

# LCFC Confidential


## CGx20 M/B Schematics Document

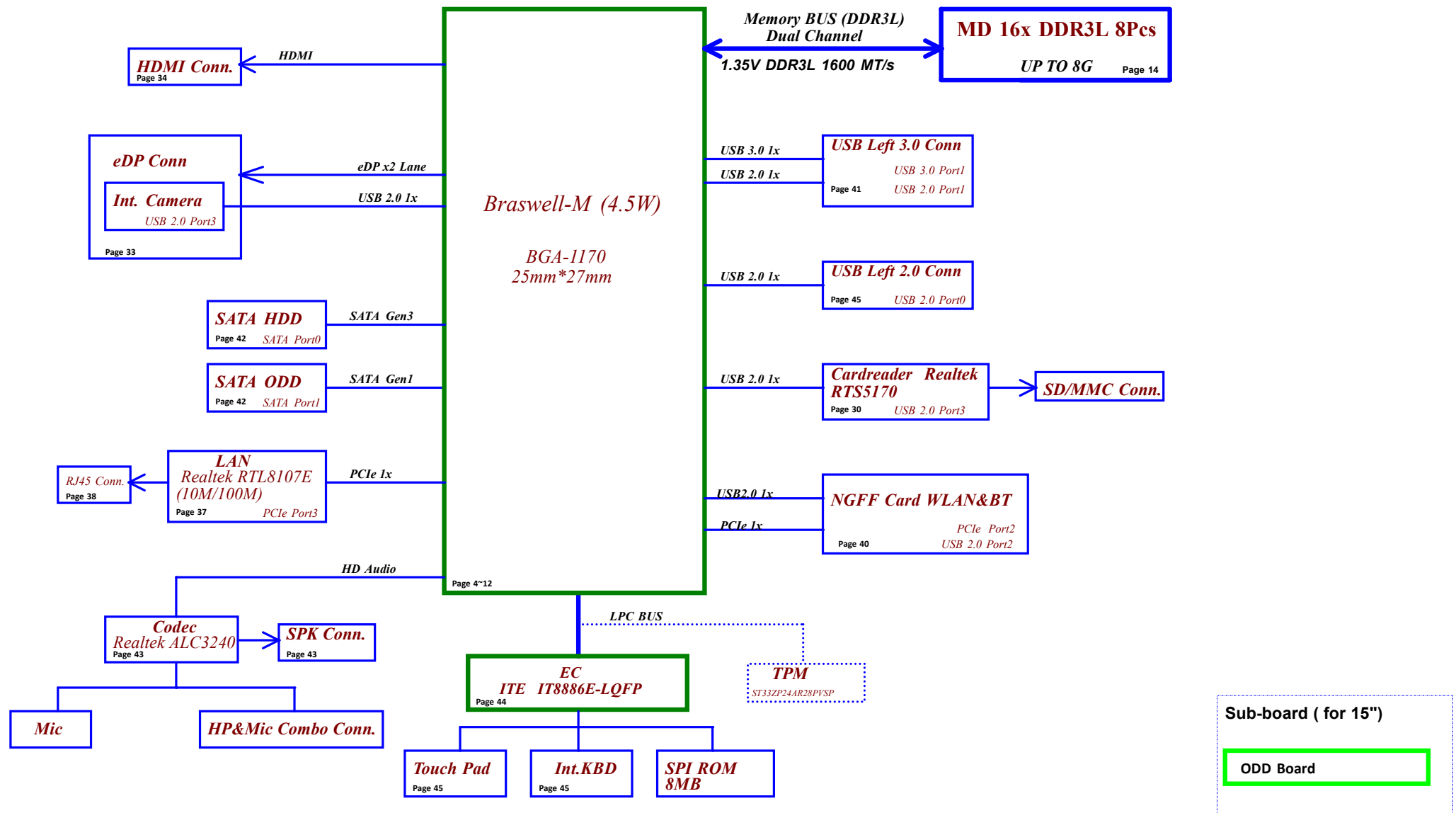
NM-A805 REV:0.1


Intel Braswell M-Processor with DDRIII L

2015-10-09

REV: 0.1

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Issued Date	2015/10/08	Deciphered Date	2015/03/23	Cover Page			
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Issued Date		2015/10/08		Deciphered Date		2015/03/23		Block Diagram		
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Voltage Rails ( 0 --> Means ON , X --> Means OFF )

Power Plane \ State	B+	+3VALW	+3VALW_SOC +1.0VALW	+1.35V	+5VS +3VS +1.5VS  +0.68VS CPU_CORE GFX_CORE
S0	0	0	0	0	0
S3	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#	+VALW	+VALW_PCH	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	ON	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	ON	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	ON	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	ON	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	ON	ON	OFF	OFF	OFF

SMBUS Control Table

	SOURCE	VGA	BATT	IT8986E	SODIMM	WLAN WiMAX	Thermal Sensor	PCH	TP Module	charger
EC_SMB_CK1 EC_SMB_DA1	EC +3VALW	X	V	V +3VALW	X	X	X	X	X	V
EC_SMB_CK2 EC_SMB_DA2	EC +3VS	V +3VGS	X	V +3VS	X	X	V +3VS	X	X	X
PCH_SMB_CLK PCH_SMB_DATA	PCH +3VALW_PCH	X	X	X	V +3VS	V +3VS	X	V +3VALW_PCH	X	X

EC SM Bus1 address		EC SM Bus2 address		PCH SM Bus address	
Device	Address	Device	Address	Device	Address
Smart Battery	0001 011X b	Thermal Sensor EMC1403-2	1001_100xb(reserve)	DDR DIMMA	1010 000Xb
Charger	need to update	VGA	0x9E(base on NV default)	Wlan	Rsvd
				TP	need to update

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

XHCI	Port	Port device
USB 3.0	0	USB Port (Left Side)
	1	USB3.0 Card Reader
USB 2.0	0	USB Port (Left Side)
	1	USB Port (Right Side)
	2	BT
	3	Camera
	4	USB Port (Right Side)
USB HUB	1	
	2	
	3	
	4	

Vinafix

PCIE PORT LIST


Port	Device
1	Discrete GPU
2	Discrete GPU
3	WLAN
4	LAN
5	
6	
7	
8	

BOM Structure Table

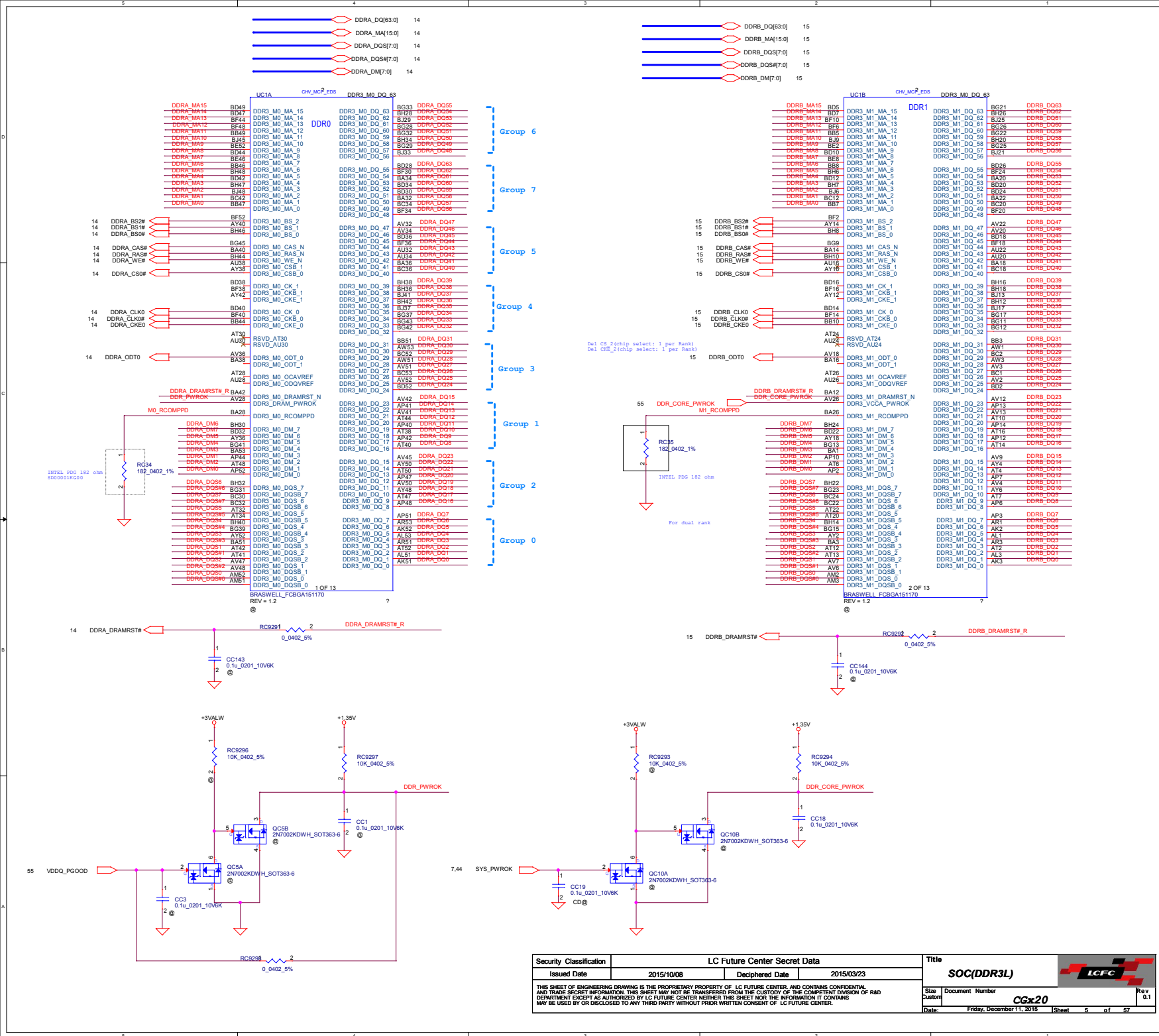
BOM Structure	BTO Item
AOAC@	AOAC support part
OPT@	GPU Part
UMA@	UMA SKU ID part
14@	For 14" part
15@	For 15" part
100M@	100M LAN part
N15SGT@	N15SGT Part
N15VGM@	N15GSM Part
GIGA@	GIGA LAN Part
GC6@	GPU GC6 Part
TS@	Touch Screen part
RANKA@	GPU VRAM RANKA PART
RANKB@	GPU VRAM RANKB PART
ME@	Connector
CD@	COST DOWN
@	Not stuff
H4T@	Hynix VRAM Part
M4T@	Micron VRAM Part
S4T@@	Samsung VRAM Part

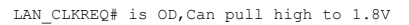
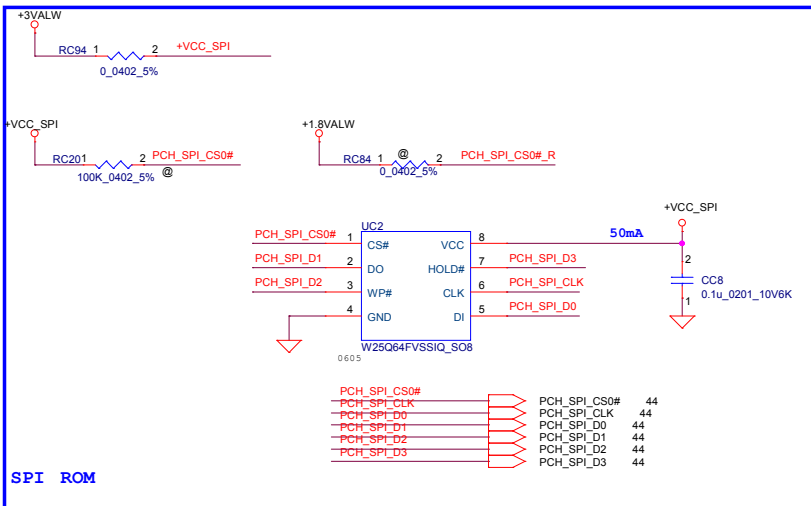
DDI PORT LIST


Port	Device
DDI0	DP TO VGA
DDI1	eDP
DDI2	HDMI

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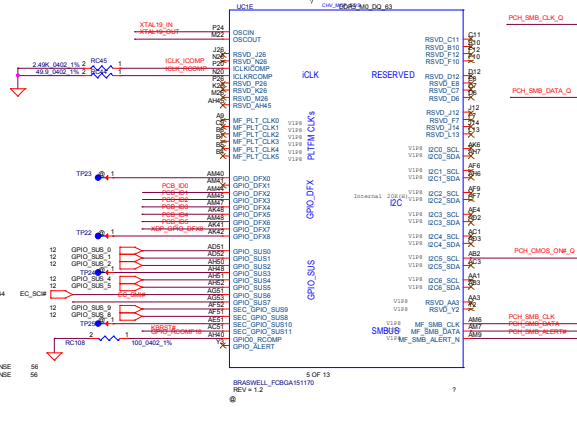
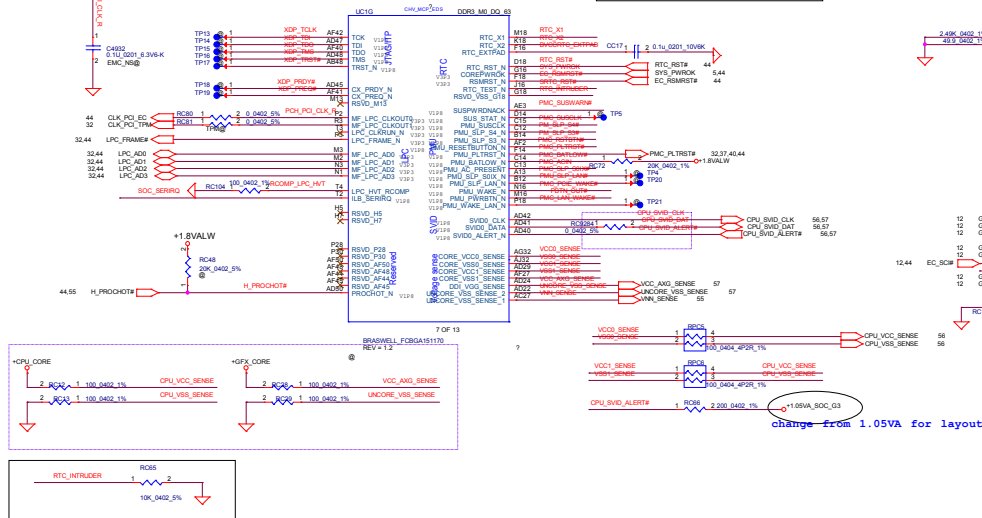
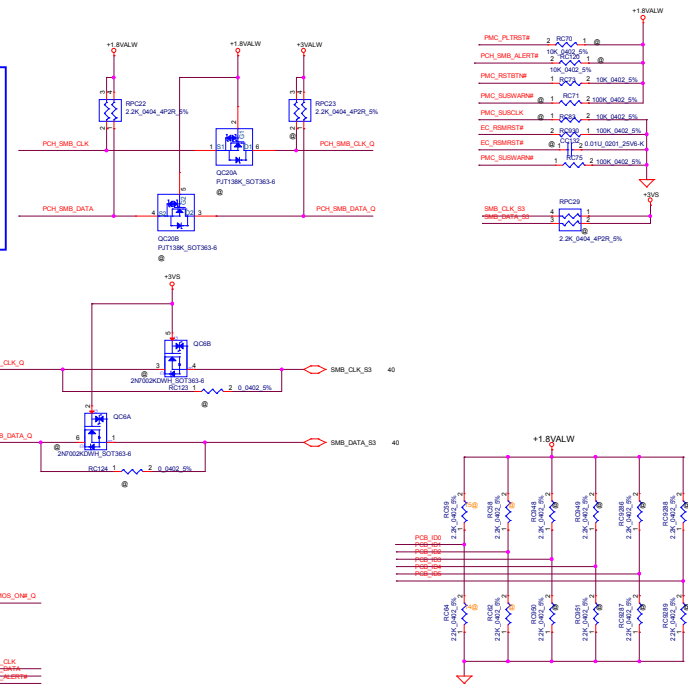
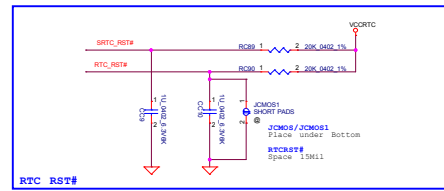
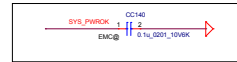
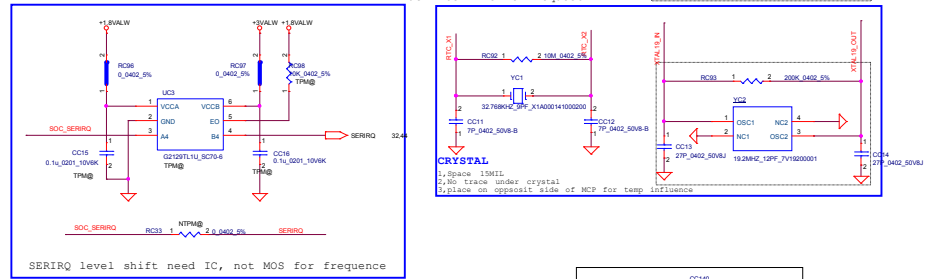




