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Shark-R/Europa-R_14"/15"

CPU : Sandybridge BGA
Chip Set : Intel Cougar Point
GFX : N12P_LP/GV_Opt
INTEL HD 3000
Remarks : HuronRiver Platform

Model Name : Shark-R/Europa-R_14" / 15"

PBA Name : MAIN

PCB Code : BA41-01449A (GCE)
BA41-01450A (NY)
BA41-01451A (HAN)

Dev. Step : PR

Revision : 1.0

T.R. Date : 2010.12.18

Design	CHECK	APPROVAL

Owner : SEC Mobile R & D Signature : X

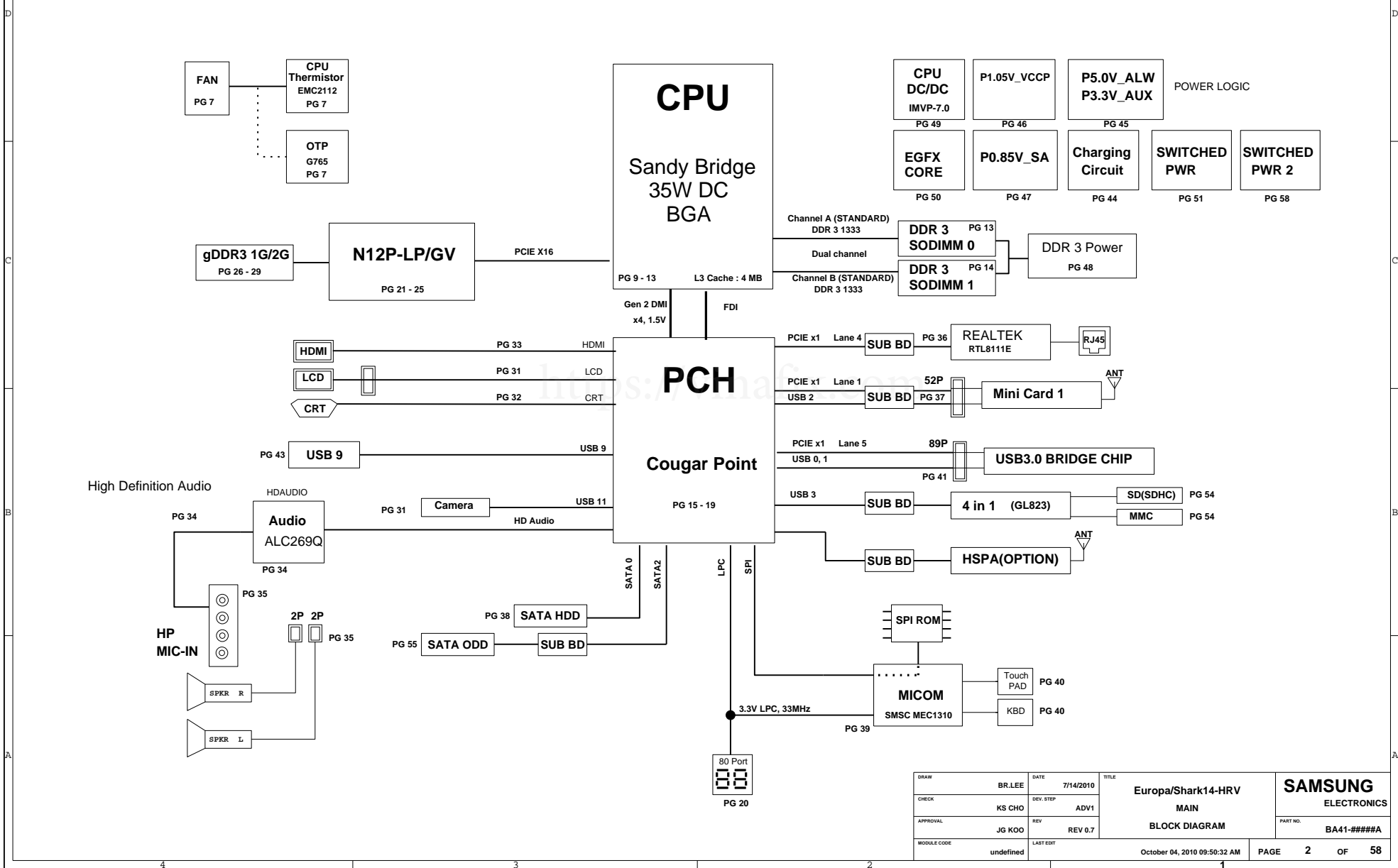
sheet01 : Cover
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sheet03 : BOARD INFORMATION
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sheet06 : Green Clock
sheet07 : Thermal Sensor
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sheet17 : PCH-CougarPoint (3/5)
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sheet29 : GFX memory
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sheet36 : LAN (Realtek RTL8111E)
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sheet39 : MICOM / BIOS
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sheet45 : Power - P3.3V_AUX / P5.0V_AUX
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sheet52 : Power - Power Discharge
sheet53 : USB/POWER SW SUB BD
sheet54 : 3-in-1 card (GL823) & LED SUB BOARD
sheet55 : ODD Sub B'd
sheet56 : Multimedia Sub B'd
sheet57 : Mount Hole
sheet58 : Power - Switched Power 2
sheet59 : Power - Switched Power for USB3.0

DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG
CHECK	KS CHO	DEV. STEP	ADV1	MAIN		ELECTRONICS
APPROVAL	JG KOO	REV	REV 0.7	COVER		PART NO. BA41-####A
MODULE CODE		LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	1	OF 58

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BLOCK DIAGRAM



DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS
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APPROVAL	JG KOO	REV	REV 0.7			
MODULE CODE	undefined	LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	2	OF 58

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 Microm) 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
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) S0
VCC_CORE EGF_X_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for COUGARPOINT S0

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 1	2	NC
2	Mini PCI Express (WLAN)	3	NC
3	Multi Memory Card Controller	4	LAN CONTROLLER
4	NC	5	USB3.0 BRIDGE
5	NC	6	NC
6	NC (N/A WITH HM65)	7	NC
7	NC (N/A WITH HM65)	8	NC
8	Mini PCI Express (HSPA)		
9	SYSTEM PORT 2		
10	NC		
11	Camera		
12	USIM		
13	NC		

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

Crystal / Oscillator			
TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	COUGAR POINT	Real Time Clock
Crystal	25MHz	LAN	REALTEK
Crystal	25MHz	COUGAR POINT	
Crystal	27MHz	N12P	
Crystal	24MHz	USB3.0 CHIP	

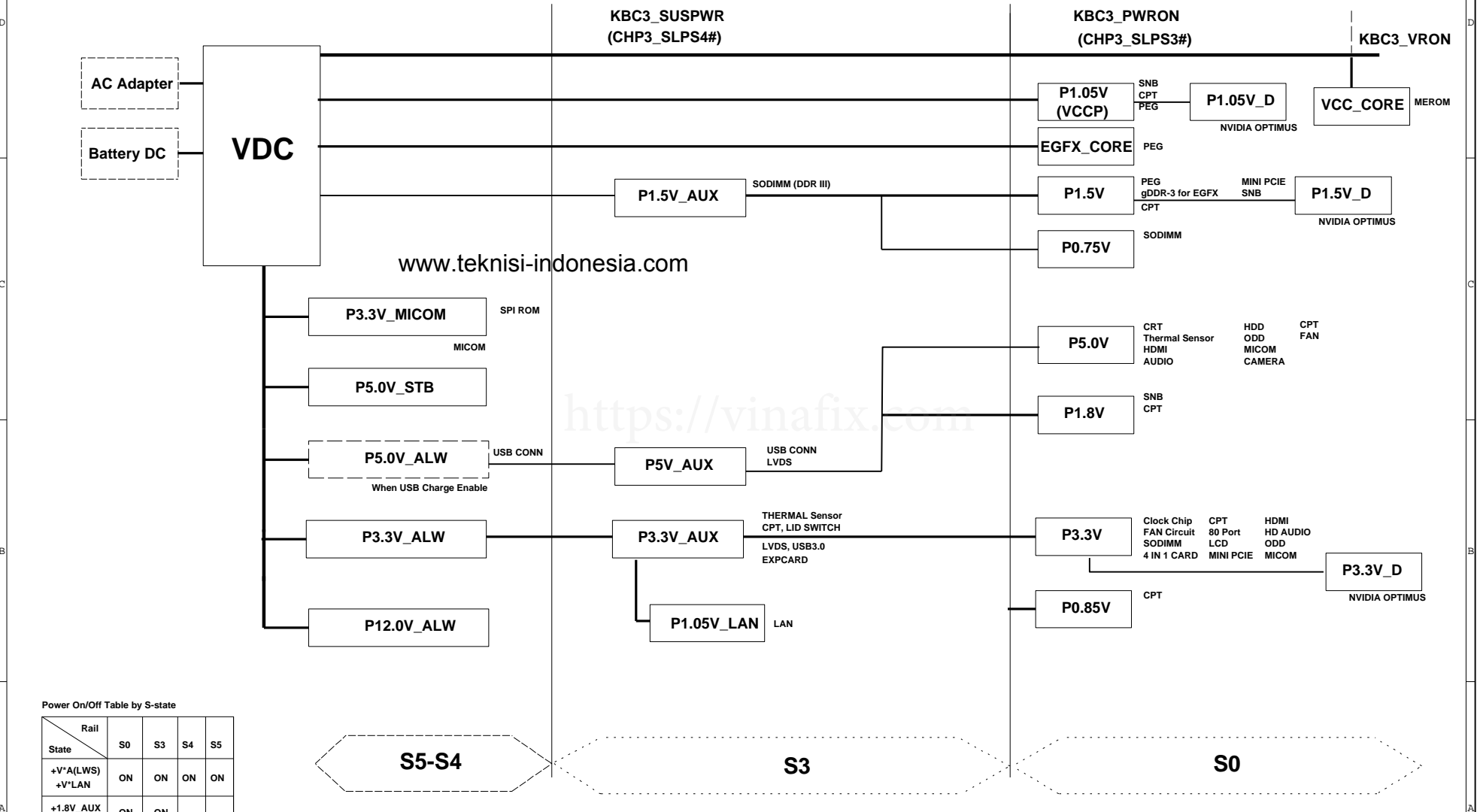
LCD Pannel Detect (TBD)		
Devices	Resolution	PANNEL_DETECT_0

Devices	Address	Hex	Bus
COUGARPOINT	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	BR LEE	DATE	7/14/2010	TITLE Europa/Shark14-HRV MAIN BOARD INFO	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		
APPROVAL	JG KOO	REV	REV 0.7		
MODULE CODE	undefined	LAST EDIT	October 04, 2010 09:50:32 AM		
				PAGE	3 OF 58

POWER DIAGRAM

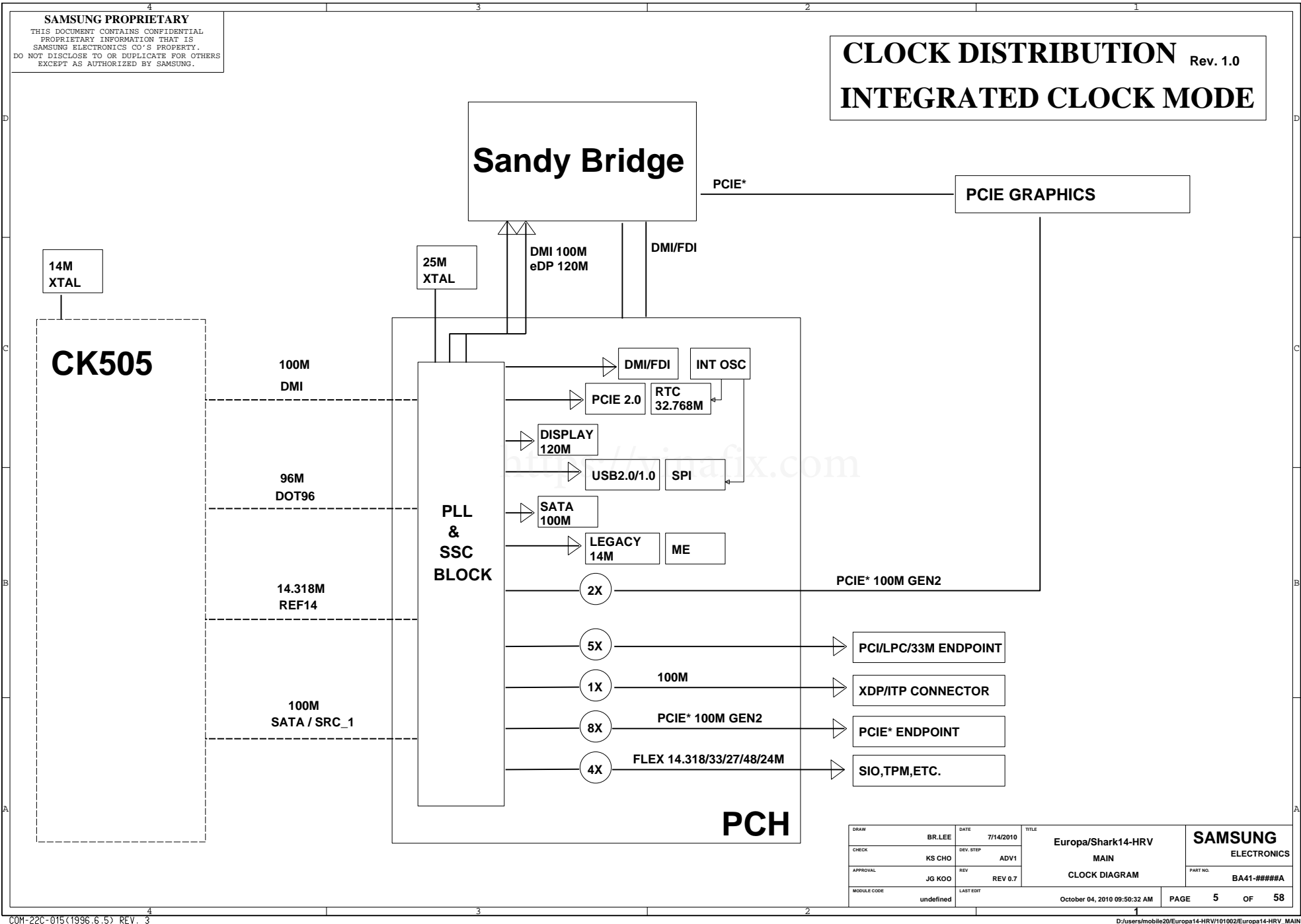
Rev 0.7



Power On/Off Table by S-state

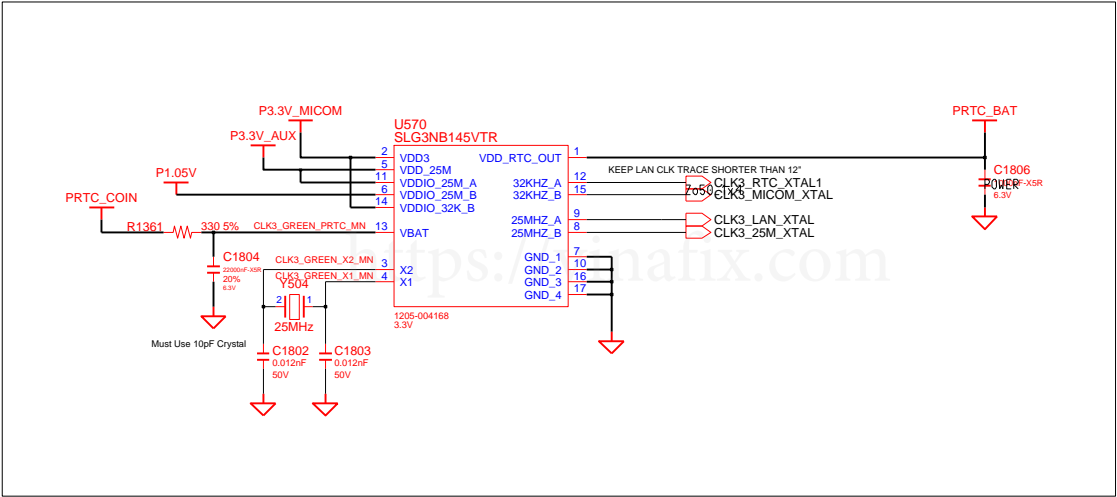
Rail	S0	S3	S4	S5
State				
+V*A(LWS)	ON	ON	ON	ON
+V*LAN	ON	ON	ON	ON
+1.8V_AUX	ON	ON	ON	ON
+0.9V	ON	ON	ON	ON
+V*AUX	ON	ON	ON	ON
+V	ON	ON	ON	ON
+V* (CORE)	ON	ON	ON	ON

DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG
CHECK	KS CHO	DEV. STEP	ADV1		MAIN	ELECTRONICS
APPROVAL	JG KOO	REV	REV 0.7		POWER DIAGRAM	PART NO.
MODULE CODE	undefined	LAST EDIT	October 04, 2010 09:50:32 AM			BA41-####A
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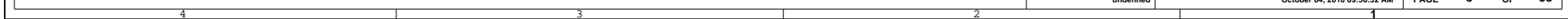
CLOCK DISTRIBUTOR

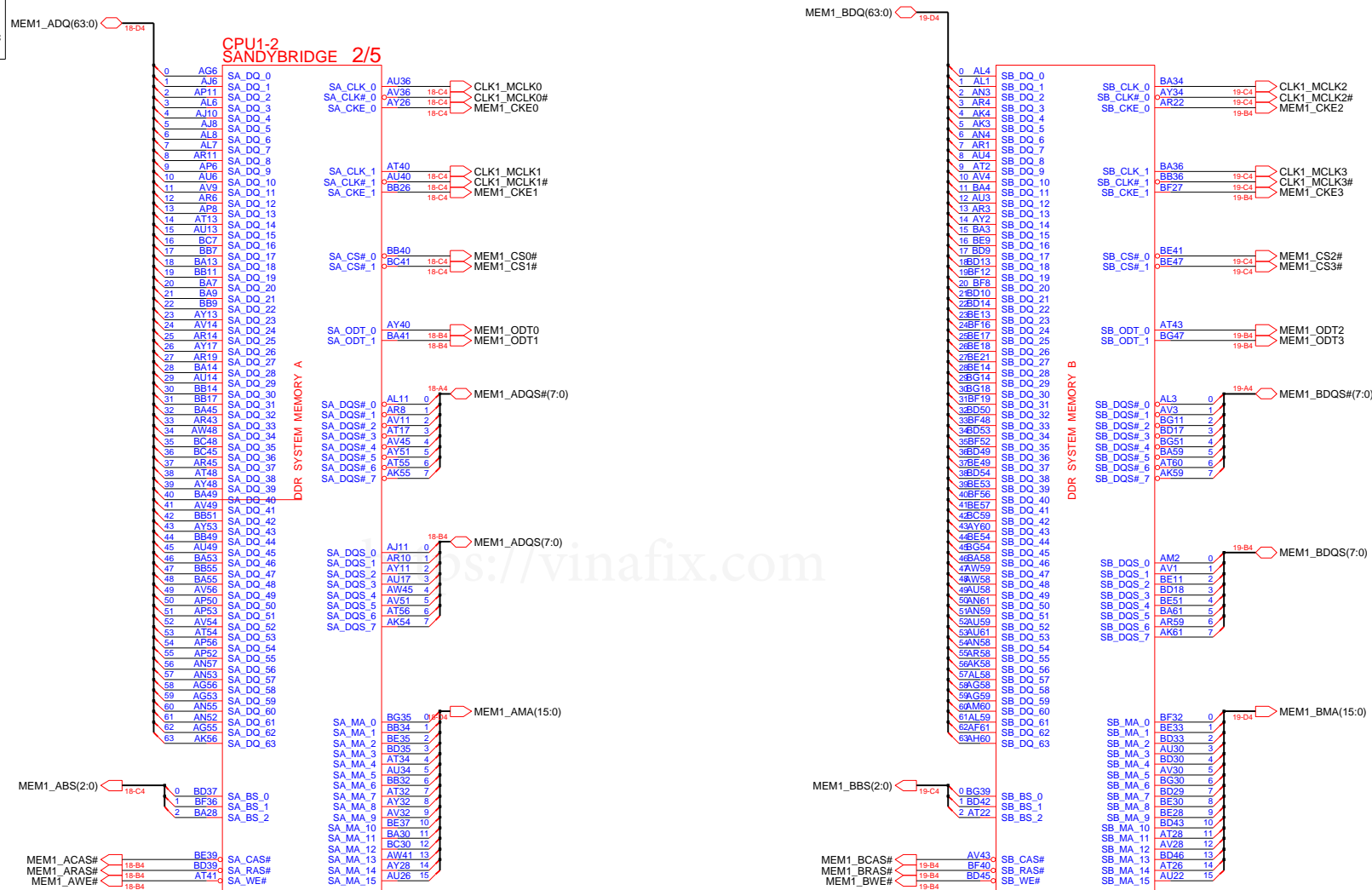


GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK

DRAW	BR.LEE	DATE	7/14/2010	Europa/Shark14-HRV CLOCK CLOCK DISTRIBUTION		SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1				
APPROVAL	JG KOO	REV	REV 0.7				
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MODULE CODE		undefined		LAST EDIT		October 04, 2010 09:50:32 AM	
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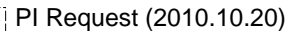
P1.05V





