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Lampard-AMD INT

CPU : AMD ZACATE

Chip Set : FCH(Hudson-M3L)

Remarks : Brazos2.0 Platform

Model Name : Lampard-AMD

PBA Name : MAIN

PCB Code : BA41-XXXXXX (PTC)

BA41-XXXXXX (HST)

BA41-XXXXXX (GCE)

Dev. Step : PR

Revision : 1.0

T.R. Date : 2013.01.23

Design	CHECK	APPROVAL
Zhou Pei	XIE BIN	BL LEE

■ Owner : SESC R & D

Signature :

X

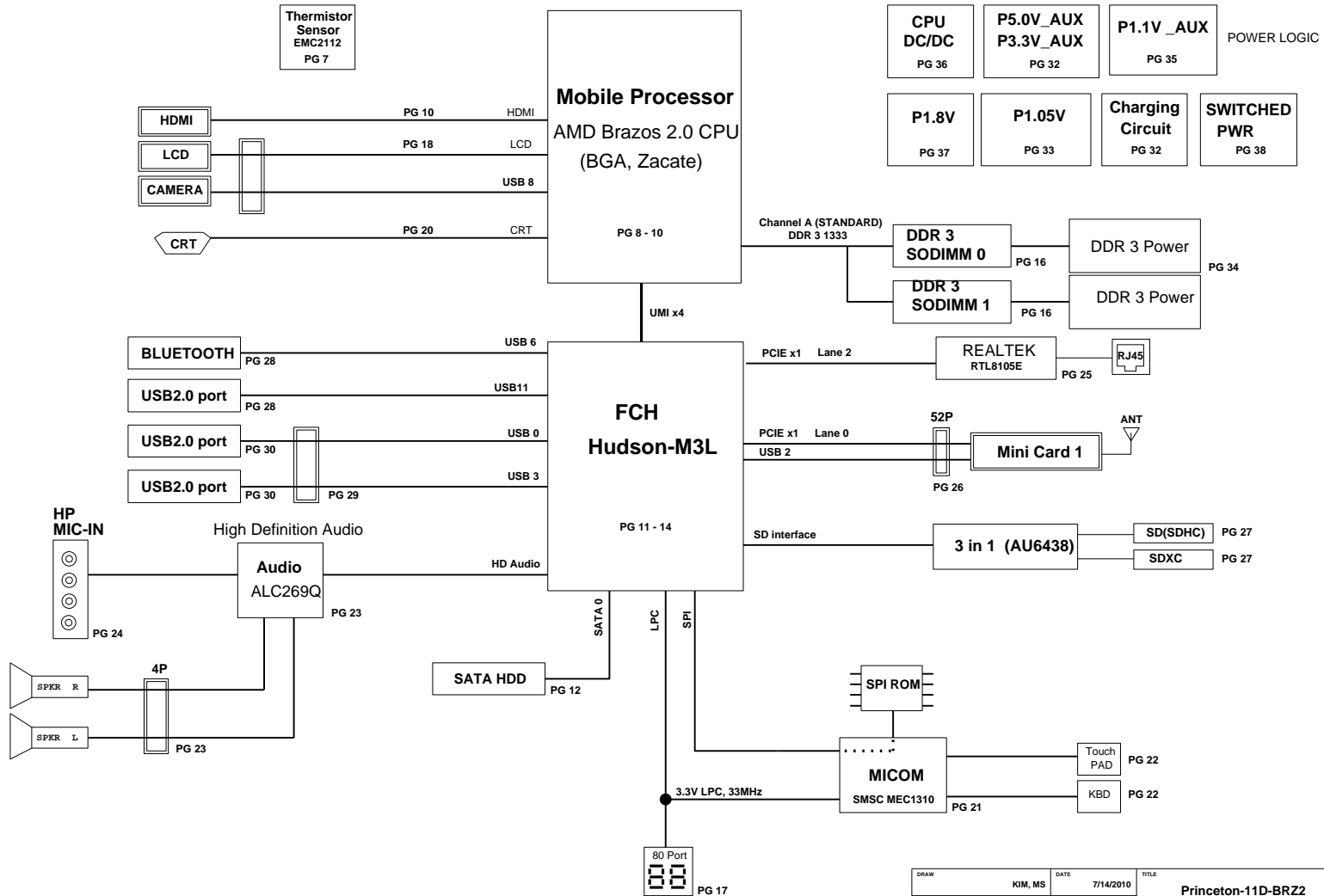
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sheet04 : POWER DIAGRAM
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sheet28 : MICOM Glue Logic
sheet29 : USB3.0 connector
sheet30 : MAIN TO SUB CONNECTOR
sheet31 : Power - charger
sheet32 : Power - P3.3V_AUX / P5.0V_ALW
sheet33 : Power - P1.05V (Chipset Power)
sheet34 : Power - P1.1V_AUX/P1.8V
sheet35 : Power - DDR3
sheet36 : Power - CPU VRM
sheet37 : Power - Switched Power 1
sheet38 : Power - Power Discharge
sheet39 : Mount Hole
sheet40 : SUB (TOUCHPAD)

DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG
CHECK	XIAO SUN	DEV. STEP	PV	MAIN		ELECTRONICS
APPROVAL	LEI GUO	REV	REV 1.0	COVER		PART NO. BA41-*****A
MODULE CODE		LAST EDIT	September 25, 2012 07:52:37 AM	PAGE	1	OF 42

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BLOCK DIAGRAM



DRAW	KIM, MS	DATE	7/14/2010	TITLE	Princeton-11D-BRZ2	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	PARK, CH	DEV. STEP	ADV1	MAIN		
APPROVAL	CHO, KS	REV	REV 0.23	BLOCK DIAGRAM		
MODULE CODE	undefined	LAST EDIT			February 28, 2012 13:33:37 PM	PAGE 2 OF 40

BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails	Active in
VDC P3.3V_MICOM P5.0V_LDO	Primary DC system power supply (7 to 21V) 3.3V always power rail (for Micom) 5.0V always power rail
P5.0V_ALW P3.3V_AUX P1.1V_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 P0.75V P1.1V	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) 0.75V power rail for DDR3 (off in S3-S5) 1.1V switched power rail (off in S3-S5)
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for FCH

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 1	2	NC
2	Mini PCI Express (WLAN)	3	NC
3	SYSTEM PORT 2	4	LAN CONTROLLER
4	Multi Memory Card Controller	5	NC
5	Camera 1	6	NC
6	NC (N/A WITH FCH)	7	NC
7	NC (N/A WITH FCH)	8	NC
8	NC		
9	NC		
10	NC		
11	Camera 2		
12	NC		
13	NC		

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD/SSD
1	ISSD
2	ODD (14" ONLY)
3	
4	
5	

Crystal / Oscillator			
TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	FCH	Real Time Clock
Crystal	25MHz	LAN	REALTEK
Crystal	25MHz	FCH	
Crystal	27MHz	MARS	
Crystal	48MHz	SD	

LCD Pannel Detect (TBD)		
Devices	Resolution	PANNEL_DETECT_0

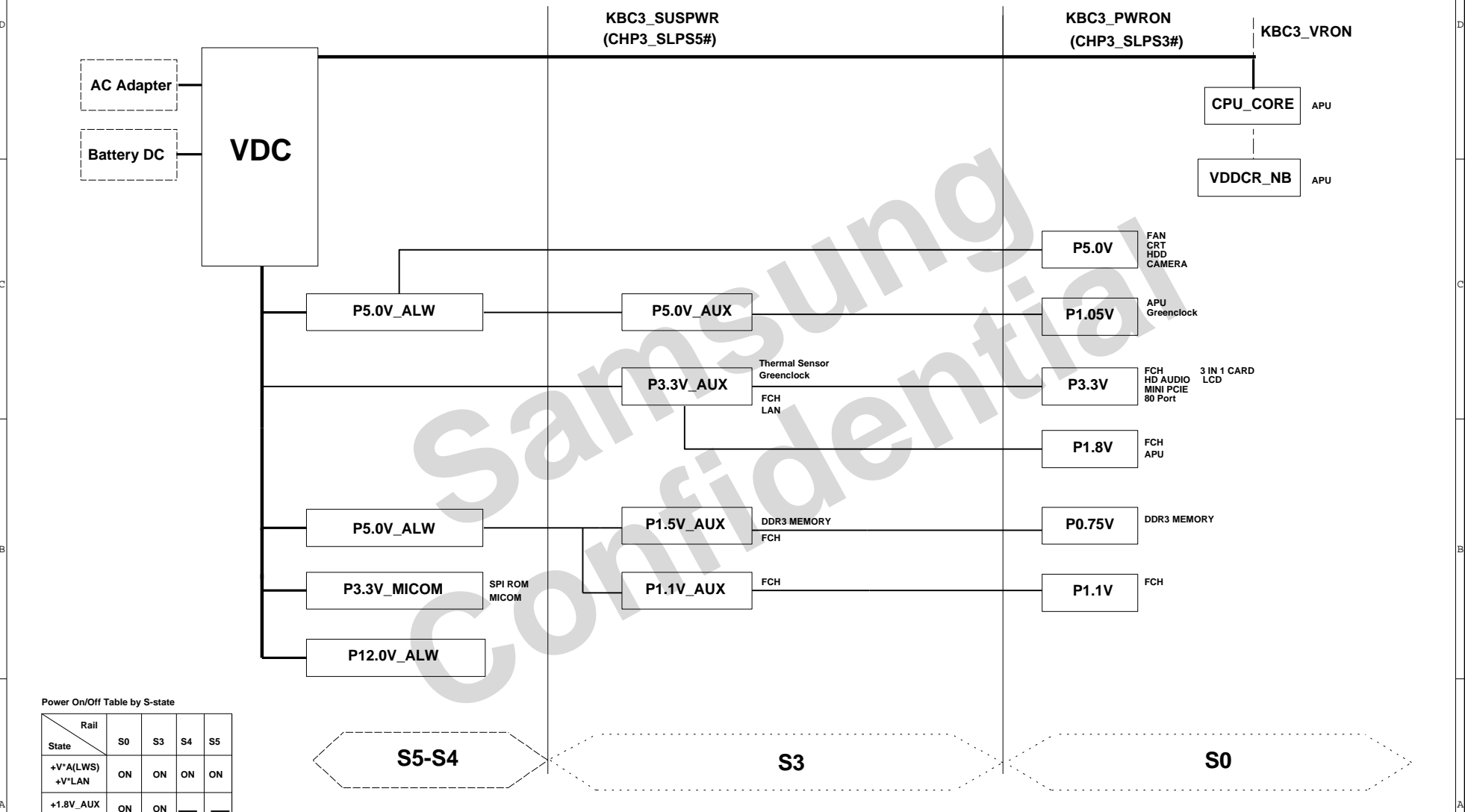
I ² C / SMB Address			
Devices	Address	Hex	Bus
PANTHERPOINT	Master	-	SMBUS Master
CPU Thermal Sensor	0011 000X	30h	
SODIMM0	1010 000x	A0h	Thermal Sensor
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
on board DDR3 thermal Sensor	1001 100x	98h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

DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT MAIN BOARD INFO	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	XIAO SUN	DEV. STEP	PV			
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	September 25, 2012 07:52:37 AM	PAGE	3	OF 42

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POWER DIAGRAM

Rev 0.1



Power On/Off Table by S-state

Rail	S0	S3	S4	S5
State				
+V*A(LWS)	ON	ON	ON	ON
+V*LAN	ON	ON	ON	ON
+1.8V_AUX	ON	ON	ON	ON
+0.9V	ON	ON	ON	ON
+V*AUX	ON	ON	ON	ON
+V	ON	ON	ON	ON
+V* (CORE)	ON	ON	ON	ON



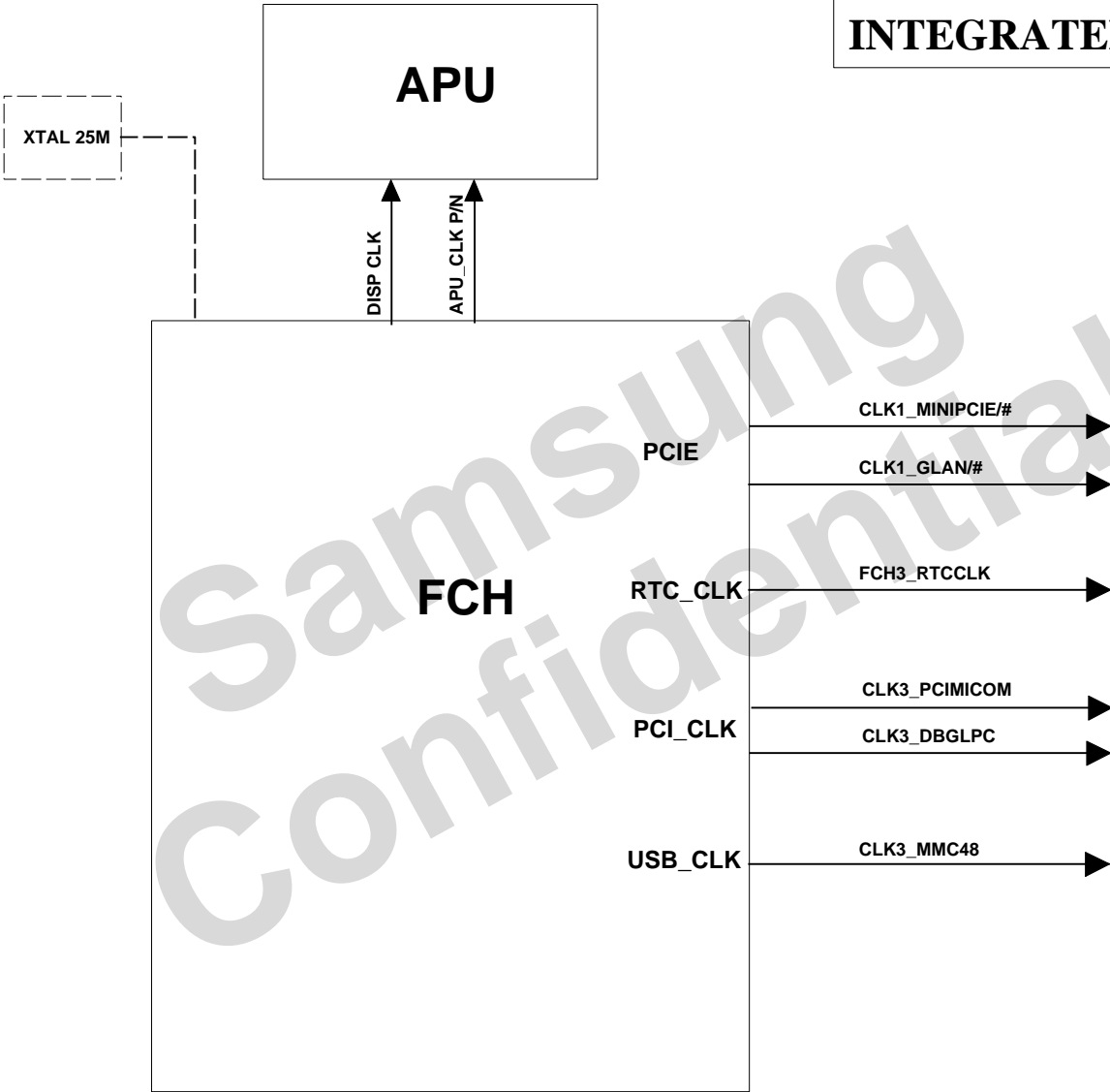
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CHECK	PARK, CH	DEV. STEP	ADV1	MAIN	POWER DIAGRAM	ELECTRONICS
APPROVAL	CHO, KS	REV	REV 0.23			PART NO. BA41-####A
MODULE CODE	undefined	LAST EDIT	February 28, 2012 13:33:37 PM	PAGE	4	OF 40

