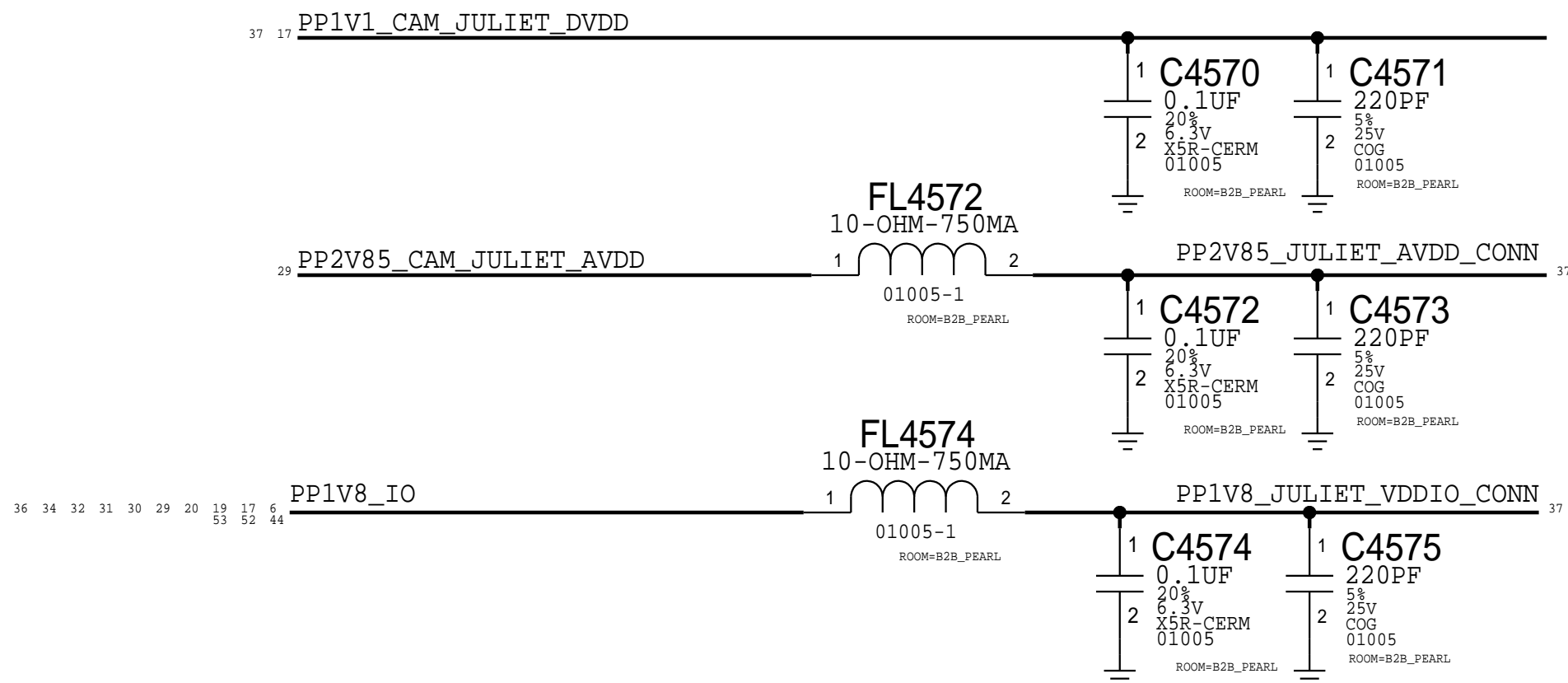


Juliet Connector

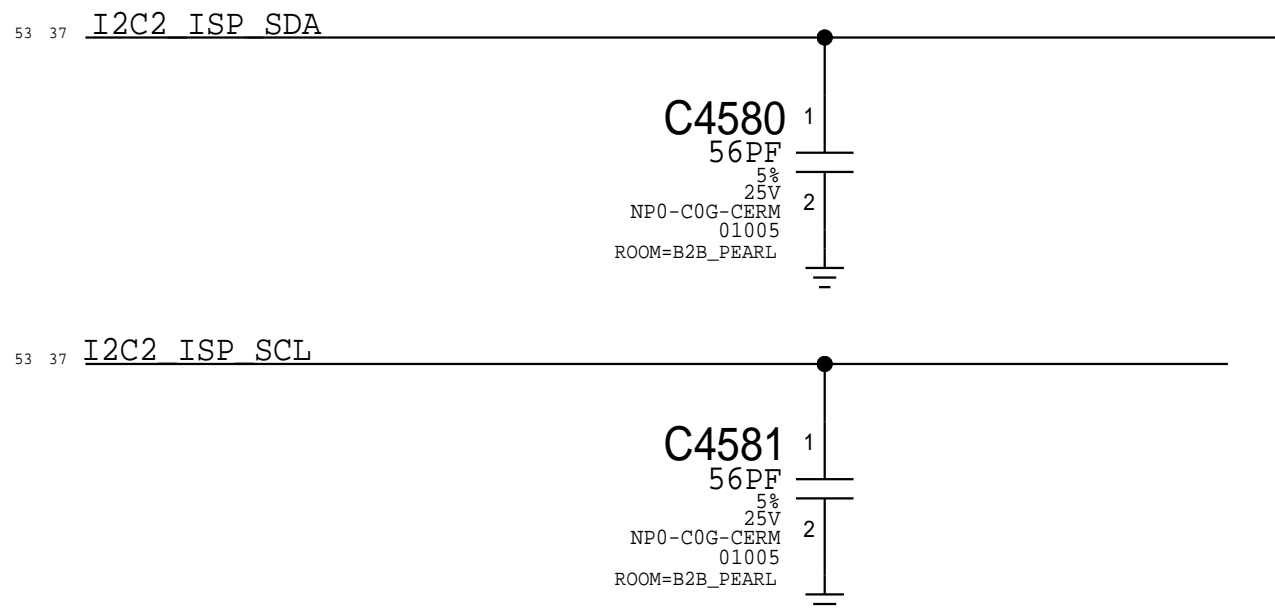
Rcpt: 516S00244 <-- This one on MLB
Plug: 516S00245



Juliet Power and I/O

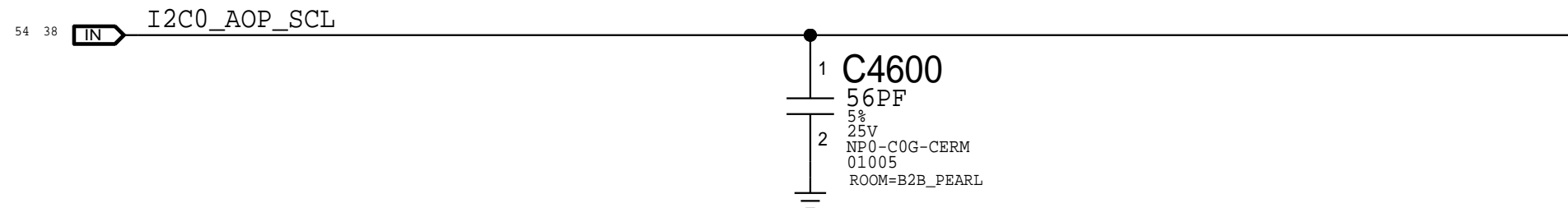


NOTE: SAME I2C as FCAM

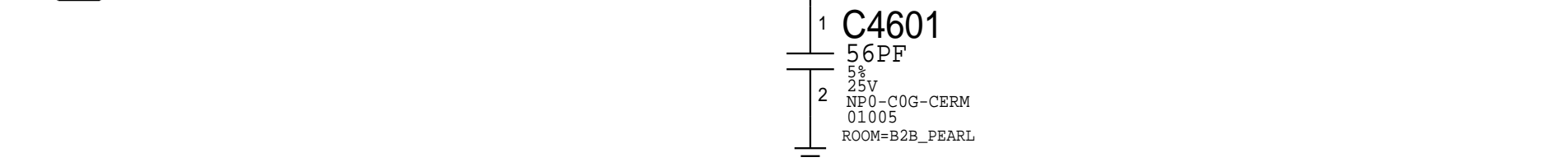


PAGE TITLE		
PEARL: B2B Romeo + Juliet		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY:		BRANCH
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		45 OF 85
II NOT TO REPRODUCE OR COPY IT		SHEET
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		37 OF 60
IV ALL RIGHTS RESERVED		

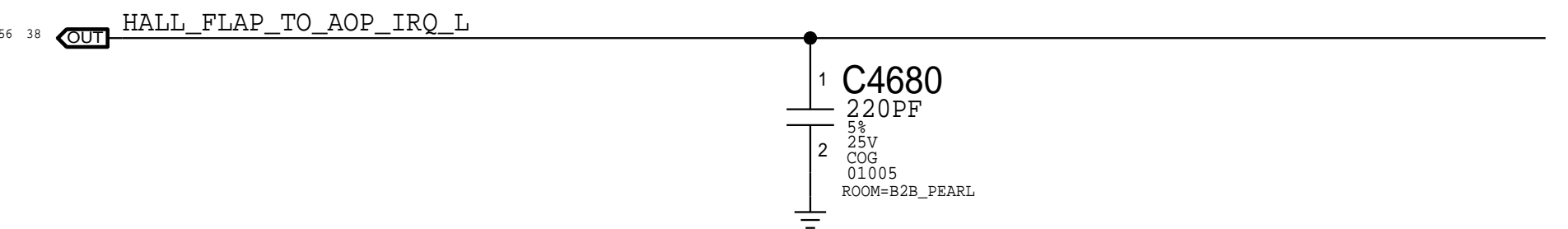
AOP I2C



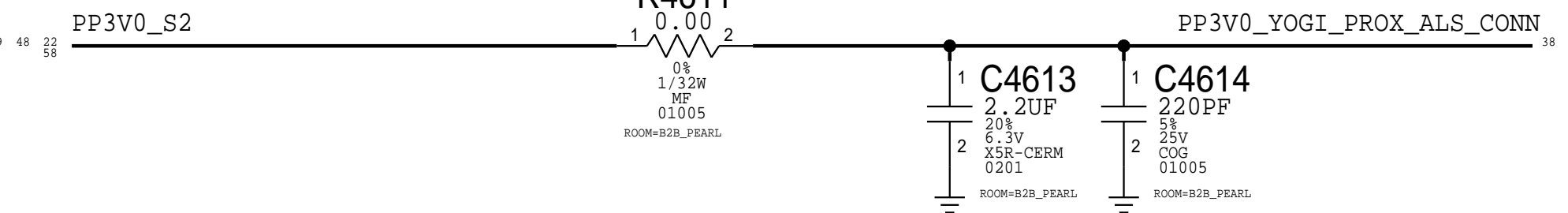
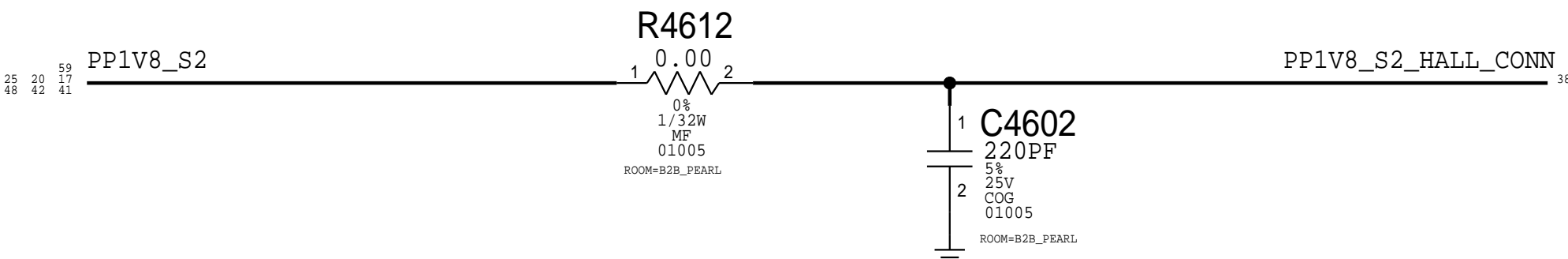
I2C0_AOP_SDA



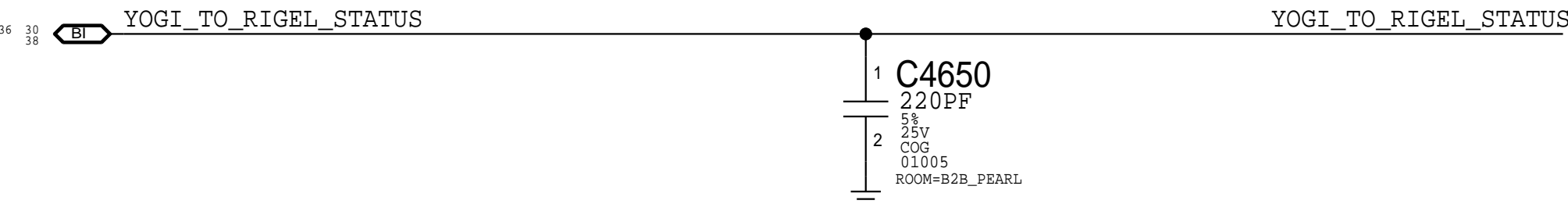
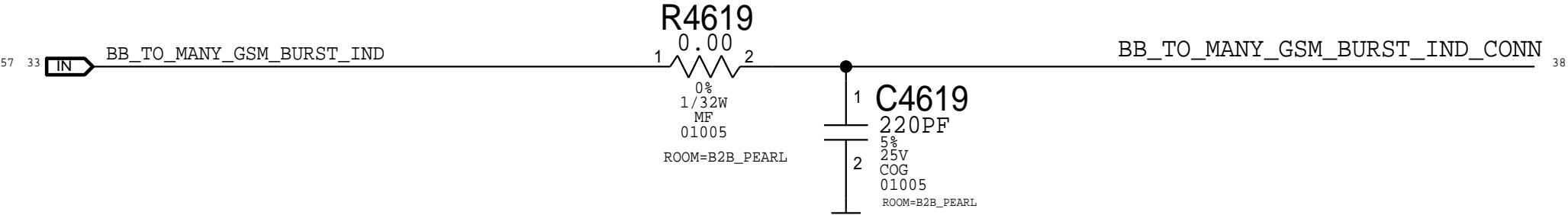
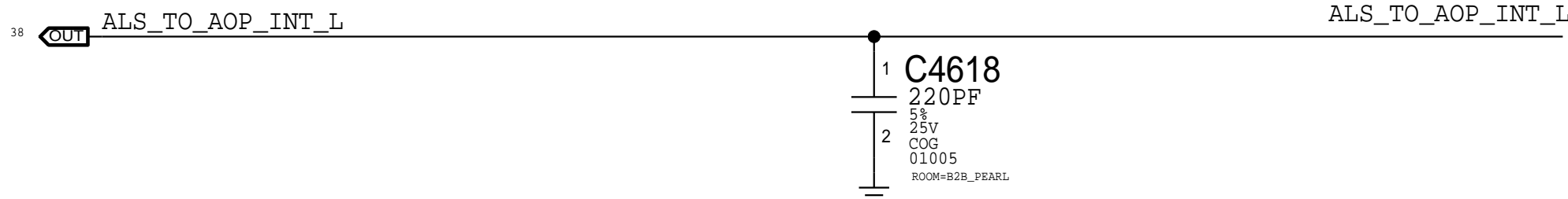
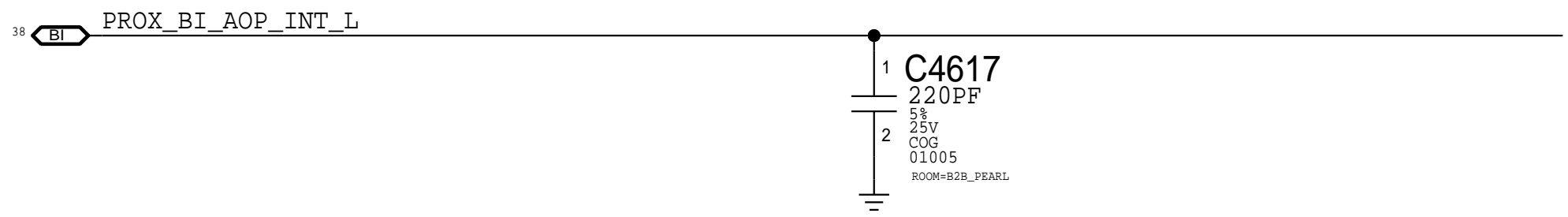
HALL I/Os



