

LCFC Confidential
Skids/Mudflap
E14/R14/E15/R15
NM-C421 Rev1.0 Schematic

Intel Comet Processor with DDR4 + PCH
AMD R19M-P25 50/70
AMD R19M-M25-50
2019-07-05 Rev1.0

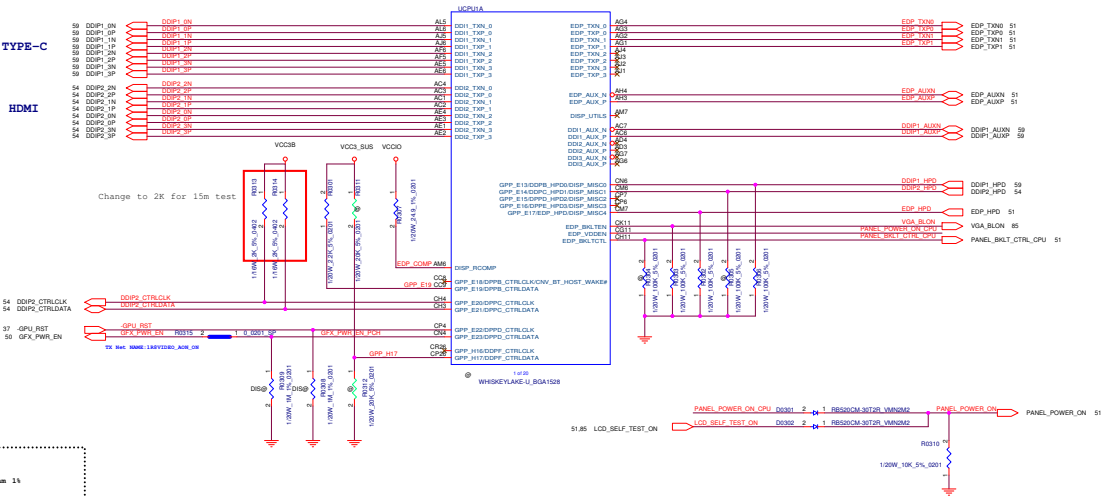
Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/01/12	Deciphered Date	2016/01/12
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TABLE : Functional Strap

GPP_E19/DDP1_CTRLDATA/TBT_LSX0_RXD (DDP1 I2C / TBT LSX #0 PINS VCCIO CONFIGURATION)	
GPP_E21/DDP2_CTRLDATA/TBT_LSX1_RXD (DDP2 I2C / TBT LSX #1 PINS VCCIO CONFIGURATION)	
GPP_D10/DDP3_CTRLDATA/TBT_LSX2_RXD (DDP3 I2C / TBT LSX #2 PINS VCCIO CONFIGURATION)	
GPP_D12/DDP4_CTRLDATA/TBT_LSX3_RXD (DDP4 I2C / TBT LSX #3 PINS VCCIO CONFIGURATION)	
HIGH	3.3V
LOW	1.8V

DP port	Enable	Disable
DDPB_CTRLDATA	Pull up to 3.3 V with 2.2-k ohm \pm 5% resistor	no connect
DDPC_CTRLDATA	Pull up to 3.3 V with 2.2-k ohm \pm 5% resistor	no connect

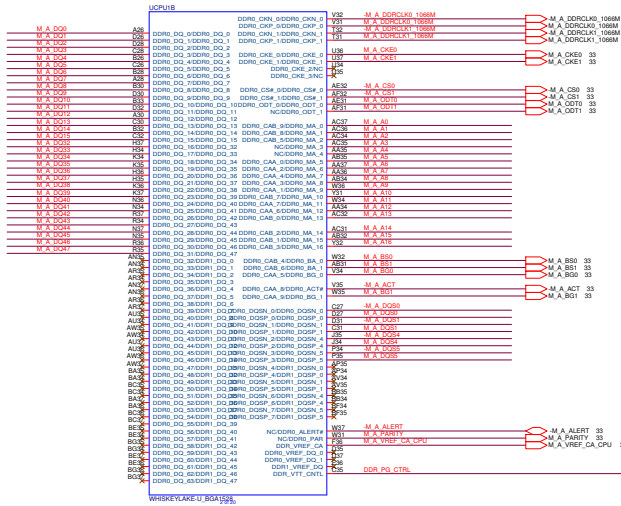


•ddp_acomp
•trace Width: 5 mils
•Isolation Spacing: 25 mils
•Resistor Value: 34.9 or 100 ohm 1%
•Max Length: 600 mils
•Pull-up to VCCIO through 24.9-ohm 1%resistor.
•For CML, it is 100 ohm 1%
•Please refer to P00 Table 3-2.
•Date: 10/27/2015, LCG, Rev: 1.0

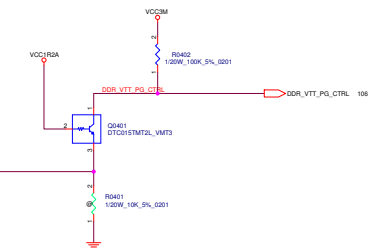
Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/11/12	Dispersed Date	2016/01/12	CPU (1/16): DDVTYPE-C	
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				Rev	814/815 NC-C481
				Date	Wednesday, 2015/11/25/2015
				Sheet	51
				Rev	51

TABLE

	Pin	Interleave	Non-Interleave
Block 0	A26	DDR0_DQ[0]	DDR0_DQ[0]
	D26	DDR0_DQ[1]	DDR0_DQ[1]
	C26	DDR0_DQ[2]	DDR0_DQ[2]
	C28	DDR0_DQ[3]	DDR0_DQ[3]
	B26	DDR0_DQ[4]	DDR0_DQ[4]
	C26	DDR0_DQ[5]	DDR0_DQ[5]
	A28	DDR0_DQ[6]	DDR0_DQ[6]
	B30	DDR0_DQ[7]	DDR0_DQ[7]
	B32	DDR0_DQ[8]	DDR0_DQ[8]
	B33	DDR0_DQ[9]	DDR0_DQ[9]
	D32	DDR0_DQ[10]	DDR0_DQ[10]
	A30	DDR0_DQ[11]	DDR0_DQ[11]
	C30	DDR0_DQ[12]	DDR0_DQ[12]
	B32	DDR0_DQ[13]	DDR0_DQ[13]
	C32	DDR0_DQ[14]	DDR0_DQ[14]
		DDR0_DQ[15]	DDR0_DQ[15]
Block 2	H37	DDR0_DQ[16]	DDR0_DQ[32]
	H34	DDR0_DQ[17]	DDR0_DQ[33]
	K34	DDR0_DQ[18]	DDR0_DQ[34]
	K35	DDR0_DQ[19]	DDR0_DQ[35]
	H36	DDR0_DQ[20]	DDR0_DQ[36]
	H35	DDR0_DQ[21]	DDR0_DQ[37]
	K36	DDR0_DQ[22]	DDR0_DQ[38]
	K37	DDR0_DQ[23]	DDR0_DQ[39]
	N36	DDR0_DQ[24]	DDR0_DQ[40]
	N34	DDR0_DQ[25]	DDR0_DQ[41]
	R37	DDR0_DQ[26]	DDR0_DQ[42]
	R34	DDR0_DQ[27]	DDR0_DQ[43]
	N37	DDR0_DQ[28]	DDR0_DQ[44]
	N35	DDR0_DQ[29]	DDR0_DQ[45]
	R36	DDR0_DQ[30]	DDR0_DQ[46]
	R35	DDR0_DQ[31]	DDR0_DQ[47]
Block 4	AN35	DDR0_DQ[32]	DDR1_DQ[0]
	AN34	DDR0_DQ[33]	DDR1_DQ[1]
	AR35	DDR0_DQ[34]	DDR1_DQ[2]
	AR34	DDR0_DQ[35]	DDR1_DQ[3]
	AN37	DDR0_DQ[36]	DDR1_DQ[4]
	AN36	DDR0_DQ[37]	DDR1_DQ[5]
	AR36	DDR0_DQ[38]	DDR1_DQ[6]
	AR37	DDR0_DQ[39]	DDR1_DQ[7]
	AU34	DDR0_DQ[40]	DDR1_DQ[8]
	AW35	DDR0_DQ[41]	DDR1_DQ[9]
	AW34	DDR0_DQ[42]	DDR1_DQ[10]
	AU37	DDR0_DQ[43]	DDR1_DQ[11]
	AW36	DDR0_DQ[44]	DDR1_DQ[12]
	AW35	DDR0_DQ[45]	DDR1_DQ[13]
	AW37	DDR0_DQ[46]	DDR1_DQ[14]
		DDR0_DQ[47]	DDR1_DQ[15]
Block 6	BA35	DDR0_DQ[48]	DDR1_DQ[32]
	BA34	DDR0_DQ[49]	DDR1_DQ[33]
	BC35	DDR0_DQ[50]	DDR1_DQ[34]
	BC34	DDR0_DQ[51]	DDR1_DQ[35]
	BA36	DDR0_DQ[52]	DDR1_DQ[36]
	BC36	DDR0_DQ[53]	DDR1_DQ[37]
	BC37	DDR0_DQ[54]	DDR1_DQ[38]
	BE35	DDR0_DQ[55]	DDR1_DQ[39]
	BE34	DDR0_DQ[56]	DDR1_DQ[40]
	BG35	DDR0_DQ[57]	DDR1_DQ[41]
	BG34	DDR0_DQ[58]	DDR1_DQ[42]
	BE37	DDR0_DQ[59]	DDR1_DQ[43]
	BE36	DDR0_DQ[60]	DDR1_DQ[44]
	BG36	DDR0_DQ[61]	DDR1_DQ[45]
	BG37	DDR0_DQ[62]	DDR1_DQ[46]
		DDR0_DQ[63]	DDR1_DQ[47]

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LOGIC

Vendor	LCFC P/N	Description
ROHM	SB00000W0CJ	S TR DTC015TM12L NPN VMT3
TOSHIBA	SB000010700	S TR RN1131MFV NPN VESM
ON	SB000013000	S TR DTC115T3515G NPN SOT-723-3



TABLE

	Pin	Interleave	Non-Interleave
Block 0	C27	DDR0_DQSN[0]	DDR0_DQSN[0]
	D27	DDR0_DQSP[0]	DDR0_DQSP[0]
	D31	DDR0_DQSN[1]	DDR0_DQSN[1]
	C31	DDR0_DQSP[1]	DDR0_DQSP[1]
Block 2	J35	DDR0_DQSN[2]	DDR0_DQSN[4]
	J34	DDR0_DQSP[2]	DDR0_DQSP[4]
	P34	DDR0_DQSN[3]	DDR0_DQSN[5]
	P35	DDR0_DQSP[3]	DDR0_DQSP[5]
Block 4	AP35	DDR0_DQSN[4]	DDR1_DQSN[0]
	AP34	DDR0_DQSP[4]	DDR1_DQSP[0]
	AV34	DDR0_DQSN[5]	DDR1_DQSN[1]
	AV35	DDR0_DQSP[5]	DDR1_DQSP[1]
Block 6	BB35	DDR0_DQSN[6]	DDR1_DQSN[4]
	BB34	DDR0_DQSP[6]	DDR1_DQSP[4]
	BF34	DDR0_DQSN[7]	DDR1_DQSN[5]
	BF35	DDR0_DQSP[7]	DDR1_DQSP[5]

↑
LOGIC

TABLE

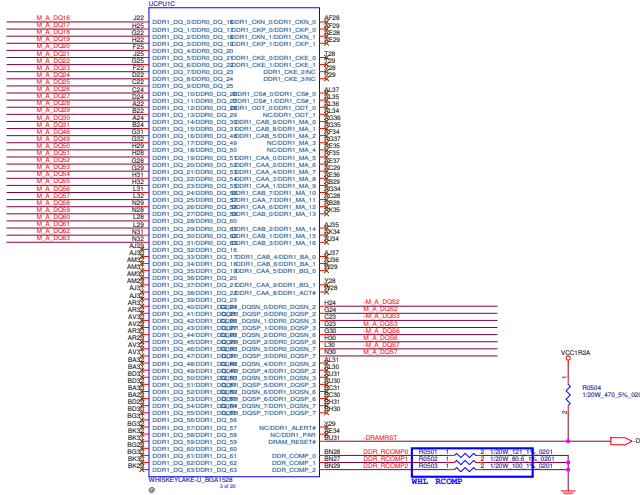
Pin	DDR3L	LPDDR3	DDR4
AB35	DDR0_MA[5]	DDR0_CAA[0]	DDR0_MA[5]
W36	DDR0_MA[9]	DDR0_CAA[1]	DDR0_MA[9]
AA37	DDR0_MA[6]	DDR0_CAA[2]	DDR0_MA[6]
AB34	DDR0_MA[8]	DDR0_CAA[3]	DDR0_MA[8]
V34	DDR0_MA[7]	DDR0_CAA[4]	DDR0_MA[7]
AA36	DDR0_BA[2]	DDR0_CAA[5]	DDR0_BG[0]
AA34	DDR0_BA[2]	DDR0_CAA[6]	DDR0_MA[12]
W34	DDR0_MA[11]	DDR0_CAA[7]	DDR0_MA[11]
V35	DDR0_MA[15]	DDR0_CAA[8]	DDR0_ACT#
W35	DDR0_MA[14]	DDR0_CAA[9]	DDR0_BG[1]
AC32	DDR0_MA[13]	DDR0_CAB[0]	DDR0_MA[13]
AB32	DDR0_CAS#	DDR0_CAB[1]	DDR0_MA[15]
AC31	DDR0_WE#	DDR0_CAB[2]	DDR0_MA[14]
Y32	DDR0_RAS#	DDR0_CAB[3]	DDR0_MA[16]
AC34	DDR0_BA[0]	DDR0_CAB[4]	DDR0_BA[0]
AB31	DDR0_MA[2]	DDR0_CAB[5]	DDR0_CAB[5]
Y31	DDR0_BA[1]	DDR0_CAB[6]	DDR0_BA[1]
AC36	DDR0_MA[10]	DDR0_CAB[7]	DDR0_MA[10]
AC37	DDR0_MA[1]	DDR0_CAB[8]	DDR0_MA[1]
AC35	DDR0_MA[0]	DDR0_CAB[9]	DDR0_MA[0]
AA35	DDR0_MA[3]	DDR0_CAB[10]	DDR0_MA[3]
	DDR0_MA[4]	Not Used	DDR0_MA[4]

↑
LOGIC

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/09/01	Deciphered Date	2016/12/31	CPU (2/16); DDR (1/2)	
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				Quarters	0.1
				814/815 IN-C181	
Scale	Thursday, July 24, 2015	Jobcode	61 108		

TABLE	Pin	Interleave	Non-Interleave
Block 1	J22	DDR1_DQ[0]	DDR0_DQ[16]
	H25	DDR1_DQ[1]	DDR0_DQ[17]
	G22	DDR1_DQ[2]	DDR0_DQ[18]
	H22	DDR1_DQ[3]	DDR0_DQ[19]
	F25	DDR1_DQ[4]	DDR0_DQ[20]
	J25	DDR1_DQ[5]	DDR0_DQ[21]
	G25	DDR1_DQ[6]	DDR0_DQ[22]
	F22	DDR1_DQ[7]	DDR0_DQ[23]
	D22	DDR1_DQ[8]	DDR0_DQ[24]
	C22	DDR1_DQ[9]	DDR0_DQ[25]
	C24	DDR1_DQ[10]	DDR0_DQ[26]
	D24	DDR1_DQ[11]	DDR0_DQ[27]
	A22	DDR1_DQ[12]	DDR0_DQ[28]
	B22	DDR1_DQ[13]	DDR0_DQ[29]
	A24	DDR1_DQ[14]	DDR0_DQ[30]
	B24	DDR1_DQ[15]	DDR0_DQ[31]
Block 3	G31	DDR1_DQ[16]	DDR0_DQ[48]
	G32	DDR1_DQ[17]	DDR0_DQ[49]
	H29	DDR1_DQ[18]	DDR0_DQ[50]
	H28	DDR1_DQ[19]	DDR0_DQ[51]
	G28	DDR1_DQ[20]	DDR0_DQ[52]
	G29	DDR1_DQ[21]	DDR0_DQ[53]
	H31	DDR1_DQ[22]	DDR0_DQ[54]
	H32	DDR1_DQ[23]	DDR0_DQ[55]
	L31	DDR1_DQ[24]	DDR0_DQ[56]
	L32	DDR1_DQ[25]	DDR0_DQ[57]
	N29	DDR1_DQ[26]	DDR0_DQ[58]
	N28	DDR1_DQ[27]	DDR0_DQ[59]
	L28	DDR1_DQ[28]	DDR0_DQ[60]
	N29	DDR1_DQ[29]	DDR0_DQ[61]
	N31	DDR1_DQ[30]	DDR0_DQ[62]
	N32	DDR1_DQ[31]	DDR0_DQ[63]
Block 5	AJ29	DDR1_DQ[32]	DDR1_DQ[16]
	AJ30	DDR1_DQ[33]	DDR1_DQ[17]
	AM32	DDR1_DQ[34]	DDR1_DQ[18]
	AM31	DDR1_DQ[35]	DDR1_DQ[19]
	AM29	DDR1_DQ[36]	DDR1_DQ[20]
	AJ31	DDR1_DQ[37]	DDR1_DQ[21]
	AJ32	DDR1_DQ[38]	DDR1_DQ[22]
	AR31	DDR1_DQ[39]	DDR1_DQ[23]
	AR32	DDR1_DQ[40]	DDR1_DQ[24]
	AV30	DDR1_DQ[41]	DDR1_DQ[25]
	AV29	DDR1_DQ[42]	DDR1_DQ[26]
	AR30	DDR1_DQ[43]	DDR1_DQ[27]
	AR28	DDR1_DQ[44]	DDR1_DQ[28]
	AV32	DDR1_DQ[45]	DDR1_DQ[29]
	AV31	DDR1_DQ[46]	DDR1_DQ[30]
Block 7	BA32	DDR1_DQ[48]	DDR1_DQ[48]
	BA31	DDR1_DQ[49]	DDR1_DQ[49]
	BD31	DDR1_DQ[50]	DDR1_DQ[50]
	BD32	DDR1_DQ[51]	DDR1_DQ[51]
	BA30	DDR1_DQ[52]	DDR1_DQ[52]
	BA29	DDR1_DQ[53]	DDR1_DQ[53]
	BD29	DDR1_DQ[54]	DDR1_DQ[54]
	BD30	DDR1_DQ[55]	DDR1_DQ[55]
	BG31	DDR1_DQ[56]	DDR1_DQ[56]
	BG32	DDR1_DQ[57]	DDR1_DQ[57]
	BK31	DDR1_DQ[58]	DDR1_DQ[58]
	BG29	DDR1_DQ[59]	DDR1_DQ[59]
	BG30	DDR1_DQ[60]	DDR1_DQ[60]
	BK30	DDR1_DQ[61]	DDR1_DQ[61]
	BK29	DDR1_DQ[62]	DDR1_DQ[62]
	BK28	DDR1_DQ[63]	DDR1_DQ[63]

