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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

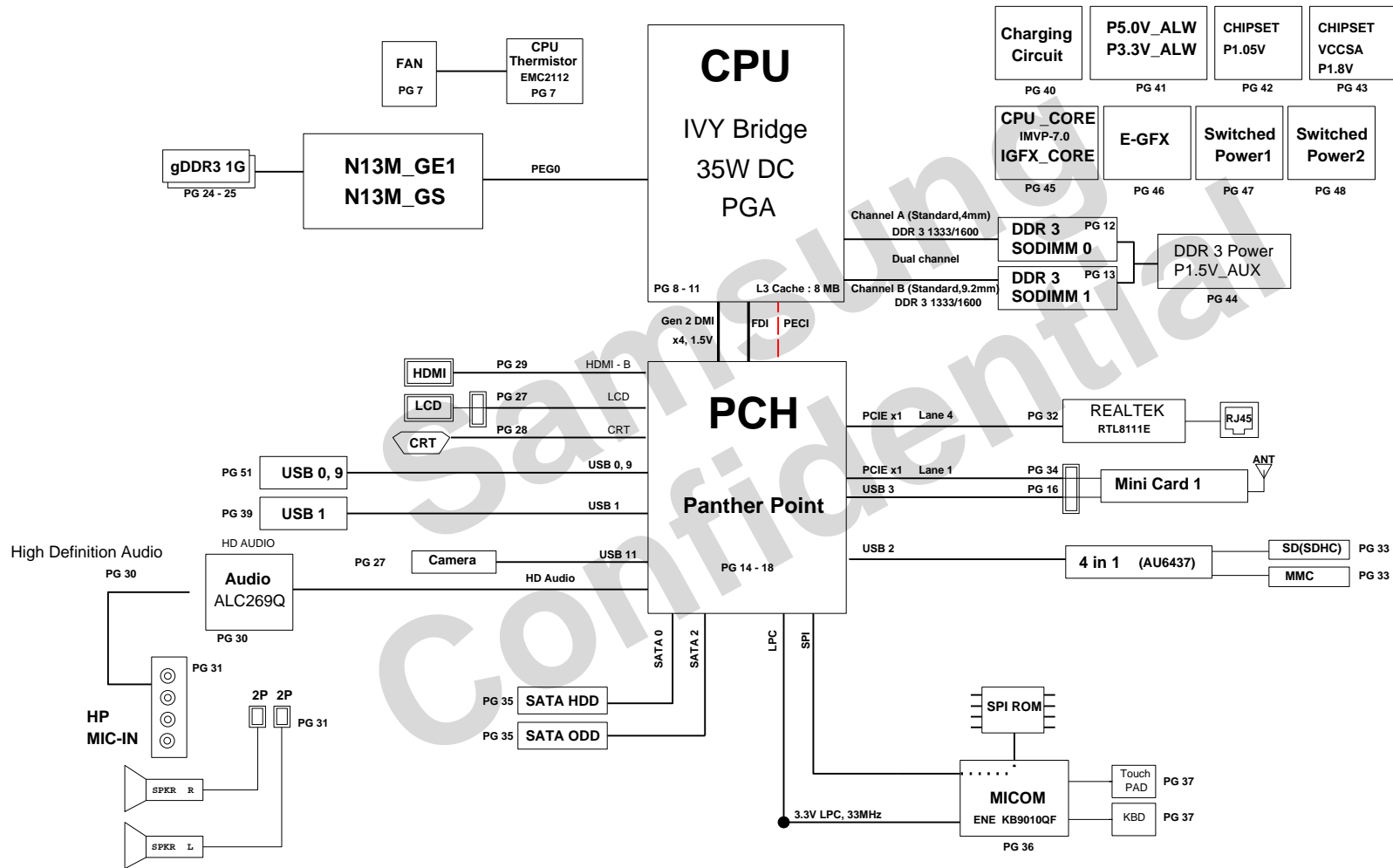
Owner : SEC Mobile R & D Signature : X

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- sheet15 : PCH-CougarPoint
- sheet16 : PCH-CougarPoint
- sheet17 : PCH-CougarPoint
- sheet18 : PCH-CougarPoint
- sheet19 : N12P-GVR
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- 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 PART NO. BA41-02092-94A
CHECK	XF CHU	DEV.STEP	MP	MAIN		
APPROVAL	BL LEE	REV	REV 1.1	COVER		
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	PART NO. BA41-02092-94A	
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	2	OF 51

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BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails	Active in
VDC P3.3V_MICOM P5.0V_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
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

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

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		

I ² 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	-

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

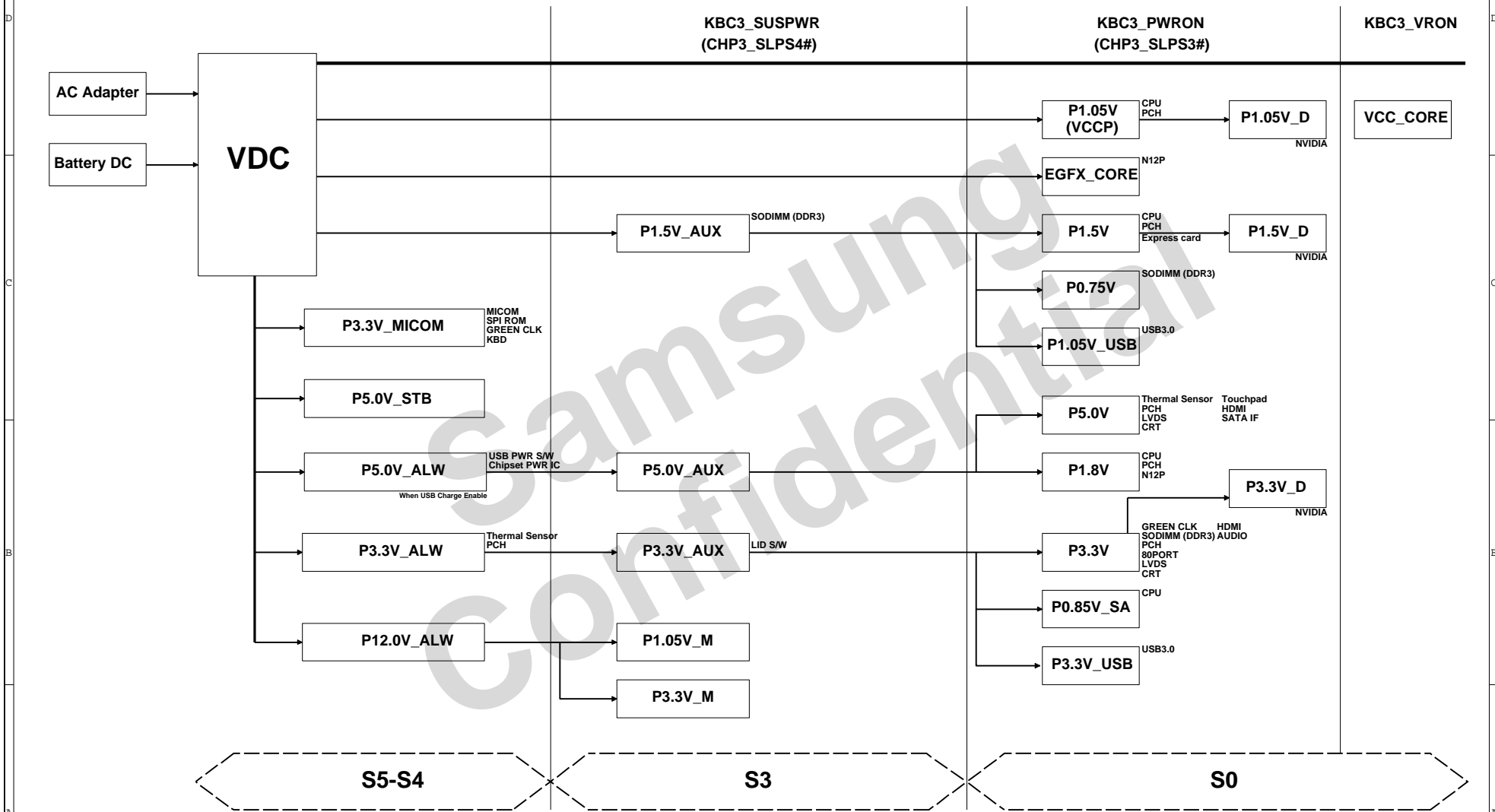
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CHECK	XF CHU	DEV. STEP	MP	MAIN	BOARD INFO	
APPROVAL	BL LEE	REV	REV 1.0			PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	3	OF 51

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POWER DIAGRAM

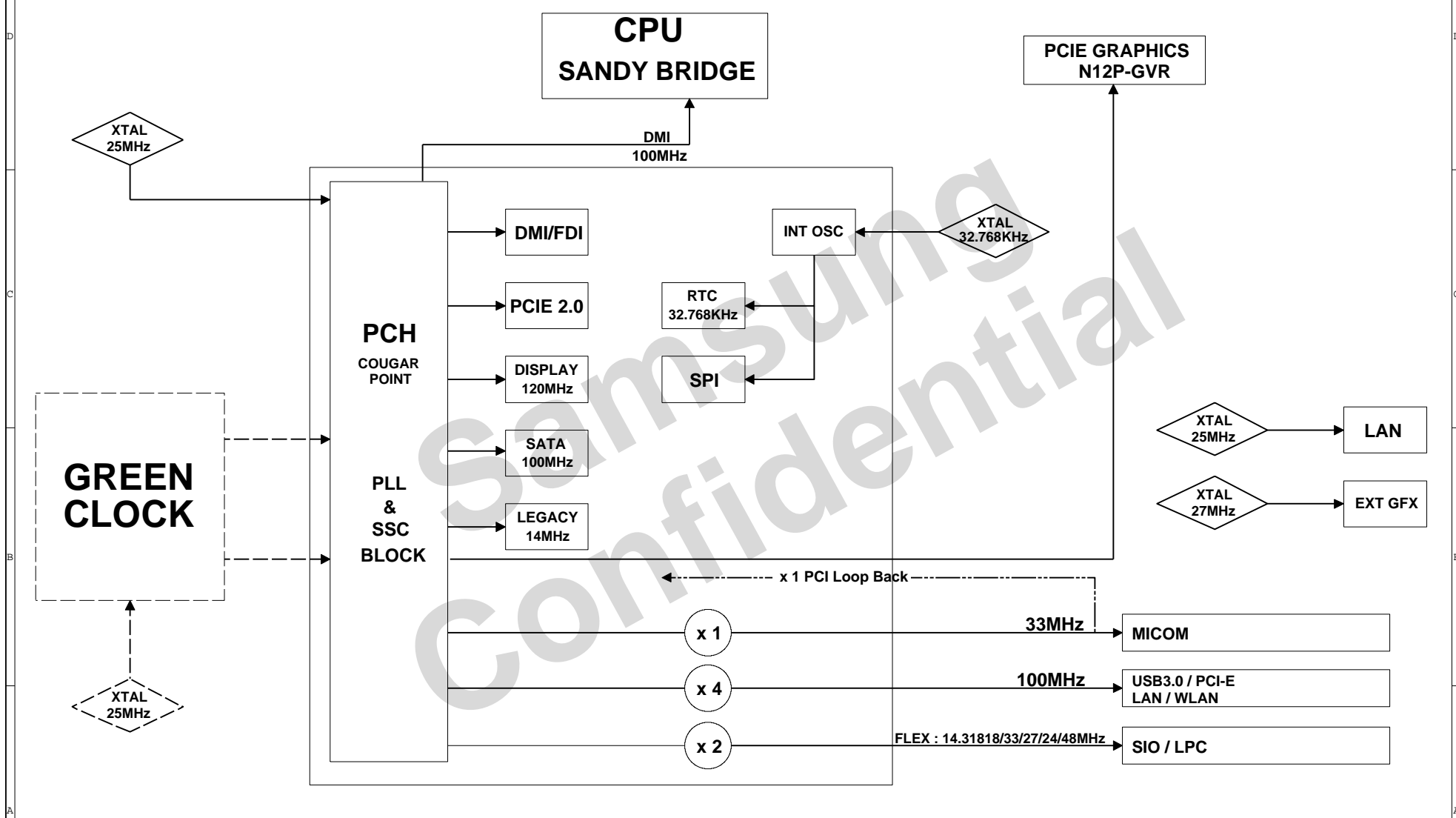
Rev 0.8



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	POWER DIAGRAM	PART NO. BA41-02092-94A	
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CLOCK DISTRIBUTION Rev. 0.8

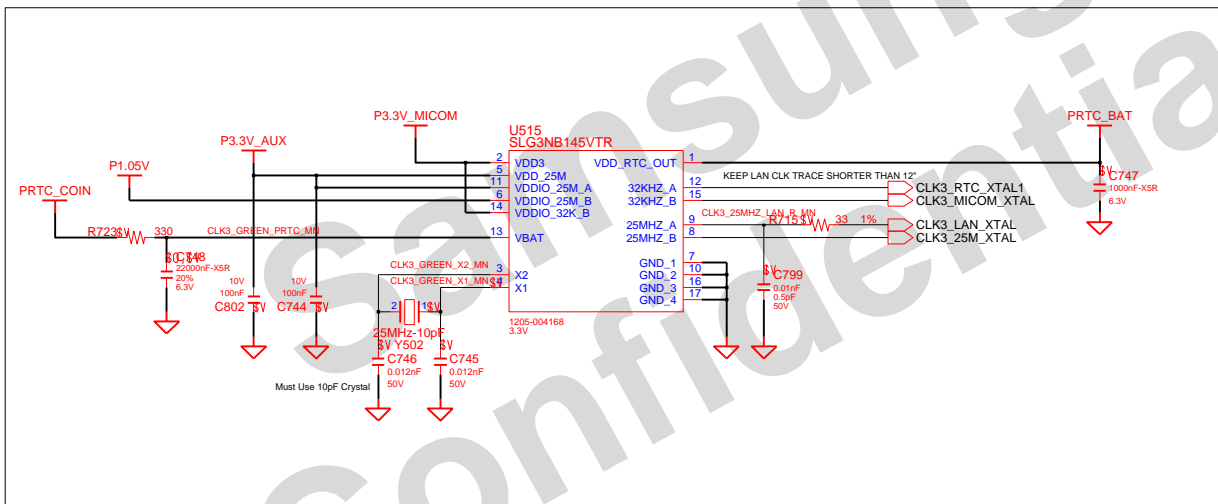


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CHECK	XF CHU	DEV. STEP	MP	MAIN		
APPROVAL	BL LEE	REV	REV 1.0	CLOCK DIAGRAM		PART NO. BA41-02092-94A
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CLOCK DISTRIBUTOR



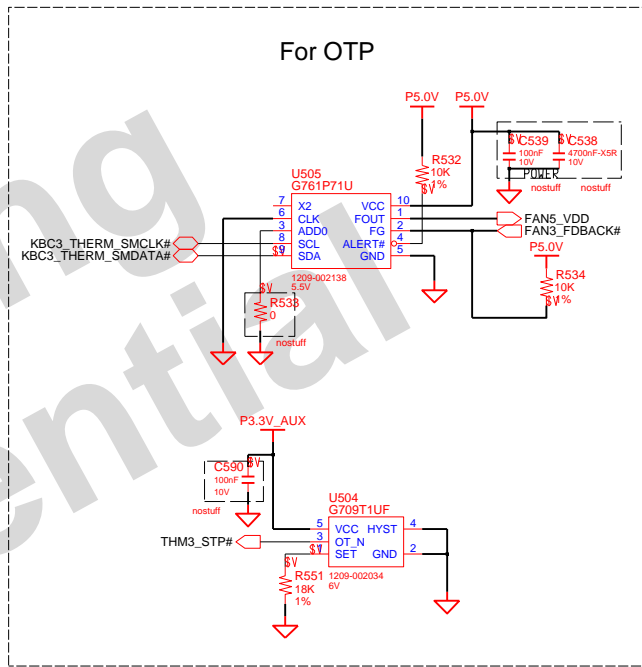
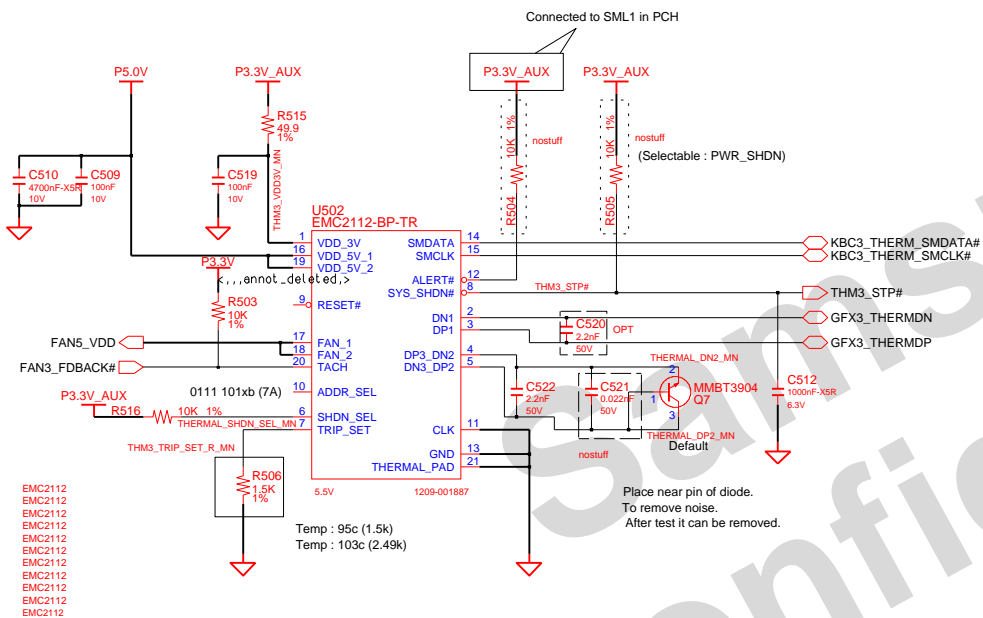
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK

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

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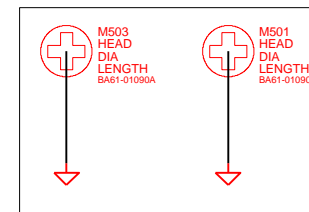
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THERMAL SENSOR & FAN CONTROL



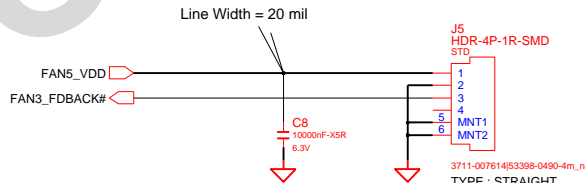
Temperature : 95.78c
 confirmed by thermal charger
 (2011.05.02)
 $R_{th}(\text{kohm}) = 0.0012T^2 - 0.9308T + 96.147$

FAN PEM



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

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



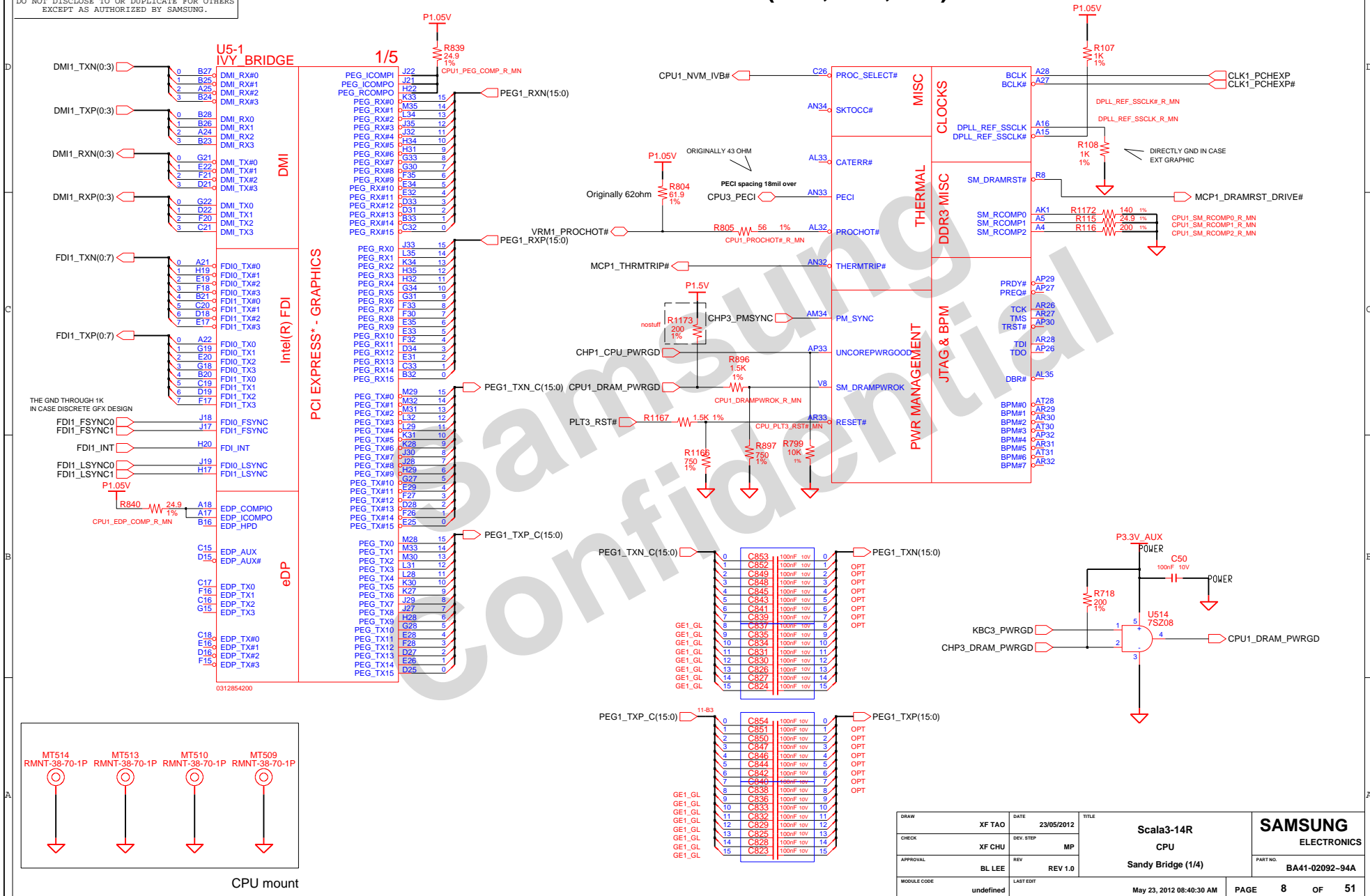
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CHECK	XF CHU	DEV.STEP	MP		THERMAL SENSOR
APPROVAL	BL LEE	REV	REV 1.0		THERMAL SENSOR EMC2112
MODULE CODE		LAST EDIT			
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 PART NO. BA41-02092-94A

