


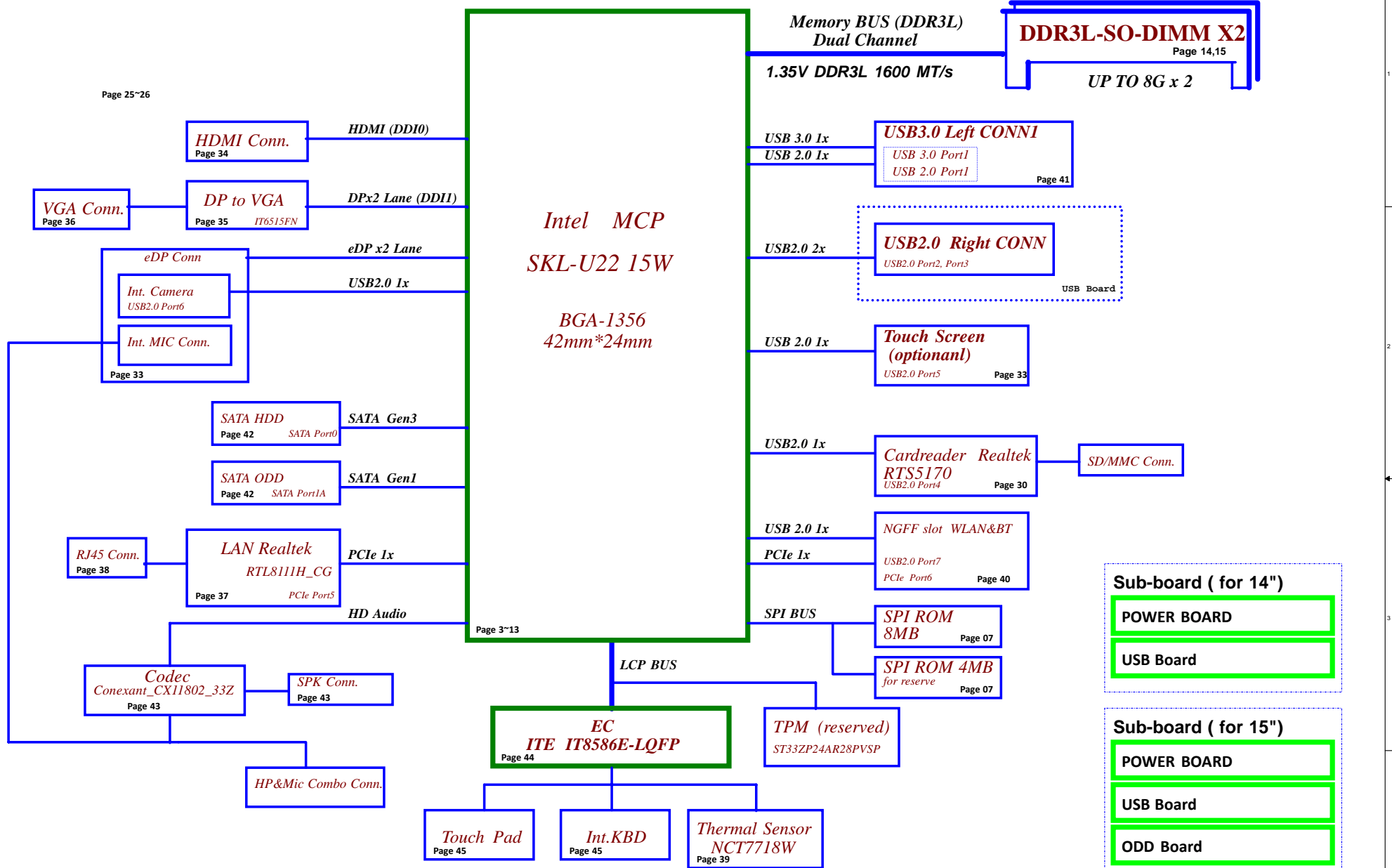
BMWQ1/Q2 UMA M/B Schematics Document

Intel Skylake U22 with DDRIIL

2015-07-12

REV:1.0

Security Classification		LC Future Center Secret Data		Title		
Issued Date	2014/12/11	Deciphered Date	2015/12/11	Cover Page		
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				Custom	BMQ1&2 UMA
				Date:	Monday, July 27, 2015
				Sheet	2 of 60
				Rev	0.2

Voltage Rails (0 --> Means ON , X --> Means OFF)

Power Plane / State	B+	+3VALW +5VALW +3VALW_PCH +1.8VALW +1.0VALW	+1.35V +VCCST	+5VS +3VS +VCCIO +VCCSTG +VCCSA +VCC_GT +CPU_CORE +0.675VS
S0	0	0	0	0
S3	0	0	0	X
S3 Battery only	0	0	0	X
S5 S4/AC Only	0	0	X	X
S5 S4 Battery only	0	X	X	X
S5 S4 AC & Battery don't exist	X	X	X	X

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

HSIO PORT	Function	BOM Structure	BTO Item
USB3.0	1 USB3.0 CONN left	@	Not stuff
	2 NC	14@	For 14" part
	3 NC	15@	For 15" part
	4 NC	14or15@	For 14" or 15" part
	5 NC	14or17@	For 14" or 17" part
	6 NC	AOAC@	AOAC support part
USB2.0	1 USB3.0 CONN Left	BCD@	For C cost down (BDW)
	2 USB2.0 CONN1 Right	Cannonlake@	For Cannonlake part
	3 USB2.0 CONN2 Right	CD@	For C cost down
	4 Camera	DUALMIC@	For Dual MIC part
	5 Cardreader	EMC@	For EMC part
	6 Touch Panel	EMC_15@	For EMC 15" part
	7 BT	EMC_NS@	For EMC nu-stuff part
	8 NC	EMC_PX@	For EMC PX part
	9 NC	EMC_PXNS@	For EMC PX nu-stuff part
	10 NC	ES@	For ES CPU
PCIE	1 NC	EXO@	For EXO GPU
	2 NC	GCLK@	For GreenCLK part
	3 NC	ME@	For ME part
	4 NC	NTS@	For nu-touch part
	5 LAN	PCH_SDIO@	For PCH SDIO part
	6 WLAN	PCH_SDIO1@	For PCH SDIO path1
	7 used as SATA	PCH_SDIO2@	For PCH SDIO path2
	8 used as SATA	PX@	For PX part
SATA	X4 PCIE (9-12)	RANKA@	For VRAM rank A part
		RANKB@	For VRAM rank B part
		Realtek_SD@	For Realtek SD part
		SINGLEMIC@	For single MIC part
		SINGLELRANK@	For single VRAM rank part
		DUALRANK@	For dual VRAM rank part
		TS@	For touch screen part
		TPM@	For TPM part
		UMA@	For UMA part

SMBUS Control Table

	SOURCE	BATT	IT8586E	SODIMM	WLAN WIMAX	Thermal Sensor	PCH	TP Module	charger	DGPU
EC_SMB_CK1	IT8586E	V	V	X	X	X	X	X	V	X
EC_SMB_DA1	+3VALW	V	+3VALW	X	X	X	X	X	V	X
EC_SMB_CK2	IT8586E	X	V	X	X	V	V	X	X	V
EC_SMB_DA2	+3VS	X	+3VS	X	X	+3VS	+3VALW_PCH	X	X	+3VGS
PCH_SMB_CLK	PCH	X	X	V	V	X	V	X	X	X
PCH_SMB_DATA	+3VALW_PCH	X	X	+3VS	+3VS	X	+3VALW_PCH	X	X	X

EC SM Bus1 address

EC SM Bus2 address

PCH SM Bus address

Device	Address
Smart Battery	0X16
Charger	0001 0010 b

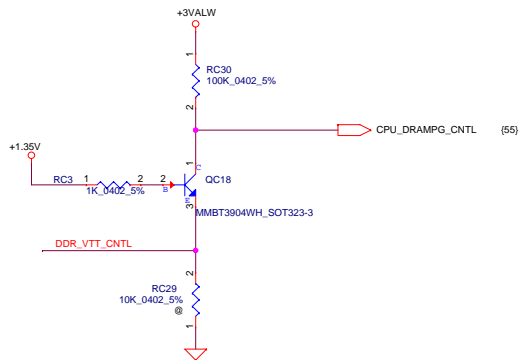
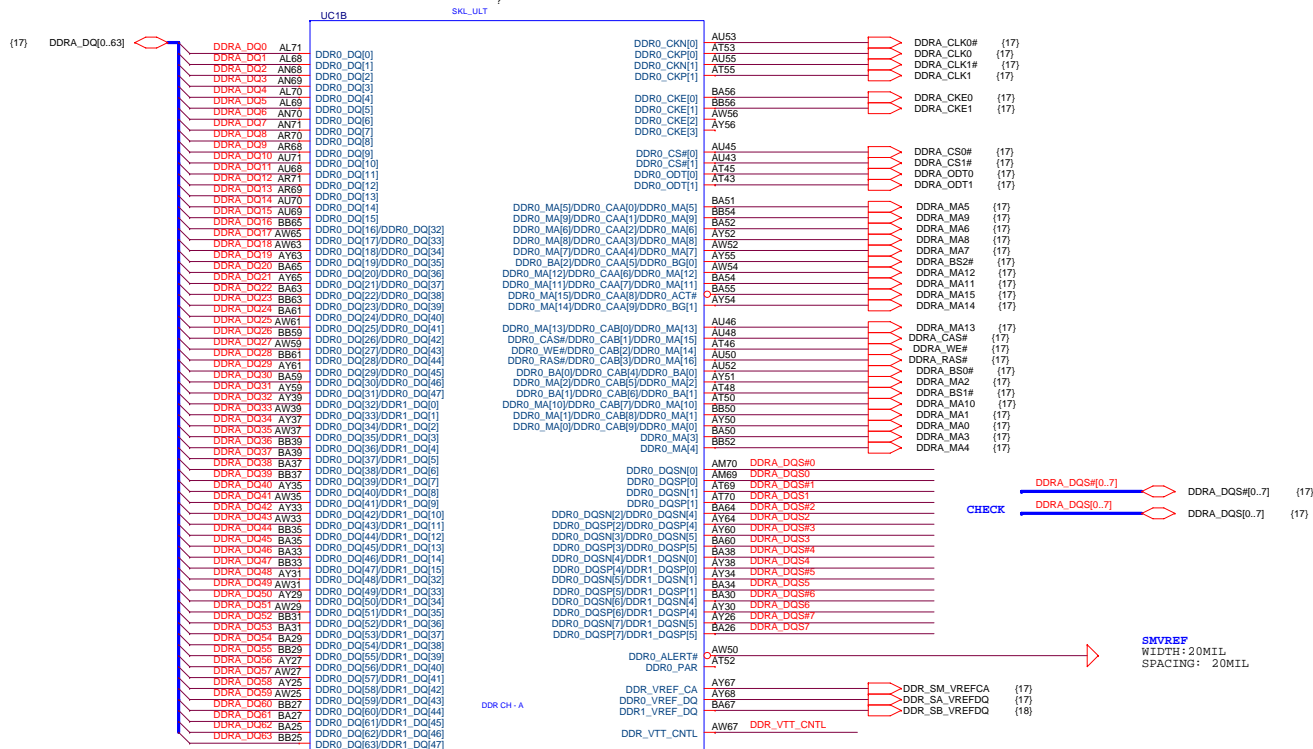
Device	Address
Thermal Sensor NCT7718W	1001_100xb
PCH	need to update
DGPU	need to update


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

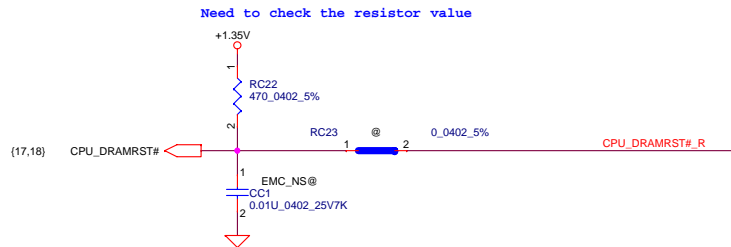
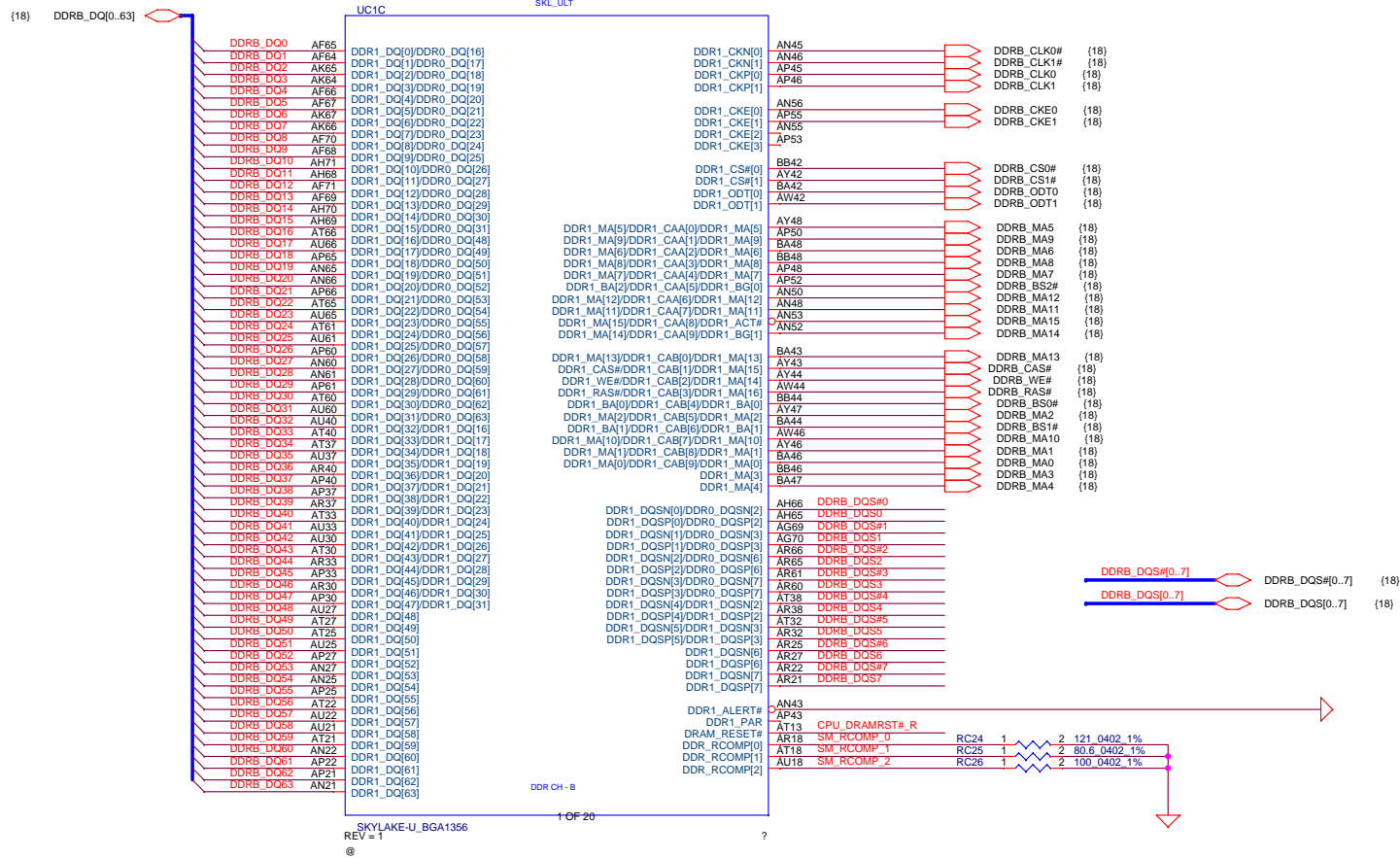
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				Rev 0.2
				Date: Monday, July 27, 2015
				Sheet 3 of 60



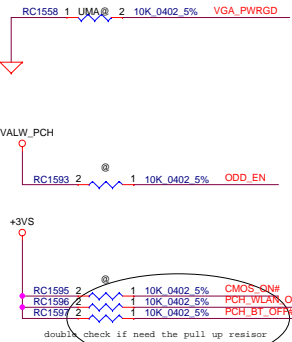
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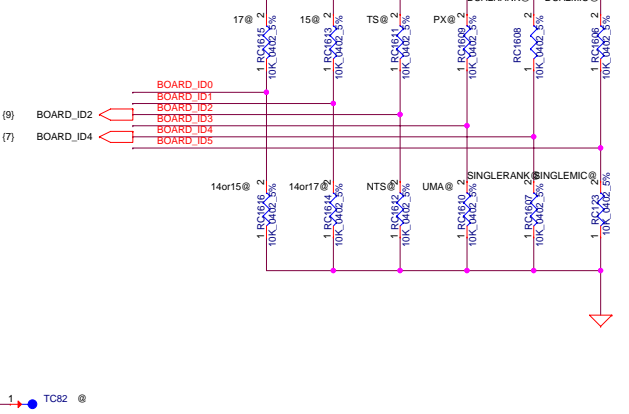
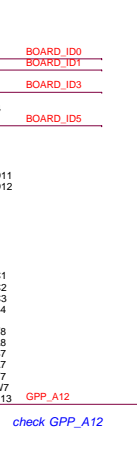
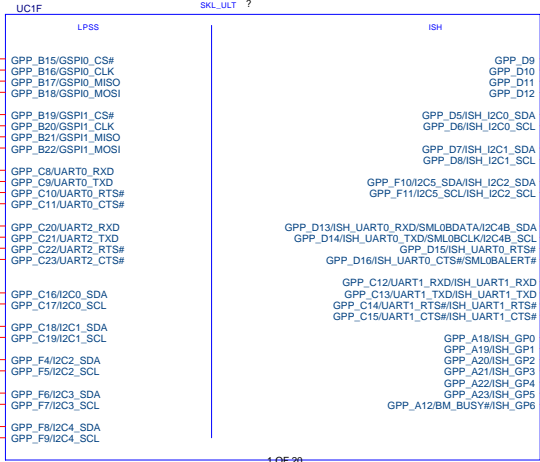
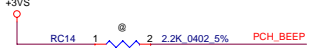
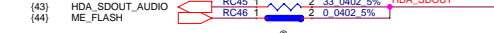
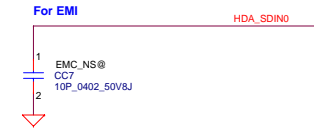
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Date:						Monday, July 27, 2015		Sheet		5 of 60		



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				Custom	BMWQ1&2_UMA
				Date:	Monday, July 27, 2015
				Sheet	6 of 60



HDA_SDO This signal has a weak internal pull-down.
0 = Enable security measures defined in the Flash Descriptor.
1 = Disable Flash Descriptor Security(override). This strap
should only be asserted high during external pull-up in
manufacturing/debug environments ONLY.



