Thorpe-1 SWG SOVP Logic Schematics

THP1H-8
VER 8.04
Dec/15/2015

BASE LOGIC :
Thorpe-1 SWG SVT-R VER 7.08 Sep/14/2015

lenovo	
Project Name : THP1_SWG_SOVP	Title : TITLE PAGE
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EC HISTORY

CS15 THP1H-8
(BASE LOGIC : Thorpe-1 SWG SVT-R VER 7.08 Sep/14/2015)

VER.8.00 11/11/2015 APPLIED THP1_SWG_SOVP_EC001-005
VER.8.01 11/12/2015 APPLIED THP1_SWG_SOVP_EC006,007
VER.8.02 11/16/2015 APPLIED THP1_SWG_SOVP_EC008,010
VER.8.03 11/20/2015 APPLIED THP1_SWG_SOVP_EC011-014
VER.8.04 12/15/2015 APPLIED THP1_SWG_SOVP_EC015,016

TABLE: Chip Capacitor Thermal Characteristics

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

TABLE: Chip Capacitor Tolerance

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

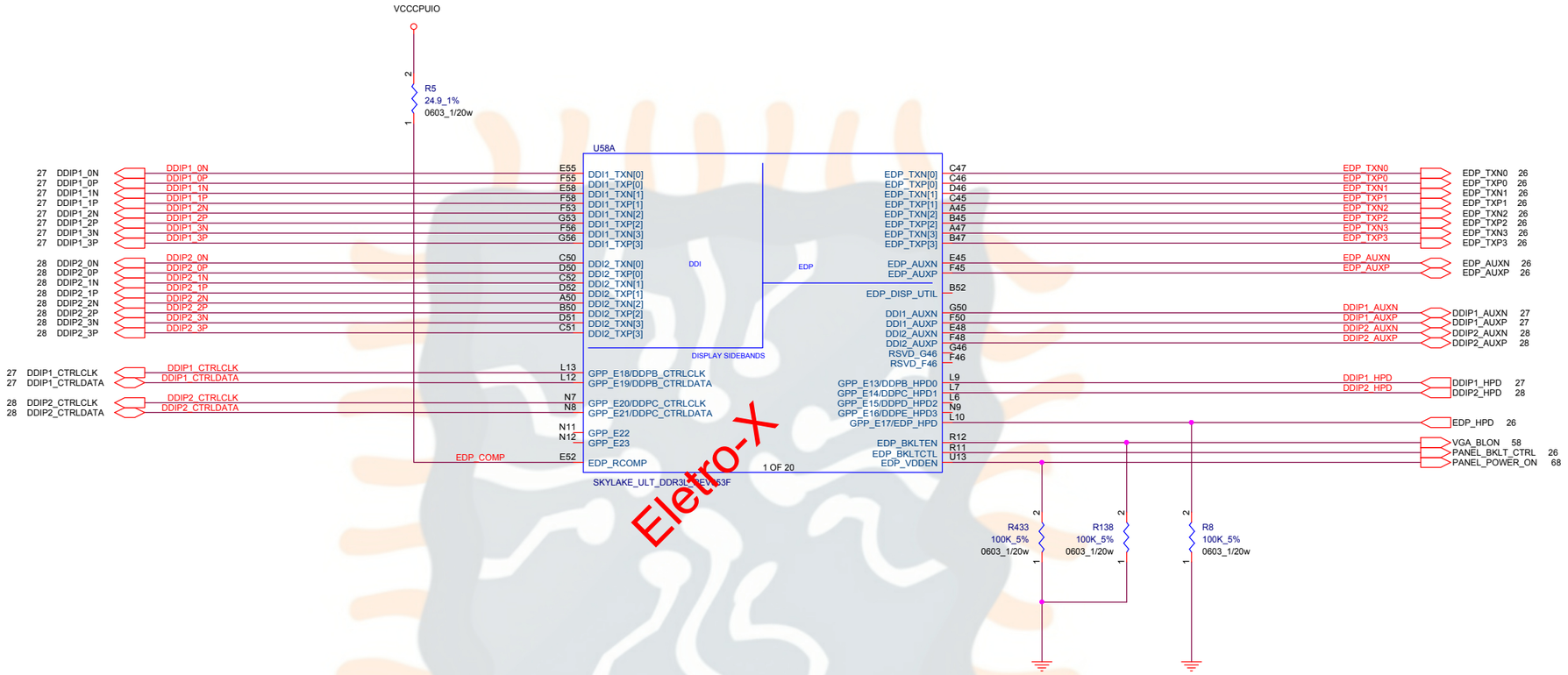
TABLE: Chip Part Dimension

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

LOGIC

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.**



Project Name : THP1_SWG_SOVP	Title : CPU(1/16) DDI/EDP
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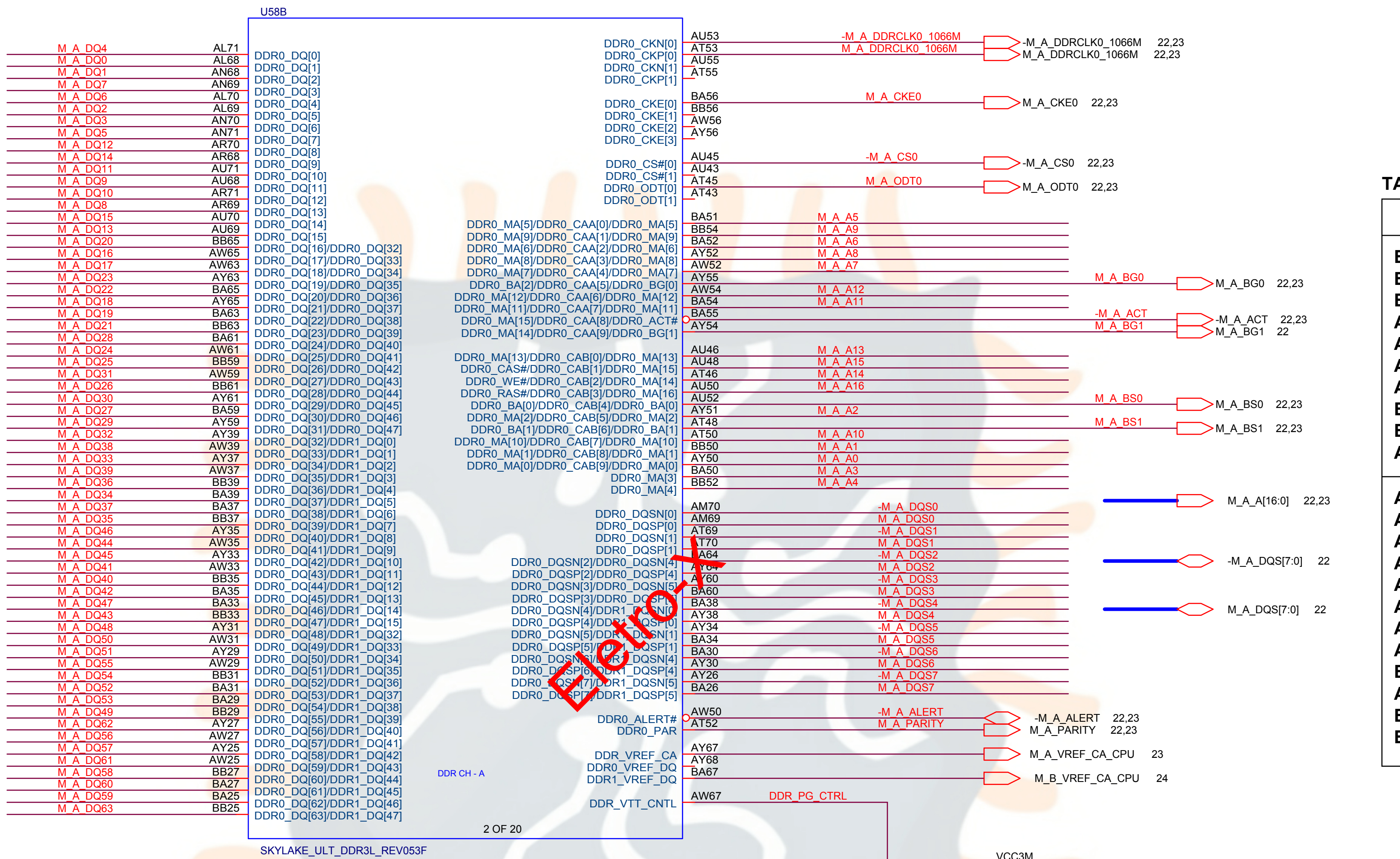
22 M_A_DQ[63:0]

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]
	BB63	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]

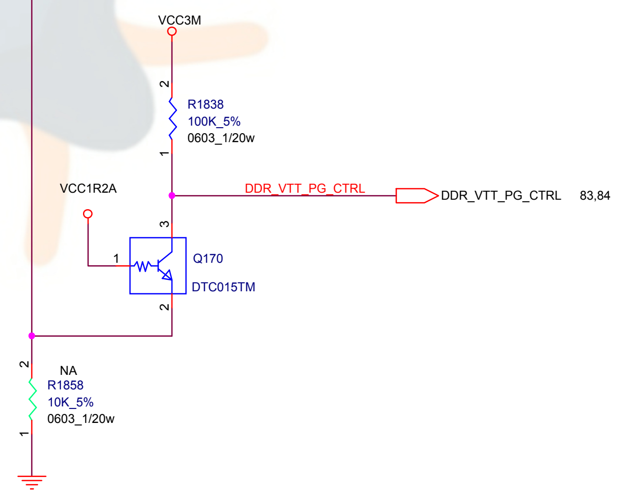
LOGIC



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]

LOGIC



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]
	AT70	DDR0_DQSP[1]	DDR0_DQSP[1]
Block 2	BA64	DDR0_DQSN[2]	DDR0_DQSN[4]
	AY64	DDR0_DQSP[2]	DDR0_DQSP[4]
	AY60	DDR0_DQSN[3]	DDR0_DQSN[5]
	BA60	DDR0_DQSP[3]	DDR0_DQSP[5]
Block 4	BA38	DDR0_DQSN[4]	DDR1_DQSN[0]
	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]

LOGIC

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Title: CPU(2/16) DDR CHANNEL-A
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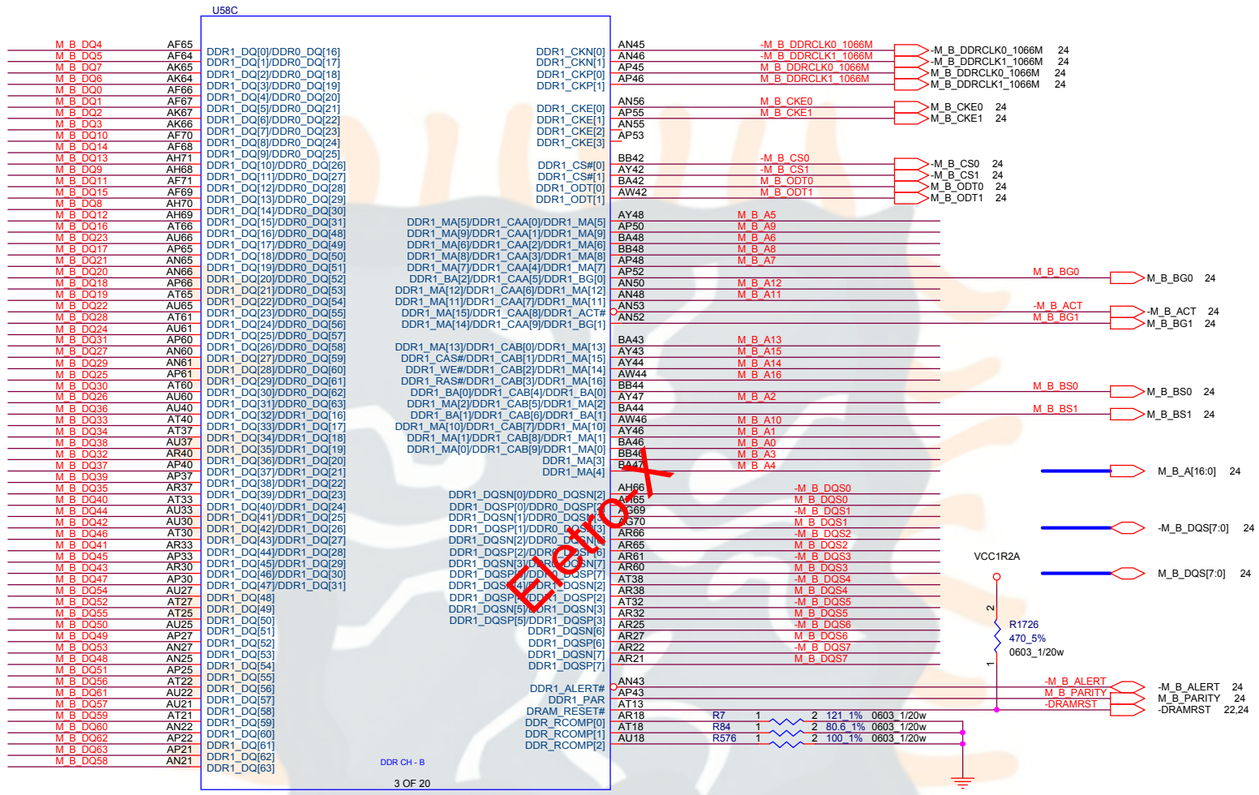
TABLE

	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]

LOGIC



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]

LOGIC

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]

LOGIC

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Title : CPU(3/16) DDR CHANNEL-B

Size : C

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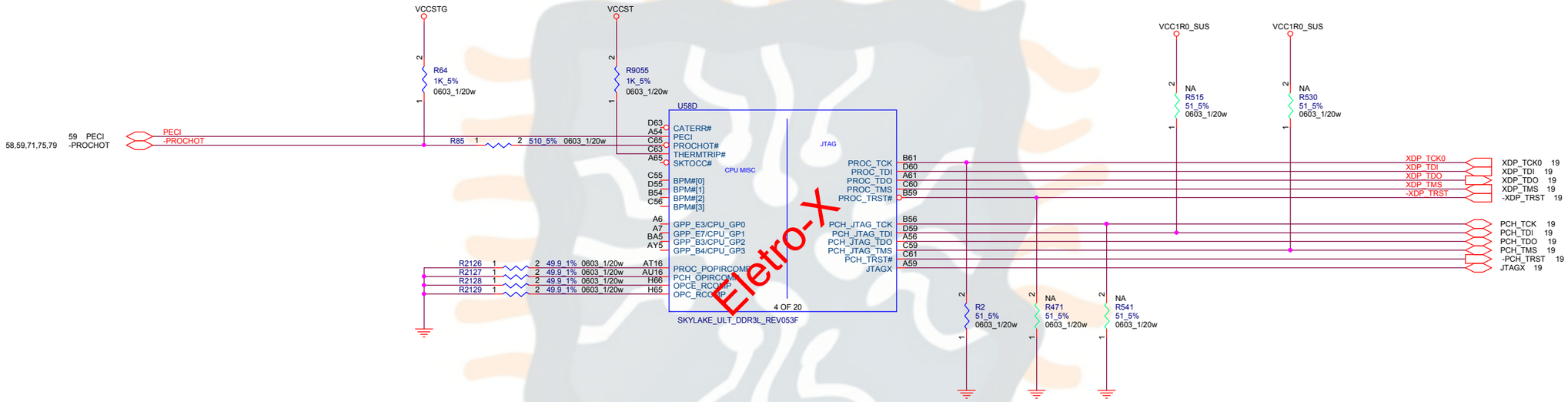

Project Name :	THP1_SWG_SOVP
Title :	CPU(4/16) PCH JTAG
Size :	C
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TABLE : Functional Strap

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

TABLE : Functional Strap

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

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

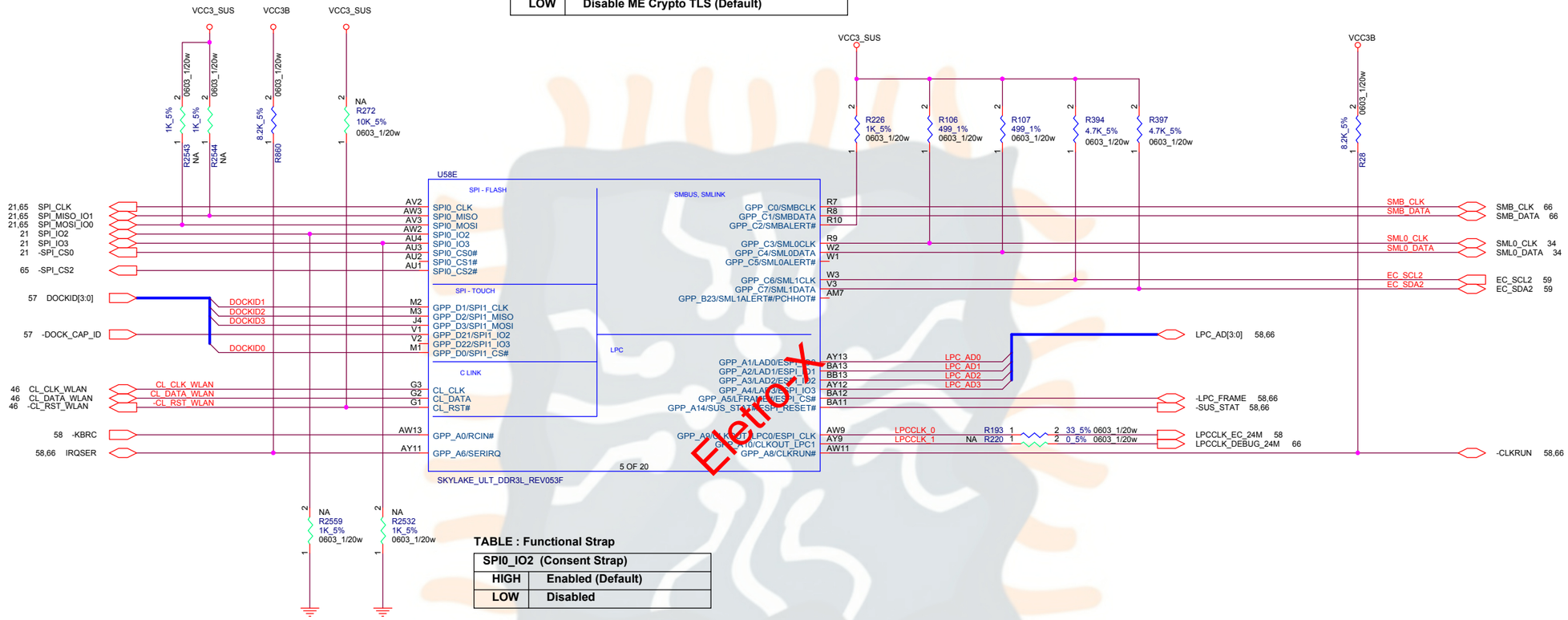

TABLE : Functional Strap

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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Project Name : THP1_SWG_SOVP		Title : CPU(5/16) eSPI/SMBUS/C-LINK	
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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)

TABLE : -DISCRETE_PRESENCE

VIDEO_ID	R2317
SWG	ASM
UMA	NO_ASM

LOGIC

VCC3_SUS

10K_5% 0603_1/20w R884 1 2
10K_5% 0603_1/20w R2340 1 2
NA 1K_5% 0603_1/20w R65 1 2

U58F

LPSS

AN8 GPP_B15/GSPI0_CS#
AP7 GPP_B16/GSPI0_CLK
AP8 GPP_B17/GSPI0_MISO
AR7 GPP_B18/GSPI0_MOSI
AM5 GPP_B19/GSPI1_CS#
AN7 GPP_B20/GSPI1_CLK
AP5 GPP_B21/GSPI1_MISO
AN5 GPP_B22/GSPI1_MOSI
AB1 GPP_C8/UART0_RXD
AB2 GPP_C9/UART0_TXD
W4 GPP_C10/UART0_RTS#
AB3 GPP_C11/UART0_CTS#
AD1 GPP_C20/UART2_RXD
AD2 GPP_C21/UART2_TXD
AD3 GPP_C22/UART2_RTS#
AD4 GPP_C23/UART2_CTS#
U7 GPP_C16/I2C0_SDA
U6 GPP_C17/I2C0_SCL
U8 GPP_C18/I2C1_SDA
U9 GPP_C19/I2C1_SCL
AH9 GPP_F4/I2C2_SDA
AH10 GPP_F5/I2C2_SCL
AH11 GPP_F6/I2C3_SDA
AH12 GPP_F7/I2C3_SCL
AF11 GPP_F8/I2C4_SDA
AF12 GPP_F9/I2C4_SCL

ISH

P2 GPP_D9 -DISCRETE_PRESENCE
P3 GPP_D10 DGFX_PWRGD
P4 GPP_D11 DGFX_VRAM_ID0
P1 GPP_D12 DGFX_VRAM_ID1
M4 GPP_D5/ISH_I2C0_SDA
N3 GPP_D6/ISH_I2C0_SCL
N1 GPP_D7/ISH_I2C1_SDA
N2 GPP_D8/ISH_I2C1_SCL
AD11 GPP_F10/I2C5_SDA/ISH_I2C2_SDA
AD12 GPP_F11/I2C5_SCL/ISH_I2C2_SCL
U1 GPP_D13/ISH_UART0_RXD/SML0BDATA/I2C4B_SDA
U2 GPP_D14/ISH_UART0_TXD/SML0BCLK/I2C4B_SCL
U3 GPP_D15/ISH_UART0_RTS#
U4 GPP_D16/ISH_UART0_CTS#/SML0BALERT#
AC1 GPP_C12/UART1_RXD/ISH_UART1_RXD
AC2 GPP_C13/UART1_TXD/ISH_UART1_TXD
AC3 GPP_C14/UART1_RTS#/ISH_UART1_RTS#
AB4 GPP_C15/UART1_CTS#/ISH_UART1_CTS#
AY8 GPP_A18/ISH_GP0
BA8 GPP_A19/ISH_GP1
BB7 GPP_A20/ISH_GP2
BA7 GPP_A21/ISH_GP3
AY7 GPP_A22/ISH_GP4
AW7 GPP_A23/ISH_GP5
AP13 SX_EXIT_HOLDOFF#/GPP_A12/BM_BUSY#/ISH_GP6

6 OF 20

SKYLAKE_ULT_DDR3L_REV053F

58 -EC_SCI
58 -EC_WAKE
46 -WWAN_RESET
26 -INT_MIC_DTCT
46 WWAN_CFG0
46 WWAN_CFG1
-MIC_HW_EN

R961 0_5% 0603_1/20w 1 2

TABLE

DGFX_VRAM_ID[1..0]	
00B	1GB
01B	2GB
10B	4GB
11B	N/A

LOGIC

VCC3_SUS

10K_5% 0603_1/20w R2338 1 2

DGFX_PWRGD 12,90
WWAN_CFG2 46
WWAN_CFG3 46

0_5% 0603_1/20w R2315 1 2
NA 0_5% 0603_1/20w R2316 1 2
0_5% 0603_1/20w R2317 1 2

Project Name : THP1_SWG_SOVP	Title : CPU(6/16) : LPSS/ISH
Size : C	Document Number :
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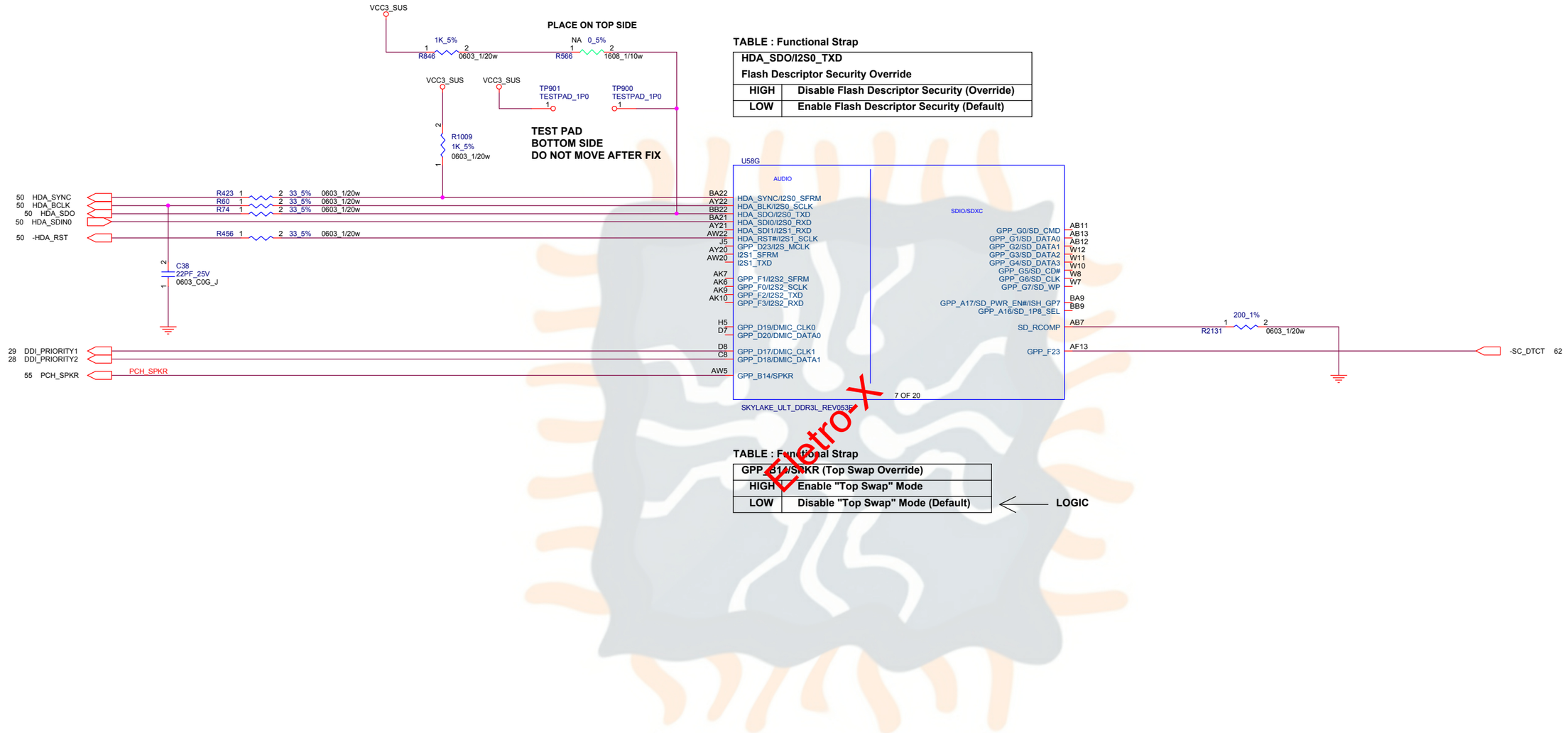

TABLE : Functional Strap

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

Project Name : THP1_SWG_SOVP	Title : CPU(7/16):HDA/SDIO/SDXC
Size : C	Document Number : Rev : 8.04
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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	SSIC	SSIC
Port 3	USB3 3	USB3 3	USB3P2
Port 4	USB3 4	USB3 4	USB3P3
Port 5	USB3 5/PCIE 1	PCIE 1	PCIE0
Port 6	USB3 6/PCIE 2	PCIE 2	PCIE1
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 (x4)	PCIE5_L0
Port 14	PCIE 10 (GbE)	PCIE 10 (x4)	PCIE5_L1
Port 15	PCIE 11/SATA 1B	PCIE 11 (x4)	PCIE5_L2
Port 16	PCIE 12/SATA 2	PCIE 12 (x4)	PCIE5_L3

PCIe Port Assignment	
0	Media Card Controller
1	M.2 WLAN Slot Port 1
2	M.2 WLAN Slot Port 0
3	GbE PHY
4 (x4)	PCIe SSD
5 (x4)	Discrete GPU

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	M.2 WWAN Slot
2	USB 3.0 System Port
3	USB 3.0 Docking / System Port (3rd Port)
4	Smart Card Slot
5	Reserved
6	NGFF WLAN Slot
7	USB Camera
8	Fingerprint Reader
9	Touch Panel

USB 3.0 Port Assignment	
0	USB 3.0 System Port (AOU)
1	M.2 WWAN Slot (SSIC)
2	USB 3.0 System Port
3	USB 3.0 Docking / System Port (3rd Port)
4	(PCIE 1)
5	(PCIE 2)

Pericom	PI3USB102ZME
NXP	NX3DV42GU

Pericom	PI3PCIE3212ZBE
NXP	CBTL02043ABQ
NXP	CBTL02042ABQ

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Project Name : THP1_SWG_SOVP

Title : CPU(8/16) PCIE/USB/SATA

Size : C

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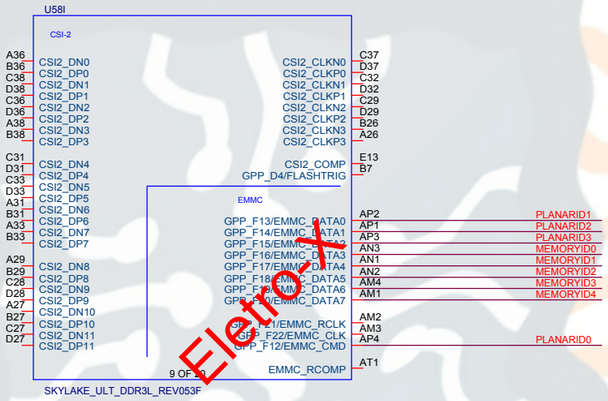
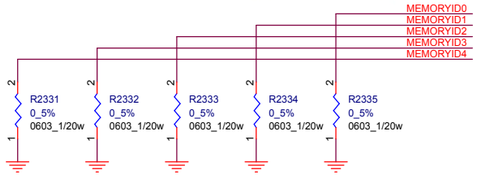
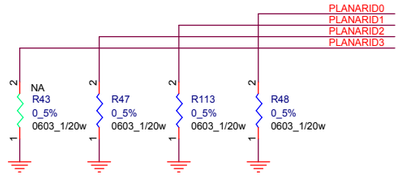


TABLE

MEMORYID[4..0]	U125, U126, U127, U128			
00000b	Micron	MT40A512M16HA-083E:A	8Gbit SDP	4GB
00001b	Micron	MT40A1G16HBA-083E:A	16Gbit DDP	8GB
00010b	Samsung	K4A8G165WB-BCPB	8Gbit SDP	4GB
00011b	SK Hynix	T.B.D.	8Gbit DDP	4GB
00100b	SK Hynix	T.B.D.	8Gbit SDP	4GB
11111b	NO_ASM		No Soldered Memory	





TABLE

LEVEL	PLANAR ID			
	3	2	1	0
	R43	R47	R113	R48
1	NA	NA	NA	NA
0	ASM	ASM	ASM	ASM

TABLE

LEVEL	PLANARID[3..0]
PDV	0000B
SDV	0001B
FVT	0010B
ME SIT	0011B
SIT	0100B
SIT-R	0101B
SVT	0110B
SVT-R	0111B
SOVP	1000B

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Project Name : THP1_SWG_SOVP	Title : CPU(9/16) DDR3L/EMMC	
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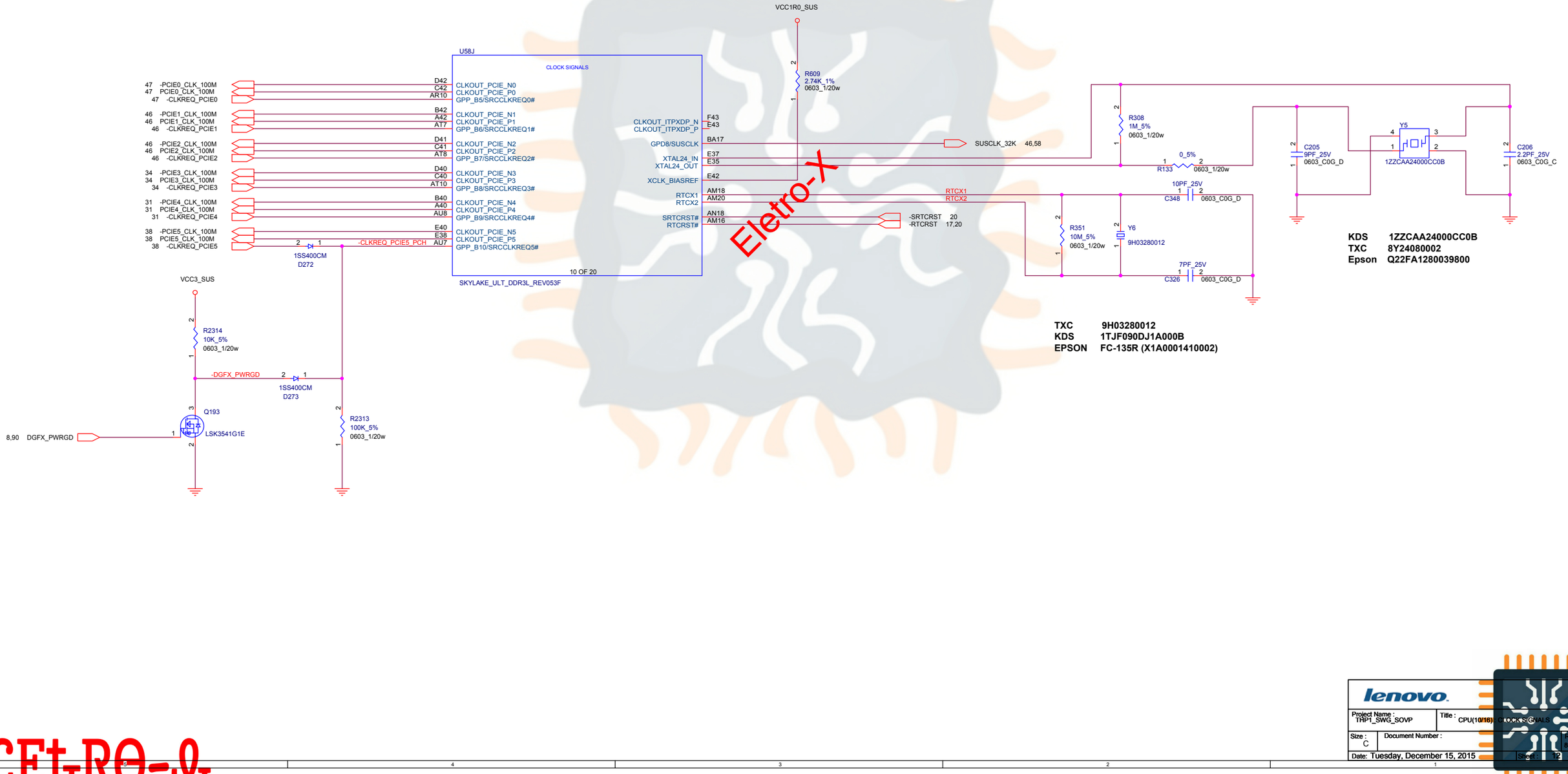

Project Name :	THP1_SWG_SOVP
Title :	CPU(10/16) CLOCK SIGNALS
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47 -PLTRST_NEAR
31,34,46,58,65..67 -PLTRST_FAR
R991 33_5% 0603_1/20w
R993 33_5% 0603_1/20w
U73
TC7SG17FE
VCC3M
-PLTRST
C460 100PF_25V 0603_C0G_J
C46 100PF_25V 0603_C0G_J

VCC3M
VCC3M
R19 4.7K_5% 0603_1/20w
R612 1K_5% 0603_1/20w

U58K
SYSTEM POWER MANAGEMENT
SKYLAKE_ULT_DDR3L_REV053F
11 OF 20

17,19 -XDP_DBR
19,59 -RSMRST
TP160 TESTPAD_0P5
CPU_PWRGD
VCCST_PWRGD
27,50,59,66,68 BPWRG
19,75,79 CPUCORE_PWRGD
59,68 MPWRG
MPWRG
-SUSWARN
46,67 -PCIE_WAKE
34 -LANWAKE
34 LANPHYPC

AN10 GPP_B13/PLTRST#
B5 SYS_RESET#
AY17 RSMRST#
A68 PROCPWRGD
B65 VCCST_PWRGD
B6 SYS_PWROK
BA20 PCH_PWROK
BB20 DSW_PWROK
AR13 GPP_A13/SUSWARN#/SUSPWRDNACK
AP11 GPP_A15/SUSACK#
BB15 WAKE#
AM15 GPD2/LAN_WAKE#
AW17 GPD11/LANPHYPC
AT15 GPD7/RSVD

AT11 GPP_B12/SLP_S0#
AP15 GPD4/SLP_S3#
BA16 GPD5/SLP_S4#
AY16 GPD10/SLP_S5#
AN15 SLP_SUS#
AW15 SLP_LAN#
BB17 GPD9/SLP_WLAN#
AN16 GPD6/SLP_A#
BA15 GPD3/PWRBTN#
AY15 GPD1/ACPRESENT
AU13 GPD0/BATLOW#
AU11 GPP_A11/PME#
AP16 INTRUDER#
AM10 GPP_B11/EXT_PWR_GATE#
AM11 GPP_B2/VRALERT#

RTCVCC
R646 1M_5% 0603_1/20w
VCC3M
NA 10K_5% 0603_1/20w R614
NA C7 1000PF_25V 0603_X7R_K

-PCH_SLP_S0 17,80,82,87
-PCH_SLP_S3 17,59,67,80
-PCH_SLP_S4 17,59,67,84
-PCH_SLP_S5 17,67
-PCH_SLP_SUS 59
-PCH_SLP_LAN 60
-PCH_SLP_WLAN 59
-PCH_SLP_M 17,67
-PWRSW_EC 59
AC_PRESENT 59
-BATLOW 60
-INTRUDER
-EXT_PWR_GATE 16

SPVR310100
R10 0_5% 0603_1/20w
D5 RB520CM_30
-INTRUDER_EC
-INTRUDER_EC 60

VCC3_SUS
VCC1R0_SUS
R2324 10K_5% 0603_1/20w
R2325 10K_5% 0603_1/20w
VCCST_PWRGD
Q194 LSK3541G1E
Q195 LSK3541G1E
67,75,79,88,89 CPUCORE_ON
CPUCORE_ON

Eletro-X

Project Name : THP1_SWG_SOVP	Title : CPU(11/16) SYSTEM PM
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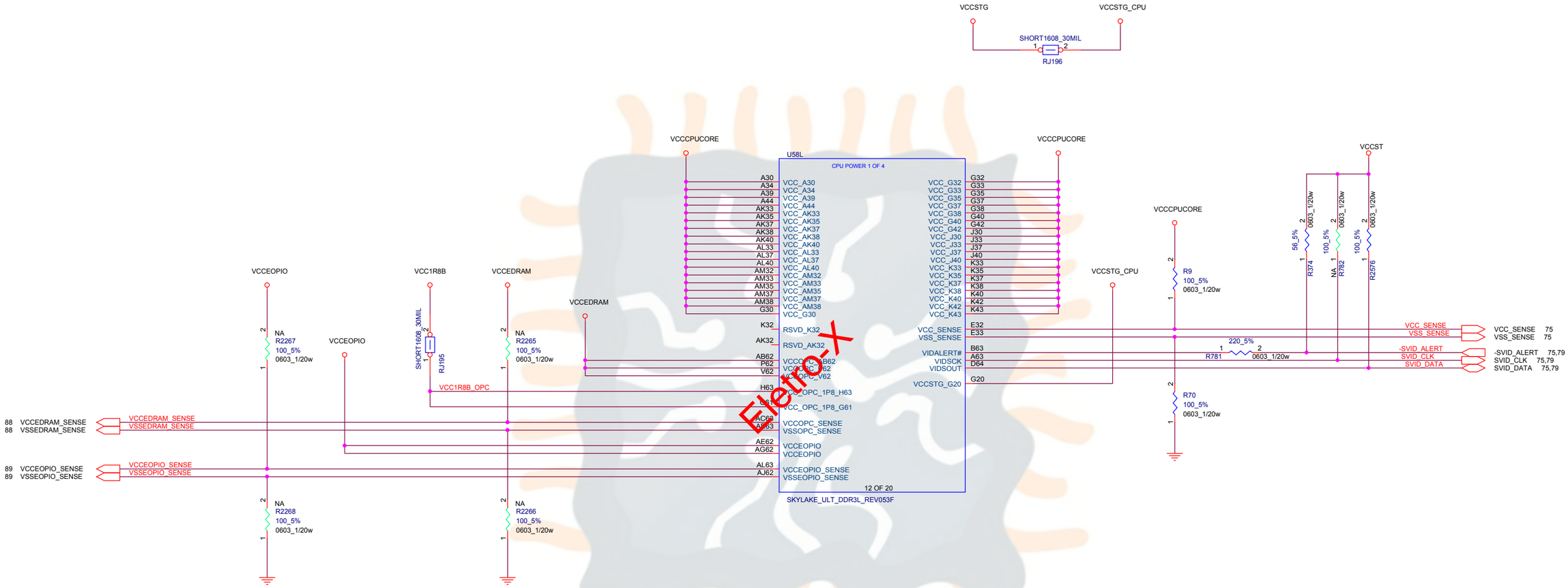
ECEtRO-Q



Project Name : THP1_SWG_SOVP	Title : CPU(12/16) CPU POWER (1/2)
Size : C	Document Number : Rev : 8.04
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VCCST
VCCST_CPU
SHORT1608_30MIL
RJ197
VCCST_CPU
VCCSTG_CPU
VCCST_CPU
VCCPLL
VCC1R2A
VCC1R2A
VCCQC
VCC1R2A
VCCPLL_OC
VCC1R2A
1UF_6.3V 1005_X5R_K C2422
1UF_6.3V 1005_X5R_K C2423
1UF_6.3V 1005_X5R_K C2424
10UF_6.3V 1005_X5R_M C835
10UF_6.3V 1005_X5R_M C1184
10UF_6.3V 1005_X5R_M C1829
10UF_6.3V 1005_X5R_M C1830
10UF_6.3V 1005_X5R_M C1831
10UF_6.3V 1005_X5R_M C1832
10UF_6.3V 1005_X5R_M C838
22UF_6.3V 1608_X5R_M C840
22UF_6.3V 1608_X5R_M C842
22UF_6.3V 1608_X5R_M C844
10UF_6.3V 1005_X5R_M C2426
0.1UF_6.3V 0603_X5R_K C2427
VCCGFXCORE_I
VCCGFXCORE_I
U58M
CPU POWER 2 OF 4
VCCGFXEXT
VCCSTG_CPU
VCCST_CPU
VCC1R2A
U58N
CPU POWER 3 OF 4
VCCPUIO
VCCSA
VCCGT
VCCGTX_AK42
VCCGTX_AK43
VCCGTX_AK45
VCCGTX_AK46
VCCGTX_AK48
VCCGTX_AK50
VCCGTX_AK52
VCCGTX_AK53
VCCGTX_AK55
VCCGTX_AK56
VCCGTX_AK58
VCCGTX_AK60
VCCGTX_AK70
VCCGTX_AL43
VCCGTX_AL46
VCCGTX_AL50
VCCGTX_AL53
VCCGTX_AL56
VCCGTX_AL60
VCCGTX_AM48
VCCGTX_AM50
VCCGTX_AM52
VCCGTX_AM53
VCCGTX_AM56
VCCGTX_AM58
VCCGTX_AU58
VCCGTX_AU63
VCCGTX_BB57
VCCGTX_BB66
VCCGT_SENSE
VSSGT_SENSE
VCCGTX_SENSE
VSSGTX_SENSE
13 OF 20
SKYLAKE_ULT_DDR3L_REV053F
VDDQ_AU23
VDDQ_AU28
VDDQ_AU35
VDDQ_AU42
VDDQ_BB23
VDDQ_BB32
VDDQ_BB41
VDDQ_BB47
VDDQ_BB51
VDDQC
VCCST
VCCSTG_A22
VCCPLL_OC
VCCPLL_K20
VCCPLL_K21
VCCIO
VCCIO_SENSE
VSSIO_SENSE
VSSSA_SENSE
VCCSA_SENSE
VCCSA
14 OF 20
SKYLAKE_ULT_DDR3L_REV053F
R2152 100_5% 0603_1/20w
R2153 100_5% 0603_1/20w
NA R2214 100_5% 0603_1/20w
NA R2215 100_5% 0603_1/20w
R2290 100_5% 0603_1/20w
R2154 100_5% 0603_1/20w
R2291 100_5% 0603_1/20w
R2155 100_5% 0603_1/20w
VCCPUIO_SENSE 80
VSSCPUIO_SENSE 80
VSSSA_SENSE 75
VCCSA_SENSE 75
VCCGT_SENSE 75
VSSGT_SENSE 75
VCCGTX_SENSE 79
VSSGTX_SENSE 79
Project Name : THP1_SWG_SOVP
Title : CPU(13/16) POWER (2/2)
Size : C
Document Number :
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Eletro-X
ECEtRO-Q

