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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

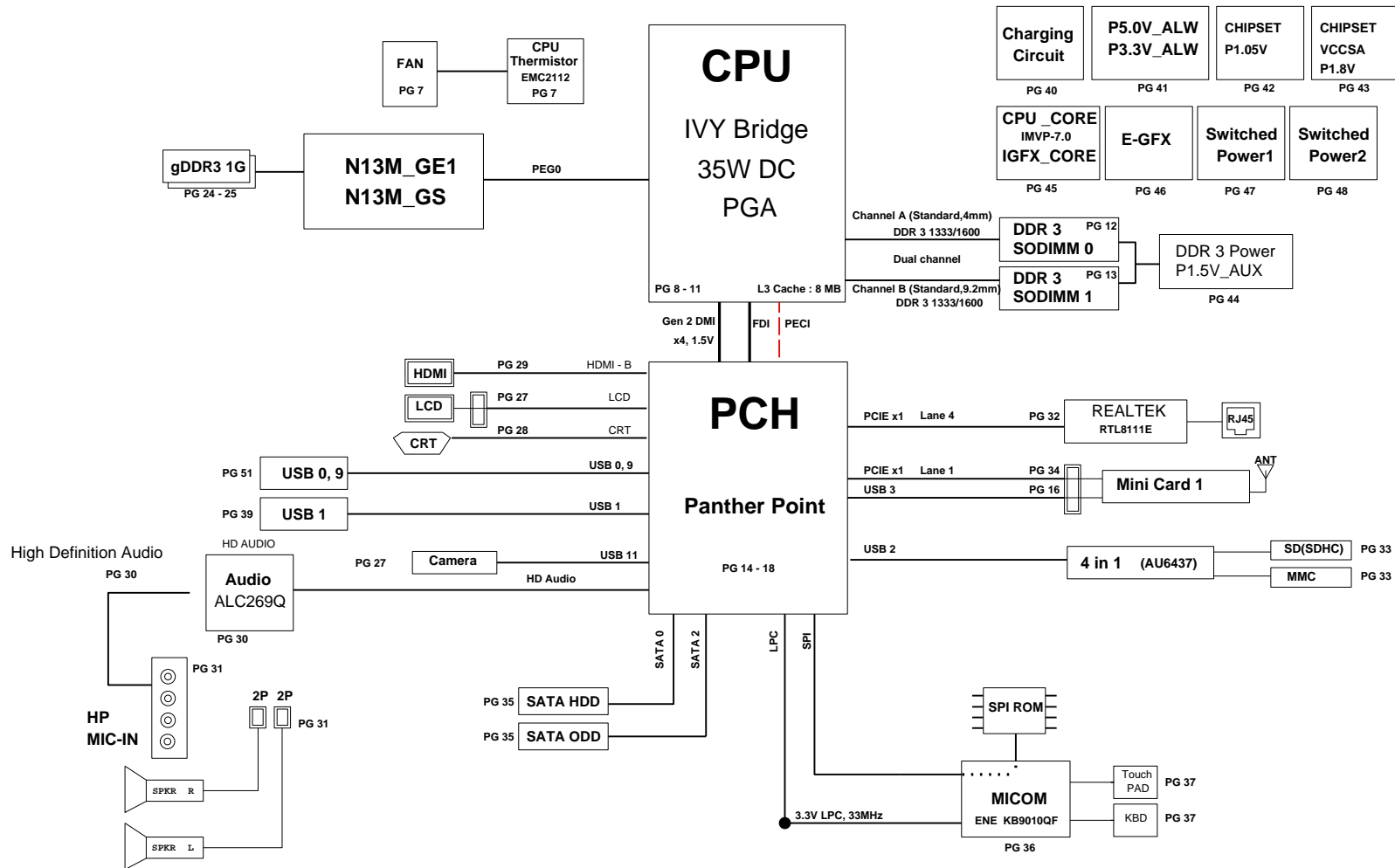
sheet01 : Cover
sheet02 : BLOCK DIAGRAM
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sheet04 : POWER DIAGRAM
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sheet06 : Green Clock
sheet07 : Thermal Sensor
sheet08 : CPU
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sheet12 : DDR3 SODIMM #0
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sheet14 : PCH-CougarPoint
sheet15 : PCH-CougarPoint
sheet16 : PCH-CougarPoint
sheet17 : PCH-CougarPoint
sheet18 : PCH-CougarPoint
sheet19 : N12P-GVR
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

DRAW	XF TAO	DATE	11/06/2012	TITLE		Scala3-14R		SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV. STEP	MP						
APPROVAL	BL LEE	REV	REV 1.1	COVER		PART NO.			
						BA41-02092-94A			
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM			PAGE	1	OF	51

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BLOCK DIAGRAM



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

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)	S3
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)	S0
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for COUGARPOINT	S0
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	

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

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

Devices	Resolution	PANNEL_DETECT_0

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	

DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R MAIN BOARD INFO		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	3	OF 51

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POWER DIAGRAM

Rev 0.8

KBC3_SUSPWR
(CHP3_SLPS4#)

KBC3_PWRON
(CHP3_SLPS3#)

KBC3_VRON

AC Adapter

Battery DC

VDC

P3.3V_MICOM

MICOM
SPI ROM
GREEN CLK
KBD

P5.0V_STB

P5.0V_ALW

USB PWR S/W
Chipset PWR IC
When USB Charge Enable

P3.3V_ALW

Thermal Sensor
PCH

P12.0V_ALW

P1.5V_AUX

SODIMM (DDR3)

P5.0V_AUX

P3.3V_AUX

LID S/W

P1.05V_M

P3.3V_M

P1.05V
(VCCP)

CPU
PCH

P1.05V_D

NVIDIA

EGFX_CORE

N12P

P1.5V

CPU
PCH
Express card

P1.5V_D

NVIDIA

P0.75V

SODIMM (DDR3)

P1.05V_USB

USB3.0

P5.0V

Thermal Sensor
PCH
LVDS
CRT

Touchpad
HDMI
SATA IF

P1.8V

CPU
PCH
N12P

P3.3V_D

NVIDIA

P3.3V

GREEN CLK
SODIMM (DDR3)
PCH
80PORT
LVDS
CRT

HDMI
AUDIO

P0.85V_SA

CPU

P3.3V_USB

USB3.0

S5-S4

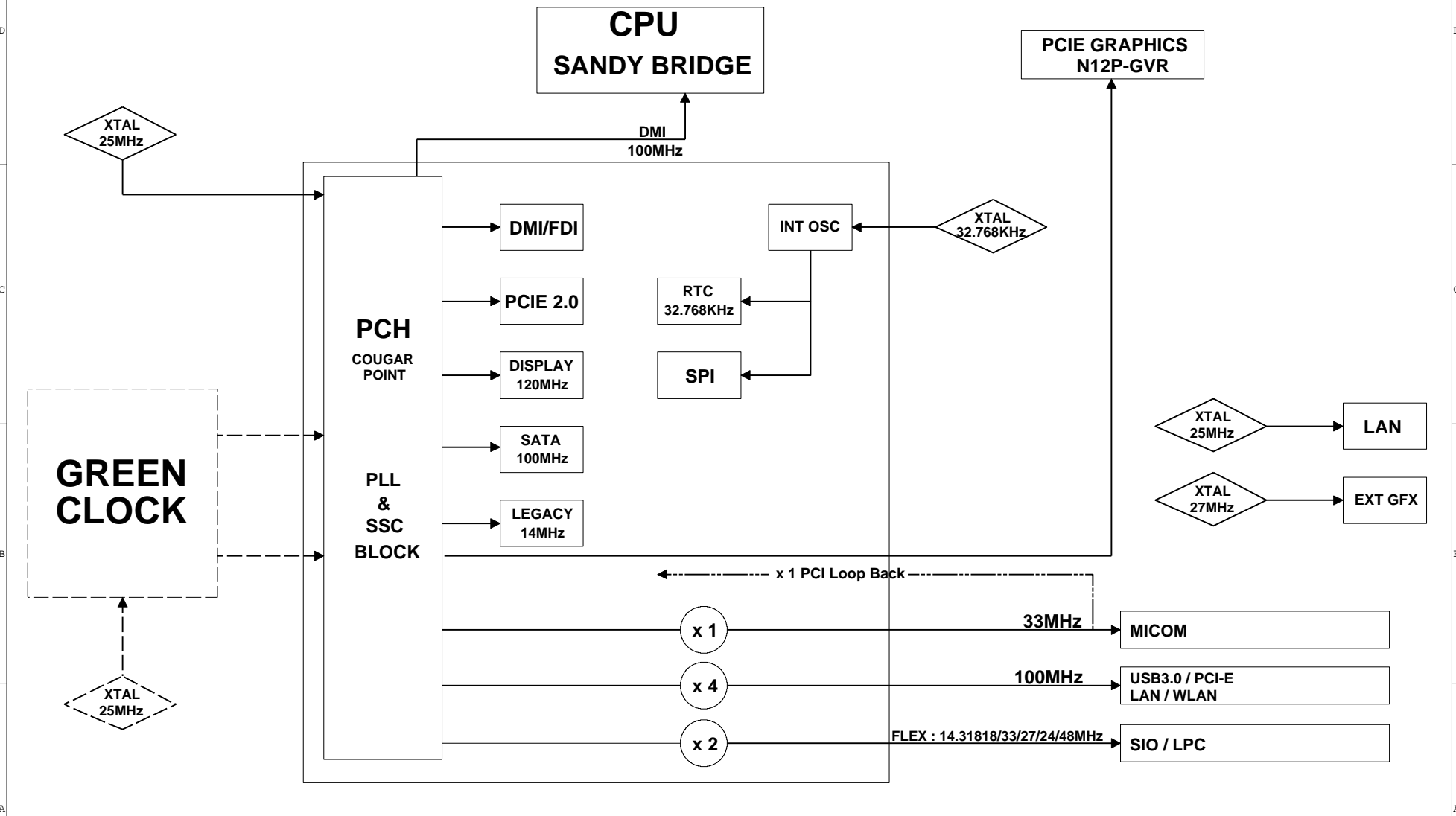
S3

S0

DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG
CHECK	XF CHU	DEV. STEP	MP		MAIN	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.0		POWER DIAGRAM	PART NO.
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM			BA41-02092-94A
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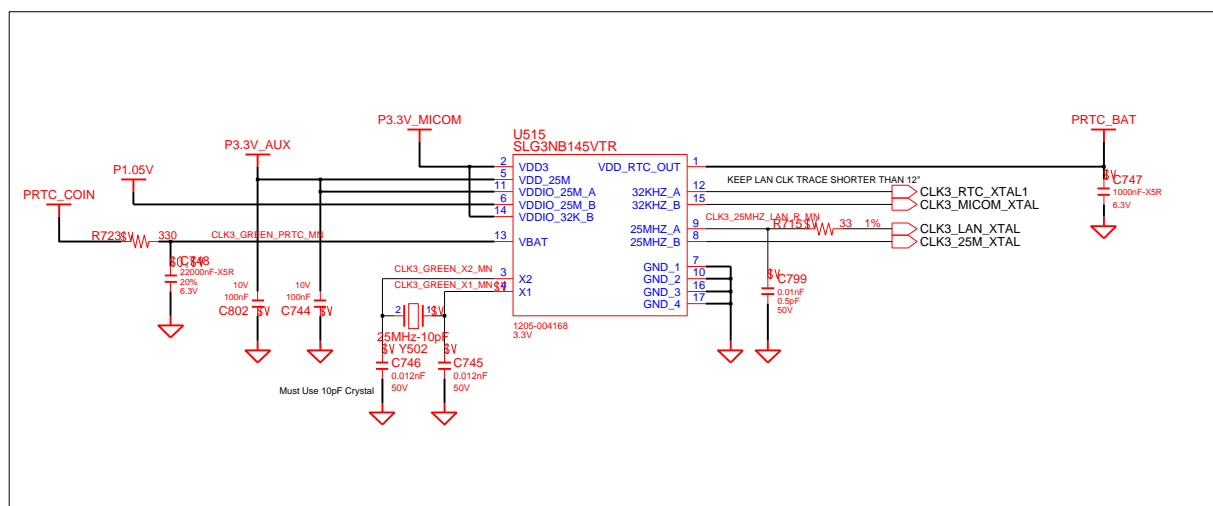
CLOCK DISTRIBUTION Rev. 0.8



DRAW	XF TAO	DATE	23/05/2012	Scala3-14R MAIN CLOCK 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	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

For OTP

The schematic diagram for OTP configuration shows two integrated circuits, U505 G761P71U and U504 G709T1UF, connected to various power and signal pins.

U505 G761P71U Pin Connections:

- Pin 7 (X2): CLK
- Pin 6 (X2): ADD0
- Pin 3 (SCL): SCL
- Pin 4 (SDA): SDA
- Pin 10 (VCC): VCC
- Pin 1 (FOUT): FOUT
- Pin 2 (FG): FG
- Pin 4 (ALERT#): ALERT#
- Pin 5 (GND): GND

U504 G709T1UF Pin Connections:

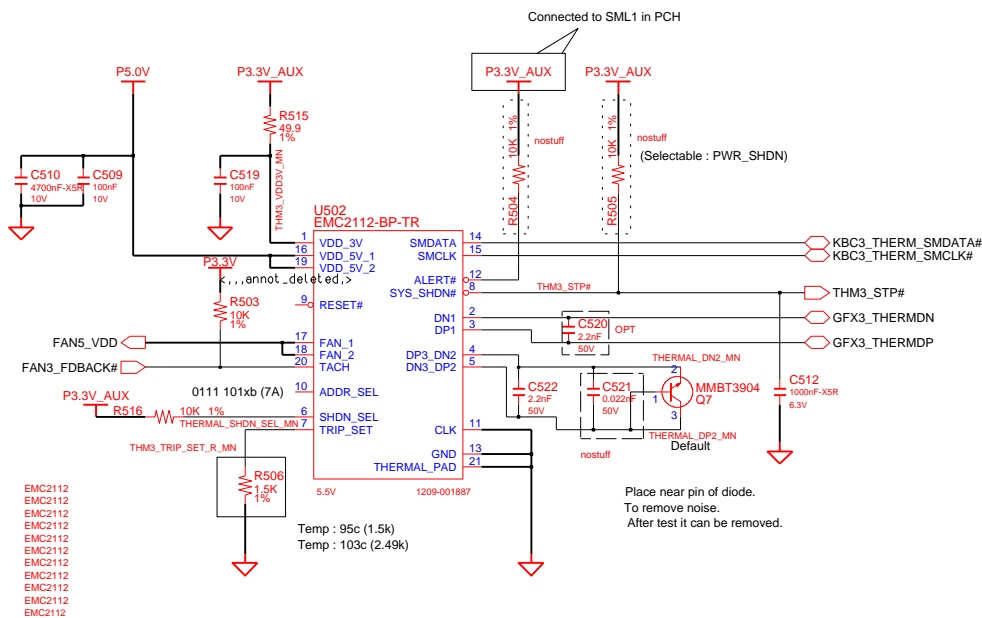
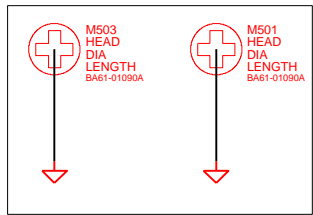
- Pin 5 (VCC): VCC
- Pin 3 (HYST): HYST
- Pin 4 (OT_N): OT_N
- Pin 2 (SET): SET
- Pin 2 (GND): GND

Power and Signal Connections:

- P5.0V:** Connected to U505 pins 10, 1, 2, 4, 5, and U504 pin 5.
- P3.3V_AUX:** Connected to U504 pin 3.
- Resistors:** R532 (10K, 1%), R534 (10K, 1%), R551 (18K, 1%).
- Capacitors:** C539 (100nF, 10V), C538 (4700nF, XSR, 10V), C590 (100nF, 10V).
- Signal Lines:** KBC3_THERM_SMCLK#, KBC3_THERM_SMDATA#, THM3_STP#.
- Other Labels:** FAN5_VDD, FAN3_FDBACK#, nostuff.

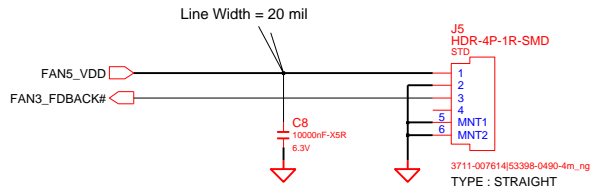
Temperature : 95.78c
confirmed by thermal charger
(2011.05.02)
 $R_{\text{set}}(\text{kohm}) = 0.0012T^2 - 0.9308T + 96.147$

FAN PEM



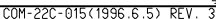
ADDRESSSEL_MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

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

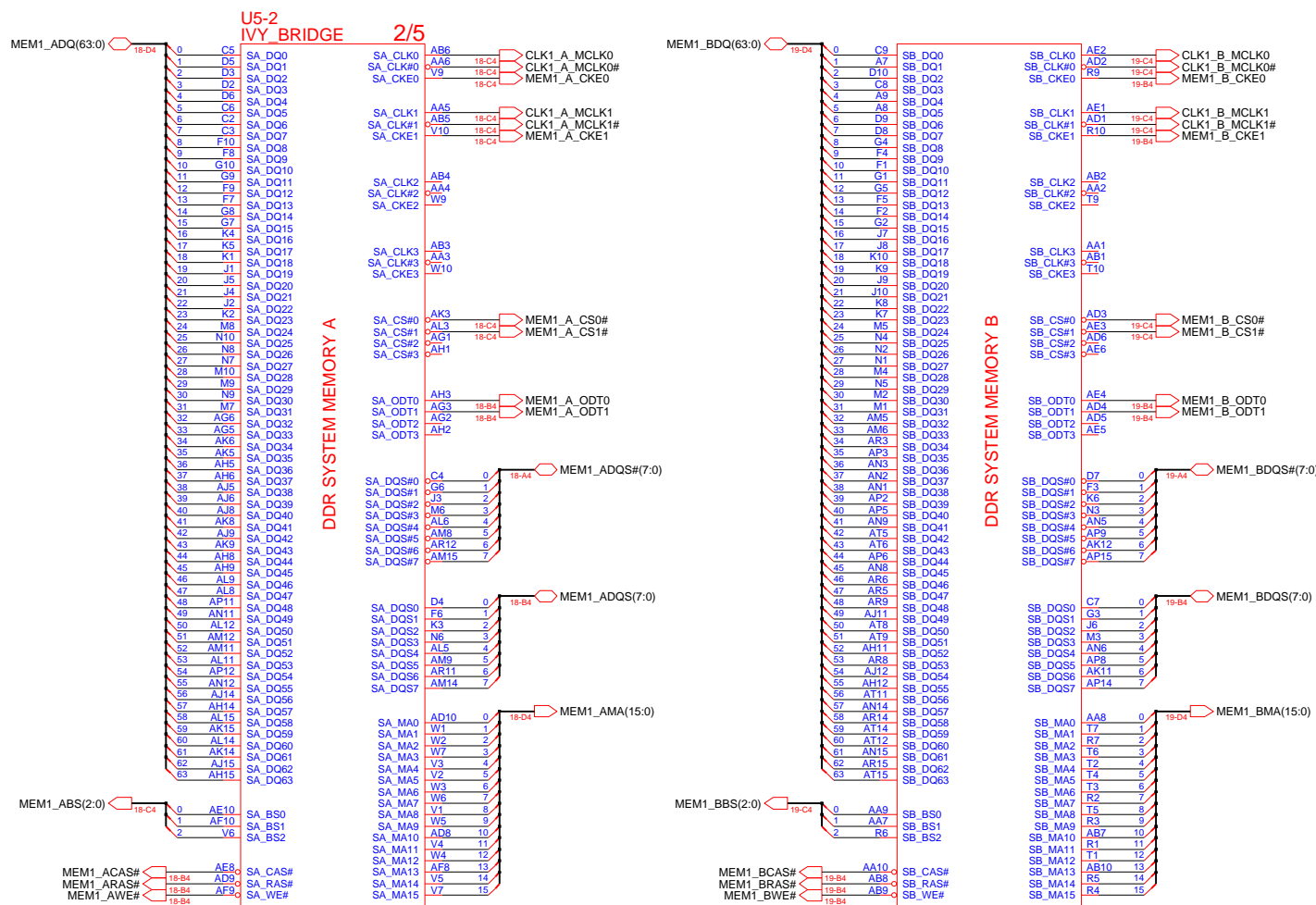


DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R THERMAL SENSOR THERMAL SENSOR EMC2112	SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.0		PART NO.	BA41-02092-94A
MODULE CODE	LAST EDIT				May 23, 2012 08:40:30 AM	PAGE 7 OF 51

