

LCFC Confidential


DY512 M/B Schematics Document

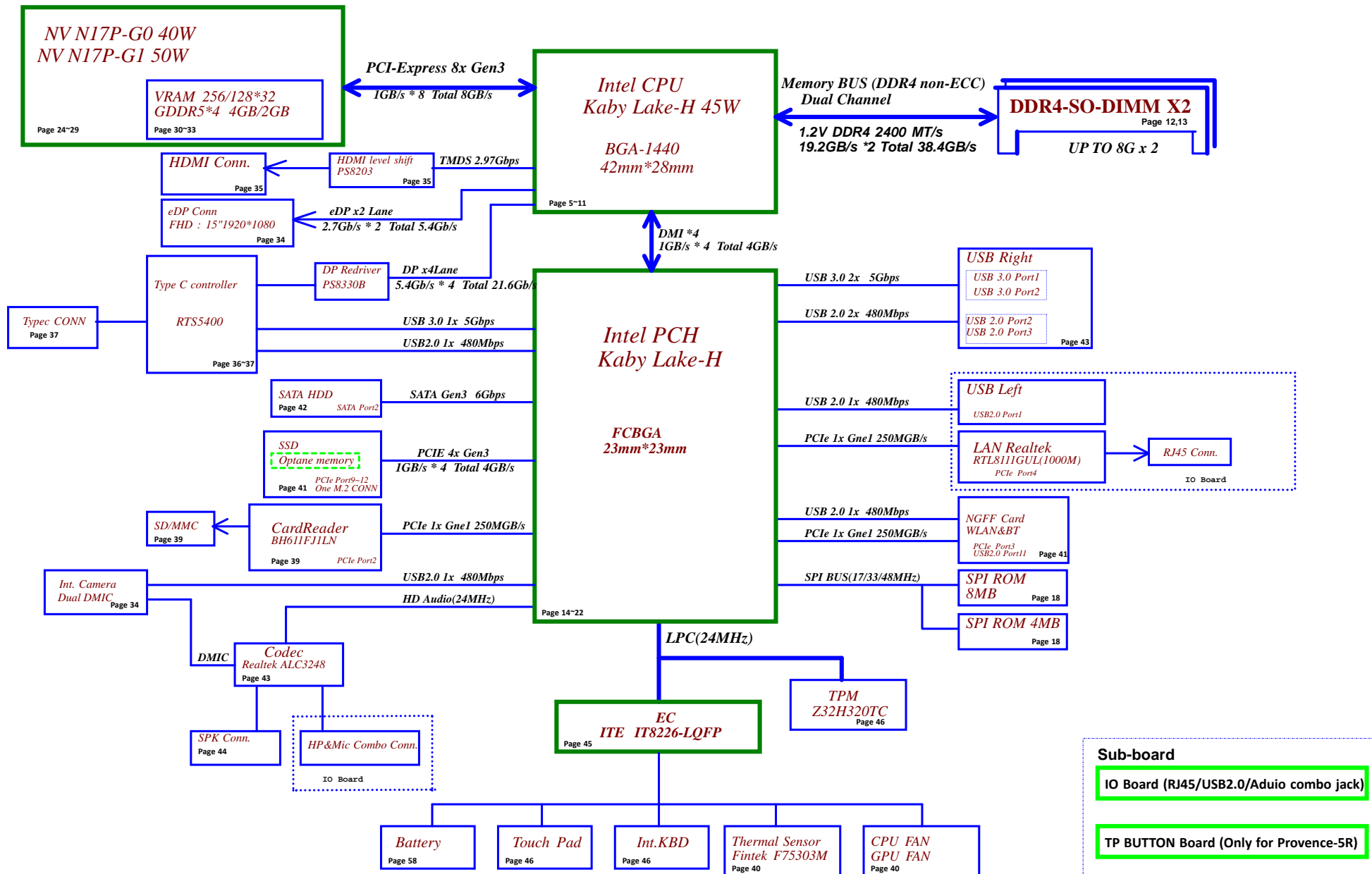
Intel Kabylake H-Processor with DDR4 + NV N17P-G0/G1 GPU

MB NM-B191

2016-11-25

REV:1.0

Security Classification		LC Future Center Secret Data		Title			
Issued Date	2015/02/26	Deciphered Date	2016/02/26	Cover Page			
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				Custom	DY512	1.0	
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<div>Power Plane</div> <div>State</div>	B+	+3VALW +5VALW +1.0VALW	+3VALW_PCH	+2.5V +1.2V VCCST	+5VS +3VS VCCIO VCCSTG +0.6VS CPU_CORE GFX VCCSA +1.8V_AON +1.8V_MAIN NVVDD NVVDDS +0.95VGS +1.35VGS
S0	O	O	O	O	O
S3	O	O	O	O	X
S3 Battery only	O	O	O	O	X
S5 S4/AC Only	O	O	O	X	X
S5 S4 Battery only	O	X	X	X	X
S5 S4 AC & Battery don't exist	X	X	X	X	X

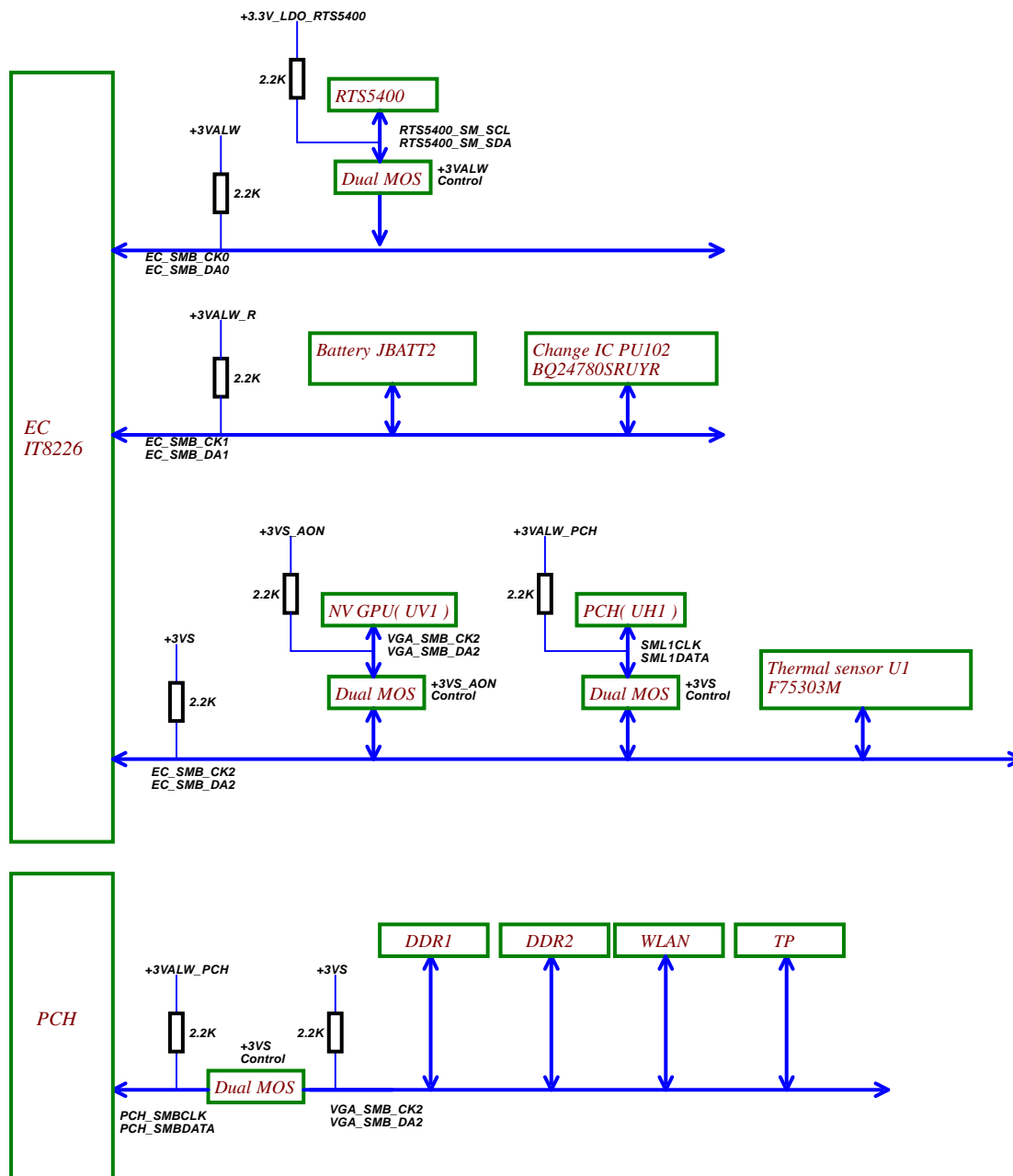
Port	Function
1	Right USB2
2	Left USB3
3	Left USB3
4	TypeC USB2
5	
6	Camera
7	
8	
9	
10	
11	BT
12	
13	
14	

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

[illegible]

Port	Description	Function
1	USB3#1	Left USB3
2	USB3#2	Left USB3
3	USB3#3	TypeC USB3
4	USB3#4	
5	USB3#5	
6	USB3#6	
7	USB3#7 / PCIE#1	
8	USB3#8 / PCIE#2	CarderReader(PCIE)
9	USB3#9 / PCIE#3	WLAN(PCIE)
10	USB3#10 / PCIE#4	LAN(PCIE)
11	PCIE#5	
12	PCIE#6	
13	PCIE#7	
14	PCIE#8	
15	PCIE#9 / SATA#0	PCle x4 SSD
16	PCIE#10 / SATA#1	
17	PCIE#11	
18	PCIE#12	
19	PCIE#13 / SATA#0	
20	PCIE#14 / SATA#1	
21	PCIE#15 / SATA#2	HDD(SATA3.0)
22	PCIE#16 / SATA#3	HDD cable(SATA3.0) Reserved
23	PCIE#17 / SATA#4	
24	PCIE#18 / SATA#5	
25	PCIE#19 / SATA#6	
26	PCIE#20 / SATA#6	

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SMBUS Control Table

	SOURCE	VGA	BATT	ITS86E	SODIMM	WLAN	Thermal Sensor	PCH	TP Module	charger
EC_SMB_CK1	ITS8226	X	V	V	X	X	X	X	X	V
EC_SMB_DA1	+3VALW			+3VALW						
EC_SMB_CK2	ITS8226	V	X	V	X	X	V	V	X	X
EC_SMB_DA2	+3VS	+3VGS		+3VS			+3VS	+3VALW_PCH		
PCH_SMB_CLK	PCH	X	X	X	V	V	X	V	X	X
PCH_SMB_DATA	+3VALW_PCH			+3VS			+3VS	+3VALW_PCH		

EC SM Bus1 address		EC SM Bus2 address		PCH SM Bus address	
Device	Address	Device	Address	Device	Address
Smart Battery	0x16	Thermal Sensor F75303M	1001_100xb	DDR DIMMA	1010 000xb
Charger	0001 0010 b	VGA	0x41(default)	DDR DIMMB	1010 010xb
		PCH	need to update	WLAN	Rsvd
		RTS5400	0xD4		

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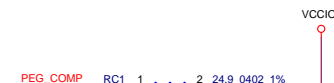
24 PCIE_CRX_GTX_N[0..7] 
24 PCIE_CRX_GTX_P[0..7] 

 PCIE_CTX_C_GRX_N[0..7] 24
 PCIE_CTX_C_GRX_P[0..7] 24

I7 : SA00007HB20
I5 : SA00007HS10

Change PEG from X16 to X8
HLZ SDV 20160510

Change PEG from X16 to X8
HLZ SDV 20160510



CAD Note:
Trace width=12 mils ,Spacing=15mil
Max length= 400 mils.



Stall reset sequence after PCU PLL lock until de-asserted	
CFG0	1 = (Default) Normal Operation; No stall. 0 = Stall.

CFG1

DOI: 10.1002/anie.200525001

CEG2

Reserved configuration lane.

CFG3

252

PCI Express* Bifurcation

CFG[6:5]

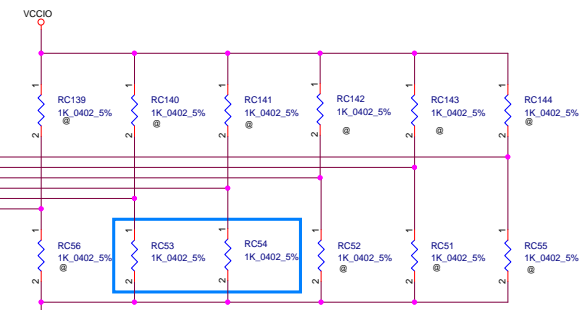
CFG[6:5]	00 = 1 x8, 2 x4 PCI Express*
	01 = reserved
	10 = 2 x8 PCI Express*
	11 = 1 x16 PCI Express*

PEG Training

CFG7	<p>1 = (default) PEG Train immediately following RESET# deassertion.</p> <p>0 = PEG Wait for BIOS for training.</p>
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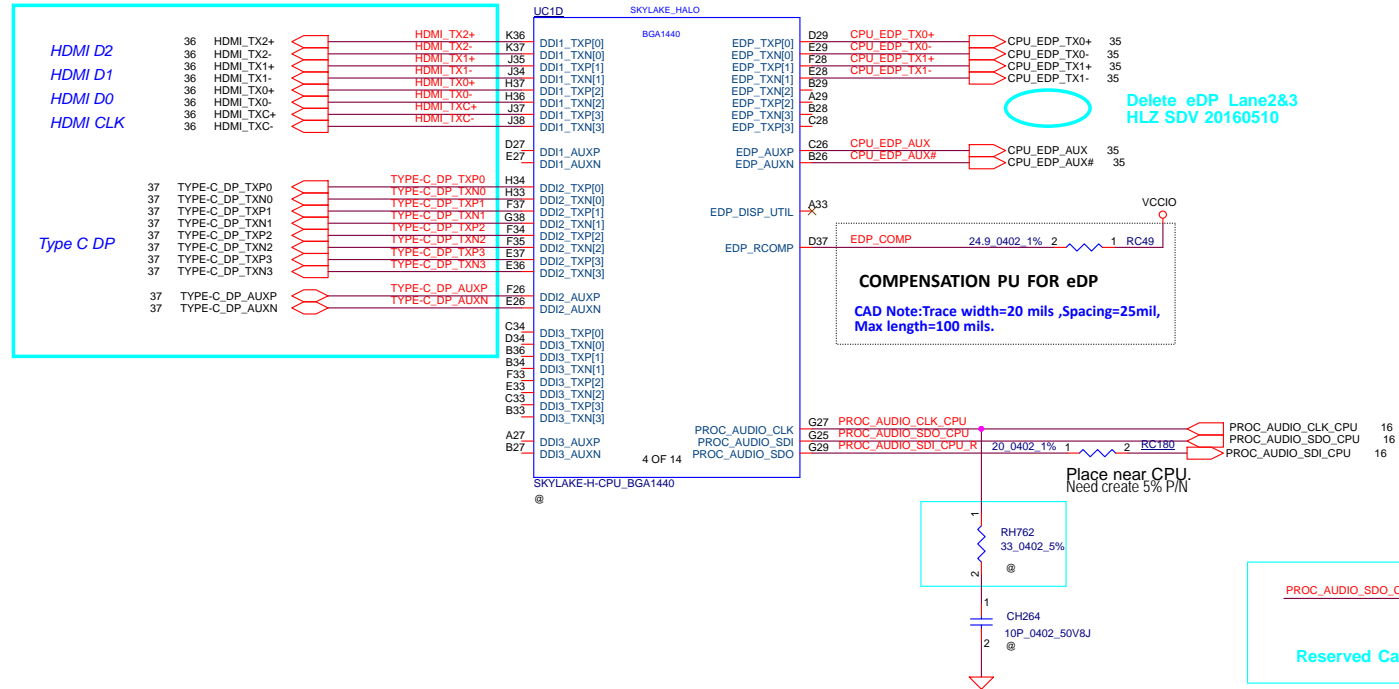
Reserved configuration lane.

CFG[19:8]	N/A
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WWW.AliSaler.Com

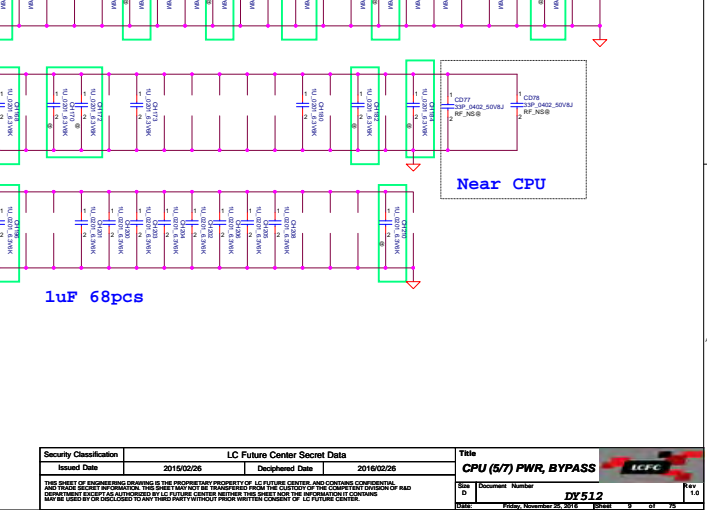
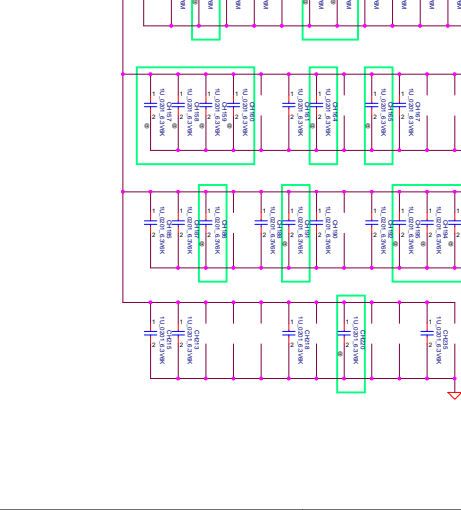
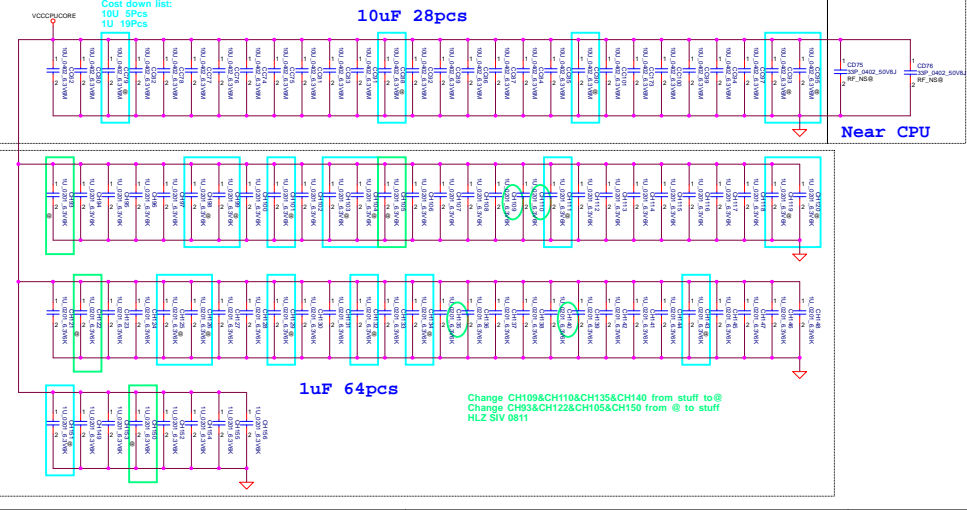
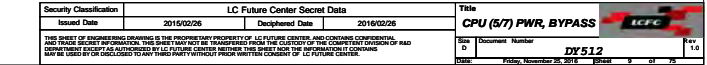
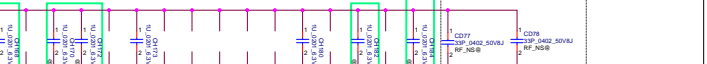
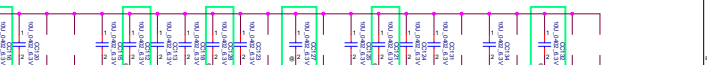
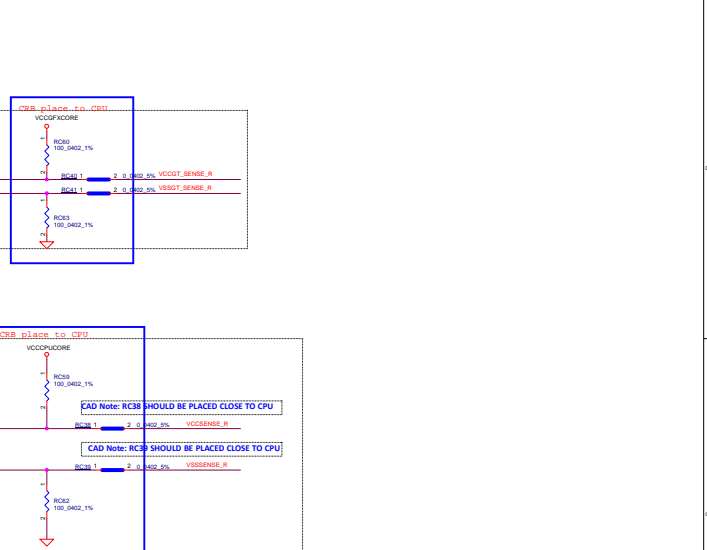
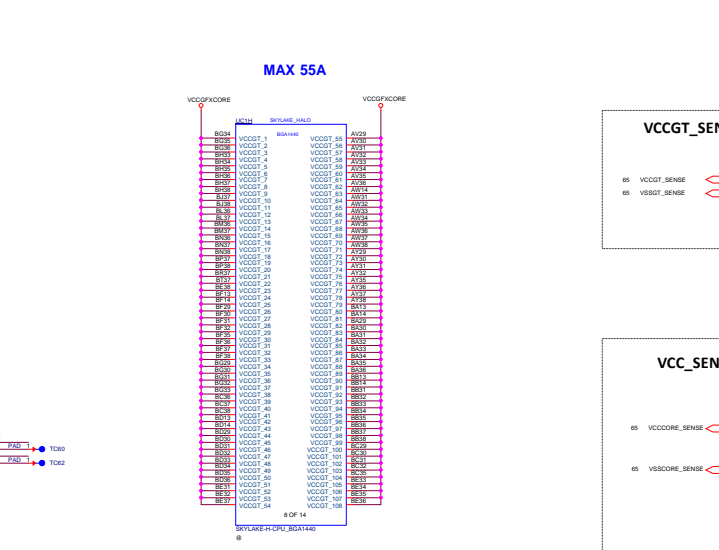
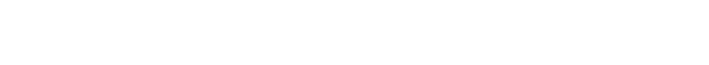
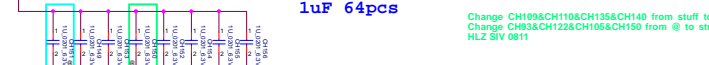
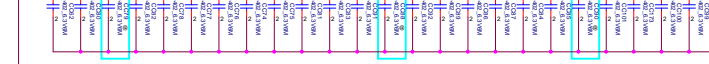
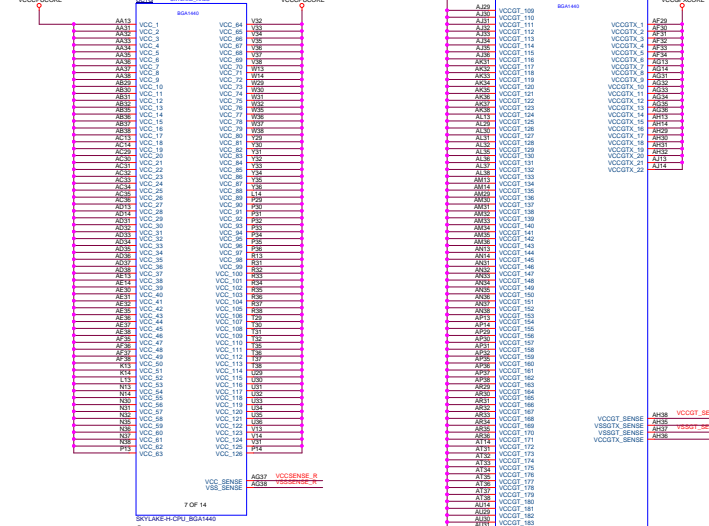
Different to Y710
HLZ SDV 20160510



Security Classification			
LC Future Center Secret Data			
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Title		LCFC	
CPU (4/7) eDP, DDI			
Size	Document Number	Rev	1.0
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MAX 68A



Cost down list:
10uF 5pcs
1U 10Pcs

10uF 28pcs

1uF 64pcs

Change CH109&CH110&CH135&CH140 from stuff to @
Change CH93&CH122&CH105&CH150 from @ to stuff
1L2 SIV 0811