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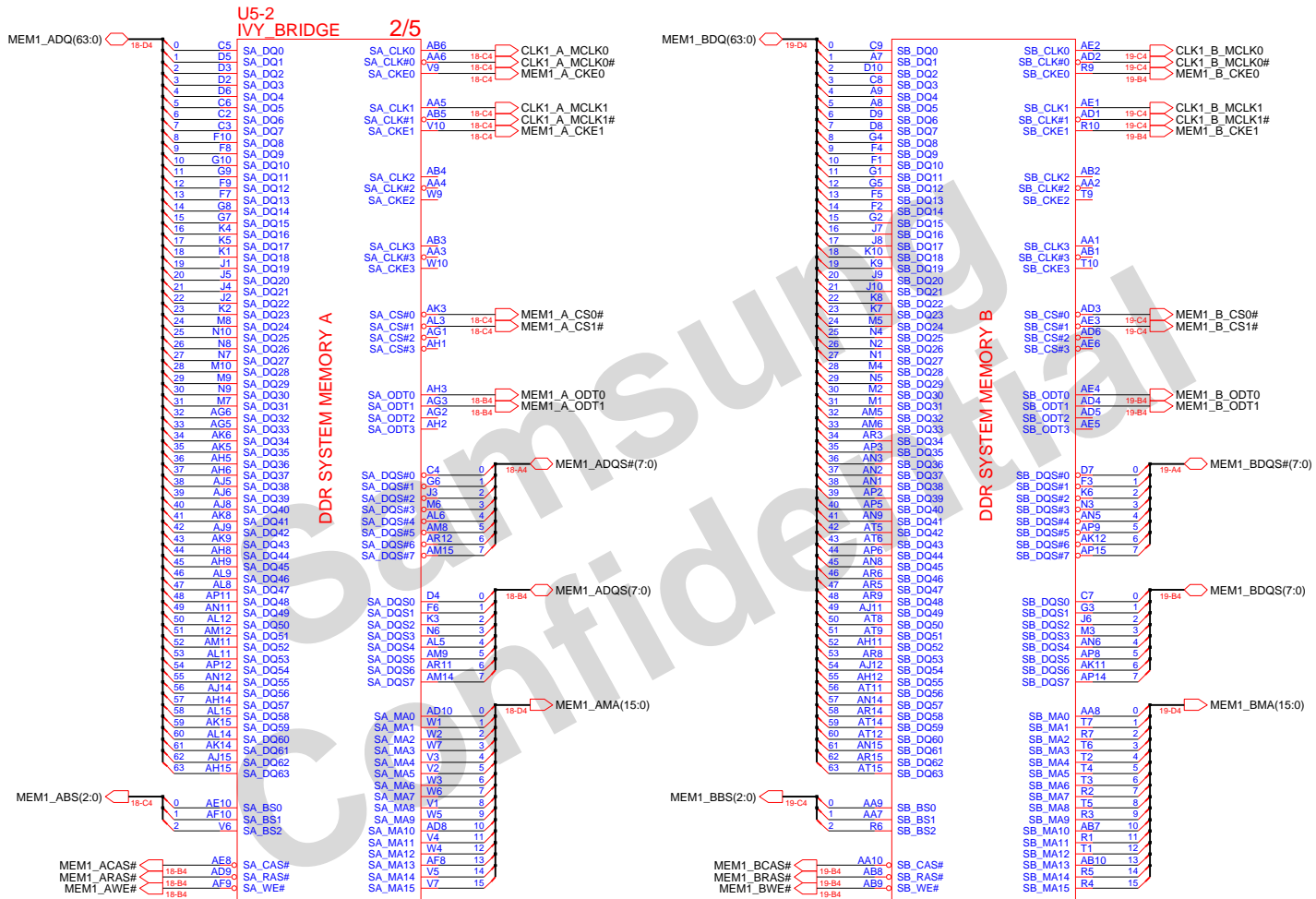
IVY BRIDGE PROCESSOR (DMI,PEG, FDI)



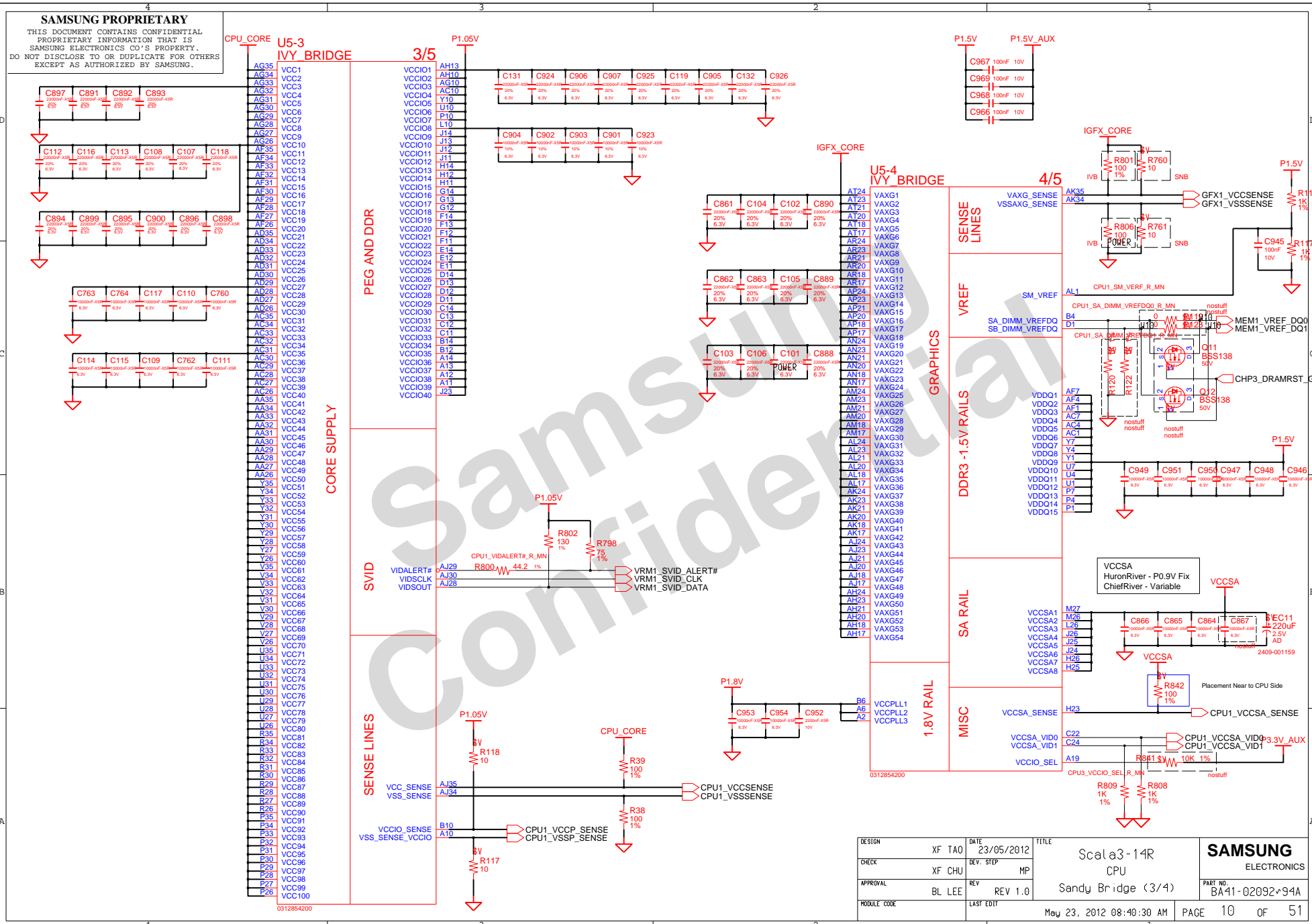
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CHECK	XF CHU	DEV.STEP	MP		Scala3-14R CPU
APPROVAL	BL LEE	REV	REV 1.0		Sandy Bridge (1/4)
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	8 OF 51

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DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R CPU	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A	
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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DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R CPU	SAMSUNG ELECTRONICS PART NO. BA41-0209294A
CHECK	XF CHU	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT				
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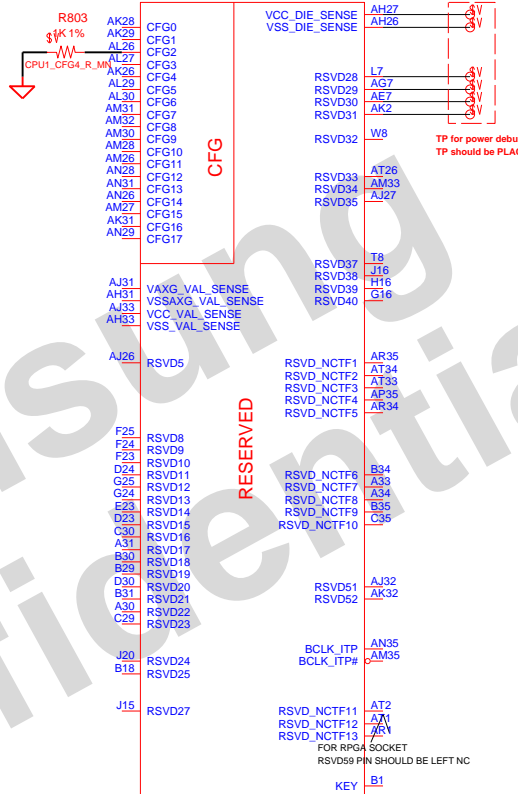
U5-5 I.VY BRIDGE 5/5

AT35	VSS1	VSS81	AJ22
AT34	VSS2	AJ19	
AT29	VSS5	VSS82	AJ16
AT27	VSS3	VSS83	AJ13
VSS4	VSS94	VSS164	
AT25	VSS5	VSS85	AJ10
AT22	VSS6	VSS86	AJ7
AT19	VSS8	VSS88	AJ4
AT16	VSS7	VSS87	AJ3
VSS9	VSS98	VSS168	
AT13	VSS9	VSS89	AJ2
AT10	VSS10	VSS90	AJ1
AT7	VSS11	VSS91	AH35
AT4	VSS12	VSS91	AH34
AT3	VSS12	VSS92	AH32
VSS13	VSS13	VSS93	AH31
AR25	VSS14	VSS94	AH30
AR22	VSS15	VSS95	AH28
AR19	VSS15	VSS95	AH28
AR16	VSS16	VSS96	AH28
AR13	VSS17		
AR10	VSS19	VSS99	AH22
AR7	VSS20	VSS100	AH18
AR4	VSS21	VSS101	AH7
AR2	VSS22	VSS102	AH5
AP34	VSS23	VSS103	AH4
AP31	VSS24	VSS104	AG9
AP29	VSS25	VSS105	AG8
AP28	VSS25	VSS105	AG4
AP22	VSS26	VSS106	AF6
AP19	VSS28	VSS108	AF5
AP13	VSS29	VSS109	AF3
AP10	VSS30	VSS110	AF3
VSS31	VSS31	VSS111	AE35
AP7	VSS32	VSS112	AE34
AP4	VSS33	VSS113	AE33
AP1	VSS34	VSS114	AE31
AN30	VSS34	VSS114	AE31
AN27	VSS35	VSS115	AE30
AN25	VSS36	VSS116	AE29
AN22	VSS37	VSS117	AE28
AN19	VSS38	VSS118	AE27
AN16	VSS39	VSS119	AE26
AN13	VSS40	VSS120	AE9
AN10	VSS42	VSS122	AD7
AN7	VSS43	VSS123	AC8
AN4	VSS44	VSS124	AC6
AM29	VSS45	VSS125	AC5
AM25	VSS46	VSS126	AC5
AM22	VSS47	VSS127	AC3
AM19	VSS48	VSS128	AC2
AM16	VSS49	VSS129	AB34
AM13	VSS50	VSS130	AB33
AM10	VSS51	VSS131	AB33
AM7	VSS52	VSS132	AB32
AM4	VSS53	VSS133	AB31
AM3	VSS54	VSS134	AB30
AM2	VSS55	VSS135	AB29
AM1	VSS56	VSS136	AB28
AL34	VSS57	VSS137	AB27
AL31	VSS58	VSS138	AB26
AL28	VSS59	VSS139	Y9
AL25	VSS60	VSS140	Y8
AL22	VSS61	VSS141	Y6
AL19	VSS62	VSS142	Y3
AL16	VSS63	VSS143	Y2
AL13	VSS64	VSS144	Y2
AL10	VSS65	VSS145	W35
AL7	VSS66	VSS146	W34
AL2	VSS67	VSS147	W33
VSS68	VSS148	VSS148	W32
AK33	VSS69	VSS149	W31
AK30	VSS70	VSS150	W30
AK27	VSS71	VSS151	W29
AK25	VSS72	VSS152	W28
AK22	VSS73	VSS153	W27
AK19	VSS74	VSS154	W26
AK16	VSS75	VSS155	U9
AK13	VSS76	VSS156	U8
AK10	VSS77	VSS157	U6
AK7	VSS78	VSS158	U5
AK4	VSS79	VSS159	U3
AJ25	VSS80	VSS160	U2

VSS

T35	VSS161	VSS234	F22
T34	VSS162	VSS235	F19
T33	VSS163	VSS236	E30
T32	VSS164	VSS237	E27
T31	VSS165	VSS238	E24
T30	VSS166	VSS239	E21
T29	VSS167	VSS240	E18
T28	VSS168	VSS241	E15
T27	VSS169	VSS242	E13
T26	VSS170	VSS243	E10
T25	VSS171	VSS244	E9
T24	VSS172	VSS245	E8
T23	VSS173	VSS246	E7
T22	VSS174	VSS247	E6
T21	VSS175	VSS248	E5
T20	VSS176	VSS249	E4
T19	VSS177	VSS250	E3
T18	VSS178	VSS251	E2
T17	VSS179	VSS252	E1
T16	VSS180	VSS253	D35
T15	VSS181	VSS254	D32
T14	VSS182	VSS255	D29
T13	VSS183	VSS256	D26
T12	VSS184	VSS257	D20
T11	VSS185	VSS258	D17
T10	VSS186	VSS259	C34
T9	VSS187	VSS260	C31
T8	VSS188	VSS261	C28
T7	VSS189	VSS262	C25
T6	VSS190	VSS263	C23
T5	VSS191	VSS264	C10
T4	VSS192	VSS265	C1
T3	VSS193	VSS266	C1
T2	VSS194	VSS267	B22
T1	VSS195	VSS268	B19
VSS196	VSS196	VSS269	B17
VSS197	VSS197	VSS270	B15
VSS198	VSS198	VSS271	B13
VSS199	VSS199	VSS272	B11
VSS200	VSS200	VSS273	B9
VSS201	VSS201	VSS274	B8
VSS202	VSS202	VSS275	B7
VSS203	VSS203	VSS276	B6
VSS204	VSS204	VSS277	B5
VSS205	VSS205	VSS278	B4
VSS206	VSS206	VSS279	B3
VSS207	VSS207	VSS280	B2
VSS208	VSS208	VSS281	B1
VSS209	VSS209	VSS282	A3
VSS210	VSS210	VSS283	A3
VSS211	VSS211	VSS284	A3
VSS212	VSS212	VSS285	A3
VSS213	VSS213		
VSS214	VSS214		
VSS215	VSS215		
VSS216	VSS216		
VSS217	VSS217		
VSS218	VSS218		
VSS219	VSS219		
VSS220	VSS220		
VSS221	VSS221		
VSS222	VSS222		
VSS223	VSS223		
VSS224	VSS224		
VSS225	VSS225		
VSS226	VSS226		
VSS227	VSS227		
VSS228	VSS228		
VSS229	VSS229		
VSS230	VSS230		
VSS231	VSS231		
VSS232	VSS232		
VSS233	VSS233		

VSS



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	
CFG6[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 XXRESETB DEASSERTION 0 : PEG WAIT FOR BIOS FOR TRAINING

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		CPU	
APPROVAL	BL LEE	REV	REV 1.0		Sandy Bridge (4/4)	PART NO. BA41-02092*94A
MODULE CODE		LAST EDIT				
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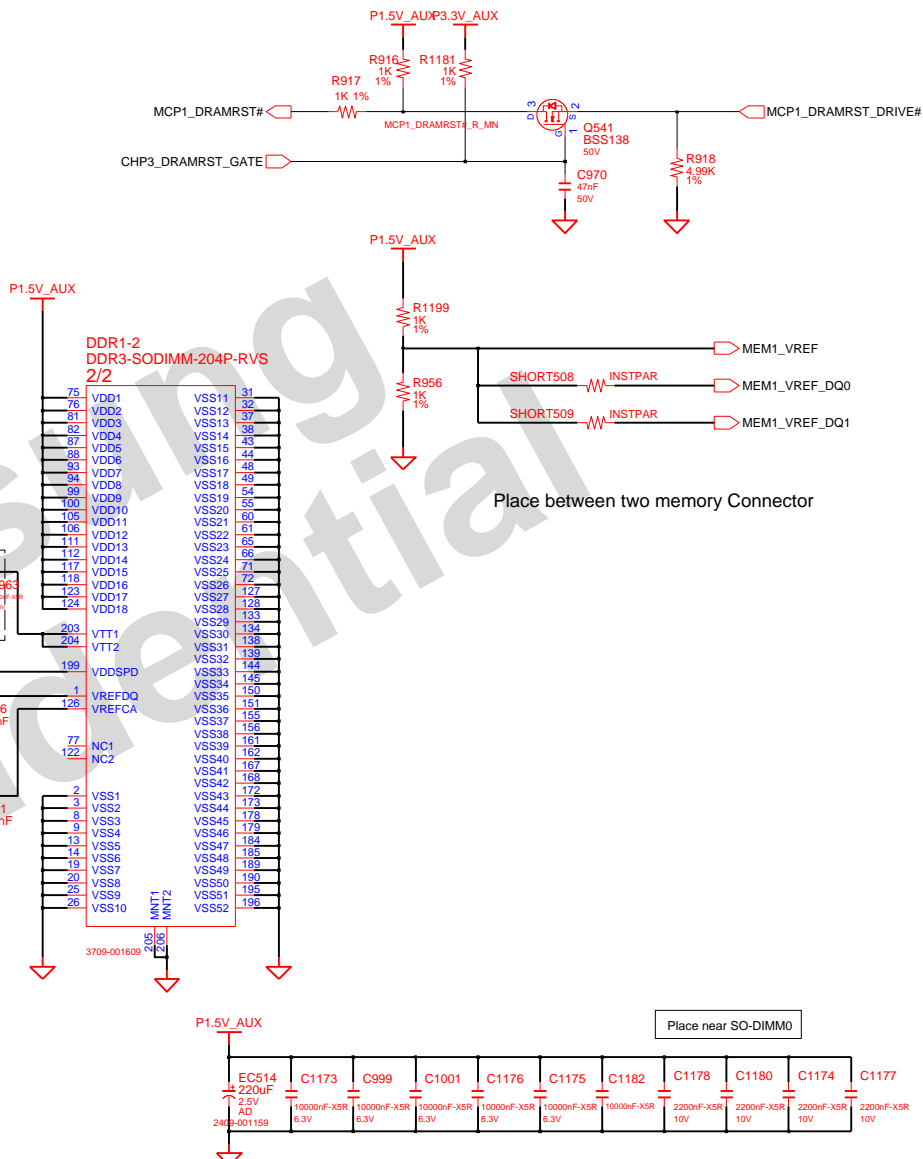
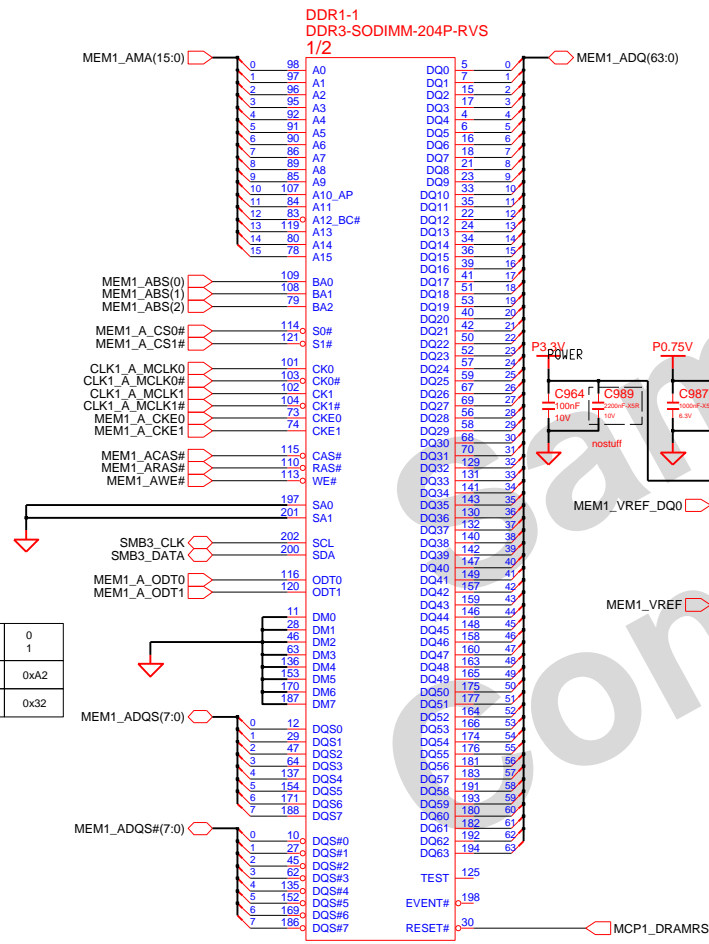
SO-DIMM#0 : 2nd SO-DIMM