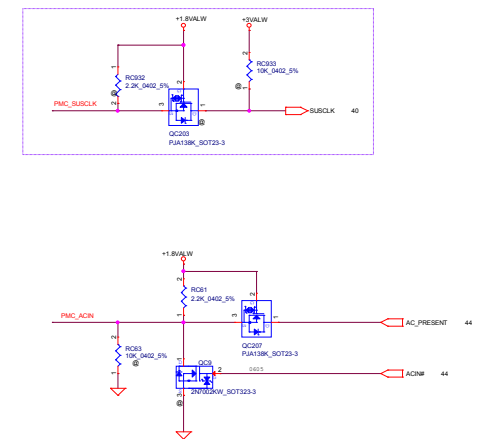
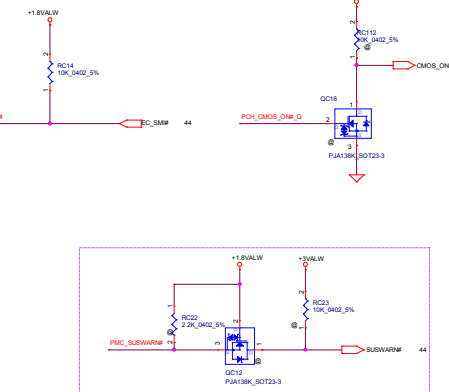
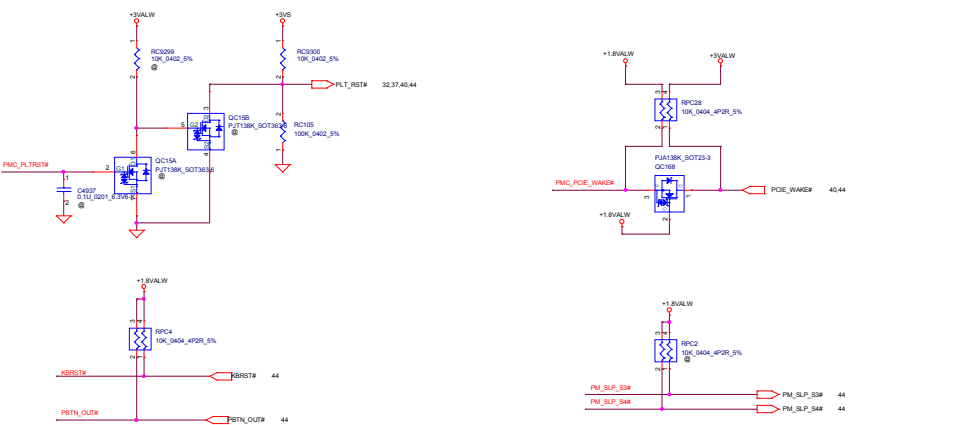


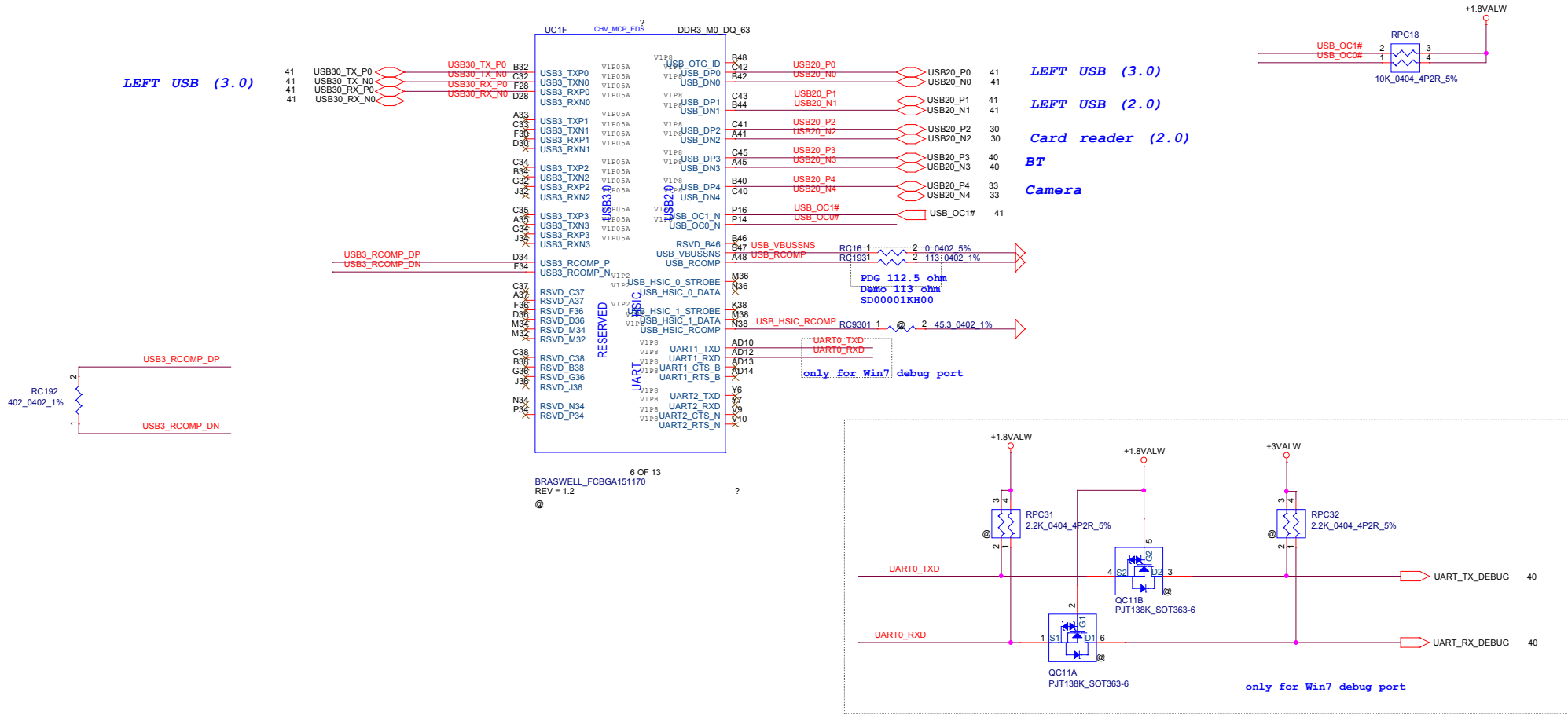
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32.768K need change to SJ10000IM05
as intel EDS New request
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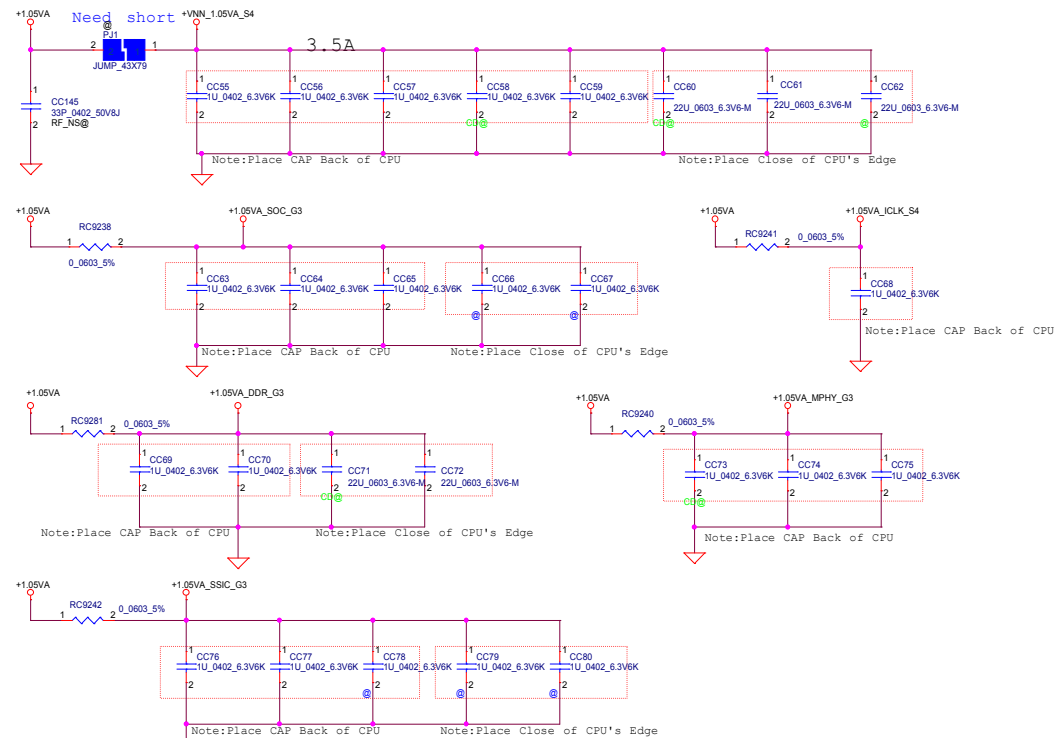
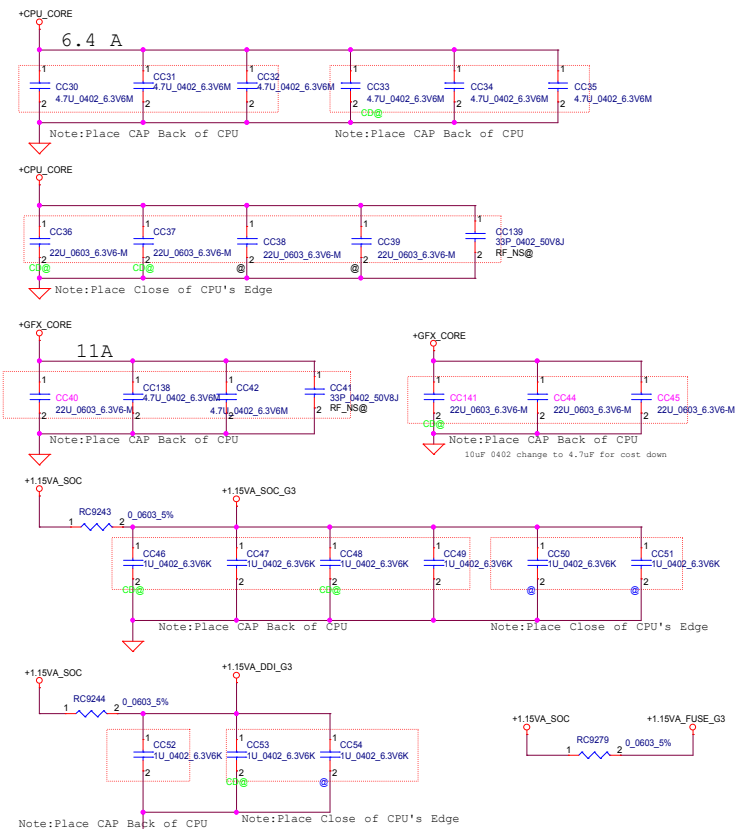
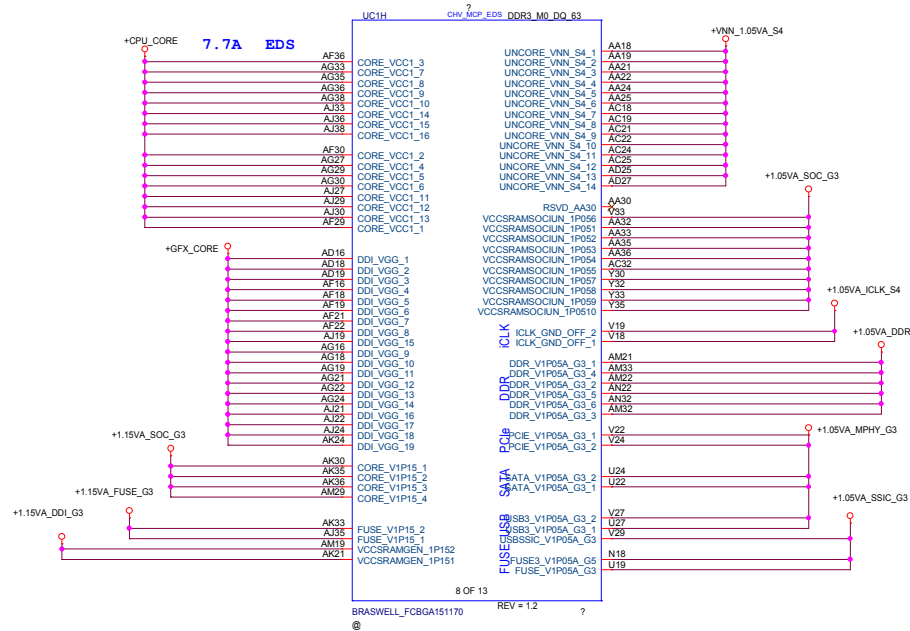



PCB ID						Description
PCW 104	PCW 101	PCW 102	PCW 103	PCW 104	PCW 105	Description
0	X	X	X	X	Resistor	14" 2002
1	X	X	X	X	Resistor	15" 2002
0	X	X	X	X	Resistor	single channel DBM CMR
0	1	X	X	X	Resistor	dual channel DBM CMR and CMR
X	X	0	0	1	Resistor	Sampling 4218K412412-2002
X	0	0	0	1	Resistor	Myrica 4218C02C4239-FinA
X	X	0	1	1	Resistor	Myrica 4218C4123005-670-107-01
X	X	0	0	1	Resistor	Myrica 4218C4123043200-2004
X	X	1	0	1	Resistor	Myrica 4218C412306-60A-171-01

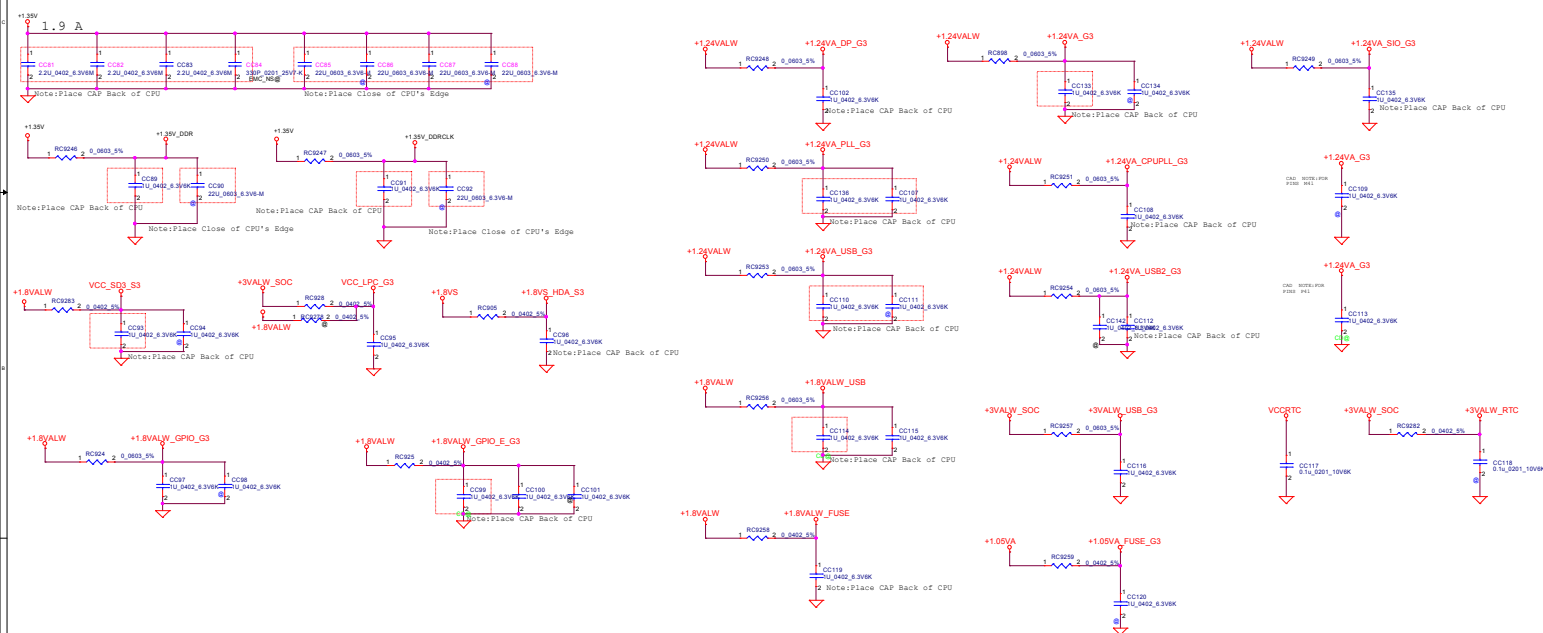
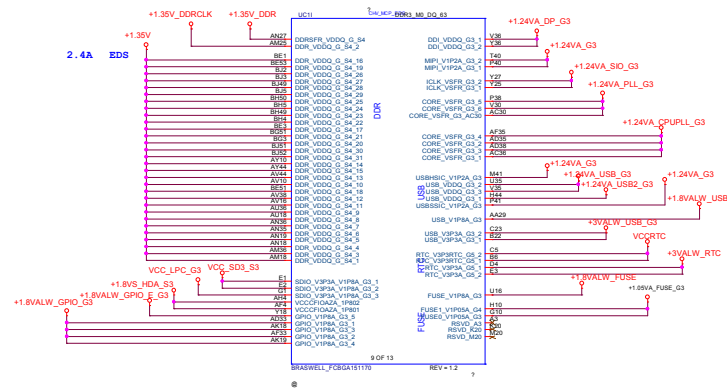






