

# Finn-1 SOVP Logic Schematics

**FN1KR-3**  
**VER 4.00**  
**Dec/21/2017**

BASE LOGIC:  
Finn-1 SVT VER3.11 Oct/27/2017

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5.CPU(3/16) : DDR CHANNEL-B  
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7.CPU(5/16) : LPC/SPI/SMBUS/C-LINK  
8.CPU(6/16) : LPSS/ISH  
9.CPU(7/16) : AUDIO/SDXC  
10.CPU(8/16) : PCIE/USB/SATA  
11.CPU(9/16) : CSI-2/EMMC  
12.CPU(10/16) : CLOCK SIGNALS  
13.CPU(11/16) : SYSTEM PM  
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16.CPU(14/16) : PCH POWER  
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73.DC/DC VCCCPUCORE (MP86902B)  
74.DC/DC VCCGFXCORE\_I (MP86902B)  
75.DC/DC VCCSA (MP86901A)  
76.BLANK  
77.DC/DC VCCCPUIO  
78.DC/DC VCC1R0\_SUS (NB693)  
79.LOAD SW VCCST & VCCSTG  
80.DC/DC VCC1R2A /0R6B/2R5A (NB687)  
81.BLANK  
82.BLANK  
83.DC/DC VCC1R8\_SUS (BU90104GWZ)  
84.DC/DC VCCPCHCORE  
85.BLANK  
86.BLANK  
87.LOAD SW PCH SUS  
88.LOAD SW LAN & LDO HDMI  
89.LOAD SW B  
90.LOAD SW WLAN  
91.PTH FOR SCREW HOLES

# EC HISTORY

FN1KR-3  
(BASE LOGIC: Finn-1 SVT VER3.11 Oct/27/2017)

VER.4.00 12/21/2017 APPLIED FN1\_SOVP\_EC001-006

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TABLE: Chip Capacitor Thermal Characteristics

		Code
-55 to 150degC	+/-30ppm/degC	NPO
-55 to 125degC	+/-30ppm/degC	C0G
-55 to 125degC	+/-15%	X7R
-55 to 105degC	+/-22%	X6S
-55 to 85degC	+/-15%	X5R

TABLE: Chip Capacitor Tolerance

Tolerance	Code
+/-0.25pF	C
+/-0.5pF	D
+/-5%	J
+/-10%	K
+/-20%	M
+80/-20%	Z

TABLE: Chip Part Dimension

Size [mm]	mm Size Code	Inch Size Code
0.40 x 0.20	0402	01005
0.60 x 0.30	0603	0201
1.00 x 0.50	1005	0402
1.60 x 0.80	1608	0603
2.00 x 1.25	2125	0805
2.00 x 1.60	2016	0806
2.50 x 2.00	2520	1008
3.20 x 1.60	3216	1206
3.20 x 2.50	3225	1210
4.50 x 1.60	4516	1806
4.50 x 2.50	4525	1810
4.50 x 3.20	4532	1812
5.00 x 2.50	5025	2010
6.40 x 3.20	6432	2512

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Project Name : Finn-1 SOVP	Title : EC HISTORY	
Size : C	Document Number :	Rev : 4.00
Date: Thursday, December 21, 2017	Sheet : 2	of 91

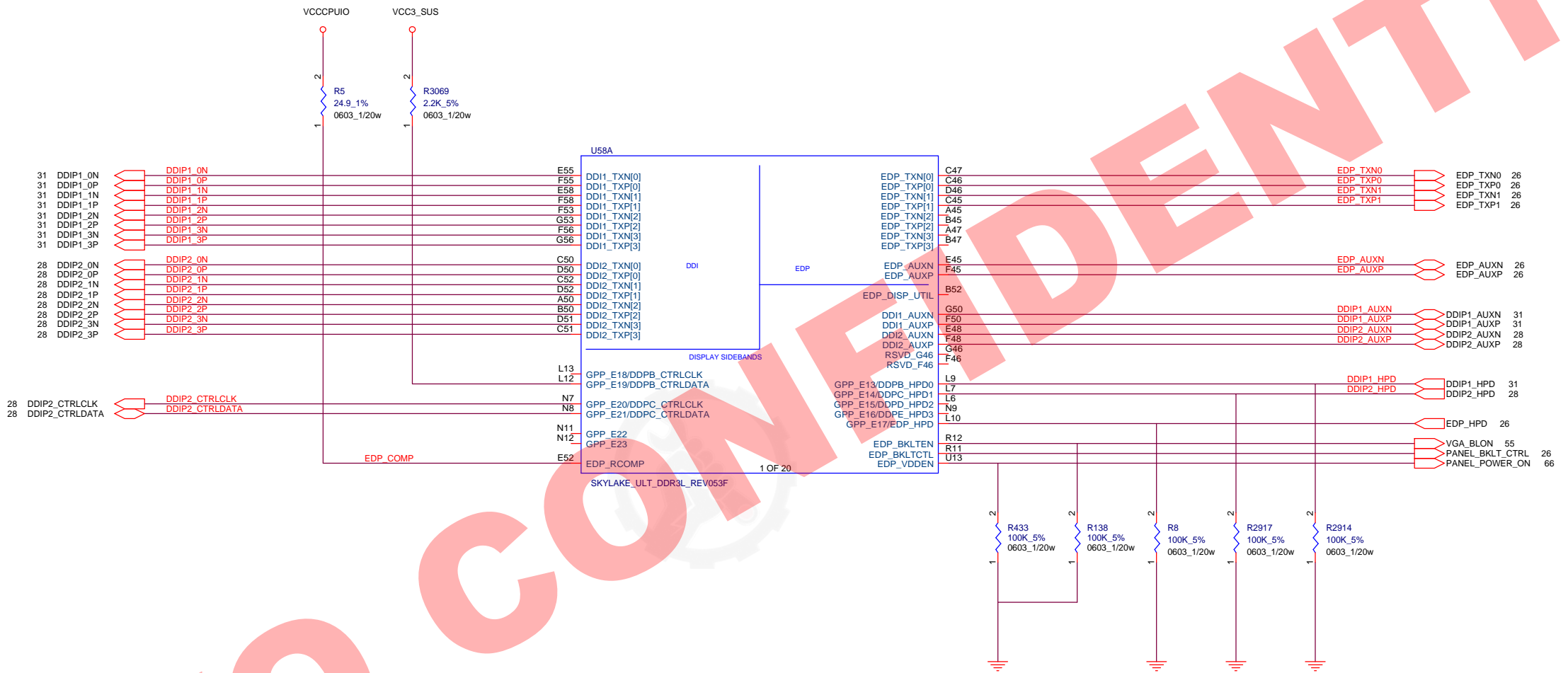
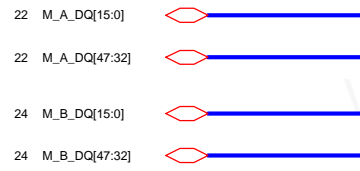


TABLE : Functional Strap

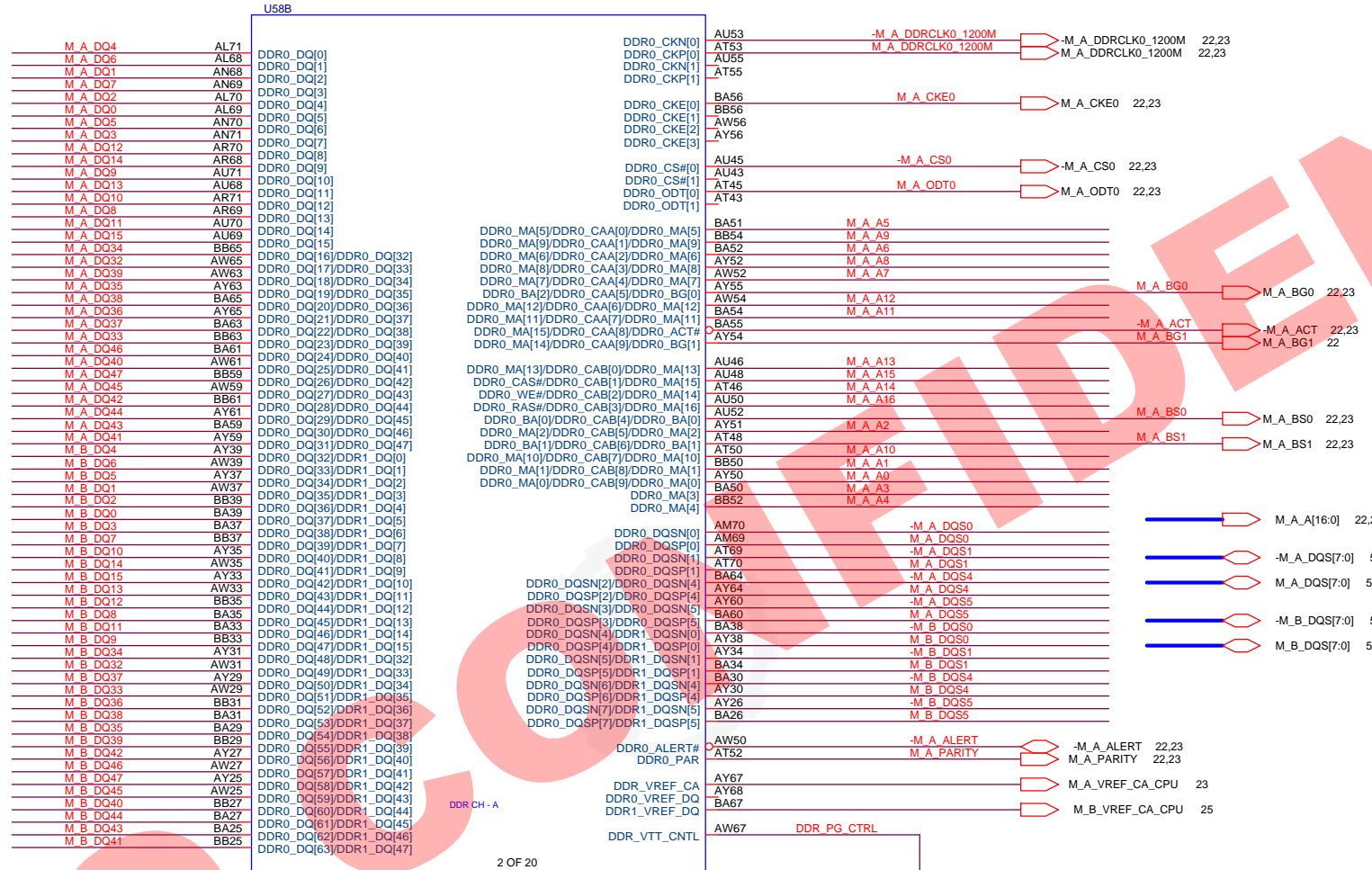
DDPB_CTRLDATA	
HIGH	Port B is detected.
LOW	Port B is not detected.
DDPC_CTRLDATA	
HIGH	Port C is detected.
LOW	Port C is not detected.

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TABLE

	Pin	Interleave	Non-Interleave
Block 0	AL71	DDR0_DQ[0]	DDR0_DQ[0]
	AL68	DDR0_DQ[1]	DDR0_DQ[1]
	AN68	DDR0_DQ[2]	DDR0_DQ[2]
	AN69	DDR0_DQ[3]	DDR0_DQ[3]
	AL70	DDR0_DQ[4]	DDR0_DQ[4]
	AL69	DDR0_DQ[5]	DDR0_DQ[5]
	AN70	DDR0_DQ[6]	DDR0_DQ[6]
	AN71	DDR0_DQ[7]	DDR0_DQ[7]
	AR70	DDR0_DQ[8]	DDR0_DQ[8]
	AR68	DDR0_DQ[9]	DDR0_DQ[9]
	AU71	DDR0_DQ[10]	DDR0_DQ[10]
	AU68	DDR0_DQ[11]	DDR0_DQ[11]
	AR71	DDR0_DQ[12]	DDR0_DQ[12]
	AR69	DDR0_DQ[13]	DDR0_DQ[13]
	AU70	DDR0_DQ[14]	DDR0_DQ[14]
AU69	DDR0_DQ[15]	DDR0_DQ[15]	
Block 2	BB65	DDR0_DQ[16]	DDR0_DQ[32]
	AW65	DDR0_DQ[17]	DDR0_DQ[33]
	AW63	DDR0_DQ[18]	DDR0_DQ[34]
	AY63	DDR0_DQ[19]	DDR0_DQ[35]
	BA65	DDR0_DQ[20]	DDR0_DQ[36]
	AY65	DDR0_DQ[21]	DDR0_DQ[37]
	BA63	DDR0_DQ[22]	DDR0_DQ[38]
	BB66	DDR0_DQ[23]	DDR0_DQ[39]
	BA61	DDR0_DQ[24]	DDR0_DQ[40]
	AW61	DDR0_DQ[25]	DDR0_DQ[41]
	BB59	DDR0_DQ[26]	DDR0_DQ[42]
	AW59	DDR0_DQ[27]	DDR0_DQ[43]
	BB61	DDR0_DQ[28]	DDR0_DQ[44]
	AY61	DDR0_DQ[29]	DDR0_DQ[45]
	BA59	DDR0_DQ[30]	DDR0_DQ[46]
AY59	DDR0_DQ[31]	DDR0_DQ[47]	
Block 4	AY39	DDR0_DQ[32]	DDR1_DQ[0]
	AW39	DDR0_DQ[33]	DDR1_DQ[1]
	AY37	DDR0_DQ[34]	DDR1_DQ[2]
	AW37	DDR0_DQ[35]	DDR1_DQ[3]
	BB39	DDR0_DQ[36]	DDR1_DQ[4]
	BA39	DDR0_DQ[37]	DDR1_DQ[5]
	BA37	DDR0_DQ[38]	DDR1_DQ[6]
	BB37	DDR0_DQ[39]	DDR1_DQ[7]
	AY35	DDR0_DQ[40]	DDR1_DQ[8]
	AW35	DDR0_DQ[41]	DDR1_DQ[9]
	AY33	DDR0_DQ[42]	DDR1_DQ[10]
	AW33	DDR0_DQ[43]	DDR1_DQ[11]
	BB35	DDR0_DQ[44]	DDR1_DQ[12]
	BA35	DDR0_DQ[45]	DDR1_DQ[13]
	BA33	DDR0_DQ[46]	DDR1_DQ[14]
BB33	DDR0_DQ[47]	DDR1_DQ[15]	
Block 6	AY31	DDR0_DQ[48]	DDR1_DQ[32]
	AW31	DDR0_DQ[49]	DDR1_DQ[33]
	AY29	DDR0_DQ[50]	DDR1_DQ[34]
	AW29	DDR0_DQ[51]	DDR1_DQ[35]
	BB31	DDR0_DQ[52]	DDR1_DQ[36]
	BA31	DDR0_DQ[53]	DDR1_DQ[37]
	BA29	DDR0_DQ[54]	DDR1_DQ[38]
	BB29	DDR0_DQ[55]	DDR1_DQ[39]
	AY27	DDR0_DQ[56]	DDR1_DQ[40]
	AW27	DDR0_DQ[57]	DDR1_DQ[41]
	AY25	DDR0_DQ[58]	DDR1_DQ[42]
	AW25	DDR0_DQ[59]	DDR1_DQ[43]
	BB27	DDR0_DQ[60]	DDR1_DQ[44]
	BA27	DDR0_DQ[61]	DDR1_DQ[45]
	BA25	DDR0_DQ[62]	DDR1_DQ[46]
BB25	DDR0_DQ[63]	DDR1_DQ[47]	

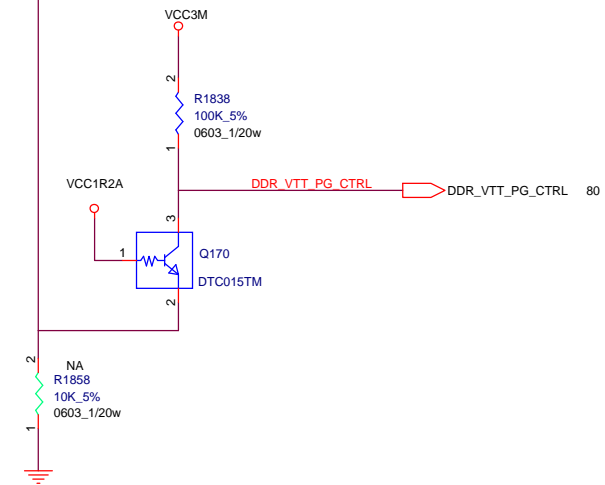


TABLE

Pin	DDR3L	LPDDR3	DDR4
BA51	DDR0_MA[5]	DDR0_CAA[0]	DDR0_MA[5]
BB54	DDR0_MA[9]	DDR0_CAA[1]	DDR0_MA[9]
BA52	DDR0_MA[6]	DDR0_CAA[2]	DDR0_MA[6]
AY52	DDR0_MA[8]	DDR0_CAA[3]	DDR0_MA[8]
AW52	DDR0_MA[7]	DDR0_CAA[4]	DDR0_MA[7]
AY55	DDR0_BA[2]	DDR0_CAA[5]	DDR0_BG[0]
AW54	DDR0_MA[12]	DDR0_CAA[6]	DDR0_MA[12]
BA54	DDR0_MA[11]	DDR0_CAA[7]	DDR0_MA[11]
BA55	DDR0_MA[15]	DDR0_CAA[8]	DDR0_ACT#
AY54	DDR0_MA[14]	DDR0_CAA[9]	DDR0_BG[1]
AU46	DDR0_MA[13]	DDR0_CAB[0]	DDR0_MA[13]
AU48	DDR0_CAS#	DDR0_CAB[1]	DDR0_MA[15]
AT46	DDR0_WE#	DDR0_CAB[2]	DDR0_MA[14]
AU50	DDR0_RAS#	DDR0_CAB[3]	DDR0_MA[16]
AU52	DDR0_BA[0]	DDR0_CAB[4]	DDR0_BA[0]
AY51	DDR0_MA[2]	DDR0_CAB[5]	DDR0_MA[2]
AT48	DDR0_BA[1]	DDR0_CAB[6]	DDR0_BA[1]
AT50	DDR0_MA[10]	DDR0_CAB[7]	DDR0_MA[10]
BB50	DDR0_MA[1]	DDR0_CAB[8]	DDR0_MA[1]
AY50	DDR0_MA[0]	DDR0_CAB[9]	DDR0_MA[0]
BA50	DDR0_MA[3]	Not Used	DDR0_MA[3]
BB52	DDR0_MA[4]	Not Used	DDR0_MA[4]

TABLE

	Pin	Interleave	Non-Interleave
Block 0	AM70	DDR0_DQSN[0]	DDR0_DQSN[0]
	AM69	DDR0_DQSP[0]	DDR0_DQSP[0]
	AT69	DDR0_DQSN[1]	DDR0_DQSN[1]
Block 2	AT70	DDR0_DQSP[1]	DDR0_DQSP[1]
	BA64	DDR0_DQSN[2]	DDR0_DQSN[4]
	AY64	DDR0_DQSP[2]	DDR0_DQSP[4]
Block 4	AY60	DDR0_DQSN[3]	DDR0_DQSN[5]
	BA60	DDR0_DQSP[3]	DDR0_DQSP[5]
	BA38	DDR0_DQSN[4]	DDR1_DQSN[0]
Block 6	AY38	DDR0_DQSP[4]	DDR1_DQSP[0]
	AY34	DDR0_DQSN[5]	DDR1_DQSN[1]
	BA34	DDR0_DQSP[5]	DDR1_DQSP[1]
Block 6	BA30	DDR0_DQSN[6]	DDR1_DQSN[4]
	AY30	DDR0_DQSP[6]	DDR1_DQSP[4]
	AY26	DDR0_DQSN[7]	DDR1_DQSN[5]
BA26	DDR0_DQSP[7]	DDR1_DQSP[5]	

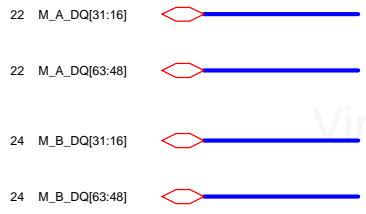


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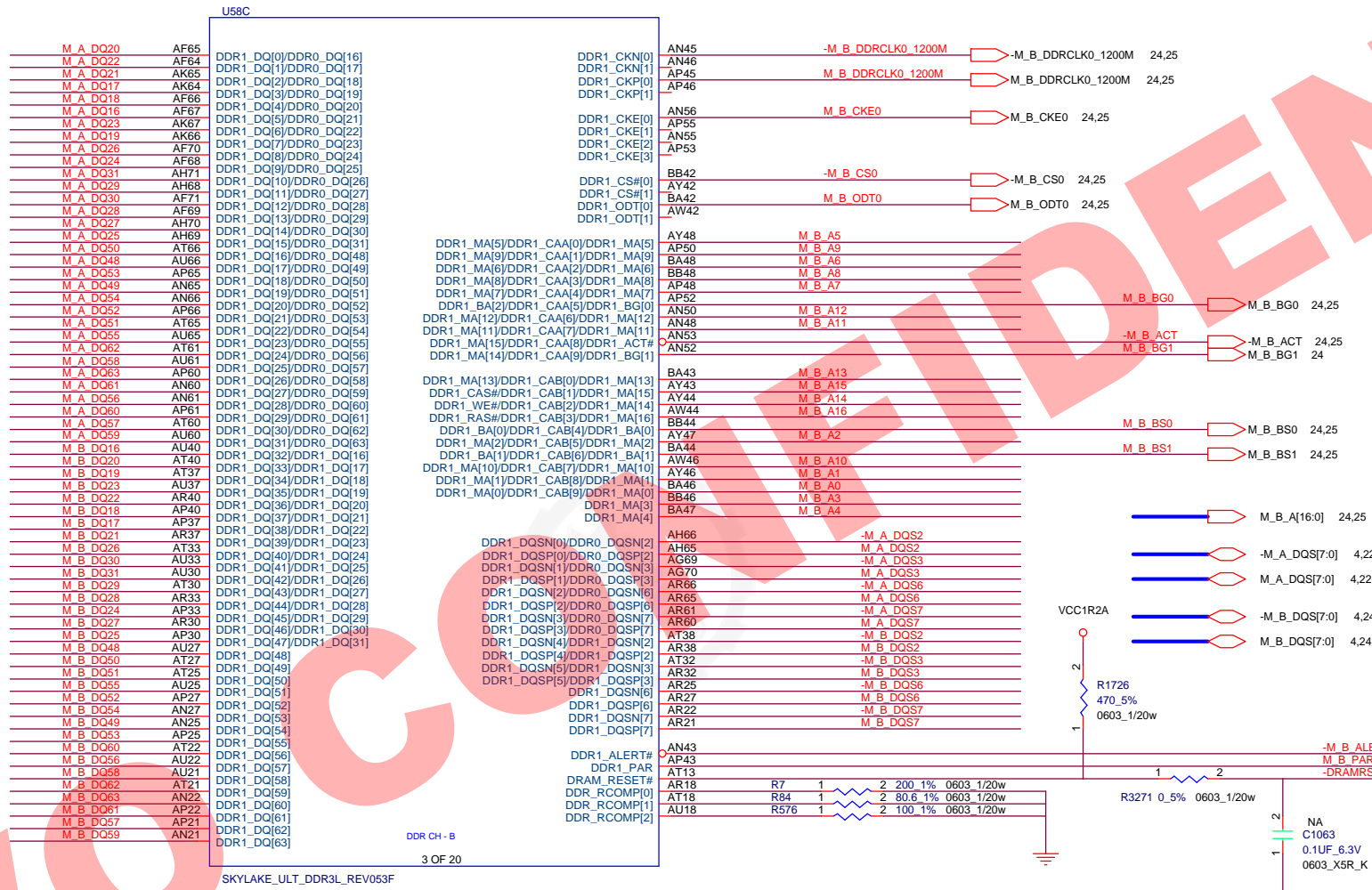




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TABLE

	Pin	Interleave	Non-Interleave
Block 1	AF65	DDR1_DQ[0]	DDR0_DQ[16]
	AF64	DDR1_DQ[1]	DDR0_DQ[17]
	AK65	DDR1_DQ[2]	DDR0_DQ[18]
	AK64	DDR1_DQ[3]	DDR0_DQ[19]
	AF66	DDR1_DQ[4]	DDR0_DQ[20]
	AF67	DDR1_DQ[5]	DDR0_DQ[21]
	AK67	DDR1_DQ[6]	DDR0_DQ[22]
	AK66	DDR1_DQ[7]	DDR0_DQ[23]
	AF70	DDR1_DQ[8]	DDR0_DQ[24]
	AF68	DDR1_DQ[9]	DDR0_DQ[25]
	AH71	DDR1_DQ[10]	DDR0_DQ[26]
	AH68	DDR1_DQ[11]	DDR0_DQ[27]
	AF71	DDR1_DQ[12]	DDR0_DQ[28]
	AF69	DDR1_DQ[13]	DDR0_DQ[29]
	AH70	DDR1_DQ[14]	DDR0_DQ[30]
AH69	DDR1_DQ[15]	DDR0_DQ[31]	
Block 3	AT66	DDR1_DQ[16]	DDR0_DQ[48]
	AU66	DDR1_DQ[17]	DDR0_DQ[49]
	AP65	DDR1_DQ[18]	DDR0_DQ[50]
	AN65	DDR1_DQ[19]	DDR0_DQ[51]
	AN66	DDR1_DQ[20]	DDR0_DQ[52]
	AP66	DDR1_DQ[21]	DDR0_DQ[53]
	AT65	DDR1_DQ[22]	DDR0_DQ[54]
	AU65	DDR1_DQ[23]	DDR0_DQ[55]
	AT61	DDR1_DQ[24]	DDR0_DQ[56]
	AU61	DDR1_DQ[25]	DDR0_DQ[57]
	AP60	DDR1_DQ[26]	DDR0_DQ[58]
	AN60	DDR1_DQ[27]	DDR0_DQ[59]
	AN61	DDR1_DQ[28]	DDR0_DQ[60]
	AP61	DDR1_DQ[29]	DDR0_DQ[61]
	AT60	DDR1_DQ[30]	DDR0_DQ[62]
AU60	DDR1_DQ[31]	DDR0_DQ[63]	
Block 5	AU40	DDR1_DQ[32]	DDR1_DQ[16]
	AT40	DDR1_DQ[33]	DDR1_DQ[17]
	AT37	DDR1_DQ[34]	DDR1_DQ[18]
	AU37	DDR1_DQ[35]	DDR1_DQ[19]
	AR40	DDR1_DQ[36]	DDR1_DQ[20]
	AP40	DDR1_DQ[37]	DDR1_DQ[21]
	AP37	DDR1_DQ[38]	DDR1_DQ[22]
	AR37	DDR1_DQ[39]	DDR1_DQ[23]
	AT33	DDR1_DQ[40]	DDR1_DQ[24]
	AU33	DDR1_DQ[41]	DDR1_DQ[25]
	AU30	DDR1_DQ[42]	DDR1_DQ[26]
	AT30	DDR1_DQ[43]	DDR1_DQ[27]
	AR33	DDR1_DQ[44]	DDR1_DQ[28]
	AP33	DDR1_DQ[45]	DDR1_DQ[29]
	AR30	DDR1_DQ[46]	DDR1_DQ[30]
AP30	DDR1_DQ[47]	DDR1_DQ[31]	
Block 7	AU27	DDR1_DQ[48]	DDR1_DQ[48]
	AT27	DDR1_DQ[49]	DDR1_DQ[49]
	AT25	DDR1_DQ[50]	DDR1_DQ[50]
	AU25	DDR1_DQ[51]	DDR1_DQ[51]
	AP27	DDR1_DQ[52]	DDR1_DQ[52]
	AN27	DDR1_DQ[53]	DDR1_DQ[53]
	AN25	DDR1_DQ[54]	DDR1_DQ[54]
	AP25	DDR1_DQ[55]	DDR1_DQ[55]
	AT22	DDR1_DQ[56]	DDR1_DQ[56]
	AU22	DDR1_DQ[57]	DDR1_DQ[57]
AU21	DDR1_DQ[58]	DDR1_DQ[58]	
AT21	DDR1_DQ[59]	DDR1_DQ[59]	
AN22	DDR1_DQ[60]	DDR1_DQ[60]	
AP22	DDR1_DQ[61]	DDR1_DQ[61]	
AP21	DDR1_DQ[62]	DDR1_DQ[62]	
AN21	DDR1_DQ[63]	DDR1_DQ[63]	



TABLE

Pin	DDR3L	LPDDR3	DDR4
AY48	DDR1_MA[5]	DDR1_CAA[0]	DDR1_MA[5]
AP50	DDR1_MA[9]	DDR1_CAA[1]	DDR1_MA[9]
BA48	DDR1_MA[6]	DDR1_CAA[2]	DDR1_MA[6]
BB48	DDR1_MA[8]	DDR1_CAA[3]	DDR1_MA[8]
AP48	DDR1_MA[7]	DDR1_CAA[4]	DDR1_MA[7]
AP52	DDR1_BA[2]	DDR1_CAA[5]	DDR1_BG[0]
AN50	DDR1_MA[12]	DDR1_CAA[6]	DDR1_MA[12]
AN48	DDR1_MA[11]	DDR1_CAA[7]	DDR1_MA[11]
AN53	DDR1_MA[15]	DDR1_CAA[8]	DDR1_ACT#
AN52	DDR1_MA[14]	DDR1_CAA[9]	DDR1_BG[1]
BA43	DDR1_MA[13]	DDR1_CAB[0]	DDR1_MA[13]
AY43	DDR1_CAS#	DDR1_CAB[1]	DDR1_MA[15]
AY44	DDR1_WE#	DDR1_CAB[2]	DDR1_MA[14]
AW44	DDR1_RAS#	DDR1_CAB[3]	DDR1_MA[16]
BB44	DDR1_BA[0]	DDR1_CAB[4]	DDR1_BA[0]
AY47	DDR1_MA[2]	DDR1_CAB[5]	DDR1_MA[2]
BA44	DDR1_BA[1]	DDR1_CAB[6]	DDR1_BA[1]
AW46	DDR1_MA[10]	DDR1_CAB[7]	DDR1_MA[10]
AY46	DDR1_MA[1]	DDR1_CAB[8]	DDR1_MA[1]
BA46	DDR1_MA[0]	DDR1_CAB[9]	DDR1_MA[0]
BB46	DDR1_MA[3]	Not Used	DDR1_MA[3]
BA47	DDR1_MA[4]	Not Used	DDR1_MA[4]

TABLE

	Pin	Interleave	Non-Interleave
Block 1	AH66	DDR1_DQSN[0]	DDR0_DQSN[2]
	AH65	DDR1_DQSP[0]	DDR0_DQSP[2]
	AG69	DDR1_DQSN[1]	DDR0_DQSN[3]
	AG70	DDR1_DQSP[1]	DDR0_DQSP[3]
Block 3	AR66	DDR1_DQSN[2]	DDR0_DQSN[6]
	AR65	DDR1_DQSP[2]	DDR0_DQSP[6]
	AR61	DDR1_DQSN[3]	DDR0_DQSN[7]
	AR60	DDR1_DQSP[3]	DDR0_DQSP[7]
Block 5	AT38	DDR1_DQSN[4]	DDR1_DQSN[2]
	AR38	DDR1_DQSP[4]	DDR1_DQSP[2]
	AT32	DDR1_DQSN[5]	DDR1_DQSN[3]
	AR32	DDR1_DQSP[5]	DDR1_DQSP[3]
Block 7	AR25	DDR1_DQSN[6]	DDR1_DQSN[6]
	AR27	DDR1_DQSP[6]	DDR1_DQSP[6]
	AR22	DDR1_DQSN[7]	DDR1_DQSN[7]
	AR21	DDR1_DQSP[7]	DDR1_DQSP[7]
	AR21	DDR1_DQSP[7]	DDR1_DQSP[7]

TABLE:

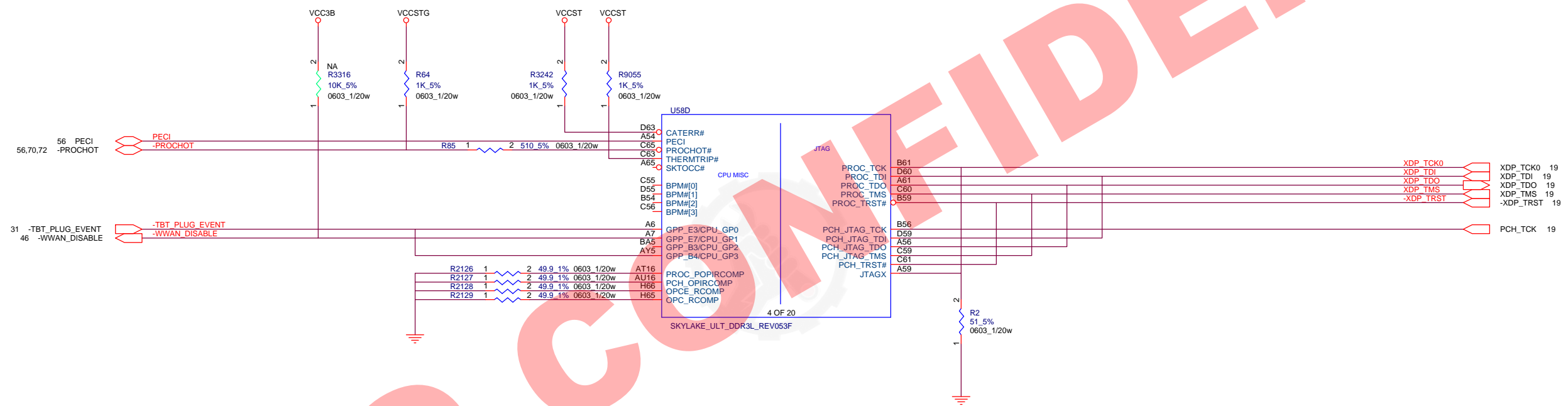
	SDP	DDP
R7	200_1%	121_1%

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TABLE : Functional Strap

SPI0_MOSI (Boot Halt)	
HIGH	Disabled (Default)
LOW	Enabled

TABLE : Functional Strap

SPI0_MISO (JTAG ODT Disable)	
HIGH	Enabled (Default)
LOW	Disabled

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TABLE : Functional Strap

GPP_C5/SML0ALERT # (LPC or eSPI)	
HIGH	eSPI is selected
LOW	LPC is selected (Default)

← LOGIC

TABLE : Functional Strap

GPP_C2/SMBALERT# (TLS Confidentiality)	
HIGH	Enable ME Crypto TLS with Confidentiality
LOW	Disable ME Crypto TLS (Default)

← LOGIC

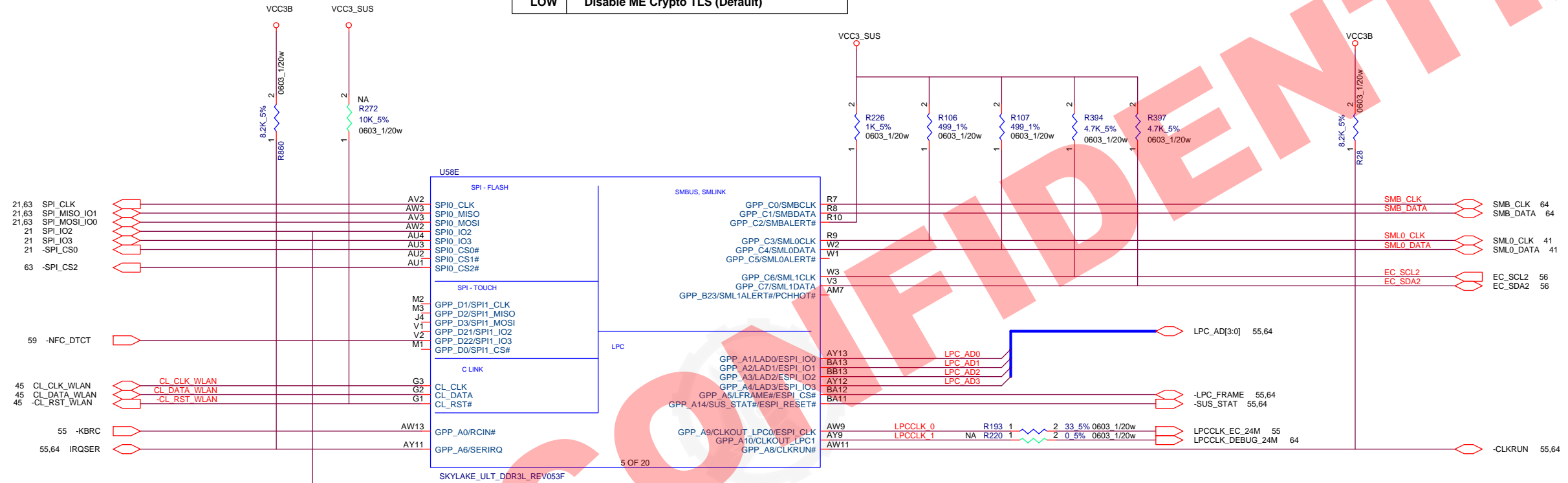


TABLE : Functional Strap

SPI0_IO2 (Consent Strap)	
HIGH	Enabled (Default)
LOW	Disabled

TABLE : Functional Strap

SPI0_IO3 (A0 Personality Strap)	
HIGH	Disabled (Default)
LOW	Enabled

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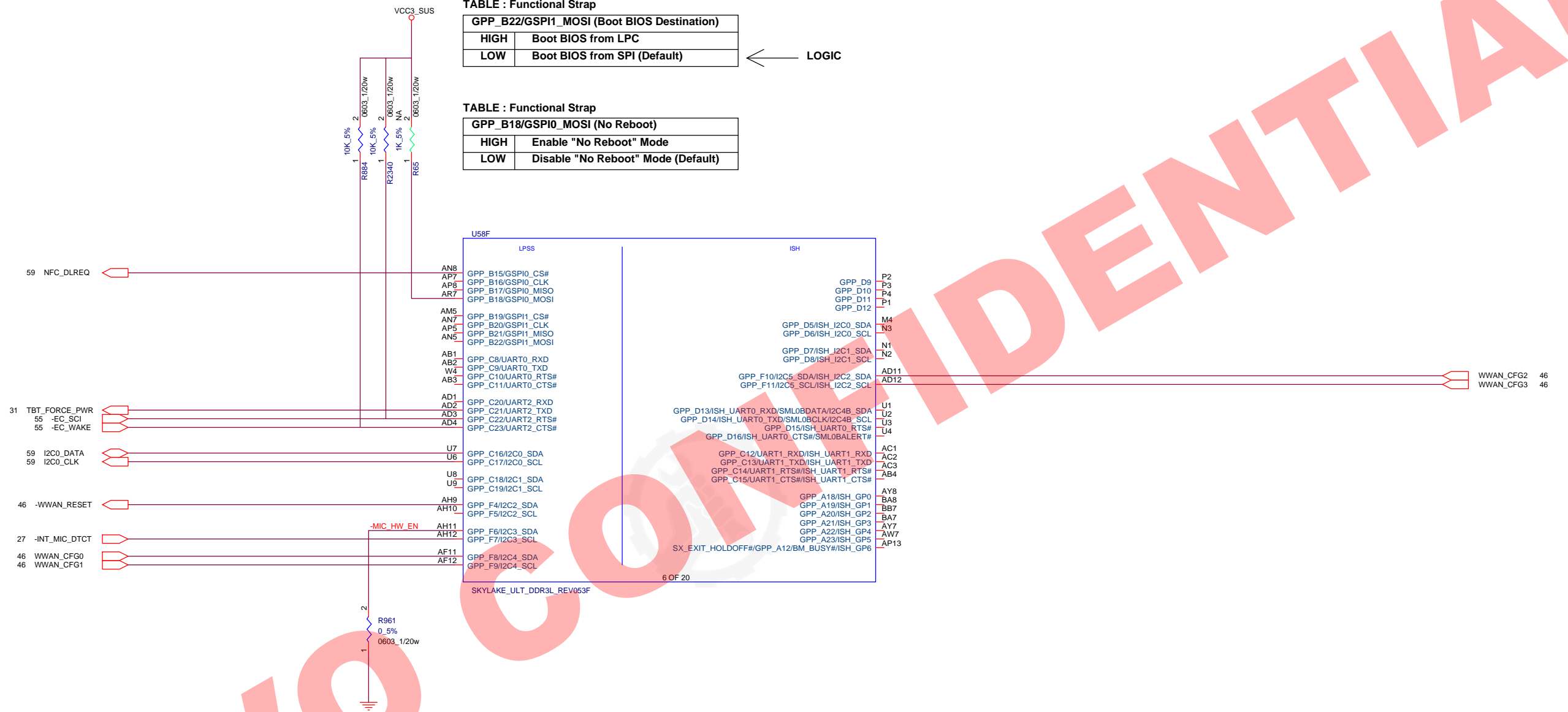
TABLE : Functional Strap

GPP_B22/GSPI1_MOSI (Boot BIOS Destination)	
HIGH	Boot BIOS from LPC
LOW	Boot BIOS from SPI (Default)

← LOGIC

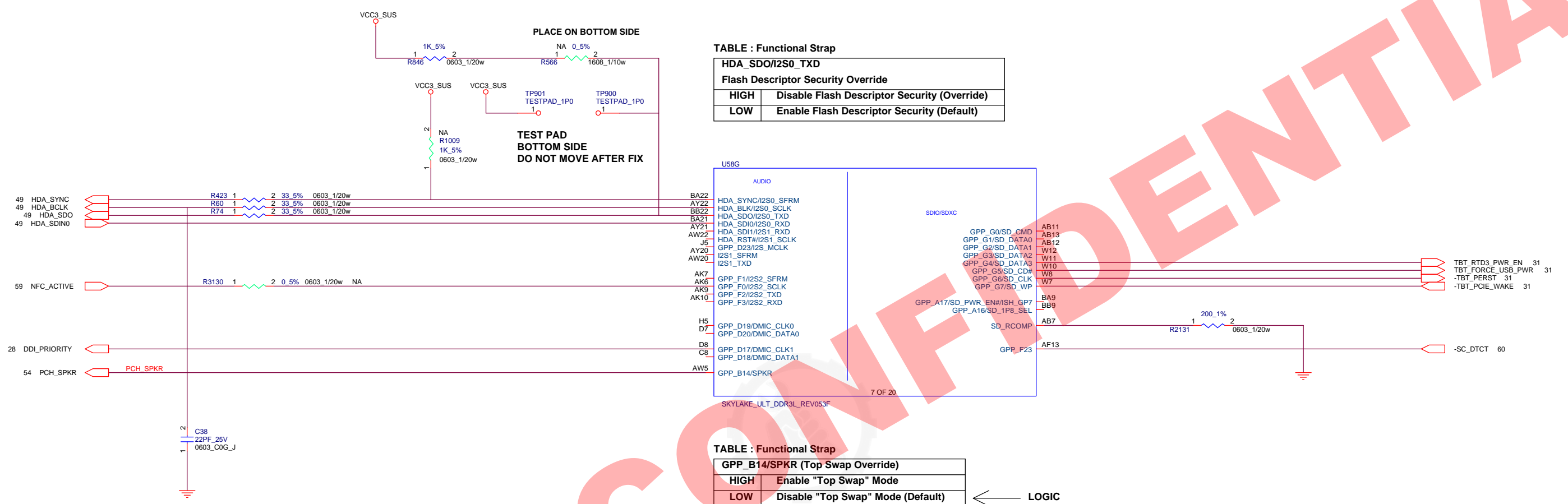
TABLE : Functional Strap

GPP_B18/GSPI0_MOSI (No Reboot)	
HIGH	Enable "No Reboot" Mode
LOW	Disable "No Reboot" Mode (Default)



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**TABLE : Functional Strap**

**HDA\_SDO/I2S0\_TXD**  
Flash Descriptor Security Override

HIGH	Disable Flash Descriptor Security (Override)
LOW	Enable Flash Descriptor Security (Default)

**TABLE : Functional Strap**

**GPP\_B14/SPKR (Top Swap Override)**

HIGH	Enable "Top Swap" Mode
LOW	Disable "Top Swap" Mode (Default)

