

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

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
- sheet04 : POWER DIAGRAM
- sheet05 : CLOCK DISTRIBUTION
- sheet06 : Green Clock
- sheet07 : Thermal Sensor
- sheet08 : CPU
- sheet09 : CPU
- sheet10 : CPU
- sheet11 : CPU
- sheet12 : DDR3 SODIMM #0
- sheet13 : DDR3 SODIMM #1
- 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

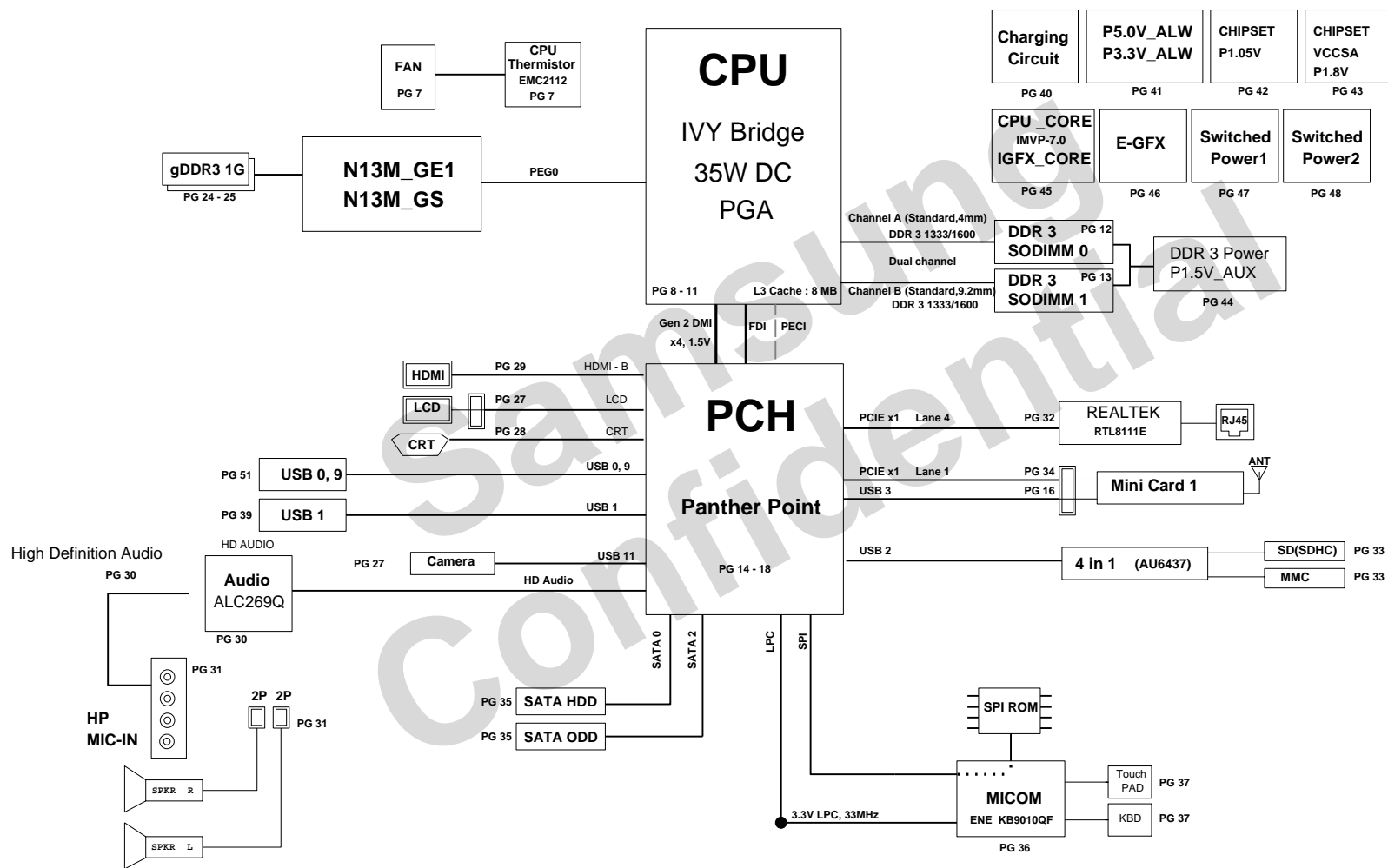
DRAW	XF TAO	DATE	11/06/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV.STEP	MP	MAIN		
APPROVAL	BL LEE	REV	REV 1.1	COVER		
MODULE CODE		LAST EDIT				
				May 23, 2012 08:40:30 AM	PAGE	1 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

www.hobi-elektronika.blogspot.com

BLOCK DIAGRAM



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	BLOCK DIAGRAM		
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE 2 OF 51		

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

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	-

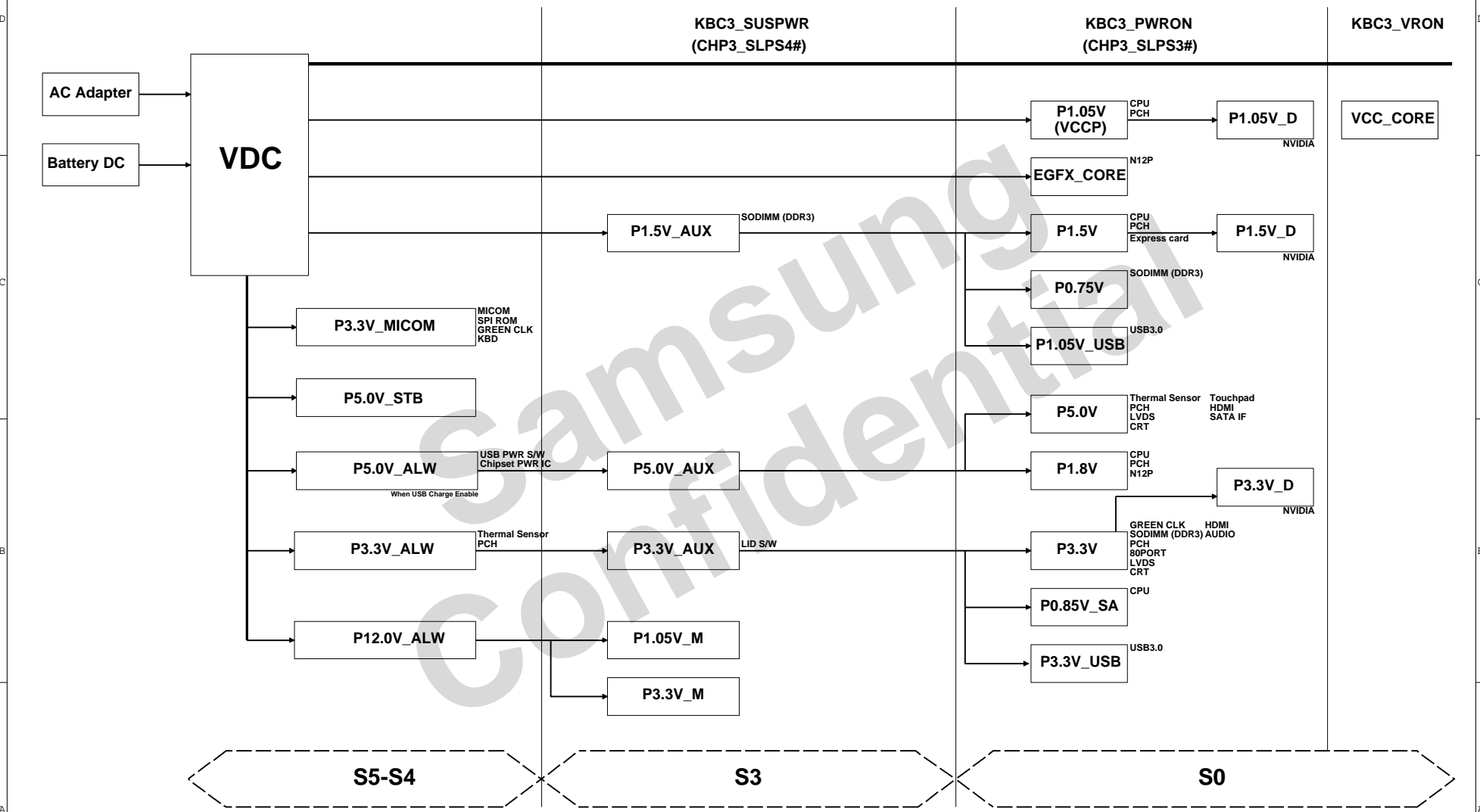
SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	NC
2	ODD
3	NC
4	NC
5	NC

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		BOARD INFO	PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	3	OF 51

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

POWER DIAGRAM

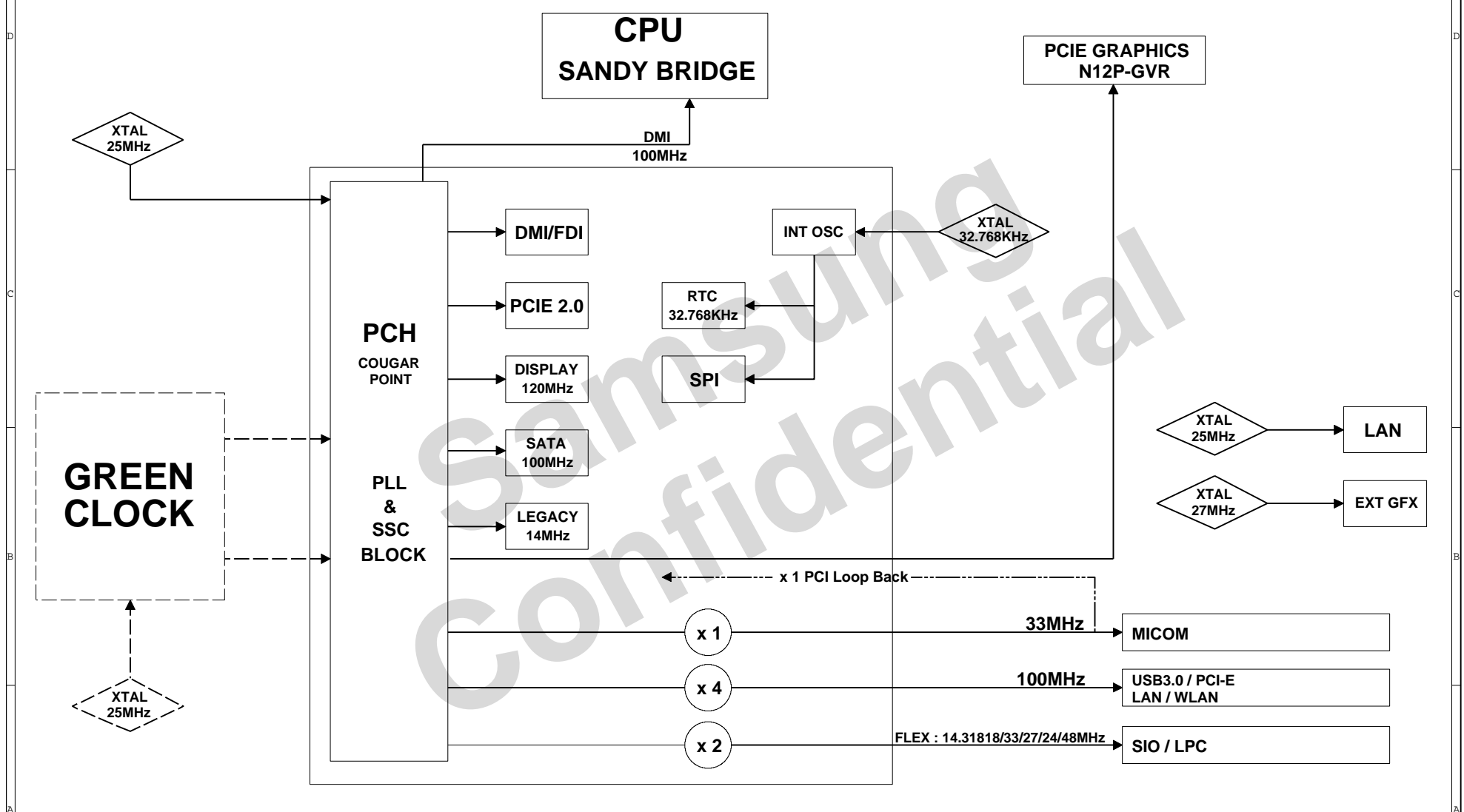
Rev 0.8



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		POWER DIAGRAM	
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM			
PAGE						4 OF 51

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

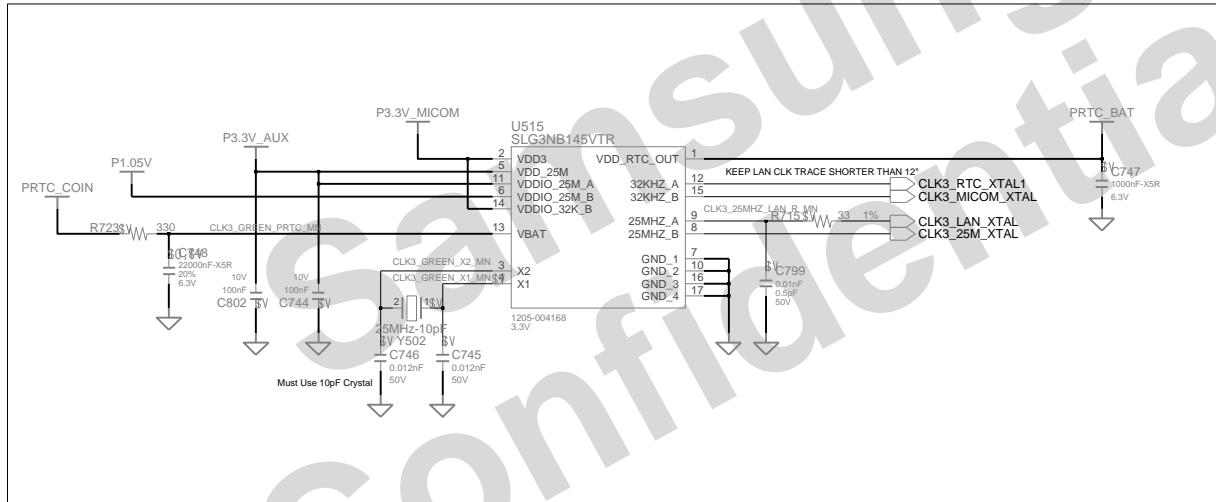
CLOCK DISTRIBUTION Rev. 0.8



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		CLOCK DIAGRAM	PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	5 OF 51

