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Ramos-14/15

CPU : Ivy Bridge BGA
Chip Set : Intel Panther Point
GFX : AMD Mars-XT / PRO
INTEL HD 3000/4000
Remarks : Chief River Platform

Model Name : Ramos-14/15

PBA Name : MAIN

PCB Code : BA41-02177A (PTC)
BA41-02176A (HST)
BA41-02175A (GCE)

Dev. Step : PV

Revision : 1.0

T.R. Date : 2012.06.04

Design	CHECK	APPROVAL
RG Yang	RJ Zheng	BL LEE

Owner : SEC Mobile R & D Signature : X

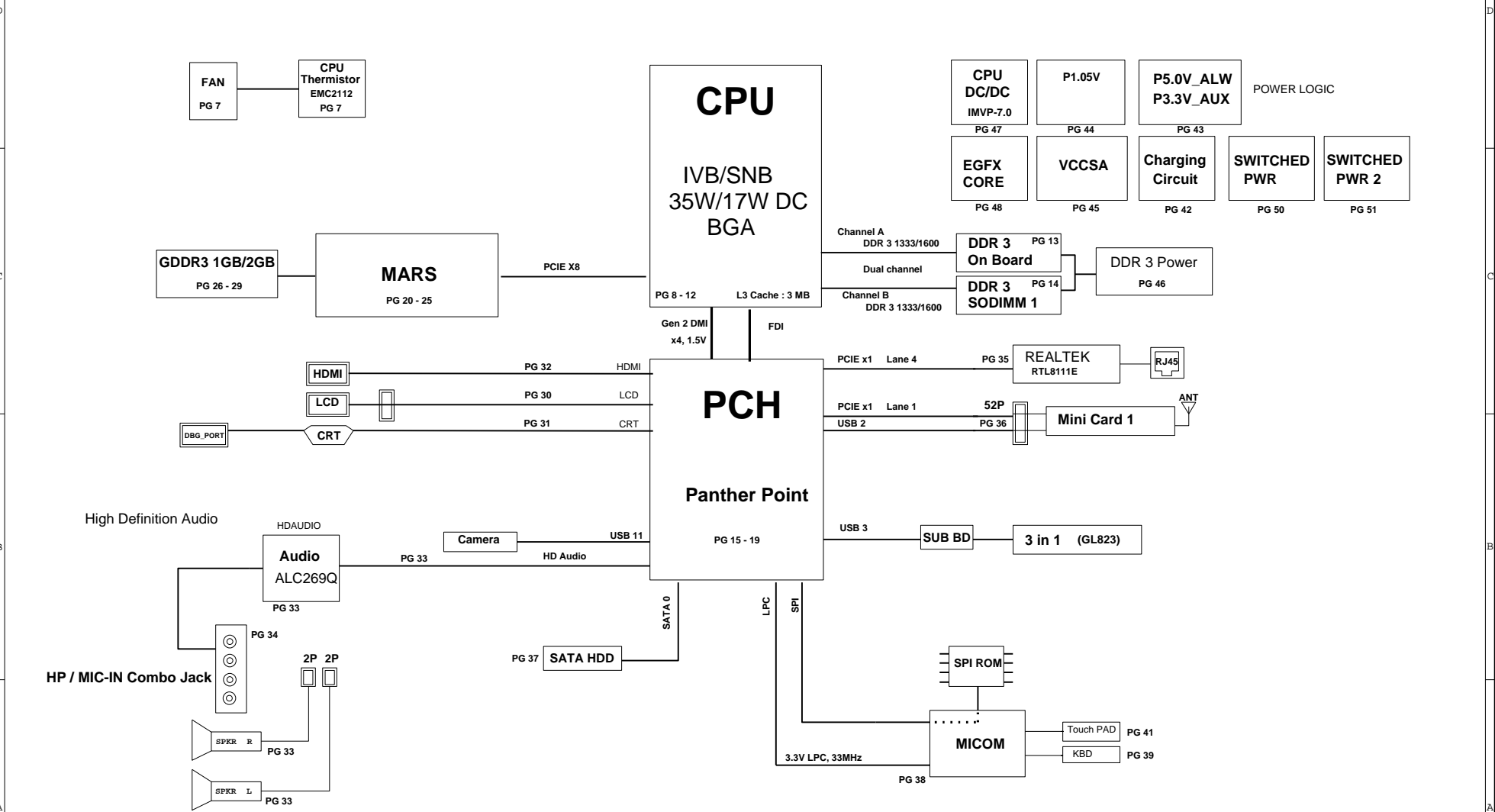
sheet01 : Cover
sheet02 : BLOCK DIAGRAM
sheet03 : BOARD INFORMATION
sheet04 : POWER DIAGRAM
sheet05 : CLOCK DISTRIBUTION
sheet06 : Green Clock
sheet07 : Thermal Sensor
sheet08 : CPU-IvyBridge (1/5)
sheet09 : CPU-IvyBridge (2/5)
sheet10 : CPU-IvyBridge (3/5)
sheet11 : CPU-IvyBridge (4/5)
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sheet13 : DDR3 SODIMM1
sheet14 : DDR3 SODIMM2
sheet15 : PCH-PantherPoint (1/5)
sheet16 : PCH-PantherPoint (2/5)
sheet17 : PCH-PantherPoint (3/5)
sheet18 : PCH-PantherPoint (4/5)
sheet19 : PCH-PantherPoint (5/5)
sheet20 : MARS (1/5)
sheet21 : MARS (5/5)
sheet22 : MARS (4/5)
sheet23 : MARS (3/5)
sheet24 : MARS (2/5)
sheet25 : MARS STRAP
sheet26 : GFX memory
sheet27 : GFX memory
sheet28 : GFX memory
sheet29 : GFX memory
sheet30 : LVDS / CAMERA
sheet31 : VGA
sheet32 : HDMI
sheet33 : Audio - ALC269Q-VC-GR
sheet34 : Audio - Combo Jack
sheet35 : LAN (Realtek RTL8111E)

sheet36 : WLAN
sheet37 : SATA interface (HDD I/F)
sheet38 : MICOM / BIOS(MEC1310)
sheet39 : MICOM Glue Logic
sheet40 : USB3.0 connector
sheet41 : MAIN TO SUB CONNECTOR
sheet42 : Power - charger
sheet43 : Power - P3.3V_AUX / P5.0V_AUX
sheet44 : Power - P1.05V (Chipset Power)
sheet45 : Power - VCCSA
sheet46 : Power - DDR3
sheet47 : Power - CPU VRM
sheet48 : Power - EGFX_CORE
sheet49 : Power - Switched Power 1
sheet50 : Power - Switched Power 2
sheet51 : Power - Power Discharge
sheet52 : Mount Hole
sheet53 : SUB (TOUCHPAD/LED)

DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG
CHECK	RJ Zheng	DEV. STEP	PR	MAIN		ELECTRONICS
APPROVAL	BL Lee	REV	REV 1.0	COVER		PART NO. BA41-*****A
MODULE CODE		LAST EDIT	July 31, 2012 13:21:52 PM	PAGE	1	OF 53

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BLOCK DIAGRAM



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

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

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

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	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 HM65)	7	NC
7	NC (N/A WITH HM65)	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	PANTHER POINT	Real Time Clock
Crystal	25MHz	LAN	REALTEK
Crystal	25MHz	PANTHER POINT	
Crystal	27MHz	N13M	
Crystal	24MHz	USB3.0 CHIP	

LCD Pannel Detect (TBD)

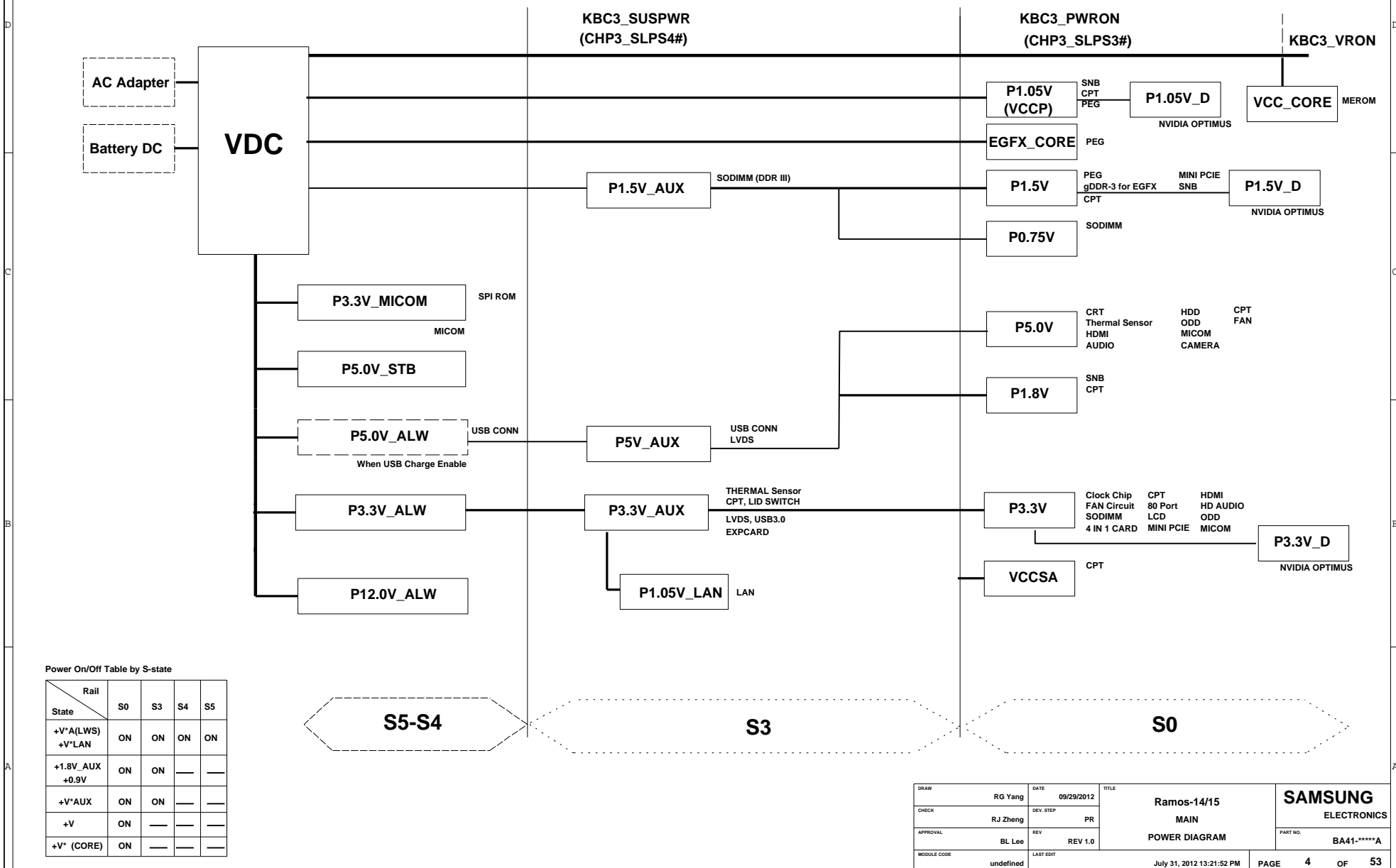
Devices	Resolution	PANNEL_DETECT_0
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I²C / SMB Address

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	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PR		MAIN	
APPROVAL	BL Lee	REV	REV 1.0		BOARD INFO	
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM	PAGE	3 OF 53	

Rev 0.7

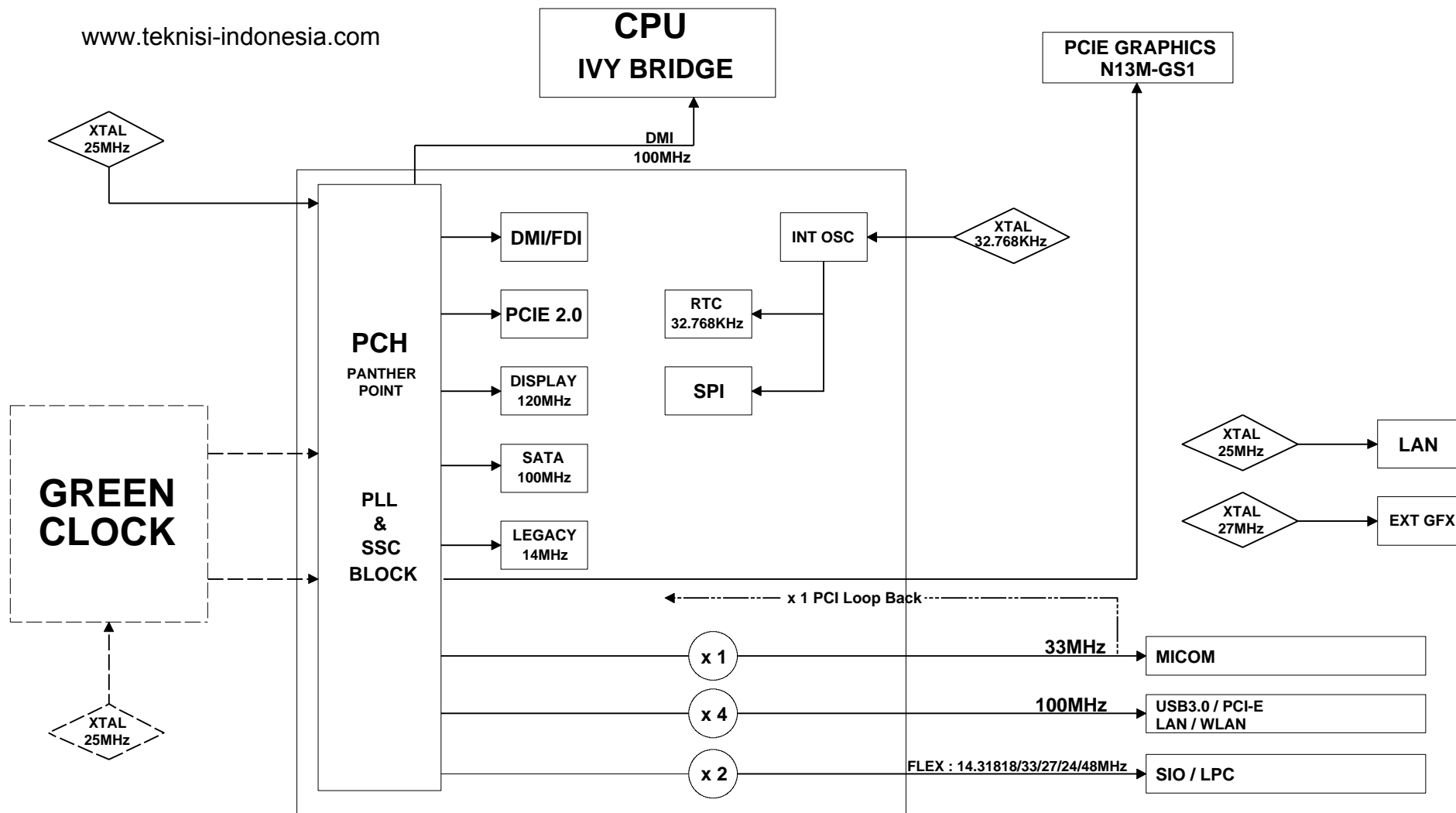


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CLOCK DISTRIBUTION Rev. 0.8



DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
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APPROVAL	BL Lee	REV	REV 1.0	CLOCK DIAGRAM		
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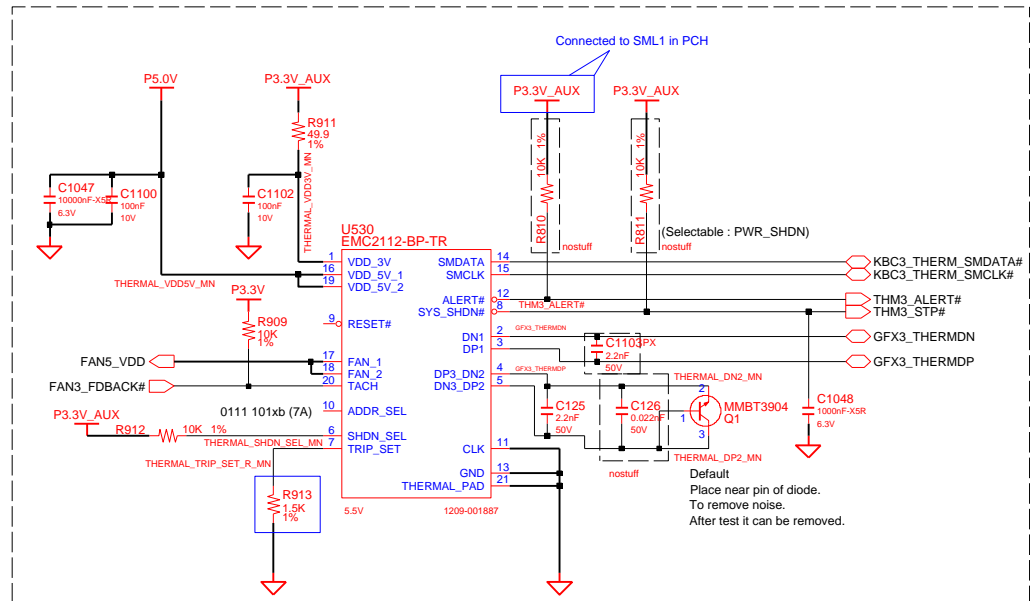
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The schematic diagram shows the P3.3V MICOM U7 (SLG3NB145VTR) with the following connections:

- Pin 1:** VDD_RTC_OUT to CLK3_RTC_XTAL1
- Pin 2:** VDD3 to CLK3_GREEN_PRTC_MN
- Pin 3:** VDD_25M to CLK3_GREEN_X2_MN
- Pin 4:** VDDIO_25M_A to CLK3_GREEN_X1_MN
- Pin 5:** VDDIO_25M_B to GND_1
- Pin 6:** VDDIO_32K_B to GND_2
- Pin 7:** VDDIO_25M_A to GND_3
- Pin 8:** VDDIO_32K_B to GND_4
- Pin 9:** 25MHZ_A to CLK3_LAN_XTAL
- Pin 10:** 25MHZ_Z to CLK3_25M_XTAL
- Pin 11:** 32KHZ_A to CLK3_RTC_XTAL1
- Pin 12:** 32KHZ_B to CLK3_MICOM_XTAL
- Pin 13:** VBAT to CLK3_GREEN_PRTC_MN
- Pin 14:** VDD3 to CLK3_GREEN_PRTC_MN
- Pin 15:** VDD_25M to CLK3_GREEN_X2_MN
- Pin 16:** VDDIO_25M_A to CLK3_GREEN_X1_MN
- Pin 17:** VDDIO_32K_B to GND_4
- Pin 18:** GND_1 to GND_4
- Pin 19:** GND_2 to GND_4
- Pin 20:** GND_3 to GND_4
- Pin 21:** GND_4 to GND_4
- Pin 22:** GND_4 to GND_4
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- Pin 96:** GND_4 to GND_4
- Pin 97:** GND_4 to GND_4
- Pin 98:** GND_4 to GND_4
- Pin 99:** GND_4 to GND_4
- Pin 100:** GND_4 to GND_4