SDV Cost down list:
10U 0Pcs
1U 23Pcs

SIV Cost down list:
10U 9Pcs
1U 19Pcs

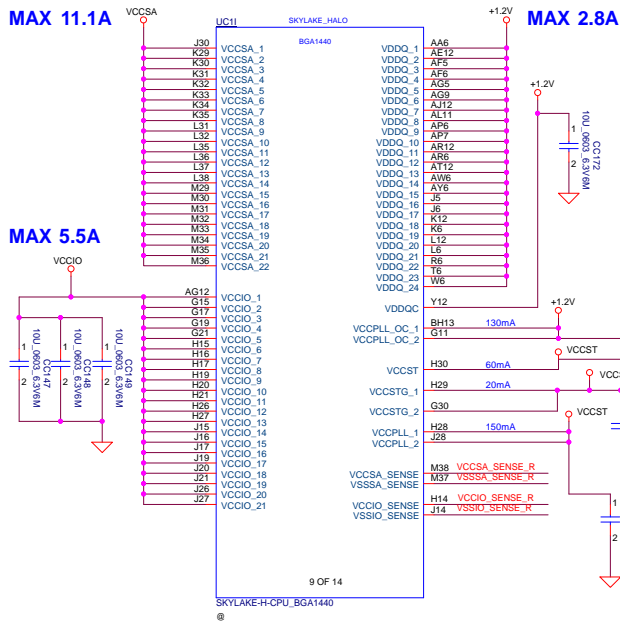
10uF 35pcs

1uF 68pcs

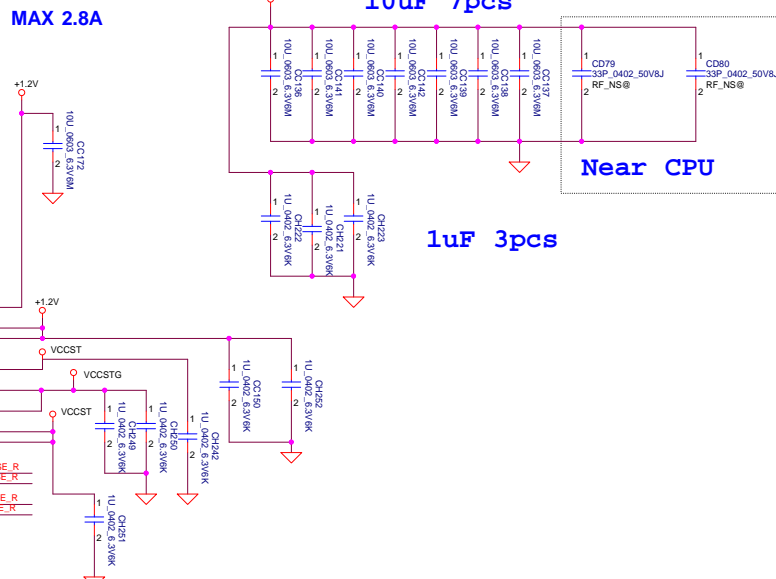
Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Declassified Date	2016/02/26	CPU (5/7) PWR, BYPASS	
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Rev	D	Document Number	DY512		
Issue	Priority, November 26, 2015				

MAX 11.1A

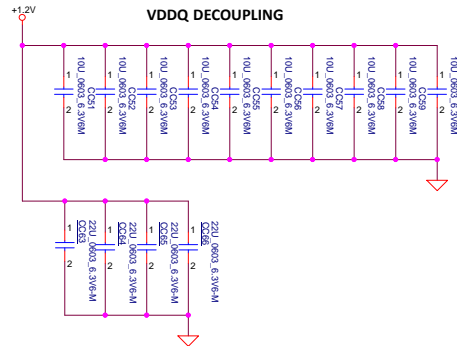
MAX 5.5A



MAX 2.8A



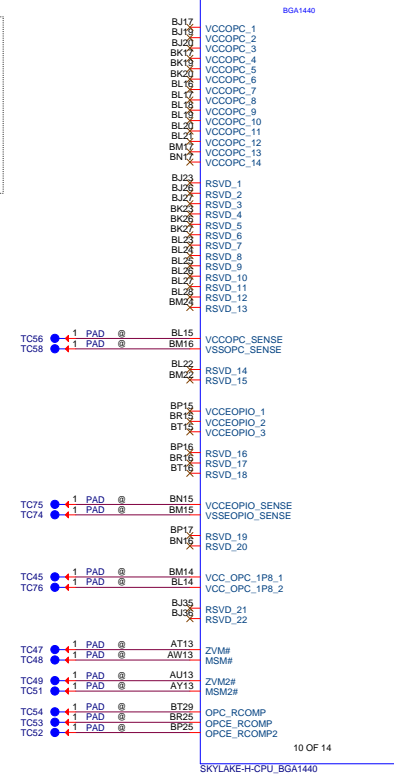
VDDQ DECOUPLING



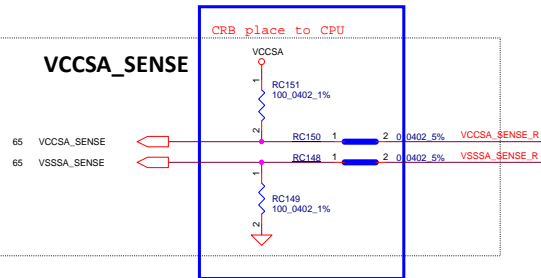
Near CPU

1uF 3pcs

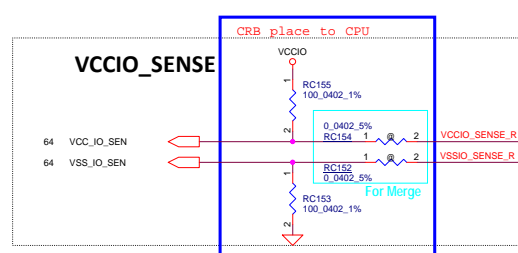
10uF 7pcs



VCCSA_SENSE



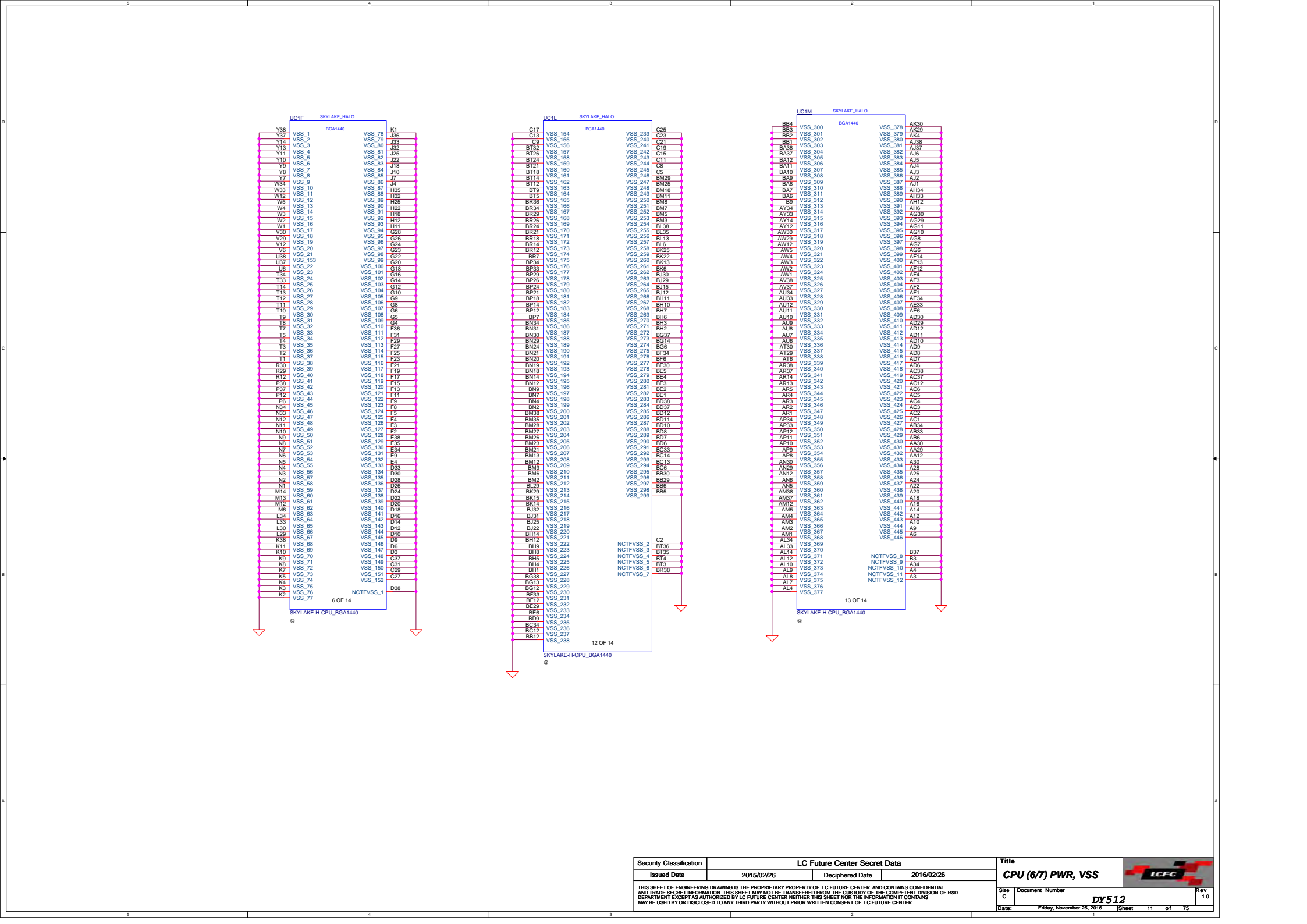
VCCIO_SENSE



Security Classification			
LC Future Center Secret Data			
Issued Date	2015/02/26	Deciphered Date	2016/02/26
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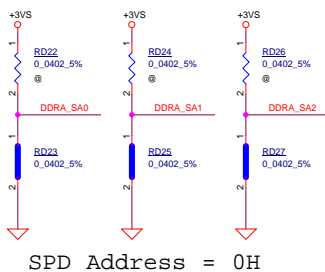
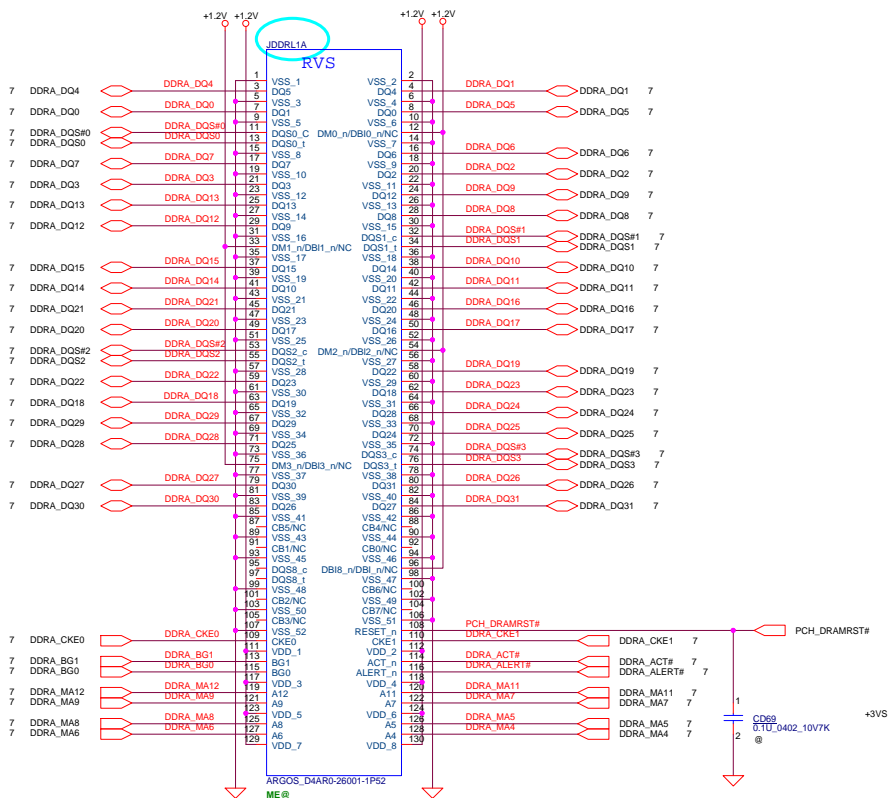
Title			
CPU (6/7) PWR, BYPASS			
Size	Document Number	Rev	1.0
Date	Friday, November 25, 2016	Sheet	10 of 75





DDR4 SO-DIMM A

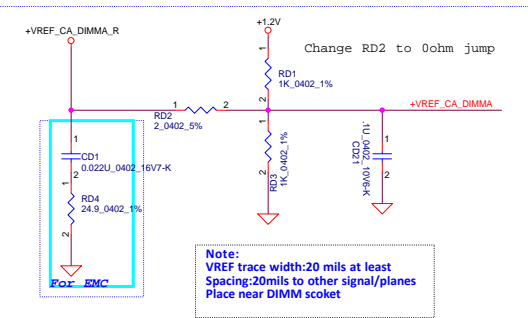
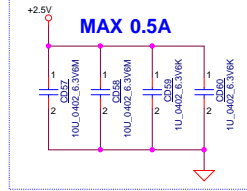
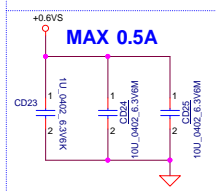
Change JDDR1 from Foxconn to ARGOSY
HLZ SDV 20160510



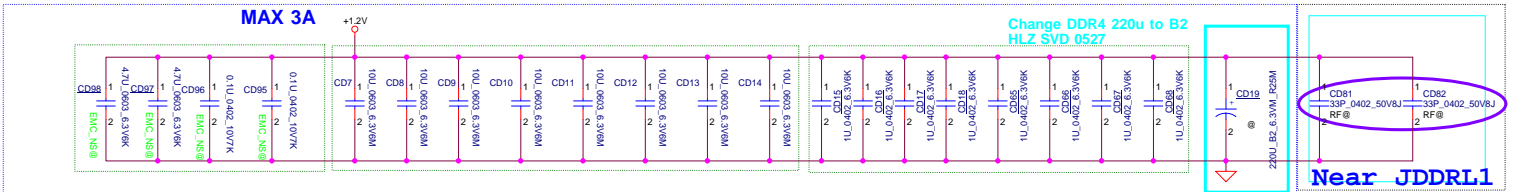
SPD Address = 0H

Layout Note:
Place near DIMM

Layout Note:
Place near DIMM



Note:
VREF trace width: 20 mils at least
Spacing: 20mils to other signal/planes
Place near DIMM socket



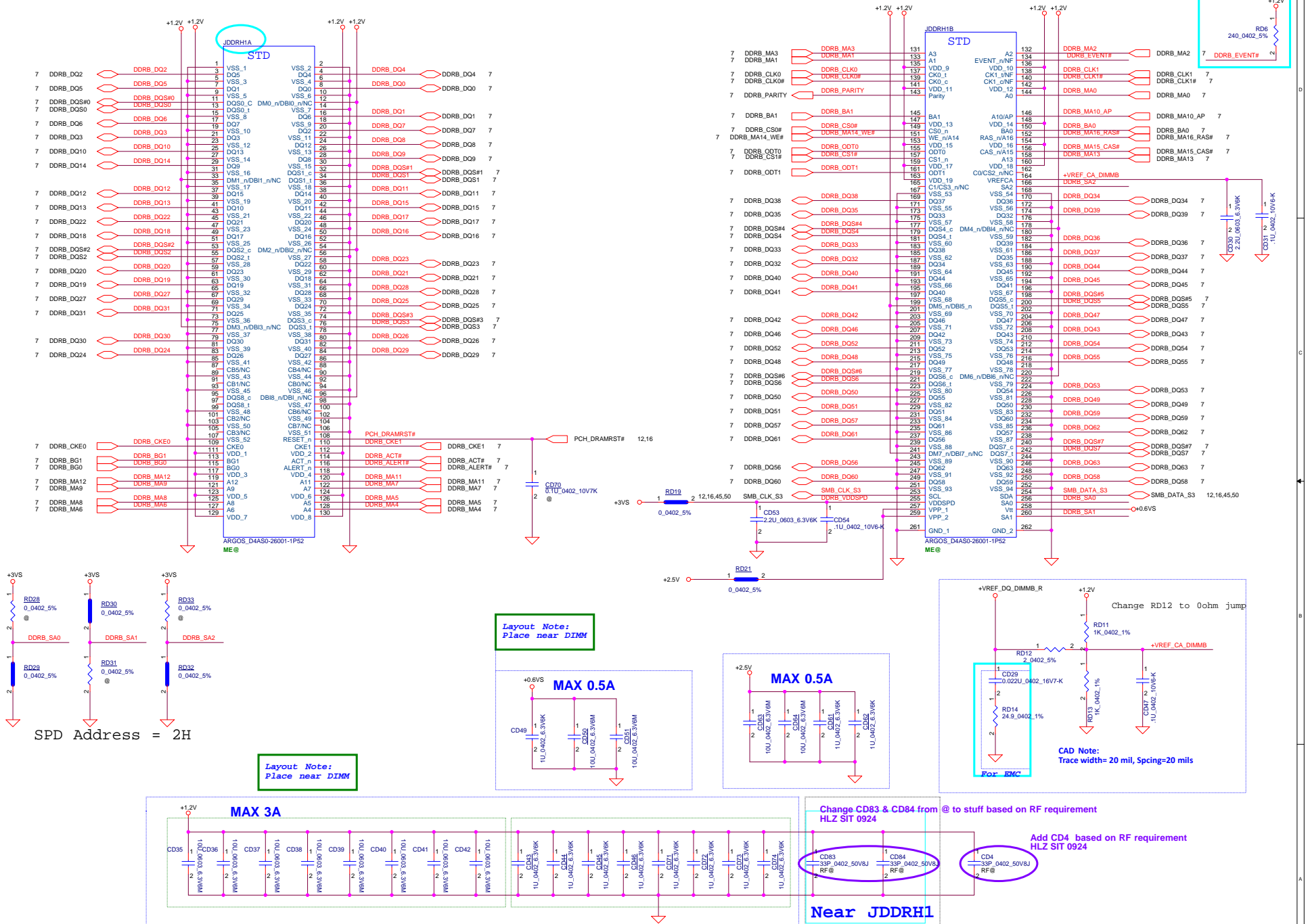
Near JDDR1

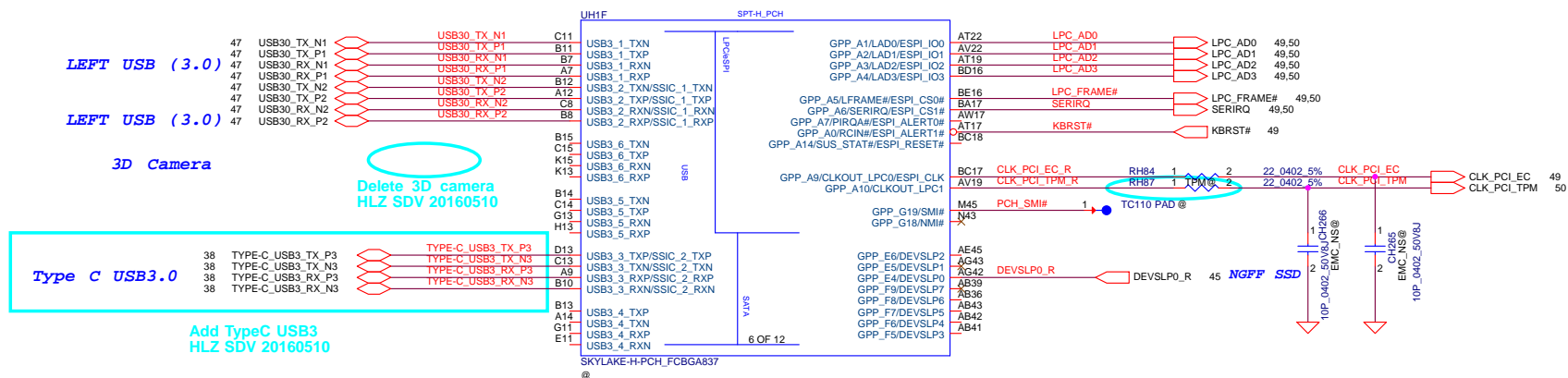
Change CD81 & CD82 from @ to stuff based on RF requirement
HLZ SIT 0924

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	DDRVI SO-DIMM A	
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				C	DDY512
				Date:	Friday, November 25, 2016
				Sheet	12 of 75

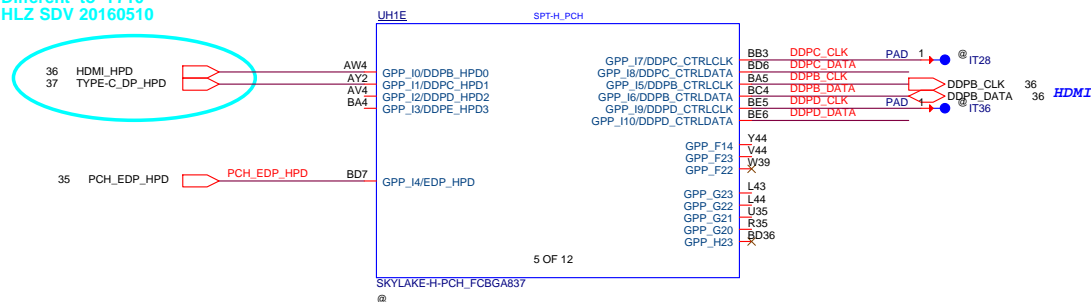
DDR4 SO-DIMM B

Change JDDRH1 from Foxconn to ARGOSY and RVS to STD
HLZ SDV 20160510

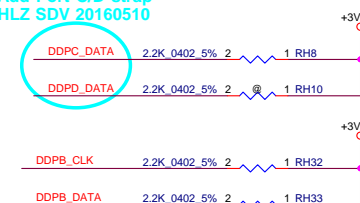




Different to Y710
HLZ SDV 20160510



Add Port C/D strap
HLZ SDV 20160510

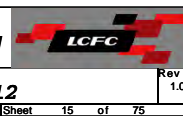


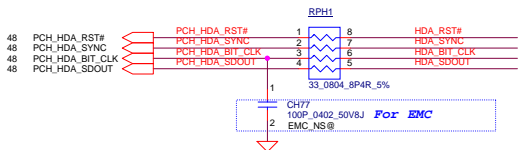
DDPB_CTRLDATA
The signal has a weak internal pull-down.
* H Port B is detected.
L Port B is not detected.