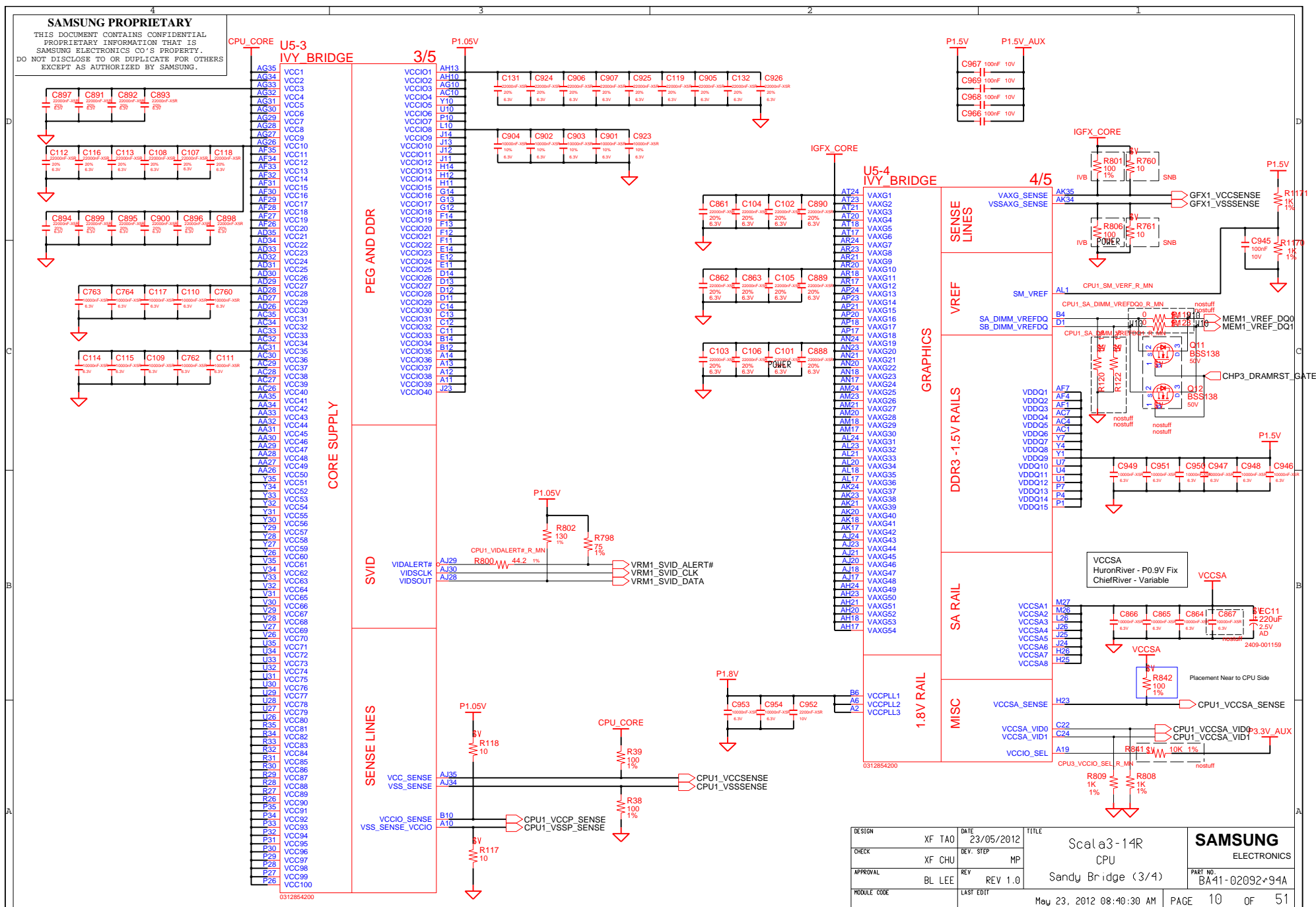
P1.05V



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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					
MODULE CODE	undefined	LAST EDIT			PAGE	9	OF	51
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					PART NO. BA41-02092-94A			



DESIGN	XF TAO	DATE	23/05/2012	TITLE Scala3-14R CPU Sandy Bridge (3/4)		SAMSUNG ELECTRONICS	
CHECK	XF CHU	REV. STEP	MP				
APPROVAL	BL LEE	REV	REV 1.0				
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM		PAGE	10	OF 51

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AT35	VSS1	VSS81
AT32	VSS2	VSS82
AT29	VSS3	VSS83
AT27	VSS4	VSS84
AT25	VSS5	VSS85
AT22	VSS6	VSS86
AT19	VSS7	VSS87
AT16	VSS8	VSS88
AT13	VSS9	VSS89
AT10	VSS10	VSS90
AT7	VSS11	VSS91
AT4	VSS12	VSS92
AT3	VSS13	VSS93
AT2	VSS14	VSS94
AR22	VSS15	VSS95
AR19	VSS16	VSS96
AR16	VSS17	
AR13	VSS18	VSS98
AR10	VSS19	VSS99
AR7	VSS20	VSS100
AR4	VSS21	VSS101
AR2	VSS22	VSS102
AP31	VSS23	VSS103
AP28	VSS24	VSS104
AP25	VSS25	VSS105
AP22	VSS26	VSS106
AP19	VSS27	VSS107
AP16	VSS28	VSS108
AP13	VSS29	VSS109
AP10	VSS30	VSS110
AP7	VSS31	VSS111
AP4	VSS32	VSS112
AP1	VSS33	VSS113
AN30	VSS34	VSS114
AN27	VSS35	VSS115
AN25	VSS36	VSS116
AN22	VSS37	VSS117
AN19	VSS38	VSS118
AN16	VSS39	VSS119
AN13	VSS40	VSS120
AN10	VSS41	VSS121
AN7	VSS42	VSS122
AN4	VSS43	VSS123
AM29	VSS44	VSS124
AM25	VSS45	VSS125
AM22	VSS46	VSS126
AM19	VSS47	VSS127
AM16	VSS48	VSS128
AM13	VSS49	VSS129
AM10	VSS50	VSS130
AM7	VSS51	VSS131
AM4	VSS52	VSS132
AM3	VSS53	VSS133
AM2	VSS54	VSS134
AM1	VSS55	VSS135
AL34	VSS56	VSS136
AL31	VSS57	VSS137
AL28	VSS58	VSS138
AL25	VSS59	VSS139
AL22	VSS60	VSS140
AL19	VSS61	VSS141
AL16	VSS62	VSS142
AL13	VSS63	VSS143
AL10	VSS64	VSS144
AL7	VSS65	VSS145
AL4	VSS66	VSS146
AL2	VSS67	VSS147
AK33	VSS68	VSS148
AK30	VSS69	VSS149
AK27	VSS70	VSS150
AK25	VSS71	VSS151
AK22	VSS72	VSS152
AK19	VSS73	VSS153
AK16	VSS74	VSS154
AK13	VSS75	VSS155
AK10	VSS76	VSS156
AK7	VSS77	VSS157
AK4	VSS78	VSS158
AJ25	VSS79	VSS159
	VSS80	VSS160

VSS


VSS

CEC

RESERVED

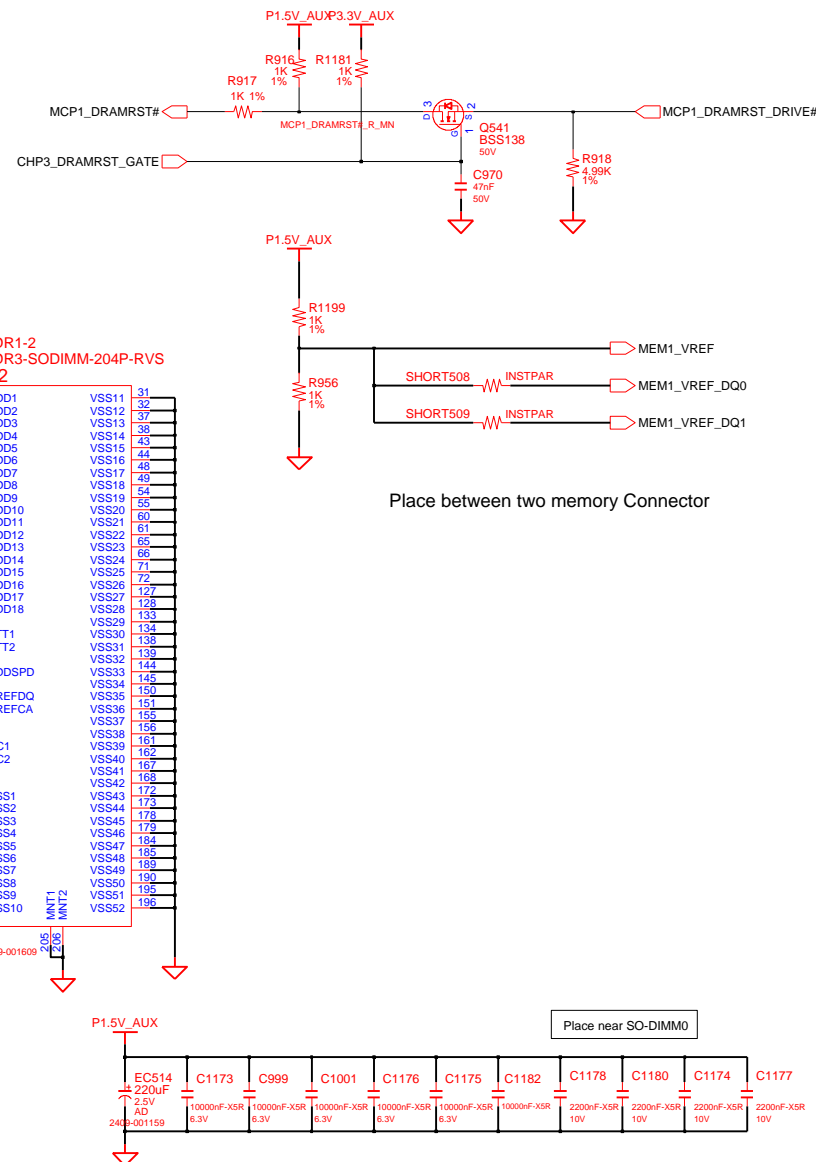
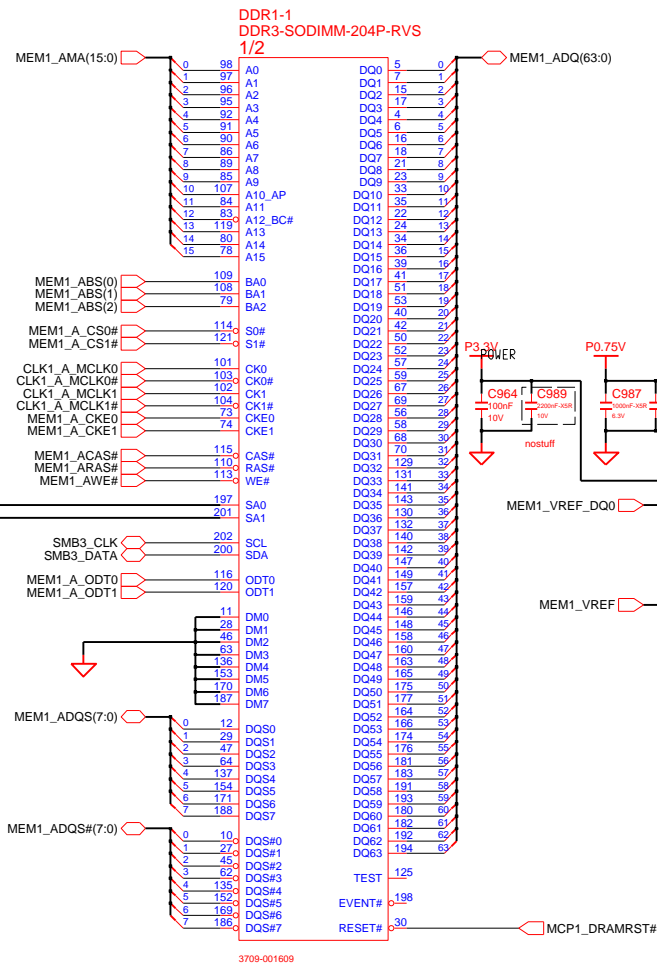
CFG Straps for Processor

PEG STATIC LANE REVERSAL - CFG2 IS FOR THE 16X	
CFG2	1 : (DEFAULT) NORMAL OPERATION 0 : LANE REVERSED
PCIE PORT BIFURCACTION STRAPS	
CFG[6:5]	11 : (DEFAULT) X16 - 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 XRESSETS DEASSERTION 0 : PEG WAIT FOR BIOS FOR TRAINING

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	
CHECK	XF CHU	DEV. STEP	MP	CPU		
APPROVAL	BL LEE	REV	REV 1.0	Sandy Bridge (4/4)		
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 11 OF 51	

DDR SO-DIMM #0

P/N : 3709-001609 (Concraft)



SA0	0	0
SA1	0	1
SPD ADD	0xA0	0xA2
TS ADD	0x30	0x32

DRAW	XF TAO	DATE	23/05/2012	TITLE Scala3-14R SODIMM A DDR3	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM		
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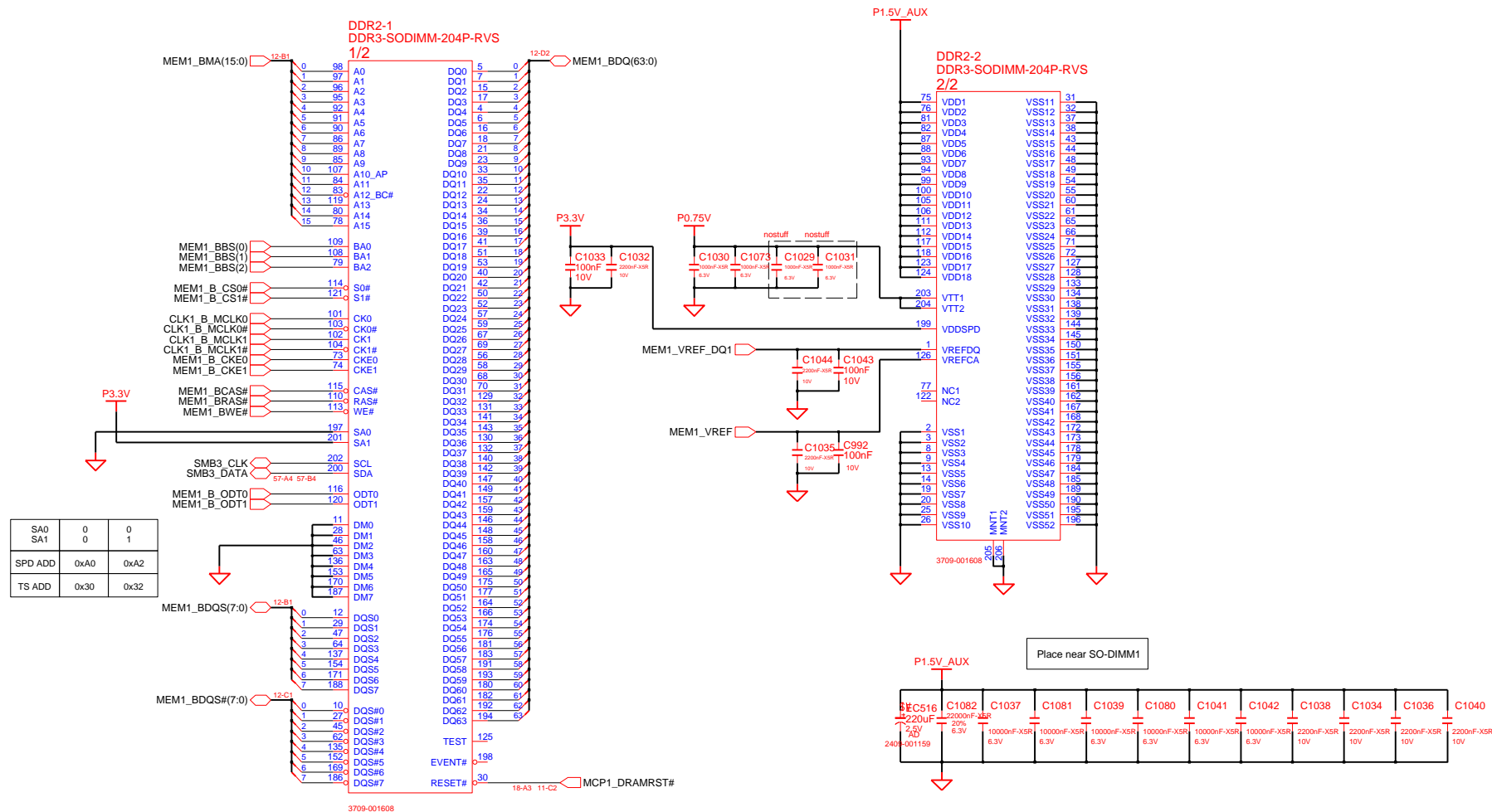
SO-DIMM#1 : 1st SO-DIMM

DDR SO-DIMM #1

Height : 4.0 mm (REVERSE)

P/N : 3709-001654 (Foxconn)

P/N : 3709-001608 (Concraft)