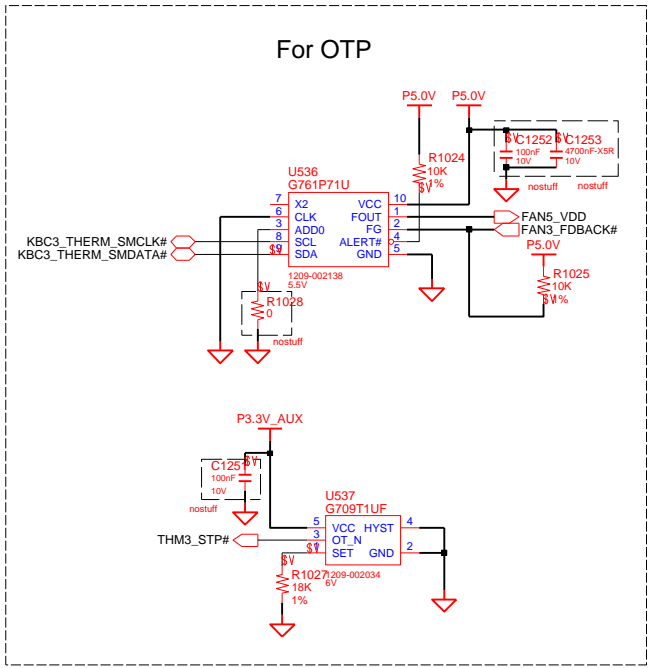
COM-22C-015(1996.6.5) REV. 3

THERMAL SENSOR & FAN CONTROL



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

EMC2112
EMC2112
EMC2112
EMC2112
EMC2112
EMC2112
EMC2112
EMC2112
EMC2112
EMC2112

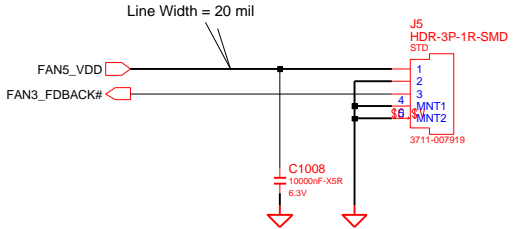


Temperature : 95.78c
confirmed by thermal charger
(2011.05.02)
R (kohm) = 0.0012T - 0.9308T + 96.147

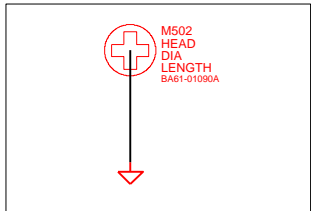
OTP_VE
OTP_VE
OTP_VE
OTP_VE
OTP_VE

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

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

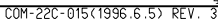


FAN PEM

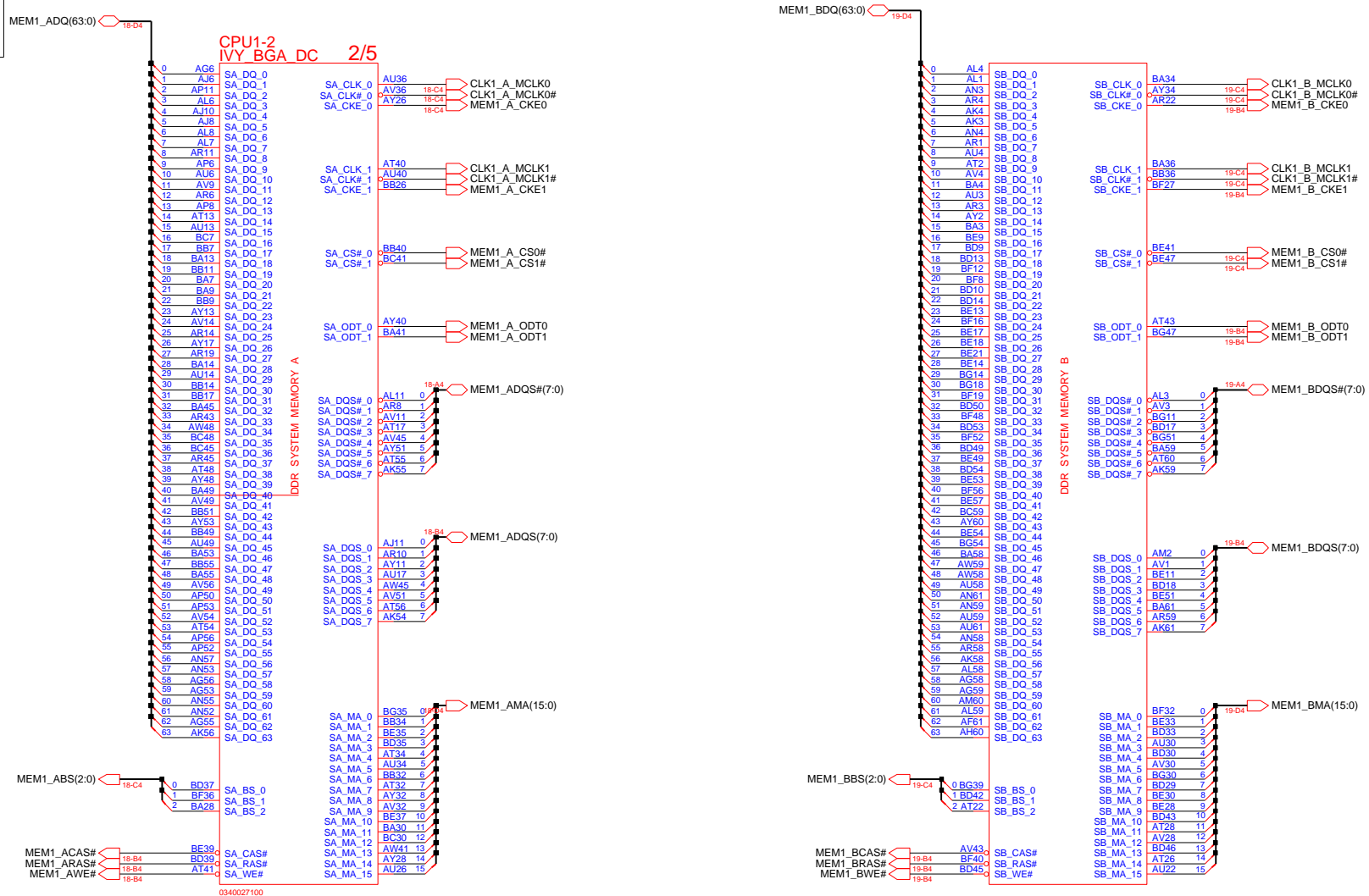


DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PR		THERMAL SENSOR	
APPROVAL	BL Lee	REV	REV 1.0		THERMAL SENSOR EMC2112	
MODULE CODE		LAST EDIT				

P1 05V



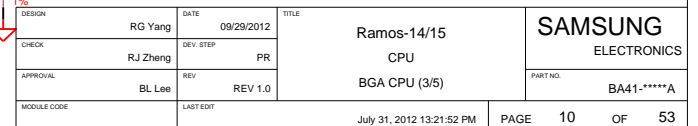
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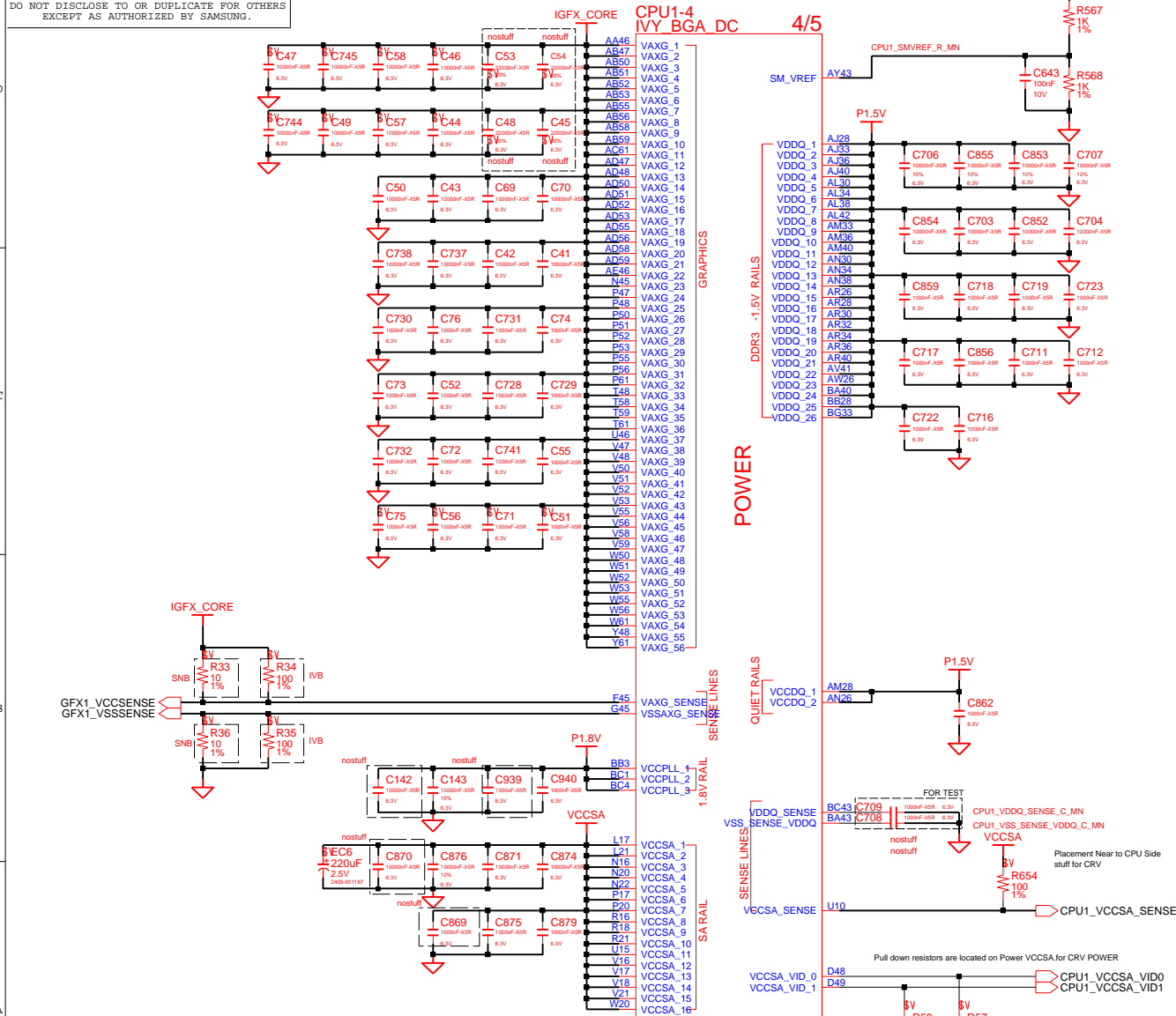
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DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR		CPU	
APPROVAL	BL Lee	REV	REV 1.0		BGA CPU (2/5)	
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM			
PAGE 9 OF 53						PART NO. BA41-*****A

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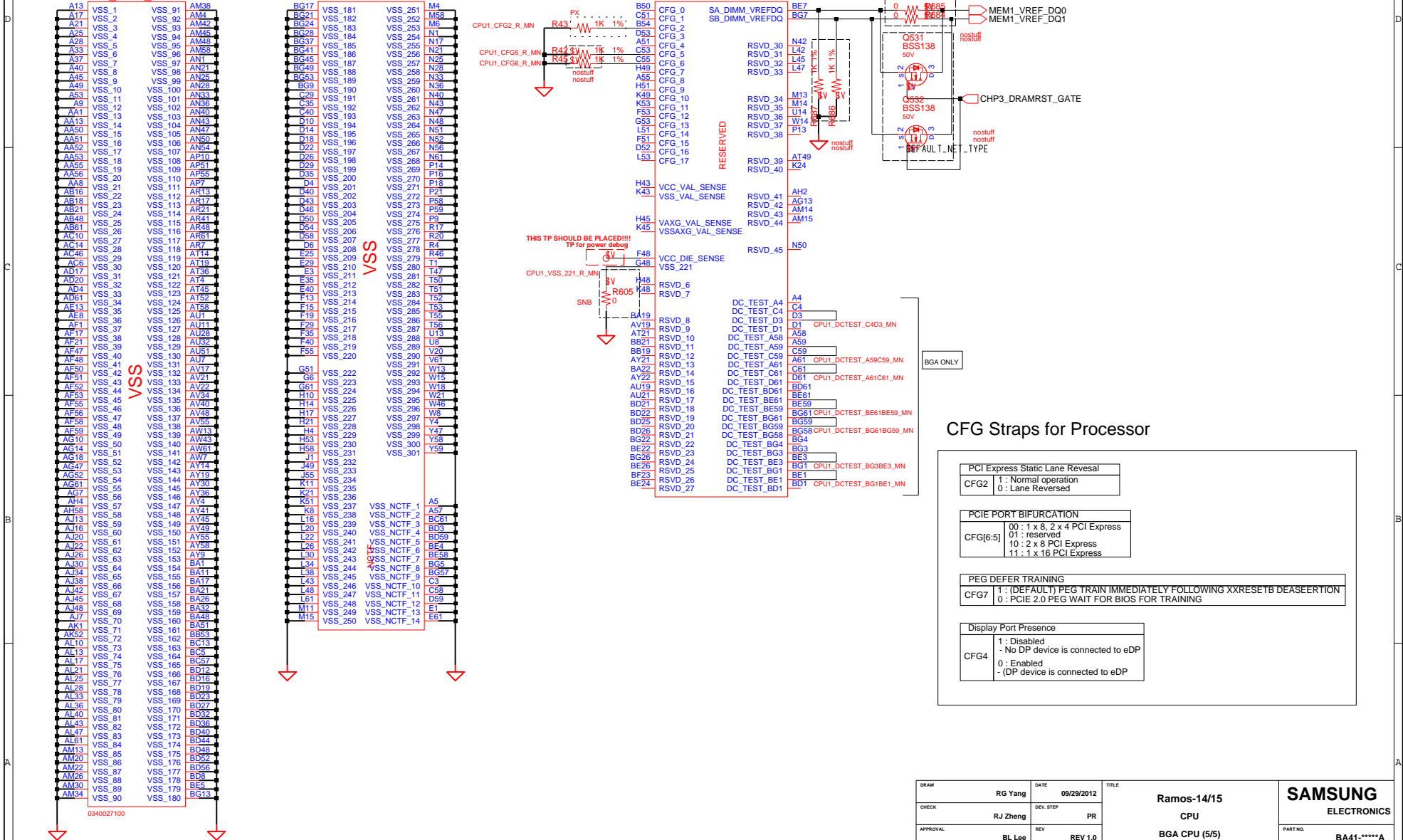


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CPU1-5 IVY BGA DC

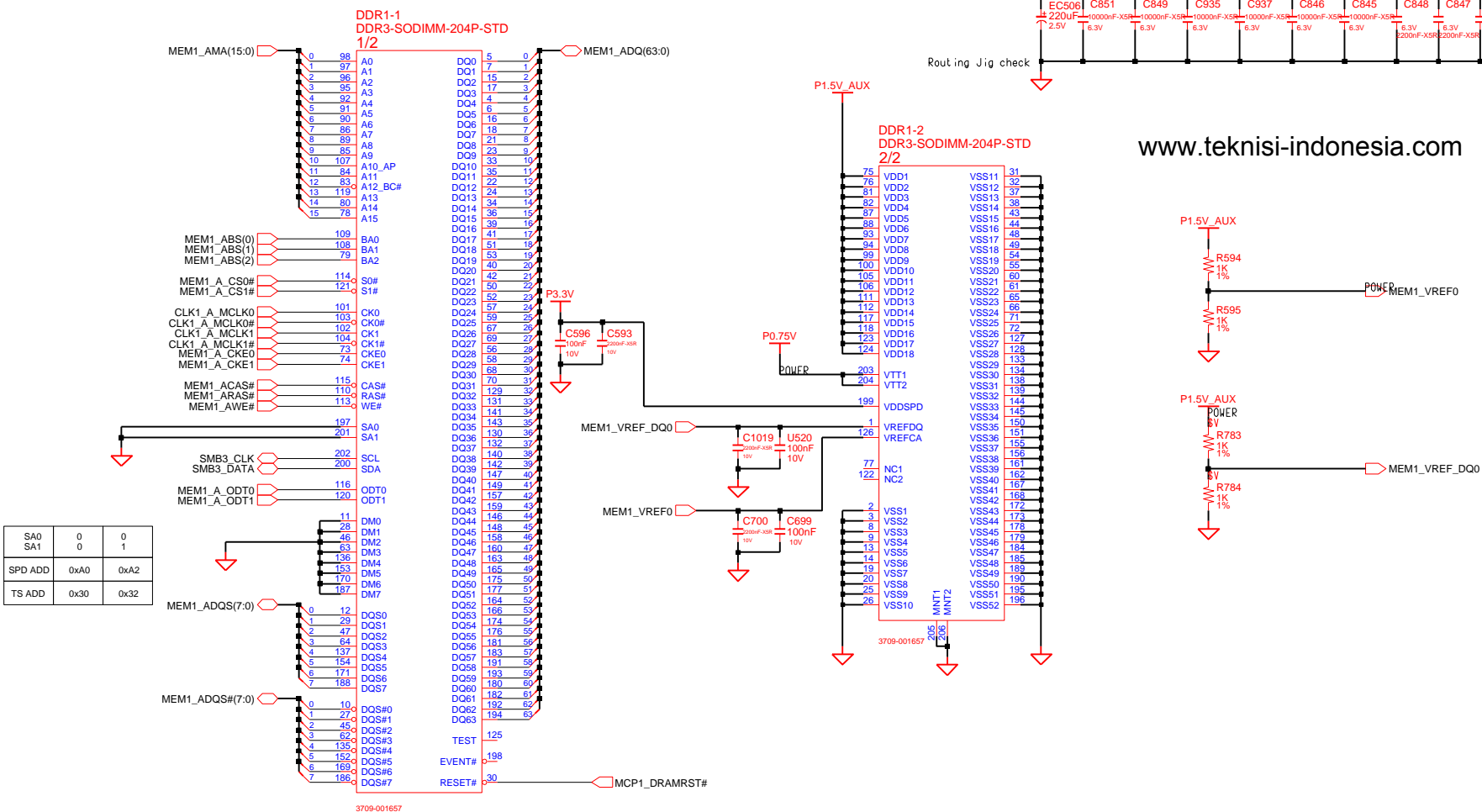
5/5



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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

DRAW	RG Yang	DATE	09/29/2012	Ramos-14/15 MEMORY #0 2 RANK(4/4) DDR3 2Gb	SAMSUNG ELECTRONICS	
CHECK	RJ Zheng	DEV. STEP	PR		PART NO.	BA41-*****A
APPROVAL	BL Lee	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM			

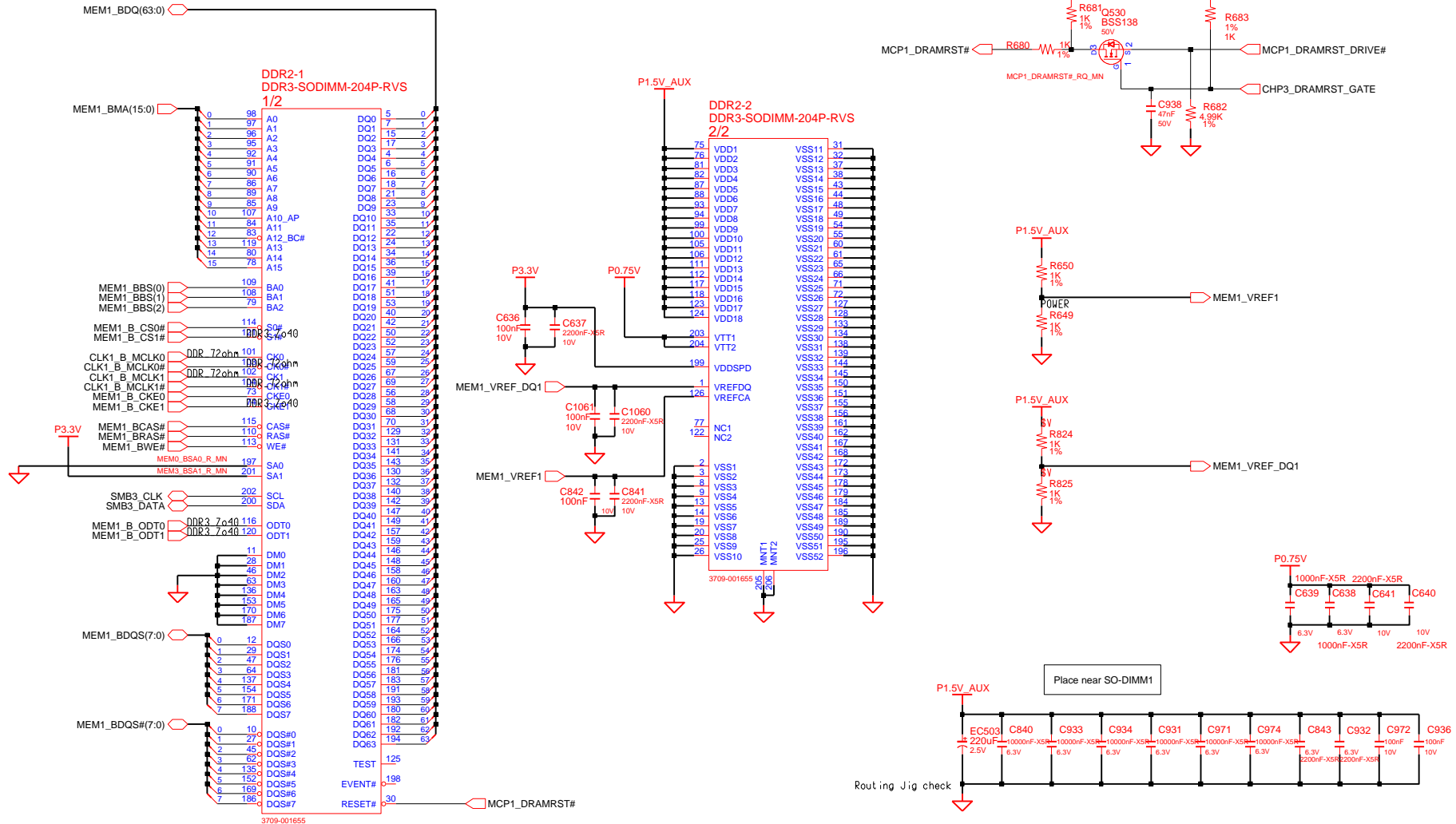
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SO-DIMM #1 : 1st SO-DIMM DDR SO-DIMM #1