DDR SO-DIMM #0

Height : 9.2 mm (REVERSE)

P/N : 3709-001656 (Foxconn)

P/N : 3709-001609 (Concraft)



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	PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	12	OF 51

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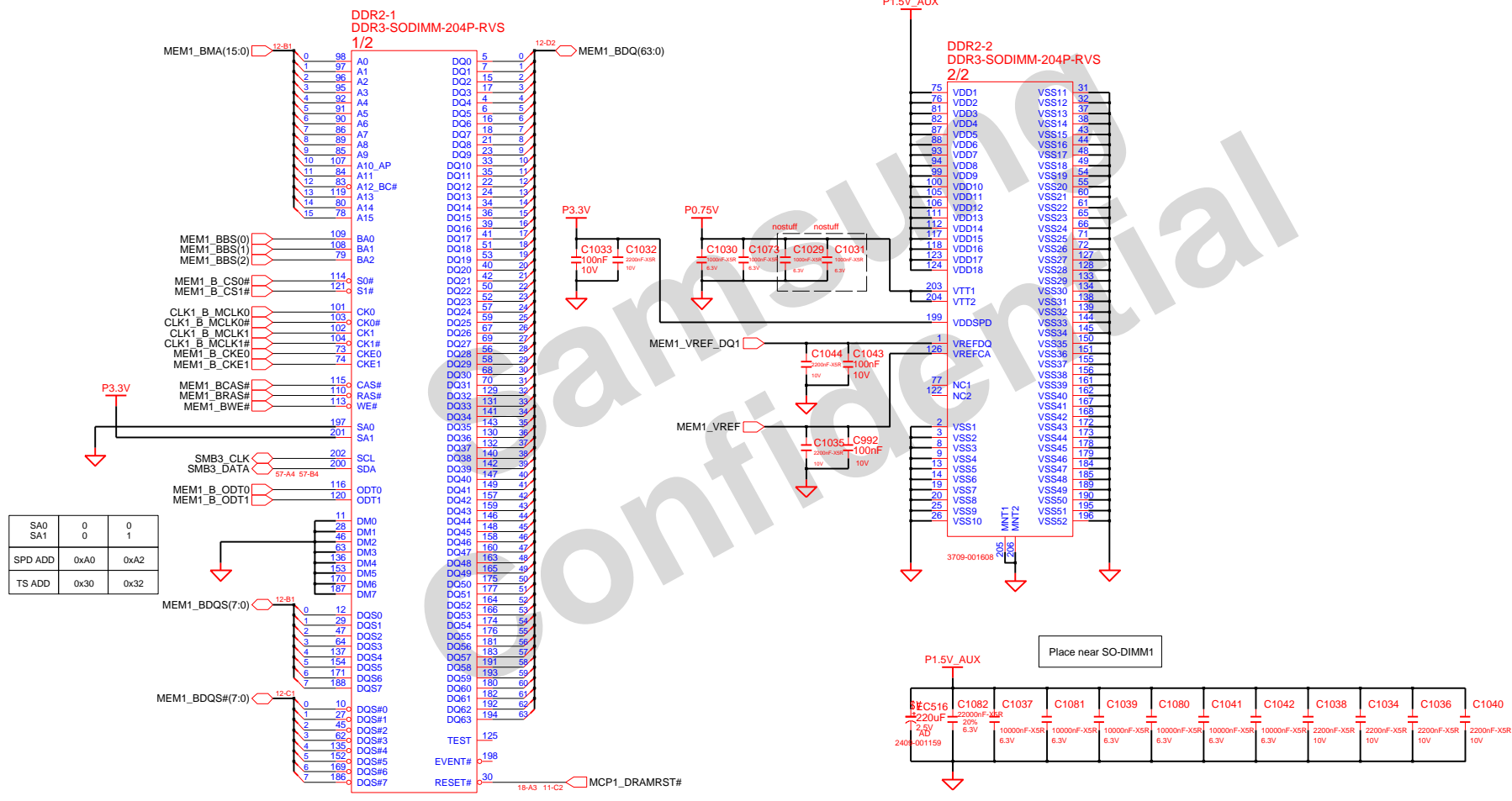
SO-DIMM#1 : 1st SO-DIMM

DDR SO-DIMM #1

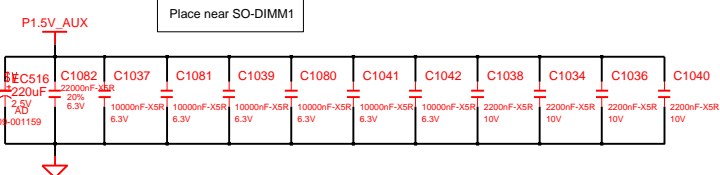
Height : 4.0 mm (REVERSE)

P/N : 3709-001654 (Foxconn)

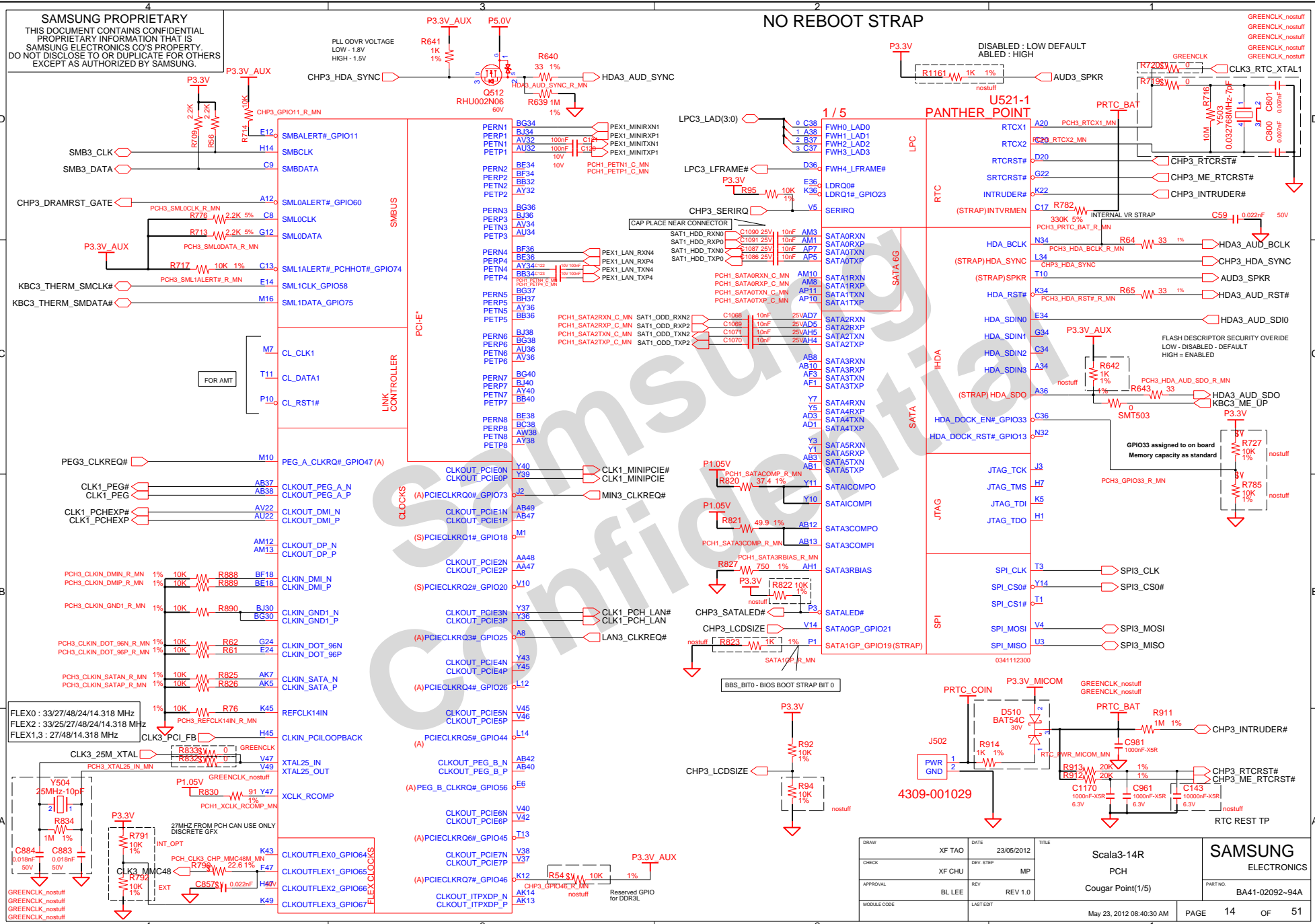
P/N : 3709-001608 (Concraft)



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



DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		SODIMM B	
APPROVAL	BL LEE	REV	REV 1.0		DDR3	PART NO. BA41-02092-94A
MODULE CODE		LAST ENT				

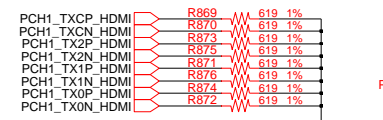
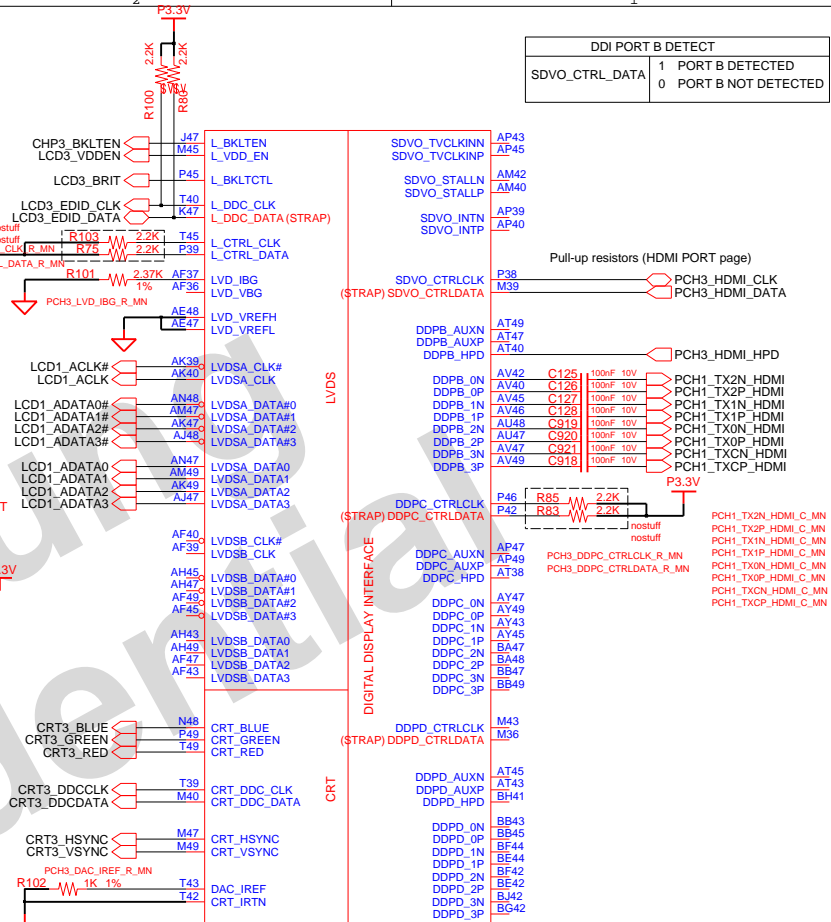
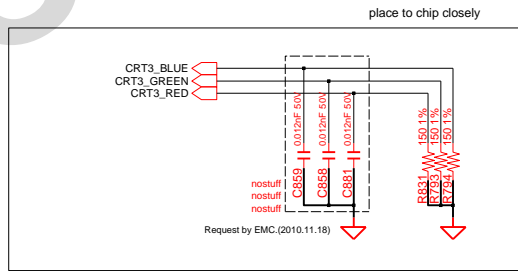
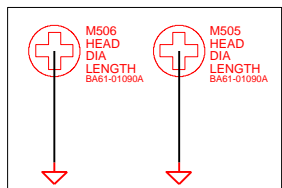
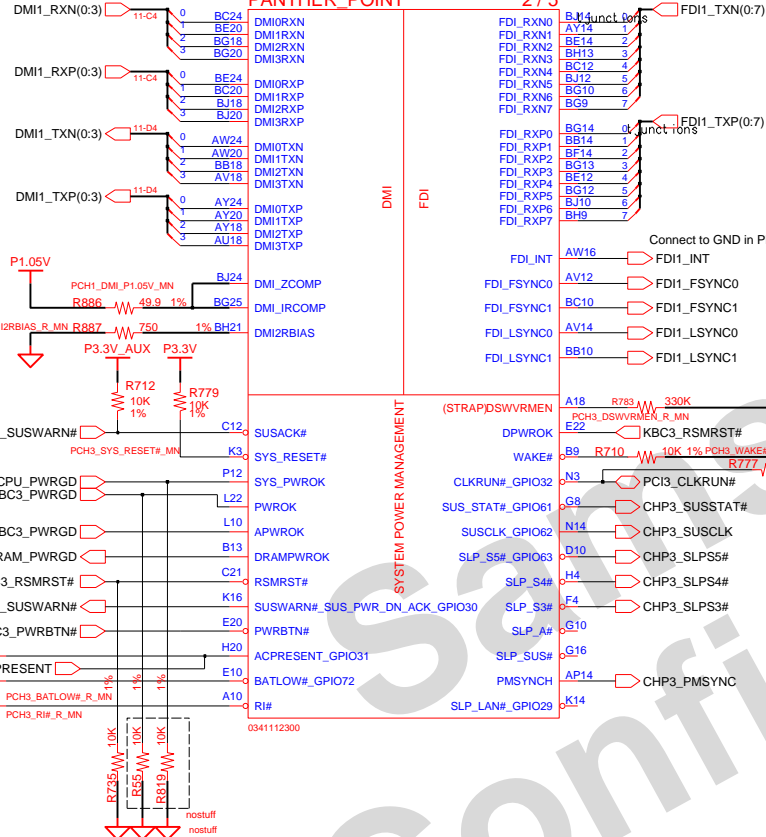


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		PCH
APPROVAL	BL LEE	REV	REV 1.0		Cougar Point(1/5)
MODULE CODE		LAST ENT			
			May 23, 2012 08:40:30 AM	PAGE	14 OF 51

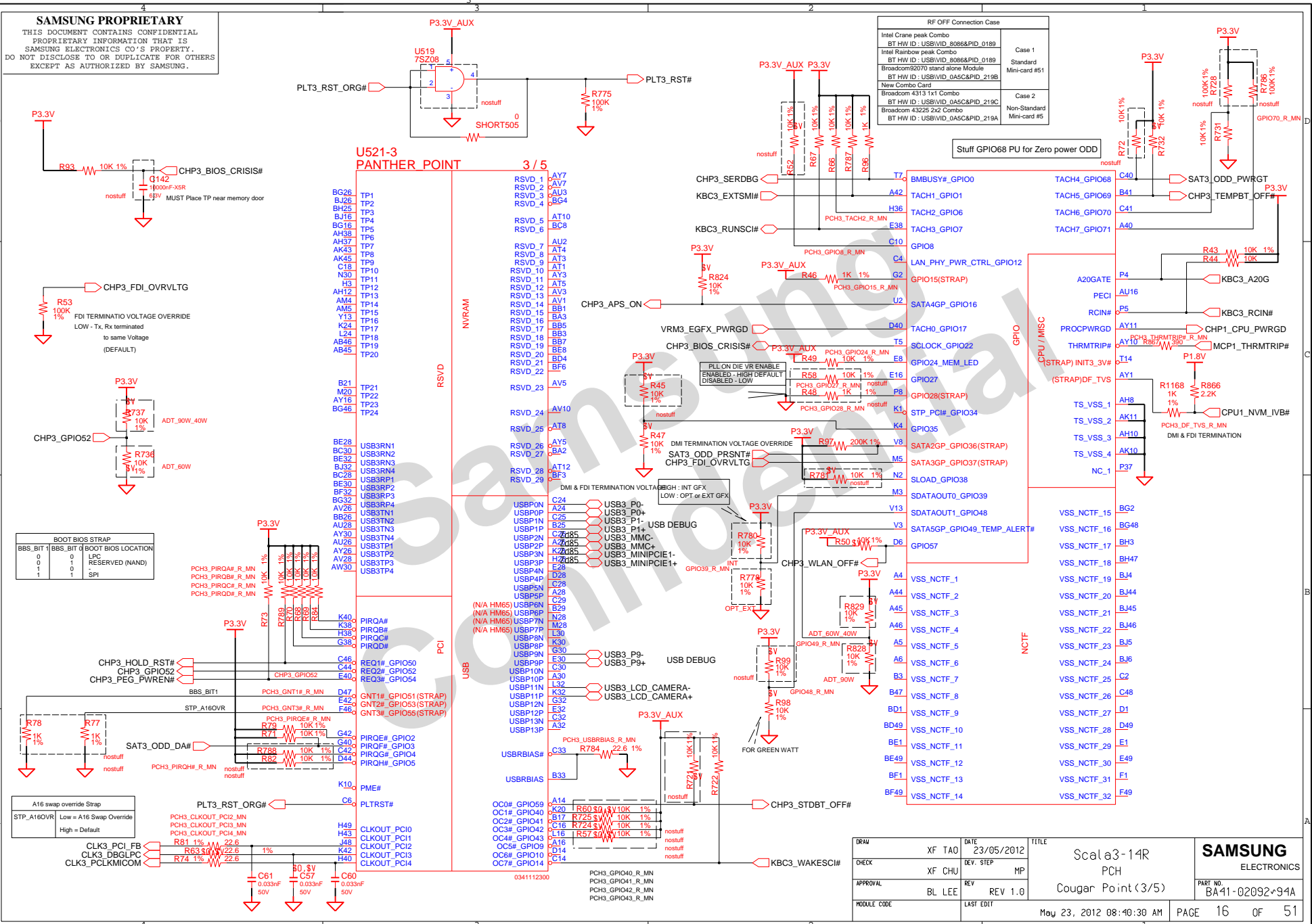
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U521-2 PANTHER POINT



DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		PCH
APPROVAL	BL LEE	REV	REV 1.0		Cougar Point(2/5)
MODULE CODE		LAST EDIT			
					SAMSUNG ELECTRONICS
					PART NO. BA41-02092-94A
					May 23, 2012 08:40:30 AM
					PAGE 15 OF 51



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RF OFF Connection Case	
Intel Crane peak Combo BT HW ID: USBVID_8086&PID_0189 Intel Rainbow peak Combo BT HW ID: USBVID_8086&PID_0189 Broadcom92070 stand alone Module BT HW ID: USBVID_0A5C&PID_219B	Case 1 Standard Mini-card #51
New Combo Card Broadcom 4313 1x1 Combo BT HW ID: USBVID_0A5C&PID_219C Broadcom 43225 2x2 Combo BT HW ID: USBVID_0A5C&PID_219A	Case 2 Non-Standard Mini-card #5

BBS_BIT 1	BBS_BIT 0	BOOT BIOS LOCATION
0	0	LPC
0	1	RESERVED (NAND)
1	1	SPI

A16 swap override Strap	
STP_A16OVR	Low = A16 Swap Override
	High = Default

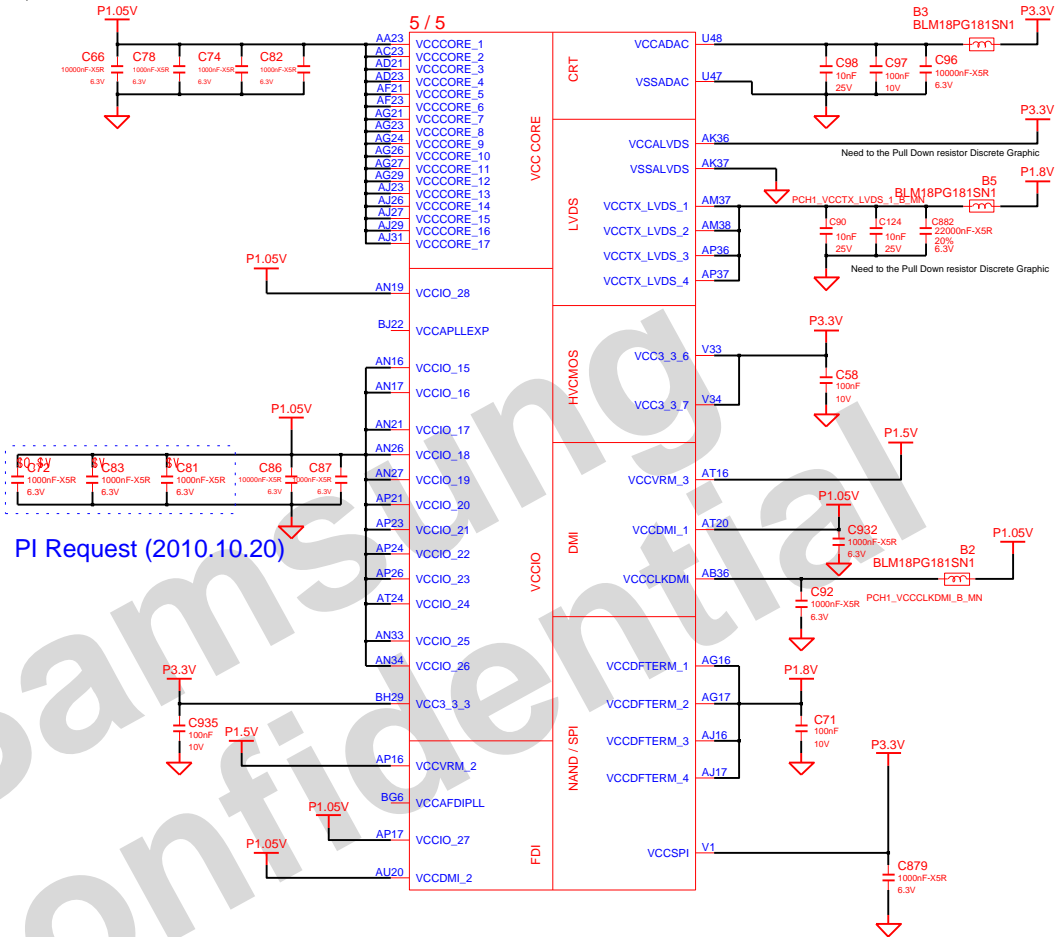
DRAW	DATE	TITLE	SAMSUNG ELECTRONICS
XF TAO	23/05/2012	Scala3-14R	
CHECK	DEV. STEP	PCH	PART NO. BA11-02092-91A
APPROVAL	REV	Cougar Point (3/5)	
BL LEE	REV 1.0		
MODULE CODE	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE 16 OF 51

