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for VE

Ramos-15L

CPU : Ivy Bridge BGA
 Chip Set : Intel Panther Point
 GFX : NV N14M_GL/N14P_GV2
 INTEL HD 3000/4000
 Remarks : Chief River Platform

Model Name : Ramos-15L
 PBA Name : MAIN
 PCB Code : BA41-02317A (GCE/HST/PTC)

Dev. Step : PV
 Revision : 1.0
 T.R. Date : 2013.06.01

Design	CHECK	APPROVAL
Pei Wang	RJ Zheng	BL LEE

Owner : SEC Mobile R & D Signature : X

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 sheet37 : MICOM Glue Logic
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 sheet43 : Power - VCCSA
 sheet44 : Power - DDR3
 sheet45 : Power - CPU VRM
 sheet46 : Power - EGFX_CORE
 sheet47 : Power - Switched Power 1
 sheet48 : Power - Switched Power 2
 sheet49 : Power - Power Discharge
 sheet50 : Mount Hole
 sheet51 : SUB (TOUCHPAD)

DRAW	LI, YF	DATE	09/29/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS
CHECK	ZHENG, RJ	REV. STEP	PVR	MAIN		
APPROVAL	LEE, BL	REV	REV 0.1	COVER	PART NO. BA41-*****A	
MOBILE CODE		LAST EDIT		December, 17, 2012 1:42:04 PM	PAGE	1 OF 51

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The diagram illustrates the system architecture for the Intel Atom Z870-based system. The central components are the CPU (IVB/SNB 35W/17W DC BGA) and the PCH (Panther Point). The CPU is connected to the PCH via Gen 2 DMI x4, 1.5V. The CPU is also connected to various power management blocks (PG 45, PG 42, PG 41, PG 46, PG 43, PG 40, PG 47, PG 48) and memory (DDR 3 SODIMM 1, DDR 3 Power). The PCH is connected to various peripherals including GDDR3, NV-N14X, HDMI, LCD, CRT, DBG_PORT, Camera, HD Audio, USB 11, SATA HDD, USB 3, SUB BD, 3 in 1 (GL823), Mini Card 1, REALTEK RTL8111E, RJ45, ANT, SPI ROM, MICOM, Touch PAD, and KBD. The diagram also shows the HP / MIC-IN Combo Jack and the Audio ALC269Q.

DRAW	YF Li	DATE	09/29/2012	Ramos-N14-14/15 MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS		
CHECK	RJ Zheng	REV. STEP	PVR				
APPROVAL	BL Lee	REV	REV 0.1		PART NO.		
					BA41-*****A		
MODULE CODE	undefined	LAST EDIT		July 31, 2012 13:21:52 PM	PAGE	2	OF 51

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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	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 DDR3 (off in S4-S5)	S3
P6.0V 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)	S0
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for PANTHERPOINT	S0

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

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

Crystal / Oscillator			
TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	PANTHER POINT	Real Time Clock
Crystal	25MHz	Green Clock	REALTEK
Crystal	27MHz	N14M	

LCD Pannel Detect (TBD)		
Devices	Resolution	PANNEL_DETECT_0

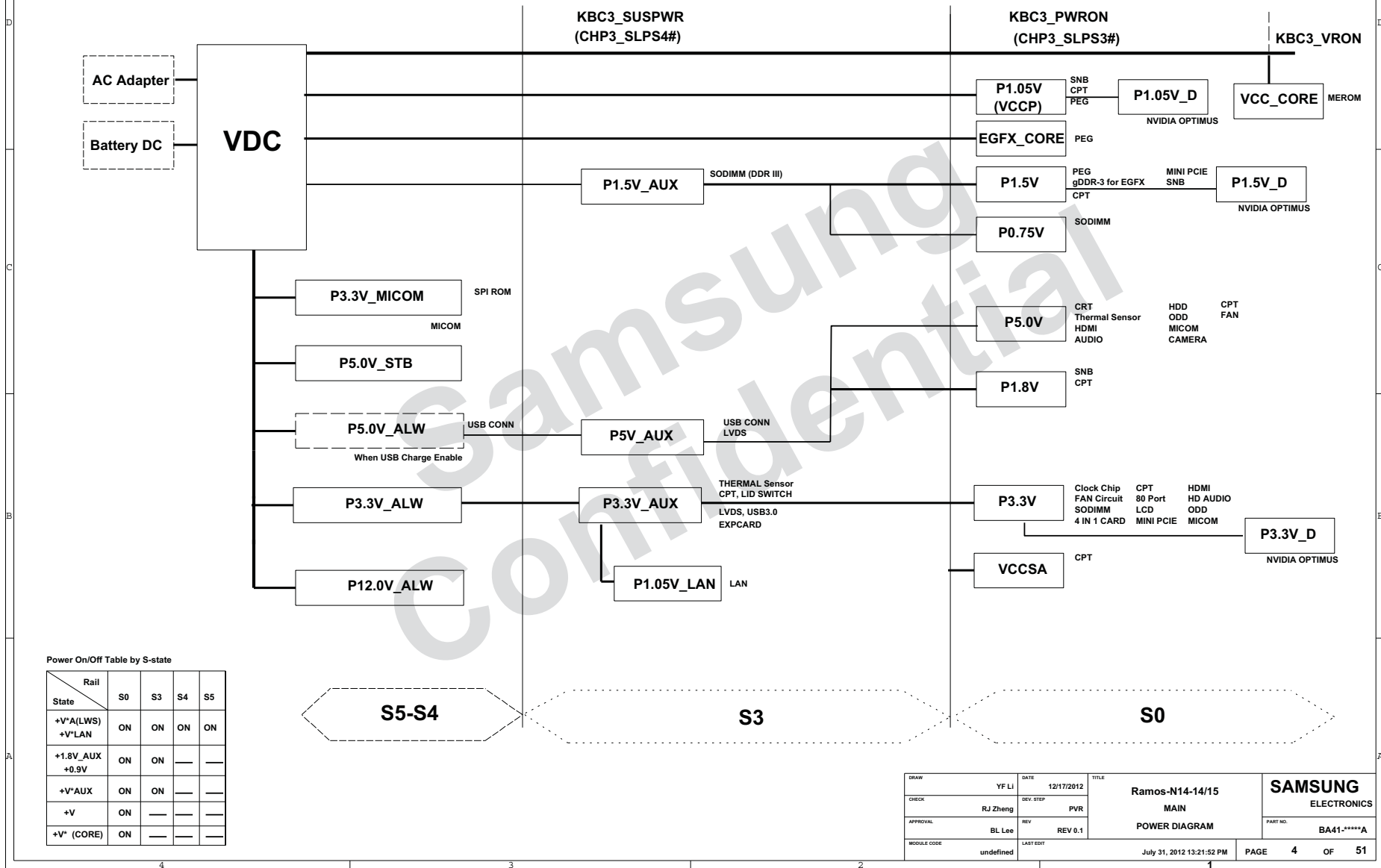
I ² C / SMB Address			
Devices	Address	Hex	Bus
PANTHERPOINT	Master	-	SMBUS Master
CPU Thermal Sensor	0011 000X	30h	Thermal Sensor
SODIMM0	1010 000x	A0h	-
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
on board DDR3 thermal Sensor	1001 100x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

DRAW	YF Li	DATE	12/17/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PVR		MAIN	
APPROVAL	BL Lee	REV	REV 0.1		BOARD INFO	
MODULE CODE	undefined	LAST EDIT		July 31, 2012 13:21:52 PM	PAGE 3 OF 51	

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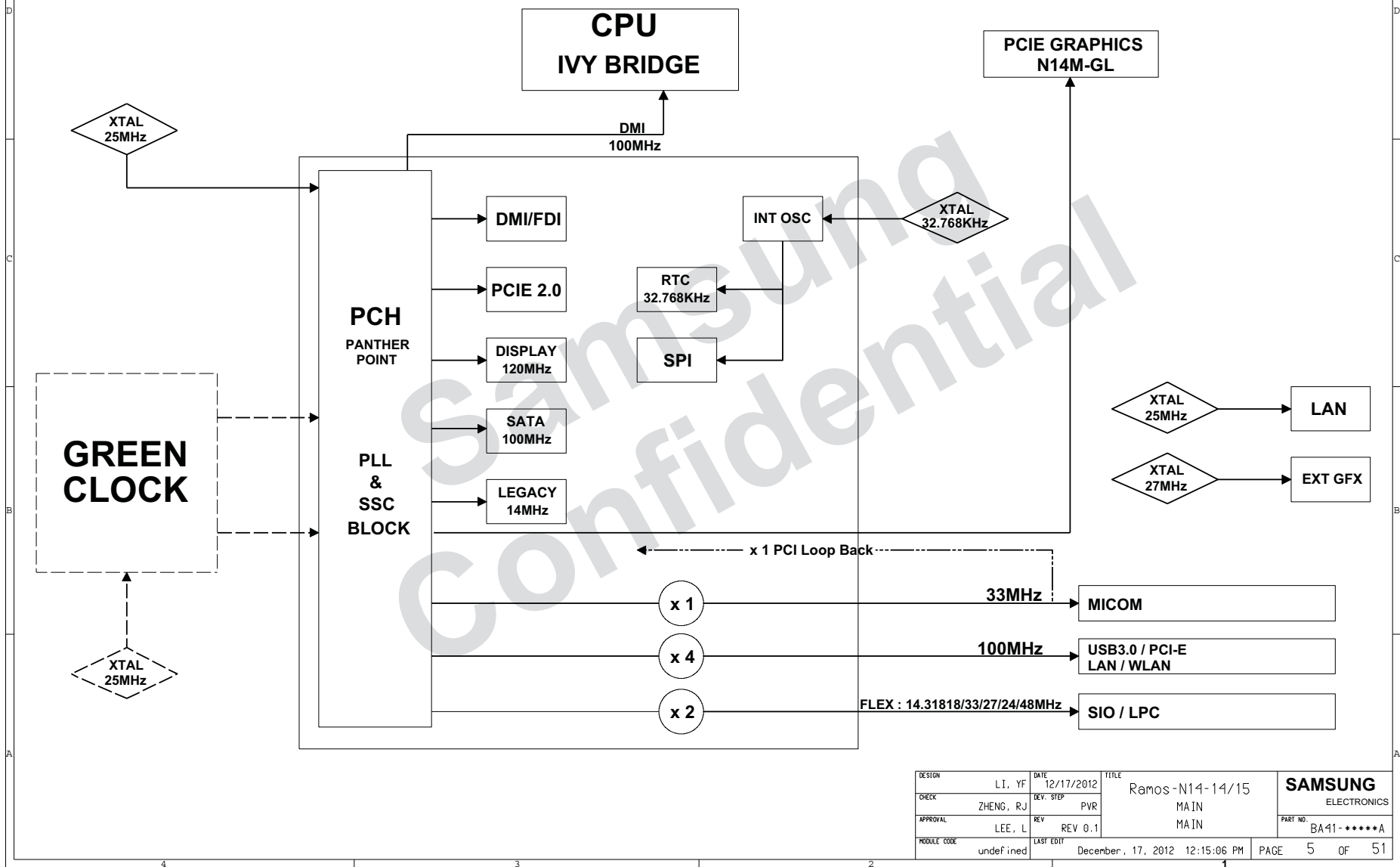
POWER DIAGRAM

Rev 0.7



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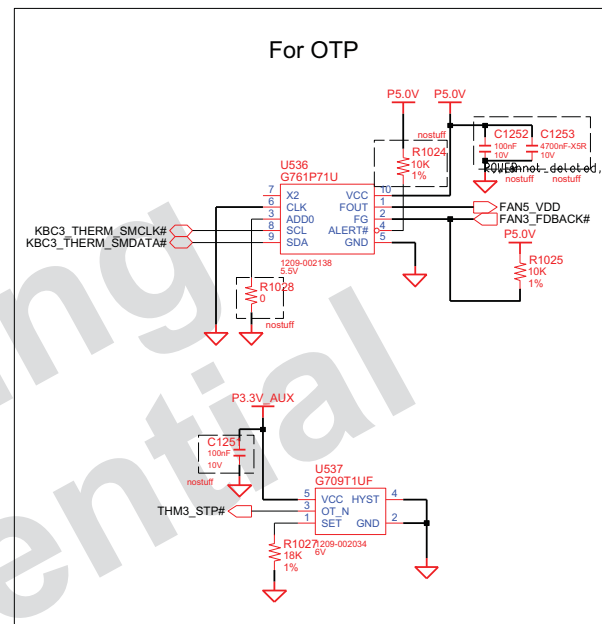
CLOCK DISTRIBUTION Rev. 0.8



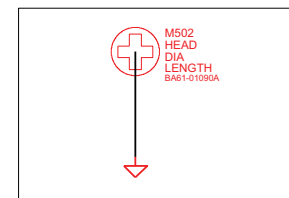
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CHECK	ZHENG, RJ	DEV. STEP	PVR	MAIN	MAIN	
APPROVAL	LEE, L	REV	REV 0.1	MAIN		
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 12:15:06 PM	PAGE	5 OF 51	