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

CLOCK DISTRIBUTOR



GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK
 GREENCLK

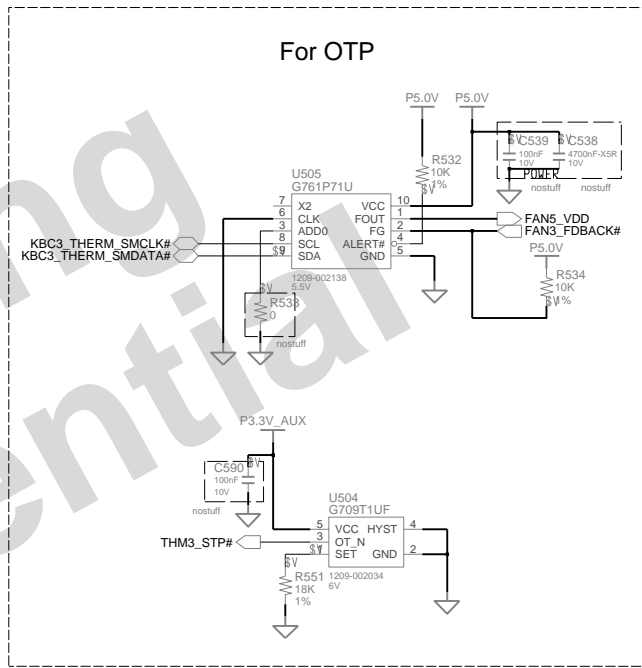
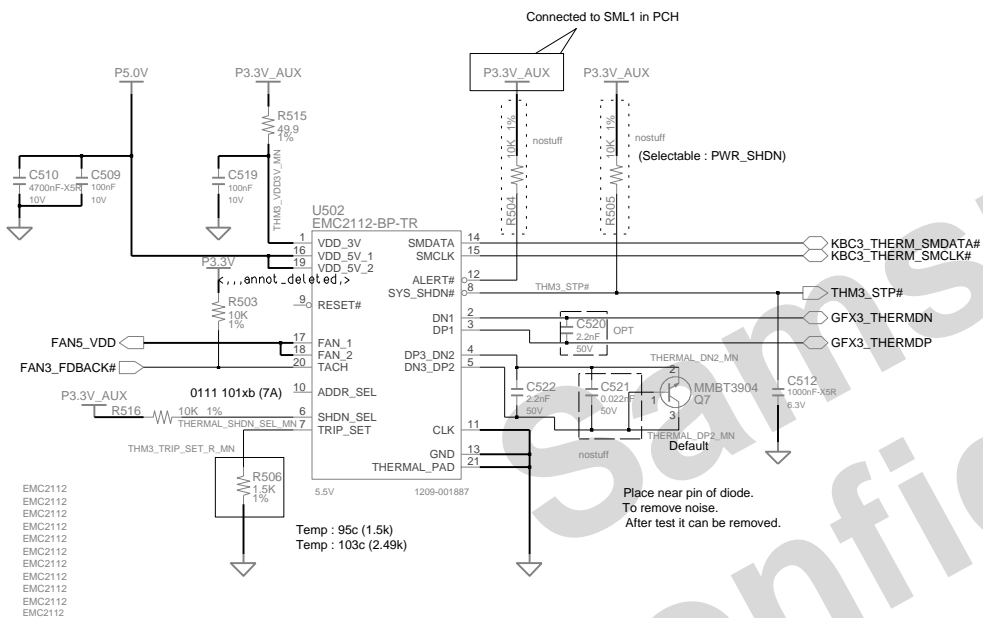
www.hobi-elektronika.blogspot.com

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

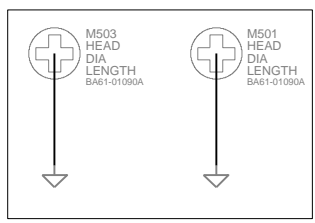
SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

THERMAL SENSOR & FAN CONTROL

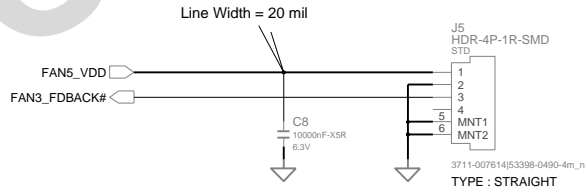


FAN PEM



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	TITLE	Scala3-14R
CHECK	XF CHU	DEV.STEP	MP		THERMAL SENSOR
APPROVAL	BL LEE	REV	REV 1.0		THERMAL SENSOR EMC2112
MODULE CODE		LAST EDIT			

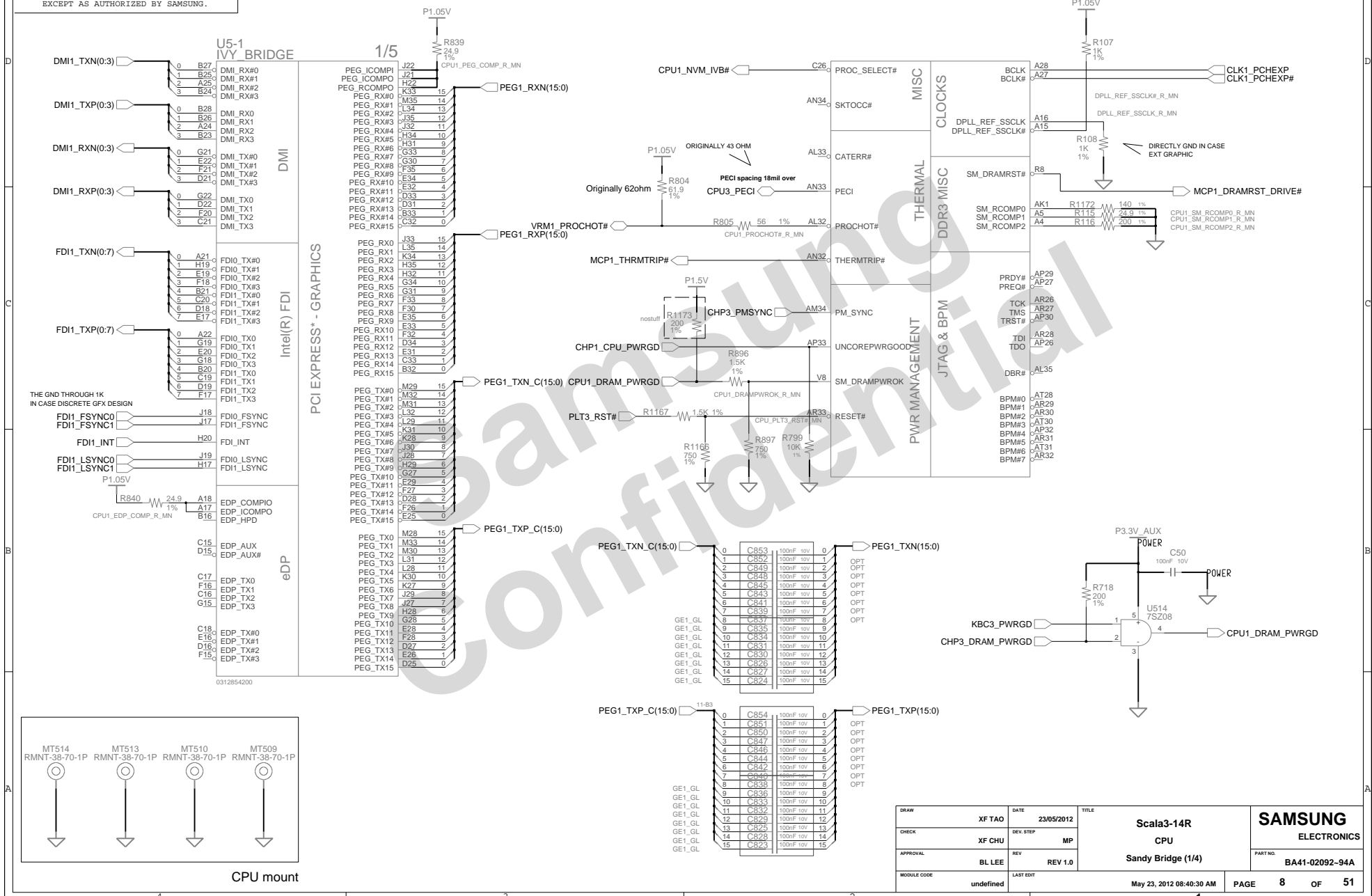
SAMSUNG ELECTRONICS	
PART NO.	BA41-02092-94A

May 23, 2012 08:40:30 AM PAGE 7 OF 51

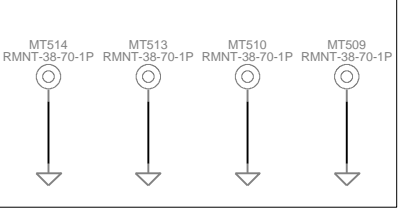
SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

IVY BRIDGE PROCESSOR (DMI,PEG, FDI)