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**U521-5
 PANTHER_POINT**

This power share with thermal sensor

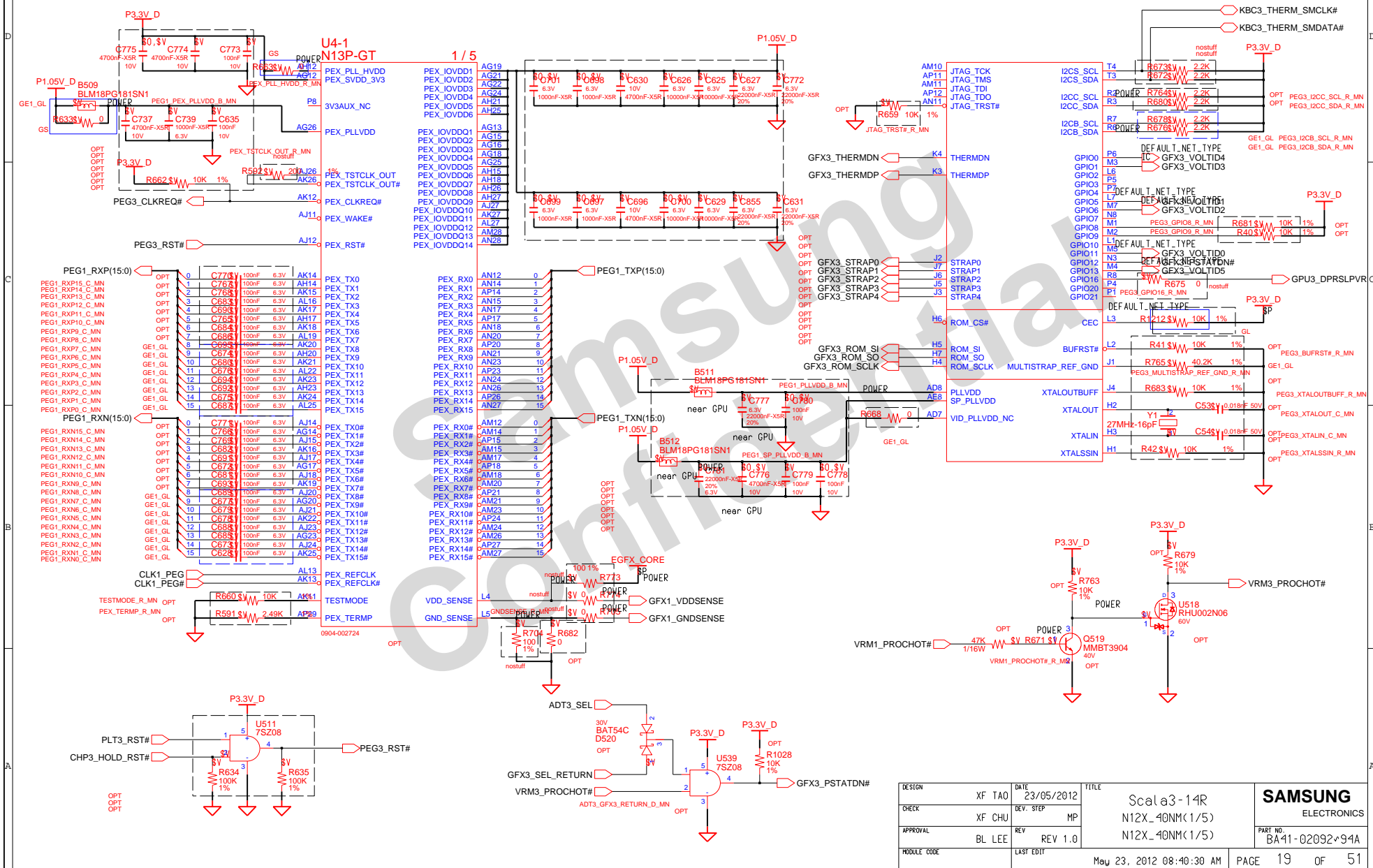
AY4	VSS159	VSS259	H46
AY42	VSS160	VSS260	K18
AY46	VSS161	VSS261	K26
AY8	VSS162	VSS262	K30
B11	VSS163	VSS263	K46
B15	VSS164	VSS264	K7
B19	VSS165	VSS265	L2
B23	VSS166	VSS266	L20
B27	VSS167	VSS267	L26
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L48
B7	VSS171	VSS271	M12
F45	VSS172	VSS272	P16
BB12	VSS173	VSS273	P16
BB16	VSS174	VSS274	M18
BB20	VSS175	VSS275	M24
BB22	VSS176	VSS276	M30
BB24	VSS177	VSS277	M32
BB28	VSS178	VSS278	M34
BB30	VSS179	VSS279	M36
BB38	VSS180	VSS280	M4
BB4	VSS181	VSS281	M42
BB46	VSS182	VSS282	M46
BC14	VSS183	VSS283	N18
BC18	VSS184	VSS284	N18
BC2	VSS185	VSS285	P30
BC22	VSS186	VSS286	P47
BC26	VSS187	VSS287	N47
BC32	VSS188	VSS288	P18
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC40	VSS191	VSS291	P47
BC42	VSS192	VSS292	P47
BC48	VSS193	VSS293	F7
BD46	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	V26
BF28	VSS205	VSS305	V27
BF30	VSS206	VSS306	V26
BF38	VSS207	VSS307	V29
BF40	VSS208	VSS308	V29
BF42	VSS209	VSS309	V36
BF48	VSS210	VSS310	V36
BF9	VSS211	VSS311	V38
BG21	VSS212	VSS312	V43
BG33	VSS213	VSS313	V7
BG44	VSS214	VSS314	W17
BG9	VSS215	VSS315	W19
BH11	VSS216	VSS316	W2
BH15	VSS217	VSS317	W27
BH17	VSS218	VSS318	W48
BH19	VSS219	VSS319	Y38
H10	VSS220	VSS320	Y42
BH27	VSS221	VSS321	Y4
BH31	VSS222	VSS322	Y42
BH33	VSS223	VSS323	Y46
BH35	VSS224	VSS324	Y8
BH39	VSS225	VSS325	BG29
BH43	VSS226	VSS326	N24
BH7	VSS227	VSS327	BG28
D3	VSS228	VSS328	AJ3
D12	VSS229	VSS329	AD47
D16	VSS230	VSS330	E43
D18	VSS231	VSS331	BE10
D22	VSS232	VSS332	BG41
D24	VSS233	VSS333	G14
D26	VSS234	VSS334	H16
D30	VSS235	VSS335	T36
D32	VSS236	VSS336	BG22
D34	VSS237	VSS337	BG24
D38	VSS238	VSS338	C22
D42	VSS239	VSS339	AP13
D8	VSS240	VSS340	M14
E18	VSS241	VSS341	AP3
E26	VSS242	VSS342	AP1
E18	VSS243	VSS343	BE16
G20	VSS244	VSS344	BE16
G26	VSS245	VSS345	BG28
G28	VSS246	VSS346	BJ28
G36	VSS247	VSS347	
G48	VSS248	VSS348	
H12	VSS249	VSS349	
H18	VSS250	VSS350	
H22	VSS251	VSS351	
H24	VSS252	VSS352	
H26	VSS253		
H30	VSS254		
H32	VSS255		
H34	VSS256		
F3	VSS257		
	VSS258		



DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		PCH	
APPROVAL	BL LEE	REV	REV 1.0		Cougar Point(5/5)	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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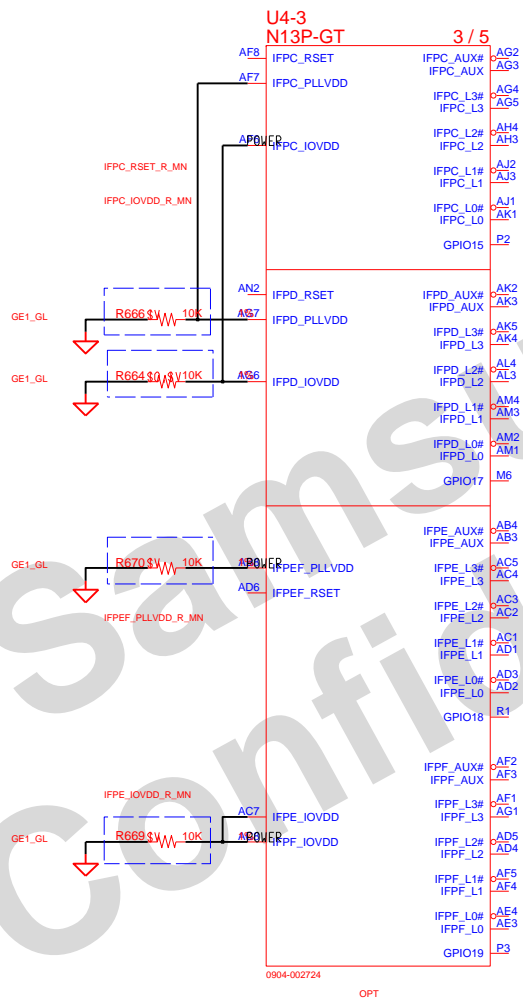
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CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(1/5)
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(1/5)
MODULE CODE		LAST EDIT			

SAMSUNG ELECTRONICS	
PART NO.	BA41-02092*94A

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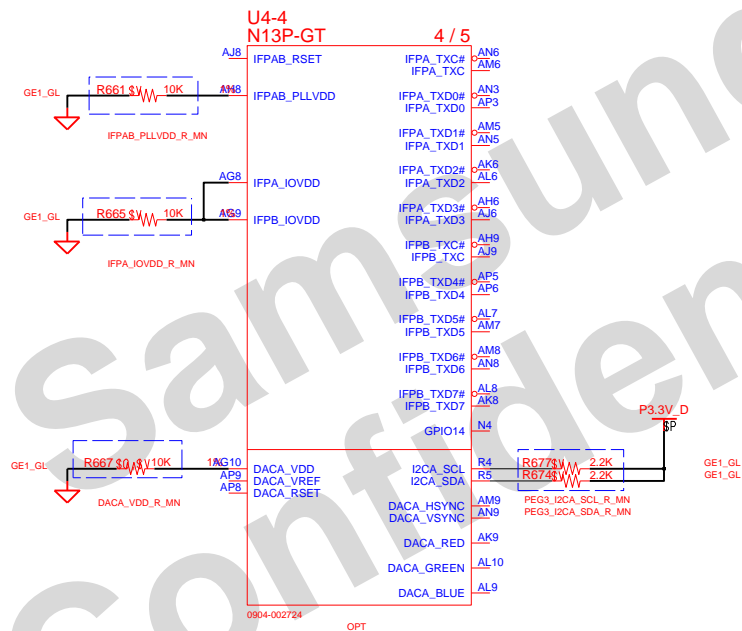
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DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	N12X_40NM(3/5)	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	N12X_40NM(3/5)	BA41-02092-94A	
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	21	OF 51

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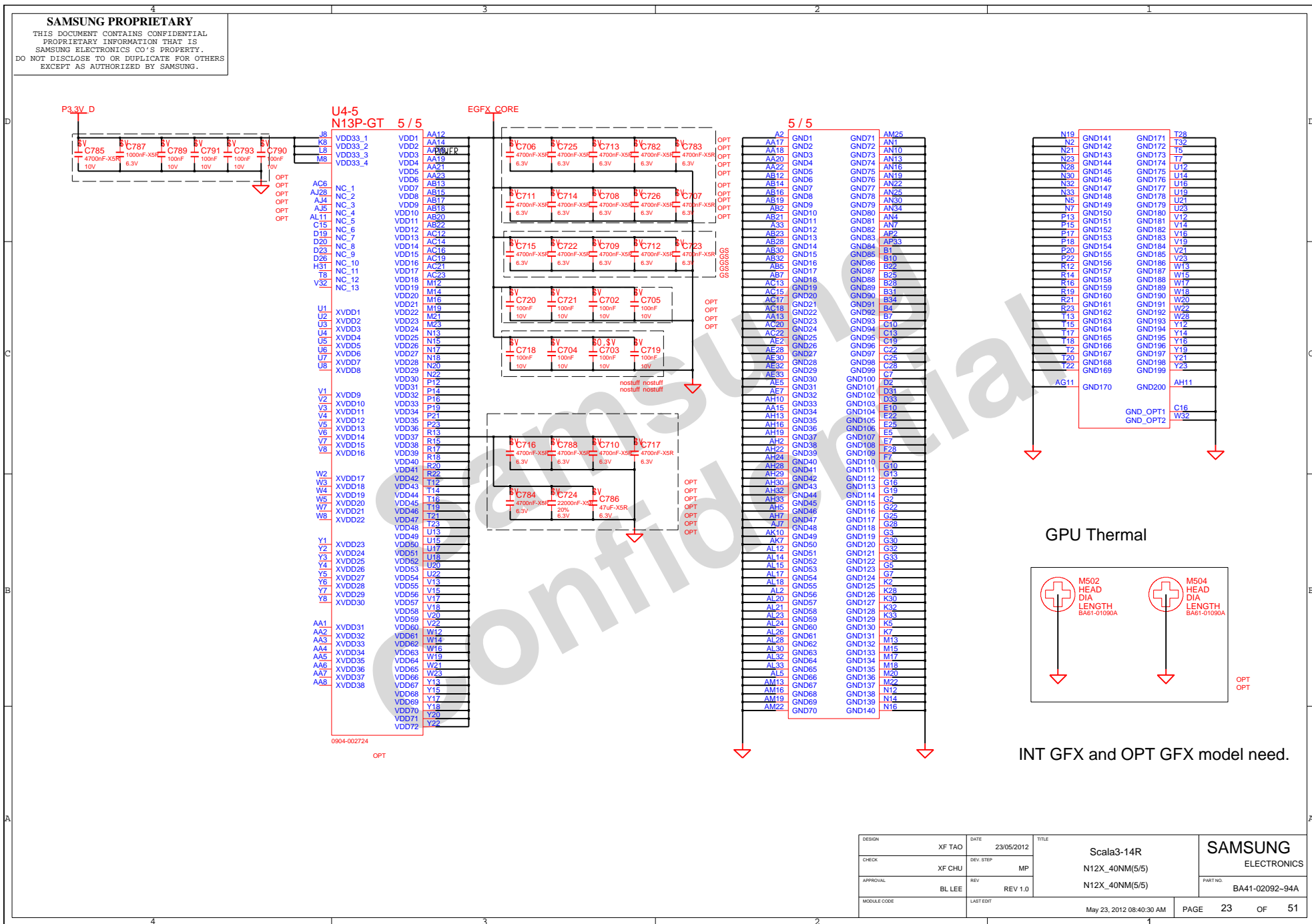
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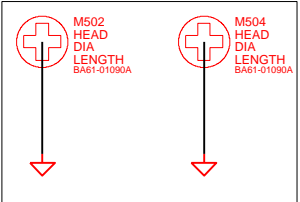
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APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(4/5)	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 22 OF 51	

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GPU Thermal



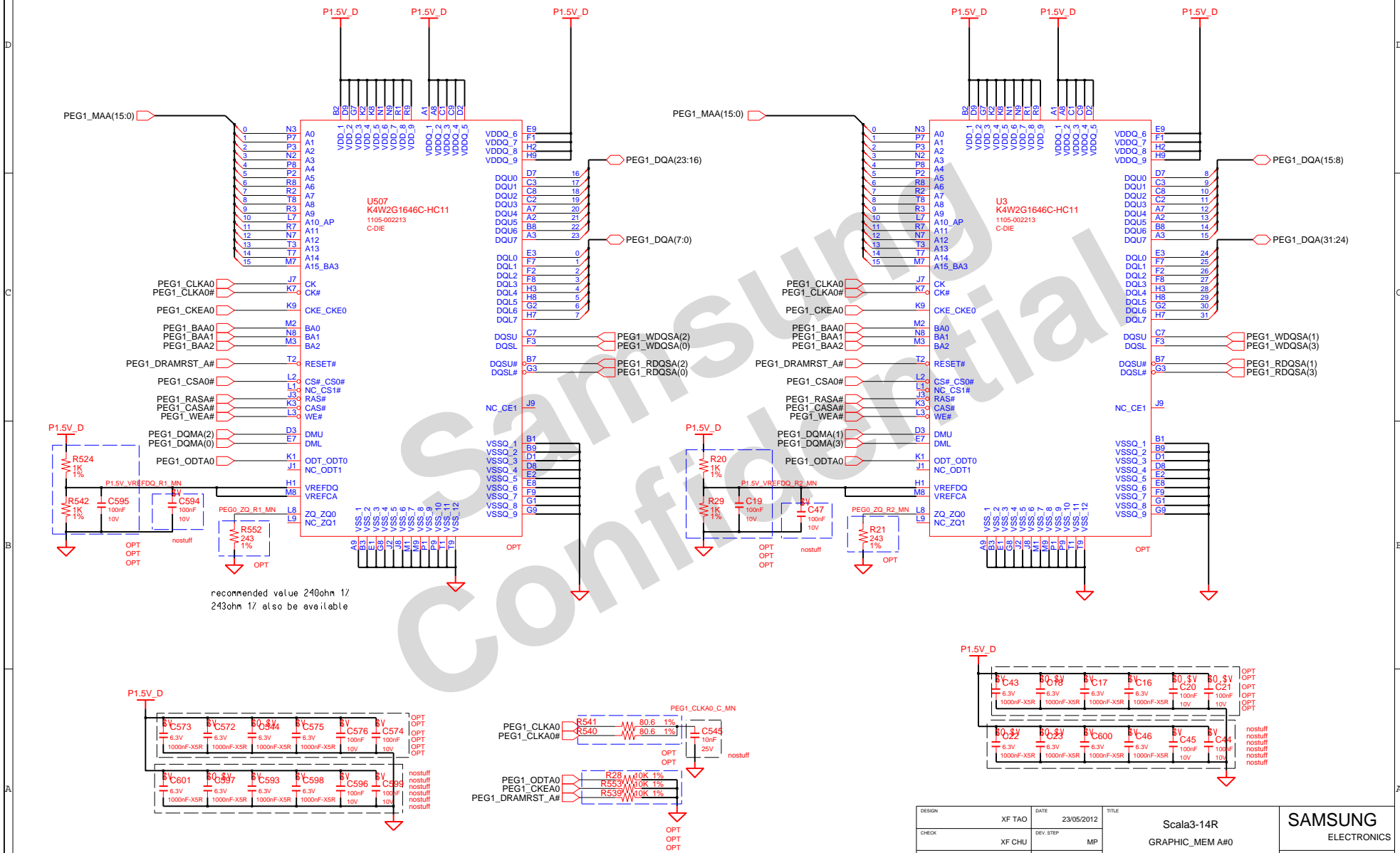
INT GFX and OPT GFX model need.

