

LCFC Confidential

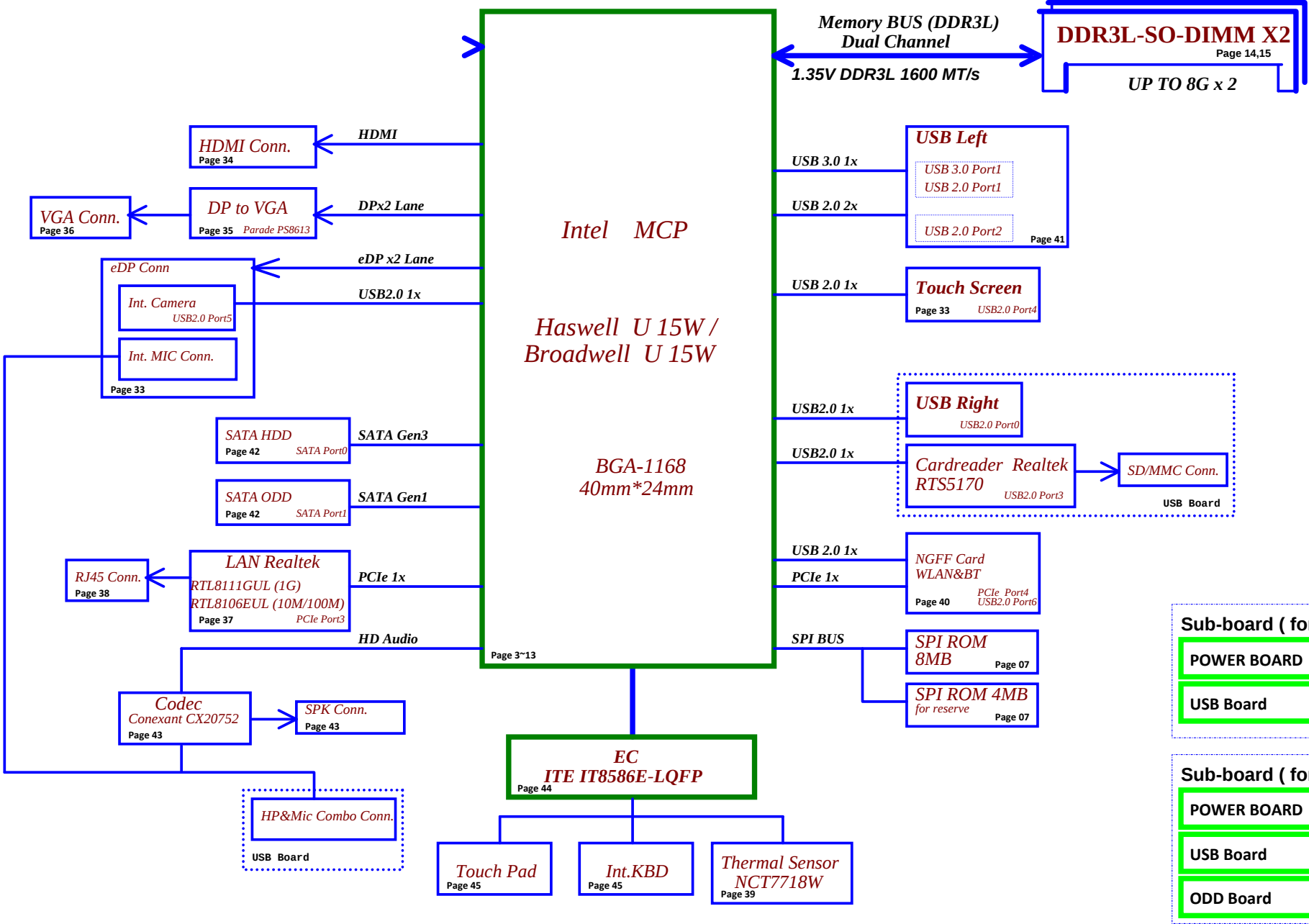
ACLU1/2 UMA M/B Schematics Document

Intel Haswell/Broadwell U-Processor

2013-12-05

REV:1.0

Security Classification	LC Future Center Secret Data			Title			
Issued Date	2013/08/08	Deciphered Date	2013/08/05	Cover Page			
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Sub-board (for 14")

- POWER BOARD
- USB Board

Sub-board (for 15")

- POWER BOARD
- USB Board
- ODD Board

Voltage Rails (O --> Means ON , X --> Means OFF)

Power Plane / State	B+	+3VALW +5VALW	+3VALW_PCH	+1.35V	+5VS +3VS +1.5VS +1.35VS +1.05VS +0.675VS CPU_CORE
S0	0	0	0	0	0
S3	0	0	0	0	X
S3 Battery only	0	0	0	0	X
S5 S4/AC Only	0	0	0	X	X
S5 S4 Battery only	0	X	X	X	X
S5 S4 AC & Battery don't exist	X	X	X	X	X

STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

USB Port Table

USB 2.0 EHCI1		USB 3.0 XHCI	
0	USB Port (Right Side)		
1	USB Port1 (Left Side)	1	USB Port1 (Left Side)
2	USB Port2 (Left Side)	2	
3	Cardreader	3	
4	TOUCH PANEL	4	
5	Camera		
6	NGFF(WLAN)		
7			

BOM Structure Table

[illegible]

SMBUS Control Table

	SOURCE	BATT	IT586E	SODIMM	WLAN WiMAX	Thermal Sensor	PCH	TP Module	charger
EC_SMB_CK1 EC_SMB_DA1	IT586E +3VALW	V	V +3VALW	X	X	X	X	X	V
EC_SMB_CK2 EC_SMB_DA2	IT586E +3VS	X	V +3VS	X	X	V +3VS	V +3VALW_PCH	X	X
PCH_SMB_CLK PCH_SMB_DATA	PCH +3VALW_PCH	X	X	V +3VS	V +3VS	X	V +3VALW_PCH	X	X

PCIE PORT LIST

Port	Device
1	
2	
3	LAN
4	WLAN
5	
6	

EC SM Bus1 address

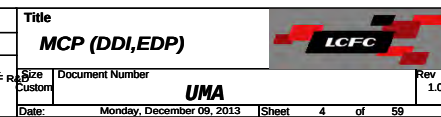
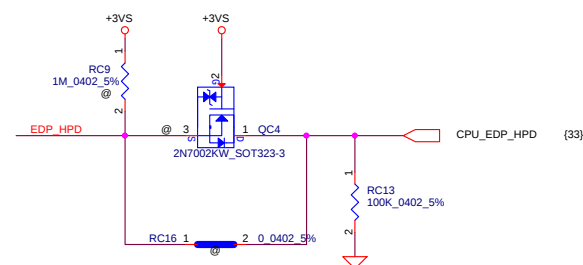
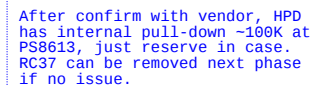
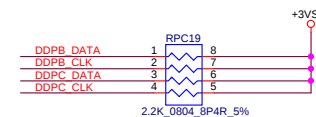
EC SM Bus2 address

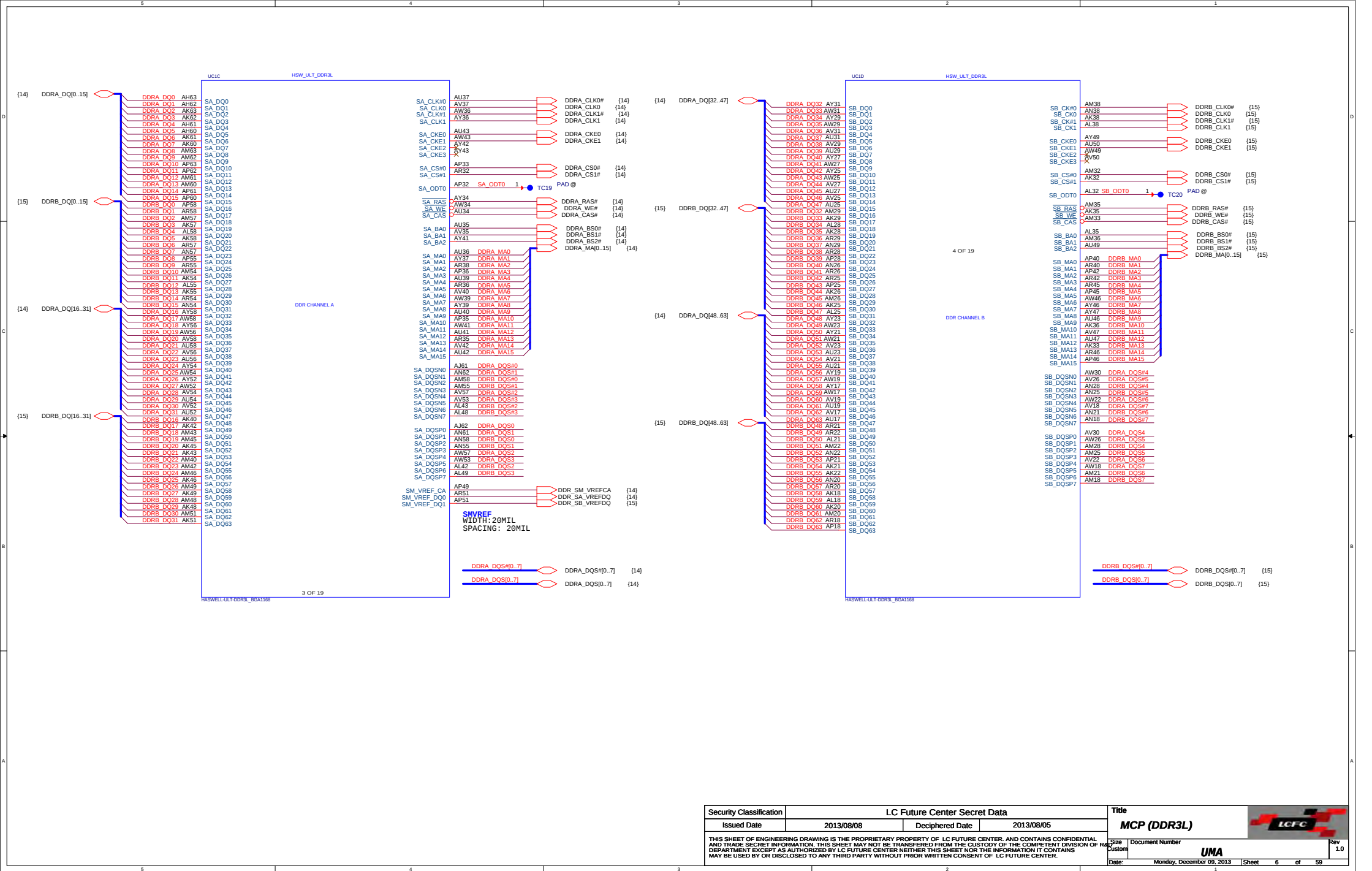
PCH SM Bus address

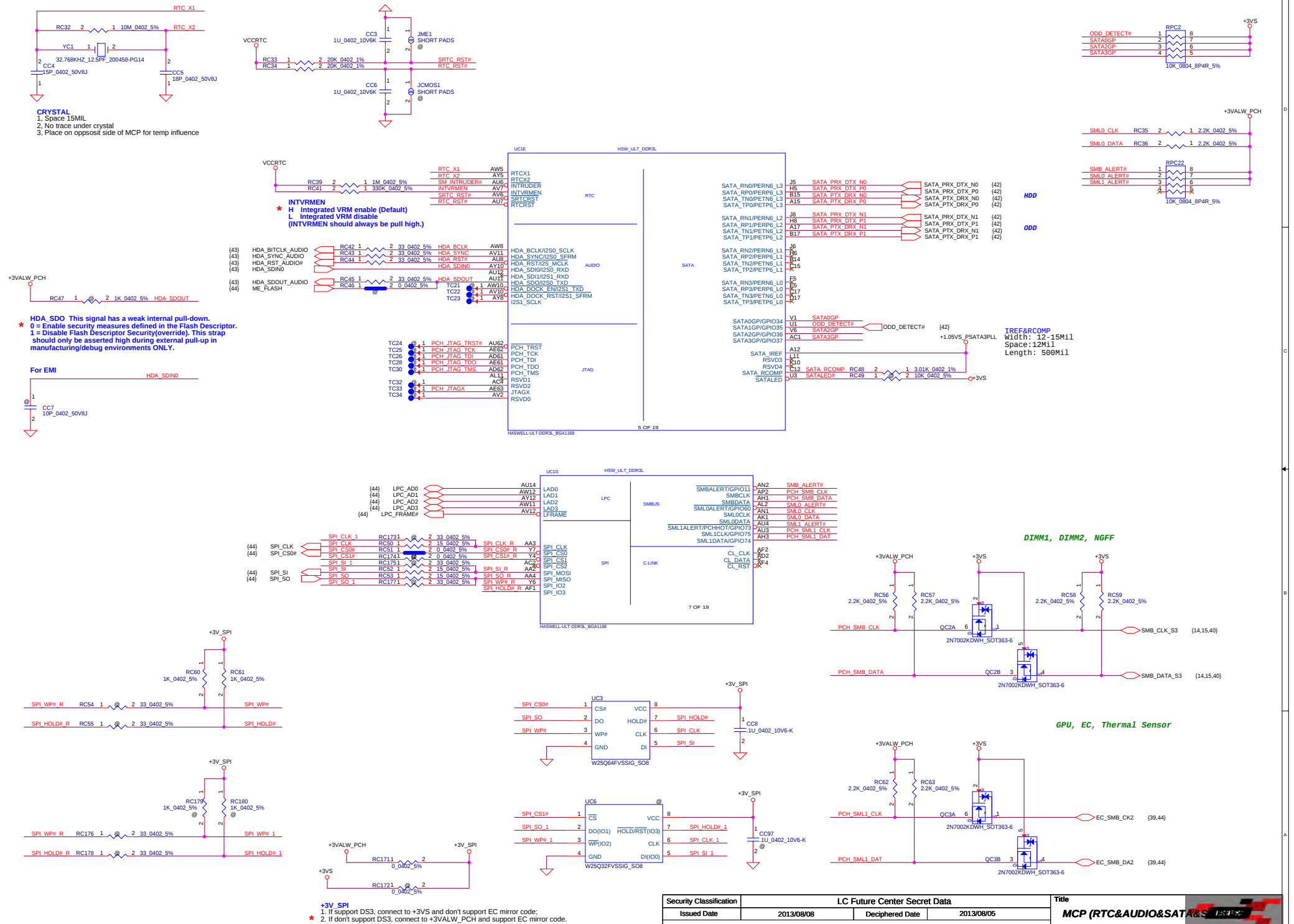
Device	Device	Address
Smart Battery	0X16	Thermal Sensor NCT7718W 1001_100xb
Charger	0001 0010 b	PCH need to update