DDPC_CTRLDATA
The signal has a weak internal pull-down.
* H Port C is detected.
L Port C is not detected. (Default)

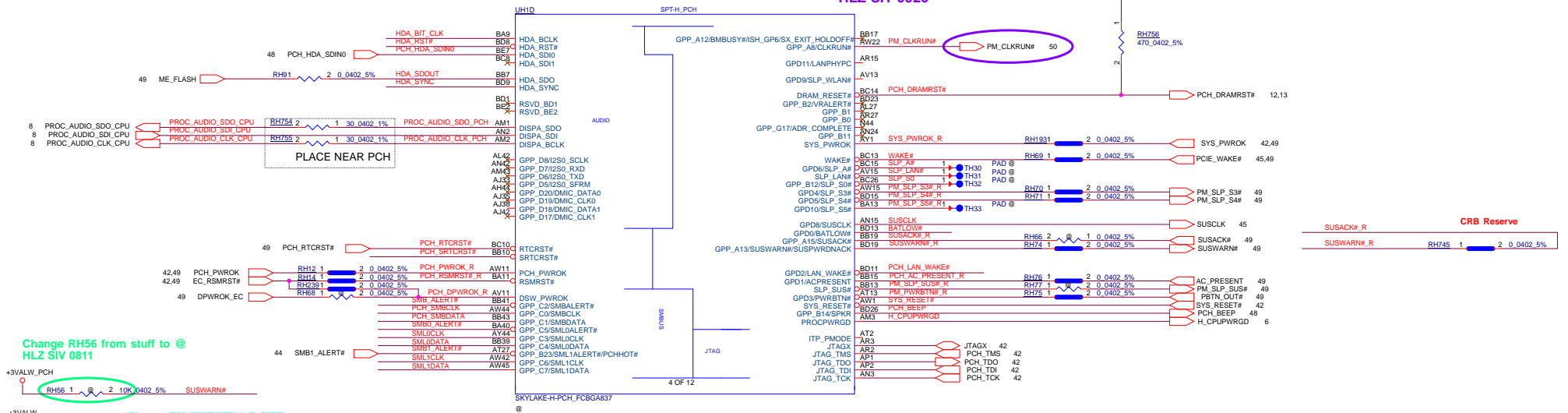
DDPD_CTRLDATA
The signal has a weak internal pull-down.
* H Port D is detected.
L Port D is not detected. (Default)

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Issued Date	2015/02/26	Deciphered Date	2016/02/26
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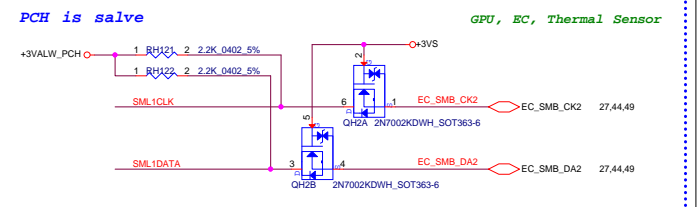
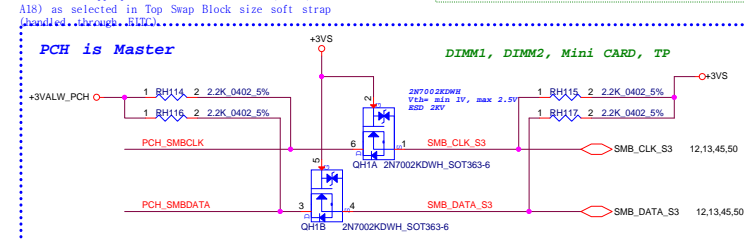
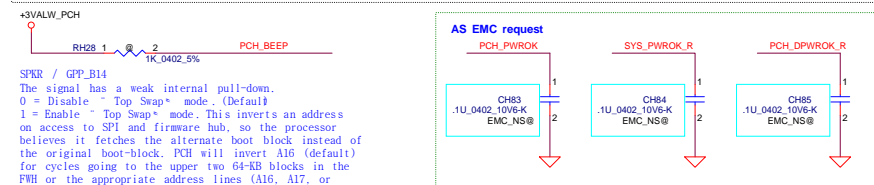
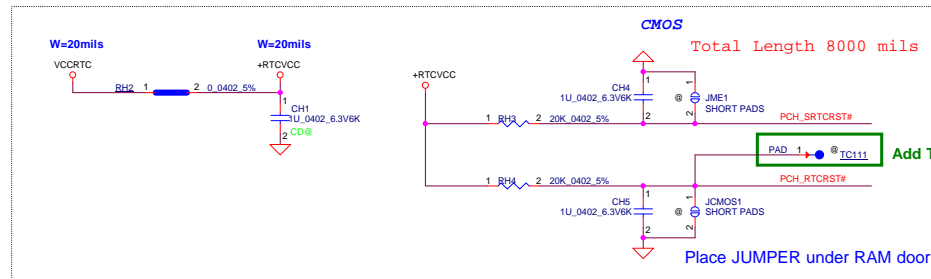
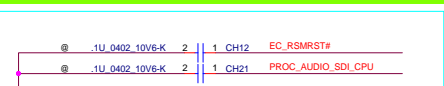
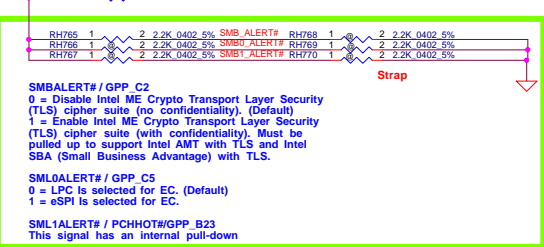
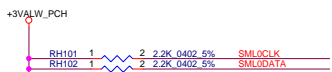
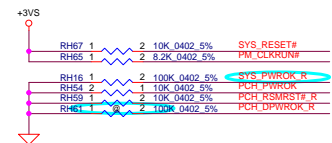
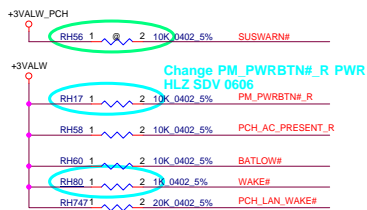




ADD PM_CLKRUN# for Nuvoton TPM
HLZ SIT 0920



Change RH56 from stuff to @
HLZ SIV 0811



Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	PCH (3/9) HDA,RTC,SMBUS,PM	
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Size	C	Document Number	dy512		Rev 1.0
Date	Friday, November 25, 2016		Sheet	16 of 75	

4A

Need short

+1.0V_{ALV} 1 JC3 2 +VCCPRIM_1P0

JUMP_43X79

Ⓢ

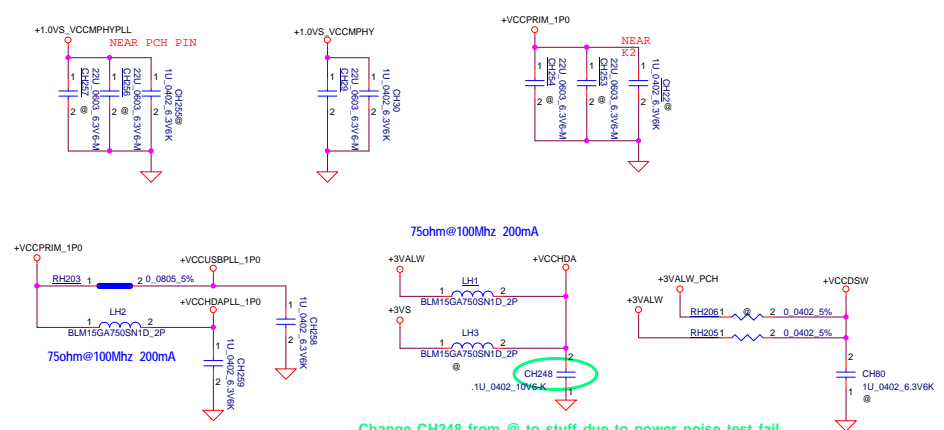
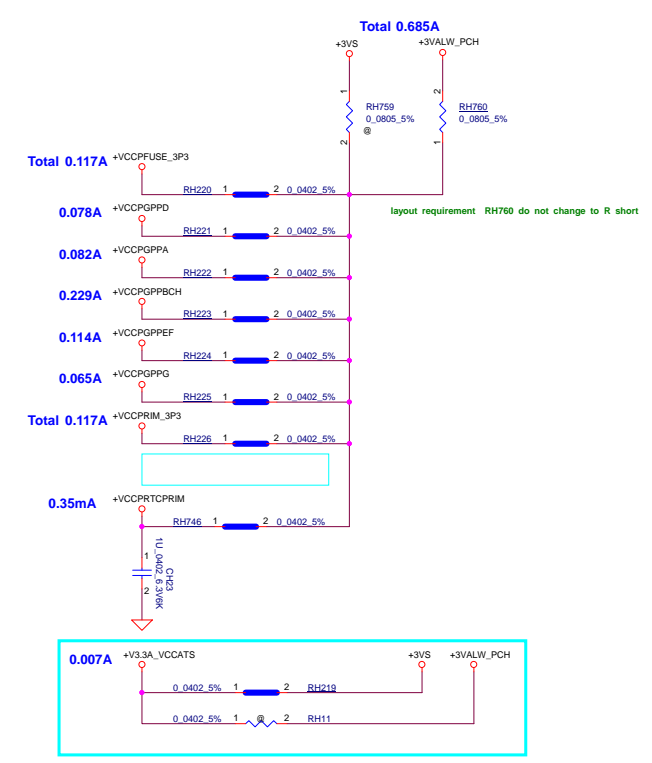
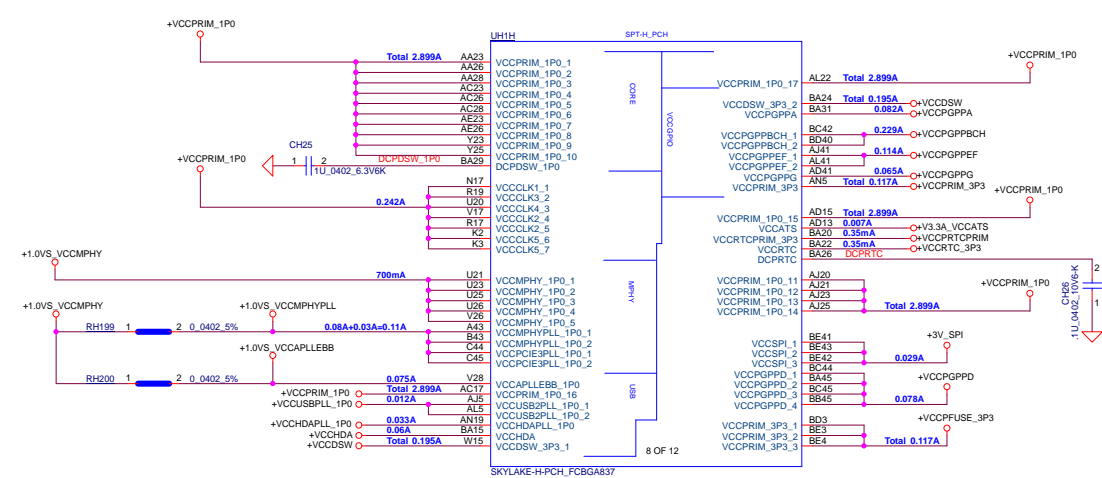
4B


Need short

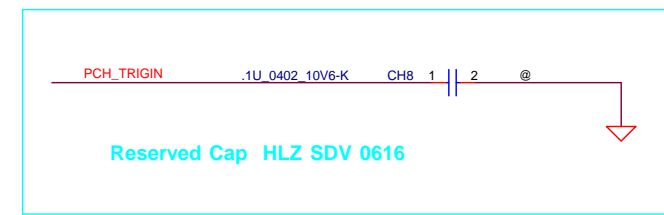
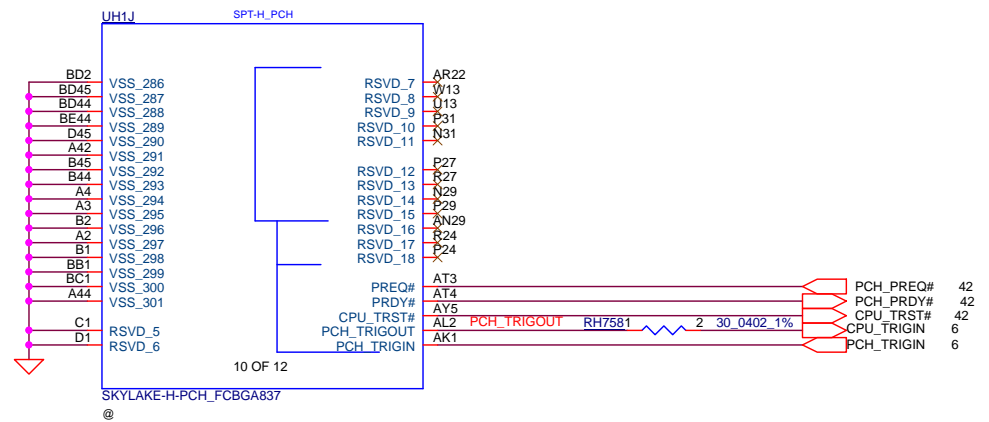
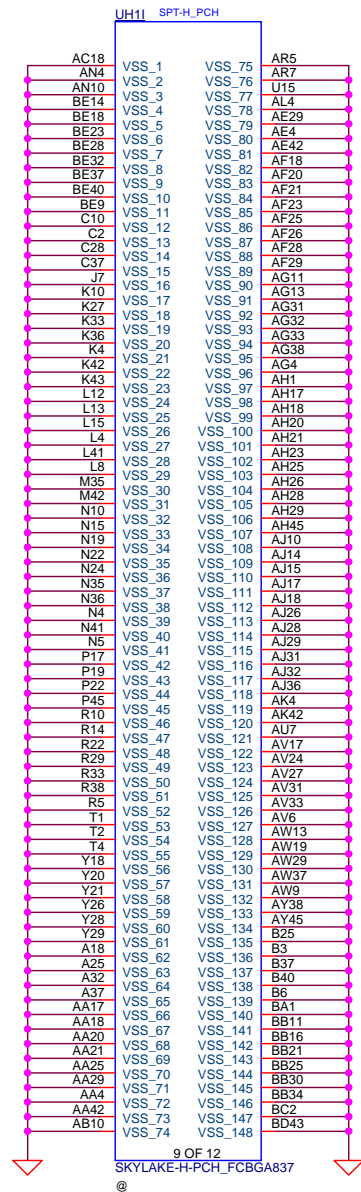
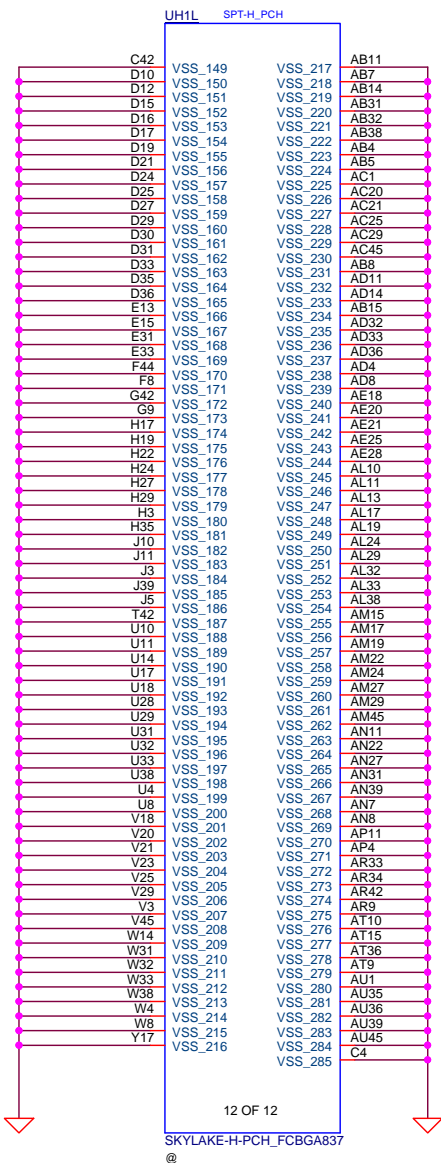
+VCCPRIM_1P0 1 JC3 2 +1.0V_S_VCCMPHY


JUMP_43X79

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[illegible]

Security Classification	LC Future Center Secret Data			Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	PCH (7/9) PWR	
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				Date: Friday, November 25, 2016	Rev 1.0 Sheet 21 of 75



Security Classification		LC Future Center Secret Data		Title		
Issued Date	2015/02/26	Deciphered Date	2016/02/26	PCH (9/9) VSS		
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				Date:	Friday, November 25, 2016	Sheet 22 of 75

N17P-G1 GPIO

GPIO	I/O	ACTIVE	Function Description	I/O Termination
GPIO0	OUT	-	PWM Output to control NVVDD	
GPIO1	OUT	-	FB Enable for GC6 2.1	
GPIO2	IN	-	GPU wake signal for GC6 2.1	
GPIO3	OUT	-	PWM Output to control the SRAM power supply	
GPIO4	OUT	-	GPU power sequencing for GC6 2.1 --- 1V8_MAIN_EN	
GPIO5	IN	N/A	Active low Frame Lock	
GPIO6	OUT	-	Phase Shedding, NVVDD_PSI	
GPIO7	OUT	N/A	Panel Backlight enable	
GPIO8	OUT	-	Memory voltage Control	
GPIO9	I/O	-	Active Low Thermal Alert	
GPIO10	OUT	-	Memory VREF Control (100K pull Down)	
GPIO11	OUT	-	Panel Power enable	
GPIO12	IN	-	AC power detect or power supply overdraw input	(10K pull High)
GPIO13	OUT	N/A	LCD Panel Backlight Enable	
GPIO14	IN	N/A	Hot Plug Detect for IFPA	
GPIO15	IN	N/A	Hot Plug Detect for IFPB	
GPIO16	OUT	-	System side PCIe reset monitor	
GPIO17	IN	N/A	Hot Plug Detect for IFPD	
GPIO18	IN	N/A	Hot Plug Detect for IFPE	
GPIO19	OUT	N/A	3D Vision L/R Signal	
GPIO20		N/A	GC5_MODE	
GPIO21	I/O	N/A	UNUSED	
GPIO22	I/O	N/A	UNUSED	
GPIO23	OUT	-	GPU PCIe self-reset control	
GPIO24	IN	N/A	Hot Plug Detect for IFPF	
GPIO25		N/A	UNUSED	
GPIO26		N/A	UNUSED	
GPIO27	IN	N/A	Hot Plug Detect for IFPC	

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]
L	L	L	00000
L	H	L	00010
L	H	H	00011
H	H	L	00110
H	H	H	00111

H=High: Tied to 1.8V
M=Middle: Tied to 0.9V
L=Low: Tied to 0V

ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]
L	L	L	1111 DEFAULT
L	L	H	1110
L	H	L	1101
L	H	H	1100
H	L	L	1011
H	L	H	1010
H	H	L	1001
H	H	H	1000
L	L	M	0111
L	M	L	0110
L	M	H	0101
L	H	M	0100
H	L	M	0011
H	M	L	0010
H	M	H	0001
H	H	M	0000

1:ENABLE 0:DISABLE
SOR0/1/2/3 ENABLE

STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1 DEFAULT
L	L	L	0	0	0	0

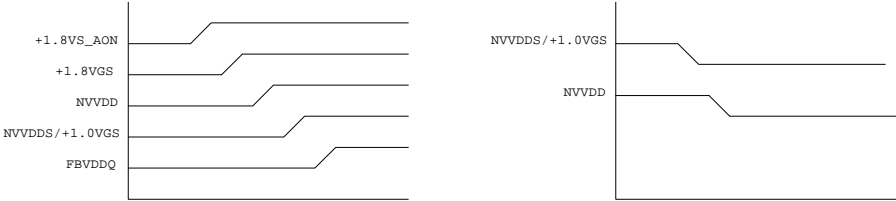
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGINAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

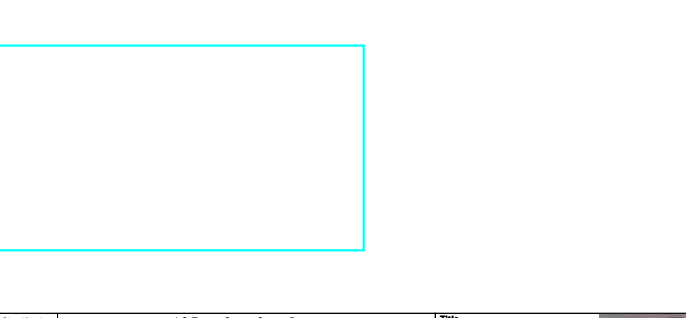
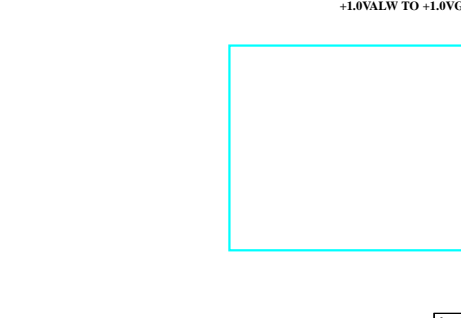
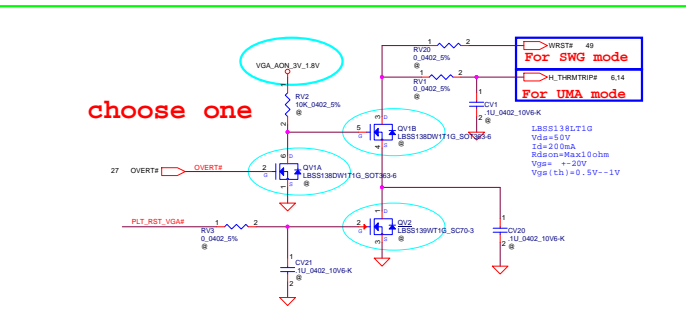
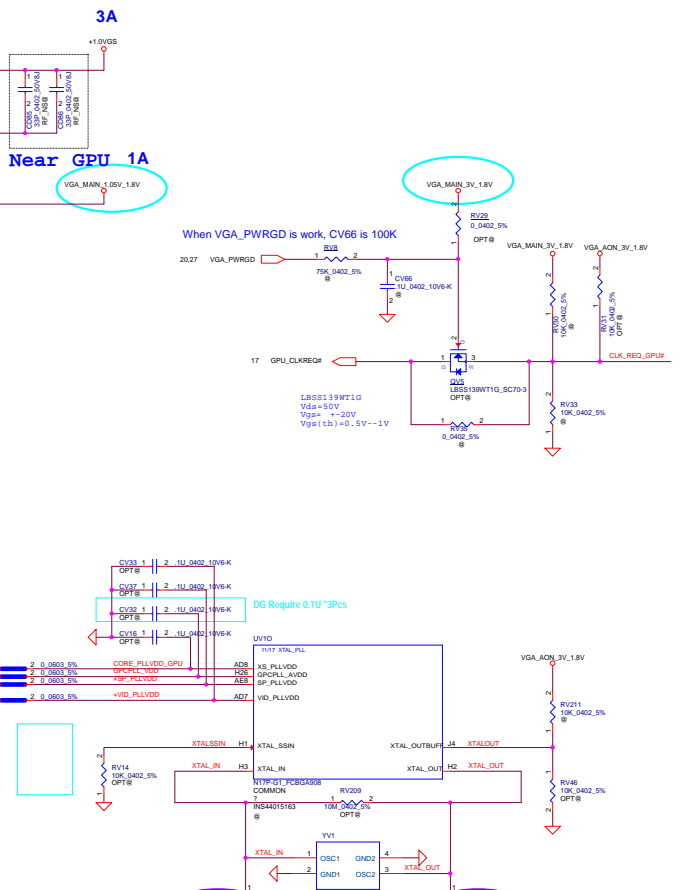
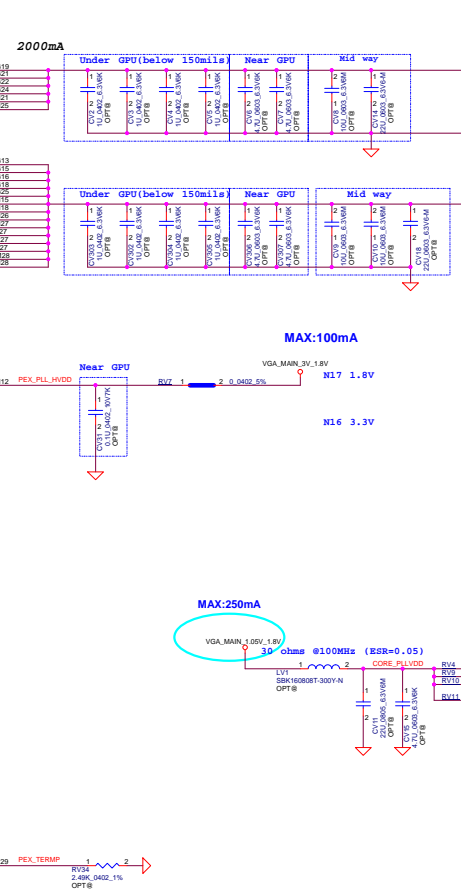
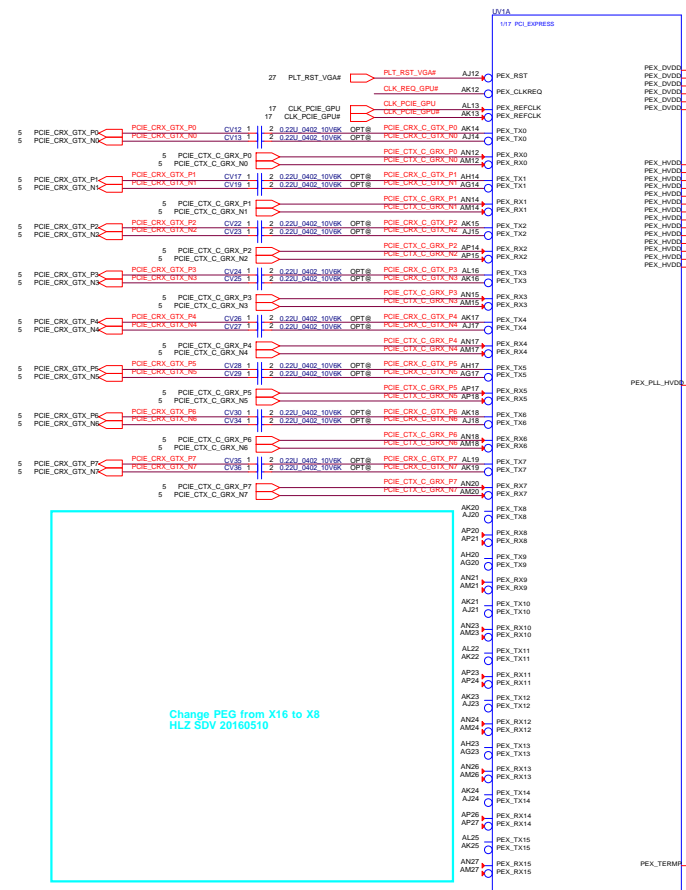
1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

