

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

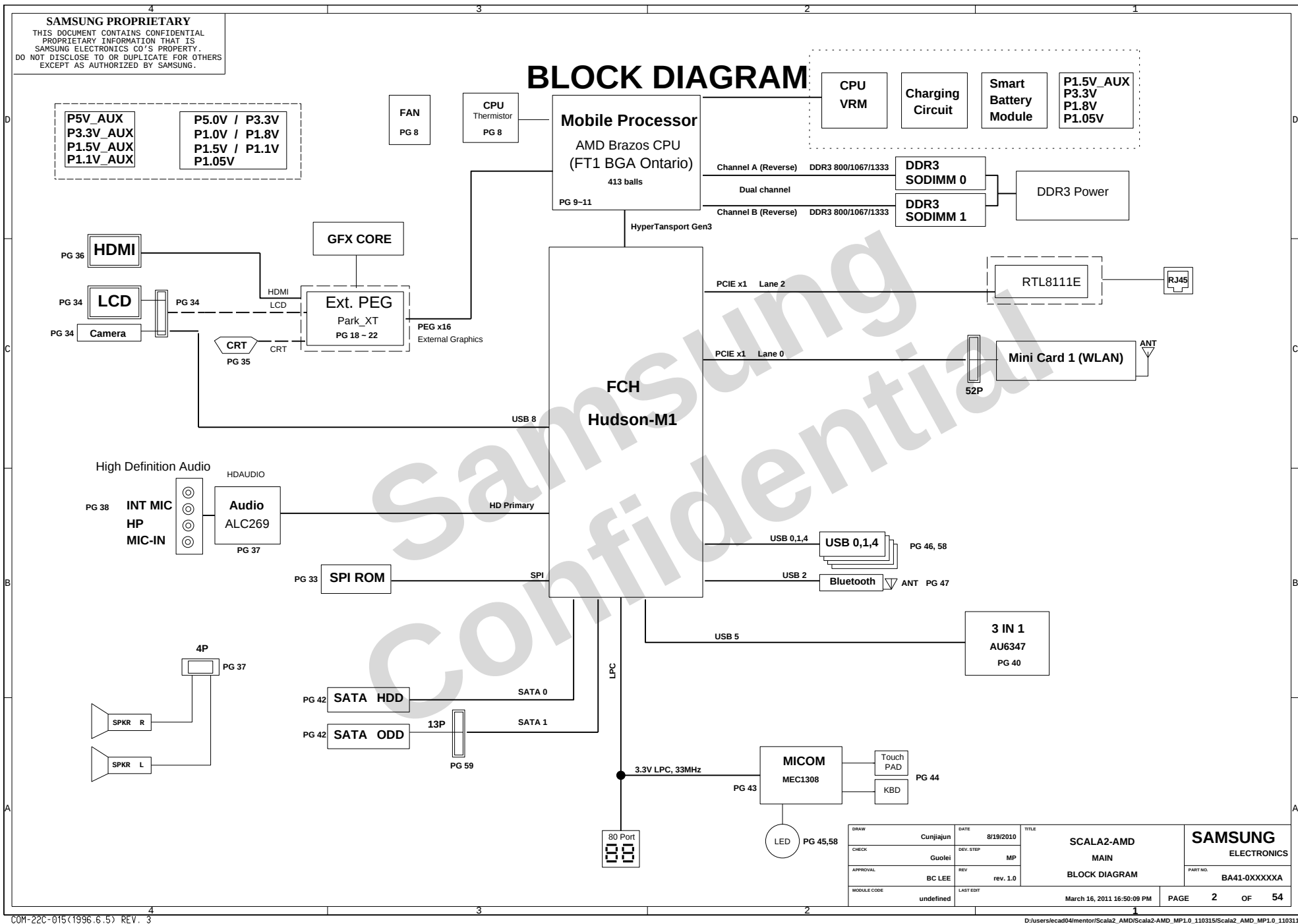
Design	CHECK	APPROVAL
Cun jia jun	Lei Guo	BC LEE

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)	
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)	
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	

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		

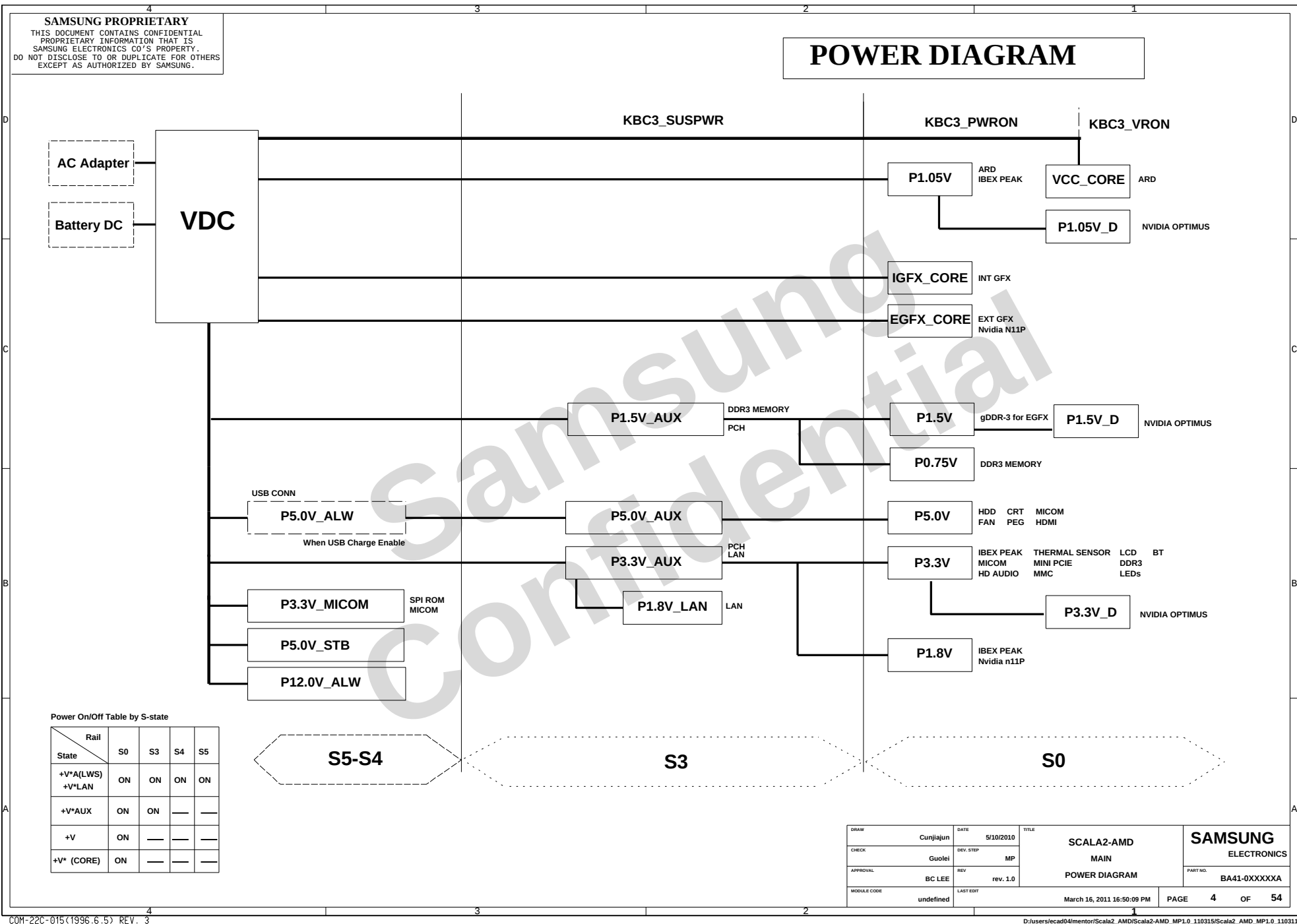
SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	ODD
2	(N/A WITH HM55)
3	(N/A WITH HM55)
4	
5	

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

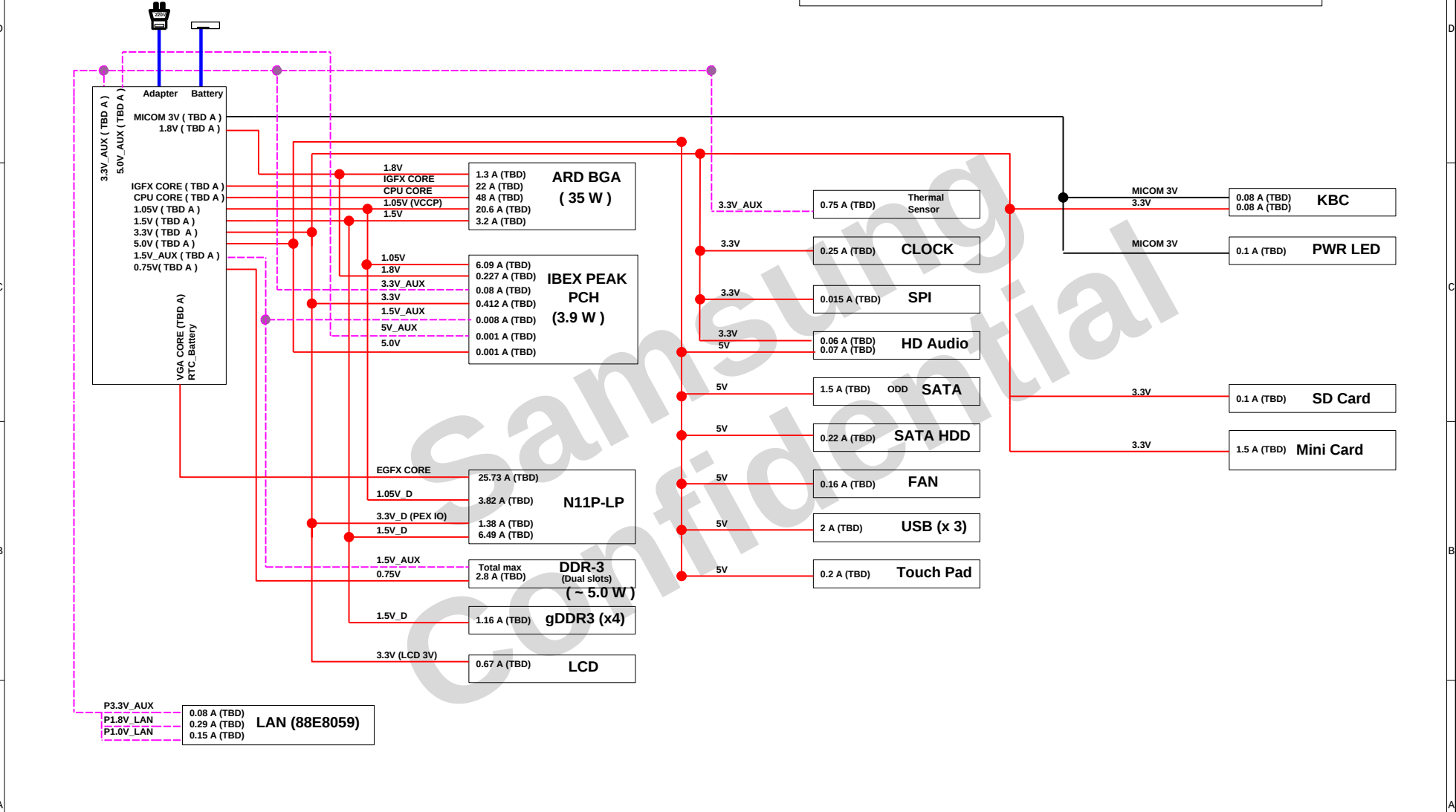
I ² C / SMB Address			
Devices	Address	Hex	Bus
IBEX PEAK	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	
SODIMM0	1010 000x	A0h	Thermal Sensor
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
CK-505M Shrink(Clock Generator)	1101 001x	D2h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

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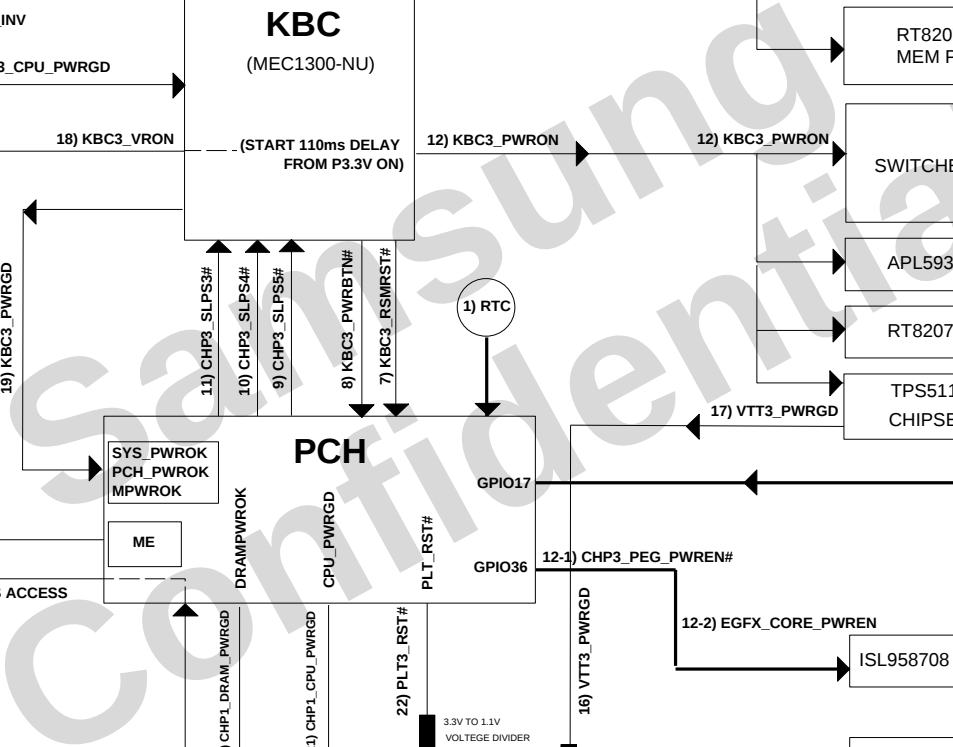
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POWER RAILS ANALYSIS