A

THERMAL SENSOR & FAN CONTROL



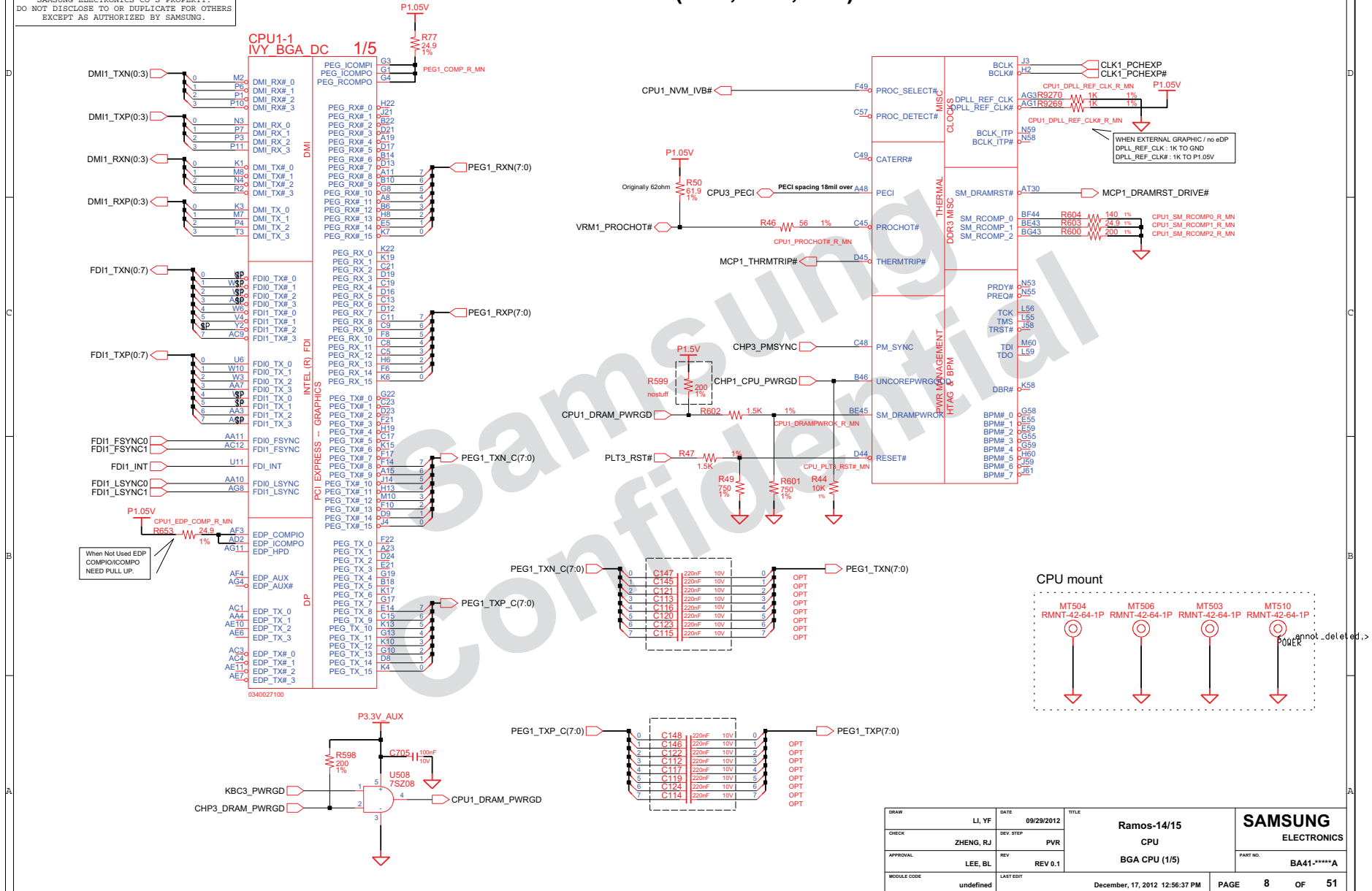
Temperature : 95.78c
confirmed by thermal charger
(2011.05.02)
 $R \text{ (kohm)} = 0.0012T - 0.9308T + 96.147$

FAN PEM

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

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IVYBRIDGE PROCESSOR (DMI,PEG, FDI)



DRAW	LI, YP	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	ZHENG, RJ	DEV. STEP	PVR		CPU	
APPROVAL	LEE, BL	REV	REV 0.1		BGA CPU (1/5)	
MODULE CODE	undefined	LAST EDIT		December, 17, 2012 12:56:37 PM	PAGE 8 OF 51	

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CPU1-2
IVY BGA DC 2/5

AG6	SA, DO, 0	AU36
AJ8	SA, DO, 1	AV36
AP11	SA, DO, 2	AY36
AL6	SA, DO, 3	SA, CLK_0
AJ10	SA, DO, 4	SA, CKE_0
AJ8	SA, DO, 5	
AL6	SA, DO, 6	
AL7	SA, DO, 7	
AR11	SA, DO, 8	AT40
AP6	SA, DO, 9	SA, CLK_1
AJ6	SA, DO, 10	SA, CLK#_1
AV9	SA, DO, 11	SA, CKE_1
AR6	SA, DO, 12	
AP6	SA, DO, 13	
AT13	SA, DO, 14	
AJ13	SA, DO, 15	
BC7	SA, DO, 16	BB40
B87	SA, DO, 17	BC41
BA13	SA, DO, 18	SA, CS#_0
BB11	SA, DO, 19	SA, CS#_1
BA7	SA, DO, 20	
BA9	SA, DO, 21	
B89	SA, DO, 22	
AY13	SA, DO, 23	
AV14	SA, DO, 24	AY40
AR14	SA, DO, 25	SA, ODT_0
AY17	SA, DO, 26	SA, ODT_1
AR19	SA, DO, 27	
BA14	SA, DO, 28	
AJ14	SA, DO, 29	
BB14	SA, DO, 30	
BB17	SA, DO, 31	SA, DQS#_0
BA45	SA, DO, 32	SA, DQS#_1
AR43	SA, DO, 33	SA, DQS#_2
AW48	SA, DO, 34	SA, DQS#_3
BC48	SA, DO, 35	SA, DQS#_4
BC45	SA, DO, 36	SA, DQS#_5
AR45	SA, DO, 37	SA, DQS#_6
AT48	SA, DO, 38	SA, DQS#_7
AY48	SA, DO, 39	
BA49	SA, DO, 40	
AY48	SA, DO, 41	
BB51	SA, DO, 42	
AY53	SA, DO, 43	
BB49	SA, DO, 44	
AJ48	SA, DO, 45	SA, DQS_0
BA53	SA, DO, 46	SA, DQS_1
BB55	SA, DO, 47	SA, DQS_2
BA55	SA, DO, 48	SA, DQS_3
AV56	SA, DO, 49	SA, DQS_4
AP50	SA, DO, 50	SA, DQS_5
AP53	SA, DO, 51	SA, DQS_6
AY54	SA, DO, 52	SA, DQS_7
AT54	SA, DO, 53	
AP56	SA, DO, 54	
AP52	SA, DO, 55	
AN57	SA, DO, 56	
AN53	SA, DO, 57	
AG56	SA, DO, 58	
AG53	SA, DO, 59	
AN52	SA, DO, 60	
AG55	SA, DO, 61	
AK56	SA, DO, 62	
	SA, DO, 63	
BD37	SA, BS, 0	SA, MA_0
BF36	SA, BS, 1	SA, MA_1
BA28	SA, BS, 2	SA, MA_2
		SA, MA_3
		SA, MA_4
		SA, MA_5
		SA, MA_6
		SA, MA_7
		SA, MA_8
		SA, MA_9
		SA, MA_10
		SA, MA_11
		SA, MA_12
BE39	SA, CAS#	SA, MA_13
BD39	SA, RAS#	SA, MA_14
AT41	SA, WE#	SA, MA_15

0340027100

MEM1_BDQ(63:0)

0	AL4	SB, DO, 0
1	AL1	SB, DO, 1
2	AN3	SB, DO, 2
3	AK4	SB, DO, 3
4	AK4	SB, DO, 4
5	AK3	SB, DO, 5
6	AN4	SB, DO, 6
7	AR1	SB, DO, 7
8	AJ4	SB, DO, 8
9	AT2	SB, DO, 9
10	AV4	SB, DO, 10
11	BA4	SB, DO, 11
12	AU3	SB, DO, 12
13	AR3	SB, DO, 13
14	AY2	SB, DO, 14
15	BA3	SB, DO, 15
16	BE9	SB, DO, 16
17	BD9	SB, DO, 17
18	BD13	SB, DO, 18
19	BF12	SB, DO, 19
20	BF8	SB, DO, 20
21	BD10	SB, DO, 21
22	BD14	SB, DO, 22
23	BE13	SB, DO, 23
24	BF16	SB, DO, 24
25	BE17	SB, DO, 25
26	BE18	SB, DO, 26
27	BE21	SB, DO, 27
28	BE14	SB, DO, 28
29	BE14	SB, DO, 29
30	BE18	SB, DO, 30
31	BE19	SB, DO, 31
32	BD50	SB, DO, 32
33	BF48	SB, DO, 33
34	BD53	SB, DO, 34
35	BF52	SB, DO, 35
36	BD49	SB, DO, 36
37	BE49	SB, DO, 37
38	BD54	SB, DO, 38
39	BE53	SB, DO, 39
40	BF66	SB, DO, 40
41	BE57	SB, DO, 41
42	BC59	SB, DO, 42
43	AY60	SB, DO, 43
44	BE54	SB, DO, 44
45	BC54	SB, DO, 45
46	BA58	SB, DO, 46
47	AW59	SB, DO, 47
48	AJ58	SB, DO, 48
49	AJ58	SB, DO, 49
50	AN61	SB, DO, 50
51	AN59	SB, DO, 51
52	AJ59	SB, DO, 52
53	AJ61	SB, DO, 53
54	AN58	SB, DO, 54
55	AK58	SB, DO, 55
56	AK58	SB, DO, 56
57	AL58	SB, DO, 57
58	AG58	SB, DO, 58
59	AG59	SB, DO, 59
60	AM60	SB, DO, 60
61	AL59	SB, DO, 61
62	AF61	SB, DO, 62
63	AN60	SB, DO, 63

DDR SYSTEM MEMORY B

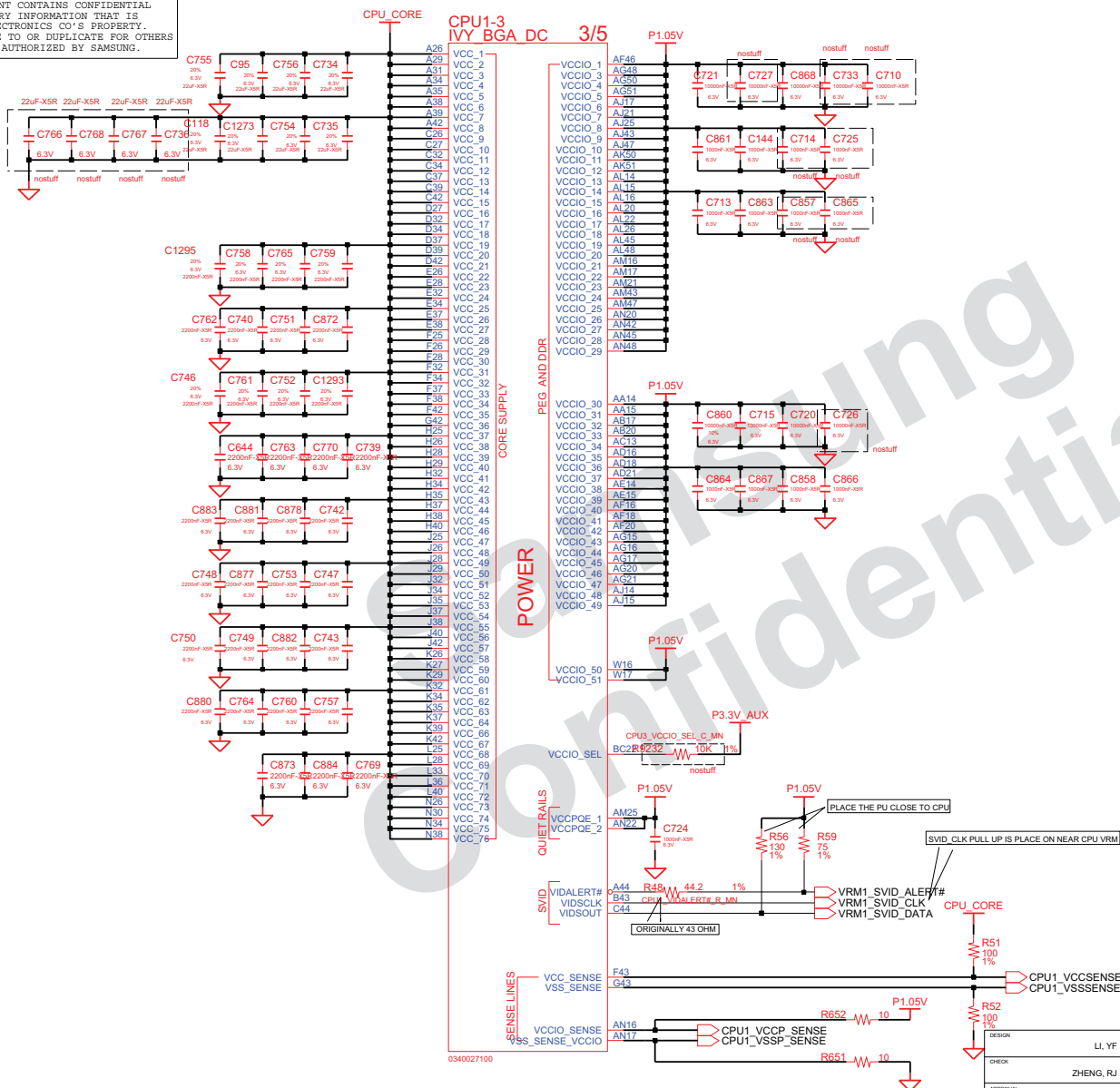
SB, CLK_0	BA34	CLK1_B_MCLK0
SB, CLK#_0	AY34	CLK1_B_MCLK0#
SB, CKE_0	AR22	MEM1_B_CKE0
SB, CLK_1	BA36	CLK1_B_MCLK1
SB, CLK#_1	BB36	CLK1_B_MCLK1#
SB, CKE_1	BF27	MEM1_B_CKE1
SB, CS#_0	BE41	MEM1_B_CS0#
SB, CS#_1	BE47	MEM1_B_CS1#
SB, ODT_0	AT43	MEM1_B_ODT0
SB, ODT_1	BC47	MEM1_B_ODT1
SB, DQS#_0	AL3	MEM1_BDQS#(7:0)
SB, DQS#_1	AV3	
SB, DQS#_2	BC11	
SB, DQS#_3	BD17	
SB, DQS#_4	BC51	
SB, DQS#_5	BA59	
SB, DQS#_6	AT60	
SB, DQS#_7	AK59	
SB, DQS_0	AM2	MEM1_BDQS(7:0)
SB, DQS_1	AV1	
SB, DQS_2	BE11	
SB, DQS_3	BD18	
SB, DQS_4	BE51	
SB, DQS_5	BA61	
SB, DQS_6	AR59	
SB, DQS_7	AK61	
SB, MA_0	BF32	MEM1_BMA(15:0)
SB, MA_1	BE33	
SB, MA_2	BD33	
SB, MA_3	AU30	
SB, MA_4	BD30	
SB, MA_5	AV30	
SB, MA_6	BC30	
SB, MA_7	BD29	
SB, MA_8	BE30	
SB, MA_9	BE28	
SB, MA_10	BD43	
SB, MA_11	AT28	
SB, MA_12	AV28	
SB, MA_13	BD45	
SB, MA_14	AT26	
SB, MA_15	AU22	