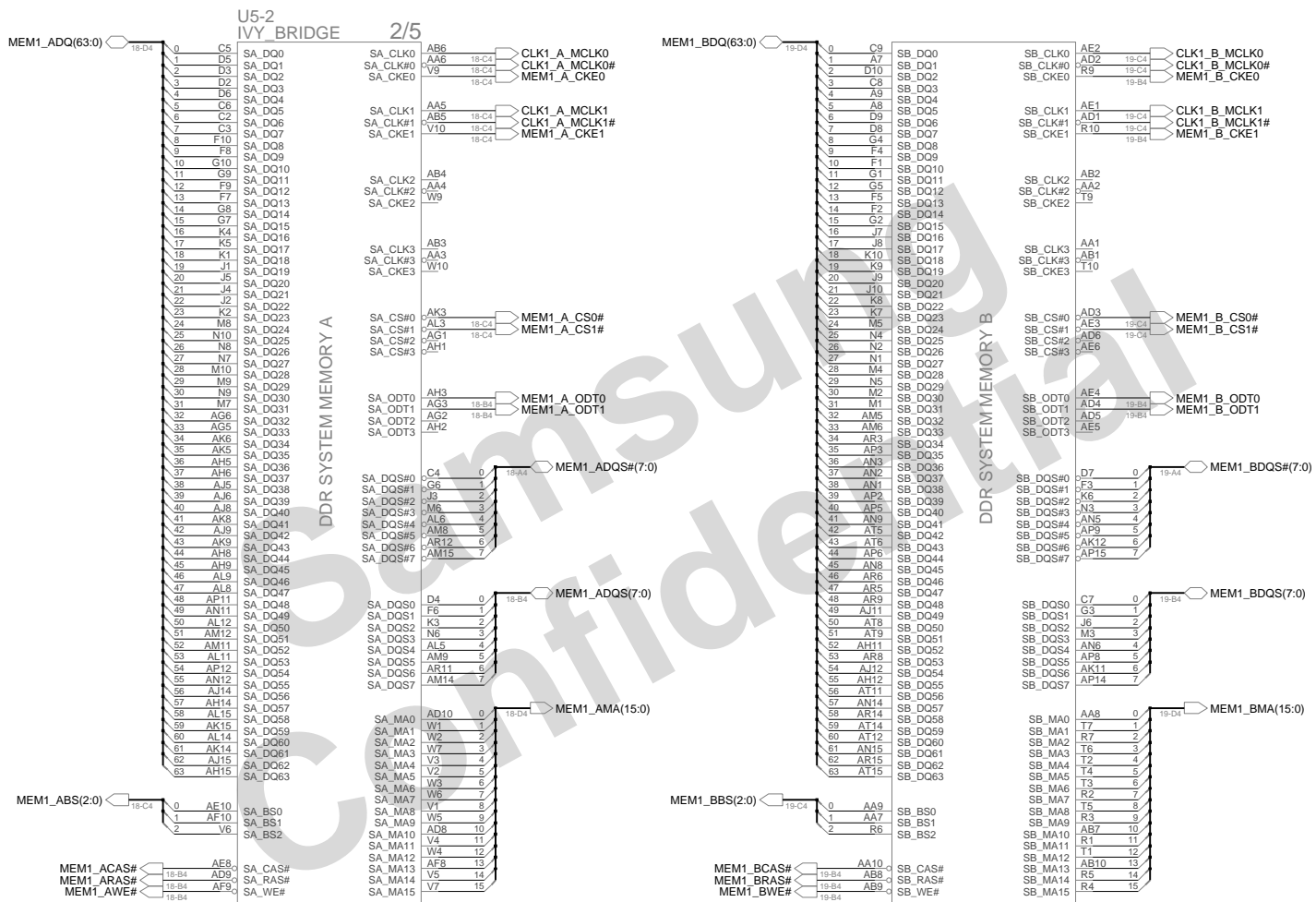
0312854200



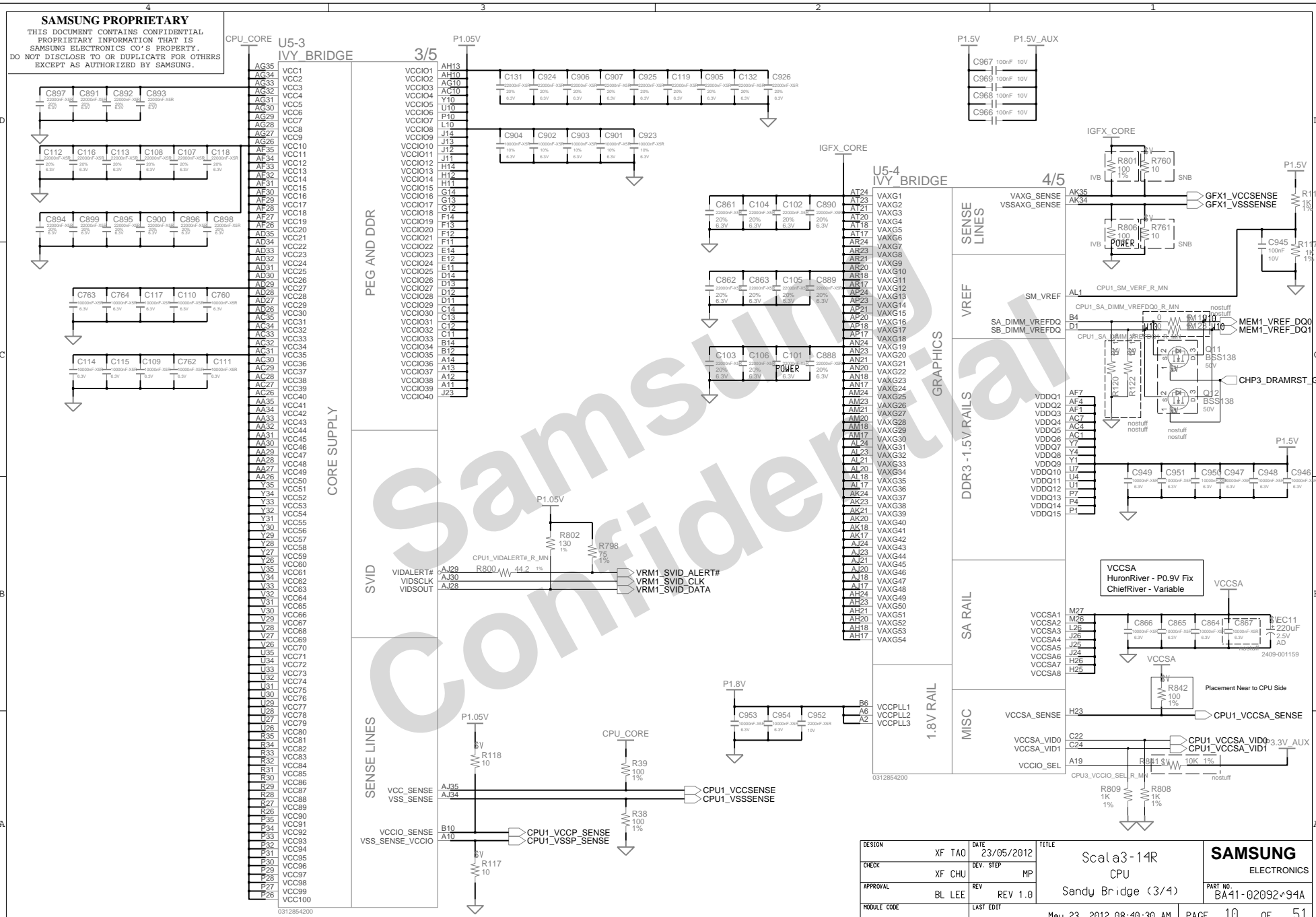
CPU mount

DRAW	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 (1/4)	PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 8 OF 51

www.hobi-elektronika.blogspot.com



DRAW	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 (2/4)	PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	9	OF 51



SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

CPU_CORE
 U5-3
 IVY BRIDGE
 3/5

- AG35 VCC1
- AG34 VCC2
- AG33 VCC3
- AG32 VCC4
- AG31 VCC5
- AG30 VCC6
- AG29 VCC7
- AG28 VCC8
- AG27 VCC9
- AG26 VCC10
- AF35 VCC11
- AF34 VCC12
- AF33 VCC13
- AF32 VCC14
- AF31 VCC15
- AF30 VCC16
- AF29 VCC17
- AF28 VCC18
- AF27 VCC19
- AF26 VCC20
- AD35 VCC21
- AD34 VCC22
- AD33 VCC23
- AD32 VCC24
- AD31 VCC25
- AD30 VCC26
- AD29 VCC27
- AD28 VCC28
- AD27 VCC29
- AD26 VCC30
- AC35 VCC31
- AC34 VCC32
- AC33 VCC33
- AC32 VCC34
- AC31 VCC35
- AC30 VCC36
- AC29 VCC37
- AC28 VCC38
- AC27 VCC39
- AC26 VCC40
- AA35 VCC41
- AA34 VCC42
- AA33 VCC43
- AA32 VCC44
- AA31 VCC45
- AA30 VCC46
- AA29 VCC47
- AA28 VCC48
- AA27 VCC49
- AA26 VCC50
- Y34 VCC51
- Y33 VCC52
- Y32 VCC53
- Y31 VCC54
- Y30 VCC55
- Y29 VCC56
- Y28 VCC57
- Y27 VCC58
- Y26 VCC59
- Y25 VCC60
- Y24 VCC61
- Y23 VCC62
- Y22 VCC63
- Y21 VCC64
- Y20 VCC65
- Y19 VCC66
- Y18 VCC67
- Y17 VCC68
- Y16 VCC69
- U35 VCC70
- U34 VCC71
- U33 VCC72
- U32 VCC73
- U31 VCC74
- U30 VCC75
- U29 VCC76
- U28 VCC77
- U27 VCC78
- U26 VCC79
- U25 VCC80
- R34 VCC81
- R33 VCC82
- R32 VCC83
- R31 VCC84
- R30 VCC85
- R29 VCC86
- R28 VCC87
- R27 VCC88
- R26 VCC89
- R25 VCC90
- R24 VCC91
- R23 VCC92
- R22 VCC93
- R21 VCC94
- R20 VCC95
- R19 VCC96
- R18 VCC97
- R17 VCC98
- R16 VCC99
- R15 VCC100

PEG AND DDR

CORE SUPPLY

SVID

SENSE LINES

- AH13 VCCIO1
- AH10 VCCIO2
- AG10 VCCIO3
- AC10 VCCIO4
- Y10 VCCIO5
- U10 VCCIO6
- L10 VCCIO7
- L19 VCCIO8
- J14 VCCIO9
- J13 VCCIO10
- J12 VCCIO11
- J11 VCCIO12
- H14 VCCIO13
- H12 VCCIO14
- H11 VCCIO15
- G14 VCCIO16
- G13 VCCIO17
- G12 VCCIO18
- F14 VCCIO19
- F13 VCCIO20
- F12 VCCIO21
- F11 VCCIO22
- E14 VCCIO23
- E12 VCCIO24
- E11 VCCIO25
- D14 VCCIO26
- D13 VCCIO27
- D12 VCCIO28
- D11 VCCIO29
- C14 VCCIO30
- C13 VCCIO31
- C12 VCCIO32
- C11 VCCIO33
- B14 VCCIO34
- B12 VCCIO35
- A14 VCCIO36
- A13 VCCIO37
- A12 VCCIO38
- A11 VCCIO39
- J23 VCCIO40

- C131
- C924
- C906
- C907
- C925
- C119
- C905
- C132
- C926
- C904
- C902
- C903
- C901
- C923
- C861
- C104
- C102
- C890
- C862
- C863
- C105
- C889
- C103
- C106
- C101
- C888

- AT24
- AT23
- AT20
- AT18
- AT17
- AR24
- AR23
- AR21
- AR20
- AR18
- AR17
- AP24
- AP21
- AP20
- AP19
- AN24
- AN23
- AN21
- AN20
- AN18
- AN17
- AM24
- AM23
- AM21
- AM20
- AM17
- AL24
- AL23
- AL21
- AL20
- AL18
- AL17
- AK24
- AK23
- AK21
- AK20
- AK19
- AK17
- AJ24
- AJ23
- AJ21
- AJ18
- AJ17
- AH24
- AH23
- AH21
- AH20
- AH18
- AH17

- VAXG1
- VAXG2
- VAXG3
- VAXG4
- VAXG5
- VAXG6
- VAXG7
- VAXG8
- VAXG9
- VAXG10
- VAXG11
- VAXG12
- VAXG13
- VAXG15
- VAXG16
- VAXG17
- VAXG18
- VAXG19
- VAXG20
- VAXG21
- VAXG22
- VAXG24
- VAXG26
- VAXG27
- VAXG28
- VAXG29
- VAXG30
- VAXG31
- VAXG32
- VAXG33
- VAXG34
- VAXG35
- VAXG36
- VAXG37
- VAXG38
- VAXG39
- VAXG40
- VAXG41
- VAXG42
- VAXG43
- VAXG44
- VAXG45
- VAXG46
- VAXG47
- VAXG48
- VAXG49
- VAXG50
- VAXG51
- VAXG52
- VAXG53
- VAXG54

- VRM1_SVID_ALERT#
- VRM1_SVID_CLK
- VRM1_SVID_DATA

- CPU1_VCCSENSE
- CPU1_VSSSENSE
- CPU1_VCCP_SENSE
- CPU1_VSSP_SENSE

- VCCIO_SEL
- CPU1_VCCSA_VID0
- CPU1_VCCSA_VID1

- IGFX_CORE
- U5-4
- IVY BRIDGE
- 4/5

- SENSE LINES
- VREF
- SM_VREF
- SA_DIMM_VREFD0
- SB_DIMM_VREFD0

- GRAPHICS
- DDR3 -1.5V RAILS
- VDDO1
- VDDO2
- VDDO3
- VDDO4
- VDDO5
- VDDO6
- VDDO7
- VDDO8
- VDDO9
- VDDQ10
- VDDQ11
- VDDQ12
- VDDQ13
- VDDQ14
- VDDQ15

- SA RAIL
- VCCSA
- VCCSA1
- VCCSA2
- VCCSA3
- VCCSA4
- VCCSA5
- VCCSA6
- VCCSA7
- VCCSA8

- MISC
- 1.8V RAIL
- VCCPLL1
- VCCPLL2
- VCCPLL3
- VCCSA_SENSE
- VCCSA_VID0
- VCCSA_VID1
- VCCIO_SEL

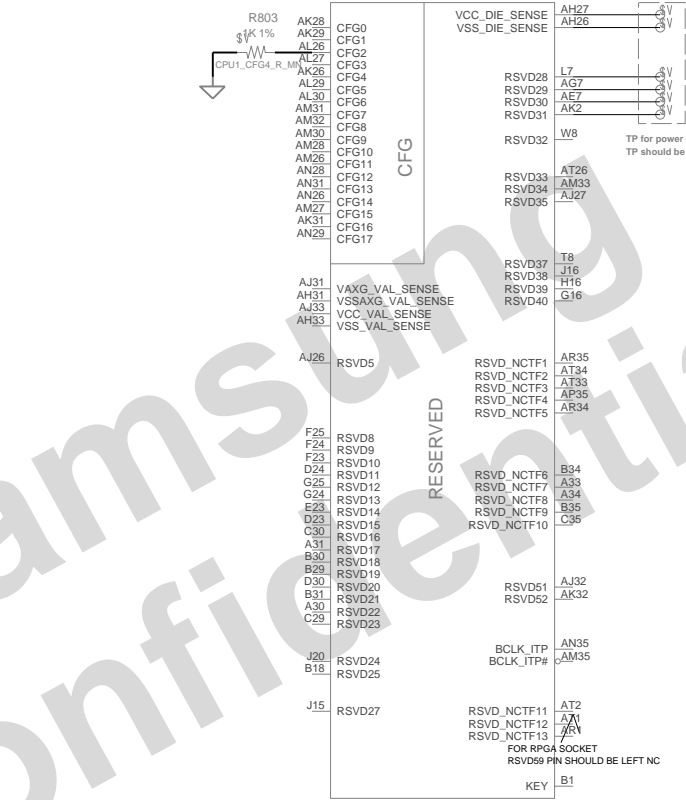
- C967
- C965
- C968
- C966
- R801
- R760
- R806
- R761
- C945
- R117
- R118
- R119
- R798
- R802
- R809
- R808
- R811
- R812
- R813
- R814
- R815
- R816
- R817
- R818
- R819
- R820
- R821
- R822
- R823
- R824
- R825
- R826
- R827
- R828
- R829
- R830
- R831
- R832
- R833
- R834
- R835
- R836
- R837
- R838
- R839
- R840
- R841
- R842
- R843
- R844
- R845
- R846
- R847
- R848
- R849
- R850
- R851
- R852
- R853
- R854
- R855
- R856
- R857
- R858
- R859
- R860
- R861
- R862
- R863
- R864
- R865
- R866
- R867
- R868
- R869
- R870
- R871
- R872
- R873
- R874
- R875
- R876
- R877
- R878
- R879
- R880
- R881
- R882
- R883
- R884
- R885
- R886
- R887
- R888
- R889
- R890
- R891
- R892
- R893
- R894
- R895
- R896
- R897
- R898
- R899
- R900
- R901
- R902
- R903
- R904
- R905
- R906
- R907
- R908
- R909
- R910
- R911
- R912
- R913
- R914
- R915
- R916
- R917
- R918
- R919
- R920
- R921
- R922
- R923
- R924
- R925
- R926
- R927
- R928
- R929
- R930
- R931
- R932
- R933
- R934
- R935
- R936
- R937
- R938
- R939
- R940
- R941
- R942
- R943
- R944
- R945
- R946
- R947
- R948
- R949
- R950
- R951
- R952
- R953
- R954
- R955
- R956
- R957
- R958
- R959
- R960
- R961
- R962
- R963
- R964
- R965
- R966
- R967
- R968
- R969
- R970
- R971
- R972
- R973
- R974
- R975
- R976
- R977
- R978
- R979
- R980
- R981
- R982
- R983
- R984
- R985
- R986
- R987
- R988
- R989
- R990
- R991
- R992
- R993
- R994
- R995
- R996
- R997
- R998
- R999
- R1000

