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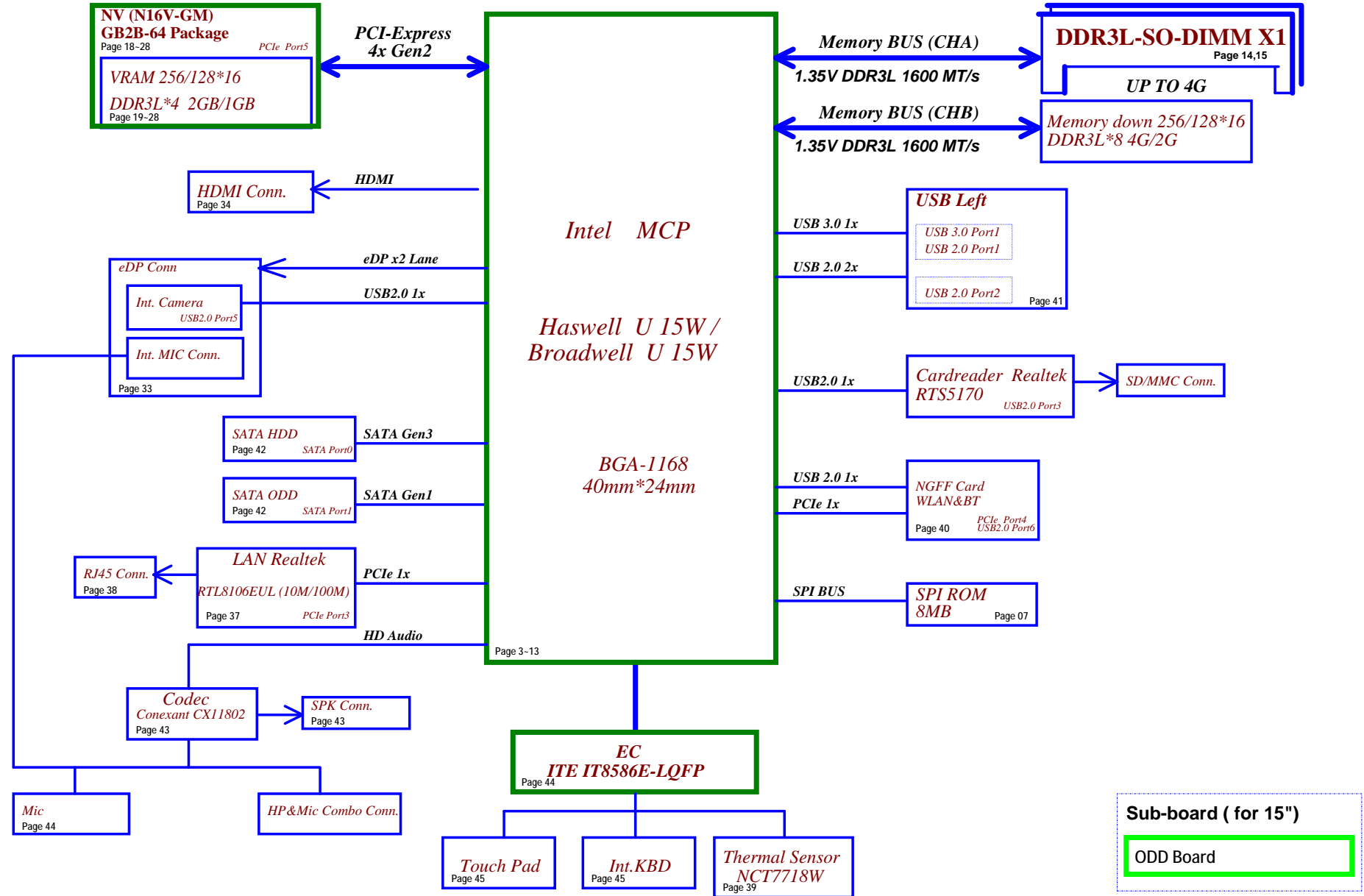
CG510 M/B Schematics Document

Intel Broadwell U-Processor with DDRIIL + NV920

2015-05-09

REV: 0.2

Security Classification	LC Future Center Secret Data			Title		
Issued Date	2015/02/27	Deciphered Date	2013/08/05	Cover Page		
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Issued Date	2015/02/27	Deciphered Date	2013/08/05	Block Diagram	
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Voltage Rails (O --> Means ON , X --> Means OFF)

Power Plane	B+	+3VALW	+3VALW_PCH	+1.35V	+5VS
					+3VS
State					+1.5VS
					+1.35VS
					+1.05VS
					+0.675VS
					CPU_CORE
					+VGA_CORE
					+3VGS
					+1.8VGS
					+1.35VGS
					+0.95VGS
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

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

USB Port Table

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

BOM Structure Table

BOM Structure	BTO Item
@	Not stuff
14@	For 14" part
15@	For 15" part
UMA@	UMA SKU part
PX@	Discrete GPU SKU part
100M@	100M LAN Part
GIGA@	GIGA LAN Part
JET@	For AMD Jet GPU part
TOPAZ@	For AMD Topaz GPU part
RANKA@	For VRAM RankA part
RANKB@	For VRAM RankB part
ME@	ME part(connector, hole)
TS@	For support touch panel sku part
AOAC@	AOAC support part
H2@	Hynix 128Mx16 VRAM part
H4@	Hynix 256Mx16 VRAM part
M2@	Micron 128Mx16 VRAM part
M4@	Micron 256Mx16 VRAM part
S2@	Samsung 128Mx16 VRAM part
S4@	Samsung 256Mx16 VRAM part
H2GX4@	Hynix 128Mx16 VRAM x4pcs sku
M2GX4@	Micron 128Mx16 VRAM x4pcs sku
S2GX4@	Samsung 128Mx16 VRAM x4pcs sku
H4GX4@	Hynix 256Mx16 VRAM x4pcs sku
M4GX4@	Micron 256Mx16 VRAM x4pcs sku
S4GX4@	Samsung 256Mx16 VRAM x4pcs sku
H2GX8@	Hynix 128Mx16 VRAM x8pcs sku
M2GX8@	Micron 128Mx16 VRAM x8pcs sku
S2GX8@	Samsung 128Mx16 VRAM x8pcs sku
H4GX8@	Hynix 256Mx16 VRAM x8pcs sku
M4GX8@	Micron 256Mx16 VRAM x8pcs sku
S4GX8@	Samsung 256Mx16 VRAM x8pcs sku
CD@	Cost down part
BCD@	Cost down part for BDW project
SINGLE@	Single Rank VRAM sku
DUAL@	Dual Rank VRAM sku

PCIe PORT LIST

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

SMBUS Control Table

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

EC SM Bus1 address

Device	Address
Smart Battery	0X16
Charger	0001 0010 b

EC SM Bus2 address

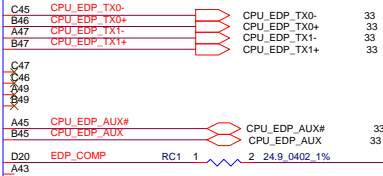
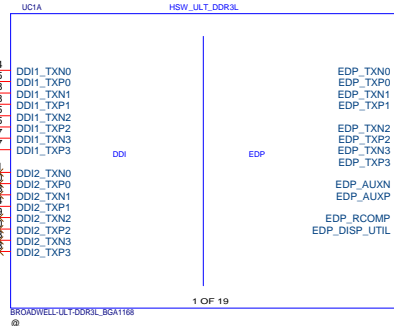
Device	Address
Thermal Sensor NCT7718W	1001_100xb
VGA	0x41(default)
PCH	need to update

PCH SM Bus address

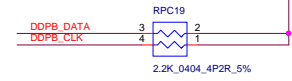
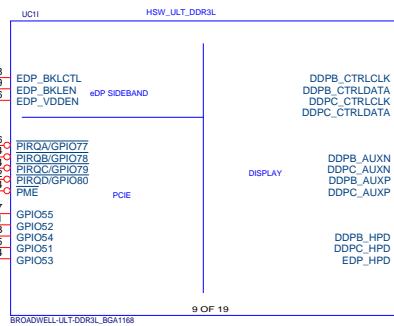
Device	Address
DDR DIMMA	1010 000Xb
DDR DIMMB	1010 010Xb
Wlan	Rsvd

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HDMI D2
HDMI D1
HDMI D0
HDMI CLK

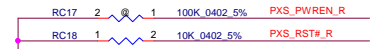
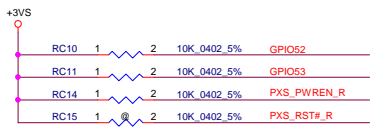
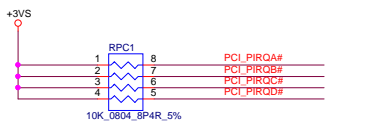
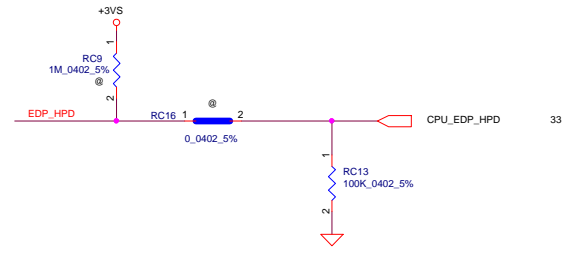
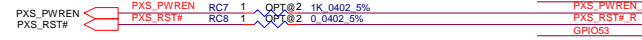


+VCCIOA_OUT & EDP_COMP :
Trace Width: 20mil
Space: 25mil
Max length: 100mil



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

21.58
19

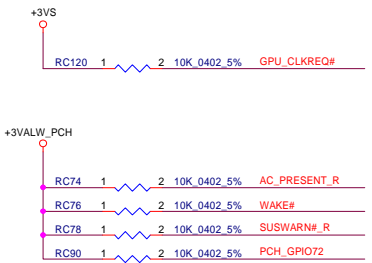


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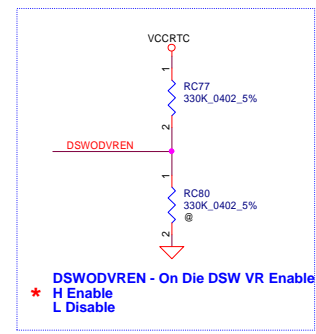
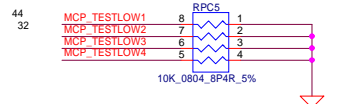
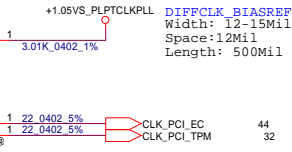
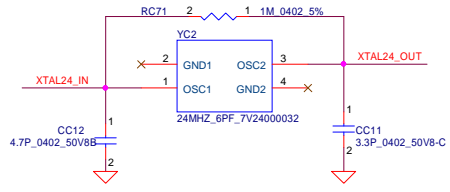
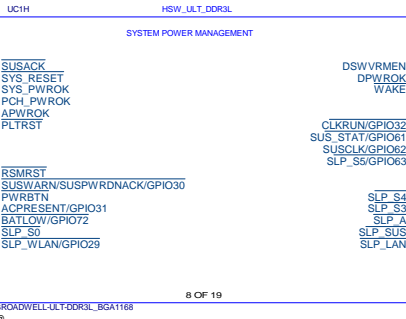
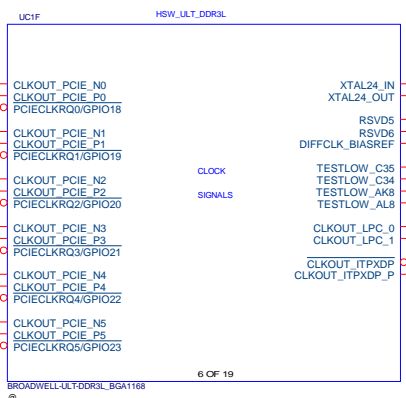
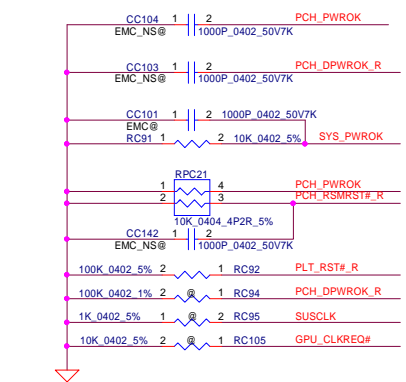
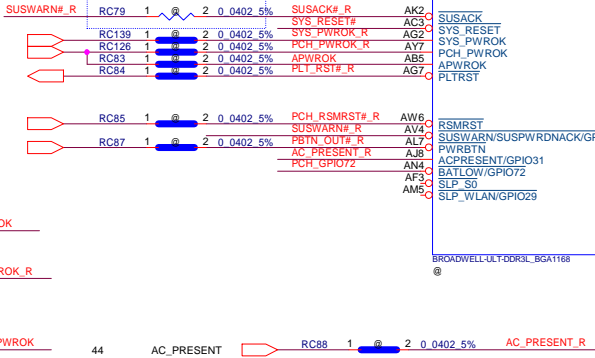
9 PCIE_CLKREQ1# PCIE_CLKREQ1#
 9 PCIE_CLKREQ0# PCIE_CLKREQ0#
 9 PCIE_CLKREQ5# PCIE_CLKREQ5#

9 SYS_RESET# SYS_RESET#
 9 PM_CLKRUN# PM_CLKRUN#

PCIE CLK2 LAN 37
 9,37
 PCIE CLK3 WLAN 40
 9,40
 PCIE CLK4 GPU 19
 19

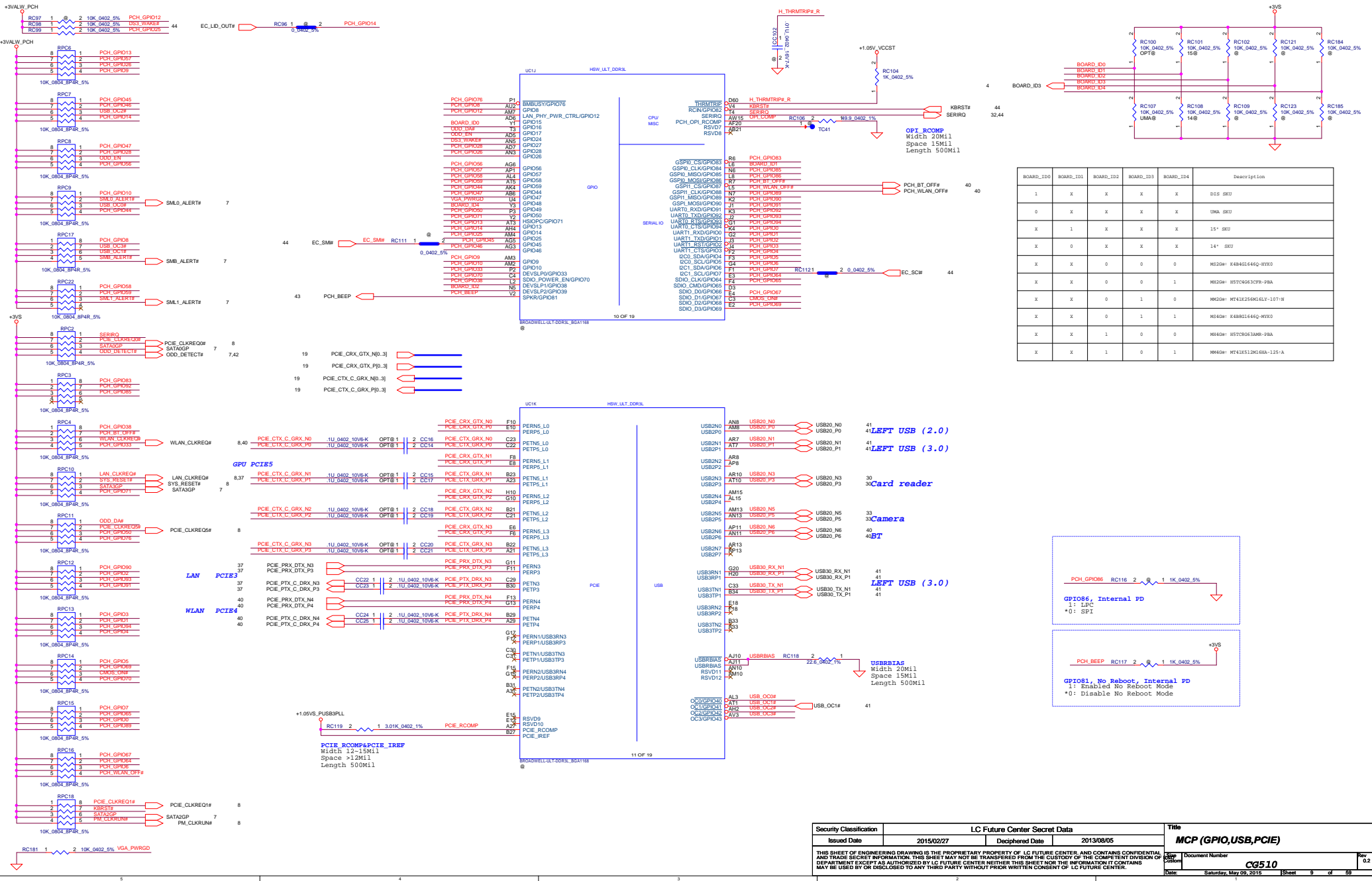


Reserve for DS3

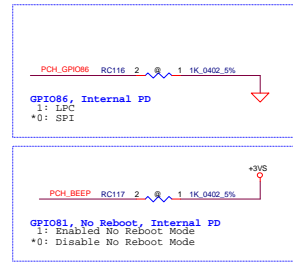


*** DSWODVREN - On Die DSW VR Enable**
H Enable
L Disable

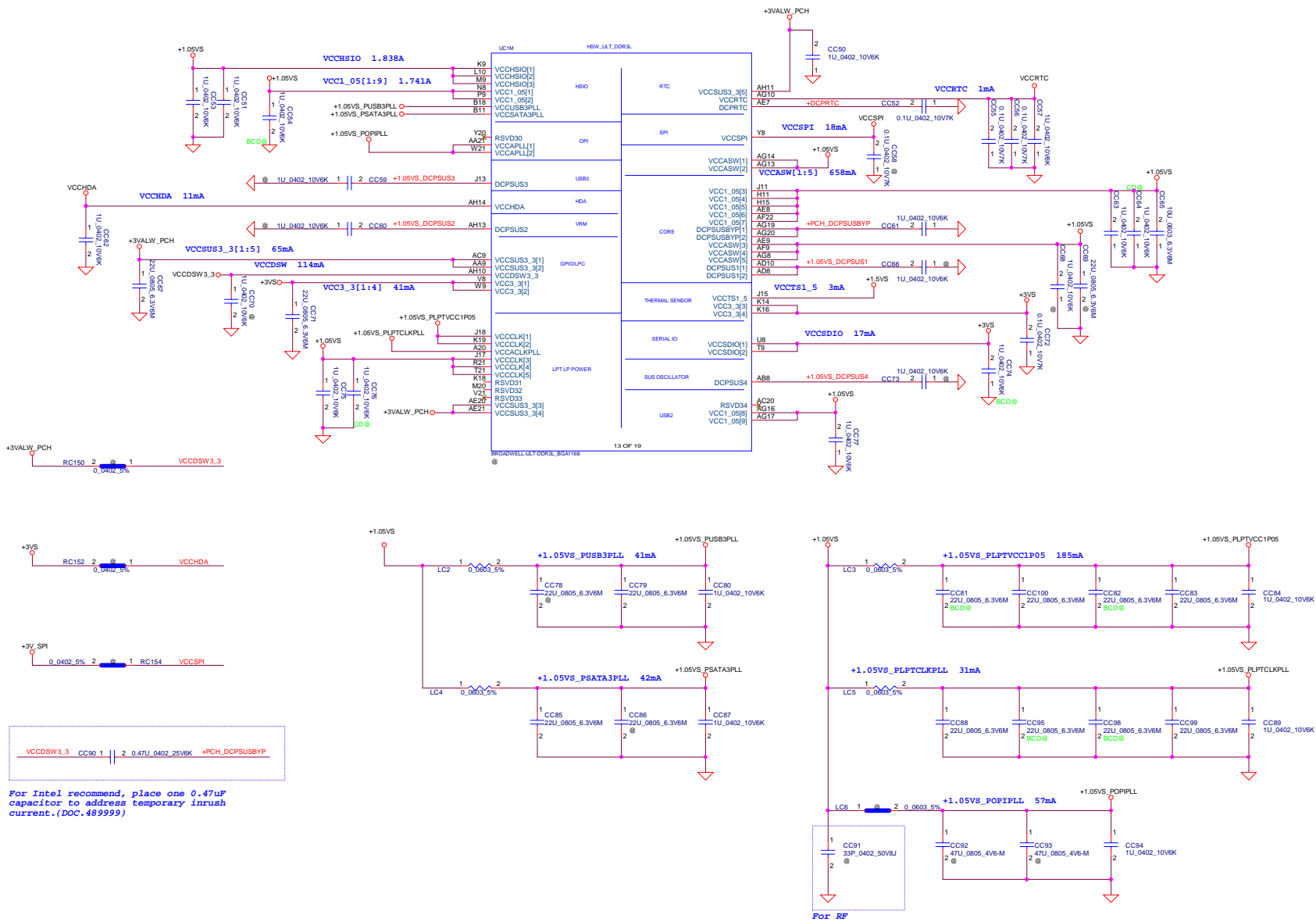
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BOARD_ID0	BOARD_ID1	BOARD_ID2	BOARD_ID3	BOARD_ID4	Description
1	X	X	X	X	DES_SKU
0	X	X	X	X	UNA_SKU
X	1	X	X	X	15" SKU
X	0	X	X	X	14" SKU
X	X	0	0	0	MS228: K48421640-8YX0
X	X	0	0	1	MS228: H741E256K16L1-107-N
X	X	0	1	1	MS428: K48421640-8YX0
X	X	1	0	0	MS428: H57C45633F9-PBA
X	X	1	0	1	MS428: H741E312K160A-125-A