Board ID	Description	Stuff R
00	14"	RC1616 RC1614
01	15"	RC1616 RC1613
10	17"	RC1615 RC1614
11	Reserved	
Board_ID2	0 Non-touch	RC1612
	1 Touch	RC1611
Board_ID3	0 UMA	RC1610
	1 DIS	RC1609
Board_ID4	0 SingleRank	RC1607
	1 DualRank	RC1608
Board_ID5	0 SingleMIC	RC1623
	1 DualMIC	RC1606

Pin Name	Strap Description	Configuration	Default Value	When Sampled
SPKR / GPP_B14	Top Swap Override	Internal PD 0 = Disable " Top Swap" mode. (Default) ★ 1 = Enable " Top Swap" mode.	0	Rising edge of PCH_PWROK
GPIO0_MOSI/No Reboot /GPP_B18		Internal PD 0 = Disable " No Reboot" mode. (Default) ★ 1 = Enable " No Reboot" mode.	0	Rising edge of PCH_PWROK
GPIO1_MOSI/Boot BIOS /GPP_B22	Strap Bit BBS	Internal PD 0 = SPI (Default) ★ 1 = LPC	0	Rising edge of PCH_PWROK

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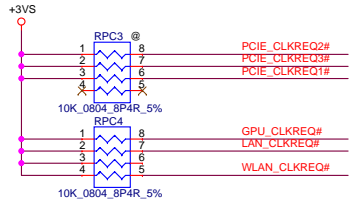
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8 of 60

Rev

0.2

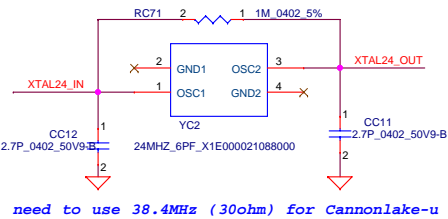
check the Pull up resistor



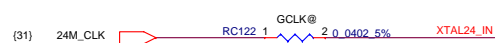
PCIE CLK5 LAN

PCIE CLK6 WLAN

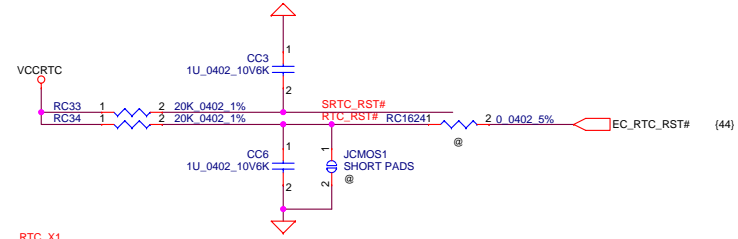
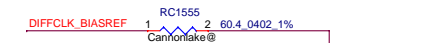
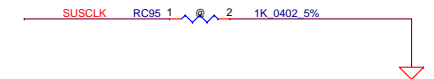
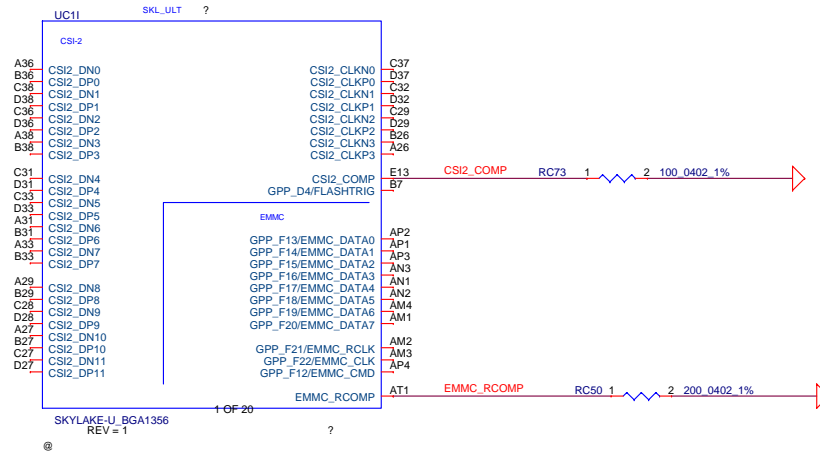
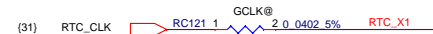
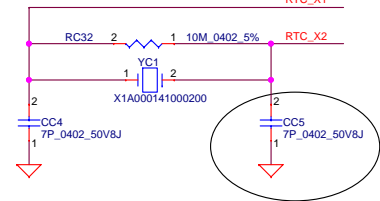
check if need to change to 1M_0402_1% follow PDG, CRB is 1M_0402_5%




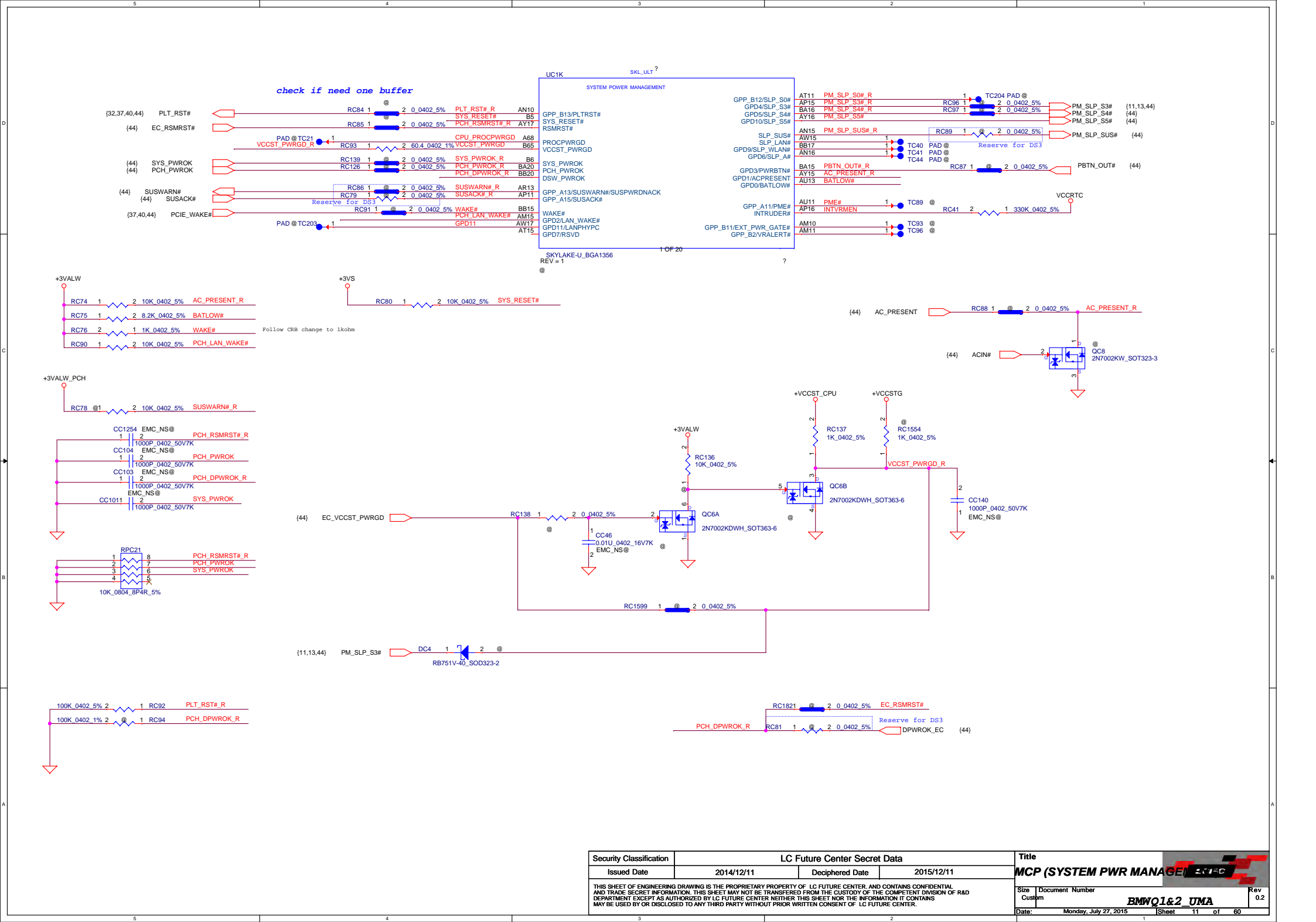
need to use 38.4MHz (30ohm) for Cannonlake-u

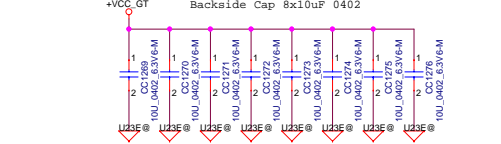
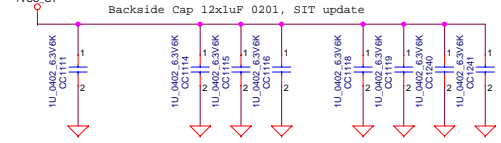
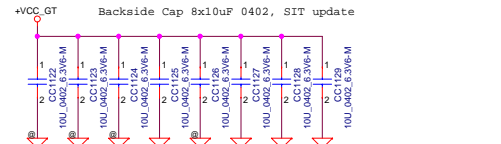
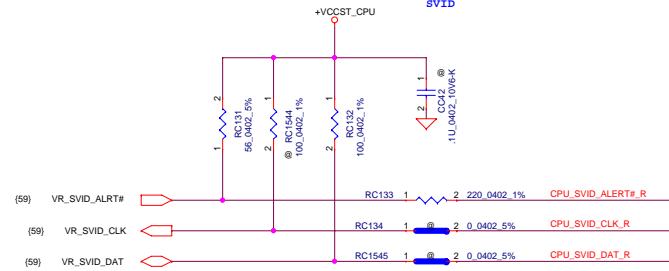
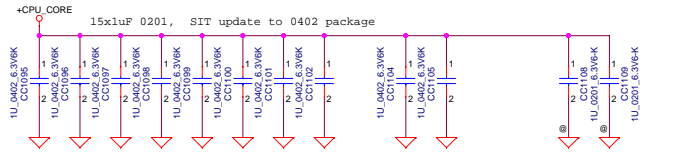
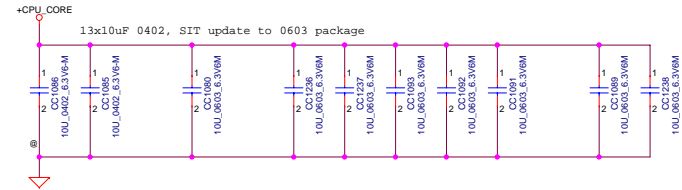
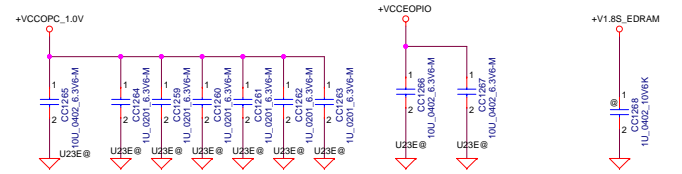
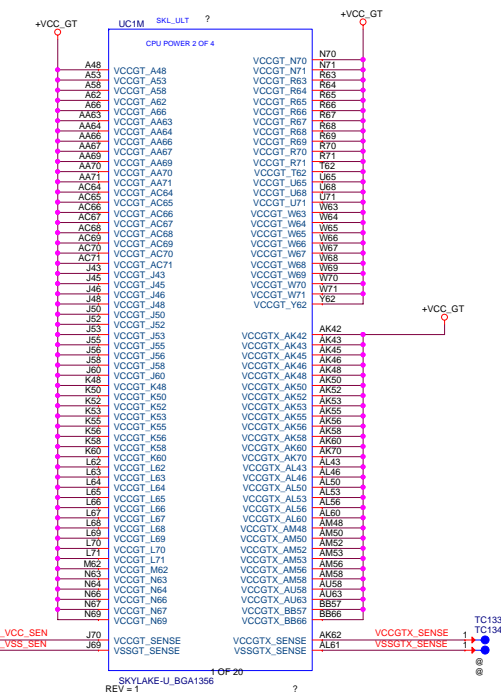
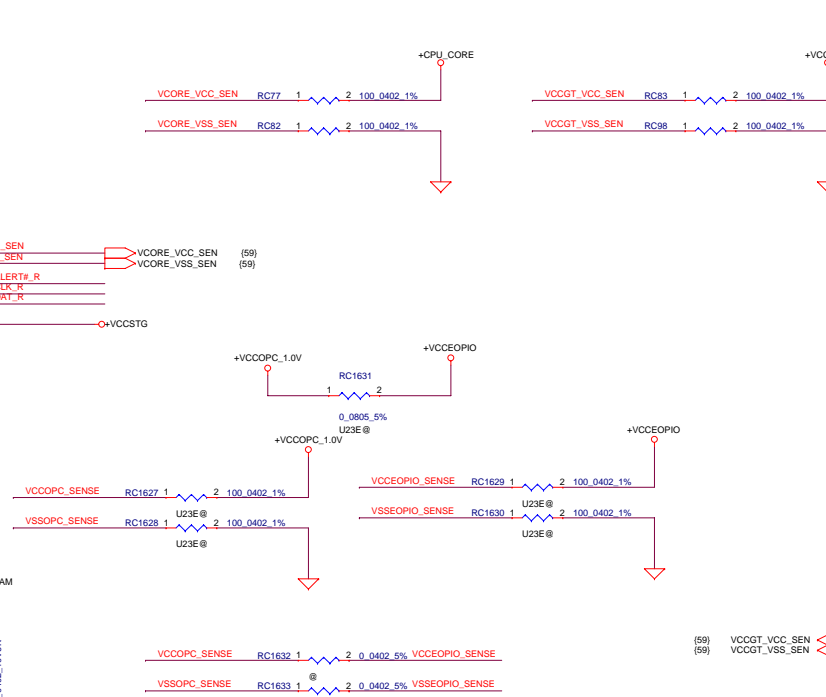
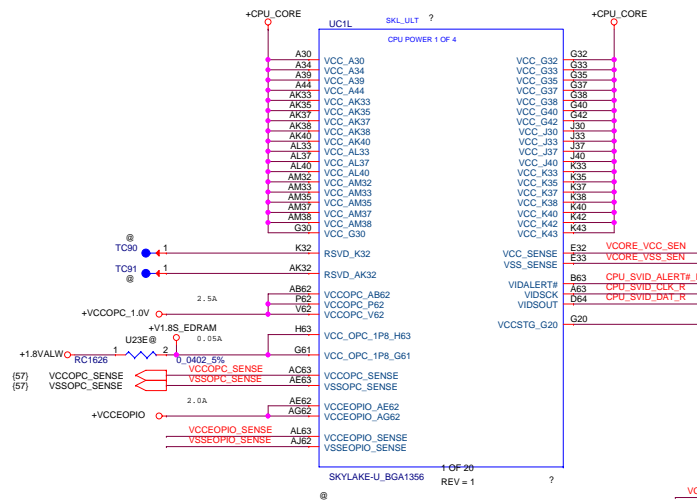


change to SJ10000LM00



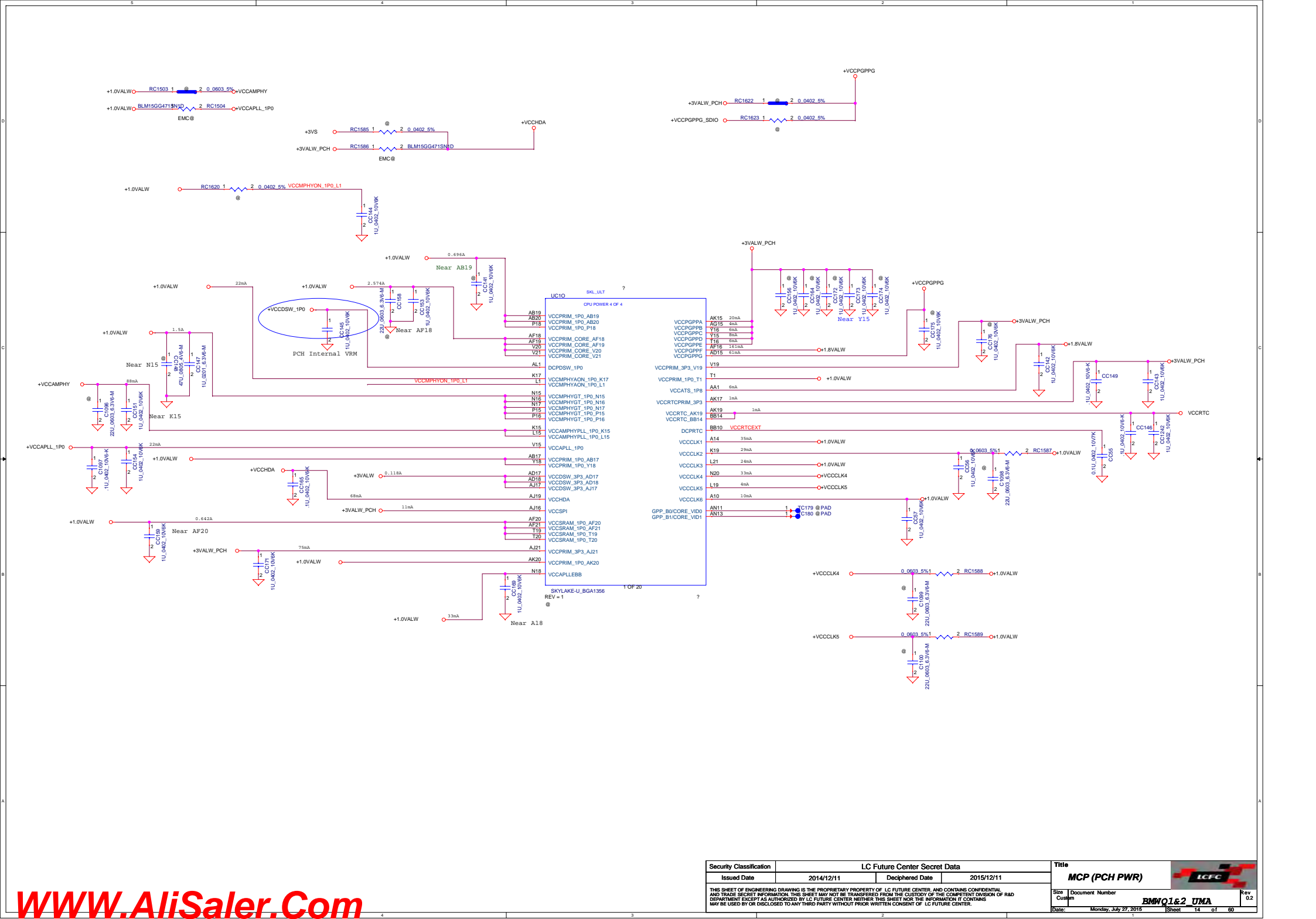
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				BMWQ1&2_UMA	
Date: Monday, July 27, 2015				Sheet	10 of 60