↑
LOGIC



WHL RCOMP[0] Pull down 121 ohm resistor
DDR1_DQ[32] Pull down 100 ohm resistor
DDR1_DQ[33] Pull down 100 ohm resistor
DDR1_DQ[34] Pull down 100 ohm resistor
DDR1_DQ[35] Pull down 100 ohm resistor
DDR1_DQ[36] Pull down 100 ohm resistor
DDR1_DQ[37] Pull down 100 ohm resistor
DDR1_DQ[38] Pull down 100 ohm resistor
DDR1_DQ[39] Pull down 100 ohm resistor
DDR1_DQ[40] Pull down 100 ohm resistor
DDR1_DQ[41] Pull down 100 ohm resistor
DDR1_DQ[42] Pull down 100 ohm resistor
DDR1_DQ[43] Pull down 100 ohm resistor
DDR1_DQ[44] Pull down 100 ohm resistor
DDR1_DQ[45] Pull down 100 ohm resistor
DDR1_DQ[46] Pull down 100 ohm resistor
DDR1_DQ[48] Pull down 100 ohm resistor
DDR1_DQ[49] Pull down 100 ohm resistor
DDR1_DQ[50] Pull down 100 ohm resistor
DDR1_DQ[51] Pull down 100 ohm resistor
DDR1_DQ[52] Pull down 100 ohm resistor
DDR1_DQ[53] Pull down 100 ohm resistor
DDR1_DQ[54] Pull down 100 ohm resistor
DDR1_DQ[55] Pull down 100 ohm resistor
DDR1_DQ[56] Pull down 100 ohm resistor
DDR1_DQ[57] Pull down 100 ohm resistor
DDR1_DQ[58] Pull down 100 ohm resistor
DDR1_DQ[59] Pull down 100 ohm resistor
DDR1_DQ[60] Pull down 100 ohm resistor
DDR1_DQ[61] Pull down 100 ohm resistor
DDR1_DQ[62] Pull down 100 ohm resistor
DDR1_DQ[63] Pull down 100 ohm resistor

TABLE	Pin	Interleave	Non-Interleave
Block 1	H24	DDR1_DQSN[0]	DDR0_DQSN[2]
	G24	DDR1_DQSP[0]	DDR0_DQSP[2]
	D23	DDR1_DQSN[1]	DDR0_DQSN[3]
Block 3	G30	DDR1_DQSN[2]	DDR0_DQSN[6]
	H30	DDR1_DQSP[2]	DDR0_DQSP[6]
	L30	DDR1_DQSN[3]	DDR0_DQSN[7]
Block 5	AL31	DDR1_DQSN[4]	DDR1_DQSN[2]
	AL30	DDR1_DQSP[4]	DDR1_DQSP[2]
	AU30	DDR1_DQSN[5]	DDR1_DQSN[3]
Block 7	BC31	DDR1_DQSN[6]	DDR1_DQSN[6]
	BC30	DDR1_DQSP[6]	DDR1_DQSP[6]
	BH30	DDR1_DQSN[7]	DDR1_DQSN[7]

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LOGIC

TABLE	Pin	DDR3L	LPDDR3	DDR4
Block 1	AF35	DDR1_MA[5]	DDR1_CAA[0]	DDR1_MA[5]
	AE29	DDR1_MA[6]	DDR1_CAA[1]	DDR1_MA[6]
	AE37	DDR1_MA[7]	DDR1_CAA[2]	DDR1_MA[7]
	AE36	DDR1_MA[8]	DDR1_CAA[3]	DDR1_MA[8]
	W29	DDR1_MA[9]	DDR1_CAA[4]	DDR1_MA[9]
	W28	DDR1_MA[10]	DDR1_CAA[5]	DDR1_MA[10]
	W28	DDR1_MA[11]	DDR1_CAA[6]	DDR1_MA[11]
	W28	DDR1_MA[12]	DDR1_CAA[7]	DDR1_MA[12]
	W28	DDR1_MA[13]	DDR1_CAA[8]	DDR1_MA[13]
	W28	DDR1_MA[14]	DDR1_CAA[9]	DDR1_MA[14]
Block 5	AK35	DDR1_MA[13]	DDR1_CAB[0]	DDR1_MA[13]
	AK34	DDR1_CAS#	DDR1_CAB[1]	DDR1_MA[15]
	AJ35	DDR1_WE#	DDR1_CAB[2]	DDR1_MA[14]
	AJ34	DDR1_RAS#	DDR1_CAB[3]	DDR1_MA[16]
	AF34	DDR1_BA[0]	DDR1_CAB[4]	DDR1_BA[0]
	AF34	DDR1_MA[2]	DDR1_CAB[5]	DDR1_MA[2]
	AG36	DDR1_BA[1]	DDR1_CAB[6]	DDR1_BA[1]
	AG35	DDR1_MA[10]	DDR1_CAB[7]	DDR1_MA[10]
	AG36	DDR1_MA[11]	DDR1_CAB[8]	DDR1_MA[11]
	AE35	DDR1_MA[12]	DDR1_CAB[9]	DDR1_MA[12]

↑
LOGIC

Table 3-1. RCOMP Recommendation for WHL and CFL

Interface	Pin Name	Board Items (Ohm)	Board Rdc (Ohm)	Note
DDR - LP3	DDR_RCOMP[0]	2000 ± 1% on pig to VSS	N/A	
	DDR_RCOMP[1]	80.62 ± 1% on pig to VSS	N/A	
	DDR_RCOMP[2]	1670 ± 1% on pig to VSS	N/A	
DDR - DDR4 SODIMM	DDR_RCOMP[0]	121G ± 1% on pig to VSS	N/A	Different RCOMP value in CNL. Refer to Table 3-2
	DDR_RCOMP[1]	80.62 ± 1% on pig to VSS	N/A	
	DDR_RCOMP[2]	1000 ± 1% on pig to VSS	N/A	

Table 3-2. RCOMP Recommendation for CNL

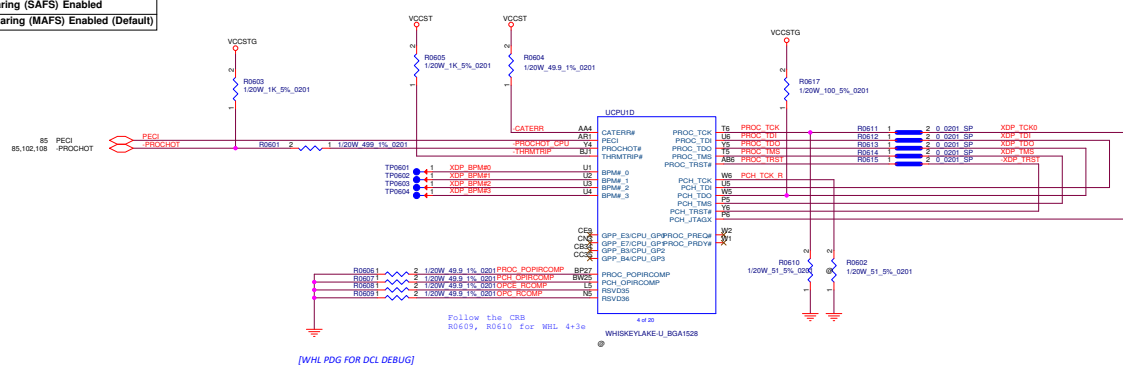
Interface	Pin Name	Board Items (Ohm)	Board Rdc (Ohm)	Note
DDR - DDR4 SODIMM	DDR_RCOMP[0]	1000 ± 1% on pig to VSS	N/A	No LP3 support in CNL
	DDR_RCOMP[1]	1000 ± 1% on pig to VSS	N/A	
	DDR_RCOMP[2]	1000 ± 1% on pig to VSS	N/A	


CPU SKU	U43e	U42
Pin A14	OPCE_RCOMP	Reserved
Pin B14	OPC_RCOMP	Reserved

ITP_PMODE (DFX Test Mode)	
HIGH	DFX Test Mode Disabled (Default)
LOW	DFX Test Mode Enabled

GPP_E6 (JTAG ODT Disable)	
HIGH	Enabled
LOW	Disabled

GPP_H2/CNV_BT_I2S_SDO (eSPI Flash Sharing Mode)	
HIGH	Slave Attached Flash Sharing (SAFS) Enabled
LOW	Master Attached Flash Sharing (MAFS) Enabled (Default)

[illegible]

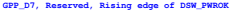
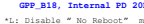
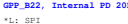
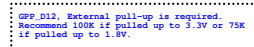
Security Classification	LC Future Center: Secret Data		Title	
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Graphics ID

Graphics Control

Status	DISCRETE (GPP_D14)
R18M	0 (R082)
R19M	1 (R082)



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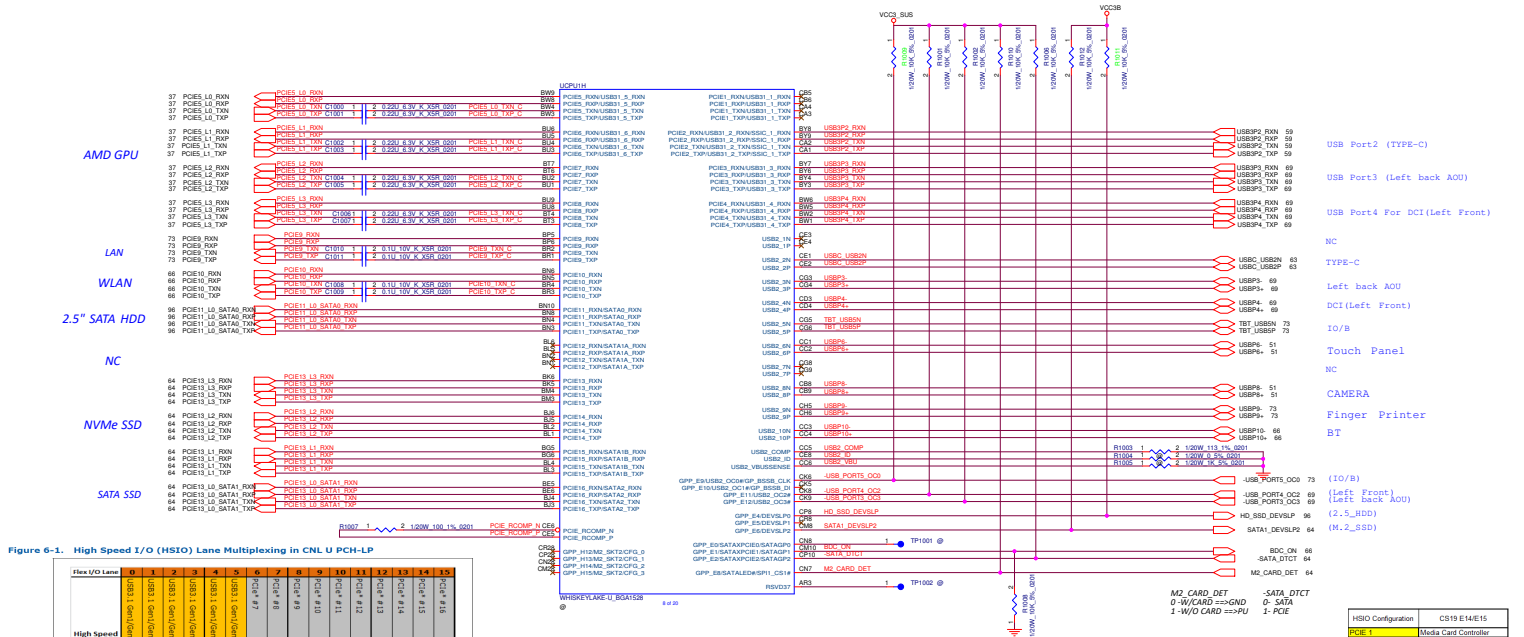


Figure 6-1. High Speed I/O (HSIO) Lane Multiplexing in CNL U PCH-LP

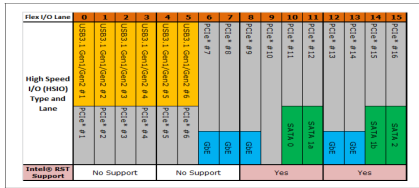


Figure 6-2. Supported PCH PCI Express® Link Configurations

PCH-LP	PCIe® Controller #1	PCIe® Controller #2	PCIe® Controller #3	PCIe® Controller #4												
Flow I/O Lane	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PCIe Lane	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Configuration	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1	1x1
Configuration	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2	1x2
Configuration	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4	1x4
Configuration	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8	1x8

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Date	Monday, July 14, 2015	Page	19 of 128

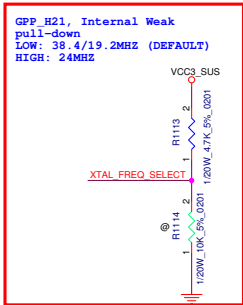
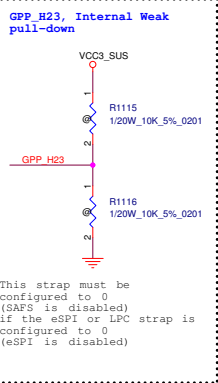
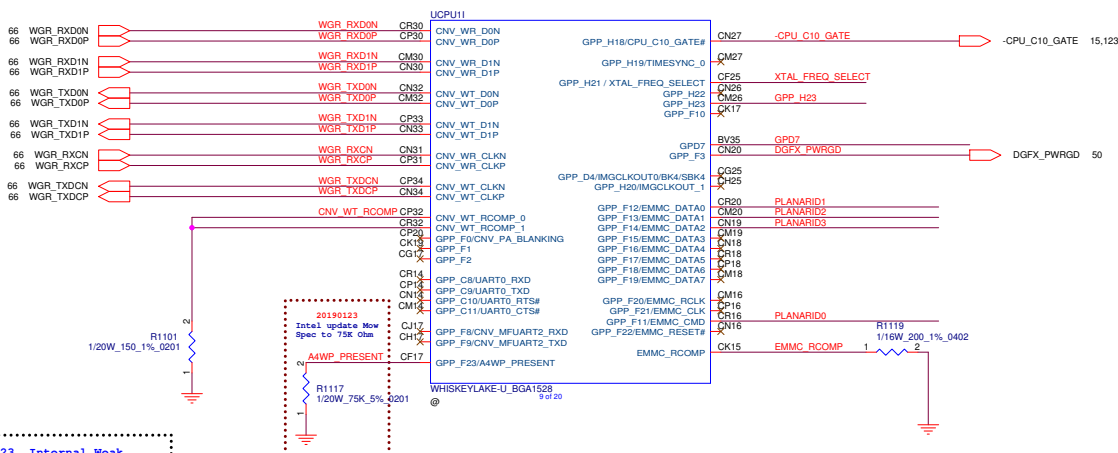
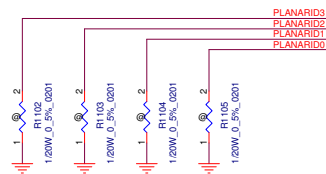


TABLE: PLANARID

PLANARID[3:0]	PHASE
0h (0000b)	EVT
1h (0001b)	FVT
2h (0010b)	SIT
3h (0011b)	SIT-R
Fh (1111b)	SVT



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Figure 7-7. WHLU PCH-LP Platform Crystal XTAL_IN/OUT Topology

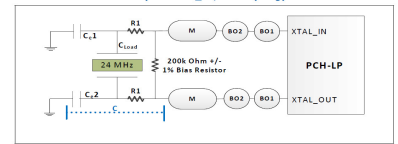


TABLE of XTAL (Y1201)		
Vendor	LCFC P/N	Description
TXC	SJ10000S500	S CRYSTAL 24MHZ 12PF +/-20PPM 8Y24000034
HARMONY	SJ10000RR00	S CRYSTAL 24MHZ 12PF X2C024000DC1H-HU

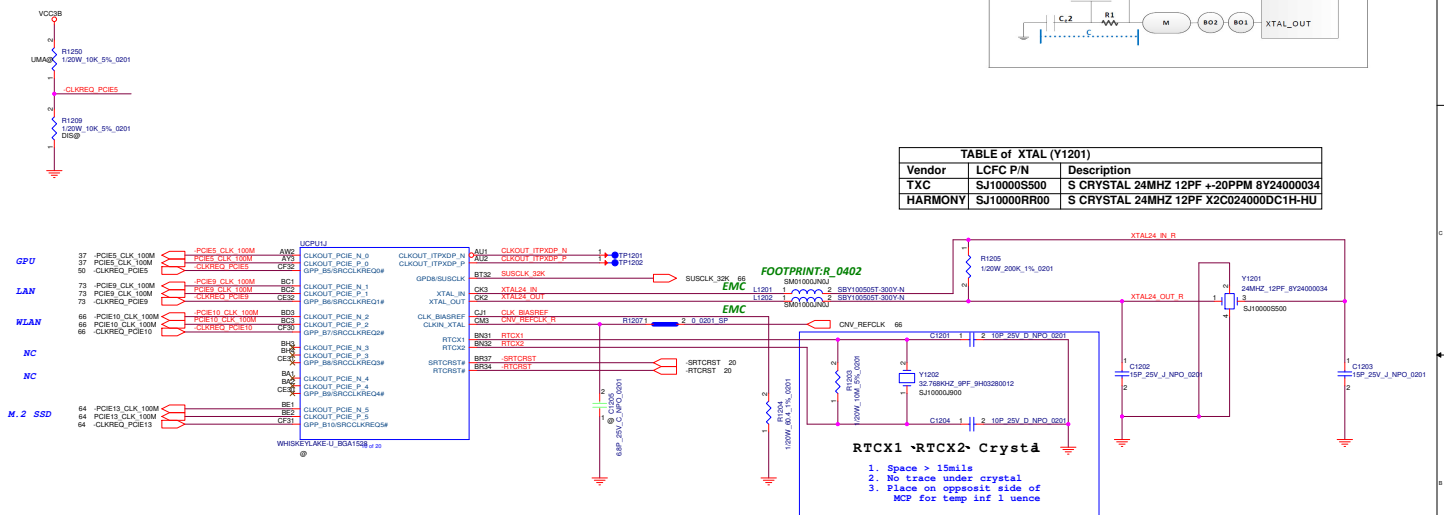


TABLE of XTAL (Y1202)		
Vendor	LCFC P/N	Description
TXC	SJ10000J900	S CRYSTAL 32.768KHZ 9PF 20PPM
KDS	SJ100069400	S CRYSTAL 32.768KHZ 9PF 1TJF09

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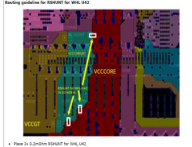
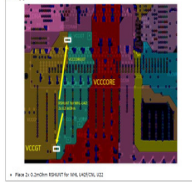