VCC3M
VCC3M_PCH
SHORT1608_30MIL
RJ198
VCC1R0_SUS
VCC1R0_SUS_PRIM
SHORT1608_30MIL
RJ199
VCCMPHY_GATE
VCCMPHY_GATE_OUT
SHORT1608_30MIL
RJ200
VCC3_SUS
NA
R2293
20K_5%
0603_1/20w
VCC1R0_SUS
0.001_5%
R2581
1608_1/10w
VCCMPHY_GATE
VCC3_SUS
U146
NA
VDD
D1
D2
S1
S2
GND
ON
SLG59M1470V
13 -EXT_PWR_GATE
NA
0_5%
R2564
0603_1/20w
VCC3_SUS
C2428
47UF_6.3V
2125_X5R_M
VCC1R8_SUS
NA
C2429
47UF_6.3V
2125_X5R_M
VCC1R0_SUS
C2430
47UF_6.3V
2125_X5R_M
VCCPCHCORE
C2431
47UF_6.3V
2125_X5R_M
VCCMPHY_GATE
0.001_5%
R2302
1608_1/10w
VCCMPHY_GATE_PLL
NA
C2447
22UF_6.3V
1608_X5R_M
NA
C2446
22UF_6.3V
1608_X5R_M
NA
C2437
1UF_6.3V
1005_X5R_K
NEAR K15
VCC1R0_SUS
0.001_5%
R2303
1608_1/10w
VCC1R0_SUS_PLL
NA
C2449
22UF_6.3V
1608_X5R_M
NA
C2448
22UF_6.3V
1608_X5R_M
C2655
0.1UF_6.3V
0603_X5R_K
NEAR V15
VCC1R0_SUS_PRIM
VCCPCHCORE
VCC1R0_SUS
VCCMPHY_GATE_OUT
VCC3M_PCH
VCC3_SUS
C620
1UF_6.3V
1005_X5R_K
U58O
CPU POWER 4 OF 4
AB19 VCCPRIM_1P0
AB20 VCCPRIM_1P0
P18 VCCPRIM_1P0
AF18 VCCPRIM_CORE
AF19 VCCPRIM_CORE
V20 VCCPRIM_CORE
V21 VCCPRIM_CORE
AL1 DCPDSW_1P0
K17 VCCMPHYAON_1P0
L1 VCCMPHYAON_1P0
N15 VCCMPHYGT_1P0_N15
N16 VCCMPHYGT_1P0_N16
N17 VCCMPHYGT_1P0_N17
P15 VCCMPHYGT_1P0_P15
P16 VCCMPHYGT_1P0_P16
K15 VCCAMPHYPLL_1P0
L15 VCCAMPHYPLL_1P0
V15 VCCAPLL_1P0
AB17 VCCPRIM_1P0_AB17
Y18 VCCPRIM_1P0_Y18
AD17 VCCDSW_3P3_AD17
AD18 VCCDSW_3P3_AD18
AJ17 VCCDSW_3P3_AJ17
AJ19 VCCHDA
AJ16 VCCSPI
AF20 VCCSRAM_1P0
AF21 VCCSRAM_1P0
T19 VCCSRAM_1P0
T20 VCCSRAM_1P0
AJ21 VCCPRIM_3P3_AJ21
AK20 VCCPRIM_1P0_AK20
N18 VCCAPLLEBB_1P0
15 OF 20
SKYLAKE_ULT_DDR3L_REV053F
AK15 VCCPGPPA
AG15 VCCPGPPB
Y16 VCCPGPPC
Y15 VCCPGPPD
T16 VCCPGPPE
AF16 VCCPGPPF
AD15 VCCPGPPG
V19 VCCPRIM_3P3_V19
T1 VCCPRIM_1P0_T1
AA1 VCCATS_1P8
AK17 VCCRTCPRIM_3P3
AK19 VCCRTC_AK19
BB14 VCCRTC_BB14
BB10 DCPRTC
A14 VCCCLK1
K19 VCCCLK2
L21 VCCCLK3
L20 VCCCLK4
L19 VCCCLK5
A10 VCCCLK6
AN11 GPP_B0/CORE_VID0
AN13 GPP_B1/CORE_VID1
VCC3_SUS
VCC1R8_SUS
VCC1R0_SUS_PRIM
VCC1R0_SUS
RTCVCC
C763
0.1UF_6.3V
0603_X5R_K
C832
0.1UF_6.3V
0603_X5R_K
C380
1UF_6.3V
1005_X5R_K
C795
0.1UF_6.3V
0603_X5R_K
C731
1UF_6.3V
1005_X5R_K
VCCPCHCORE_VID0 87
VCCPCHCORE_VID1 87
VCC1R0_SUS_CLK2
0.001_5%
R2304
1608_1/10w
NA
C2450
22UF_6.3V
1608_X5R_M
NA
C2451
22UF_6.3V
1608_X5R_M
VCC1R0_SUS_CLK4
0.001_5%
R2305
1608_1/10w
NA
C2452
22UF_6.3V
1608_X5R_M
NA
C2453
22UF_6.3V
1608_X5R_M
VCC1R0_SUS_CLK5
0.001_5%
R2306
1608_1/10w
NA
C2454
22UF_6.3V
1608_X5R_M
NA
C2455
22UF_6.3V
1608_X5R_M
VCC1R0_SUS_PRIM
NA
C2432
1UF_6.3V
1005_X5R_K
NEAR AB19
VCC1R0_SUS
C2433
1UF_6.3V
1005_X5R_K
NEAR K17
VCCPCHCORE
NA
C2434
1UF_6.3V
1005_X5R_K
NEAR AF18
VCC3_SUS
NA
C821
1UF_6.3V
1005_X5R_K
NEAR AJ19
VCCMPHY_GATE_OUT
C2435
1UF_6.3V
1005_X5R_K
NEAR N15
NA
C2436
47UF_6.3V
2125_X5R_M
NEAR N15
VCCMPHY_GATE_OUT
NA
C2438
1UF_6.3V
1005_X5R_K
NEAR AF20
C2439
1UF_6.3V
1005_X5R_K
NEAR N18
VCC3_SUS
NA
C2440
1UF_6.3V
1005_X5R_K
NEAR AG15
NA
C2441
1UF_6.3V
1005_X5R_K
NEAR Y16
NA
C2442
1UF_6.3V
1005_X5R_K
NEAR T16
NA
C2443
1UF_6.3V
1005_X5R_K
NEAR V19
VCC1R8_SUS
C2444
1UF_6.3V
1005_X5R_K
NEAR AA1
VCC1R0_SUS
NA
C2445
1UF_6.3V
1005_X5R_K
NEAR A10

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Project Name : THP1_SWG_SOVP	Title : CPU(14/16) POWER	
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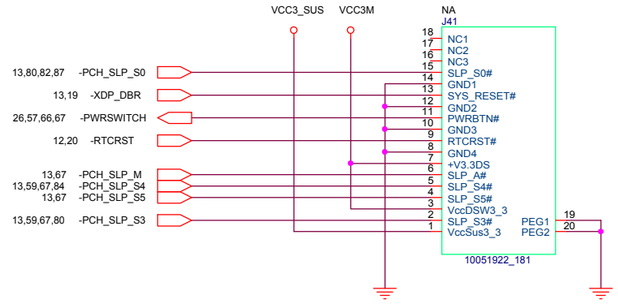
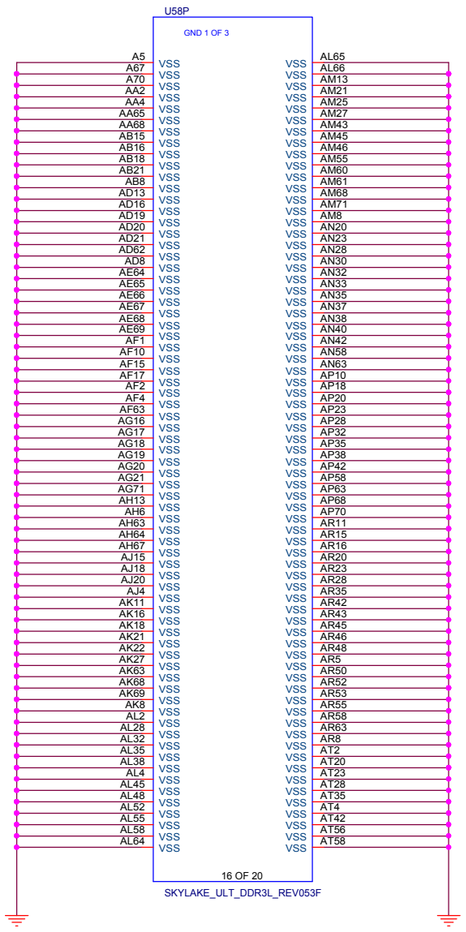
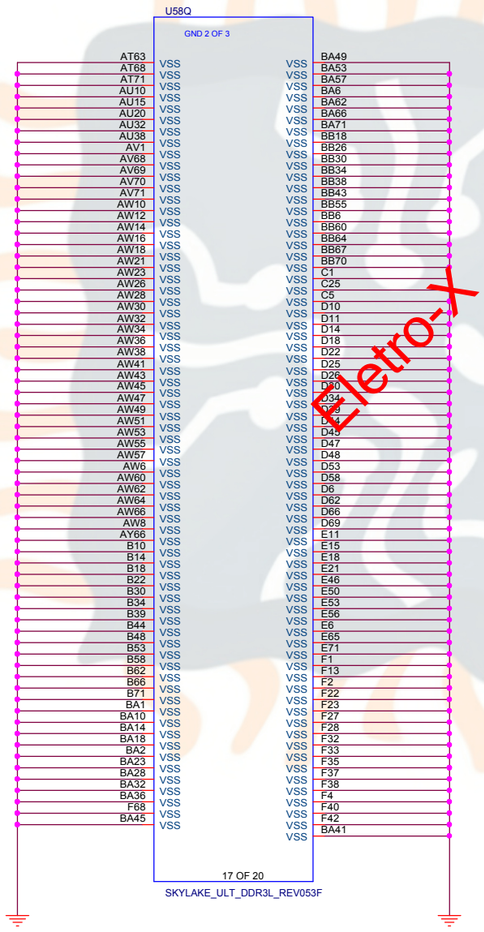
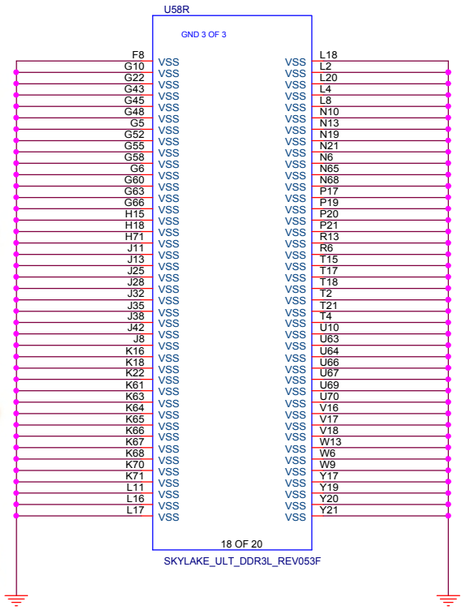
APS/PETS Interface









Project Name : THP1_SWG_SOVP	Title : CPU(15/16) GND
Size : C	Document Number :
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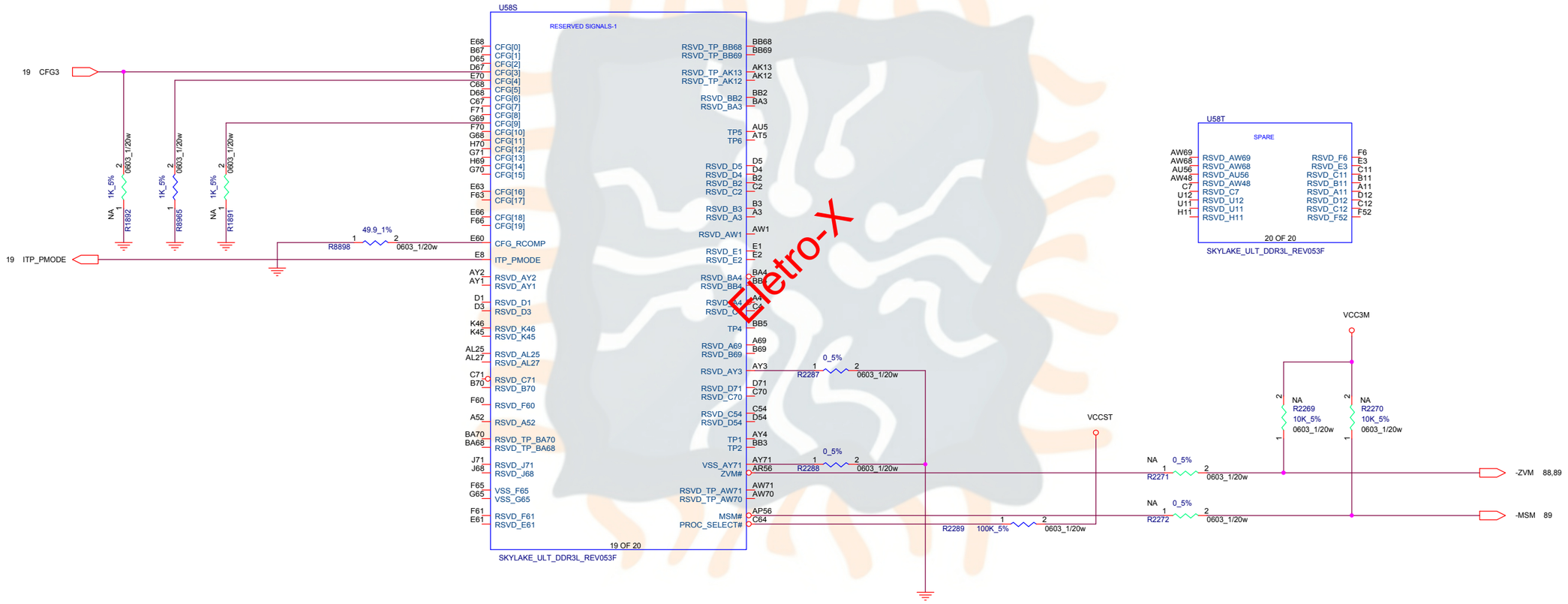
TABLE

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



Project Name : THP1_SWG_SOVP	Title : CPU(16/16) CFG/RESERVED
Size : C	Document Number : Rev : 8.04
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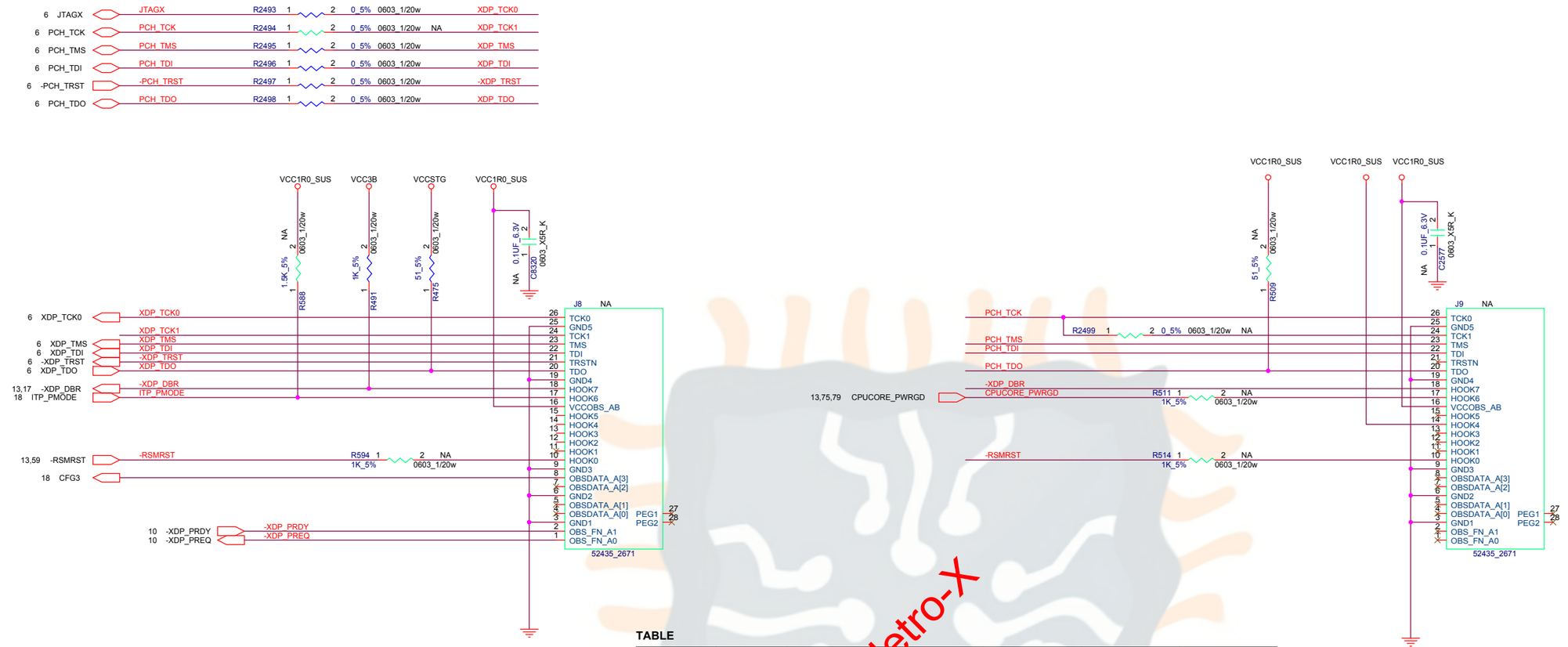

TABLE

Logic	Ref Des	Disabled	CPU XDP	ME XDP	Merged	DCI 2.0
Page 6	R2	ASM	ASM	ASM	ASM	ASM
	R471	ASM	ASM	ASM	NO_ASM	NO_ASM
	R541	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	R515	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	R530	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
Page 7	R2559	NO_ASM	Don't Care	ASM	ASM	NO_ASM
Page 18	R1892	NO_ASM	ASM	Don't Care	ASM	NO_ASM
Page 19	J8	NO_ASM	ASM	Don't Care	ASM	NO_ASM
	C8320	NO_ASM	ASM	Don't Care	ASM	NO_ASM
	R475	NO_ASM	ASM	Don't Care	ASM	ASM
	R491	ASM	ASM	ASM	ASM	ASM
	R588	NO_ASM	ASM	Don't Care	ASM	NO_ASM
	R594	NO_ASM	ASM	Don't Care	ASM	NO_ASM
	J9	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	C2577	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	R2499	NO_ASM	Don't Care	NO_ASM	NO_ASM	NO_ASM
	R509	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	R511	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	R514	NO_ASM	Don't Care	ASM	NO_ASM	NO_ASM
	R2493	NO_ASM	NO_ASM	NO_ASM	ASM	ASM
	R2494	NO_ASM	NO_ASM	NO_ASM	ASM	NO_ASM
	R2495	NO_ASM	NO_ASM	NO_ASM	ASM	ASM
	R2496	NO_ASM	NO_ASM	NO_ASM	ASM	ASM
	R2497	NO_ASM	NO_ASM	NO_ASM	ASM	ASM
	R2498	NO_ASM	NO_ASM	NO_ASM	ASM	ASM
Page 21	R706	ASM	Don't Care	NO_ASM	NO_ASM	ASM

LOGIC

Project Name : THP1_SWG_SOVP	Title : XDP CONNECTOR
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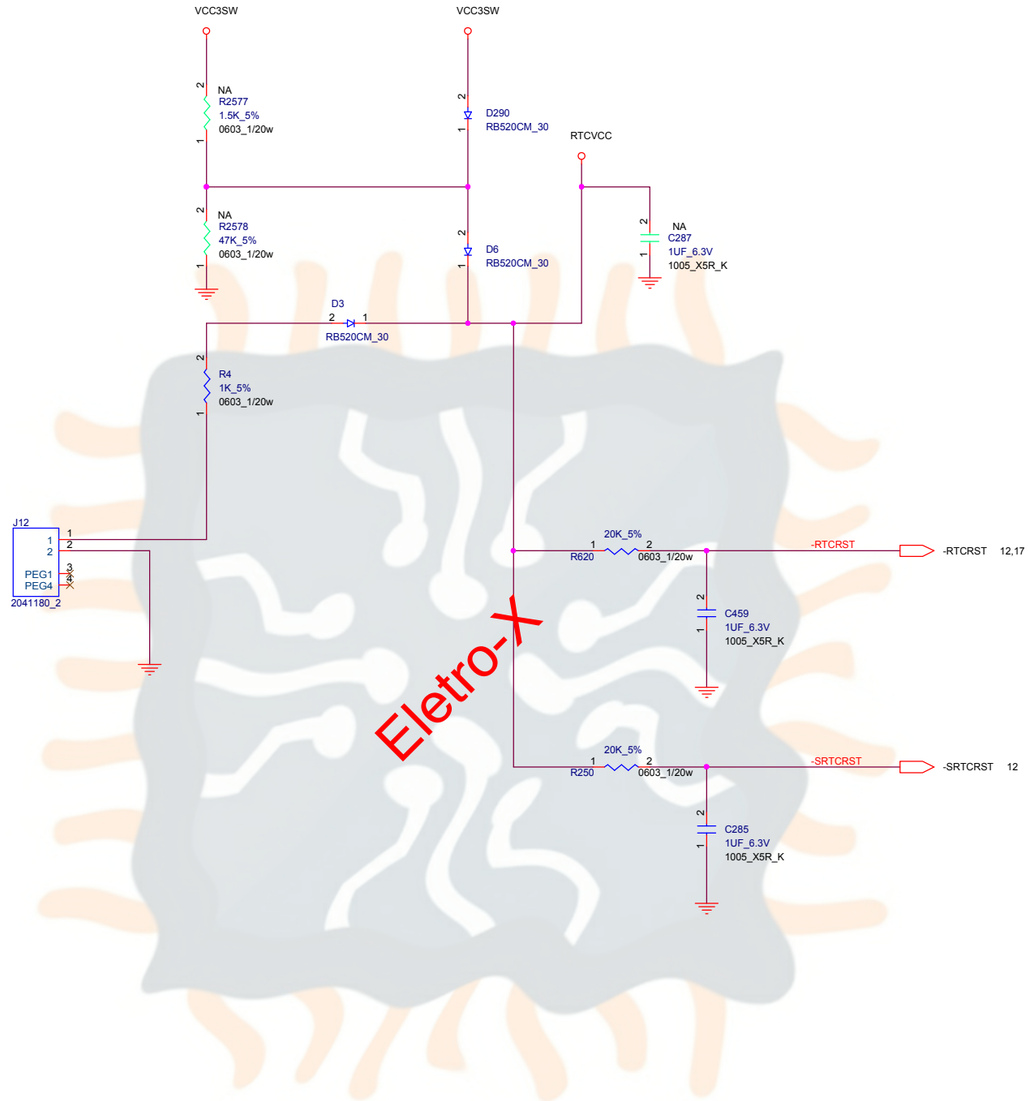

Project Name : THP1_SWG_SOVP	Title : RTC BATTERY
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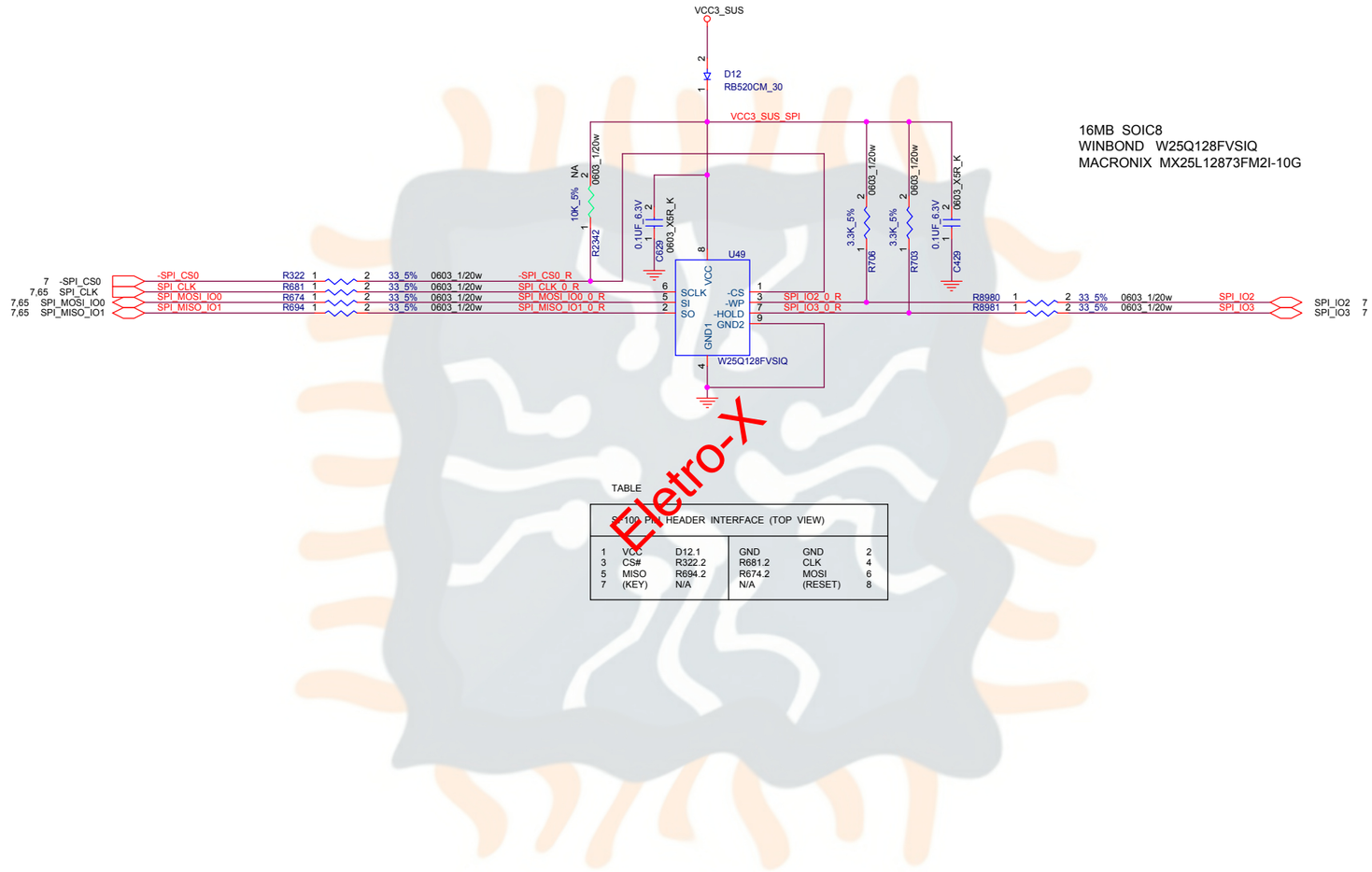

16MB SOIC8
WINBOND W25Q128FVSIQ
MACRONIX MX25L12873FM2I-10G

TABLE

SPI 100 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

Project Name : THP1_SWG_SOVP		Title : SPI FLASH	
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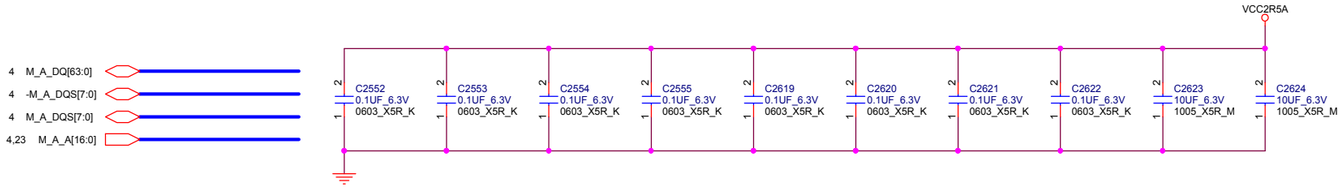

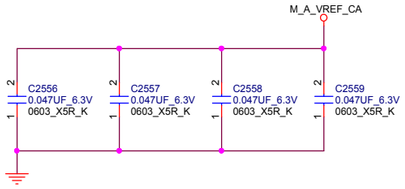

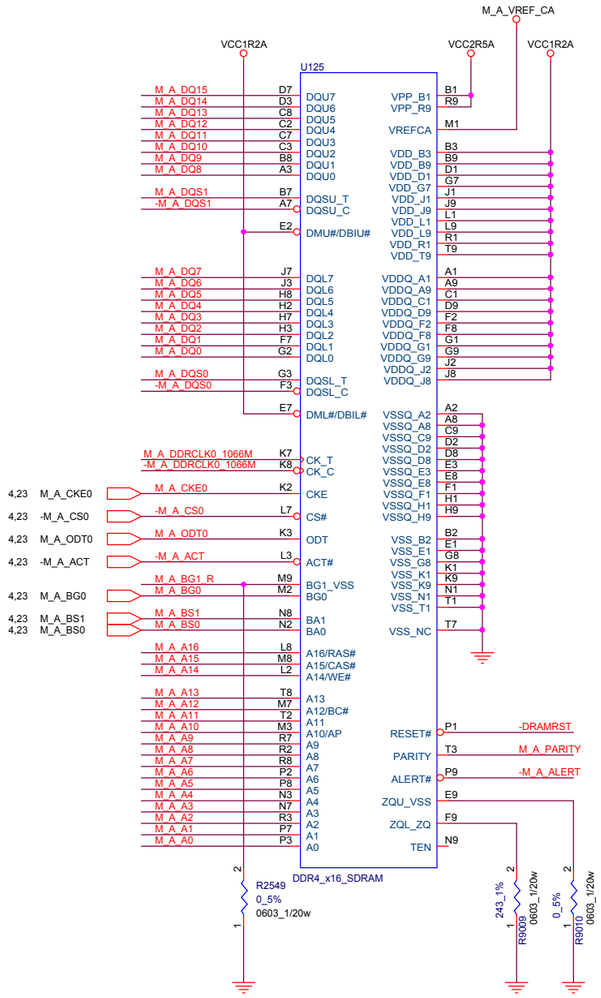

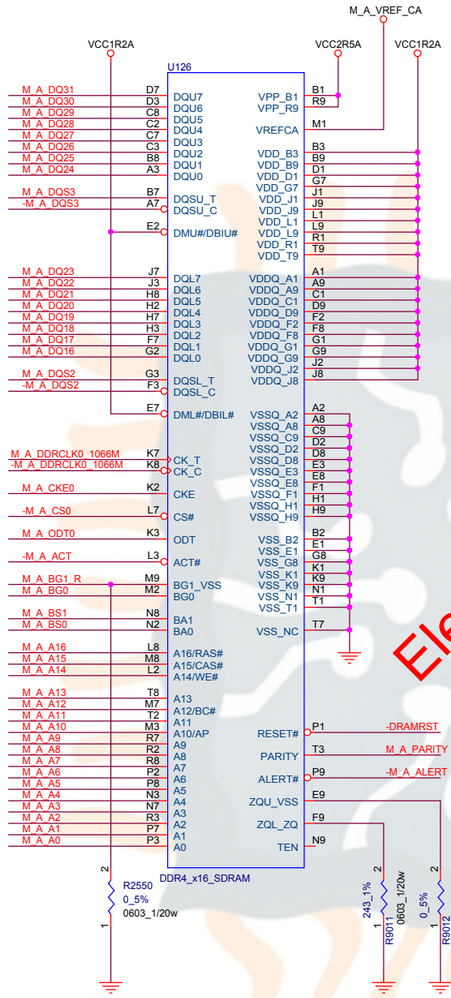

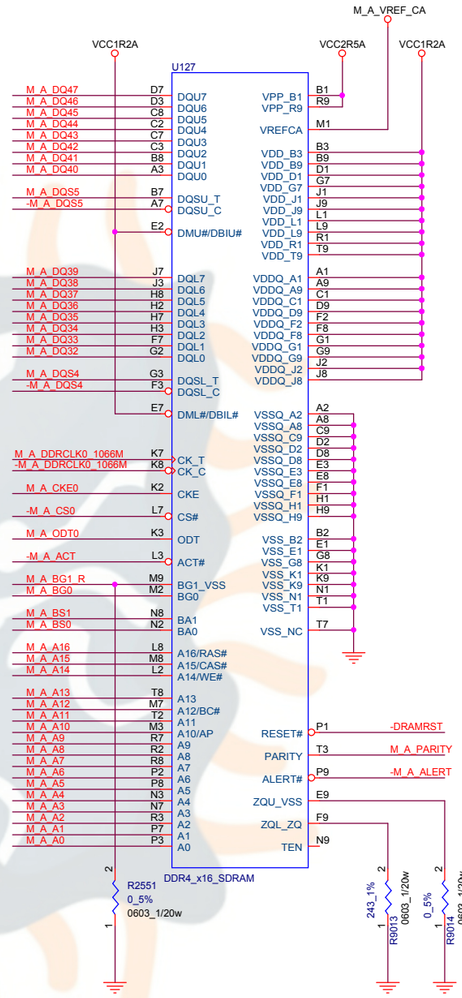

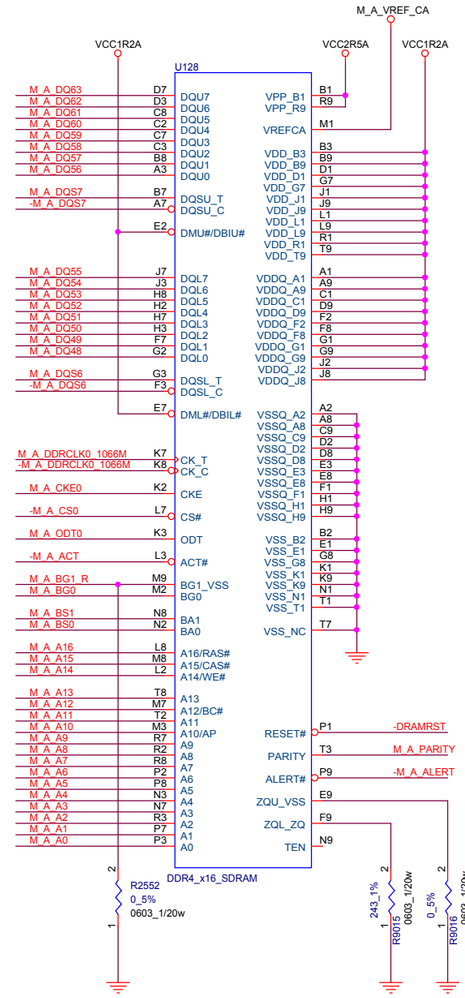

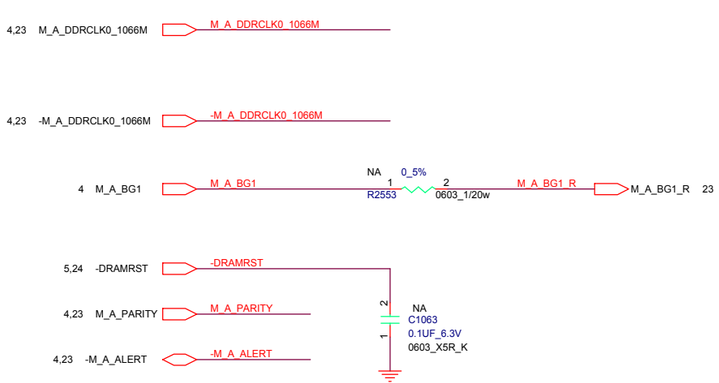

TABLE:

	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%

LOGIC

Eletro-X

ECEtRO-Q

Project Name : THP1_SWG_SOVP
Title : DDR4 BASE MEMORY CH-A (1/2)
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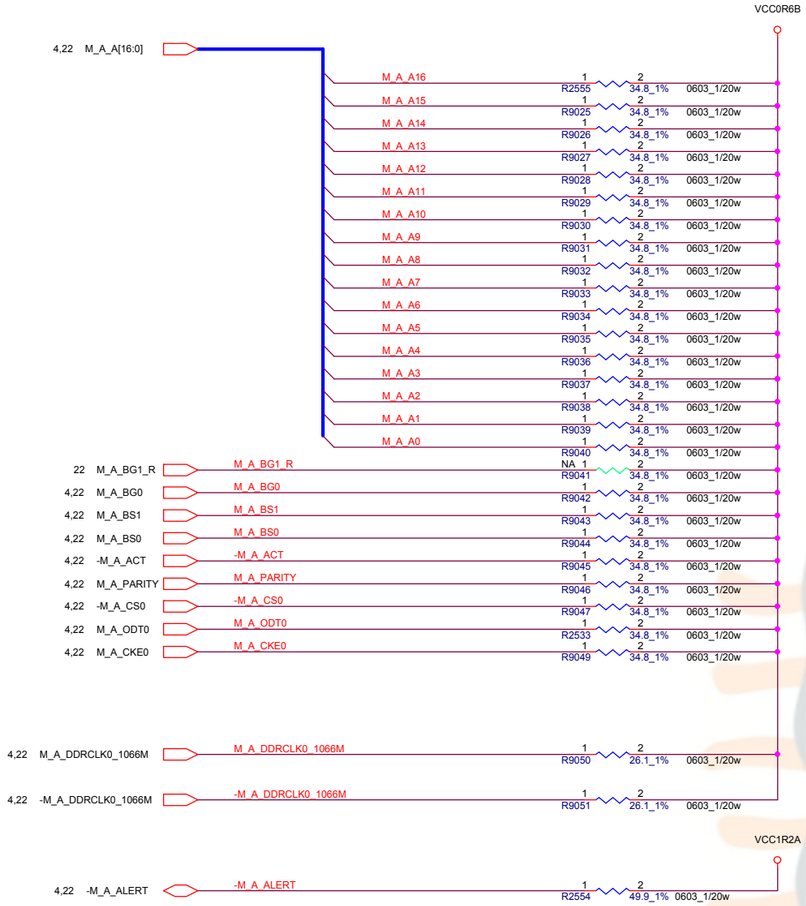

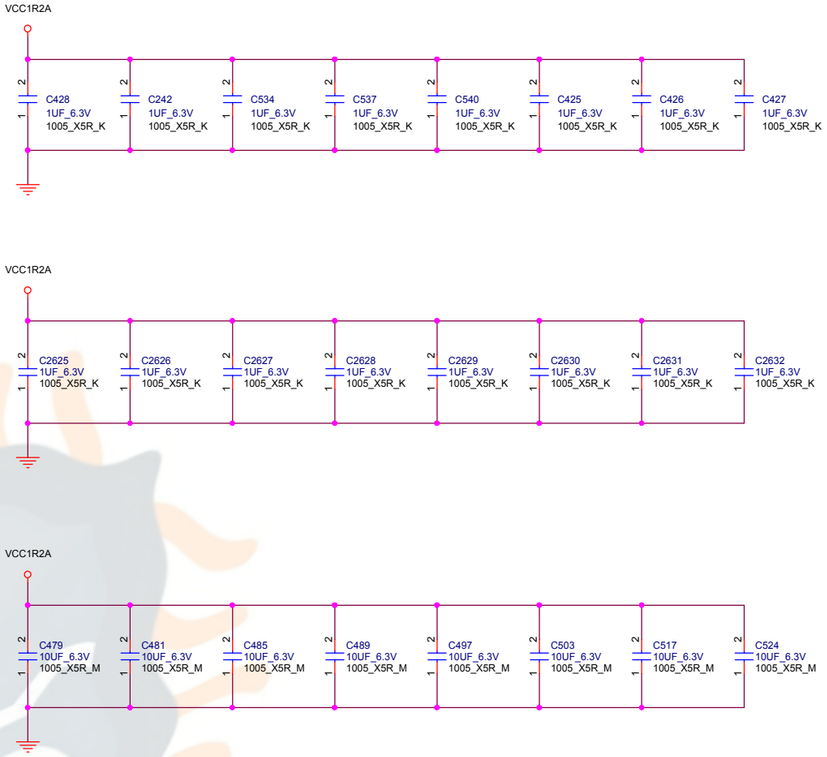

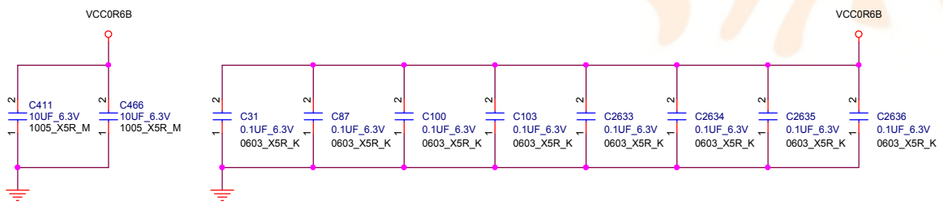

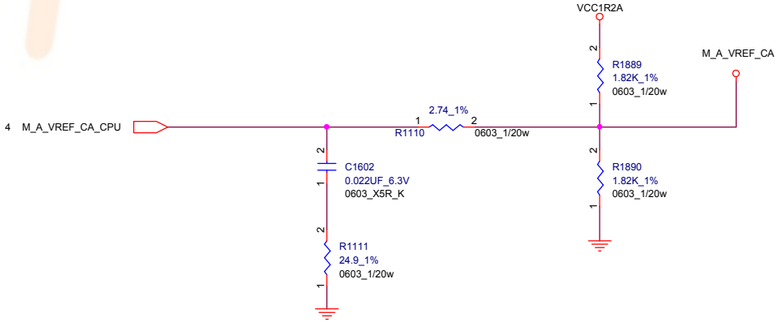

lenovo	
Project Name : THP1_SWG_SOVP	Title : DDR4 BASE MEMORY CH-A (2/2)
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5 M_B_DQ[63:0]
5 -M_B_DQS[7:0]
5 M_B_DQS[7:0]
5 M_B_A[16:0]

