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# Scala3-14CRV

CPU : IVY Bridge PGA

Chip Set : Intel Panther Point

GFX : NVIDIA N13M-GS/GE

Remarks : Chief River Platform

Model Name : Scala3-14CRV

PBA Name : MAIN\_Dual

PCB Code : BA41-02092A (GCE)  
BA41-02093A (HST)  
BA41-02094A (PTC)  
BA41-02098A (GBM)

Dev. Step : MP

Revision : 1.1

T.R. Date : 2012.06.14

Design	CHECK	APPROVAL
Tao Xiaofeng	Chu XF	BL LEE

Owner : SEC Mobile R & D

Signature :

X

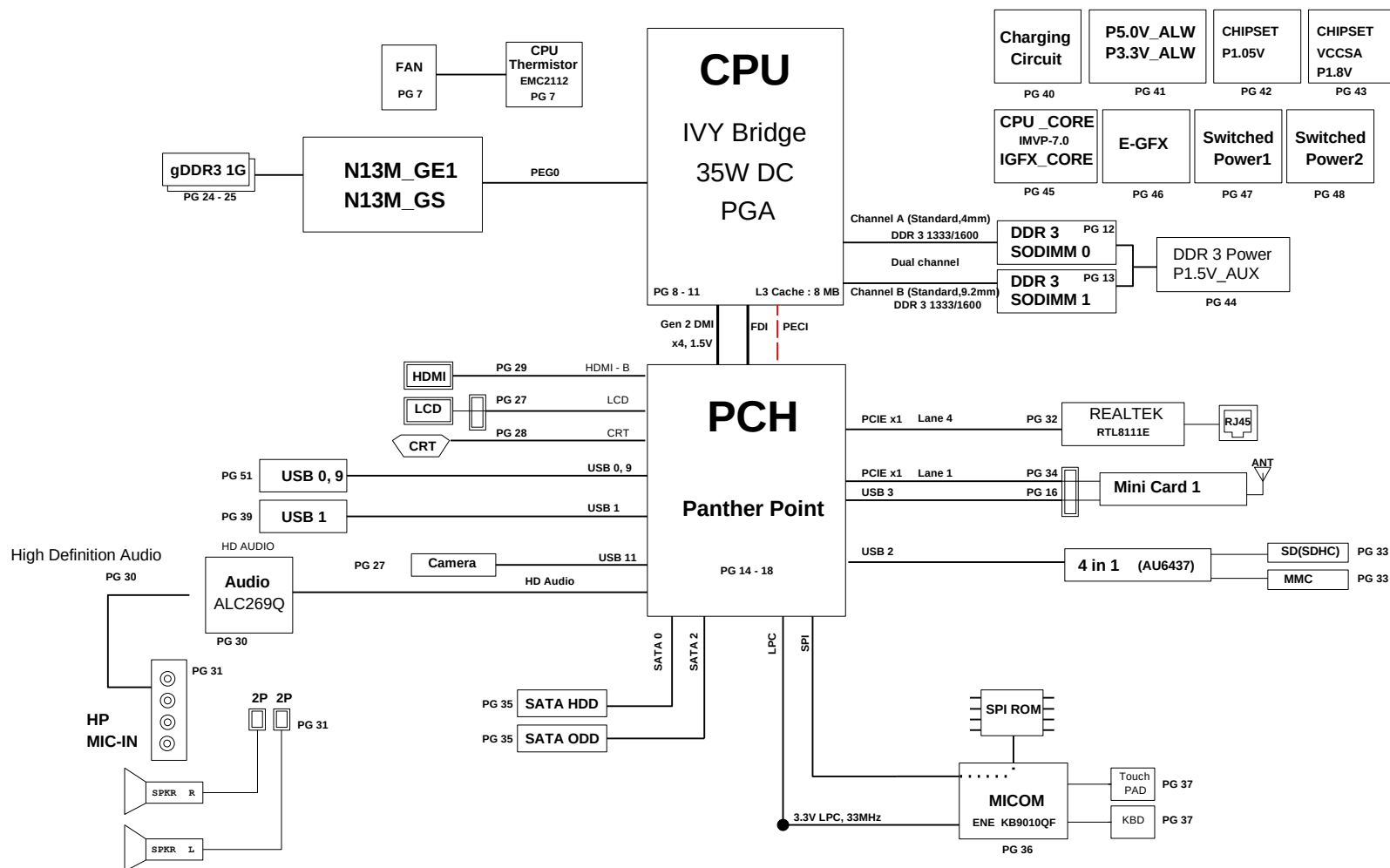
sheet01 : Cover  
sheet02 : BLOCK DIAGRAM  
sheet03 : BOARD INFORMATION  
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sheet05 : CLOCK DISTRIBUTION  
sheet06 : Green Clock  
sheet07 : Thermal Sensor  
sheet08 : CPU  
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sheet14 : PCH-CougarPoint  
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sheet16 : PCH-CougarPoint  
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sheet20 : N12P-GVR  
sheet21 : N12P-GVR  
sheet22 : N12P-GVR  
sheet23 : N12P-GVR  
sheet24 : GFX memory  
sheet25 : GFX memory  
sheet26 : STRAP

sheet27 : LVDS/CAMERA  
sheet28 : CRT  
sheet29 : HDMI  
sheet30 : Audio - ALC269  
sheet31 : Audio - HP/MIC  
sheet32 : LAN (Realtek RTL8111E)  
sheet33 : 4-in-1 card (AU6437)  
sheet34 : WLAN  
sheet35 : SATA interface  
sheet36 : MICOM / BIOS  
sheet37 : MICOM Glue Logic (KBD / TP)  
sheet38 : LED for 14" & for 15"  
sheet39 : USB connector  
sheet40 : Power - charger  
sheet41 : Power - P3.3V\_AUX / P5.0V\_AUX  
sheet42 : Power - P1.05V (Chipset Power)  
sheet43 : Power - P0.8V (Chipset Power)  
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 / Thermal Hole  
sheet51 : USB Sub B'D

<http://www.repair1.ru/>

DRAW	XF TAO	DATE	11/06/2012	Scala3-14R		SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.1	MAIN COVER			
						BA41-02092-94A	
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM			PAGE	1 OF 51

# BLOCK DIAGRAM



<http://www.repair1.ru/>

DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	MAIN		
APPROVAL	BL LEE	REV	REV 1.0	BLOCK DIAGRAM		
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	2	OF 51

## BOARD INFORMATION

### SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails		Active in
VDC P3.3V_MICOM P5.0V_STB P5.0V_ALW P3.3V_ALW P12.0V_ALW	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 3.3V always power rail 12.0V 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)	
P5.0V P3.3V P1.8V P1.5V P0.75V P0.8V	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) 0.8V switched power rail (off in S3-S5)	
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for COUGARPOINT	
P3.3V_D P1.5V_D P1.05V_D	3.3V discrete power rail for N12X 1.5V discrete power rail for N12X 1.05V discrete power rail for N12X	
		S3
		S0
		S0

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

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

#### Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	HM65	Real Time Clock
Crystal	25MHz	LAN	Intel LAN
Crystal	25MHz	GREENCLK	GREENCLK
Crystal	25MHz	HM65	INTEL
Crystal	27MHz	N12P-GVR	NVIDIA

#### LCD Pannel Detect (TBD)

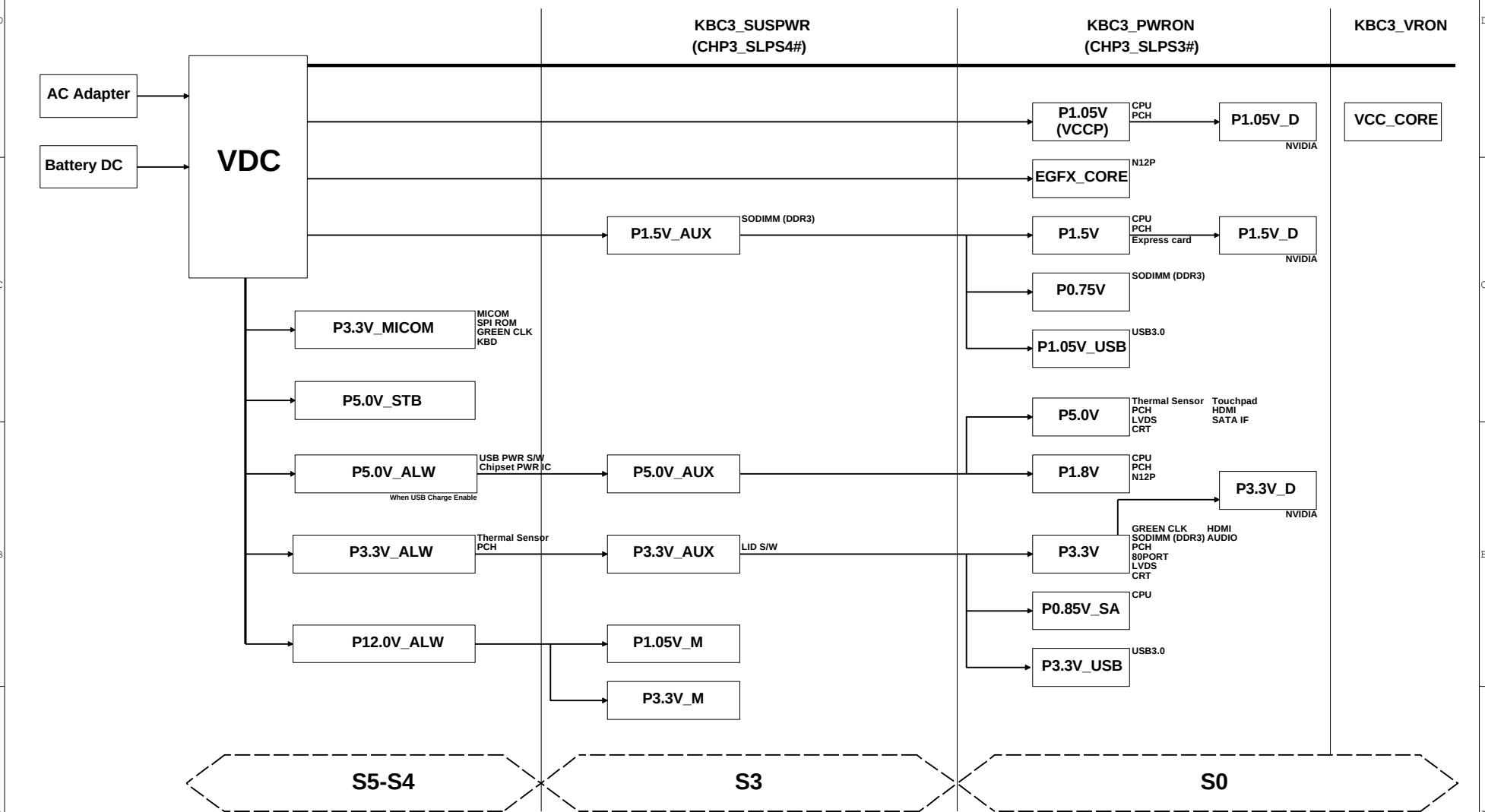
Devices	Resolution	PANNEL_DETECT_0
---------	------------	-----------------

#### I<sup>2</sup>C / SMB Address

Devices	Address	Hex	Bus
HM65	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	Thermal Sensor
SODIMM0	1010 000x	A0h	
SODIMM1	1010 010x	A4h	
Thermal Sensor on SODIMM0	0011 000x	30h	
Thermal Sensor on SODIMM1	0011 010x	34h	
Thermal Sensor on board	1101 100x	98h	
Power thermal management TS	1101 011x	96h	

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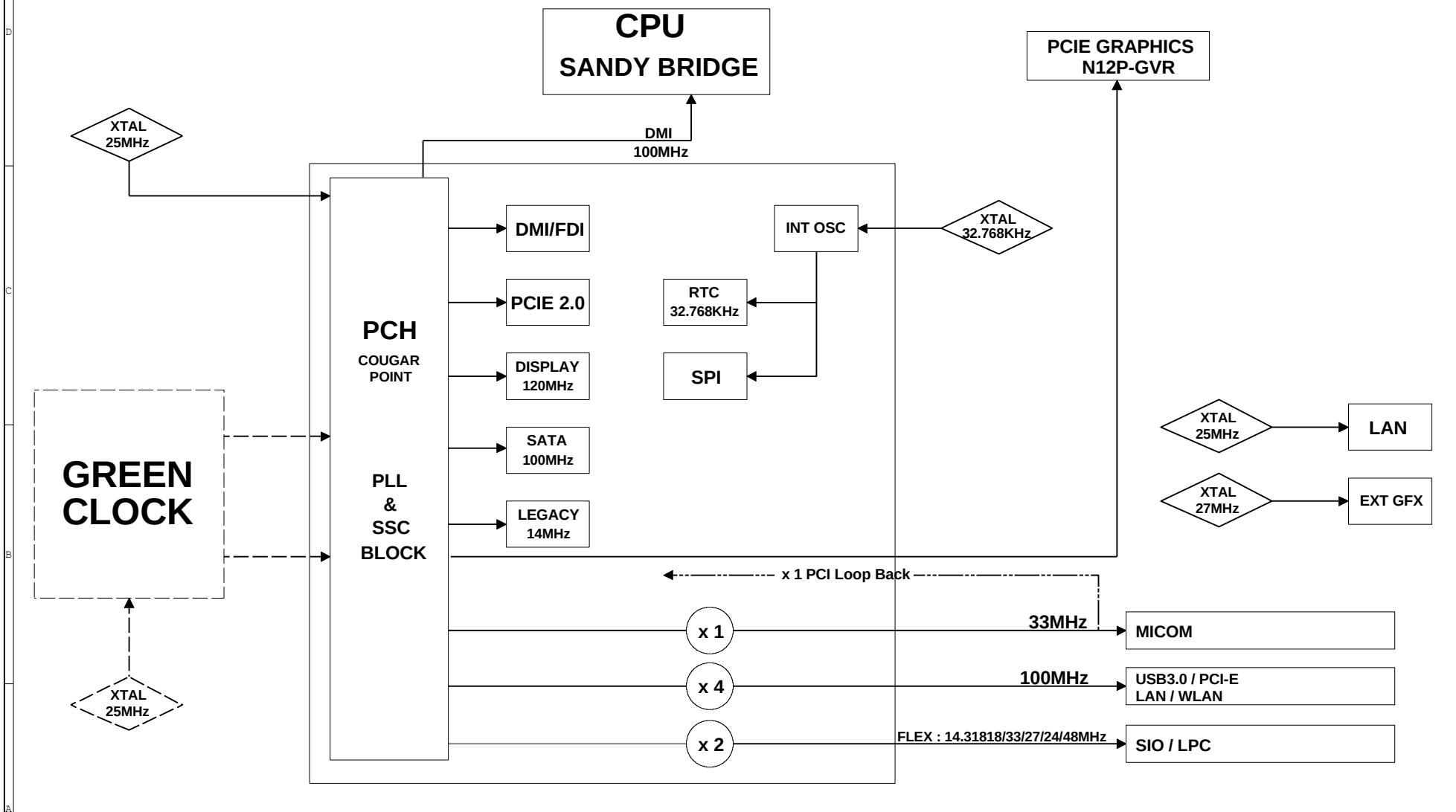
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CHECK	XF CHU	DEV. STEP	MP		MAIN	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.0		BOARD INFO	PART NO.
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	3	BA41-02092-94A
				OF	51	



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DRAW	XF TAO	DATE	23/05/2012	Scala3-14R MAIN POWER DIAGRAM		SAMSUNG ELECTRONICS				
CHECK	XF CHU	DEV. STEP	MP							
APPROVAL	BL LEE	REV	REV 1.0							
				PART NO.	BA41-02092-94A					
MODULE CODE	undefined		LAST EDIT		May 23, 2012 08:40:30 AM		PAGE	4	OF	51

# CLOCK DISTRIBUTION Rev. 0.8

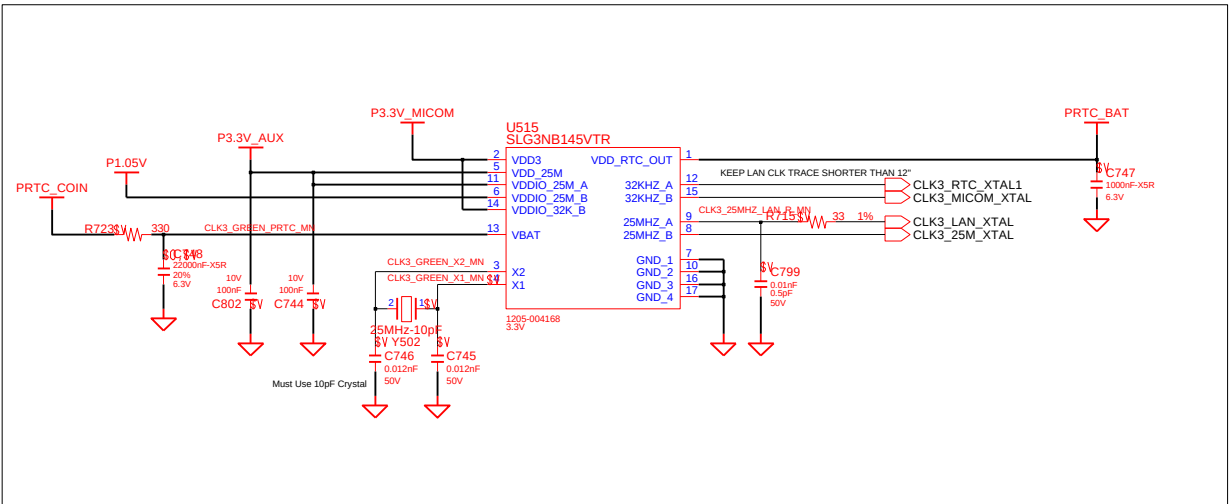


<http://www.repair1.ru/>

DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV. STEP	MP	MAIN		
APPROVAL	BL LEE	REV	REV 1.0	CLOCK DIAGRAM		
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	5 OF 51	