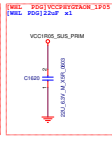


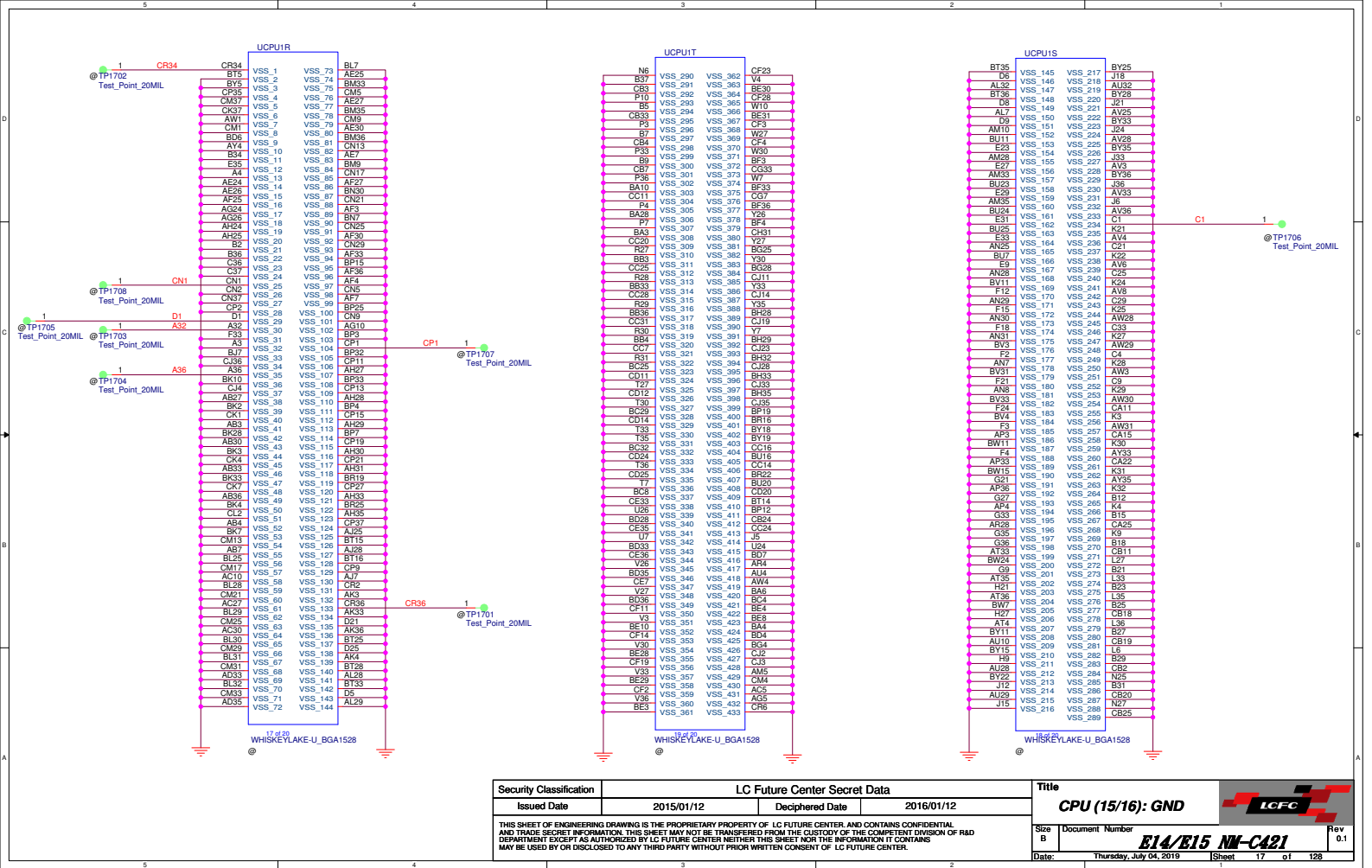
Figure 11-11. Whiskey Lake U 4+2/Coffee Lake U 4+2f/Cannon Lake U 2+2/Coffee Lake U 4+3e Processor - RSHUNT Routing and Placement Guideline




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Version		1.0		1.0	

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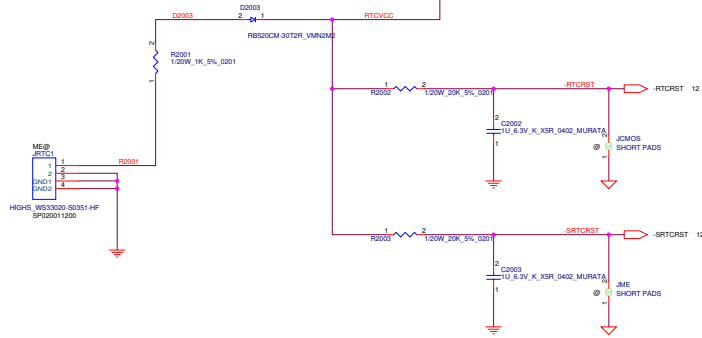
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RTC CONN.

RTC External Circuit

RTCBATT(R2001 D2003)
RTCVCC
Trace width = 20mils



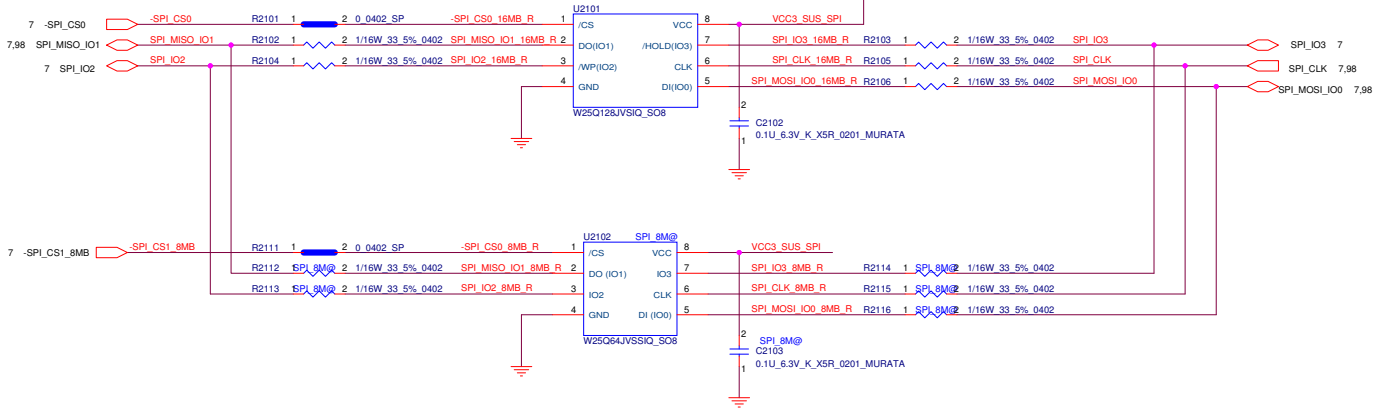
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				Date	Thursday, 25/01/2015
				Sheet	25 of 128


VCC3_SUS_SPI VCC3_SUS_SPI 7.85
VCC3_SUS VCC3_SUS 3.7,8,9,10,11,13,16,50,93,98,124

Mirror Code, Close to SPI ROM (U2101).


85	-ECSP1_SS	R2107.1	2	0	0402	SP	-SPI_CS0	16MB	R
85	ECSP1_MOSI	R2108.1	2	0	0402	SP	SPI_MOSI_IO0	16MB	R
85	ECSP1_MISO	R2109.1	2	0	0402	SP	SPI_MISO_IO1	16MB	R
85	ECSP1_CLK	R2110.1	2	0	0402	SP	SPI_CLK	16MB	R

TABLE of SPI ROM (U2101)		
Vendor	LCFC P/N	Description
WINBOND	SA00008A300	S IC FL 128M W25Q128JVSQ SOIC 8P SPI
MXIC	SA00009WJ00	S IC FL 128M MX25L12872FM2I-10




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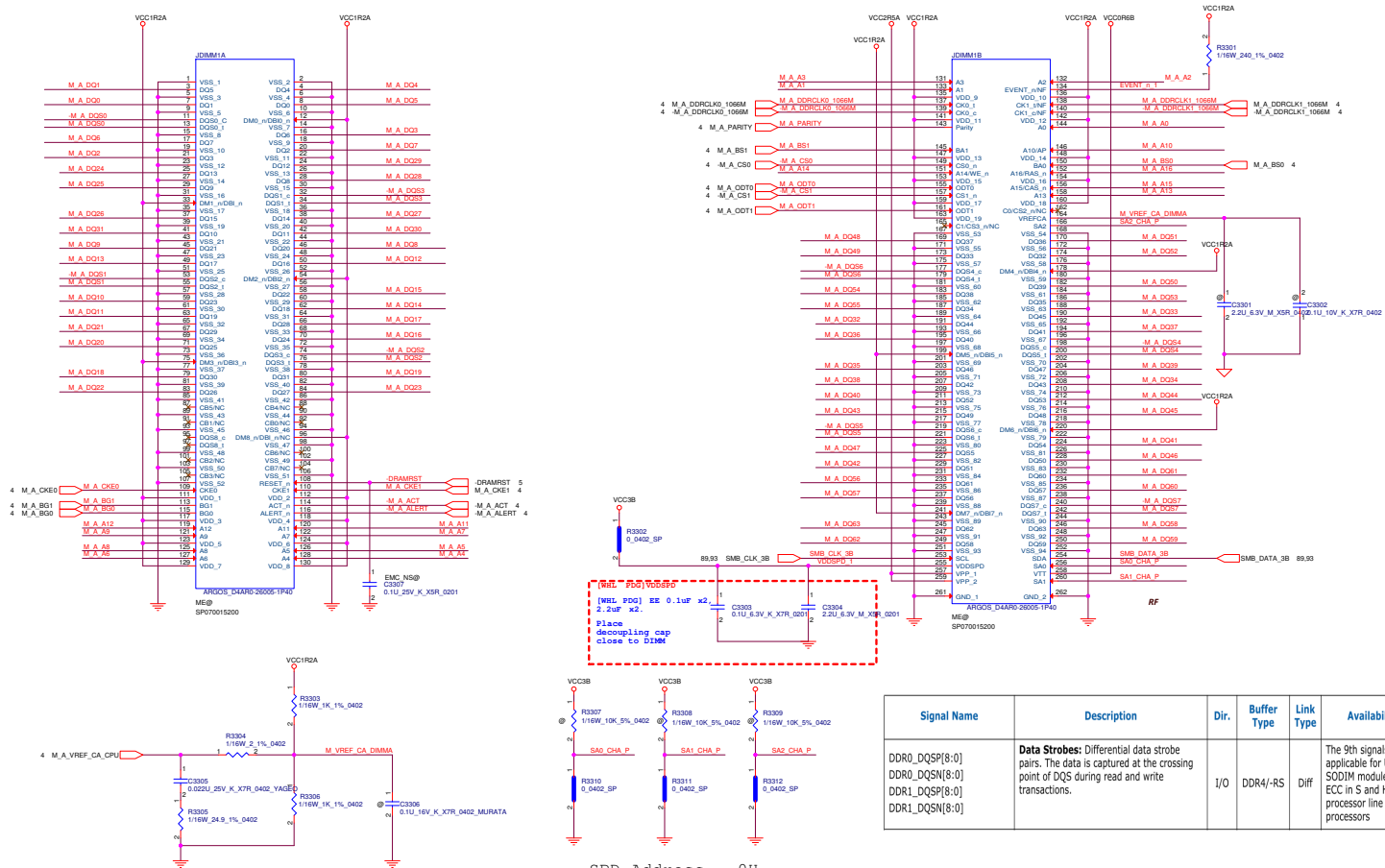
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1	B14/E15 NH-C421			0.1
Date:	Thursday, 2/27/15 8:01 AM			Sheet 01 of 128

4.5 M_A_DQ[8:0]
4.5 M_A_DQ[7:0]
4.5 M_A_DQ[6:0]
4 M_A_A[16:0]



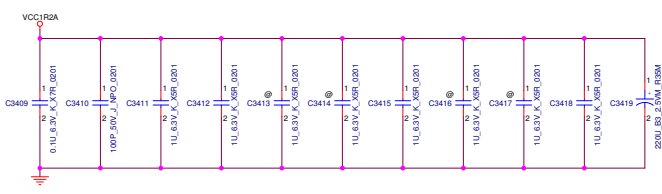
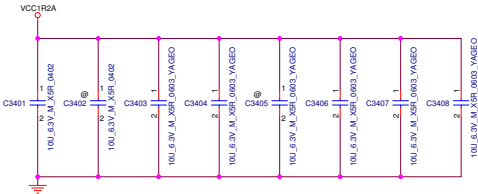
SPD Address = 0H

Signal Name	Description	Dir.	Buffer Type	Link Type	Availability
DDR0_DQSP[8:0] DDR0_DQSN[8:0] DDR1_DQSP[8:0] DDR1_DQSN[8:0]	Data Strobes: Differential data strobe pairs. The data is captured at the crossing point of DQS during read and write transactions.	I/O	DDR4/-RS	Diff	The 9th signals[8] are applicable for UDIMM/ SODIM module with ECC in S and H-processor line processors

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Issue			Version			1.0			1.0		
Rev			Issue			1.0			1.0		

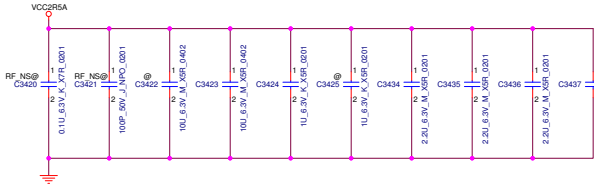
[WHL PDG]VDDQ
[WHL PDG] EE 10uF x16, 1uF x16. 330uF x1
Place 10uF/1uF decoupling cap, 4
near each side of the DIMM
connector close to VDD pins.
330uF placeholder

Total quantity is referring to 2 channels.



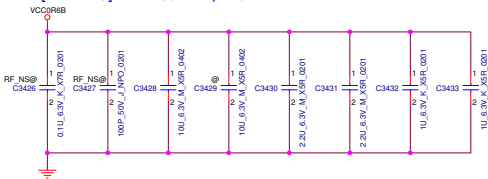
10U x 6
0.1U x 2
1U x 4
220U x 1

[WHL PDG]VPP
[WHL PDG] EE 10uF x2, 1uF x2.
Place decoupling cap on DRAM side.



10U x 1
1U x 1


[WHL PDG]VTT
[WHL PDG] EE 10uF x2, 1uF x4.



10U x 1
1U x 2

Place decoupling on the VTT plane close to SODIMM


Total
10U x 8
0.1U x 2
1U x 7
220U x 1

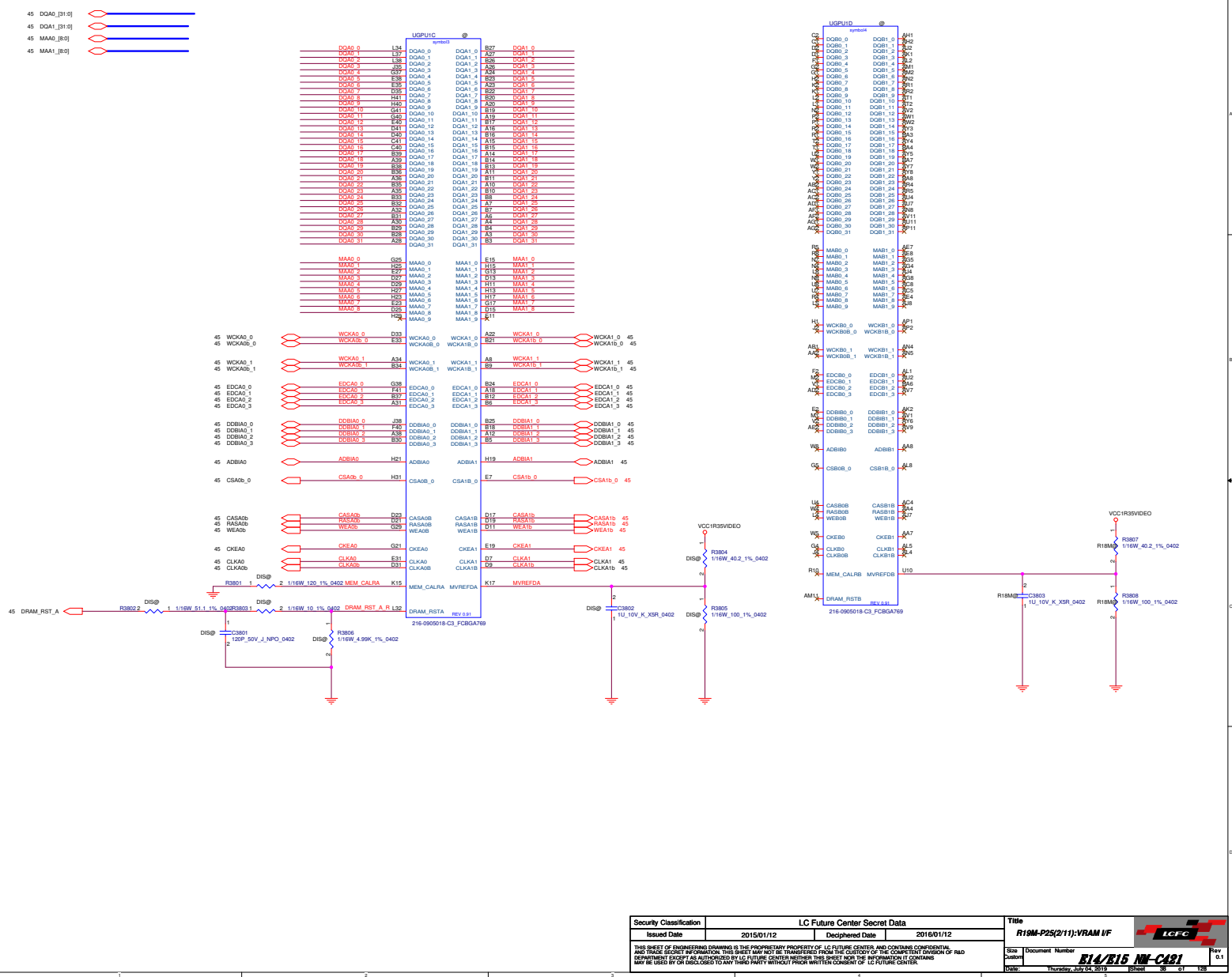
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					Date: Thursday, July 04, 2019 Sheet 36 of 126




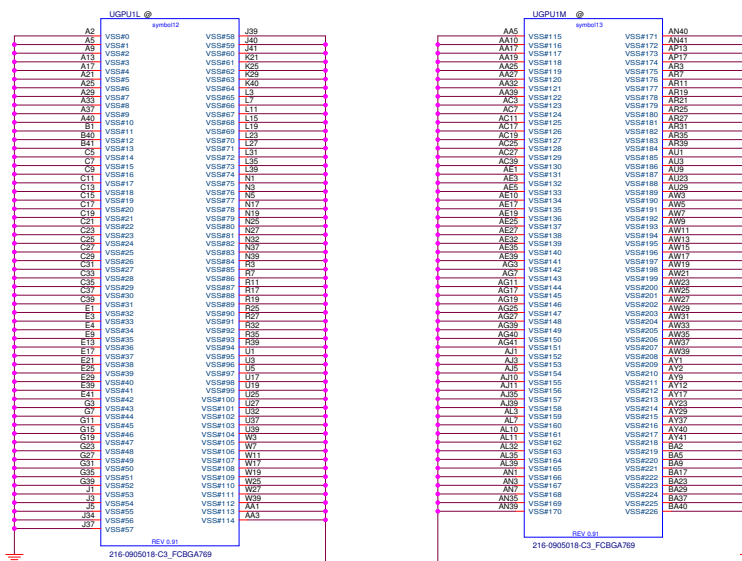
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Date:	Thursday, 2/2/16 2:01 PM			Sheet 43 of 128