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 (3/4)	PART NO. BA11-02092.94A
MODULE CODE		LAST EDIT				
				May 23, 2012 08:40:30 AM	PAGE	10 OF 51

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

**U5-5
 IVY BRIDGE 5/5**

AT35	VSS1	VSS81	AJ22	T35	VSS161	VSS234	F22
AT32	VSS2	VSS82	AJ19	T34	VSS162	VSS235	F19
AT29	VSS3	VSS83	AJ16	T33	VSS163	VSS236	E30
AT27	VSS4	VSS84	AJ13	T32	VSS164	VSS237	E27
AT25	VSS5	VSS85	AJ10	T31	VSS165	VSS238	E24
AT22	VSS6	VSS86	AJ7	T30	VSS166	VSS239	E21
AT19	VSS7	VSS87	AJ4	T29	VSS167	VSS240	E18
AT16	VSS8	VSS88	AJ3	T28	VSS168	VSS241	E15
AT13	VSS9	VSS89	AJ2	T27	VSS169	VSS242	E13
AT10	VSS10	VSS90	AJ1	T26	VSS170	VSS243	E10
AT7	VSS11	VSS91	AH35	T25	VSS171	VSS244	E9
AT4	VSS12	VSS92	AH34	T24	VSS172	VSS245	E8
AT3	VSS13	VSS93	AH32	T23	VSS173	VSS246	E7
AR25	VSS14	VSS94	AH30	T22	VSS174	VSS247	E6
AR22	VSS15	VSS95	AH28	T21	VSS175	VSS248	E5
AR19	VSS16	VSS96	AH26	T20	VSS176	VSS249	E4
AR16	VSS17			T19	VSS177	VSS250	E3
AR13	VSS18			T18	VSS178	VSS251	E2
AR10	VSS19			T17	VSS179	VSS252	E1
AR7	VSS20			T16	VSS180	VSS253	D35
AR4	VSS21			T15	VSS181	VSS254	D32
AR2	VSS22			T14	VSS182	VSS255	D29
AP34	VSS23			T13	VSS183	VSS256	D26
AP31	VSS24			T12	VSS184	VSS257	D20
AP28	VSS25			T11	VSS185	VSS258	D17
AP25	VSS26			T10	VSS186	VSS259	C34
AP22	VSS27			T9	VSS187	VSS260	C31
AP19	VSS28			T8	VSS188	VSS261	C28
AP16	VSS29			T7	VSS189	VSS262	C27
AP13	VSS30			T6	VSS190	VSS263	C24
AP10	VSS31			T5	VSS191	VSS264	C23
AP7	VSS32			T4	VSS192	VSS265	C20
AP4	VSS33			T3	VSS193	VSS266	C17
AN30	VSS34			T2	VSS194	VSS267	C12
AN27	VSS35			T1	VSS195	VSS268	B22
AN25	VSS36			L3	VSS196	VSS269	B17
AN22	VSS37			L2	VSS197	VSS270	B15
AN19	VSS38			L1	VSS198	VSS271	B13
AN16	VSS39			K35	VSS199	VSS272	B11
AN13	VSS40			K32	VSS200	VSS273	G25
AN10	VSS41			K29	VSS201	VSS274	G24
AN7	VSS42			K26	VSS202	VSS275	E23
AN4	VSS43			K23	VSS203	VSS276	E22
AM29	VSS44			K20	VSS204	VSS277	D23
AM25	VSS45			K17	VSS205	VSS278	D22
AM22	VSS46			K14	VSS206	VSS279	D21
AM19	VSS47			K11	VSS207	VSS280	D20
AM16	VSS48			H35	VSS208	VSS281	D19
AM13	VSS49			H32	VSS209	VSS282	D18
AM10	VSS50			H29	VSS210	VSS283	D17
AM7	VSS51			H26	VSS211	VSS284	D16
AM4	VSS52			H23	VSS212	VSS285	D15
AM3	VSS53			H20	VSS213		D14
AM2	VSS54			H17	VSS214		D13
AM1	VSS55			H14	VSS215		D12
AL34	VSS56			H11	VSS216		D11
AL31	VSS57			H8	VSS217		D10
AL28	VSS58			H5	VSS218		D9
AL25	VSS59			H4	VSS219		D8
AL22	VSS60			H3	VSS220		D7
AL19	VSS61			H2	VSS221		D6
AL16	VSS62			H1	VSS222		D5
AL13	VSS63			G35	VSS223		D4
AL10	VSS64			G32	VSS224		D3
AL7	VSS65			G29	VSS225		D2
AL4	VSS66			G26	VSS226		D1
AL2	VSS67			G23	VSS227		C23
AK33	VSS68			G20	VSS228		C22
AK30	VSS69			G17	VSS229		C21
AK27	VSS70			G14	VSS230		C20
AK25	VSS71			G11	VSS231		C19
AK22	VSS72			G8	VSS232		C18
AK19	VSS73			G5	VSS233		C17
AK16	VSS74			G2			C16
AK13	VSS75			F35			C15
AK10	VSS76			F32			C14
AK7	VSS77			F29			C13
AK4	VSS78			F26			C12
AJ25	VSS79			F23			C11
	VSS80			F20			C10



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		May 23, 2012 08:40:30 AM	PAGE	11 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

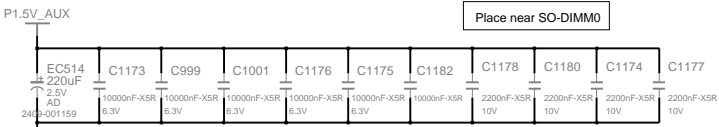
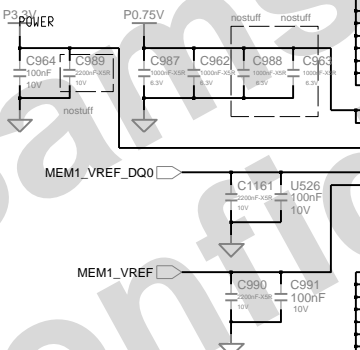
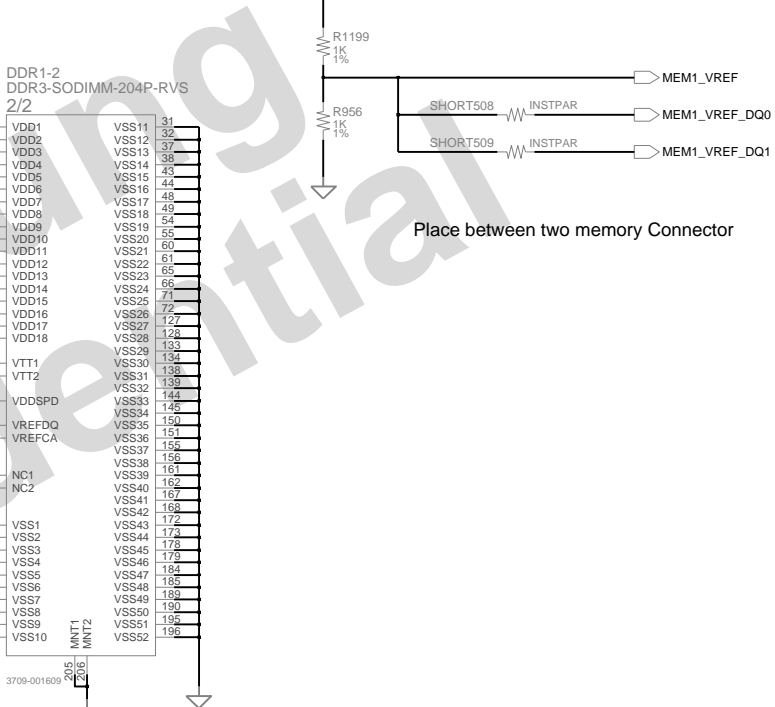
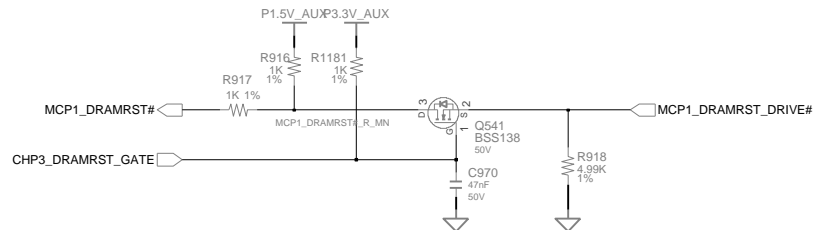
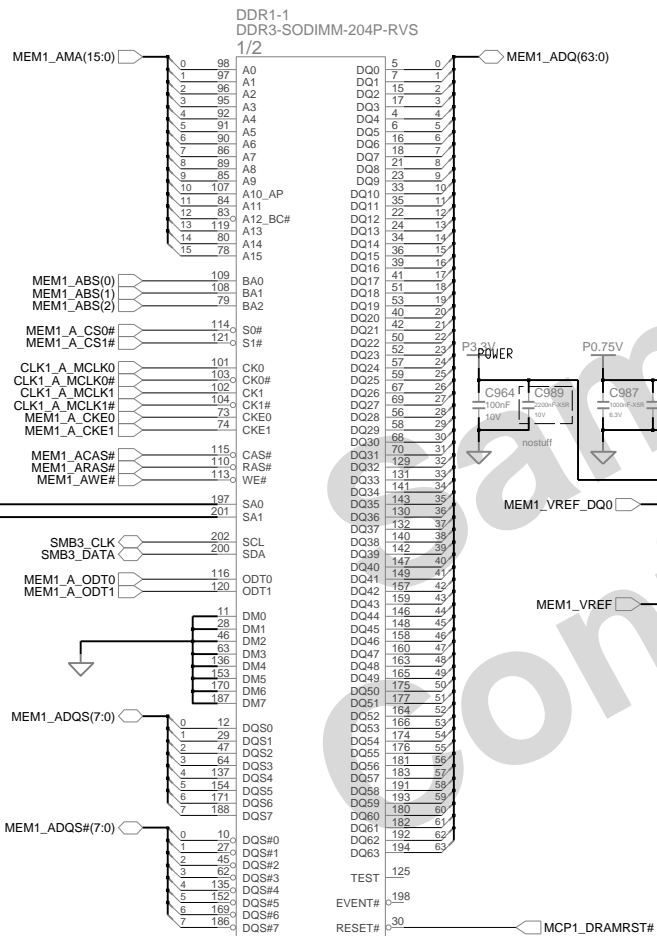
SO-DIMM#0 : 2nd SO-DIMM

DDR SO-DIMM #0

Height : 9.2 mm (REVERSE)

P/N : 3709-001656 (Foxconn)

