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# Lampard15-HSW

CPU : Haswell ULT BGA  
Chip Set : LynxPoint LP  
GFX : Nvidia N14M-GL/GE  
Nvidia N15S-GV/GM  
INTEL HD 4400  
Remarks : Sharkbay Platform

Model Name : Lampard15-HSW  
PBA Name : MAIN  
PCB Code : BA41-02342A (PTC)  
BA41-02342A (HST)

Dev. Step : PV  
Revision : 1.0  
T.R. Date : 2013.10.17

Design	CHECK	APPROVAL
Xiaolan Hu	Hongjun Zhao	LEI GUO

Owner : SEC Mobile R & D Signature : X

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sheet02 : BLOCK DIAGRAM  
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sheet06 : NA  
sheet07 : Thermal Sensor  
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sheet32 : HDMI  
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sheet34 : HD AUDIO  
sheet35 : 3IN1/TPM  
sheet36 : LAN (Realtek RTL8105E)  
sheet37 : WLAN\_MOB  
sheet38 : SATA interface (HDD I/F)

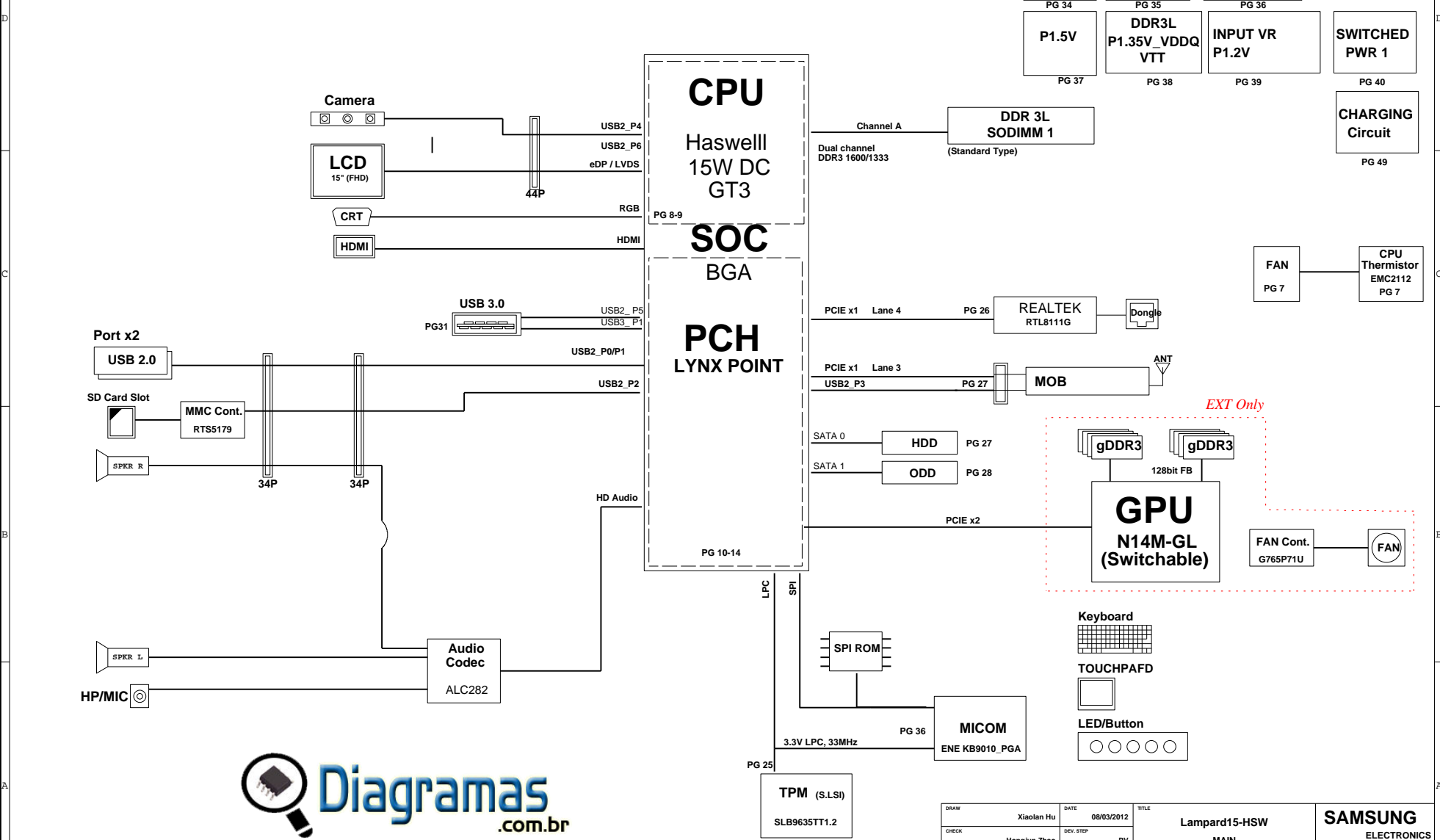
sheet39 : MICOM / BIOS(MEC1310)  
sheet40 : MICOM Glue Logic  
sheet41 : USB3.0 connector  
sheet42 : MAIN TO SUB CONNECTOR  
sheet43 : Power - charger  
sheet44 : Power - P3.3V\_AUX / P5.0V\_AUX  
sheet45 : Power - P1.05V (Chipset Power)  
sheet46 : Power - P1.5V  
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sheet50 : Power - P1.5V\_D  
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sheet54 : Mount Hole  
sheet55 : SUB (TOUCHPAD/POWER SW)



DRAW	Xiaolan Hu	DATE	18/09/2013	TITLE	Lampard15-HSW	SAMSUNG
CHECK	Hongjun Zhao	DEV. STEP	PV	MAIN		ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0	COVER		PART NO. BA41-02342A
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# BLOCK DIAGRAM



**Diagramas**  
.com.br

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CHECK	Hongjun Zhao	DEV. STEP	PV	MAIN	MAIN	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0	BLOCK DIAGRAM	PART NO.	BA41-02342A
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# BOARD INFORMATION

## SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails	Active in
VDC P3.3V_MICOM P5.0V_ALW P5.0V_STB	Primary DC system power supply (7 to 21V) 3.3V always power rail (for Micom) 5.0V always power rail 5.0V always power rail
P5.0V_AUX P3.3V_AUX P1.5V_AUX	5.0V switched on power rail (off in S4-S5) 3.3V switched on power rail (off in S4-S5) 1.5V power rail for DDR3 (off in S4-S5)
P5.0V P3.3V P1.8V P1.5V P0.75V P0.85V	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.8V switched power rail (off in S3-S5) 1.5V switched power rail (off in S3-S5) 0.75V power rail for DDR3 (off in S3-S5) 0.85V switched power rail (off in S3-S5)
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for PANTHERPOINT

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	NC
1	SYSTEM PORT 1	2	NC
2	MMC	3	Mini Card 1 (WLAN)
3	Mini PCI Express (WLAN)	4	LAN CONTROLLER
4	Camera	5	EGFX
5	SYSTEM PORT5	6	NC
6	NC	7	NC
7	NC	8	NC
8	NC		
9	NC		
10	NC		
11	NC		
12	NC		
13	NC		

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	ODD
2	mSATA
3	
4	
5	

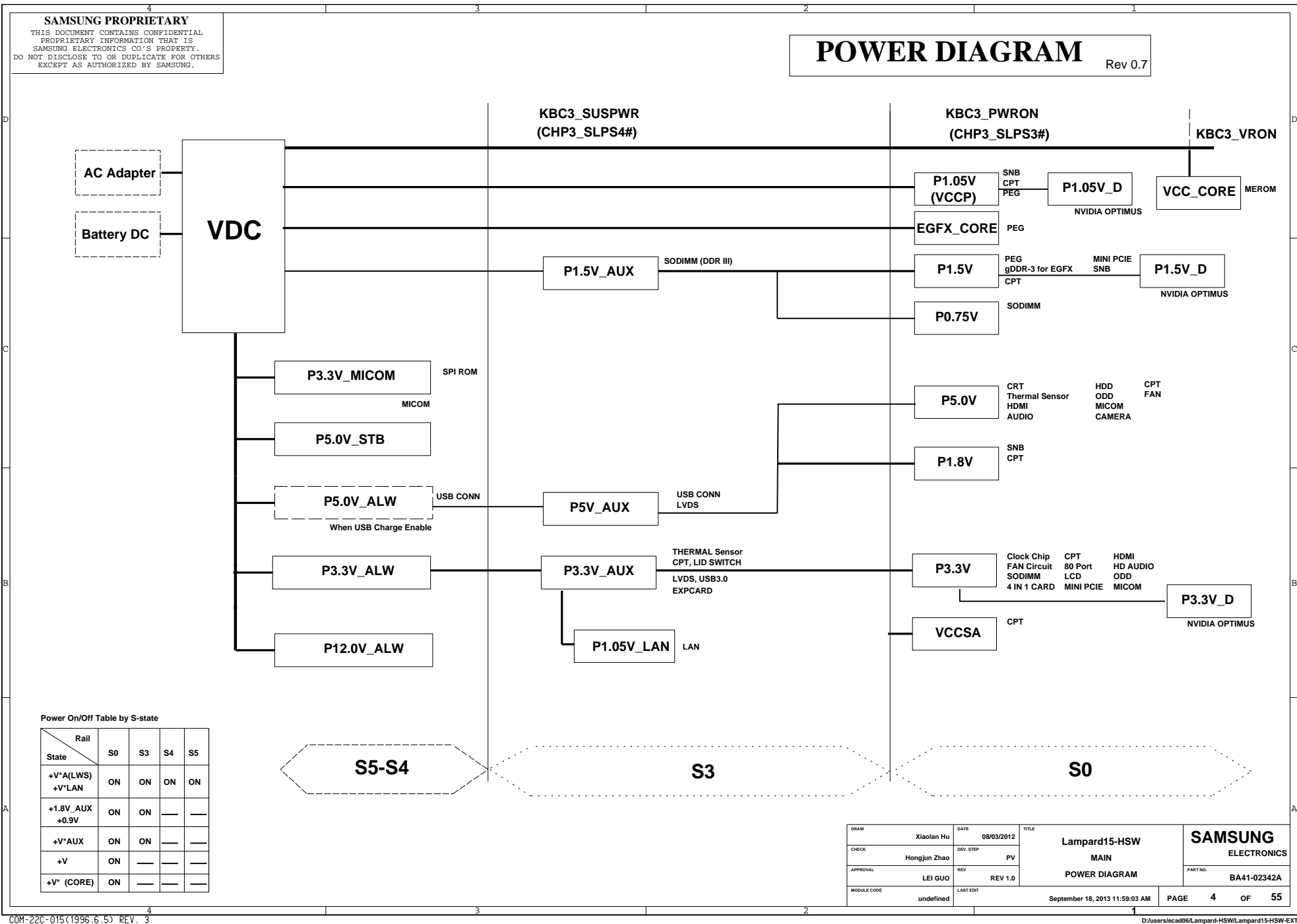
Crystal / Oscillator			
TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	PANTHER POINT	Real Time Clock
Crystal	25MHz	LAN	REALTEK
Crystal	25MHz	PANTHER POINT	
Crystal	27MHz	N13M	
Crystal	24MHz	USB3.0 CHIP	

LCD Pannel Detect (TBD)		
Devices	Resolution	PANNEL_DETECT_0

I <sup>2</sup> C / SMB Address			
Devices	Address	Hex	Bus
PANTHERPOINT	Master	-	SMBUS Master
CPU Thermal Sensor	0011 000X	30h	
SODIMM0	1010 000x	A0h	Thermal Sensor
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
on board DDR3 thermal Sensor	1001 100x	98h	
Platform thermal management TS	1001 011x	96h	

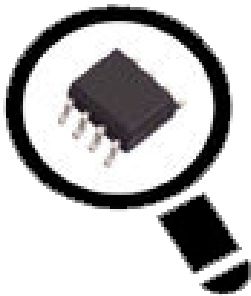


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CHECK	Hongjun Zhao	DEV. STEP	PV		MAIN	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		BOARD INFO	PART NO. BA41-02342A
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**CLOCK DISTRIBUTION** Rev. 0.8



**Diagramas**  
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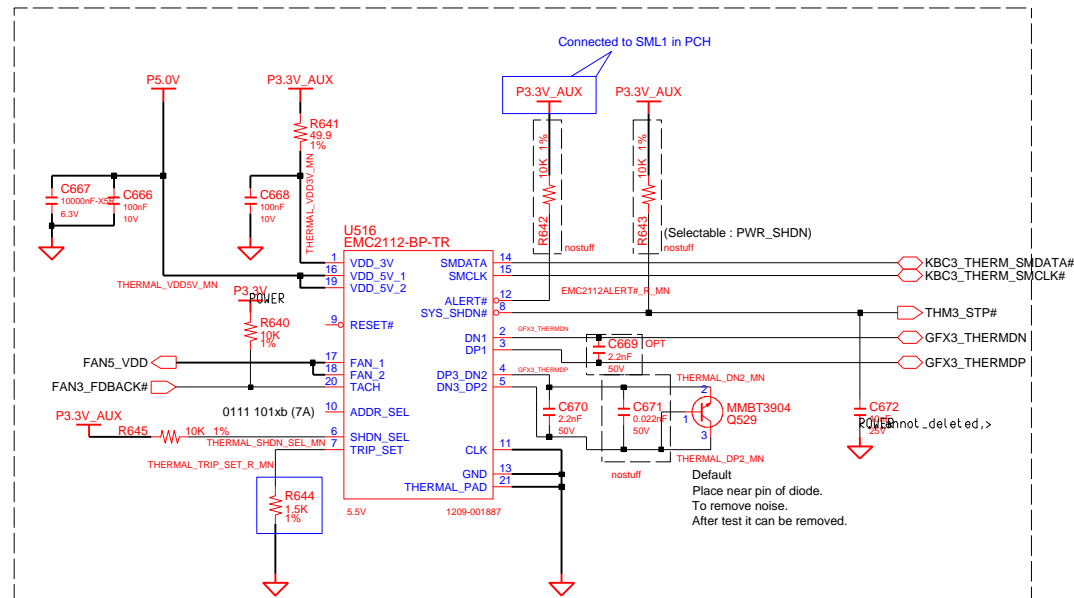
DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW MAIN CLOCK DIAGRAM	SAMSUNG ELECTRONICS PART NO. BA41-02342A
CHECK	Hongjun Zhao	DEV. STEP	PV			
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	September 18, 2013 11:59:03 AM			
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<table><tr><td>DESIGN</td><td>Xiaolan Hu</td><td>DATE</td><td>08/03/2012</td><td colspan="4" rowspan="3">TITLE Lampard15-HSW CLOCK CLOCK DISTRIBUTION</td><td colspan="4" rowspan="3">SAMSUNG ELECTRONICS PART NO. BA41-02342A</td></tr><tr><td>CHECK</td><td>Hongjun Zhao</td><td>DEV. STEP</td><td>PV</td></tr><tr><td>APPROVAL</td><td>LEI GUO</td><td>REV</td><td>REV 1.0</td></tr><tr><td colspan="2">MODULE CODE</td><td colspan="2">LAST EDIT</td><td colspan="4">September 18, 2013 11:59:03 AM</td><td colspan="4">PAGE 6 OF 55</td></tr></table>																DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE Lampard15-HSW CLOCK CLOCK DISTRIBUTION				SAMSUNG ELECTRONICS PART NO. BA41-02342A				CHECK	Hongjun Zhao	DEV. STEP	PV	APPROVAL	LEI GUO	REV	REV 1.0	MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM				PAGE 6 OF 55			
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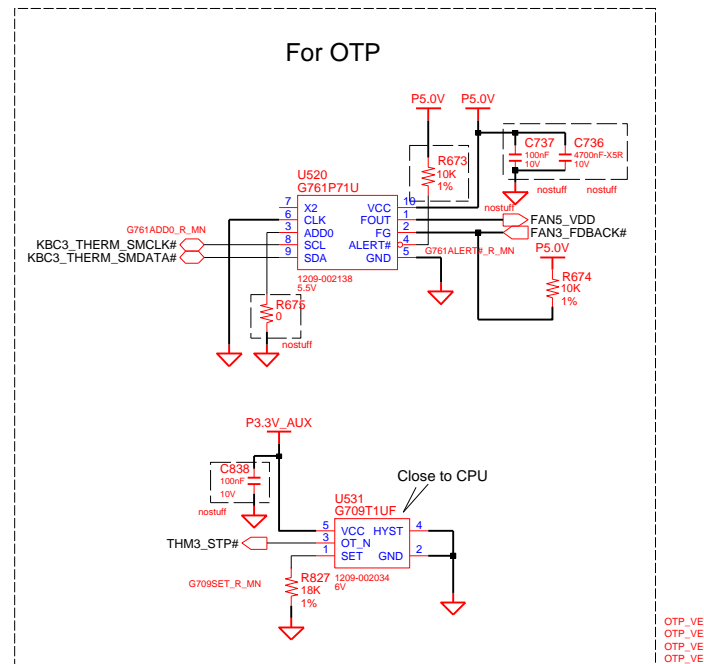
## THERMAL SENSOR & FAN CONTROL



TEMPERATURE	103c	99c	95c
TRIP_SET resistor value	2.49K	2.0K	1.5K

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EMC2112  
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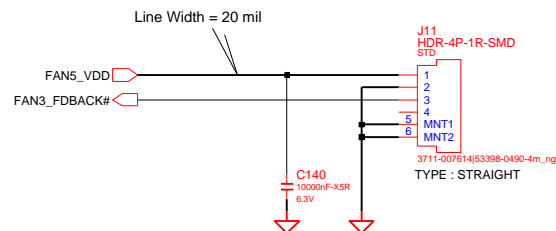
Temperature : 95.78c  
confirmed by thermal charger  
(2011.05.02)  
R (kohm) = 0.0012T - 0.9308T + 96.147