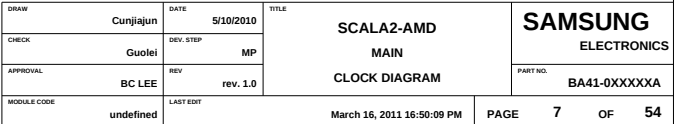


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Rev. 1.0



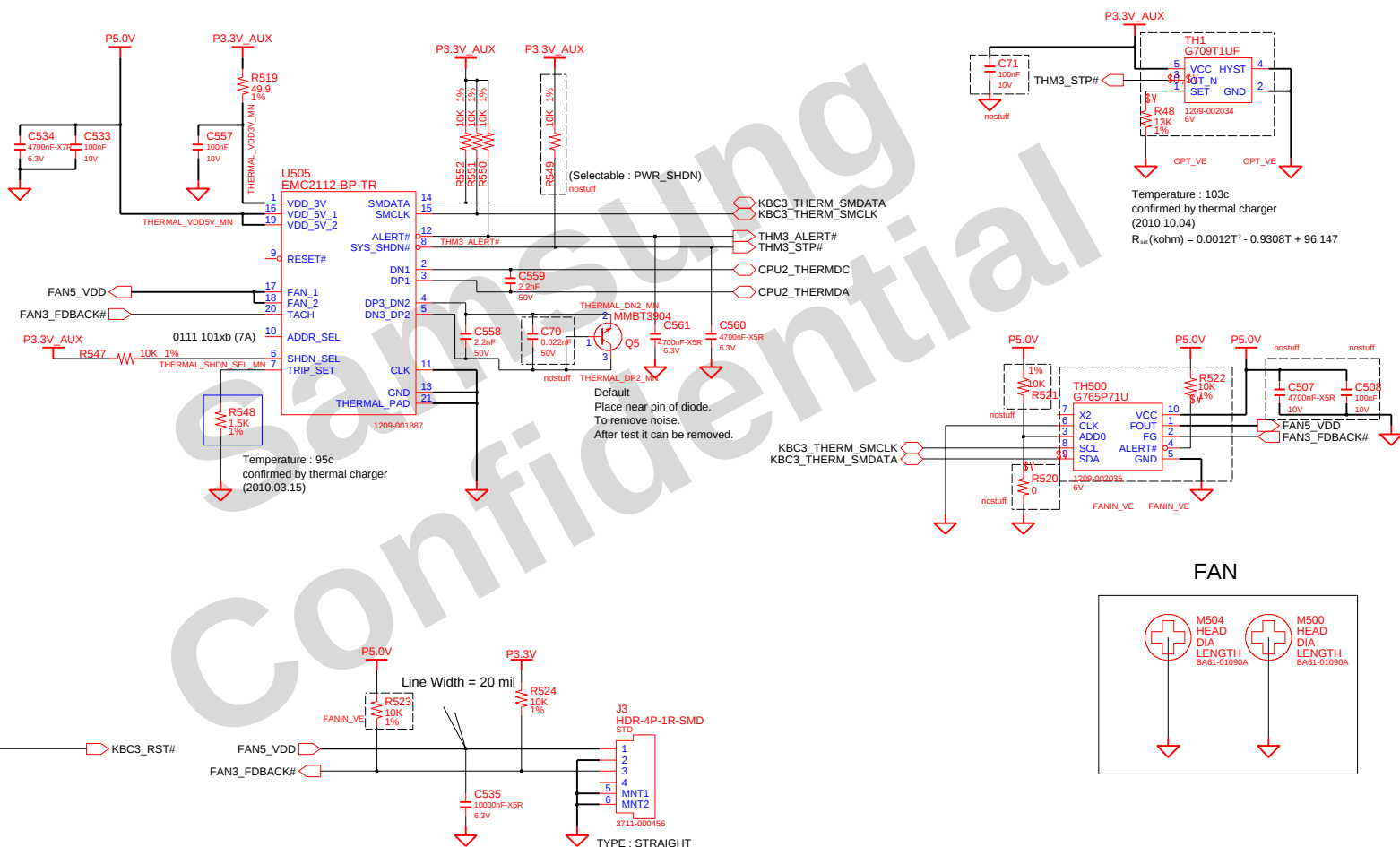
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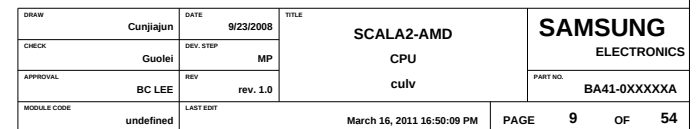
THERMAL SENSOR & FAN CONTROL

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

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

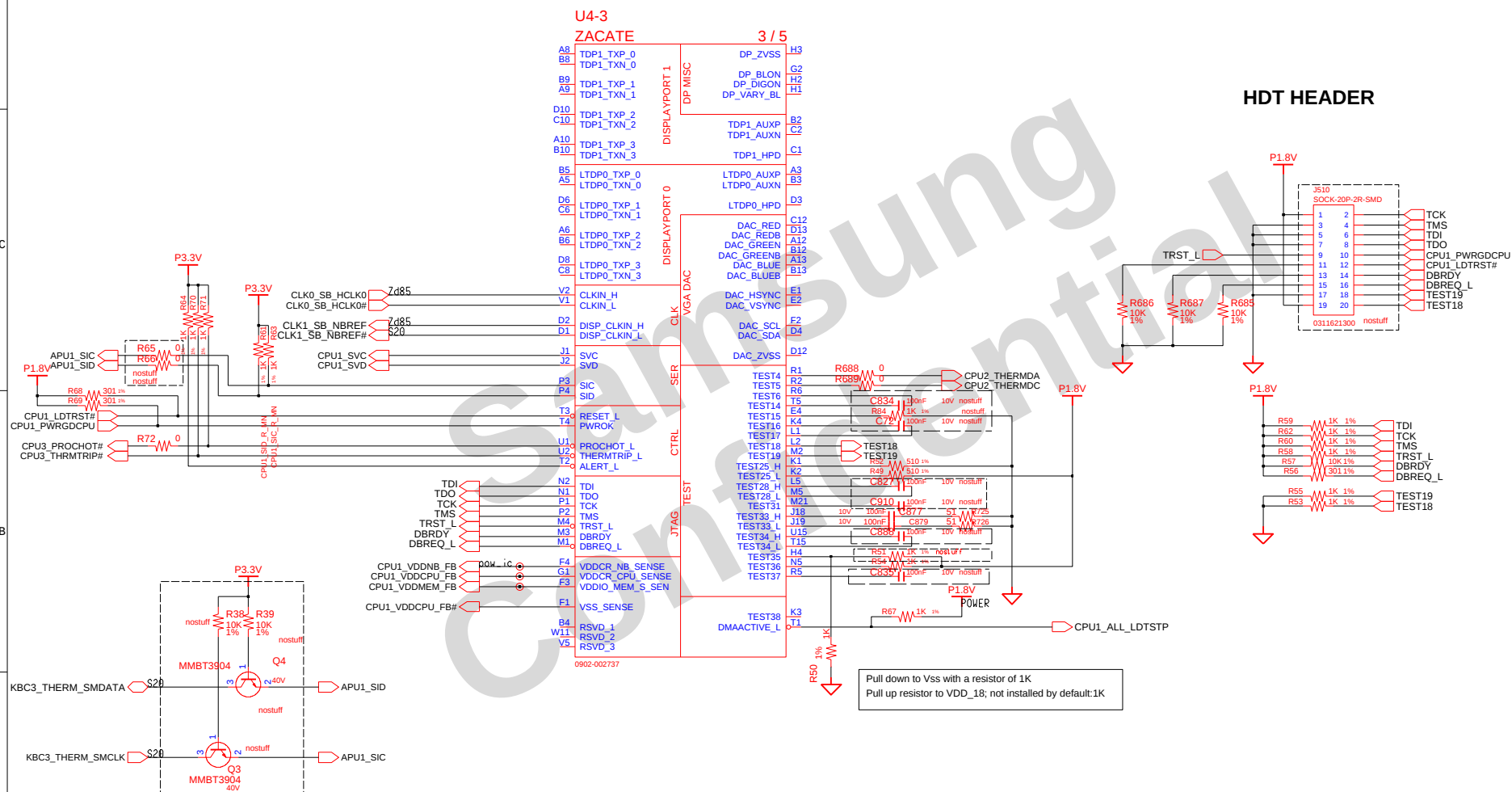


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APPROVAL	BC LEE	REV	rev. 1.0		THERMAL SENSOR EMC2112	PART NO. BA41-0XXXXXA
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	8	OF 54



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CPU ZACATE



DRAW	Cunjiapun	DATE	9/23/2008	TITLE SCALA2-AMD CPU culv			
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COM-22C-015(1996.6.5) REV. 3

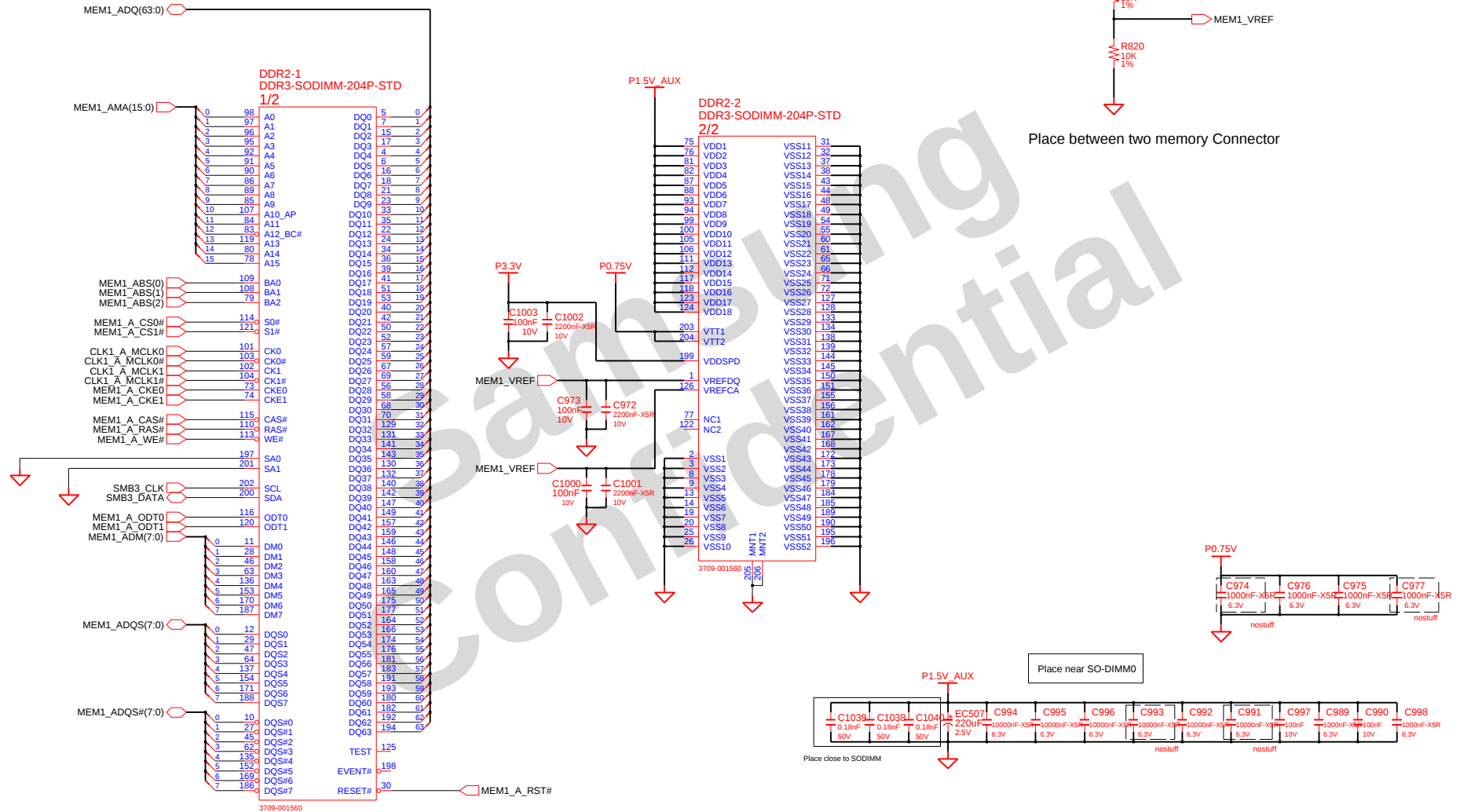
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DDR SO-DIMM #0

Height : 8 mm (STANDARD)

P/N : 3709-001615 (FOXCONN)

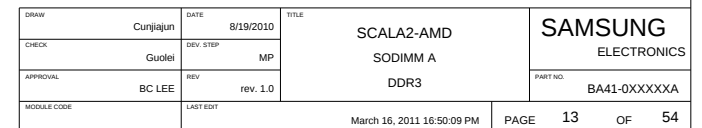
P/N : 3709-001622 (CONCRAFT)



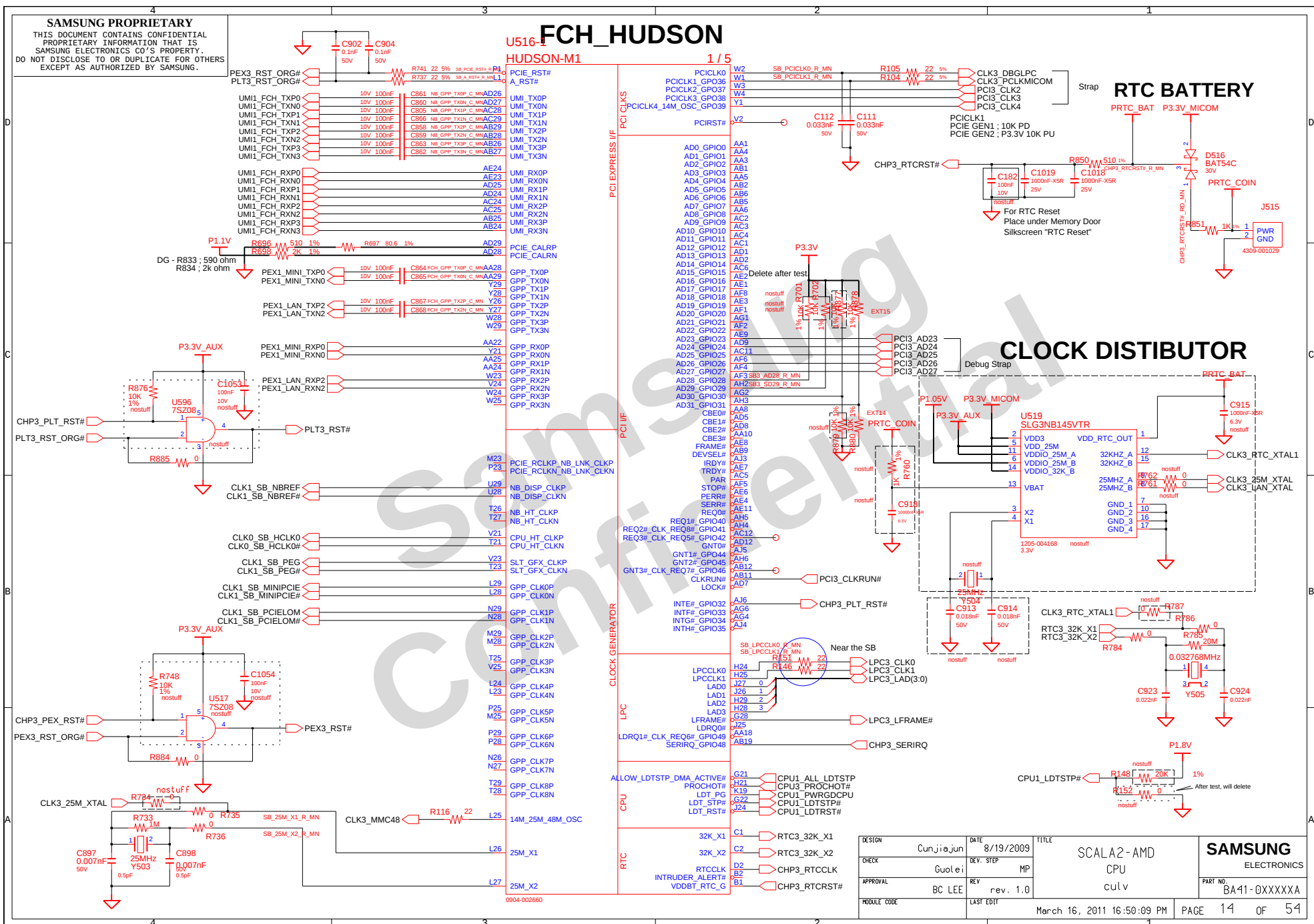
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APPROVAL	BC LEE	REV	rev. 1.0		DDR3
MODULE CODE		LAST EDIT			
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SAMSUNG	BA41-0XXXXXA
ELECTRONICS	

DDR SO-DIMM #1
Height : 4 mm (STANDARD)
P/N : 3709-001560 (FOXCONN)
P/N : 3709-001607 (CONCRAFT)