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CLOCK DISTRIBUTION

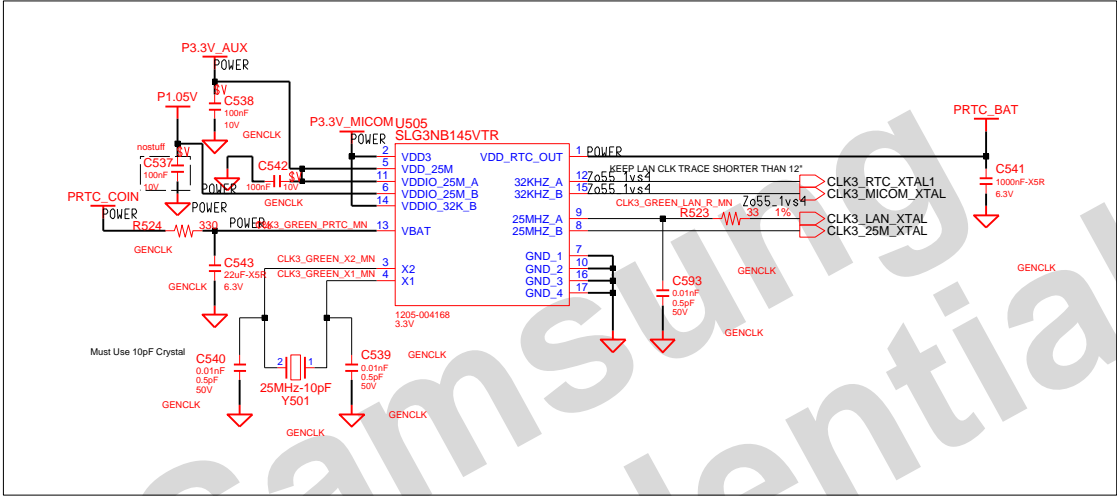
Rev. 1.0

INTEGRATED CLOCK MODE



DRAW	KIM, MS	DATE	7/14/2010	TITLE	Princeton-11D-BRZ2	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	PARK, CH	DEV. STEP	ADV1	MAIN		
APPROVAL	CHO, KS	REV	REV 0.23	CLOCK DIAGRAM		
MODULE CODE	undefined	LAST EDIT	February 28, 2012 13:33:37 PM	PAGE	5 OF 40	

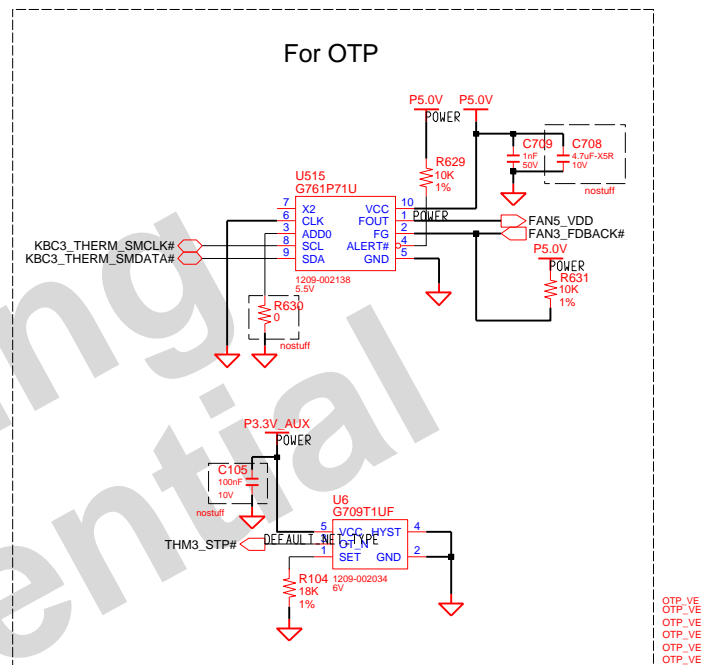
CLOCK DISTRIBUTOR



Multi Assy	Function Description	SCHEMATIC MARK
ADT_40W	40W ADAPTER SELECT	ADT_40W
ADT_60W	60W ADAPTER SELECT	ADT_60W
EMC2112	SUPPORT EMC2112	EMC2112
ATHEROS	ATHEROS SELECT	ATHEROS
BROADCOM	BROADCOM SELECT	BROADCOM
OTP_VE	THERMAL VE	OTP_VE
INT_SD	SUPPORT FCH SD	INT_SD
EXT-SD	SUPPORT EXT SD FUNCTION	EXT-SD
GENCLK	SUPPORT GREENCLK FUNCTION	GENCLK
TPM	SUPPORT TPM FUNCTION	TPM
CRYSTAL	SUPPORT EXT CRYSTAL FUNCTION	CRYSTAL
USB30	USB30 SELECT	USB30

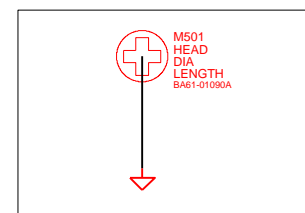
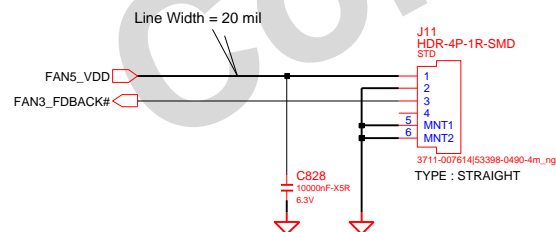
DESIGN	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT CLOCK CLOCK DISTRIBUTION	SAMSUNG ELECTRONICS
CHECK	XIAO SUN	DEV. STEP	PV			PART NO. BA41-*****A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 6 OF 42	

THERMAL SENSOR & FAN CONTROL



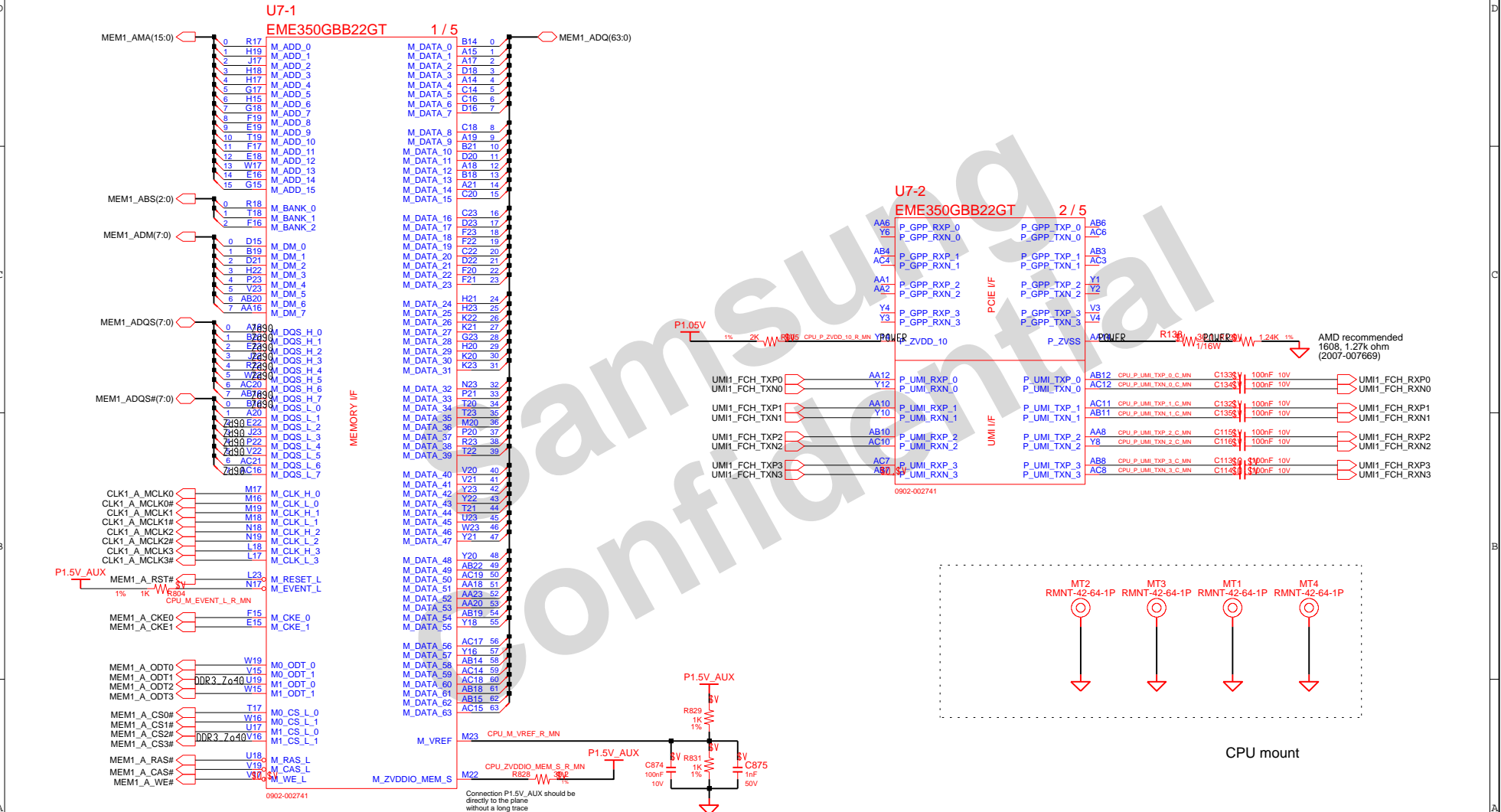
Temperature : 95.78c
confirmed by thermal charger
(2011.05.02)
 $R \text{ (kohm)} = 0.0012T - 0.9308T + 96.147$

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



DESIGN	LI CHEN	DATE	08/03/2012	Lampard-14/15-INT THERMAL SENSOR THERMAL SENSOR EMC2112	SAMSUNG ELECTRONICS		
CHECK	XIAO SUN	DEV. STEP	PV				
APPROVAL	LEI GUO	REV	REV 1.0		PART NO.	BA41-*****A	
MODULE CODE	LAST EDIT				September 25, 2012 07:52:37 AM	PAGE	7 OF 42

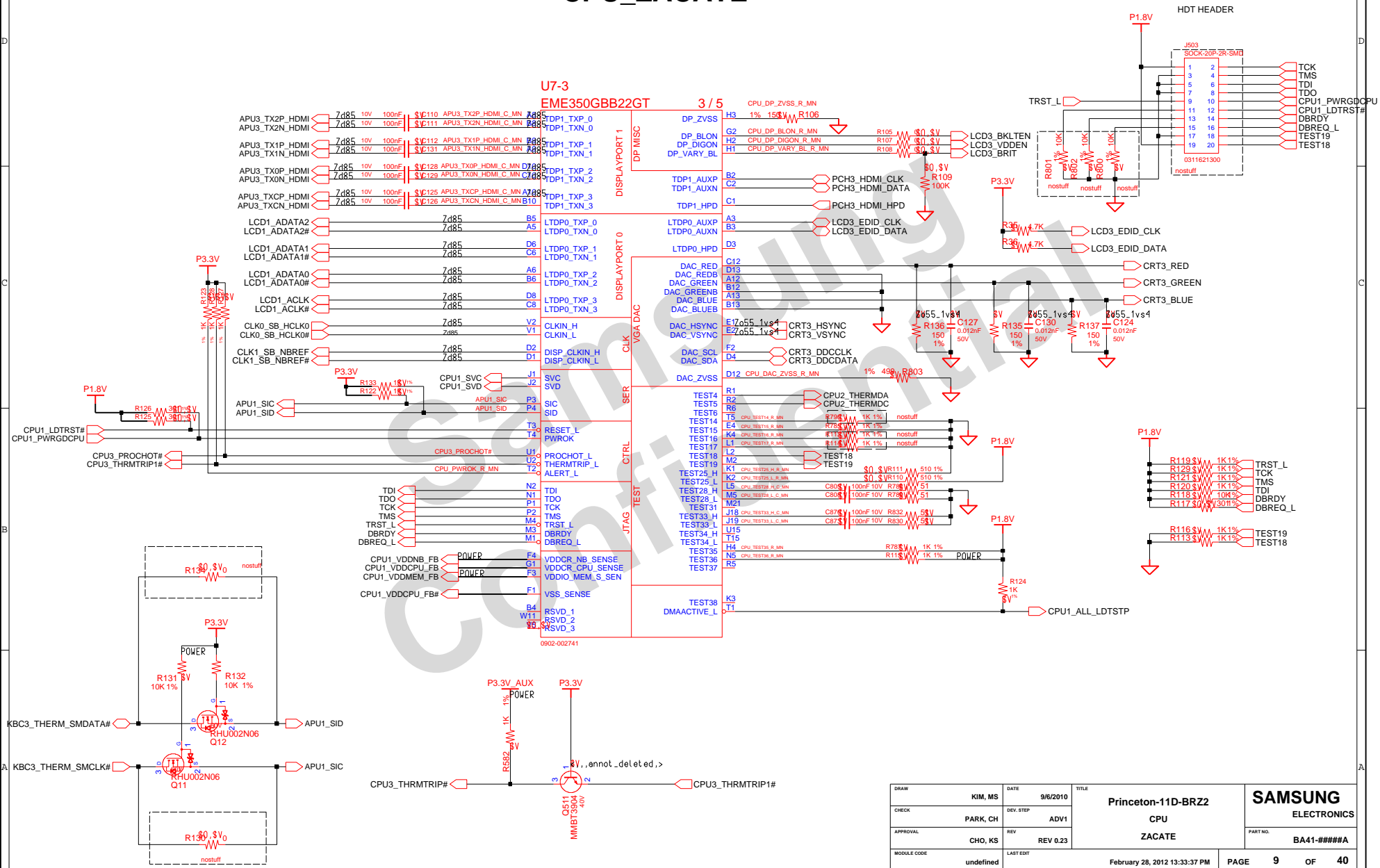
CPU_ZACATE



DRAW	KIM, MS	DATE	9/6/2010	TITLE	Princeton-11D-BRZ2	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	PARK, CH	DEV. STEP	ADV1		CPU	
APPROVAL	CHO, KS	REV	REV 0.23		ZACATE	
MODULE CODE	undefined	LAST EDIT	February 28, 2012 13:33:37 PM	PAGE	8	OF 40