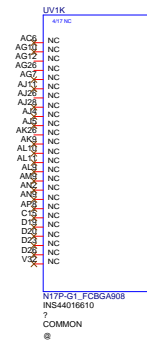
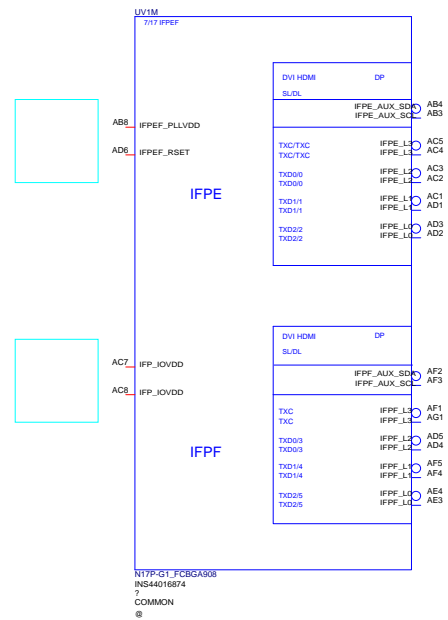
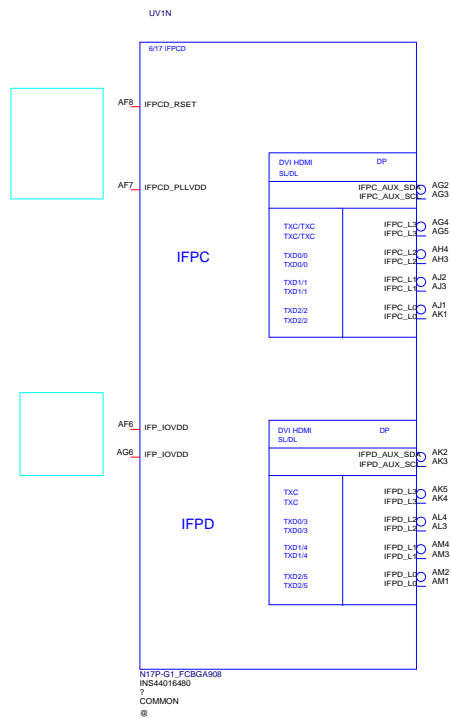
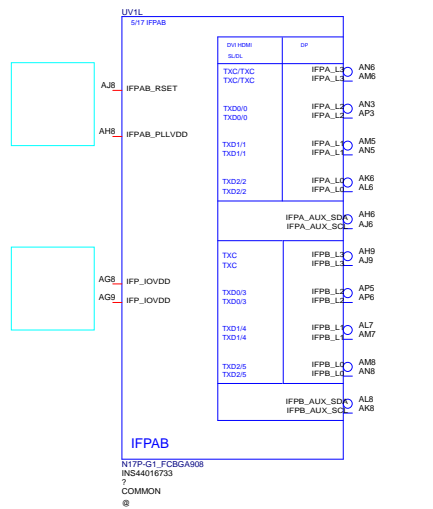
N17P-G1 Power Sequence




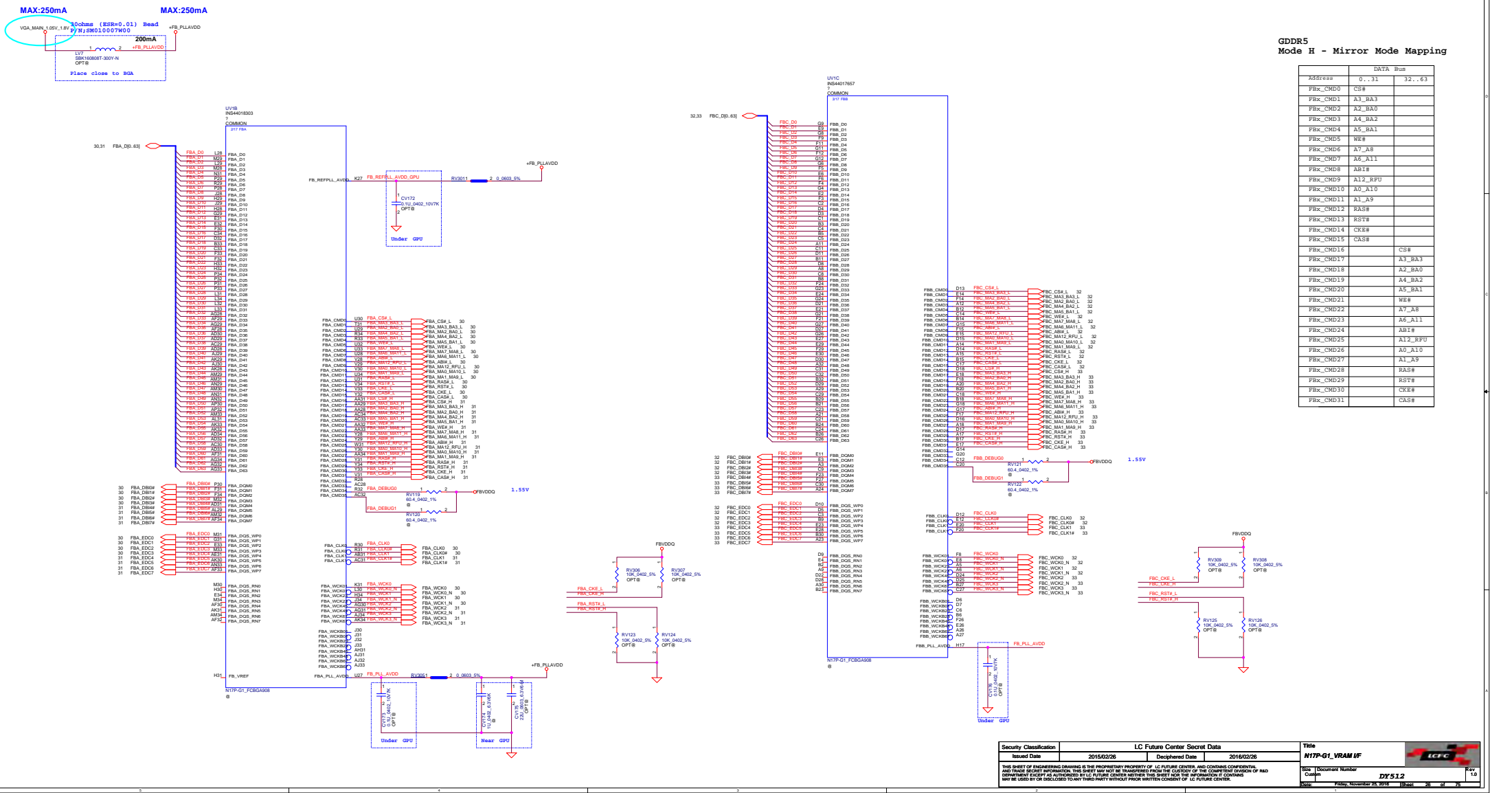
1. All power rail ramp up time should be larger than 40us and is recommended to be less than 2ms.
2. T (from 1V8_MAIN_EN to PEX_DVDD/NVVDD_Pgood) must NOT exceed 4ms.
3. All 3.3V devices that connect to the GPU must be powered after 1V8_AON; GPU can NOT have any 3.3V leakage path before 1V8_AON present.
4. The previous power rail must ramp up to 90% before the next power rail can start ramping up.

1. NVVDD/PEX_DVDD must ramp down before NVVDD, all other power rails can ramp down together with NVVDD.
2. All 3.3V devices that connect to the GPU must be ramp down before 1V8_AON; GPU can NOT have any 3.3V leakage path after 1V8_AON and 1.8V_MAIN power down.
3. The previous power rail must ramp down to 10% before the next power rail can start ramping down.





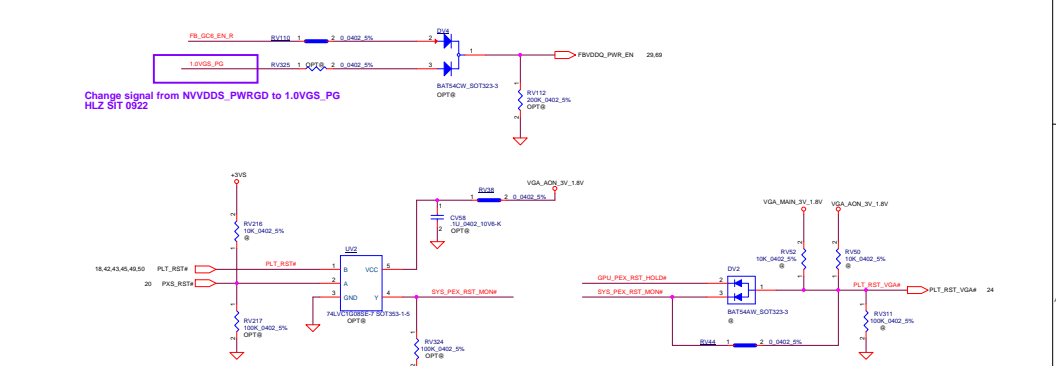
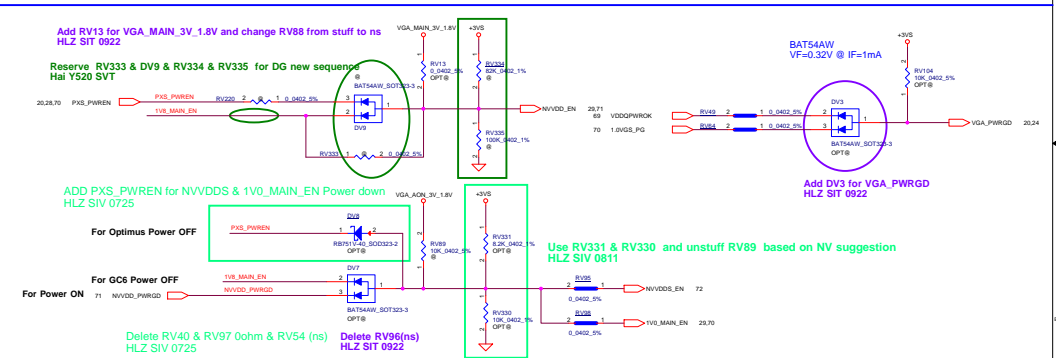
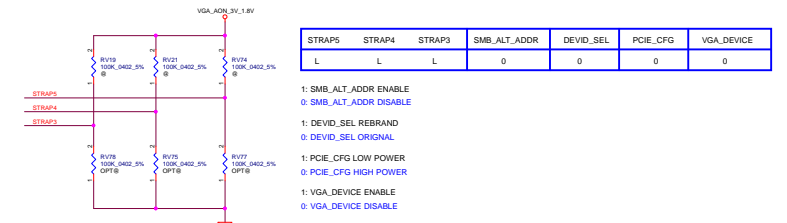
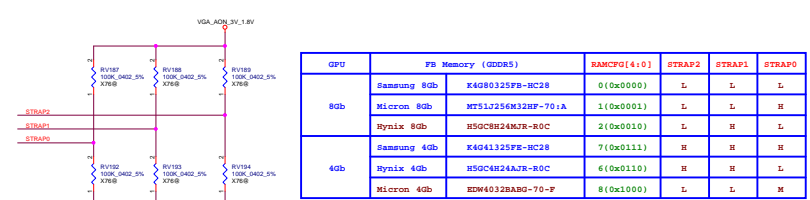
Security Classification	LC Future Center Secret Data			Title	
Issued Date	2015/02/26	Deciphered Date	2016/02/26	N7P-G1_DIGITAL OUT/IF	
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Date:				Friday, November 25, 2016	Sheet 26 of 75




GDDR5
Mode H - Mirror Mode Mapping

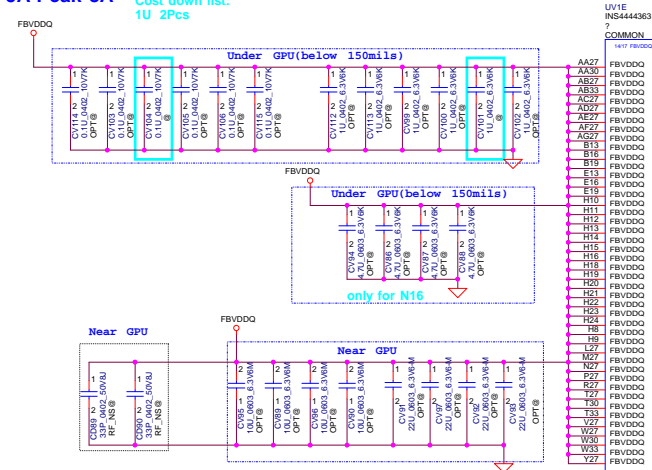
Address#	DATA	Bus
FBX_CMD0	CS#	32..63
FBX_CMD1	A1_BA3	
FBX_CMD2	A2_BA0	
FBX_CMD3	A4_BA2	
FBX_CMD4	A5_BA1	
FBX_CMD5	WE#	
FBX_CMD6	A7_A8	
FBX_CMD7	A6_A11	
FBX_CMD8	ABIS#	
FBX_CMD9	A12_RFU	
FBX_CMD10	A0_A10	
FBX_CMD11	AI_A9	
FBX_CMD12	RAS#	
FBX_CMD13	RST#	
FBX_CMD14	CKE#	
FBX_CMD15	CAS#	
FBX_CMD16	CS#	
FBX_CMD17	A3_BA3	
FBX_CMD18	A2_BA0	
FBX_CMD19	A4_BA2	
FBX_CMD20	A5_BA1	
FBX_CMD21	WE#	
FBX_CMD22	A7_A8	
FBX_CMD23	A6_A11	
FBX_CMD24	ABIS#	
FBX_CMD25	A12_RFU	
FBX_CMD26	A0_A10	
FBX_CMD27	AI_A9	
FBX_CMD28	RAS#	
FBX_CMD29	RST#	
FBX_CMD30	CKE#	
FBX_CMD31	CAS#	

Security Classification		LC Future Center Secret Data		Title	
Issued Date		Deciphered Date		N17P-G1_VRAM IF	
2015/02/26		2016/02/26			
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Doc#		Rev#		Rev#	
N17P-G1_VRAM IF		DY512		Rev#	
Date		Friday, November 26, 2016		Page 26 of 26	



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Issued Date	2015/02/26	Deciphered Date	2016/02/26	
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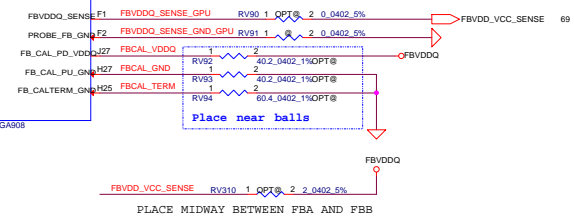
5A Peak 8A Cost down list:
1U 2Pcs



Add CV300 for power noise issue

Delete CV300 330U HLZ SDV 0610

CALIBRATION PIN	GDDR5
FB_CAL_x_PD_VDDQ	40.2ohm
FB_CAL_x_PU_GND	40.2ohm
FB_CAL_x_TERM_GND	60.4ohm

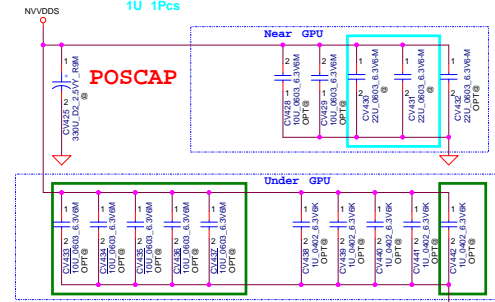


1.8V Total 1A (AON+MAIN)

0.5A

0.5A

19A Peak 42A Cost down list:
4.7U 1Pcs
1U 1Pcs



Follow NV suggestion for NVVDD5 Hai Y520 SVT

Delete +3.3V_AON

Change QV18 from LBSS138L1G_SOT-23 to LBSS139WT1G_SC70-3 Hai Y520 SVT

Add +1.8V-AON discharger circuit HLZ SIV 0811

Delete PD3503 and Reserve PD3/PR4/PR5/CV38 HLZ SIT 0923

2A

V20B+

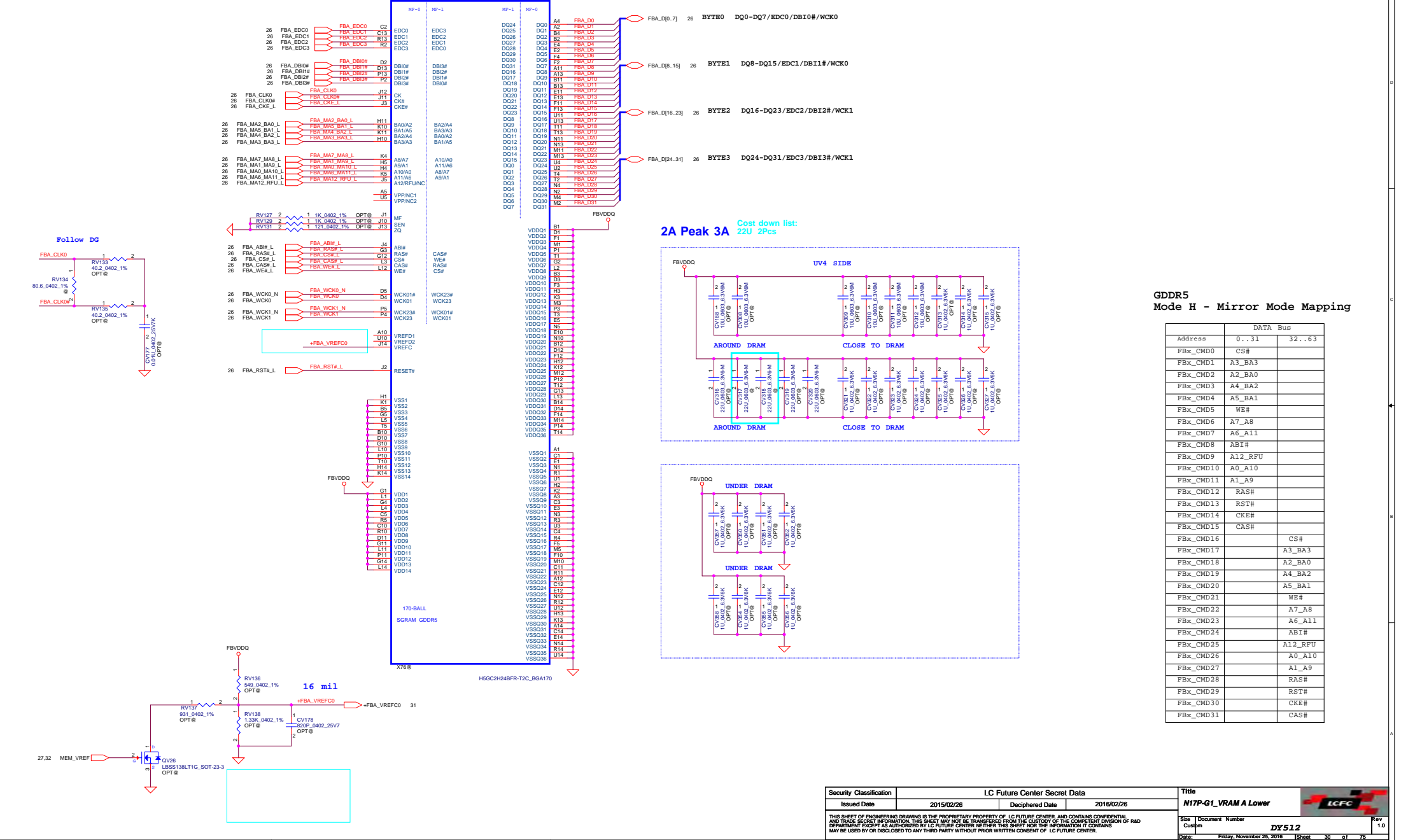
Vg=16.4V@AC
Vg=7.38V@Battery

Add +1.8V_MAIN discharger circuit HLZ SIT 0928

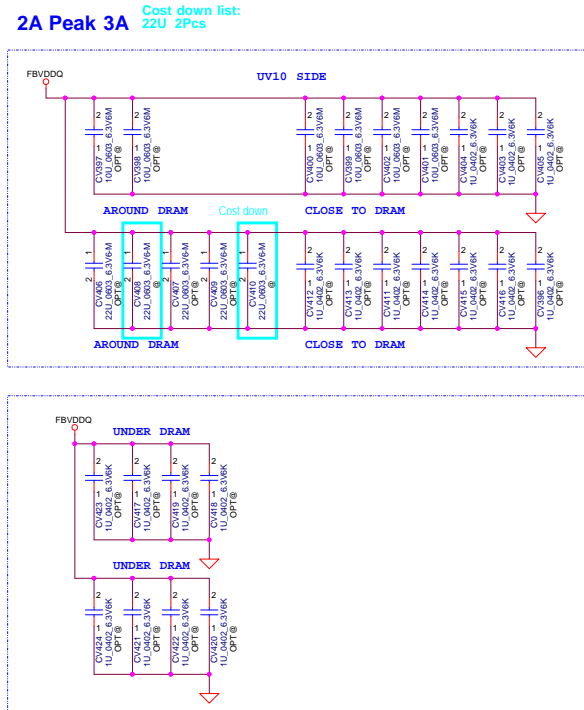
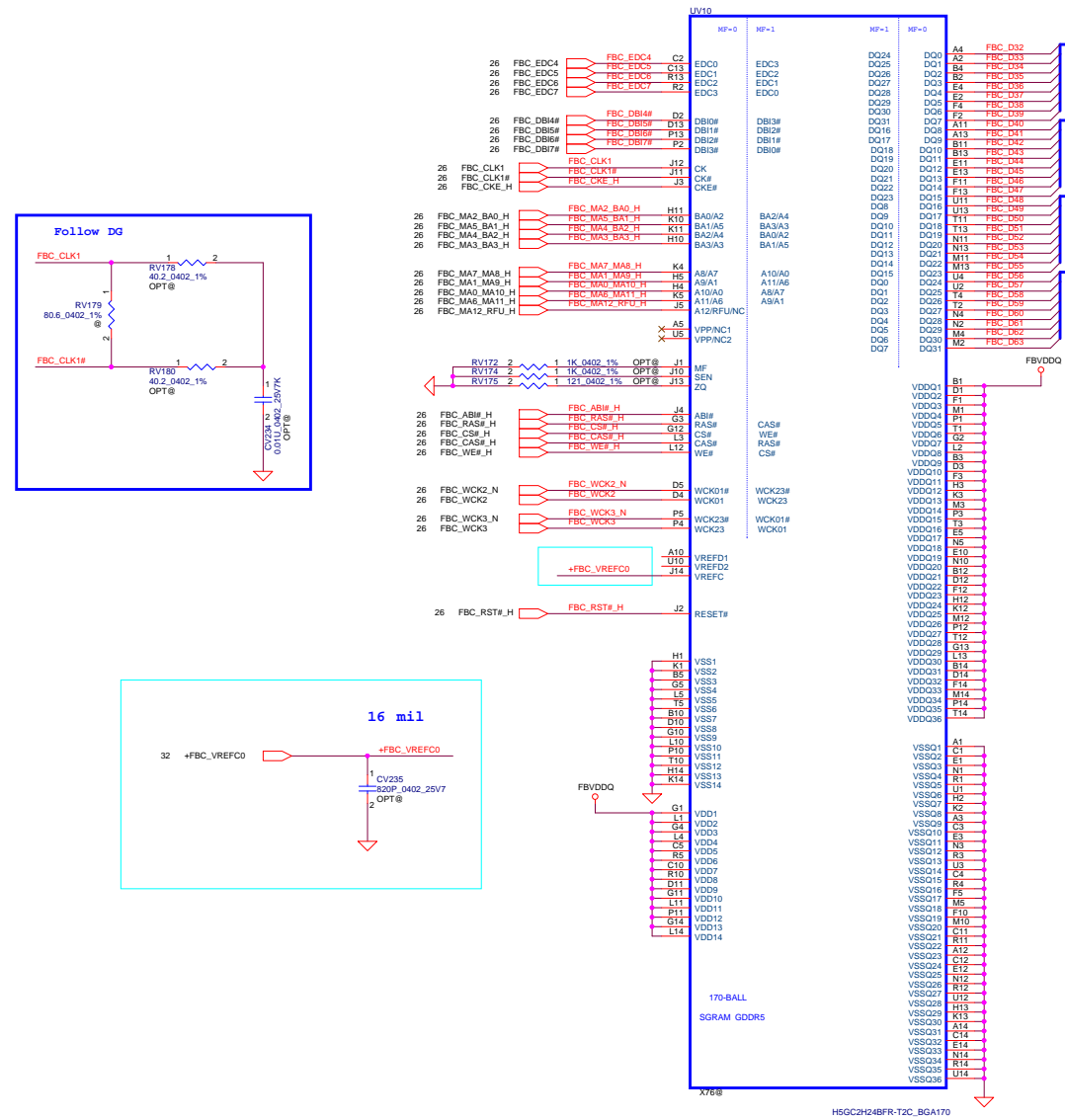
2A