PROX & HALL POWER

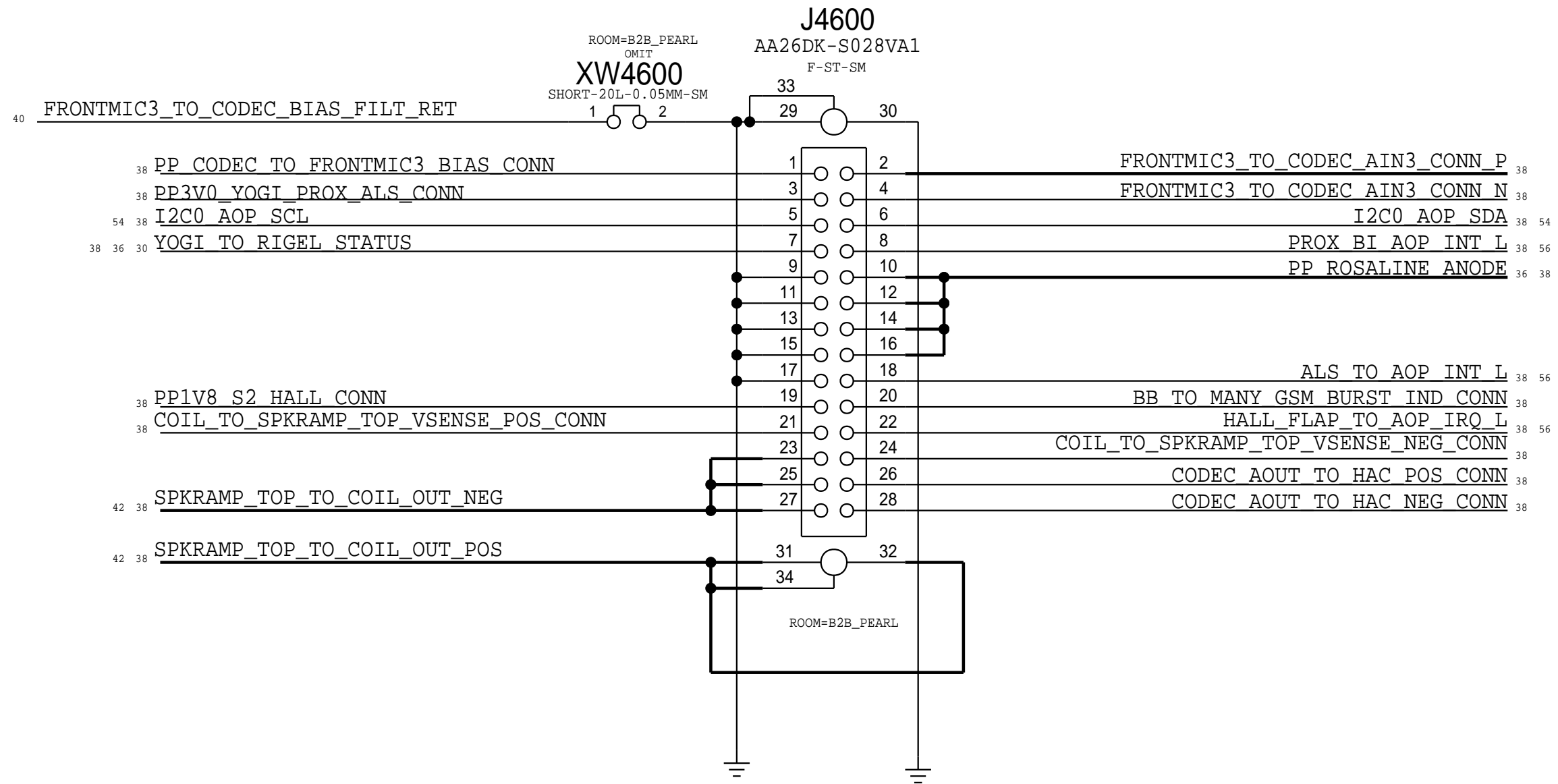


PROX/ALS/YOGI I/O

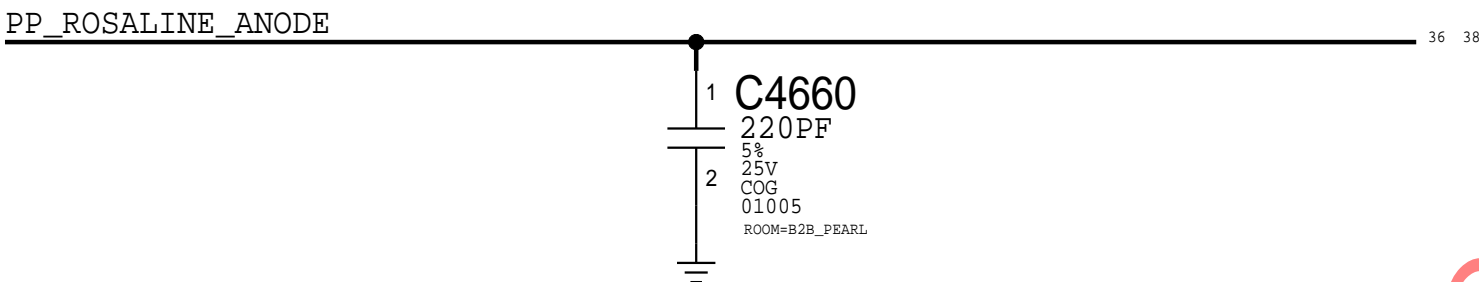


Rosaline + Sensor Connector

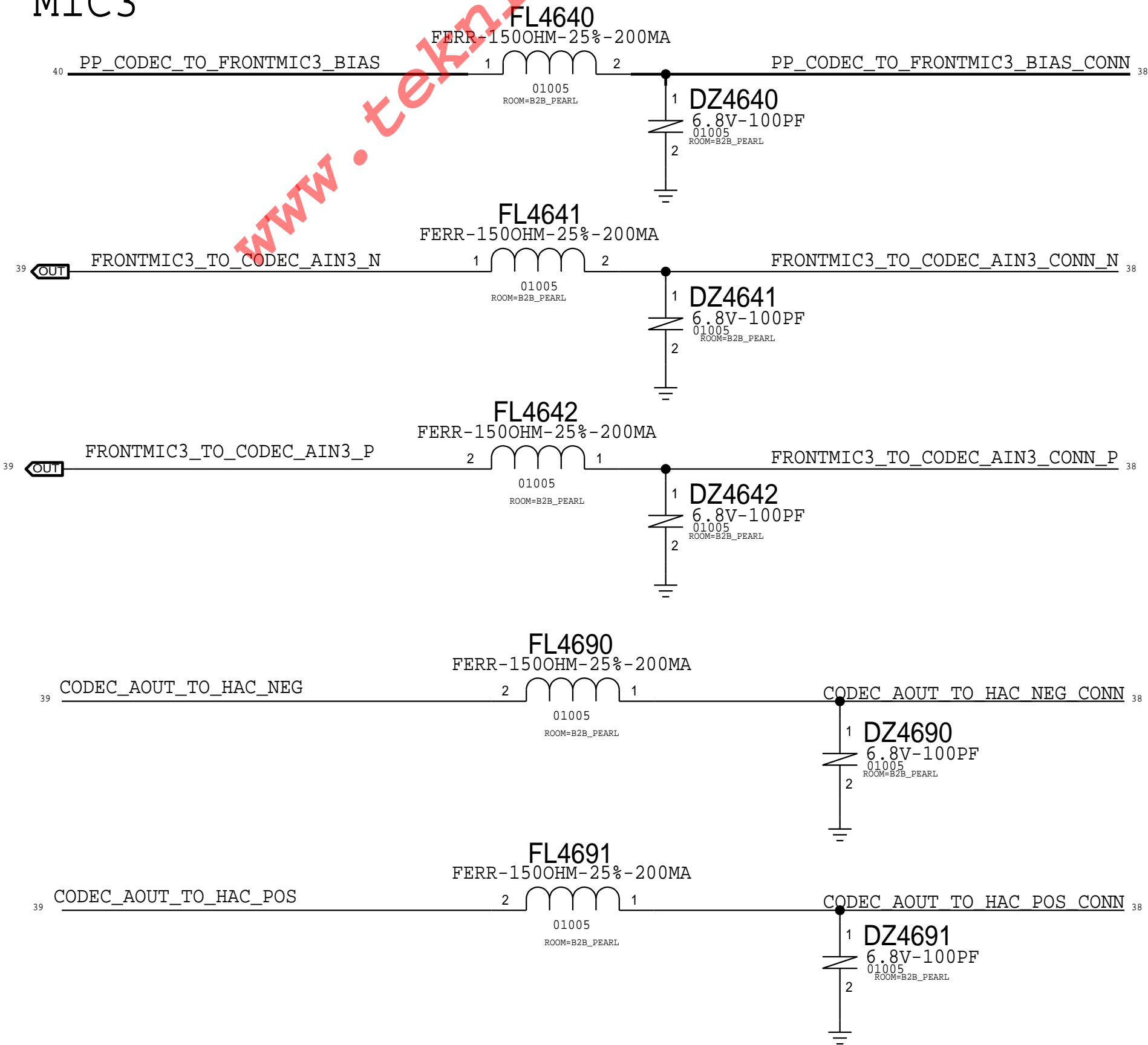
Ropt: 516S00325 <-- This one on MLB
Plug: 516S00326



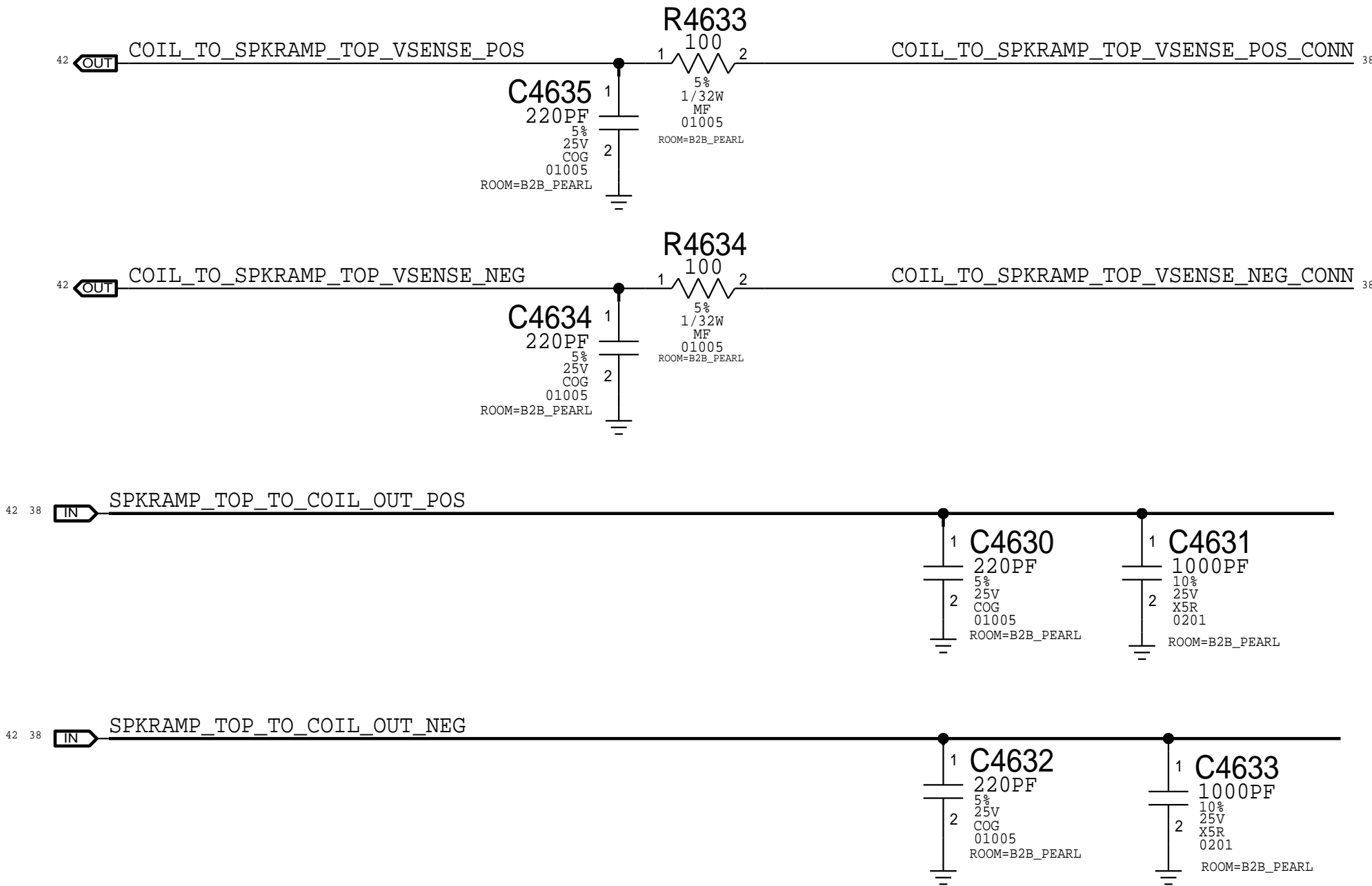
Yogi Signals



MIC3

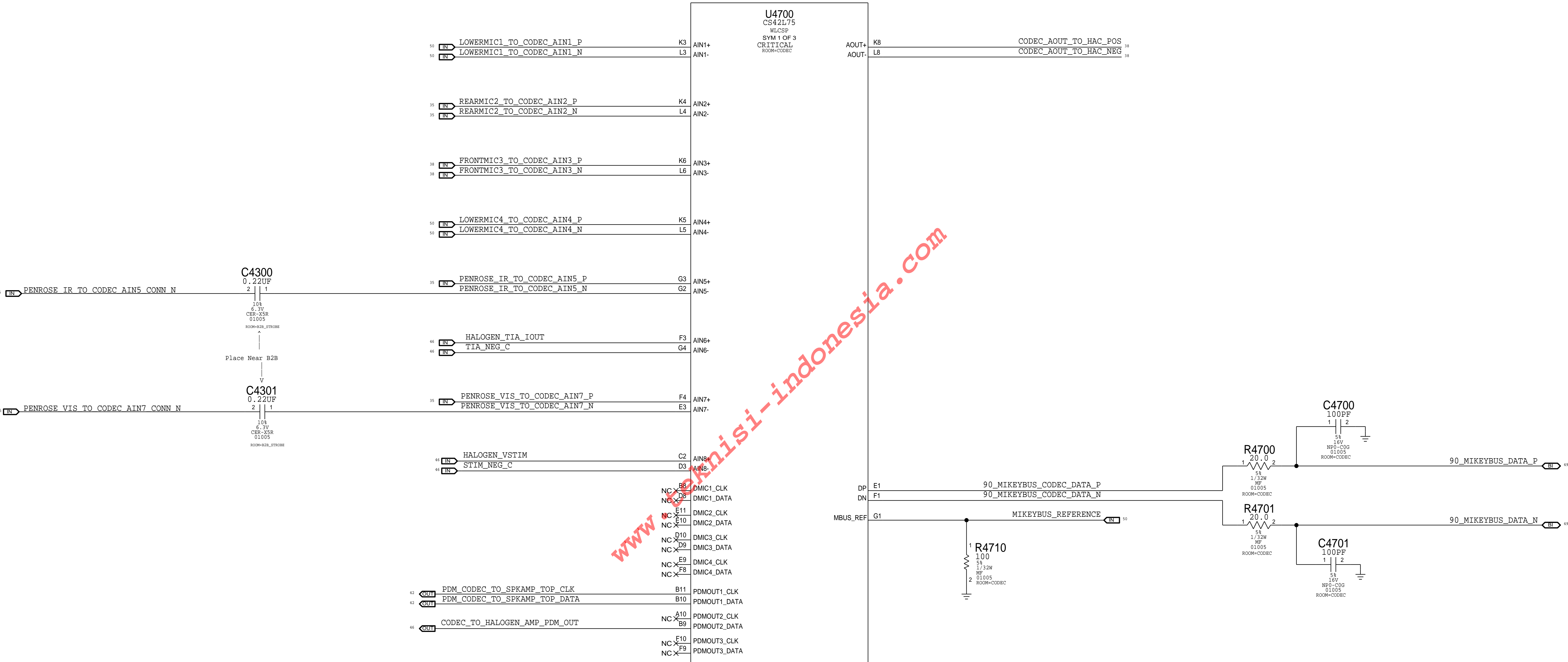


SPEAKER2

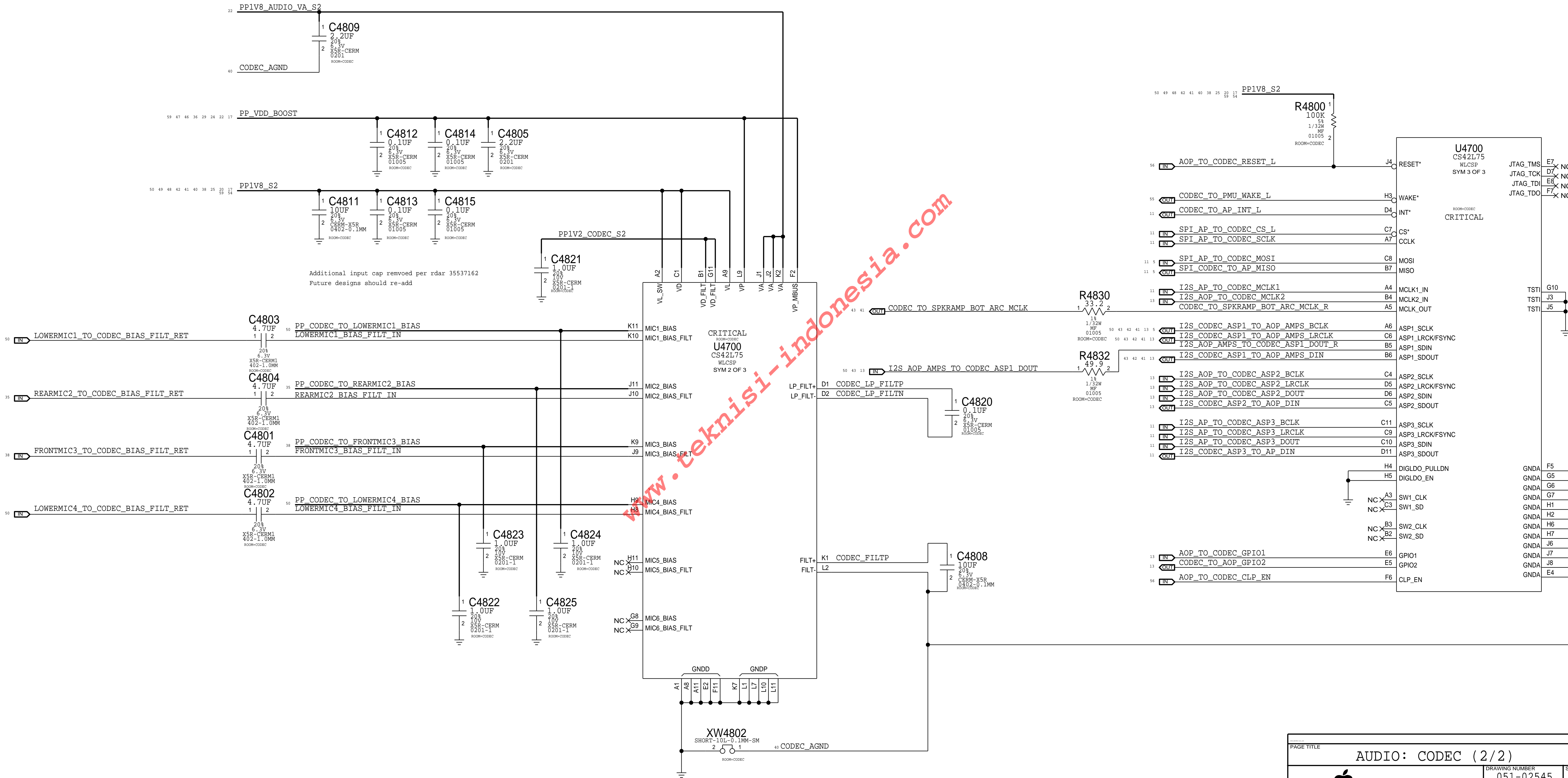



PAGE TITLE		
PEARL: B2B Rosaline + Sensor		
	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY:		BRANCH
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		46 OF 85
II NOT TO REPRODUCE OR COPY IT		SHEET
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		38 OF 60
IV ALL RIGHTS RESERVED		