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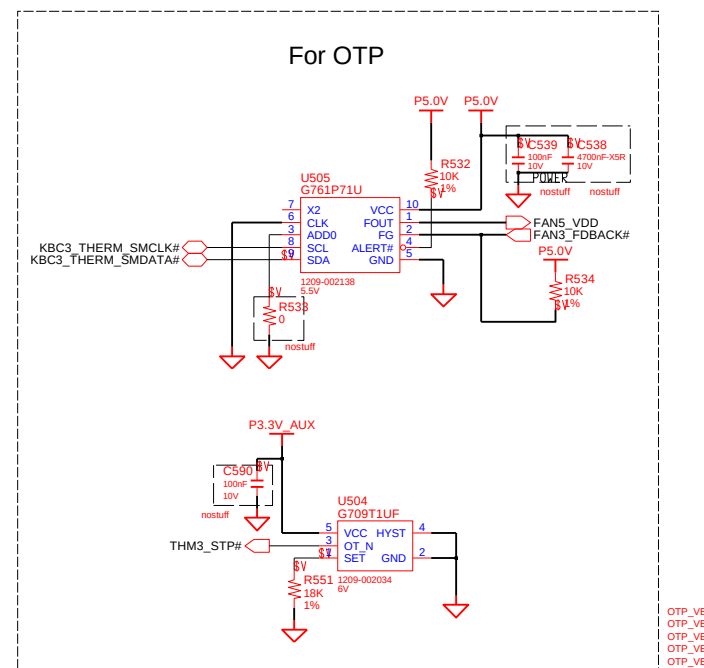
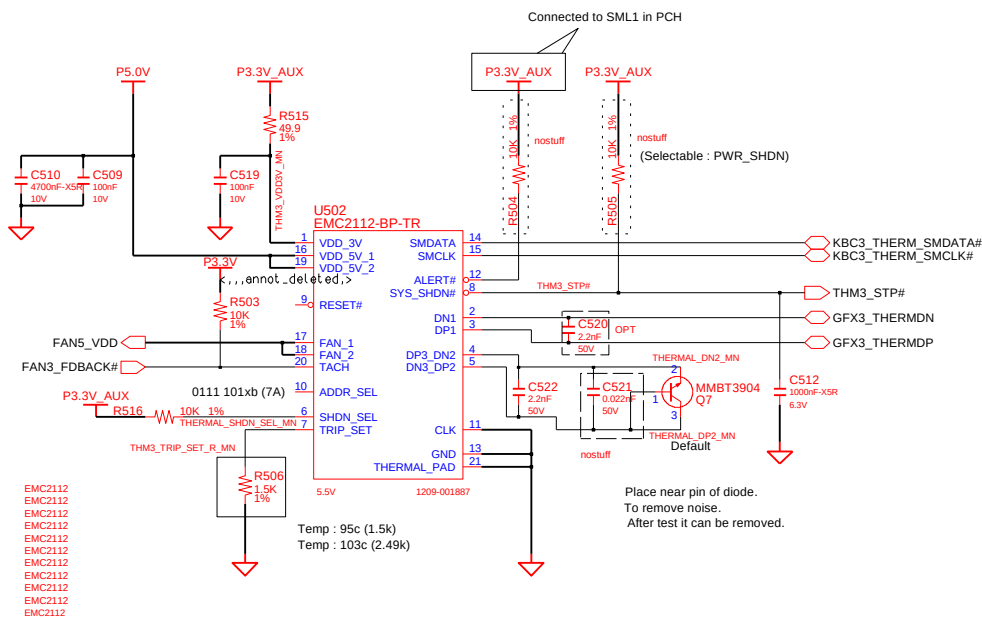
# CLOCK DISTRIBUTOR



GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK  
GREENCLK

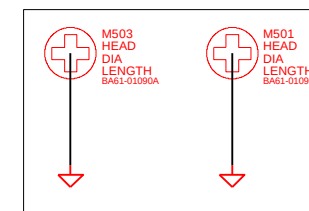
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R CLOCK CLOCK DISTRIBUTION	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP			PART NO. BA41-02092-94A
APPROVAL	BL LEE	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	6	OF 51

# THERMAL SENSOR & FAN CONTROL



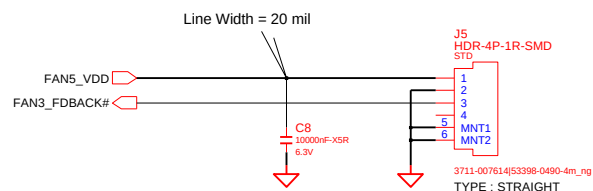
Temperature : 95.78c  
confirmed by thermal charger  
(2011.05.02)  
 $R_{\text{sat}}(\text{kohm}) = 0.0012T^2 - 0.9308T + 96.147$

## FAN PEM



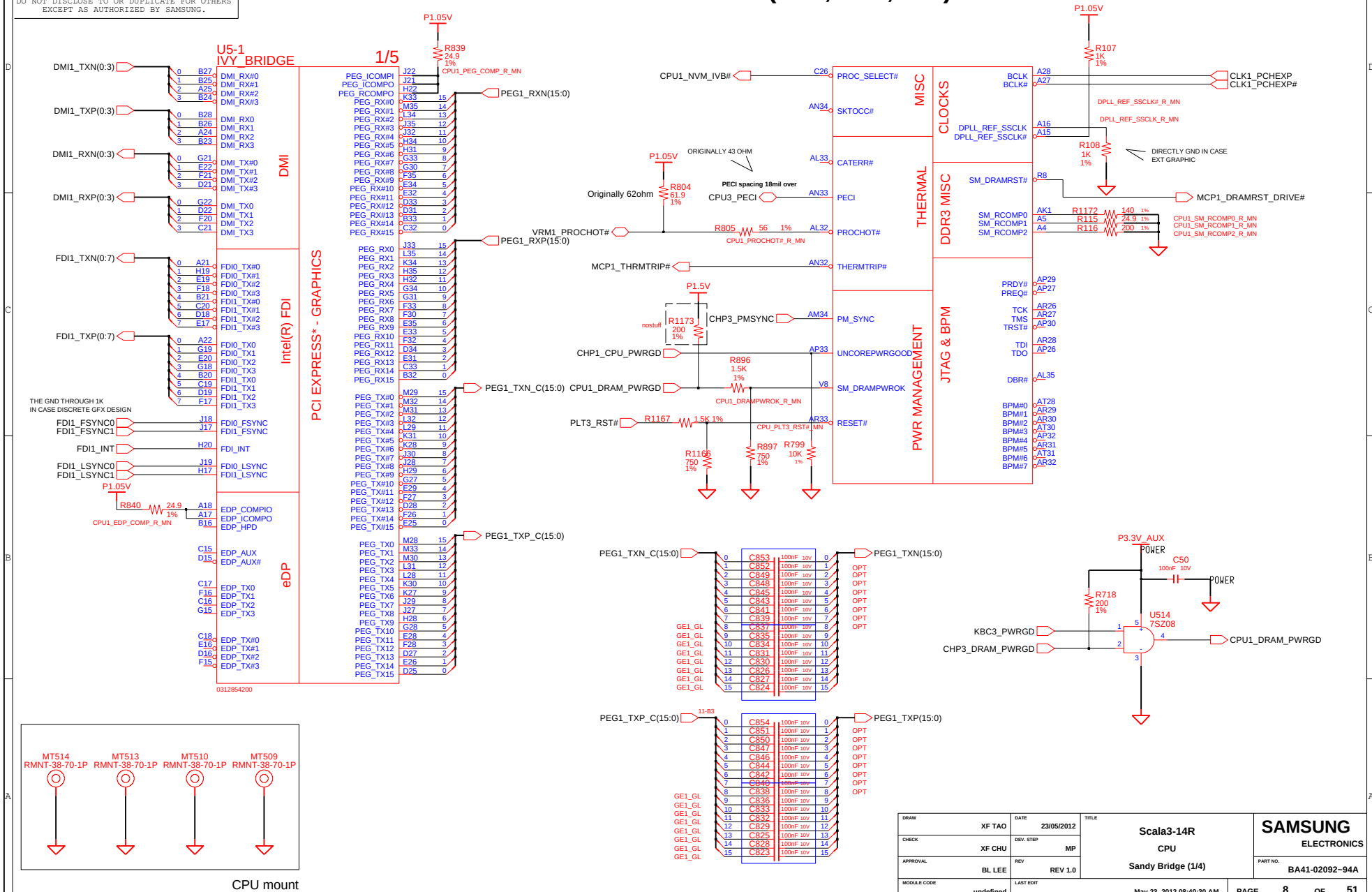
ADDRESSSEL_MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

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



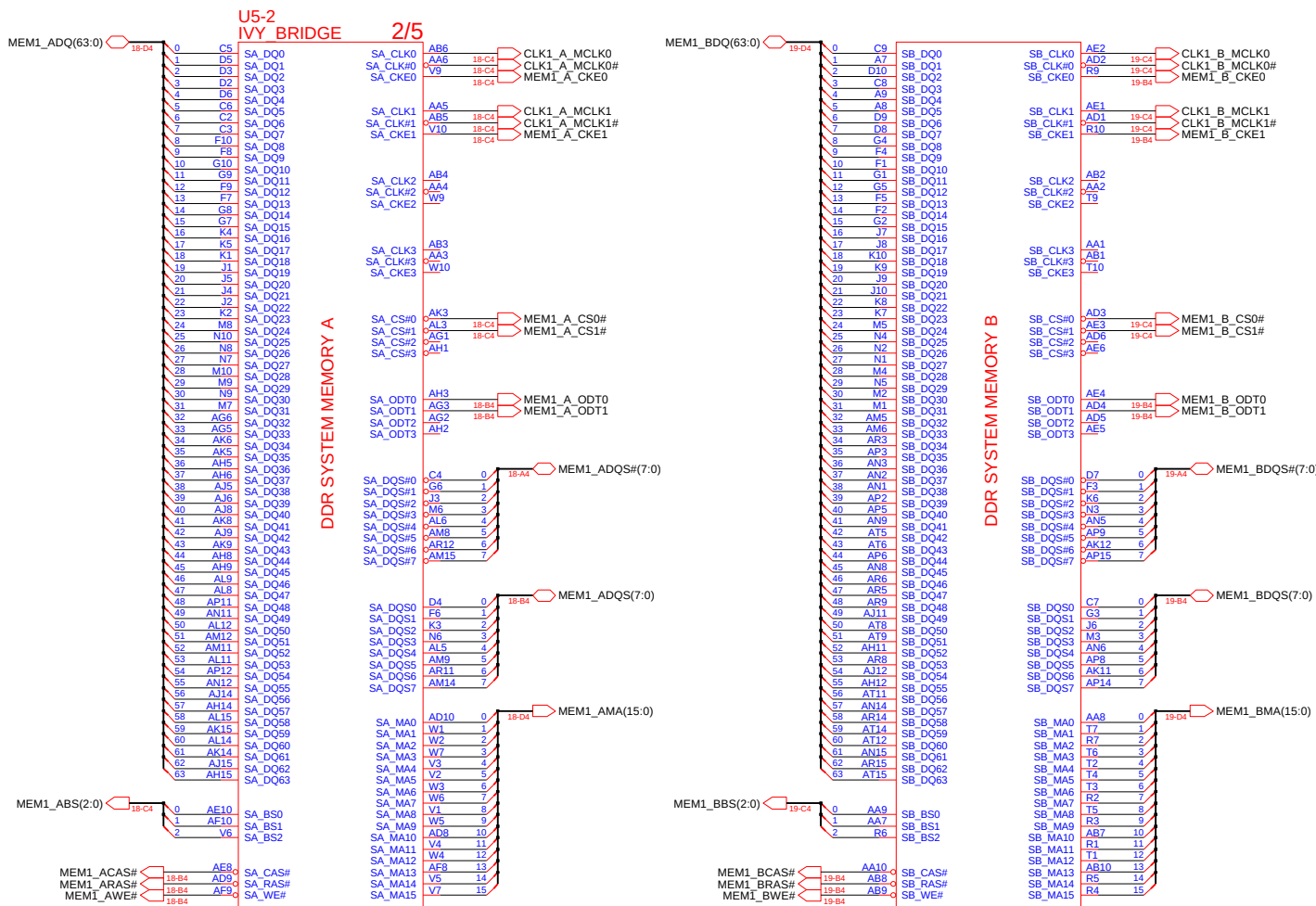
DESIGN	XF TAO	DATE	23/05/2012	<b>Scala3-14R</b> <b>THERMAL SENSOR</b> <b>THERMAL SENSOR EMC2112</b>	<b>SAMSUNG</b> ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	LAST EDIT				
				May 23, 2012 08:40:30 AM	PAGE 7 OF 51

## IVY BRIDGE PROCESSOR (DMI,PEG, FDI)



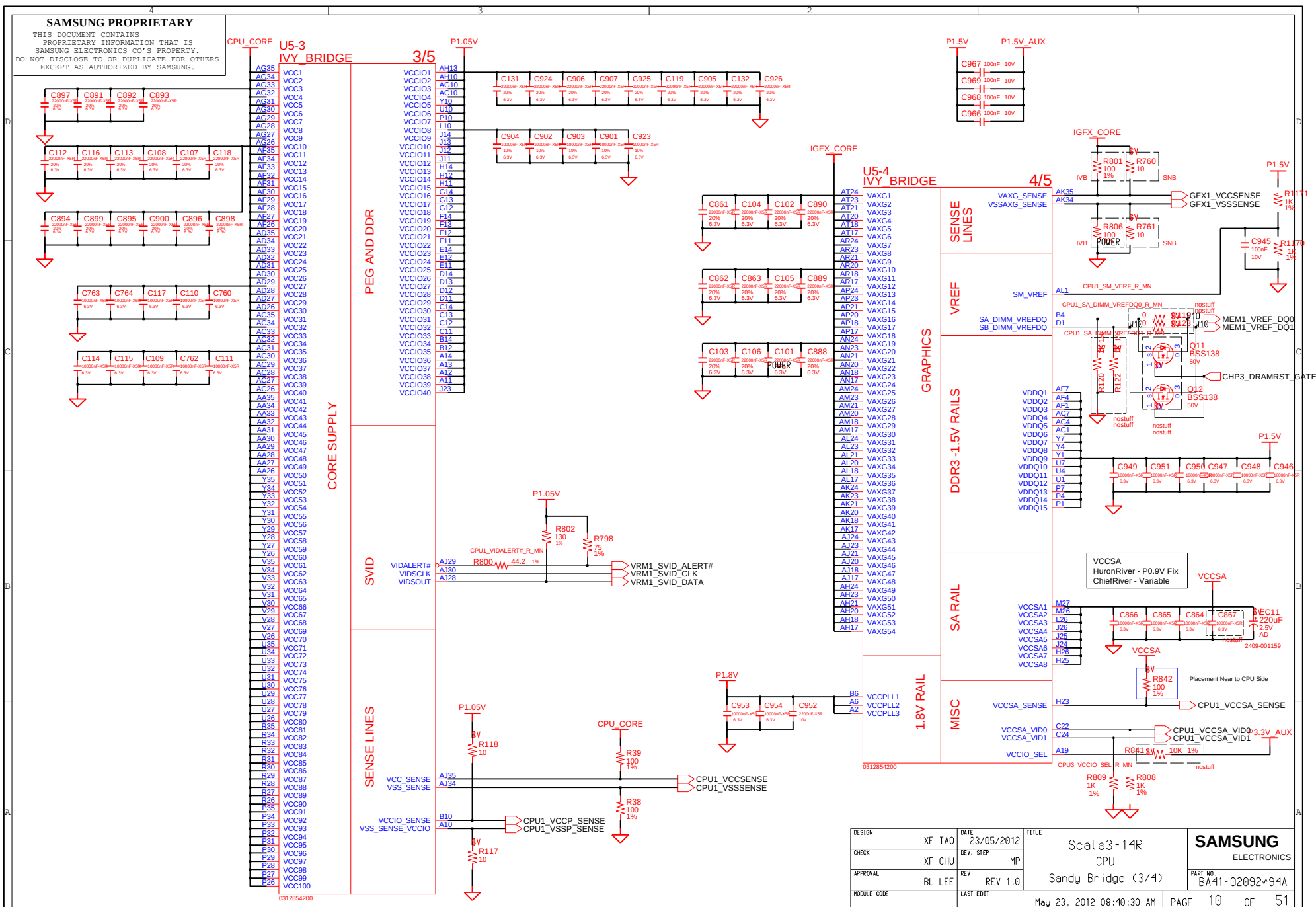


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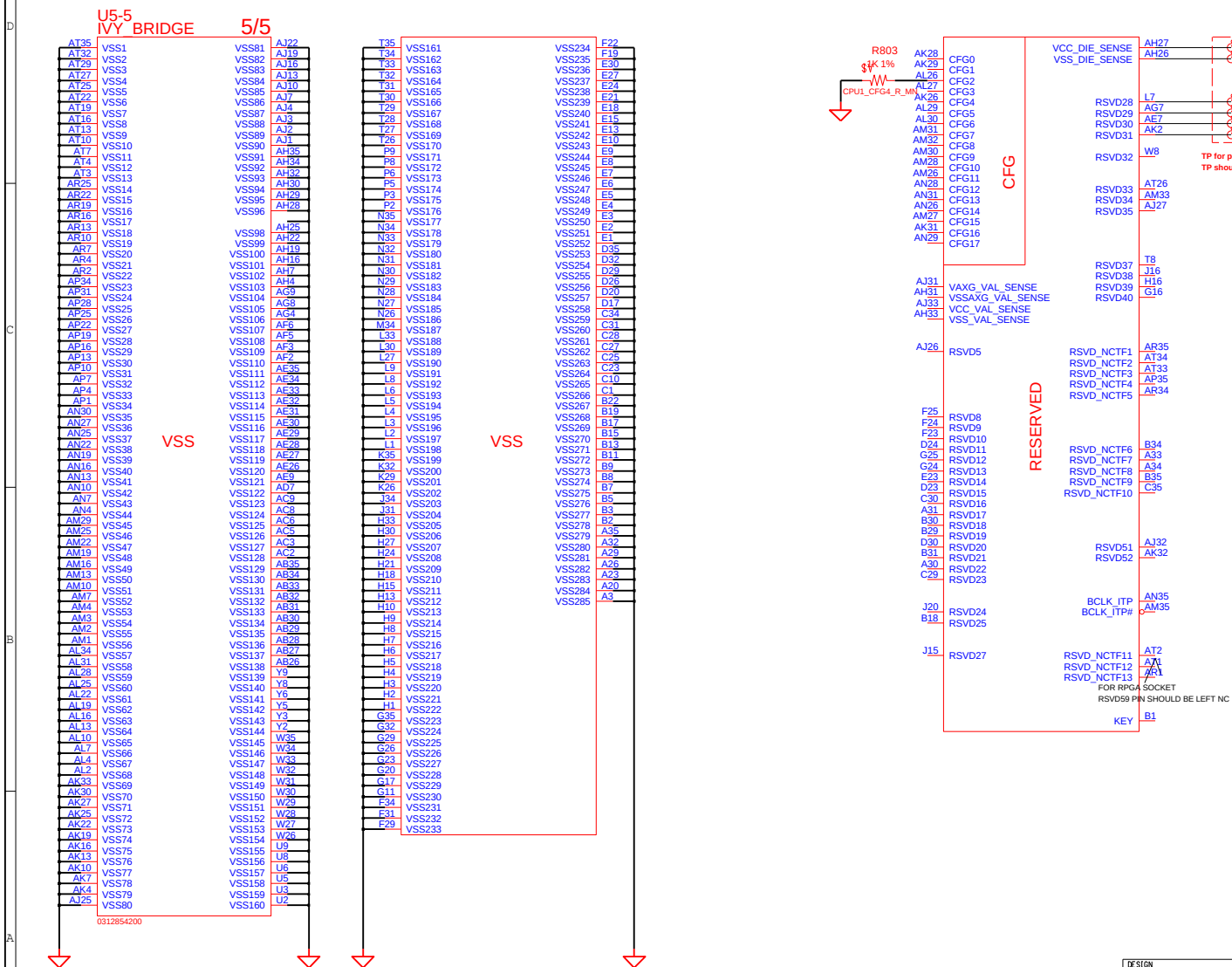


DRAW	XF TAO	DATE	23/05/2012	Scala3-14R CPU Sandy Bridge (2/4)	SAMSUNG ELECTRONICS		
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0		PART NO.	BA41-02092-94A	
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## CFG Straps for Processor

PEG STATIC LANE REVERSAL - CFG2 IS FOR THE 16X	
CFG2	1 : (DEFAULT) NORMAL OPERATION 0 : LANE REVERSED

PCIe PORT BIFURCATION STRAPS	
CFG[6:5]	11 : (DEFAULT) X36 - DEVICE 1 FUNCTIONS 1 AND 2 DISABLED 10 : X8, X8 - DEVICE 1 FUNCTION 1 ENABLED ; FUNCTION 2 DISABLED 01 : RESERVED - (DEVICE 1 FUNCTION 1 DISABLED ; FUNCTION 2 ENABLED) 00 : X8, X4, X4 - DEVICE 1 FUNCTIONS 1 AND 2 ENABLED