← LOGIC

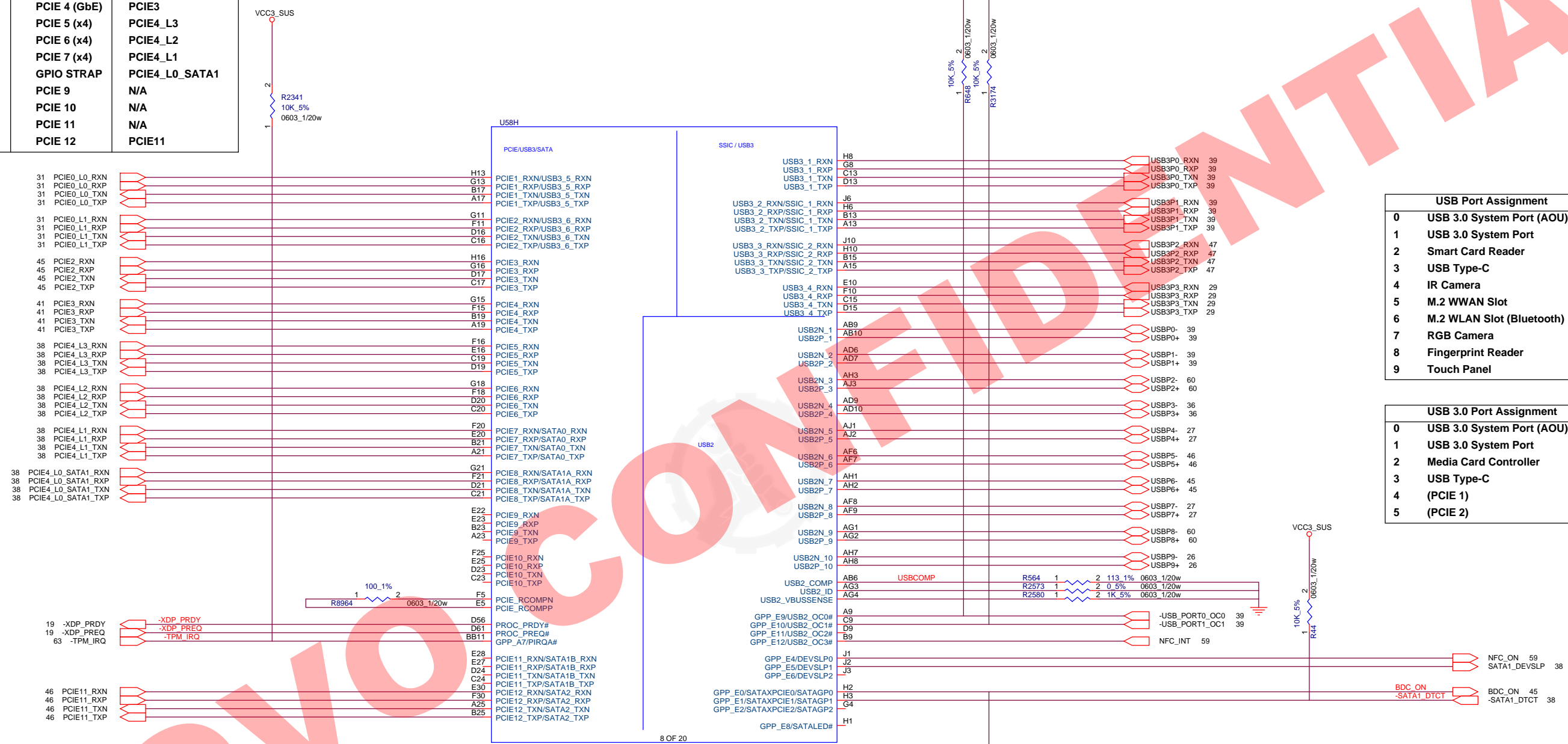
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Flexible I/O Configuration			
I/O	High Speed Signals	Configuration	Net Name
Port 1	USB3 1	USB3 1	USB3P0
Port 2	USB3 2/SSIC	USB3 2	USB3P1
Port 3	USB3 3	USB3 3	USB3P2
Port 4	USB3 4	USB3 4	USB3P3
Port 5	USB3 5/PCIE 1	PCIE 1	PCIE0_L0
Port 6	USB3 6/PCIE 2	PCIE 2	PCIE0_L1
Port 7	PCIE 3 (GbE)	PCIE 3	PCIE2
Port 8	PCIE 4 (GbE)	PCIE 4 (GbE)	PCIE3
Port 9	PCIE 5 (GbE)	PCIE 5 (x4)	PCIE4_L3
Port 10	PCIE 6	PCIE 6 (x4)	PCIE4_L2
Port 11	PCIE 7/SATA 0	PCIE 7 (x4)	PCIE4_L1
Port 12	PCIE 8/SATA 1A	GPIO STRAP	PCIE4_L0_SATA1
Port 13	PCIE 9 (GbE)	PCIE 9	N/A
Port 14	PCIE 10 (GbE)	PCIE 10	N/A
Port 15	PCIE 11/SATA 1B	PCIE 11	N/A
Port 16	PCIE 12/SATA 2	PCIE 12	PCIE11

PCIe Port Assignment	
0(x2)	Thunderbolt
2	M.2 WLAN Slot Port 0
3	GbE PHY
4	PCIe SSD
11	M.2 WWAN Slot

SATA Port Assignment	
0	(PCIe 7)
1A	SATA SSD
1B	(PCIe 11)
2	(PCIe 12)



USB Port Assignment	
0	USB 3.0 System Port (AOU)
1	USB 3.0 System Port
2	Smart Card Reader
3	USB Type-C
4	IR Camera
5	M.2 WWAN Slot
6	M.2 WLAN Slot (Bluetooth)
7	RGB Camera
8	Fingerprint Reader
9	Touch Panel

USB 3.0 Port Assignment	
0	USB 3.0 System Port (AOU)
1	USB 3.0 System Port
2	Media Card Controller
3	USB Type-C
4	(PCIe 1)
5	(PCIe 2)

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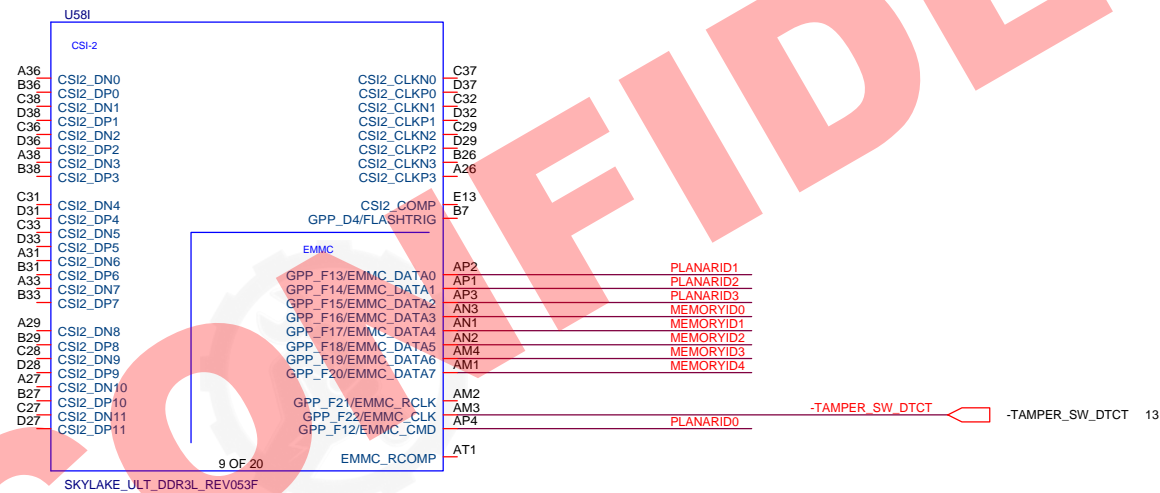
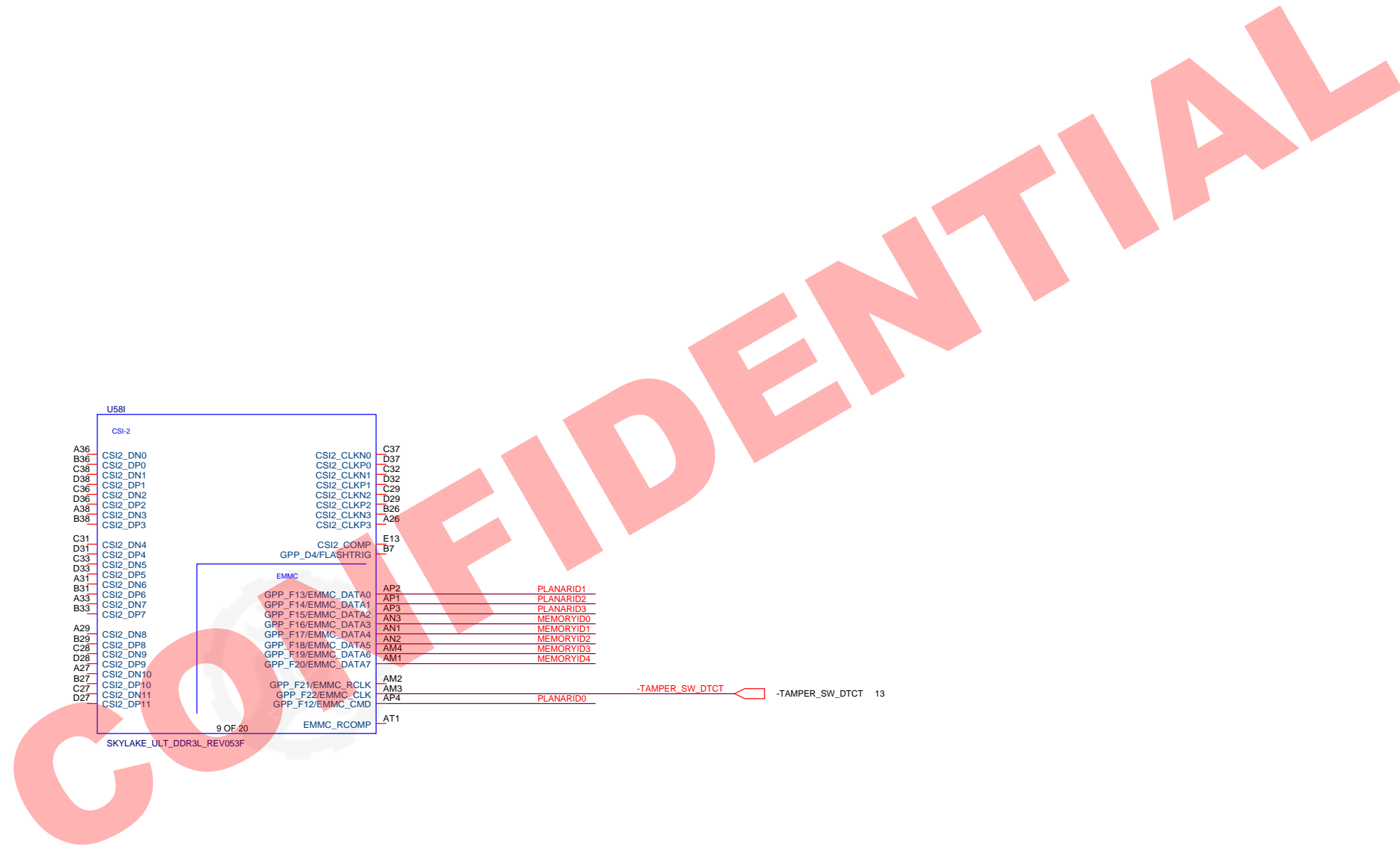
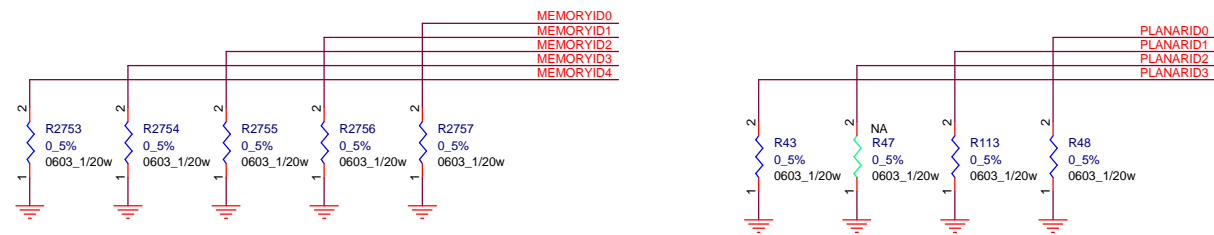


TABLE: MEMORYID

MEMORYID[4:0]	Vendor	U125, U126, U127, U128, U129, U130, U131, U132			Capacity		
		Part Number	Component	Qty	Channel-0	Channel-1	Total
00h (00000b)	Micron	MT40A256M16GE-083E:B	4Gbit SDP	8pcs	2GB	2GB	4GB
01h (00001b)		MT40A512M16JY-083E:B	8Gbit SDP	4pcs	4GB	0GB	4GB
02h (00010b)		MT40A512M16JY-083E:B	8Gbit SDP	8pcs	4GB	4GB	8GB
03h (00011b)		MT40A512M16LY-075:H	8Gbit SDP	4pcs	4GB	0GB	4GB
04h (00100b)		MT40A512M16LY-075:H	8Gbit SDP	8pcs	4GB	4GB	8GB
05h (00101b)		MT40A1G16WBU-083E:B	16Gbit DDP	8pcs	8GB	8GB	16GB
06h (00110b)	Samsung	K4A4G165WE-BCRC	4Gbit SDP	8pcs	2GB	2GB	4GB
07h (00111b)		K4A8G165WC-BCRC	8Gbit SDP	4pcs	4GB	0GB	4GB
08h (01000b)		K4A8G165WC-BCRC	8Gbit SDP	8pcs	4GB	4GB	8GB
09h (01001b)		K4AAG165WB-MCRC	16Gbit DDP	8pcs	8GB	8GB	16GB
0Ah (01010b)	SK hynix	H5AN4G6NAFR-UHC	4Gbit SDP	8pcs	2GB	2GB	4GB
0Bh (01011b)		H5AN8G6NAFR-UHC	8Gbit SDP	4pcs	4GB	0GB	4GB
0Ch (01100b)		H5AN8G6NAFR-UHC	8Gbit SDP	8pcs	4GB	4GB	8GB
0Dh (01101b)		H5ANAG6NAMR-UHC	16Gbit DDP	8pcs	8GB	8GB	16GB
0Eh (01110b)	Micron	MT40A512M16LY-075:E	8Gbit SDP	4pcs	4GB	0GB	4GB
0Fh (01111b)		MT40A512M16LY-075:E	8Gbit SDP	8pcs	4GB	4GB	8GB



TABLE

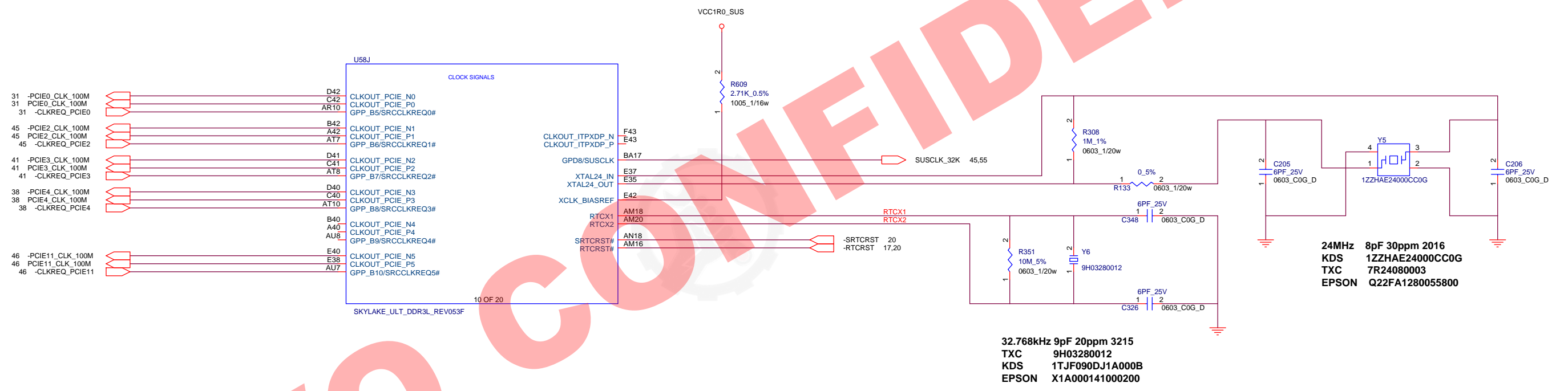
LEVEL	PLANAR ID			
	3	2	1	0
1	NA	NA	NA	NA
0	ASM	ASM	ASM	ASM

TABLE

LEVEL	PLANARID[3..0]
EVT	0000B
ME-FVT	0001B
FVT	0010B
SIT	0011B
SVT	0100B

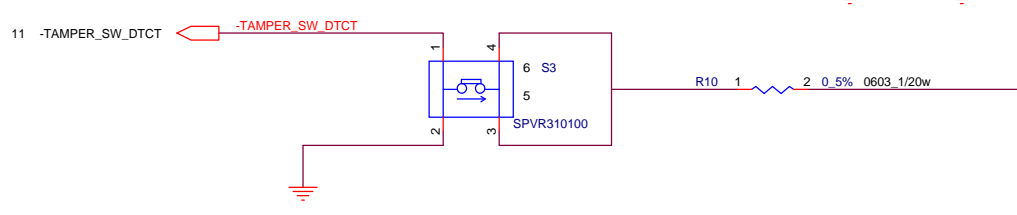
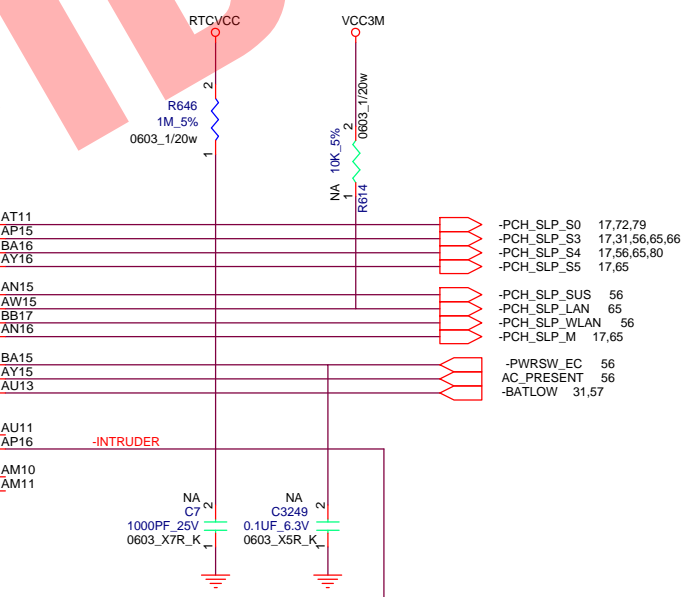
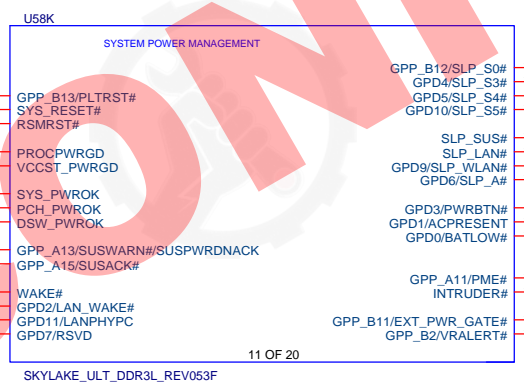
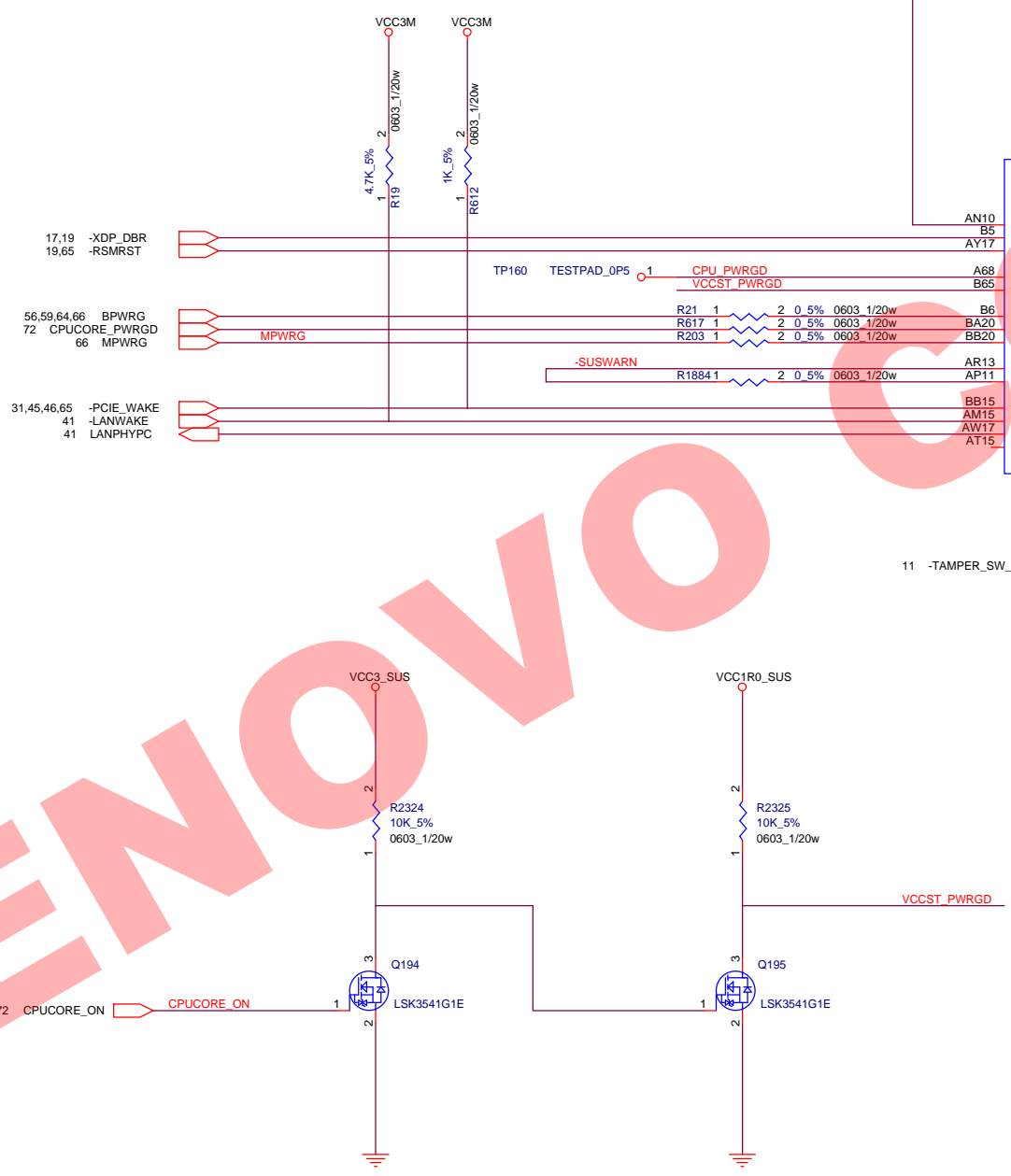
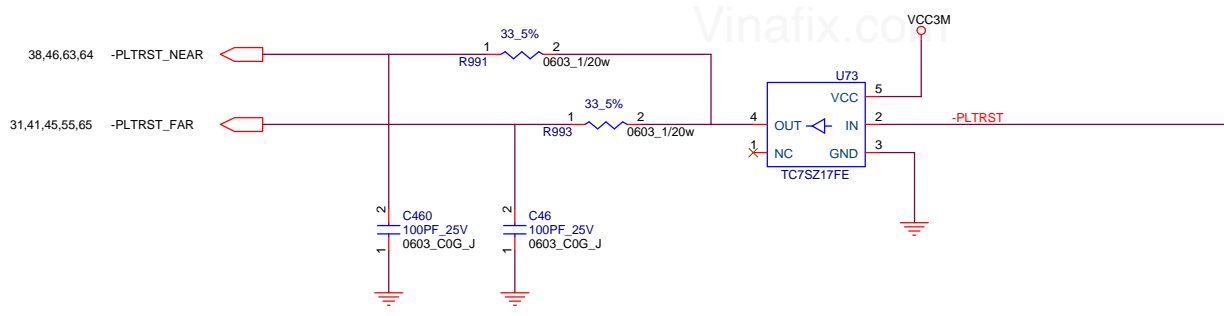
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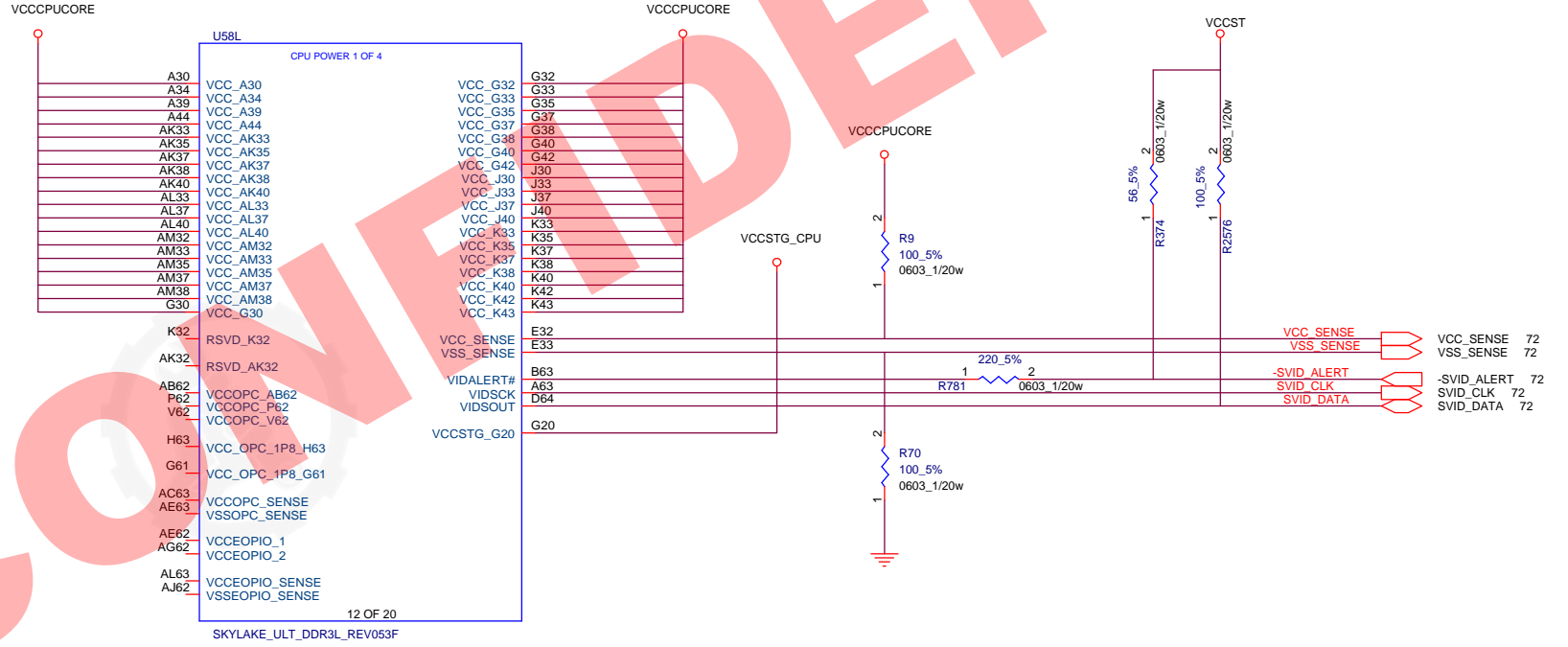
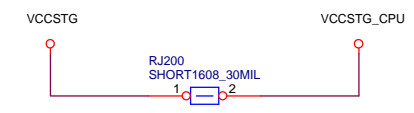
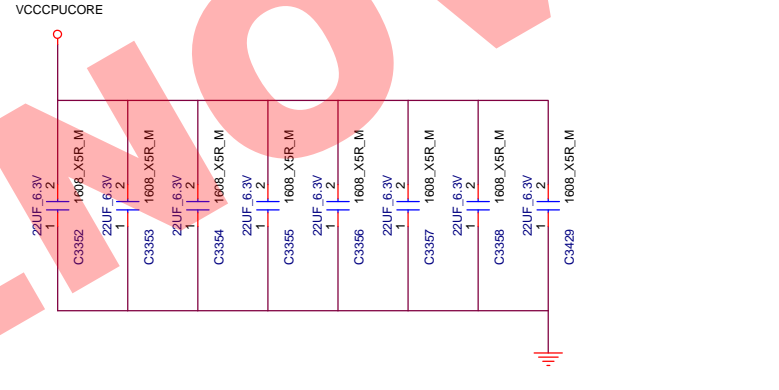
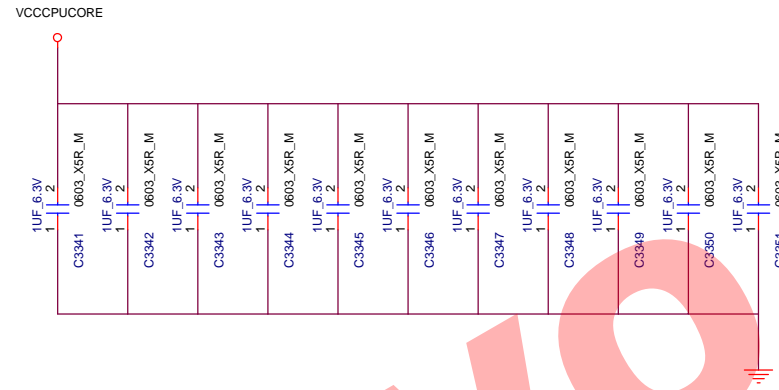
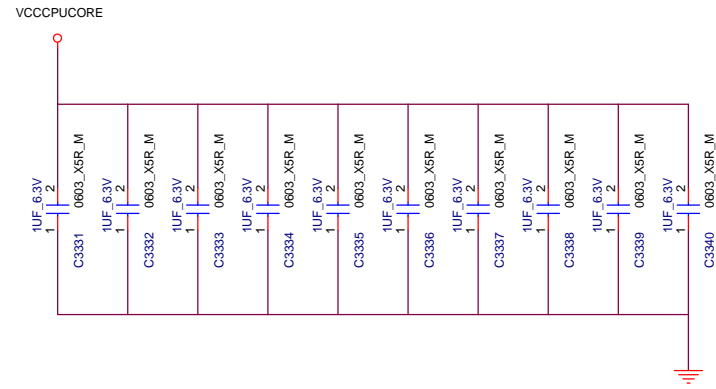
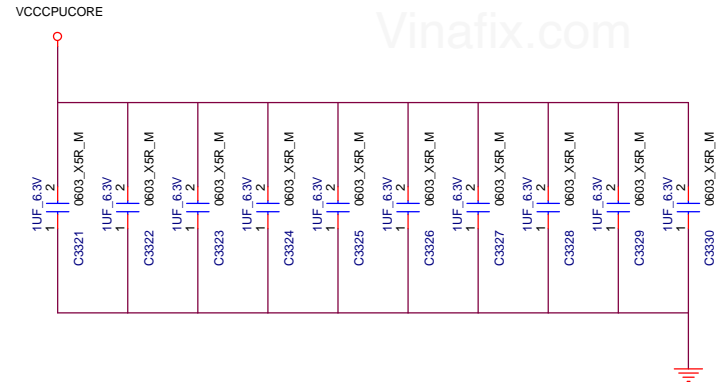
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 KDS 1ZZHAE24000CC0G  
 TXC 7R24080003  
 EPSON Q22FA1280055800

32.768kHz 9pF 20ppm 3215  
 TXC 9H03280012  
 KDS 1TJF090DJ1A000B  
 EPSON X1A000141000200

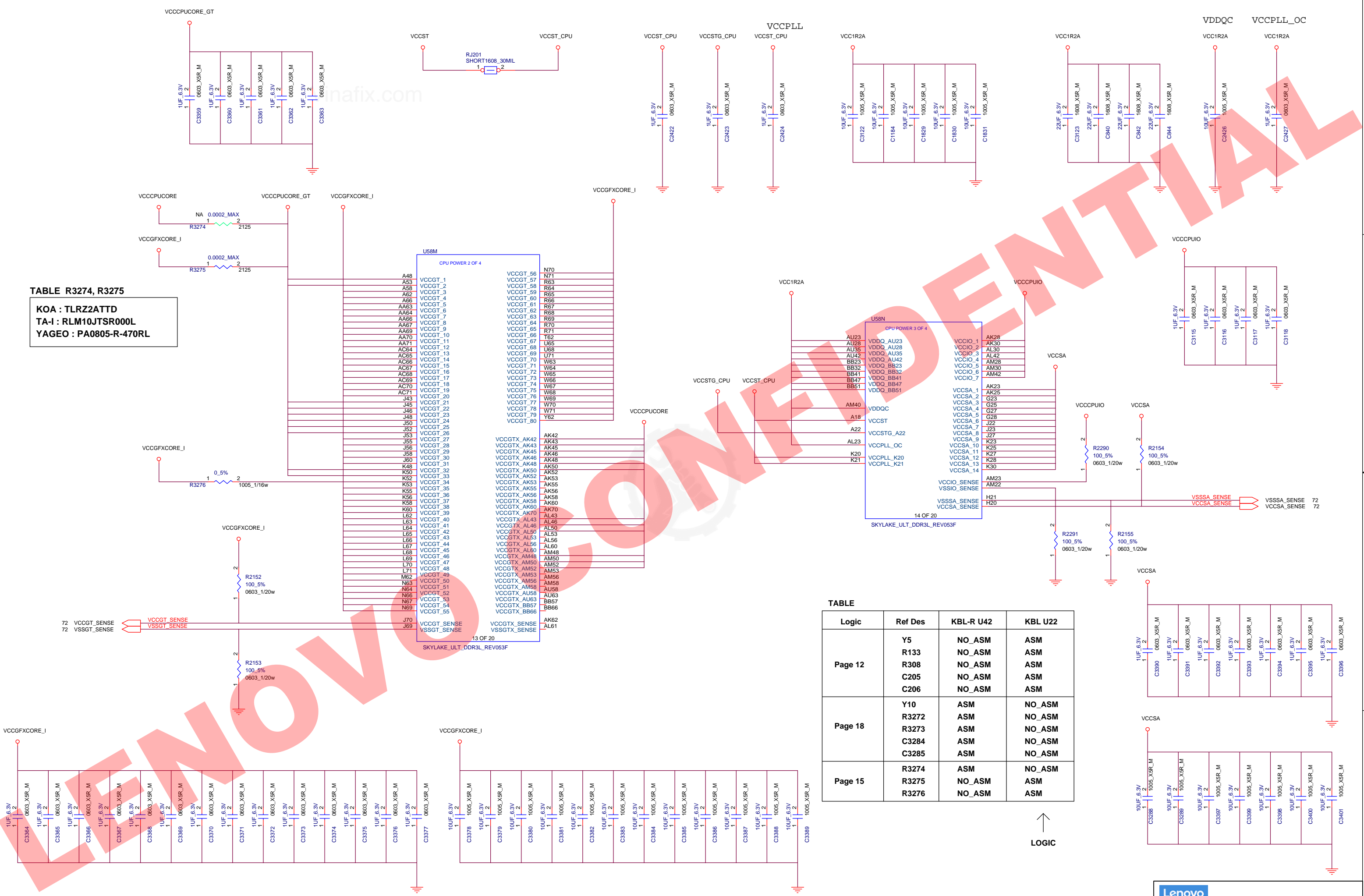


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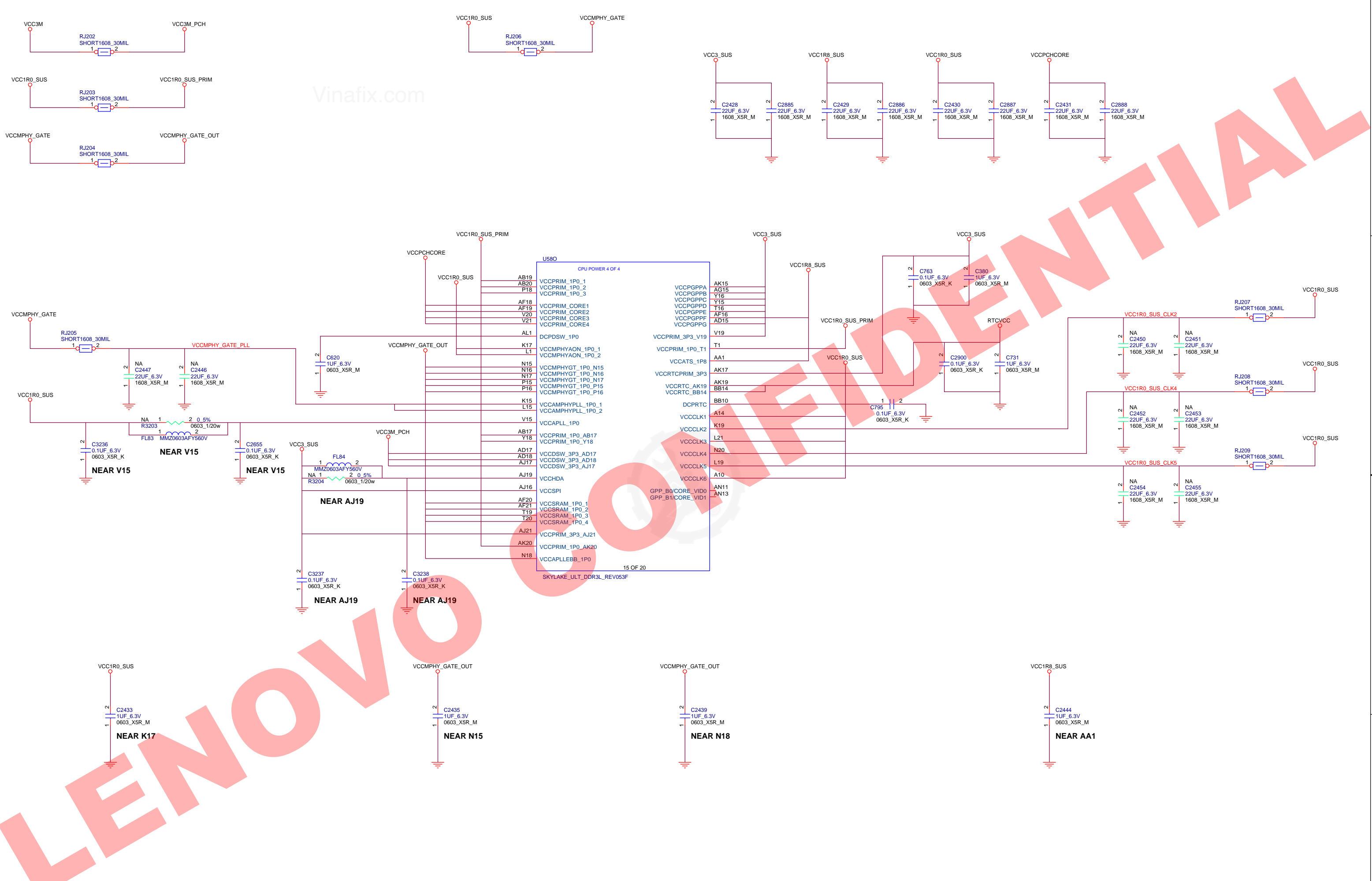
**TABLE R3274, R3275**  
**KOA : TLRZ2ATTD**  
**TA-I : RLM10JTSR000L**  
**YAGEO : PA0805-R-470RL**



**TABLE**

Logic	Ref Des	KBL-R U42	KBL U22
Page 12	Y5	NO_ASM	ASM
	R133	NO_ASM	ASM
	R308	NO_ASM	ASM
	C205	NO_ASM	ASM
Page 18	C206	NO_ASM	ASM
	Y10	ASM	NO_ASM
	R3272	ASM	NO_ASM
	R3273	ASM	NO_ASM
Page 15	C3284	ASM	NO_ASM
	C3285	ASM	NO_ASM
	R3274	ASM	NO_ASM
	R3275	NO_ASM	ASM
	R3276	NO_ASM	ASM

↑  
LOGIC



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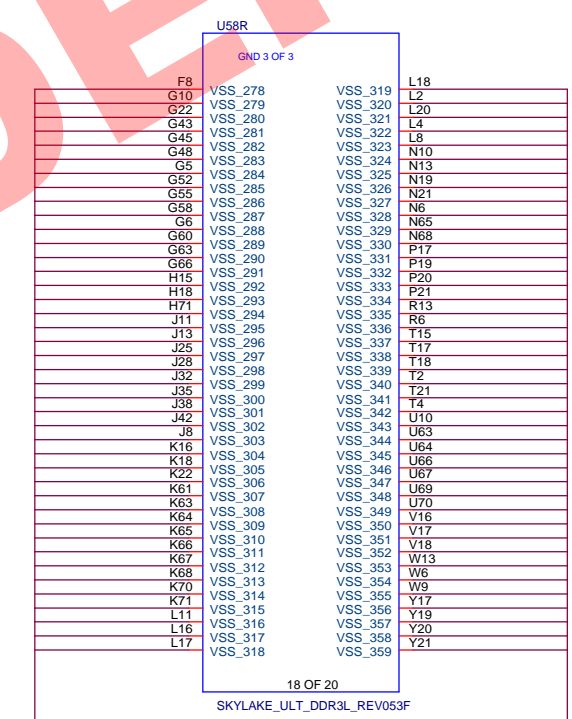
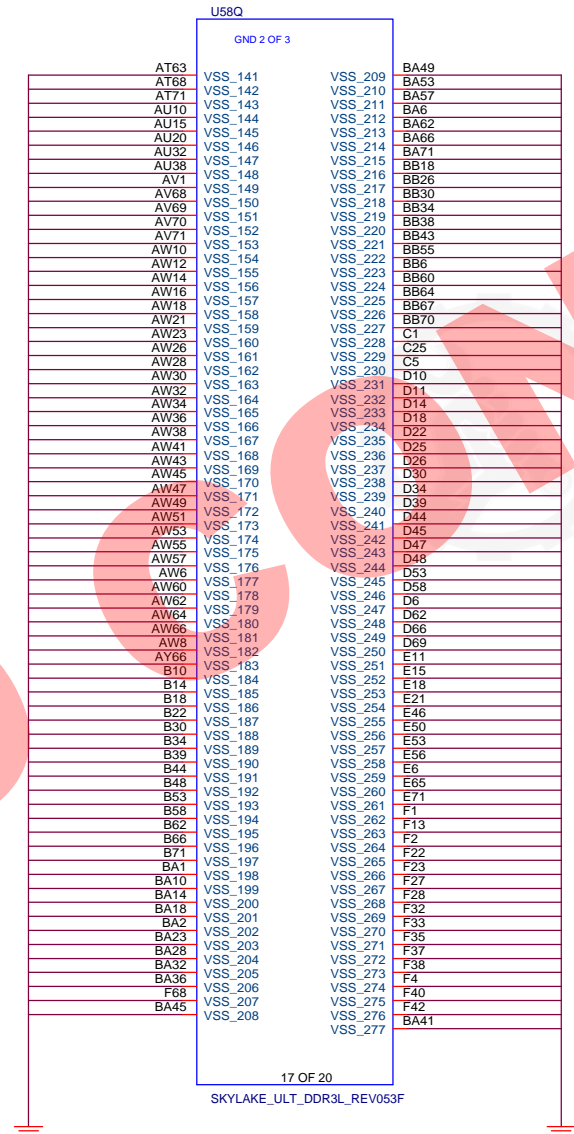
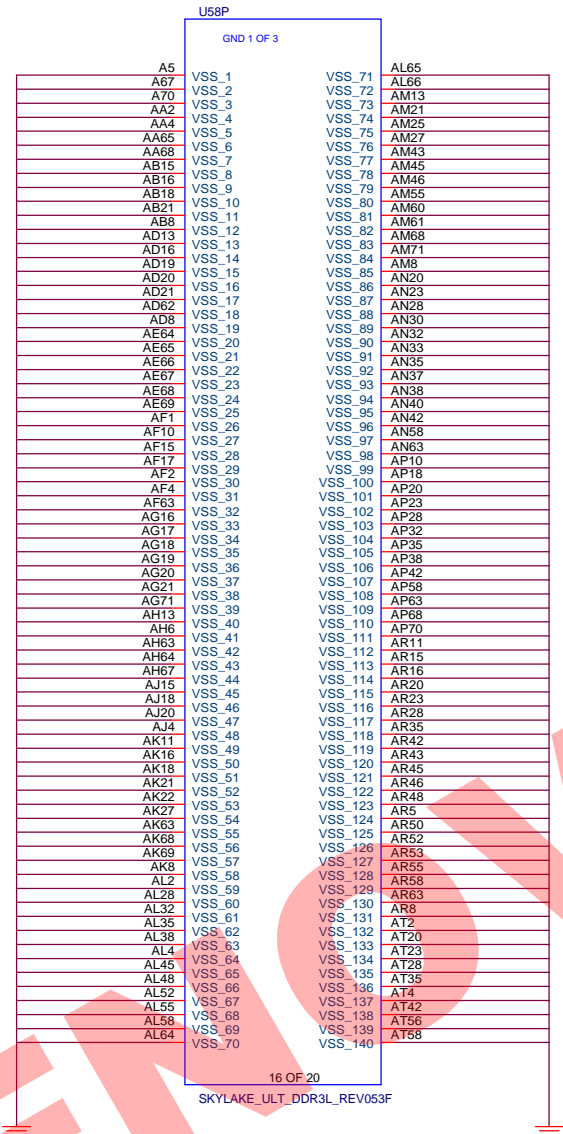
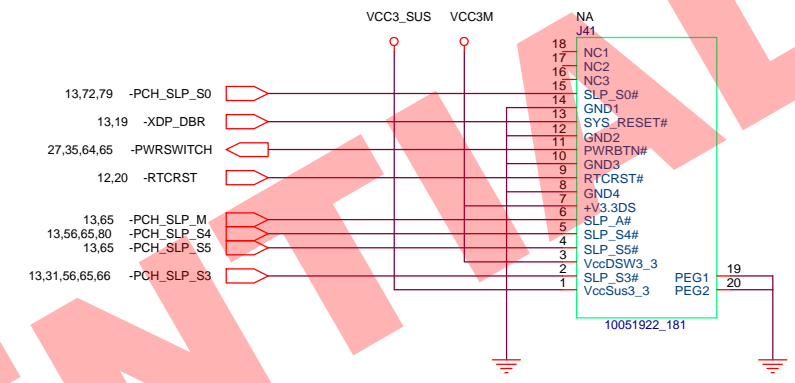
U580  
CPU POWER 4 OF 4