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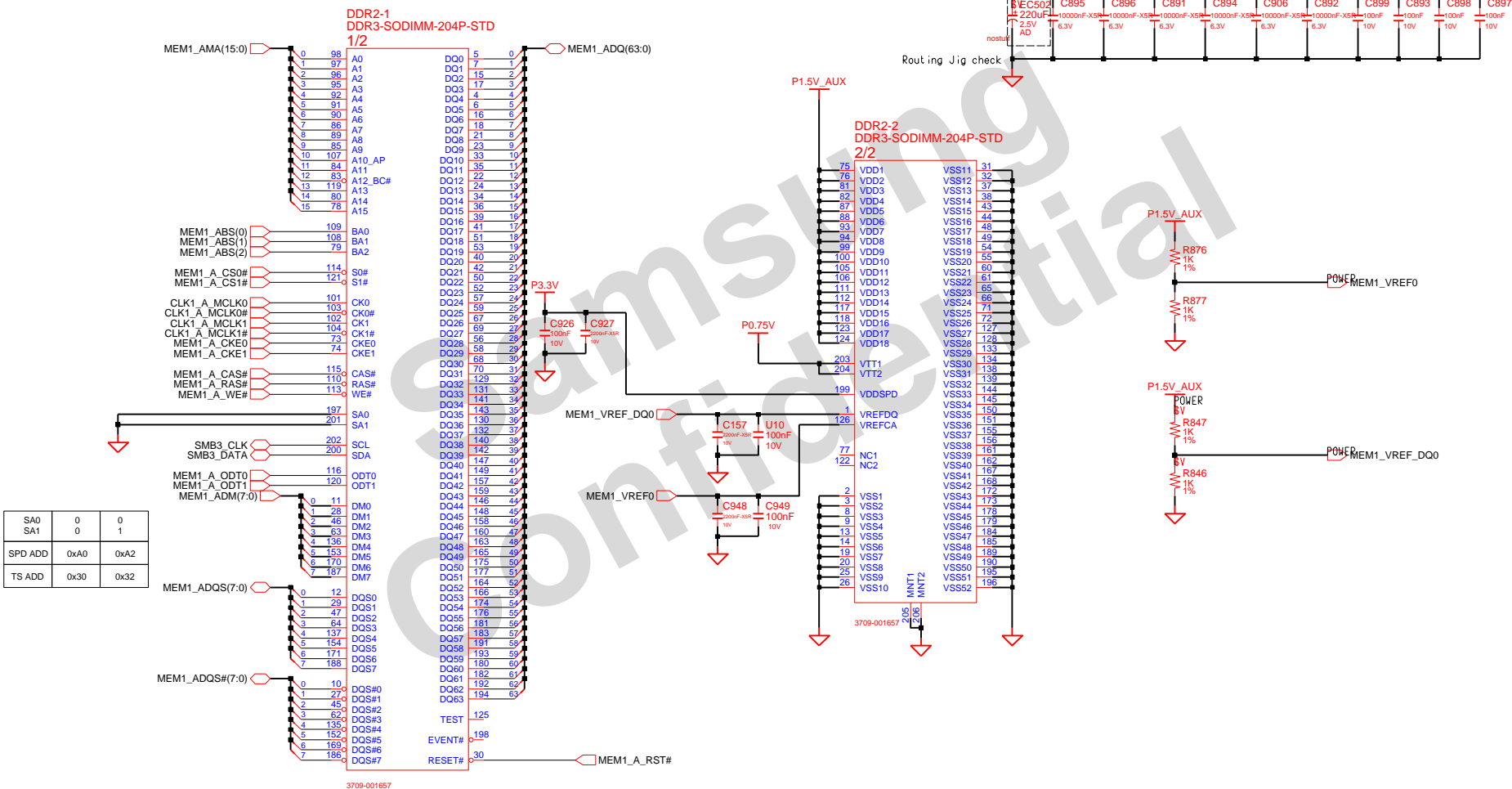
CPU ZACATE



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SO-DIMM#0 : 2nd SO-DIMM

DDR SO-DIMM #0



SA0	0	0
SA1	0	1
SPD ADD	0xA0	0xA2
TS ADD	0x30	0x32

DRAWN	RM LI	DATE	08/03/2012	TITLE Ramos-14/15-2SP MEMORY #0 2 RANK(4/4)		SAMSUNG	
CHECK	XIAO SUN	DEV. STEP	DV			ELECTRONICS	
APPROVAL	LEI GUO	REV	REV 1.0	DDR3 2Gb		PART NO.	BA41-*****A
MODULE CODE	undefined	LAST EDIT		August 11, 2012 09:48:52 AM		PAGE	13 OF 56

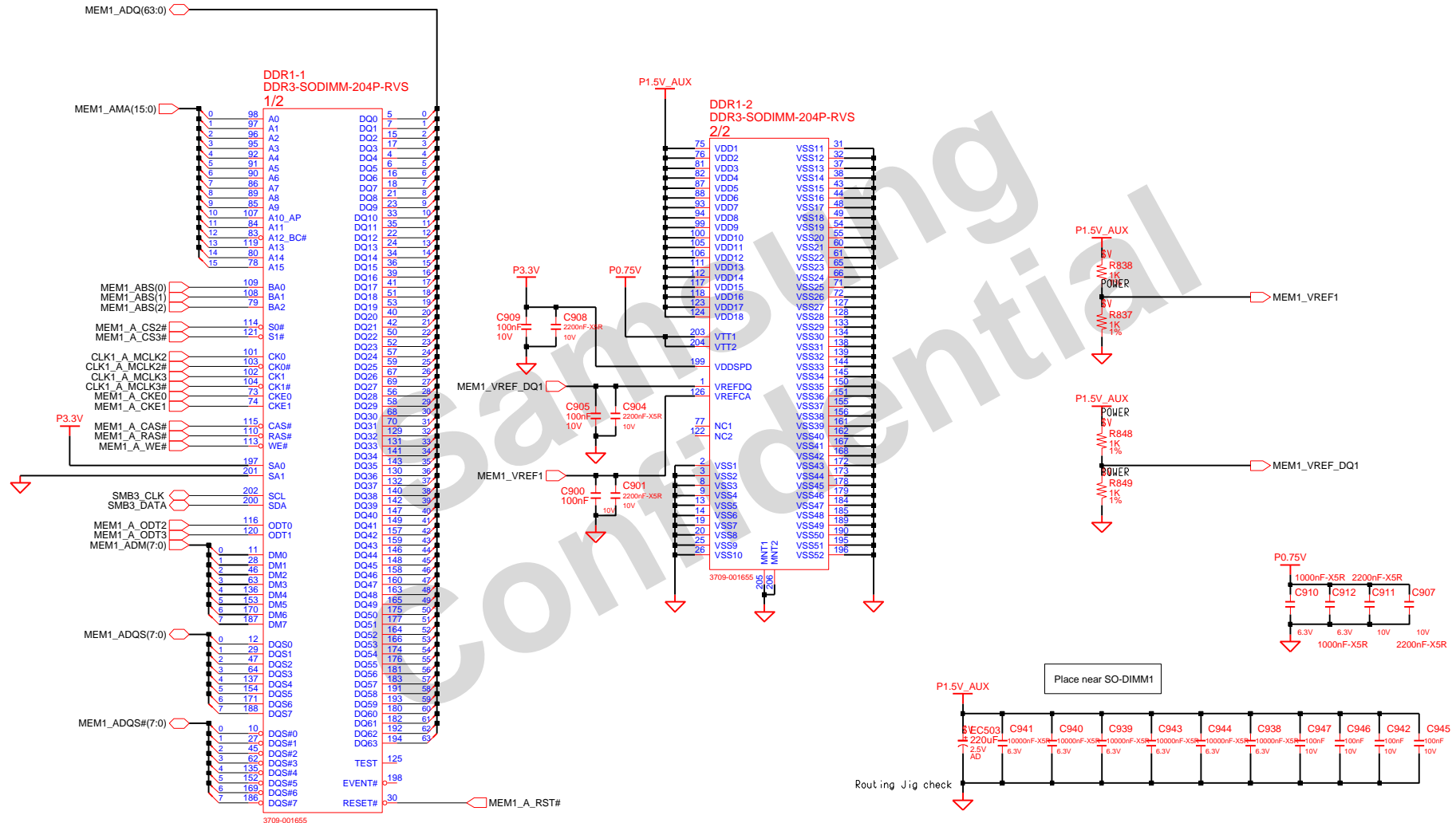
SO-DIMM #1 : 1st SO-DIMM

DDR SO-DIMM #1

Height : 8 mm (STANDARD)

P/N : 3709-001615 (FOXCONN)

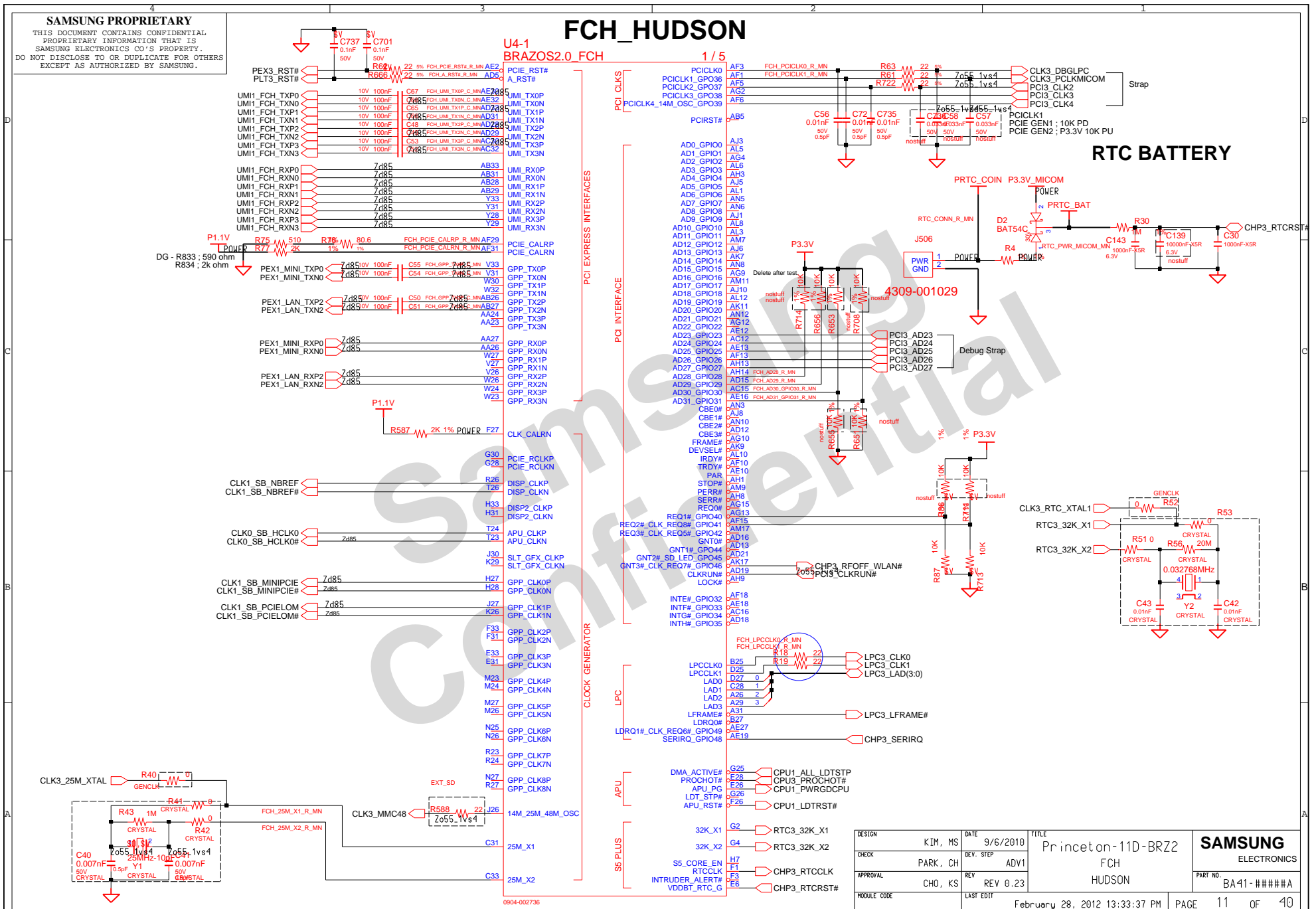
P/N : 3709-001622 (CONCRAFT)



DRAW	RM LI	DATE	08/03/2012	TITLE	Ramos-14/15-2SP	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	XIAO SUN	DEV. STEP	DV		SODIMM B	
APPROVAL	LEI GUO	REV	REV 1.0		DDR3 2Gb	
MODULE CODE		LAST ENT				
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FCH_HUDSON

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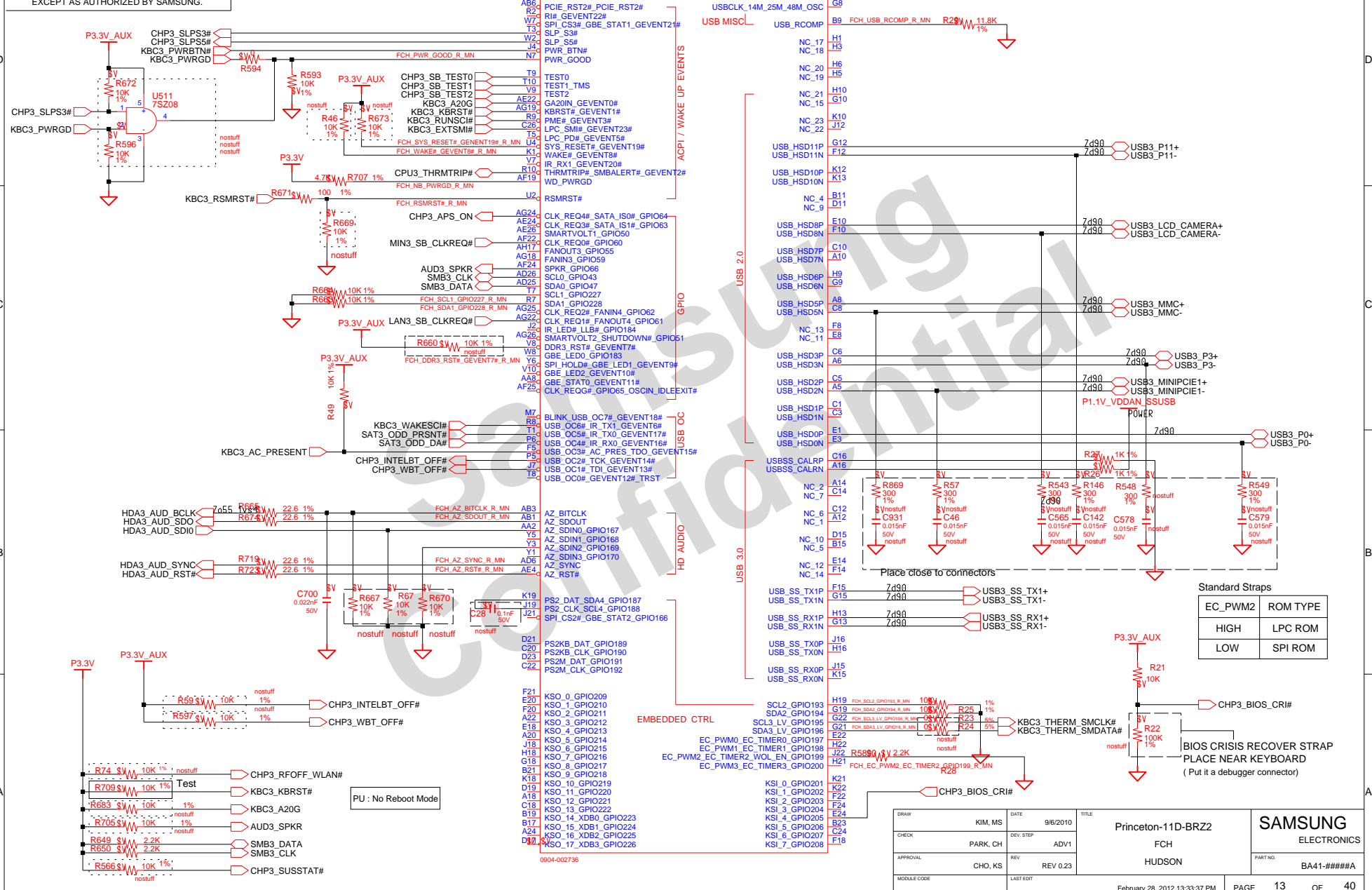