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

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A-Channel #0 (D-mode)

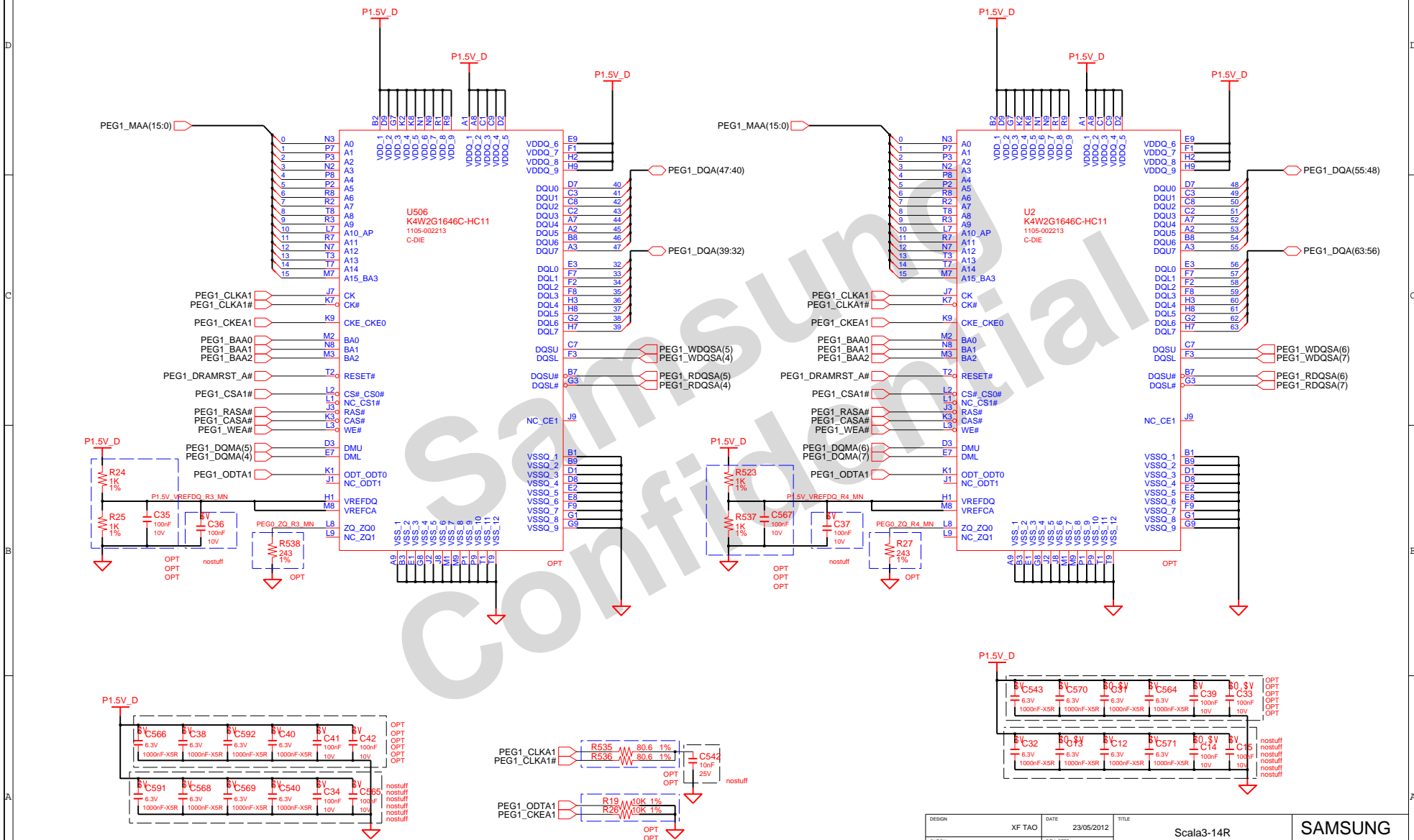


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	GRAPHIC_MEM A#0	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	GRAPHIC_MEM A#0	BA41-02092-94A	
MODULE CODE	LAST EDIT	May 23, 2012 08:40:30 AM		PAGE	24	OF 51

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A-Channel #1 (D-mode)



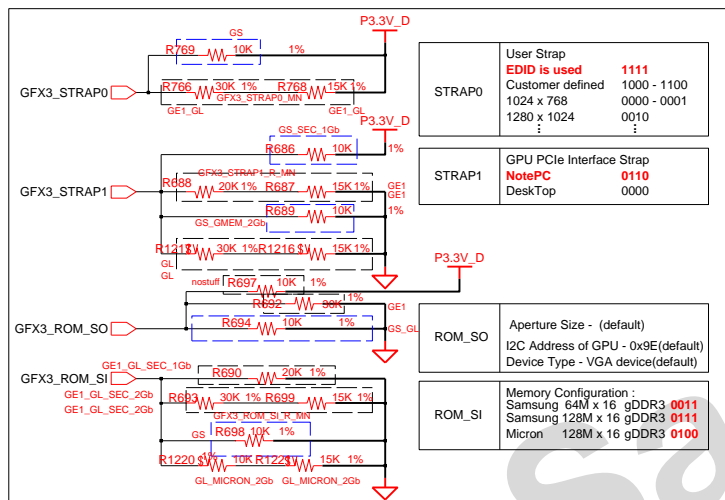
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APPROVAL	BL LEE	REV	REV 1.0	GRAPHIC_MEM A#1		
MODULE CODE		LAST EDIT				
May 23, 2012 08:40:30 AM						PAGE 25 OF 51

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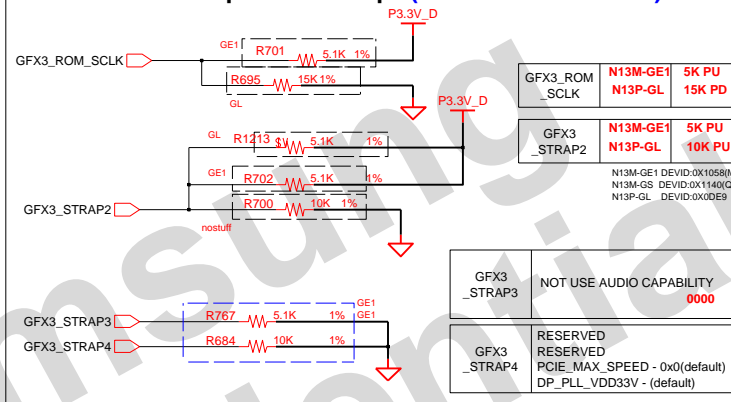
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N13x STRAP

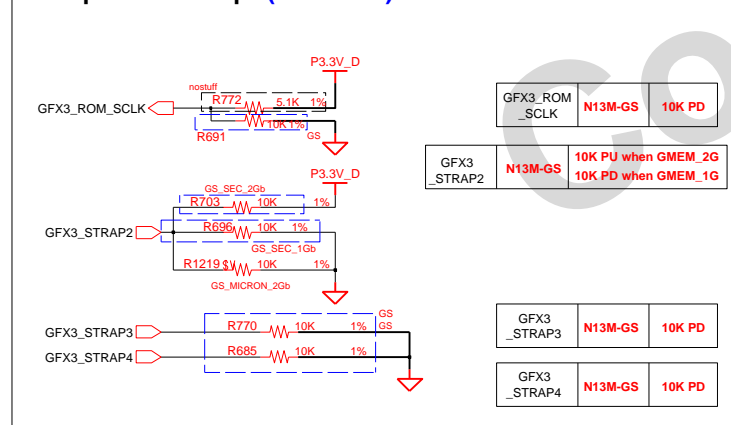
Function Straps



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
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]	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 (GE1)	PEX_PLL_EN_TERM
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	RESERVED	PCIE_MAX_SPEED	DP_PLL_VDD33V

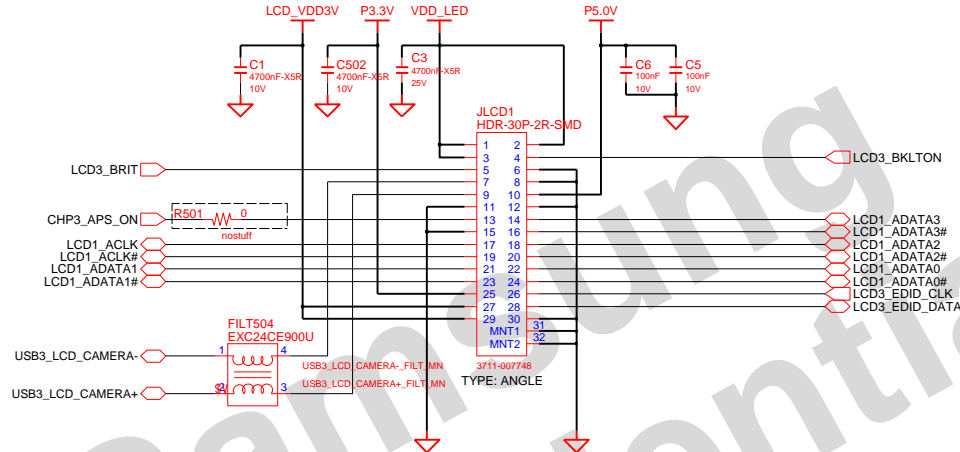
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CHECK	XF CHU	DEV. STEP	MP	GRAPHIC_MEM C#0		
APPROVAL	BL LEE	REV	REV 1.0	GRAPHIC_MEM C#0	PART NO.	BA41-02092-94A
MODULE CODE		LAST EDIT				
					May 23, 2012 08:40:30 AM	PAGE 26 OF 51

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LVDS LOGIC

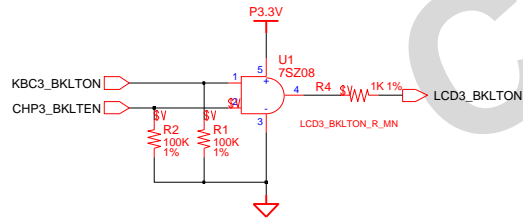
1Ch. LCD Connector + CAMERA



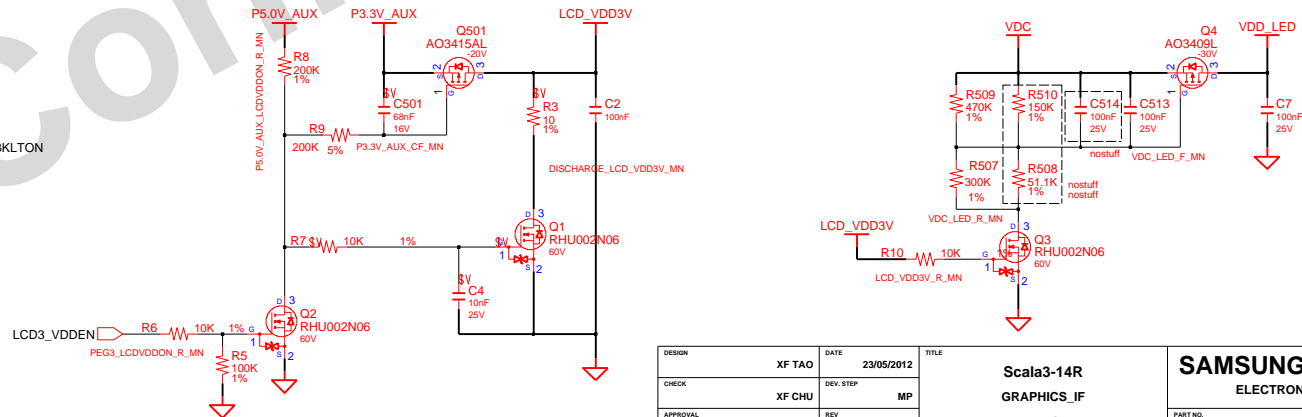
LCD Power

EBL Purpose

Backlight On



LED Power

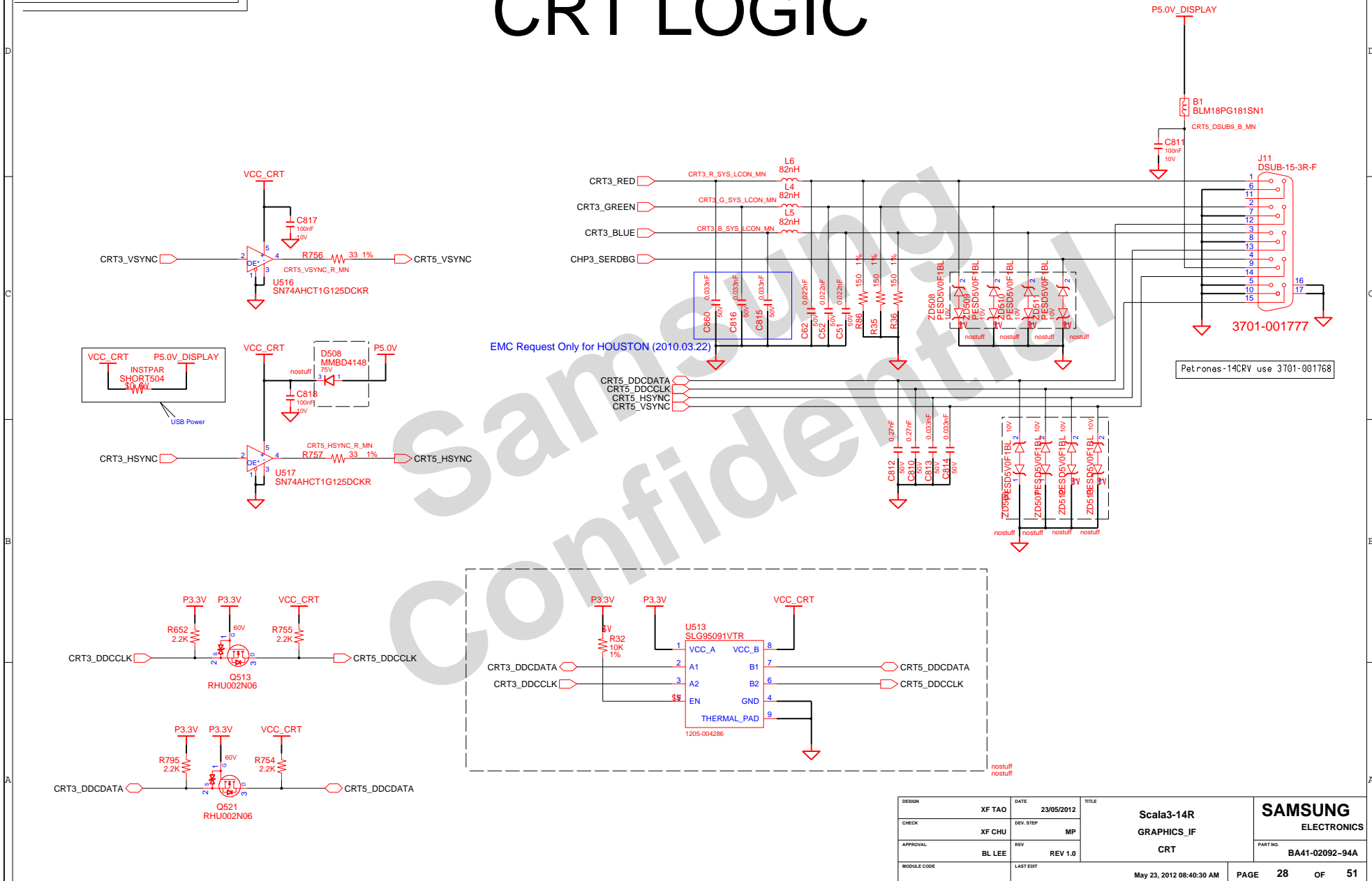


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	GRAPHICS_IF	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	LVDS	BA41-02092-94A	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	27 OF 51

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CRT LOGIC



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

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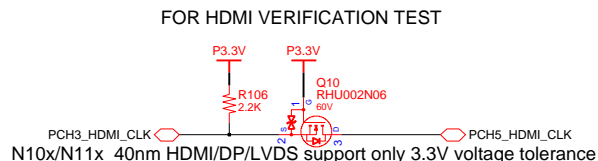
HDMI Graphic

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

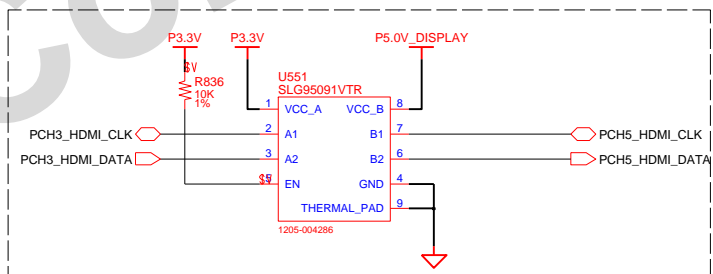
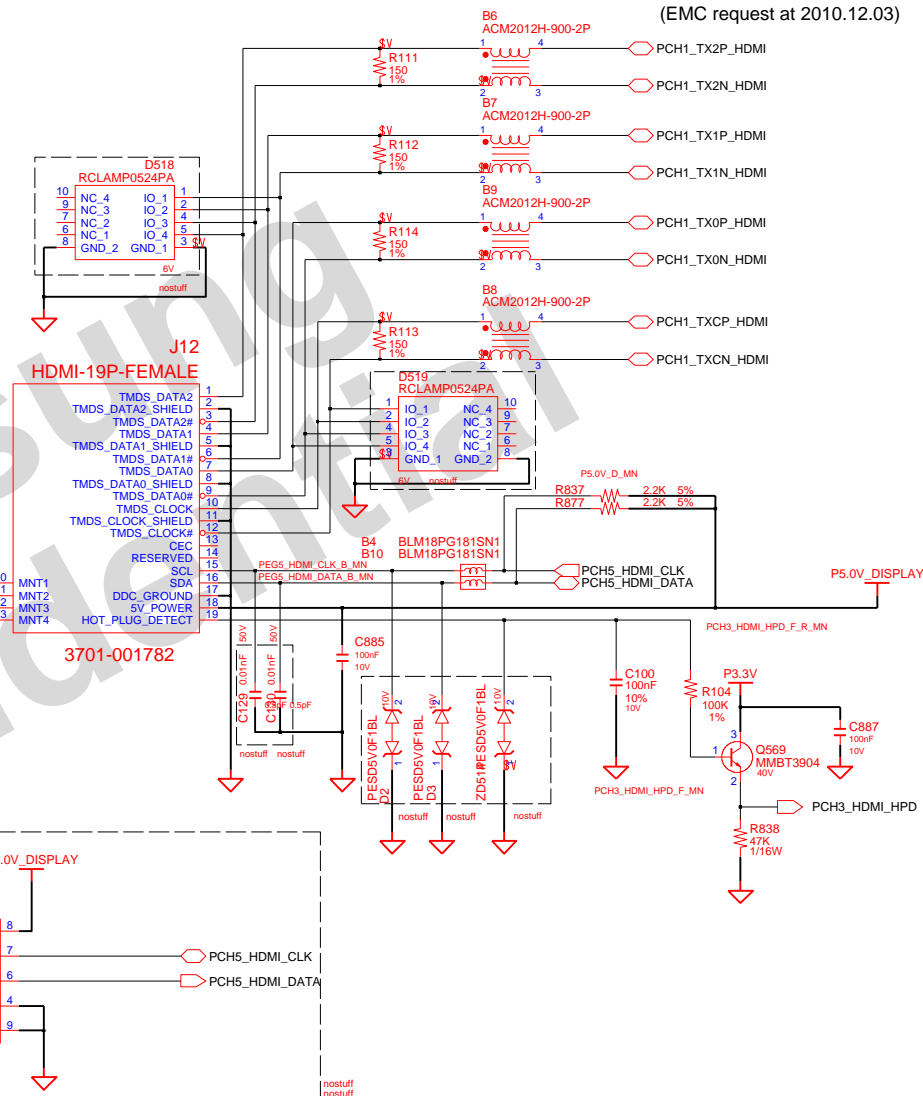
(EMC request at 2010.04.15)

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

(EMC request at 2010.12.03)



Petrones-14CRV use 3701-001785



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

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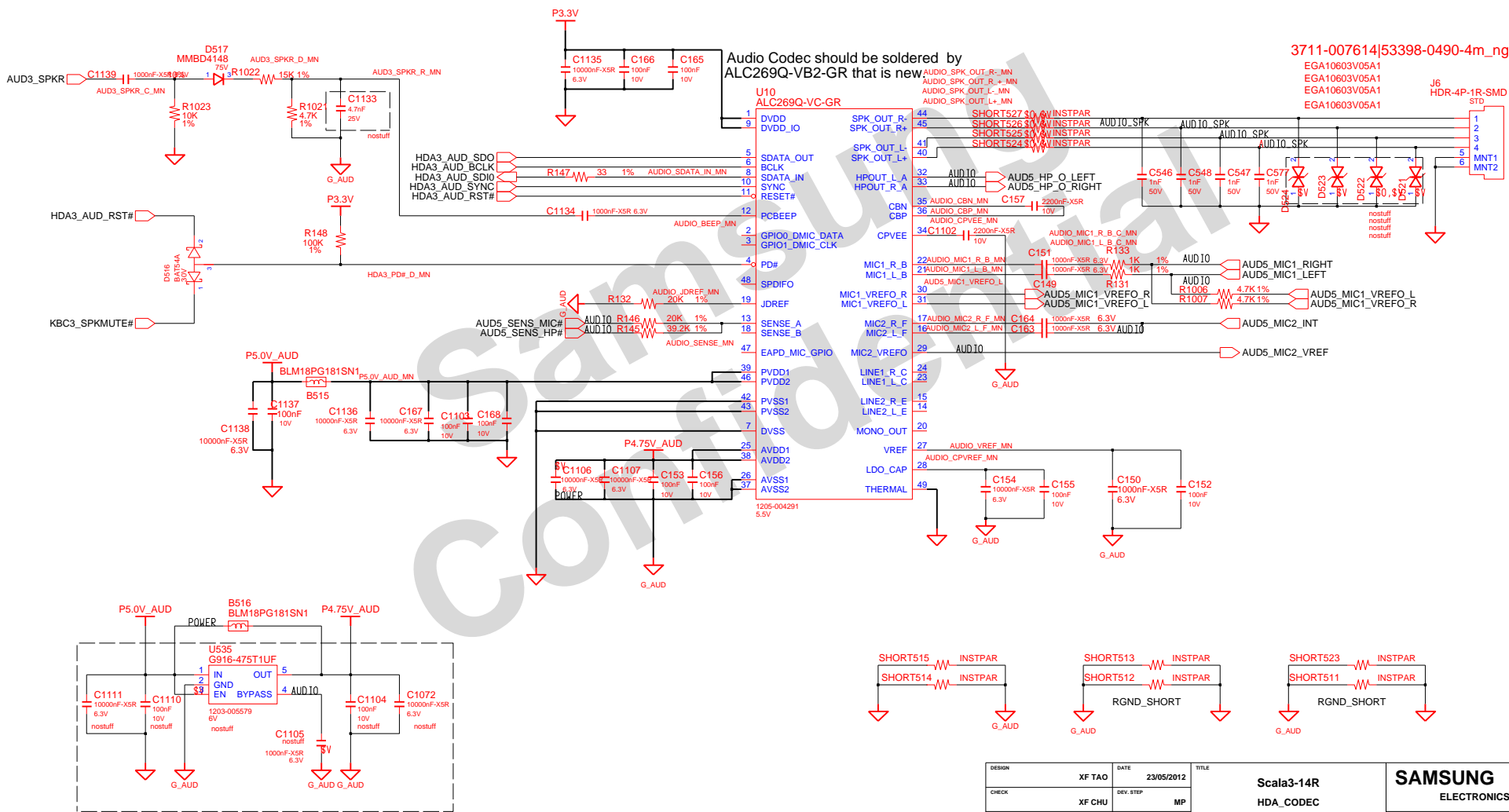
HD AUDIO

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

Audio Codec should be soldered by ALC269Q-VB2-GR that is new.