Device	Address
DDR DIMMA	1010 000Xb
DDR DIMMB	1010 010Xb
Wlan	Rsvd

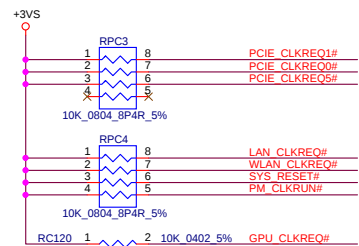
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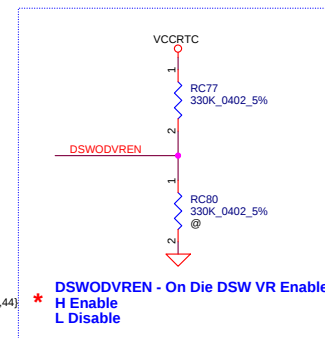
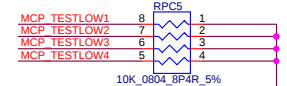
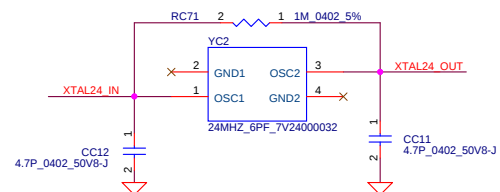
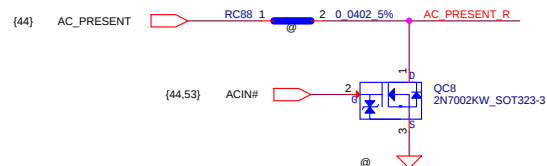
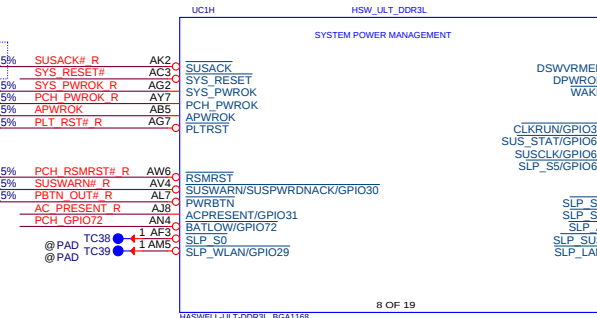
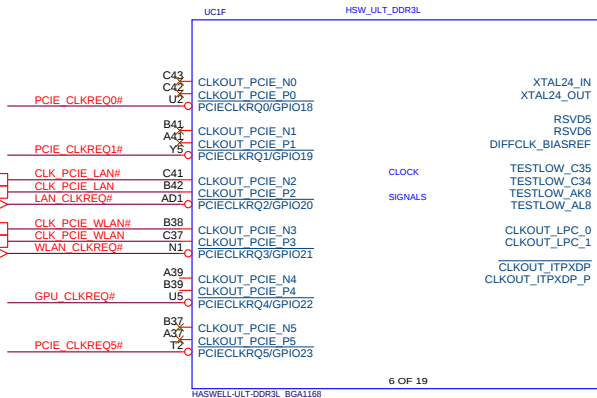
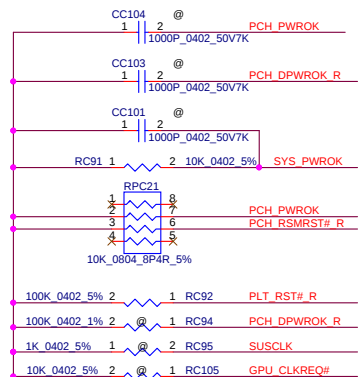
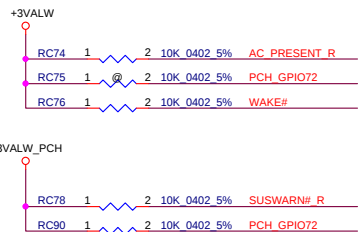




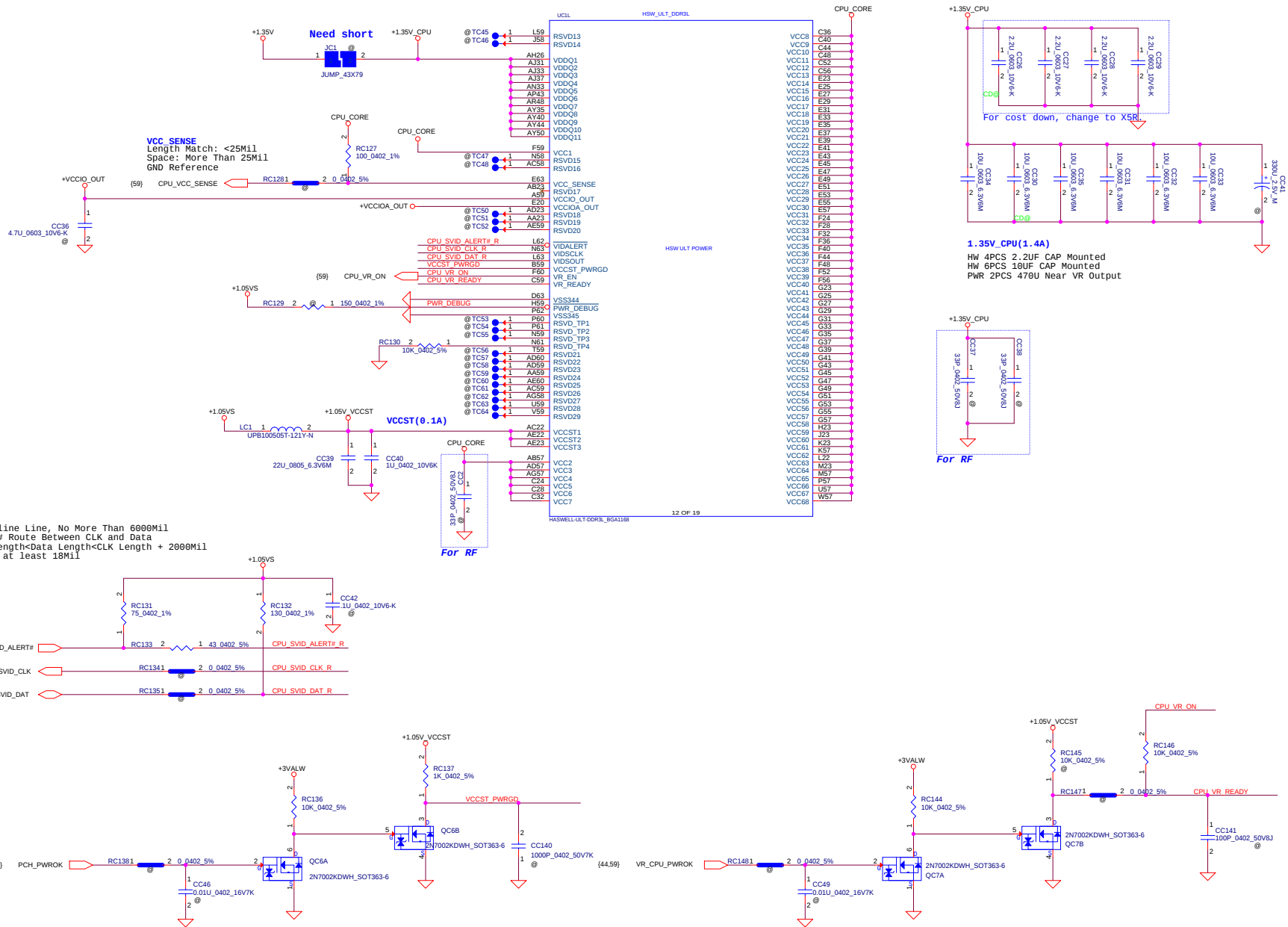
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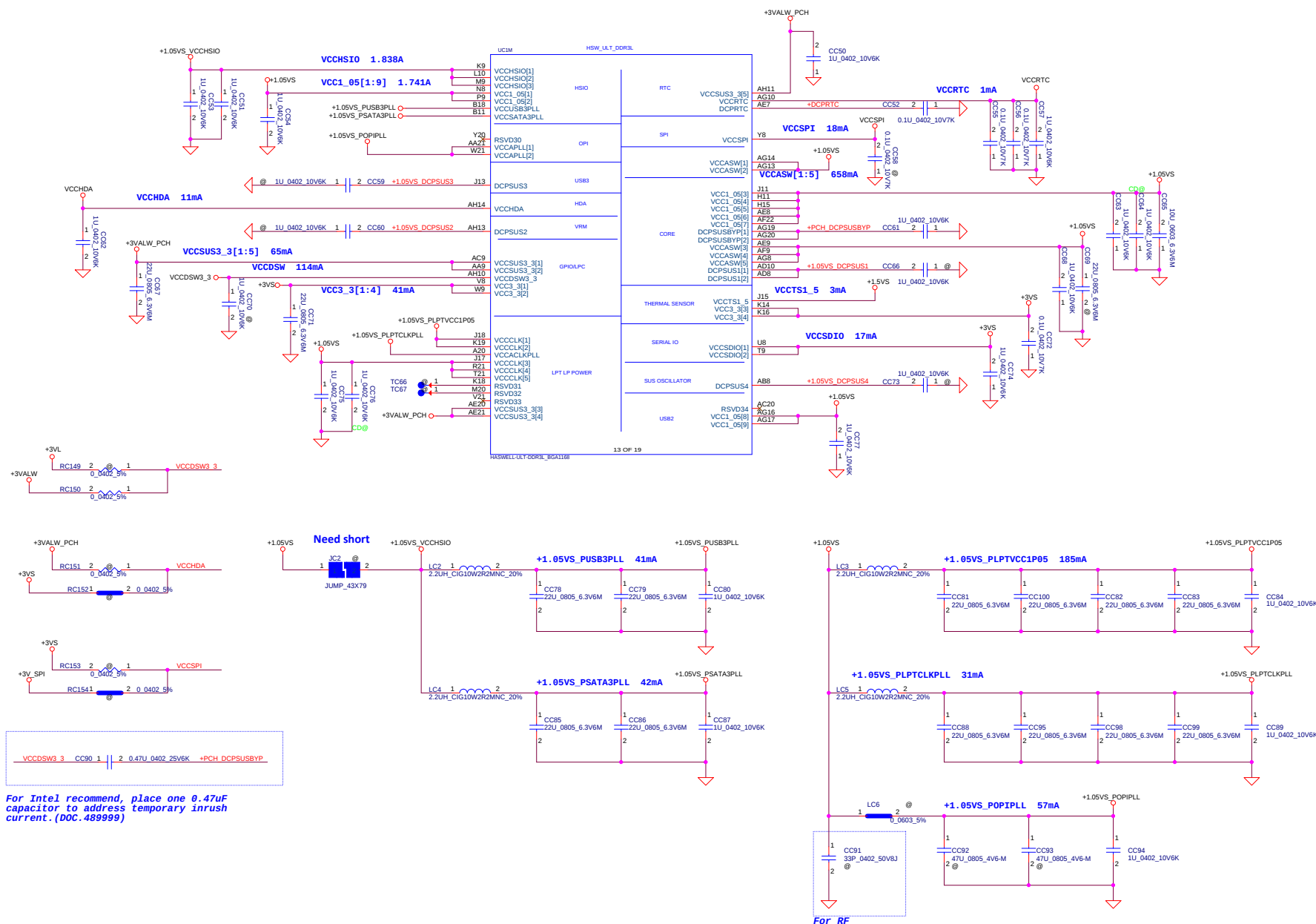


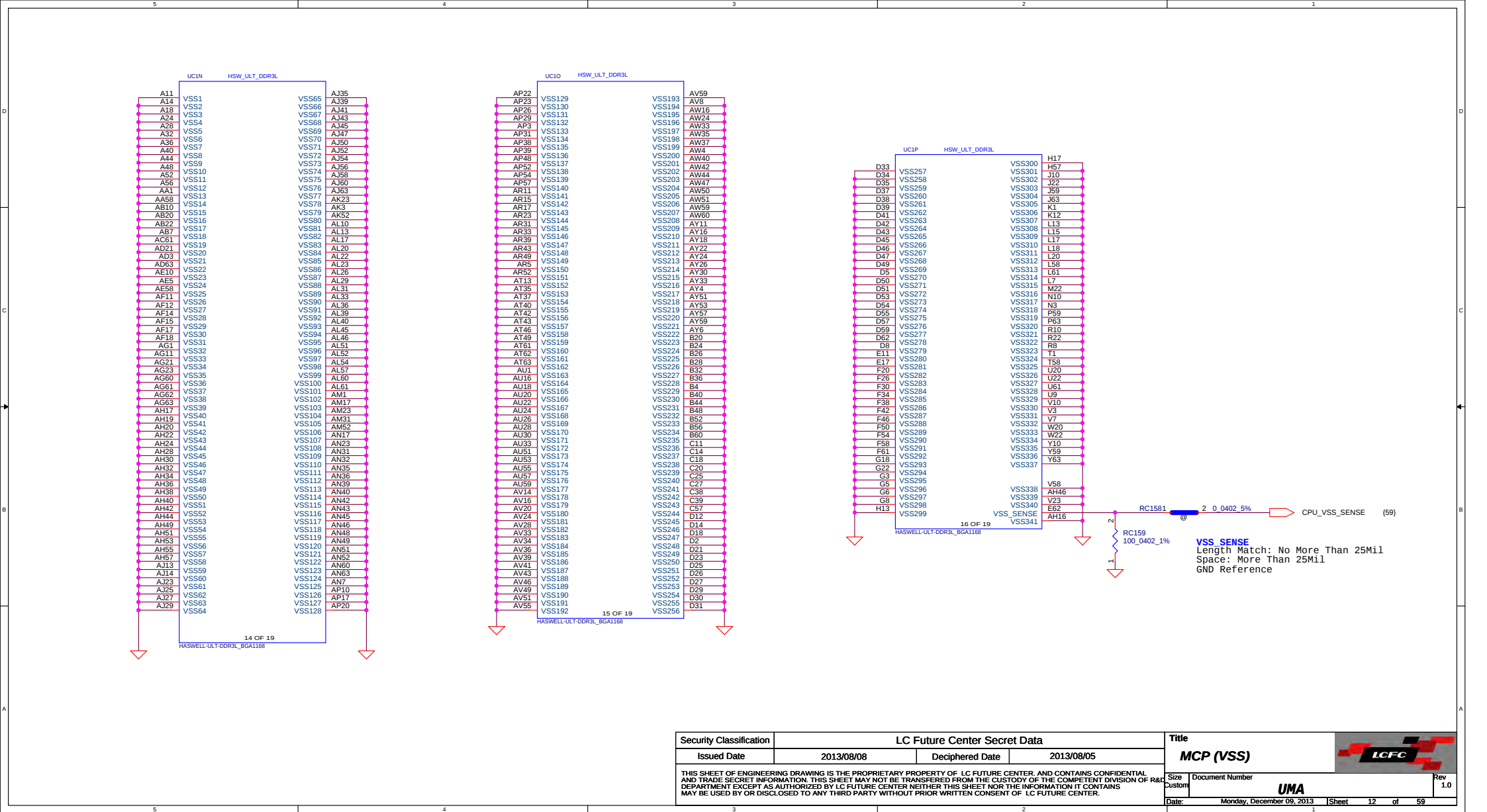
PCIE CLK2 LAN
PCIE CLK3 WLAN
PCIE CLK4 GPU