CALLAN AUDIO CODEC (ANALOG INPUTS & OUTPUTS)



CALLAN AUDIO CODEC (POWER & I/O)



PAGE TITLE		
AUDIO: CODEC (2/2)		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		
BRANCH		
PAGE		
48 OF 85		
SHEET		
40 OF 60		

D

C

B

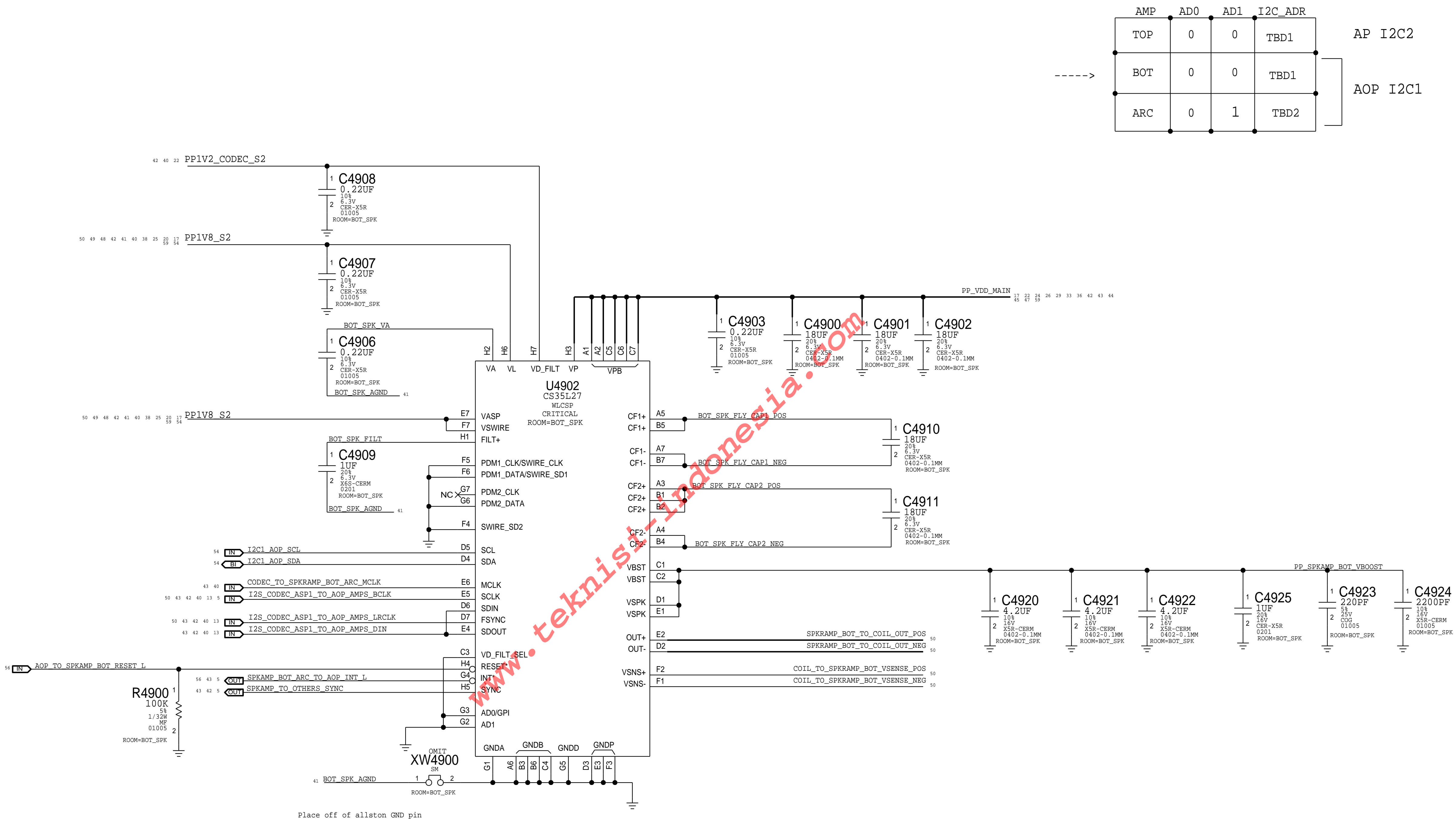
A

D

C

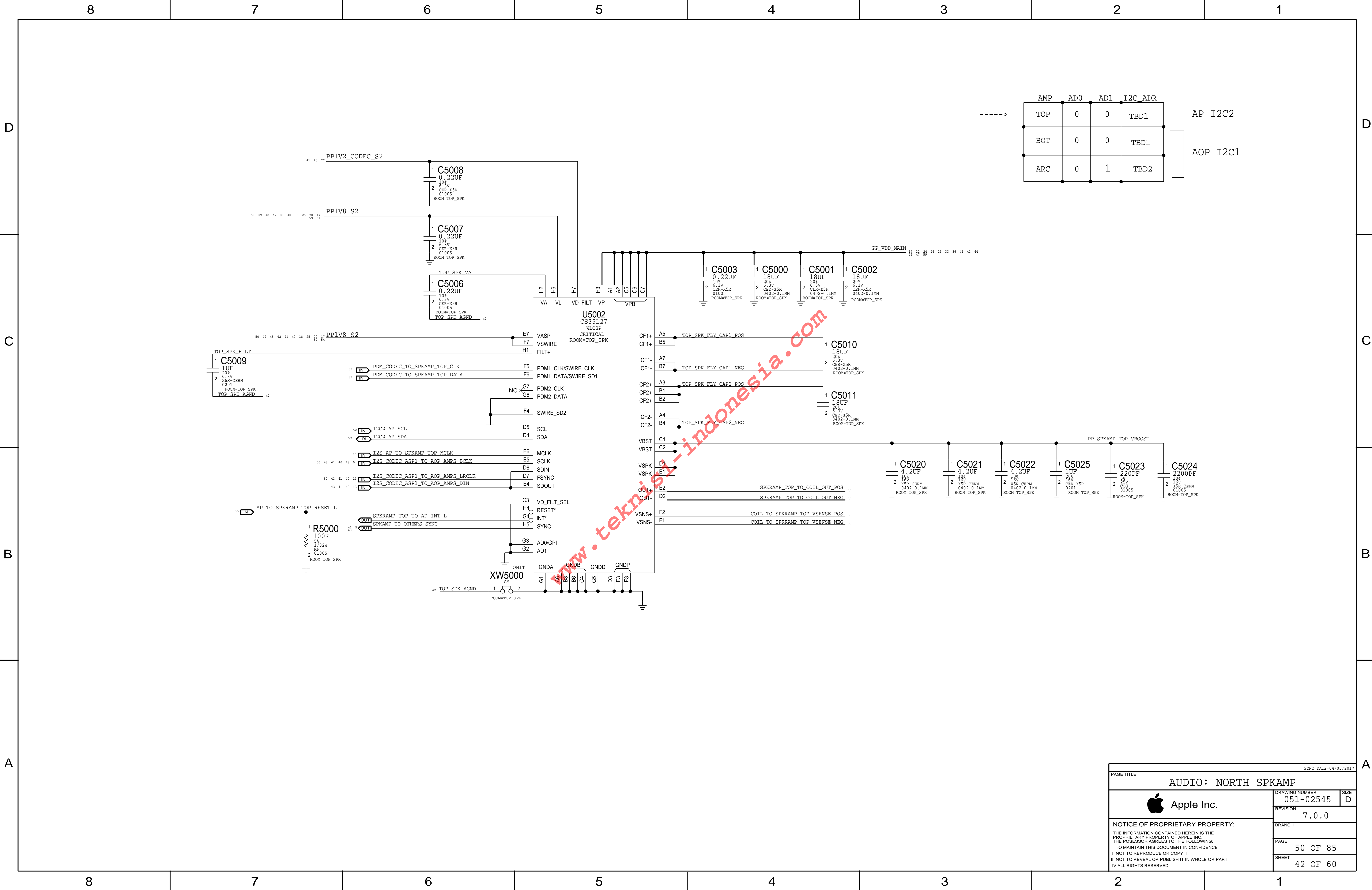
B

A



----->

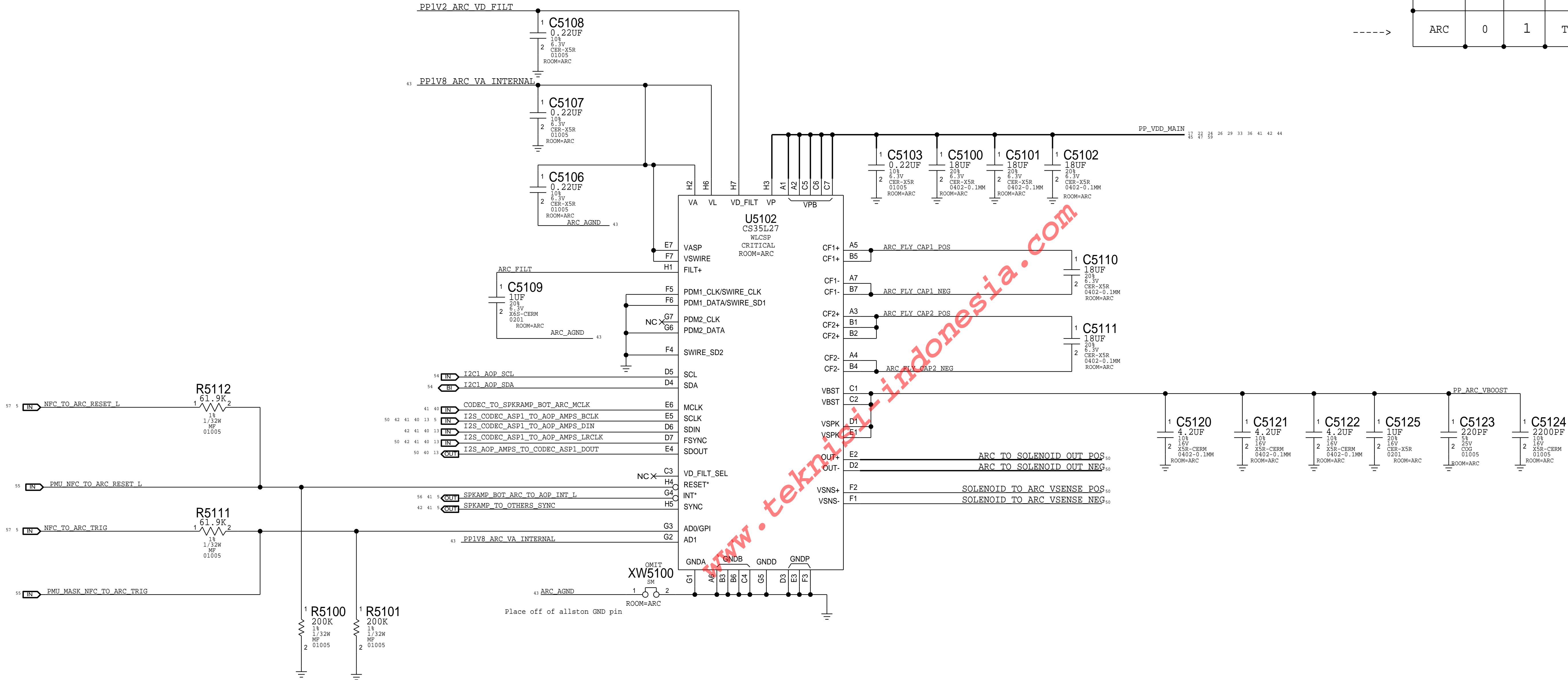
AMP	AD0	AD1	I2C_ADR	
TOP	0	0	TBD1	AP I2C2
BOT	0	0	TBD1	AOP I2C1
ARC	0	1	TBD2	




AMP	AD0	AD1	I2C_ADR
TOP	0	0	TBD1
BOT	0	0	TBD1
ARC	0	1	TBD2

AP I2C2

AOP I2C1



PAGE TITLE			SYNC_DATE=04/05/2017
ARC: AMP			
 Apple Inc.	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
	BRANCH		
NOTICE OF PROPRIETARY PROPERTY:			PAGE
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:			51 OF 85
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			SHEET
III NOT TO REPRODUCE OR PUBLISH IT IN WHOLE OR PART			43 OF 60
IV ALL RIGHTS RESERVED			