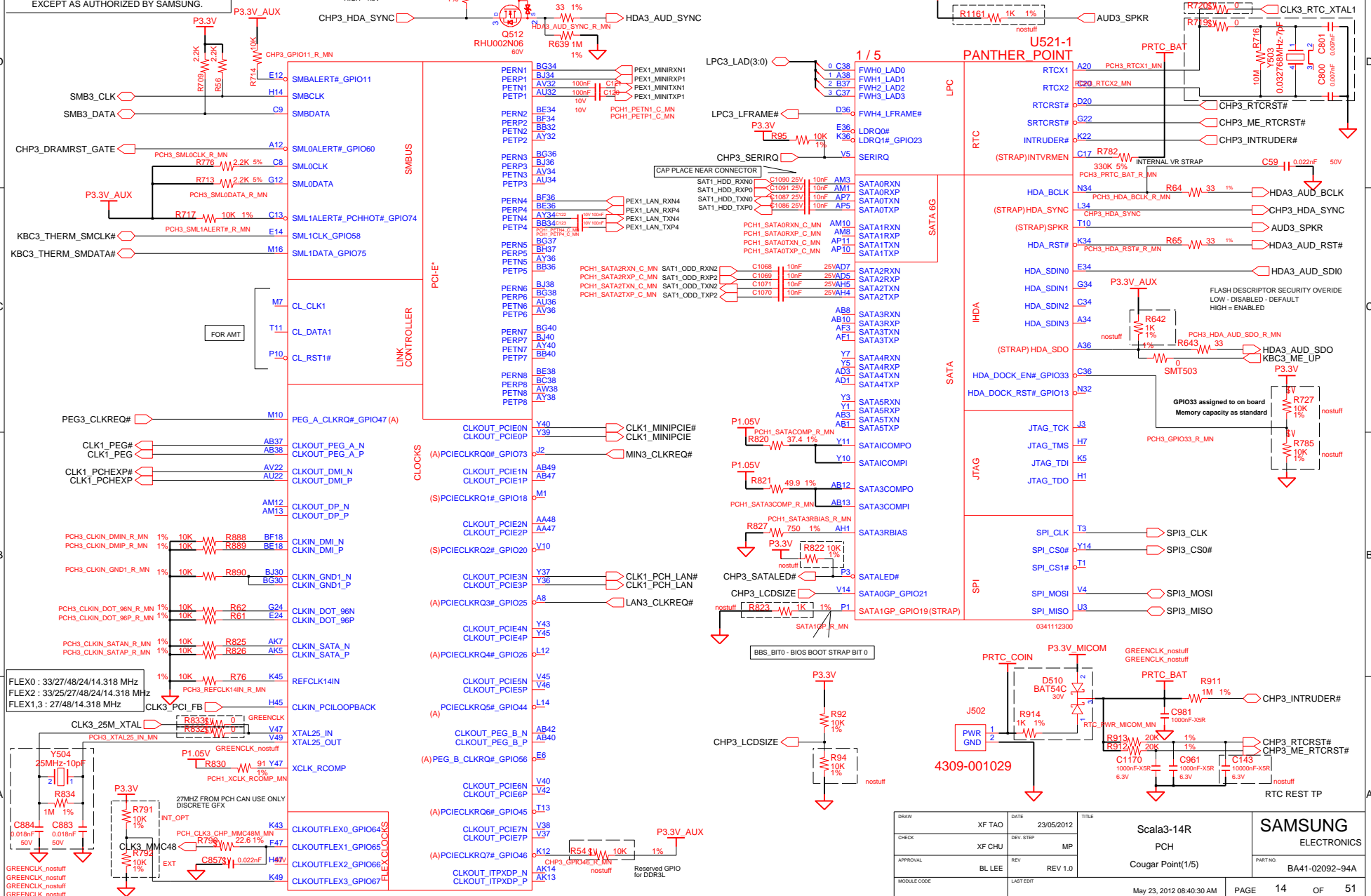
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		SODIMM B
APPROVAL	BL LEE	REV	REV 1.0		DDR3
MODULE CODE		LAST ENT			
				May 23, 2012 08:40:30 AM	PAGE 13 OF 51

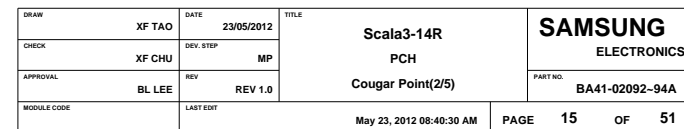
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BA41-02092-94A

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NO REBOOT STRAP



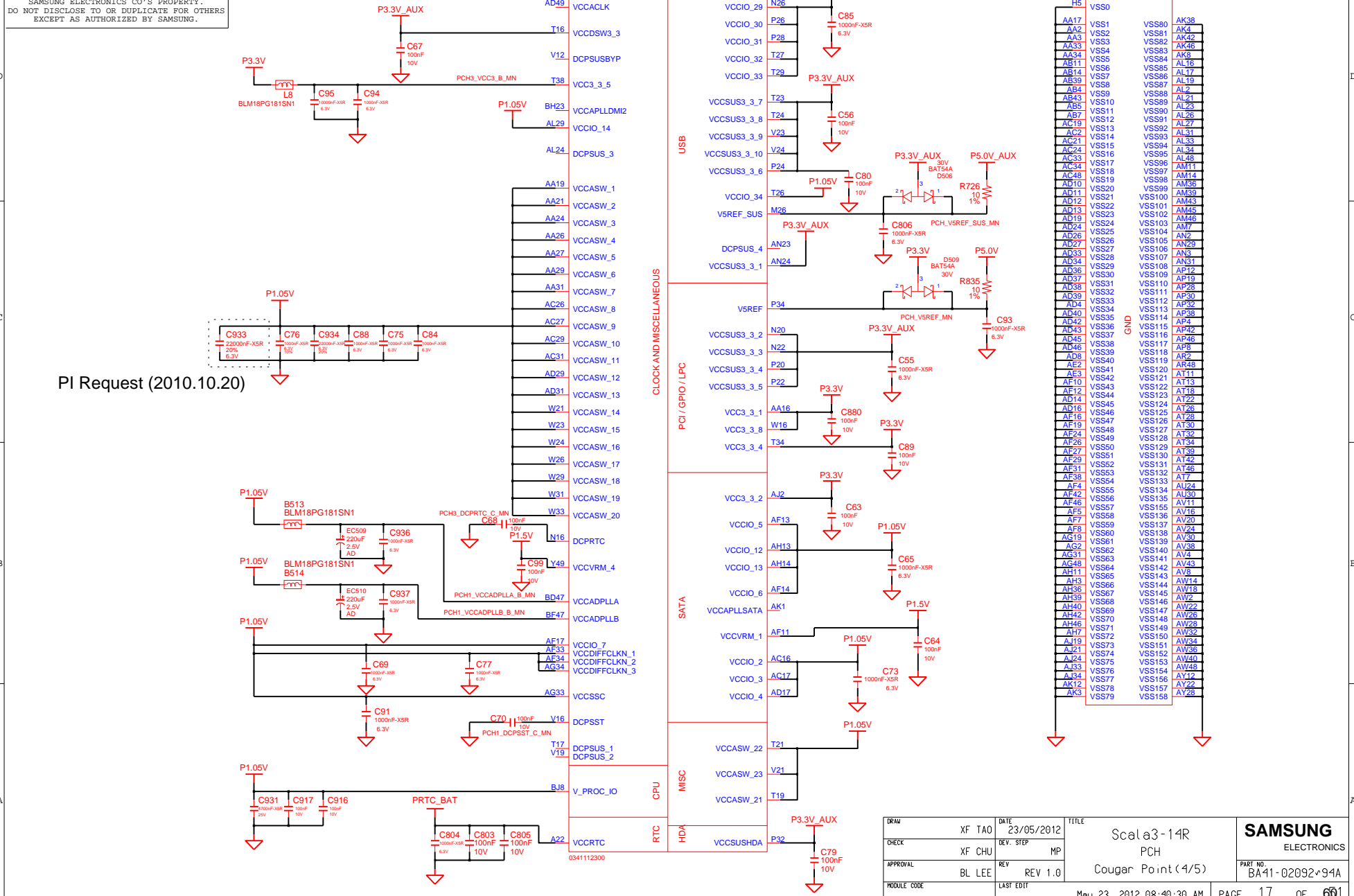


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**U521-4
PANTHER POINT**

4 / 5



PI Request (2010.10.20)

DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092*94A
CHECK	XF CHU	DEV. STEP	MP		PCH	
APPROVAL	BL LEE	REV	REV 1.0		Cougar Point (4/5)	
MODULE CODE		LAST EDIT				
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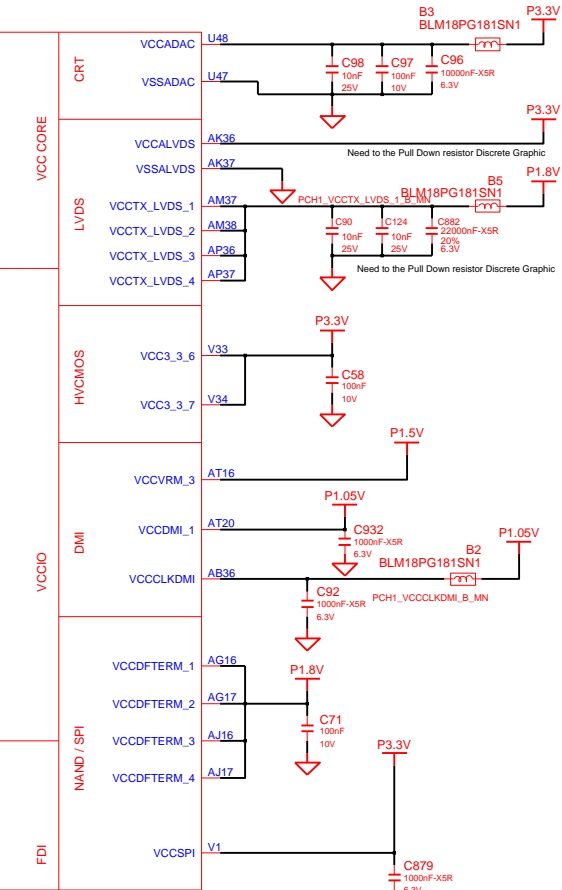
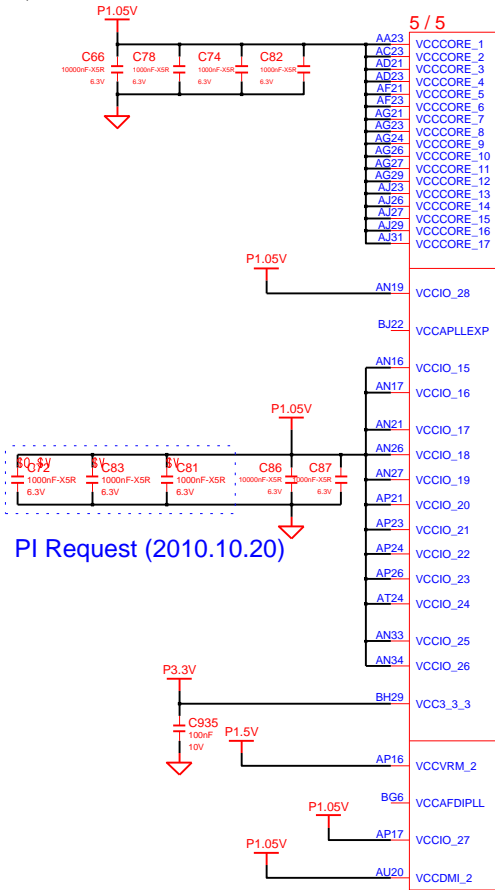
**U521-5
PANTHER POINT**

This power share with thermal sensor

5 / 5

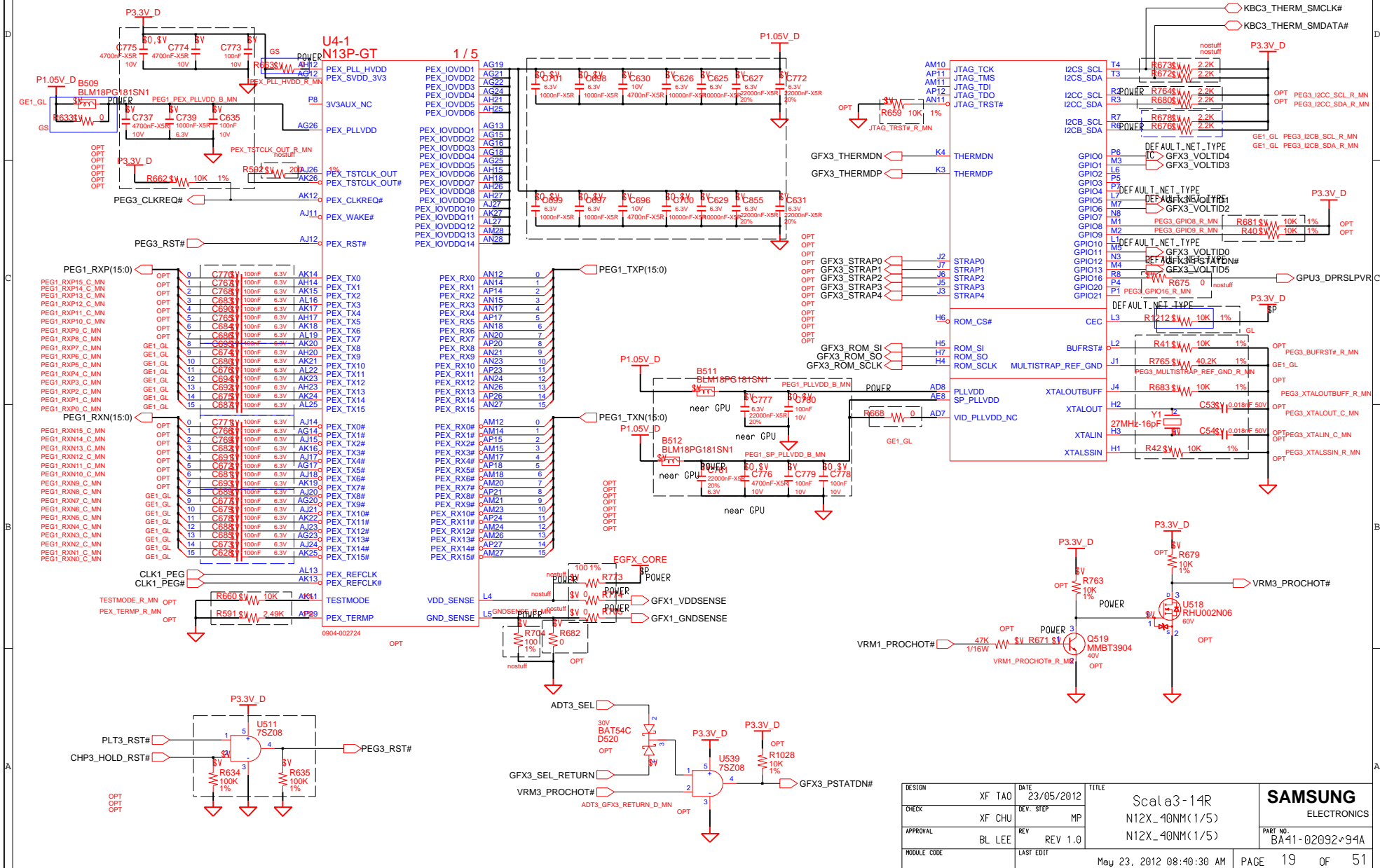
AY4	VSS159	VSS259	H46
AY2	VSS160	VSS260	K18
AY46	VSS161	VSS261	K26
AY8	VSS162	VSS262	K30
B11	VSS163	VSS263	K46
B15	VSS164	VSS264	K7
B19	VSS165	VSS265	L18
B23	VSS166	VSS266	L2
B27	VSS167	VSS267	L20
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L36
B7	VSS171	VSS271	L48
F45	VSS172	VSS272	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	M36
BB4	VSS181	VSS281	M4
BB46	VSS182	VSS282	M42
BC14	VSS183	VSS283	M46
BC18	VSS184	VSS284	N18
BC2	VSS185	VSS285	N16
BC22	VSS186	VSS286	P30
BC26	VSS187	VSS287	N47
BC32	VSS188	VSS288	P16
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC40	VSS191	VSS291	P47
BC48	VSS192	VSS292	P47
BD46	VSS193	VSS293	P7
BD5	VSS194	VSS294	R2
BE22	VSS195	VSS295	R48
BE26	VSS196	VSS296	T12
BE40	VSS197	VSS297	T31
BF10	VSS198	VSS298	T37
BF12	VSS199	VSS299	T4
BF16	VSS200	VSS300	W34
BF20	VSS201	VSS301	T46
BF22	VSS202	VSS302	T47
BF24	VSS203	VSS303	T8
BF26	VSS204	VSS304	V11
BF28	VSS205	VSS305	V26
BF3	VSS206	VSS306	V26
BF30	VSS207	VSS307	V27
BF38	VSS208	VSS308	V29
BF40	VSS209	VSS309	V36
BF9	VSS210	VSS310	V36
BG17	VSS211	VSS311	V39
BG21	VSS212	VSS312	V43
BG23	VSS213	VSS313	V7
BG33	VSS214	VSS314	V7
BG44	VSS215	VSS315	W17
BG8	VSS216	VSS316	W2
BH11	VSS217	VSS317	W27
BH15	VSS218	VSS318	W48
BH17	VSS219	VSS319	Y12
BH19	VSS220	VSS320	Y36
H10	VSS221	VSS321	Y4
BH27	VSS222	VSS322	Y42
BH31	VSS223	VSS323	Y46
BH33	VSS224	VSS324	Y8
BH36	VSS225	VSS325	BG29
BH43	VSS226	VSS326	N24
BH47	VSS227	VSS327	AJ3
D3	VSS228	VSS328	AD47
D12	VSS229	VSS329	B43
D16	VSS230	VSS330	BE10
D18	VSS231	VSS331	BG41
D22	VSS232	VSS332	BG43
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
E19	VSS243	VSS343	BE18
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	
H26	VSS252	VSS352	
H30	VSS253	VSS353	
H32	VSS254	VSS354	
H34	VSS255	VSS355	
H36	VSS256	VSS356	
H38	VSS257	VSS357	
H40	VSS258	VSS358	