VCC1R2A

J43

M_B_DQ5	3 VSS1	VSS2 4	M_B_DQ4
	5 DQ5	DQ4 6	
M_B_DQ1	7 VSS3	VSS4 8	M_B_DQ0
	9 DQ1	DQ0 10	
-M_B_DQS0	11 VSS5	VSS6 12	
M_B_DQS0	13 DQS0_C	DM0#/DBI0#/NC 14	
	15 DQS0_T	VSS7 16	M_B_DQ6
M_B_DQ7	17 VSS8	DQ6 18	
	19 DQ7	VSS9 20	M_B_DQ2
M_B_DQ3	21 VSS10	DQ2 22	
	23 DQ3	VSS11 24	M_B_DQ12
M_B_DQ13	25 VSS12	DQ12 26	
	27 DQ13	VSS13 28	M_B_DQ8
M_B_DQ9	29 VSS14	DQ8 30	
	31 DQ9	VSS15 32	-M_B_DQS1
	33 VSS16	DQS1_C 34	M_B_DQS1
	35 DM1#/DBI1#/NC	DQS1_T 36	
M_B_DQ15	37 VSS17	VSS18 38	M_B_DQ14
	39 DQ15	DQ14 40	
M_B_DQ10	41 VSS19	VSS20 42	M_B_DQ11
	43 DQ10	DQ11 44	
M_B_DQ21	45 VSS21	VSS22 46	M_B_DQ20
	47 DQ21	DQ20 48	
M_B_DQ17	49 VSS23	VSS24 50	M_B_DQ16
	51 DQ17	DQ16 52	
	53 VSS25	VSS26 54	
-M_B_DQS2	55 DQS2_C	DM2#/DBI2#/NC 56	
M_B_DQS2	57 DQS2_T	VSS27 58	M_B_DQ22
	59 VSS28	DQ22 60	
M_B_DQ23	61 DQ23	VSS29 62	M_B_DQ18
	63 VSS30	DQ18 64	
M_B_DQ19	65 DQ19	VSS31 66	M_B_DQ28
	67 VSS32	DQ28 68	
M_B_DQ29	69 DQ29	VSS33 70	M_B_DQ24
	71 VSS34	DQ24 72	
M_B_DQ25	73 DQ25	VSS35 74	-M_B_DQS3
	75 VSS36	DQS3_C 76	M_B_DQS3
	77 DM3#/DBI3#/NC	DQS3_T 78	
	79 VSS37	VSS38 80	M_B_DQ31
M_B_DQ30	81 DQ30	DQ31 82	
M_B_DQ26	83 VSS39	VSS40 84	M_B_DQ27
	85 DQ26	DQ27 86	
	87 VSS41	VSS42 88	
	89 CB5/NC	CB4/NC 90	
	91 VSS43	VSS44 92	
	93 CB1/NC	CB0/NC 94	
	95 VSS45	VSS46 96	
	97 DQS8_C	DM8#/DBI8#/NC 98	
	99 DQS8_T	VSS47 100	
	101 VSS48	CB6/NC 102	
	103 CB2/NC	VSS49 104	
	105 VSS50	CB7/NC 106	
	107 CB3/NC	VSS51 108	-DRAMRST
	109 VSS52	RESET# 110	M_B_CKE1
M_B_CKE0	CKE0 111	VDD2 112	
M_B_BG1	113 VDD1	ACT# 114	-M_B_ACT
M_B_BG0	BG1 115	ALERT# 116	-M_B_ALERT
	BG0 117	VDD4 118	
M_B_A12	119 VDD3	A11 120	M_B_A11
M_B_A9	A12 121	A7 122	M_B_A7
	A9 123	VDD6 124	
M_B_A8	125 VDD5	A5 126	M_B_A5
M_B_A6	A8 127	A4 128	M_B_A4
	A6 129	VDD8 130	
M_B_A3	131 VDD7	A2 132	M_B_A2
M_B_A1	A3 133	PARITY# 134	
	A1 135	VDD10 136	
M_B_DDRCLK0_1066M	VDD9 137	CK1_T 138	M_B_DDRCLK1_1066M
-M_B_DDRCLK0_1066M	CK0_T 139	CK1_C 140	-M_B_DDRCLK1_1066M
	CK0_C 141	VDD12 142	
M_B_PARITY	VDD11 143	A0 144	M_B_A0
M_B_BS1	PAR 145	A10/AP 146	M_B_A10
-M_B_CS0	BA1 147	VDD14 148	
	VDD13 149	BA0 150	M_B_BS0
M_B_A14	CS0# 151	A16/RAS# 152	M_B_A16
	A14/WE# 153	VDD16 154	
M_B_ODT0	VDD15 155	A15/CAS# 156	M_B_A15
-M_B_CS1	ODT0 157	A13 158	M_B_A13
	CS1# 159	VDD18 160	
M_B_ODT1	VDD17 161	C0/CS2#/NC 162	
	ODT1 163	VREFCA 164	
	VDD19 165	SA2 166	
	C1/CS3#/NC 167	VSS54 168	
M_B_DQ37	VSS53 169	DQ36 170	M_B_DQ36
M_B_DQ33	DQ37 171	VSS56 172	
	VSS55 173	DQ32 174	M_B_DQ32
	DQ33 175	VSS58 176	
-M_B_DQS4	VSS57 177	DM4#/DBI4#/NC 178	
M_B_DQS4	DQS4_C 179	VSS59 180	
	DQS4_T 181	DQ39 182	M_B_DQ39
M_B_DQ38	VSS60 183	VSS61 184	
	DQ38 185	DQ35 186	M_B_DQ35
M_B_DQ34	VSS62 187	VSS63 188	
	DQ34 189	DQ45 190	M_B_DQ45
M_B_DQ44	VSS64 191	VSS65 192	
	DQ44 193	DQ41 194	M_B_DQ41
M_B_DQ40	VSS66 195	VSS67 196	
	DQ40 197	DQS5_C 198	-M_B_DQS5
	VSS68 199	DQS5_T 200	M_B_DQS5
	DM5#/DBI5#/NC 201	VSS70 202	
M_B_DQ46	VSS69 203	DQ47 204	M_B_DQ47
	DQ46 205	VSS72 206	
M_B_DQ42	VSS71 207	DQ43 208	M_B_DQ43
	DQ42 209	VSS74 210	
M_B_DQ52	VSS73 211	DQ53 212	M_B_DQ53
	DQ52 213	VSS76 214	
M_B_DQ49	VSS75 215	DQ48 216	M_B_DQ48
	DQ49 217	VSS78 218	
-M_B_DQS6	VSS77 219	DM6#/DBI6#/NC 220	
M_B_DQS6	DQS6_C 221	VSS79 222	
	DQS6_T 223	DQ54 224	M_B_DQ54
M_B_DQ55	VSS80 225	VSS81 226	
	DQ55 227	DQ50 228	M_B_DQ50
M_B_DQ51	VSS82 229	VSS83 230	
	DQ51 231	DQ60 232	M_B_DQ60
M_B_DQ61	VSS84 233	VSS85 234	
	DQ61 235	DQ57 236	M_B_DQ57
M_B_DQ56	VSS86 237	VSS87 238	
	DQ56 239	DQS7_C 240	-M_B_DQS7
	VSS88 241	DQS7_T 242	M_B_DQS7
	DM7#/DBI7#/NC 243	VSS90 244	
M_B_DQ62	VSS89 245	DQ63 246	M_B_DQ63
	DQ62 247	VSS92 248	
M_B_DQ58	VSS91 249	DQ59 250	M_B_DQ59
	DQ58 251	VSS94 252	
	VSS93 253	SDA 254	
SMB_CLK_3B	SCL 255	SA0 256	SMB_DATA_3B
	VDDSPD 257	VTT 258	
	VPP1 259	SA1 260	
	VPP2 261	PAD2 262	
	PAD1 263	BOSS2 264	
	BOSS1		

40_42261_26002RHF_L

-DRAMRST 5,22
M_B_CKE1 5
-M_B_ACT 5
-M_B_ALERT 5
M_B_BS0 5
M_B_DDRCLK1_1066M 5
-M_B_DDRCLK1_1066M 5
M_B_VREF_CA
SMB_DATA_3B 62,66

4 M_B_VREF_CA_CPU

VCC1R2A
R2069 1K_1% 0603_1/20w
M_B_VREF_CA
2_1%
R2073 0603_1/20w
C2119 0.022UF_6.3V 0603_X5R_K
R2074 24.9_1% 0603_1/20w
R2070 1K_1% 0603_1/20w

M_B_VREF_CA
NA C2120 2.2UF_6.3V 1005_X5R_K
C2121 0.1UF_6.3V 0603_X5R_K

VCC2R5A
C2122 10UF_6.3V 1005_X5R_M
C2123 1UF_6.3V 1005_X5R_K

VCC3B
R2066 10K_5% 0603_1/20w

VCC0R6B

VCC3B
C2117 2.2UF_6.3V 1005_X5R_K
C2118 0.1UF_6.3V 0603_X5R_K

VCC2R5A

VCC3B

SPD ADDRESS: 51H

Project Name :	THP1_SWG_SOVP
Title :	DDR4 SO DIMM CHANNEL-B (1/2)
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VCC1R2A

NA C2640 1UF_6.3V 1005_X5R_K
NA C2641 1UF_6.3V 1005_X5R_K
NA C2642 1UF_6.3V 1005_X5R_K
NA C2643 1UF_6.3V 1005_X5R_K
NA C2644 1UF_6.3V 1005_X5R_K

VCC1R2A

C2124 1UF_6.3V 1005_X5R_K
C2125 1UF_6.3V 1005_X5R_K
C2126 1UF_6.3V 1005_X5R_K
C2127 1UF_6.3V 1005_X5R_K
C2128 1UF_6.3V 1005_X5R_K
C2129 1UF_6.3V 1005_X5R_K
C2130 1UF_6.3V 1005_X5R_K
C2131 1UF_6.3V 1005_X5R_K

VCC1R2A

NA C2645 0.1UF_6.3V 0603_X5R_K
NA C2646 0.1UF_6.3V 0603_X5R_K
NA C2647 0.1UF_6.3V 0603_X5R_K
NA C2648 0.1UF_6.3V 0603_X5R_K
NA C2649 0.1UF_6.3V 0603_X5R_K

VCC1R2A

C2132 10UF_6.3V 1005_X5R_M
C2133 10UF_6.3V 1005_X5R_M
C2134 10UF_6.3V 1005_X5R_M
C2135 10UF_6.3V 1005_X5R_M
C2136 10UF_6.3V 1005_X5R_M
C2137 10UF_6.3V 1005_X5R_M
C2138 10UF_6.3V 1005_X5R_M
C2139 10UF_6.3V 1005_X5R_M

VCC1R2A

NA C2650 0.1UF_6.3V 0603_X5R_K
NA C2651 0.1UF_6.3V 0603_X5R_K
NA C2652 0.1UF_6.3V 0603_X5R_K
NA C2653 0.1UF_6.3V 0603_X5R_K
NA C2654 0.1UF_6.3V 0603_X5R_K

VCC0R6B

C2140 0.1UF_6.3V 0603_X5R_K
C2141 0.1UF_6.3V 0603_X5R_K
C2142 0.1UF_6.3V 0603_X5R_K
C2143 0.1UF_6.3V 0603_X5R_K

VCC0R6B

C2144 10UF_6.3V 1005_X5R_M
C2145 10UF_6.3V 1005_X5R_M

Project Name : THP1_SWG_SOVP	Title : DDR4 SO DIMM CHANNEL-B (2/2)
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LCD CONNECTOR

VCC3M
VCC3P
Q22
TPCF8002
R361
47_5%
0603_1/20w
D63
RB521CM_30
R76
100_5%
0603_1/20w
68 VCC3P_DRV
VCC3P_DRV
C603
0.1UF_25V
1005_X7R_K
R714
47K_5%
0603_1/20w
VCC3LCD
F3
ERBRD3R00X
0.9A
C315
1UF_6.3V
1005_X5R_K
C311
0.1UF_6.3V
0603_X5R_K
C308
0.01UF_6.3V
0603_X7R_K
VBL20
1.2A
C307
0.01UF_25V
1005_X7R_K
C310
0.1UF_25V
1005_X7R_K
C313
1UF_25V
1608_X7R_K
VINT20
VBL20
F7
ERBRD3R00X
C724
0.01UF_25V
1005_X7R_K
VCC5M
R668
47K_5%
0603_1/20w
J10
10 -USB_PORT2_OC2
32,59 USB_ON1
58,62 LED_AC_CHG
58 LED_AC_CON
-USB_PORT2_OC2
USB_ON1
LED_AC_CHG
LED_AC_CON
10 USB3P3_TXP_SYS
10 USB3P3_TXN_SYS
USB3P3_TXP_SYS
USB3P3_TXN_SYS
10 USB3P3_RXP_SYS
10 USB3P3_RXN_SYS
USB3P3_RXP_SYS
USB3P3_RXN_SYS
10 USBP3-_SYS
10 USBP3+_SYS
USBP3-_SYS
USBP3+_SYS
3 PANEL_BKLT_CTRL
58 BACKLIGHT_ON
PANEL_BKLT_CTRL
BACKLIGHT_ON
3 EDP_HPD
3 EDP_AUXN
3 EDP_AUXP
C8289 C8290 0.1UF_6.3V 0603_X5R_K
EDP_AUXN_CONN
EDP_AUXP_CONN
3 EDP_TXP0
3 EDP_TXN0
C8299 C8298 0.1UF_6.3V 0603_X5R_K
EDP_TXP0_CONN
EDP_TXN0_CONN
3 EDP_TXP1
3 EDP_TXN1
C8296 C8295 0.1UF_6.3V 0603_X5R_K
EDP_TXP1_CONN
EDP_TXN1_CONN
3 EDP_TXP2
3 EDP_TXN2
C8294 C8293 0.1UF_6.3V 0603_X5R_K
EDP_TXP2_CONN
EDP_TXN2_CONN
3 EDP_TXP3
3 EDP_TXN3
C8292 C8291 0.1UF_6.3V 0603_X5R_K
EDP_TXP3_CONN
EDP_TXN3_CONN
GND1 GND2 GND3 GND4 GND5 GND6 GND7 GND8 GND9 GND10 GND11 GND12 GND13 BOSS1 BOSS2
20654_060E_01
NA
C929
1000PF_25V
0603_X7R_K
-LID_CLOSE
D11
RB521CM_30
10 USBP9-
10 USBP9+
USBP9-
USBP9+
R2078 R2079 0_5% 0603_1/20w
58,62 -LED_LOGO
-LED_LOGO
R102 3.9K_5% 1005_1/16w
10 USBP7-
10 USBP7+
USBP7-
USBP7+
R786 R785 0_5% 0603_1/20w
8 -INT_MIC_DTCT
50 MIC_DATA
50 MIC_CLK
-INT_MIC_DTCT
MIC_DATA
MIC_CLK
59 -LID_CLOSE
-LID_CLOSE
VCC3SW VCC3SW VCC3B VCC3B VCC3M VCC3B
100K_5% 0603_1/20w R8954
ERBRD0R50X F16
100K_5% 0603_1/20w R38
ERBRD0R50X F26
0.1UF_6.3V 0603_X5R_K C2578
ERBRD0R50X F24
0.1UF_6.3V 0603_X5R_K C2579
J11
GND1 GND2 GND3 GND4
20455_030E_02
USBP9- CONN
USBP9+ CONN
USBP7- CONN
USBP7+ CONN
1000PF_25V 0603_X7R_K C33 NA
2200PF_25V 0603_X7R_K C934
DF256_8UFS D263 NA
DF256_8UFS D264 NA
PLACE NEAR J11
VCC3M
F31
ERBRD0R50X
17,57,66,67 -PWRSWITCH
58,62 -LED_PWR
-PWRSWITCH
-LED_PWR
R13 36_5% 1005_1/16w
J52
PEG1
PEG2
WS23040_S0291_HF

Eletro-X

ECEtRO-Q

Project Name : THP1_SWG_SOVP	Title : LCD/USB/LID/MIC/CAMERA/PWR SW
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FOR SYSTEM DP NEAR DP CONN

3 DDIP1_3N — C339 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP3N_CONN
3 DDIP1_3P — C323 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP3P_CONN

3 DDIP1_2N — C312 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP2N_CONN
3 DDIP1_2P — C317 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP2P_CONN

3 DDIP1_1N — C277 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP1N_CONN
3 DDIP1_1P — C276 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP1P_CONN

3 DDIP1_0N — C218 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP0N_CONN
3 DDIP1_0P — C226 1 — 2 0.1UF_6.3V 0603_X5R_K — DP_DP0P_CONN

VCC3B

R1027 2.2K_5% 0603_1/20w NA

R1028 2.2K_5% 0603_1/20w

VCC5B

C496 0.1UF_6.3V 0603_X5R_K

U6 CBT3257ABQ

3 DDIP1_AUXP — DDIP1_AUXP C468 1 — 2 0.1UF_6.3V 0603_X5R_K — DDIP1_AUXP_C
3 DDIP1_AUXN — DDIP1_AUXN C659 1 — 2 0.1UF_6.3V 0603_X5R_K — DDIP1_AUXN_C

3 DDIP1_CTRLCLK — DDIP1_CTRLCLK
3 DDIP1_CTRLDATA — DDIP1_CTRLDATA

3 DDIP1_HPD

R1037 100K_5% 0603_1/20w

VCC, 10A, 10B, 10C, 10D, YA, YB, YC, YD, 11A, 11B, 11C, 11D, GND2, GND1, S mi

DVI_DONGLE_DTCT

VCC3B

R94 100K_5% 0603_1/20w

R98 100K_5% 0603_1/20w

NA D224 DF2S6_8UFS

NA D225 DF2S6_8UFS

D226 DF2S6_8UFS

DP_HPD_CONN
DP_AUXP_CONN
DP_AUXN_CONN
DP_DP3P_CONN
DP_DP3N_CONN
DP_DP2P_CONN
DP_DP2N_CONN
DP_DP1P_CONN
DP_DP1N_CONN
DP_DP0P_CONN
DP_DP0N_CONN

DP CONN

J6

HPD, AUXP, AUXN, LANE_3P, LANE_3N, LANE_2P, LANE_2N, LANE_1P, LANE_1N, LANE_0P, LANE_0N

PWR, PWER_RET, GND6, GND5, MODE, GND4, GND3, GND2, GND1, SHIELD1, SHIELD2, SHIELD3, SHIELD4, SHIELD5, SHIELD6

600032GB020M153ZL

DVI_DONGLE_DTCT

VCC3VIDEO_DP

C1112 0.1UF_6.3V 0603_X5R_K

NA C67 0.01UF_6.3V 0603_X7R_K

5.1M_5% 0603_1/20w R93

0.1UF_6.3V 0603_X5R_K C139

1M_5% 0603_1/20w R97

D86 ESD7004

DP_DP0N_CONN, DP_DP0P_CONN, DP_DP3P_CONN, DP_DP3N_CONN

NEAR DP CONN

D88 ESD7004

DP_DP2P_CONN, DP_DP2N_CONN, DP_DP1N_CONN, DP_DP1P_CONN

NEAR DP CONN

VCC3M

NA C21 10UF_6.3V 1005_X5R_M

NA C990 0.1UF_6.3V 0603_X5R_K

U100 TPS2530 — IN, EN, OUT, OC#, GND

Typ. 500mA
Max 1.5A

VCC3VIDEO_DP

C991 4.7UF_6.3V 1005_X5R_M

C992 10UF_6.3V 1005_X5R_M

VCC3B

NA R104 0_5% 0603_1/20w

R105 0_5% 0603_1/20w

13,50,59,66,68 BPWRG

Project Name : THP1_SWG_SOVP	Title : DISPLAY PORT CONNECTOR
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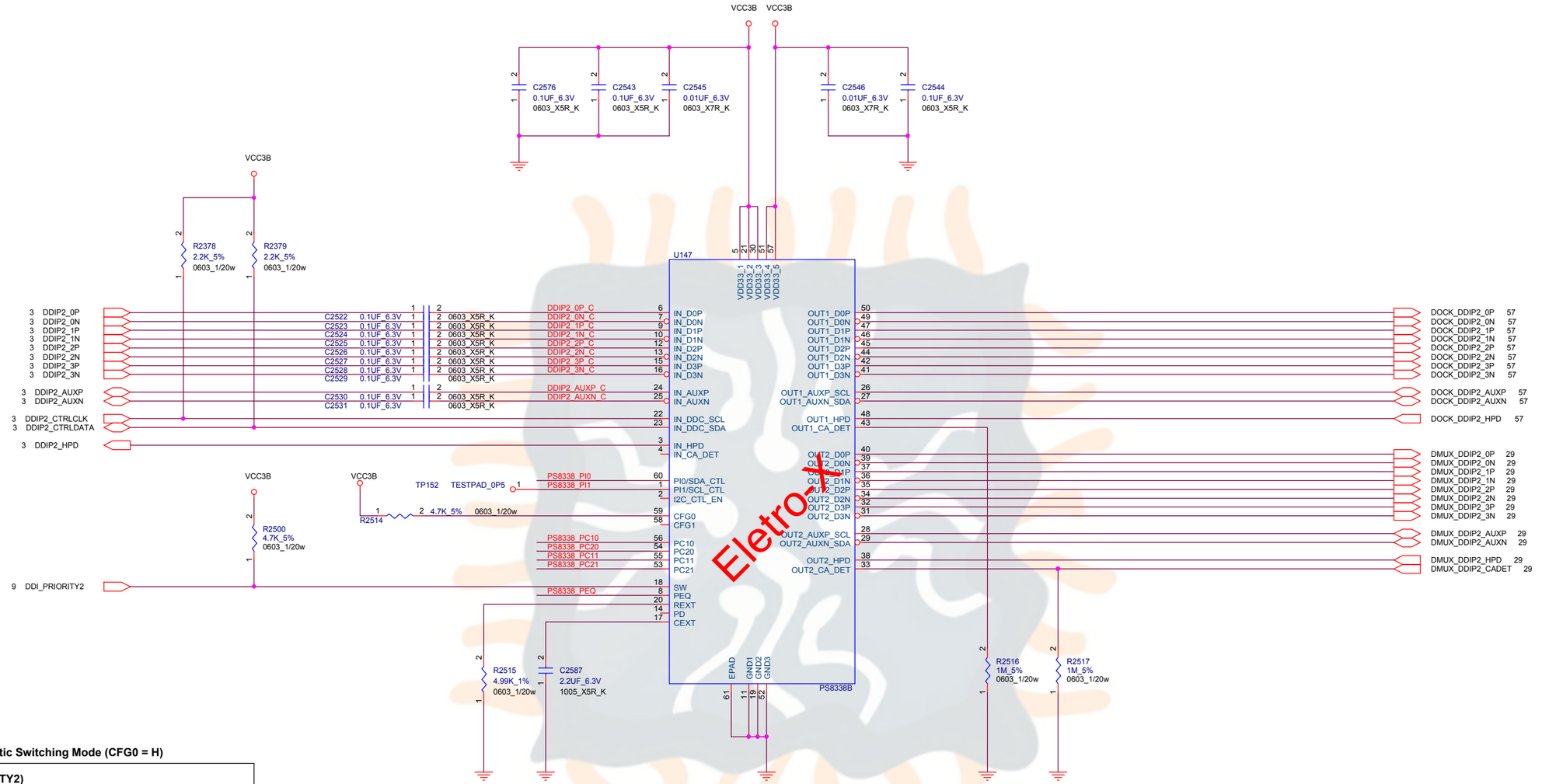
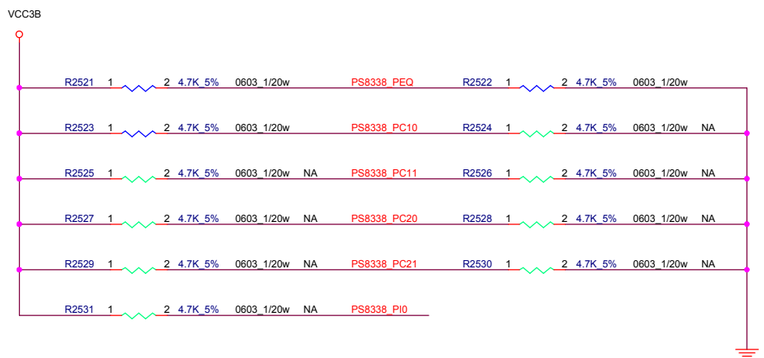


TABLE : Automatic Switching Mode (CFG0 = H)

SW (DDI_PRIORITY2)	
L	Port 1 has higher priority when both ports are plugged
H	Port 2 has higher priority when both ports are plugged



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VCC3B — SHORT1608_30MIL (1–2) — VCC3B_PS8337B

RJ201

VCC3B_PS8337B

C1422 0.1UF_6.3V 0603_X5R_K
C1423 0.1UF_6.3V 0603_X5R_K
C1424 0.1UF_6.3V 0603_X5R_K
C1425 0.1UF_6.3V 0603_X5R_K

Place 0.1uF caps near each VDD33 pin of PS8337

VCC3B

R2561	1	2	4.7K_5%	0603_1/20w	NA	PS8337_TMDS_DDCBUF	R2562	1	2	4.7K_5%	0603_1/20w NA
R1875	1	2	4.7K_5%	0603_1/20w	NA	PS8337_PEQ	R1897	1	2	4.7K_5%	0603_1/20w NA
R1877	1	2	4.7K_5%	0603_1/20w		PS8337_TMDS_PRE	R1899	1	2	4.7K_5%	0603_1/20w NA
R146	1	2	4.7K_5%	0603_1/20w		PS8337_MODE	R147	1	2	4.7K_5%	0603_1/20w
R2509	1	2	4.7K_5%	0603_1/20w		PS8337_TMDS_RT					
R2510	1	2	4.7K_5%	0603_1/20w	NA	PS8337_DP_CFG0					

TABLE : Automatic Switching Mode (MODE = H, M)

SW (DDI_PRIORITY1)	
L	DP Port has higher priority when both ports are plugged
H	TMDS Port has higher priority when both ports are plugged

VCC3B — R2501 4.7K_5% 0603_1/20w

9 DDI_PRIORITY1 — DDI_PRIORITY1

PS8337_MODE
PS8337_PEQ

R246 1 2 4.99K_1% 0603_1/20w

C213 2.2UF_6.3V 1005_X5R_K

PS8337_DP_CFG0
WIGIG_AUXP — WIGIG_AUXP 46
WIGIG_AUXN — WIGIG_AUXN 46
R2511 1 2 1M_5% 0603_1/20w
WIGIG_HPD — WIGIG_HPD 46
PS8337_DP_CFG1 — 1 TESTPAD_0P5 TP918
PS8337_TMDS_RT
PS8337_TMDS_PRE
HDMI_HPD_CONN — HDMI_HPD_CONN 30
PS8337_TMDS_DDCBUF
R2512 27K_5% 0603_1/20w

U108 — PS8337BQFN56GTR2-A

46	PD	IN_D0P	3
1	CEXT	IN_D0N	4
27	REXT	IN_D1P	6
53	PEQ	IN_D1N	7
45	MODE	IN_D2P	9
38	SWSDA_CTL	IN_D2N	10
44	I2C_CTL_EN	IN_D3P	12
		IN_D3N	13
54	DP_CFG0/SCL_CTL	VDD33_1	14
42	DP_AUXP_SCL	VDD33_2	28
32	DP_AUXN_SDA	VDD33_3	41
29	DP_CA_HPD	VDD33_4	56
23	DP_HPD	DP_D0P	40
20	DP_CFG1	DP_D0N	39
17	TMDS_RT	DP_D1P	37
2	TMDS_PRE	DP_D1N	36
	TMDS_PRE	DP_D2P	34
	TMDS_DDCBUF	DP_D2N	33
		DP_D3P	31
		DP_D3N	30
26	GND1		
35	GND2		
43	GND3		
57	GND4		
52	IN_AUXP	TMDS_SCL	48
51	IN_AUXN	TMDS_SDA	47
50	IN_DDC_SCL	TMDS_D0P	25
49	IN_DDC_SDA	TMDS_D0N	24
11	IN_CA_DET	TMDS_D1P	22
5	IN_HPD	TMDS_D1N	21
		TMDS_D2P	19
		TMDS_D2N	18
		TMDS_CKP	16
		TMDS_CKN	15

VCC3B_PS8337B

28	DMUX_DDIP2_0P	C1405	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_0P_C
28	DMUX_DDIP2_0N	C1406	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_0N_C
28	DMUX_DDIP2_1P	C1407	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_1P_C
28	DMUX_DDIP2_1N	C1408	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_1N_C
28	DMUX_DDIP2_2P	C1409	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_2P_C
28	DMUX_DDIP2_2N	C1415	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_2N_C
28	DMUX_DDIP2_3P	C1418	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_3P_C
28	DMUX_DDIP2_3N	C1419	1	2	0.1UF_6.3V	0603_X5R_K	DMUX_DDIP2_3N_C

WIGIG_DP0P 46
WIGIG_DP0N 46
WIGIG_DP1P 46
WIGIG_DP1N 46
WIGIG_DP2P 46
WIGIG_DP2N 46
WIGIG_DP3P 46
WIGIG_DP3N 46

28 DMUX_DDIP2_AUXP
28 DMUX_DDIP2_AUXN
28 DMUX_DDIP2_CADET
28 DMUX_DDIP2_HPD

HDMI_CLKN — HDMI_CLKN 30
HDMI_CLKP — HDMI_CLKP 30
HDMI_DATA0N — HDMI_DATA0N 30
HDMI_DATA0P — HDMI_DATA0P 30
HDMI_DATA1N — HDMI_DATA1N 30
HDMI_DATA1P — HDMI_DATA1P 30
HDMI_DATA2N — HDMI_DATA2N 30
HDMI_DATA2P — HDMI_DATA2P 30

HDMI_DDC_DATA — HDMI_DDC_DATA 30
HDMI_DDC_CLK — HDMI_DDC_CLK 30

NA C2659 680PF_25V 0603_X7R_K
NA C2660 680PF_25V 0603_X7R_K

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HDMI CONN

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

29 HDMI_DATA2P — HDMI_DATA2P — FL71 DLW21SN900HQ2 — HDMI_DATA2P_CONN
29 HDMI_DATA2N — HDMI_DATA2N — HDMI_DATA2N_CONN
29 HDMI_DATA1P — HDMI_DATA1P — FL72 DLW21SN900HQ2 — HDMI_DATA1P_CONN
29 HDMI_DATA1N — HDMI_DATA1N — HDMI_DATA1N_CONN
29 HDMI_DATA0P — HDMI_DATA0P — FL73 DLW21SN900HQ2 — HDMI_DATA0P_CONN
29 HDMI_DATA0N — HDMI_DATA0N — HDMI_DATA0N_CONN
29 HDMI_CLKP — HDMI_CLKP — FL74 DLW21SN900HQ2 — HDMI_CLKP_CONN
29 HDMI_CLKN — HDMI_CLKN — HDMI_CLKN_CONN

VCC5B_HDMI

R1029 2.2K_5% 0603_1/20w
R1030 2.2K_5% 0603_1/20w

29 HDMI_DDC_CLK — HDMI_DDC_CLK
29 HDMI_DDC_DATA — HDMI_DDC_DATA
29 HDMI_HPD_CONN — HDMI_HPD_CONN

D232 DF2S6_8UFS
D228 DF2S6_8UFS
D227 DF2S6_8UFS

NA 0.1UF_6.3V 0603_X5R_K C2661
NA 680PF_25V 0603_X7R_K
NA 680PF_25V 0603_X7R_K C2663

J42 — C128Q4_K1935_L

1	TMDS DATA2+	SHELL1	20
2	TMDS DATA2 SHIELD		
3	TMDS DATA2-		
4	TMDS DATA1+		
5	TMDS DATA1 SHIELD		
6	TMDS DATA1-		
7	TMDS DATA0+		
8	TMDS DATA0 SHIELD		
9	TMDS DATA0-		
10	TMDS CLOCK+		
11	TMDS CLOCK SHIELD		
12	TMDS CLOCK-		
13	CEC		
14	RESERVED		
15	SCL		
16	SDA		
17	DDC/CEC GND		
18	+5V		
19	HPD	SHELL2	21

NEAR HDMI CONN

D283 ESD7004

HDMI_DATA0N_CONN	1	10	HDMI_DATA0N_CONN
HDMI_DATA0P_CONN	2	9	HDMI_DATA0P_CONN
HDMI_DATA2N_CONN	4	7	HDMI_DATA2N_CONN
HDMI_DATA2P_CONN	5	6	HDMI_DATA2P_CONN

D284 ESD7004

HDMI_CLKN_CONN	1	10	HDMI_CLKN_CONN
HDMI_CLKP_CONN	2	9	HDMI_CLKP_CONN
HDMI_DATA1N_CONN	4	7	HDMI_DATA1N_CONN
HDMI_DATA1P_CONN	5	6	HDMI_DATA1P_CONN

VCC5B_HDMI
RJ202 SHORT1608_30MIL
VCC5B
U110 TPS2553DBVR
IN, GND, EN, OUT, ILIM, FAULT#
C1426 0.1UF_6.3V 0603_X5R_K
R1119 61.9K_1% 0603_1/20w
C994 4.7UF_6.3V 1005_X5R_M

Project Name : THP1_SWG_SOVP	Title : HDMI CONNECTOR
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PEDET (PE_DTCT)
SATA Device GND
PCIe Device Open

VCC3B
R2037
10K_5%
0603_1/20w
PE_DTCT
-PE_DTCT
-PE_DTCT 10
Q178
LSK3541G1E

VCC3B
RJ217
SHORT0816_70MIL
VCC3B_SSD

J1

10	PCIE4_L3_RXN	PCIE4_L3_RXN			
10	PCIE4_L3_RXP	PCIE4_L3_RXP			
10	PCIE4_L3_TXN	PCIE4_L3_TXN	C2166 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L3_TXN_CONN
10	PCIE4_L3_TXP	PCIE4_L3_TXP	C2167 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L3_TXP_CONN
10	PCIE4_L2_RXN	PCIE4_L2_RXN			
10	PCIE4_L2_RXP	PCIE4_L2_RXP			
60	-SSD_DTCT	-SSD_DTCT			
10	PCIE4_L2_TXN	PCIE4_L2_TXN	C2168 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L2_TXN_CONN
10	PCIE4_L2_TXP	PCIE4_L2_TXP	C2169 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L2_TXP_CONN
10	PCIE4_L1_RXN	PCIE4_L1_RXN			
10	PCIE4_L1_RXP	PCIE4_L1_RXP			
10	PCIE4_L1_TXN	PCIE4_L1_TXN	C2042 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L1_TXN_CONN
10	PCIE4_L1_TXP	PCIE4_L1_TXP	C2041 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L1_TXP_CONN
10	PCIE4_L0_SATA1_RXP	PCIE4_L0_SATA1_RXP			
10	PCIE4_L0_SATA1_RXN	PCIE4_L0_SATA1_RXN			
10	PCIE4_L0_SATA1_TXN	PCIE4_L0_SATA1_TXN	C805 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L0_SATA1_TXN_CONN
10	PCIE4_L0_SATA1_TXP	PCIE4_L0_SATA1_TXP	C827 1	2 0.22UF_6.3V 0603_X5R_K	PCIE4_L0_SATA1_TXP_CONN
12	-PCIE4_CLK_100M	-PCIE4_CLK_100M			
12	PCIE4_CLK_100M	PCIE4_CLK_100M			

1	GND_1	3.3V_1	2 VCC3B_SSD
3	GND_2	3.3V_2	4
5	PETN3	N/C_2	6
7	PETP3	N/C_3	8
9	GND_3	DAS/DSS#	10
11	PERN3	3.3V_3	12
13	PERP3	3.3V_4	14
15	GND_4	3.3V_5	16
17	PETN2	3.3V_6	18
19	PETP2	N/C_4	20
21	GND_5	N/C_5	22
23	PERN2	N/C_6	24
25	PERP2	N/C_7	26
27	GND_6	N/C_8	28
29	PETN1	N/C_9	30
31	PETP1	N/C_10	32
33	GND_7	N/C_11	34
35	PERN1	N/C_12	36
37	PERP1	DEVSLP	38
39	GND_8	N/C_13	40
41	PETN0/SATA_B+	N/C_14	42
43	PETP0/SATA_B-	N/C_15	44
45	GND_9	N/C_16	46
47	PERN0/SATA_A-	N/C_17	48
49	PERP0/SATA_A+	PERST#	50
51	GND_10	CLKREQ#	52
53	REFCLKN	PEWAKE#	54
55	REFCLKP	RESERVED_1	56
57	GND_11	RESERVED_2	58
67			68
69	N/C_1	SUSCLK	70
71	PEDET	3.3V_7	72
73	GND_12	3.3V_8	74
75	GND_13	3.3V_9	
76	GND_14		
78	PEG1	PEG2	77
	NC1	NC2	79

40_42064_067B2RHF_L

PE_DTCT

VCC3B
R2038
10K_5%
0603_1/20w

SATA1_DEVSLP 10

-PLTRST_FAR
-PLTRST_FAR 13,34,46,58,65..67
-CLKREQ_PCIE4 12

C92
10UF_6.3V
1005_X5R_M

C53
0.01UF_6.3V
0603_X7R_K

Project Name : THP1_SWG_SOVP	Title : M.2 SATA/PCIE SSD CARD SLOT
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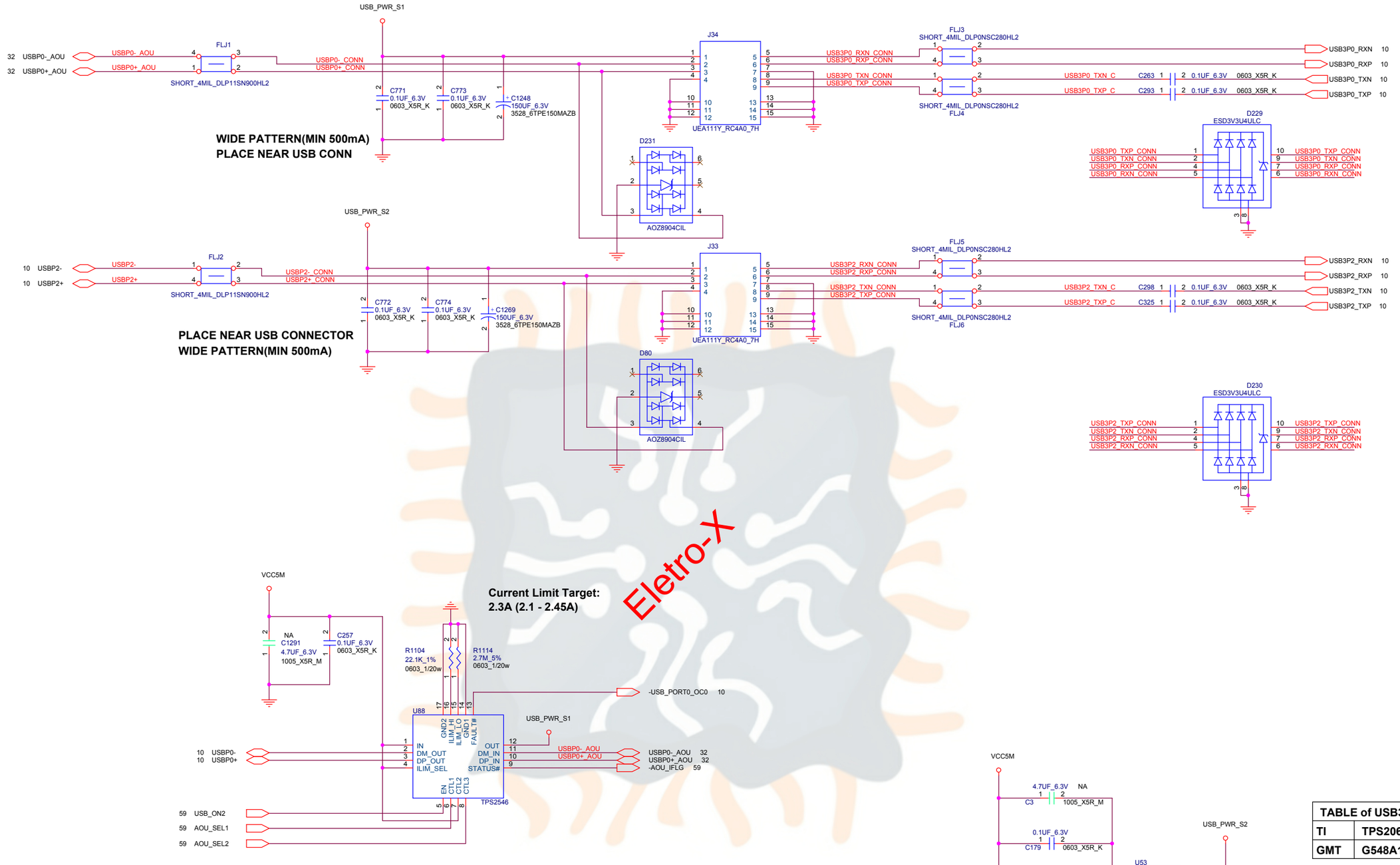

TABLE of USB3.0 Single	
TI	TPS2069CDGN-2
GMT	G548A1F51U

Project Name : THP1_SWG_SOVP	Title : USB POWER CONN
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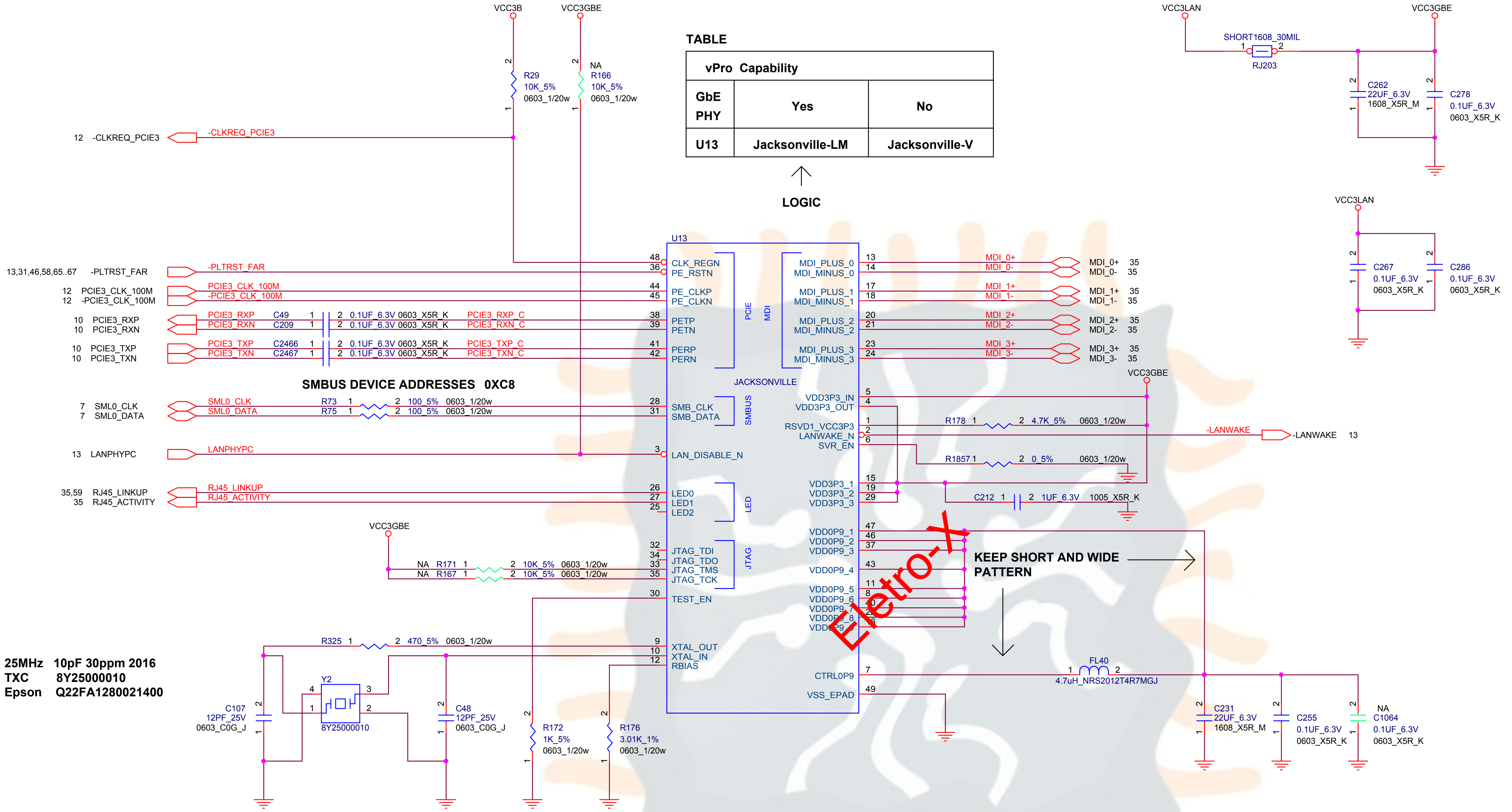
TABLE

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

LOGIC



lenovo

Project Name : THP1_SWG_SOVP

Title : GBE JACKSONVILLE

Size : C

Document Number :

Rev 8.04

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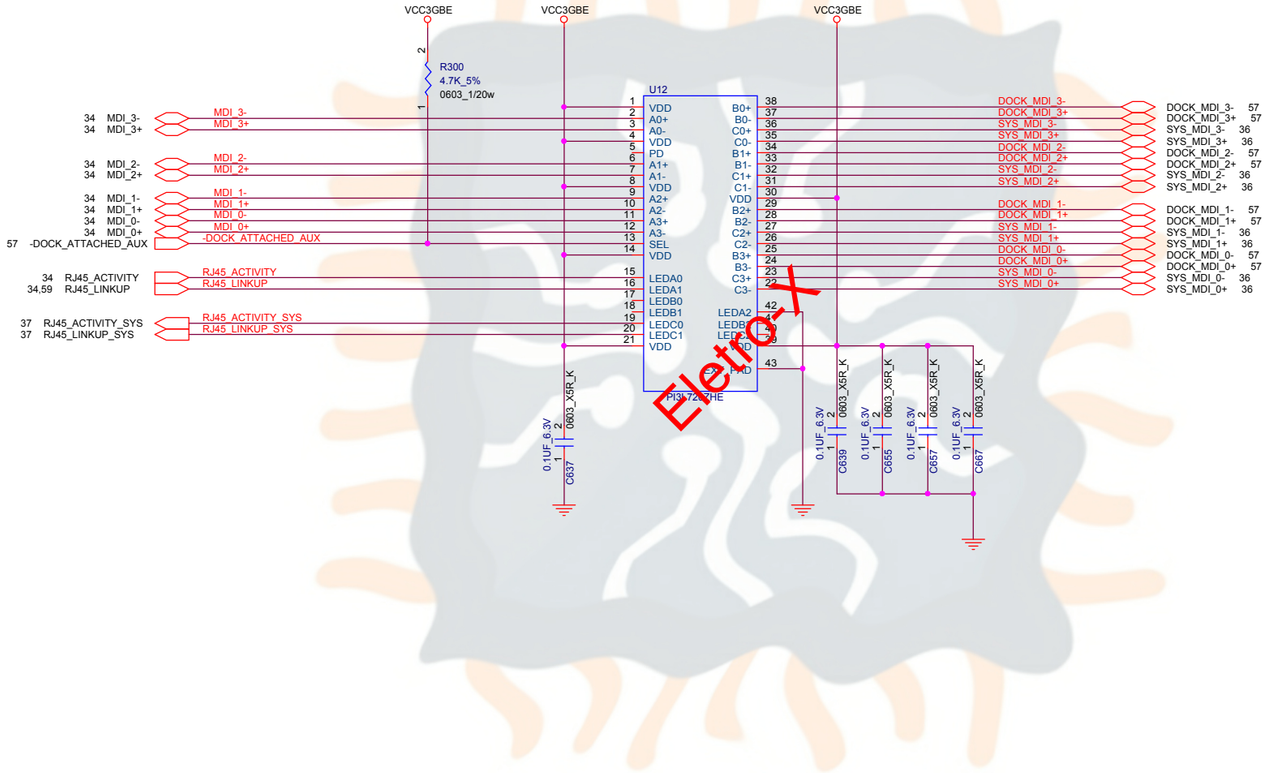