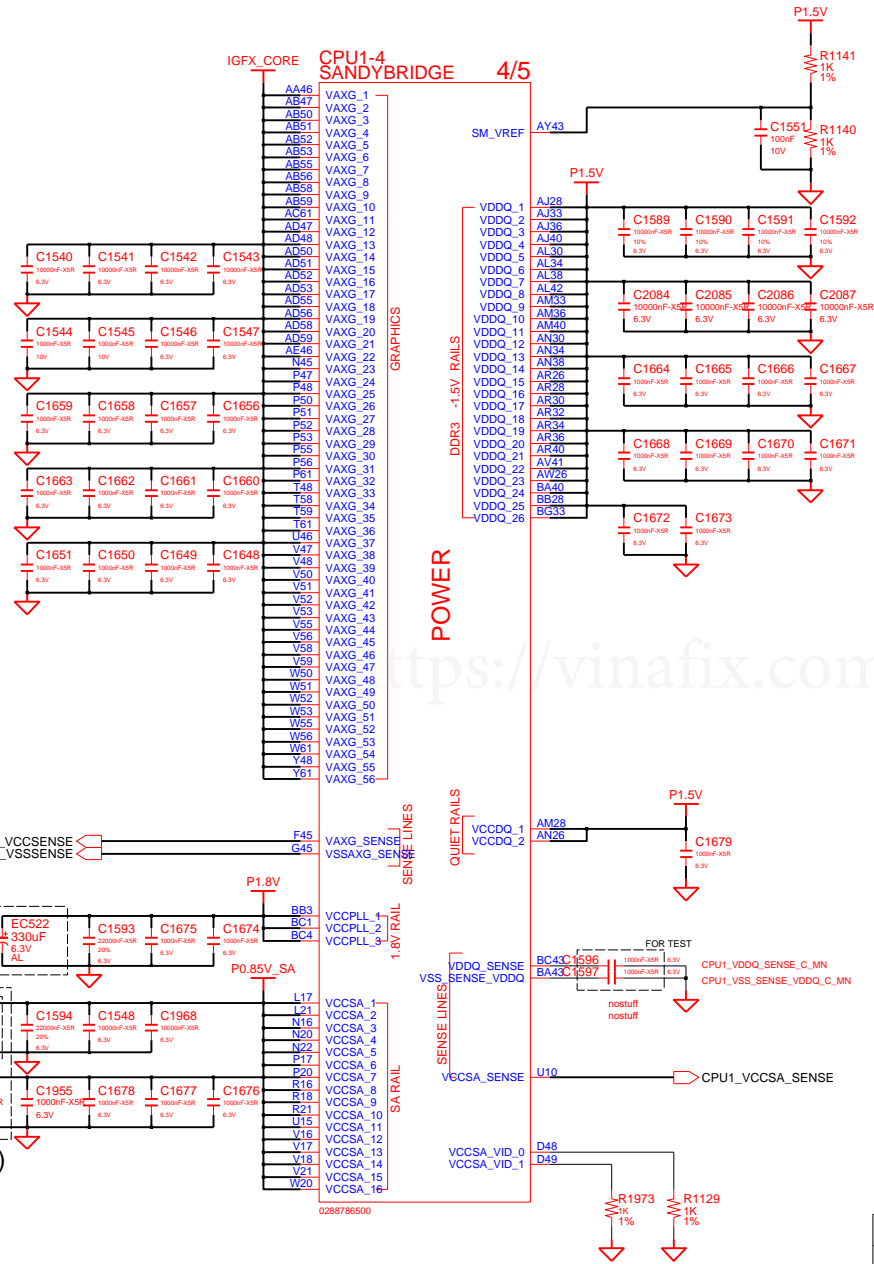
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APPROVAL	JG KOO	REV	REV 0.7		
MODULE CODE	undefined	LAST EDIT			
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DESIGN	BR. LEE	DATE	7/14/2010	Europe/ Shark 14-HRV CPU BGA CPU (3/5)	SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1			
APPROVAL	JG KOO	REV	REV 0.7		PART NO.	BA41-#####A
MODULE CODE	LAST EDIT				October 04, 2010 09:50:32 AM	PAGE 10 OF 58

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PI Request (2010.10.20)

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DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
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APPROVAL	JG KOO	REV	REV 0.7		BGA CPU (4/5)	
MODULE CODE		LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	11	OF 58

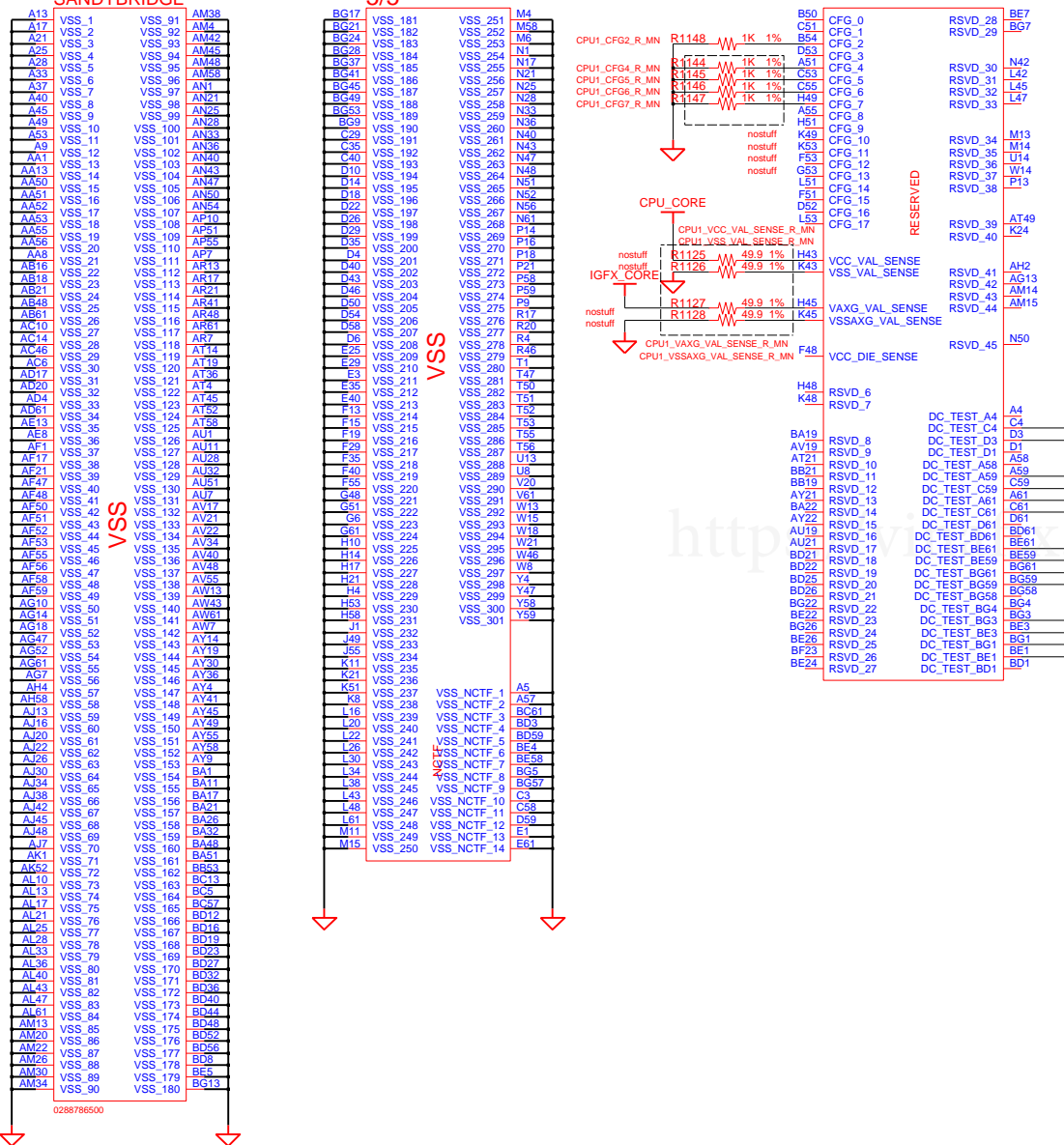
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CPU1-5
SANDYBRIDGE

5/5

www.teknisi-indonesia.com



CFG Straps for Processor

PCI Express Static Lane Reversal	
CFG2	1 : Normal operation 0 : Lane Reversed

PCIE PORT BIFURCATION	
CFG6[5]	1 : Single PEG 0 : Bifunction enabled

PEG DEFER TRAINING	
CFG7	1 : (DEFAULT) PEG TRAIN IMMEDIATELY FOLLOWING XXRESETB DEASSERTION 0 : PCIE 2.0 PEG WAIT FOR BIOS FOR TRAINING

Display Port Presence	
CFG4	1 : Disabled - No DP device is connected to eDP 0 : Enabled - (DP device is connected to eDP

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CHECK	KS CHO	DEV. STEP	ADV1		CPU	
APPROVAL	JG KOO	REV	REV 0.7		BGA CPU (5/5)	
MODULE CODE	undefined	LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	12 OF 58	

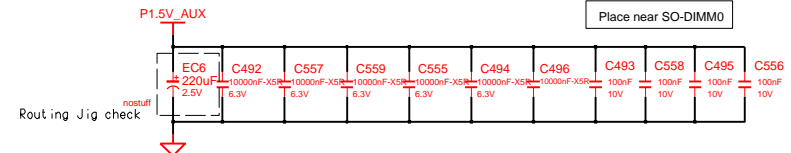
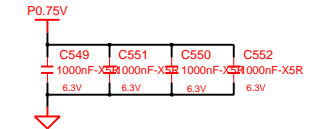
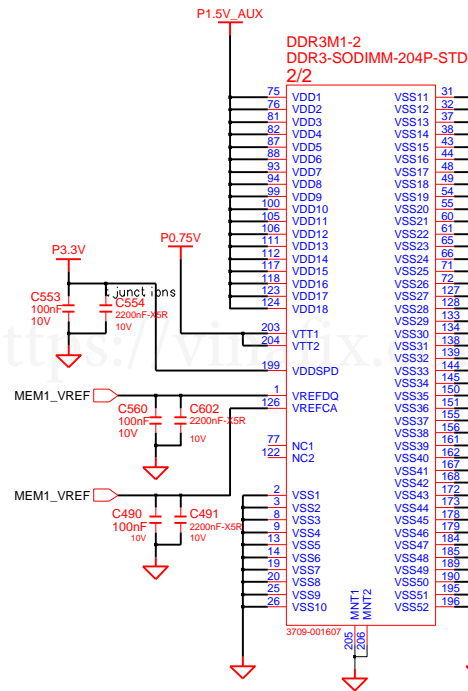
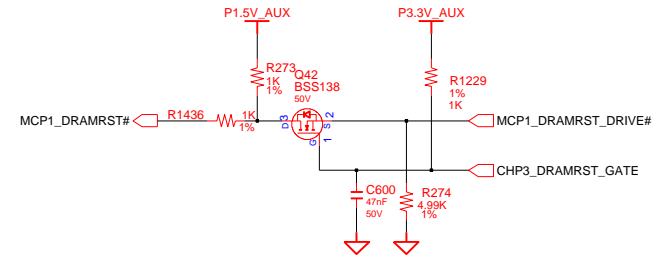
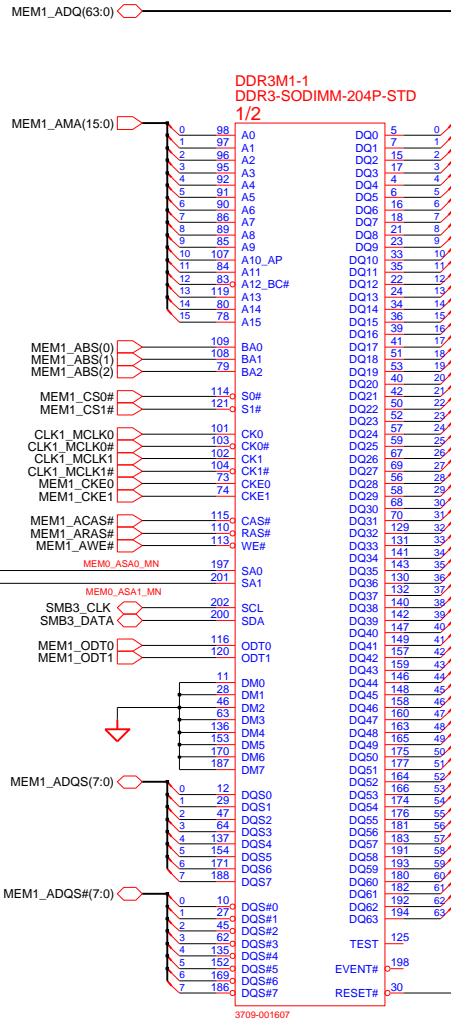
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DDR SO-DIMM #0

Height : 4 mm (STANDARD)

P/N : 3709-001560 (FOXCONN)

P/N : 3709-001607 (CONCRAFT)



DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		SODIMM A	
APPROVAL	JG KOO	REV	REV 0.7		DDR3	
MODULE CODE		LAST ENT				
October 04, 2010 09:50:32 AM						PAGE 13 OF 58

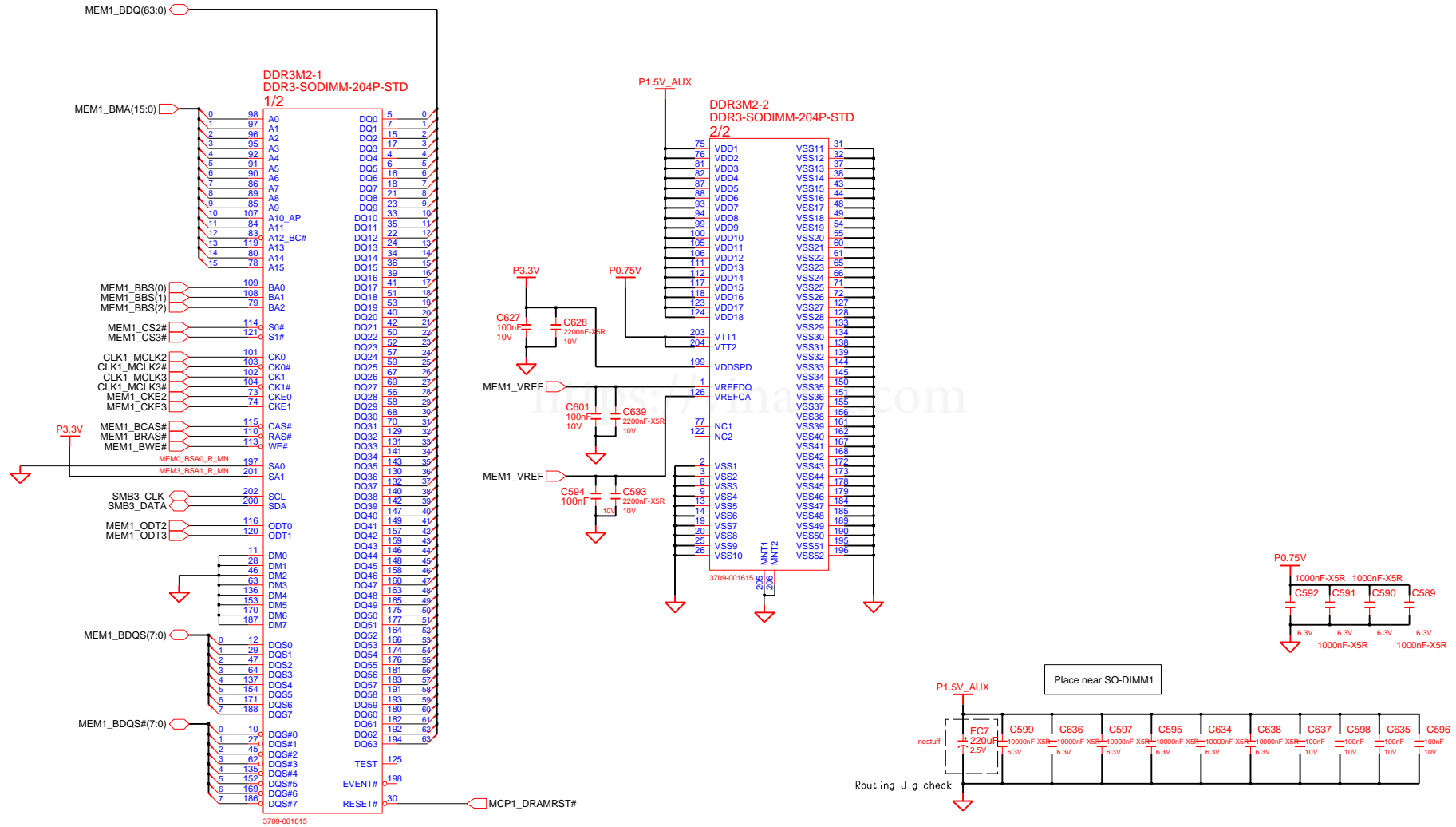
SO-DIMM #1 : 1st SO-DIMM

DDR SO-DIMM #1

Height : 8 mm (STANDARD)

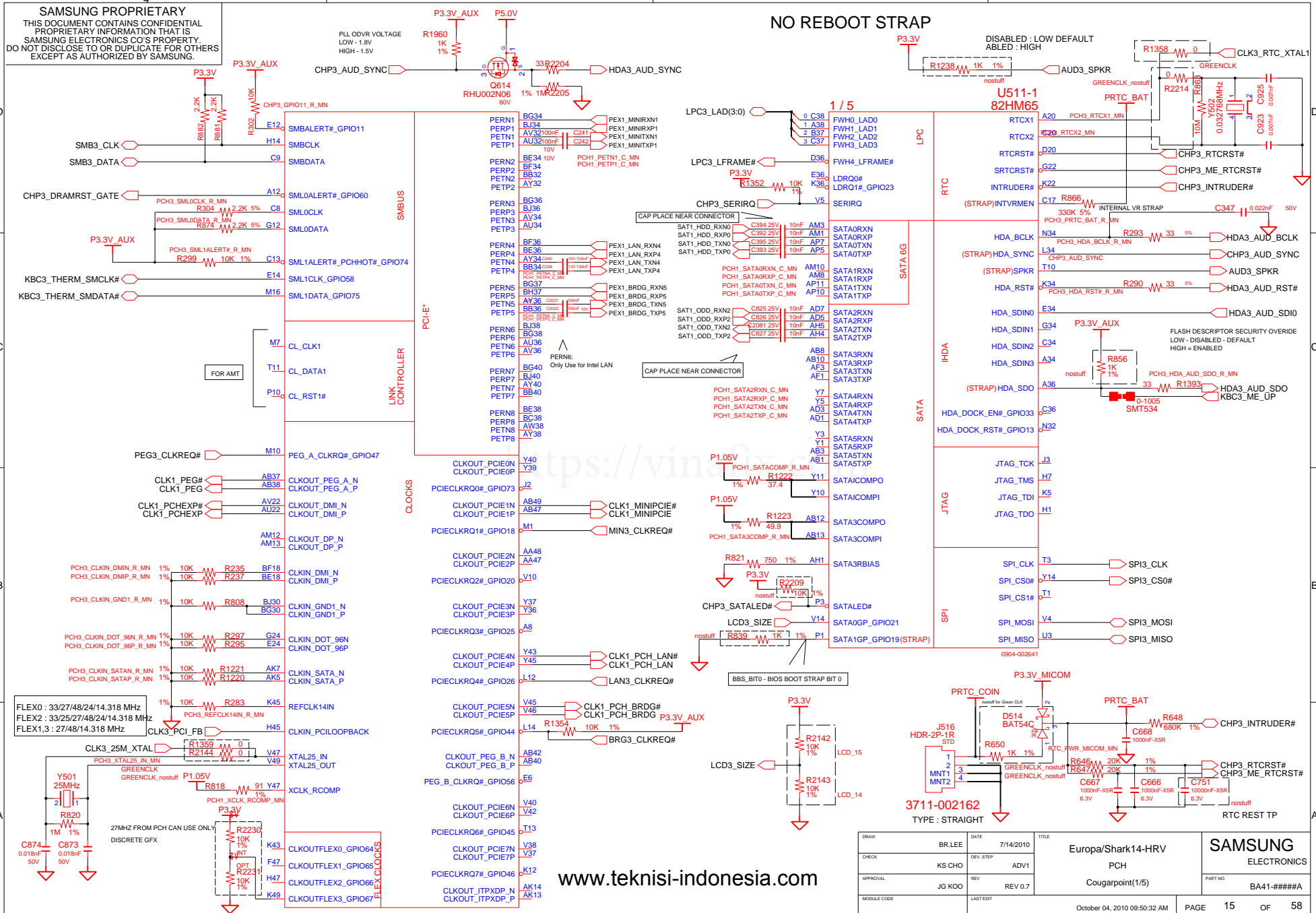
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P/N : 3709-001622 (CONCRAFT)



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CHECK	KS CHO	DEV. STEP	ADV1		SODIMM B	
APPROVAL	JG KOO	REV	REV 0.7		DDR3	
MODULE CODE		LAST ENT				PART NO. BA41-####A
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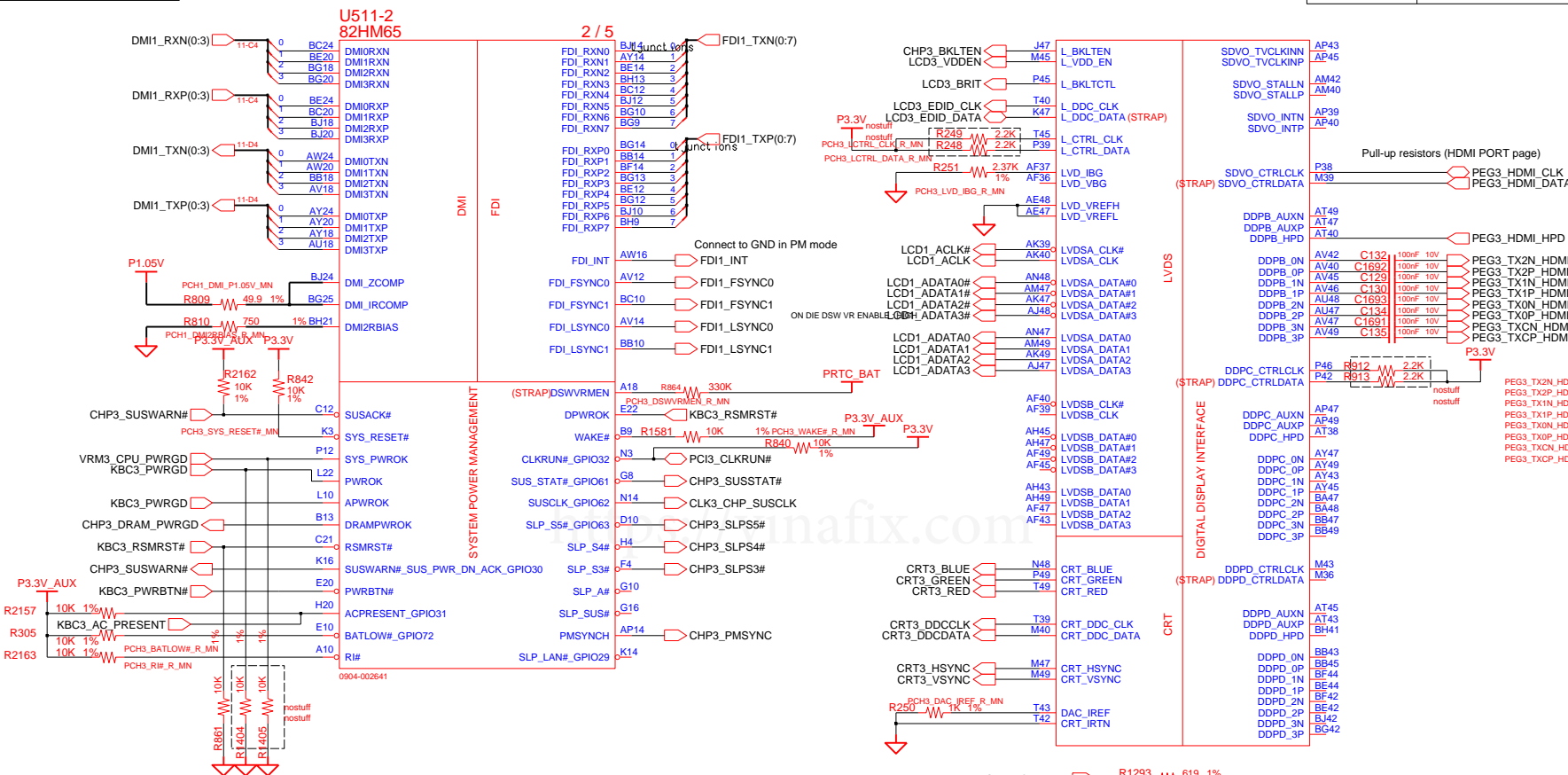
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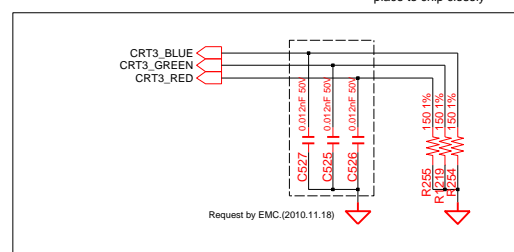
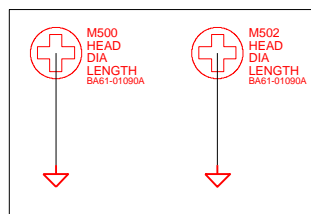
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DDI PORT B DETECT	
SDVO_CTRL_DATA	1 PORT B DETECTED 0 PORT B NOT DETECTED