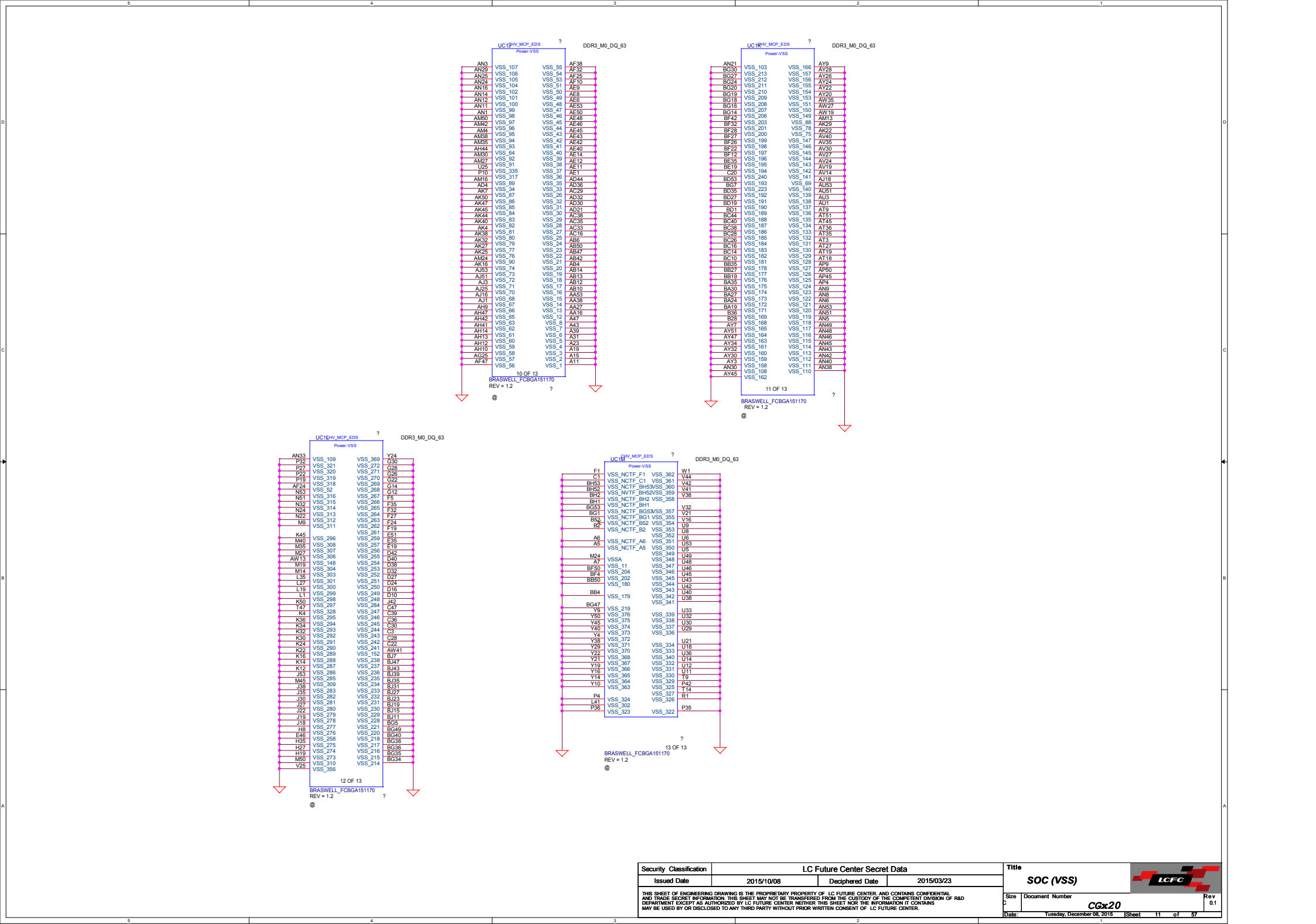


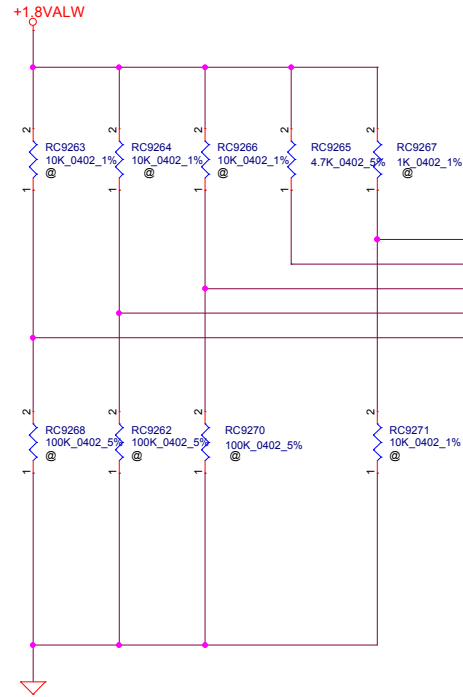
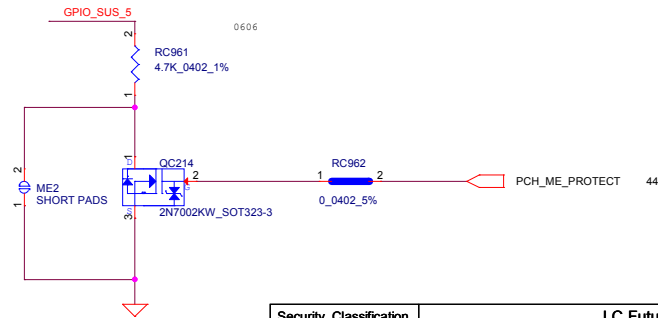
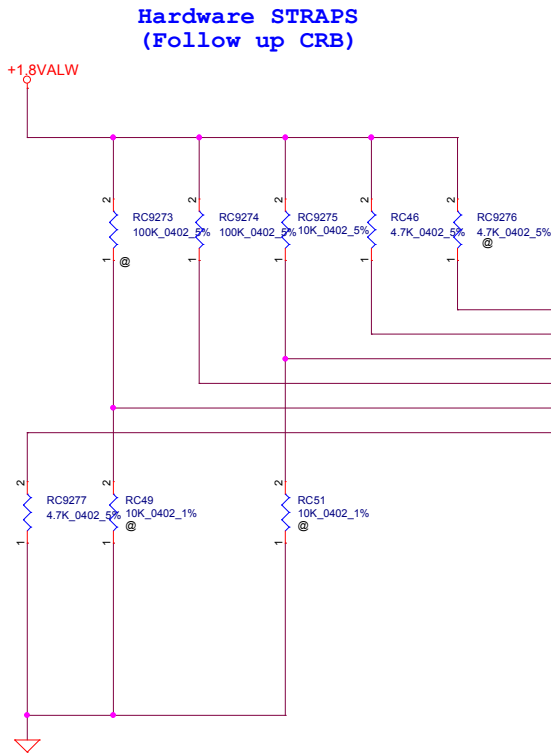


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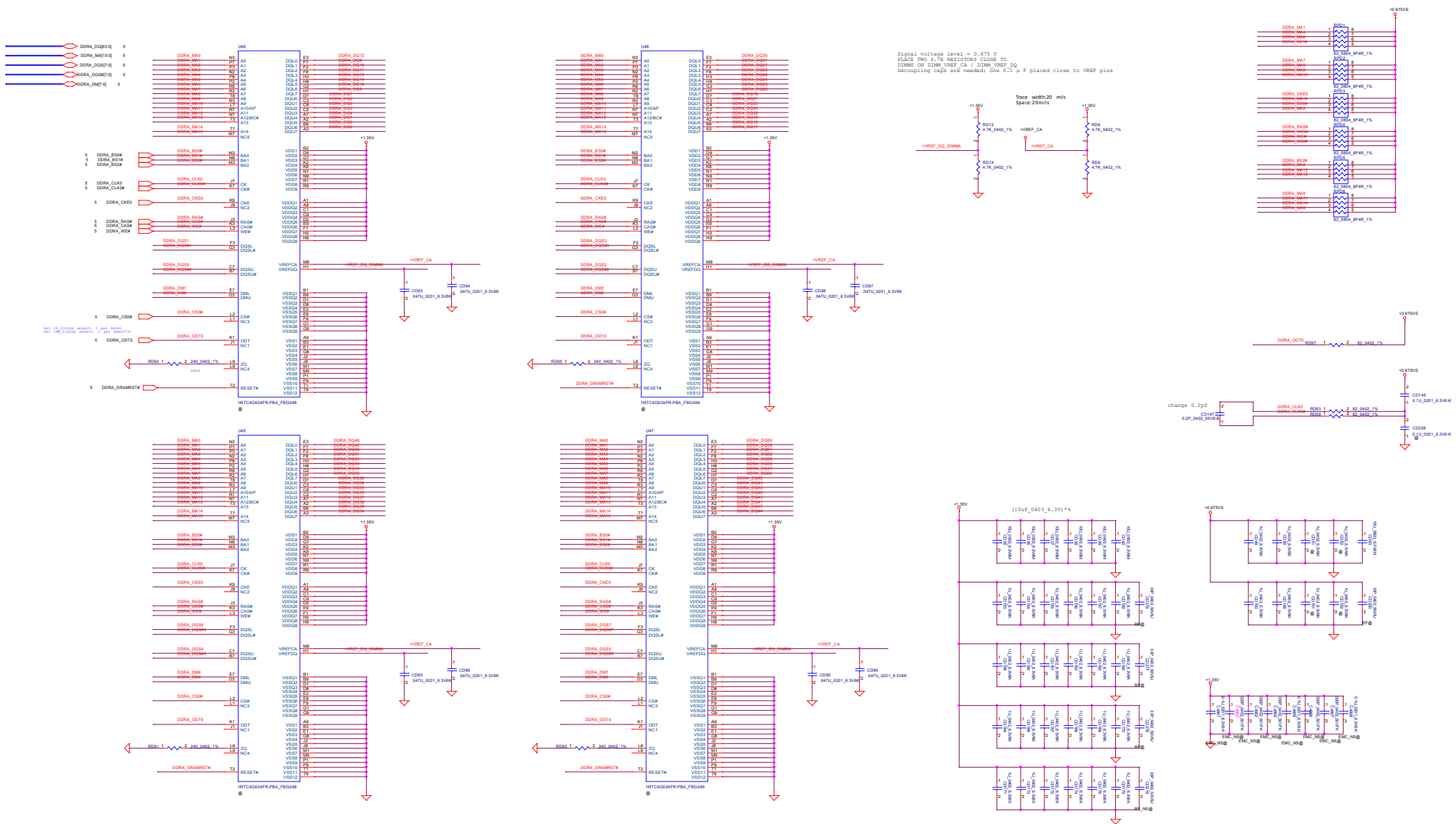



Signal Name	Purpose	Pull-Up/Pull-Down	Strap Description
GPIO_SUS[0]	DDI0 Detect	Weak internal (20k PD)	0 = DDI0 not detected 1 = DDI0 detected
GPIO_SUS[1]	DDI1 Detect	Weak internal (20k PD)	0 = DDI1 not detected 1 = DDI1 detected
GPIO_SUS[2]	Top Swap (A16) override	Weak internal (20k PU)	0 = Change Boot Loader address 1 = Normal Operation
GPIO_SUS[3]	MIPI-DSI Display Detect	Weak internal (20k PD)	0 = DSI Port not detected 1 = DSI Port detected <b>Note:</b> DSI is not POR for BSW. This strap will not enable DSI on BSW. Leave the pin floating if GPIO functionality is not used.
GPIO_SUS[4]	Boot BIOS Strap (BBS)	Weak internal (20k PU)	0 = No SPI (Default) 1 = SPI
GPIO_SUS[5]	Flash Descriptor Security Override	Weak internal (20k PU)	0 = Not supported 1 = Normal Operation
GPIO_SUS[6]	Halt Boot Strap	Weak internal (20k PU)	1 = Normal Operation <b>Note:</b> This strap <b>MUST</b> be High at RSMRST_N de-assert to ensure proper platform operation and use of GPIO_DFX[8:0]
GPIO_SUS[8]	PLLs, ICLK, USB2, DDI SFR Supply Select	Weak internal (20k PU)	0 = Supply is 1.25V 1 = Supply is 1.35V
GPIO_SUS[9]	ICLK, USB2, DDI SFR Bypass	Weak internal (20k PD)	0 = No bypass 1 = Bypass with 1.05V
GPIO_CAMERASB08	ICLK Xtal OSC Bypass	Weak internal (20k PD)	0 = No Bypass (Default) 1 = Bypass
GPIO_CAMERASB09	CCU SUS RO Bypass	Weak internal (20k PD)	0 = No Bypass (Default) 1 = Bypass
GPIO_CAMERASB11	RTC OSC Bypass	Weak internal (20k PD)	0 = No Bypass (Default) 1 = Bypass

