

SCALA2-AMD

CPU : ZACATE
Chip Set : HUDSON-M1
GFX : SEYMOUR-S3
Remarks : AMD Brazos Platform

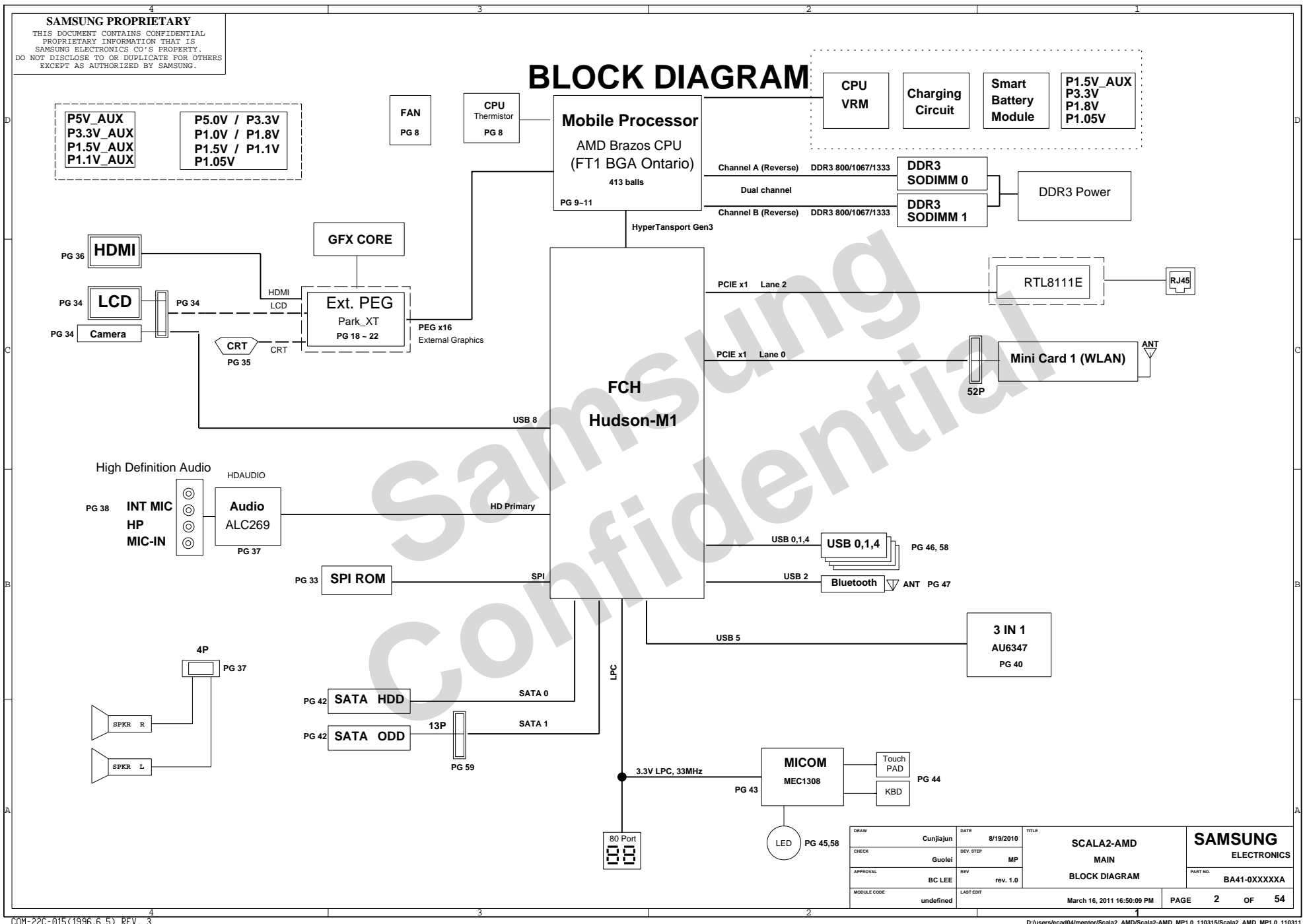
Model Name : SCALA2-AMD
PBA Name : MAIN
PCB Code : BA41-01533A (GCE)
BA41-01534A (NY)
BA41-01532A (HAN)
Dev. Step : MP
Revision : 1.0
T.R. Date : 2011.03.11

Design	CHECK	APPROVAL
Cun jia jun	Lei Guo	BC LEE

Owner : SEC IT Solution N/P LAB Signature : wanni

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DRAW	Cunjiajun	DATE	03/11/2011	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guo lei	DEV. STEP	MP	MAIN		ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0	COVER		PART NO. BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	1	OF 54



BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails		Active in
VDC P12.0V_ALW P3.3V_MICOM P5.0V_ALW P5.0V_STB	Primary DC system power supply (7 to 21V) 12.0V always power rail 3.3V always power rail (for Micom) 5.0V always power rail 5.0V always power rail	S4 - S5
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 DDR (off in S4-S5)	S3
P5.0V P3.3V P1.8V P1.5V P1.05V P0.75V	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) 1.05V power rail for chipset (off in S3-S5) 0.9V power rail for DDR (off in S3-S5)	S0
VCC_CORE IGFX_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for IGFX Core Voltage for GPU VCC for Arrandale & IBEX Peak	S0

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	3	NC
3	Multi Memory Card Controller	4	LAN CONTROLLER
4	NC	5	NC
5	NC	6	NC
6	NC (N/A WITH HM55)	7	NC (N/A WITH HM55)
7	NC (N/A WITH HM55)	8	NC (N/A WITH HM55)
8	NC		
9	SYSTEM PORT 2 (SUB BOARD)		
10	Bluetooth		
11	Camera		
12	NC		
13	NC		

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	ODD
2	(N/A WITH HM55)
3	(N/A WITH HM55)
4	
5	

Crystal / Oscillator			
TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	IBEX-PEAK	Real Time Clock
Crystal	14.318MHz	CLOCK-Generator	CK-505
Crystal	25MHz	LAN	Intel LAN

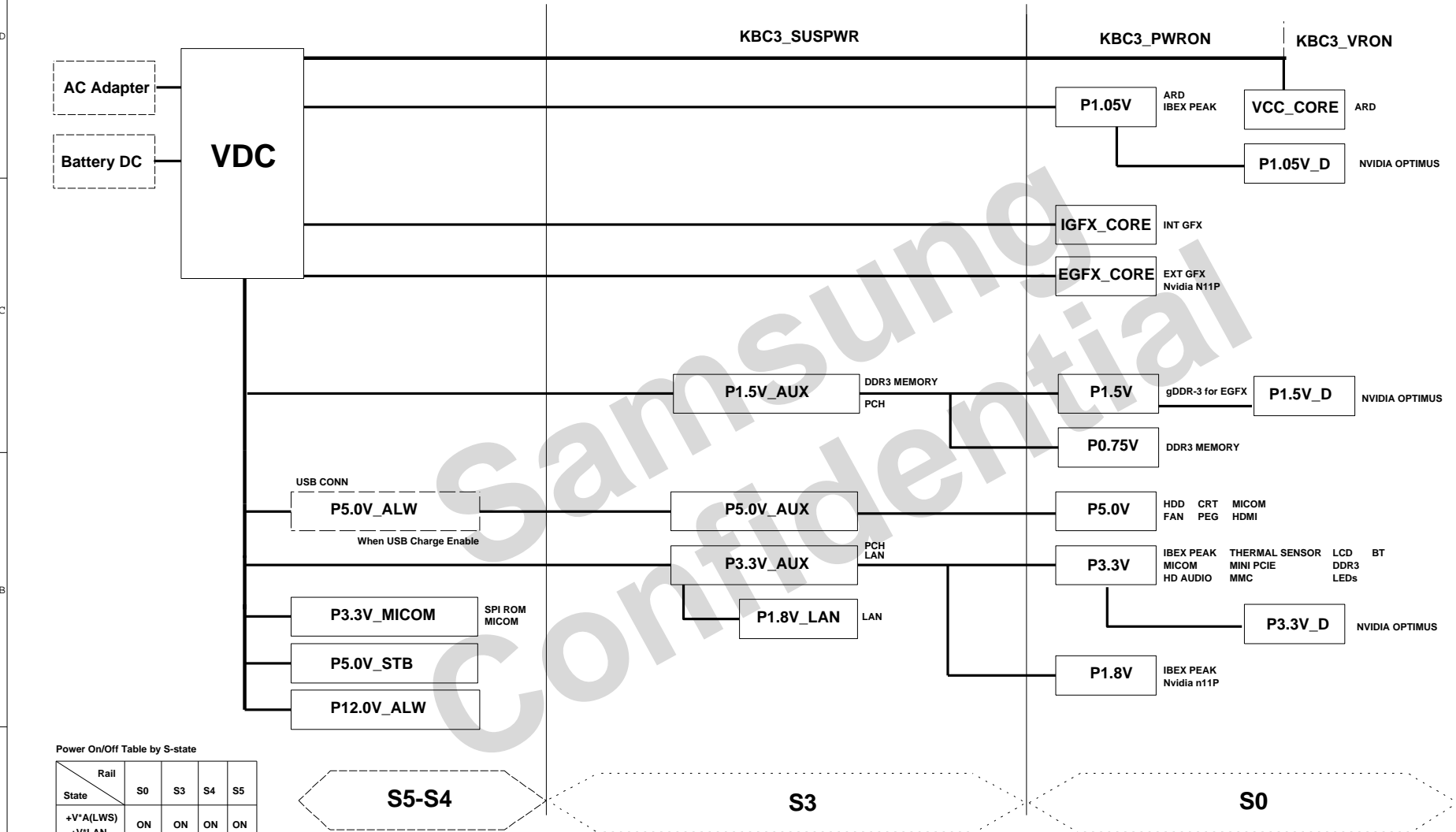
LCD Pannel Detect		
Devices	Resolution	PANNEL_DETECT_0
LTN140AT17	HD(1366x768)	SEC3250

I ² C / SMB Address			
Devices	Address	Hex	Bus
IBEX PEAK	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	
SODIMM0	1010 000x	A0h	Thermal Sensor
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
CK-505M Shrink(Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
Thermal Sensor on board	1101 100x	98h	
Power thermal management TS	1101 011x	96h	

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MODULE CODE	undefined	LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	3	OF 54

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POWER DIAGRAM



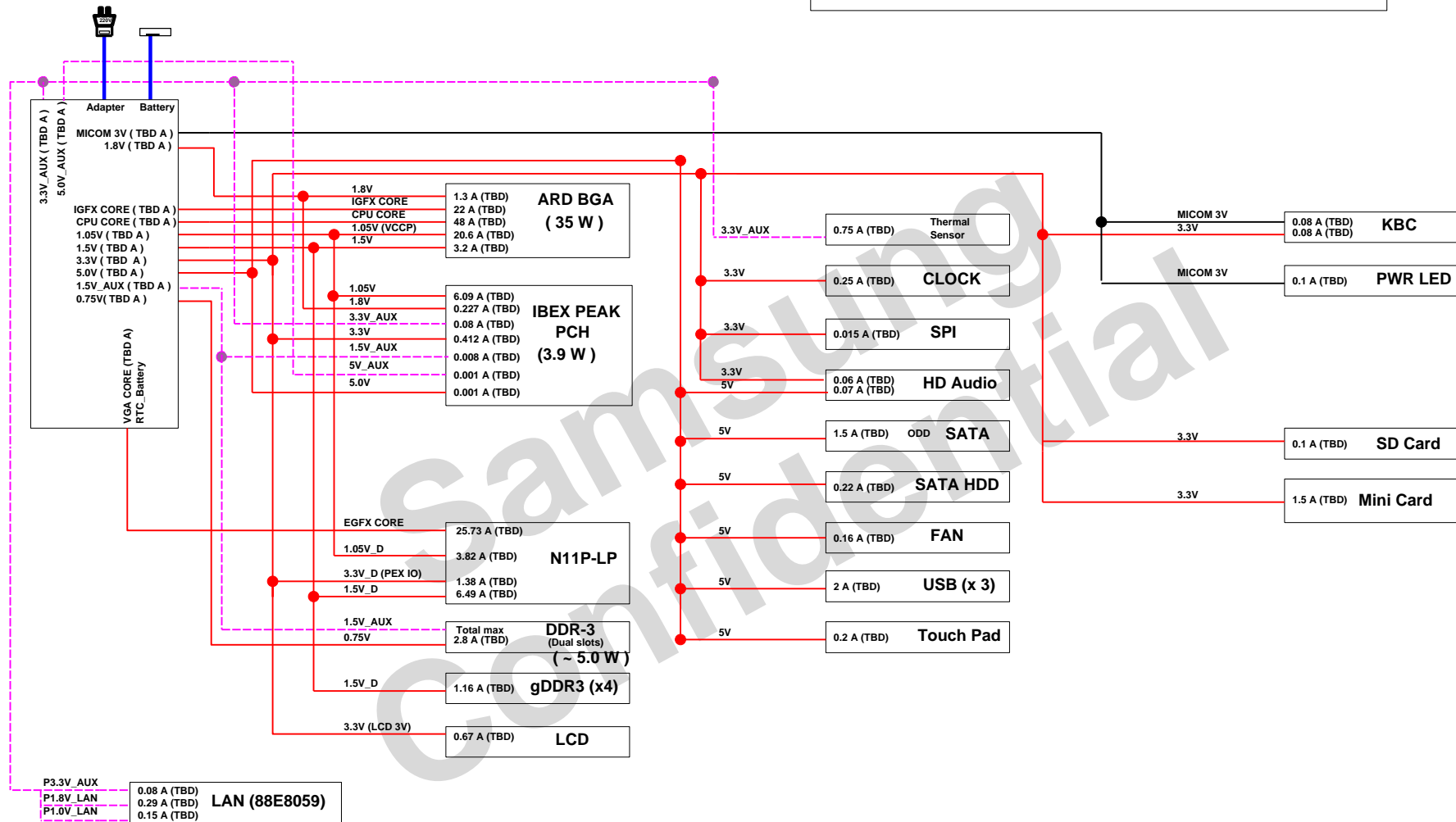
Power On/Off Table by S-state

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

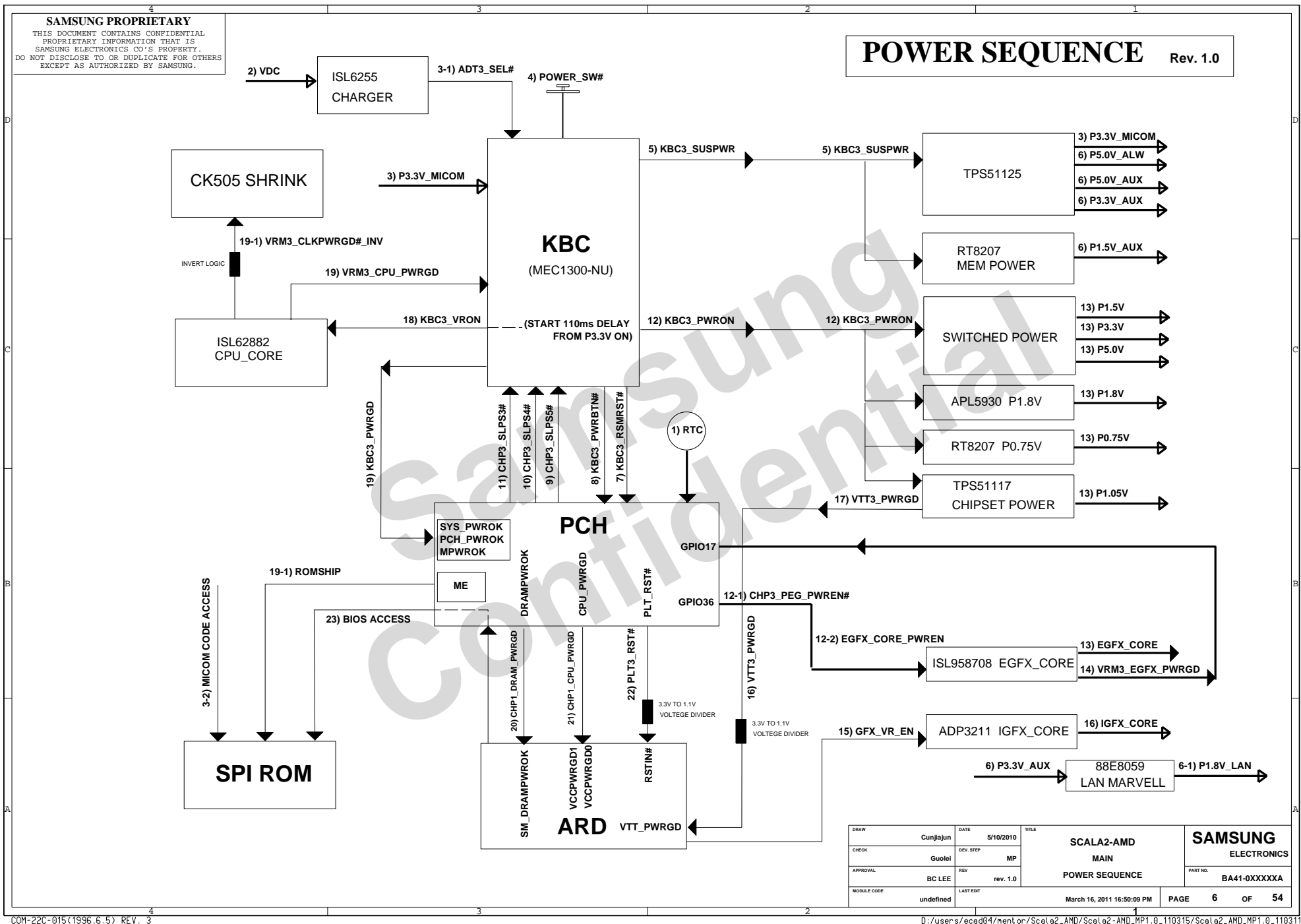
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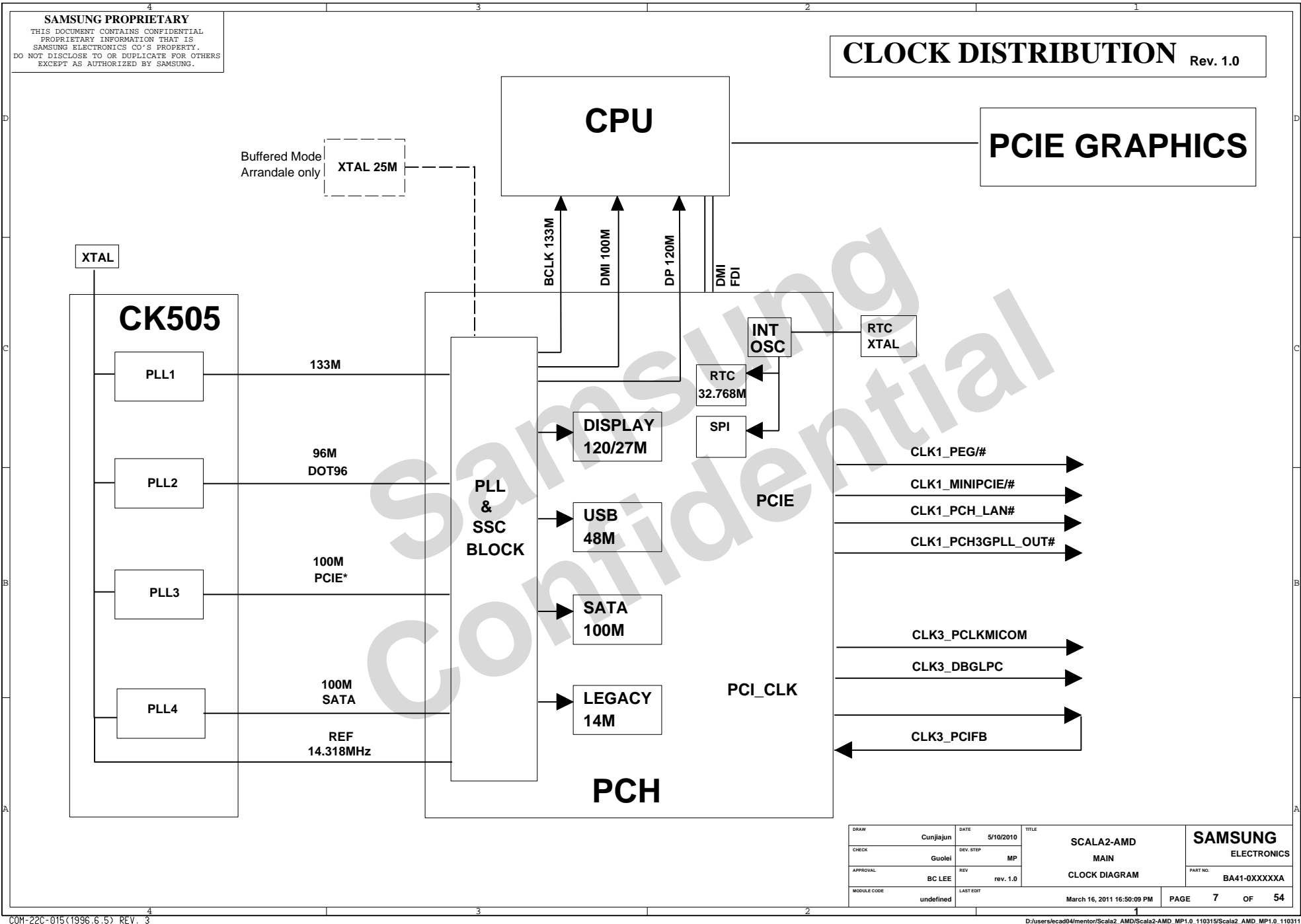
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POWER RAILS ANALYSIS