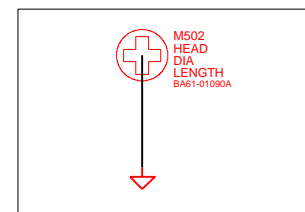
OTP\_VE  
OTP\_VE  
OTP\_VE  
OTP\_VE

ADDRESSSEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

SHDNSEL MODE	
0	INTEL TR MODE
✓ HIGH Z	AMD CPU/DIODE MODE
1	EXT.DIODE 2 MODE



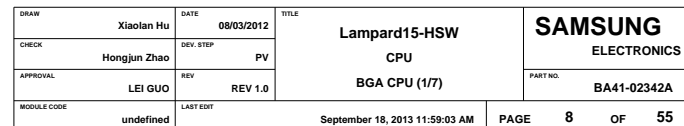
### FAN PEM



DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW THERMAL SENSOR THERMAL SENSOR EMC2112	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT				

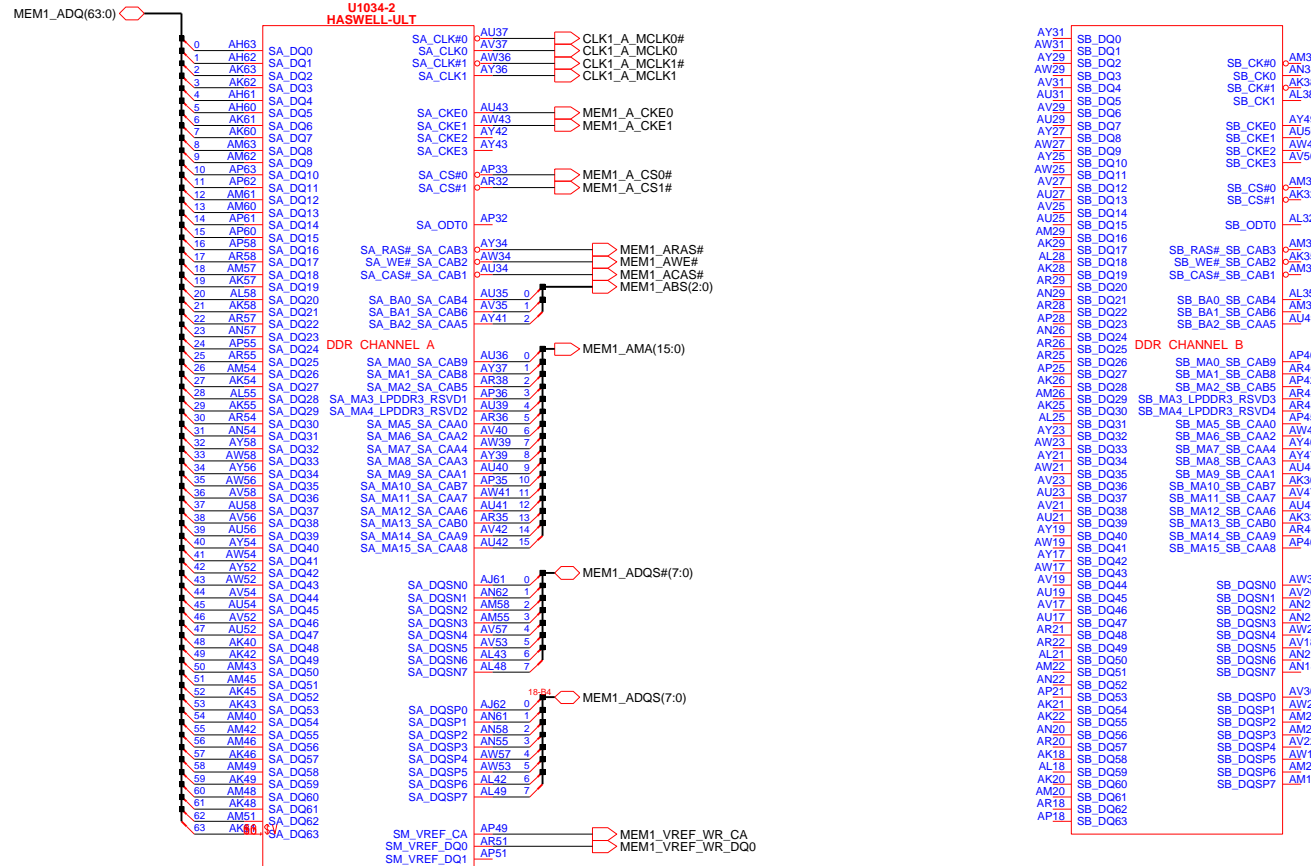
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# HASWELL\_ULT (2/7)

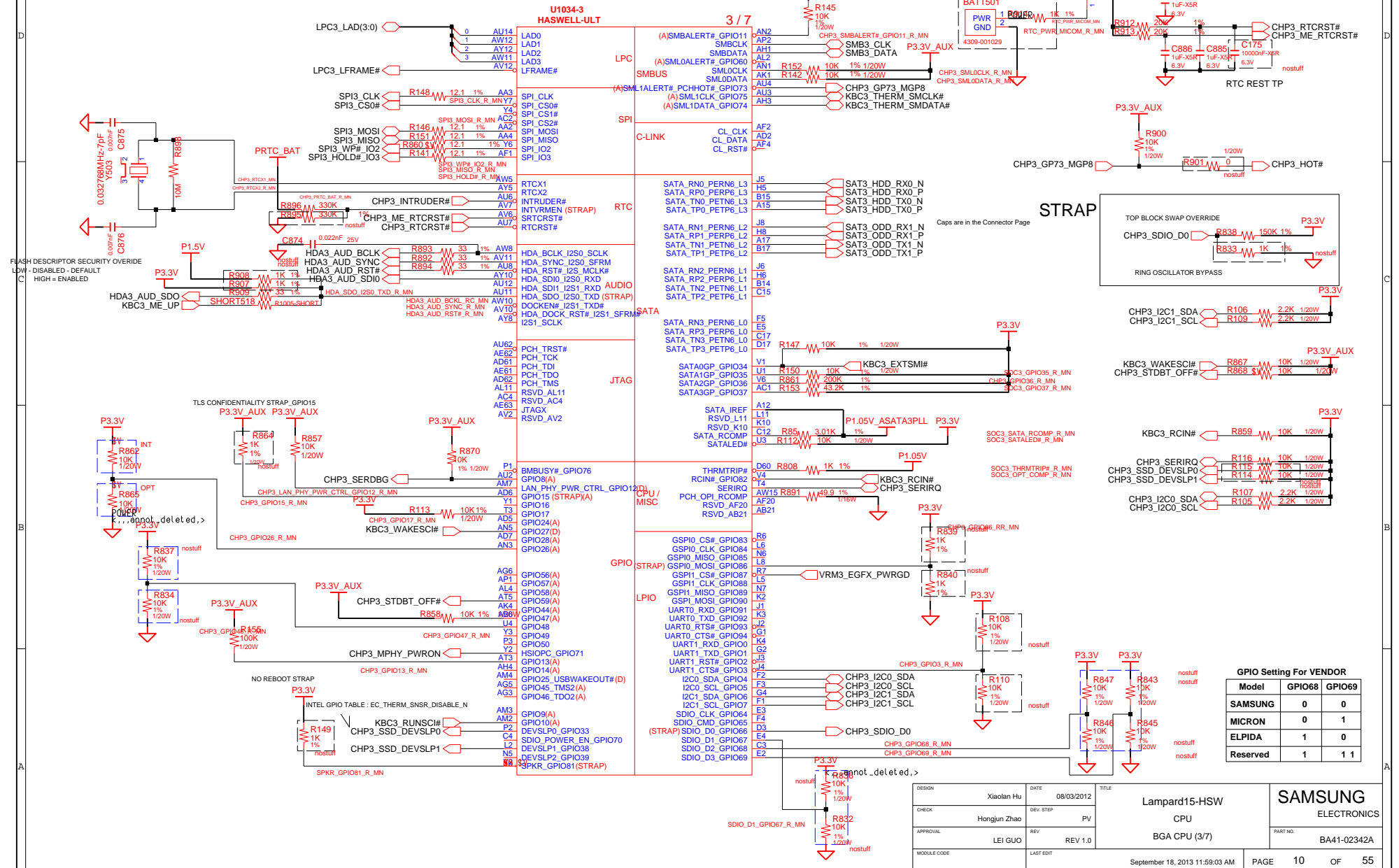


DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW CPU	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0		BGA CPU (2/7)	
MODULE CODE	undefined	LAST EDIT	September 18, 2013 11:59:03 AM	PAGE	9	OF 55

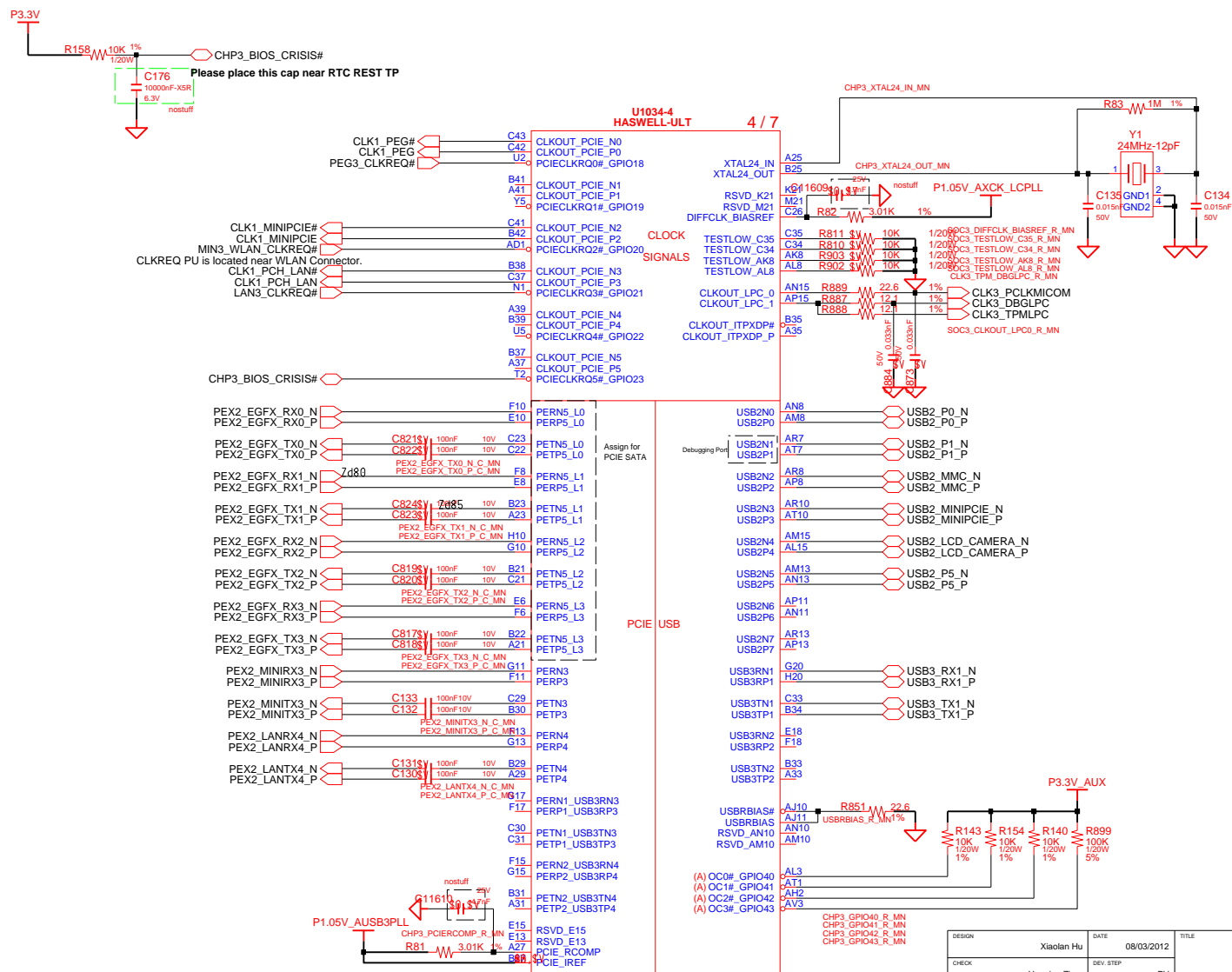
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# HASWELL\_ULT (3/7)



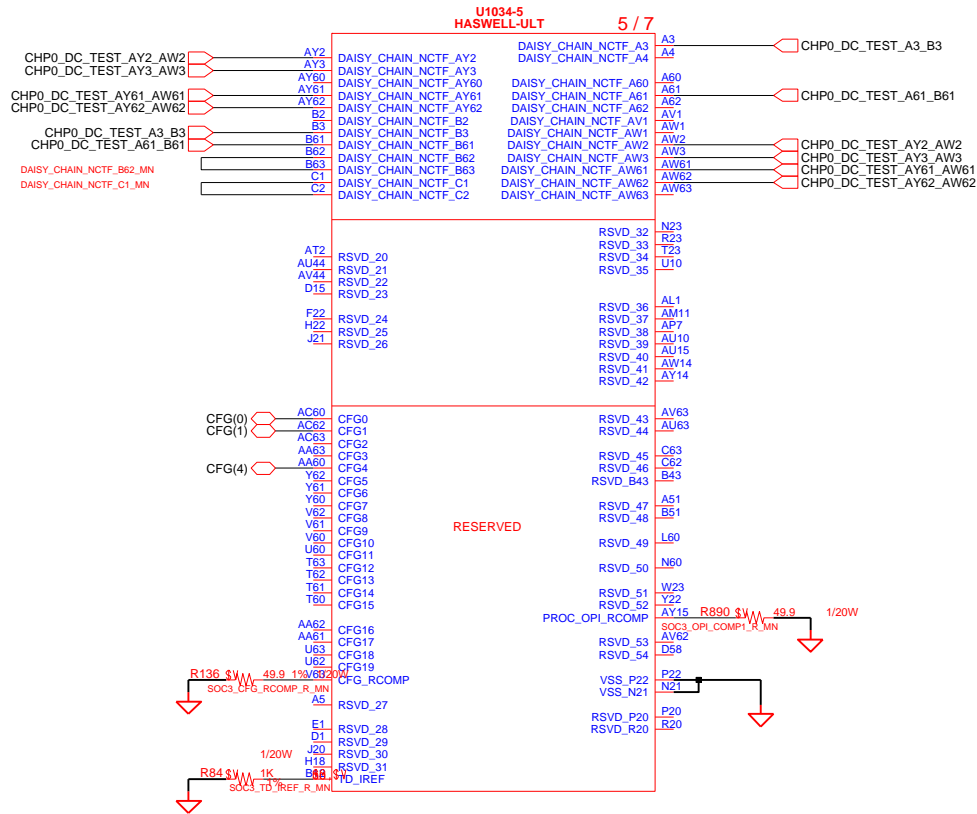
## HASWELL\_ULT (4/7)



DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE  Lampard15-HSW  CPU  BGA CPU (4/7)	SAMSUNG  ELECTRONICS	
CHECK	Hongjun Zhao	DEV. STEP	PV		PART NO.  BA41-02342A	
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE	LAST EDIT					
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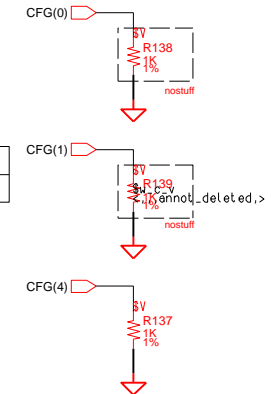
# HASWELL\_ULT (5/7)



EAR-STALL/NOT STALL RESET SEQUENCE  
AFTER PCU PLL IS LOCKED?  
CFG[0] 1: (DEFAULT) NORMAL OPERATION : NO STALL  
0: STALL

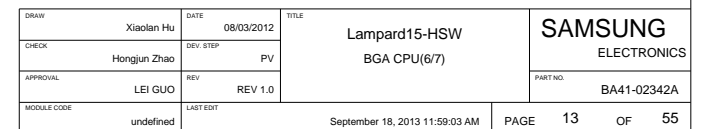
PCH/PCU LESS MODE SELECTION  
CFG[1] 1: (DEFAULT) NORMAL OPERATION  
0: PCH-LESS MODE

DISPLAY PORT PRESENCE STRAP  
CFG[4] 0: ENABLED  
1: DISABLED

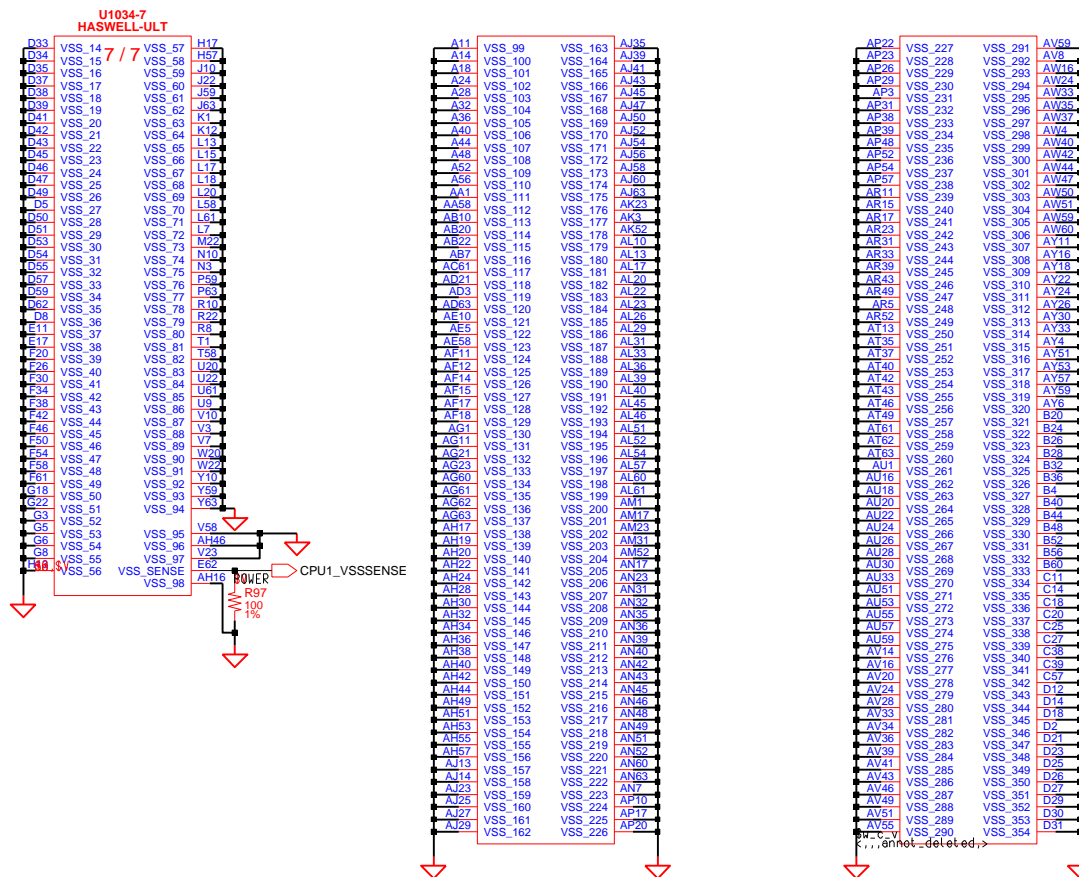



DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW CPU BGA CPU (5/7)	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	September 18, 2013 11:59:03 AM	PAGE	12	OF 55