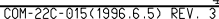
PCH Thermal



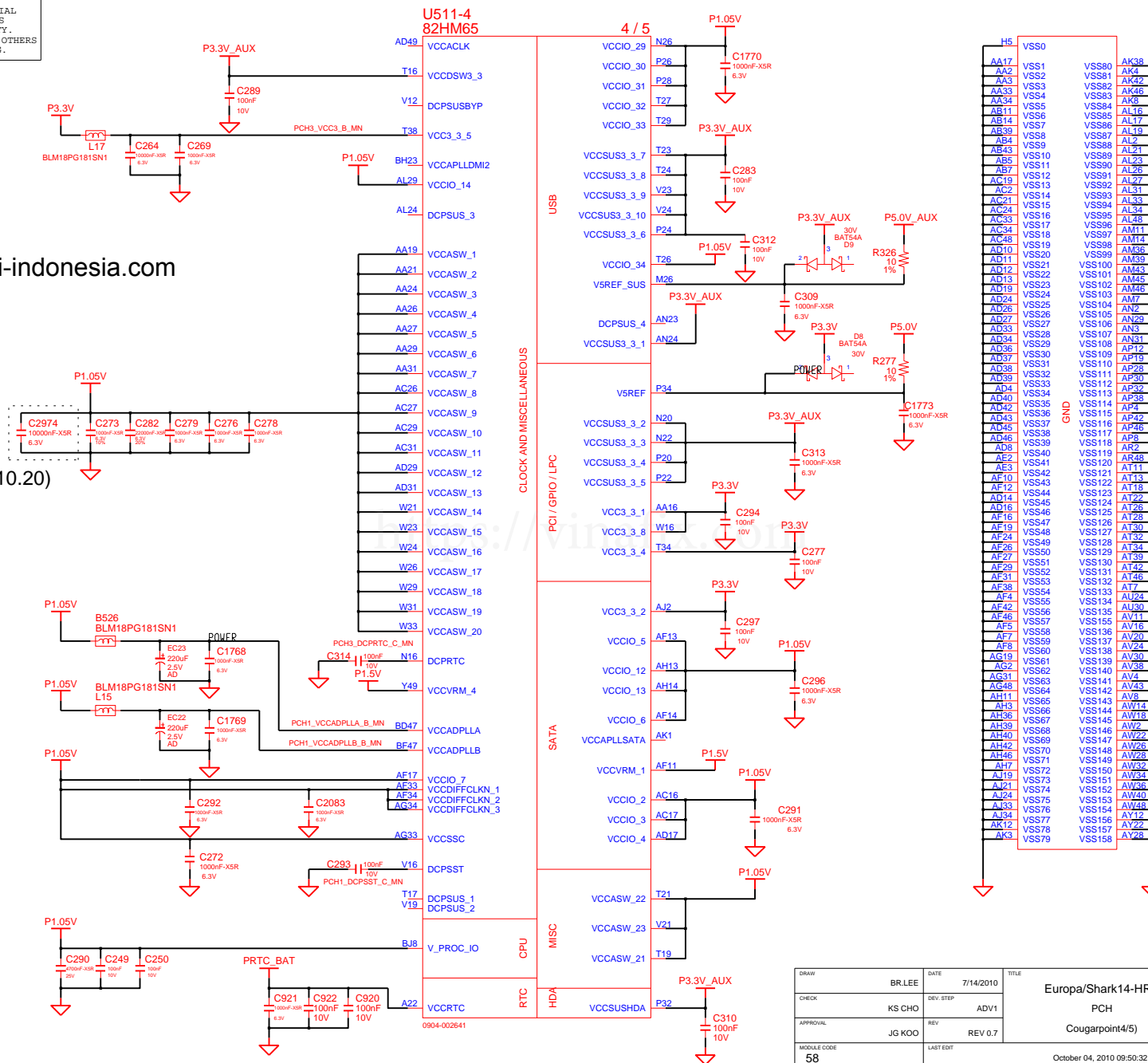
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CHECK	KS CHO	DEV. STEP	ADV1		PCH
APPROVAL	JG KOO	REV	REV 0.7		Cougarpoint(2/5)
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CHECK	KS CHO	DEV. STEP	ADV1				
APPROVAL	JG KOO	REV	REV 0.7			PART NO.	BA41-#####A
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U511-5
82HM65

This power share with thermal sensor

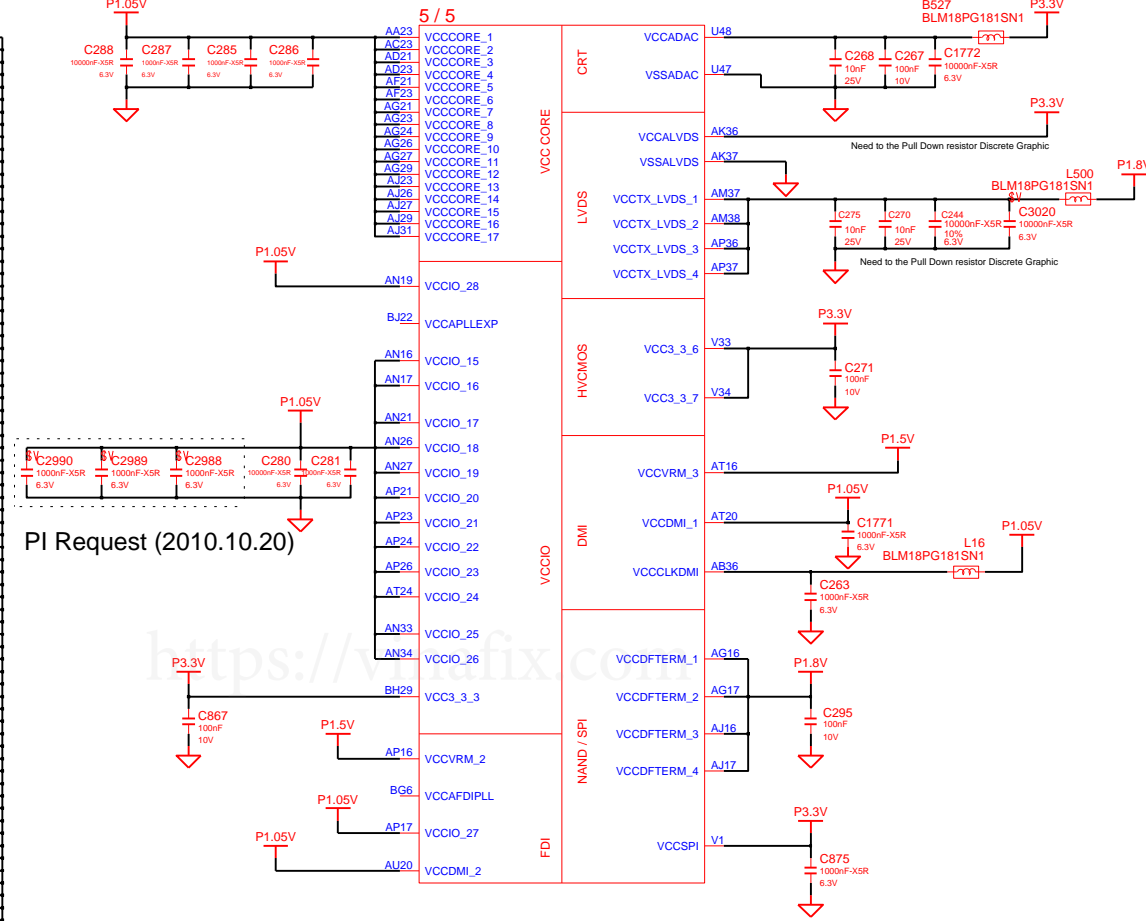
5 / 5

AY4	VSS159	VSS259	H46
AY2	VSS160	VSS260	K18
AY6	VSS161	VSS261	K26
AY8	VSS162	VSS262	K36
B11	VSS163	VSS263	K46
B15	VSS164	VSS264	K7
B19	VSS165	VSS265	L2
B23	VSS166	VSS266	L20
B27	VSS167	VSS267	L26
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L36
B7	VSS171	VSS271	L48
F45	VSS172	VSS272	M12
BB12	VSS173	VSS273	M16
BB16	VSS174	VSS274	M18
BB20	VSS175	VSS275	M24
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
BB18	VSS184	VSS284	M48
BC2	VSS185	VSS285	M18
BC22	VSS186	VSS286	P11
BC26	VSS187	VSS287	N47
BC32	VSS188	VSS288	P18
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC40	VSS191	VSS291	P40
BC42	VSS192	VSS292	P47
BC48	VSS193	VSS293	P7
BD46	VSS194	VSS294	R2
BD5	VSS195	VSS295	R48
BD22	VSS196	VSS296	T12
BD26	VSS197	VSS297	T31
BE40	VSS198	VSS298	T37
BF10	VSS199	VSS299	T4
BF12	VSS200	VSS300	W34
BF16	VSS201	VSS301	W34
BF20	VSS202	VSS302	T47
BF22	VSS203	VSS303	T8
BF24	VSS204	VSS304	V17
BF26	VSS205	VSS305	V26
BF28	VSS206	VSS306	V27
BF30	VSS207	VSS307	V29
BF38	VSS208	VSS308	V31
BF40	VSS209	VSS309	V36
BF9	VSS210	VSS310	V39
BG17	VSS211	VSS311	V43
BG21	VSS212	VSS312	V7
BG33	VSS213	VSS313	W15
BG44	VSS214	VSS314	W15
B8	VSS215	VSS315	W2
BH11	VSS216	VSS316	W27
BH15	VSS217	VSS317	W48
BH17	VSS218	VSS318	Y12
BH19	VSS219	VSS319	Y38
H10	VSS220	VSS320	Y4
BH27	VSS221	VSS321	Y42
BH31	VSS222	VSS322	Y46
BH33	VSS223	VSS323	Y8
BH35	VSS224	VSS324	BG29
BH39	VSS225	VSS325	N24
BH43	VSS226	VSS326	AJ3
BH7	VSS227	VSS327	AD47
D3	VSS228	VSS328	B43
D12	VSS229	VSS329	BE10
D16	VSS230	VSS330	BG41
D18	VSS231	VSS331	G14
D22	VSS232	VSS332	H16
D24	VSS233	VSS333	T36
D26	VSS234	VSS334	BG22
D30	VSS235	VSS335	BG24
D32	VSS236	VSS336	C22
D34	VSS237	VSS337	AP13
D38	VSS238	VSS338	M14
D42	VSS239	VSS339	AP3
D8	VSS240	VSS340	AP1
F18	VSS241	VSS341	BE16
E26	VSS242	VSS342	BC16
E18	VSS243	VSS343	BG28
G20	VSS244	VSS344	B428
G26	VSS245	VSS345	
G28	VSS246	VSS346	
G38	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		
H38	VSS257		
H42	VSS258		

0904-002641

PI Request (2010.10.20)

<https://vixfix.com>



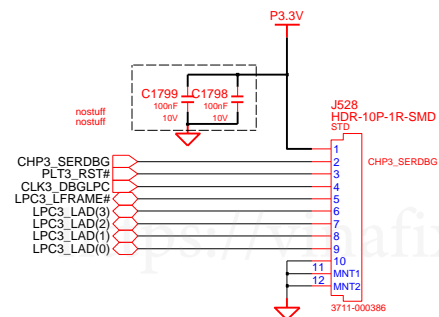
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CHECK	KS CHO	DEV. STEP	ADV1		PCH	
APPROVAL	JG KOO	REV	REV 0.7		Cougarpoint(5/5)	
MODULE CODE	undefined	LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	19	OF 58

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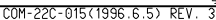
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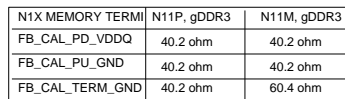
www.teknisi-indonesia.com

80H PORT DEBUG



DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1	DEBUG PORT		
APPROVAL	JG KOO	REV	REV 0.7	80H DECODER		
MODULE CODE		LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	20	OF 58





DESIGN	BR.LEE	DATE	7/14/2010	TITLE Europa/Shark14-HRV N10X_40NM(2/5) N10X_40NM(2/5)	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		
APPROVAL	JG KOO	REV	REV 0.7		
MODULE CODE	LAST EDIT			October 04, 2010 09:50:32 AM	PART NO. BA41-####A
				PAGE	22 OF 58

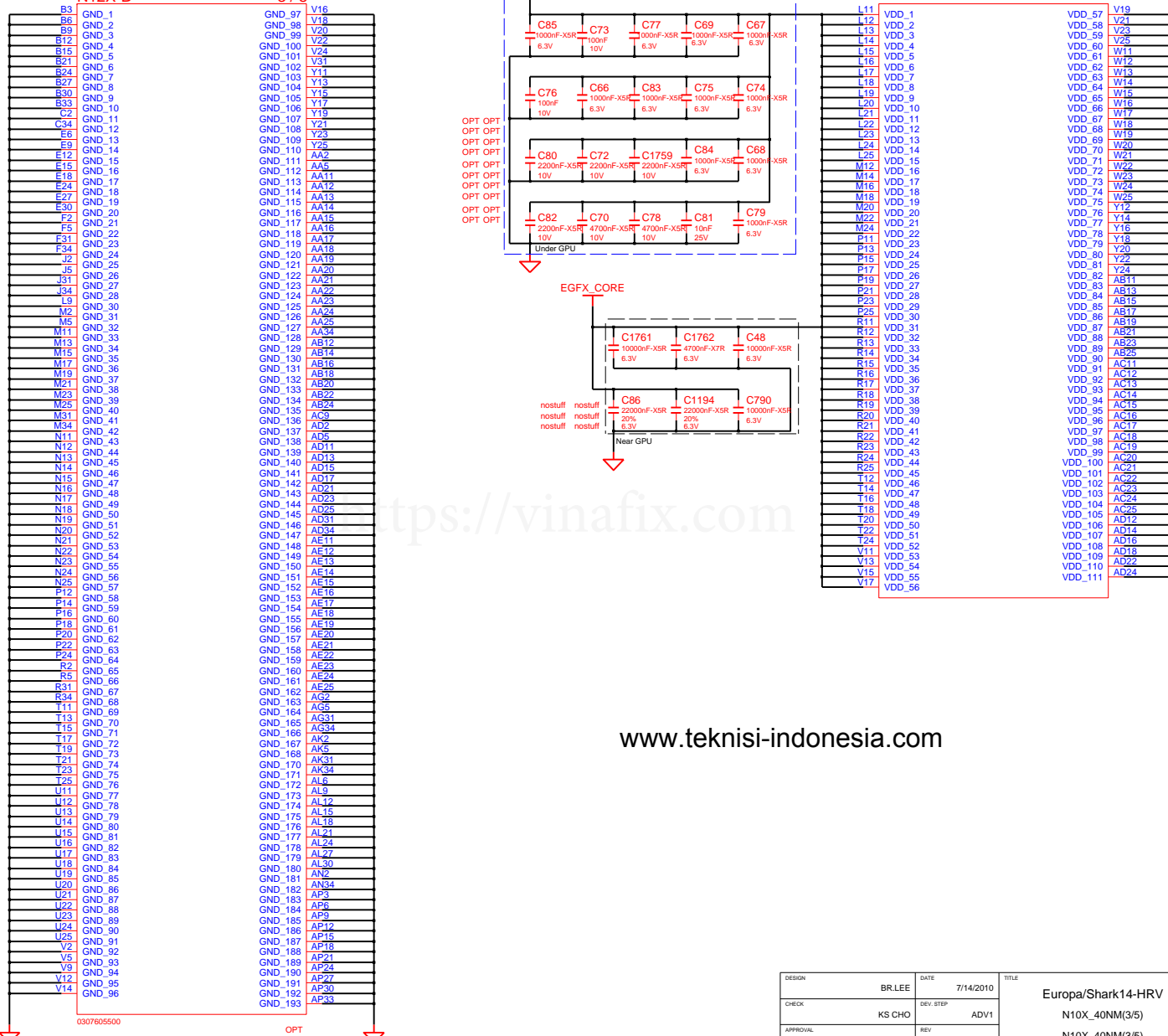
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U503-3
N12X-B

3 / 5

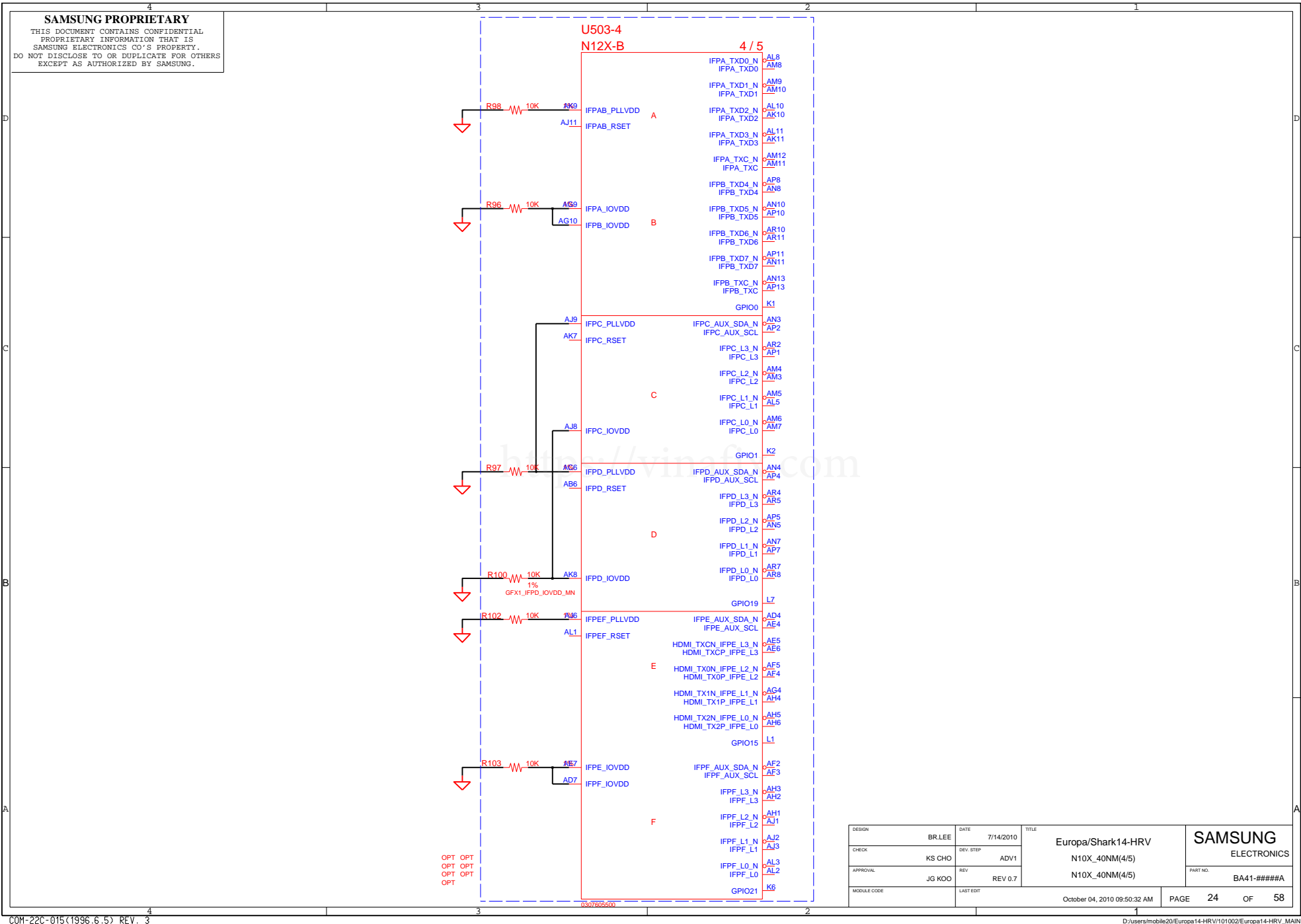
EGFX_CORE

EGFX_CORE



www.teknisi-indonesia.com

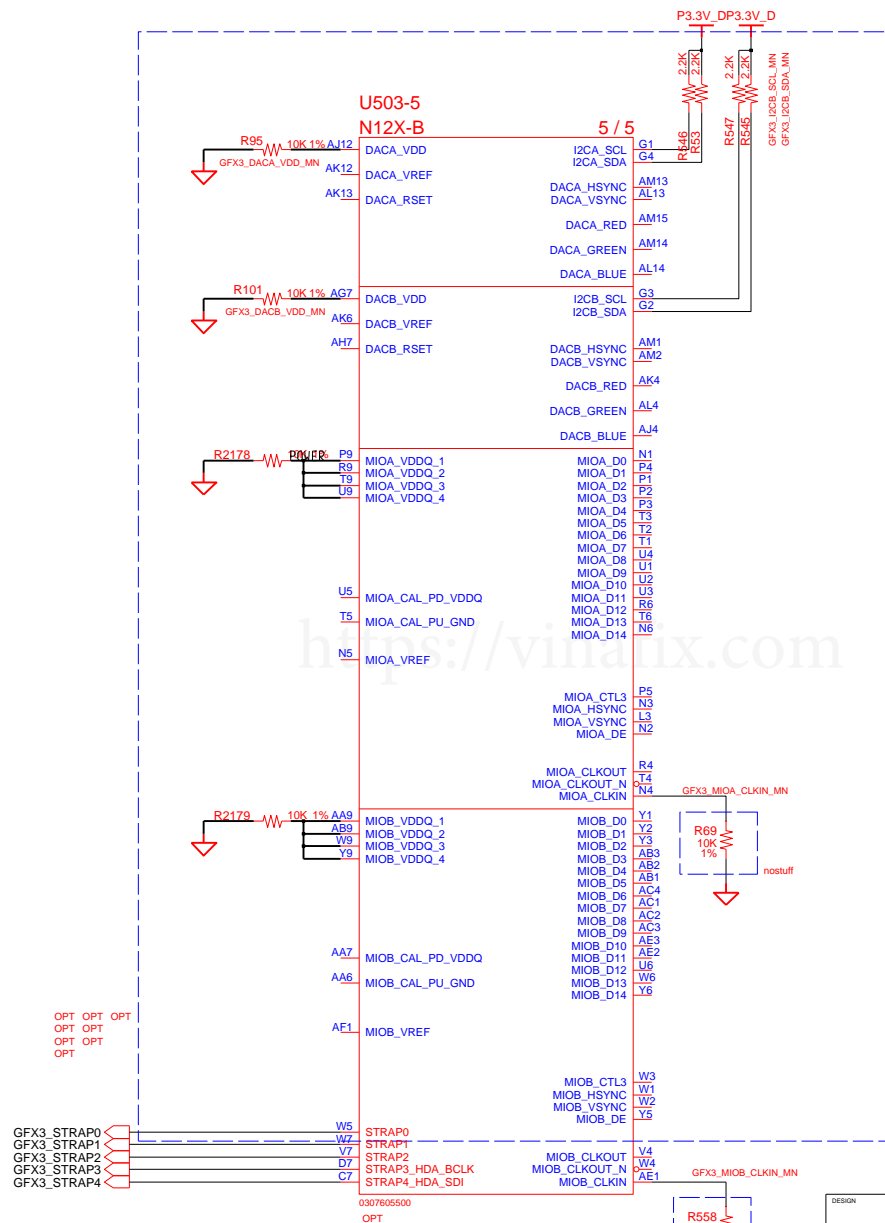
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APPROVAL	JG KOO	REV	REV 0.7		N10X_40NM(3/5)	
MODULE CODE		LAST EDIT				
October 04, 2010 09:50:32 AM						PAGE 23 OF 58



DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		N10X_40NM(4/5)	
APPROVAL	JG KOO	REV	REV 0.7		N10X_40NM(4/5)	
MODULE CODE		LAST EDIT			October 04, 2010 09:50:32 AM	PART NO. BA41-####A
PAGE 24 OF 58						

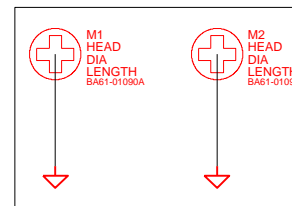
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GPU Thermal



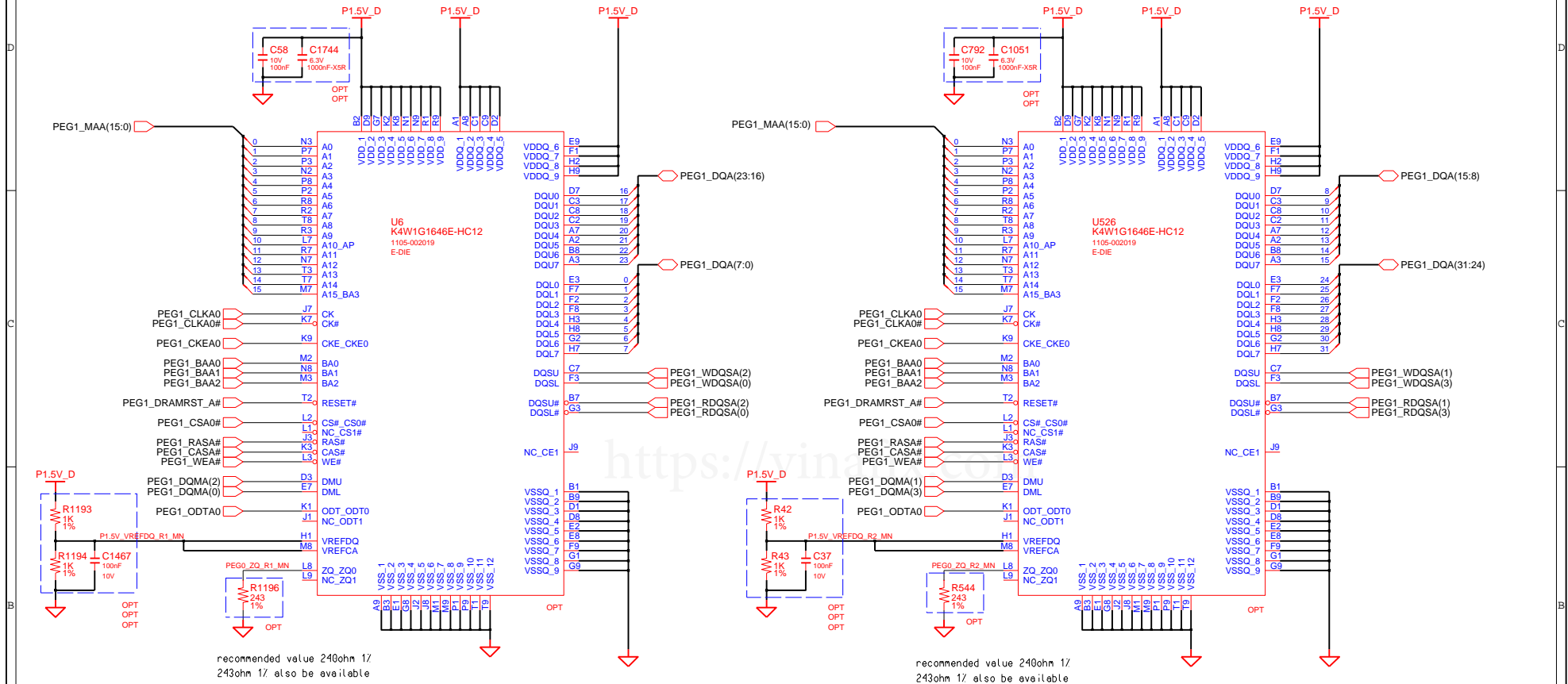
INT GFX and OPT GFX model need.

DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG
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APPROVAL	JG KOO	REV	REV 0.7		N11X_40NM(5/5)	PART NO.
MODULE CODE		LAST EDIT				BA41-####A
				October 04, 2010 09:50:32 AM	PAGE	25 OF 58

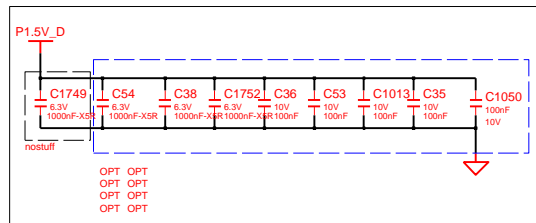
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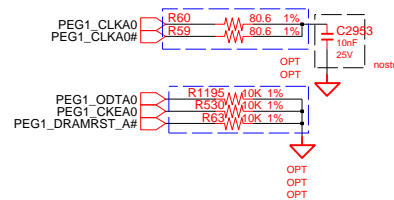
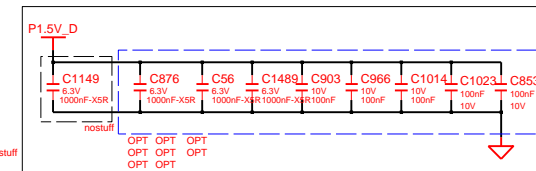
A-Channel #0 (E-mode)



Place near to VDDQ



Place near to VDDQ

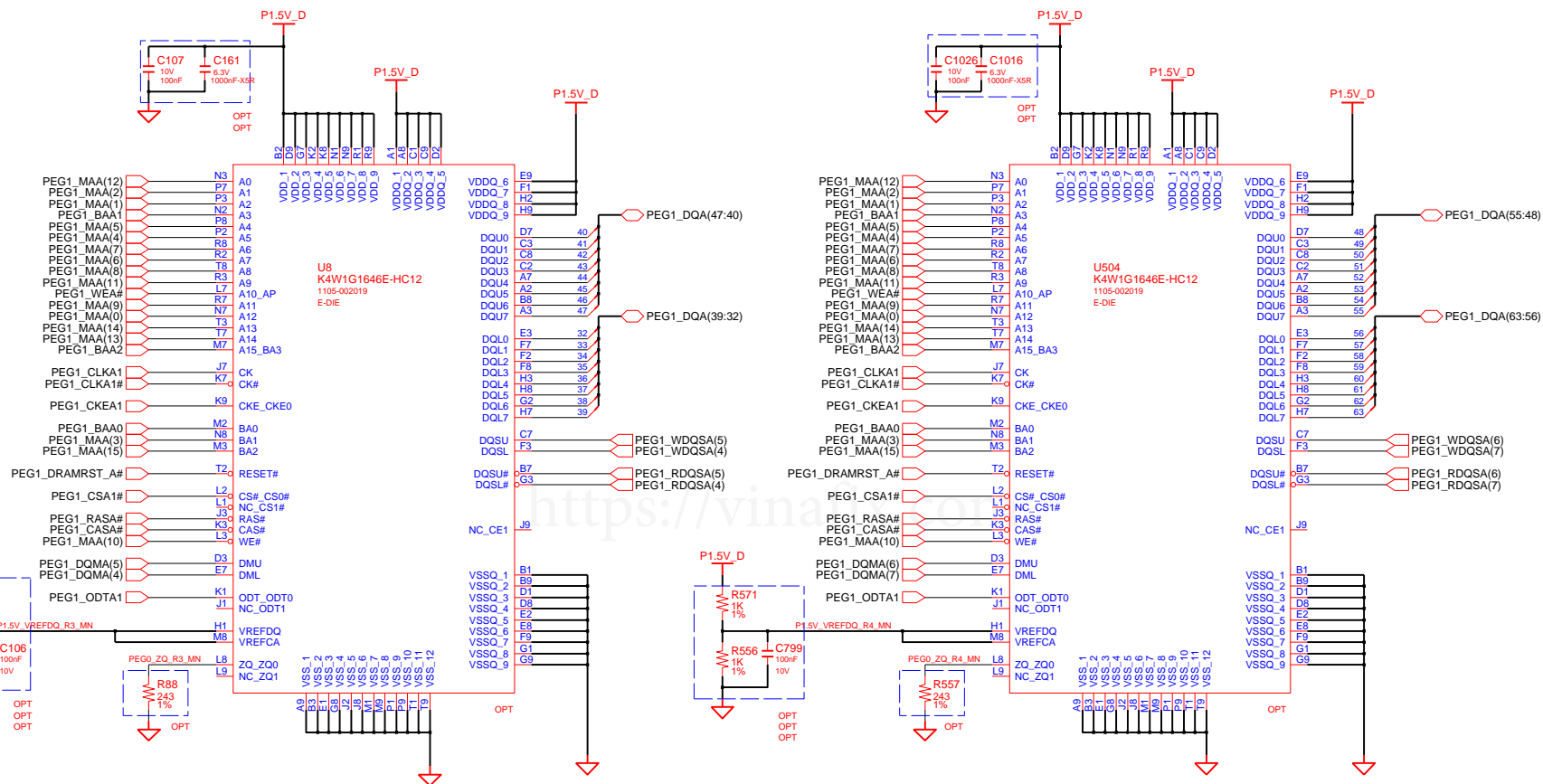


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APPROVAL	JG KOO	REV	REV 0.7		GRAPHIC_MEM A#0	
MODULE CODE		LAST EDIT				
October 04, 2010 09:50:32 AM						PAGE 26 OF 58

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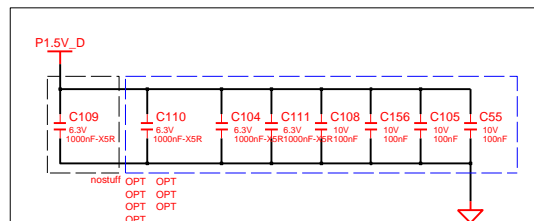
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A-Channel #1 (E-mode)

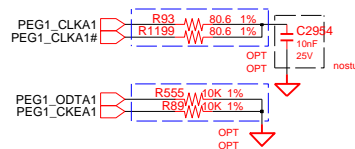
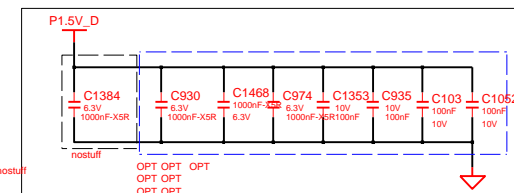


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Place near to VDDQ



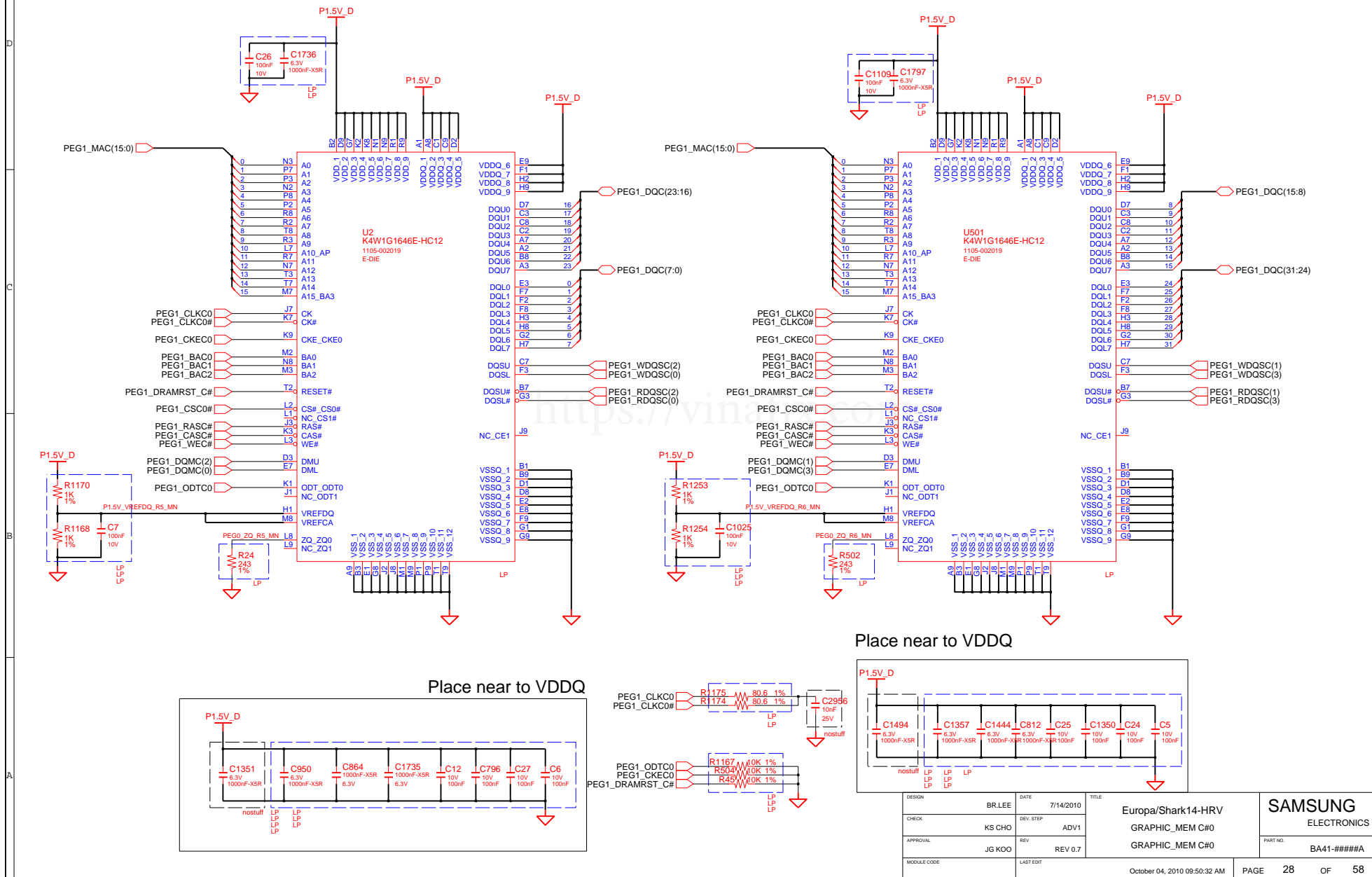
Place near to VDDQ



DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV
CHECK	KS CHO	DEV. STEP	ADV1		GRAPHIC_MEM A#1
APPROVAL	JG KOO	REV	REV 0.7		GRAPHIC_MEM A#1
MODULE CODE		LAST EDIT			
October 04, 2010 09:50:32 AM					PAGE 27 OF 58

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

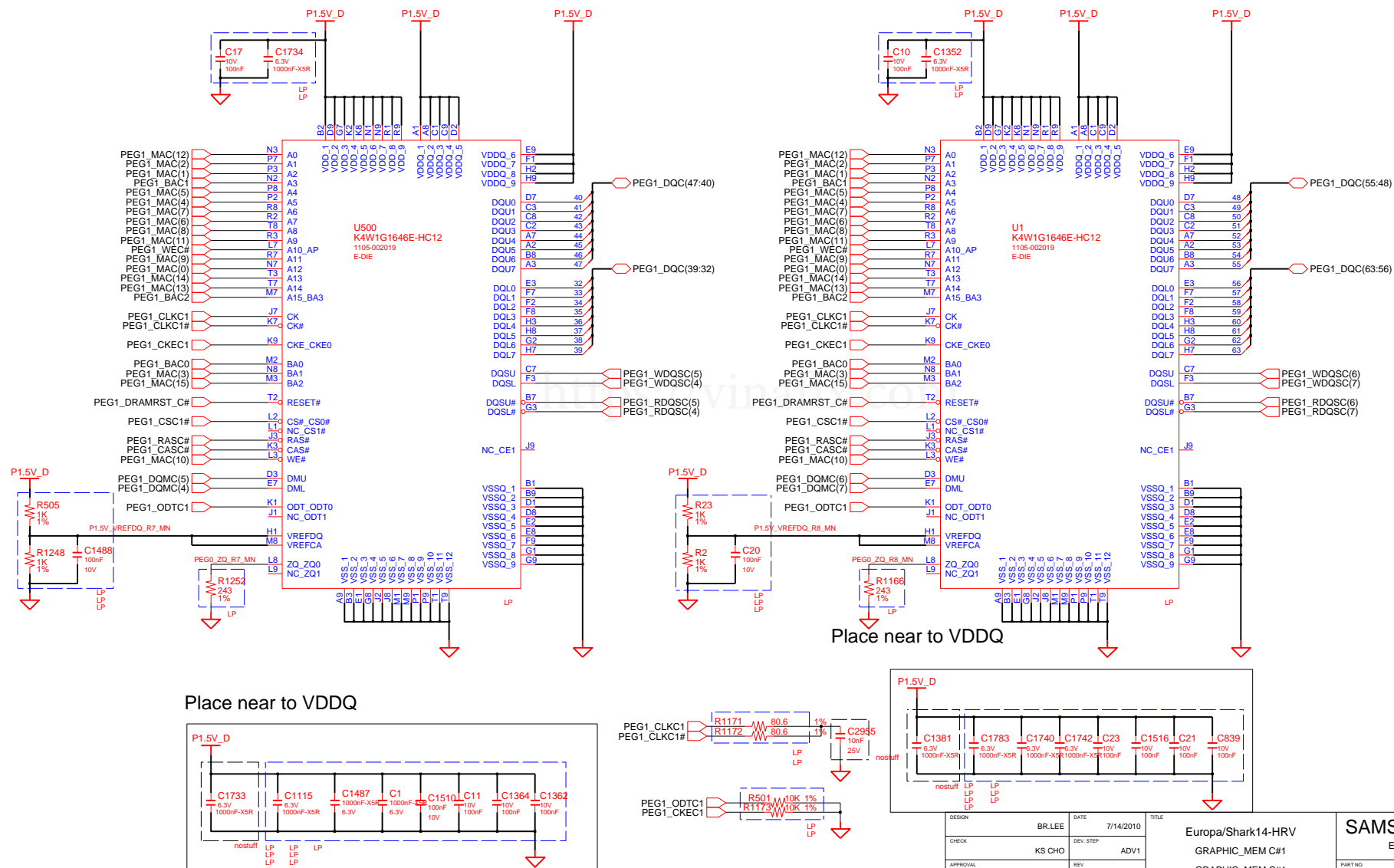
C-Channel #0 (E-mode)



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C-Channel #1 (E-mode)



DESIGN	BR.LEE	DATE	7/14/2010	Europa/Shark14-HRV GRAPHIC_MEM C#1 GRAPHIC_MEM C#1	SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1			
APPROVAL	JG KOO	REV	REV 0.7			
PART NO. BA41-#####						
MODULE CODE		LAST EDIT		October 04, 2010 09:50:32 AM	PAGE	29 OF 58

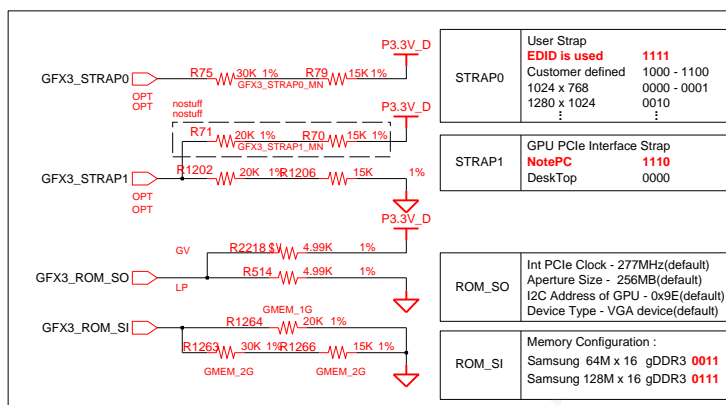
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N12x_40nm STRAP

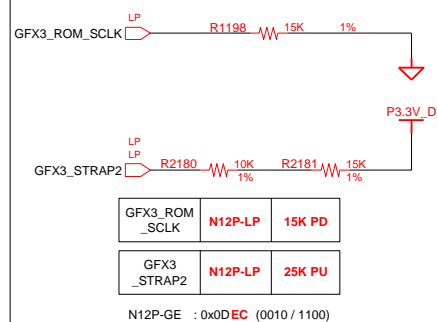
RESISTOR	PULL UP	PULL DOWN
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

Function Straps



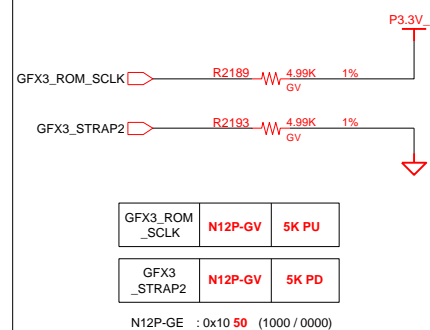
STRAP PIN	BIT 3	BIT 2	BIT 1	BIT0
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
ROM_SO	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM