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				E14/E15 NM-CA21	
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Date:	Thursday, 2/2/16 2:01 PM			Sheet 45 of 128

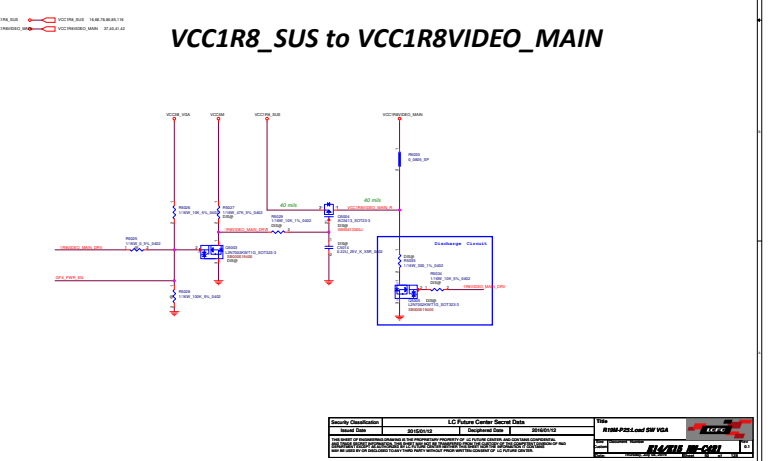
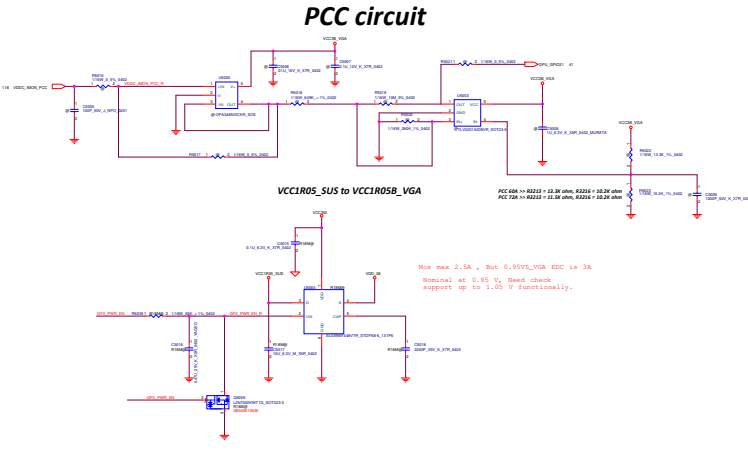
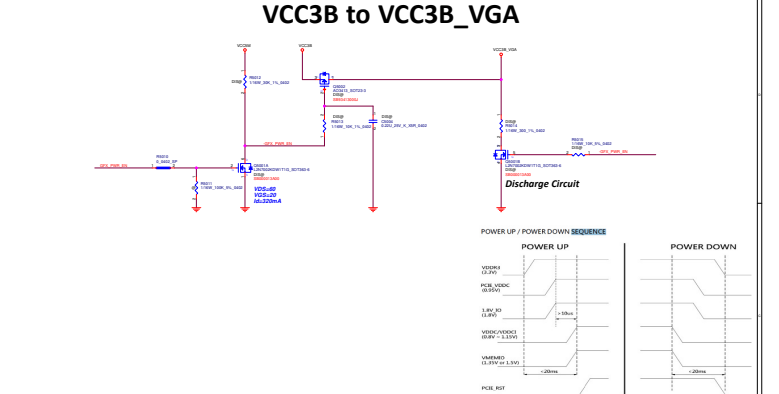
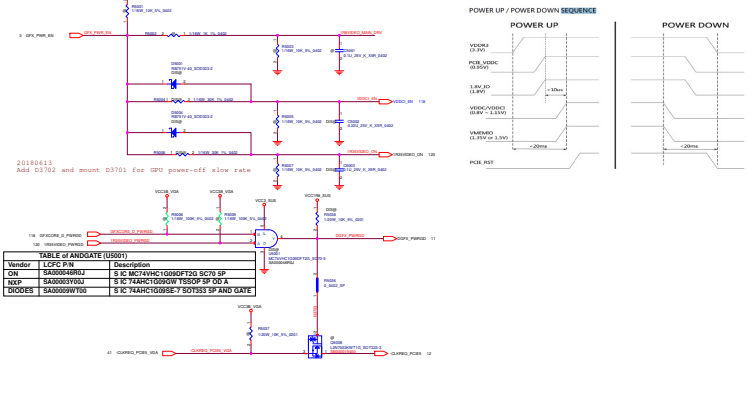
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Date				Thursday, 25/01/2016	
Sheet				47 of 128	
Rev				0.1	

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	B14/E15 NH-C421			0.1
Date:	Thursday, 2/2/16 8:18 AM			Sheet 48 of 128

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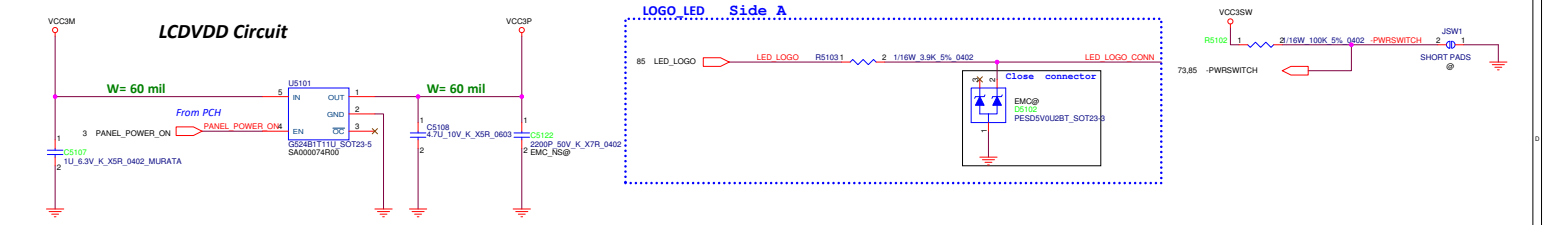
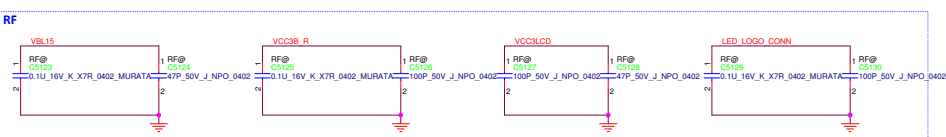
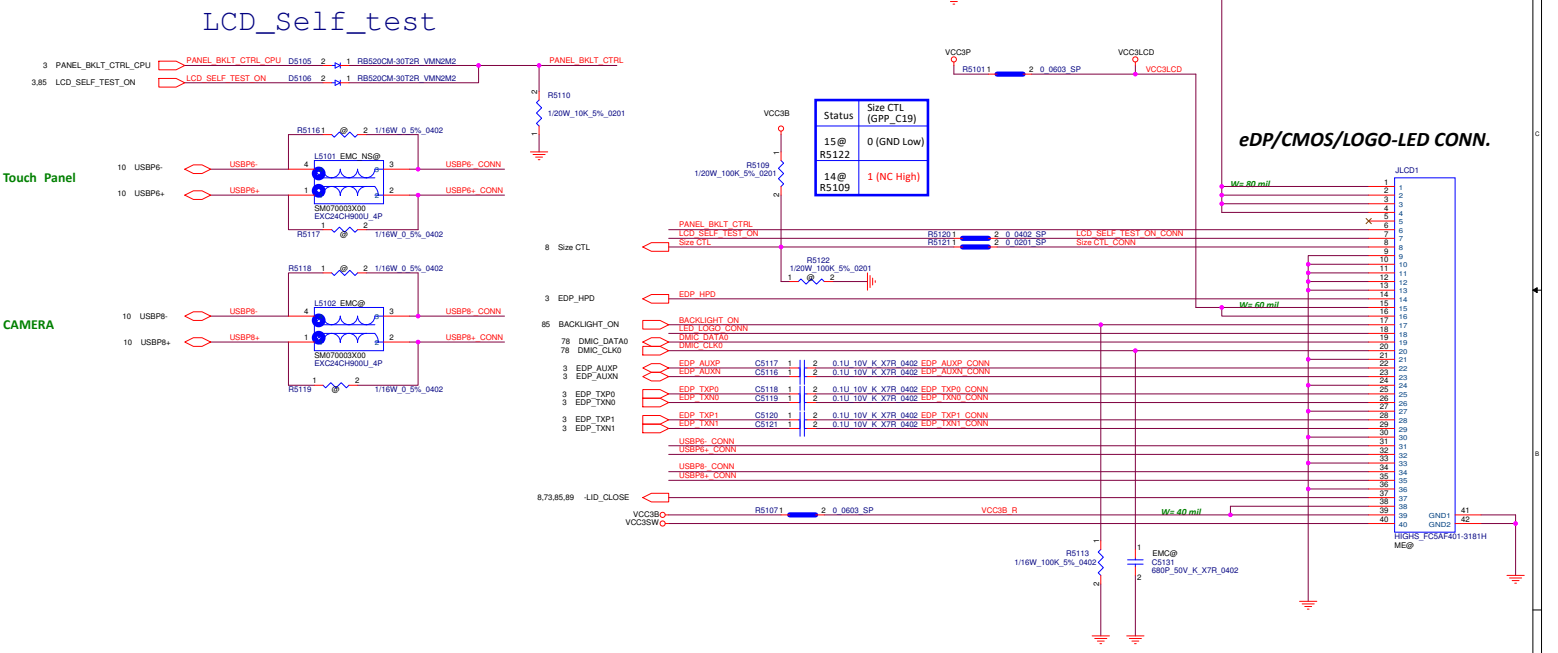



TABLE of POWER SWITCH (U5101)		
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SILERGY	SA000074P00	S IC SY628C20AAC SOT23 5P POWER SWITCH




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Date:	Thursday, 2/27/15			Sheet 65 of 128

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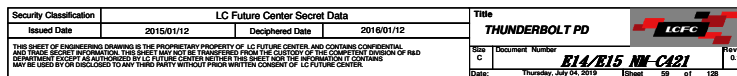
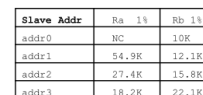
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Date:	Thursday, 2/27/15 8:01 AM			Sheet 01 of 128

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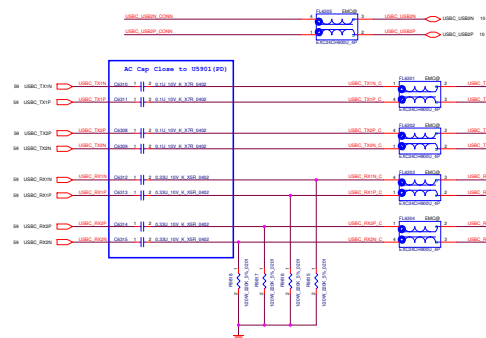
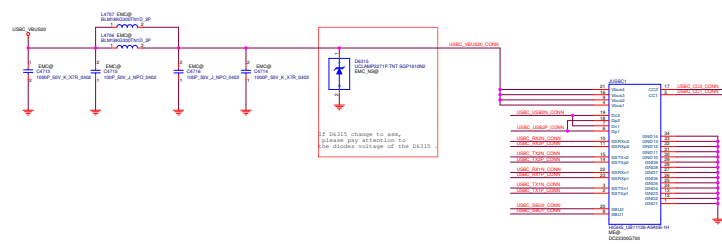
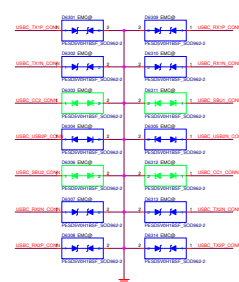
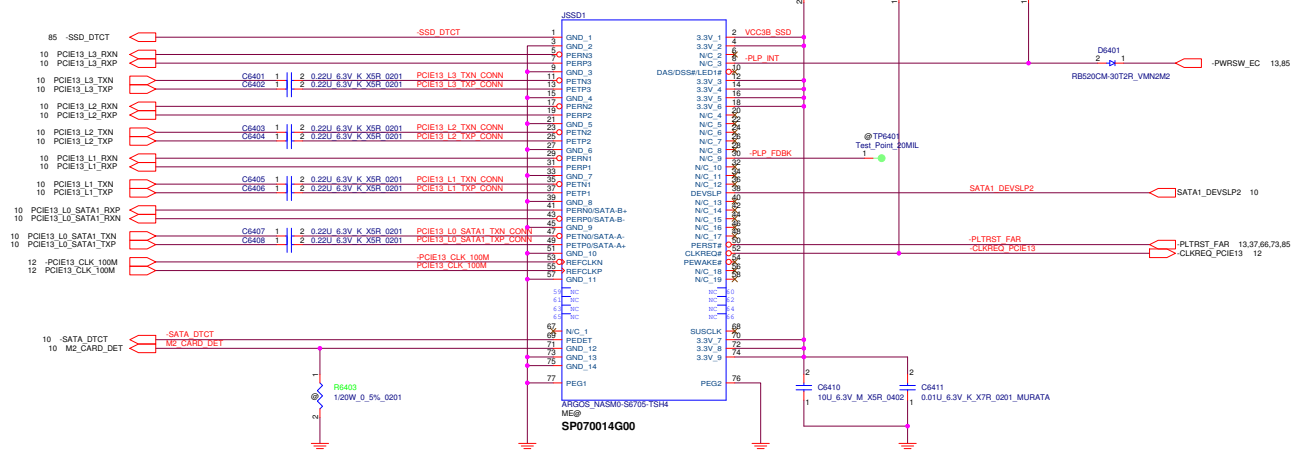
[illegible]

TABLE of EMC TVS (D6301-D6314)		
Vendor	LCFC P/N	Description
NXP	SC400008300	S DIO ESD PESD5V0H1BSF SOD962
AMAZING	SC400009F00	S DIO ESD AZ5B6S-01B.R7G CSP0603P2Y



For E-Series



4.1 Serial ATA Interface Connector

[TOP VIEW]

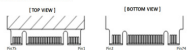


Table 12: Pin Assignments

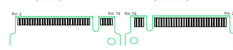
HW 10/15 Assignments			
Prob	Assigned to	Due	Prob
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1	SAV	HW10	75
12	SAV	HW10	76
13	SAV	HW10	77
14	SAV	HW10	78
15	SAV	HW10	79
16	Midsize RV	Midsize RV	80
17	SAV	SAV	81
18	SAV	SAV	82
19	SAV	SAV	83
20	SAV	SAV	84
21	SAV	SAV	85
22	SAV	SAV	86
23	SAV	SAV	87
24	SAV	SAV	88
25	SAV	SAV	89
26	SAV	SAV	90
27	SAV	SAV	91
28	SAV	SAV	92
29	SAV	SAV	93
30	SAV	SAV	94
31	SAV	SAV	95
32	SAV	SAV	96
33	SAV	SAV	97
34	SAV	SAV	98
35	SAV	SAV	99
36	SAV	SAV	100
37	SAV	SAV	101
38	SAV	SAV	102
39	SAV	SAV	103
40	SAV	SAV	104
41	SAV	SAV	105
42	SAV	SAV	106
43	SAV	SAV	107
44	SAV	SAV	108
45	SAV	SAV	109
46	SAV	SAV	110
47	SAV	SAV	111
48	SAV	SAV	112
49	SAV	SAV	113
50	SAV	SAV	114
51	SAV	SAV	115
52	SAV	SAV	116
53	SAV	SAV	117
54	SAV	SAV	118
55	SAV	SAV	119
56	SAV	SAV	120
57	SAV	SAV	121
58	SAV	SAV	122
59	SAV	SAV	123
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61	SAV	SAV	125
62	SAV	SAV	126
63	SAV	SAV	127
64	SAV	SAV	128
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66	SAV	SAV	130
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68	SAV	SAV	132
69	SAV	SAV	133
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72	SAV	SAV	136
73	SAV	SAV	137
74	SAV	SAV	138
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106	SAV	SAV	170
107	SAV	SAV	171
108	SAV	SAV	172
109	SAV	SAV	173
110	SAV	SAV	174

IF THERE IS ANY OTHER OPERATION TO IMPLEMENT IN ADDITION TO SPECIFICATION IN THE DATASHEET OR JEDEC STANDARD, PLEASE CONTACT EACH BRANCH OFFICE OR HEADQUARTERS OF SAMSUNG ELECTRONICS.

SAMSUNG

4.1 Connector Dimension and Pin List

[\[TOP VIEW\]](#)



(Figure 2) M.I Signal and Power plot

Table 18: Sexual Assignments

AWS S3 Storage Assignments						
ID	Access	Permissions	Path	Assignments	Access Policies	Notes
1	Admin	FullControl	/	1	FullControl	Root Access
2	Admin	FullControl	/	2	FullControl	Root Access
3	Admin	FullControl	/	3	FullControl	Root Access
4	Admin	FullControl	/	4	FullControl	Root Access
5	Admin	FullControl	/	5	FullControl	Root Access
6	Admin	FullControl	/	6	FullControl	Root Access
7	Admin	FullControl	/	7	FullControl	Root Access
8	Admin	FullControl	/	8	FullControl	Root Access
9	Admin	FullControl	/	9	FullControl	Root Access
10	Admin	FullControl	/	10	FullControl	Root Access
11	Admin	FullControl	/	11	FullControl	Root Access
12	Admin	FullControl	/	12	FullControl	Root Access
13	Admin	FullControl	/	13	FullControl	Root Access
14	Admin	FullControl	/	14	FullControl	Root Access
15	Admin	FullControl	/	15	FullControl	Root Access
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66	Admin	FullControl	/	66	FullControl	Root Access
67	Admin	FullControl	/	67	FullControl	Root Access


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HEADQUARTERS OF SAMSUNG ELECTRONICS.