## HASWELL\_ULT (6/7)



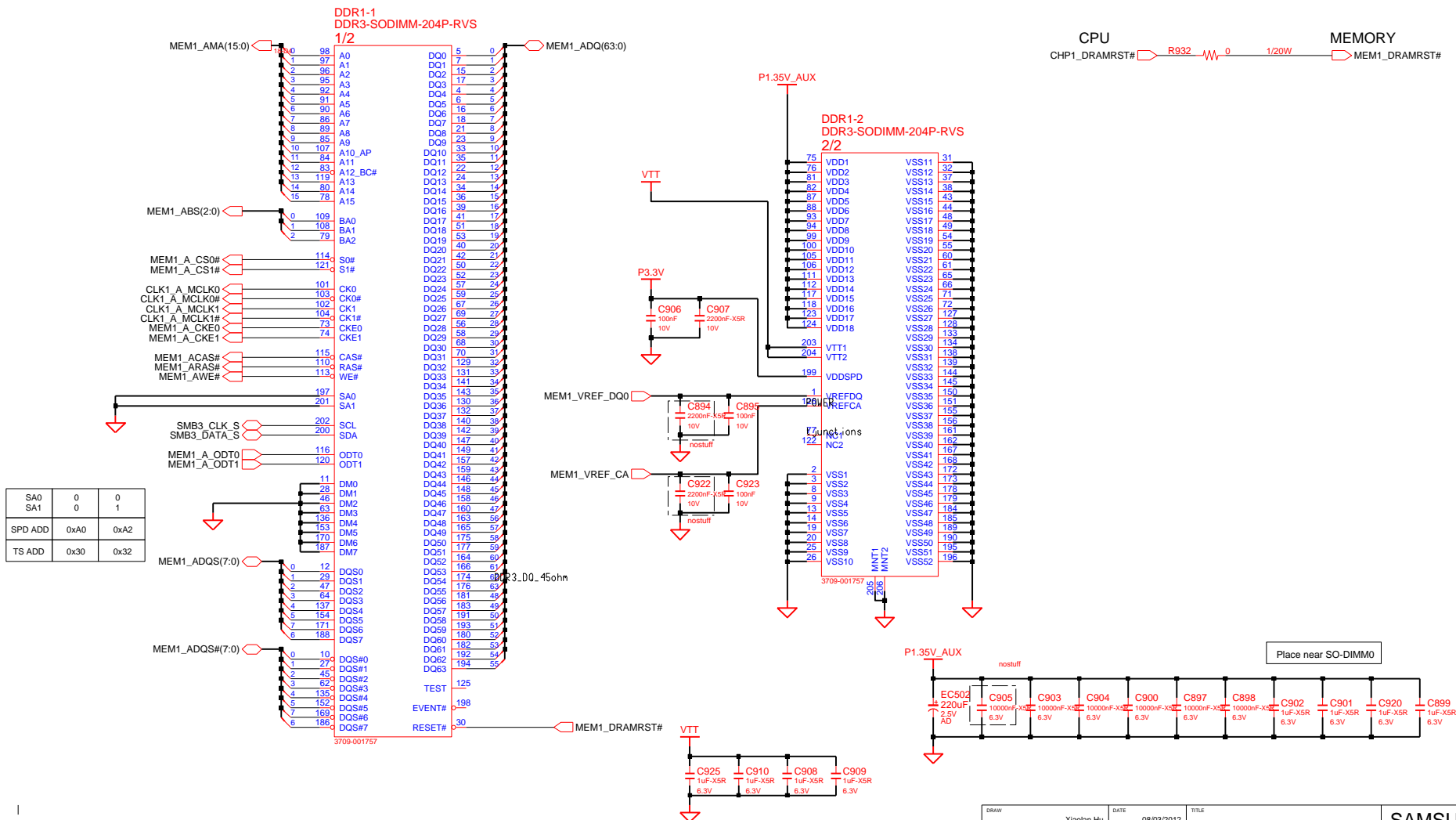
## HASWELL\_ULT (7/7)



DRAWN	Xiaolan Hu	DATE	08/03/2012	TITLE Lampard15-HSW BGA CPU(7/7)	
CHECK	Hongjun Zhao	DEV. STEP	PV		
APPROVAL	LEI GUO	REV	REV 1.0		
				PART NO.	
				BA41-02342A	
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## DDR SO-DIMM #0



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The schematic diagram illustrates the MEM1\_VREF circuit, which is divided into two main sections: MEM1\_VREF\_WR and MEM1\_VREF\_CA. Each section is powered by a P1.35V\_AUX supply and includes a resistor network and a capacitor.

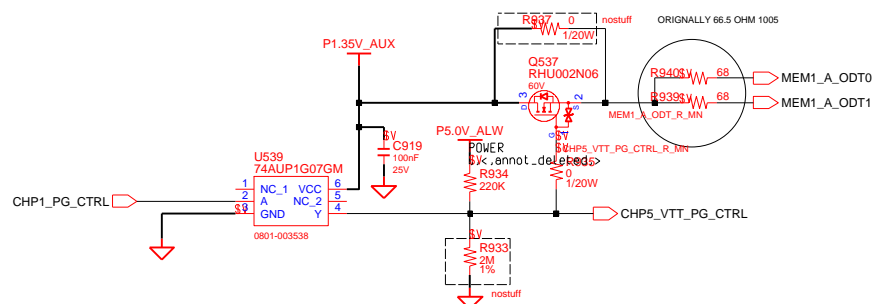
**MEM1\_VREF\_WR Section:**

- The input is MEM1\_VREF\_WR\_DQ0\_MN, which is connected to a capacitor C896 (22nF, 25V) and a resistor R923 (2.2k, 1%).
- The output is MEM1\_VREF\_WR\_DQ0, which is connected to a resistor R924 (1.8k, 1%) and a resistor R922 (1.8k, 1%).
- The resistor network is connected to the P1.35V\_AUX supply through a resistor R925 (24.9k, 1%).

**MEM1\_VREF\_CA Section:**

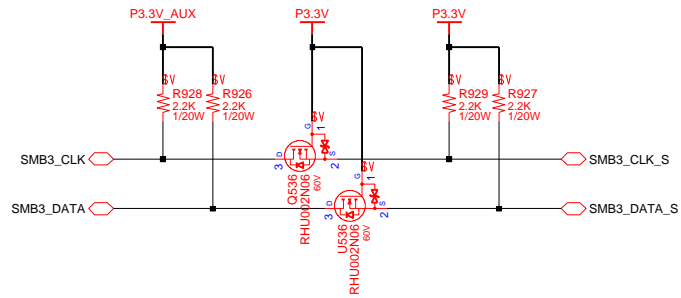
- The input is MEM1\_VREF\_CA\_MN, which is connected to a capacitor C921 (22nF, 25V) and a resistor R938 (2.2k).
- The output is MEM1\_VREF\_CA, which is connected to a resistor R941 (1.8k, 1%) and a resistor R942 (1.8k, 1%).
- The resistor network is connected to the P1.35V\_AUX supply through a resistor R936 (24.9k, 1%).

Place between two memory Connector



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CHECK	Hongjun Zhao	DEV. STEP	PV		
APPROVAL	LEI GUO	REV	REV 1.0		
				PART NO.	BA11-02342A
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 17 OF 55

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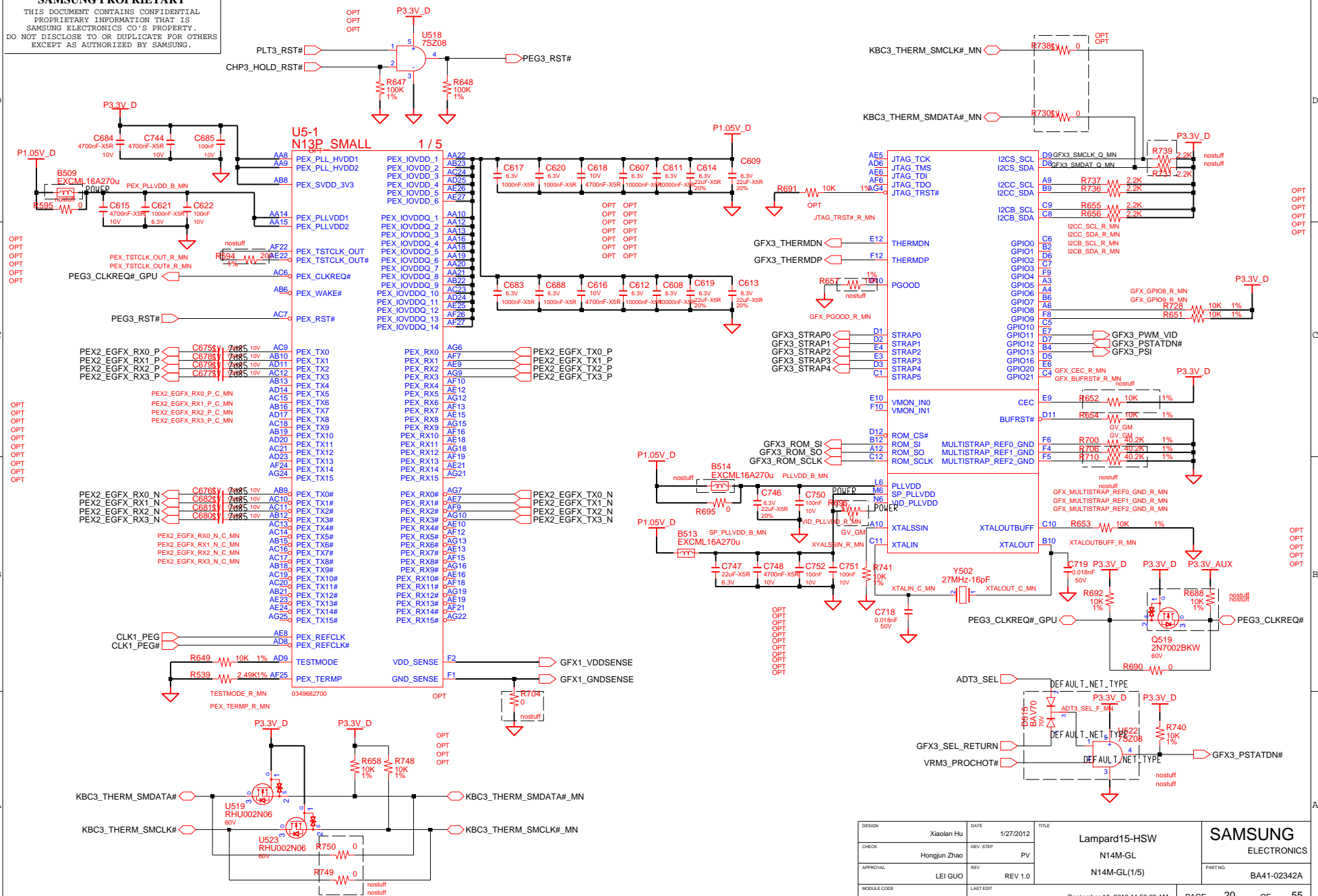


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CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE	undefined	LAST ENT	September 18, 2013 11:59:03 AM	PAGE	18	OF 55

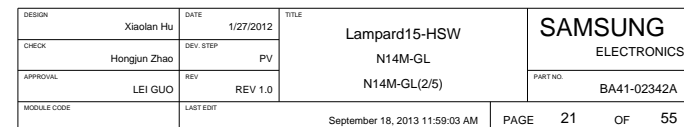
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DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE	LAST EDIT		September 18, 2013 11:59:03 AM		PAGE	19 OF 55

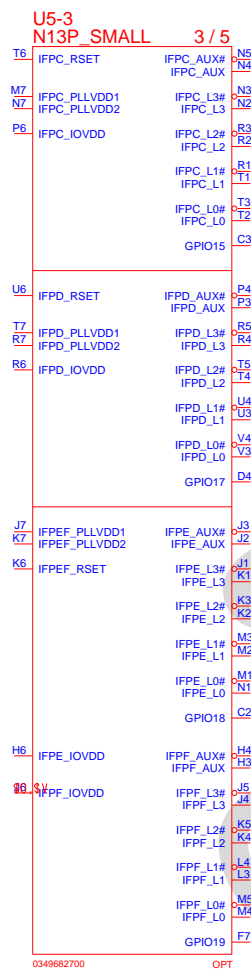
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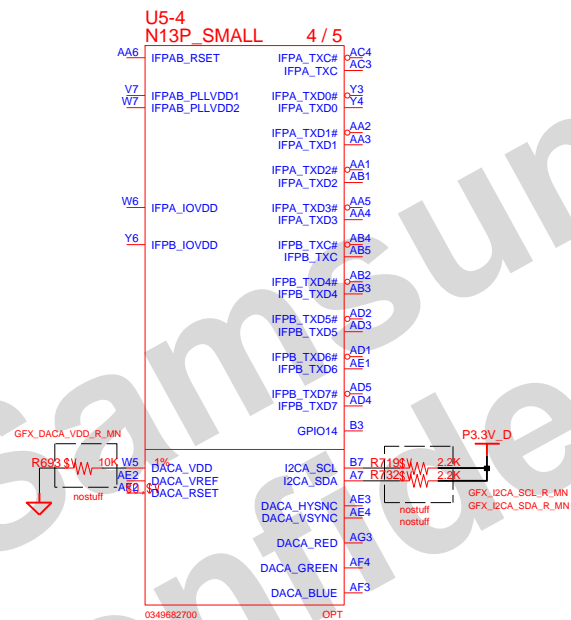


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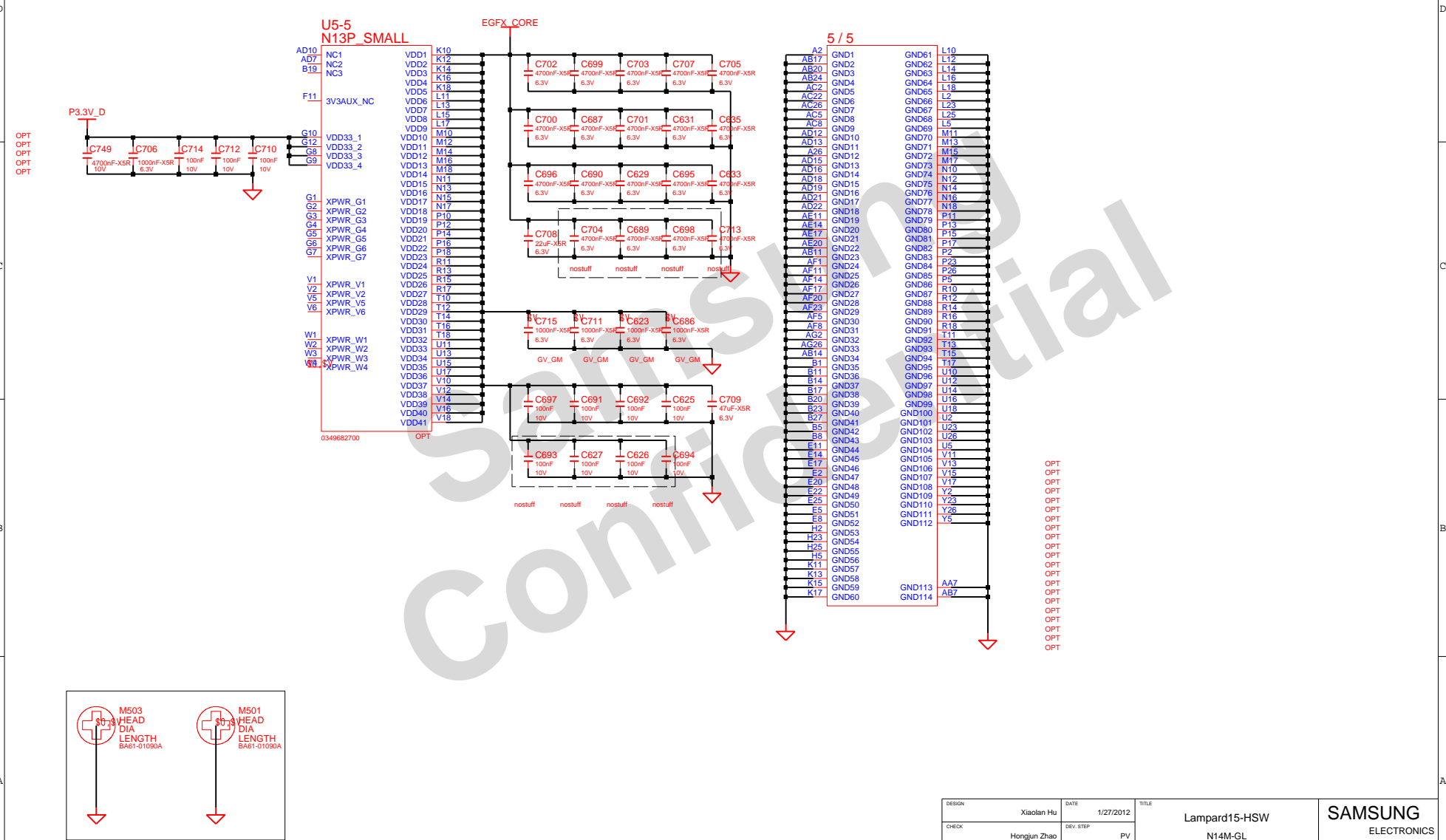
DESIGN	Xiaolan Hu	DATE	1/27/2012	TITLE Lampard15-HSW N14M-GL N14M-GL(3/5)	<b>SAMSUNG</b> ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV		
APPROVAL	LEI GUO	REV	REV 1.0		
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CHECK	Hongjin Zhao	DEV. STEP	PV		
APPROVAL	LEI GUO	REV	REV 1.0		
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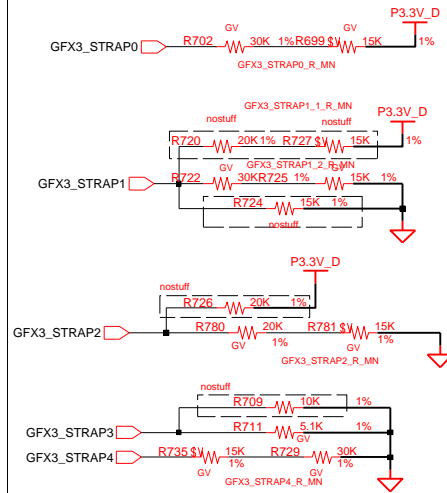