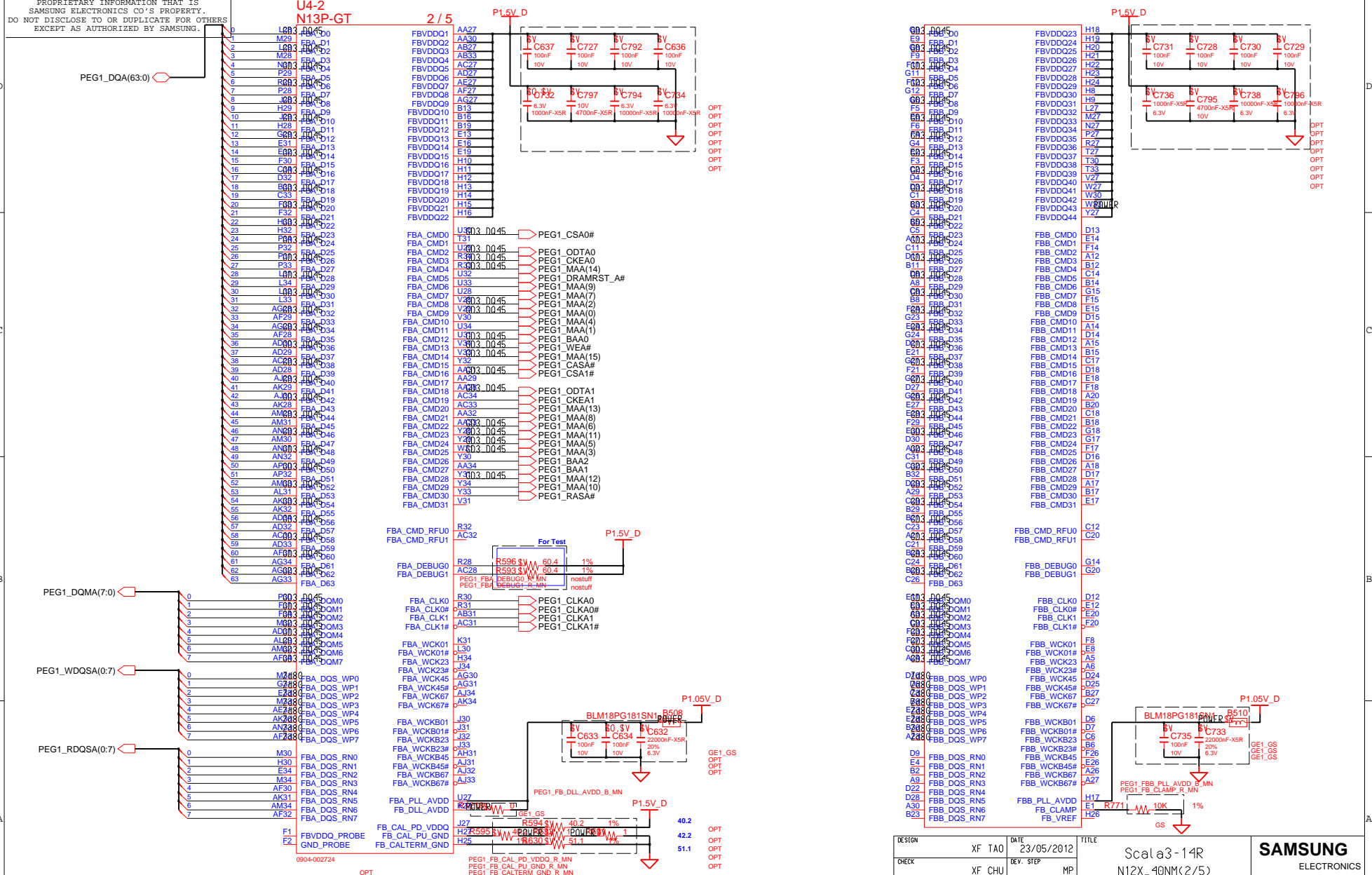
0341112300

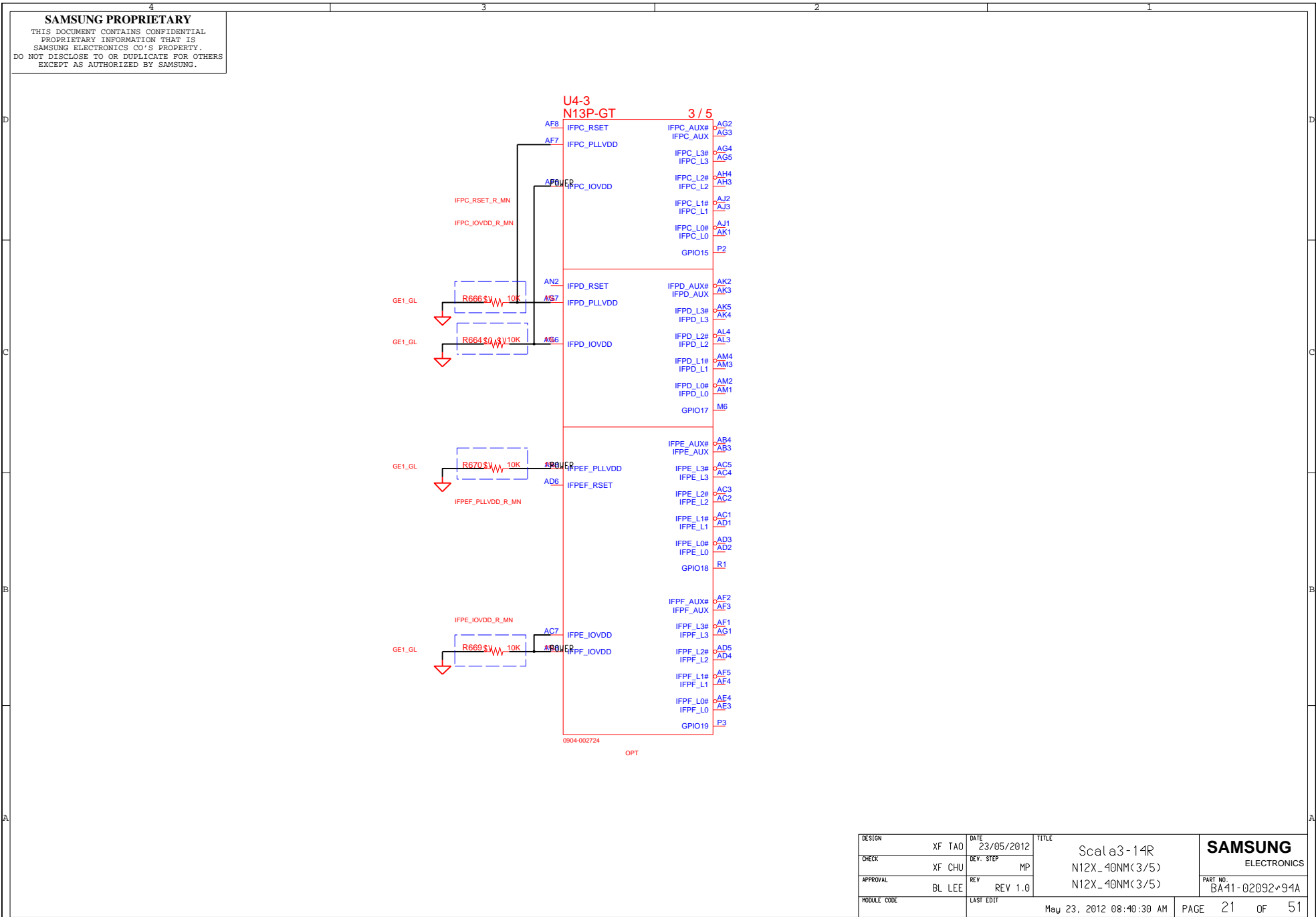


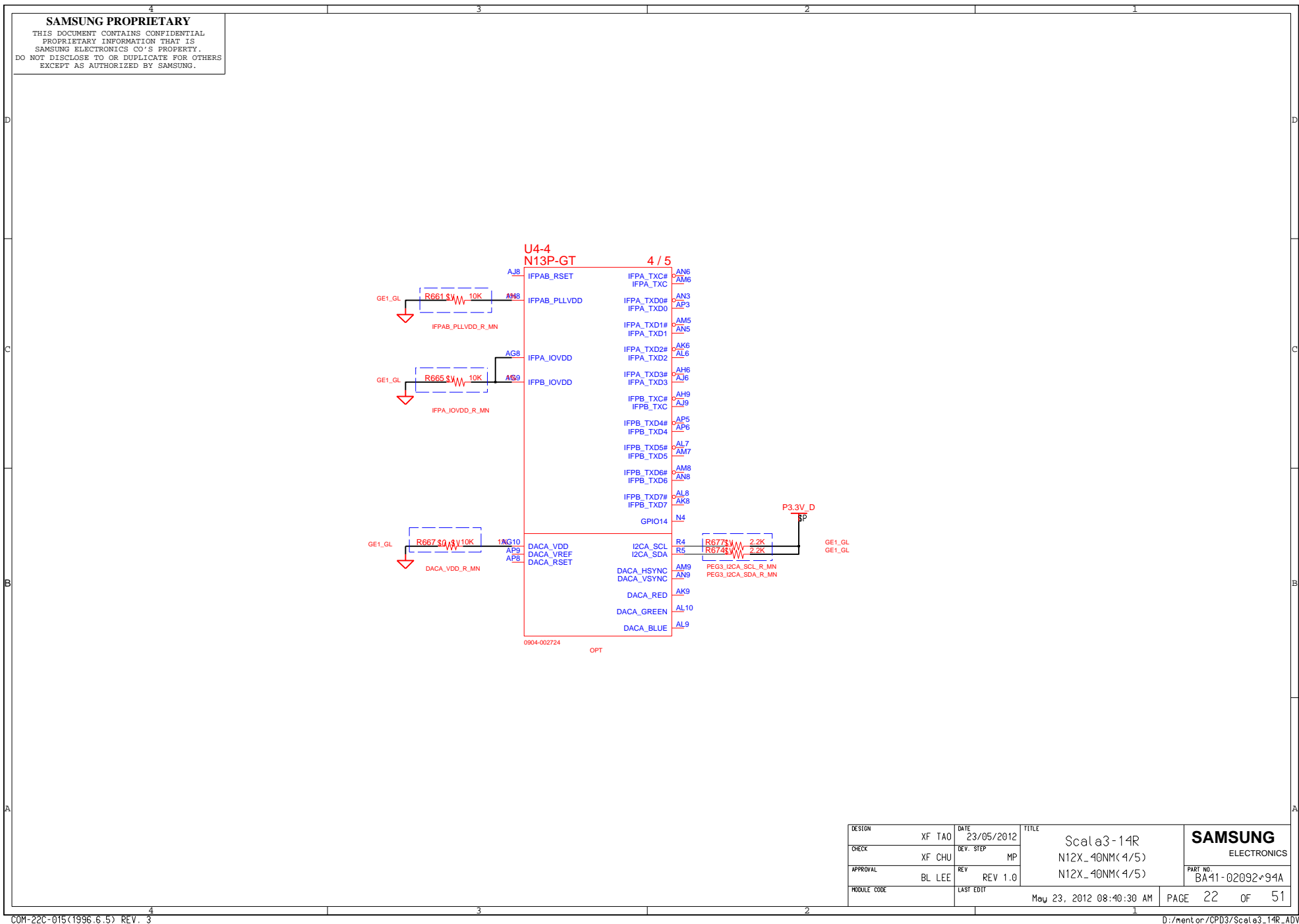
DRAW	XF TAO	DATE	23/05/2012	Scala3-14R PCH Cougar Point(5/5)		SAMSUNG ELECTRONICS			
CHECK	XF CHU	DEV. STEP	MP						
APPROVAL	BL LEE	REV	REV 1.0						
MODULE CODE		undefined		May 23, 2012 08:40:30 AM		PAGE	18	OF	51

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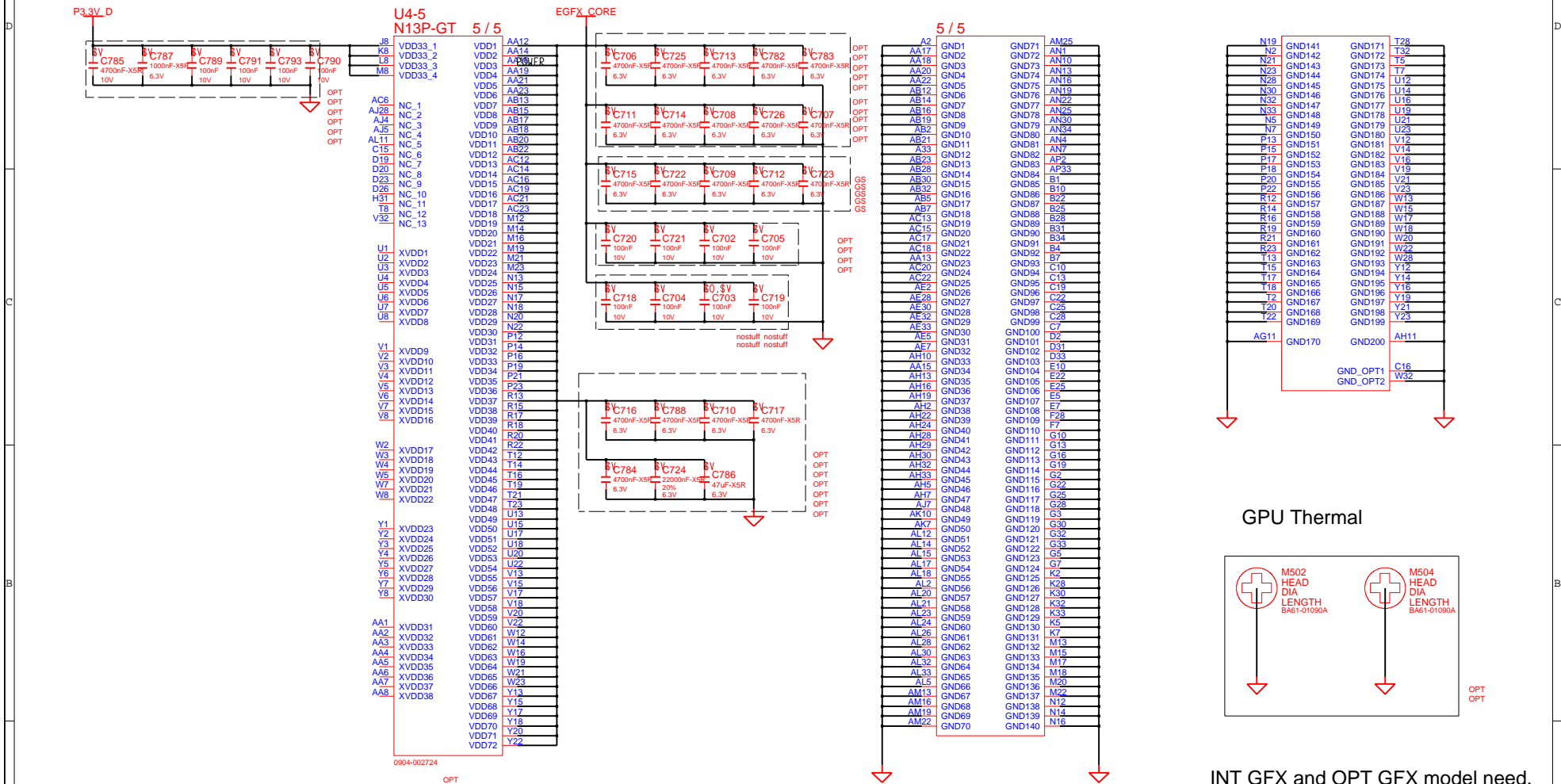




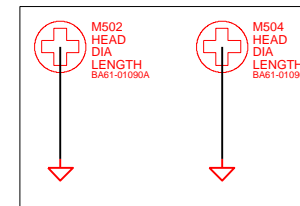


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(4/5)	
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(4/5)	
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	22	OF 51

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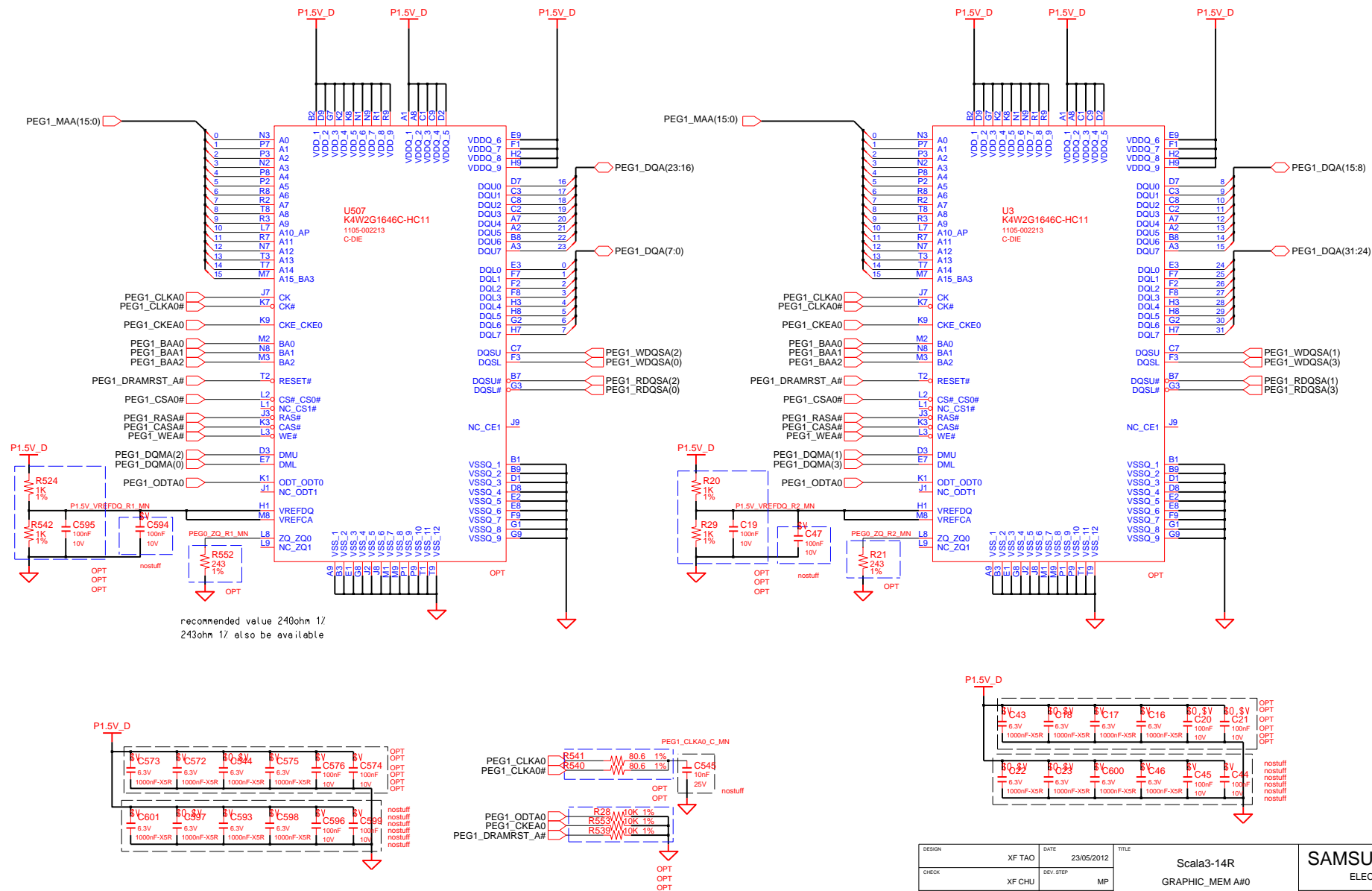
GPU Thermal



INT GFX and OPT GFX model need.