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

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

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R CPU	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.0		Sandy Bridge (4/4)	PART NO. BA41-02092-94A
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	11 OF 51

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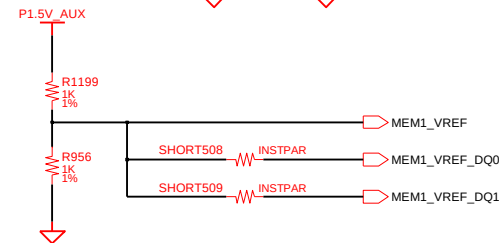
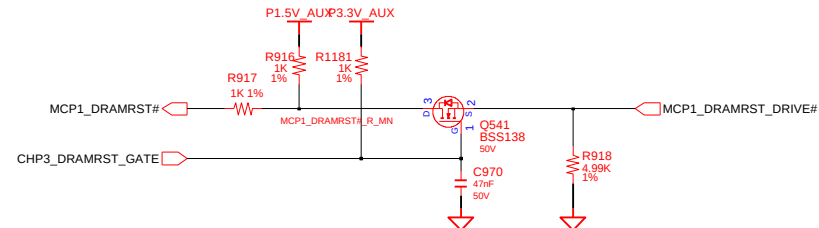
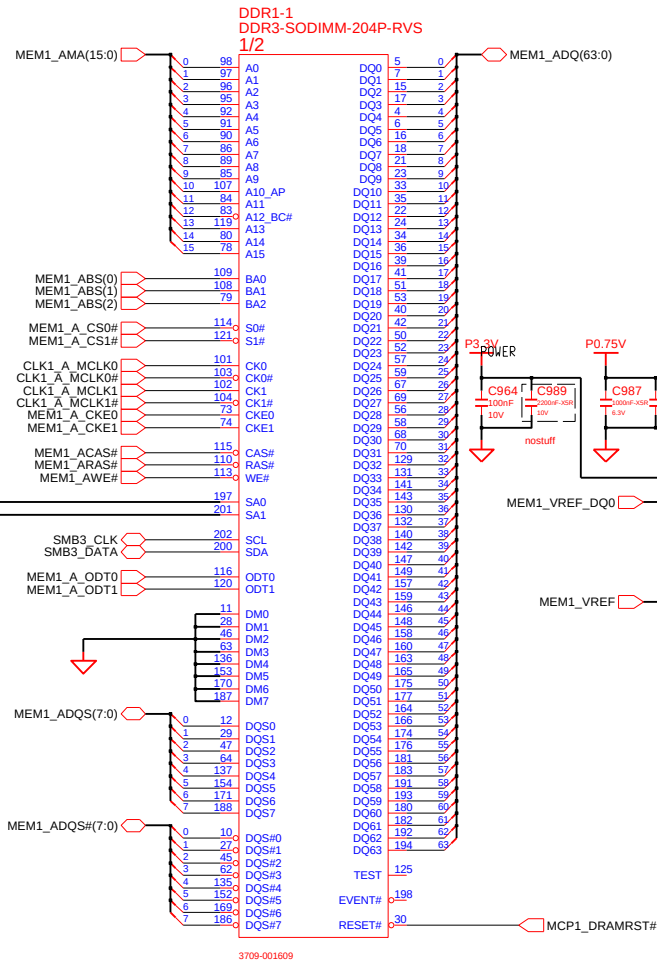
## SO-DIMM#0 : 2nd SO-DIMM

### DDR SO-DIMM #0

Height : 9.2 mm (REVERSE)

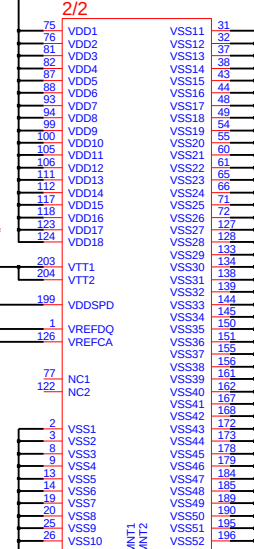
P/N : 3709-001656 (Foxconn)

P/N : 3709-001609 (Concraft)

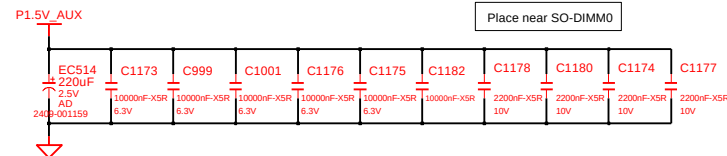


Place between two memory Connector

## DDR1-2 DDR3-SODIMM-204P-RVS 2/2



3709-001609

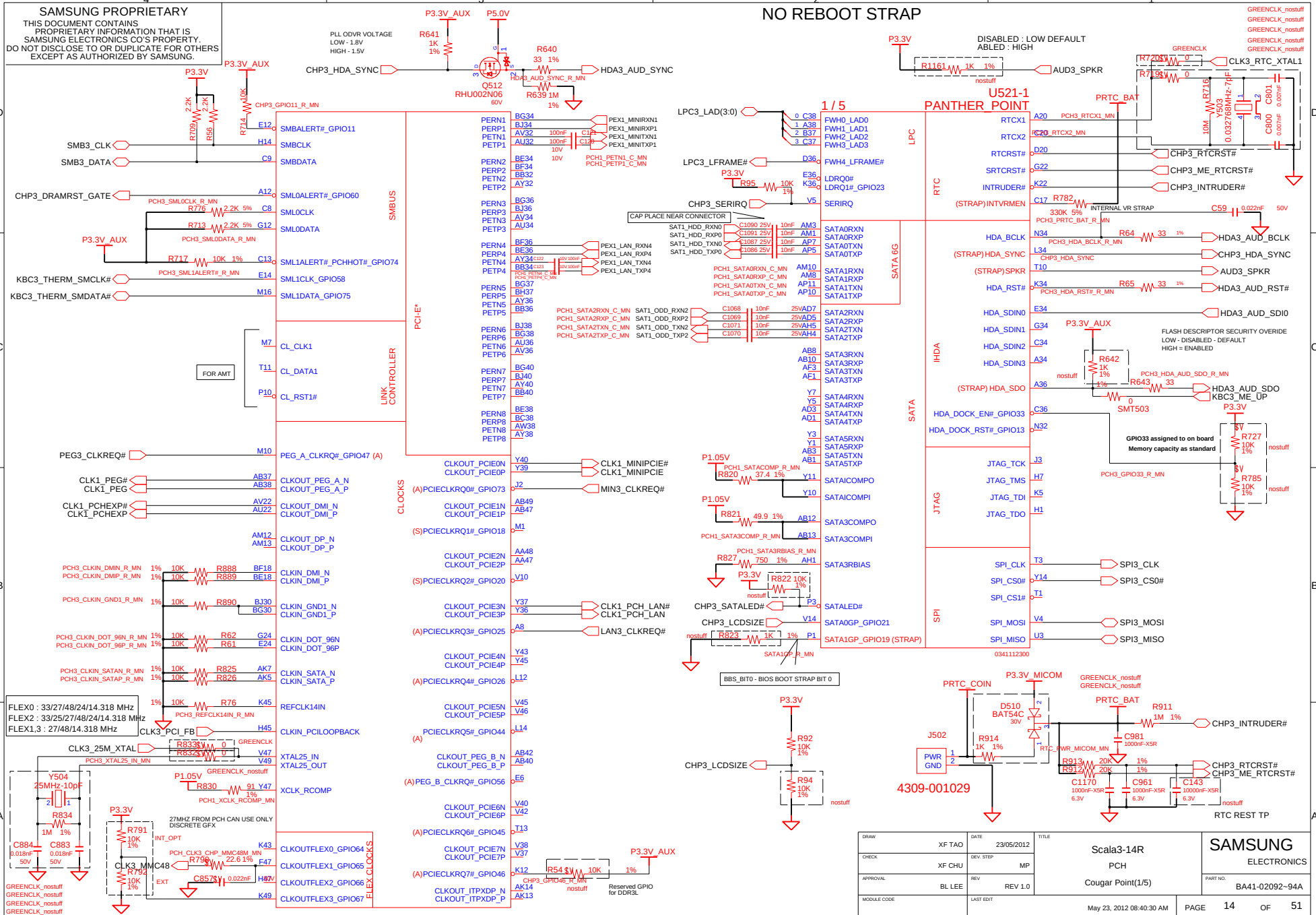


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		SODIMM A	
APPROVAL	BL LEE	REV	REV 1.0		DDR3	
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	12	OF 51

PART NO.  
BA41-02092-94A



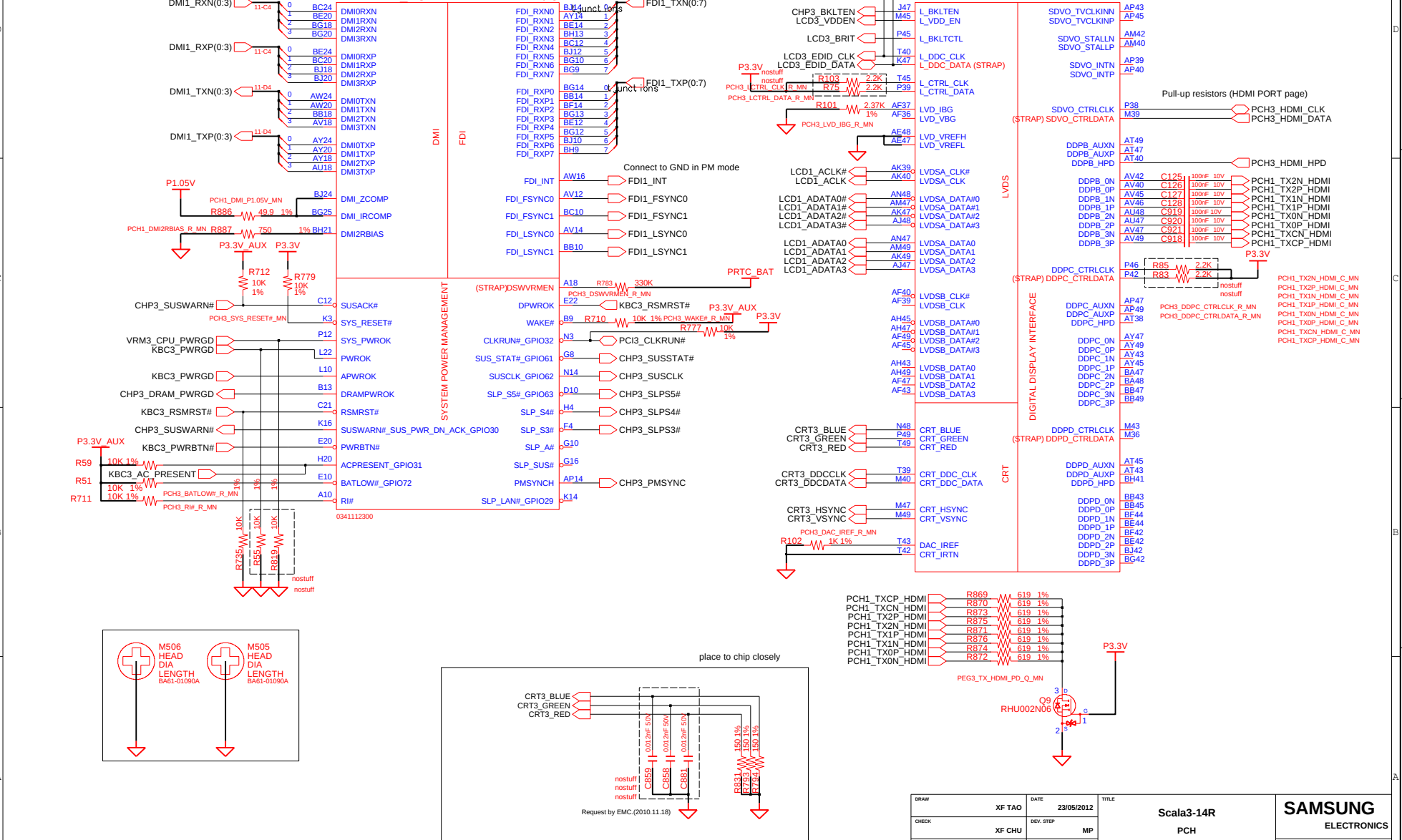
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**U521-2  
PANTHER POINT**

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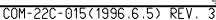








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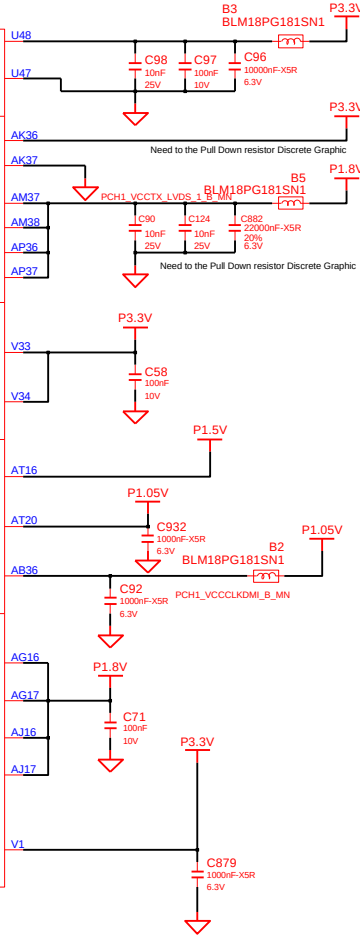
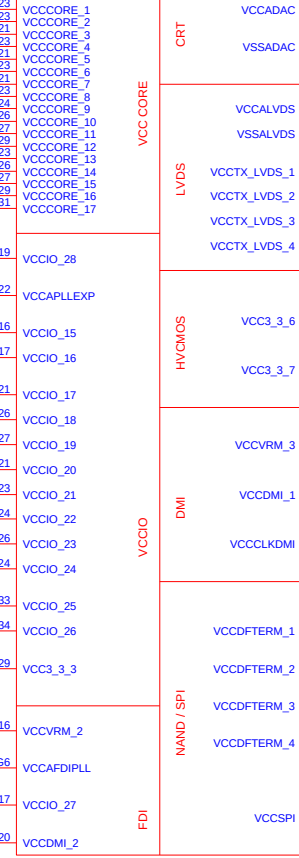
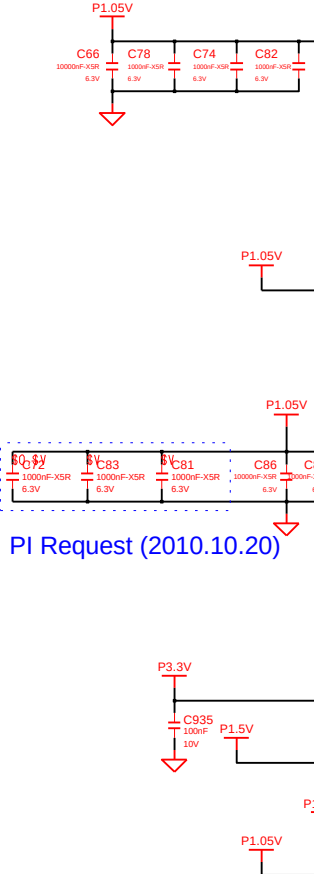
**U521-5  
PANTHER POINT**

This power share with thermal sensor

**5 / 5**

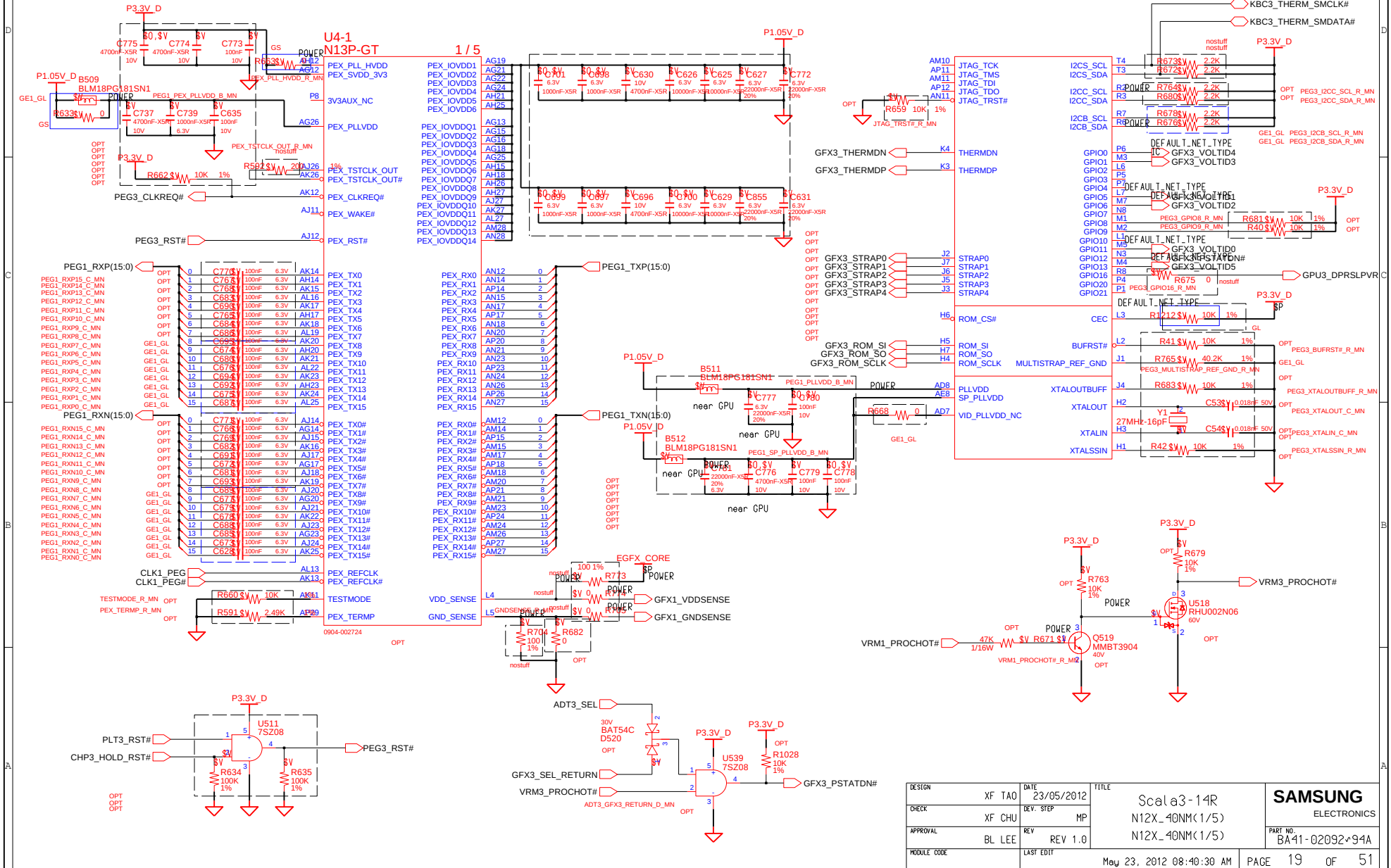
AY4	VSS159	VSS259	H46
AY2	VSS160	VSS260	K18
AY6	VSS161	VSS261	K30
AY8	VSS162	VSS262	K46
B11	VSS163	VSS263	K7
B15	VSS164	VSS264	L18
B19	VSS165	VSS265	L2
B23	VSS166	VSS266	L20
B27	VSS167	VSS267	L26
B31	VSS168	VSS268	L28
B35	VSS169	VSS269	L36
B39	VSS170	VSS270	L48
B7	VSS171	VSS271	M12
F45	VSS172	VSS272	P16
BB12	VSS173	VSS273	P18
BB16	VSS174	VSS274	M18
BB20	VSS175	VSS275	M24
BB22	VSS176	VSS276	M30
BB24	VSS177	VSS277	M32
BB28	VSS178	VSS278	M34
BB30	VSS179	VSS279	M38
BB38	VSS180	VSS280	M4
BB4	VSS181	VSS281	M42
BB46	VSS182	VSS282	M48
BC14	VSS183	VSS283	N18
BC18	VSS184	VSS284	N19
BC2	VSS185	VSS285	P30
BC22	VSS186	VSS286	N47
BC26	VSS187	VSS287	P18
BC3	VSS188	VSS288	T33
BC34	VSS189	VSS289	P40
BC36	VSS190	VSS290	P47
BC40	VSS191	VSS291	P7
BC42	VSS192	VSS292	R2
BC46	VSS193	VSS293	R48
BD46	VSS194	VSS294	T12
BD5	VSS195	VSS295	T13
BE22	VSS196	VSS296	T4
BE26	VSS197	VSS297	T47
BE40	VSS198	VSS298	T8
BF10	VSS199	VSS299	V11
BF12	VSS200	VSS300	V17
BF16	VSS201	VSS301	V26
BF20	VSS202	VSS302	V27
BF22	VSS203	VSS303	V29
BF24	VSS204	VSS304	V31
BF26	VSS205	VSS305	V36
BF28	VSS206	VSS306	V38
BF3	VSS207	VSS307	V43
BF38	VSS208	VSS308	V47
BF40	VSS209	VSS309	V48
BF4	VSS210	VSS310	Y4
BF8	VSS211	VSS311	Y42
BG17	VSS212	VSS312	Y46
BG21	VSS213	VSS313	Y8
BG33	VSS214	VSS314	Y12
BG44	VSS215	VSS315	Y18
B38	VSS216	VSS316	Y2
BH11	VSS217	VSS317	Y27
BH15	VSS218	VSS318	Y30
BH17	VSS219	VSS319	Y32
BH19	VSS220	VSS320	Y38
H10	VSS221	VSS321	Y4
BH27	VSS222	VSS322	Y42
BH31	VSS223	VSS323	Y46
BH33	VSS224	VSS324	Y8
BH36	VSS225	VSS325	Y12
BH43	VSS226	VSS326	Y18
BH47	VSS227	VSS327	Y2
D3	VSS228	VSS328	Y27
D12	VSS229	VSS329	Y30
D16	VSS230	VSS330	Y32
D18	VSS231	VSS331	Y38
D22	VSS232	VSS332	Y4
D24	VSS233	VSS333	Y42
D26	VSS234	VSS334	Y46
D30	VSS235	VSS335	Y8
D32	VSS236	VSS336	Y12
D34	VSS237	VSS337	Y18
D38	VSS238	VSS338	Y2
D42	VSS239	VSS339	Y27
D8	VSS240	VSS340	Y30
E18	VSS241	VSS341	Y32
E26	VSS242	VSS342	Y38
G19	VSS243	VSS343	Y4
G20	VSS244	VSS344	Y42
G26	VSS245	VSS345	Y46
G28	VSS246	VSS346	Y8
G36	VSS247	VSS347	Y12
G48	VSS248	VSS348	Y18
H12	VSS249	VSS349	Y2
H18	VSS250	VSS350	Y27
H22	VSS251	VSS351	Y30
H24	VSS252	VSS352	Y32
H26	VSS253		
H30	VSS254		
H32	VSS255		
H34	VSS256		
F3	VSS257		
F3	VSS258		