DESIGN	KIM, MS	DATE	9/6/2010	TITLE Princeton-11D-BRZ2 FCH HUDSON	SAMSUNG ELECTRONICS
CHECK	PARK, CH	DEV. STEP	ADV1		
APPROVAL	CHO, KS	REV	REV 0.23		
MODULE CODE	LAST EDIT				
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U4-2 FCH_HUDSON

BRAZOS2.0 FCH 2 / 5

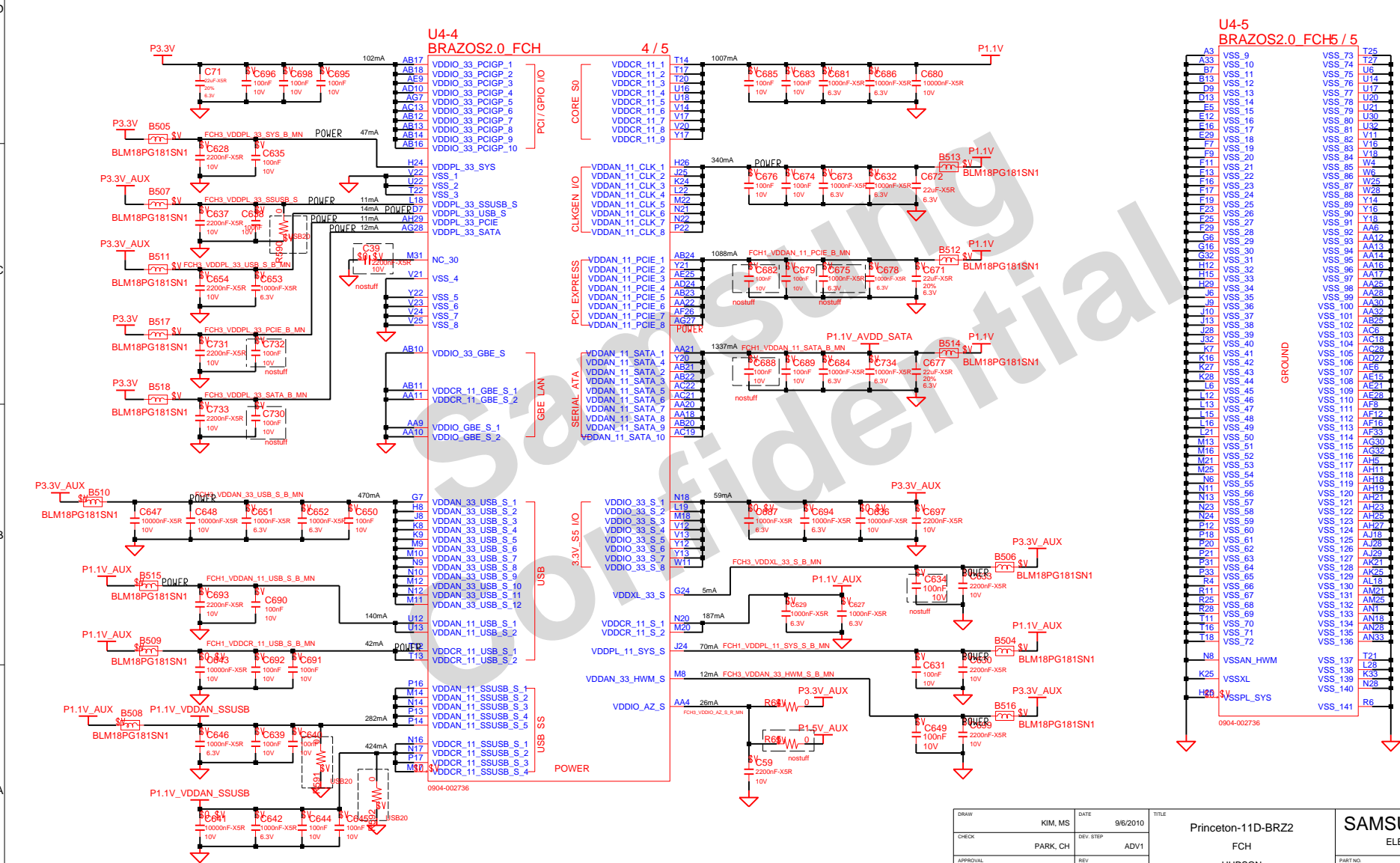


DRAW	KIM, MS	DATE	9/6/2010	TITLE	Princeton-11D-BRZ2
CHECK	PARK, CH	DEV. STEP	ADV1	FCH	
APPROVAL	CHO, KS	REV	REV 0.23	HUDSON	
MODULE CODE		LAST ENT			
				February 28, 2012 13:33:37 PM	PAGE 13 OF 40

EC_PWM2	ROM TYPE
HIGH	LPC ROM
LOW	SPI ROM

SAMSUNG ELECTRONICS	
PART NO. BA41-####A	

FCH_HUDSON



DRAW	KIM, MS	DATE	9/6/2010	TITLE	Princeton-11D-BRZ2	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	PARK, CH	DEV. STEP	ADV1	FCH	FCH	
APPROVAL	CHO, KS	REV	REV 0.23	HUDSON	HUDSON	
MODULE CODE		LAST ENT				

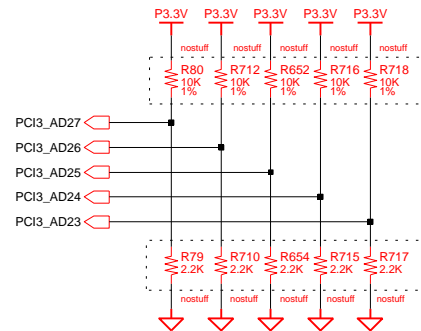
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Strap

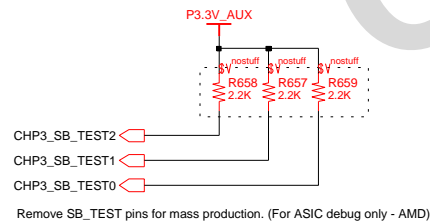
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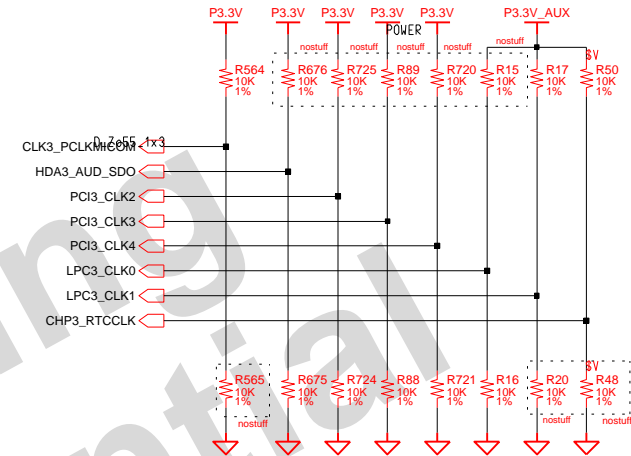


DEBUG STRAPS

	PCI3_AD(27)	PCI3_AD(25)	PCI3_AD(24)	PCI3_AD(23)
	PCI PLL	REFCLK	PCIe EEPROM	Booting from PCI memory
STRAP HIGH	USE PCI PLL	Normal REFCLK Termination	USE DEFAULT PCIE STRAPS	DISABLE PCI MEM BOOT
STRAP LOW	BYPASS PCI PLL	Inverted REFCLK Termination	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT



Remove SB_TEST pins for mass production. (For ASIC debug only - AMD)



STANDARD STRAPS

	CLK3_PCLKMICOM	CHP3_RTCCCLK	PCI3_CLK3	PCI_CLK4	LPC3_CLK0	LPC3_CLK1
PULL HIGH	ALLOW PCIE GEN2 DEFAULT	S5 PLUS MODE DISABLE DEFAULT	DEBUG STRAP MODE ENABLE	non_Fusion CLOCK MODE	IMC ENABLE	CLKGEN ENABLE DEFAULT
PULL LOW	FORCE PCIE GEN1	S5 PLUS MODE ENABLE	DEBUG STRAP MODE DISABLE DEFAULT	FUSION CLOCK MODE DEFAULT	IMC DISABLED DEFAULT	CLKGEN DISABLED

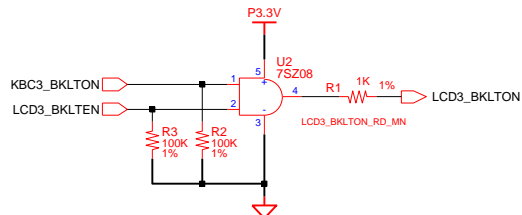
DRAW	KIM, MS	DATE	9/6/2010	TITLE	Princeton-11D-BRZ2	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	PARK, CH	DEV. STEP	ADV1	STRAP	STRAP	
APPROVAL	CHO, KS	REV	REV 0.23	STRAP	STRAP	
MODULE CODE	undefined	LAST EDIT	February 28, 2012 13:33:37 PM	PAGE	15 OF 40	

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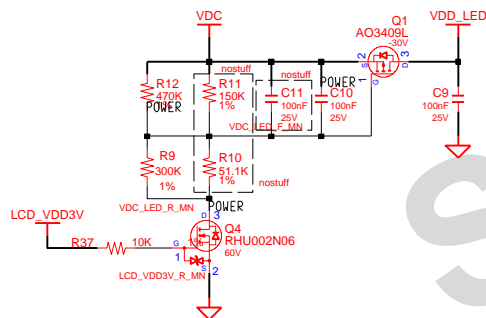
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LVDS LOGIC