Display Control Signals

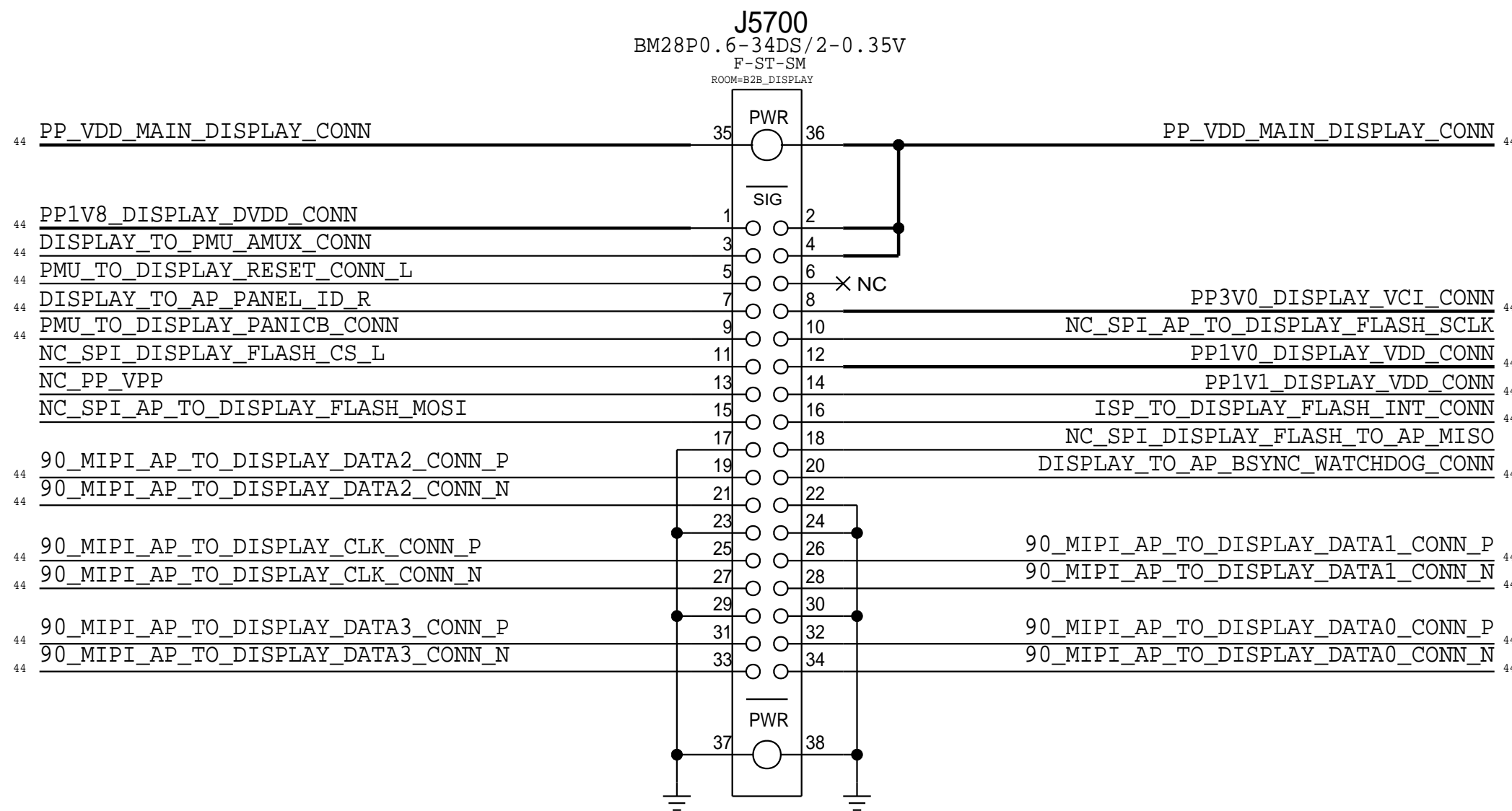
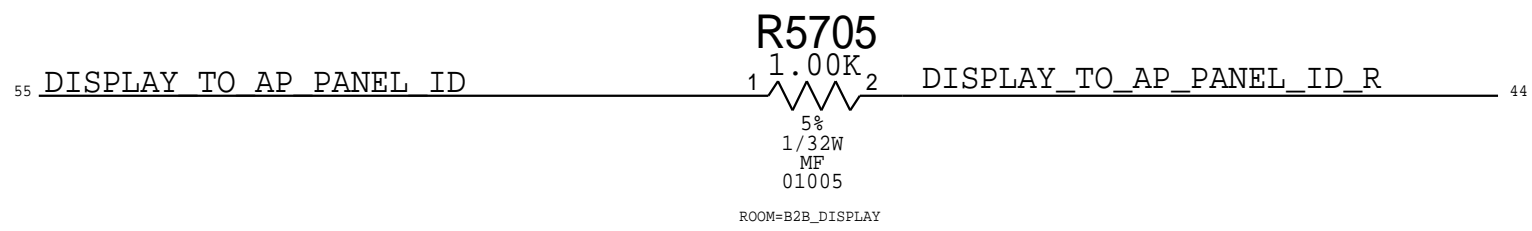
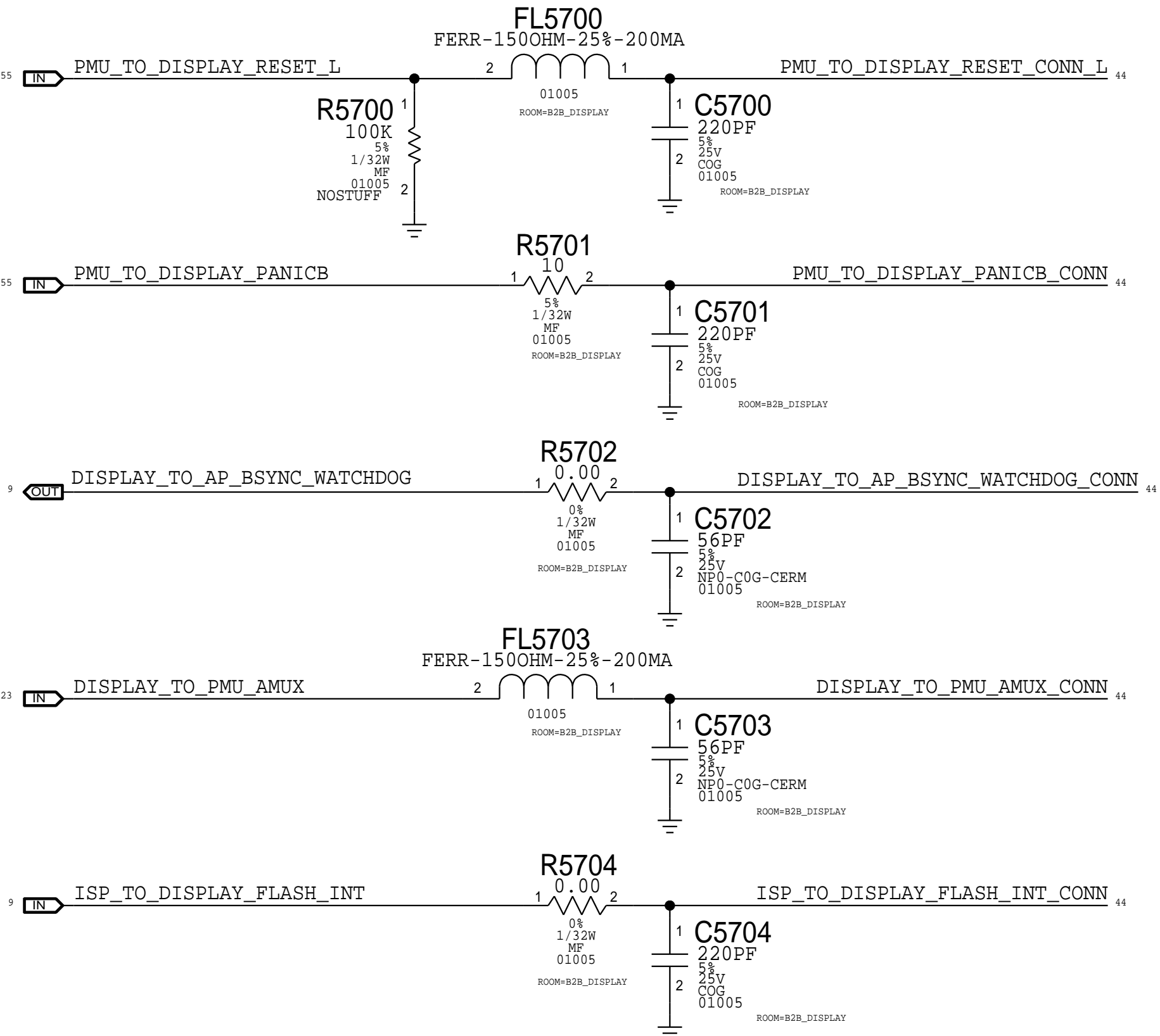
Display 1V0 LDO for D33 second display vendor

rdar: #29872369

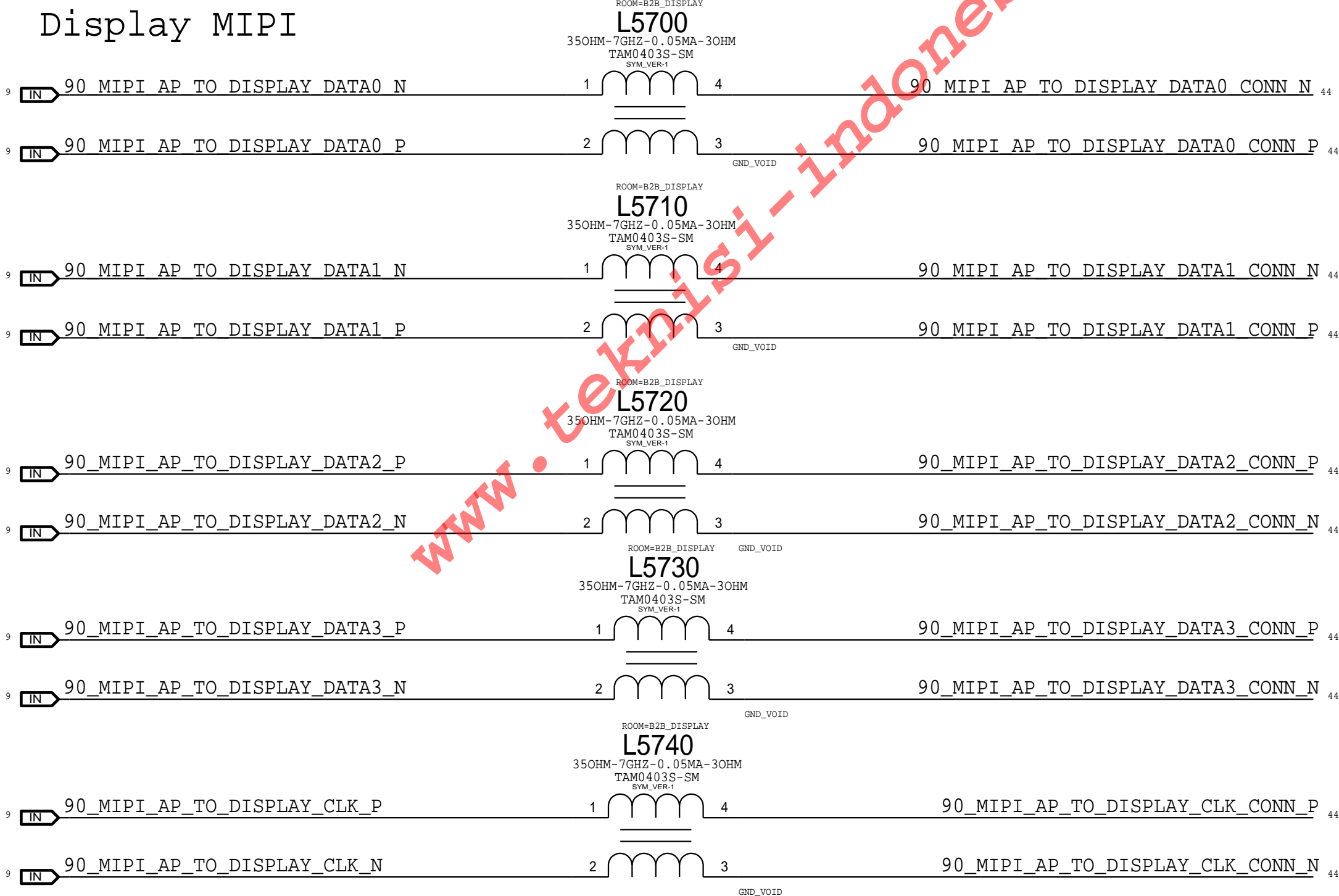
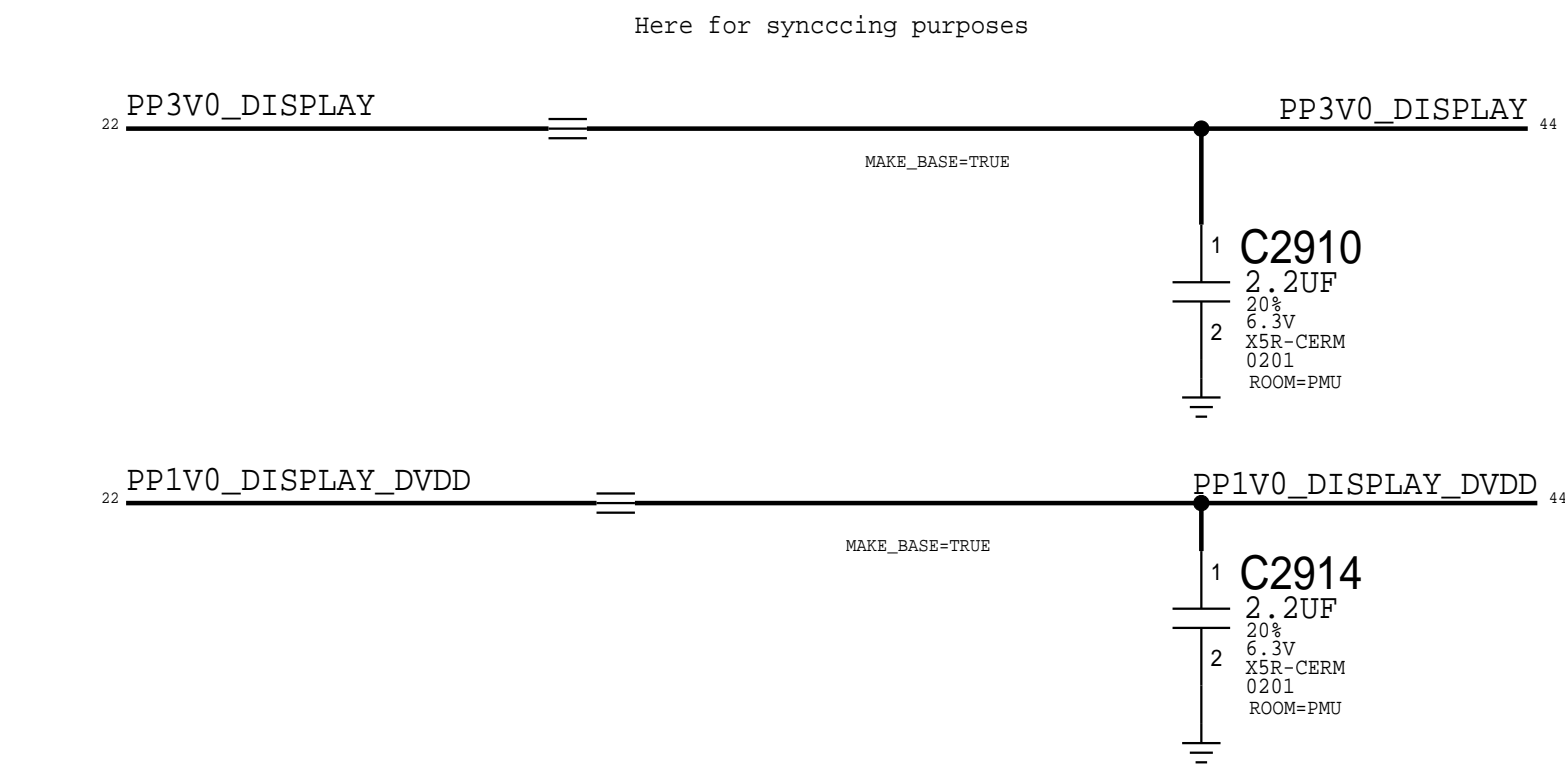
Display Flex Connector

Rpt: 516S00210
Plug: 516S00211

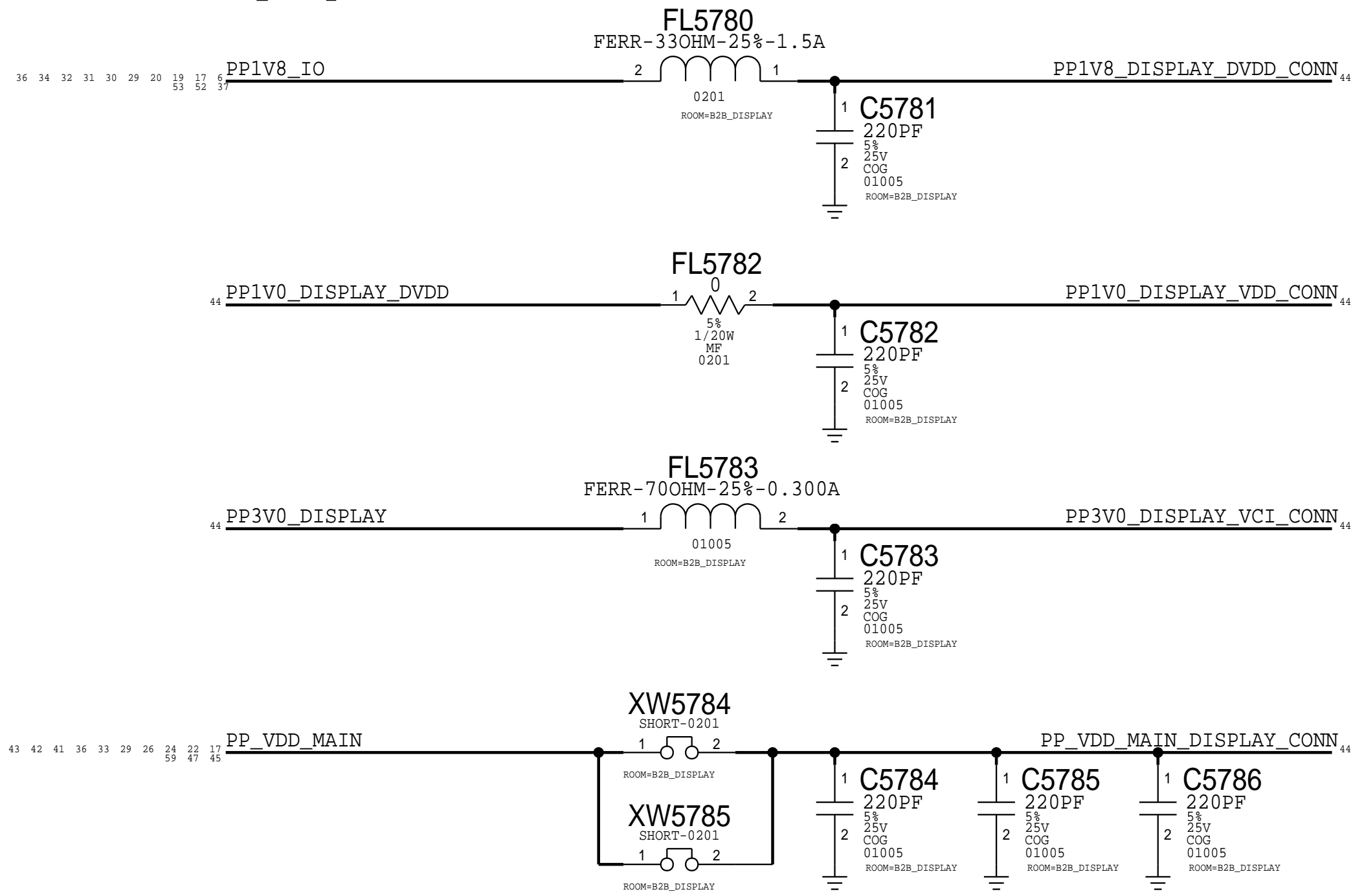
<-- This one on MLB



Display MIPI

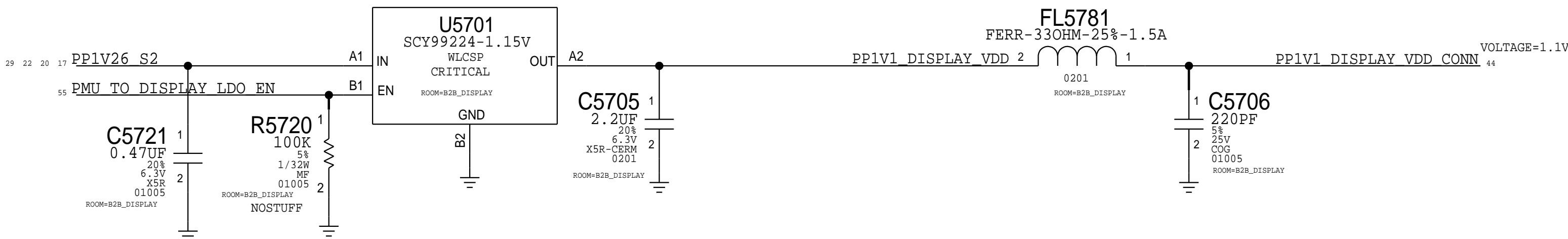


Display Power



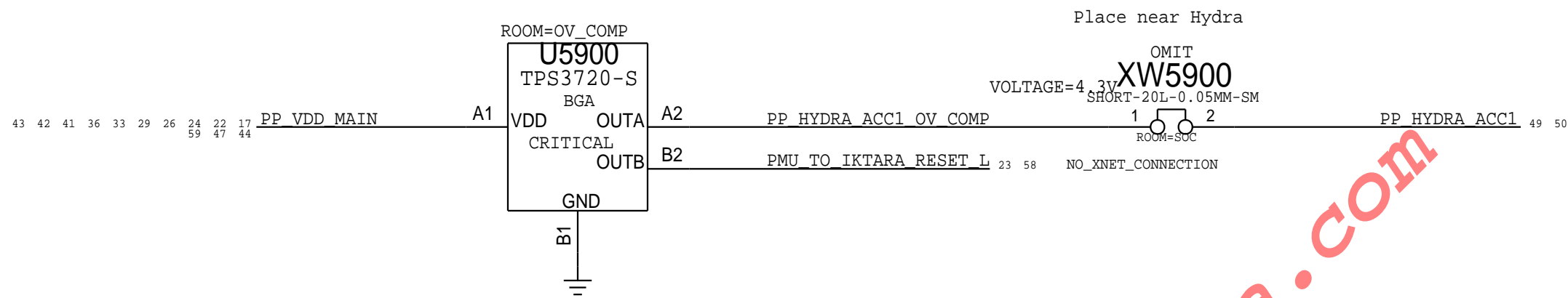
1.2V LDO is for LGC test chip

Once normal panel is available switch to 1.1V




PAGE TITLE			
CG: B2B Display			
	DRAWING NUMBER	051-02545	SIZE
	REVISION	7.0.0	D
	BRANCH		
NOTICE OF PROPRIETARY PROPERTY:		PAGE	57 OF 85
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING:		SHEET	44 OF 60
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			