U516-1
HUDSON-M1

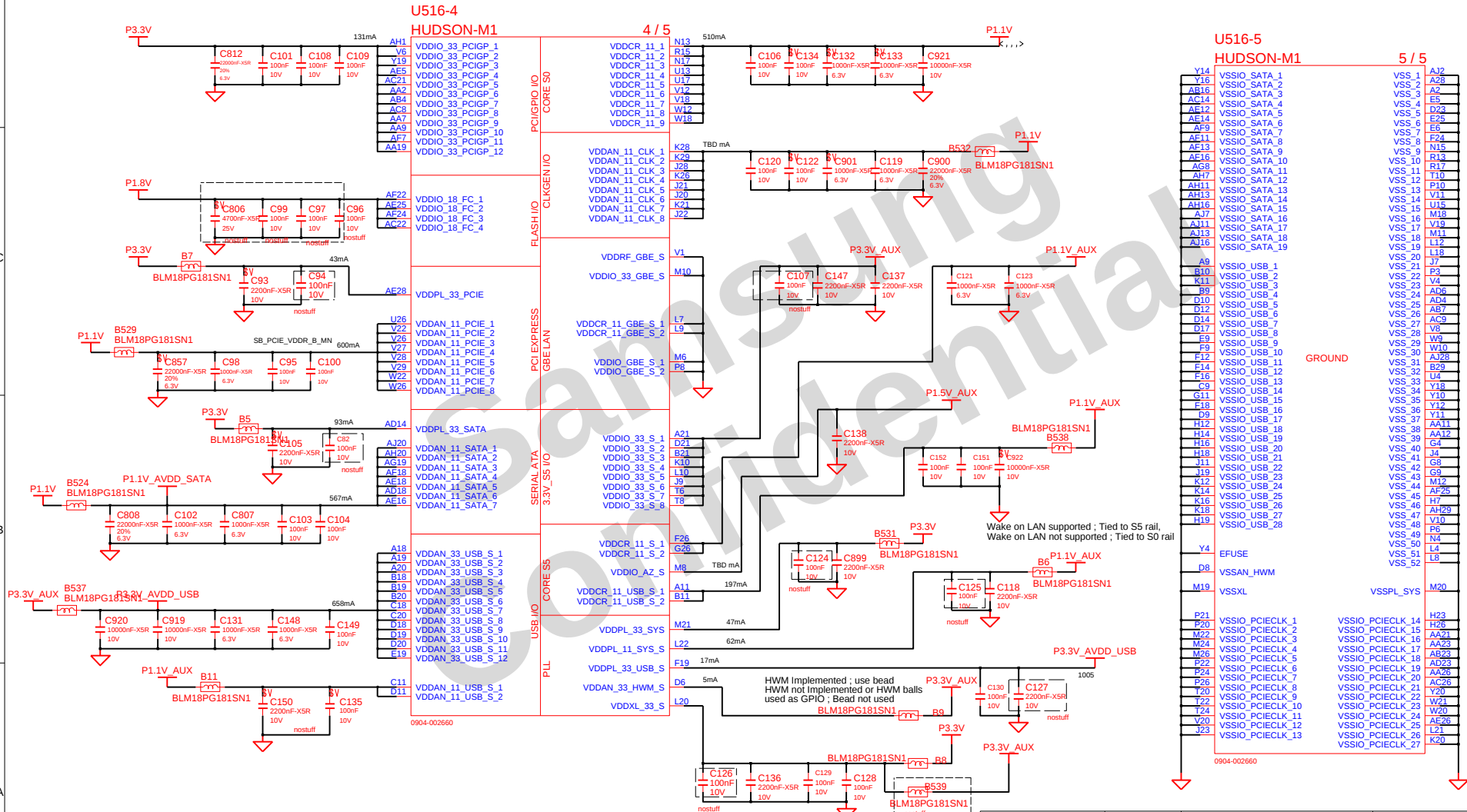


U516-2
HUDSON-M1

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FCH_HUDSON

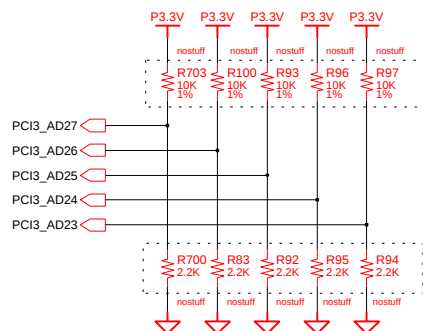


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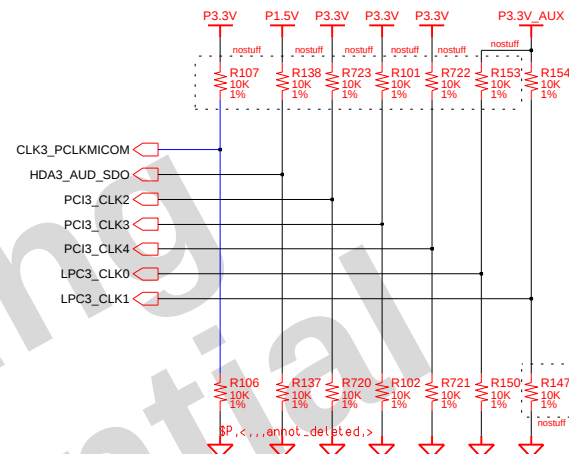
PART NO.
BA41-0XXXXXA

Strap

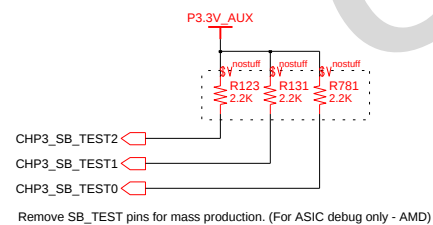


DEBUG STRAPS

	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

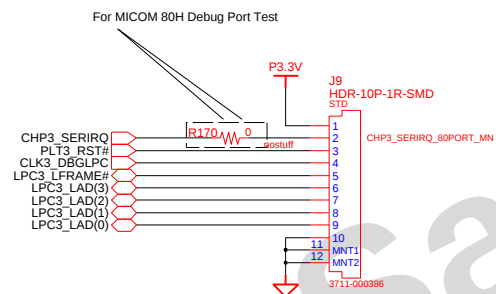


PULL HIGH	HDA3_AUD_SDO AZ_SDOUT	PCI3_CLK2	PCI3_CLK3	PCI_CLK4	LPC3_CLK0	LPC3_CLK1
	LOW POWER MODE	Watchdog Timer Enabled	USE DEBUG STRAP	non_Fusion CLOCK MODE	EC ENABLE	CLKGEN ENABLE DEFAULT
PULL LOW	PERFORMANCE MODE DEFAULT	Watchdog Timer Disabled DEFAULT	IGNORE DEBUG STRAP DEFAULT	FUSION CLOCK MODE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

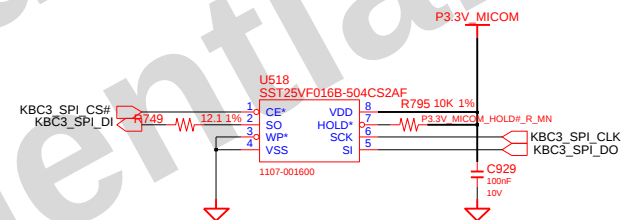


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APPROVAL	BC LEE	REV	rev. 1.0		PART NO.			
					BA41-0XXXXXA			
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80H PORT DEBUG



BE CAUTION SPI ROM SIZE!!



DESIGN	Curjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD DEBUG PORT 80H DECODER	SAMSUNG ELECTRONICS
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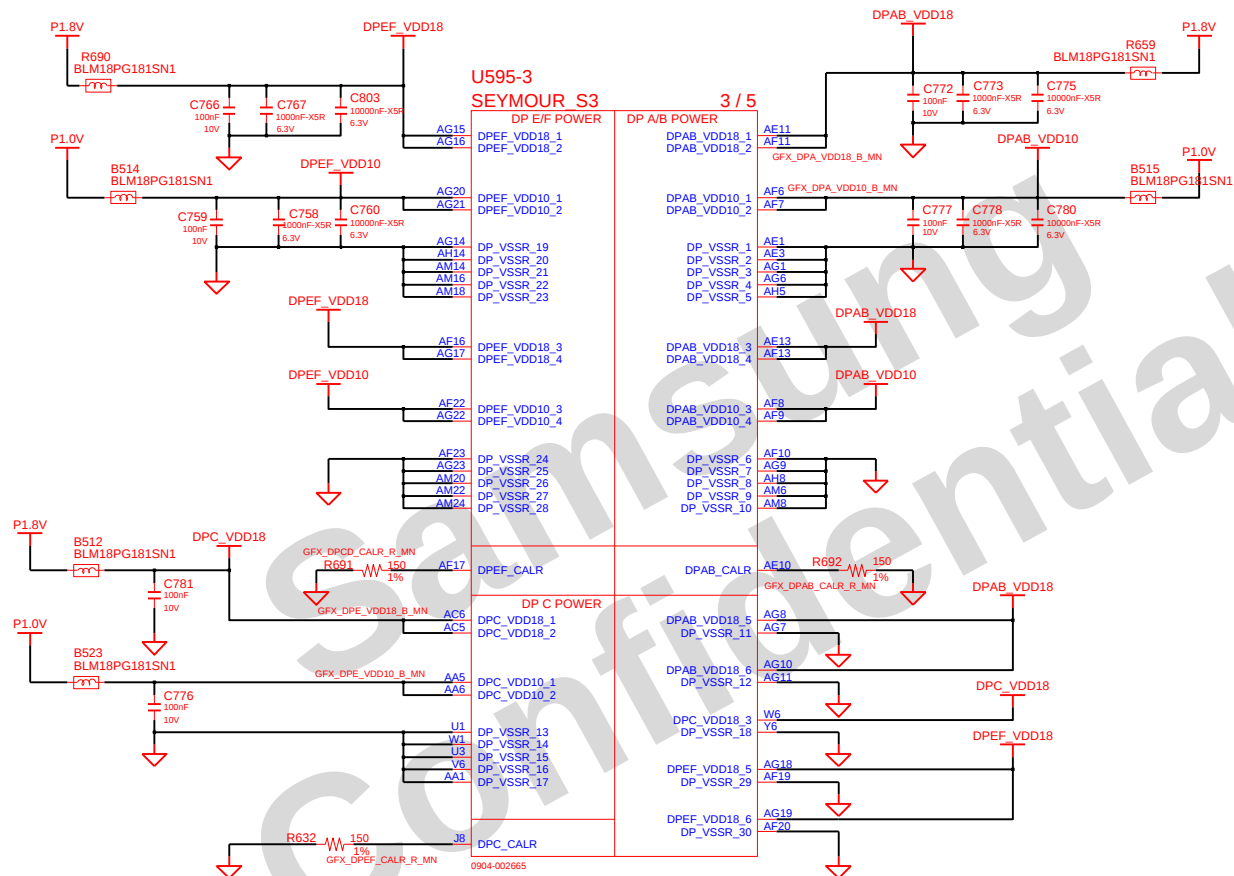
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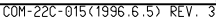
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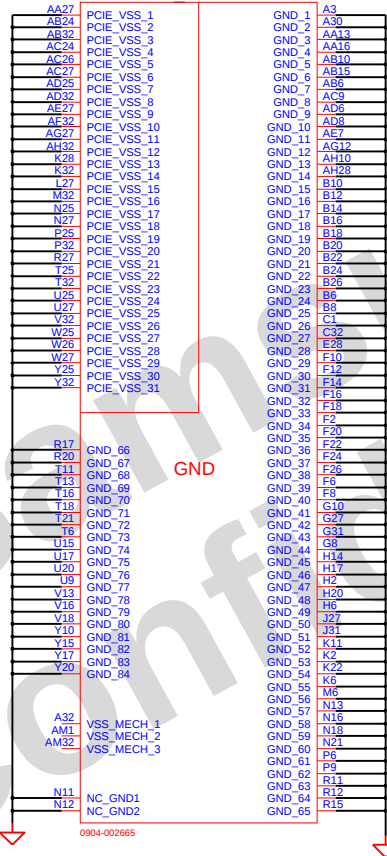
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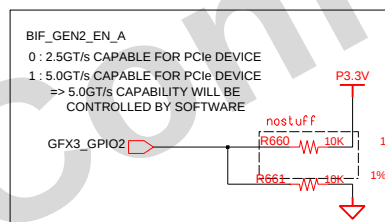
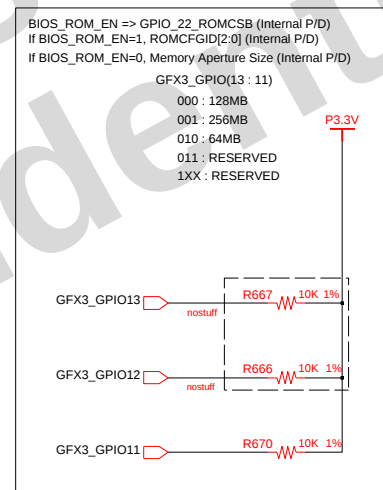
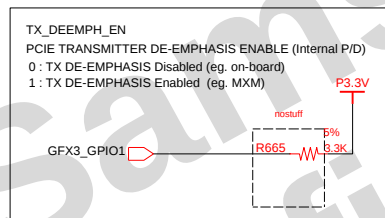
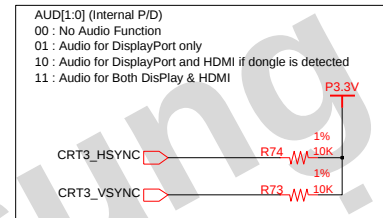
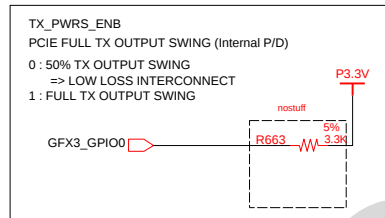
U595-5
SEYMOUR S3 5 / 5



GND

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APPROVAL	BC LEE	REV	rev. 1.0		PART NO.	BA41-0XXXXXA
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SEYMOUR/WHISTLER S3 Straps