MEM1_BBS(2:0)

MEM1_BCAS#
MEM1_BRAS#
MEM1_BWE#

DRAW	LI, YF	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	ZHENG, RJ	REV. STEP	PVR	CPU		
APPROVAL	LEE, BL	REV	REV 0.1	BGA CPU (2/5)		
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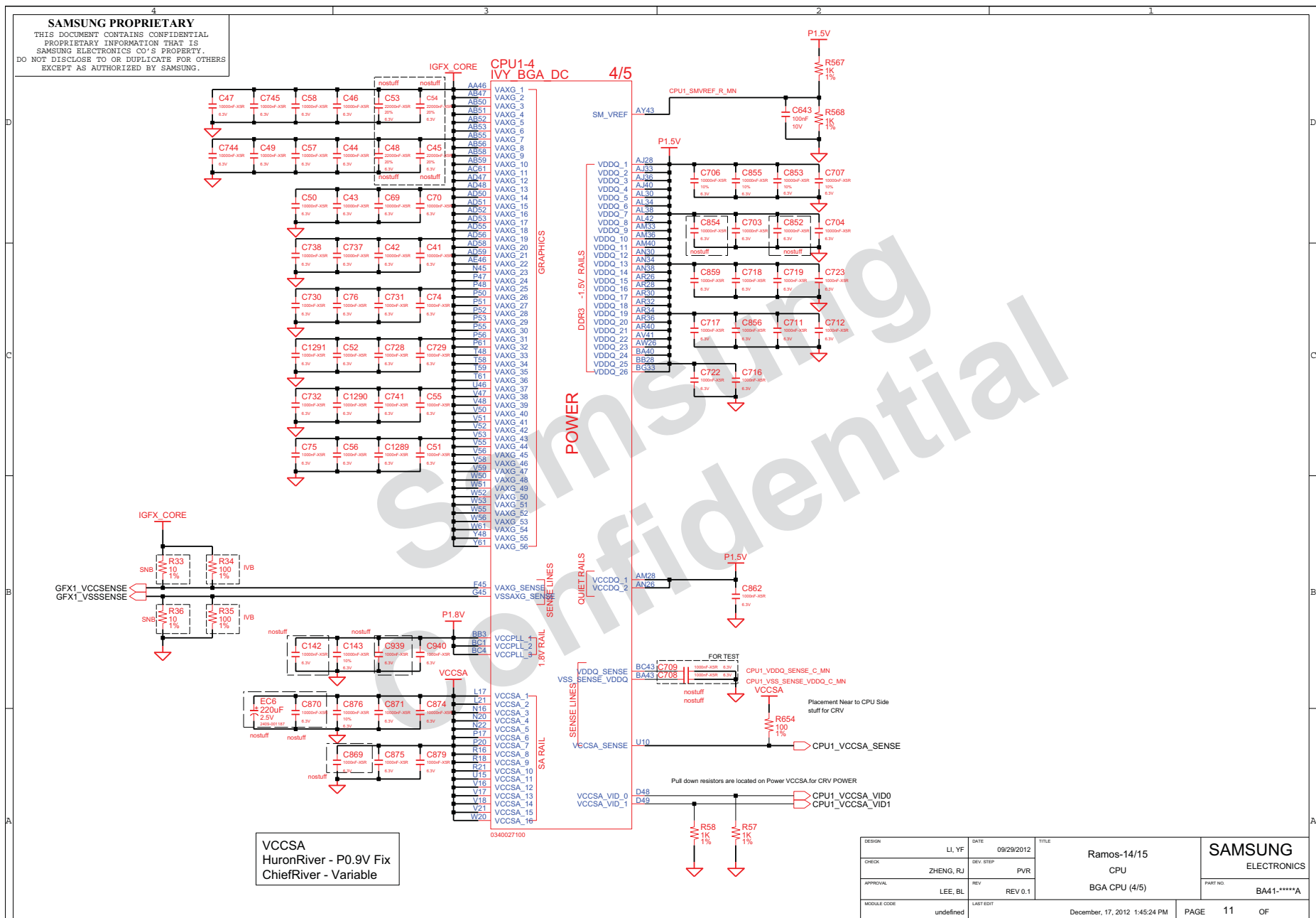
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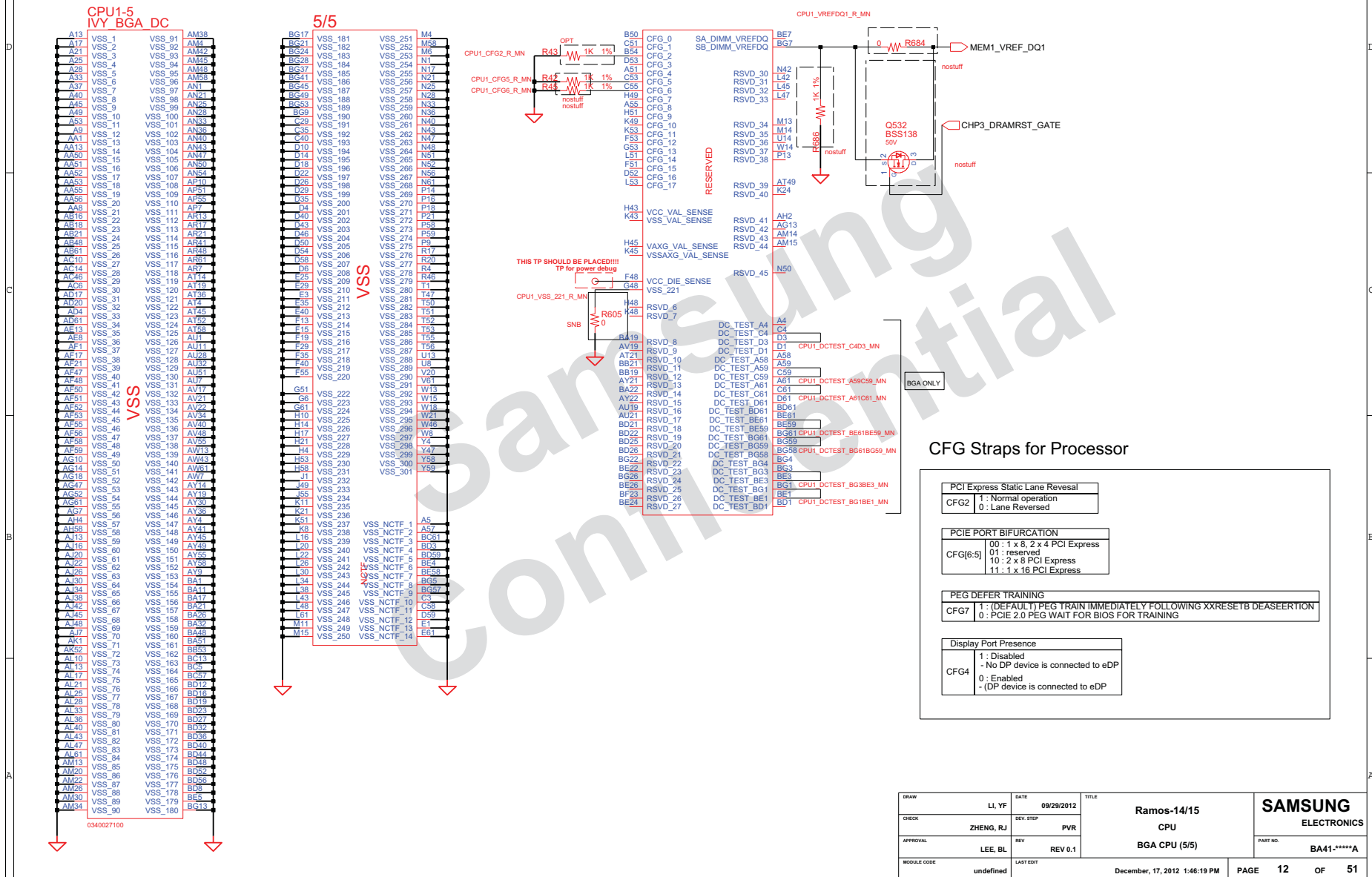
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CHECK	ZHENG, RJ	REV. STEP	PVR	CPU	
APPROVAL	LEE, BL	REV	REV 0.1	BGA CPU (3/5)	
MODULE CODE	undefined	LAST EDIT			

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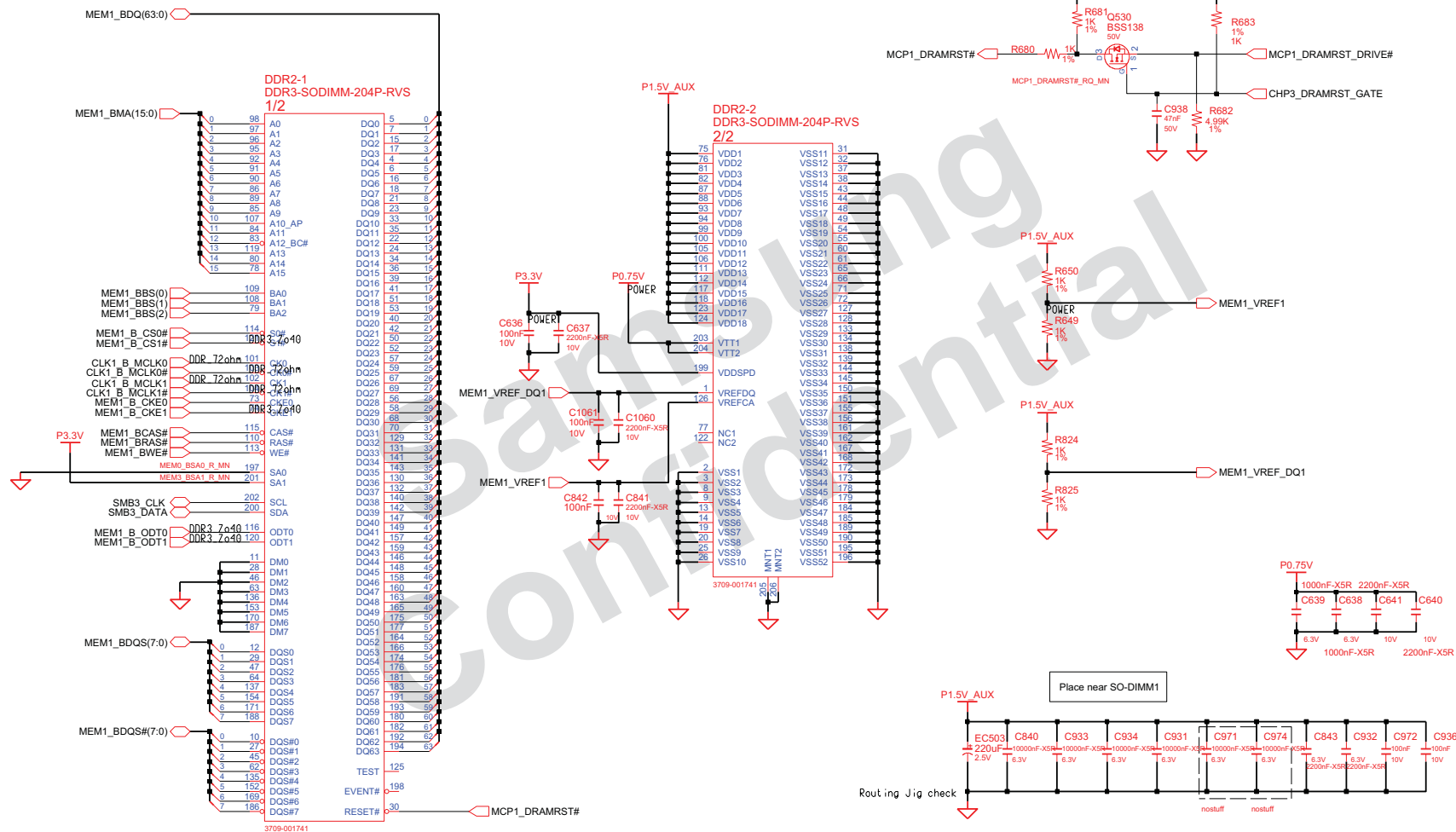
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CHECK	ZHENG, RJ	REV. STEP	PVR	CPU		
APPROVAL	LEE, BL	REV	REV 0.1	BGA CPU (5/5)		
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																CHECK		ZHENG, RJ		DEV. STEP		PVR		MEMORY #0 2 RANK(4/4)				ELECTRONICS							
																APPROVAL		LEE, L		REV		REV 0.1		DDR3 2Gb				PART NO.							
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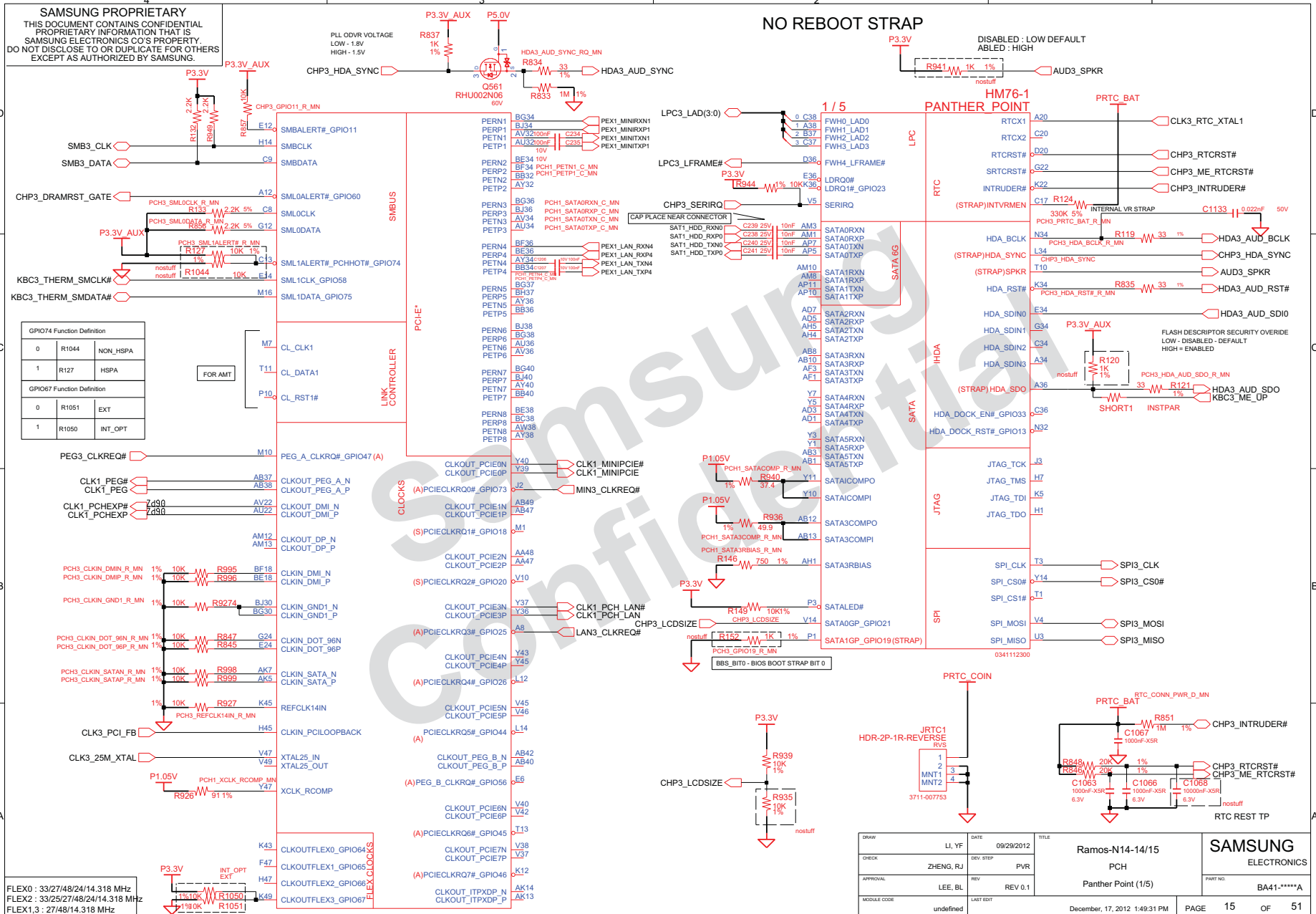
SO-DIMM #1 : 1st SO-DIMM
DDR SO-DIMM #1