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APPROVAL	BC LEE	REV	rev. 1.0		
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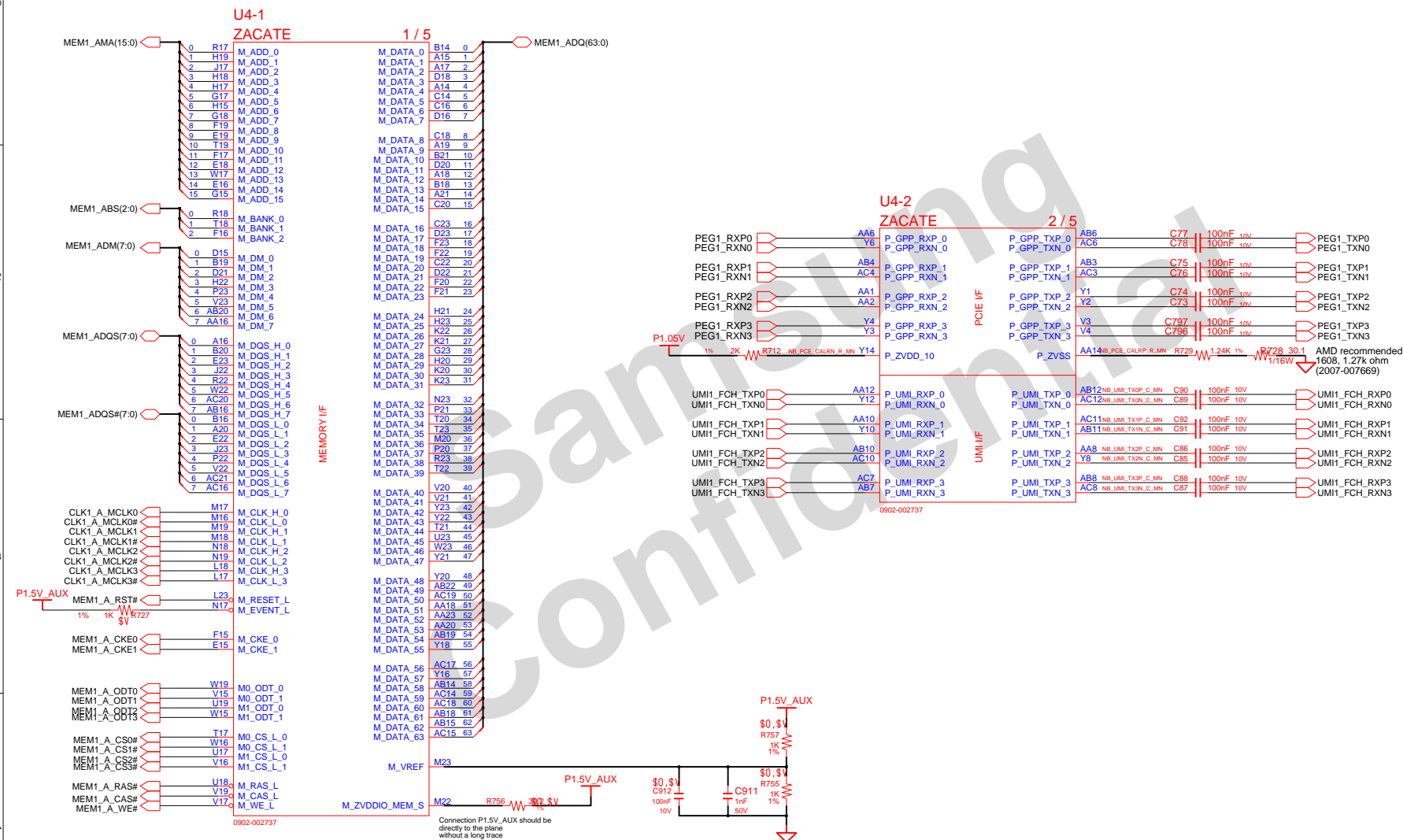
ADDRESSSEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

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

DESIGN	Cunjiajun	DATE	8/19/2010	SCALA2-AMD THERMAL SENSOR THERMAL SENSOR EMC2112	SAMSUNG ELECTRONICS		
CHECK	Guo lei	DEV. STEP	MP				
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CPU_ZACATE



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CHECK	Guolei	REV. STEP	MP				CPU			
APPROVAL	BC LEE	REV	rev. 1.0				culv			
							PART NO.	BA41-0XXXXXA		
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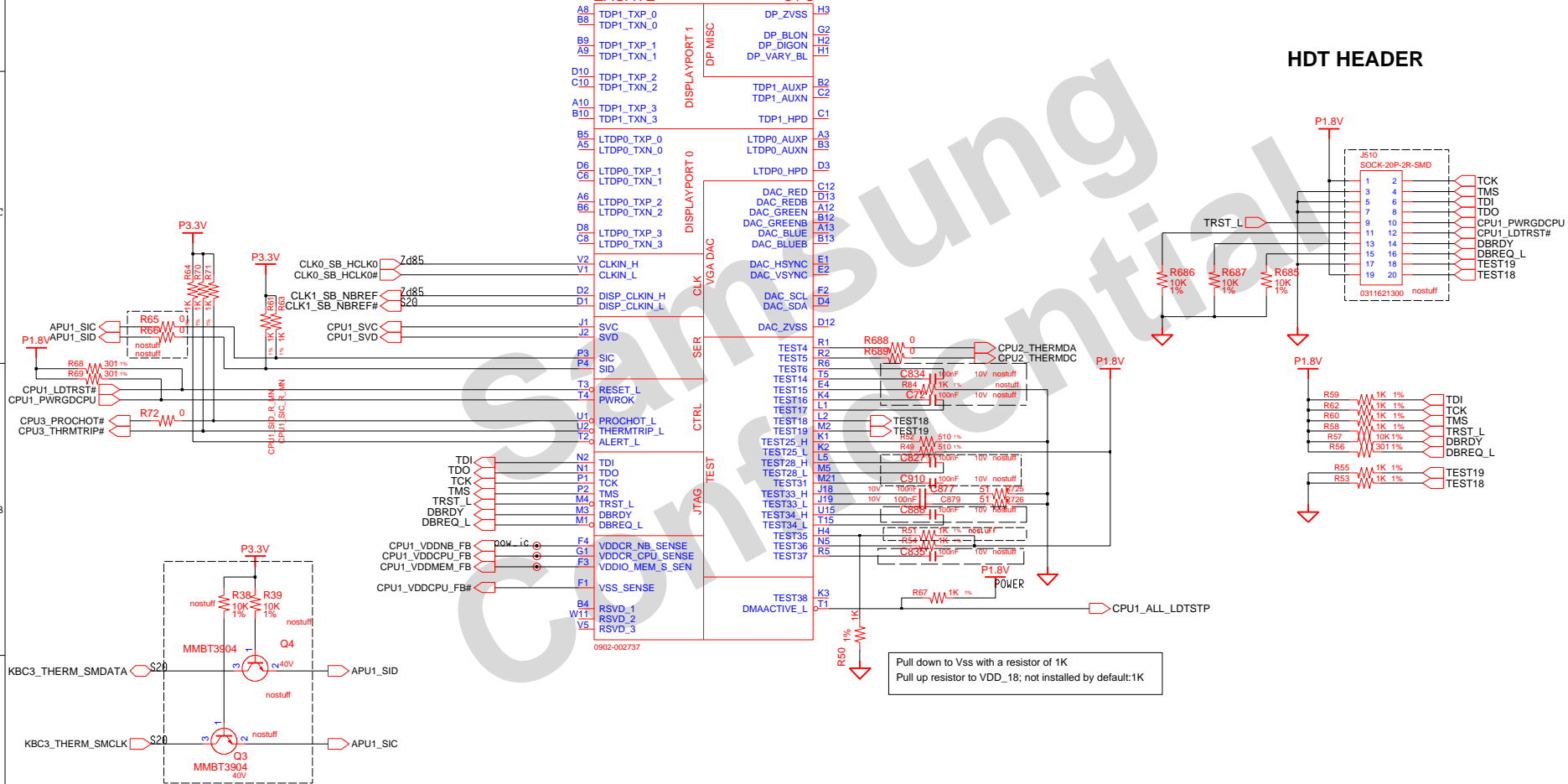
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CPU_ZACATE

U4-3
ZACATE

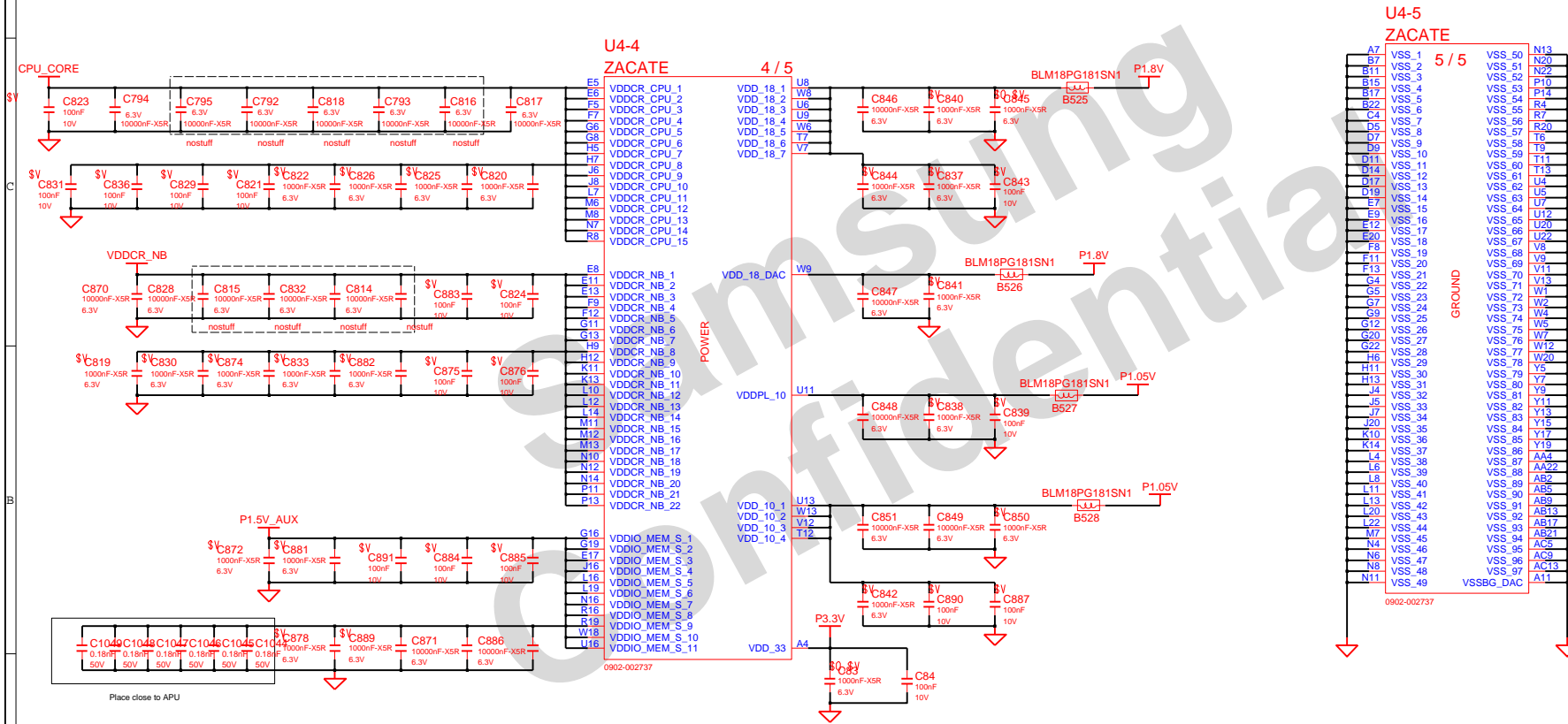
3/5

HDT HEADER



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CPU_ZACATE



DESIGN	Cunjiejun	DATE	1/29/2010	TITLE	SCAL2-AMD CPU_IC UNDEFINED	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXXA
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APPROVAL	BC LEE	REV	rev. 1.0			
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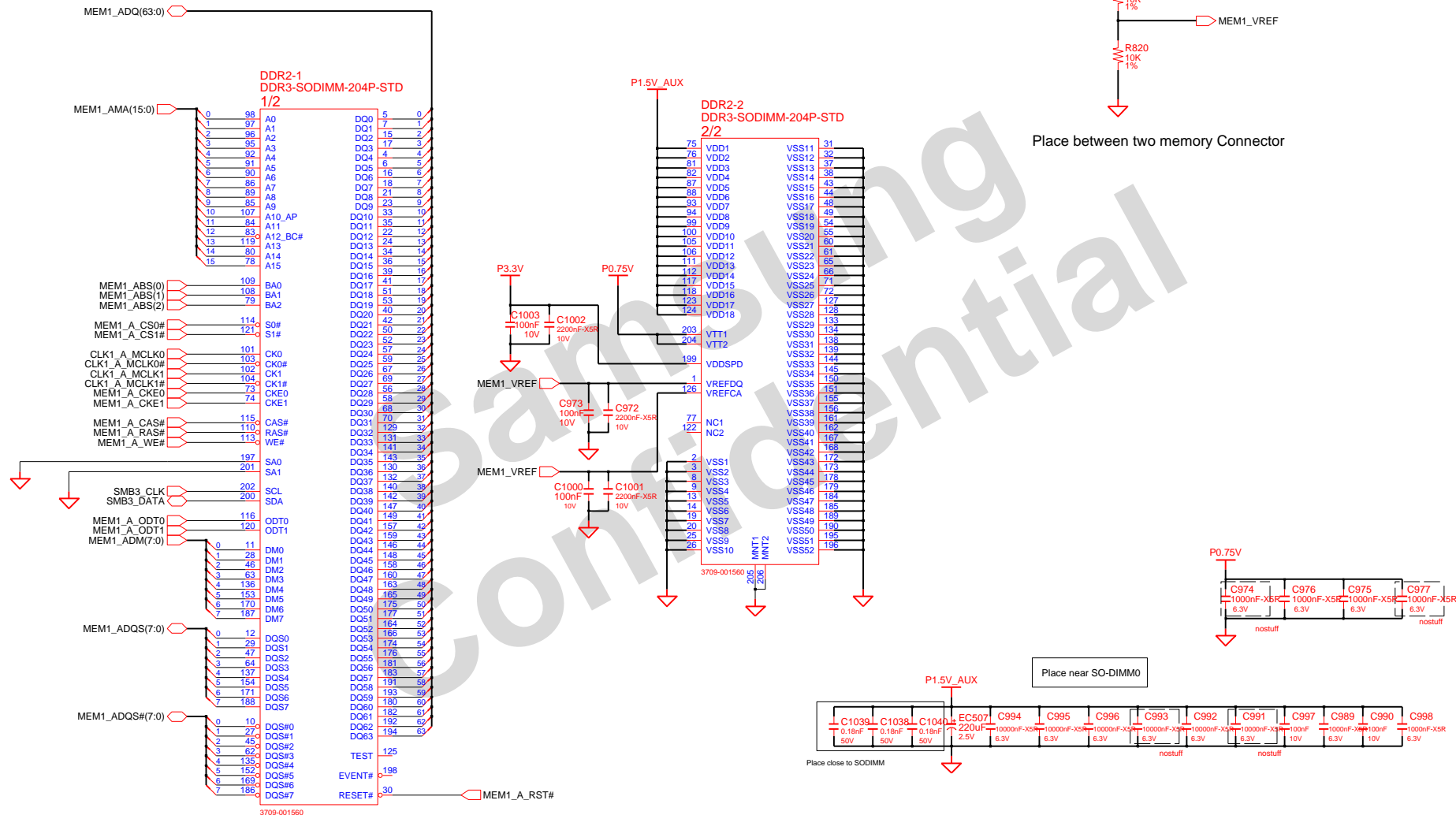
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DDR SO-DIMM #0

Height : 8 mm (STANDARD)

P/N : 3709-001615 (FOXCONN)

P/N : 3709-001622 (CONCRAFT)