1.5A

Memory Partition A - Lower 64 bits(MF=0)




Memory Partition B - Upper 32 bits(MF=0)



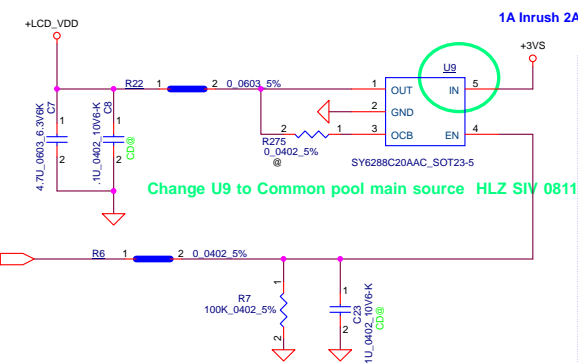
GDDR5
Mode H - Mirror Mode Mapping

	DATA Bus	
Address	0..31	32..63
FbX_CMD0	CS#	
FbX_CMD1	A3_BA3	
FbX_CMD2	A2_BA0	
FbX_CMD3	A4_BA2	
FbX_CMD4	A5_BA1	
FbX_CMD5	WE#	
FbX_CMD6	A7_A8	
FbX_CMD7	A6_A11	
FbX_CMD8	AB1#	
FbX_CMD9	A12_RFU	
FbX_CMD10	A0_A10	
FbX_CMD11	A1_A9	
FbX_CMD12	RAS#	
FbX_CMD13	RST#	
FbX_CMD14	CKE#	
FbX_CMD15	CAS#	
FbX_CMD16		CS#
FbX_CMD17		A3_BA3
FbX_CMD18		A2_BA0
FbX_CMD19		A4_BA2
FbX_CMD20		A5_BA1
FbX_CMD21		WE#
FbX_CMD22		A7_A8
FbX_CMD23		A6_A11
FbX_CMD24		AB1#
FbX_CMD25		A12_RFU
FbX_CMD26		A0_A10
FbX_CMD27		A1_A9
FbX_CMD28		RAS#
FbX_CMD29		RST#
FbX_CMD30		CKE#
FbX_CMD31		CAS#

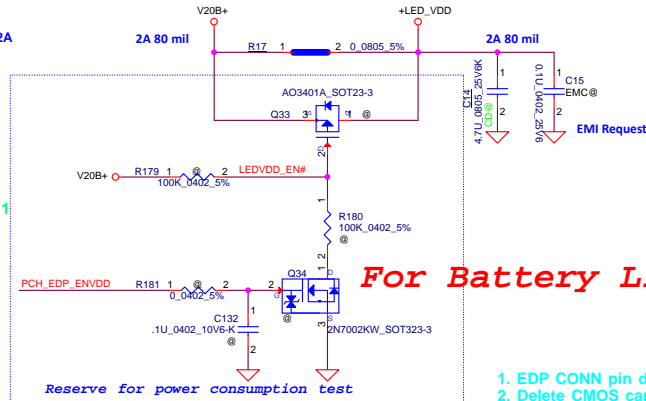
Security Classification	LC Future Center Secret Data		Title			
Issued Date	2015/02/26	Declassified Date	2016/02/26		Blank	
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<small>Issue</small>				<small>History</small> November 26, 2015 10:28AM 25 01 75		

LCD POWER CIRCUIT

1A Inrush 2A

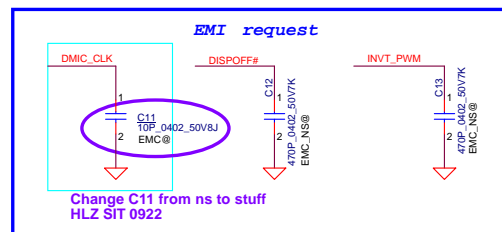


1A Inrush 2A

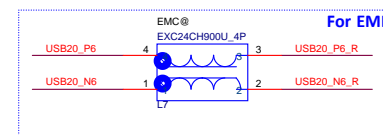
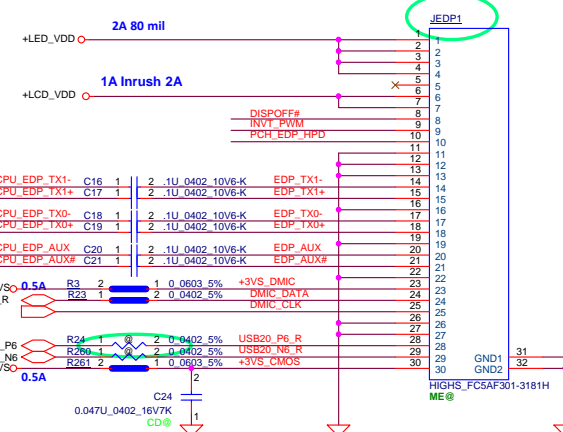


For Battery Life test

1. EDP CONN pin define change
 2. Delete CMOS camera CONN
- HLZ SDV 20160510

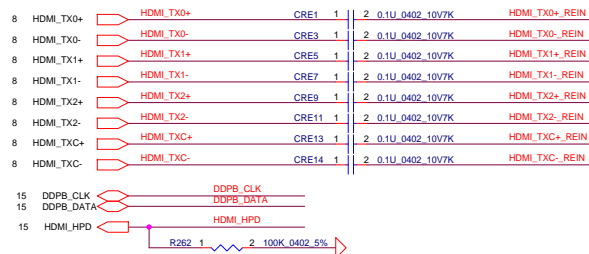


Update eDP CONN based on ME CONN list
Update eDP CONN based on ME CONN list HLZ SIV 07/26

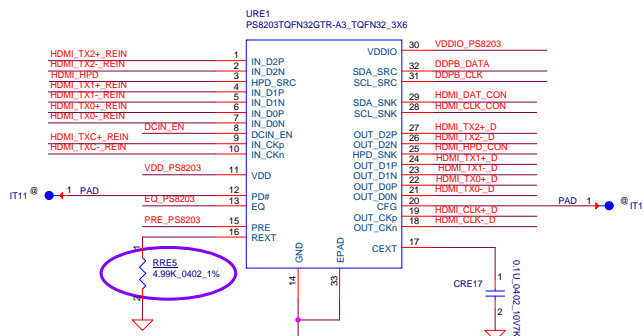


Security Classification			
LC Future Center Secret Data			
Issued Date	2015/02/26	Deciphered Date	2016/02/26
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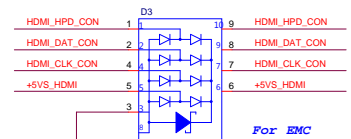
Title		
eDP/CMOS/Touch screen		
Size	Document Number	Rev
Custom	DY512	1.0
Date:	Friday, November 25, 2016	Sheet 35 of 75



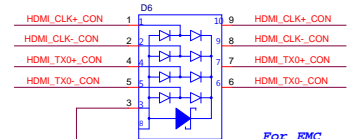
HDMI Repeater



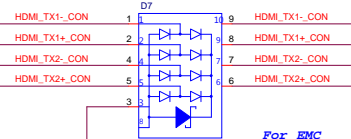
Change RRE5 from 5.9K to 4.99K due to 4K*2K Eye-diagram fail HLZ SIT 0920



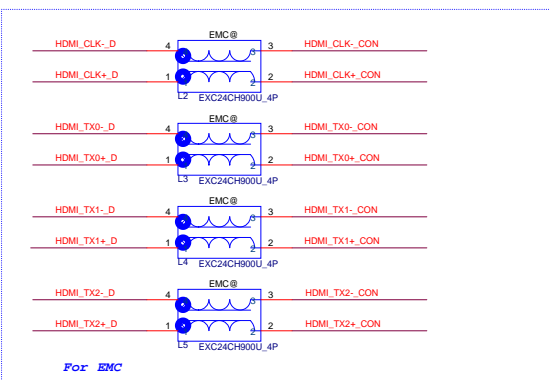
For EMC



For EMC

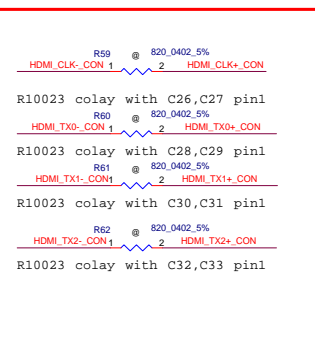


For EMC



For EMC

0427 Kerry Del Q25B



For EMC

ISET	
H	Increase +13%
L	default
M	Reduce -13%

EQ	
H	EQ for channel loss up to 4.3 dB
L	EQ for channel loss up to 12.4 dB
M	EQ for channel loss up to 8.6 dB

PRE	
H	1.6dB pre-emphasis
L	no pre-emphasis
M	2.5dB pre-emphasis

DDCBUF	
H	active DDC buffer with default threshold
L	default,passive DDC pass-through
M	active DDC buffer without default threshold

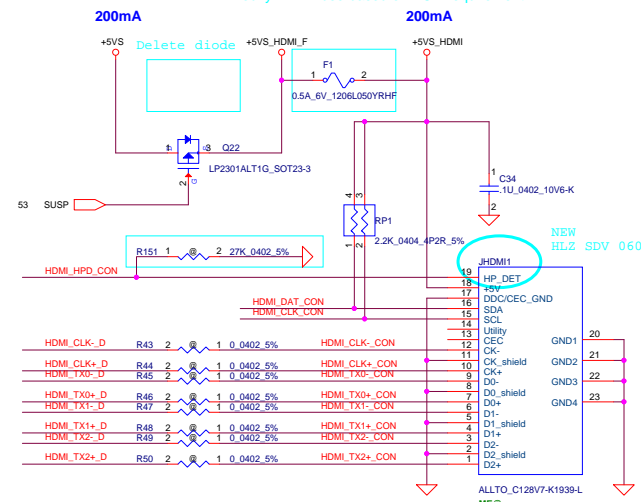
I2C_CTL_EN	
H	I2C control is selected
L	Pin control is selected

CFG	
H	HDMI ID enable
L	HDMI ID disable

DCIN_EN	
H	DC coupling input
L	default,AC coupling input

PD#	
H	Normal operation
L	Chip power down

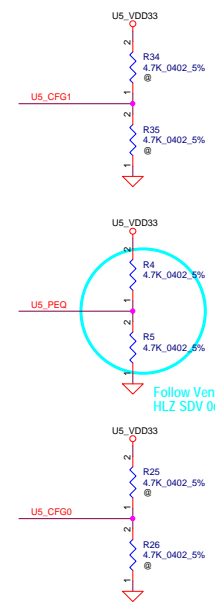
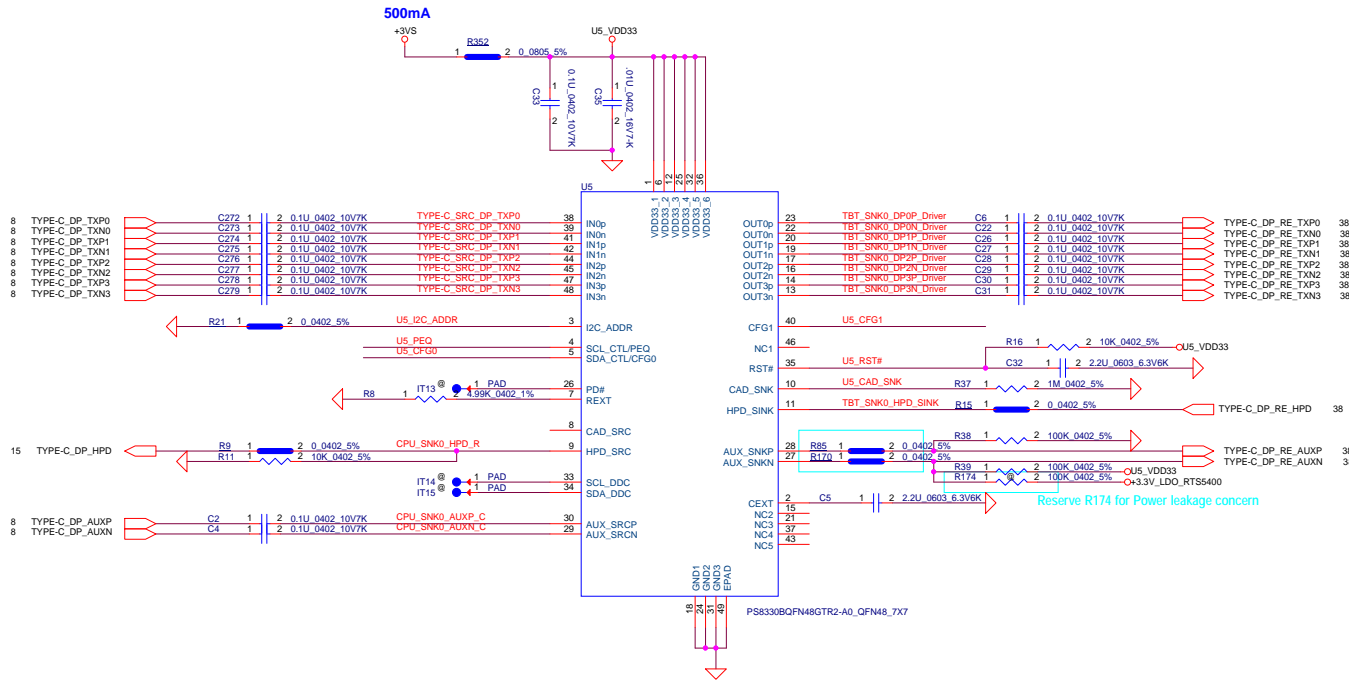
Modify HDMI fuse based on PUR requirement



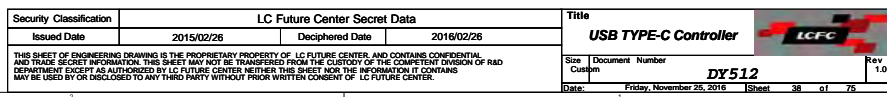
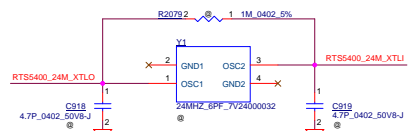
NEW HLZ SDV 0601

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				DATE	Friday, November 25, 2016
				Sheet	36 of 75

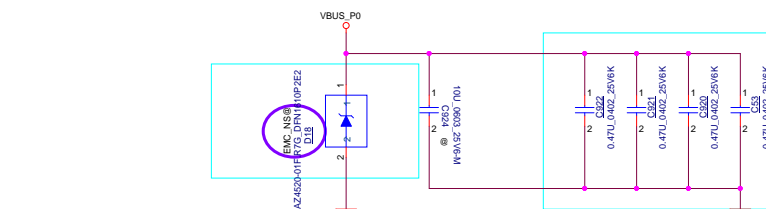
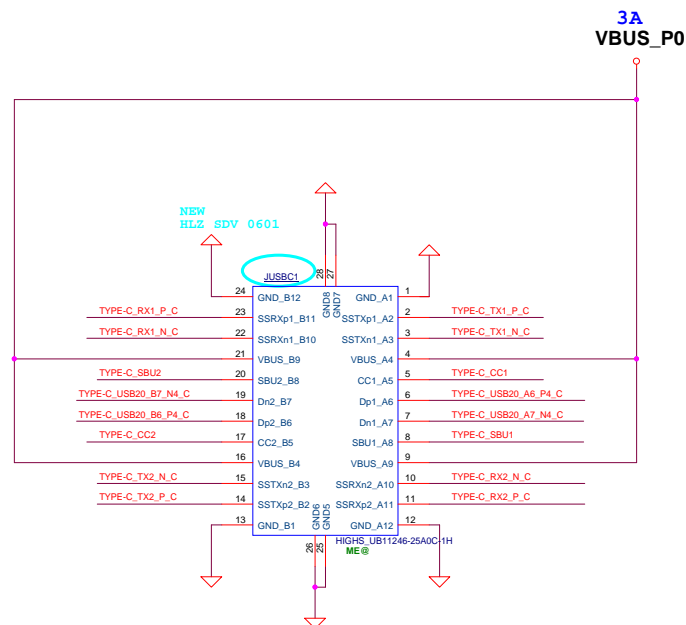
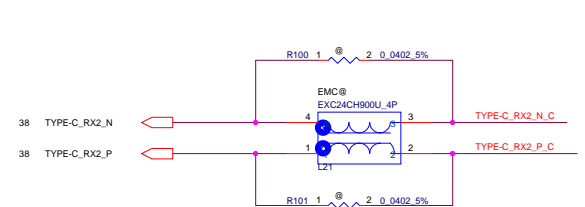
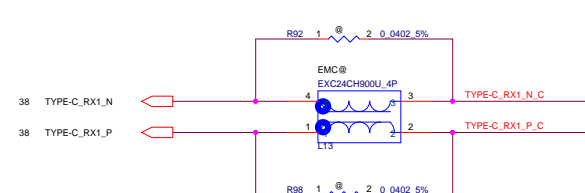
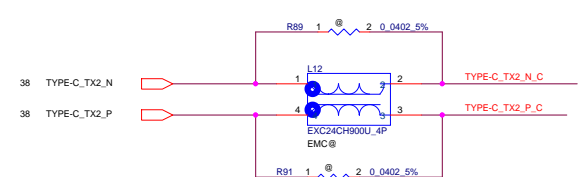
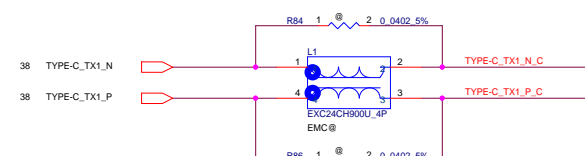
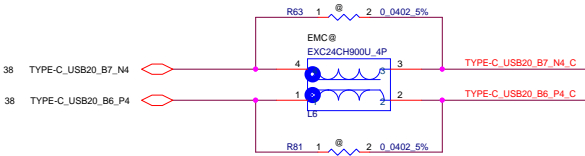
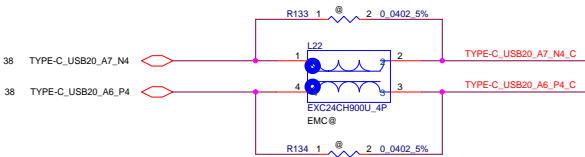
DP Redriver



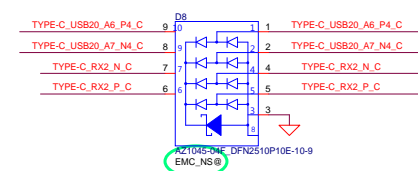
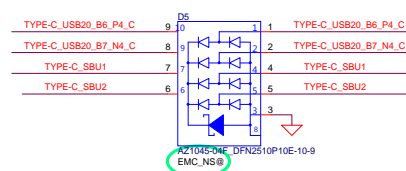
Follow Vendor suggestion to stuff R4 & R5
HLZ SDV 0601



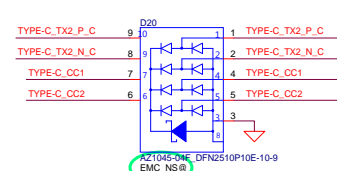
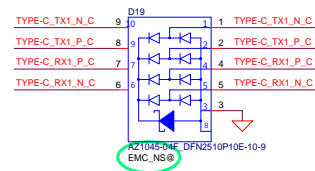
38 TYPE-C_CC1 TYPE-C_CC1
 38 TYPE-C_CC2 TYPE-C_CC2
 38 TYPE-C_SBU1 TYPE-C_SBU1
 38 TYPE-C_SBU2 TYPE-C_SBU2



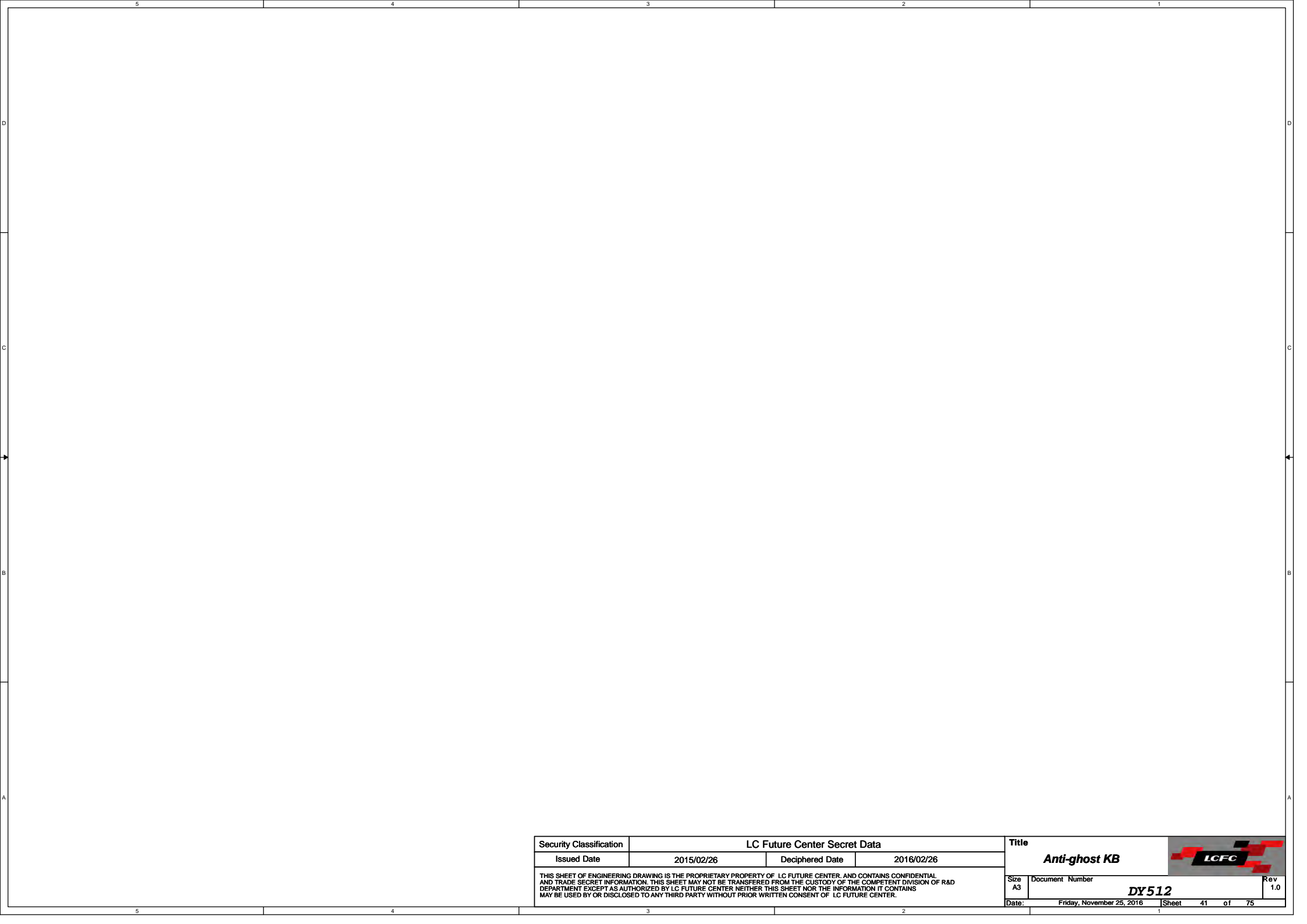
Change D18 from NXP to AZ HLZ SIT 0922
 Change D18 from stuff to@ HLZ SIV 0811



Change D5&D8&D19&D20 from stuff to@ HLZ SIV 0811








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				Document Number		Rev
				DY512		1.0
Date:				Friday, November 25, 2016		Sheet 41 of 75



TABLE : CPU ITP DEBUG REPORT

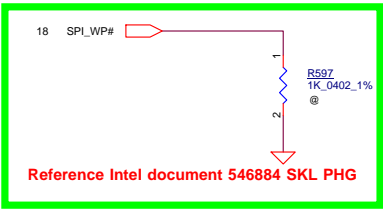
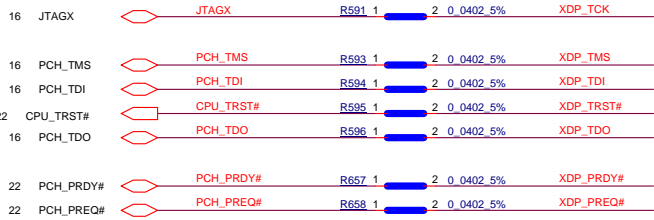
	No use	Individual Port	DCI 2.0 w/o connector
R591	NO ASM	NO ASM	ASM
R593	NO ASM	NO ASM	ASM
R594	NO ASM	NO ASM	ASM
R595	NO ASM	NO ASM	ASM
R596	NO ASM	NO ASM	ASM
R657	NO ASM	NO ASM	ASM
R658	NO ASM	NO ASM	ASM
R102	NO ASM	ASM	NO ASM
R597	NO ASM	ASM	NO ASM
R9907	NO ASM	ASM	ASM
JXDP1	NO ASM	ASM	NO ASM
C70	NO ASM	ASM	NO ASM
R96	NO ASM	ASM	NO ASM
R101	NO ASM	ASM	NO ASM
R9909	NO ASM	ASM	ASM
R9910	NO ASM	ASM	ASM
R9916	NO ASM	ASM	ASM
R99	NO ASM	ASM	ASM
R9912	NO ASM	ASM	ASM
R9934	NO ASM	ASM	ASM
R9930	NO ASM	ASM	ASM
R9931	NO ASM	ASM	ASM
R9932	NO ASM	ASM	ASM
R9933	NO ASM	ASM	ASM