Height : 8 mm (STANDARD)
P/N : 3709-001615 (FOXCONN)
P/N : 3709-001622 (CONCRAFT)

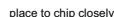


ORIGIN	LI, YF	DATE	09/29/2012	TITLE Ramos-14/15 SODIMM B DDR3 2Gb	SAMSUNG ELECTRONICS
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APPROVAL	LEE, BL	REV	REV 0.1		
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 1:48:00 PM		
				PAGE	14 OF 51

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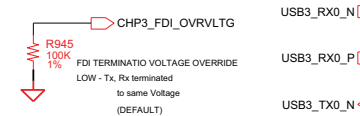
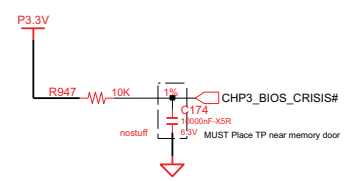
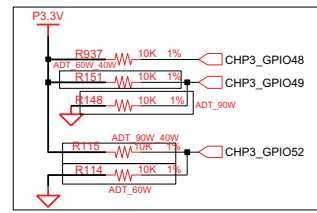
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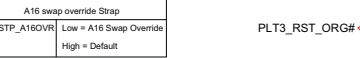
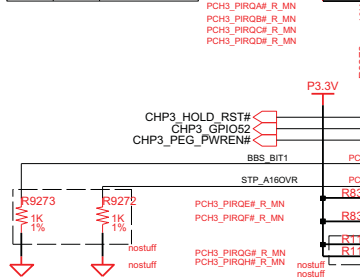
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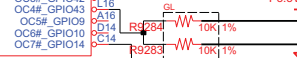
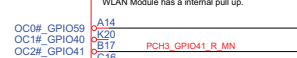
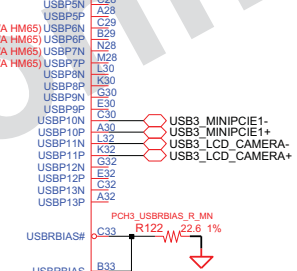
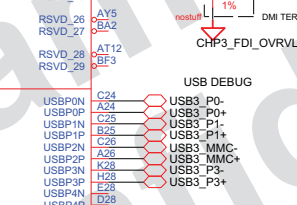
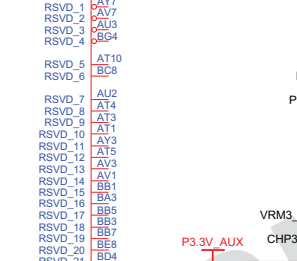
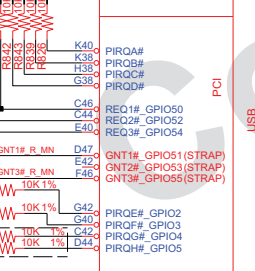
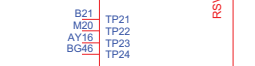
GREEN WATT



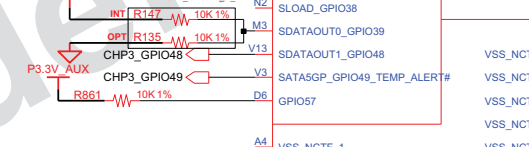
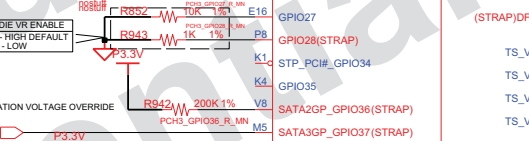
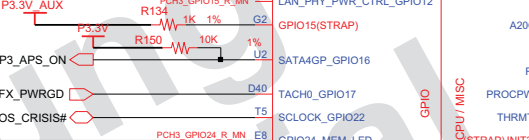
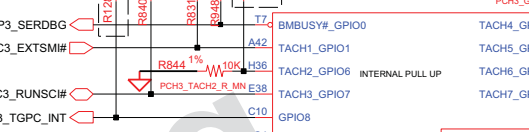
BBS_BIT	BBS_BIT	BOOT BIOS STRAP
0	0	LPC
1	0	RESERVED (NAND)
0	1	SP1



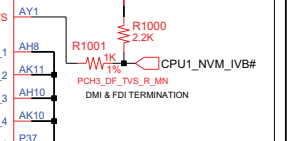
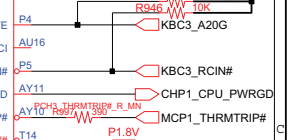
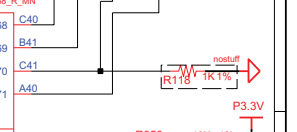
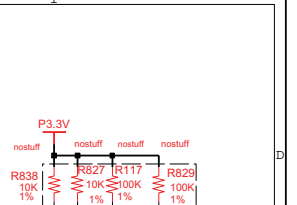
HM76-3 PANTHER POINT 3/5



RF OFF Connection Case	
Intel Crane peak Combo BT HW ID : USBVID_8086&PID_0189	Case 1 Standard Mini-card #51
Intel Rainbow peak Combo BT HW ID : USBVID_8086&PID_0189	
Broadcom2070 stand alone Module BT HW ID : USBVID_0A5C&PID_2198	
New Combo Card	
Broadcom 4313 1x1 Combo BT HW ID : USBVID_0A5C&PID_219C	Case 2 Non-Standard Mini-card #5
Broadcom 4325 2x2 Combo BT HW ID : USBVID_0A5C&PID_219A	

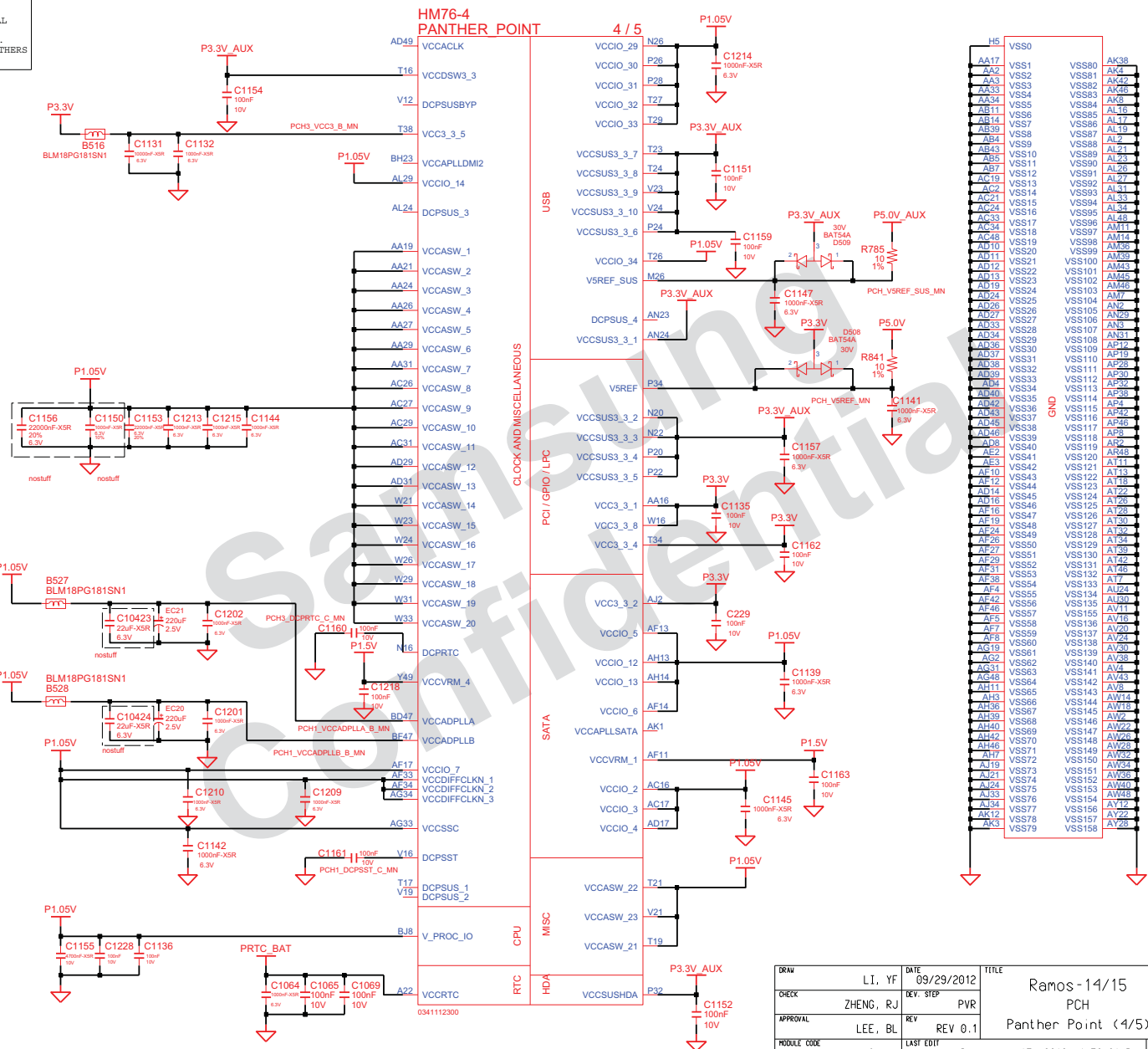


GPIO SETTING	
GPIO#	SETTING
GPIO48	HIGH
GPIO49	LOW
GPIO52	LOW
GPIO41	RESERVE
GPIO39	RESERVE
GPIO43	RESERVE
GPIO24	RESERVE
GPIO21	RESERVE
GPIO34	RESERVE
GPIO38	RESERVE



DATE	09/29/2012
TITLE	Ramos-14/15 PCH Panther Point (3/5)
CHECK	LI, YF
APPROVAL	ZHENG, R.J
MODULE CODE	undef ined
DATE	09/29/2012
REV	0.1
LAST EDIT	December, 17, 2012
PAGE	17
OF	51

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DRAW	LI, YF	DATE	09/29/2012	TITLE	Ramos-14/15		SAMSUNG	
CHECK	ZHENG, RJ	REV. STEP	PVR	PCH		ELECTRONICS		
APPROVAL	LEE, BL	REV	REV 0.1	Panther Point (4/5)		PART NO.	BA41-*****A	
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 1:52:21 PM			PAGE	18	OF 51

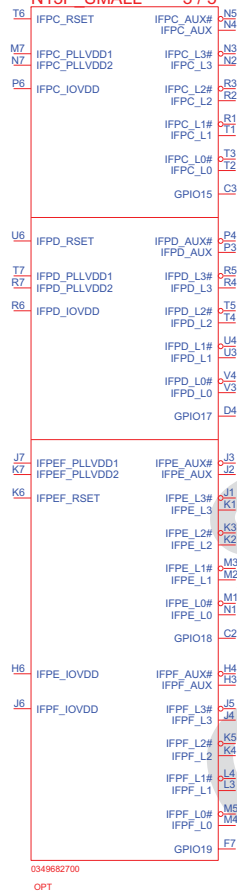
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d:/users/aced47/Pemos N14/1217/Pemos N14