Height : 8 mm (STANDARD)

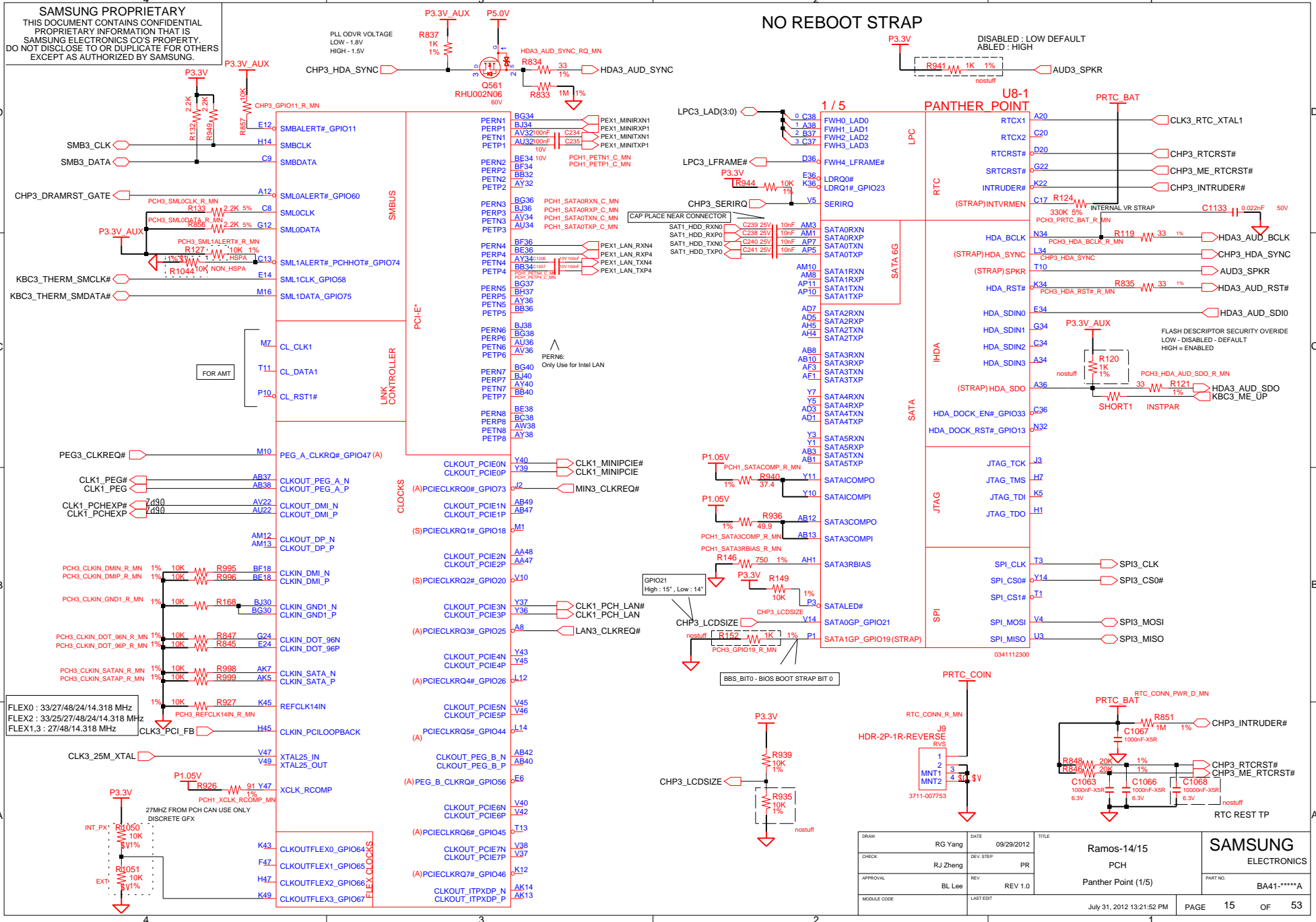
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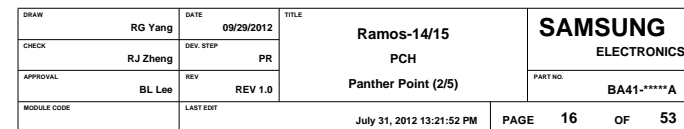
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DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PR		SODIMM B	
APPROVAL	BL Lee	REV	REV 1.0		DDR3 2Gb	
MODULE CODE		LAST EDIT				
July 31, 2012 13:21:52 PM						PAGE 14 OF 53

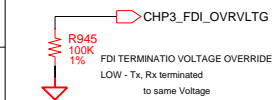
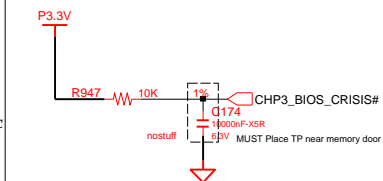
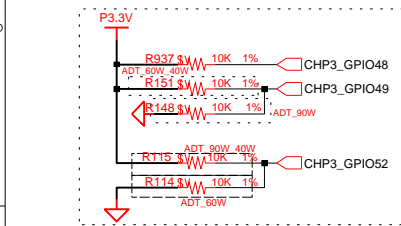
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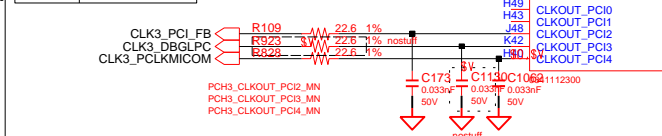
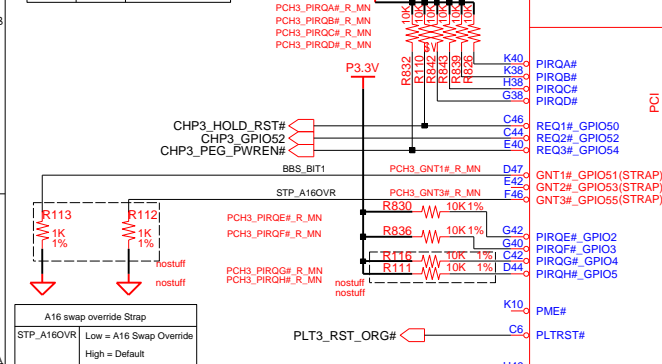


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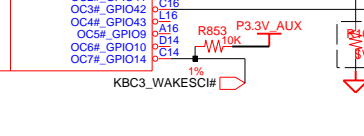
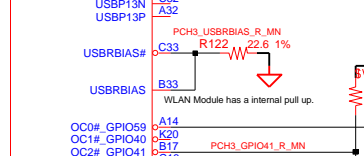
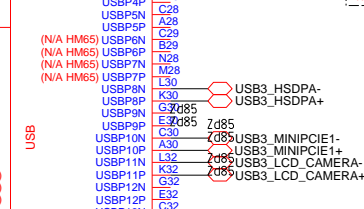
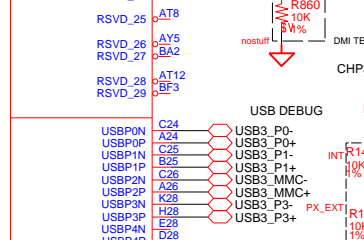
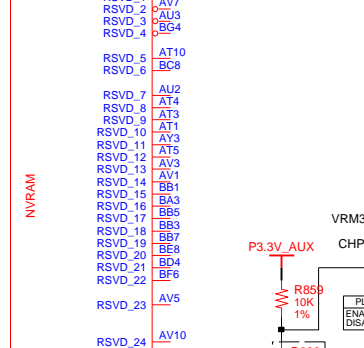
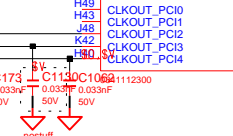
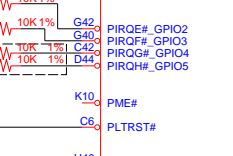
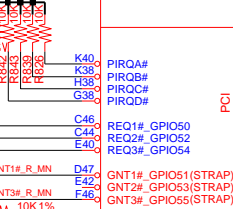
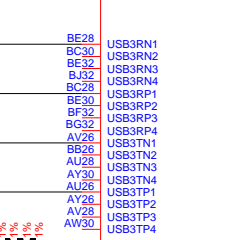
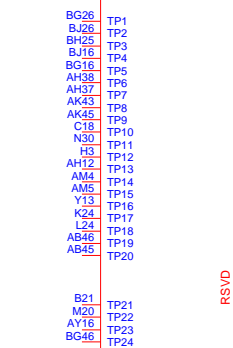
GREEN WATT



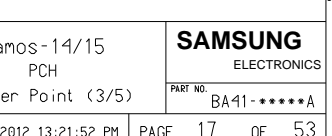
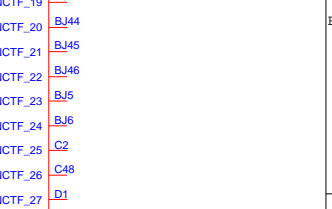
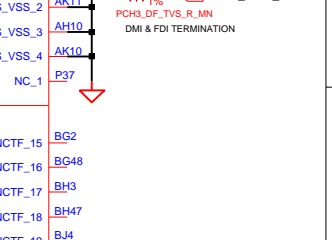
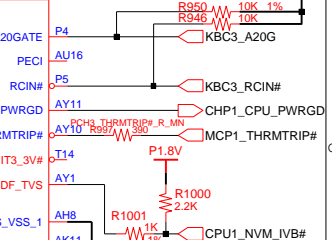
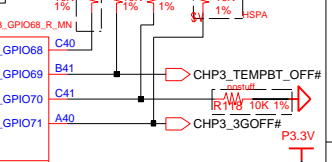
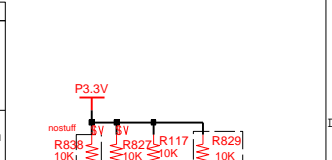
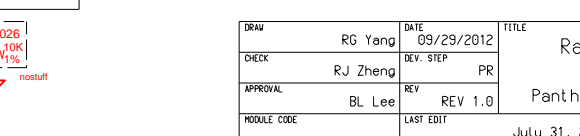
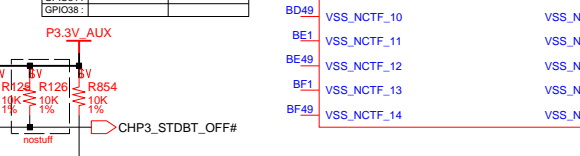
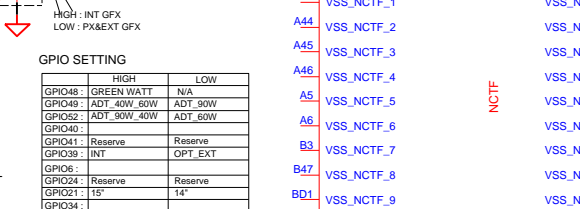
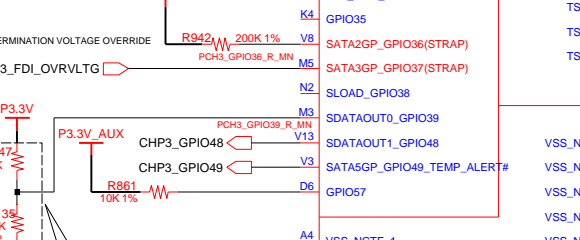
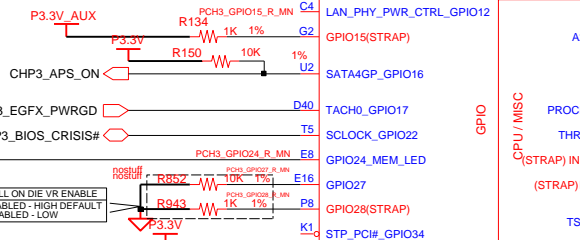
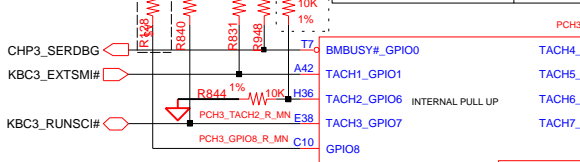
BOOT BIOS STRAP	
BBS_BIT1	BOOT BIOS LOCATION
0	LPC
1	RESERVED (NAND)
1	SPI



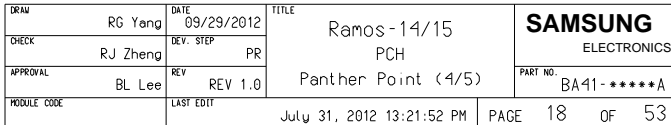
U8-3 PANTHER POINT



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	Case 2 Non-Standard Mini-card #5
Broadcom 2070 stand alone Module BT HW ID : USBVID_0A5C&PID_219B	
New Combo Card Broadcom 4313 1x1 Combo BT HW ID : USBVID_0A5C&PID_219C	
Broadcom 43225 2x2 Combo BT HW ID : USBVID_0A5C&PID_219A	



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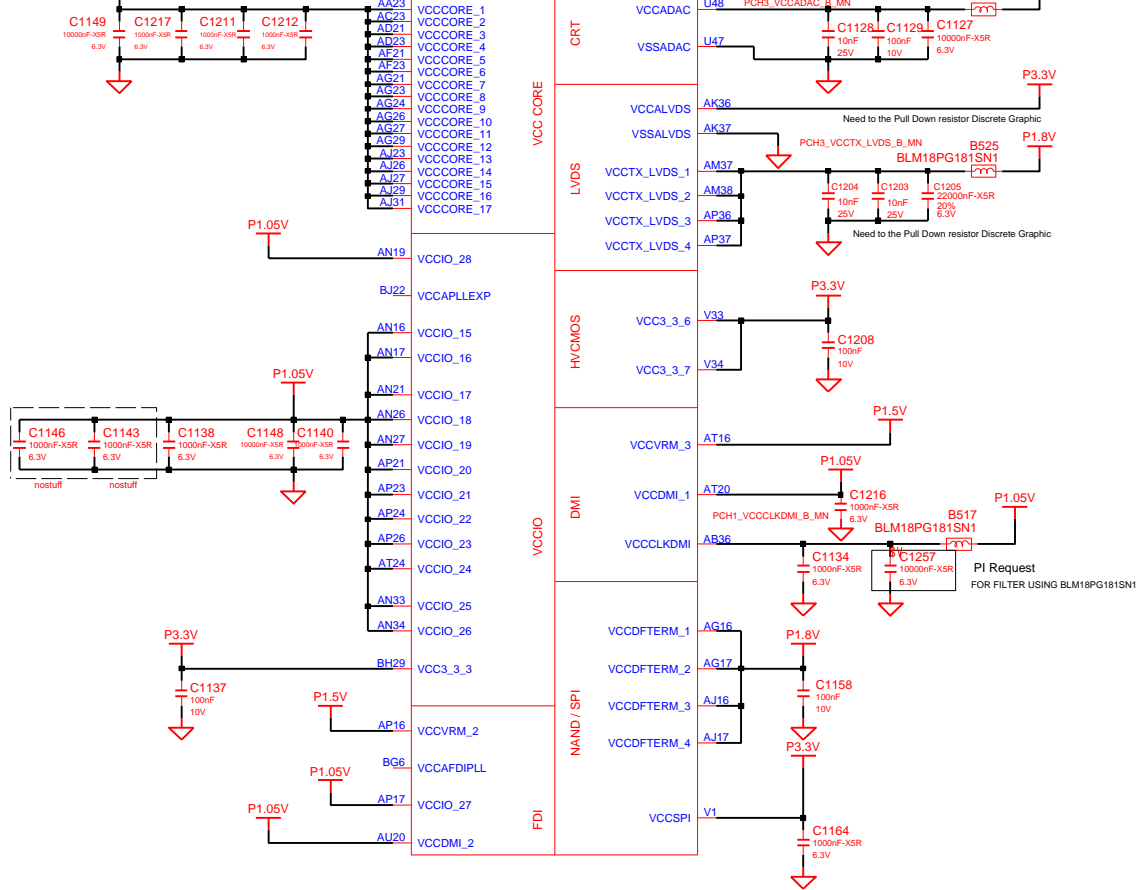
**U8-5
PANTHER POINT**