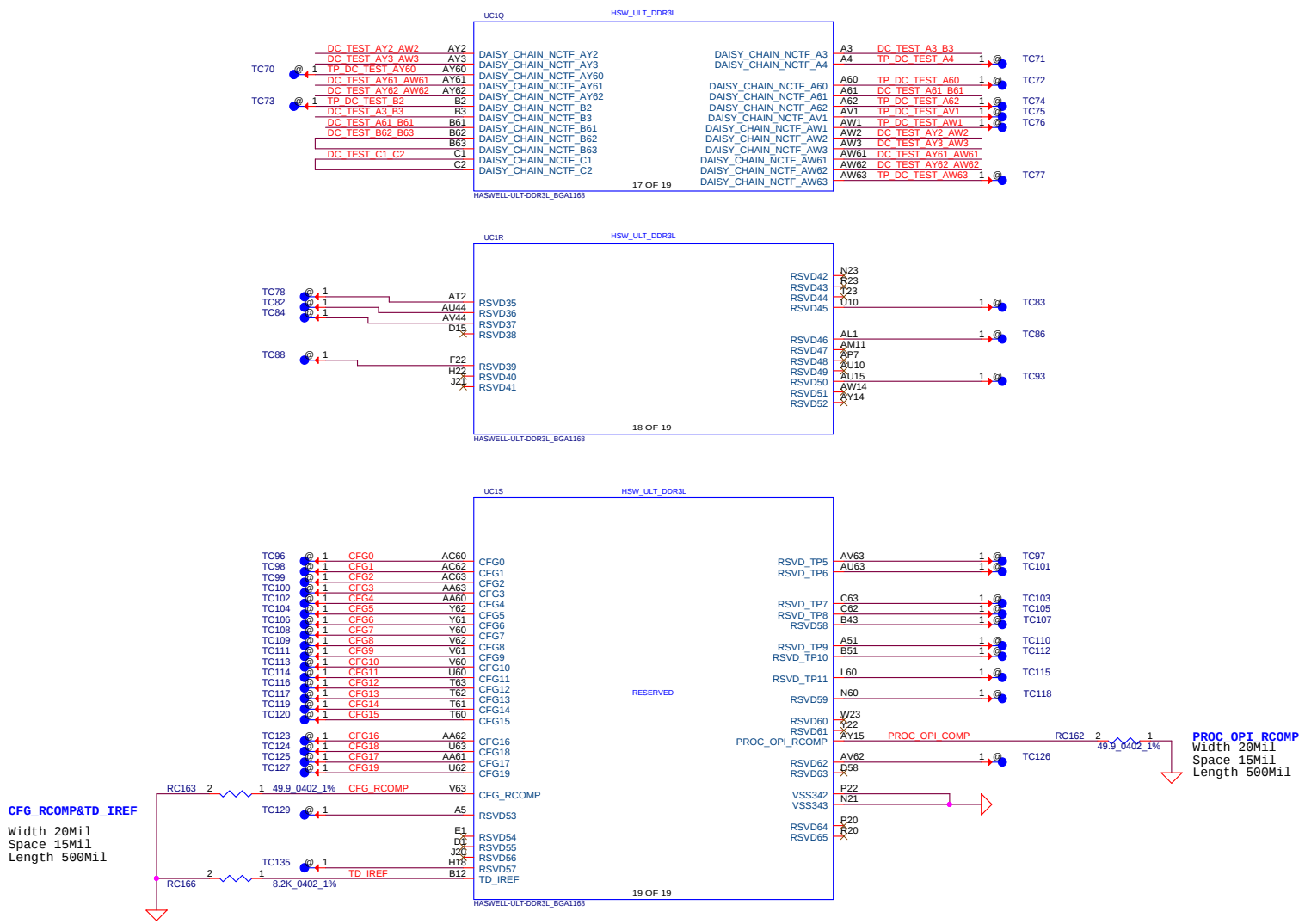
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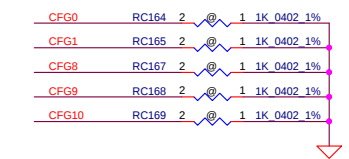


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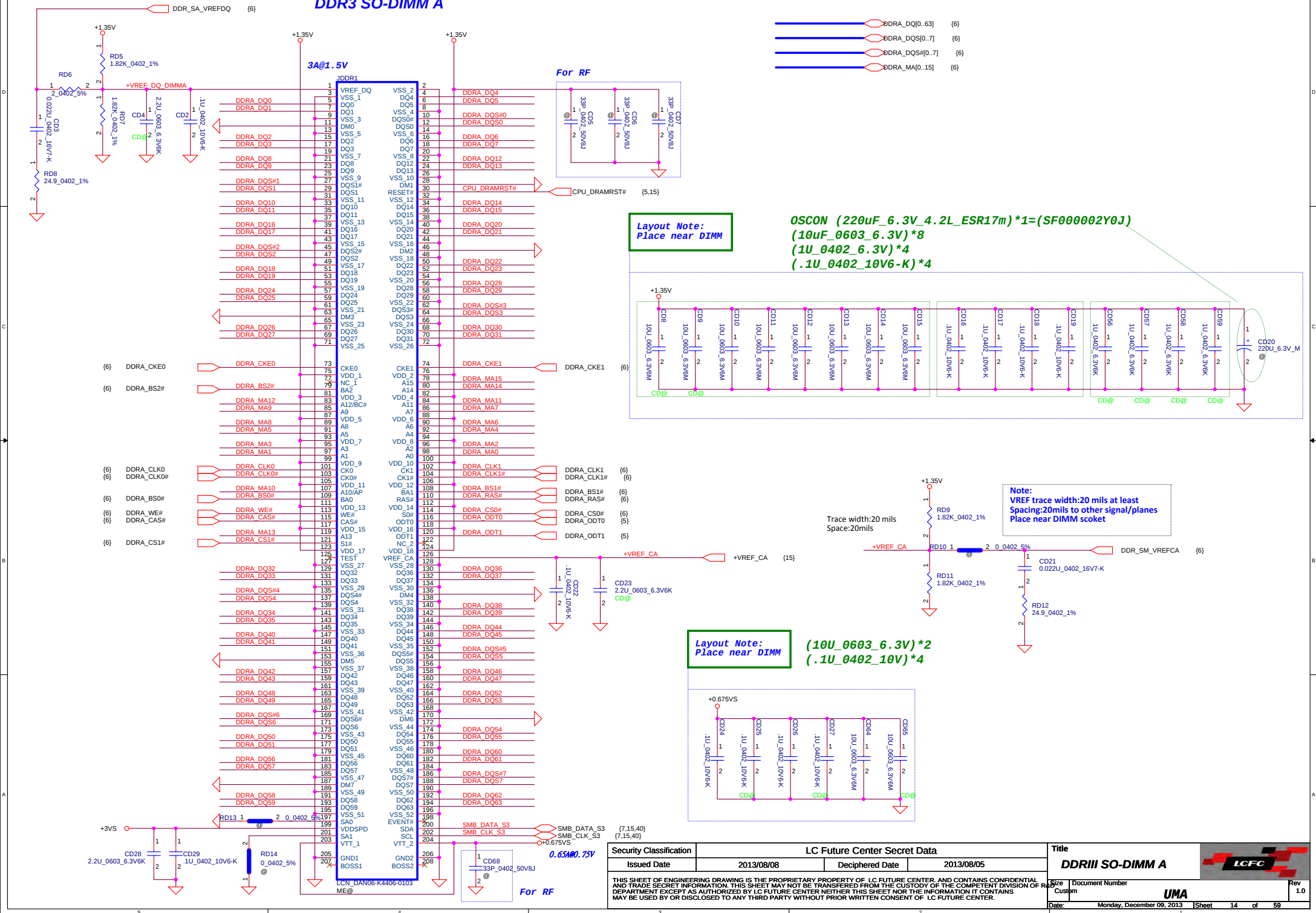
CFG3
*1: Disable
0: Enable, Set DFX Enabled BIT
In Debug Interface MSR

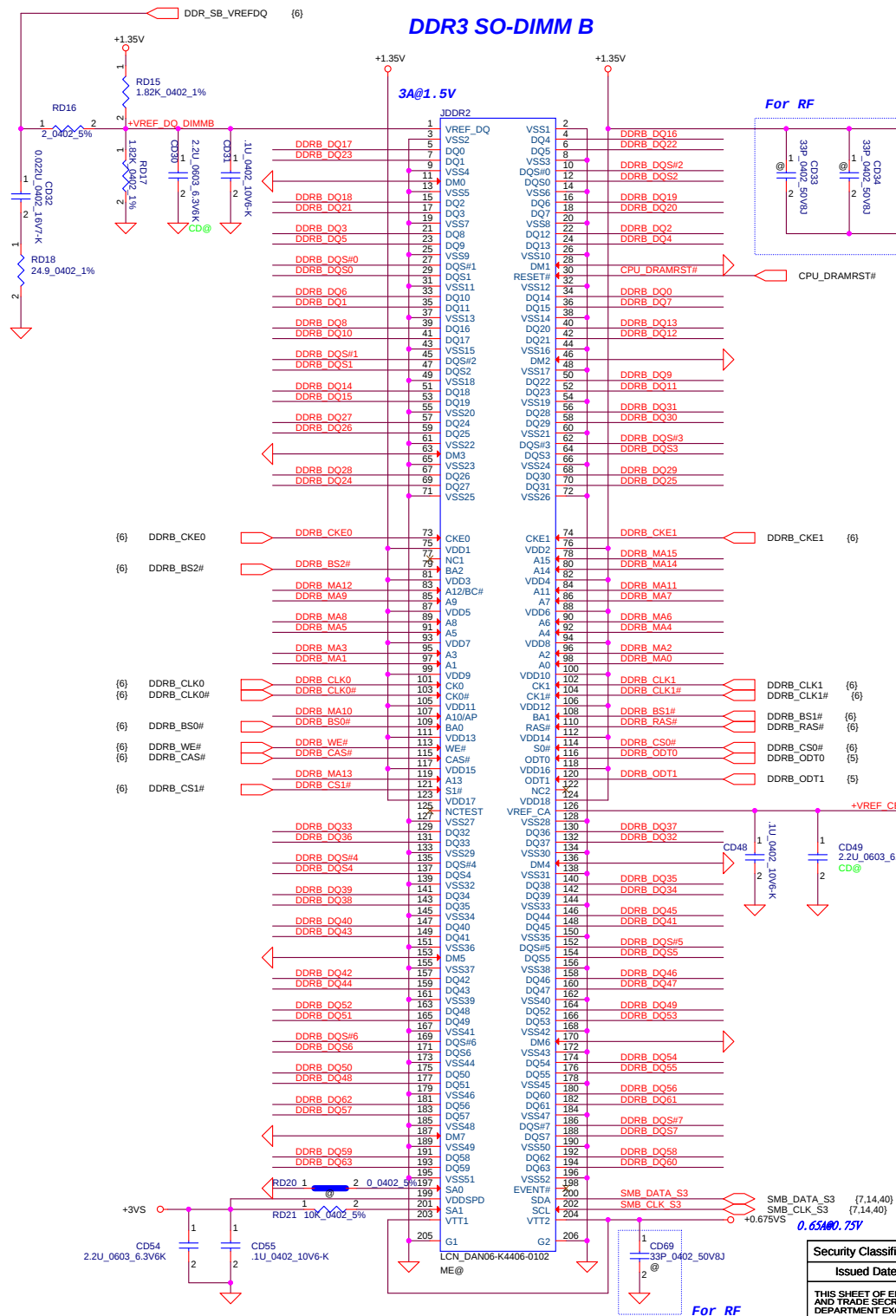
CFG4
*L: eDP enable
H: eDP disable



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DDR3 SO-DIMM A





Swap Table

Pin Number	Pin Name	Net Name
5	DQ0	DDR_B_DQ17
7	DQ2	DDR_B_DQ23
15	DQ3	DDR_B_DQ31
17	DQ4	DDR_B_DQ16
4	DQ5	DDR_B_DQ22
6	DQ6	DDR_B_DQ19
16	DQ7	DDR_B_DQ20
18	DQ8	DDR_B_DQ32
10	DQ9	DDR_B_DQ33
12	DQ10	DDR_B_DQ34
21	DQ11	DDR_B_DQ35
23	DQ12	DDR_B_DQ36
33	DQ13	DDR_B_DQ37
35	DQ14	DDR_B_DQ38
22	DQ15	DDR_B_DQ39
24	DQ16	DDR_B_DQ40
34	DQ17	DDR_B_DQ41
36	DQ18	DDR_B_DQ42
27	DQ19	DDR_B_DQ43
29	DQ20	DDR_B_DQ44
39	DQ21	DDR_B_DQ45
41	DQ22	DDR_B_DQ46
51	DQ23	DDR_B_DQ47
53	DQ24	DDR_B_DQ48
40	DQ25	DDR_B_DQ49
42	DQ26	DDR_B_DQ50
50	DQ27	DDR_B_DQ51
52	DQ28	DDR_B_DQ52
45	DQ29	DDR_B_DQ53
47	DQ30	DDR_B_DQ54
57	DQ31	DDR_B_DQ55
59	DQ32	DDR_B_DQ56
67	DQ33	DDR_B_DQ57
69	DQ34	DDR_B_DQ58
56	DQ35	DDR_B_DQ59
58	DQ36	DDR_B_DQ60
68	DQ37	DDR_B_DQ61
70	DQ38	DDR_B_DQ62
62	DQ39	DDR_B_DQ63
64	DQ40	DDR_B_DQ64
129	DQ41	DDR_B_DQ65
131	DQ42	DDR_B_DQ66
141	DQ43	DDR_B_DQ67
143	DQ44	DDR_B_DQ68
130	DQ45	DDR_B_DQ69
132	DQ46	DDR_B_DQ70
140	DQ47	DDR_B_DQ71
142	DQ48	DDR_B_DQ72
135	DQ49	DDR_B_DQ73
137	DQ50	DDR_B_DQ74
147	DQ51	DDR_B_DQ75
149	DQ52	DDR_B_DQ76
157	DQ53	DDR_B_DQ77
159	DQ54	DDR_B_DQ78
146	DQ55	DDR_B_DQ79
148	DQ56	DDR_B_DQ80
158	DQ57	DDR_B_DQ81
160	DQ58	DDR_B_DQ82
152	DQ59	DDR_B_DQ83
154	DQ60	DDR_B_DQ84
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180	DQ75	DDR_B_DQ99
182	DQ76	DDR_B_DQ100
192	DQ77	DDR_B_DQ101
194	DQ78	DDR_B_DQ102
186	DQ79	DDR_B_DQ103
188	DQ80	DDR_B_DQ104