SAMSUNG

74	3.3V	CONFIG_2 = GND
----	------	----------------

[illegible]

74	1.4M	NOG	75
75	1.4M	NOG	76
76	1.4M	NOG	77
77	1.4M	NOG	78
78	1.4M	NOG	79
79	1.4M	NOG	80
80	100% (224M) (NOG) (NOG)	PEDET (NOG) (NOG)	81
81		NOG	82
82	Module Key	Module Key	83
83	Module Key	Module Key	84
84	Module Key	Module Key	85
85		NOG	86
86	ReconstructMPO Data	RECONAP	87
87	PEWAPAP (NOG) (NOG)	RECONAP	88
88	CLUSTER (NOG) (NOG)	RECONAP	89
89	PEWAPAP (NOG) (NOG)	RECONAP	90
90		RECONAP	91
91	N/C	RECONAP	92
92	N/C	RECONAP	93
93	N/C	RECONAP	94
94	N/C	RECONAP	95
95	N/C	RECONAP	96
96	DEVLP (I)	RECONAP	97
97	N/C	RECONAP	98
98	N/C	RECONAP	99
99	N/C	RECONAP	100
100	N/C	RECONAP	101
101	N/C	RECONAP	102
102	N/C	RECONAP	103
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105	N/C	RECONAP	106
106	N/C	RECONAP	107
107	N/C	RECONAP	108
108	N/C	RECONAP	109
109	N/C	RECONAP	110
110	N/C	RECONAP	111
111	N/C	RECONAP	112
112	N/C	RECONAP	113
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123	N/C	RECONAP	124
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163	N/C	RECONAP	164
164	N/C	RECONAP	165
165	N/C	RECONAP	166
166	N/C	RECONAP	167
167	N/C	RECONAP	168
168	N/C	RECONAP	169
169	N/C	RECONAP	170

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			Document Number	B14/B16 NH-C421
			Issue	1
			Issue	1

KEY-E NGFF CCARD FOR WLAN

H=3.20mm Connector

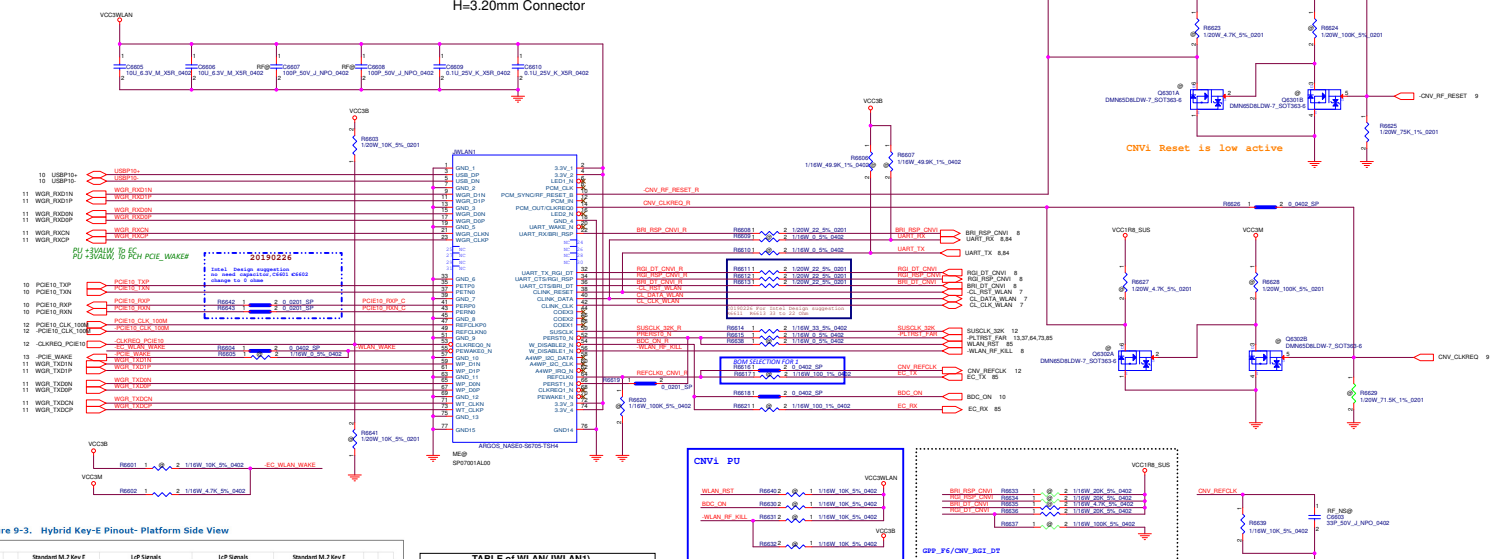


TABLE of WLAN(WLAN1)		
Vendor	P/N	LCFC P/N
TE	TE-12199119-1_75P-T	SP021703091

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USB POWER SWITCH

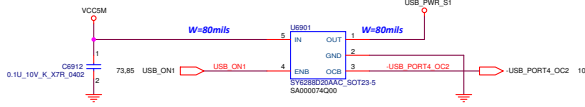
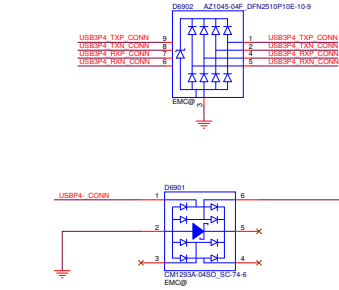


TABLE of POWER SWITCH (U6901)		
Vendor	LCFC P/N	Description
SILERGY	SA000074Q00	S IC SY628BD20AAC SOT23 5P POWER SWITCH
GMT	SA000079400	S IC G517F2T11U SOT-23 5P POWER SWITCH



USB DCI

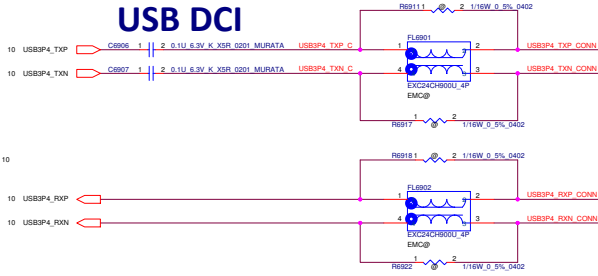
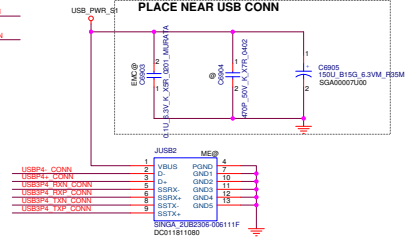


TABLE of Organic Capacitor (C6905)		
Vendor	LCFC P/N	Description
PANASONIC	SGA00007U00	S POLY C 150U 6.3V M B15G R35M TPG H1.4
NECTOKIN	SGA00009W00	S POLY C 150U 6.3V M B15G R35M PSL H1.4
KEMTE	SGA0000AN00	S POLY C 150U 6.3V M B15G R35M T520 H1.5



USB AOU

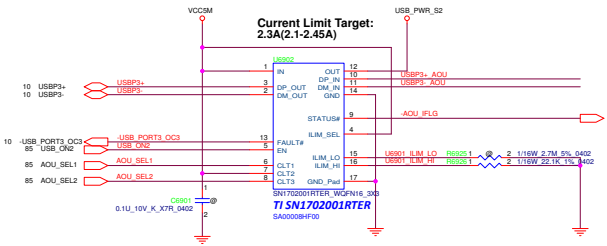


TABLE of POWER SWITCH (U6902)		
Vendor	LCFC P/N	Description
TI	SA00008HF00	S IC SN1702001RTER WQFN 16P USB CHARGING
DIODES	SA00009D800	S IC PI5USB2546HZHEX TQFN 16P CONTROLLER

CLT1	CLT2	CLT3	ILIM_SEL	MOD
0	0	0	X	DCR
1	1	1	1	CDP
1	1	1	0	SDP2
1	1	0	X	SDP1
0	1	0	X	SDP1
1	0	0	X	DCP_Short
1	0	1	X	DCP_Divider
0	1	1	X	DCP_Auto
0	0	1	X	DCP_Auto

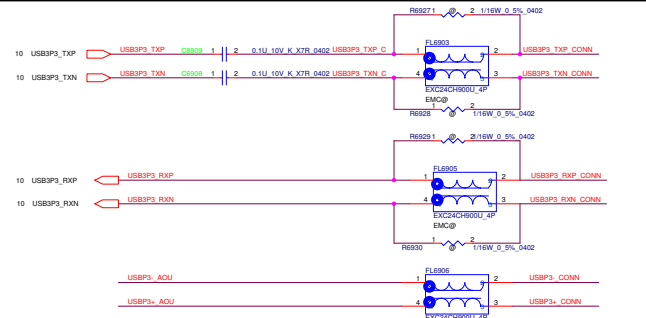
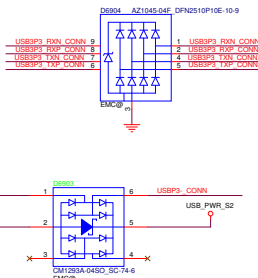
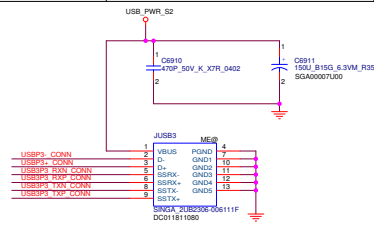



TABLE of Organic Capacitor (C6911)		
Vendor	LCFC P/N	Description
PANASONIC	SGA00007U00	S POLY C 150U 6.3V M B15G R35M TPG H1.4
NECTOKIN	SGA00009W00	S POLY C 150U 6.3V M B15G R35M PSL H1.4
KEMTE	SGA0000AN00	S POLY C 150U 6.3V M B15G R35M T520 H1.5



Security Classification			
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USB TYPE-A CONNECTOR			
Doc Number	E14/E15 NM-C421		
Rev	01		


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CSCC				Thursday, July 24, 2015	Sheet 71 of 126


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USB2.0

GBE LAN PHY

Finger Printer

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Date	Thursday, July 04, 2019	Sheet	73	1 of 126


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				B	E14/E15 NM-C421	0.1
				Date:	Thursday, July 04, 2019	Sheet 74 of 128


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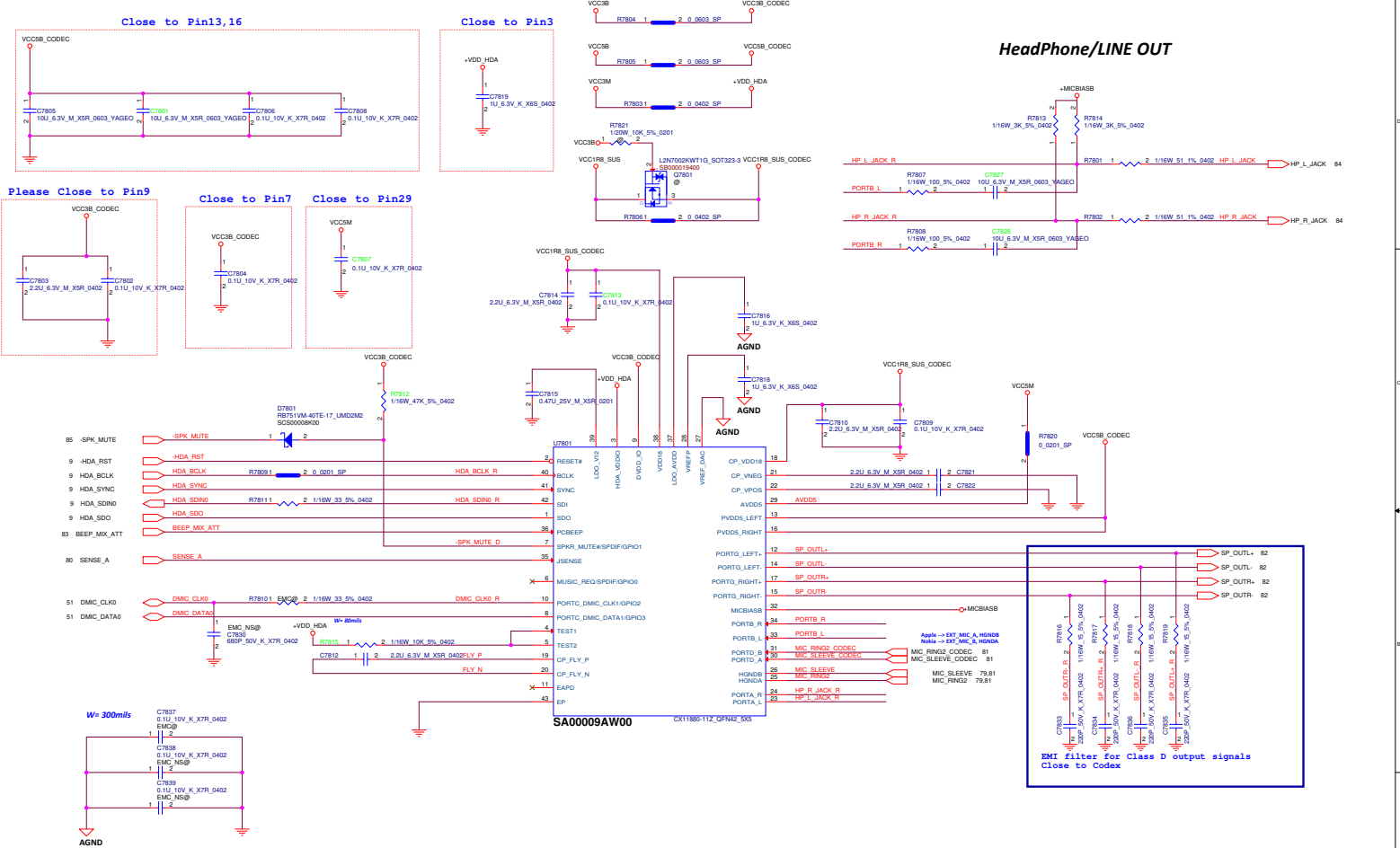
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Rev		Document Number		Rev	
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Date		Thursday, July 04, 2017		Sheet	
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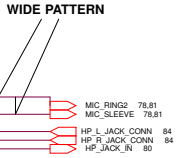
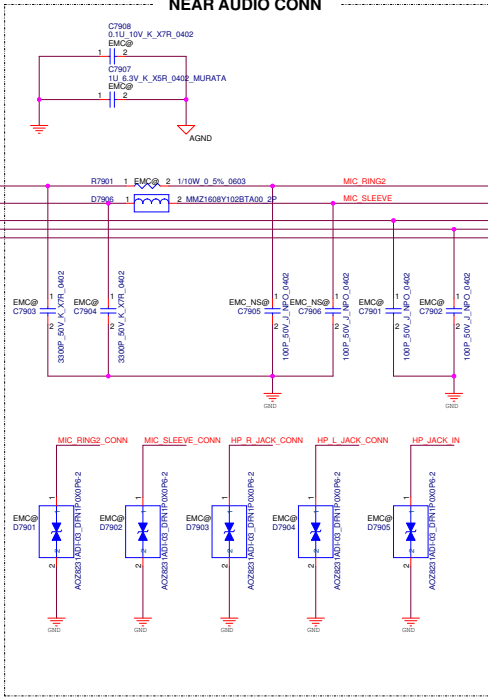
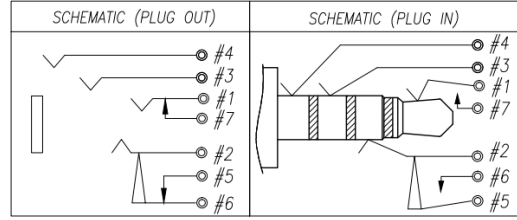
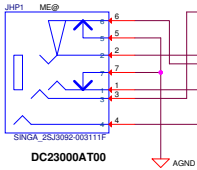
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Date:	Thursday, 25/01/2016			Sheet 01 1/1

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Date: Thursday, July 04, 2019				Sheet 77 of 128			

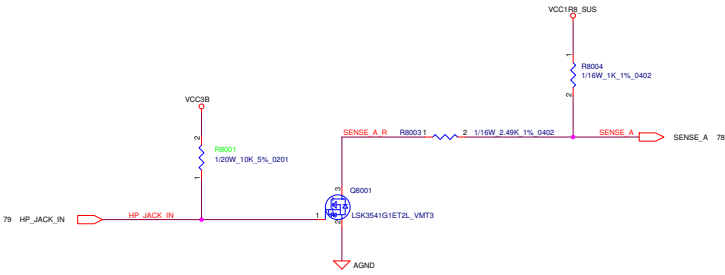


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Count	E14/E18		NW CA21		1
Date:	Thursday, July 04, 2019	Sheet	76	c	128



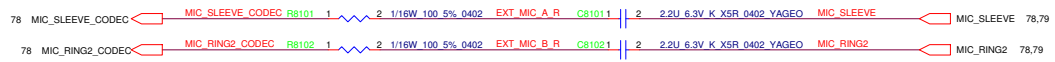
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Issued Date	2015/01/12	Deciphered Date	2016/01/12	AUDIO CONNECTOR	
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				Date	Thursday, July 04, 2015
				Sheet	79 of 128
				Rev	0.1


VCC1R8_SUS VCC1R8_SUS 15,50,68,79,85,116



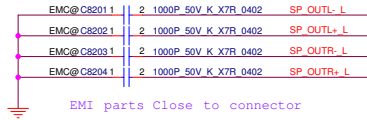
Security Classification	LC Future Center Secret Data		Title	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	AUDIO JACK SENSE
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				Date: Thursday, July 24, 2015 Sheet 89 of 135


EXT. MIC/LINE IN *Apple --> EXT_MIC_A, HGND B*
Nokia --> EXT_MIC_B, HGND A



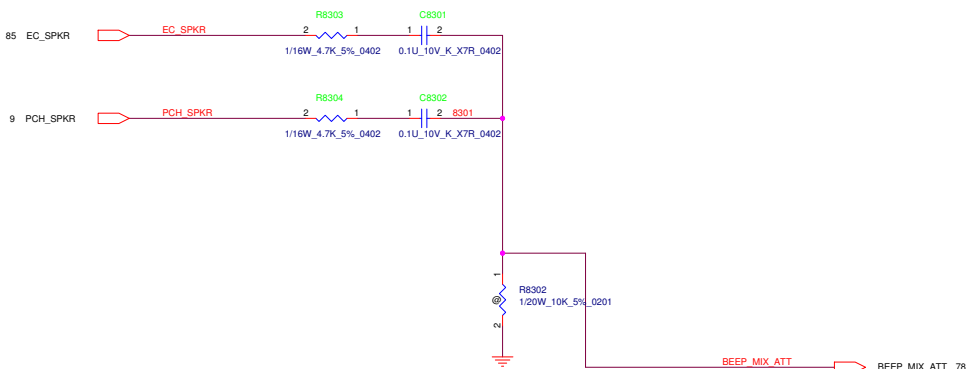
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SPK CONN.