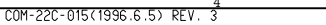
This power share with thermal sensor

5 / 5

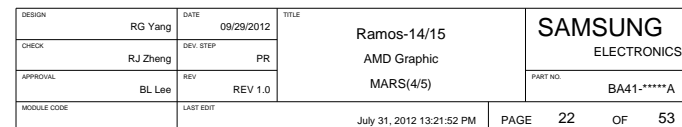
AY4	VSS159	VSS259	H46
AY2	VSS160	VSS260	K18
AY6	VSS161	VSS261	K26
AY8	VSS162	VSS262	K30
B11	VSS163	VSS263	K46
B15	VSS164	VSS264	K7
B19	VSS165	VSS265	L18
B23	VSS166	VSS266	L2
B27	VSS167	VSS267	L20
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L36
B7	VSS171	VSS271	L48
F45	VSS172	VSS272	M12
BB12	VSS173	VSS273	P16
BB16	VSS174	VSS274	M18
BB20	VSS175	VSS275	M22
BB22	VSS176	VSS276	M24
BB24	VSS177	VSS277	M30
BB28	VSS178	VSS278	M32
BB30	VSS179	VSS279	M34
BB38	VSS180	VSS280	M38
BB4	VSS181	VSS281	M4
BB46	VSS182	VSS282	M42
BB14	VSS183	VSS283	M46
BC18	VSS184	VSS284	M8
BC2	VSS185	VSS285	N18
BC22	VSS186	VSS286	P30
BC26	VSS187	VSS287	N47
BC32	VSS188	VSS288	P18
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC40	VSS191	VSS291	P43
BC42	VSS192	VSS292	P47
BC48	VSS193	VSS293	P7
BD46	VSS194	VSS294	R2
BD6	VSS195	VSS295	R48
BE22	VSS196	VSS296	T12
BE26	VSS197	VSS297	T31
BE40	VSS198	VSS298	T37
BF10	VSS199	VSS299	T4
BF12	VSS200	VSS300	W34
BF16	VSS201	VSS301	T46
BF20	VSS202	VSS302	T47
BF24	VSS203	VSS303	T8
BF26	VSS204	VSS304	V17
BF28	VSS205	VSS305	V26
BF3	VSS206	VSS306	V28
BF30	VSS207	VSS307	V27
BF38	VSS208	VSS308	V29
BF40	VSS209	VSS309	V30
BF48	VSS210	VSS310	V31
BG18	VSS211	VSS311	V36
BG21	VSS212	VSS312	V38
BG33	VSS213	VSS313	V43
BG44	VSS214	VSS314	V7
CG39	VSS215	VSS315	W17
BH11	VSS216	VSS316	W2
BH15	VSS217	VSS317	W27
BH17	VSS218	VSS318	W48
BH19	VSS219	VSS319	Y12
H10	VSS220	VSS320	Y2
BH27	VSS221	VSS321	Y4
BH31	VSS222	VSS322	Y42
BH33	VSS223	VSS323	Y46
BH36	VSS224	VSS324	Y8
BH38	VSS225	VSS325	BG29
BH43	VSS226	VSS326	N24
BH7	VSS227	VSS327	N24
D3	VSS228	VSS328	AJ3
D12	VSS229	VSS329	AD47
D16	VSS230	VSS330	B43
D18	VSS231	VSS331	BE10
D22	VSS232	VSS332	BG41
D24	VSS233	VSS333	G14
D26	VSS234	VSS334	H16
D30	VSS235	VSS335	T36
D32	VSS236	VSS336	BG22
D34	VSS237	VSS337	BG24
D38	VSS238	VSS338	C22
D42	VSS239	VSS339	AP13
D8	VSS240	VSS340	M14
E18	VSS241	VSS341	AP3
E26	VSS242	VSS342	AP1
E16	VSS243	VSS343	BE16
G20	VSS244	VSS344	BC16
G26	VSS245	VSS345	BG28
G28	VSS246	VSS346	BJ28
G36	VSS247	VSS347	
G48	VSS248	VSS348	
H12	VSS249	VSS349	
H18	VSS250	VSS350	
H22	VSS251	VSS351	
H24	VSS252	VSS352	
H26	VSS253		
H30	VSS254		
H32	VSS255		
H34	VSS256		
H36	VSS257		
H38	VSS258		

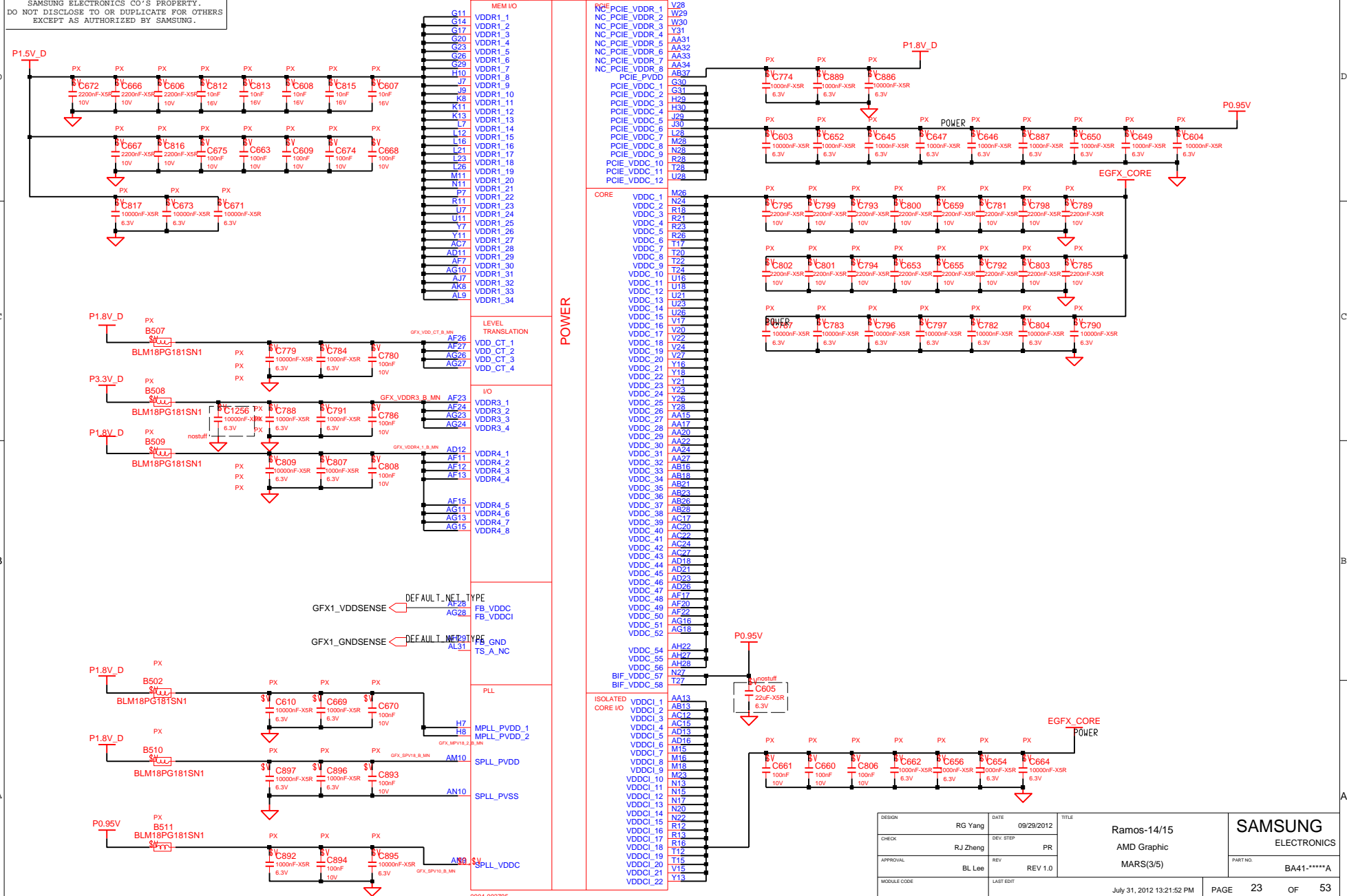
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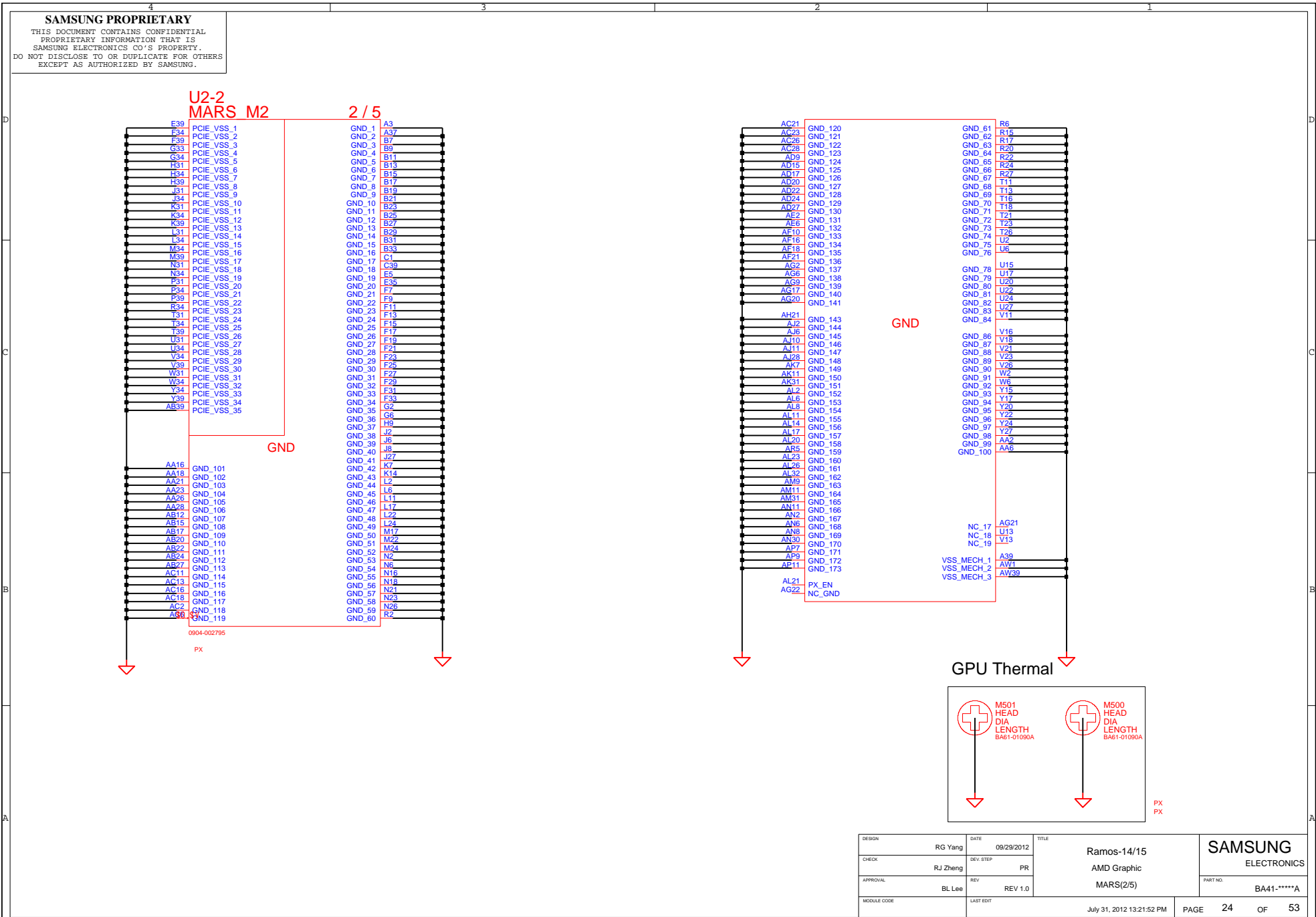




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STRAP PIN	BIT 5	BIT 4	BIT 3	BIT2	BIT1
PS_0	AUD_PINSTRAP[0]	N/A	ROM_CONFIG[2]	ROM_CONFIG[1]	ROM_CONFIG[0]
PS_1	TX_DEEMPH_EN	TX_FULL_SWING	N/A	CLK_PM_EN	GEN3_EN
PS_2	N/A	VGA_DIS	BIOS_ROM_EN	N/A	N/A
PS_3	AUD_PINSTRAP[2]	AUD_PINSTRAP[1]	BOARD_CONFIG[2]	BOARD_CONFIG[1]	BOARD_CONFIG[0]

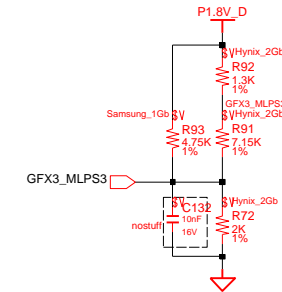
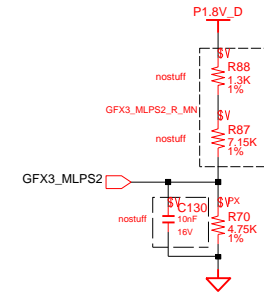
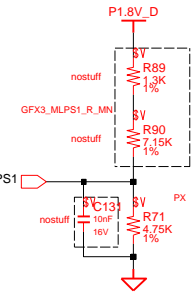
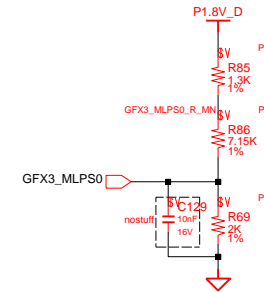
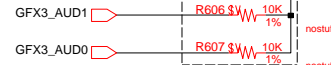
CAPACITOR	Bits[5:4]
680	00
82	01
10	10
NC	11

PULL UP	PULL DOWN	Bits[3:1]
NC	4750	000
8450	2000	001
4530	2000	010
6980	4990	011
4530	4990	100
3240	5620	101
3400	10000	110
4750	NC	111

Straps

ROM_CONFIG[2:0] If BIOS_ROM_EN=1, ROM type If BIOS_ROM_EN=0, Memory Aperture Size 000 : 128MB 001 : 256MB 010 : 64MB 011 : Reserved	BIOS_ROM_EN 0 : External BIOS ROM disabled 1 : External BIOS ROM enabled
AUD_PINSTRAP[2:0] 111 : No endpoints 110 : One endpoint 101 : Two endpoints 100 : Three endpoints 011 : Four endpoints 010 : Five endpoints 001 : Six endpoints 000 : All endpoints	TX_FULL_SWING 0 : 50% TX output swing => Low loss interconnection 1 : Full TX output swing
BOARD_CONFIG[2:0] Used for board configuration (eg: Different Memory Vendors) If don't use : 000	TX_DEEMPH_EN 0 : TX DE-EMPHASIS disabled (eg. on-board) 1 : TX DE-EMPHASIS enabled (eg. MXM)
	GEN3_EN 0 : 5.0GT/s capable for PCIe DEVICE 1 : 8.0GT/s capable for PCIe DEVICE
	CLK_PM_EN 0 : CLKREQB Power management disabled 1 : CLKREQB Powermanagement enabled
	VGA_DIS 0 : VGA Controller capacity enabled 1 : Not recognized as VGA contoller

AUD[1:0] (Internal P/D)
00 : No Audio Function
01 : Audio for DisplayPort only
10 : Audio for DisplayPort and HDMI if dongle is detected
11 : Audio for Both Display & HDMI

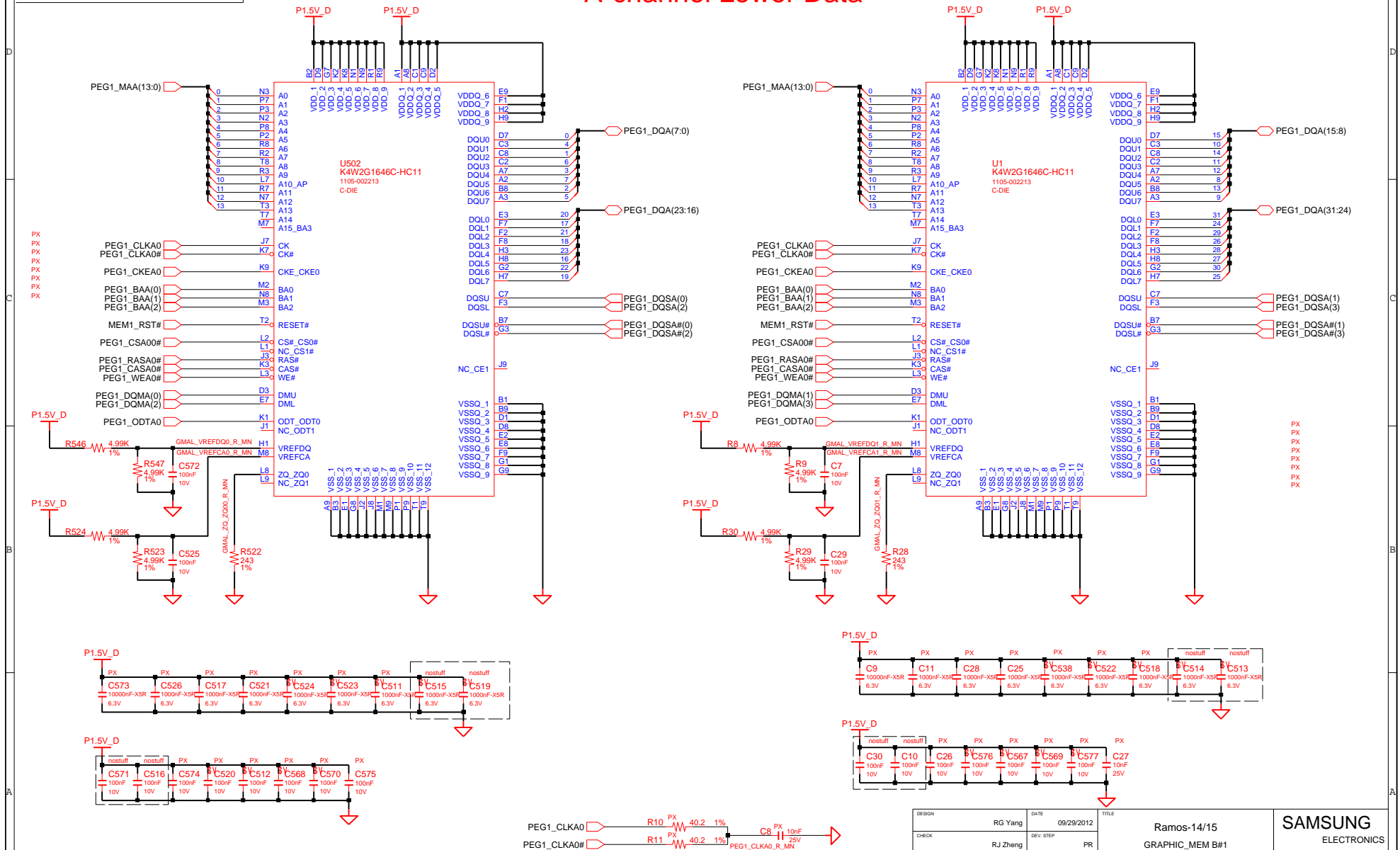


MEMID:
Hynix_2Gbit:001
Samsung_1Gbit:111

DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG
CHECK	RJ Zheng	DEV. STEP	PR		GRAPHIC STRAP	ELECTRONICS
APPROVAL	BL Lee	REV	REV 1.0			PART NO. BA41-*****A
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM	PAGE	25	OF 53