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GPU1-3
N13P SMALL 3 / 5



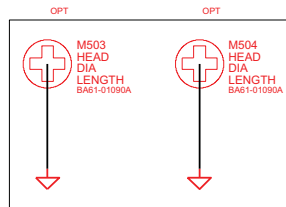
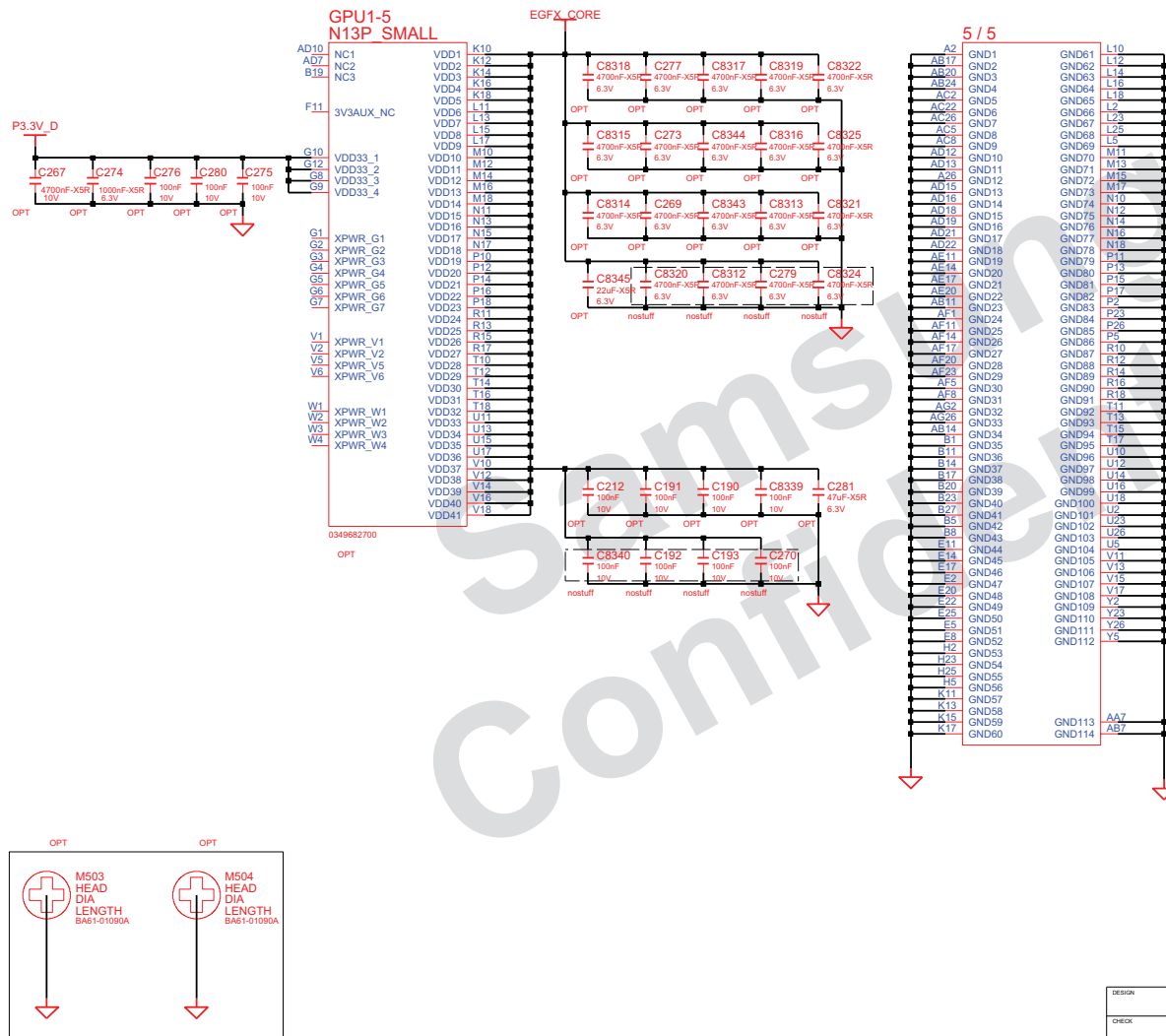
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APPROVAL	LEE, BL	REV	REV 0.1		
MODULE CODE	undefined	LAST EDIT			
				December, 17, 2012 1:58:24 PM	PAGE 22 OF 51

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DESIGN	LI, YF	DATE	1/27/2012	TITLE Ramos-N14-14/15 N14X_SMALL N14X(4/5)	SAMSUNG ELECTRONICS		
CHECK	ZHENG, RJ	DEV. STEP	PYR				
APPROVAL	LEE, BL	REV	REV 0.1				
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 1:59:42 PM				
				PAGE	23	OF	51

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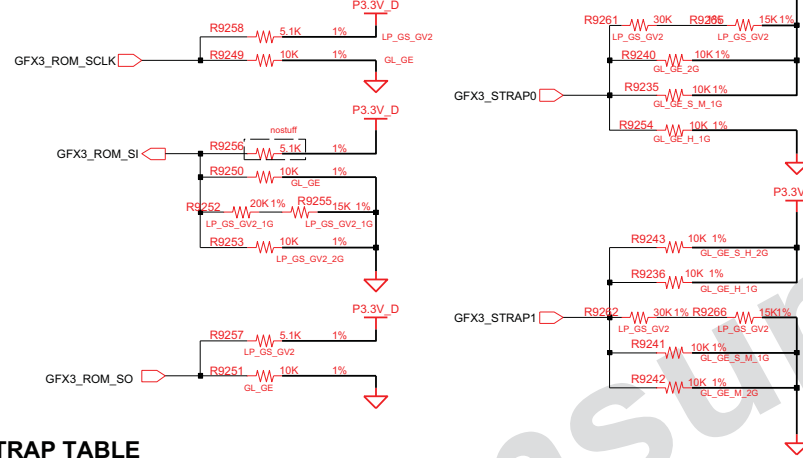
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APPROVAL	LEE, BL	REV	REV 0.1		N14X(5/5)	
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 2:01:04 PM	PAGE	24 OF 51	

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GF117_N14M_GL/GE STRAP DEFINITION

GK208_N14M_LP/GS STRAP DEFINITION

GK208_N14P_GV2 STRAP DEFINITION



RESISTOR MAPPING TO HEX VALUES

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

GPU STRAP TABLE

STRAP PIN	GK208			GF117			VRAM	GPU
	N14P_GV2	N14M_GS	N14M_LP	N14M_GE	N14M_GL	N14M_GL		
ROM_SCLK	5K PU LP_GS_GV2	5K PU LP_GS_GV2	5K PU LP_GS_GV2	10K PD GL_GE	10K PD GL_GE	10K PD GL_GE	SAM1G	N14M-GL
ROM_SI	refer to RAM strap	refer to RAM strap	refer to RAM strap	10K PD GL_GE	10K PD GL_GE	10K PD GL_GE	SAM2G	N14M-GE
ROM_SO	5K PU LP_GS_GV2	5K PU LP_GS_GV2	5K PU LP_GS_GV2	10K PD GL_GE	10K PD GL_GE	10K PD GL_GE	HY1G	N14M-LP
STRAP0	45K PU LP_GS_GV2	45K PU LP_GS_GV2	45K PU LP_GS_GV2	refer to RAM strap	refer to RAM strap	refer to RAM strap	HY2G	N14M-GS
STRAP1	45K PD LP_GS_GV2	45K PD LP_GS_GV2	45K PD LP_GS_GV2	refer to RAM strap	refer to RAM strap	refer to RAM strap	MICRO1G	N14P-GV2
STRAP2	15K PD GV2	5K PD GS	10K PD LP	refer to RAM strap	refer to RAM strap	refer to RAM strap	MICRO2G	
STRAP3	5K PD LP_GS_GV2	5K PD LP_GS_GV2	5K PD LP_GS_GV2	refer to RAM strap	refer to RAM strap	refer to RAM strap		
STRAP4	45K PD LP_GS_GV2	45K PD LP_GS_GV2	45K PD LP_GS_GV2	10K PD GL_GE	10K PD GL_GE	10K PD GL_GE		

MULTI-LEVEL MODE STRAPPING

STRAP PIN	BIT 3	BIT 2	BIT 1	BIT0
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	PCI_DEVID[5]	PEX_PLL_EN_TERM
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
ROM_SO	FB[1]	FB[0]	SMB_ALT_ADDR	VGA_DEVICE
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	PCIE_SPEED_CHANGE_GEN	PCIE_MAX_SPEED	DP_PLL_VDD33V

BINARY STRAP

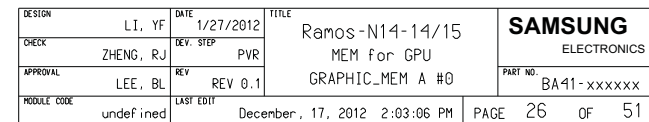
STRAP PIN	STRAP MAPPING	RESISTANCE	POLARITY
ROM_SCLK	SMB_ALT_ADDR	10K	PD
ROM_SI	SUB_VENDOR	10K	PU TO 3V3 IF VBIOS ROM EXISTS PD IF NO VBIOS ROM EXISTS
ROM_SO	VGA_DEVICE	10K	PD(NO DISPLAY)
STRAP0	RAM_CFG[0]	10K	NA
STRAP1	RAM_CFG[1]	10K	NA
STRAP2	RAM_CFG[2]	10K	NA
STRAP3	RAM_CFG[3]	10K	NA
STRAP4	PCIE_MAX_SPEED	10K	PD

VRAM STRAP TABLE

	SAM 1G	SAM 2G	HY 1G	HY 2G	MICRO 1G	MICRO 2G
GK208 ROM_SI	LP_GS_GV2_1G 45K PD	LP_GS_GV2_2G 20K PD	LP_GS_GV2_1G 35K PD	NA	LP_GS_GV2_1G 30K PD	LP_GS_GV2_2G 10K PD
GF117 STRAP0	SAM_MICRO_1G 10K PU	SAM_HY_MICRO_2G 10K PU	HY_1G 10K PD	SAM_HY_MICRO_2G 10K PU	SAM_MICRO_1G 10K PU	SAM_HY_MICRO_2G 10K PU
GF117 STRAP1	SAM_MICRO_1G 10K PD	SAM_HY_2G 10K PU	HY_1G 10K PU	SAM_HY_2G 10K PU	SAM_MICRO_1G 10K PD	MICRO_2G 10K PD
GF117 STRAP2	SAM_HY_1G 10K PU	SAM_HY_2G 10K PD	SAM_HY_1G 10K PU	SAM_HY_2G 10K PD	MICRO_1G 10K PD	MICRO_2G 10K PU
GF117 STRAP3	SAM_HY_MICRO_1G 10K PD	SAM_MICRO_2G 10K PU	SAM_HY_MICRO_1G 10K PD	HY_2G 10K PD	SAM_HY_MICRO_1G 10K PD	SAM_MICRO_2G 10K PU

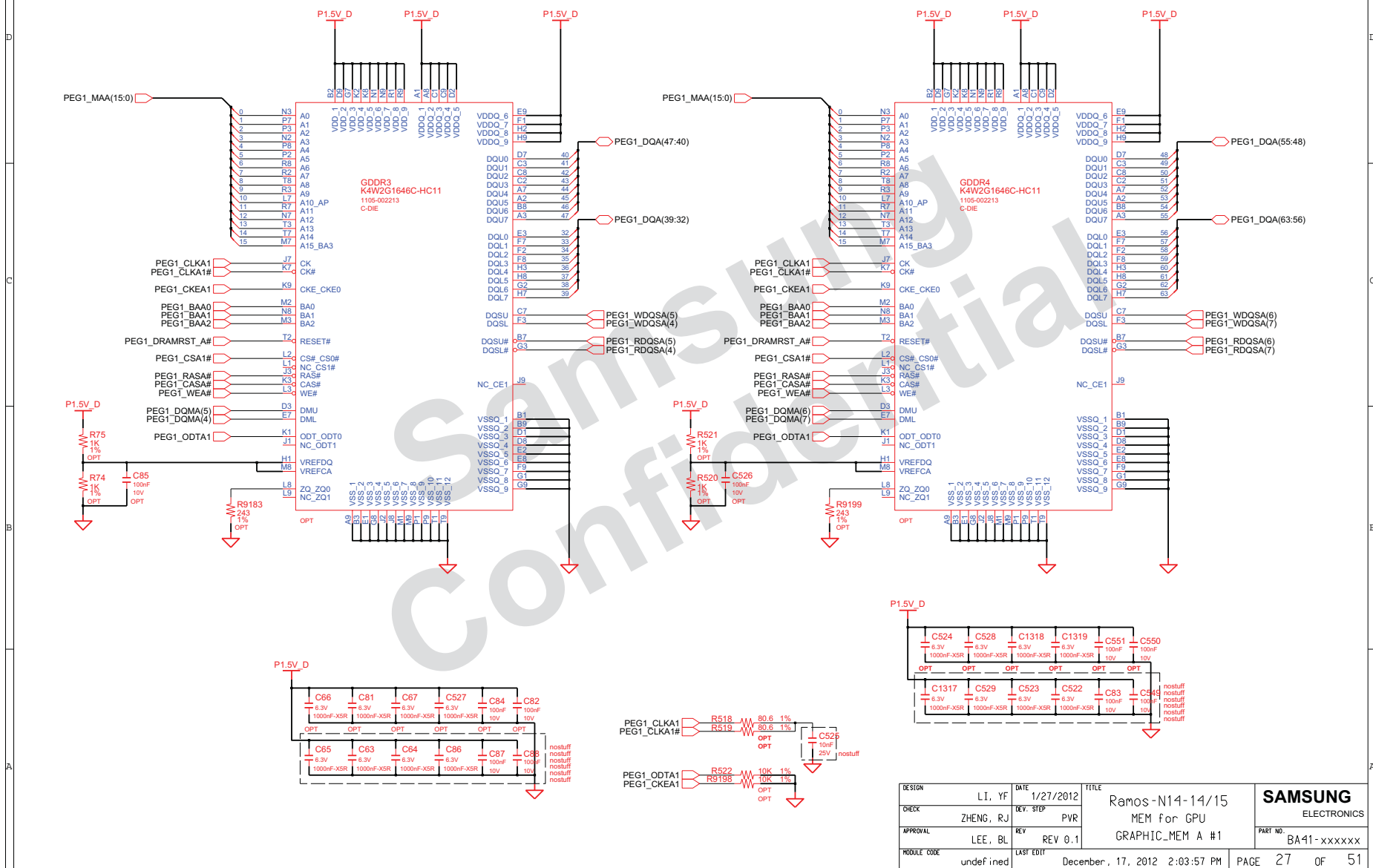
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APPROVAL	LEE, BL	REV	REV 0.1		GRAPHIC STRAP	PART NO.
MODULE CODE	undefined	LAST EDIT			December, 17, 2012 2:02:10 PM	BA41-xxxxxx
PAGE						25 OF 51

A-Channel #0 (D-mode)