Project Name : THP1_SWG_SOVP	Title : GBE LAN SWITCH
Size : C	Document Number :
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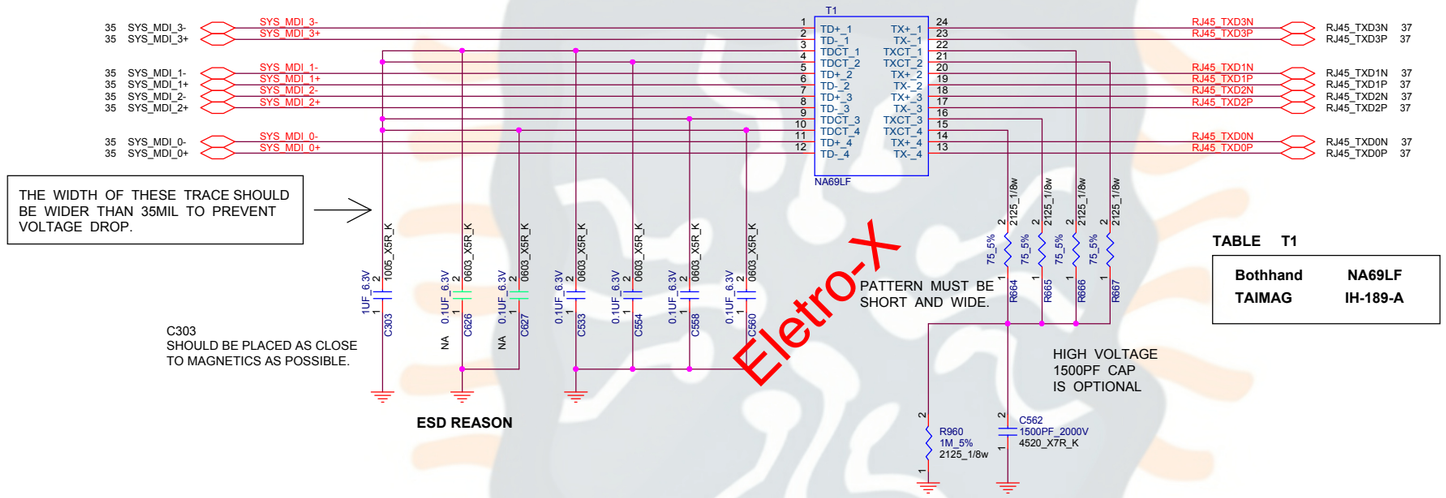

TABLE T1

Bothhand	NA69LF
TAIMAG	IH-189-A

Project Name : THP1_SWG_SOVP		Title : GBE MAGNETICS	
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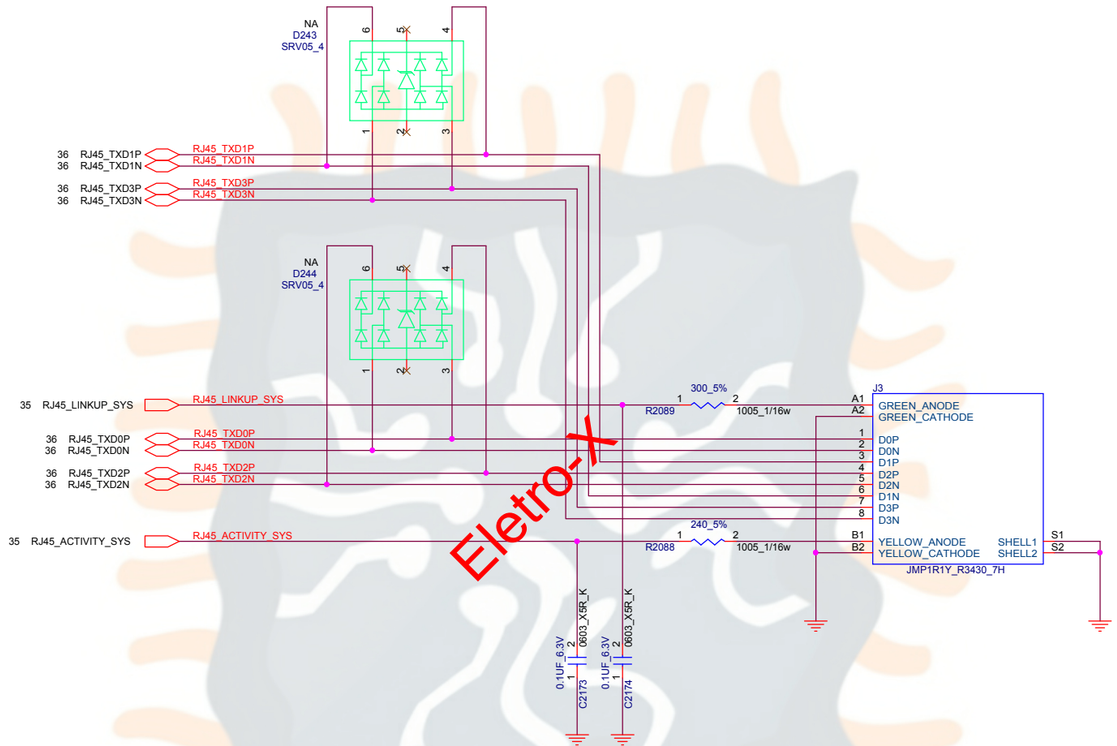

Project Name : THP1_SWG_SOVP	Title : RJ45 CONNECTOR
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VCC3VIDEO

R8541 10K_5% 0603_1/20w

NA R8539 10K_5% 0603_1/20w

U47A

1/14 PCI_EXPRESS

	AB6	PEX_WAKE_NC
60 -GPU_RST	AC7	PEX_RST*
12 -CLKREQ_PCIE5	AC6	PEX_CLKREQ*
12 PCIE5_CLK_100M	AE8	PEX_REFCLK
12 -PCIE5_CLK_100M	AD8	PEX_REFCLK*
10 PCIE5_L0_RXP	AC9	PEX_TX0
10 PCIE5_L0_RXN	AB9	PEX_TX0*
10 PCIE5_L0_TXP	AG6	PEX_RX0
10 PCIE5_L0_TXN	AG7	PEX_RX0*
10 PCIE5_L1_RXP	AB10	PEX_TX1
10 PCIE5_L1_RXN	AC10	PEX_TX1*
10 PCIE5_L1_TXP	AF7	PEX_RX1
10 PCIE5_L1_TXN	AE7	PEX_RX1*
10 PCIE5_L2_RXP	AD11	PEX_TX2
10 PCIE5_L2_RXN	AC11	PEX_TX2*
10 PCIE5_L2_TXP	AE9	PEX_RX2
10 PCIE5_L2_TXN	AF9	PEX_RX2*
10 PCIE5_L3_RXP	AC12	PEX_TX3
10 PCIE5_L3_RXN	AB12	PEX_TX3*
10 PCIE5_L3_TXP	AG9	PEX_RX3
10 PCIE5_L3_TXN	AG10	PEX_RX3*

PCIE5_L0_RXP	C6042 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L0_RXP_C
PCIE5_L0_RXN	C6043 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L0_RXN_C
PCIE5_L0_TXP	C2472 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L0_TXP_C
PCIE5_L0_TXN	C2473 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L0_TXN_C
PCIE5_L1_RXP	C6044 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L1_RXP_C
PCIE5_L1_RXN	C6045 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L1_RXN_C
PCIE5_L1_TXP	C2474 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L1_TXP_C
PCIE5_L1_TXN	C2475 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L1_TXN_C
PCIE5_L2_RXP	C6046 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L2_RXP_C
PCIE5_L2_RXN	C6049 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L2_RXN_C
PCIE5_L2_TXP	C2476 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L2_TXP_C
PCIE5_L2_TXN	C2477 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L2_TXN_C
PCIE5_L3_RXP	C6050 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L3_RXP_C
PCIE5_L3_RXN	C6051 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L3_RXN_C
PCIE5_L3_TXP	C2478 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L3_TXP_C
PCIE5_L3_TXN	C2479 1 2 0.22UF_6.3V 0603_X5R_K	PCIE5_L3_TXN_C

AB13 AC13	PEX_TX4 PEX_TX4*	
AF10 AE10	PEX_RX4 PEX_RX4*	
AD14 AC14	PEX_TX5 PEX_TX5*	
AE12 AF12	PEX_RX5 PEX_RX5*	
AC15 AB15	PEX_TX6 PEX_TX6*	
AG12 AG13	PEX_RX6 PEX_RX6*	
AB16 AC16	PEX_TX7 PEX_TX7*	
AF13 AE13	PEX_RX7 PEX_RX7*	
AD17 AC17	PEX_TX8 PEX_TX8*	
AE15 AF15	PEX_RX8 PEX_RX8*	
AC18 AB18	PEX_TX9 PEX_TX9*	
AG15 AG16	PEX_RX9 PEX_RX9*	
AB19 AC19	PEX_TX10 PEX_TX10*	
AF16 AE16	PEX_RX10 PEX_RX10*	
AD20 AC20	PEX_TX11 PEX_TX11*	
AE18 AF18	PEX_RX11 PEX_RX11*	
AC21 AB21	PEX_TX12 PEX_TX12*	
AG18 AG19	PEX_RX12 PEX_RX12*	
AD23 AE23	PEX_TX13 PEX_TX13*	
AF19 AE19	PEX_RX13 PEX_RX13*	
AF24 AE24	PEX_TX14 PEX_TX14*	
AE21 AF21	PEX_RX14 PEX_RX14*	
AG24 AG25	PEX_TX15 PEX_TX15*	
AG21 AG22	PEX_RX15 PEX_RX15*	

NC FOR GF117/GK208/GM108

PEX_IOVDD_1	AA22
PEX_IOVDD_2	AB23
PEX_IOVDD_3	AC24
PEX_IOVDD_4	AD25
PEX_IOVDD_5	AE26
PEX_IOVDD_6	AE27

NEAR BALLS / UNDER GPU

C6031 1UF_6.3V 1005_X6S_K

C6032 4.7UF_6.3V 1608_X6S_K

C6033 10UF_6.3V 1608_X5R_M

C6035 22UF_6.3V 2125_X5R_M

VCC1R0VIDEO

PEX_IOVDDQ_1	AA10
PEX_IOVDDQ_2	AA12
PEX_IOVDDQ_3	AA13
PEX_IOVDDQ_4	AA16
PEX_IOVDDQ_5	AA18
PEX_IOVDDQ_6	AA19
PEX_IOVDDQ_7	AA20
PEX_IOVDDQ_8	AA21
PEX_IOVDDQ_9	AB22
PEX_IOVDDQ_10	AC23
PEX_IOVDDQ_11	AD24
PEX_IOVDDQ_12	AE25
PEX_IOVDDQ_13	AF26
PEX_IOVDDQ_14	AF27

NC FOR GF119

PEX_PLL_HVDD_1	AA8
PEX_PLL_HVDD_2	AA9
PEX_SVDD_3V3	AB8

VCC3VIDEO

UNDER GPU

C6047 0.1UF_25V 1005_X7R_K

C6048 4.7UF_6.3V 1005_X5R_M

VCCGFXCORE_D

NA R8544 0_5% 0603_1/20w

VDD_SENSE	F2	GFXCORE_VDD_SENSE_D 90
GND_SENSE	F1	

PEX_TSTCLK_OUT	AF22	R8540 1 2 200_1% 0603_1/20w NA
PEX_TSTCLK_OUT*	AE22	

PEX_PLLVDD_1	AA14
PEX_PLLVDD_2	AA15

VCC1R0VIDEO

C6077 0.1UF_25V 1005_X7R_K

C6078 1UF_6.3V 1005_X5R_K

C6079 4.7UF_6.3V 1005_X5R_M

NEAR BALL / UNDER GPU

VCC3VIDEO

TESTMODE AD9 — 10K_5% NA R8581 1 2 0603_1/20w

PEX_TERMP AF25

R8548 2.49K_1% 0603_1/20w

R8549 10K_5% 0603_1/20w

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GB2B_64

Project Name :	THP1_SWG_SOVP
Title :	N16S-LP (1A) PEG/IF
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U47G
4/14 IFPAB

AA6 IFPAB_RSET
V7 IFPAB_PLLVDD_1
W7 IFPAB_PLLVDD_2
W6 IFPA_IOVDD
Y6 IFPB_IOVDD
NC FOR GF117/GM108

IFPA_TXC* AC4
IFPA_TXC AC3
IFPA_TXD0* Y3
IFPA_TXD0 Y4
IFPA_TXD1* AA2
IFPA_TXD1 AA3
IFPA_TXD2* AA1
IFPA_TXD2 AB1
IFPA_TXD3* AA5
IFPA_TXD3 AA4
IFPB_TXC* AB4
IFPB_TXC AB5
IFPB_TXD4* AB2
IFPB_TXD4 AB3
IFPB_TXD5* AD2
IFPB_TXD5 AD3
IFPB_TXD6* AD1
IFPB_TXD6 AE1
IFPB_TXD7* AD5
IFPB_TXD7 AD4
NC FOR GF117/GM108

GF117
NC
GPIO14 B3

IFPAB
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GB2B_64

U47H
5/14 IFPC

T6 IFPC_RSET
M7 IFPC_PLLVDD_1
N7 IFPC_PLLVDD_2
P6 IFPC_IOVDD
NC FOR GF117/GM108

IFPC
GF119/GK208
DVI/HDMI DP
I2CW_SDA I2CW_SCL
IFPC_AUX* N5
IFPC_AUX N4
TXC TXC
IFPC_L3* N3
IFPC_L3 N2
TXD0 TXD0
IFPC_L2* R3
IFPC_L2 R2
TXD1 TXD1
IFPC_L1* R1
IFPC_L1 T1
TXD2 TXD2
IFPC_L0* T3
IFPC_L0 T2
NC FOR GF117/GM108

GF117
NC
GPIO15 C3

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GB2B_64

U47I
6/14 IFPD

U6 IFPD_RSET
T7 IFPD_PLLVDD_2
R7 IFPD_PLLVDD_1
R6 IFPD_IOVDD
NC FOR GF117/GM108

IFPD
GF119/GK208
DVI/HDMI DP
I2CX_SDA I2CX_SCL
IFPD_AUX* P4
IFPD_AUX_ P3
TXC TXC
IFPD_L3* R5
IFPD_L3 R4
TXD0 TXD0
IFPD_L2* T5
IFPD_L2 T4
TXD1 TXD1
IFPD_L1* U4
IFPD_L1 U3
TXD2 TXD2
IFPD_L0* V4
IFPD_L0 V3
NC FOR GF117/GM108

GF117
NC
GPIO17 D4

9 OF 14
GB2B_64

U47J
7/14 IFPEF

J7 IFPEF_PLLVDD_1
K7 IFPEF_PLLVDD_2
K6 IFPEF_RSET
H6 IFPE_IOVDD
J6 IFPF_IOVDD
NC FOR GF117/GK208/GM108

IFPE
GF119/GK208
DVI-DL DVI-SL/HDMI DP
I2CY_SDA I2CY_SCL I2CY_SDA I2CY_SCL
IFPE_AUX* J3
IFPE_AUX J2
TXC TXC TXC TXC
IFPE_L3* J1
IFPE_L3 K1
TXD0 TXD0 TXD0
IFPE_L2* K3
IFPE_L2 K2
TXD1 TXD1 TXD1
IFPE_L1* M3
IFPE_L1 M2
TXD2 TXD2 TXD2
IFPE_L0* M1
IFPE_L0 N1
NC FOR GK208
NC FOR GF117/GM108

HPD_E HPD_E
GPIO18 C2
NC FOR GF117

IFPF
GF119/GK208
DVI-DL DVI-SL/HDMI DP
I2CZ_SDA I2CZ_SCL
IFPF_AUX* H4
IFPF_AUX H3
TXC TXC
IFPF_L3* J5
IFPF_L3 J4
TXD3 TXD0 TXD3 TXD0
IFPF_L2* K5
IFPF_L2 K4
TXD4 TXD1 TXD4 TXD1
IFPF_L1* L4
IFPF_L1 L3
TXD5 TXD2 TXD5 TXD2
IFPF_L0* M5
IFPF_L0 M4
NC FOR GK208
NC FOR GF117/GM108

HPD_F
GPIO19 F7
NC FOR GF117

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GB2B_64

Project Name : THP1_SWG_SOVP	Title : N16S-LP (2A) DIGITAL OUT I/F
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44 FBA_D[63:0]

U47B
2/14 FBA

FBA_D0	E18	FBA_D0
FBA_D1	F18	FBA_D1
FBA_D2	E16	FBA_D2
FBA_D3	F17	FBA_D3
FBA_D4	D20	FBA_D4
FBA_D5	D21	FBA_D5
FBA_D6	F20	FBA_D6
FBA_D7	E21	FBA_D7
FBA_D8	E15	FBA_D8
FBA_D9	D15	FBA_D9
FBA_D10	F15	FBA_D10
FBA_D11	F13	FBA_D11
FBA_D12	C13	FBA_D12
FBA_D13	B13	FBA_D13
FBA_D14	E13	FBA_D14
FBA_D15	D13	FBA_D15
FBA_D16	B15	FBA_D16
FBA_D17	C16	FBA_D17
FBA_D18	A13	FBA_D18
FBA_D19	A15	FBA_D19
FBA_D20	B18	FBA_D20
FBA_D21	A18	FBA_D21
FBA_D22	A19	FBA_D22
FBA_D23	C19	FBA_D23
FBA_D24	B24	FBA_D24
FBA_D25	C23	FBA_D25
FBA_D26	A25	FBA_D26
FBA_D27	A24	FBA_D27
FBA_D28	A21	FBA_D28
FBA_D29	B21	FBA_D29
FBA_D30	C20	FBA_D30
FBA_D31	C21	FBA_D31
FBA_D32	R22	FBA_D32
FBA_D33	R24	FBA_D33
FBA_D34	T22	FBA_D34
FBA_D35	R23	FBA_D35
FBA_D36	N25	FBA_D36
FBA_D37	N26	FBA_D37
FBA_D38	N23	FBA_D38
FBA_D39	N24	FBA_D39
FBA_D40	V23	FBA_D40
FBA_D41	V22	FBA_D41
FBA_D42	T23	FBA_D42
FBA_D43	U22	FBA_D43
FBA_D44	Y24	FBA_D44
FBA_D45	AA24	FBA_D45
FBA_D46	Y22	FBA_D46
FBA_D47	AA23	FBA_D47
FBA_D48	AD27	FBA_D48
FBA_D49	AB25	FBA_D49
FBA_D50	AD26	FBA_D50
FBA_D51	AC25	FBA_D51
FBA_D52	AA27	FBA_D52
FBA_D53	AA26	FBA_D53
FBA_D54	W26	FBA_D54
FBA_D55	Y25	FBA_D55
FBA_D56	R26	FBA_D56
FBA_D57	T25	FBA_D57
FBA_D58	N27	FBA_D58
FBA_D59	R27	FBA_D59
FBA_D60	V26	FBA_D60
FBA_D61	V27	FBA_D61
FBA_D62	W27	FBA_D62
FBA_D63	W25	FBA_D63

44 FBA_DM0	D19	FBA_DQM0
44 FBA_DM1	D14	FBA_DQM1
44 FBA_DM2	C17	FBA_DQM2
44 FBA_DM3	C22	FBA_DQM3
44 FBA_DM4	F24	FBA_DQM4
44 FBA_DM5	W24	FBA_DQM5
44 FBA_DM6	AA25	FBA_DQM6
44 FBA_DM7	U25	FBA_DQM7

44 FBA_DQS0	E19	FBA_DQS_WP0
44 FBA_DQS1	C15	FBA_DQS_WP1
44 FBA_DQS2	B16	FBA_DQS_WP2
44 FBA_DQS3	B22	FBA_DQS_WP3
44 FBA_DQS4	R25	FBA_DQS_WP4
44 FBA_DQS5	W23	FBA_DQS_WP5
44 FBA_DQS6	AB26	FBA_DQS_WP6
44 FBA_DQS7	T26	FBA_DQS_WP7

44 -FBA_DQS0	F19	FBA_DQS_RN0
44 -FBA_DQS1	C14	FBA_DQS_RN1
44 -FBA_DQS2	A16	FBA_DQS_RN2
44 -FBA_DQS3	A22	FBA_DQS_RN3
44 -FBA_DQS4	P25	FBA_DQS_RN4
44 -FBA_DQS5	W22	FBA_DQS_RN5
44 -FBA_DQS6	AB27	FBA_DQS_RN6
44 -FBA_DQS7	T27	FBA_DQS_RN7

NC	F3	FB_CLAMP
GF119		

R2091
10K_5%
0603_1/20w

NC	B19	FBA_CMD32
	F22	FBA_CMD34
	J22	FBA_CMD35
FBA_DEBUG0		
FBA_DEBUG1		

FBA_CLK0	D24	FBA_CLK0 44
FBA_CLK0*	D25	-FBA_CLK0 44
FBA_CLK1	N22	FBA_CLK1 44
FBA_CLK1*	M22	-FBA_CLK1 44

FBA_WCK01	D18	
FBA_WCK01*	C18	
FBA_WCK23	D17	
FBA_WCK23*	D16	
FBA_WCK45	T24	
FBA_WCK45*	U24	
FBA_WCK67	V24	
FBA_WCK67*	V25	

GF119		
NC	F16	FB_PLLAVDD_1
	P22	FB_PLLAVDD_2
FB_PLLAVDD	H22	FB_DLLAVDD
GF117		

D23 FB_VREF_PROBE

2_OF_14
GB2B_64

Frame Buffer Command Mapping

N16x DDR3 Mode D

FBA_CMD0	C27	-FBA_CS0 44
FBA_CMD1	C26	
FBA_CMD2	E24	FBA_ODT0 44
FBA_CMD3	F24	FBA_CKE0 44
FBA_CMD4	D27	FBA_A14 44
FBA_CMD5	D26	FBA_RST 44
FBA_CMD6	F25	FBA_A9 44
FBA_CMD7	F26	FBA_A7 44
FBA_CMD8	F23	FBA_A2 44
FBA_CMD9	G22	FBA_A0 44
FBA_CMD10	G23	FBA_A4 44
FBA_CMD11	G24	FBA_A1 44
FBA_CMD12	F27	FBA_BA0 44
FBA_CMD13	G25	-FBA_WE 44
FBA_CMD14	G27	FBA_A15 44
FBA_CMD15	G26	-FBA_CAS 44
FBA_CMD16	M24	-FBA_CS1 44
FBA_CMD17	M23	
FBA_CMD18	K24	FBA_ODT1 44
FBA_CMD19	K23	FBA_CKE1 44
FBA_CMD20	M27	FBA_A13 44
FBA_CMD21	M26	FBA_A8 44
FBA_CMD22	M25	FBA_A6 44
FBA_CMD23	K26	FBA_A11 44
FBA_CMD24	K22	FBA_A5 44
FBA_CMD25	J23	FBA_A3 44
FBA_CMD26	J25	FBA_BA2 44
FBA_CMD27	J24	FBA_BA1 44
FBA_CMD28	K27	FBA_A12 44
FBA_CMD29	K25	FBA_A10 44
FBA_CMD30	J27	-FBA_RAS 44
FBA_CMD31	J26	

VCC1R0VIDEO

30ohm@100MHz ESR=0.01

FL27
MPZ1608S300A

VCC1R0VIDEO_FB

C6134
0.1UF_25V
1005_X7R_K
NEAR BALL

C6137
22UF_6.3V
2125_X5R_M

FBA_CKE0
FBA_CKE1
FBA_RST
FBA_ODT0
FBA_ODT1

R8558 10K_5% 0603_1/20w
R8559 10K_5% 0603_1/20w
R8560 10K_5% 0603_1/20w
R8561 10K_5% 0603_1/20w
R8562 10K_5% 0603_1/20w

lenovo

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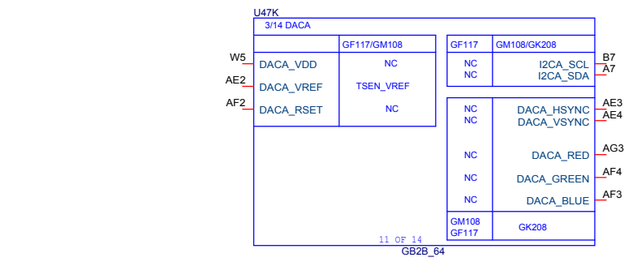
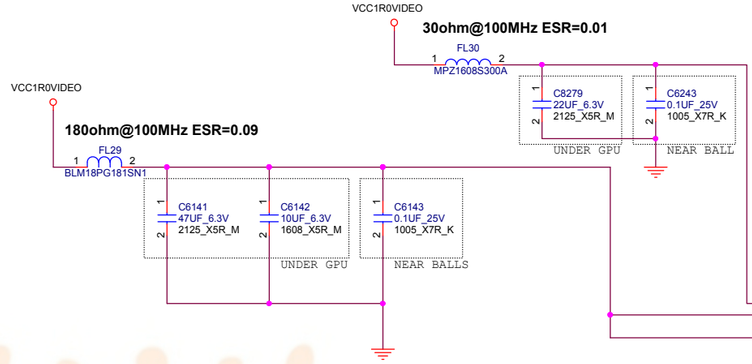
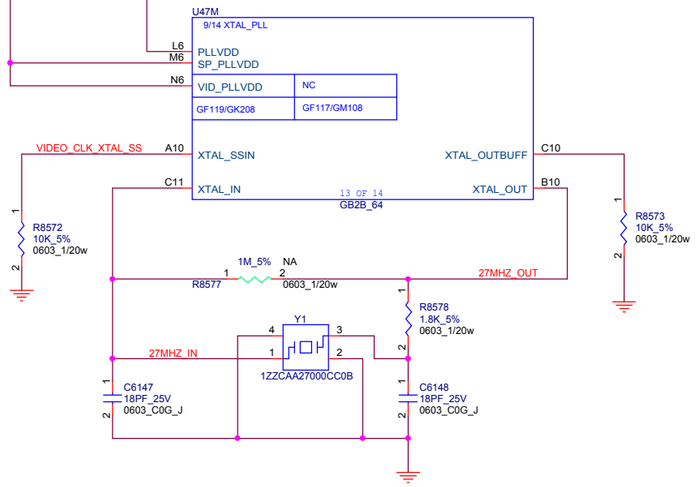
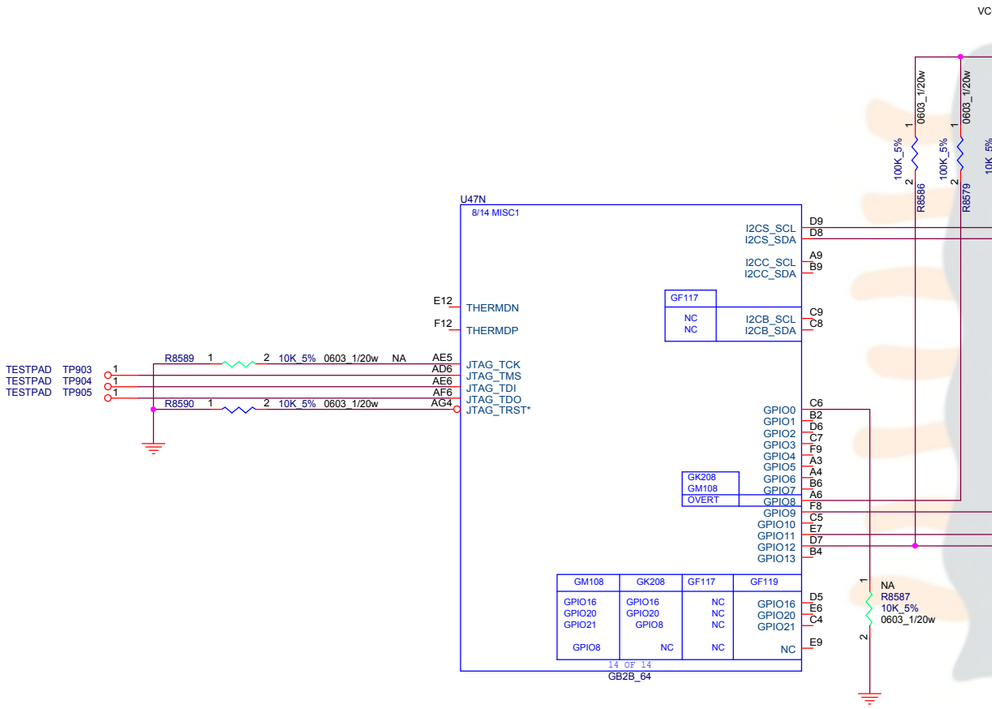






TXC 8Y27000002
Epson Q22FA1280025200



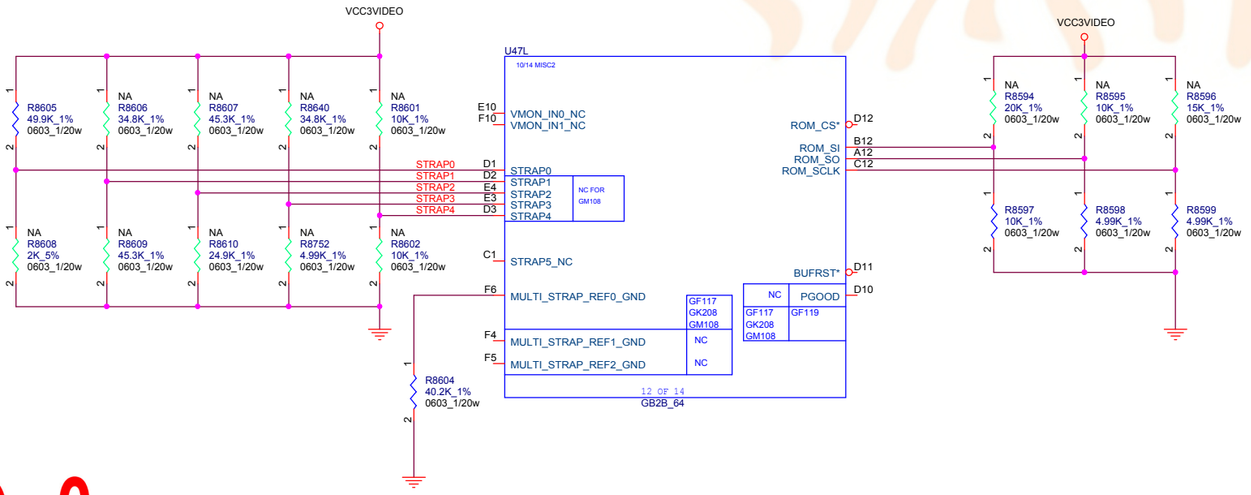


TABLE
VIDEO MEMORY

ROM_SIPD	SAMSUNG 256Mx16 Rev.E 0001	HYNIX 256Mx16 Rev.C 0010
R8594	NO_ASM	NO_ASM
R8597	10Kohm	15Kohm

LOGIC

lenovo
Project Name : THP1_SWG_SOVP
Title : N16S-LP (4A) LGPIO
Size : C
Document Number :
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VCCGFXCORE_D

C6149 47UF_6.3V 2125_X5R_M
C6150 22UF_6.3V 2125_X5R_M
C6151 4.7UF_6.3V 1005_X5R_K
C6152 4.7UF_6.3V 1005_X5R_K
C6153 4.7UF_6.3V 1005_X5R_K
C6154 4.7UF_6.3V 1005_X5R_K
C6155 4.7UF_6.3V 1005_X5R_K
UNDER GPU

C6156 4.7UF_6.3V 1608_X6S_K
C6157 4.7UF_6.3V 1608_X6S_K
C6158 4.7UF_6.3V 1608_X6S_K
C6159 4.7UF_6.3V 1608_X6S_K
C6160 4.7UF_6.3V 1608_X6S_K
C6161 4.7UF_6.3V 1608_X6S_K
C6162 4.7UF_6.3V 1608_X6S_K
C6163 4.7UF_6.3V 1608_X6S_K
C6164 4.7UF_6.3V 1608_X6S_K
C6165 4.7UF_6.3V 1608_X6S_K
C6166 1UF_6.3V 1005_X6S_K
C6167 1UF_6.3V 1005_X6S_K

C6168 1UF_6.3V 1005_X6S_K
C6169 1UF_6.3V 1005_X6S_K
NEAR BALLS

U47E
11/14 NVVDD

K10	VDD_001
K12	VDD_002
K14	VDD_003
K16	VDD_004
K18	VDD_005
L11	VDD_006
L13	VDD_007
L15	VDD_008
L17	VDD_009
M10	VDD_010
M12	VDD_011
M14	VDD_012
M16	VDD_013
M18	VDD_014
N11	VDD_015
N13	VDD_016
N15	VDD_017
N17	VDD_018
P10	VDD_019
P12	VDD_020
P14	VDD_021
P16	VDD_022
P18	VDD_023
R11	VDD_024
R13	VDD_025
R15	VDD_026
R17	VDD_027
T10	VDD_028
T12	VDD_029
T14	VDD_030
T16	VDD_031
T18	VDD_032
U11	VDD_033
U13	VDD_034
U15	VDD_035
U17	VDD_036
V10	VDD_037
V12	VDD_038
V14	VDD_039
V16	VDD_040
V18	VDD_041

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GB2B_64

VCC3VIDEO

U47C
14/14 XVDD/VDD33

AD10	NC_1	VDD33_1	G8
AD7	NC_2	VDD33_2	G9
	GM108	VDD33_3	G10
	3V3_AON	VDD33_4	G12
	3V3_AON		
F11	3V3AUX_NC		
V5	FERMI_RSVD1_NC		
V6	FERMI_RSVD2_NC		

CONFIGURABLE POWER CHANNELS
* nc on substrate

G1	XPWR_G1
G2	XPWR_G2
G3	XPWR_G3
G4	XPWR_G4
G5	XPWR_G5
G6	XPWR_G6
G7	XPWR_G7
V1	XPWR_V1
V2	XPWR_V2
W1	XPWR_W1
W2	XPWR_W2
W3	XPWR_W3
W4	XPWR_W4

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GB2B_64

C6057 0.1UF_25V 1005_X7R_K
C6058 0.1UF_25V 1005_X7R_K
NEAR BALLS

C6061 1UF_6.3V 1005_X5R_K
C6062 4.7UF_6.3V 1005_X5R_M
UNDER GPU

VCC3VIDEO

C2560 0.1UF_25V 1005_X7R_K
NEAR BALL

C2561 1UF_6.3V 1005_X5R_K
C2562 4.7UF_6.3V 1005_X5R_M
UNDER GPU

U47D
12/14 FBVDDQ

B26	FBVDDQ_01
C25	FBVDDQ_02
E23	FBVDDQ_03
E26	FBVDDQ_04
F14	FBVDDQ_05
F21	FBVDDQ_06
G13	FBVDDQ_07
G14	FBVDDQ_08
G15	FBVDDQ_09
G16	FBVDDQ_10
G18	FBVDDQ_11
G19	FBVDDQ_12
G20	FBVDDQ_13
G21	FBVDDQ_14
L22	FBVDDQ_19
L24	FBVDDQ_20
L26	FBVDDQ_21
M21	FBVDDQ_22
N21	FBVDDQ_23
R21	FBVDDQ_24
T21	FBVDDQ_25
V21	FBVDDQ_26
W21	FBVDDQ_27

GF117 GF119 GK208

H24	FBVDDQ
H26	FBVDDQ
J21	FBVDDQ
K21	FBVDDQ
FBVDDQ_AON_1	
FBVDDQ_AON_2	
FBVDDQ_AON_3	
FBVDDQ_AON_4	

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VCC1R35VIDEO

RJ151 1 2 SHORT10_10MIL GFXFB_VDD_SENSE 91
RJ152 1 2 SHORT10_10MIL GFXFB_GND_SENSE 91

VCC1R35VIDEO

C6123 22UF_6.3V 2125_X5R_M
C6124 10UF_6.3V 1608_X5R_M
UNDER GPU

C6127 4.7UF_6.3V 1608_X6S_K
C6122 4.7UF_6.3V 1608_X6S_K
C6128 1UF_6.3V 1005_X6S_K
C6129 1UF_6.3V 1005_X6S_K
C6130 0.1UF_25V 1005_X7R_K
C6131 0.1UF_25V 1005_X7R_K
NEAR BALLS

VCC1R35VIDEO

FB_CAL_PD_VDDQ D22 — 40.2_1% R8555 0603_1/20w
FB_CAL_PU_GND C24
FB_CAL_TERM_GND B25

R8556 51.1_1% 0603_1/20w
R8557 42.2_1% 0603_1/20w

Eletro-X

ECEtRO-Q

Project Name : THP1_SWG_SOVP		Title : N16S-LP (5/6) POWER	
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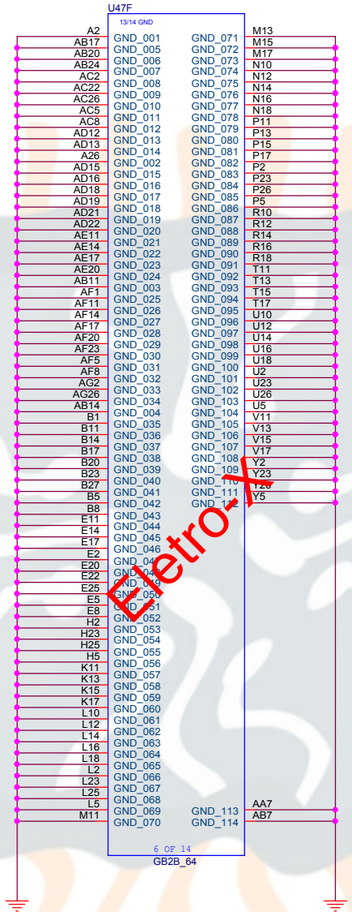

lenovo		
Project Name : THP1_SWG_SOVP	Title : N16S-LP (6M) GND	
Size : C	Document Number :	Rev : 8.04
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40 FBA_D[63:0]

FBA_CLK0 — R8630 162_1% 0603_1/20w — -FBA_CLK0

FBA_CLK1 — R8629 162_1% 0603_1/20w — -FBA_CLK1

TABLE

DDR3 VIDEO MEMORY

	SAMSUNG 4GBITS (256Mx16)	HYNIX 4GBITS (256Mx16)
U91 U92 U93 U94	K4W4G1646E-BC1A	H5TC4G63CFR-N0C

LOGIC

VCC1R35VIDEO

45 FBA_VREF_0

U91 — GFX_DDR3L_x16_SDRAM

FBA_D13	A3	DQU7	VREFDQ	H1	
FBA_D8	B8	DQU6	VREFCA	M8	
FBA_D14	A2	DQU5			
FBA_D9	A7	DQU4		B2	
FBA_D15	C2	DQU3	VDD_B2	D9	
FBA_D10	C8	DQU2	VDD_D9	G7	
FBA_D12	C3	DQU1	VDD_G7	K2	
FBA_D11	D7	DQU0	VDD_K2	K8	
			VDD_K8	N1	
40 FBA_DQS1	C7	UDQS	VDD_N1	N9	
40 -FBA_DQS1	B7	UDQS#	VDD_N9	R1	
			VDD_R1	R9	
40 FBA_DM1	D3	UDM	VDD_R9		
FBA_D25	H7	DQL7	VDDQ_A1	A1	
FBA_D30	G2	DQL6	VDDQ_A8	A8	
FBA_D24	H8	DQL5	VDDQ_C1	C1	
FBA_D28	H3	DQL4	VDDQ_C9	C9	
FBA_D26	F8	DQL3	VDDQ_D2	D2	
FBA_D31	F2	DQL2	VDDQ_E9	E9	
FBA_D27	F7	DQL1	VDDQ_F1	F1	
FBA_D29	E3	DQL0	VDDQ_H2	H2	
			VDDQ_H9	H9	
40 FBA_DQS3	F3	LDQS			
40 -FBA_DQS3	G3	LDQS#		B1	
40 FBA_DM3	E7	LDM	VSSQ_B1	B9	
			VSSQ_B9	D1	
			VSSQ_D1	D8	
			VSSQ_D8	E2	
40 FBA_CLK0	J7	CK	VSSQ_E2	E8	
40 -FBA_CLK0	K7	CK#	VSSQ_E8	F9	
			VSSQ_F9	G1	
40 FBA_CKE0	K9	CKE	VSSQ_G1	G9	
			VSSQ_G9		
40 -FBA_CS0	L2	CS#		A9	
40 -FBA_RAS	J3	RAS#	VSS_A9	B3	
40 -FBA_CAS	K3	CAS#	VSS_B3	E1	
40 -FBA_WE	L3	WE#	VSS_E1	G8	
			VSS_G8	J2	
40 FBA_BA2	M3	BA2	VSS_J2	J8	
40 FBA_BA1	N8	BA1	VSS_J8	M1	
40 FBA_BA0	M2	BA0	VSS_M1	M9	
			VSS_M9	P1	
40 FBA_A15	M7	NC_M7	VSS_P1	P9	
40 FBA_A14	T7	NC_T7	VSS_P9	T1	
40 FBA_A13	T3	NC_T3	VSS_T1	T9	
40 FBA_A12	N7	A12|BC#	VSS_T9		
40 FBA_A11	R7	A11			
40 FBA_A10	L7	A10|AP			
40 FBA_A9	R3	A9	ODT	K1	FBA_ODT0 40
40 FBA_A8	T8	A8			
40 FBA_A7	R2	A7	RESET#	T2	FBA_RST 40
40 FBA_A6	R8	A6			
40 FBA_A5	P2	A5	ZQ	L8	
40 FBA_A4	P8	A4			
40 FBA_A3	N2	A3	NC_J1	J1	
40 FBA_A2	P3	A2	NC_J9	J9	
40 FBA_A1	P7	A1	NC_L1	L1	
40 FBA_A0	N3	A0	NC_L9	L9	

R8611 243_1% 0603_1/20w

VCC1R35VIDEO

FBA_VREF_0

U92 — GFX_DDR3L_x16_SDRAM

FBA_D20	A3	DQU7	VREFDQ	H1	
FBA_D16	B8	DQU6	VREFCA	M8	
FBA_D23	A2	DQU5			
FBA_D19	A7	DQU4		B2	
FBA_D22	C2	DQU3	VDD_B2	D9	
FBA_D18	C8	DQU2	VDD_D9	G7	
FBA_D21	C3	DQU1	VDD_G7	K2	
FBA_D17	D7	DQU0	VDD_K2	K8	
			VDD_K8	N1	
40 FBA_DQS2	C7	UDQS	VDD_N1	N9	
40 -FBA_DQS2	B7	UDQS#	VDD_N9	R1	
			VDD_R1	R9	
40 FBA_DM2	D3	UDM	VDD_R9		
FBA_D0	H7	DQL7	VDDQ_A1	A1	
FBA_D5	G2	DQL6	VDDQ_A8	A8	
FBA_D2	H8	DQL5	VDDQ_C1	C1	
FBA_D4	H3	DQL4	VDDQ_C9	C9	
FBA_D3	F8	DQL3	VDDQ_D2	D2	
FBA_D7	F2	DQL2	VDDQ_E9	E9	
FBA_D1	F7	DQL1	VDDQ_F1	F1	
FBA_D6	E3	DQL0	VDDQ_H2	H2	
			VDDQ_H9	H9	
40 FBA_DQS0	F3	LDQS			
40 -FBA_DQS0	G3	LDQS#		B1	
40 FBA_DM0	E7	LDM	VSSQ_B1	B9	
			VSSQ_B9	D1	
			VSSQ_D1	D8	
			VSSQ_D8	E2	
FBA_CLK0	J7	CK	VSSQ_E2	E8	
-FBA_CLK0	K7	CK#	VSSQ_E8	F9	
			VSSQ_F9	G1	
FBA_CKE0	K9	CKE	VSSQ_G1	G9	
			VSSQ_G9		
-FBA_CS0	L2	CS#		A9	
-FBA_RAS	J3	RAS#	VSS_A9	B3	
-FBA_CAS	K3	CAS#	VSS_B3	E1	
-FBA_WE	L3	WE#	VSS_E1	G8	
			VSS_G8	J2	
FBA_BA2	M3	BA2	VSS_J2	J8	
FBA_BA1	N8	BA1	VSS_J8	M1	
FBA_BA0	M2	BA0	VSS_M1	M9	
			VSS_M9	P1	
FBA_A15	M7	NC_M7	VSS_P1	P9	
FBA_A14	T7	NC_T7	VSS_P9	T1	
FBA_A13	T3	NC_T3	VSS_T1	T9	
FBA_A12	N7	A12|BC#	VSS_T9		
FBA_A11	R7	A11			
FBA_A10	L7	A10|AP			
FBA_A9	R3	A9	ODT	K1	FBA_ODT0
FBA_A8	T8	A8			
FBA_A7	R2	A7	RESET#	T2	FBA_RST
FBA_A6	R8	A6			
FBA_A5	P2	A5	ZQ	L8	
FBA_A4	P8	A4			
FBA_A3	N2	A3	NC_J1	J1	
FBA_A2	P3	A2	NC_J9	J9	
FBA_A1	P7	A1	NC_L1	L1	
FBA_A0	N3	A0	NC_L9	L9	