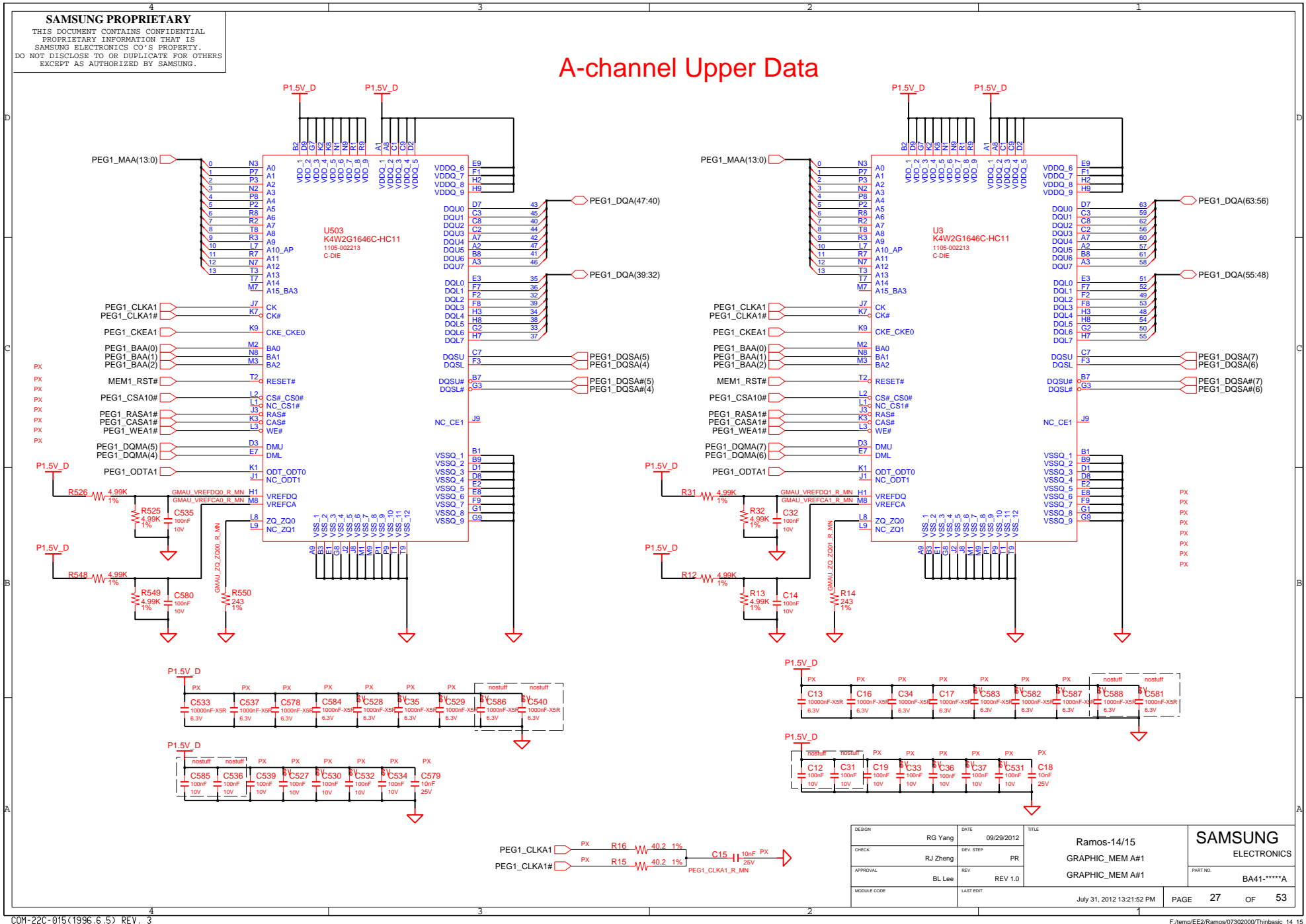
A-channel Lower Data

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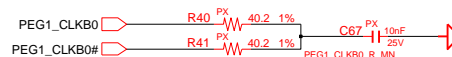
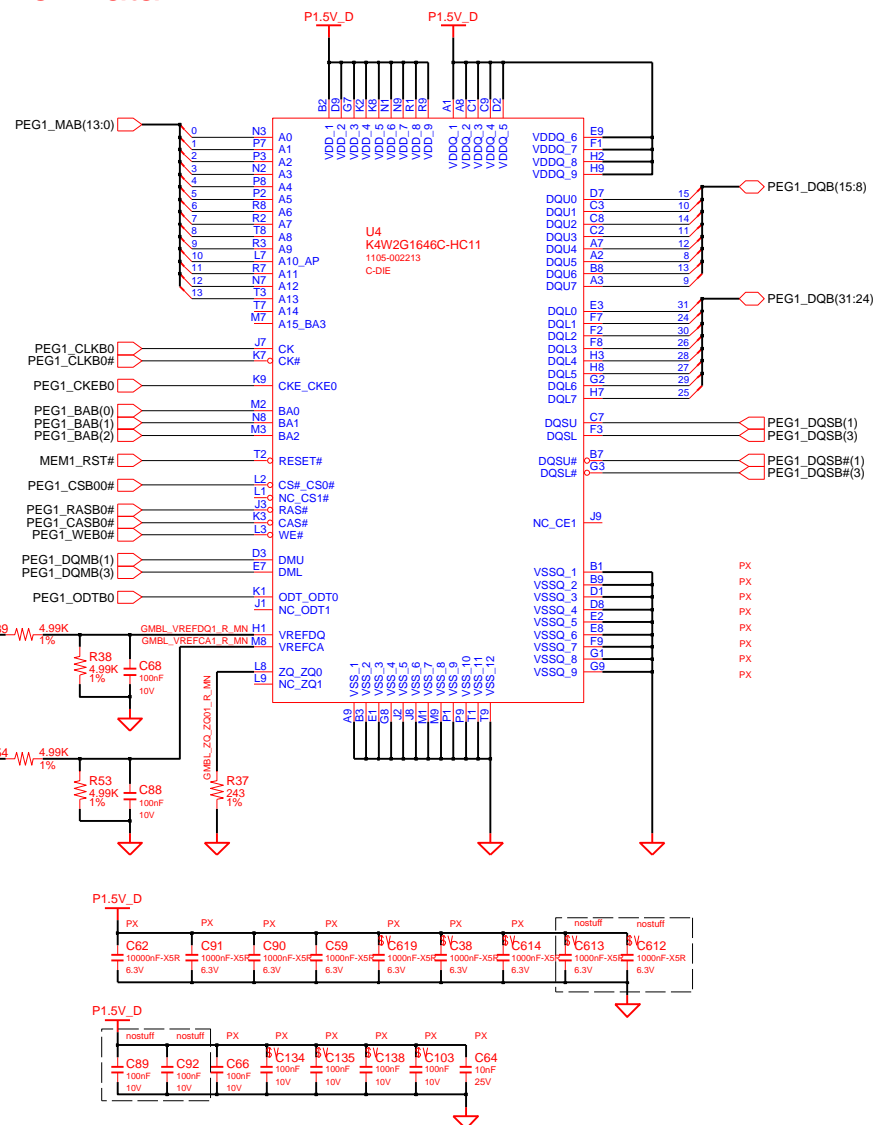
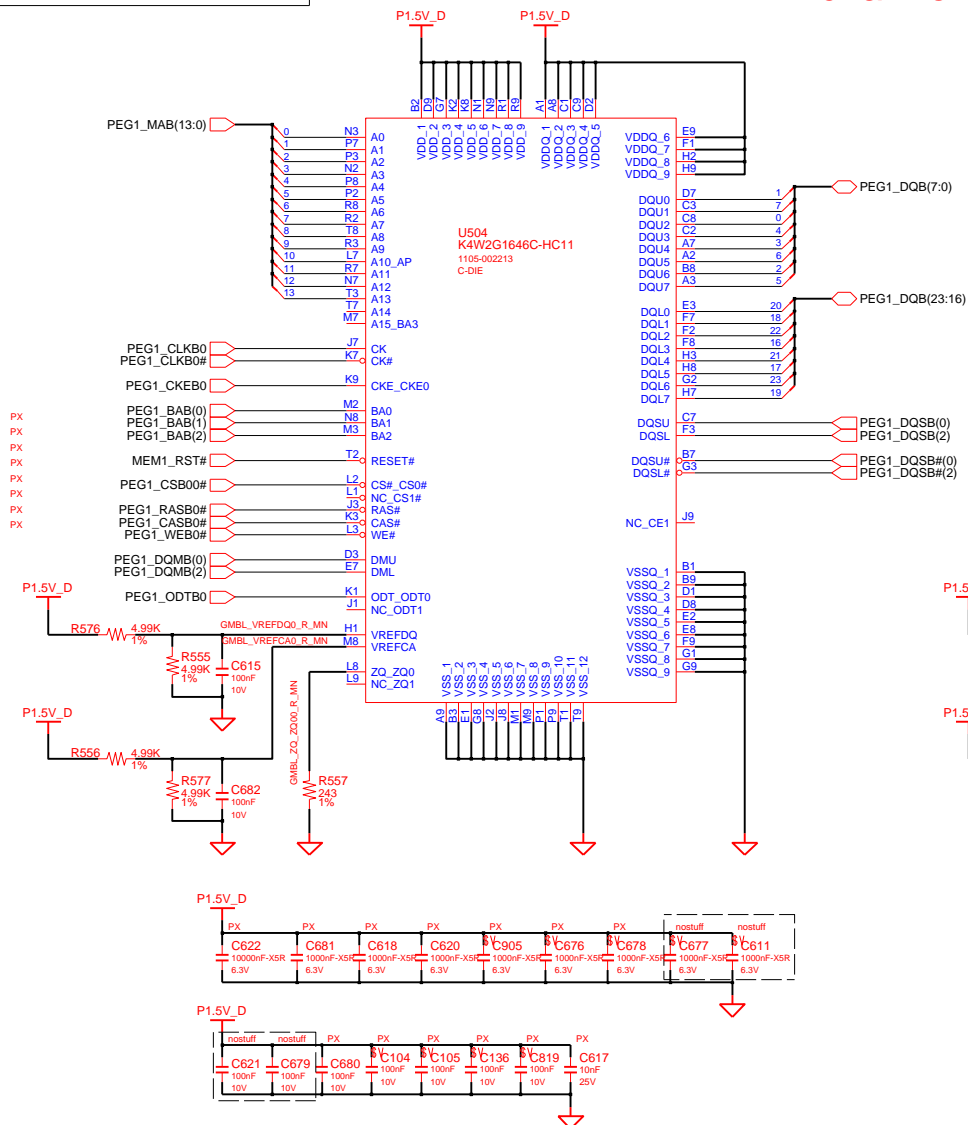
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CHECK	RJ Zheng	DEV. STEP	PR		GRAPHIC_MEM B#1	
APPROVAL	BL Lee	REV	REV 1.0			PART NO. BA41-*****A
MODULE CODE	undefined	LAST EDIT			July 31, 2012 13:21:52 PM	PAGE 26 OF 53

A-channel Upper Data

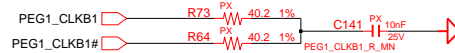
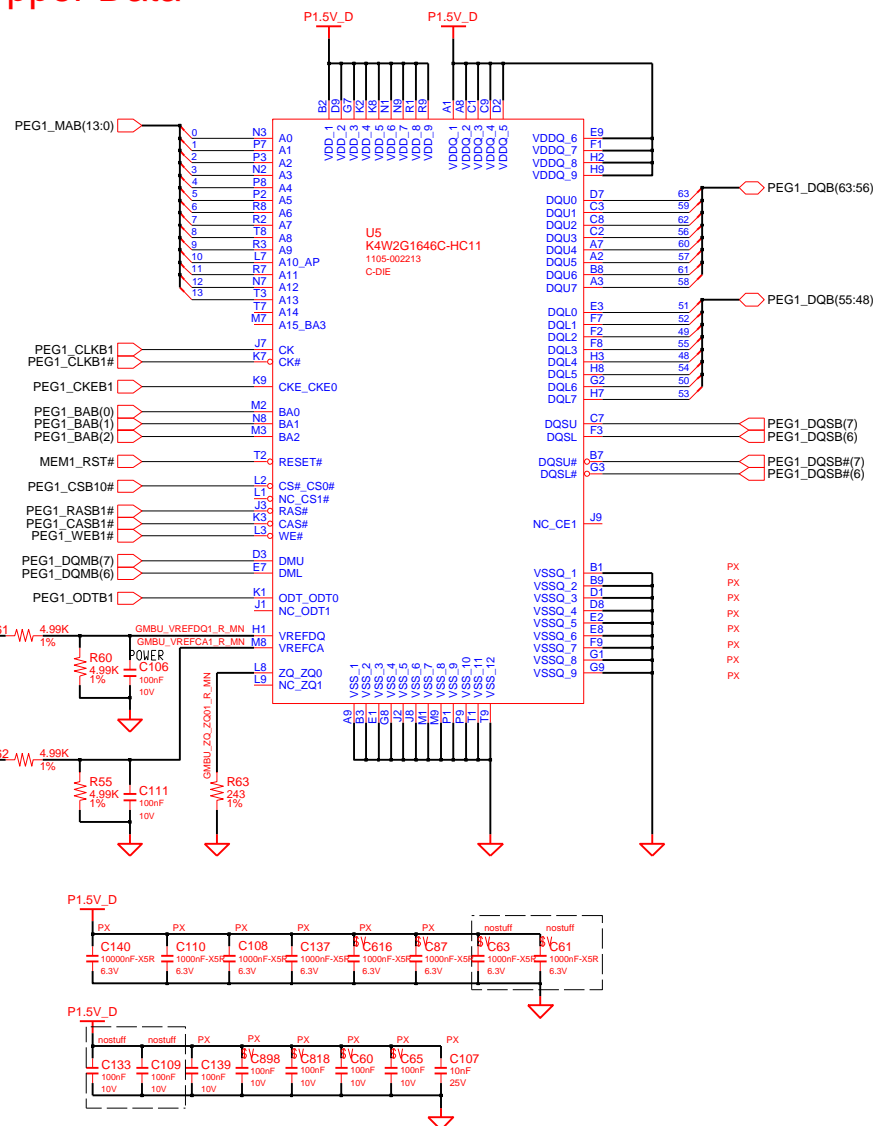


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B-channel Lower Data



DESIGN	RG Yang	DATE	09/29/2012	Ramos-14/15 GRAPHIC_MEM B#0 GRAPHIC_MEM B#0	SAMSUNG ELECTRONICS	
CHECK	RJ Zheng	DEV. STEP	PR			
APPROVAL	BL Loe	REV	REV 1.0		PART NO.	BA41-*****A
MODULE CODE	LAST EDIT				July 31, 2012 13:21:52 PM	PAGE 28 OF 53

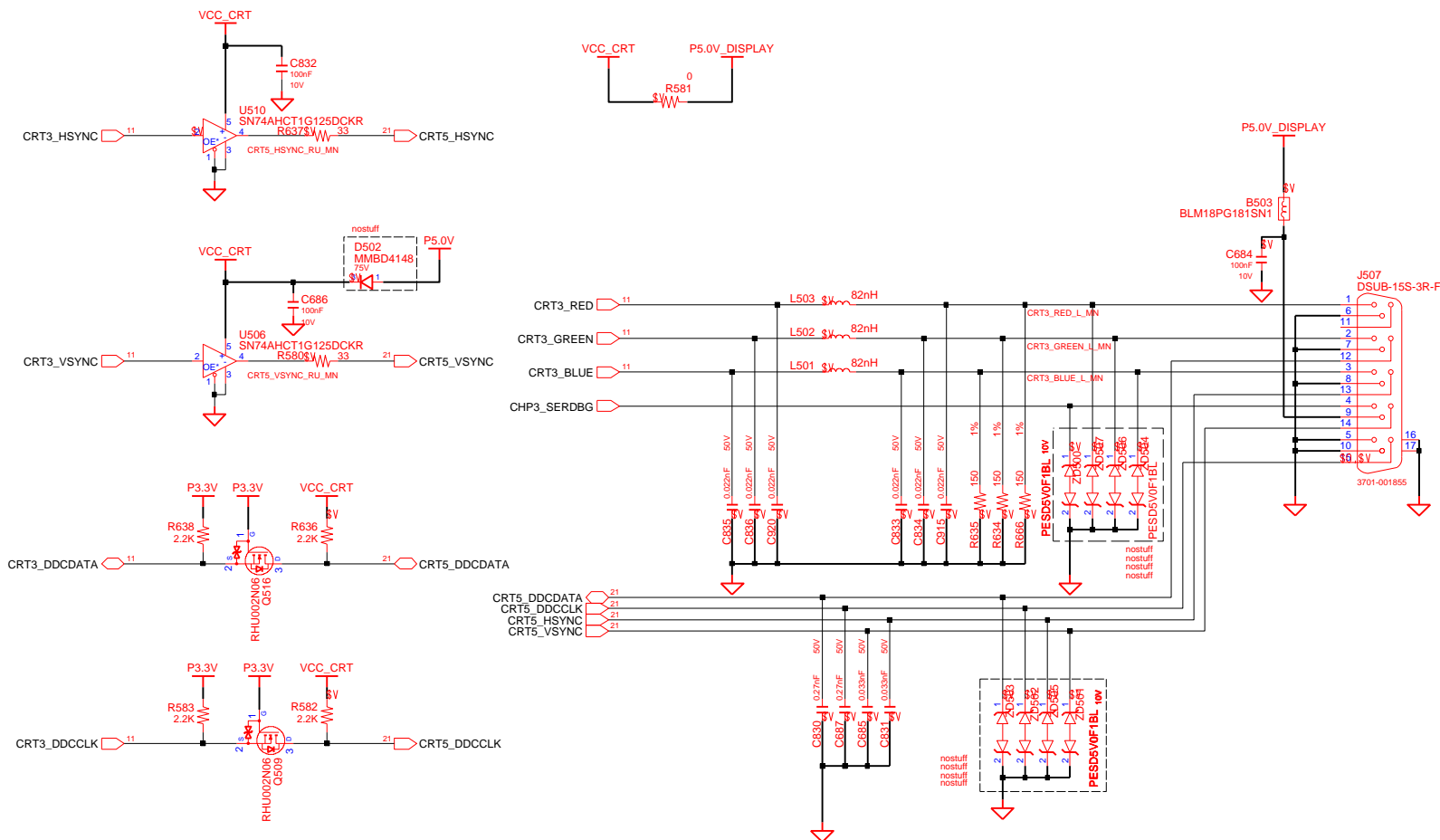


DESIGN	RG Yang	DATE	09/29/2012	Ramos-14/15 GRAPHIC_MEM B#1 GRAPHIC_MEM B#1	SAMSUNG ELECTRONICS	
CHECK	RJ Zheng	DEV. STEP	PR		PART NO.	BA41-*****A
APPROVAL	BL Lee	REV	REV 1.0			
MODULE CODE	LAST EDIT		July 31, 2012 13:21:52 PM		PAGE	29 OF 53

VGA

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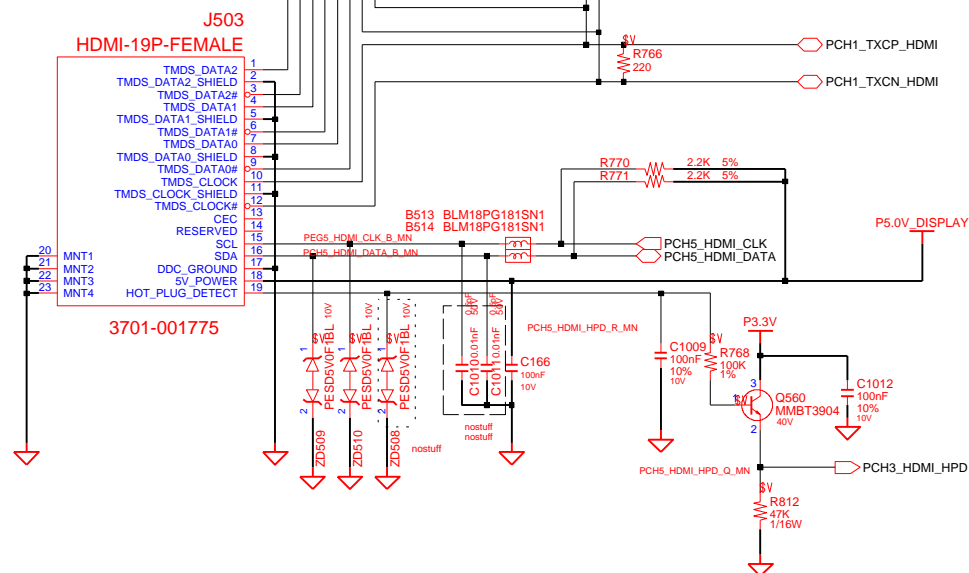
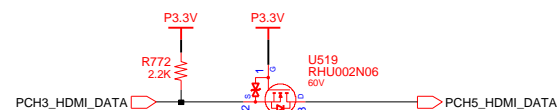
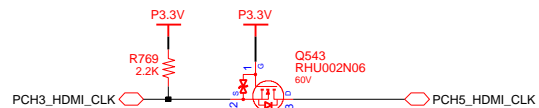
VGA