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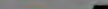
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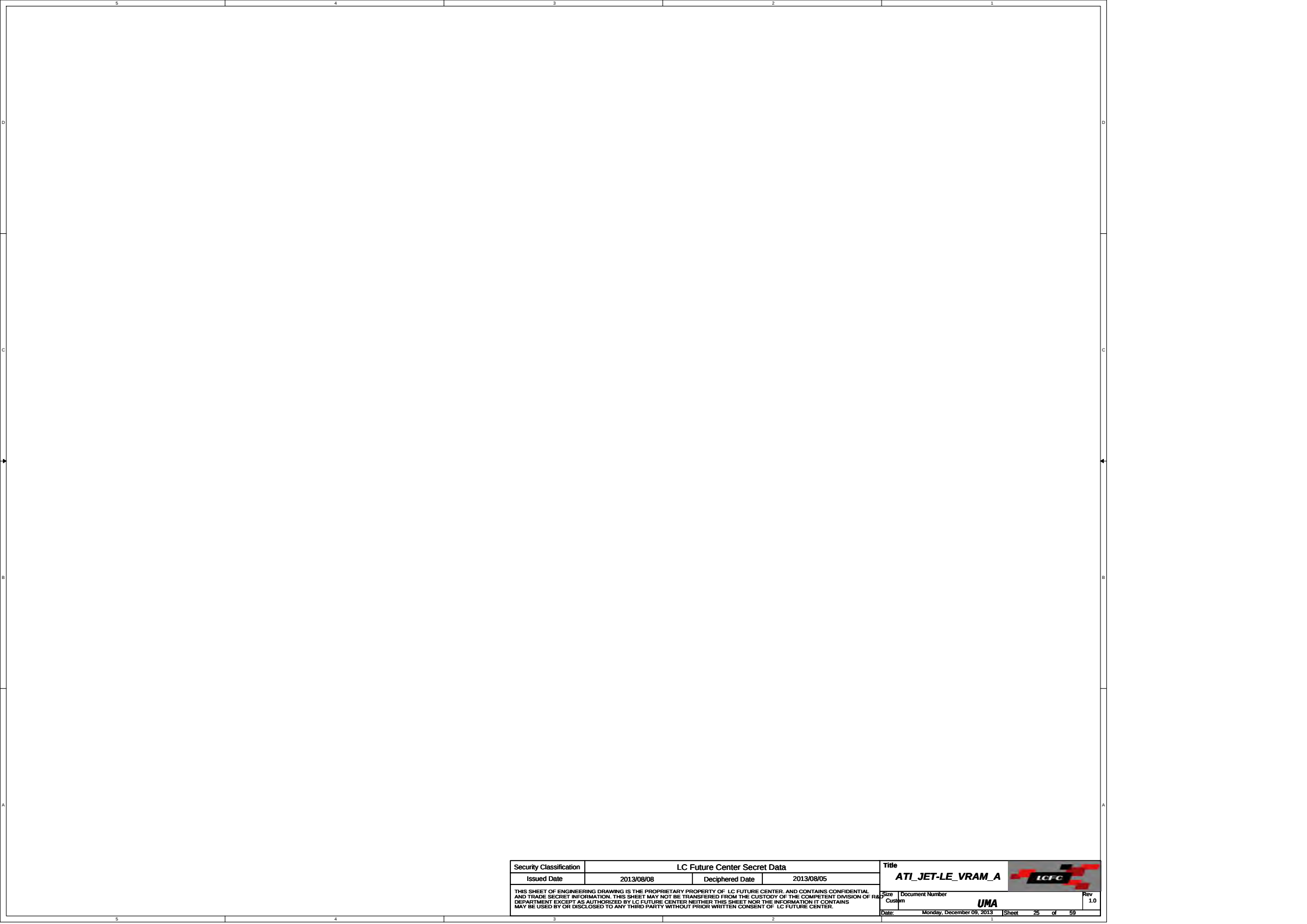
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				Date:	Monday, December 09, 2013	Sheet	24 of 59



Security Classification		LC Future Center Secret Data		Title			
Issued Date		2013/08/08		Deciphered Date		2013/08/05	
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Size	Document Number			Rev			
Custom	UMA			1.0			
Date: Monday, December 09, 2013				Sheet 25 of 59			

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(3)

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Security Classification		LC Future Center Secret Data		Title	
Issued Date	2013/08/08	Deciphered Date	2013/08/05	ATI_JET-LE_VRAM_B	
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Security Classification		LC Future Center Secret Data		Title			
Issued Date	2013/08/08	Deciphered Date	2013/08/05	Blank			
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1 2				Date: Monday, December 09, 2013 Sheet 27 of 59			

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Issued Date	2013/08/08	Deciphered Date	2013/08/05	Blank	
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				Document Number 	Rev 1.0
				Date:	Monday, December 09, 2013
				Sheet	28 of 59

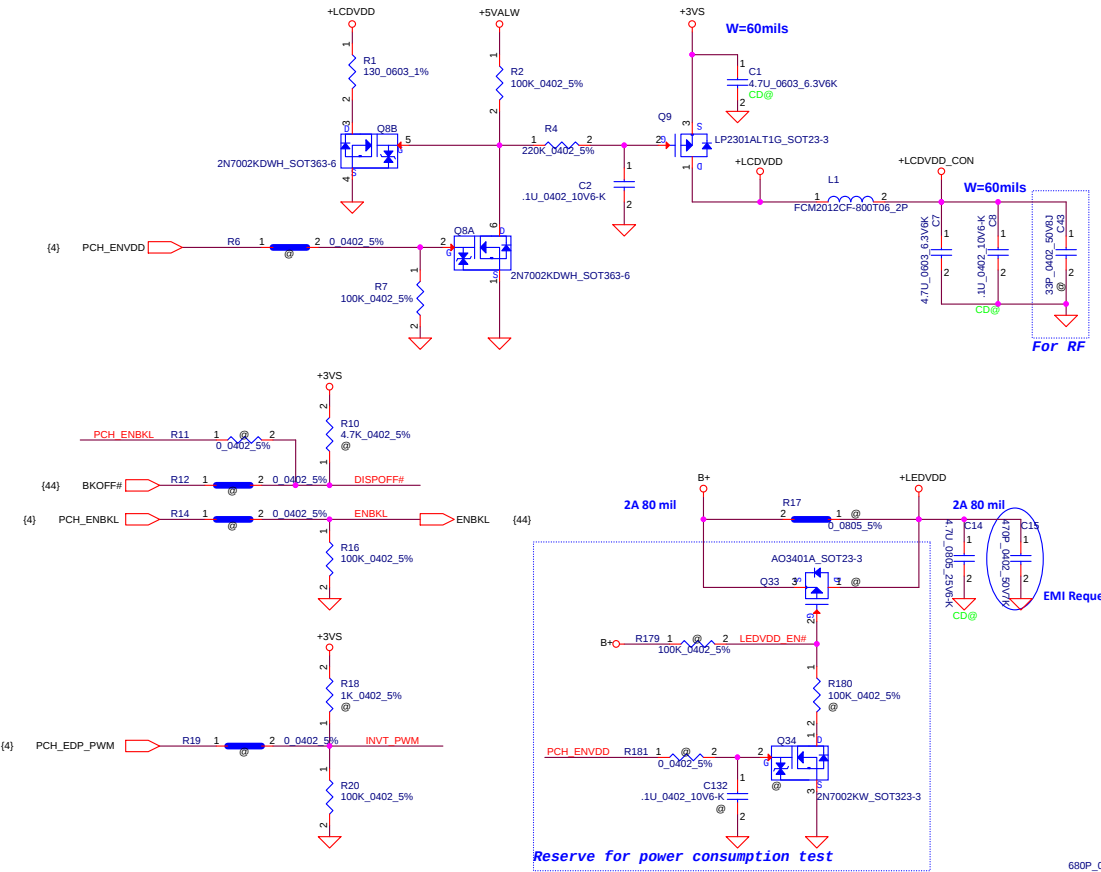
	5		4		3		2		1
D									D
C									C
B									B
A									A
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					Issued Date		2013/08/08	Deciphered Date	
								2013/08/05	
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					Size			Document Number	
					Custom			UMA	
					Date:			Monday, December 09, 2013	
								Sheet 29 of 59	
								Rev 1.0	

Security Classification		LC Future Center Secret Data		Title			
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				Date:	Monday, December 09, 2013	Sheet	30 of 59

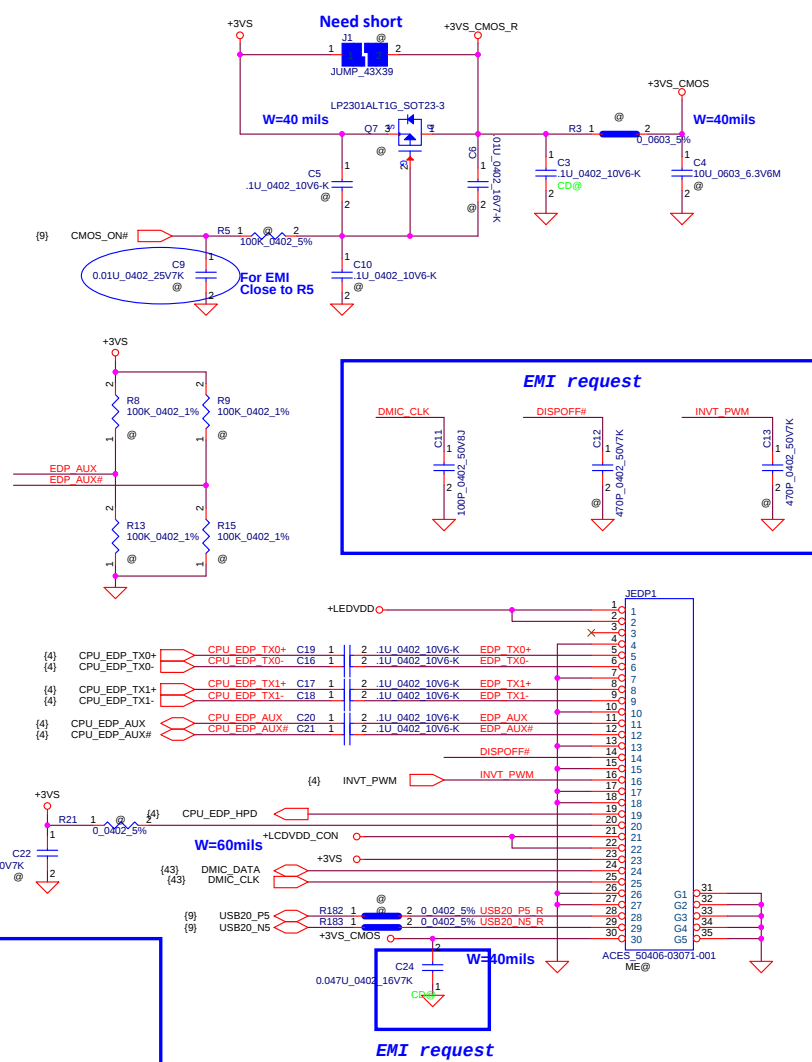
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				Size Custom	
				Document Number UMA	
				Rev 1.0	
				Date: Monday, December 09, 2013	Sheet 31 of 59

Security Classification		LC Future Center Secret Data				Title			
Issued Date	2013/08/08	Deciphered Date	2013/08/05		Blank				
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Size		Document Number		Rev		UMA		1.0	
Date:		Monday, December 09, 2013				Sheet		32 of 59	