R8612 243_1% 0603_1/20w

VCC1R35VIDEO

45 FBA_VREF_1

U93 — GFX_DDR3L_x16_SDRAM

FBA_D53	A3	DQU7	VREFDQ	H1	
FBA_D50	B8	DQU6	VREFCA	M8	
FBA_D55	A2	DQU5			
FBA_D49	A7	DQU4		B2	
FBA_D54	C2	DQU3	VDD_B2	D9	
FBA_D48	C8	DQU2	VDD_D9	G7	
FBA_D52	C3	DQU1	VDD_G7	K2	
FBA_D51	D7	DQU0	VDD_K2	K8	
			VDD_K8	N1	
40 FBA_DQS6	C7	UDQS	VDD_N1	N9	
40 -FBA_DQS6	B7	UDQS#	VDD_N9	R1	
			VDD_R1	R9	
40 FBA_DM6	D3	UDM	VDD_R9		
FBA_D44	H7	DQL7	VDDQ_A1	A1	
FBA_D42	G2	DQL6	VDDQ_A8	A8	
FBA_D47	H8	DQL5	VDDQ_C1	C1	
FBA_D40	H3	DQL4	VDDQ_C9	C9	
FBA_D45	F8	DQL3	VDDQ_D2	D2	
FBA_D41	F2	DQL2	VDDQ_E9	E9	
FBA_D46	F7	DQL1	VDDQ_F1	F1	
FBA_D43	E3	DQL0	VDDQ_H2	H2	
			VDDQ_H9	H9	
40 FBA_DQS5	F3	LDQS			
40 -FBA_DQS5	G3	LDQS#		B1	
40 FBA_DM5	E7	LDM	VSSQ_B1	B9	
			VSSQ_B9	D1	
			VSSQ_D1	D8	
			VSSQ_D8	E2	
40 FBA_CLK1	J7	CK	VSSQ_E2	E8	
40 -FBA_CLK1	K7	CK#	VSSQ_E8	F9	
			VSSQ_F9	G1	
40 FBA_CKE1	K9	CKE	VSSQ_G1	G9	
			VSSQ_G9		
40 FBA_CS1	L2	CS#		A9	
-FBA_RAS	J3	RAS#	VSS_A9	B3	
-FBA_CAS	K3	CAS#	VSS_B3	E1	
-FBA_WE	L3	WE#	VSS_E1	G8	
			VSS_G8	J2	
FBA_BA2	M3	BA2	VSS_J2	J8	
FBA_BA1	N8	BA1	VSS_J8	M1	
FBA_BA0	M2	BA0	VSS_M1	M9	
			VSS_M9	P1	
FBA_A15	M7	NC_M7	VSS_P1	P9	
FBA_A14	T7	NC_T7	VSS_P9	T1	
FBA_A13	T3	NC_T3	VSS_T1	T9	
FBA_A12	N7	A12|BC#	VSS_T9		
FBA_A11	R7	A11			
FBA_A10	L7	A10|AP			
FBA_A9	R3	A9	ODT	K1	FBA_ODT1 40
FBA_A8	T8	A8			
FBA_A7	R2	A7	RESET#	T2	FBA_RST
FBA_A6	R8	A6			
FBA_A5	P2	A5	ZQ	L8	
FBA_A4	P8	A4			
FBA_A3	N2	A3	NC_J1	J1	
FBA_A2	P3	A2	NC_J9	J9	
FBA_A1	P7	A1	NC_L1	L1	
FBA_A0	N3	A0	NC_L9	L9	

R8613 243_1% 0603_1/20w

VCC1R35VIDEO

FBA_VREF_1

U94 — GFX_DDR3L_x16_SDRAM

FBA_D62	A3	DQU7	VREFDQ	H1	
FBA_D56	B8	DQU6	VREFCA	M8	
FBA_D63	A2	DQU5			
FBA_D59	A7	DQU4		B2	
FBA_D60	C2	DQU3	VDD_B2	D9	
FBA_D58	C8	DQU2	VDD_D9	G7	
FBA_D61	C3	DQU1	VDD_G7	K2	
FBA_D57	D7	DQU0	VDD_K2	K8	
			VDD_K8	N1	
40 FBA_DQS7	C7	UDQS	VDD_N1	N9	
40 -FBA_DQS7	B7	UDQS#	VDD_N9	R1	
			VDD_R1	R9	
40 FBA_DM7	D3	UDM	VDD_R9		
FBA_D38	H7	DQL7	VDDQ_A1	A1	
FBA_D32	G2	DQL6	VDDQ_A8	A8	
FBA_D37	H8	DQL5	VDDQ_C1	C1	
FBA_D33	H3	DQL4	VDDQ_C9	C9	
FBA_D36	F8	DQL3	VDDQ_D2	D2	
FBA_D34	F2	DQL2	VDDQ_E9	E9	
FBA_D39	F7	DQL1	VDDQ_F1	F1	
FBA_D35	E3	DQL0	VDDQ_H2	H2	
			VDDQ_H9	H9	
40 FBA_DQS4	F3	LDQS			
40 -FBA_DQS4	G3	LDQS#		B1	
40 FBA_DM4	E7	LDM	VSSQ_B1	B9	
			VSSQ_B9	D1	
			VSSQ_D1	D8	
			VSSQ_D8	E2	
FBA_CLK1	J7	CK	VSSQ_E2	E8	
-FBA_CLK1	K7	CK#	VSSQ_E8	F9	
			VSSQ_F9	G1	
FBA_CKE1	K9	CKE	VSSQ_G1	G9	
			VSSQ_G9		
-FBA_CS1	L2	CS#		A9	
-FBA_RAS	J3	RAS#	VSS_A9	B3	
-FBA_CAS	K3	CAS#	VSS_B3	E1	
-FBA_WE	L3	WE#	VSS_E1	G8	
			VSS_G8	J2	
FBA_BA2	M3	BA2	VSS_J2	J8	
FBA_BA1	N8	BA1	VSS_J8	M1	
FBA_BA0	M2	BA0	VSS_M1	M9	
			VSS_M9	P1	
FBA_A15	M7	NC_M7	VSS_P1	P9	
FBA_A14	T7	NC_T7	VSS_P9	T1	
FBA_A13	T3	NC_T3	VSS_T1	T9	
FBA_A12	N7	A12|BC#	VSS_T9		
FBA_A11	R7	A11			
FBA_A10	L7	A10|AP			
FBA_A9	R3	A9	ODT	K1	FBA_ODT1
FBA_A8	T8	A8			
FBA_A7	R2	A7	RESET#	T2	FBA_RST
FBA_A6	R8	A6			
FBA_A5	P2	A5	ZQ	L8	
FBA_A4	P8	A4			
FBA_A3	N2	A3	NC_J1	J1	
FBA_A2	P3	A2	NC_J9	J9	
FBA_A1	P7	A1	NC_L1	L1	
FBA_A0	N3	A0	NC_L9	L9	

R8614 243_1% 0603_1/20w

VCC1R35VIDEO

FOR U91/U92

C6174 1UF_6.3V 1005_X5R_K — C6178 1UF_6.3V 1005_X5R_K — C6179 1UF_6.3V 1005_X5R_K — C6175 1UF_6.3V 1005_X5R_K — C6180 1UF_6.3V 1005_X5R_K — C6176 1UF_6.3V 1005_X5R_K — C6181 1UF_6.3V 1005_X5R_K — C6182 1UF_6.3V 1005_X5R_K — C6183 0.1UF_6.3V 0603_X5R_K — C6184 0.1UF_6.3V 0603_X5R_K — C6185 0.1UF_6.3V 0603_X5R_K — C6186 0.1UF_6.3V 0603_X5R_K

CLOSE TO THE MEMORY

VCC1R35VIDEO

FOR U93/U94

C6189 1UF_6.3V 1005_X5R_K — C6190 1UF_6.3V 1005_X5R_K — C6191 1UF_6.3V 1005_X5R_K — C6192 1UF_6.3V 1005_X5R_K — C6193 1UF_6.3V 1005_X5R_K — C6194 1UF_6.3V 1005_X5R_K — C6195 1UF_6.3V 1005_X5R_K — C6197 1UF_6.3V 1005_X5R_K — C6198 0.1UF_6.3V 0603_X5R_K — C6199 0.1UF_6.3V 0603_X5R_K — C6200 0.1UF_6.3V 0603_X5R_K — C6201 0.1UF_6.3V 0603_X5R_K

CLOSE TO THE MEMORY

lenovo

Project Name : THP1_SWG_SOVP	Title : VRAM CHANNEL A	
Size : C	Document Number :	Rev : 8.04
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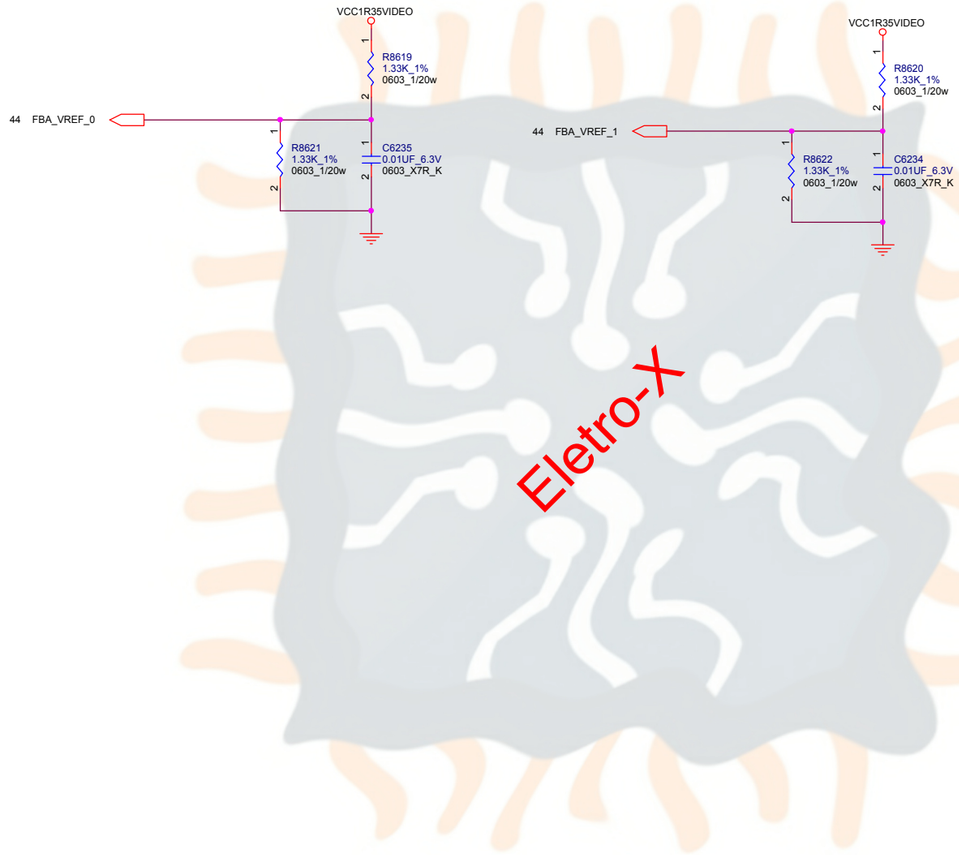
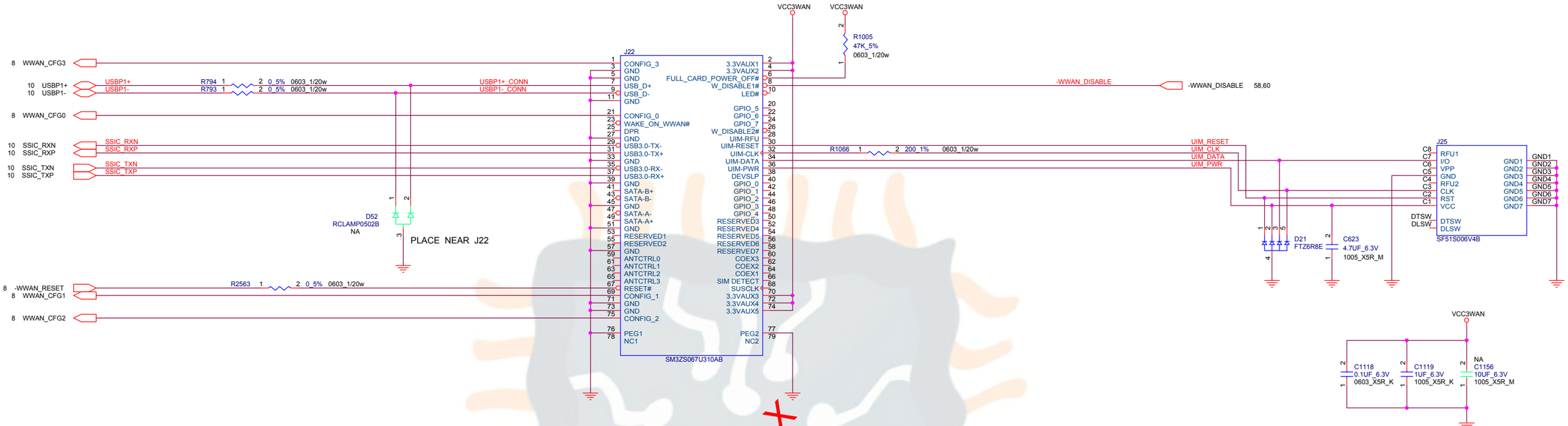


Project Name : THP1_SWG_SOVP	Title : MEMORY TERMINATION
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 45 of 90

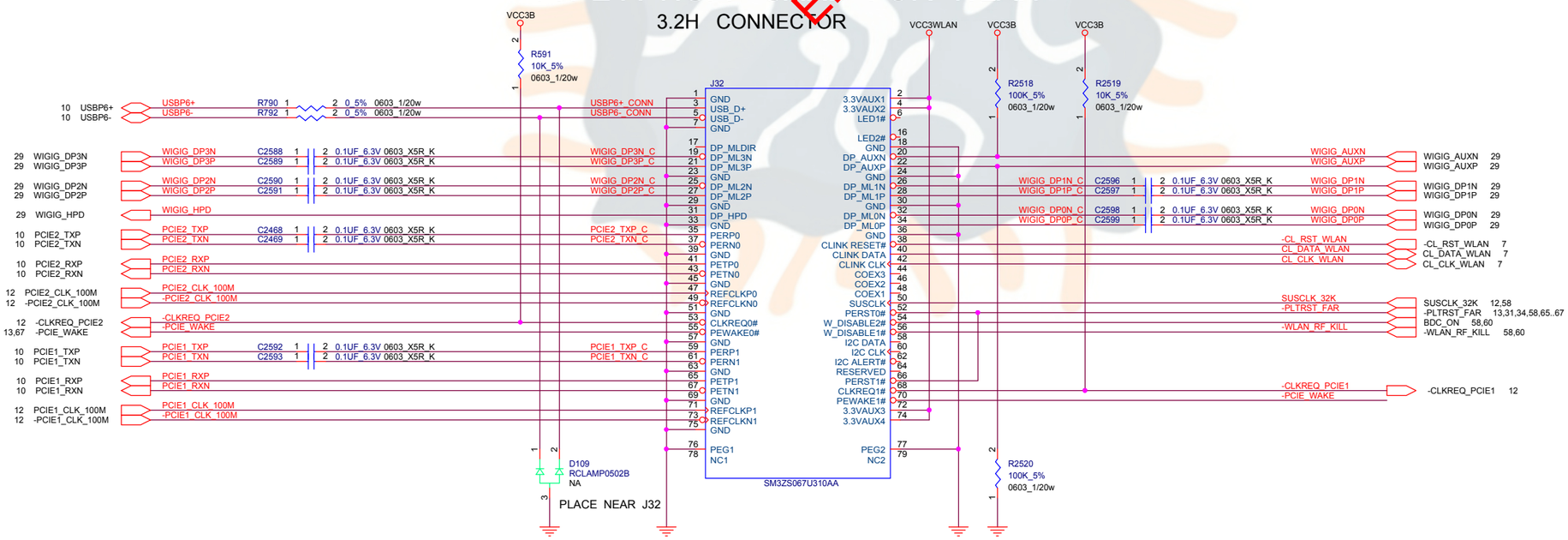
TYPE-B NGFF CARD FOR WWAN

3.2H CONNECTOR



TYPE-A NGFF CARD FOR WLAN

3.2H CONNECTOR



Project Name : THP1_SWG_SOVP	Title : PCIE M.2 (NGFF) CARD SLOT
Size : C	Document Number : Rev : 8.04
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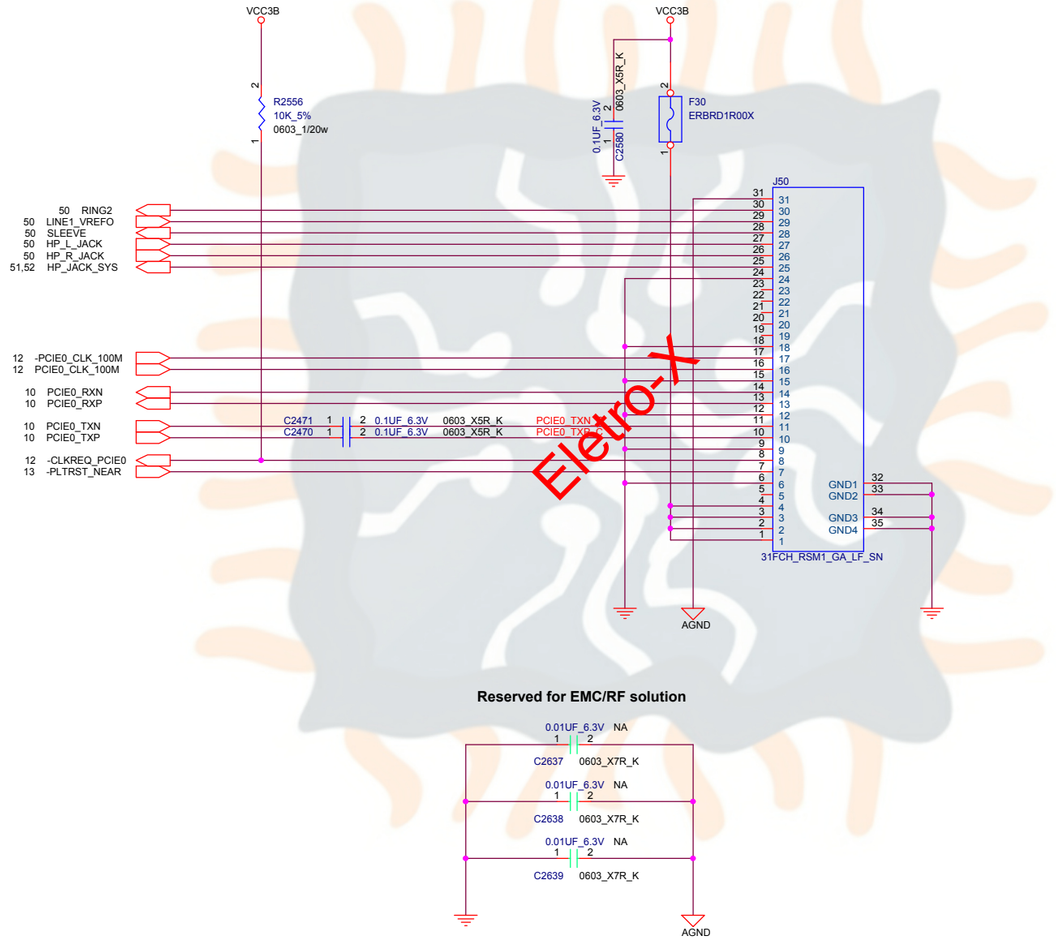

Reserved for EMC/RF solution

Project Name : THP1_SWG_SOVP	Title : SD/AUDIO CONNECTOR I/F
Size : C	Document Number :
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TABLE

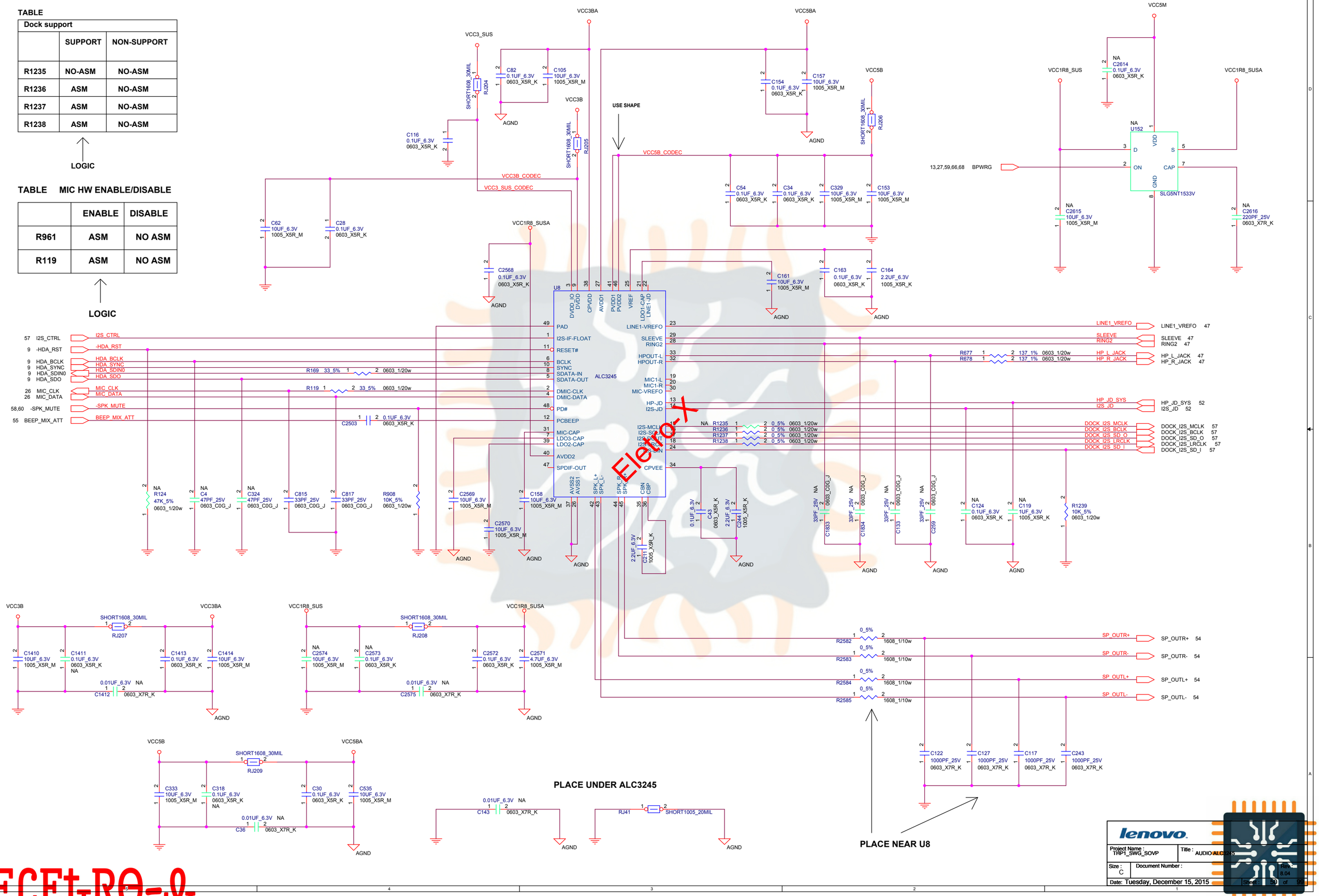
Dock support		
	SUPPORT	**NON-SUPPORT**
R1235	**NO-ASM**	**NO-ASM**
R1236	**ASM**	**NO-ASM**
R1237	**ASM**	**NO-ASM**
R1238	**ASM**	**NO-ASM**

LOGIC

TABLE MIC HW ENABLE/DISABLE

	ENABLE	**DISABLE**
R961	**ASM**	**NO ASM**
R119	**ASM**	**NO ASM**

LOGIC



Project Name : THP1_SWG_SOVP	Title : AUDIO ALC3245
Size : C	Document Number :
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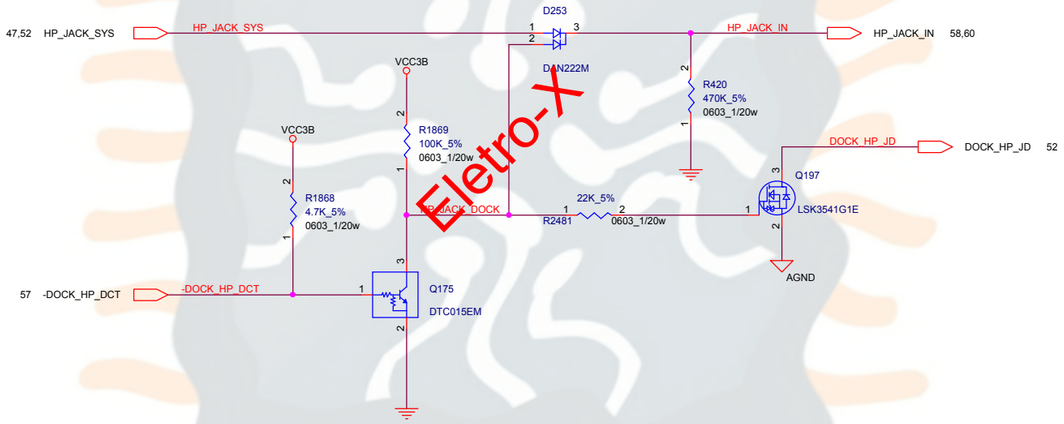
ECEtRO-Q

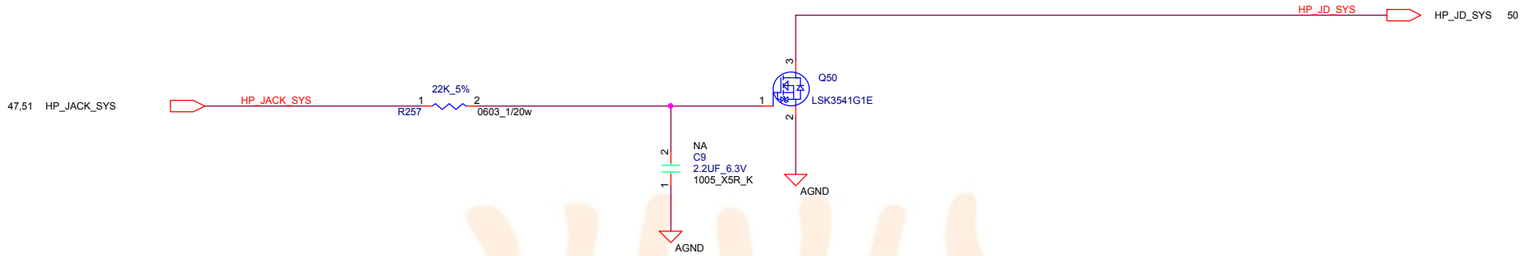
TABLE

DOCKING	SUPPORT	NON-SUPPORT
R1869	ASM	NO_ASM
Q175	ASM	NO_ASM
R2481	ASM	NO_ASM
Q197	ASM	NO_ASM

LOGIC



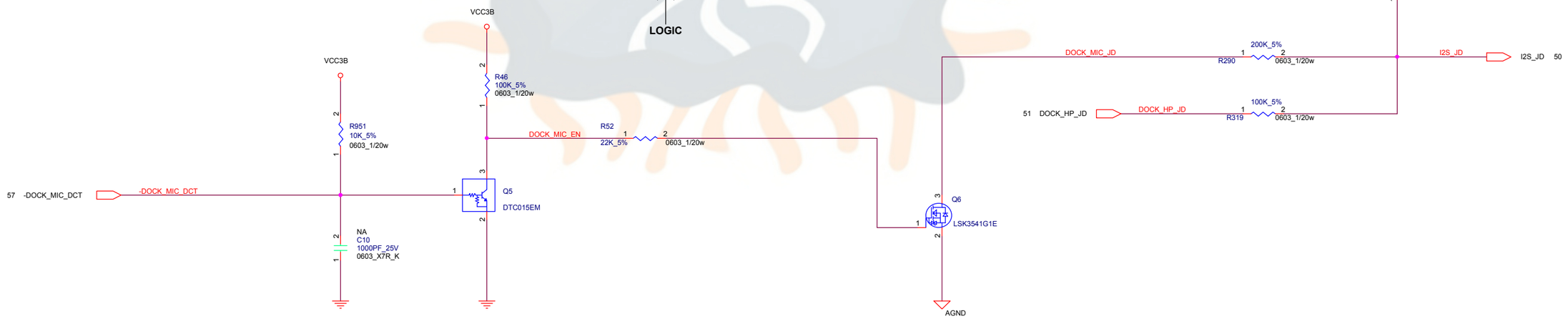
Project Name : THP1_SWG_SOVP	Title : AUDIO HP JACK DETECT
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 51 of 99



TABLE

DOCKING	SUPPORT		NON-SUPPORT
MIC HW	ENABLE	DISABLE	
R951	ASM	NO_ASM	NO_ASM
R290	ASM	NO_ASM	NO_ASM
R46	ASM	NO_ASM	NO_ASM
Q5	ASM	NO_ASM	NO_ASM
R52	ASM	NO_ASM	NO_ASM
Q6	ASM	NO_ASM	NO_ASM
R319	ASM	ASM	NO_ASM
R2572	ASM	ASM	ASM

LOGIC



Project Name : THP1_SWG_SOVP	Title : AUDIO JACK SENSE
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Rev: 8.04
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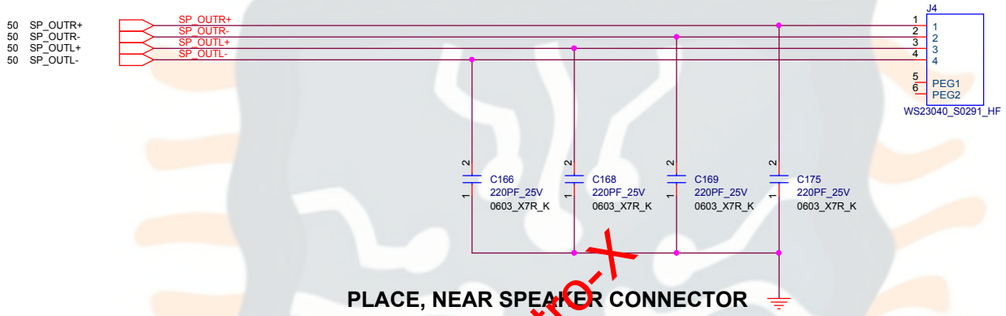
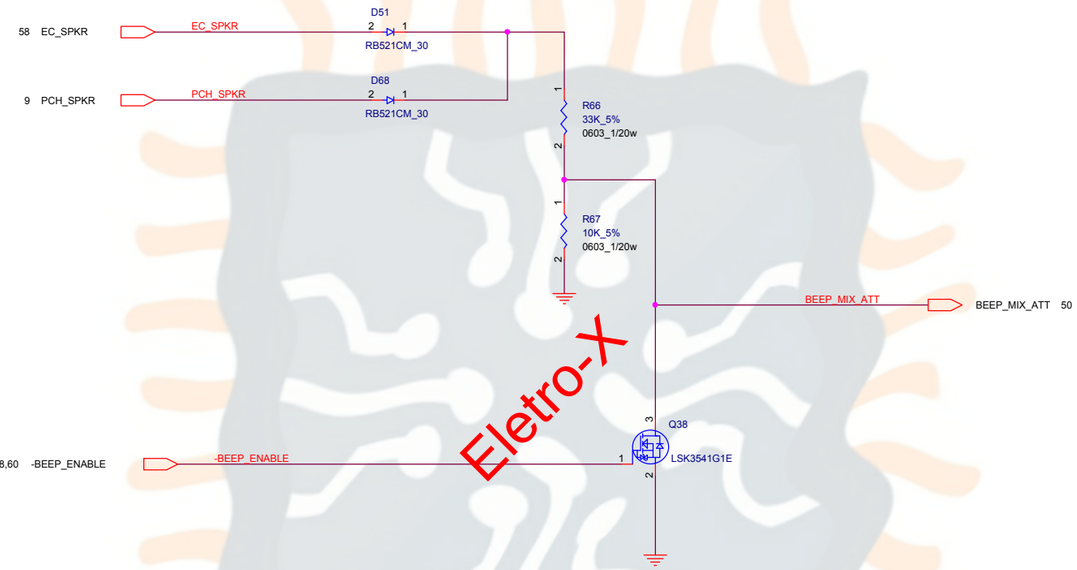


Project Name : THP1_SWG_SOVP	Title : AUDIO SPEAKER
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 94 of 95



Project Name :	THP1_SWG_SOVP
Title :	AUDIO BEEP
Size :	C
Document Number :	
Rev :	8.04
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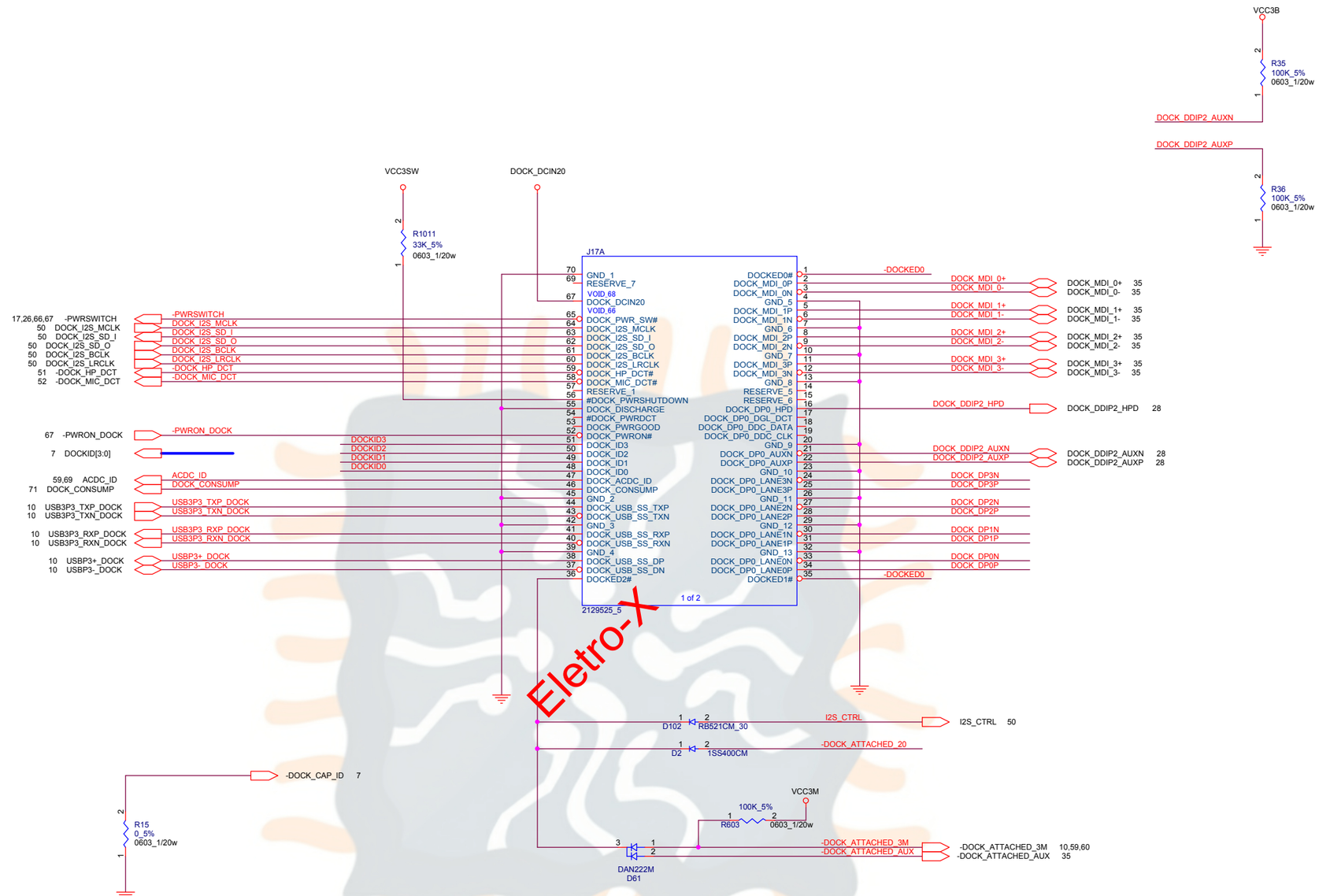
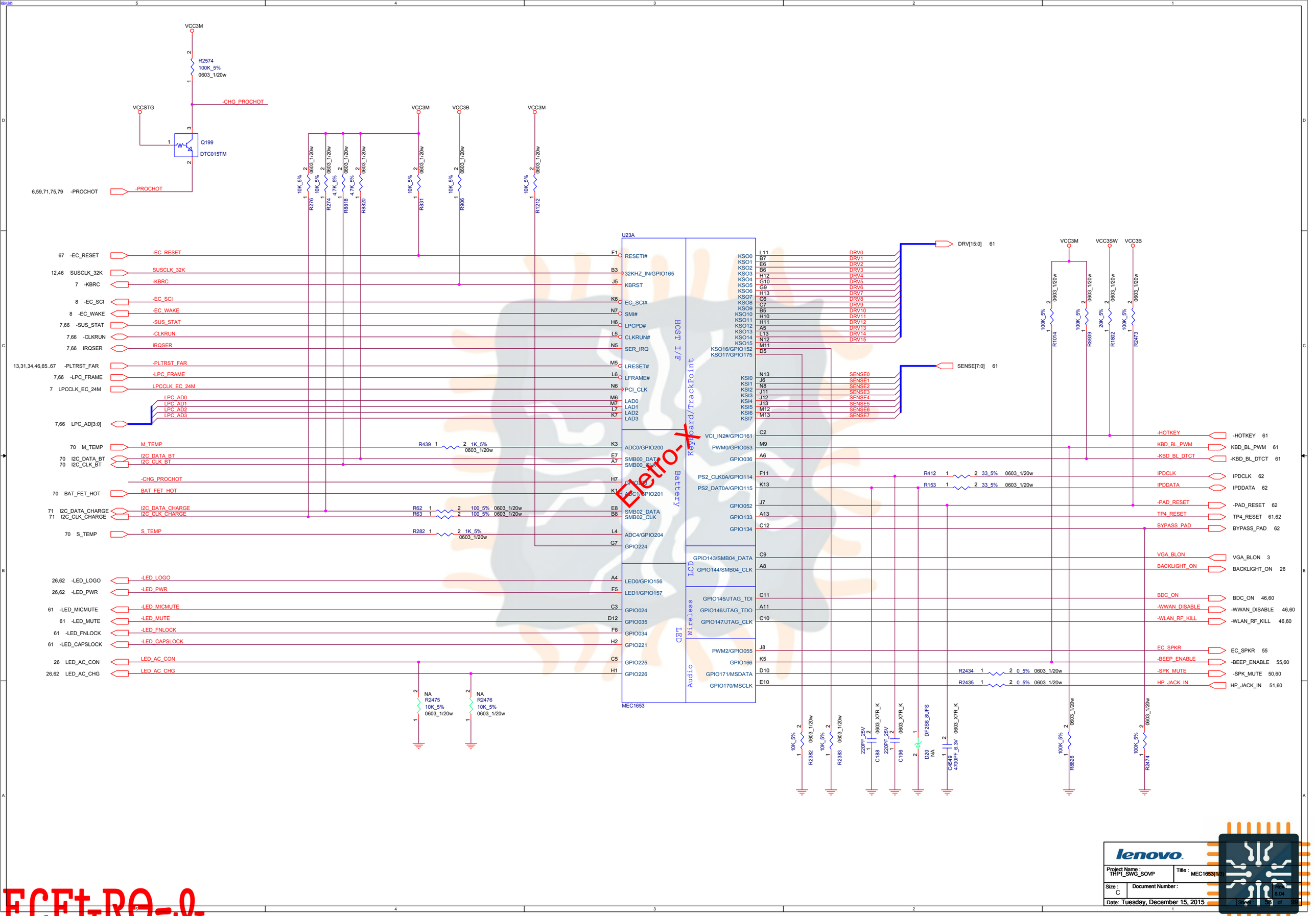
LOGIC

TABLE

ID	DOCKING SUPPORT	NON-SUPPORT
J17	ASM	NO ASM
R1011	ASM	NO ASM
D2	ASM	NO ASM
R603	ASM	ASM
D61	ASM	NO ASM
D102	ASM	NO ASM
C24	ASM	NO ASM
Q85	ASM	NO ASM
R95	ASM	NO ASM
R731	ASM	NO ASM
R657	ASM	NO ASM
C841	ASM	NO ASM
C843	ASM	NO ASM
C883	ASM	NO ASM
C887	ASM	NO ASM
C901	ASM	NO ASM
C900	ASM	NO ASM
C903	ASM	NO ASM
C902	ASM	NO ASM
R35	ASM	NO ASM
R36	ASM	NO ASM
R15	ASM	NO_ASM



Project Name : THP1_SWG_SOVP	Title : DOCKING CONNECTOR
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 37 of 90



Project Name : THP1_SWG_SOVP	Title : MEC1653(1/4)
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R258: 750_1% for New AC Adapter

VCC3M
750_1% 0603_1/20w R258
10K_5% 0603_1/20w R1152
100K_5% 0603_1/20w R2388
10K_5% 0603_1/20w R278
RB520CM_30 NA D263
100K_5% 0603_1/20w R335
100K_5% 0603_1/20w NA R827
10K_5% 0603_1/20w R2389

67 -PWRSW → -PWRSW → GPIO127/A20M D7
13 -PWRSW_EC → -PWRSW_EC → GPIO106 G2
67,71 -EXTPWR → -EXTPWR → GPIO001/PWM4 L9
57,69 ACDC_ID → ACDC_ID → ADC2/GPIO202 L2
13 AC_PRESENT → AC_PRESENT → GPIO022 E2
D7 RB521CM_30
R2090 10K_5% 0603_1/20w

13 -PCH_SLP_SUS → -PCH_SLP_SUS → GPIO140/SMB06_CLK K12
13,19 -RSMRST → -RSMRST → BGPO3/GPIO172 E3
68,86 SUS_ON1 → SUS_ON1 → BGPO1/GPIO101 B2
81,87 SUS_ON2 → SUS_ON2 → BGPO2/GPIO102 C4
13,17,67,80 -PCH_SLP_S3 → -PCH_SLP_S3 → GPIO110 G11
13,17,67,84 -PCH_SLP_S4 → -PCH_SLP_S4 → GPIO111 G12
13,27,50,59,66,68 BPWRG → BPWRG → VCC_PWRGD F3
26 -LID_CLOSE → -LID_CLOSE → VCI_IN3#/GPIO000 A1
R2560 0_5% 1005_1/16w
13 -PCH_SLP_WLAN → -PCH_SLP_WLAN → GPIO043 A12
68 VCC5_TP_ON → VCC5_TP_ON → GPIO222 M8
34,35 RJ45_LINKUP → RJ45_LINKUP → GPIO033 G3
10,57,60 -DOCK_ATTACHED_3M → -DOCK_ATTACHED_3M → GPIO150/JTAG_TMS B10
71 ISYS → ISYS → ADC5/GPIO205 N1
71 -BOOST_MODE → -BOOST_MODE → GPIO227 J4
PROCHOT_EC → LED2/GPIO153 D3