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					Rev 0.1
					Date: Thursday, July 04, 2019 Sheet 82 of 128

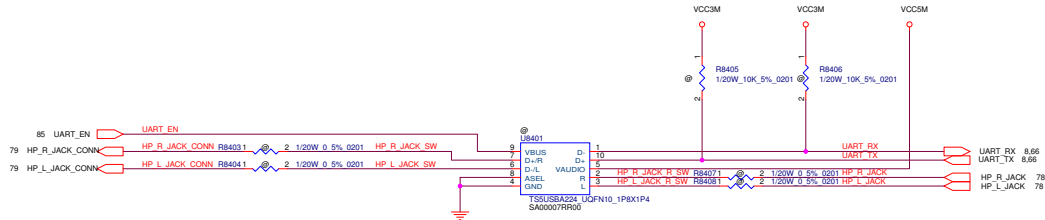
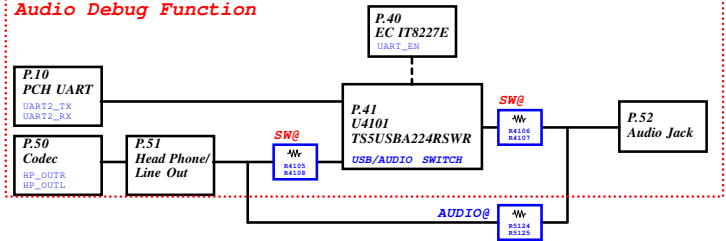
Audio Beep



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Issued Date	2015/01/12	Deciphered Date	2016/01/12	Size	Document Number	Rev
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				Date:	Thursday, July 04, 2019	Sheet 83 of 128

A _{SEL}	V _{AUDIO}	V _{BUS}	L,R	D+, D-
L	L	L	OFF	OFF
L	L	H	OFF	OFF
L	H	L	ON	OFF
L	H	H	OFF ⁽¹⁾	ON
H	L	L	OFF	OFF
H	L	H	OFF	OFF
H	H	L	ON	OFF
H	H	H	ON	OFF

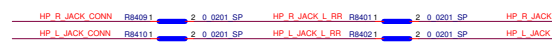
Audio Debug Function



AUDIO DEBUG PORT


Mode	Audio	UART
UART_EN	L	H

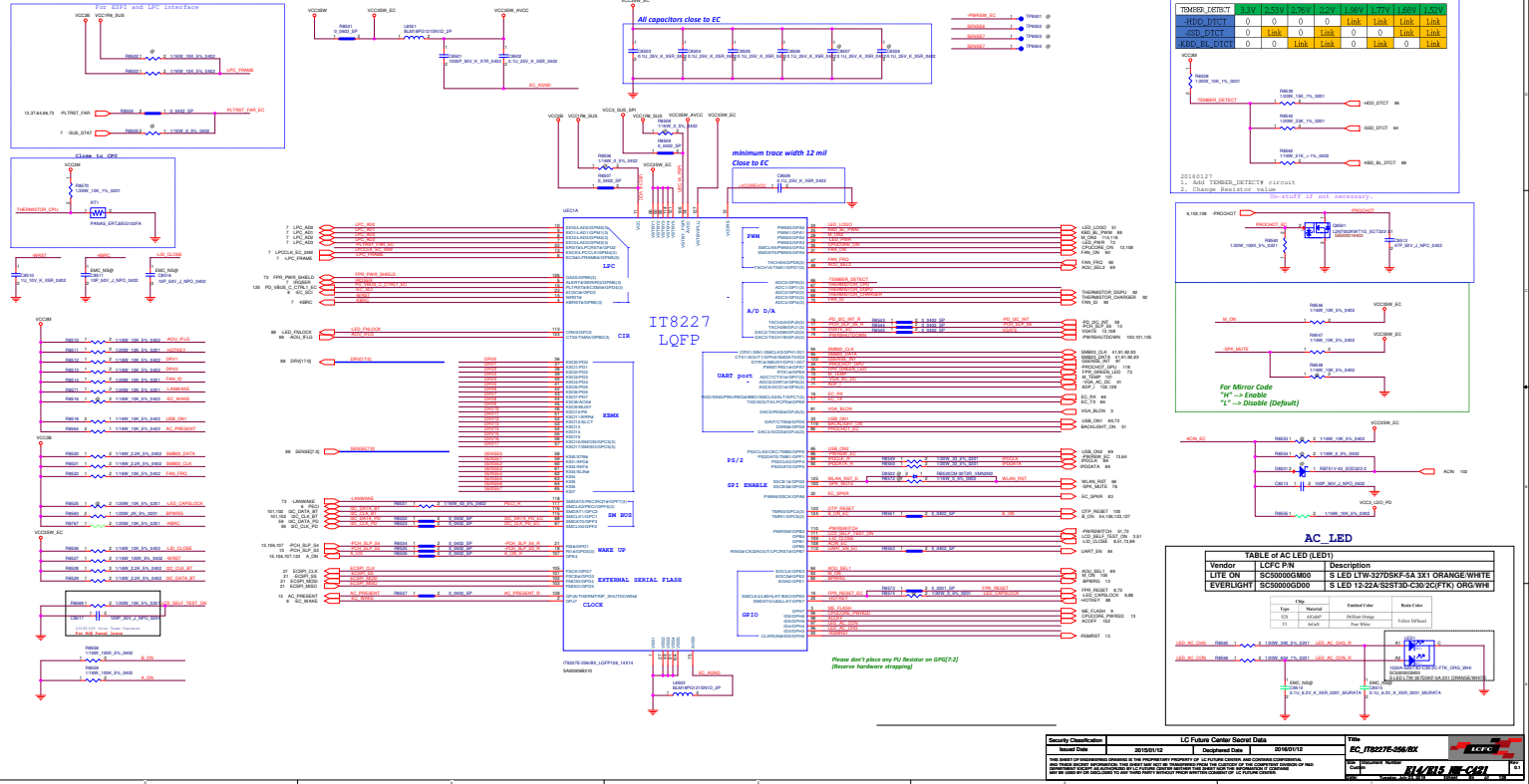
Co-Lay




Part Name	For NPI	For MP
U4101 <i>SW@</i>	ASM	NA
R4102 <i>SW@</i>	ASM	NA
R4106 <i>SW@</i>	ASM	NA
R4107 <i>SW@</i>	ASM	NA
R5014 <i>SW@</i>	ASM	NA
R5015 <i>SW@</i>	ASM	NA
R4105 <i>AUDIO@</i>	NA	ASM
R4108 <i>AUDIO@</i>	NA	ASM

Part Name	For NPI	For MP
U4101 <i>SW@</i>	ASM	NA
R4102 <i>SW@</i>	ASM	NA
R4106 <i>SW@</i>	ASM	NA
R4107 <i>SW@</i>	ASM	NA
R5014 <i>SW@</i>	ASM	NA
R5015 <i>SW@</i>	ASM	NA
R4105 <i>AUDIO@</i>	NA	ASM
R4108 <i>AUDIO@</i>	NA	ASM



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				Date:	Thursday, July 04, 2019	Sheet	86 of 128

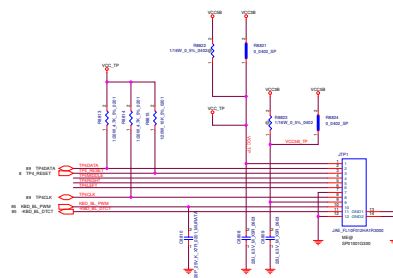
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			EC_178227E-256/DX	
			Rev	Rev
			1	0.1
			Date	Thursday, 25/01/2016
			Sheet	01 of 128

Pin #	Assign
1	SENSE1
2	SENSE2
3	SENSE3
4	DRV14
5	SENSE4
6	SENSE5
7	DRV0
8	SENSE6
9	SENSE5
10	DRV4
11	DRV2
12	SENSE5
13	DRV1
14	DRV3
15	DRV5
16	DRV7
17	DRV5
18	DRV15
19	DRV13
20	DRV9
21	DRV12
22	DRV10
23	DRV8
24	DRV11
25	VCC
26	LED1
27	LED2
28	LED3
29	HOTKEY
30	GND
31	LED4
32	MIC
33	M1
34	M2
35	M3
36	DRV16
37	DRV17
38	LED6
39	NC

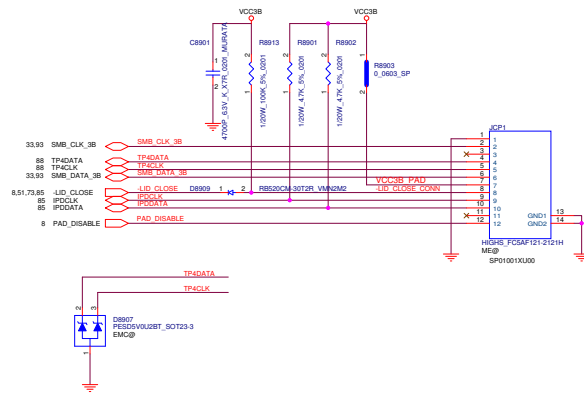
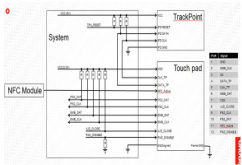
TrackPoint and Backlight FPC Pin Assignment



Pin #	Assign
1	VCC (3.3V) ←
2	IPD DATA
3	IPD RST
4	MIDDLE
5	RIGHT
6	LEFT
7	IPD GND
8	IPD CLK
9	LED VCC5 (5V)
10	LED PWM
11	Backlight detection
12	LED GND



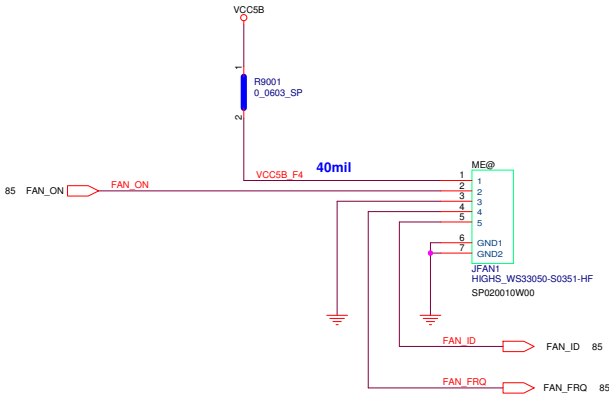
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File Name	Document Number		File Name
			FILED

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					0.1
Date:	Thursday, July 24, 2018	Sheet	48	of	126

FAN CONN.



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				Date:	Thursday, July 04, 2019
				Sheet	90 of 128
				Rev	0.1

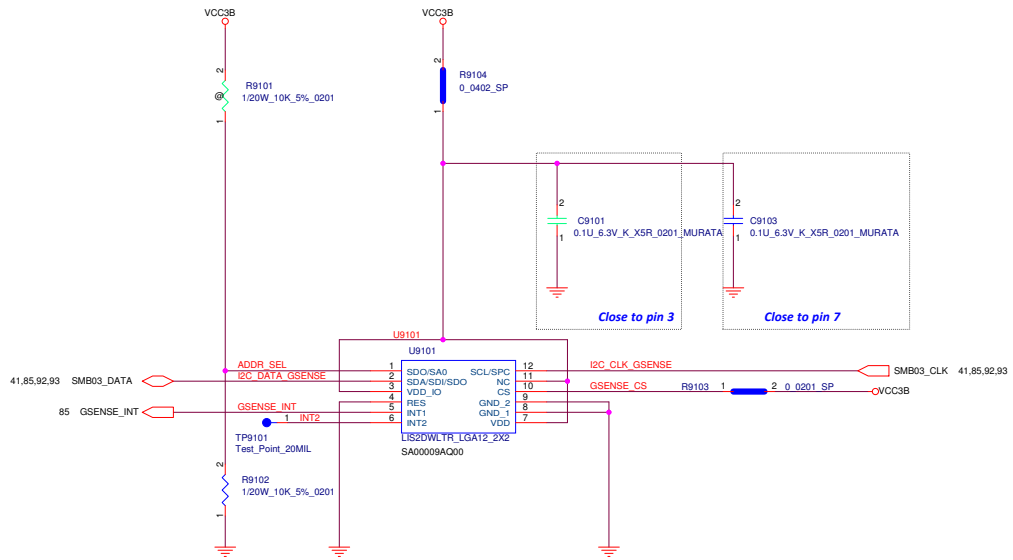
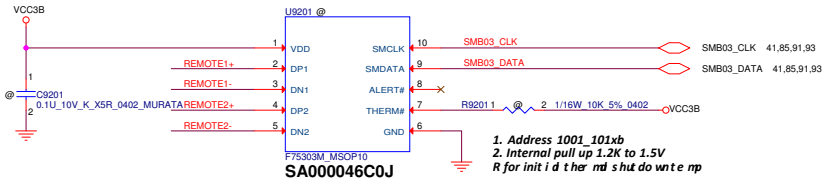


TABLE of G-SENSOR(U9101)		
Vendor	LCFC P/N	Description
ST	SA00009AQ00	S IC LIS2DWLTR LGA 12P G-SENSOR
KIONIX	SA000081E00	S IC KX022-1020 LGA 12P G-SENSOR

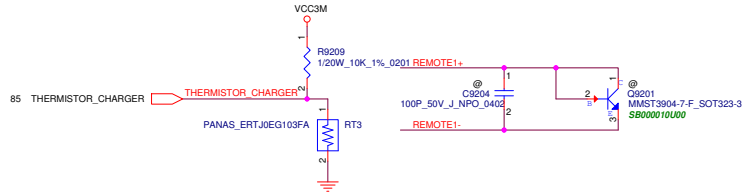
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Issued Date		2015/01/12	Deciphered Date	2016/01/12	APS G-SENSOR
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Date:	Thursday, July 04, 2019				Sheet 91 of 128

Thermal Sensor

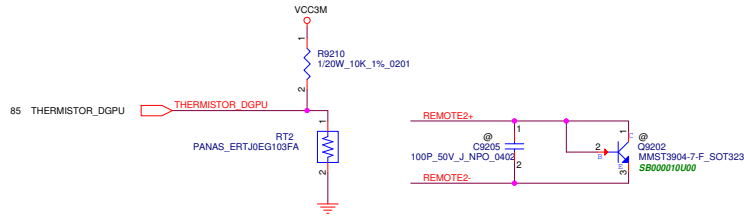
Close to CPU



Close to CHARGER



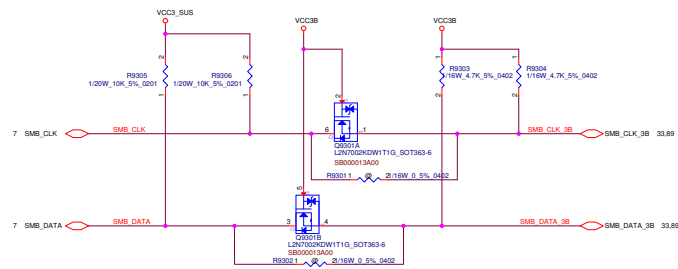
Close to GPU



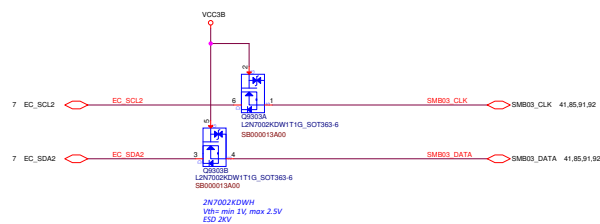
Security Classification	LC Future Center Secret Data		Title	THERMAL SENSOR/ VIN DETECTOR	
Issued Date	2015/01/12	Deciphered Date	2016/01/12	Size	Document Number
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				Sheet	92 of 128

SMBus

DIMM1,CP




GPU, Thermal Sensor,
Embedded Controller, G sensor




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Issued Date	2015/01/12	Deciphered Date	2016/01/12	SMBUS SWITCH
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				Rev 0.1
				Date: Thursday, 2015/01/12

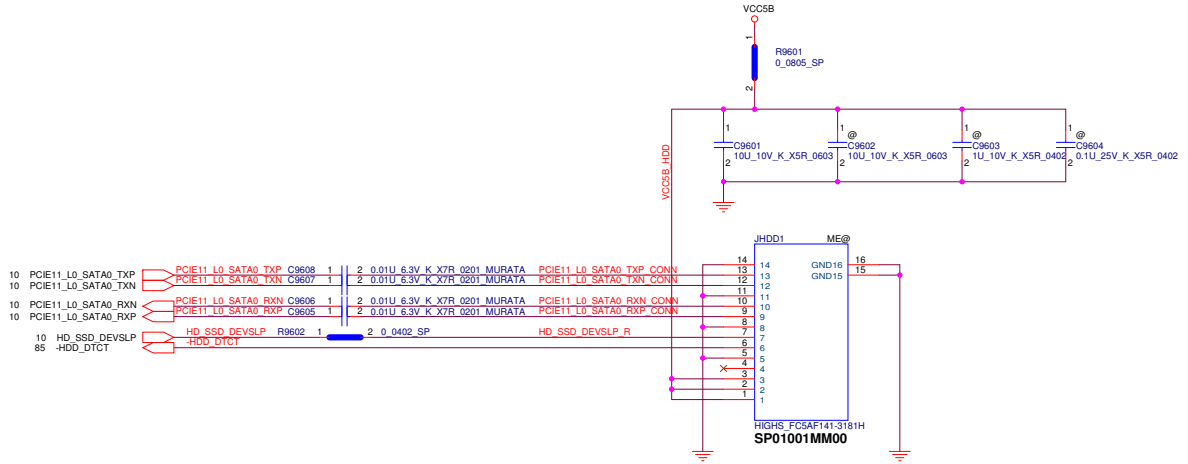
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Doc	Document Number			Rev
1	B14/E15 NH-C421			0.1
Date:	Thursday, 2/2/16 2:01 PM		Sheet	01 of 128


SATA HDD CONN.