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

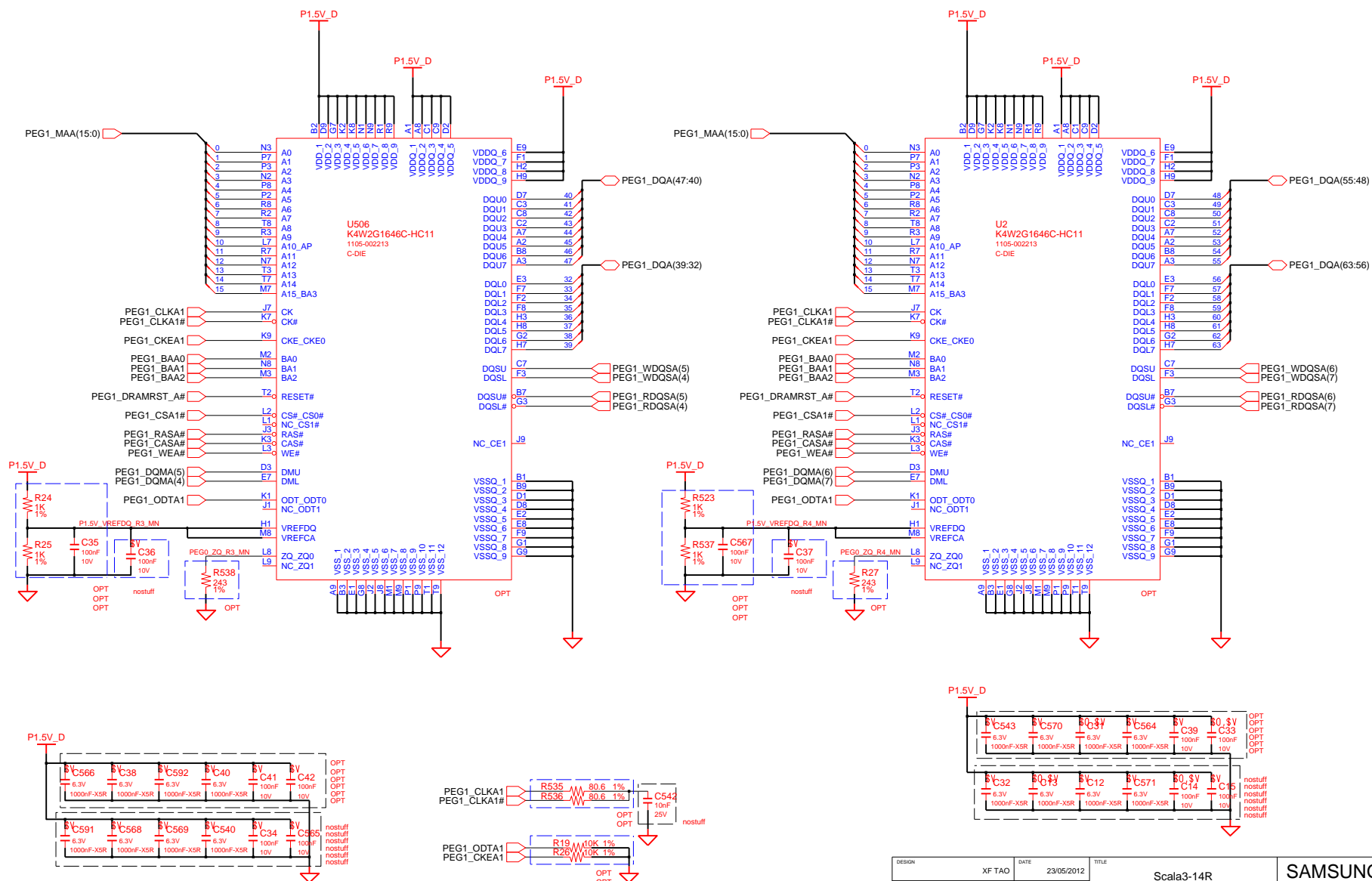
A-Channel #0 (D-mode)




DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R GRAPHIC_MEM A#0 GRAPHIC_MEM A#0	SAMSUNG 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	24	OF	51

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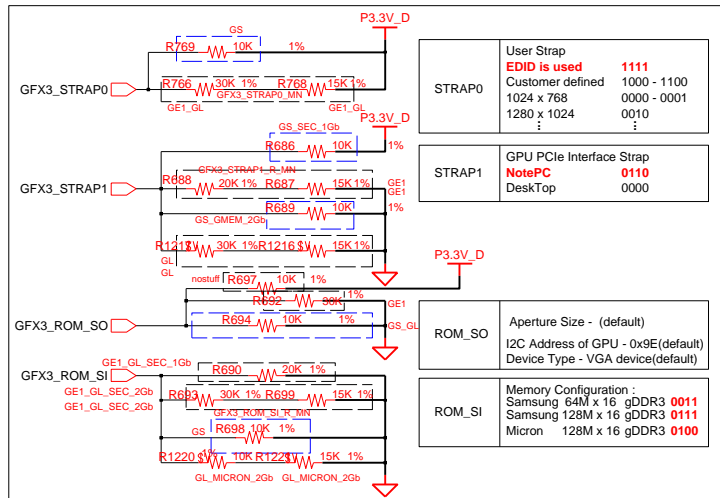
A-Channel #1 (D-mode)



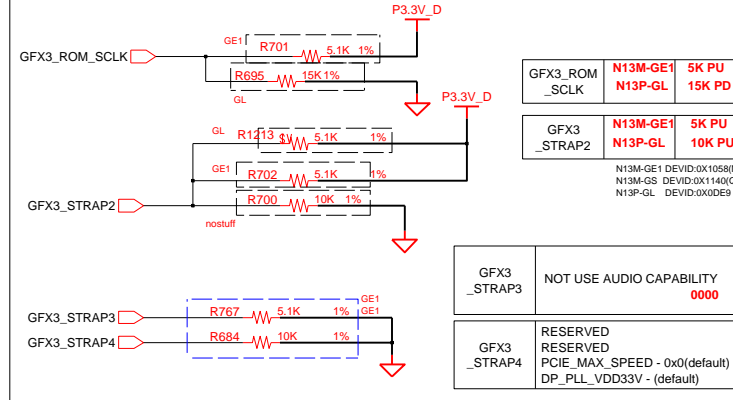
DESIGN	XF TAO	DATE	23/05/2012	TITLE Scala3-14R GRAPHIC_MEM A#1 GRAPHIC_MEM A#1	
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	LAST EDIT			May 23, 2012 08:40:30 AM	PART NO. BA41-02092-94A
					PAGE 25 OF 51

N13x STRAP

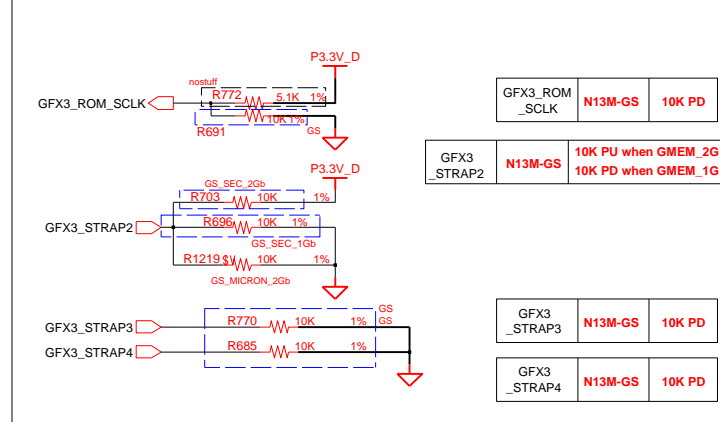
Function Straps



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



Chip Select Straps (N13M-GS)



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
STRAP3	RAMCFG[3]	10K ohm	Samsung 128M x 16 gDDR3 0101
			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
ROM_SCLK	SMB_ALT_ADDR	10K ohm	Pull-down to GND if no VBIOROM
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

N13M-GE1/N13P-GL

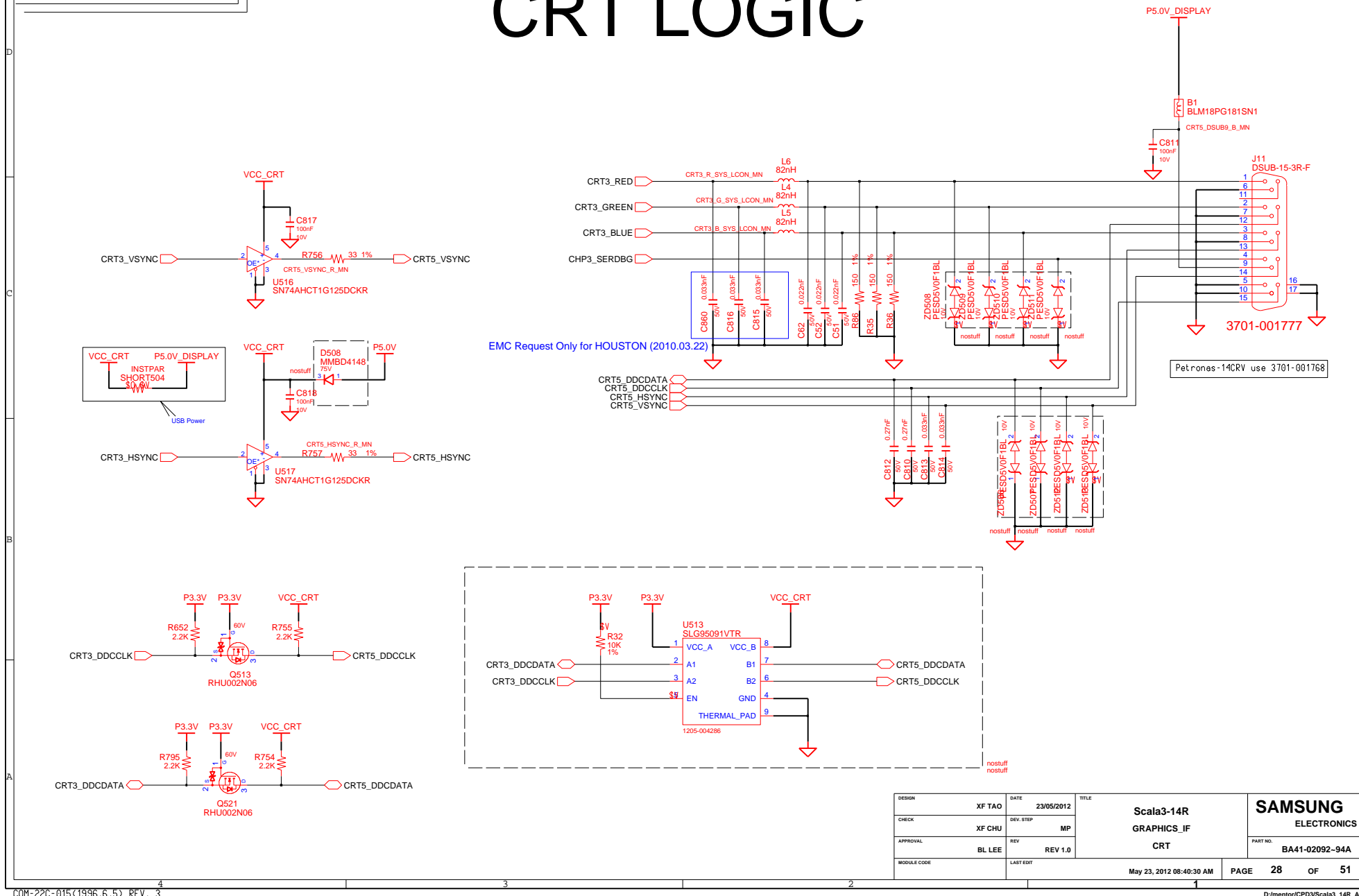
STRAP PIN	BIT 3	BIT 2	BIT 1	BIT 0
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PAD_CFG_ADR[3]	3GIO_PAD_CFG_ADR[2]	3GIO_PAD_CFG_ADR[1]	3GIO_PAD_CFG_ADR[0]
ROM_SO	FB[1] (GE1)	FB[0] (GE1)	SMB_ALT_ADDR	VGA_DEVICE
ROM_SI	RAMCFG[3] (GL)	RAMCFG[2] (GL)	RAMCFG[1]	RAMCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	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	TITLE	Scala3-14R	SAMSUNG
CHECK	XF CHU	DEV. STEP	MP		GRAPHIC_MEM C#0	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.0		GRAPHIC_MEM C#0	PART NO.
MODULE CODE		LAST EDIT				BA41-02092-94A
				May 23, 2012 08:40:30 AM	PAGE	26 OF 51

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CRT LOGIC



DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG
CHECK	XF CHU	DEV. STEP	MP		GRAPHICS_IF	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.0		CRT	PART NO.
MODULE CODE		LAST EDIT				BA41-02092-94A
				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.

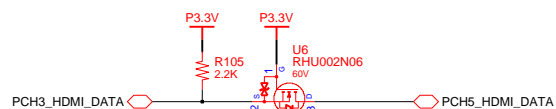
(EMC request at 2010.04.15)

After checking, Veyron_R don't need to use CMC for each signal.

(EMC request at 2010.12.03)

FOR HDMI VERIFICATION TEST

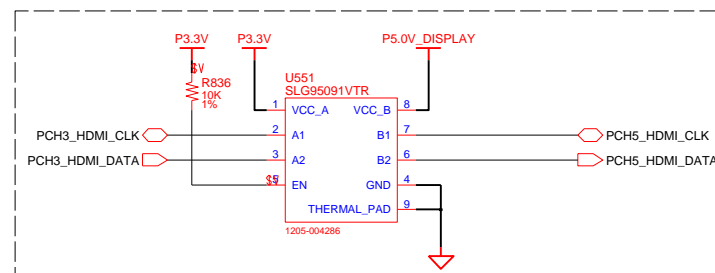
PCH3_HDMI_CLK PCH5_HDMI_CLK
N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance



Petrones-14CRV use 3701-001785

J12
HDMI-19P-FEMALE

3701-001782

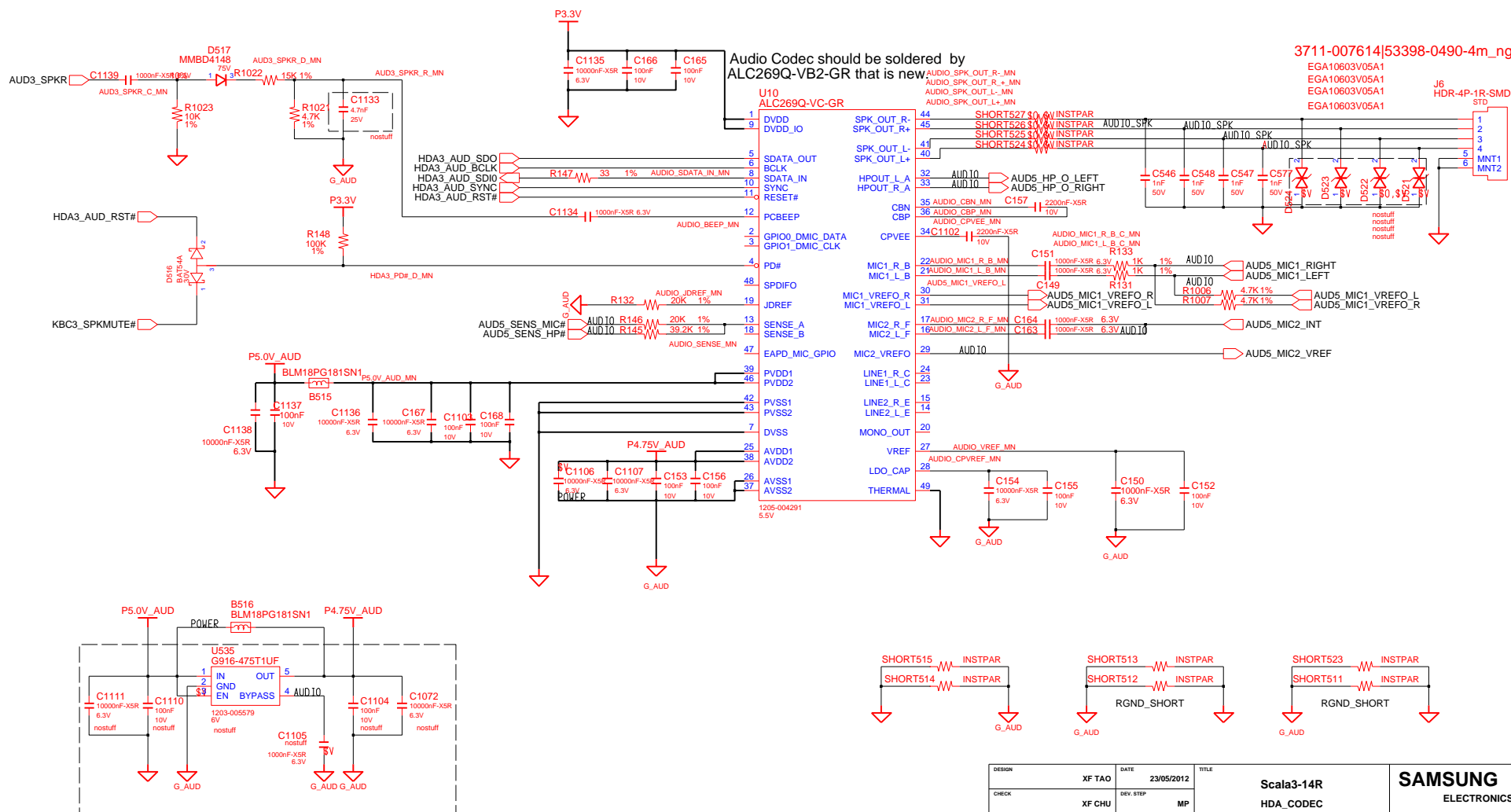


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		GRAPHICS_IF
APPROVAL	BL LEE	REV	REV 1.0		HDMI
MODULE CODE		LAST EDIT			
May 23, 2012 08:40:30 AM					PAGE 29 OF 51

SAMSUNG	
ELECTRONICS	
PART NO. BA41-02092-94A	

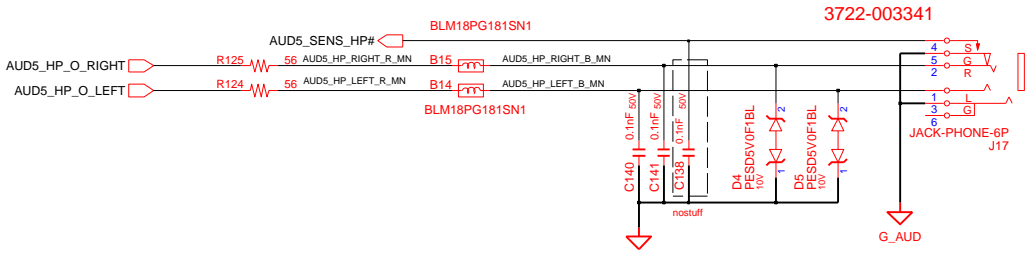
HD AUDIO

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



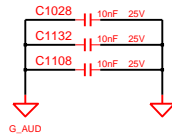
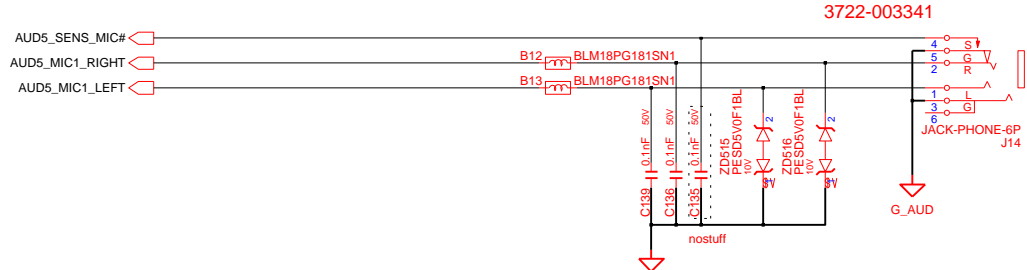
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HEADPHONE