AB19	VCCPRIM_1P0_1
AB20	VCCPRIM_1P0_2
P18	VCCPRIM_1P0_3
AF18	VCCPRIM_CORE1
AF19	VCCPRIM_CORE2
V20	VCCPRIM_CORE3
V21	VCCPRIM_CORE4
AL1	DCPDSW_1P0
K17	VCCMPHYAON_1P0_1
L1	VCCMPHYAON_1P0_2
N15	VCCMPHYGT_1P0_N15
N17	VCCMPHYGT_1P0_N17
P15	VCCMPHYGT_1P0_P15
P16	VCCMPHYGT_1P0_P16
K15	VCCAMPHYPLL_1P0_1
L15	VCCAMPHYPLL_1P0_2
V15	VCCAPLL_1P0
AB17	VCCPRIM_1P0_AB17
Y18	VCCPRIM_1P0_Y18
AD17	VCCDSW_3P3_AD17
AJ17	VCCDSW_3P3_AD18
AJ19	VCCDSW_3P3_AJ17
AJ16	VCCSDA
AF20	VCCSPI
AF21	VCCSRAM_1P0_1
T19	VCCSRAM_1P0_2
T20	VCCSRAM_1P0_3
AJ21	VCCSRAM_1P0_4
AK20	VCCPRIM_3P3_AJ21
N18	VCCPRIM_1P0_AK20
N18	VCCAPLLEBB_1P0

SKYLAKE\_ULTRADDDR3\_REV053F

# APS/PETS Interface

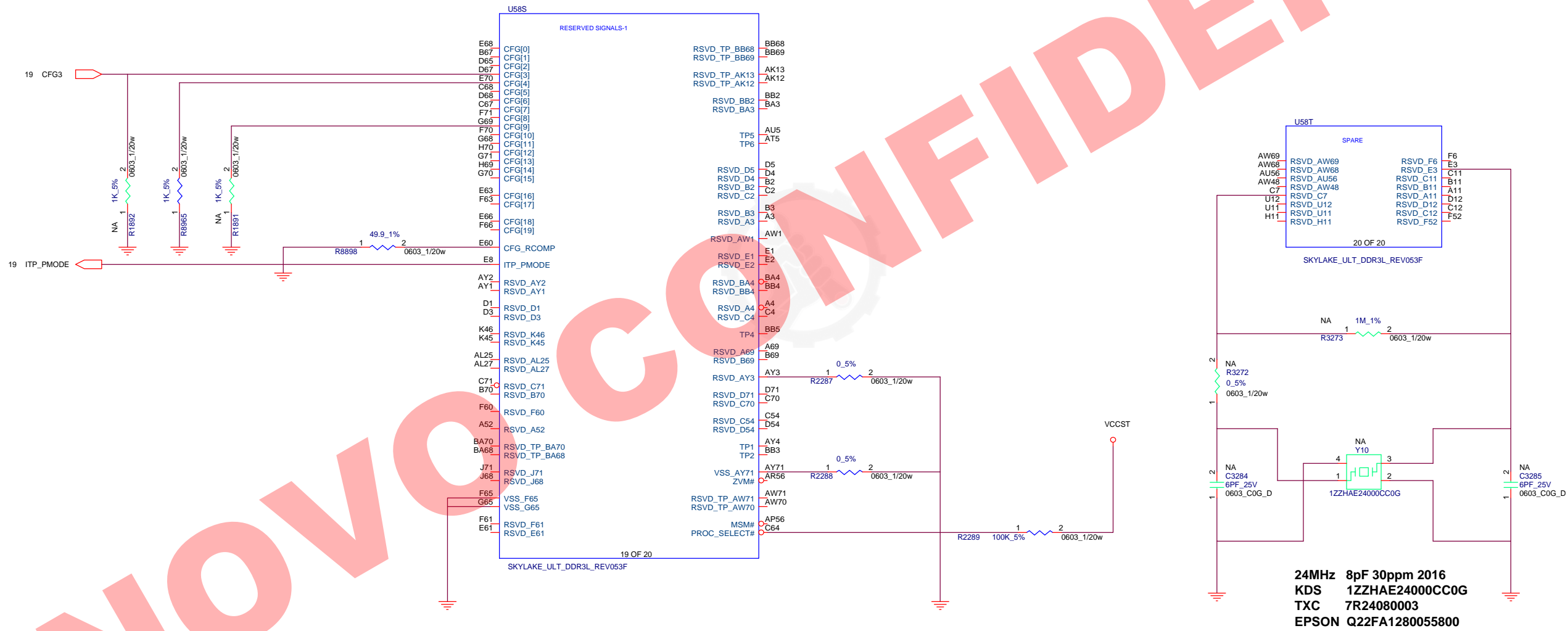
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TABLE

<b>CFG0 : Stall Reset Sequence after PCU PLL Lock until de-asserted</b> 1 : No Stall 0 : Stall
<b>CFG3 : MSR Privacy Bit Feature</b> 1 : MSR (C80h) bit[0] setting 0 : MSR (C80h) bit[0] overridden
<b>CFG4 : eDP Enable</b> 1 : Disabled 0 : Enabled
<b>CFG9 : SVID Bus Communication</b> 1 : Enabled 0 : Disabled

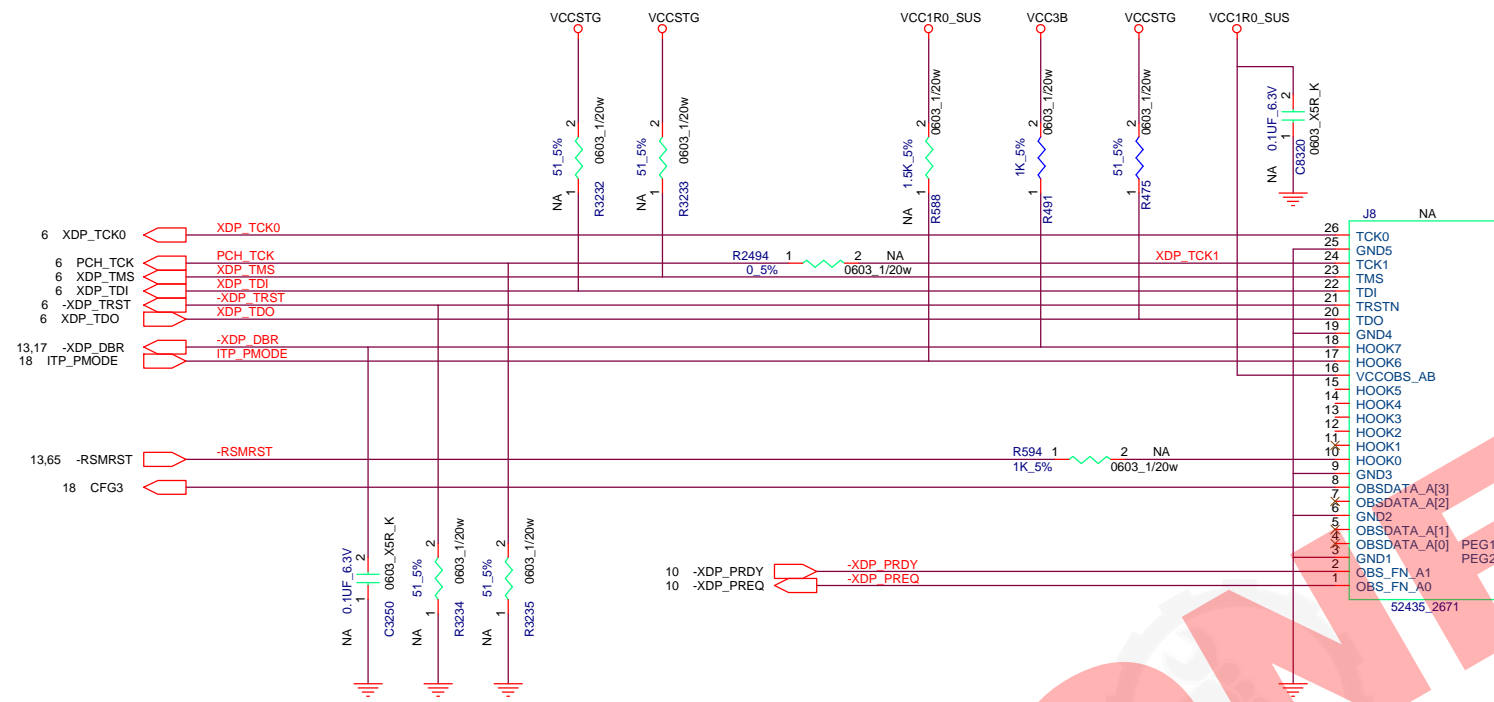
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24MHz 8pF 30ppm 2016  
 KDS 1ZZHAE24000CC0G  
 TXC 7R24080003  
 EPSON Q22FA1280055800

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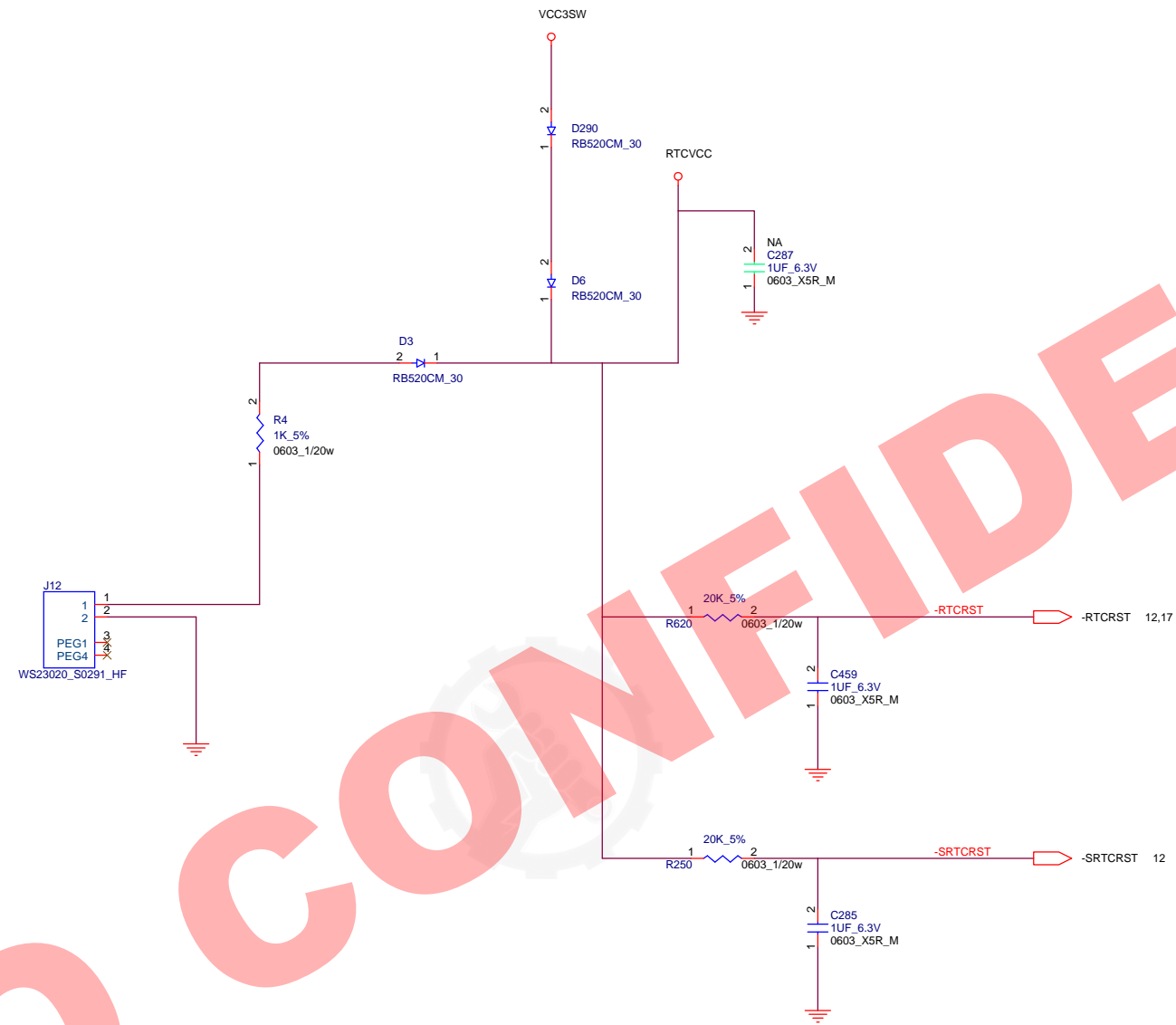
**TABLE**

Logic	Ref Des	Merged	DCI 2.0
Page 7	R2559	ASM	NO_ASM
Page 18	R1892	ASM	NO_ASM
Page 19	J8	ASM	NO_ASM
	C8320	ASM	NO_ASM
	R475	ASM	ASM
	R491	ASM	ASM
	R588	ASM	NO_ASM
	R594	ASM	NO_ASM
	R2494	ASM	NO_ASM

↑  
LOGIC

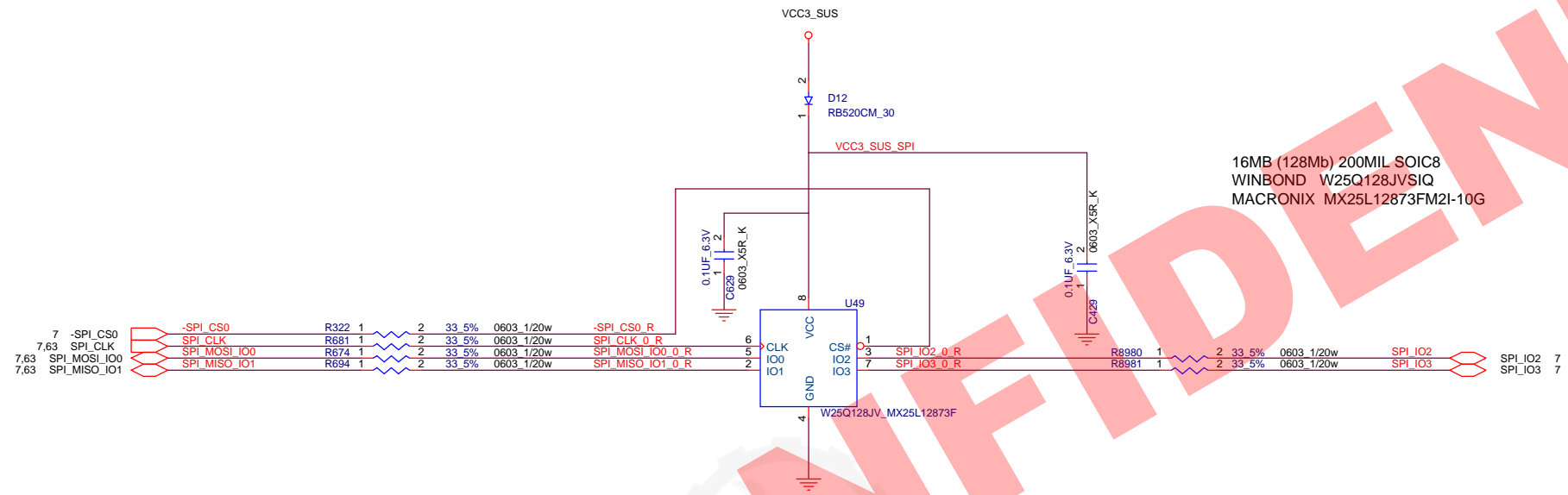
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TABLE

SF100 PIN HEADER INTERFACE (TOP VIEW)

1	VCC	D12.1	GND	GND	2
3	CS#	R322.2	R681.2	CLK	4
5	MISO	R694.2	R674.2	MOSI	6
7	(KEY)	N/A	N/A	(RESET)	8

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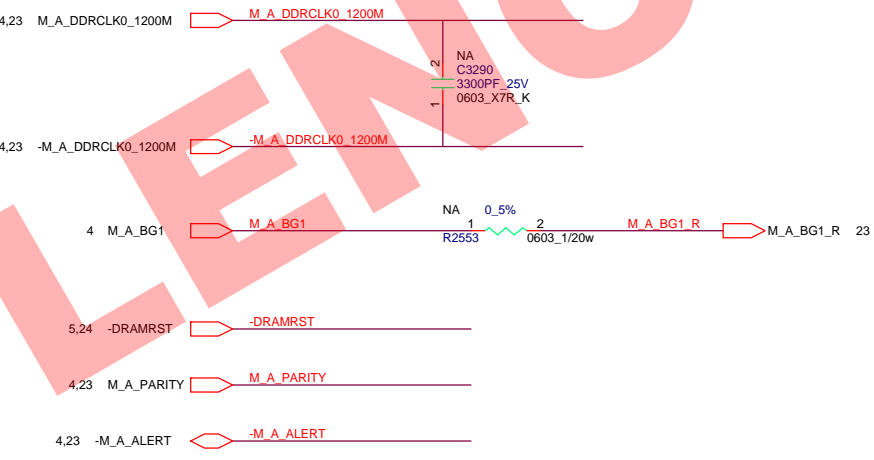


TABLE:

Part Number	SDP	DDP
R2549	ASM	NA
R2550	ASM	NA
R2551	ASM	NA
R2552	ASM	NA
R2553	NA	ASM
R9041	NA	ASM
R9010	0.5%	243_1%
R9012	0.5%	243_1%
R9014	0.5%	243_1%
R9016	0.5%	243_1%

TABLE: DDR4 SDRAM source

Supplier	Capacity	Supplier's P/N	Package Size	Die	Configuration	ZQL / ZQ	ZQU / VSS	BG1 / VSS	Single Ch	Dual Ch	
Micron	8Gbit	MT40A512M16JY-083:B	8.0 x 14.0 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	8Gbit	MT40A512M16LY-075:E	7.5 x 13.5 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	16Gbit	MT40A1G16WBU-083E:B	8.0 x 14.0 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	ZQL	ZQU	BG1	8GB	16GB
Samsung	8Gbit	K4A8G165WC-BCRC	7.5 x 13.3 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	16Gbit	K4AAG165WB-MCRC	7.5 x 13.3 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	ZQL	ZQU	BG1	8GB	16GB
SK hynix	8Gbit	H5AN8G6NAFR-UHC	7.5 x 13.0 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	16Gbit	H5ANAG6NAMR-UHC	7.5 x 13.0 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	ZQL	ZQU	BG1	8GB	16GB



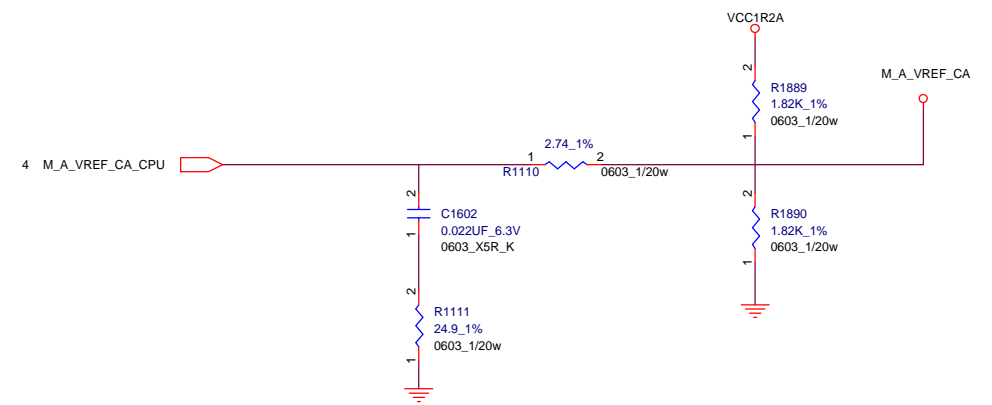
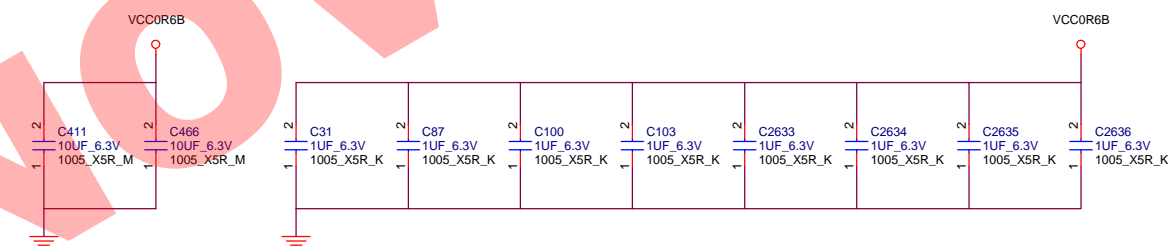
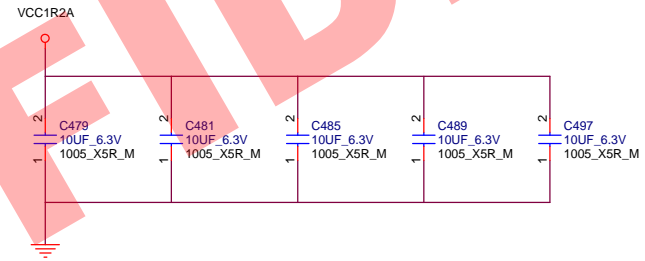
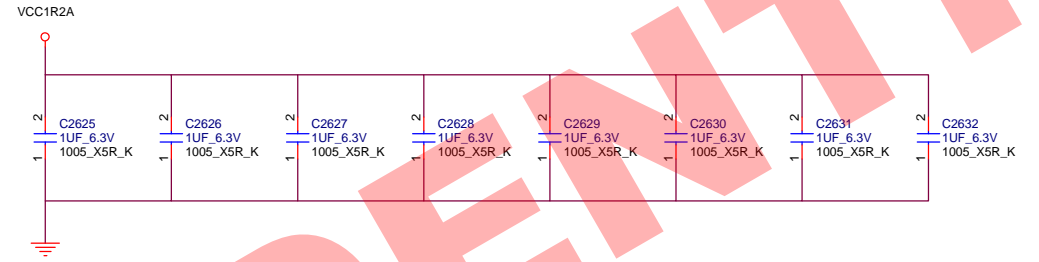
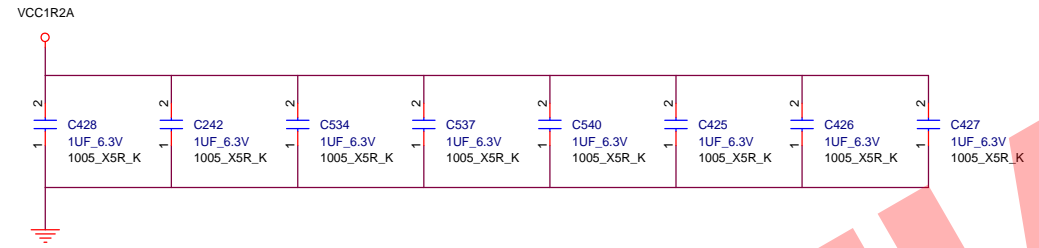
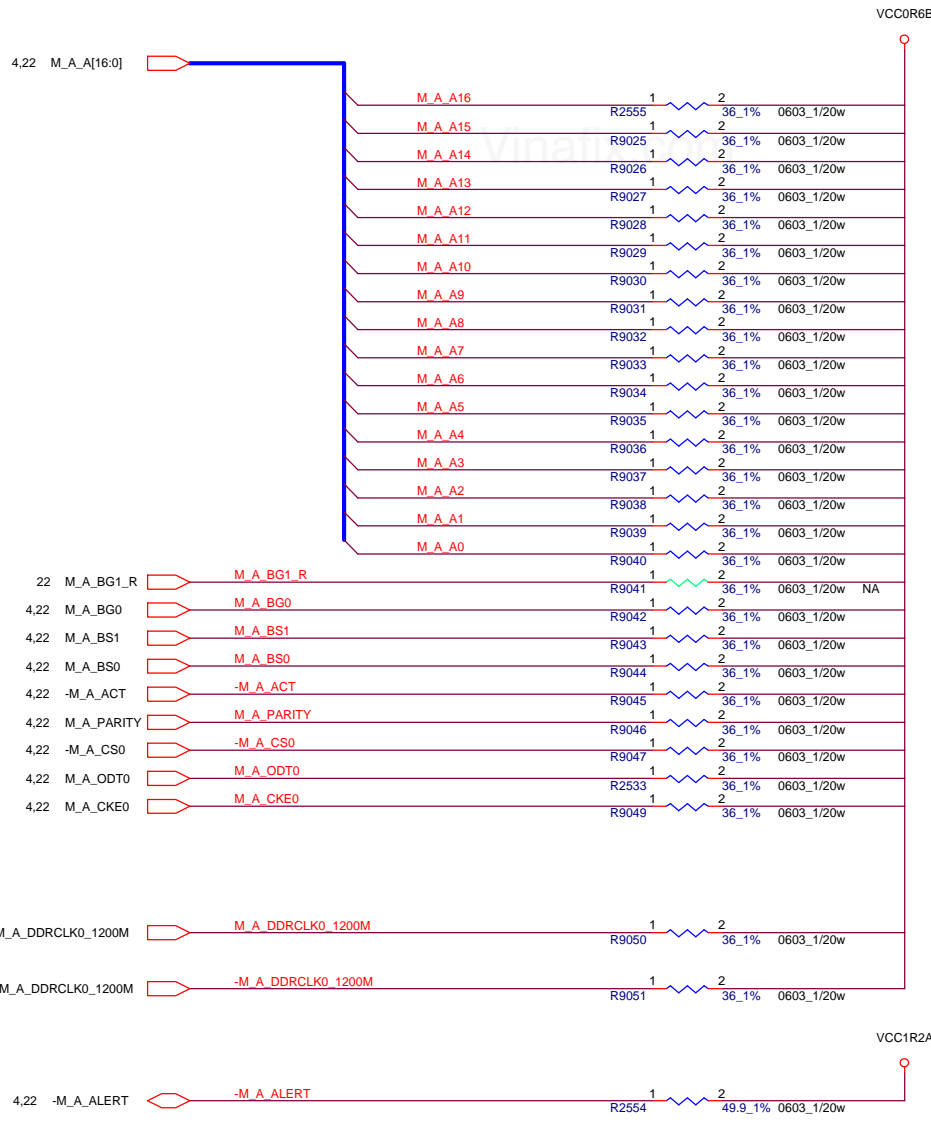
LOGIC

**Lenovo**

Project Name : Title :  
 Finn-1 SOVP DDR4 BASE MEMORY CH-A (1/2)

Size : C Document Number : Rev : 4.00

Date: Thursday, December 21, 2017 Sheet: 22 of 91



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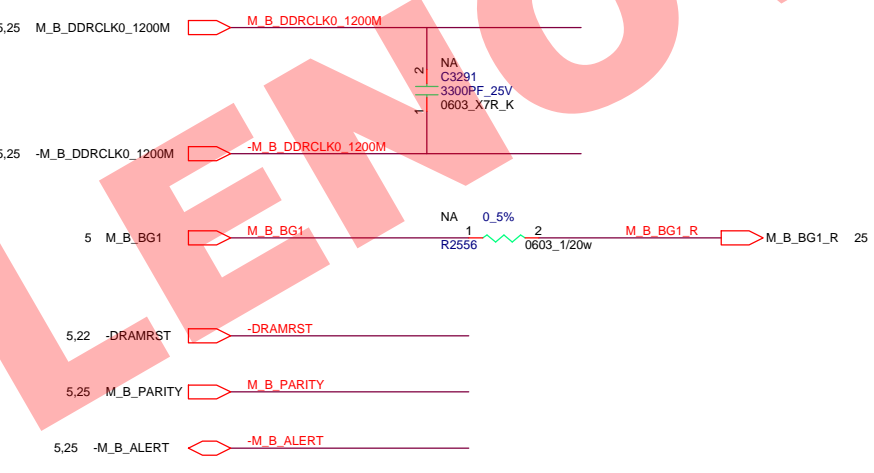


TABLE:

	SDP	DDP
R2567	ASM	NA
R2560	ASM	NA
R2562	ASM	NA
R2561	ASM	NA
R2556	NA	ASM
R9060	NA	ASM
R9024	0.5%	243_1%
R9022	0.5%	243_1%
R9017	0.5%	243_1%
R9019	0.5%	243_1%

TABLE: DDR4 SDRAM source

Supplier	Capacity	Supplier's P/N	Package Size	Package	Die	Configuration	ZQL / ZQ	ZQU / VSS	BG1 / VSS	Single Ch	Dual Ch
Micron	8Gbit	MT40A512M16JY-083:B	8.0 x 14.0 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	8Gbit	MT40A512M16LY-075:E	7.5 x 13.5 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	16Gbit	MT40A1G16WBU-083E:B	8.0 x 14.0 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	ZQL	ZQU	BG1	8GB	16GB
Samsung	8Gbit	K4A8G165WC-BCRC	7.5 x 13.3 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	16Gbit	K4AAG165WB-MCRC	7.5 x 13.3 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	ZQL	ZQU	BG1	8GB	16GB
SK hynix	8Gbit	H5AN8G6NAFR-UHC	7.5 x 13.0 mm	SDP	8Gb (512Mx16)	1 Rank x (512Mx16)	ZQ	VSS	VSS	4GB	8GB
	16Gbit	H5ANAG6NAMR-UHC	7.5 x 13.0 mm	DDP	16Gb (1Gx16)	1 Rank x (1Gx16)	ZQL	ZQU	BG1	8GB	16GB

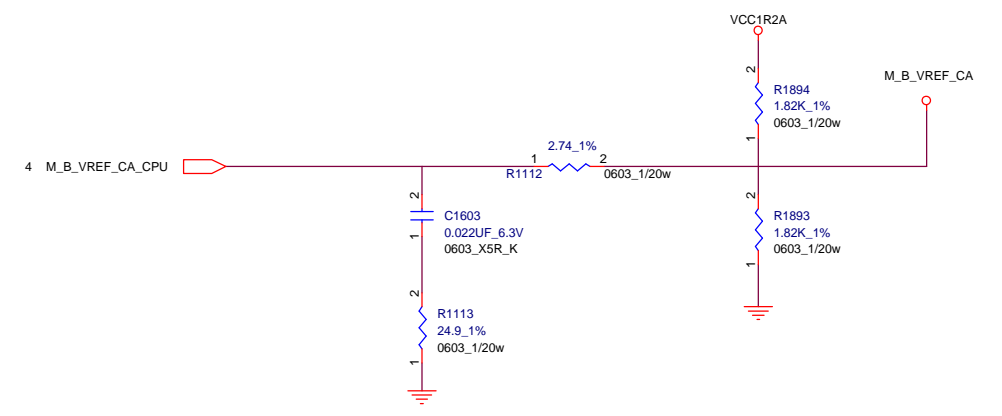
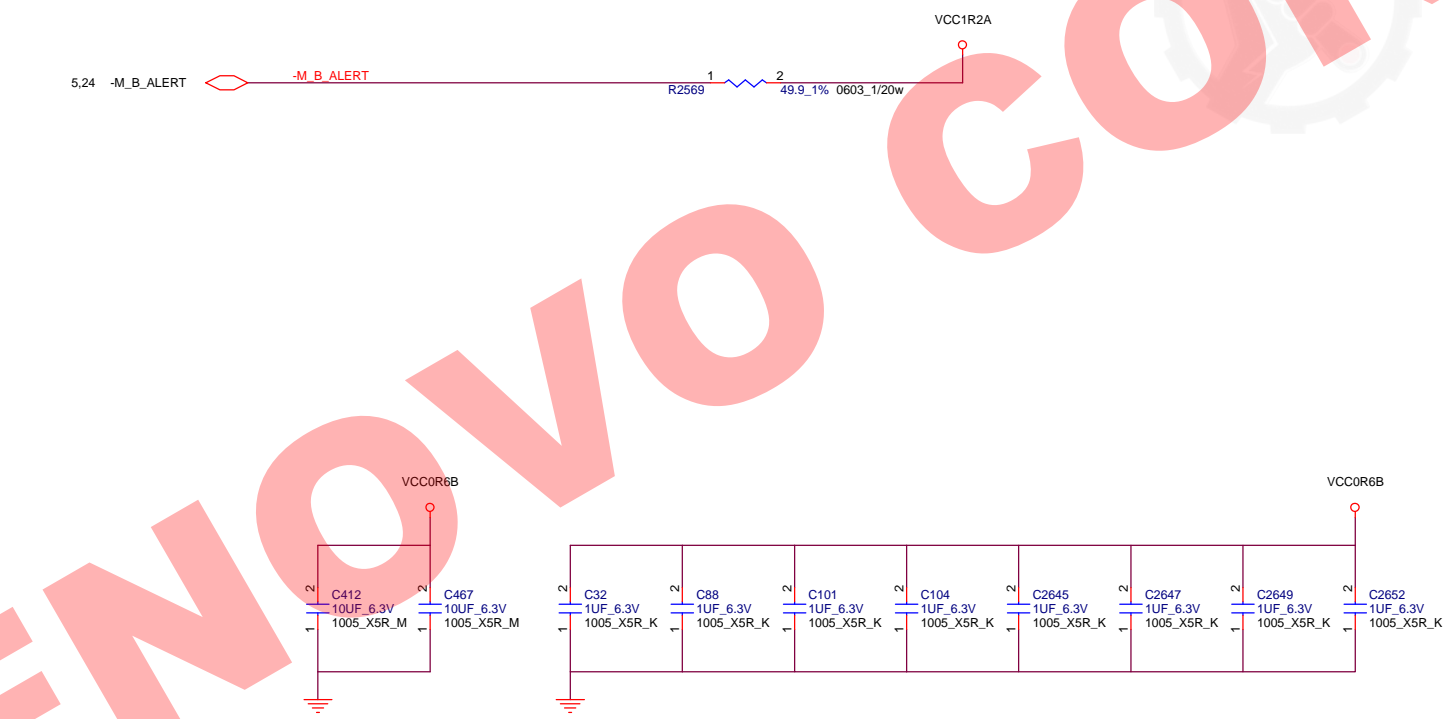
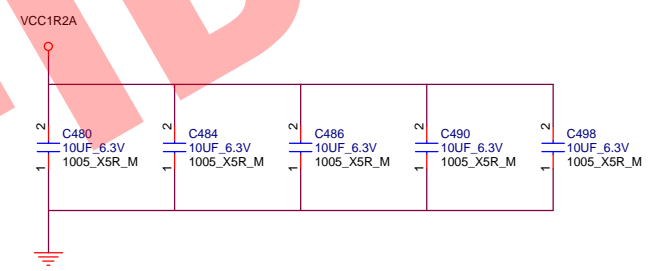
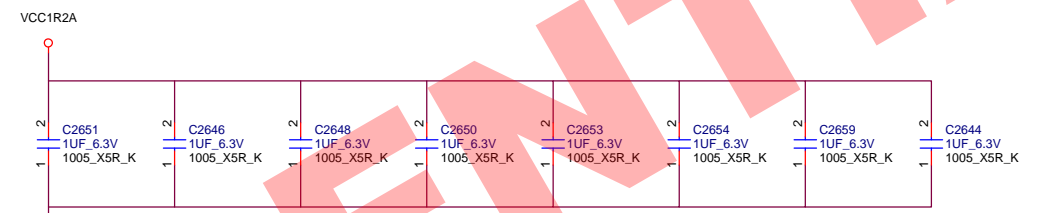
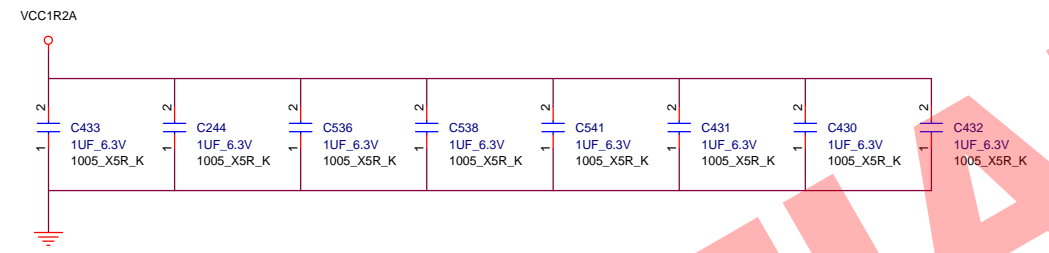
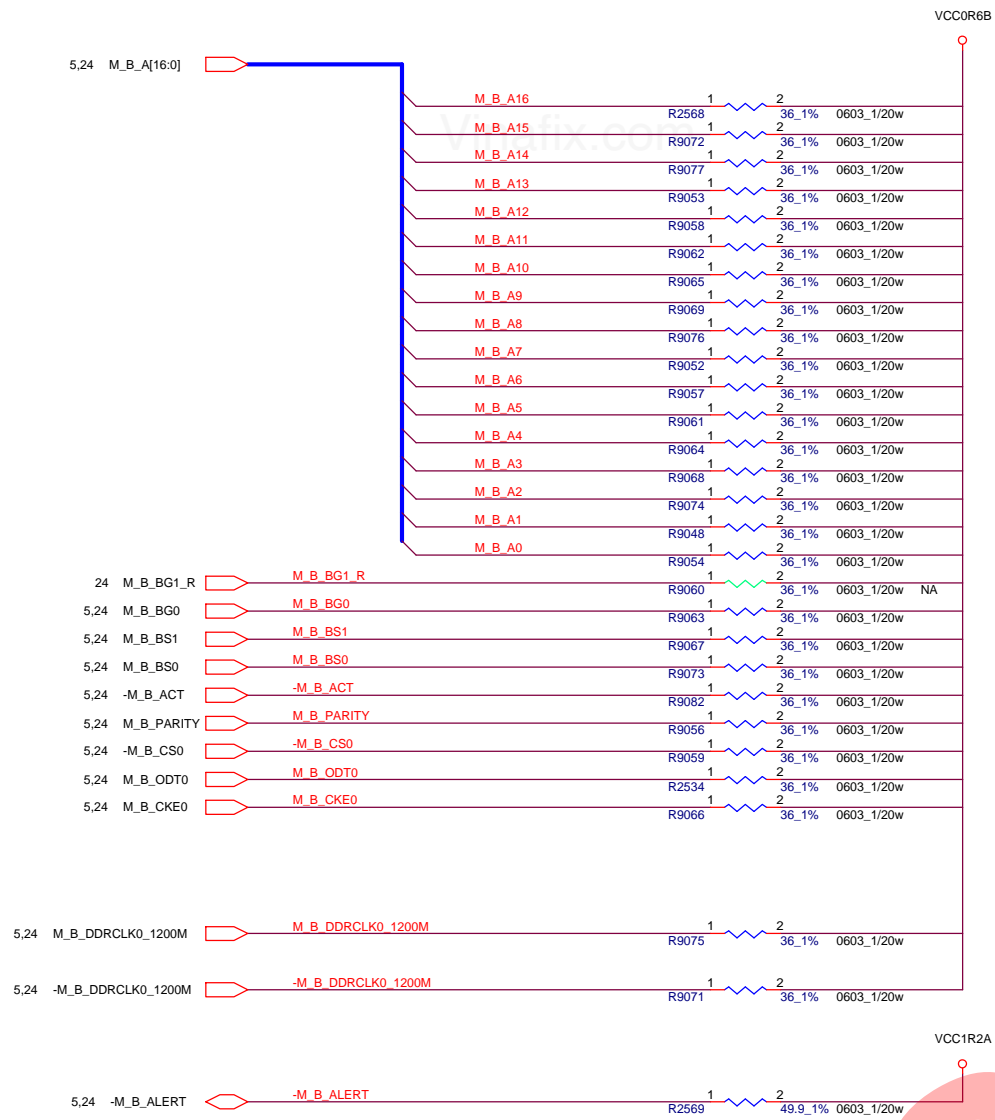
LOGIC

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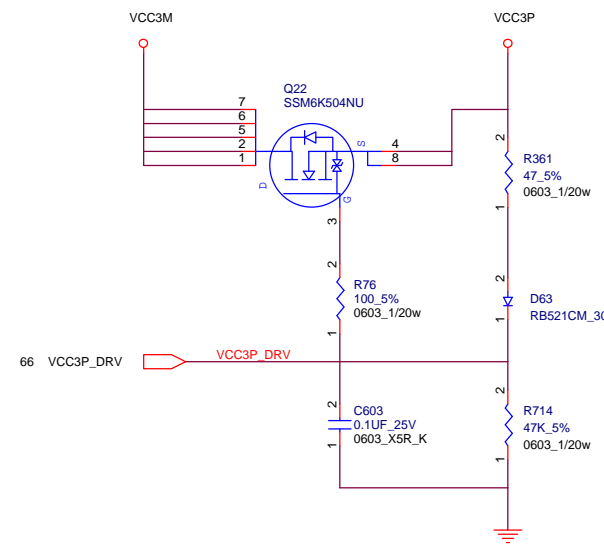
Project Name : Title :  
 Finn-1 SOVP DDR4 BASE MEMORY CH-B (1/2)

Size : C Document Number : Rev : 4.00

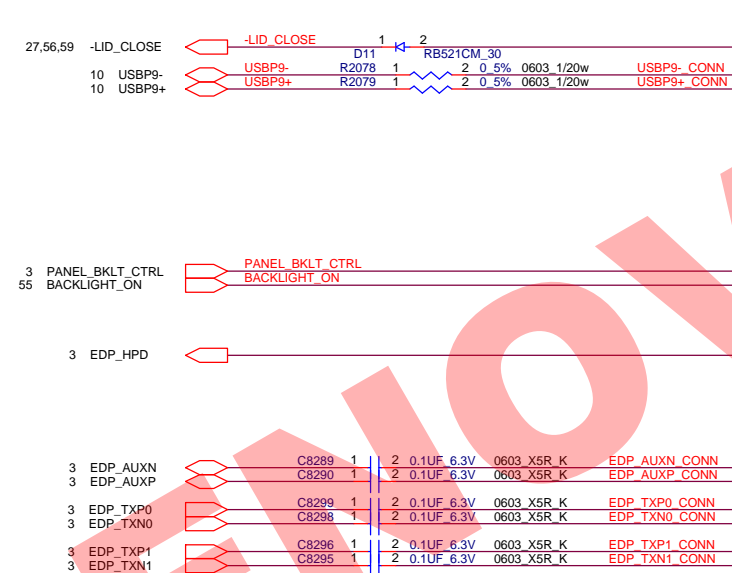
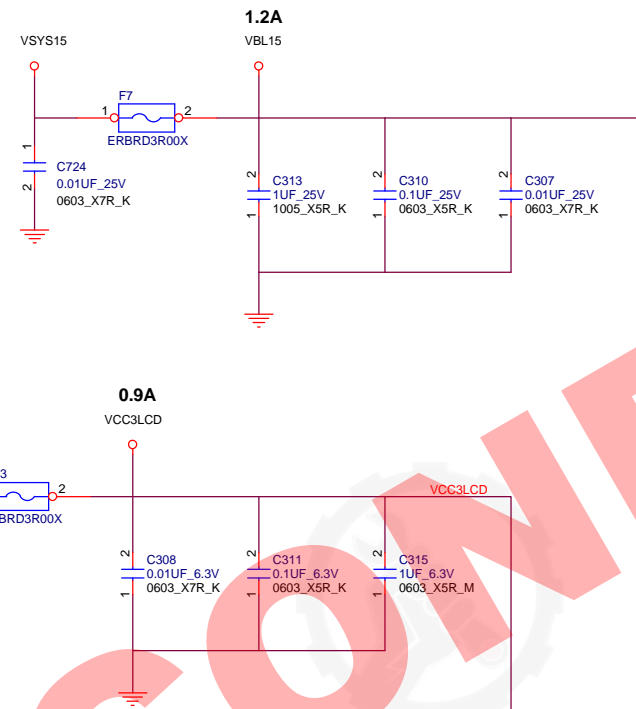
Date: Thursday, December 21, 2017 Sheet: 24 of 91



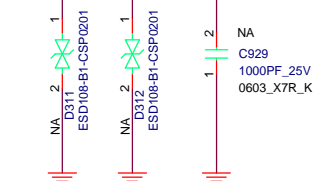
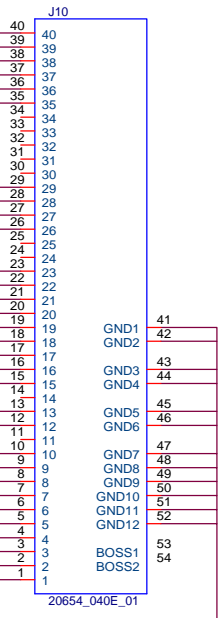
LENOVO