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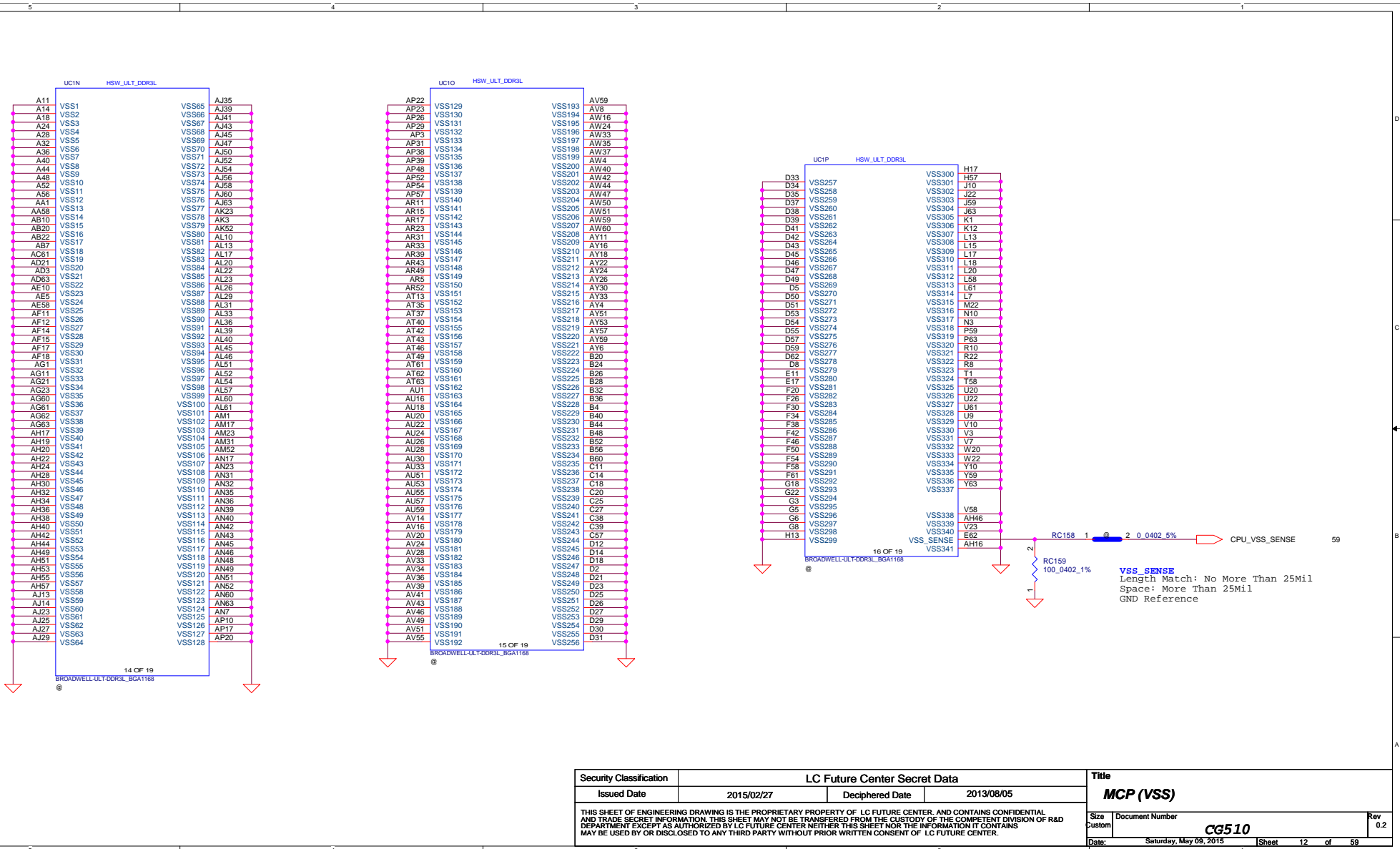


VCCDSW3_3 CC90 1 2 0.47U 0.042 25V6K +PCH_DCPUSBYP

For Intel recommend, place one 0.47uF capacitor to address temporary inrush current. (DOC. 489999)

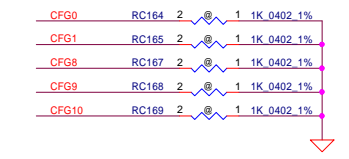
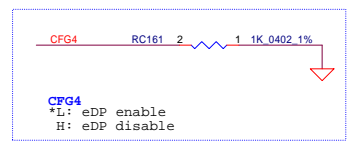
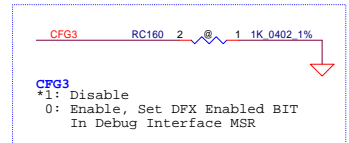
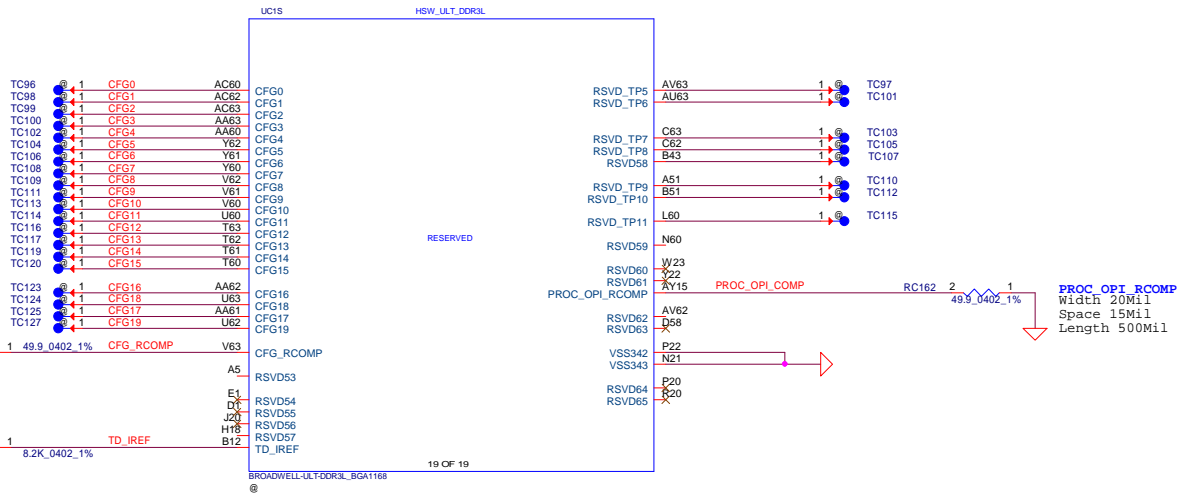
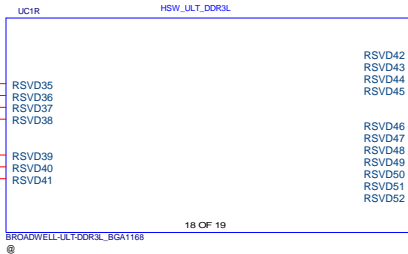
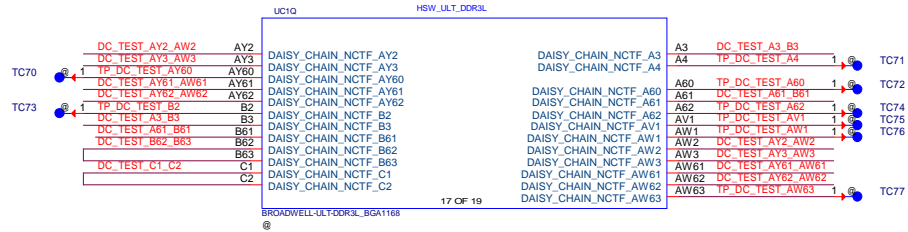
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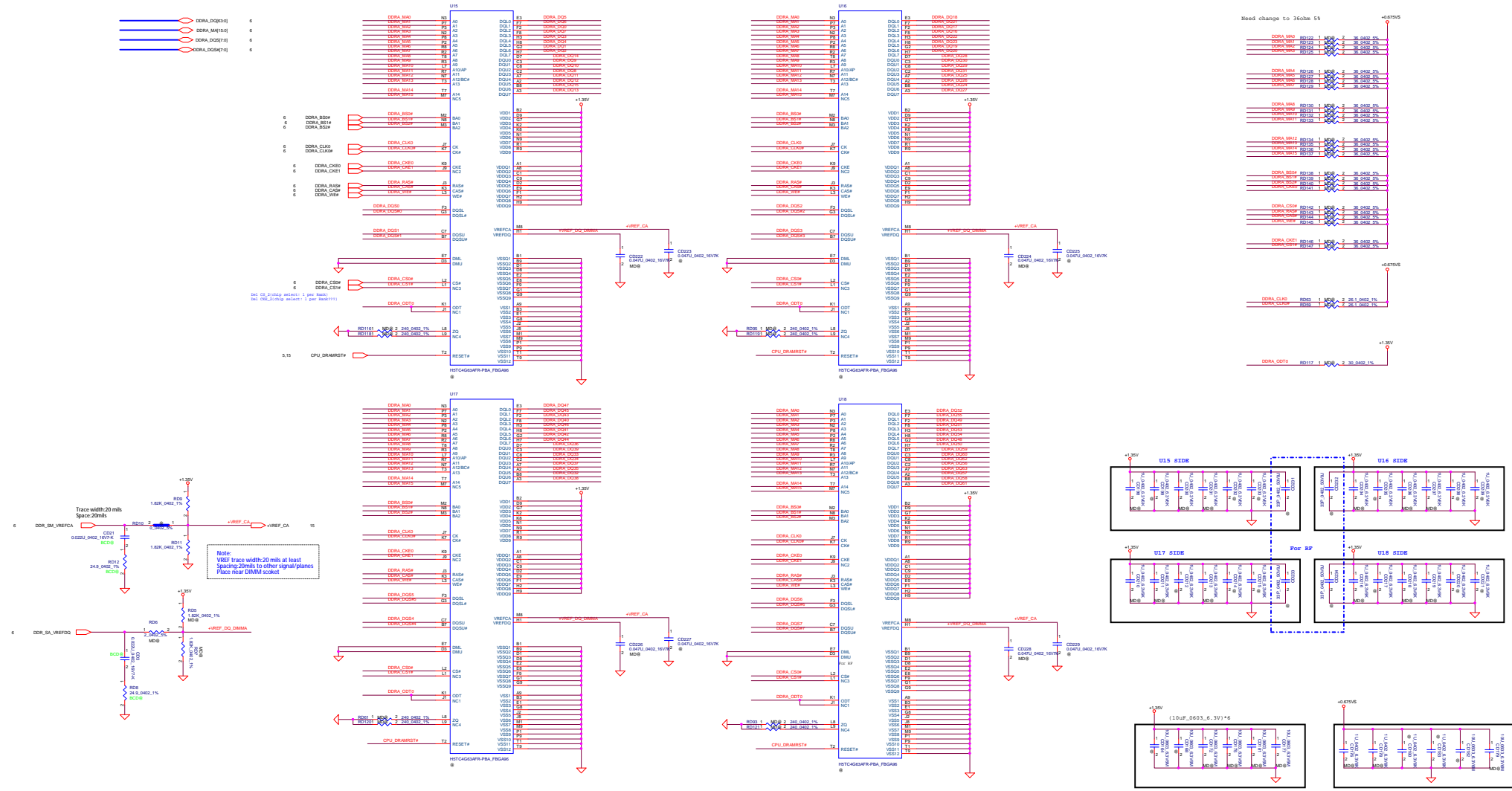
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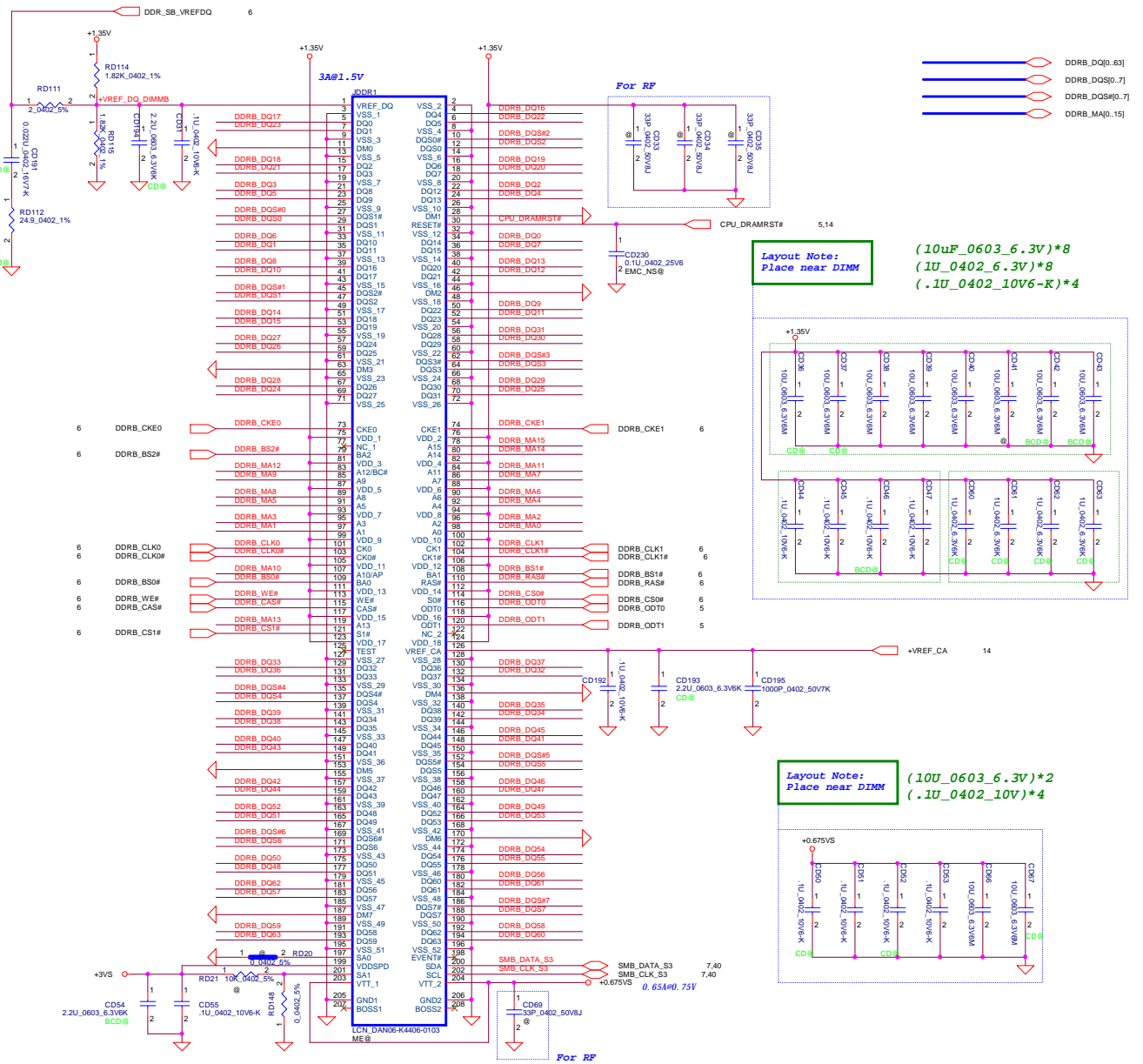
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Signal voltage level = 0.675 V
 PLACE TWO 4.7K RESISTORS CLOSE TO
 DENSE OR DIMM_VREF_CA, DIMM_VREF_DO
 Decoupling caps are needed: one 0.1µF placed close to VREF pins



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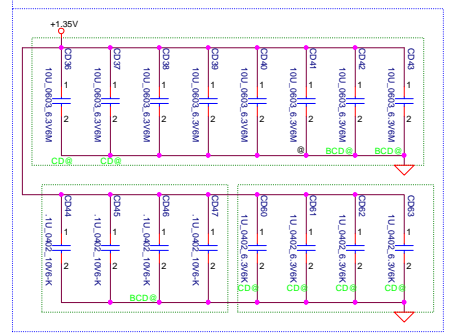
DDR3 SO-DIMM B