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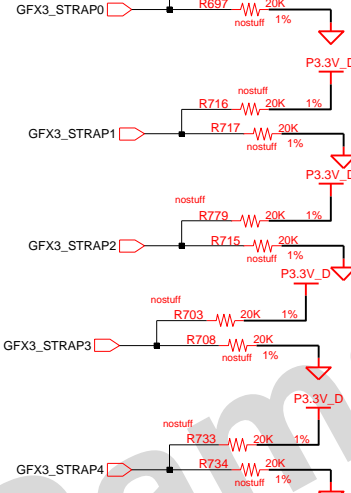
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## N15x STRAP

### N15S-GV

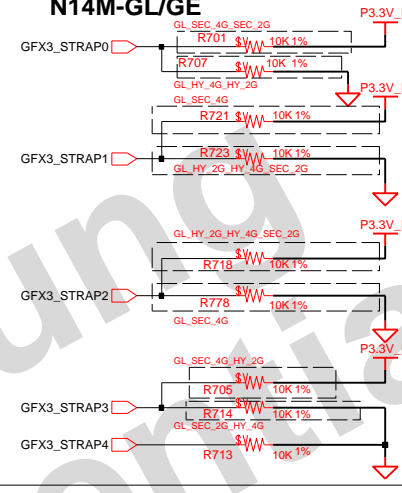


### N15S-GM



### Binary Mode

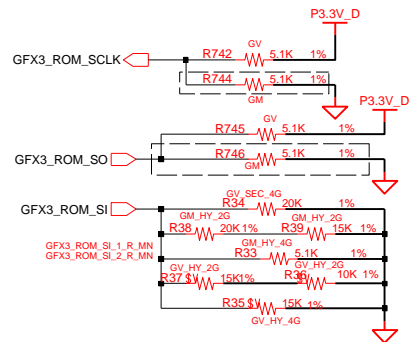
#### N14M-GL/GE



Memory	SEC 2Gbit	SEC 4Gbit	Hynix 2Gbit_F	Hynix 4Gbit_A
STRAP 3	PD	PU	PU	PD
STRAP 2	PU	PD	PU	PU
STRAP 1	PD	PU	PD	PD
STRAP 0	PU	PU	PD	PD

STRAP4 PCIE\_MAX\_SPEED - PD

### Function Straps

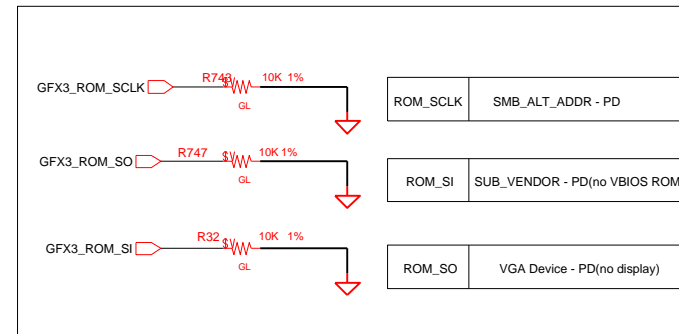


STRAP0	User Strap EDID is used Customer defined	1111 1000 - 1100 0000 - 0001 0010
STRAP1	GPU PCIe Interface Strap NotePC Desktop	0110 0000
ROM_SO	Int PCIe Clock - 277MHz(default) Aperture Size - 256MB(default) I2C Address of GPU - 0x9E(default) Device Type - VGA device(default)	
ROM_SI	Memory Configuration : Samsung 256M x 16 gDDR3 Samsung 128M x 16 gDDR3	0011 0111

Memory	Hynix 2Gbit_D	SEC 4Gbit	Hynix 4Gbit_M	Hynix 2Gbit_F	Hynix 4Gbit_A
GV_ROM_SI	NA	PD 20K(0X3)	NA	PD 25K(0X4)	PD 15K(0X2)
GM_ROM_SI	NA	NA	NA	PD 35K(0X6)	PD 5K(0X0)

RESISTOR	PULL UP	PULL DOWN
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

STRAP PIN	BIT 3	BIT 2	BIT 1	BIT 0
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
ROM_SO	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM



ROM_SCLK	SMB_ALT_ADDR - PD
ROM_SI	SUB_VENDOR - PD(no VBIOS ROM)
ROM_SO	VGA Device - PD(no display)

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CHECK	Hongjun Zhao	DEV. STEP	PV		GRAPHIC STRAP	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		GRAPHIC STRAP	PART NO.
MODULE CODE		LAST EDIT				BA41-02342A
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DESIGN	DATE	TITLE
Xiaolen Hu	1/27/2012	Lampard15-HSW
DEV. STEP	PV	MEM for GPU
Hongjun Zhao	REV	CRASHING MEM A #0
APPROVAL		

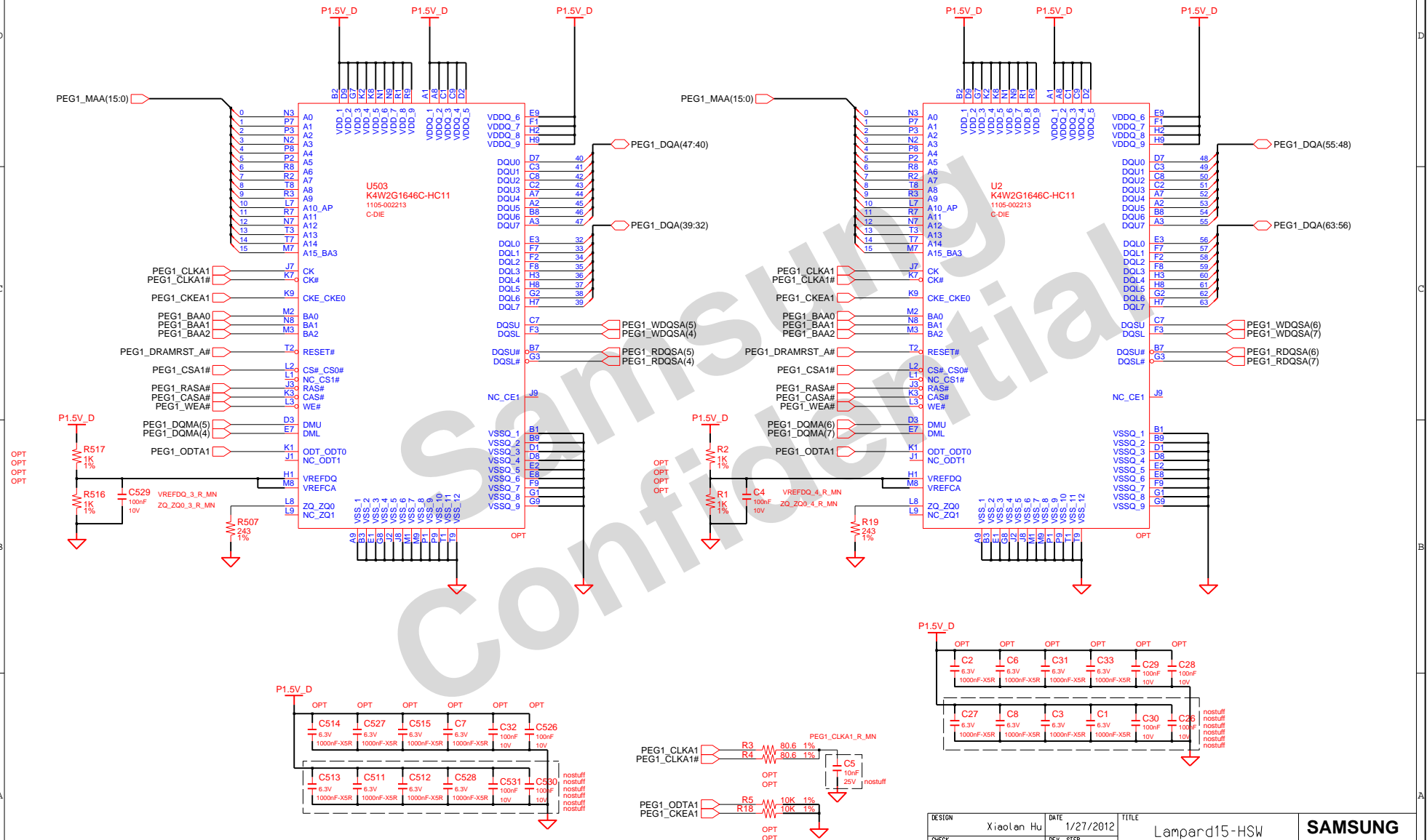
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## A-Channel #1 (D-mode)



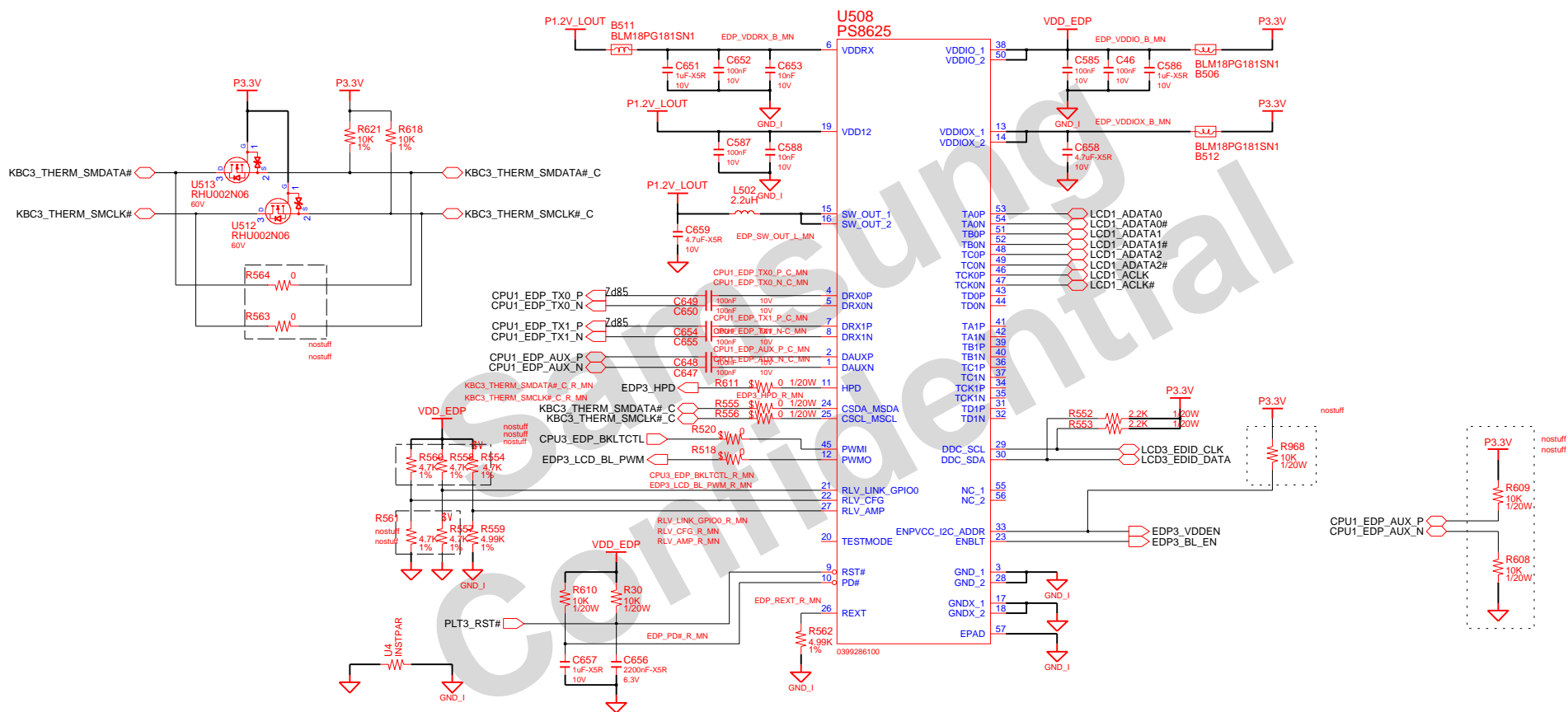
DESIGN	Xiaolan Hu	DATE	1/27/2012	TITLE	Lampard15-HSW
CHECK	Hongjun Zhao	DEV. STEP	PV		MEM for GPU
APPROVAL	LEI GUO	REV	REV 1.0		GRAPHIC_MEM A #1
MODULE CODE		LAST EDIT	September 18, 2013 11:59:03 AM	PAGE	27 OF 55


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# eDP to LVDS



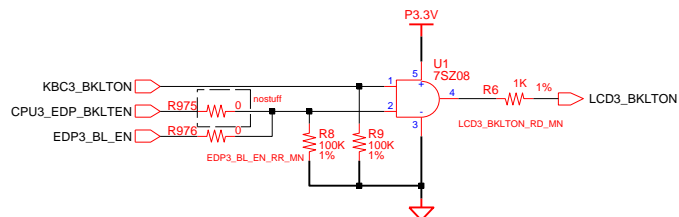
DESIGN	Xiaolan Hu	DATE	08/03/2012	Lampard15-HSW GRAPHIC_I/F eDP to LVDS IC	
CHECK	Hongjun Zhao	DEV. STEP	PV		
APPROVAL	LEI GUO	REV	REV 1.0		
MODULE CODE	LAST EDIT		September 18, 2013 11:59:03 AM		

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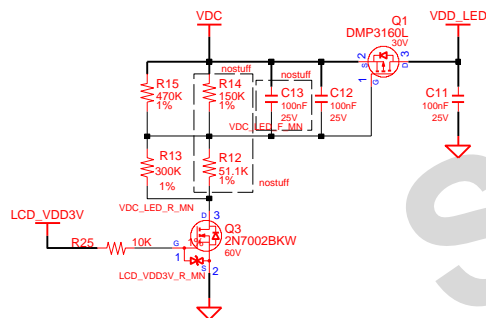
## LVDS LOGIC

### Backlight On

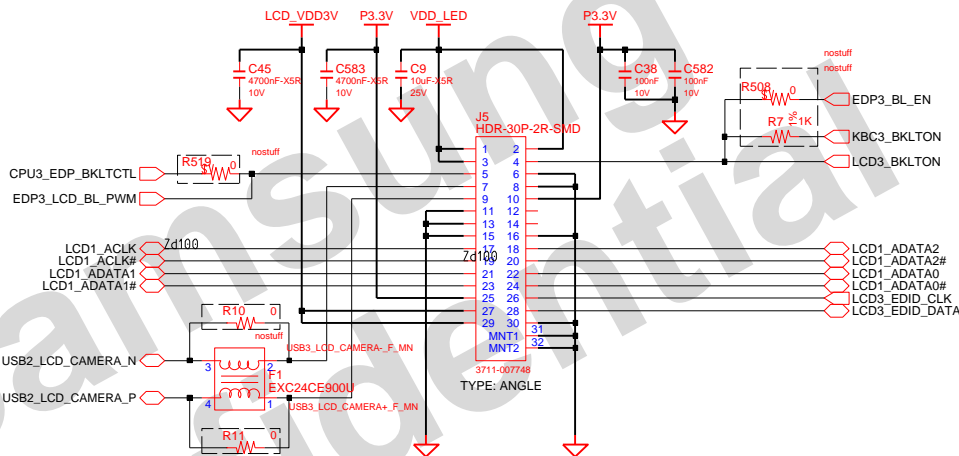
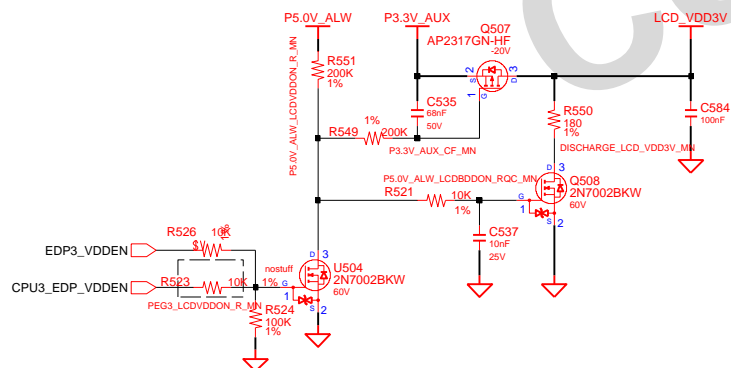