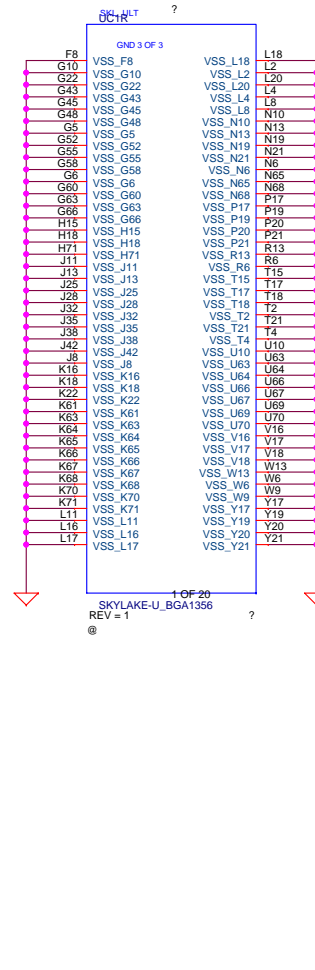
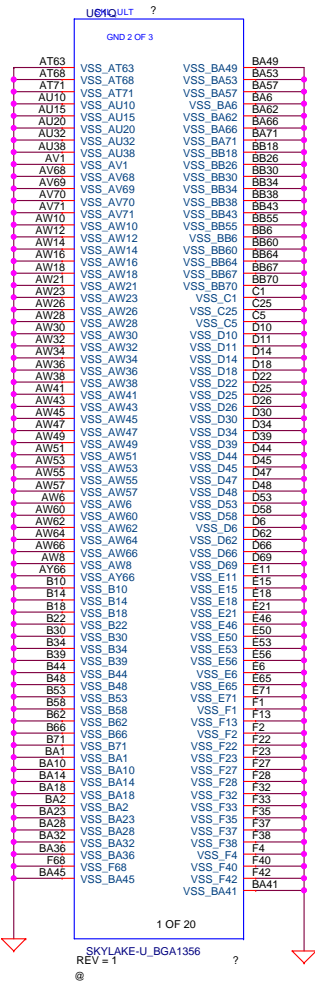
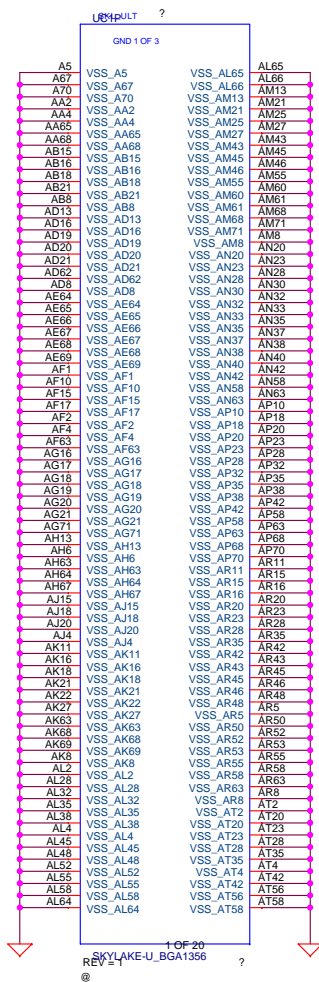




1, Alert# Route Between CLK and Data

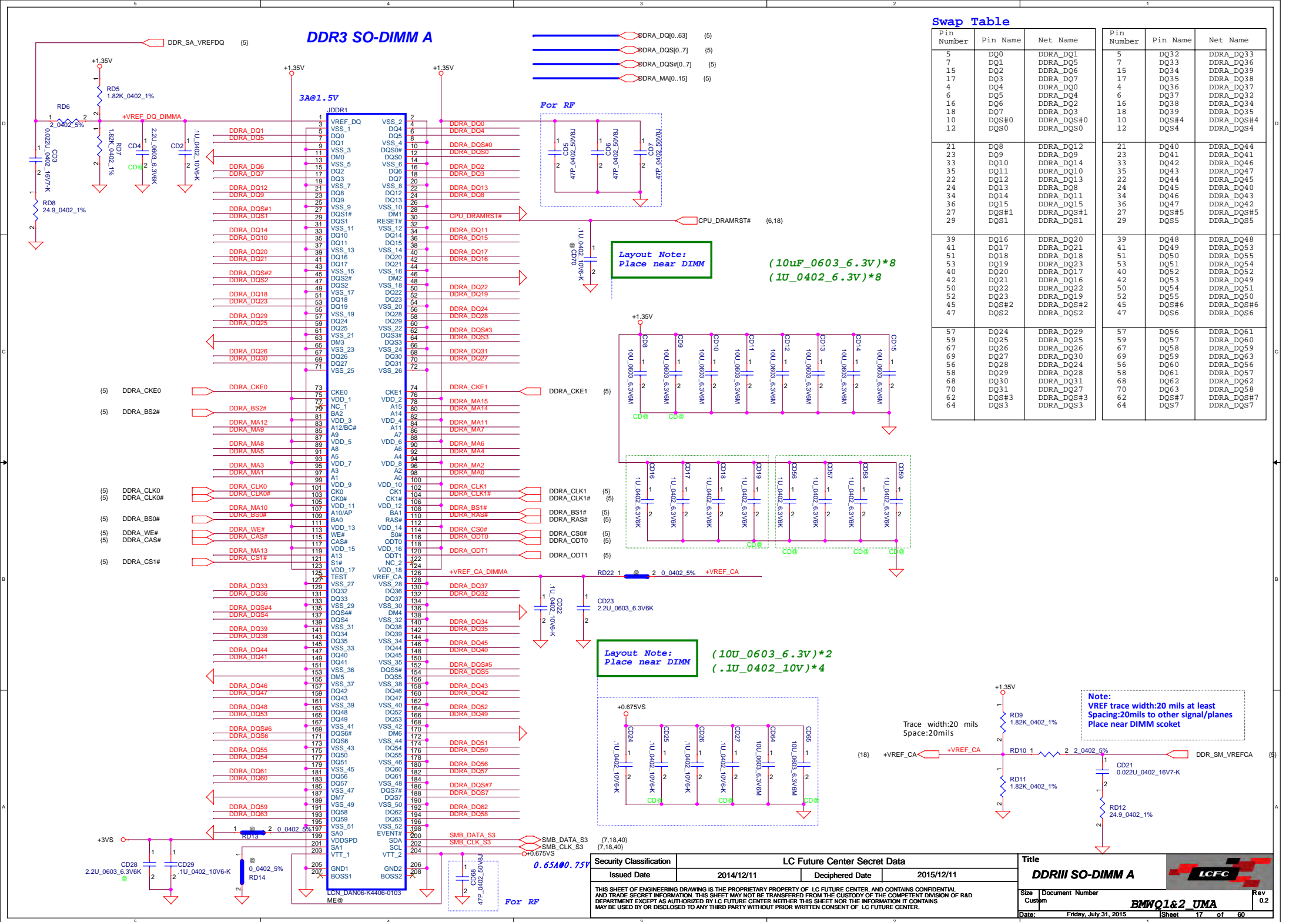
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					Date:	Monday, July 27, 2015
					Sheet	12 of 60



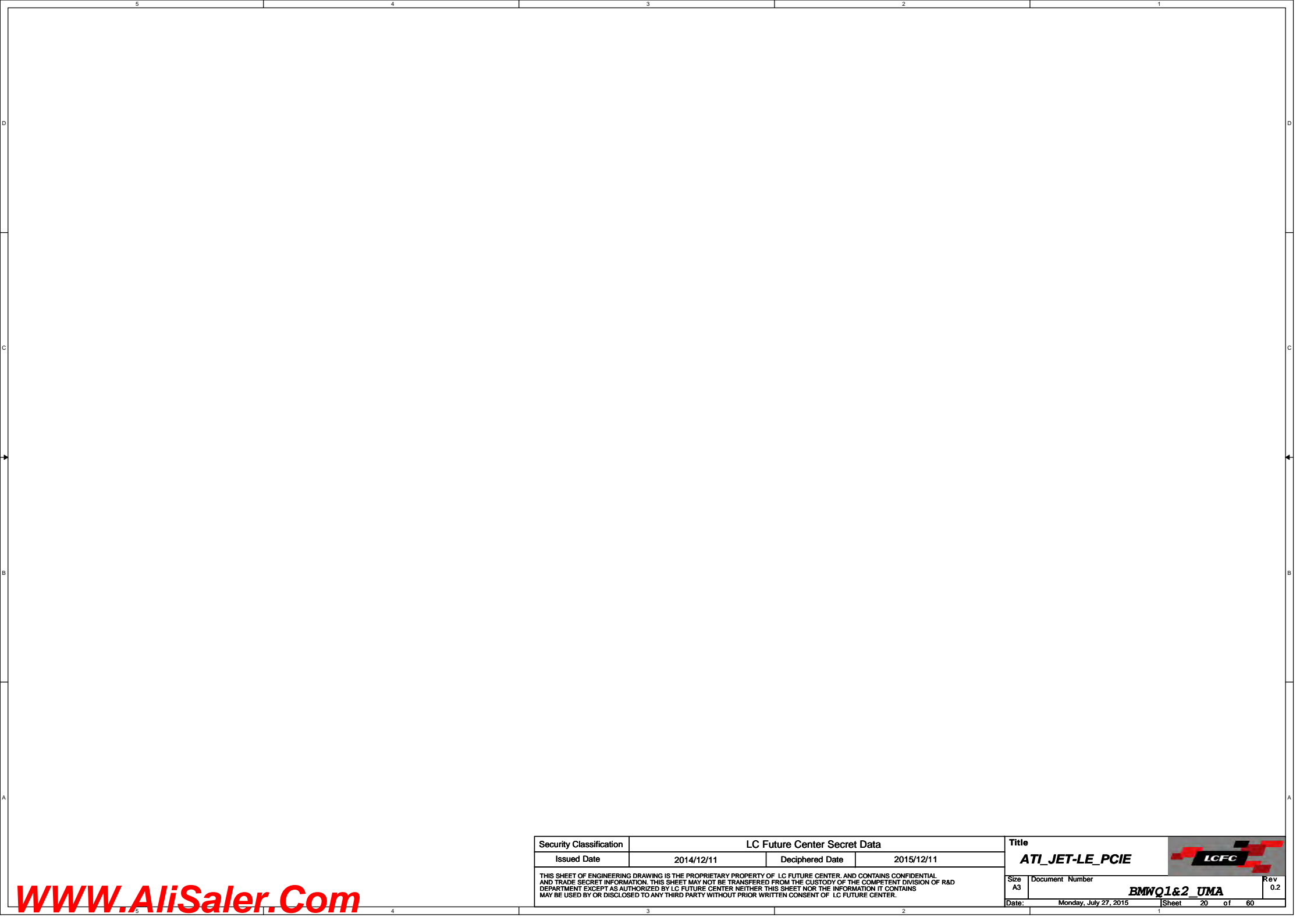



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Date:	Monday, July 27, 2015	Sheet	15	of 60



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D				D															
C				C															
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				Date:	Monday, July 27, 2015	Sheet 20 of 60


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Issued Date	2014/12/11	Deciphered Date	2015/12/11	ATI_JET-LE_Main_MSIC	
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D				
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		Title	ATI_JET-LE_DP Power	
		Size	Document Number	Rev
		Custom	BMWQ1&2 UMA	0.2
		Date:	Monday, July 27, 2015	Sheet 23 of 60
5	4	3	2	1

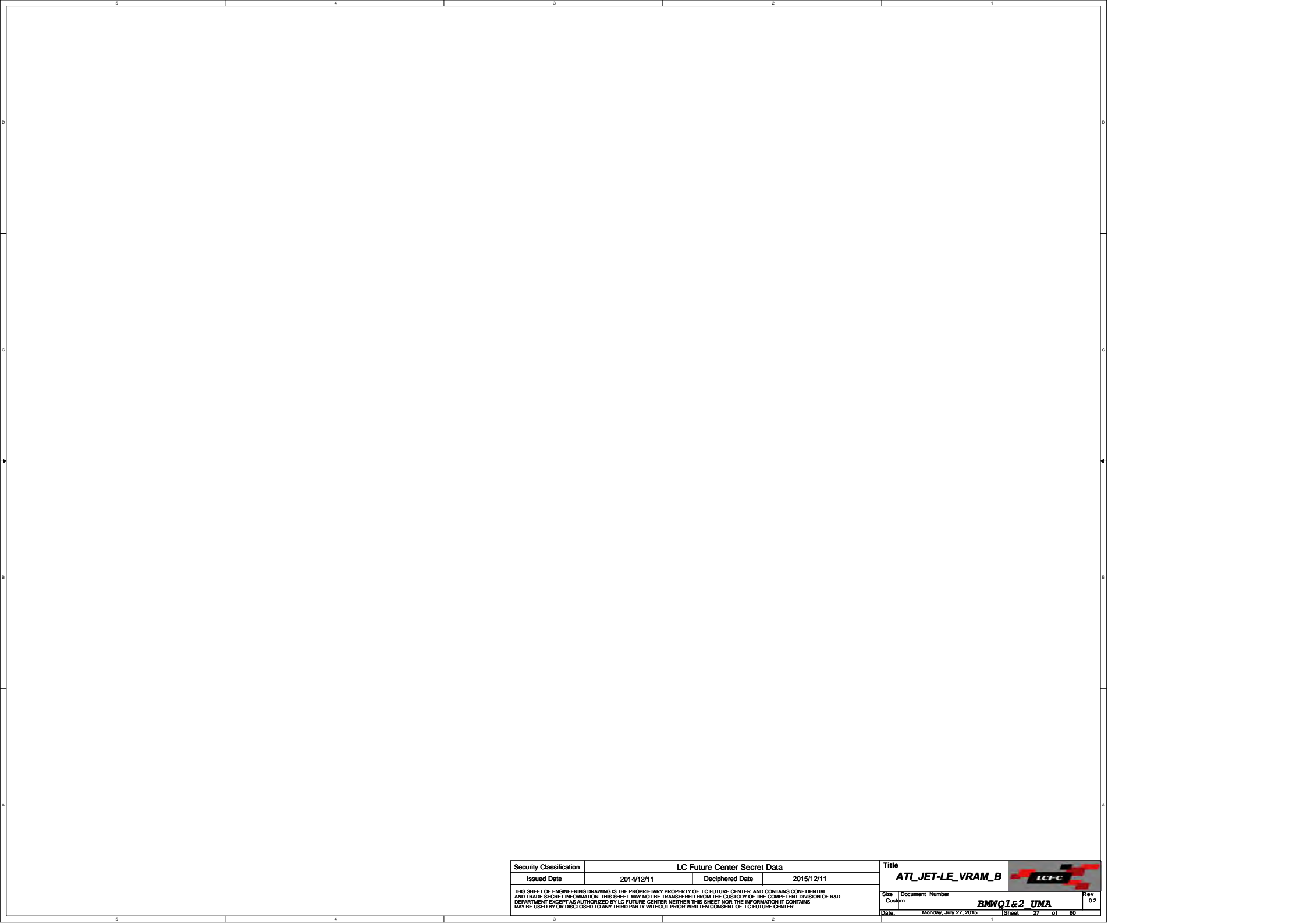




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				Sheet 24 of 60	



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Date: Monday, July 27, 2015										Sheet 25 of 60					

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				Custom		Rev	
				Date: Monday, July 27, 2015		Sheet 26 of 60	
				Customer		BMWQ1&2 UMA	
						0.2	



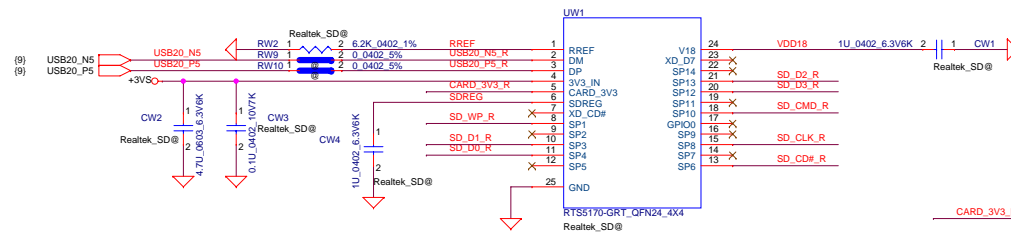
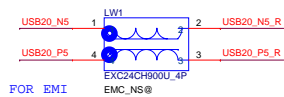
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Title			
ATI_JET-LE_VRAM_B			
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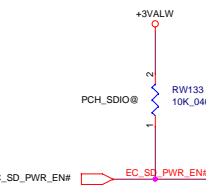
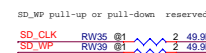
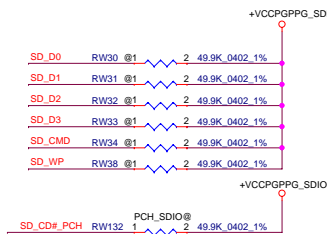
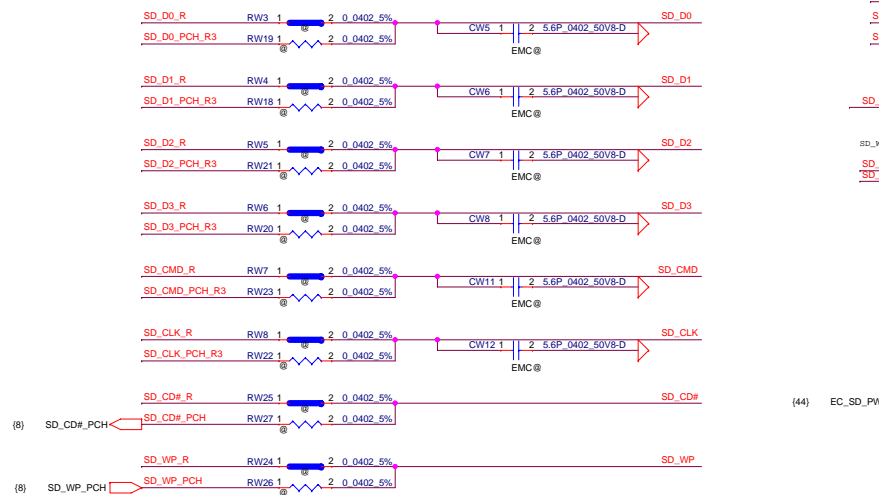
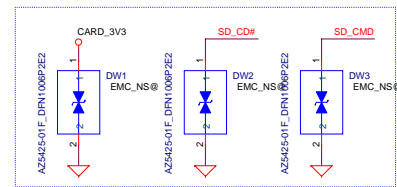
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D				D					
C				C					
B				B					
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		Issued Date		2014/12/11		Deciphered Date			
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B								B	
A								A	

