Thorpe-2 TBT Logic Schematics

THP2 D-0
VER 0.01
Oct/26/2016

BASE LOGIC :
thp2_sitr_lcfc_20161014

Title			
TITLE PAGE			
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EC HISTORY

CS15 THP2 D-0
(BASE LOGIC : thp2_sitr_lcfc_20161014)

VER.0.01 10/26/2016 APPLIED **Power ECR10192016 / EC10242016**

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

Title: EC HISTORY

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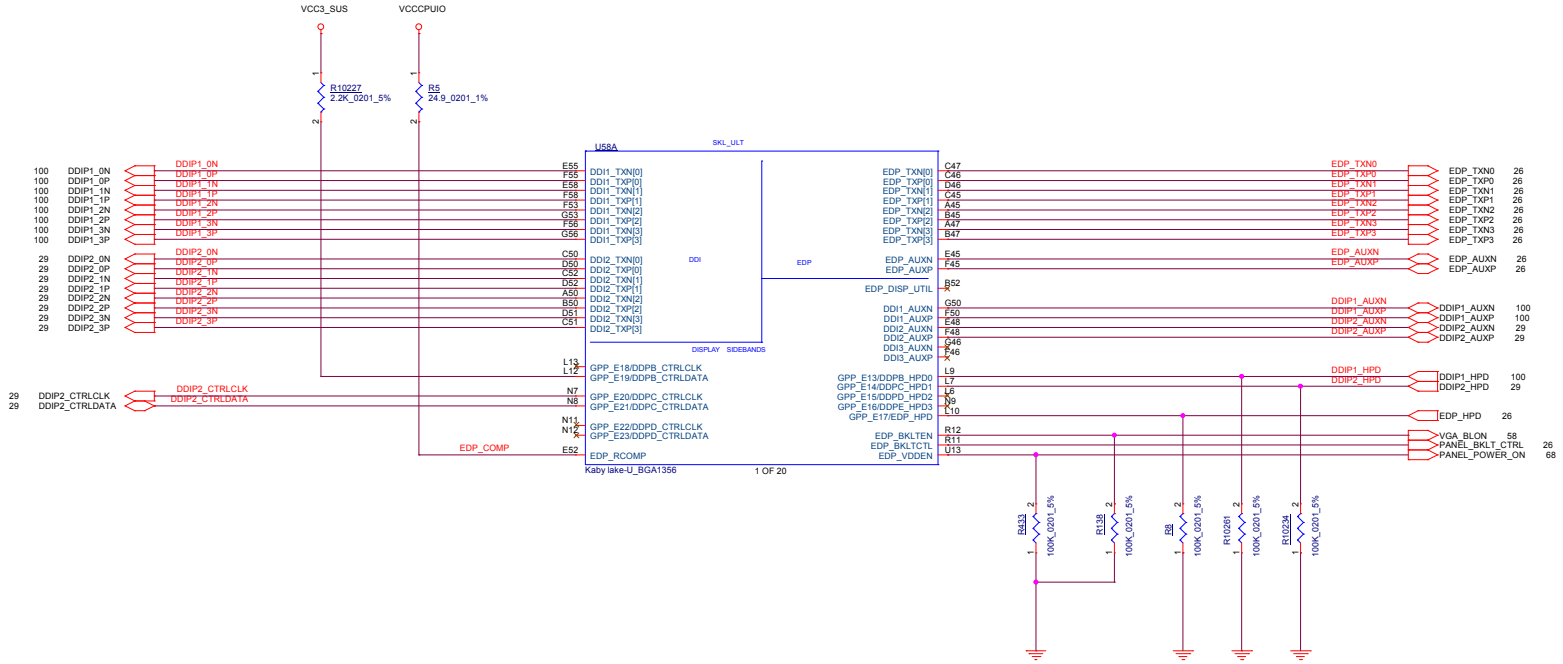

TABLE : Functional Strap

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.**

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **CPU(1/16) : DDI/EDP**

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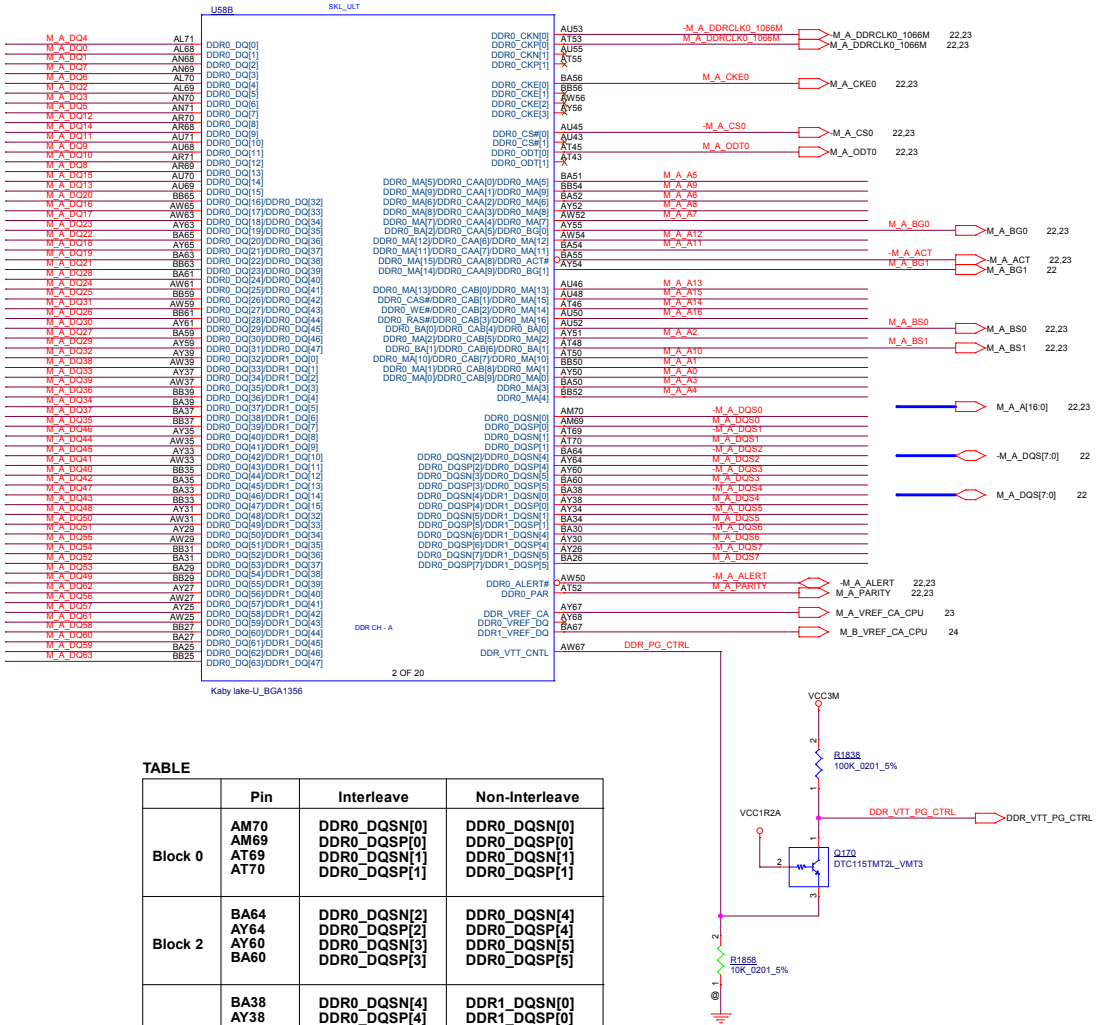
TABLE

	Pin	Interleave	Non-Interleave
Block 0	AL71 AL68 AN68 AN69 AL70 AL69 AN70 AN71 AR70 AR68 AU71 AU68 AR71 AR69 AU70 AU69	DDR0_DQ[0] DDR0_DQ[1] DDR0_DQ[2] DDR0_DQ[3] DDR0_DQ[4] DDR0_DQ[5] DDR0_DQ[6] DDR0_DQ[7] DDR0_DQ[8] DDR0_DQ[9] DDR0_DQ[10] DDR0_DQ[11] DDR0_DQ[12] DDR0_DQ[13] DDR0_DQ[14] DDR0_DQ[15]	DDR0_DQ[0] DDR0_DQ[1] DDR0_DQ[2] DDR0_DQ[3] DDR0_DQ[4] DDR0_DQ[5] DDR0_DQ[6] DDR0_DQ[7] DDR0_DQ[8] DDR0_DQ[9] DDR0_DQ[10] DDR0_DQ[11] DDR0_DQ[12] DDR0_DQ[13] DDR0_DQ[14] DDR0_DQ[15]
Block 2	BB65 AW65 AW63 AY63 BA65 AY65 BA63 BB63 BA61 AW61 BB59 AW59 BB61 AY61 BA59 AY59	DDR0_DQ[16] DDR0_DQ[17] DDR0_DQ[18] DDR0_DQ[19] DDR0_DQ[20] DDR0_DQ[21] DDR0_DQ[22] DDR0_DQ[23] DDR0_DQ[24] DDR0_DQ[25] DDR0_DQ[26] DDR0_DQ[27] DDR0_DQ[28] DDR0_DQ[29] DDR0_DQ[30] DDR0_DQ[31]	DDR0_DQ[32] DDR0_DQ[33] DDR0_DQ[34] DDR0_DQ[35] DDR0_DQ[36] DDR0_DQ[37] DDR0_DQ[38] DDR0_DQ[39] DDR0_DQ[40] DDR0_DQ[41] DDR0_DQ[42] DDR0_DQ[43] DDR0_DQ[44] DDR0_DQ[45] DDR0_DQ[46] DDR0_DQ[47]
Block 4	AY39 AW39 AY37 AW37 BB39 BA39 BA37 BB37 AY35 AW35 AY33 AW33 BB35 BA35 BA33 BB33	DDR0_DQ[32] DDR0_DQ[33] DDR0_DQ[34] DDR0_DQ[35] DDR0_DQ[36] DDR0_DQ[37] DDR0_DQ[38] DDR0_DQ[39] DDR0_DQ[40] DDR0_DQ[41] DDR0_DQ[42] DDR0_DQ[43] DDR0_DQ[44] DDR0_DQ[45] DDR0_DQ[46] DDR0_DQ[47]	DDR1_DQ[0] DDR1_DQ[1] DDR1_DQ[2] DDR1_DQ[3] DDR1_DQ[4] DDR1_DQ[5] DDR1_DQ[6] DDR1_DQ[7] DDR1_DQ[8] DDR1_DQ[9] DDR1_DQ[10] DDR1_DQ[11] DDR1_DQ[12] DDR1_DQ[13] DDR1_DQ[14] DDR1_DQ[15]
Block 6	AY31 AW31 AY29 AW29 BB31 BA31 BA29 BB29 AY27 AW27 AY25 AW25 BB27 BA27 BA25 BB25	DDR0_DQ[48] DDR0_DQ[49] DDR0_DQ[50] DDR0_DQ[51] DDR0_DQ[52] DDR0_DQ[53] DDR0_DQ[54] DDR0_DQ[55] DDR0_DQ[56] DDR0_DQ[57] DDR0_DQ[58] DDR0_DQ[59] DDR0_DQ[60] DDR0_DQ[61] DDR0_DQ[62] DDR0_DQ[63]	DDR1_DQ[32] DDR1_DQ[33] DDR1_DQ[34] DDR1_DQ[35] DDR1_DQ[36] DDR1_DQ[37] DDR1_DQ[38] DDR1_DQ[39] DDR1_DQ[40] DDR1_DQ[41] DDR1_DQ[42] DDR1_DQ[43] DDR1_DQ[44] DDR1_DQ[45] DDR1_DQ[46] DDR1_DQ[47]

LOGIC



TABLE

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

LOGIC

TABLE

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

LOGIC

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

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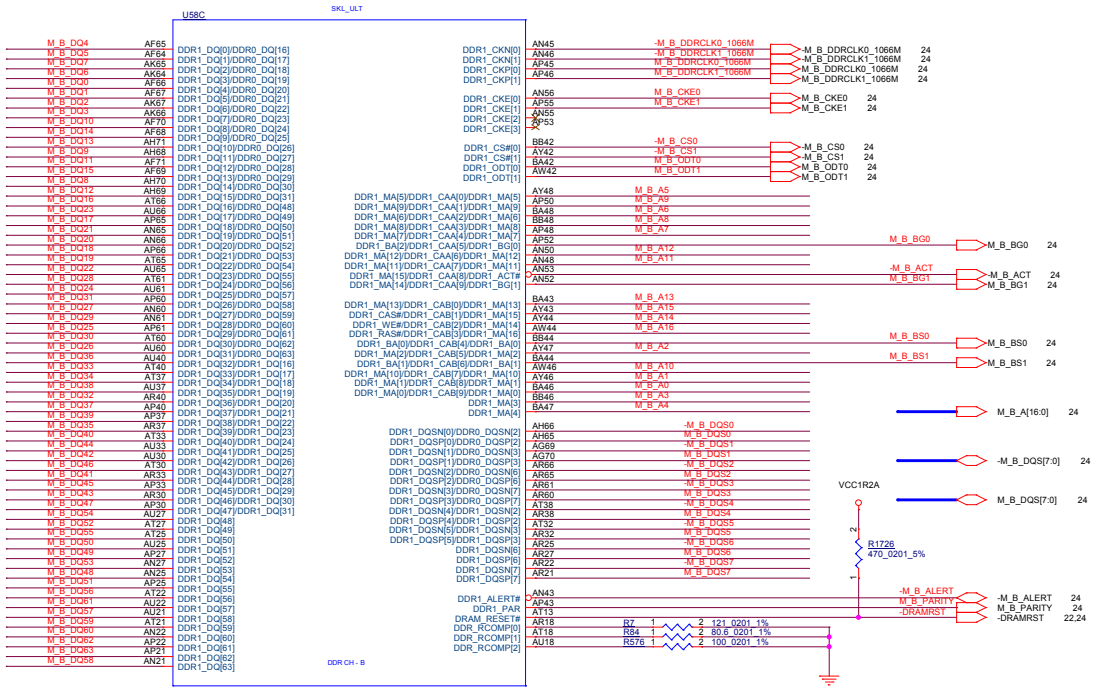
TABLE

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

LOGIC



TABLE

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

LOGIC

TABLE

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

LOGIC

Security Classification	LC Future Center Secret Data		
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Title: CPU(3/16) : DDR CHANNEL-B

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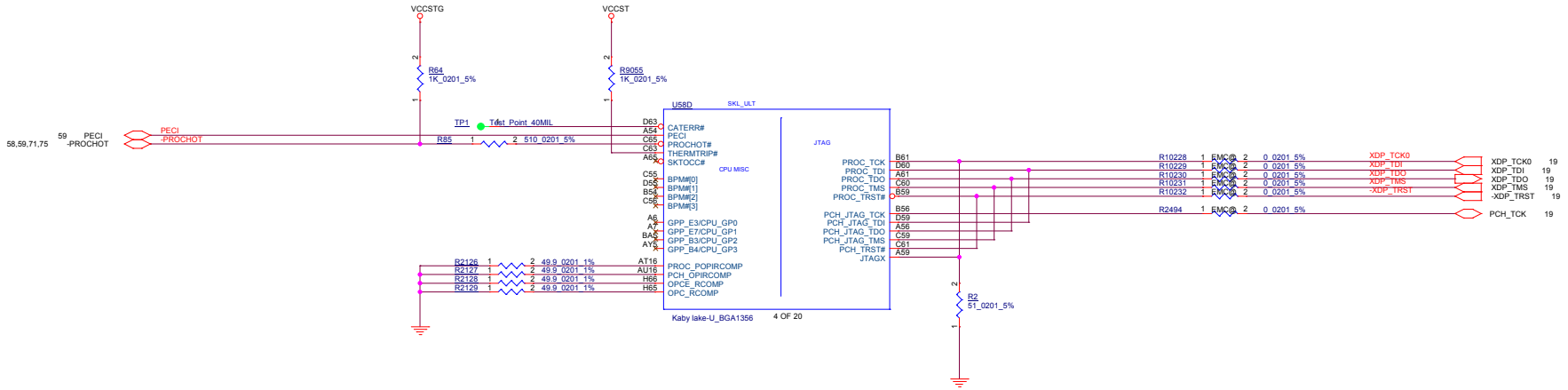

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(4/16) : MISC/JTAG

Size	Document Number	Rev
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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

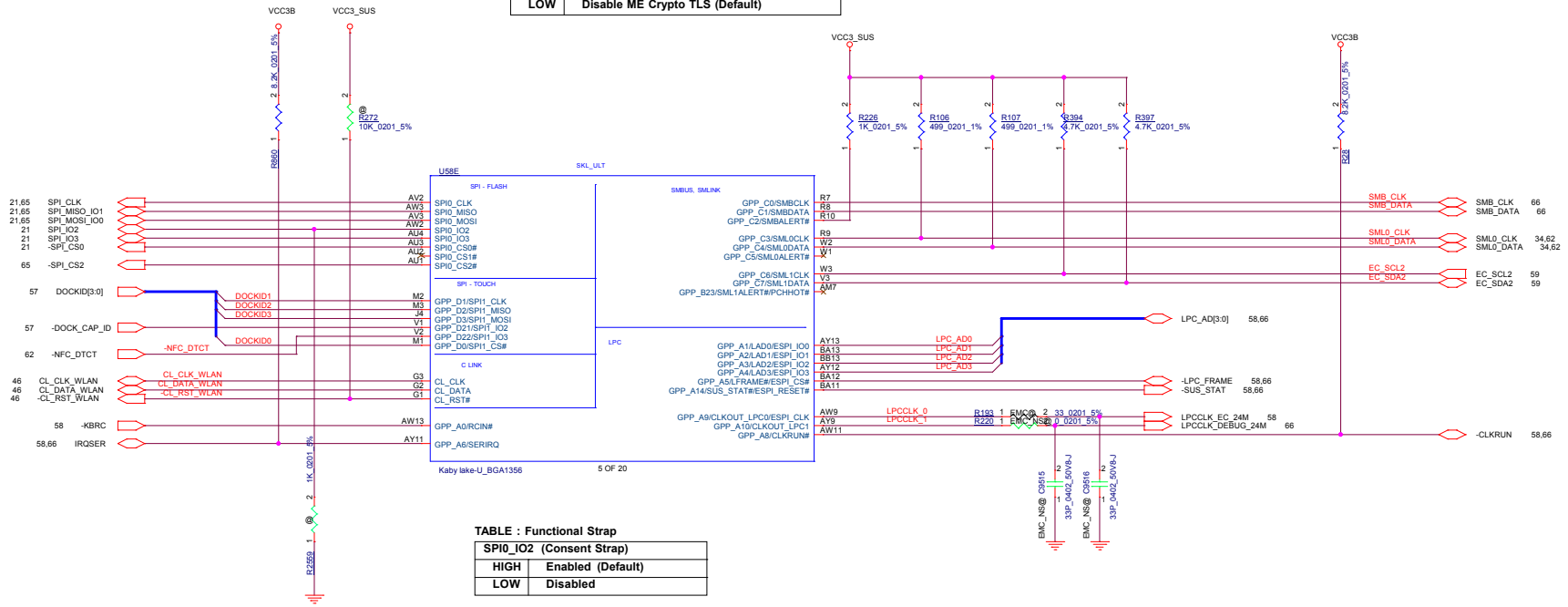

TABLE : Functional Strap

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

TABLE : Functional Strap

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

Title: CPU(5/16) : LPC/SPI/SMBUS/C-LINK

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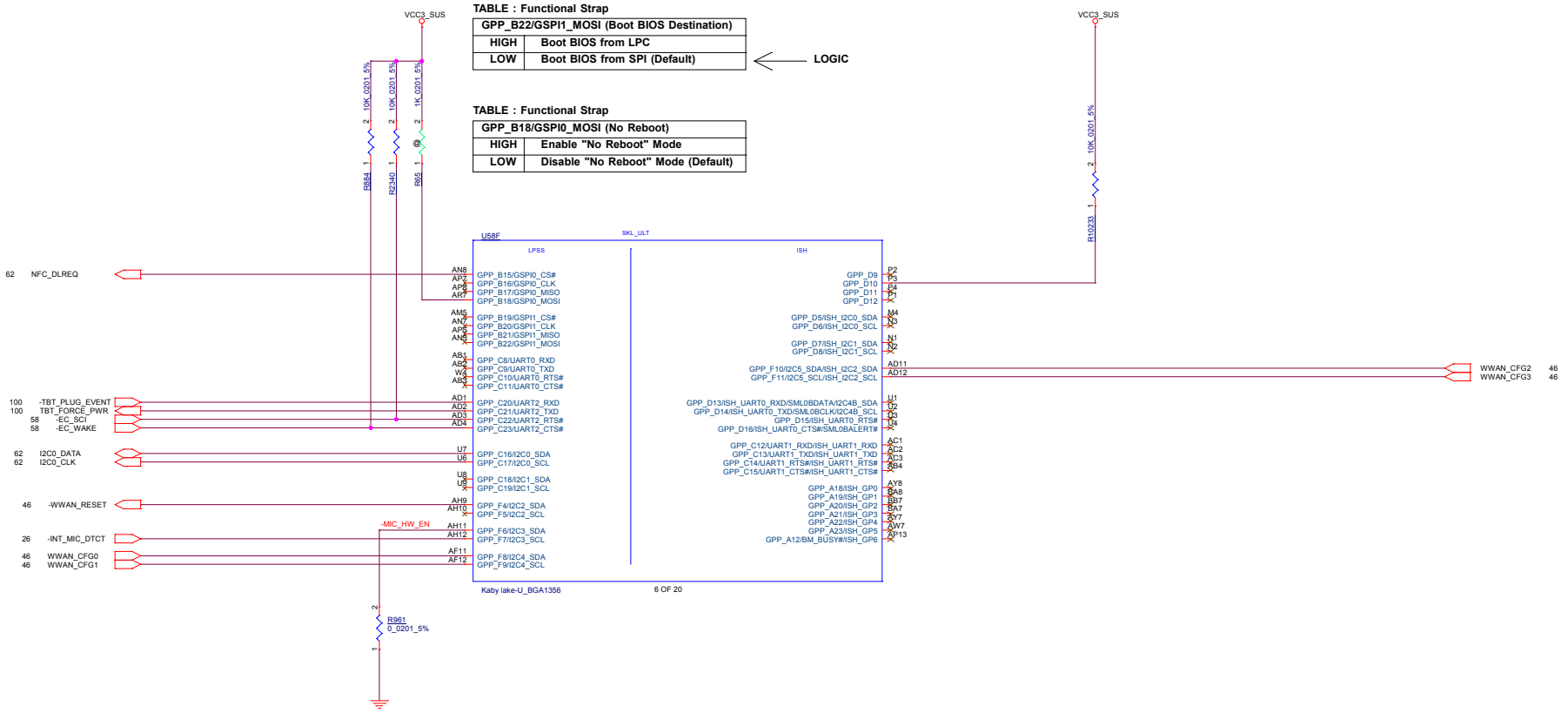

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(6/16) : LPSS/ISH

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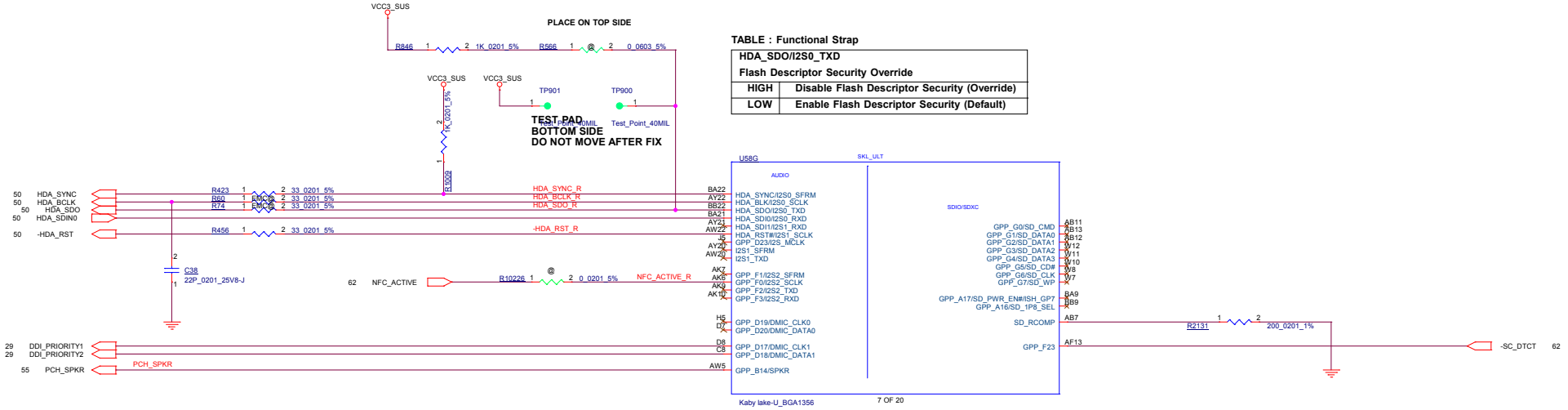

TABLE : Functional Strap

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

Security Classification	LC Future Center Secret Data		
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Title: CPU(7/16) : AUDIO/SDXC

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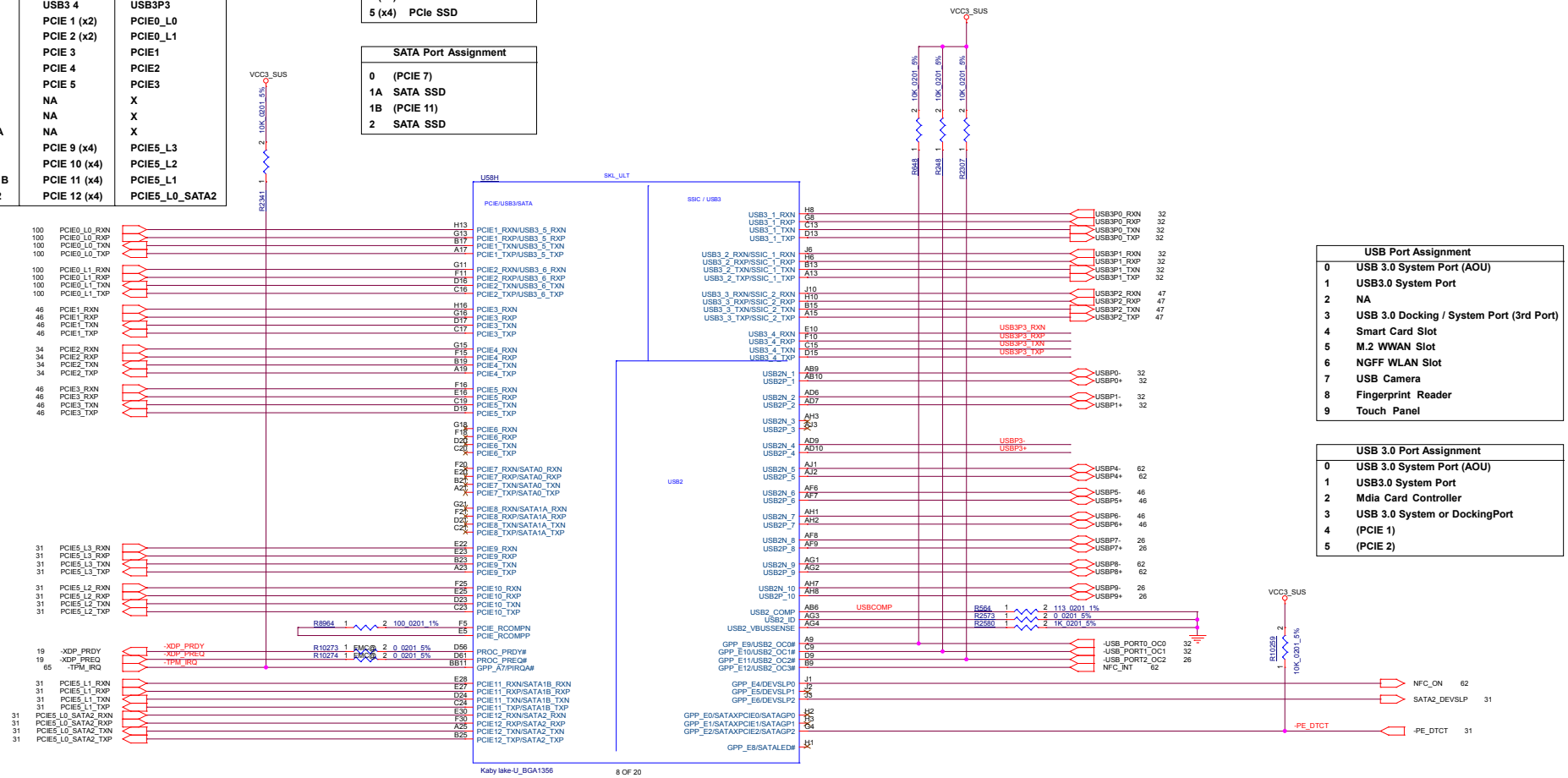
Flexible I/O Configuration			
I/O	High Speed Signals	Configuration	Net Name
Port 1	USB3 1	USB3 1	USB3P0
Port 2	USB3 2/SSIC	USB3 2 (MCC)	USB3P1
Port 3	USB3 3	USB3 3	USB3P2
Port 4	USB3 4	USB3 4	USB3P3
Port 5	USB3 5/PCIE 1	PCIE 1 (x2)	PCIE0_L0
Port 6	USB3 6/PCIE 2	PCIE 2 (x2)	PCIE0_L1
Port 7	PCIE 3 (GbE)	PCIE 3	PCIE1
Port 8	PCIE 4 (GbE)	PCIE 4	PCIE2
Port 9	PCIE 5 (GbE)	PCIE 5	PCIE3
Port 10	PCIE 6	NA	X
Port 11	PCIE 7/SATA 0	NA	X
Port 12	PCIE 8/SATA 1A	NA	X
Port 13	PCIE 9 (GbE)	PCIE 9 (x4)	PCIE5_L3
Port 14	PCIE 10 (GbE)	PCIE 10 (x4)	PCIE5_L2
Port 15	PCIE 11/SATA 1B	PCIE 11 (x4)	PCIE5_L1
Port 16	PCIE 12/SATA 2	PCIE 12 (x4)	PCIE5_L0_SATA2

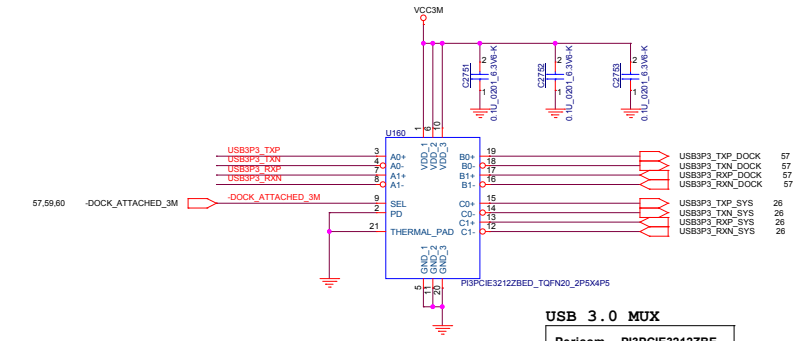
PCIe Port Assignment	
0 (x2)	Thunderbolt
1	M.2 WLAN Slot Port 0
2	GbE PHY
3	M.2 WLAN Slot Port 1
4 (x2)	NA
5 (x4)	PCIe SSD