0341112300



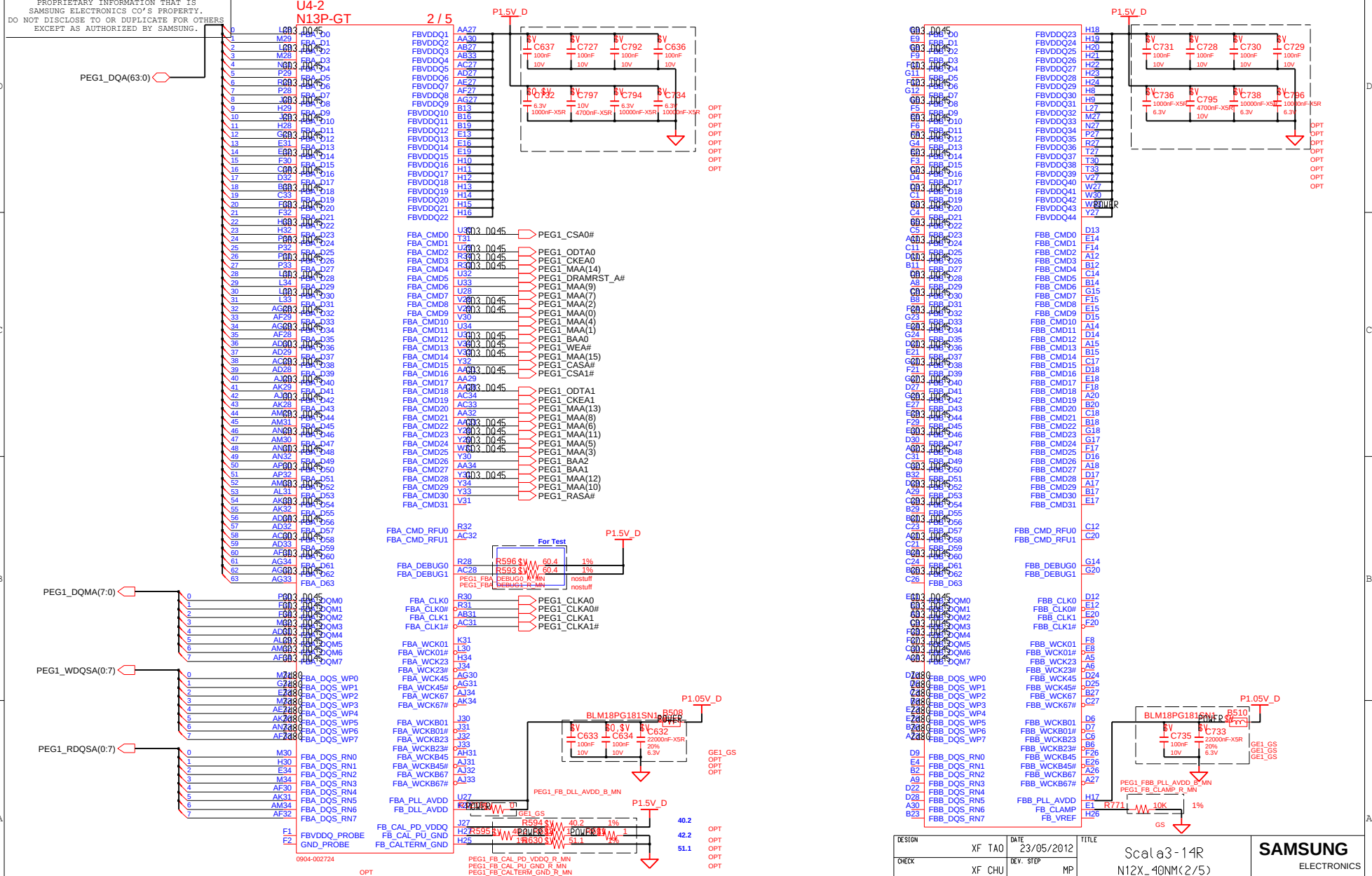
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R PCH Cougar Point(5/5)	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.0			
				PART NO.	BA41-02092-94A	
MODULE CODE	undefined	LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 18 OF 51

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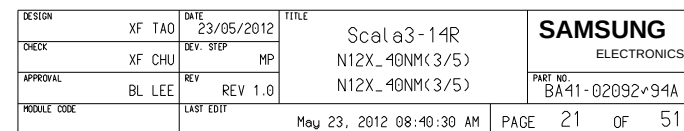


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(1/5)
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(1/5)
MODULE CODE		LAST EDIT			
May 23, 2012 08:40:30 AM					PAGE 19 OF 51

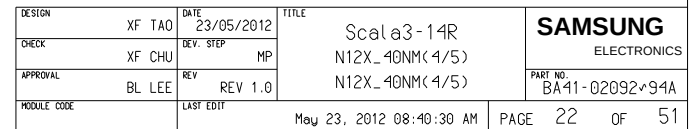
**SAMSUNG**  
ELECTRONICS  
PART NO.  
BA41-02092\*94A



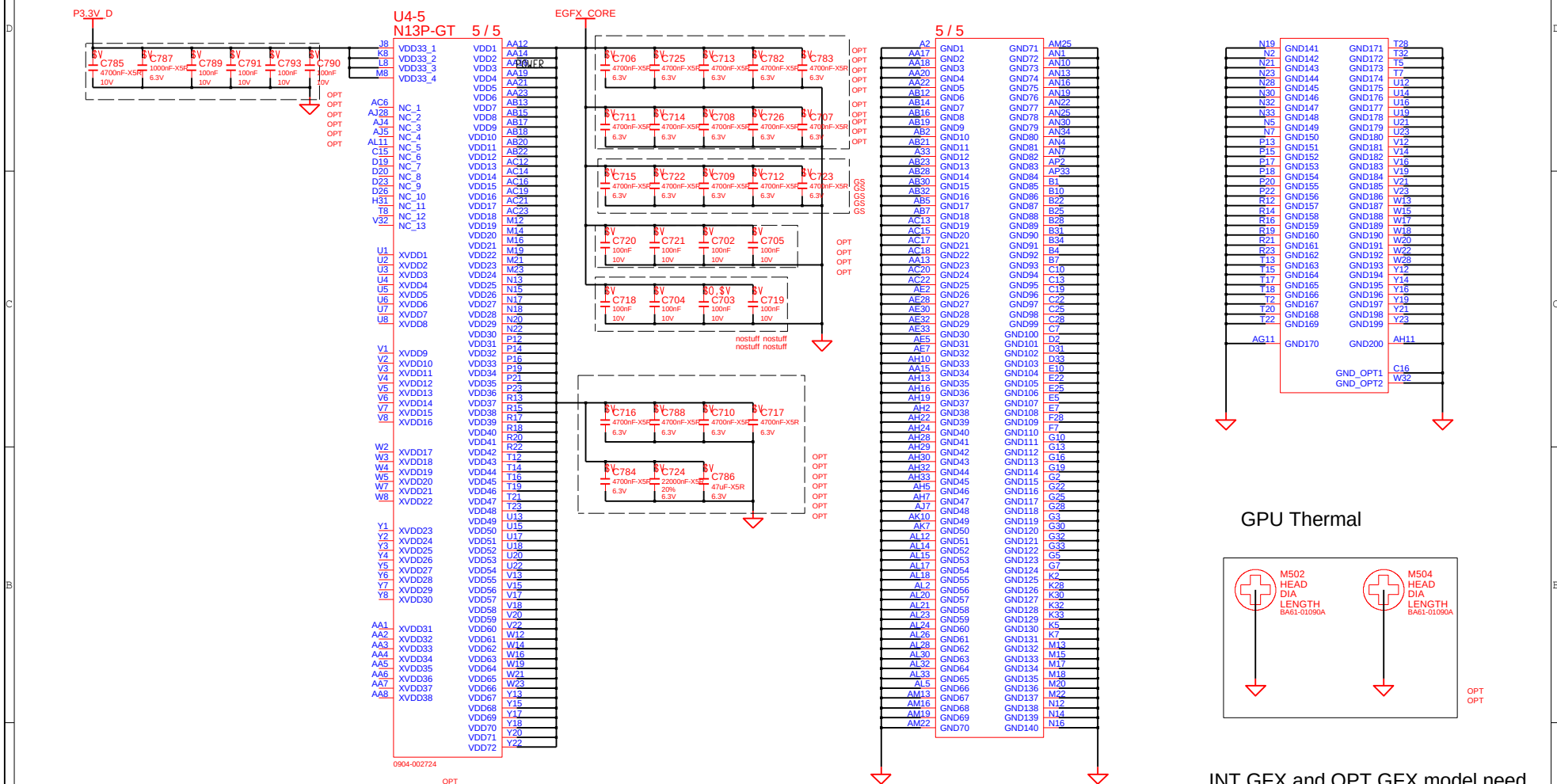
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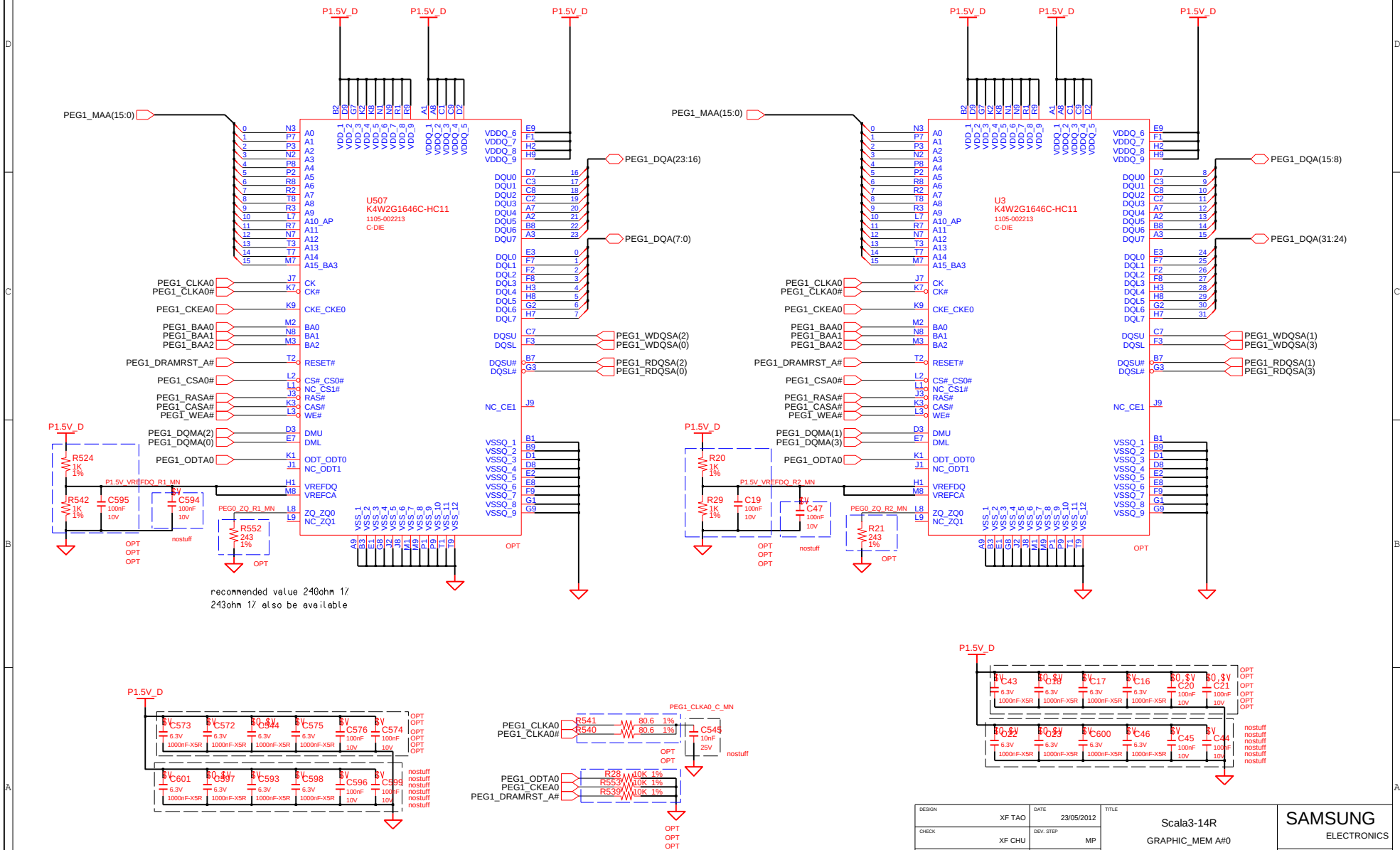
INT GFX and OPT GFX model need.

DESIGN	XF TAO	DATE	23/05/2012	TITLE Scala3-14R N12X_40NM(5/5) N12X_40NM(5/5)	<b>SAMSUNG</b> ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	LAST EDIT			May 23, 2012 08:40:30 AM	PART NO. BA41-02092-94A
				PAGE	23 OF 51

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## A-Channel #0 (D-mode)



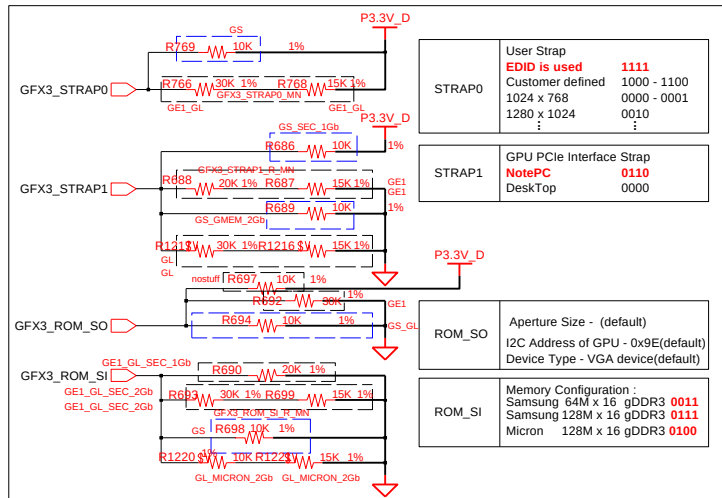
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CHECK	XF CHU	DEV. STEP	MP		GRAPHIC_MEM A#0	
APPROVAL	BL LEE	REV	REV 1.0		GRAPHIC_MEM A#0	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 24 OF 51	PART NO. BA41-02092-94A



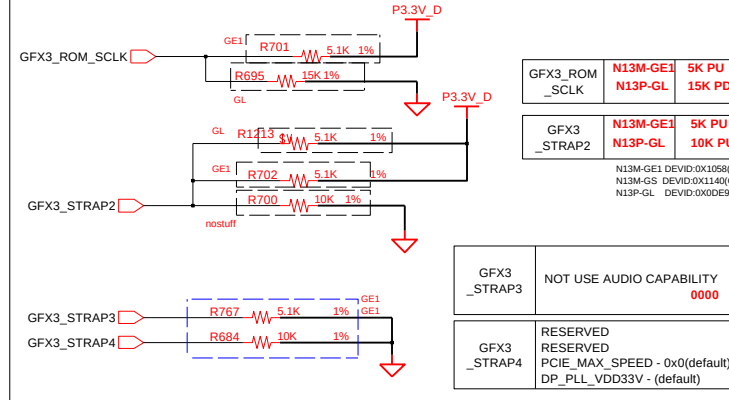
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# N13x STRAP