TABLE : PCH ITP DEBUG REPORT

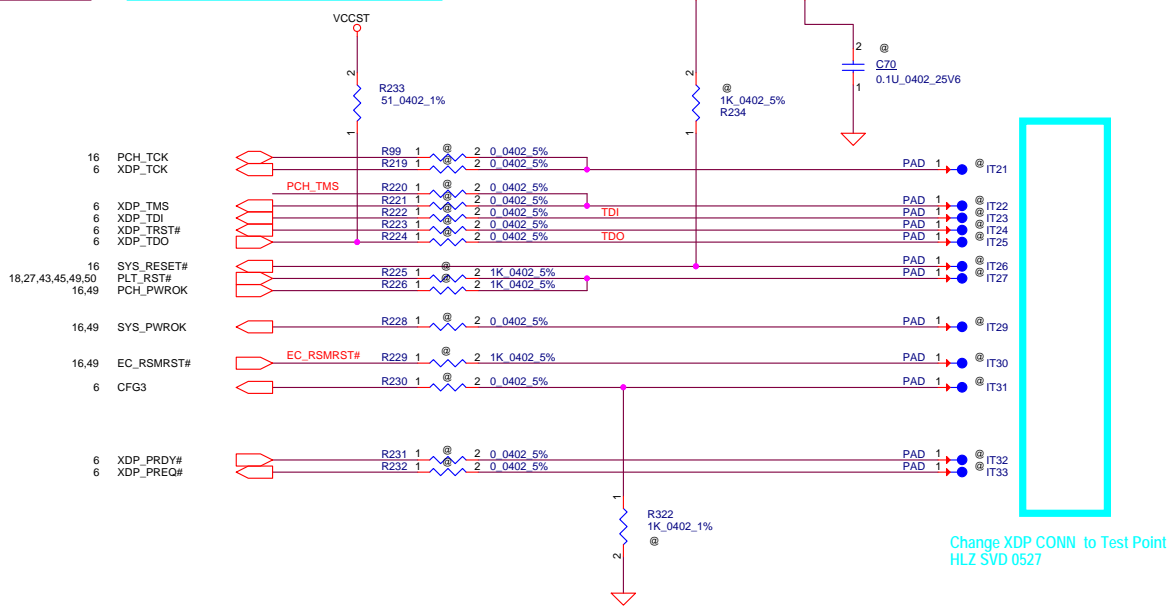
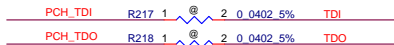
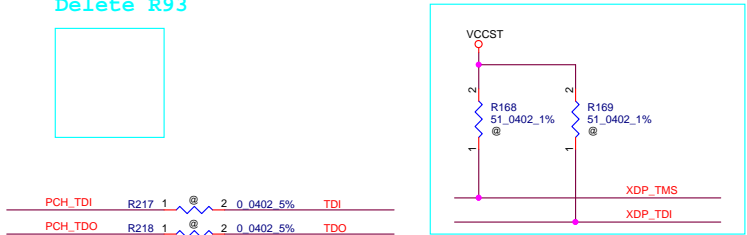
	No use	Individual Port	DCI 2.0 w/o connector
R93	NO ASM	ASM	NO ASM
JXDP1	NO ASM	ASM	NO ASM
R9917	NO ASM	ASM	NO ASM
R101	NO ASM	ASM	NO ASM
R9908	NO ASM	ASM	NO ASM
R9911	NO ASM	ASM	NO ASM
R9913	NO ASM	ASM	NO ASM
R9915	NO ASM	ASM	NO ASM

TABLE : Functional Strap

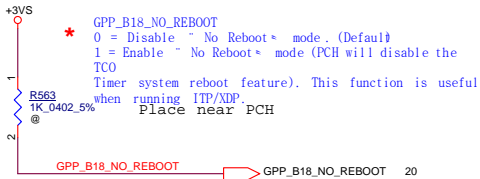
GPP_B18/GSPI0_MOSI (No Reboot)	R563
HIGH Enable "No Reboot" Mode	ASM
LOW Disable "No Reboot" Mode (Default)	NO ASM



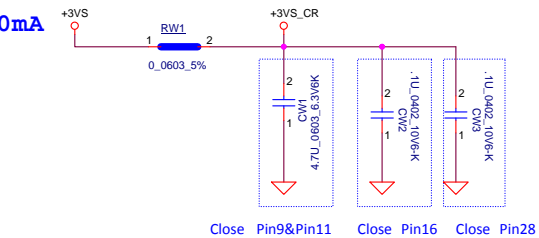
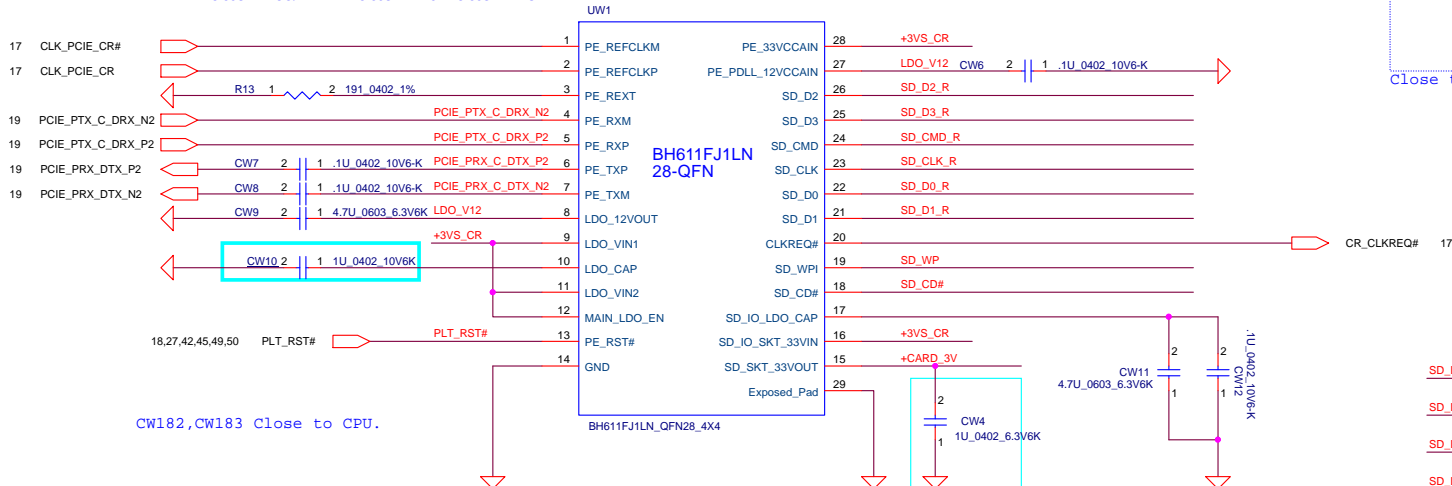
Delete R93



Change XDP CONN to Test Point HLZ SVD 0527



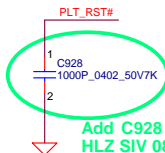
500mA

VID:1217
DID:8621

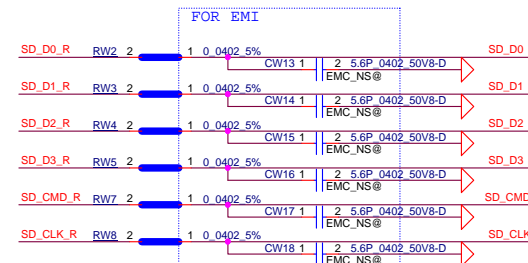
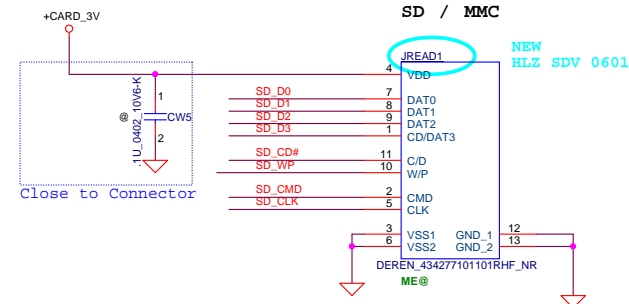
CW182,CW183 Close to CPU.

Delete SD_WP & SD_CD# connect 0ohm
HLZ SVD 0527

For micro SD 槽SDWP signal

Add C928 due to signal waveform abnormal
HLZ SIV 0811

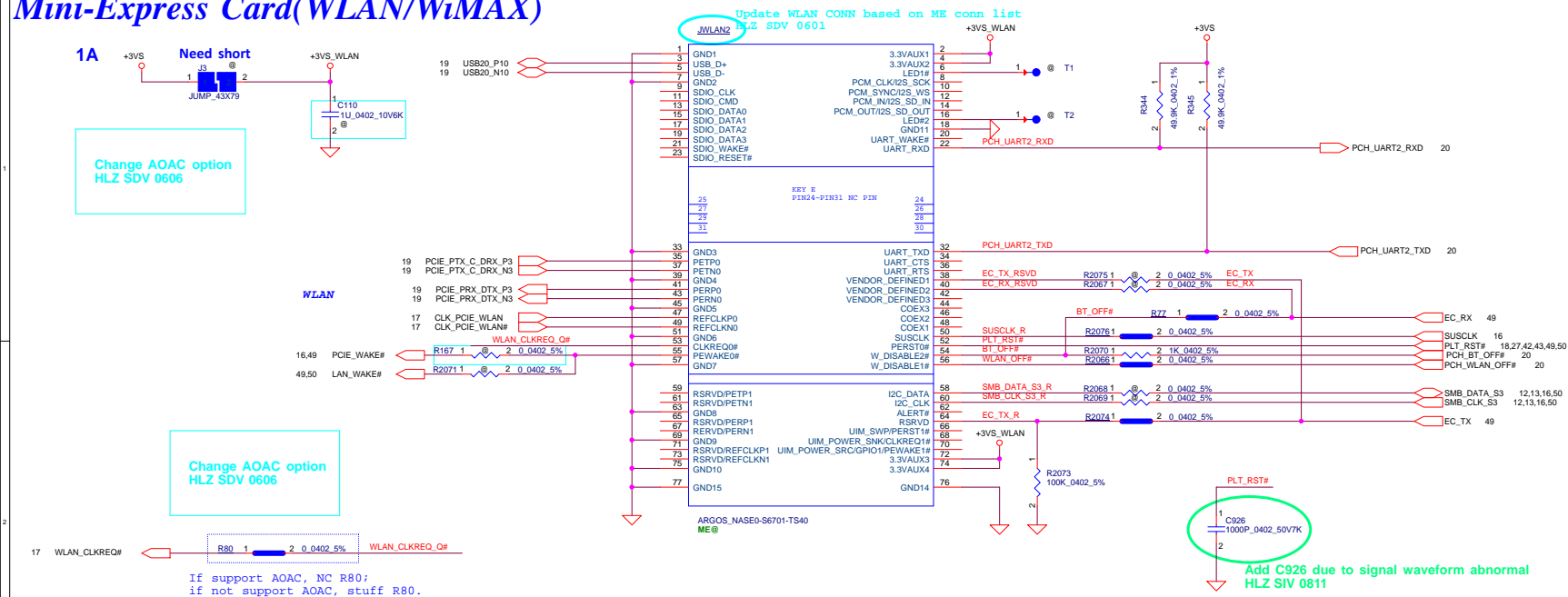
500mA



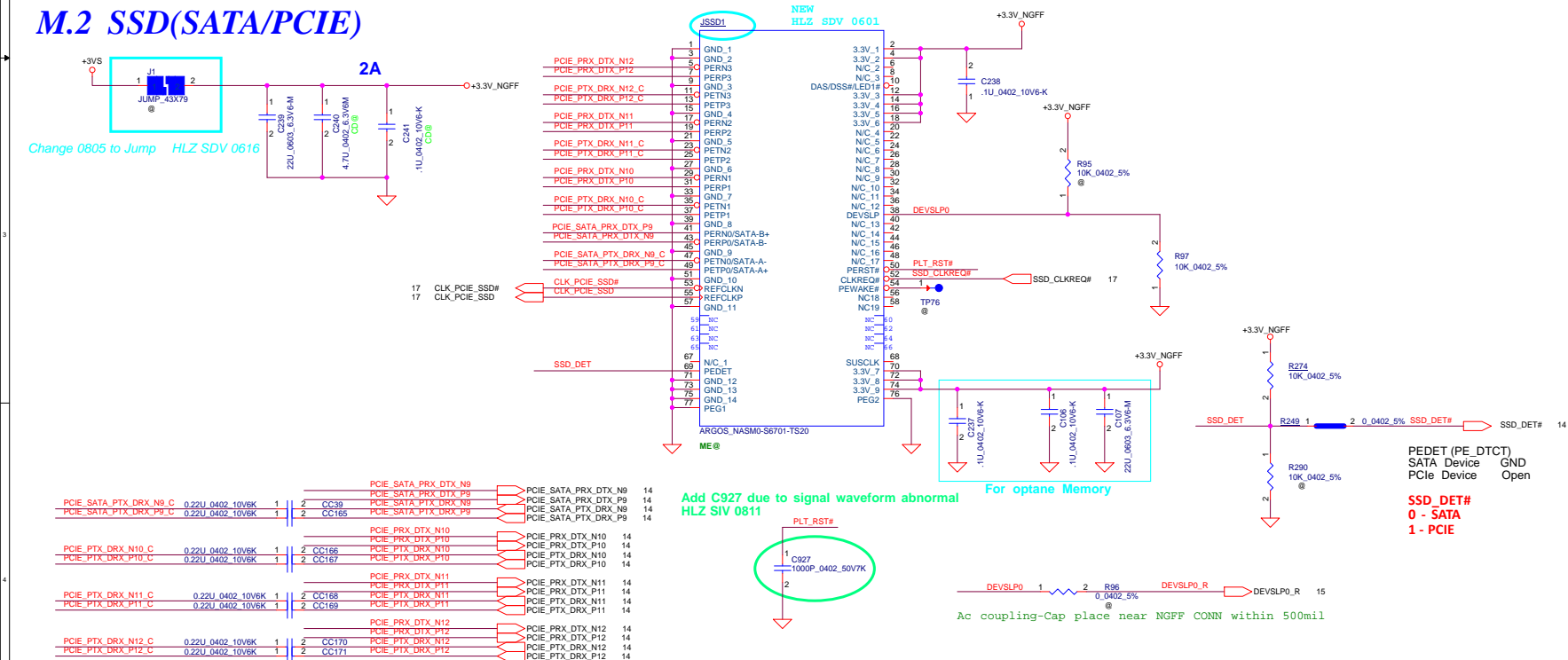
Close to UW1 Placement


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				Date:	Friday, November 25, 2016	Sheet 43 of 75

A	B
<i>Mini-Express Card(WLAN/WiMAX)</i>	



M.2 SSD(SATA/PCIE)

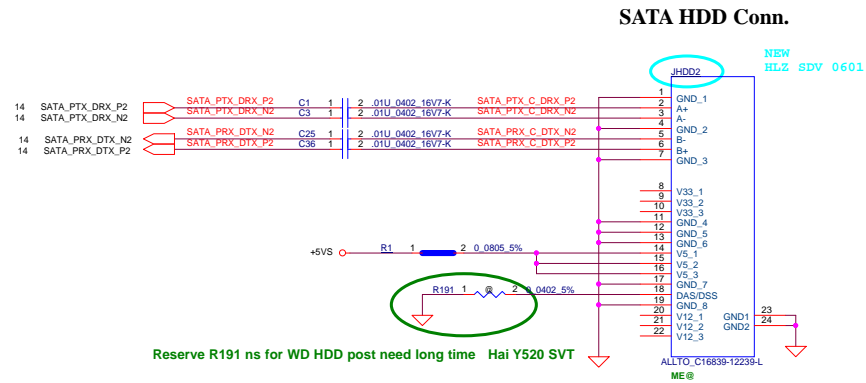
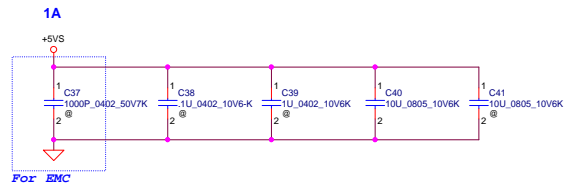


Security Classification				LC Future Center Secret Data				Title			
Issued Date		2015/02/26		Deciphered Date		2016/02/26		NGFF WLAN			
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Size				Document Number				Rev		1.0	
Custom				DY512							
Date:				Friday, November 25, 2016				Sheet		45 of 75	

Delete C74&C75&C76&C77&C78
HLZ SIT 0922

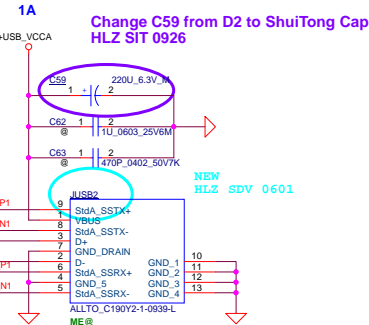
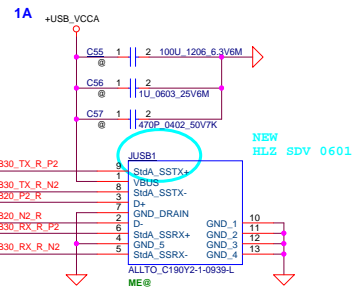
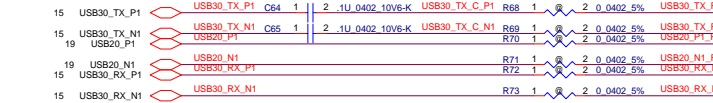
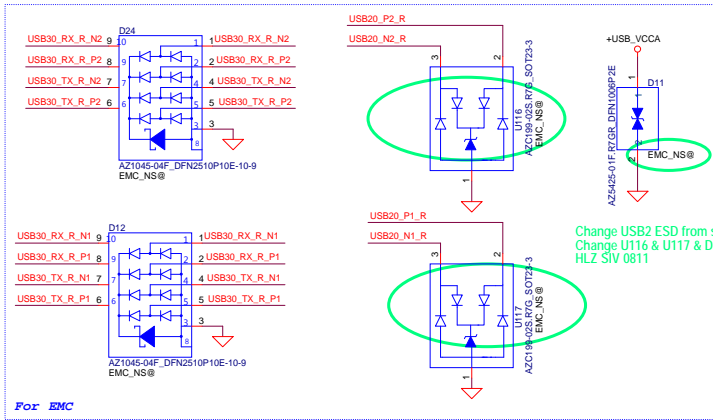
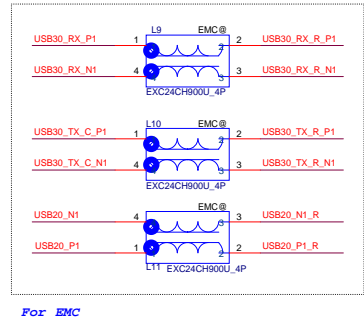
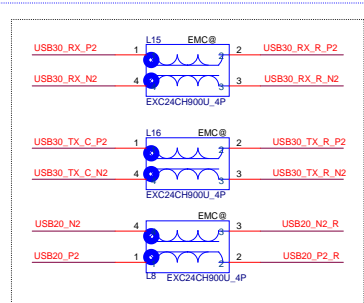
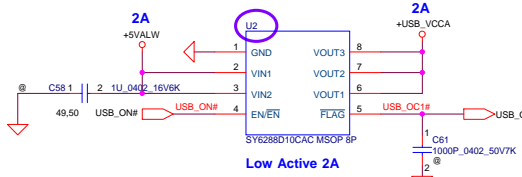
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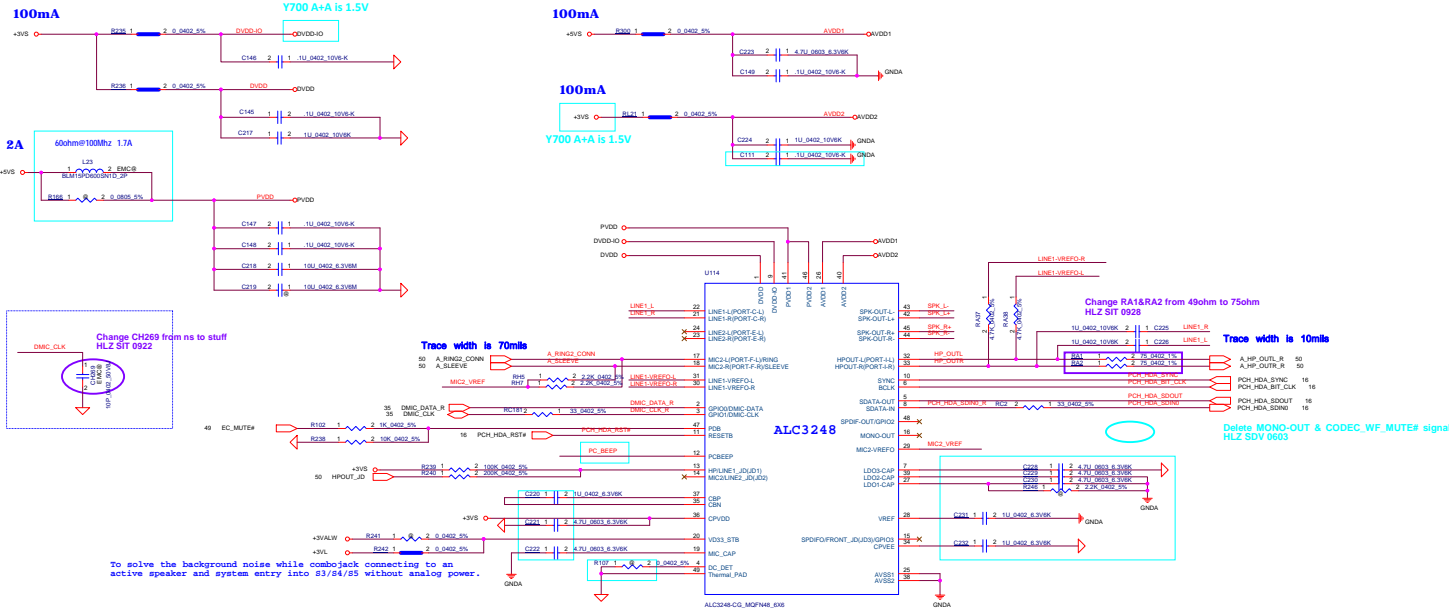
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HLZ SIT 0922



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Size C	Document Number	DY512		Date: Friday, November 25, 2016
Sheet	46	of	75	

LEFT SIDE USB3.0 PORT X2





Delete WF AMP HLZ SDV 0603

Security Classification		LC Future Center Secret Data		Title	
Issued Date	2015/02/26	Declassified Date	2016/02/26	Codec_CX20752	
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Rev	D	Document Number	DY512		Rev 1/4
History: November 26, 2015 [2015] 49 01 75					