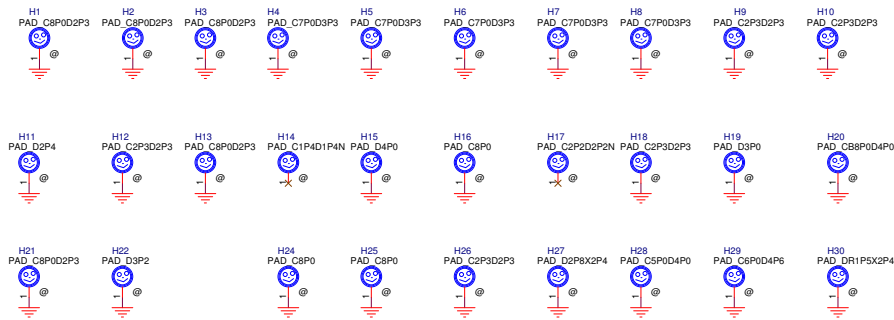
M/B CONN	CN1	CN2	Device CONN
+5VS	1	1	+5VS
+5VS	2	2	+5VS
+5VS	3	3	+5VS
NC	4	4	NC
GND	5	5	GND
HDD_DETECT#	6	6	HDD_DETECT#
-CLKREQ_DEVS_LP	7	7	-CLKREQ_DEVS_LP
GND	8	8	GND
PCIE7_SATA0_CRX_DTX_P_CONN	9	9	PCIE7_SATA0_CRX_DTX_P_CONN
PCIE7_SATA0_CRX_DTX_N_CONN	10	10	PCIE7_SATA0_CRX_DTX_N_CONN
GND	11	11	GND
PCIE7_SATA0_CTX_DRX_N_CONN	12	12	PCIE7_SATA0_CTX_DRX_N_CONN
PCIE7_SATA0_CTX_DRX_P_CONN	13	13	PCIE7_SATA0_CTX_DRX_P_CONN
GND	14	14	GND

Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/01/12	Deciphered Date	2016/01/12	SATA HDD CONN			
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Size	Document Number			E14/E15 NM-C421		Rev	0.1
Date:		Thursday, July 04, 2019		Sheet	96	of	128

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Security Classification	LC Future Center Secret Data			Title	 SATA RE-DRIVER
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Rev	Document Number	Rev	01 B14/B16 NN-C481		
Date	Thursday, 25/01/2012	10:58:07	01 01		

Screw Hole

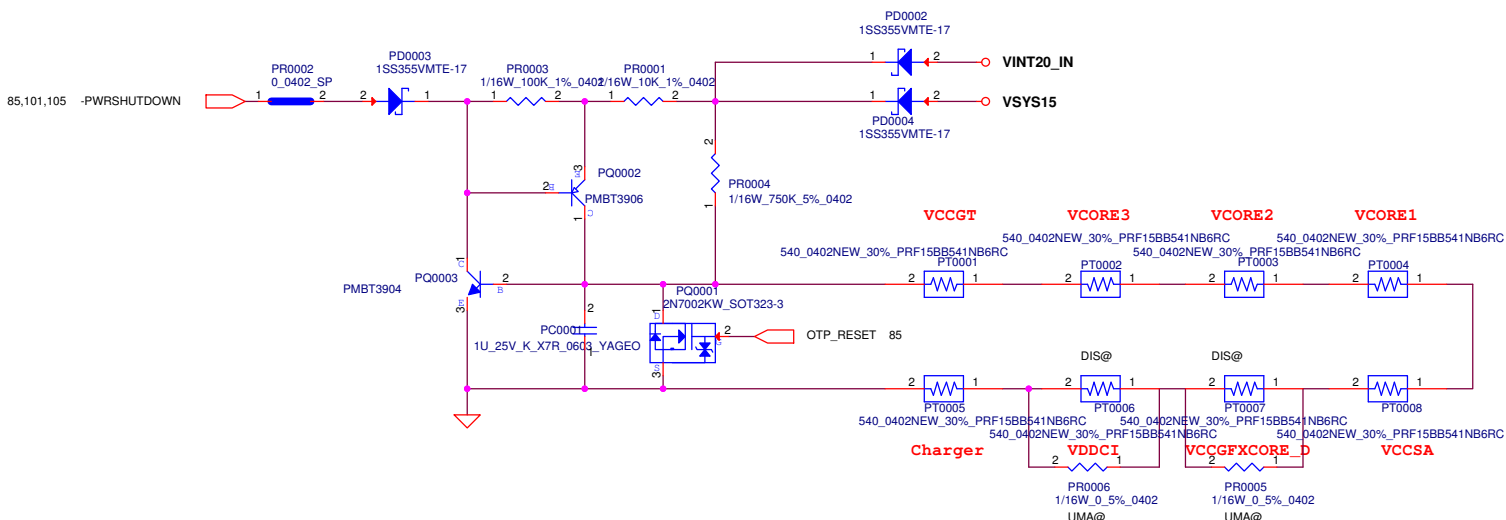


PCB Federal Mark PAD

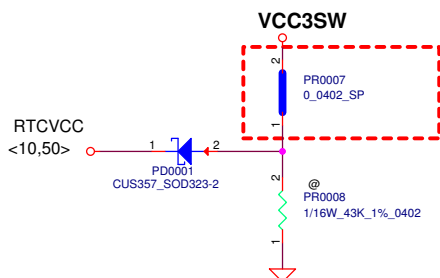



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				Date:	Thursday, July 04, 2019	Sheet 99 of 128

VINT20_IN VINT20_IN 102,125
 VSYS15 VSYS15 51,54,102,103,105,106,108,109,110,111,114,118,120,127
 VCC3SW VCC3SW 51,59,73,85,101,102,105,127
 RTCVCC RTCVCC 13,16,20

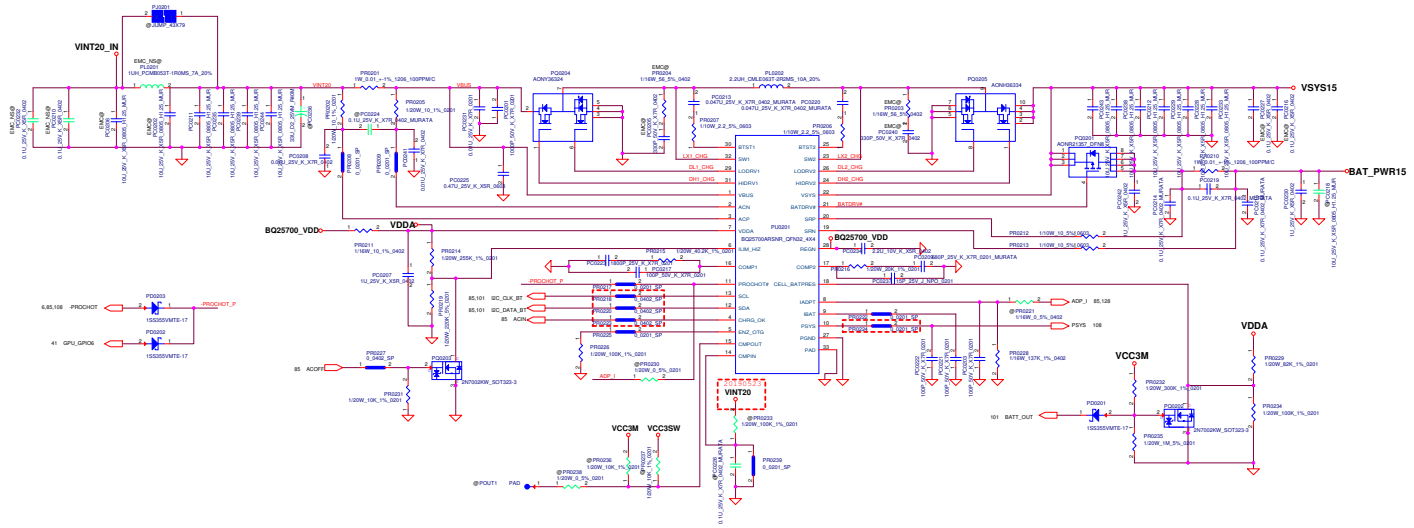


RTC Battery

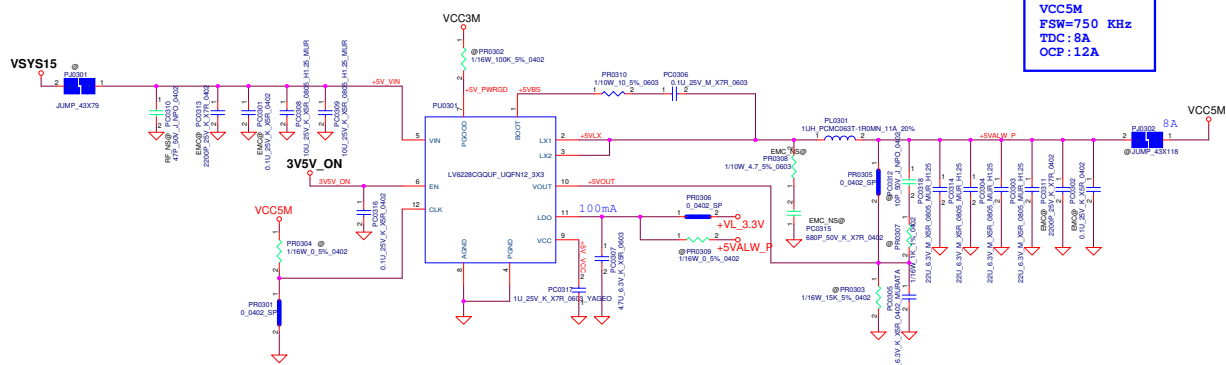



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Issued Date		2013/08/05		Deciphered Date		2014/12/31				VIN Detector							
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										Date:		Thursday, July 04, 2019		Sheet		100 of 128	

VINT20_IN 100,105
VSYS15 51,54,100,102,103,106,108,109,110,111,114,118,120,127
BAT_PWR15 101



Security Classification	LC Future Center Secret Data	Rev
Initial Date	20130605	20141231
Design Date		
BATTERY CHARGER(BQ25700A)		
ICFC		
R14/R15 NF-C021		
Rev 2.0		

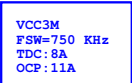



Security Classification	LC Future Center Secret Data			Title	
Issued Date	2013/08/08	Deciphered Date	2013/08/05	DC/DC VCC5M (LV6228)	
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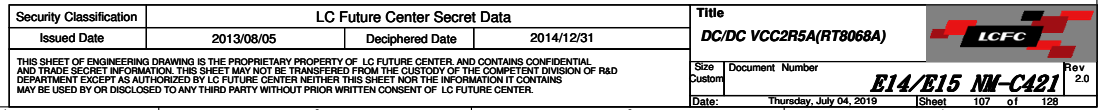
Security Classification	LC Future Center Secret Data		Title	DC/DC VCC5M_PD_AB (NB893 ICFC)	
Issued Date	2013/08/08	Deciphered Date	2013/08/05	Size	Document Number
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			Date	Thursday, 25/04/2013	Sheet 104 of 128

	VSYS15	51,54,100,102,103,106,108,109,110,111,114,118,120,127
	VCC3M	4,11,13,15,16,50,51,66,78,84,85,88,92,102,103,106,108,11

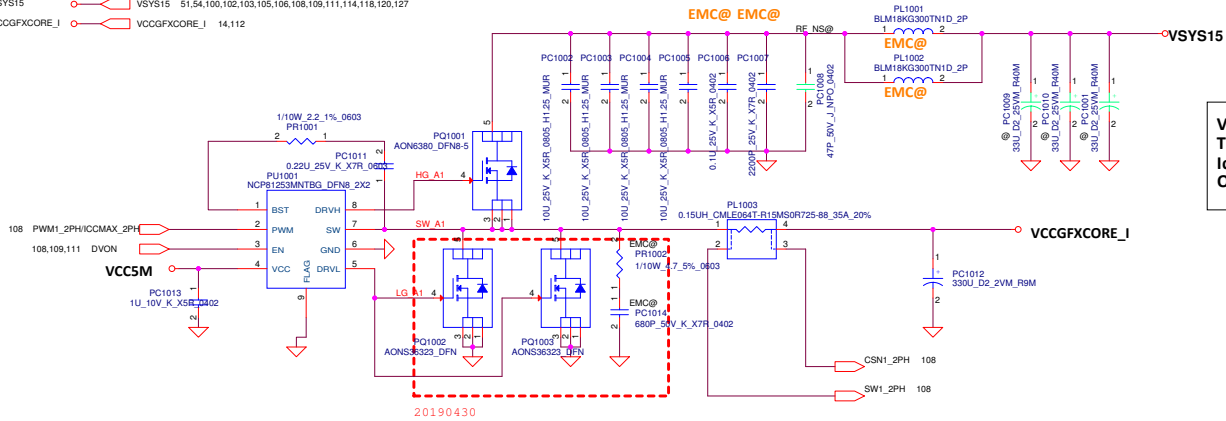


Security Classification	LC Future Center Secret Data			Title	
Issued Date	2013/08/06	Deciphered Date	2013/08/05	DC/DC VCC3M (STX198)	
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VCC2R5A
TDC: 2A
OCP: 4A
Fsw: 1MHz



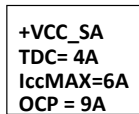
VSYS15 51,54,100,102,103,105,106,108,109,111,114,118,120,127
VCCGFXCORE_I VCCGFXCORE_I 14,112



VCCGFXCORE_I
TDC= 18A
IccMAX=31A
OCP min = 40A

Security Classification	LC Future Center Secret Data		Title
Issued Date	2013/08/05	Deciphered Date	2014/12/31
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Custom		E14/E15 NW-C421	
Date:	Thursday, July 04, 2019	Sheet	110 of 128

VER1.10

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The image shows a PCB layout with three rows of components connected to a common VCCPUCORE rail. The components are as follows:

- Top Row:** Capacitors PC1201, PC1211, Coss12, PC1213, PC1214, PC1215, PC1216, PC1217, and PC1218. Each capacitor is labeled with its value, tolerance, and reference designator (e.g., 22u, 6.3V, M_XSP, 0603).
- Middle Row:** Capacitors PC1230, PC1231, PC1232, PC1233, PC1234, PC1235, PC1236, Coss12, and PC1238. Each capacitor is labeled with its value, tolerance, and reference designator (e.g., 22u, 6.3V, M_XSP, 0603).
- Bottom Row:** Resistor Coss12 and capacitor PC1243. The resistor is labeled with its value, tolerance, and reference designator (e.g., 22u, 6.3V, M_XSP, 0603).


All components are connected to a common VCCPUCORE rail, which is shown as a horizontal line at the top of each row. The components are connected to this rail via vertical lines. The bottom row also shows a connection to ground (GND) via a vertical line.

The figure contains two circuit diagrams. The left diagram is for the PIC1250, showing a VCCPLOCORE supply connected to a 220kV resistor, which is then connected to the PIC1250's VCC pin. A 100nF capacitor is connected between VCC and GND. The right diagram is for the PIC1251, showing a similar VCCPLOCORE supply connection with a 220kV resistor and a 100nF capacitor between VCC and GND. Both diagrams also show a 100kV resistor connected to the PIC's VDD pin.

The figure contains two circuit diagrams, labeled (a) and (b), illustrating the connection of the VCCP1PCH0_1 pin. Both diagrams show a vertical line representing the pin, with a 100 nF capacitor connected to it from the left. In diagram (a), the pin is connected to a 250 kΩ resistor that goes up to a VCCP1PCH0_1 supply rail and another 250 kΩ resistor that goes down to a GND rail. In diagram (b), the pin is connected to a 250 kΩ resistor that goes up to a VCCP1PCH0_1 supply rail and another 250 kΩ resistor that goes down to a GND rail. The components are labeled with their values: 100 nF, 250 kΩ, and VCCP1PCH0_1.

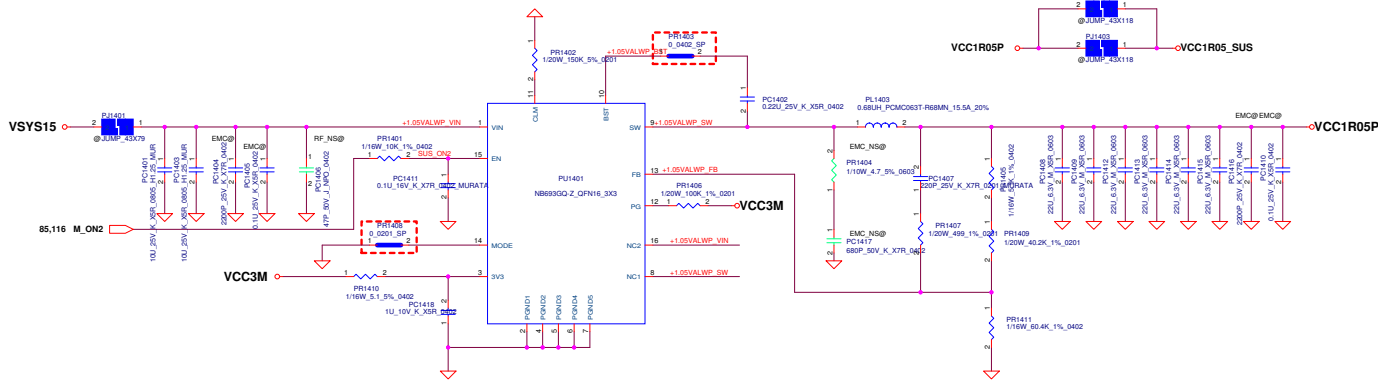
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1				B14/E15 NH-C421	
Date				Thursday, 22/01/2016	
				Sheet 15 of 18	
				Rev 0.1	


VSYS15 VCC1R05_SUS
VCC1R05_SUS VCC1R05_SUS

VCC1R05_SUS
FSW=700KHz
TDC:10A
OCP:13A



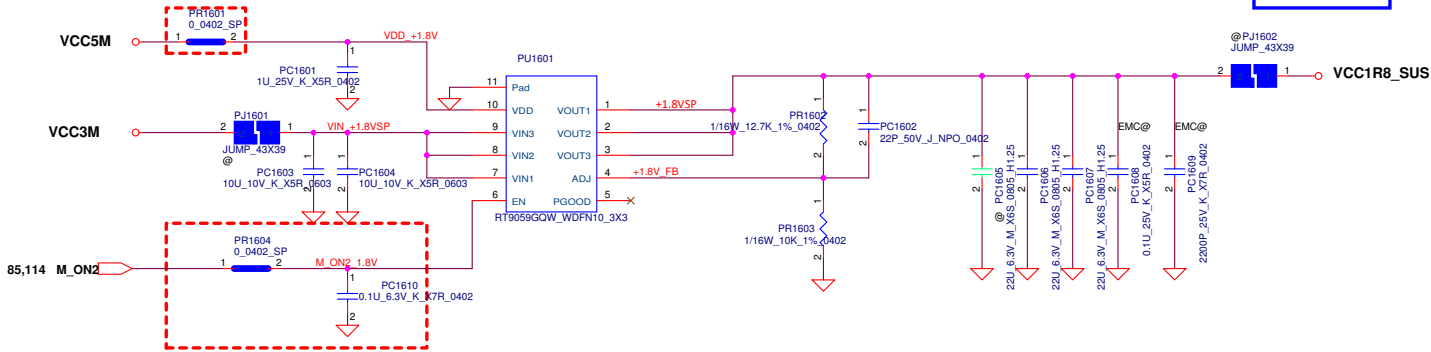
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1	B14/E15 NH-C421			0.1
Date:	Thursday, 25/01/2016			Sheet 15 of 18

VCC3M VCC3M 4,11,13,15,16,50,51,66,78,84,85,88,92,102,103,105,106,108,114,118,120,123,124,126,127,128
VCC5M VCC5M 50,54,59,69,73,78,84,103,107,108,109,110,111,118,123,125,127
VCC1R8_SUS VCC1R8_SUS 16,50,66,78,80,85

VCC1R8_SUS
TDC: 2A




Security Classification	LC Future Center Secret Data	
Issued Date	2013/08/05	Deciphered Date
		2014/12/31

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Date:	Thursday, July 04, 2019	Sheet	116 of 128


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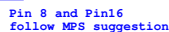
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Doc	Document Number			Rev
1	B14/E15 NE-C421			0.1
Date:	Thursday, 25/01/2016			Sheet 1/1 of 1