3711-007614|53398-0490-4m_ng

EGA10603V05A1
EGA10603V05A1
EGA10603V05A1
EGA10603V05A1

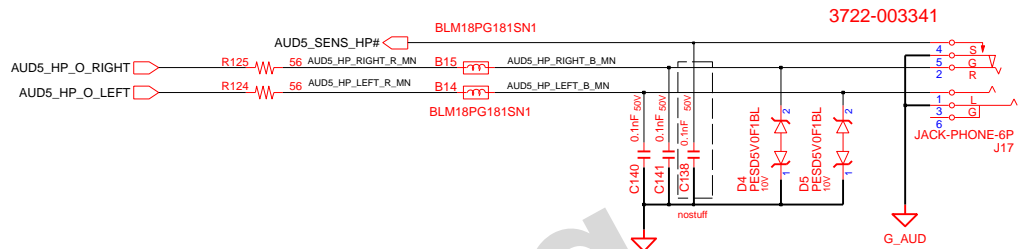


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	HDA_CODEC		
APPROVAL	BL LEE	REV	REV 1.0	AUDIO CODEC ALC269	PART NO.	BA41-02092-94A
MODULE CODE		LAST EDIT				
					May 23, 2012 08:40:30 AM	PAGE 30 OF 51

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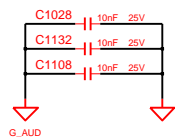
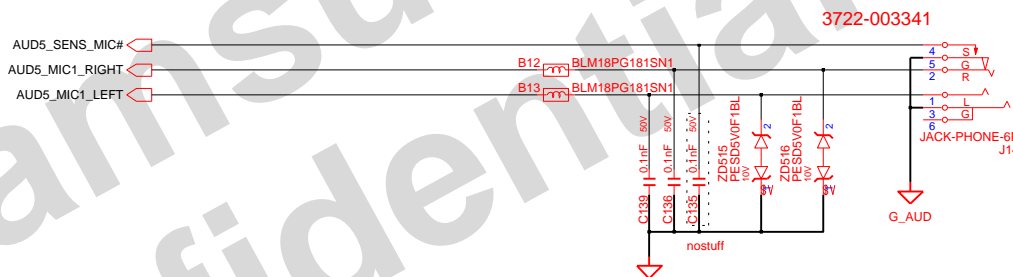
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HEADPHONE

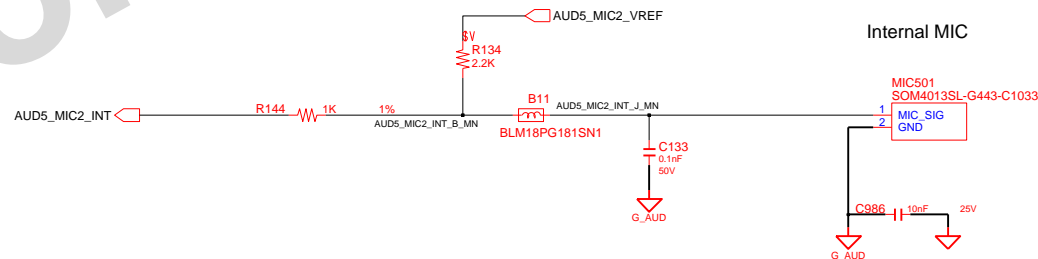


Petrones-14CRV J14 J17 use 3722-003324

MIC JACK



Internal MIC

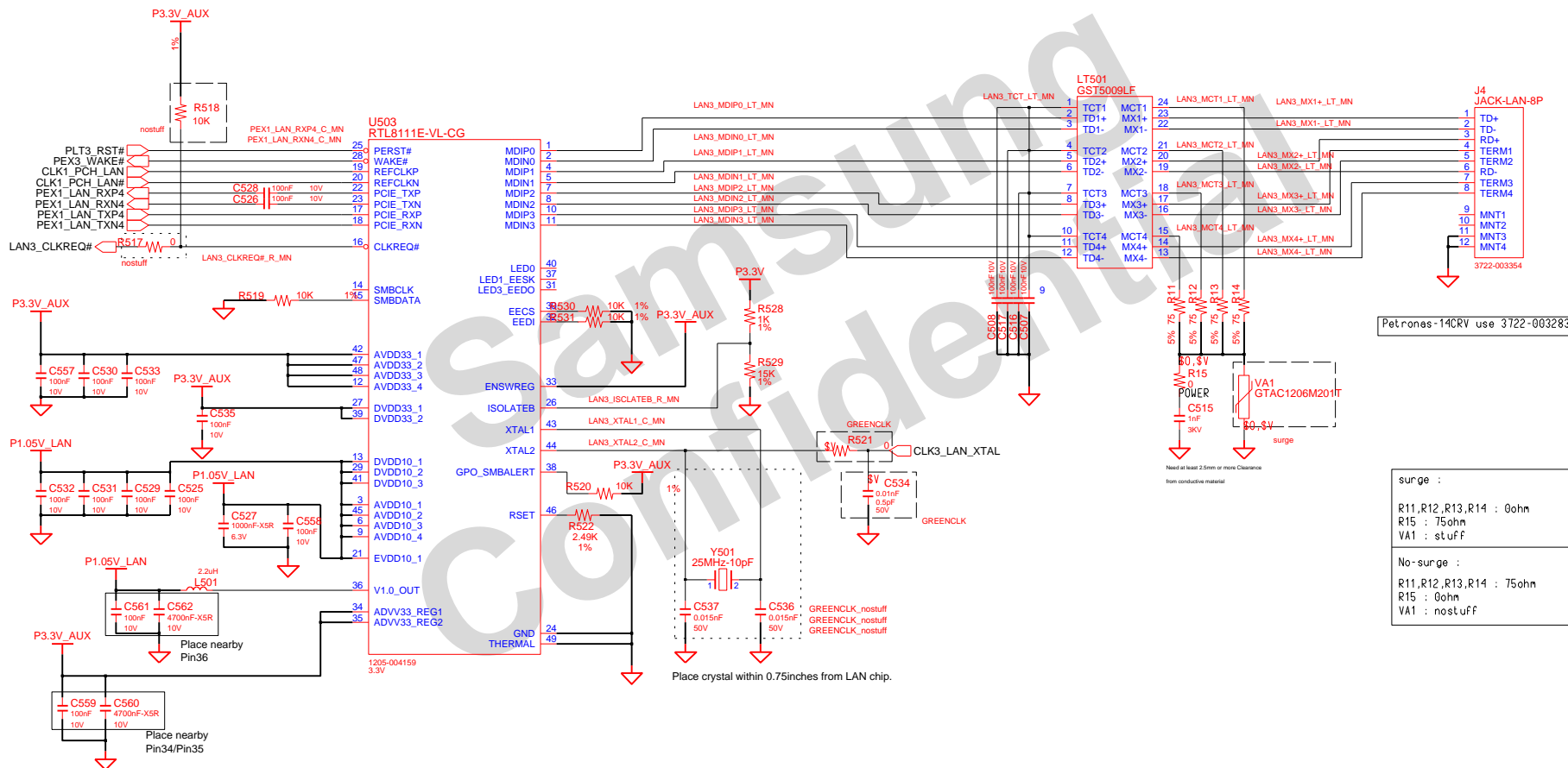


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV.STEP	MP	HDA_CODEC	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	AUDIO JACK	BA41-02092-94A	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	31 OF 51

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Reatek RTL8111E



surge :
 R11,R12,R13,R14 : 0ohm
 R15 : 75ohm
 VA1 : stufiff

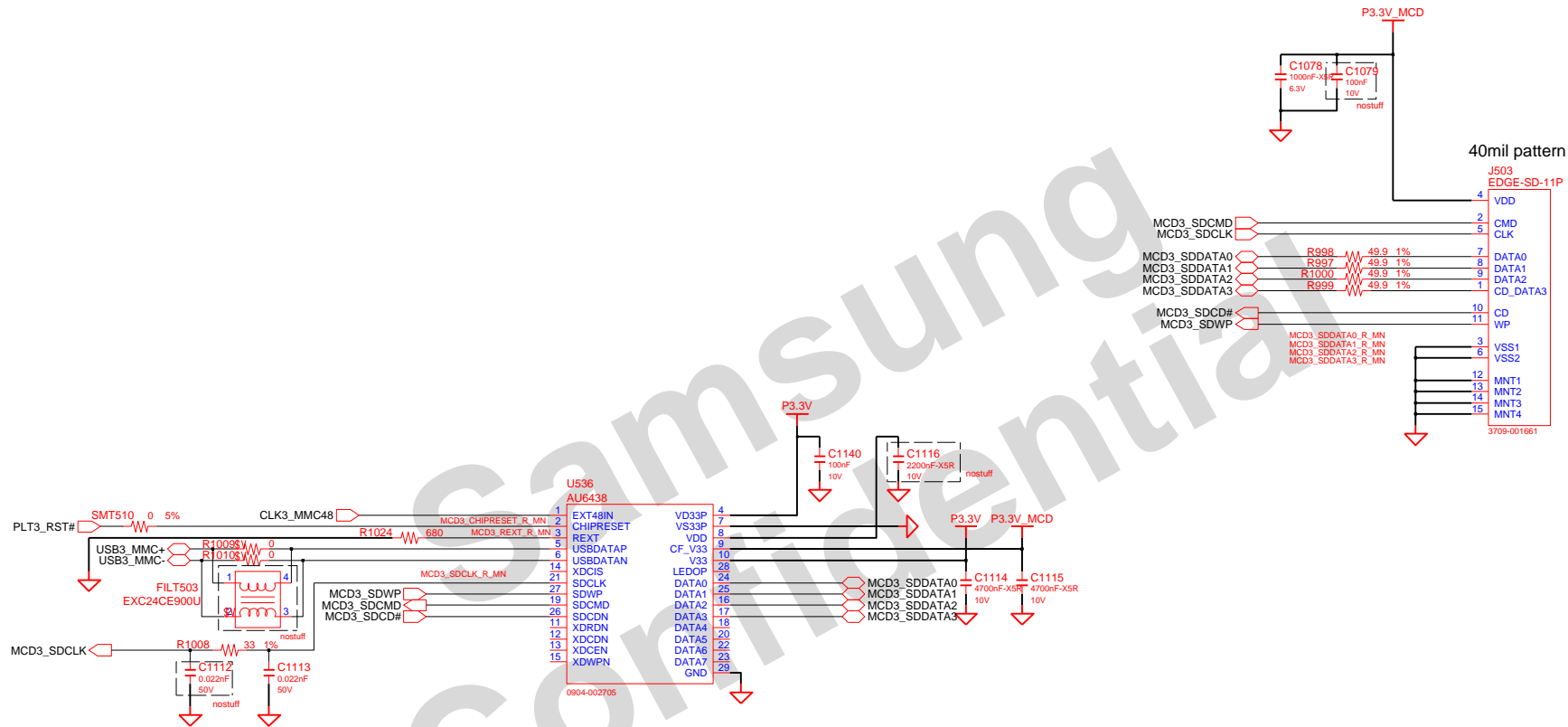
No-surge :
 R11,R12,R13,R14 : 75ohm
 R15 : 0ohm
 VA1 : nostuffiff

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	PART NO. BA41-02092-94A	
MODULE CODE		LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 32 OF 51

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4 IN 1 CARD

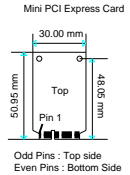
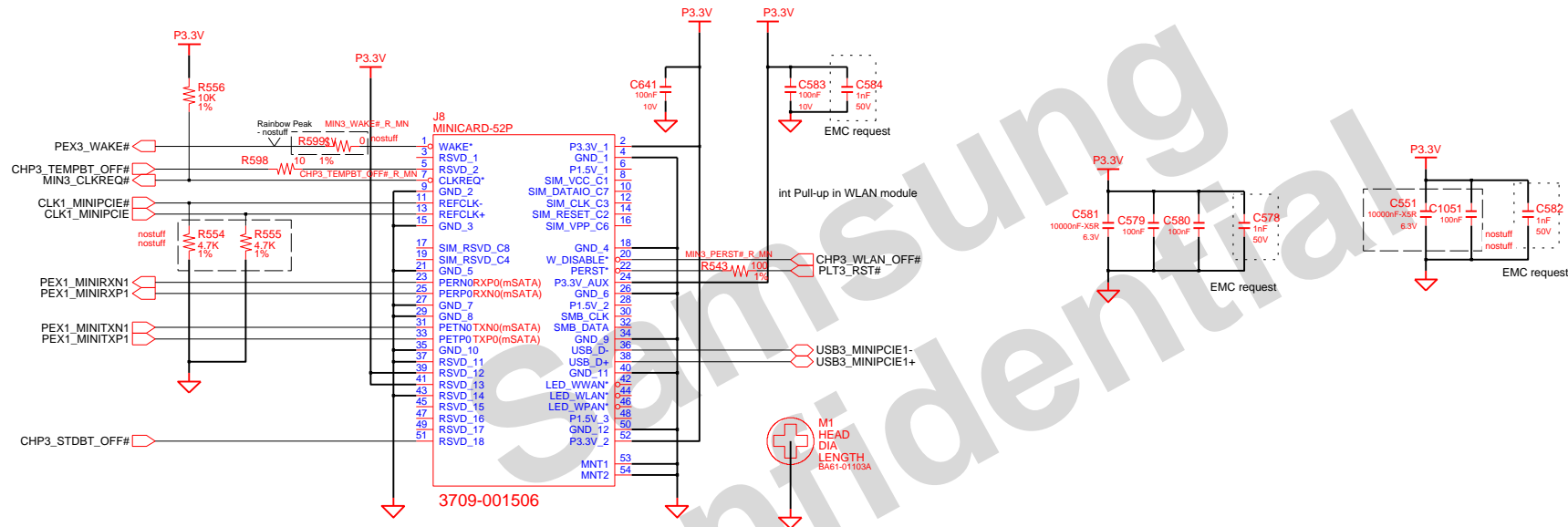


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CHECK	XF CHU	DEV. STEP	MP		MULTICARD	
APPROVAL	BL LEE	REV	REV 1.0		4 IN 1 CARD(AU6438)	
MODULE CODE		LAST EDIT				
May 23, 2012 08:40:30 AM						PAGE 33 OF 51

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WLAN, 7mm



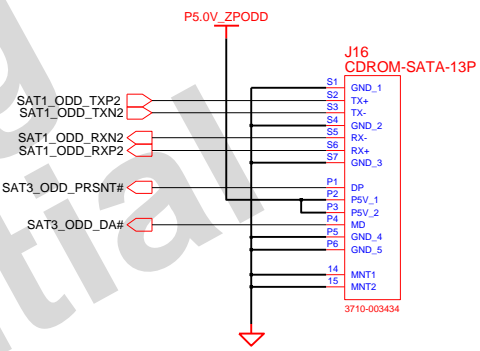
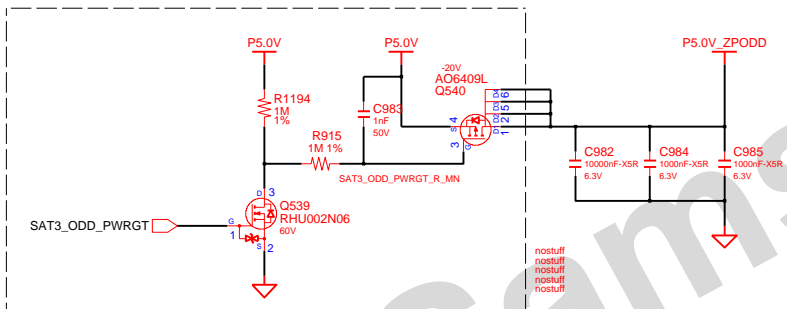
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CHECK	XF CHU	DEV.STEP	MP	MINI_PCIE_CONN	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	WLAN	BA41-02092-94A	
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	34	OF 51

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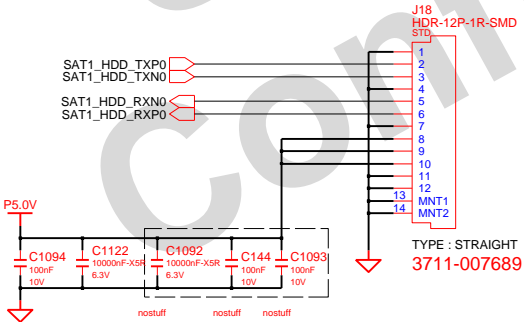
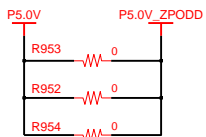
SATA I/F CONN

SATA ODD CONN 14"



Petrones-14CRV use 3710-002796

SATA HDD CONN



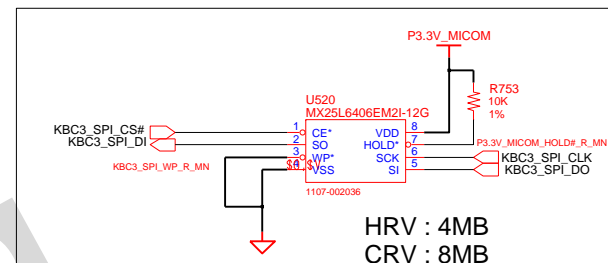
DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	SATA_DEVICES	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	HDD & ODD SUB CONNECTOR	BA41-02092-94A	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	35 OF 51

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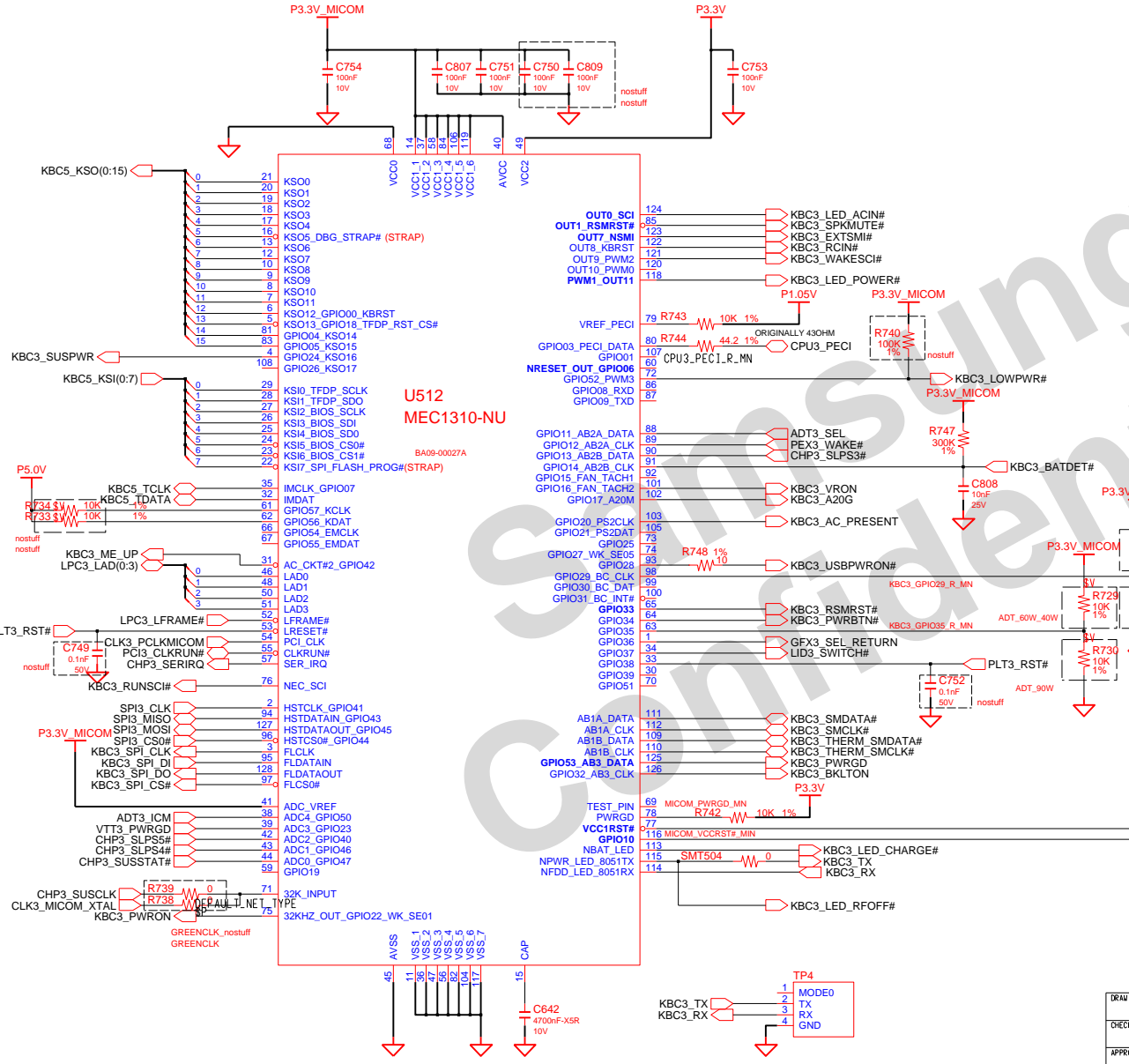
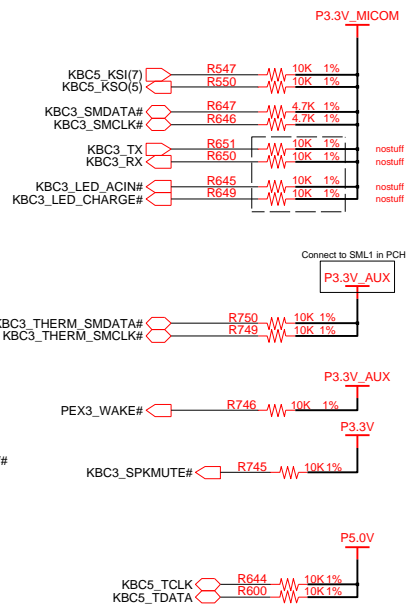
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MAIN BOARD (MICOM)

BE CAUTION SPI ROM SIZE!!