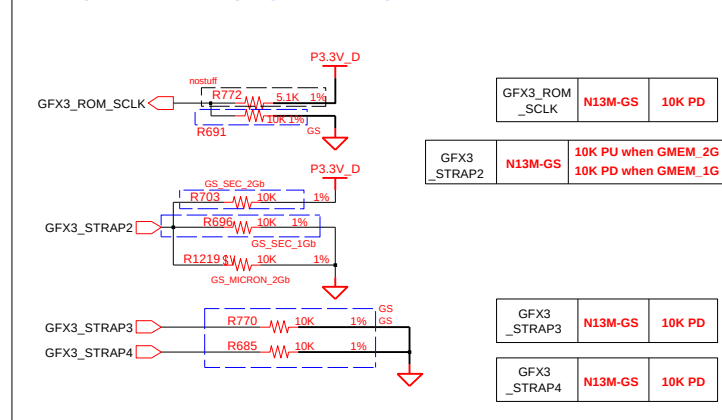
## Function Straps



## Chip Select Straps (N13M-GE1/N13P-GL)



## Chip Select Straps (N13M-GS)



STRAP PIN	STRAP MAPPING	Resistance	Polarity
STRAP0	RAMCFG[0]	10K ohm	Pull-up to 3V3 for binary '1'
STRAP1	RAMCFG[1]	10K ohm	Pull-down to GND for binary '0'
STRAP2	RAMCFG[2]	10K ohm	Samsung 64M x 16 gDDR3 0011 Samsung 128M x 16 gDDR3 0101
STRAP3	RAMCFG[3]	10K ohm	Micron 128M x 16 gDDR3 0001
ROM_SO	VGA_DEVICE	10K ohm	Pull-down to GND(no display)
ROM_SI	SUB_VENDOR	10K ohm	Pull-up to 3V3 if VBIOS ROM exists Pull-down to GND if no VBIOROM
ROM_SCLK	SMB_ALT_ADDR	10K ohm	Pull-down to GND
STRAP4	PCI_MAX_SPEED	10K ohm	Pull-down to GND

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

STRAP PIN	BIT 3	BIT 2	BIT 1	BIT 0
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PAD_CFG_ADR[3]	3GIO_PAD_CFG_ADR[2]	3GIO_PAD_CFG_ADR[1]	3GIO_PAD_CFG_ADR[0]
ROM_SO	FB[1] (GE1)	FB[0] (GE1)	SMB_ALT_ADDR	VGA_DEVICE
ROM_SI	RAMCFG[3] (GL)	RAMCFG[2] (GL)	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 (GE1)	PEX_PLL_EN_TERM
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	RESERVED	PCIE_MAX_SPEED	DP_PLL_VDD33V

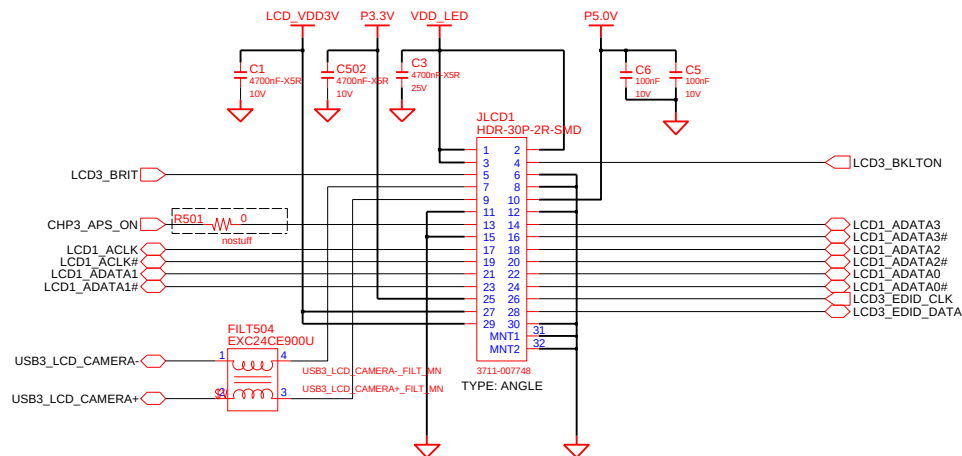
DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R GRAPHIC_MEM C#0		SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0	GRAPHIC_MEM C#0		PART NO.	
						BA41-02092-94A	
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM			PAGE	26 OF 51

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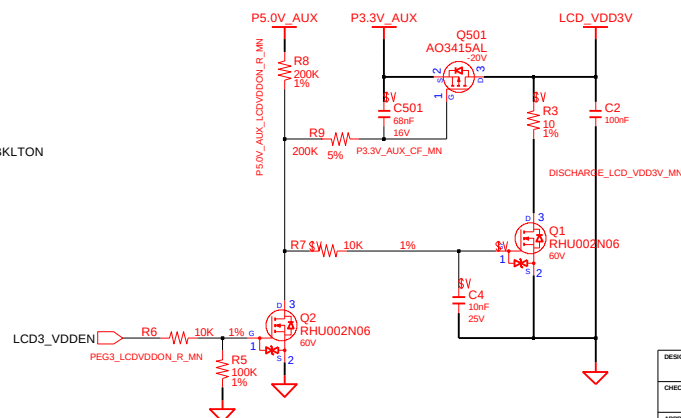
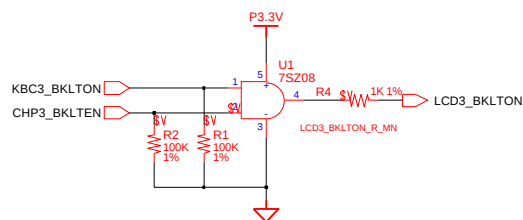
# LVDS LOGIC

## 1Ch. LCD Connector + CAMERA

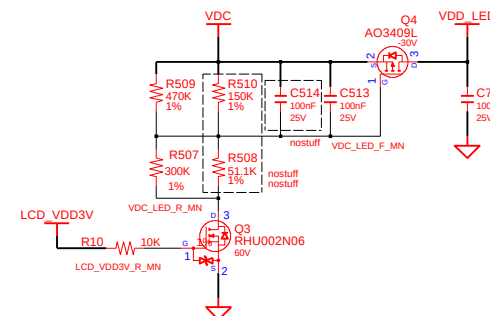


## LCD Power

EBL Purpose



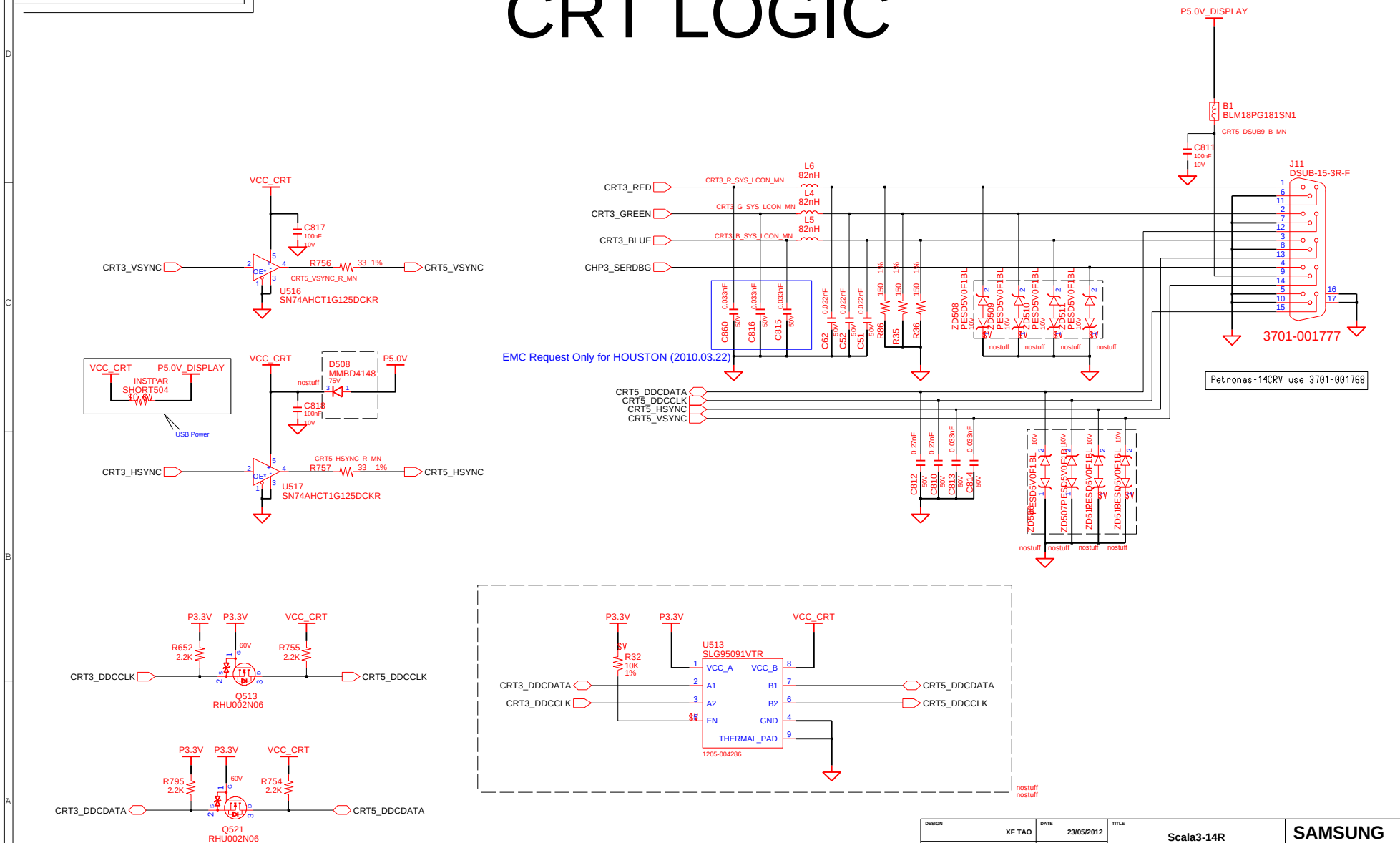
## LED Power



DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV. STEP	MP		GRAPHICS_IF	
APPROVAL	BL LEE	REV	REV 1.0		LVDS	
MODULE CODE		LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 27 OF 51

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# CRT LOGIC



DESIGN	XF TAO	DATE	23/05/2012	<b>Scala3-14R</b> <b>GRAPHICS_IF</b> <b>CRT</b>	<b>SAMSUNG</b> <b>ELECTRONICS</b>
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
PART NO.			BA41-02092-94A		
MODULE CODE	LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 28 OF 51

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## HDMI Graphic

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

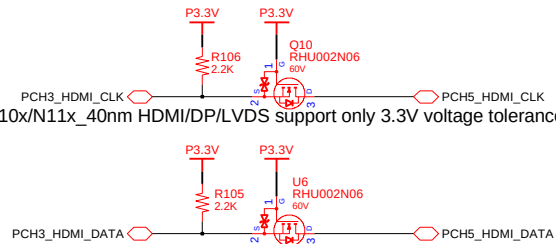
(EMC request at 2010.04.15)

After checking, Veyron\_R don't need to use CMC for each signal.

(EMC request at 2010.12.03)

FOR HDMI VERIFICATION TEST

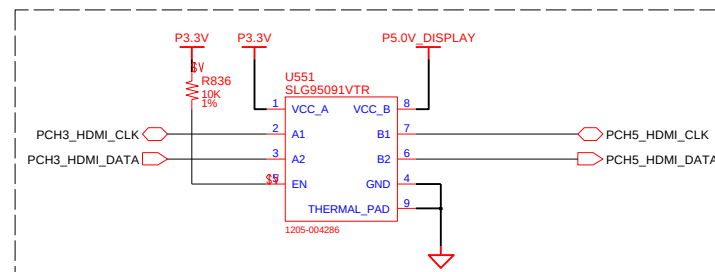
PCH3\_HDMI\_CLK PCH5\_HDMI\_CLK  
N10x/N11x\_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance



Petrones-14CRV use 3701-001785

J12  
HDMI-19P-FEMALE

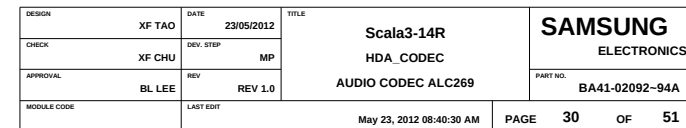
3701-001782

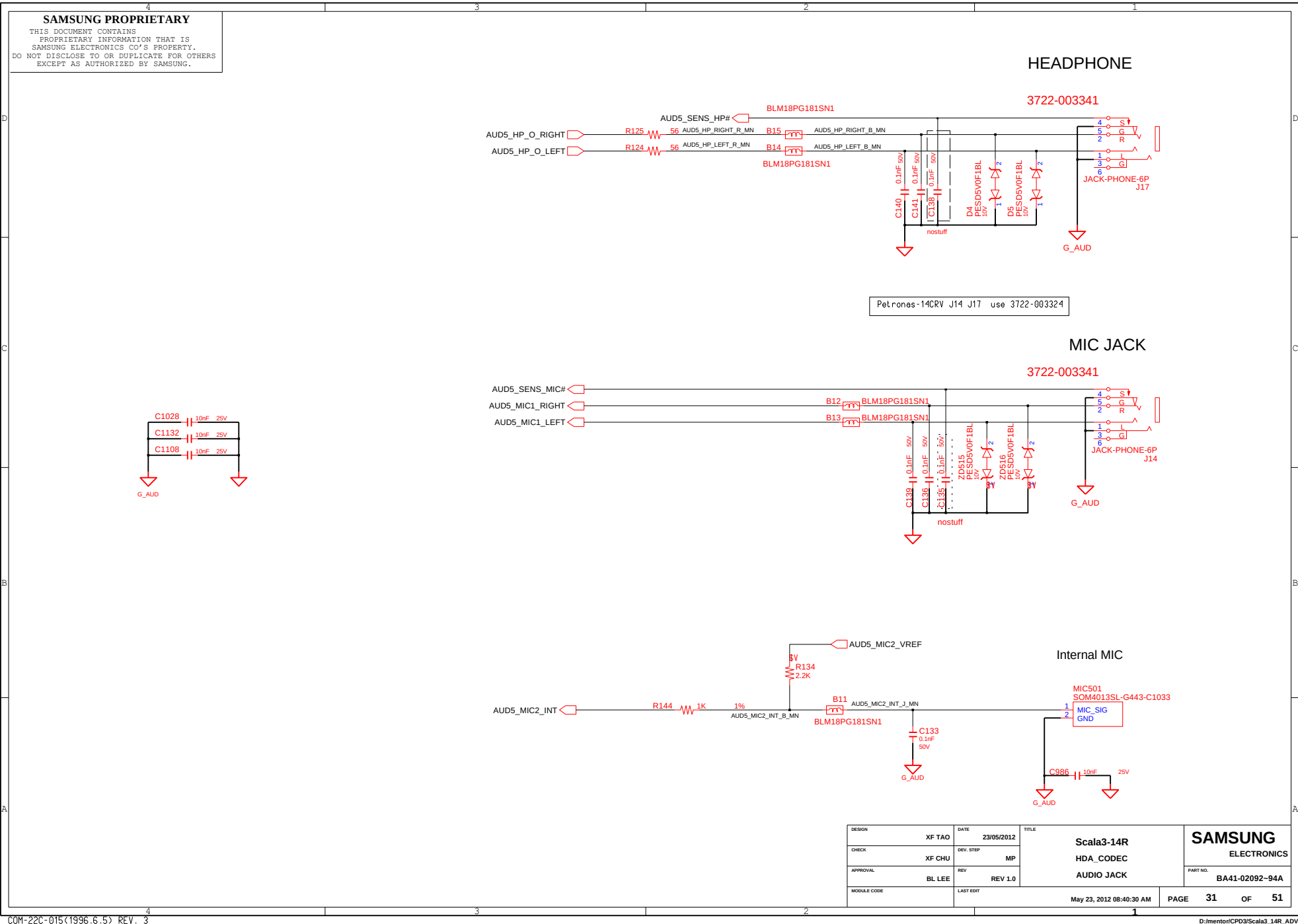


DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R GRAPHICS_IF HDMI		SAMSUNG ELECTRONICS PART NO. BA41-02092-94A	
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0				
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM			PAGE	29 OF 51

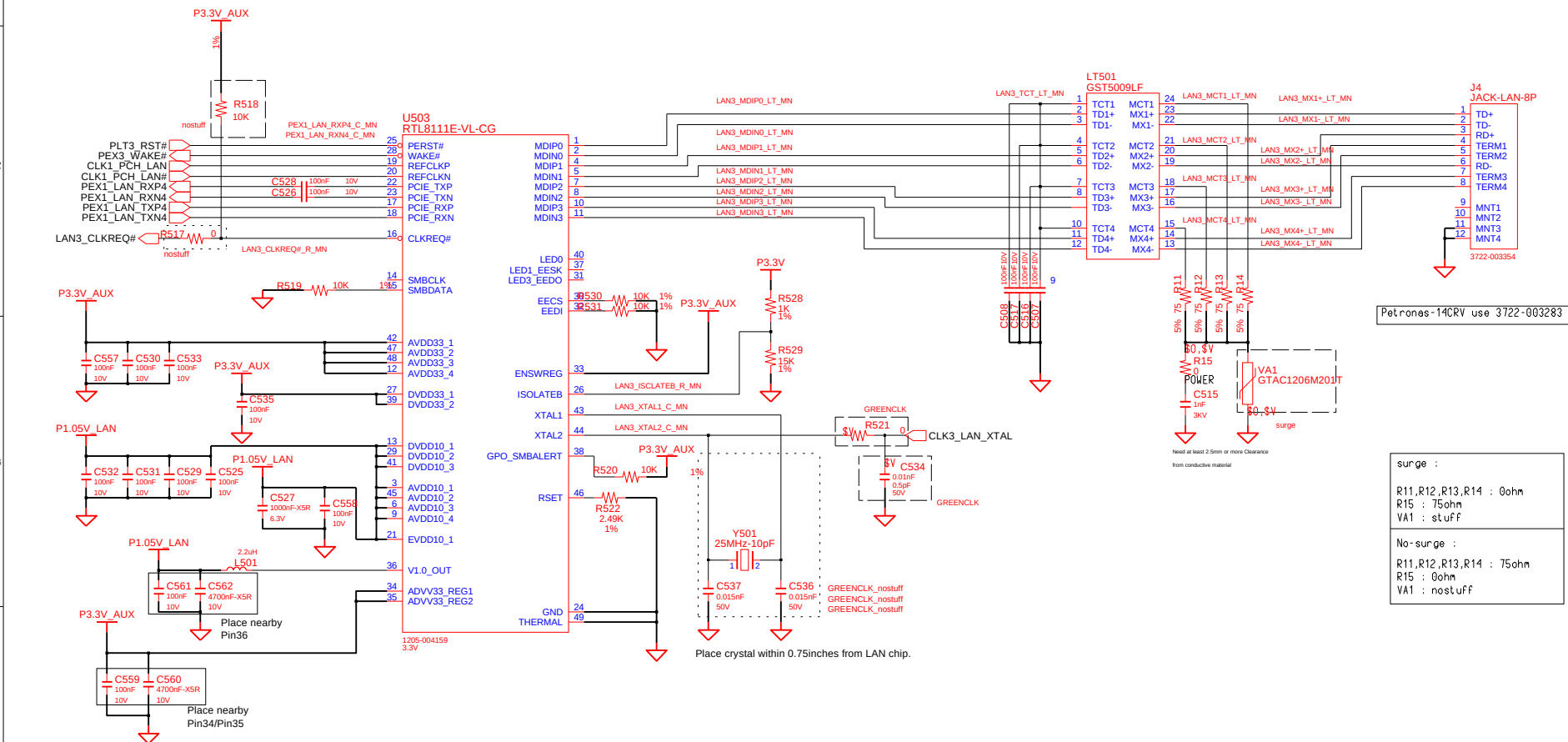
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Codec Pin9 Setting	
S/B with Low Voltage IO	S/B without Low Voltage IO
Pin9 : 1.5V	Pin9 : 3.3V