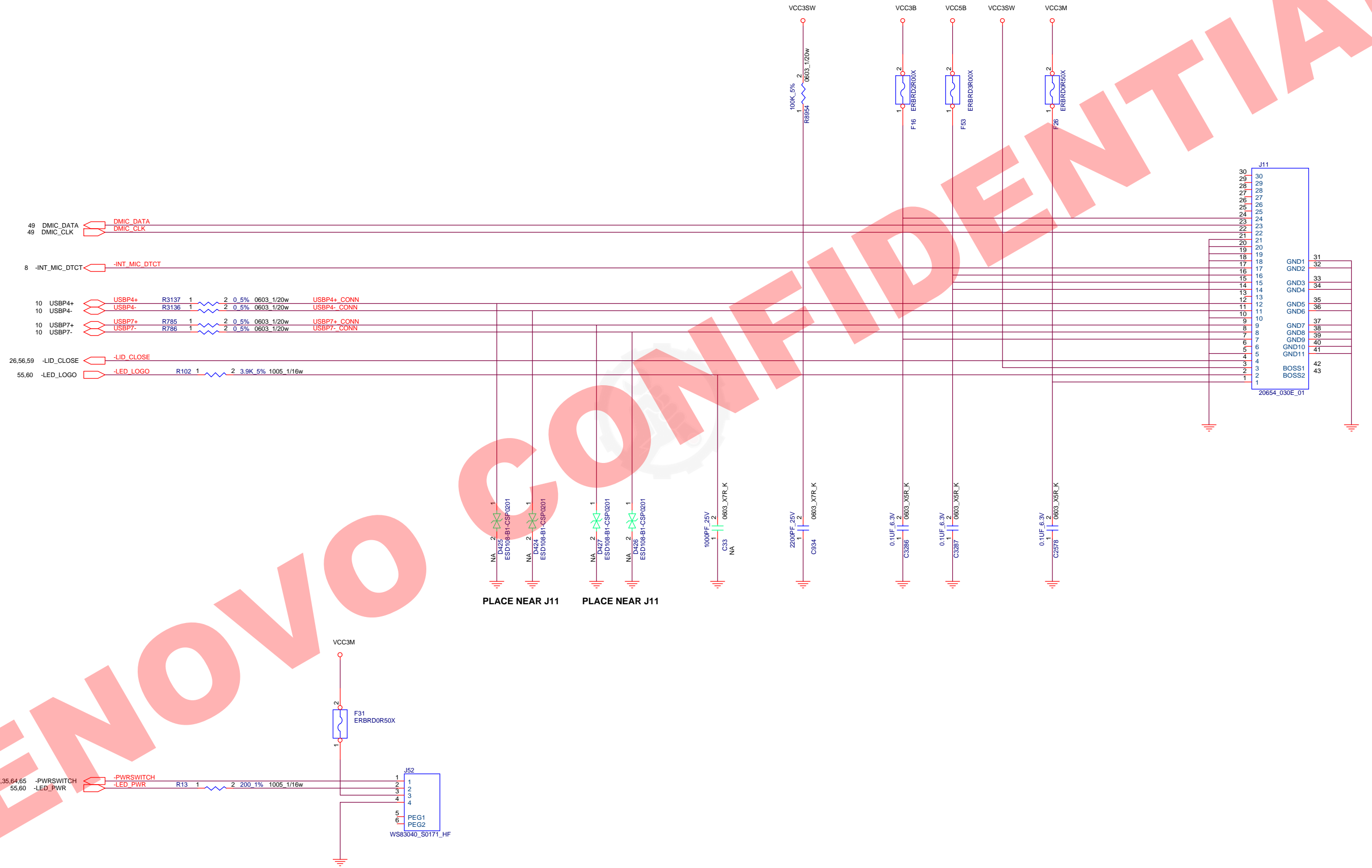
Vinafix.com



LCD CONNECTOR



PLACE NEAR J10



**LENOVO**

**CONFIDENTIAL**

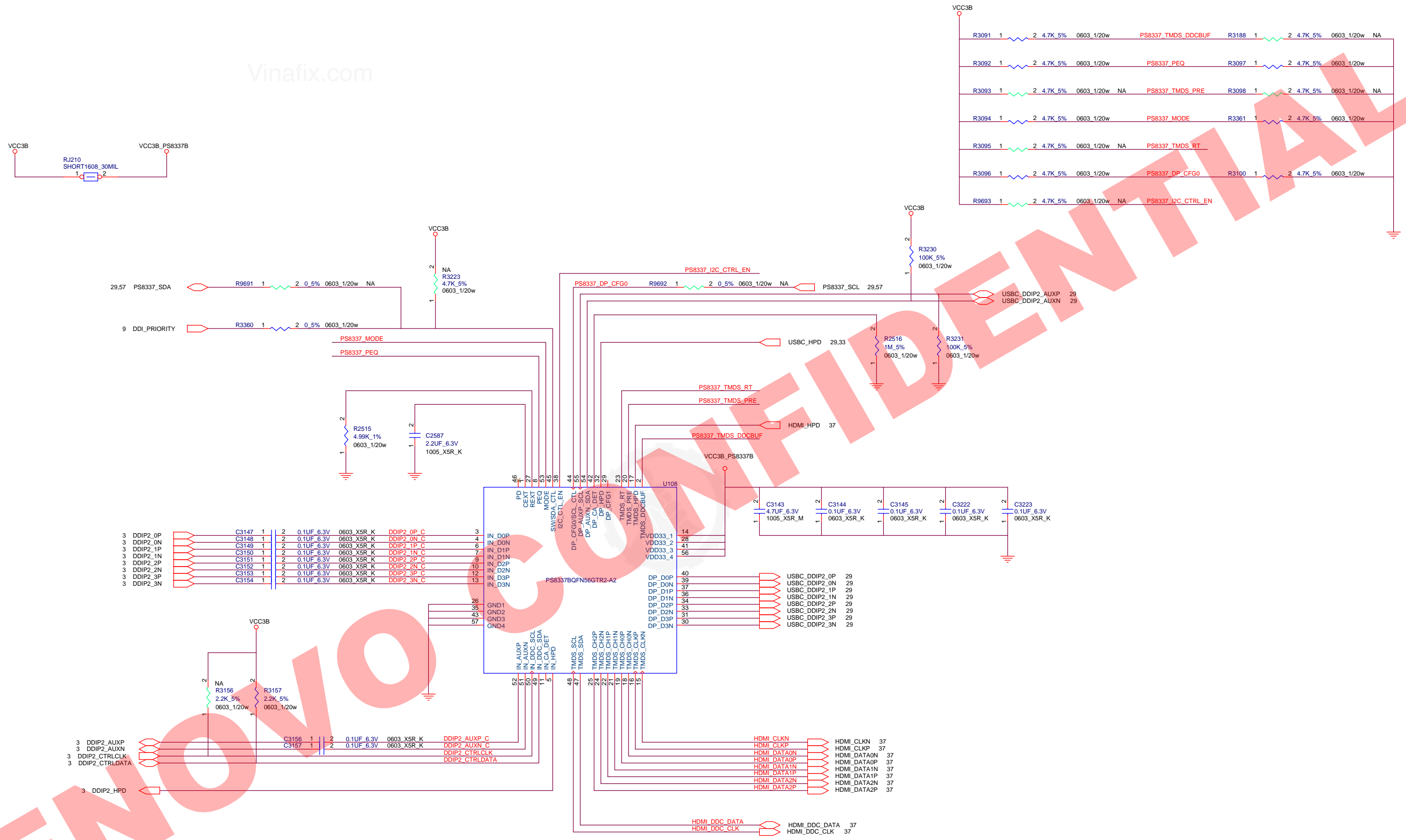
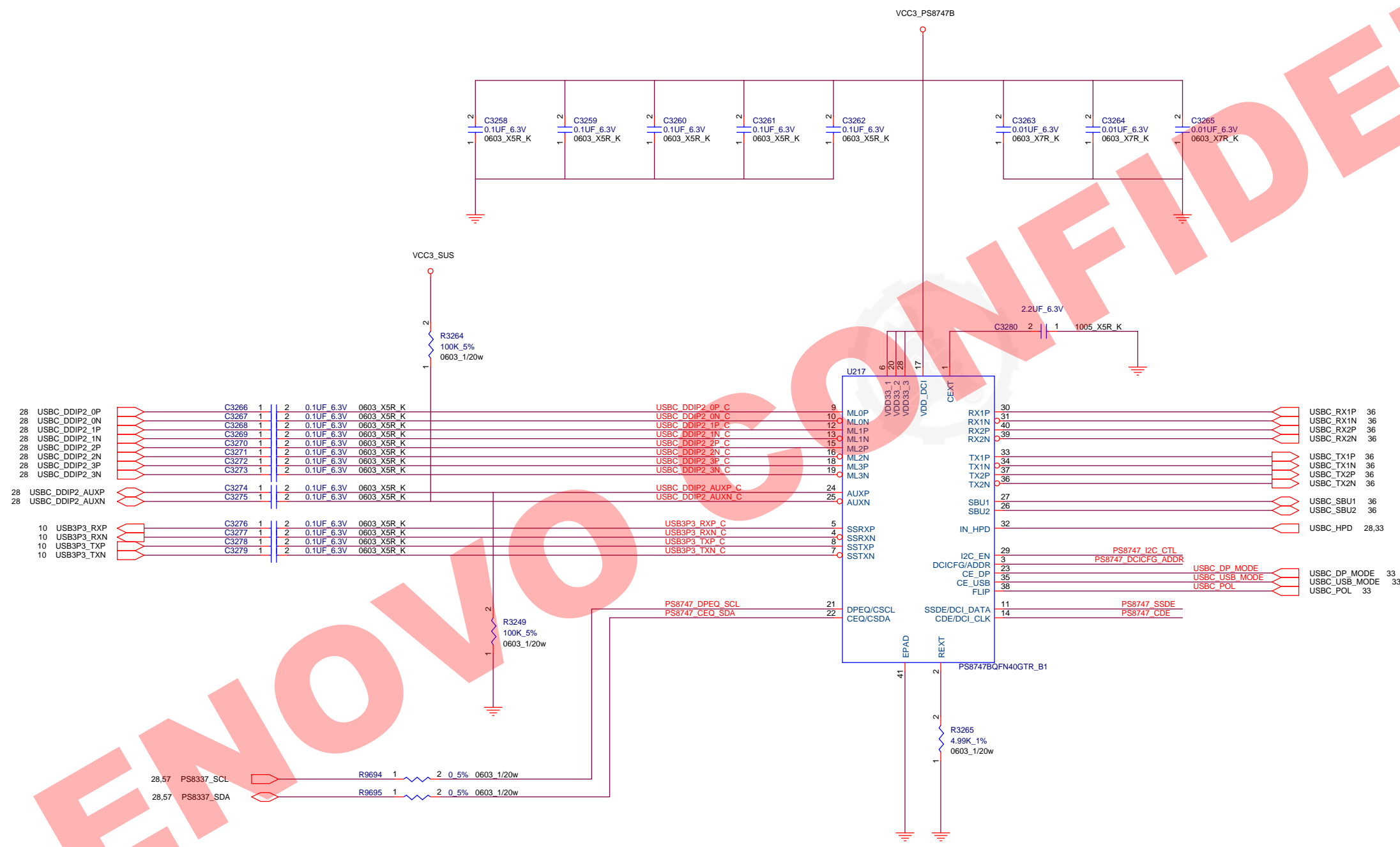
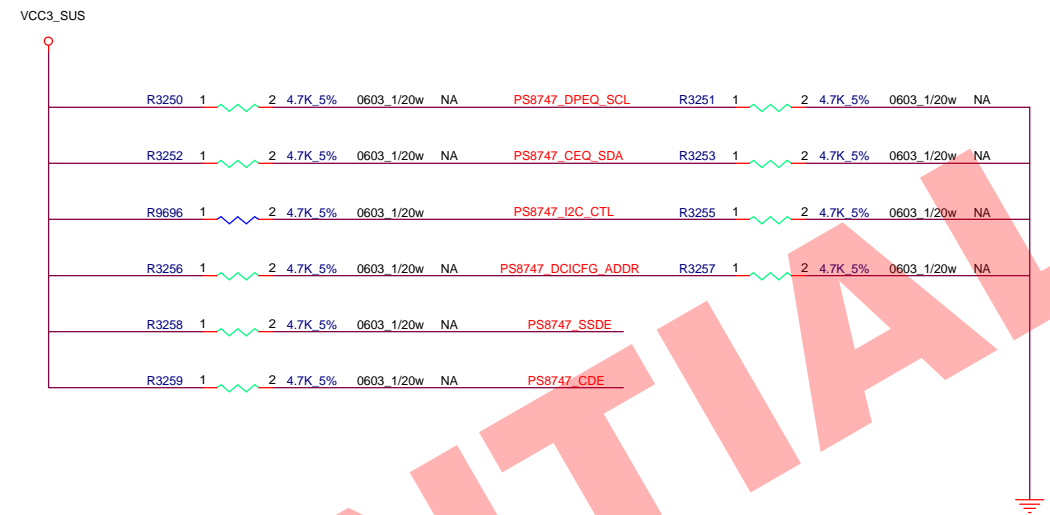
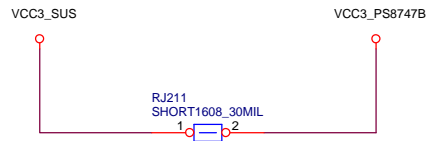


TABLE :

SW	Port Priority Sequence
L	DP Port > TMDS Port
H	TMDS Port > DP Port

← DEFAULT




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BLANK

LENOVO CONFIDENTIAL

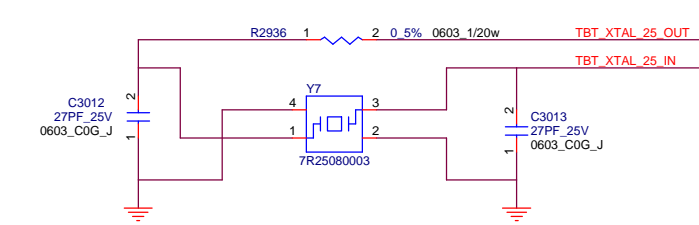
			
Project Name : Finn-1 SOVP		Title : BLANK	
Size : C	Document Number :		Rev : 4.00
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I2C_DATA_TBT	R3044	1	2	2.2K	5%	0603	1/20w	
I2C_CLK_TBT	R3045	1	2	2.2K	5%	0603	1/20w	
TBT_RT_D3_USB_PWR_EN	R9684	1	2	10K	5%	0603	1/20w	NA
TBT_RT_D3_CIO_PWR_EN	R3357	1	2	10K	5%	0603	1/20w	
AR_POC_GPIO1	R3047	1	2	10K	5%	0603	1/20w	
-TBT_PLUG_EVENT	R3048	1	2	10K	5%	0603	1/20w	
-TBT_PCIE_WAKE	R9686	1	2	10K	5%	0603	1/20w	
TBT_SRC0_CFG1	R3051	1	2	1M	5%	0603	1/20w	

I2C_DATA_TBT								I2C_DATA_TBT	33
I2C_CLK_TBT								I2C_CLK_TBT	33
-TBT_PCIE_WAKE								-TBT_PCIE_WAKE	9
-PCIE_WAKE								-PCIE_WAKE	13,45,46,65
-TBT_PLUG_EVENT								-TBT_PLUG_EVENT	6
-TBT_I2C_INT								-TBT_I2C_INT	33
TBT_FORCE_USB_PWR								TBT_FORCE_USB_PWR	9
TBT_FORCE_PWR								TBT_FORCE_PWR	8
-BATLOW								-BATLOW	13,57
-PCH_SLP_S3								-PCH_SLP_S3	13,17,56,65,66
TBT_RT_D3_PWR_EN								TBT_RT_D3_PWR_EN	9
-TBT_RESET_EC								-TBT_RESET_EC	57
-TBT_RESET_PD								-TBT_RESET_PD	33
TBT_EE_DI								TBT_EE_DI	32,33
TBT_EE_DO								TBT_EE_DO	32,33
-TBT_EE_CS								-TBT_EE_CS	32,33
TBT_EE_CLK								TBT_EE_CLK	32,33

DPSRC_CTRLDATA	R3245	1	2	100K	5%	0603	1/20w	
DPSRC_CTRLCLK	R3246	1	2	100K	5%	0603	1/20w	
TBT_TMU_CLK_OUT	R2924	1	2	100K	5%	0603	1/20w	
TBT_RT_D3_USB_PWR_EN	R2925	1	2	10K	5%	0603	1/20w	
TBT_FORCE_PWR	R3052	1	2	100K	5%	0603	1/20w	
-BATLOW_TBT	R3053	1	2	10K	5%	0603	1/20w	
-PCH_SLP_S3_TBT	R3054	1	2	10K	5%	0603	1/20w	
TBT_RT_D3_CIO_PWR_EN	R2926	1	2	10K	5%	0603	1/20w	NA
-TBT_EE_WP	R3337	1	2	10K	5%	0603	1/20w	



25MHz  
TXC  
EPSON  
KDS

18pF 30ppm 2016  
7R25080003  
Q22FA1280056000  
1ZZHAE25000CC0F

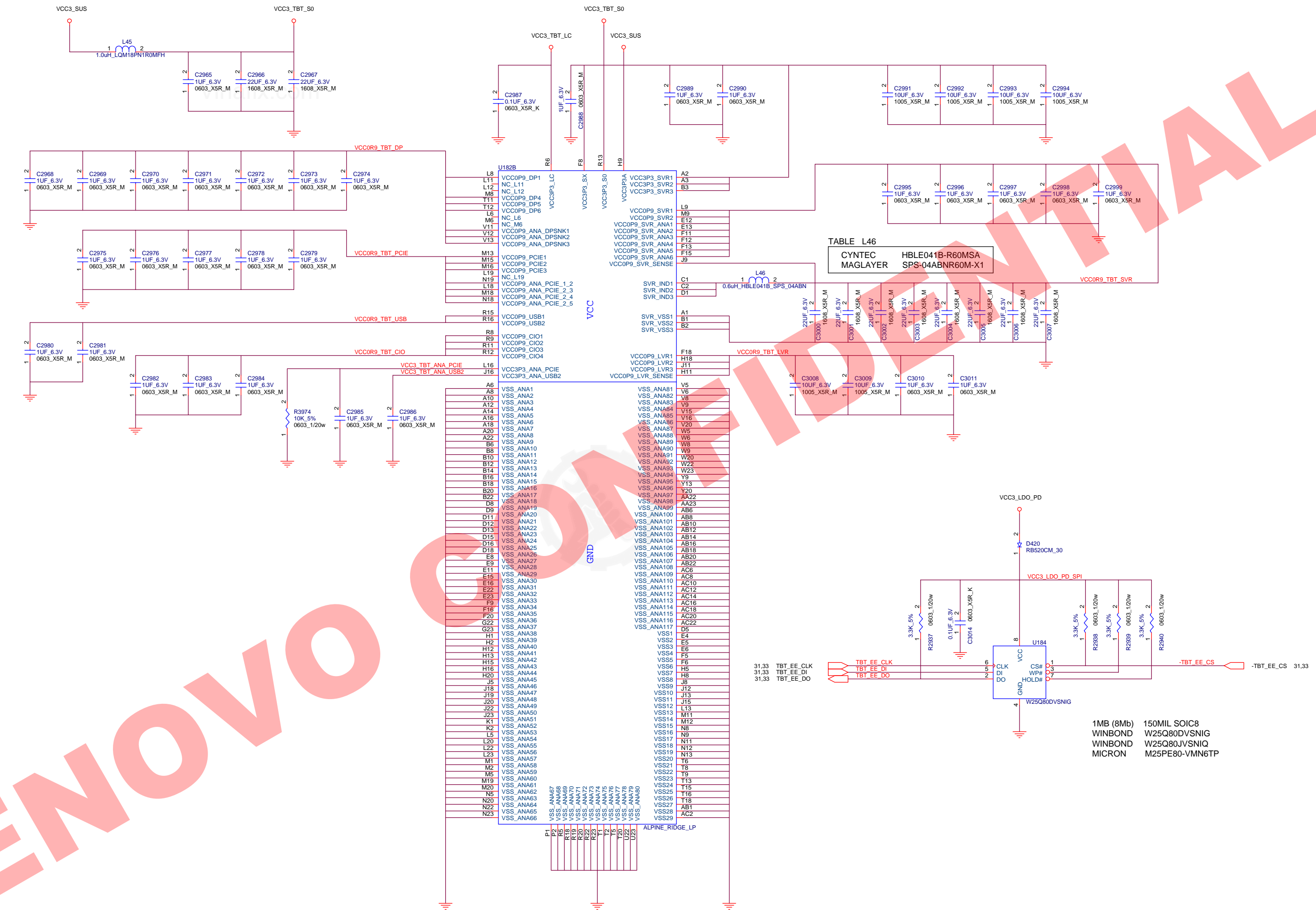
**Lenovo**

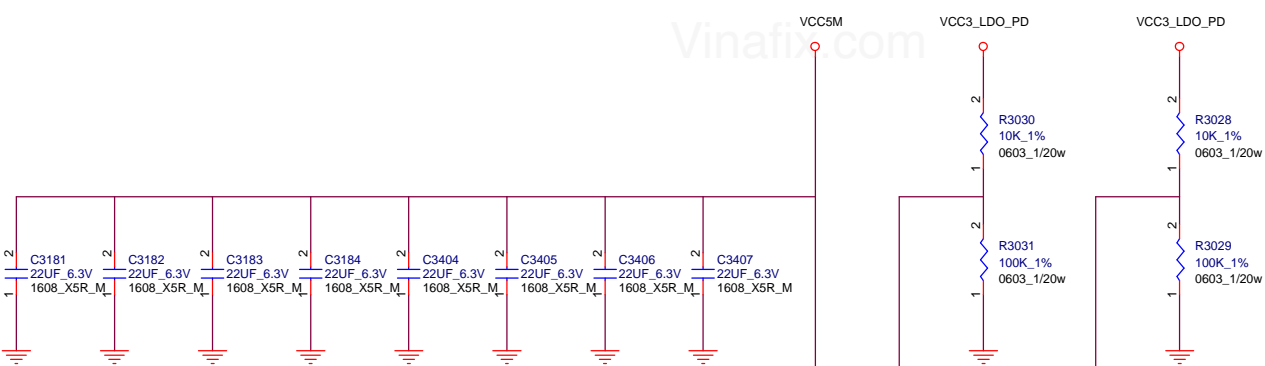
Project Name : **ALPINE RIDGE (1/2)**

Size : **C** Document Number : **Rev : 4.00**

Date: Thursday, December 21, 2017 Sheet: 31 of 91

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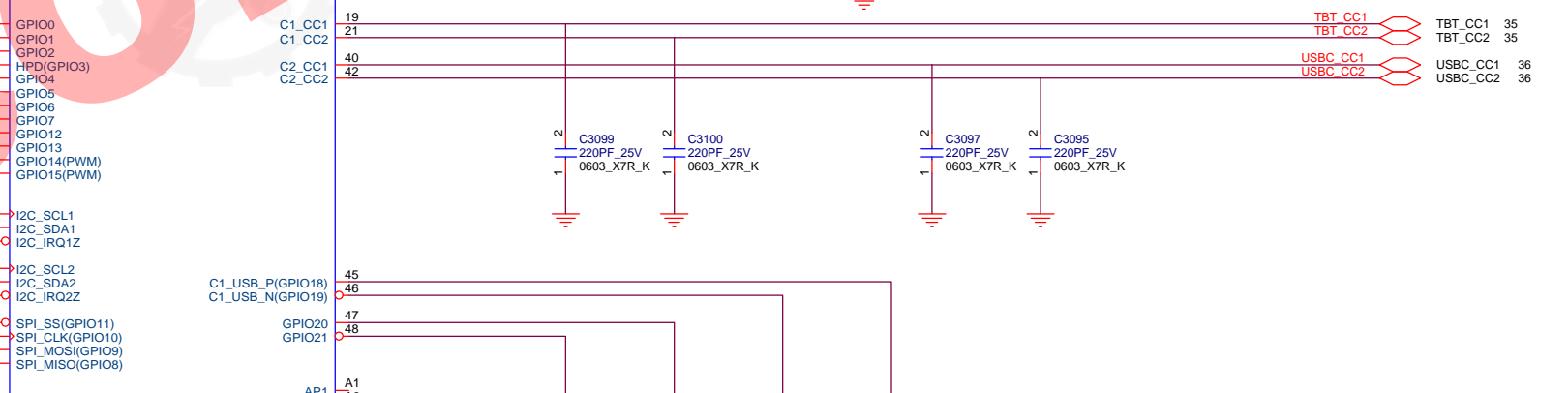
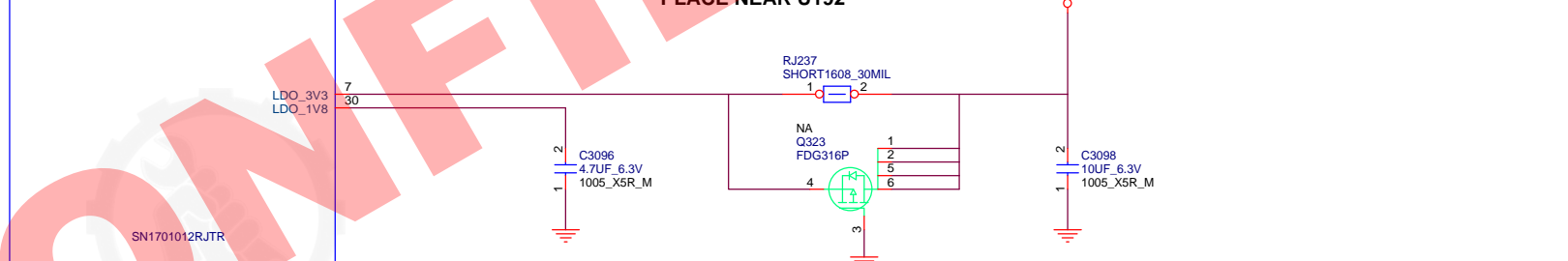
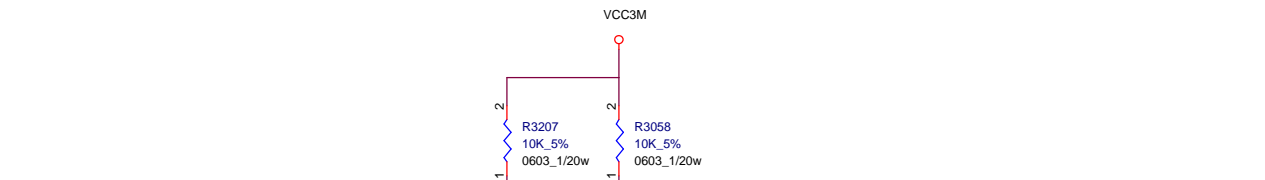
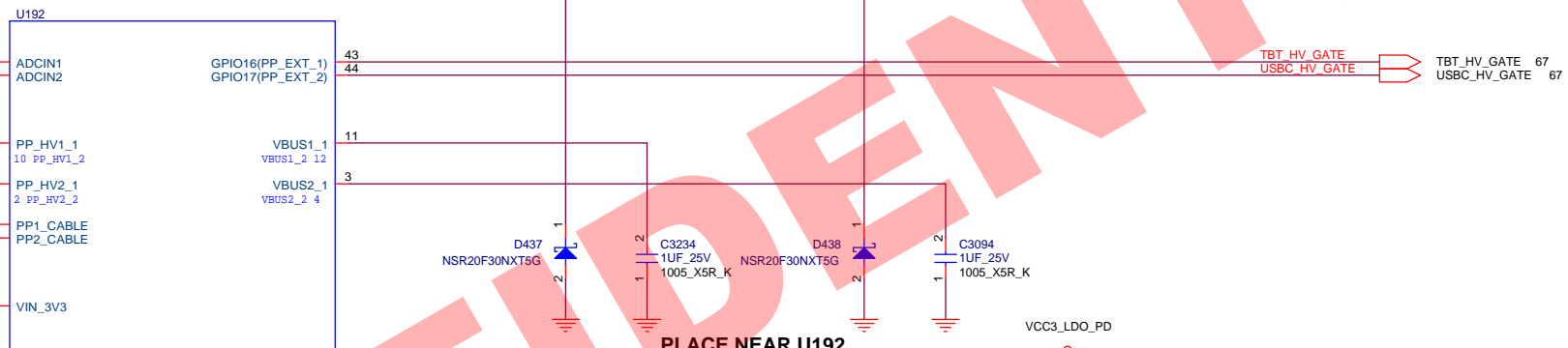
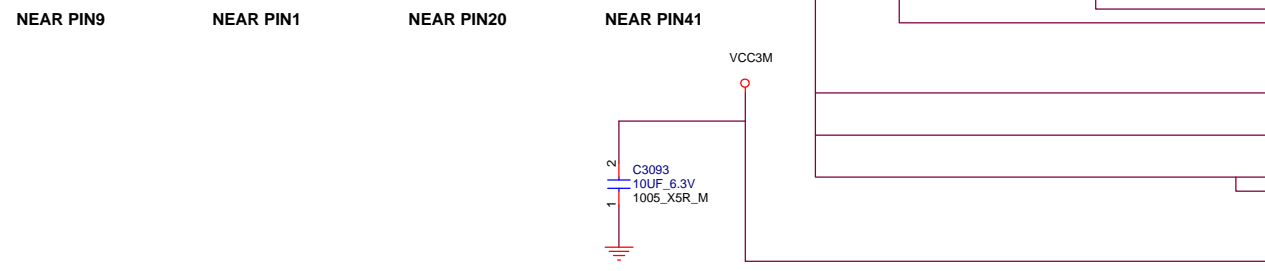




**TABLE I2C Addressing**

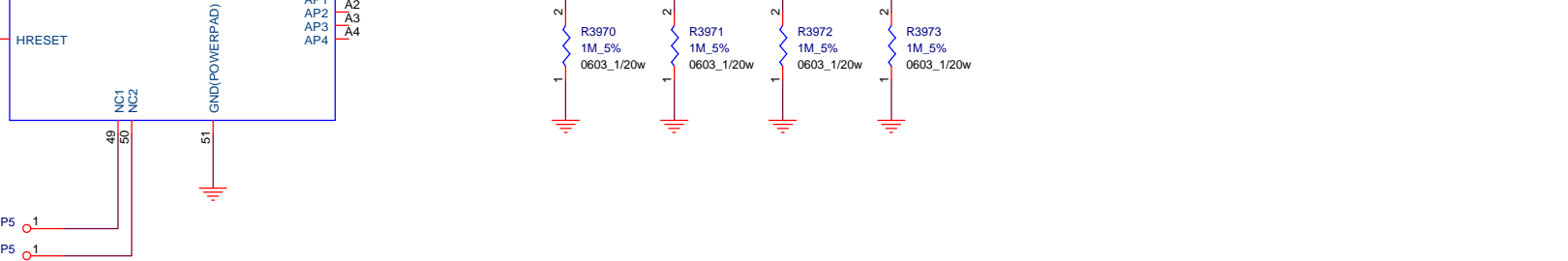
I2C1(to EC)	TBT PORT	0x23
	USBC PORT	0x27
I2C2(to AR)	TBT PORT	0x38
	USBC PORT	0x3F

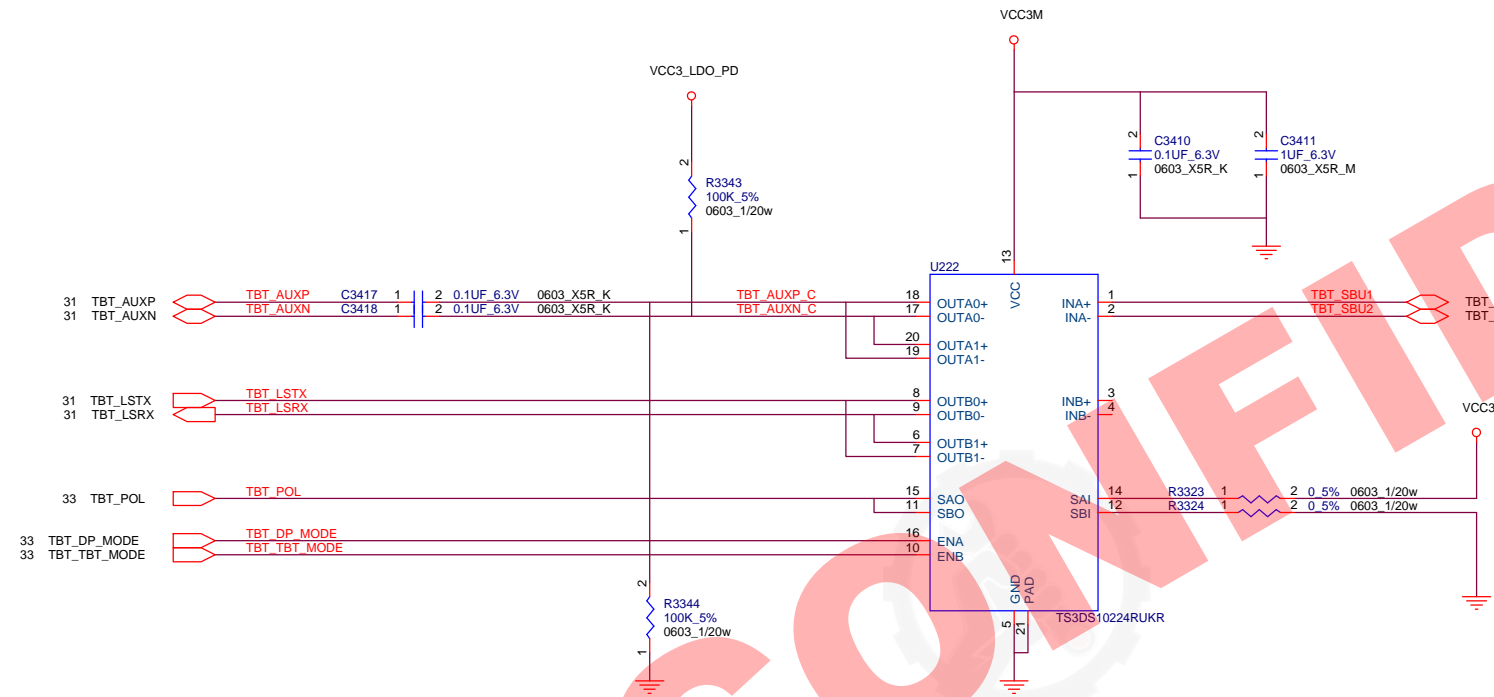
**BUSPOWER Config.**  
BP\_NoWait



**TABLE BUSPOWER Configuration**

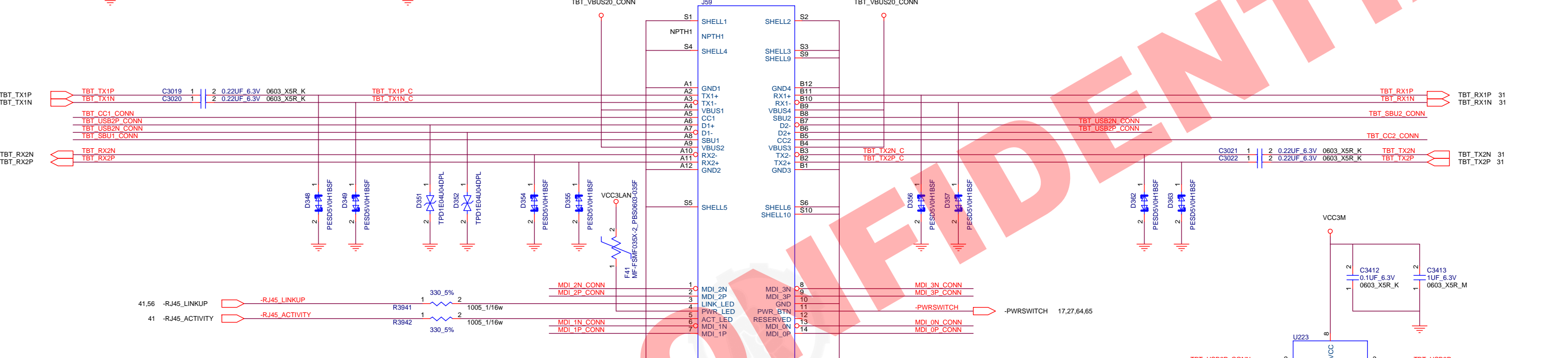
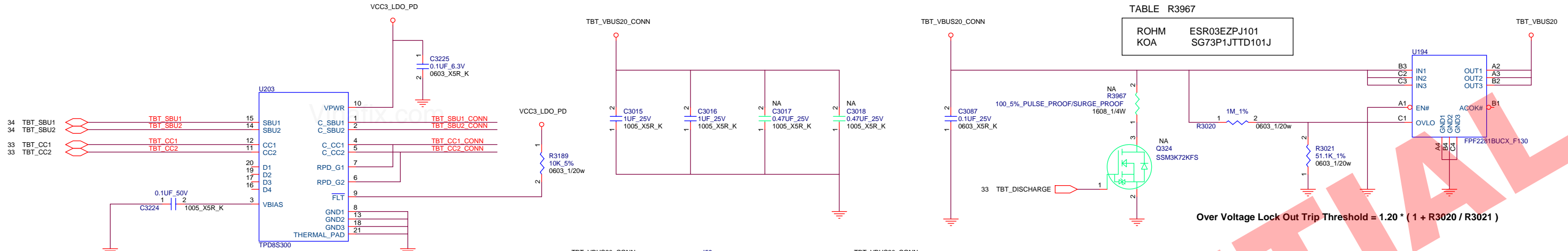
DIV=R2/ (R1+R2)		Configuration
DIV MIN	DIV MAX	
0.00	0.18	BP_NoResponses
0.20	0.38	BP_WaitFor3V3_Internal
0.40	0.58	BP_WaitFor3V3_External
0.60	1.00	BP_NoWait





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**TABLE FL89 - FL92**

1st:	Murata, DLP11SN900HL2
2nd:	TDK, MCZ1210AH900L2TA0G

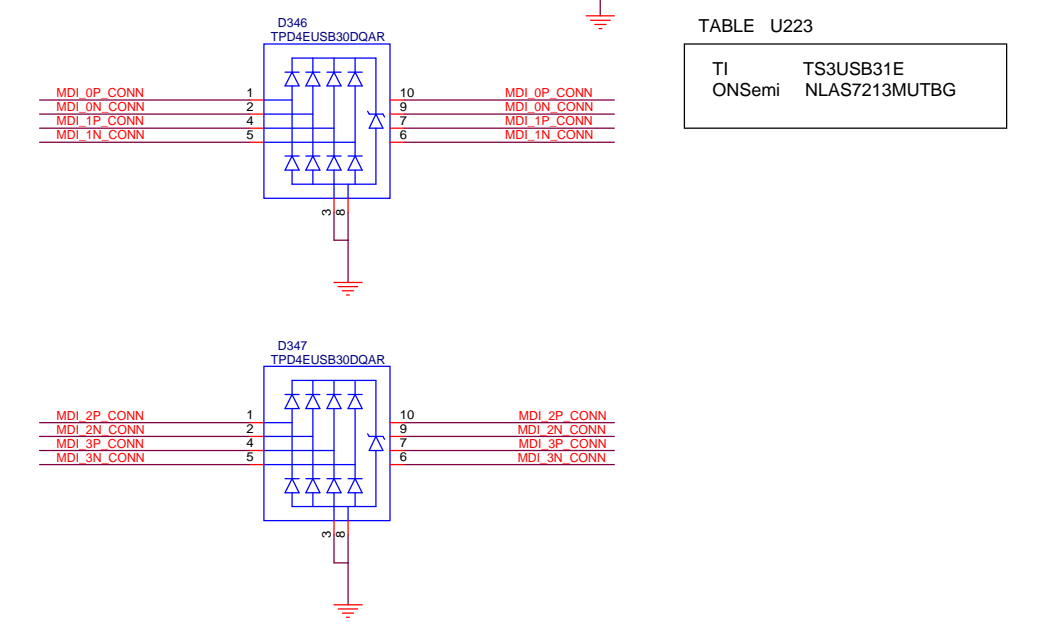
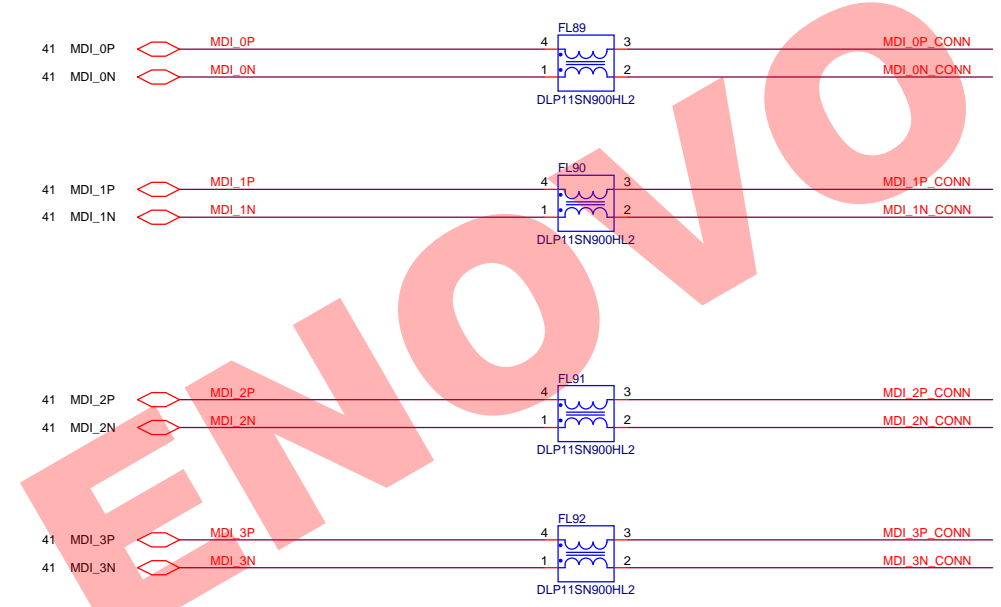




TABLE R3968

ROHM	ESR03EZPJ101
KOA	SG73P1JTTD101J

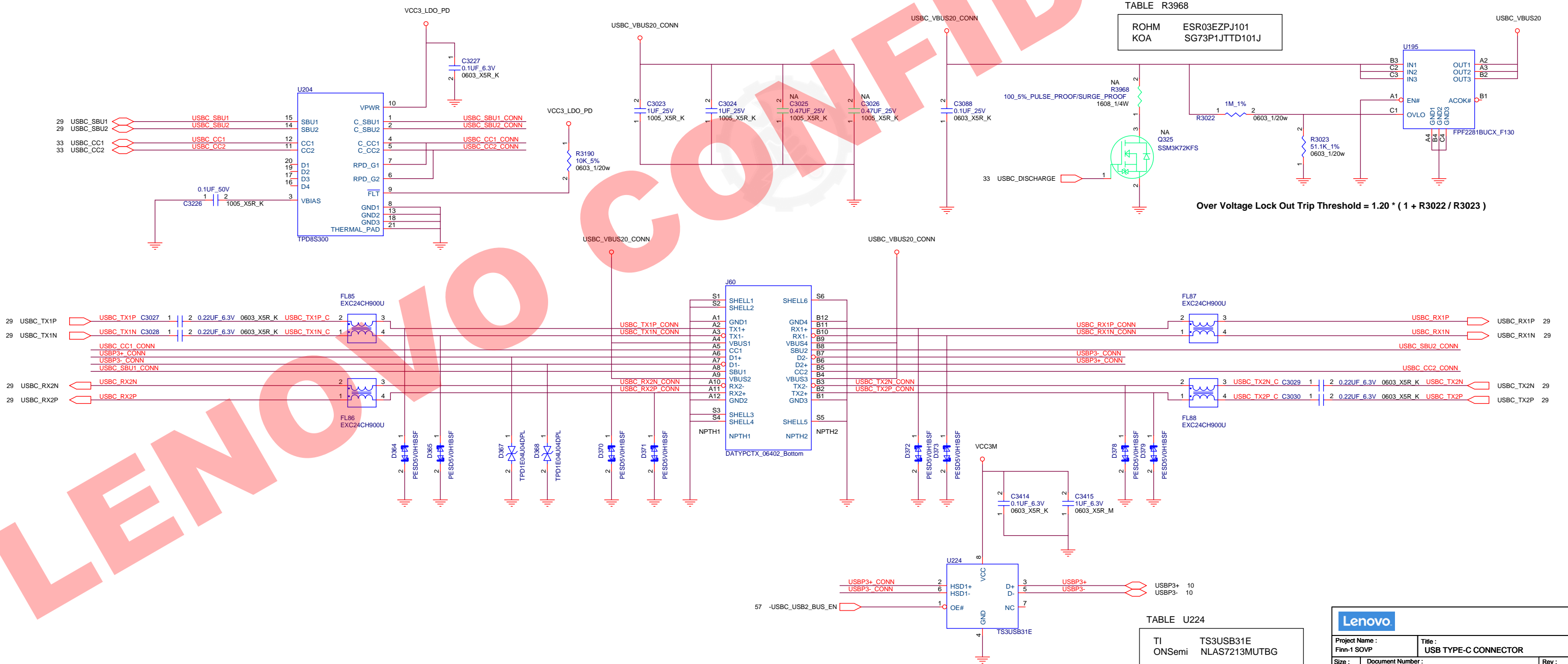
Over Voltage Lock Out Trip Threshold =  $1.20 * (1 + R3022 / R3023)$