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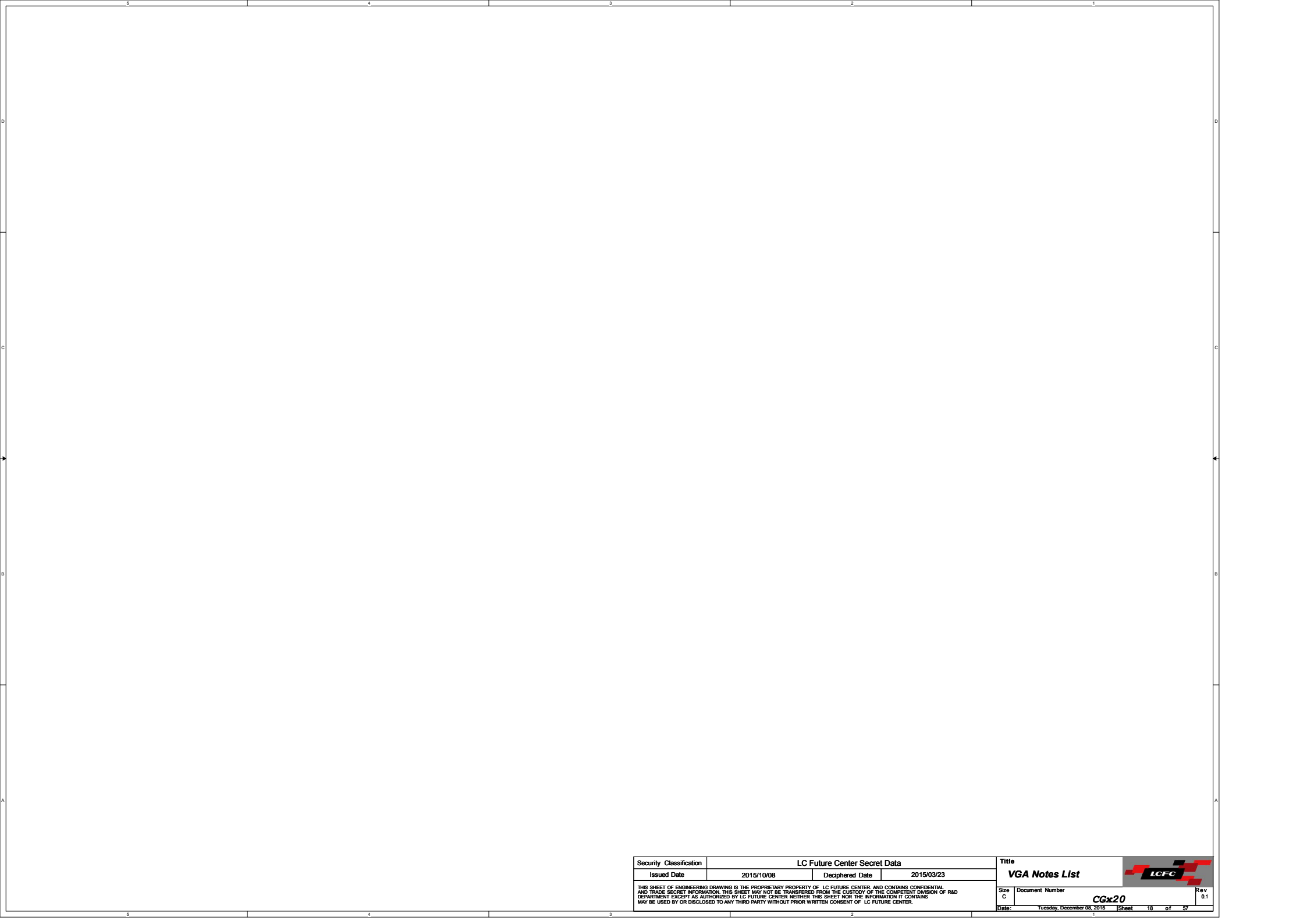
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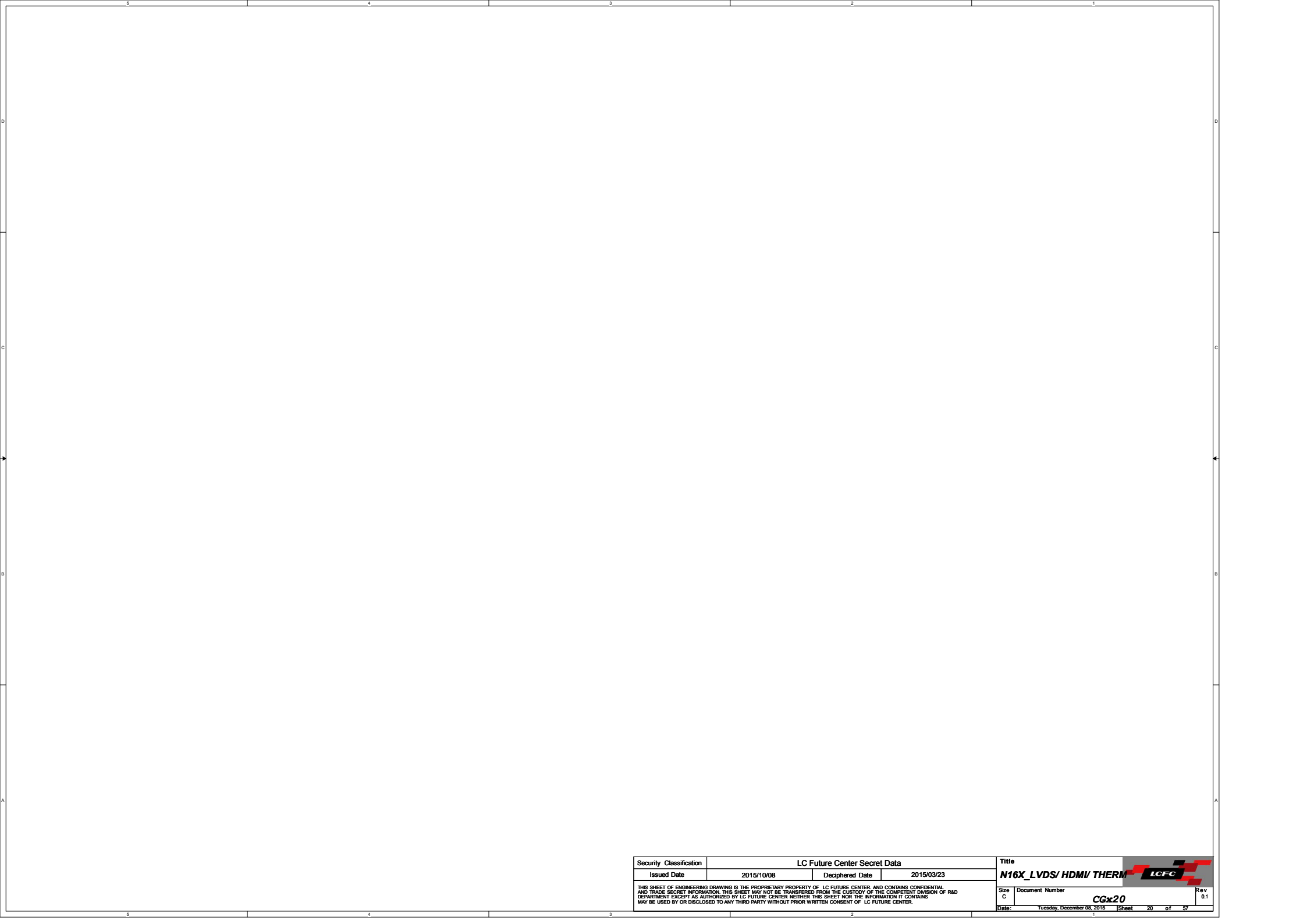
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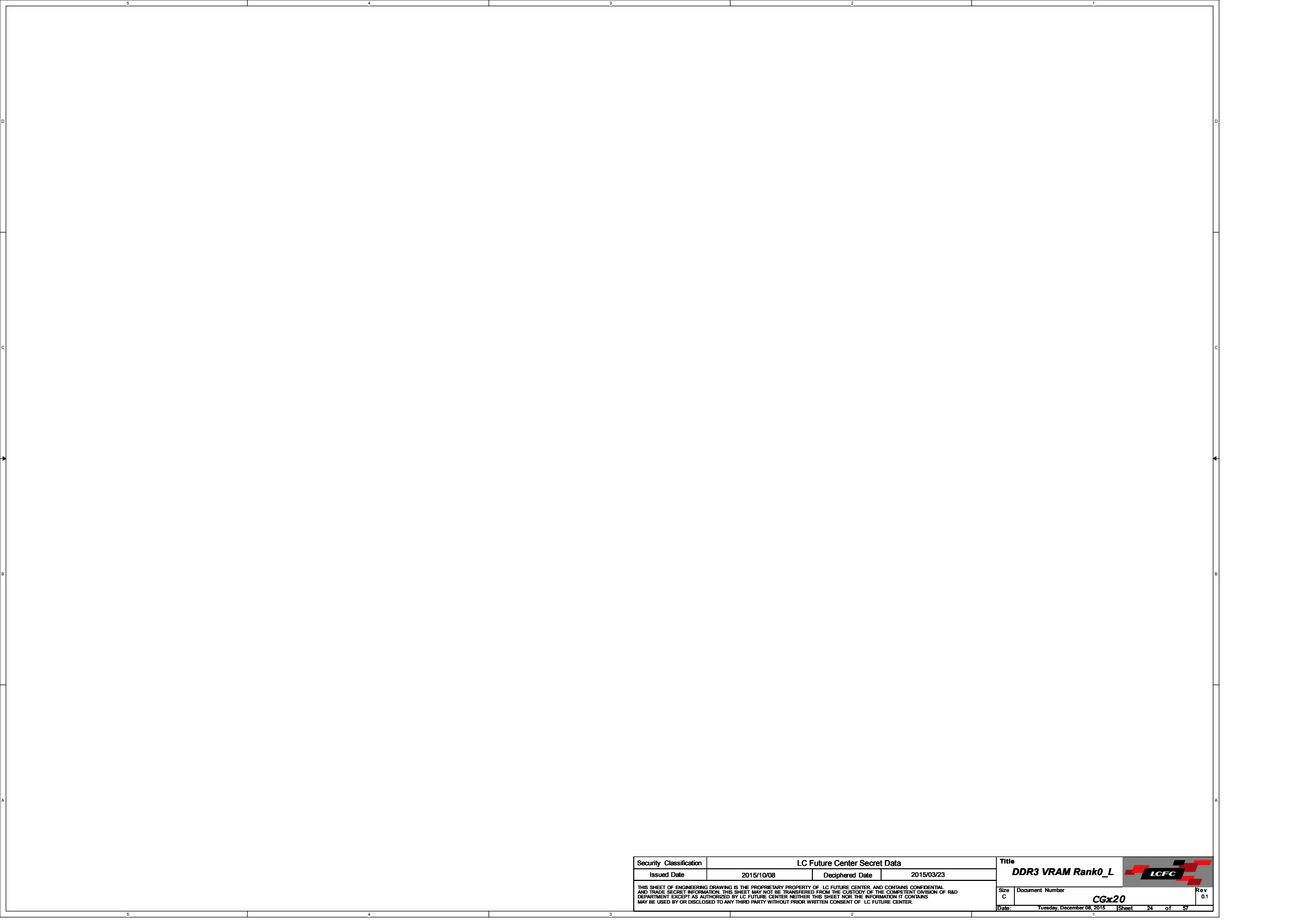


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Issued Date		2015/10/08	Deciphered Date	2015/03/23	<b>N16X_LVDS/ HDMI/ THERM</b> 
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Date: Tuesday, December 08, 2015		Sheet		20	of 57



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Date: Tuesday, December 08, 2015				Sheet 22 of 57																										
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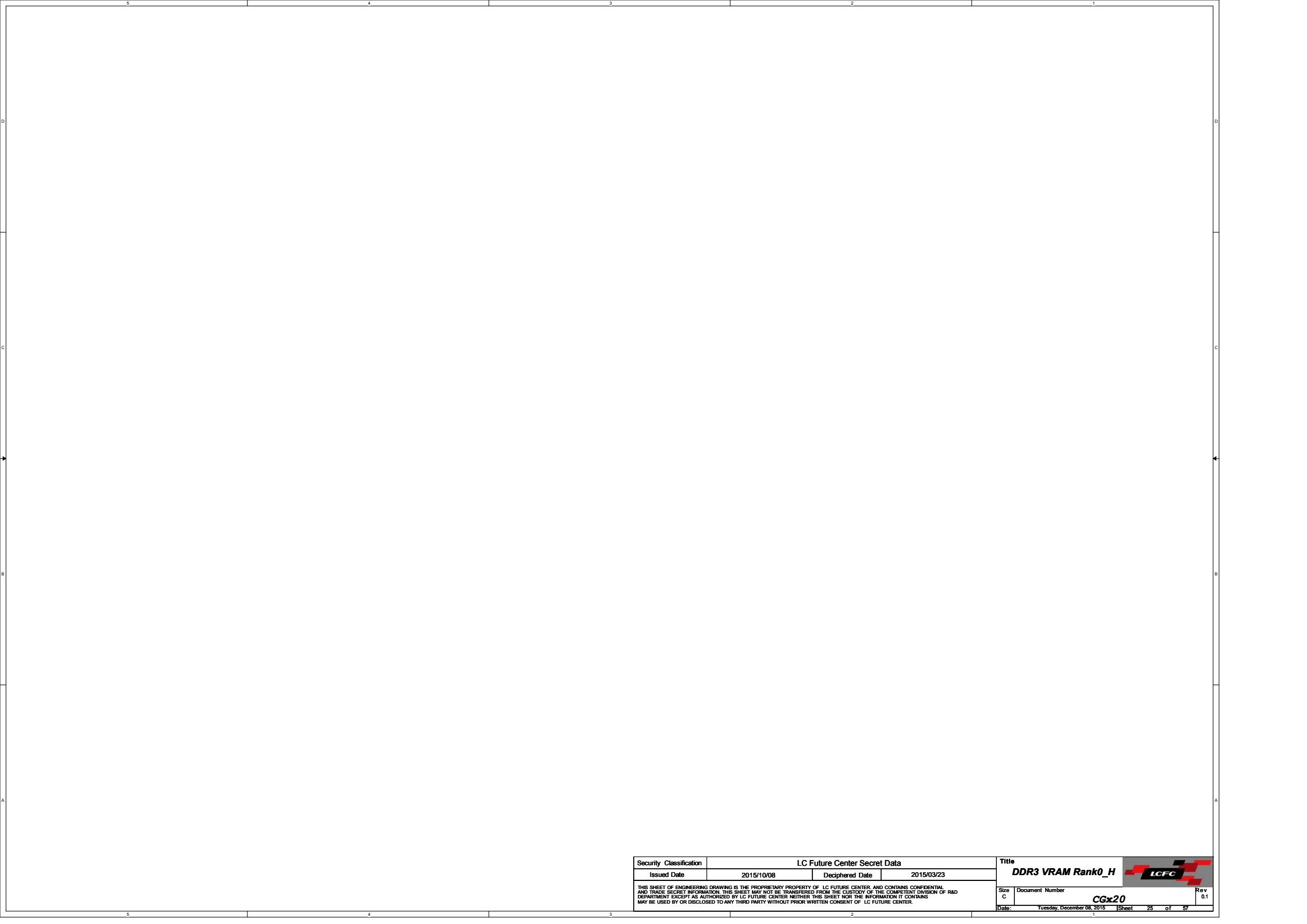




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Issued Date		2015/10/08	Deciphered Date	2015/03/23	DDR3 VRAM Rank0_L
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Date:		Tuesday, December 08, 2015		Sheet	24 of 57