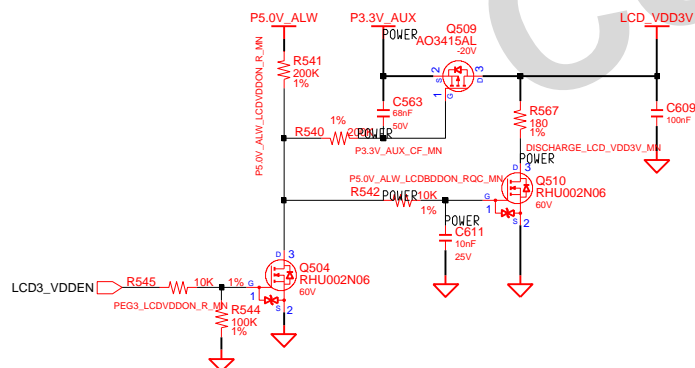
Backlight On



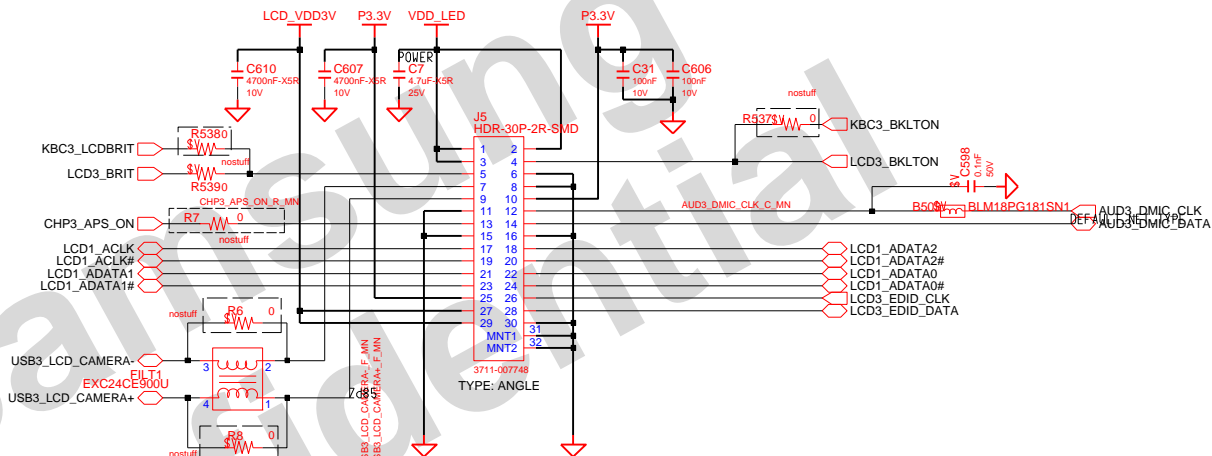
LED Power



LCD Power



1Ch. LCD Connector + CAMERA + INT MIC



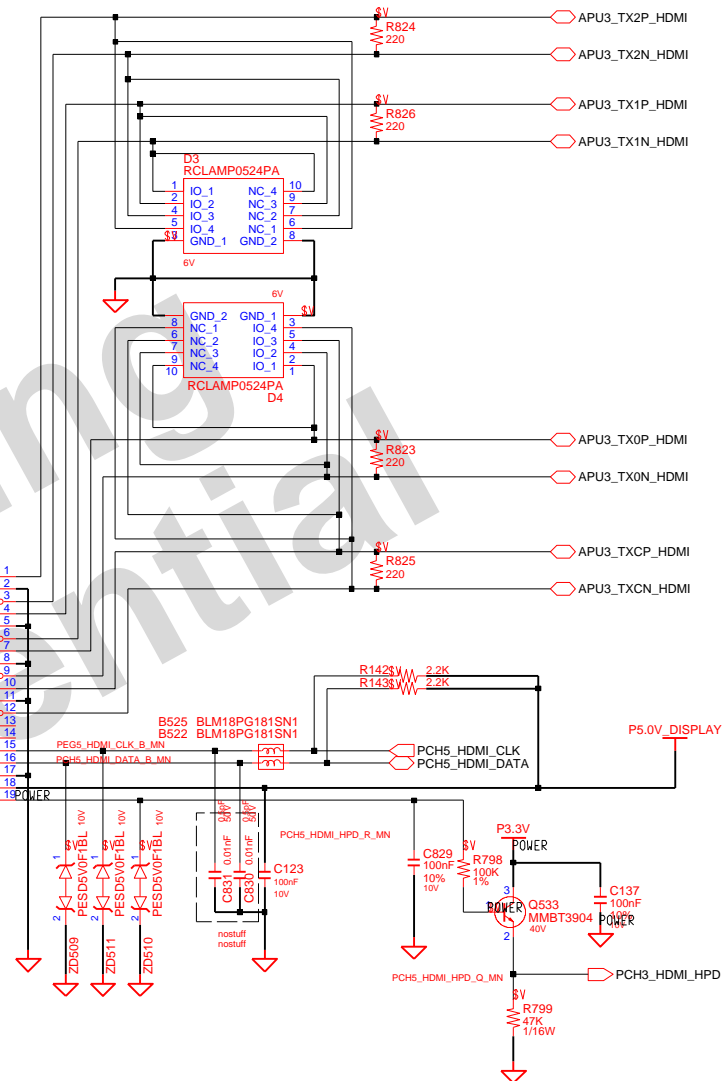
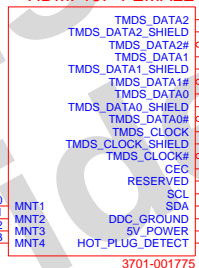
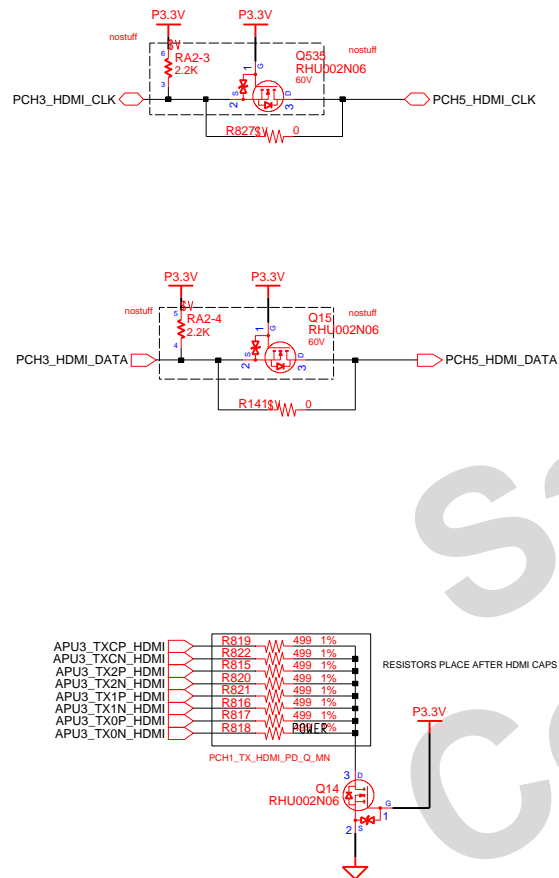
USB signal stub should be less than 100mil

DESIGN	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG ELECTRONICS
CHECK	XIAO SUN	DEV. STEP	PV	GRAPHICS_IF		
APPROVAL	LEI GUO	REV	REV 1.0	LVDS		
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 20 OF 42	BA41-*****A

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After checking, Houston need to use CMC for each signal.

FOR HDMI VERIFICATION TEST



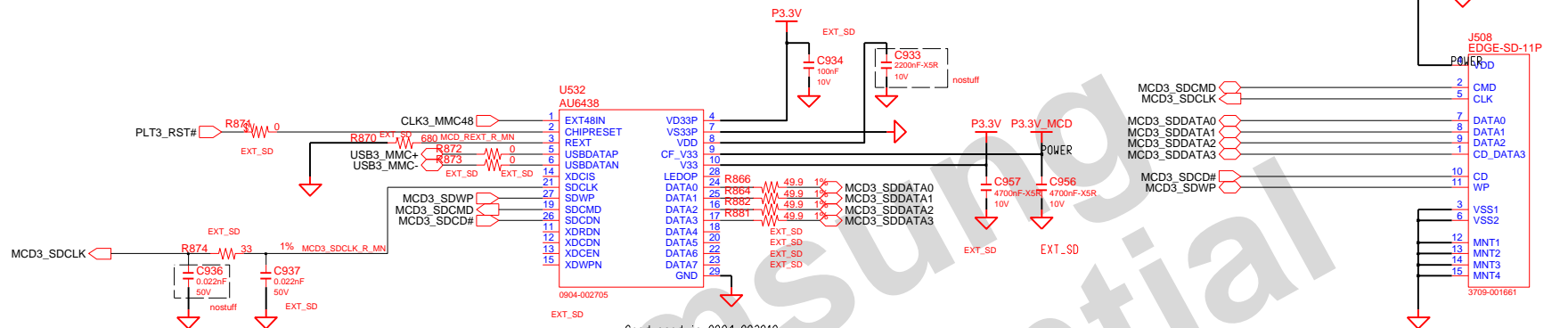
N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

DESIGN	LI CHEN	DATE	08/03/2012	Lampard-14/15-INT GRAPHICS_IF HDMI	SAMSUNG ELECTRONICS		
CHECK	XIAO SUN	DEV. STEP	PV		PART NO.	BA41_*****A	
APPROVAL	LEI GUO	REV	REV 1.0				
MODULE CODE	LAST EDIT				September 25, 2012 07:52:37 AM	PAGE	22 OF 42

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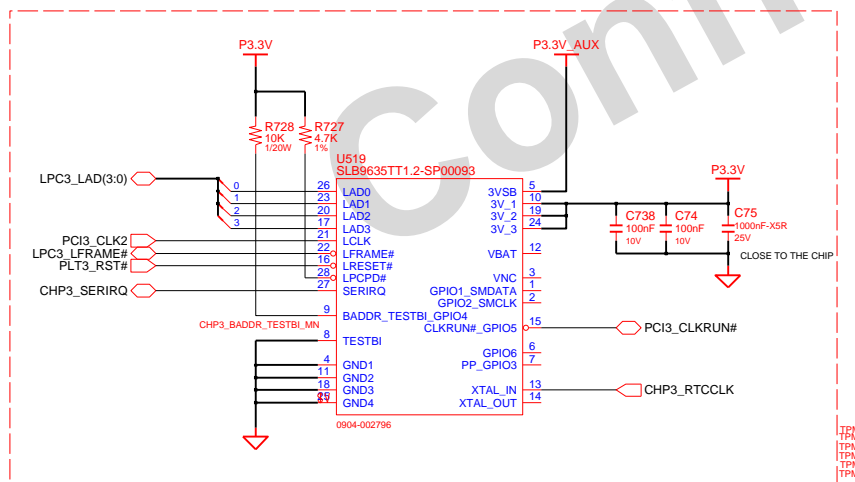
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3IN1(AU6438)



Card read is 0904-002818

TPM1.2

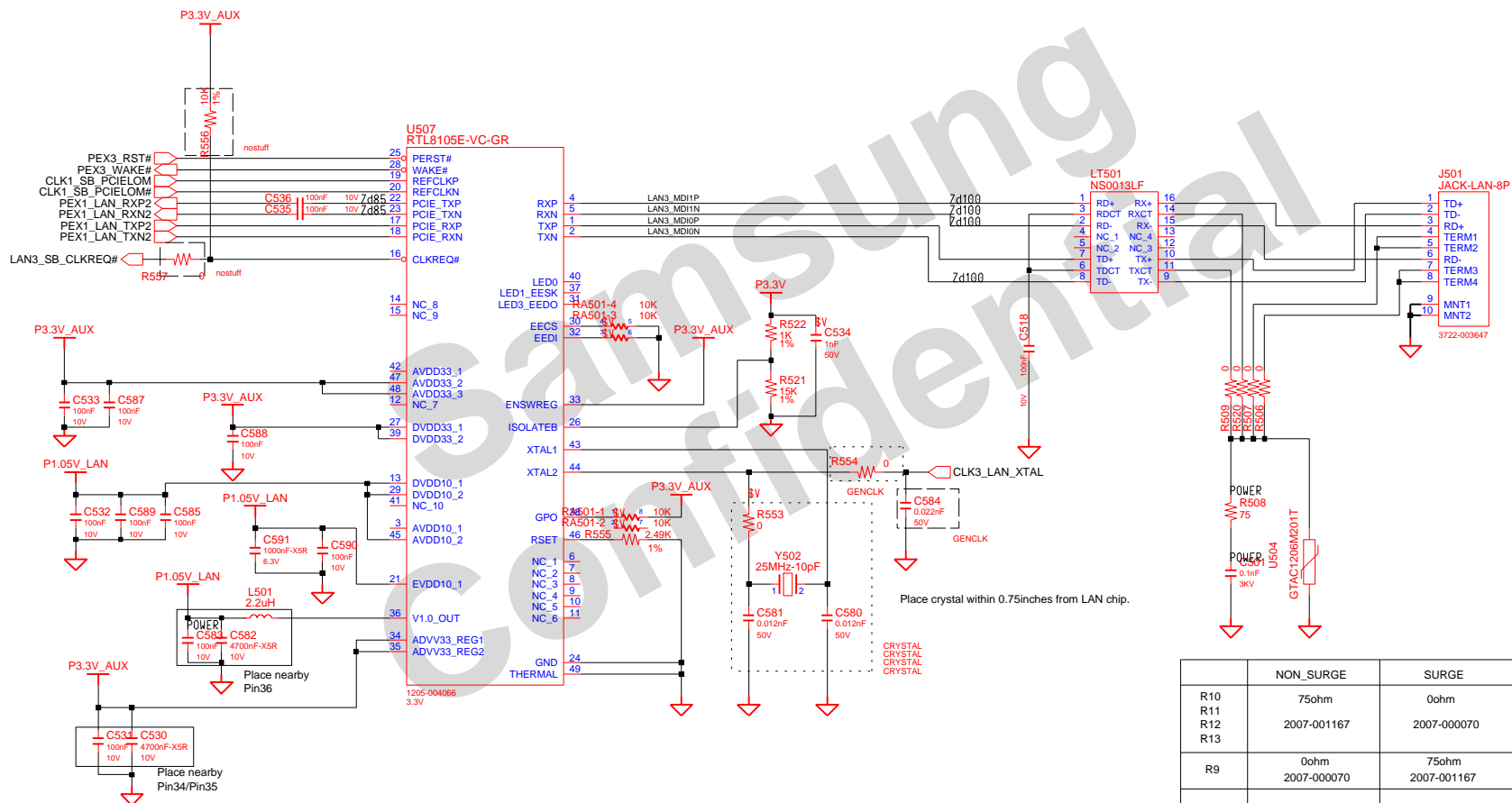


DESIGN	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG ELECTRONICS
CHECK	XIAO SUN	DEV. STEP	PV			PART NO. BA41-*****A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 25 OF 42	

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Realtek RTL8105E



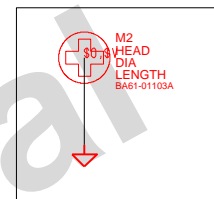
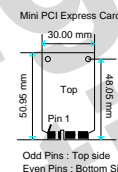
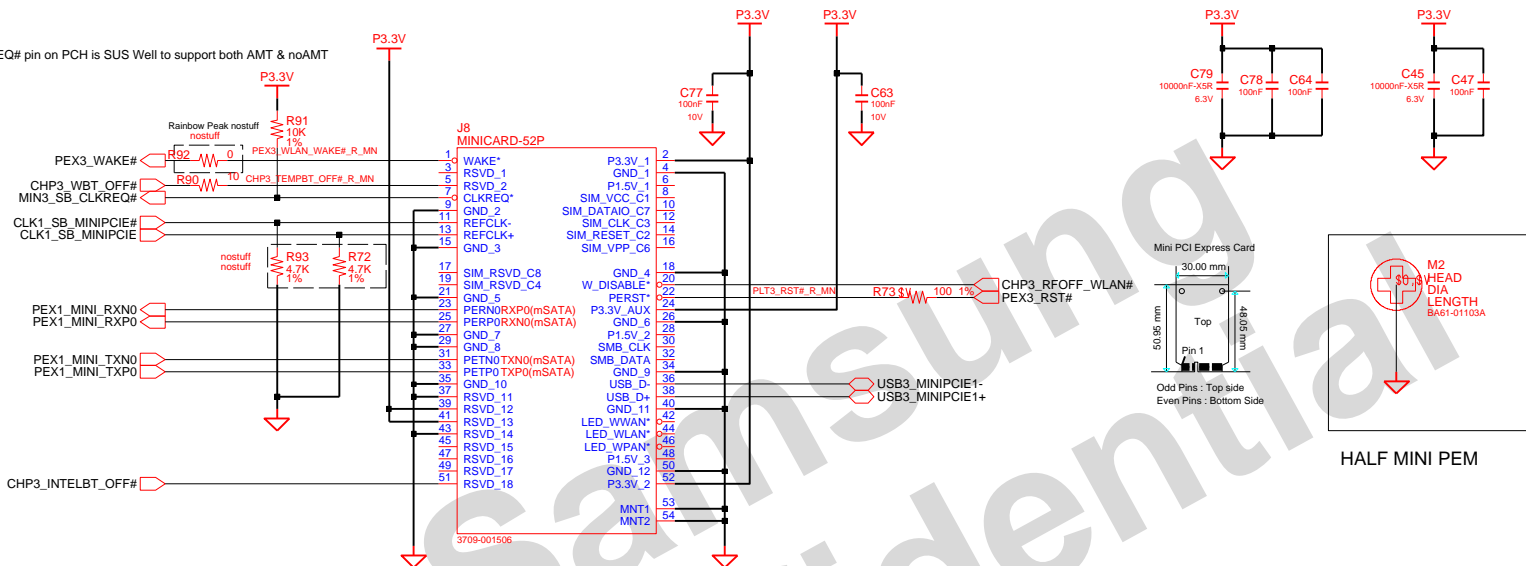
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CHECK	XIAO SUN	DEV. STEP	PV		LAN	
APPROVAL	LEI GUO	REV	REV 1.0		LAN_Realtek_RTL8111E)	
MODULE CODE		LAST EDIT				
September 25, 2012 07:52:37 AM						PAGE 26 OF 42