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

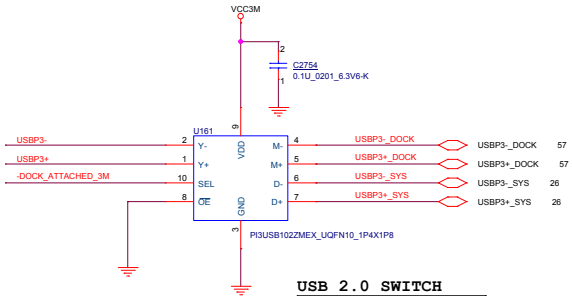
USB Port Assignment	
0	USB 3.0 System Port (AOU)
1	USB3.0 System Port
2	NA
3	USB 3.0 Docking / System Port (3rd Port)
4	Smart Card Slot
5	M.2 WWAN Slot
6	NGFF WLAN Slot
7	USB Camera
8	Fingerprint Reader
9	Touch Panel

USB 3.0 Port Assignment	
0	USB 3.0 System Port (AOU)
1	USB3.0 System Port
2	Mdia Card Controller
3	USB 3.0 System or DockingPort
4	(PCIE 1)
5	(PCIE 2)





USB 3.0 MUX	
Pericom	PI3PCIE3212ZBE
NXP	CBTL02043ABQ
NXP	CBTL02042ABQ



USB 2.0 SWITCH	
Pericom	PI3USB102ZME
NXP	NX3DV42GU

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

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

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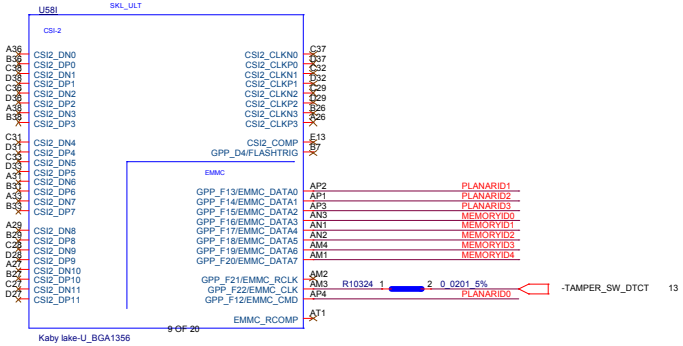
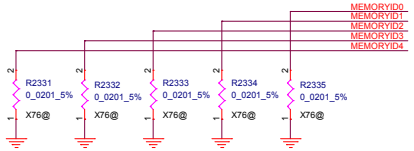
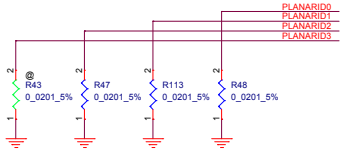






TABLE

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 / 0101B
SIT-R	0110B / 0111B
SVT	1000B
SVT-R	
SOVP	

TABLE

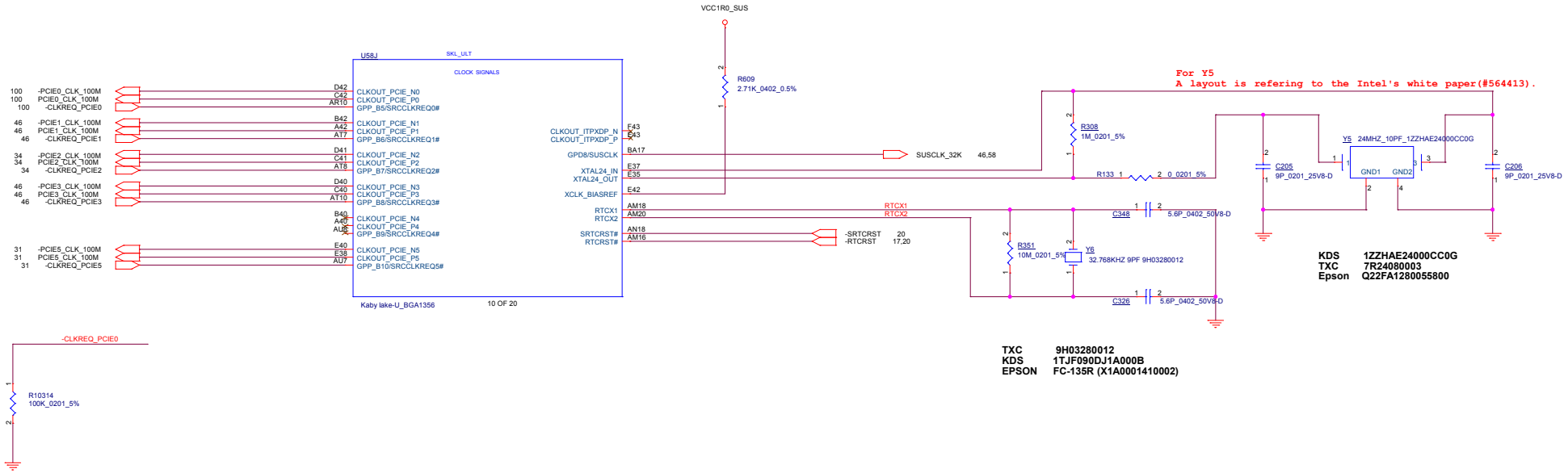
MEMORYID[4..0]	U125, U126, U127, U128			
00000b	Micron	MT40A512M16HA-083E:A	8Gbit SDP	4GB (2133)
00001b	Micron	MT40A1G16HBA-083E:A	16Gbit DDP	8GB (2133)
00010b	Samsung	K4A8G165WB-BCPB	8Gbit SDP	4GB (2133)
00011b	SK Hynix	T.B.D.		
00100b	SK Hynix	T.B.D.		
01000b	Micron	MT40A512M16JY-083E:B	8Gbit SDP	4GB (2400)
01001b	Micron	MT40A1G16WBU-083E:B	16Gbit DDP	8GB (2400)
01010b	Samsung	K4A8G165WB-BCRC	8Gbit SDP	4GB (2400)
01011b	Samsung	K4AAG165WB-MCRC	16Gbit DDP	8GB (2400)
01100b	SK Hynix	H5AN8G6NAFR-UHC	8Gbit SDP	4GB (2400)
11111b	NO_ASM		No Soldered Memory	

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(9/16) : CSI-2/EMMC

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

Date: Wednesday, October 26, 2016 | Sheet 11 of 103

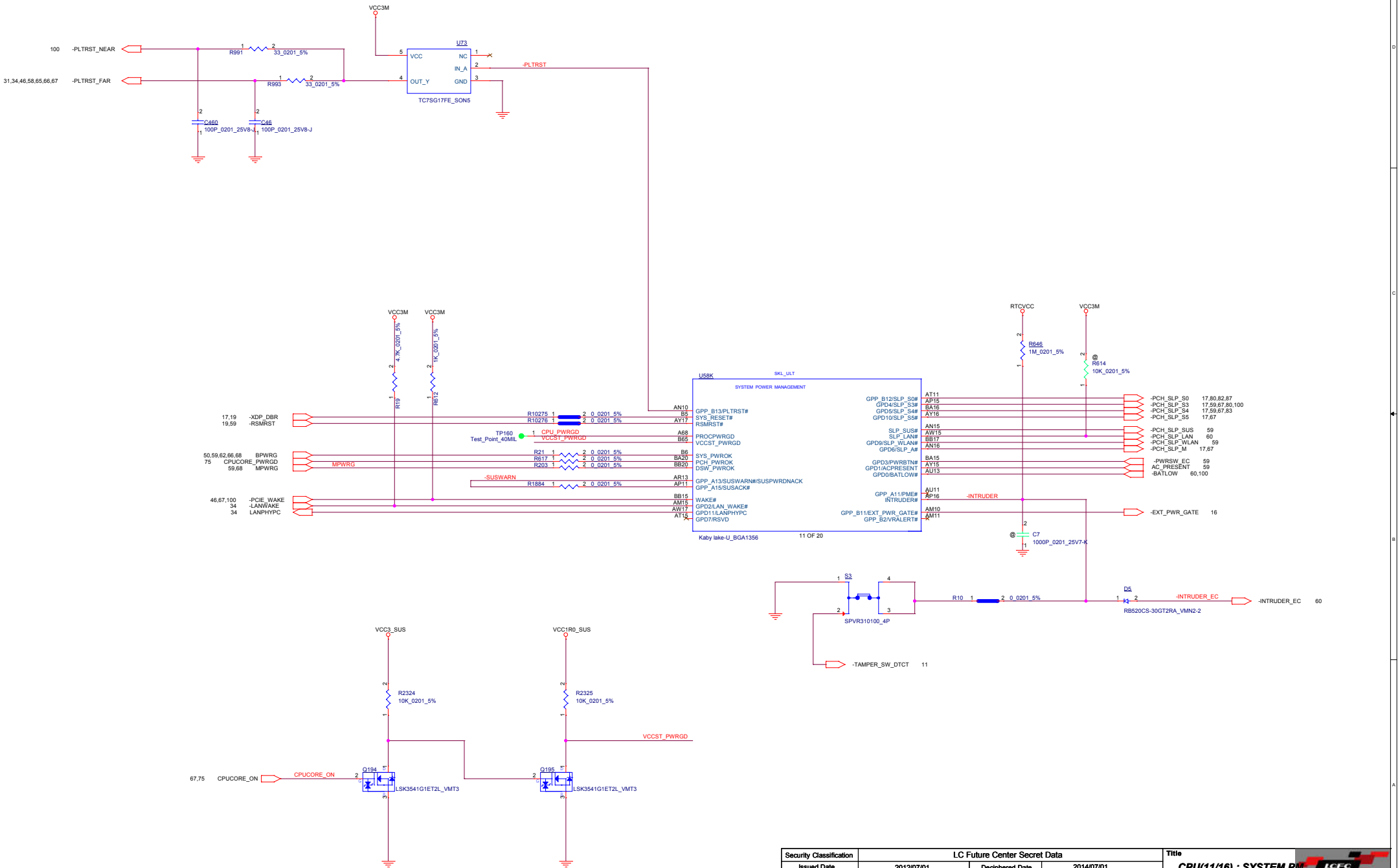


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: *CPU(10/16) : CLOCK SIGNALS*

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 12 of 103

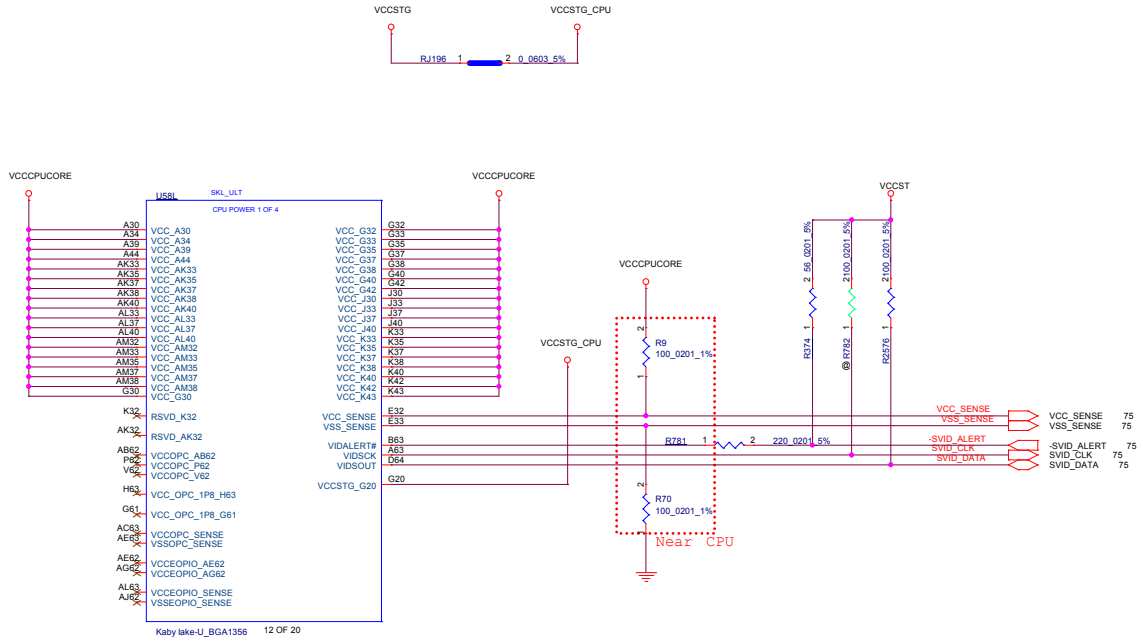


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(11/16) : SYSTEM PM

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 13 of 103

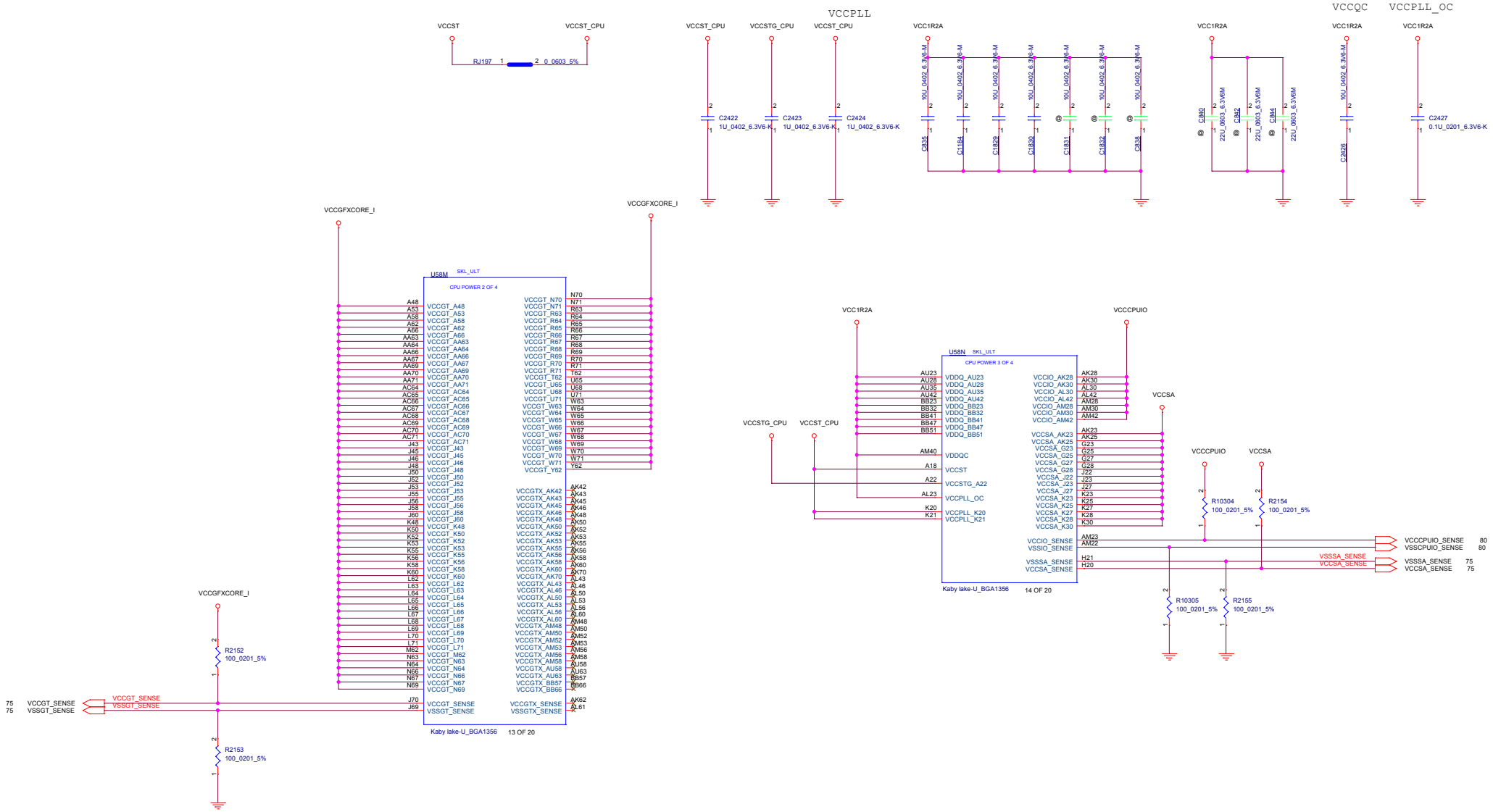


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(12/16) : CPU POWER (1/2)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

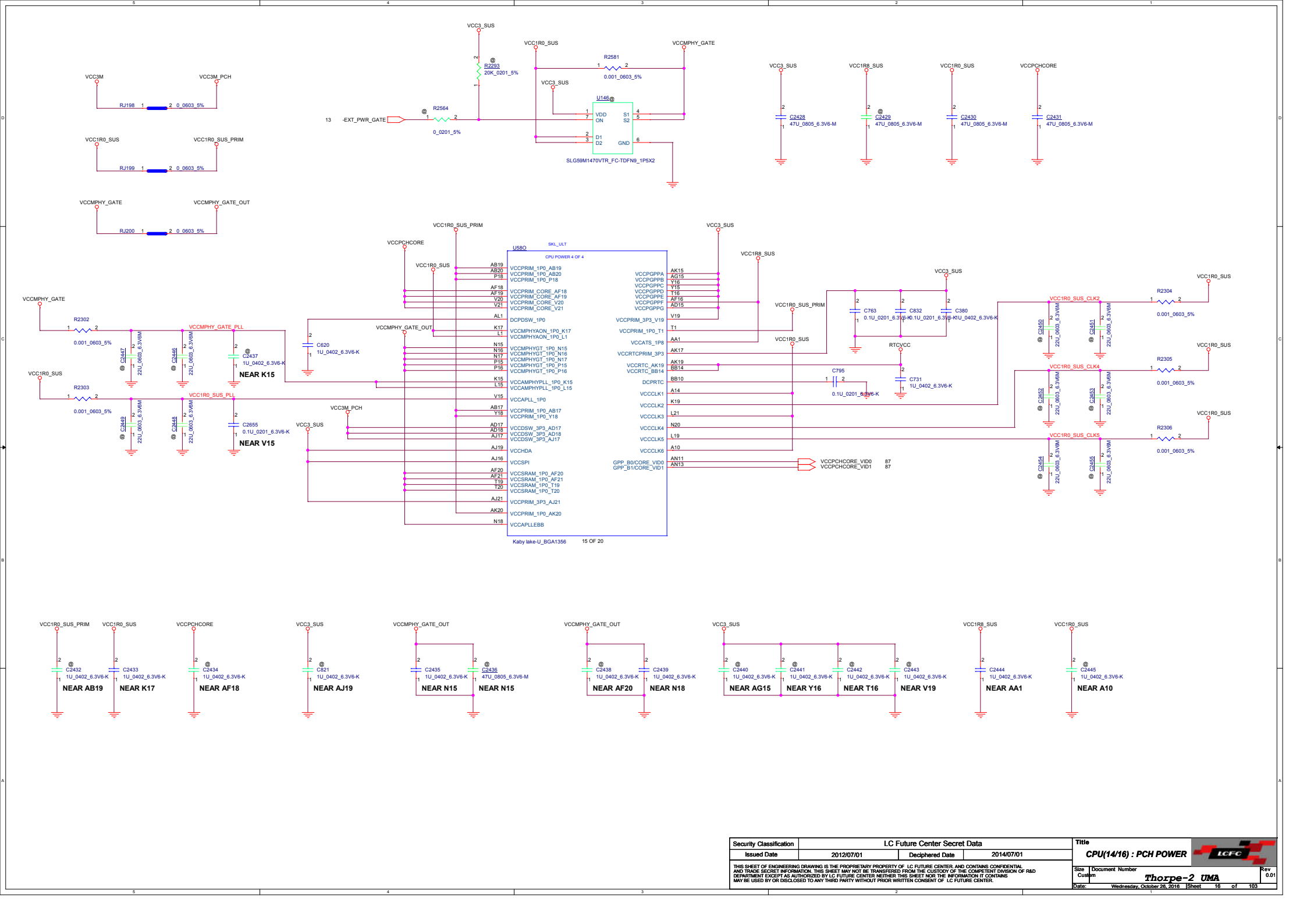
Date: Wednesday, October 26, 2016 Sheet 14 of 103



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(13/16) : CPU POWER (2/2)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
Date: Wednesday, October 26, 2016	Sheet 15 of 103	



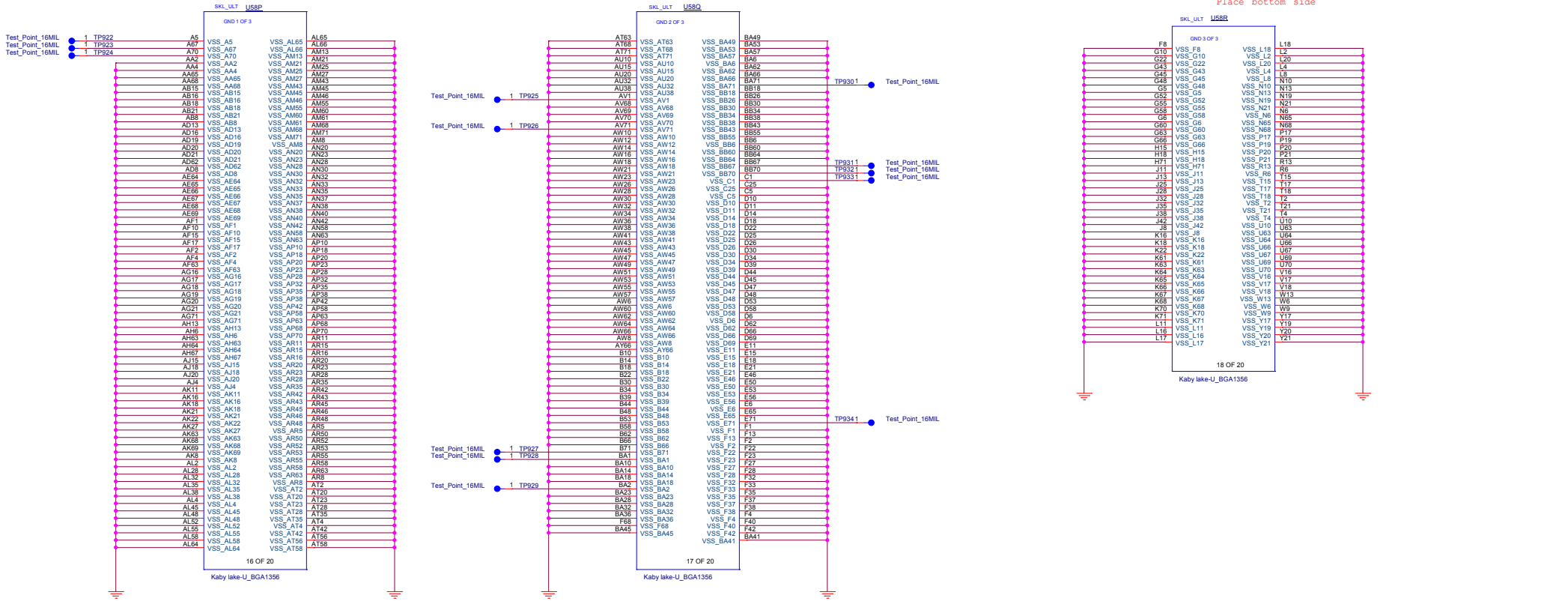
Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: CPU(14/16) : PCH POWER

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 | Sheet 16 of 103

APS/PETS Interface



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

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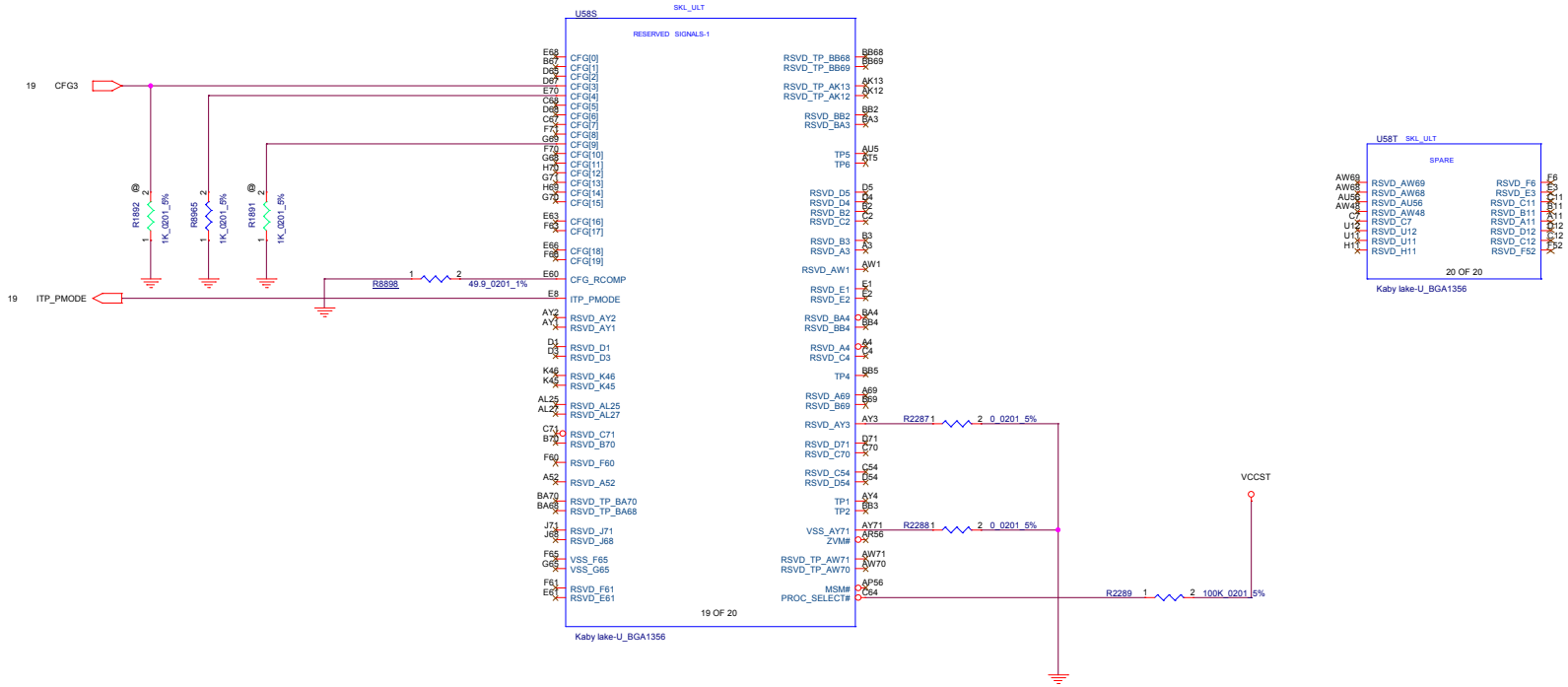
Title: CPU(15/16) : GND

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 17 of 103

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**

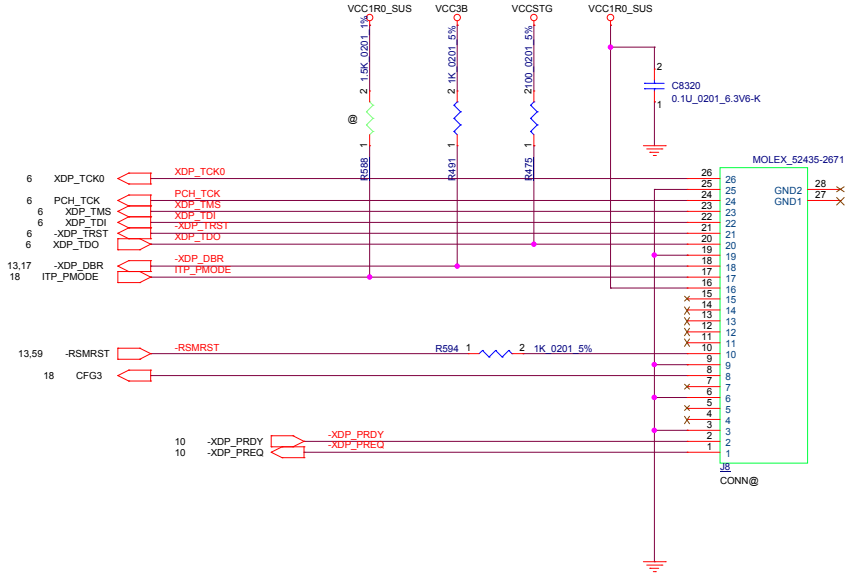


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: *CPU(16/16) : CFG/RESERVED*

Size	Document Number	Rev
Custom	*Thorpe-2 UMA*	0.01

Date: Wednesday, October 26, 2016 Sheet 18 of 103



TABLE

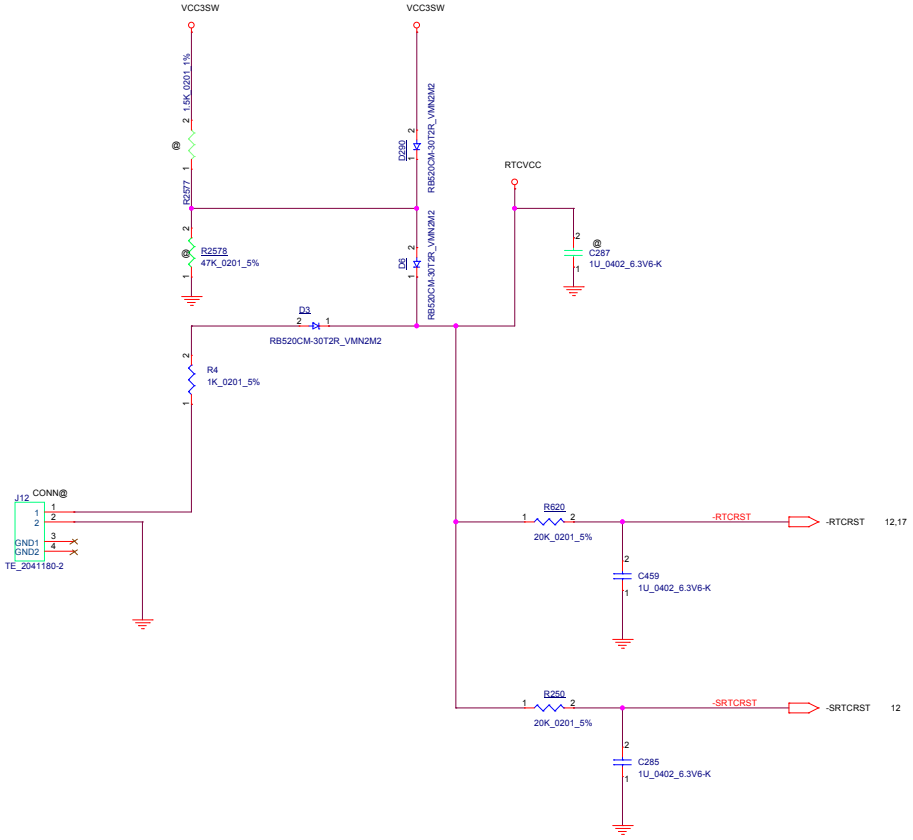
Logic	Ref Des	Merged	DCI 2.0
Page 6	R2	ASM	ASM
Page 7	R2559	ASM	NO_ASM
Page 18	R1892	ASM	NO_ASM
Page 19	J8	ASM	NO_ASM
	C8320	ASM	NO_ASM
	R475	ASM	ASM
	R491	ASM	ASM
	R588	ASM	NO_ASM
	R594	ASM	NO_ASM
	R2494	ASM	NO_ASM

LOGIC

Title: **XDP CONNECTOR**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 | Sheet 19 of 103