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

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

FOR HDMI VERIFICATION TEST



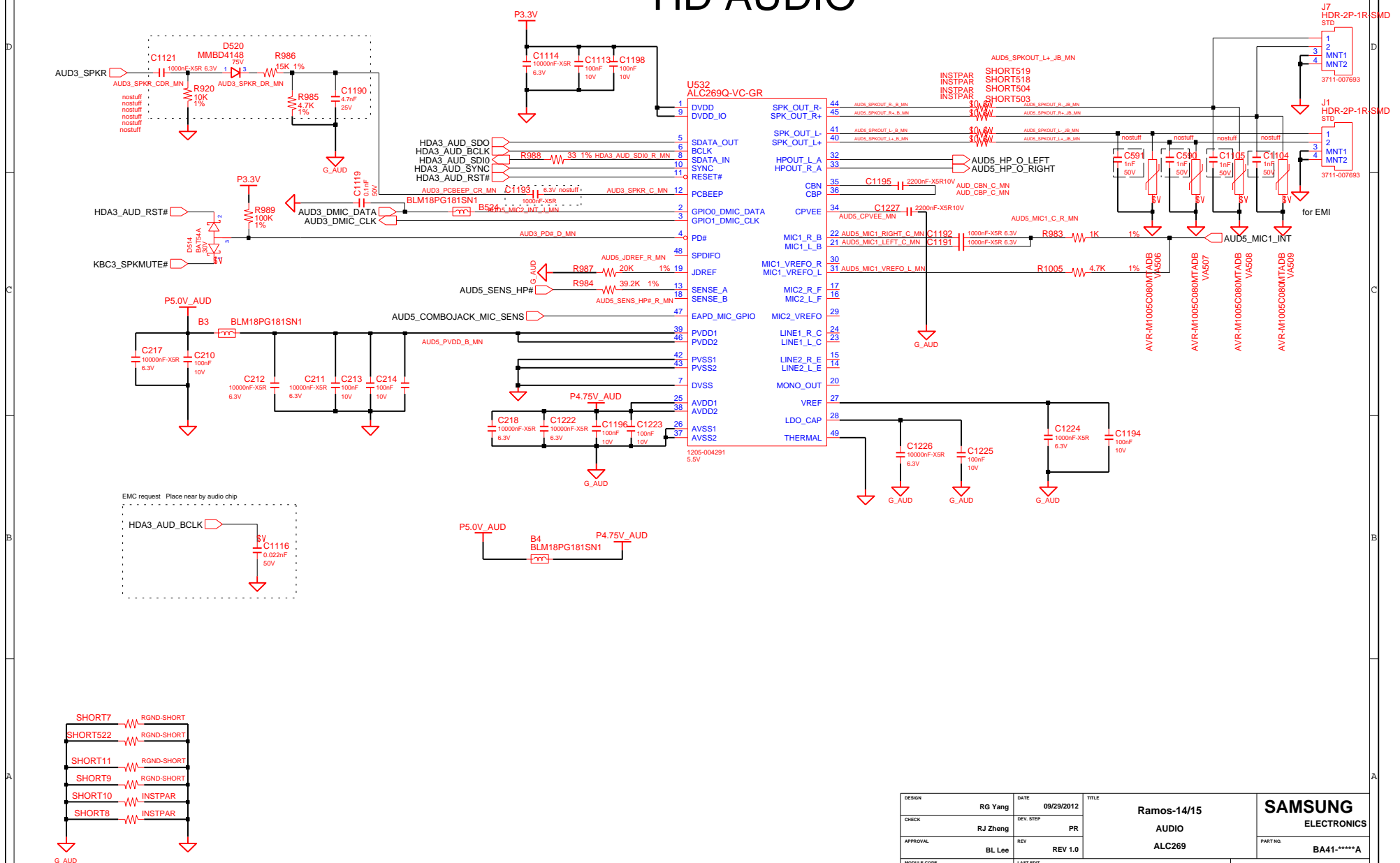
N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15			
CHECK	RJ Zheng	DEV. STEP	PR	GRAPHICS_IF				
APPROVAL	BL Lee	REV	REV 1.0	HDMI				PART NO. BA41-*****A
MODULE CODE	LAST EDIT			July 31, 2012 13:21:52 PM		PAGE	32	OF 53

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HD AUDIO



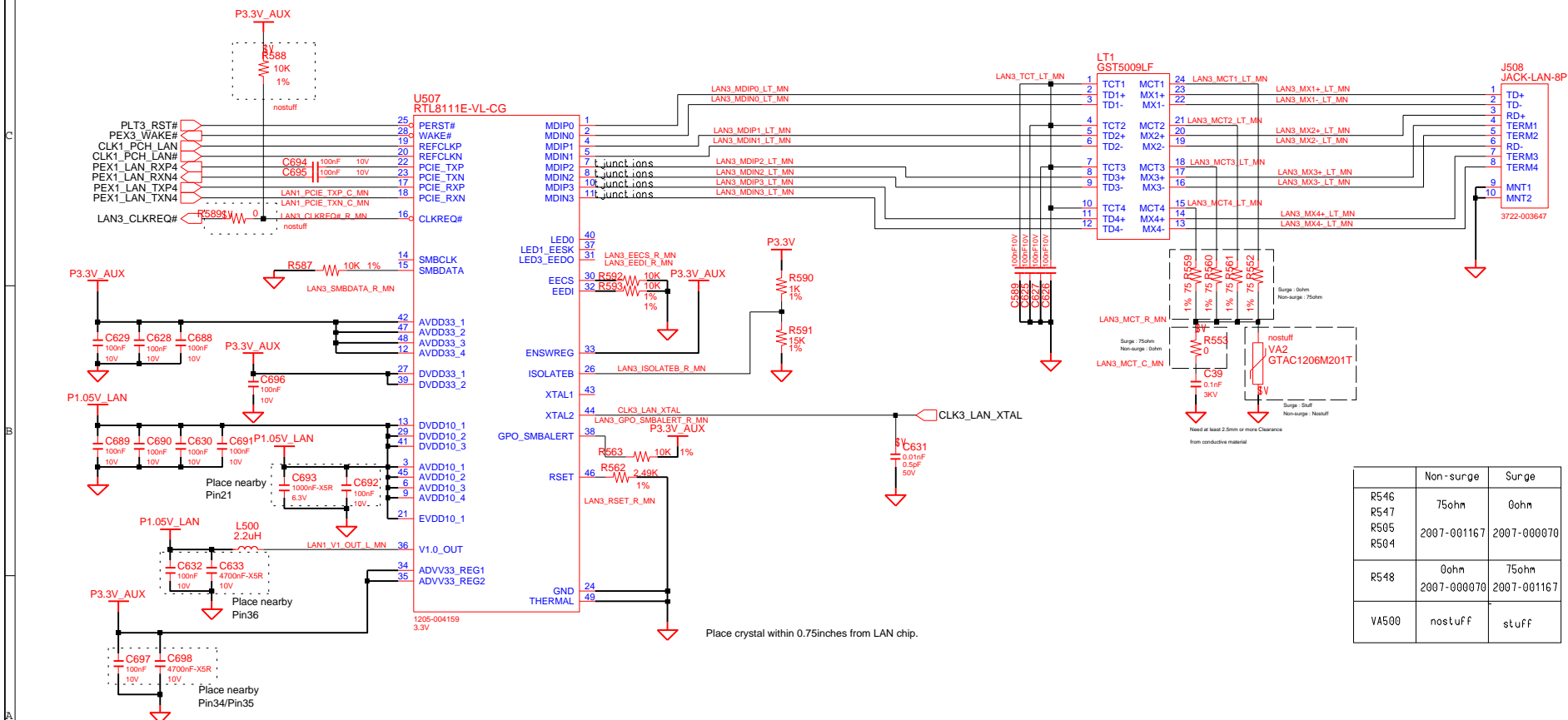
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CHECK	RJ Zheng	DEV. STEP	PR		AUDIO	
APPROVAL	BL Lee	REV	REV 1.0		ALC269	
MODULE CODE		LAST EDIT				
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COM-22C-015(1996.6.5) REV. 3

Realtek RTL8111E (GigaBit)



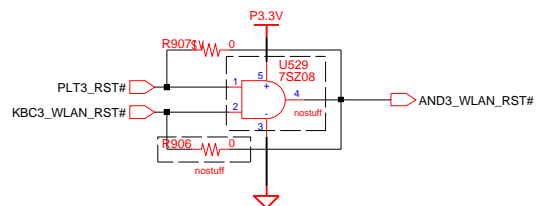
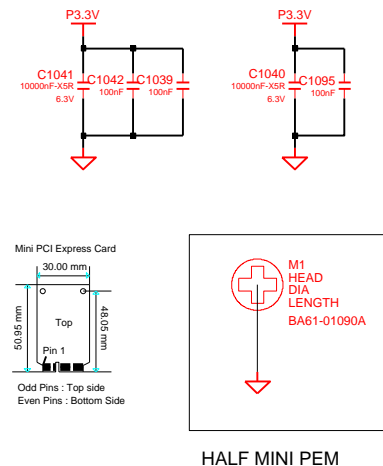
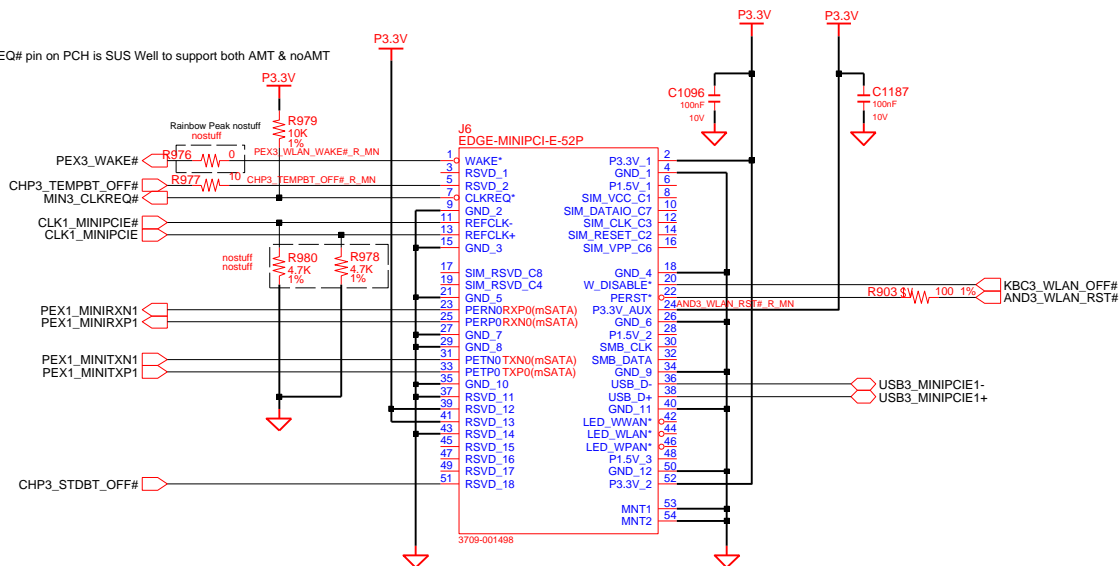
DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15 LAN LAN_Realtek_RTL8111E)	SAMSUNG ELECTRONICS	
CHECK	RJ Zheng	DEV. STEP	PR				PART NO.
APPROVAL	BL Lee	REV	REV 1.0				BA41-*****A
MODULE CODE	LAST EDIT						July 31, 2012 13:21:52 PM

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WLAN

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



DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR		WLAN	
APPROVAL	BL Lee	REV	REV 1.0		WLAN	
MODULE CODE		LAST EDIT		July 31, 2012 13:21:52 PM	PAGE 36 OF 53	PART NO. BA41-*****A

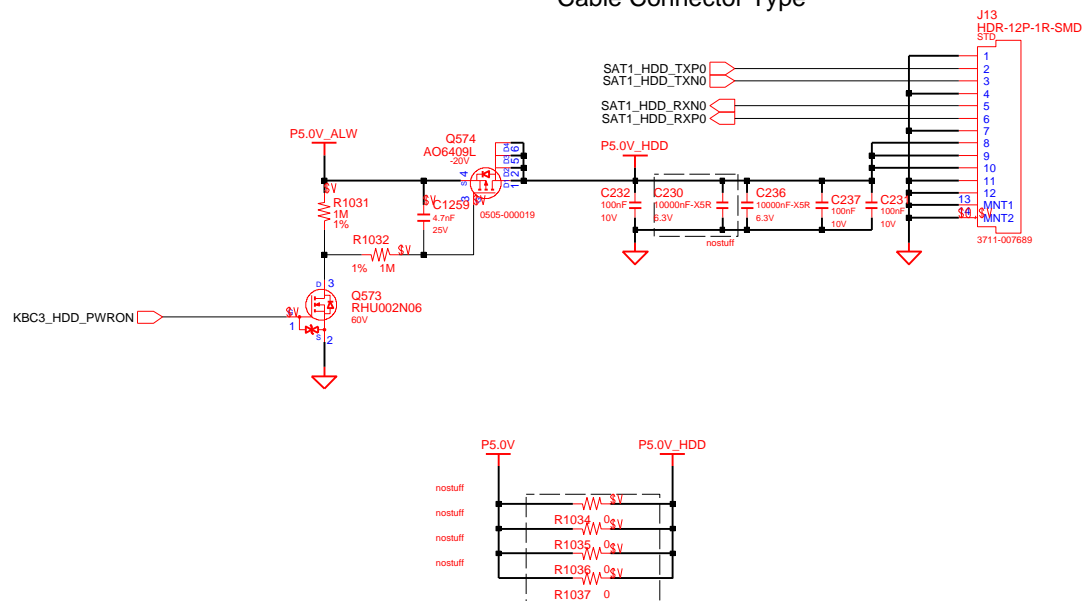
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SATA I/F CONN

SATA HDD CONN

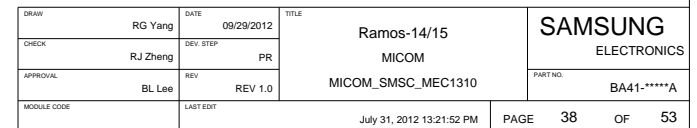
Cable Connector Type



www.teknisi-indonesia.com

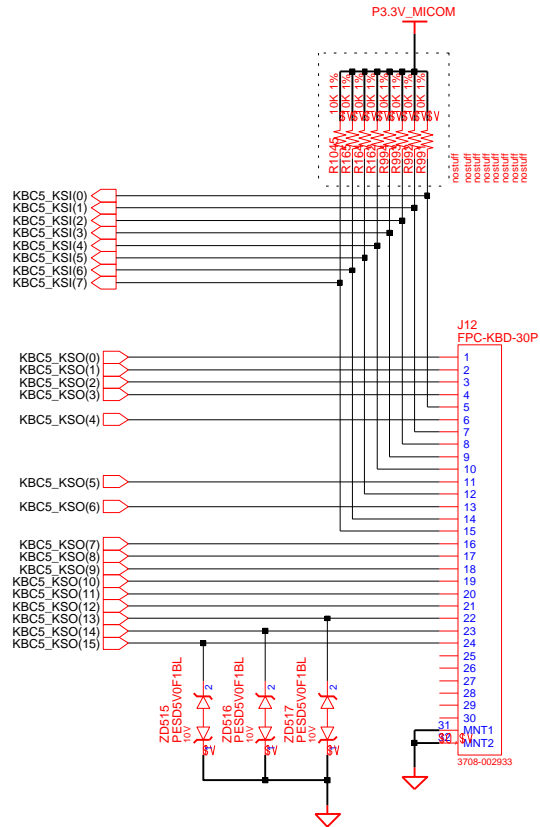
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CHECK	RJ Zheng	DEV. STEP	PR		SATA I/F	
APPROVAL	BL Lee	REV	REV 1.0		SATA I/F	
MODULE CODE		LAST EDIT		July 31, 2012 13:21:52 PM	PAGE 37 OF 53	PART NO. BA41-*****A

MAIN BOARD (MICOM)

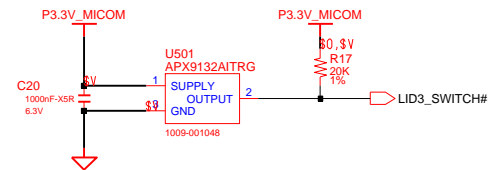


Micom Glue

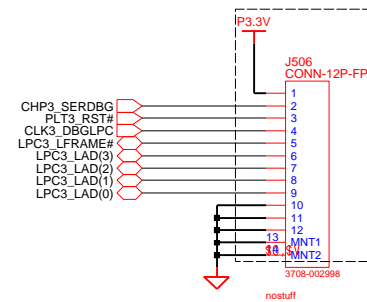
KEYBOARD



LID3_SWITCH



80H PORT DEBUG

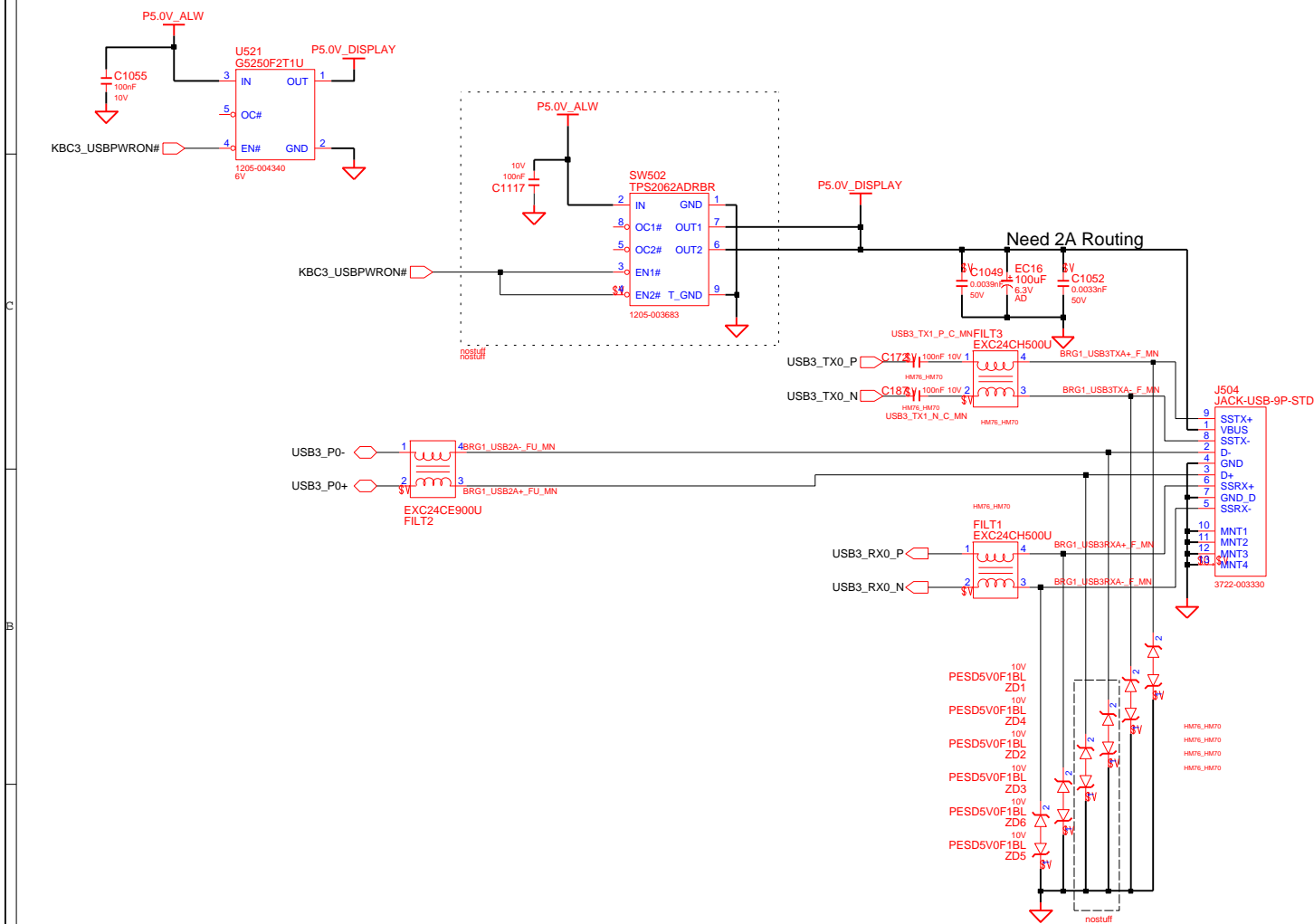


DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR		MICOM	
APPROVAL	BL Lee	REV	REV 1.0		MICOM GLUE LOGIC	PART NO. BA41-*****A
MODULE CODE		LAST EDIT		July 31, 2012 13:21:52 PM	PAGE 39 OF 53	