TABLE U224

TI	TS3USB31E
ONsemi	NLAS7213MUTBG



Project Name : Finn-1 SOVP		Title : USB TYPE-C CONNECTOR	
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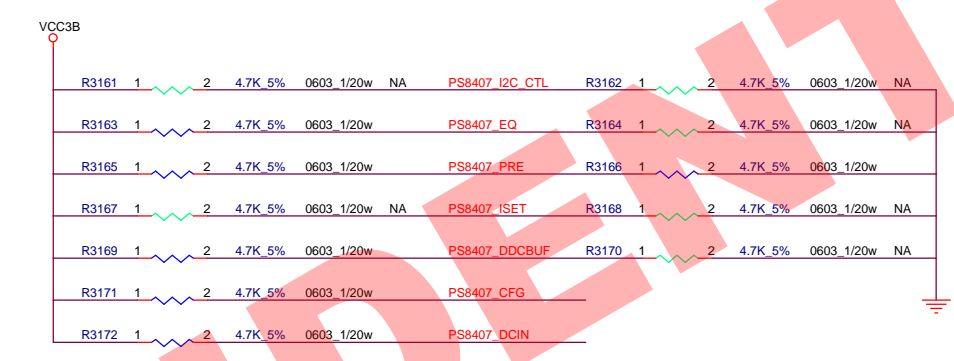
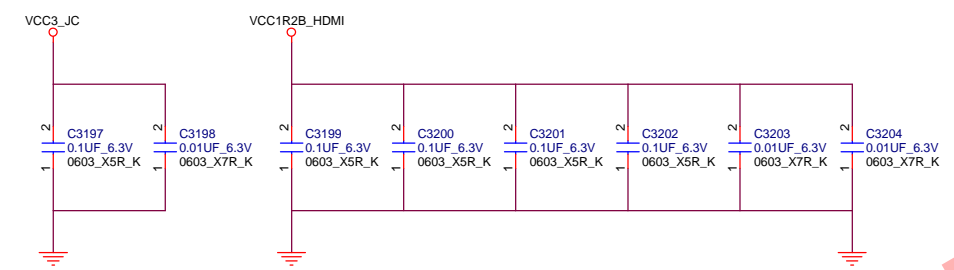
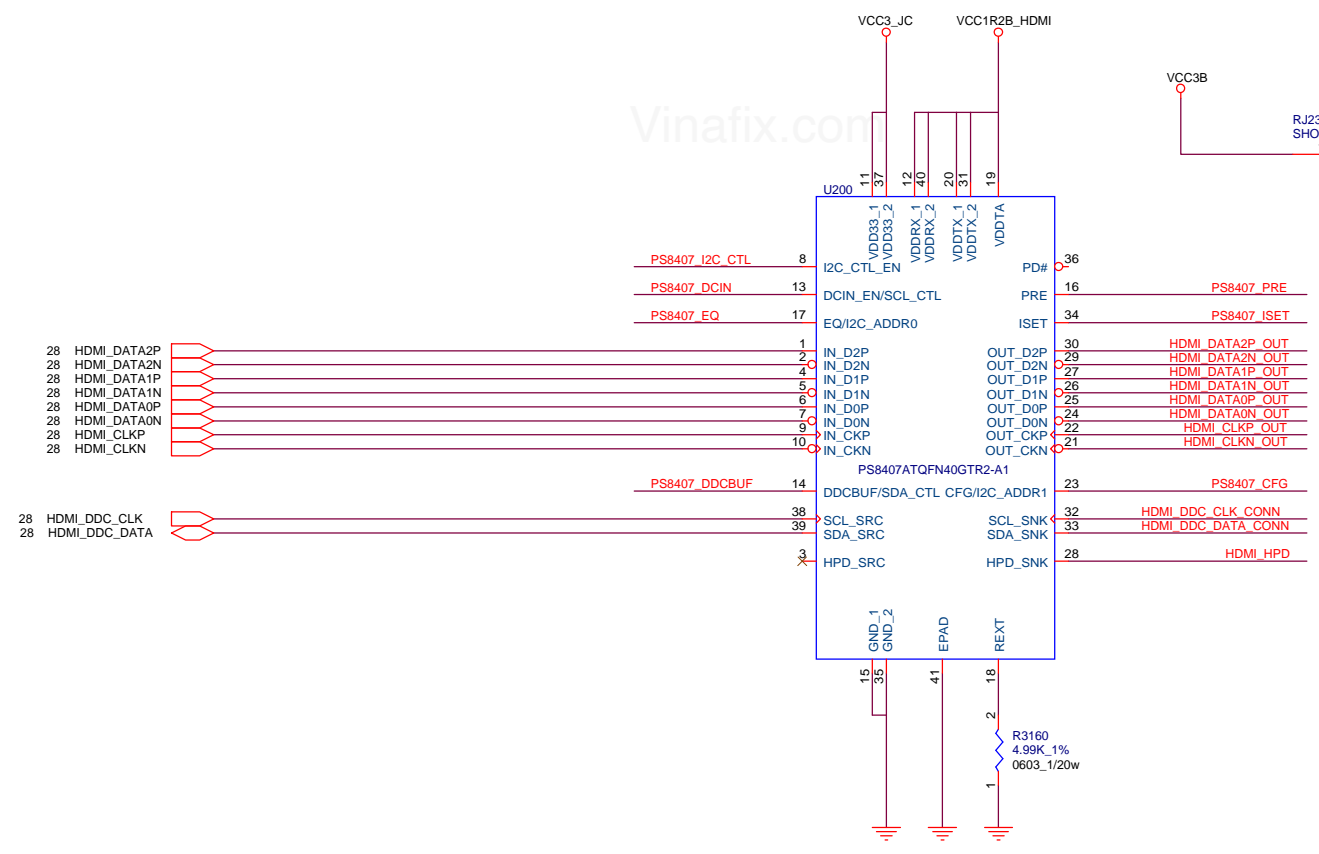
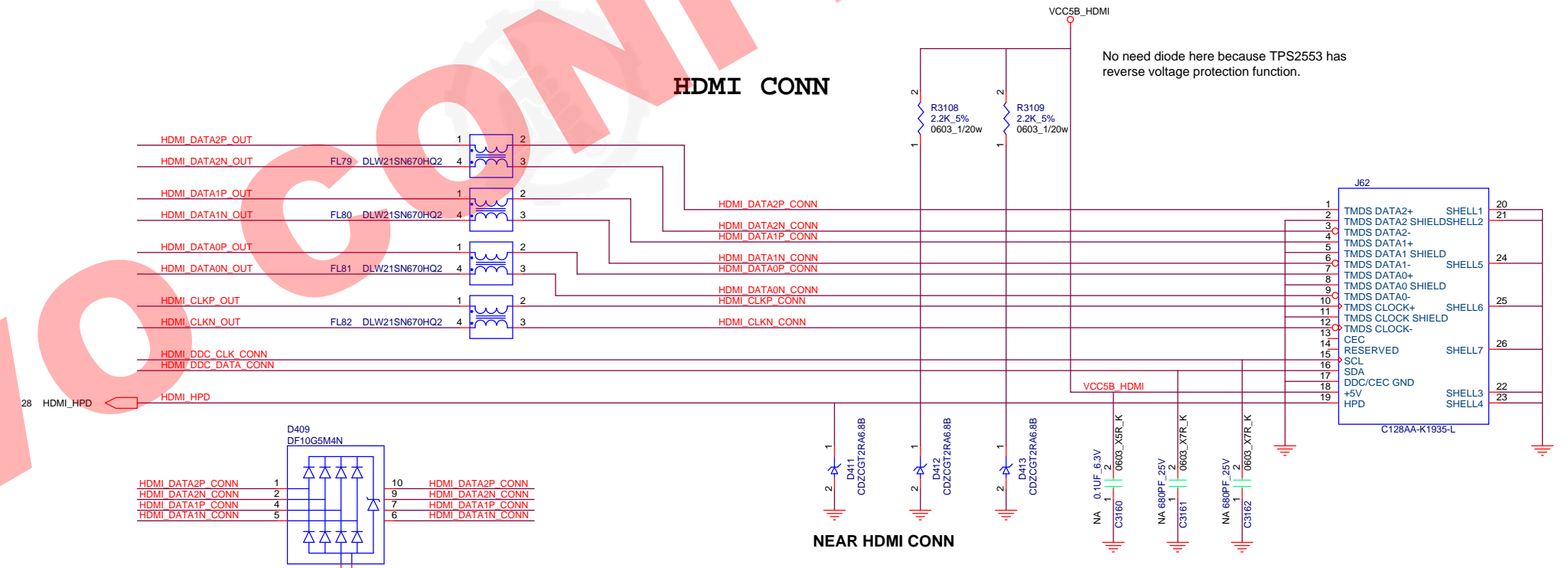


Table FL79,FL80,FL81,FL82

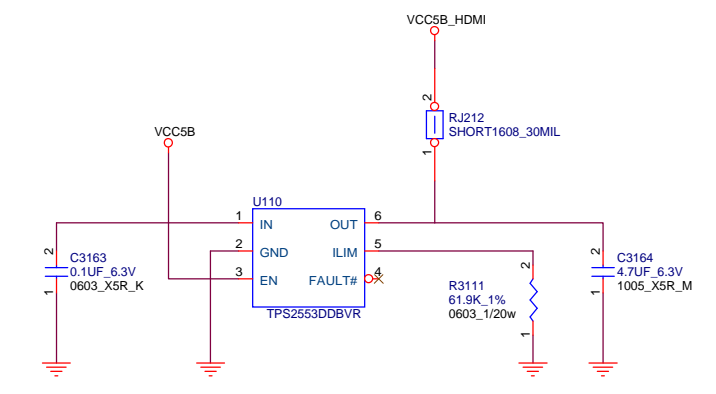
Murata	DLW21SN670HQ2
Chilisin	CUWI21T-670Y-N

### HDMI CONN

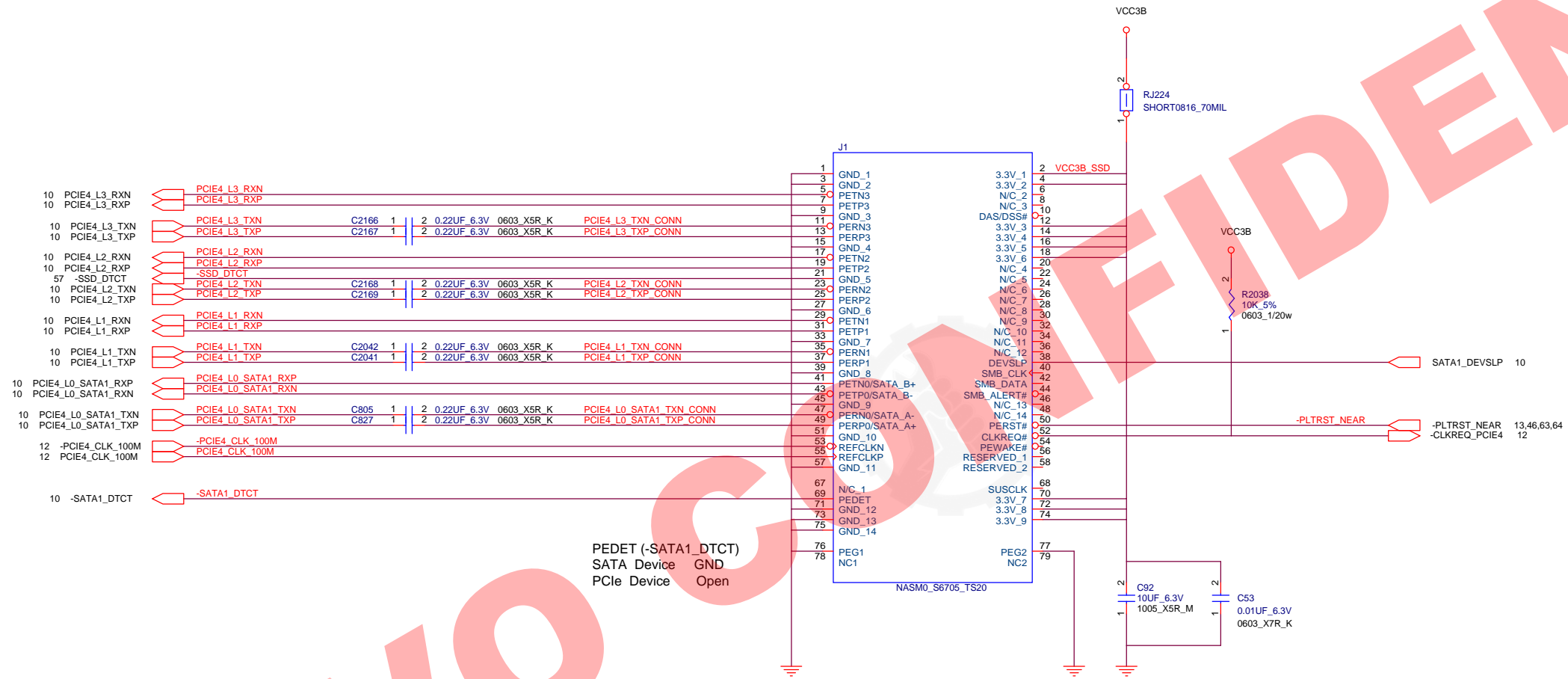


No need diode here because TPS2553 has reverse voltage protection function.

### NEAR HDMI CONN



### M.2 Socket 3 (Key-M) for 2280 S3 SSD H=2.00mm Connector



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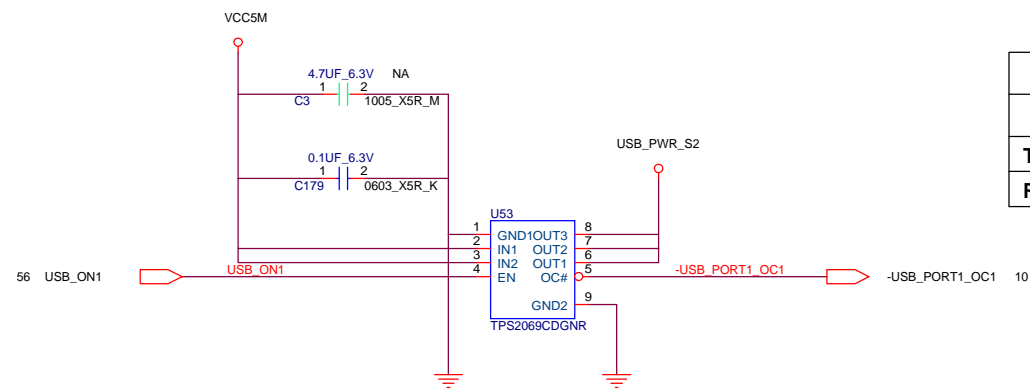
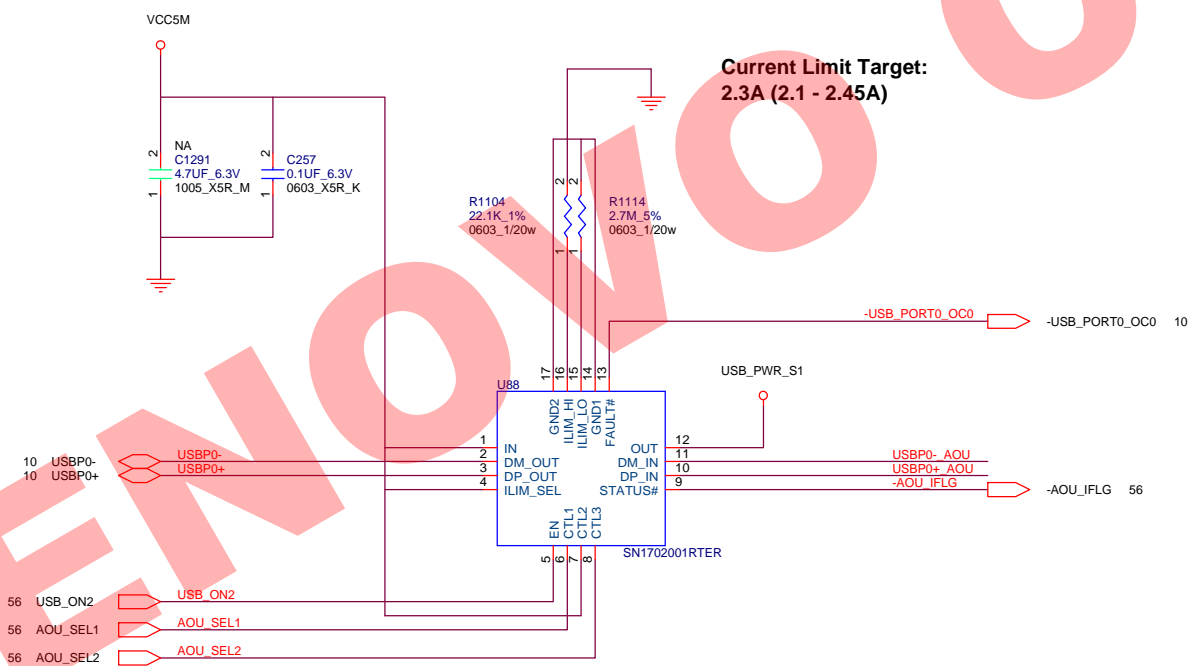
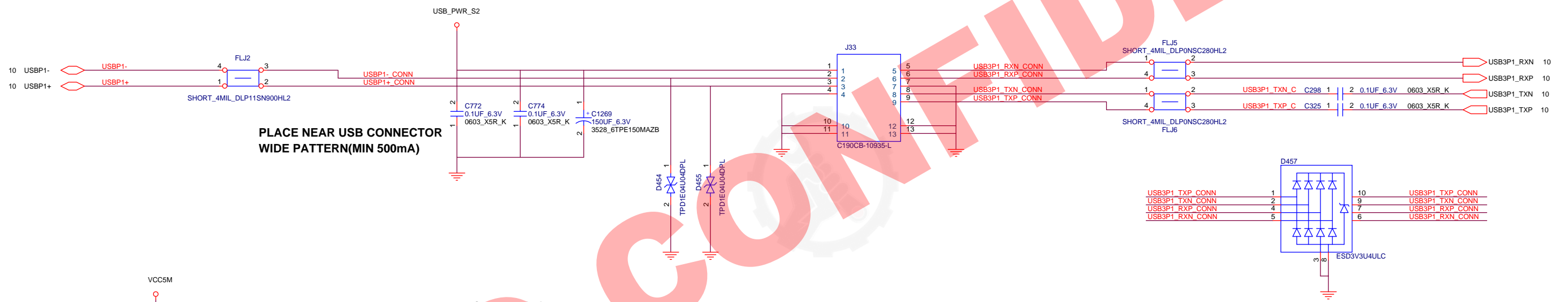
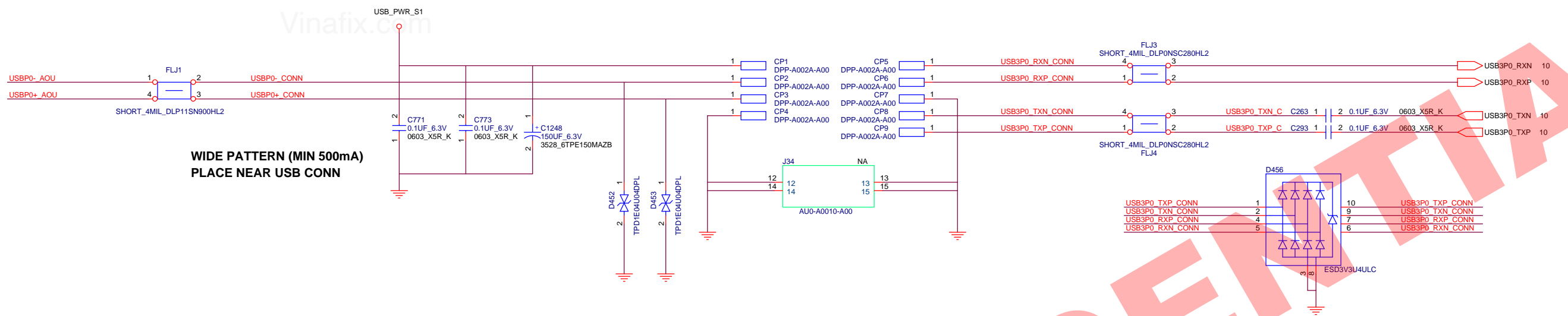



Table of USB 3.0 Single U53			
For ThinkPad model		For NEC model	
TI	TPS2069CDGNR	TI	TPS2001CDGNR
Rohm	BD82032FVJ-GE2	Rohm	BD82034FVJ-GE2

BLANK

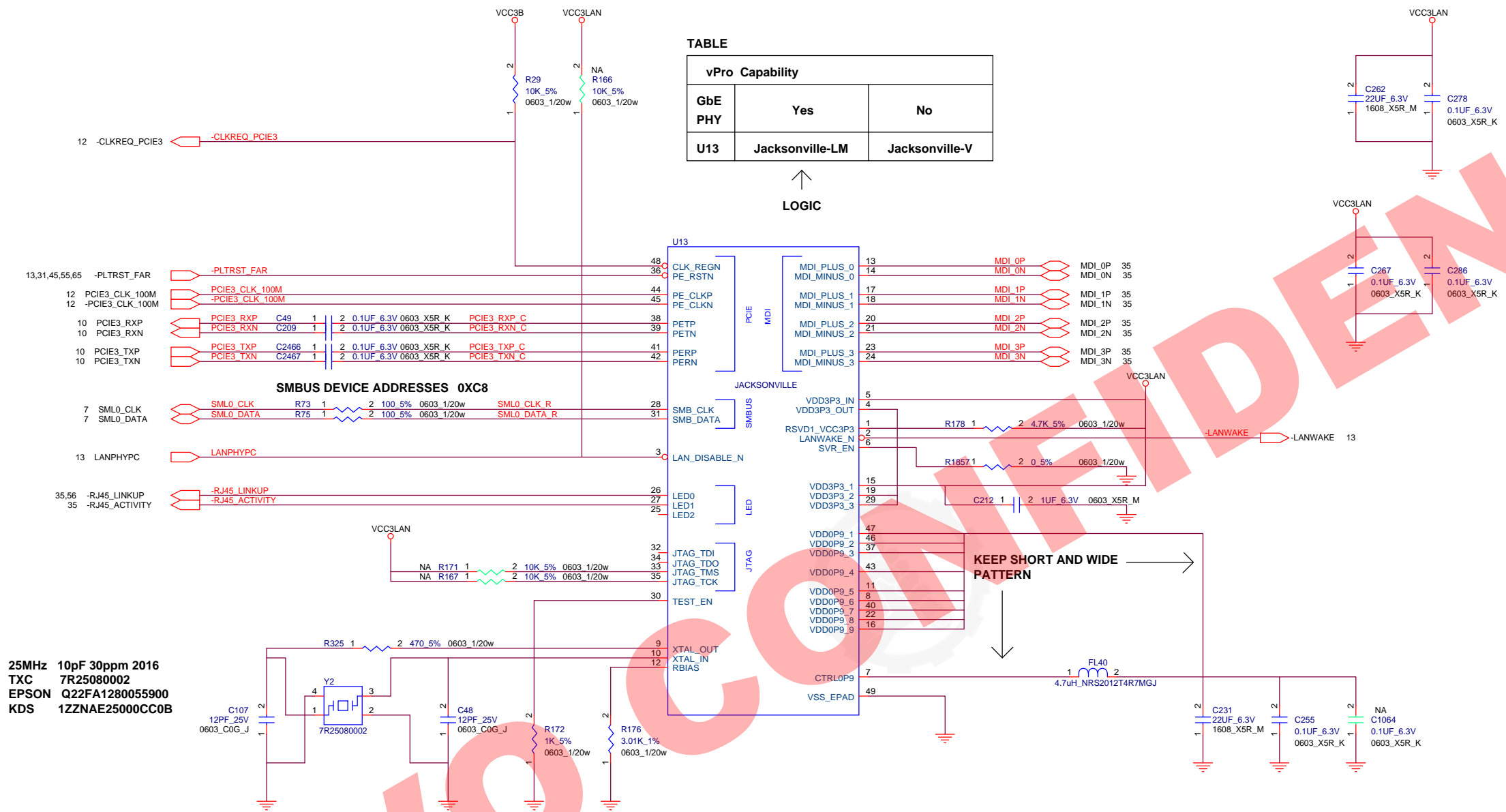
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Project Name : Finn-1 SOVP		Title : BLANK
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**TABLE**

vPro Capability		
GbE PHY	Yes	No
U13	Jacksonville-LM	Jacksonville-V

LOGIC



25MHz 10pF 30ppm 2016  
 TXC 7R25080002  
 EPSON Q22FA1280055900  
 KDS 1ZZNAE25000CC0B


KEEP SHORT AND WIDE PATTERN

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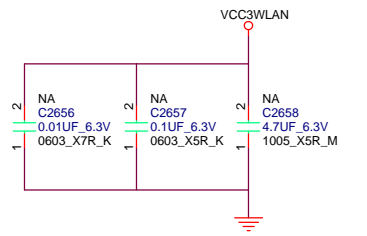
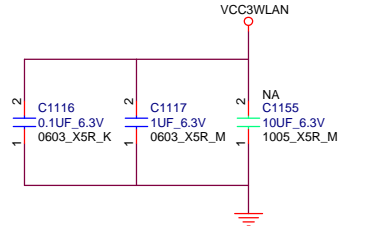
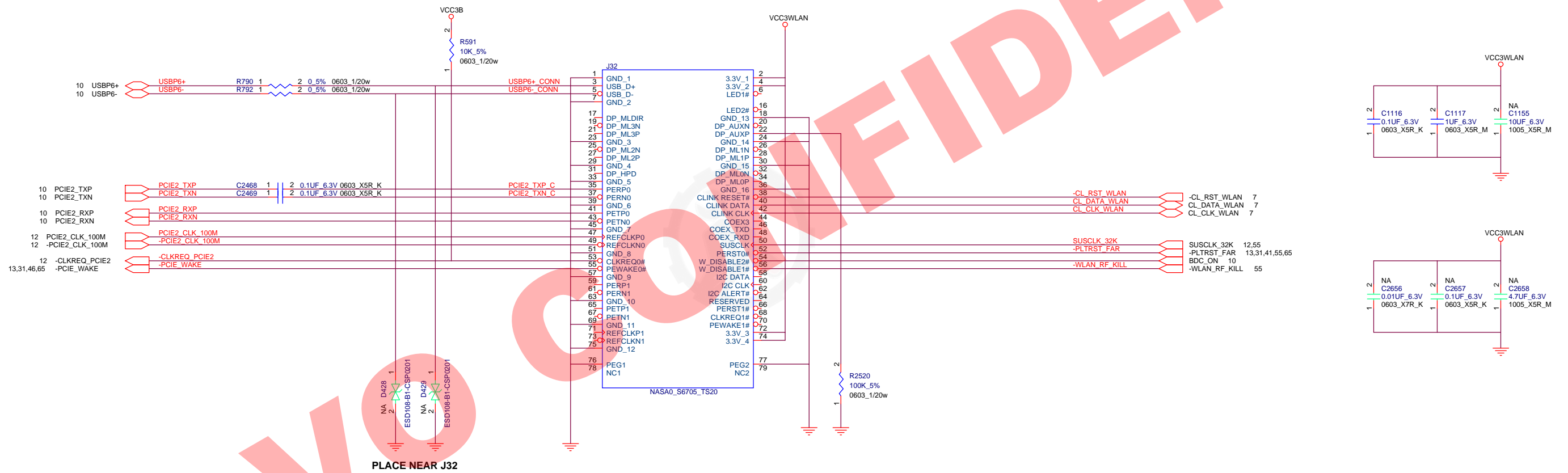
		
Project Name : Finn-1 SOVP		Title : BLANK
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# M.2 Socket 1 (Key-A) for 2230 S3 WLAN / Bluetooth / WiGig

H=2.00mm Connector



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### M.2 Socket 2 (Key-B) for 3042 S3 WWAN H=2.00mm Connector

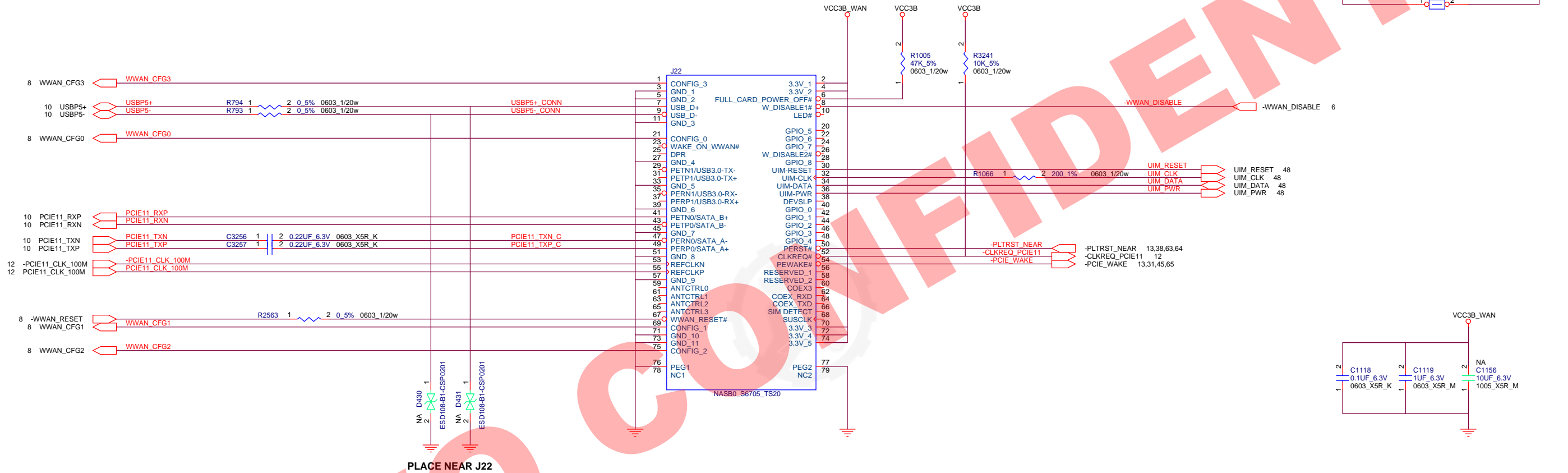
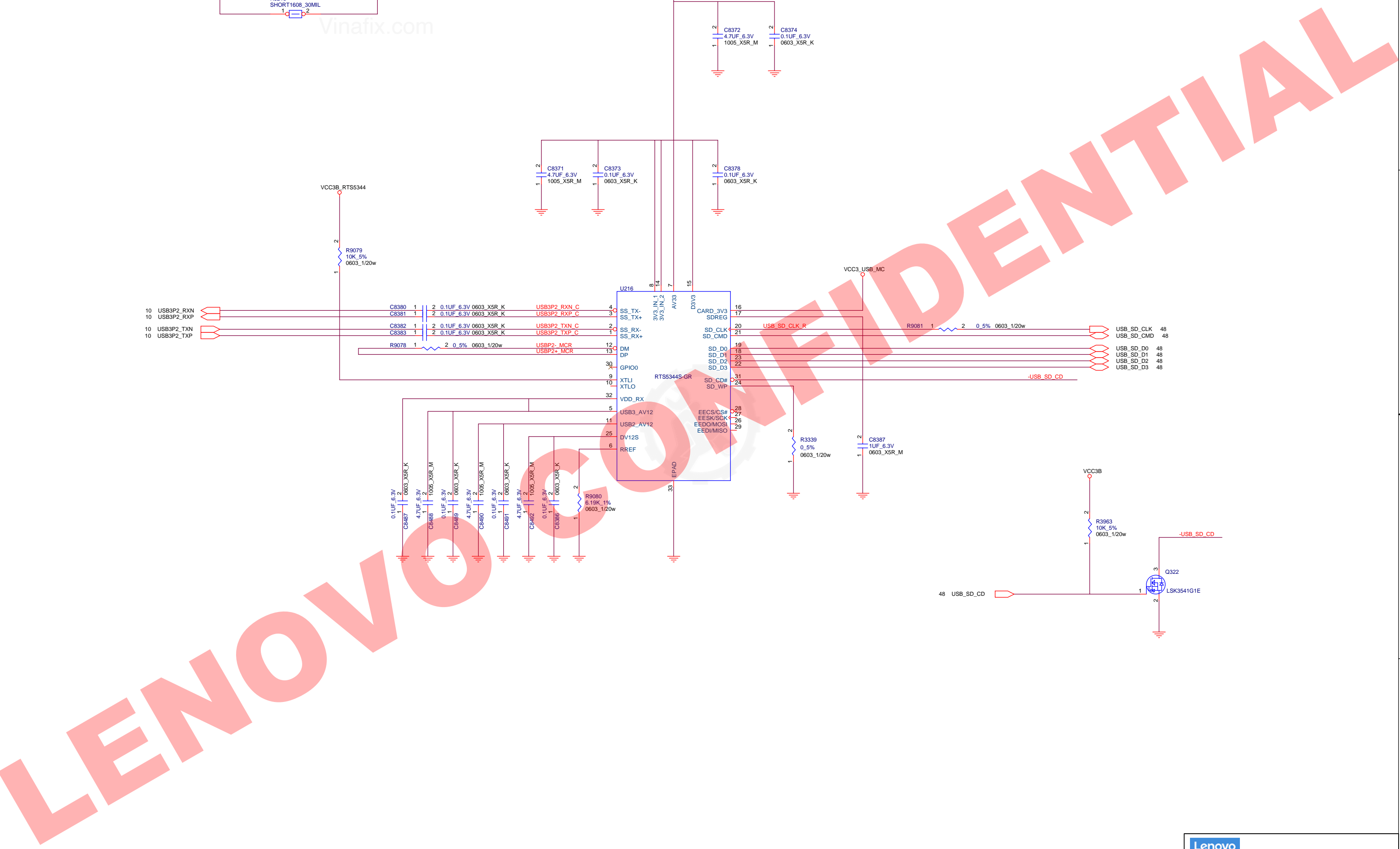


TABLE:

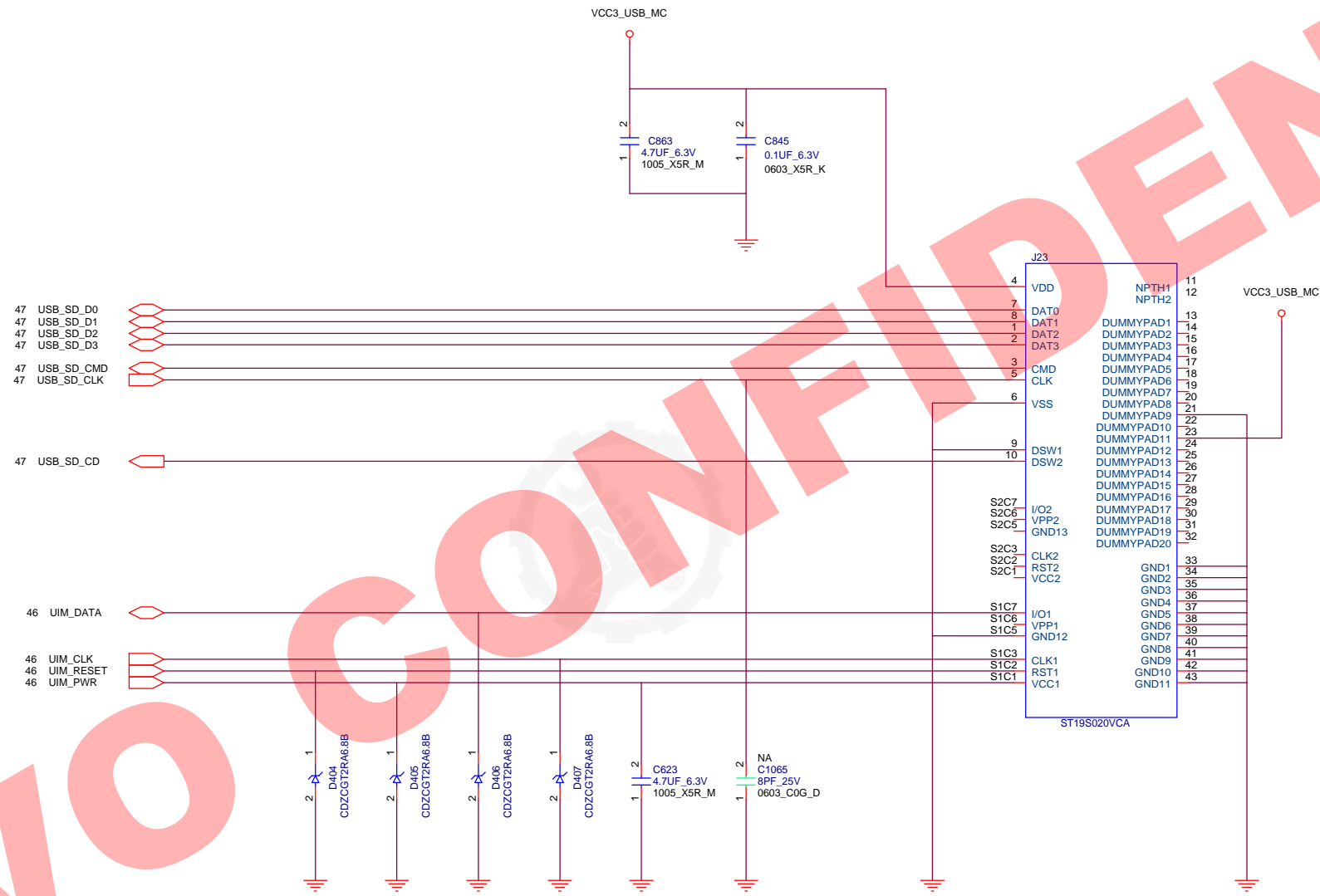
State #	Module Configuration Decodes				Module Type and Main Host Interface	Port Configuration
	CONFIG_0 (Pin 21)	CONFIG_3 (Pin 1)	CONFIG_2 (Pin 75)	CONFIG_1 (Pin 69)		
0	GND	GND	GND	GND	SSD - SATA	N/A
1	GND	GND	GND	NC	SSD - PCIe	N/A
2	GND	GND	NC	GND	WWAN - PCIe	0
3	GND	GND	NC	NC	WWAN - PCIe	1
4	GND	NC	GND	GND	WWAN - PCIe, USB3.1 Gen1	0
5	GND	NC	GND	NC	WWAN - PCIe, USB3.1 Gen1	1
6	GND	NC	NC	GND	WWAN - PCIe, USB3.1 Gen1	2
7	GND	NC	NC	NC	WWAN - PCIe, USB3.1 Gen1	3
8	NC	GND	GND	GND	WWAN - SSIC	0
9	NC	GND	GND	NC	WWAN - SSIC	1
10	NC	GND	NC	GND	WWAN - SSIC	2
11	NC	GND	NC	NC	WWAN - SSIC	3
12	NC	NC	GND	GND	WWAN - PCIe	2
13	NC	NC	GND	NC	WWAN - PCIe	3
14	NC	NC	NC	GND	WWAN - PCIe, USB3.1 Gen1	Vendor Defined
15	NC	NC	NC	NC	No Module Present	N/A



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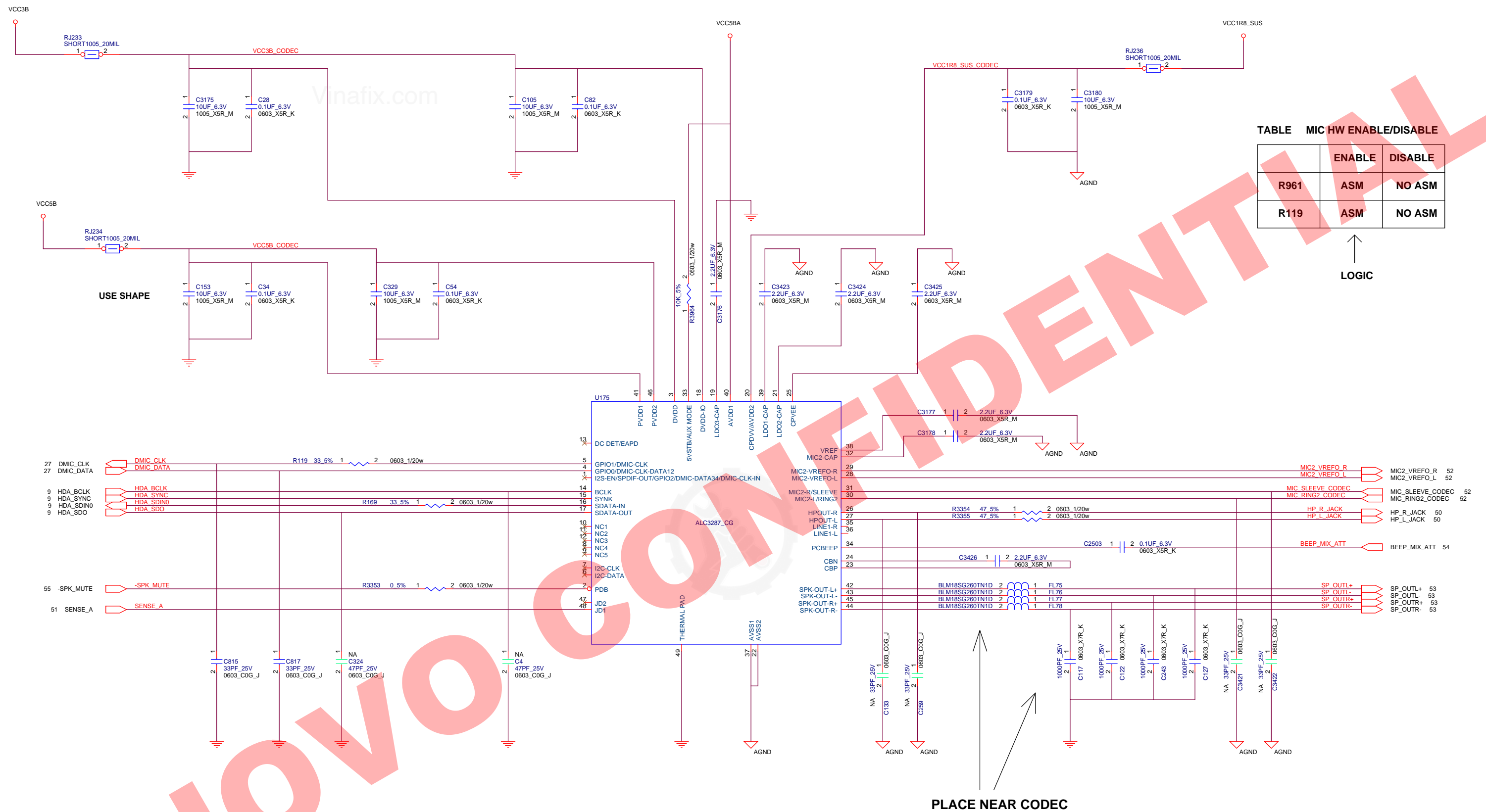
<b>Lenovo</b>	
Project Name : Finn-1 SOVP	Title : MEDIA CARD CONTROLLER
Size : C	Document Number : Rev : 4.00
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**TABLE MIC HW ENABLE/DISABLE**

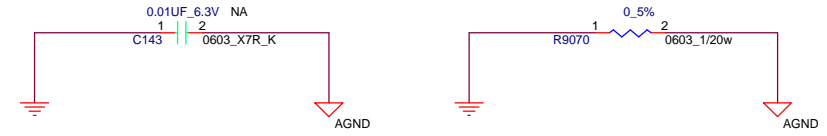
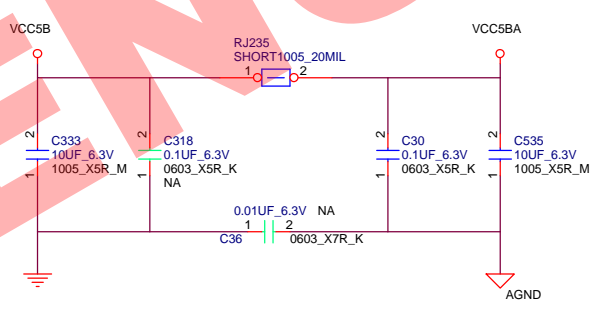
	ENABLE	DISABLE
R961	ASM	NO ASM
R119	ASM	NO ASM