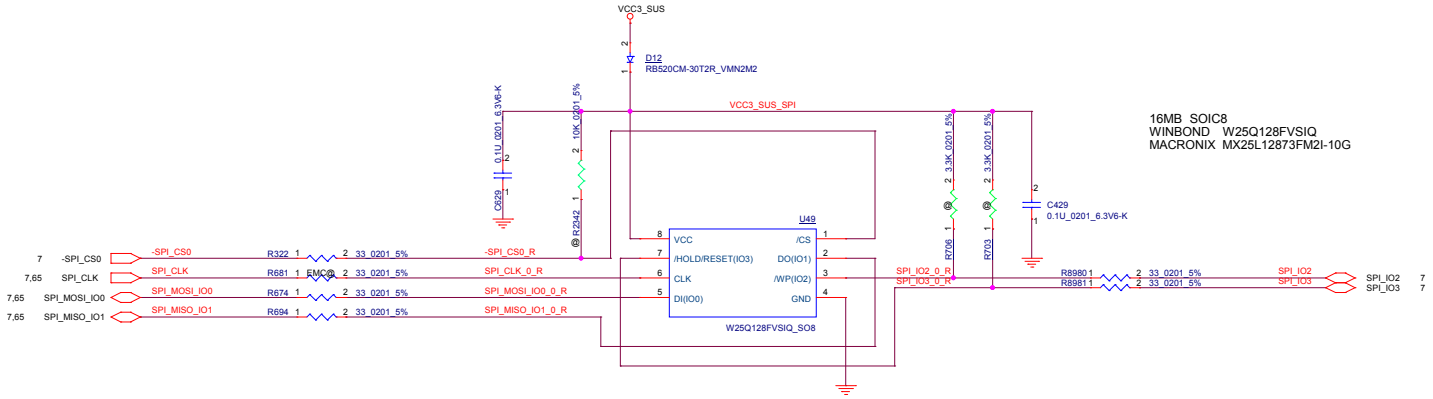


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **RTC BATTERY**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 | Sheet 20 of 103



TABLE

SF100 PIN HEADER INTERFACE (TOP VIEW)					
1	VCC	D12.1	GND	GND	2
3	CS#	R322.2	R681.2	CLK	4
5	MISO	R694.2	R674.2	MOSI	6
7	(KEY)	N/A	N/A	(RESET)	8

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **SPI FLASH**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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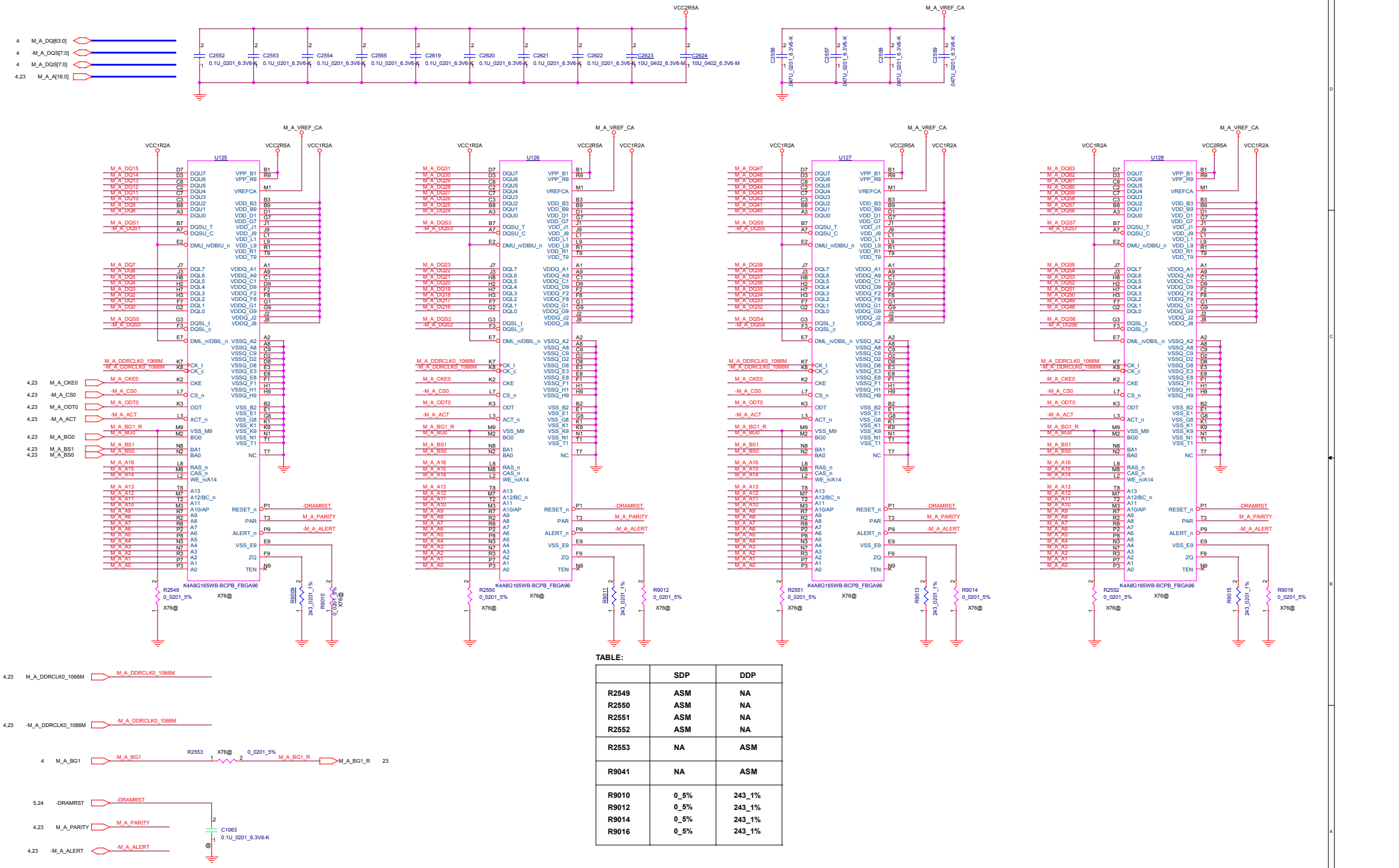


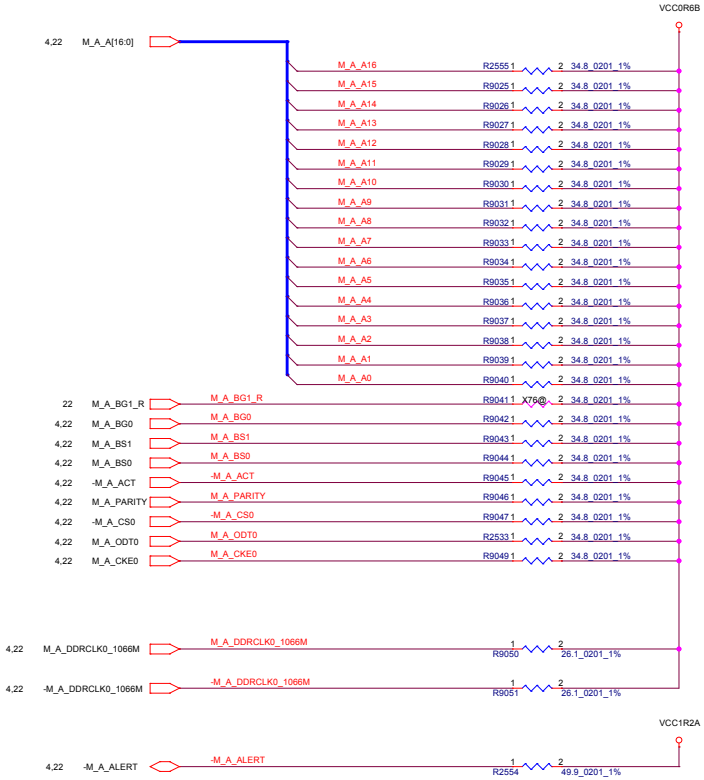
TABLE:

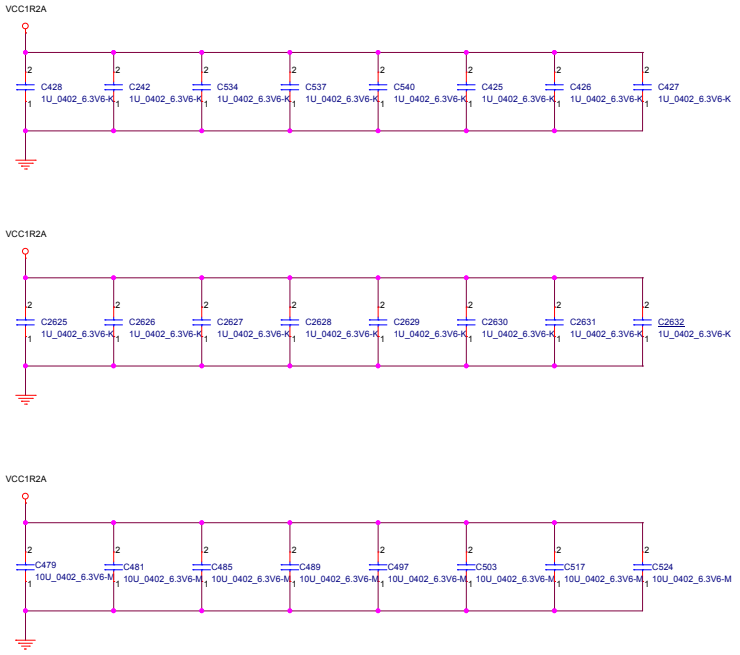
	SDP	DDP
R2549	ASM	NA
R2550	ASM	NA
R2551	ASM	NA
R2552	ASM	NA
R2553	NA	ASM
R9041	NA	ASM
R9010	0_5%	243_1%
R9012	0_5%	243_1%
R9014	0_5%	243_1%
R9016	0_5%	243_1%

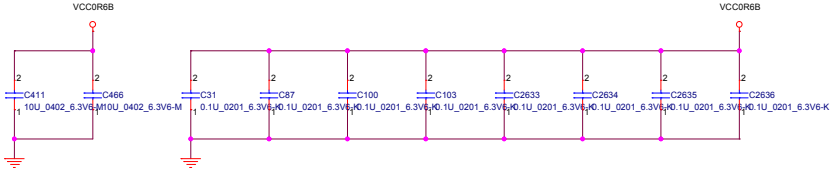
Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

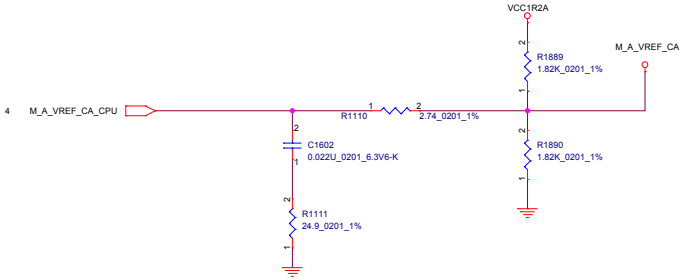
Title: **DDR4 BASE MEMORY CH-A (1/2)**

Size: Custom	Document Number: Thorpe-2 UMA		Rev: 0.01
Date: Wednesday, October 26, 2016	Sheet 22 of 103		





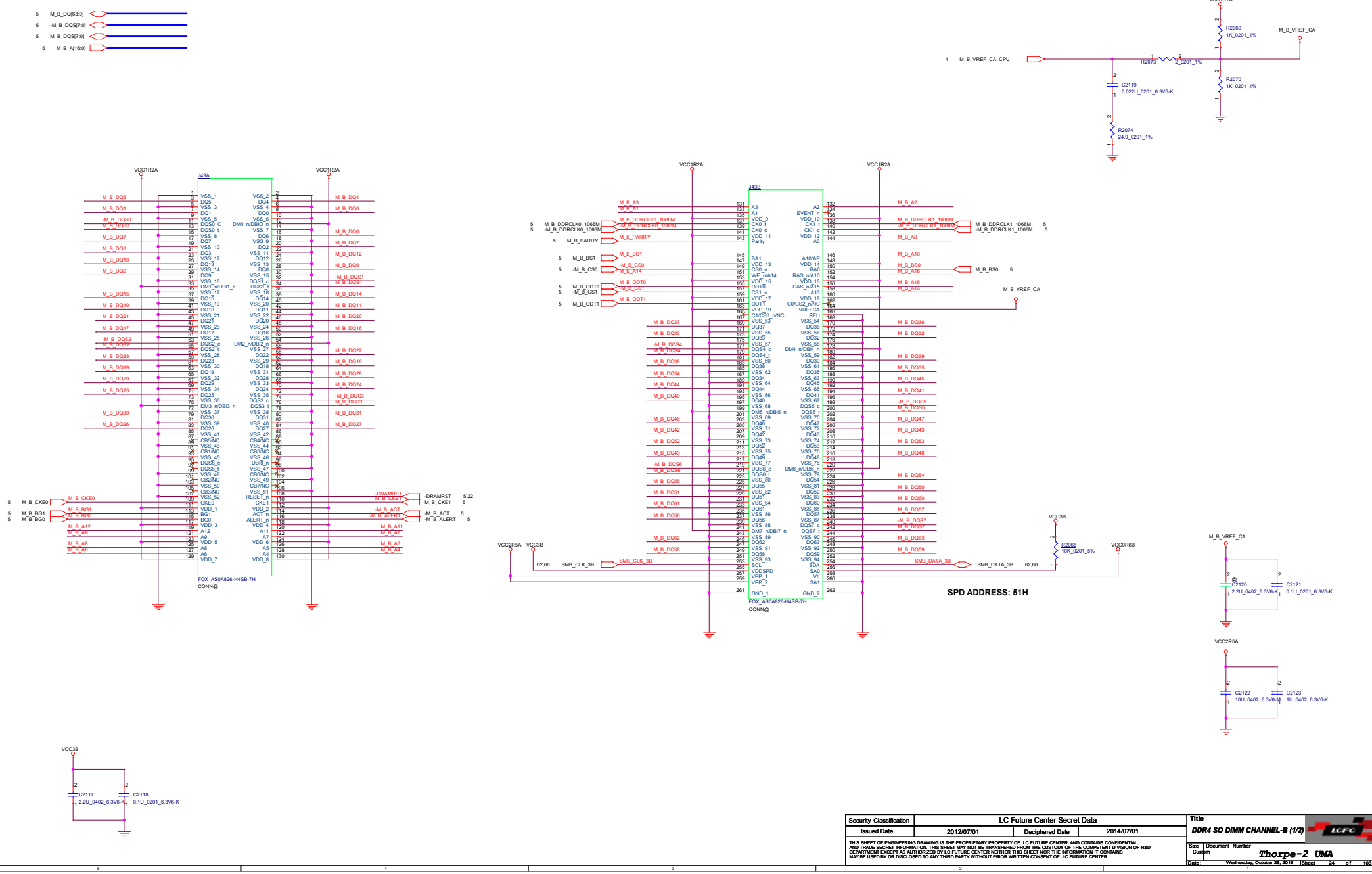




Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: DDR4 BASE MEMORY CH-A (2/2)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
Date: Wednesday, October 26, 2016	Sheet 23 of 103	


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
R2069 1K_0201_1%
M_B_VREF_CA
4 M_B_VREF_CA_CPU
R2073 2_0201_1%
C2119 0.022U_0201_6.3V6-K
R2070 1K_0201_1%
R2074 24.9_0201_1%
J43A
FOX_AS0A826-H4SB-7H
CONN@
J43B
M_B_DQ5
M_B_DQ1
-M_B_DQS0
M_B_DQ7
M_B_DQ3
M_B_DQ13
M_B_DQ9
M_B_DQ15
M_B_DQ10
M_B_DQ21
M_B_DQ17
-M_B_DQS2
M_B_DQ23
M_B_DQ19
M_B_DQ29
M_B_DQ25
M_B_DQ30
M_B_DQ26
M_B_DQ4
M_B_DQ0
M_B_DQ6
M_B_DQ2
M_B_DQ12
M_B_DQ8
-M_B_DQS1
M_B_DQ14
M_B_DQ11
M_B_DQ20
M_B_DQ16
M_B_DQ22
M_B_DQ18
M_B_DQ28
M_B_DQ24
-M_B_DQS3
M_B_DQ31
M_B_DQ27
5 M_B_CKE0
5 M_B_BG1
5 M_B_BG0
M_B_A12
M_B_A9
M_B_A8
M_B_A6
M_B_A4
M_B_A2
M_B_A0
-DRAMRST 5,22
M_B_CKE1 5
-M_B_ACT 5
-M_B_ALERT 5
M_B_A11
M_B_A7
M_B_A5
5 M_B_DDRCLK0_1066M
5 -M_B_DDRCLK0_1066M
5 M_B_PARITY
5 M_B_BS1
5 -M_B_CS0
5 M_B_ODT0
5 -M_B_CS1
5 M_B_ODT1
M_B_A3
M_B_A1
M_B_DDRCLK0_1066M
-M_B_DDRCLK0_1066M
M_B_PARITY
M_B_BS1
-M_B_CS0
M_B_ODT0
-M_B_CS1
M_B_ODT1
M_B_DDRCLK1_1066M 5
-M_B_DDRCLK1_1066M 5
M_B_BS0 5
M_B_A10
M_B_A15
M_B_A13
M_B_VREF_CA
M_B_DQ37
M_B_DQ33
-M_B_DQS4
M_B_DQ38
M_B_DQ34
M_B_DQ44
M_B_DQ40
M_B_DQ46
M_B_DQ42
M_B_DQ52
M_B_DQ49
-M_B_DQS6
M_B_DQ55
M_B_DQ51
M_B_DQ61
M_B_DQ56
M_B_DQ62
M_B_DQ58
M_B_DQ36
M_B_DQ32
M_B_DQ39
M_B_DQ35
M_B_DQ45
M_B_DQ41
-M_B_DQS5
M_B_DQ47
M_B_DQ43
M_B_DQ53
M_B_DQ48
M_B_DQ54
M_B_DQ50
M_B_DQ60
M_B_DQ57
-M_B_DQS7
M_B_DQ63
M_B_DQ59
VCC2R5A
VCC3B
62.66 SMB_CLK_3B
SMB_CLK_3B
SMB_DATA_3B 62.66
R2066 10K_0201_5%
VCC0R6B
SPD ADDRESS: 51H
C2120 2.2U_0402_6.3V6-K
C2121 0.1U_0201_6.3V6-K
C2122 10U_0402_6.3V6-K
C2123 1U_0402_6.3V6-K
C2117 2.2U_0402_6.3V6-K
C2118 0.1U_0201_6.3V6-K
Security Classification
LC Future Center Secret Data
Issued Date
2012/07/01
Deciphered Date
2014/07/01
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Title
DDR4 SO DIMM CHANNEL-B (1/2)
Size
Custom
Document Number
Thorpe-2 UMA
Rev
0.01
Date: Wednesday, October 26, 2016
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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

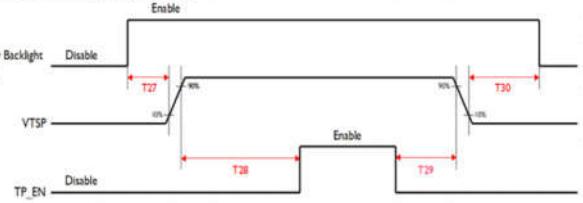
Title: DDR4 SO DIMM CHANNEL-B (2/2)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 25 of 103

Touch Panel Sequence		
	Support	Non-Support
R10386	ASM	No ASM
F42	ASM	No ASM
D739	ASM	No ASM
C9541	ASM	No ASM
Q266	ASM	No ASM
R10341	ASM	No ASM
C9542	ASM	No ASM
R10339	ASM	No ASM
D740	ASM	No ASM
R10337	ASM	No ASM
R10338	ASM	No ASM
R38	No ASM	ASM
F24	No ASM	ASM
R10323	No ASM	ASM
R2412	No ASM	ASM

TP power on/off Sequence:



	Min	Max
T27	10ms	-
T28	20ms	-
T29	2ms	-
T30	100ms	-

LCD CONNECTOR

PLACE NEAR J11

Co-layout

Co-layout

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

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Title: LCD/USB/LID/MIC/CAMERA/PWR SW

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

Date: Wednesday, October 26, 2016 | Sheet 26 of 103

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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BLANK

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 | Sheet 28 of 103

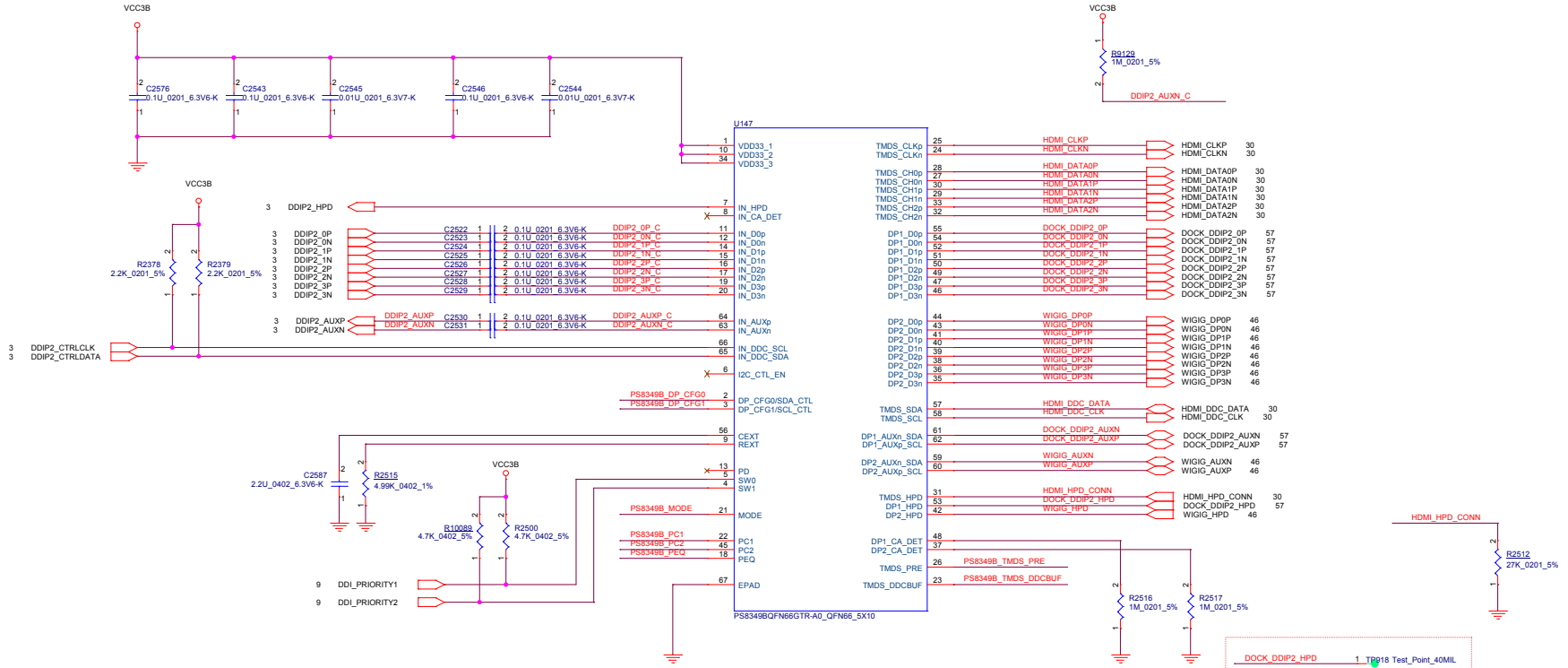


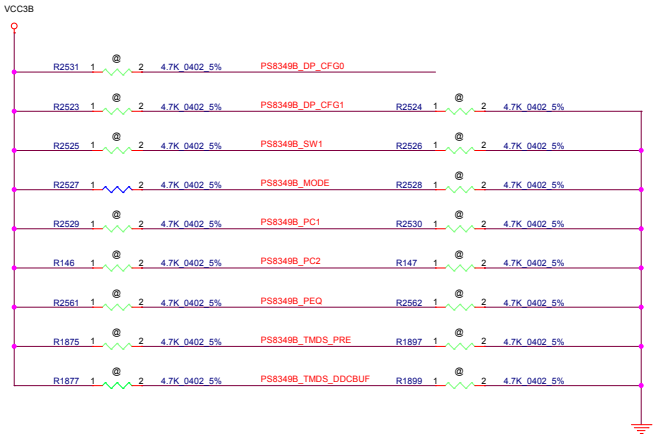
TABLE:

SW1	SW0	Port Priority Sequence
L	L	DP1 Port > DP2 Port > TMDS Port
L	H	DP1 Port > TMDS Port > DP2 Port
H	L	TMDS Port > DP2 Port > DP1 Port
H	H	TMDS Port > DP1 Port > DP2 Port

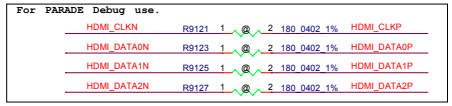
← DEFAULT

MODE =
H : Automatic Switching mode, HDMI ID Enabled
L : Automatic Switching mode, HDMI ID Disabled

← DEFAULT



For PARADE Debug use.

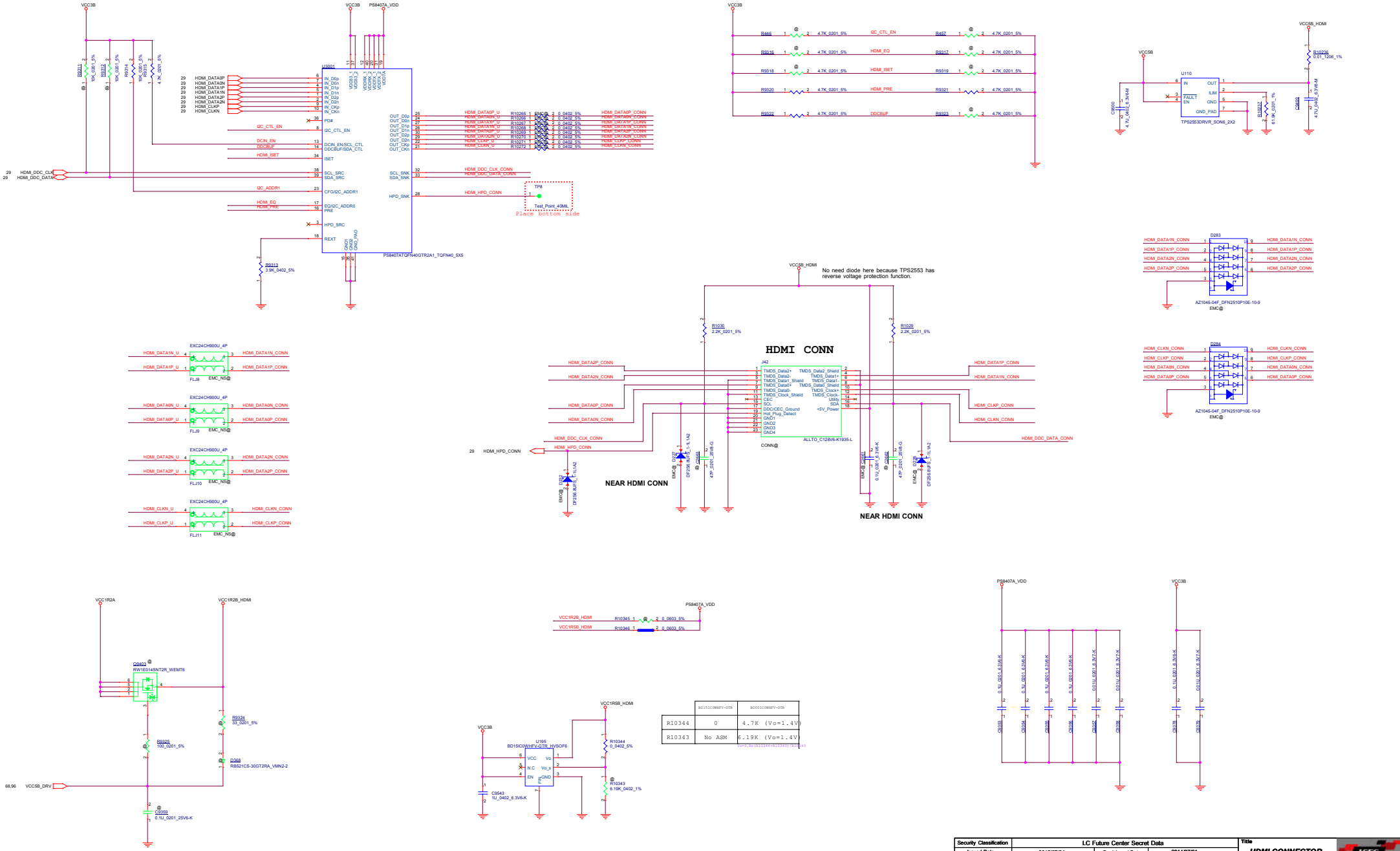


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: DDI DEMUX/HDMI LEVEL SHIFTER

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

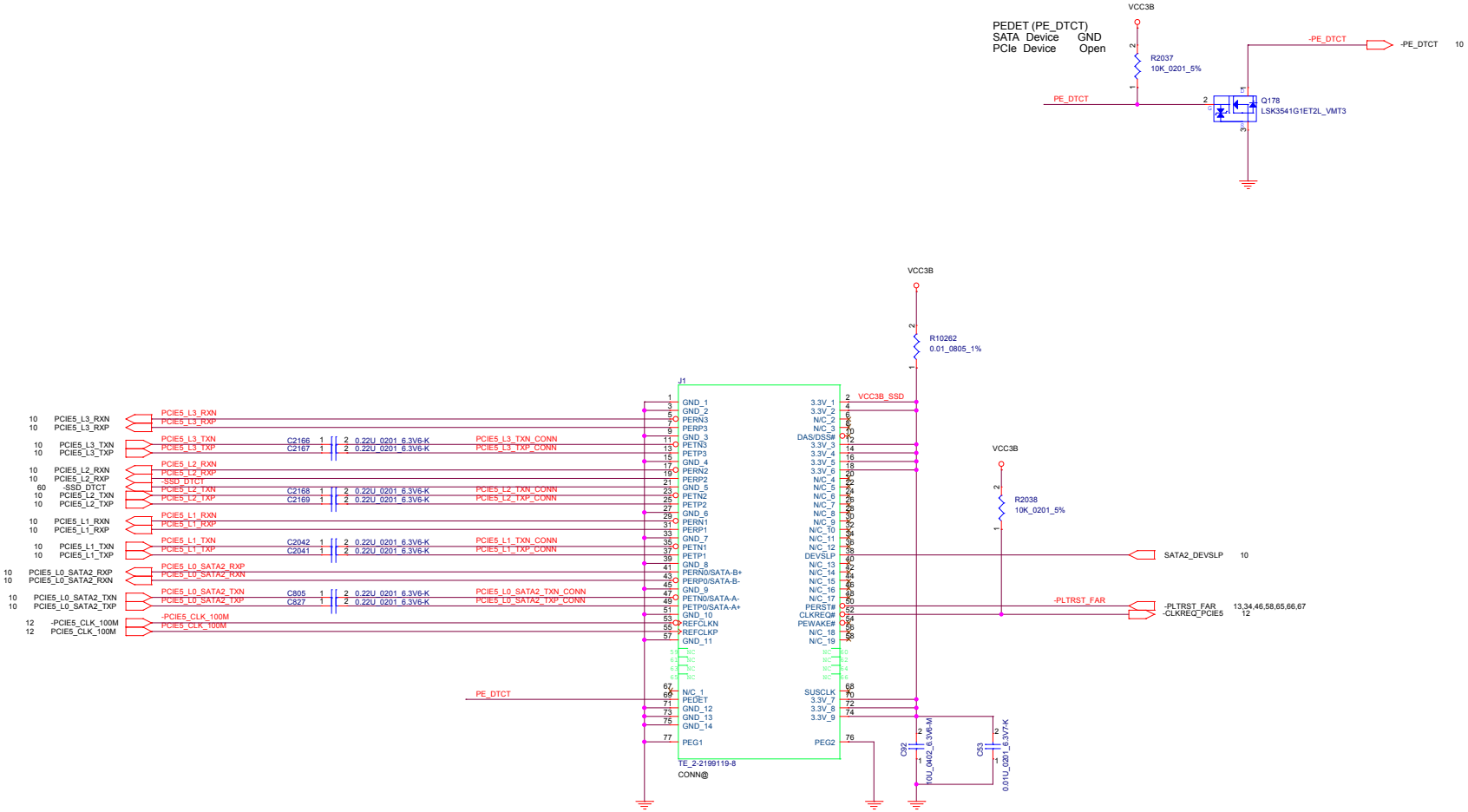
Date: Wednesday, October 26, 2016 Sheet 29 of 103