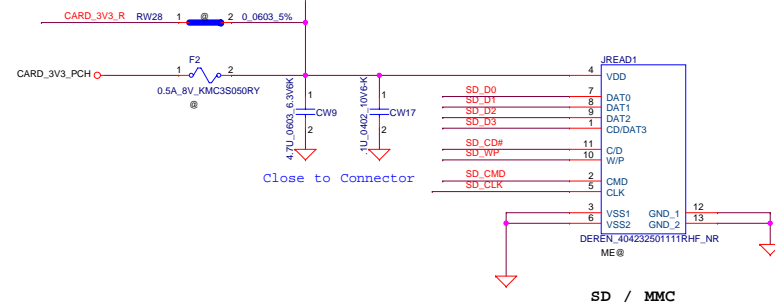
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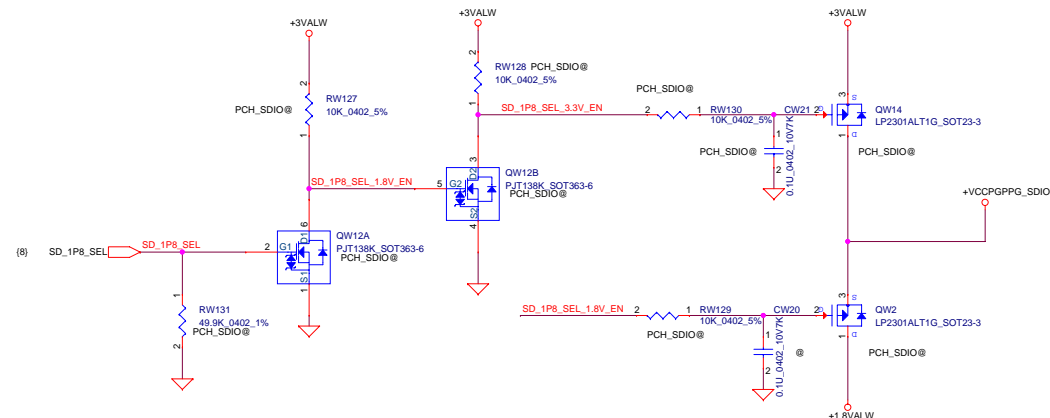
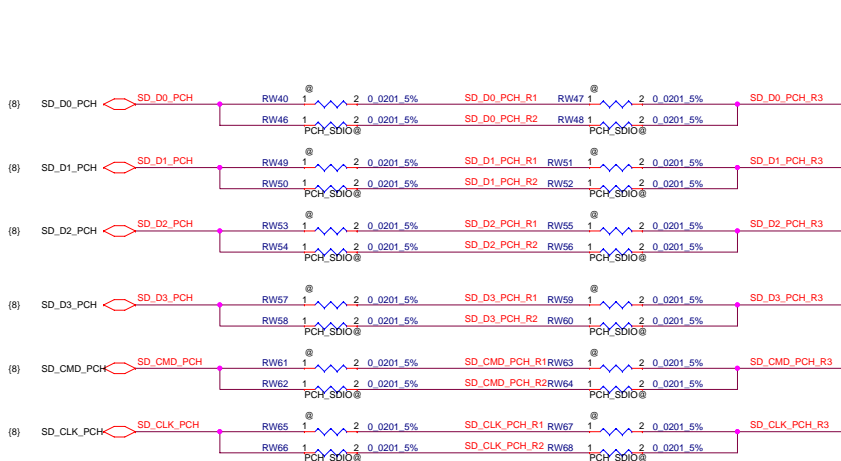
FOR ESD Close to Connector



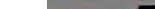
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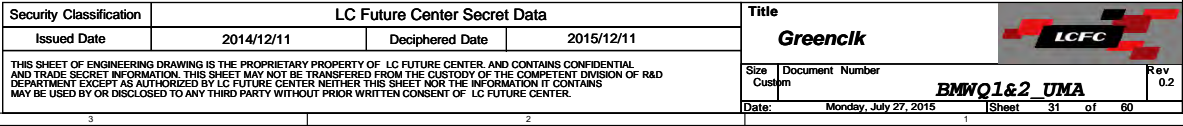


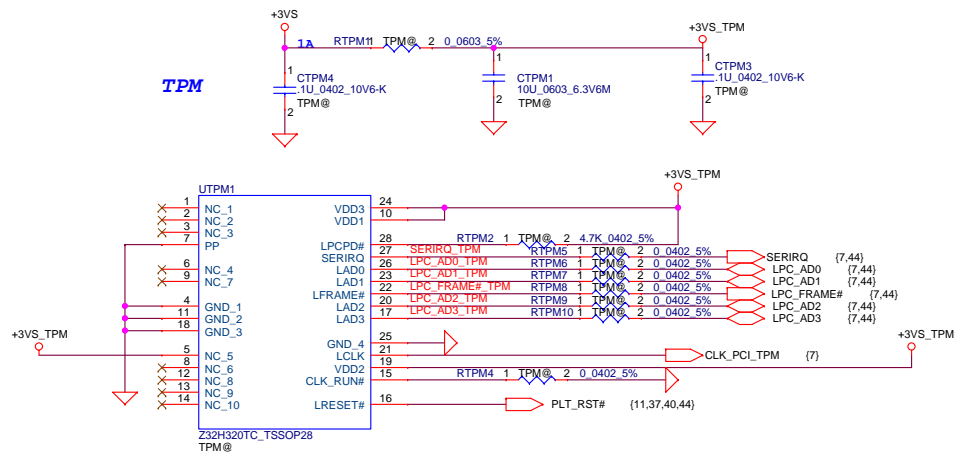
SD / MMC




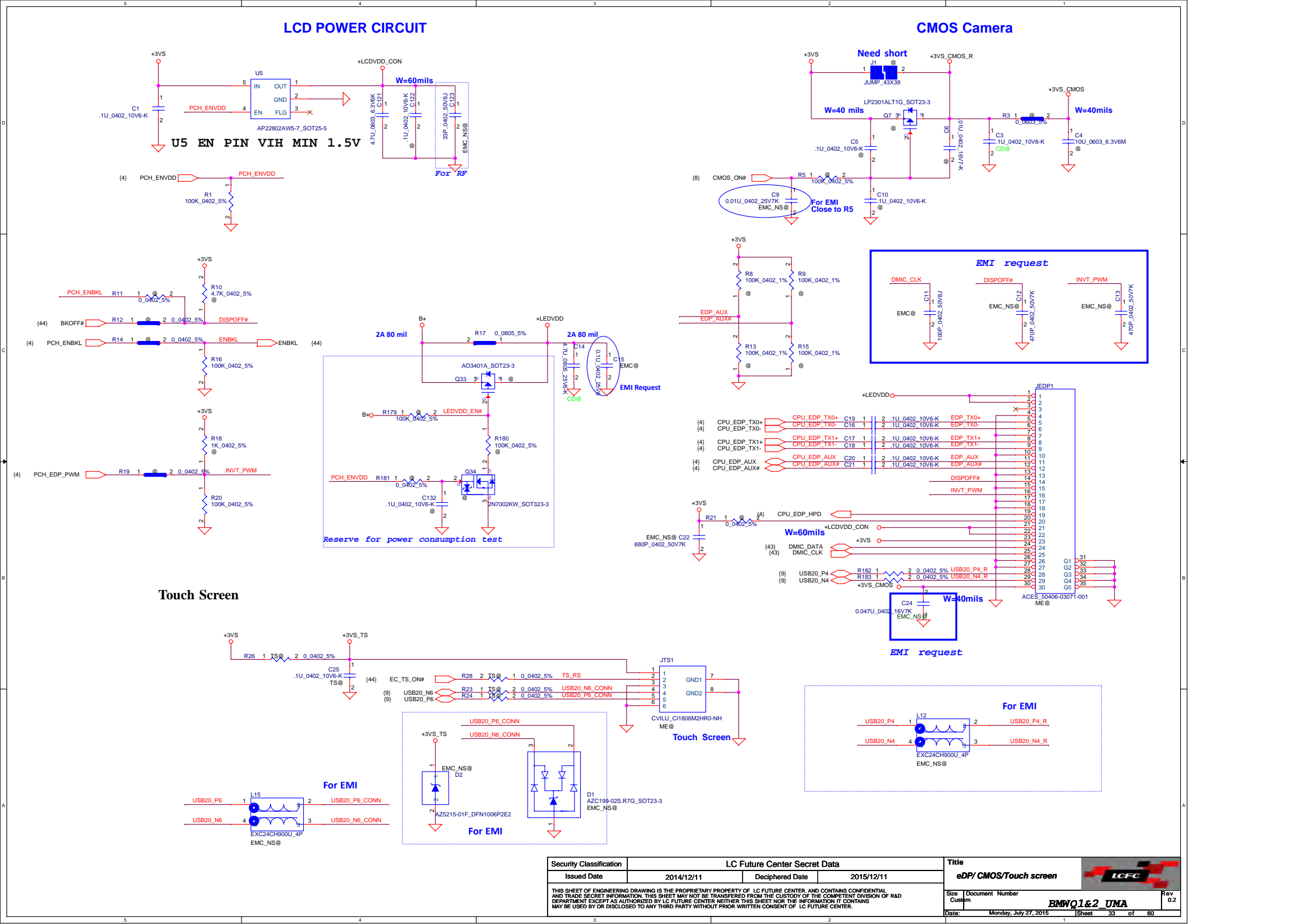
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Custom		BMQ1&2 UMA		Sheet		32 of 60			

[illegible][illegible]

LCD POWER CIRCUIT

U5 EN PIN VIH MIN 1.5V

W=60mils

For EMI

CMOS Camera

Need short

W=40 mils

For EMI Close to R5

EMI request

Touch Screen

W=60mils

W=40mils

For EMI

For EMI

Security Classification

LC Future Center Secret Data			
Issued Date	2014/12/11	Deciphered Date	2015/12/11

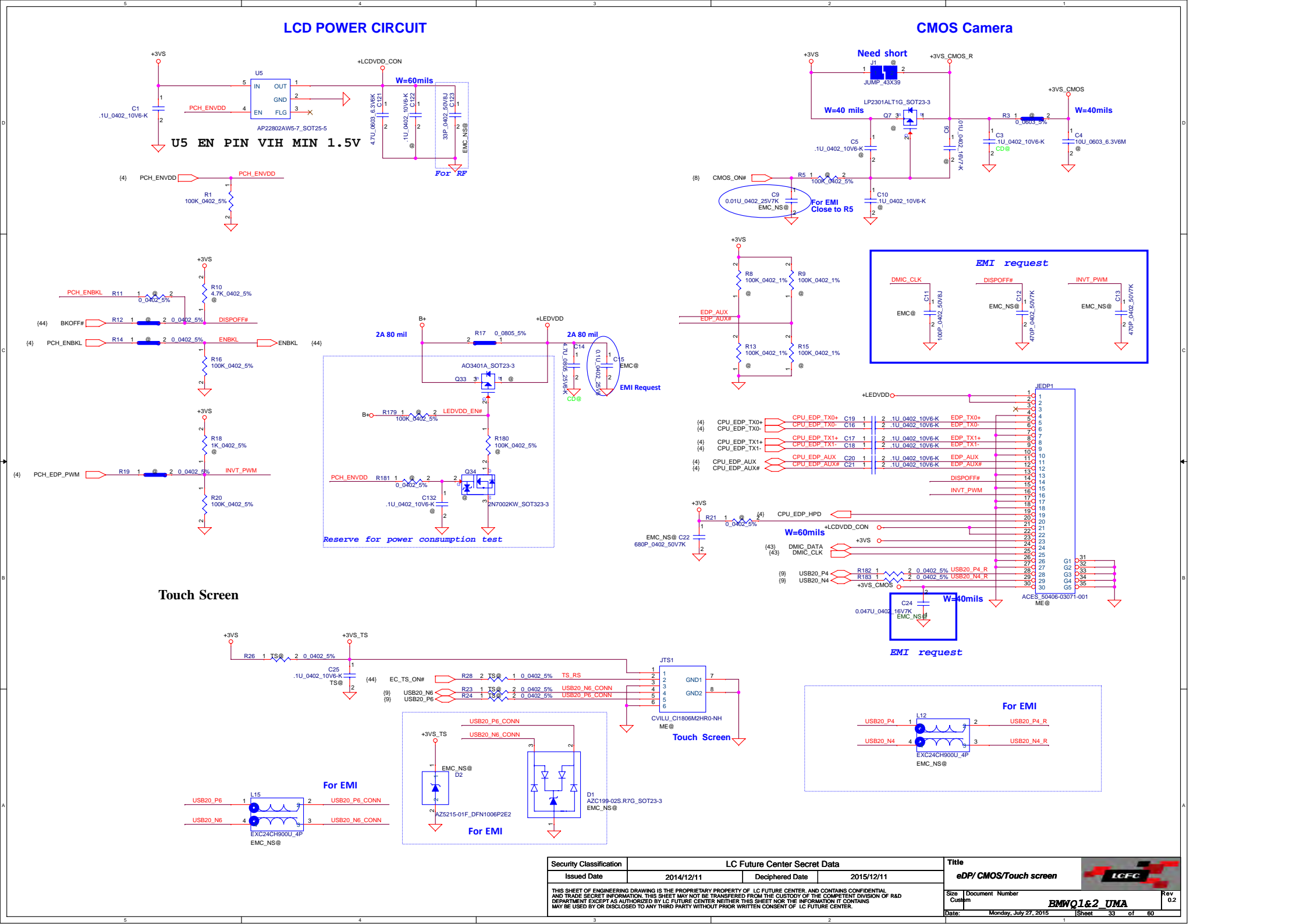
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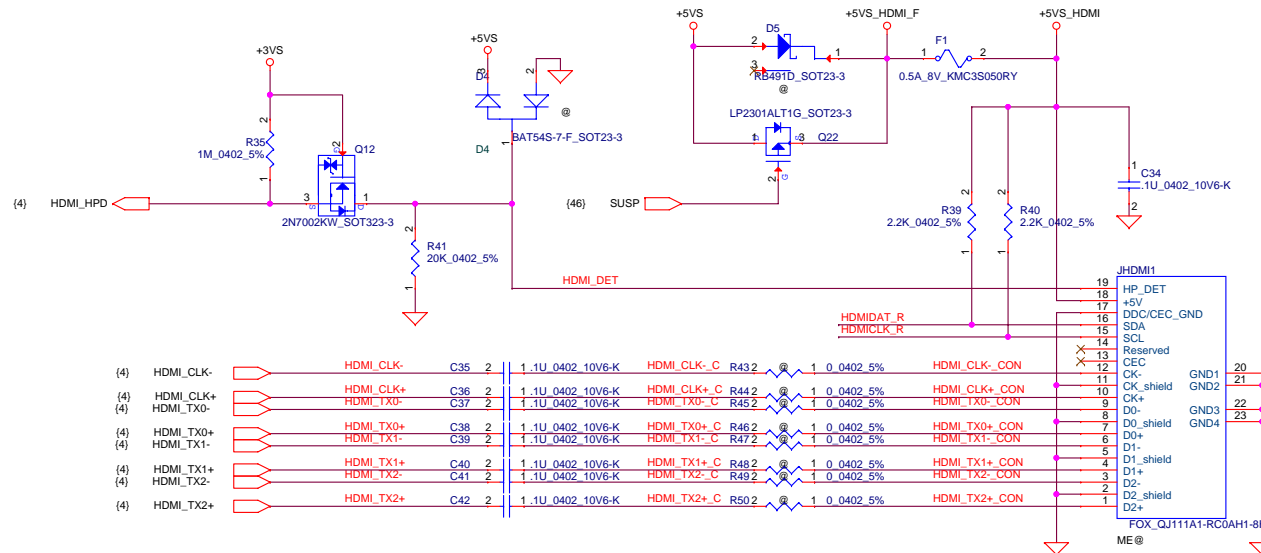
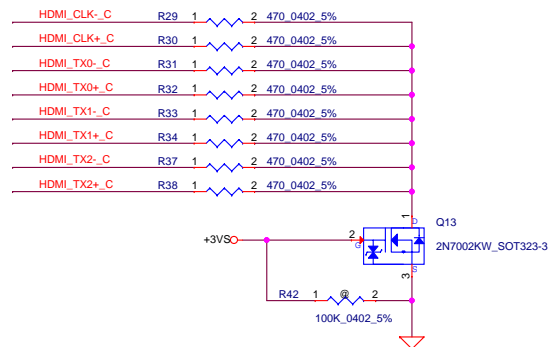
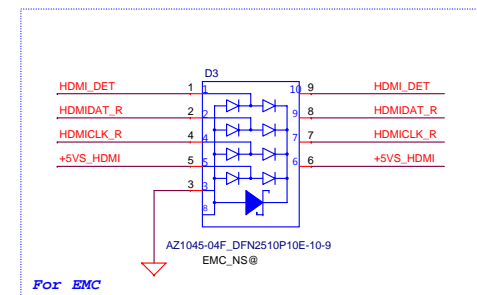
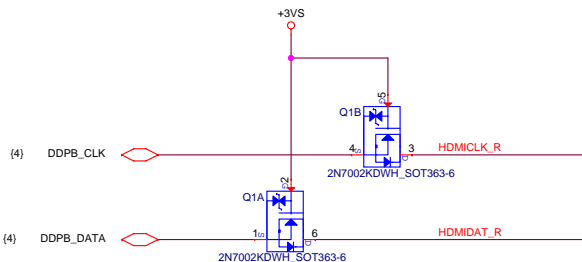
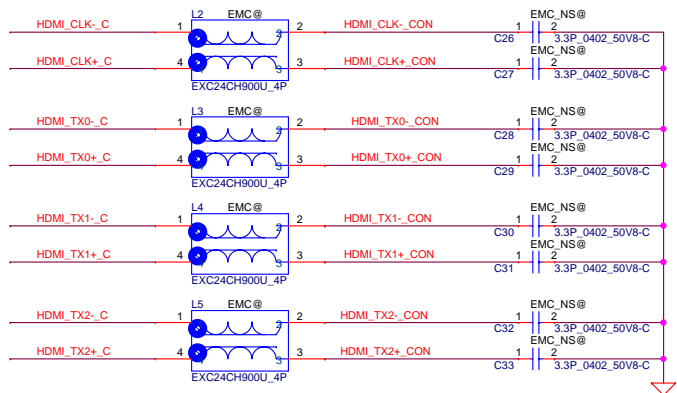
eDP/ CMOS/Touch screen

Size Document Number **Rev**

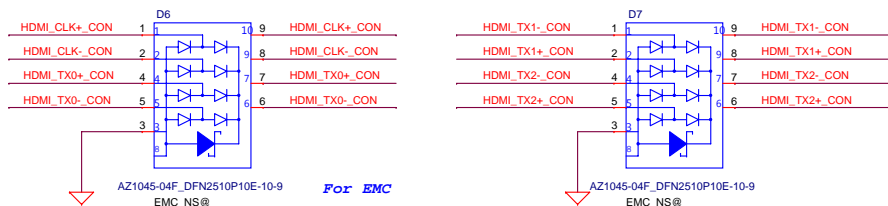
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Date: Monday, July 27, 2015 **Sheet** 33 **of** 60

[illegible]