Chip Select Straps (N12P-LP)

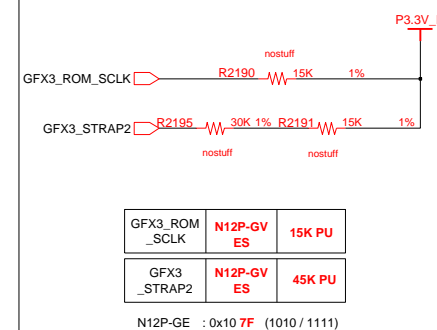


Only for GV

Chip Select Straps (N12P-GV1)



Chip Select Straps (N12P-GV1[ES])



DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		N11X_40NM STRAP	
APPROVAL	JG KOO	REV	REV 0.7		N11X_40NM STRAP	
MODULE CODE		LAST EDIT			October 04, 2010 09:50:32 AM	PART NO. BA41-####A
					PAGE 30 OF 58	

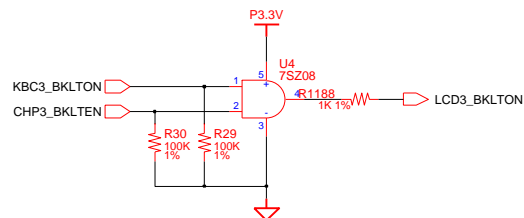
LVDS LOGIC

1Ch. LCD Connector + CAMERA

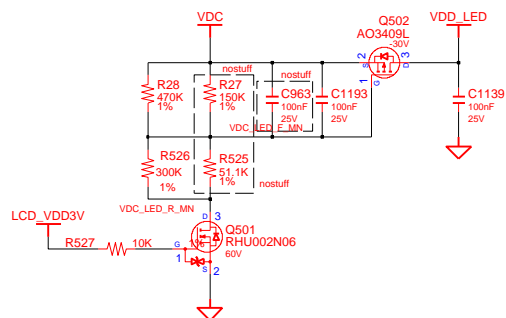
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Backlight On

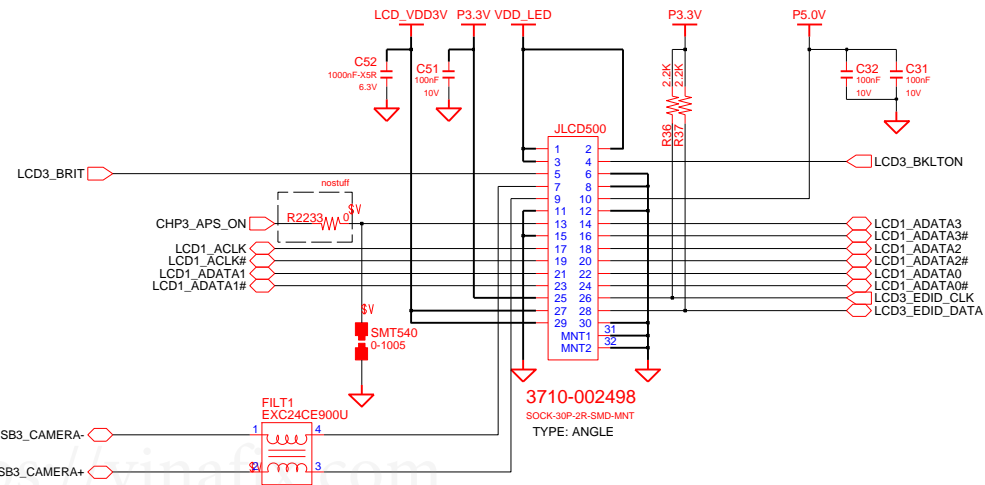
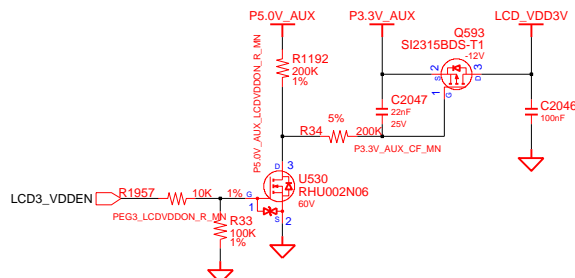


LED Power



LCD Power

EBL Purpose



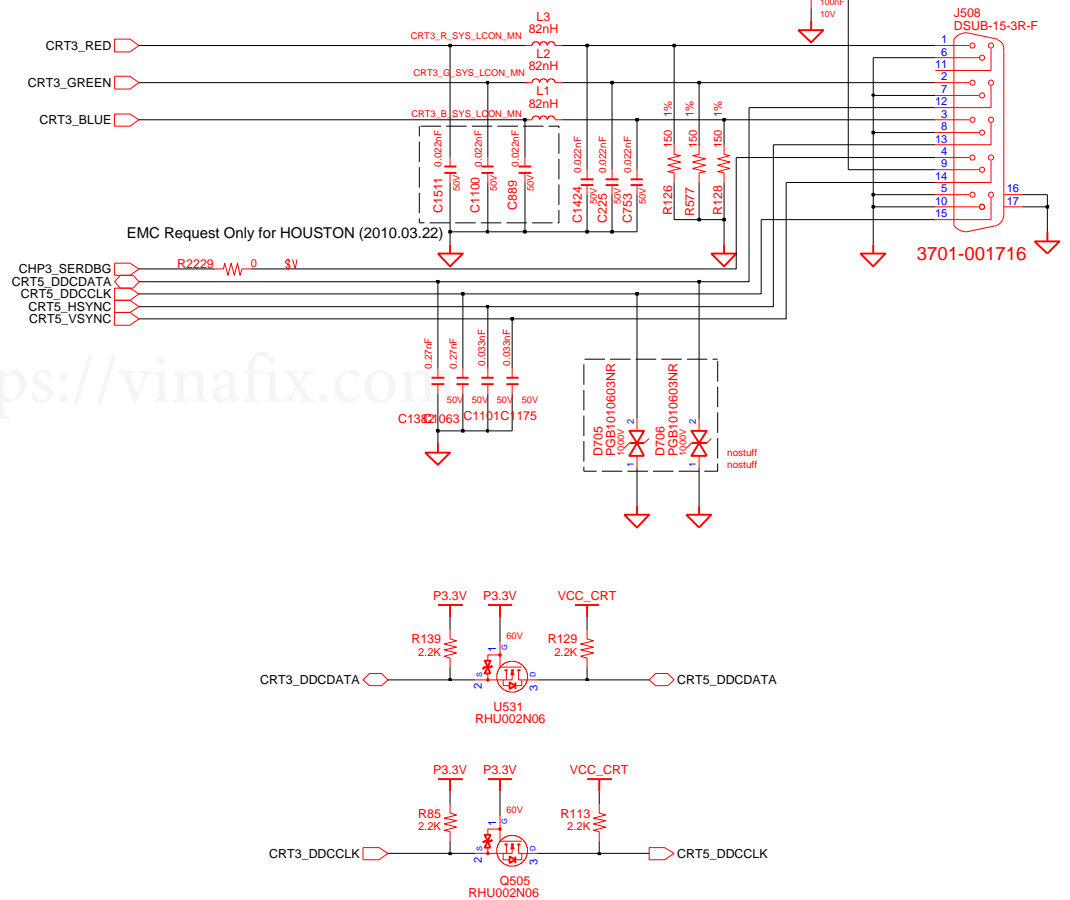
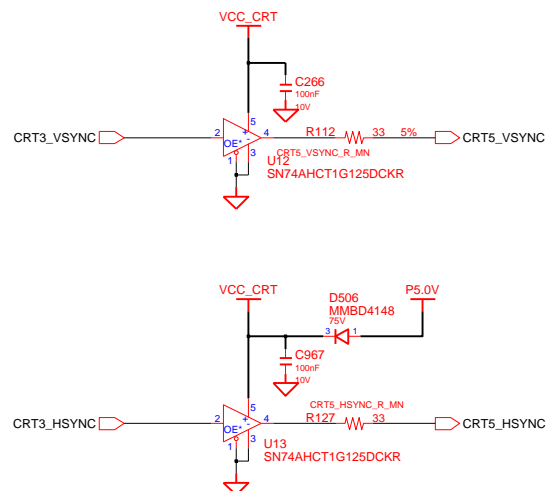
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APPROVAL	JG KOO	REV	REV 0.7	LVDS		
MODULE CODE		LAST EDIT		October 04, 2010 09:50:32 AM	PAGE 31 OF 58	PART NO. BA41-####A

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CRT LOGIC

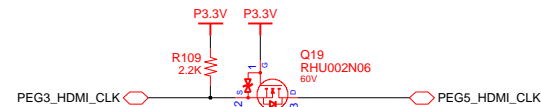


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MODULE CODE		LAST EDIT				PART NO. BA41-####A
October 04, 2010 09:50:32 AM						PAGE 32 OF 58

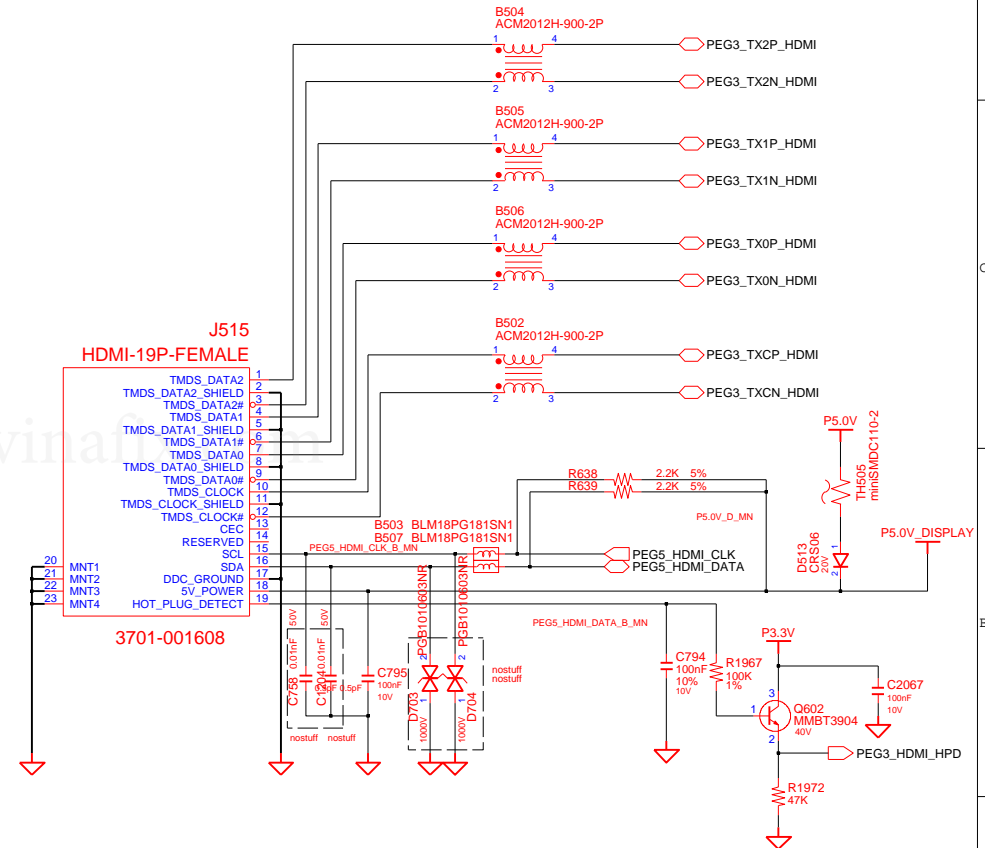
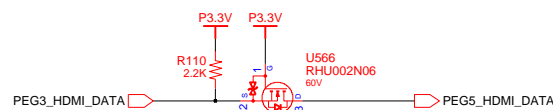
HDMI Graphic

After checking, Houston need to use CMC for each signal.
(EMC request at 2010.04.15)

FOR HDMI VERIFICATION TEST



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



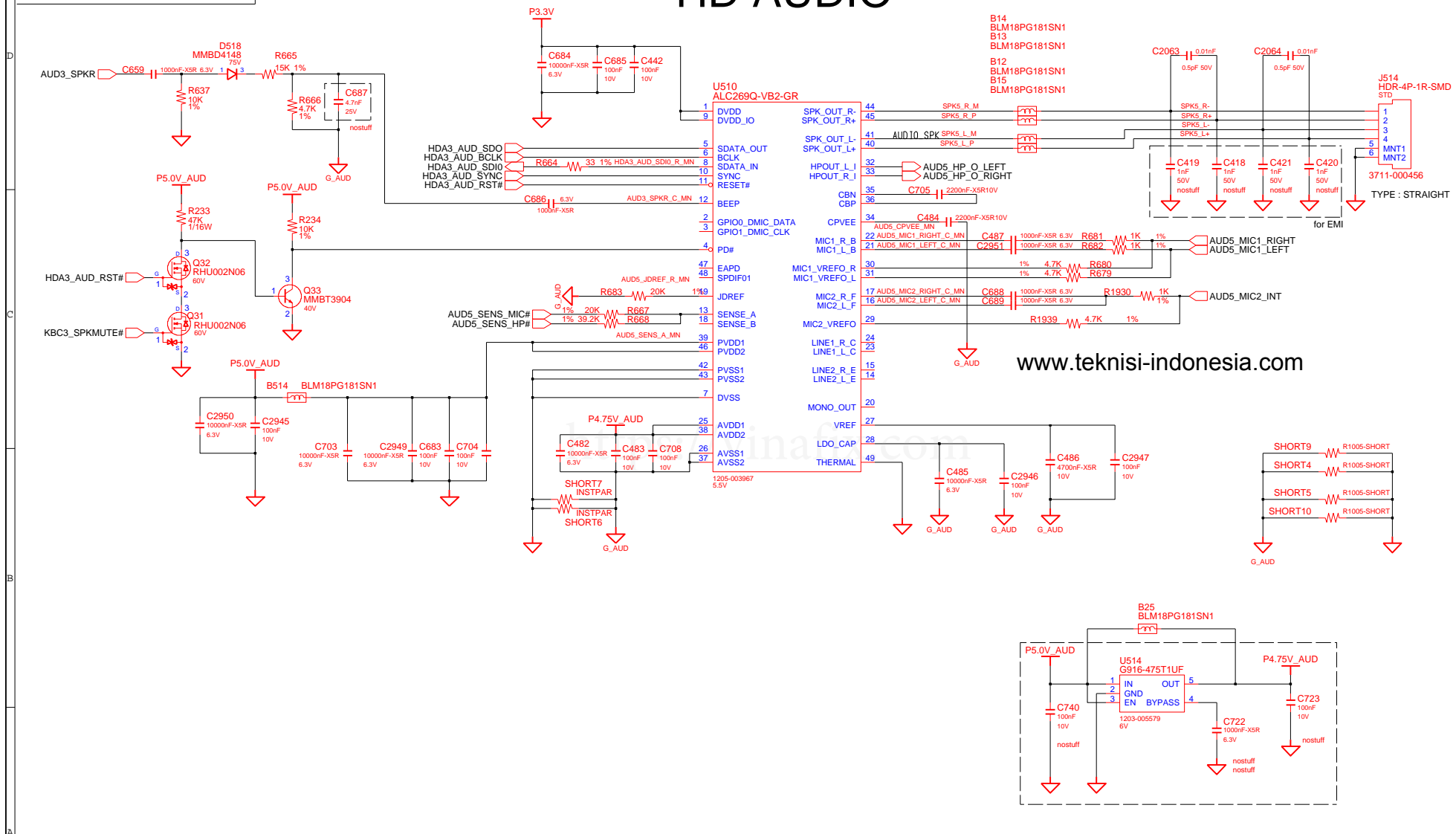
N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		GRAPHICS_IF	
APPROVAL	JG KOO	REV	REV 0.7		HDMI	
MODULE CODE		LAST EDIT		October 04, 2010 09:50:32 AM	PAGE 33 OF 58	PART NO. BA41-####A

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HD AUDIO



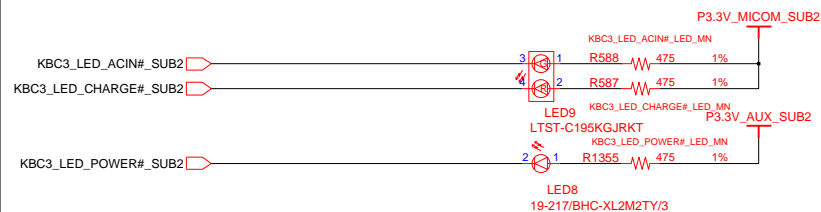
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CHECK	KS CHO	DEV. STEP	ADV1		HDA_CODEC SUB	
APPROVAL	JG KOO	REV	REV 0.7		AUDIO CODEC ALC269 SUB	
MODULE CODE		LAST EDIT				
October 04, 2010 09:50:32 AM						PAGE 34 OF 58

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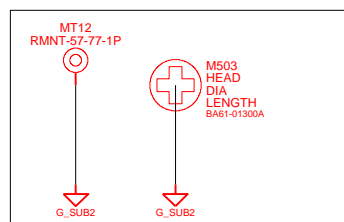
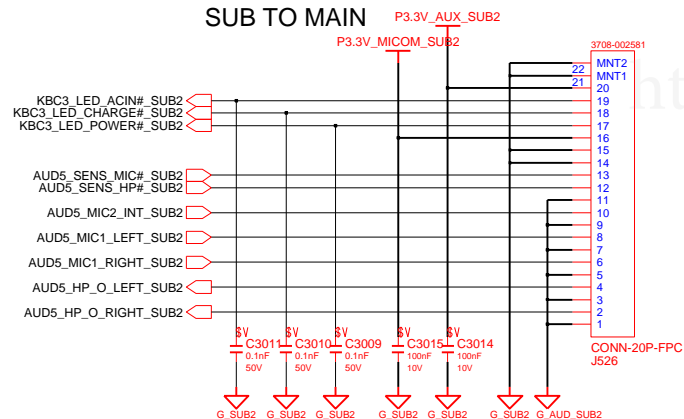
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AUDIO SUB 2 BOARD

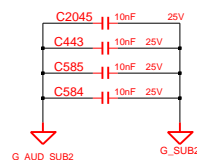
ADAPTERIN/CHARGING LED



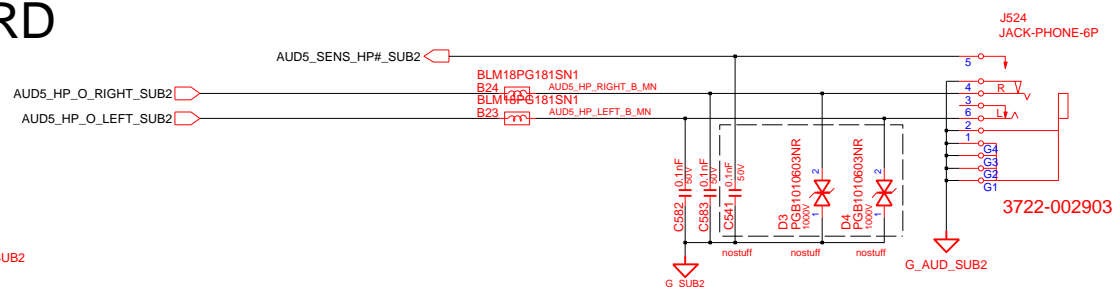
SUB TO MAIN



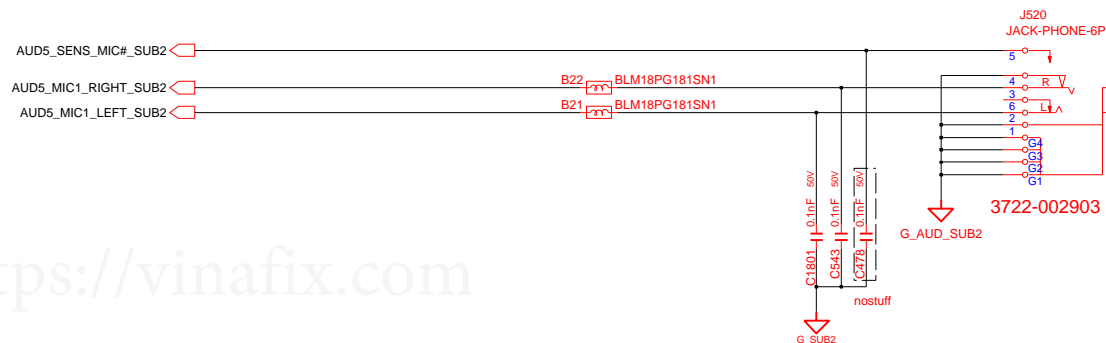
AUDIO + LED SUB BOARD MOUNT HOLE



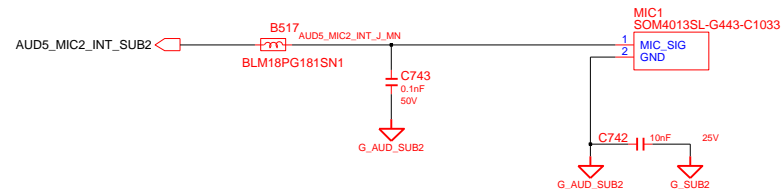
HEADPHONE



MIC JACK



Internal MIC



DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	KS CHO	DEV. STEP	ADV1		HDA_CODEC & LED SUB	
APPROVAL	JG KOO	REV	REV 0.7		AUDIO JACK & LED SUB	
MODULE CODE		LAST EDIT				
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DESIGN	BR. LEE	DATE	7/14/2010	Europa/Shark14-HRV LAN LAN_Realtek_RTL8111E)	SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1			
APPROVAL	JG KOO	REV	REV 0.7		PART NO.	BA41-####A
MODULE CODE	LAST EDIT				October 04, 2010 09:50:32 AM	PAGE 36 OF 58