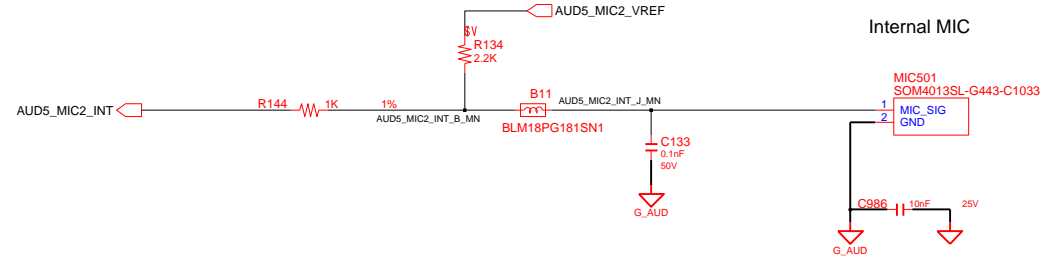


Petrones-14CRV J14 J17 use 3722-003324

MIC JACK

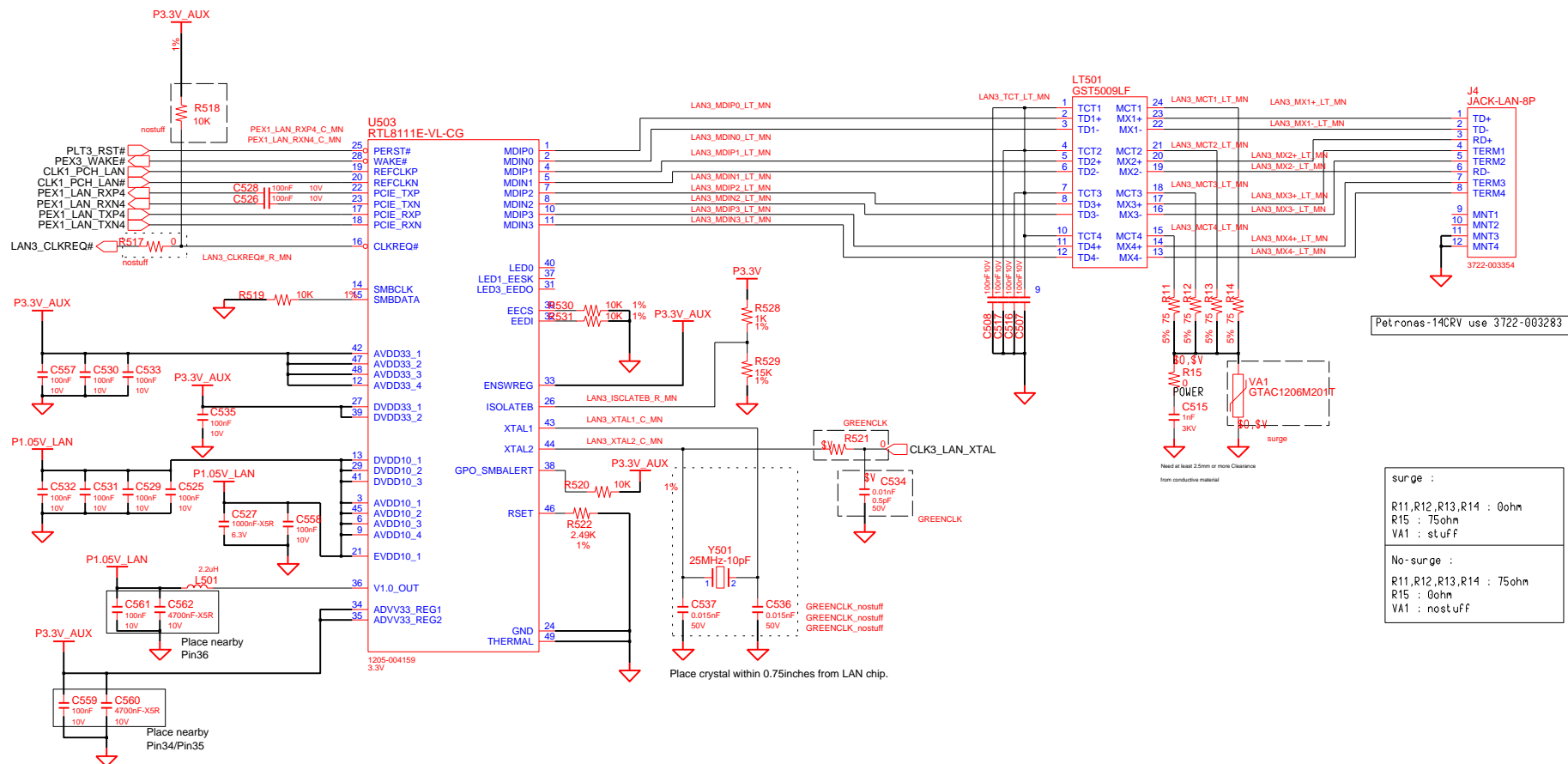


Internal MIC



DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		HDA_CODEC	
APPROVAL	BL LEE	REV	REV 1.0		AUDIO JACK	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	31 OF 51

Reatek RTL8111E

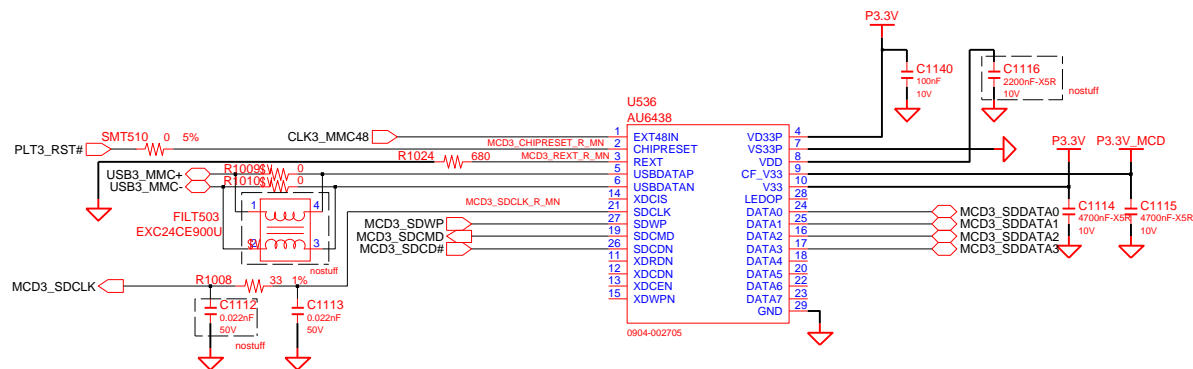
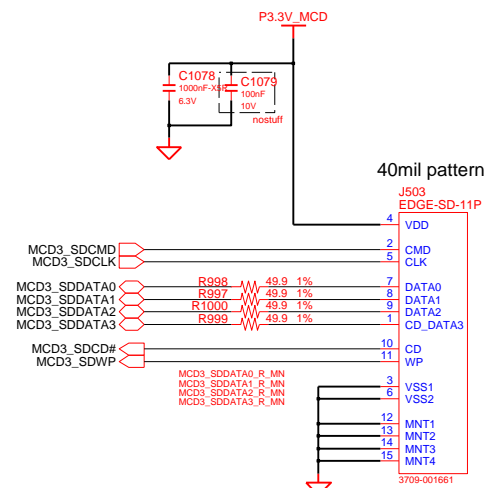


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		LAN	
APPROVAL	BL LEE	REV	REV 1.0		LAN_Reatek_RTL8111E	
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	32	OF 51

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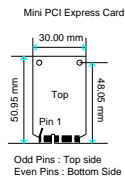
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4 IN 1 CARD



DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R MULTICARD 4 IN 1 CARD(AU6438)	SAMSUNG 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	33 OF 51

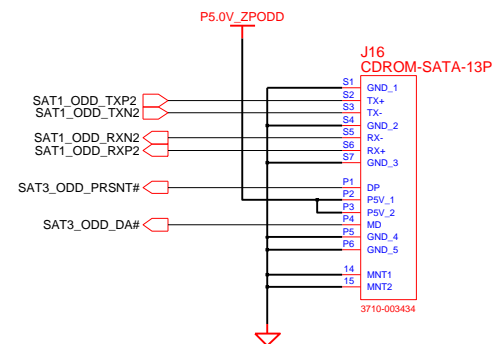
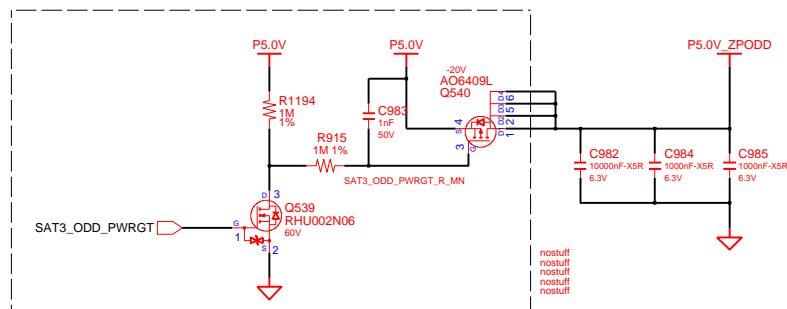
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DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R MINI_PCIE_CONN WLAN	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	LAST EDIT				
				May 23, 2012 08:40:30 AM	PAGE 34 OF 51

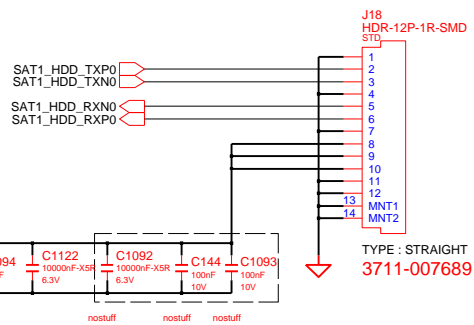
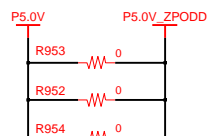
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SATA ODD CONN 14"



Petrones-14CRV use 3710-002796

SATA HDD CONN

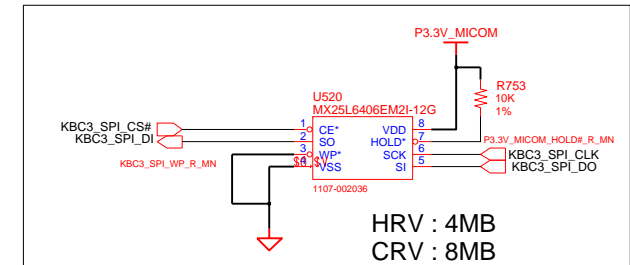


DESIGN	XF TAO	DATE	23/05/2012	Scala3-14R SATA_DEVICES HDD + ODD SUB CONNECTOR	
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM		
					PAGE 35 OF 51

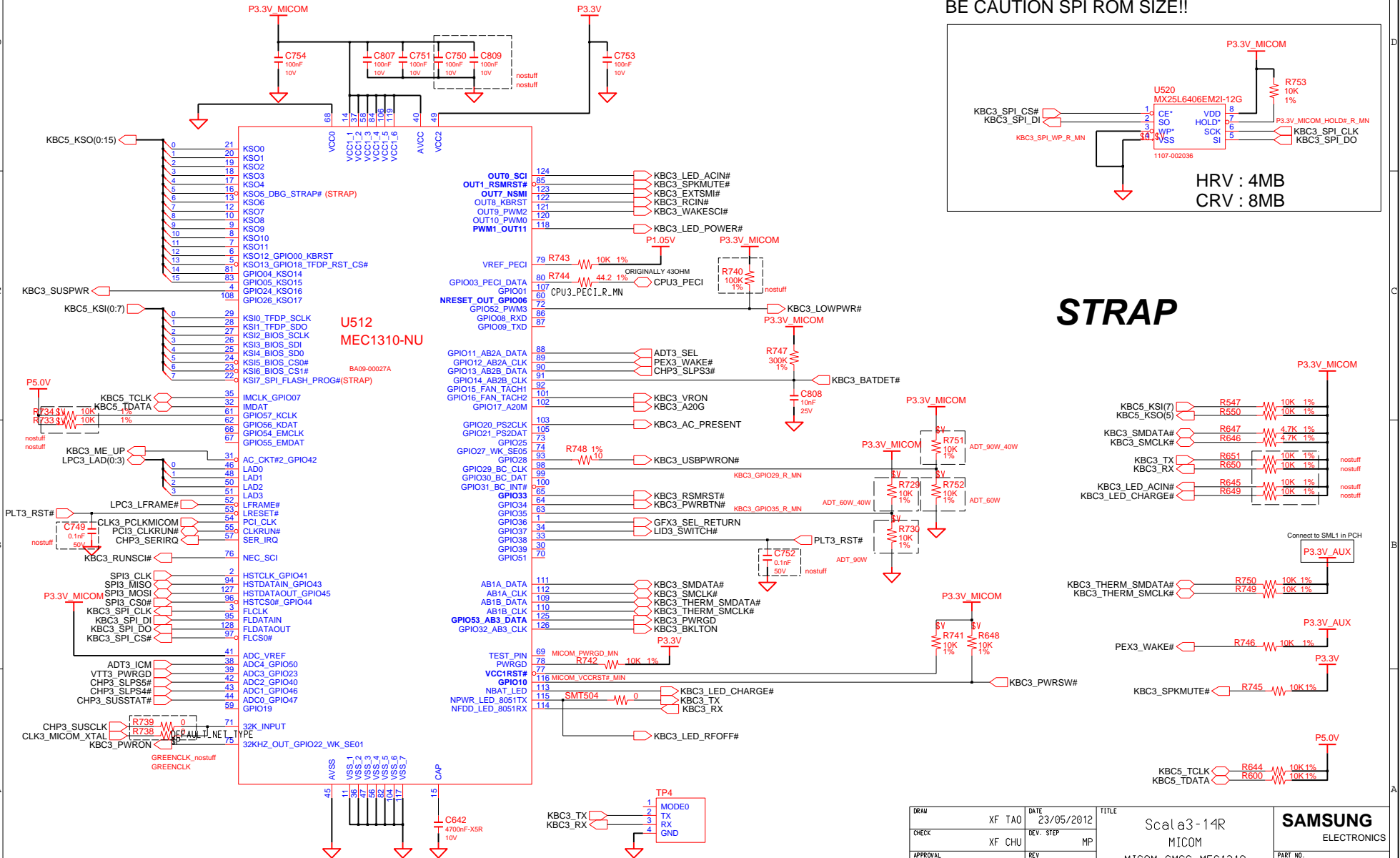
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MAIN BOARD (MICOM)

BE CAUTION SPI ROM SIZE!!



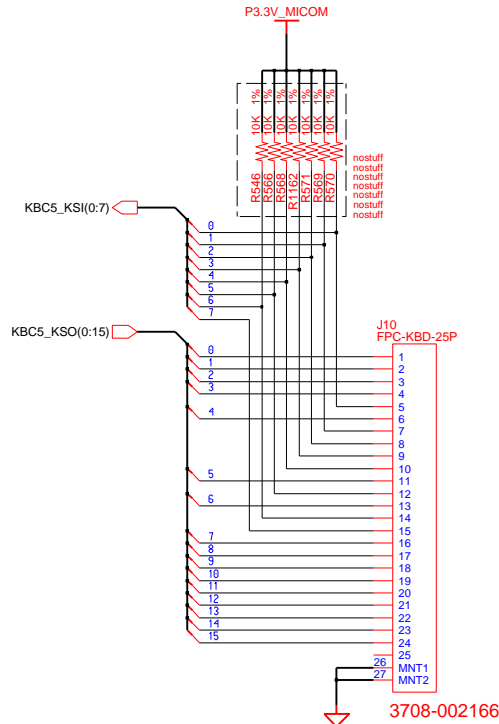
STRAP



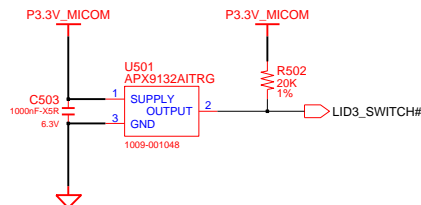
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MICOM	
APPROVAL	BL LEE	REV	REV 1.0		MICOM_SMSC_MEC1310	
MODULE CODE		LAST EDIT				
					May 23, 2012 08:40:30 AM	PAGE 36 OF 51

Micom Glue Logic

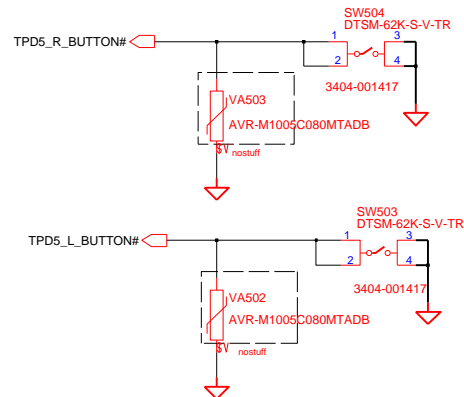
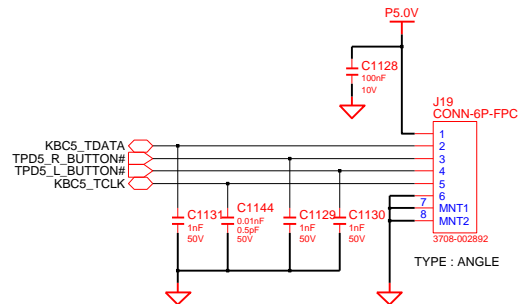
KEYBOARD