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USB 3.0 CONNECTOR



PCH	J504 P/N
HM76/HM70	3722-003330
NM70	3722-003302

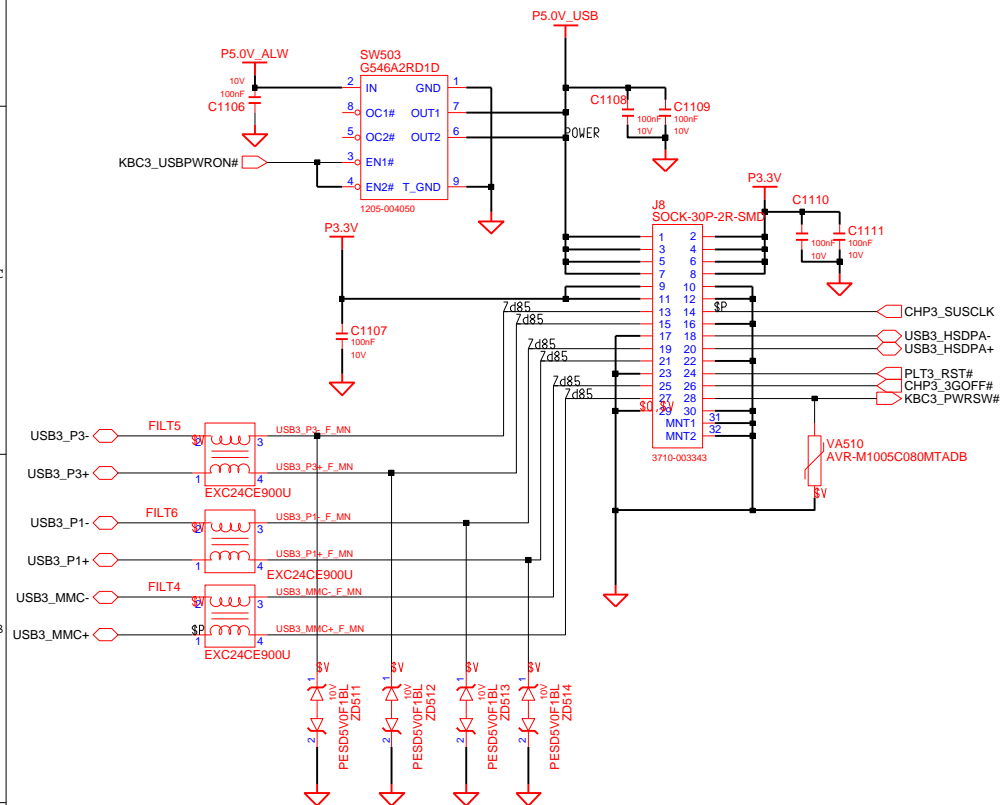
DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PR		USB3.0	
APPROVAL	BL Lee	REV	REV 1.0		USB 3.0 CONNECTOR	
MODULE CODE		LAST EDIT		July 31, 2012 13:21:52 PM		
					PAGE 40 OF 53	

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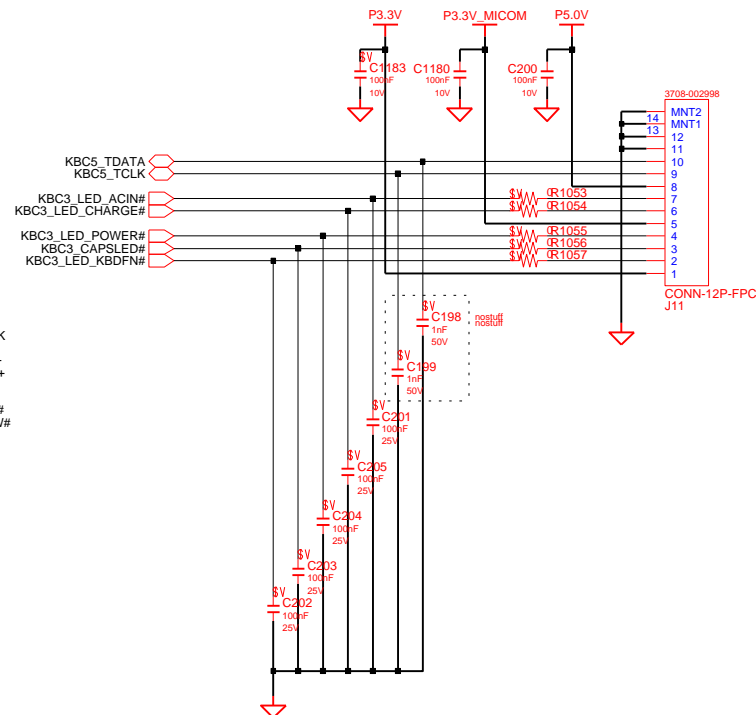
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MAIN TO SUB

MAIN to 3-in-1 / USB SUB



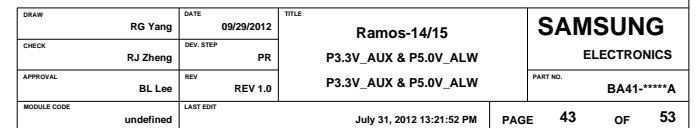
TOUCHPAD & LED MAIN TO SUB



DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS PART NO. BA41-*****A
CHECK	RJ Zheng	DEV. STEP	PR		SUB BOARD CONNECTOR	
APPROVAL	BL Lee	REV	REV 1.0		MAIN TO SUB	
MODULE CODE		LAST EDIT				
				July 31, 2012 13:21:52 PM	PAGE 41 OF 53	

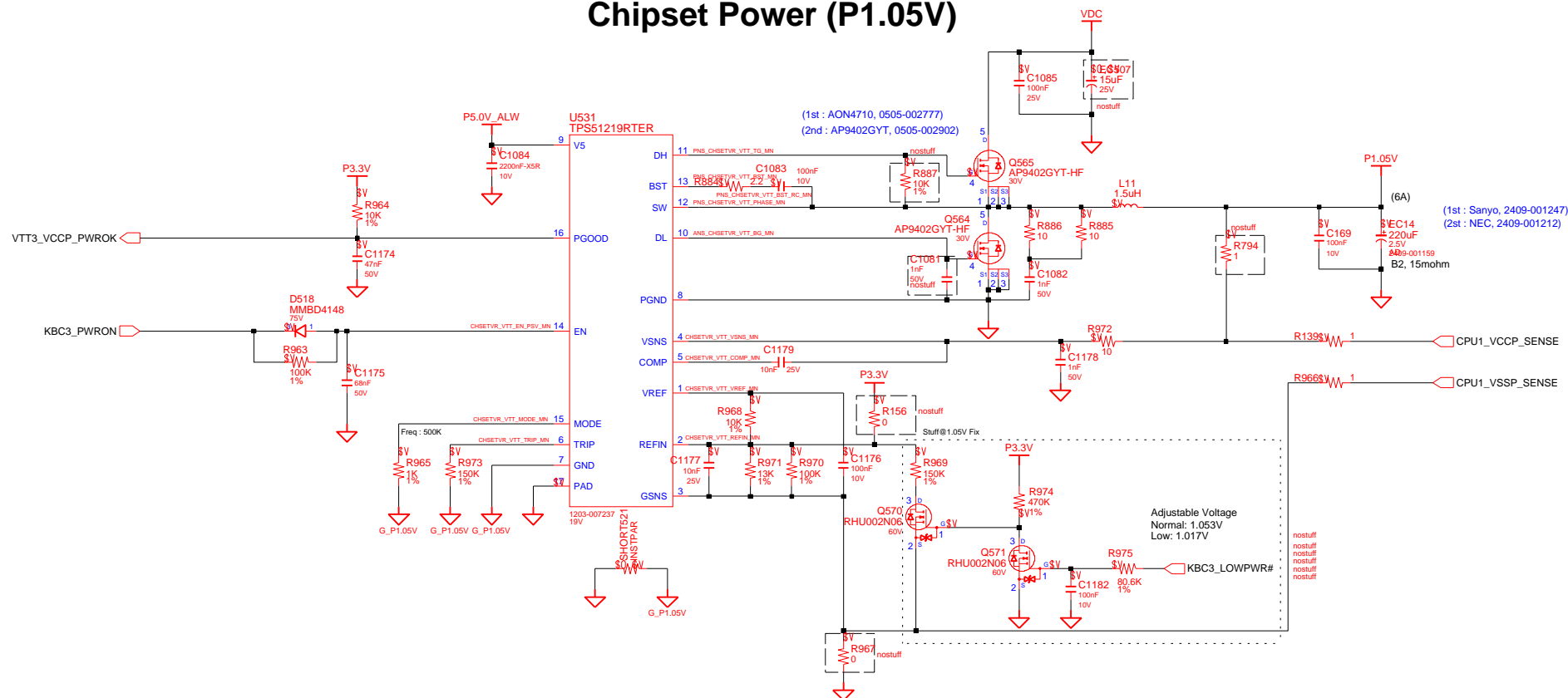
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P3.3V AUX & P5.0V ALW



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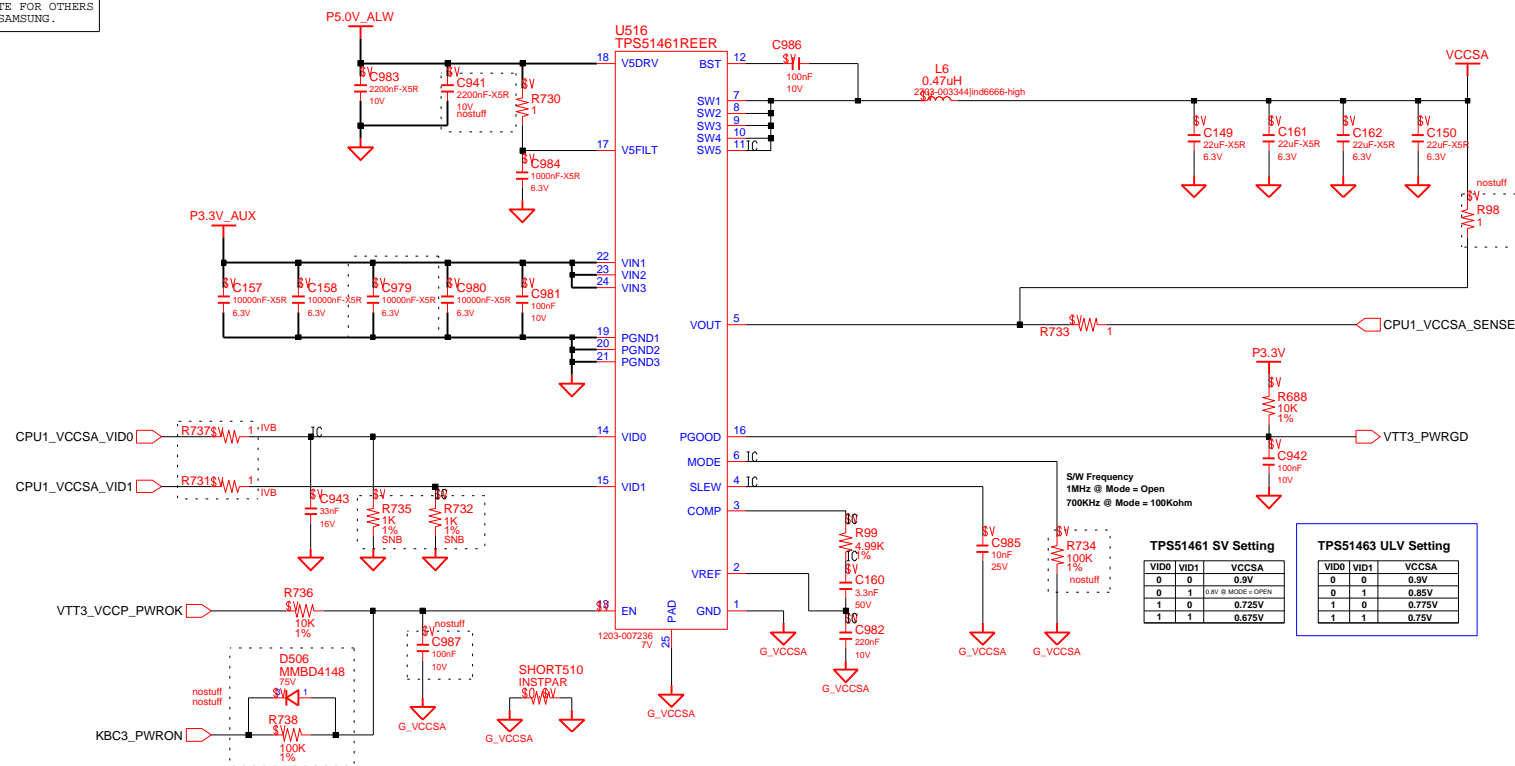
Chipset Power (P1.05V)



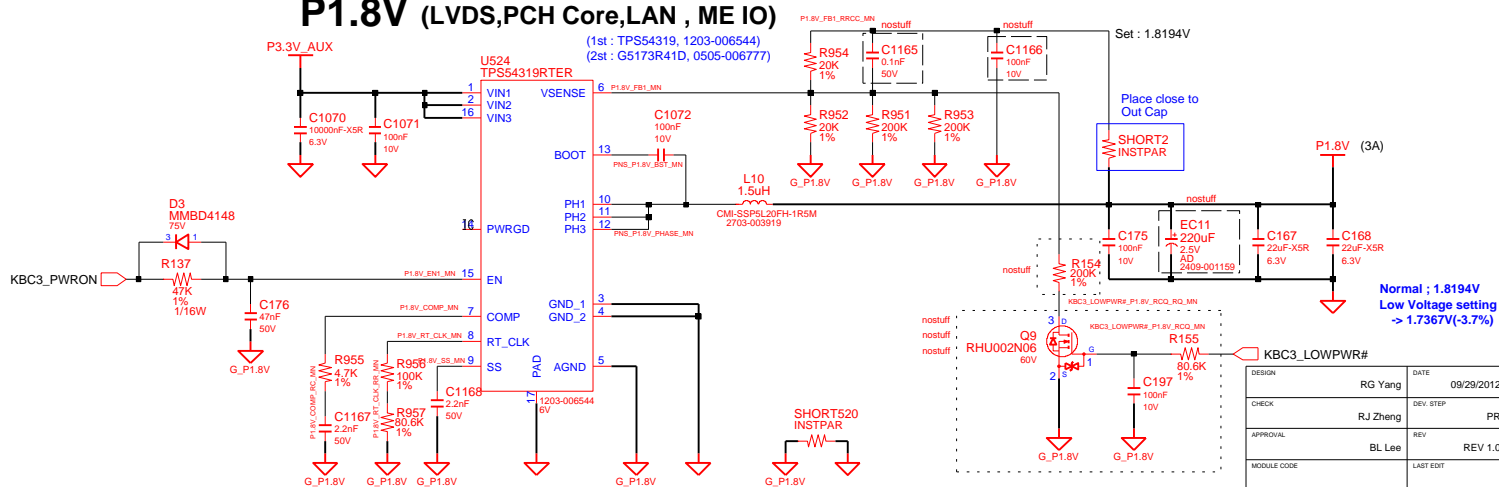
DESIGN	RG Yang	DATE	09/29/2012	Ramos-14/15 CHIPSET PWR P1.05V	SAMSUNG ELECTRONICS	
CHECK	RJ Zheng	DEV. STEP	PR			
APPROVAL	BL Lee	REV	REV 1.0			
MODULE CODE	LAST EDIT			July 31, 2012 13:21:52 PM	PAGE	44 OF 53

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CHIPSET POWER(VCCSA)



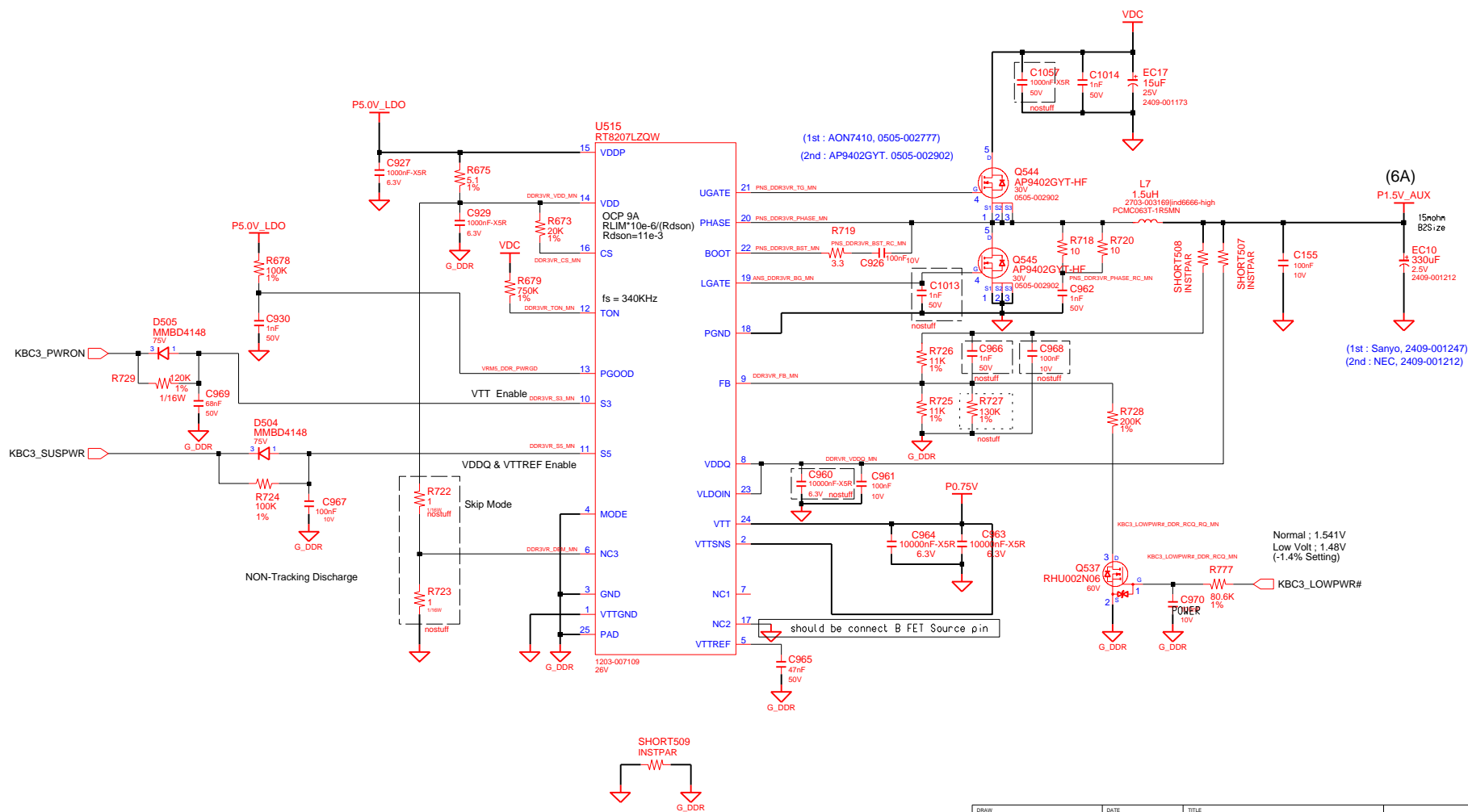
P1.8V (LVDS,PCH Core,LAN , ME IO)



DESIGN	RG Yang	DATE	09/29/2012	TITLE Ramos-14/15 VCCSA VCCSA	SAMSUNG ELECTRONICS
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 45 OF 53	PART NO. BA41-*****A

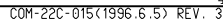
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DDR3 Power



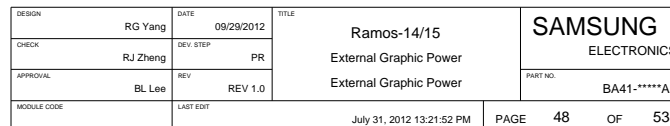
DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15		SAMSUNG	
CHECK	RJ Zheng	DEV. STEP	PR	P1.05V		ELECTRONICS		
APPROVAL	BL Lee	REV	REV 1.0	VT386FCX		PART NO.	BA41-*****A	
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM			PAGE	46	OF 53

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Boot Voltage	
Mars-Pro:	0.9V
Mars-XT:	0.9V