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WLAN

CLKREQ# pin on PCH is SUS Well to support both AMT & noAMT

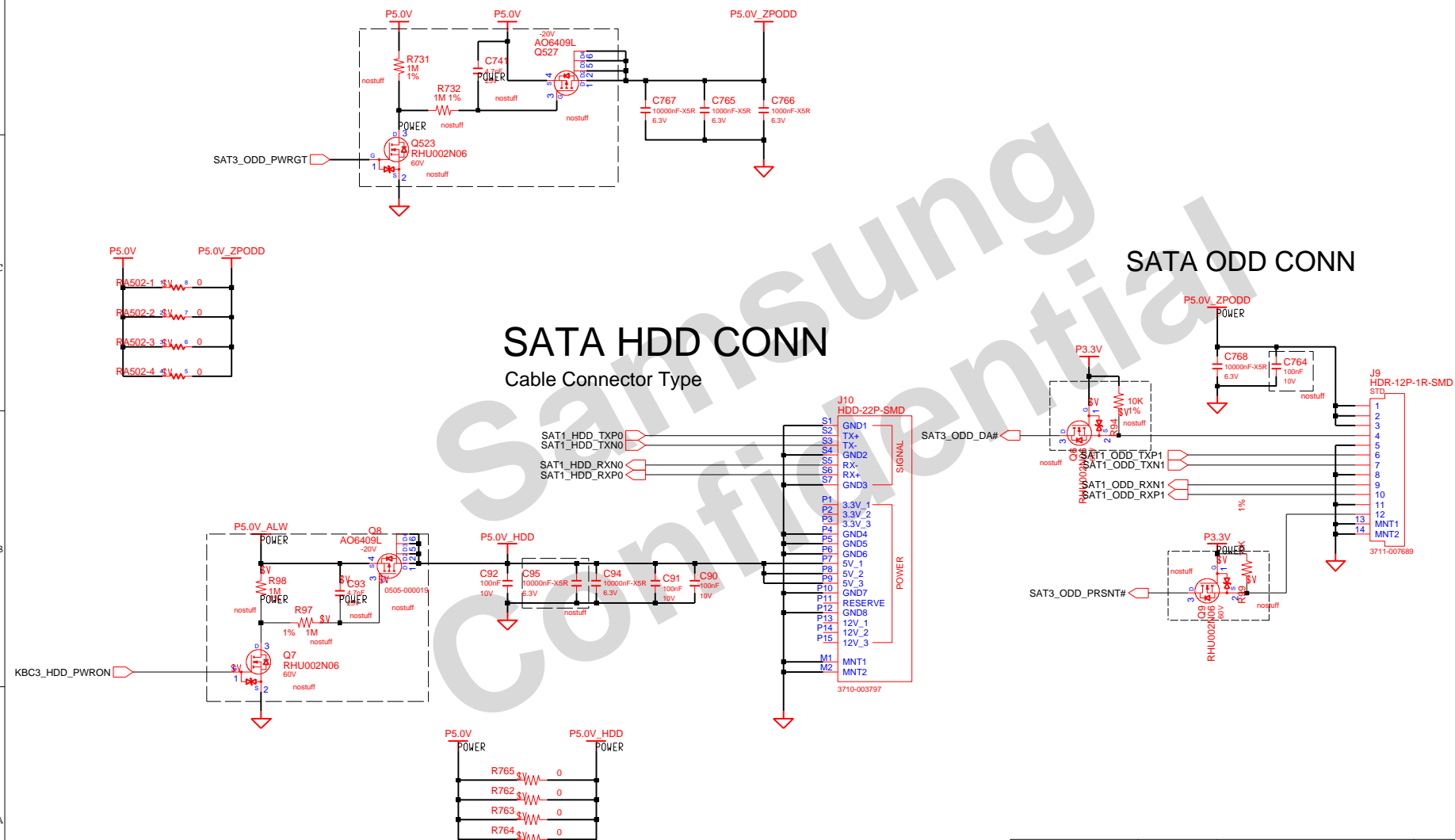


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APPROVAL	LEI GUO	REV	REV 1.0		WLAN	
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 27 OF 42	PART NO. BA41-*****A

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SATA HDD CONN

SATA ODD CONN

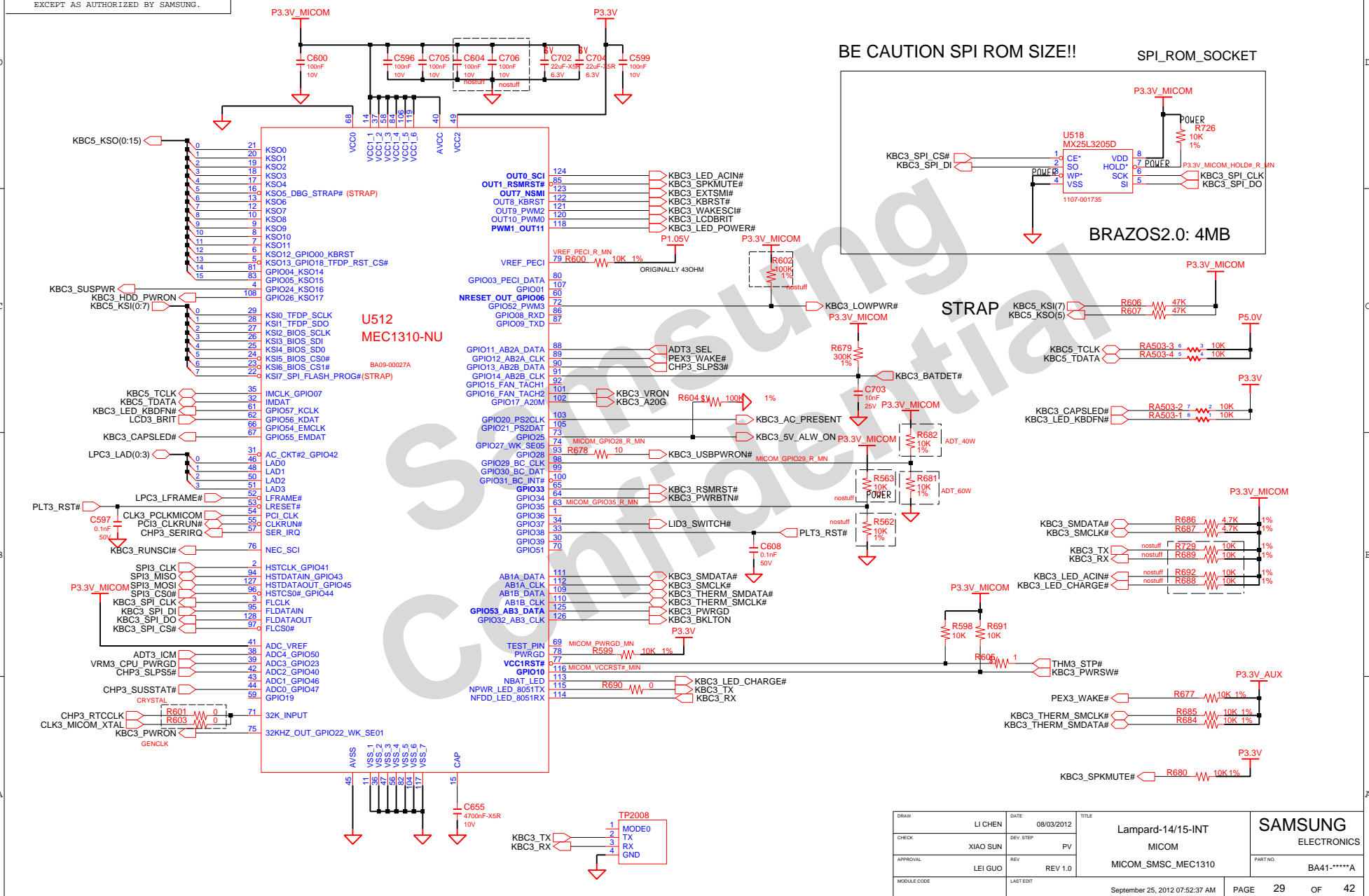


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APPROVAL	LEI GUO	REV	REV 1.0		
MODULE CODE	LAST EDIT				
September 25, 2012 07:52:37 AM				PAGE	28
				OF	42

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MAIN BOARD (MICOM)



BE CAUTION SPI ROM SIZE!!

SPI_ROM_SOCKET

BRAZOS2.0: 4MB

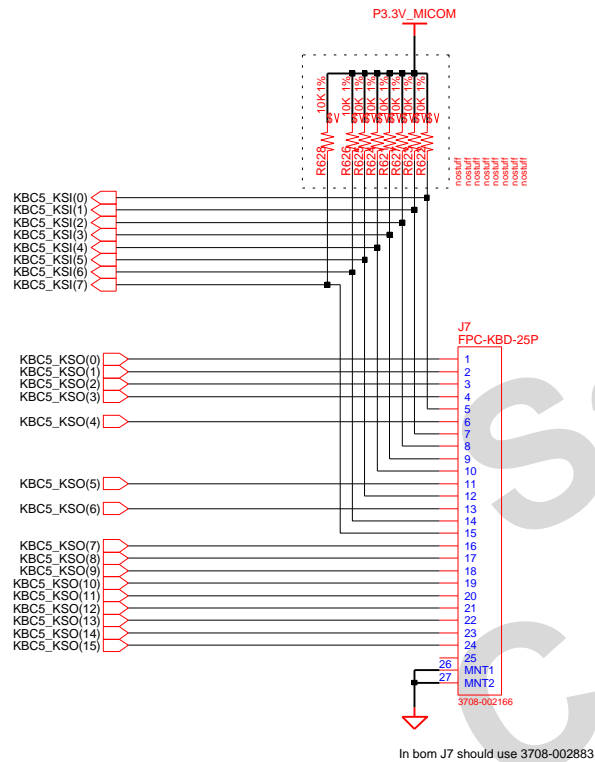
STRAP

DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT
CHECK	XIAO SUN	DEV. STEP	PV		MICOM
APPROVAL	LEI GUO	REV	REV 1.0		MICOM_SMSC_MEC1310
MODULE CODE		LAST EDIT			
September 25, 2012 07:52:37 AM					PAGE 29 OF 42

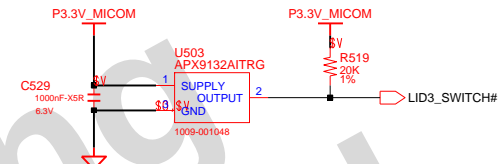
SAMSUNG
ELECTRONICS
PART NO. BA41-****A

Micom Glue

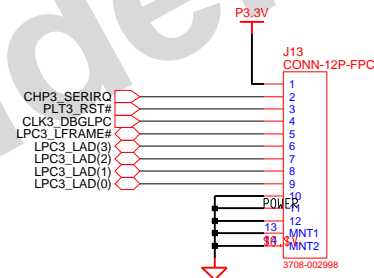
KEYBOARD



LID3_SWITCH



80H PORT DEBUG

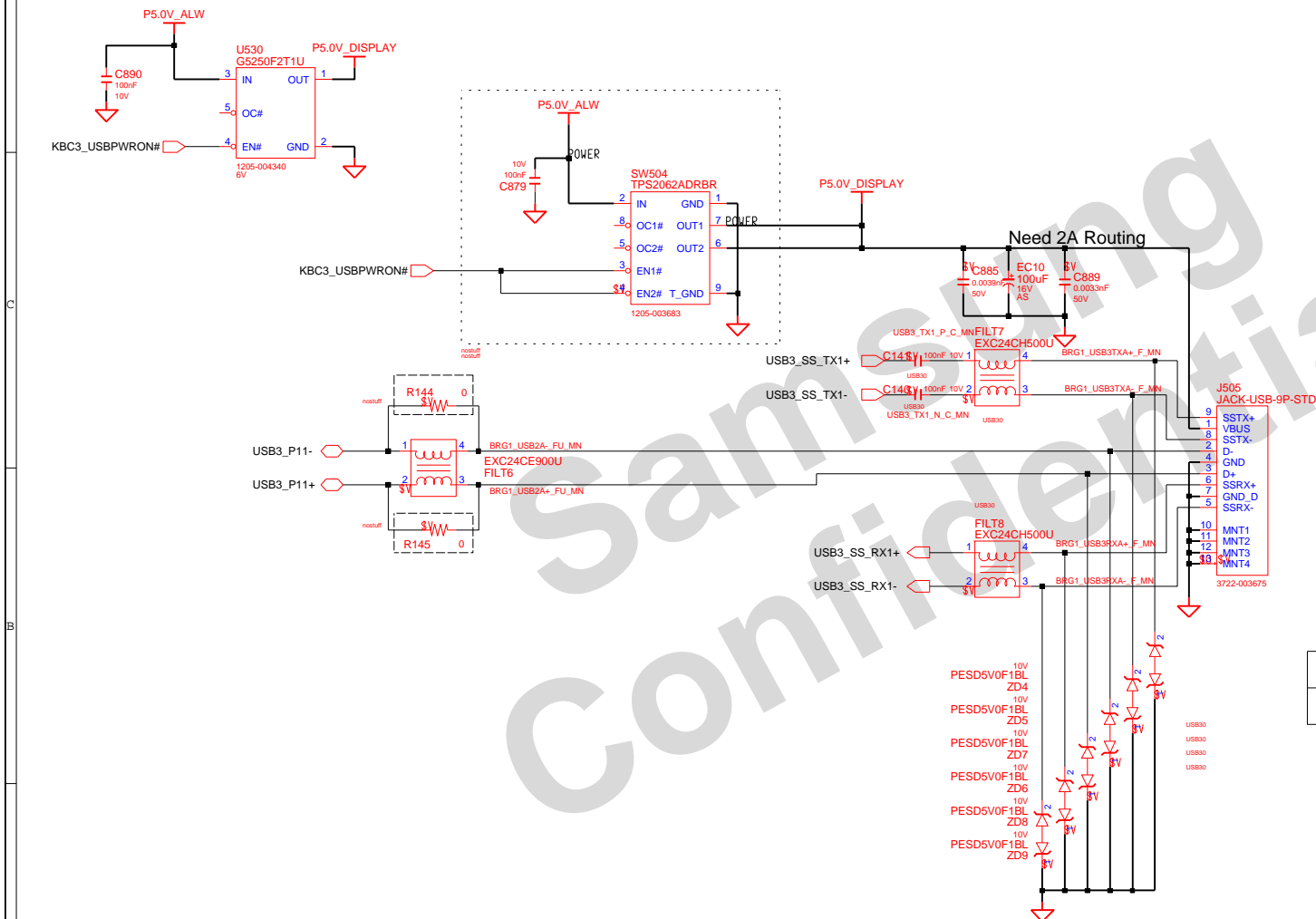


DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT MICOM MICOM GLUE LOGIC	SAMSUNG ELECTRONICS
CHECK	XIAO SUN	DEV. STEP	PV			PART NO. BA41-*****A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 30 OF 42	

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USB 3.0 CONNECTOR



	USB3.0(HM76&HM70)	USB2.0(HM75&NM70)
J504	3722-003330	3722-003302

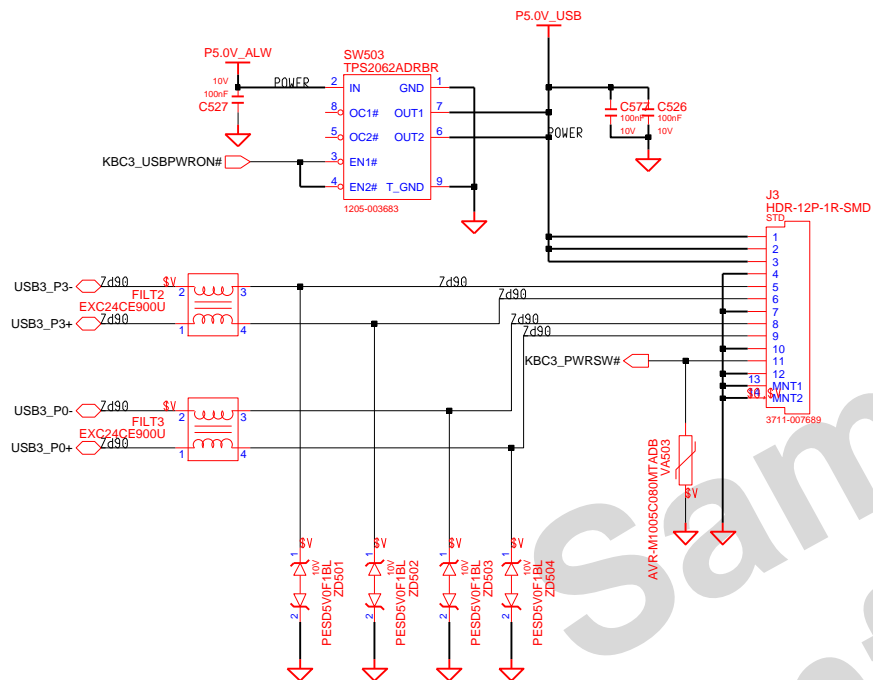
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CHECK	XIAO SUN	DEV. STEP	PV		USB3.0	
APPROVAL	LEI GUO	REV	REV 1.0		USB 3.0 CONNECTOR	
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 31 OF 42	