P/N : 3709-001609 (Concraft)



www.hobi-elektronika.blogspot.com

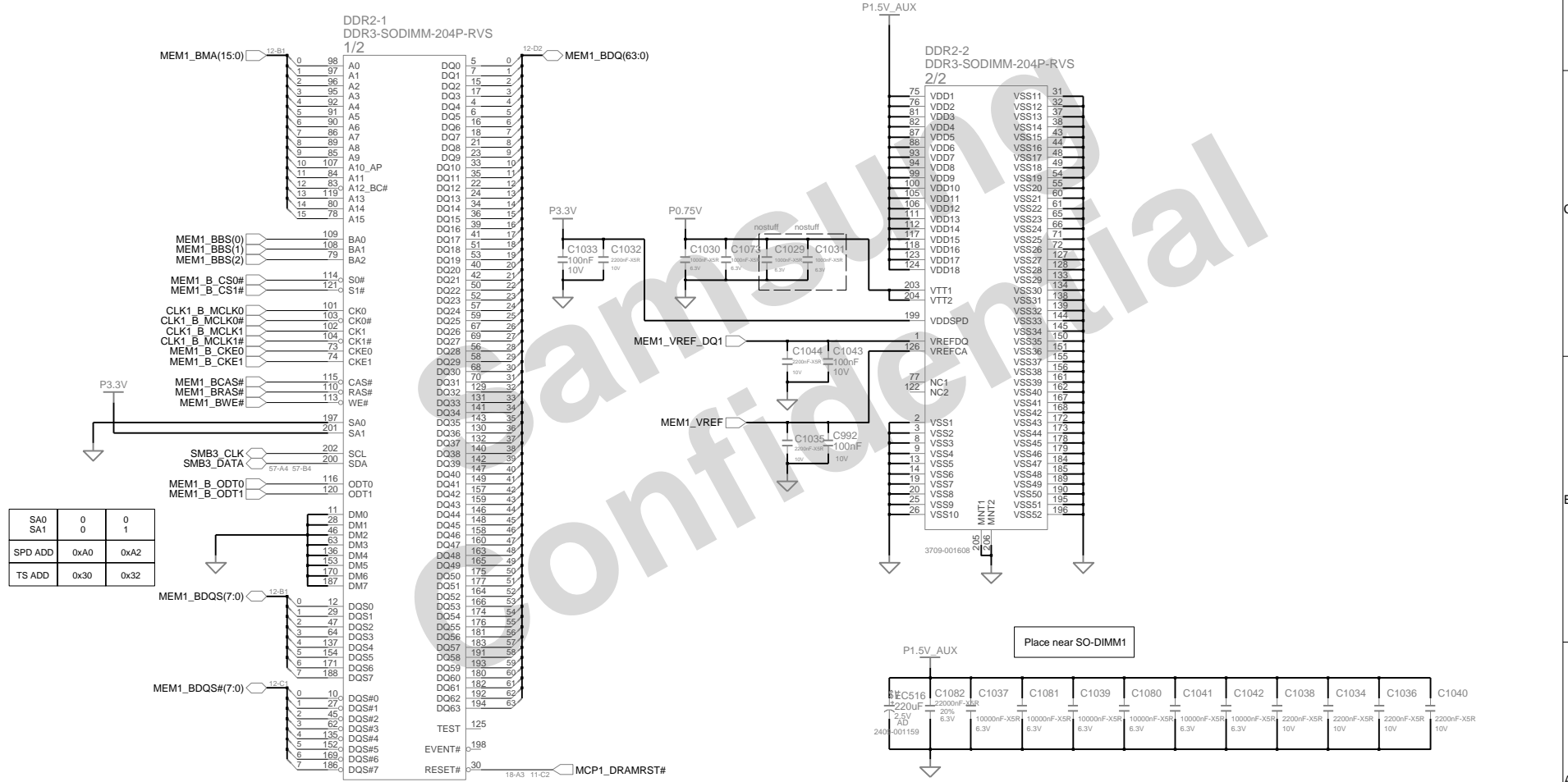
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		SODIMM A
APPROVAL	BU LEE	REV	REV 1.0		DDR3
MODULE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	12 OF 51

SAMSUNG ELECTRONICS
PART NO. BA41-02092-94A

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

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)

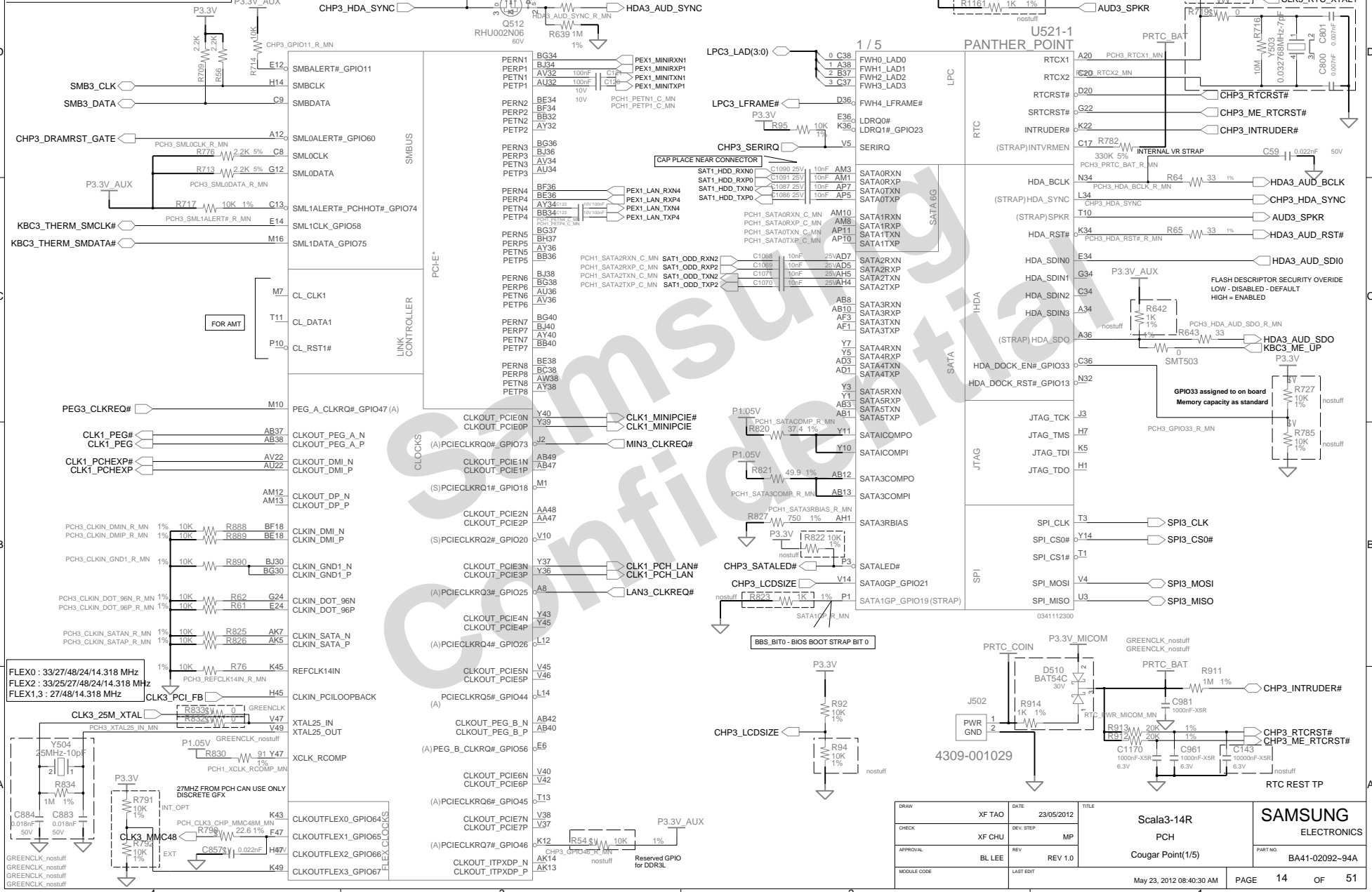


SA0	0	0	1
SA1	0	0	1
SPD ADD	0xA0	0xA2	
TS ADD	0x30	0x32	

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 EDIT			May 23, 2012 08:40:30 AM	PAGE 13 OF 51

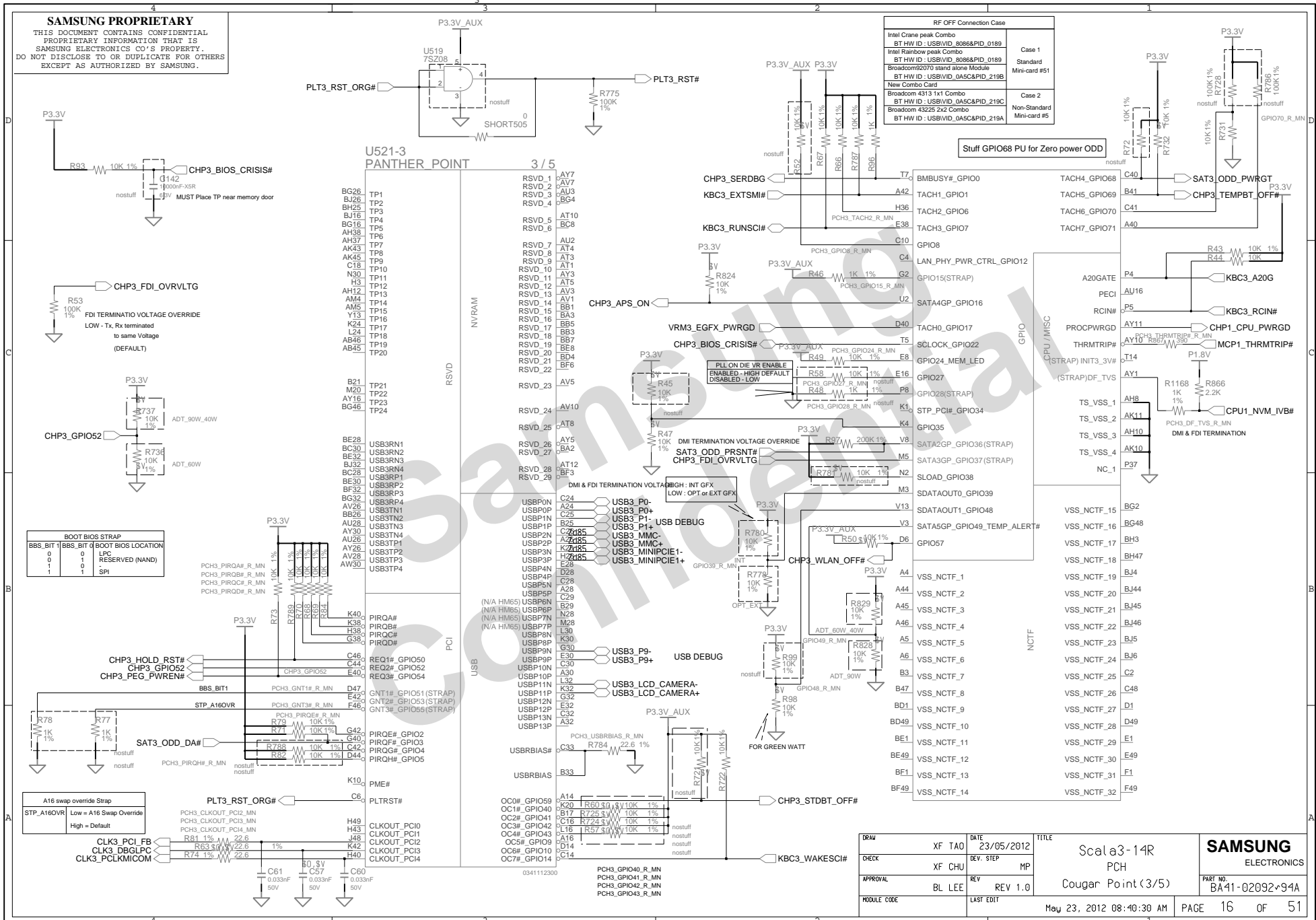
SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

NO REBOOT STRAP



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

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.



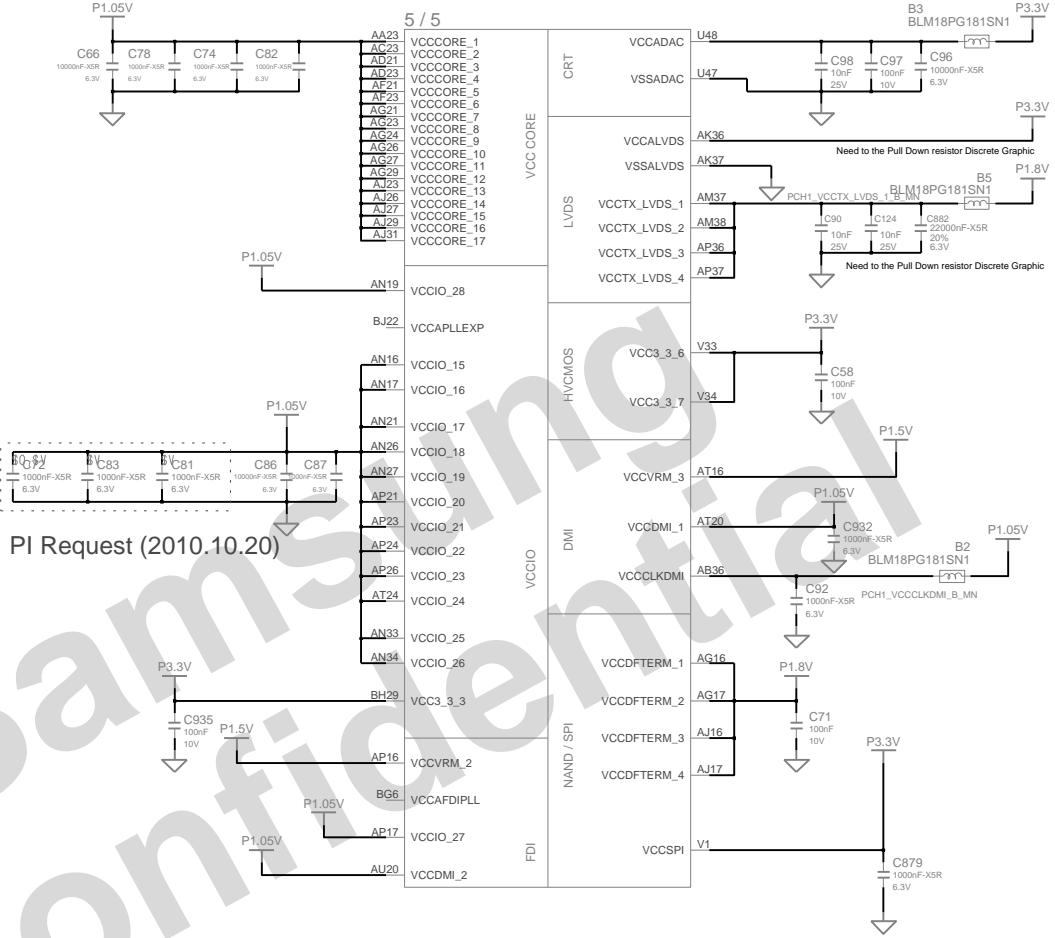
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		PCH	
APPROVAL	BL LEE	REV	REV 1.0		Cougar Point (3/5)	PART NO. BA11-02092*94A
MODULE CODE		LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 16 OF 51