DRAW	Curjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		SODIMM B	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		DDR3	PART NO.
MODULE CODE		LAST ENT				BA41-0XXXXXA
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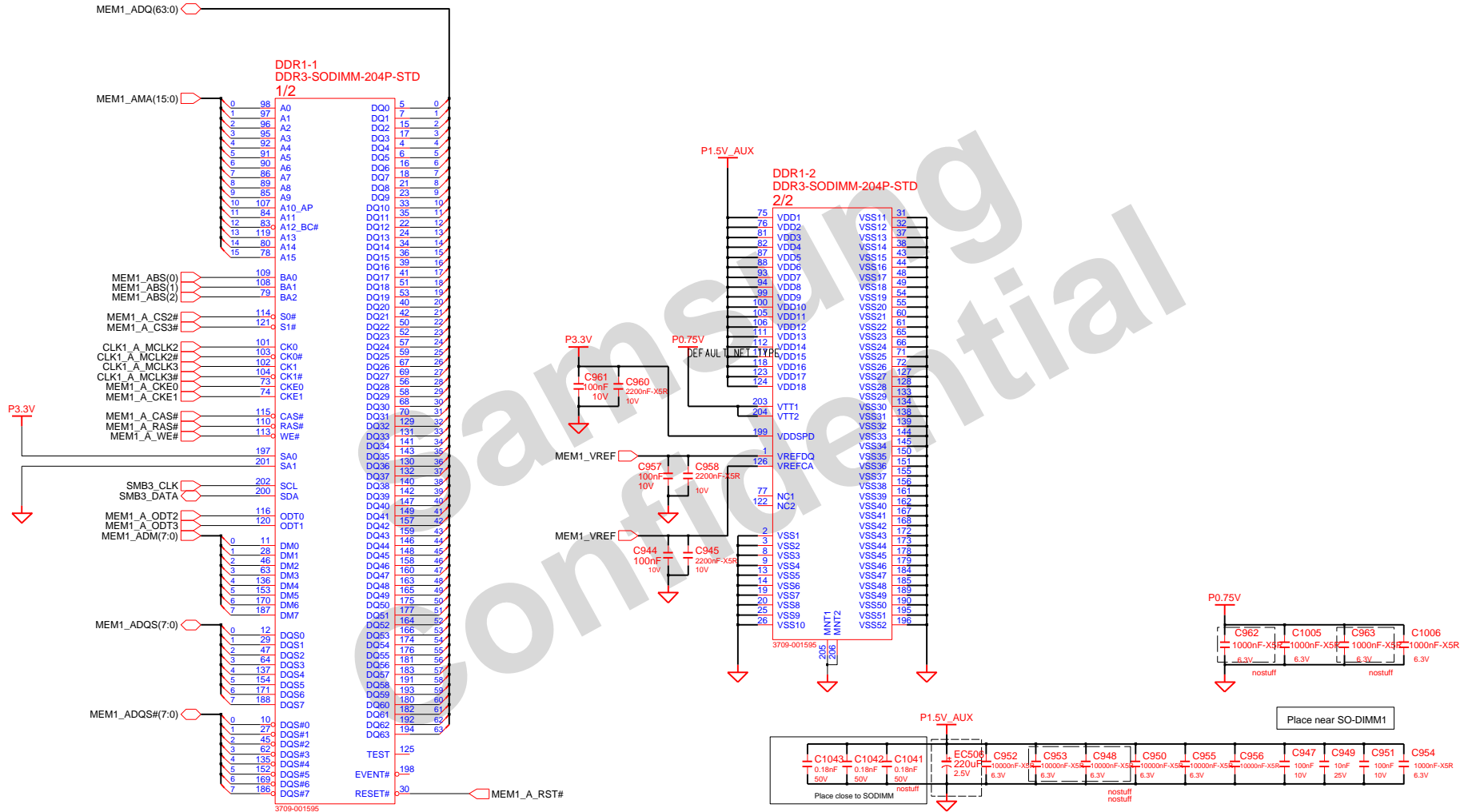
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DDR SO-DIMM #1

Height : 4 mm (STANDARD)

P/N : 3709-001560 (FOXCONN)

P/N : 3709-001607 (CONCRAFT)

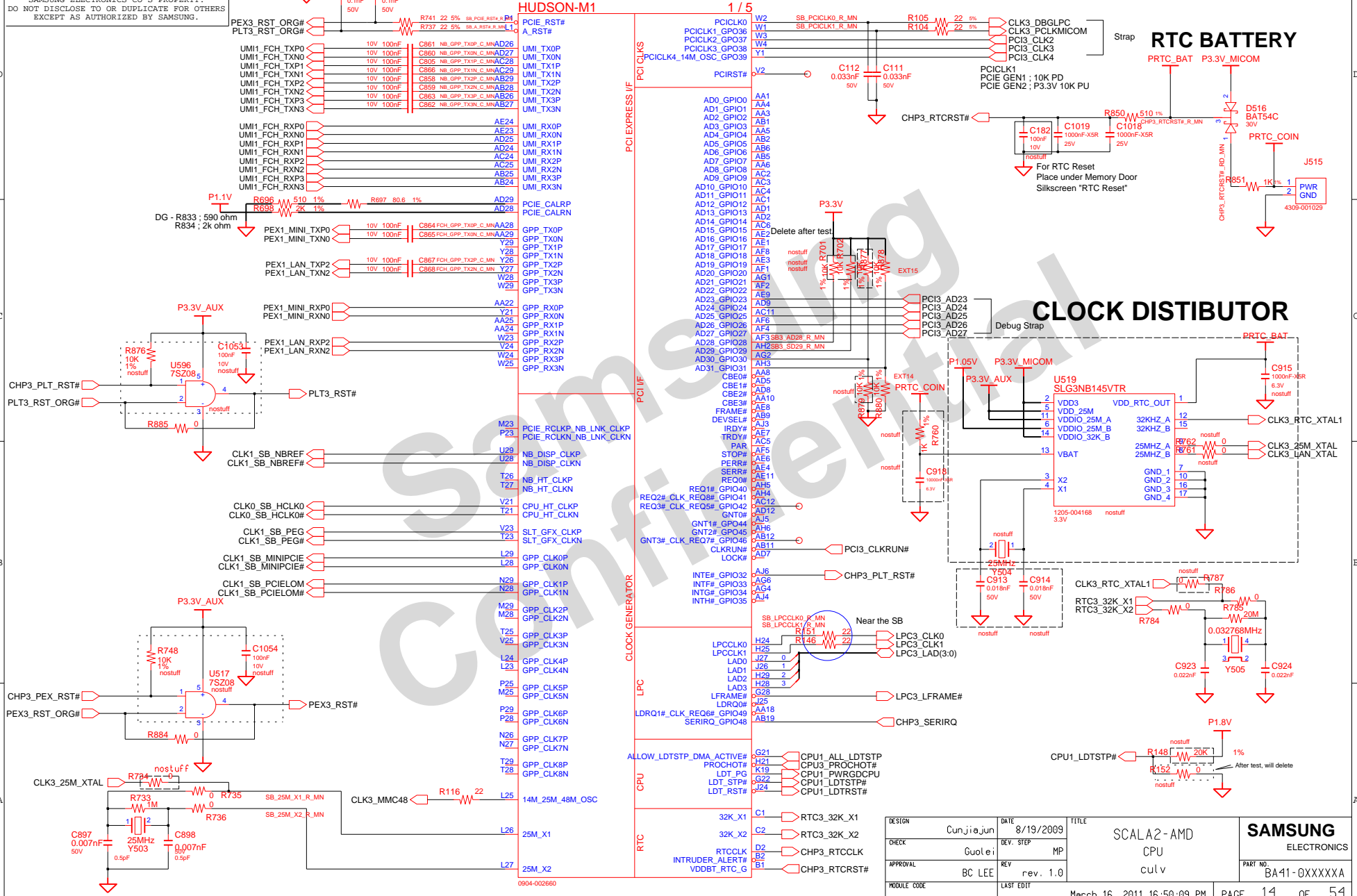


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FCH_HUDSON

U516-1
HUDSON-M1



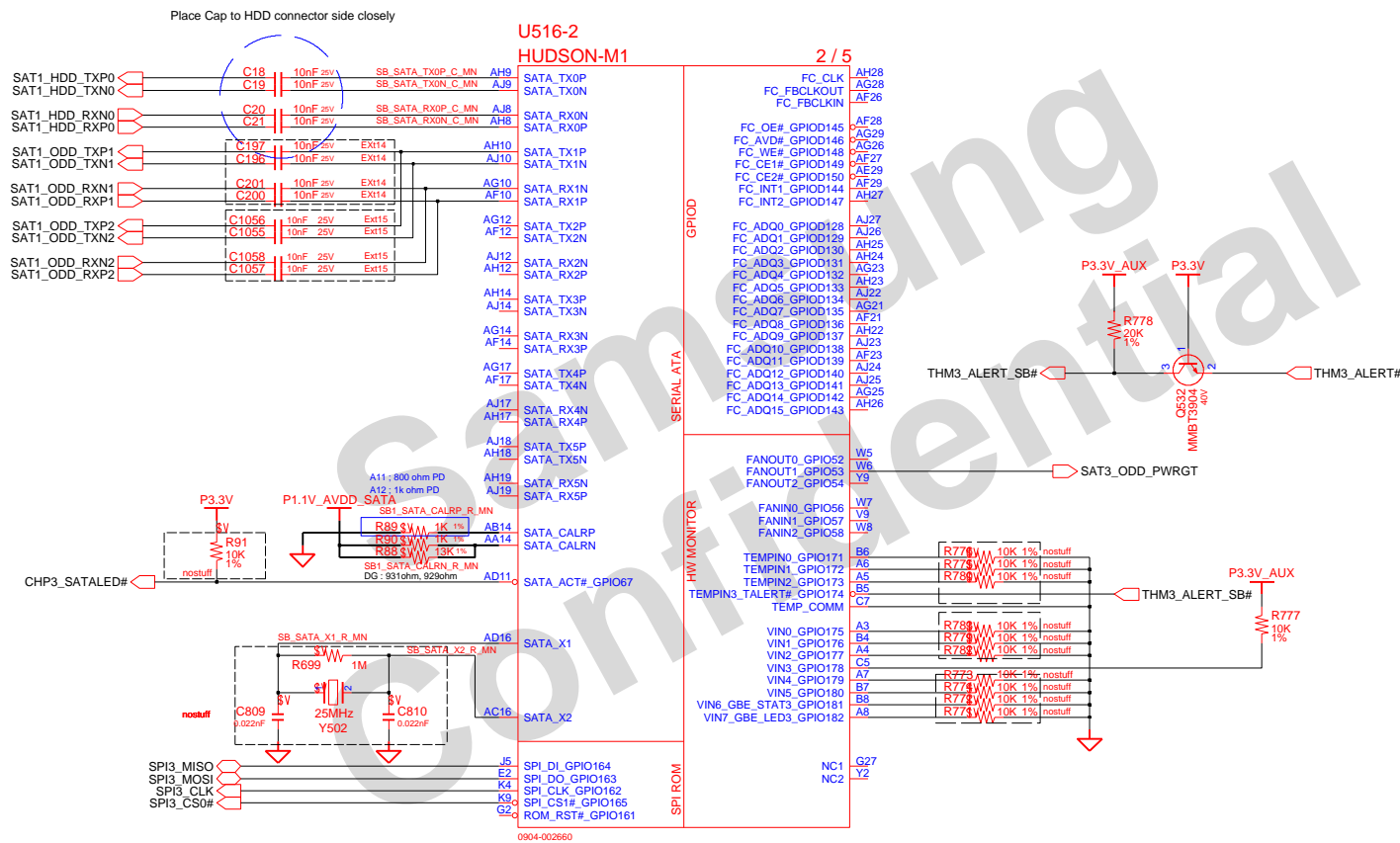
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CHECK	Guolei	DEV. STEP	MP		CPU
APPROVAL	BC LEE	REV	rev. 1.0		culv
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FCH_HUDSON

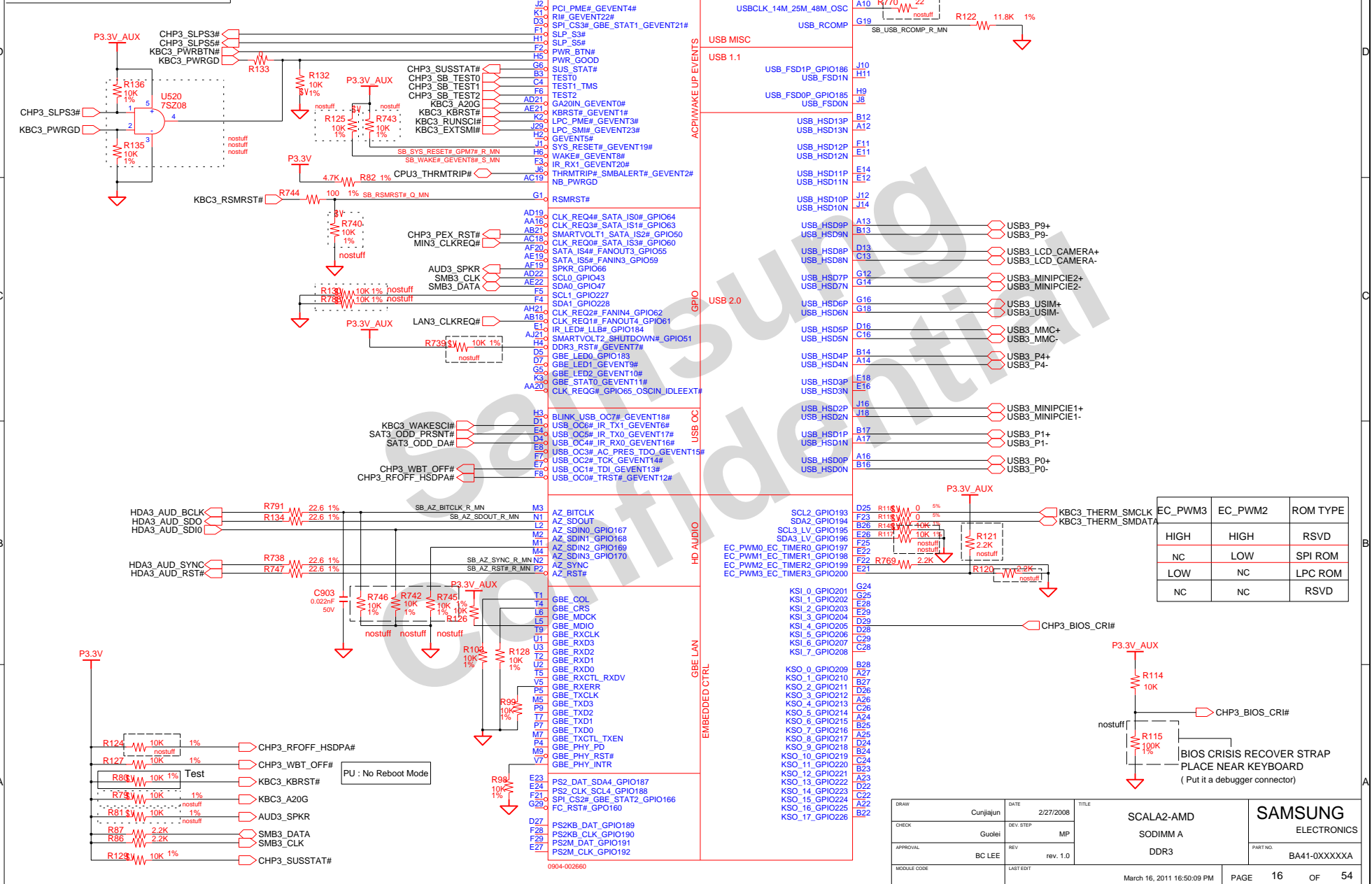


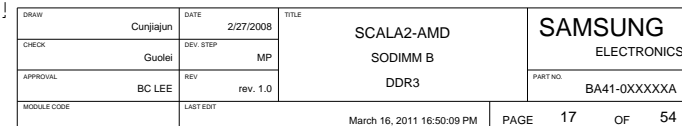
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FCH_HUDSON

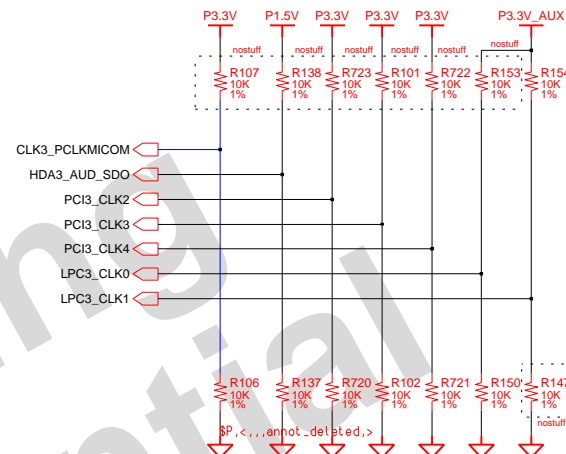
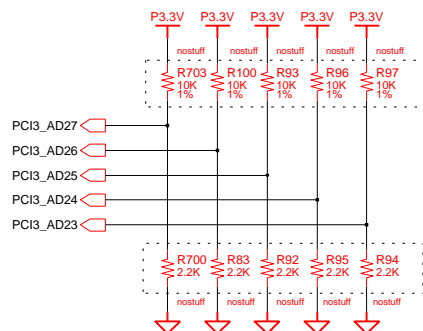
U516-3
HUDSON-M1

3/5



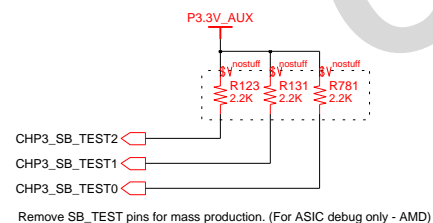


Strap

[illegible]

	PCI3_AD(27)	PCI3_AD(26)	PCI3_AD(25)	PCI3_AD(24)	PCI3_AD(23)
	Bypass PCI PLL	ILA auto run Enable	Bypass FC CLK	I2C ROM Enable	Booting from PCI memory
STRAP HIGH	USE PCI PLL DEFAULT	DISABLE ILA AUTORUN DEFAULT	USE FC PLL DEFAULT	USE DEFAULT PCI STRAPS DEFAULT	DISABLE PCI MEM BOOT DEFAULT
STRAP LOW	BYPASS PCI PLL	ENABLE ILA AUTORUN	BYPASS FC PLL	USE EEPROM PCIE STRAPS	ENABLE PCI MEM BOOT

PULL HIGH	HDA3_AUD_SDO AZ_SDOUT	PCI3_CLK2	PCI3_CLK3	PCI_CLK4	LPC3_CLK0	LPC3_CLK1
	LOW POWER MODE	Watchdog Timer Enabled	USE DEBUG STRAP	non_Fusion CLOCK MODE	EC ENABLE	CLKGEN ENABLE DEFAULT
PULL LOW	PERFORMANCE MODE DEFAULT	Watchdog Timer Disabled DEFAULT	IGNORE DEBUG STRAP DEFAULT	FUSION CLOCK MODE DEFAULT	EC DISABLED DEFAULT	CLKGEN DISABLED



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CHECK	Guolei	DEV. STEP	MP		
APPROVAL	BC LEE	REV	rev. 1.0		
PART NO.					
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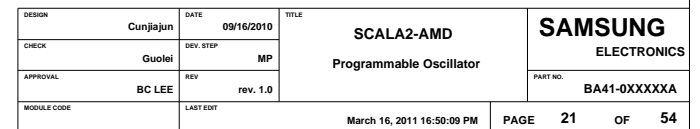
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80H PORT DEBUG