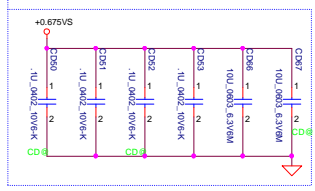
Swap Table

Pin Number	Pin Name	Net Name
5	DQ0	DDR3_DQ17
7	DQ1	DDR3_DQ23
15	DQ2	DDR3_DQ18
17	DQ3	DDR3_DQ24
4	DQ4	DDR3_DQ16
6	DQ5	DDR3_DQ22
16	DQ6	DDR3_DQ19
18	DQ7	DDR3_DQ25
10	DQS#0	DDR3_DQS#2
12	DQS0	DDR3_DQS#2
21	DQ8	DDR3_DQ3
23	DQ9	DDR3_DQ5
33	DQ10	DDR3_DQ6
35	DQ11	DDR3_DQ1
22	DQ12	DDR3_DQ2
24	DQ13	DDR3_DQ4
34	DQ14	DDR3_DQ0
36	DQ15	DDR3_DQ7
27	DQS#1	DDR3_DQS#0
29	DQS1	DDR3_DQS#0
39	DQ16	DDR3_DQ8
41	DQ17	DDR3_DQ10
51	DQ18	DDR3_DQ14
53	DQ19	DDR3_DQ15
40	DQ20	DDR3_DQ13
42	DQ21	DDR3_DQ12
50	DQ22	DDR3_DQ9
52	DQ23	DDR3_DQ11
45	DQS#2	DDR3_DQS#1
47	DQS2	DDR3_DQS#1
57	DQ24	DDR3_DQ27
59	DQ25	DDR3_DQ26
67	DQ26	DDR3_DQ28
69	DQ27	DDR3_DQ24
56	DQ28	DDR3_DQ31
58	DQ29	DDR3_DQ30
68	DQ30	DDR3_DQ29
70	DQ31	DDR3_DQ25
62	DQS#3	DDR3_DQS#3
64	DQS3	DDR3_DQS#3
129	DQ32	DDR3_DQ33
131	DQ33	DDR3_DQ36
141	DQ34	DDR3_DQ39
143	DQ35	DDR3_DQ38
130	DQ36	DDR3_DQ37
132	DQ37	DDR3_DQ32
140	DQ38	DDR3_DQ35
142	DQ39	DDR3_DQ34
135	DQS#4	DDR3_DQS#4
137	DQS4	DDR3_DQS#4
147	DQ40	DDR3_DQ40
149	DQ41	DDR3_DQ43
157	DQ42	DDR3_DQ42
159	DQ43	DDR3_DQ44
146	DQ44	DDR3_DQ45
148	DQ45	DDR3_DQ41
158	DQ46	DDR3_DQ46
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154	DQS5	DDR3_DQS#5
163	DQ48	DDR3_DQ52
165	DQ49	DDR3_DQ51
175	DQ50	DDR3_DQ50
177	DQ51	DDR3_DQ48
164	DQ52	DDR3_DQ49
166	DQ53	DDR3_DQ53
174	DQ54	DDR3_DQ54
176	DQ55	DDR3_DQ55
159	DQS#6	DDR3_DQS#6
171	DQS6	DDR3_DQS#6
181	DQ56	DDR3_DQ62
183	DQ57	DDR3_DQ57
191	DQ58	DDR3_DQ59
193	DQ59	DDR3_DQ63
180	DQ60	DDR3_DQ60
182	DQ61	DDR3_DQ61
192	DQ62	DDR3_DQ58
194	DQ63	DDR3_DQ60
186	DQS#7	DDR3_DQS#7
188	DQS7	DDR3_DQS#7

Layout Note: Place near DIMM
 (10uF_0603_6.3V)*8
 (.1U_0402_6.3V)*8
 (.1U_0402_10V6-K)*4



Layout Note: Place near DIMM
 (10U_0603_6.3V)*2
 (.1U_0402_10V)*4



Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/02/27	Decomposed Date	2013/09/05
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Date: Security, Mar 05, 2015			Sheet 16 of 38

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C				C
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A				A

Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/02/27	Deciphered Date	2013/08/05
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Date: Saturday, May 09, 2015			Sheet 17 of 59

N15x GPIO

GPIO	I/O	ACTIVE	Function Description
GPIO0	OUT	-	FB Enable for GC6 2.0
GPIO1	OUT	N/A	
GPIO2	OUT	N/A	
GPIO3	OUT	N/A	
GPIO4	OUT	N/A	
GPIO5	OUT	N/A	GPU power sequencing---3V3_MAIN_EN
GPIO6	IN	-	GPU wake signal for GC6 2.0
GPIO7	OUT	N/A	
GPIO8	I/O	-	System side PCIe reset Monitor
GPIO9	I/O	N/A	2.2K Pull-up
GPIO10	OUT	N/A	
GPIO11	OUT	-	GPU Core VDD PWM control signal
GPIO12	IN		AC Power Detect Input (10K pull High)
GPIO13	OUT	-	Phase Shedding
GPIO14	IN	N/A	
GPIO15	IN	N/A	
GPIO16		N/A	
GPIO17	IN	N/A	
GPIO18	IN	N/A	
GPIO19	IN	N/A	
GPIO20		N/A	
GPIO21	OUT		GPU PCIe self-reset control
OVERT	OUT		Active Low Thermal Catastrophic Over Temperature

Performance Mode P0 TDP at Tj = 102 C* (DDR3)

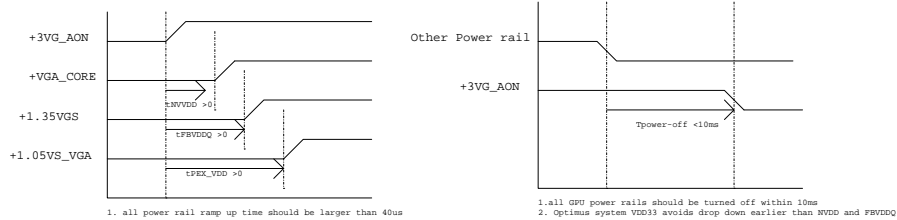
Products	GPU	Mem	NVCLK	NVVDD			FBVDD		FBVDDQ		PCI Express		I/O and PLLVDD		Other		
	(W)	(W)	(MHz)	(V)	(A)	(W)	(A)	(W)	(A)	(W)	(mA)	(W)	(mA)	(W)	(mA)	(W)	
N14X 128bit 1GB DDR3	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

N15x Multi-level Straps

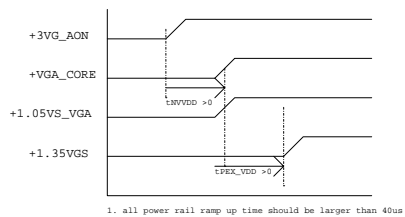
Physical Strapping pin	Power Rail	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
ROM_SCLK	+3VGS	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
ROM_SI	+3VGS	RAM_CFG[3]	RAM_CFG[2]	RAM_CFG[1]	RAM_CFG[0]
ROM_SO	+3VGS	DEVID_SEL	PCIE_CFG	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	+3VGS	Reserved(keep pull-up and pull-down footprint and stuff 50kohm pull-up)			
STRAP1	+3VGS	Reserved(keep pull-up and pull-down footprint and not stuff by default)			
STRAP2	+3VGS				
STRAP3	+3VGS				
STRAP4	+3VGS				

SMBUS_ALT_ADDR	
0	0x9E (Default)
1	0x9C (Multi-GPU usage)

N15V-GM Power Sequence



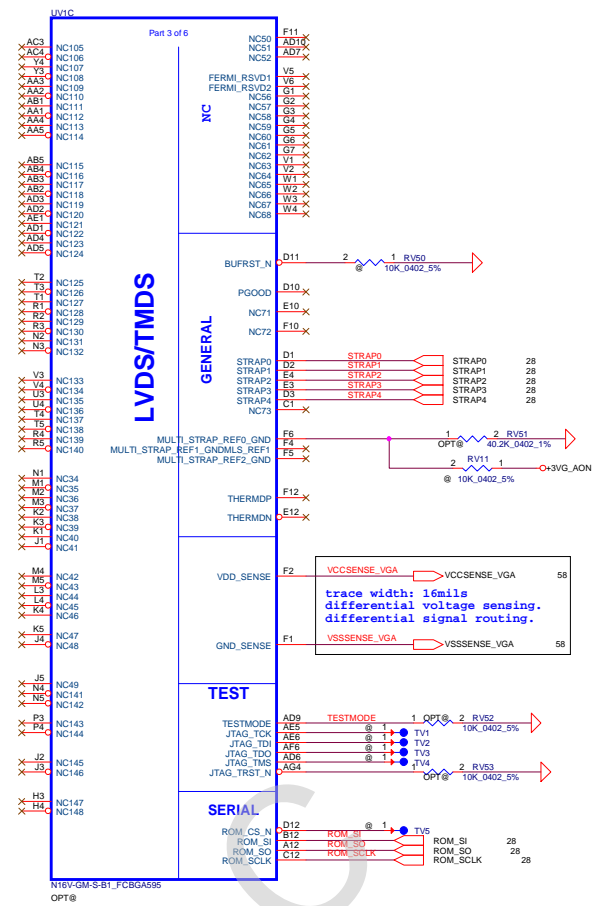
N15S-GT Power Sequence



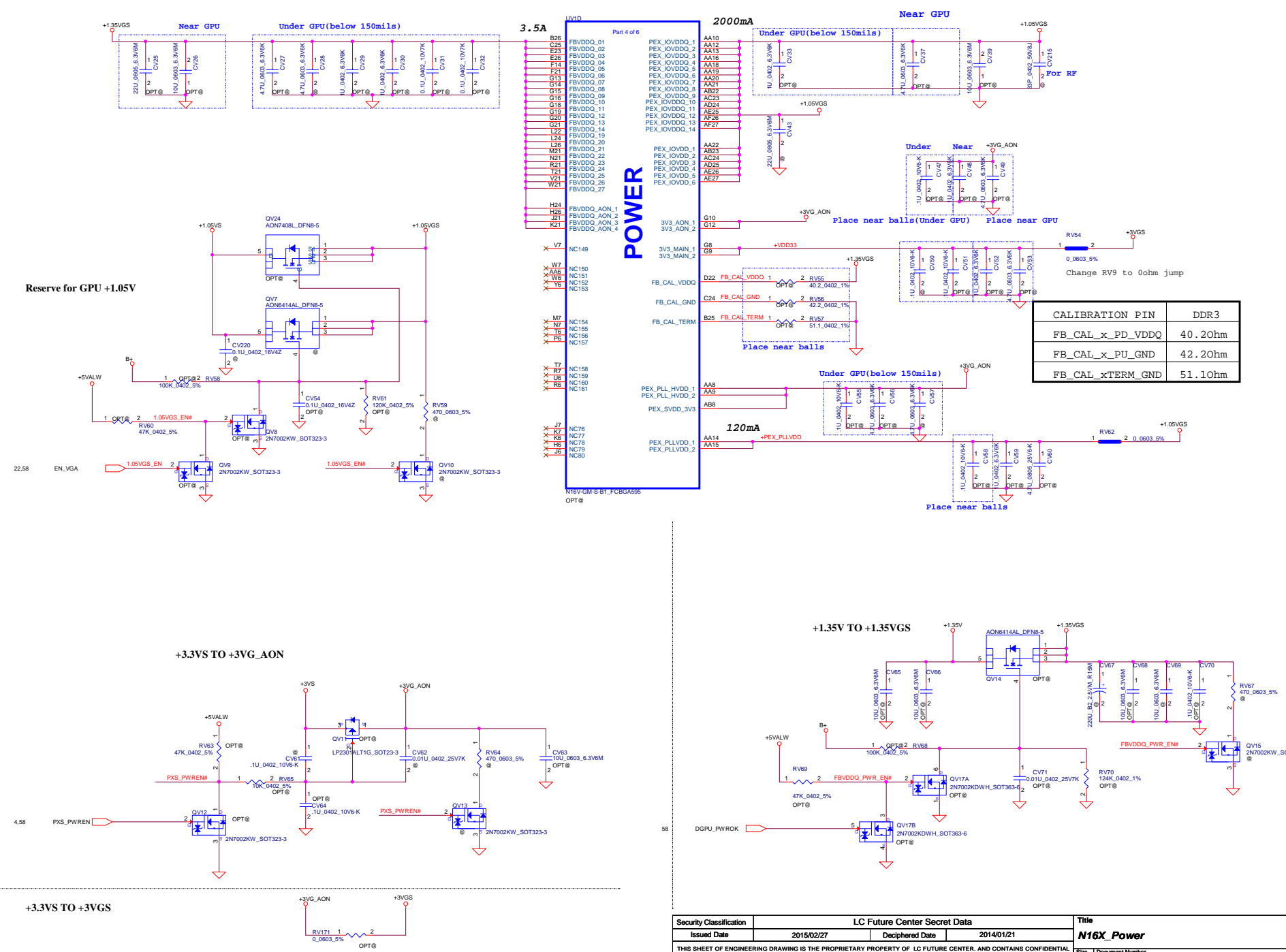
N15x Binary Straps

Physical Strapping pin	Power Rail	Strap Mapping
ROM_SCLK	+3VGS	SMB_ALT_ADDR
ROM_SI	+3VGS	SUB_VENDOR
ROM_SO	+3VGS	VGA_DEVICE
STRAP0	+3VGS	RAM_CFG[0]
STRAP1	+3VGS	RAM_CFG[1]
STRAP2	+3VGS	RAM_CFG[2]
STRAP3	+3VGS	RAM_CFG[3]
STRAP4	+3VGS	PCIE_MAX_SPEED

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Rev	0.2		

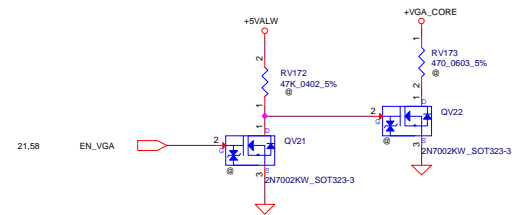
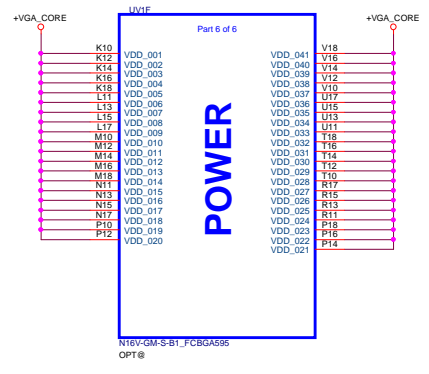
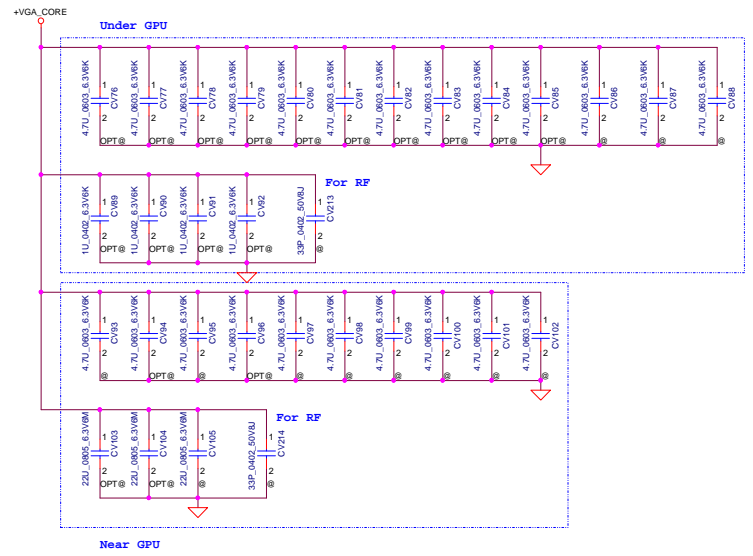
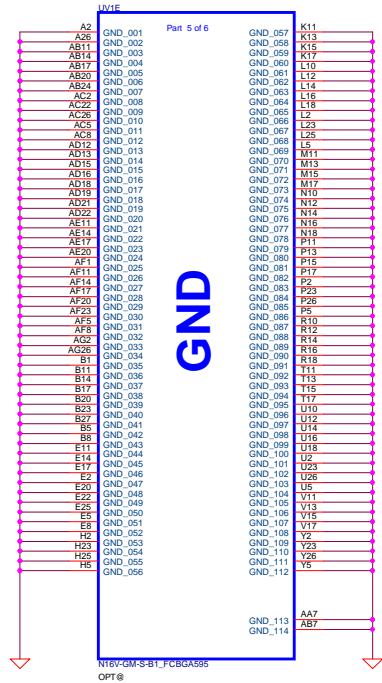


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Issued Date	2015/02/27	Deciphered Date	2014/01/21	N16X_LVDS/HDMI/THERM	
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Sheet	1	Document Number	CG510	Rev	0.2
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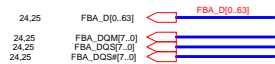


CALIBRATION PIN	DDR3
FB_CAL_x_PD_VDDQ	40.2Ohm
FB_CAL_x_PU_GND	42.2Ohm
FB_CAL_xTERM_GND	51.1Ohm

Security Classification	LC Future Center Secret Data	Title	N16X_Power
Issued Date	2015/02/27	Deciphered Date	2014/01/21
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Issued Date	2015/02/27	Deciphered Date	2014/01/21	N16X_+VGA CORE, GND	
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Sheet	C	Document Number	CG510		Rev
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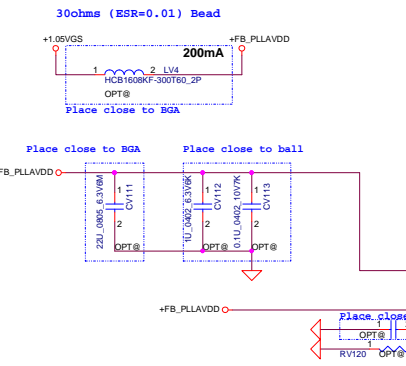


CMD mapping mod Mode D

Address	Rank0	
	0..31	32..63
Fbx_CMD0	CS0#	
Fbx_CMD1		
Fbx_CMD2	ODT0	
Fbx_CMD3	CKE0	
Fbx_CMD4	A14	A14
Fbx_CMD5	RST	RST
Fbx_CMD6	A9	A9
Fbx_CMD7	A7	A7
Fbx_CMD8	A2	A2
Fbx_CMD9	A0	A0
Fbx_CMD10	A4	A4
Fbx_CMD11	A1	A1
Fbx_CMD12	BA0	BA0
Fbx_CMD13	WE	WE
Fbx_CMD14	A15	A15
Fbx_CMD15	CAS#	CAS#
Fbx_CMD16		CS1#
Fbx_CMD17		
Fbx_CMD18		ODT1
Fbx_CMD19		CKE1
Fbx_CMD20	A13	A13
Fbx_CMD21	A8	A8
Fbx_CMD22	A6	A6
Fbx_CMD23	A11	A11
Fbx_CMD24	A5	A5
Fbx_CMD25	A3	A3
Fbx_CMD26	BA2	BA2
Fbx_CMD27	BA1	BA1
Fbx_CMD28	A12	A12
Fbx_CMD29	A10	A10
Fbx_CMD30	RAS#	RAS#
Fbx_CMD31		
Fbx_CMD32		
Fbx_CMD33		
Fbx_CMD34	DBG0	
Fbx_CMD35	DBG1	