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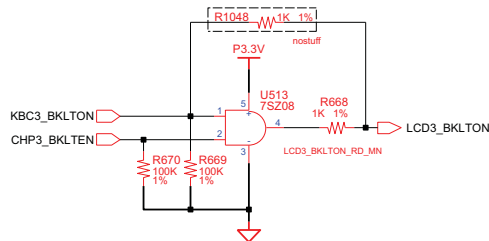
A-Channel #1 (D-mode)



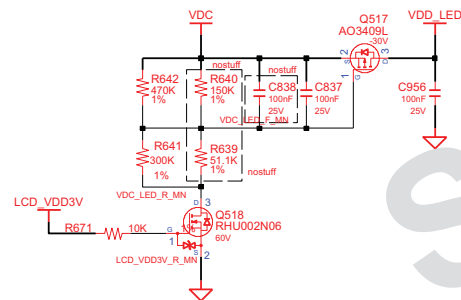
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MODULE CODE	undefined	LAST EDIT	December, 17, 2012 2:03:57 PM			
				PAGE	27	OF 51

LVDS LOGIC

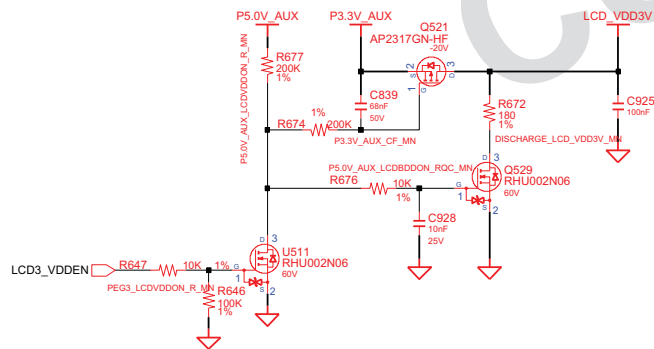
Backlight On



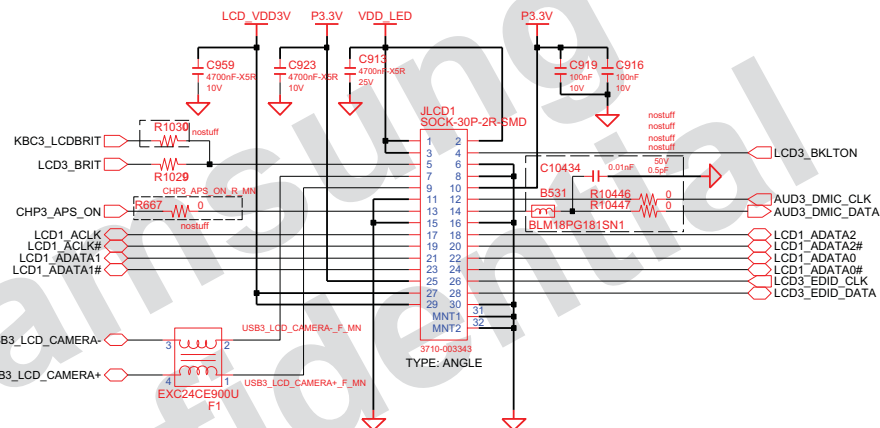
LED Power



LCD Power



1Ch. LCD Connector + CAMERA + INT MIC



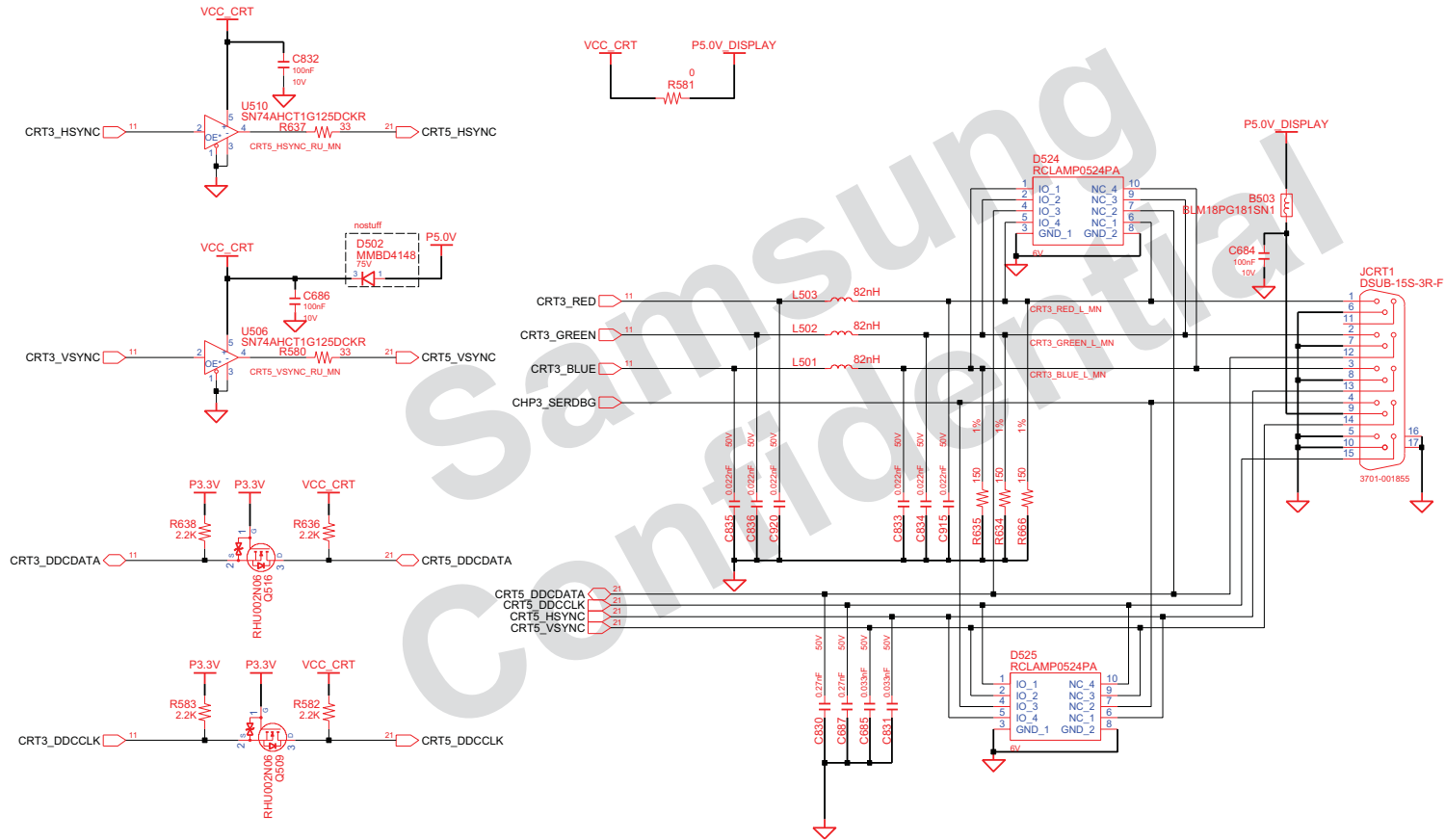
USB signal stub should be less than 100mil

DESIGN	LI, YP	DATE	09/29/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	ZHENG, RJ	DEV. STEP	PVR	GRAPHICS_H		
APPROVAL	LEE, BL	REV	REV 0.1	LVDS		
MODULE CODE	undefined	LAST EDIT		December, 17, 2012 2:05:09 PM	PAGE 28 OF 51	

VGA

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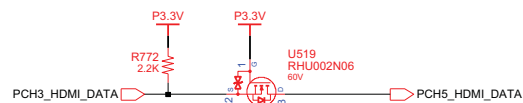
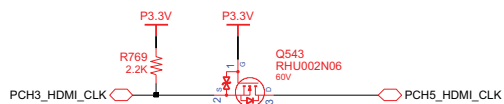


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MODULE CODE	undefined	LAST EDIT	December, 17, 2012 2:05:49 PM	PAGE	29 OF 51	

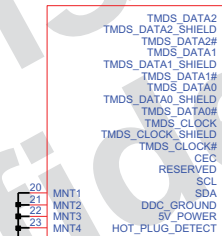
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HDMI

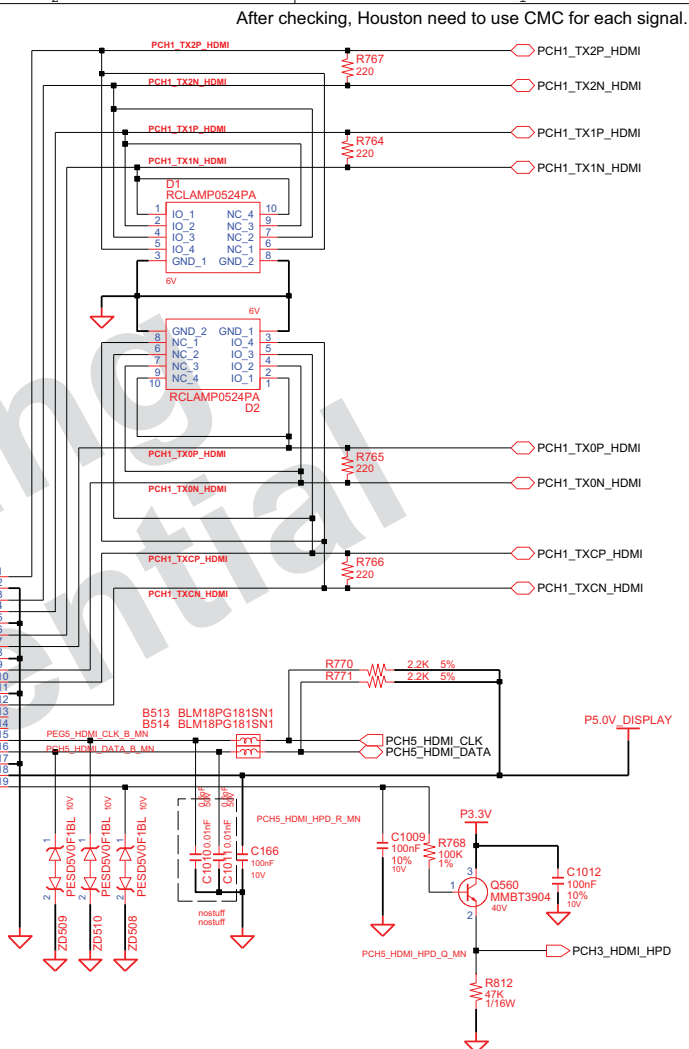
FOR HDMI VERIFICATION TEST



JHDMI1 HDMI-19P-FEMALE



3701-001775

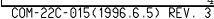


After checking, Houston need to use CMC for each signal.

N10xN11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

DESIGN	LI_YF	DATE	09/29/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS
CHECK	ZHENG, RJ	REV. STEP	PVR	GRAPHICS_IF		
APPROVAL	LEE, BL	REV	REV 0.1	HDMI		
MODULE CODE	undefined	LAST EDIT				
December, 17, 2012 2:06:34 PM						PAGE 30 OF 51

HD AUDIO

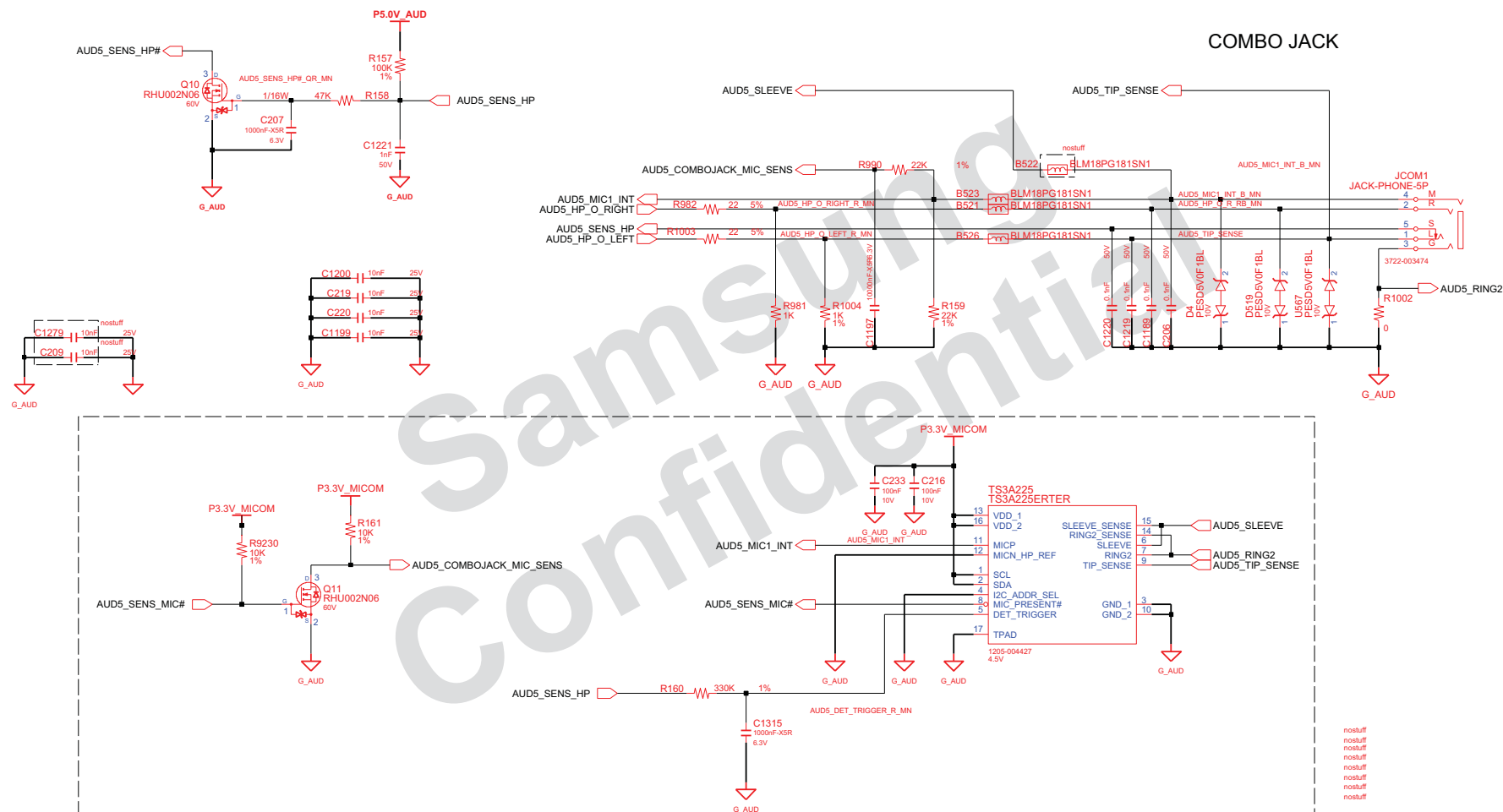
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HD AUDIO