# Reatek RTL8111E



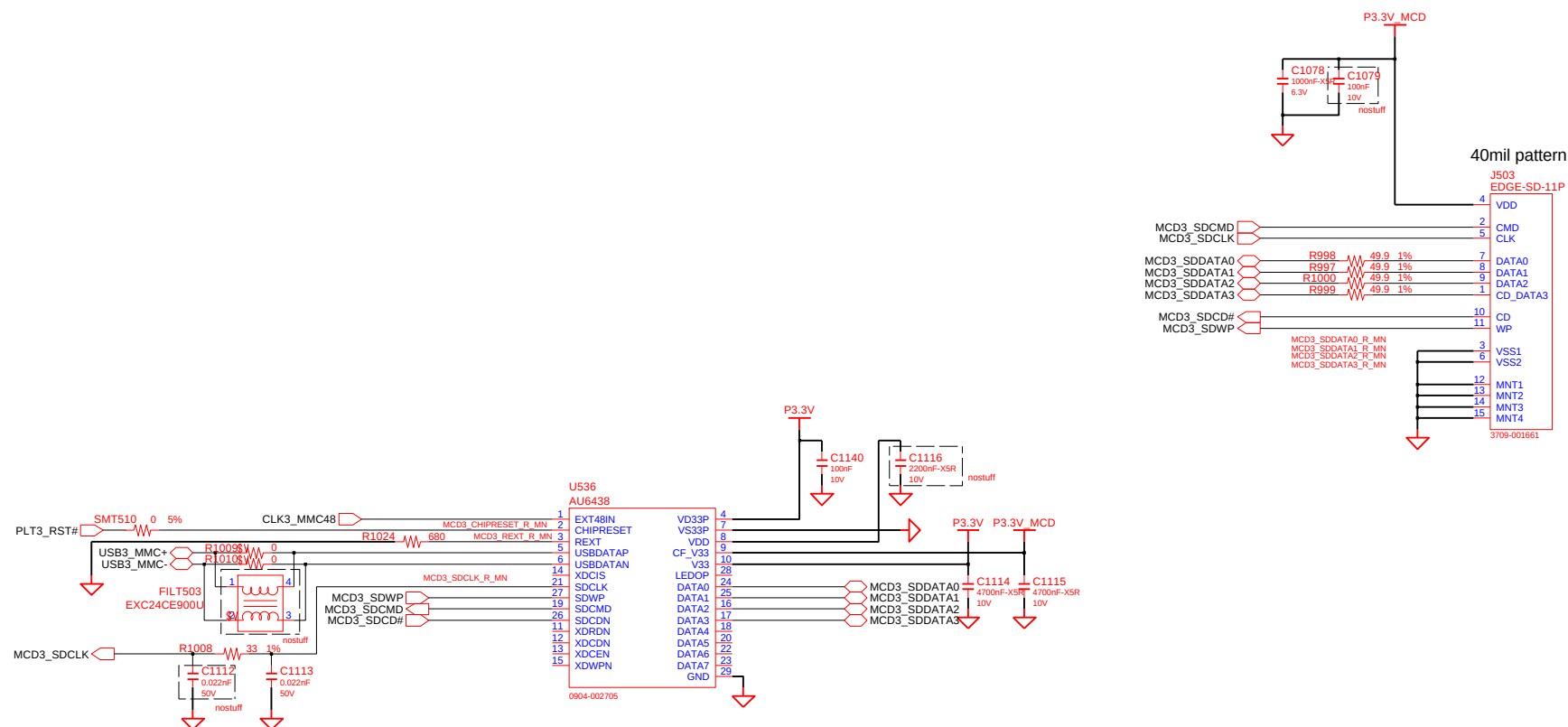
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CHECK	XF CHU	DEV. STEP	MP		LAN	
APPROVAL	BL LEE	REV	REV 1.0		LAN Reatek RTL8111E	
MODULE CODE		LAST EDIT				PART NO. BA41-02092-94A
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# 4 IN 1 CARD

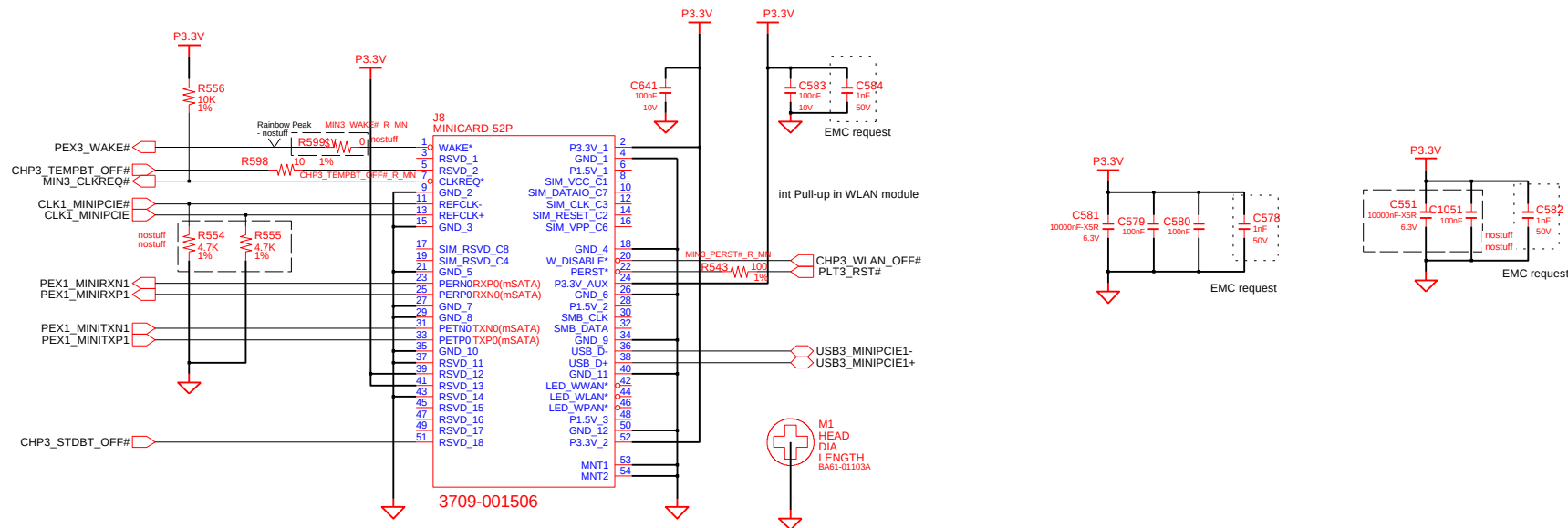


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MULTICARD	
APPROVAL	BL LEE	REV	REV 1.0		4 IN 1 CARD(AU6438)	
MODULE CODE		LAST EDIT				
May 23, 2012 08:40:30 AM						PAGE 33 OF 51

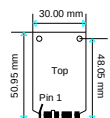
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## WLAN, 7mm



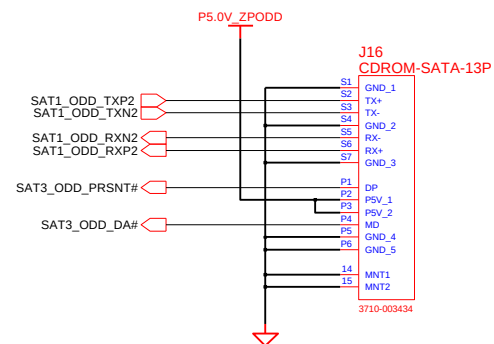
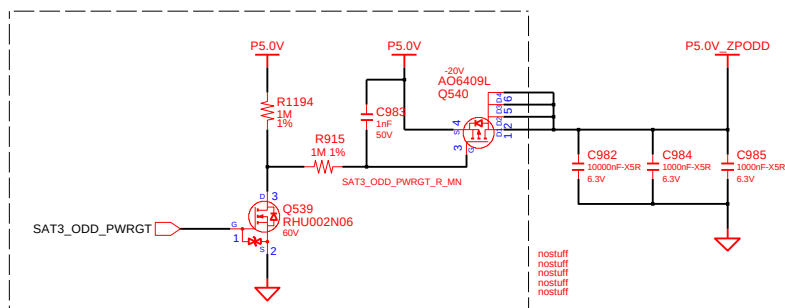
Mini PCI Express Card



Odd Pins : Top side  
Even Pins : Bottom Side

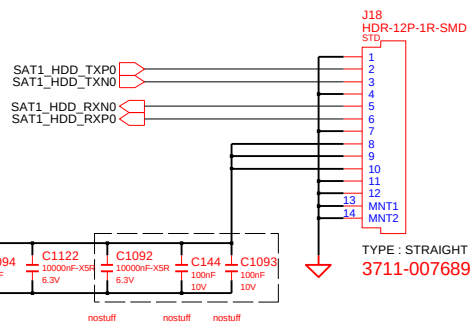
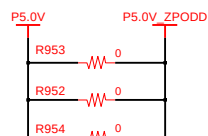
DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R MINI_PCIE_CONN		SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0	WLAN		PART NO.	BA41-02092-94A
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM			PAGE	34 OF 51

SATA ODD CONN 14"



Petronas-14CRV use 3710-002796

SATA HDD CONN



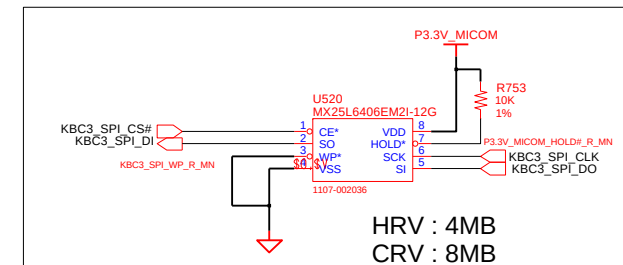
DESIGN	XF TAO	DATE	23/05/2012	<b>Scala3-14R</b> <b>SATA_DEVICES</b> <b>HDD &amp; ODD SUB CONNECTOR</b>	<b>SAMSUNG</b> <b>ELECTRONICS</b>		
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0		PART NO.	BA41-02092-94A	
MODULE CODE	LAST EDIT				May 23, 2012 08:40:30 AM	PAGE	35 OF 51

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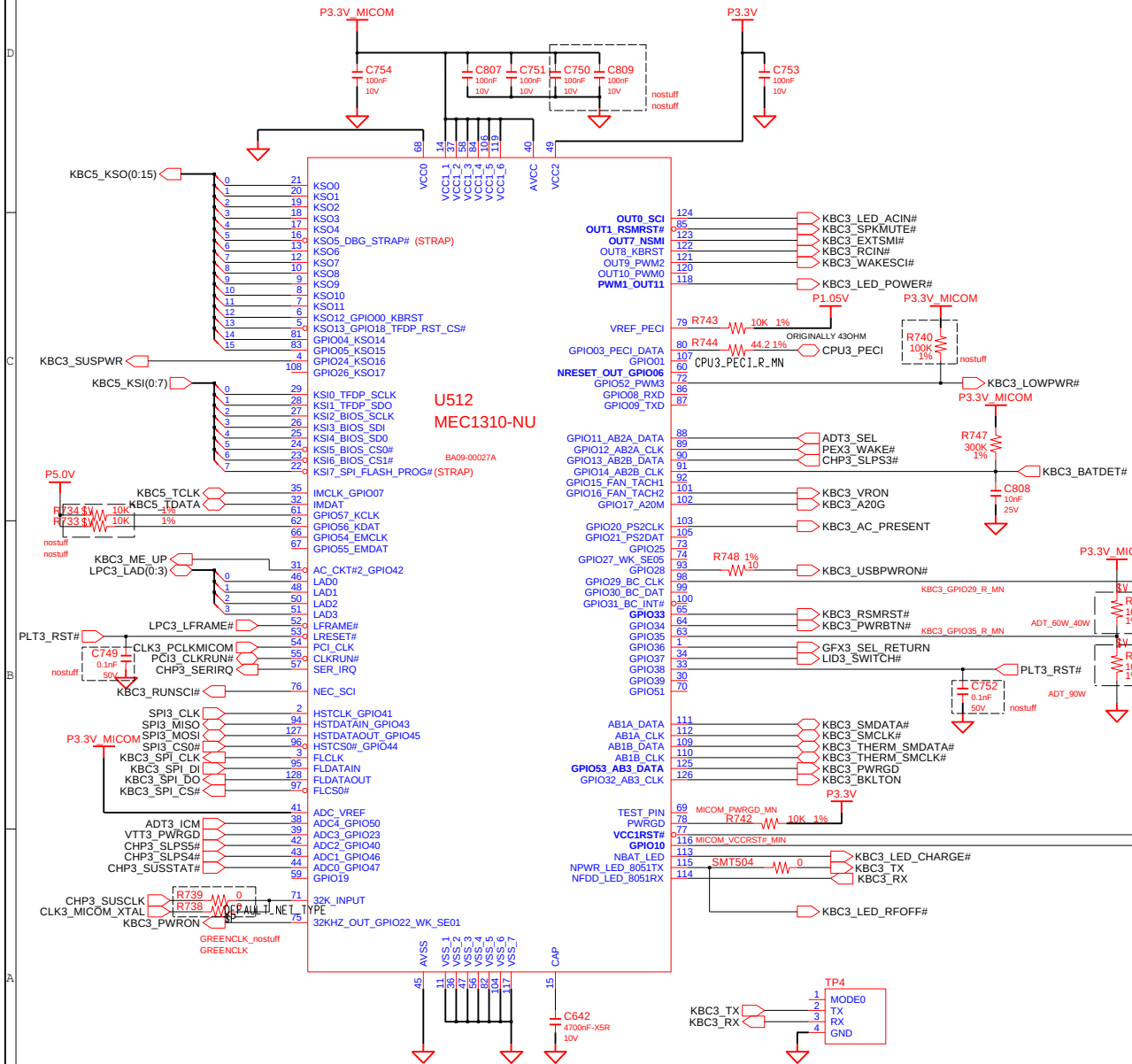
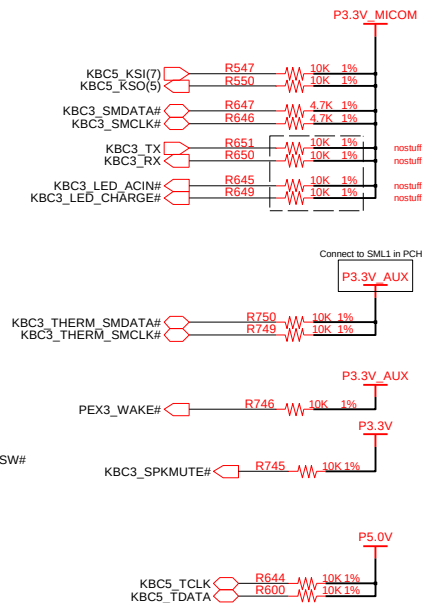
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## MAIN BOARD (MICOM)

BE CAUTION SPI ROM SIZE!!



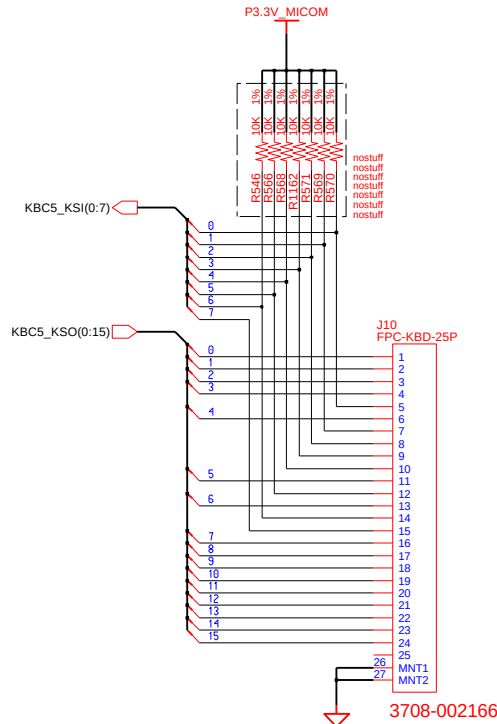
## STRAP



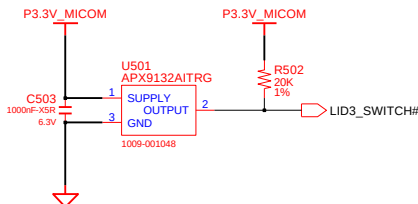
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MICOM	
APPROVAL	BL LEE	REV	REV 1.0		MICOM_SMSC_MEC1310	
MODULE CODE		LAST EDIT				PART NO. BA41-02092*94A
					May 23, 2012 08:40:30 AM	PAGE 36 OF 51

# Micom Glue Logic

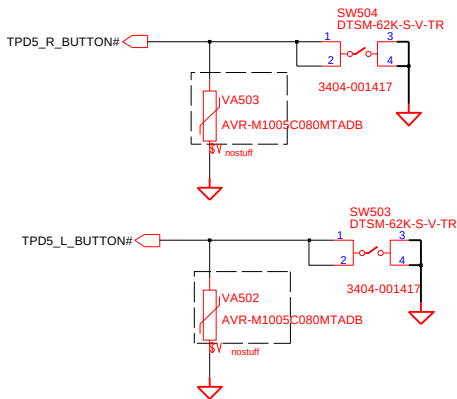
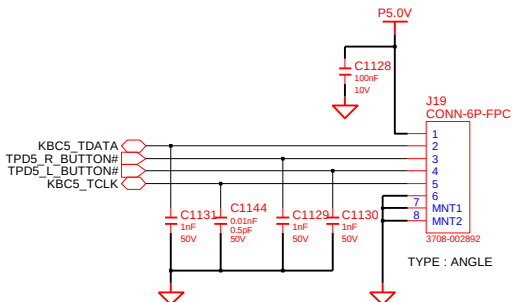
## KEYBOARD