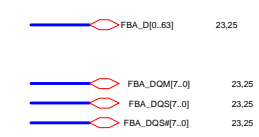
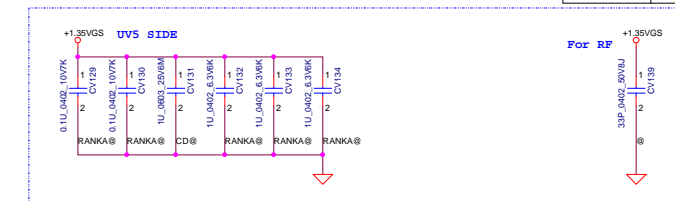
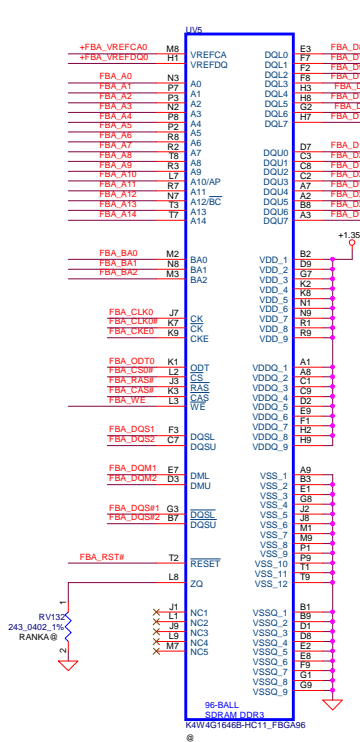
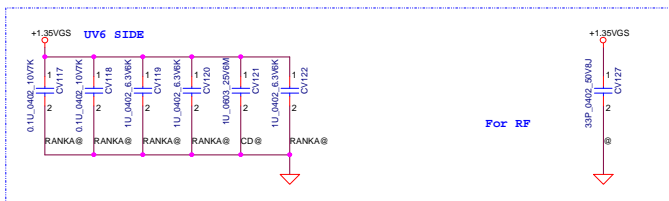
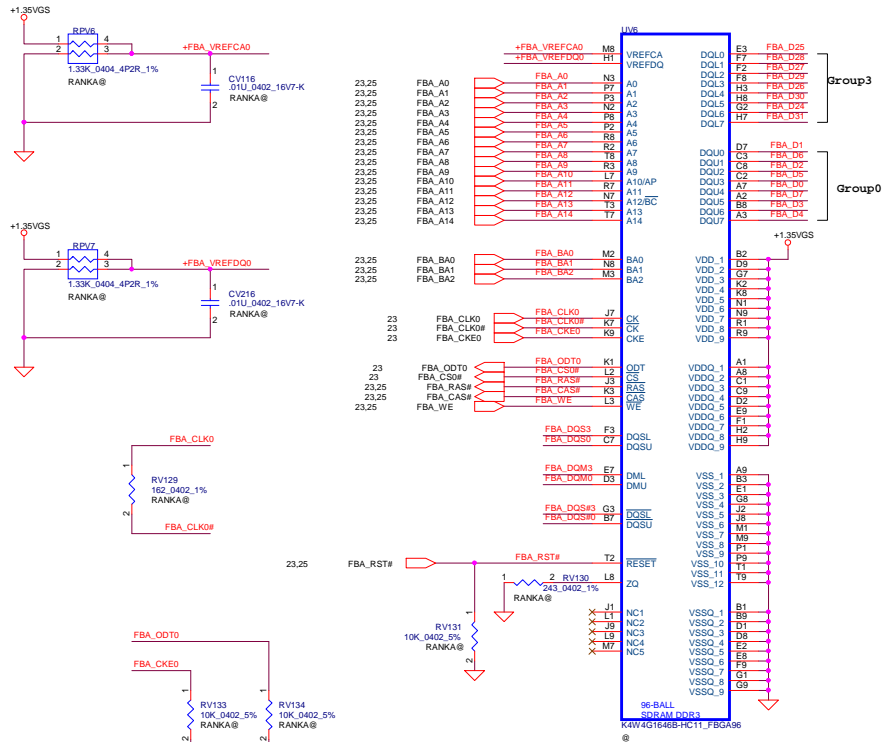
MEMORY INTERFACE A



N16V-GM-S-B1_FCBGA395

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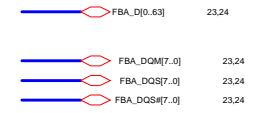
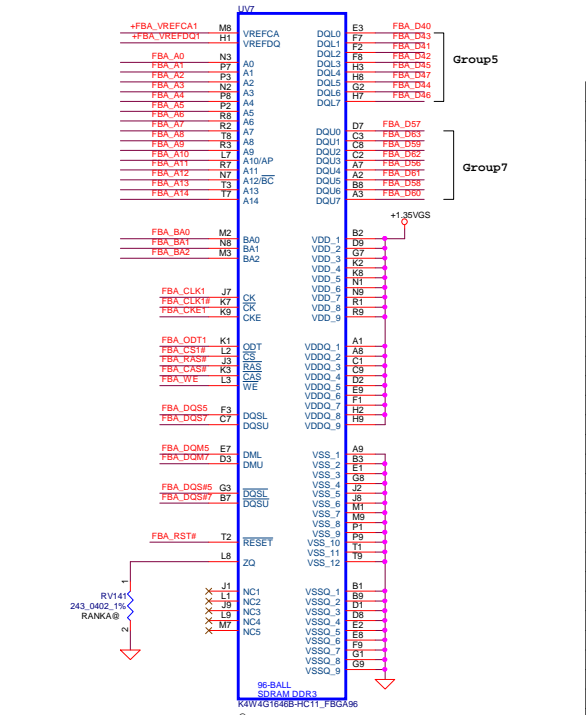
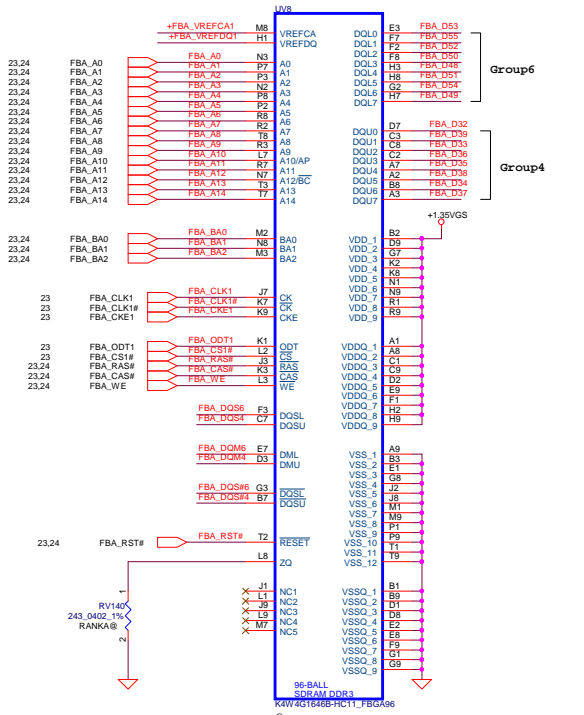
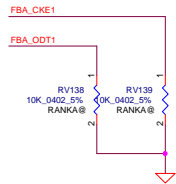
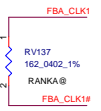
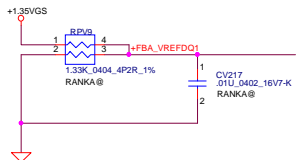
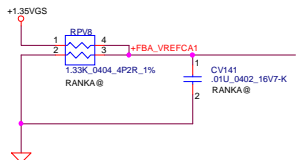
at least 16 mils width(optimal)
20 mils spacing to other signals /planes



CMD mapping mod Mode D

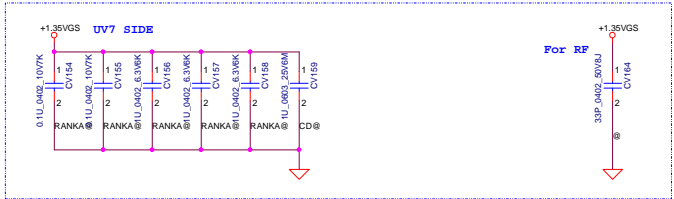
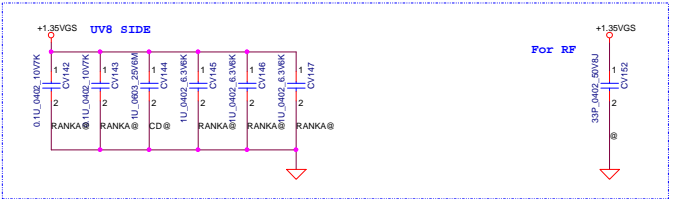
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	0..31	32..63
FBx_CMD0	CS0#	
FBx_CMD1		
FBx_CMD2	ODT0	
FBx_CMD3	CKE0	
FBx_CMD4	A14	A14
FBx_CMD5	RST	RST
FBx_CMD6	A9	A9
FBx_CMD7	A7	A7
FBx_CMD8	A2	A2
FBx_CMD9	A0	A0
FBx_CMD10	A4	A4
FBx_CMD11	A1	A1
FBx_CMD12	BA0	BA0
FBx_CMD13	WE	WE
FBx_CMD14	A15	A15
FBx_CMD15	CAS#	CAS#
FBx_CMD16	CS1#	
FBx_CMD17		
FBx_CMD18		ODT1
FBx_CMD19		CKE1
FBx_CMD20	A13	A13
FBx_CMD21	A8	A8
FBx_CMD22	A6	A6
FBx_CMD23	A11	A11
FBx_CMD24	A5	A5
FBx_CMD25	A3	A3
FBx_CMD26	BA2	BA2
FBx_CMD27	BA1	BA1
FBx_CMD28	A12	A12
FBx_CMD29	A10	A10
FBx_CMD30	RAS#	RAS#
FBx_CMD31		
FBx_CMD32		
FBx_CMD33		
FBx_CMD34	DBG0	
FBx_CMD35	DBG1	

at least 16 mils width(optimal)
20 mils spacing to other signals/planes



CMD mapping mod Mode D

Address	Rank0		
0..31	32..63		
FBx_CMD0	CS0#		
FBx_CMD1			
FBx_CMD2	ODT0		
FBx_CMD3	CKE0		
FBx_CMD4	A14	A14	
FBx_CMD5	RST	RST	
FBx_CMD6	A9	A9	
FBx_CMD7	A7	A7	
FBx_CMD8	A2	A2	
FBx_CMD9	A0	A0	
FBx_CMD10	A4	A4	
FBx_CMD11	A1	A1	
FBx_CMD12	BA0	BA0	
FBx_CMD13	WE	WE	
FBx_CMD14	A15	A15	
FBx_CMD15	CAS#	CAS#	
FBx_CMD16	CS1#		
FBx_CMD17			
FBx_CMD18	ODT1		
FBx_CMD19	CKE1		
FBx_CMD20	A13	A13	
FBx_CMD21	A8	A8	
FBx_CMD22	A6	A6	
FBx_CMD23	A11	A11	
FBx_CMD24	A5	A5	
FBx_CMD25	A3	A3	
FBx_CMD26	BA2	BA2	
FBx_CMD27	BA1	BA1	
FBx_CMD28	A12	A12	
FBx_CMD29	A10	A10	
FBx_CMD30	RAS#	RAS#	
FBx_CMD31			
FBx_CMD32			
FBx_CMD33			
FBx_CMD34	DBG0		
FBx_CMD35	DBG1		



6 4 3 2 1

D

D

C

C

B

B

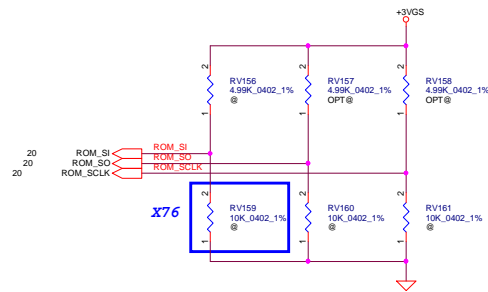
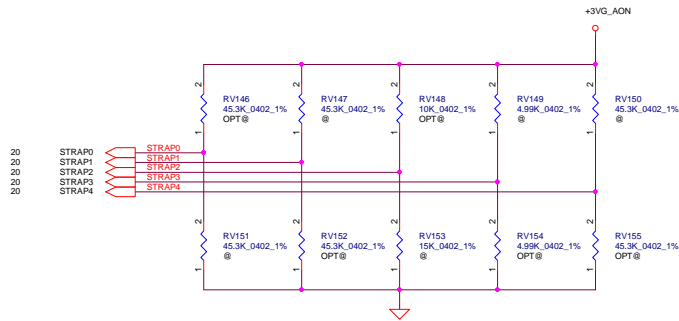
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Size	Document Number	Rev												
Custom	CG510	0.2												
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Date:	Saturday, May 09, 2015	Sheet	27	of	59									
5	4	3	2	1										



Physical Strapping pin	Power Rail	Logical Strapping Bit3	Logical Strapping Bit2	Logical Strapping Bit1	Logical Strapping Bit0
ROM_SCLK	+3VGS	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
ROM_SI	+3VGS	RAM_CFG[3]	RAM_CFG[2]	RAM_CFG[1]	RAM_CFG[0]
ROM_SO	+3VGS	DEVID_SEL	PCIE_CFG	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	+3VGS	Reserved(keep pull-up and pull-down footprint and stuff 50kohm pull-up)			
STRAP1	+3VGS	Reserved(keep pull-up and pull-down footprint and not stuff by default)			
STRAP2	+3VGS				
STRAP3	+3VGS				
STRAP4	+3VGS				

Resistor Values	Pull-up to +3VGS	Pull-down to Gnd
4.99K	1000	0000
SD03445318.T		
10K	1001	0001
15K	1010	0010
20K	1011	0011
24.9K	1100	0100
SD03445325.T		
30.1K	1101	0101
SD03445327.T		
34.8K	1110	0110
45.3K	1111	0111
SD03445328.T		

Physical Strapping pin	Power Rail	Strap Mapping
ROM_SCLK	+3VGS	SMB_ALT_ADDR
ROM_SI	+3VGS	SUB_VENDOR
ROM_SO	+3VGS	VGA_DEVICE
STRAP0	+3VGS	RAM_CFG[0]
STRAP1	+3VGS	RAM_CFG[1]
STRAP2	+3VGS	RAM_CFG[2]
STRAP3	+3VGS	RAM_CFG[3]
STRAP4	+3VGS	PCIE_MAX_SPEED

DEVID_SEL	
0	(Default)
1	

PCIE_CFG	
0	(Default)
1	

SMBUS_ALT_ADDR	
0	0x9E (Default)
1	0x9C (Multi-GPU usage)

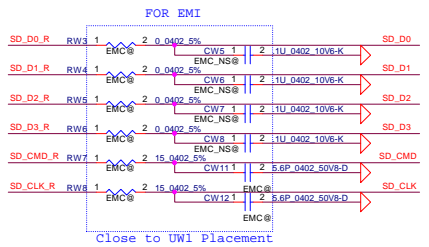
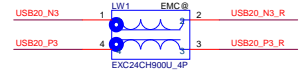
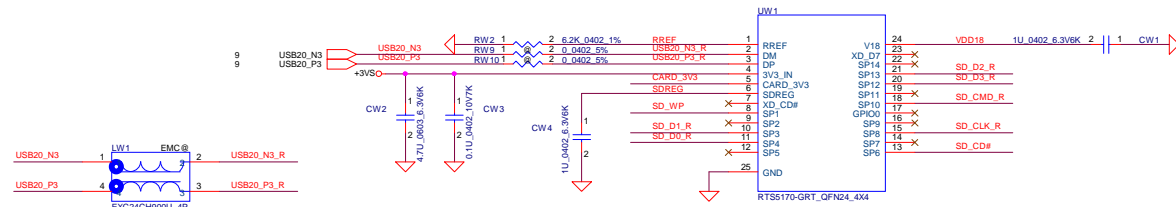
VGA_DEVICE	
0	3D Device (Class Code 302h)
1	VGA Device (Default)

X76

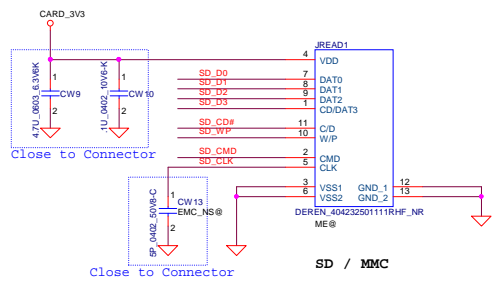
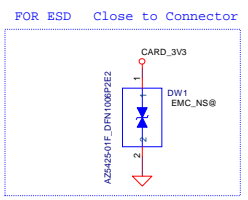
GPU	FB Memory (DDR3L)	ROM_SI	ROM_SO	ROM_SCLK	STRAP0	STRAP1	STRAP2	STRAP3	STRAP4	
N16V-GM	H5TC4G63AFR-11C	0xE	PU 4.99K	PU 4.99K	PU 45.3K	PD 45.3K	PU 10K	PD 4.99K	PD 45.3K	
	Hynix 900MHz	256M x 16								PU 34.8K
	Micron 900MHz	256M x 16								PU 30.1K
	H5TC2G63FFR-11C	0x8								
	Hynix 900MHz	128M x 16								PU 20K
	Micron 900MHz	128M x 16								PU 4.99K
	Samsung 900MHz	128M x 16								PD 45.3K

VRAM	X76	VRAM P/N
Samsung	X7606012101	SA00005SH40
Micron	X7606012001	SA00005M120
Hynix	X7606012002	SA00005VS00

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Issued Date	2015/02/27	Deciphered Date	2013/08/05	Blank	
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				Date: Saturday, May 09, 2015	Sheet 29 of 59



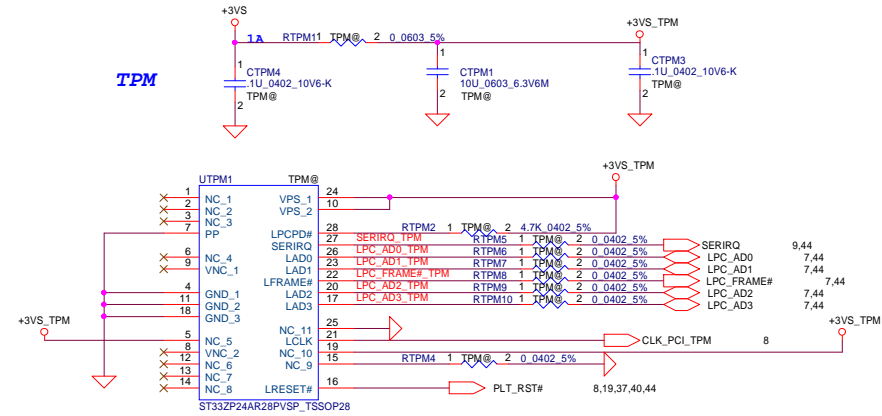
CW11,CW12 need to change 5.6pf CAP as EMC request



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Sheet	Document Number	Revision	Rev		
Custom	CG510	0.2			
Date:	Saturday, May 09, 2015	Sheet	30	of 60	

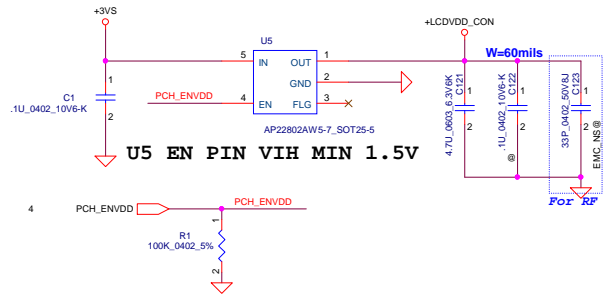
5	4	3	2	1
5	4	3	2	1
D				D
C				C
B				B
A				A

Security Classification	LC Future Center Secret Data		Title
Issued Date	2015/02/27	Deciphered Date	2013/08/05
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			Date: Saturday, May 09, 2015 Sheet 31 of 59