### 1Ch. LCD Connector + CAMERA + INT MIC

### LED Power



### LCD Power



USB signal stub should be less than 100mil

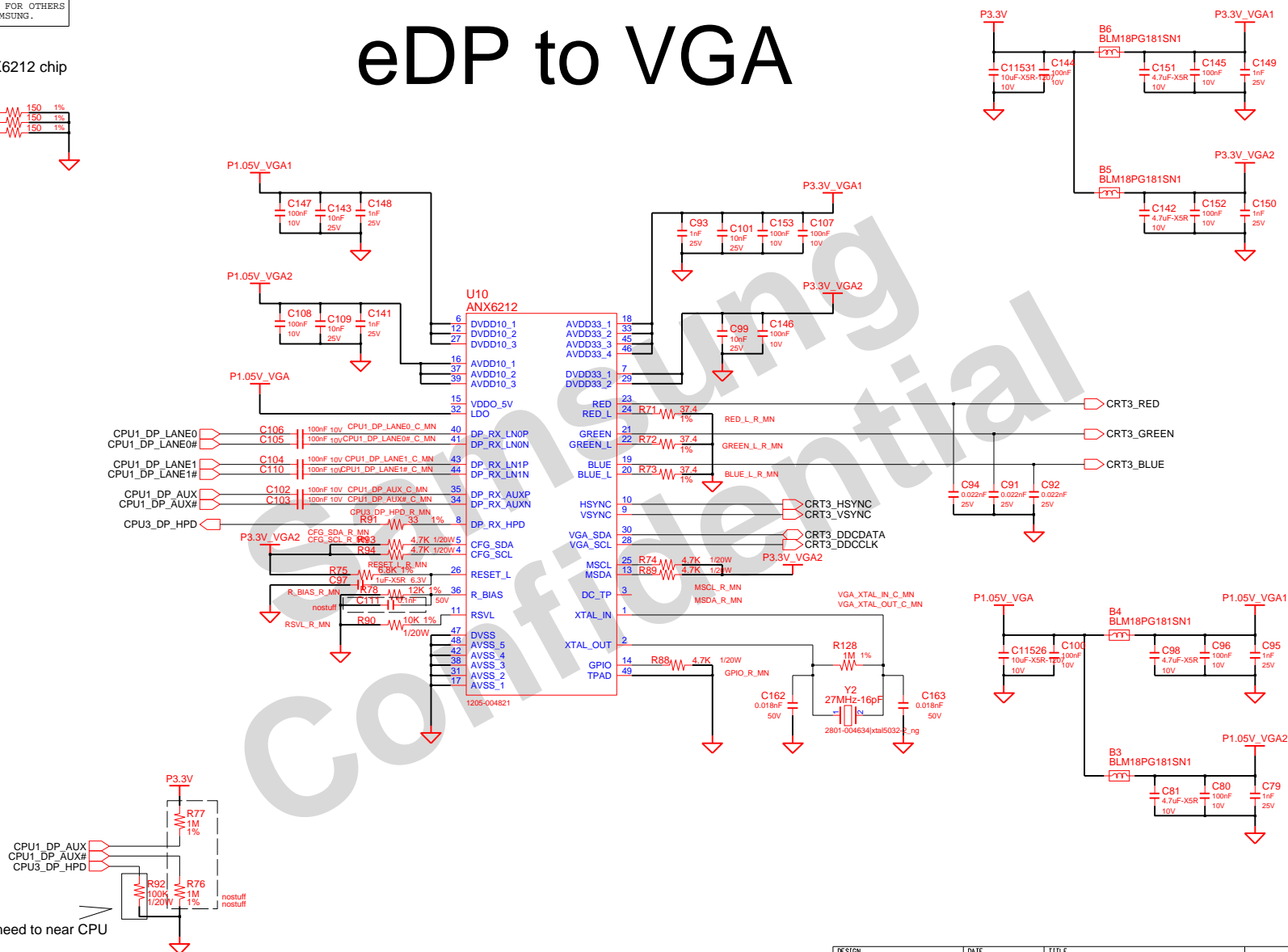
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CHECK	Hongjun Zhao	DEV. STEP	PV		GRAPHIC_IF	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		LVDS	PART NO.
MODULE CODE		LAST EDIT				BA41-02342A
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CRT3\_BLUE R68 150 1%

CRT3\_GREEN R69 150 1%

CRT3\_RED R70 150 1%

# eDP to VGA



DESIGN	Xigolan Hu	DATE	08/03/2012	TITLE Lampard15-HSW GRAPHIC_1F eDP to VGA IC	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV		
APPROVAL	LEI GUO	REV	REV 1.0		
MODULE CODE		LAST EDIT	September 18, 2013 11:59:03 AM		
				PAGE	30 OF 55

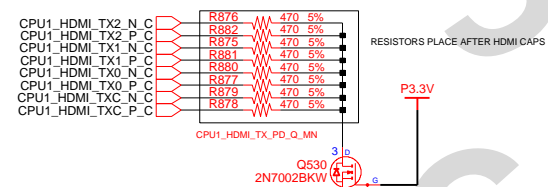
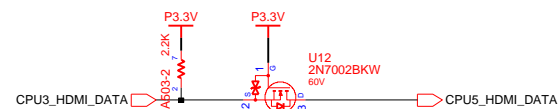
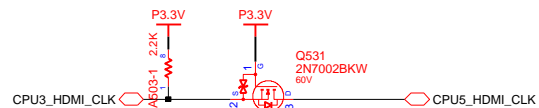
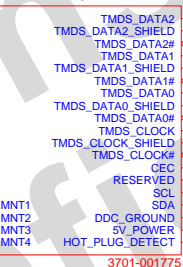
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# HDMI

**FOR HDMI VERIFICATION TEST****HDMI-19P-FEMALE**

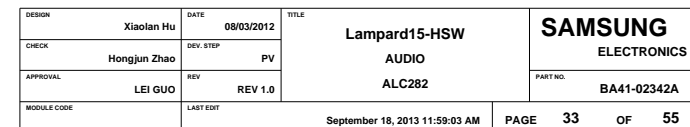
N10x/N11x\_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-02342A
CHECK	Hongjun Zhao	DEV. STEP	PV		GRAPHICS_IF	
APPROVAL	LEI GUO	REV	REV 1.0		HDMI	
MODULE CODE		LAST EDIT				
September 18, 2013 11:59:03 AM						PAGE 32 OF 55



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Trace width : 50mil



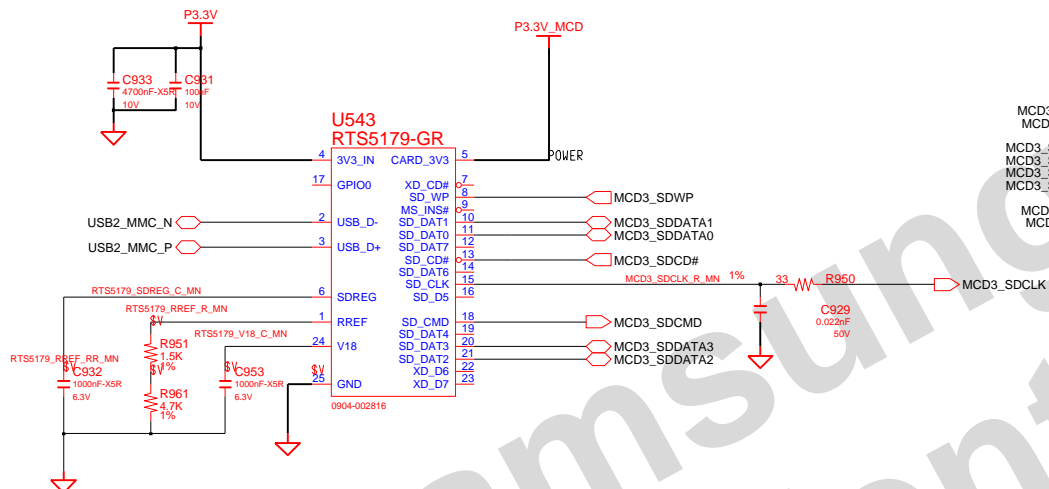
HD AUDIO

# HD AUDIO

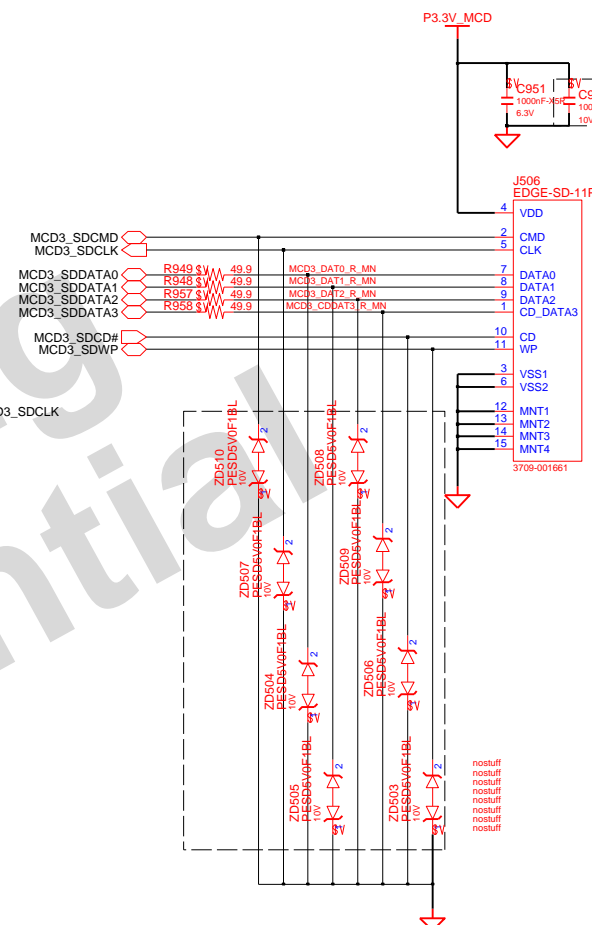
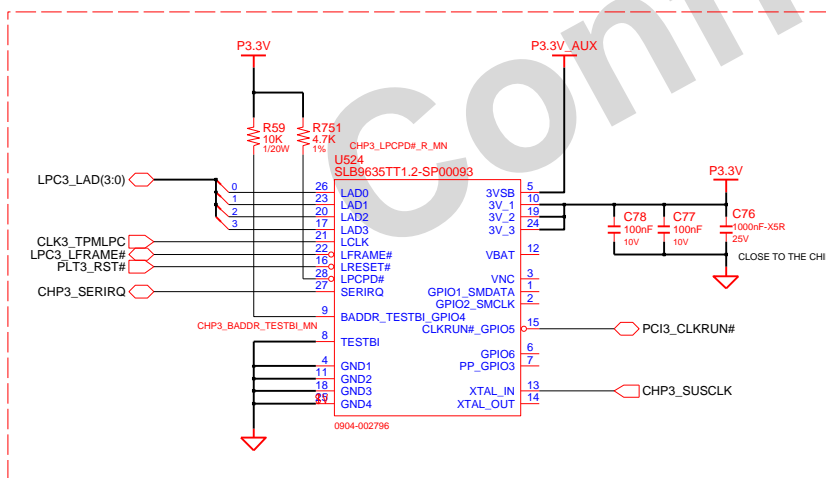
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# 3IN1 (SD3.0)

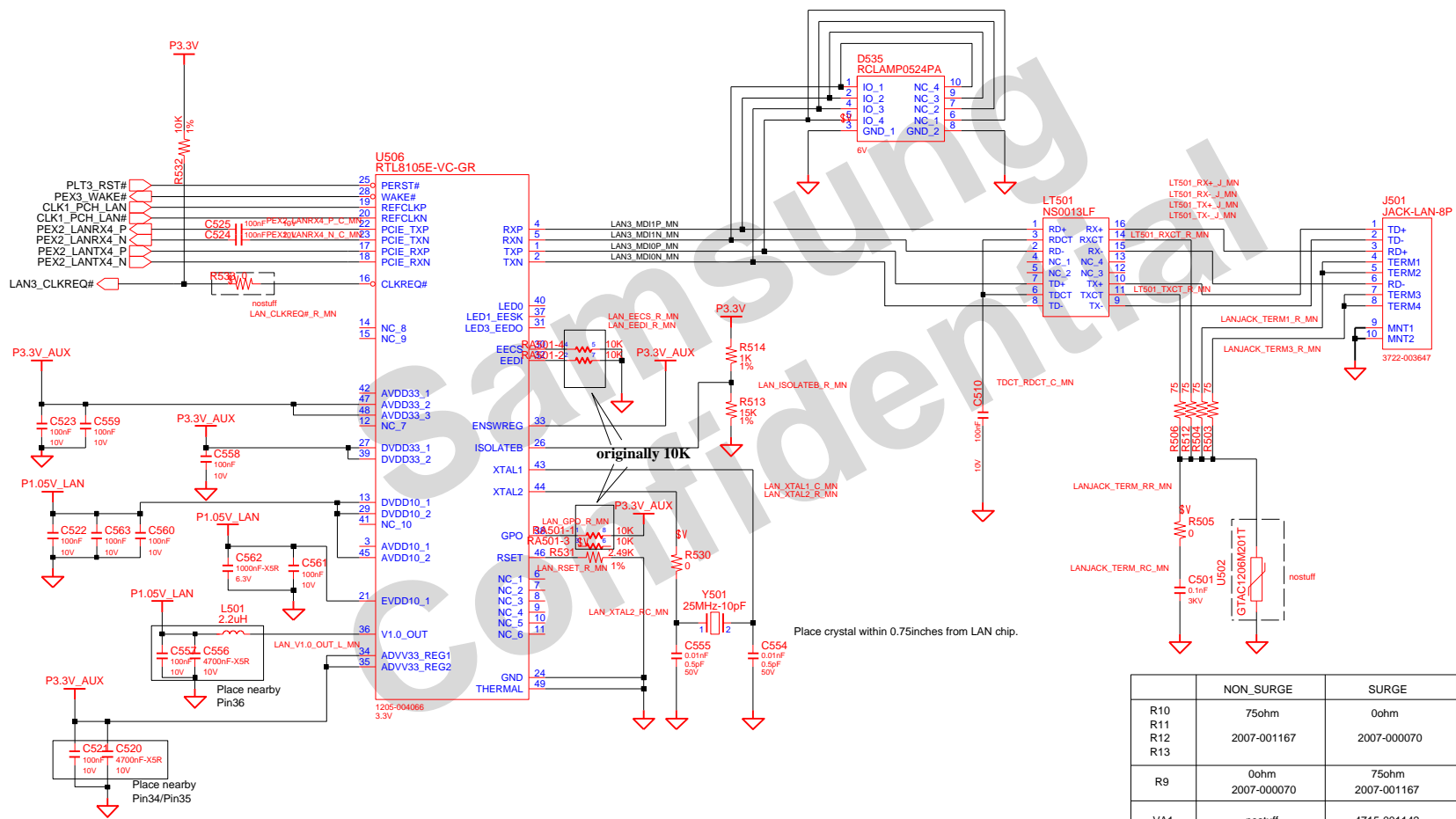


# TPM1.2



DESIGN	Xiaolan Hu	DATE	08/03/2012	Lampard15-HSW	SAMSUNG ELECTRONICS					
CHECK	Hongjun Zhao	DEV. STEP	PV							
APPROVAL	LEI GUO	REV	REV 1.0							
								PART NO.	BA41-02342A	
MODULE CODE		LAST EDIT			September 18, 2013 11:59:03 AM		PAGE	35	OF	55

# Realtek RTL8105E



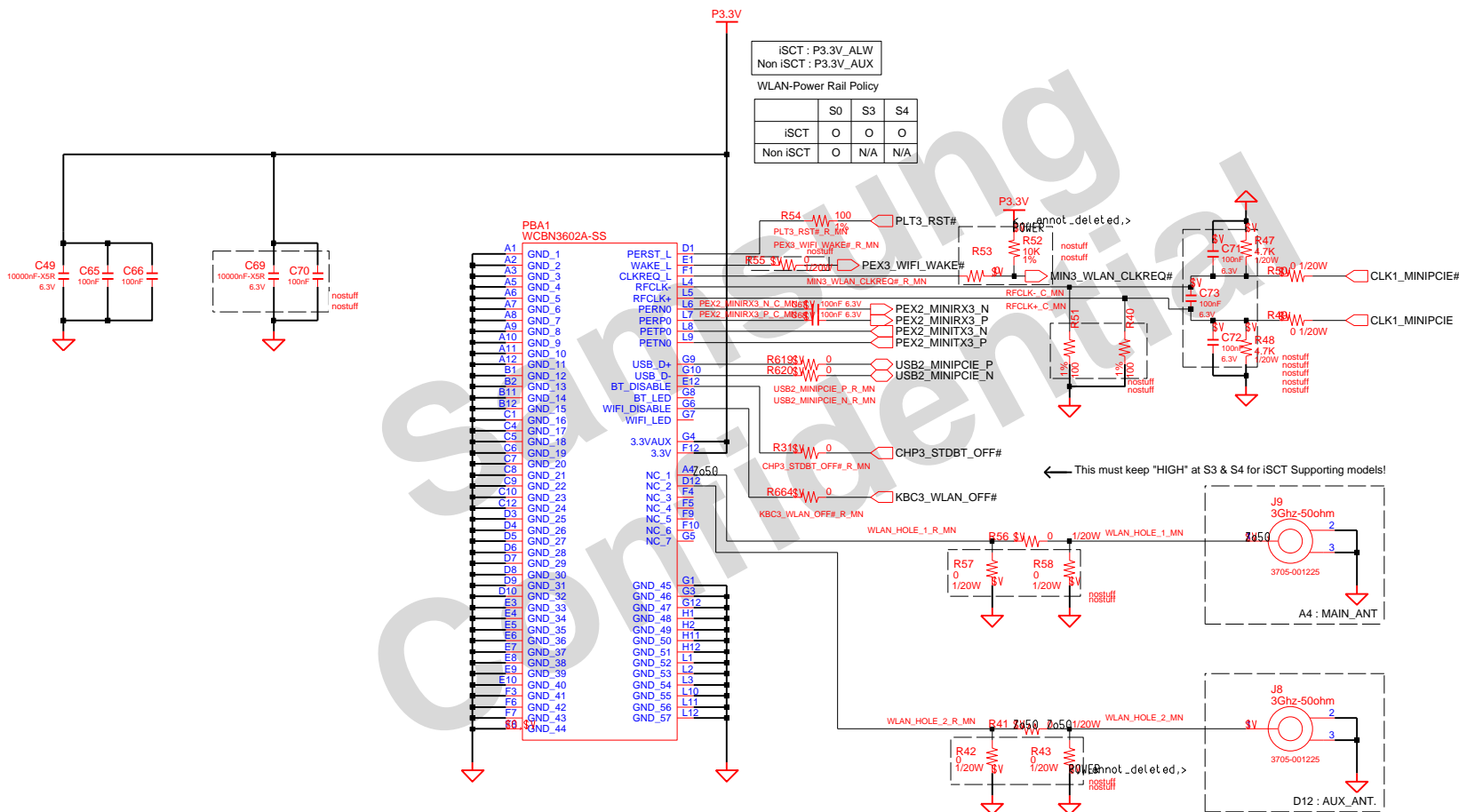
	NON_SURGE	SURGE
R10 R11 R12 R13	75ohm 2007-001167	0ohm 2007-000070
R9	0ohm 2007-000070	75ohm 2007-001167
VA1	nostuff	4715-001142