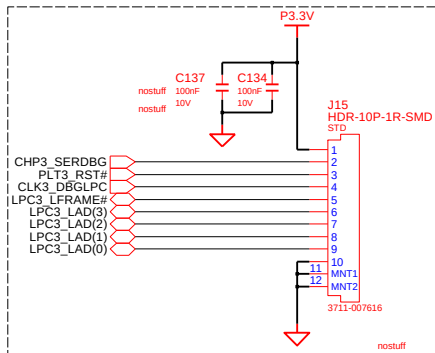
## LID\_SWITCH



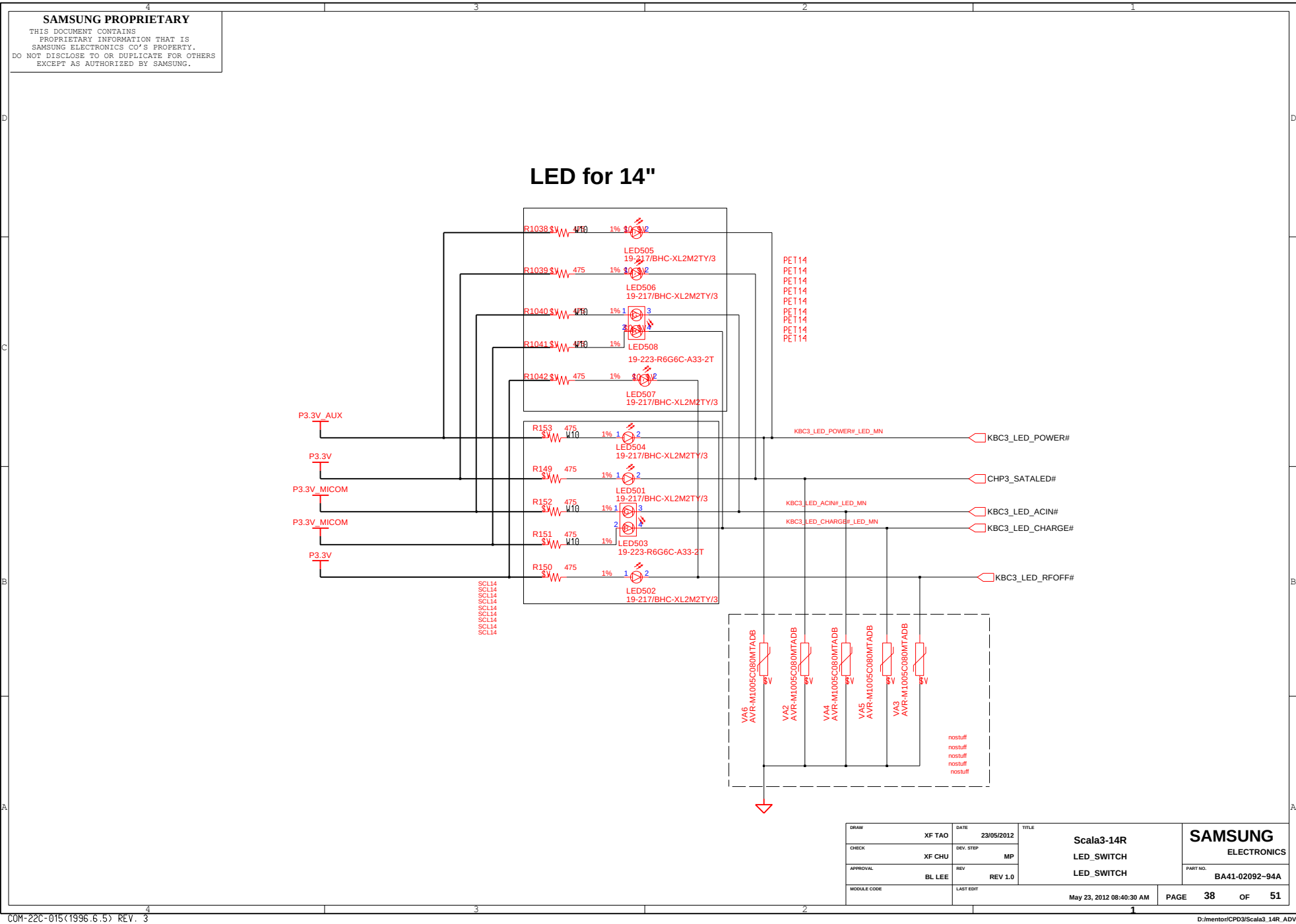
## TOUCHPAD



## 80H PORT DEBUG



DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MICOM GLUE LOGIC	
APPROVAL	BL LEE	REV	REV 1.0		KETBOARD & TOUCHPAD	
MODULE CODE		LAST EDIT				PART NO. BA41-02092-94A
					May 23, 2012 08:40:30 AM	PAGE 37 OF 51

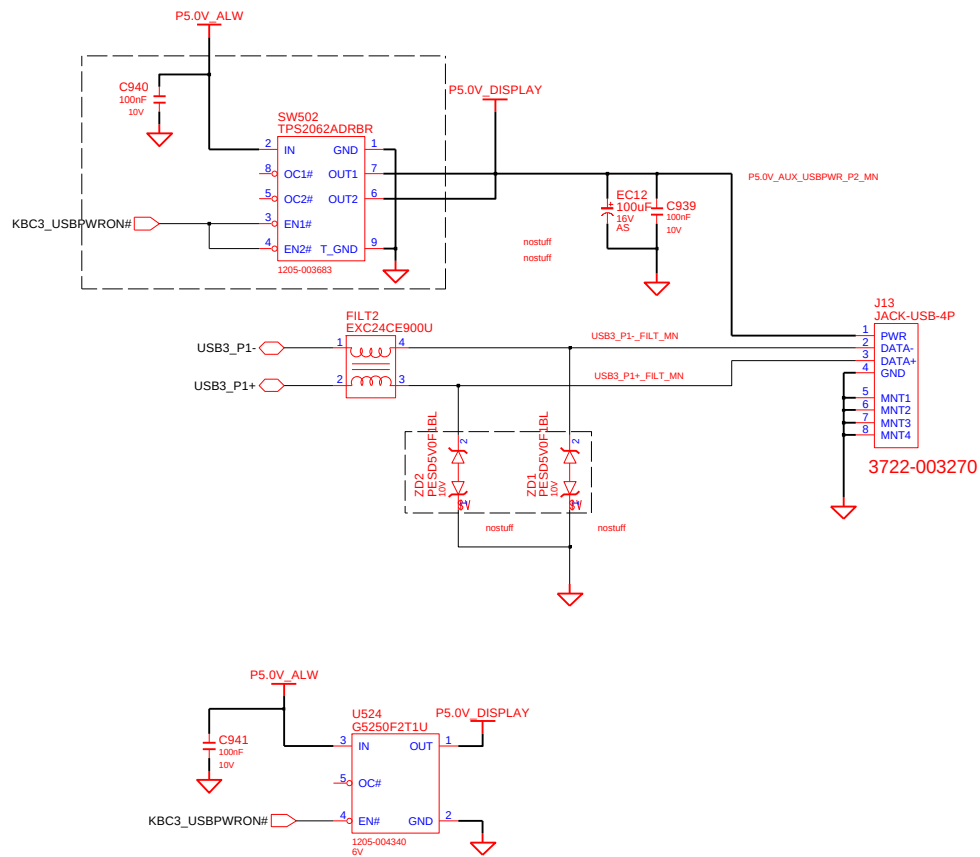


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	LED_SWITCH	LED_SWITCH	
APPROVAL	BL LEE	REV	REV 1.0	LED_SWITCH	PART NO. BA41-02092-94A	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	38 OF 51

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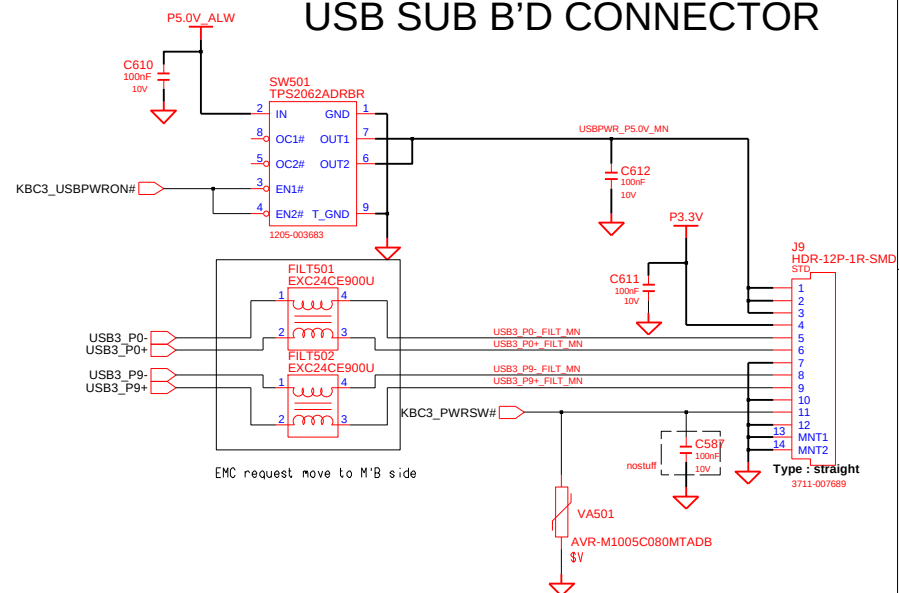
## USB Single connector



## MAIN TO SUB USB CONN

### Right 2USB Port

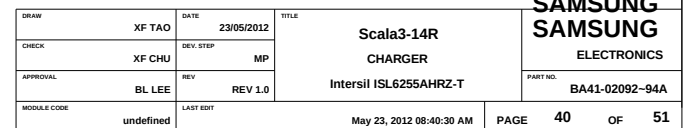
## USB SUB B'D CONNECTOR



PLACE CLOSE TO USB SUB B'D Conenctor

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG
CHECK	XF CHU	DEV. STEP	MP		USB_CONN	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.0		USB Port	PART NO.
MODULE CODE		LAST EDIT				BA41-02092-94A
				May 23, 2012 08:40:30 AM	PAGE	39 OF 51

## CHARGER & POWER MANAGEMENT






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DESIGN	XF TAO	DATE	23/05/2012	TITLE  Scala3-14R  P3.3V_AUX / P5.0V_ALW  TI TPS51125		<b>SAMSUNG</b>  ELECTRONICS			
CHECK	XF CHU	DEV. STEP	MP						
APPROVAL	BL LEE	REV	REV 1.0						
MODULE CODE		LAST EDIT							
				May 23, 2012 08:40:30 AM		PAGE	41	OF	51

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DATE	23/05/2012	TITLE	Scala3-14R			
DRAW	XF TAO	DEV. STEP	P1.05V			
CHECK	XF CHU	MP	TI TPS51125		PART NO.	
APPROVAL	BL LEE	REV	REV 1.0		BA41-02092-94A	
MODULE CODE	undef ined	LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	42 OF 51

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[illegible]

**U525 TPS54319RTER**

**Set : 1.8194V**

**Place close to Out Cap**

**SHORT506 R1005-SHORT**

**P1.8V (3A)**

**Normal : 1.8173V  
Low Voltage setting  
-> 1.7367V(-3.7%)**

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scal3-14R P1.1V_VTT
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE		LAST EDIT			

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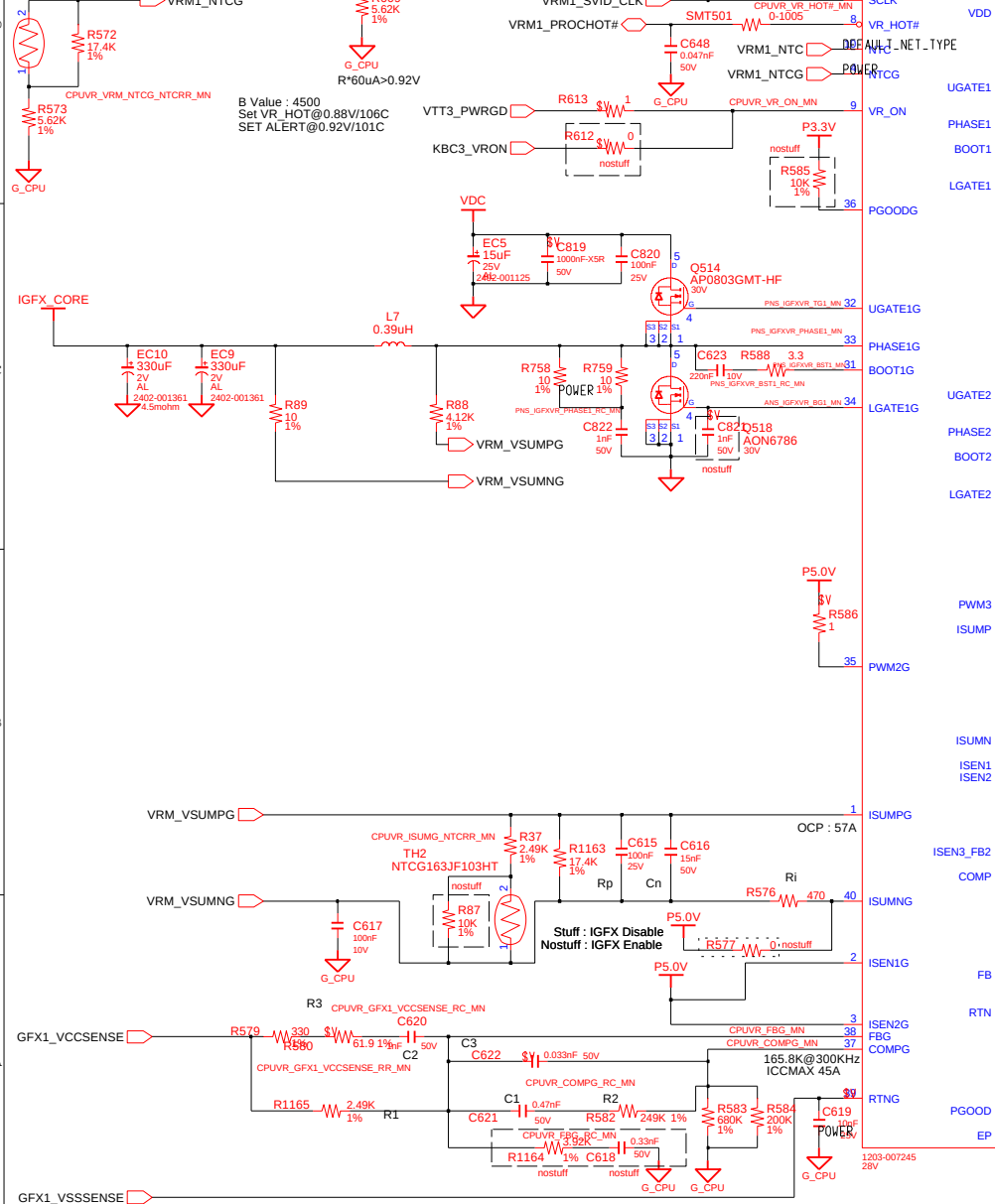
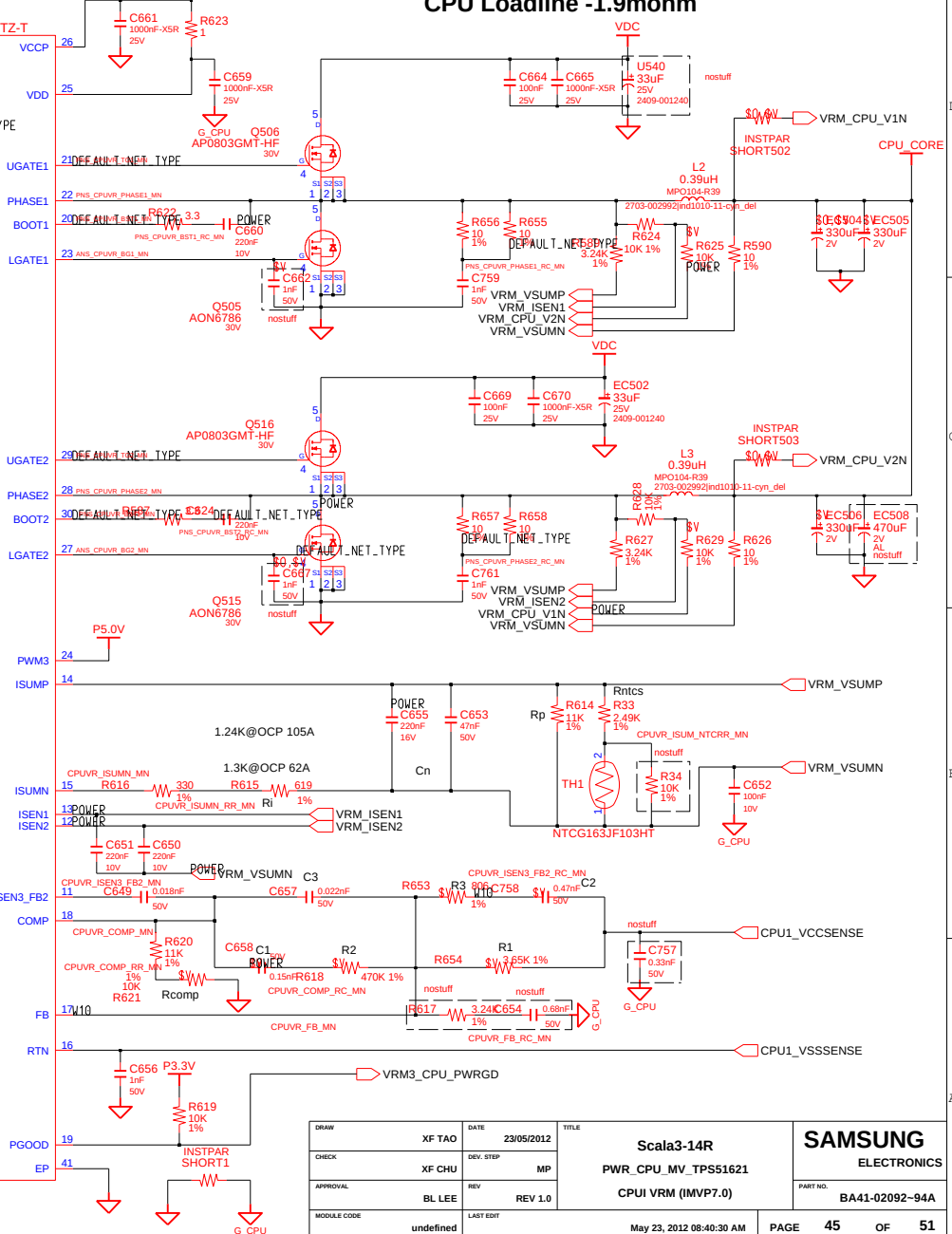
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[illegible]

DRAW	XF TAO	DATE	23/05/2012	Scala3-14R PWR_MEMORY DDR3 POWER	<b>SAMSUNG</b> ELECTRONICS			
CHECK	XF CHU	DEV. STEP	MP					
APPROVAL	BL LEE	REV	REV 1.0		PART NO.	BA41-02092-94A		
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	44	OF	51