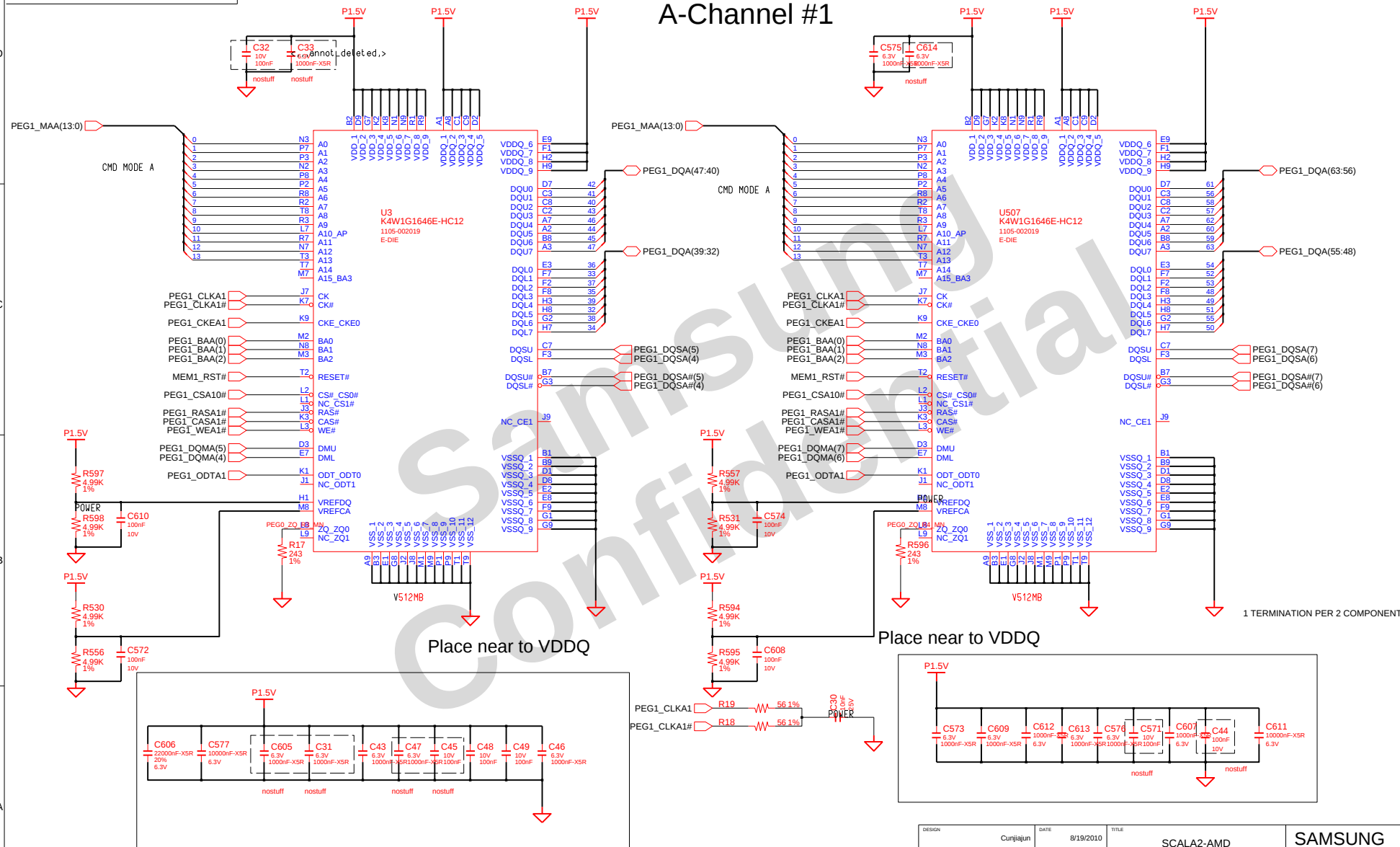


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A-Channel #0

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A-Channel #1



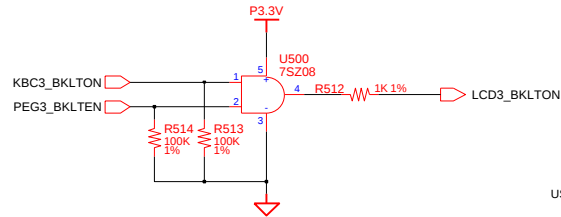
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SAMSUNG	
ELECTRONICS	
PART NO.	BA41-0XXXXXA

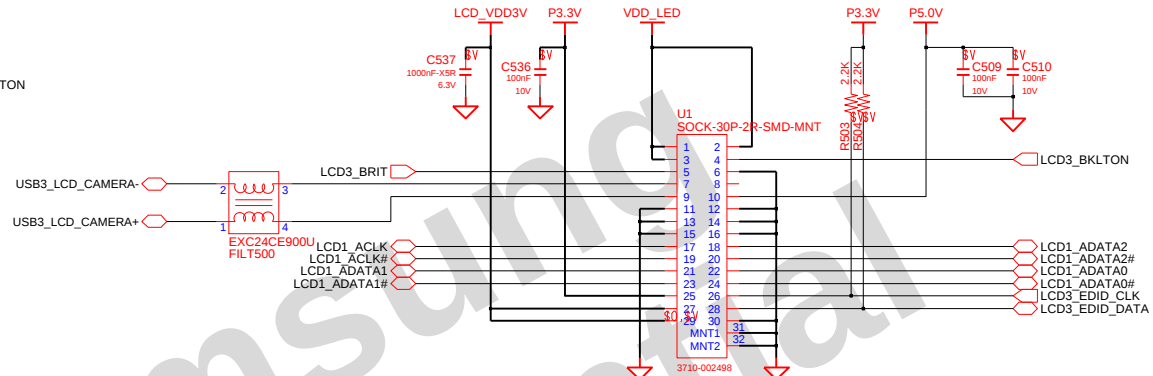
LVDS LOGIC

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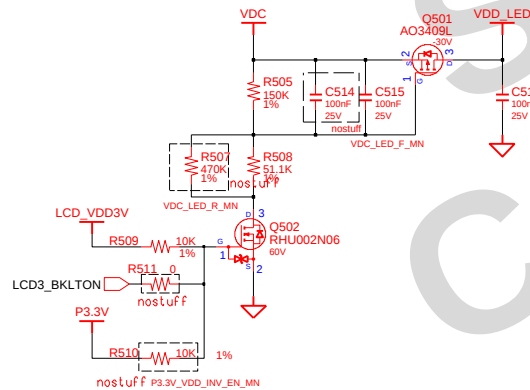
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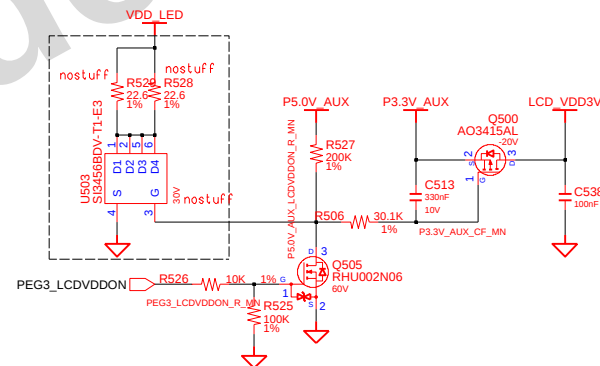
LCD Connector + CAMERA



LED Power

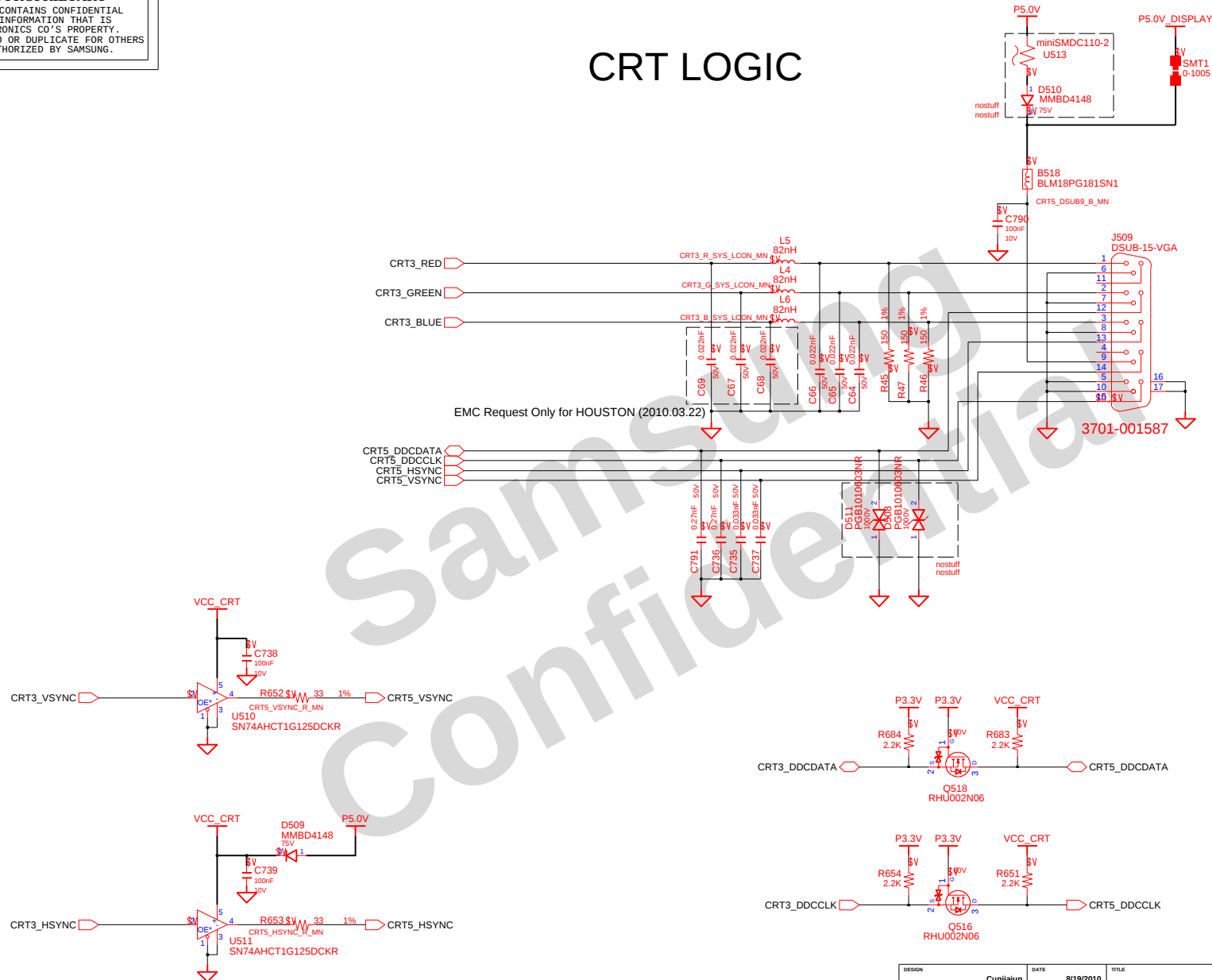


LCD Power



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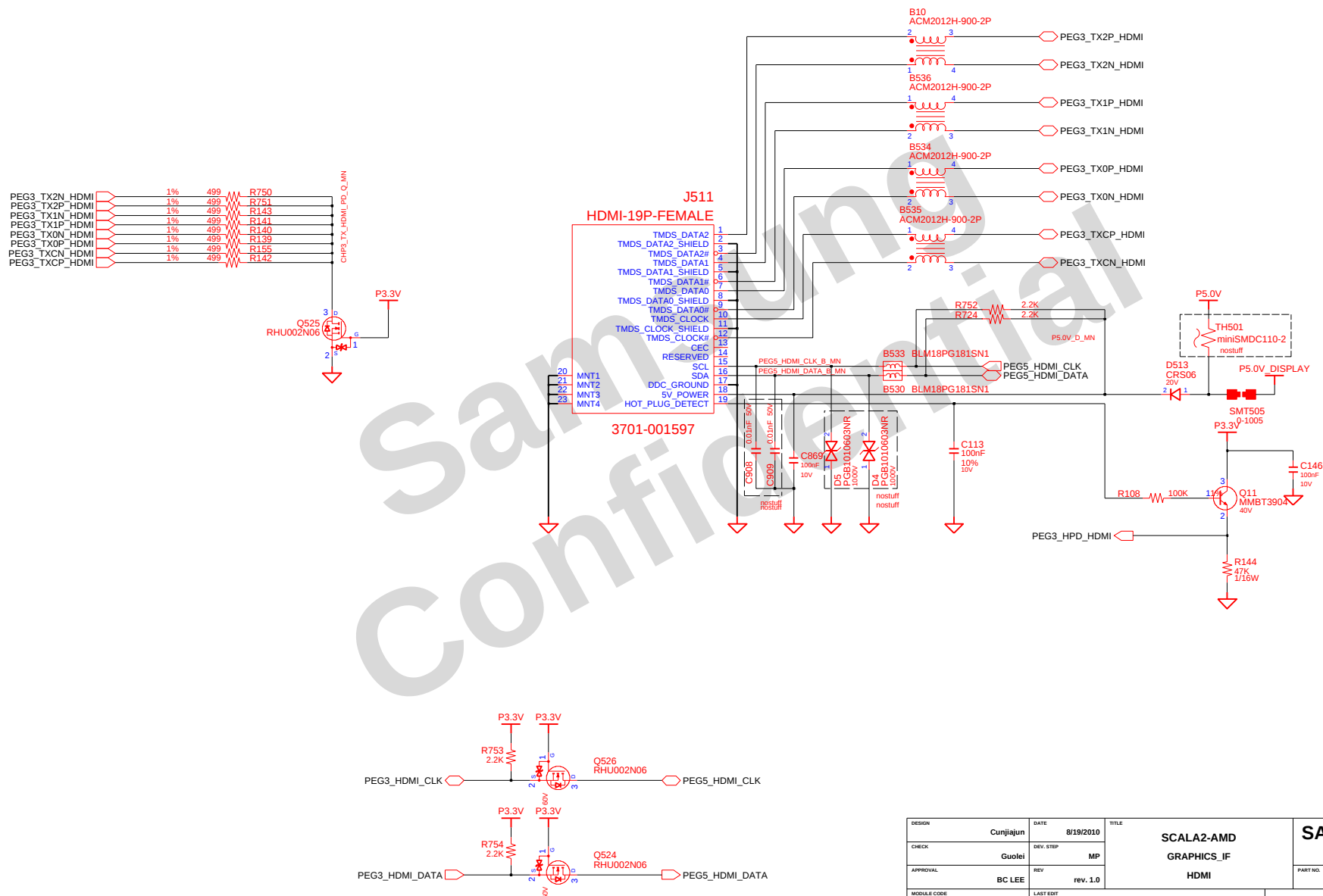
CRT LOGIC



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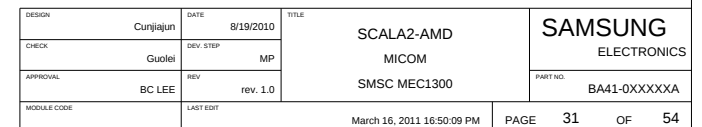
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HDMI Graphic



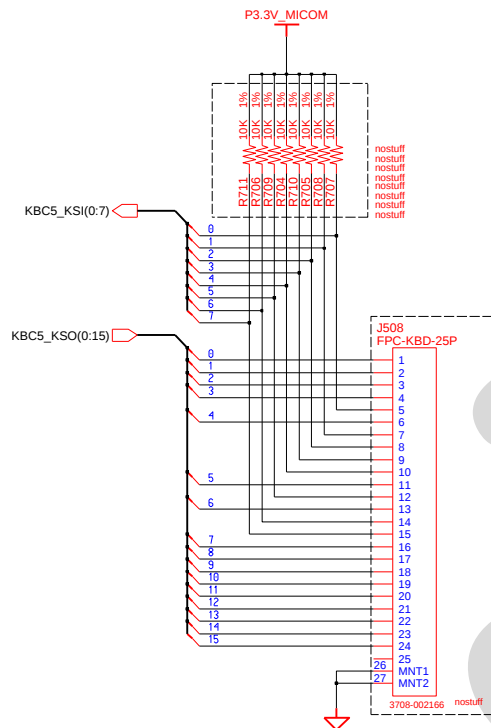
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MAIN BOARD (MICOM)

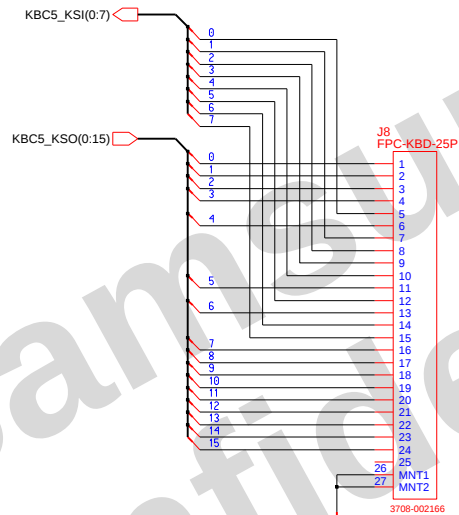


Micom Glue Logic

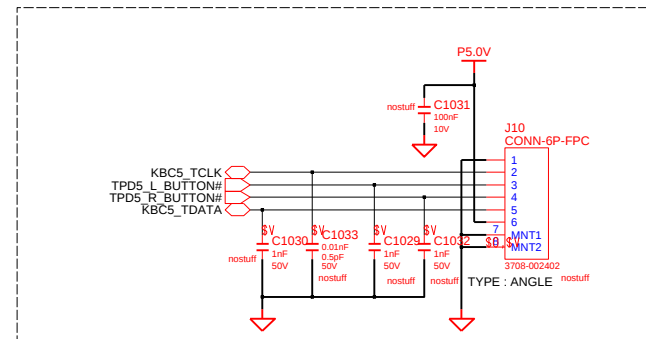
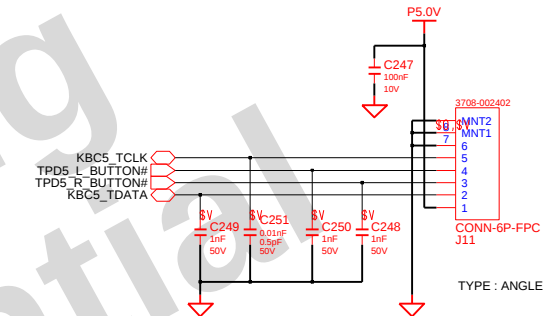
KEYBOARD on TOP