STRAP



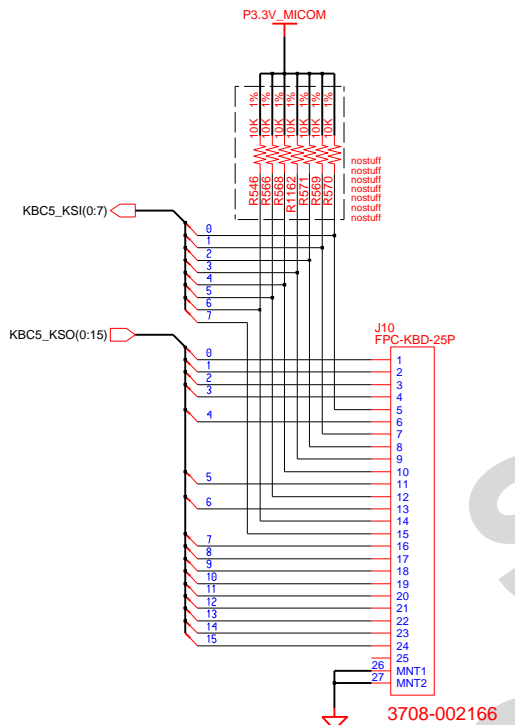
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R MICOM MICOM_SMSC_MEC1310	SAMSUNG ELECTRONICS PART NO. BA41-02092*94A
CHECK	XF CHU	DEV. STEP	MP	REV	1.0	
APPROVAL	BL LEE	REV	REV 1.0	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE 36 OF 51

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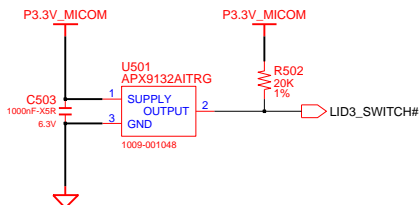
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Micom Glue Logic

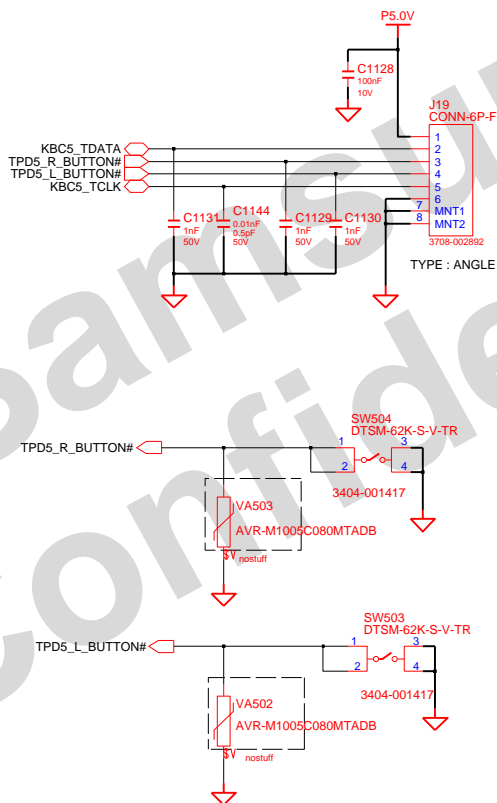
KEYBOARD



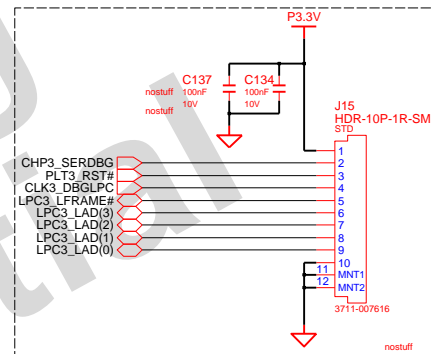
LID_SWITCH



TOUCHPAD



80H PORT DEBUG

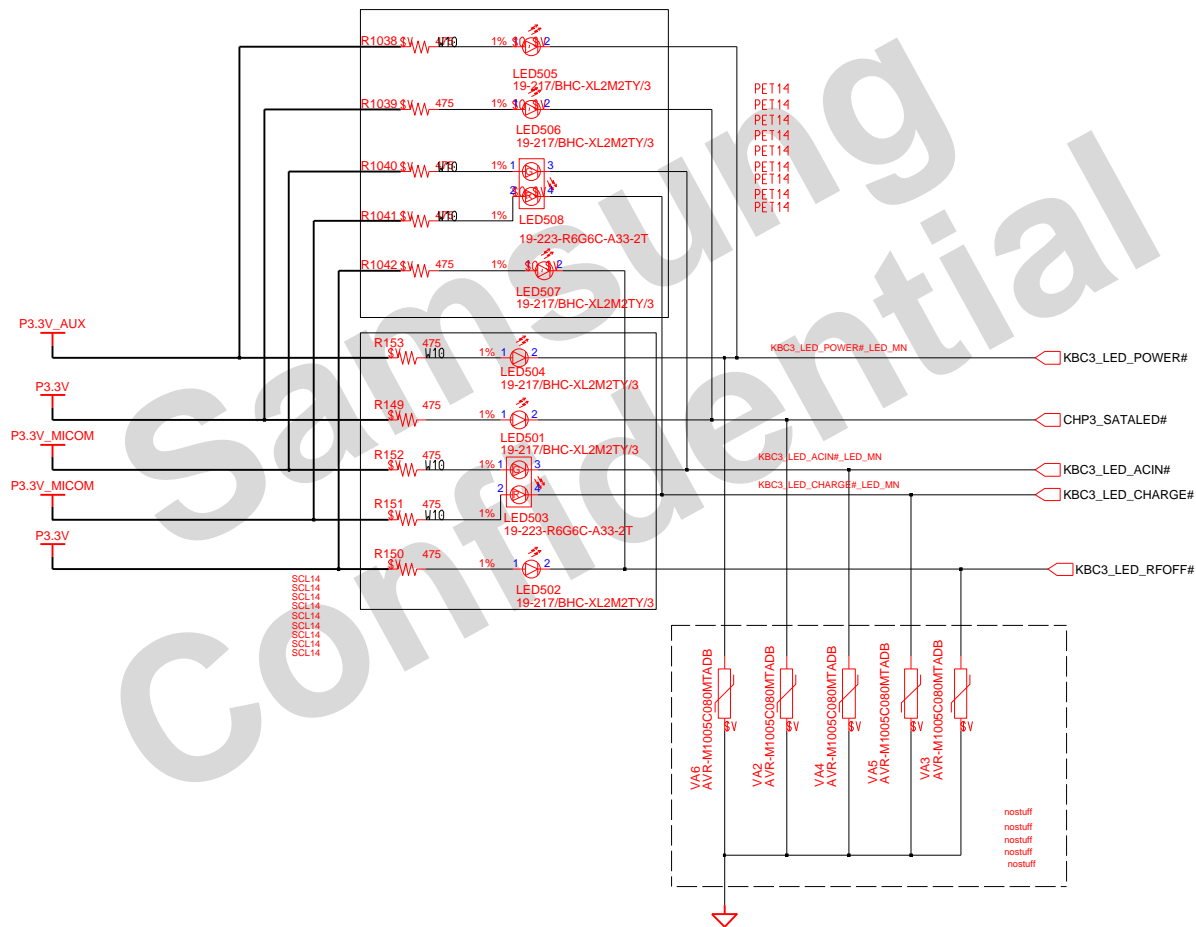


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV.STEP	MP	MICOM GLUE LOGIC		
APPROVAL	BL LEE	REV	REV 1.0	KEYBOARD & TOUCHPAD		
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 37 OF 51	

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LED for 14"

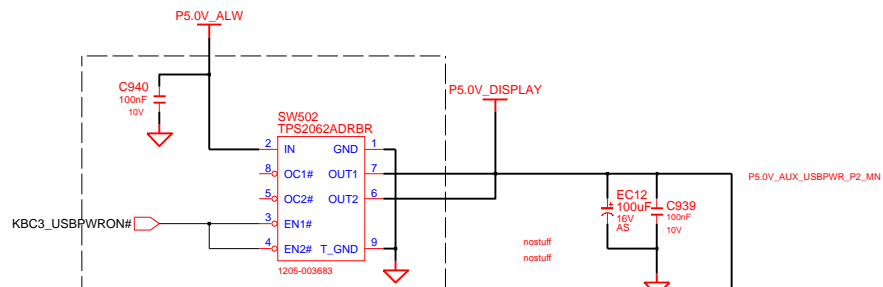


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APPROVAL	BL LEE	REV	REV 1.0	LED_SWITCH	LED_SWITCH	
MODULE CODE		LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 38 OF 51

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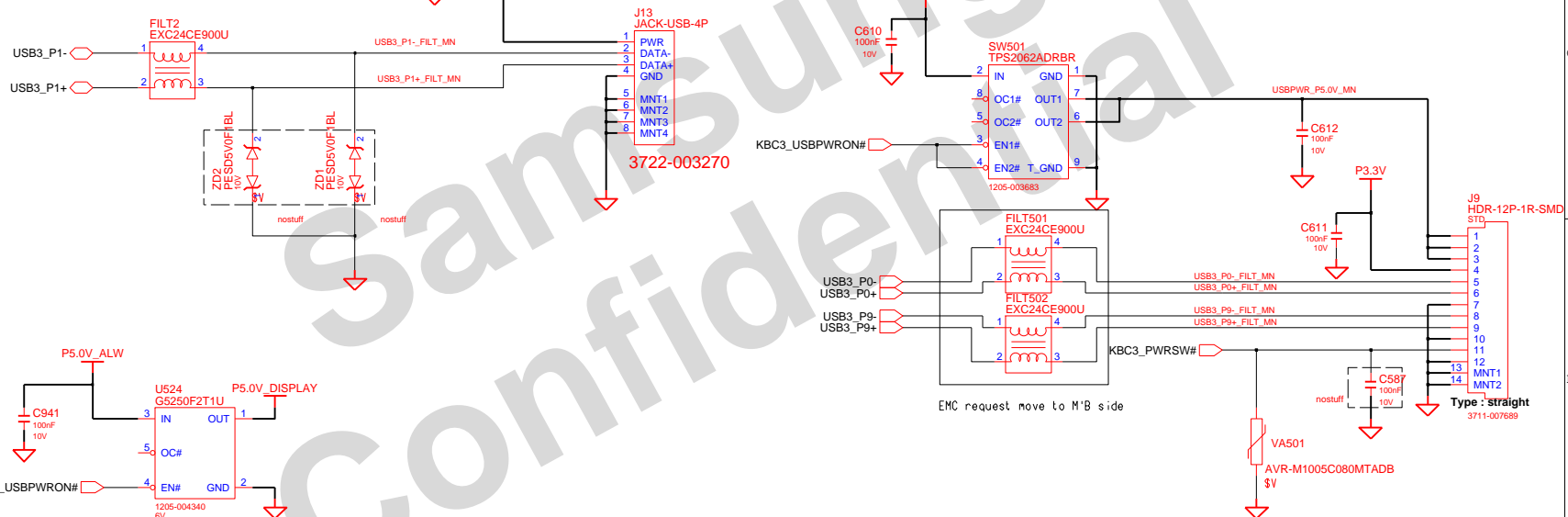
USB Single connector



MAIN TO SUB USB CONN

Right 2USB Port

USB SUB B'D CONNECTOR

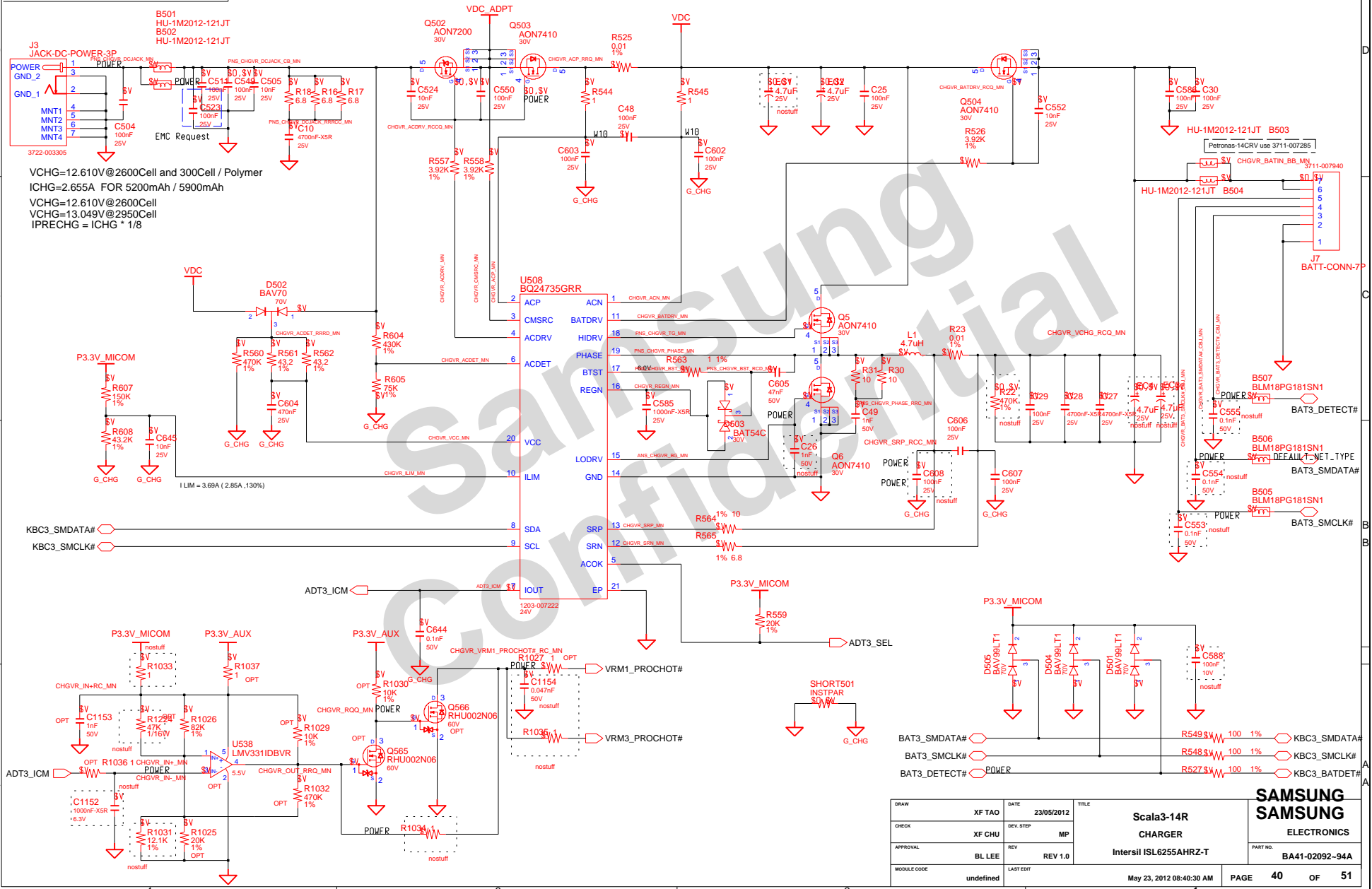


PLACE CLOSE TO USB SUB B'D Conenctor

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

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CHARGER & POWER MANAGEMENT

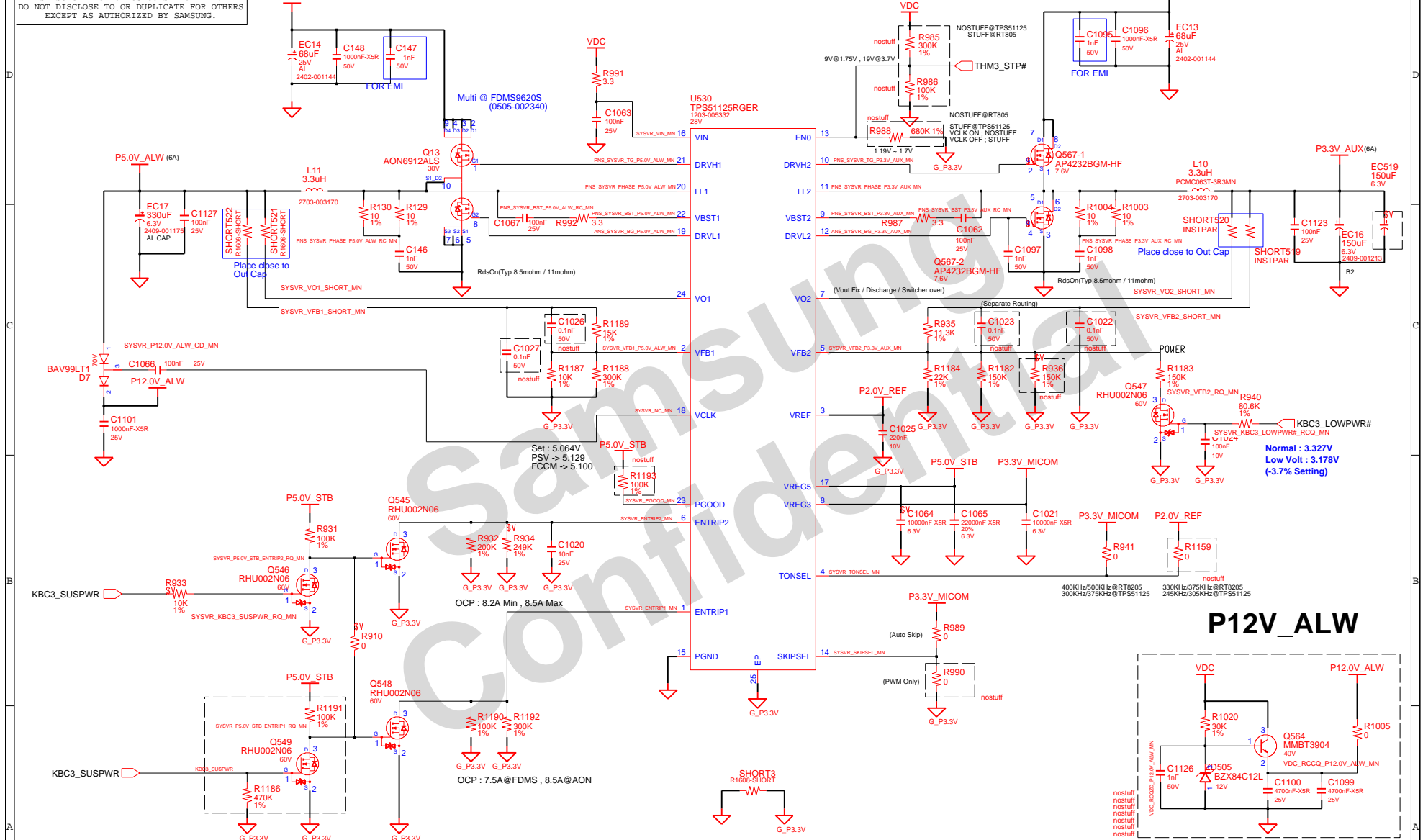


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		CHARGER	
APPROVAL	BL LEE	REV	REV 1.0		Intersil ISL6255AHR-T	PART NO.
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM			BA41-02092-94A
					PAGE	40 OF 51

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P3.3V_ALW & P5.0V_ALW

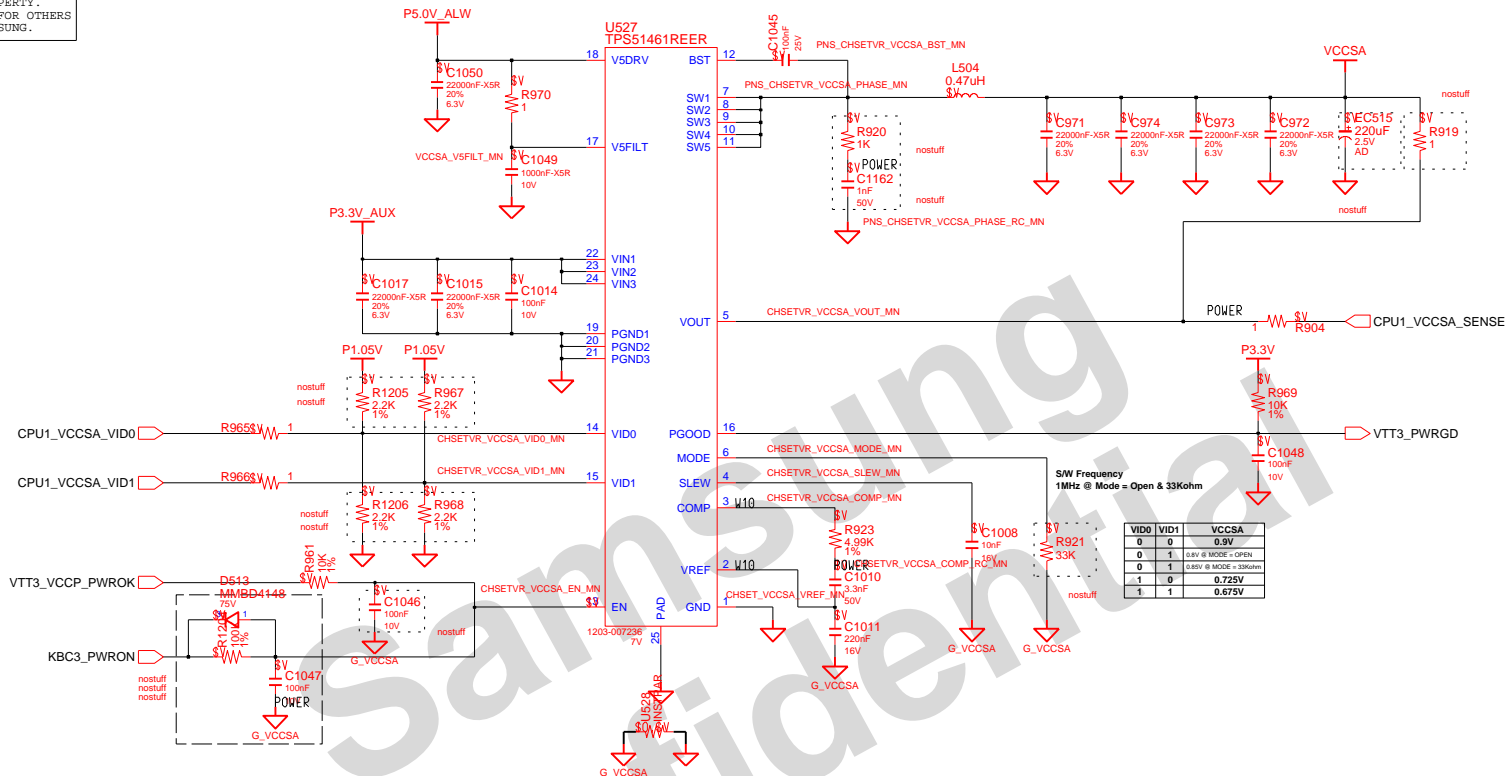


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	P3.3V_AUX / P5.0V_ALW		
APPROVAL	BL LEE	REV	REV 1.0	TI TPS51125		PART NO.
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM		BA41-02092*94A
						PAGE 41 OF 51

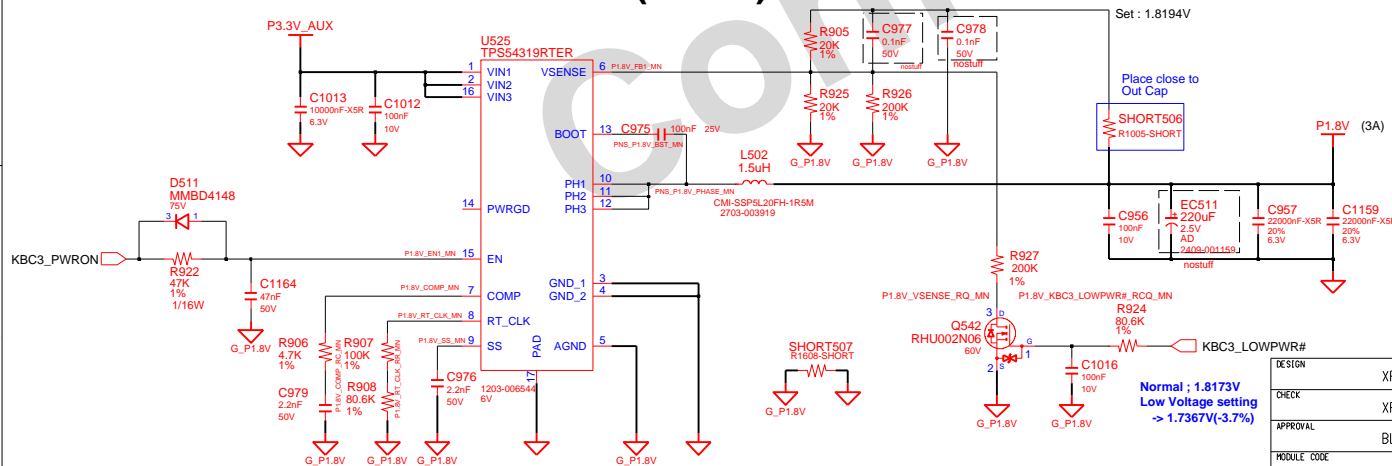
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CHIPSET POWER(VCCSA)