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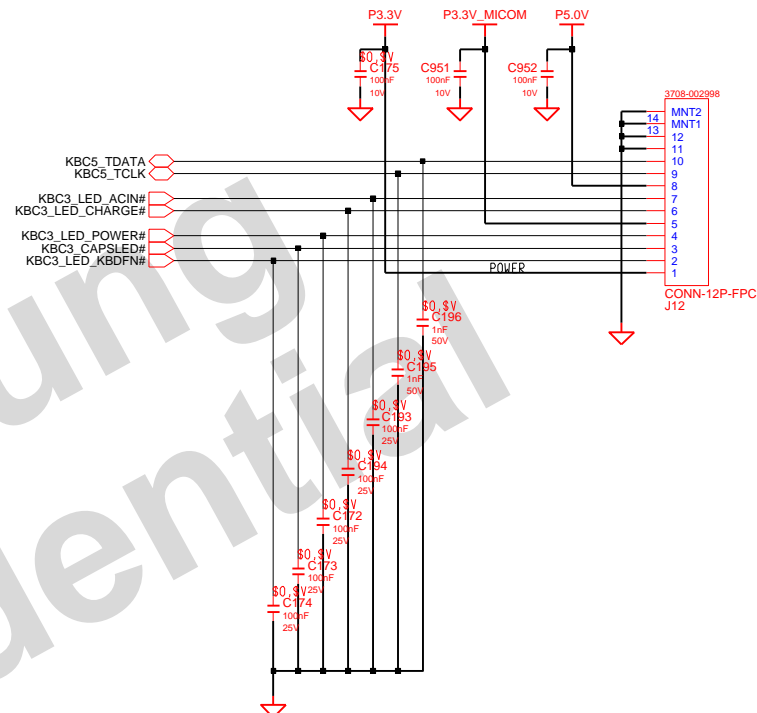
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MAIN TO SUB

MAIN to 3-in-1 / USB SUB



TOUCHPAD & LED MAIN TO SUB

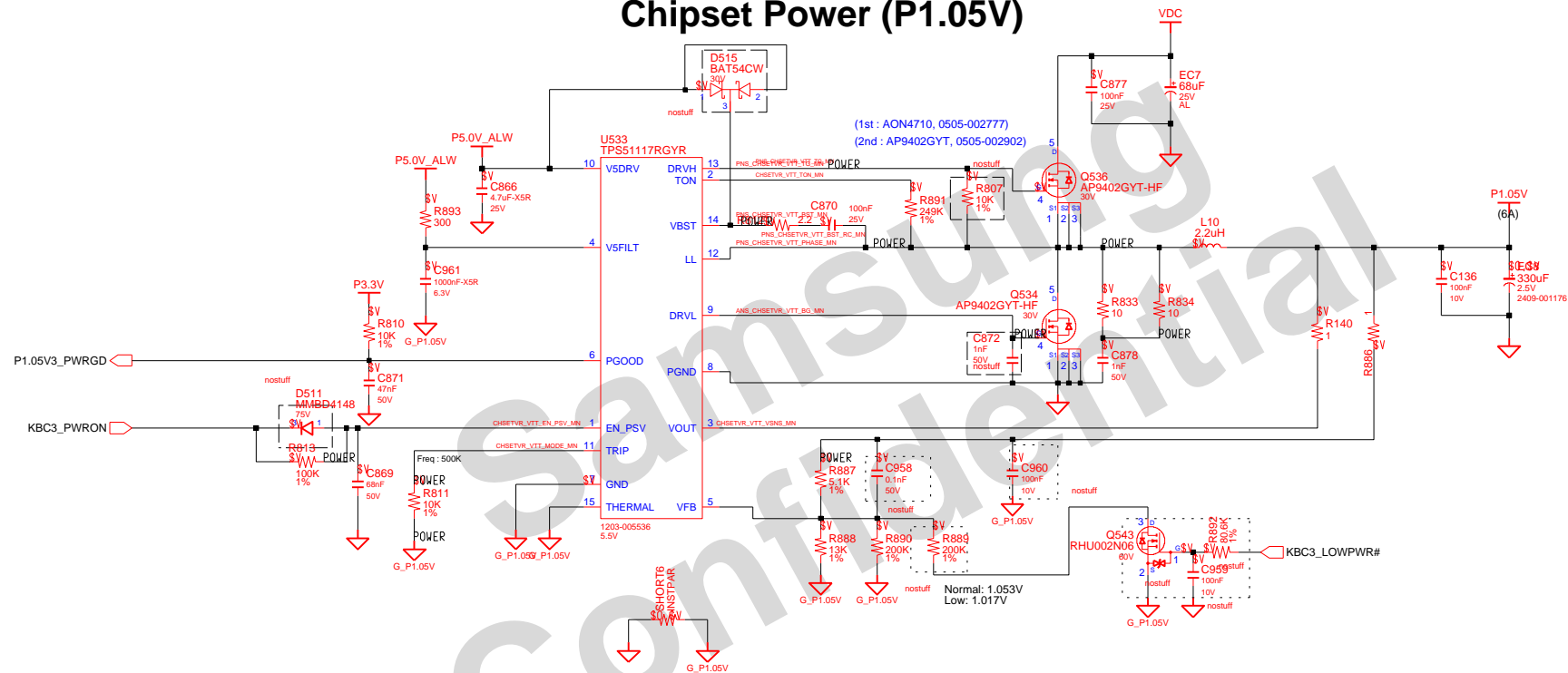


DESIGN	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG ELECTRONICS
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MODULE CODE		LAST EDIT				
				September 25, 2012 07:52:37 AM	PAGE 32 OF 42	PART NO. BA41-*****A

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Chipset Power (P1.05V)



DESIGN	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT CHIPSET PWR	SAMSUNG ELECTRONICS
CHECK	XIAO SUN	DEV. STEP	PV			PART NO. BA41-*****A
APPROVAL	LEI GUO	REV	REV 1.0		P1.05V	
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE 35	OF 42

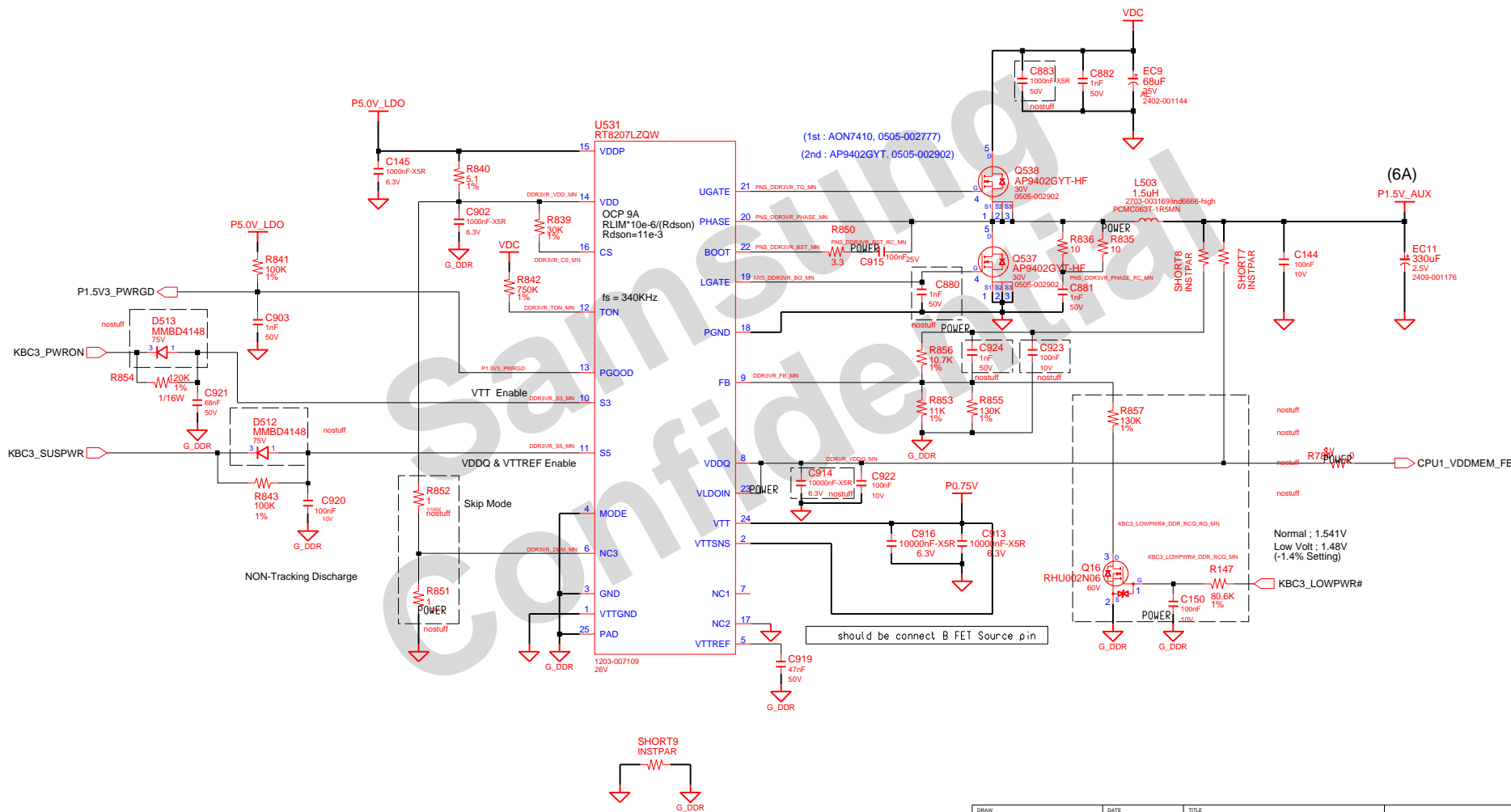
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[illegible]

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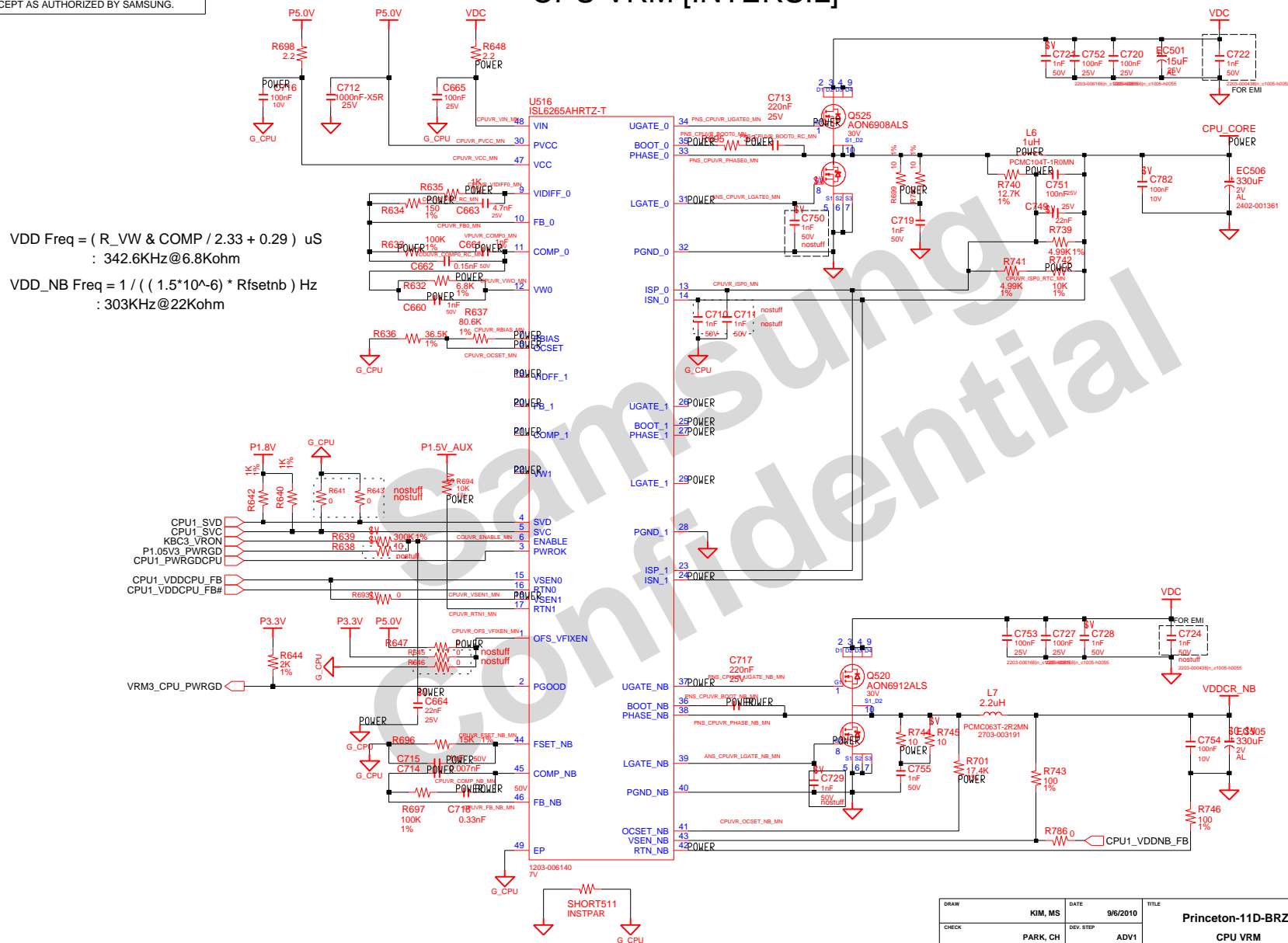
DDR3 Power



DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG ELECTRONICS	
CHECK	XIAO SUN	DEV. STEP	PV				P1.05V
APPROVAL	LEI GUO	REV	REV 1.0				VT386FCX
MODULE CODE	undefined	LAST EDIT	September 25, 2012 07:52:37 AM		PAGE	37 OF 42	
					PART NO.	BA41-*****A	

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CPU VRM [INTERSIL]



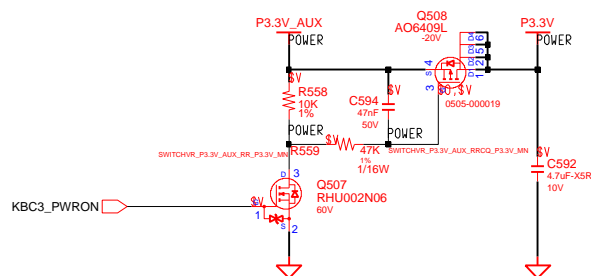
DRAW		KIM, MS	DATE	9/6/2010	Princeton-11D-BRZ2 CPU VRM ISL6265AHRTZ-T	SAMSUNG ELECTRONICS	
CHECK		PARK, CH	DEV. STEP	ADV1			
APPROVAL		CHO, KS	REV	REV 0.23		PART NO.	BA41-####A
MODULE CODE		LAST EDIT				February 28, 2012 13:33:37 PM	PAGE 36 OF 40