VDDIO: 1.1V, 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, 5.0V, 12V, 15V, 18V, 24V, 28V, 30V, 36V, 48V, 60V, 72V, 84V, 96V, 108V, 120V, 132V, 144V, 156V, 168V, 180V, 192V, 204V, 216V, 228V, 240V, 252V, 264V, 276V, 288V, 300V, 312V, 324V, 336V, 348V, 360V, 372V, 384V, 396V, 408V, 420V, 432V, 444V, 456V, 468V, 480V, 492V, 504V, 516V, 528V, 540V, 552V, 564V, 576V, 588V, 600V, 612V, 624V, 636V, 648V, 660V, 672V, 684V, 696V, 708V, 720V, 732V, 744V, 756V, 768V, 780V, 792V, 804V, 816V, 828V, 840V, 852V, 864V, 876V, 888V, 900V, 912V, 924V, 936V, 948V, 960V, 972V, 984V, 996V, 1008V, 1020V, 1032V, 1044V, 1056V, 1068V, 1080V, 1092V, 1104V, 1116V, 1128V, 1140V, 1152V, 1164V, 1176V, 1188V, 1200V, 1212V, 1224V, 1236V, 1248V, 1260V, 1272V, 1284V, 1296V, 1308V, 1320V, 1332V, 1344V, 1356V, 1368V, 1380V, 1392V, 1404V, 1416V, 1428V, 1440V, 1452V, 1464V, 1476V, 1488V, 1500V, 1512V, 1524V, 1536V, 1548V, 1560V, 1572V, 1584V, 1596V, 1608V, 1620V, 1632V, 1644V, 1656V, 1668V, 1680V, 1692V, 1704V, 1716V, 1728V, 1740V, 1752V, 1764V, 1776V, 1788V, 1800V, 1812V, 1824V, 1836V, 1848V, 1860V, 1872V, 1884V, 1896V, 1908V, 1920V, 1932V, 1944V, 1956V, 1968V, 1980V, 1992V, 2004V, 2016V, 2028V, 2040V, 2052V, 2064V, 2076V, 2088V, 2100V, 2112V, 2124V, 2136V, 2148V, 2160V, 2172V, 2184V, 2196V, 2208V, 2220V, 2232V, 2244V, 2256V, 2268V, 2280V, 2292V, 2304V, 2316V, 2328V, 2340V, 2352V, 2364V, 2376V, 2388V, 2400V, 2412V, 2424V, 2436V, 2448V, 2460V, 2472V, 2484V, 2496V, 2508V, 2520V, 2532V, 2544V, 2556V, 2568V, 2580V, 2592V, 2604V, 2616V, 2628V, 2640V, 2652V, 2664V, 2676V, 2688V, 2700V, 2712V, 2724V, 2736V, 2748V, 2760V, 2772V, 2784V, 2796V, 2808V, 2820V, 2832V, 2844V, 2856V, 2868V, 2880V, 2892V, 2904V, 2916V, 2928V, 2940V, 2952V, 2964V, 2976V, 2988V, 3000V, 3012V, 3024V, 3036V, 3048V, 3060V, 3072V, 3084V, 3096V, 3108V, 3120V, 3132V, 3144V, 3156V, 3168V, 3180V, 3192V, 3204V, 3216V, 3228V, 3240V, 3252V, 3264V, 3276V, 3288V, 3300V, 3312V, 3324V, 3336V, 3348V, 3360V, 3372V, 3384V, 3396V, 3408V, 3420V, 3432V, 3444V, 3456V, 3468V, 3480V, 3492V, 3504V, 3516V, 3528V, 3540V, 3552V, 3564V, 3576V, 3588V, 3600V, 3612V, 3624V, 3636V, 3648V, 3660V, 3672V, 3684V, 3696V, 3708V, 3720V, 3732V, 3744V, 3756V, 3768V, 3780V, 3792V, 3804V, 3816V, 3828V, 3840V, 3852V, 3864V, 3876V, 3888V, 3900V, 3912V, 3924V, 3936V, 3948V, 3960V, 3972V, 3984V, 3996V, 4008V, 4020V, 4032V, 4044V, 4056V, 4068V, 4080V, 4092V, 4104V, 4116V, 4128V, 4140V, 4152V, 4164V, 4176V, 4188V, 4200V, 4212V, 4224V, 4236V, 4248V, 4260V, 4272V, 4284V, 4296V, 4308V, 4320V, 4332V, 4344V, 4356V, 4368V, 4380V, 4392V, 4404V, 4416V, 4428V, 4440V, 4452V, 4464V, 4476V, 4488V, 4500V, 4512V, 4524V, 4536V, 4548V, 4560V, 4572V, 4584V, 4596V, 4608V, 4620V, 4632V, 4644V, 4656V, 4668V, 4680V, 4692V, 4704V, 4716V, 4728V, 4740V, 4752V, 4764V, 4776V, 4788V, 4800V, 4812V, 4824V, 4836V, 4848V, 4860V, 4872V, 4884V, 4896V, 4908V, 4920V, 4932V, 4944V, 4956V, 4968V, 4980V, 4992V, 5004V, 5016V, 5028V, 5040V, 5052V, 5064V, 5076V, 5088V, 5100V, 5112V, 5124V, 5136V, 5148V, 5160V, 5172V, 5184V, 5196V, 5208V, 5220V, 5232V, 5244V, 5256V, 5268V, 5280V, 5292V, 5304V, 5316V, 5328V, 5340V, 5352V, 5364V, 5376V, 5388V, 5400V, 5412V, 5424V, 5436V, 5448V, 5460V, 5472V, 5484V, 5496V, 5508V, 5520V, 5532V, 5544V, 5556V, 5568V, 5580V, 5592V, 5604V, 5616V, 5628V, 5640V, 5652V, 5664V, 5676V, 5688V, 5700V, 5712V, 5724V, 5736V, 5748V, 5760V, 5772V, 5784V, 5796V, 5808V, 5820V, 5832V, 5844V, 5856V, 5868V, 5880V, 5892V, 5904V, 5916V, 5928V, 5940V, 5952V, 5964V, 5976V, 5988V, 6000V, 6012V, 6024V, 6036V, 6048V, 6060V, 6072V, 6084V, 6096V, 6108V, 6120V, 6132V, 6144V, 6156V, 6168V, 6180V, 6192V, 6204V, 6216V, 6228V, 6240V, 6252V, 6264V, 6276V, 6288V, 6300V, 6312V, 6324V, 6336V, 6348V, 6360V, 6372V, 6384V, 6396V, 6408V, 6420V, 6432V, 6444V, 6456V, 6468V, 6480V, 6492V, 6504V, 6516V, 6528V, 6540V, 6552V, 6564V, 6576V, 6588V, 6600V, 6612V, 6624V, 6636V, 6648V, 6660V, 6672V, 6684V, 6696V, 6708V, 6720V, 6732V, 6744V, 6756V, 6768V, 6780V, 6792V, 6804V, 6816V, 6828V, 6840V, 6852V, 6864V, 6876V, 6888V, 6900V, 6912V, 6924V, 6936V, 6948V, 6960V, 6972V, 6984V, 6996V, 7008V, 7020V, 7032V, 7044V, 7056V, 7068V, 7080V, 7092V, 7104V, 7116V, 7128V, 7140V, 7152V, 7164V, 7176V, 7188V, 7200V, 7212V, 7224V, 7236V, 7248V, 7260V, 7272V, 7284V, 7296V, 7308V, 7320V, 7332V, 7344V, 7356V, 7368V, 7380V, 7392V, 7404V, 7416V, 7428V, 7440V, 7452V, 7464V, 7476V, 7488V, 7500V, 7512V, 7524V, 7536V, 7548V, 7560V, 7572V, 7584V, 7596V, 7608V, 7620V, 7632V, 7644V, 7656V, 7668V, 7680V, 7692V, 7704V, 7716V, 7728V, 7740V, 7752V, 7764V, 7776V, 7788V, 7800V, 7812V, 7824V, 7836V, 7848V, 7860V, 7872V, 7884V, 7896V, 7908V, 7920V, 7932V, 7944V, 7956V, 7968V, 7980V, 7992V, 8004V, 8016V, 8028V, 8040V, 8052V, 8064V, 8076V, 8088V, 8100V, 8112V, 8124V, 8136V, 8148V, 8160V, 8172V, 8184V, 8196V, 8208V, 8220V, 8232V, 8244V, 8256V, 8268V, 8280V, 8292V, 8304V, 8316V, 8328V, 8340V, 8352V, 8364V, 8376V, 8388V, 8400V, 8412V, 8424V, 8436V, 8448V, 8460V, 8472V, 8484V, 8496V, 8508V, 8520V, 8532V, 8544V, 8556V, 8568V, 8580V, 8592V, 8604V, 8616V, 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19296V, 19308V, 19320V, 19332V, 19344V, 19356V, 19368V, 19380V, 19392V, 19404V, 19416V, 19428V, 19440V, 19452V, 19464V, 19476V, 19488V, 19500V, 19512V, 19524V, 19536V, 19548V, 19560V, 19572V, 19584V, 19596V, 19608V, 19620V, 19632V, 19644V, 19656V, 19668V, 19680V, 19692V, 19704V, 19716V, 19728V, 19740V, 19752V, 19764V, 19776V, 19788V, 19800V, 19812V, 19824V, 19


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Doc	Document Number			Rev
1	B14/E15 NE-C421			0.1
Date:	Thursday, 25/01/2016			Sheet 15 of 18




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Issued Date	2015/01/12	Deciphered Date	2016/01/12	
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Doc Number	B14/E15 NH-C421			Rev 0.1
Date	Thursday, 25/01/2016			Sheet 15 of 15

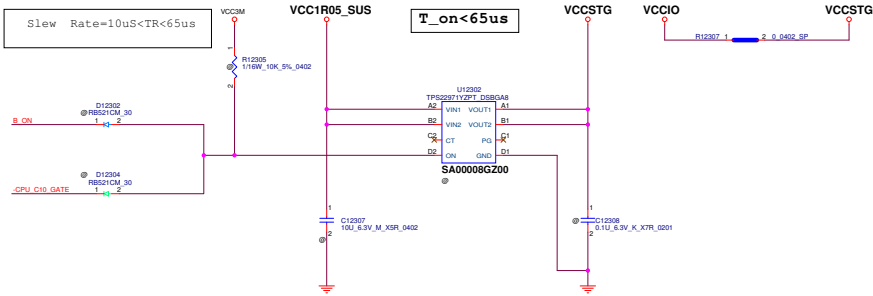
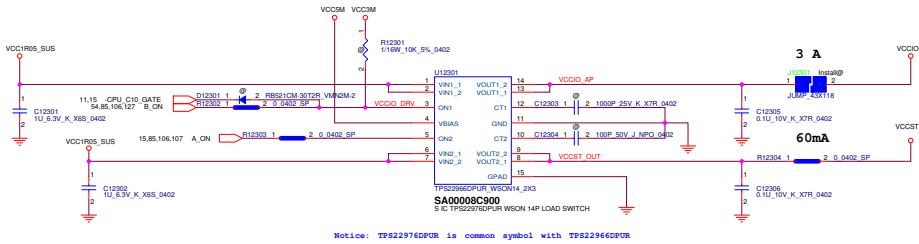
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Doc	Document Number			Rev
1	B14/E15 NH-C421			0.1
Date:	Thursday, 25/01/2016			Sheet 15 of 15

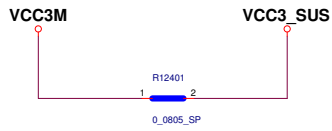
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VCCIO VCCIO 3,15,18
VCCSM VCCSM 50,54,59,69,73,78,84,103,107,108,109,110,111,116,118,125,127
VCCST VCCST 6,14,15,108


TABLE of POWER SWITCH (U12301)		
Vendor	LCFC P/N	Description
TI	SA00008C900	S IC TPS22976DPUR WSON 14P LOAD SWITCH
GMT	SA00008F400	S IC G2898KD1U TDFN 14P LOAD SWITCH
RIKTEK	SA000067200	S IC RT9740AGQW WDFN 14P LOAD SWITCH

VCC1R05M to VCCIO & VCCST



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										B14/E15		NH-C421			
										Date:		Thursday, 25/04/2016		Sheet 129 of 128	



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Issued Date	2015/01/12	Deciphered Date	2016/01/12	LOAD SW PCH SUS		
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				Date: Thursday, July 04, 2019	Sheet 124 of 128	

USBC_VBUS20 59.63
VCC3_LDO_PD 59.63.85
VINT20_IN 100.102
VCCM 50.54,59.69,73.78,84,103,107,108,109,110,111,116,118,122,127
5V_IN 59

TABLE of DIODE (D12501 D12503)		
Vendor	LCFC P/N	Description
ROHM	SC100007L00	S DIO 1SS355VMT-17 SOD323
PANJIT	SC100001K0J	S DIO 1SS355 SOD323 T/R-5K
LRC	SC100007100	S DIO L1SS355T1G SOD-323

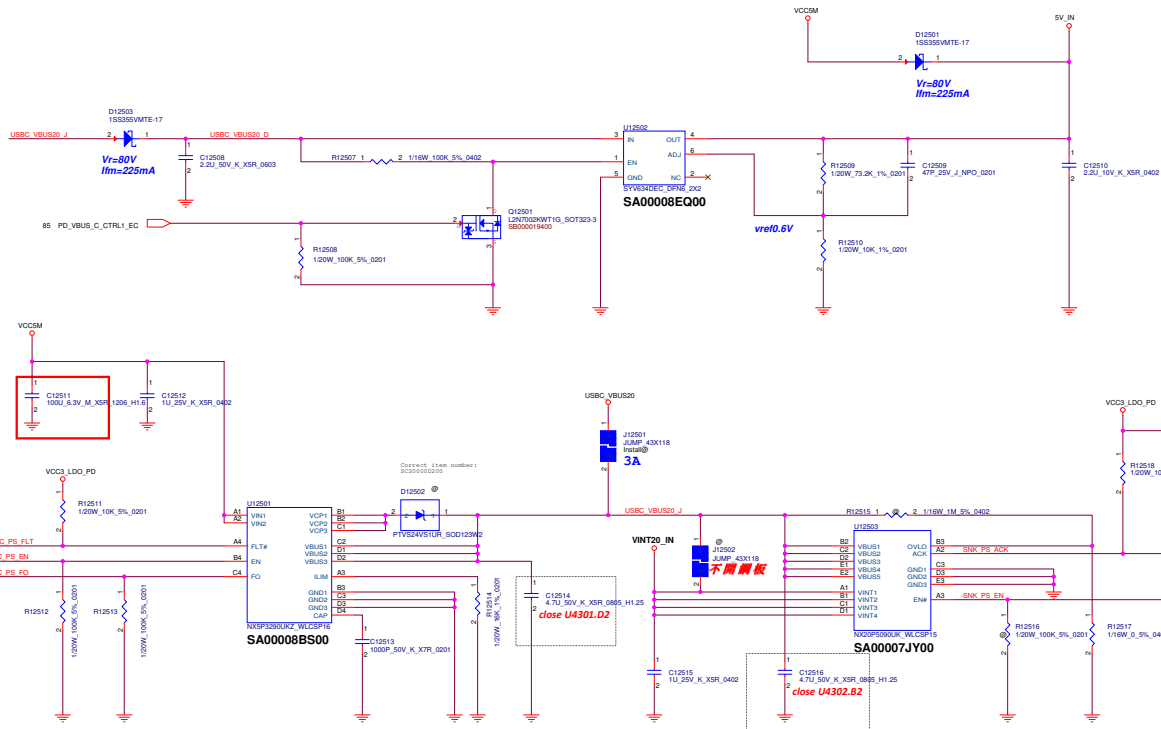



TABLE of TypeC Load Switch (U12501)		
Vendor	LCFC P/N	P/N
NXP	SA00008BS00	S IC NX5P3290UKZ WLCSP 16P
GMT	SA0000A2J00	S IC G3712B61U WLCSP 16P

TABLE of TypeC Load Switch (U12503)		
Vendor	LCFC P/N	P/N
NXP	SA00007JY00	NX20P5090UKAZ
KINETIC	SA00009G700	KTS1677EVH-TR

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Doc C		Document Number		Rev	
		E14/E15 NM-C421		0.1	
Date:		Thursday, July 04, 2019		Sheet 1/5 of 1/5	



Security Classification	LC Future Center Secret Data		
Issued Date	2015/01/12	Deciphered Date	2016/01/12
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Size

B

Document Number

E14/E15 NM-C421

Rev

0.1

Date:

Thursday, July 04, 2019

Sheet

126 of 128

VCC3BW		VCC3BW	51,59,73,85,100,101,102,105
VCC3M		VCC3M	4,11,13,15,16,50,51,66,78,84,85,88,92,102,103,105,106,108,114,116,118,120,123,124,126,128
VCC5M		VCC5M	50,54,59,69,73,78,84,103,107,108,109,110,111,116,118,123,125
VCC5B		VCC5B	54,78,88,90,96
VCC3B		VCC3B	3,7,8,9,10,12,13,33,50,51,54,64,66,73,78,80,85,88,89,91,92,93,98,101,128



1. MIRROR code, is correct????
2. After reset EC, EC control "Low", not High or Disable.

Smart Switch VCC5M To VCC5B VCC3M To VCC3B

VIN 5V and 3.3V (VBias=5V), IMAX(per channel)=6A, Rds=18mohm

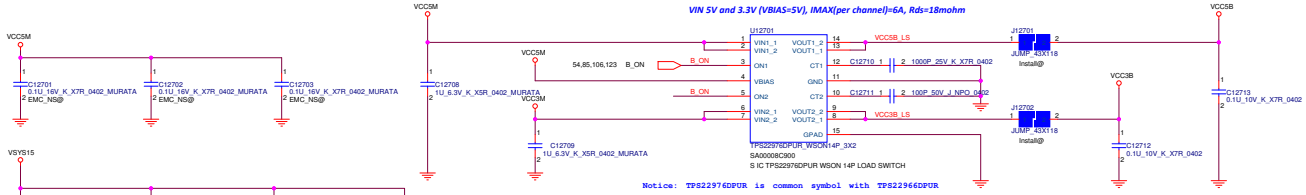


TABLE of POWER SWITCH (U12601)

Vendor	LCFC P/N	Description
TI	SA00008C900	S IC TPS22976DPUR WSON 14P LOAD SWITCH
GMT	SA00008F400	S IC G2898KD1U TDFN 14P LOAD SWITCH
RICHTEK	SA000067200	S IC RT9740AGQW WDFN 14P LOAD SWITCH

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				000000	01
				Date: Thursday, July 23, 2015	Sheet 12 of 128

VCC3WLAN VCC3WLAN 66

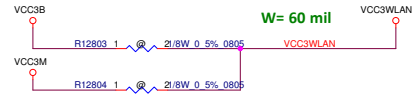
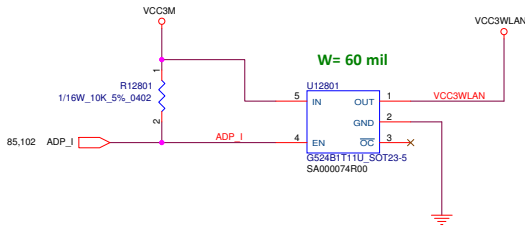


TABLE of POWER SWITCH (U12801)		
Vendor	LCFC P/N	Description
GMT	SA000074R00	S IC G524B1T11U SOT23 5P POWER SWITCH
SILERGY	SA000074P00	S IC SY6288C20AAC SOT23 5P POWER SWITCH

Security Classification		LC Future Center Secret Data		Title	
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Size	Document Number	E14/E15 NM-C421			Rev
B		Thursday, July 04, 2019			0.1
Date:		Sheet		128	of 128