DESIGN	Xiaolan Hu	DATE	09/03/2012	Lampard15-HSW LAN LAN_Realtek_RTL8105E	SAMSUNG ELECTRONICS		
CHECK	Hongjun Zhao	DEV. STEP	PV				
APPROVAL	LEI GUO	REV	REV 1.0			PART NO.	BA41-02342A
MODULE CODE	LAST EDIT					September 18, 2013 11:59:03 AM	PAGE 36 OF 55

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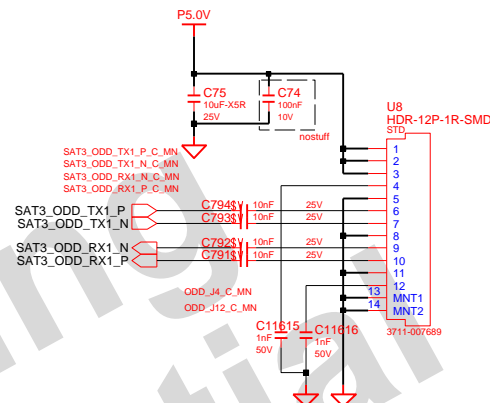
## WLAN\_MOB(MD335)



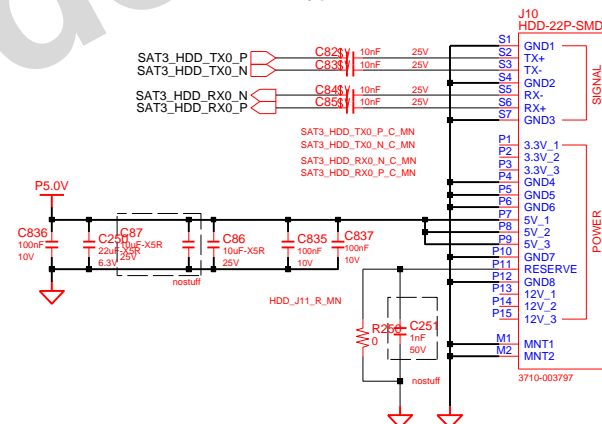
DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG
CHECK	Hongjun Zhao	DEV. STEP	PV		WLAN	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		WLAN	PART NO.
MODULE CODE		LAST EDIT				BA41-02342A
				September 18, 2013 11:59:03 AM	PAGE	37 OF 55

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**SATA ODD CONN****SATA HDD CONN**

Cable Connector Type



DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV		SATA I/F	
APPROVAL	LEI GUO	REV	REV 1.0		SATA I/F	
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 38 OF 55	PART NO. BA41-02342A

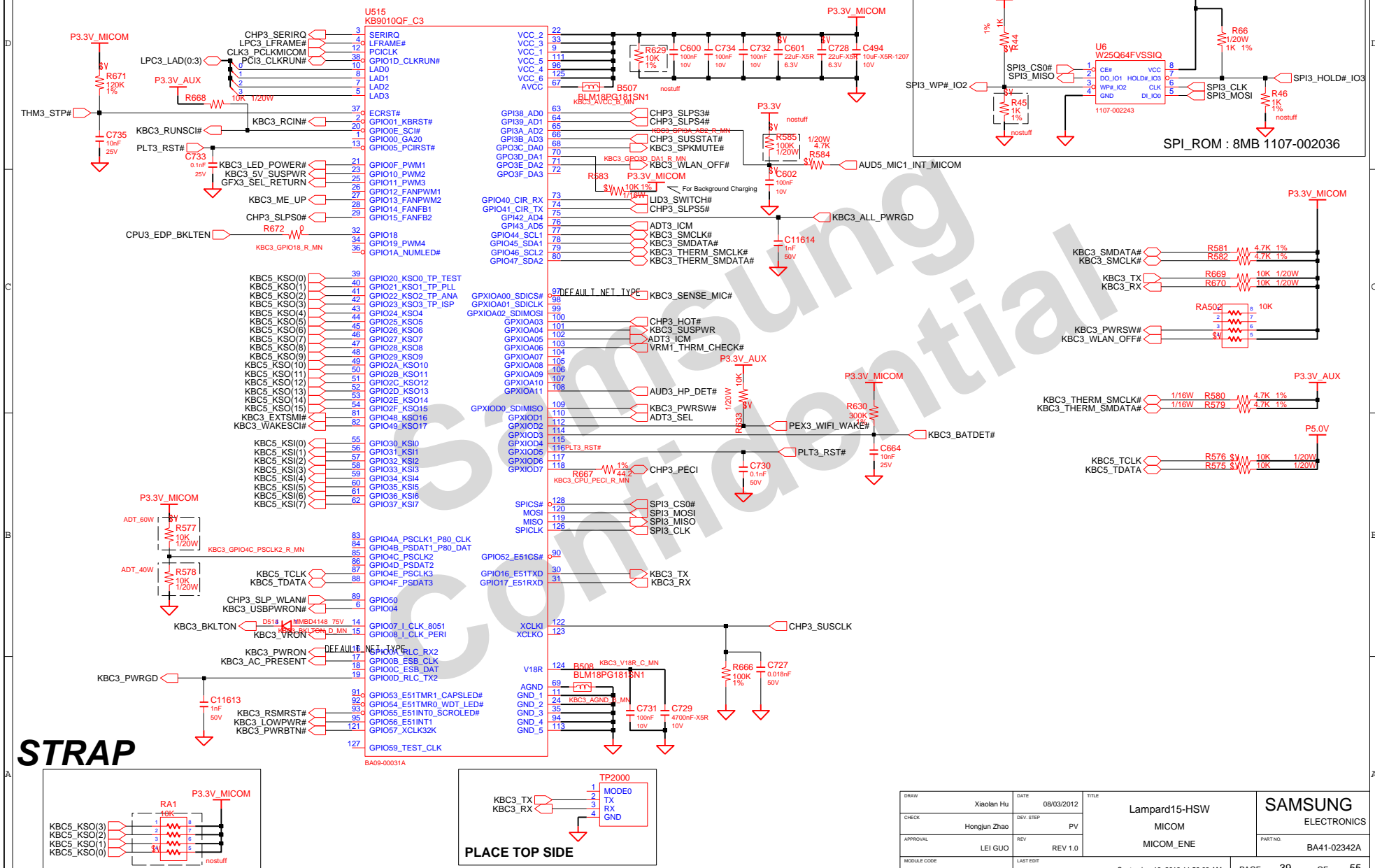
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## MAIN BOARD (MICOM)

BE CAUTION SPI ROM SIZE!!

SPI\_ROM\_SOCKET



STRAP

PLACE TOP SIDE

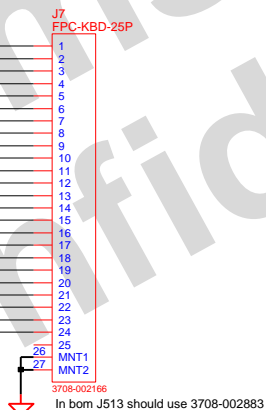
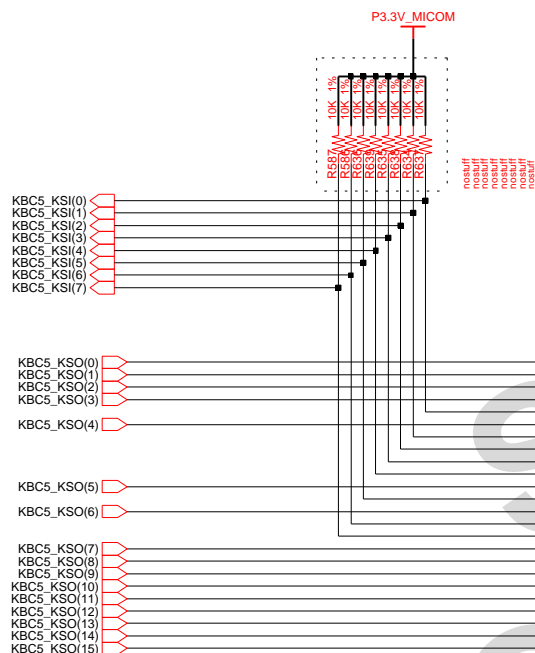
DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG
CHECK	Hongjun Zhao	DEV. STEP	PV		MICOM	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		MICOM_ENE	PART NO.
MODULE CODE		LAST EDIT				BA41-02342A
September 18, 2013 11:59:03 AM						PAGE 39 OF 55

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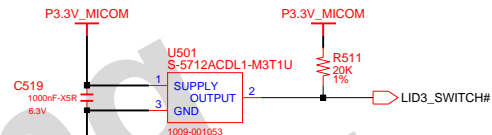
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## Micom Glue

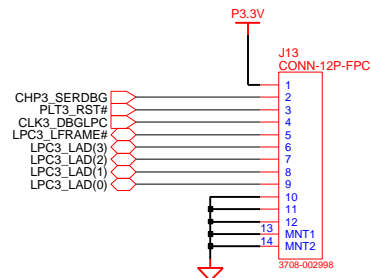
### KEYBOARD



### LID3\_SWITCH



### 80H PORT DEBUG



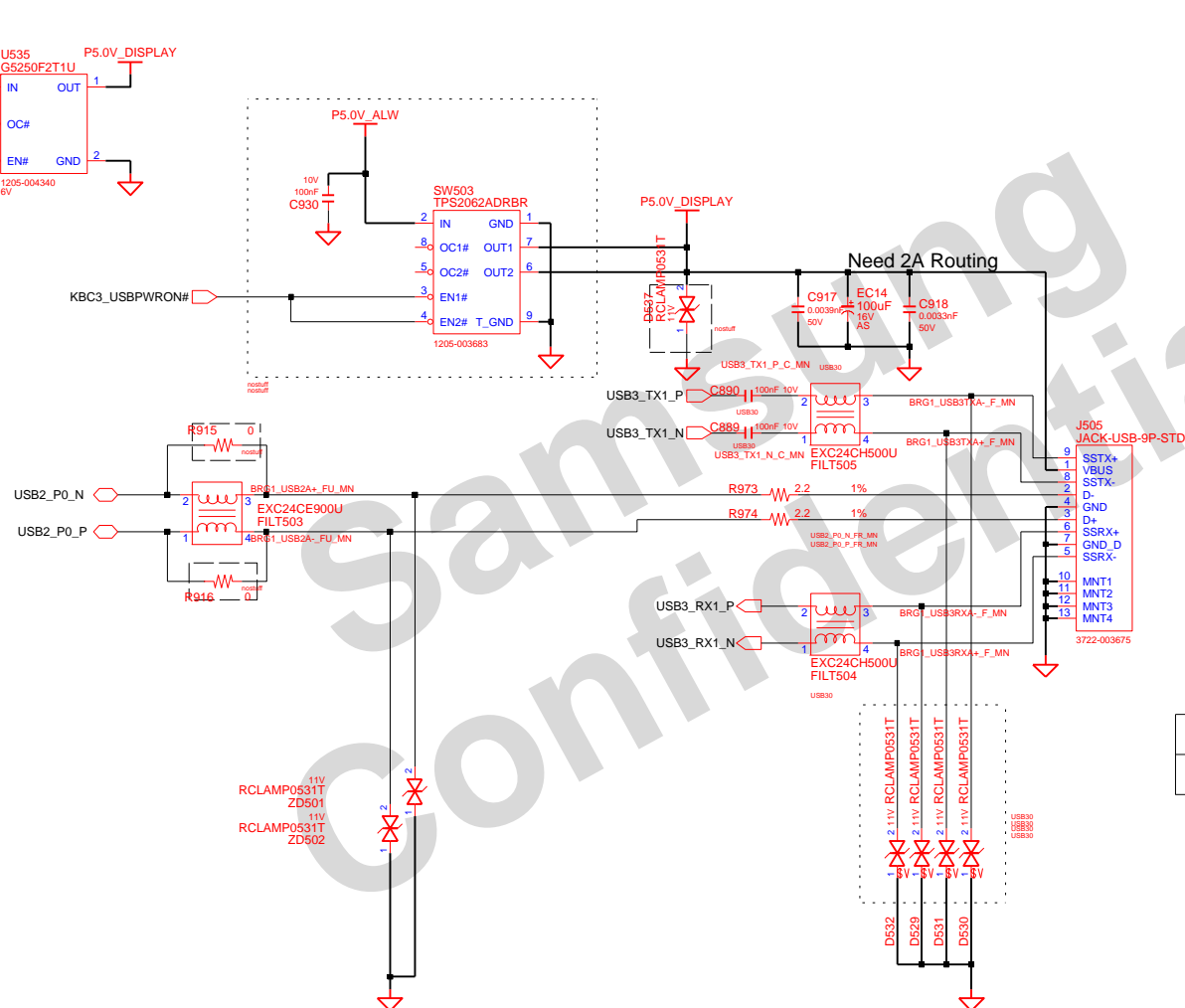
DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG
CHECK	Hongjun Zhao	DEV. STEP	PV		MICOM	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		MICOM GLUE LOGIC	PART NO. BA41-02342A
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 40	OF 55



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## USB 3.0 CONNECTOR



	USB3.0(HM76&HM70)	USB2.0(HM75&NM70)
J504	3722-003675	3722-003673

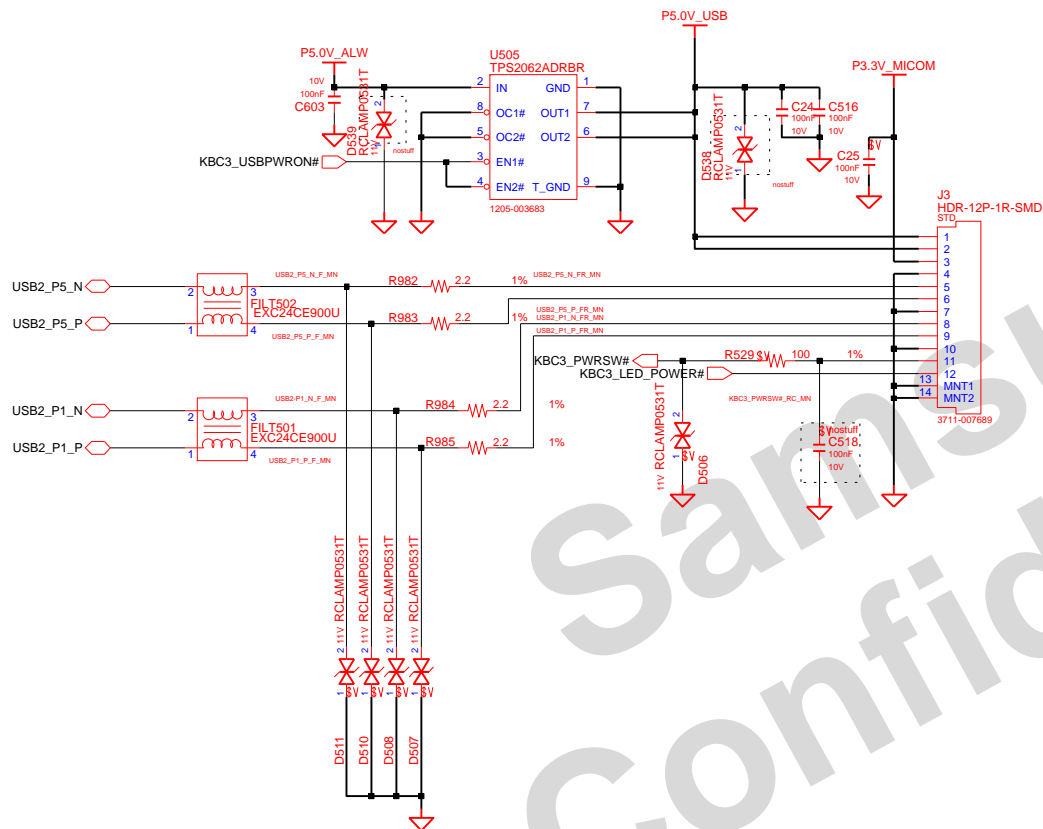
DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW USB3.0 USB 3.0 CONNECTOR	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 41 OF 55	

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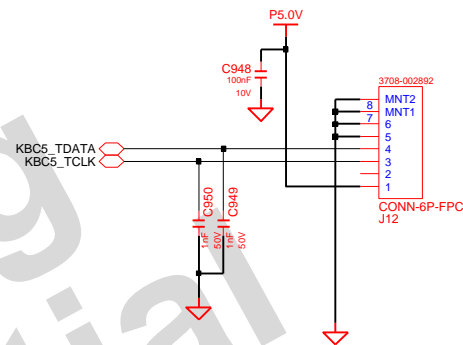
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## MAIN TO SUB