↑  
LOGIC

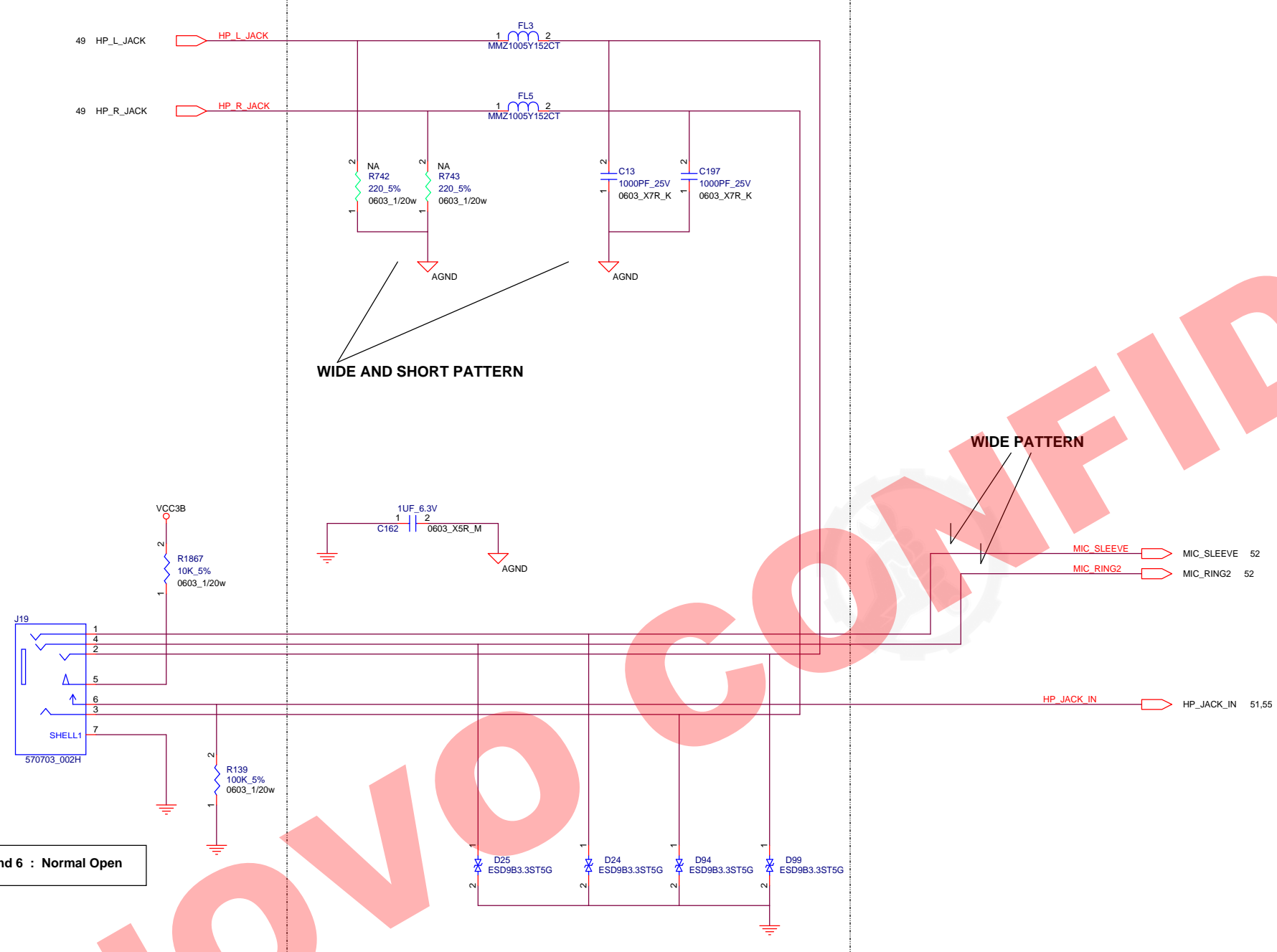
USE SHAPE

PLACE NEAR CODEC

PLACE UNDER ALC3287



NEAR AUDIO CONN

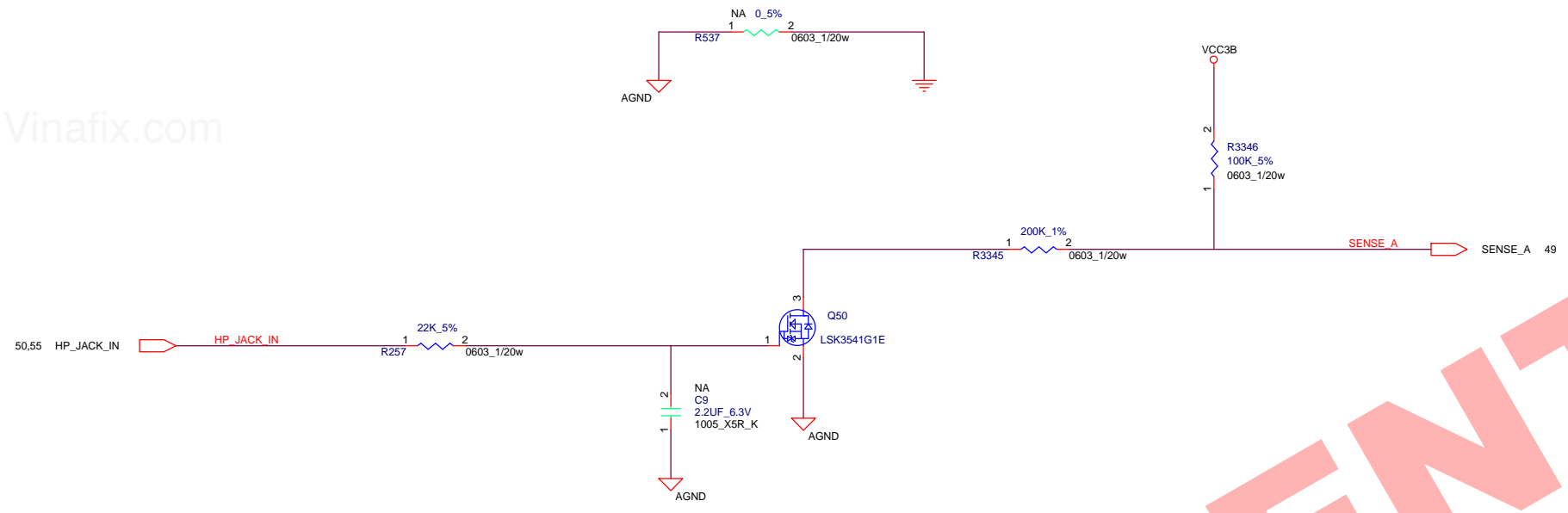


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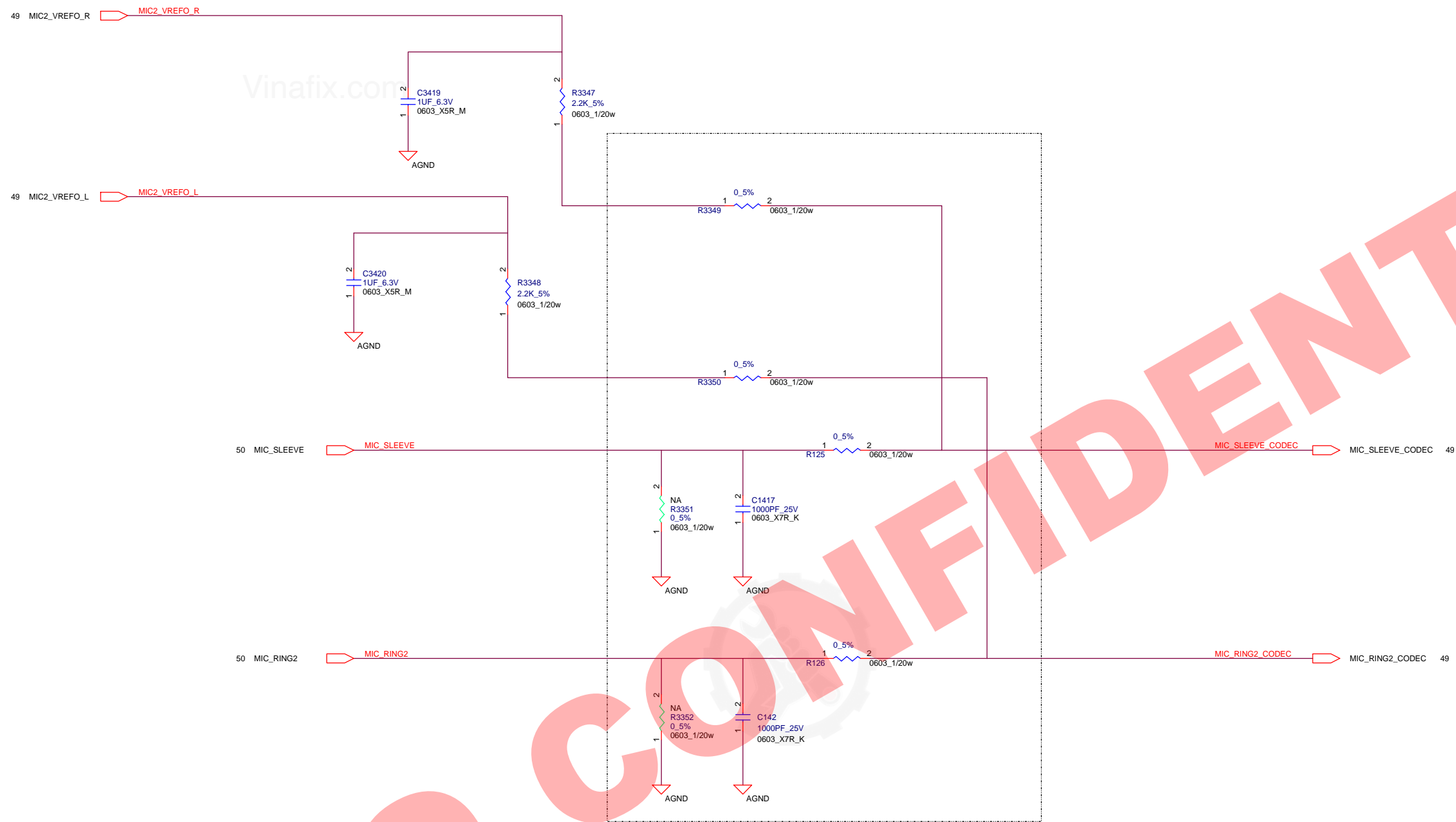
<b>Lenovo</b>	
Project Name : Finn-1 SOVP	Title : AUDIO CONNECTOR
Size : C	Document Number : Rev : 4.00
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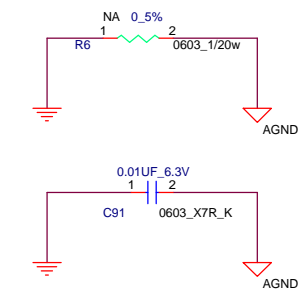


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Project Name : Finn-1 SOVP		Title : AUDIO JACK SENSE
Size : C	Document Number :	Rev : 4.00
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NEAR EXT MIC CONN



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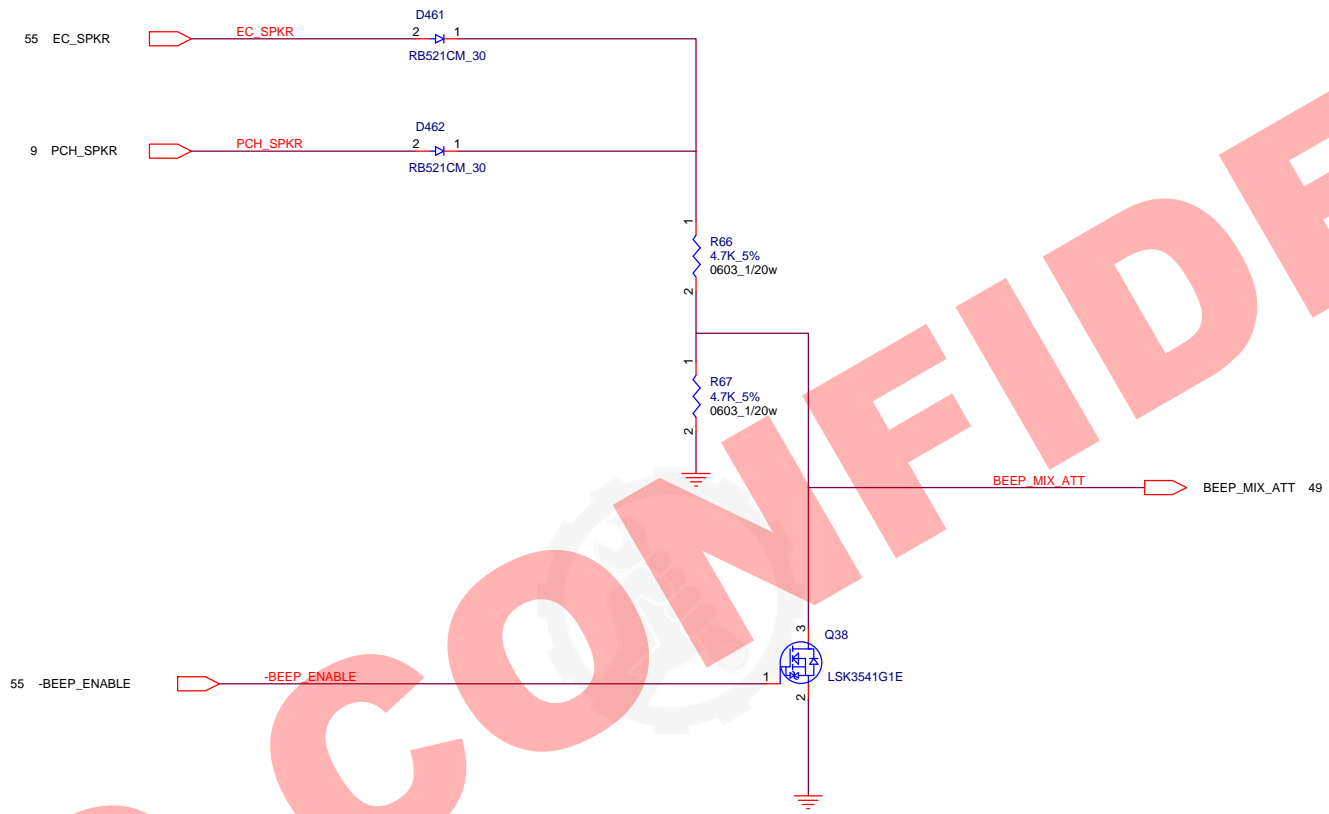
<b>Lenovo</b>	
Project Name : Finn-1 SOVP	Title : AUDIO EXT MIC I/F
Size : C	Document Number : Rev : 4.00
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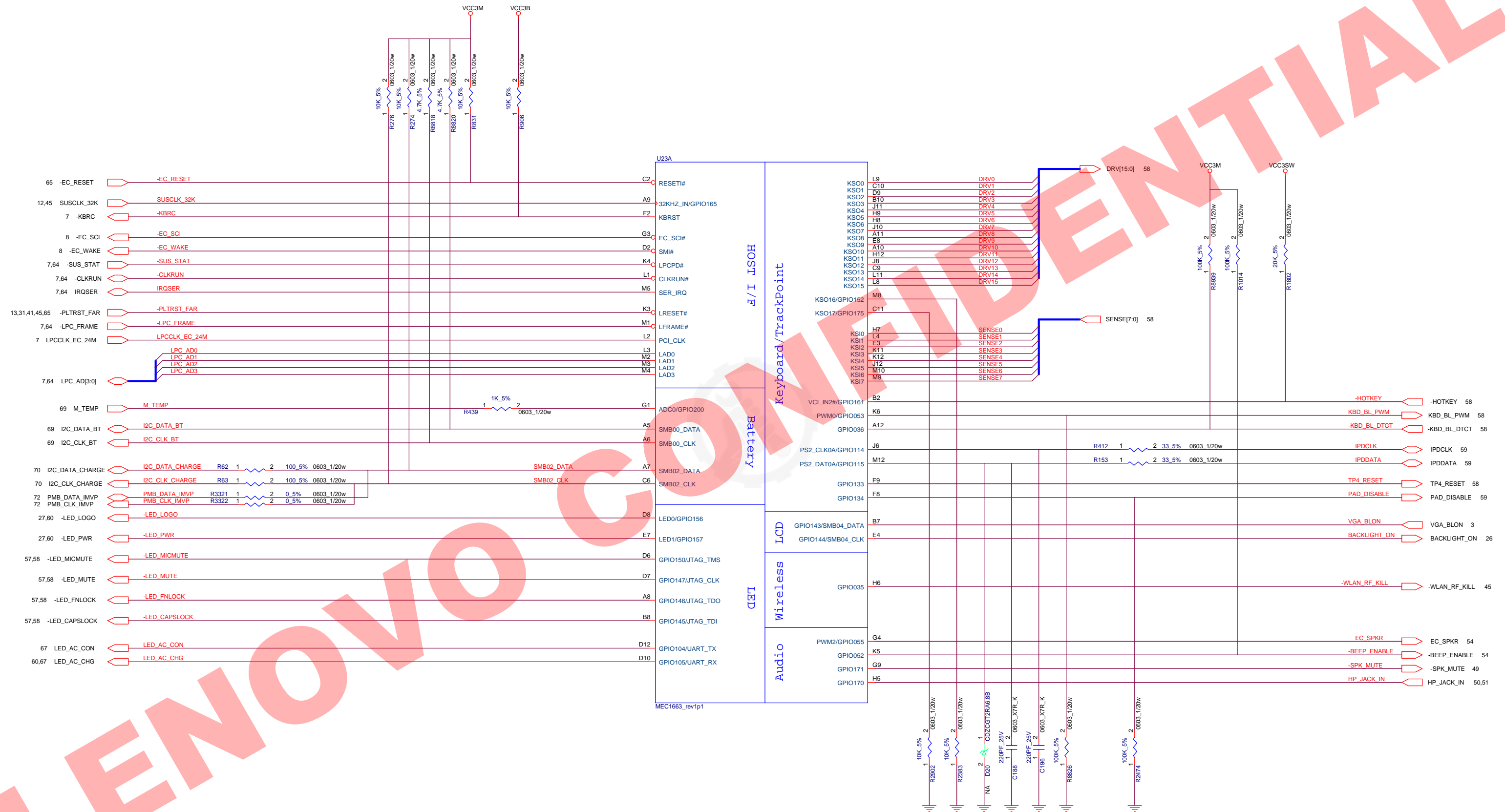
LENOVO



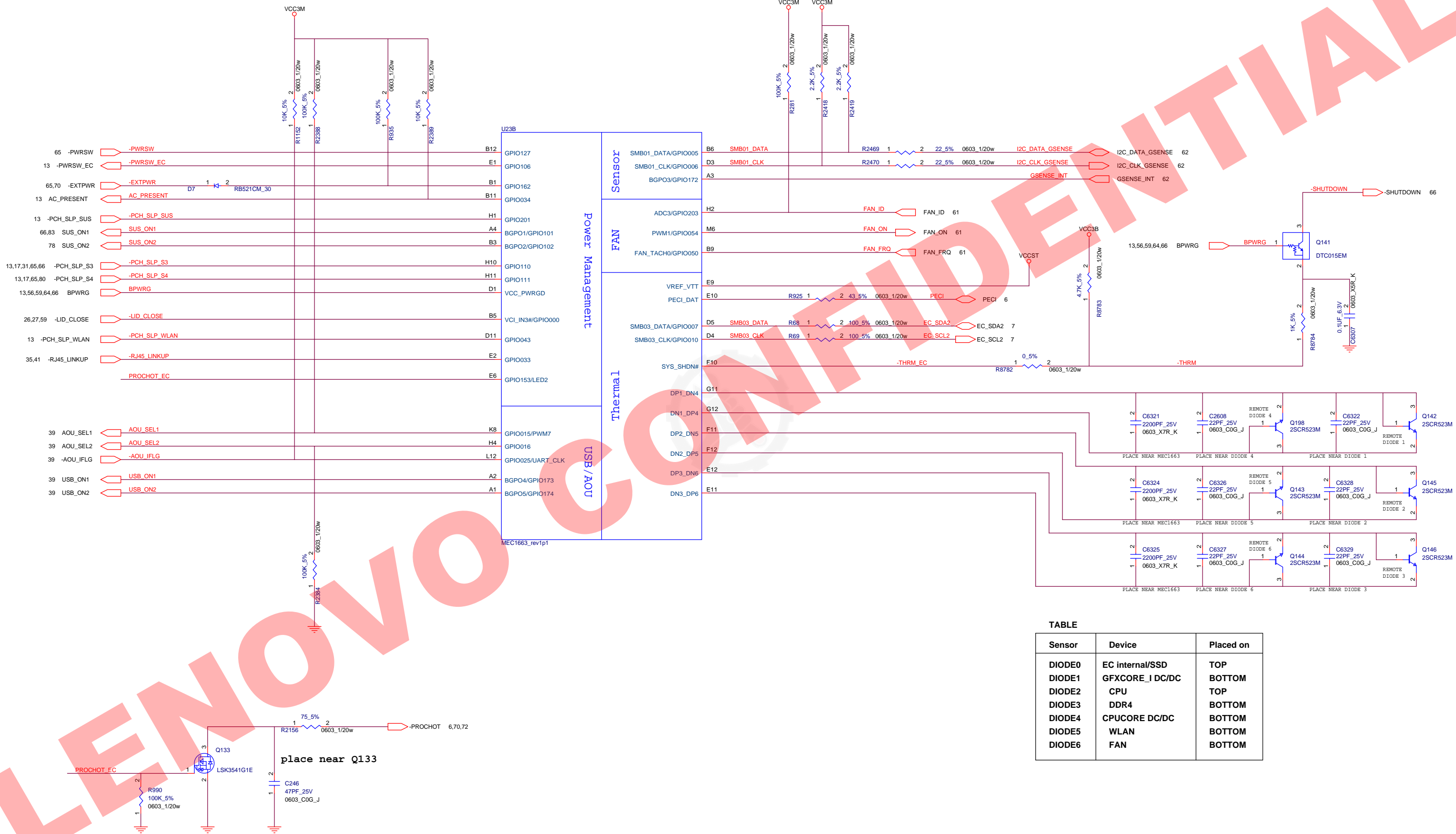


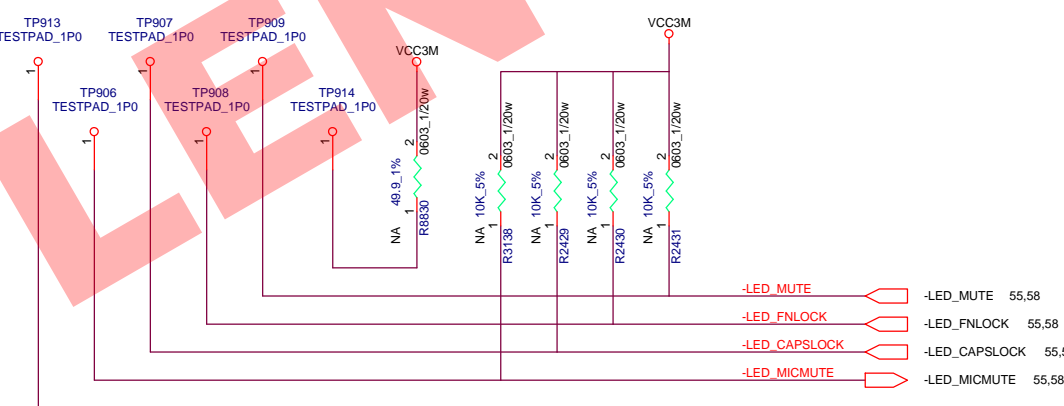
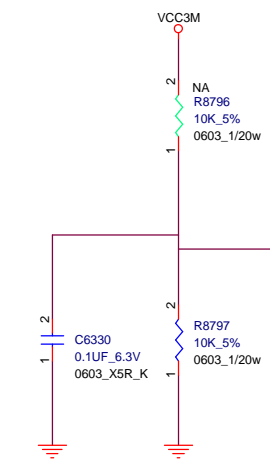
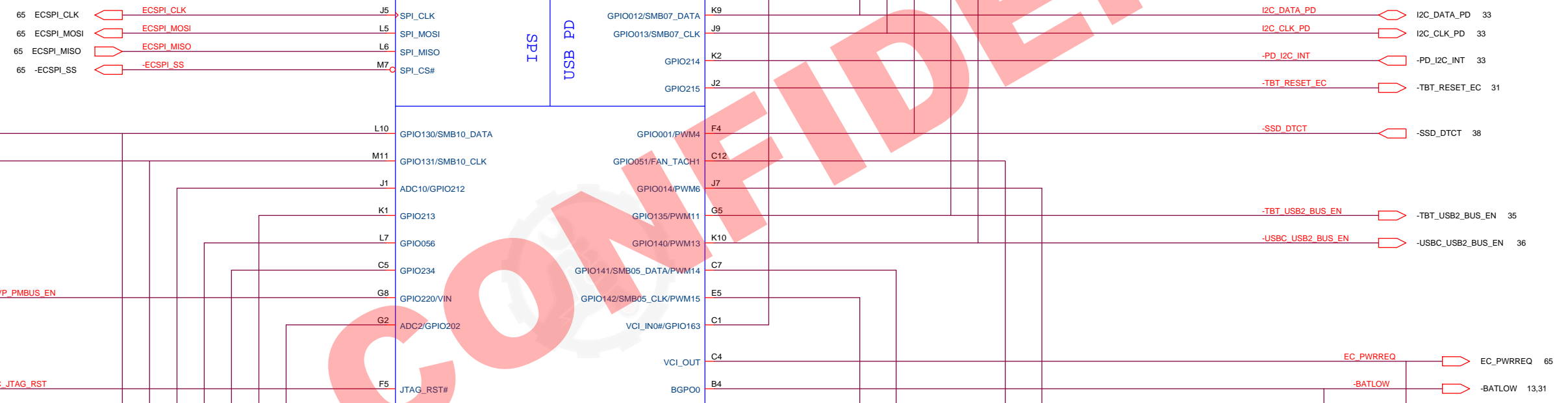
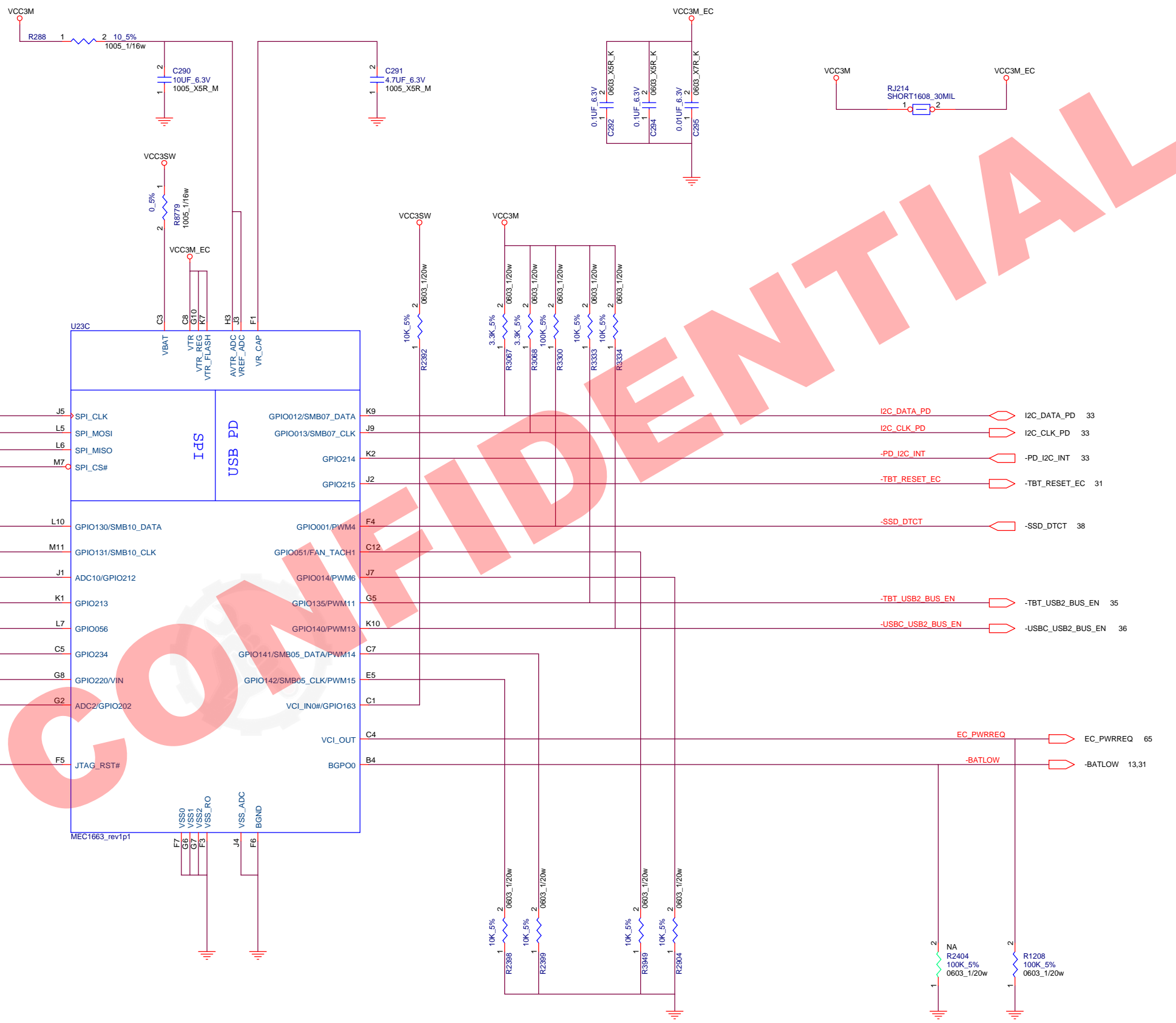
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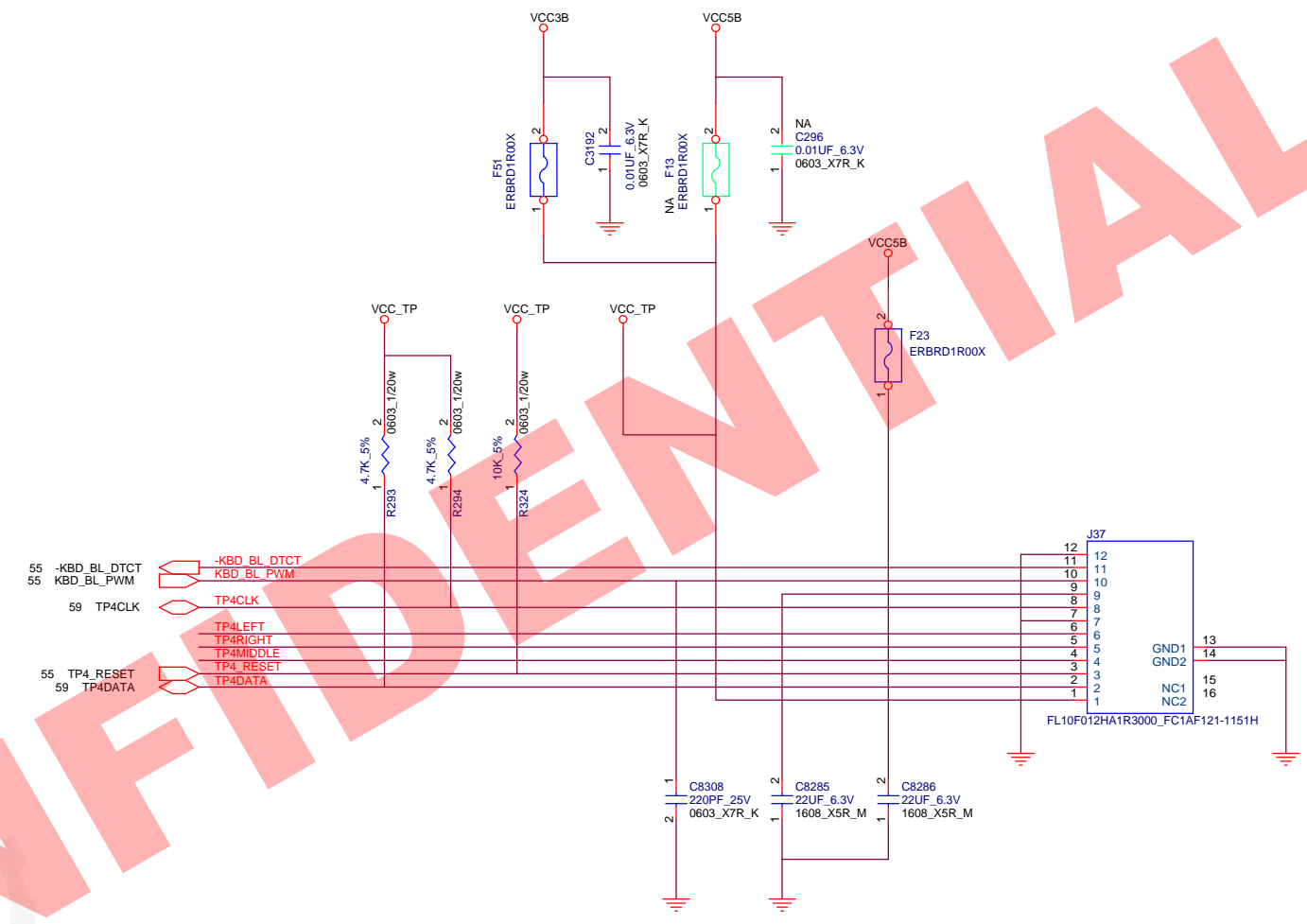
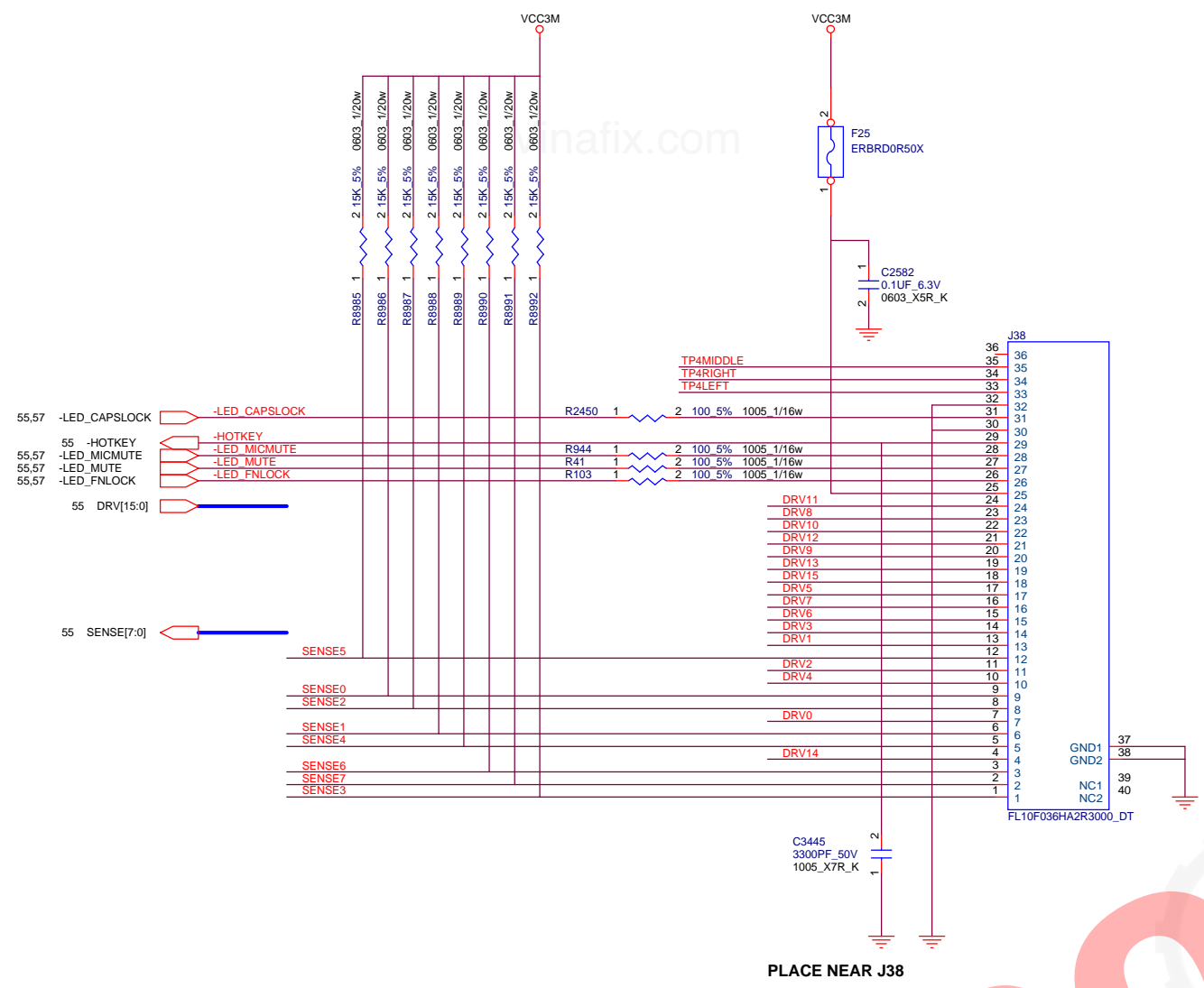
LENOVO





**JTAG Debug Port**

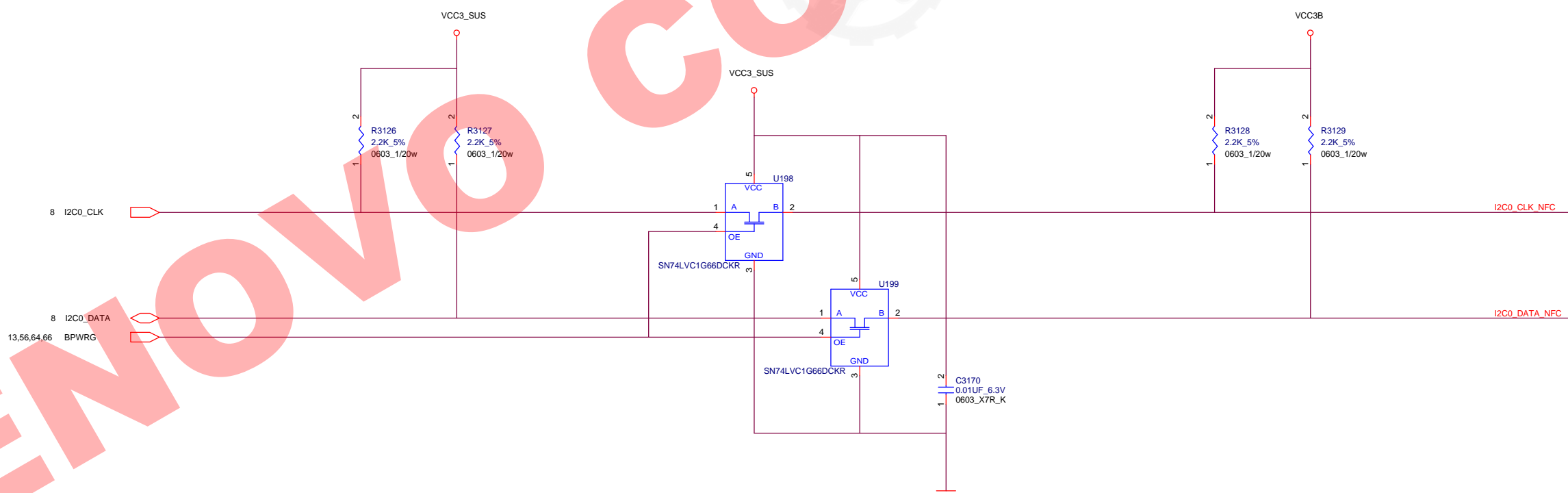
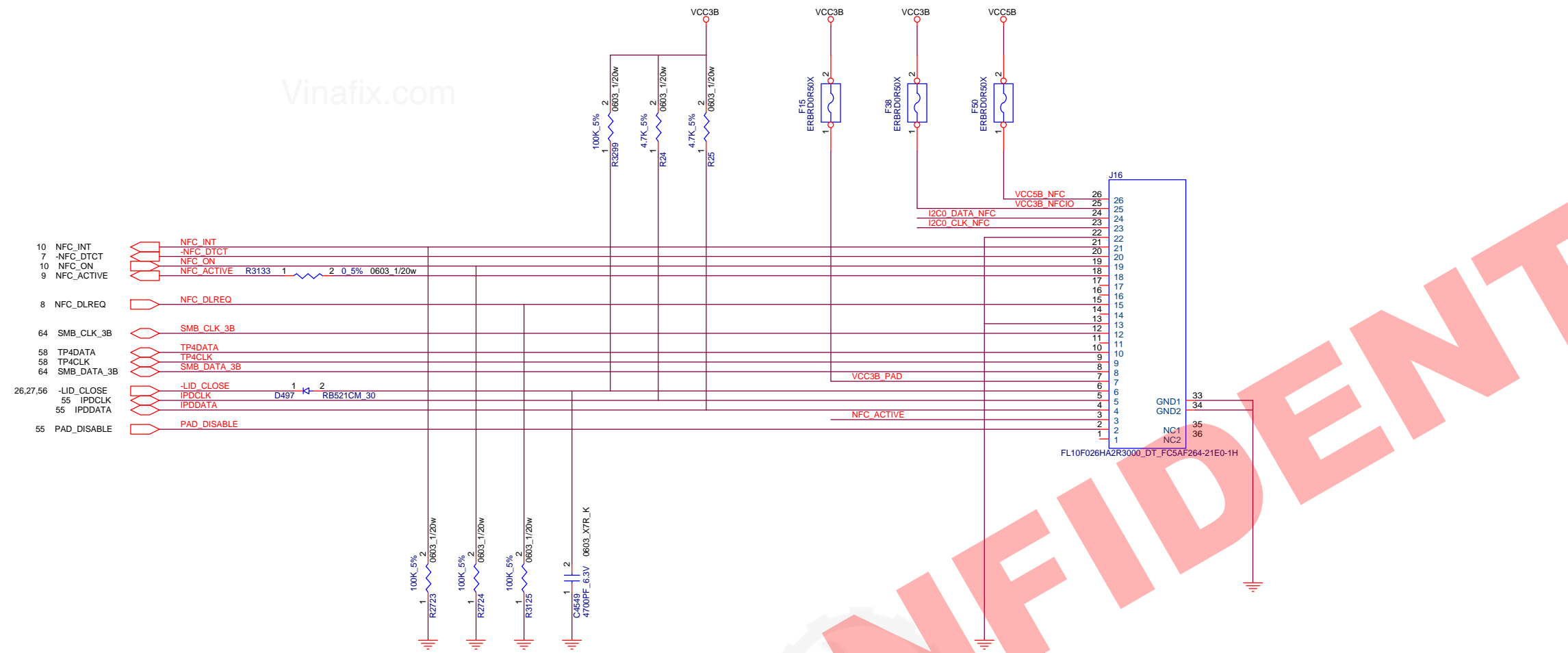
	Enable	Disable
R8796	ASM	NO_ASM
R8797	NO_ASM	ASM
R8830	ASM	NO_ASM
R3138	ASM	NO_ASM
R2429	ASM	NO_ASM
R2430	ASM	NO_ASM
R2431	ASM	NO_ASM