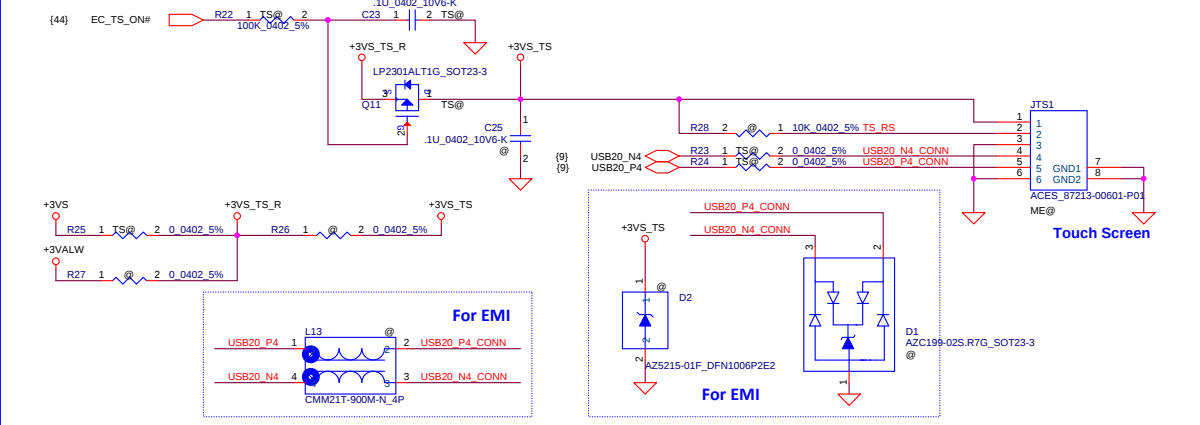
LCD POWER CIRCUIT

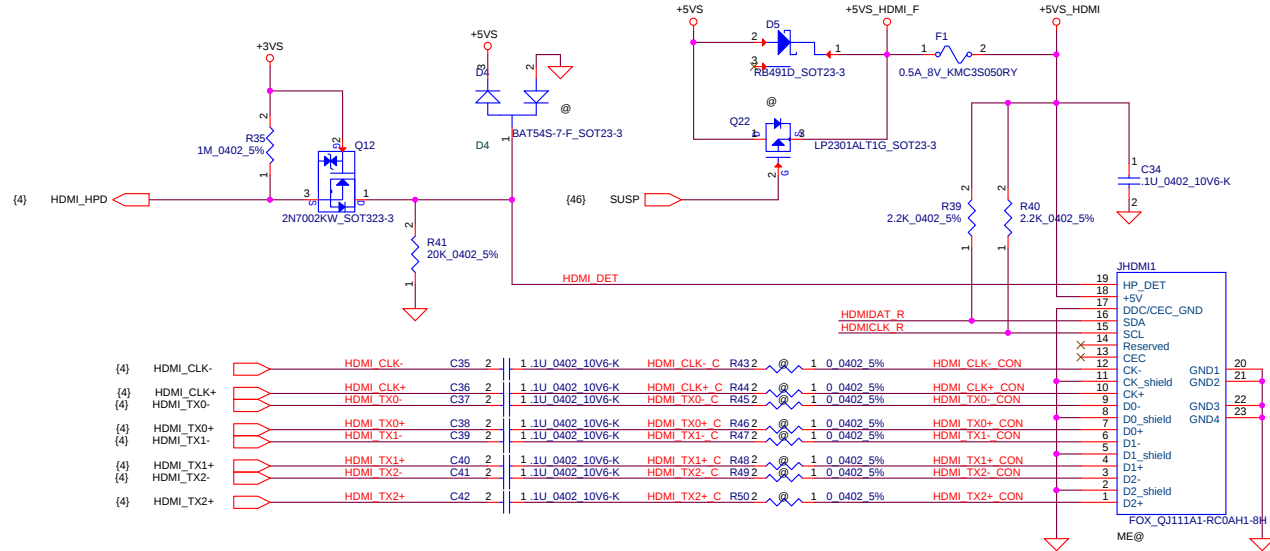
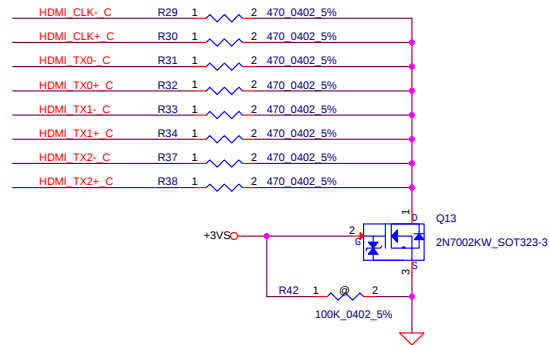
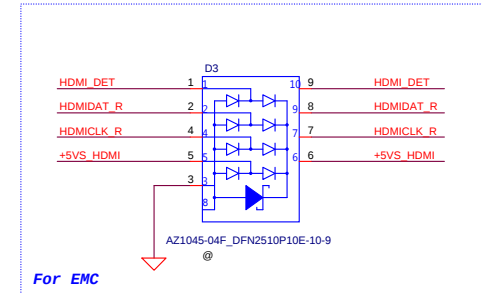
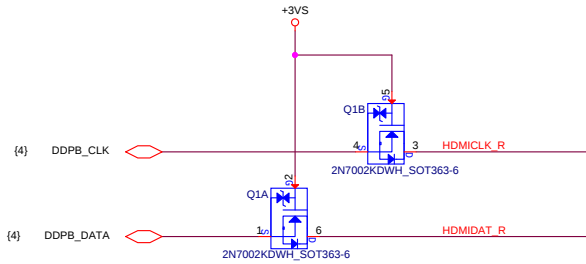
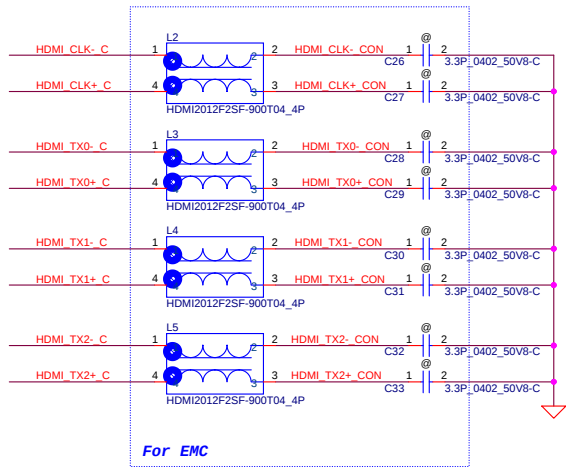


CMOS Camera

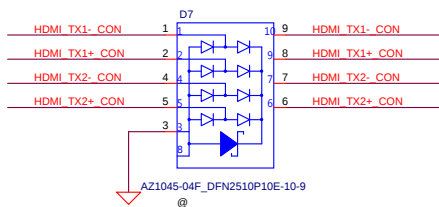
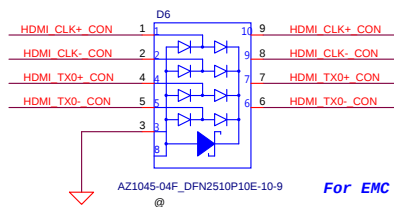


Touch Screen

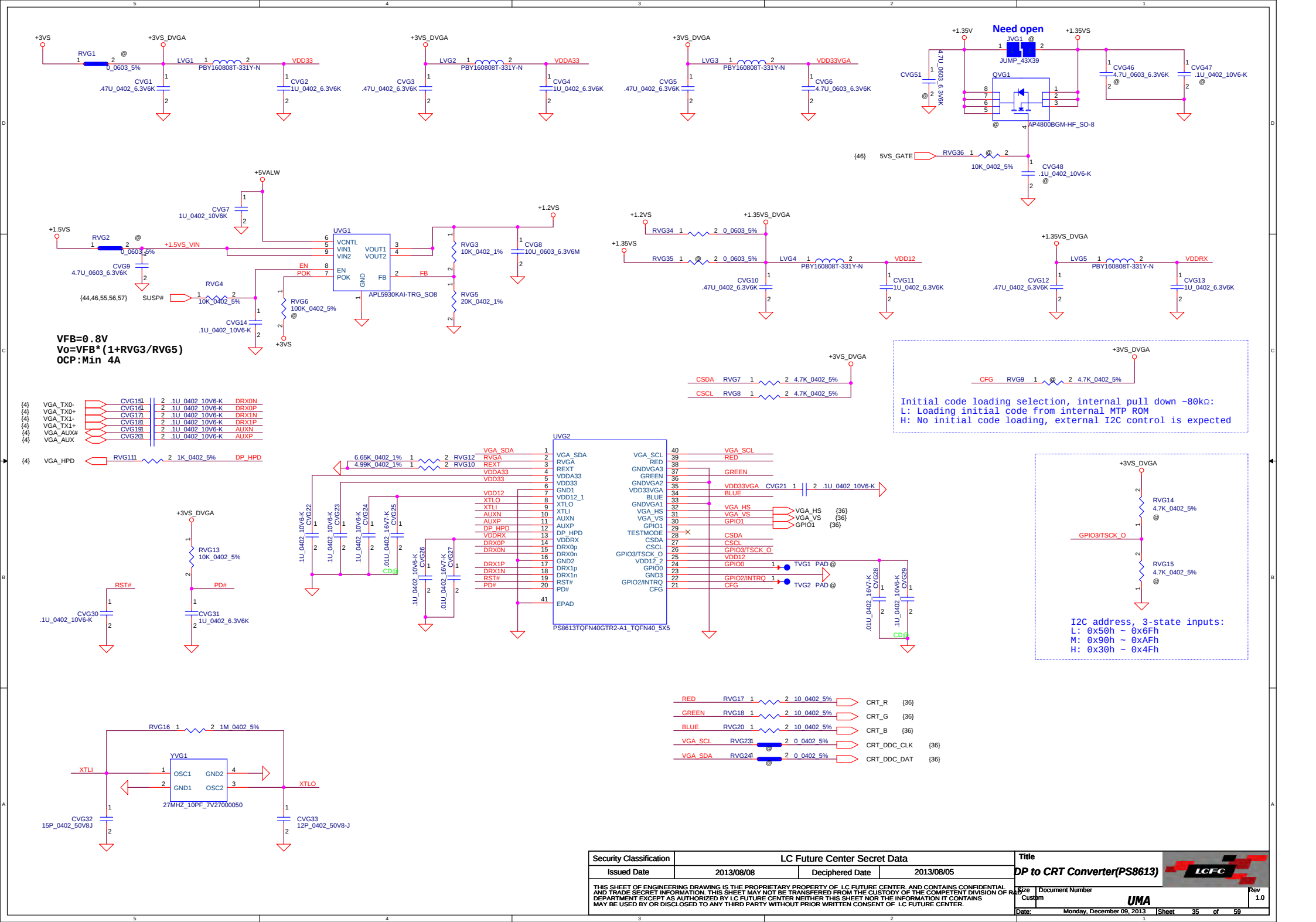




Close to JHDMI1



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Date:		Monday, December 09, 2013				Sheet 34 of 59			

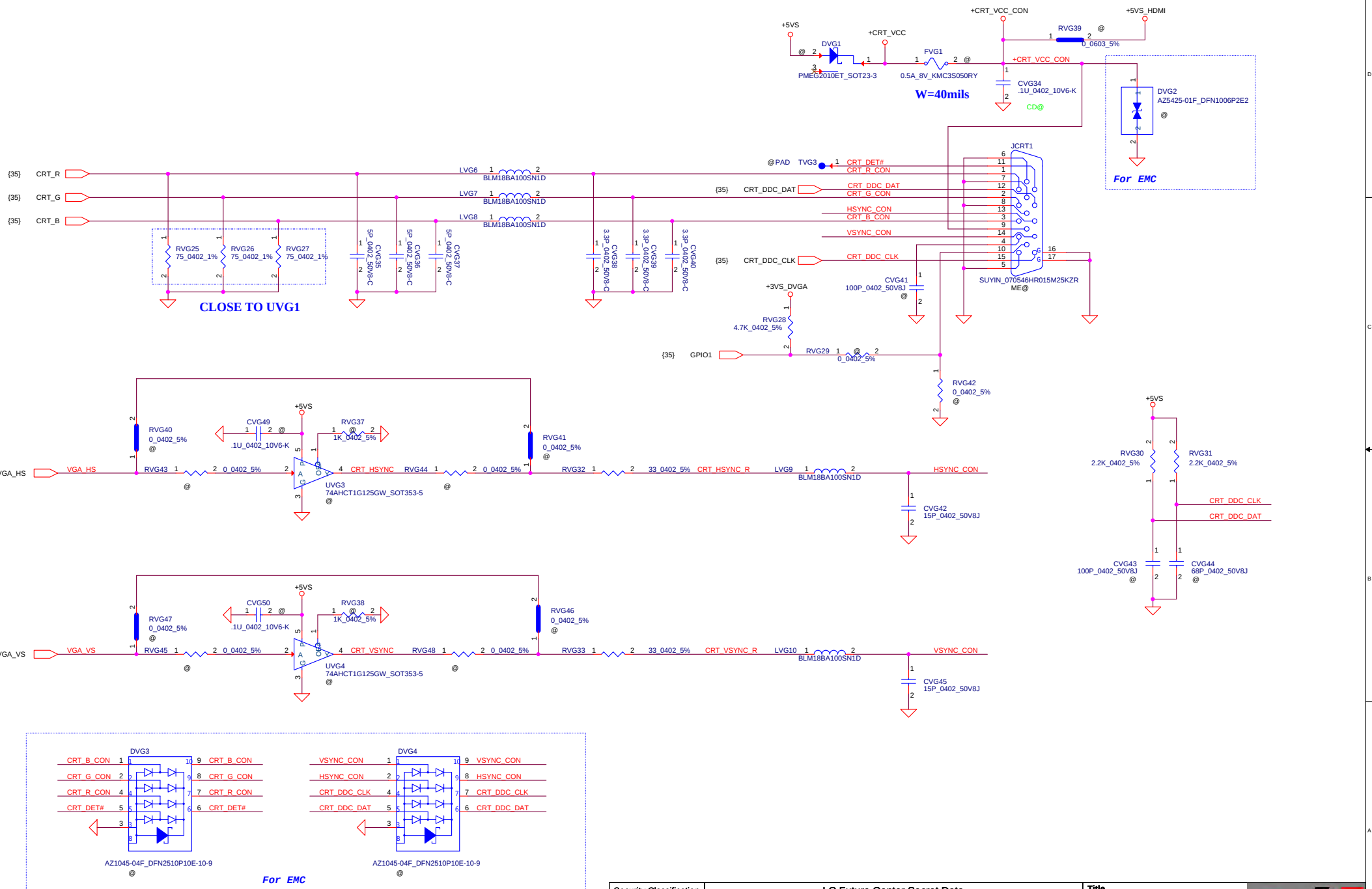


VFB=0.8V
Vo=VFB*(1+RVG3/RVG5)
OCP:Min 4A

Initial code loading selection, internal pull down ~80kΩ:
L: Loading initial code from internal MTP ROM
H: No initial code loading, external I2C control is expected