### MAIN to 4-in-1 / USB SUB



### TOUCHPAD MAIN TO SUB

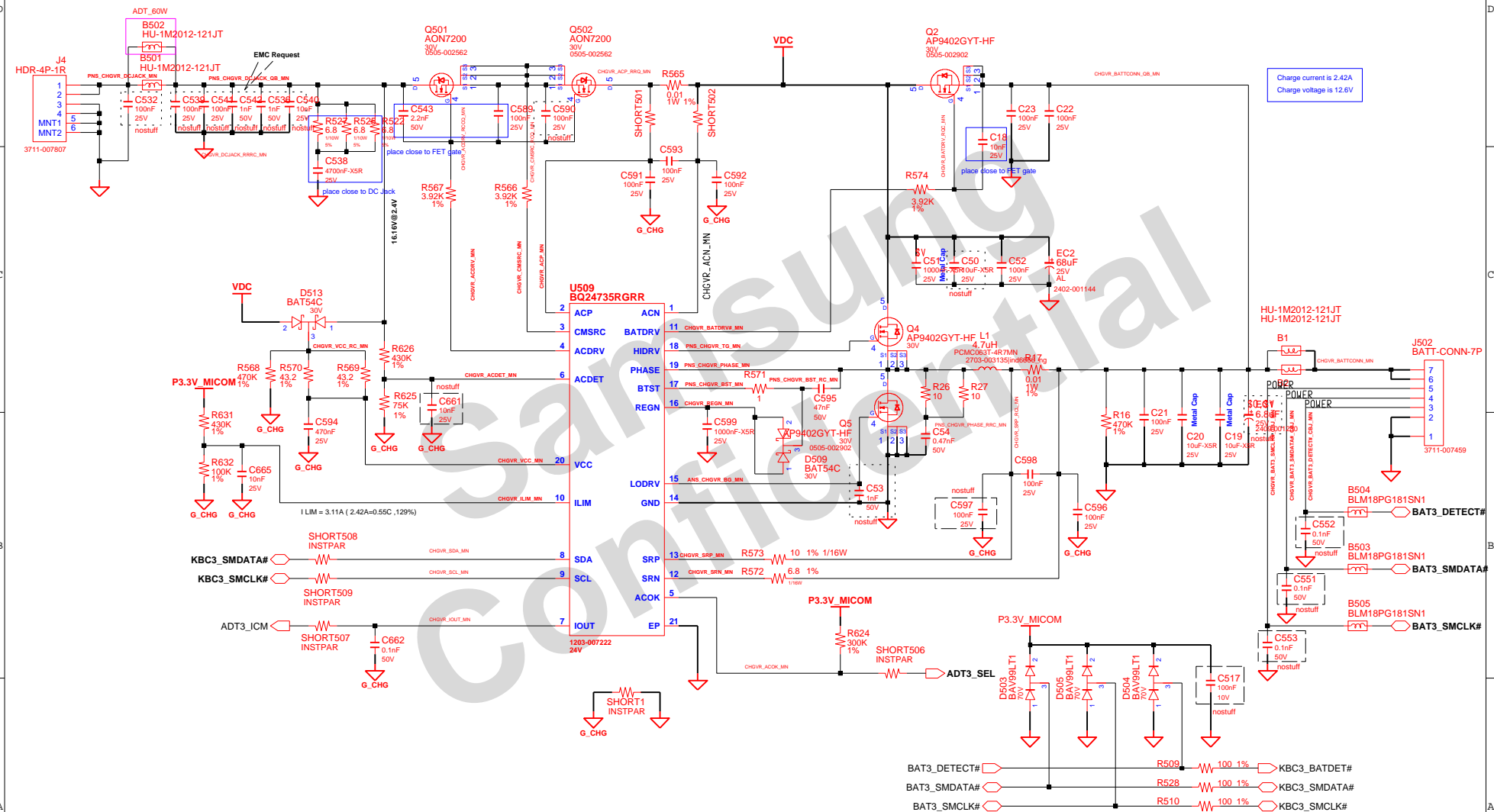


DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW SUB BOARD CONNECTOR	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0		MAIN TO SUB	
MODULE CODE		LAST EDIT	September 18, 2013 11:59:03 AM	PAGE	42	OF 55

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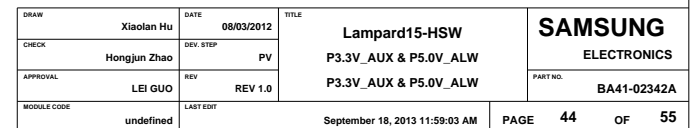
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# CHARGER & POWER MANAGEMENT



DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV		CHARGER PWR	
APPROVAL	LEI GUO	REV	REV 1.0		TI BQ24735RGR	
MODULE CODE		LAST EDIT				
September 18, 2013 11:59:03 AM						PAGE 43 OF 55

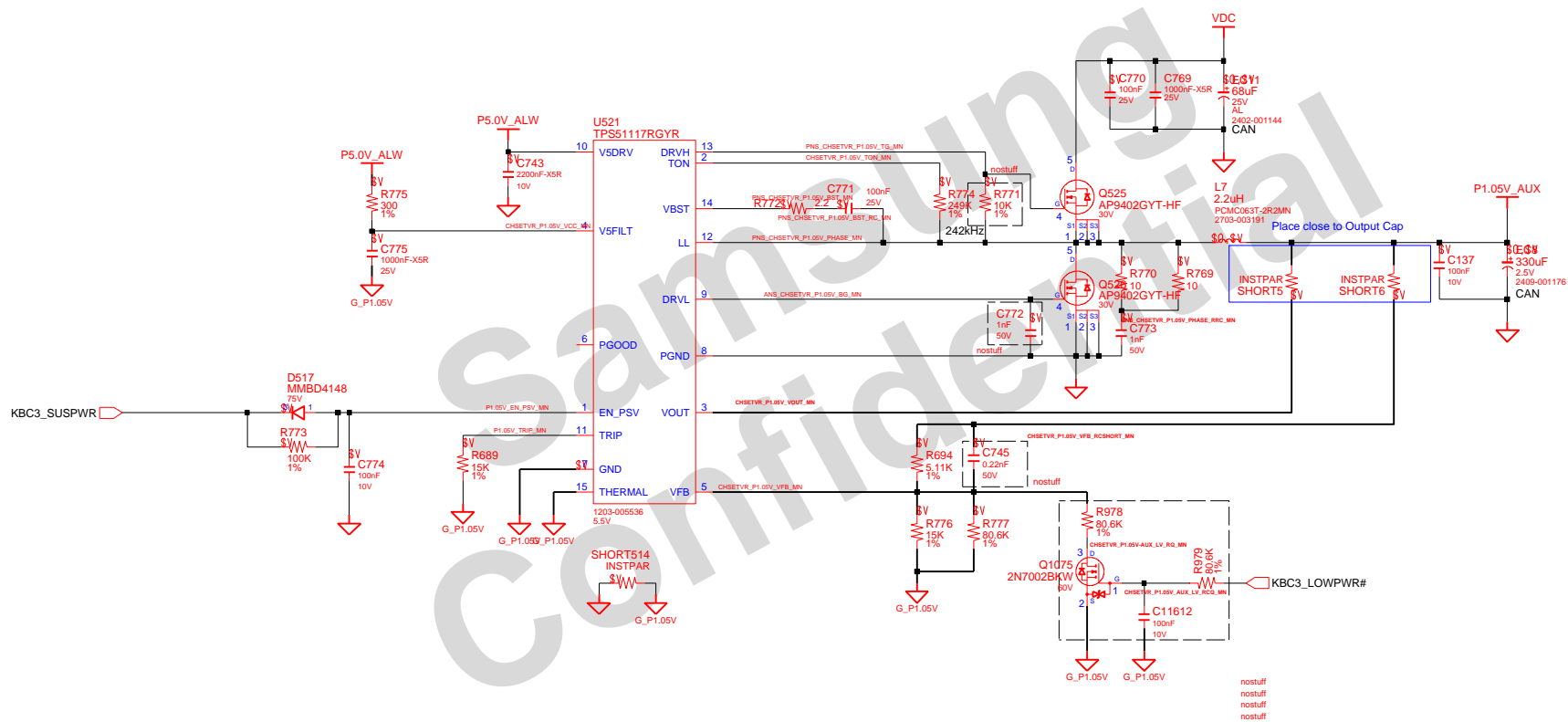
## P3.3V\_AUX & P5.0V\_ALW



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# P1.05V\_AUX



DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV		CHIPSET PWR	
APPROVAL	LEI GUO	REV	REV 1.0		P1.05V_AUX	
MODULE CODE		LAST EDIT				PART NO. BA41-02342A
September 18, 2013 11:59:03 AM					PAGE	45 OF 55

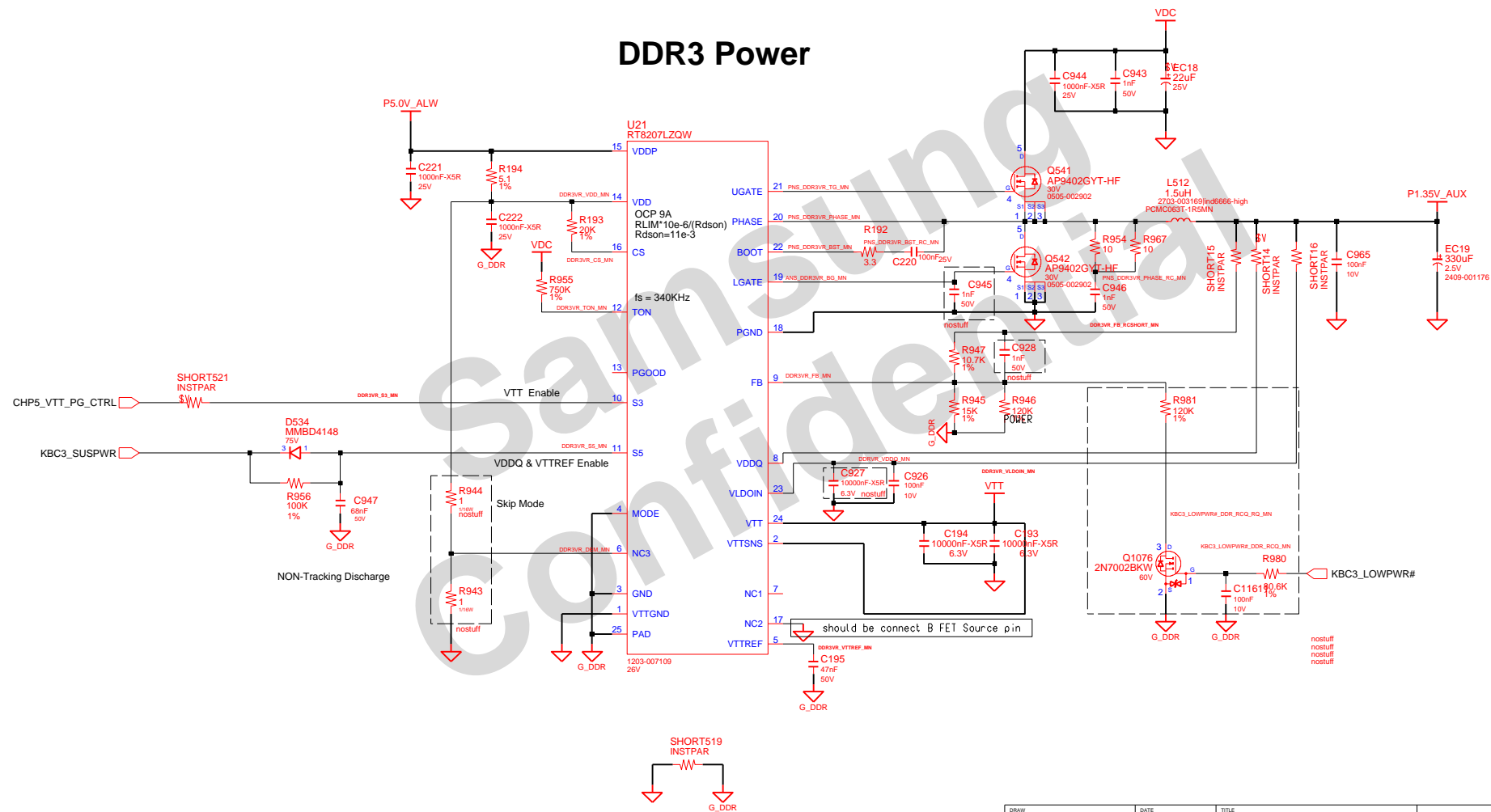
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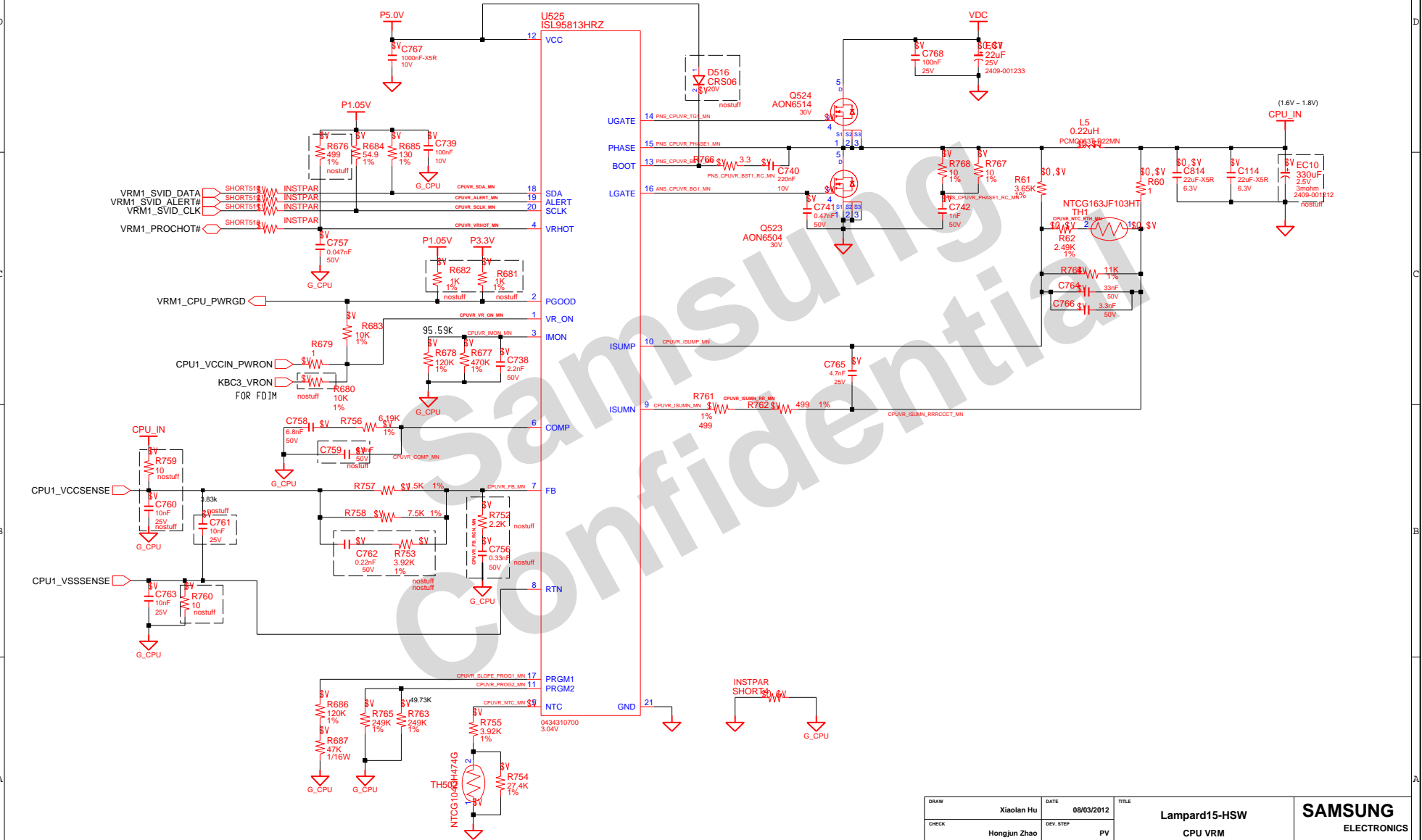
## DDR3 Power



DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG
CHECK	Hongjun Zhao	DEV. STEP	PV	DDR3 power		ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0	RT8207		PART NO.
MODULE CODE	undefined	LAST EDIT	September 18, 2013 11:59:03 AM			BA41-02342A
PAGE 47 OF 55						

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Place next to highside FET

## CPU VRM (VR12.6)



DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG
CHECK	Hongjun Zhao	DEV. STEP	PV		CPU VRM	ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0		ISL95831	PART NO.
MODULE CODE	undefined	LAST EDIT				BA41-02342A
				September 18, 2013 11:59:03 AM	PAGE	48 OF 55



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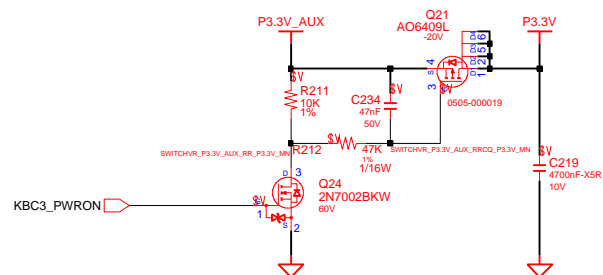
DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE Lampard15-HSW P1.05V_D	<b>SAMSUNG</b> ELECTRONICS	
CHECK	Hongjun Zhao	DEV. STEP	PV			
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE	50 OF 55

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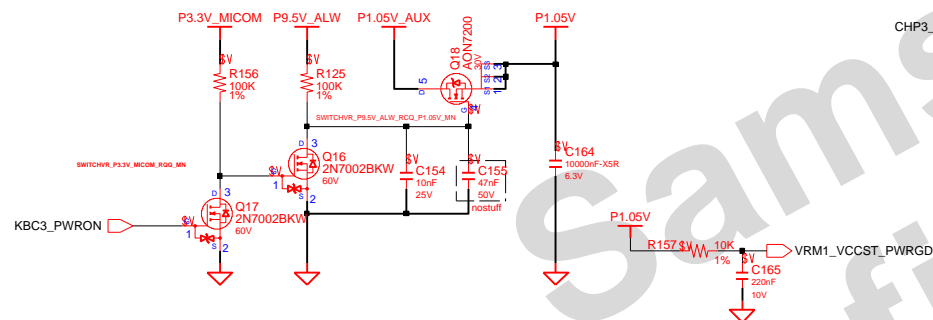
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# Switched Power