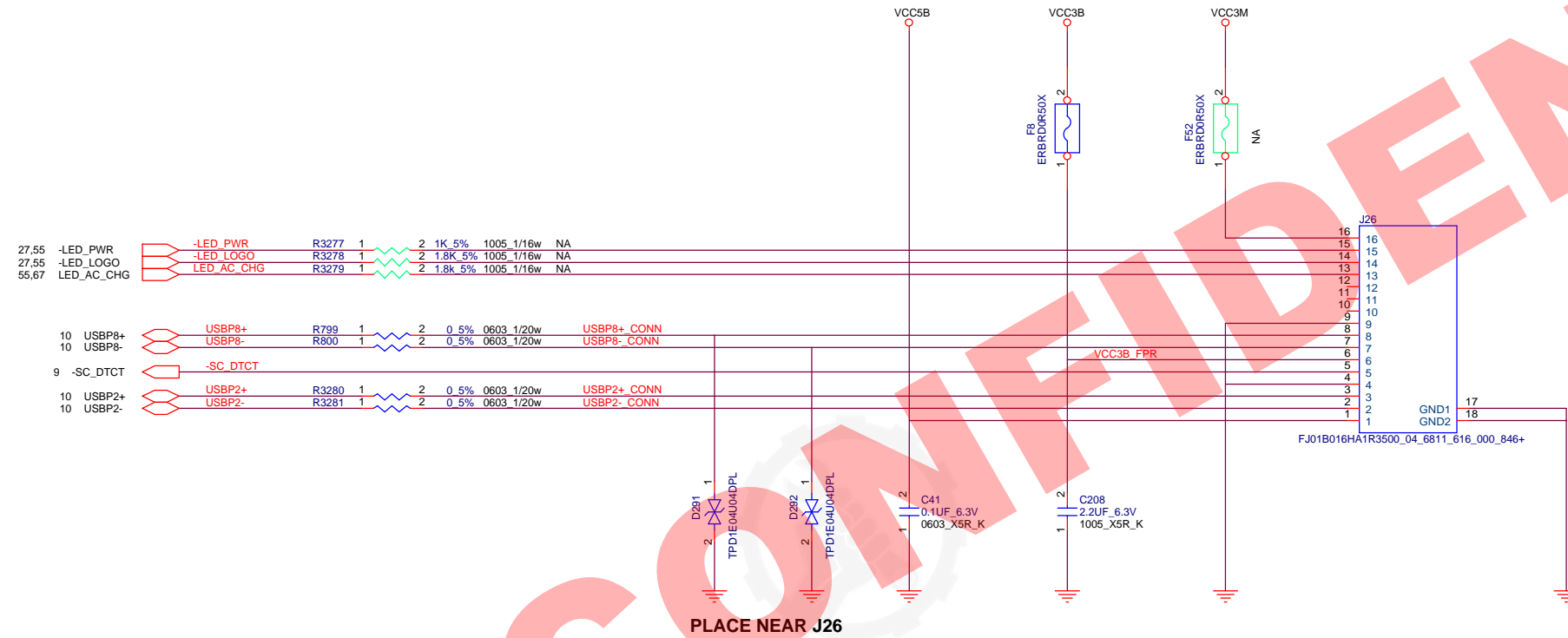
PLACE NEAR J38

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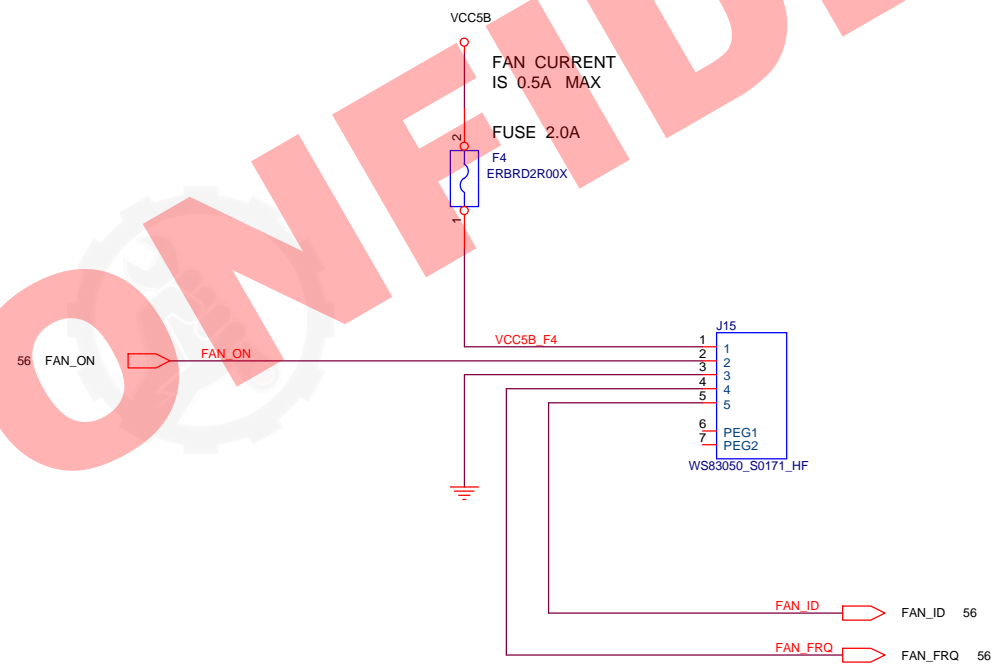
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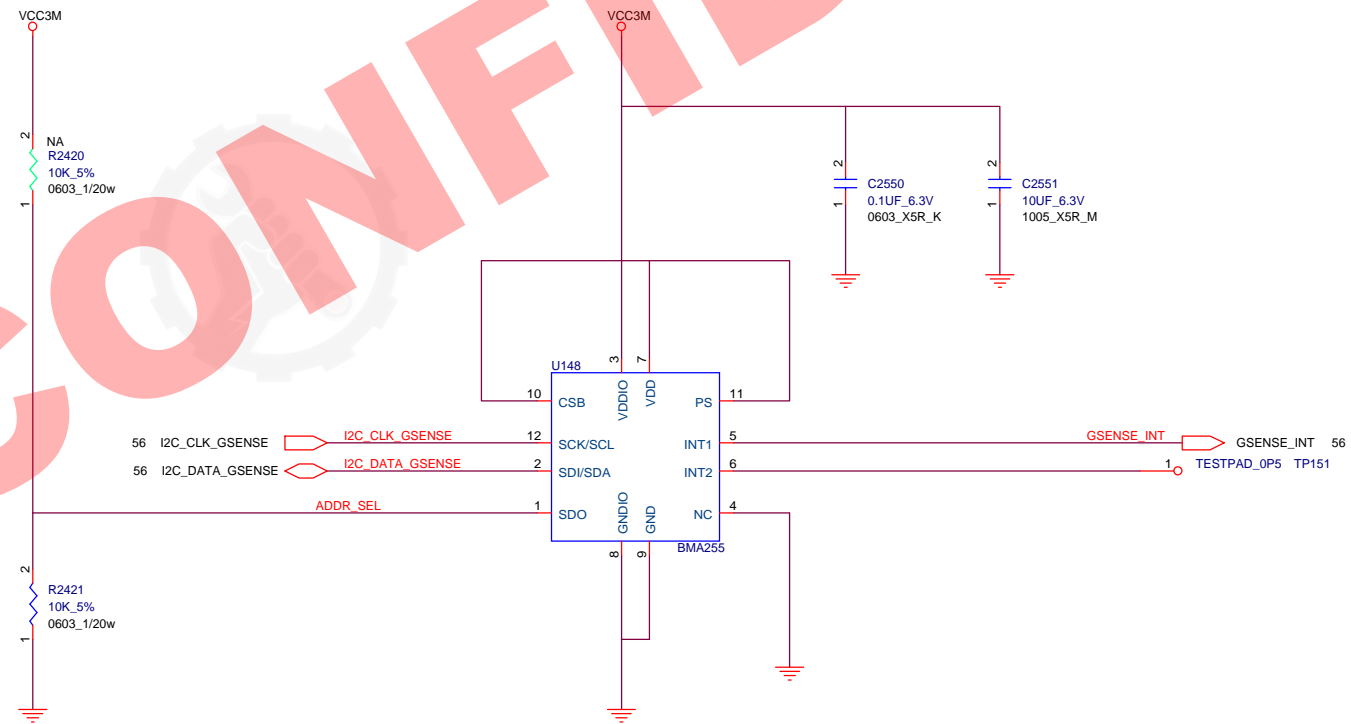
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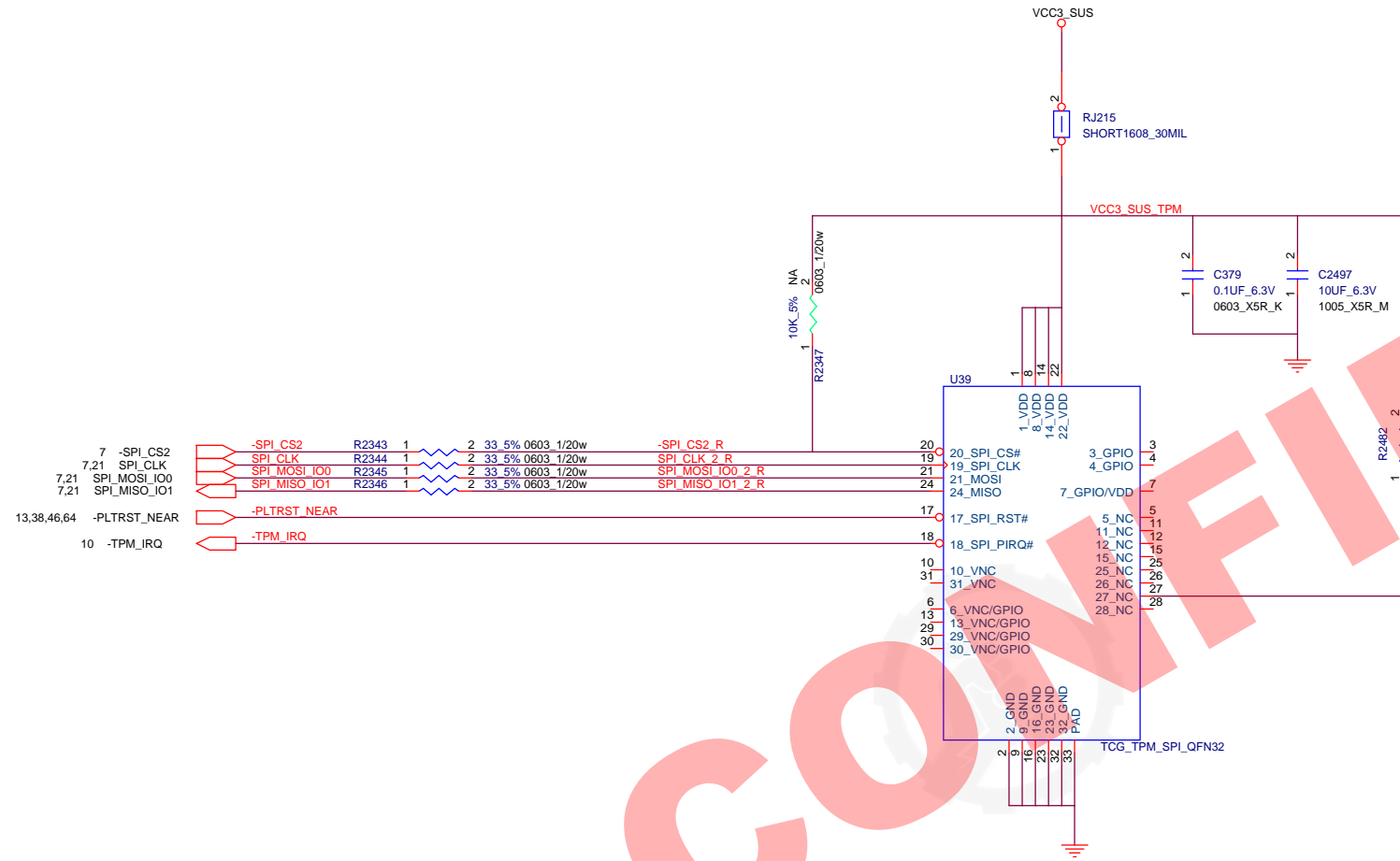
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TABLE

P/N	ADDR_SEL	Address
BMA255	H	32h (W) & 33h (R)
	L	30h (W) & 31h (R)
KX022-1020	H	3Eh (W) & 3Fh (R)
	L	3Ch (W) & 3Dh (R)





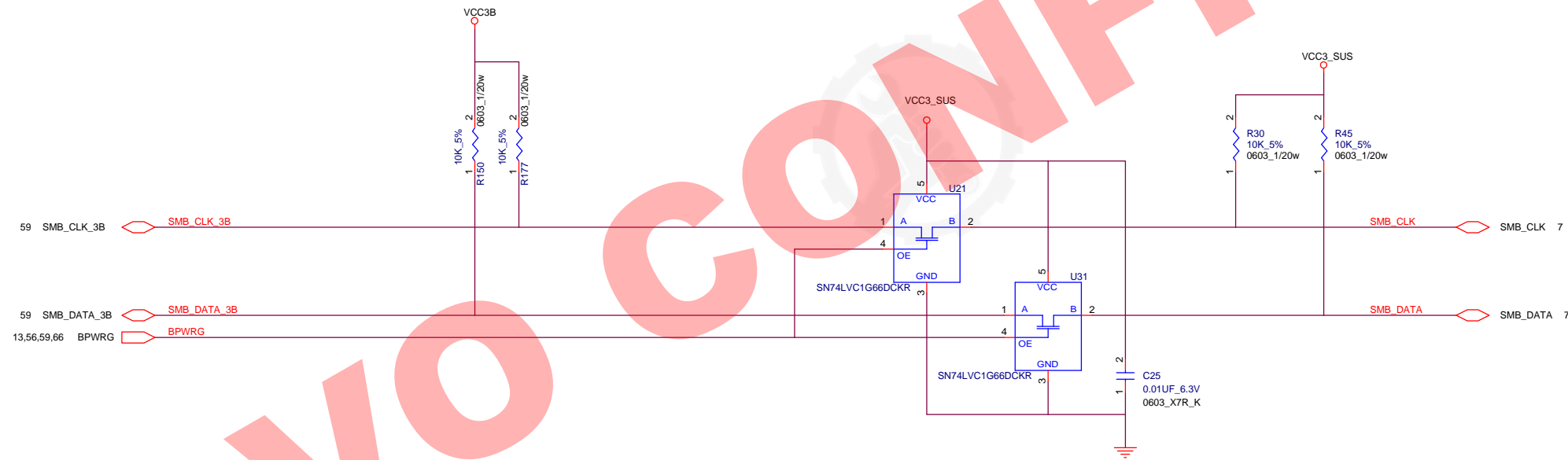
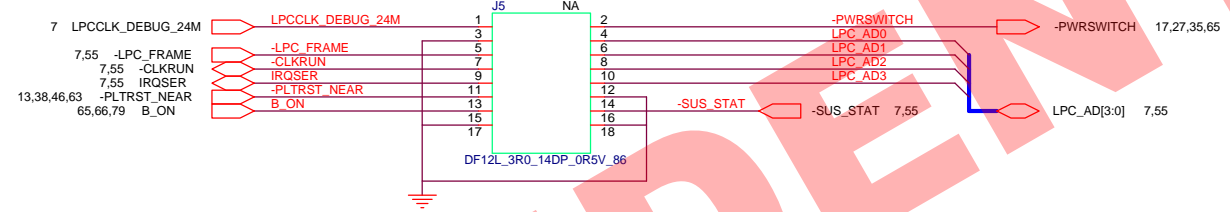
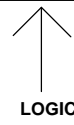
TABLE

Pin No	TCG PTP Spec (v38)	Infineon SLB9670VQ2.0FW7.63	ST Micro ST33HTPH2E32AHB4
1	VDD	VDD	NC
2	GND	GND	GND
3	GPIO	NC	NC
4	GPIO	NC	PP
5	NC	NC	NC
6	VNC/GPIO	GPIO	NC
7	VNC/GPIO	PP	GPIO
8	VDD	VDD	NC
9	GND	GND	NC
10	VNC	NC	NC
11	NC	NC	NC
12	NC	NC	NC
13	VNC/GPIO	NC	NC
14	VDD	NC	NC
15	NC	NC	NC
16	GND	NC	NC
17	SPI_RST#	RST#	SPI_RST#
18	SPI_PIRQ#	PIRQ#	SPI_PIRQ#
19	SPI_CLK	SCLK	SPI_CLK
20	SPI_CS#	CS#	SPI_CS#
21	MOSI	MOSI	MOSI
22	VDD	VDD	VPS
23	GND	GND	NC
24	MISO	MISO	MISO
25	NC	NC	NC
26	NC	NC	NC
27	NC	NC	NC
28	NC	NC	NC
29	VNC/GPIO	NC	NC
30	VNC/GPIO	NC	NC
31	VNC	NC	NC
32	GND	GND	NC

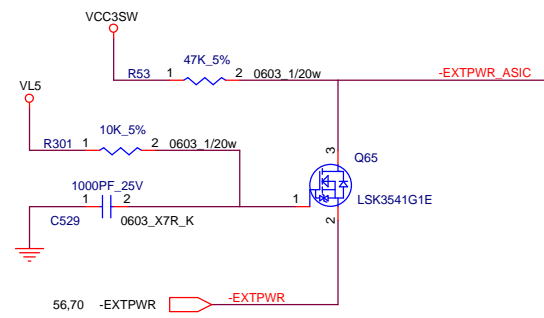
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TABLE

REF DES	ENABLE	DISABLE
J5	ASM	NO_ASM
R220	ASM	NO_ASM



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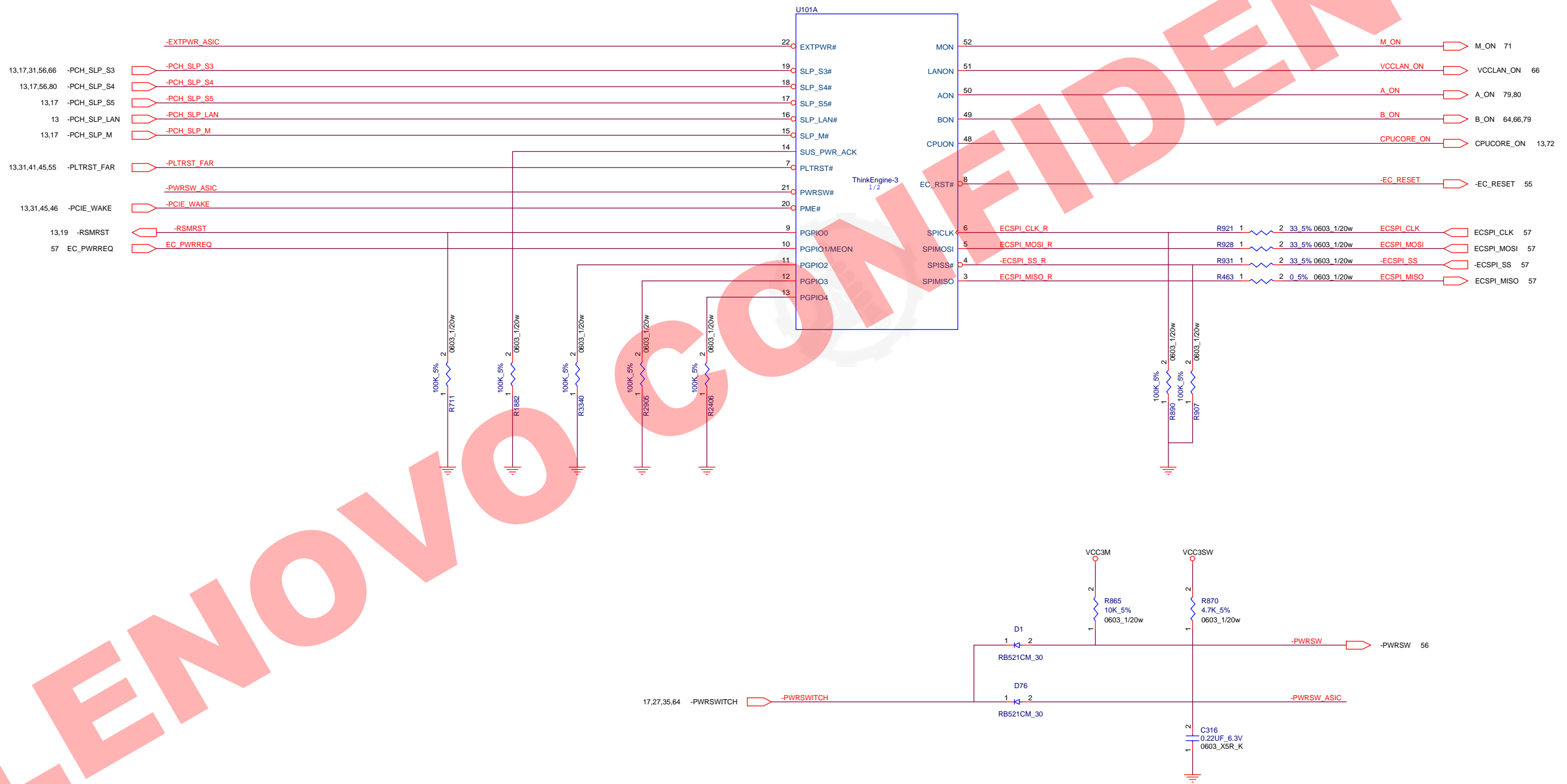
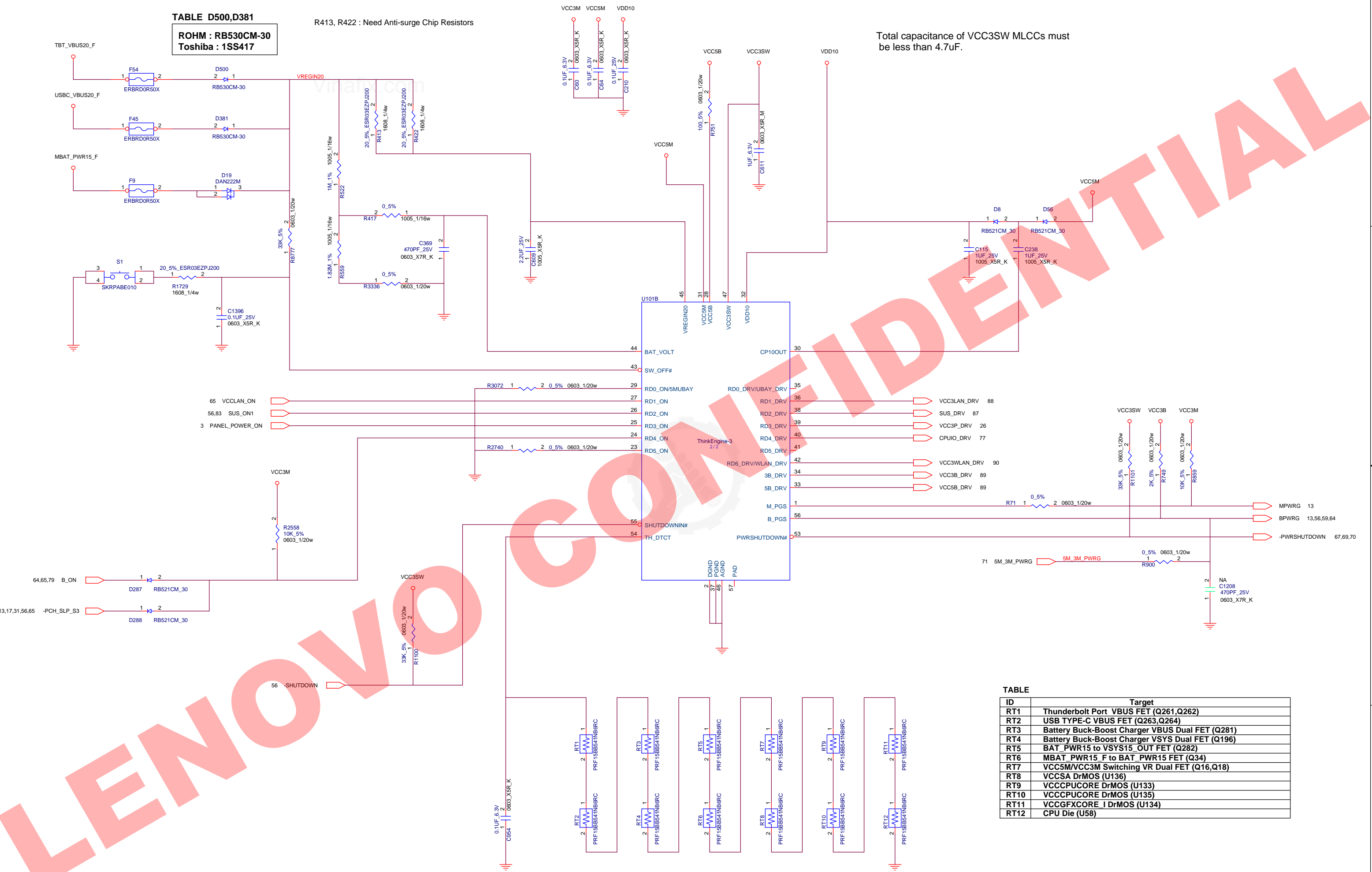


TABLE D500,D381

ROHM : RB530CM-30  
Toshiba : 1SS417

R413, R422 : Need Anti-surge Chip Resistors

Total capacitance of VCC3SW MLCCs must be less than 4.7uF.

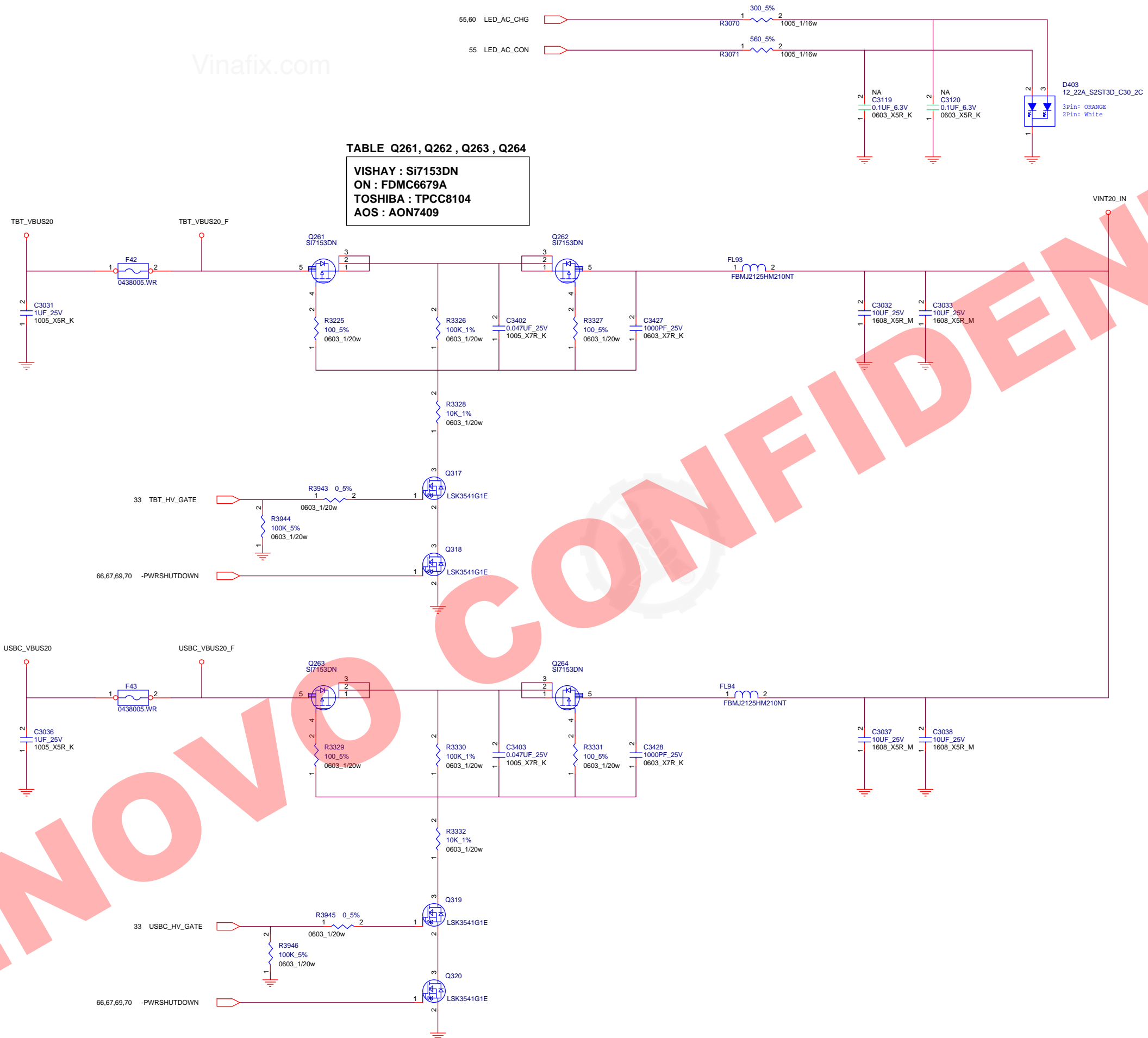


TABLE

ID	Target
RT1	Thunderbolt Port VBUS FET (Q261,Q262)
RT2	USB TYPE-C VBUS FET (Q263,Q264)
RT3	Battery Buck-Boost Charger VBUS Dual FET (Q281)
RT4	Battery Buck-Boost Charger VSYS Dual FET (Q196)
RT5	BAT_PWR15 to VSYS15_OUT FET (Q282)
RT6	MBAT_PWR15 F to BAT_PWR15 FET (Q34)
RT7	VCC5M/VCC3M Switching VR Dual FET (Q16,Q18)
RT8	VCCSA DrMOS (U136)
RT9	VCCCPUCORE DrMOS (U133)
RT10	VCCCPUCORE DrMOS (U135)
RT11	VCCGFXCORE I DrMOS (U134)
RT12	CPU Die (U58)

TABLE Q261, Q262, Q263, Q264


VISHAY : Si7153DN  
ON : FDMC6679A  
TOSHIBA : TPCC8104  
AOS : AON7409

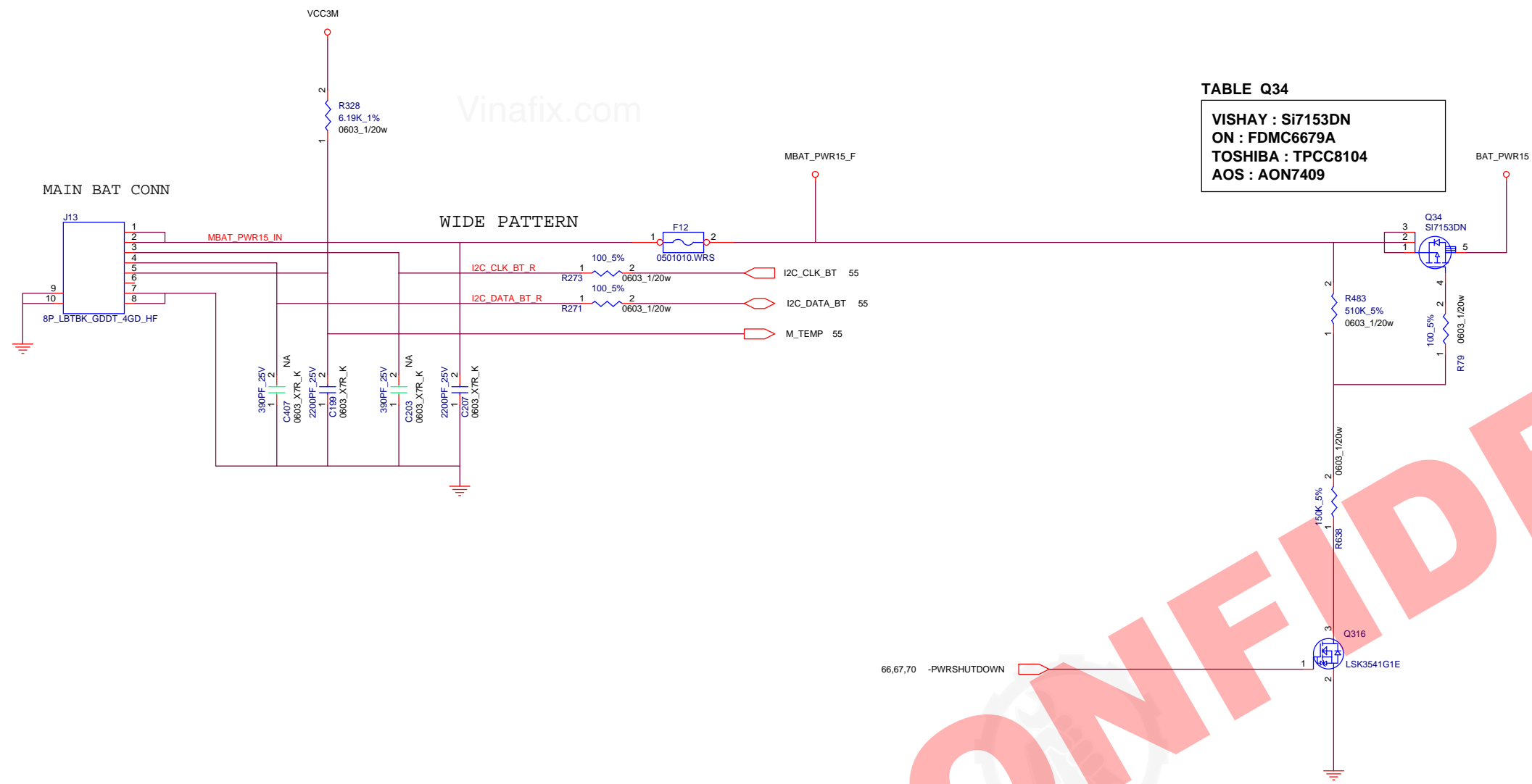




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**TABLE Q34**

VISHAY : Si7153DN
ON : FDMC6679A
TOSHIBA : TPCC8104
AOS : AON7409

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**TABLE Q281**

Infineon : BSC0924NDI  
ROHM : HP8K22

**TABLE L5**

CYNTEC, CMLE063T-2R2MS-88  
TOKO, FDSD0630-H-2R2M=P3

**TABLE Q196**

VISHAY : SiZ340DT  
FAIRCHILD : FDMC007N30D  
AOS : AON7934

**TABLE Q282**

VISHAY : Si7153DN  
ON : FDMC6679A  
TOSHIBA : TPCC8104  
AOS : AON7409

**TABLE : ILIM\_HIZ**

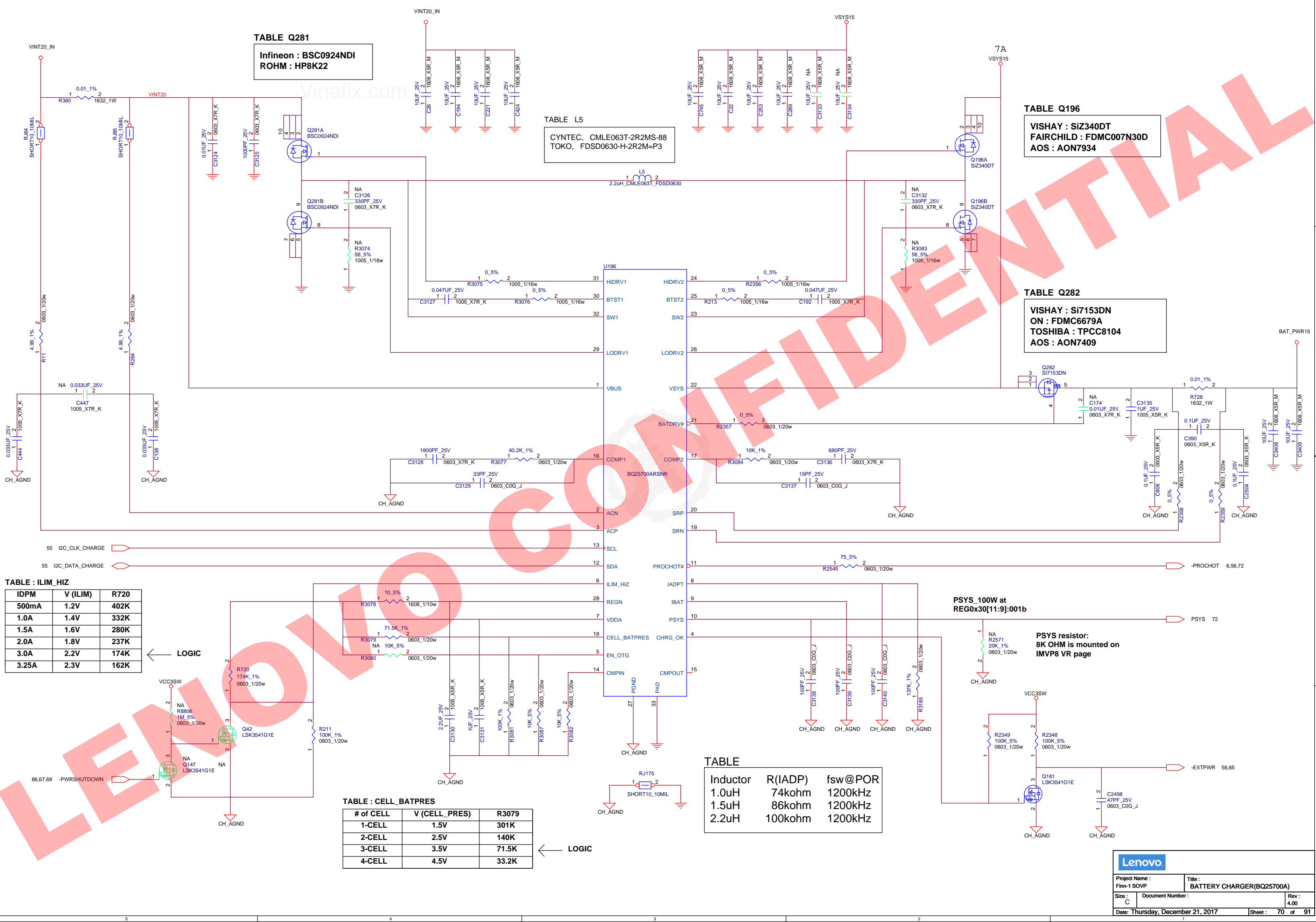
IDPM	V (ILIM)	R720
500mA	1.2V	402K
1.0A	1.4V	332K
1.5A	1.6V	280K
2.0A	1.8V	237K
3.0A	2.2V	174K
3.25A	2.3V	162K

**TABLE : CELL\_BATPRES**

# of CELL	V (CELL_PRES)	R3079
1-CELL	1.5V	301K
2-CELL	2.5V	140K
3-CELL	3.5V	71.5K
4-CELL	4.5V	33.2K

**TABLE**

Inductor	R(IADP)	fsw@POR
1.0uH	74kohm	1200kHz
1.5uH	86kohm	1200kHz
2.2uH	100kohm	1200kHz



All the input MLCCs on 15V must be placed symmetrically on Top and Bottom.

All the input MLCCs on 15V must be placed symmetrically on Top and Bottom.

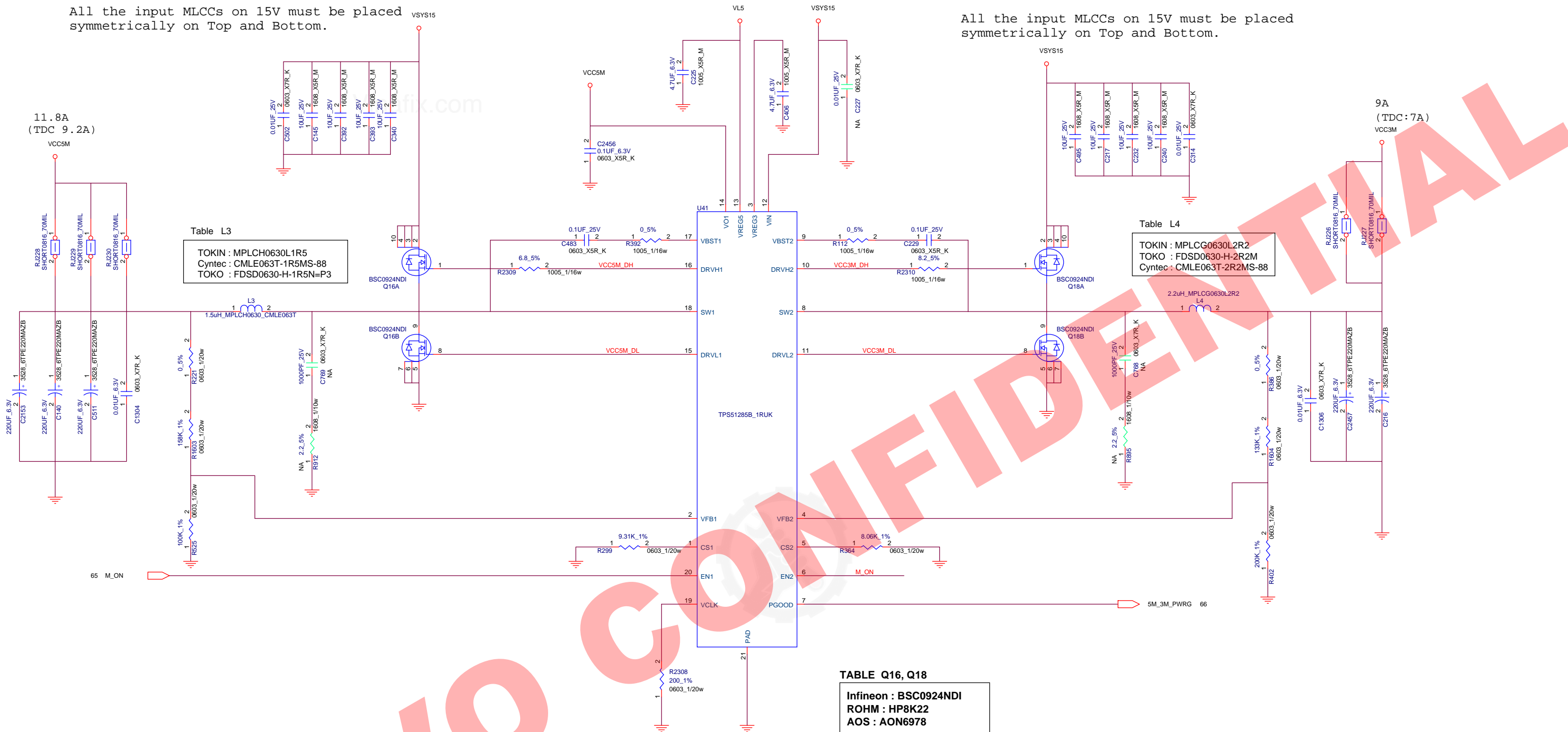


Table L3

TOKIN : MPLCH0630L1R5
Cyntec : CMLE063T-1R5MS-88
TOKO : FDSD0630-H-1R5N=P3

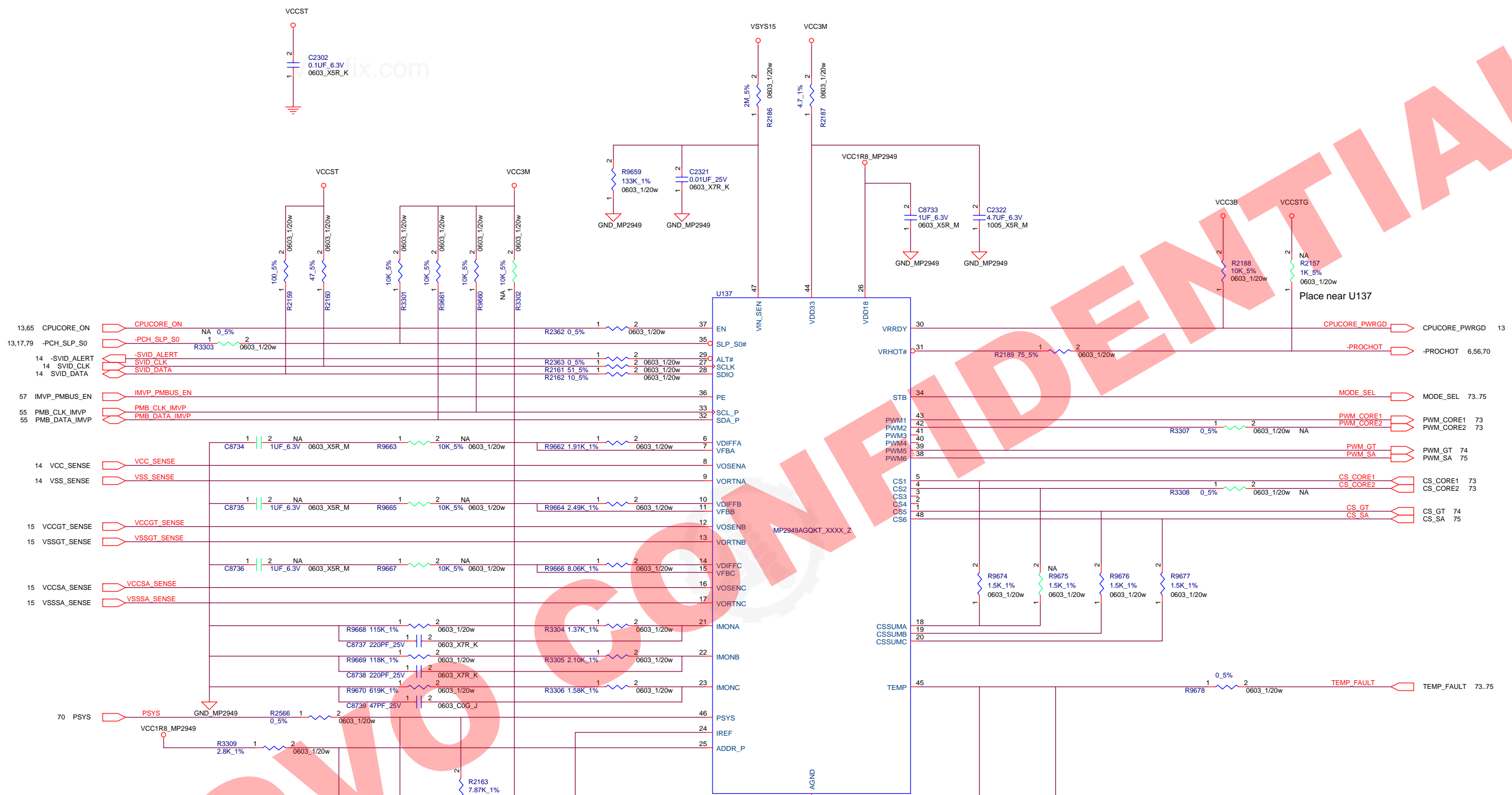
Table L4

TOKIN : MPLCG0630L2R2
TOKO : FDSD0630-H-2R2M
Cyntec : CMLE063T-2R2MS-88

TABLE Q16, Q18

Infineon : BSC0924NDI
ROHM : HP8K22
AOS : AON6978

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**TABLE**

Ref Des	KBL-R U42	KBL U22
U137	MP2949AGQKT-004A-C669-Z	MP2949AGQKT-004B-C669-Z
R3304	576_1%	1.37K_1%
R3307	ASM	NO_ASM
R3309	NO_ASM	ASM
R9668	57.6K_1%	115K_1%
R9673	0_5%	20K_1%
C8737	330PF	220PF
R3308	ASM	NO_ASM
R9675	ASM	NO_ASM

**TABLE: Phase Configuration and Active PWM Pins**

MFR_PHASE_CFG[4:0]	Active PWM Pins		
	Rail A	Rail B	Rail C
00100b	1, 2, 3, 4	5	6
00111b	1, 2, 3	4, 5	6
01001b	1, 2, 3	5	6
01100b	1, 2	4, 5	6
01110b (KBL-R U42)	1, 2	5	6
10001b (KBR U22)	1	5	6