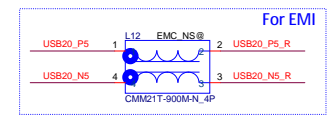
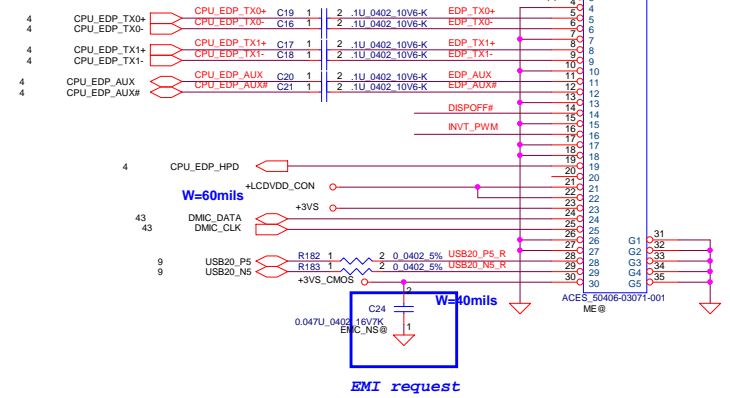
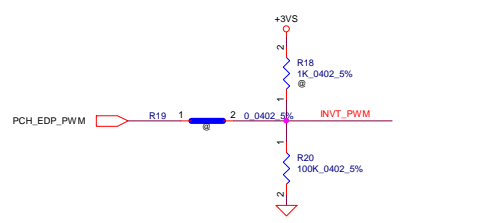
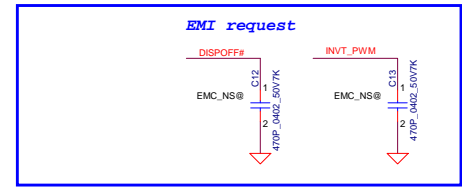
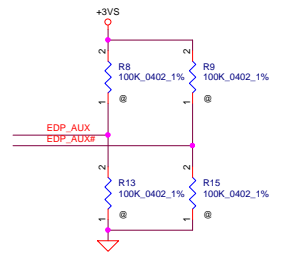
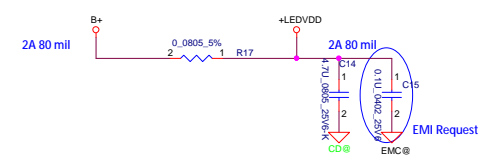
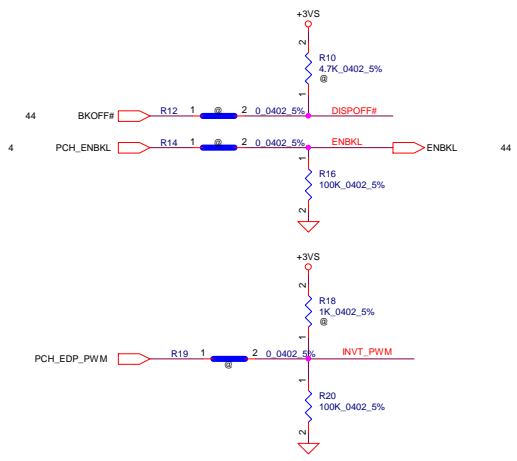
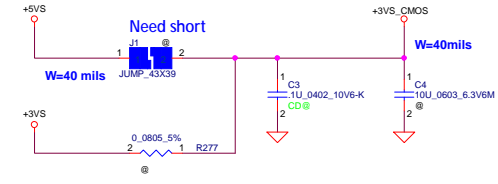


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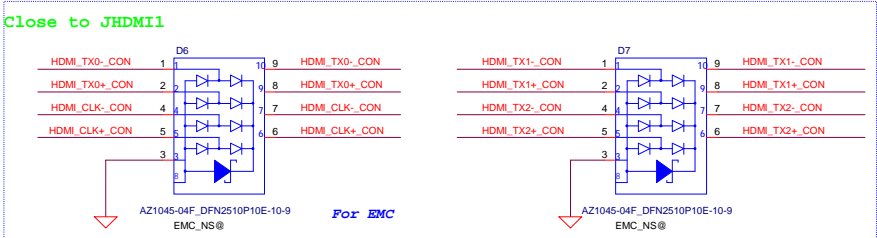
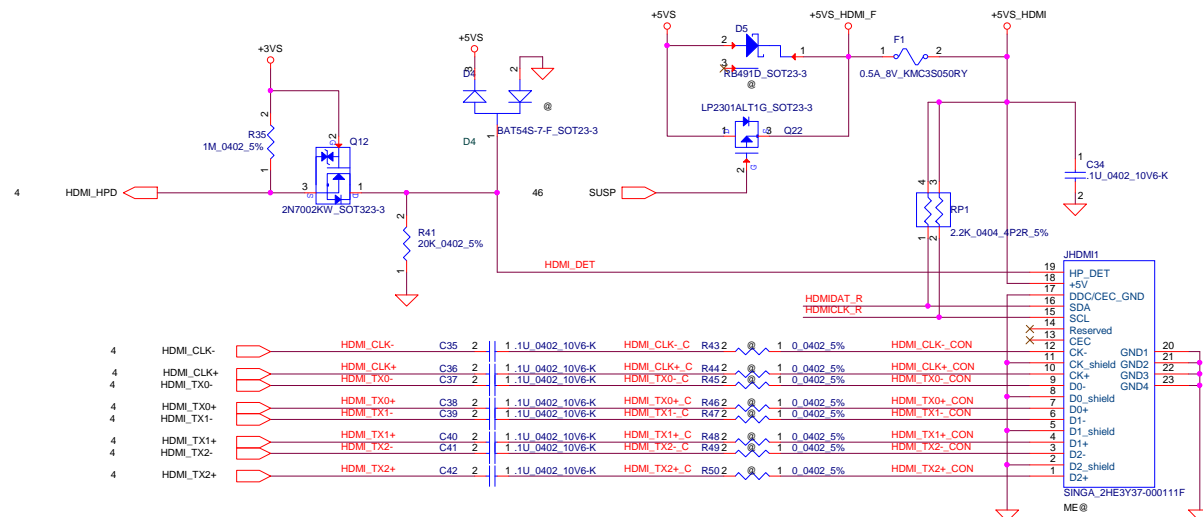
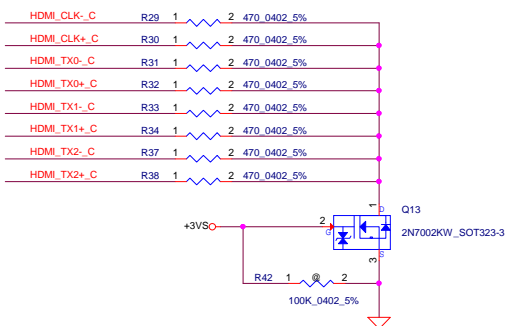
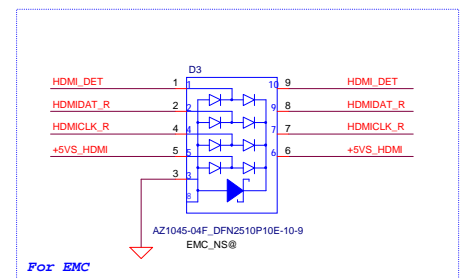
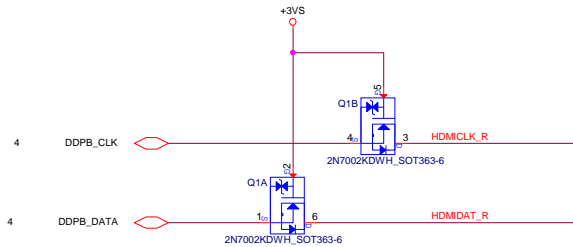
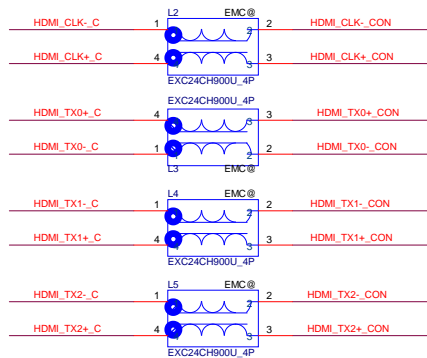
LCD POWER CIRCUIT



CMOS Camera



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				Rev 0.2	Sheet 35 of 59

3

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C

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A

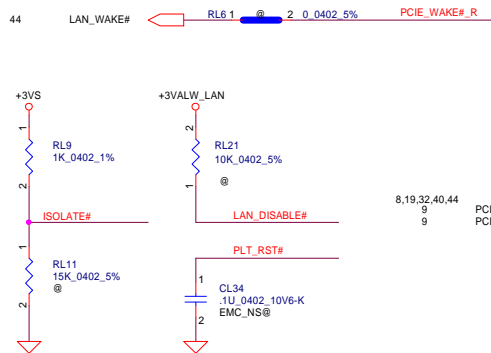
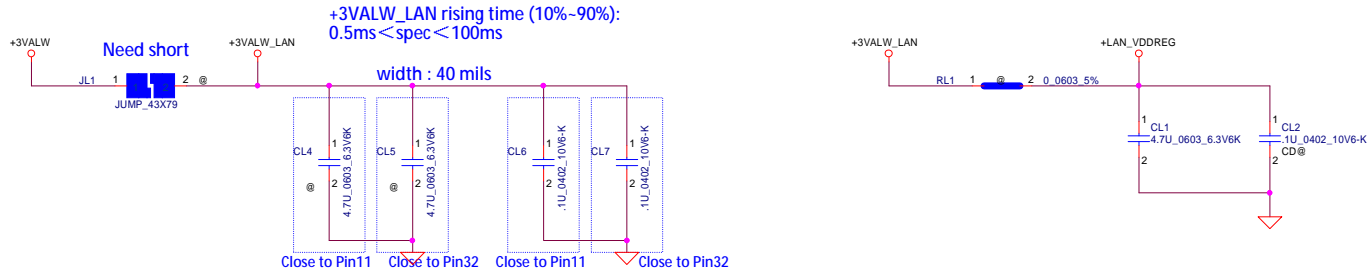
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				Date:	Saturday, May 09, 2015	Sheet

3

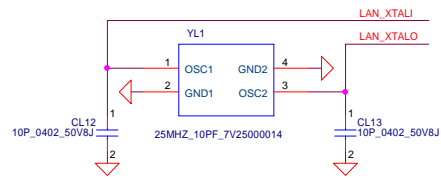
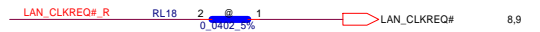
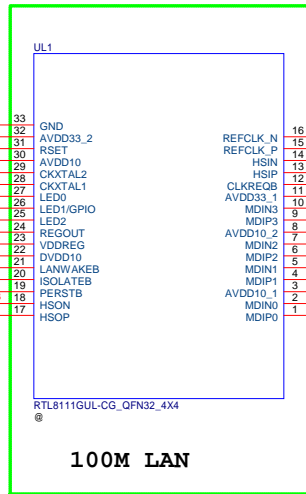
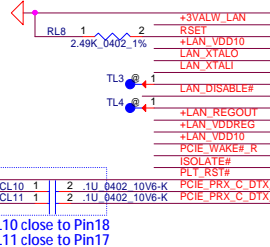
2

1

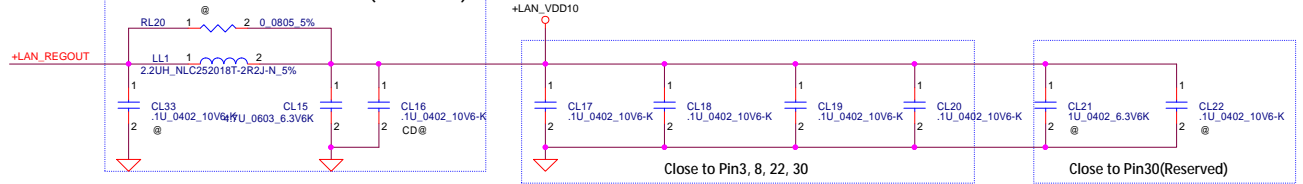
+3VALW TO +3VALW_LAN



8,19,32,40,44
9



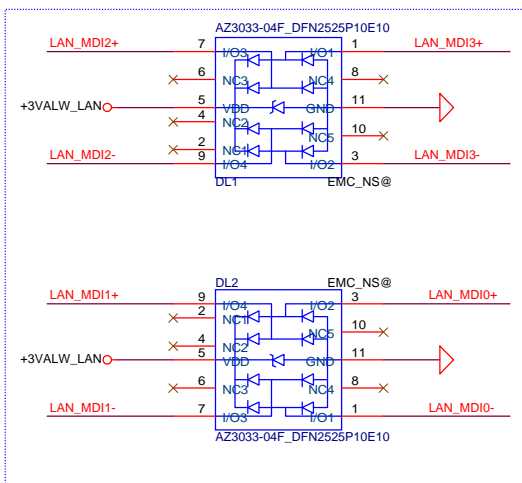
For RTL8111GUL/ RTL8106EUL (SWR mode)



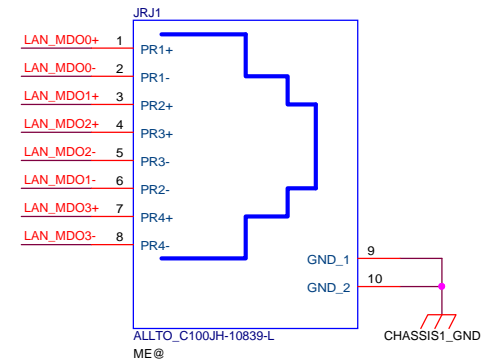
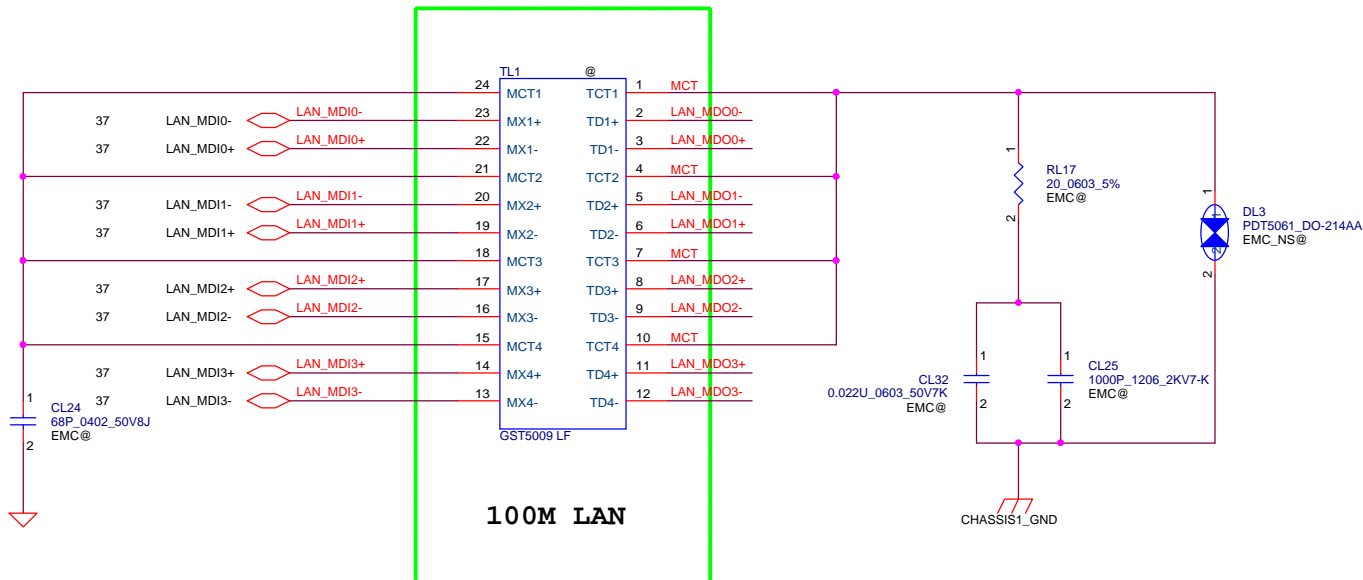
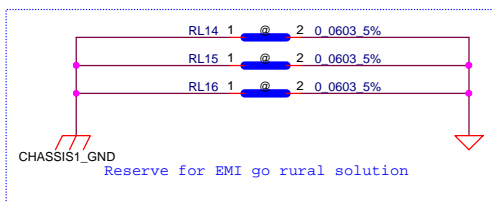
Layout Note: LL1 must be within 200mil to Pin24,
CL15,CL16 must be within 200mil to LL1
+LAN_REGOUT: Width =60mil

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Custom	CG510	0.2	
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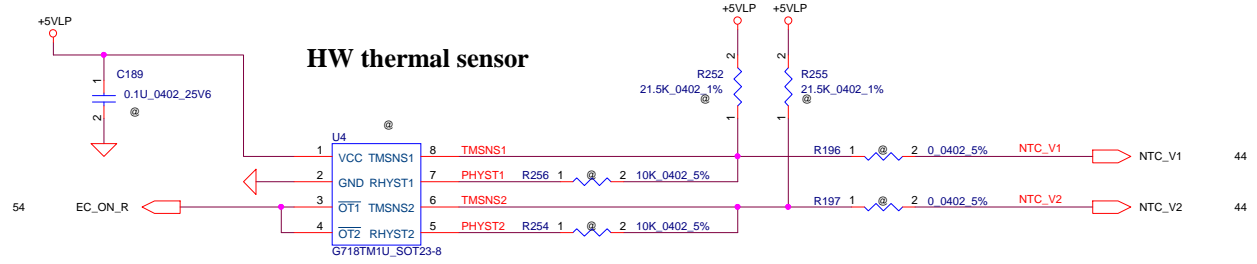
DL1/DL2
1'S PN:SC30003M00



Place Close to TL1

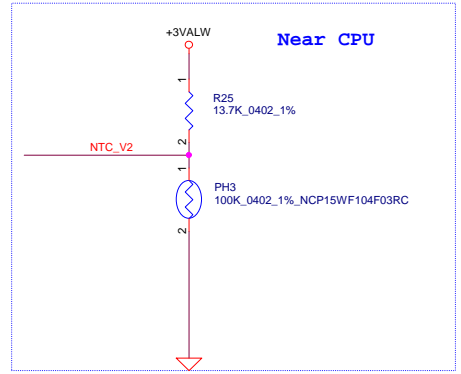
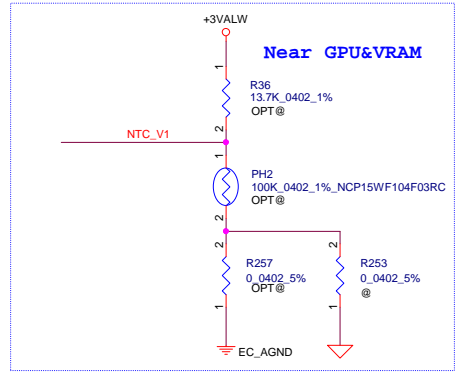
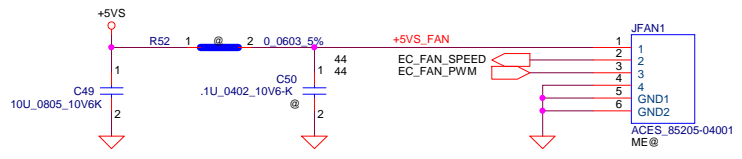


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over temperature threshold:
RSET=3*RTMH
92+/-30C
 Hysteresis temperature threshold.
RHYST=(RSET*RTML)/(3*RTML-RSET)
56+/-30C