KEYBOARD on Bottom



TOUCHPAD

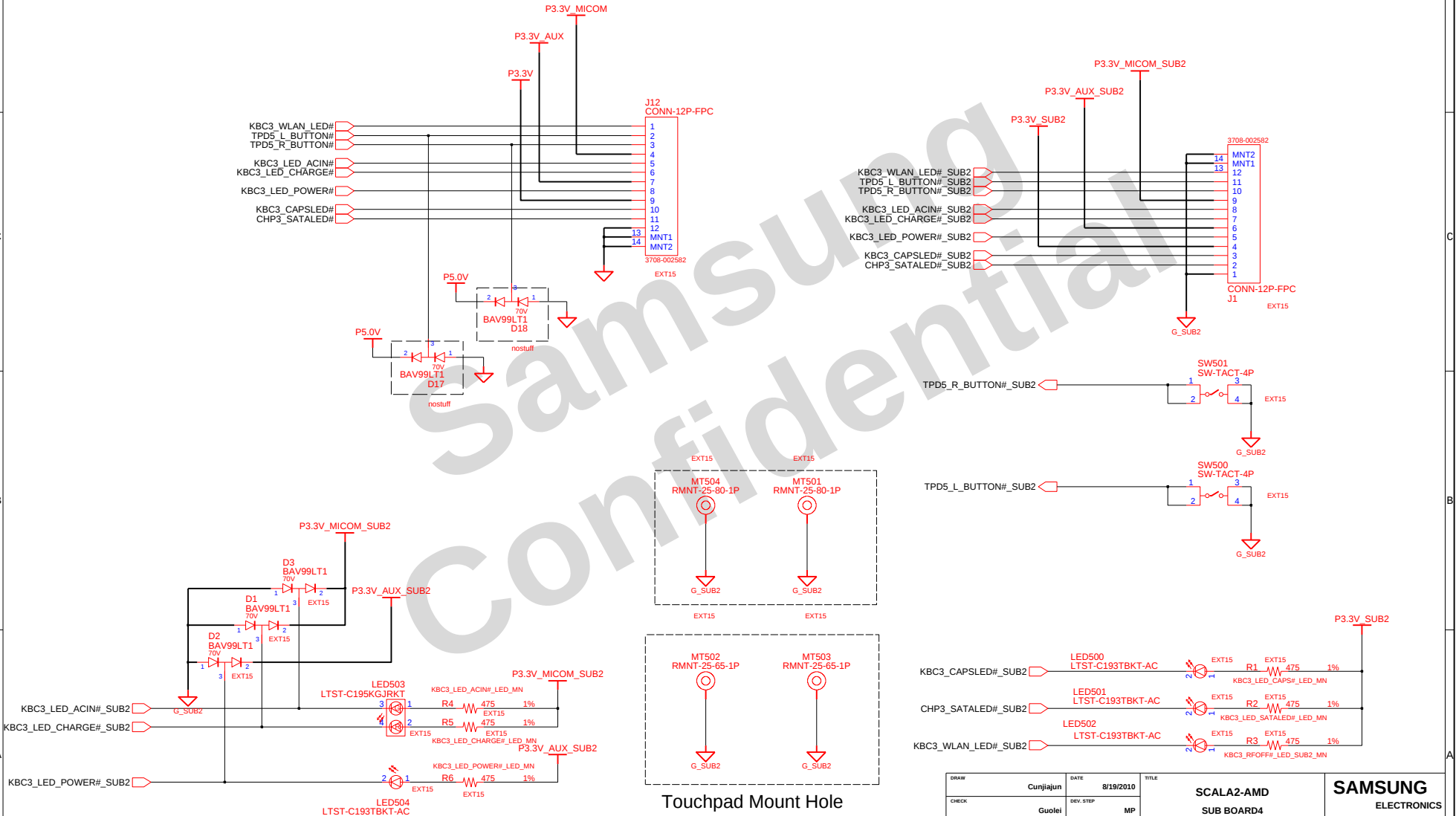


DRAW	Curjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		MICOM GLUE LOGIC	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		MICOM GLUE LOGIC	PART NO.
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM			BA41-0XXXXXA
					PAGE	32 OF 54

15.6"

TOUCHPAD MAIN TO SUB

TOUCHPAD SUB TO MAIN



Touchpad Mount Hole

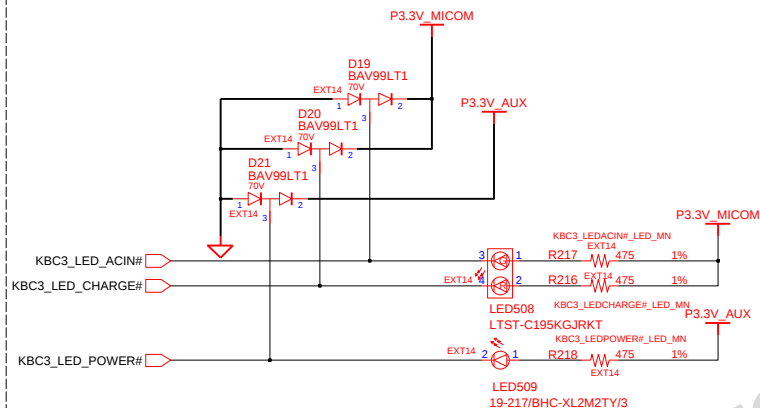
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CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT				
March 16, 2011 16:50:09 PM						PAGE 33 OF 54

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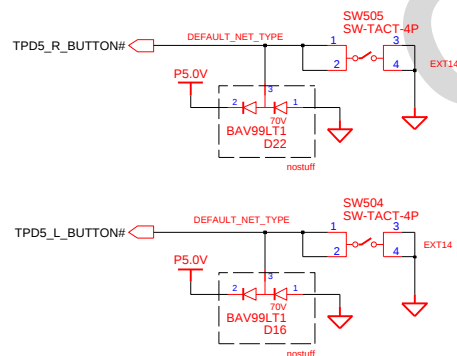
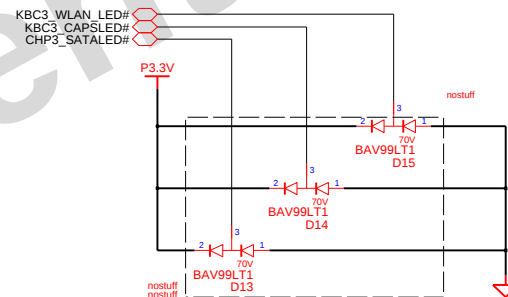
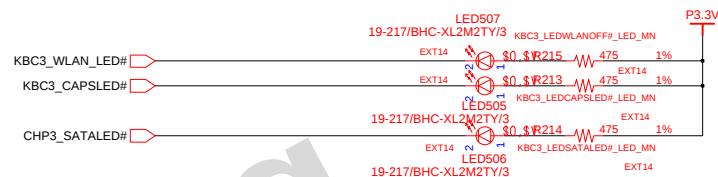
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EXT14

ADAPTERIN/CHARGING LED



ADAPTERIN/CHARGING LED



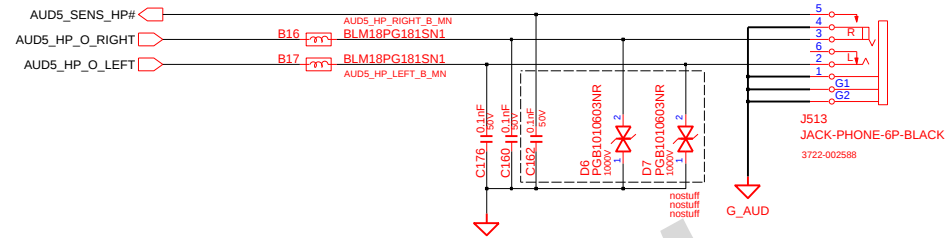
DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		MNT hole	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		MNT hole	PART NO.
MODULE CODE		LAST EDIT				BA41-0XXXXXA
				March 16, 2011 16:50:09 PM	PAGE	34 OF 54

HD AUDIO

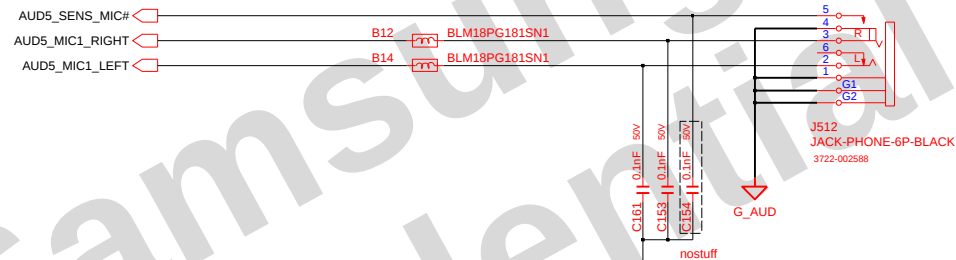
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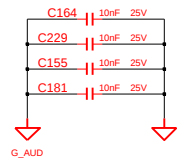
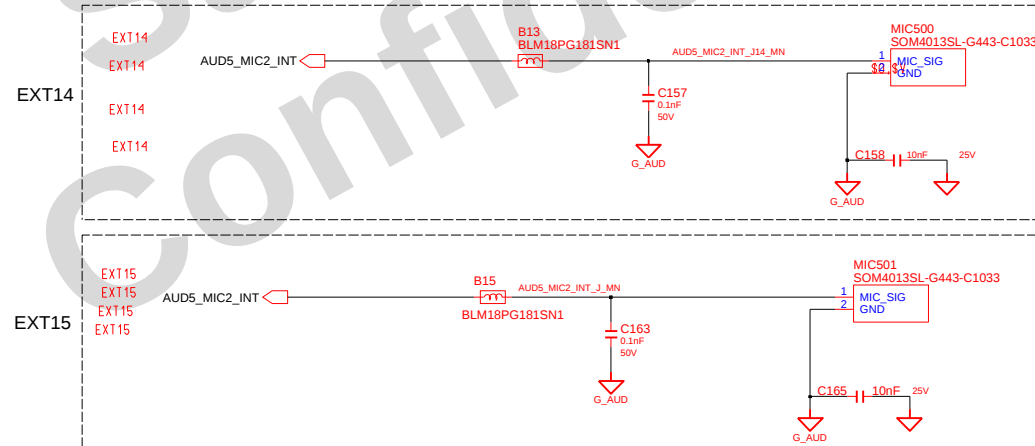
HEADPHONE



MIC JACK



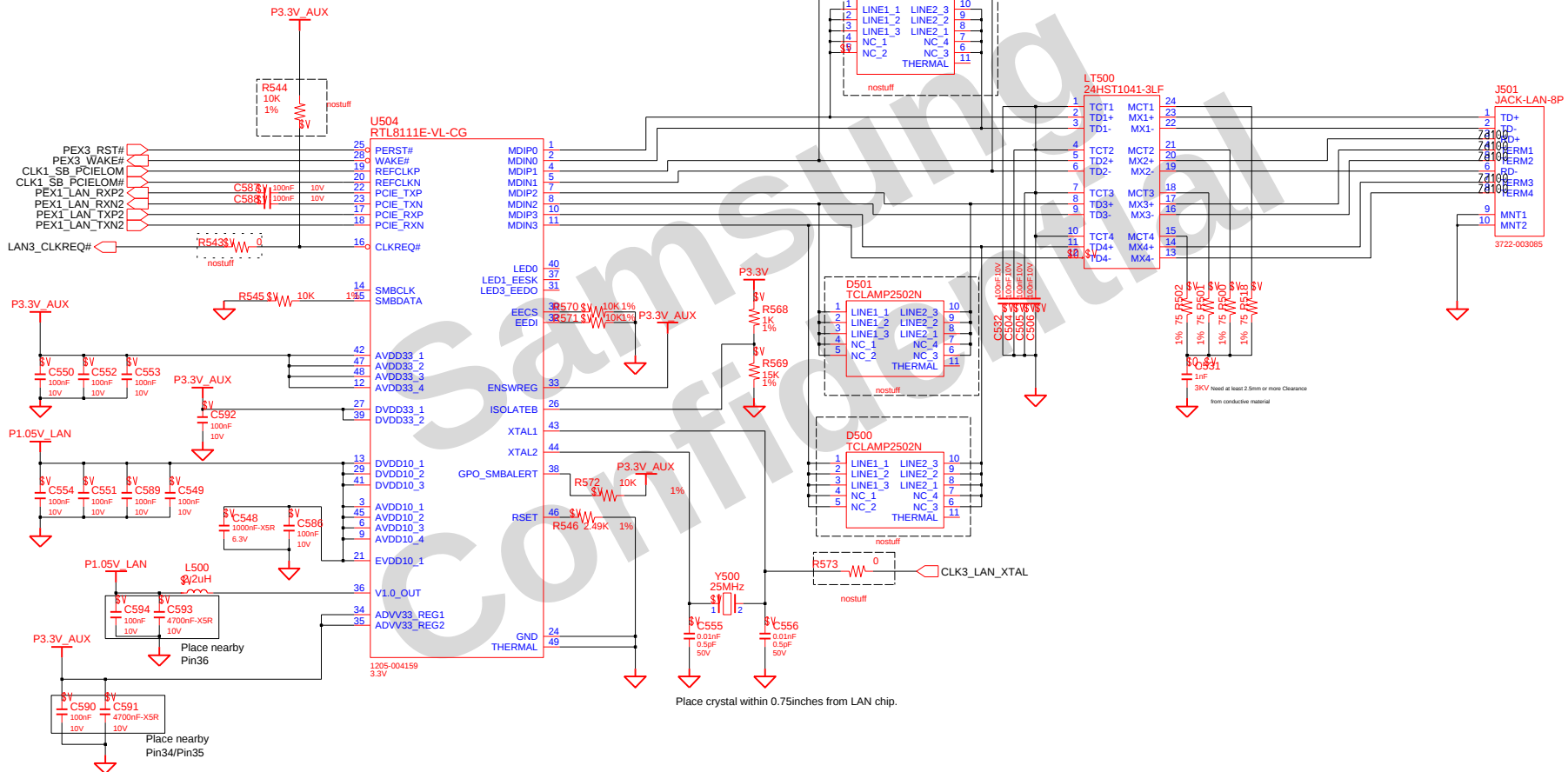
Internal MIC



DESIGN	Cunjjajun	DATE	8/19/2010	TITLE SCALA2-AMD HDA_CODEC & LED SUB AUDIO JACK & LED SUB	SAMSUNG ELECTRONICS		
CHECK	Guolei	DEV. STEP	MP				
APPROVAL	BC LEE	REV	rev. 1.0				
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM				
				PAGE	36	OF	54

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Reatek RTL8111E



Place crystal within 0.75inches from LAN chip.