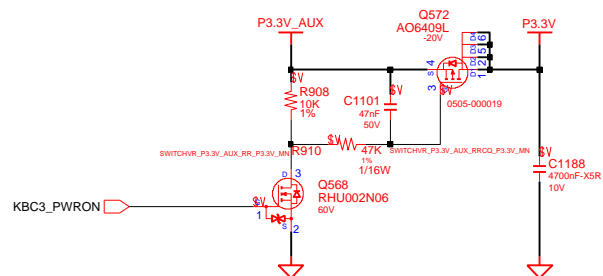


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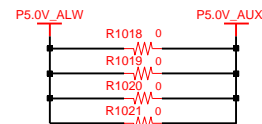
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Switched Power

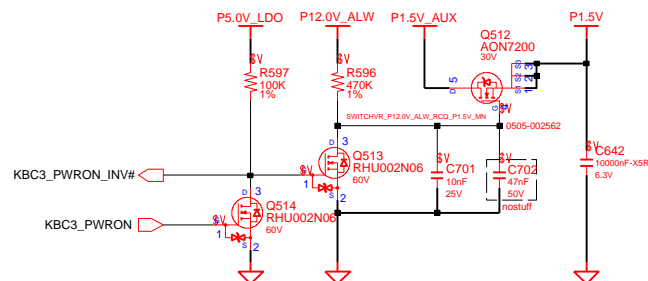
Switched Power On (P3.3V) Multi@AP2607GY



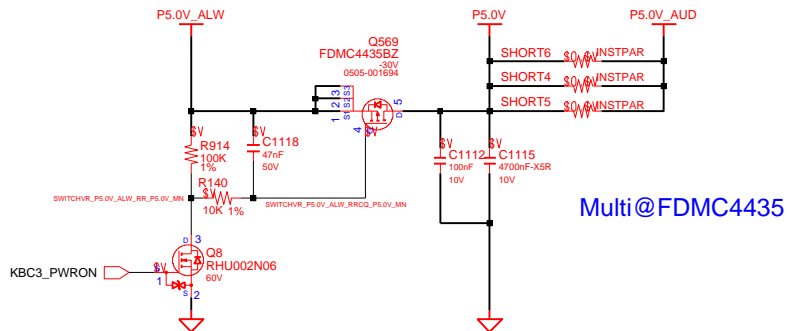
P5.0V_AUX



Switched Power On (P1.5V)



Switched Power On (P5.0V)



Multi@FDMC4435

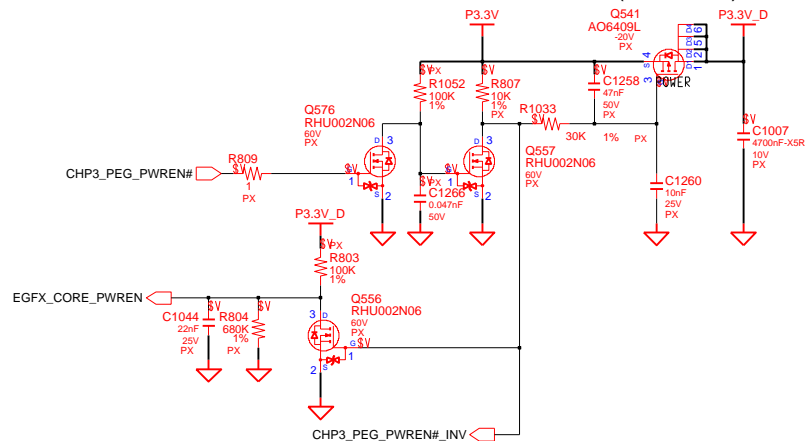
DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG
CHECK	RJ Zheng	DEV. STEP	PR	PWR_MV_SWITCHED	ELECTRONICS	
APPROVAL	BL Lee	REV	REV 1.0	SWITCHED POWER	PART NO.	BA41-*****A
MODULE CODE		LAST EDIT	July 31, 2012 13:21:52 PM	PAGE	49	OF 53

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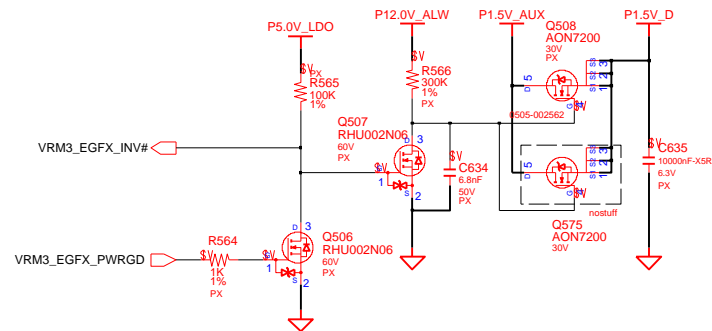
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Switched Power 2

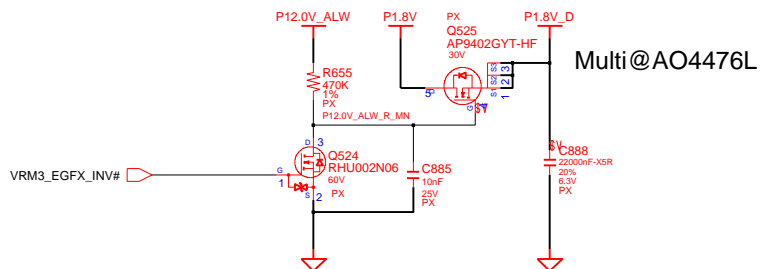
Discrete Switched Power (P3.3V_D)



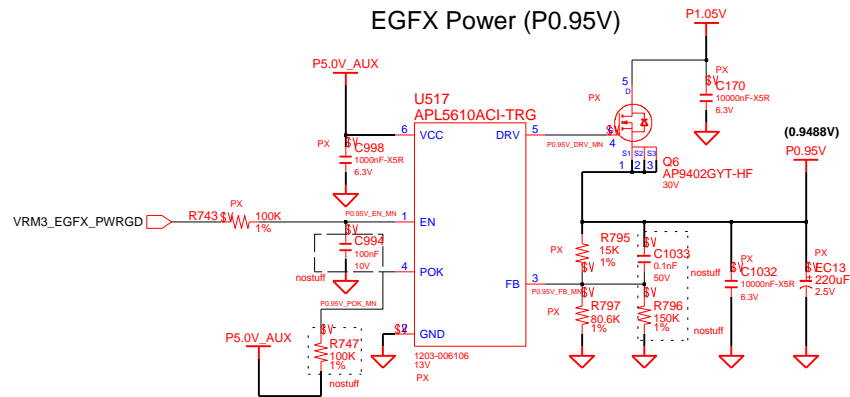
Discrete Switched Power (P1.5V_D : MAX 5.3A)



Discrete Switched Power (P1.8V_D : Max 3.6A)

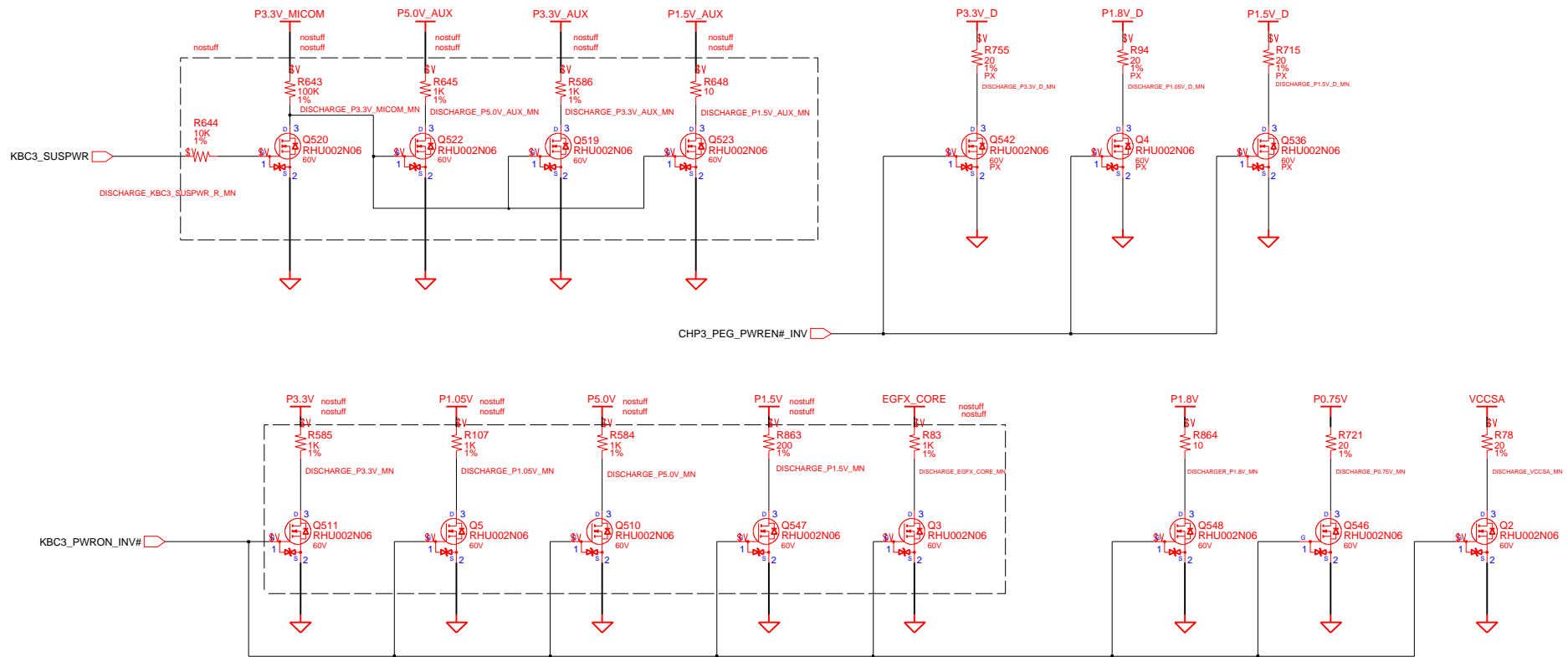


EGFX Power (P0.95V)



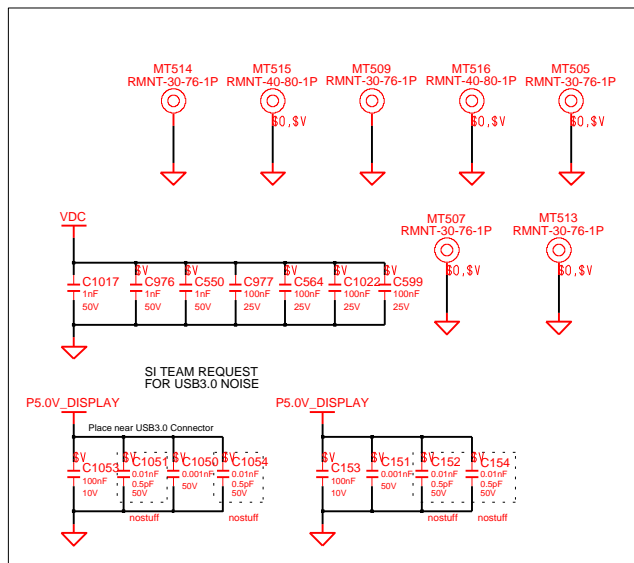
DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR		Switched PWR 2	
APPROVAL	BL Lee	REV	REV 1.0		Switched PWR 2	
MODULE CODE		LAST EDIT				
					July 31, 2012 13:21:52 PM	PAGE 50 OF 53

POWER DISCHARGER

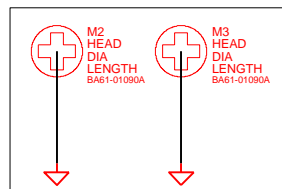
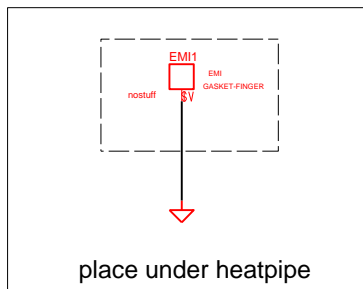


DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG
CHECK	RJ Zheng	DEV. STEP	PR		PWR_MV_DISCHARGER	ELECTRONICS
APPROVAL	BL Lee	REV	REV 1.0		DISCHARGING LOGIC	PART NO.
MODULE CODE	undefined	LAST EDIT	July 31, 2012 13:21:52 PM			BA41-*****A
				PAGE	51	OF 53

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

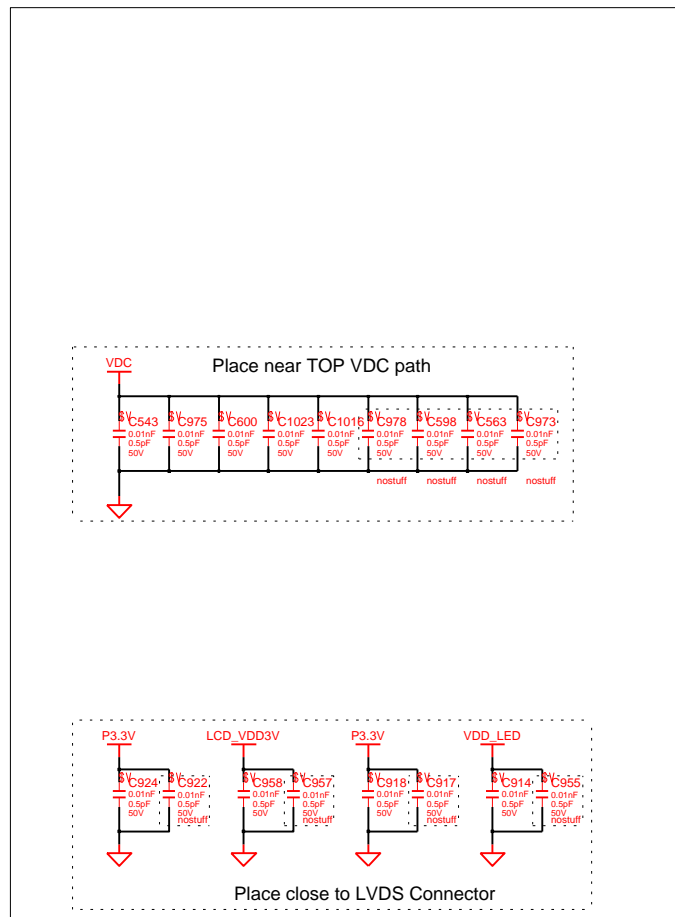


WLAN Performance issue

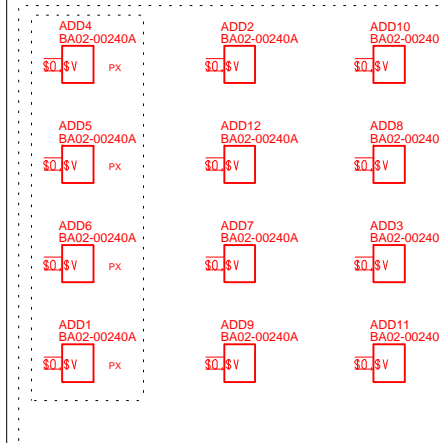


PCH mount

WLAN Performance issue



Corner Fill for CPU, PCH, GPU



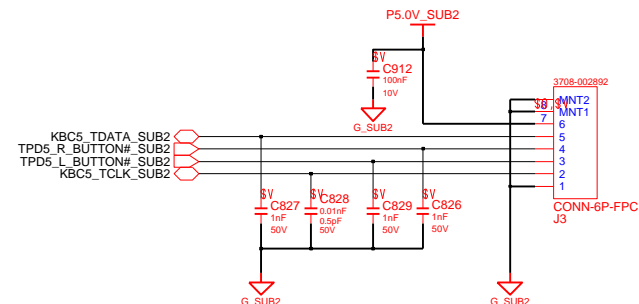
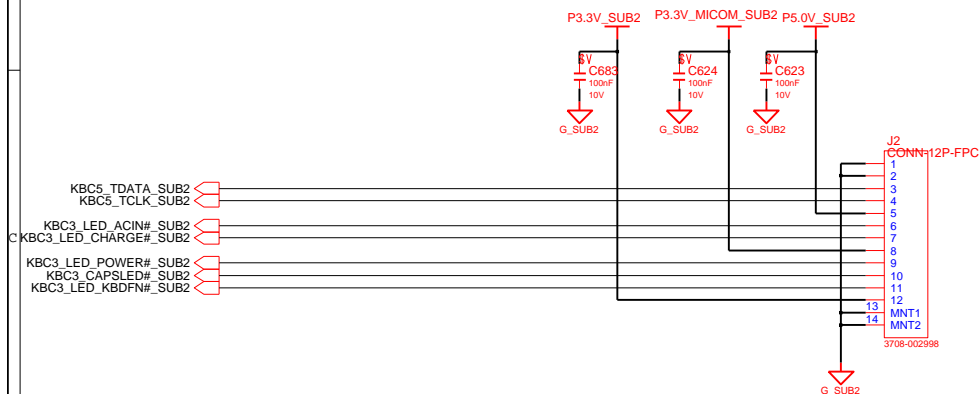
DESIGN	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR		MOUNT HOLE	
APPROVAL	BL Lee	REV	REV 1.0		MOUNT HOLE	
MODULE CODE		LAST EDIT				
				July 31, 2012 13:21:52 PM	PAGE 52 OF 53	PART NO. BA41-*****A

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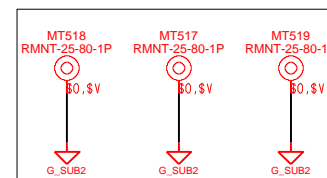
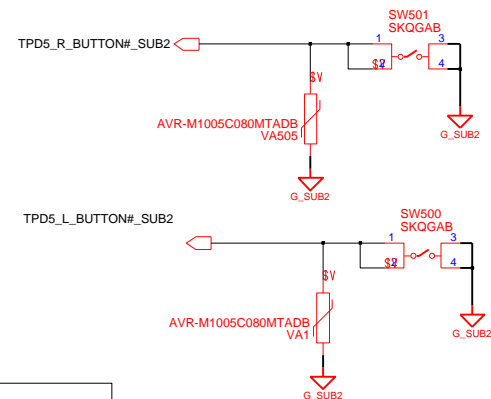
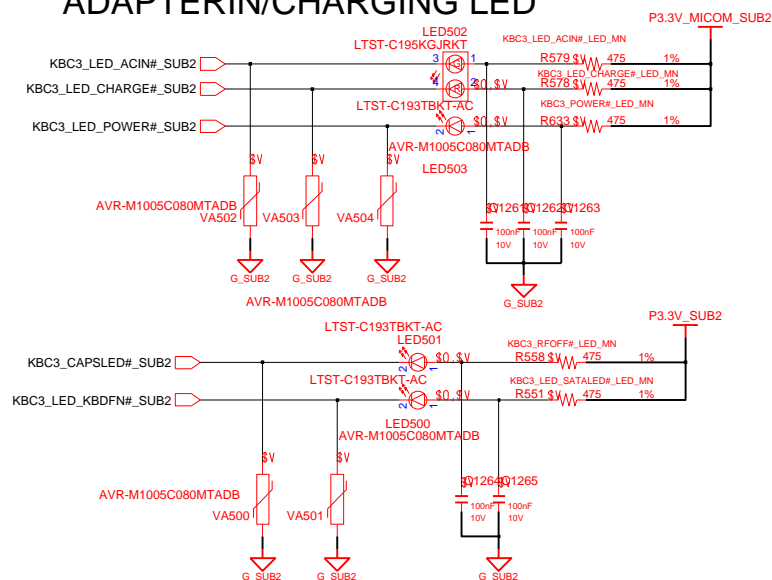
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TP SUB BOARD

TOUCHPAD



ADAPTERIN/CHARGING LED



DRAW	RG Yang	DATE	09/29/2012	TITLE	Ramos-14/15 SUB2 TOUCHPAD & LED	SAMSUNG ELECTRONICS
CHECK	RJ Zheng	DEV. STEP	PR			PART NO. BA41-*****A
APPROVAL	BL Lee	REV	REV 1.0			
MODULE CODE		LAST EDIT	July 31, 2012 13:21:52 PM	PAGE	53	OF 53