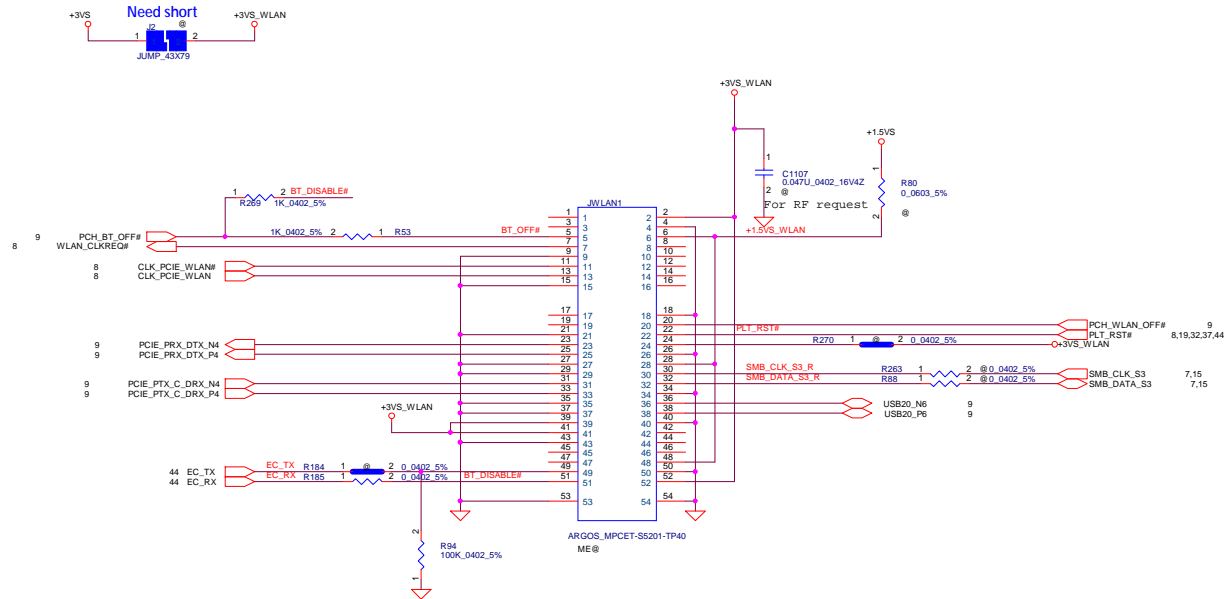
FAN Conn



for layout optimized, change the EC_AGND to GND

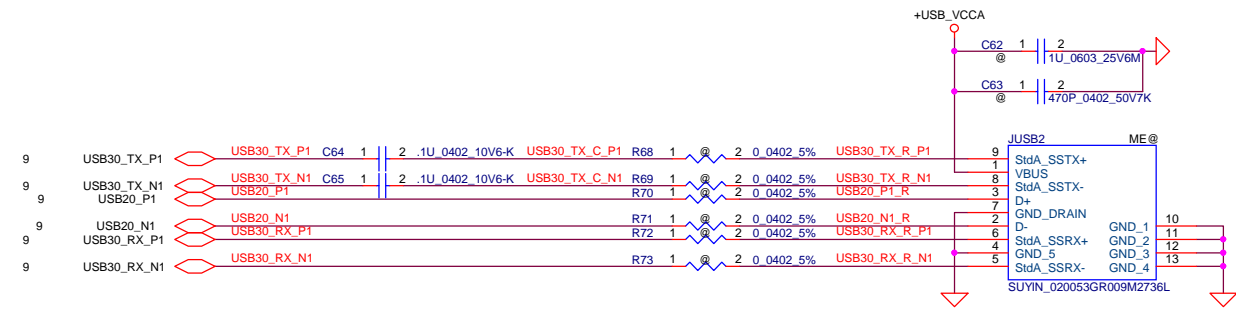
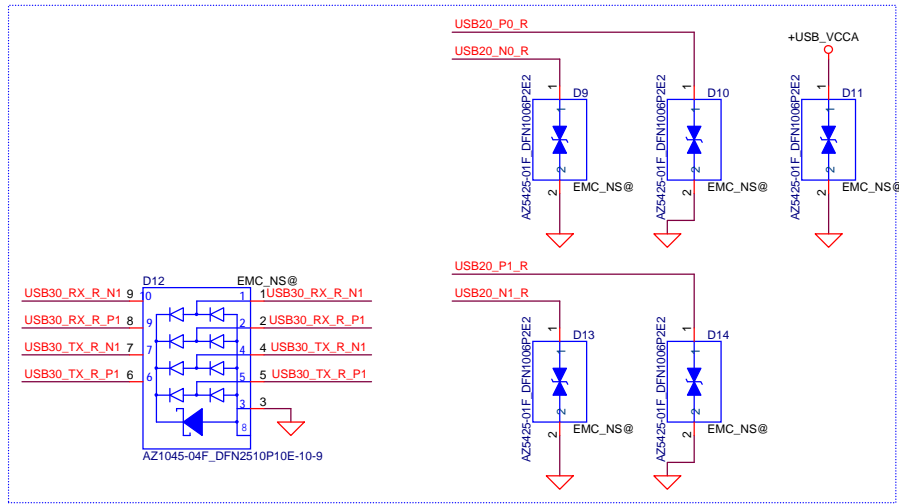
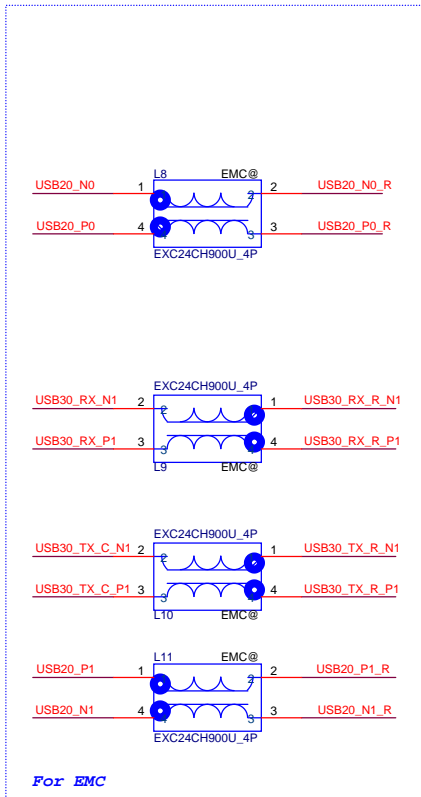
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Mini-Express Card(WLAN/WiMAX)



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Date: Saturday, May 09, 2015				Sheet	40 of 59

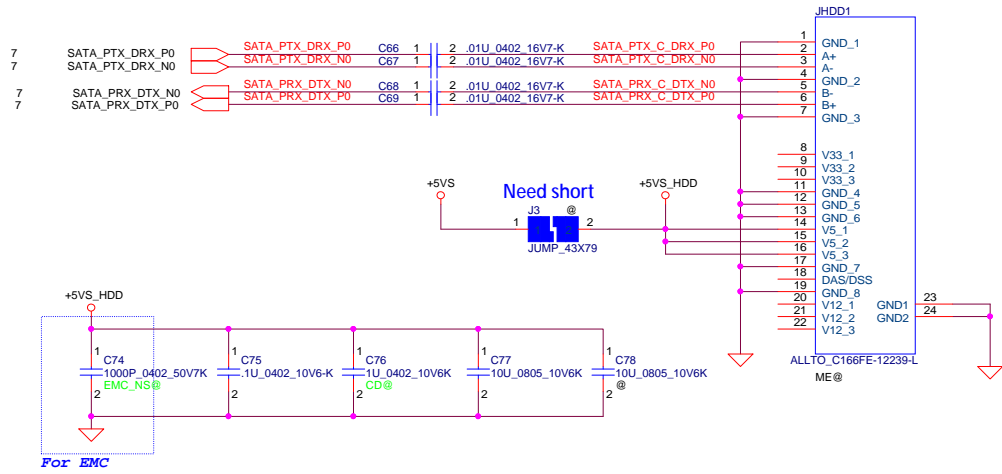
LEFT SIDE USB PORT X2



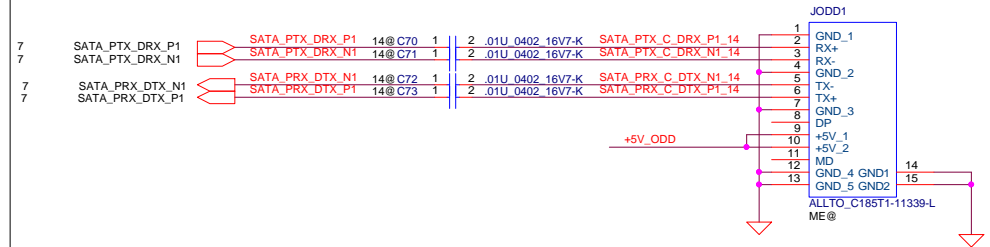
9	USB30_TX_P1	USB30_TX_P1	C64	1	2	1U_0402_10V6-K	USB30_TX_C_P1	R68	1	@	2	0.0402	5%	USB30_TX_R_P1
9	USB30_TX_N1	USB30_TX_N1	C65	1	2	1U_0402_10V6-K	USB30_TX_C_N1	R69	1	@	2	0.0402	5%	USB30_TX_R_N1
9	USB20_P1	USB20_P1						R70	1	@	2	0.0402	5%	USB20_P1_R
9	USB20_N1	USB20_N1						R71	1	@	2	0.0402	5%	USB20_N1_R
9	USB30_RX_P1	USB30_RX_P1						R72	1	@	2	0.0402	5%	USB30_RX_R_P1
9	USB30_RX_N1	USB30_RX_N1						R73	1	@	2	0.0402	5%	USB30_RX_R_N1

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Issued Date	2015/02/27	Deciphered Date	2013/08/05	USB2.0/USB3.0 PORT (LEFT)	
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Size	Document Number			Rev	0.2
Custom	CG510				
Date:	Saturday, May 09, 2015	Sheet	41	of	59

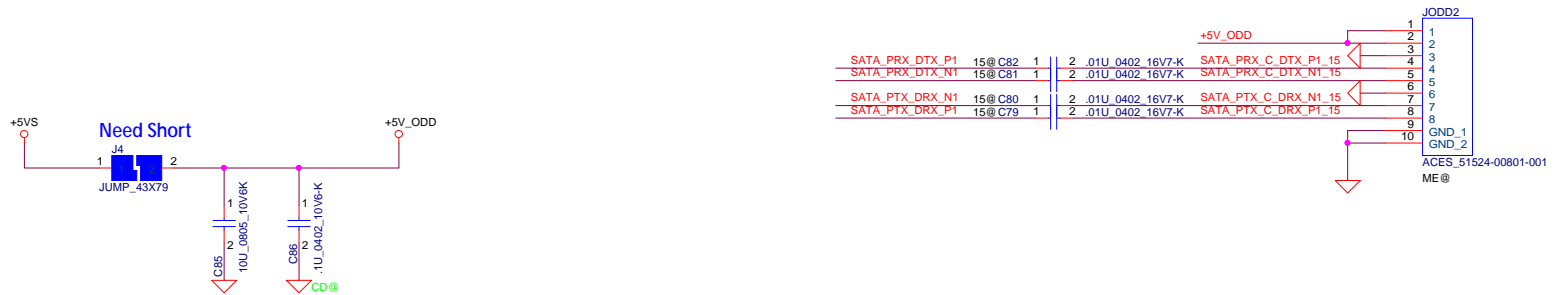
SATA HDD Conn.



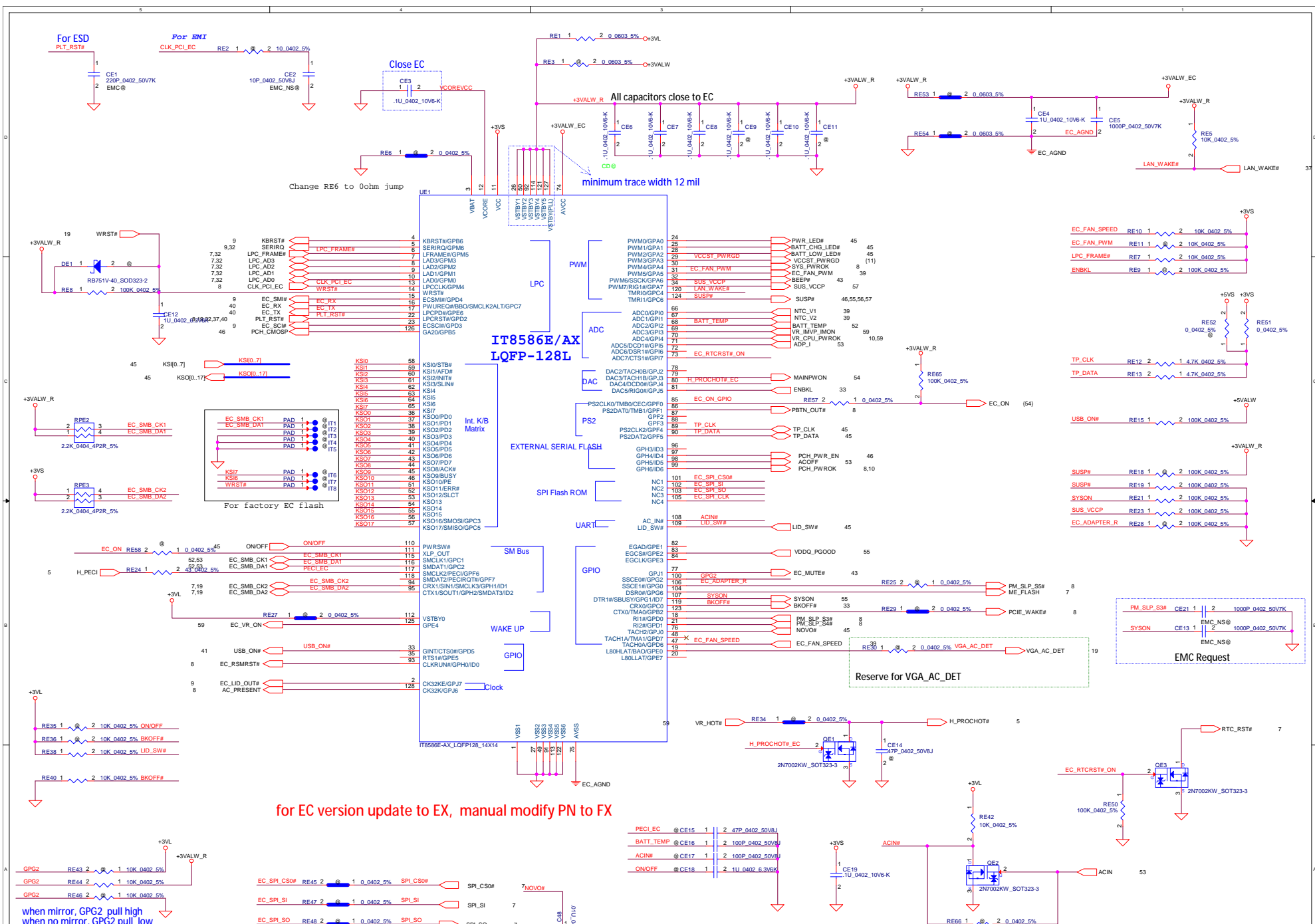
FOR 14" SATA ODD Conn.



FOR 15" SATA ODD FFC Conn



Security Classification				LC Future Center Secret Data				Title							
Issued Date				2015/02/27		Deciphered Date		2013/08/05		HDD/ODD CONN					
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										Custom	CG510	0.2			
Date: Saturday, May 09, 2015												Sheet	42	of	59

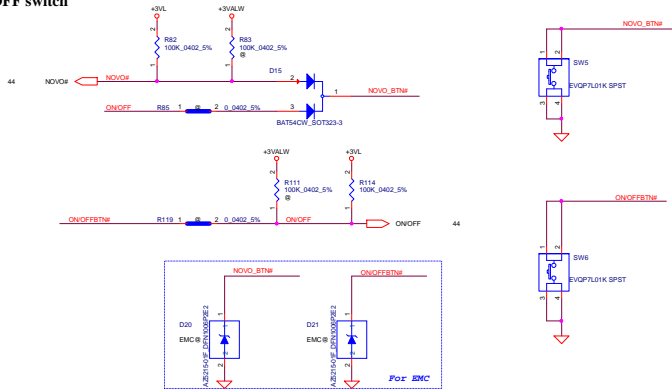


for EC version update to EX, manual modify PN to FX

PECL_EC	@CE15	1	2	47P_0402_50V8J
BATT_TEMP	@CE16	1	2	100P_0402_50V8J
ACIN#	@CE17	1	2	100P_0402_50V8J
ONOFF	@CE18	1	2	1U_0402_4.396K

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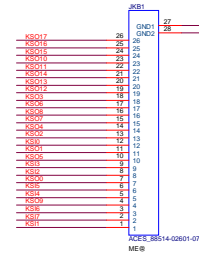
ON/OFF switch



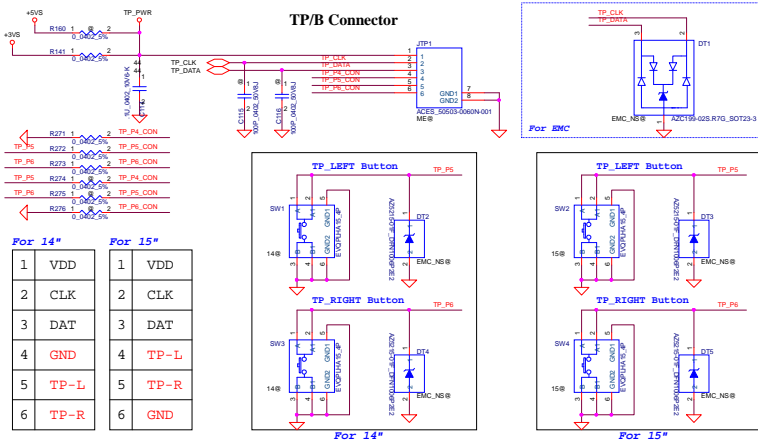
K/B Connector



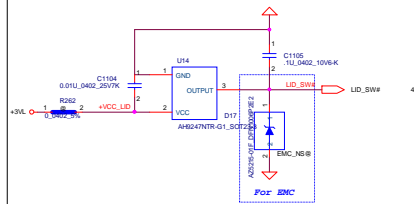
15"