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

**U521-5
 PANTHER POINT**

AY4	VSS159	VSS259	H46
AY42	VSS160	VSS260	K18
AY46	VSS161	VSS261	K26
AY8	VSS162	VSS262	K39
B11	VSS163	VSS263	K46
B15	VSS164	VSS264	K7
B19	VSS165	VSS265	L2
B23	VSS166	VSS266	L20
B27	VSS167	VSS267	L26
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L36
B7	VSS171	VSS271	L48
F45	VSS172	VSS272	M12
BB12	VSS173	VSS273	P16
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	M46
BC14	VSS183	VSS283	M48
BC18	VSS184	VSS284	N18
BC2	VSS185	VSS285	N36
BC22	VSS186	VSS286	P30
BC26	VSS187	VSS287	N47
BC32	VSS188	VSS288	P18
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC40	VSS191	VSS291	P42
BC42	VSS192	VSS292	P47
BC46	VSS193	VSS293	P7
BD46	VSS194	VSS294	R2
BD5	VSS195	VSS295	R48
BE22	VSS196	VSS296	R48
BE26	VSS197	VSS297	T12
BE40	VSS198	VSS298	T37
BF10	VSS199	VSS299	T37
BF12	VSS200	VSS300	T4
BF16	VSS201	VSS301	V34
BF20	VSS202	VSS302	T47
BF22	VSS203	VSS303	T8
BF24	VSS204	VSS304	T8
BF26	VSS205	VSS305	V11
BF28	VSS206	VSS306	V17
BF3	VSS207	VSS307	V26
BF30	VSS208	VSS308	V27
BF38	VSS209	VSS309	V29
BF40	VSS210	VSS310	V31
BF9	VSS211	VSS311	V36
BG17	VSS212	VSS312	V43
BG21	VSS213	VSS313	V43
BG33	VSS214	VSS314	V7
BG44	VSS215	VSS315	W17
BG9	VSS216	VSS316	W2
BH11	VSS217	VSS317	W27
BH15	VSS218	VSS318	W27
BH17	VSS219	VSS319	W48
BH19	VSS220	VSS320	Y12
H10	VSS221	VSS321	Y38
BH27	VSS222	VSS322	Y4
BH31	VSS223	VSS323	Y42
BH33	VSS224	VSS324	Y46
BH35	VSS225	VSS325	Y8
BH39	VSS226	VSS326	YG29
BH43	VSS227	VSS327	N24
BH7	VSS228	VSS328	AJ3
D3	VSS229	VSS329	AD47
D12	VSS230	VSS330	E43
D16	VSS231	VSS331	BE10
D18	VSS232	VSS332	BG41
D22	VSS233	VSS333	G14
D24	VSS234	VSS334	H16
D26	VSS235	VSS335	T36
D30	VSS236	VSS336	BG22
D32	VSS237	VSS337	BG24
D34	VSS238	VSS338	C22
D38	VSS239	VSS339	AP13
D42	VSS240	VSS340	M14
D8	VSS241	VSS341	AP3
E18	VSS242	VSS342	AP1
E26	VSS243	VSS343	BE18
E18	VSS244	VSS344	BE18
G20	VSS245	VSS345	BG28
G26	VSS246	VSS346	BJ28
G28	VSS247	VSS347	
G36	VSS248	VSS348	
G48	VSS249	VSS349	
H12	VSS250	VSS350	
H18	VSS251	VSS351	
H22	VSS252	VSS352	
H24	VSS253	VSS353	
H26	VSS254	VSS354	
H30	VSS255	VSS355	
H32	VSS256	VSS356	
H34	VSS257	VSS357	
F3	VSS258	VSS358	

This power share with thermal sensor

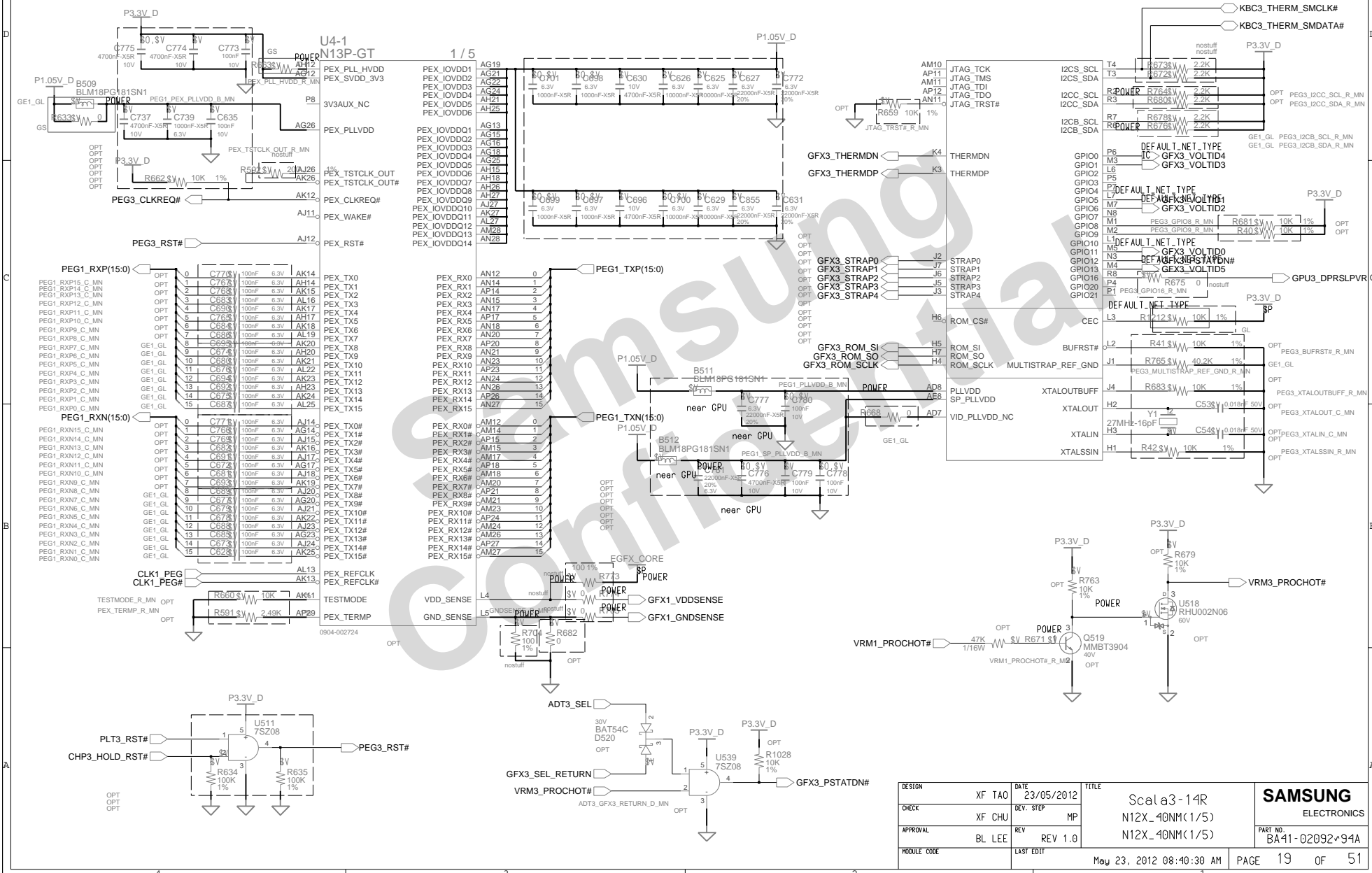


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		PCH	
APPROVAL	BL LEE	REV	REV 1.0		Cougar Point(5/5)	PART NO. BA41-02092-94A
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	18	OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

www.hobi-elektronika.blogspot.com



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			

SAMSUNG	
ELECTRONICS	
PART NO.	BA41-02092*94A

May 23, 2012 08:40:30 AM	PAGE 19 OF 51
--------------------------	---------------

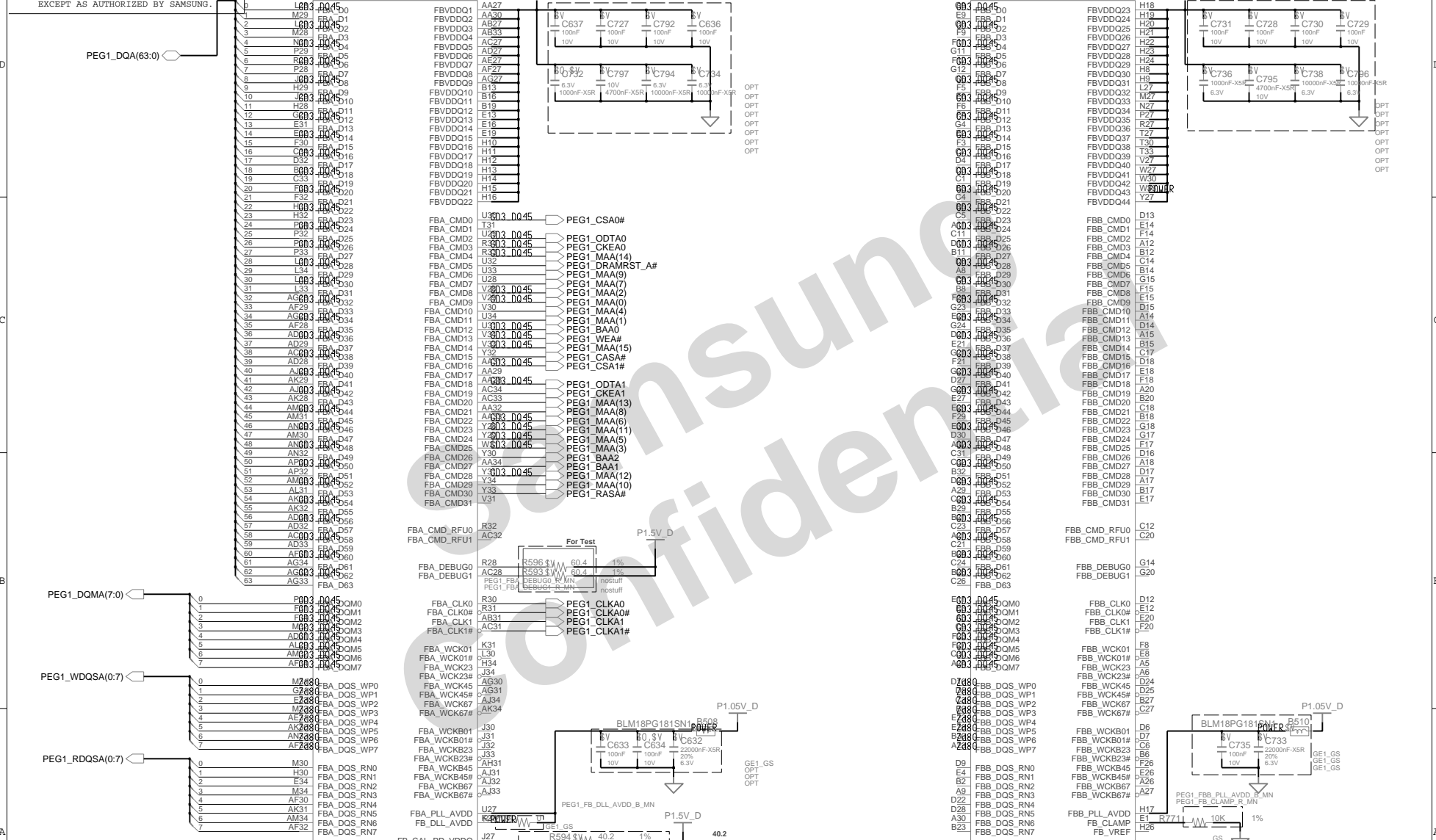
SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

U4-2
 N13P-GT

2 / 5

P1.5V_D

P1.5V_D



DESIGN	XF TA0	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(2/5)
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(2/5)
MODULE CODE		LAST EDIT			

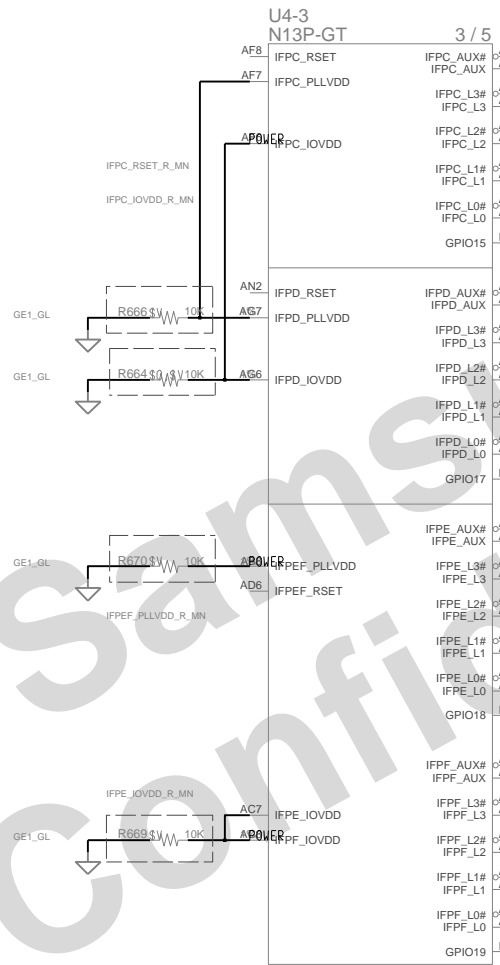
0904-002724	OPT	40.2	OPT	42.2	OPT	51.1	OPT
-------------	-----	------	-----	------	-----	------	-----