For EMI

CLK_PCI_EC

PLT_RST#

change CE1 from @ to stuff due to signal waveform abnormal
HLZ SIV 0811

+3VALW_R

DE1 1 2 @

RB751V-40_S0D323-2

RE1 1 2 100K 0.402 5%

1U_0402_6.3V6K

+3VALW_R

RPE2 1 2 2.2K 0.404 4P2R 5%

EC_SMB_CK1#

EC_SMB_DAT#

+3VS

RPE3 1 2 2.2K 0.404 4P2R 5%

EC_SMB_CK2#

EC_SMB_DAT#

+3VALW

RPE4 1 2 2.2K 0.404 4P2R 5%

EC_SMB_CK0#

EC_SMB_DAT#

16 SUSACK#

DPWROK_EC

Change SUSACK# from GPF2 to GPF7
HLZ SIV 0811

Change USB_CHG_EN to SYSON_VDDQ
HLZ SDV 0531

+3VL

RE95 1 2 10K 0.402 5% EC_ON

MIRROR#

RE36 1 2 10K 0.402 5% BKOFF#

RE38 2 1 100K 0.402 5% LID_SW#

RE40 1 2 100K 0.402 5% BKOFF#

For factory EC flash

+3VALW_R

GP2#

RE44 2 1 10K 0.402 5%

MIRROR#

GP2#

when mirror, GP2# pull high
when no mirror, GP2# pull low

Reserved Cap HLZ SDV 0616

EC_SPL_C50#

EC_SPL_SI

EC_SPL_SO

EC_SPL_CLK

EC_SPL_C50#

EC_SPL_SI

EC_SPL_SO

EC_SPL_CLK

EC_SPL_C50#

EC_SPL_SI

EC_SPL_SO

EC_SPL_CLK

EC_SPL_C50#

EC_SPL_SI

EC_SPL_SO

EC_SPL_CLK

EC_SPL_C50#

EC_SPL_SI

EC_SPL_SO

EC_SPL_CLK

EC_SPL_C50#

EC_SPL_SI

EC_SPL_SO

EC_SPL_CLK

EC_SPL_C50#

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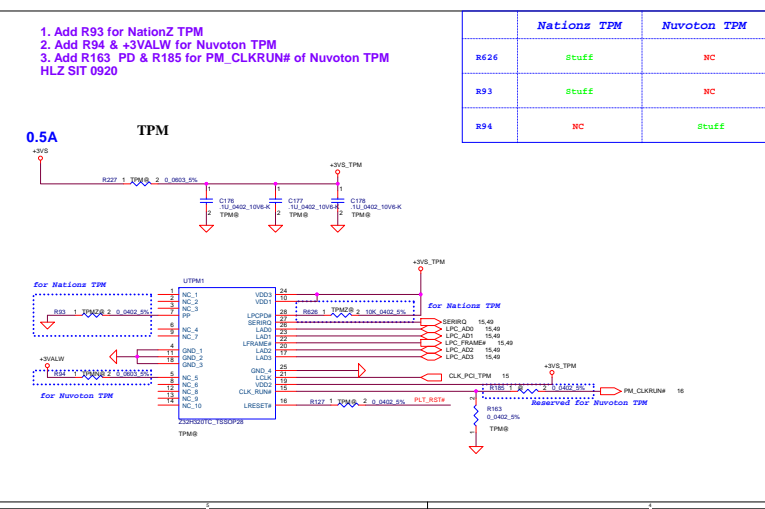
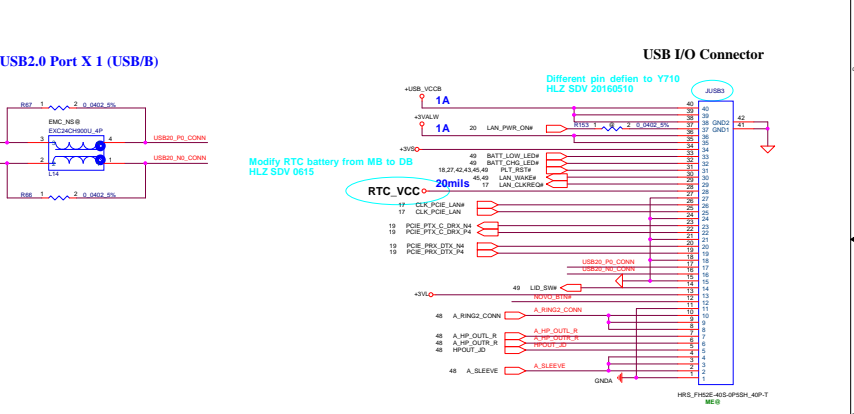
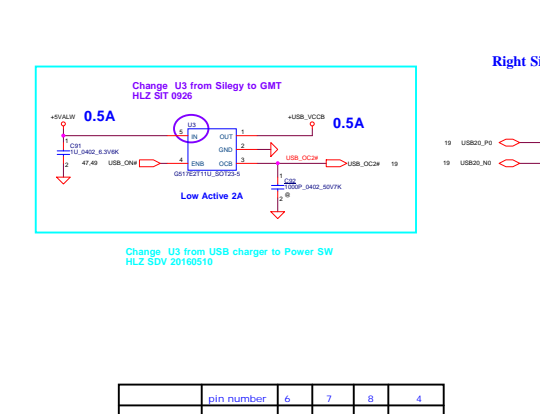
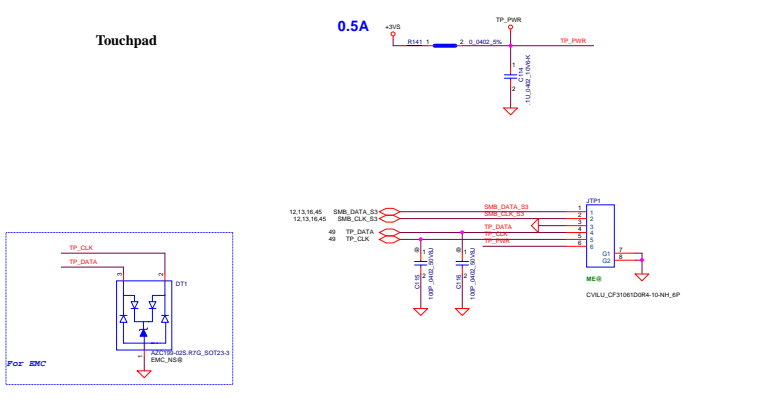
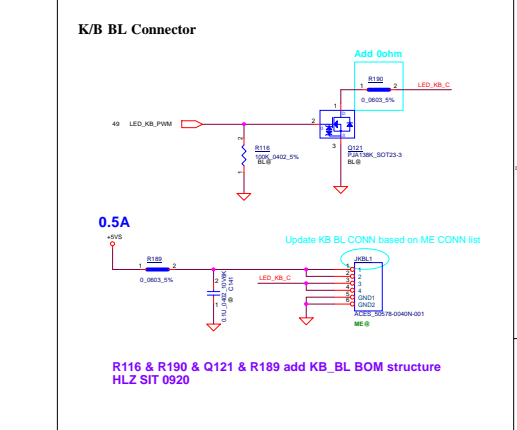
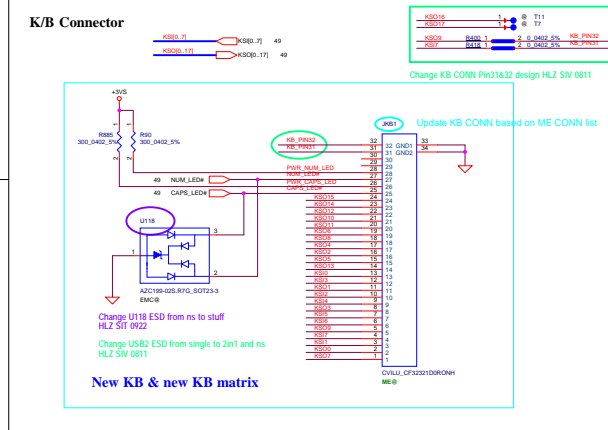
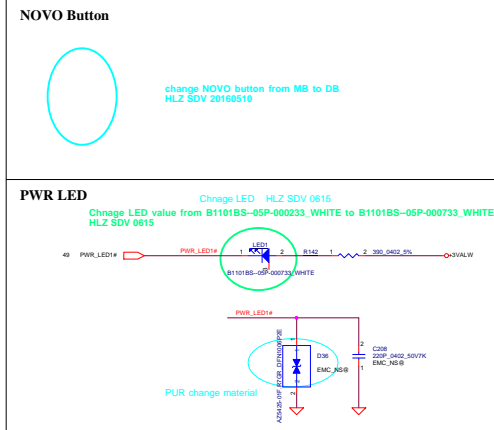
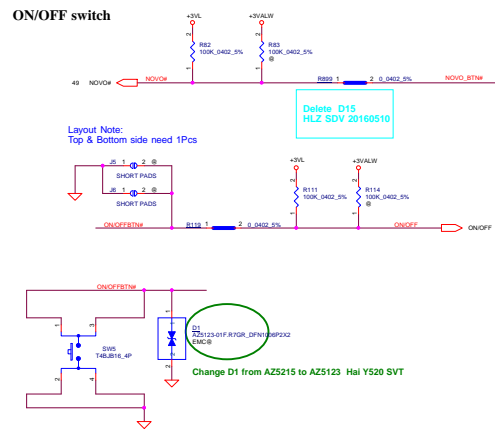
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EC_SPL_C50#

EC_SPL_SI

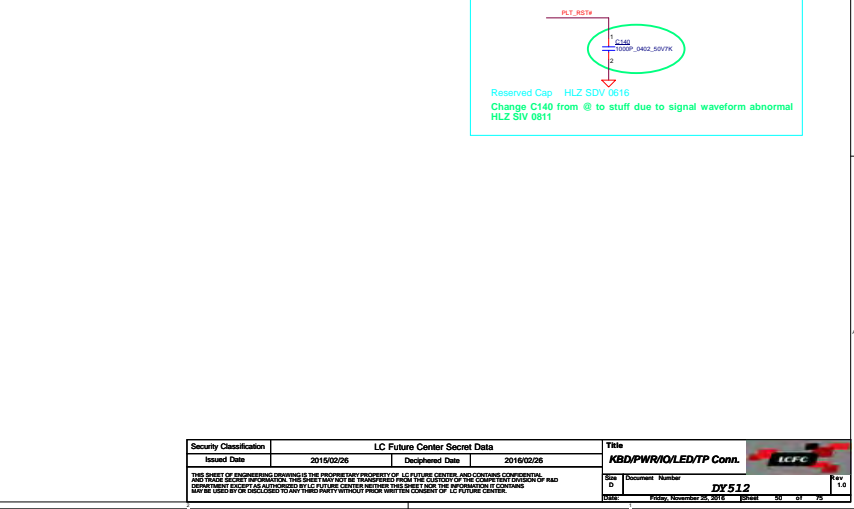
EC_SPL_SO

EC_S



	pin number	6	7	8	4
	pin name	CTL1	CTL2	CTL3	ILM_SEL
Charge port Pin5 Enable H for all	S0 CDP	1	1	1	1
	S3 DCP	0	1	1	0/1
	S4/S5 DCP	0	0	1	0/1
Normal port Pin5 Enable H for S0/S3 L for S4/S5	S0 SDP1	1	1	0	0/1
	S3 SDP1	0	1	0	0/1
	S4/S5 Disable	0	0	0	0/1

SDP2 (No Discharge from/to CDP)
SDP1(Discharge from/to any charging state including CDP)

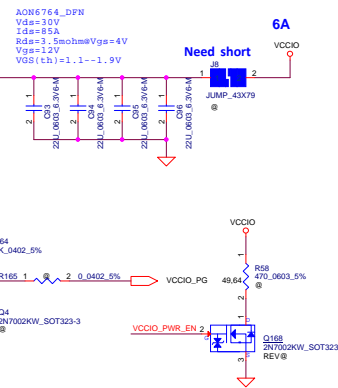



5					4					3					2					1				
D																								
C																								
B																								
A																								
5					4					3					2					1				



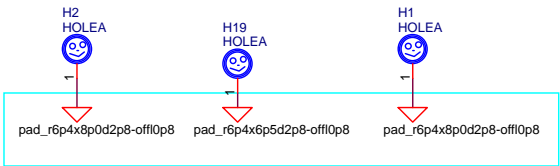
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Issued Date	2015/02/26	Deciphered Date	2016/02/26	RGB KBD LED CONN	
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Size	Document Number			Rev	
	DY512			1.0	
Date:	Friday, November 25, 2016		Sheet	52	of 75

The schematic diagram illustrates the power supply section of the G5016KDT10_T0FN14_2x3 module. It shows the internal circuitry for converting a 5V input to 3V and 5V outputs. Key components include a 5A 5V input, a 5V regulator (U58), a 3V regulator (U59), and various capacitors (C121, C122, C123, C124, C125, C126). The diagram also shows the connection to the 3V and 5V pins of the module.

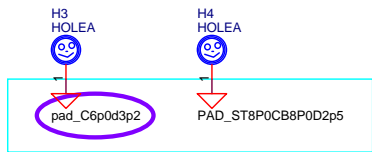


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Issued Date	2015/02/26	Deciphered Date	2016/02/26	DC V TO VS INTERFACE		
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Date	Friday, November 26, 2016			Sheet	53 of 75	1.0

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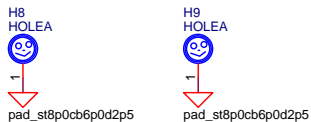


Update footprint name HLZ SDV 0615



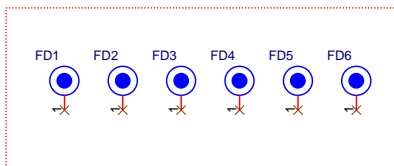
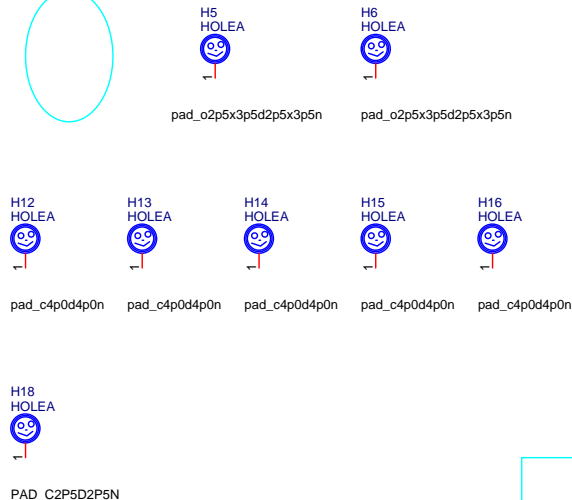
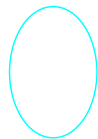
Update H3 footprint name HLZ SIT 0923

Update footprint name HLZ SDV 0616



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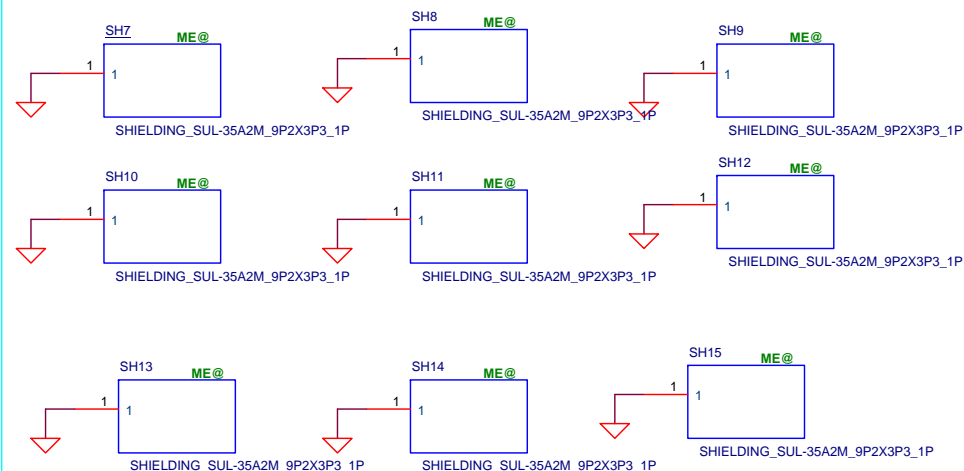
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For USB3 shielding Clip

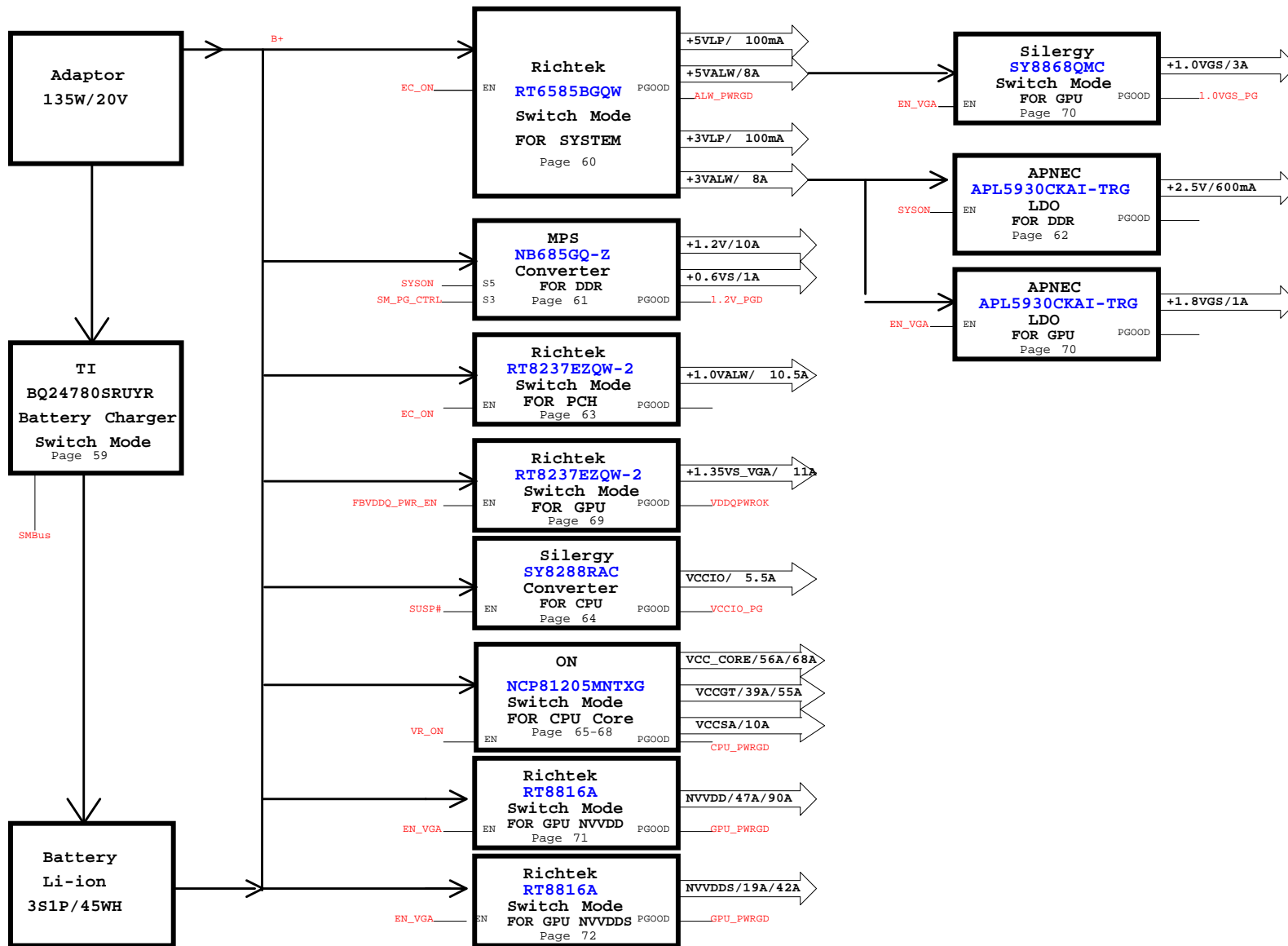
Delete SH1 SH2 SH3 SH4 SH5 SH6 0726

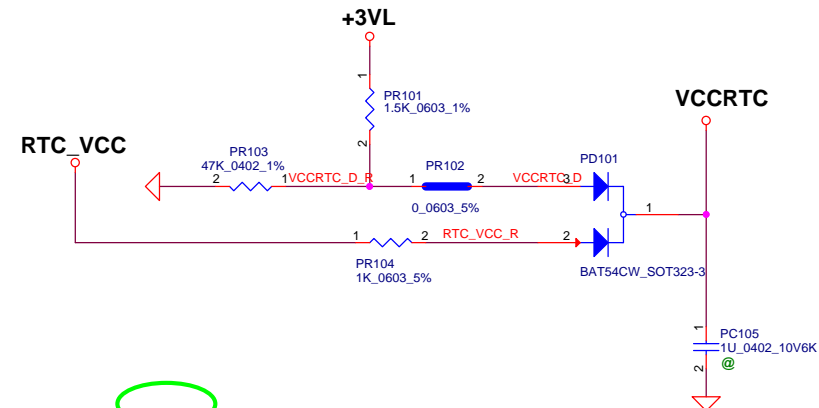
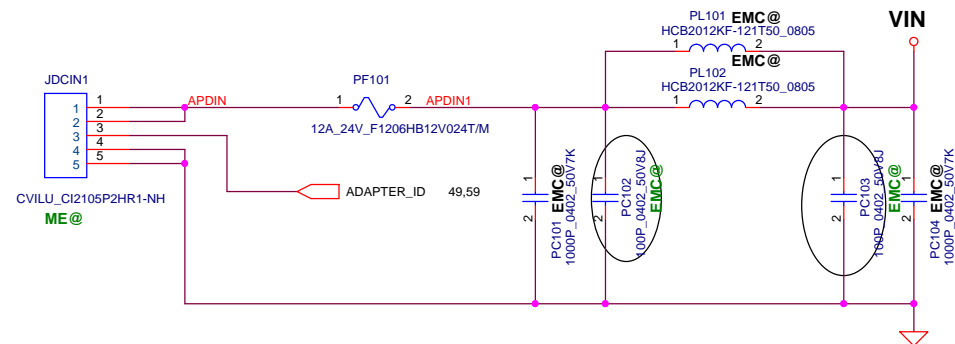
For DDR4 shielding Clip



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Issued Date	2015/02/26	Deciphered Date	2016/02/26	Hole		
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				Date:	Friday, November 25, 2016	Sheet 55 of 75

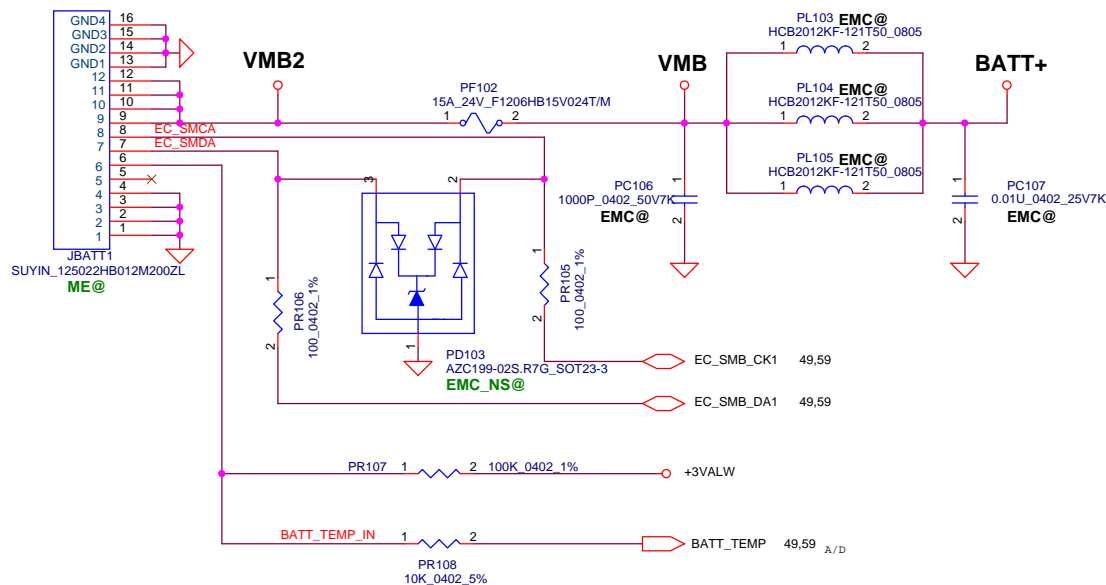
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<small>Issue</small>				<small>History</small> November 26, 2015 <small>Issue</small> 01 of 75		