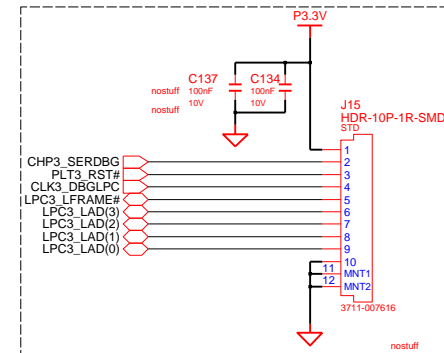
LID_SWITCH



TOUCHPAD



80H PORT DEBUG



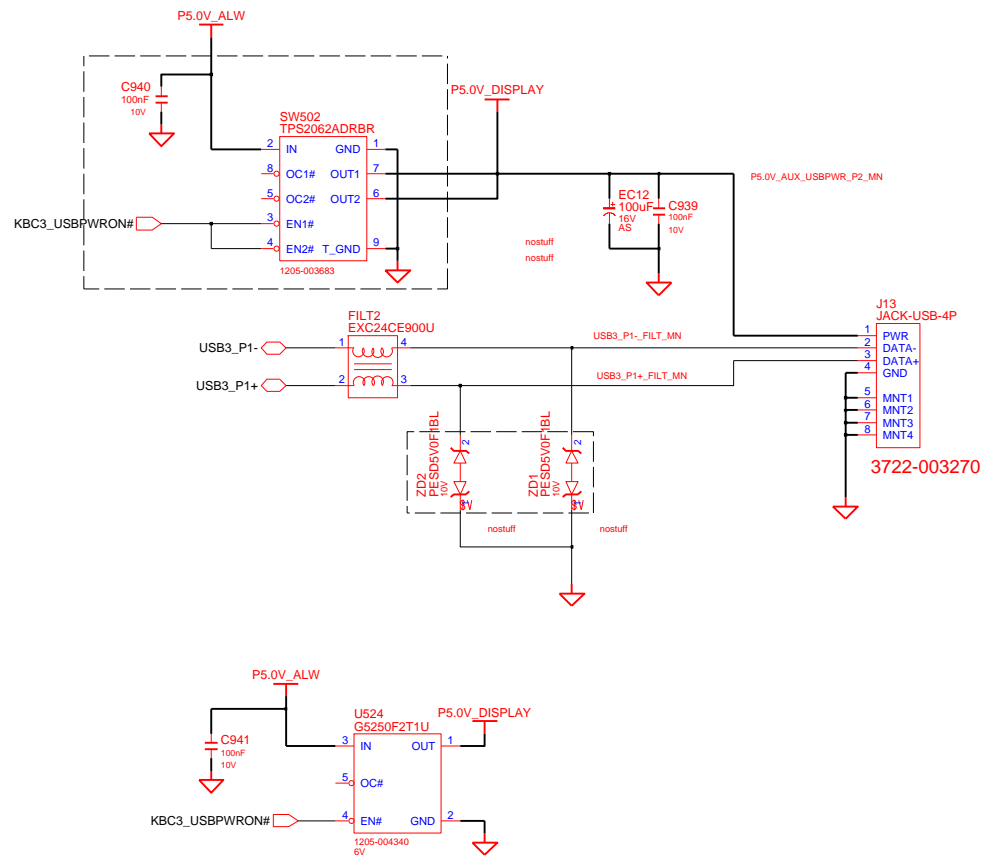
DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MICOM GLUE LOGIC	
APPROVAL	BL LEE	REV	REV 1.0		KETBOARD & TOUCHPAD	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	37 OF 51

DRAW	XF TAO	DATE	23/05/2012	Scala3-14R LED_SWITCH LED_SWITCH	<div>SAMSUNG ELECTRONICS</div>
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE	LAST EDIT				
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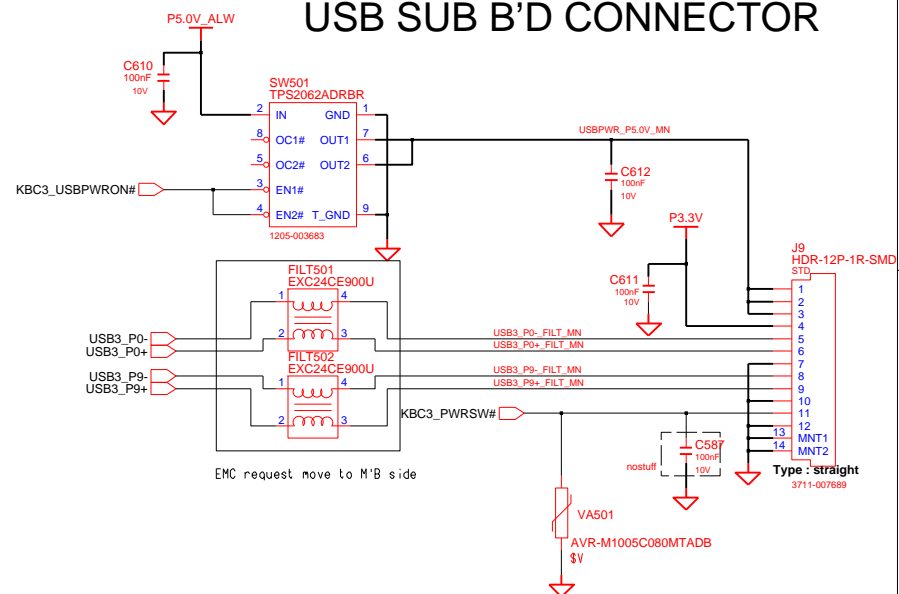
USB Single connector



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

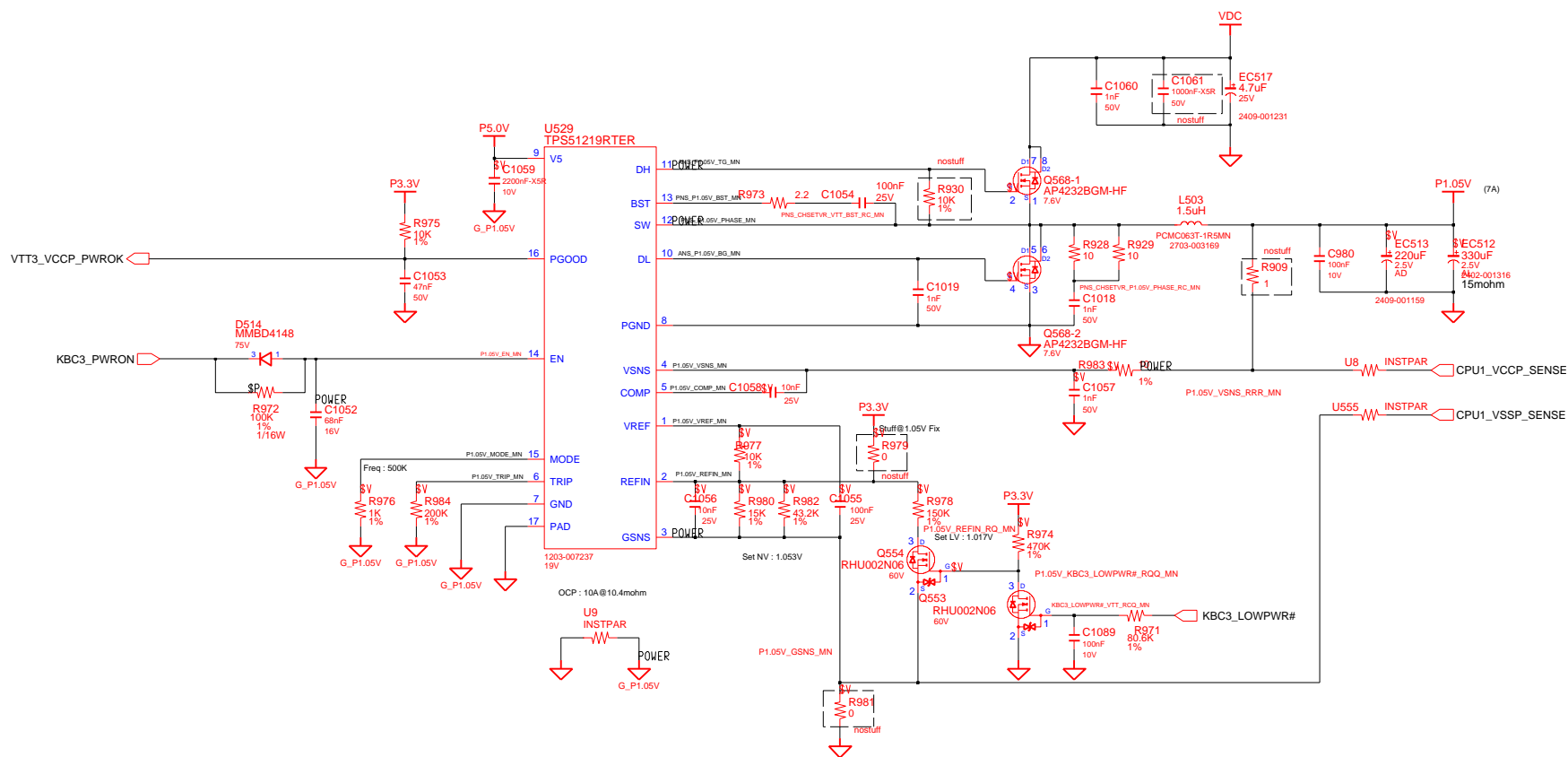
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DESIGN	XF TAO	DATE	23/05/2012	TITLE Scale3-14R P3.3V_AUX / P5.0V_ALW TI TPS51125		SAMSUNG ELECTRONICS		
CHECK	XF CHU	DEV. STEP	MP					
APPROVAL	BL LEE	REV	REV 1.0					
MODULE CODE		LAST EDIT						
				May 23, 2012 08:40:30 AM	PAGE	41	OF	51

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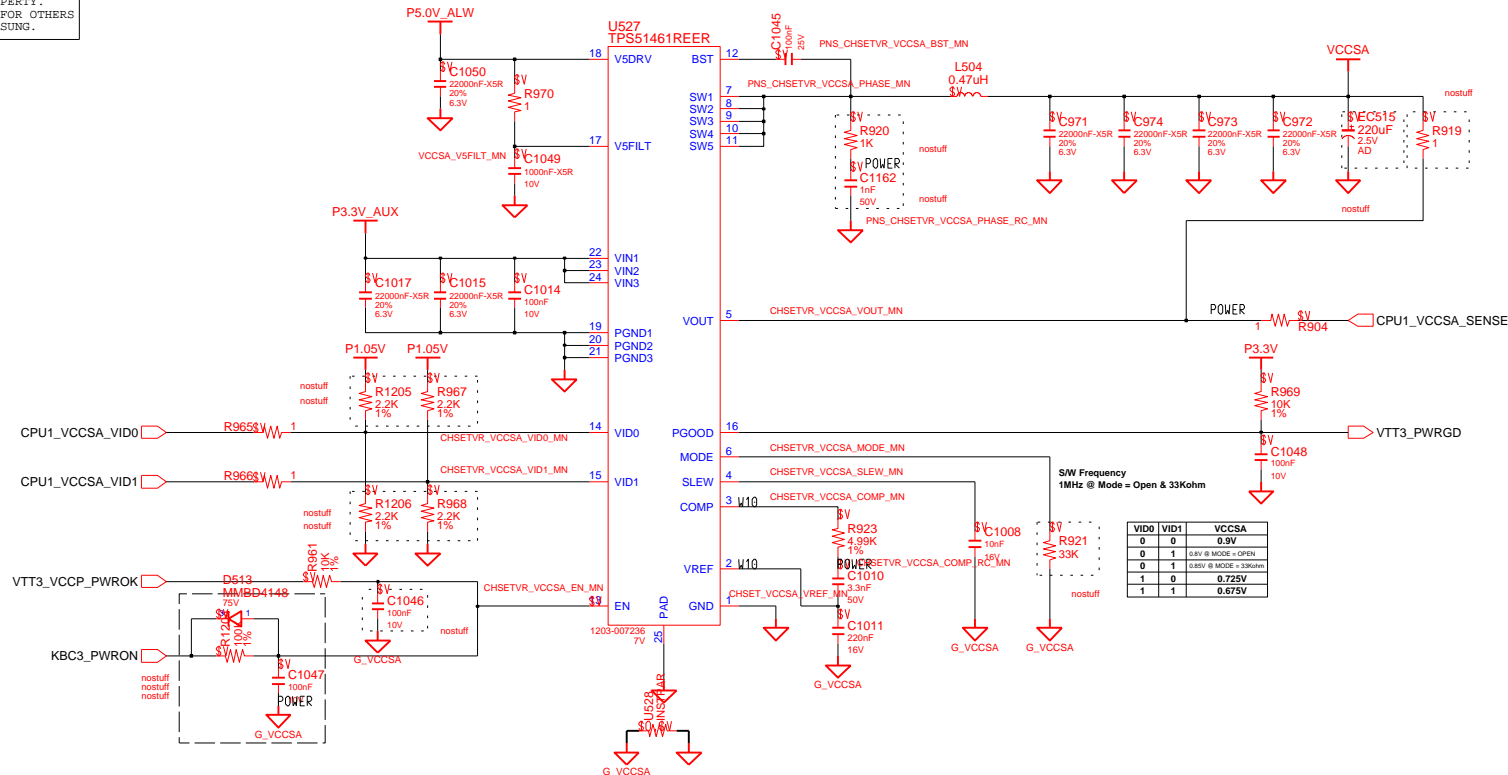
Chipset Power (P1.05V)



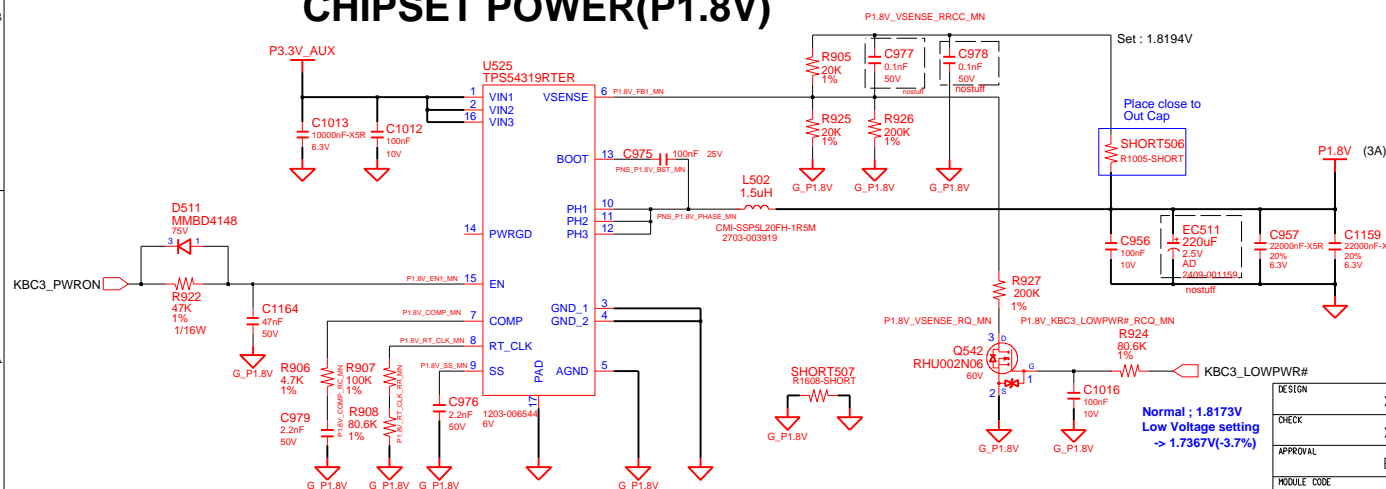
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CHIPSET POWER(VCCSA)



CHIPSET POWER(P1.8V)

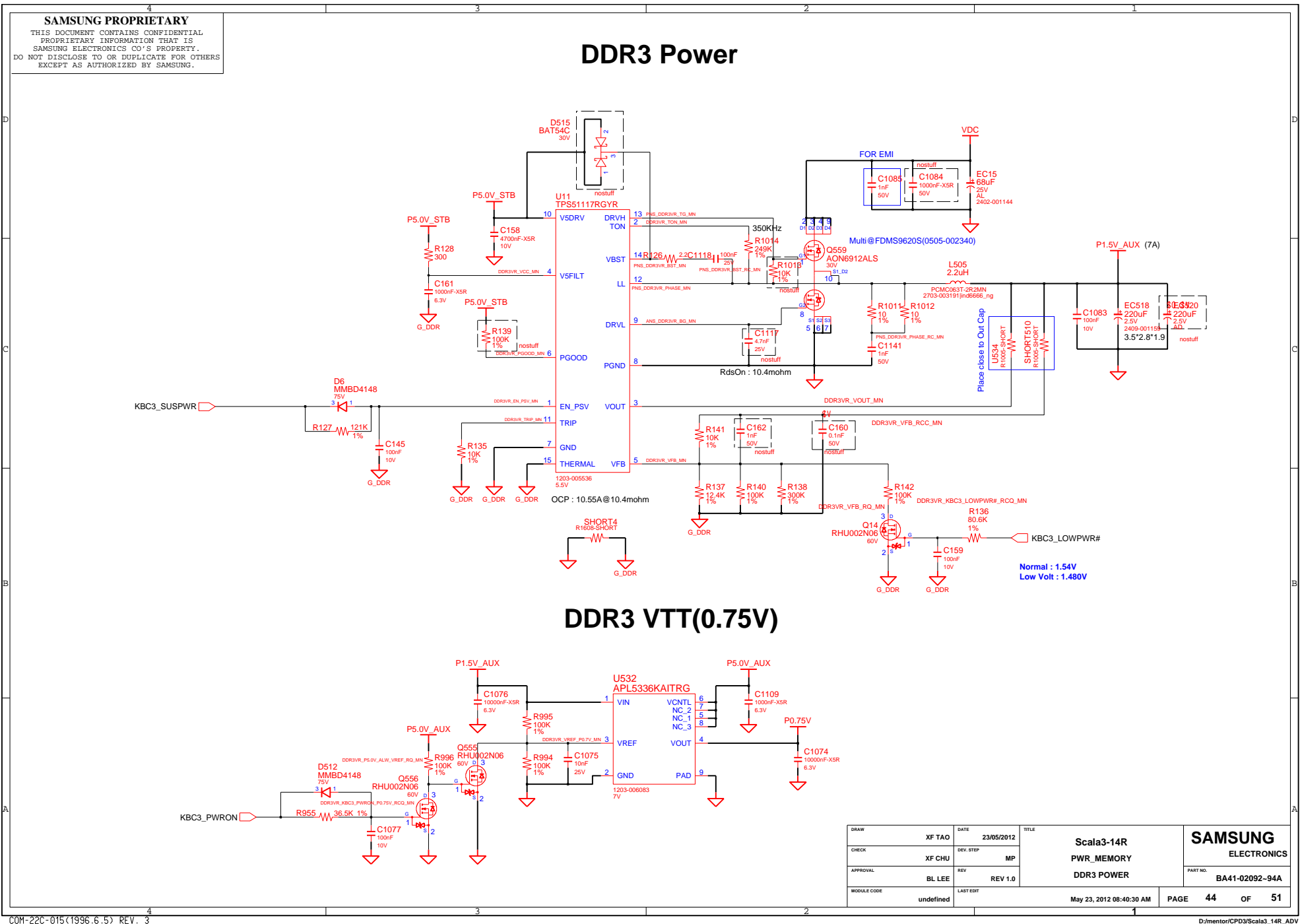


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		P1.1V_VIT
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE		LAST EDIT			