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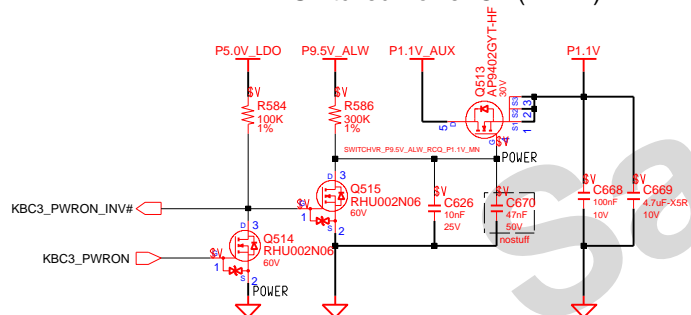
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Switched Power

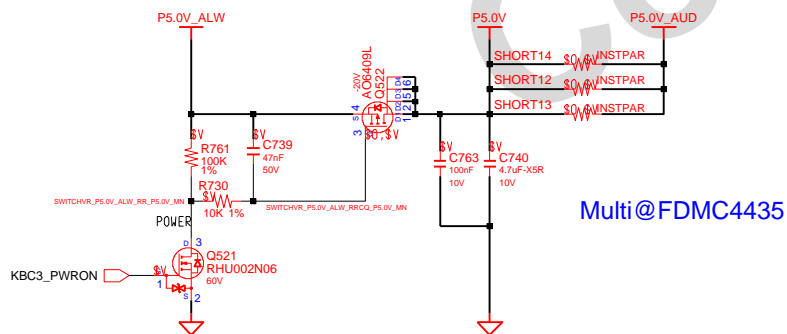
Switched Power On (P3.3V) Multi@AP2607GY



Switched Power On (P1.1V)



Switched Power On (P5.0V)

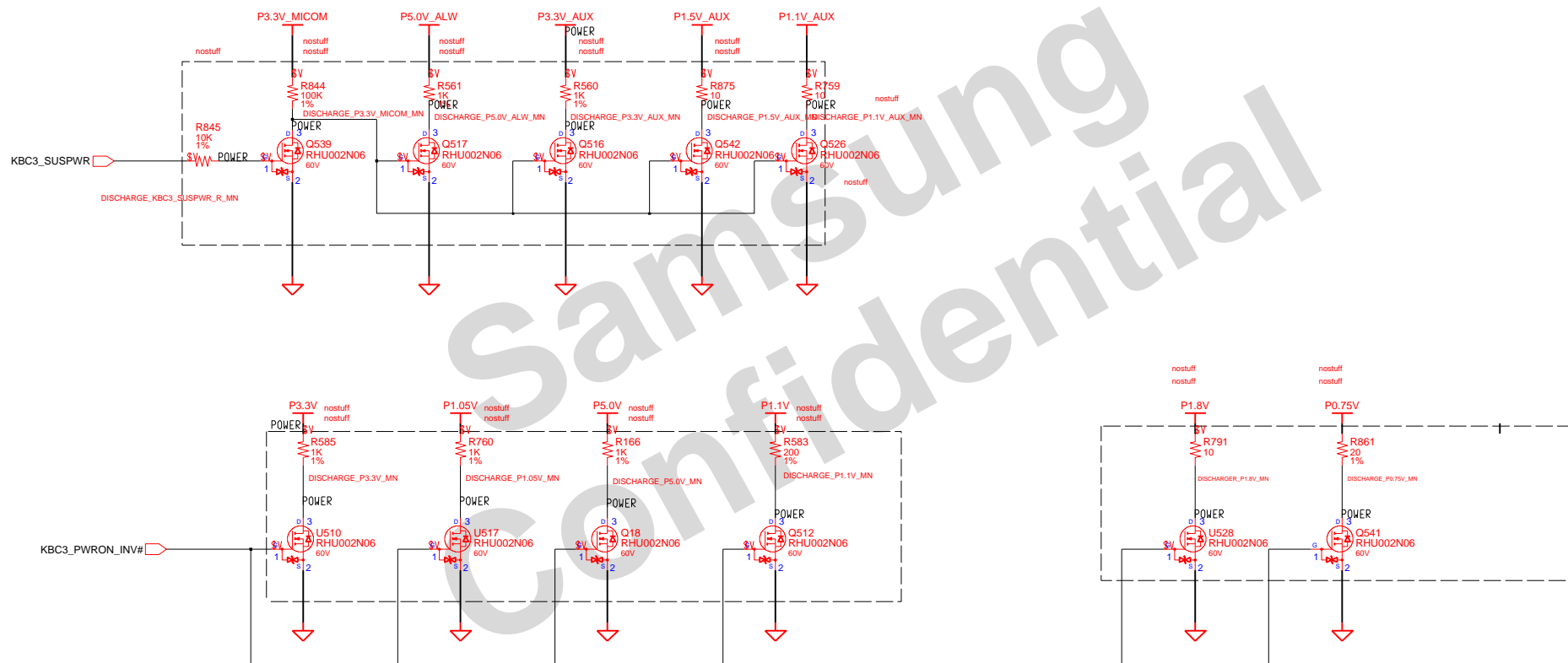


DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG
CHECK	XIAO SUN	DEV. STEP	PV	PWR_MV_SWITCHED	ELECTRONICS	
APPROVAL	LEI GUO	REV	REV 1.0	SWITCHED POWER	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT		September 25, 2012 07:52:37 AM	PAGE	39 OF 42

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POWER DISCHARGER

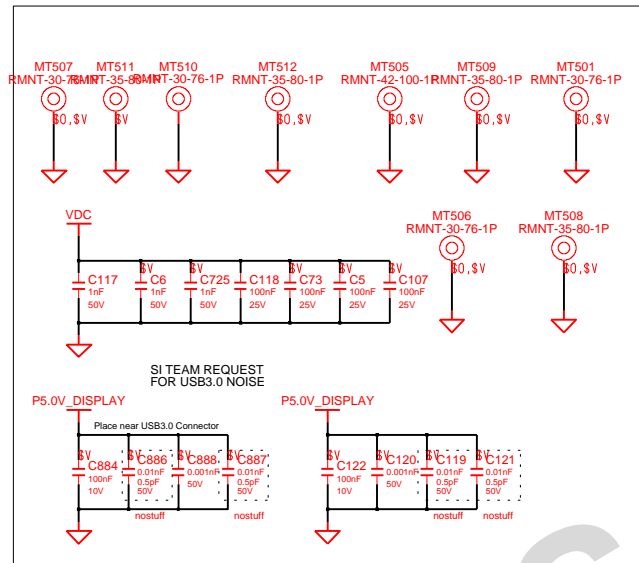


DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT	SAMSUNG ELECTRONICS
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APPROVAL	LEI GUO	REV	REV 1.0		DISCHARGING LOGIC	
MODULE CODE	undefined	LAST EDIT	September 25, 2012 07:52:37 AM	PAGE	40	OF 42

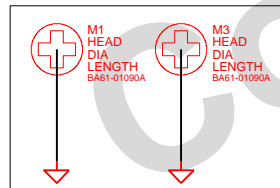
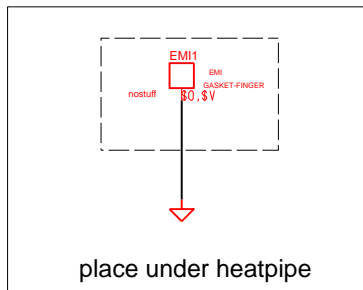
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Mainboard Mount ((40-80)X2EA, (30-76)X5EA))

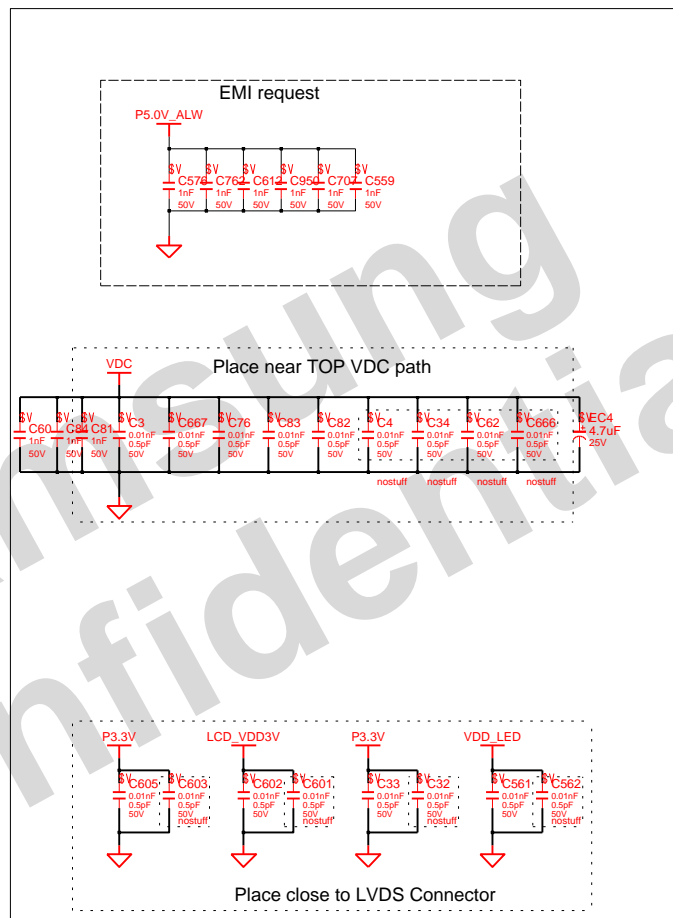


WLAN Performance issue

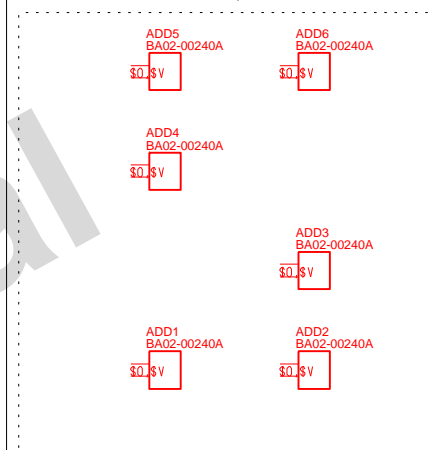


PCH mount

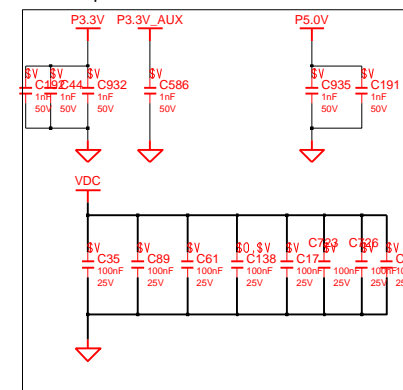
WLAN Performance issue



Corner Fill for CPU, PCH



EMI request



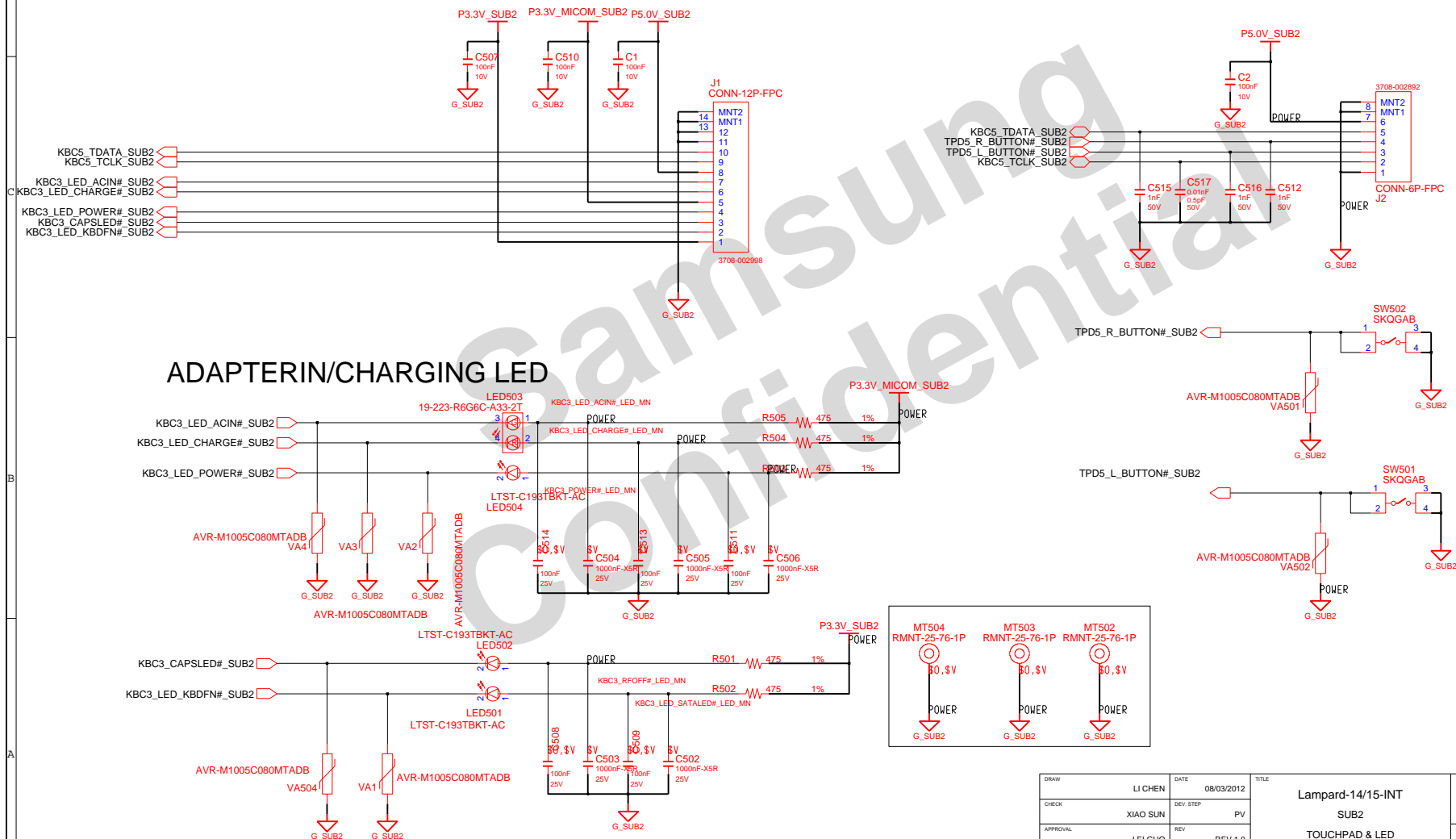
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APPROVAL	LEI GUO	REV	REV 1.0		MOUNT HOLE	
MODULE CODE		LAST EDIT				
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TP SUB BOARD

TOUCHPAD



DRAW	LI CHEN	DATE	08/03/2012	TITLE	Lampard-14/15-INT SUB2 TOUCHPAD & LED	SAMSUNG ELECTRONICS
CHECK	XIAO SUN	DEV. STEP	PV			PART NO. BA41-*****A
APPROVAL	LEI GUO	REV	REV 1.0			
MODULE CODE		LAST EDIT				
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