Close to JHDMI1

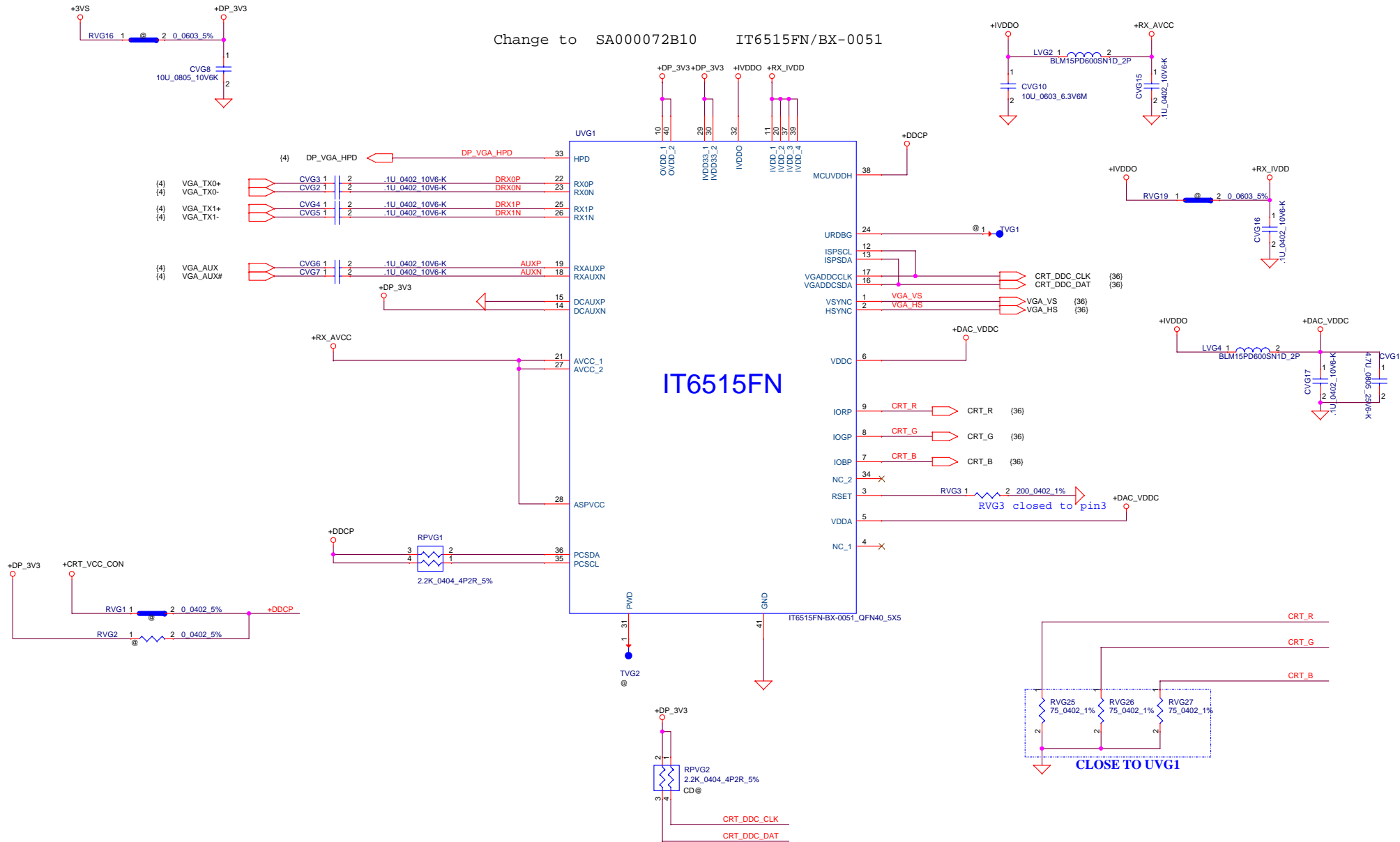


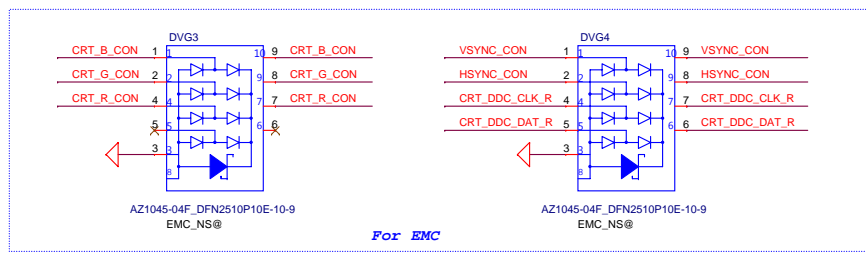
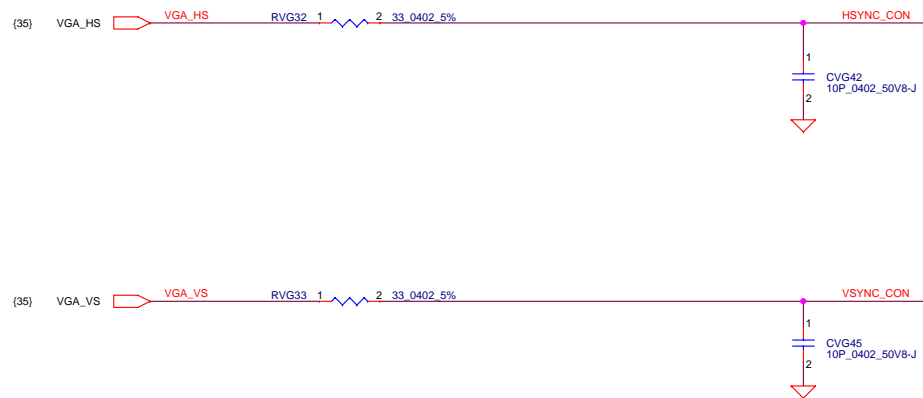
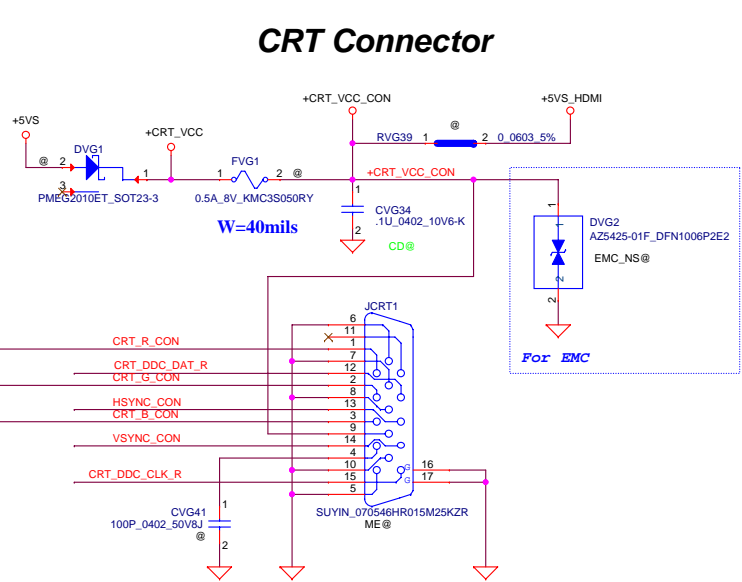
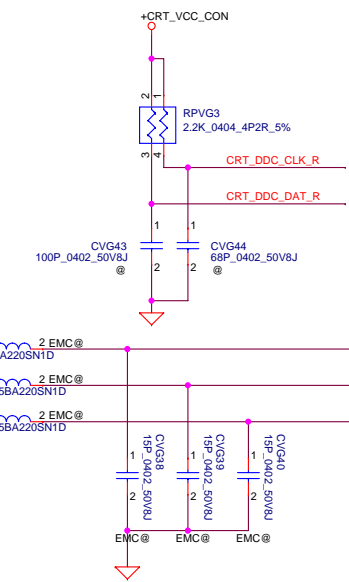
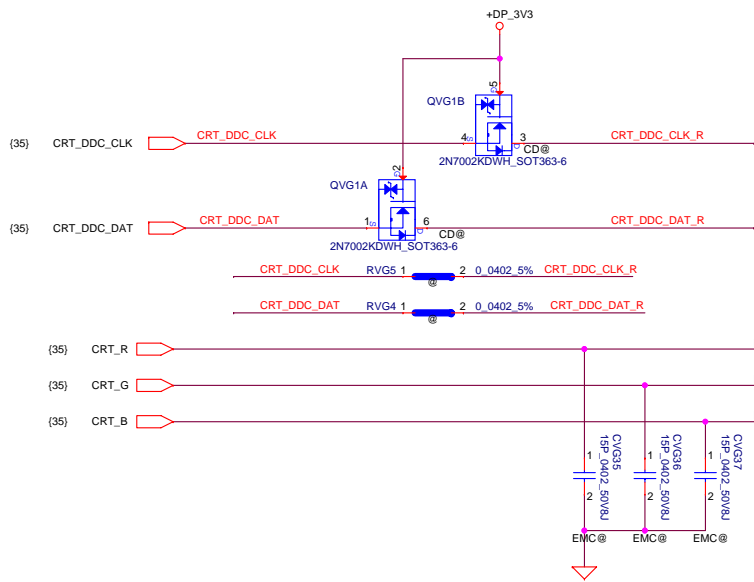
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Issued Date				2014/12/11				HDMI_CONN		0.2	
Deciphered Date				2015/12/11				Document Number		BMWQ1&2 UMA	
Date				Monday, July 27, 2015				Sheet		34 of 60	

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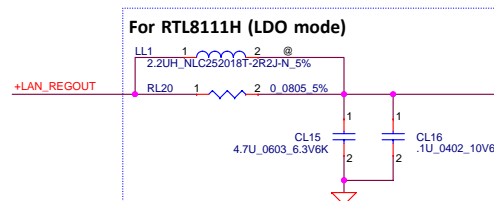
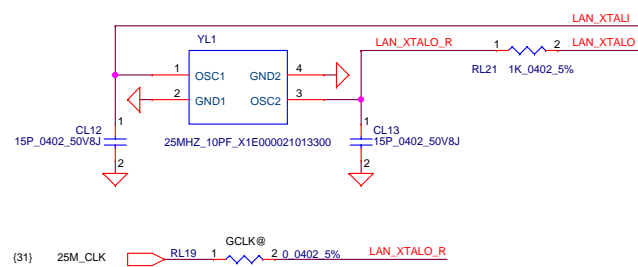
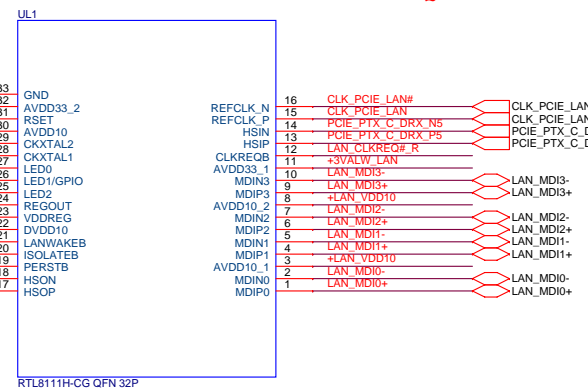
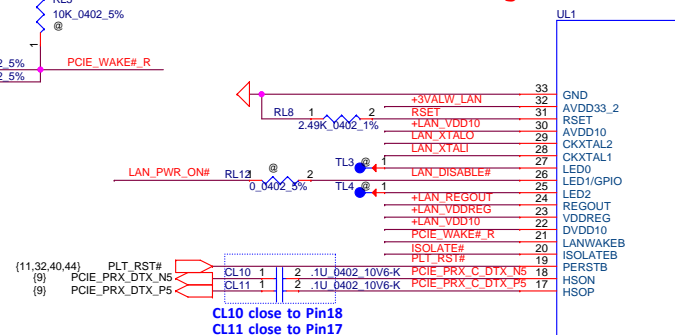
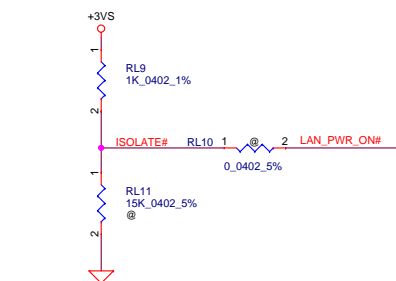
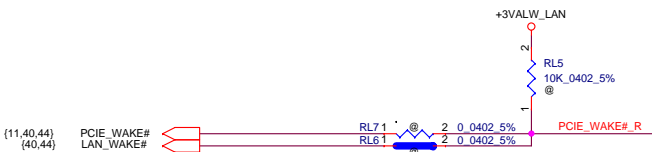
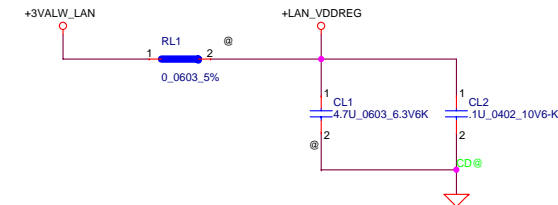
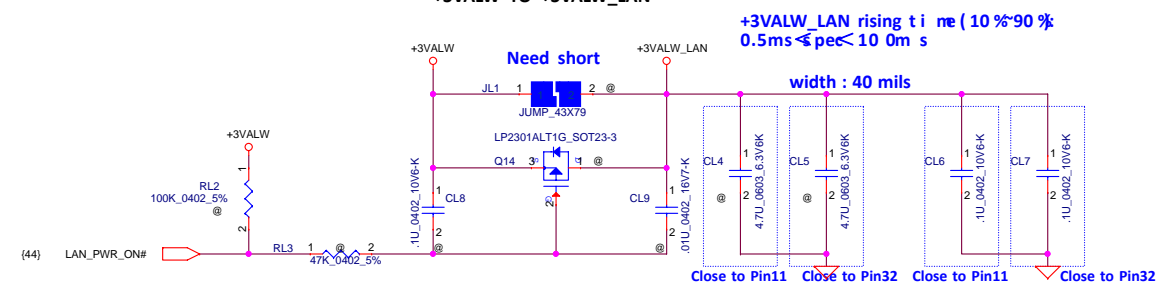


WWW.AliSaler.Com

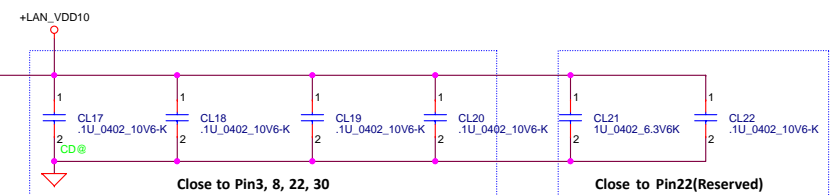


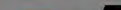


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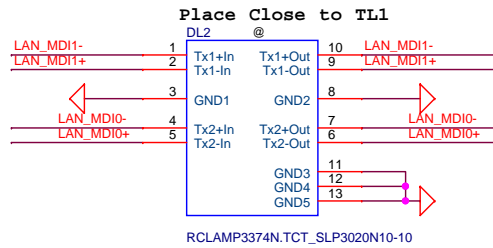
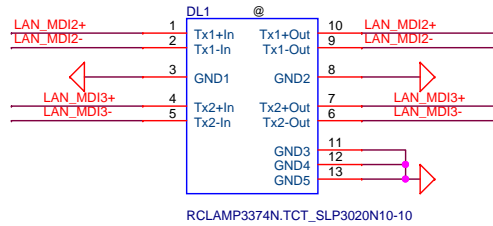


Layout Note: LL1 must be within 200mil to Pin24, CL15,CL16 must be within 200mil to LL1
+LAN_REGOUT: Width =60mil

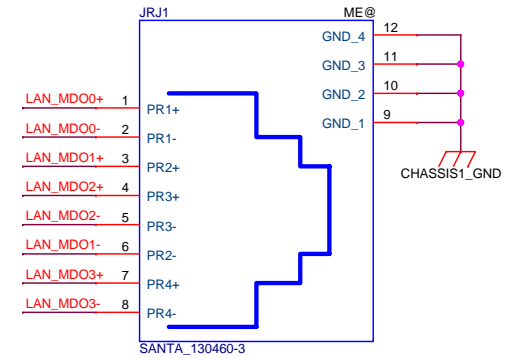
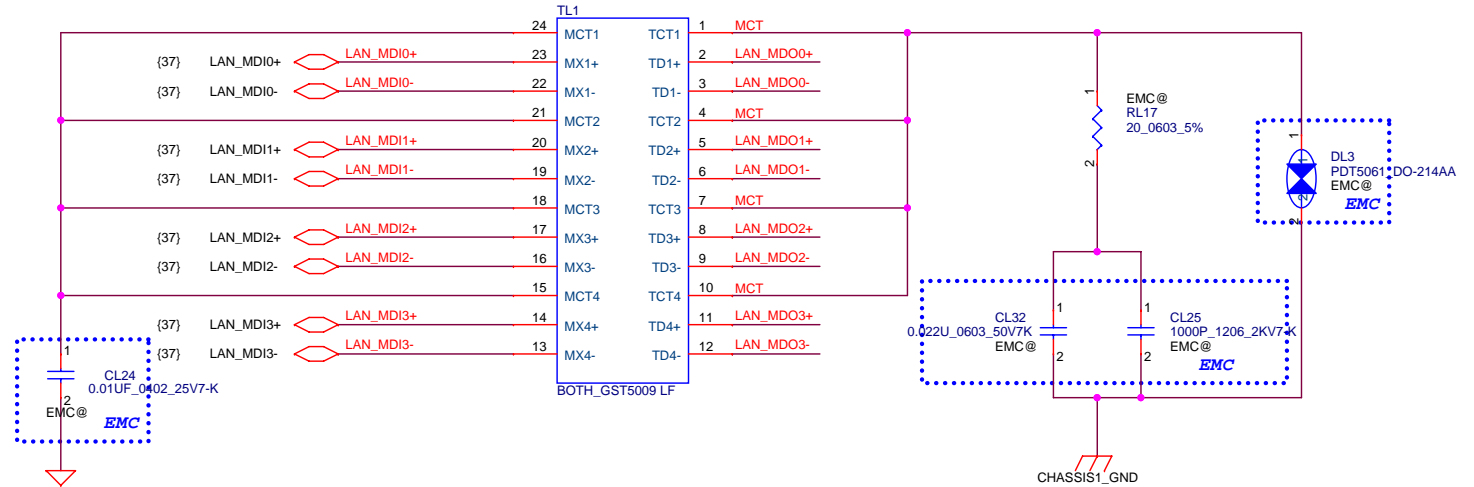
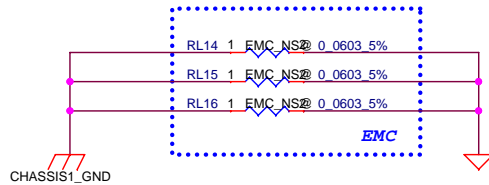



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Date: Monday, July 27, 2015				Sheet 37 of 60		

DL1/DL2
1'S PN:SC400007R00

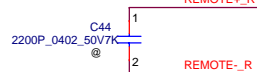


Place Close to TL2



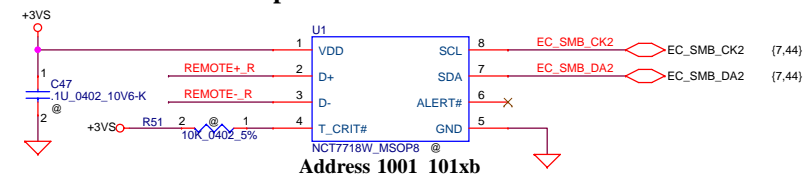
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Issued Date	2014/12/11	Deciphered Date	2015/12/11	LAN_Transformer		
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Date:		Monday, July 27, 2015		Sheet 38 of 60		

Close to U1

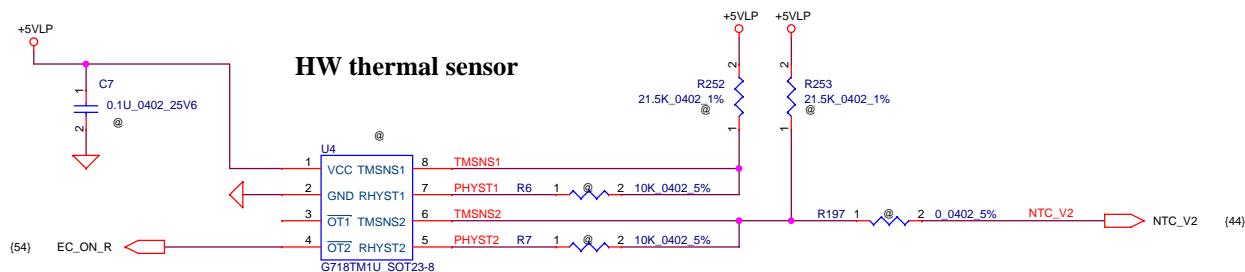


REMOTE+/-_R, REMOTE1+/-, REMOTE2+/-:
Trace width/space:10/10 mil
Trace length:<8"