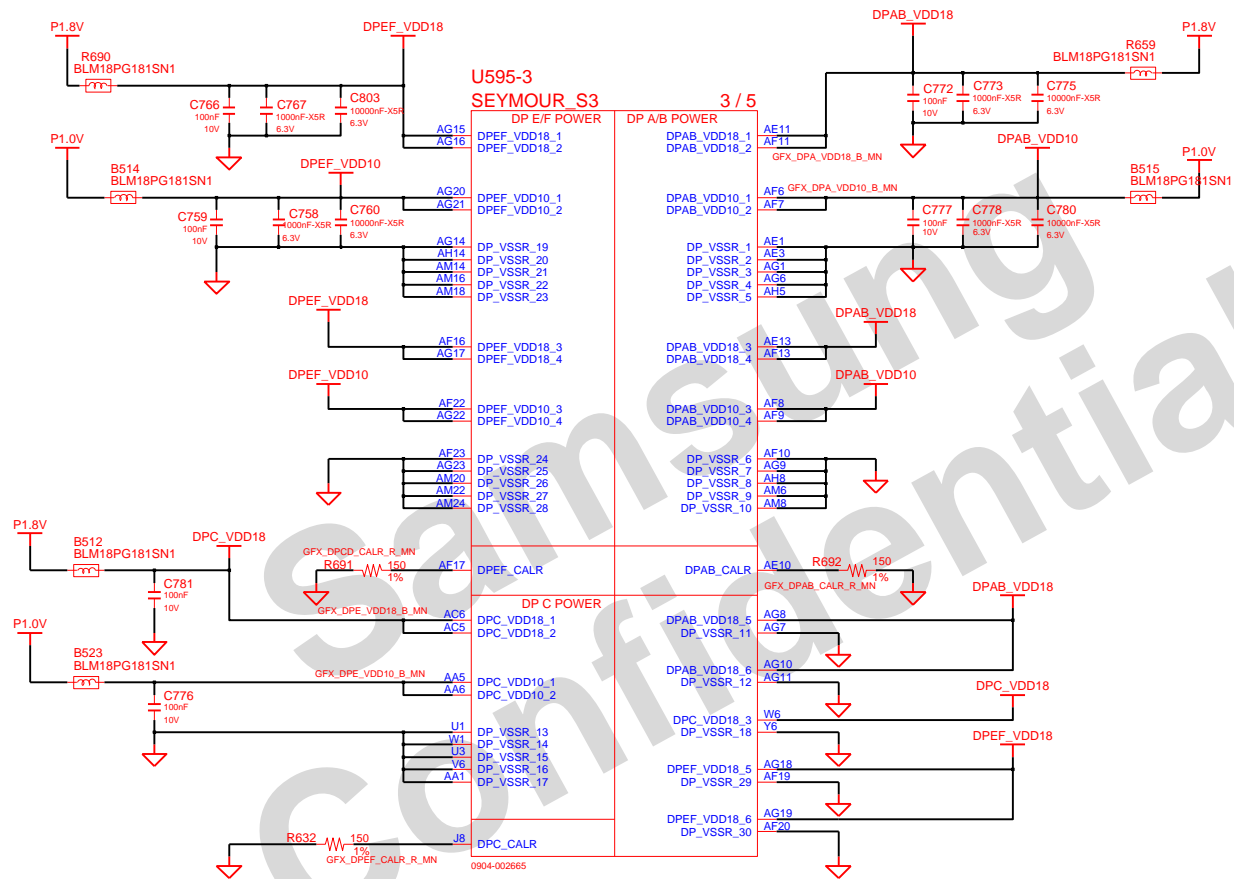


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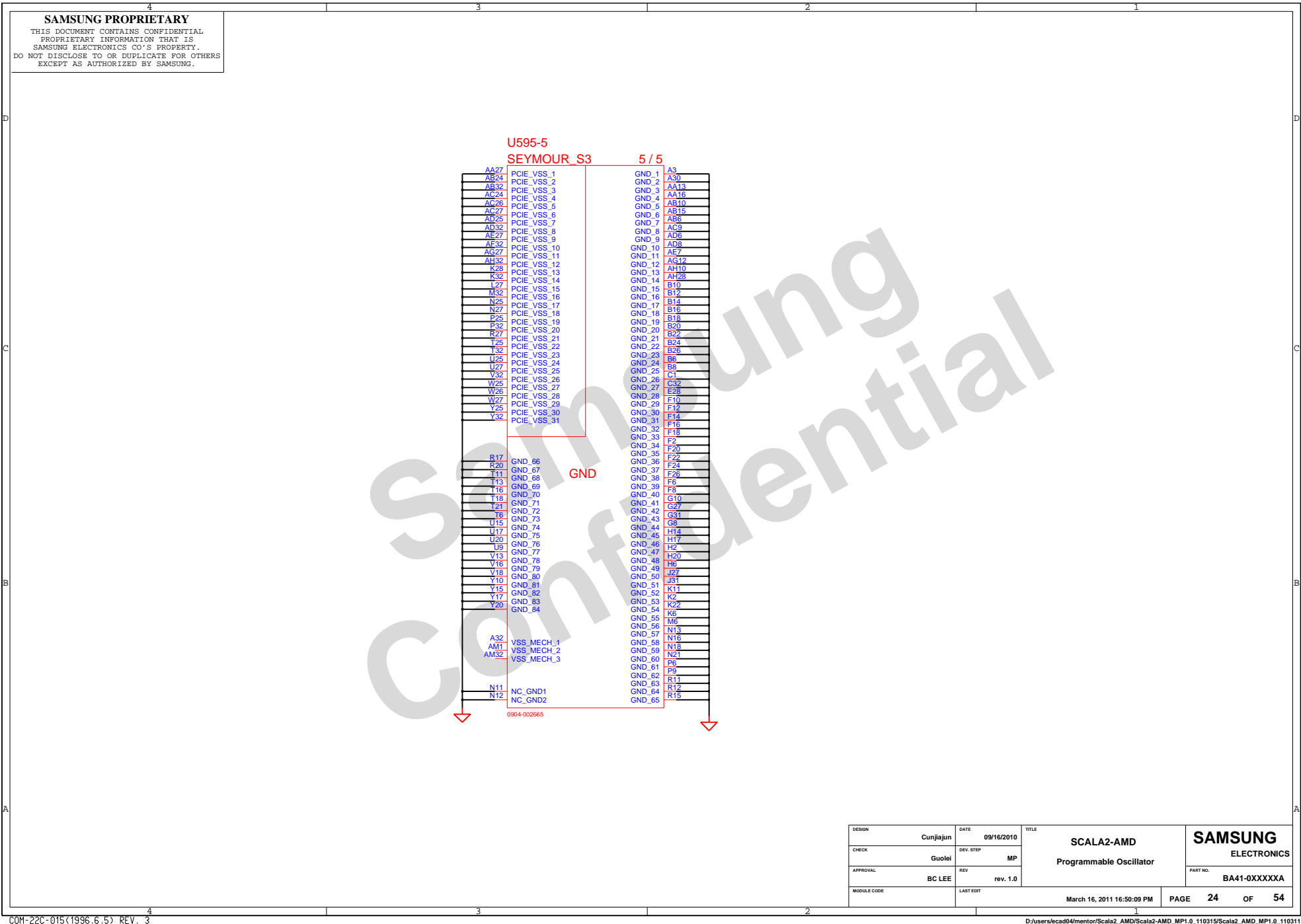


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APPROVAL	BC LEE	REV	rev. 1.0		PART NO.	BA41-0XXXXXA
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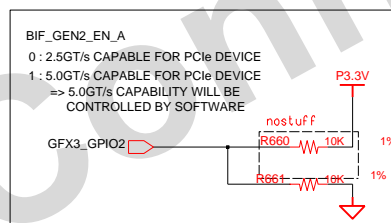
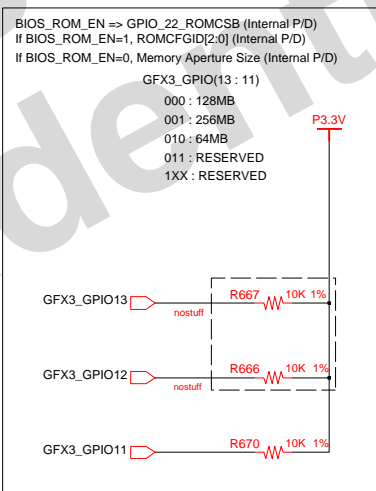
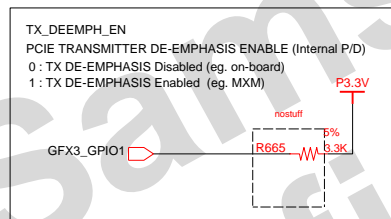
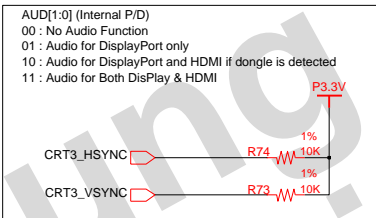
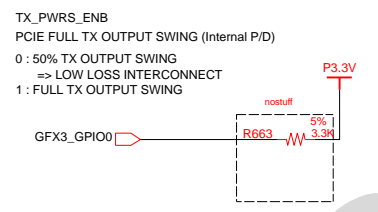


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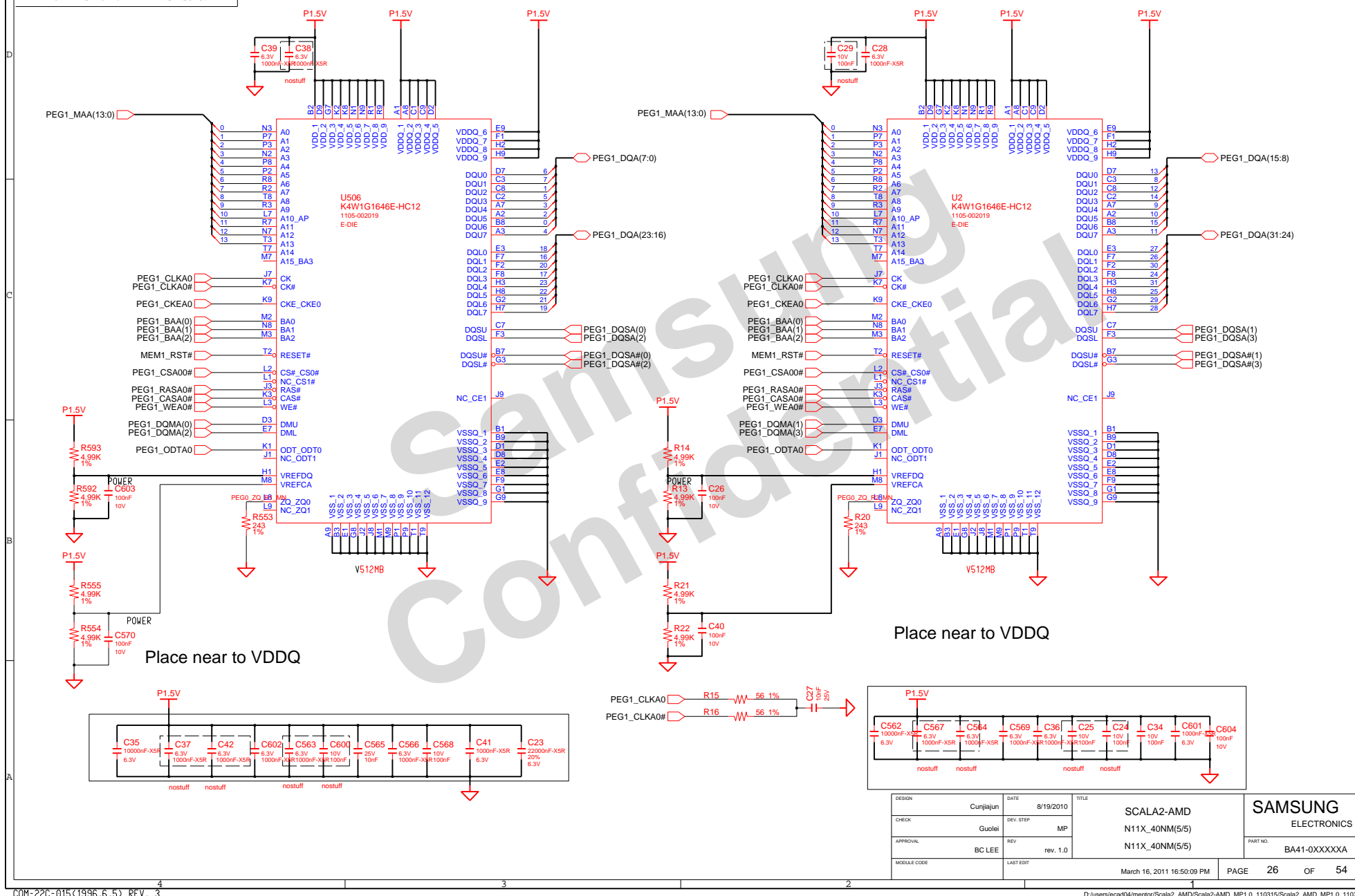
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SEYMOUR/WHISTLER S3 Straps

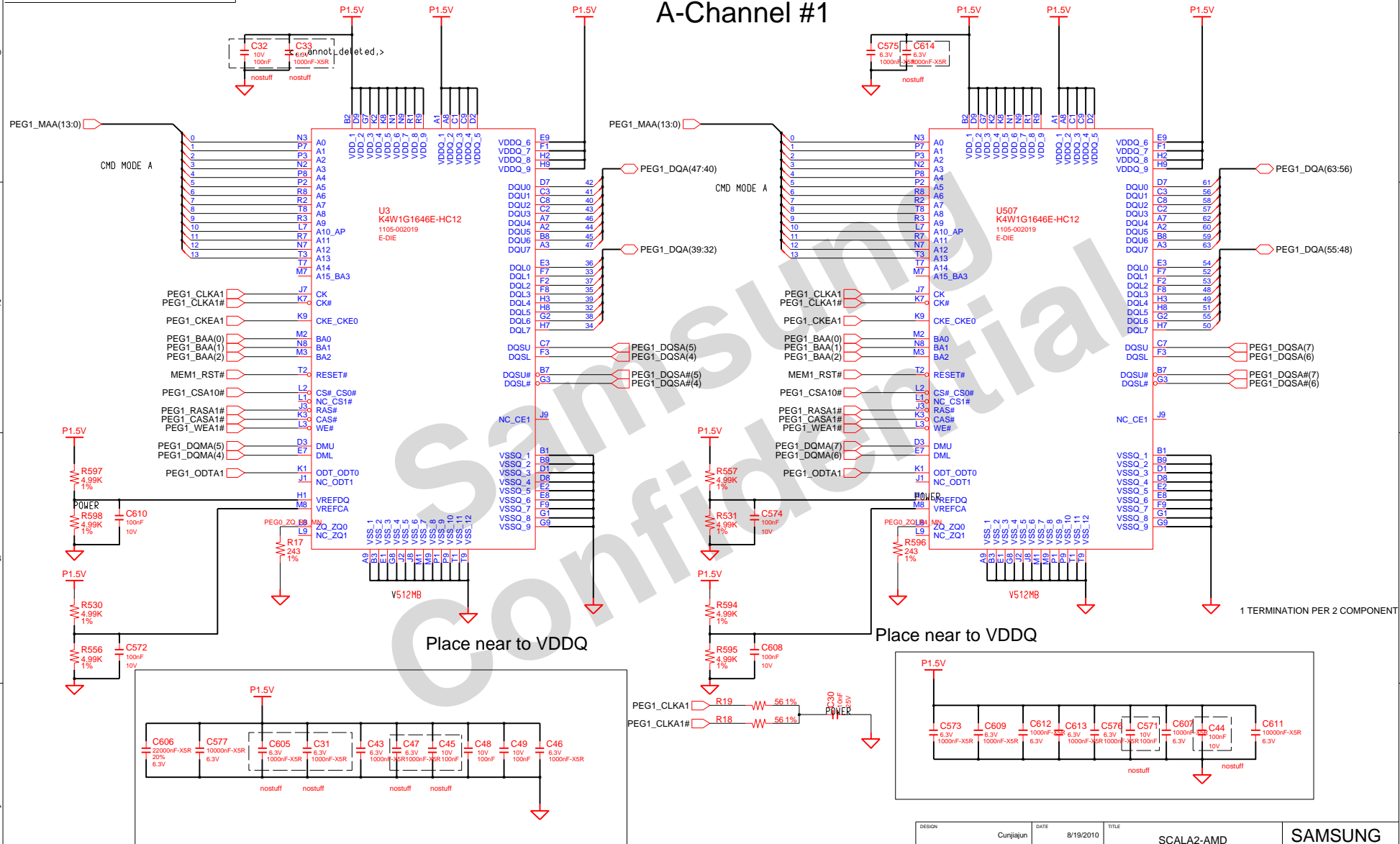


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A-Channel #1



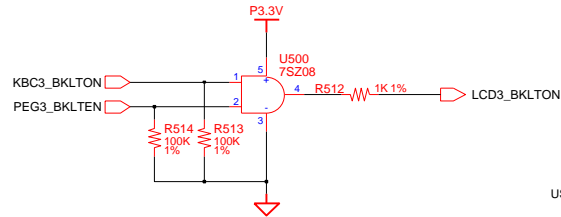
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CHECK	Guo lei	DEV_STEP	MP		
APPROVAL	BC LEE	REV	rev. 1.0		
MODULE CODE		LAST EDIT		March 16, 2011 16:50:09 PM	PART NO. BA41-0XXXXXA
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LVDS LOGIC

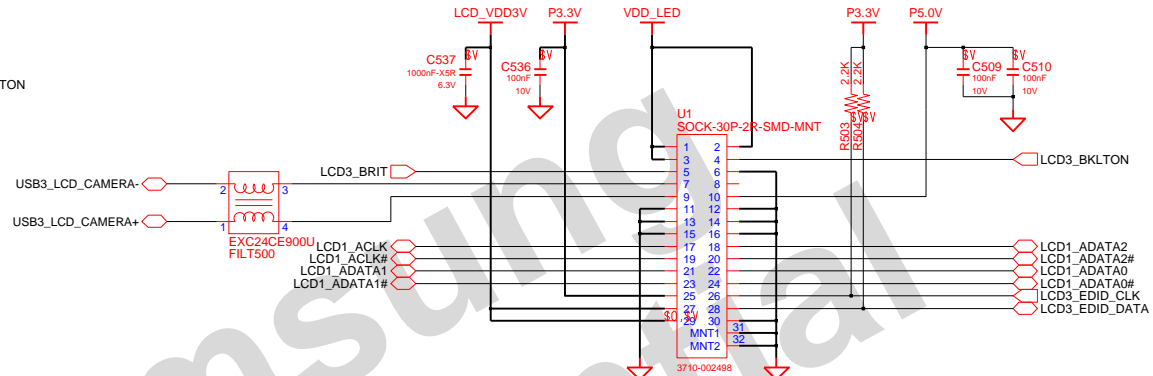
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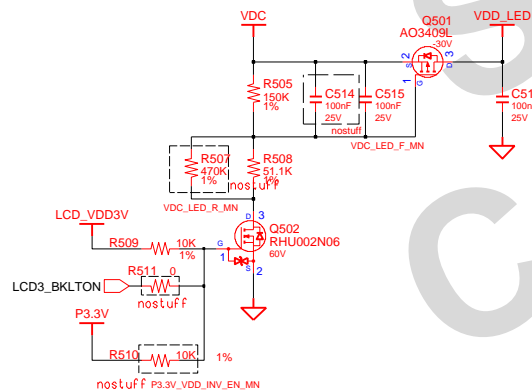
Backlight On