I2C address, 3-state inputs:
L: 0x50h ~ 0x6Fh
M: 0x90h ~ 0xAFh
H: 0x30h ~ 0x4Fh

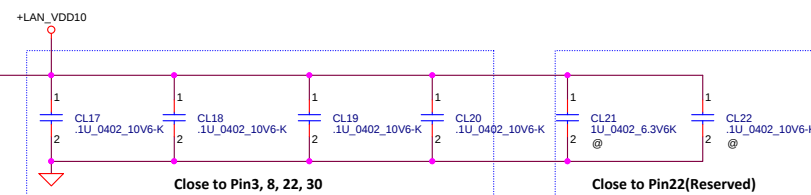
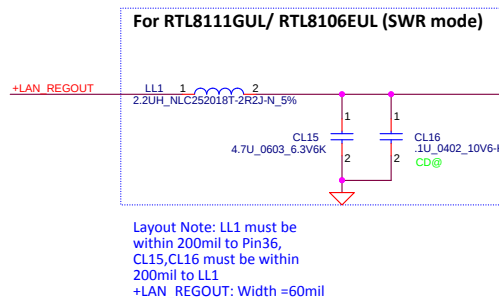
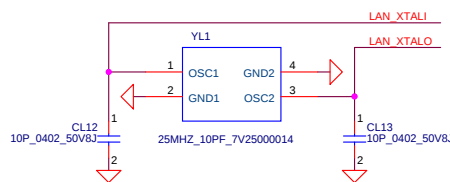
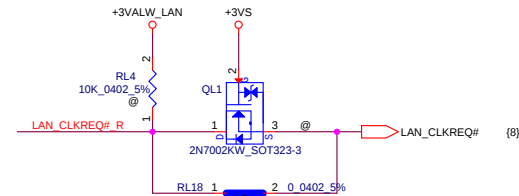
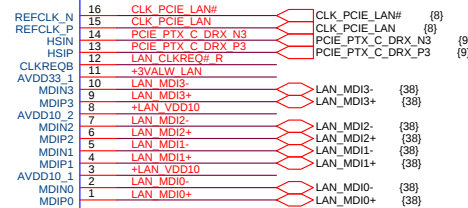
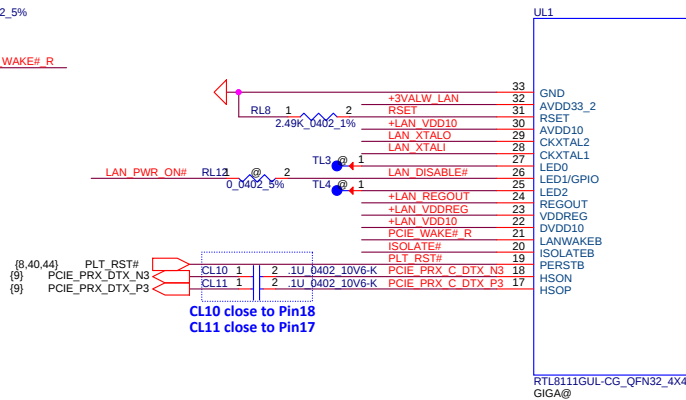
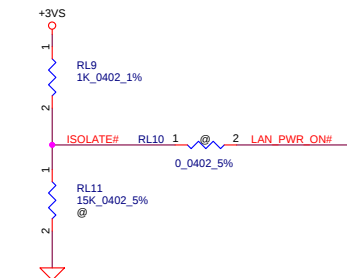
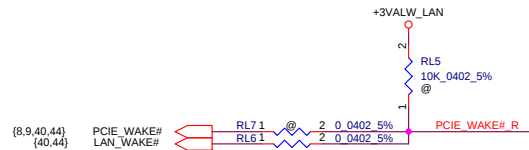
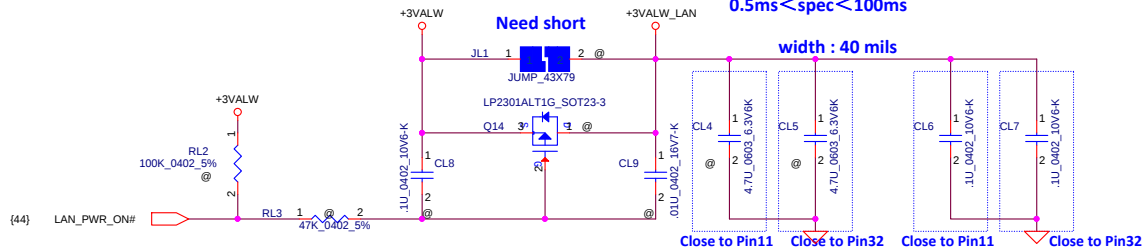
CRT Connector



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Issued Date		2013/08/08		Deciphered Date		2013/08/05		CRT	
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Date:		Monday, December 09, 2013		Sheet		36		of 59	

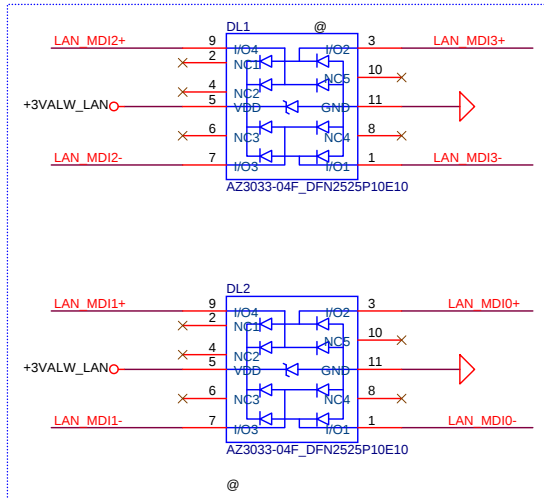
+3VALW TO +3VALW_LAN

+3VALW_LAN rising time (10%~90%):
0.5ms<spec<100ms

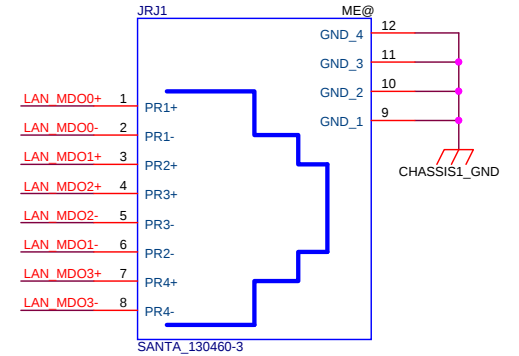
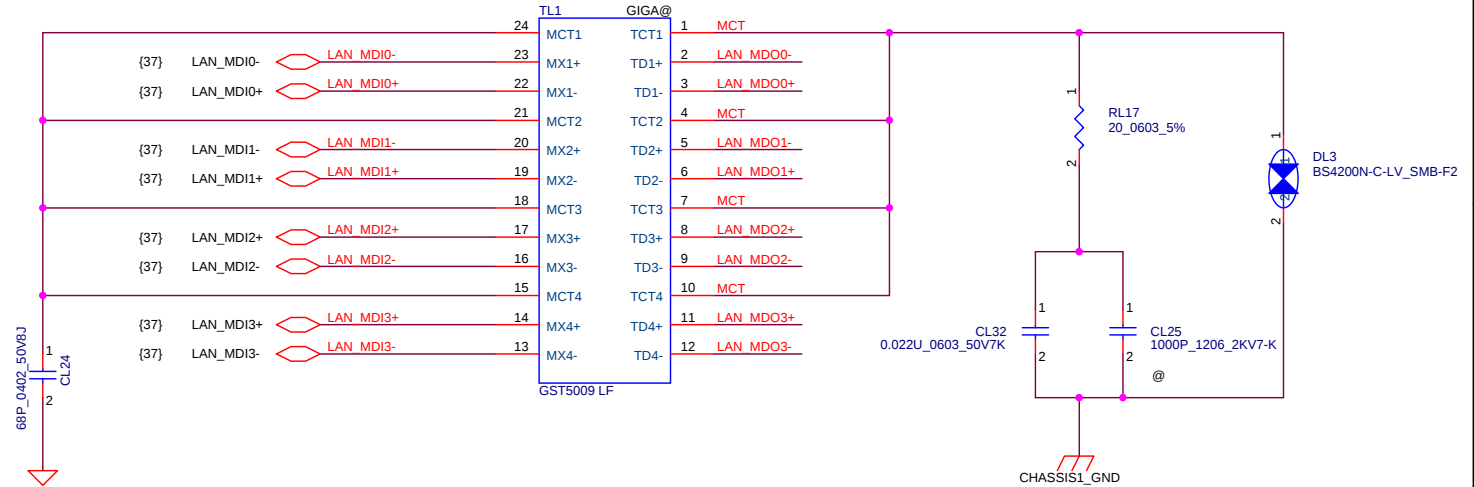
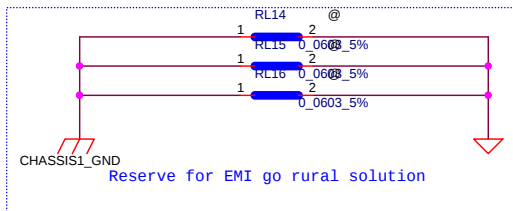


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Issued Date	2013/08/08	Deciphered Date	2013/08/05	Size	Document Number	Rev
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				Date:	Monday, December 09, 2013	Sheet 37 of 59

DL1/DL2
1'S PN:SC300003M00

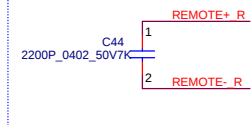


Place Close to TL1

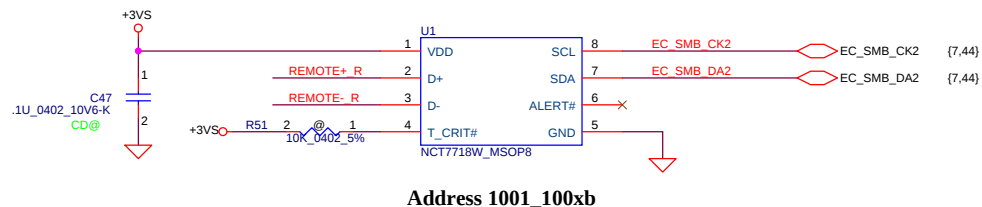


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Issued Date	2013/08/08	Deciphered Date	2013/08/05	LAN_Transformer	
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Close to U1

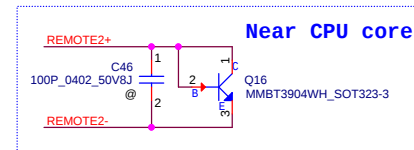


SMSC thermal sensor placed near DIMM

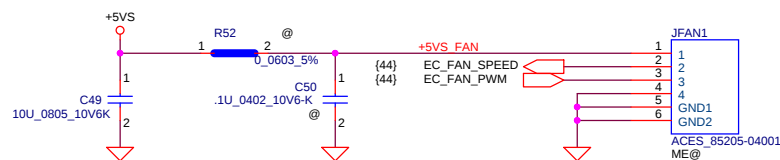


REMOTE2+ R176 1 @ 2 0.0402 5% REMOTE+ R
REMOTE2- R177 1 @ 2 0.0402 5% REMOTE- R

REMOTE+/-_R, REMOTE1+/-, REMOTE2+/-:
Trace width/space:10/10 mil
Trace length:<8"