SMSC thermal sensor placed near DIMM

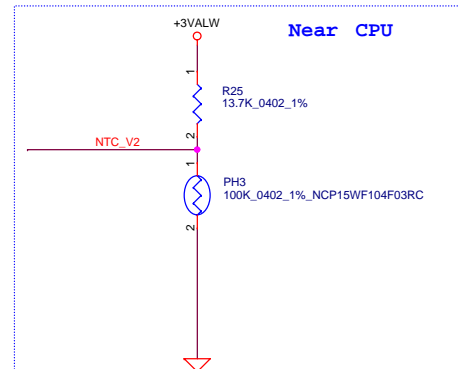
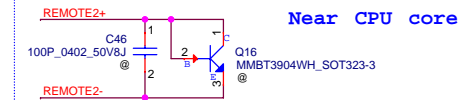
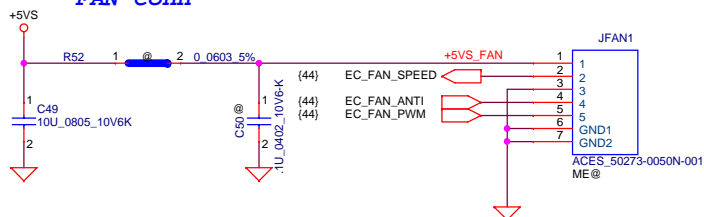


HW thermal sensor



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

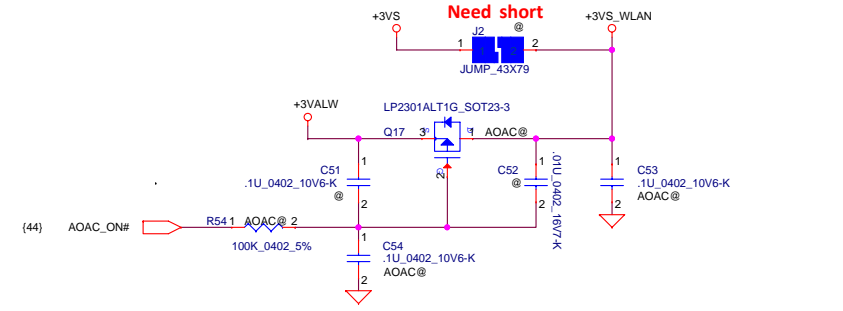
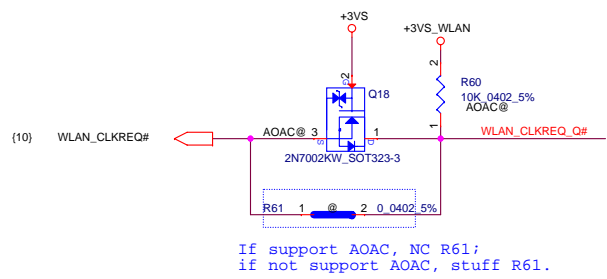
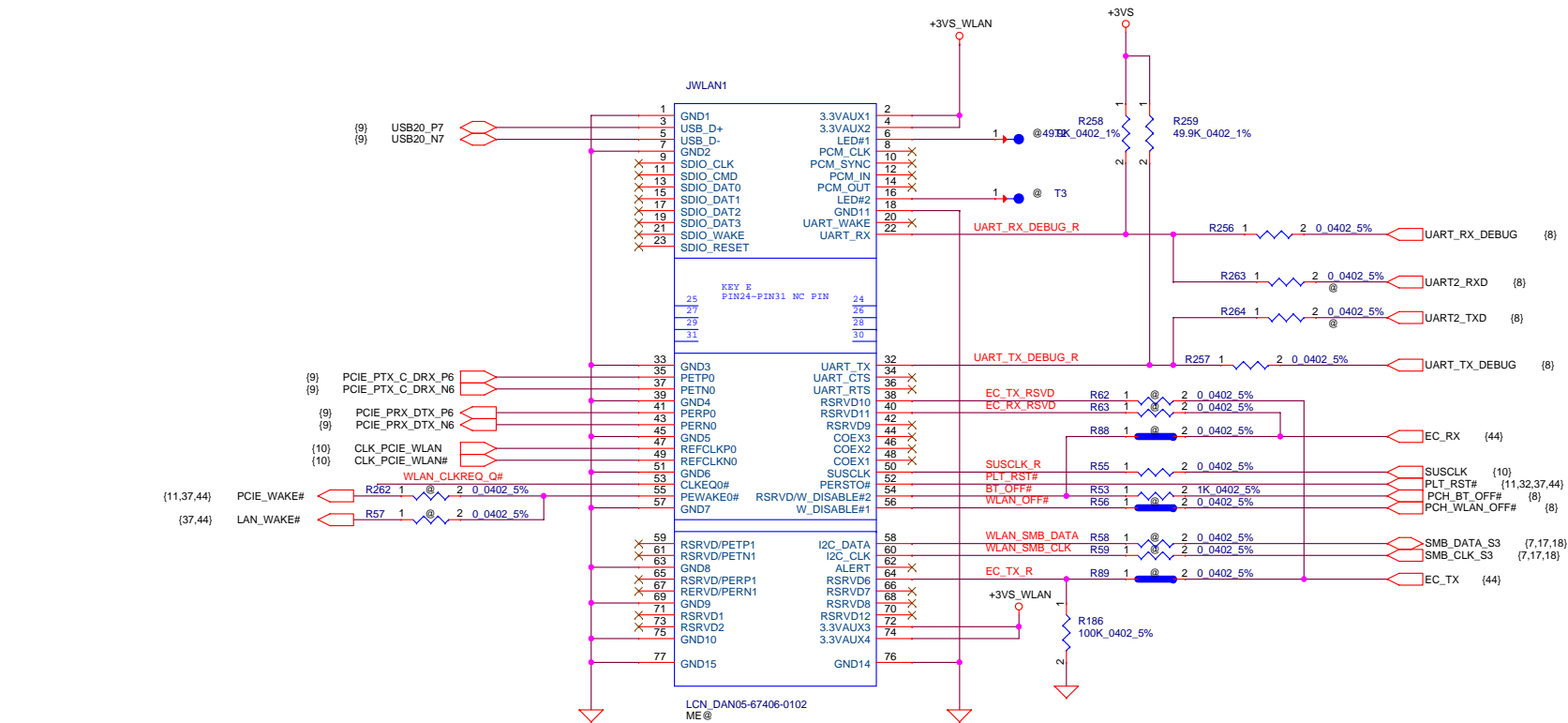
FAN Conn



for layout optimized, change the EC_AGND to GND

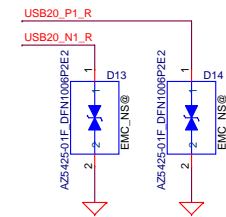
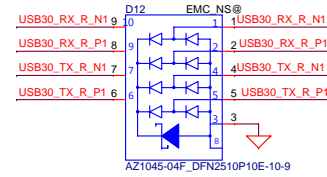
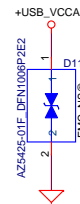
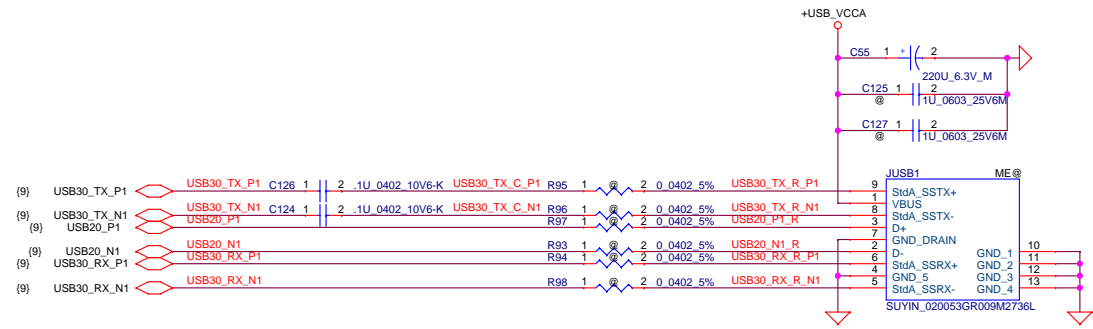
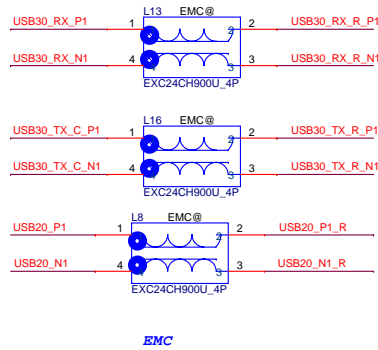
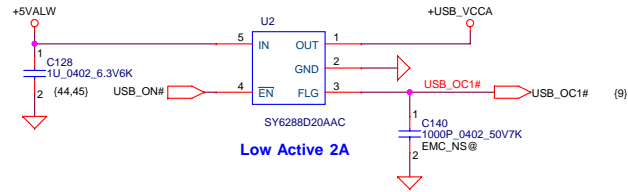
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				BMWQ1&2 UMA
				Rev 0.2
				Date: Monday, July 27, 2015
				Sheet 39 of 60


Mini-Express Card(WLAN/WiMAX)



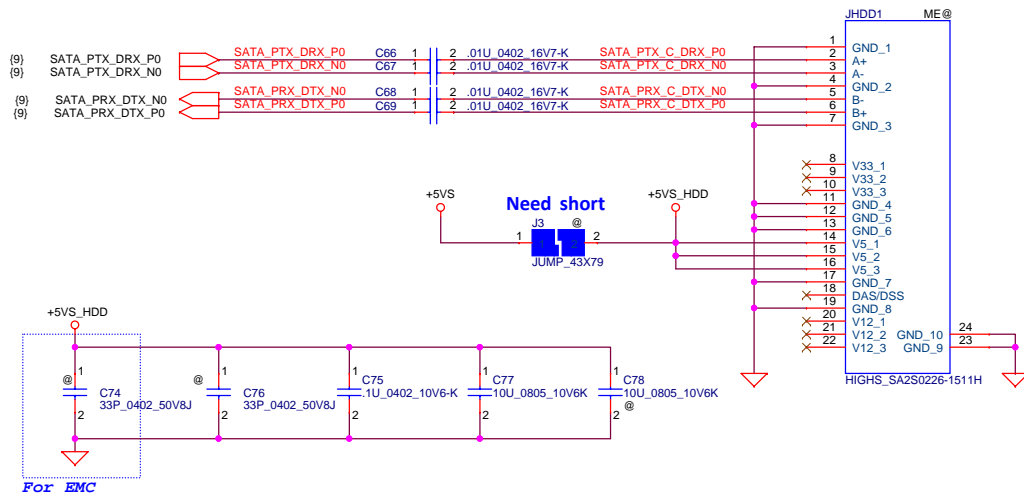
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				Custom	BMWQ1&2 UMA
				Date:	Monday, July 27, 2015
				Sheet	40 of 60
				Rev	0.2

LEFT SIDE USB3.0 PORT x1

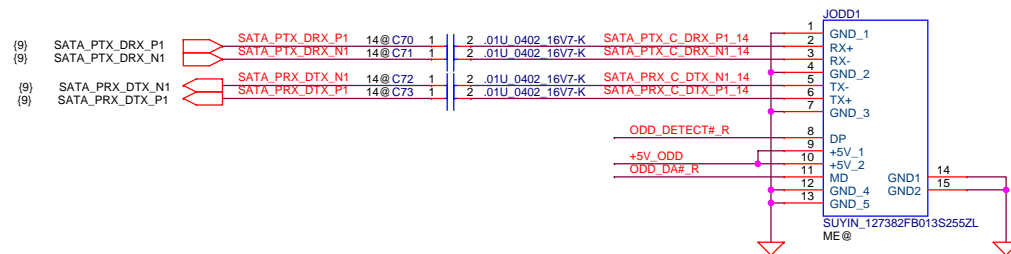


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Issued Date	2014/12/11	Deciphered Date	2015/12/11	P32-USB3.0 PORT (LEFT)			
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				BMWQ1&2_UMA			
				Date:	Monday, July 27, 2015	Sheet	41 of 60

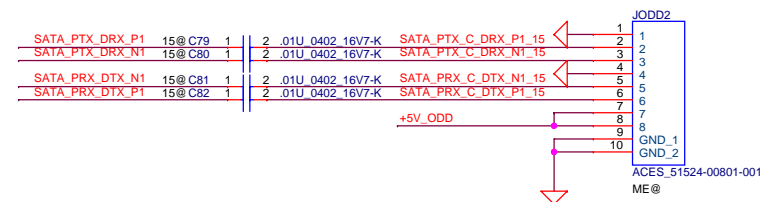
SATA HDD Conn.



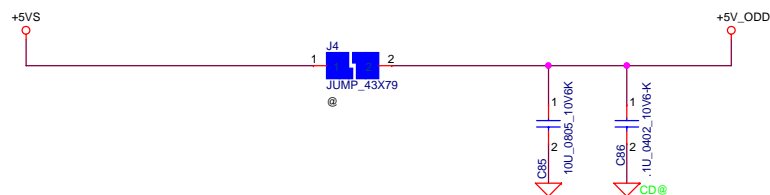
FOR 14" SATA ODD Conn.




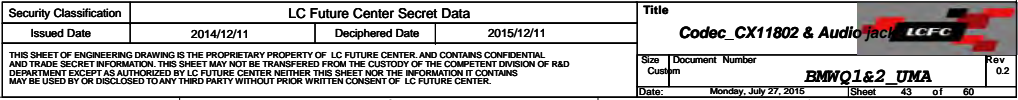
FOR 15" SATA ODD FFC Conn

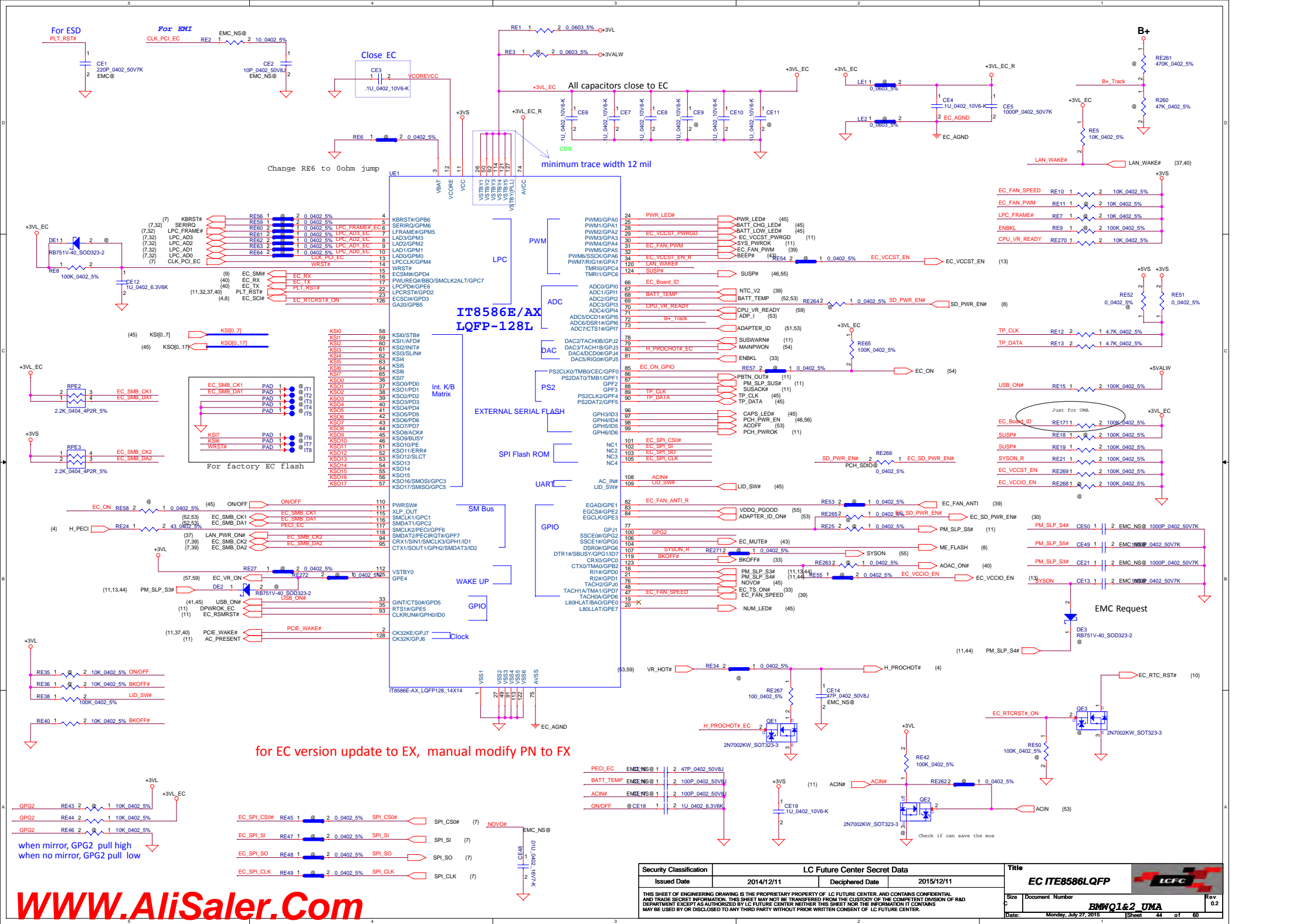


Need Short

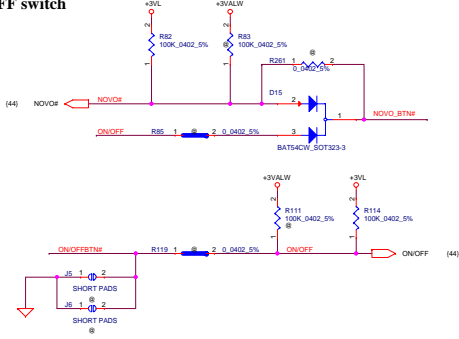


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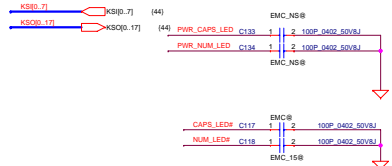