DESIGN	XF TA0	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(2/5)
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(2/5)
MODULE CODE		LAST EDIT			

0904-002724	OPT	40.2	OPT	42.2	OPT	51.1	OPT
-------------	-----	------	-----	------	-----	------	-----

DESIGN	XF TA0	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(2/5)
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(2/5)
MODULE CODE		LAST EDIT			

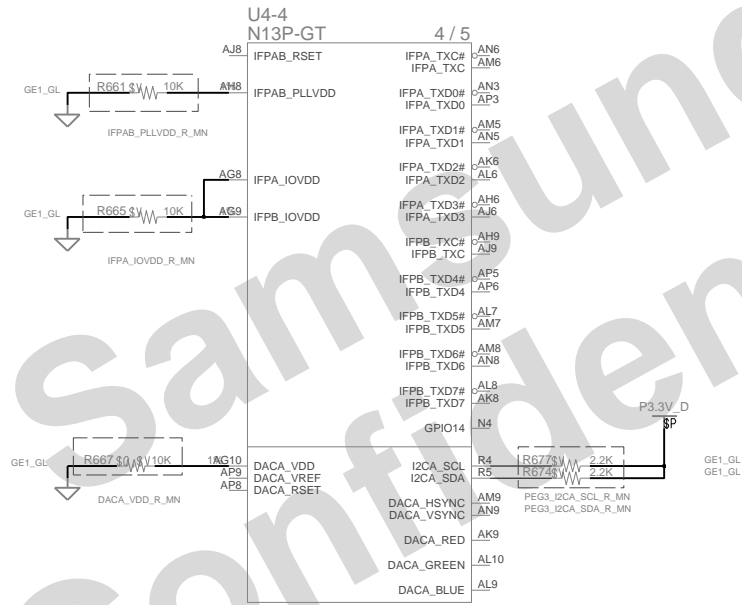
SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.



www.hobi-elektronika.blogspot.com

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

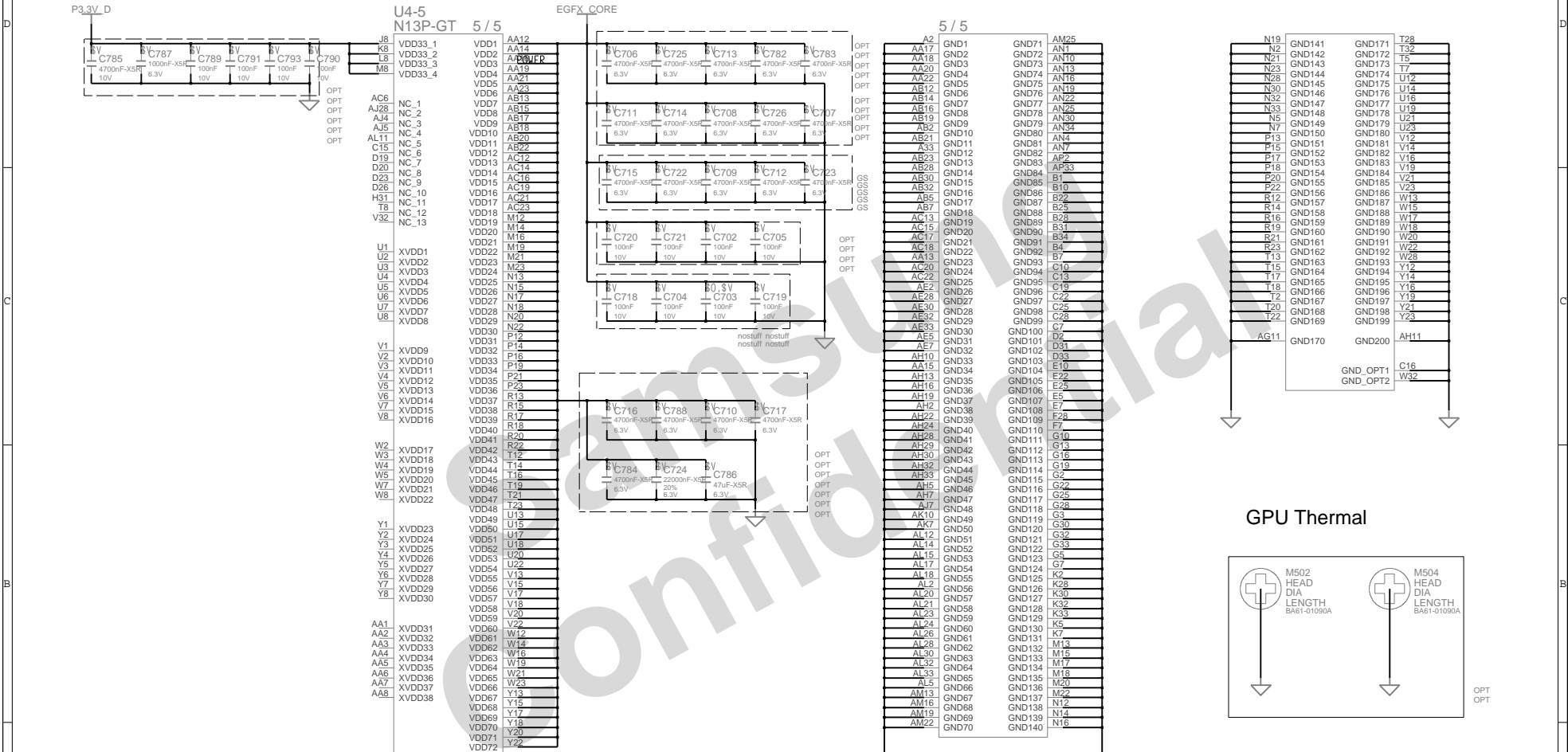
SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.



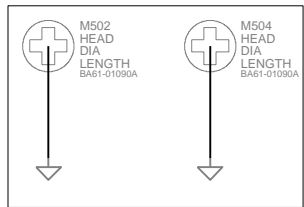
DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV. STEP	MP		N12X_40NM(4/5)	
APPROVAL	BL LEE	REV	REV 1.0		N12X_40NM(4/5)	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 22 OF 51	

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

www.hobi-elektronika.blogspot.com



GPU Thermal



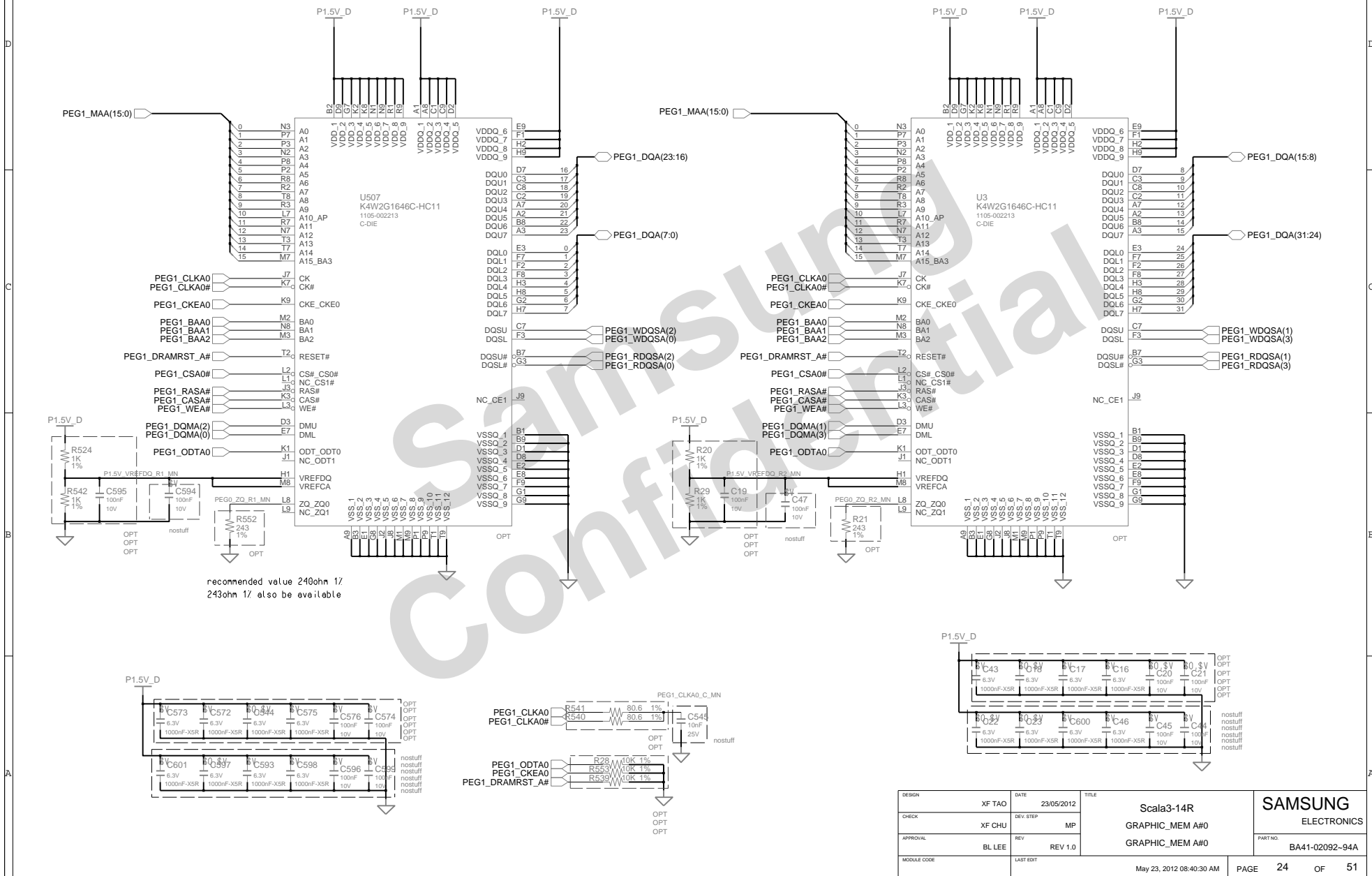
INT GFX and OPT GFX model need.

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

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

A-Channel #0 (D-mode)

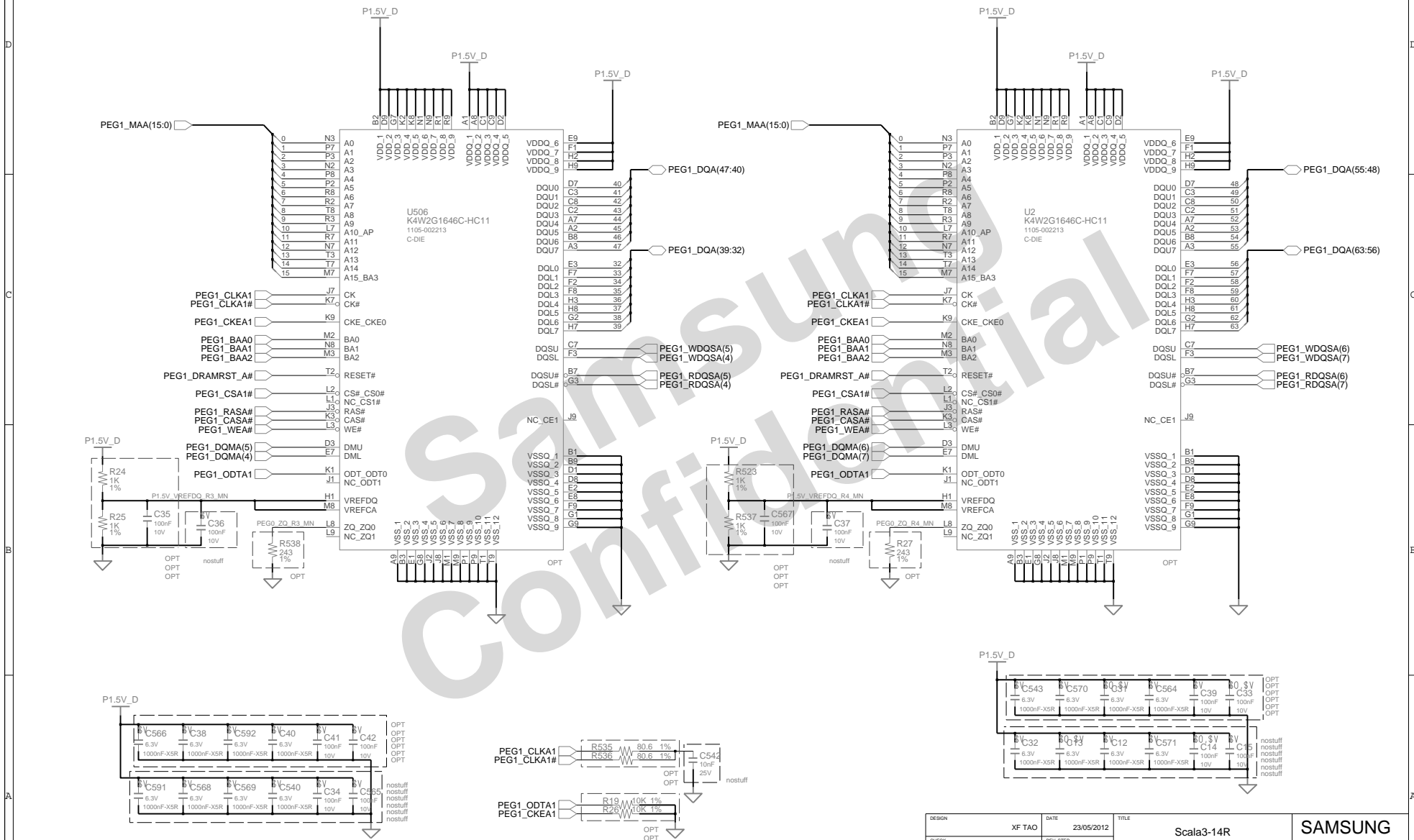


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A	
CHECK	XF CHU	DEV. STEP	MP		GRAPHIC_MEM A#0		
APPROVAL	BL LEE	REV	REV 1.0		GRAPHIC_MEM A#0		
MODULE CODE		LAST EDIT					
May 23, 2012 08:40:30 AM						PAGE	24 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