32 AOU_SEL1 → AOU_SEL1 → GPIO015/PWM7 M10
32 AOU_SEL2 → AOU_SEL2 → GPIO016 L8
32 -AOU_IFLG → -AOU_IFLG → GPIO025/UART_CLK H9
26,32 USB_ON1 → USB_ON1 → BGPO4/GPIO173 B4
32 USB_ON2 → USB_ON2 → BGPO5/GPIO174 E4

U23B MEC1653
Power Management
Thermal
USB/AOU

100K_5% 0603_1/20w R2384
D77 ESD5Z3.3T1G
100K_5% 0603_1/20w R2385
100K_5% 0603_1/20w R2386
100K_5% 0603_1/20w R2387
100K_5% 0603_1/20w R59

VCC3SW
R2579 10K_5% 0603_1/20w
Q200 LSK3541G1E
Q201 LSK3541G1E
13,68 MPWRG → MPWRG
-RSMRST

VCC3M
100K_5% 0603_1/20w R281
2.2K_5% 0603_1/20w R2418
2.2K_5% 0603_1/20w R2419

Sensor
SMB01_DATA/GPIO005 D8 → R2469 1 2 22_5% 0603_1/20w → I2C_DATA_GSENSE → I2C_DATA_GSENSE 64
SMB01_CLK/GPIO006 C8 → R2470 1 2 22_5% 0603_1/20w → I2C_CLK_GSENSE → I2C_CLK_GSENSE 64

FAN
ADC3/GPIO203 M1 → FAN_ID → FAN_ID 63
PWM1/GPIO054 N9 → FAN_ON → FAN_ON 63
FAN_TACH0/GPIO050 D6 → FAN_FRQ → FAN_FRQ 63

VREF_VTT B11 → VCCST
PECI_DAT B12 → R925 1 2 43_5% 0603_1/20w → PECI → PECI 6

SMB03_DATA/GPIO007 D9 → R68 1 2 100_5% 0603_1/20w → EC_SDA2 → EC_SDA2 7
SMB03_CLK/GPIO010 F8 → R69 1 2 100_5% 0603_1/20w → EC_SCL2 → EC_SCL2 7

SYS_SHDN# E12 → R8782 1 2 0_5% 0603_1/20w → -THRM
DP1_DN4 F10
DN1_DP4 F13
DP2_DN5 E13
DN2_DP5 D13
DP3_DN6 C13
DN3_DP6 B13
GPIO220/VIN D11
VSET E11

VCC3M
75_5% 0603_1/20w R2156 → -PROCHOT 6,58,71,75,79
place near Q133
Q133 LSK3541G1E
PROCHOT_EC
R990 100K_5% 0603_1/20w
C246 47PF_25V 0603_C0G_J

VCC3B
4.7K_5% 0603_1/20w R8783
1K_5% 0603_1/20w R8784
0.1UF_6.3V 0603_X5R_K C6307
13,27,50,59,66,68 BPWRG → BPWRG
Q141 DTC015EM
-SHUTDOWN → -SHUTDOWN 68

4.53K_1% 0603_1/20w R8792
10K_5% 0603_1/20w R8880

REMOTE DIODE 4 → C6321 2200PF_25V 0603_X7R_K; C2608 22PF_25V 0603_C0G_J; Q198 2SCR523M; C6322 22PF_25V 0603_C0G_J; Q142 2SCR523M
REMOTE DIODE 5 → C6324 2200PF_25V 0603_X7R_K; C6326 22PF_25V 0603_C0G_J; Q143 2SCR523M; C6328 22PF_25V 0603_C0G_J; Q145 2SCR523M
REMOTE DIODE 6 → C6325 2200PF_25V 0603_X7R_K; C6327 22PF_25V 0603_C0G_J; Q144 2SCR523M; C6329 22PF_25V 0603_C0G_J; Q146 2SCR523M
PLACE NEAR MEC1653 / PLACE NEAR DIODE 4 / PLACE NEAR DIODE 1 / PLACE NEAR DIODE 5 / PLACE NEAR DIODE 2 / PLACE NEAR DIODE 6 / PLACE NEAR DIODE 3

TABLE

Sensor	Device	Placed on
DIODE0	EC internal	TOP
DIODE1	CPU DC/DC	BOTTOM
DIODE2	WWAN	BOTTOM
DIODE3	Charger	BOTTOM
DIODE4	FAN	BOTTOM
DIODE5	SSD	BOTTOM
DIODE6	DIMM	BOTTOM

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Project Name : THP1_SWG_SOVP
Title : MEC1653(2/2)
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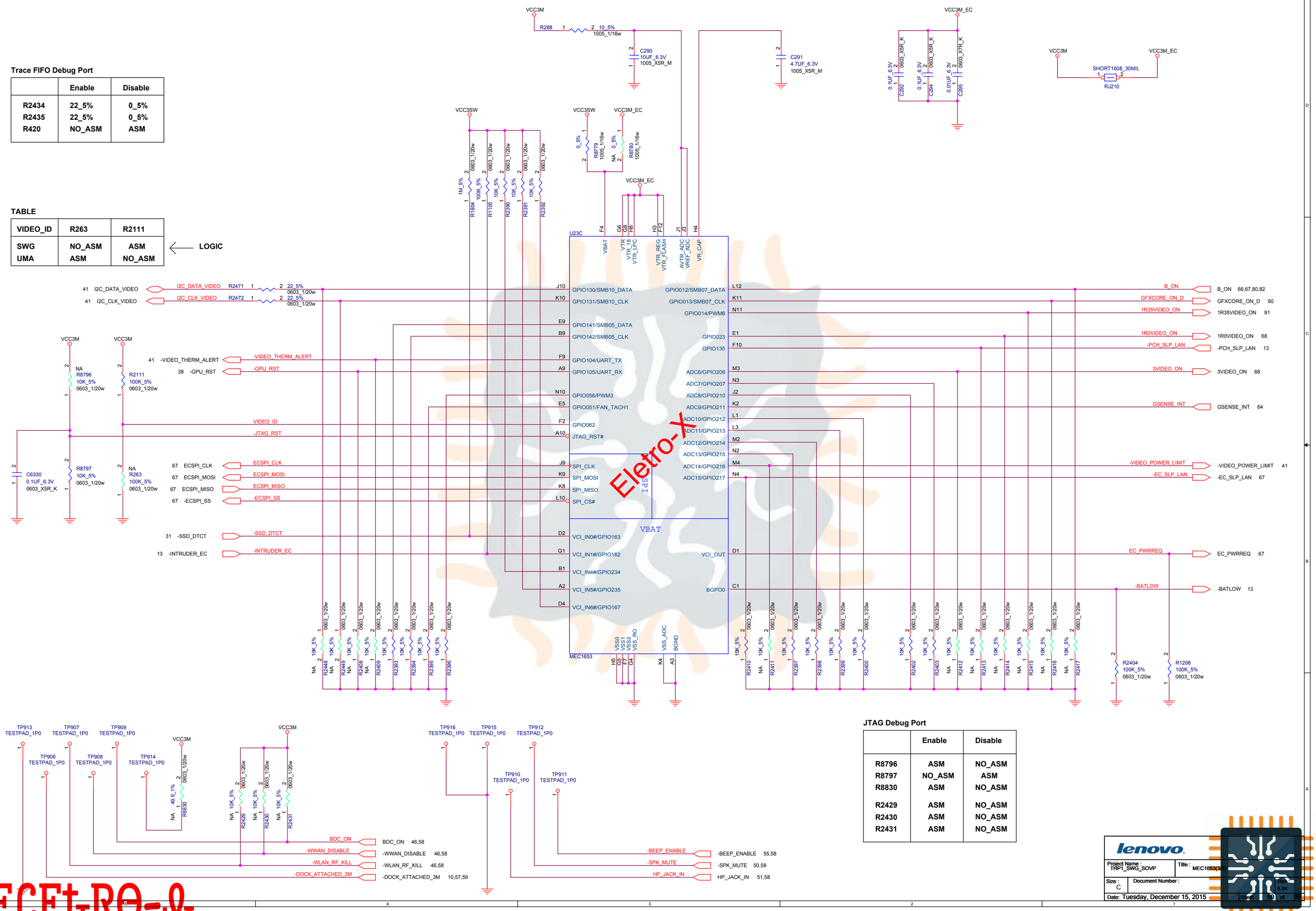
Trace FIFO Debug Port

	Enable	Disable
R2434	22_5%	0_5%
R2435	22_5%	0_5%
R420	NO_ASM	ASM

TABLE

VIDEO_ID	R263	R2111	
SWG	NO_ASM	ASM	← LOGIC
UMA	ASM	NO_ASM	



JTAG Debug Port

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

lenovo

Project Name : THP1_SWG_SOVP	Title : MEC1653(30	
Size : C	Document Number :	Rev : 8.04
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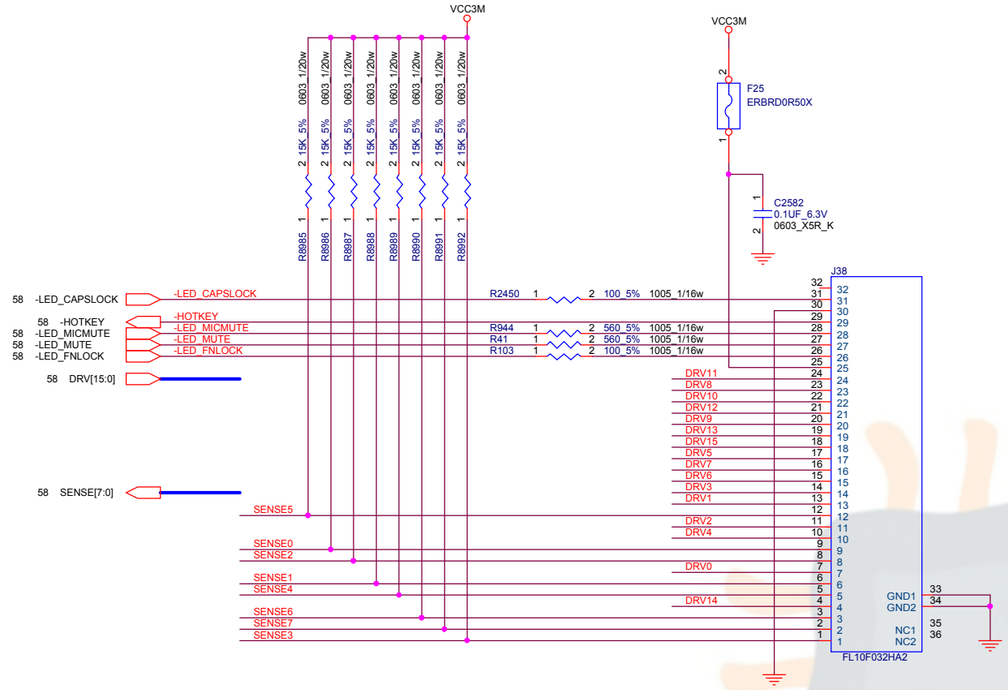
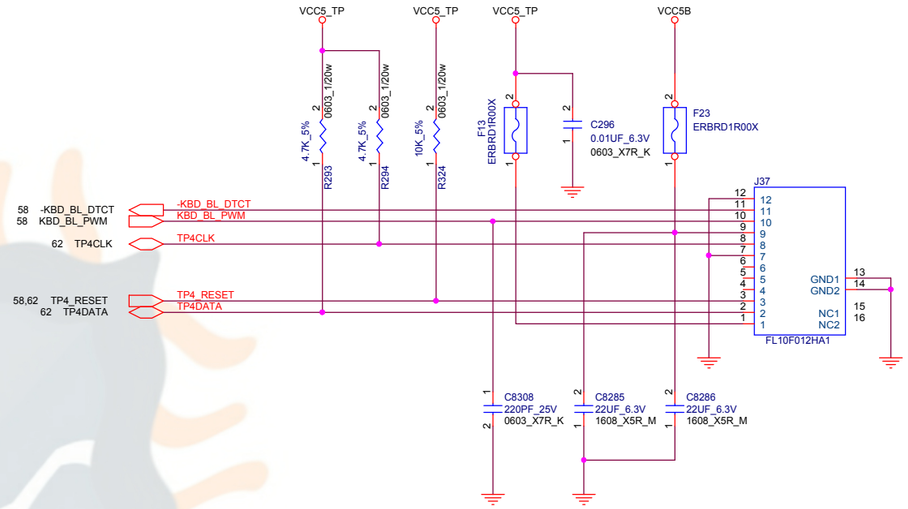
ECEtRO-Q





lenovo	
Project Name : THP1_SWG_SOVP	Title : KEYBOARD/TRACK POINT
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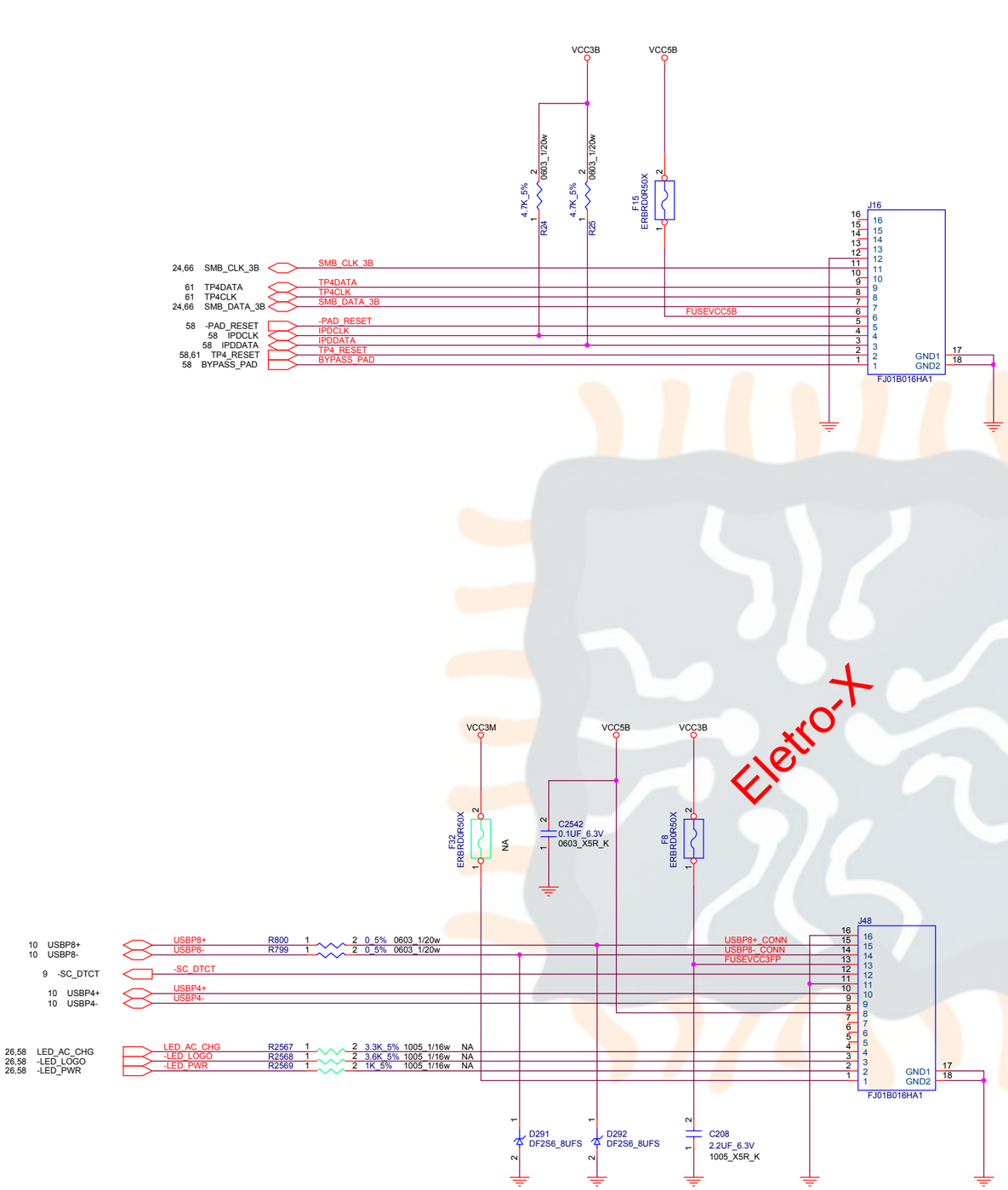
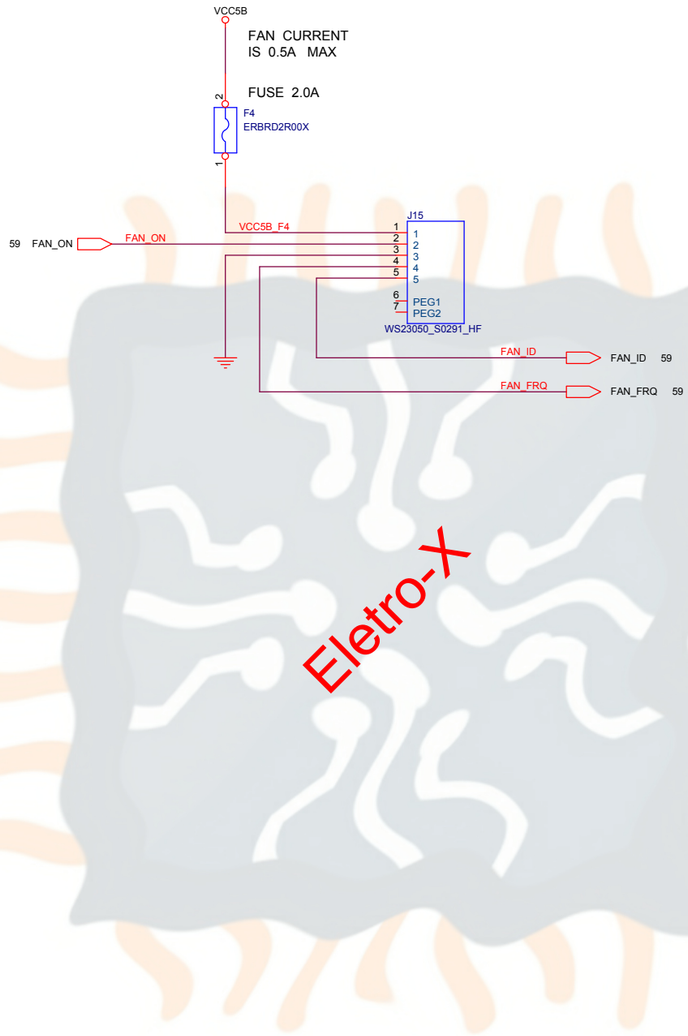


Project Name : THP1_SWG_SOVP	Title : TOUCH PAD CONN/SCR
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 62 of 90



Project Name : THP1_SWG_SOVP	Title : FAN CONNECTOR
Size : C	Document Number :
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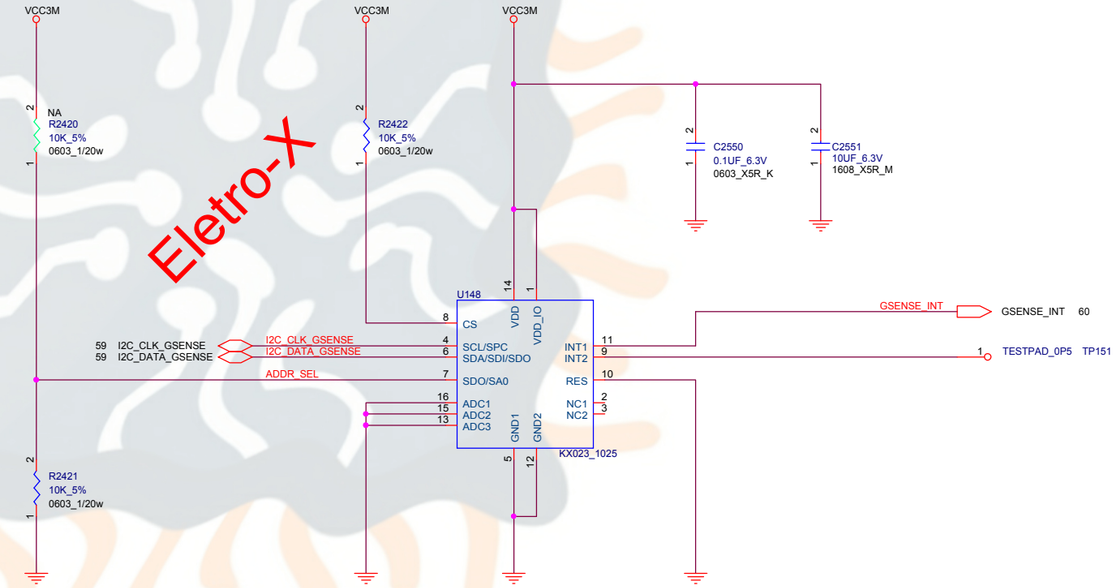
TABLE

P/N	Mode Selection
H	I2C Mode
L	SPI Mode



TABLE

P/N	ADDR_SEL	Address
KX023-1025	H	3Eh (W) & 3Fh (R)
	L	3Ch (W) & 3Dh (R)

Project Name : THP1_SWG_SOVP	Title : APS G-SENSOR
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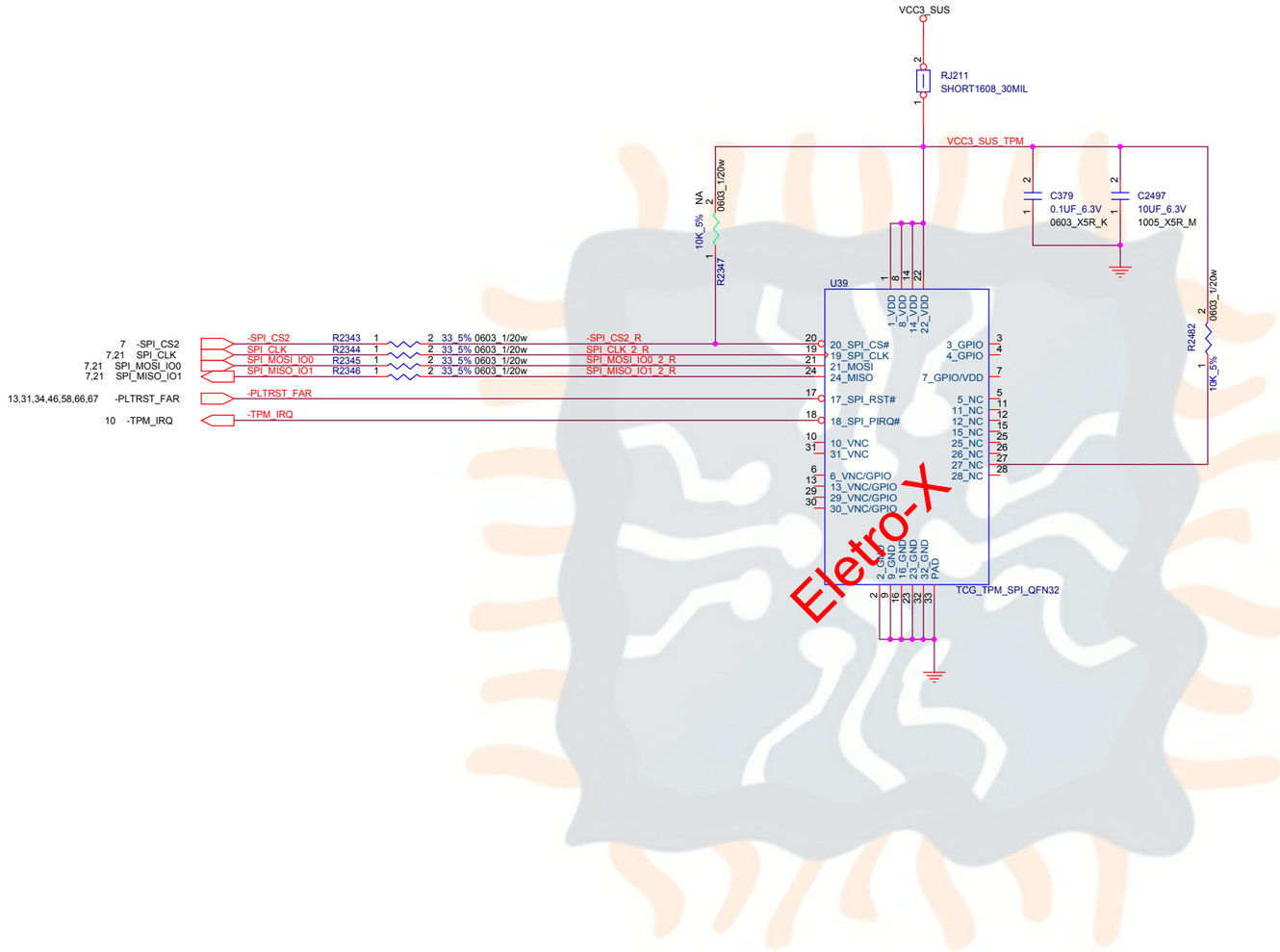


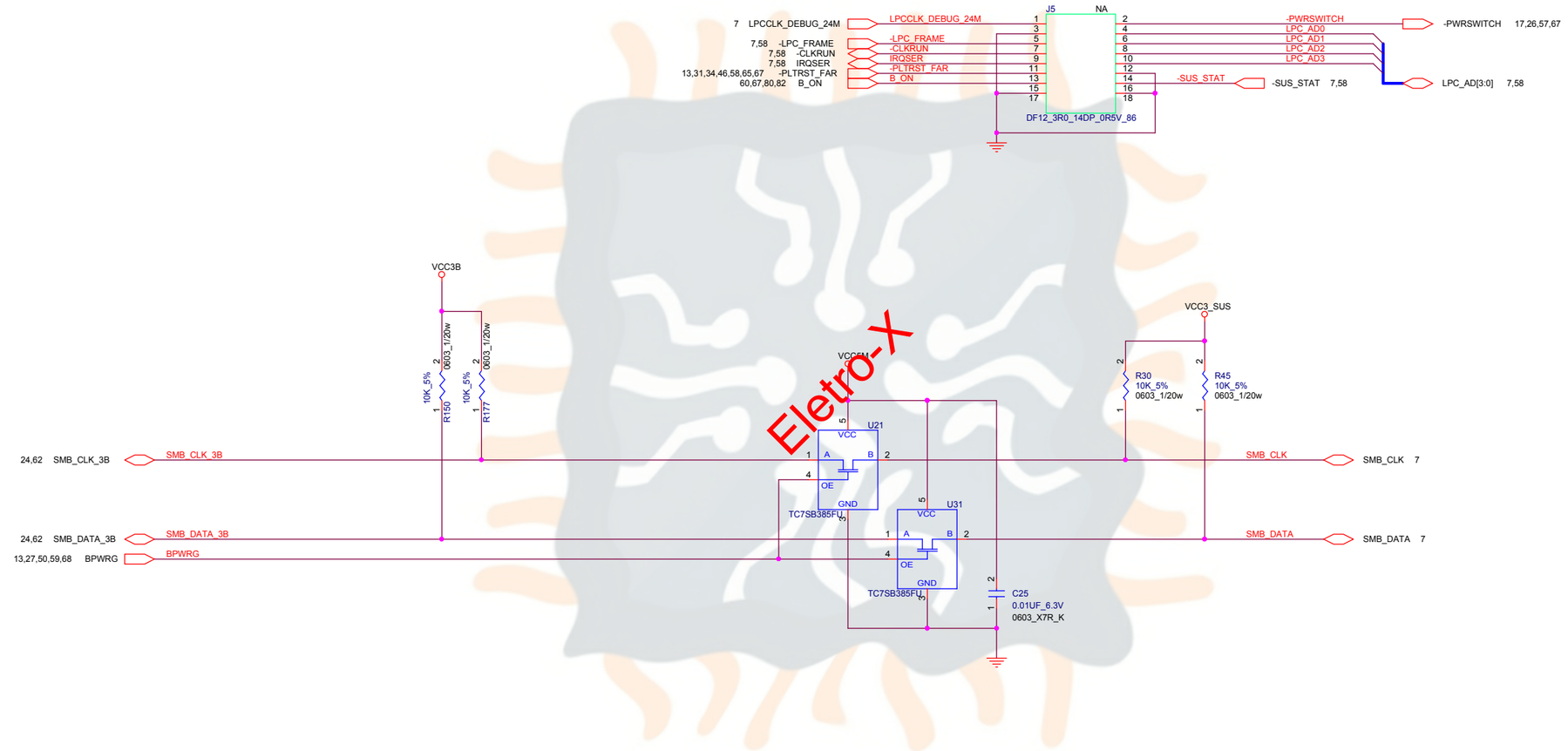
TABLE

Pin No	TCG PTP Spec (v38)	Infineon SLB9670VQ1.2 FW 6.40	ST Micro ST33HTPH2E32AAE5	Nuvoton T.B.D.
1	VDD	VDD	NC	VSB
2	GND	GND	GND	NC
3	GPIO	NC	NC	GPX/GPIO2
4	GPIO	NC	PP	PP
5	NC	NC	NC	TEST
6	VNC/GPIO	GPIO	NC	GPIO3
7	GPIO/VDD	PP	GPIO	NC
8	VDD	VDD	NC	VDD
9	GND	GND	NC	GND
10	VNC	NC	NC	NC
11	NC	NC	NC	NC
12	NC	NC	NC	Reserved
13	VNC/GPIO	NC	NC	GPIO4
14	VDD	NC	NC	VDD
15	NC	NC	NC	DNC
16	GND	NC	NC	GND
17	SPI_RST#	RST#	SPI_RST#	SPI_RST#
18	SPI_PIRQ#	PIRQ#	SPI_PIRQ#	SPI_IRQ#
19	SPI_CLK	SCLK	SPI_CLK	SCLK
20	SPI_CS#	CS#	SPI_CS#	SCS#
21	MOSI	MOSI	MOSI	MOSI
22	VDD	VDD	VPS	VDD
23	GND	GND	NC	GND
24	MISO	MISO	MISO	MISO
25	NC	NC	NC	NC
26	NC	NC	NC	NC
27	NC	NC	NC	(SERIRQ)
28	NC	NC	NC	DNC
29	VNC/GPIO	NC	NC	GPIO0
30	VNC/GPIO	NC	NC	GPIO1
31	VNC	NC	NC	NC
32	GND	GND	NC	GND

TABLE

REF DES	ENABLE	DISABLE
J5	ASM	NO_ASM
R220	ASM	NO_ASM

LOGIC



Project Name : THP1_SWG_SOVP	Title : SMBUS SWITCH/LPC DEBUG PORT
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VCC3SW
R53 1 47K_5% 2 0603_1/20w -EXTPWR_ASIC
VL5
R301 1 10K_5% 2 0603_1/20w
Q65
1000PF_25V
C529 0603_X7R_K
LSK3541G1E
59,71 -EXTPWR -EXTPWR

VCC3B
R2557
10K_5%
0603_1/20w
CPUCORE_ON_ASIC D285 RB521CM_30
-PCH_SLP_S3 D286 RB521CM_30
CPUCORE_ON CPUCORE_ON 13,75,79,88,89

VCC3SW
0.01UF_6.3V 0603_X7R_K C254
0.01UF_6.3V 0603_X7R_K C273
0.01UF_6.3V 0603_X7R_K C283

VCC3SW
100K_5% 0603_1/20w R2405
100K_5% 0603_1/20w R2406
100K_5% 0603_1/20w R701
100K_5% 0603_1/20w R821

U101A
ThinkEngine_2
1/2

-EXTPWR_ASIC → F5 EXTPWR#
13,17,59,80 -PCH_SLP_S3 → H7 SLP_S3#
13,17,59,84 -PCH_SLP_S4 → J7 SLP_S4#
13,17 -PCH_SLP_S5 → J8 SLP_S5#
60 -EC_SLP_LAN → G6 SLP_LAN#
13,17 -PCH_SLP_M → F6 SLP_M#
H6 SUS_PWR_ACK
13,31,34,46,58,65,66 -PLTRST_FAR → A7 PLTRST#
-PWRSW_ASIC → F8 PWRSW#
13,46 -PCIE_WAKE → F7 PME#
C6 PGPIO0
60 EC_PWRREQ → C7 PGPIO1 EC_PWRREQ
C8 PGPIO2
C9 PGPIO3
D8 PGPIO4
A8 PGPIO5
68,69 DISCHARGE → DISCHARGE

TP153 TESTPAD_0P5 A1 NC1
TP154 TESTPAD_0P5 A9 NC2
TP155 TESTPAD_0P5 J1 NC3
TP156 TESTPAD_0P5 J9 NC4

G5 TEST

MON E7 → M_ON 74
LANON D9 → VCCLAN_ON 68
MEON E8
AON F9 → A_ON 82,83,85
BON E9 → B_ON 60,66,80,82
CPUON E6 ← CPUCORE_ON_ASIC
PWRON_DOCK# B8 → -PWRON_DOCK 57
EC_RST# B6 → -EC_RESET 58
MTRCL H3 → M_TRCL 72
STRCL G3 → S_TRCL 72
BATCRG B7 → BAT_CRG 72
SPICLK H9 ECSPI_CLK_R → R921 33_5% → ECSPI_CLK 60
SPIMOSI H8 ECSPI_MOSI_R → R928 33_5% → ECSPI_MOSI 60
SPISS# G8 -ECSPI_SS_R → R931 33_5% → -ECSPI_SS 60
SPIMISO G7 ECSPI_MISO_R → R463 0_5% → ECSPI_MISO 60

100K_5% 0603_1/20w R711
100K_5% 0603_1/20w R1882
100K_5% 0603_1/20w R875
100K_5% 0603_1/20w R850
100K_5% 0603_1/20w R907

M_ON TESTPAD_0P5 TP157
VCCLAN_ON TESTPAD_0P5 TP158
A_ON TESTPAD_0P5 TP159

VCC3M
R865 10K_5% 0603_1/20w
D1 RB521CM_30
-PWRSW → -PWRSW 59
17,26,57,66 -PWRSWITCH → D76 1SS400CM → -PWRSW_ASIC
VCC3SW
R870 4.7K_5% 0603_1/20w
C316 0.22UF_6.3V 0603_X5R_K

Elektro-X

Project Name : THP1_SWG_SOVP	Title : THINK ENGINE 2(1/2)
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ECEtRO-Q

R413, R422 : Need Anti-surge Chip Resistors

REFER TO VCPIN25 CIRCUIT

U101B ThinkEngine_2 2/2

ID	Target
RT1	S_BAT_PWR to S_BAT_PWR_A FET (Q156, Q10)
RT2	VCCCSA DrMOS (U136)
RT3	VCCCPUCORE DrMOS (U133)
RT4	VCCGFXCORE_I DrMOS (U134, U135)
RT5	DOCK_PWR20_IN to DOCK_PWR20 FET (Q85)
RT6	DCIN_PWR20_F to CV20 FET (Q9)
RT7	CV20 to VINT20 FET (Q36)
RT8	VCCGFXEXT IC (U138)
RT9	CPU Die (U58)
RT10	VCC3M Switching VR Dual FET (Q18)
RT11	VCC5M Switching VR Dual FET (Q16)
RT12	VCCGFXCORE_D MOS (Q135, Q137)
RT13	Battery Chager Dual FET (Q196)
RT14	M_BAT_PWR to M_BAT_PWR_A FET (Q8, Q34)

Project Name : THP1_SWG_SOVP
Title : THINK ENGINE_2(2/2)
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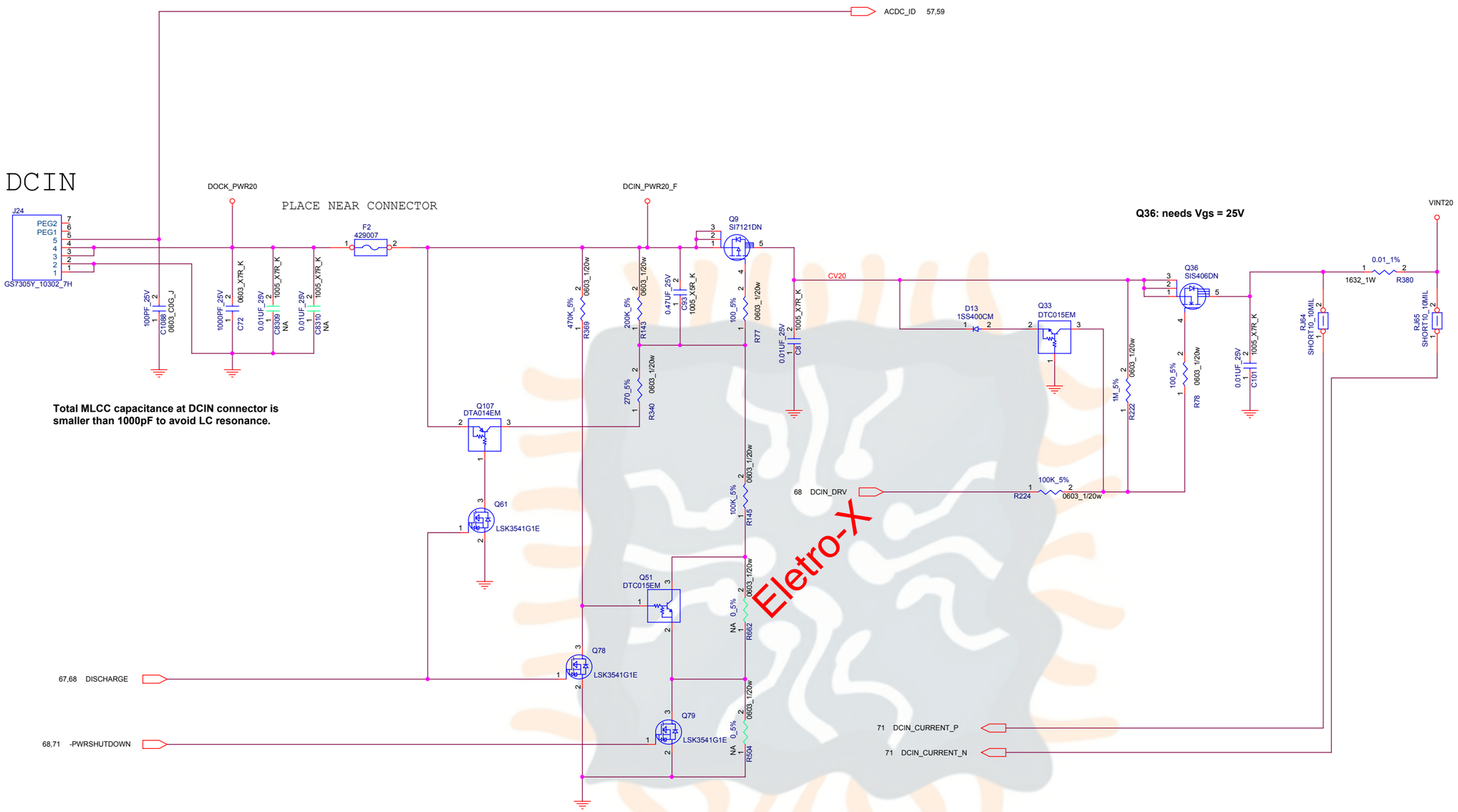
DCIN



TABLE

PEAK SHIFT	YES	NO
R662	NO-ASM	ASM
R369	ASM	NO-ASM
Q78	ASM	NO-ASM
Q51	ASM	NO-ASM

LOGIC

Project Name : THP1_SWG_SOVP	Title : DC-IN
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MAIN BAT CONN

WIDE PATTERN

VCC3M

R328 6.19K_1% 0603_1/20w

J13 2041552-1

M_BAT_IN

M-BAT-PWR

F12 3216FF10_R

R273 100_5% 0603_1/20w

R271 100_5% 0603_1/20w

I2C_CLK_BT 58,70

I2C_DATA_BT 58,70

M_TEMP 58

390PF_25V NA C407 0603_X7R_K

2200PF_25V C199 0603_X7R_K

390PF_25V NA C203 0603_X7R_K

2200PF_25V C207 0603_X7R_K

Q8: needs Vgs = 25V

Q8 SIS406DN

68 M1_DRV

R634 100K_5% 0603_1/20w

M_BAT_PWR_A

BAT-PWR12

Q34 SI7129DN

R483 510K_5% 0603_1/20w

R79 100_5% 0603_1/20w

68 M2_DRV

R638 150K_5% 0603_1/20w

Q13: needs Vgs = 25V

Q13 SIS406DN

VINT20

R1860 27K_5% 0603_1/20w

R1861 750K_5% 0603_1/20w

C1827 1500PF_25V 0603_X7R_K

C722 0.01UF_25V 1005_X7R_K

D251 1SS400CM

68 BAT_DRV

VCC3M

R292 6.19K_1% 0603_1/20w

J35 2041552-1

S_BAT_IN

S-BAT-PWR

F11 3216FF10_R

R265 100_5% 0603_1/20w

R332 100_5% 0603_1/20w

I2C_CLK_BT 58,70

I2C_DATA_BT 58,70

S_TEMP 58

390PF_25V NA C201 0603_X7R_K

2200PF_25V C193 0603_X7R_K

390PF_25V NA C195 0603_X7R_K

2200PF_25V C198 0603_X7R_K

Q156: needs Vgs = 25V

Q156 SIS406DN

Eletro-X

68 S1_DRV

R8972 100K_5% 0603_1/20w

S_BAT_PWR_A

Q10 SI7129DN

R284 510K_5% 0603_1/20w

R80 100_5% 0603_1/20w

68 S2_DRV

R636 150K_5% 0603_1/20w

VCC3B

0.1UF_6.3V C663 0603_X5R_K

4.7K_5% R445 0603_1/20w

BAT_FET_HOT 58

RT15 PRF18BB541NB8RC

NEAR TO Q13

DOCK_DCIN20

F14 ERBRD0R50X

D22 DAN222M

VREGIN20

DCIN_PWR20_F

F5 ERBRD0R50X

D10 DAN222M

M-BAT-PWR

M-BAT-TRCL

F9 ERBRD0R50X

D19 DAN222M

S-BAT-PWR

S-BAT-TRCL

F10 ERBRD0R50X

D23 DAN222M

Project Name : THP1_SWG_SOVP	Title : BATTERY IN/OUT
Size : C	Document Number :
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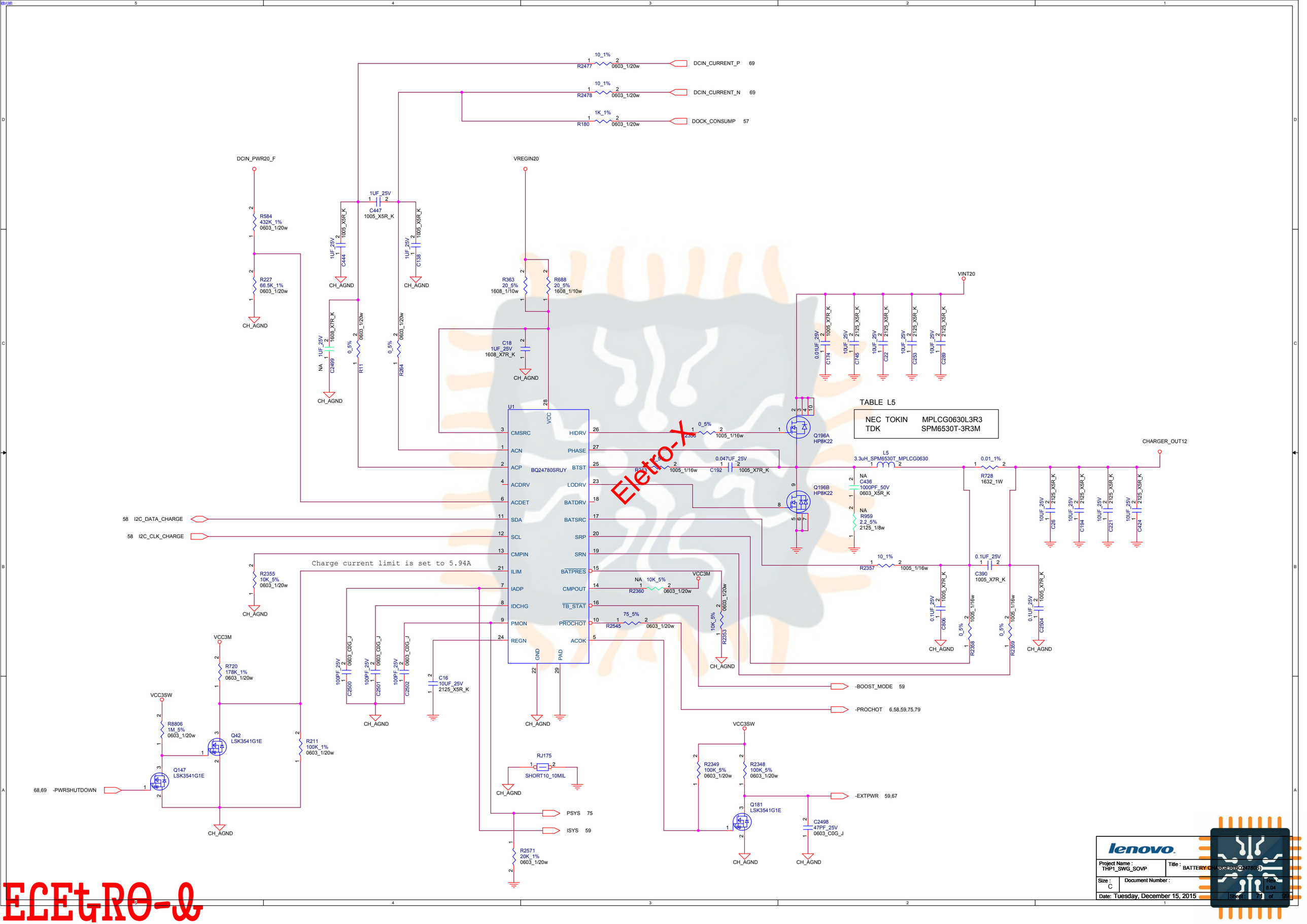
ECEtRO-Q