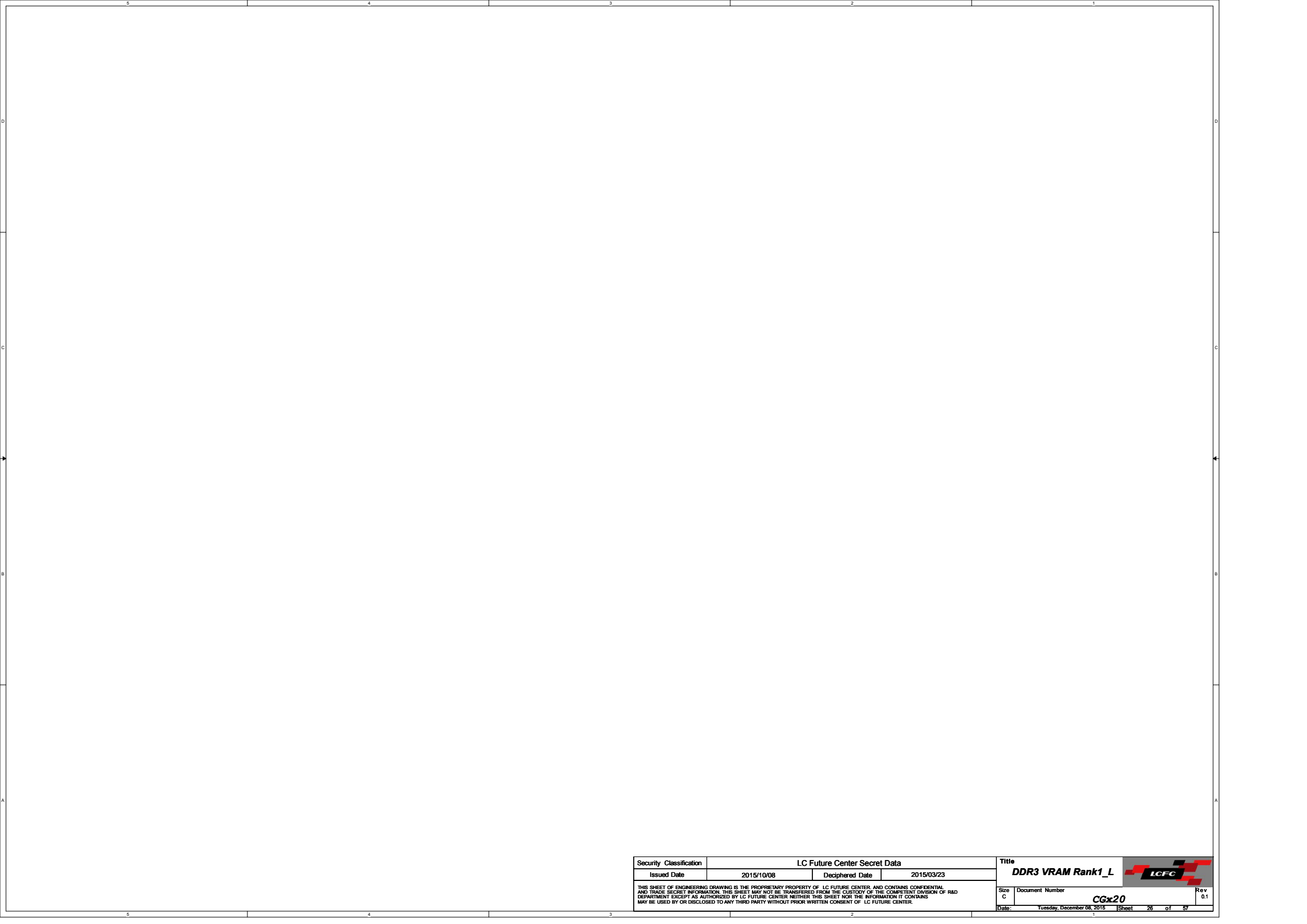





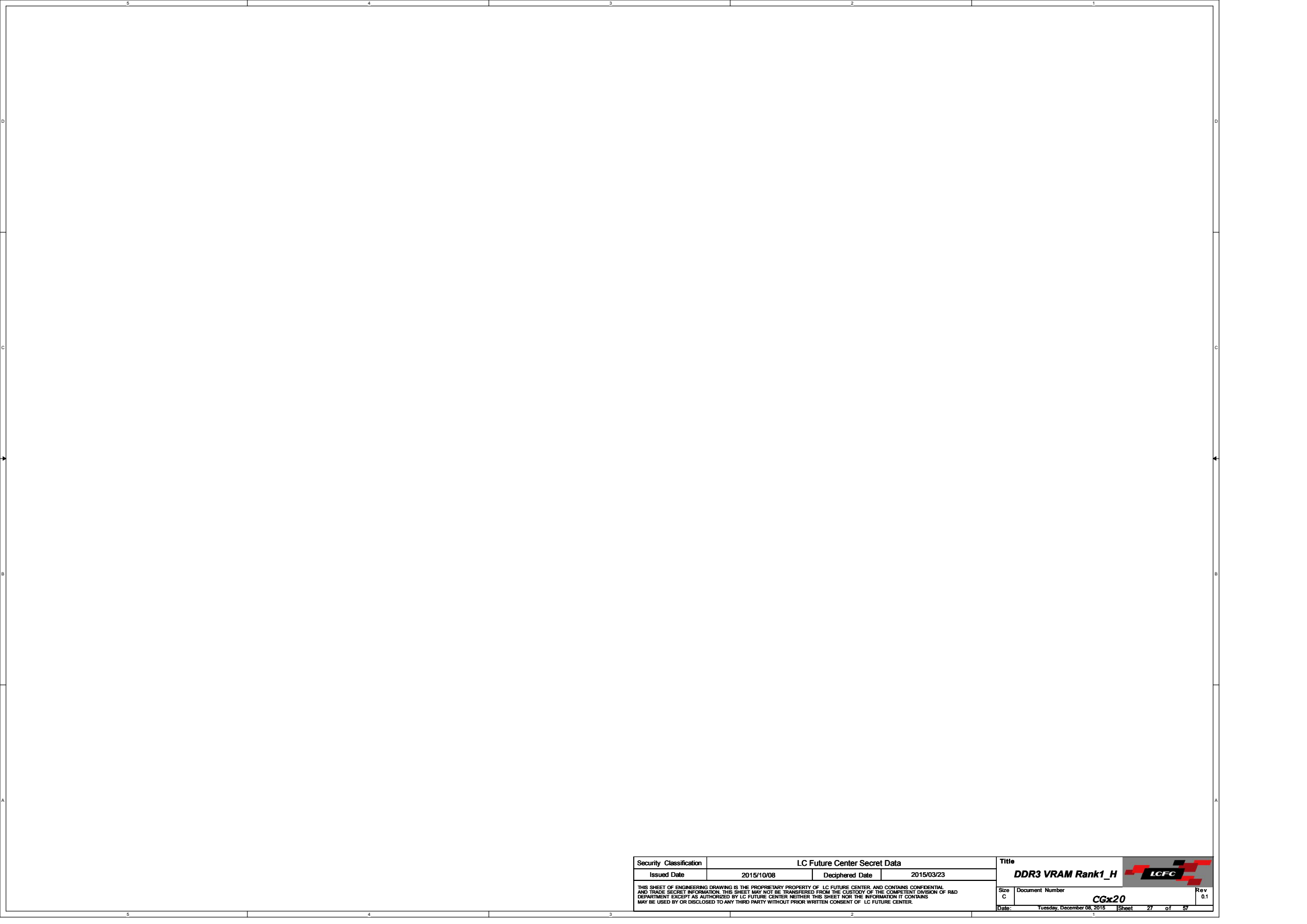


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Date:		Tuesday, December 08, 2015		Sheet	25 of 57



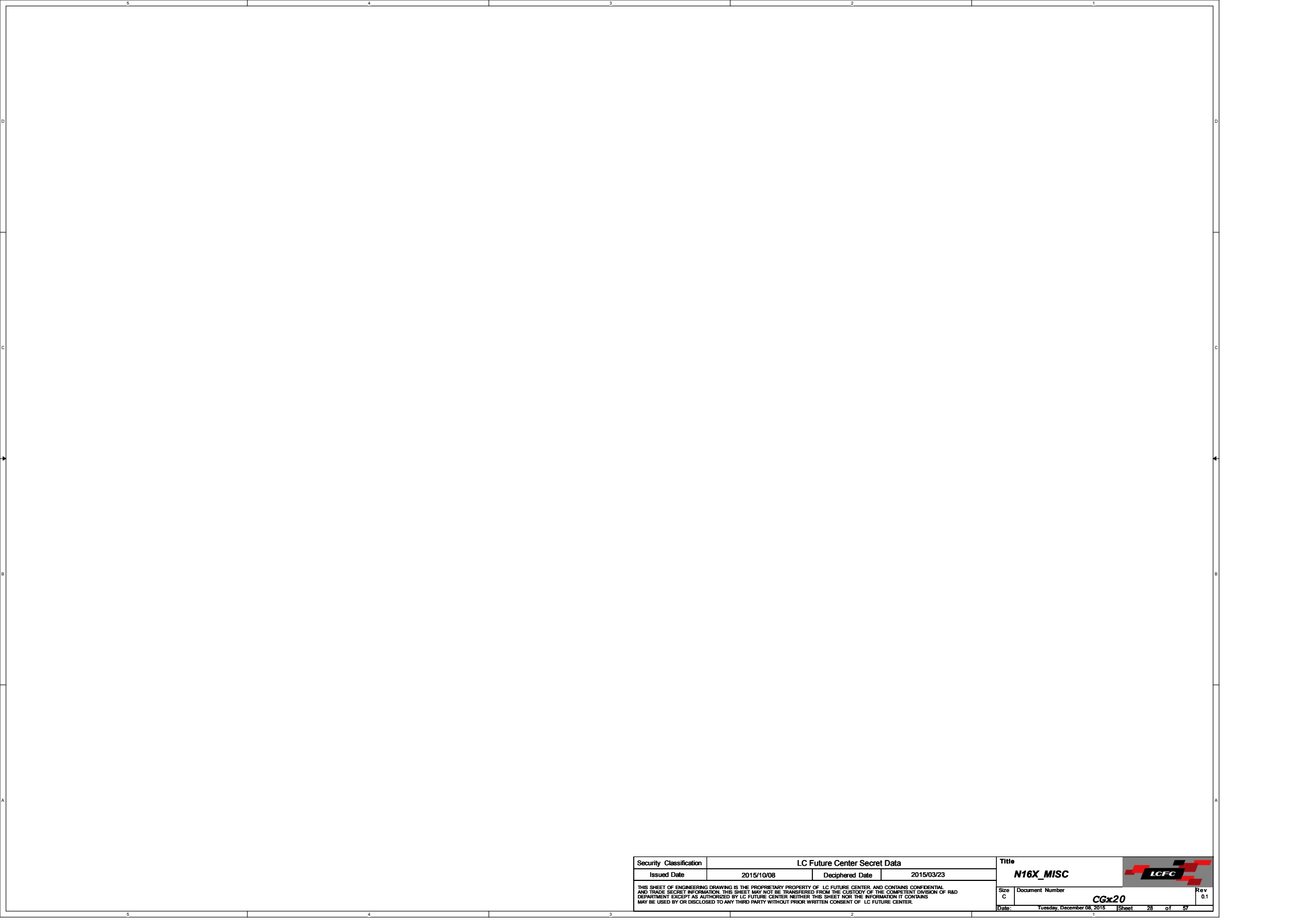


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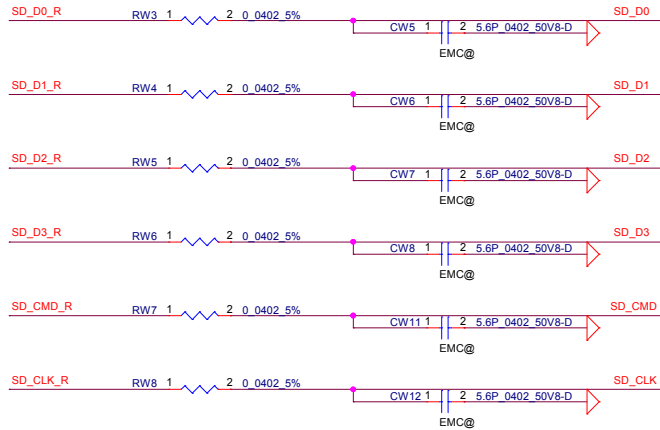
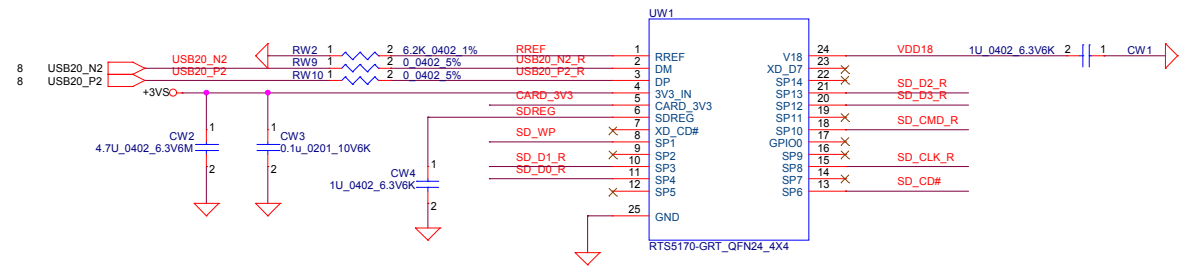
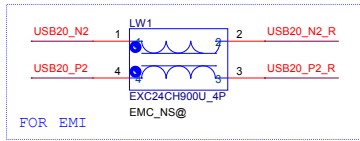


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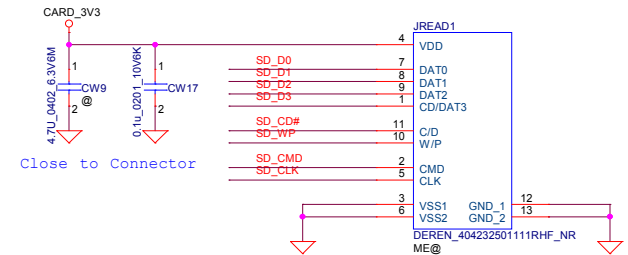
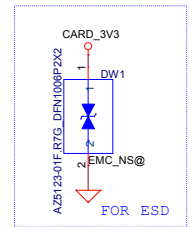


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Close to Connector



Security Classification		LC Future Center Secret Data		Title		Cardreader	
Issued Date	2015/10/08	Deciphered Date	2015/03/23	Size	Document	Number	Rev
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				Date:	Tuesday, December 08, 2015	Sheet	30 of 57

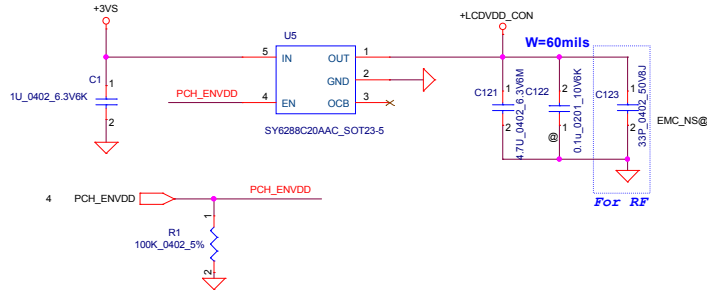
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Date: Tuesday, December 08, 2015				Sheet 32 of 57																				
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## LCD POWER CIRCUIT

W=60mils



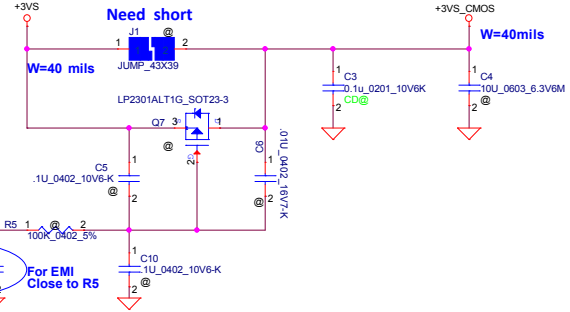
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2A 80 mil

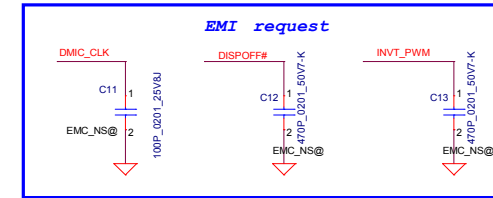


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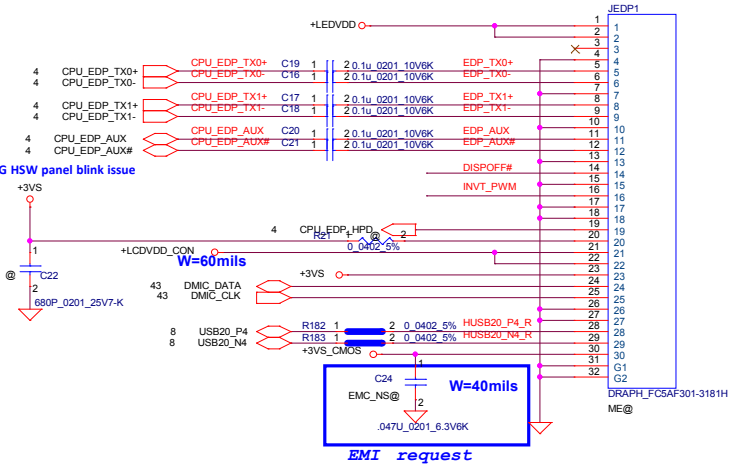
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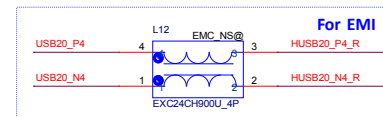
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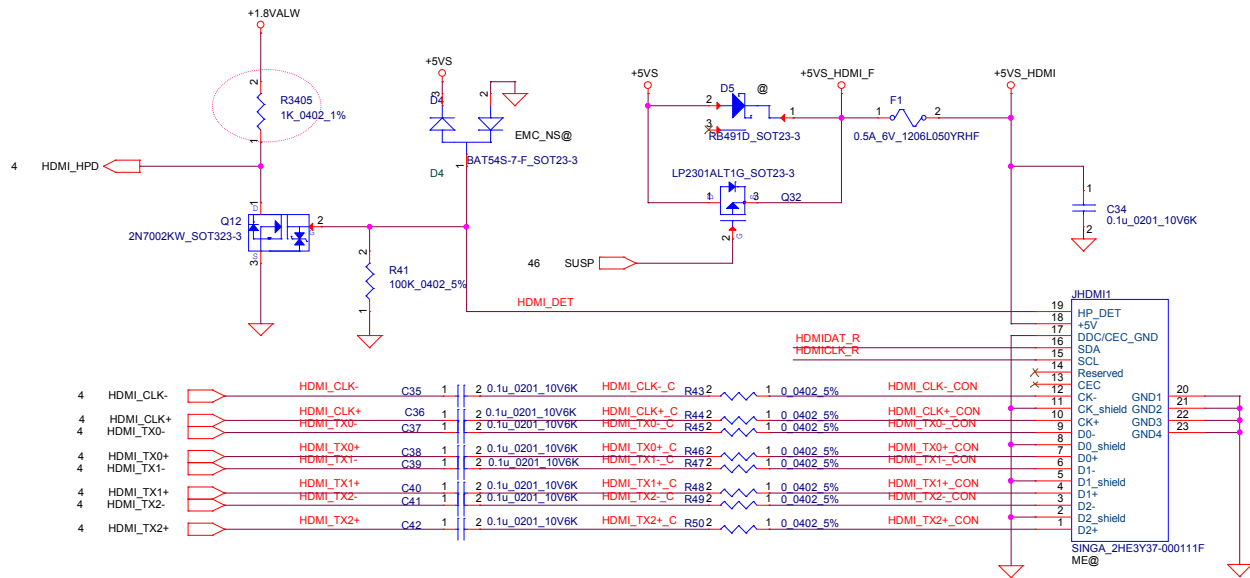
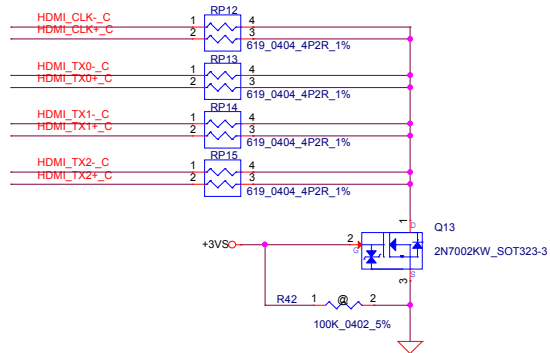
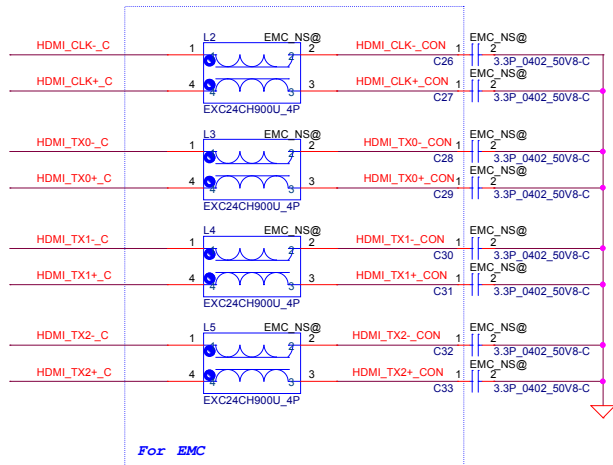
C23 0.1u for G HSW panel blink issue