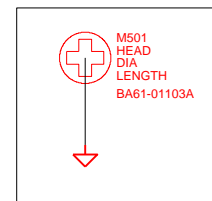
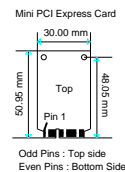
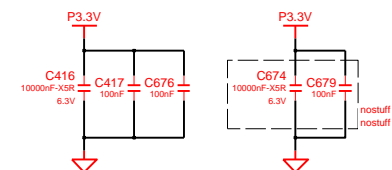
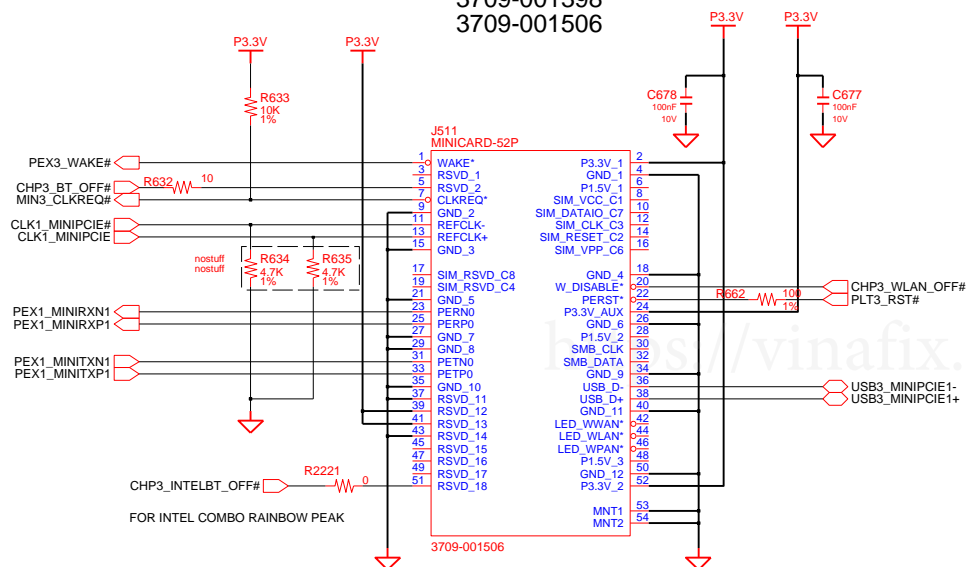
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WLAN

Height : 7.0mm

3709-001398
3709-001506



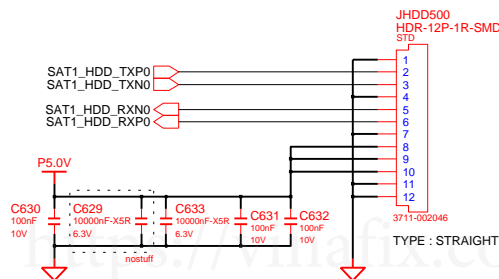
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APPROVAL	JG KOO	REV	REV 0.7		WLAN	
MODULE CODE		LAST EDIT				PART NO. BA41-####A
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SATA I/F CONN

SATA HDD CONN

Cable Connector Type



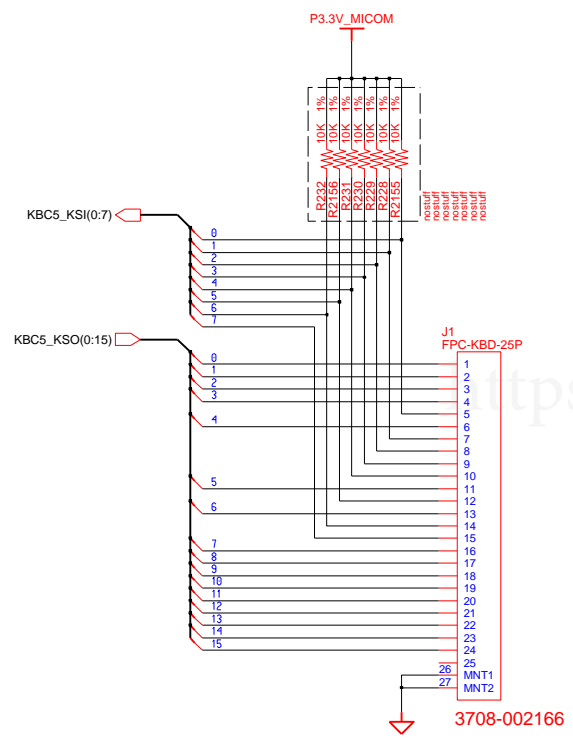
FFC/FPC Type : 3708-002582

DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG
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APPROVAL	JG KOO	REV	REV 0.7		SATA I/F	PART NO.
MODULE CODE		LAST EDIT				BA41-####A
				October 04, 2010 09:50:32 AM	PAGE	38 OF 58

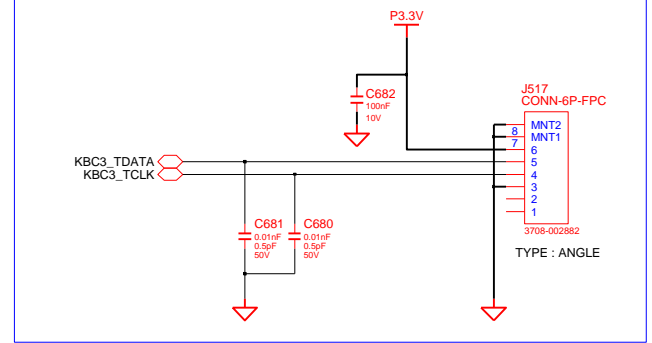
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Micom Glue Logic

KEYBOARD

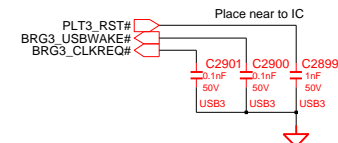


FOR IMAGE SENSOR TOUCHPAD

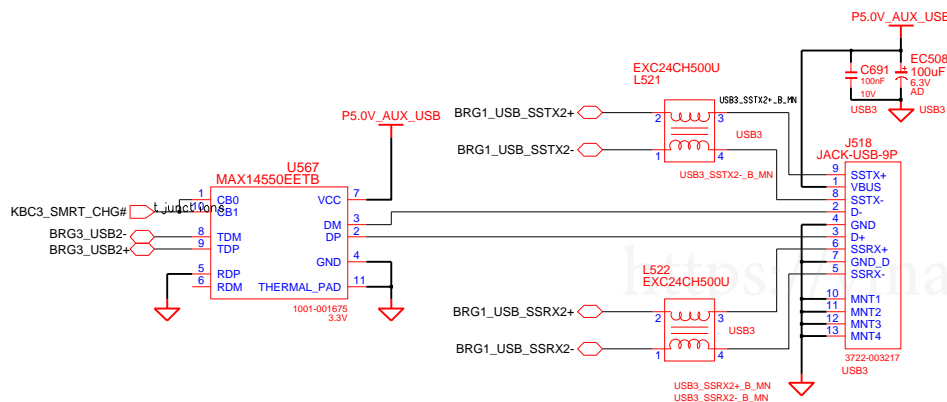


DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV MICOM MICOM GLUE LOGIC	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1			PART NO. BA41-####A
APPROVAL	JG KOO	REV	REV 0.7			
MODULE CODE		LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	40	OF 58

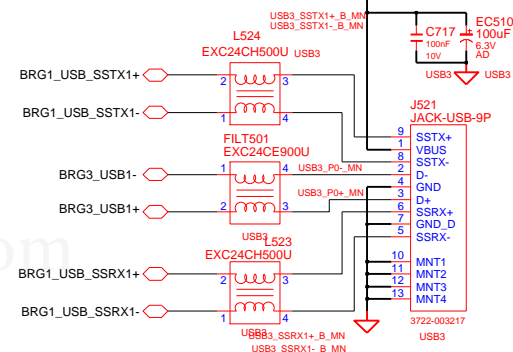
The schematic diagram illustrates the internal circuitry of the U22 UPD72000AF1-DAP-A module. The module is powered by a 5V supply (P3.3V_USB) and a 3.3V supply (P3.3V_USB). The power supply section includes a 5V regulator (R2238) and a 3.3V regulator (R2238). The signal conditioning section includes a 24MHz crystal (Y503) and various capacitors and resistors. The module is connected to a USB3 port (P3.3V_USB) and a 5V power supply (P3.3V_USB). The diagram also shows the module's connection to a host system via a 10-pin connector (U22).



DRAW	BR.LEE	DATE	7/14/2010	TITLE Europa/Shark14-HRV USB 3.0 BRIDGE USB 3.0 BRIDGE		SAMSUNG ELECTRONICS			
CHECK	KS CHO	DEV. STEP	ADV1			PART NO.	BA41-####A		
APPROVAL	JG KOO	REV	REV 0.7						
MODULE CODE	LAST EDIT		October 04, 2010 09:50:32 AM			PAGE	41	OF	58



Need 2A Routing



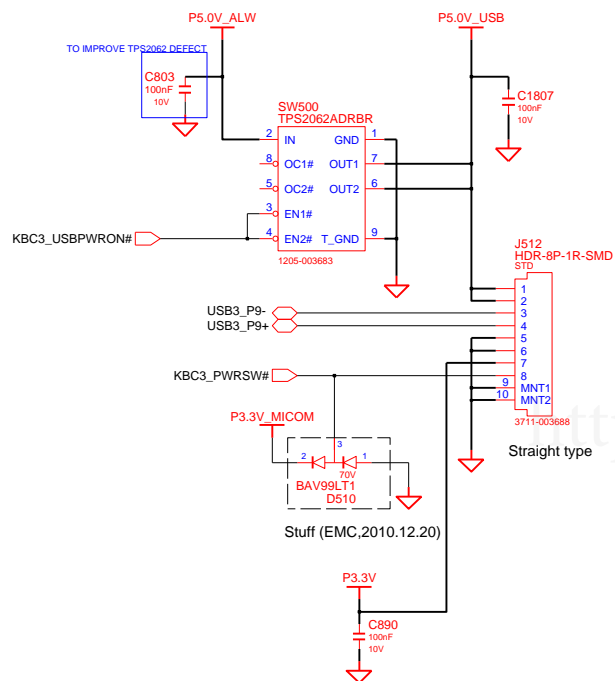
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DRAW	BR. LEE	DATE	7/14/2010	Europa/Shark14-HRV USB & BLUETOOTH USB & BLUETOOTH	SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1			
APPROVAL	JG KOO	REV	REV 0.7		PART NO.	BA41-####A
MODULE CODE	LAST EDIT				October 04, 2010 09:50:32 AM	PAGE 42 OF 58

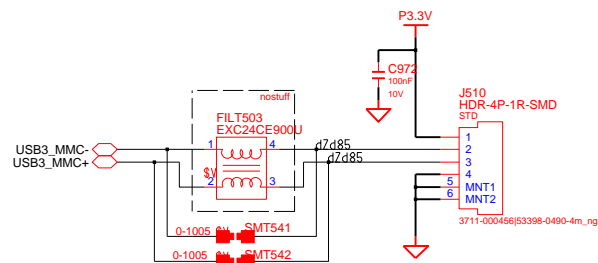
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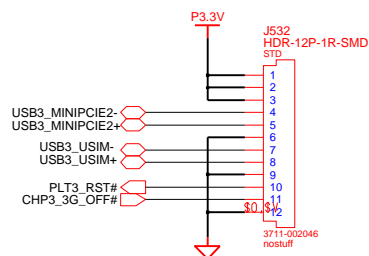
POWER S/W SUB B'D CONN.



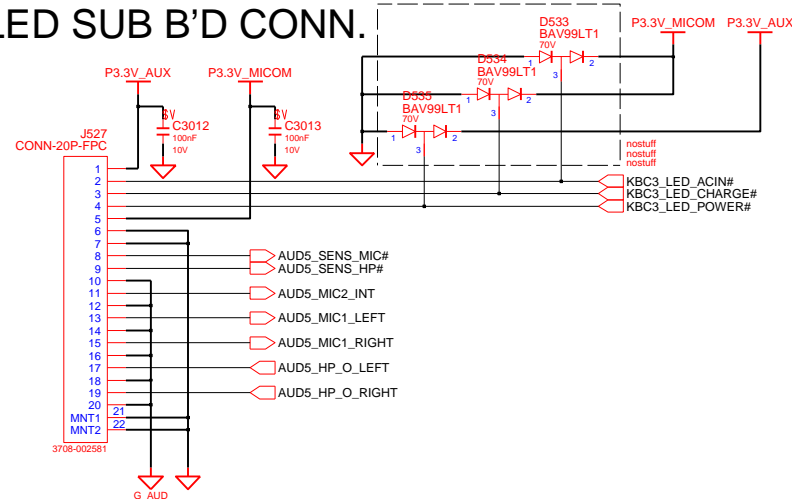
3IN1 SUB B'D CONN.



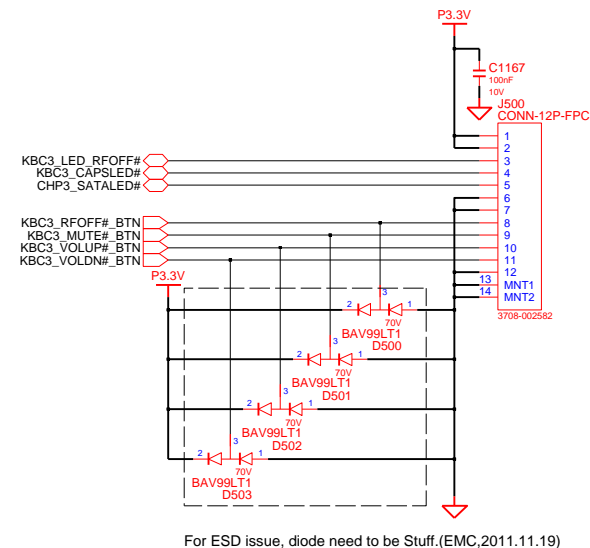
HSDPA SUB B'D CONN.



AUDIO&LED SUB B'D CONN.



MULTIMEDIA SUB B'D CONN.

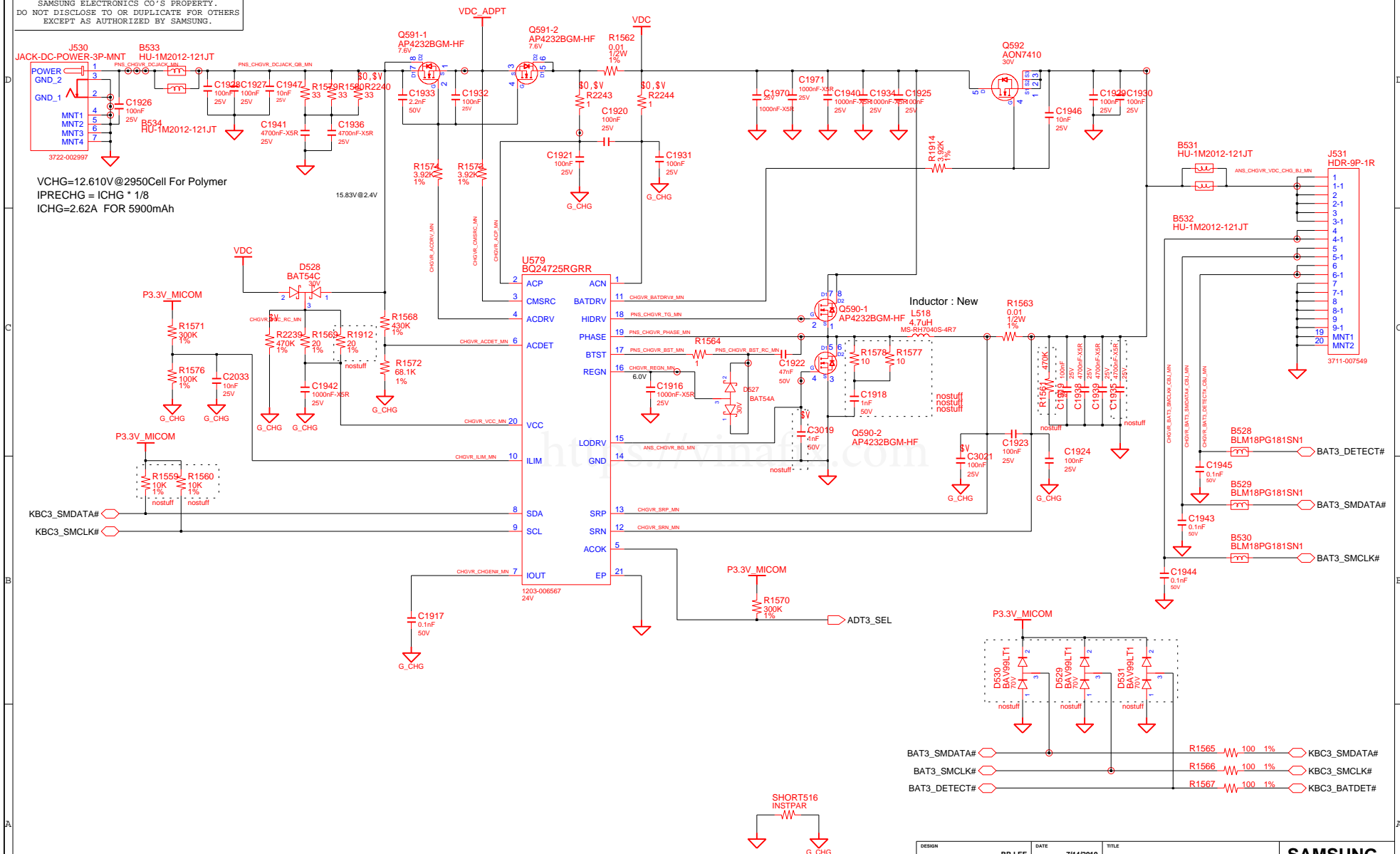


For ESD issue, diode need to be Stuff.(EMC,2011.11.19)

DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		SUB BOARD CONNECTOR	
APPROVAL	JG KOO	REV	REV 0.7		MAIN TO SUB	
MODULE CODE		LAST EDIT				
October 04, 2010 09:50:32 AM						PAGE 43 OF 58

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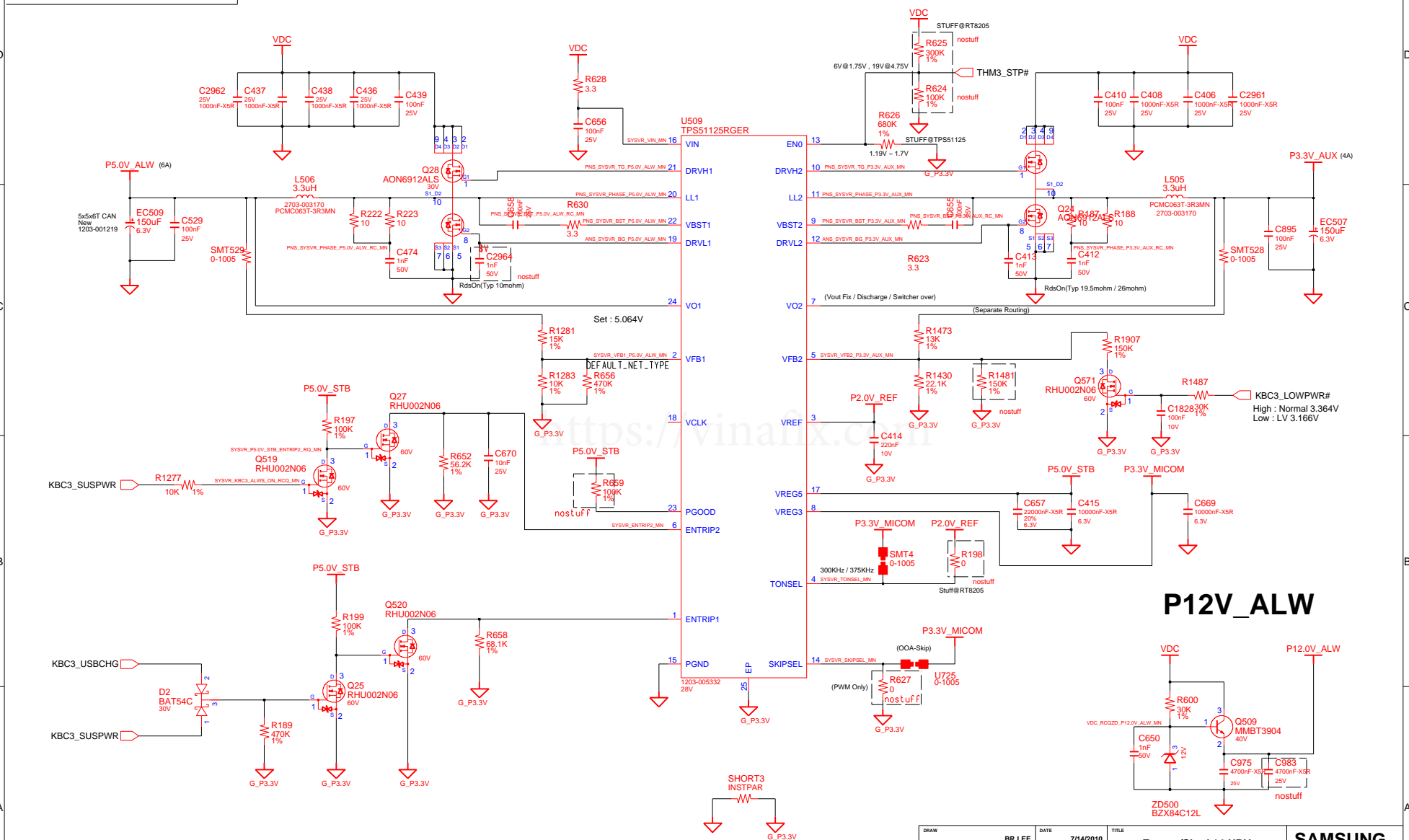
CHARGER & POWER MANAGEMENT



DESIGN	BR.LEE	DATE	7/14/2010	Europa/Shark14-HRV CHARGER PWR CJARGER [WR	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		
APPROVAL	JG KOO	REV	REV 0.7		
MODULE CODE			LAST EDIT		
				October 04, 2010 09:50:32 AM	PAGE 44 OF 58