	BD15IC0WHFV-GTR	BD00IC0WHFV-GTR
R10344	0	4.7K (Vo=1.4V)
R10343	No ASM	6.19K (Vo=1.4V)

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title	HDMI CONNECTOR		
Size	Document Number		Rev
Custom	Thorpe-2 UMA		0.01
Date:	Wednesday, October 29, 2014	Sheet	30 of 193



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: *M.2 SATA/PCIE SSD CARD SLOT*

Size	Document Number	Rev
Custom	*Thorpe-2 UMA*	0.01
Date: Wednesday, October 26, 2016	Sheet 31 of 103	

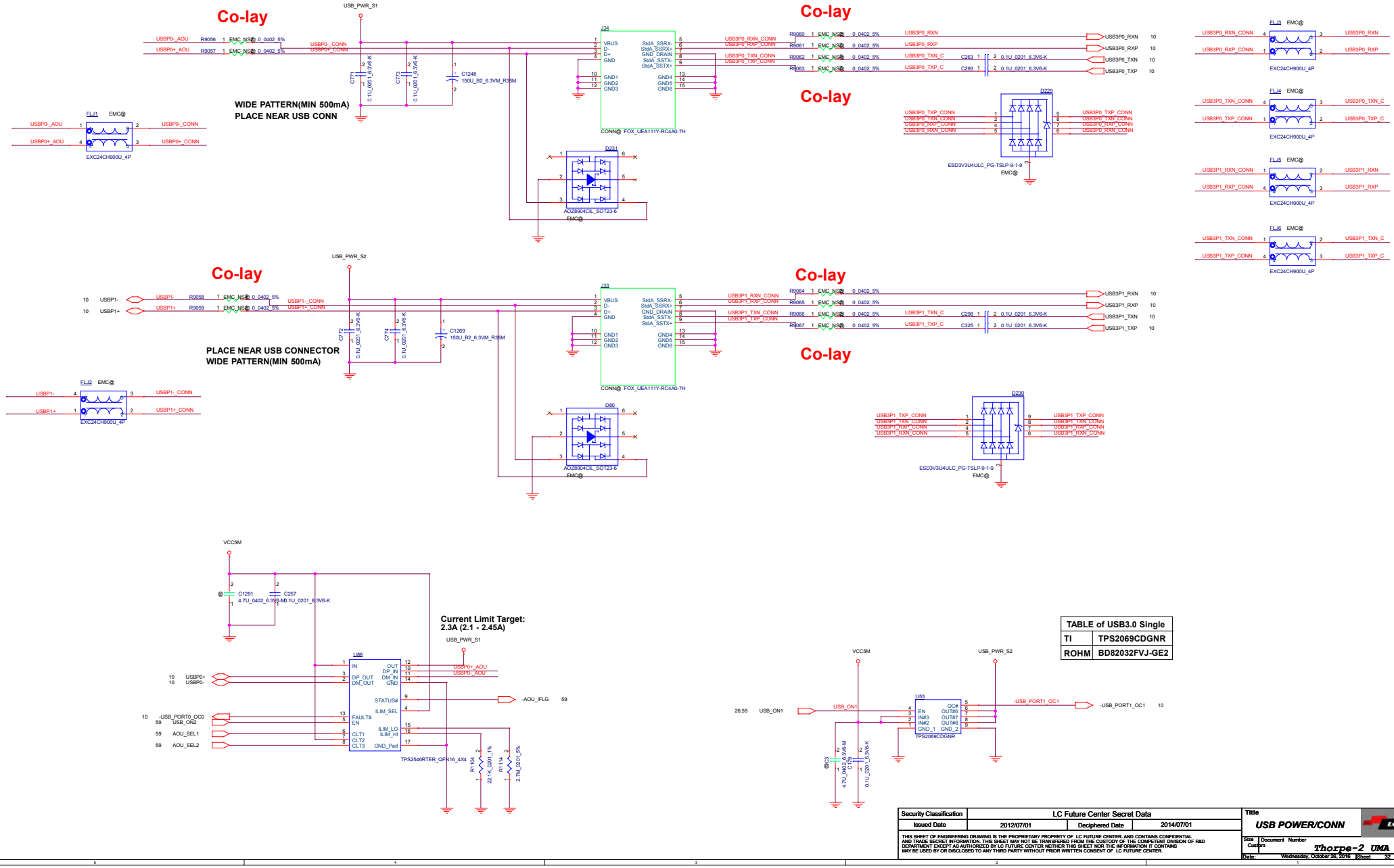


TABLE of USB3.0 Single	
TI	TPS2069CDGNR
ROHM	BD82032FVJ-GE2

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **USB POWER/CONN**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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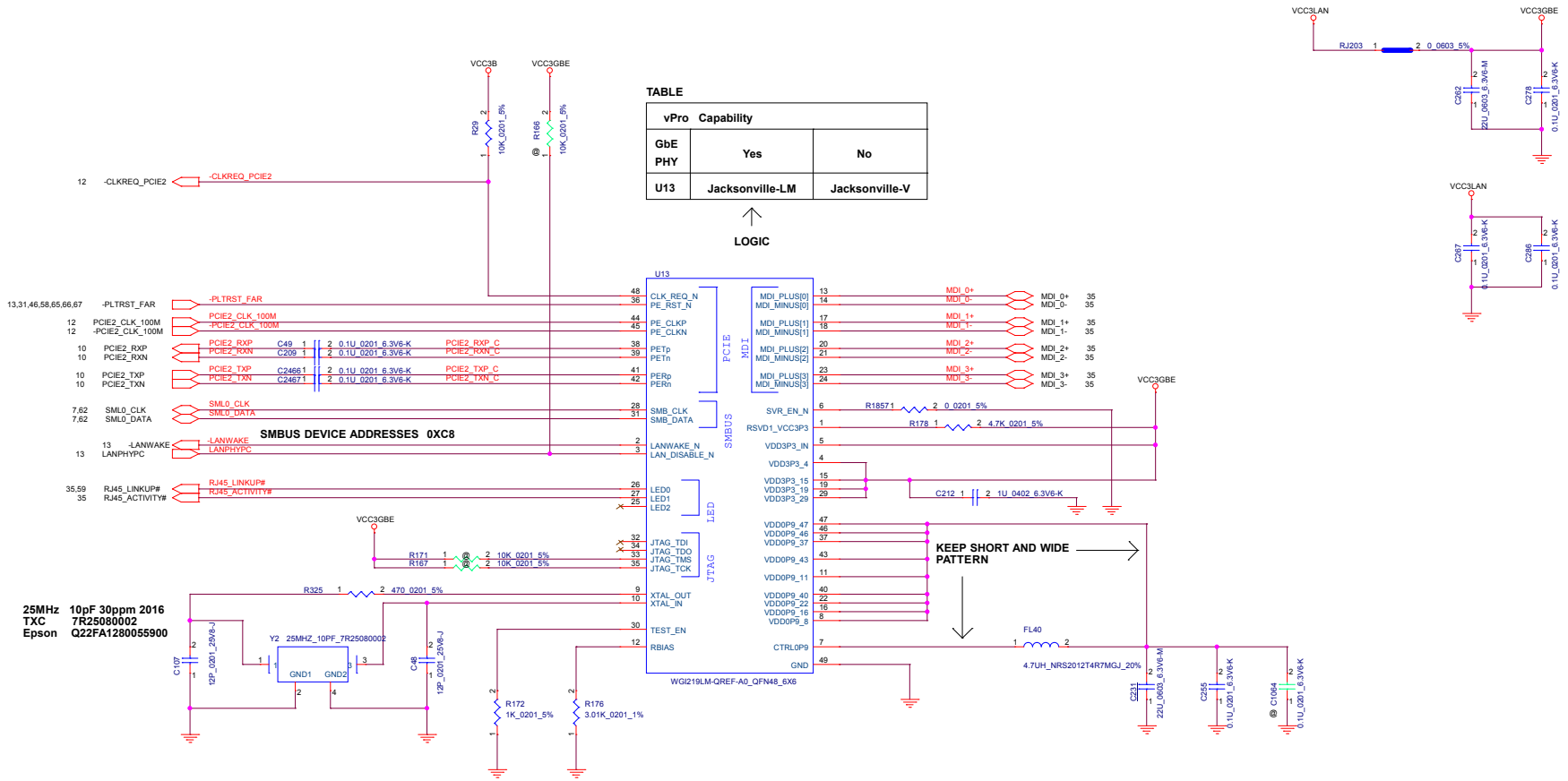
Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 | Sheet 33 of 103

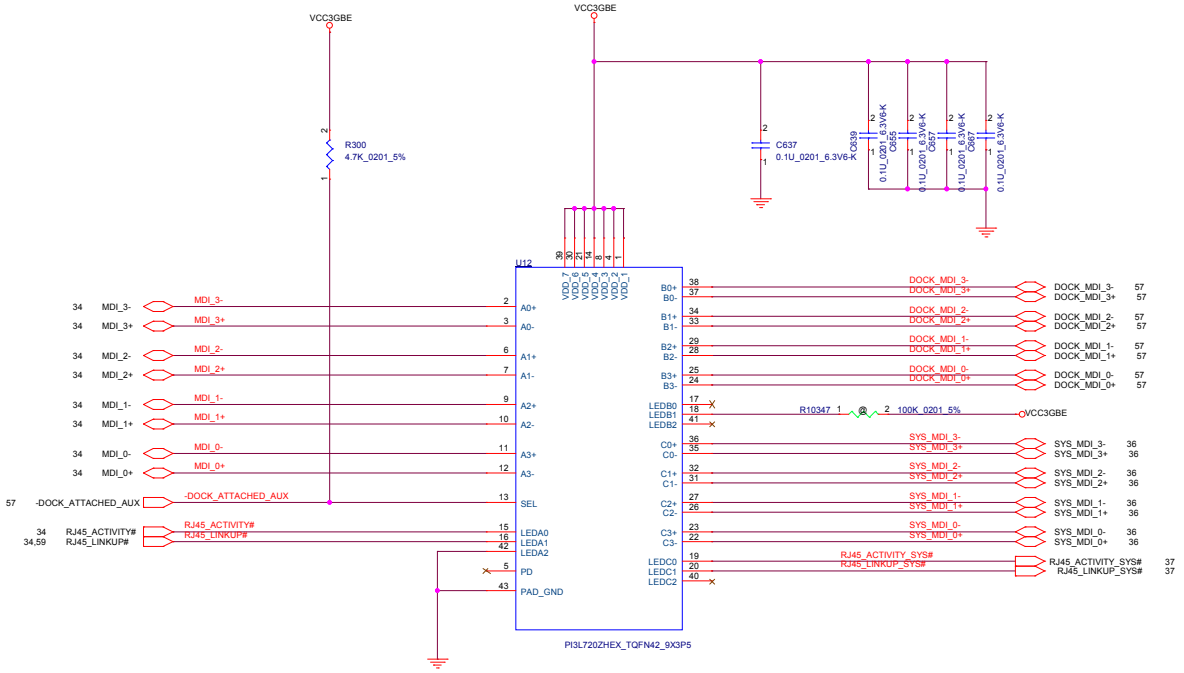


Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: GBE JACKSONVILLE

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

Date: Wednesday, October 26, 2016 | Sheet 34 of 103



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **GBE LAN SWITCH**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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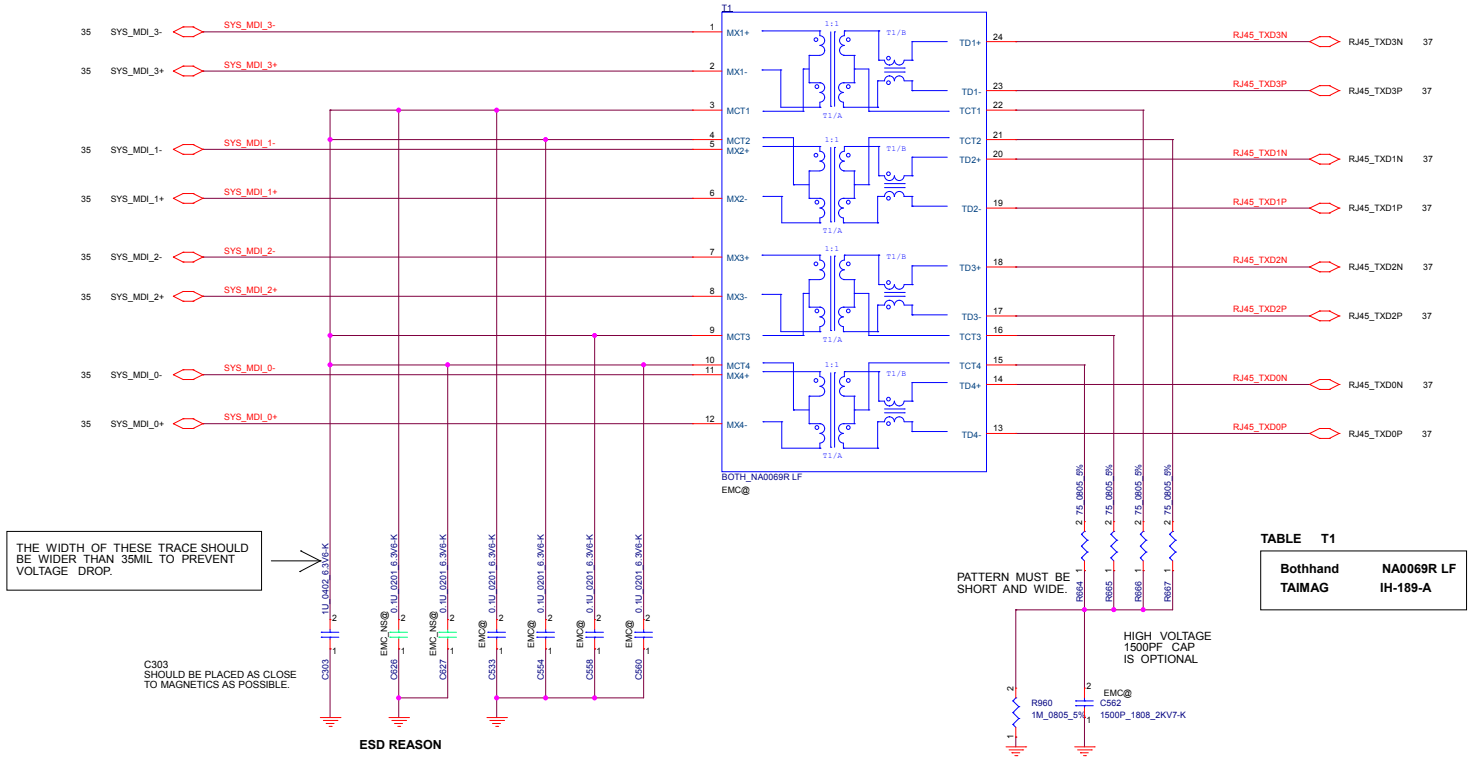


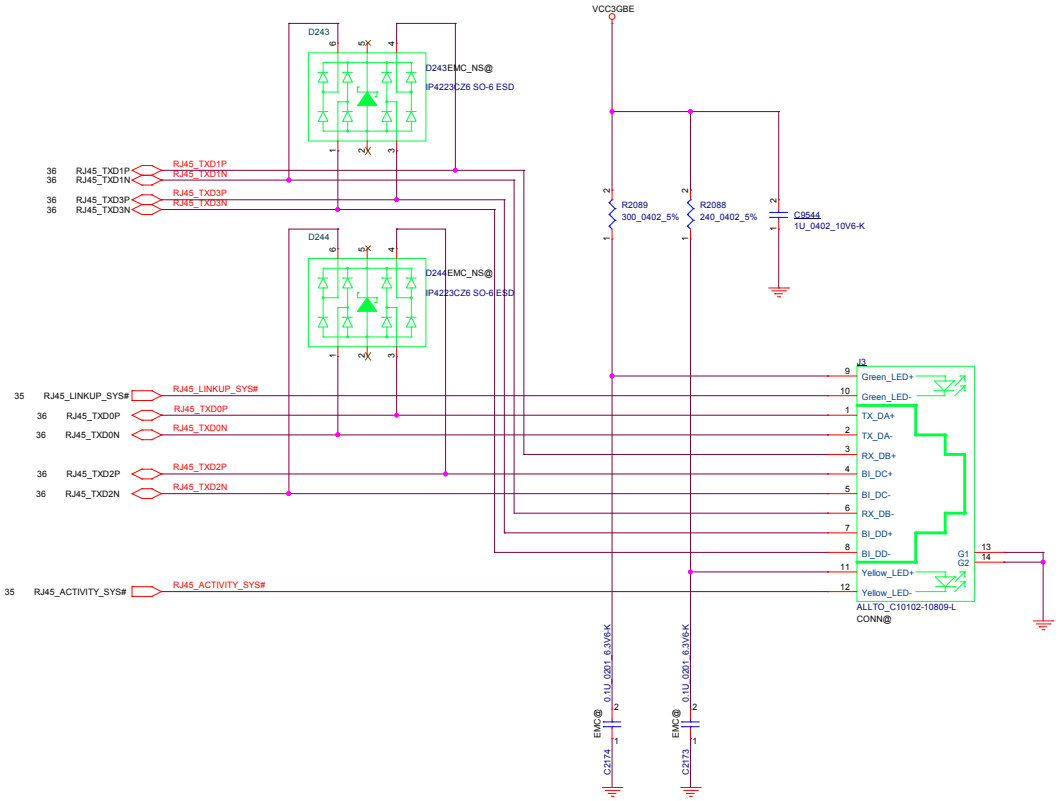
TABLE T1

Bothhand	NA0069R LF
TAIMAG	IH-189-A

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **GBE MAGNETICS**

Size: Custom	Document Number: Thorpe-2 UMA	Rev: 0.01
Date: Wednesday, October 26, 2016	Sheet 36 of 103	



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **J45 CONNECTOR**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: *BLANK*

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: ***BLANK***

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: ***BLANK***

Size	Document Number	Rev
Custom	***Thorpe-2 UMA***	0.01

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: ***BLANK***

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size: Custom	Document Number: Thorpe-2 UMA	Rev: 0.01
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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: ***BLANK***

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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Security Classification	LC Future Center Secret Data		
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Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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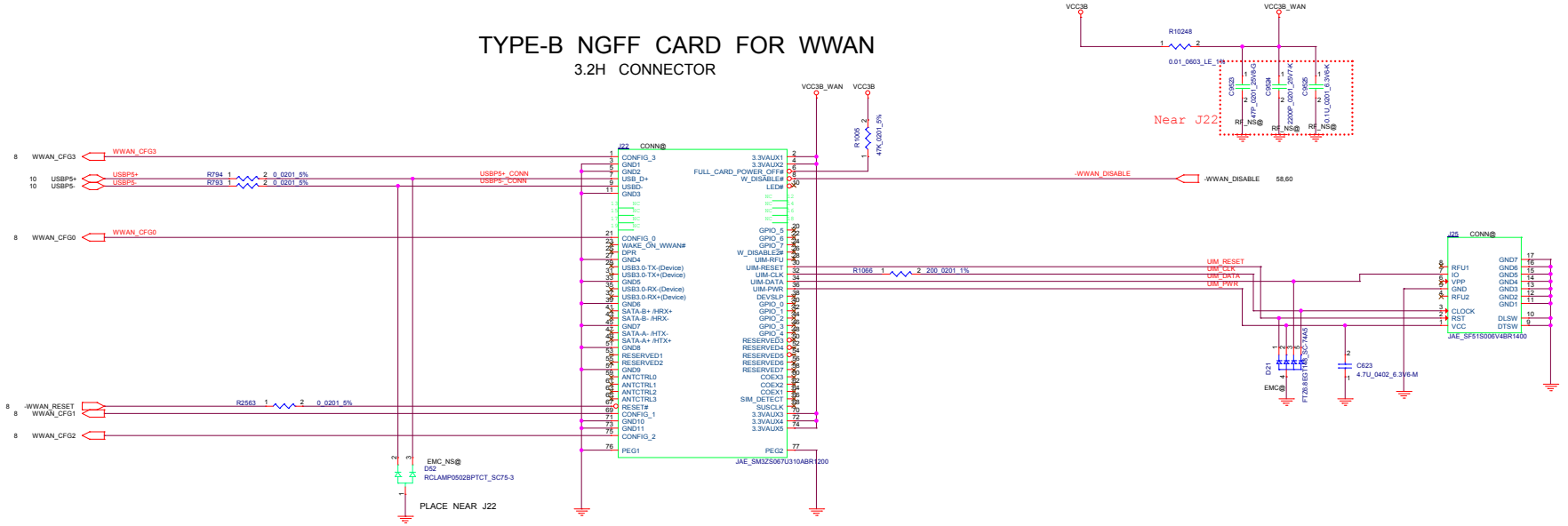
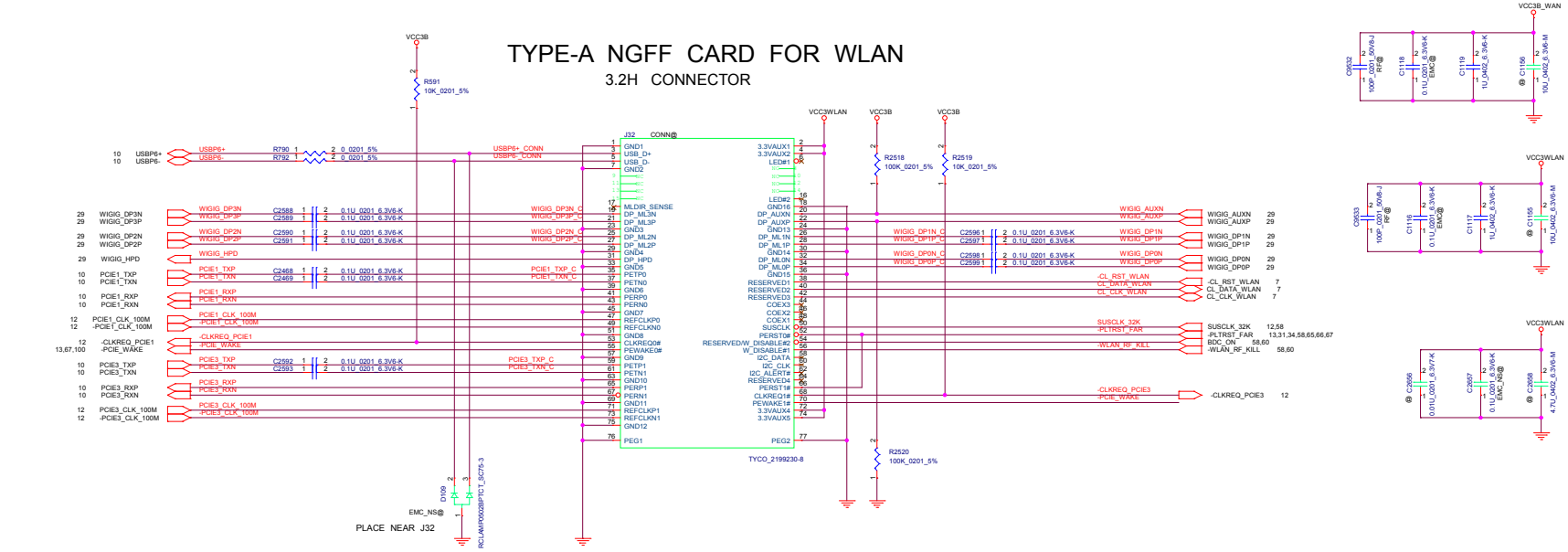
TYPE-B NGFF CARD FOR WWAN

3.2H CONNECTOR



TYPE-A NGFF CARD FOR WLAN

3.2H CONNECTOR



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: PCIE M.2 (NGFF) CARD SLOT

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

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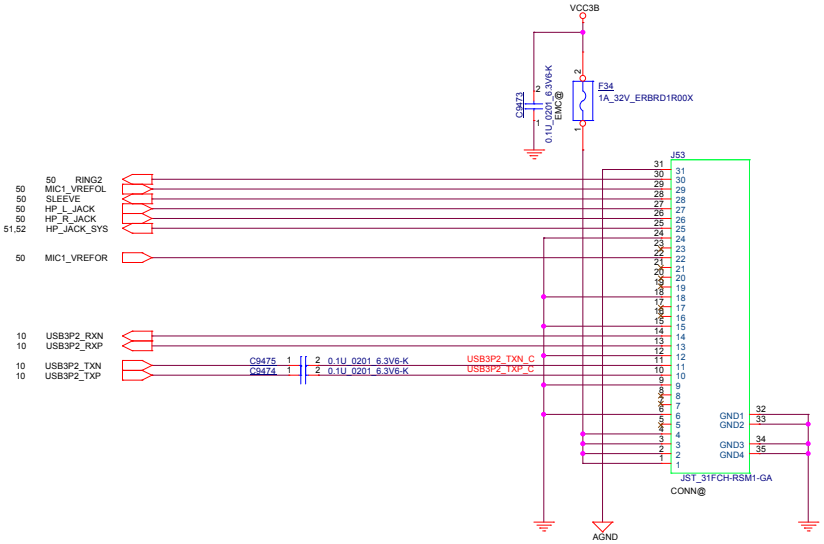
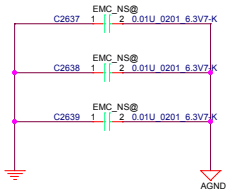


Reserved for EMC/RF solution



Title: **SD/AUDIO CONNECTOR I/F**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 47 of 103

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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TABLE

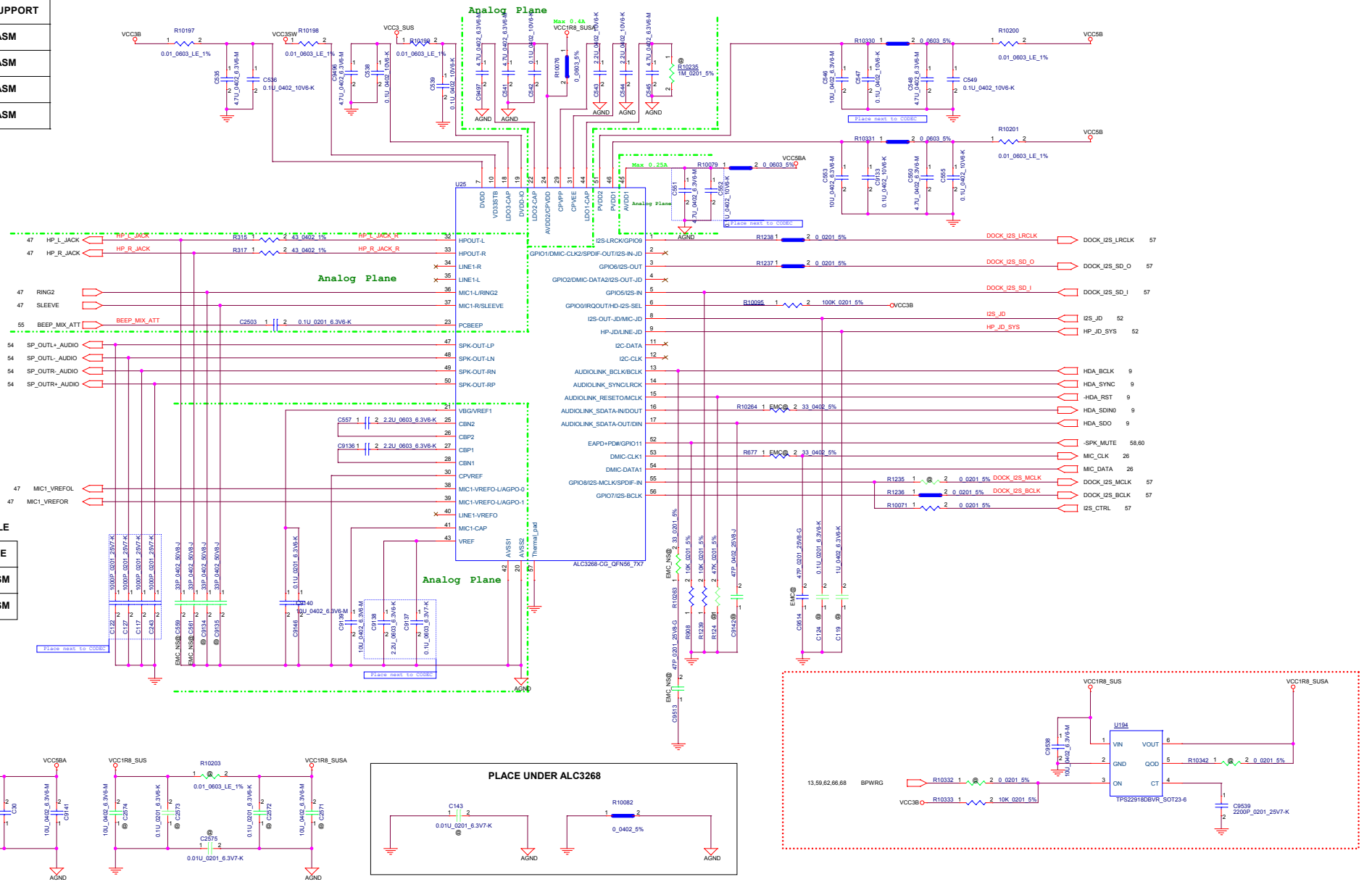
Dock support		
	SUPPORT	NON-SUPPORT
R1235	NO ASM	NO ASM
R1236	ASM	NO ASM
R1237	ASM	NO ASM
R1238	ASM	NO ASM

LOGIC

TABLE MIC HW ENABLE/DISABLE

	ENABLE	DISABLE
R961	ASM	NO ASM
R677	ASM	NO ASM

LOGIC



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: AUDIO ALC3268

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

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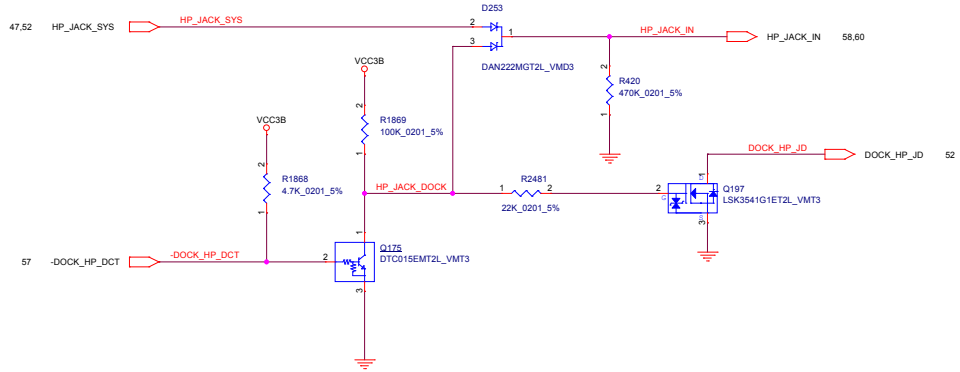
TABLE