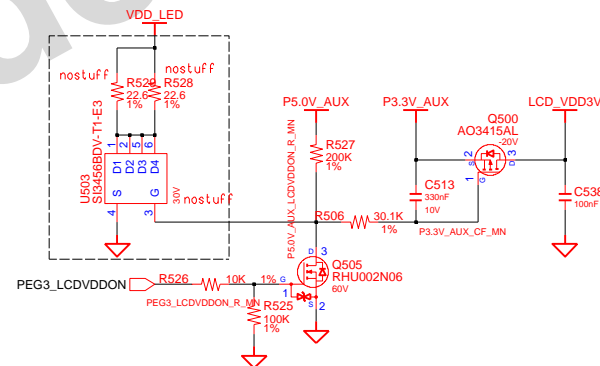
LCD Connector + CAMERA



LED Power



LCD Power

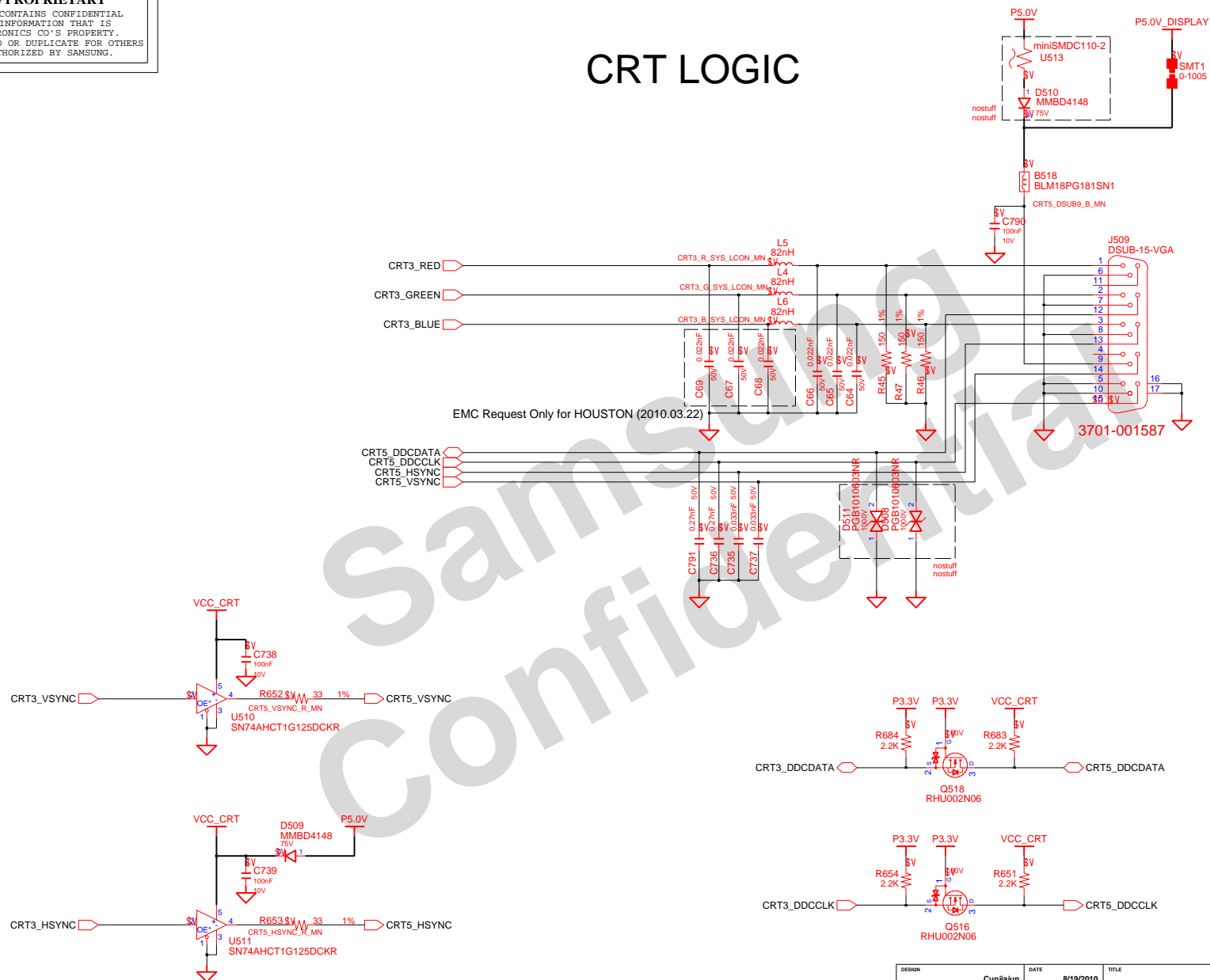


DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD GRAPHICS_IF LVDS	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	28	OF 54

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CRT LOGIC



DESIGN	Cunjaun	DATE	8/19/2010	TITLE	SCALA2-AMD GRAPHICS_IF	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0		CRT	
MODULE CODE		LAST EDIT		March 16, 2011 16:50:09 PM	PAGE 29 OF 54	

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

(EMC request at 2010.04.15)

HDMI Graphic

PEG3_TX2N_HDMI
PEG3_TX2P_HDMI
PEG3_TX1N_HDMI
PEG3_TX1P_HDMI
PEG3_TX0N_HDMI
PEG3_TX0P_HDMI
PEG3_TXCN_HDMI
PEG3_TXCP_HDMI

1% 499 R750
1% 499 R751
1% 499 R143
1% 499 R141
1% 499 R140
1% 499 R139
1% 499 R155
1% 499 R142

CHP3_TX_HDMI_PD_Q_MN

Q525
RHU002N06

P3.3V

J511
HDMI-19P-FEMALE

1 TMSD_DATA2
2 TMSD_DATA2#
3 TMSD_DATA1
4 TMSD_DATA1#
5 TMSD_DATA0
6 TMSD_DATA0#
7 TMSD_DATA0#
8 TMSD_DATA0#
9 TMSD_DATA0#
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17 TMSD_DATA0#
18 TMSD_DATA0#
19 TMSD_DATA0#

3701-001597

PEG5_HDMI_CLK_B_MN
PEG5_HDMI_DATA_B_MN

B533

BLM18PG181SN1

PEG5_HDMI_CLK

PEG5_HDMI_DATA

B530

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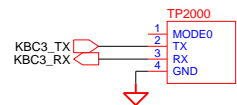
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PEG5_HDMI_DATA

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BLM18PG181SN1

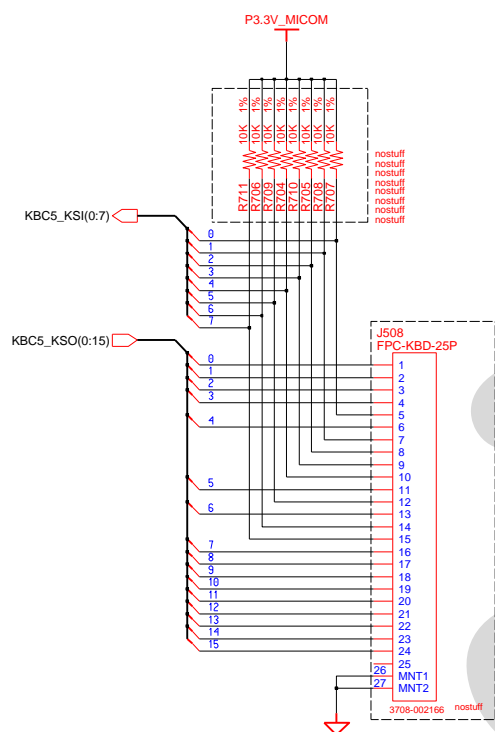
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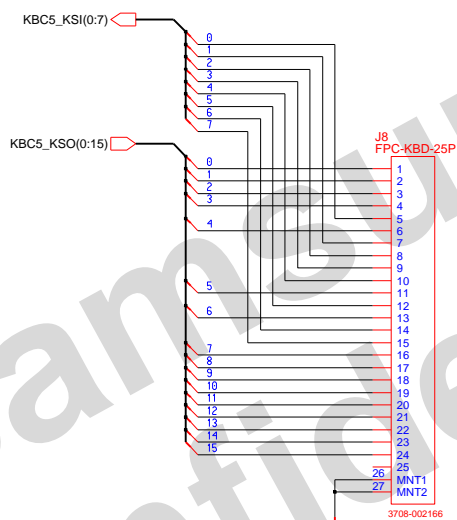
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Micom Glue Logic

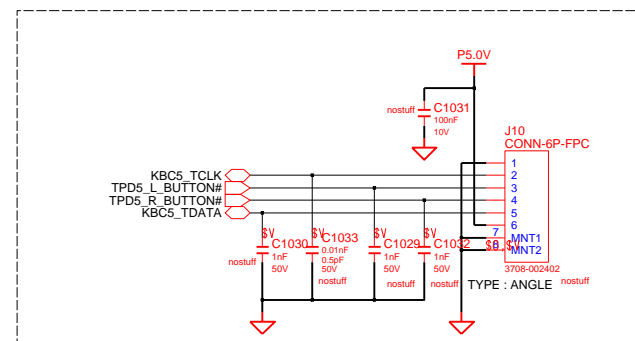
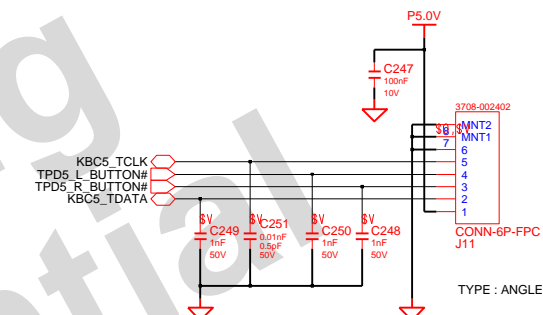
KEYBOARD on TOP



KEYBOARD on Bottom



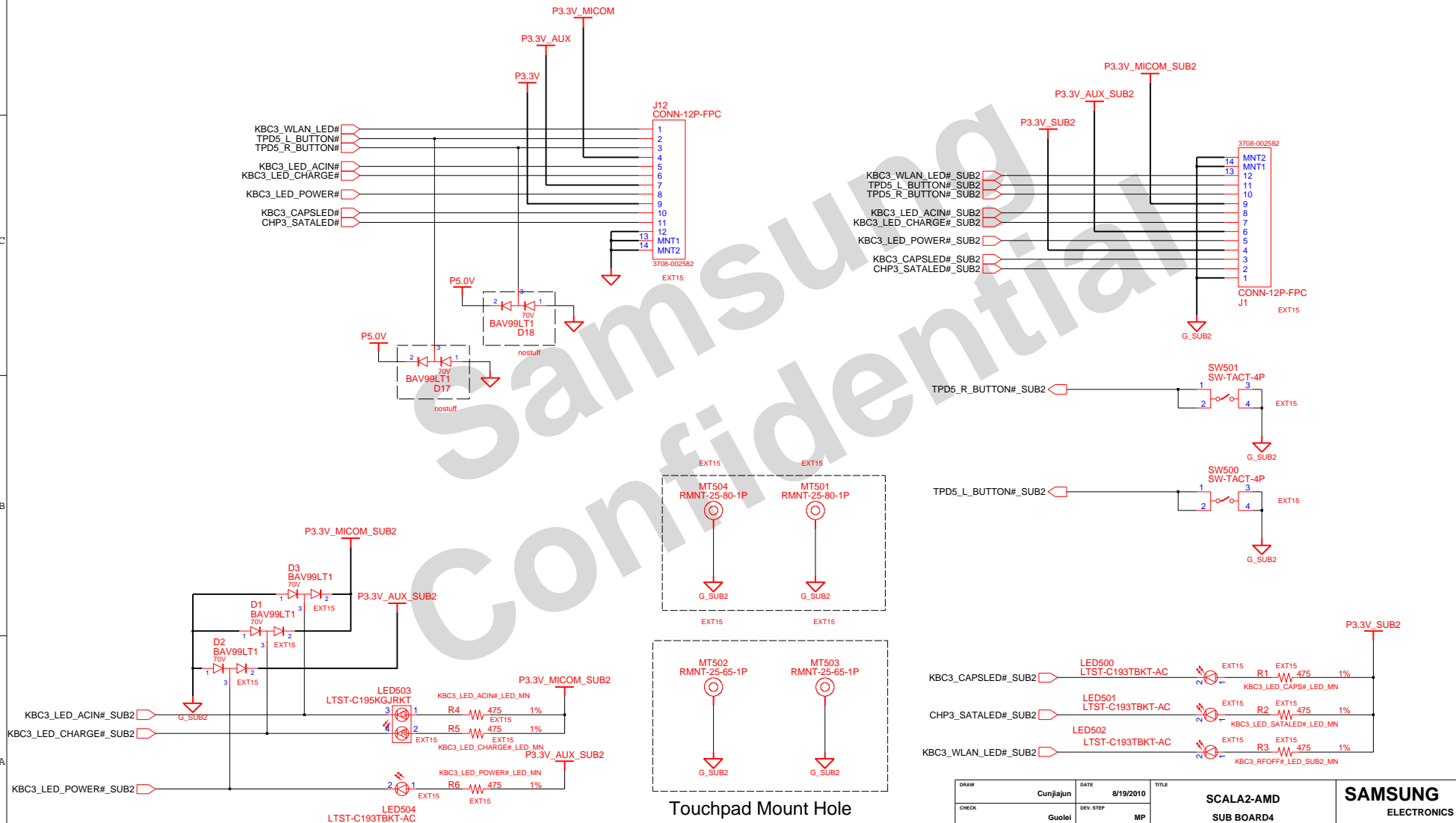
TOUCHPAD



DRAW	Curjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		MICOM GLUE LOGIC	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		MICOM GLUE LOGIC	PART NO.
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM			BA41-0XXXXXA
					PAGE	32 OF 54

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15.6"**TOUCHPAD MAIN TO SUB****TOUCHPAD SUB TO MAIN**

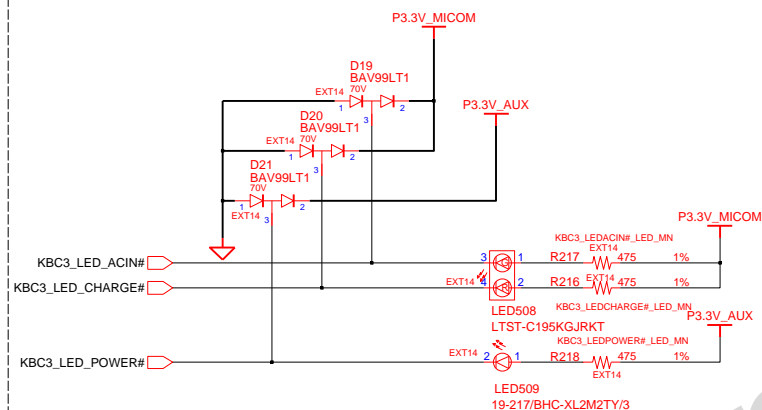
DRAW	Cunhajun	DATE	8/19/2010	TITLE	SCALA2-AMD SUB BOARD4 MULTIMEDIA SUB	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXXA
CHECK	Guolei	DEV. STEP	MP			
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT				
March 16, 2011 16:50:09 PM						PAGE 33 OF 54

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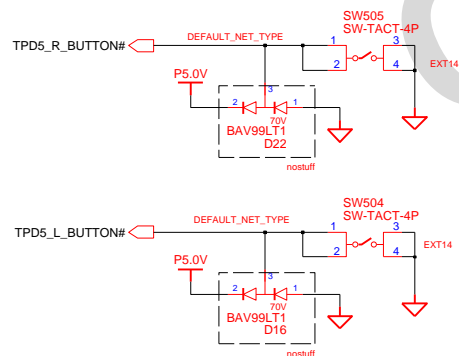
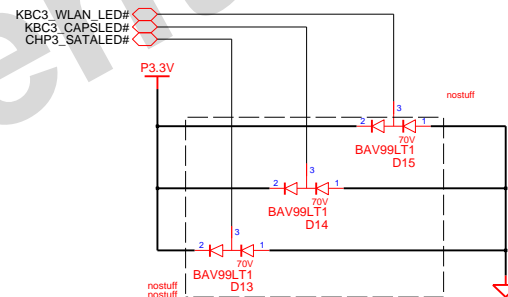
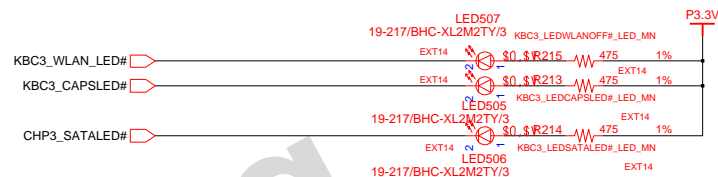
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EXT14

ADAPTERIN/CHARGING LED



ADAPTERIN/CHARGING LED

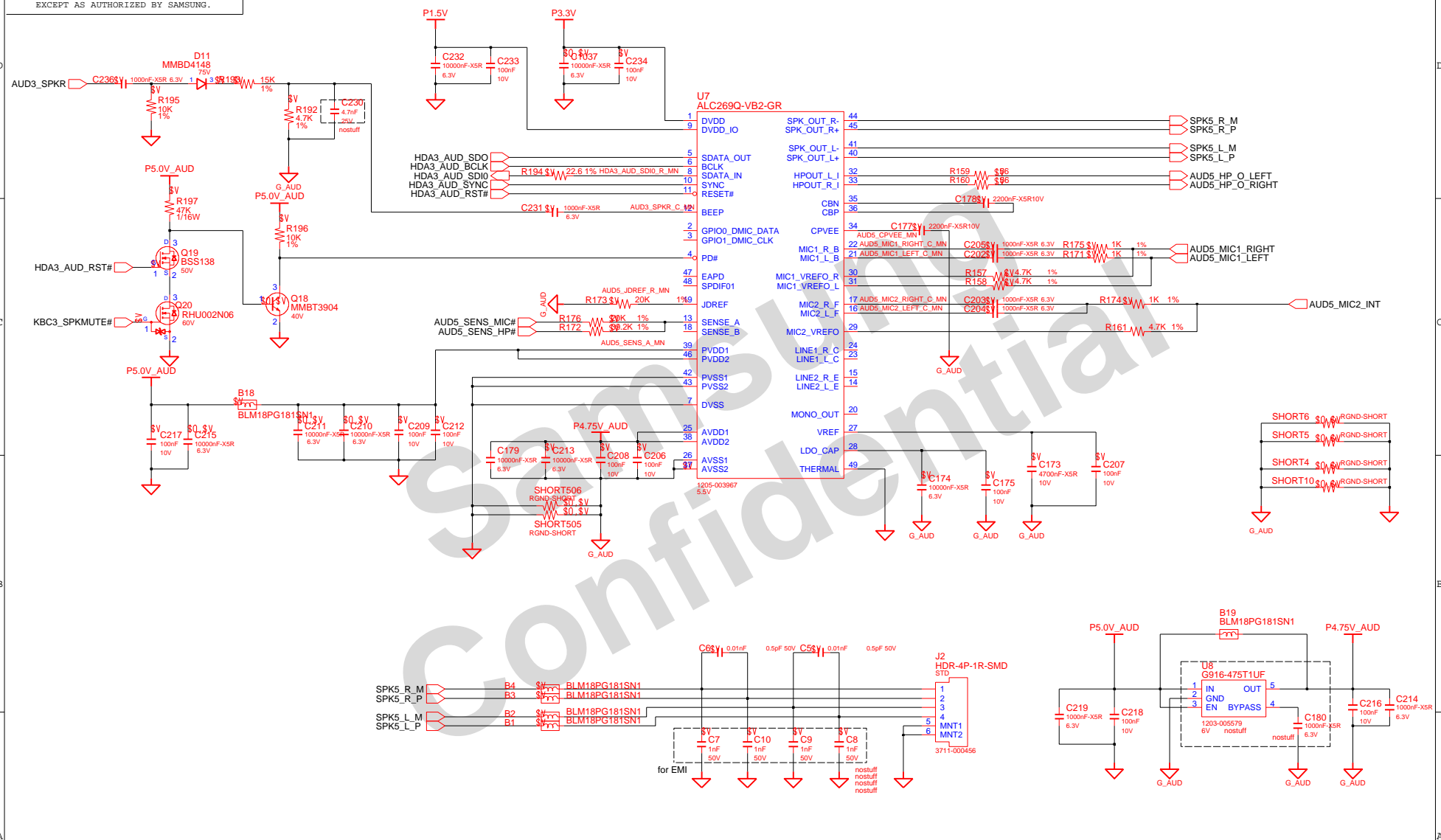


DESIGN	Cunjajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		MNT hole	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		MNT hole	PART NO.
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	34	BA41-0XXXXXA
				OF	54	