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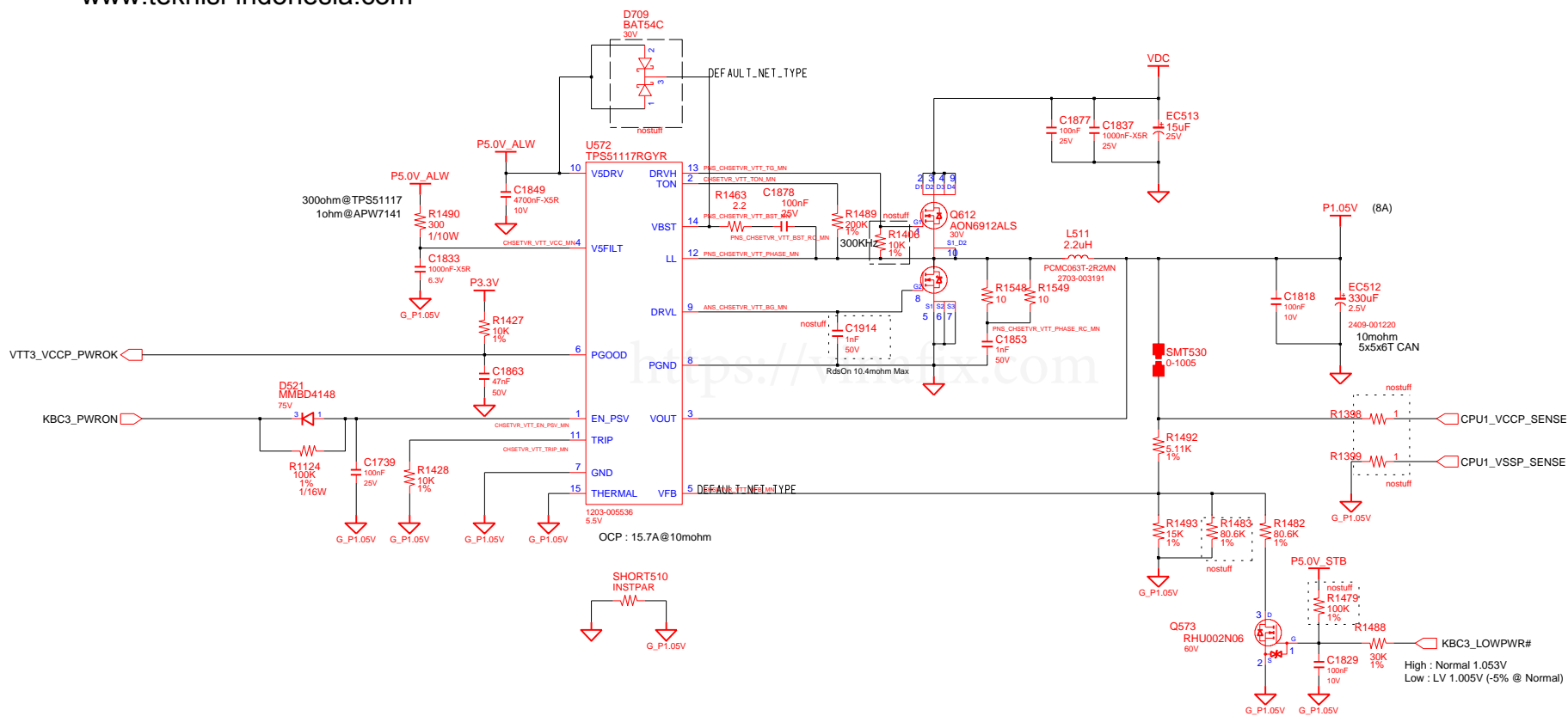
P3.3V_AUX & P5.0V_ALW



P12V_ALW

DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	KS CHO	DEV. STEP	ADV1		P3.3V_AUX & P5.0V_ALW	
APPROVAL	JG KOO	REV	REV 0.7		P3.3V_AUX & P5.0V_ALW	
MODULE CODE	undefined	LAST EDIT				
October 04, 2010 09:50:32 AM					PAGE	45 OF 58

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DESIGN	BR.LEE	DATE	7/14/2010	TITLE Europa/Shark14-HRV CHIPSET PWR P1.05V	SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV STEP	ADV1			
APPROVAL	JG KOO	REV	REV 0.7		PART NO.	BA41-#####
MODULE CODE	LAST EDIT				October 04, 2010 09:50:32 AM	PAGE 46 OF 58

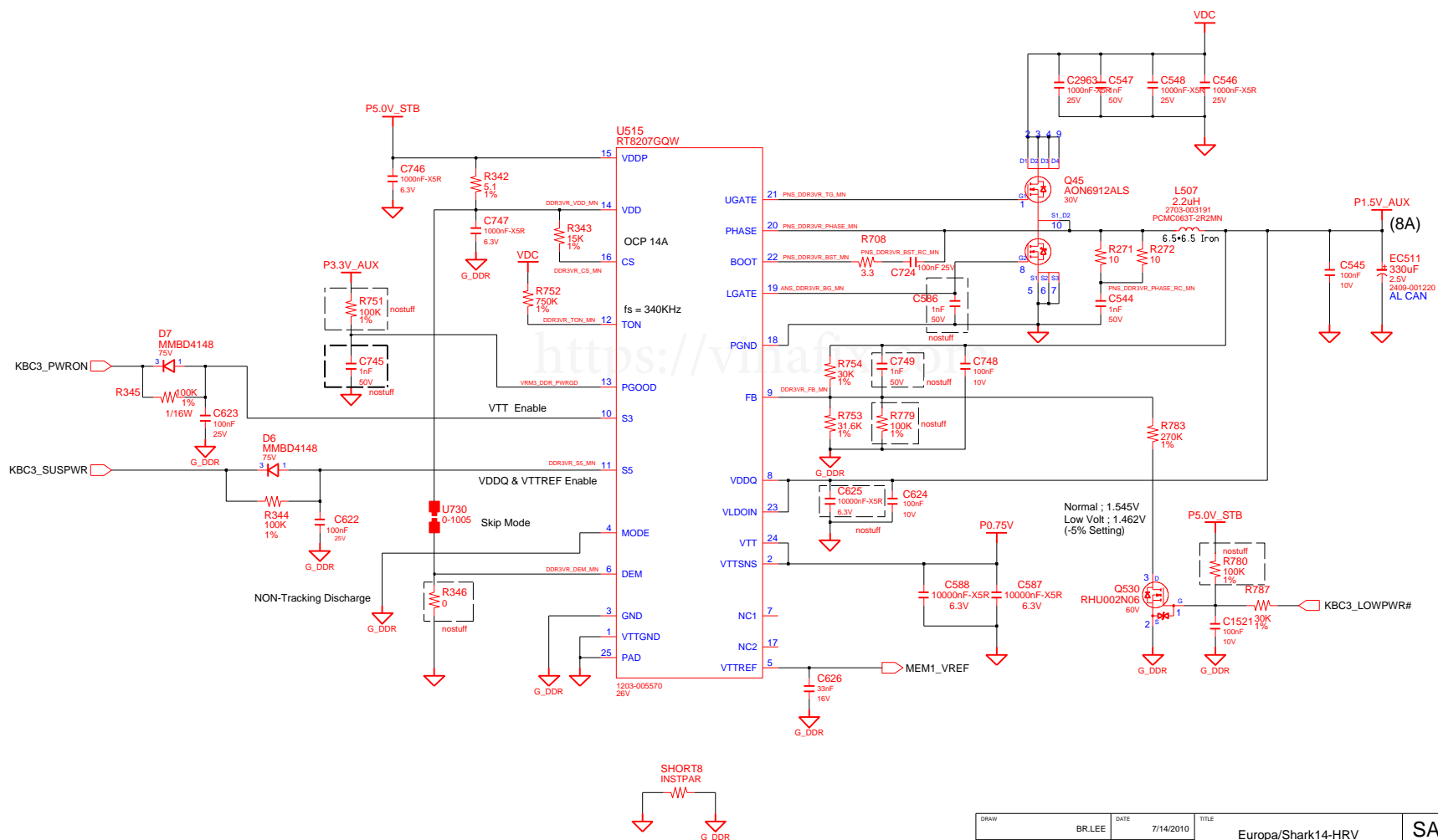
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DESIGN	BR LEE	DATE	7/14/2010	Europa/Shark14-HRV VCCSA VCCSA	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		
APPROVAL	JG KOO	REV	REV 0.7		
MODULE CODE	LAST EDIT			October 04, 2010 09:50:32 AM	PAGE 47 OF

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DDR3 Power

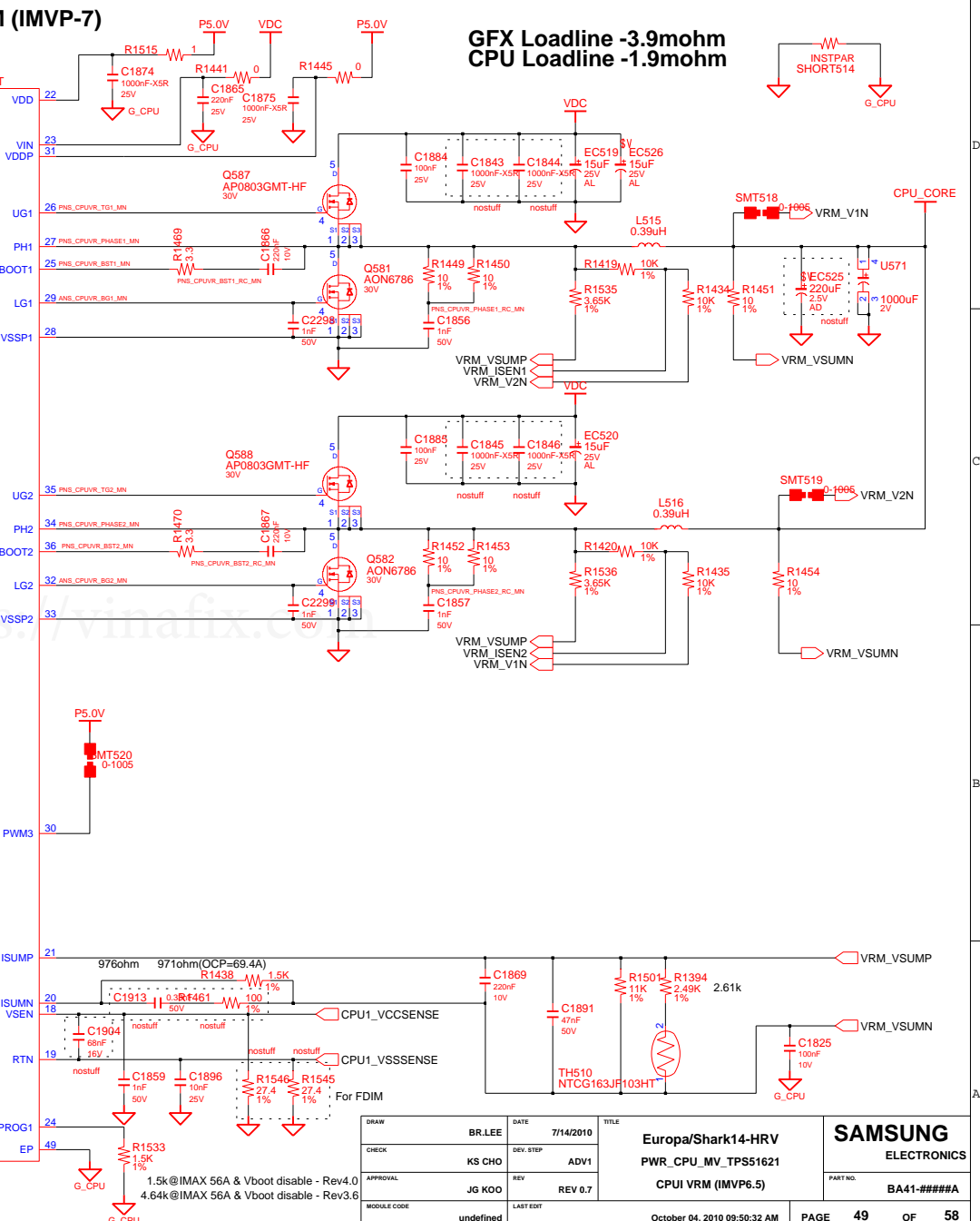
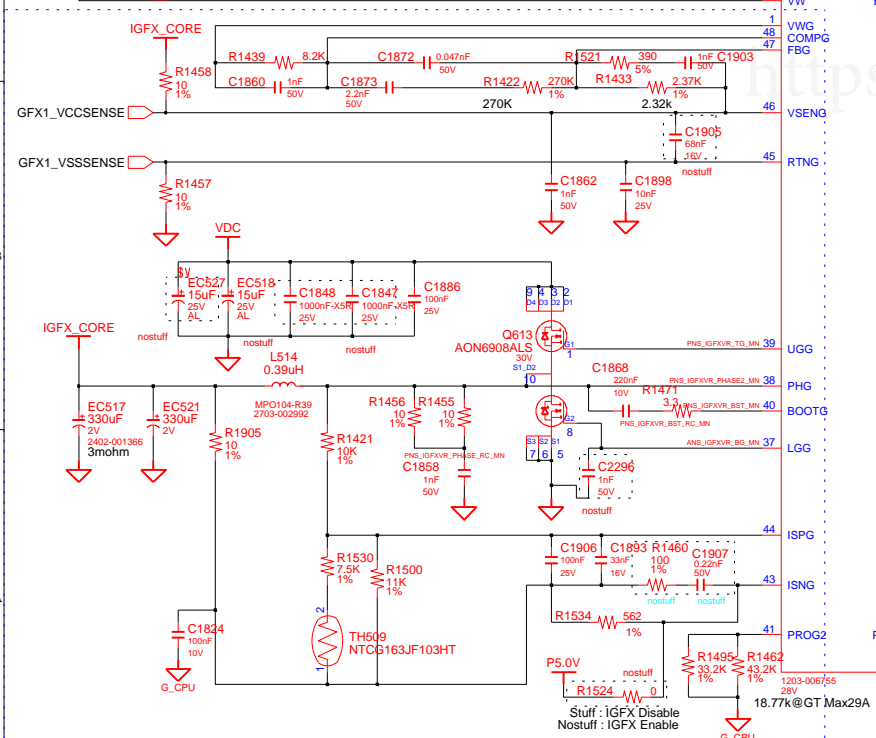
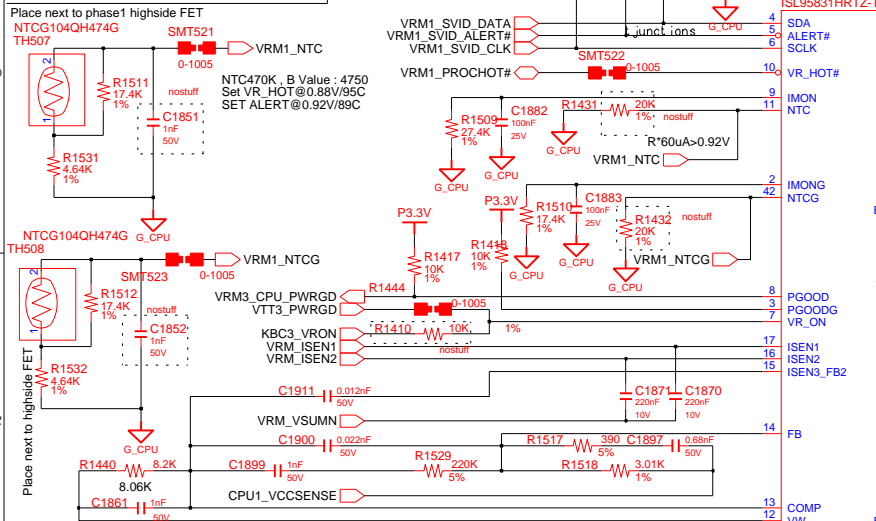


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DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		P1.05V	
APPROVAL	JG KOO	REV	REV 0.7		TI TPS51125	
MODULE CODE	undefined	LAST EDIT	October 04, 2010 09:50:32 AM	PAGE	48	OF 58

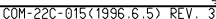
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Place next to phase1 highside FET
NTCG104QH474G SMT521



DRAW	BR.LEE	DATE	7/14/2010	Europa/Shark14-HRV PWR_CPU_MV_TPS51621 CPUI VRM (IMVP6.5)	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		
APPROVAL	JG KOO	REV	REV 0.7		
MODULE CODE			undefined		
				October 04, 2010 09:50:32 AM	PAGE 49 OF 58

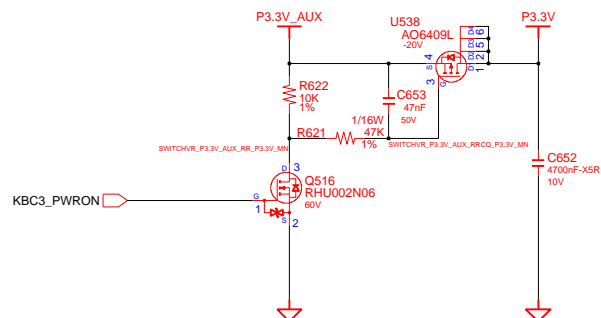
Referred from Pocafeb14



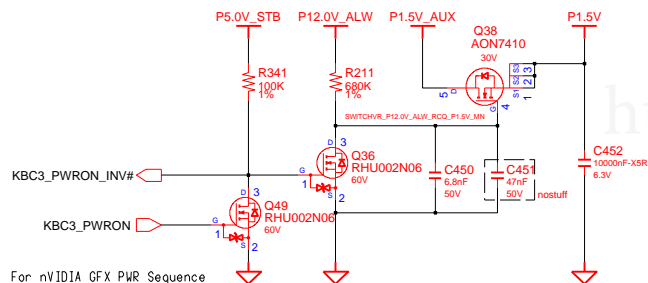
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P5.0V_AUX

Multi@AP2607GY



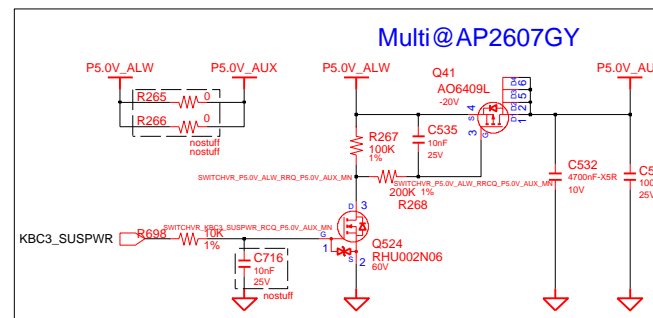
Switched Power On (P1.5V)



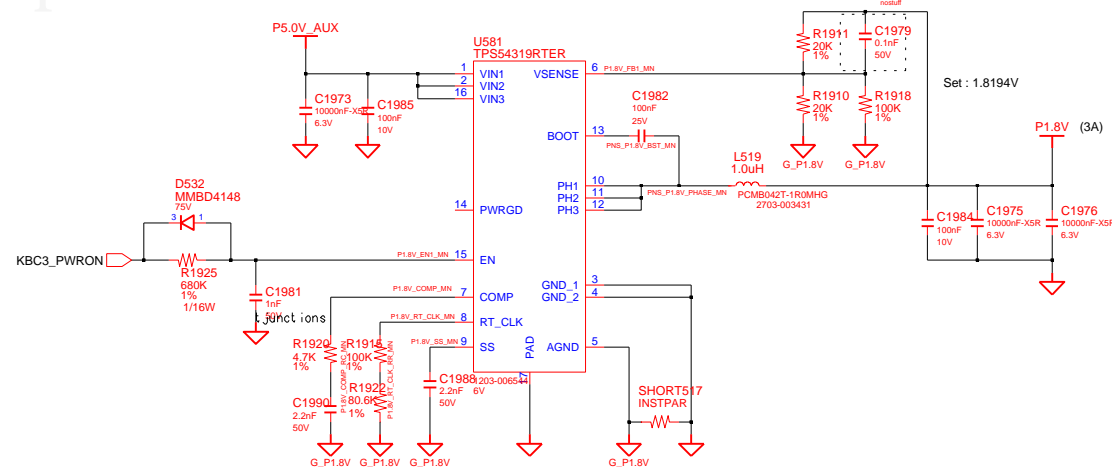
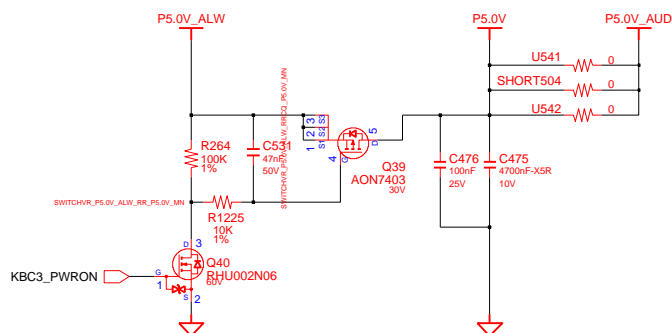
For nVIDIA GFX PWR Sequence


NVDD(EGFX_CORE) first and then FBVDDQ(qDDR3)

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



Switched Power On (P5.0V)

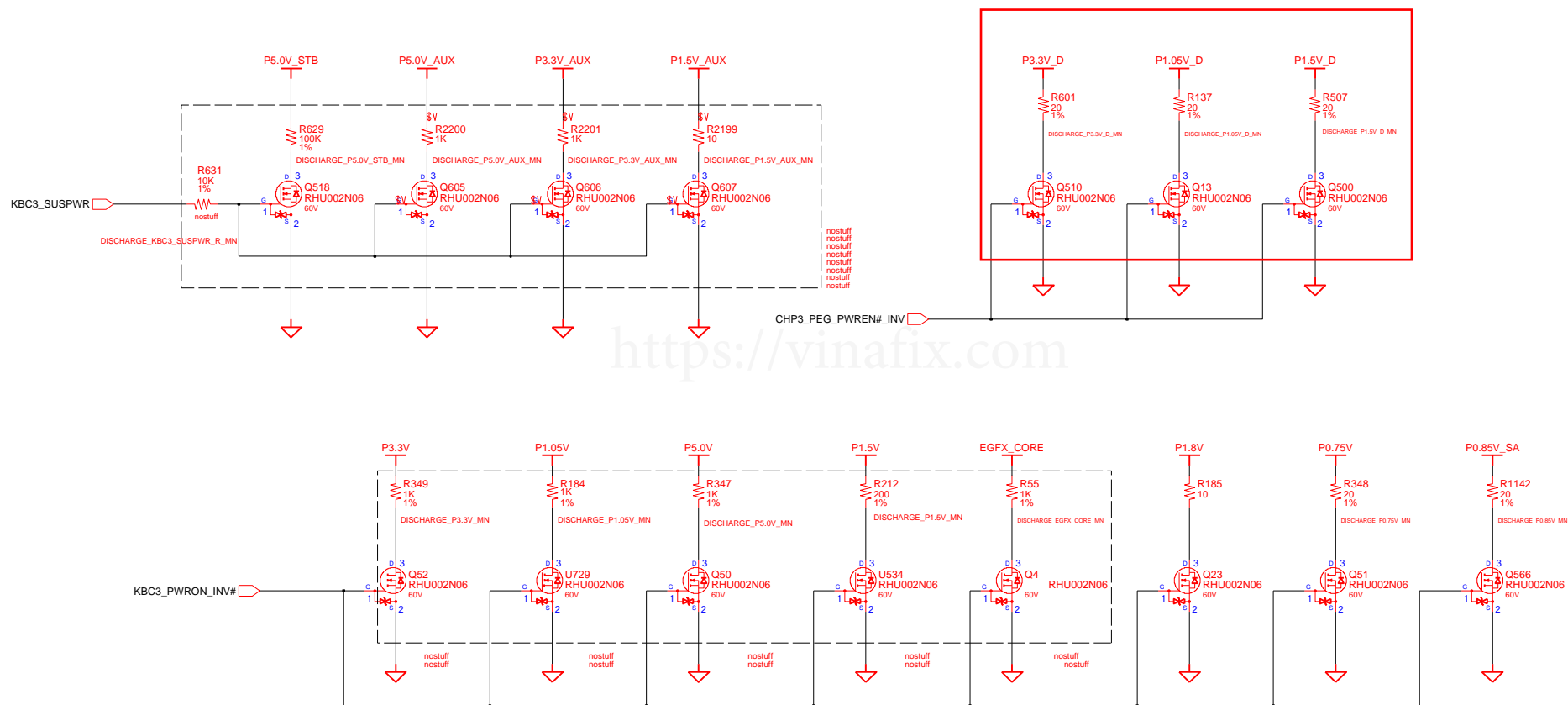


DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV		
CHECK	KS CHO	DEV. STEP	ADV1	PWR_MV_SWITCHED			
APPROVAL	JG KOO	REV	REV 0.7	SWITCHED POWER		PART NO.	BA41-####A
MODULE CODE	LAST EDIT				October 04, 2010 09:50:32 AM	PAGE	51 OF 58