SAMSUNG
ELECTRONICS

PART NO.
BA41-02092-94A

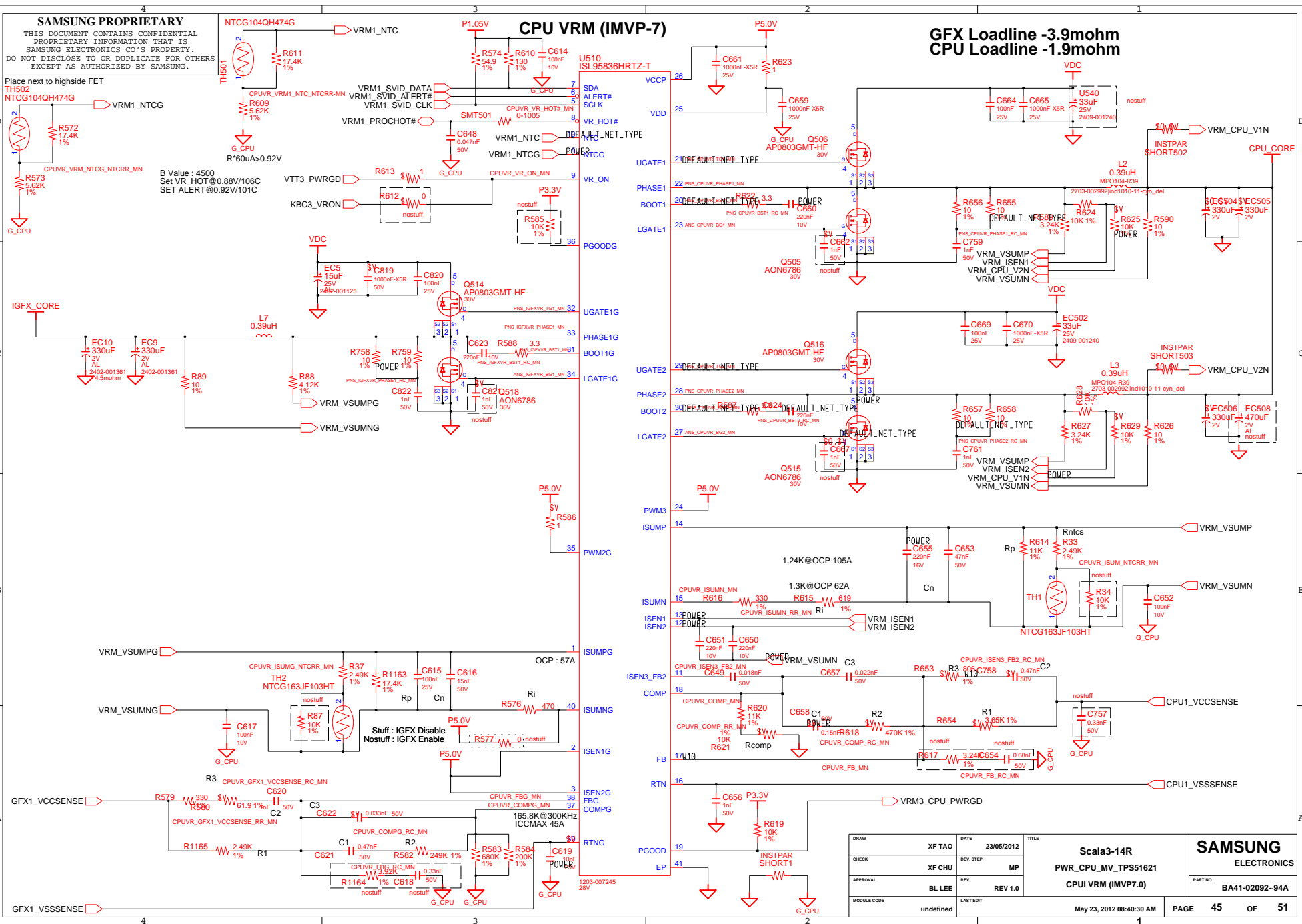
May 23, 2012 08:40:30 AM PAGE 43 OF 51



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TH502
NTCG104QH474G

B Value : 4500
Set VR_HOT@0.88V/106C
SET ALERT@0.92V/101C



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

[illegible]

DRAW	XF TAO	DATE	23/05/2012	TITLE Scala3-14R PWR_GRAPHIC ISL95870		SAMSUNG 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	46	OF 51

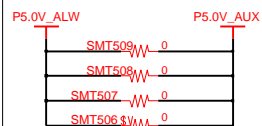
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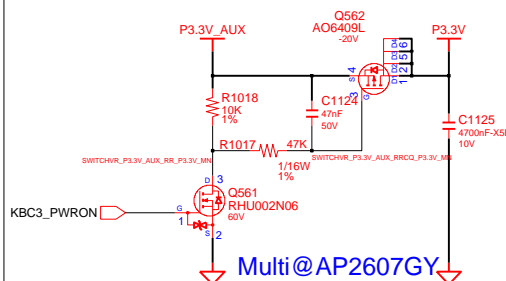
Switched Power 1

(P5.0V -> P3.3V -> EGFX_CORE -> P1.8V -> P1.5V -> P0.75V -> P1.05V -> P0.85V_SA -> CPU_CORE)

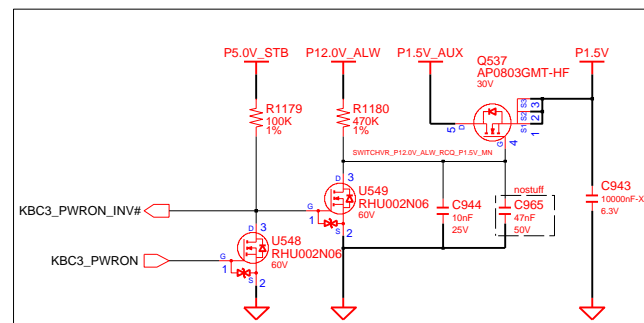
P5.0V_AUX



Switched Power On (P3.3V)

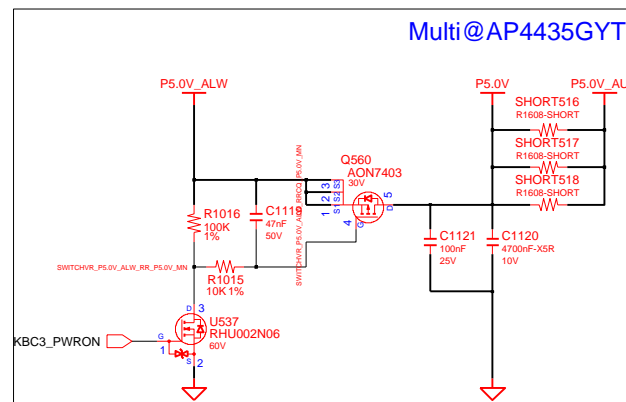


Switched Power On (P1.5V)



For nVIDIA GFX PWR Sequence
NVDD(EGFX_CORE) first and then FBVDDQ(qDDR3)

Switched Power On (P5.0V)



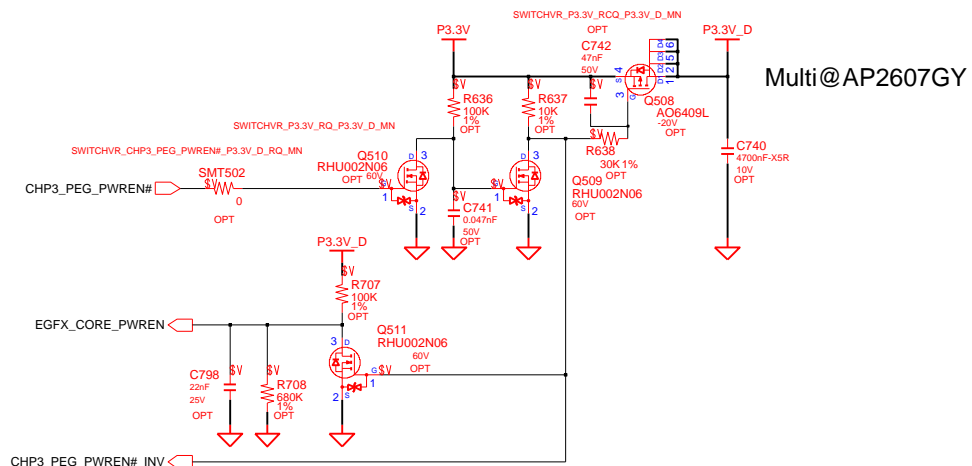
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		Switched PWR 2	
APPROVAL	BL LEE	REV	REV 1.0		Switched Power	
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	47	OF 51

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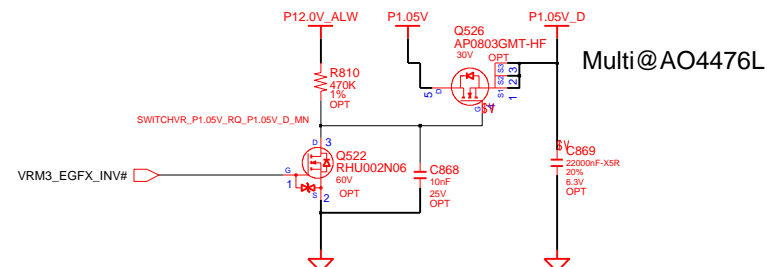
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Switched Power 2 (For nVidia GFX Power Sequence)

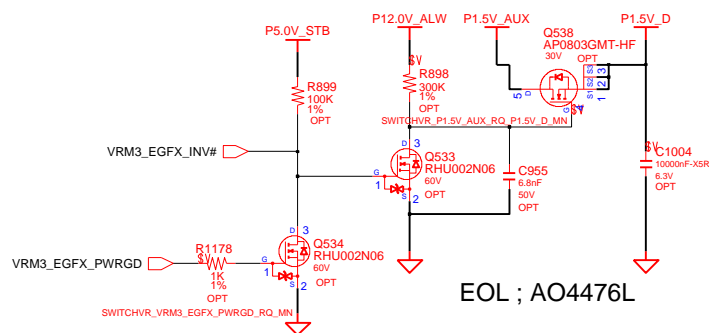
Discrete Switched Power (D3.3V : Max_1.2A)



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



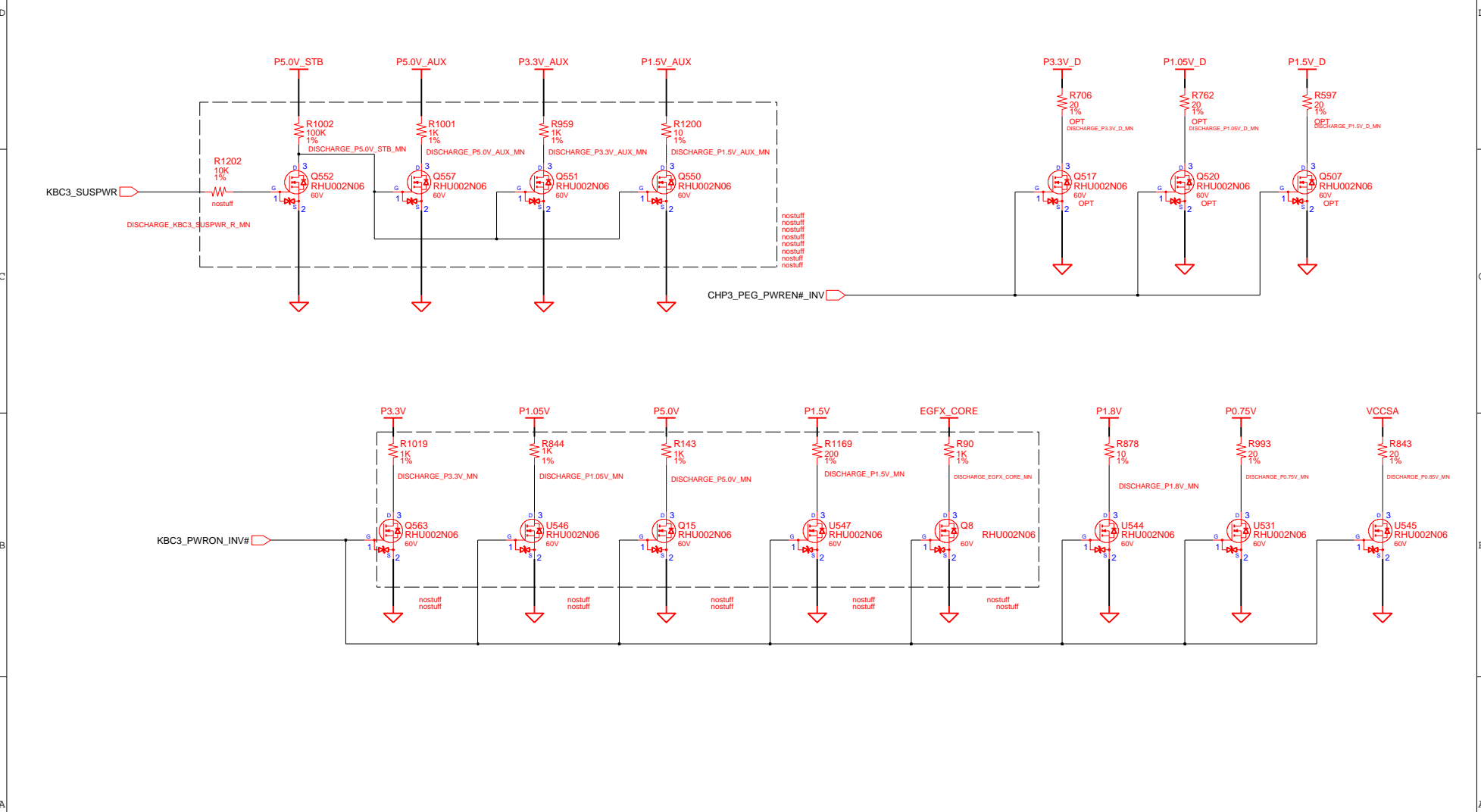
Discrete Switched Power (D1.5V : Max 5.0A)



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

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POWER DISCHARGER

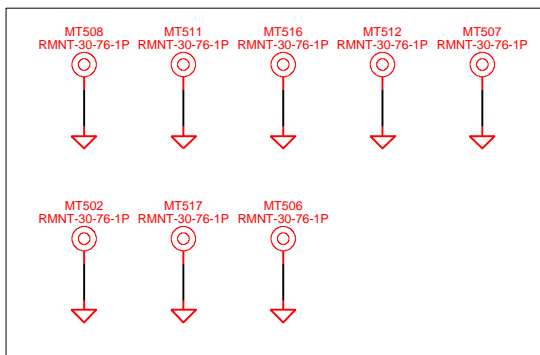


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		DISCHARGER LOGIC	
APPROVAL	BL LEE	REV	REV 1.0		DISCHARGING LOGIC	
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	49	OF 51

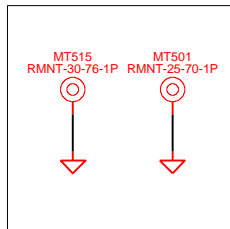
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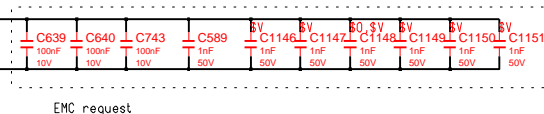
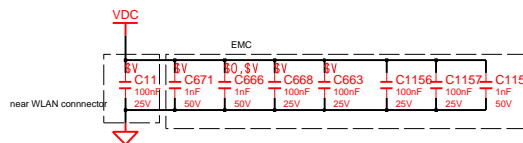
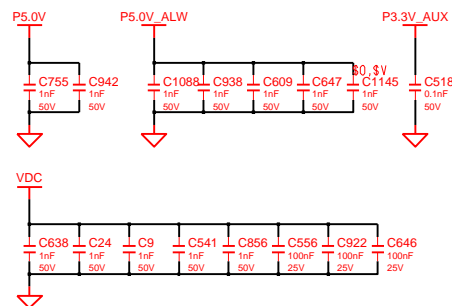
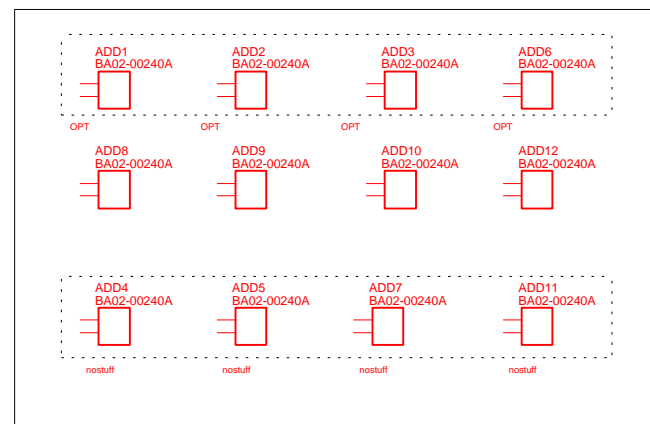
Mainboard Mount ((30-76)X8EA)



PCB FIX



Corner Fill for GPU, PCH

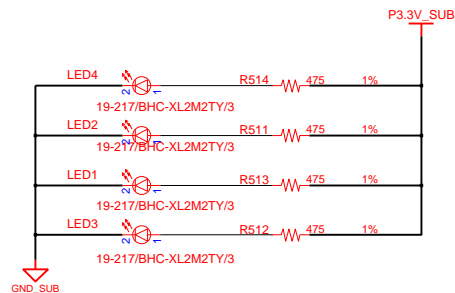


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MT Hole	
APPROVAL	BL LEE	REV	REV 1.0		MT Hole	
MODULE CODE		LAST EDIT				PART NO. BA41-02092-94A
					May 23, 2012 08:40:30 AM	PAGE 50 OF 51

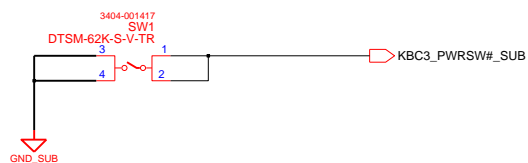
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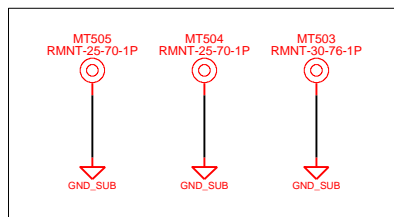
USB SUB BOARD



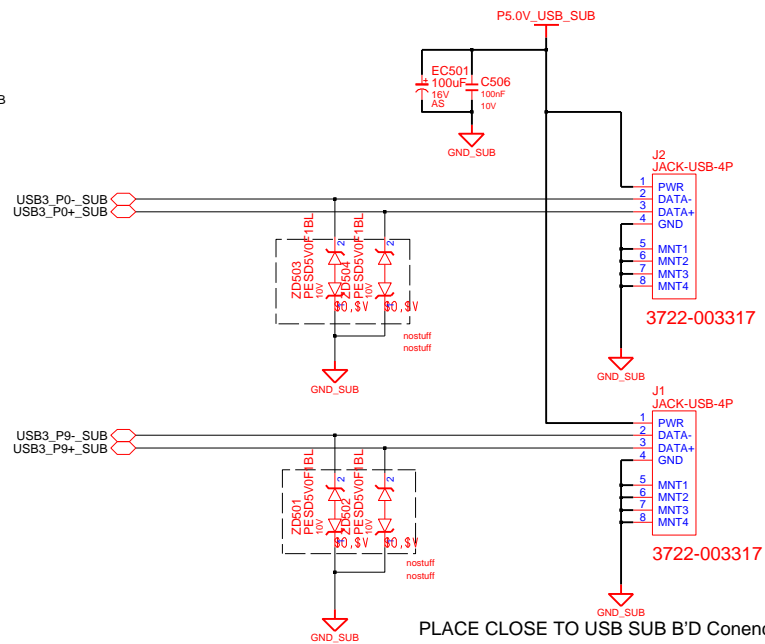
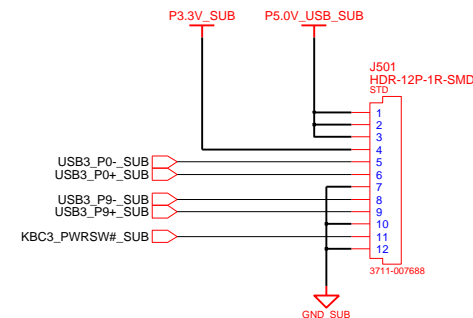
Power Switch Button



PCB Mount



SUB TO MAIN



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