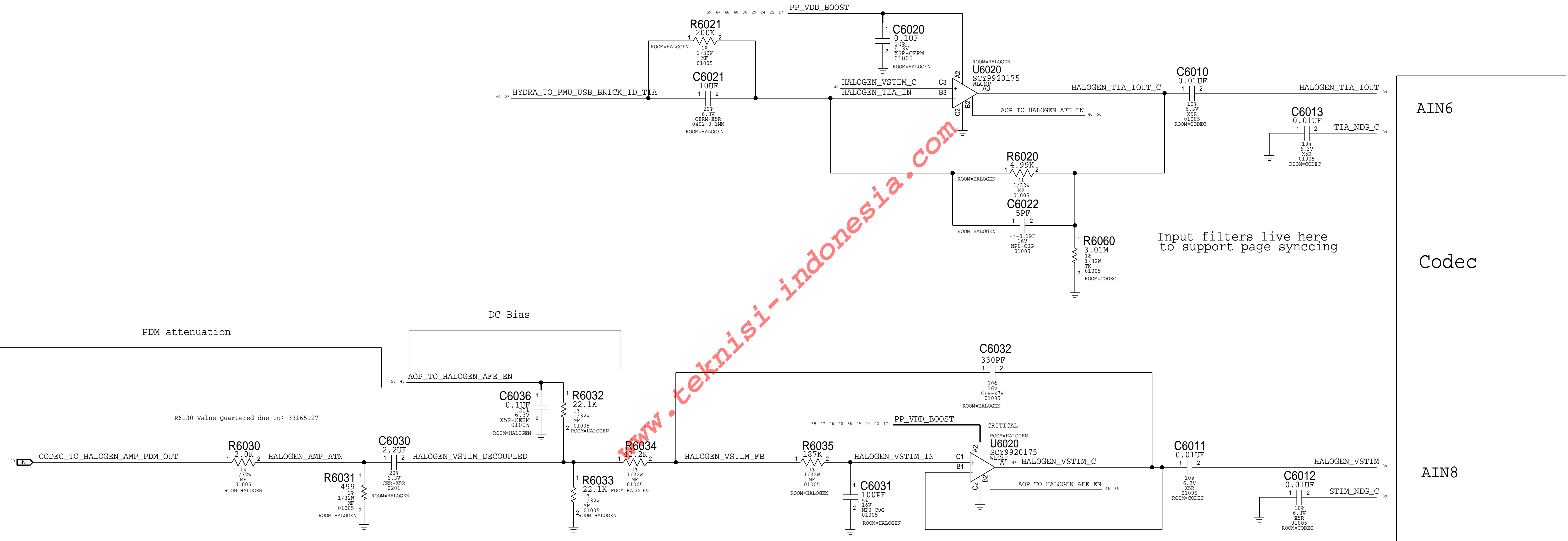
VDD_MAIN OV CUT-OFF CIRCUIT




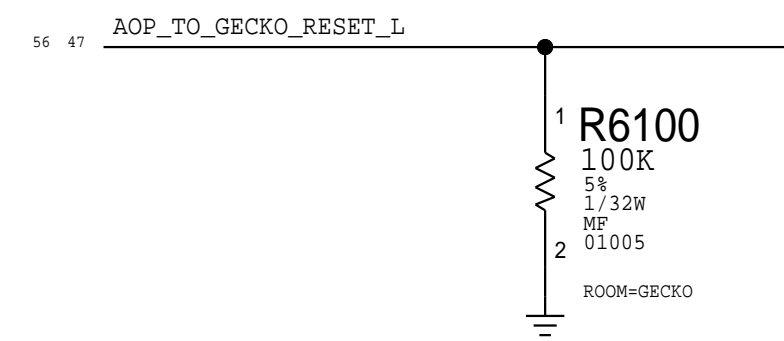
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S01375	353S01398	ALT_PARTS	U5900	ON SEMI

PAGE TITLE I/O: Overvoltage Cut-Off Circuit		
 Apple Inc.	DRAWING NUMBER 051-02545	SIZE D
	REVISION 7.0.0	BRANCH
	PAGE 59 OF 85	SHEET 45 OF 60
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		

LDCM

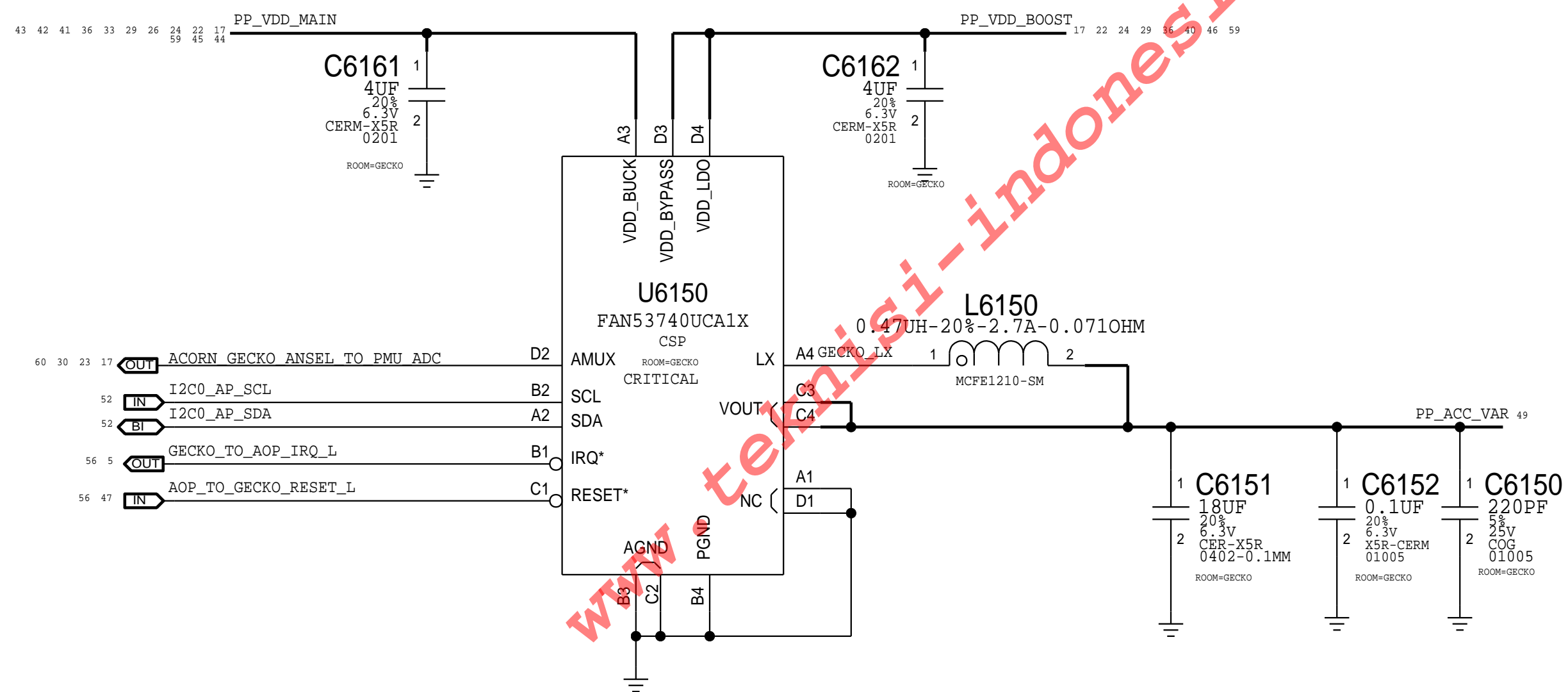


PAGE TITLE		
I/O: LDCM		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	60 OF 85
	SHEET	46 OF 60