COMBO JACK



DESIGN	LI, YF	DATE	09/29/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS
CHECK	ZHENG, RJ	DEV. STEP	PVR	AUDIO		
APPROVAL	LEE, BL	REV	REV 0.1	AUDIO COMBO JACK		
MODULE CODE	undefined	LAST EDIT				
December, 17, 2012 2:08:12 PM					PAGE	32 OF 51

A	B	C	D
---	---	---	---



	S0	S3	S4
iSCT	O	O	O
Non iSCT	O	N/A	N/A

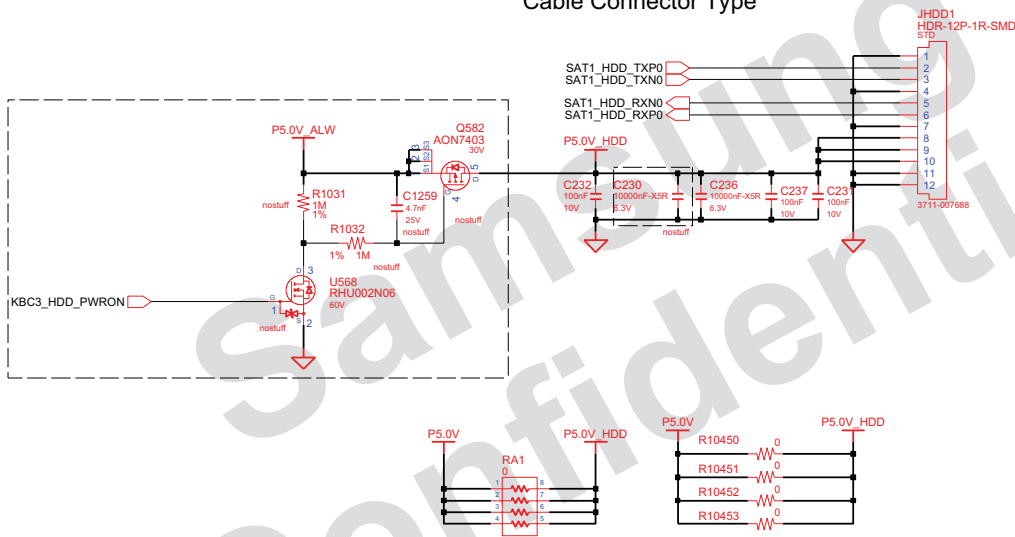
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CHECK	RJ Zheng	REV. STEP	PR		
APPROVAL	BL Lee	REV	REV 1.0		
MODULE CODE	LAST EDIT				
July 31, 2012 13:21:52 PM					PAGE 36 OF 53

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SATA I/F CONN

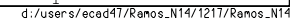
SATA HDD CONN

Cable Connector Type



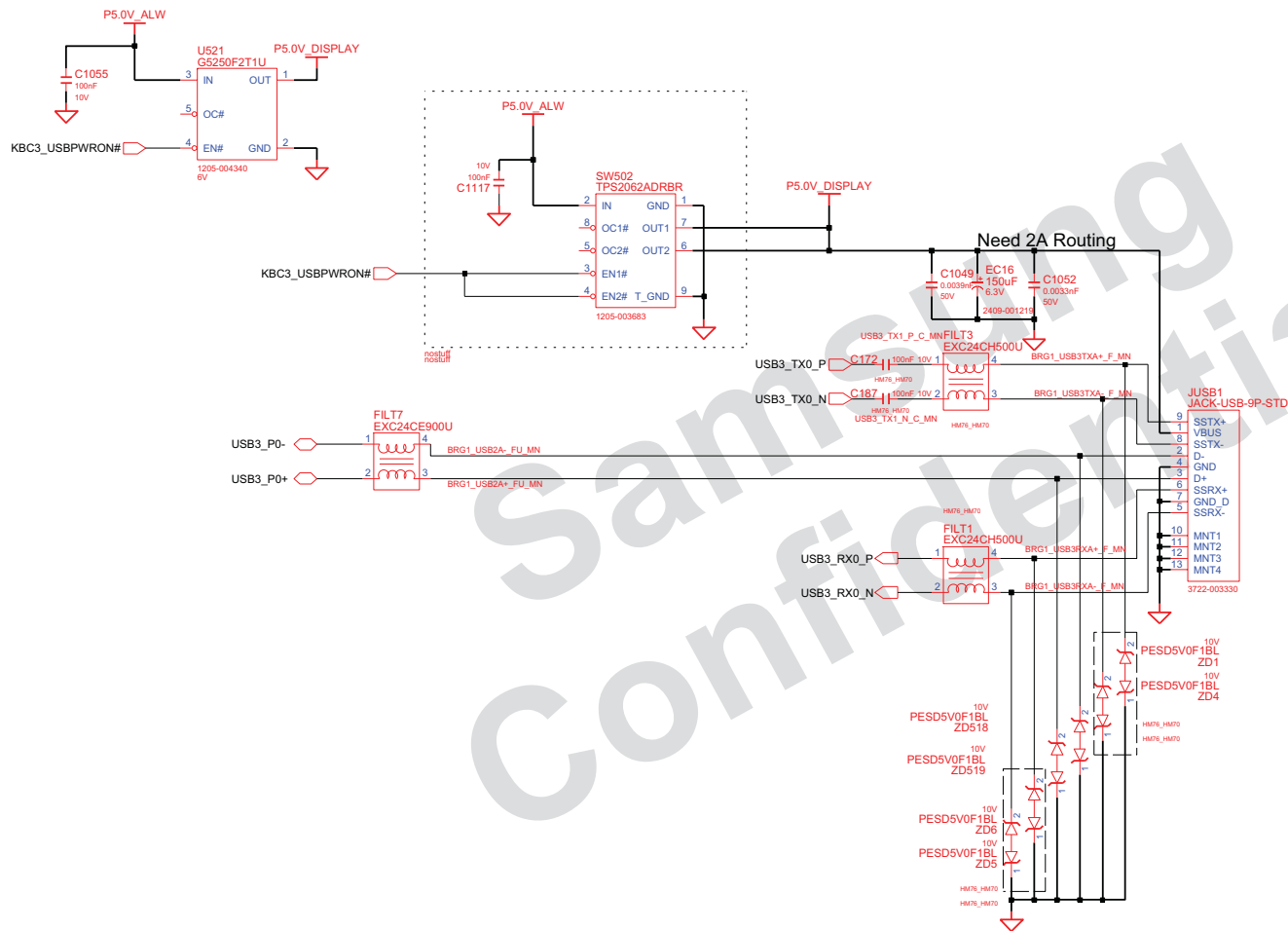
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APPROVAL	LEE, BL	REV	REV 0.1	SATA I/F		
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 2:10:21 PM	PAGE	35	OF 51

MAIN BOARD (MICOM)



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USB 3.0 CONNECTOR



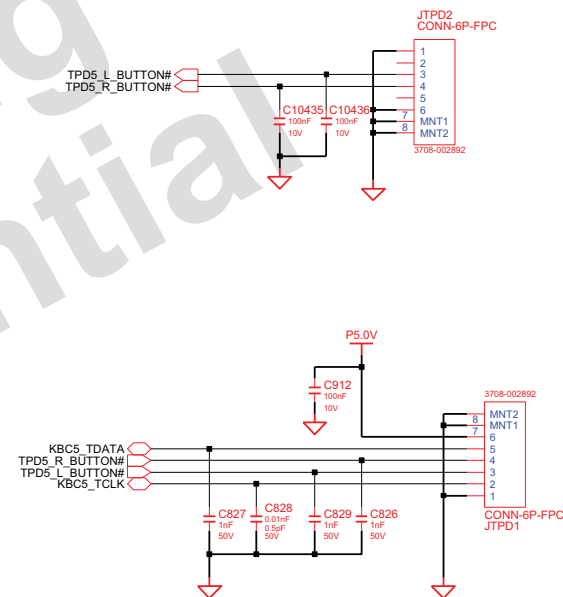
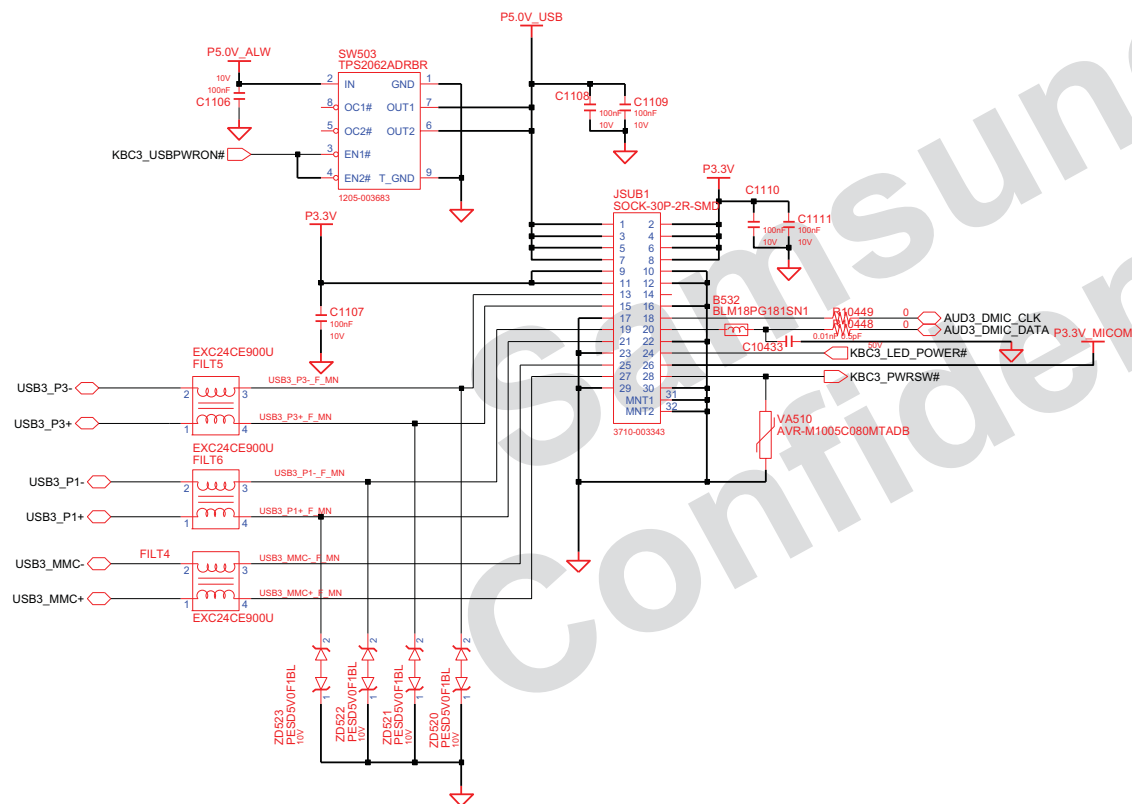
DRAW	LI, YF	DATE	09/29/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS PART NO. BA41-xxxxxxx
CHECK	ZHENG, RJ	DEV. STEP	PVR	USB3.0		
APPROVAL	LEE, BL	REV	REV 0.1	USB 3.0 CONNECTOR		
MODULE CODE		LAST EDIT		December, 17, 2012 2:12:44 PM	PAGE 38 OF 51	

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MAIN TO SUB

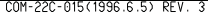
MAIN to 3-in-1 / USB SUB

TOUCHPAD BUTTON MAIN TO SUB

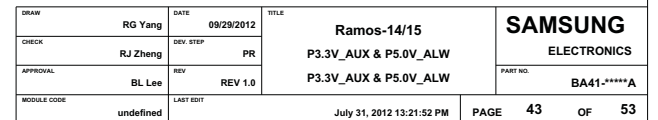


DESIGN	LI, YF	DATE	09/29/2012	TITLE	Ramos-N14-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	ZHENG, RJ	DEV. STEP	PVR	SUB BOARD CONNECTOR		
APPROVAL	LEE, BL	REV	REV 0.1	MAIN TO SUB		
MODULE CODE	undefined	LAST EDIT	December, 17, 2012 2:13:27 PM	PAGE	39 OF 51	

CHARGER & POWER MANAGEMENT



P3.3V_AUX & P5.0V_ALW



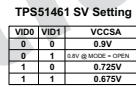
1

[illegible]

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

A

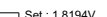
CHIPSET POWER(VCCSA)