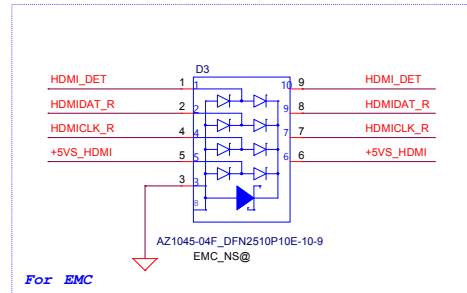
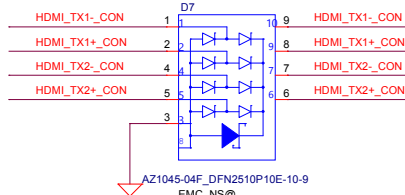
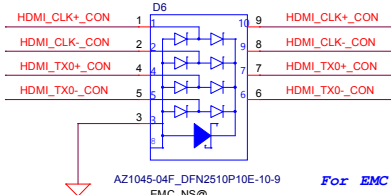
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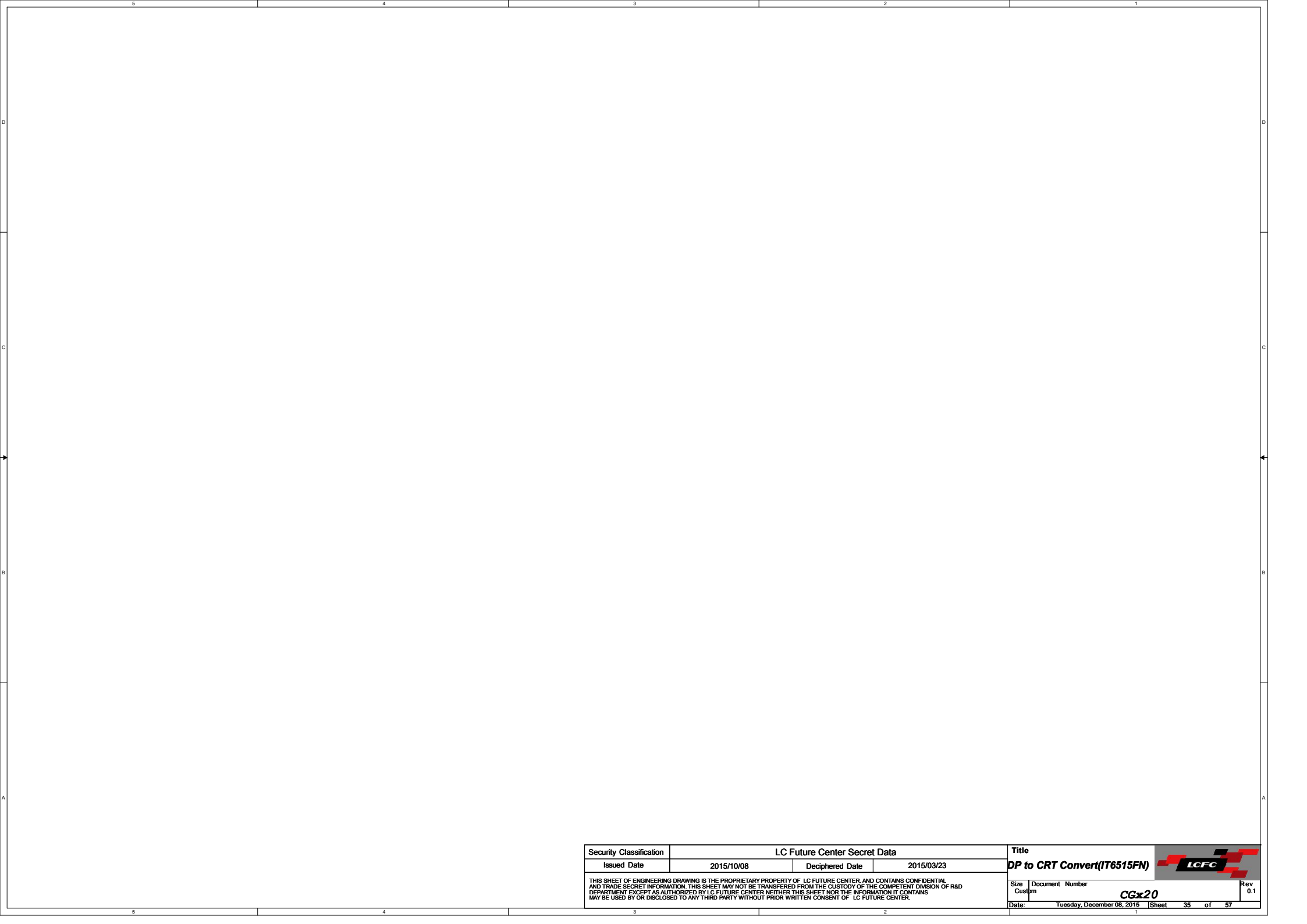
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Close to JHDMI1

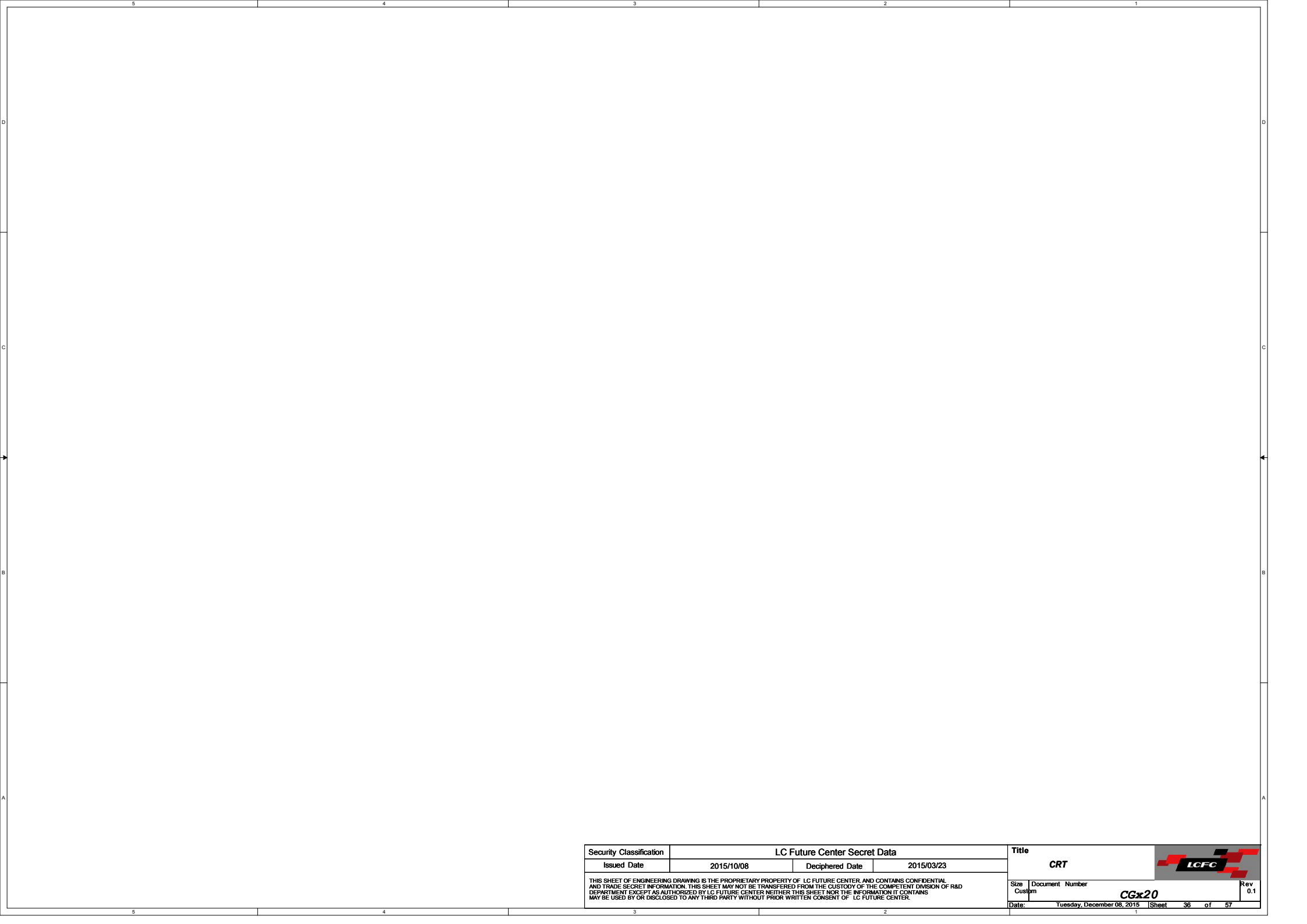




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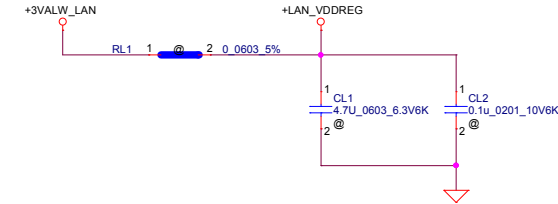
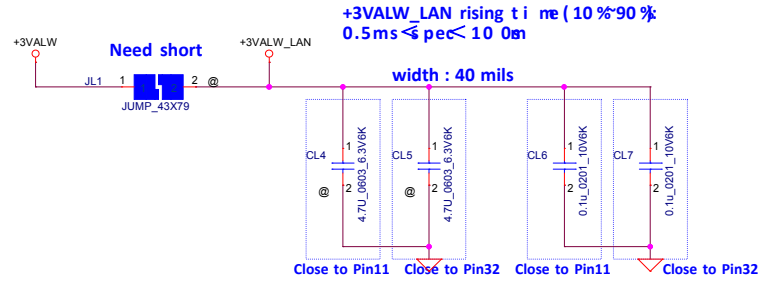
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				Rev	0.1



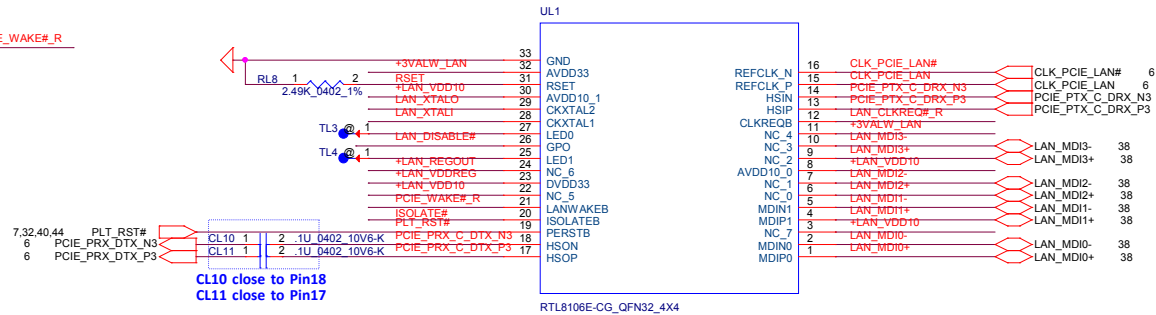
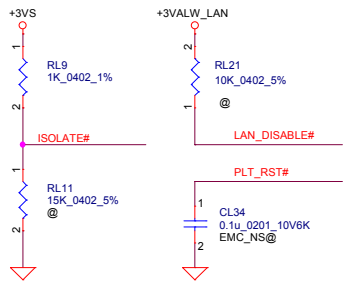


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								Date:	Tuesday, December 08, 2015	Sheet	36 of 57

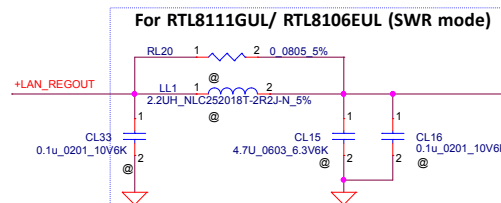
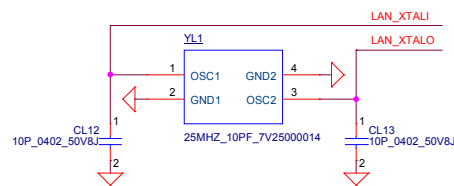
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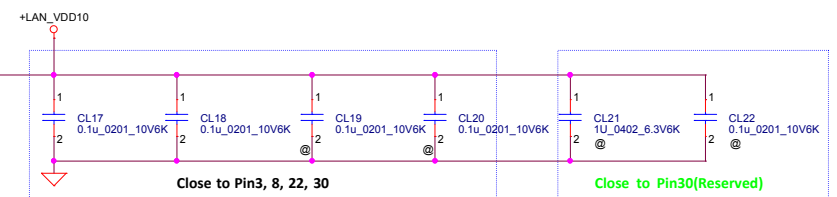
40,44 LAN\_WAKE# RL6.1 2 0.0402\_5% PCIE\_WAKE#\_R




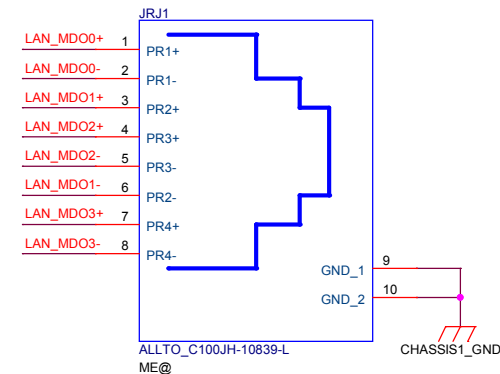
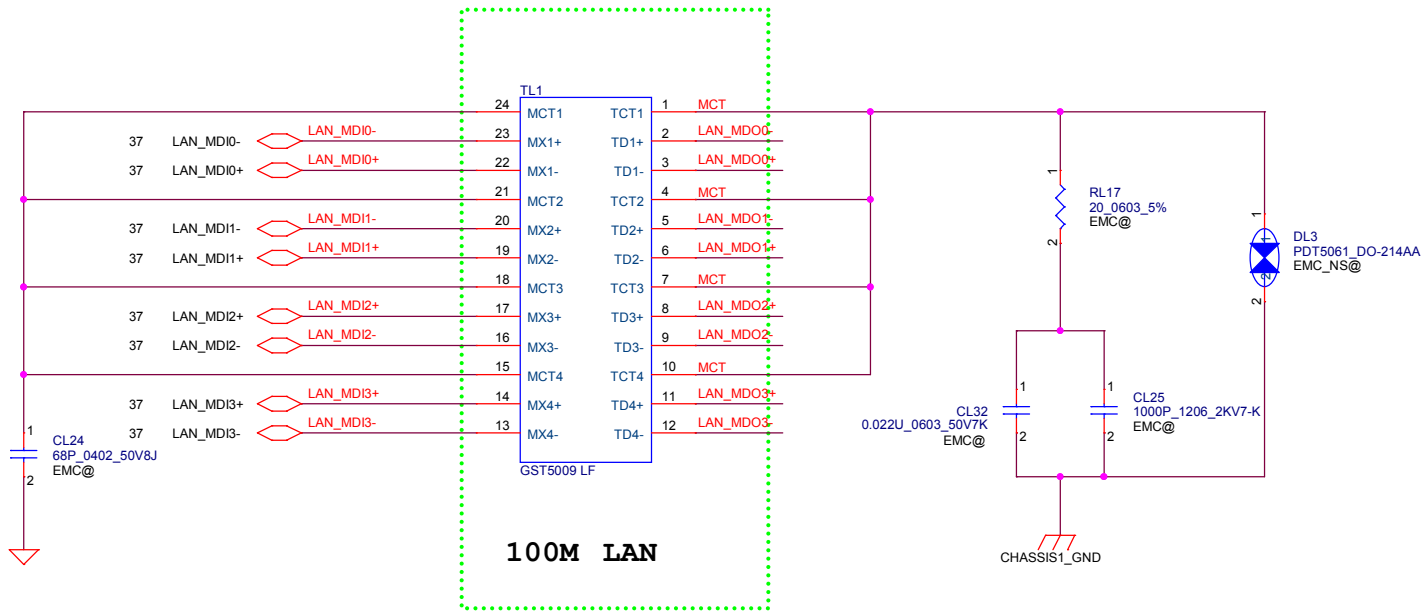
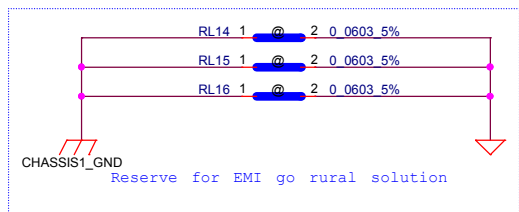
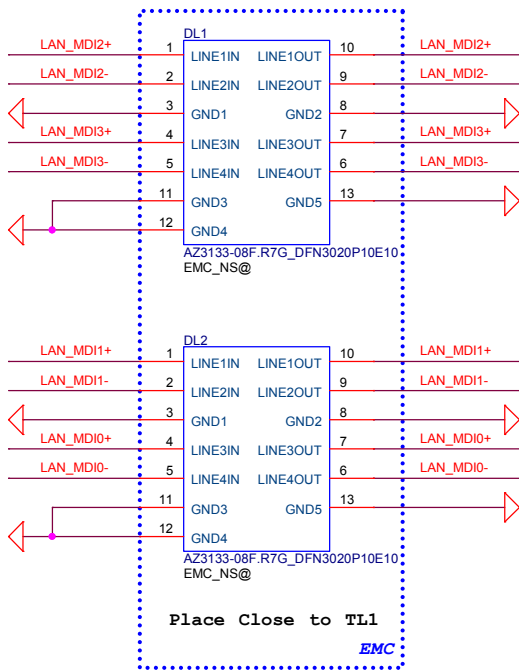
### 100M LAN