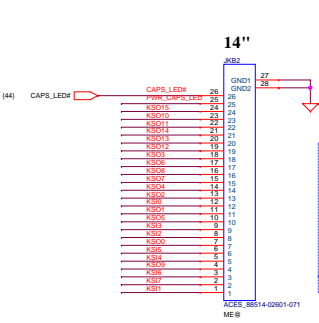
ON/OFF switch



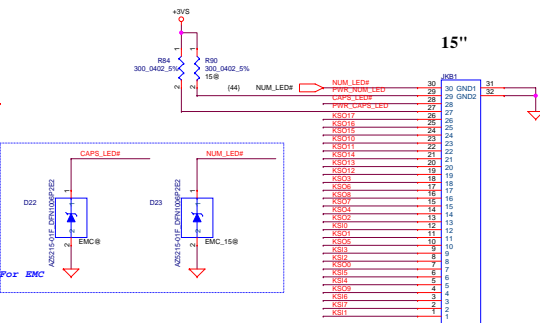
K/B Connector



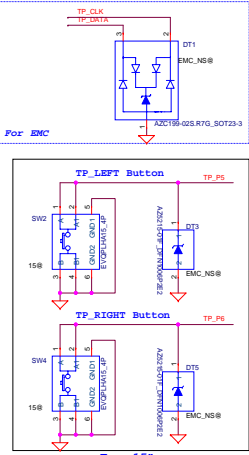
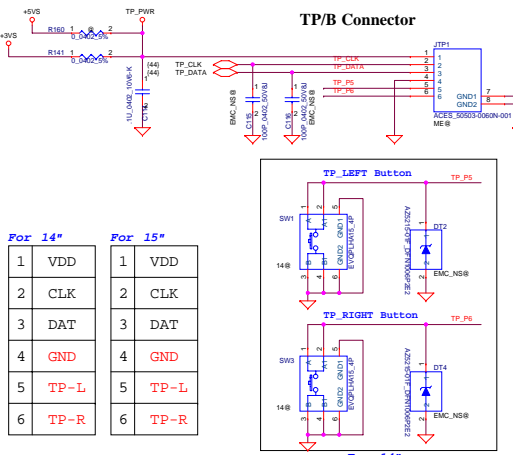
14"



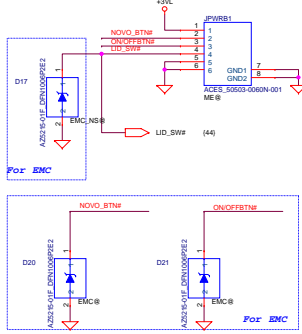
15"



TP/B Connector

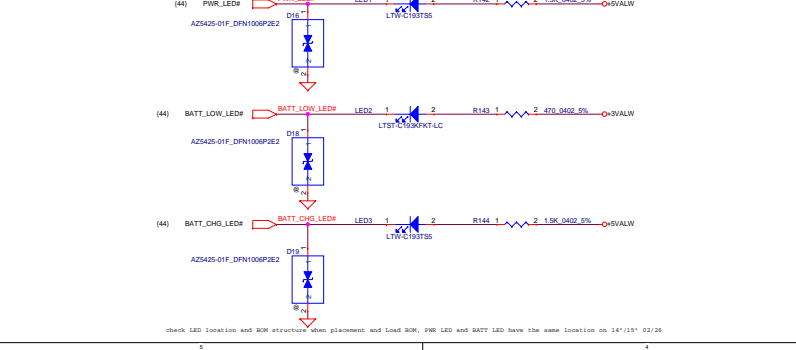
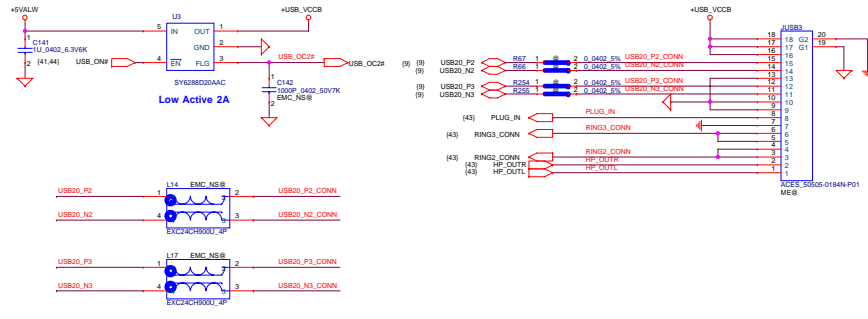


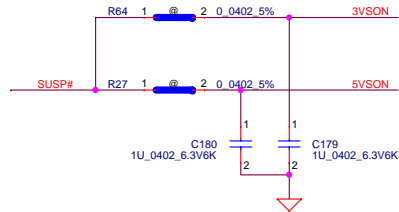
PWR/B Connector



USB I/O Connector

Right Side USB2.0 Port X 2 (USB/B)

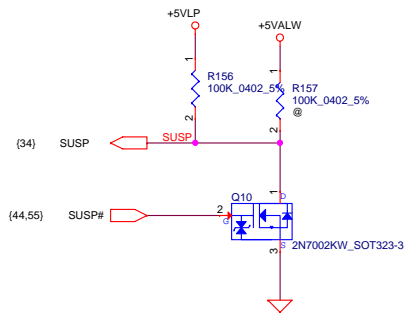
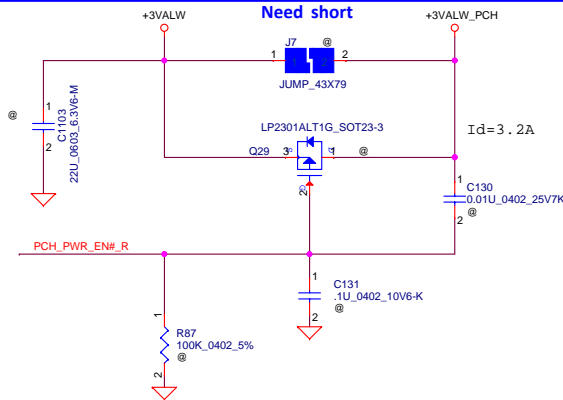
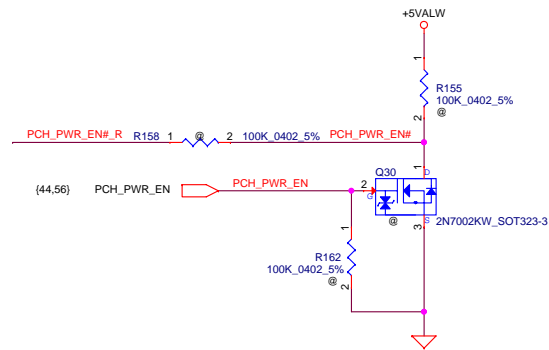
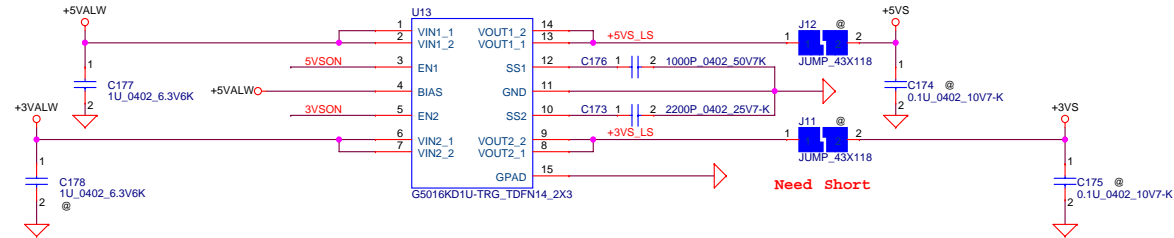




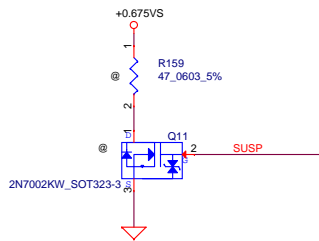
Load Switch
+5VALW To +5VS
+3VALW To +3VS

+3VS, C173 --> 2.74ms
+5VS, C176 --> 2.03ms

VIN 5V and 3.3V (VBias=5V), I_{MAX(per channel)}=6A, R_{ds}=16mohm

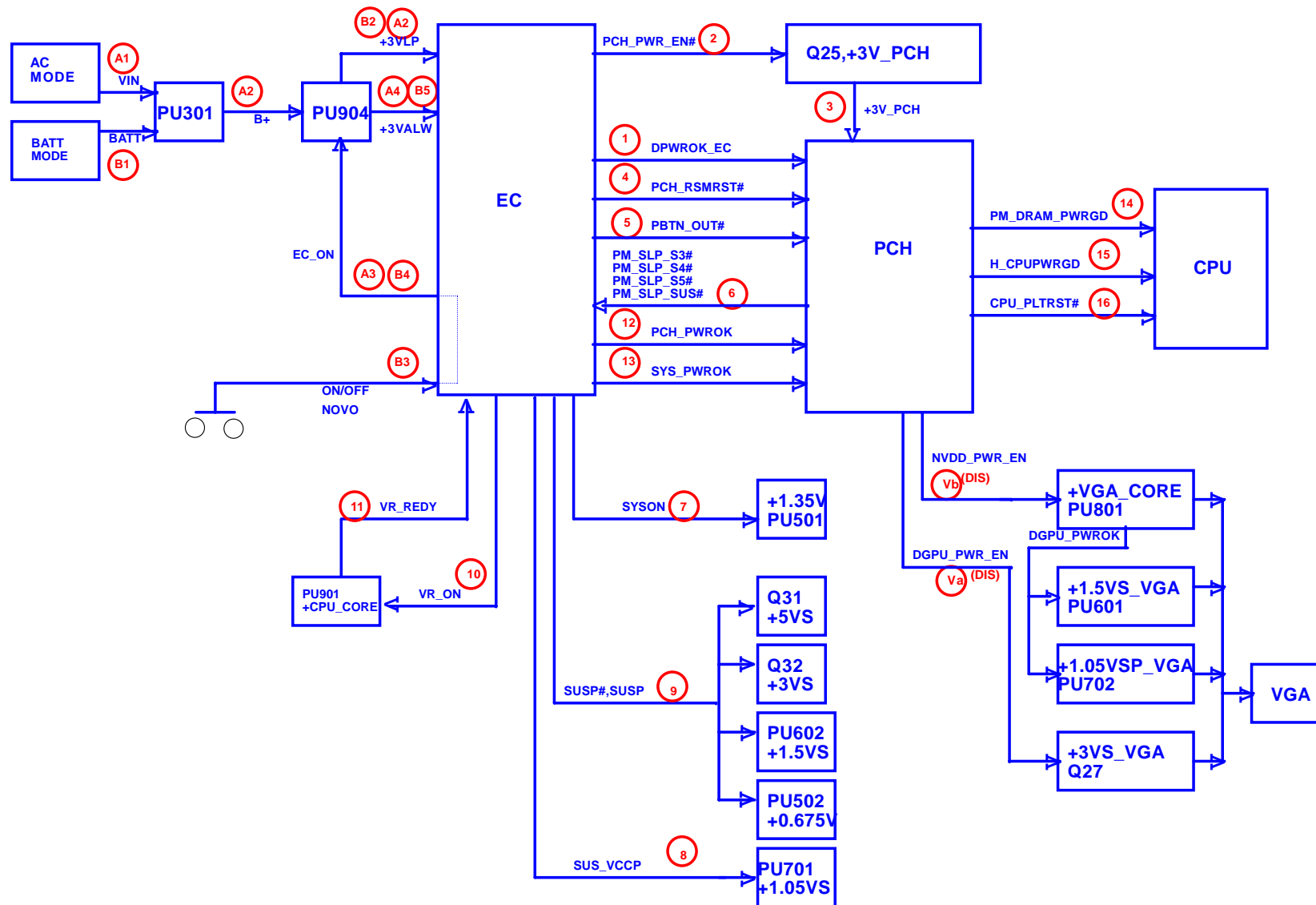


For DisCharge

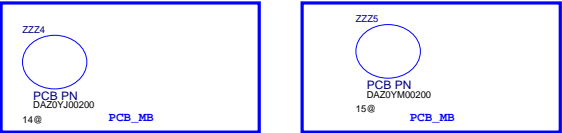


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				Date: Monday, July 27, 2015	Sheet 46 of 60

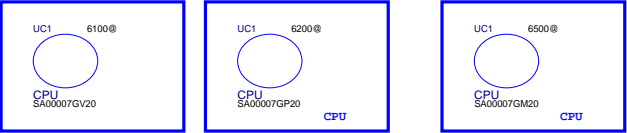




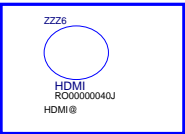
PCB



CPU



HDMI



Board ID


BOARD_ID0	BOARD_ID1	BOARD_ID2	BOARD_ID3	Description	Stuff Resistor
0	0	0	1	14" + Jet-LK + Single-Rank sku	RC107,RC108,RC109,RC121
0	0	1	1	14" + Jet-LK + Dual-Rank sku	RC107,RC108,RC102,RC121
0	1	0	1	15" + Jet-LK + Single-Rank sku	RC107,RC101,RC109,RC121
0	1	1	1	15" + Jet-LK + Dual-Rank sku	RC107,RC101,RC102,RC121
1	0	0	1	14" + Topaz-XT + Single-Rank sku	RC108,RC108,RC109,RC121
1	0	1	1	14" + Topaz-XT + Dual-Rank sku	RC108,RC108,RC102,RC121
1	1	0	1	15" + Topaz-XT + Single-Rank sku	RC108,RC101,RC109,RC121
1	1	1	1	15" + Topaz-XT + Dual-Rank sku	RC108,RC101,RC102,RC121

Security Classification

LC Future Center Secret Data

Title

Virtual symbol



Issued Date

2014/12/11

Deciphered Date

2015/12/11

Size

Document Number

Custom

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Rev

02

Date:

Monday, July 27, 2015

1

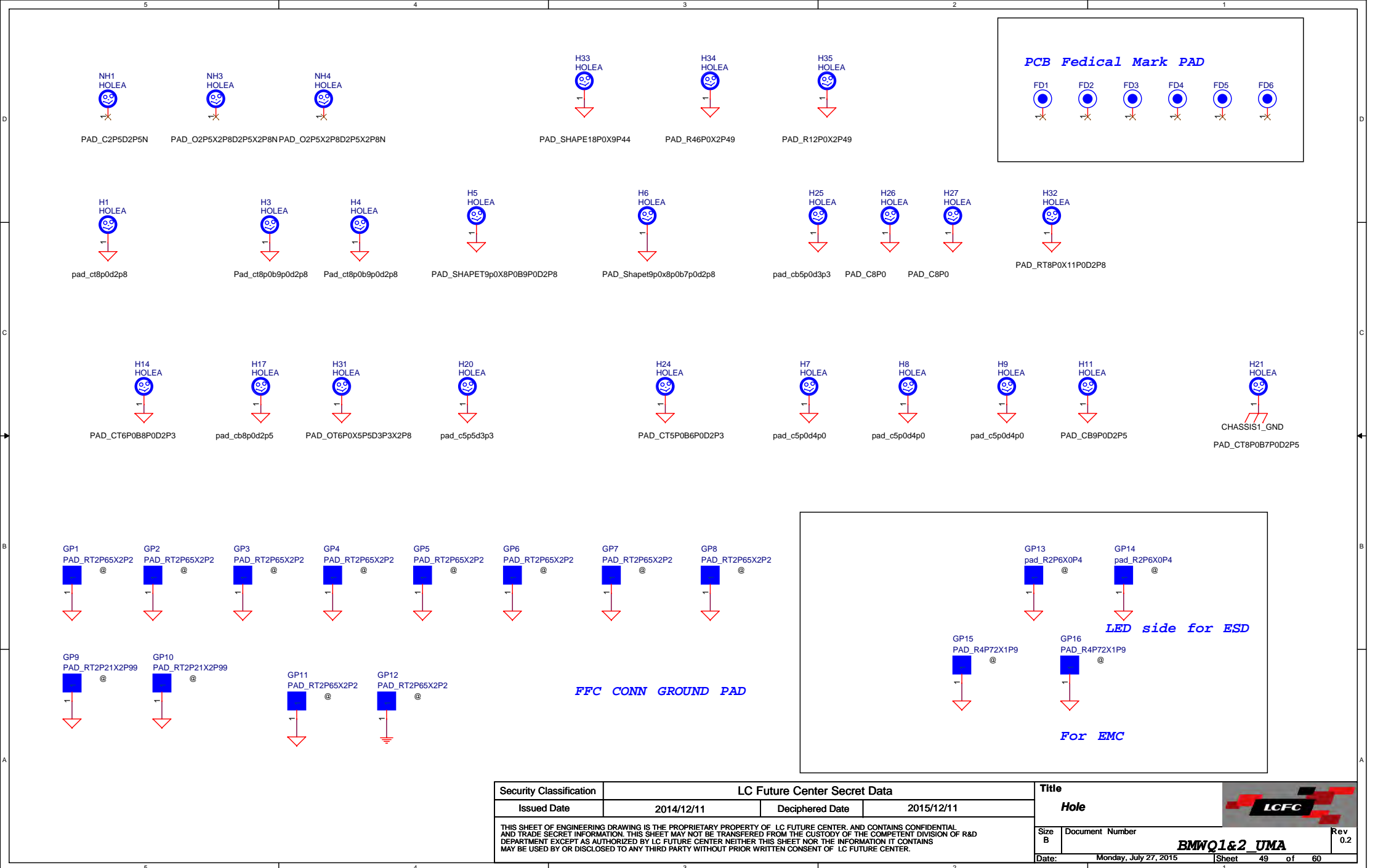
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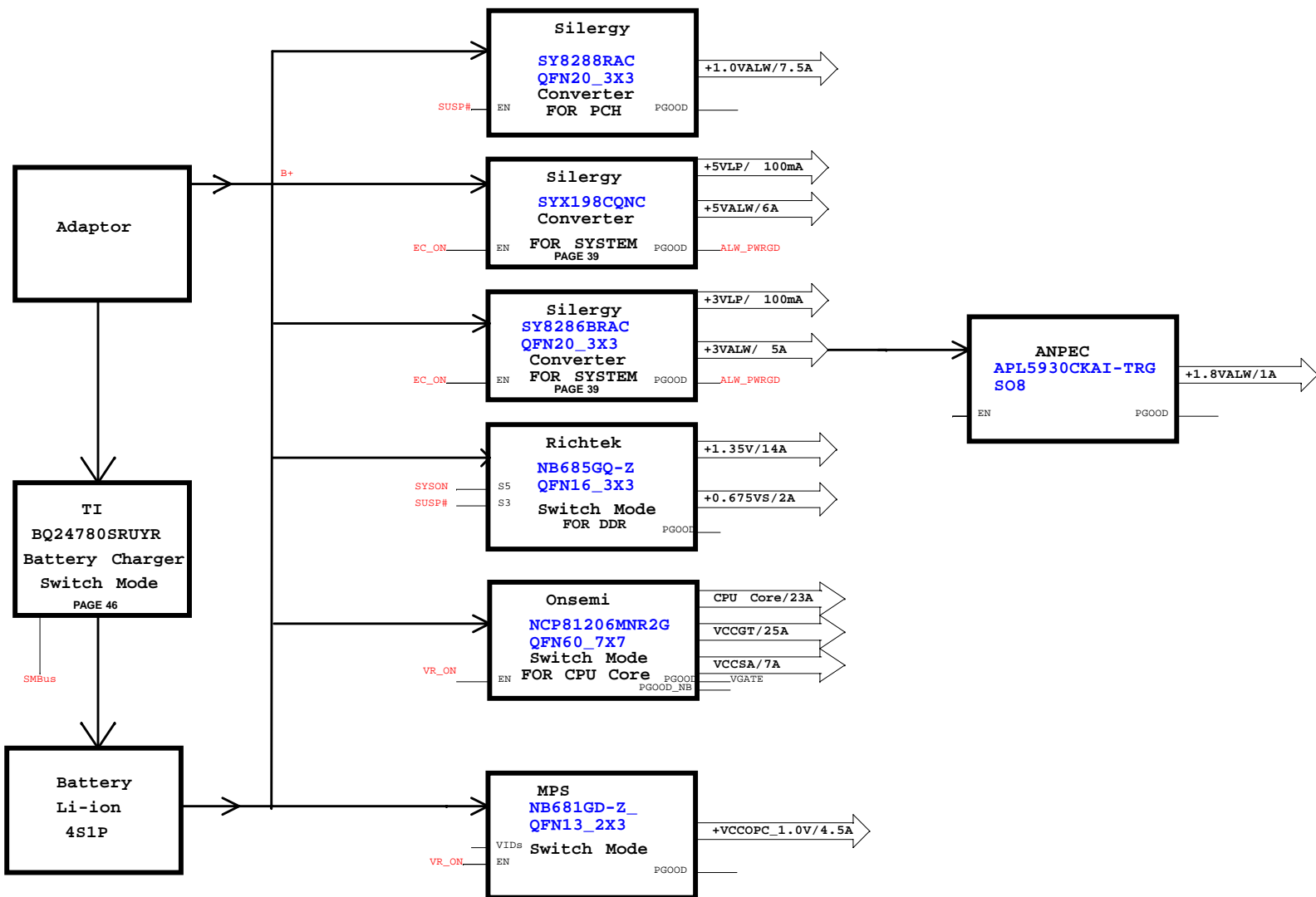
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of