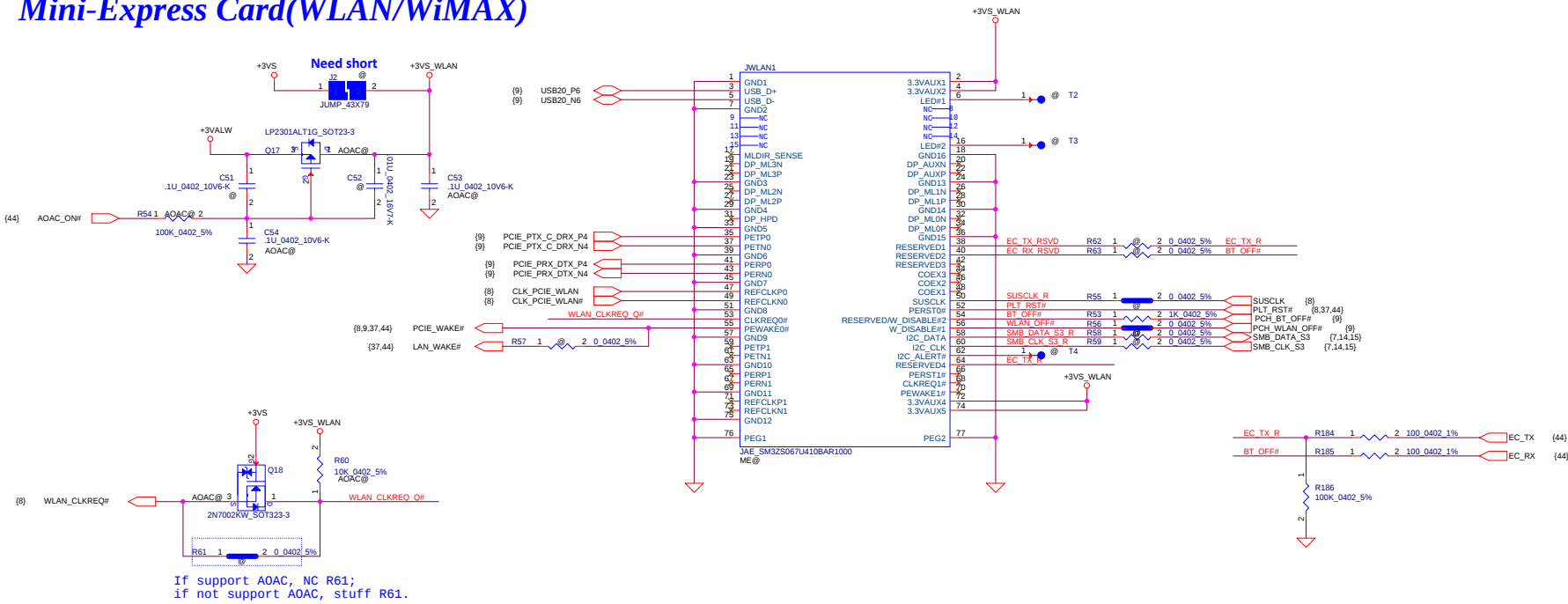


FAN Conn

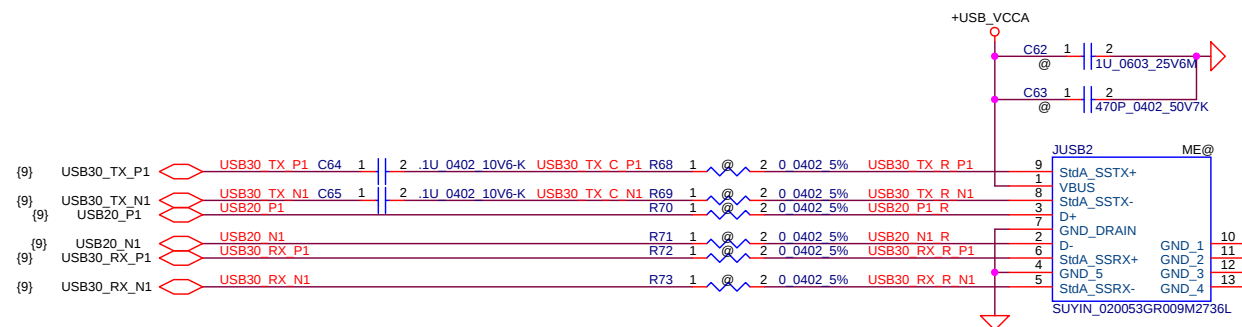
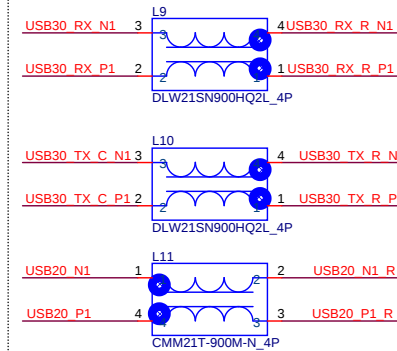
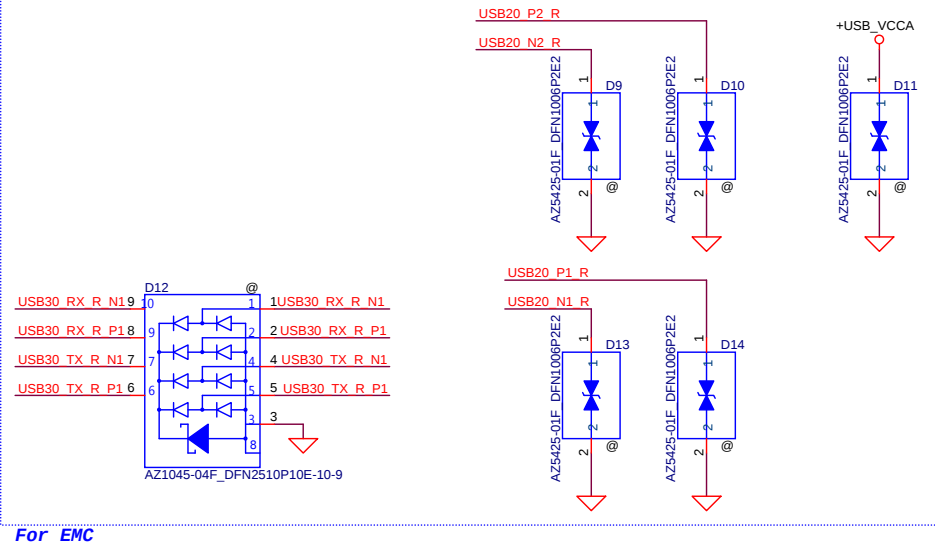
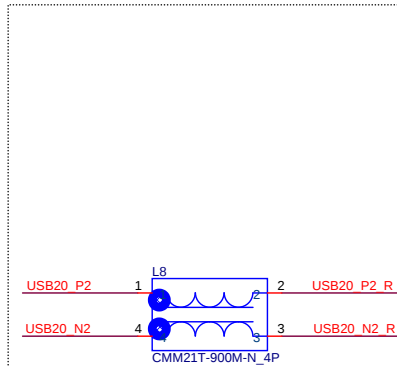
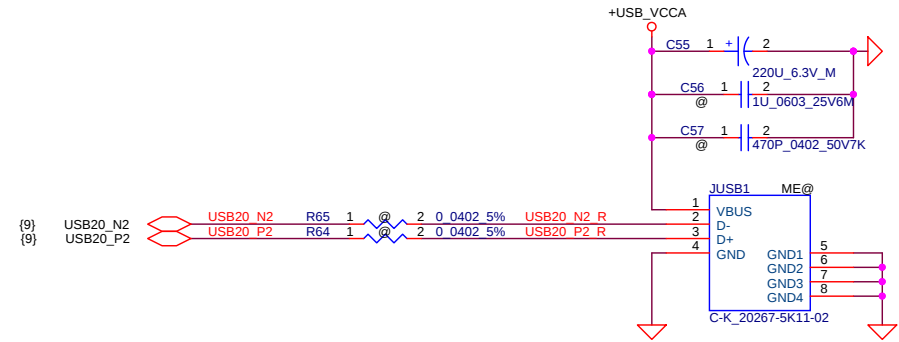
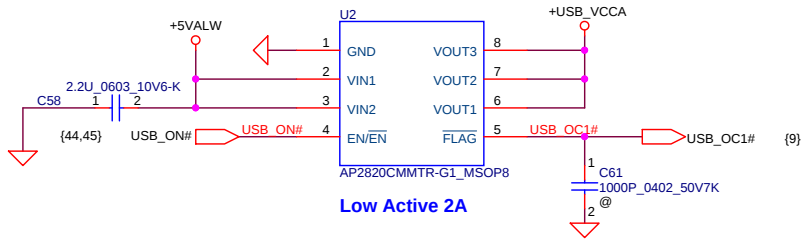


Security Classification	LC Future Center Secret Data			Title	
Issued Date	2013/08/08	Deciphered Date	2013/08/05	Thermal sensor/FAN CONN	
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Date:	Monday, December 09, 2013	Sheet	39	of	59

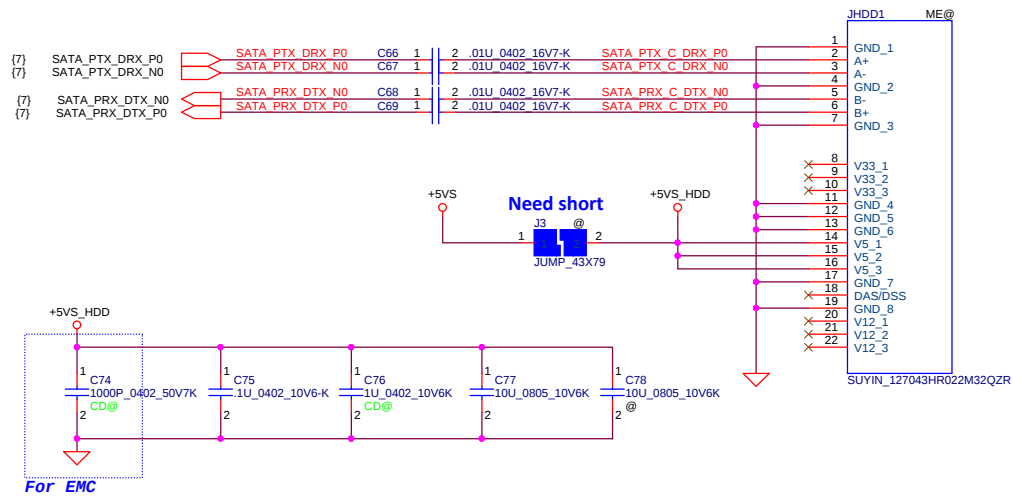
Mini-Express Card(WLAN/WiMAX)



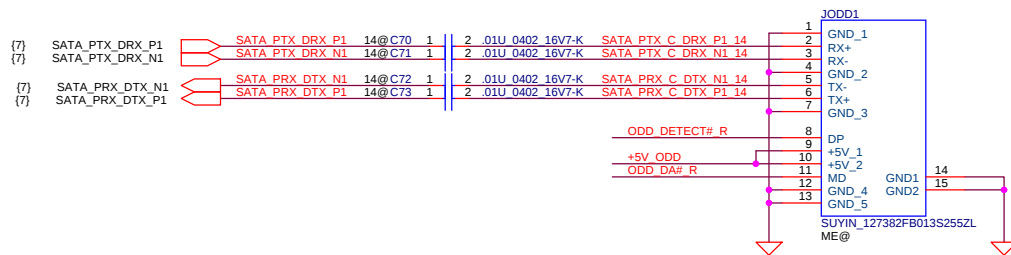
LEFT SIDE USB3.0 PORT X2



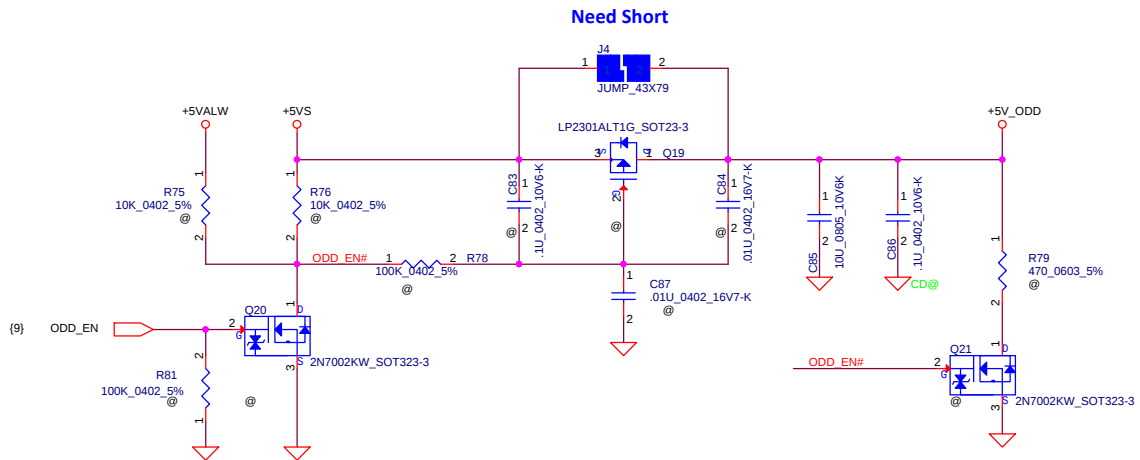
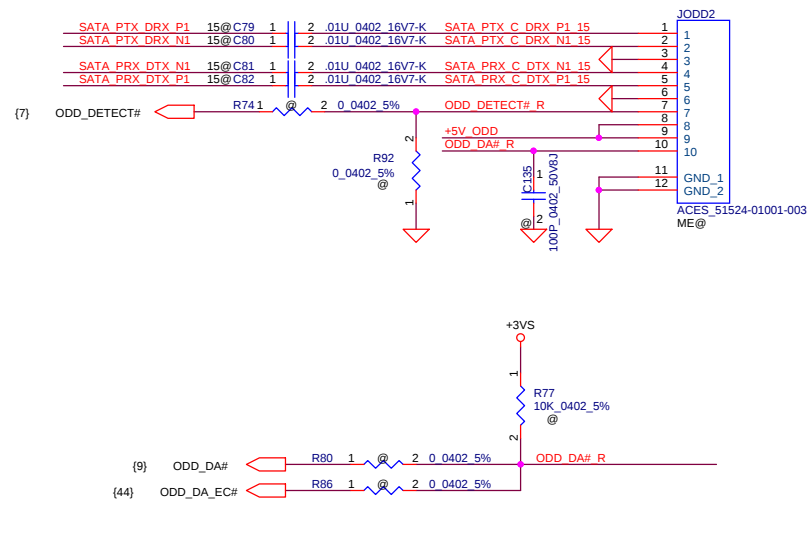
Security Classification	LC Future Center Secret Data			Title	
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SATA HDD Conn.

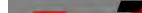
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SATA ODD Conn.

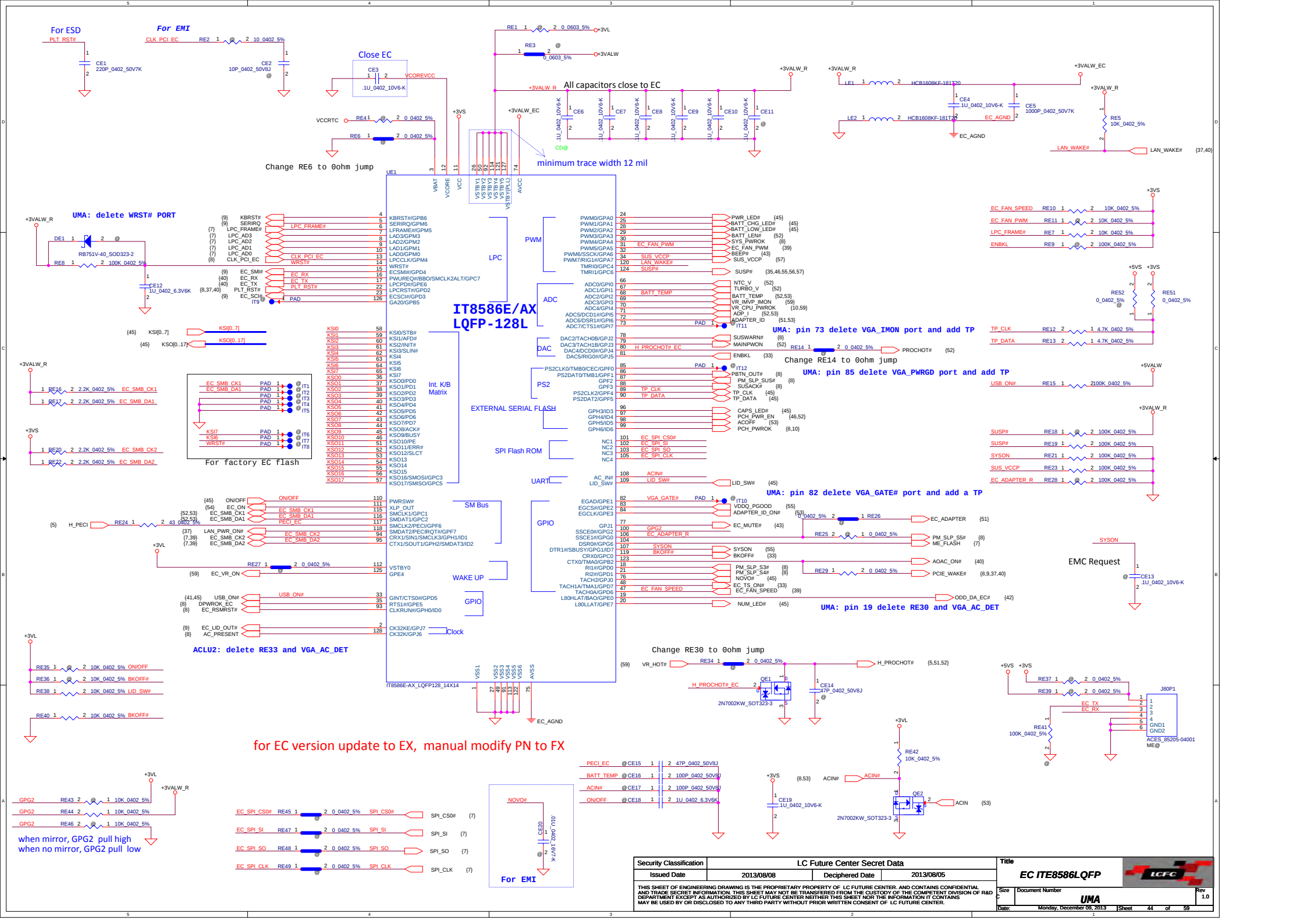


FOR 15"
SATA ODD FFC Conn

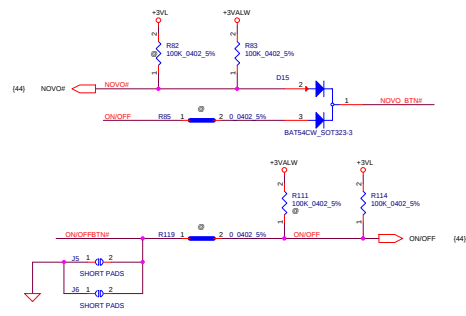


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Title			
HDD/ODD CONN			
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Custom	UMA	1.0	
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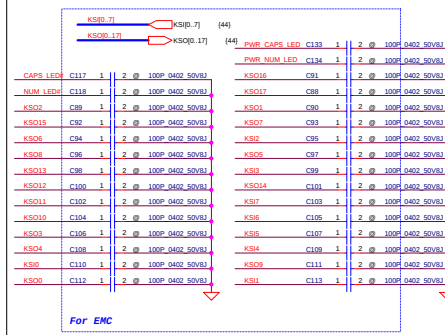