Layout Note: LL1 must be within 200mil to Pin24,  
CL15,CL16 must be within 200mil to LL1  
+LAN\_REGOUT: Width =60mil

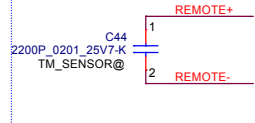


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Date: Wednesday, December 09, 2015						Sheet	37	of	57



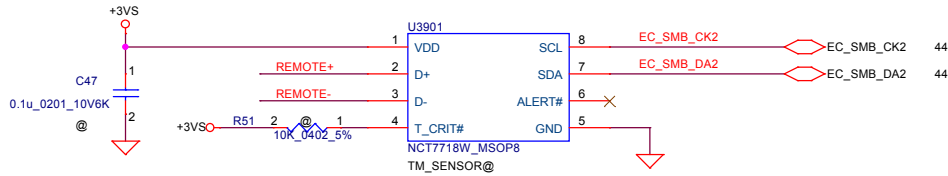
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				Date:	Tuesday, December 08, 2015
				Sheet	38 of 57

### Close to U3901



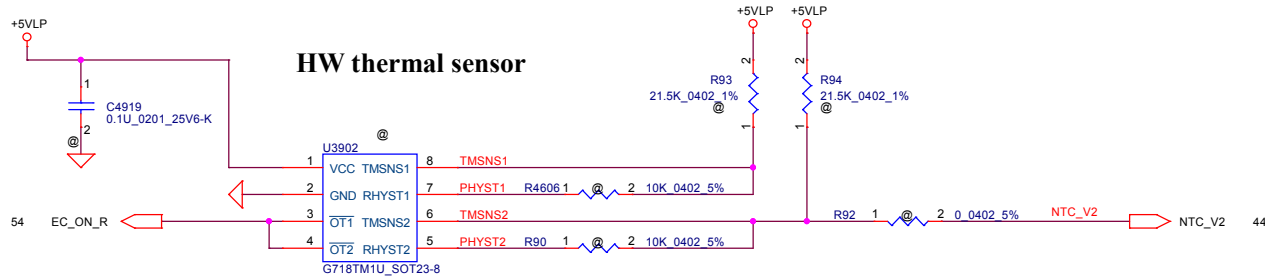
REMOTE+/- R, REMOTE1+/-, REMOTE2+/-:  
Trace width/space:10/10 mil  
Trace length:<8"

### SMSC thermal sensor placed near DIMM



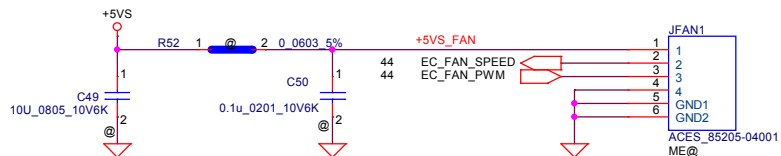
Address 1001\_100xb

### HW thermal sensor

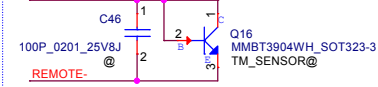


over temperature threshold:  
 $RSET=3*RTMH$   
 $92+/-30C$   
Hysteresis temperature threshold.  
 $RHYST=(RSET*RTML)/(3*RTML-RSET)$   
 $56+/-30C$

### FAN Conn

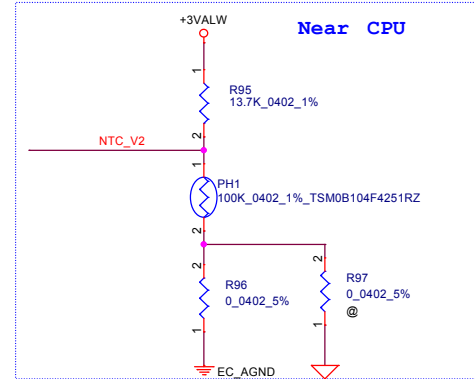


### Near CPU core



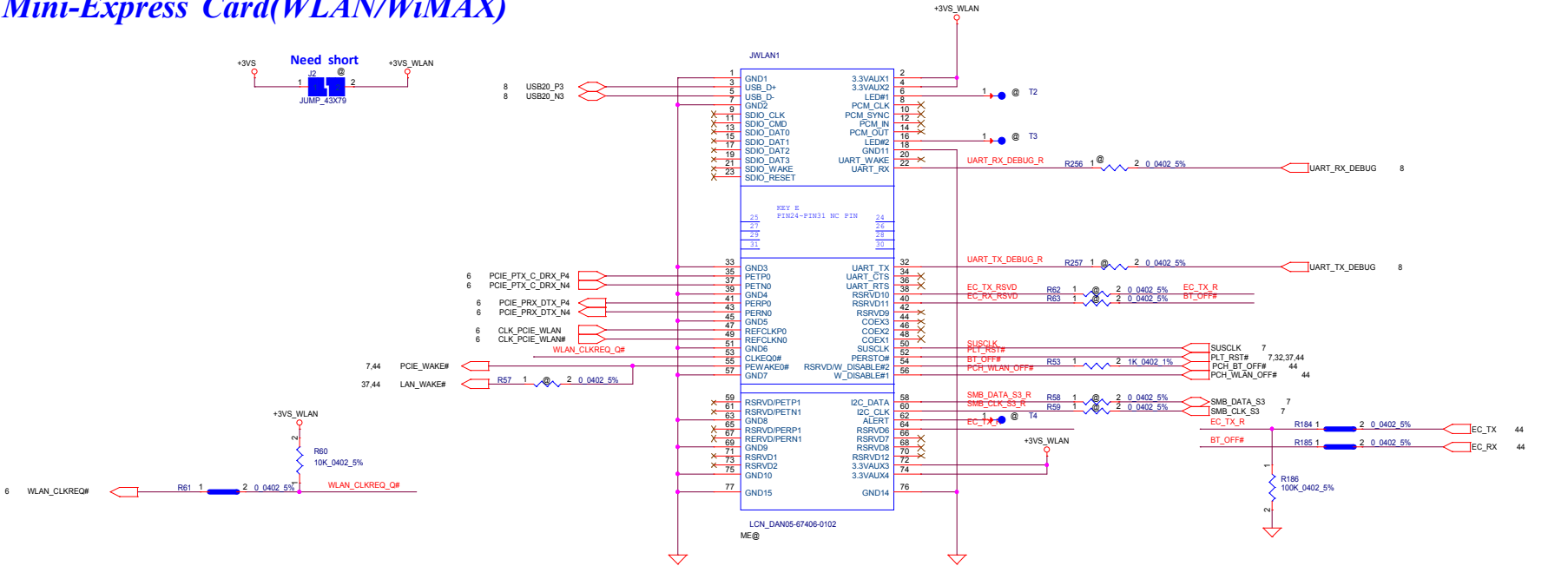
Baytrail SOC use thermal sensor to read the thermal,  
Baytrail don't has PECI signal

### Near CPU



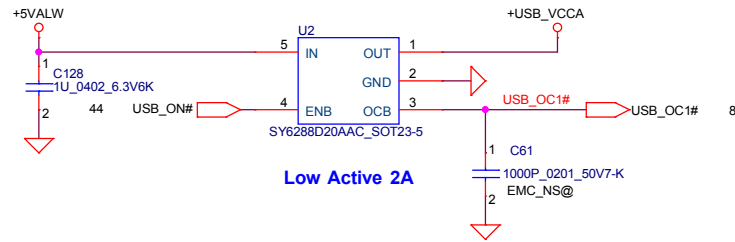
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Issued Date	2015/10/08	Deciphered Date	2015/03/23
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Mini-Express Card(WLAN/WiMAX)

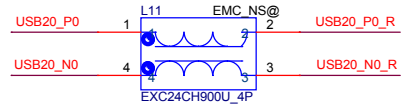
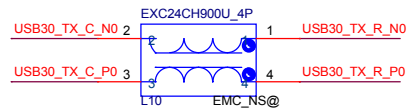
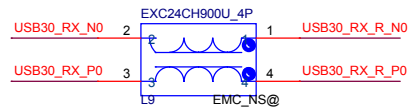
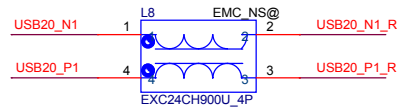
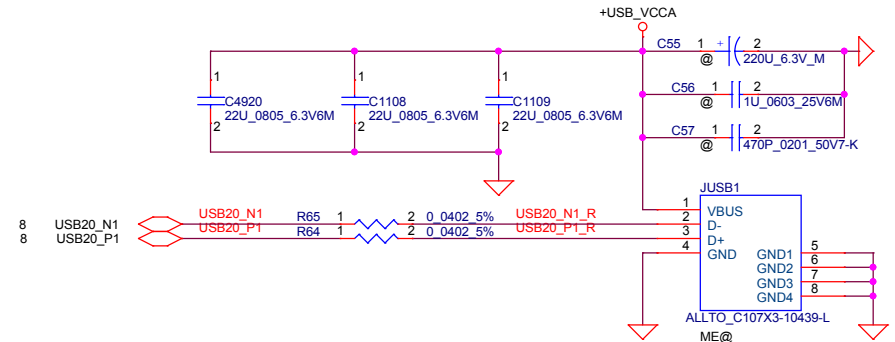




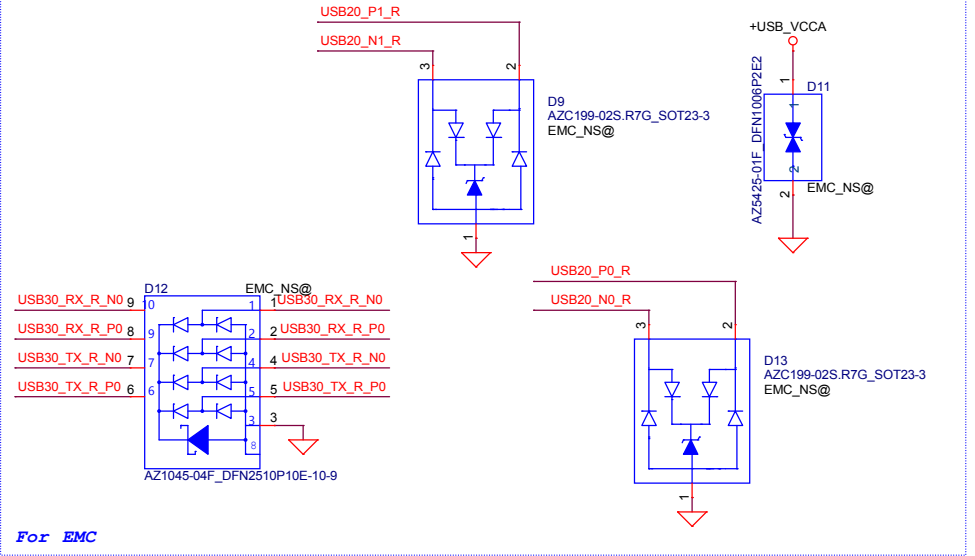
# LEFT SIDE USB PORT X2



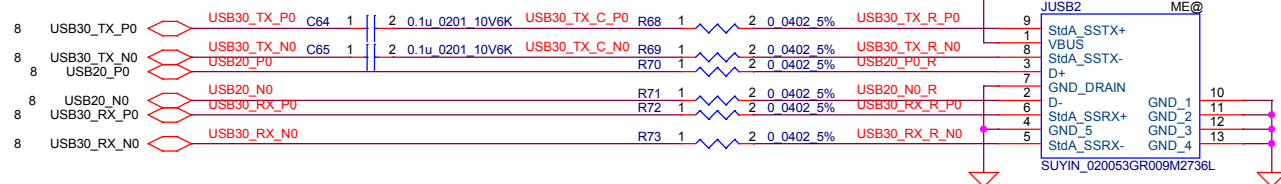
Low Active 2A



For EMC

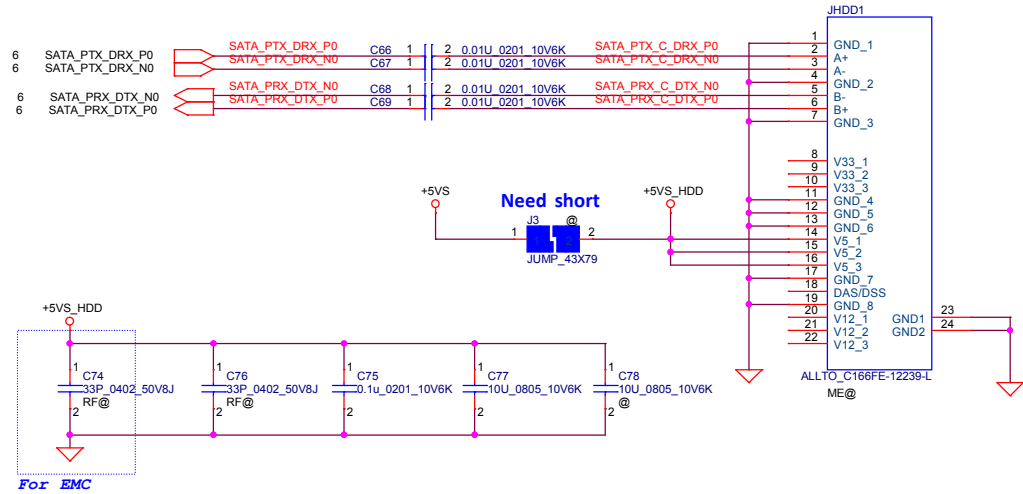


For EMC

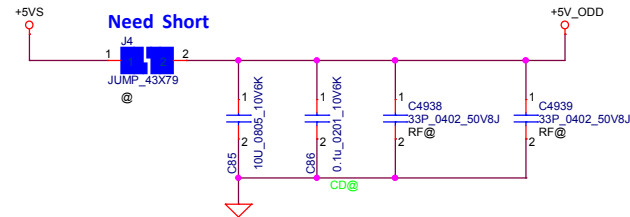
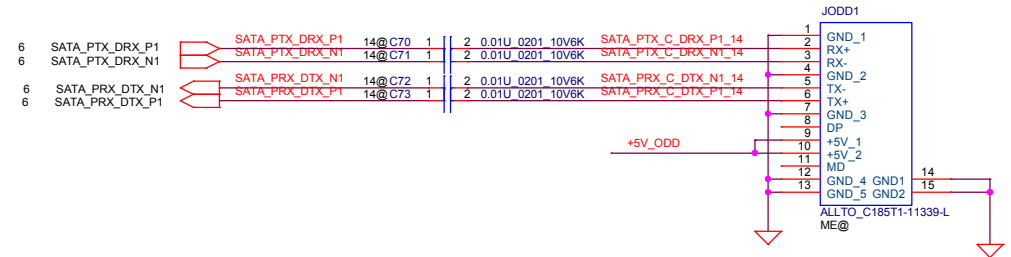



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## SATA HDD Conn.