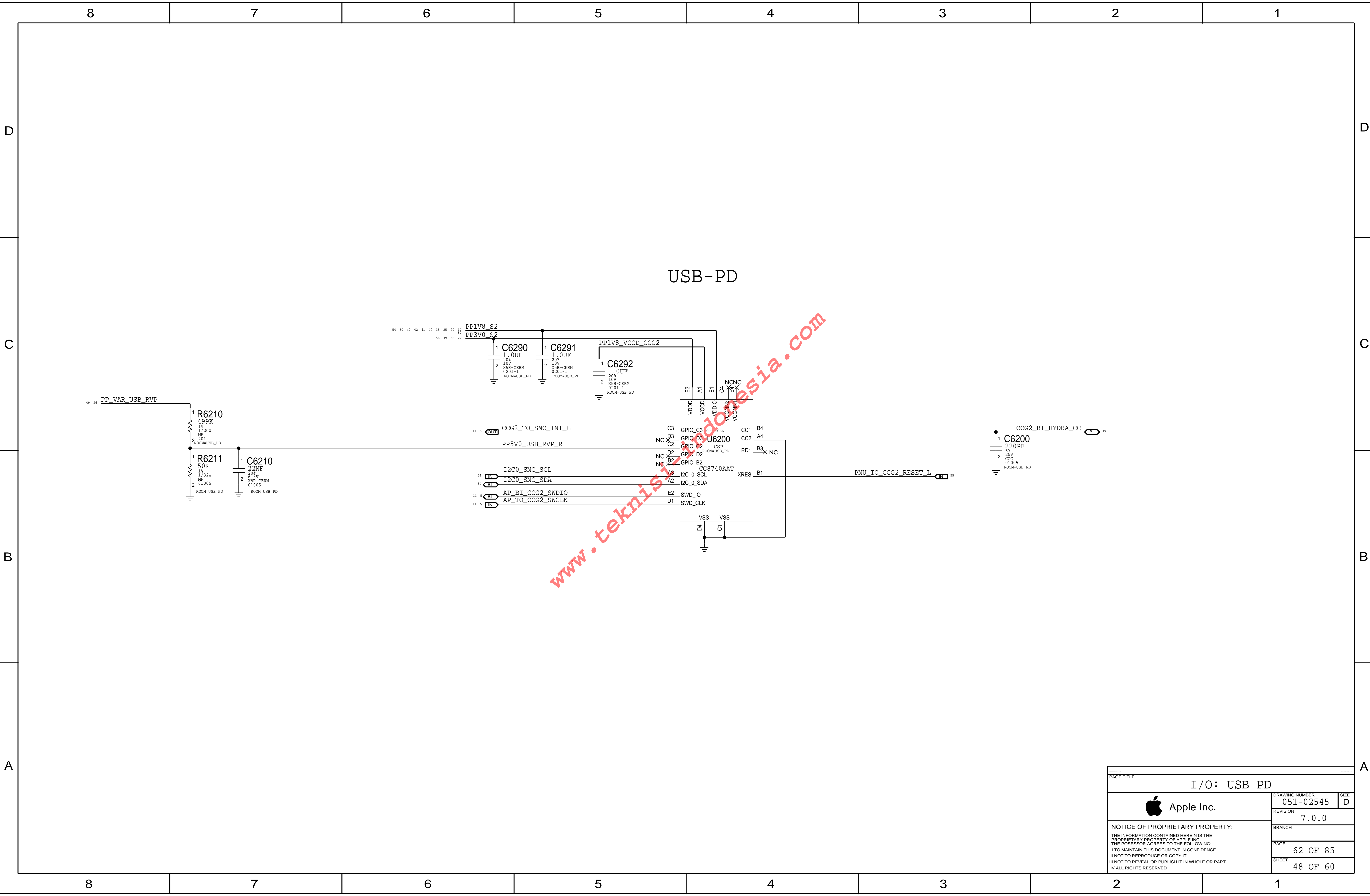
Gecko

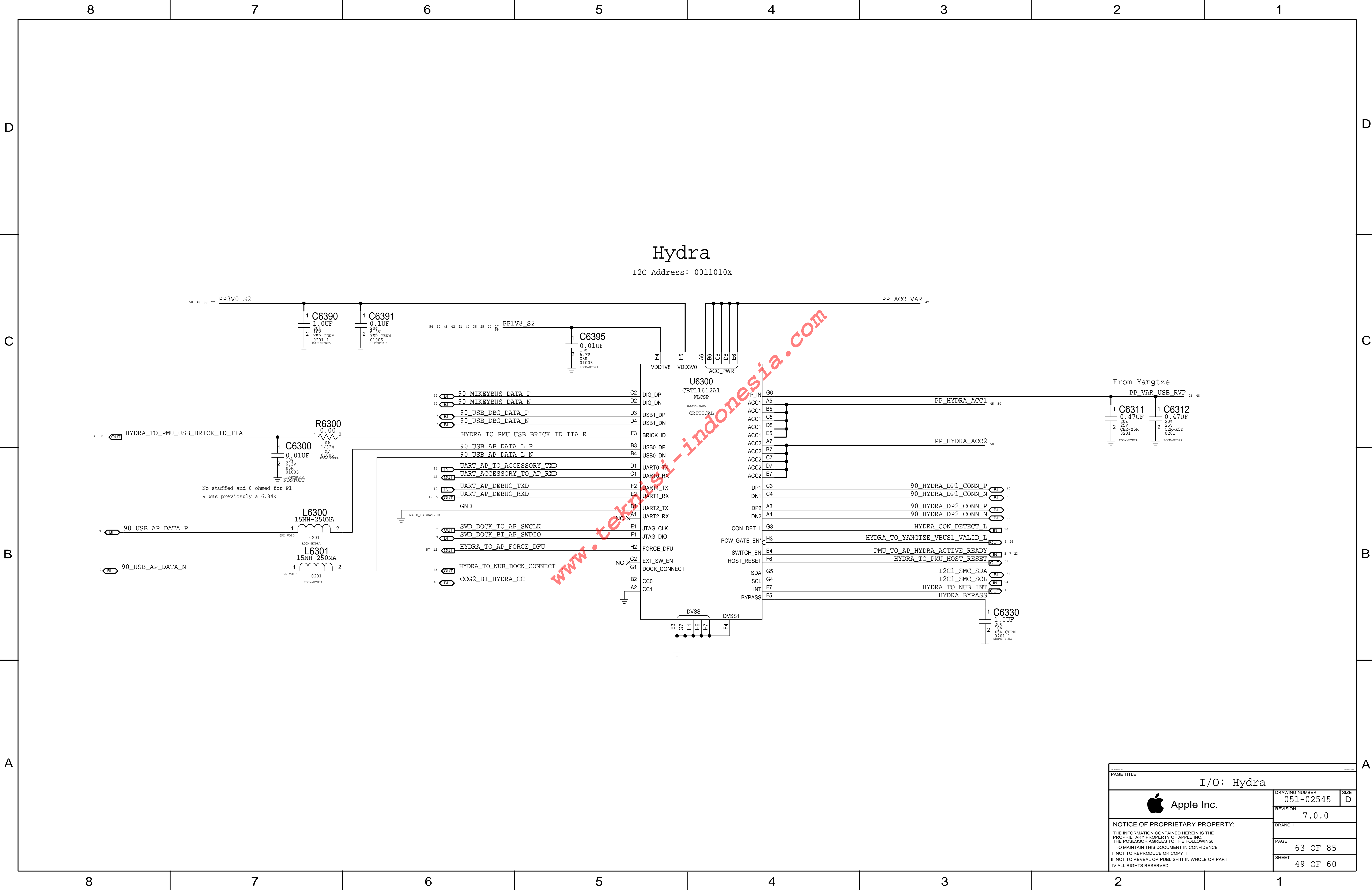
```
I2C ADDRESS: 0X52
```

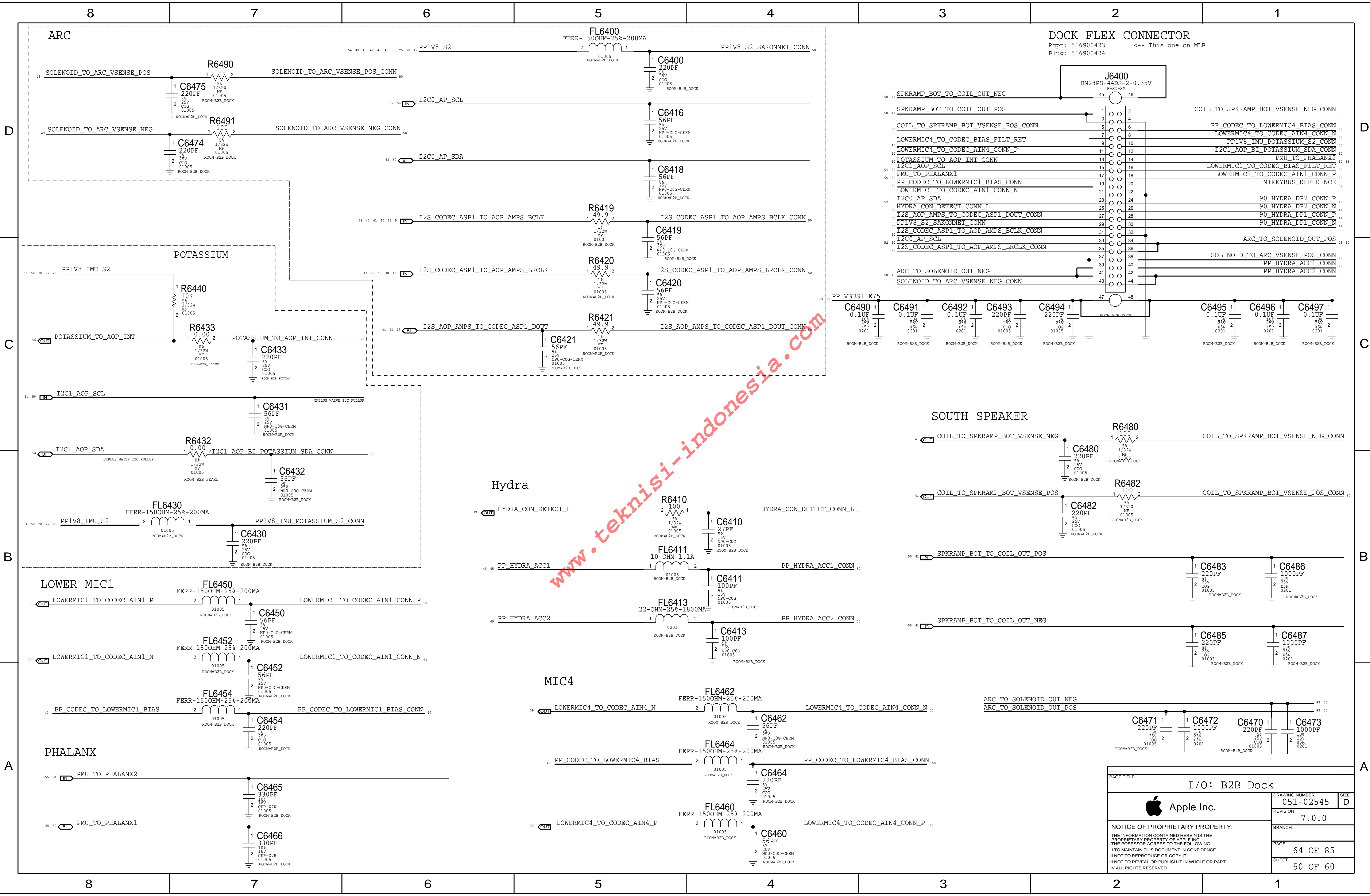


IND Alternate

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00854	152S00853	ALT_PARTS	L6150	152D_PWR_0.470U,204,2,6A,CY
152S00855	152S00853	ALT_PARTS	L6150	152D_PWR_0.470U,204,2,7A,Norata







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

		J_INT_BOT	Bot Board	
		SMT-PAD		
		SYM 1 OF 2		
57	GND	1	I01	95
57	GND	2	I02	96
57	GND	3	I03	97
57	GND	4	I04	98
57	GND	5	I05	99
57	GND	6	I06	100
57	PMU TO SYSTEM_COLD_RESET_L	7	I07	101
57	GND	8	I08	102
57	AP TO CAMPMU_RESET_L	9	I09	103
57	GND	10	I10	104
57	BB TO MANY_GSM_BURST_IND	11	I11	105
57	GND	12	I12	106
57	HALL_CASE_TO_AOP_NORTH_L	13	I13	107
57	GND	14	I14	108
57	AP TO TOUCH_SCAN_CLK	15	I15	109
57	GND	16	I16	110
57	I2S_BB_TO_AP_BCLK	17	I17	111
57	GND	18	I18	112
57	I2S_BB_TO_AP_DIN	19	I19	113
57	GND	20	I20	114
57	I2S_AP_TO_BB_DOUT	21	I21	115
57	GND	22	I22	116
57	I2S_BB_TO_AP_IRCLK	23	I23	117
57	GND	24	I24	118
57	FPV18_ALWAYS	25	I25	119
57	GND	26	I26	120
57	GND	27	I27	121
57	GND	28	I28	122
57	GND	29	I29	123
57	GND	30	I30	124
57	GND	31	I31	125
57	GND	32	I32	126
57	GND	33	I33	127
57	GND	34	I34	128
57	GND	35	I35	129
57	GND	36	I36	130
57	GND	37	I37	131
57	GND	38	I38	132
57	GND	39	I39	133
57	GND	40	I40	134
57	GND	41	I41	135
57	GND	42	I42	136
57	GND	43	I43	137
57	GND	44	I44	138
57	GND	45	I45	139
57	GND	46	I46	140
57	GND	47	I47	141
57	GND	48	I48	142
57	GND	49	I49	143
57	NFC_TO_ARC_RESET_L	50	I50	144
57	GND	51	I51	145
57	NFC_TO_ARC_TRIG	52	I52	146
57	GND	53	I53	147
57	GND	54	I54	148
57	GND	55	I55	149
57	GND	56	I56	150
57	GND	57	I57	151
57	GND	58	I58	152
57	GND	59	I59	153
57	GND	60	I60	154
57	GND	61	I61	155
57	GND	62	I62	156
57	GND	63	I63	157
57	GND	64	I64	158
57	AP TO BB_RESET_L	65	I65	159
57	GND	66	I66	160
57	SHD_AOP_BI_BB_SHDIO	67	I67	161
57	GND	68	I68	162
57	UART_GNSS_TO_AP_CTS_L	69	I69	163
57	GND	70	I70	164
57	UART_AP_TO_GNSS_RTS_L	71	I71	165
57	GND	72	I72	166
57	PCIE_AP_TO_WLAN_PERST_L	73	I73	167
57	GND	74	I74	168
57	AP TO RACER_RESET_L	75	I75	169
57	GND	76	I76	170
57	AP TO WLAN_TIME_SYNC	77	I77	171
57	GND	78	I78	172
57	GNSS_TO_AP_LOW_PWR_IND	79	I79	173
57	GND	80	I80	174
57	HYDRA_TO_AP_FORCE_DFU	81	I81	175
57	GND	82	I82	176
57	FPV18_S2	83	I83	177
57	FPV18_S2	84	I84	178
57	GND	85	I85	179
57	GND	86	I86	180
57	GND	87	I87	181
57	GND	88	I88	182
57	GND	89	I89	183
57	INTERPOSER_PIN_90	90	I90	184
57	GND	91	I91	185
57	AP TO BB_COEX	92	I92	186
57	BB TO AP_COEX	93	I93	187
57	GND	94	I94	188

		J_INT_BOT			
		SMT - PAD			
		SYM 2 OF 2			
			INTERPOSER-MLB-BOT-V3--D32		
54	GND	189	IO189	0282	GND
54	GND	190	IO190	0283	GND
54	GND	191	IO191	0284	GND
54	GND	192	IO192	0285	GND
54	GND	193	IO193	0286	GND
54	AP CANARY2	194	IO194	0287	CORN GECKO ANSEL TO PMU ADC
54	GND	195	IO195	0288	GND
54	PP1V8 NFC S2	196	IO196	0289	RACER TO AOP INT L
54	PMU TO GNSS EN	197	IO197	0290	GND
54	PMU TO BT REG ON	198	IO198	0291	HALL CASE TO AOP SOUTH L
54	GND	199	IO199	0292	GND
54	IO PCIE AP TO WLAN REFCLK	200	IO200	0293	PMU TO IKTARA EN EXT LV8
54	IO PCIE AP TO WLAN REFCLK	201	IO201	0294	GND
54	GND	202	IO202	0295	IKTARA TO SMC INT
54	IO PCIE AP TO WLAN TXD P	203	IO203	0296	GND
54	IO PCIE AP TO WLAN TXD N	204	IO204	0297	I2C0 SMC SCL
54	GND	205	IO205	0298	I2C0 SMC SDA
54	IO PCIE WLAN TO AP RXD N	206	IO206	0299	GND
54	IO PCIE WLAN TO AP RXD P	207	IO207	0300	IKTARA COIL2
54	GND	208	IO208	0301	IKTARA COIL2
54	PP3V0 S2	209	IO209	0302	IKTARA COIL2
54	PP1V8 TOUCH RACER S2	210	IO210	0303	IKTARA COIL2
54	PP1V8 TOUCH RACER S2	211	IO211	0304	IKTARA COIL1
54	PMU TO WLAN REG ON	212	IO212	0305	IKTARA COIL1
54	RADIO PA NTC	213	IO213	0306	IKTARA COIL1
54	BT TO AP TIME SYNC	214	IO214	0307	IKTARA COIL1
54	UART BT TO AP RXD	215	IO215	0308	GND
54	GND	216	IO216	0309	NC INTERPOSER 309
54	GND	217	IO217	0310	GND
54	UART BT TO AP CTS L	218	IO218	0311	NC INTERPOSER 311
54	GND	219	IO219	0312	GND
54	GND	220	IO220	0313	AP CANARY1
54	GND	221	IO221	0314	GND
54	GND	222	IO222	0315	GND
54	GND	223	IO223	0316	GND
54	GND	224	IO224	0317	GND
54	GND	225	IO225	0318	GND
54	GND	226	IO226	0319	GND
54	GND	227	IO227	0320	GND
54	GND	228	IO228	0321	GND
54	PP VBUS1 E75	229	IO229	0322	GND
54	GND	230	IO230	0323	GND
54	PP GPU LVCC	231	IO231	0324	GND
54	GND	232	IO232	0325	GND
54	PP CPU PCORE LVCC	233	IO233	0326	GND
54	GND	234	IO234	0327	GND
54	PP BATT VCC	235	IO235	0328	GND
54	PP BATT VCC	236	IO236	0329	GND
54	GND	237	IO237	0330	GND
54	AP TO BT DEVICE WAKE	238	IO238	0331	GND
54	AOP TO WLAN CONTEXT A	239	IO239	0332	GND
54	UART AOP TO RACER TXD	240	IO240	0333	GND
54	SMD AOP TO MANY SWCLK	241	IO241	0334	GND
54	SPI AP TO RACER MOSI	242	IO242	0335	GND
54	SPI AP TO RACER SCLK	243	IO243	0336	GND
54	PP1V1 RACER S2	244	IO244	0337	GND
54	PP1V1 RACER S2	245	IO245	0338	GND
54	PP1V1 RACER S2	246	IO246	0339	GND
54	AP TO RACER REF CLK	247	IO247	0340	GND
54	GND	248	IO248	0341	GND
54	AOP TO BBEMU COEX	249	IO249	0342	GND
54	PP VBUS2 IKTARA	250	IO250	0343	GND
54	PP VBUS2 IKTARA	251	IO251	0344	GND
54	PP VBUS2 IKTARA	252	IO252	0345	GND
54	PP VBUS2 IKTARA	253	IO253	0346	GND
54	GND	254	IO254	0347	GND
54	AOP TO WLAN CONTEXT B	255	IO255	0348	GND
54	GND	256	IO256	0349	GND
54	UART RACER TO AOP RXD	257	IO257	0350	GND
54	GND	258	IO258	0351	GND
54	SPI RACER TO AP MISO	259	IO259	0352	GND
54	GND	260	IO260	0353	GND
54	SPI AP TO RACER CS L	261	IO261	0354	GND
54	GND	262	IO262	0355	GND
54	PMU TO IKTARA RESET L	263	IO263	0356	GND
54	GND	264	IO264	0357	GND
54	SMD AOP BI RACER SWDIO	265	IO265	0358	GND
54	GND	266	IO266		
54	I2C3 AP SDA	267	IO267		
54	GND	268	IO268		
54	I2C3 AP SCL	269	IO269		
54	GND	270	IO270		
54	GND	271	IO271		
54	GND	272	IO272		
54	GND	273	IO273		
54	GND	274	IO274		
54	GND	275	IO275		
54	GND	276	IO276		
54	GND	277	IO277		
54	GND	278	IO278		
54	GND	279	IO279		
54	GND	280	IO280		
54	GND	281	IO281		

AP I2C


Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C0	PP1V8_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

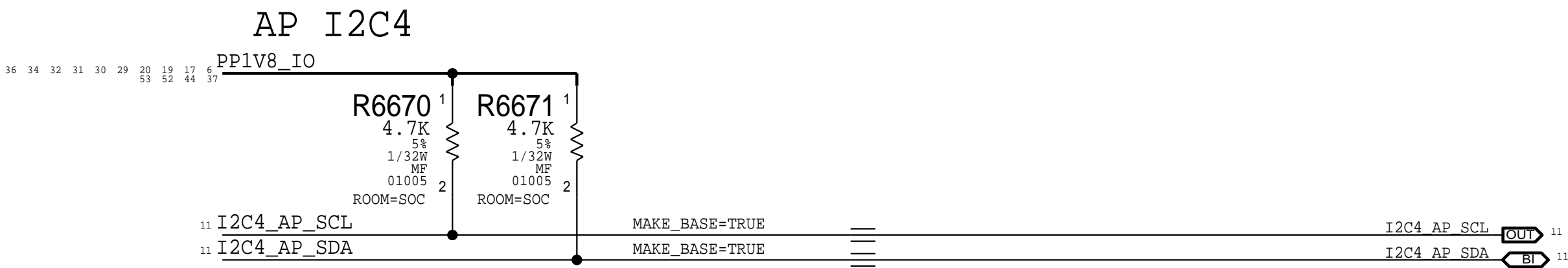
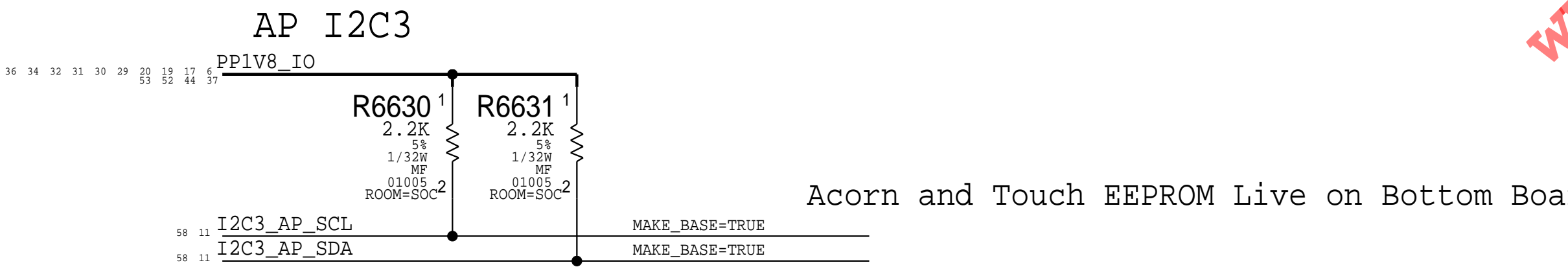
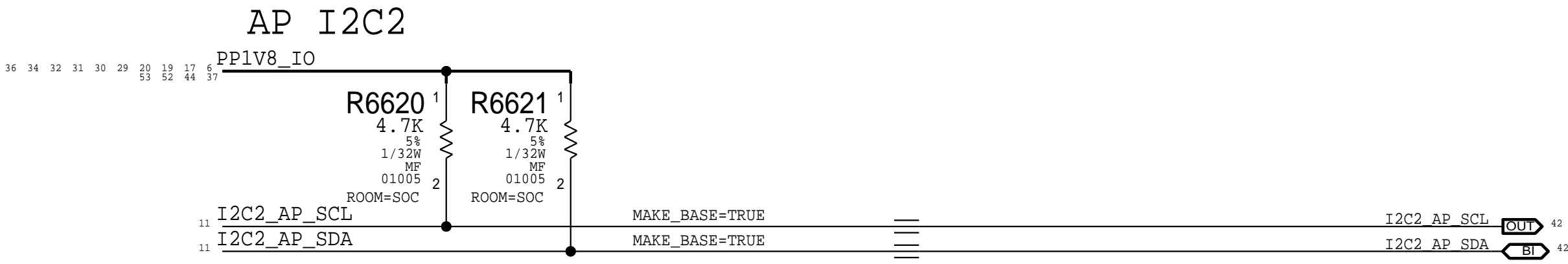
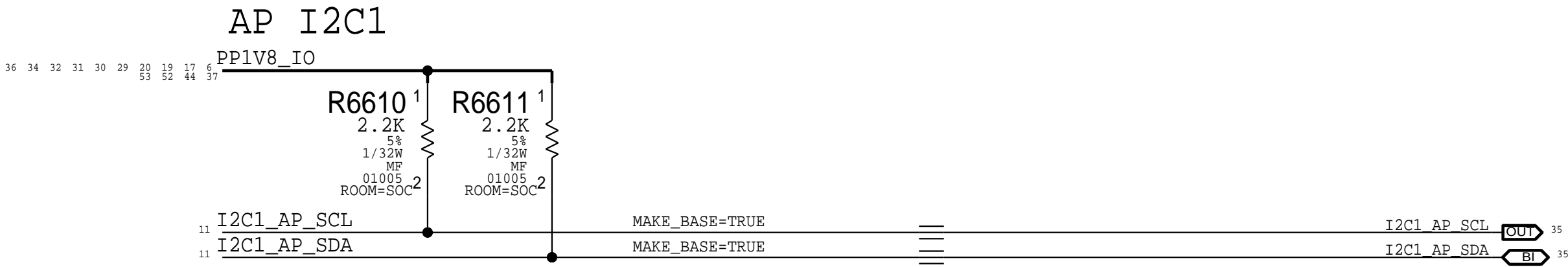
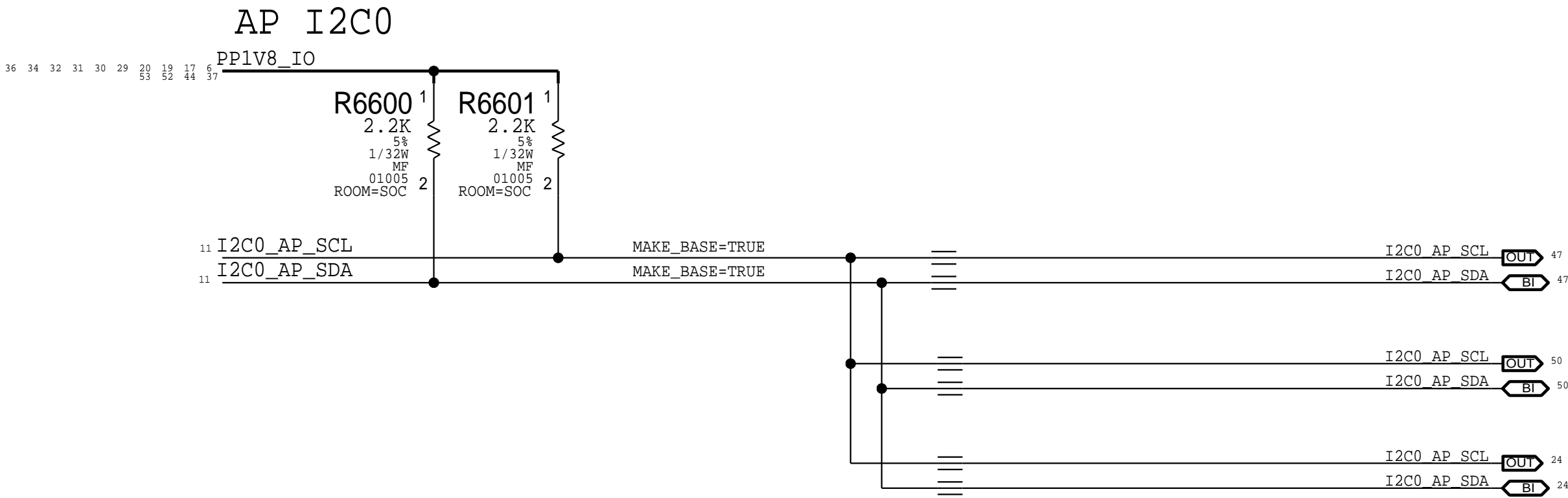
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C1	PP1V8_IO	100 kHz	MIC2	0x56	1010 100X	0xA8, 0xA9	-	1 MHz	Strobe Flex

Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C2	PP1V8_IO	1 MHz	Top Speaker Amp	0x40	1000 000X	0x80, 0x81	-	1 MHz	Top MLB

Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AP I2C3	PP1V8_IO	400 kHz	ACORN	0X2A	0101 010X	0x54, 0x55	-	1 MHz	Bot MLB
			TOUCH EEPROM	0x51	1010 001X	0xA2, 0xA3	-	1 MHz	Touch Flex

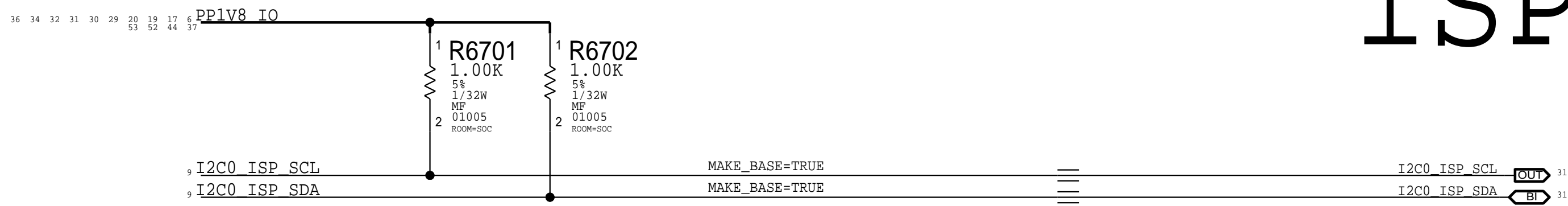
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Location
AP I2C4	PP1V8_IO	400 kHz	LYNX	0X71	Top MLB

PAGE TITLE			SYSTEM: AP I2C		
 Apple Inc.		DRAWING NUMBER	051-02545	SIZE	D
		REVISION	7.0.0		
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED			BRANCH		
			PAGE	66	OF 85
			SHEET	52	OF 60



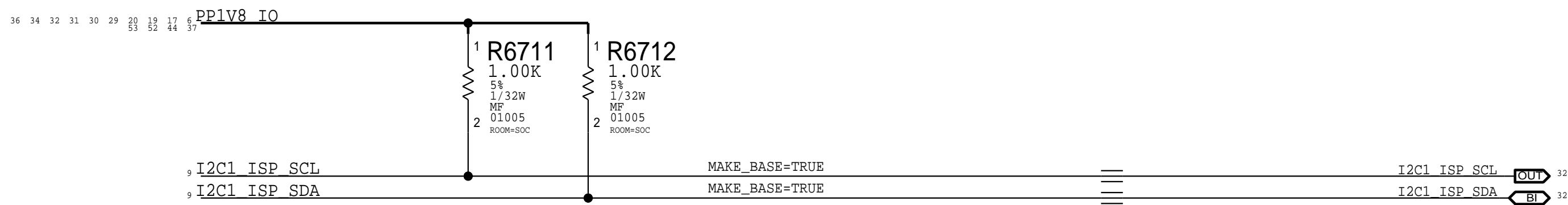
ISP I2C

ISP I2C0



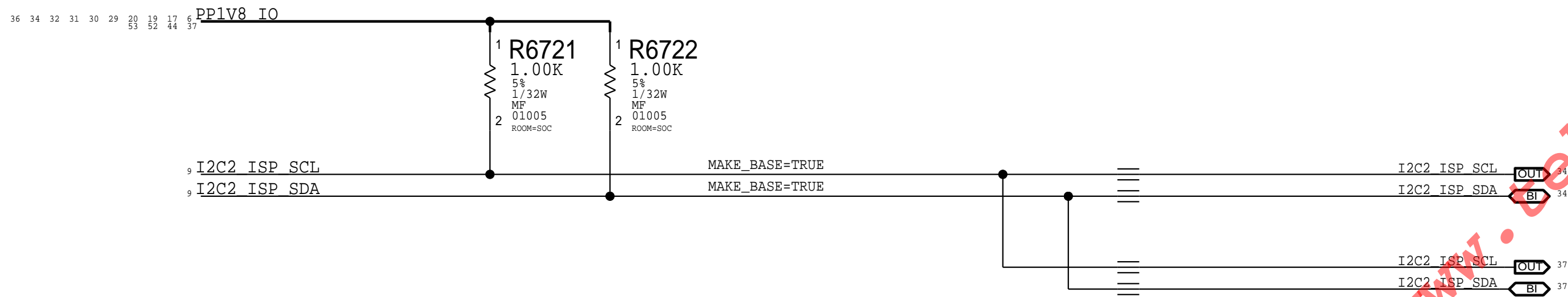
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C0	PPIV8_IO	1 MHz	Austin	0X10	0010 000X	0x20, 0x21	-	1 MHz	Wide Cam
			Raman	0X3C	0111 100X	0x78, 0x79	-	1 MHz	Wide Cam

ISP I2C1



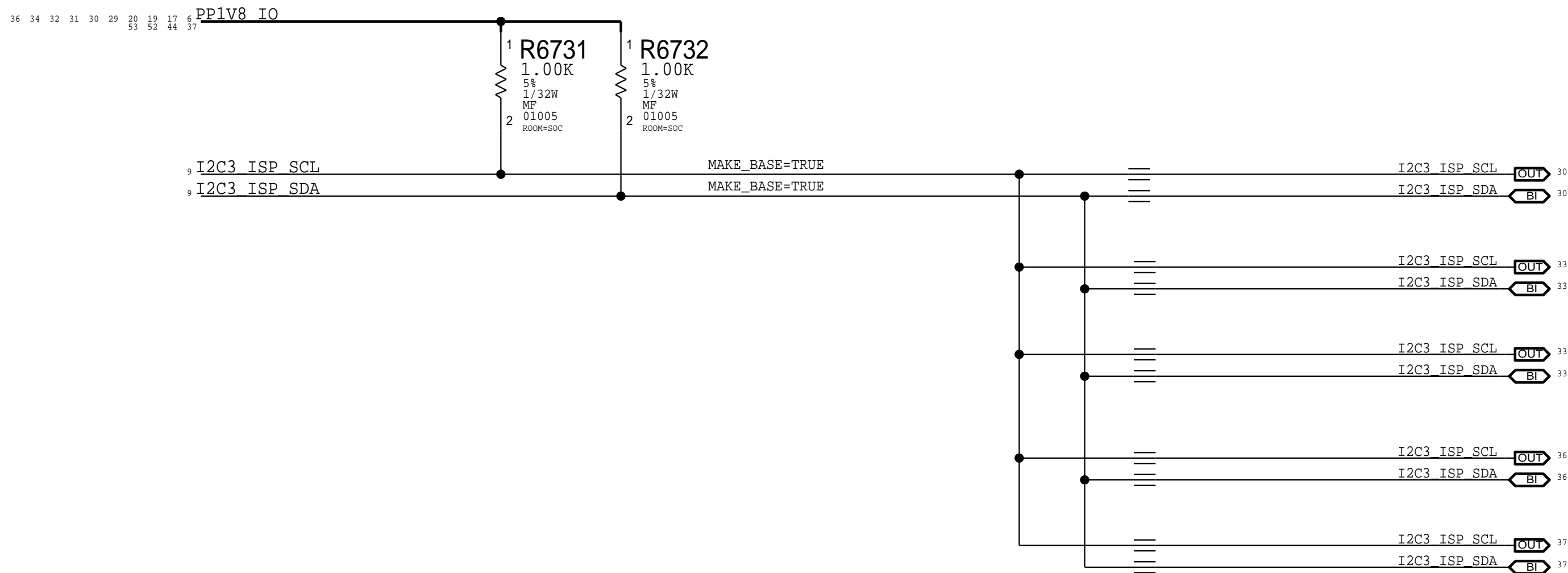
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C1	PPIV8_IO	1 MHz	Billings	0x20	0100 000X	0x40, 0x41	-	1 MHz	Tele Cam
			Grunberg+	0x1C	0011 100X	0x38, 0x39	-	1 MHz	Tele Cam

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

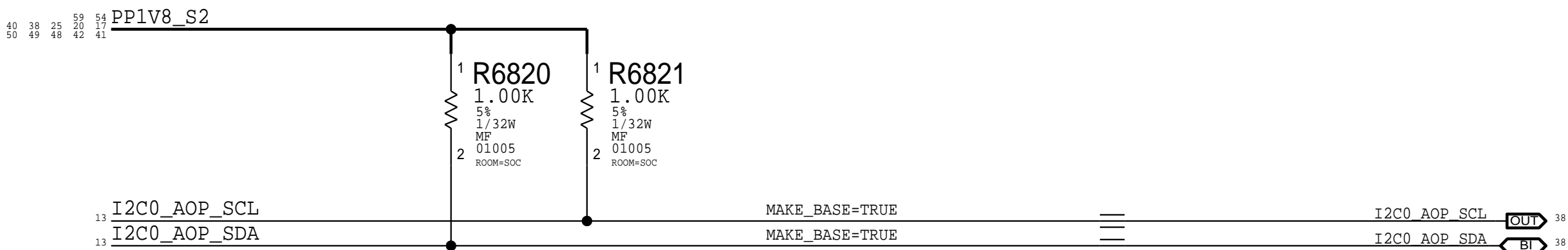


Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
ISP I2C3	PPIV8_IO	1 MHz	Ansel	0x40	1000 000X	0x80, 0x81	-	1 MHz	Top Board
			Neon	0x63	1100 011X	0xC6, 0xC7	-	1 MHz	Top Board
			Neon	0x67	1100 111X	0xCE, 0xCF	-	1 MHz	Top Board
			Rigel	0x55	1100 011X	0xAA,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

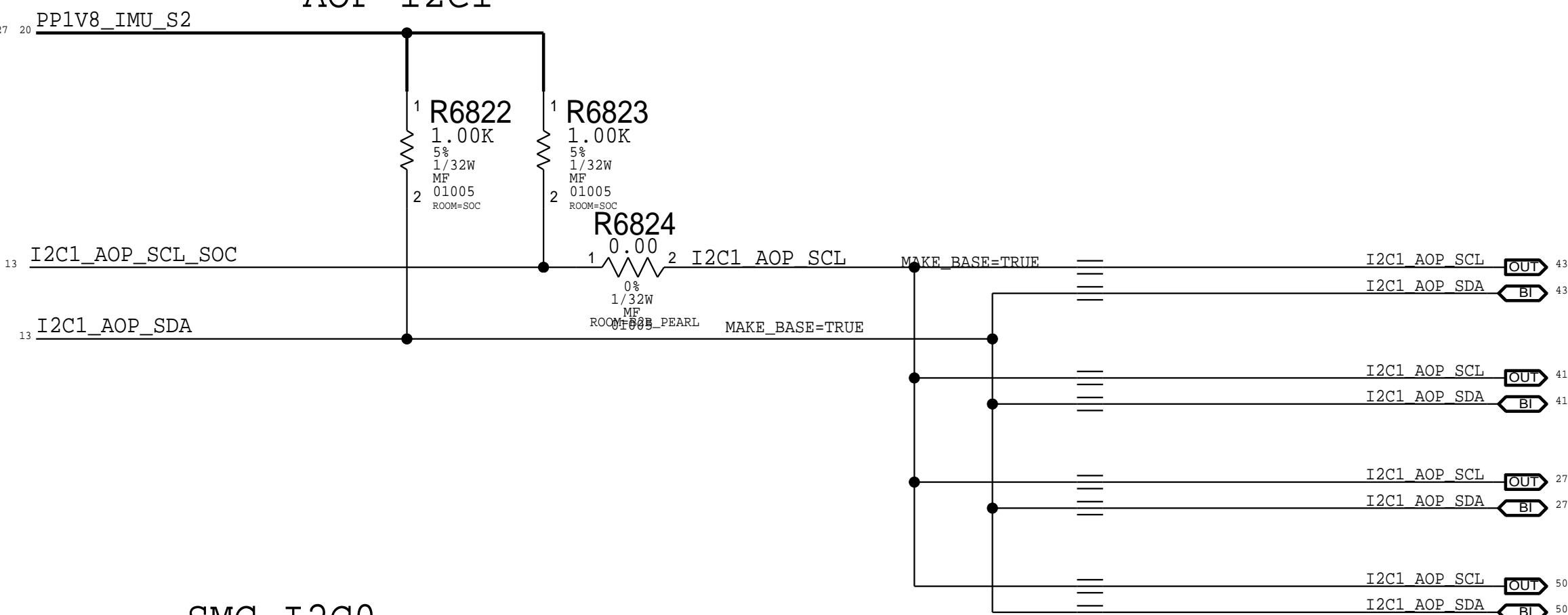
PAGE TITLE		
SYSTEM: ISP I2C		
 Apple Inc.	DRAWING NUMBER	051-02545
	REVISION	7.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	67 OF 85
	SHEET	53 OF 60