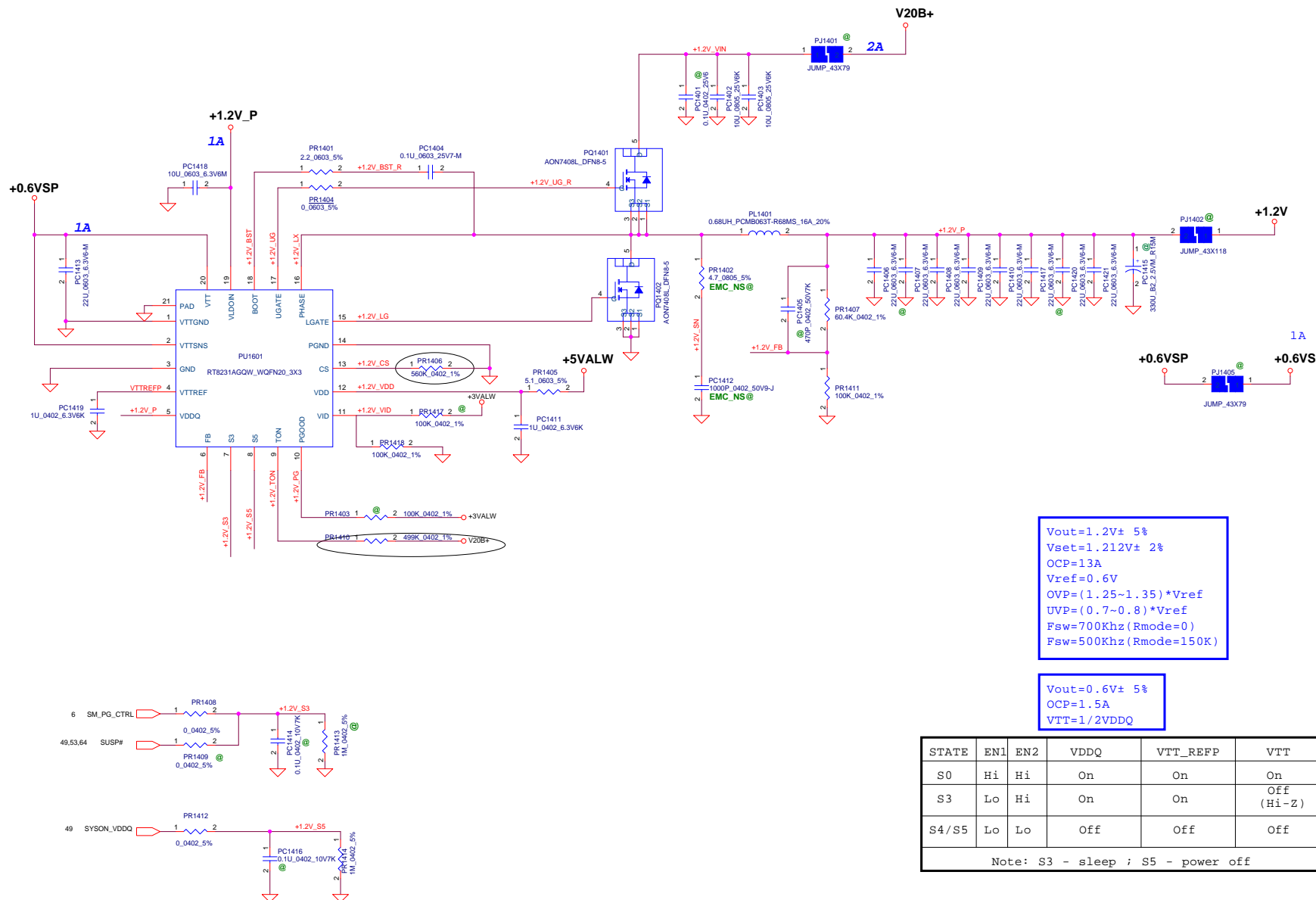
Change JRTC1 based on ME CONN list
HLZ SDV 0530

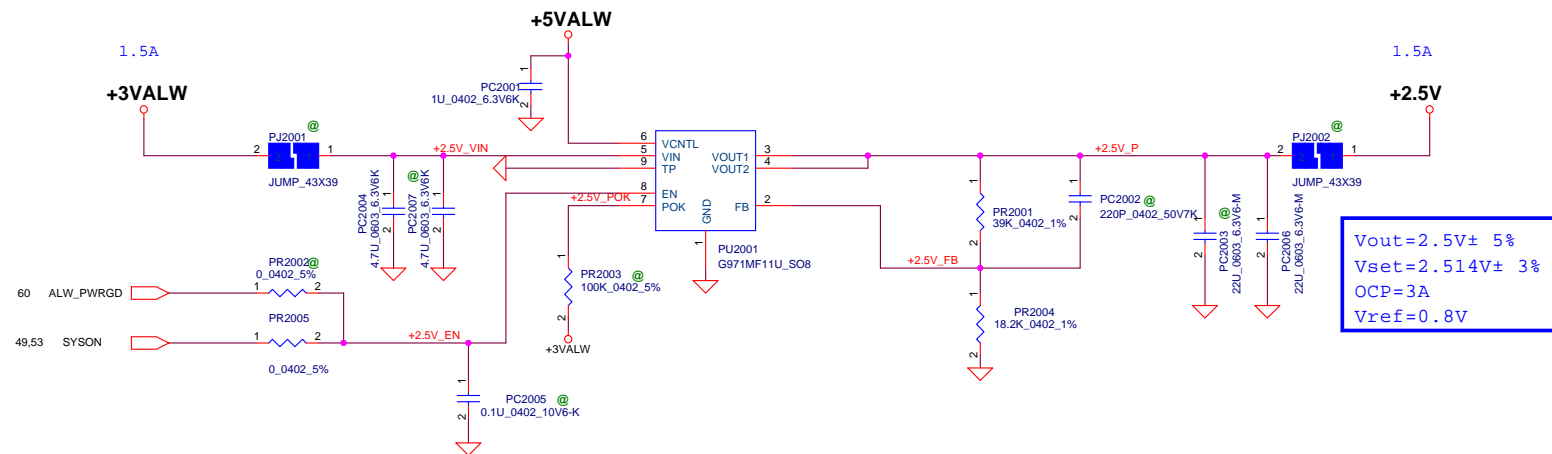
Change RTC battery from MB to DB HLZ SDV 0615



Security Classification		LC Future Center Secret Data		Title	
Issued Date	2016/01/20	Deciphered Date	2016/01/20	PWR-DCIN/BATT/RTC	
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				Size Custom	Document Number
				DZ510/DY512	
				Date:	Friday, November 25, 2016
				Sheet	58 of 75
				Rev	1.0



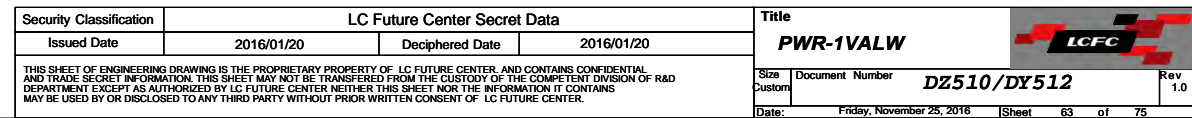


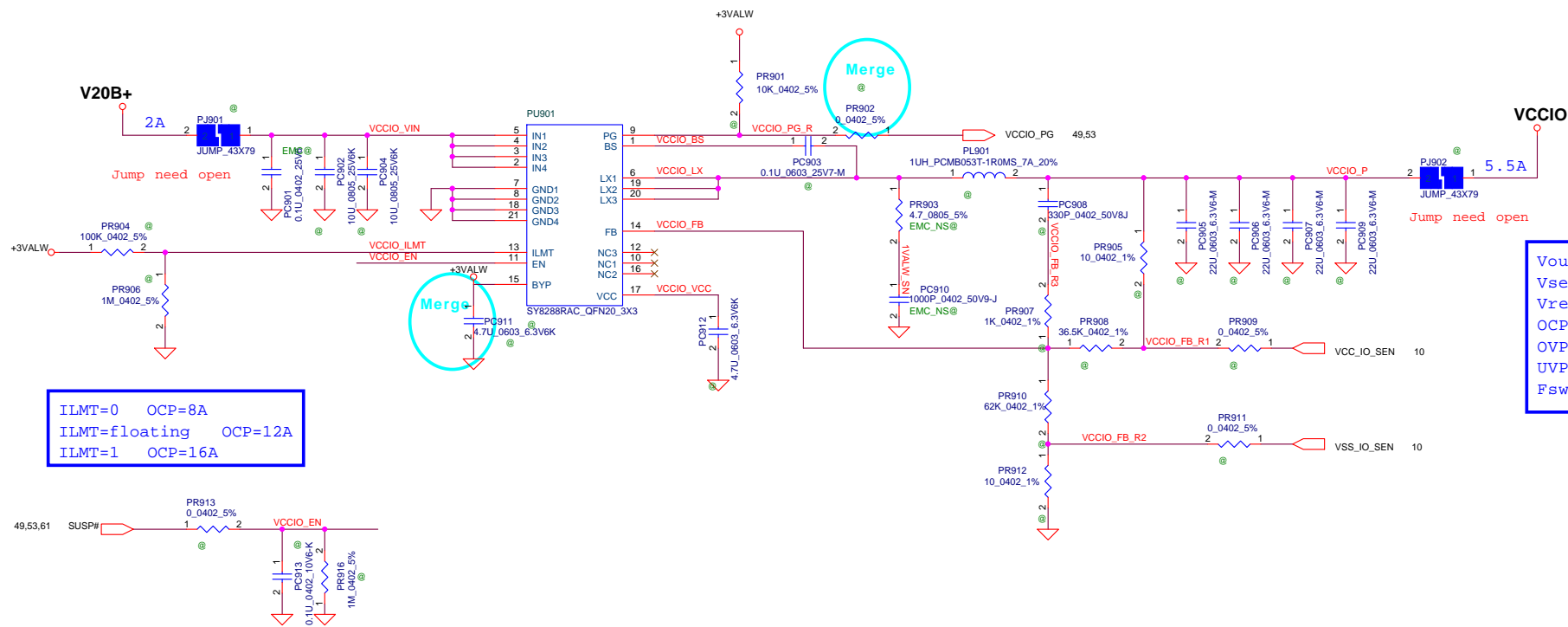


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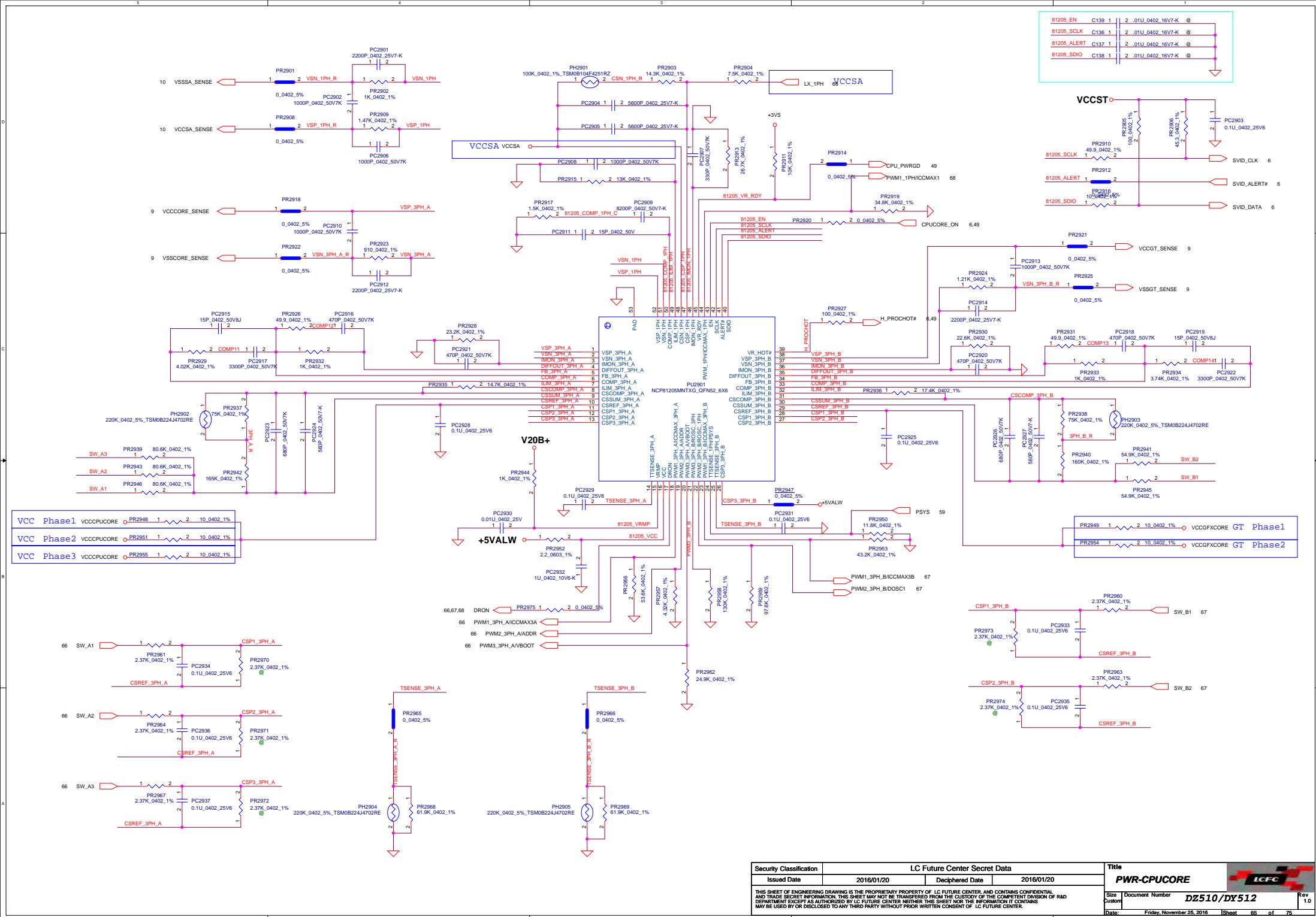





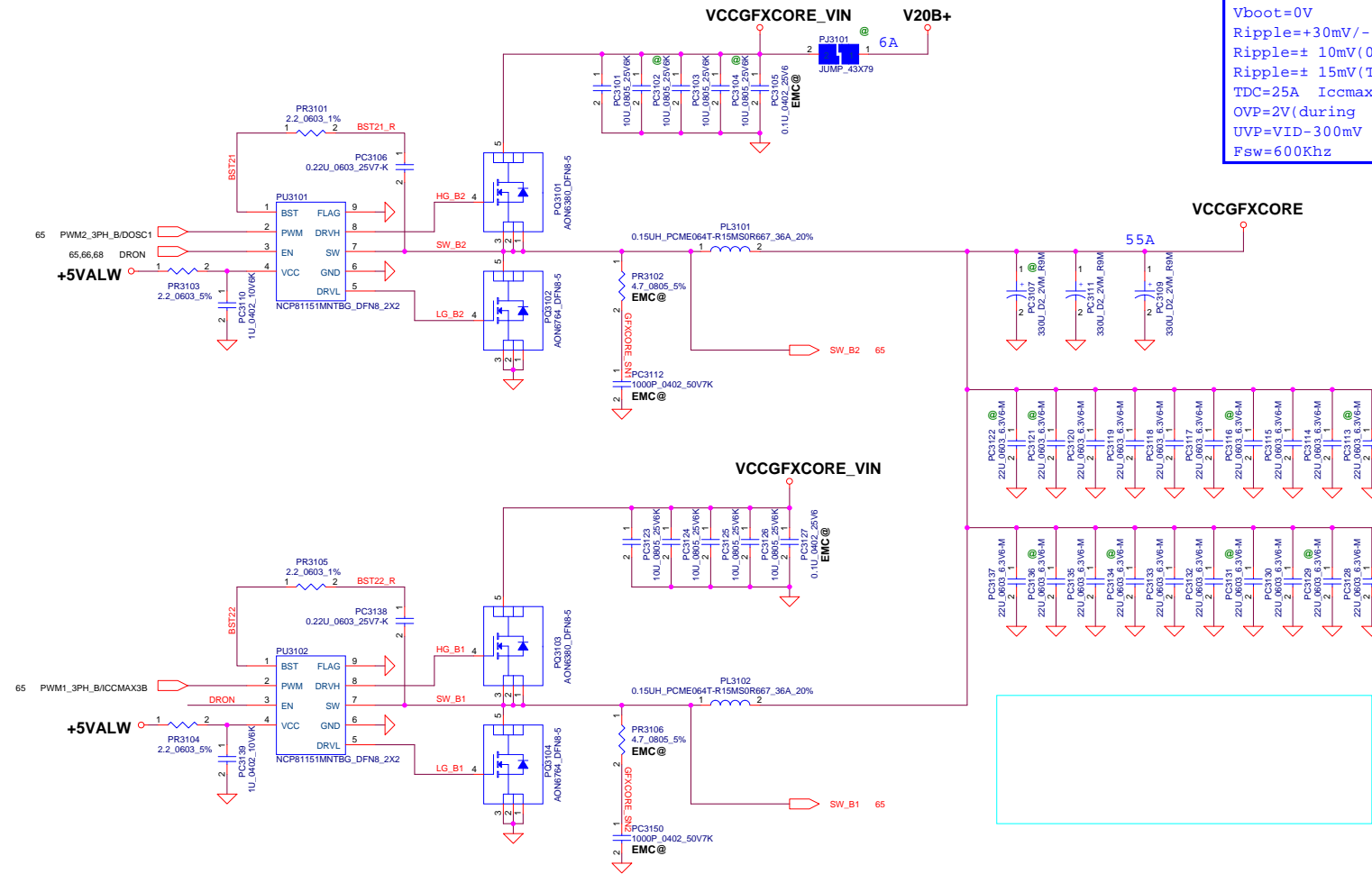


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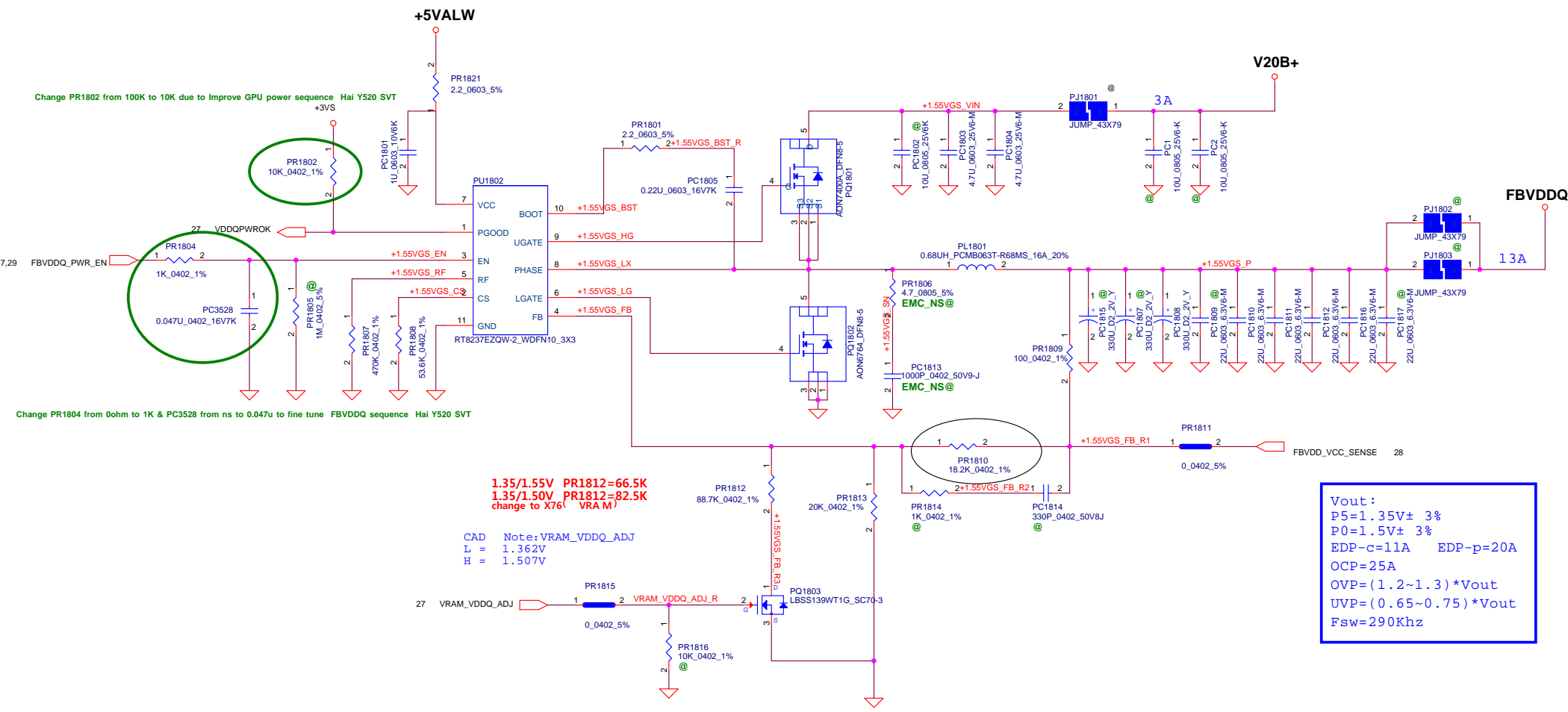


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Vboot=0V Loadline=2.65mΩ
 Ripple=+30mV/-10mV (0A-0.5A)
 Ripple=± 10mV (0.5A-TDC)
 Ripple=± 15mV (TDC-Iccmax)
 TDC=25A Iccmax=55A OCP=65.5A
 OVP=2V (during SS) OVP=VID+400mV
 UVP=VID-300mV
 Fsw=600Khz

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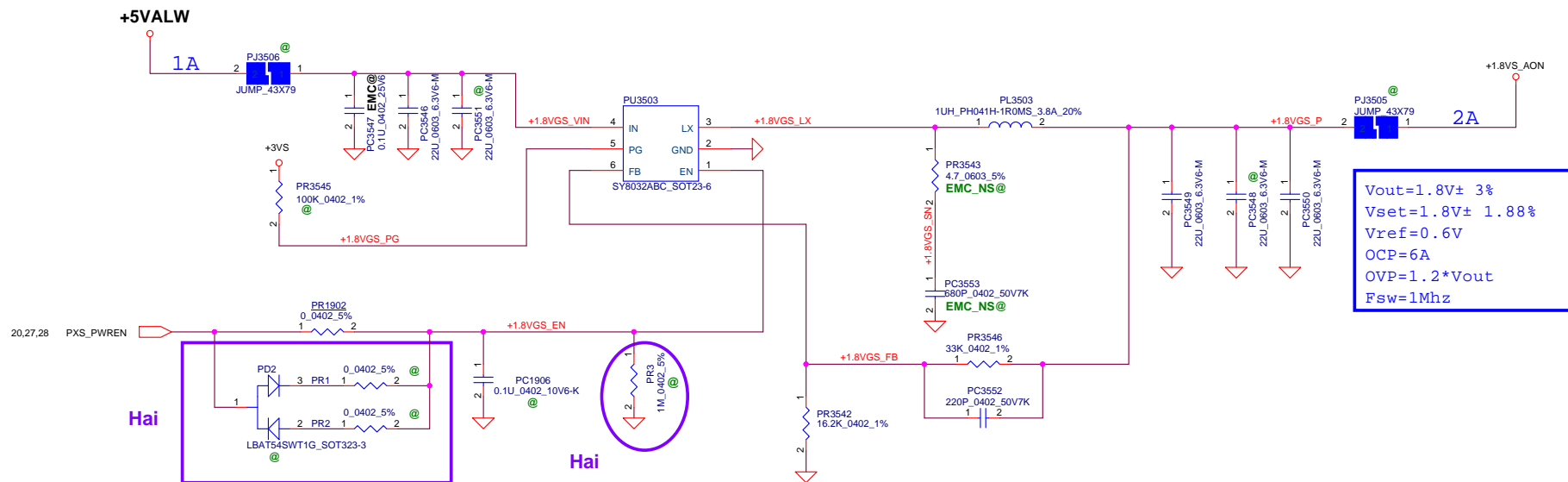
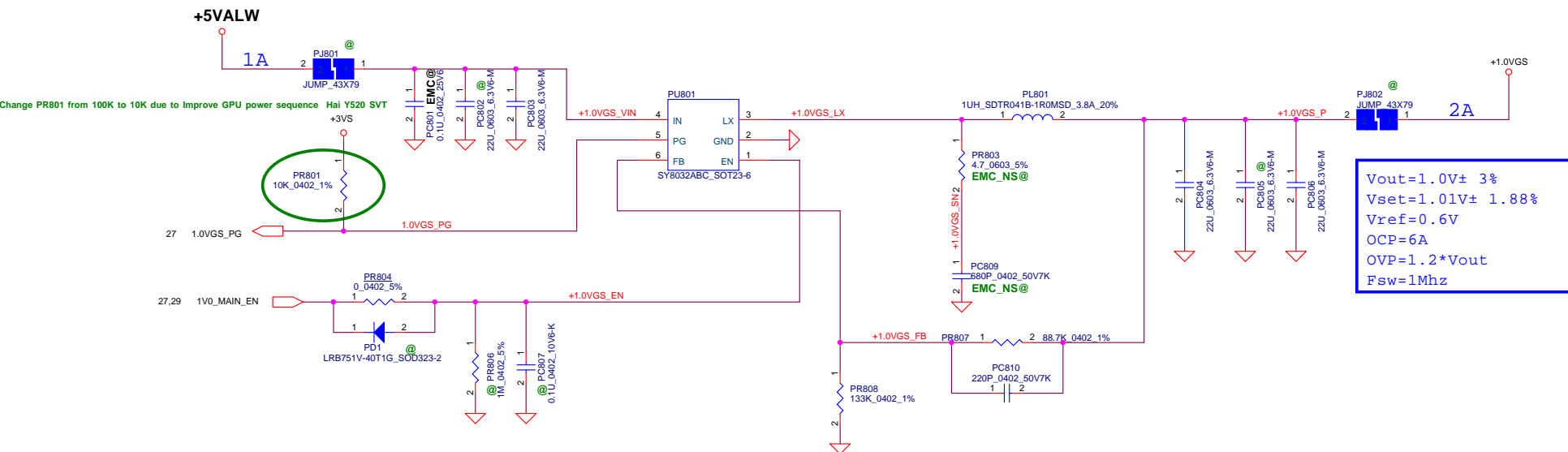


RRF	Fsw(kHz)
(KΩ) 470	290
200	340
100	380
39	430

Note: DEM RRF to GND
CCM RRF to PGOOD

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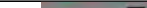
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<small>Issue</small>				<small>History</small> November 26, 2016 000000 75 01 75		

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