CHIPSET POWER(P1.8V)

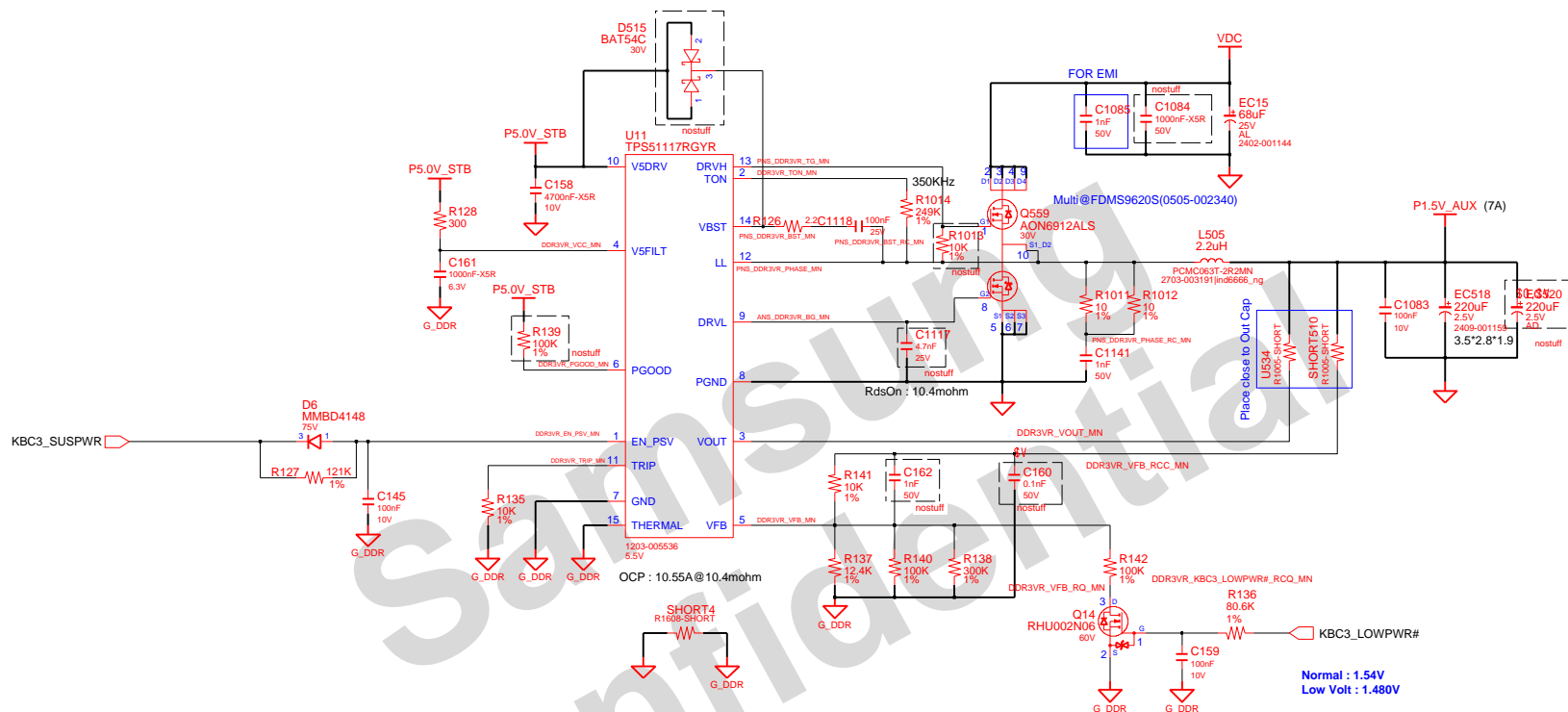


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R P1.1V_VTT
CHECK	XF CHU	DEV. STEP	MP	SAMSUNG ELECTRONICS PART NO. BA41-02092*94A	
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 43 OF 51

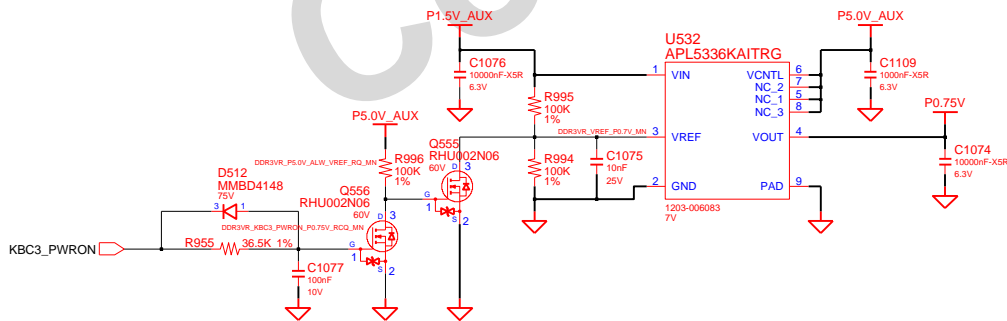
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DDR3 Power



DDR3 VTT(0.75V)



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

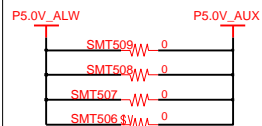
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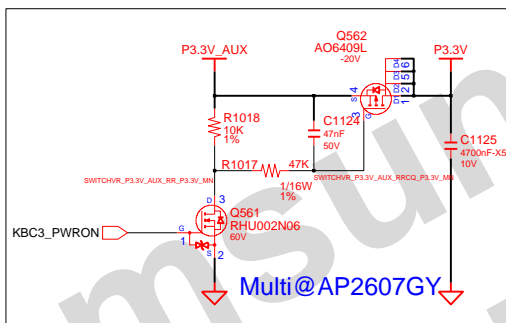
Switched Power 1

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

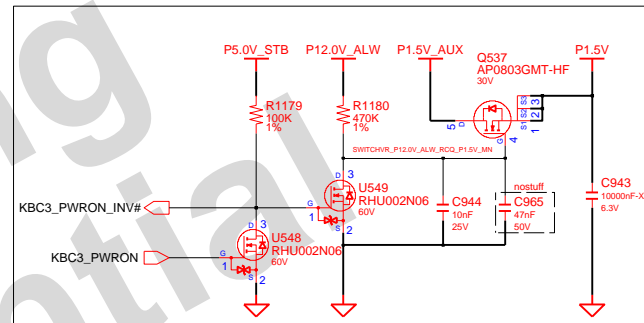
P5.0V_AUX



Switched Power On (P3.3V)

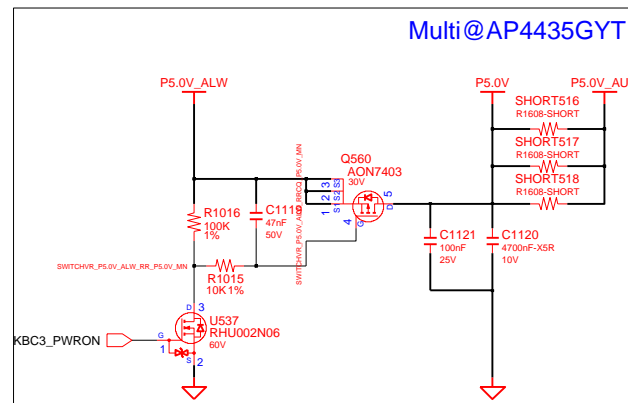


Switched Power On (P1.5V)



For nVIDIA GFX PWR Sequence
NVDD(EGFX_CORE) first and then FBVDDQ(gDDR3)

Switched Power On (P5.0V)



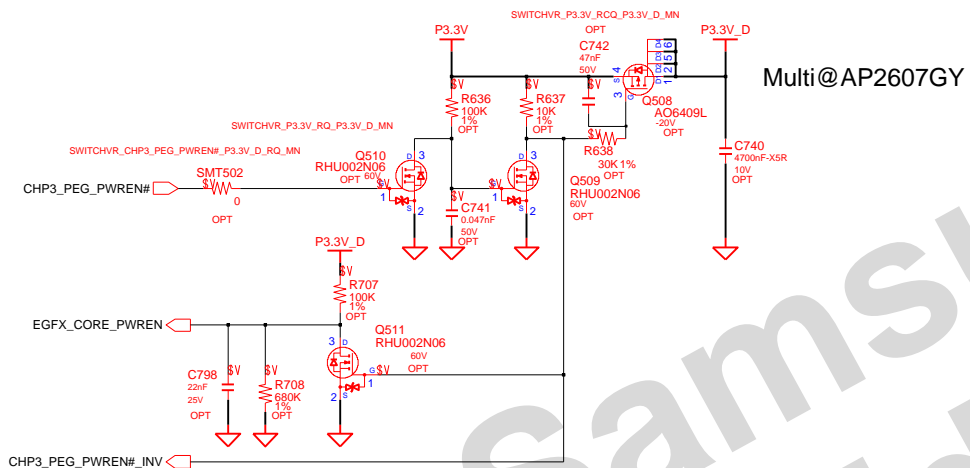
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV. STEP	MP		Switched PWR 2	
APPROVAL	BL LEE	REV	REV 1.0		Switched Power	
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM		PAGE 47 OF 51	

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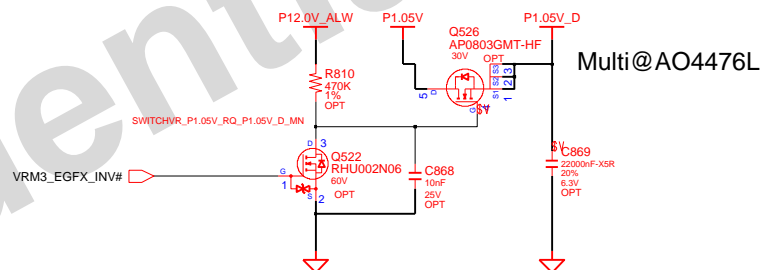
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Switched Power 2 (For nVidia GFX Power Sequence)

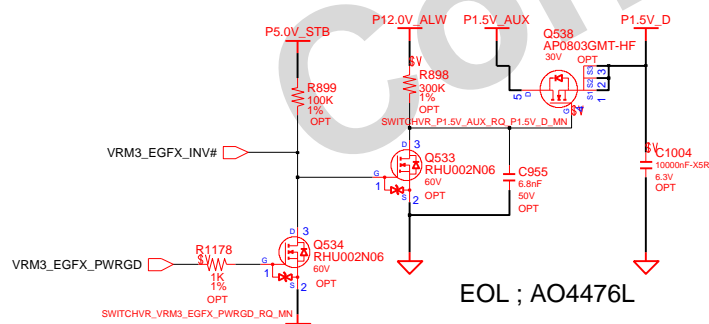
Discrete Switched Power (D3.3V : Max_1.2A)



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



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

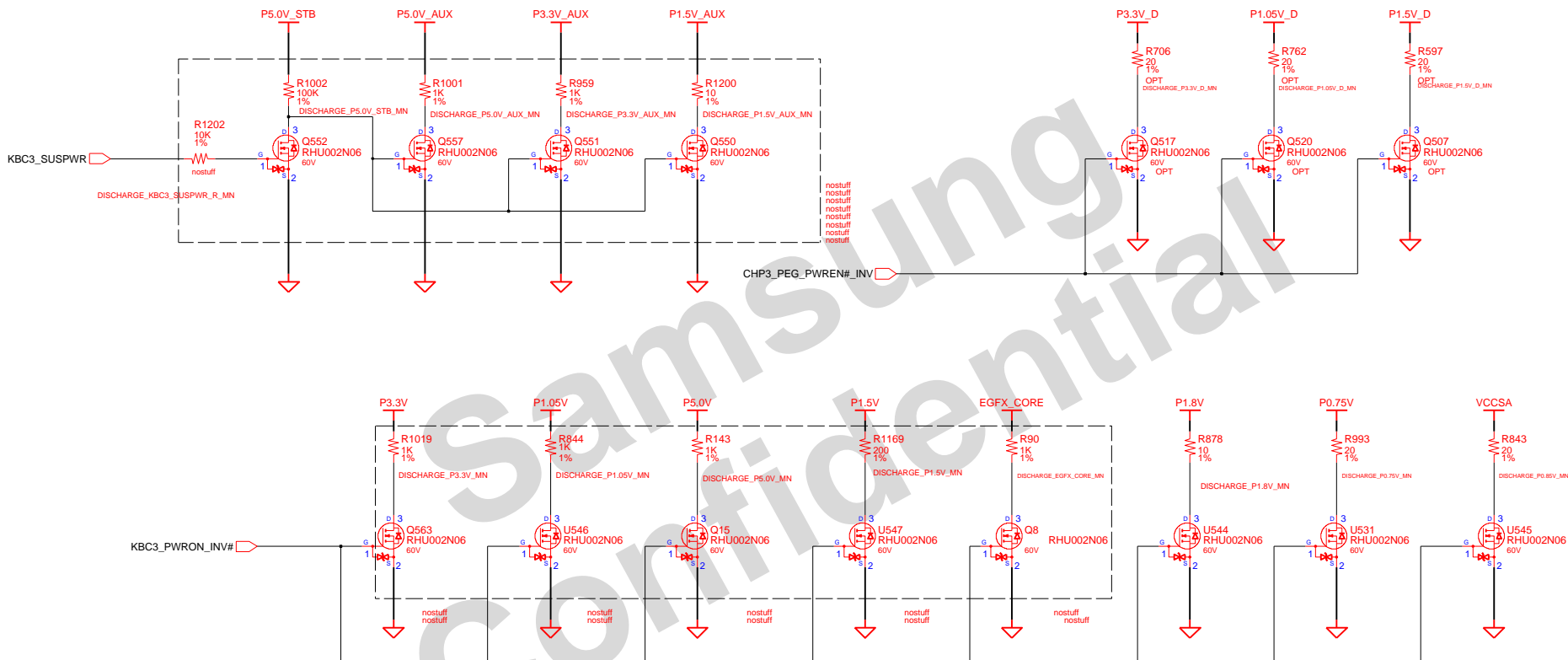


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	Switched PWR	PART NO. BA41-02092-94A	
APPROVAL	BL LEE	REV	REV 1.0	FOR OPTIMUS PWR		
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	48	OF 51

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POWER DISCHARGER

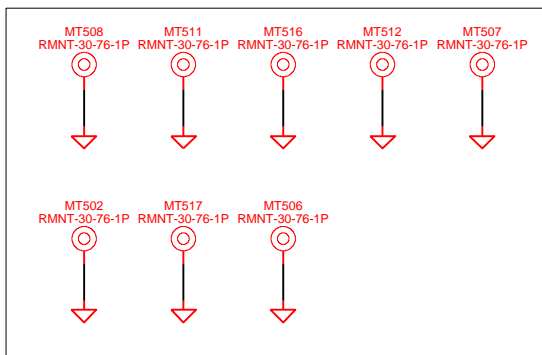


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV. STEP	MP	DISCHARGER LOGIC		
APPROVAL	BL LEE	REV	REV 1.0	DISCHARGING LOGIC		
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	49 OF 51

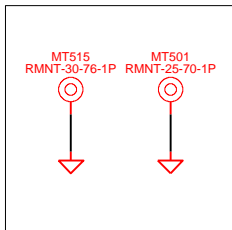
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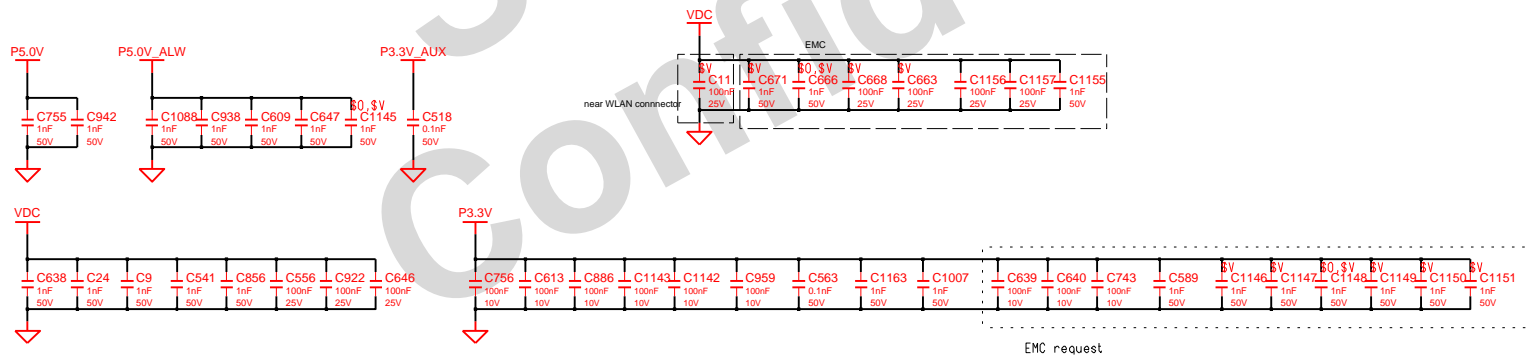
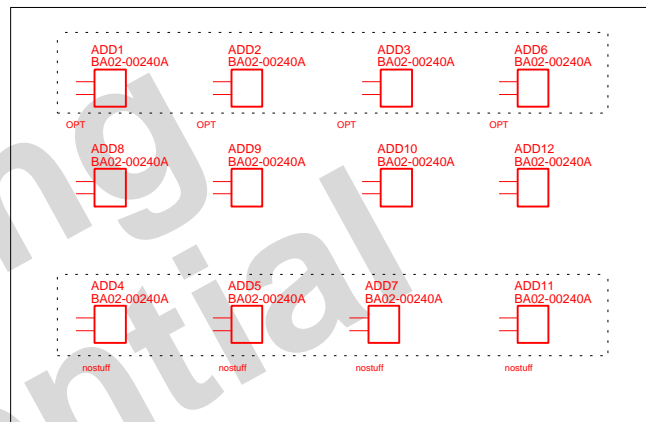
Mainboard Mount ((30-76)X8EA)



PCB FIX



Corner Fill for GPU, PCH



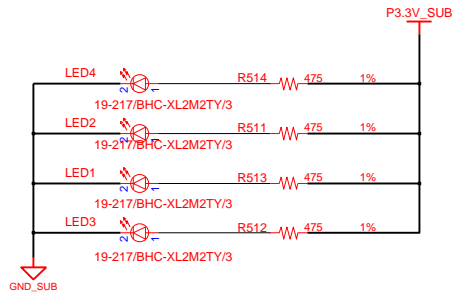
EMC request

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	PART NO. BA41-02092-94A
MODULE CODE		LAST EDIT				
						PAGE 50 OF 51

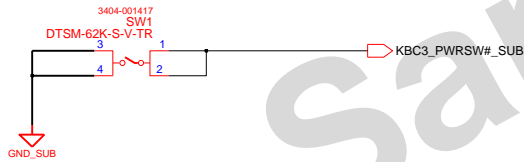
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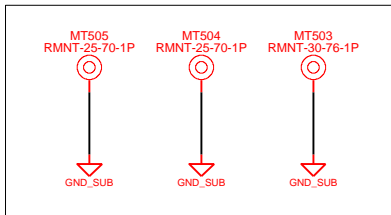
USB SUB BOARD



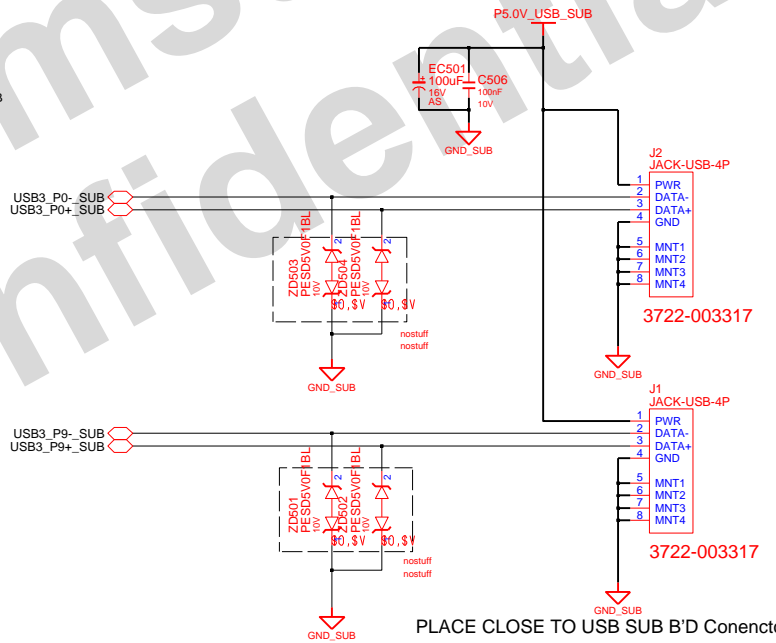
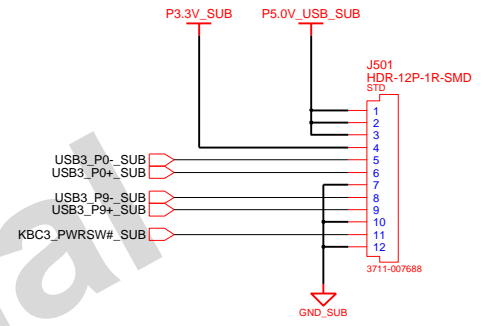
Power Switch Button



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