DESIGN	Cunjiacun	DATE	8/19/2010	TITLE	SCALA2-AMD LAN LAN_Realtek_RTL8111	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	37	OF 54

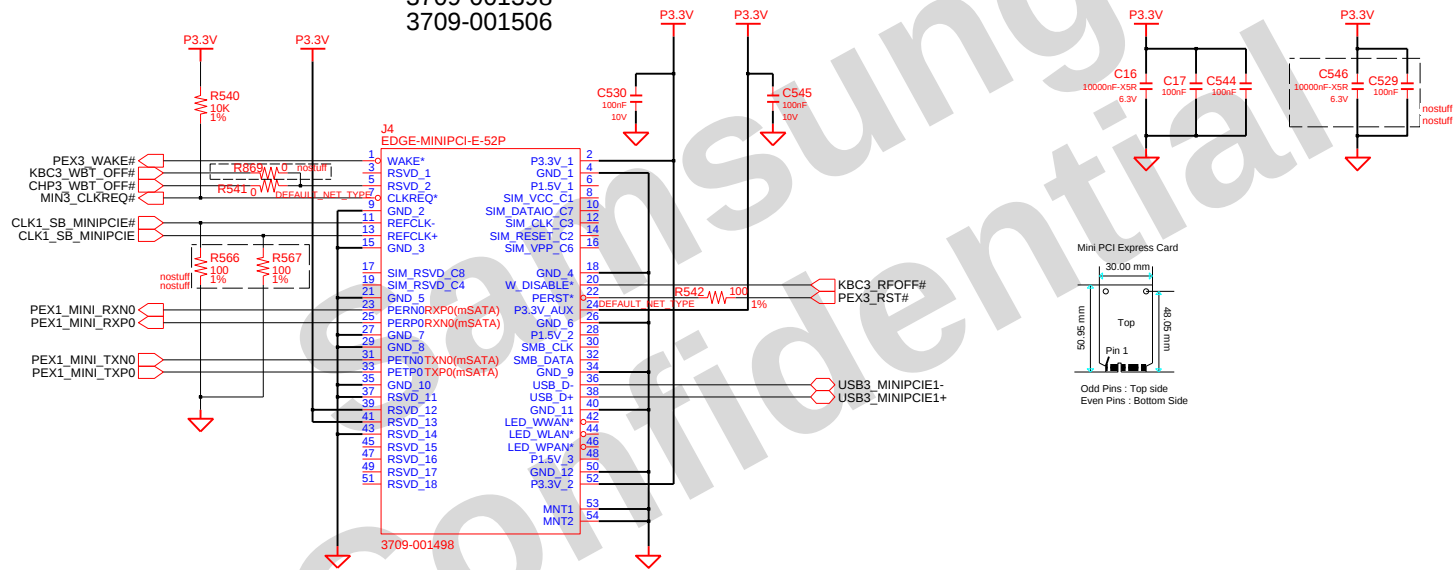
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WLAN

Height : 7.0mm

3709-001398
3709-001506

AMT 6.0 : P3.3V = P3.3V_ALW (Check?)
wake up pull-up power rail ?
Puma Peak -WiFi (AMT 6.0)
Kilmer Peak - WiFi/WiMax

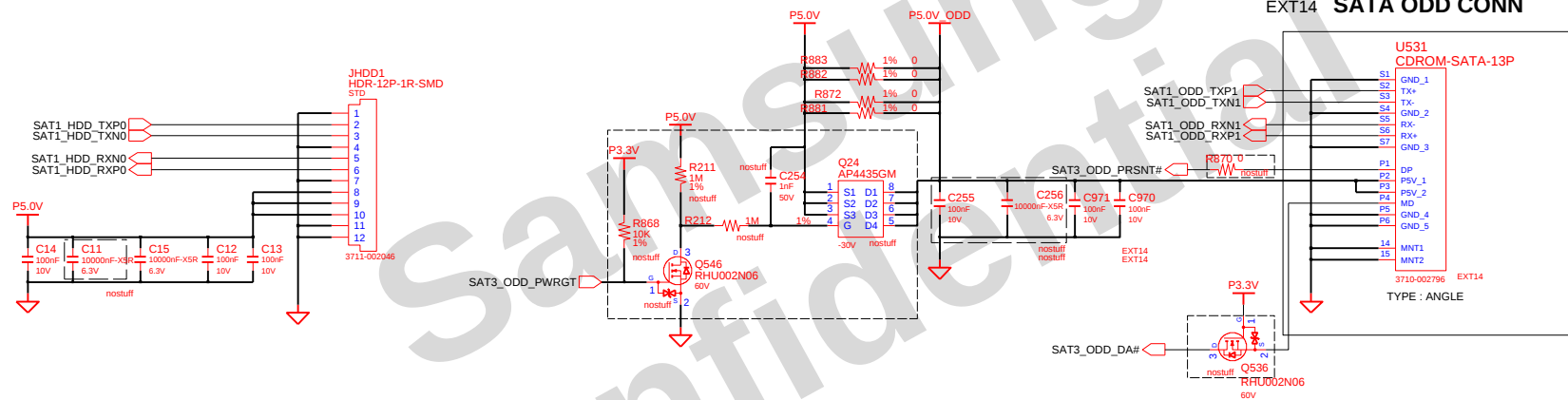


DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD MULTICARD 3 IN 1 CARD(GL827S)	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	38	OF 54

SATA I/F CONN

SATA HDD CONN

Cable Connector Type

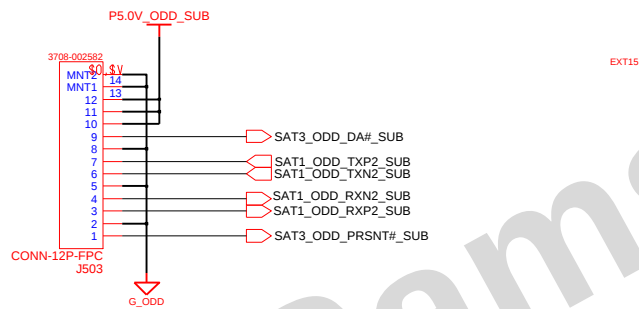


DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD SATA I/F SATA I/F	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	39	OF 54

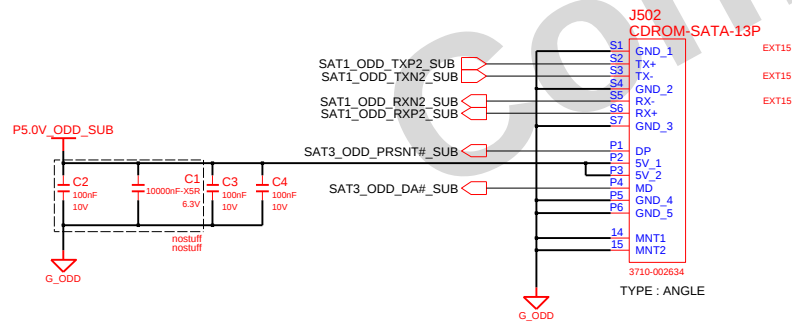
SATA ODD SUB BOARD EXT15

15.6"

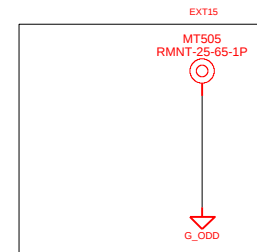
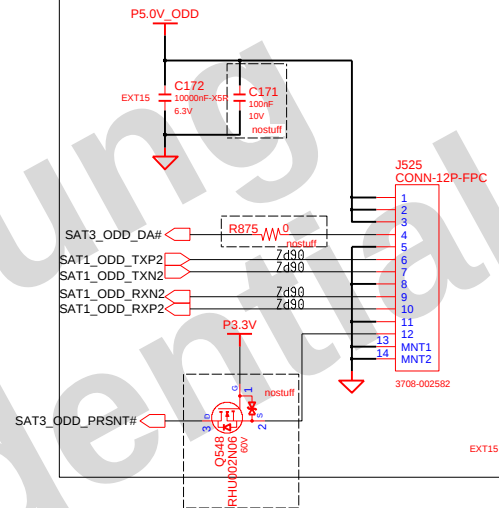
SUB TO MAIN : SATA ODD CONN



SATA ODD CONN



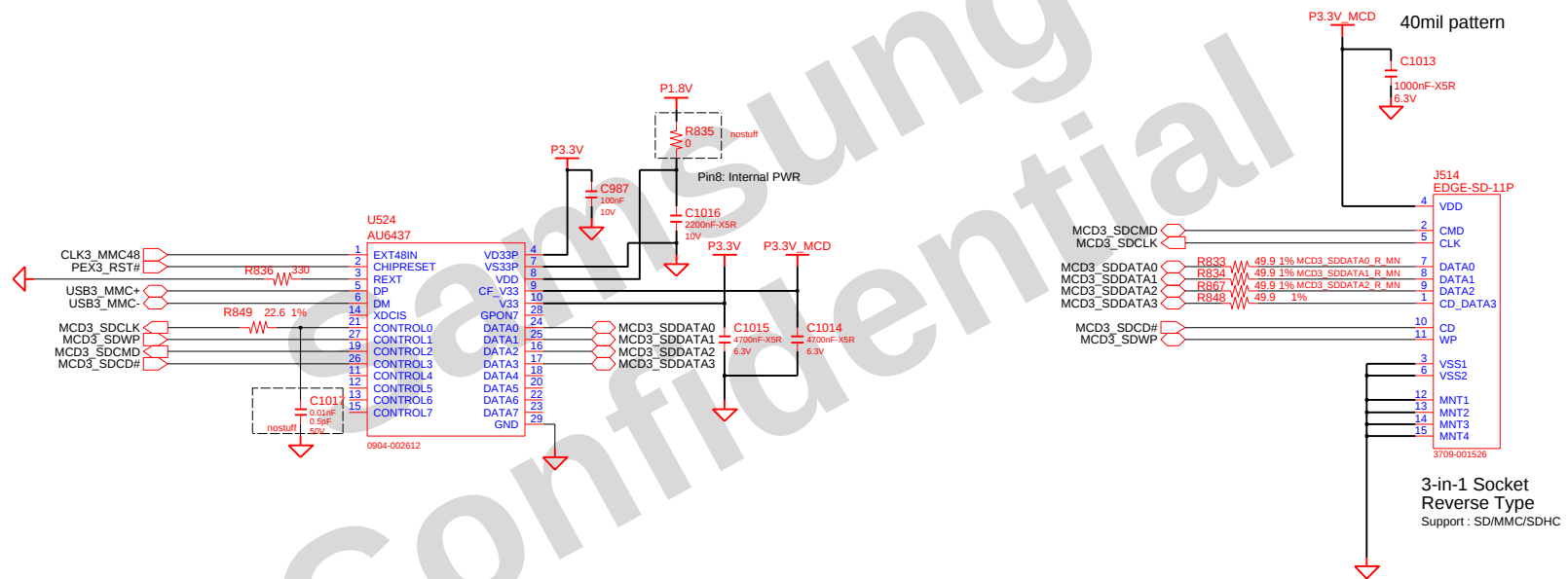
MAIN TO SUB : SATA ODD CONN



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

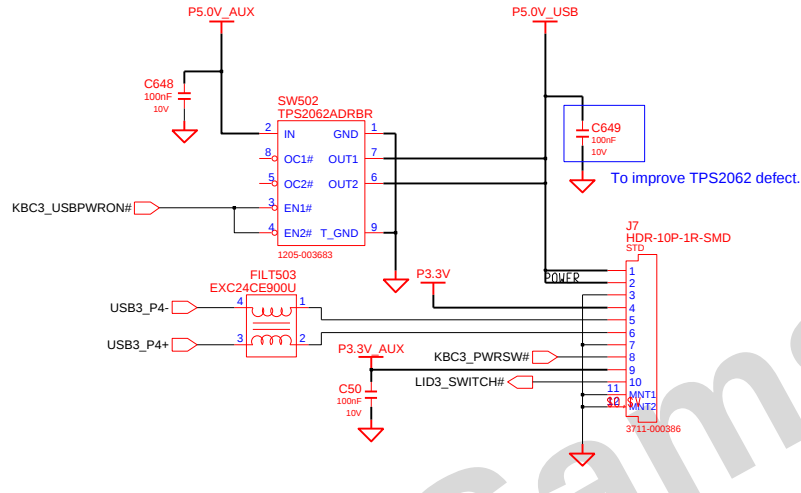
3 IN 1 CARD (AU6437)



DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		SUB BOARD2	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		3 in 1 SUB	PART NO.
MODULE CODE		LAST EDIT				BA41-0XXXXXA
				March 16, 2011 16:50:09 PM	PAGE	41 OF 54

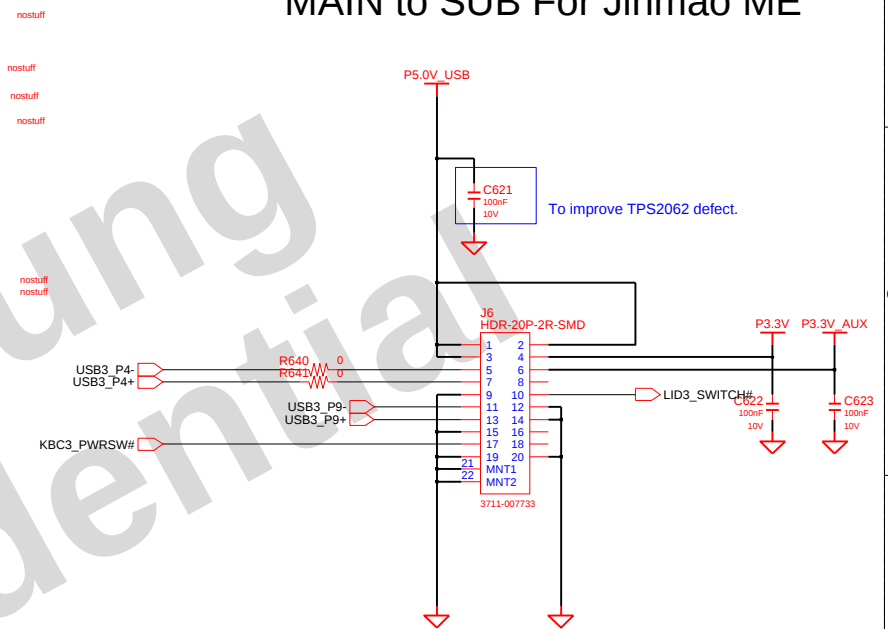
POWER S/W SUB B'D CONNECTOR

MAIN to SUB

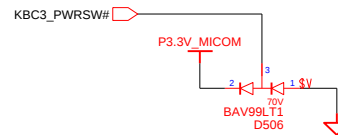
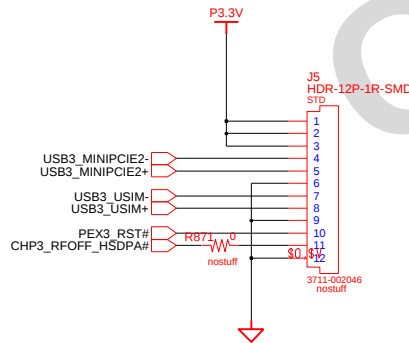