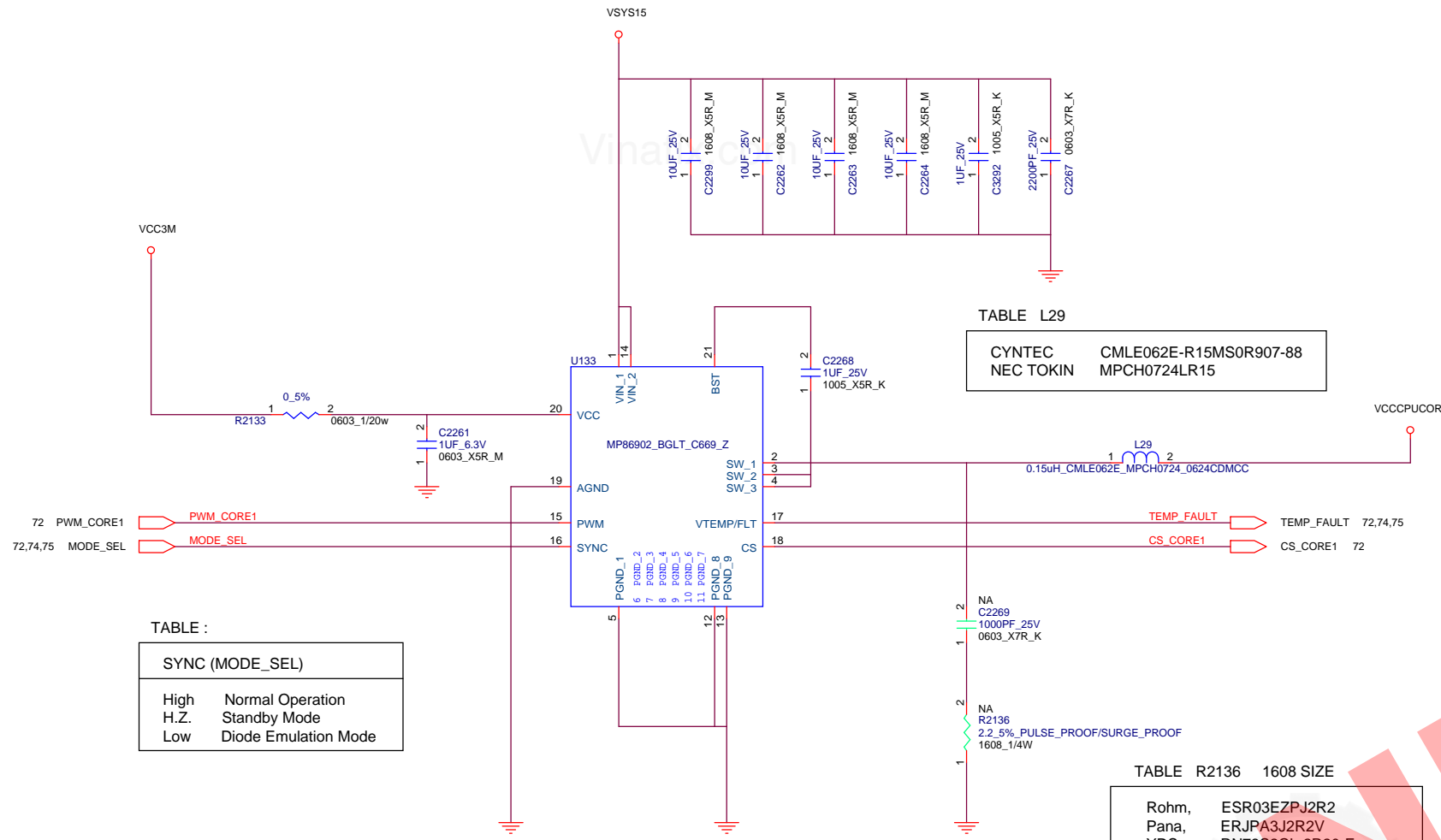


TABLE L29

CYNTec	CMLE062E-R15MS0R907-88
NEC TOKIN	MPCH0724LR15

TABLE R2136 1608 SIZE

Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
YDS,	RN73S2CL-2R20-F

TABLE :

SYNC (MODE_SEL)	
High	Normal Operation
H.Z.	Standby Mode
Low	Diode Emulation Mode

3pcs 330uF + 32pcs 22uF for KBL-R U42 VCCCPUCORE  
 1pcs 330uF + 25pcs 22uF for KBL U22 VCCCPUCORE

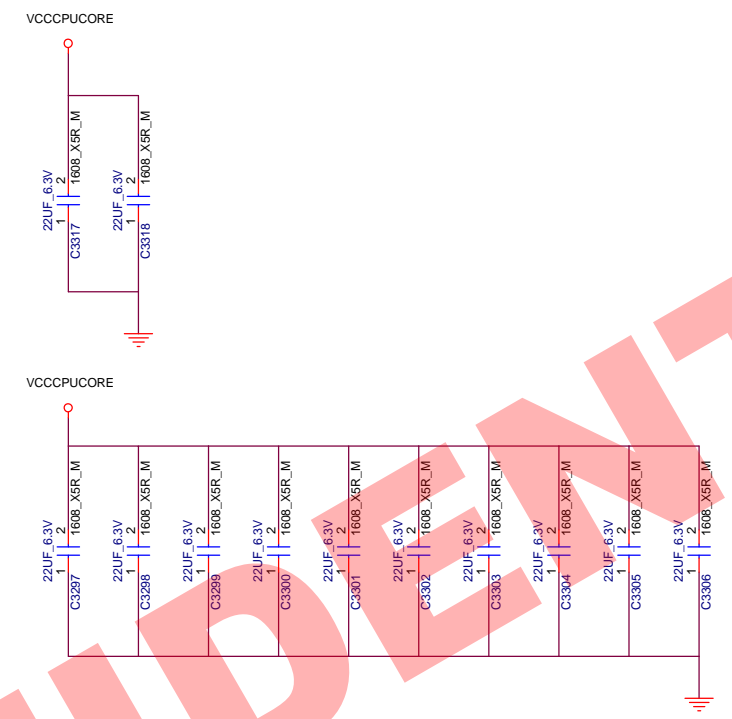


TABLE L31

CYNTec	CMLE062E-R15MS0R907-88
NEC TOKIN	MPCH0724LR15

TABLE R2137 1608 SIZE

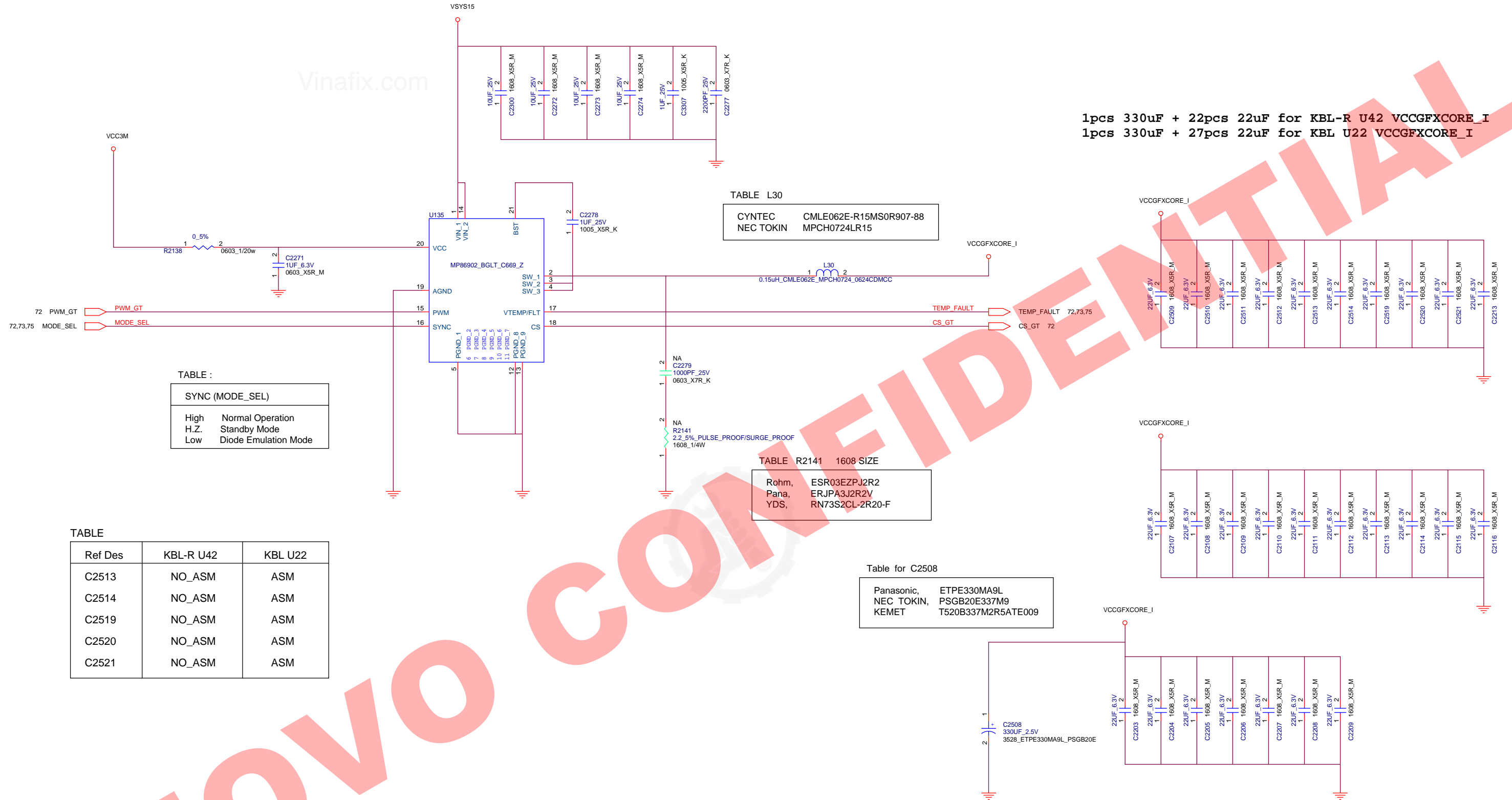
Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
YDS,	RN73S2CL-2R20-F

Table for C77, C78, C3311

Panasonic	ETPE330MA9L
NEC TOKIN	PSGB20E337M9
KEMET	T520B337M2R5ATE009

TABLE

Ref Des	KBL-R U42	KBL U22
U134	ASM	NO_ASM
L31	ASM	NO_ASM
R2134	ASM	NO_ASM
C2301	ASM	NO_ASM
C2284	ASM	NO_ASM
C2285	ASM	NO_ASM
C2286	ASM	NO_ASM
C3293	ASM	NO_ASM
C2280	ASM	NO_ASM
C2282	ASM	NO_ASM
C2283	ASM	NO_ASM
C6403	ASM	NO_ASM
C6404	ASM	NO_ASM
C6405	ASM	NO_ASM
C6406	ASM	NO_ASM
C6407	ASM	NO_ASM
C6409	ASM	NO_ASM
C6410	ASM	NO_ASM
C78	ASM	NO_ASM
C3311	ASM	NO_ASM



1pcs 330uF + 22pcs 22uF for KBL-R U42 VCCGFXCORE\_I  
 1pcs 330uF + 27pcs 22uF for KBL U22 VCCGFXCORE\_I

TABLE :

SYNC (MODE_SEL)	
High	Normal Operation
H.Z.	Standby Mode
Low	Diode Emulation Mode

TABLE

Ref Des	KBL-R U42	KBL U22
C2513	NO_ASM	ASM
C2514	NO_ASM	ASM
C2519	NO_ASM	ASM
C2520	NO_ASM	ASM
C2521	NO_ASM	ASM

TABLE L30

CYNTec	CMLE062E-R15MS0R907-88
NEC TOKIN	MPCH0724LR15

TABLE R2141 1608 SIZE

Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
YDS,	RN73S2CL-2R20-F

Table for C2508

Panasonic,	ETPE330MA9L
NEC TOKIN,	PSGB20E337M9
KEMET	T520B337M2R5ATE009



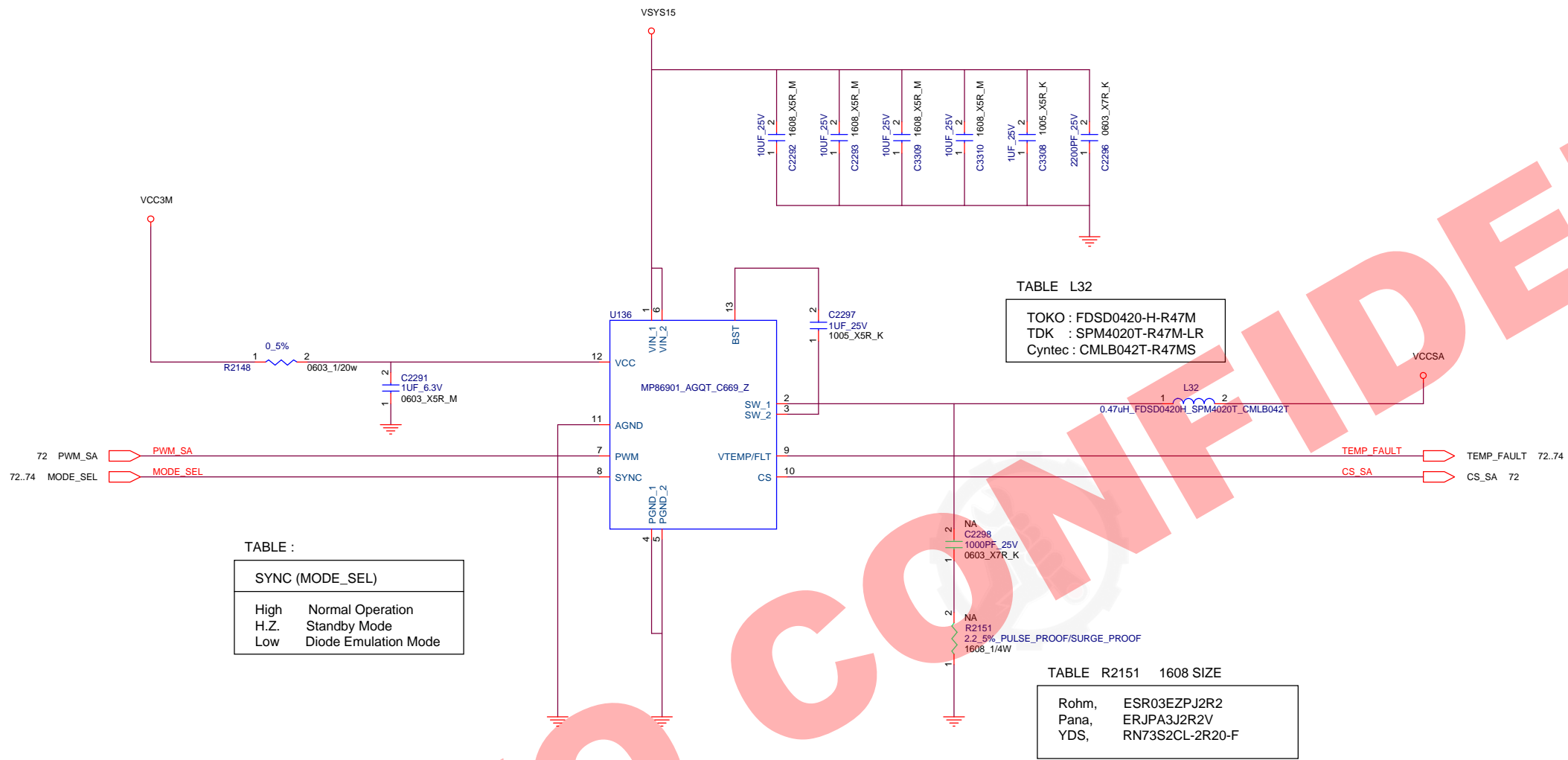


TABLE L32

TOKO	: FSD0420-H-R47M
TDK	: SPM4020T-R47M-LR
Cytec	: CMLB042T-R47MS

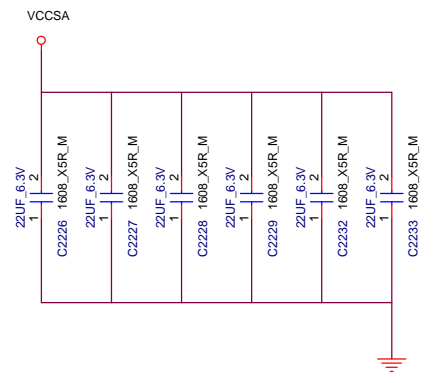
TABLE :

SYNC (MODE_SEL)	
High	Normal Operation
H.Z.	Standby Mode
Low	Diode Emulation Mode

TABLE R2151 1608 SIZE

Rohm,	ESR03EJPJ2R2
Pana,	ERJPA3J2R2V
YDS,	RN73S2CL-2R20-F

6pcs 22uF for VCCSA




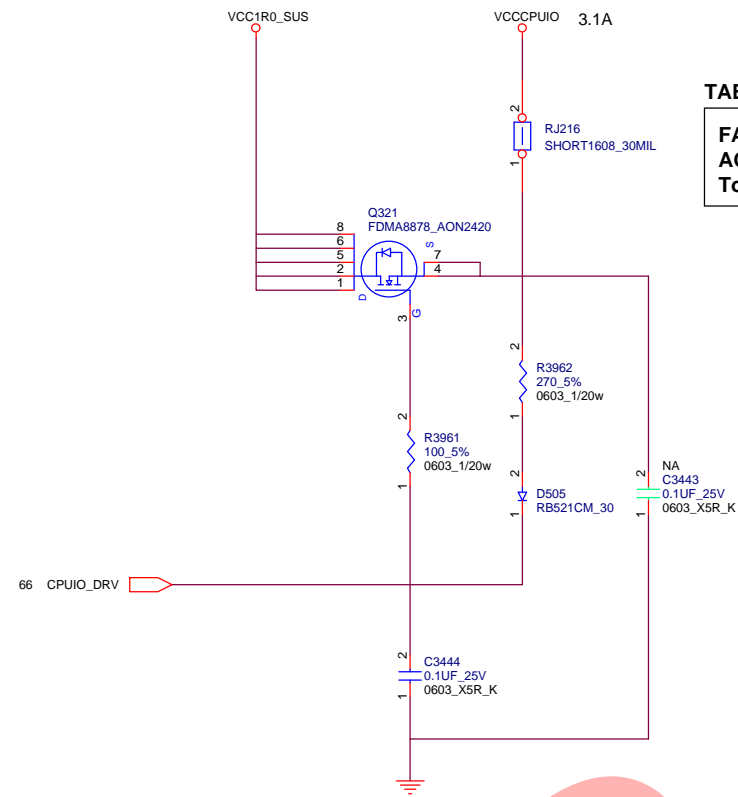
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**TABLE Q321**

FAIRCHILD : FDMA8878
AOS : AON2420
Toshiba : SSM6K513NU

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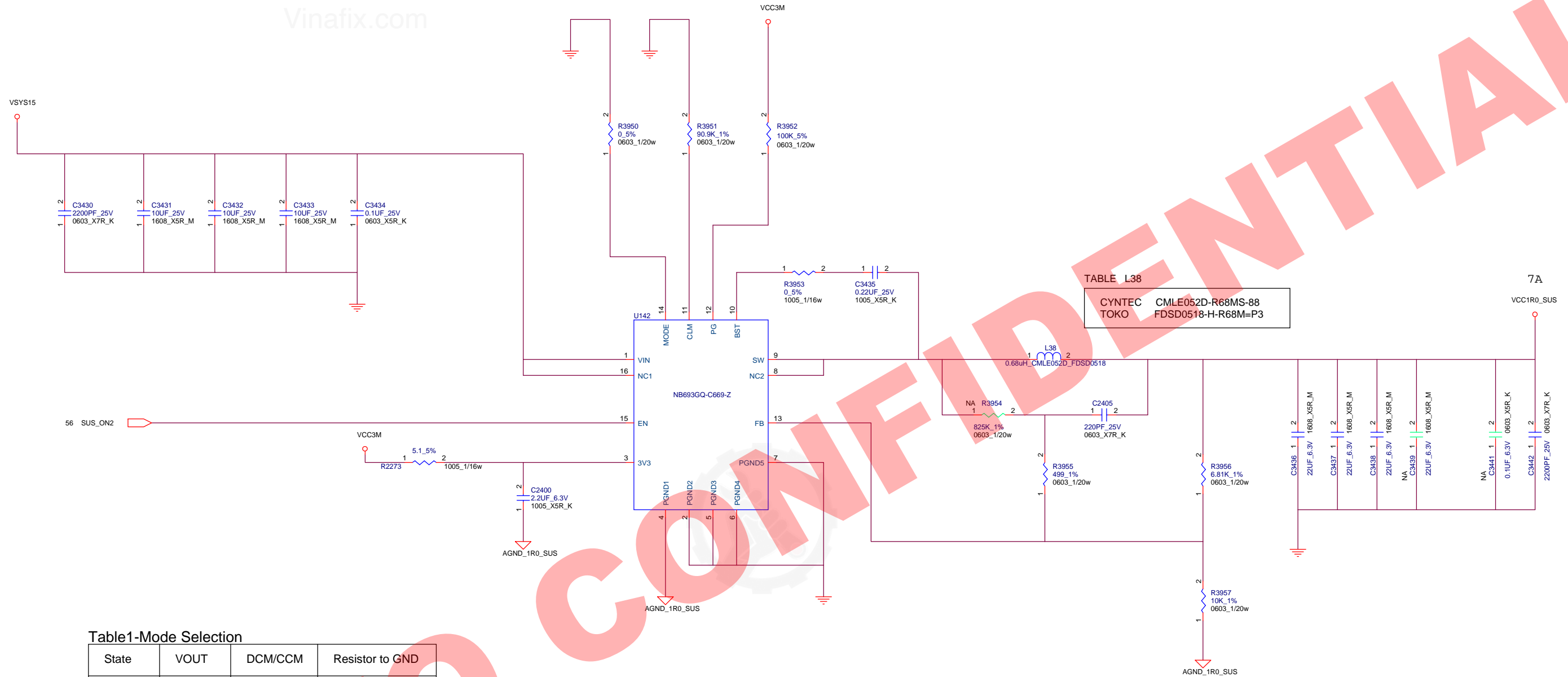


TABLE L38

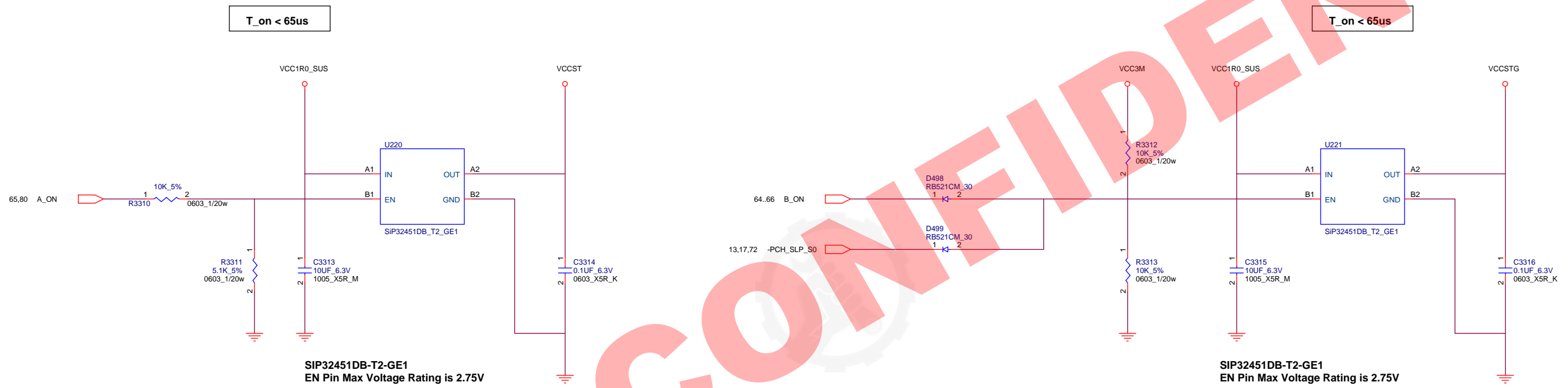
CYNTec	CMLE052D-R68MS-88
TOKO	FDSD0518-H-R68M=P3

Table1-Mode Selection

State	VOUT	DCM/CCM	Resistor to GND
M1	Vo<3V	DCM	0
M2	Vo<3V	CCM	90K
M3	Vo>=3V	CCM	150K
M4	Vo>=3V	DCM	>230K or Float

Table2-CLM Selection

State	CLM	Resistor to GND
M1	8.5A	0
M2	10A	90K
M3	13A	150K
M4	16.5A	>230K or Float



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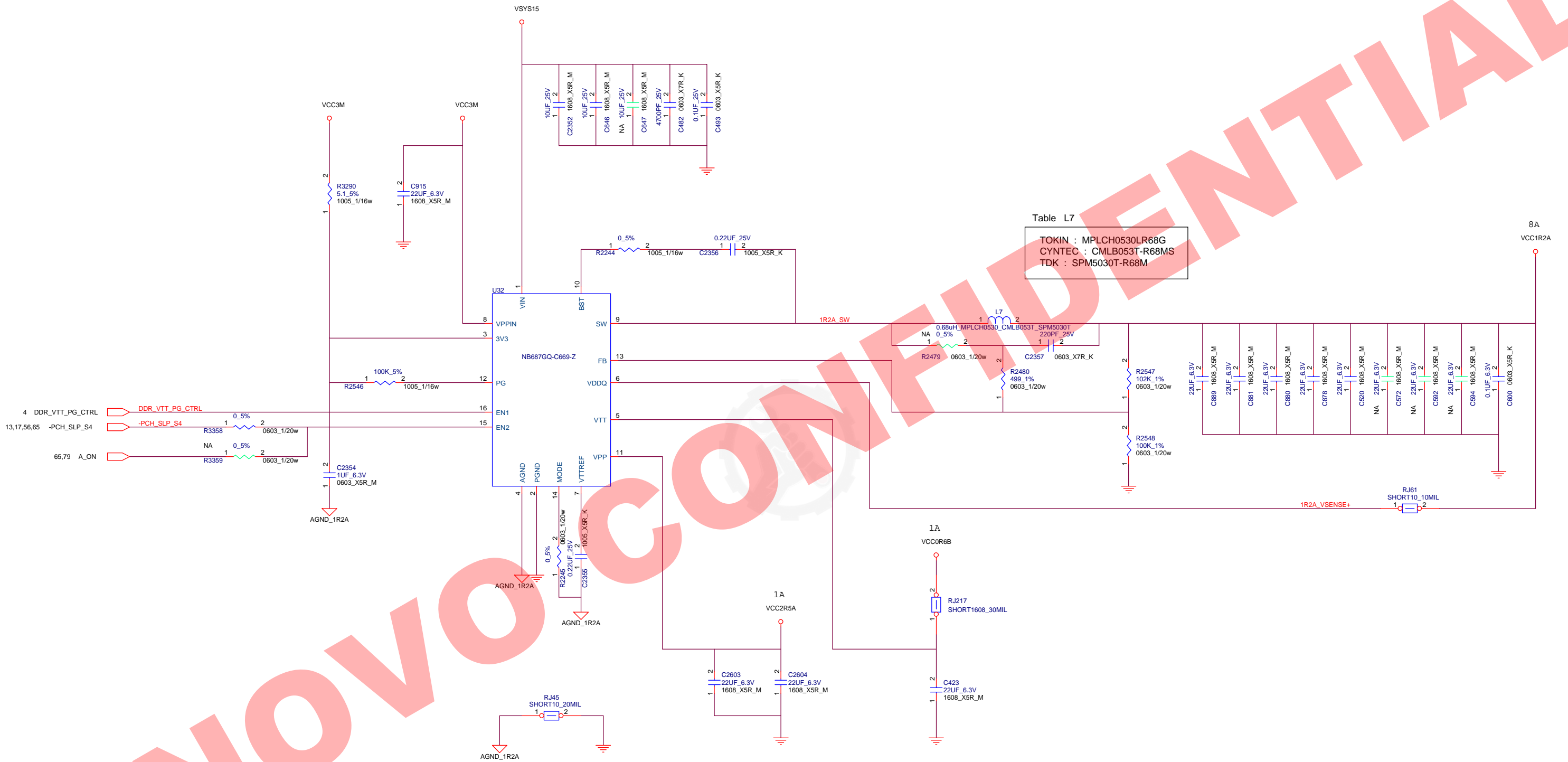


Table L7

TOKIN : MPLCH0530LR68G  
 CYNTEC : CMLB053T-R68MS  
 TDK : SPM5030T-R68M

TABLE NB687GQ : EN1/EN2


State	EN1	EN2	VDDQ	VTTREF	VTT	VPP
S0	High	High	ON	ON	ON	ON
S3	Low	High	ON	ON	OFF (High-Z)	ON
S4/S5	Low	Low	OFF	OFF	OFF	OFF
Others	High	Low	OFF	OFF	OFF	OFF

TABLE NB687GQ : MODE

State	USM	Fs	Resistor to GND
M1	No	700KHz	0
M2	Yes	700KHz	90K
M3	No	500KHz	150K
M4	Yes	500KHz	>230K or Float

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TABLE U145

PIN NAME	ROHM BU90104GWZ	TI TPS62660YFFR
VIN	A1	A2
EN	A2	B2
GND	A3	C2
MODE	B1	A1
LX	B2	B1
FB	B3	C1

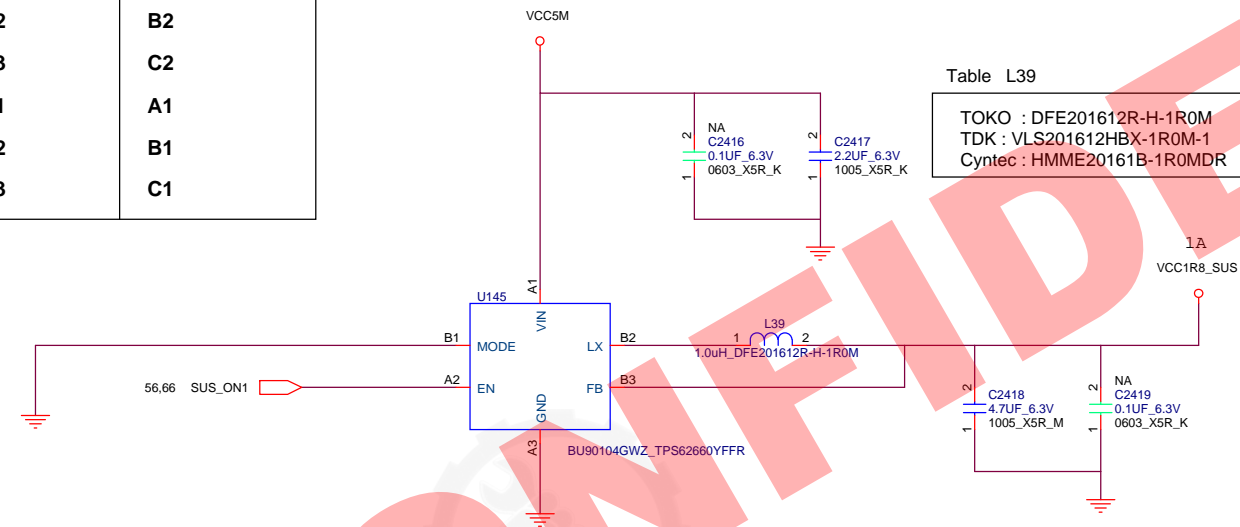


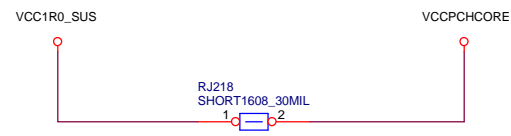
Table L39

TOKO : DFE201612R-H-1R0M
TDK : VLS201612HBX-1R0M-1
Cynotec : HMME20161B-1R0MDR

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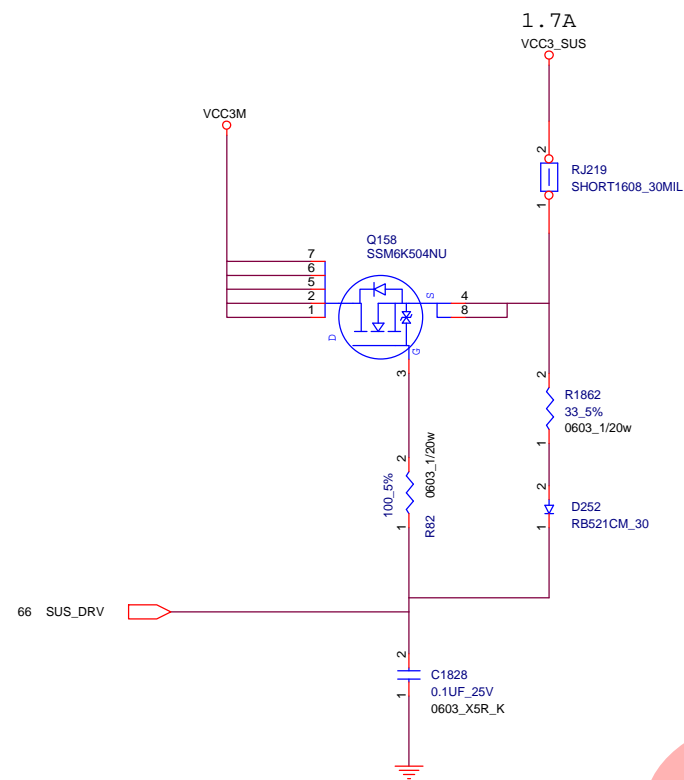


TABLE Q158

Toshiba : SSM6K504NU  
ROHM : RF4E080BTR  
AOS : AON2420

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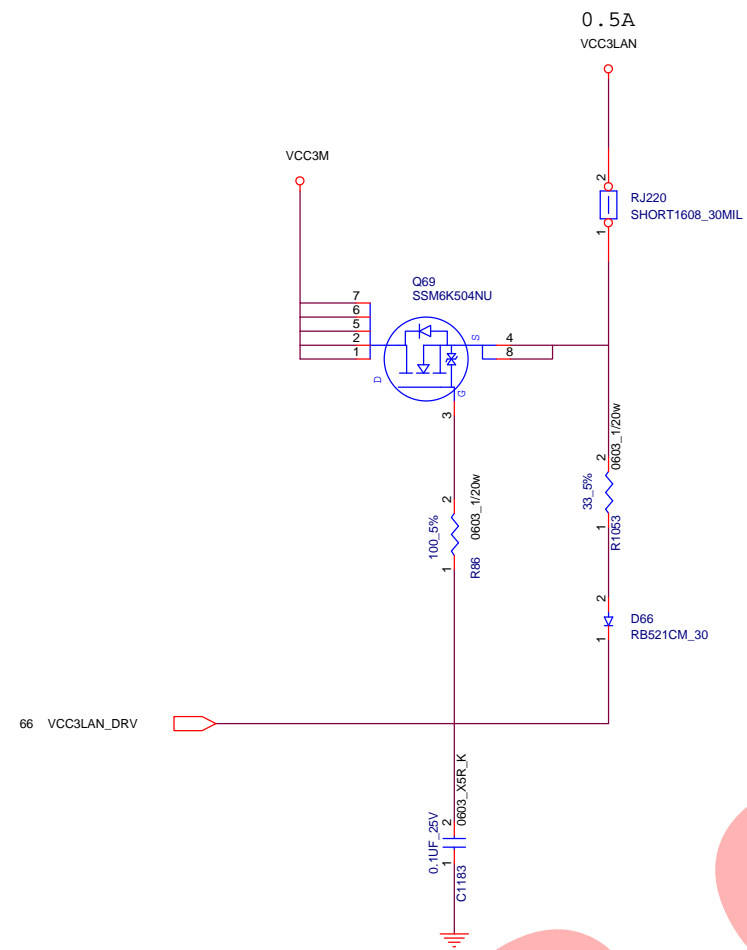
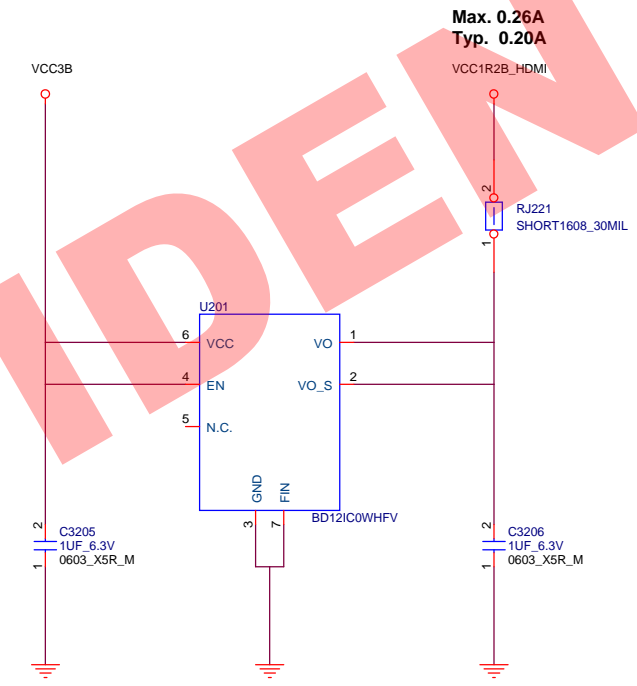


TABLE Q69

Toshiba : SSM6K504NU  
ROHM : RF4E080BNTR  
AOS : AON2420



Max. 0.26A  
Typ. 0.20A

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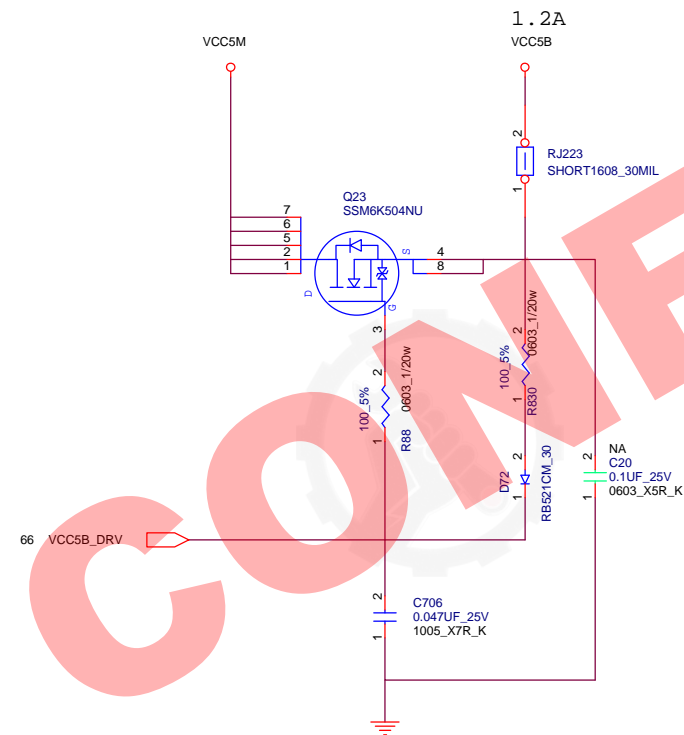
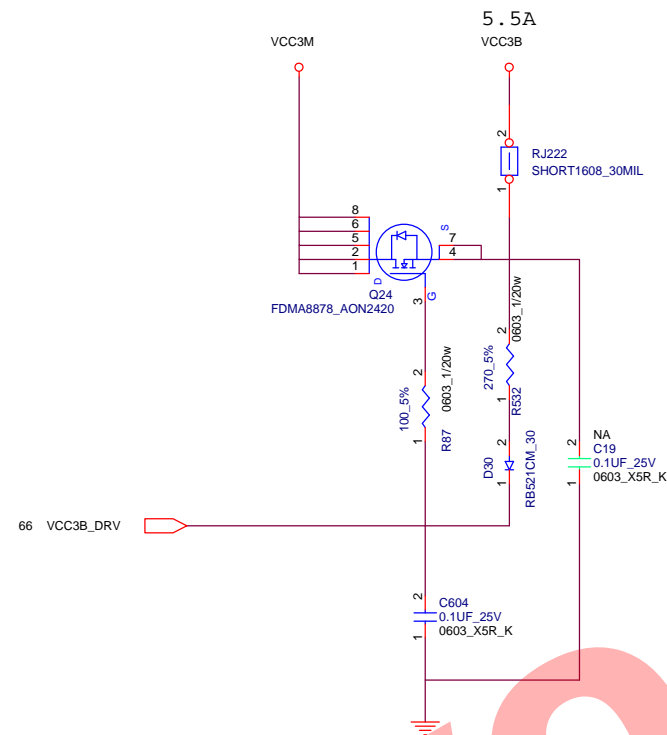
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TABLE Q24

FAIRCHILD : FDMA8878
AOS : AON2420
Toshiba : SSM6K513NU

TABLE Q23

Toshiba : SSM6K504NU
ROHM : RF4E080BNT
AOS : AON2420



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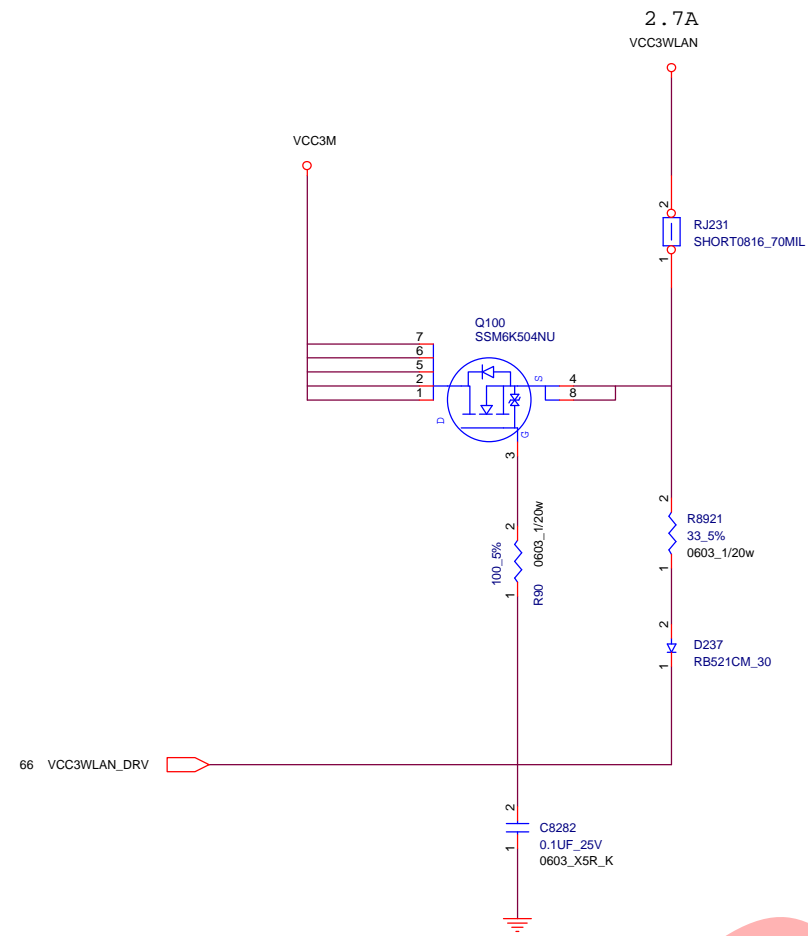


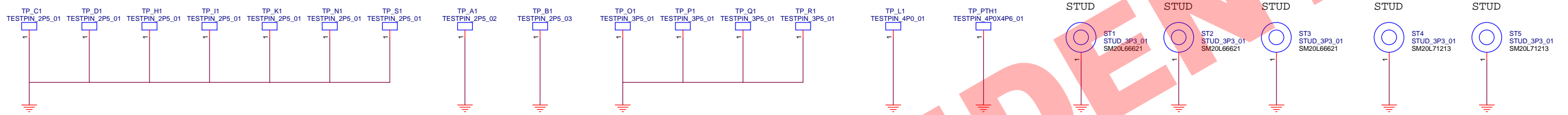
TABLE Q100

Toshiba : SSM6K504NU
ROHM : RF4E080BNTR
AOS : AON2420

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PTH FOR SCREW HOLE

Value	Hole Dia	Pad Dia		QTY
		TOP	BOTTOM	
TESTPIN_2P5_01	2.5	6.5	6.5	7
TESTPIN_2P5_02	2.5	6.5 (Shape Pad)	6.5 (Shape Pad)	1
TESTPIN_2P5_03	2.5	6.5 (Shape Pad)	6.5 (Shape Pad)	1
TESTPIN_3P5_01	3.5	5	6.5	4
TESTPIN_4P0_01	4.0	6.5	6.5	1
TESTPIN_4P0X4P6_01	4.0x4.6	6.5	6.5	1
STUD_3P3_01 (SM20L66621)	3.3	6.5	6.5	3
STUD_3P3_01 (SM20L71213)	3.3	6.5	6.5	2



FID Board Area

- FD1 NC, NO CONNECT TO ANY.
- FD2 NC, NO CONNECT TO ANY.
- FD3 NC, NO CONNECT TO ANY.
- FD4 NC, NO CONNECT TO ANY.
- FD5 NC, NO CONNECT TO ANY.
- FD6 NC, NO CONNECT TO ANY.

FID Component Area

- CF1 NC, NO CONNECT TO ANY.
- CF2 NC, NO CONNECT TO ANY.