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

LOGIC



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **AUDIO HP JACK DETECT**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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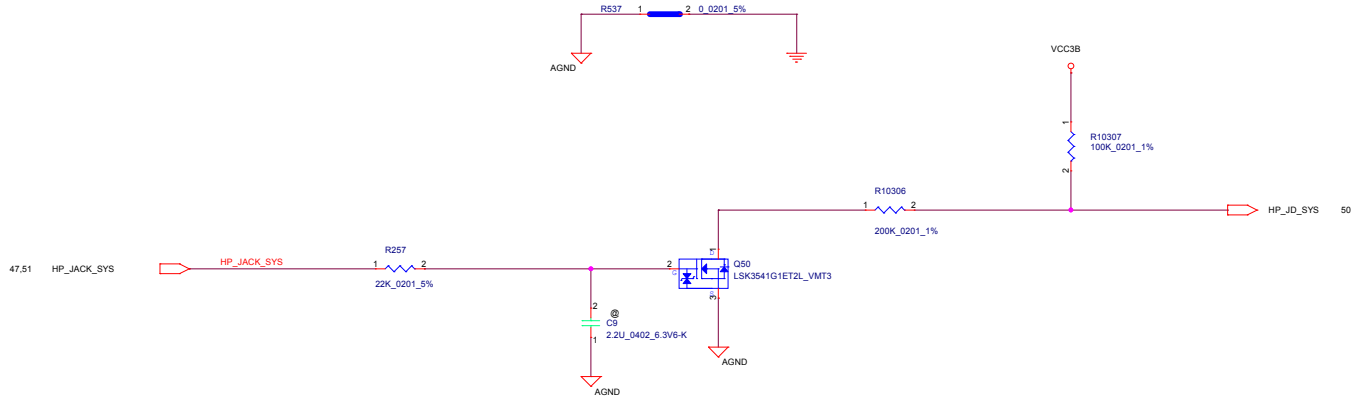
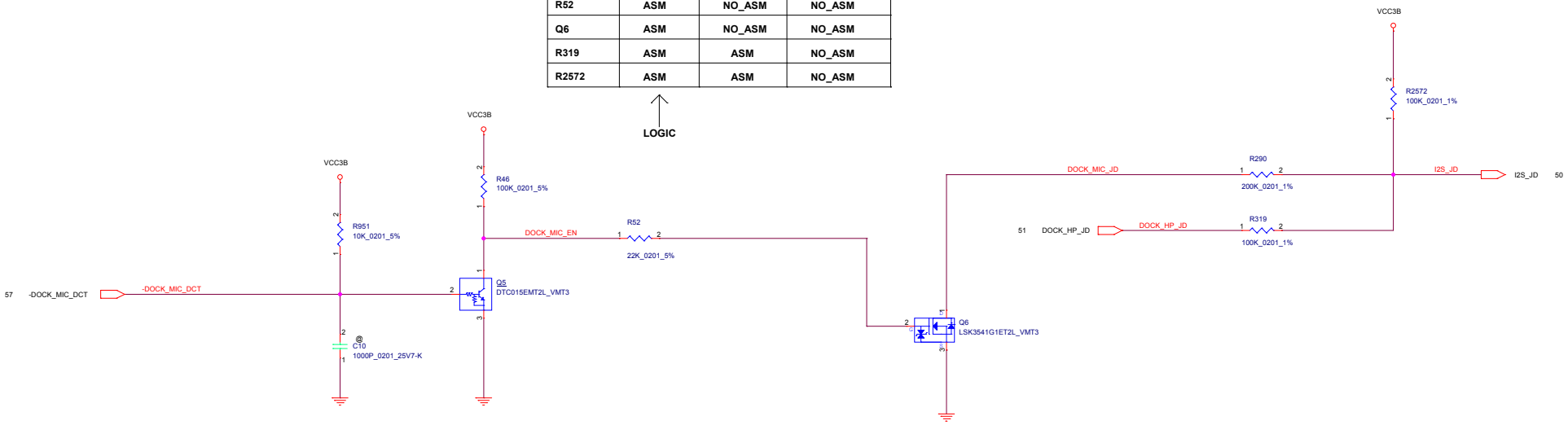


TABLE

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	NO_ASM

LOGIC



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **AUDIO JACK SENSE**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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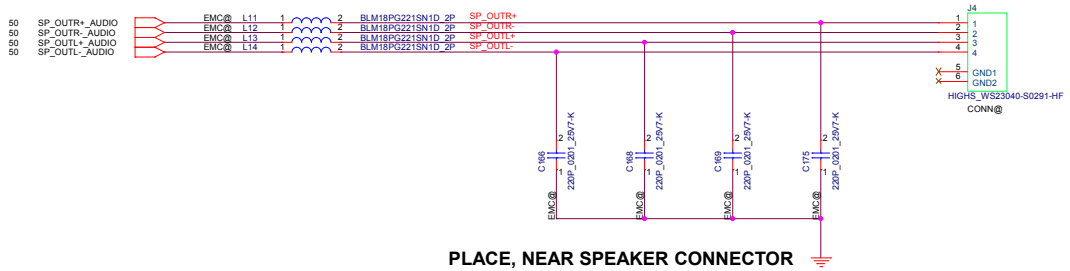


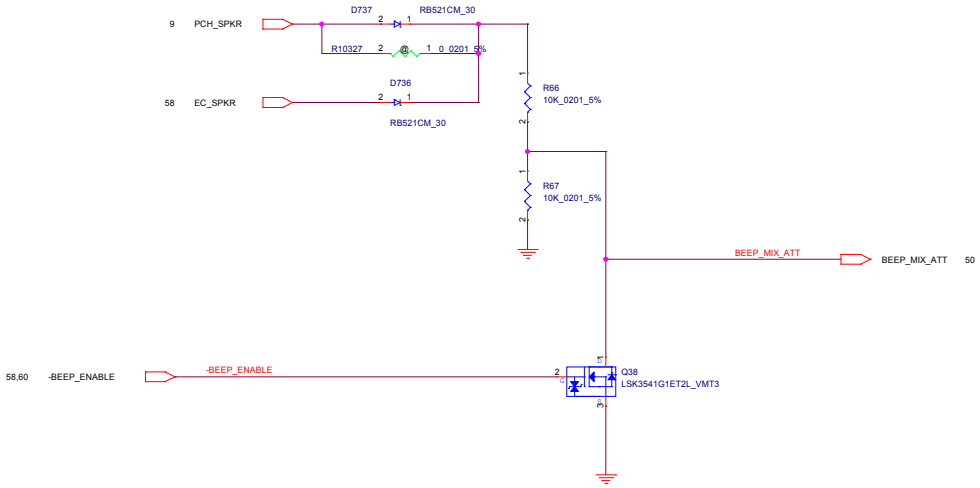
PLACE, NEAR SPEAKER CONNECTOR

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **AUDIO SPEAKER**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 54 of 103



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **AUDIO BEEP**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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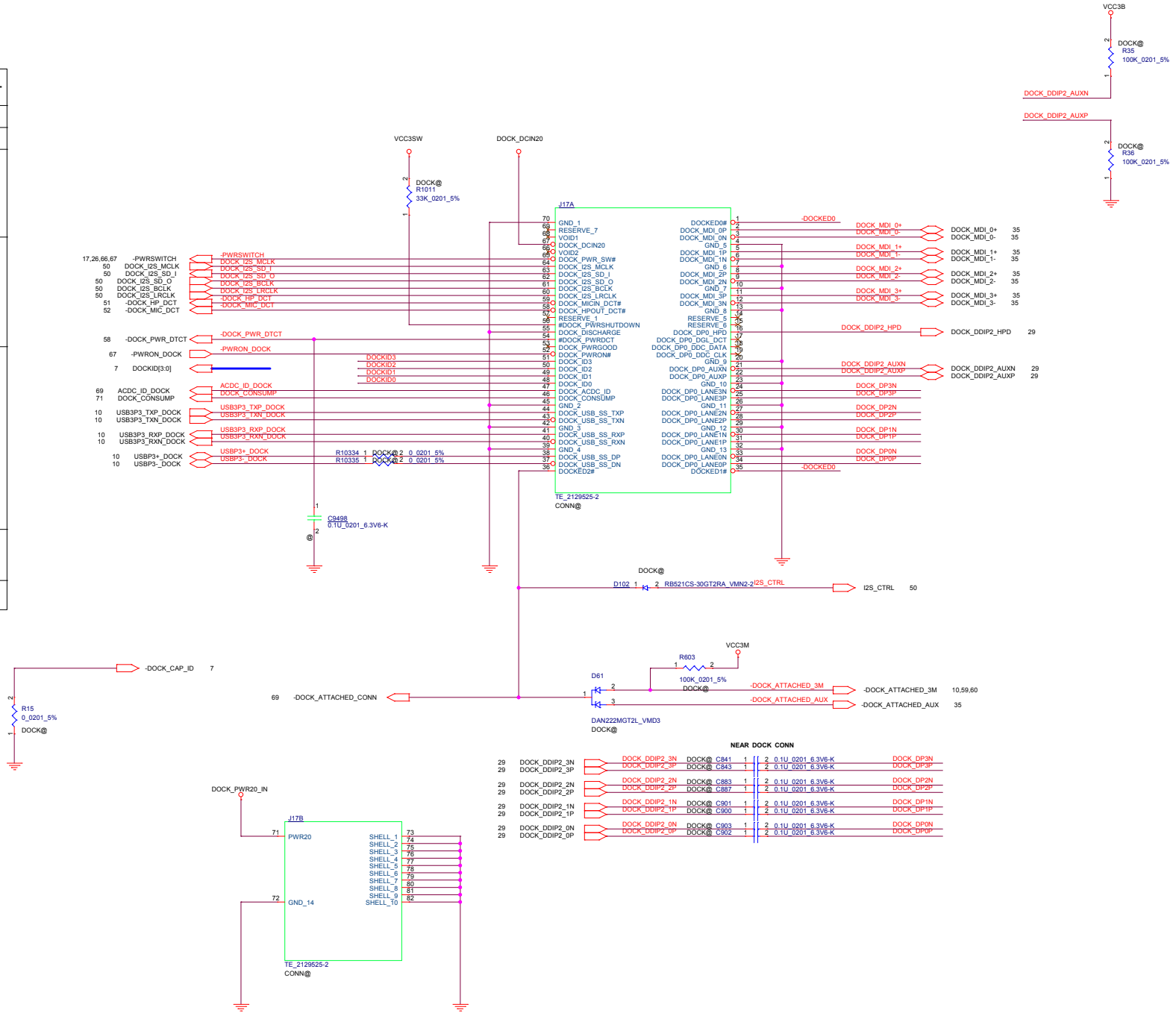
LOGIC

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



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: DOCKING CONNECTOR

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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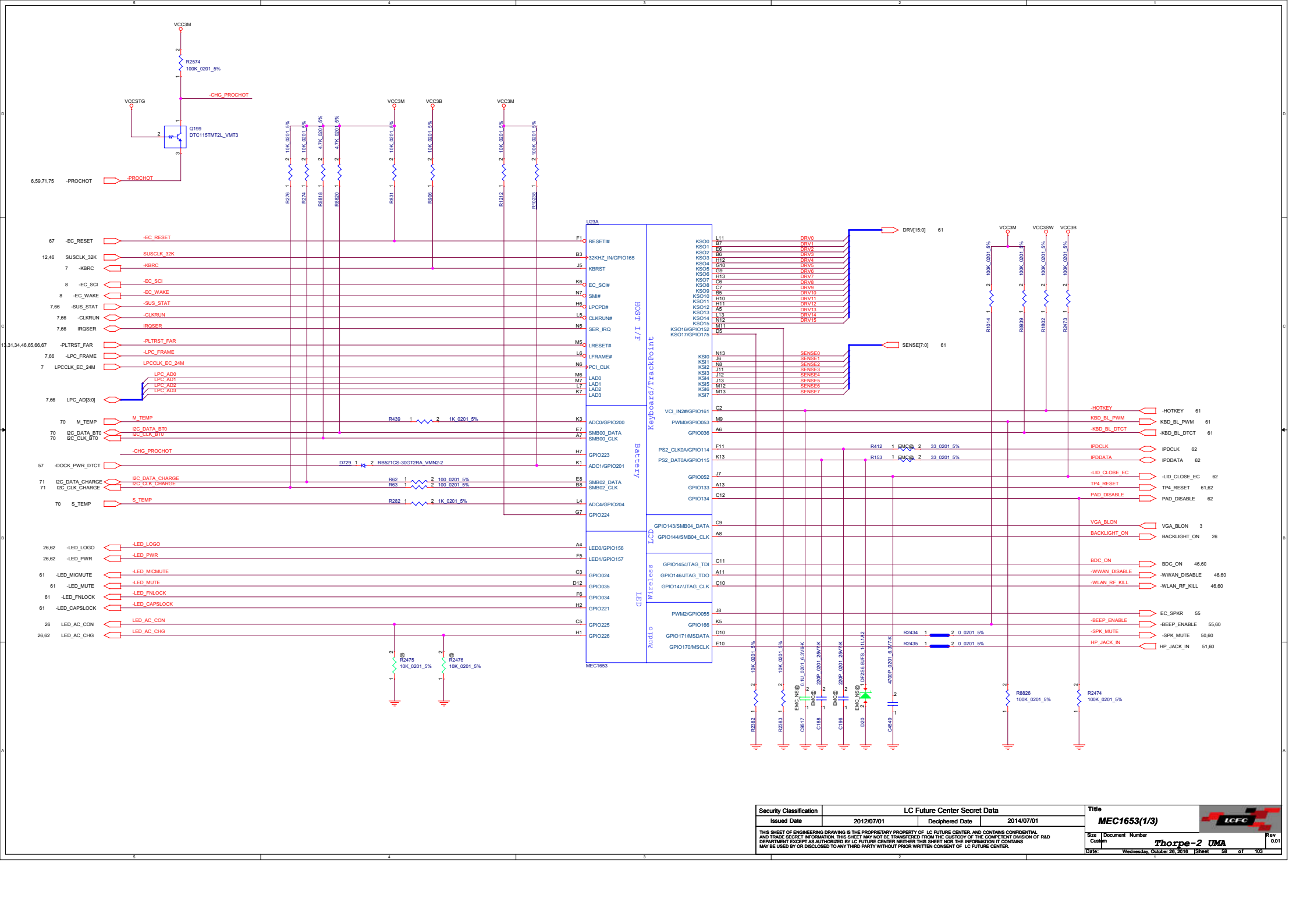

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: MEC1653(1/3)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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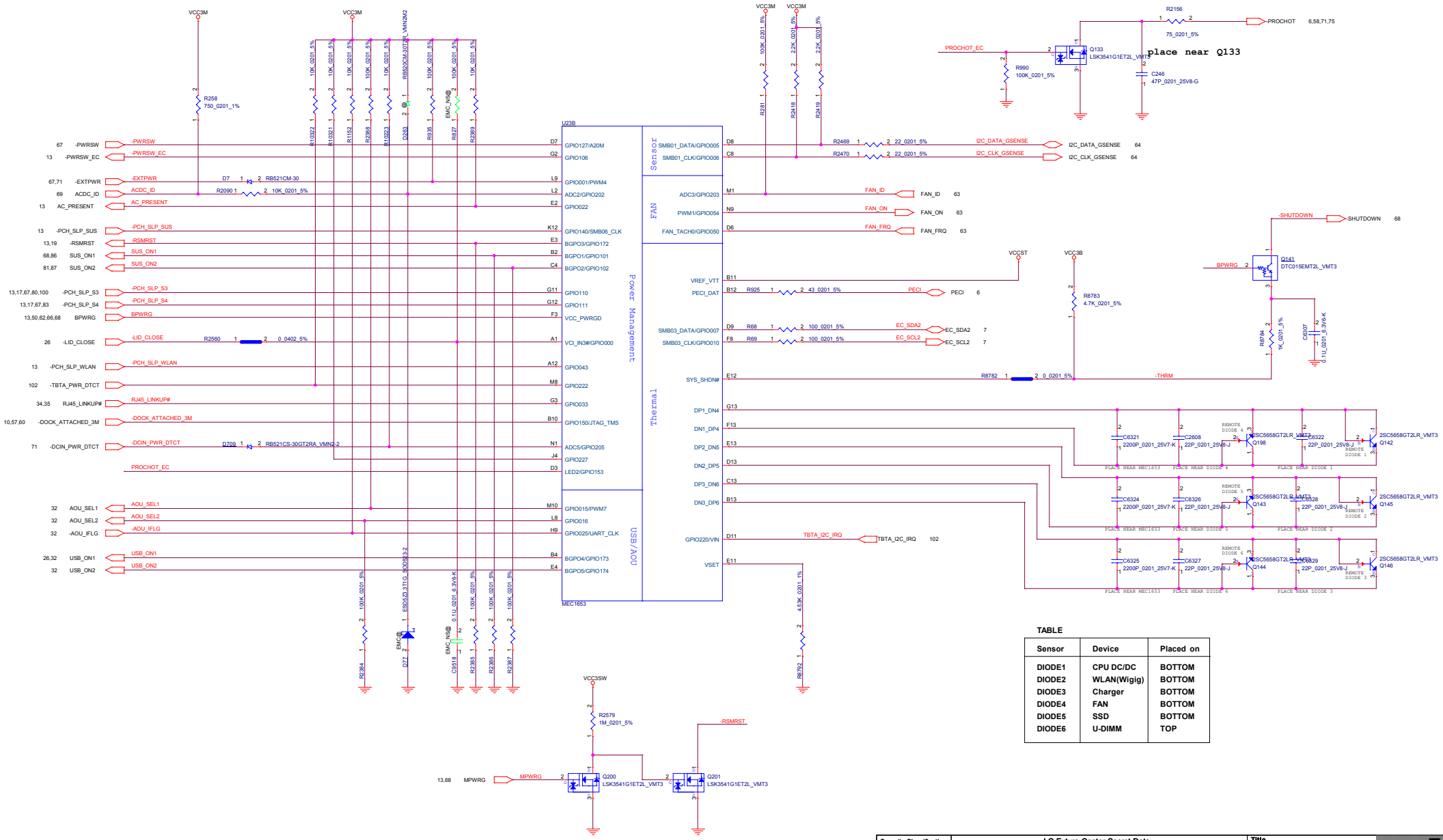
R258: 750_1% for New AC Adapter



TABLE

Sensor	Device	Placed on
DIODE1	CPU DC/DC	BOTTOM
DIODE2	WLAN(Wigig)	BOTTOM
DIODE3	Charger	BOTTOM
DIODE4	FAN	BOTTOM
DIODE5	SSD	BOTTOM
DIODE6	U-DIMM	TOP

Title: **MEC1653(2/3)**

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

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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
UMA	ASM	NO_ASM

LOGIC

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

Security Classification	LC Future Center Secret Data	
Issued Date	2012/07/01	Deciphered Date 2014/07/01

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Title: MEC1653(3/3)

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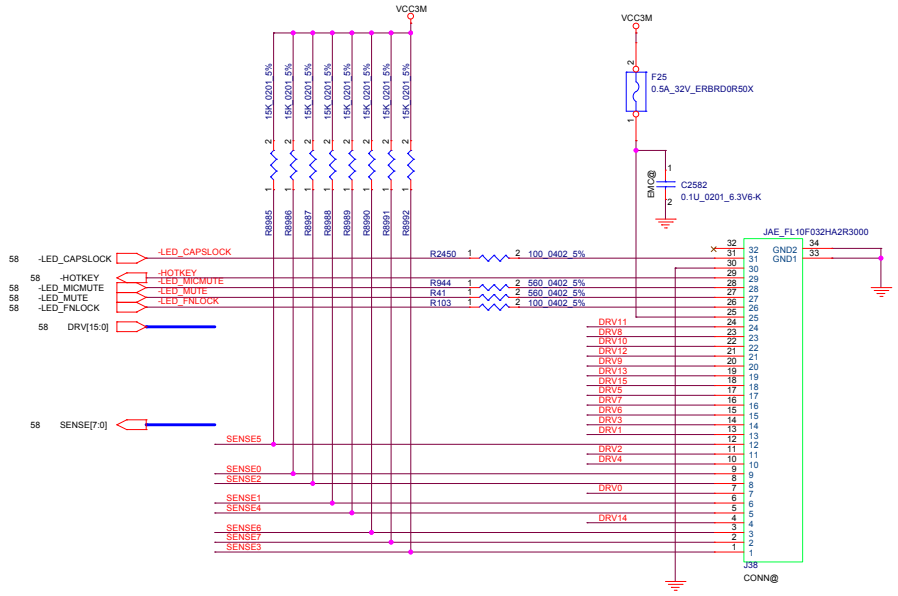

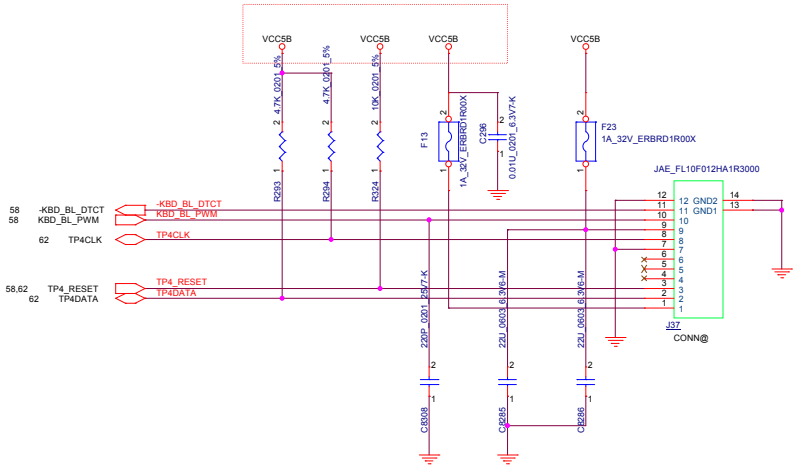

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: KEYBOARD/TRACK POINT

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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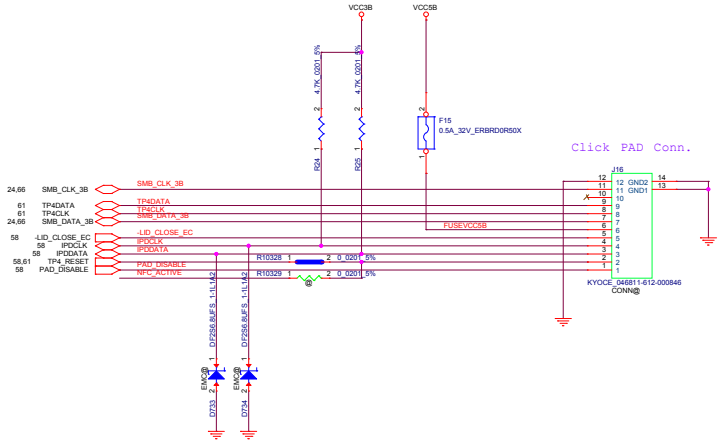
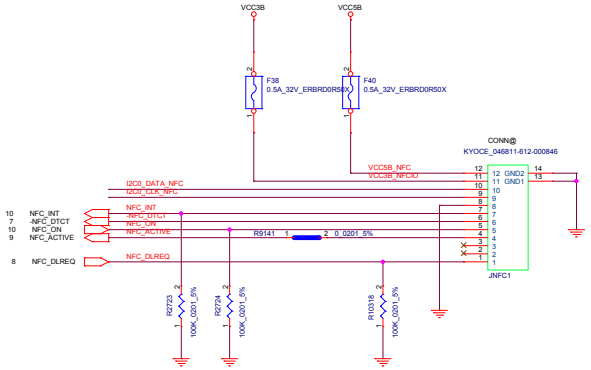
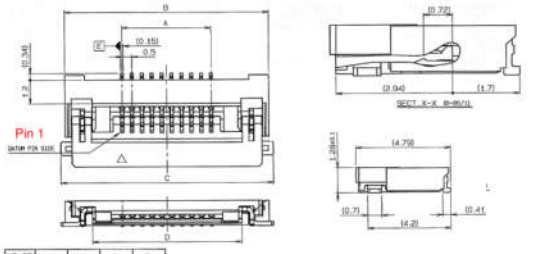


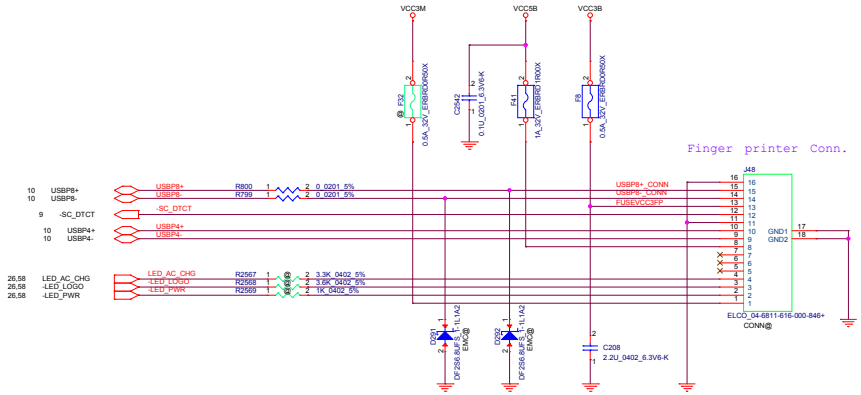


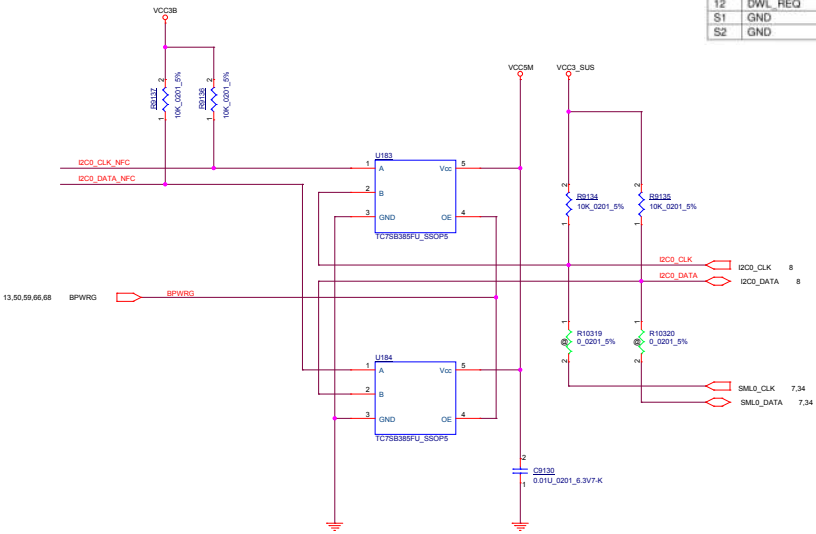


NO. OF POS	A	B	C	D
12	5.5	11.3	11.73	8.52

Remark: The connector is bottom conduct with golden plating of FPC cable

Pin	Symbol	Pin Type	Refer	Description
1	VBAT	Input Power	N/A	Power supply from system (4.5V - 5.5V)
2	PVDD	Input Power	N/A	Power supply to I/O (3.0V ~ 3.6V)
3	I2C_SDA	I/O	PVDD	I2C data
4	I2C_SCL	I	PVDD	I2C clock
5	GND	G	N/A	Ground
6	IRQ	O	PVDD	Interrupt from NFC module to the host (Host_Wake)
7	NFC_Presence	G	N/A	Connect to ground for NFC module presence bit (Low active)
8	VEN	I	VBAT	Reset pin. Set the device in Hard Power Down
9	TX_PWR_REQ	O	VDD	(External TX power supply request) (Active high 1.8V level output) Indicates NFC busy state during NFC communication to touchpad.
10	PMUVCC	Input Power	N/A	Power supply to UICC(1.78V~3.3V)
11	SWIO_UICC	I/O	VDD(SIM)	SWP data connection to SIM
12	DWL_REQ	I	PVDD	Firmware download control pin
S1	GND	G	N/A	Ground
S2	GND	G	N/A	Ground





Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: TOUCH PAD/FPR/SCR

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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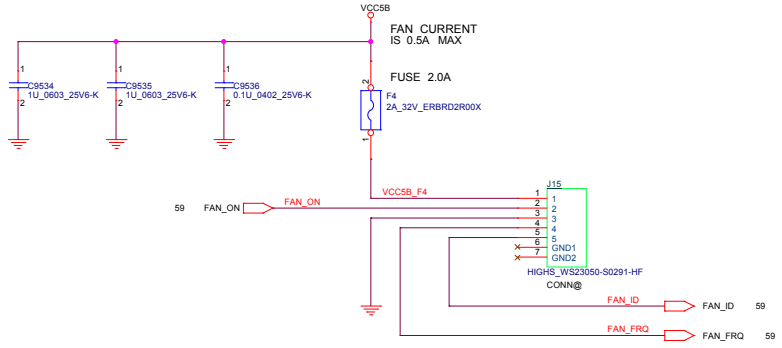

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **FAN CONNECTOR**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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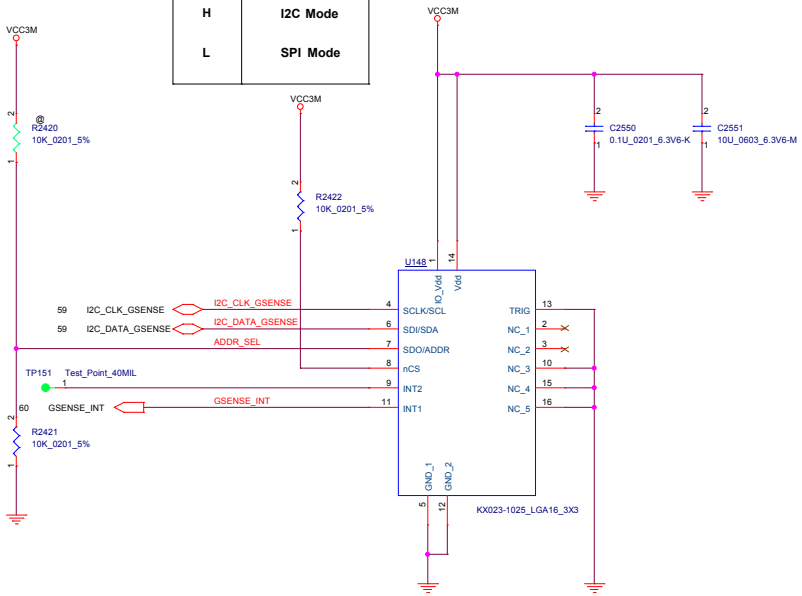
TABLE

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)