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NTCG104QH474G

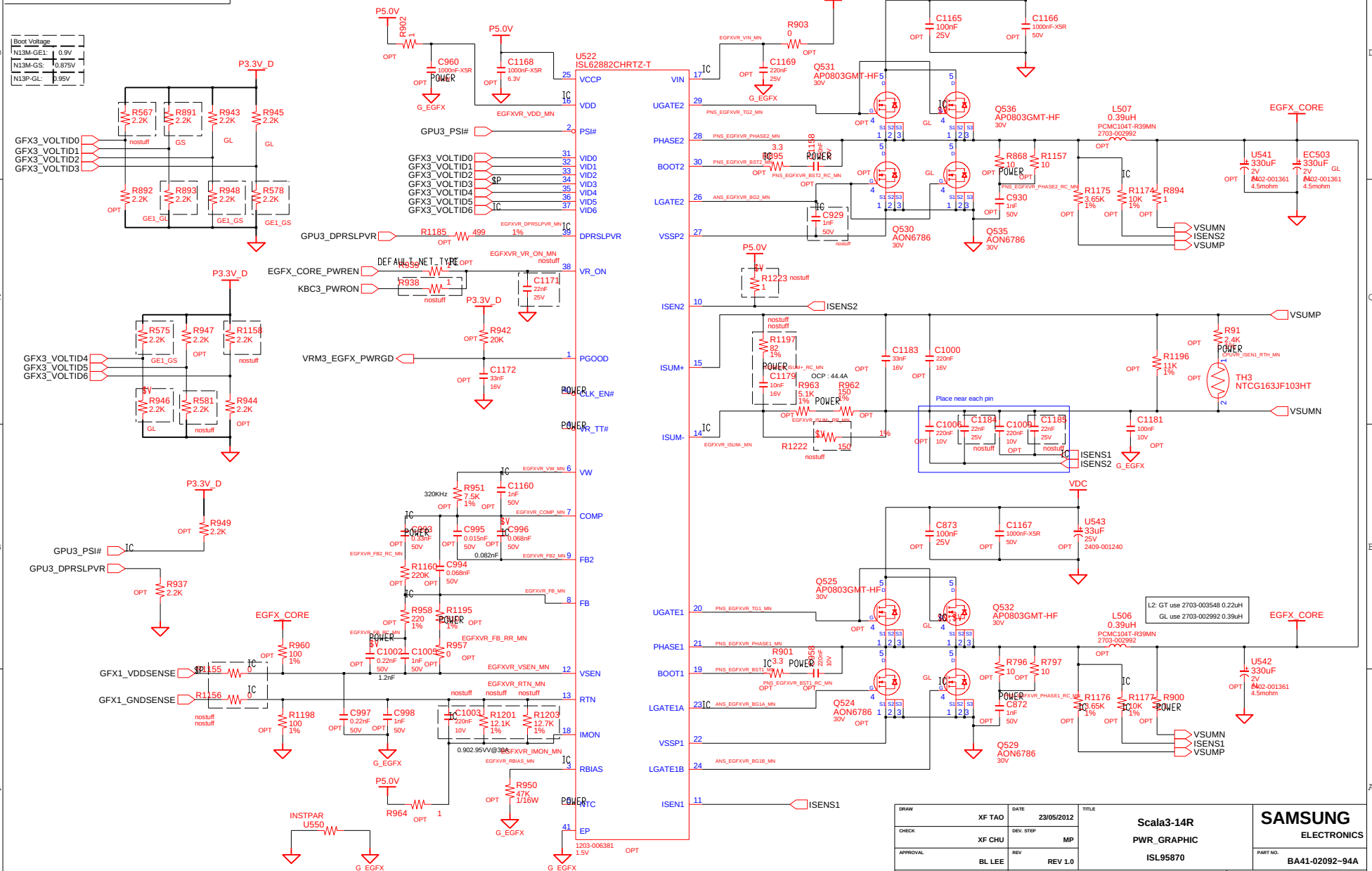
[illegible]

GFX Loadline -3.9mohm  
CPU Loadline -1.9mohm

DRAW	XF TAO	DATE	23/05/2012	Scala3-14R  PWR_CPU_MV_TPS51621  CPU1I_VRM (IMVP7.0)	SAMSUNG ELECTRONICS		
CHECK	XF CHU	DEV. STEP	MP		PART NO. BA41-02092-94A		
APPROVAL	BL LEE	REV	REV 1.0				
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM			PAGE	45

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Boot Voltage	
N13M-GE1:	0.9V
N13M-GS:	0.875V
N13P-GL:	0.95V

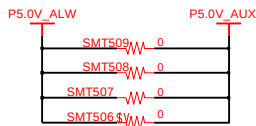


DRAW	XF TAO	DATE	23/05/2012	<div>Scala3-14R</div> <div>PWR_GRAPHIC</div> <div>ISL95870</div>	<div>SAMSUNG</div> <div>ELECTRONICS</div>		
CHECK	XF CHU	DEV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0		PART NO.	BA41-02092-94A	
MODULE CODE	LAST EDIT				May 23, 2012 08:40:30 AM	PAGE	46 OF 51

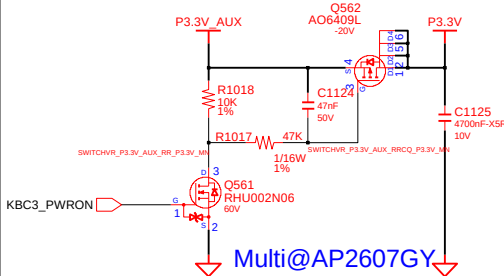
# Switched Power 1

(P5.0V -> P3.3V -> EGFX\_CORE -> P1.8V -> P1.5V -> P0.75V -> P1.05V -> P0.85V\_SA -> CPU\_CORE)

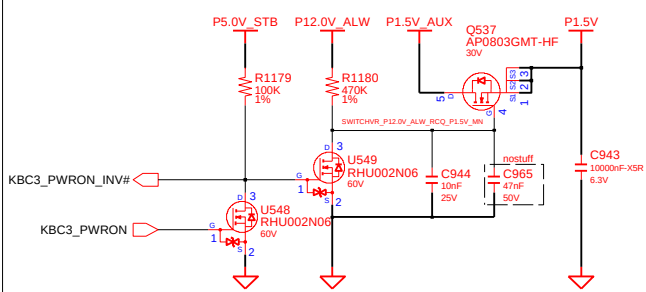
P5.0V\_AUX



Switched Power On (P3.3V)

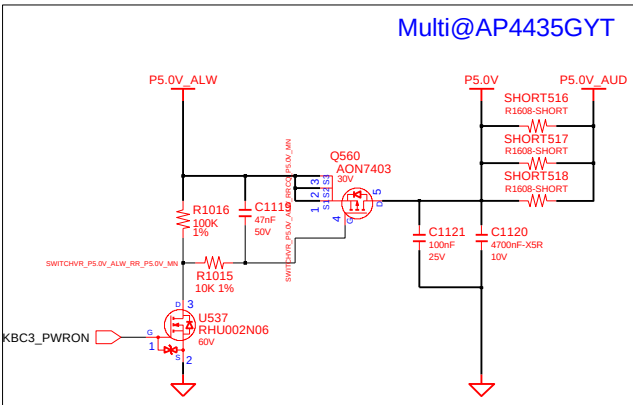


Switched Power On (P1.5V)



For nVIDIA GFX PWR Sequence  
NVDD(EGFX\_CORE) first and then FBVDDQ(gDDR3)

Switched Power On (P5.0V)



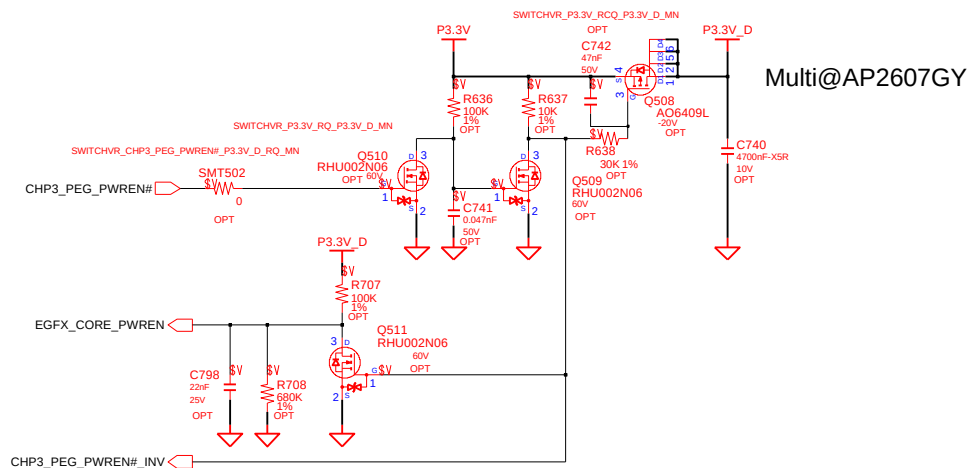
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		Switched PWR 2	
APPROVAL	BL LEE	REV	REV 1.0		Switched Power	
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	47	OF 51

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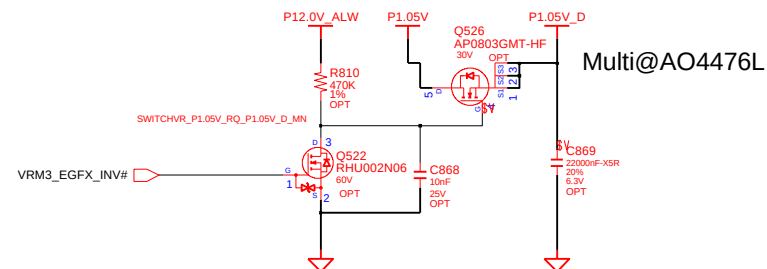
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## Switched Power 2 (For nVidia GFX Power Sequence)

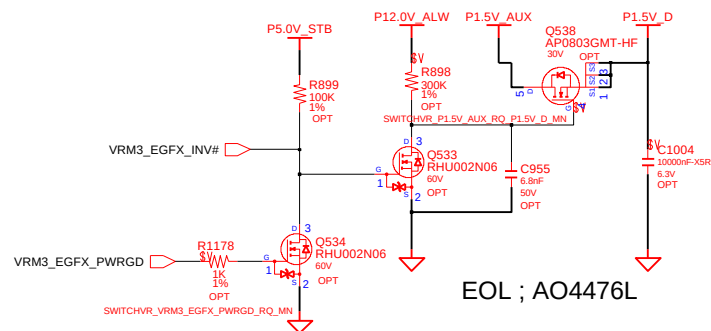
### Discrete Switched Power (D3.3V : Max\_1.2A)



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



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

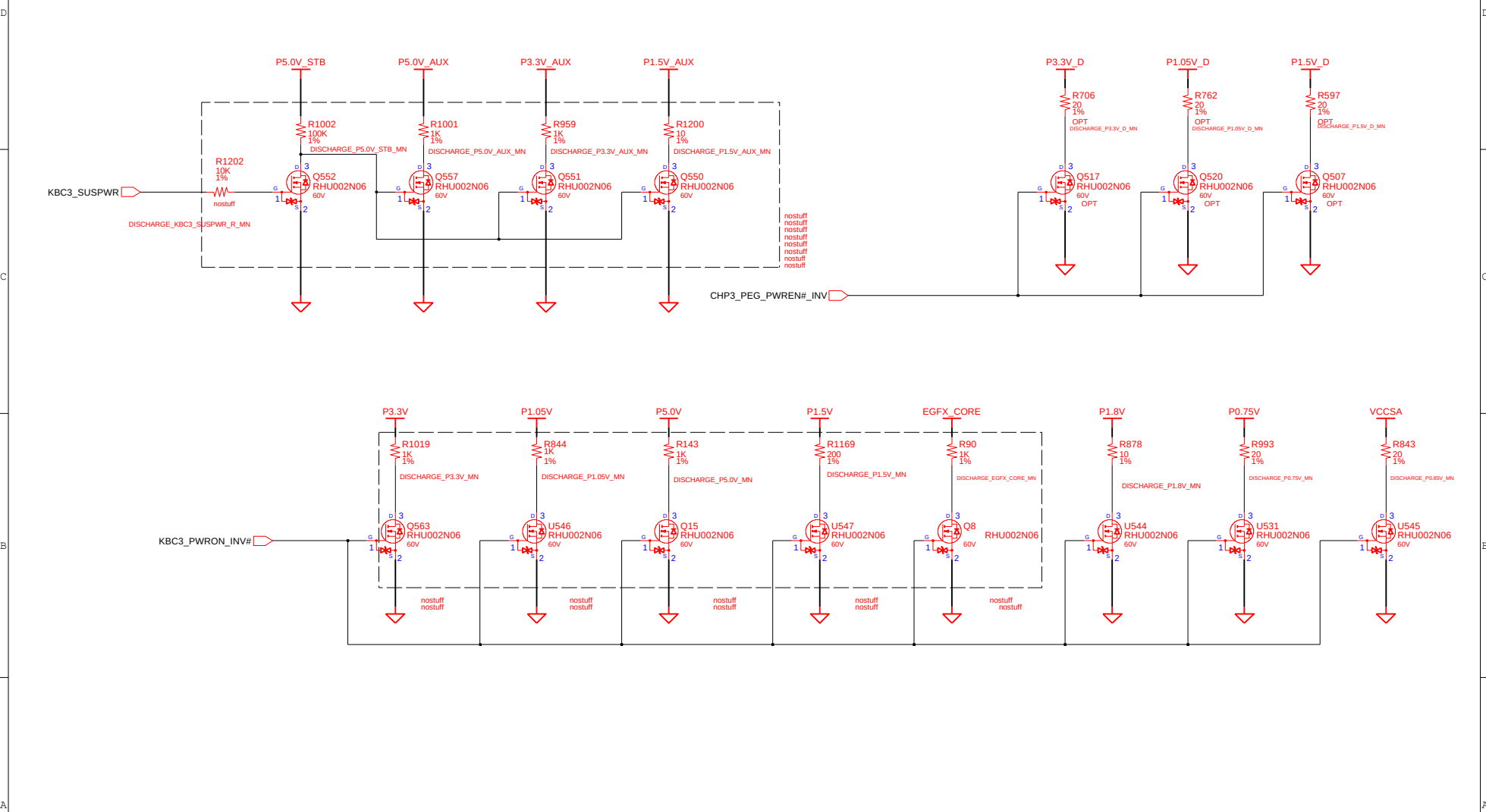


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		Switched PWR	
APPROVAL	BL LEE	REV	REV 1.0		FOR OPTIMUS PWR	
MODULE CODE		LAST EDIT				PART NO. BA41-02092-94A
				May 23, 2012 08:40:30 AM	PAGE	48 OF 51



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# POWER DISCHARGER

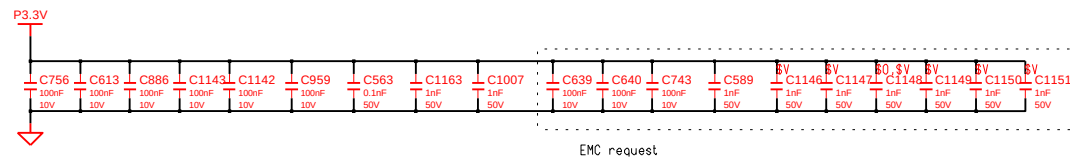
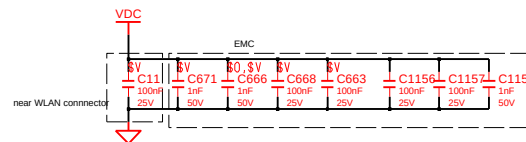
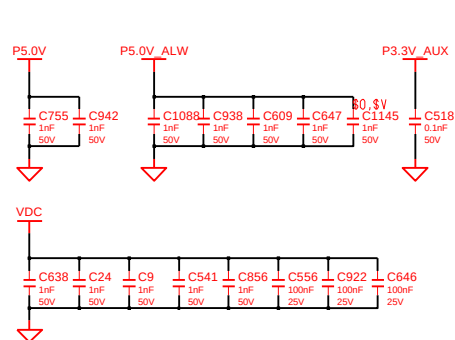


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		DISCHARGER LOGIC	
APPROVAL	BL LEE	REV	REV 1.0		DISCHARGING LOGIC	
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	49	OF 51

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The diagram illustrates 12 different pin configurations for the BA02-00240A component, organized into three rows of four. Each configuration is represented by a square symbol with pins on the left side, enclosed in a dashed rectangular box. The configurations are labeled as follows:

- Row 1:**
  - ADD1 BA02-00240A:** OPT
  - ADD2 BA02-00240A:** OPT
  - ADD3 BA02-00240A:** OPT
  - ADD6 BA02-00240A:** OPT
- Row 2:**
  - ADD8 BA02-00240A:** OPT
  - ADD9 BA02-00240A:** OPT
  - ADD10 BA02-00240A:** OPT
  - ADD12 BA02-00240A:** OPT
- Row 3:**
  - ADD4 BA02-00240A:** nostuff
  - ADD5 BA02-00240A:** nostuff
  - ADD7 BA02-00240A:** nostuff
  - ADD11 BA02-00240A:** nostuff

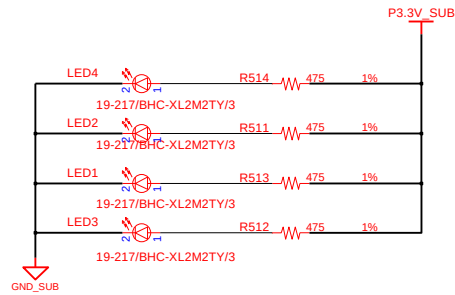


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R		SAMSUNG	
CHECK	XF CHU	DEV. STEP	MP		MT Hole		ELECTRONICS	
APPROVAL	BL LEE	REV	REV 1.0		MT Hole		PART NO.	BA11-0209294A
MODULE CODE	LAST EDIT			May 23, 2012 08:40:30 AM		PAGE	50	OF 51

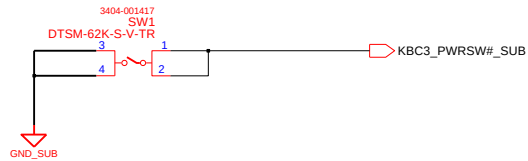
# USB SUB BOARD

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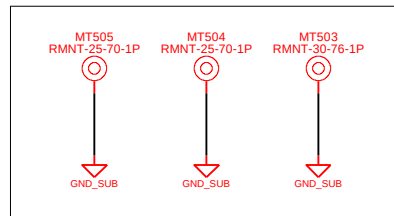
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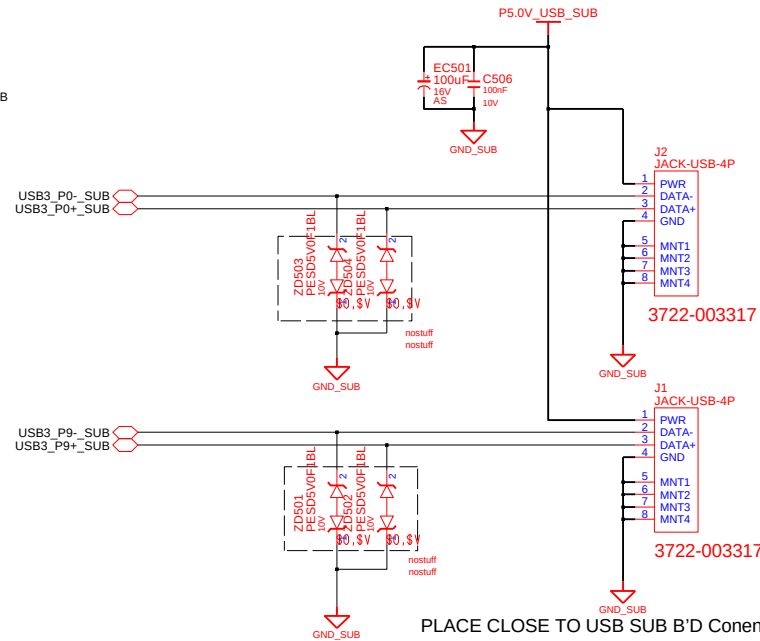
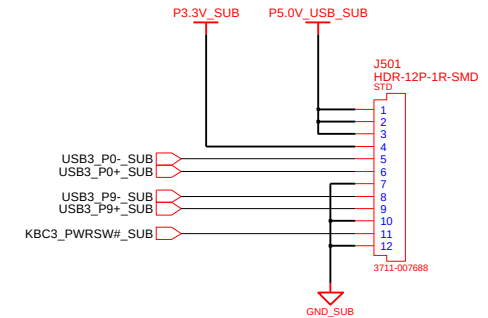
## Power Switch Button



## PCB Mount



## SUB TO MAIN



PLACE CLOSE TO USB SUB B'D Conenctor

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		SUB BOARD	
APPROVAL	BL LEE	REV	REV 1.0		SUB BOARD	
MODULE CODE		LAST EDIT				

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