POWER S/W SUB B'D CONNECTOR

MAIN to SUB For Jinmao ME



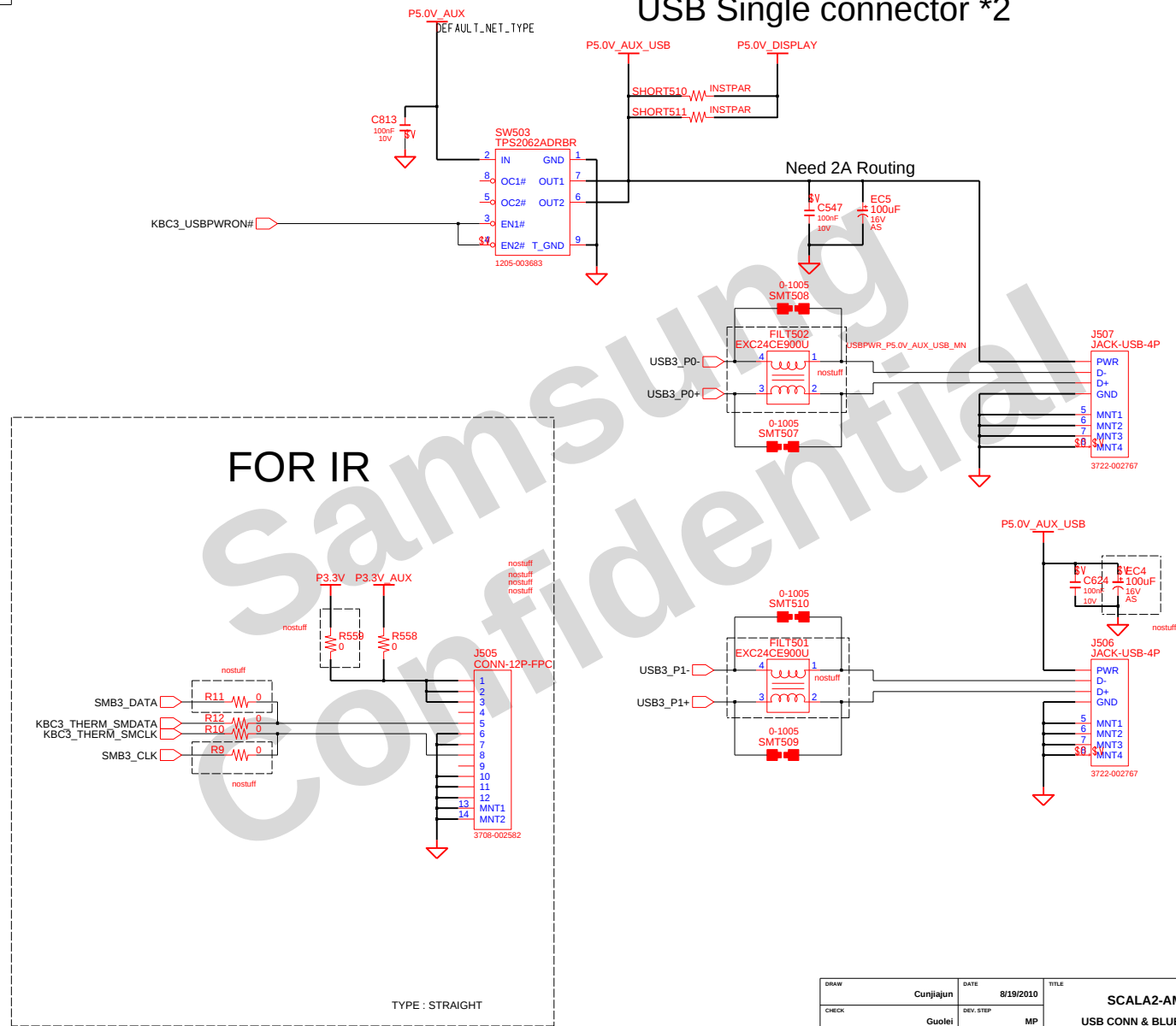
HSPA MAIN TO SUB CONN



DESIGN	Cunjiajun	DATE	8/19/2010	TITLE	SCALA2-AMD
CHECK	Guolei	DEV. STEP	MP	USB_CONN	SAMSUNG 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

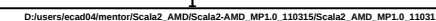
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USB Single connector *2



DRAW	Cunhajun	DATE	8/19/2010	TITLE	SCALA2-AMD	SAMSUNG
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

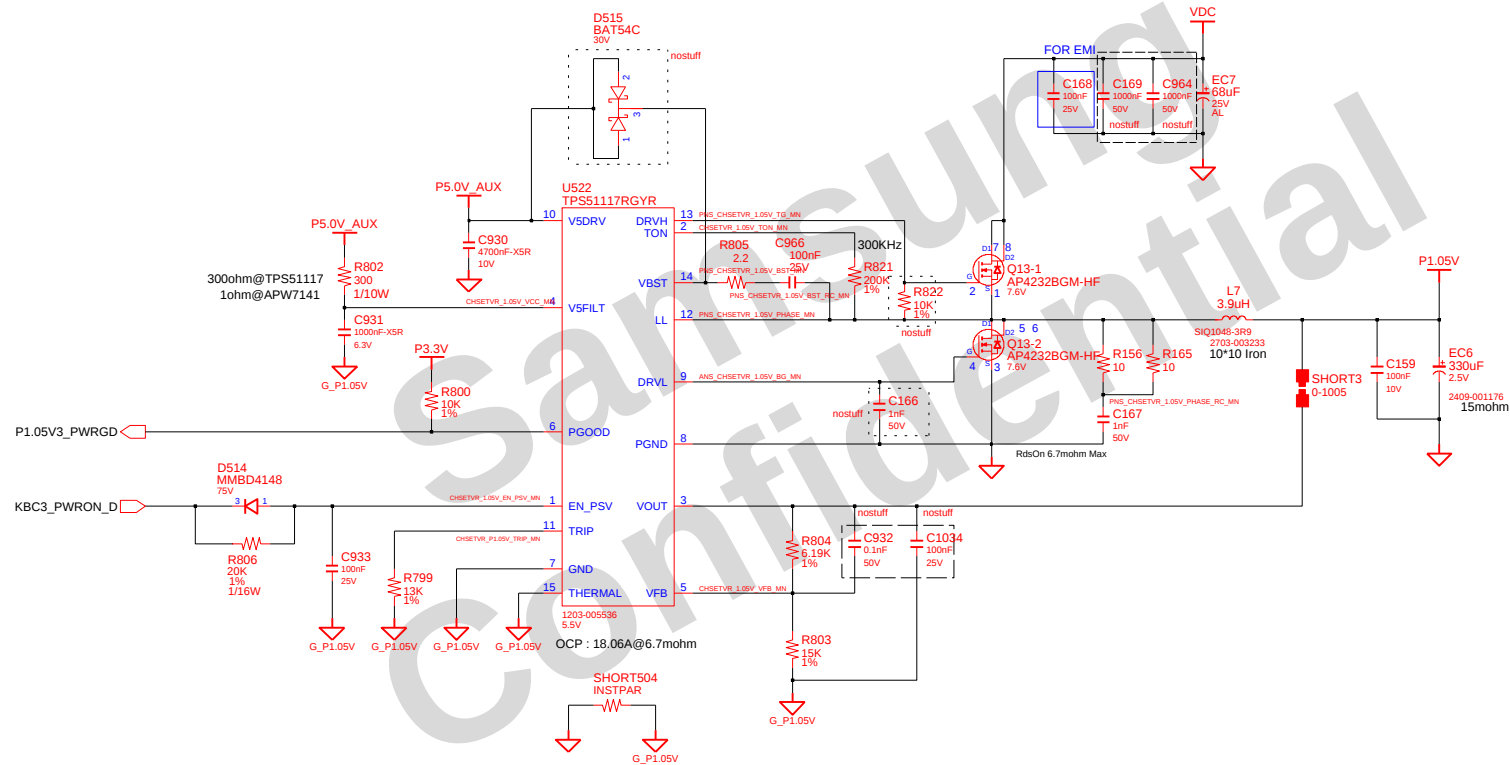


P3.3V_AUX & P5.0V_AUX

D:/users/ecad04/mentor/Scala2 AMD/Scala2-AMD MP1.0 110315/Scala2 AMD MP1.0 110311

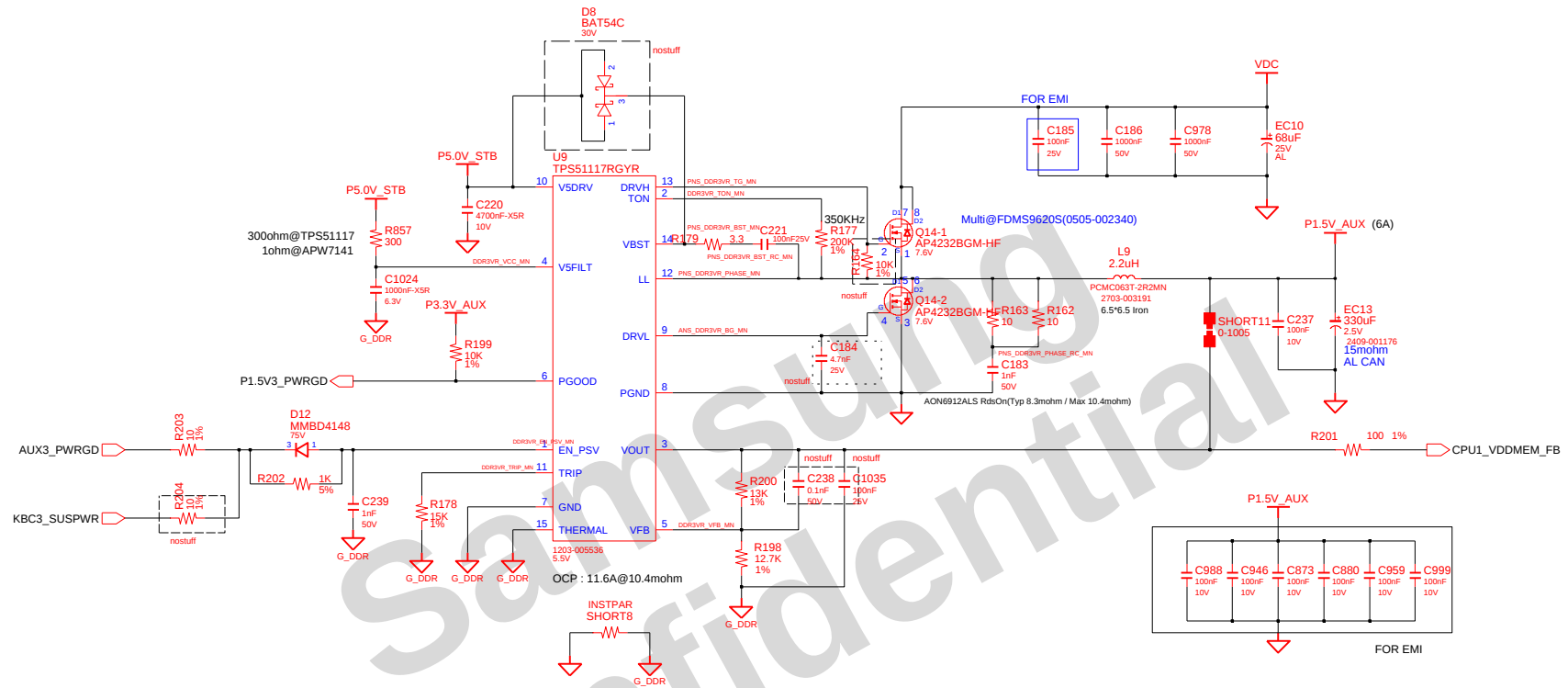
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CHIPSET POWER(P1.05V)

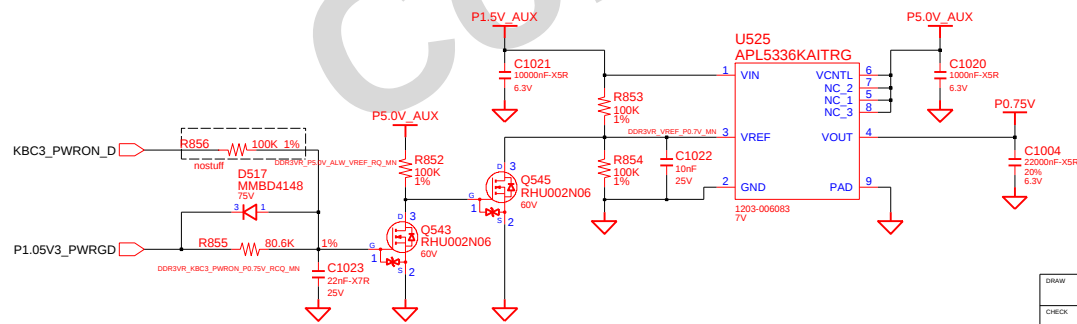


DESIGN	Curjiajun	DATE	8/19/2010	TITLE	SCAL2-AMD P1.05V TI TPSS51117R	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			PART NO. BA41-0XXXXXA
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	46	OF 54

DDR3 Power

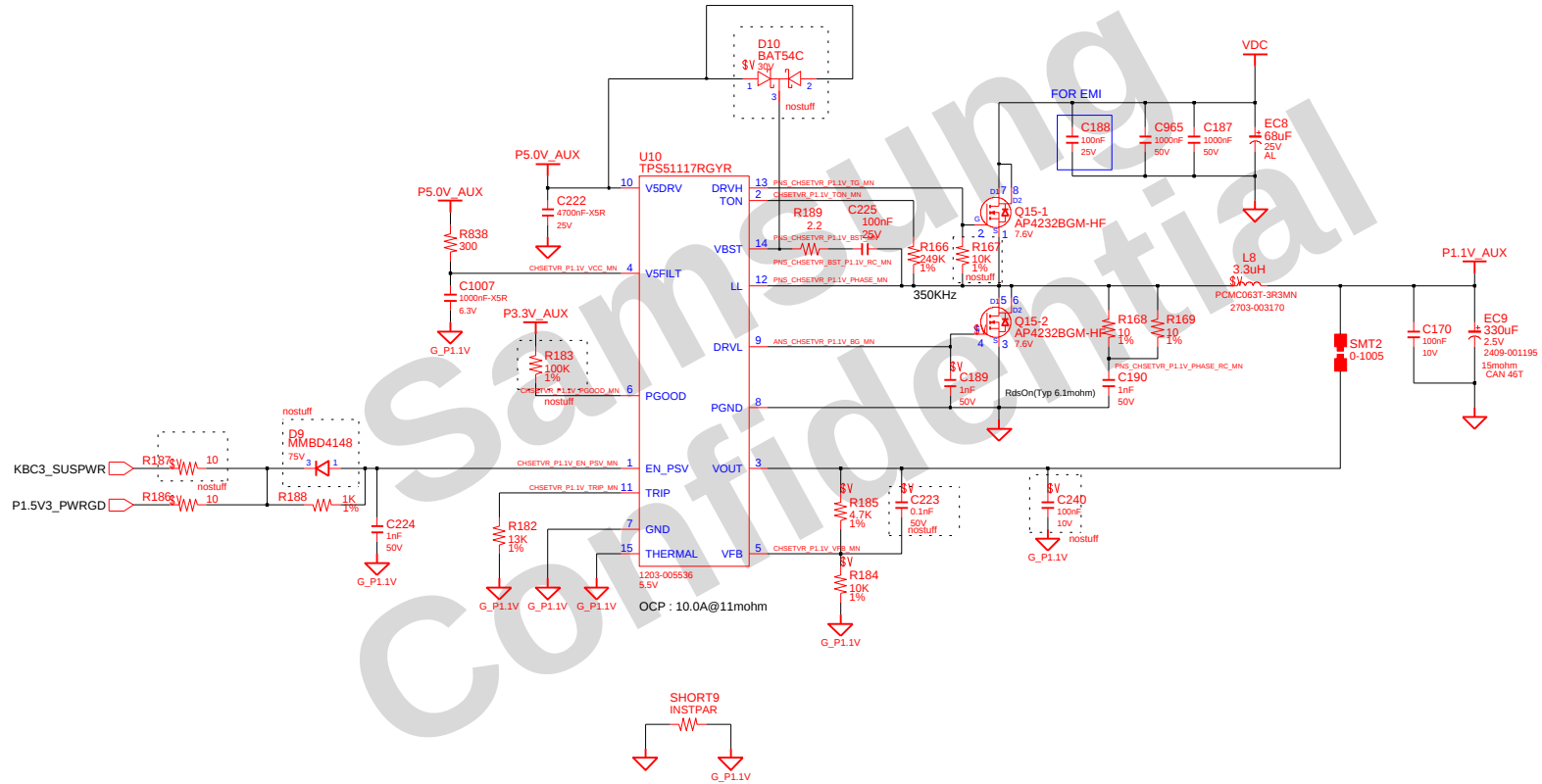


DDR3 VTT(0.75V)