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: APS G-SENSOR

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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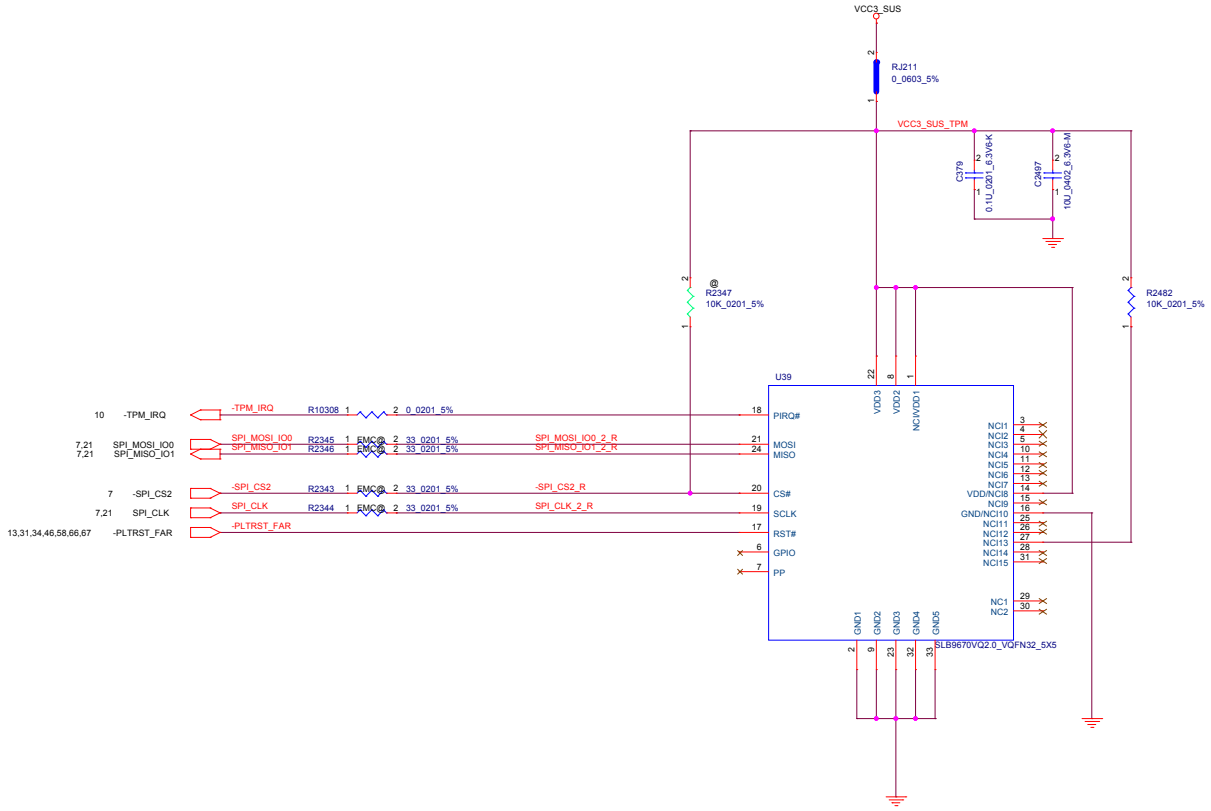

TABLE

Pin No	TCG PTP Spec (v38)	Infineon SLB9670VQ2.0 FW 7.60	ST Micro ST33HTPH2E32AHA6
1	VDD	VDD	NC
2	GND	GND	GND
3	GPIO	NC	NC
4	GPIO	NC	PP
5	NC	NC	NC
6	VNC/GPIO	GPIO	NC
7	GPIO/VDD	PP	GPIO
8	VDD	VDD	NC
9	GND	GND	NC
10	VNC	NC	NC
11	NC	NC	NC
12	NC	NC	NC
13	VNC/GPIO	NC	NC
14	VDD	NC	NC
15	NC	NC	NC
16	GND	NC	NC
17	SPI_RST#	RST#	SPI_RST#
18	SPI_PIRQ#	PIRQ#	SPI_PIRQ#
19	SPI_CLK	SCLK	SPI_CLK
20	SPI_CS#	CS#	SPI_CS#
21	MOSI	MOSI	MOSI
22	VDD	VDD	VPS
23	GND	GND	NC
24	MISO	MISO	MISO
25	NC	NC	NC
26	NC	NC	NC
27	NC	NC	NC
28	NC	NC	NC
29	VNC/GPIO	NC	NC
30	VNC/GPIO	NC	NC
31	VNC	NC	NC
32	GND	GND	NC

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: DISCRETE TPM 2.0

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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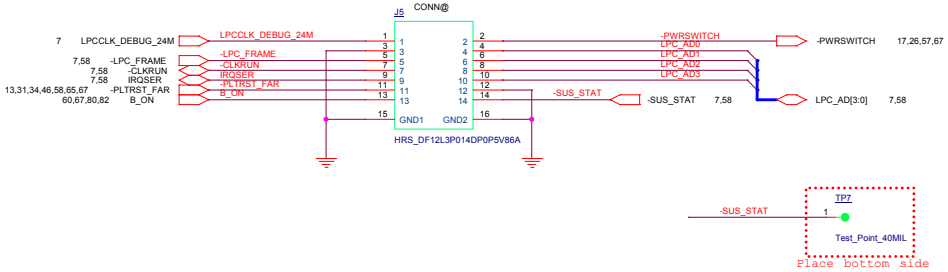
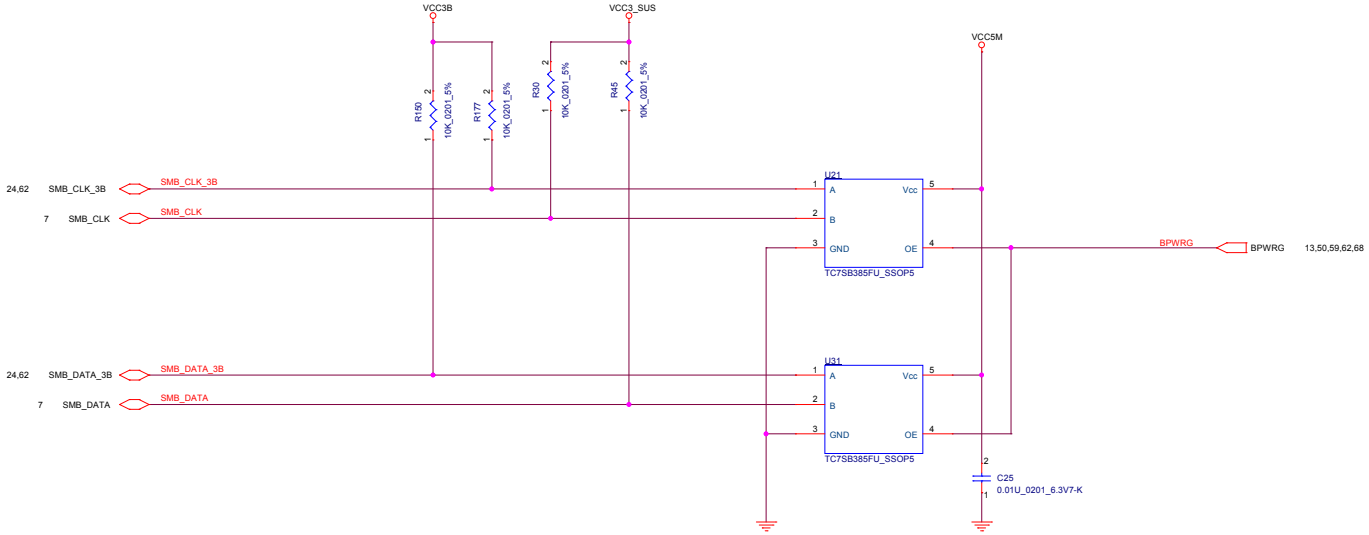
TABLE

REF DES	ENABLE	DISABLE
J5	ASM	NO_ASM
R220	ASM	NO_ASM

LOGIC

SDV staff





Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: SMBUS SWITCH/LPC DEBUG PORT

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01
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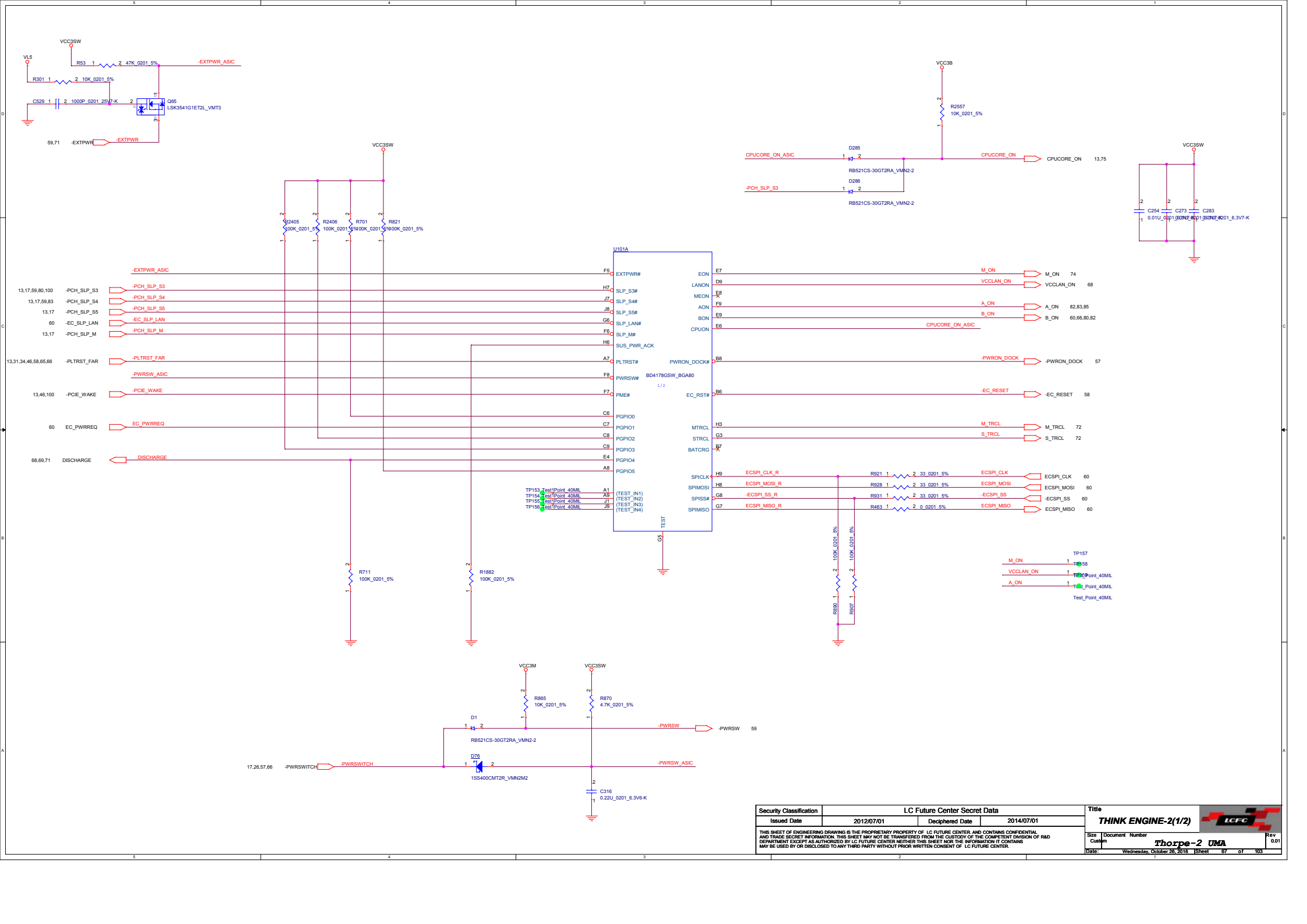

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: THINK ENGINE-2(1/2)

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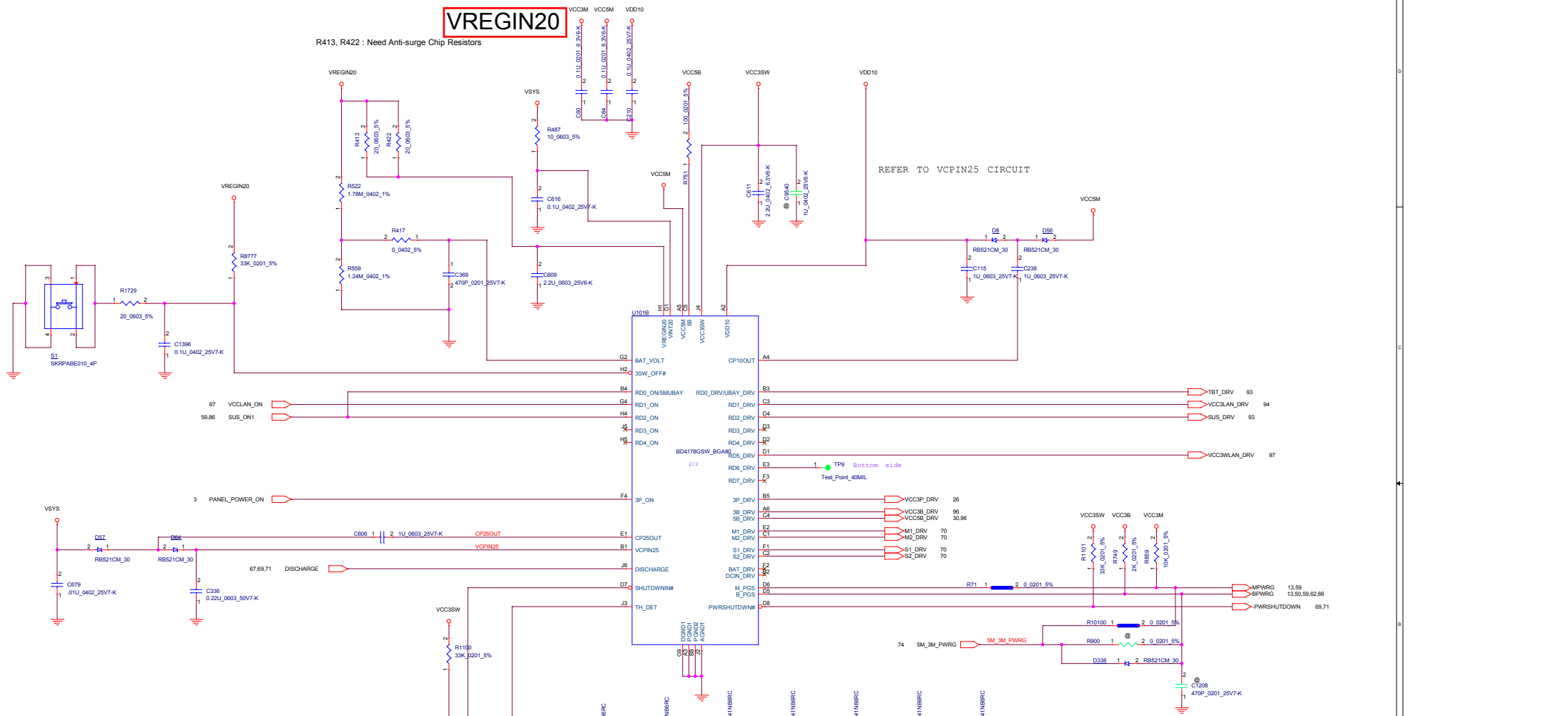
VREGIN20

R413, R422 : Need Anti-surge Chip Resistors



TABLE

ID	Target
RT1	S_BAT_PWR to S_BAT_PWR_FET (PQ17, PQ18)
RT2	VCC3M Switching FET (PQ205)
RT3	VCC5M Switching FET (PQ203)
RT4	Battery Charge Discharge FET (PQ105)
RT5	Battery Charge BOOST FET (PQ104)
RT6	VSYS_OUT to VSYS_FET (PQ101)
RT7	Battery Charge BUCK FET (PQ103)
RT8	DOCK PWR20_F to VIN20_IN FET (PQ7, PQ8)
RT9	VCCCPUCORE DrMOS (PU402)
RT10	VCCGFXCORE DrMOS (PU403)
RT11	DCIN_PWR20_F to VINT20_IN_FET (PQ1, PQ2)
RT12	CPU Die (U58)
RT13	M_BAT_PWR to BAT_PWR_FET (PQ15, PQ16)
RT14	TBTA_VBUS to VINT20_IN FET (PQ13, PQ14)

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: THINK ENGINE-2(2/2)

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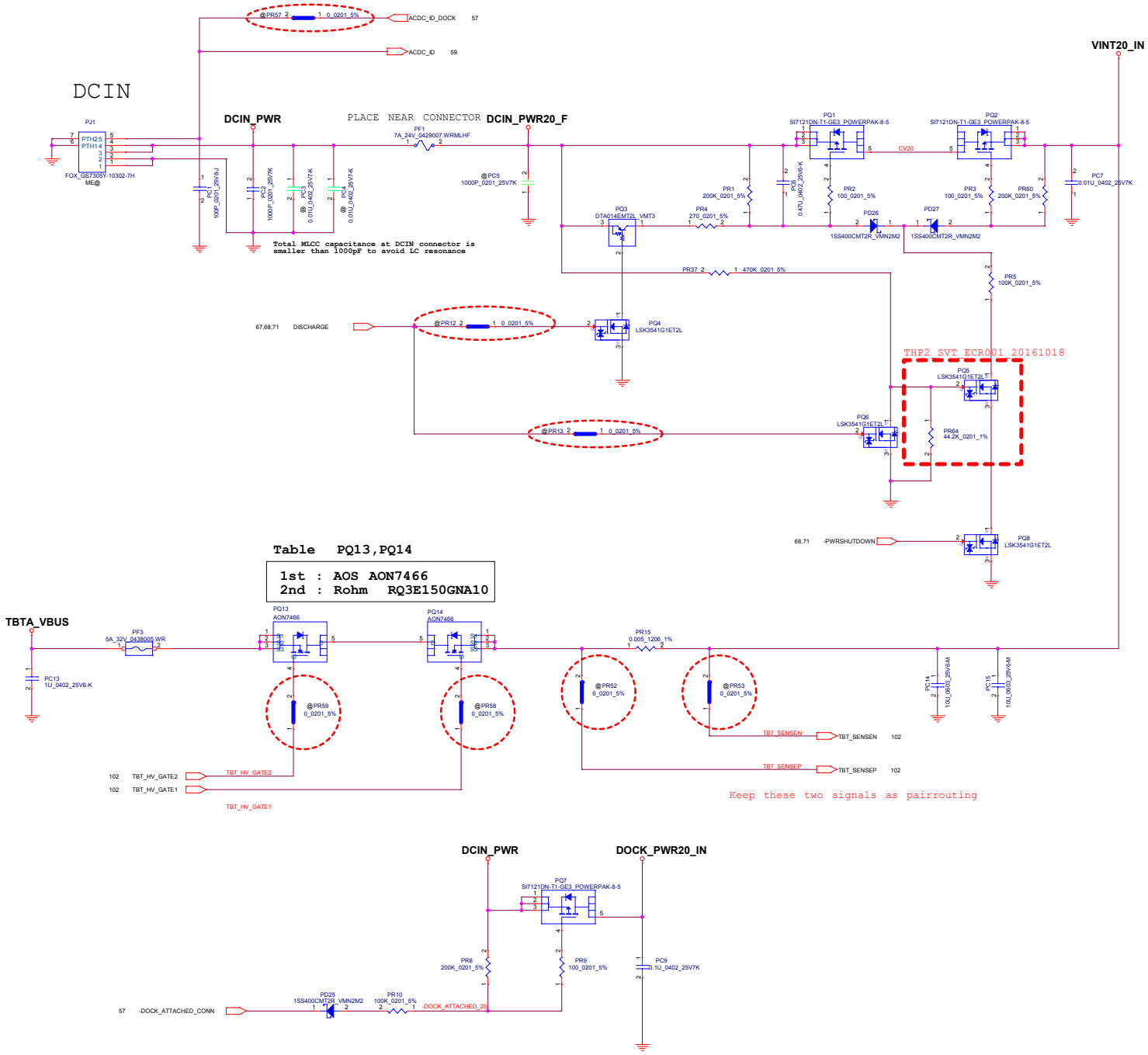
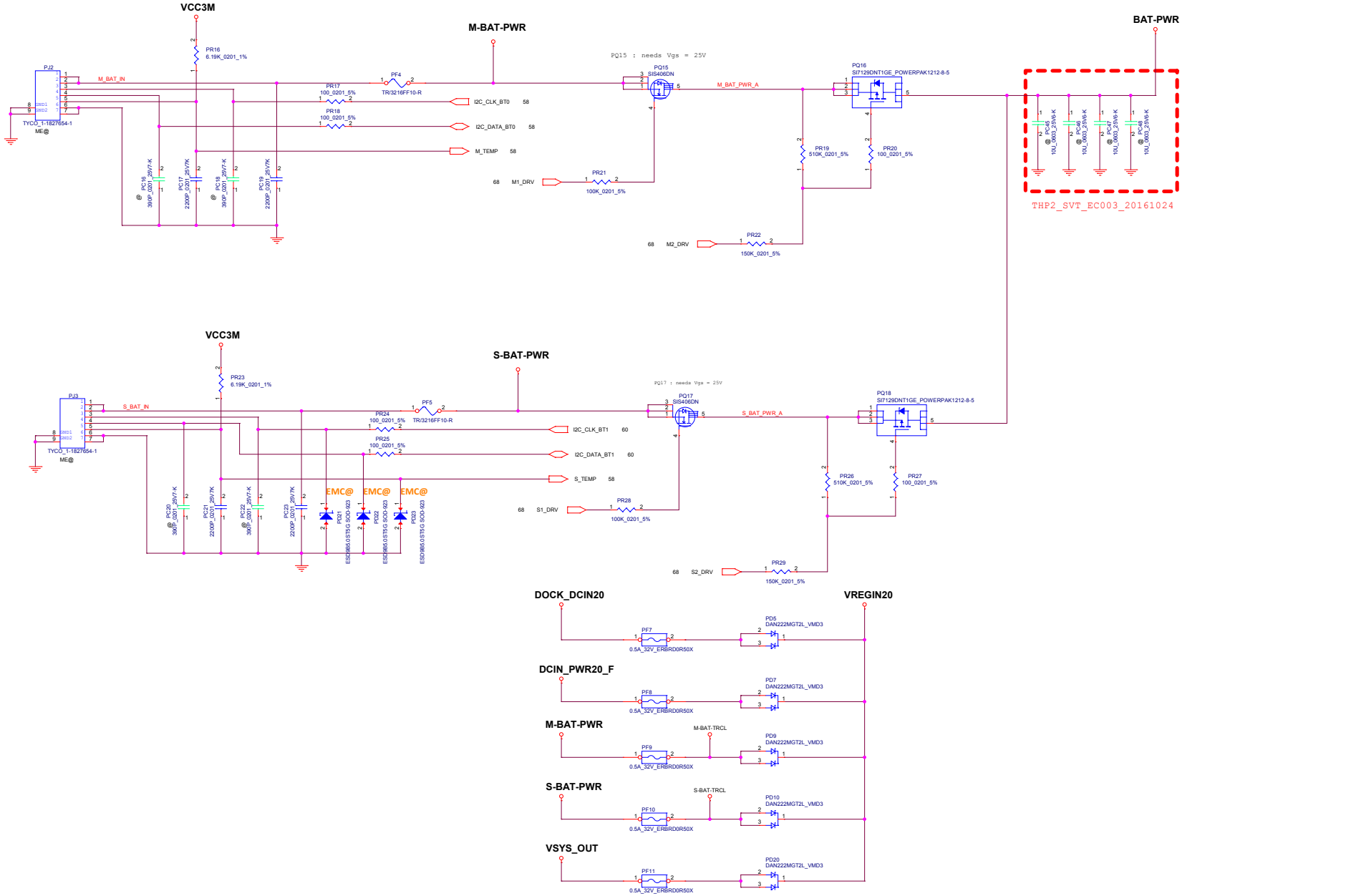


Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

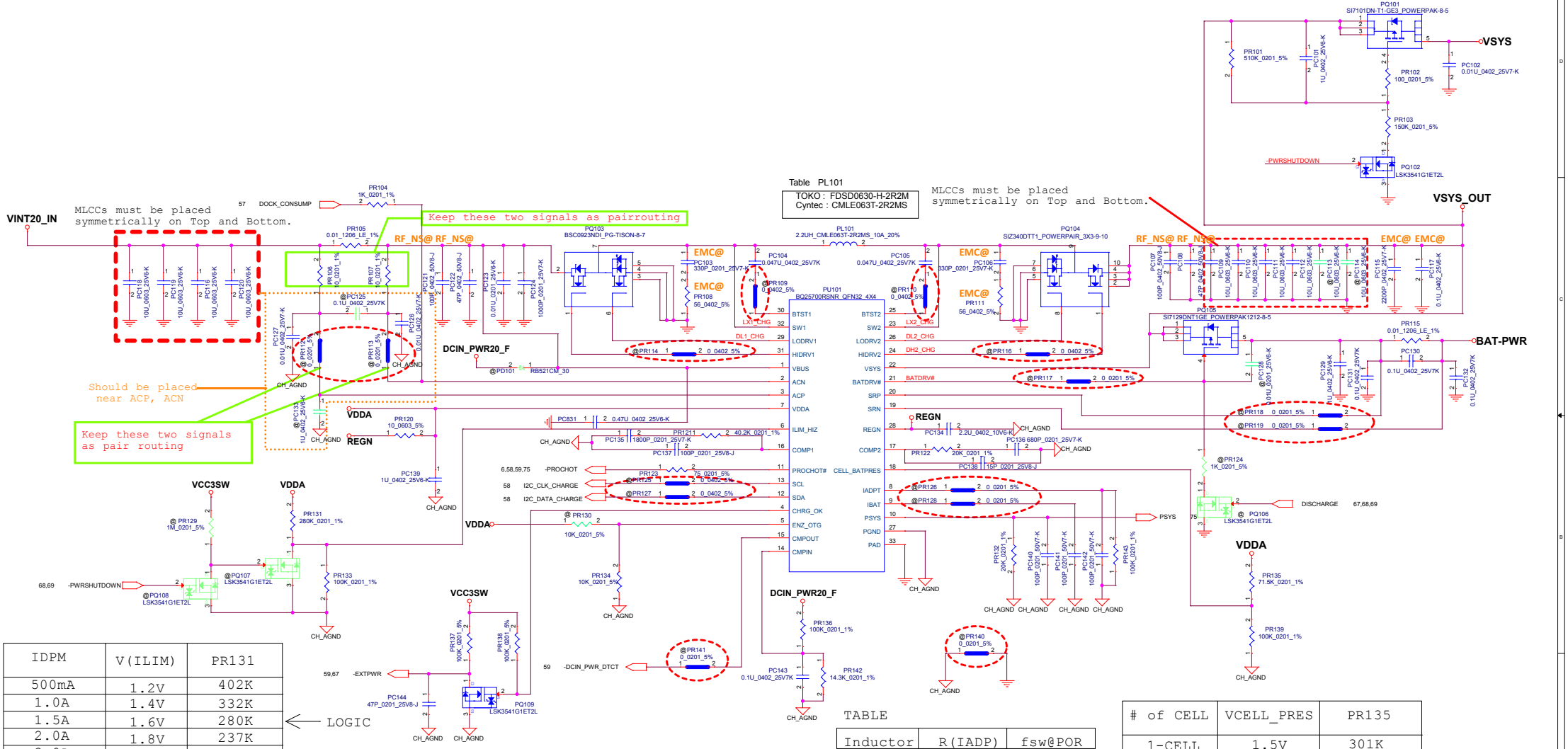
Title	DC-IN		
Size: Custom	Document Number: Thorpe-2 UMA		Rev: 0.01
Date: Wednesday, October 26, 2016	Sheet 69 of 102		



Security Classification	LC Future Center Secret Data	
Issued Date	Deciphered Date	

Title: **BATTERY INPUT**

Size: Custom	Document Number: Thorpe-2 UMA	Rev: 0.01
Date: Wednesday, October 26, 2016	Sheet 70 of 102	



IDPM	V(ILIM)	PR131
500mA	1.2V	402K
1.0A	1.4V	332K
1.5A	1.6V	280K
2.0A	1.8V	237K
3.0A	2.2V	174K
3.25A	2.3V	162K

TABLE

Inductor	R(IADP)	fsw@POR
1.0uH	74kohm	1200kHZ
1.5uH	86kohm	1200kHZ
2.2uH	100kohm	800kHZ

# of CELL	VCELL_PRES	PR135
1-CELL	1.5V	301K
2-CELL	2.5V	140K
3-CELL	3.5V	71.5K
4-CELL	4.5V	33.2K

Security Classification	LC Future Center Secret Data	
Issued Date		Deciphered Date

Title: BATTERY CHARGER(BQ25700)

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

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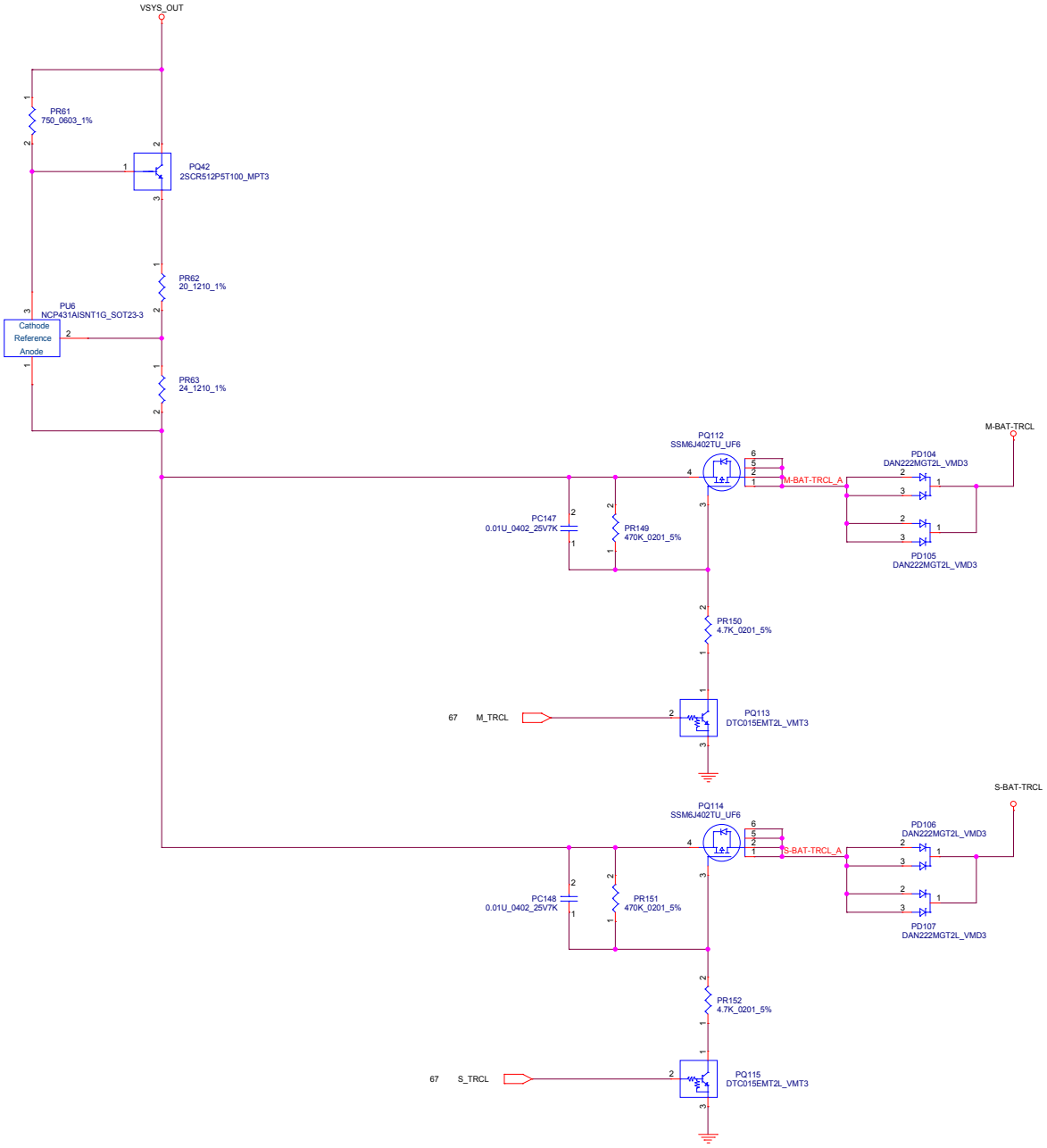

Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title
CHARGER SELECTOR

Size	Document Number	Rev
C	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 Sheet 72 of 102

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Security Classification	LC Future Center Secret Data		
Issued Date	2014/07/01	Deciphered Date	2015/12/31

Title: **BLANK**

Size: Custom	Document Number: **Thorpe-2 UMA**	Rev: 0.01
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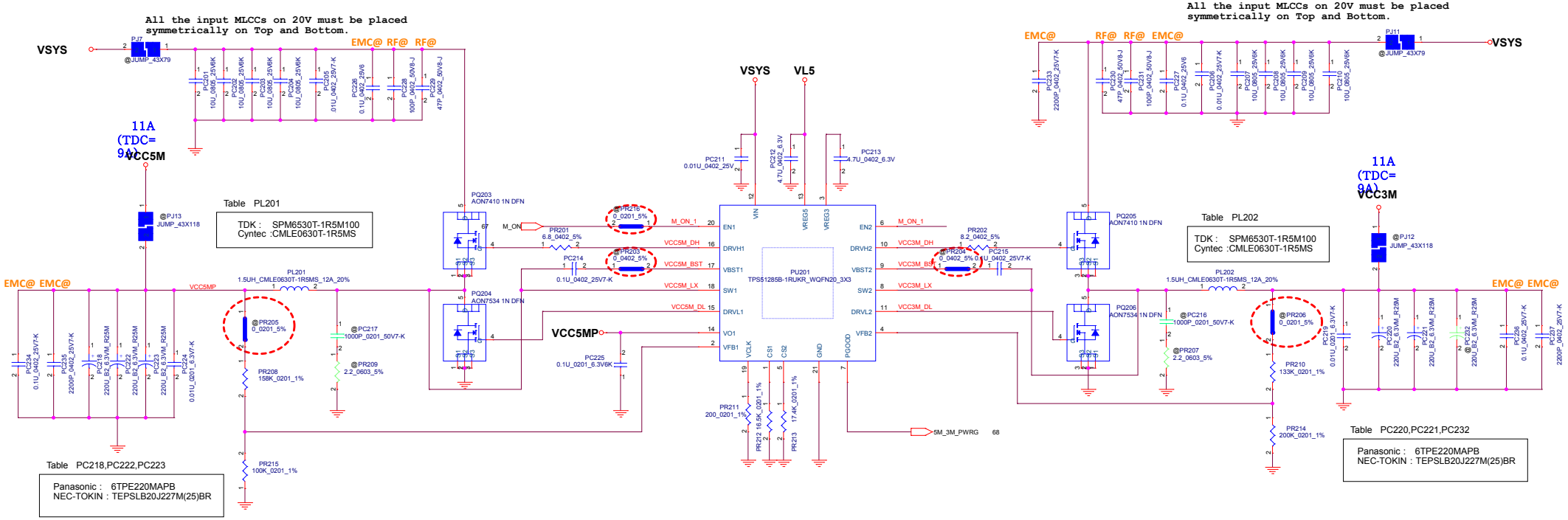

Security Classification	LC Future Center Secret Data		Title: DC/DC VCC5M/VCC3M(TPS51285B-1)
Issued Date		Deciphered Date	

Size: Custom	Document Number: Thorpe-2 UMA		Rev: 0.01
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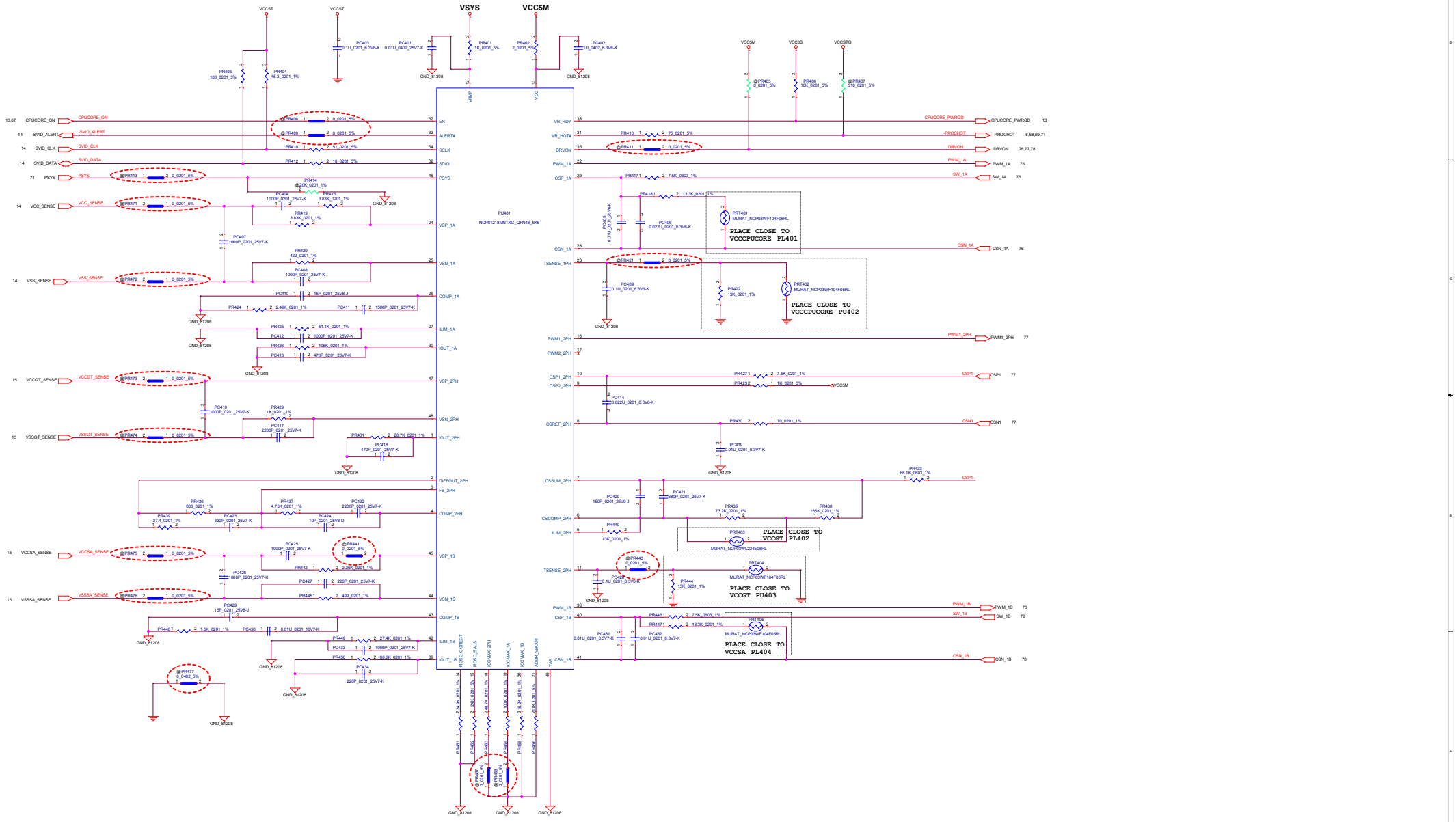

Security Classification	LC Future Center Secret Data		Title: DC/DC IMVP8 CONTROLLER
Issued Date		Deciphered Date	

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Size	Document Number	Rev
D	Thorpe-2 UMA	0.01

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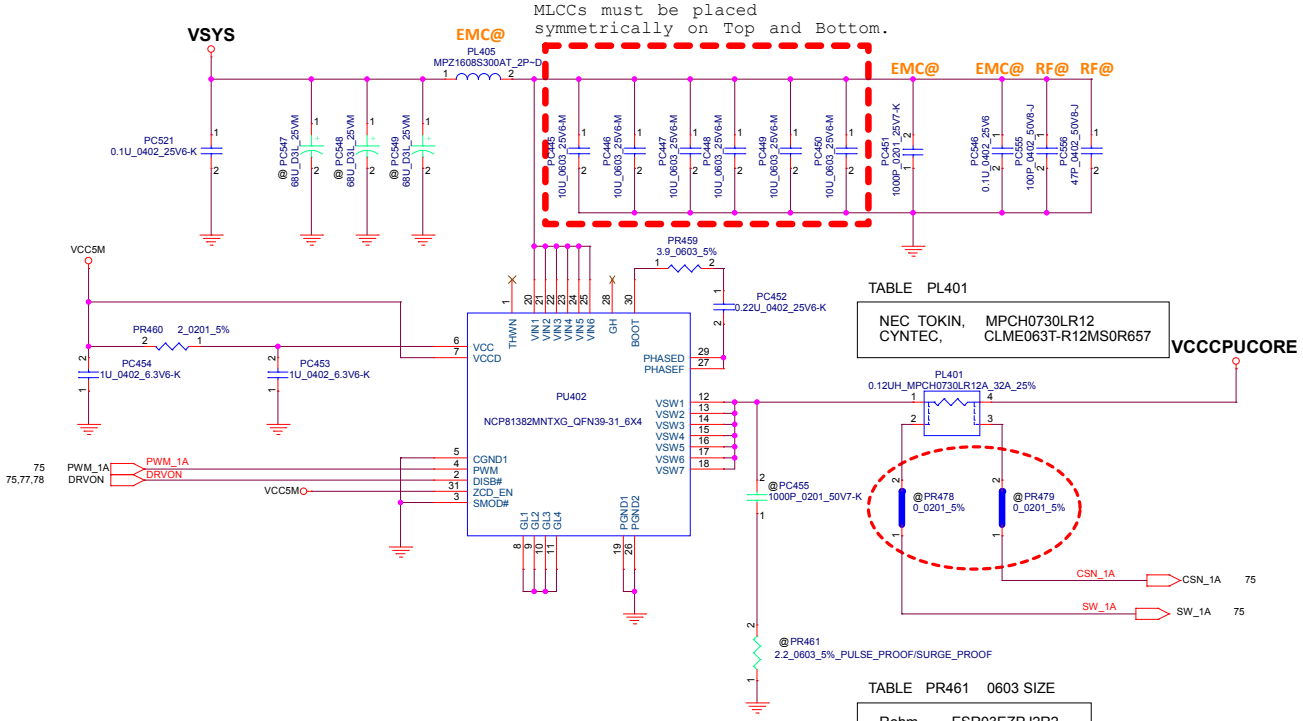
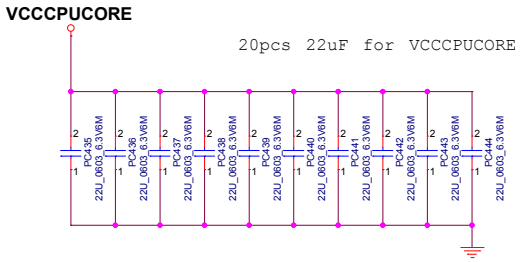


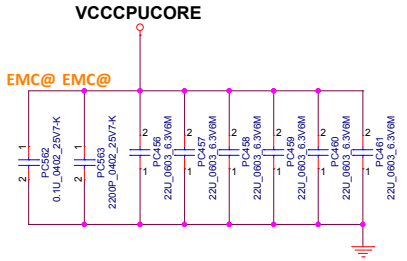
TABLE PL401

NEC TOKIN,	MPCH0730LR12
CYNTEC,	CLME063T-R12MS0R657

TABLE PR461 0603 SIZE

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





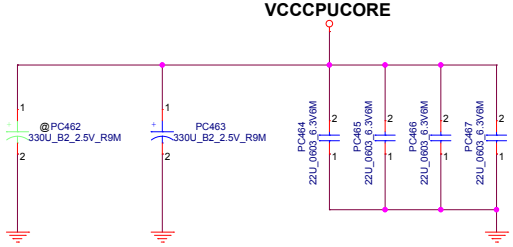


Table for PC462,PC463

Panasonic	ETPE330MA9L
NEC TOKIN	PSGB20E337M9
KEMET	T520B337M2R5ATE009

Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: DC/DC CPUCORE(NCP81382)

Size	Document Number	Rev
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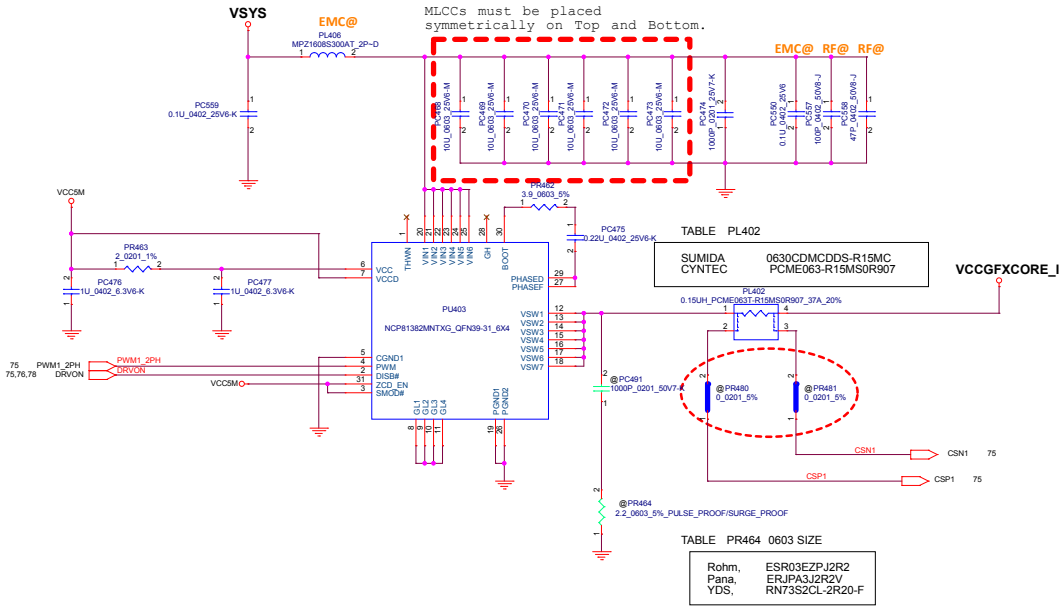
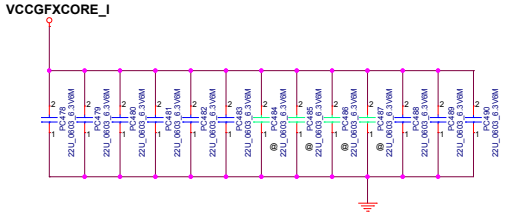


TABLE PL402

SUMIDA	0630CDMCDDS-R15MC
CYNTEC	PCME063-R15MS0R907

TABLE PR464 0603 SIZE

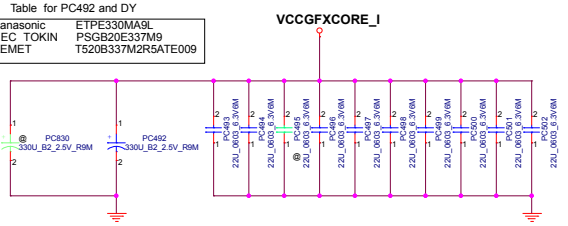
Rohm,	ESR03EZPJ2R2
Pana,	ERJPA3J2R2V
YDS,	RN73S2CL-2R20-F

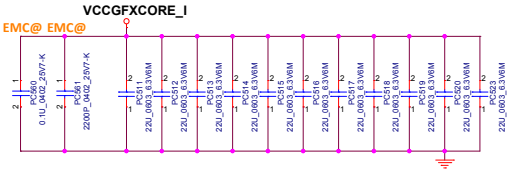


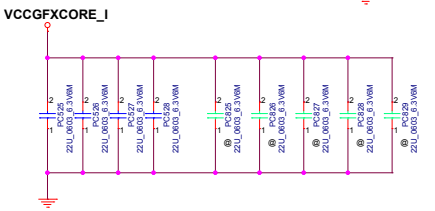
33pcs 22uF for VCCGFXCORE_I

Table for PC492 and DY

Panasonic	ETPE330MA9L
NEC TOKIN	PSGB20E337M9
KEMET	T520B337M2R5ATE009







Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title	DC/DC VCCGFXCORE_I(NCP81382)
Size	Custom
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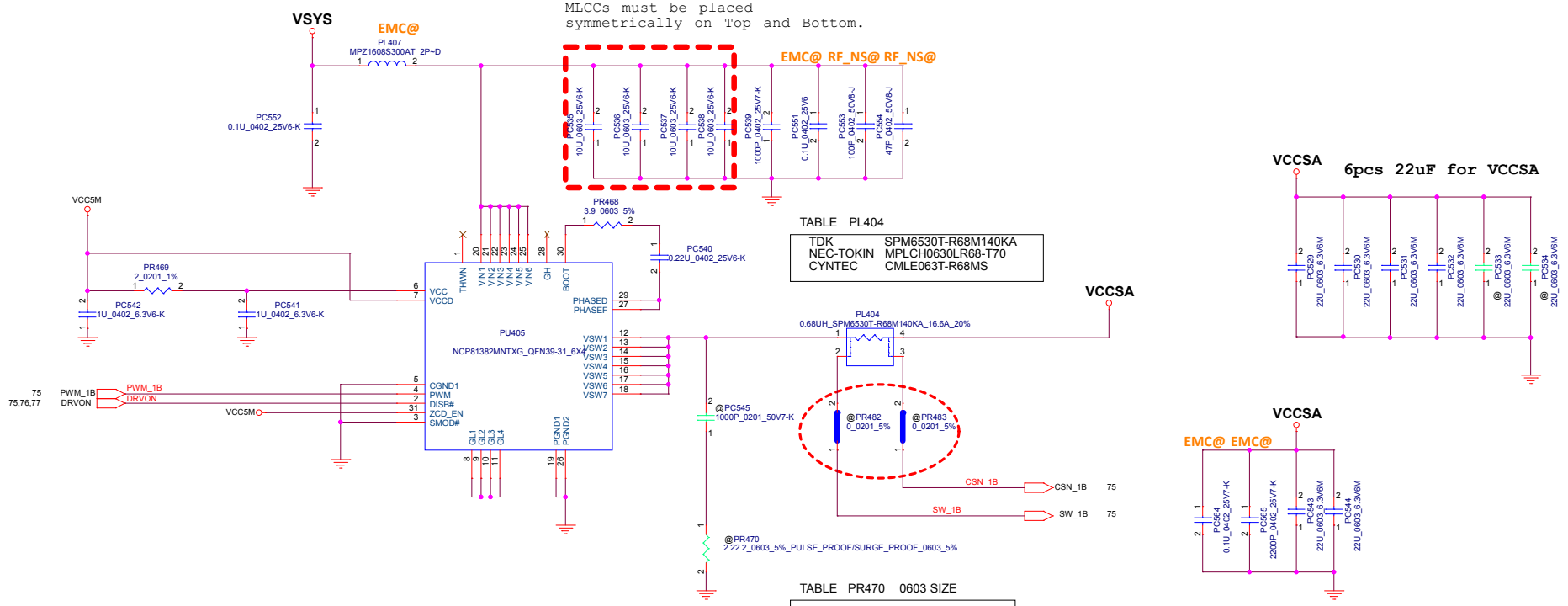

Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: DC/DC VCCSA(NCP81380)

Size	Document Number	Rev
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Title: **BLANK**

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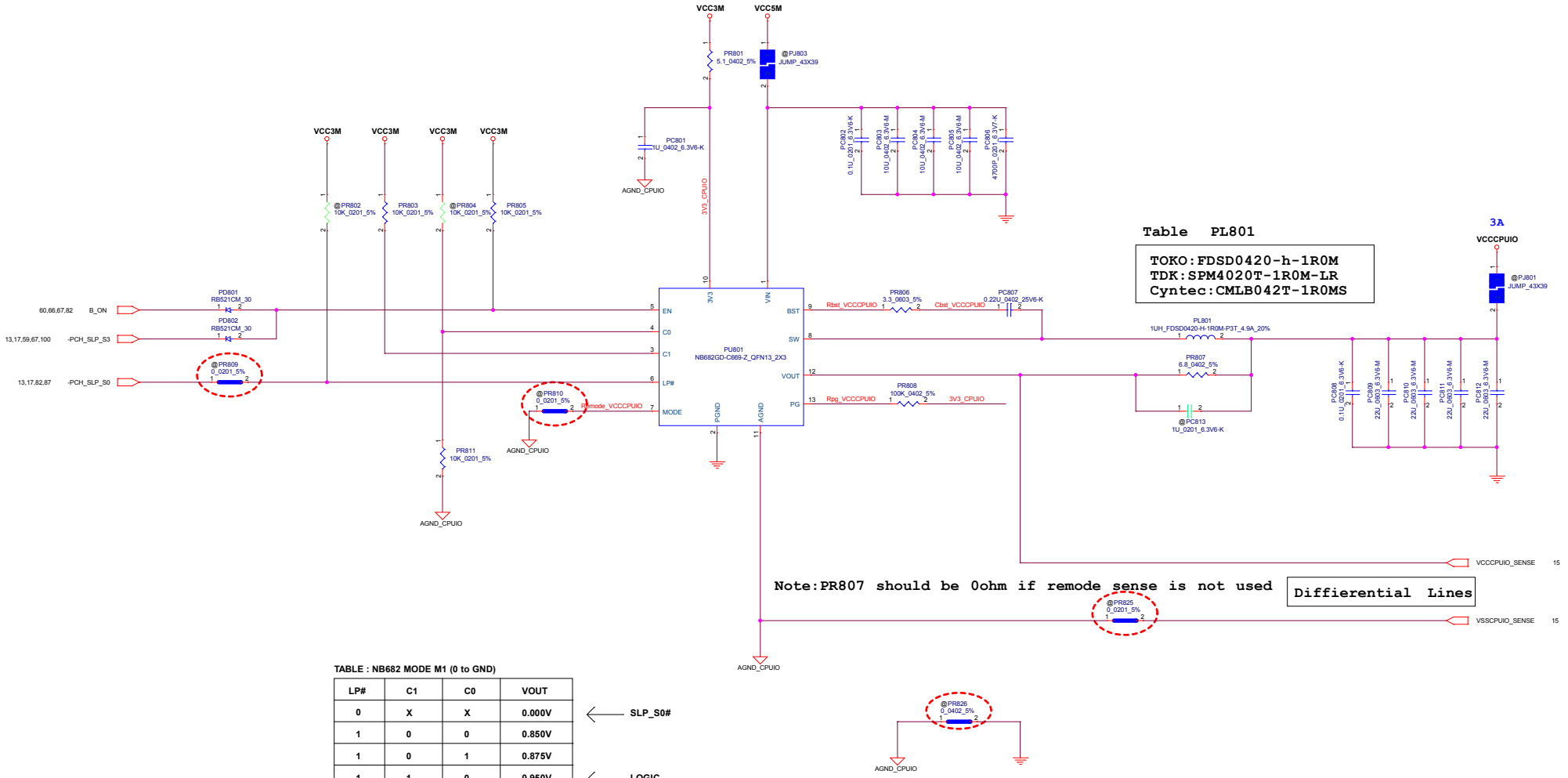

Table PL801

TOKO:FDSD0420-h-1R0M
TDK:SPM4020T-1R0M-LR
Cyntec:CMLB042T-1R0MS

Note:PR807 should be 0ohm if remode sense is not used

Diffierential Lines

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	

Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: DC/DC VCCCPUIO(NB682)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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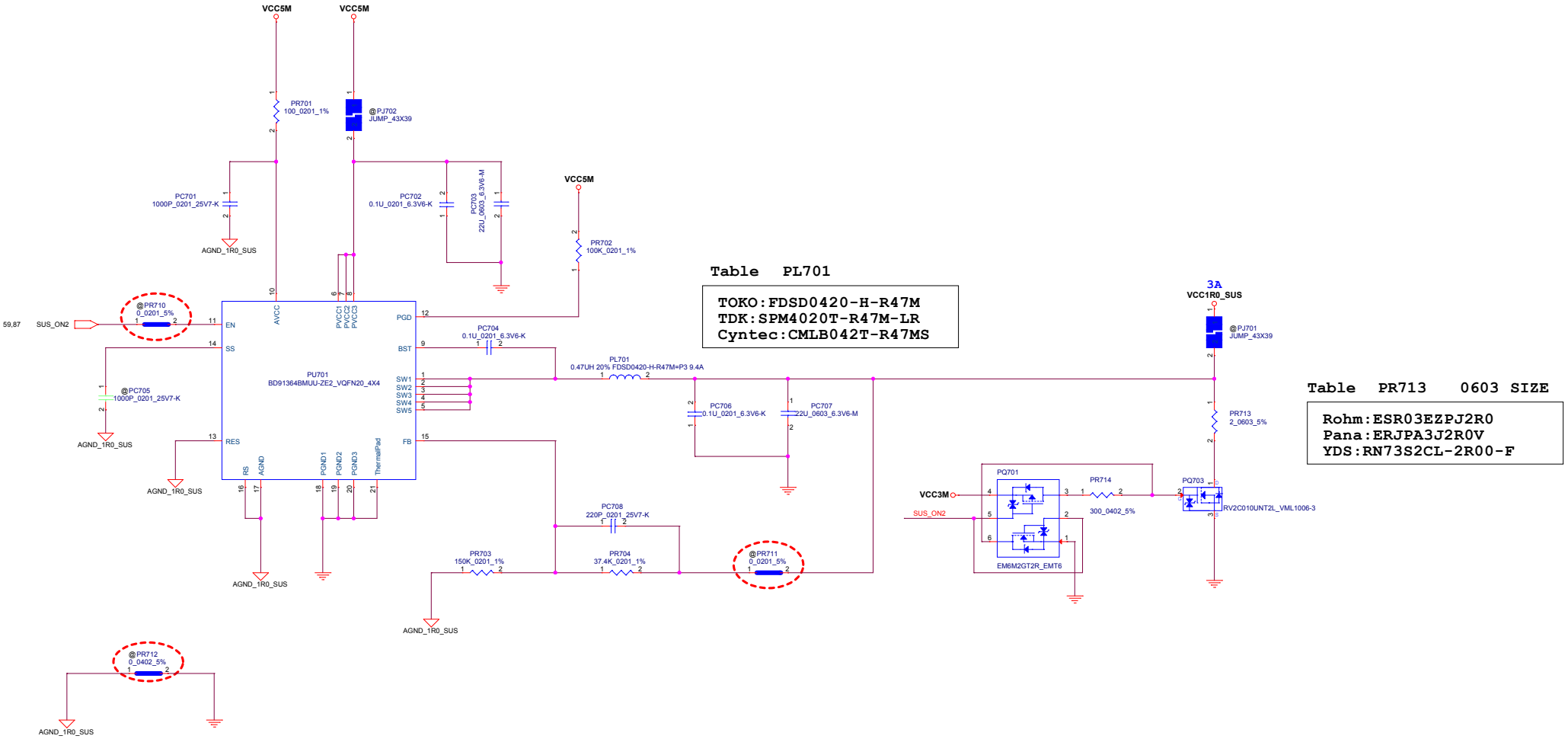

Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: DC/DC VCC1R0_SUS(BD91364BMUU)

Size	Document Number	Rev
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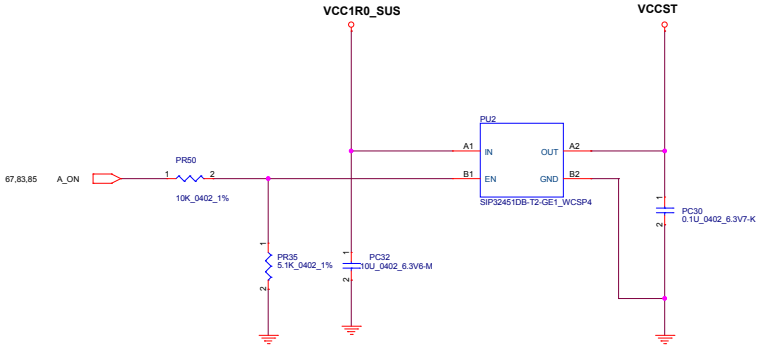
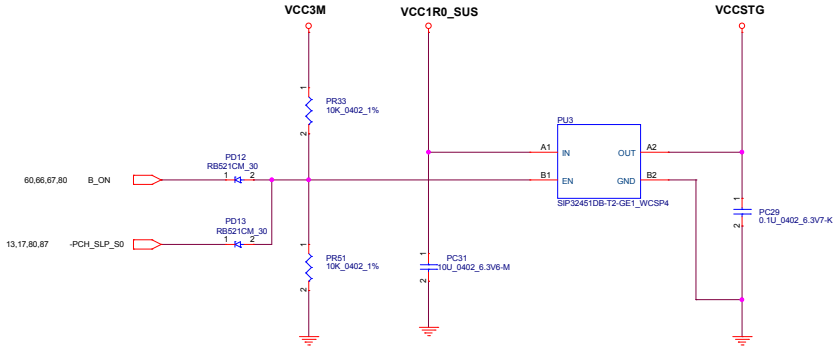
T_on<65us



SIP32451DB-T2-GE1
EN Pin MAX Voltage Rating is 2.75V

T_on<65us



SIP32451DB-T2-GE1
EN Pin MAX Voltage Rating is 2.75V

Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: LOAD SW VCCST & VCCSTG

Size: Custom	Document Number: Thorpe-2 UMA	Rev: 0.01
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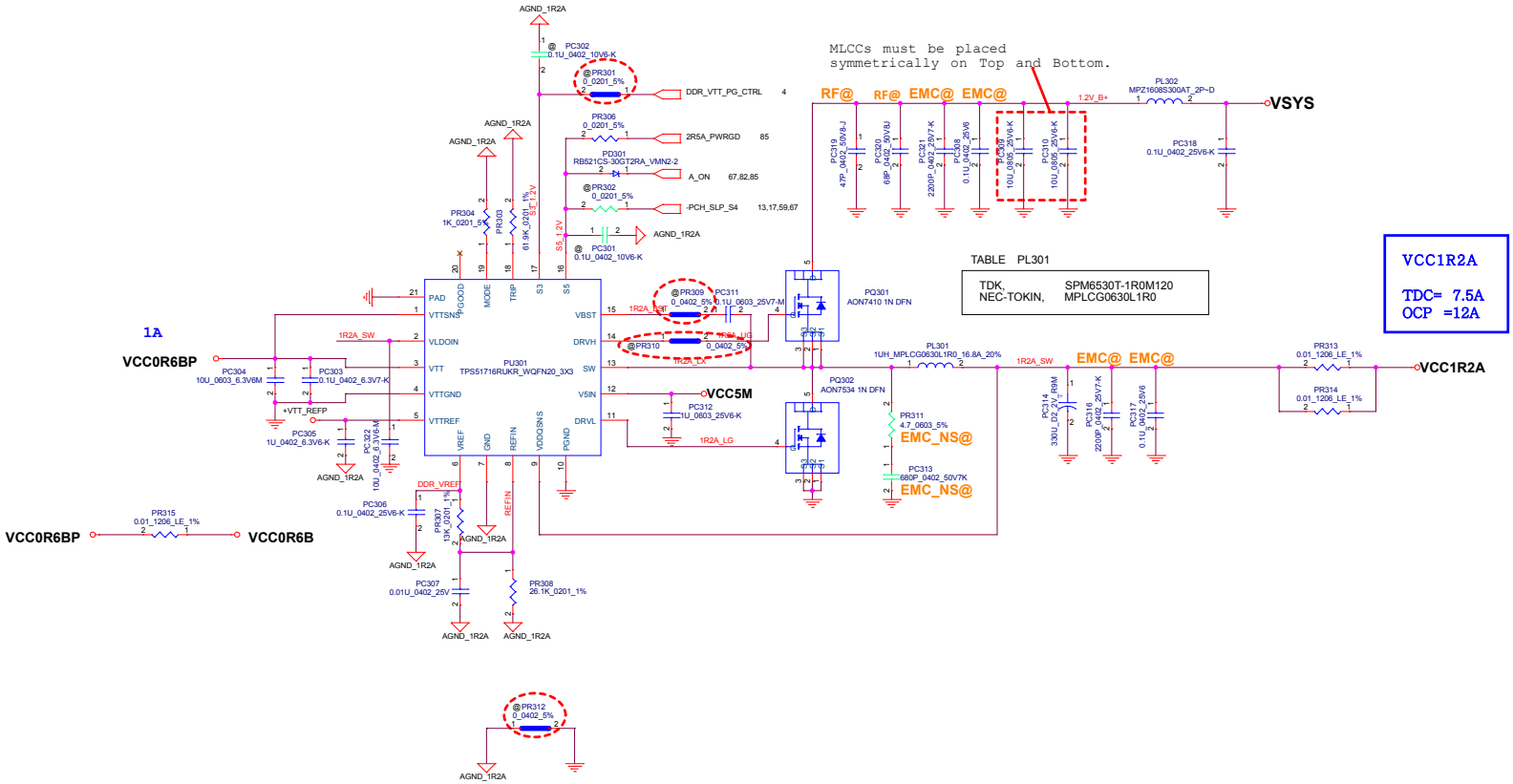