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POWER DISCHARGER



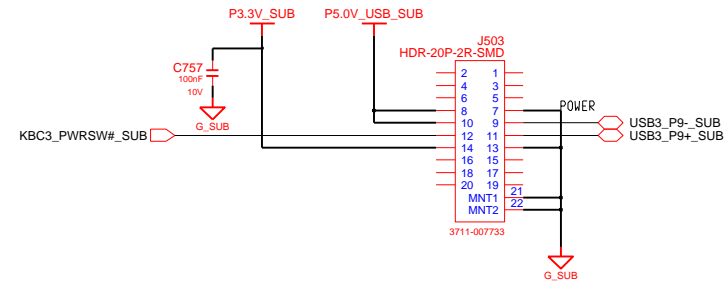
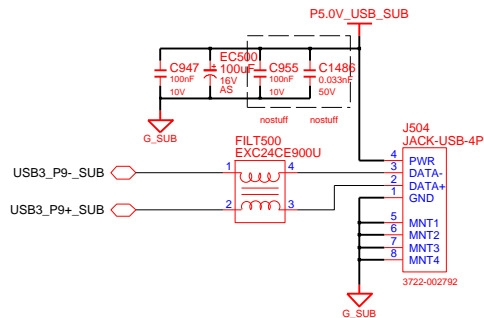
DRAW	BR.LEE	DATE	7/14/2010	Europa/Shark14-HRV PWR_MV_DISCHARGER DISCHARGING LOGIC		SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1				
APPROVAL	JG KOO	REV	REV 0.7				
				PART NO.		BA41-#####	
MODULE CODE		undefined		LAST EDIT		October 04, 2010 09:50:32 AM	
				PAGE		52	OF 58

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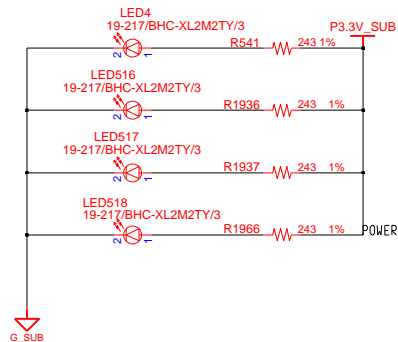
1 USB PORT & POWER S/W SUB B'D

USB 1PORT



Power ON LED

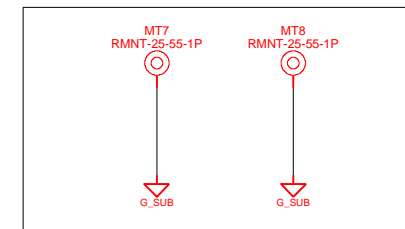
Put this LED located near PWRSW from ME recommendation
Power LED, Blue color



Power Switch Button



SUB TO MAIN USB & POWER S/W CONN



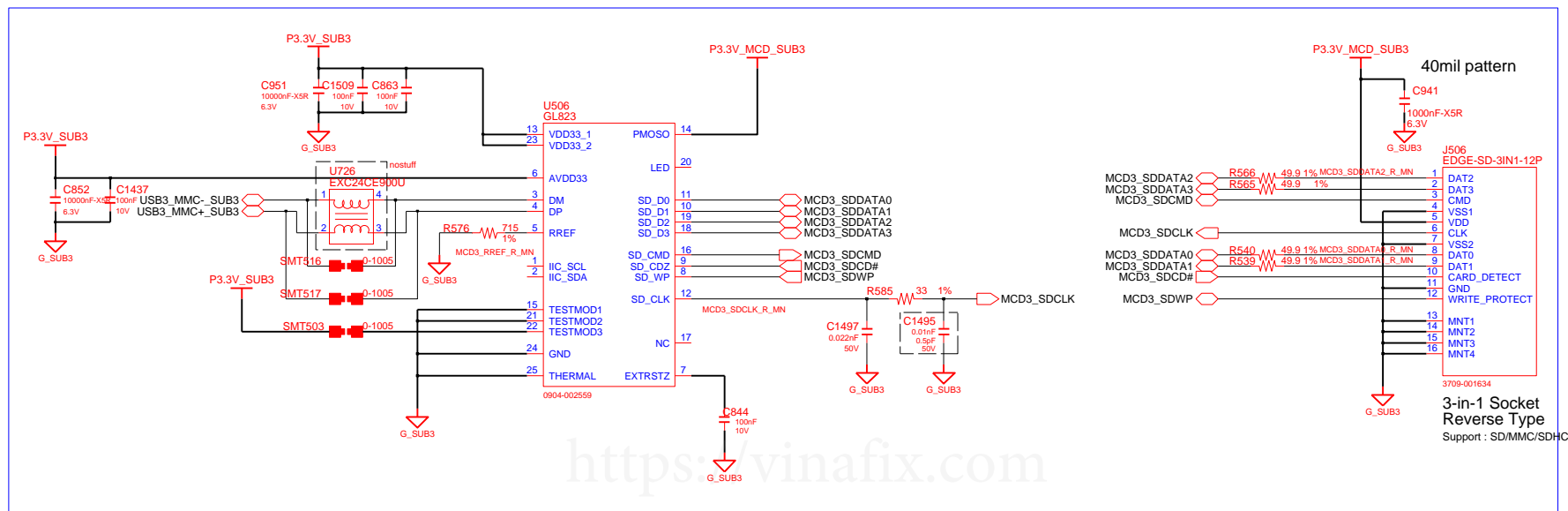
USB sub board mount hole

DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		SUB BOARD1	
APPROVAL	JG KOO	REV	REV 0.7		1 USB & POWER SW	
MODULE CODE		LAST EDIT		October 04, 2010 09:50:32 AM	PAGE 53 OF 58	PART NO. BA41-####A

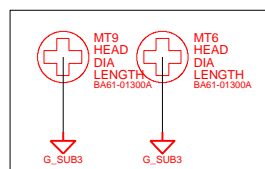
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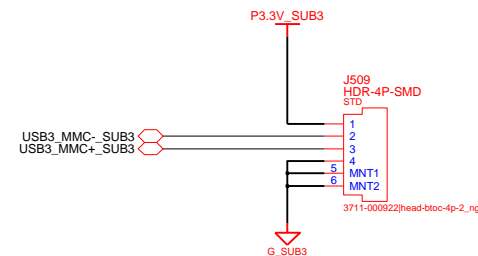
3 IN 1 CARD (GL823) SUB



Cost down 0.014\$ to AU6366



3 IN 1 CARD SUB PEM



DESIGN	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1		3 IN 1 SUB	
APPROVAL	JG KOO	REV	REV 0.7		GL823	
MODULE CODE		LAST EDIT				PART NO. BA41-####A
October 04, 2010 09:50:32 AM						PAGE 54 OF 58

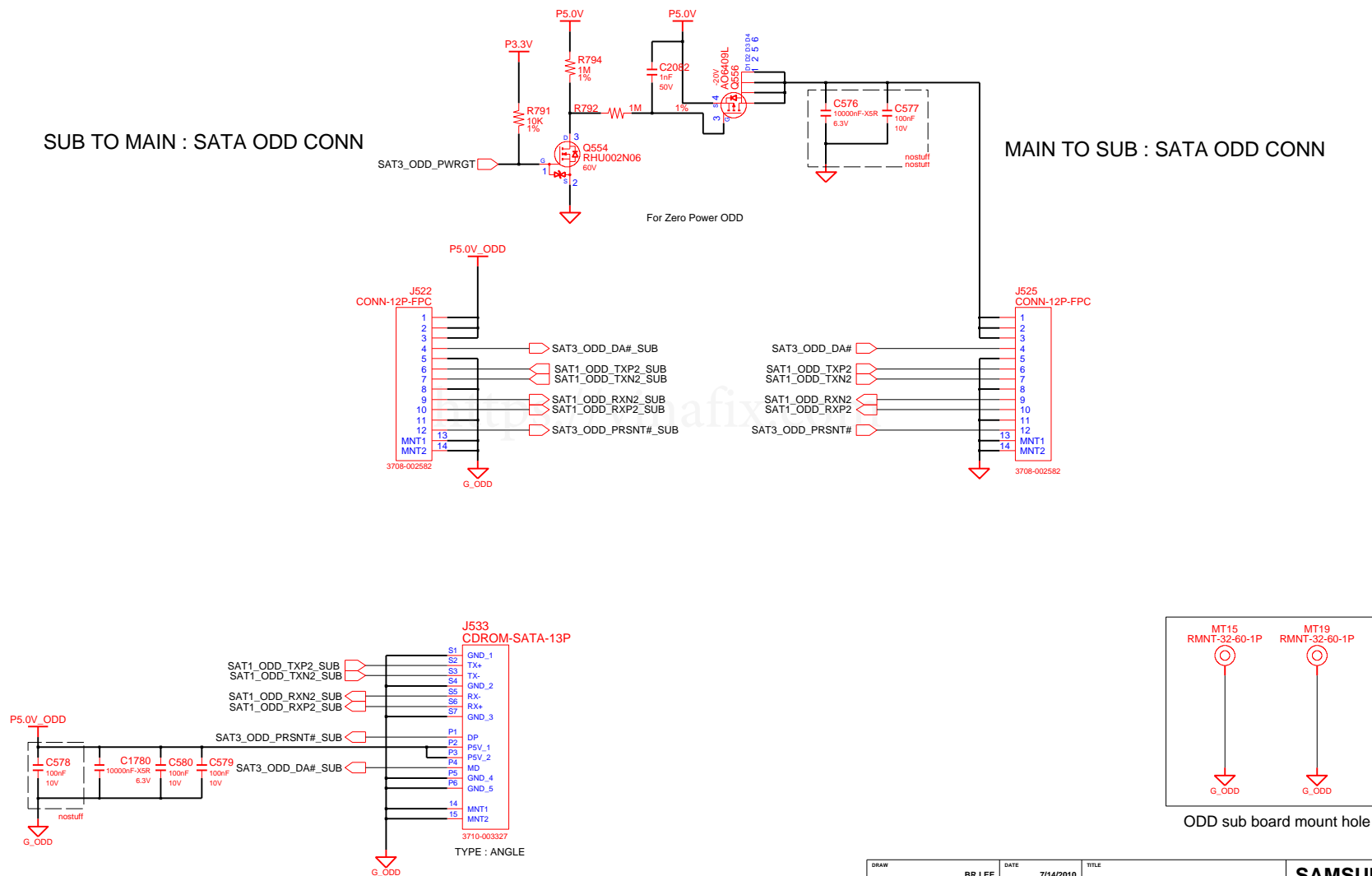
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SATA ODD SUB BOARD

SUB TO MAIN : SATA ODD CONN

MAIN TO SUB : SATA ODD CONN

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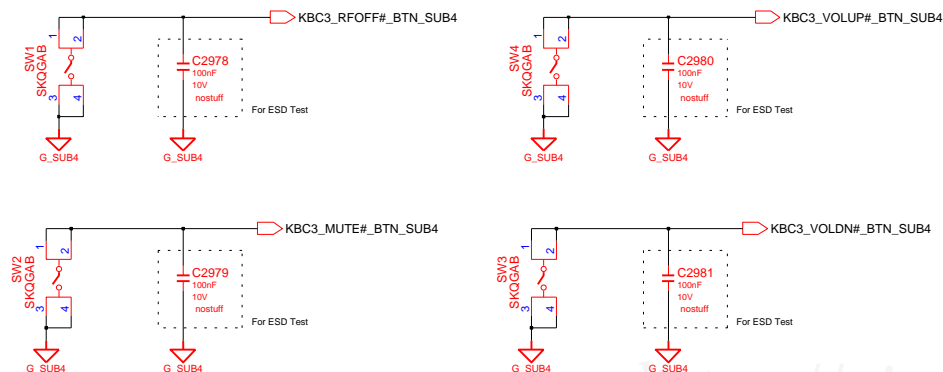
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CHECK	KS CHO	DEV. STEP	ADV1		ODD SUB	
APPROVAL	JG KOO	REV	REV 0.7		ODD SUB	
MODULE CODE		LAST EDIT		October 04, 2010 09:50:32 AM	PAGE	55 OF 58

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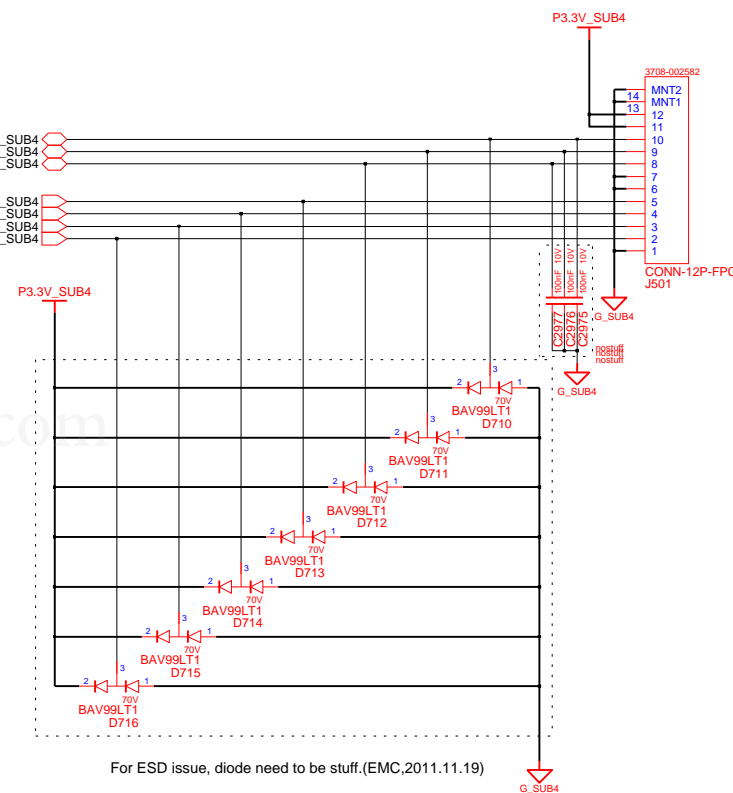
Multimedia SUB BOARD

Multimedia SUB to MAIN

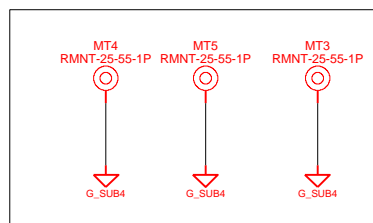
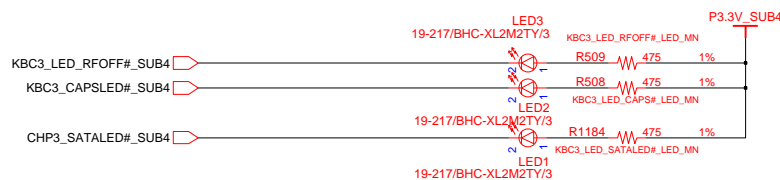


KBC3_LED_RFOFF#_SUB4
KBC3_CAPSLED#_SUB4
CHP3_SATALED#_SUB4

KBC3_RFOFF#_BTN_SUB4
KBC3_MUTE#_BTN_SUB4
KBC3_VOLUP#_BTN_SUB4
KBC3_VOLDN#_BTN_SUB4



Multimedia SUB LED

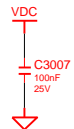
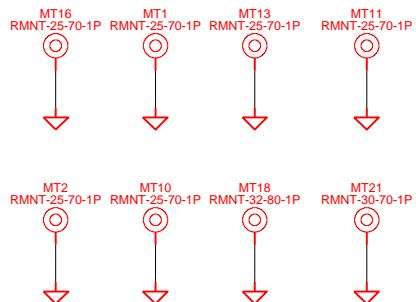


MULTIMEDIA SUB PEM

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CHECK	KS CHO	DEV. STEP	ADV1		MULTIMEDIA SUB	
APPROVAL	JG KOO	REV	REV 0.7		MULTIMEDIA SUB	
MODULE CODE		LAST EDIT				PART NO. BA41-####A
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For EMI (2010.10.29)



DESIGN	BR.LEE	DATE	7/14/2010	Europa/Shark14-HRV MOUNT HOLE MOUNT HOLE	SAMSUNG ELECTRONICS	
CHECK	KS CHO	DEV. STEP	ADV1			
APPROVAL	JG KOO	REV	REV 0.7		PART NO.	BA41-####A
MODULE CODE	LAST EDIT				October 04, 2010 09:50:32 AM	PAGE 57 OF 58

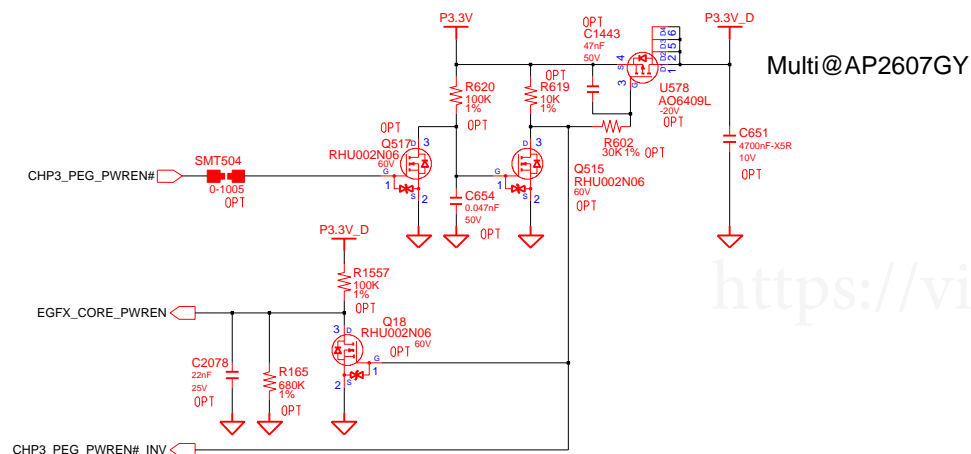
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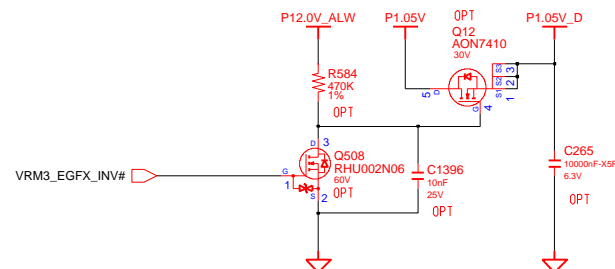
Switched Power 2 (For nVidia GFX Power Sequence)

Sequence (D3.3V -> GFX Core -> D1.5V -> D1.05V)

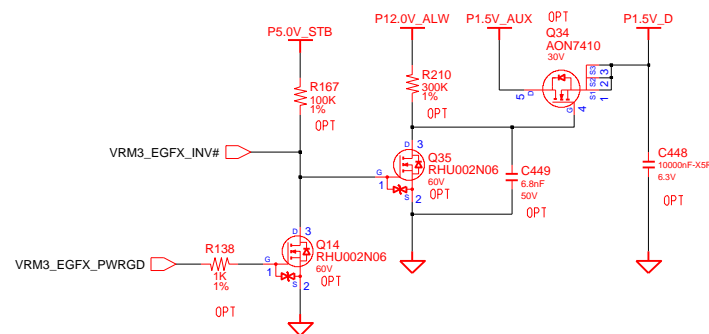
Discrete Switched Power (D3.3V : Max_1.2A)



Discrete Switched Power (D1.05V : Max 3.6A)



Discrete Switched Power (D1.5V : Max 5.0A)



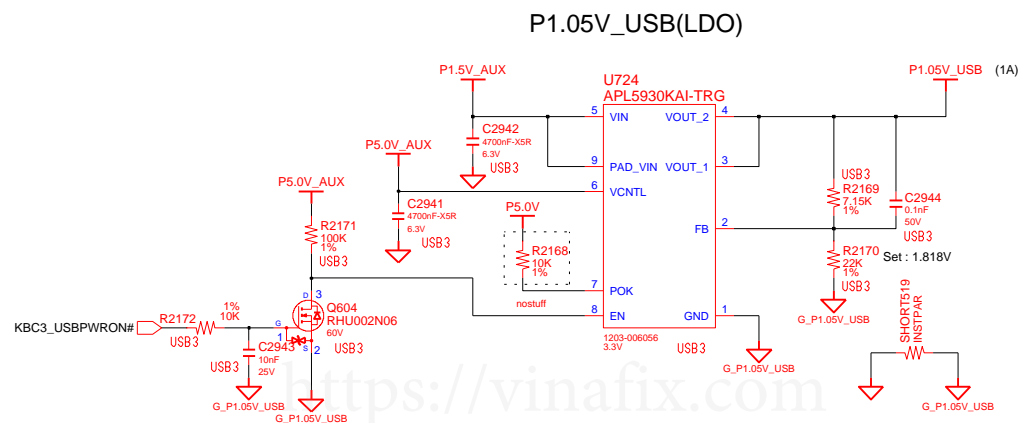
DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	KS CHO	DEV. STEP	ADV1		Switched PWR 2	
APPROVAL	JG KOO	REV	REV 0.7		FOR OPTIMUS PWR	
MODULE CODE		LAST EDIT				
October 04, 2010 09:50:32 AM						PAGE 58 OF 58

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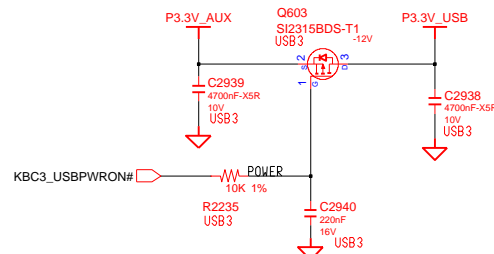
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Switched Power FOR USB3.0

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Switched Power On (P3.3V_USB)



DRAW	BR.LEE	DATE	7/14/2010	TITLE	Europa/Shark14-HRV	SAMSUNG ELECTRONICS
CHECK	KS CHO	DEV. STEP	ADV1	Switched PWR 2		
APPROVAL	JG KOO	REV	REV 0.7	FOR OPTIMUS PWR	PART NO. BA41-####A	
MODULE CODE		LAST EDIT		October 04, 2010 09:50:32 AM	PAGE 58 OF 58	