DRAW	Curjiajun	DATE	8/19/2010	TITLE	SCAL2-AMD PWR MEMORY	SAMSUNG ELECTRONICS
CHECK	Guolei	DEV. STEP	MP			
APPROVAL	BC LEE	REV	rev. 1.0		RT8207	PART NO. BA41-0XXXXXA
MODULE CODE	undefined	LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	47	OF 54

CHIPSET POWER(P1.1V_AUX)

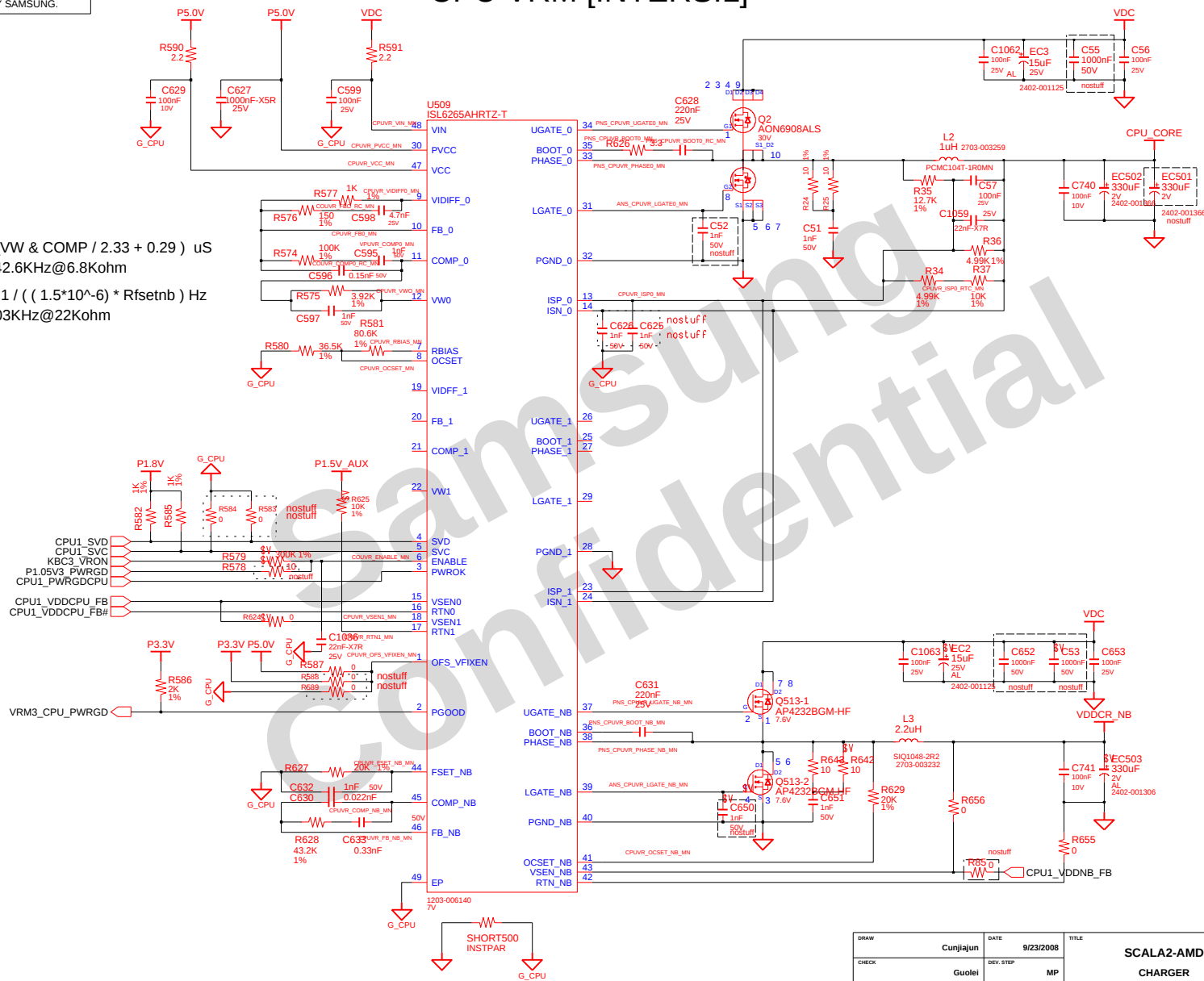


DESIGN	Cunjiajun	DATE	9/23/2008	TITLE	SCALA2-AMD	SAMSUNG
CHECK	Guolei	DEV. STEP	MP		USB_CONN	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.0		USB & eSATA	PART NO.
MODULE CODE		LAST EDIT	March 16, 2011 16:50:09 PM			BA41-0XXXXXA
				PAGE	48	OF 54

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

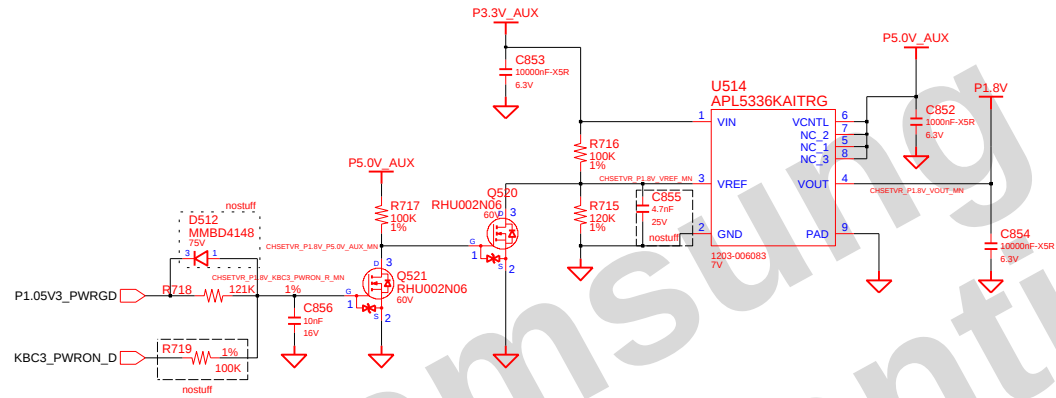


DRAW	Cunjiun	DATE	9/23/2008	TITLE	SCALA2-AMD CHARGER Intersil ISL6256A	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXXA
CHECK	Guolei	DEV. STEP	MP			
APPROVAL	BC LEE	REV	rev. 1.0			
MODULE CODE	undefined	LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	49	OF 54

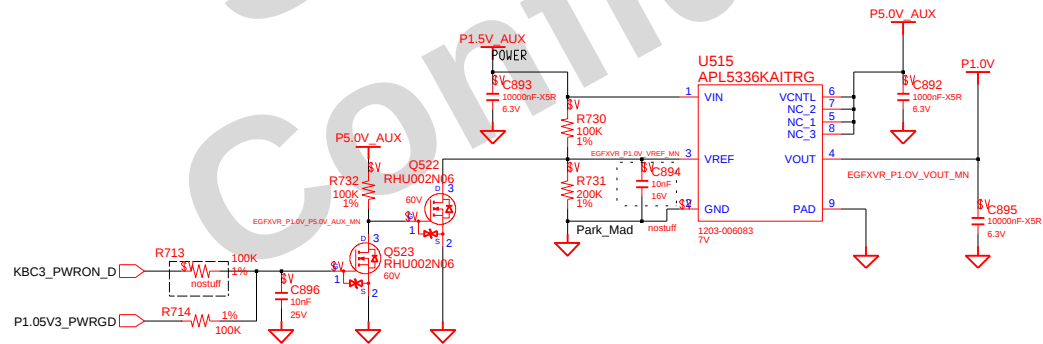
A

D:/users/ecad04/mentor/Scala2_AMD/Scala2-AMD_MP1.0_110315/Scala2-AMD_MP1.0_110311

POWER(P1.8V)

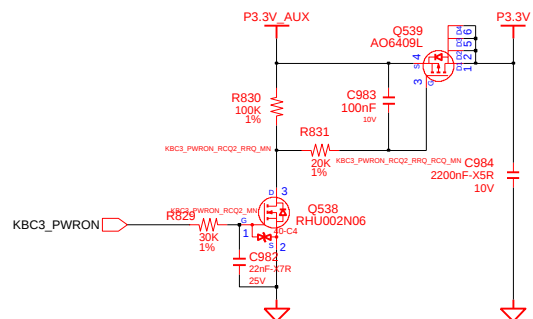


P1.0V

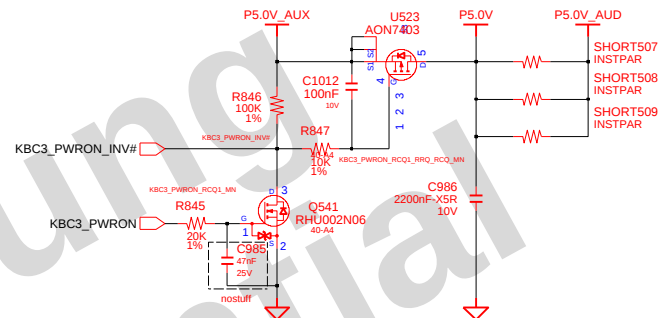


Switched Power

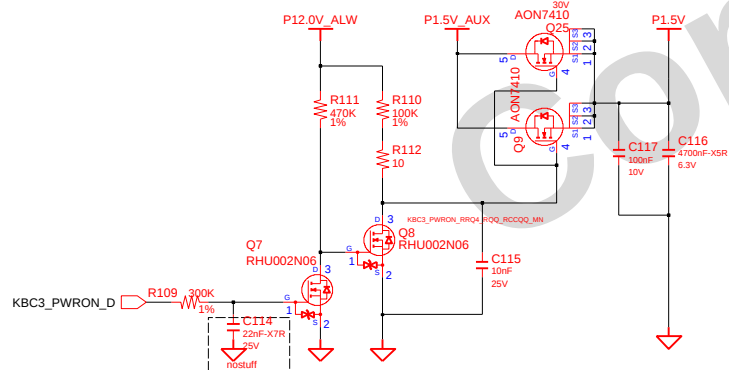
Switched Power On (P3.3V)



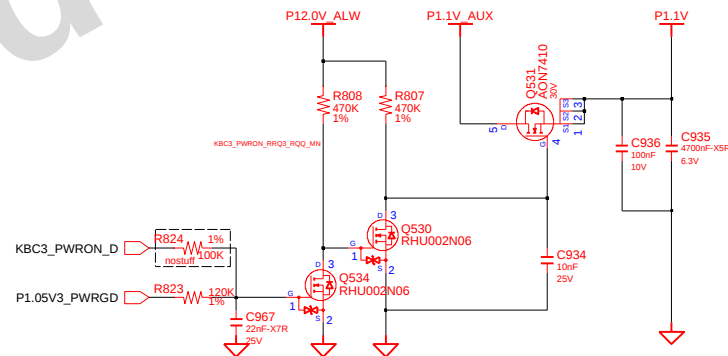
Switched Power On (P5.0V)



Switched Power On (P1.5V)



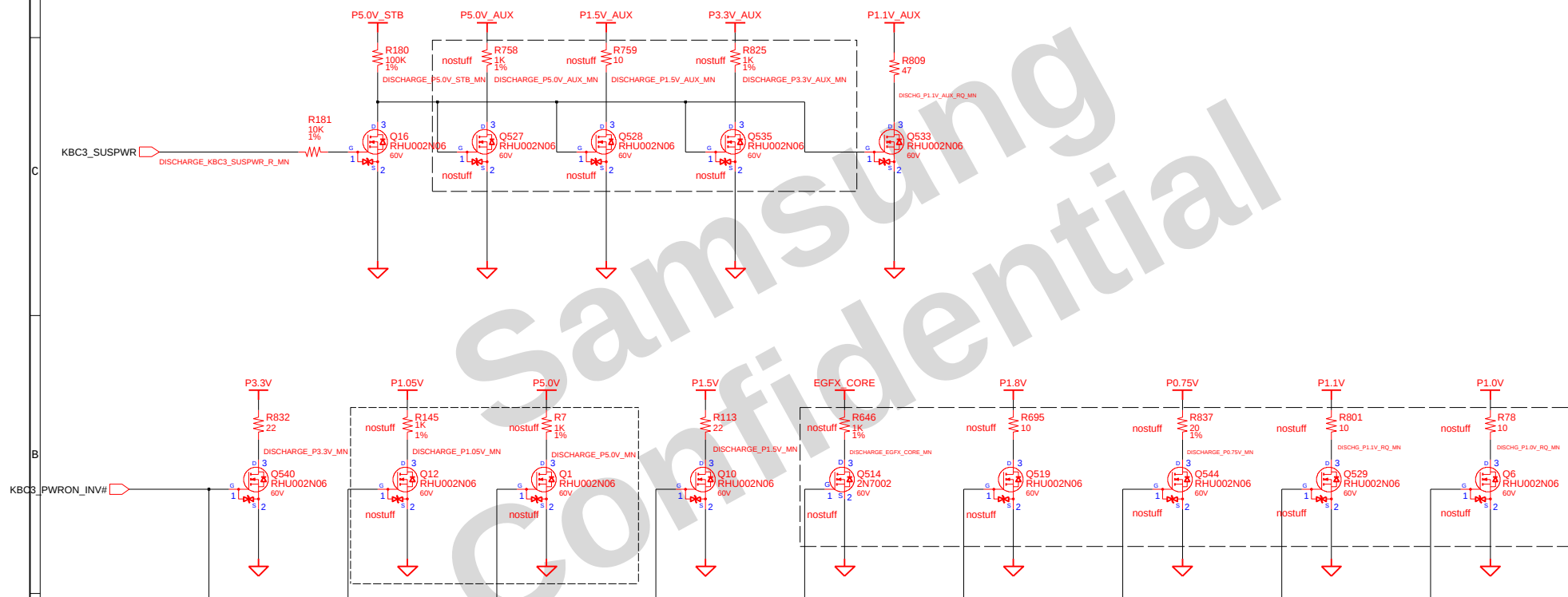
Switched Power On (P1.1V)



DRAW	CunJieJun	DATE	01/09/2008	TITLE	SCALA2-AMD	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXXA
CHECK	Guolei	DEV. STEP	MP		PWR_MV_1.1VTT_1.05V	
APPROVAL	BC LEE	REV	rev. 1.0		TI TPS51125	
MODULE CODE	undefined	LAST EDIT	March 16, 2011 16:50:09 PM	PAGE	52 OF 54	

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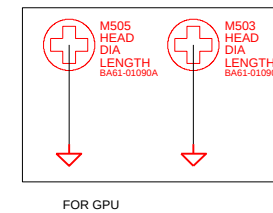
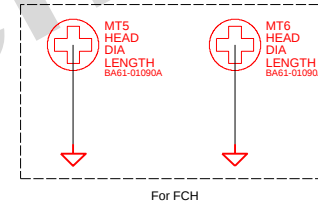
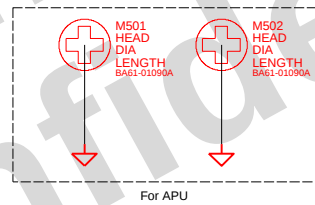
POWER DISCHARGER



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

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The schematic diagram illustrates the power supply section of the EM26011B-1 module. It features a 3.3V input connected to a series of capacitors (C940, C22, C110, C647, C539, C938, C511, C578) and a 3.3V AUX input connected to capacitors C811 and C191. A 3.3V AUX input is also connected to a network of capacitors (C937, C1060, C1061) and a 3.3V input. The output is connected to the EM26011B-1 module.



DRAW	Cunjunjun	DATE	5/10/2010	SCALAZA-AMD Switched PWR 2 FOR OPTIMUS PWR	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	54 OF 54