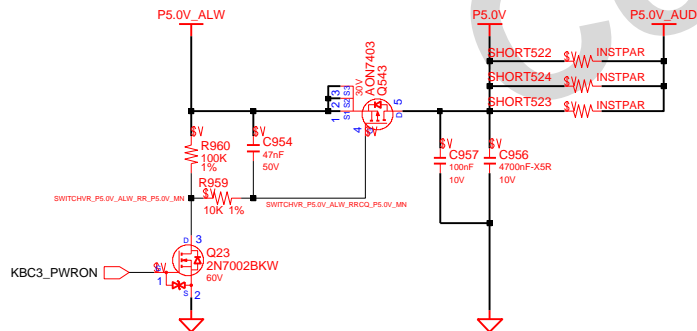
## Switched Power On (P3.3V)



## Switched Power On (P1.05V)

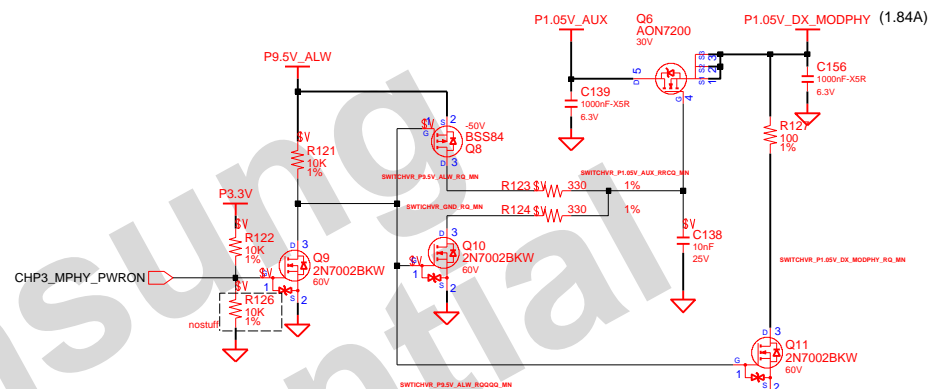


## Switched Power On (P5.0V)



## P1.05V\_MODPHY

(RdsOn Max6mohm , Tdelay+Tramp : <10uS)



DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV		PWR_MV_SWITCHED	
APPROVAL	LEI GUO	REV	REV 1.0		SWITCHED POWER	
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 51 OF 55	PART NO. BA41-02342A

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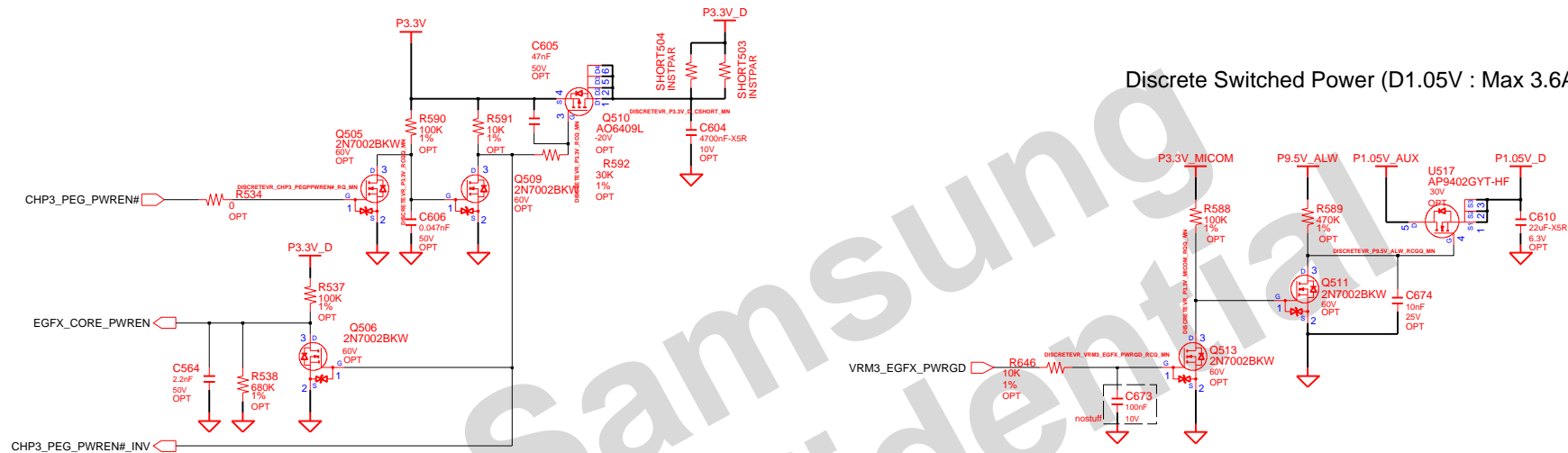
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# Switched Power 2

(P3.3V\_D -> EGFX\_CORE -> P1.5V\_D -> P1.05V\_D)

## Discrete Switched Power (D3.3V : Max\_1.2A)

## Discrete Switched Power (D1.05V : Max 3.6A)

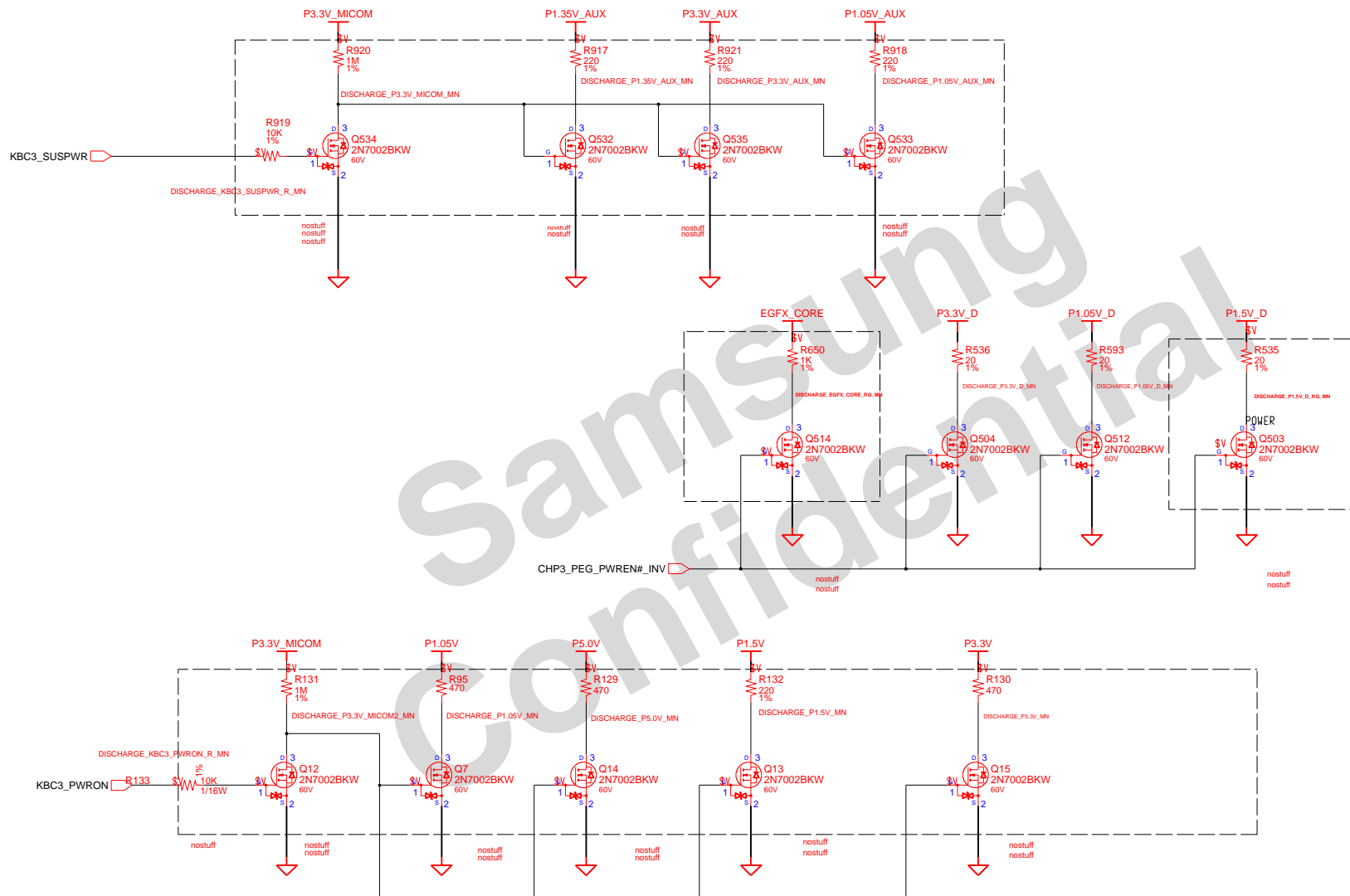


DRAW	Xiaolan Hu	DATE	1/27/2012	TITLE	Lampard15-HSW Switched PWR 2 FOR OPTIMUS PWR	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 52 OF 55	

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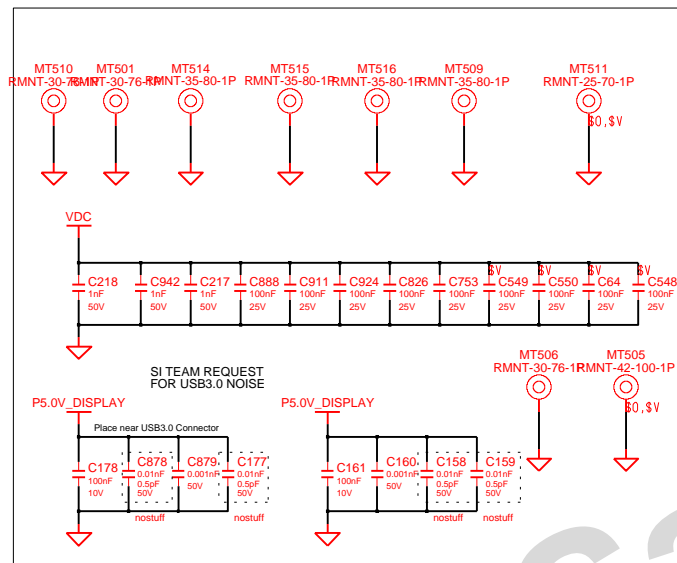
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## POWER DISCHARGER

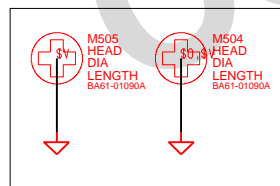
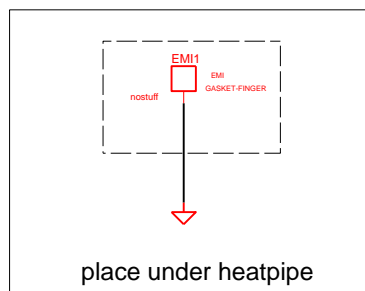


DESIGN	Xiaolan Hu	DATE	1/27/2012	TITLE	Lampard15-HSW POWER DISCHARGER POWER DISCHARGER	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 53 OF 55	

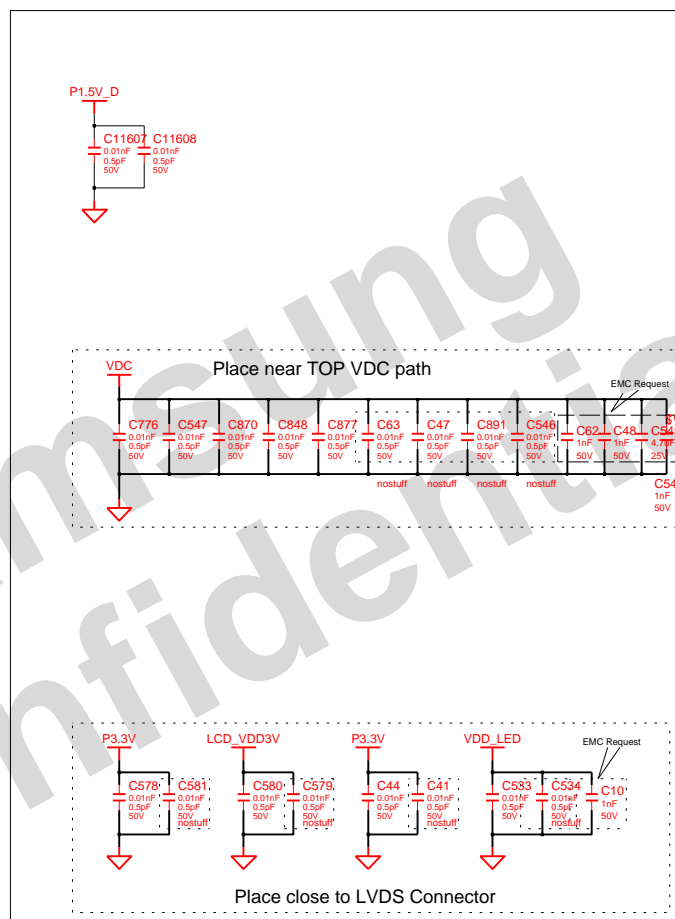
## Mainboard Mount ((40-80)X2EA, (30-76)X5EA))



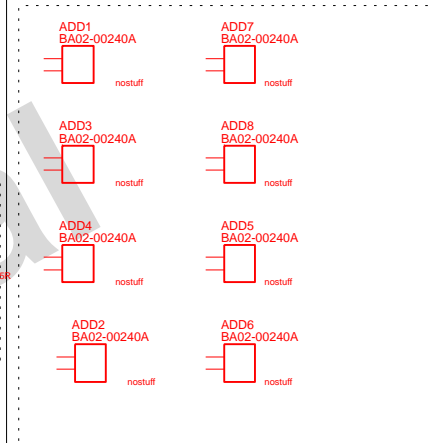
## WLAN Performance issue



## WLAN Performance issue



## Corner Fill for CPU, PCH, GPU

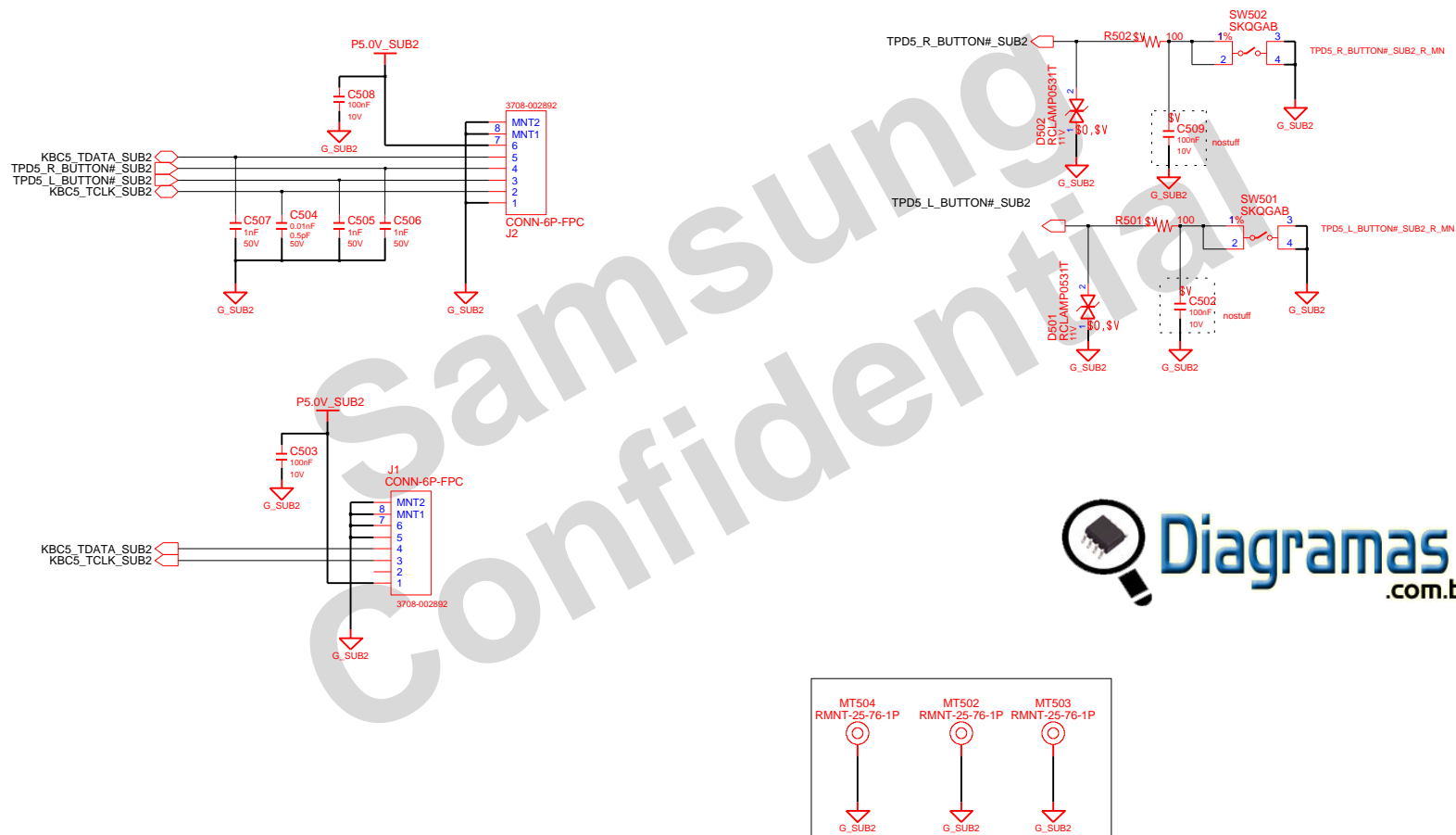


DESIGN	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW MOUNT HOLE	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 18, 2013 11:59:03 AM	PAGE 54 OF 55	

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## TP SUB BOARD



DRAW	Xiaolan Hu	DATE	08/03/2012	TITLE	Lampard15-HSW SUB2	SAMSUNG ELECTRONICS
CHECK	Hongjun Zhao	DEV. STEP	PV			PART NO. BA41-02342A
APPROVAL	LEI GUO	REV	REV 1.0		TOUCHPAD & LED	
MODULE CODE		LAST EDIT	September 18, 2013 11:59:03 AM	PAGE	55	OF 55