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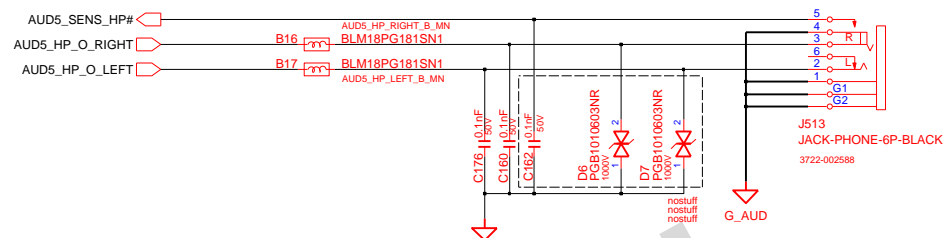
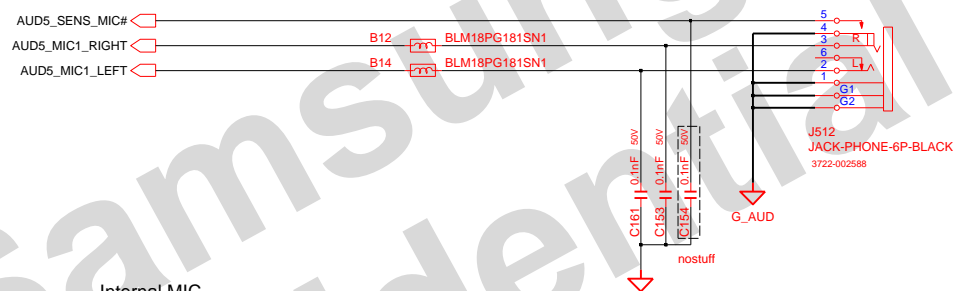
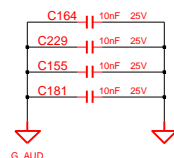
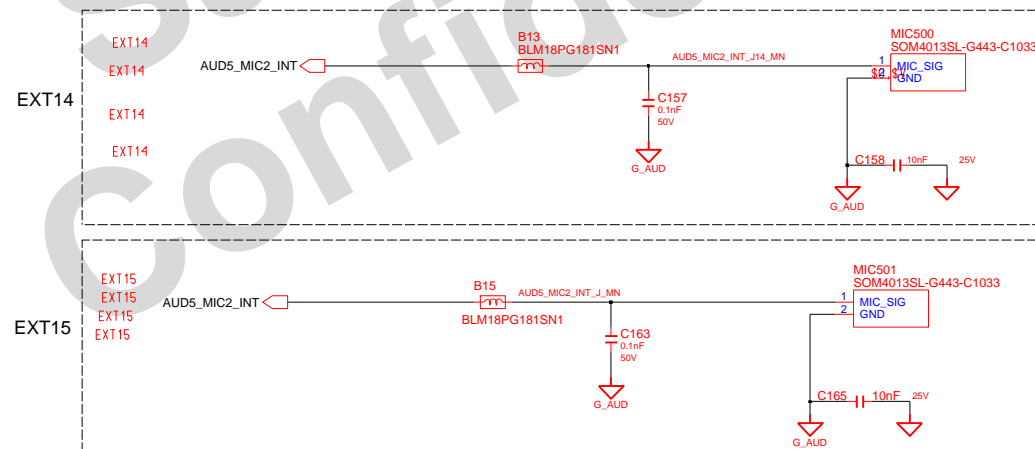
HD AUDIO



DESIGN	Cunhajun	DATE	8/19/2010	TITLE	SCALA2-AMD
CHECK	Guolei	DEV. STEP	MP		HDA_CODEC SUB
APPROVAL	BC LEE	REV	rev. 1.0		AUDIO CODEC ALC269 SUB
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	35 OF 54
					SAMSUNG ELECTRONICS
					PART NO. BA41-0XXXXXA

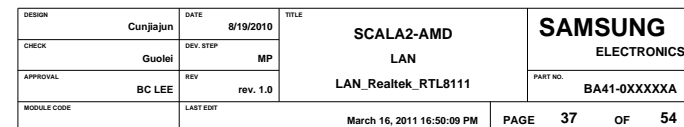
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HEADPHONE**MIC JACK****Internal MIC**

DESIGN	Cunjajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP	HDA_CODEC & LED SUB	ELECTRONICS	
APPROVAL	BC LEE	REV	rev. 1.0	AUDIO JACK & LED SUB	PART NO.	BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	36	OF 54

Reatek RTL8111E

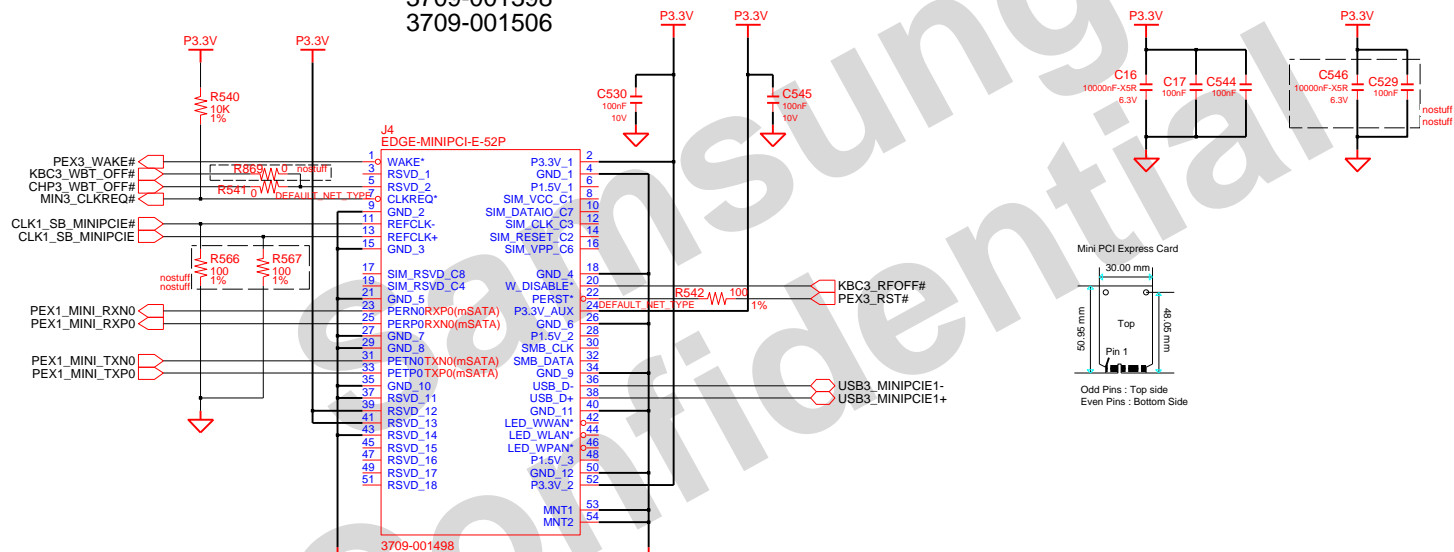


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WLAN Height : 7.0mm

3709-001398
3709-001506



DESIGN	Cunjajun	DATE	8/19/2010	TITLE	SCALA2-AMD MULTICARD 3 IN 1 CARD(GL827S)	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	38	OF 54

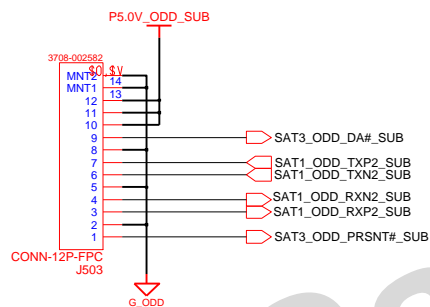
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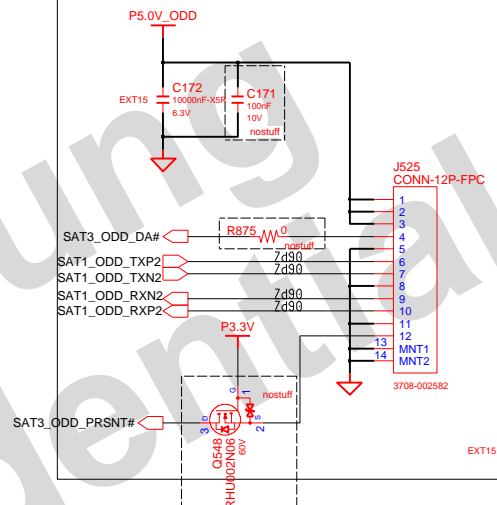
SATA ODD SUB BOARD EXT15

15.6"

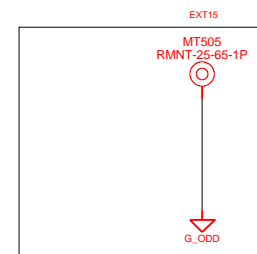
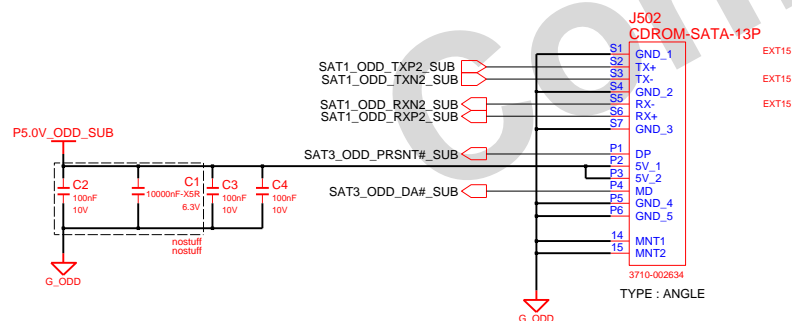
SUB TO MAIN : SATA ODD CONN



MAIN TO SUB : SATA ODD CONN



SATA ODD CONN



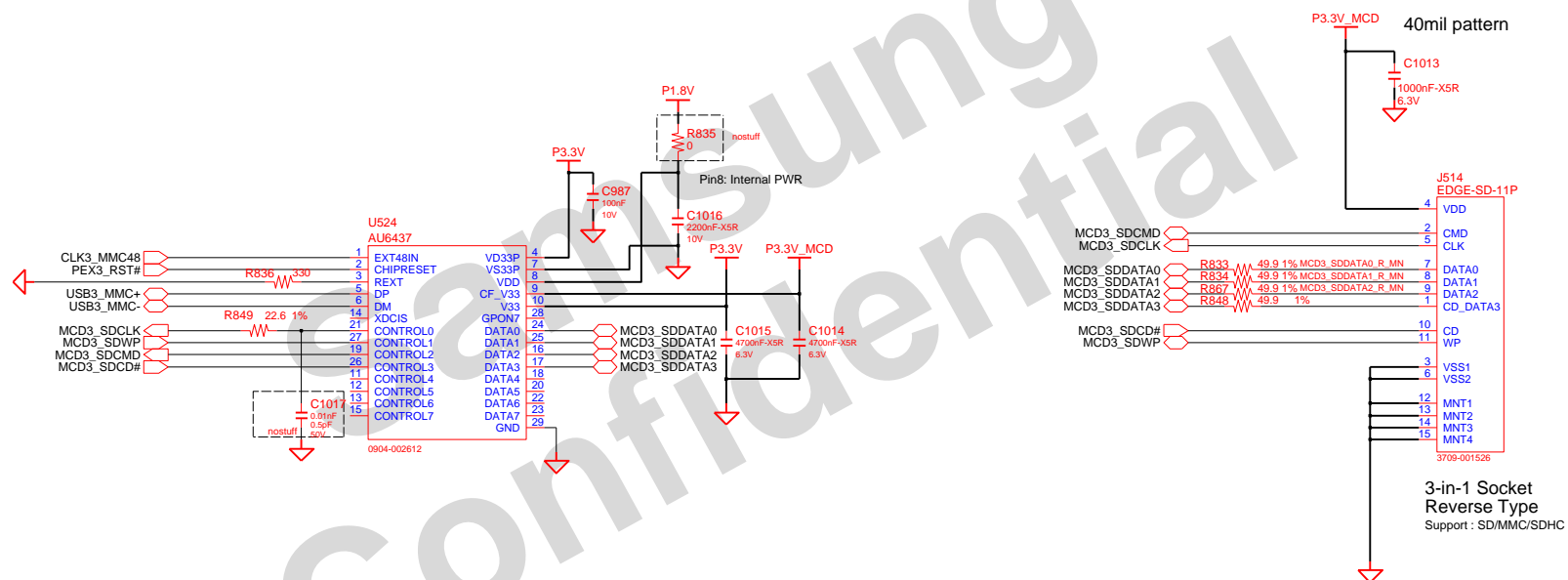
ODD sub board mount hole

DRAW	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD SUB BOARD3 ODD SUB	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	40	OF 54

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3 IN 1 CARD (AU6437)



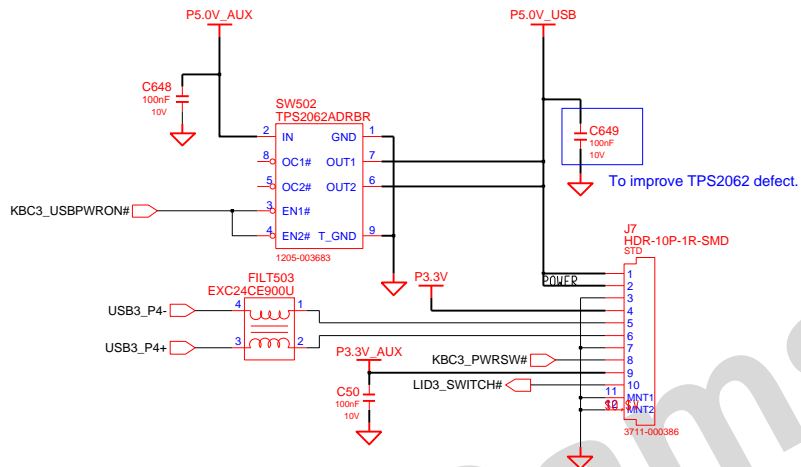
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CHECK	Guolei	DEV. STEP	MP	SUB BOARD2	ELECTRONICS	
APPROVAL	BC LEE	REV	rev. 1.0	3 in 1 SUB	PART NO.	BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	41	OF 54

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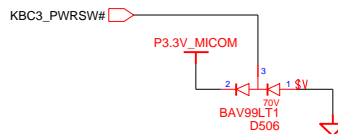
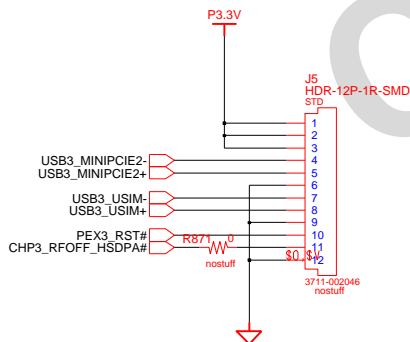
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POWER S/W SUB B'D CONNECTOR