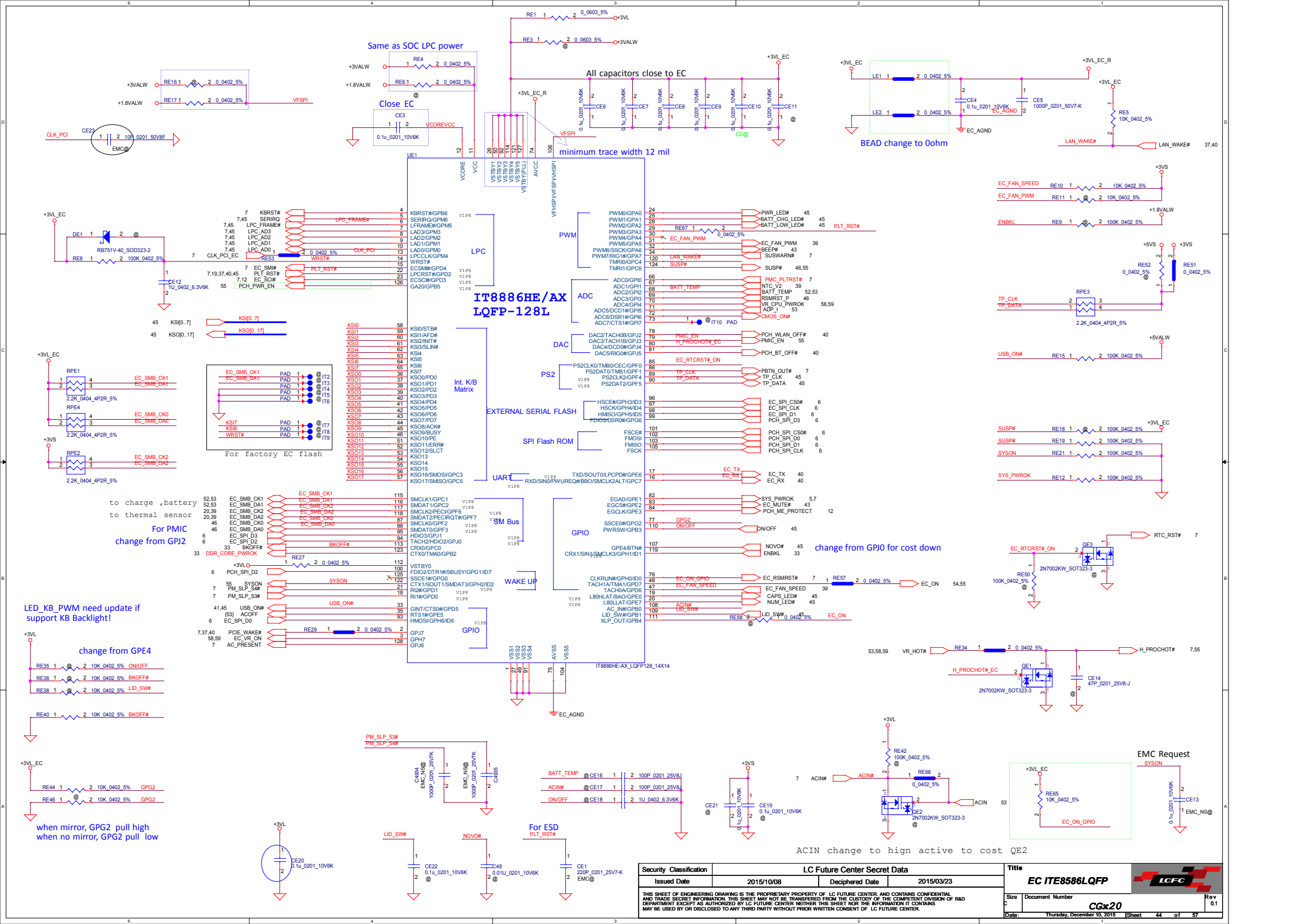


## FOR 14" SATA ODD Conn.

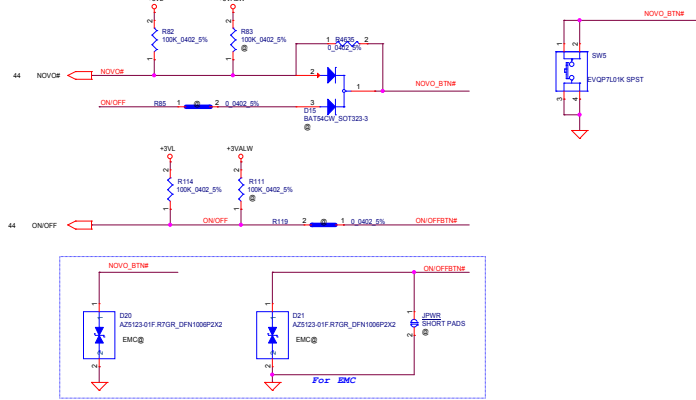


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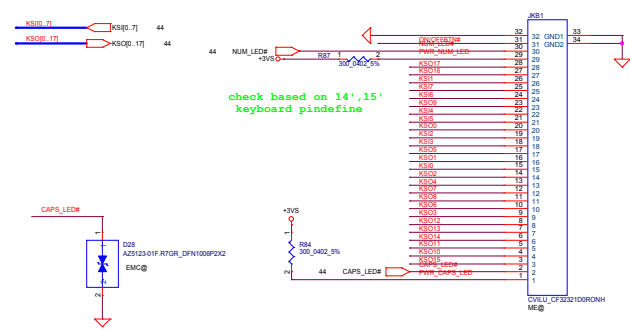




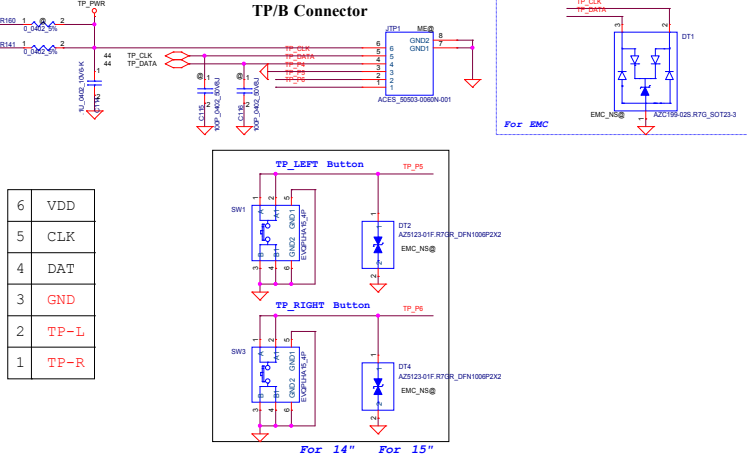
ON/OFF switch



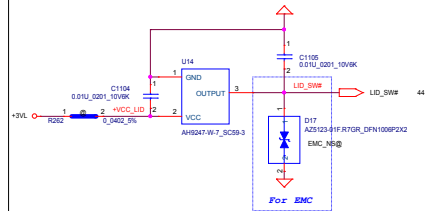
K/B Connector



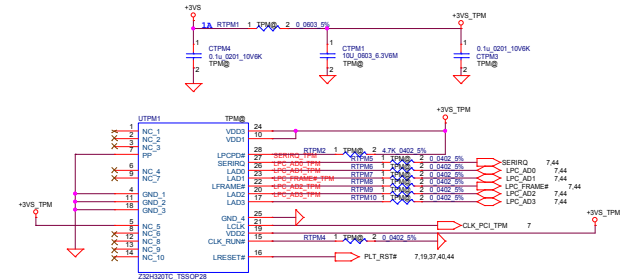
TP/B Connector



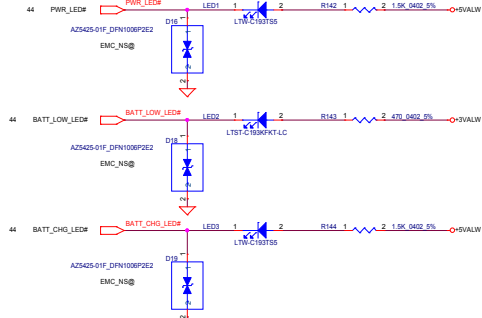
Hall Sensor




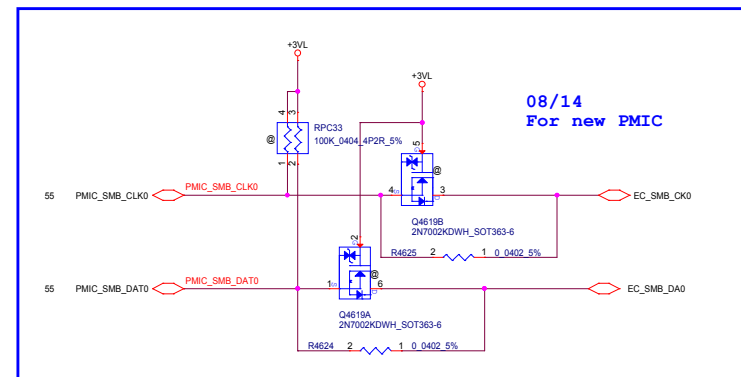
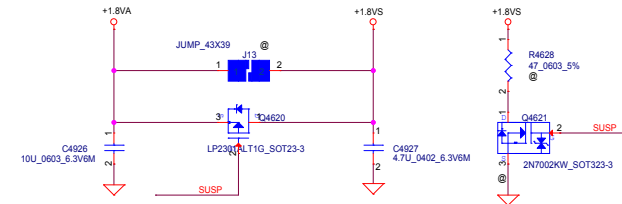
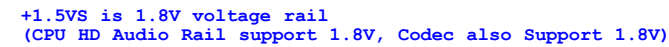
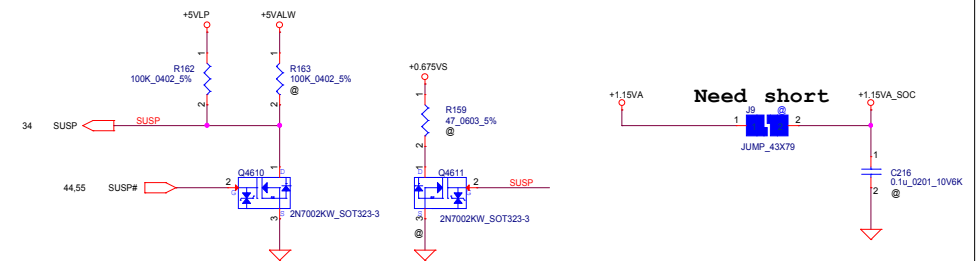
TPM

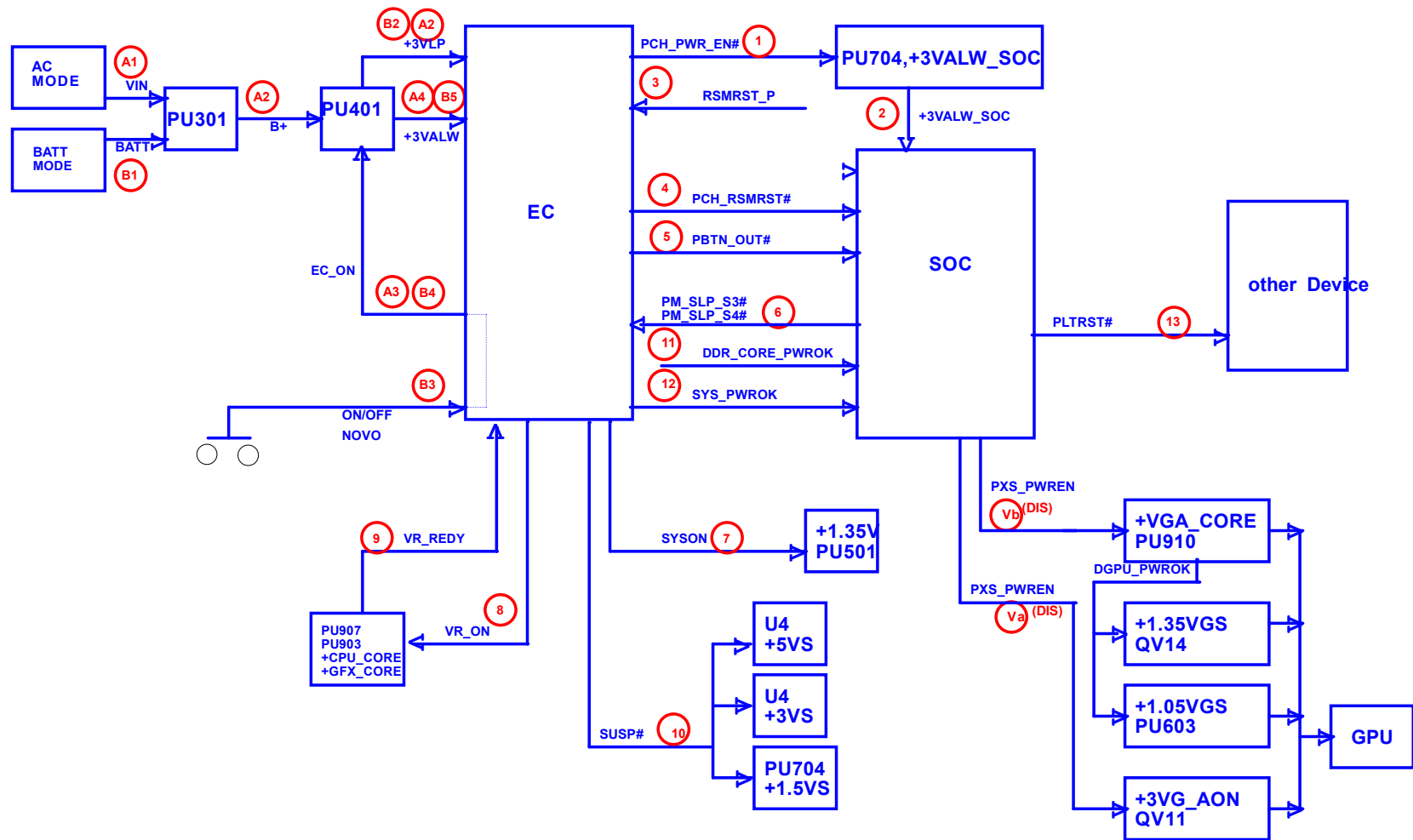


LED



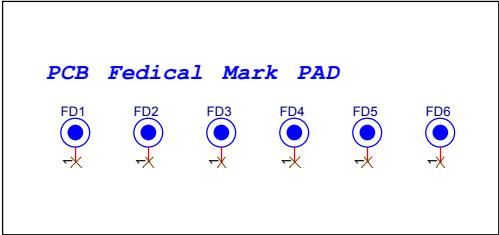
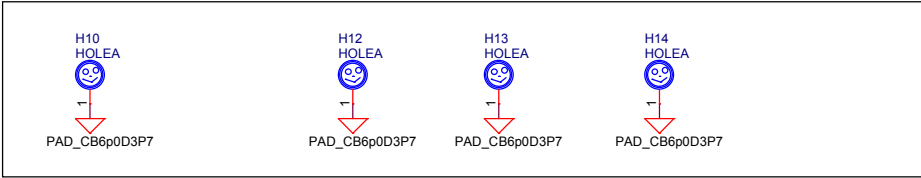
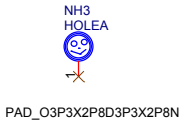
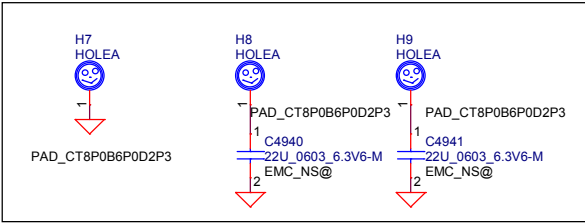
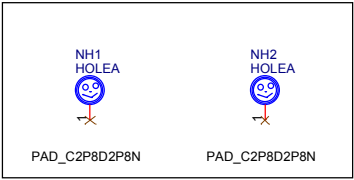
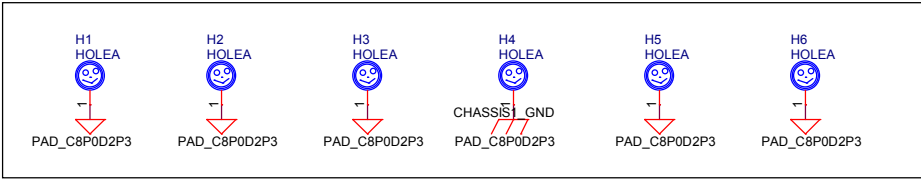
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