ON/OFF switch

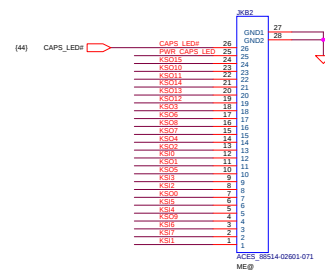


TP/B Connector

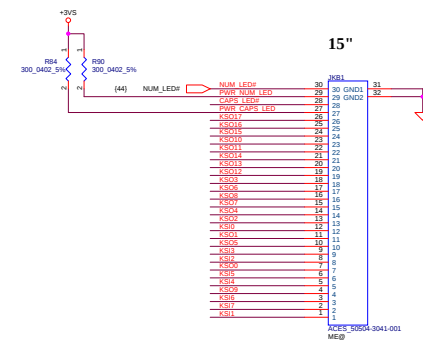
K/B Connector



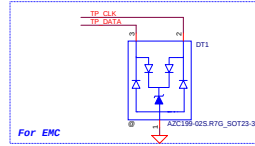
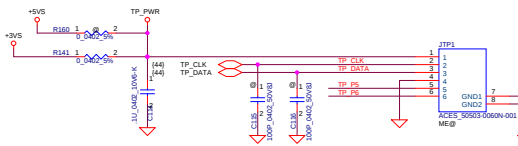
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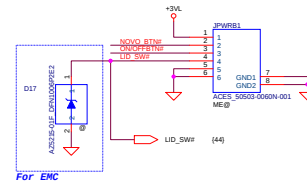
15"



	14"	15"
KB.1	K511.14	K506.15
KB.2	K517.14	K512.15
KB.3	K518.14	K513.15
KB.4	K509.14	K505.15
KB.5	K514.14	K501.15
KB.6	K515.14	K518.15
KB.7	K508.14	K502.15
KB.8	K517.14	K504.15
KB.9	K515.14	K503.15
KB.10	K508.14	K508.15
KB.11	K501.14	K506.15
KB.12	K510.14	K503.15
KB.13	K502.14	K5012.15
KB.14	K504.14	K5013.15
KB.15	K507.14	K5014.15
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KB.18	K503.14	K5015.15
KB.19	K5012.14	K5016.15
KB.20	K5013.14	K5017.15
KB.21	K5014.14	KB_LED_PWR_15
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KB.23	K5010.14	VDD_15
KB.24	K5015.14	NUM_LED_15

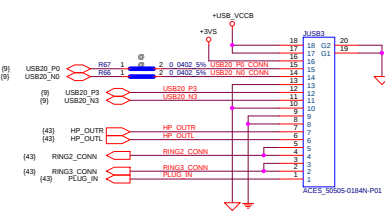
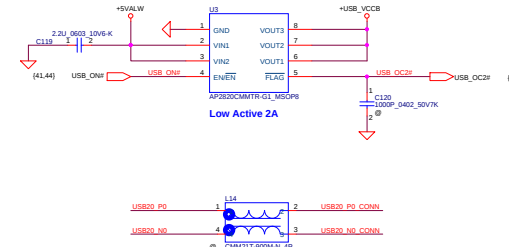


PWR/B Connector

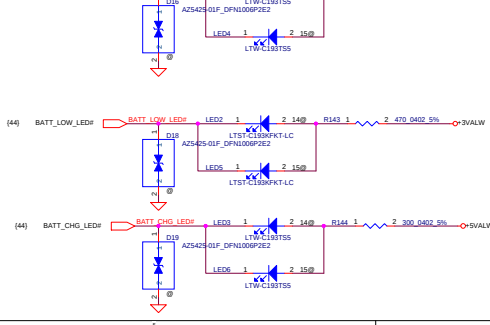


USB I/O Connector

Right Side USB2.0 Port X 1 (USB/B)



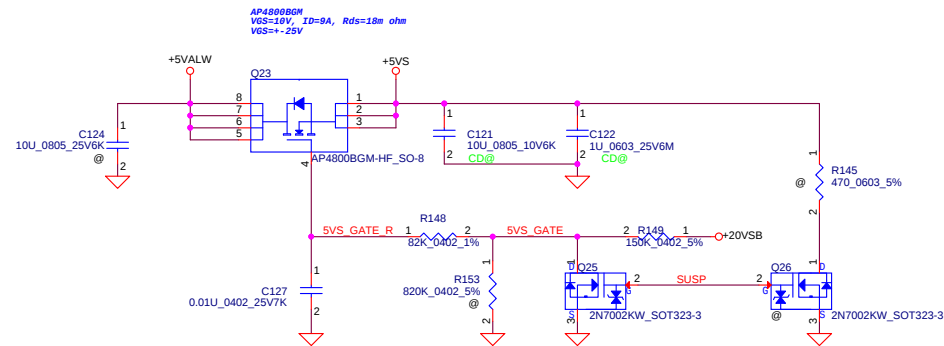
LED



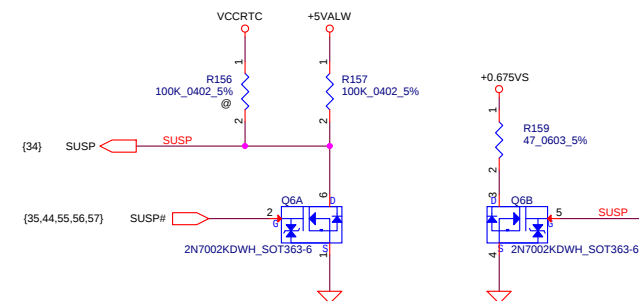
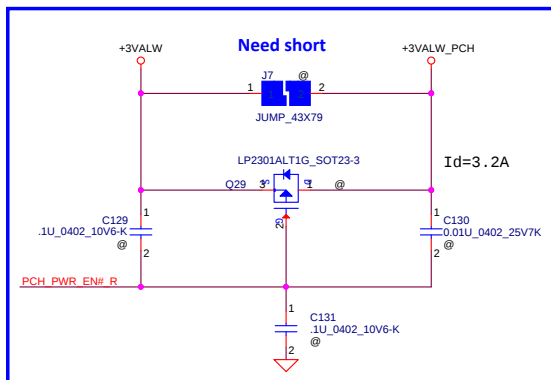
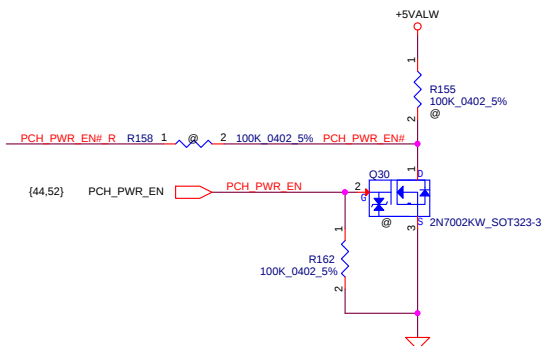
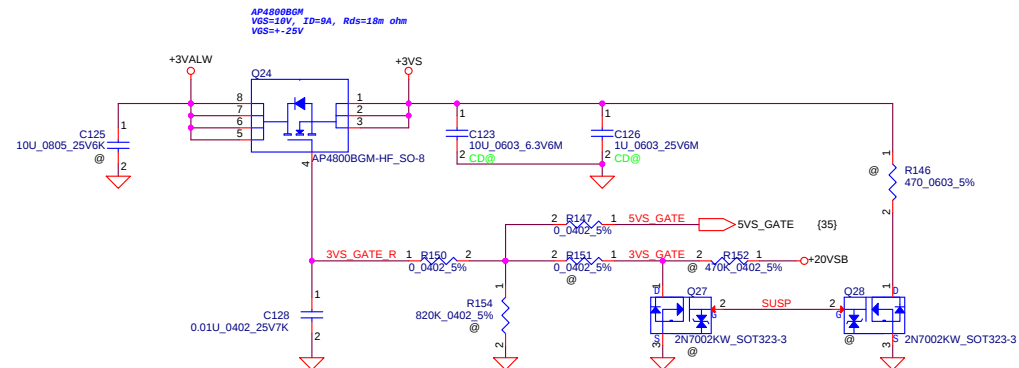
Security Classification	LC Future Center Secret Data		
Issued Date	2013/08/08	Deciphered Date	2013/08/05
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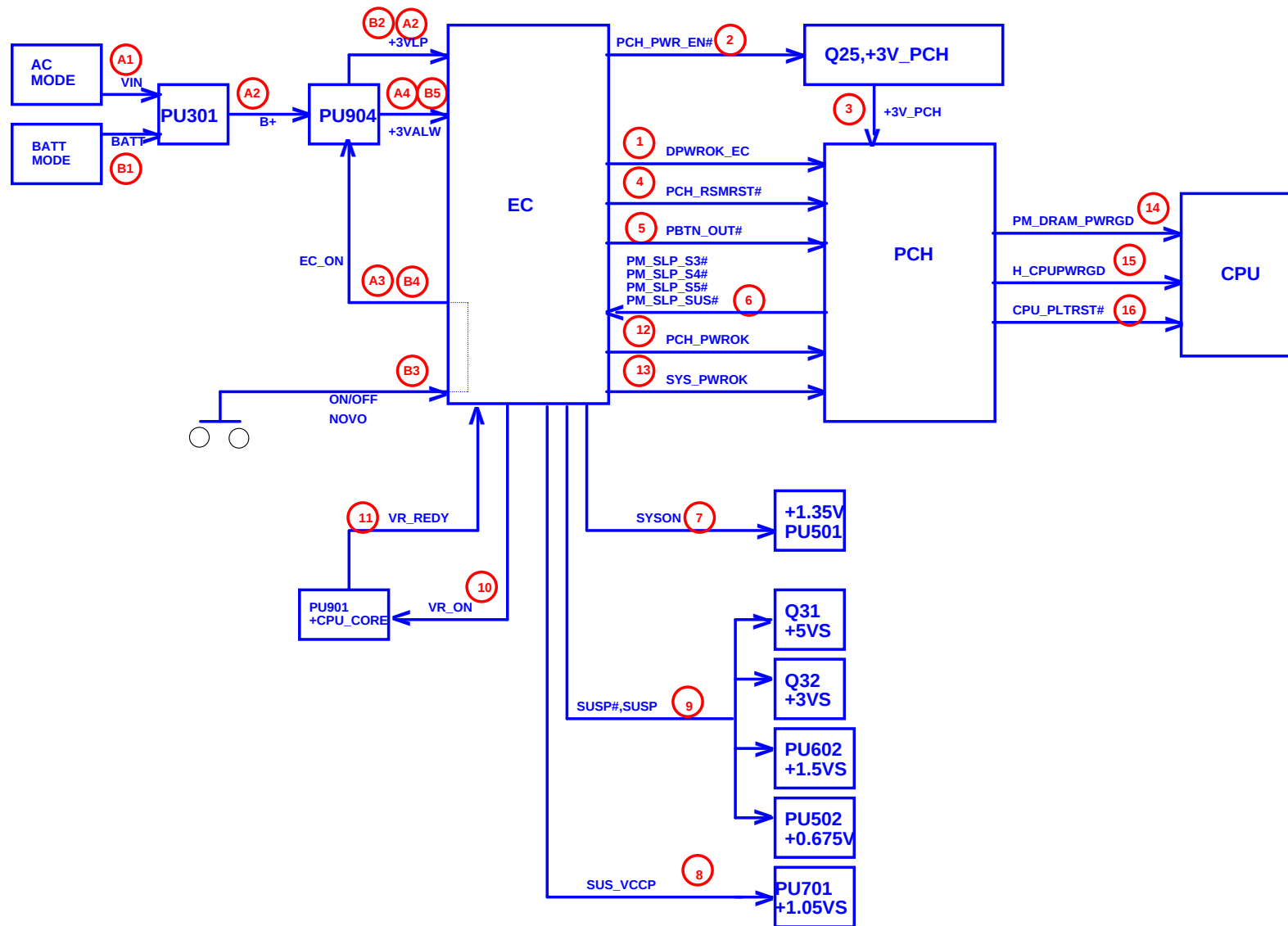
Title		
KBD/PWR/IO/LED/TP Conn.		
Size	Document Number	Rev
Custom	UMA	1.0

+5VALW to +5VS



+3VALW to +3VS





Board ID

BOARD_ID0	BOARD_ID1	BOARD_ID2	BOARD_ID3	Description	Stuff Resistor
0	0	0	0	BDW + Jet-LE sku	RC107,RC108,RC109,RC123
0	0	1	0	BDW + Topaz-XT sku	RC107,RC108,RC102,RC123
0	1	0	0	BDW + N15V-GM sku	RC107,RC101,RC109,RC123
0	1	1	0	BDW + N15S-GT sku	RC107,RC101,RC102,RC123
1	0	0	0	HSW + Jet-LE sku	RC100,RC108,RC109,RC123
1	0	1	0	HSW + Topaz-XT sku	RC100,RC108,RC102,RC123
1	1	0	0	HSW + N15V-GM sku	RC100,RC101,RC109,RC123
1	1	1	0	HSW + N15S-GT sku	RC100,RC101,RC102,RC123
0	0	0	1	BDW + UMA sku	RC107,RC108,RC109,RC121
1	0	0	1	HSW + UMA sku	RC100,RC108,RC109,RC121