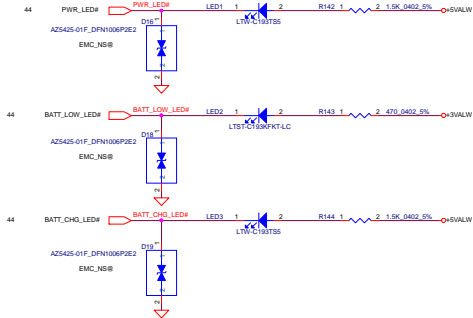
TP/B Connector



Hall Sensor



LED



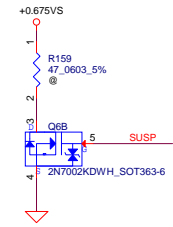
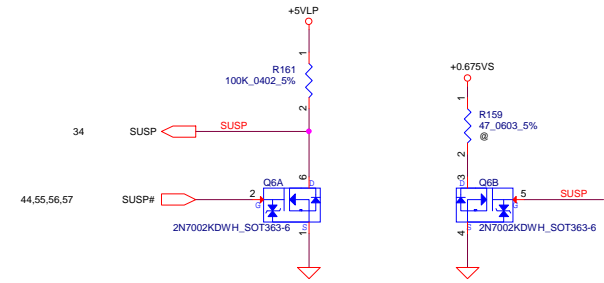
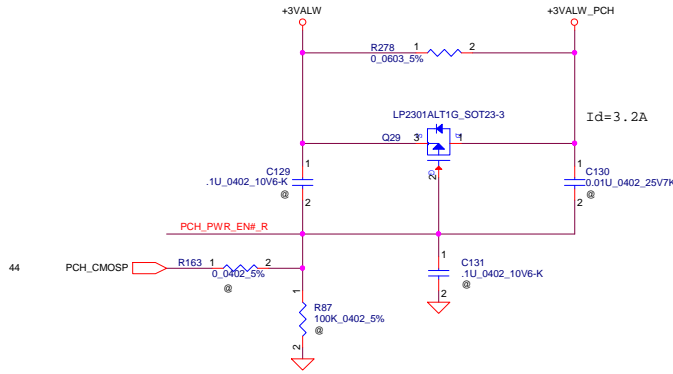
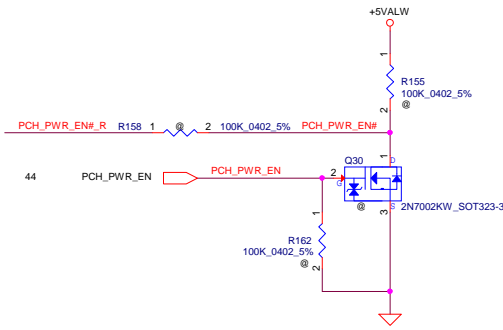
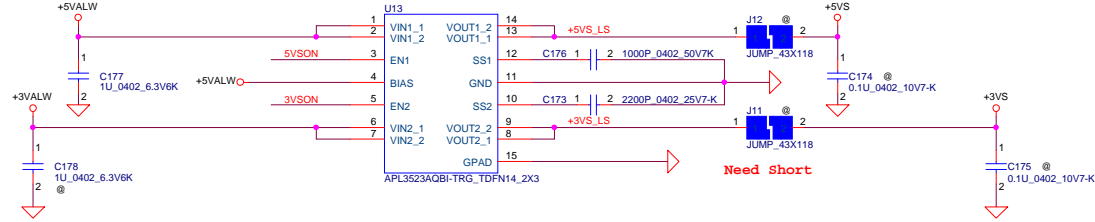
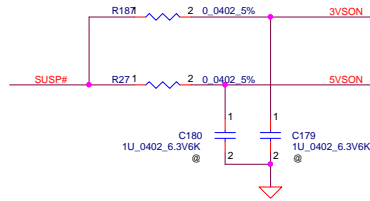
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Size	Document Number	Rev	02

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

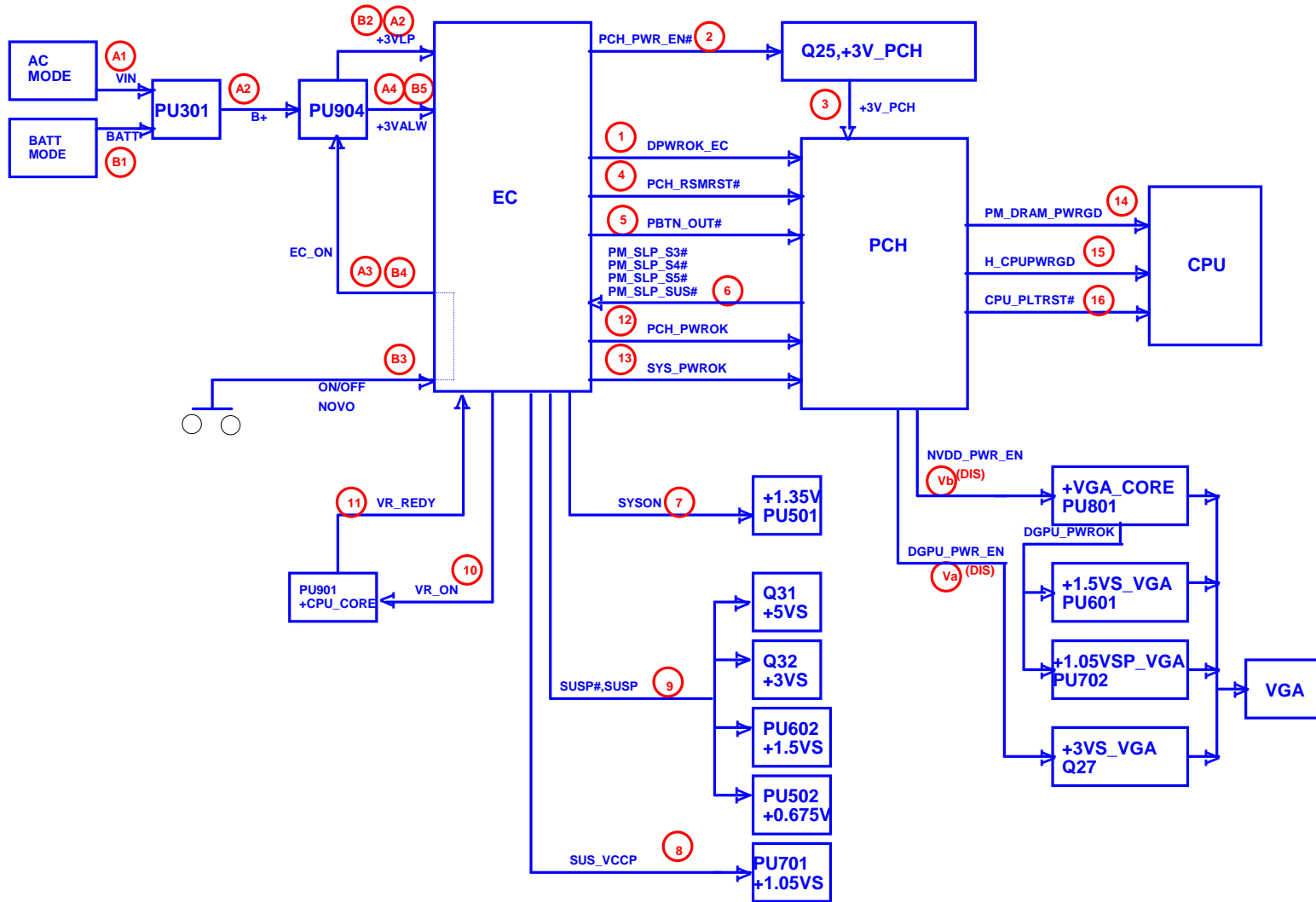
+3VS, C173 ---> 2.74ms
 +5VS, C176 ---> 2.03ms

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

Need Short



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			Date: Thursday, May 14, 2015 Sheet 46 of 59



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			Document Number CG510
			Rev 0.2
			Date: Saturday, May 09, 2015
			Sheet 47 of 59

5 4 3 2 1

D

D

C

C

B

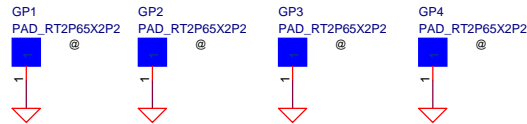
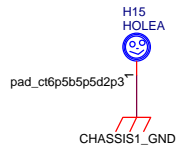
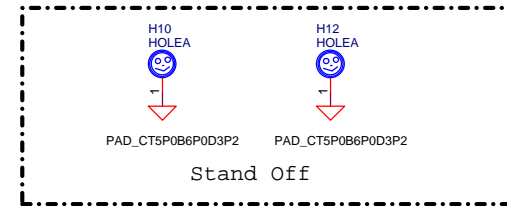
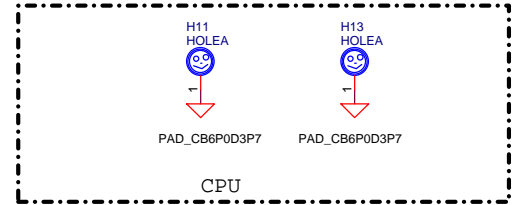
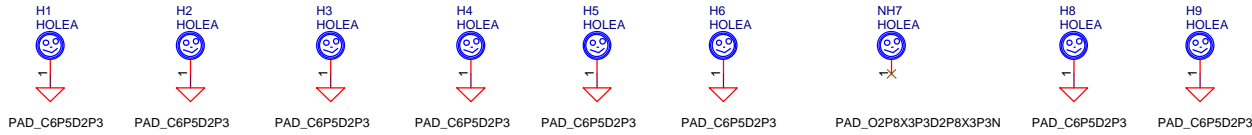
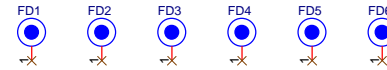
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A

A

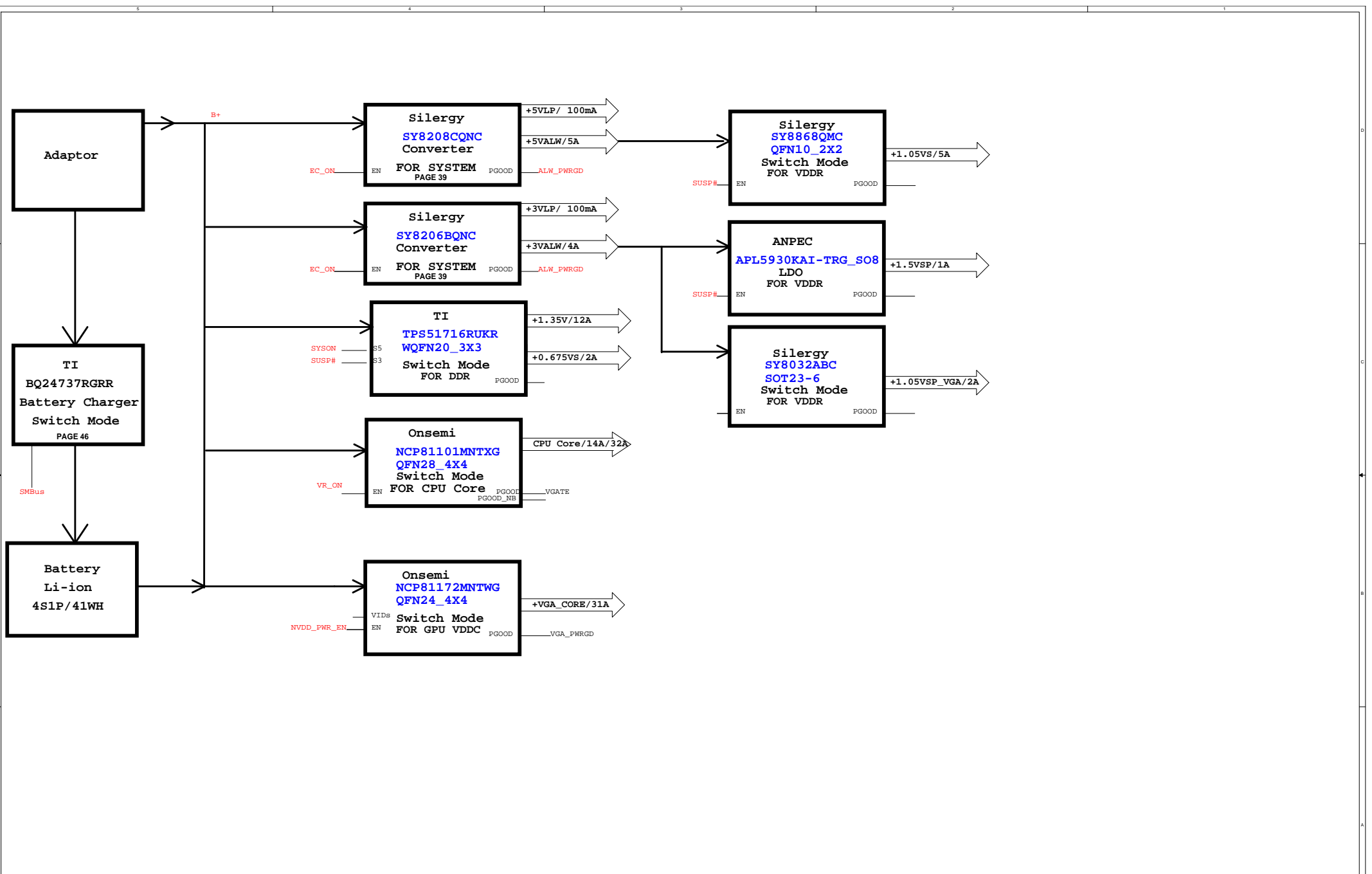
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				Custom	CG510
				Date	Friday, May 15, 2015
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				Rev	0.1

PCB Federal Mark PAD

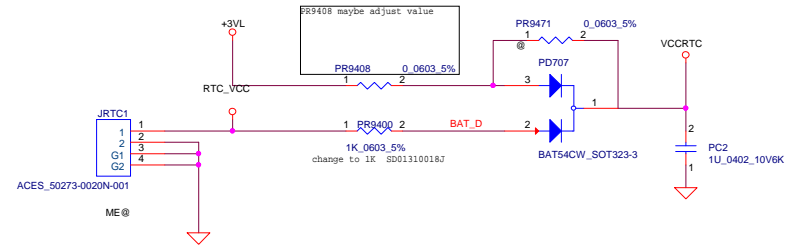
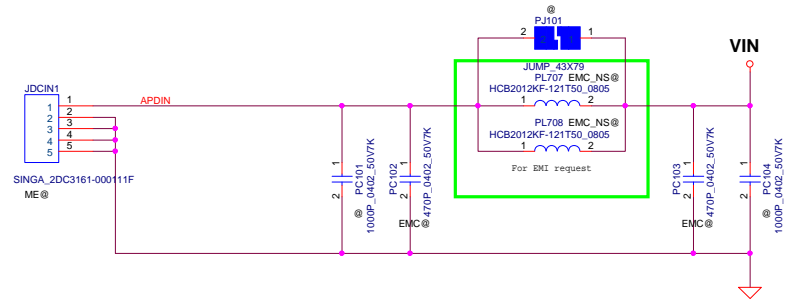


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				B	0.2
				Date:	
				Saturday, May 09, 2015	Sheet 49 of 59