Project Name :	THP1_SWG_SOVP
Title :	BATTERY CHARGER(BQ24780S)
Size :	C
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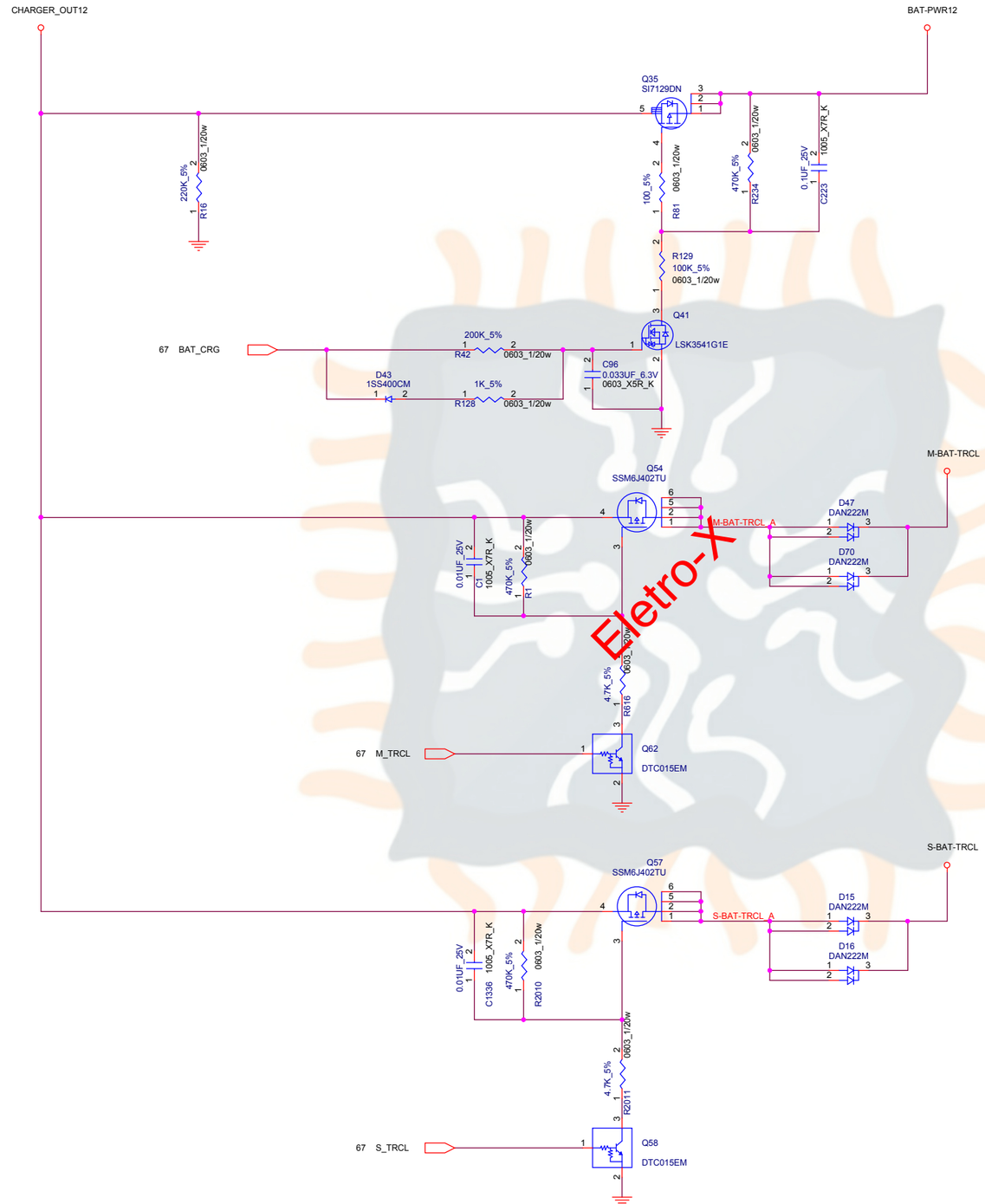

lenovo			
Project Name : THP1_SWG_SOVP		Title : CHARGER SELECTOR	
Size : C	Document Number :		Rev : 8.04
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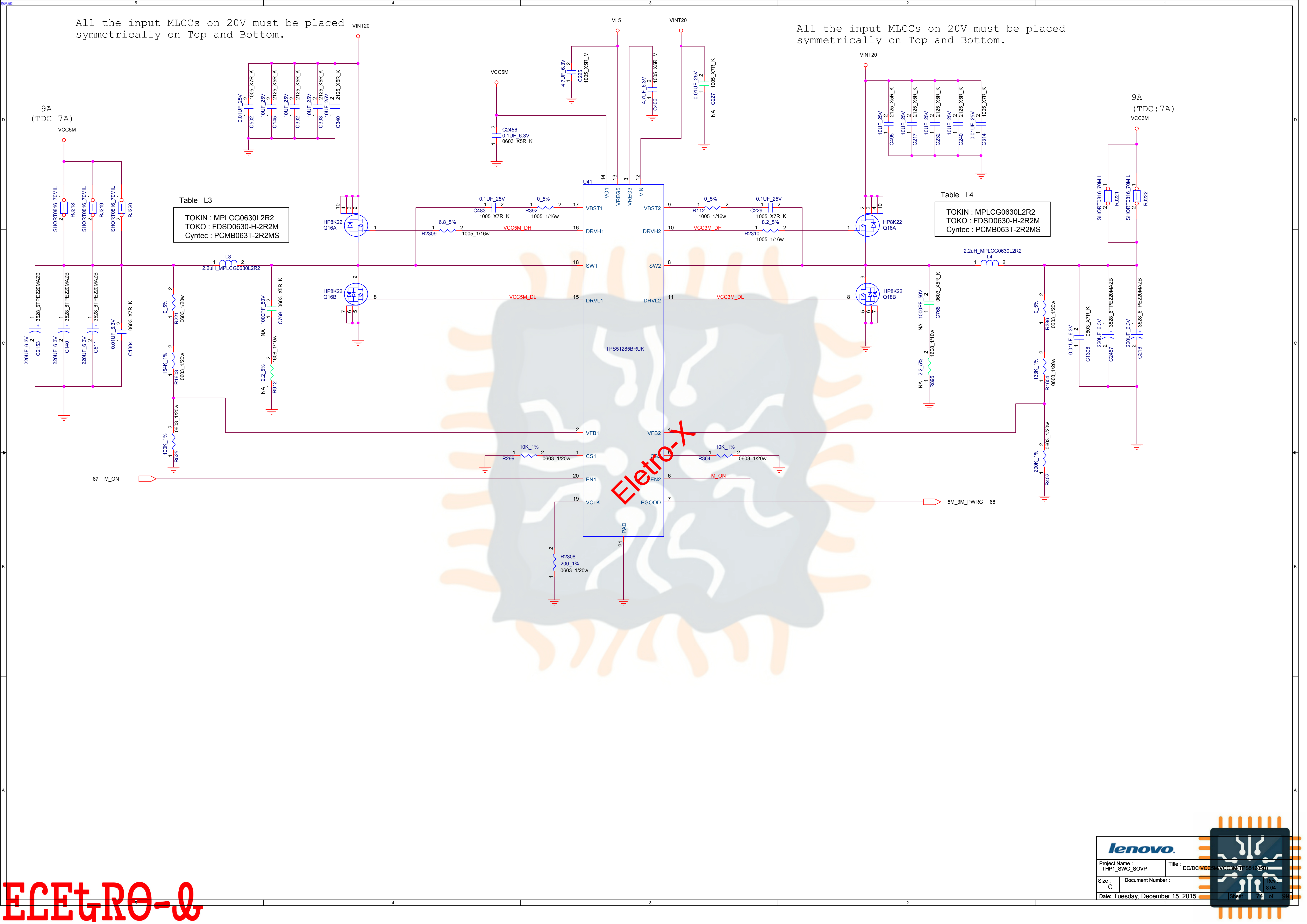
All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.
All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.
VINT20
VL5
VCC5M
VCC3M
9A (TDC 7A)
9A (TDC:7A)
Table L3
TOKIN : MPLCG0630L2R2
TOKO : FDSD0630-H-2R2M
Cyntec : PCMB063T-2R2MS
Table L4
TOKIN : MPLCG0630L2R2
TOKO : FDSD0630-H-2R2M
Cyntec : PCMB063T-2R2MS
U41
TPS51285BRUK
VO1
VREG5
VREG3
VIN
VBST1
DRVH1
SW1
DRVL1
VFB1
CS1
EN1
VCLK
VBST2
DRVH2
SW2
DRVL2
VFB2
CS2
EN2
PGOOD
PAD
HP8K22 Q16A
HP8K22 Q16B
HP8K22 Q18A
HP8K22 Q18B
L3 2.2uH_MPLCG0630L2R2
L4 2.2uH_MPLCG0630L2R2
VCC5M_DH
VCC5M_DL
VCC3M_DH
VCC3M_DL
C483 0.1UF_25V 1005_X7R_K
R392 0_5% 1005_1/16w
R2309 6.8_5% 1005_1/16w
R112 0_5% 1005_1/16w
C229 0.1UF_25V 1005_X7R_K
R2310 8.2_5% 1005_1/16w
C2456 0.1UF_6.3V 0603_X5R_K
C225 4.7UF_6.3V 1005_X5R_M
C406 4.7UF_6.3V 1005_X5R_M
C227 0.01UF_25V 1005_X7R_K NA
R299 10K_1% 0603_1/20w
R364 10K_1% 0603_1/20w
R2308 200_1% 0603_1/20w
R221 0_5% 0603_1/20w
R1603 154K_1% 0603_1/20w
R525 100K_1% 0603_1/20w
R386 0_5% 0603_1/20w
R1604 133K_1% 0603_1/20w
R402 200K_1% 0603_1/20w
C769 1000PF_50V 0603_X5R_K NA
R912 2.2_5% 1608_1/10w NA
C768 1000PF_50V 0603_X5R_K NA
R895 2.2_5% 1608_1/10w NA
RJ218 SHORT0816_70MIL
RJ219 SHORT0816_70MIL
RJ220 SHORT0816_70MIL
RJ221 SHORT0816_70MIL
RJ222 SHORT0816_70MIL
C2153 220UF_6.3V 3528_6TPE220MAZB
C140 220UF_6.3V 3528_6TPE220MAZB
C511 220UF_6.3V 3528_6TPE220MAZB
C1304 0.01UF_6.3V 0603_X7R_K
C1306 0.01UF_6.3V 0603_X7R_K
C2457 220UF_6.3V 3528_6TPE220MAZB
C216 220UF_6.3V 3528_6TPE220MAZB
C502 0.01UF_25V 1005_X7R_K
C145 10UF_25V 2125_X5R_K
C392 10UF_25V 2125_X5R_K
C393 10UF_25V 2125_X5R_K
C340 10UF_25V 2125_X5R_K
C495 10UF_25V 2125_X5R_K
C217 10UF_25V 2125_X5R_K
C232 10UF_25V 2125_X5R_K
C240 10UF_25V 2125_X5R_K
C314 0.01UF_25V 1005_X7R_K
67 M_ON
M_ON
5M_3M_PWRG 68
lenovo
Project Name : THP1_SWG_SOVP
Title : DC/DC VCC5M/VCC3M (TPS51285B)
Size : C
Document Number :
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Eletro-X
ELETRO-X

U137 NCP81208

TABLE R2190, R2206

YDS Metal-film	RR0306P-302-D
Panasonic Thin-film	ERA1AEC302C

TABLE R2200 1005SIZE

YDS Thin-film	RR0510P-623-D (1%)
Panasonic Thin-film	ERA2AED623X (0.5%)
KOA Metal film	RN731ETTD6202F25 (1%)
Vishay Thin-film	P-0402E6202FST1 (1%)

TABLE R2201 1005 SIZE

YDS Thin-film	RR0510P-9312-F
Panasonic Thin-film	ERA2AED9312X
KOA Metal film	RN731ETTD9312F25
Vishay Thin-film	P-0402E9312FST1

Project Name : THP1_SWG_SOVP
Title : DC/DC IMVP8 CONTROLLER(NCP81208)
Size : C
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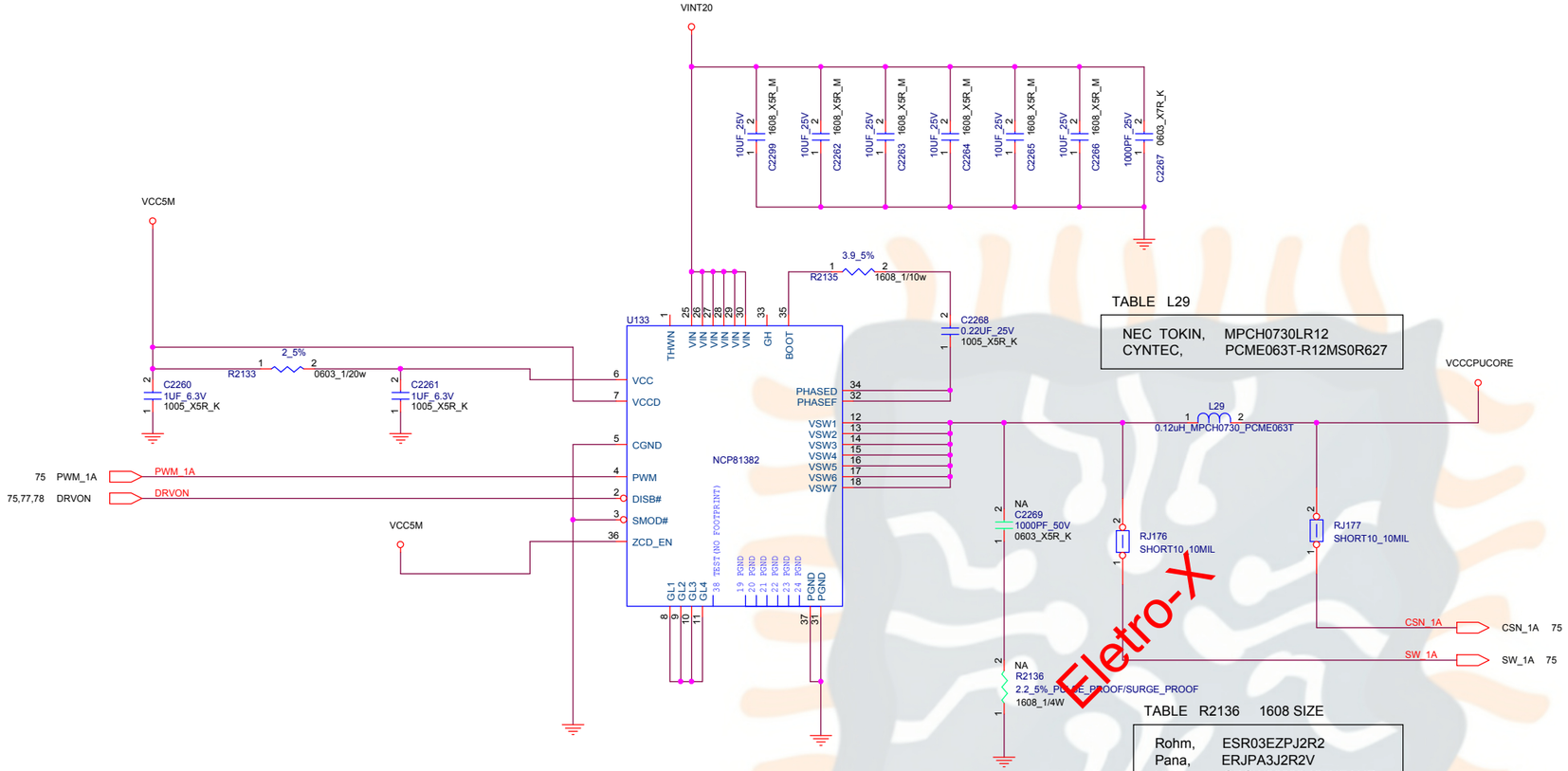
VINT20
10UF_25V 1608_X5R_M C2299
10UF_25V 1608_X5R_M C2262
10UF_25V 1608_X5R_M C2263
10UF_25V 1608_X5R_M C2264
10UF_25V 1608_X5R_M C2265
10UF_25V 1608_X5R_M C2266
1000PF_25V 0603_X7R_K C2267
VCC5M
3.9_5%
R2135
1608_1/10w
C2268
0.22UF_25V
1005_X5R_K
U133
THWN
VIN
GH
BOOT
PHASED
PHASEF
VSW1
VSW2
VSW3
VSW4
VSW5
VSW6
VSW7
VCC
VCCD
CGND
PWM
DISB#
SMOD#
ZCD_EN
GL1
GL2
GL3
GL4
TEST(NO FOOTPRINT)
PGND
NCP81382
2_5%
R2133
0603_1/20w
C2260
1UF_6.3V
1005_X5R_K
C2261
1UF_6.3V
1005_X5R_K
75 PWM_1A
PWM_1A
75,77,78 DRVON
DRVON
VCC5M
TABLE L29
NEC TOKIN, MPCH0730LR12
CYNTEC, PCME063T-R12MS0R627
VCCCPUCORE
L29
0.12uH_MPCH0730_PCME063T
NA
C2269
1000PF_50V
0603_X5R_K
RJ176
SHORT10_10MIL
RJ177
SHORT10_10MIL
CSN_1A
CSN_1A 75
SW_1A
SW_1A 75
NA
R2136
2.2_5%_PULSE_PROOF/SURGE_PROOF
1608_1/4W
TABLE R2136 1608 SIZE
Rohm, ESR03EZPJ2R2
Pana, ERJPA3J2R2V
Vishay, CRCW06032R2JNEAHP
YDS, RN73S2CL-2R20-F
20pcs 22uF for VCCCPUCORE
VCCCPUCORE
22UF_6.3V 1608_X5R_M C6387
22UF_6.3V 1608_X5R_M C6396
22UF_6.3V 1608_X5R_M C6397
22UF_6.3V 1608_X5R_M C6398
22UF_6.3V 1608_X5R_M C6399
22UF_6.3V 1608_X5R_M C6400
22UF_6.3V 1608_X5R_M C6401
22UF_6.3V 1608_X5R_M C6402
22UF_6.3V 1608_X5R_M C6403
22UF_6.3V 1608_X5R_M C6404
VCCCPUCORE
22UF_6.3V 1608_X5R_M C6405
22UF_6.3V 1608_X5R_M C6406
22UF_6.3V 1608_X5R_M C6407
22UF_6.3V 1608_X5R_M C6408
22UF_6.3V 1608_X5R_M C6409
22UF_6.3V 1608_X5R_M C6410
VCCCPUCORE
NA
C2613
330UF_2.5V
3528_ETPE330MA9GB_PSGB20E337M9
C77
330UF_2.5V
3528_ETPE330MA9GB_PSGB20E337M9
22UF_6.3V 1608_X5R_M C2198
22UF_6.3V 1608_X5R_M C2199
22UF_6.3V 1608_X5R_M C2611
22UF_6.3V 1608_X5R_M C2612
Table for C77,C2613:
Panasonic ETPE330MA9GB
NEC TOKIN PSGB20E337M9
Eletro-X
ECEtRO-Q
lenovo
Project Name : THP1_SWG_SOVP
Title : DC/DC VCCCPUCORE (NCP81382)
Size : C
Document Number :
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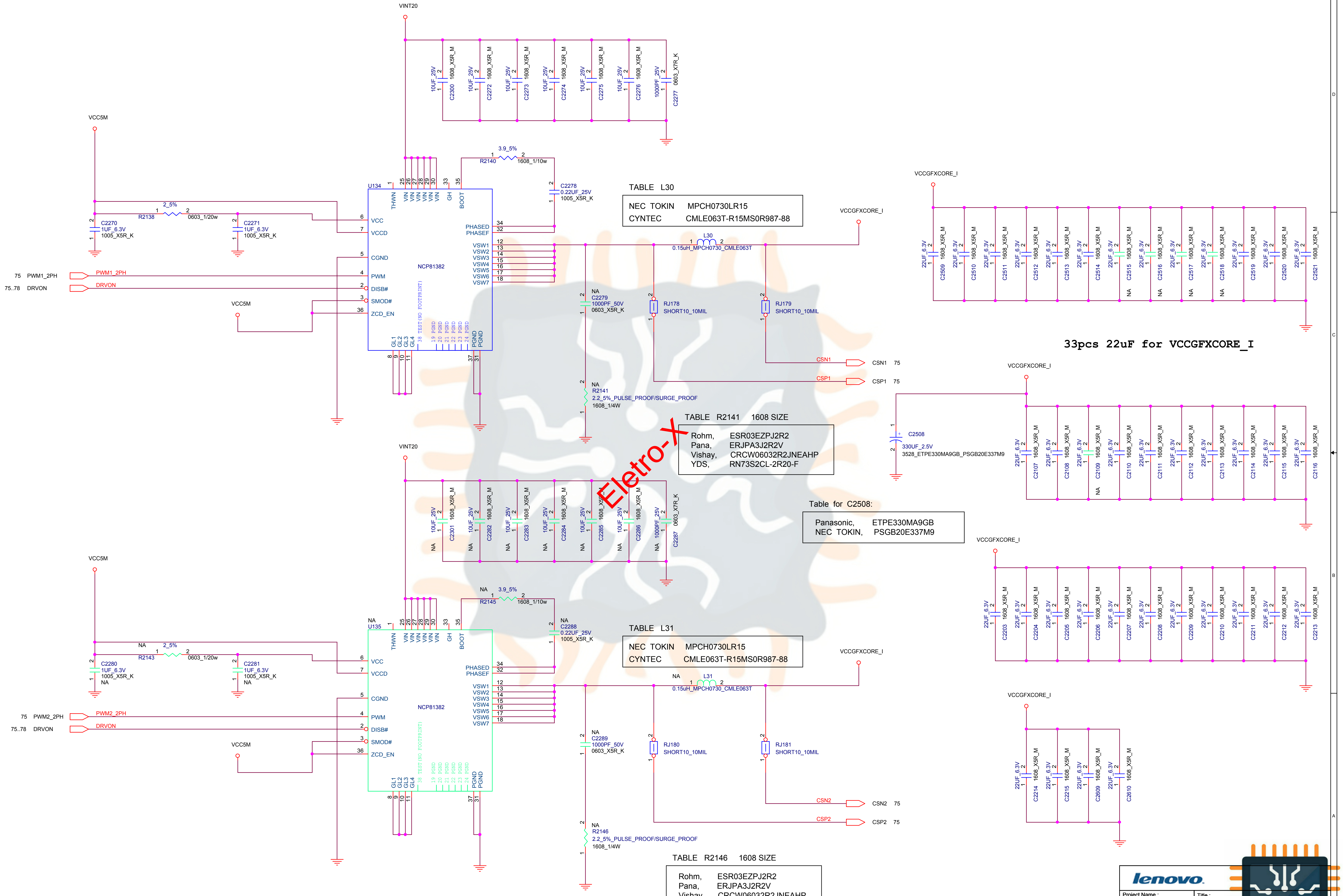

TABLE L30

NEC TOKIN	MPCH0730LR15
CYNTEC	CMLE063T-R15MS0R987-88

TABLE R2141 1608 SIZE

Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
Vishay,	CRCW06032R2JNEAHP
YDS,	RN73S2CL-2R20-F

Table for C2508:

Panasonic,	ETPE330MA9GB
NEC TOKIN,	PSGB20E337M9

TABLE L31

NEC TOKIN	MPCH0730LR15
CYNTEC	CMLE063T-R15MS0R987-88

TABLE R2146 1608 SIZE

Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
Vishay,	CRCW06032R2JNEAHP
YDS,	RN73S2CL-2R20-F

lenovo

Project Name : THP1_SWG_SOVP

Title : DC/DC VCCGFXCORE_I(NCP81382)

Size : C

Document Number :

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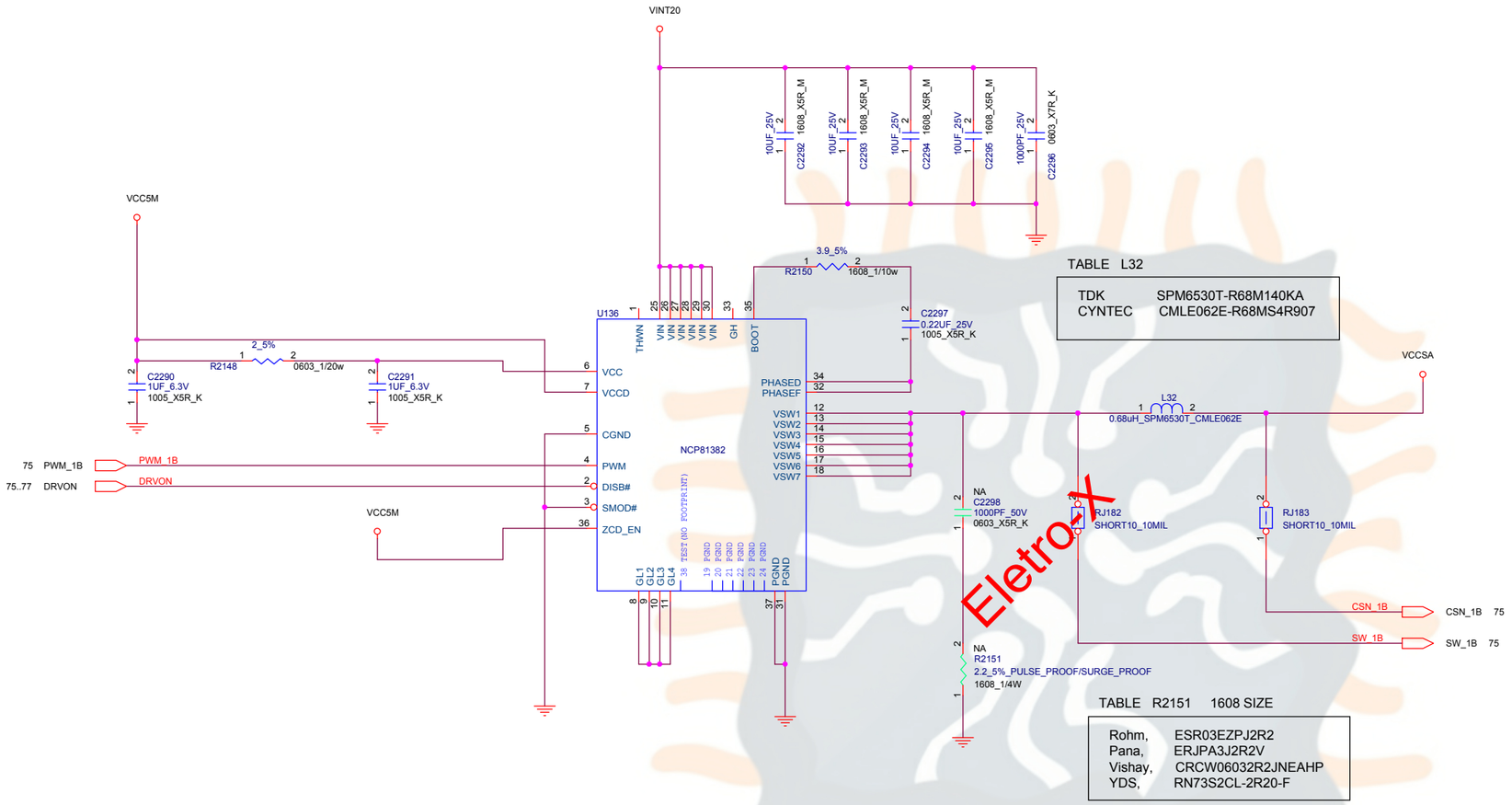
Date: Tuesday, December 15, 2015



Project Name : THP1_SWG_SOVP	Title : DC/DC VCCSA(NCP81382)
Size : C	Document Number : Rev : 8.04
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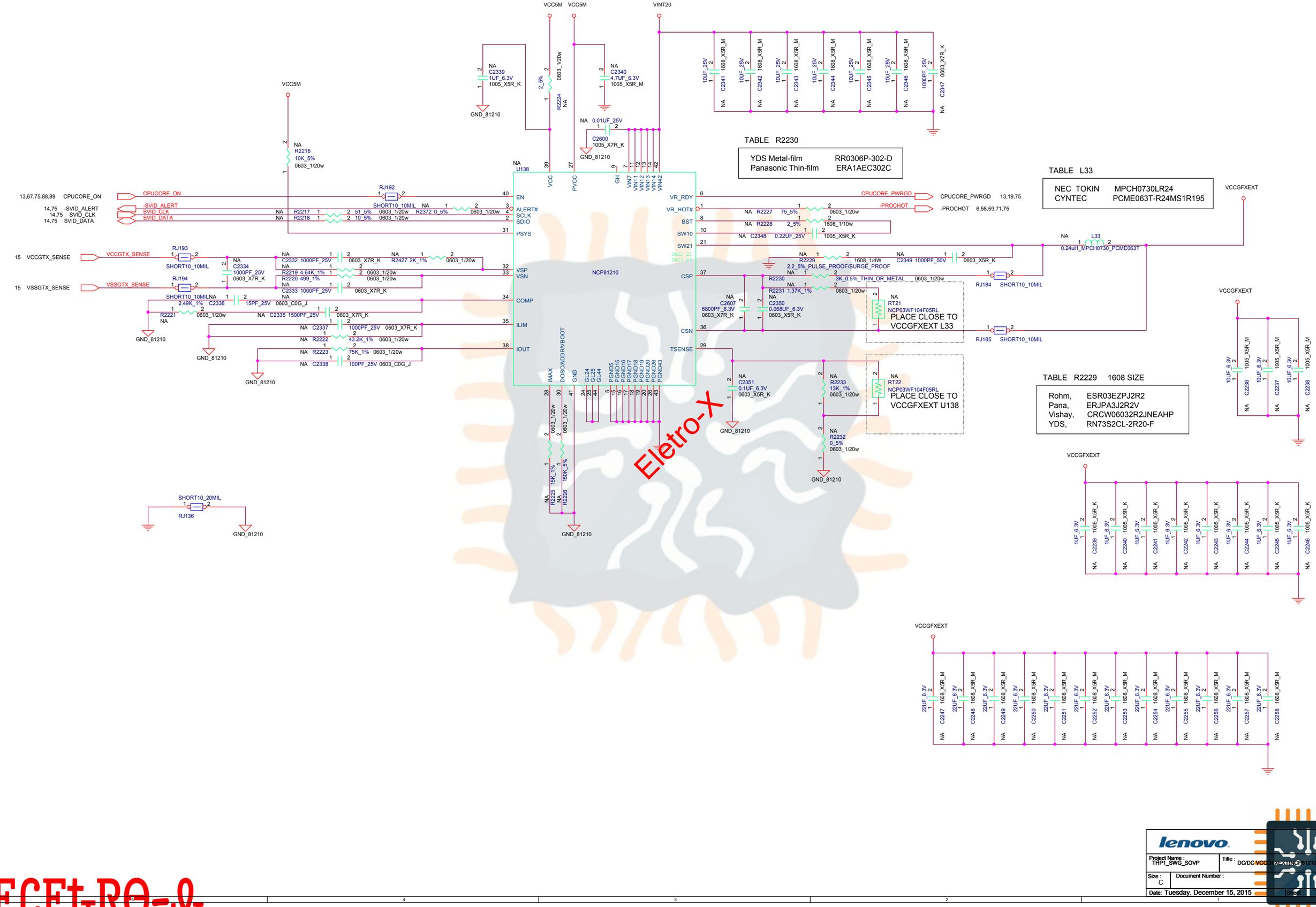

TABLE R2230

YDS Metal-film	RR0306P-302-D
Panasonic Thin-film	ERA1AEC302C

TABLE L33

NEC TOKIN	MPCH0730LR24
CYNTEC	PCME063T-R24MS1R195

TABLE R2229 1608 SIZE

Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
Vishay,	CRCW06032R2JNEAHP
YDS,	RN73S2CL-2R20-F

Project Name :	THP1_SWG_SOVP
Title :	DC/DC VCCGFXEXT(NCP81210)
Size :	C
Document Number :	
Rev :	8.04
Date:	Tuesday, December 15, 2015
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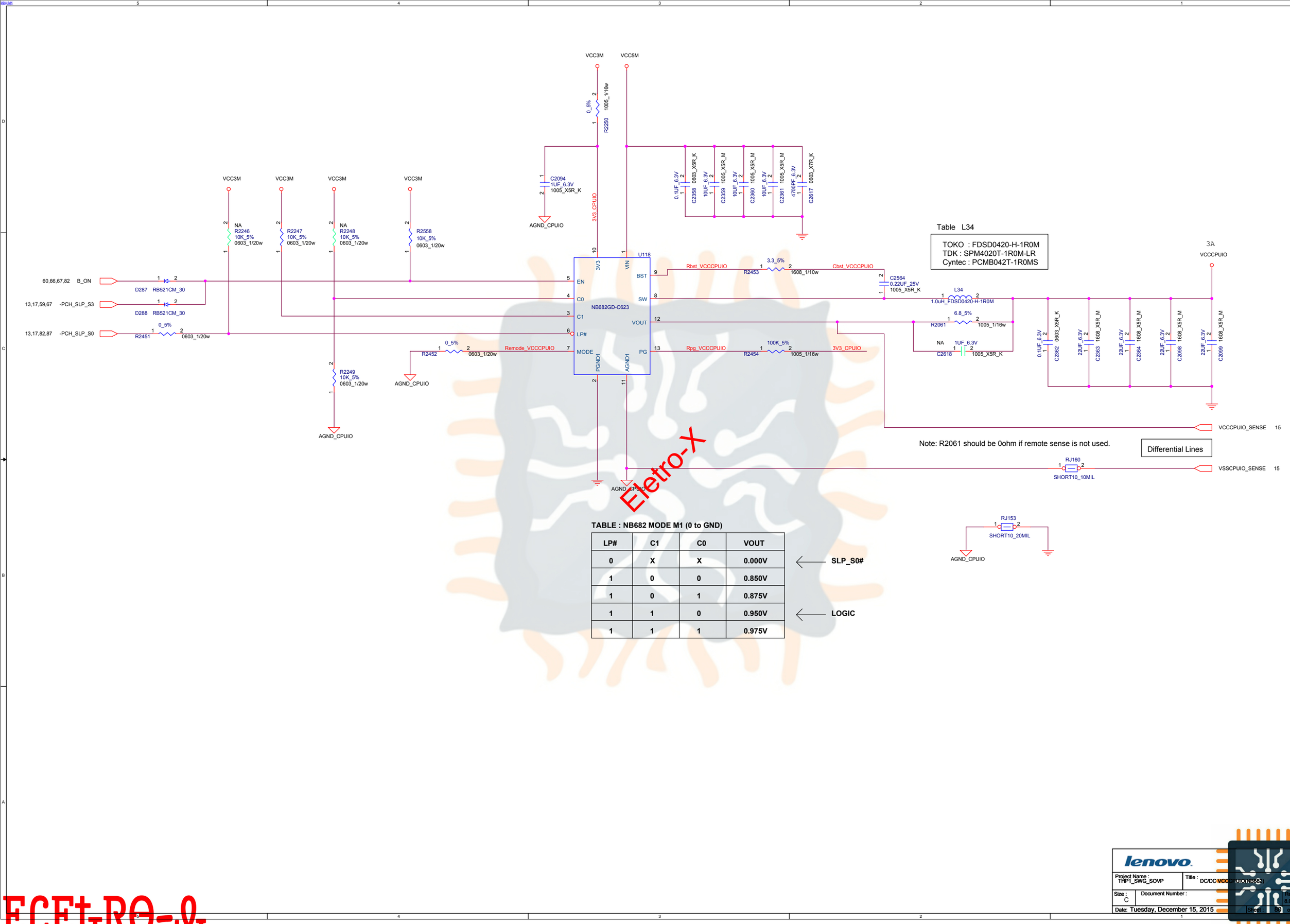

TABLE : NB682 MODE M1 (0 to GND)

LP#	C1	C0	VOUT	
0	X	X	0.000V	← SLP_S0#
1	0	0	0.850V	
1	0	1	0.875V	
1	1	0	0.950V	← LOGIC
1	1	1	0.975V	

Project Name :	THP1_SWG_SOVP
Title :	DC/DC VCCCPUIO(NB682)
Size :	C
Document Number :	
Rev :	8.04
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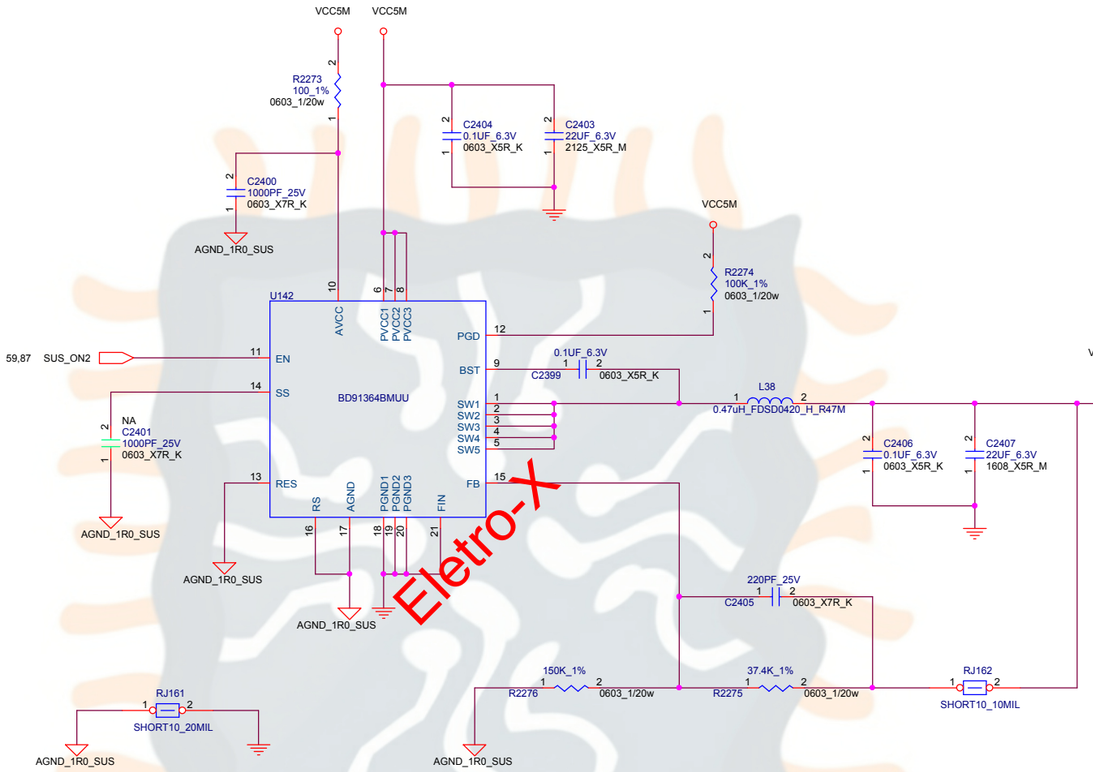

Table L38

TOKO : FDSD0420-H-R47M
TDK : SPM4020T-R47M-LR
Cyntec : PCMB042T-R47MS

Project Name : THP1_SWG_SOVP	Title : DC/DC VCC1R0_SUS(BD91364BMUU)	
Size : C	Document Number :	Rev : 8.04
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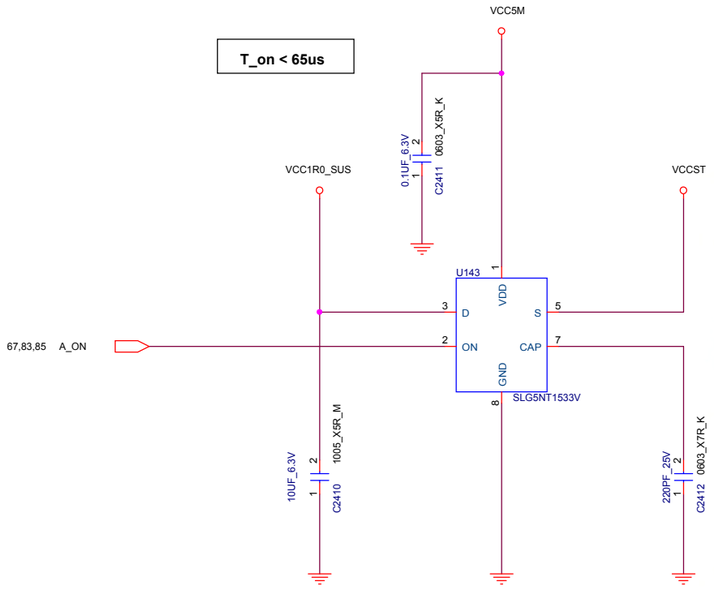
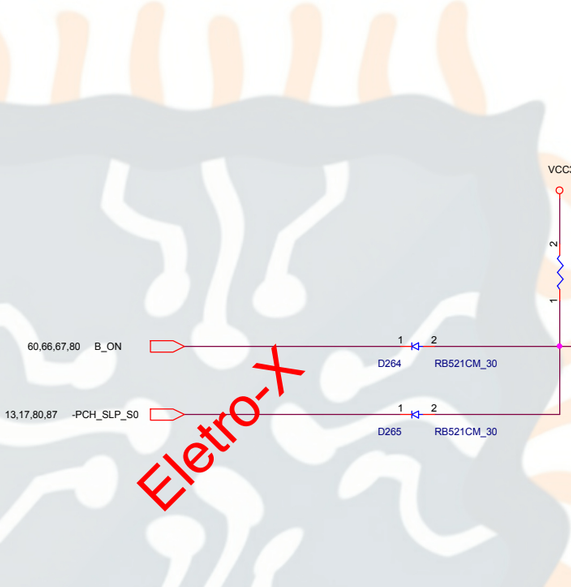
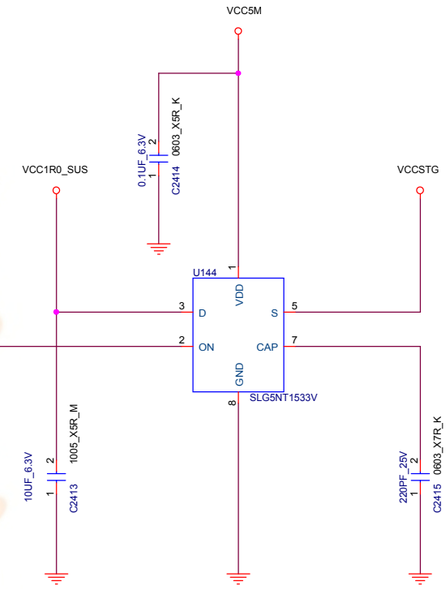
T_on < 65us