1203-007328
TPS51463 ULV Setting

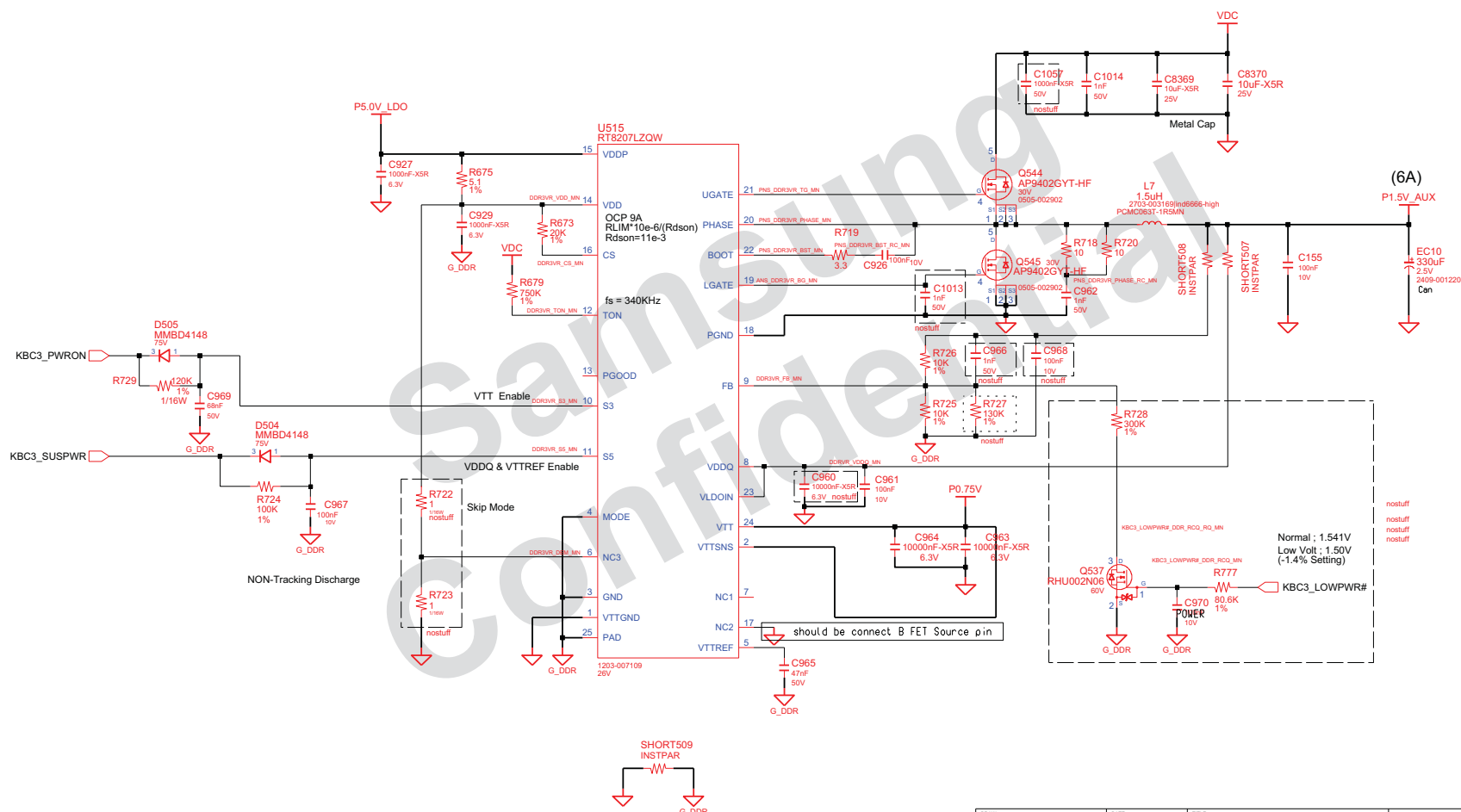
VID0	VID1	VCCSA
0	0	0.9V
0	1	0.85V
1	0	0.775V
1	1	0.75V

P1.8V (LVDS,PCH Core,LAN , ME IO)



DESIGN	RG Yang	DATE	09/29/2012	Ramos-14/15 VCCSA VCCSA		SAMSUNG ELECTRONICS			
CHECK	RJ Zheng	DEV. STEP	PR			PART NO.			
APPROVAL	BL Lee	REV	REV 1.0			BA41-*****A			
MODULE CODE		LAST EDIT		July 31, 2012 13:21:52 PM		PAGE	45	OF	53

DDR3 Power

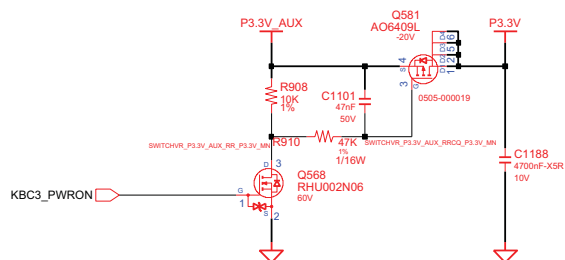


DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR		P1.05V	
APPROVAL	BL Lee	REV	REV 1.0		VT386FCX	
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM			
PAGE 46 OF 53						PART NO. BA41-*****A

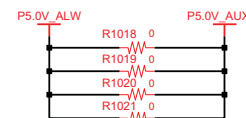
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Switched Power

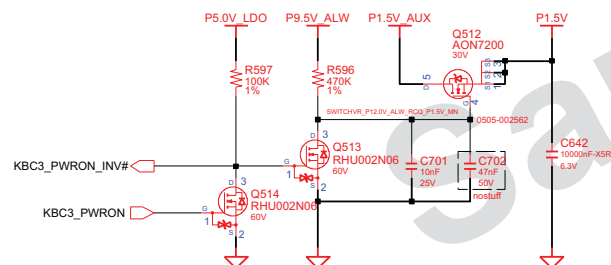
Switched Power On (P3.3V)



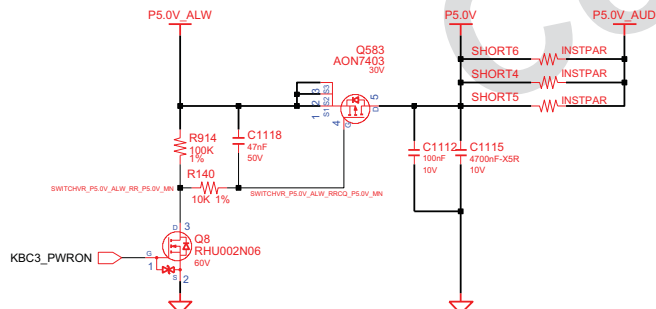
P5.0V_AUX



Switched Power On (P1.5V)



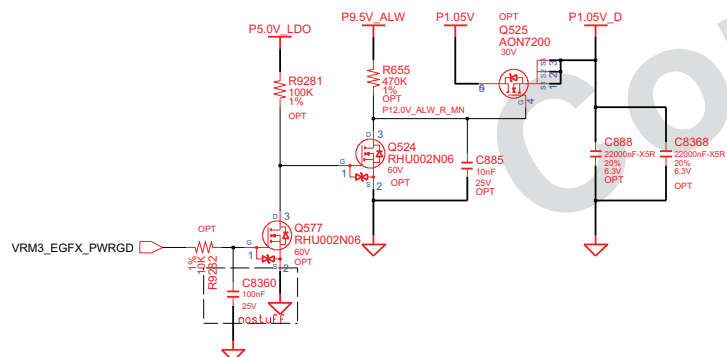
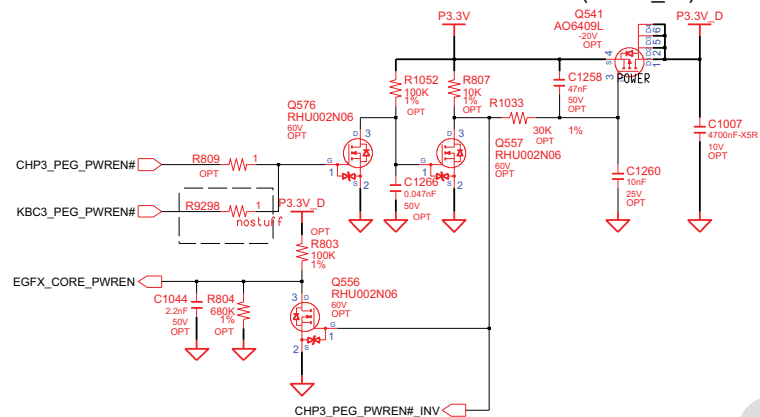
Switched Power On (P5.0V)



DRAW	RG Yang	DATE	09/29/2012	TITLE Ramos-14/15 PWR_MV_SWITCHED SWITCHED POWER		SAMSUNG ELECTRONICS PART NO. BA41-*****A			
CHECK	RJ Zheng	DEV. STEP	PR						
APPROVAL	BL Lee	REV	REV 1.0						
MODULE CODE		LAST EDIT		July 31, 2012 13:21:52 PM			PAGE	49	OF

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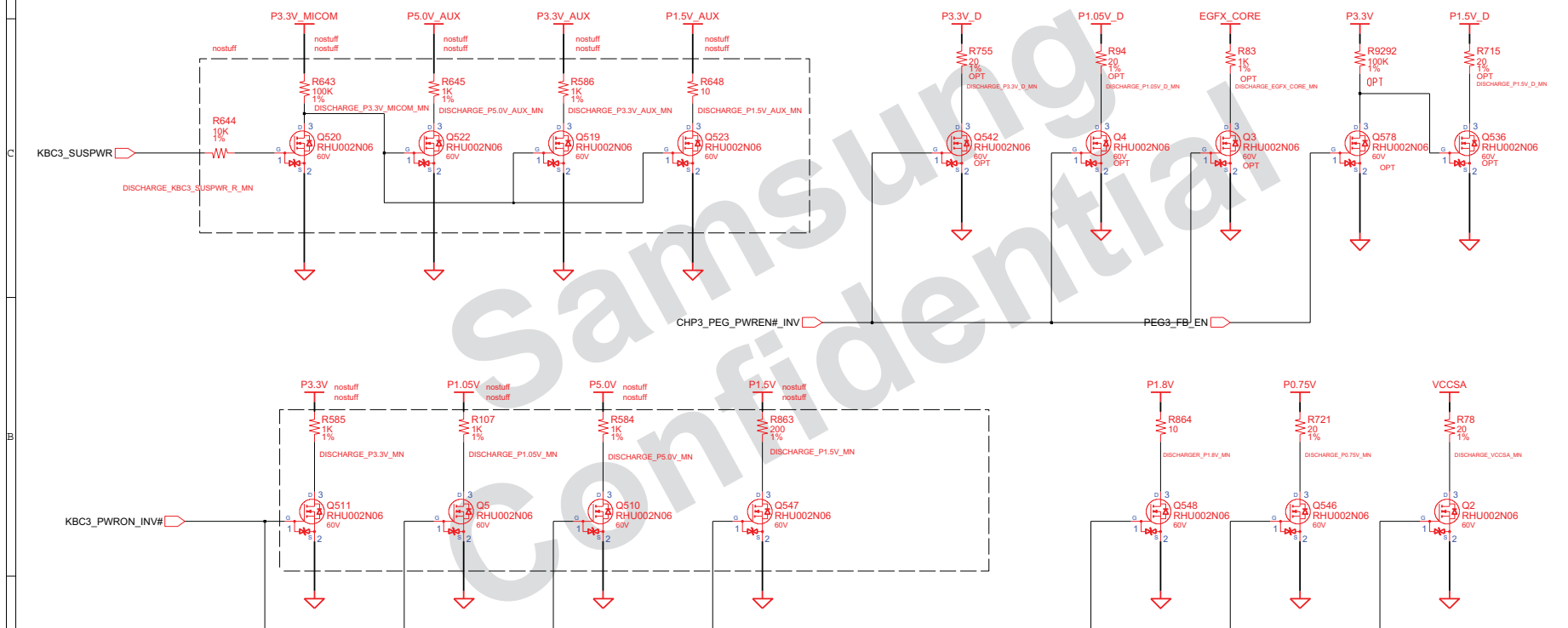
Discrete Switched Power (P3.3V_D)



DRAWN	RG Yang	DATE	09/29/2012	Ramos-14/15 Switched PWR 2 Switched PWR 2	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	REV. STEP	PR		
APPROVAL	BL Lee	REV	REV 1.0		
MODULE CODE	LAST EDIT				
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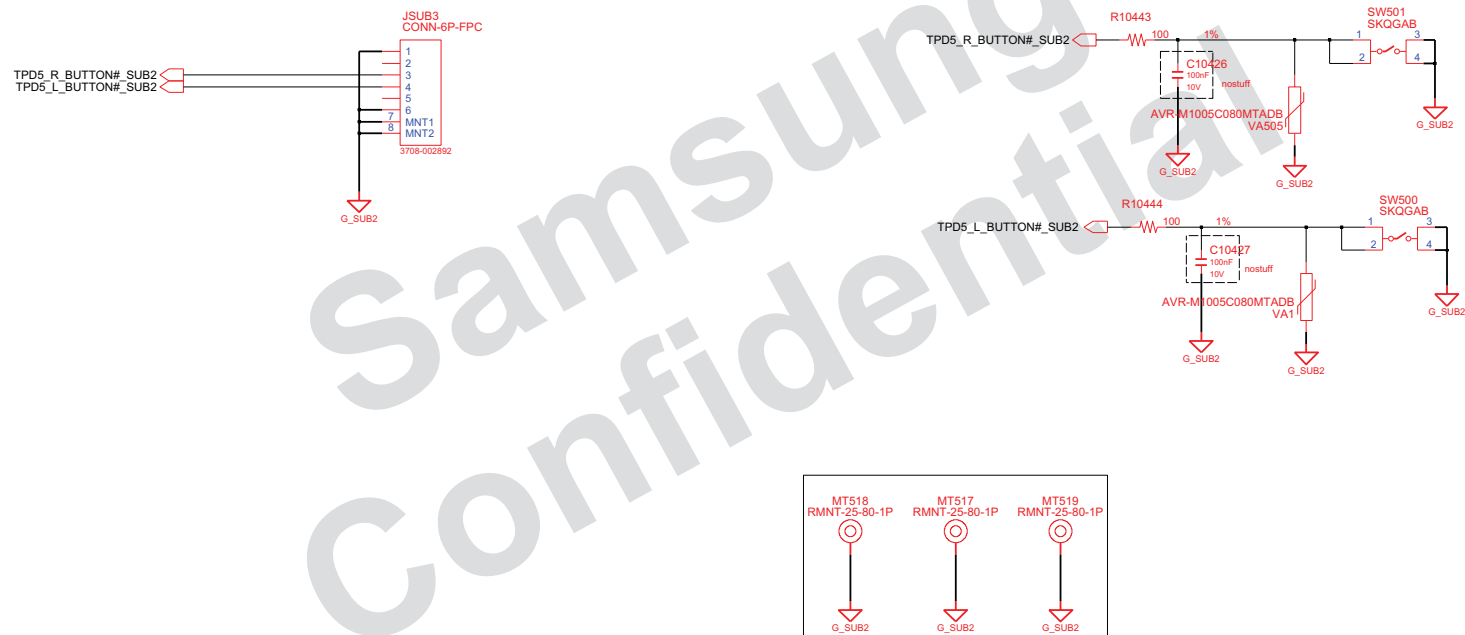
POWER DISCHARGER



DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	REV. STEP	PR	PWR_MV_DISCHARGER		
APPROVAL	BL Lee	REV	REV 1.0	DISCHARGING LOGIC		PART NO.
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM			BA41-*****A
				PAGE	51	OF 53

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TP SUB BOARD



DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15 SUB2 TOUCHPAD & LED	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PR			
APPROVAL	BL Lee	REV	REV 1.0			
MODULE CODE		LAST EDIT	July 31, 2012 13:21:52 PM			

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