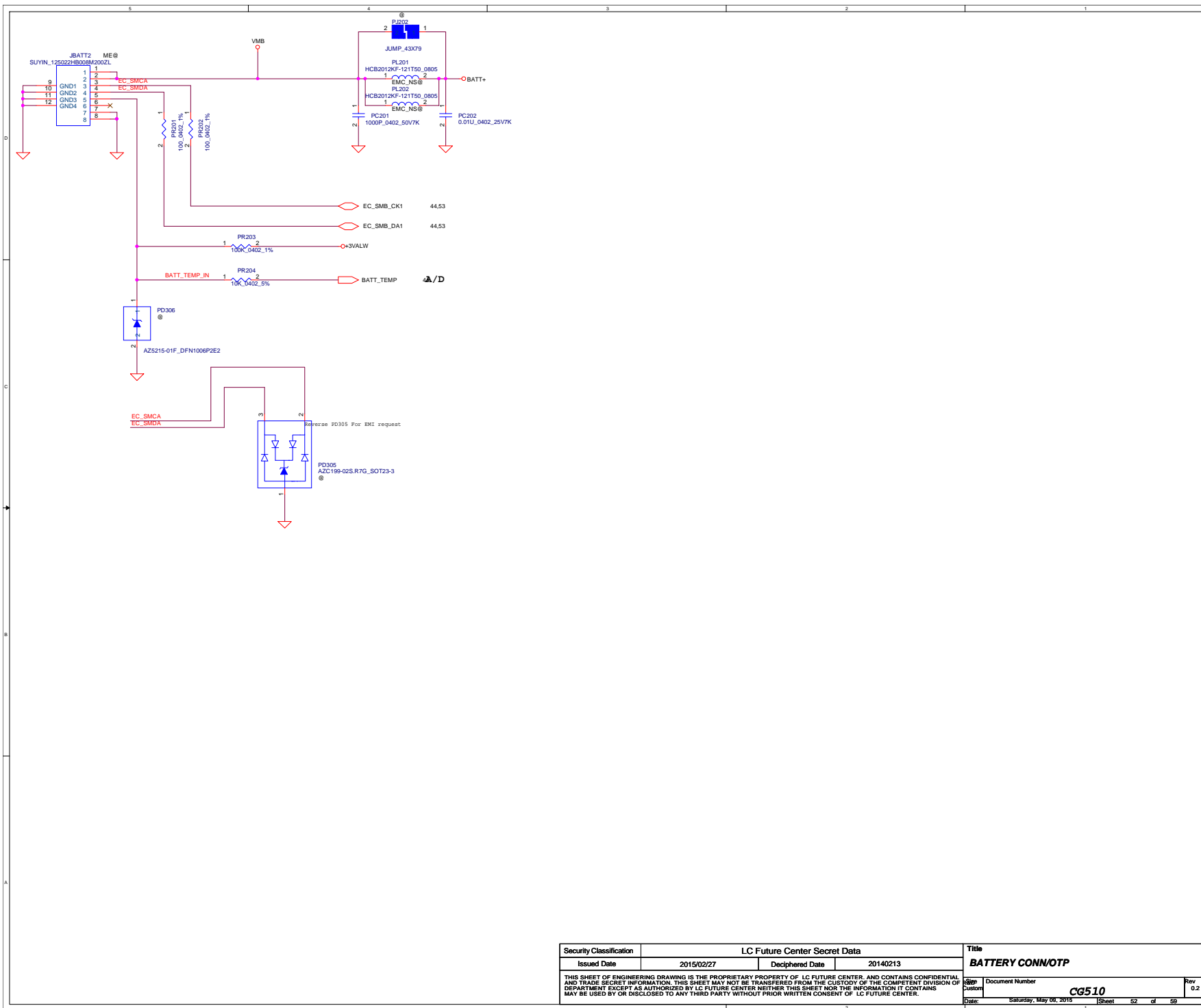
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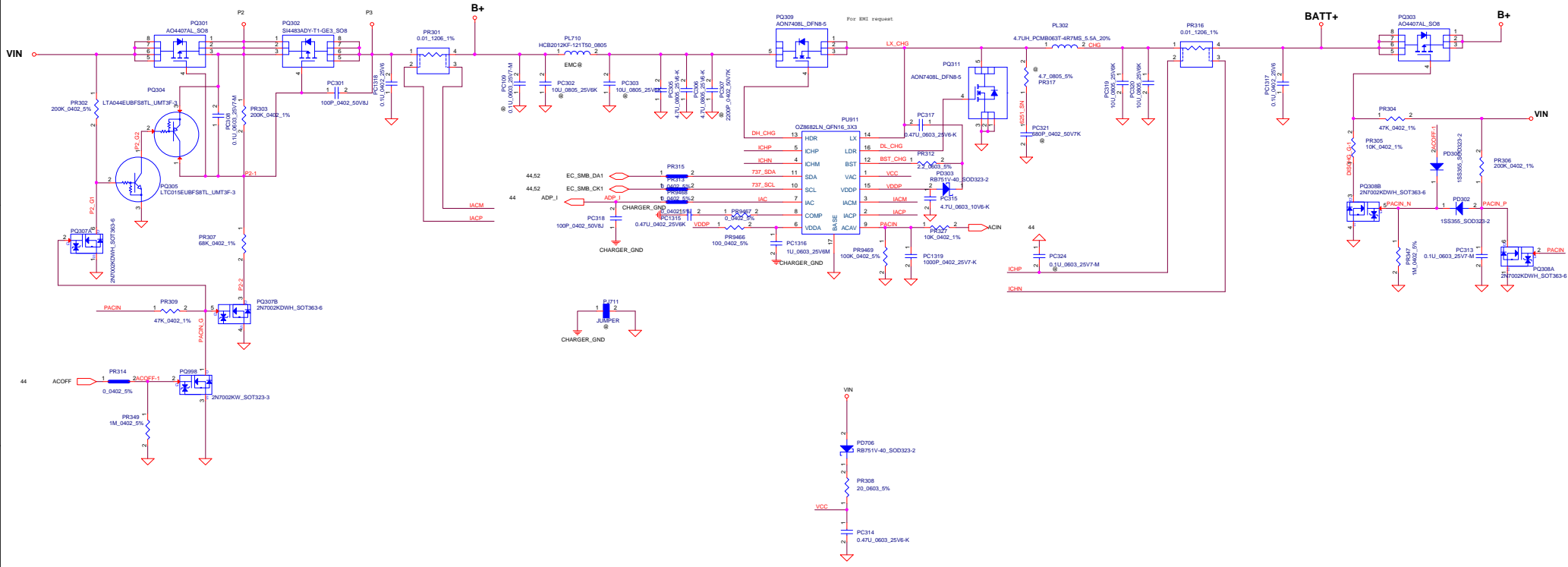
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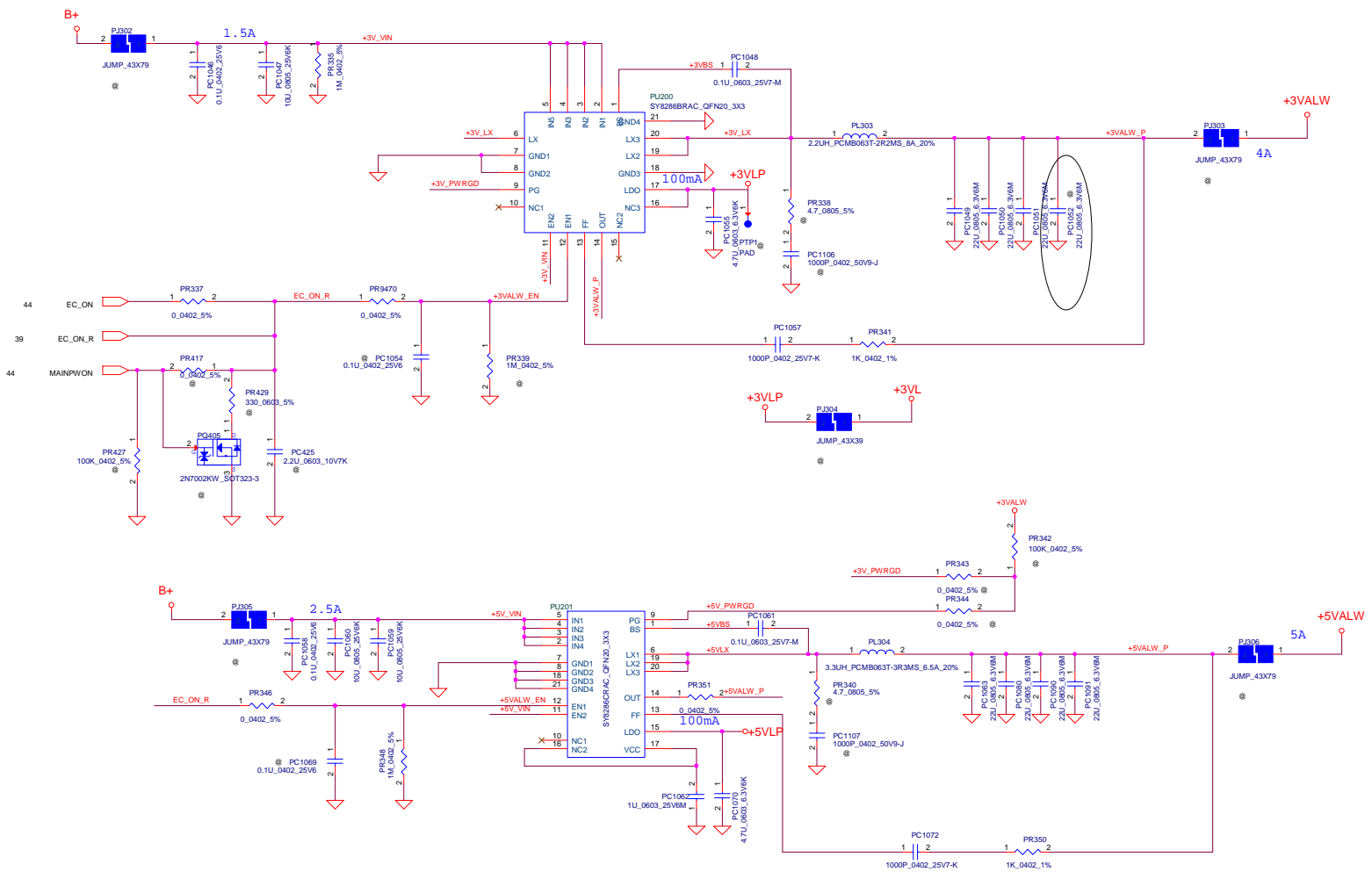
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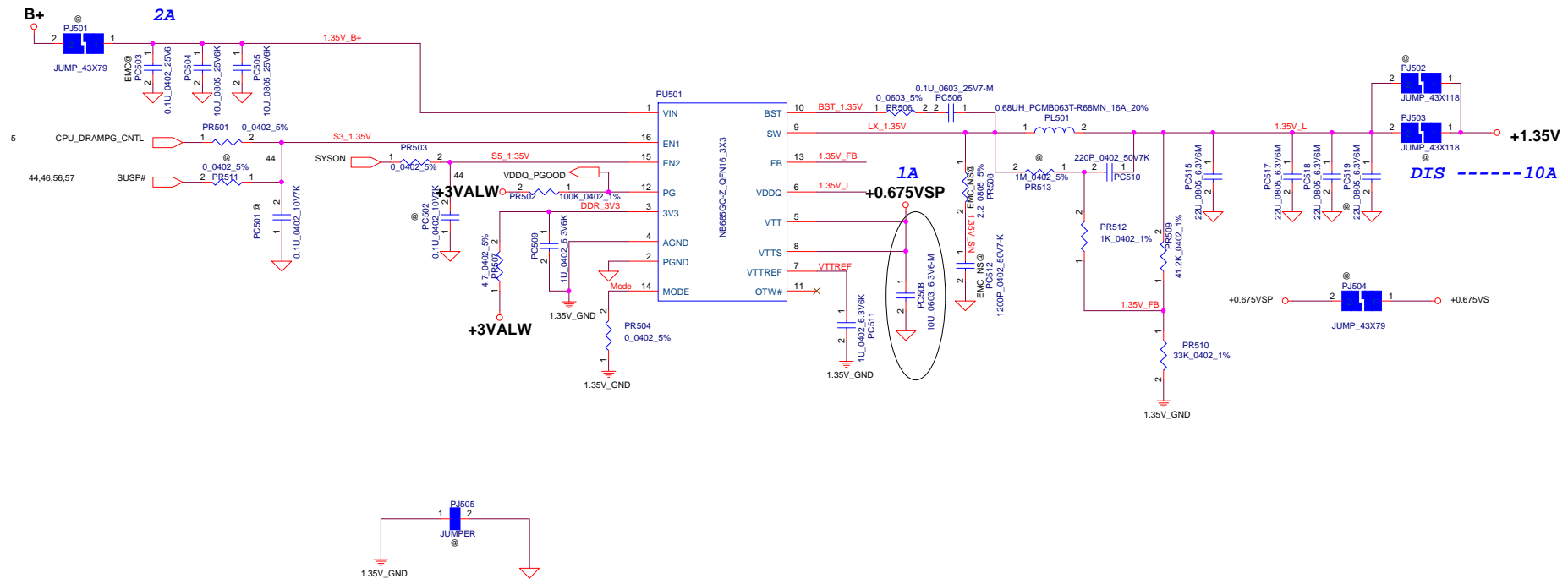
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Rev	0.2	Doc Number	CG510	Date	Saturday, May 06, 2016
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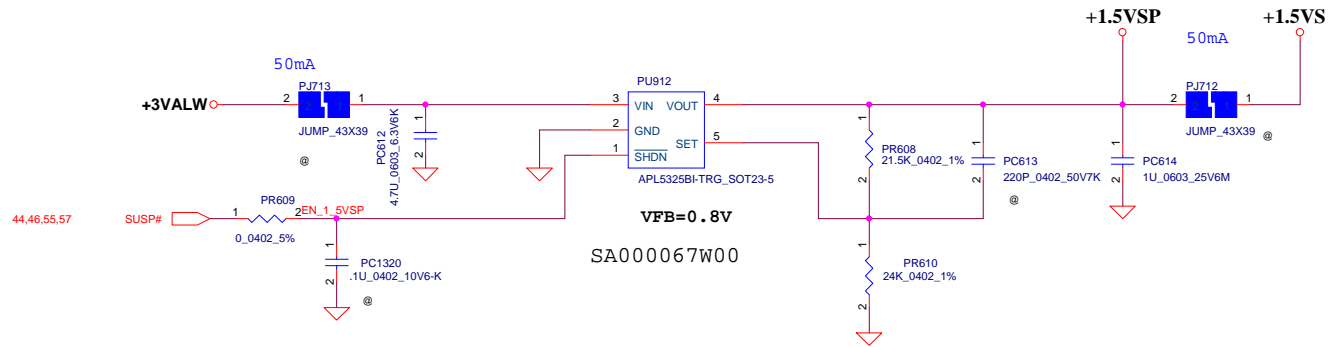
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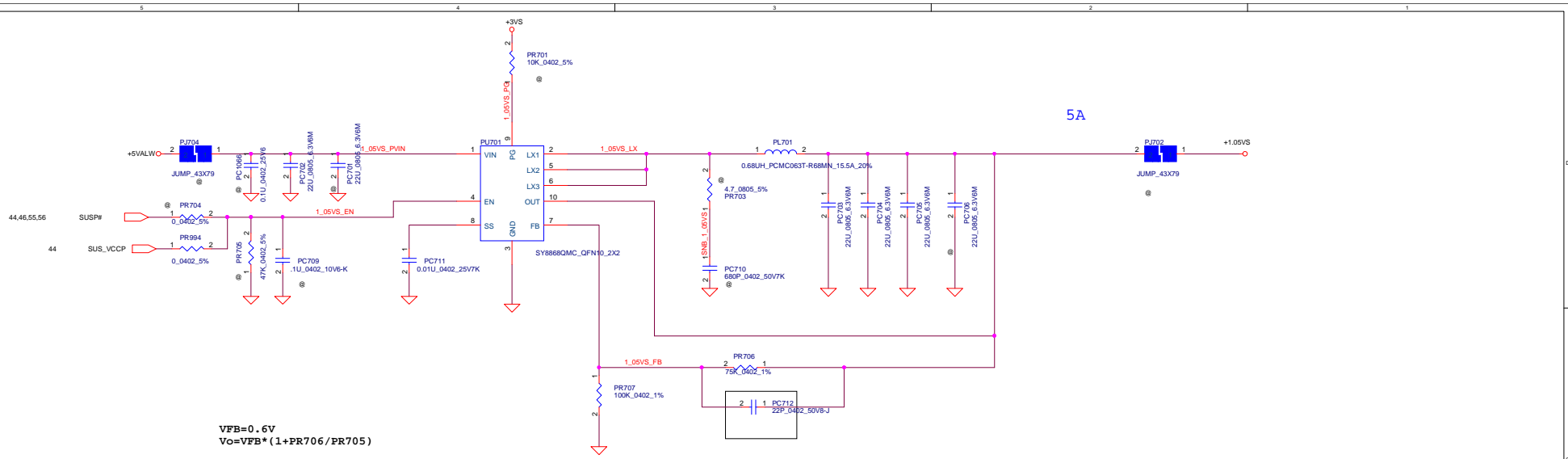
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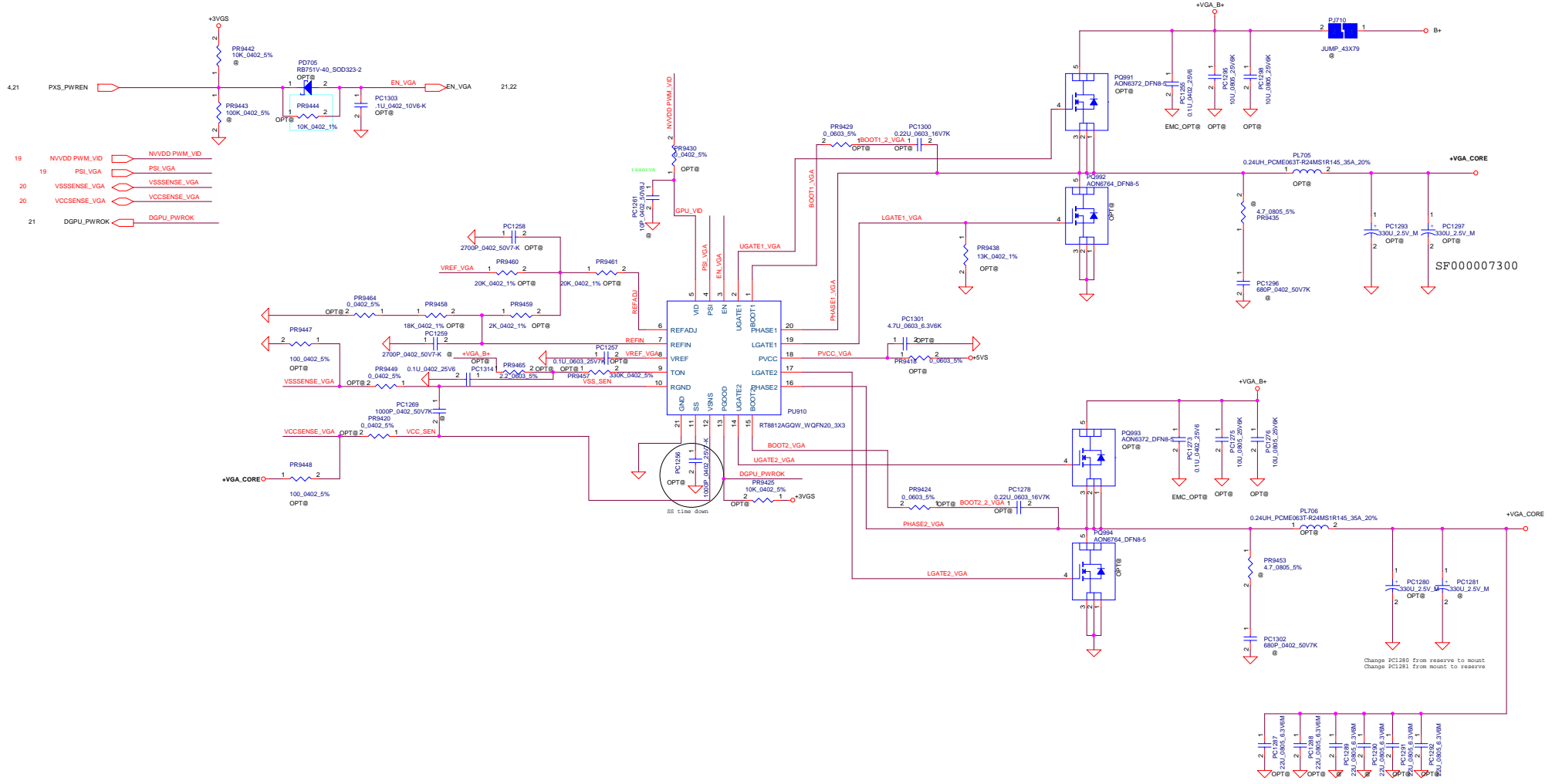
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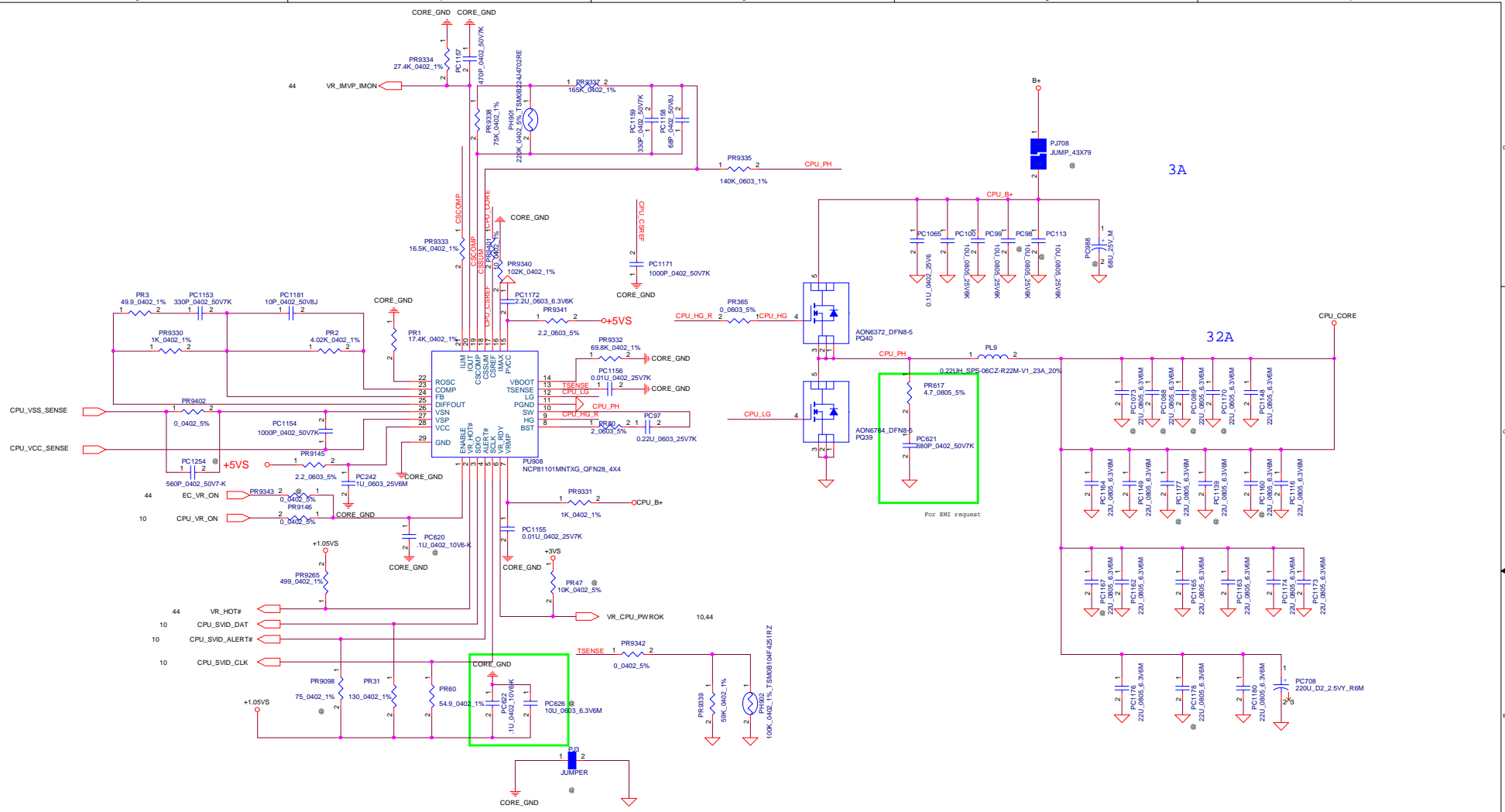


- 4.21 PKX_PWREN
- 19 NVDD_PWM_VID
- 19 PSL_VGA
- 20 VSSSENSE_VGA
- 20 VCCSENSE_VGA
- 21 DGPU_PWROK

SF00007300

Change PC1280 from reserve to mount
Change PC1281 from mount to reserve

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Issued Date	2015/02/27	Deciphered Date	2013/08/05	PWR-VGA_CORE	
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Custom	Date:	Saturday, May 09, 2015	Sheet	88	of 89



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