AOP / SMC I2C

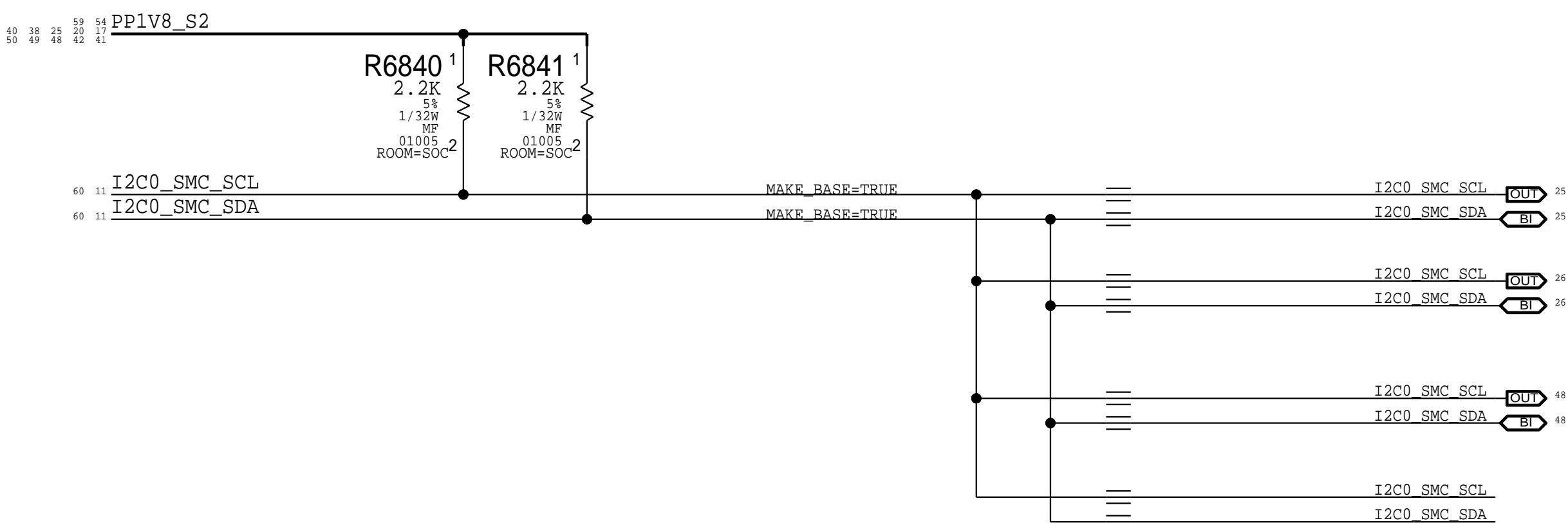
AOP I2C0



AOP I2C1

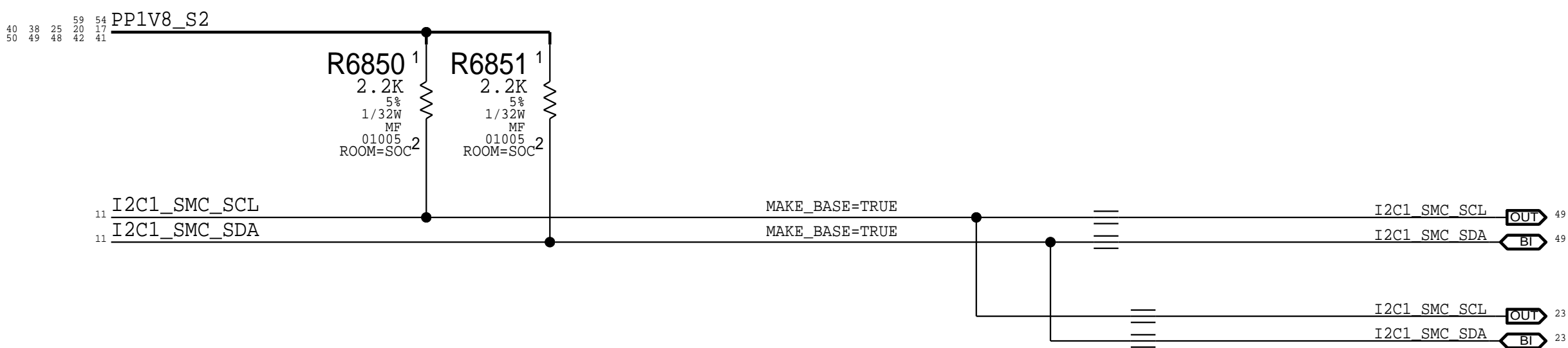


SMC I2C0



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
AOP I2C0	PP1V8_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

Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
AOP I2C1	PP1V8_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

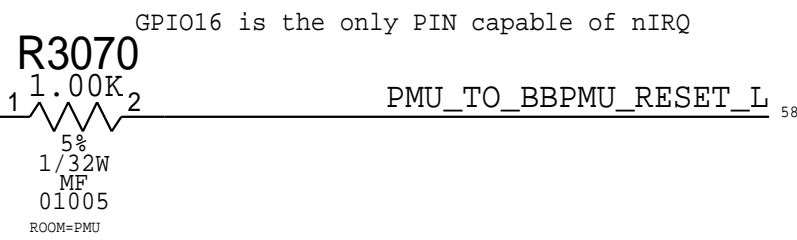
Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
SMC I2C0	PP1V8_S2	400 kHz	Yangtze	0x71	1110 001X	0xE2, 0xE3	-	400 KHz	Top Board
			Iktara	0x39	0111 001X	0x72, 0x73	-	400 KHz	Bot Board
			CCG2	0x12	0010 010X	0x24, 0x25	-	1 MHz	Top Board
			Gas Guage	0x55	0010 010X	0xAA, 0xAB	-	1 MHz	BMU Flex
			Roswell	0x10	0100 000X	0x20, 0x21	-	400 KHz	BMU Flex


Bus Name	Bus Voltage	Bus Speed	Device	7-Bit Addr.	Binary	8-Bit Addr.	Min Speed	Max Speed	Location
SMC I2C1	PP1V8_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

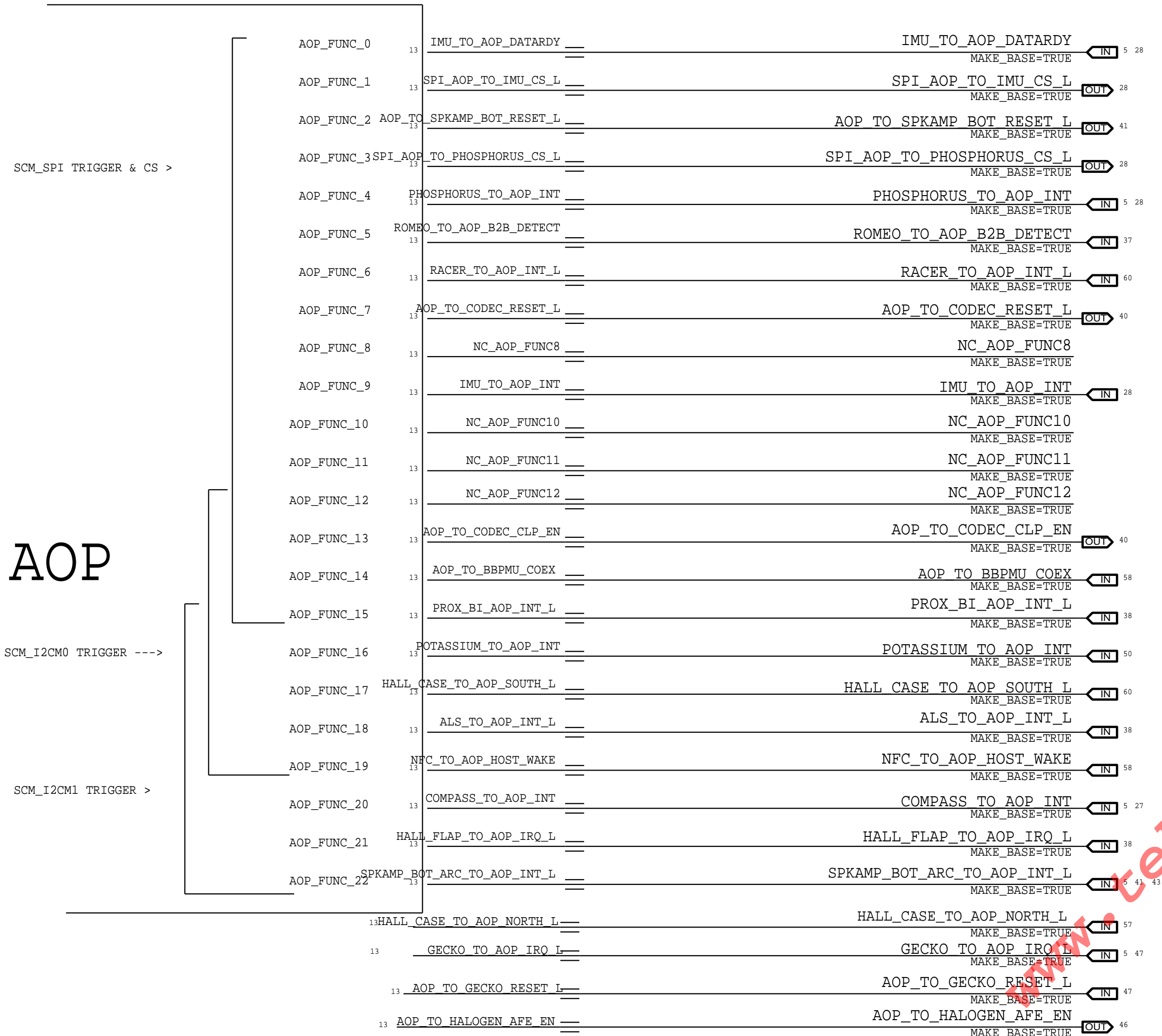
SOC


PMU



PAGE TITLE				SYNCH_DATE=05/09/2017	
SYSTEM: SOC/PMU GPIOs					
 Apple Inc.		DRAWING NUMBER		SIZE	
		051-02545		D	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		REVISION		7.0.0	
		BRANCH			
		PAGE		70 OF 85	
		SHEET		55 OF 60	

AOP GPIOs



PAGE TITLE				SYNC_DATE=05/09/2017	
SYSTEM: AOP GPIOs					
 Apple Inc.	DRAWING NUMBER			SIZE	
	051-02545			D	
	REVISION			7.0.0	
	BRANCH				
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED			PAGE		
			71 OF 85		
			SHEET		
			56 OF 60		

D

CDC

B

A

A8

7

6

5

4

3

2

1

D

C

B


A

D

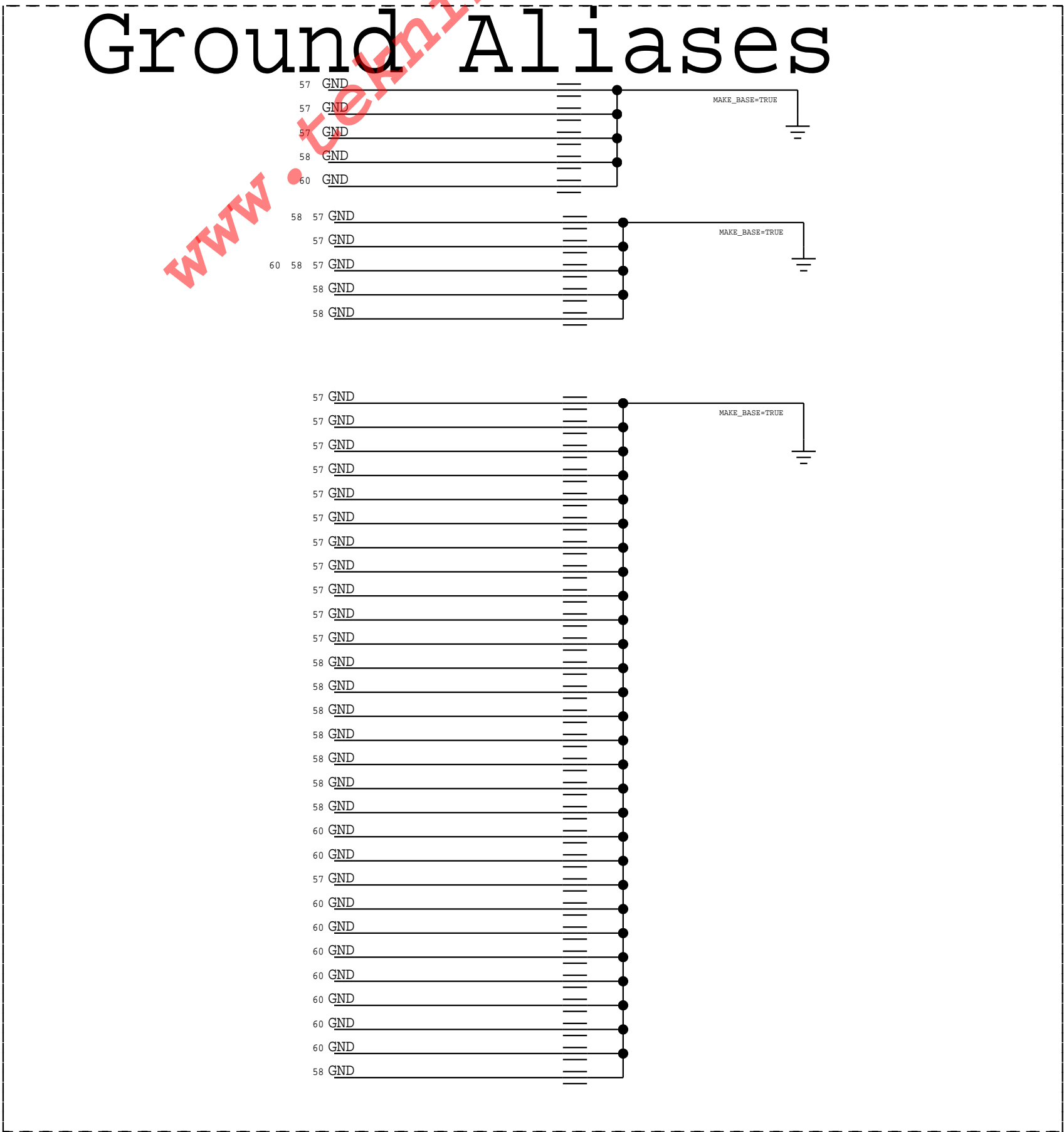
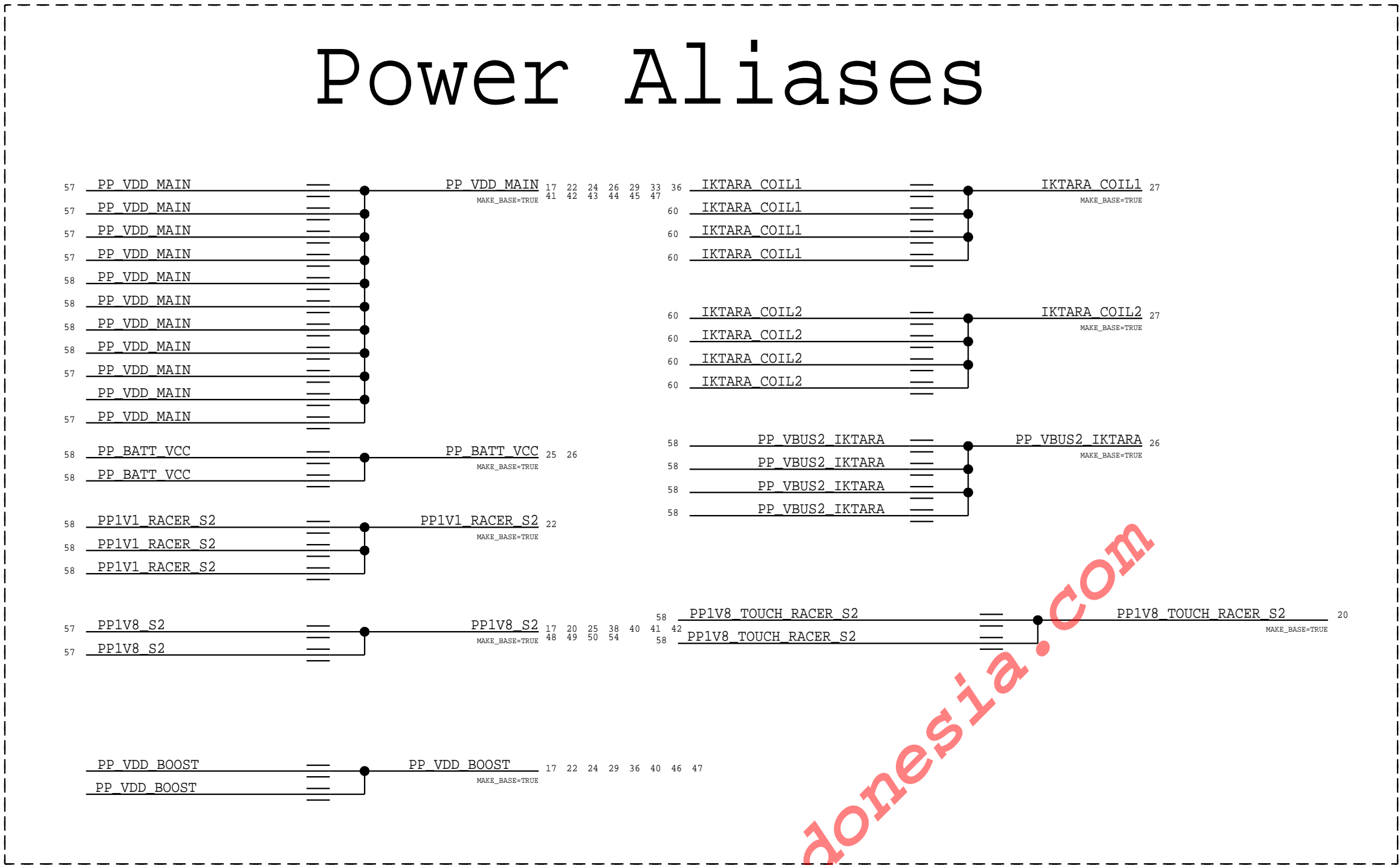
C

B

A

PAGE TITLE		SYMC_DATE#08/19/2017	
Interposer: Pins 145-285			
 Apple Inc.	DRAWING NUMBER 051-02545		SIZE D
	REVISION 7.0.0		
	BRANCH		
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED			
PAGE		82 OF 85	
SHEET		58 OF 60	

Interposer Top Level Aliases



PAGE TITLE			Interposer: Top Aliases	
	DRAWING NUMBER	051-02545	SIZE	D
	REVISION	7.0.0	BRANCH	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		PAGE	83 OF 85	
		SHEET	59 OF 60	

THIS SIDE HAS ATTRIBUTE
MAKE_BASE=TRUE

THIS SIDE HAS ATTRIBUTE
MAKE_BASE=TRUE

[illegible]

51 _____ GND ——— WAVE_BASCTEST GND 57 58 59 60

51 _____ GND ——— WAVE_BASCTEST GND 57 58 59 60