MAIN to SUB

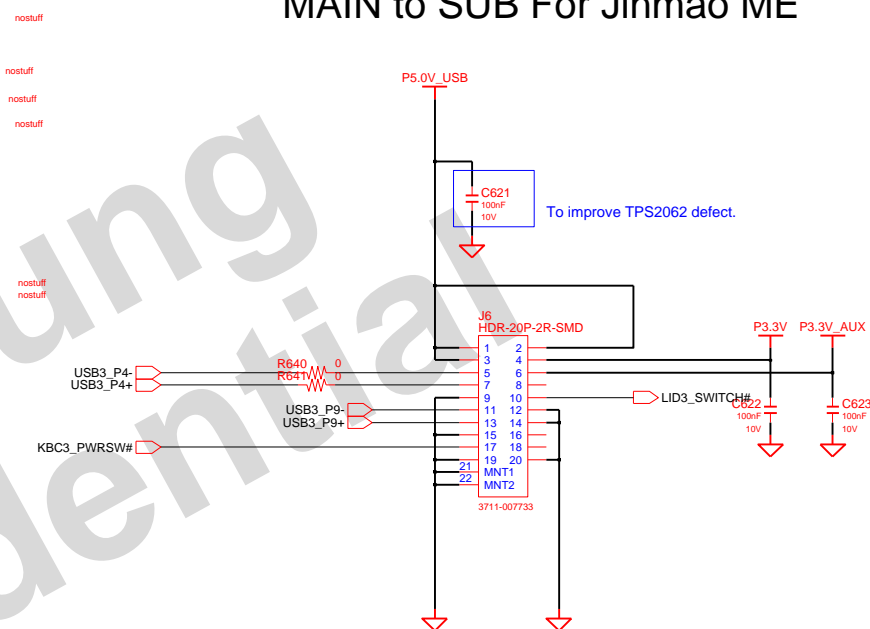


HSPA MAIN TO SUB CONN



POWER S/W SUB B'D CONNECTOR

MAIN to SUB For Jinmao ME

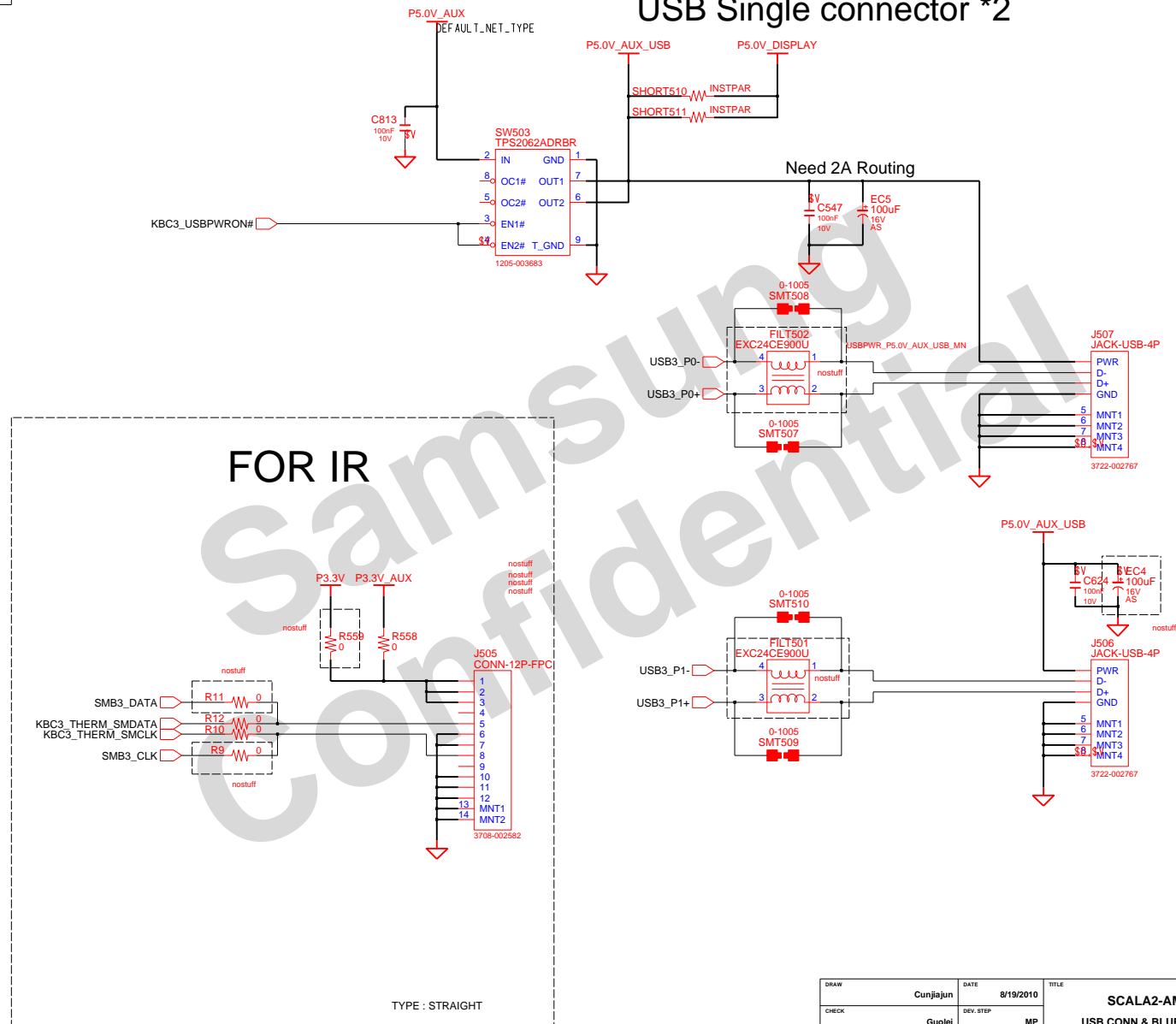


DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP	USB_CONN	USB_CONN	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0	USB CONNECTOR	PART NO.	BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	42	OF 54

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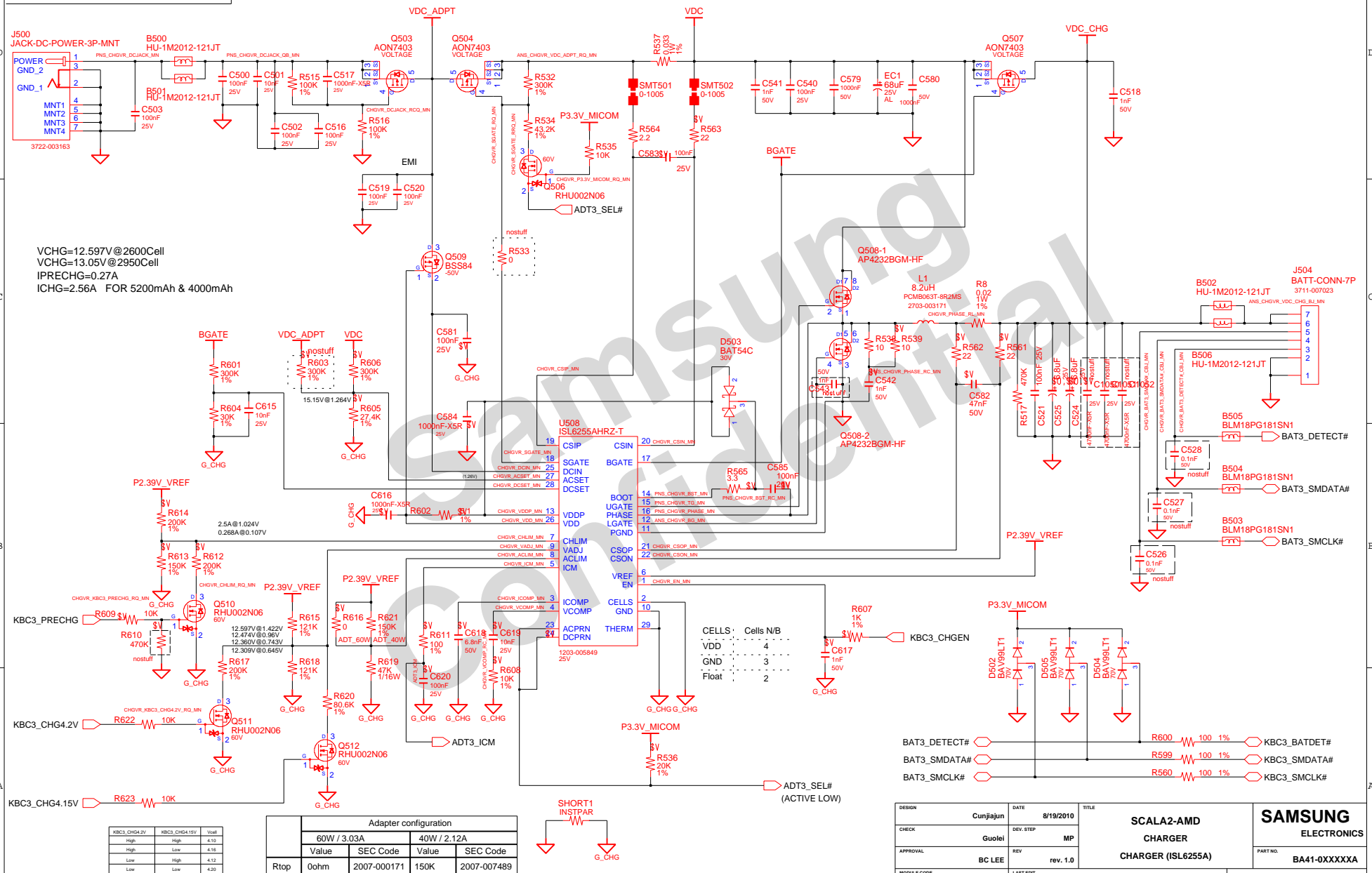
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USB Single connector *2



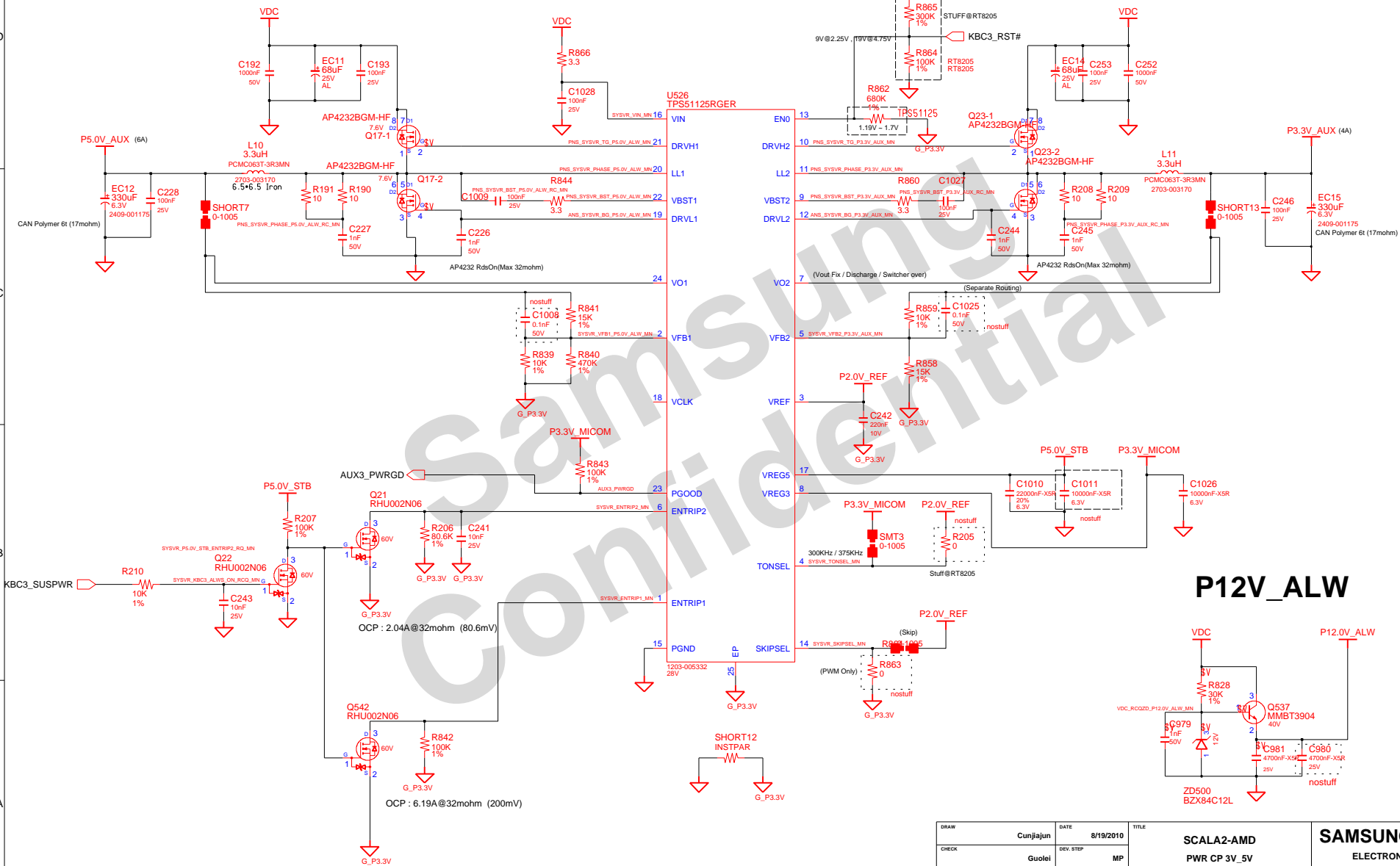
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CHECK	Guolei	DEV. STEP	MP	USB CONN & BLUETOOTH	ELECTRONICS	
APPROVAL	BC LEE	REV	rev. 1.0	USB	PART NO.	BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	43	OF 54

CHARGER & POWER MANAGEMENT



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P3.3V_AUX & P5.0V_AUX

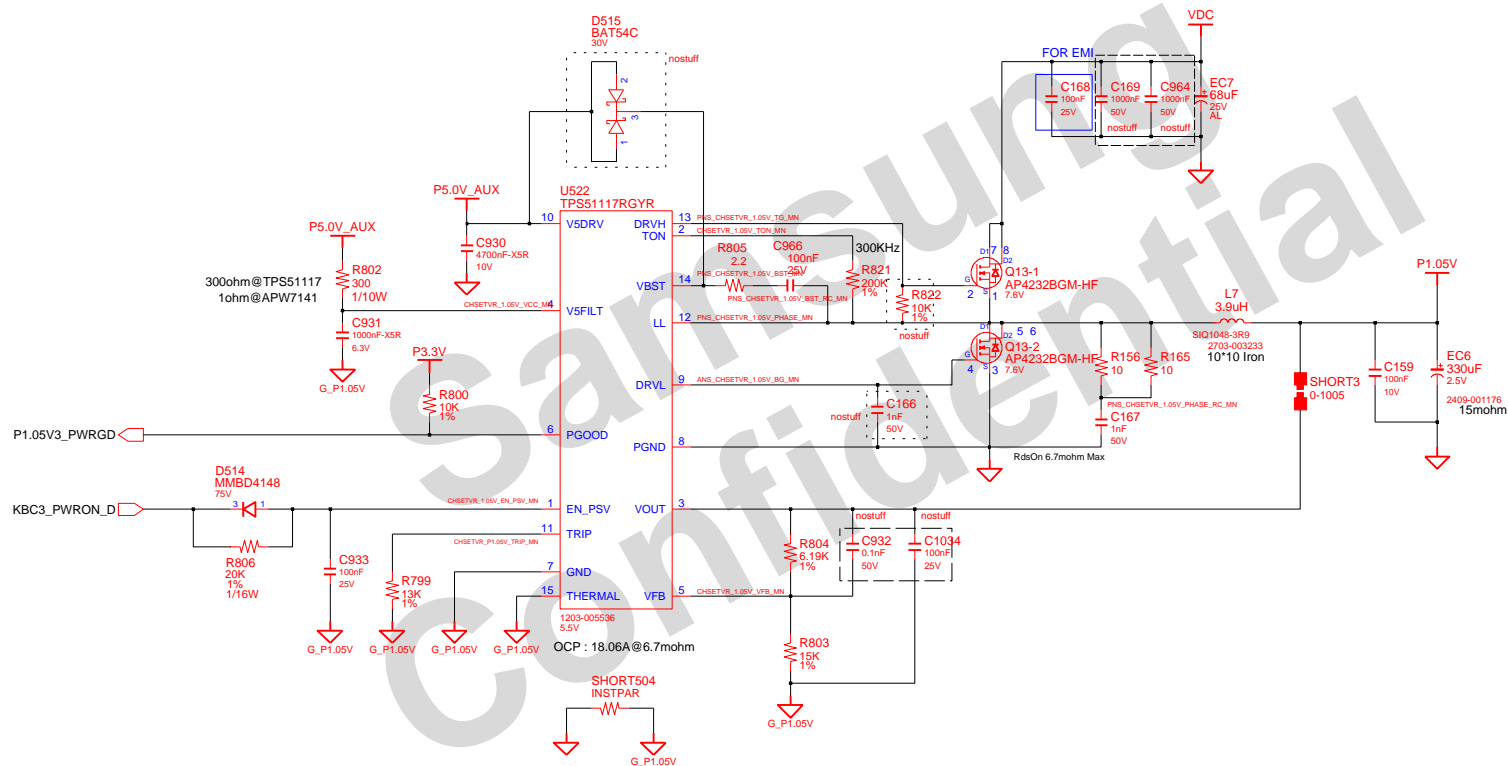


P12V_ALW

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CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE	undefined	LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	45	OF 54

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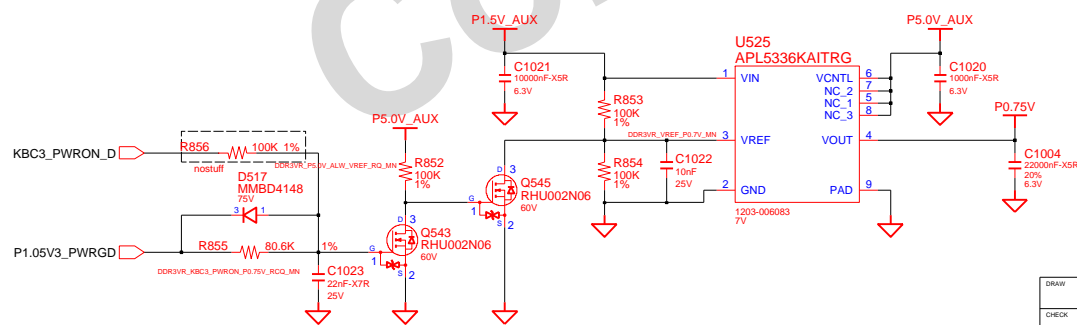
CHIPSET POWER(P1.05V)

DESIGN	Curjiajun	DATE	8/19/2010	TITLE	SCAL2-AMD P1.05V TI TPS51117R	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	46	OF 54

DDR3 Power

[illegible]

DDR3 VTT(0.75V)

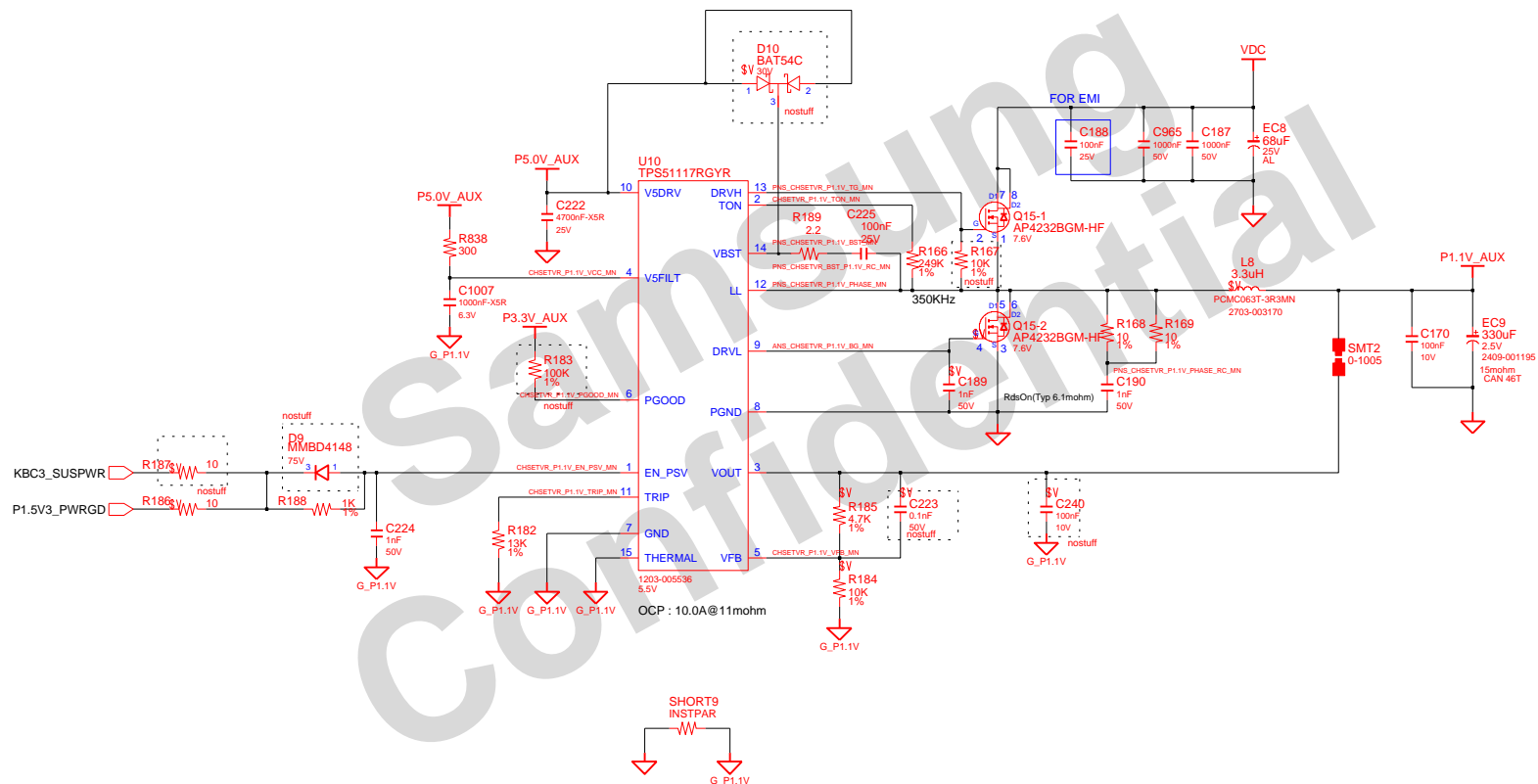


COM-22C-015(1996.6.5) REV. 3

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CHIPSET POWER(P1.1V_AUX)