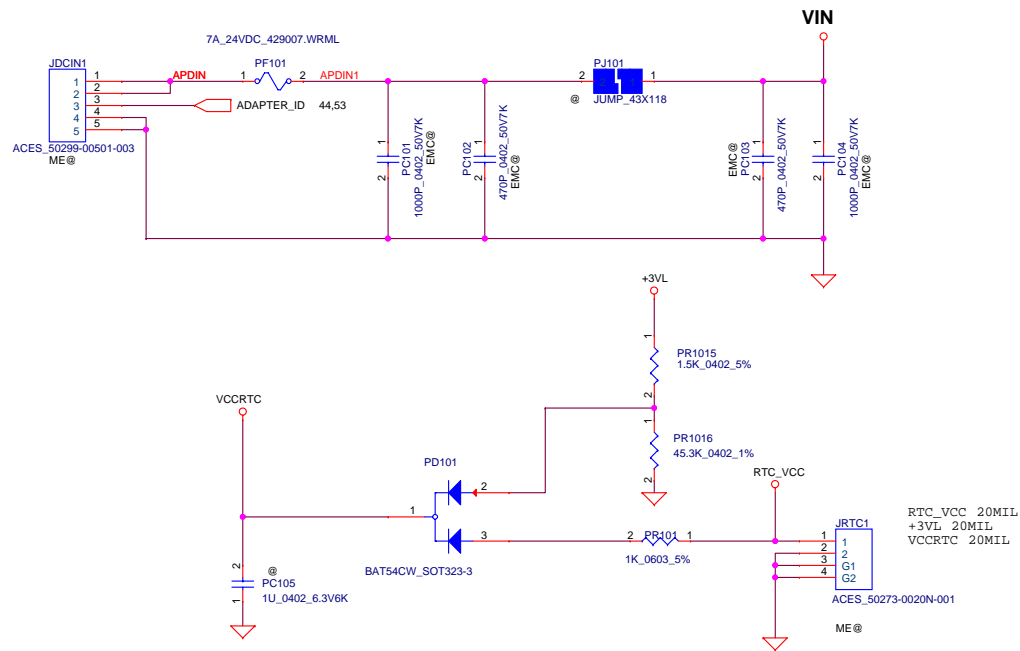
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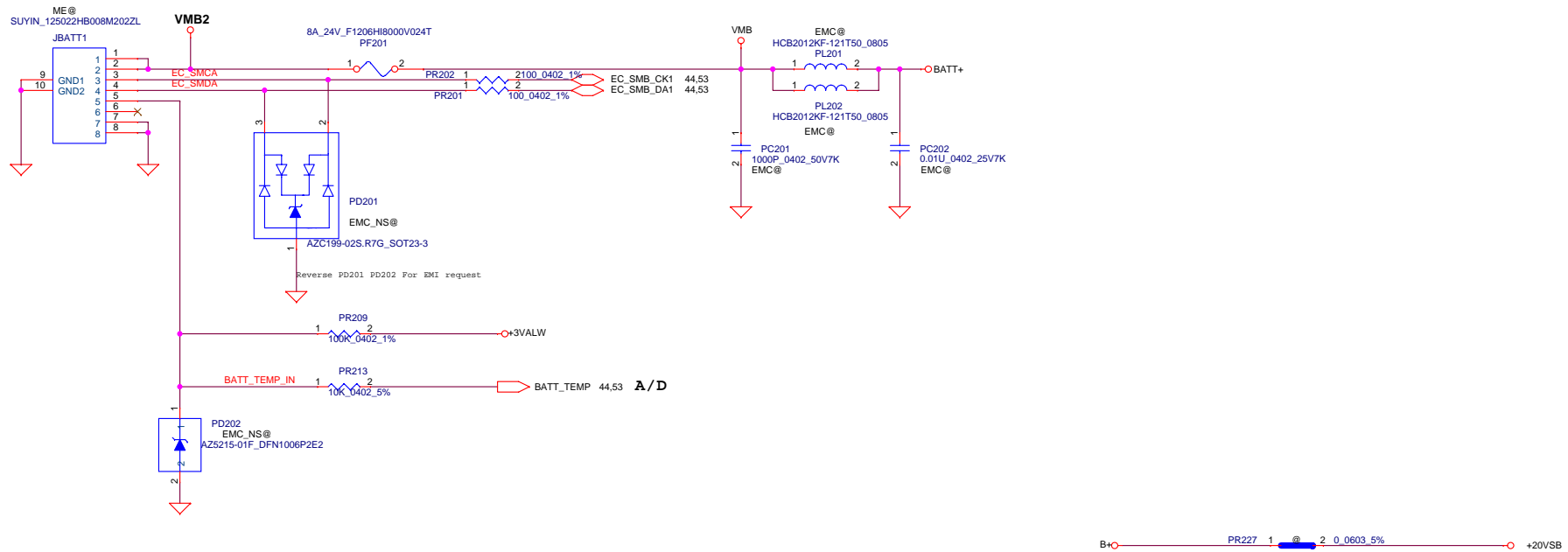





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Custom	BMWQ1&Q2				0.1
Date:	Monday, July 27, 2015		Sheet	50	of 60



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						Custom				BMWQ1&Q2		0.1	
						Date:		Monday, July 27, 2015		Sheet		51 of 60	

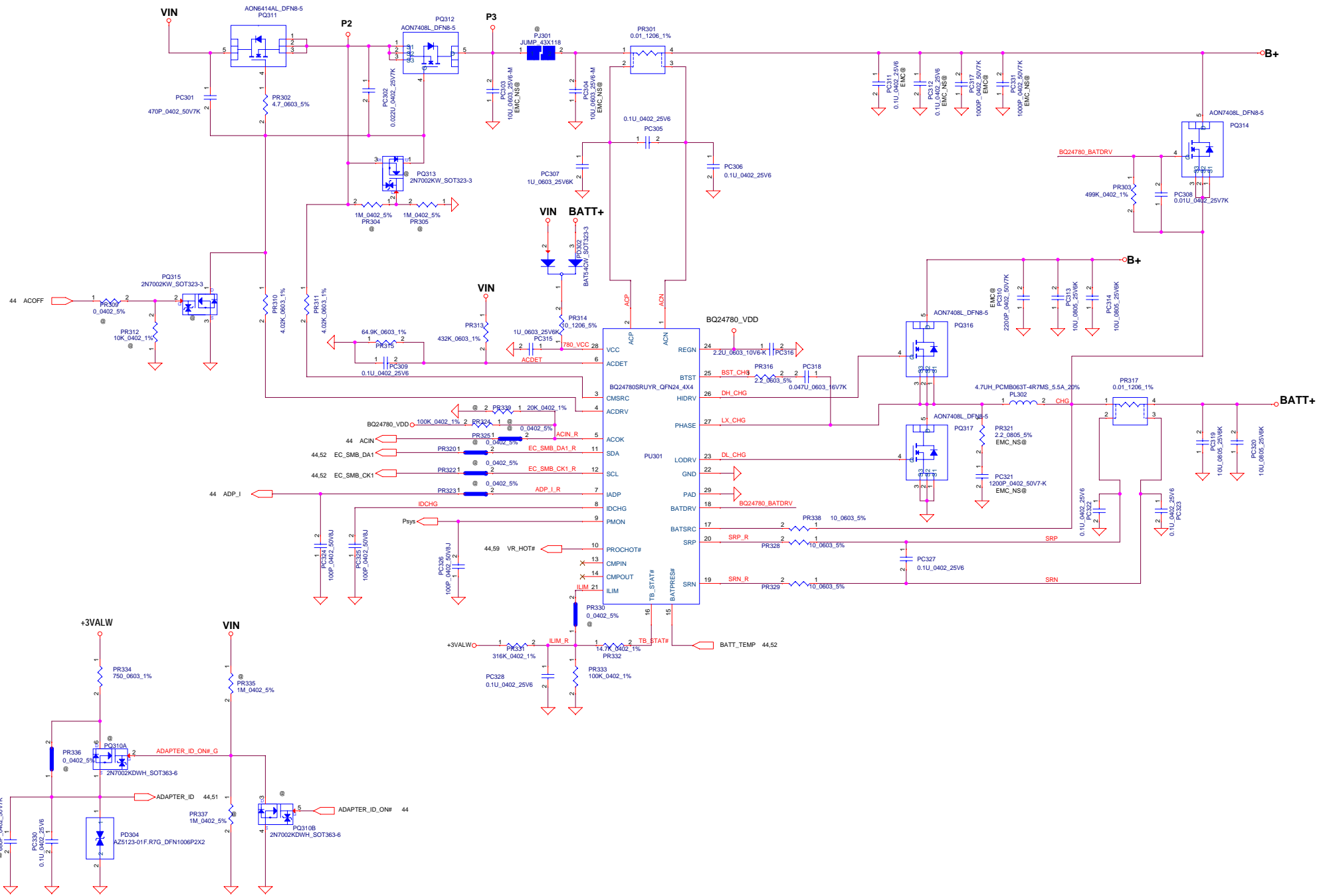


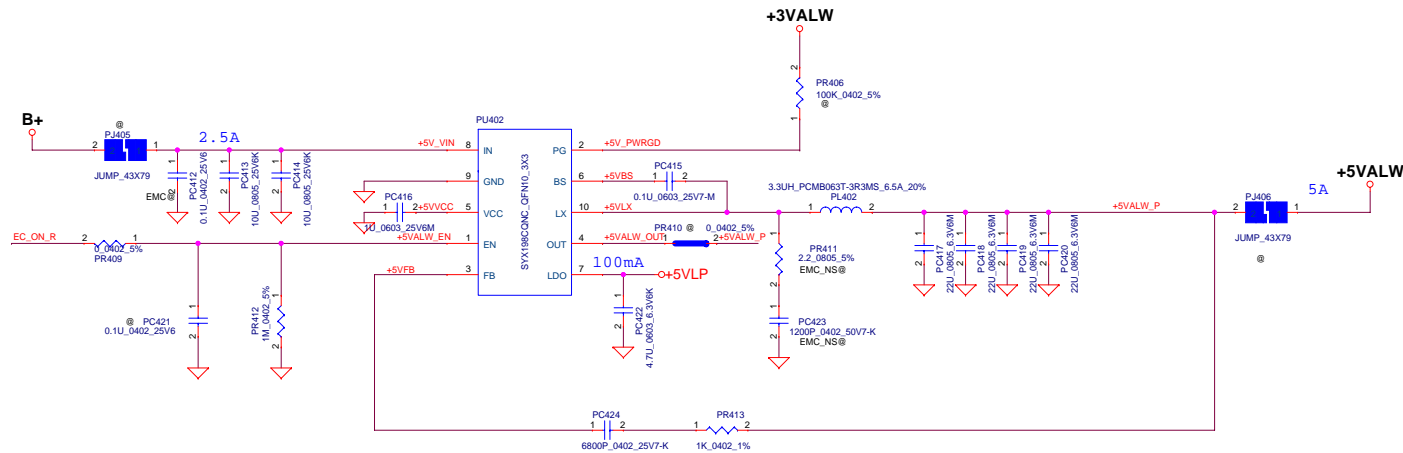
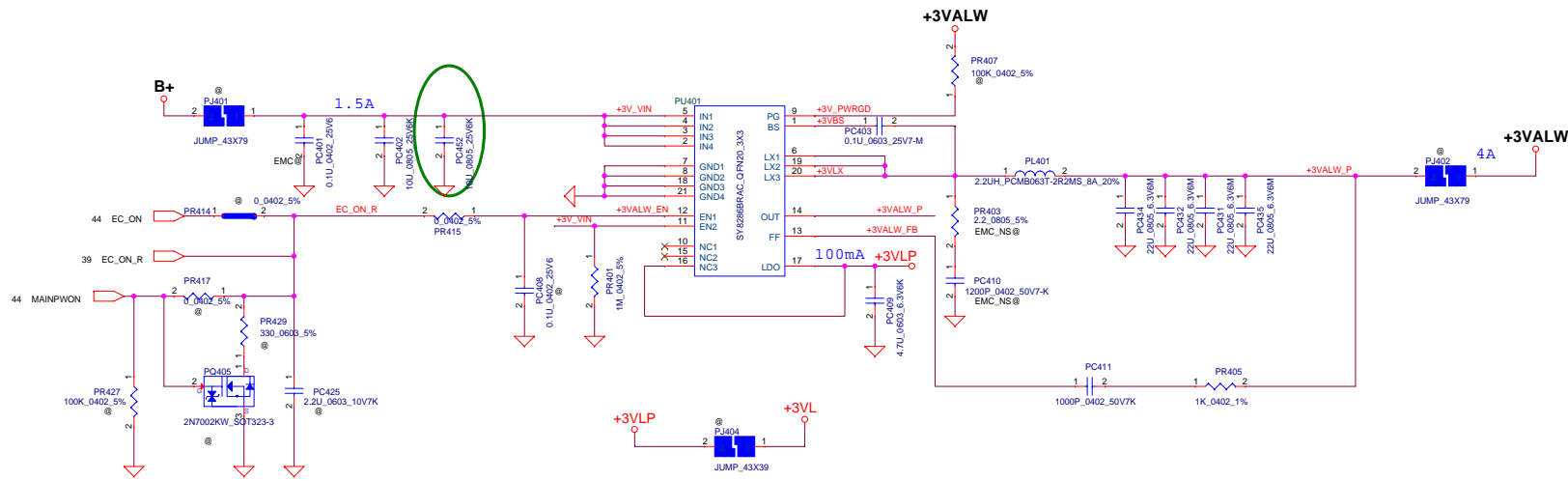
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							Date: Monday, July 27, 2015	
							Sheet 52 of 60	



Rev 0.1

BMWQ1&Q2



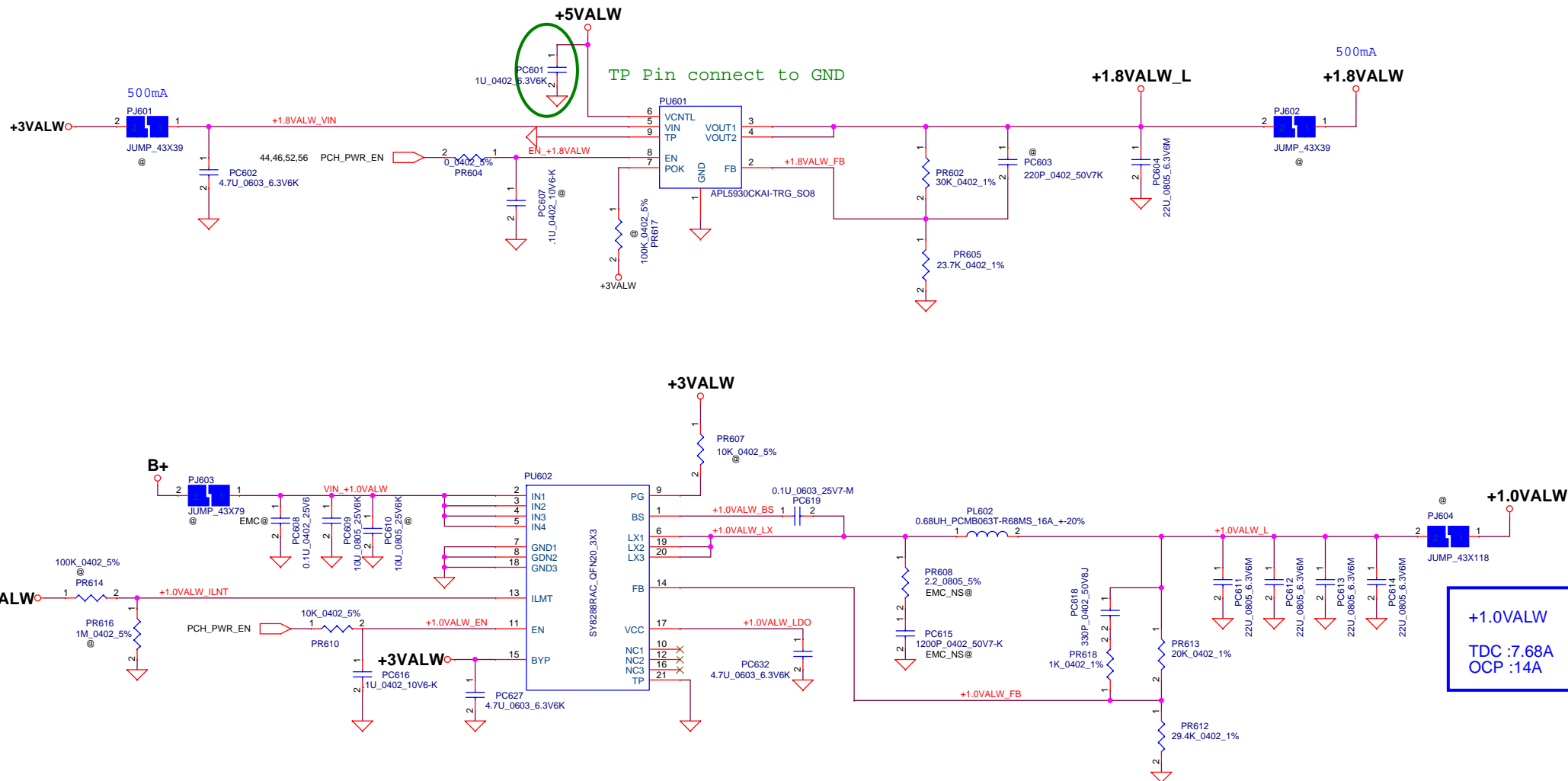


6800pf soft start 2ms
47nF soft start 7ms

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				Date:	Monday, July 27, 2015
				Sheet	54 of 80



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Size	Document	Number	Rev
Custom		BMWQ1&Q2	0.1
Date:	Monday, July 27, 2015		Sheet 56 of 60