T_on < 65us

Eletro-X

ECEtRO-Q

lenovo			
Project Name : THP1_SWG_SOVP		Title : LOAD SW VCCST & VCCSTG	
Size : C	Document Number :		Rev : 8.04
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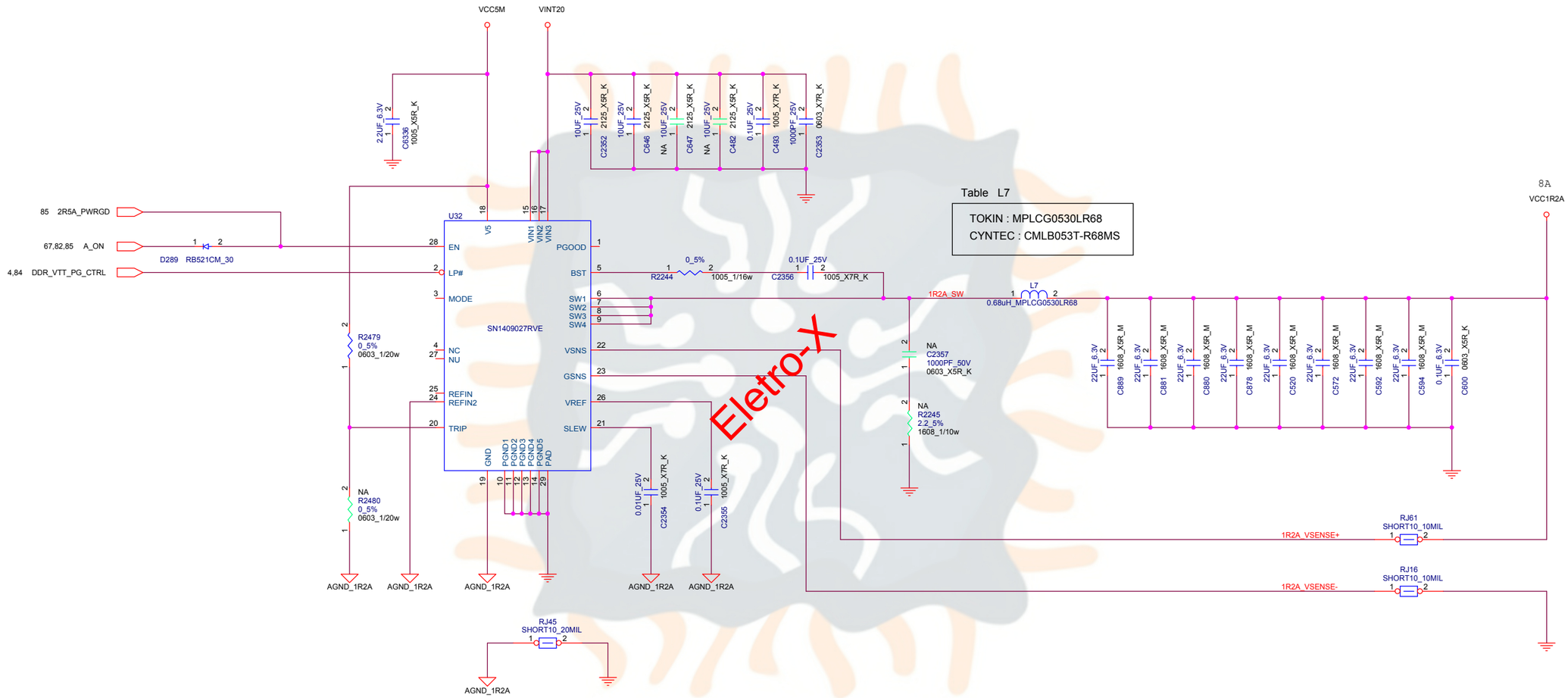

TABLE : TPS51362

REFIN	REFIN2	VOUT
GND	GND	1.05V
Float	GND	1.20V
GND	Float	1.50V
Float	Float	1.35V

← LOGIC

Project Name : THP1_SWG_SOVP	Title : DC/DC VCC1R2A(SN1409027)
Size : C	Document Number :
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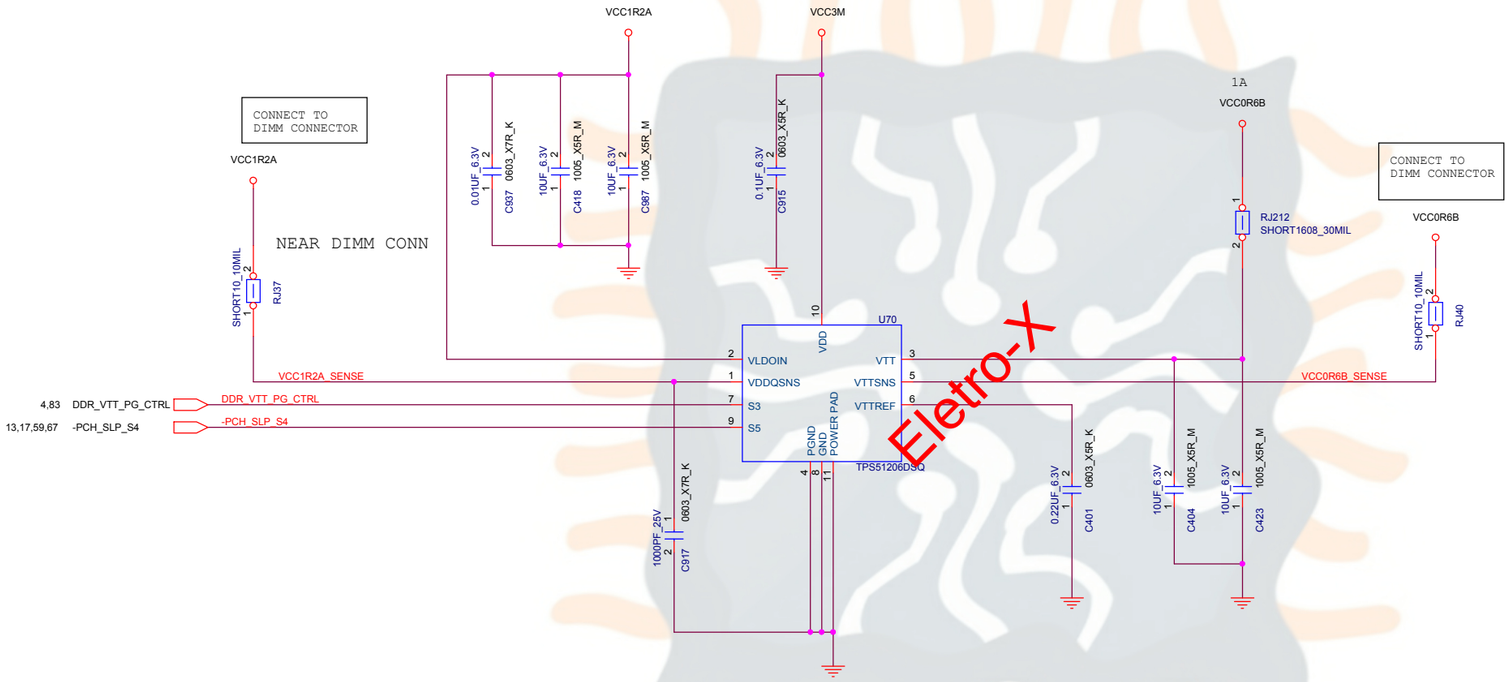

TABLE: TPS51206

S3	S5	VTT	VTTREF
High	High	ON	ON
Low	High	OFF(High-Z)	ON
Low	Low	OFF(Discharge)	OFF(Discharge)

Project Name : THP1_SWG_SOVP	Title : DC/DC VCC0R6B(TPS51206)
Size : C	Document Number :
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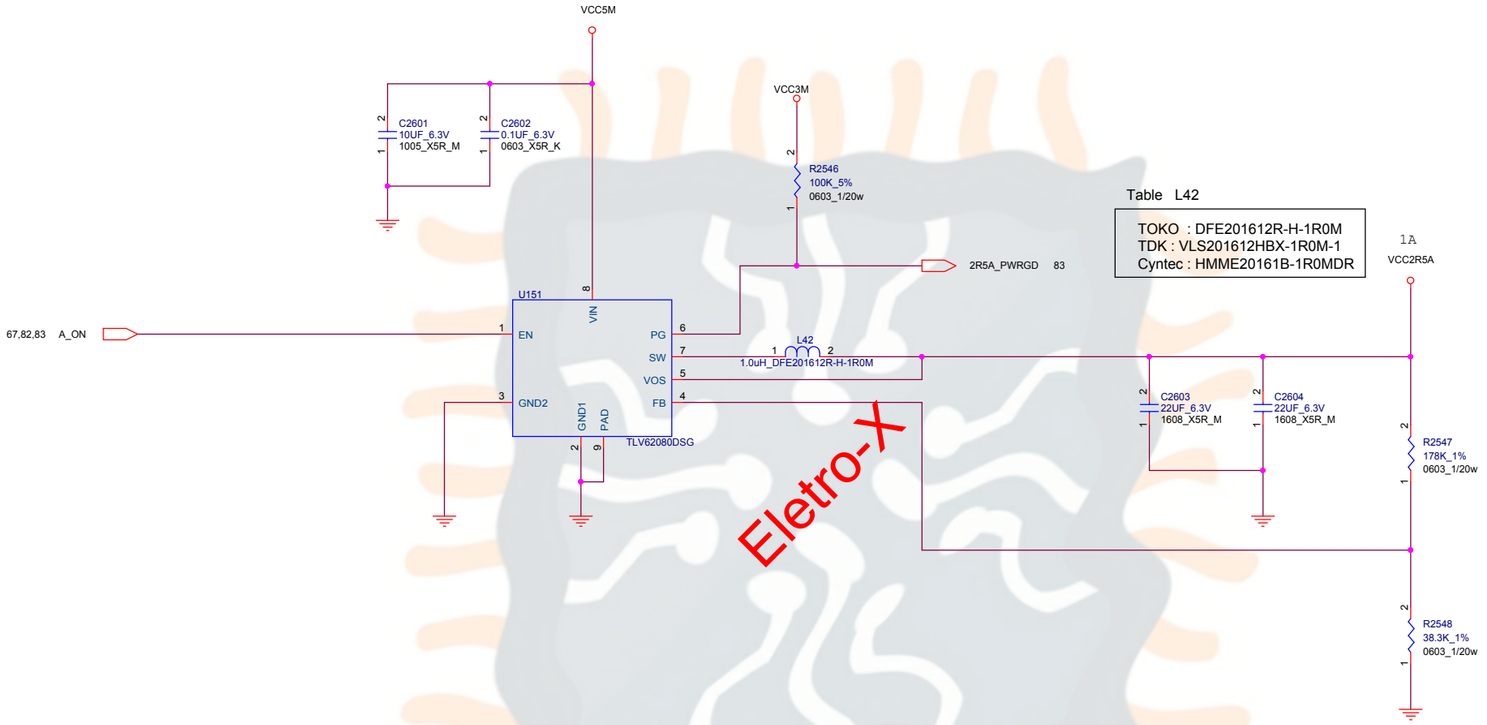

Project Name : THP1_SWG_SOVP	Title : DC/DC VCC2R5A(TLV62080)
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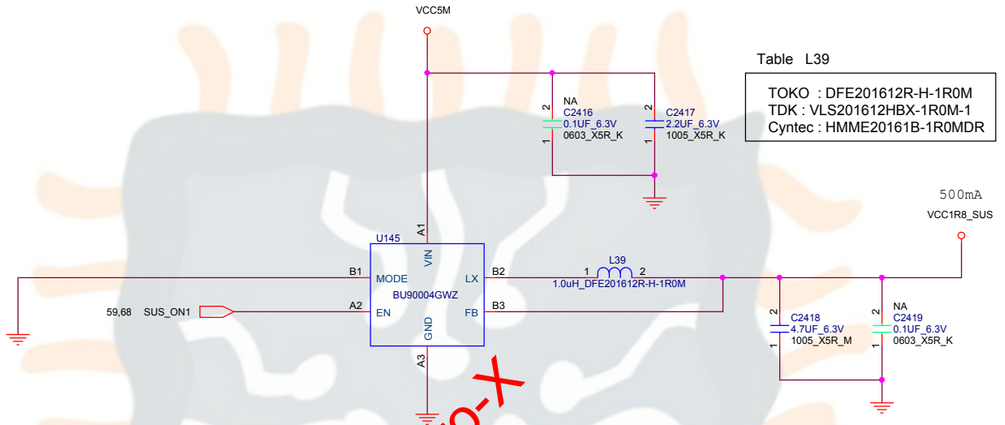

Table L39

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

lenovo			
Project Name : THP1_SWG_SOVP	Title : DC/DC VCC1R8_SUS(BU90004GWZ)		
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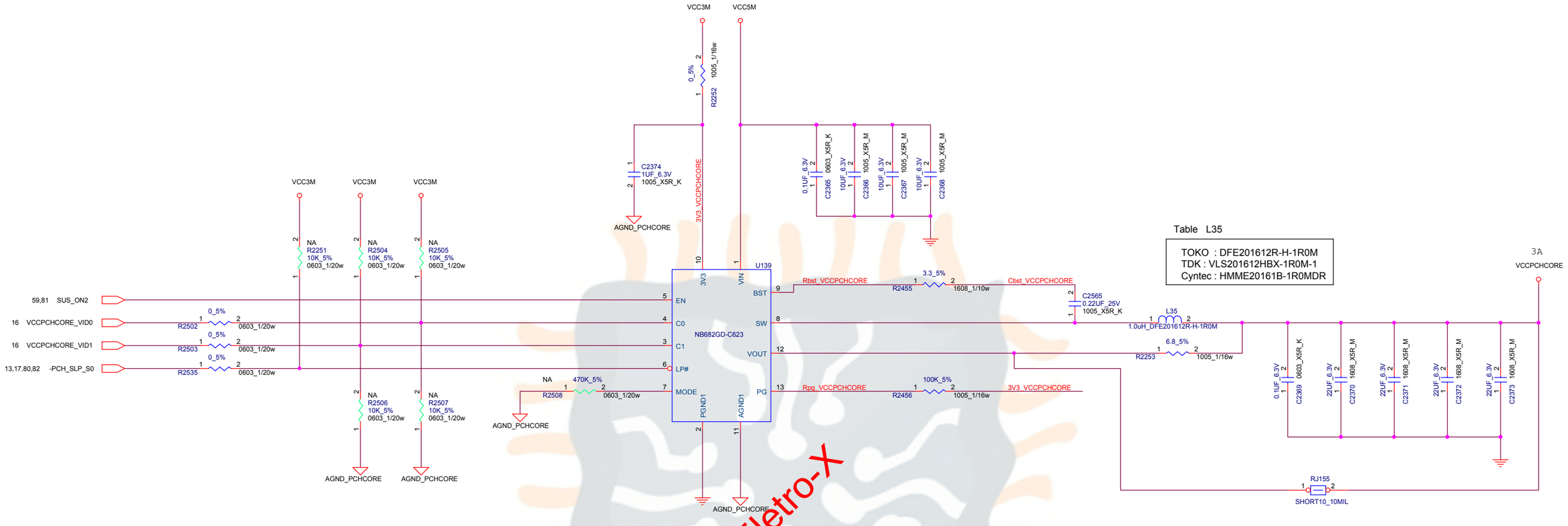

Table L35

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

Note: R2253 should be 0ohm if J155 is not short.

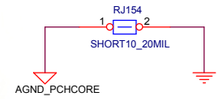

TABLE : NB682 MODE M2 (Float)

LP#	C1	C0	VOUT	
0	X	X	0.700V	← SLP_S0#
1	0	0	0.850V	
1	0	1	0.900V	
1	1	0	0.950V	
1	1	1	1.000V	← DEFAULT

lenovo		
Project Name : THP1_SWG_SOVP	Title : DC/DC VCCPCHCORE (NB682)	
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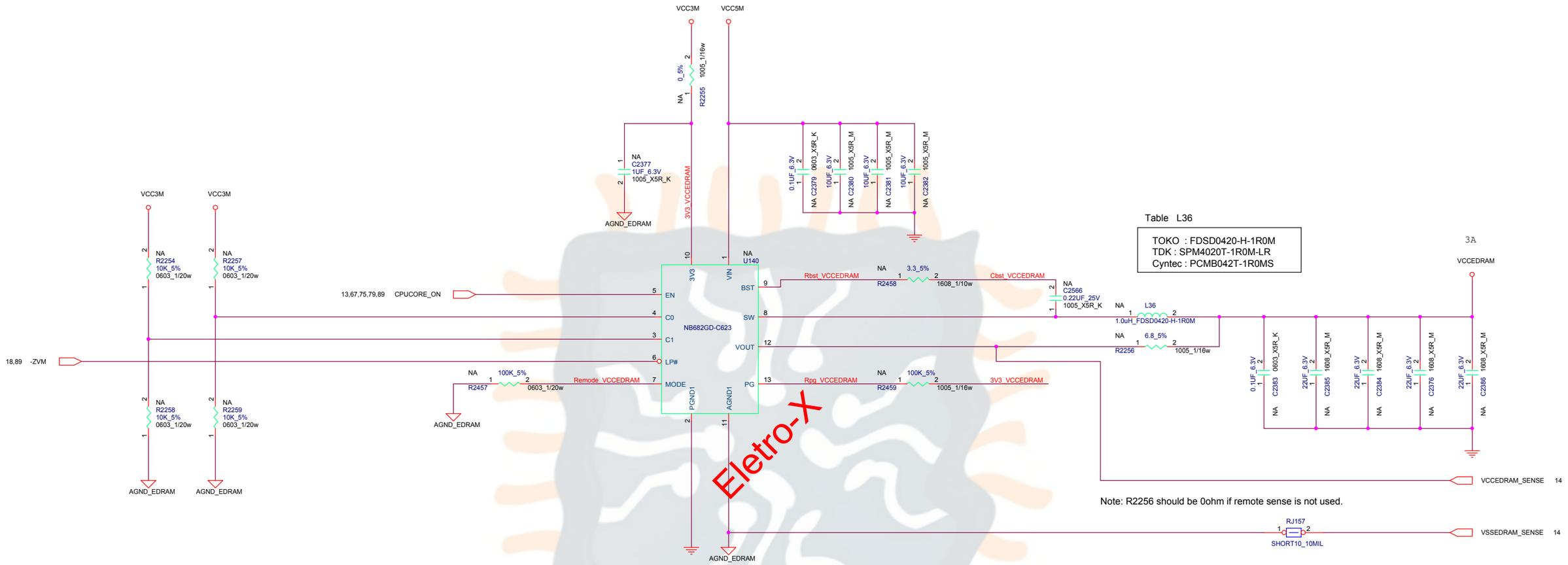

Table L36

TOKO : FDSD0420-H-1R0M
TDK : SPM4020T-1R0M-LR
Cyntec : PCMB042T-1R0MS

TABLE : NB682 MODE M3 (100K to GND)

LP#	C1	C0	VOUT	
0	X	X	0.000V	← ZVM#
1	0	0	0.800V	
1	0	1	0.950V	
1	1	0	1.000V	← LOGIC
1	1	1	1.050V	

Project Name : THP1_SWG_SOVP	Title : DC/DC VCCEDRAM(NB682)		
Size : C	Document Number :		Rev : 8.04
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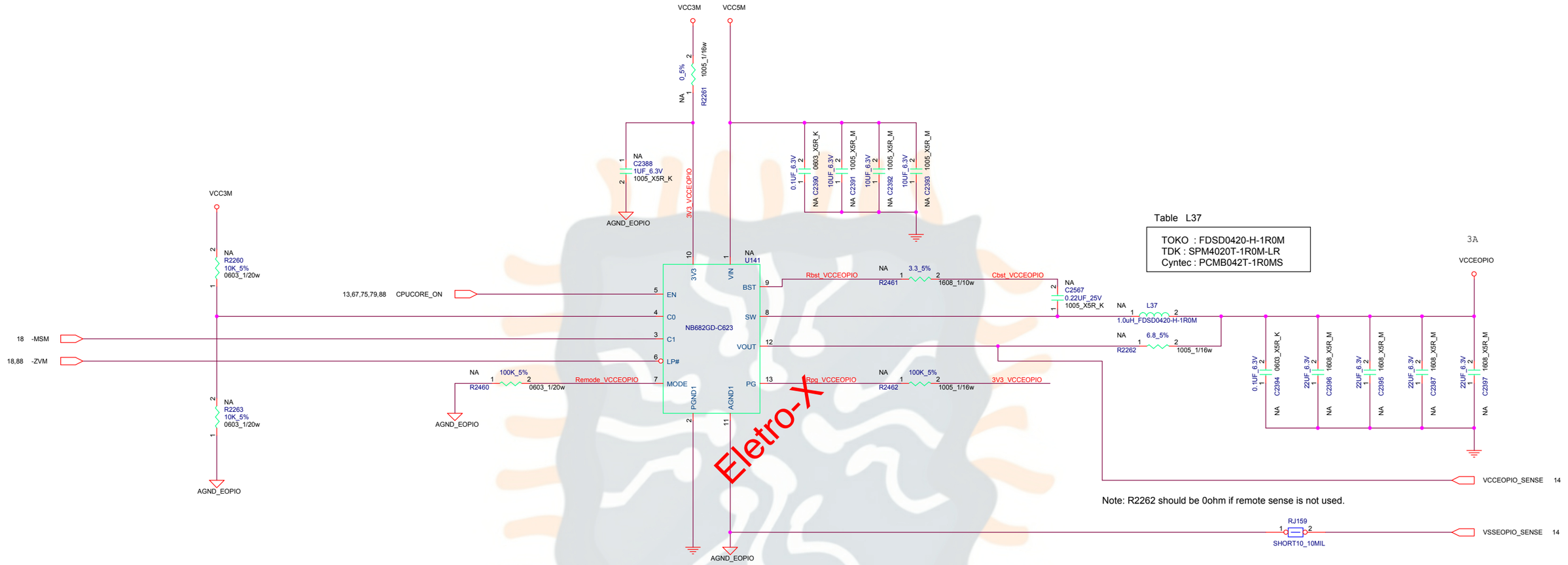

TABLE : NB682 MODE M3 (100K to GND)

LP#	C1	C0	VOUT	
0	X	X	0.000V	← ZVM#
1	0	0	0.800V	← MSM#
1	0	1	0.950V	
1	1	0	1.000V	← LOGIC
1	1	1	1.050V	

lenovo			
Project Name : THP1_SWG_SOVP	Title : DC/DC VCCEOPIO(NB682)		
Size : C	Document Number :		Rev : 8.04
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All the input MLCCs on 20V must be placed symmetrically on Top and Bottom.

TABLE

Switching Frequency	Control Mode	R2120	C2190	C2192
500kHz	D-CAP2	1Kohm	ASM	NO_ASM
400kHz	D-CAP	200Kohm	NO_ASM	ASM
300kHz	D-CAP	100Kohm	NO_ASM	ASM

LOGIC

U124 :

TI SN74LVC1G126DRL

Renesas HD74LV1G126AVSE

Table : Q135 & Q137
Fairchild : FDMS3660S
Infineon : BSC0923NDI

TABLE L112

TOKIN : MPCH0730LR24
Cyntec : PCME063T-R24MS1R195
TOKO : FDUE0630-H-R24M

Project Name : THP1_SWG_SOVP	Title : DC/DC VCCGFXCORE_D (TPS51219)
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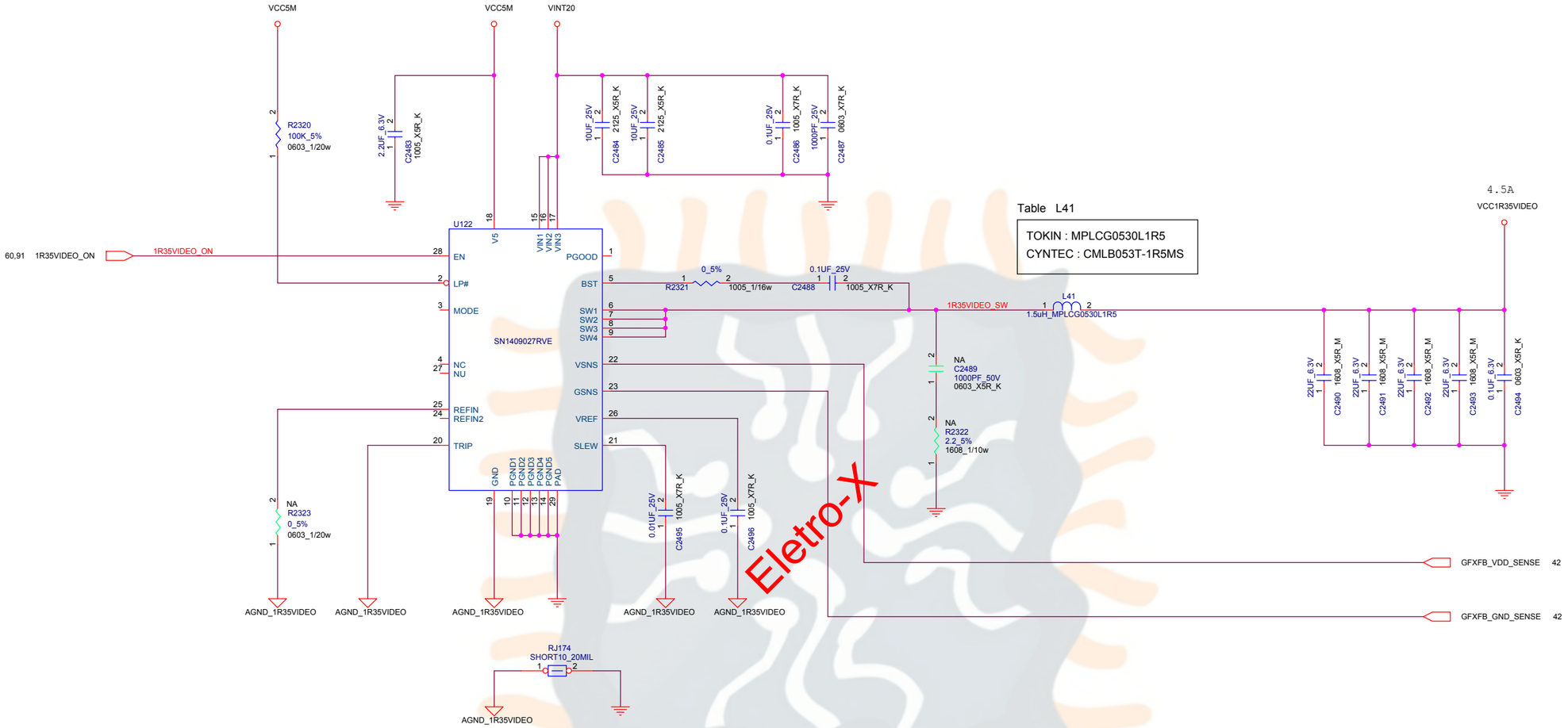


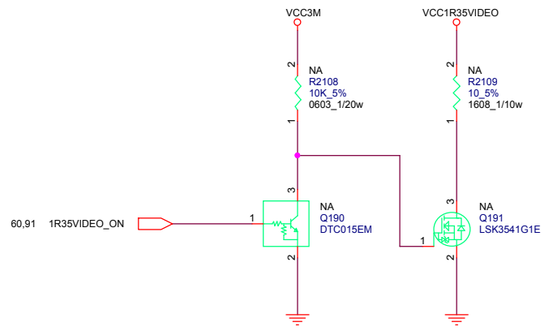
Table L41

TOKIN : MPLCG0530L1R5
CYNTEC : CMLB053T-1R5MS

TABLE : TPS51362

REFIN	REFIN2	VOUT
GND	GND	1.05V
Float	GND	1.20V
GND	Float	1.50V
Float	Float	1.35V

← LOGIC



Project Name : THP1_SWG_SOVP	Title : DC/DC VCC1R35VIDEO(SN1409027)
Size : C	Document Number : Rev : 8.04
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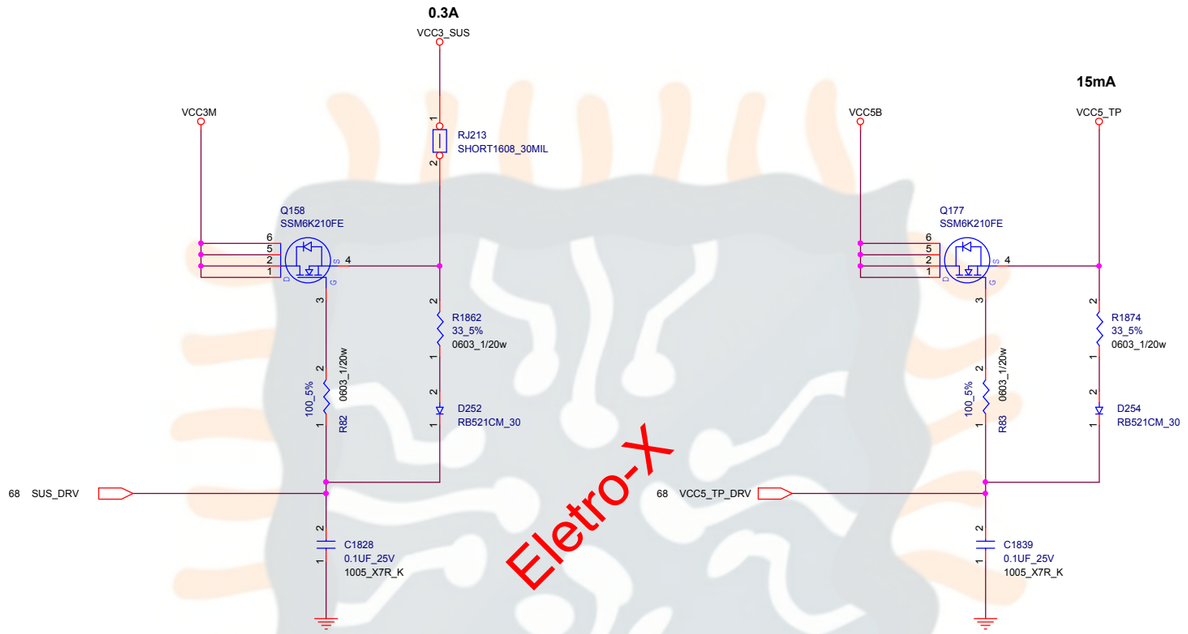
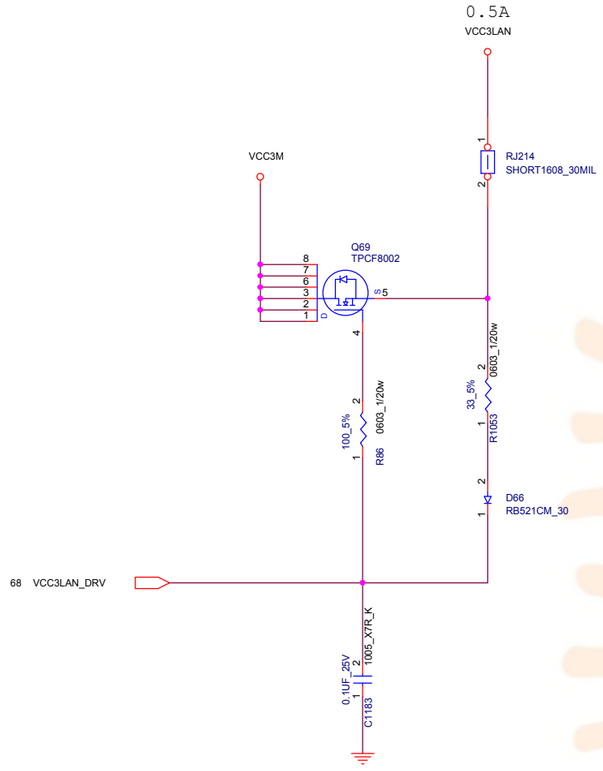
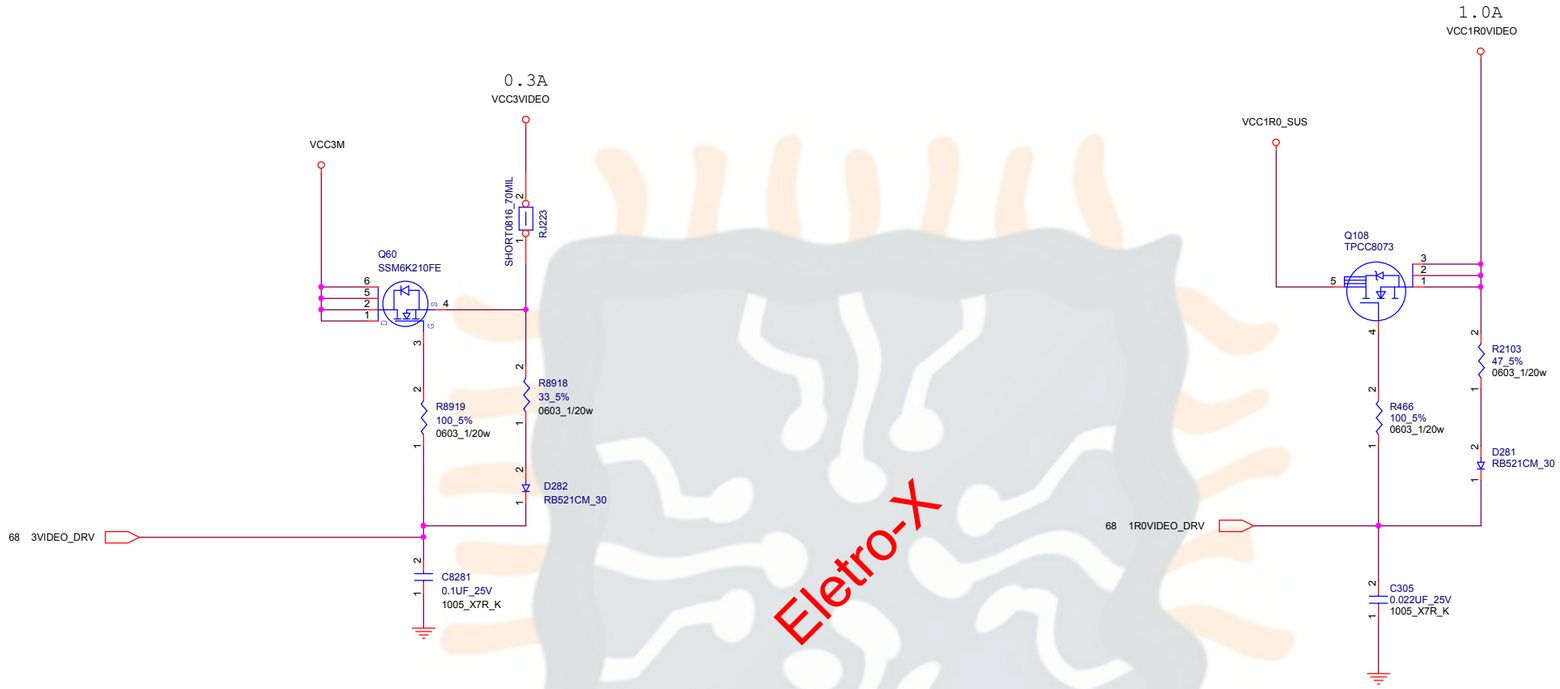


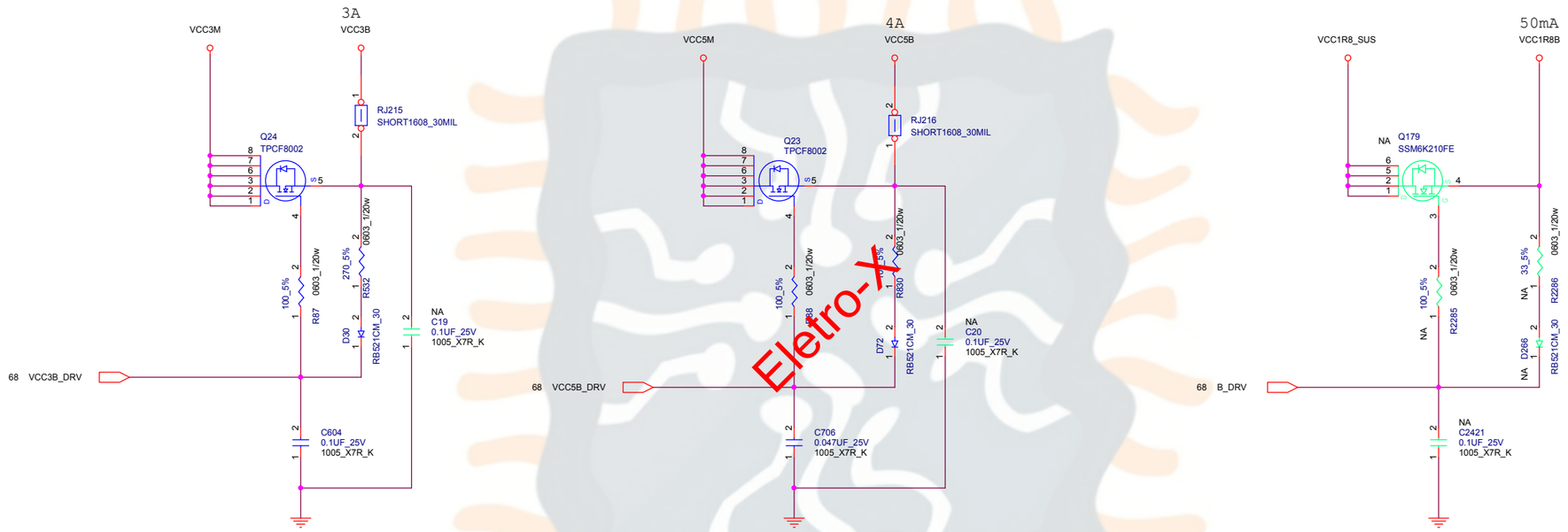
Project Name : THP1_SWG_SOVP	Title : LOAD SW P1 SUS/TRACK POINT
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 98 of 99



Project Name : THP1_SWG_SOVP	Title : LOAD SW
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 94 of 95



Project Name : THP1_SWG_SOVP	Title : LOAD SW VIDEO
Size : C	Document Number :
Date: Tuesday, December 15, 2015	Sheet 95 of 95



Project Name : THP1_SWG_SOVP	Title : LOAD SW B
Size : C	Document Number :
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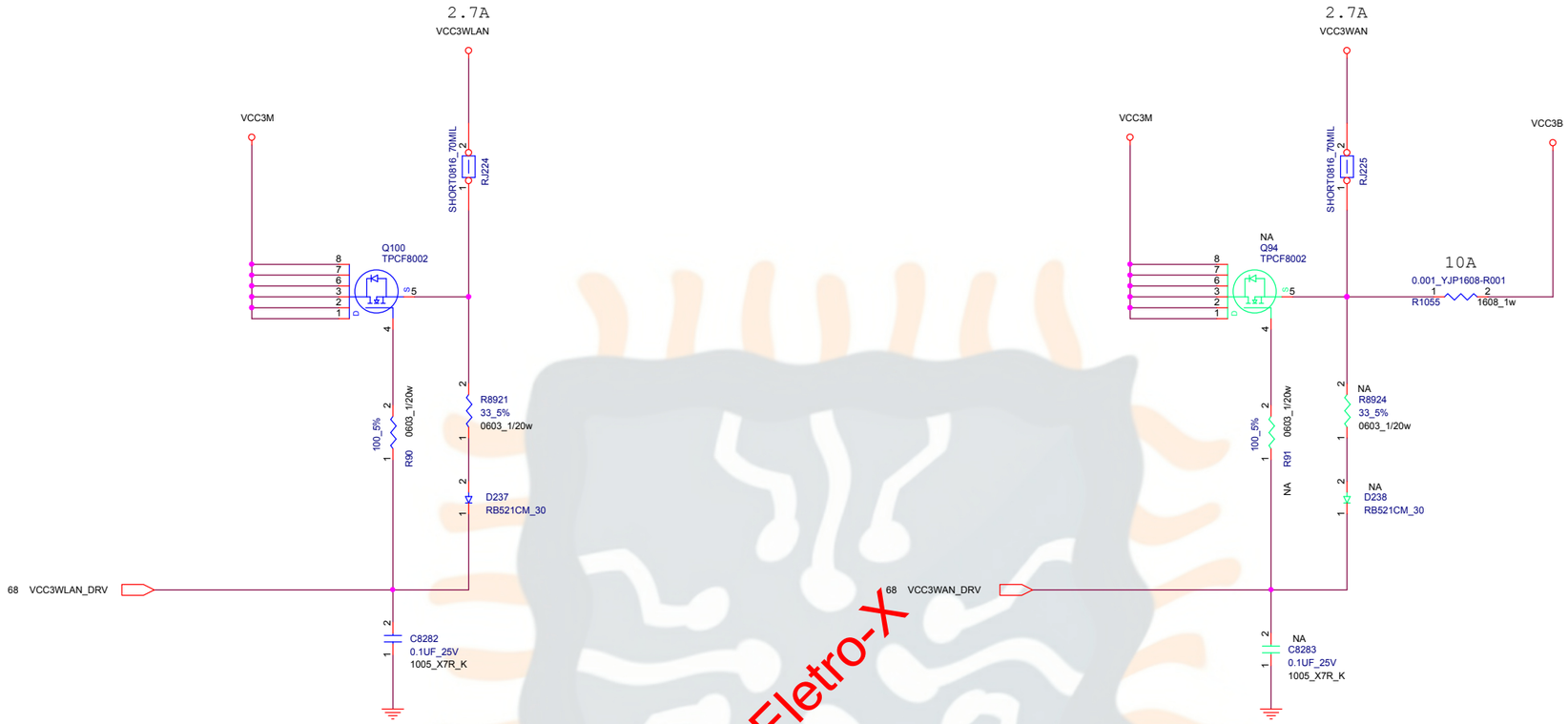

TABLE

AOAC	YES	NO
R1055	NO-ASM	ASM
Q94	ASM	NO-ASM
R8924	ASM	NO-ASM
R91	ASM	NO-ASM
C8283	ASM	NO-ASM
D238	ASM	NO-ASM

LOGIC

Project Name : THP1_SWG_SOVP	Title : LOAD SW WWAN & WLAN
Size : C	Document Number :
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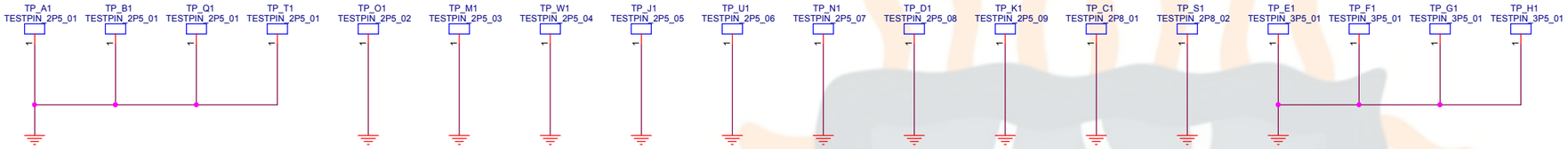
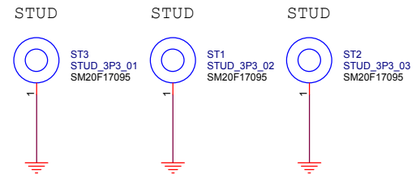
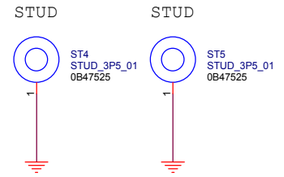
PTH FOR SCREW HOLE

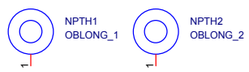
Value	Hole Dia	Pad Dia		QTY
		TOP	BOTTOM	
TESTPIN_2P5_01	2.5	6.5	6.5	4
TESTPIN_2P5_02	2.5	6.6	6.6	1
TESTPIN_2P5_03	2.5	6.6	0	1
TESTPIN_2P5_04	2.5	6.5	9.1	1
TESTPIN_2P5_05	2.5	6.5	7	1
TESTPIN_2P5_06	2.5	6.5	6	1
TESTPIN_2P5_07	2.5	6.6	7	1
TESTPIN_2P5_08	2.5	7	7	1
TESTPIN_2P5_09	2.5	6.5	0	1
TESTPIN_2P8_01	2.8	7	6.5	1
TESTPIN_2P8_02	2.8	7	6.6	1
TESTPIN_3P5_01	3.5	7	6.5	4
STUD_3P3_01 (SM20F17095)	3.3	6.5	6.5	1
STUD_3P3_02 (SM20F17095)	3.3	6.6	6.5	1
STUD_3P3_03 (SM20F17095)	3.3	6.6	6.6	1
STUD_3P5_01 (0B47525)	3.5	7	7	2







NPTH



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.
CF3 NC, NO CONNECT TO ANY.
CF4 NC, NO CONNECT TO ANY.

lenovo

Project Name : THP1_SWG_SOVP	Title : PTH FOR SCREW HOLES
Size : C	Document Number :
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