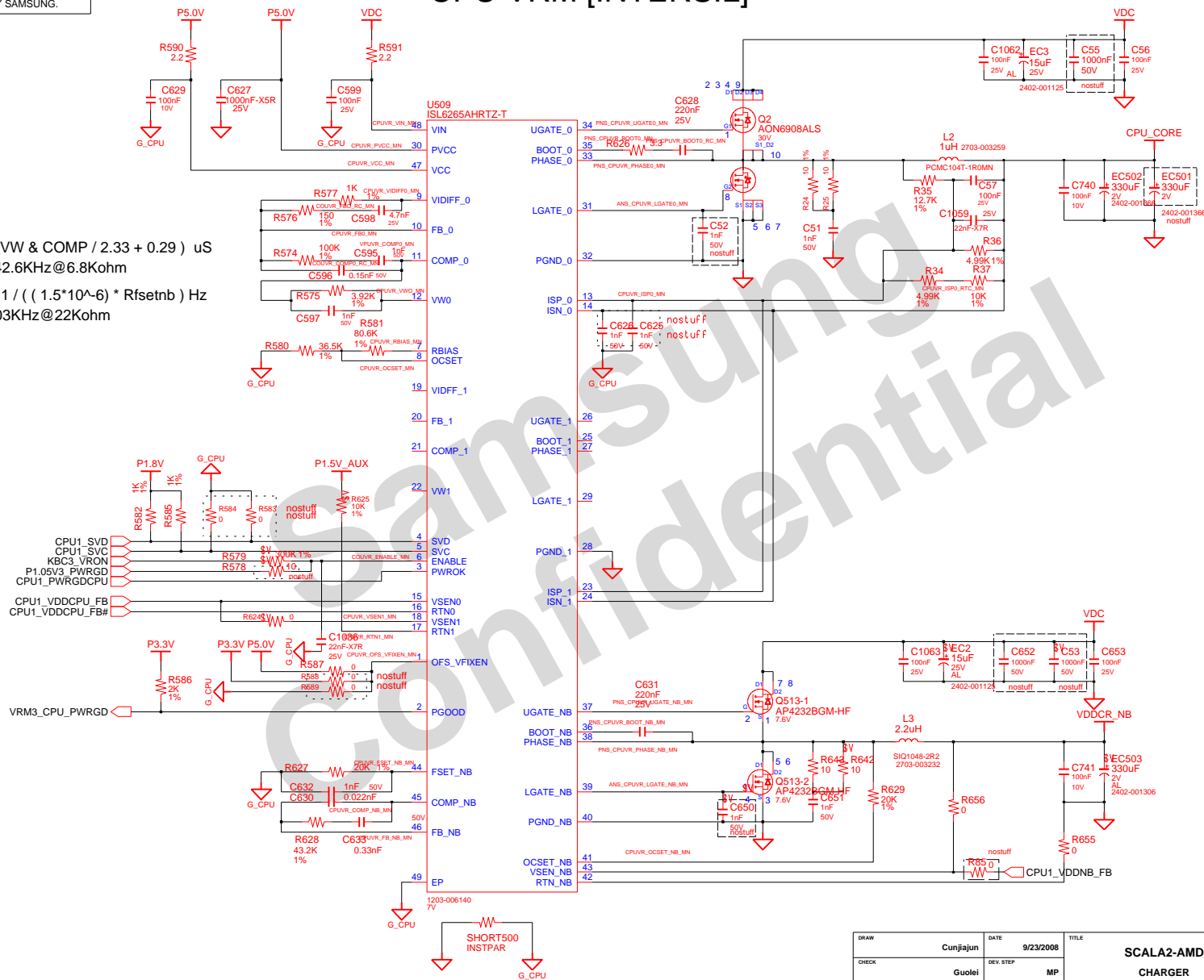


DESIGN	Cunjajun	DATE	9/23/2008	TITLE	SCALA2-AMD USB_CONN USB & eSATA	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	48	OF 54

CPU VRM [INTERSIL]

VDD Freq = (R_VW & COMP / 2.33 + 0.29) uS
: 342.6KHz@6.8Kohm

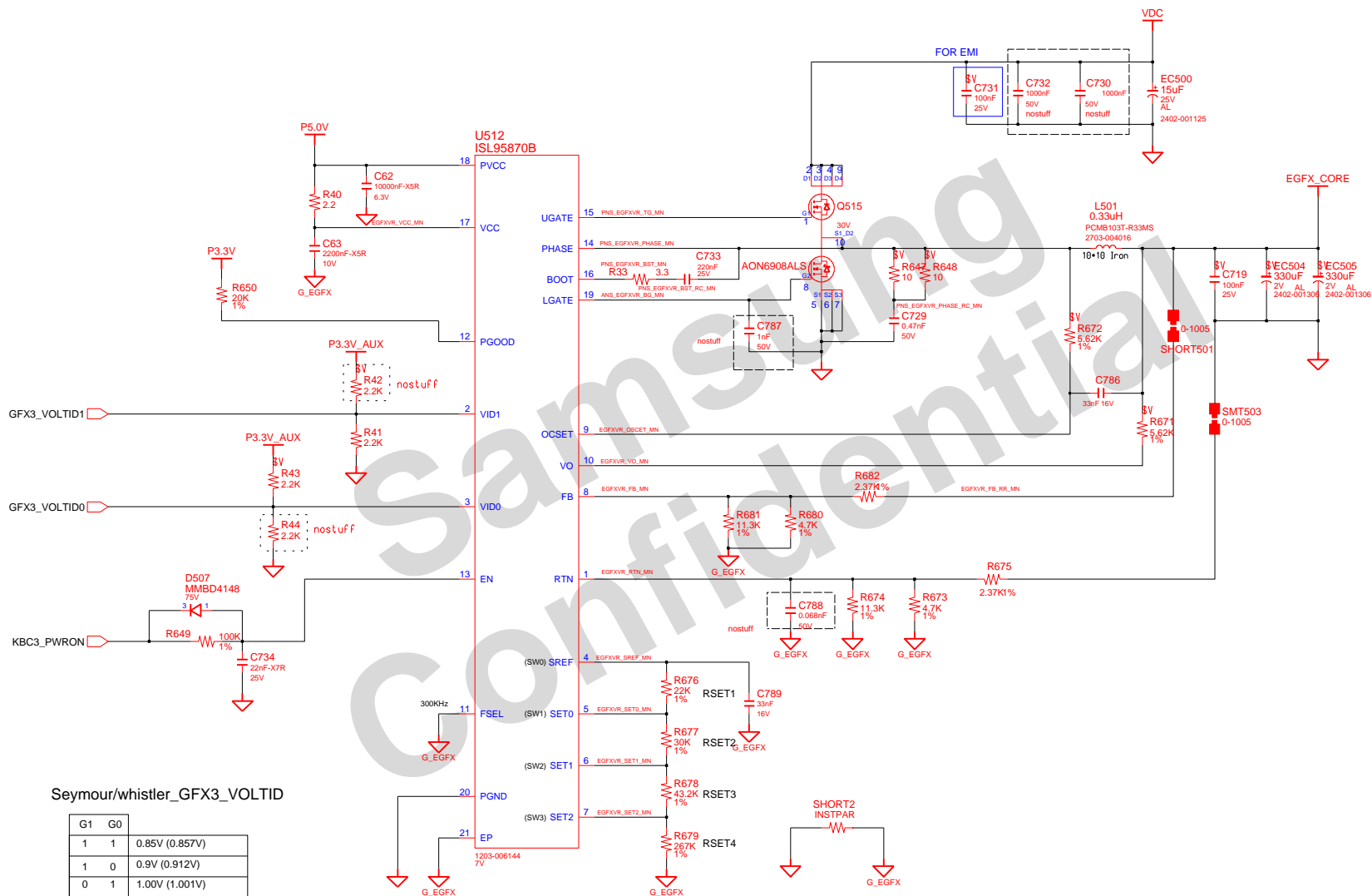
VDD_NB Freq = 1 / ((1.5*10^-6) * Rfsetnb) Hz
: 303KHz@22Kohm



DRAW	Cunjiun	DATE	9/23/2008	TITLE	SCALA2-AMD CHARGER	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0		Intersil ISL6256A	
MODULE CODE	undefined	LAST EDIT				
				March 16, 2011 16:50:09 PM	PAGE	49 OF 54

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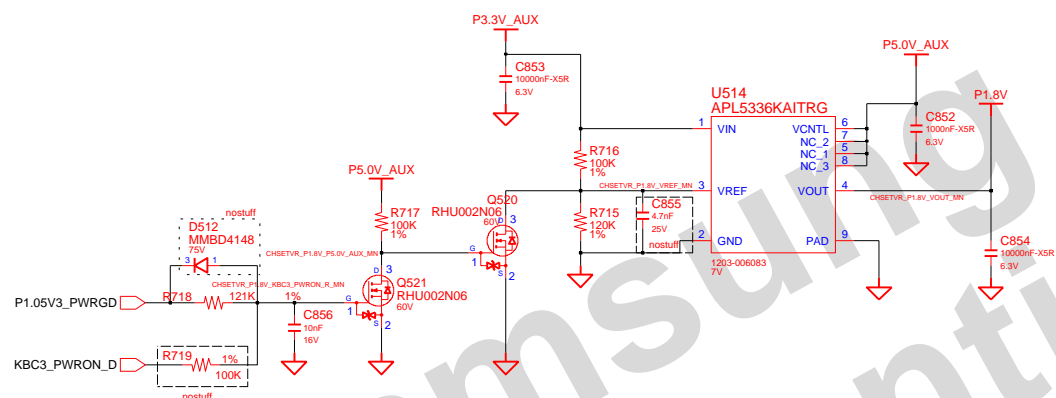
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External GFX Core Power

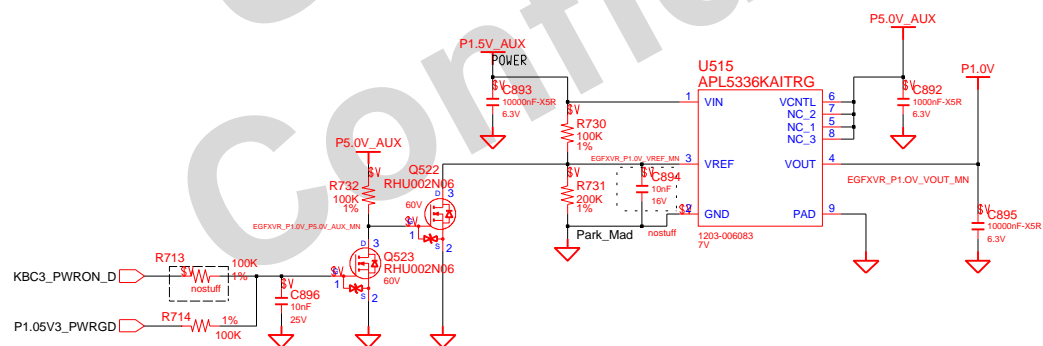
DESIGN	Curjiajun	DATE	8/19/2010	TITLE	SCAL2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP	PWR_GFX_MV_EXT	ELECTRONICS	
APPROVAL	BC LEE	REV	rev. 1.0	External Graphic Power	PART NO.	BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	50	OF 54

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POWER(P1.8V)



P1.0V

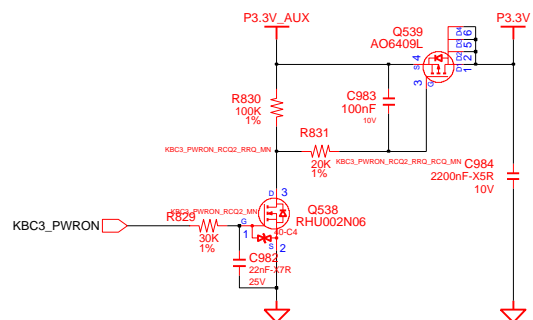


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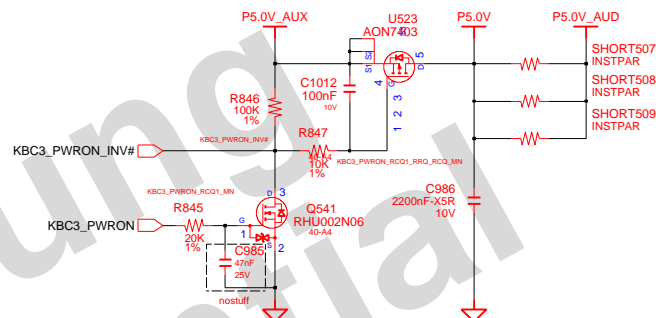
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Switched Power

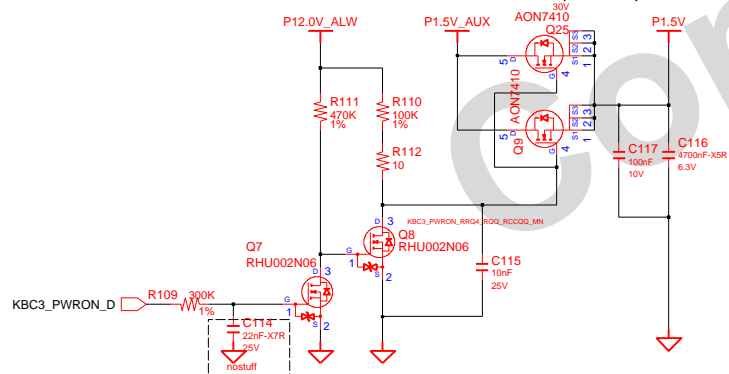
Switched Power On (P3.3V)



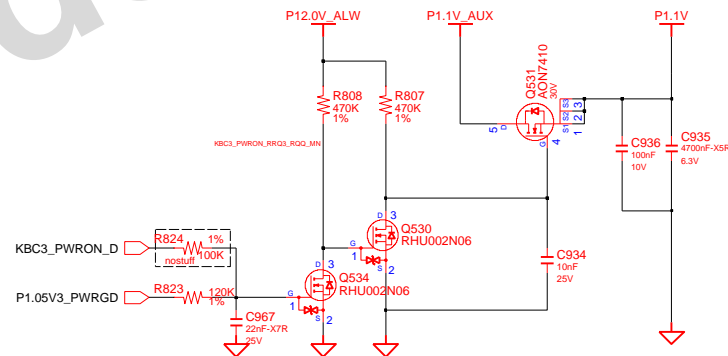
Switched Power On (P5.0V)



Switched Power On (P1.5V)



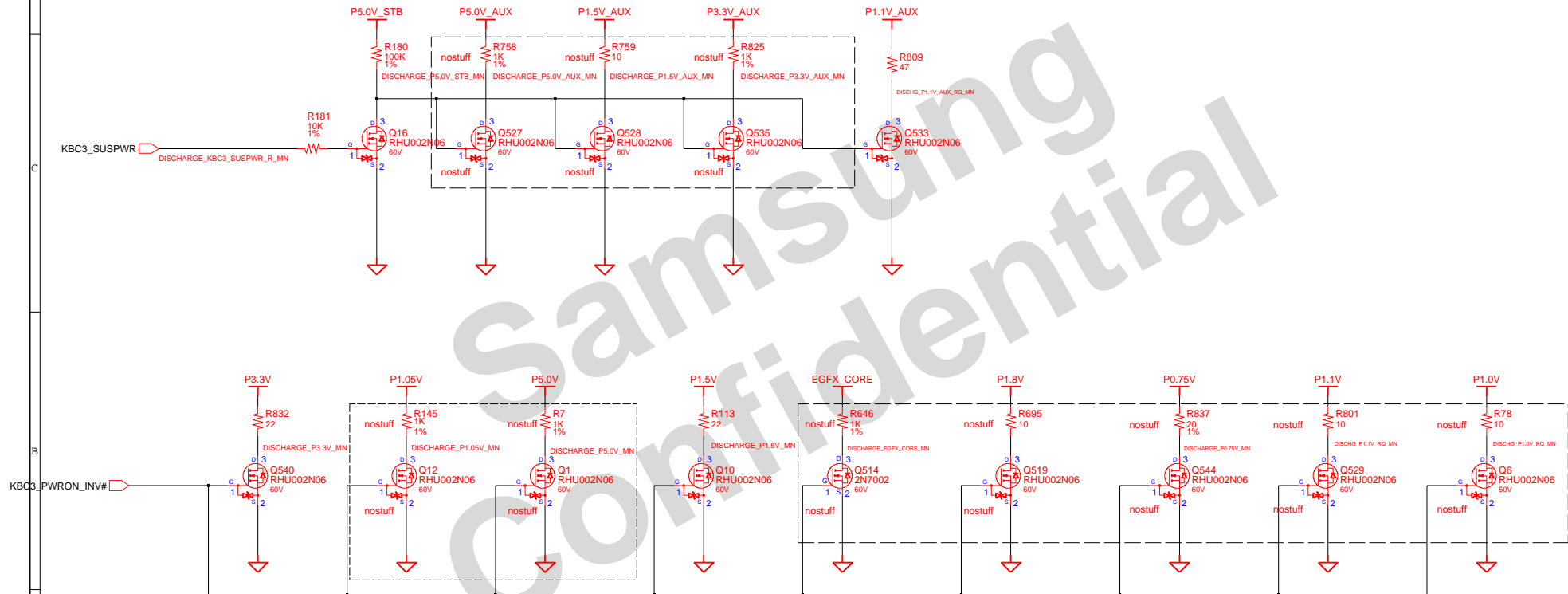
Switched Power On (P1.1V)



DRW	Cunjiajun	DATE	01/09/2008	TITLE		SCALA2-AMD		SAMSUNG ELECTRONICS	
CHECK	Guolei	DEV. STEP	MP						
APPROVAL	BC LEE	REV	rev. 1.0	TI TPS51125		PART NO.	BA41-0XXXXXA		
MODULE CODE	undefined		LAST EDIT		March 16, 2011 16:50:09 PM		PAGE	52	OF 54

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POWER DISCHARGER



DRAW	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP		PWR_MV_DISCHARGER	
APPROVAL	BC LEE	REV	rev. 1.0		DISCHARGING LOGIC	
MODULE CODE	undefined	LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	53	OF 54