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Title: DC/DC VCC1R2A(TPS51716RUKR)

Size	Document Number	Rev
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Title: **BLANK**

Size	Document Number	Rev
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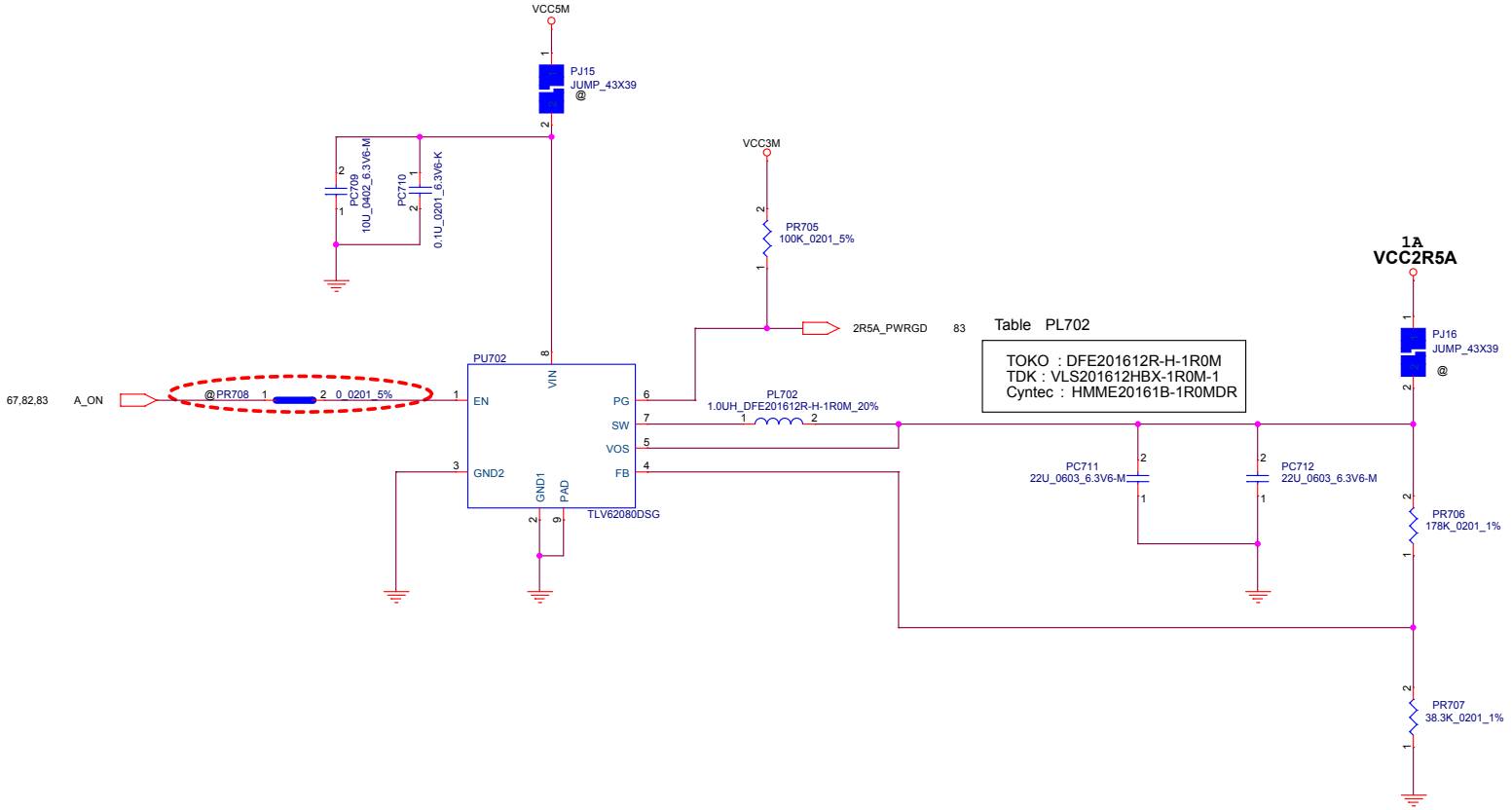
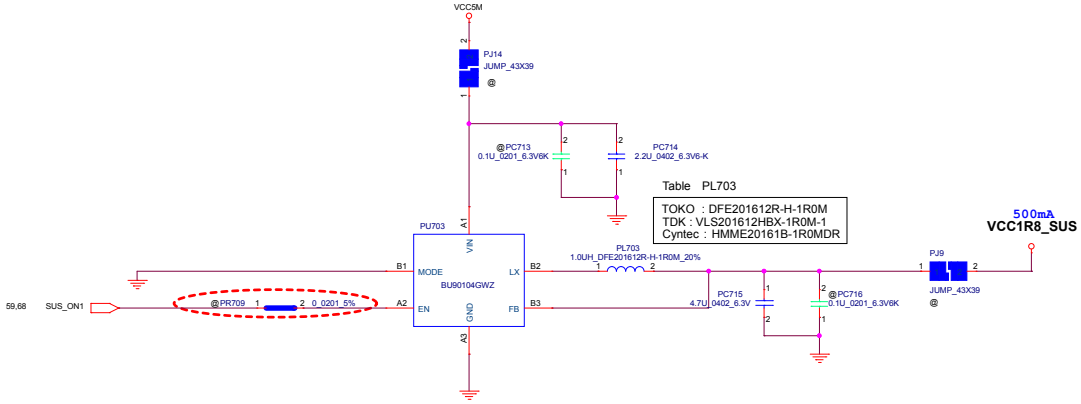


Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: DC/DC VCC2R5A(TLV62080)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

Date: Wednesday, October 26, 2016 | Sheet 85 of 102



Security Classification	LC Future Center Secret Data		
Issued Date		Deciphered Date	

Title: DC/DC VCC1R8_SUS(BU90104GWZ)

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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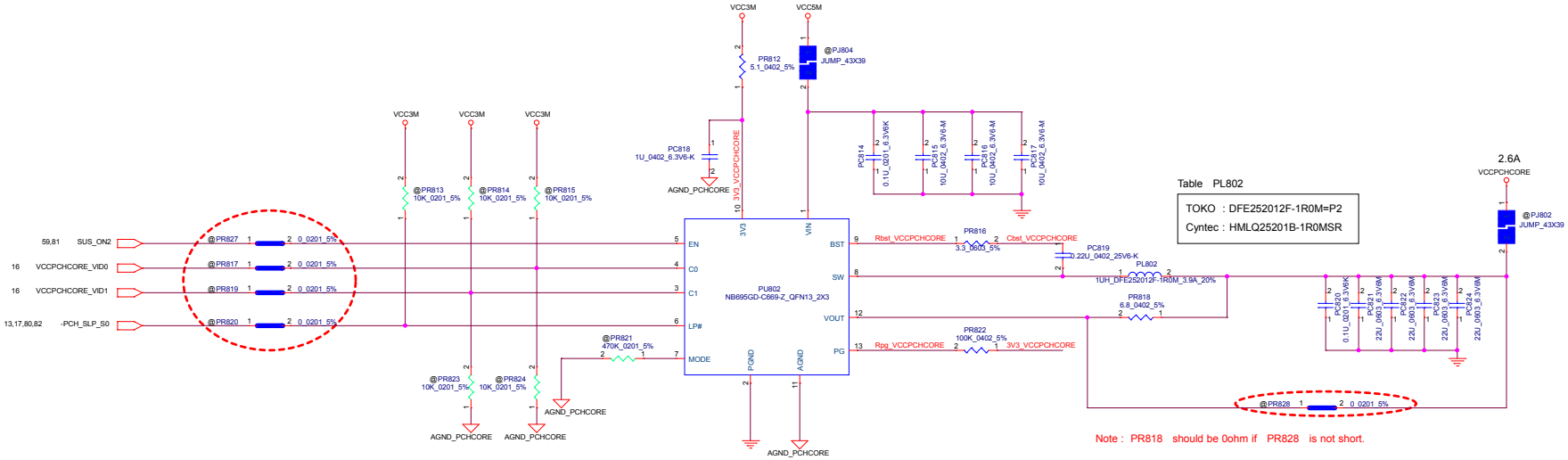
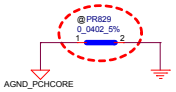


TABLE : NB695 MODE M2 (Float)

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



Security Classification	LC Future Center Secret Data		Title: DC/DC VCCPCHCORE(NB682)
Issued Date		Deciphered Date	

Size: Custom	Document Number: Thorpe-2 UMA		Rev: 0.01
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Security Classification	LC Future Center Secret Data		
Issued Date	2014/07/01	Deciphered Date	2015/12/31

Title: **BLANK**

Size: Custom	Document Number: **Thorpe-2 UMA**	Rev: 0.01
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Security Classification	LC Future Center Secret Data		
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Title: **BLANK**

Size	Document Number	Rev
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Security Classification	LC Future Center Secret Data		
Issued Date	2014/07/01	Deciphered Date	2015/12/31

Title: **BLANK**

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Security Classification	LC Future Center Secret Data		
Issued Date	2014/07/01	Deciphered Date	2015/12/31

Title: **BLANK**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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Security Classification	LC Future Center Secret Data		
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Title: **BLANK**

Size: Custom	Document Number: **Thorpe-2 UMA**	Rev: 0.01
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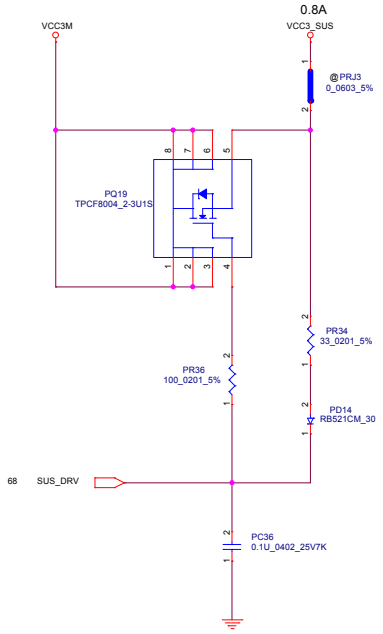

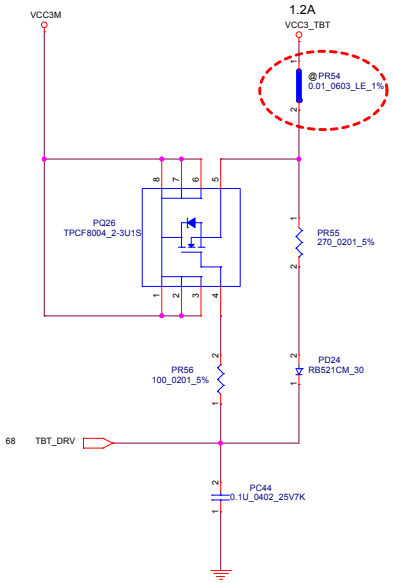

Security Classification	LC Future Center Secret Data		
Issued Date	2012/11/01	Deciphered Date	2013/12/31

Title: LOAD SW PCH SUS/TRACK POINT

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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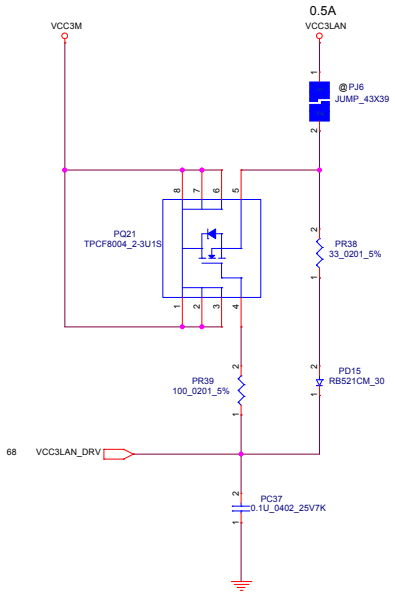

Security Classification	LC Future Center Secret Data		
Issued Date	2012/11/01	Deciphered Date	2013/12/31

Title: **LOAD SW LAN**

Size: Custom	Document Number: **Thorpe-2 UMA**	Rev: 0.01
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Security Classification	LC Future Center Secret Data		
Issued Date	2014/07/01	Deciphered Date	2015/12/31

Title: **BLANK**

Size	Document Number	Rev
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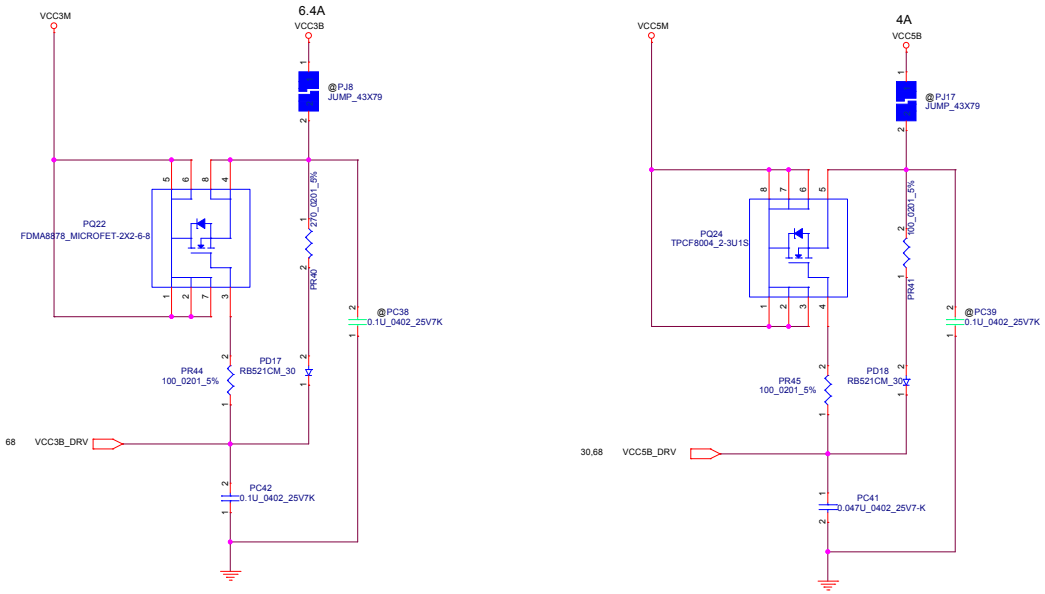

Security Classification	LC Future Center Secret Data		
Issued Date	2012/11/01	Deciphered Date	2013/12/31

Title: **LOAD SW B**

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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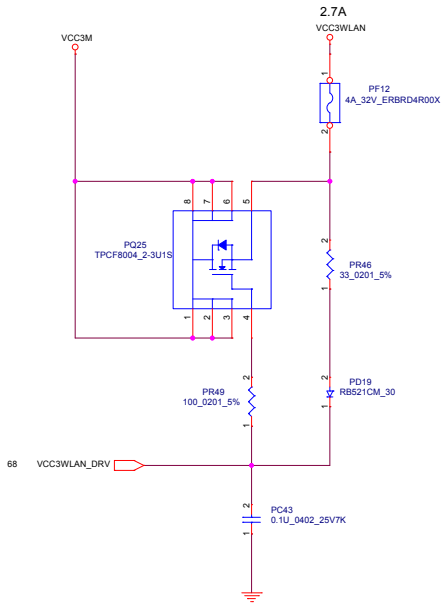

TABLE

AOAC	YES	NO
PR1055	NO-ASM	ASM
PQ94	ASM	NO-ASM
PR8924	ASM	NO-ASM
PR91	ASM	NO-ASM
PC8283	ASM	NO-ASM
PD238	ASM	NO-ASM

LOGIC

Title: LOAD SW WWAN & WLAN

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Title: BLANK

Size	Document Number	Rev
Custom	Thorpe-2 UMA	0.01

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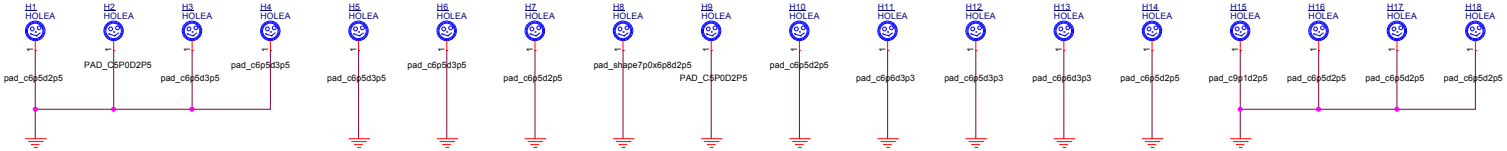

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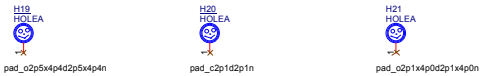
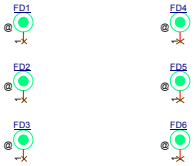


FID
Board Area



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: *PTH FOR SCREW HOLES*

Size	Document Number	Rev
Custom	*Thorpe-2 UMA*	0.01

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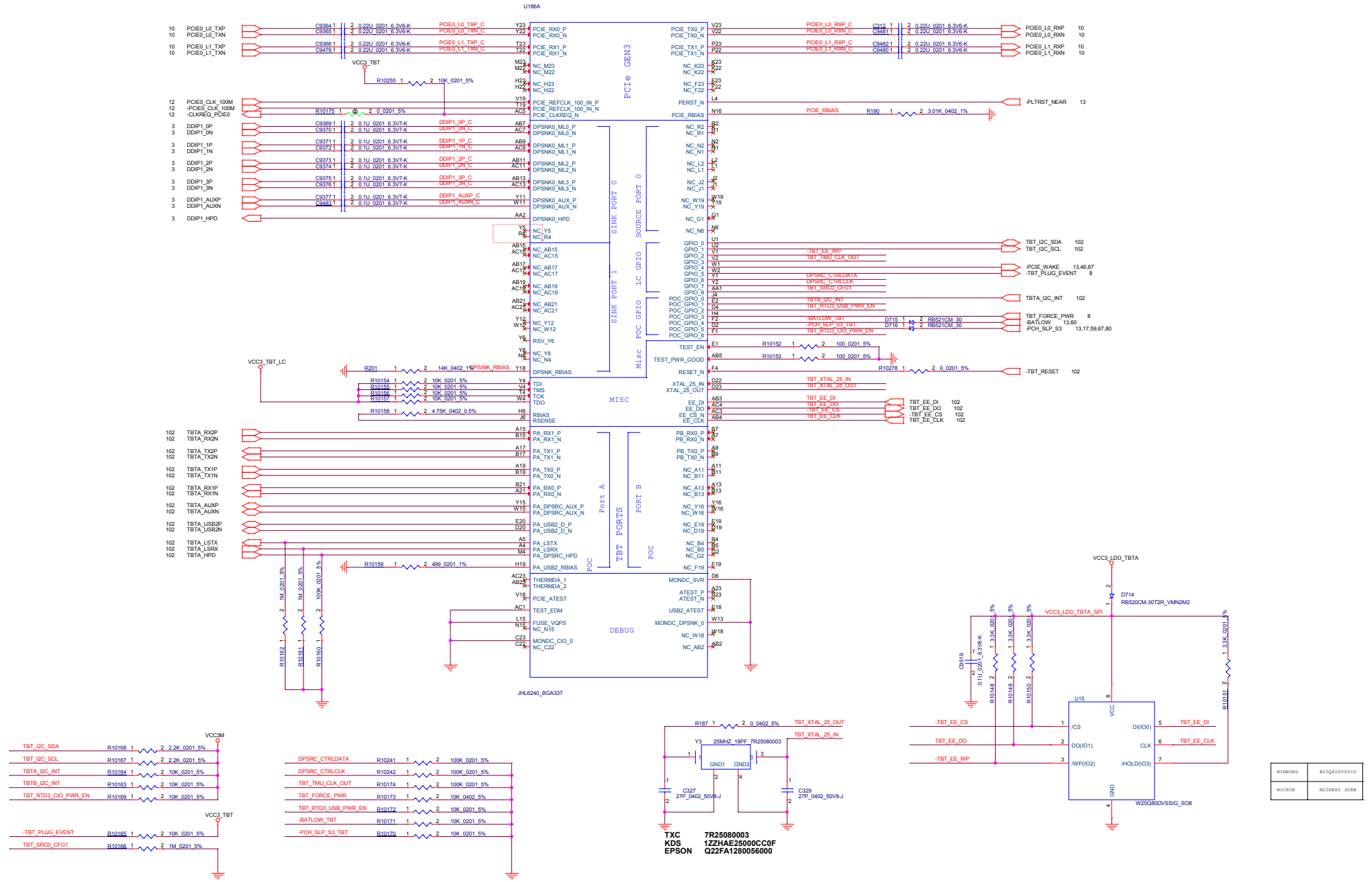

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: ALPINE RIDGE LP(1/2)

Size: Custom | Document Number: Thorpe-2 UMA | Rev: 0.01

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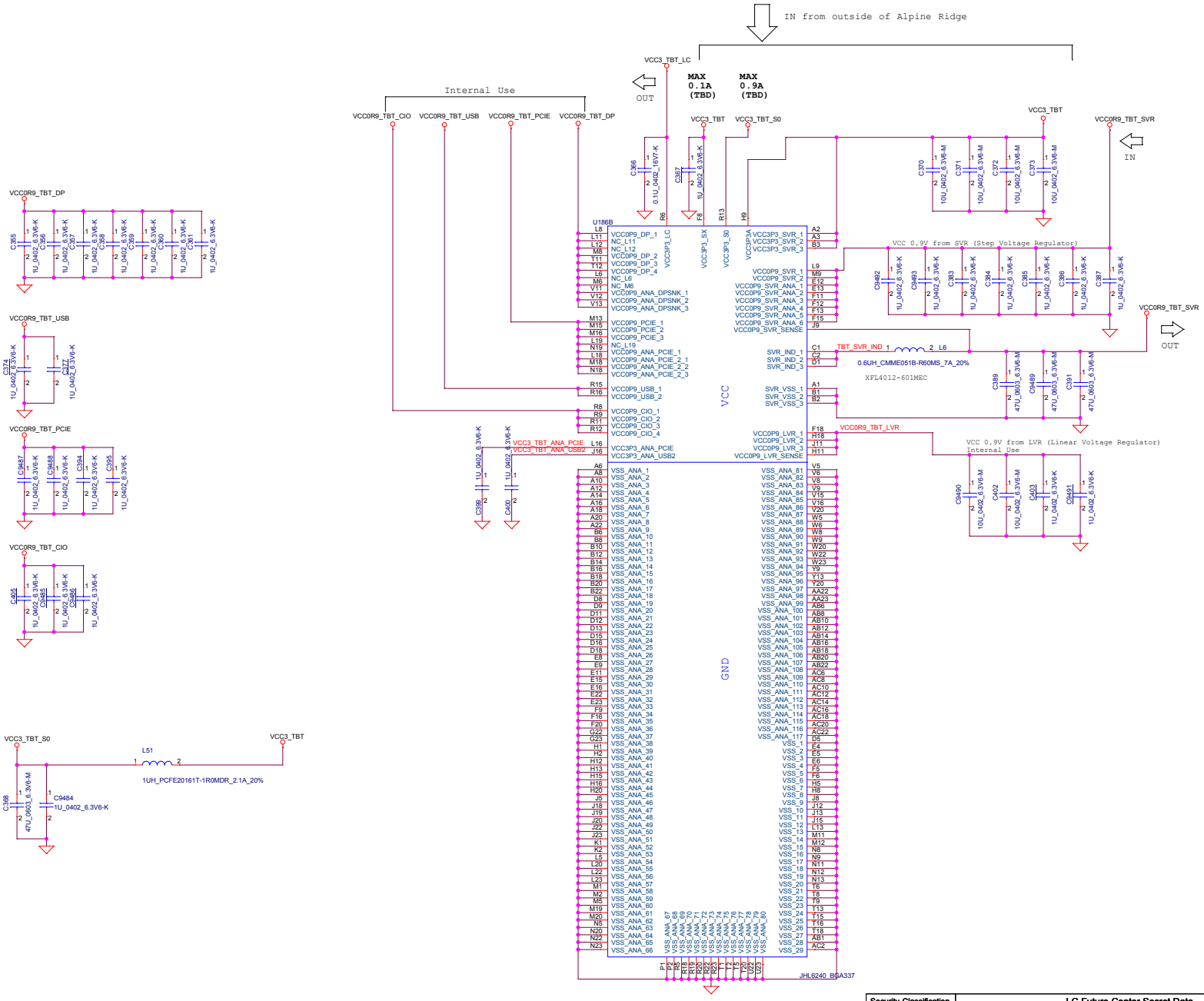

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: ALPINE RIDGE LP(2/2)

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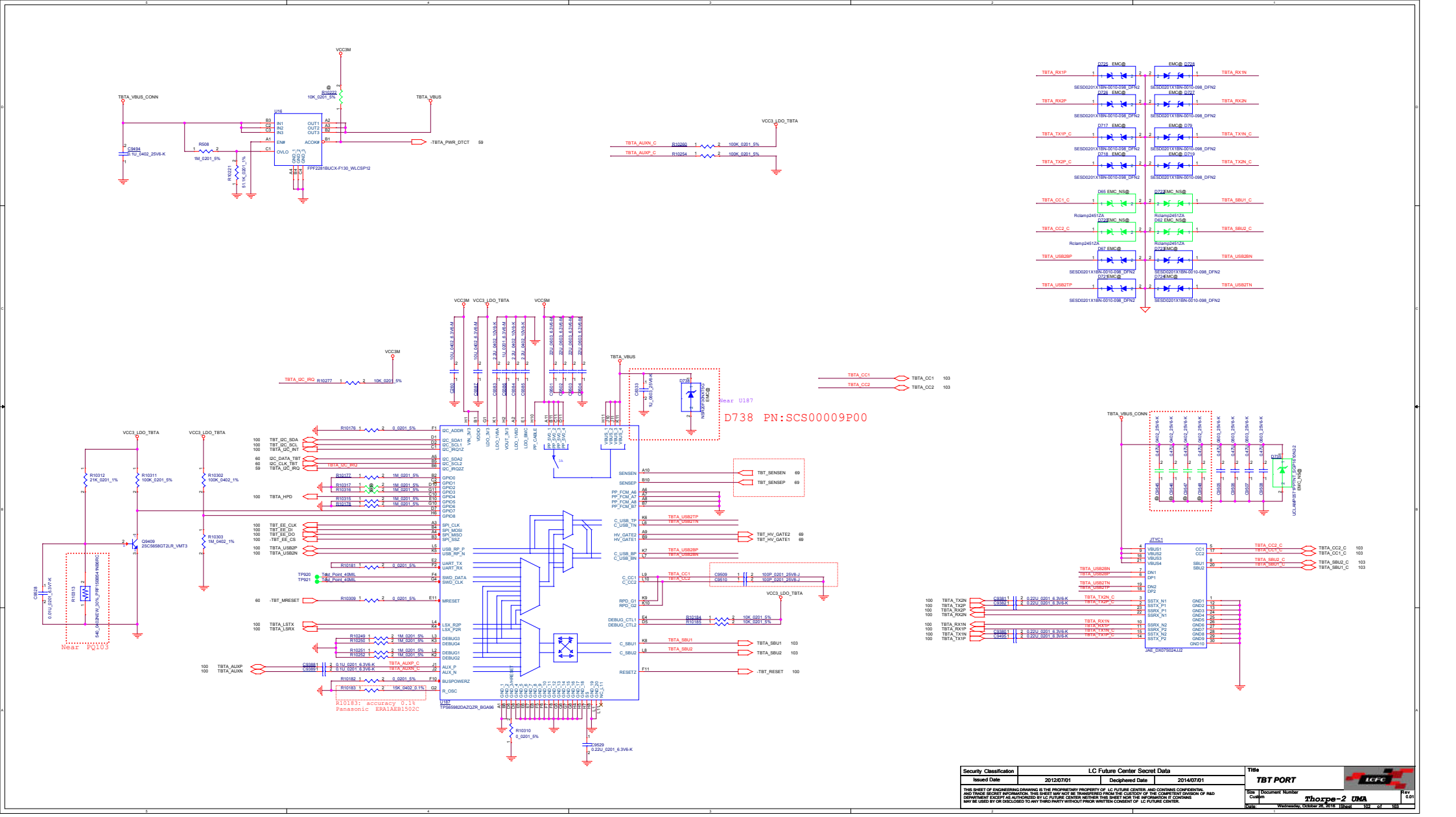
Date: Wednesday, October 26, 2016 | Sheet 101 of 103



Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

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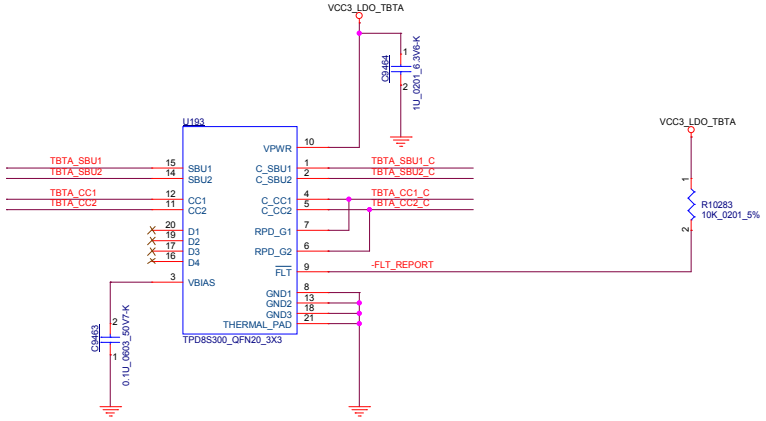

Security Classification	LC Future Center Secret Data		
Issued Date	2012/07/01	Deciphered Date	2014/07/01

Title: **USB TYPE-C PROTOCTOR**

Size	Document Number	Rev
C	Thorpe-2 UMA	0.01

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