A-Channel #1 (D-mode)



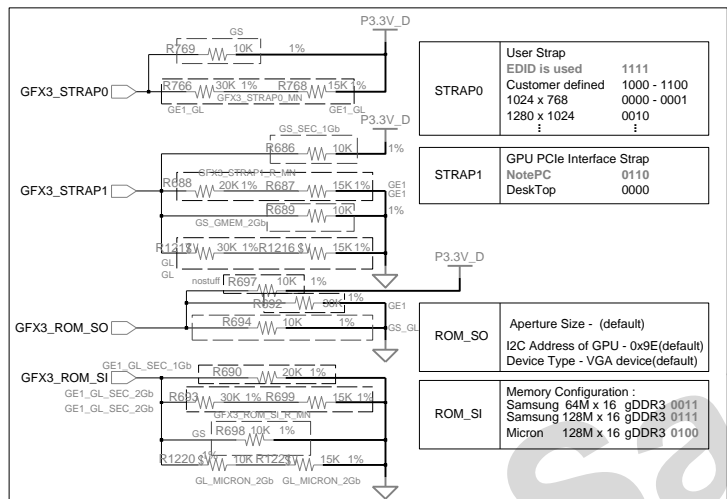
DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A	
CHECK	XF CHU	DEV. STEP	MP	GRAPHIC_MEM A#1			
APPROVAL	BL LEE	REV	REV 1.0	GRAPHIC_MEM A#1			
MODULE CODE		LAST EDIT					
May 23, 2012 08:40:30 AM						PAGE	25 OF 51

SAMSUNG PROPRIETARY

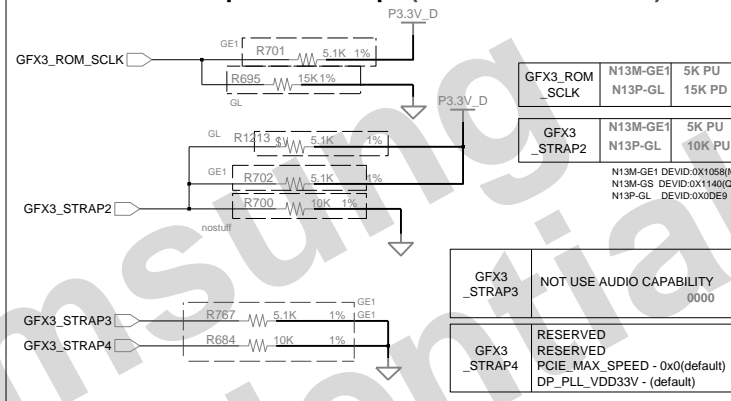
THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

N13x STRAP

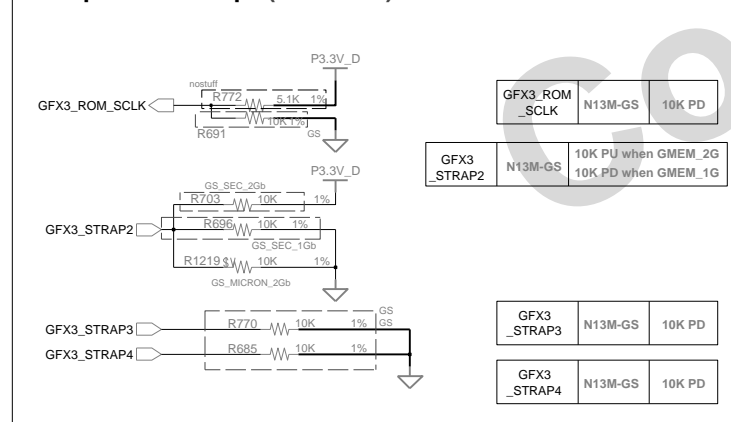
Function Straps



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 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

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 (GL)	VGA_DEVICE
ROM_SI	RAMCFG[3] (GL)	RAMCFG[2] (GL)	RAMCFG[1] (GL)	RAMCFG[0] (GL)
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG (GE1) (GL)	PEX_PLL_EN_TERM
STRAP3	SOR3_EXPOSED	SOR2_EXPOSED	SOR1_EXPOSED	SOR0_EXPOSED
STRAP4	RESERVED	RESERVED	PCIE_MAX_SPEED	DP_PLL_VDD33V

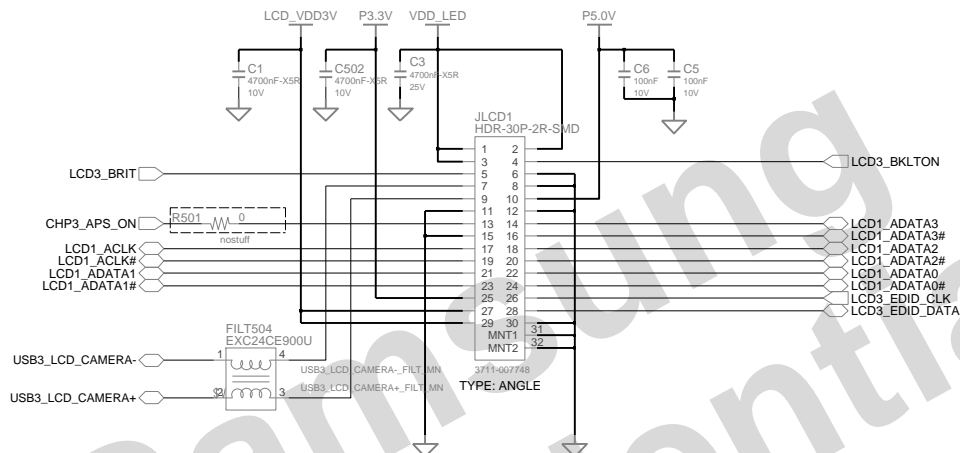
DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	GRAPHIC_MEM C#0	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	GRAPHIC_MEM C#0	BA41-02092-94A	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	26 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

LVDS LOGIC

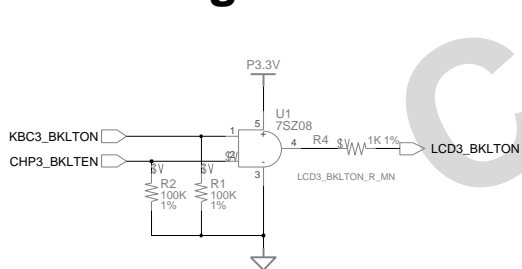
1Ch. LCD Connector + CAMERA



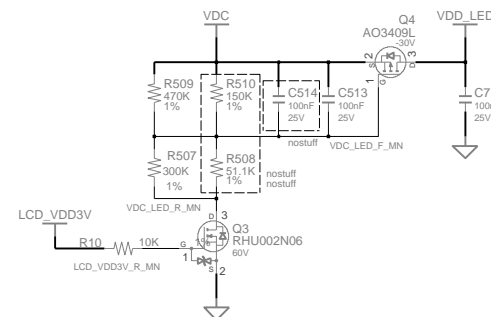
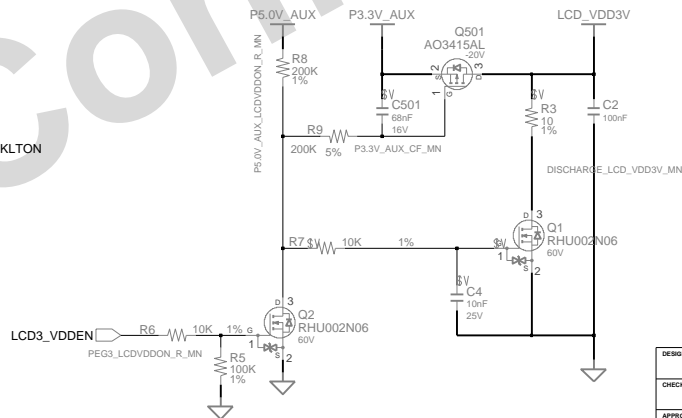
LCD Power

EBL Purpose

Backlight On



LED Power

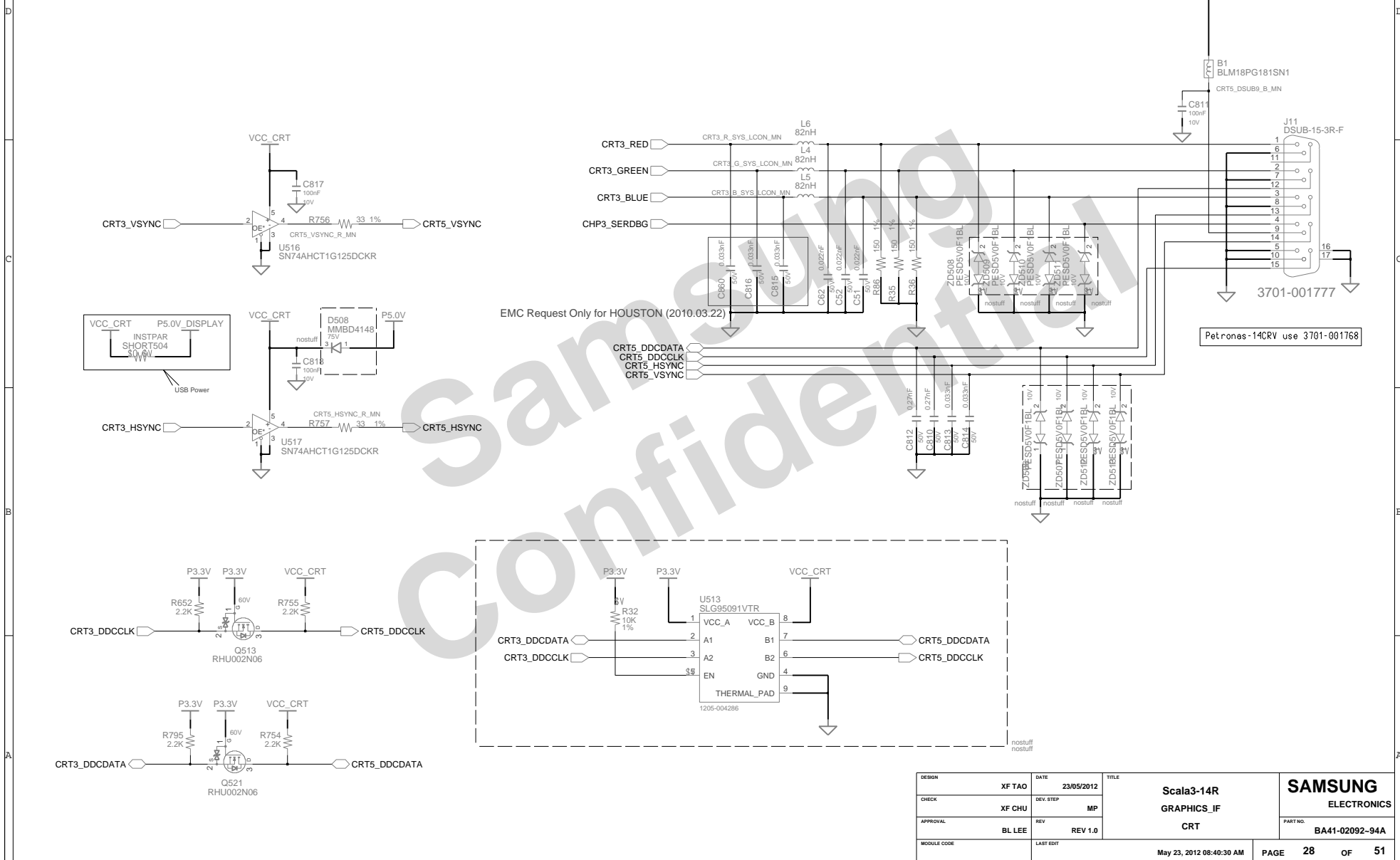


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	GRAPHICS_IF	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	LVDS	BA41-02092-94A	
MODULE CODE		LAST EDIT				
				May 23, 2012 08:40:30 AM	PAGE	27 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

CRT LOGIC



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	CRT	
MODULE CODE	LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	28 OF 51

SAMSUNG
ELECTRONICS
PART NO. BA41-02092-94A

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

HDMI Graphic

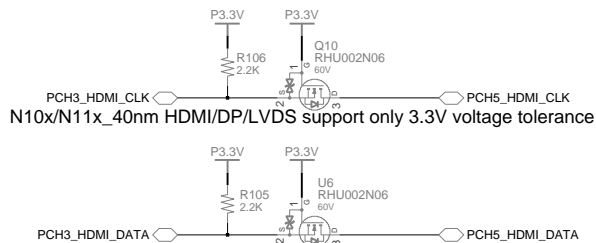
After checking, Houston need to use CMC for each signal.

(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)

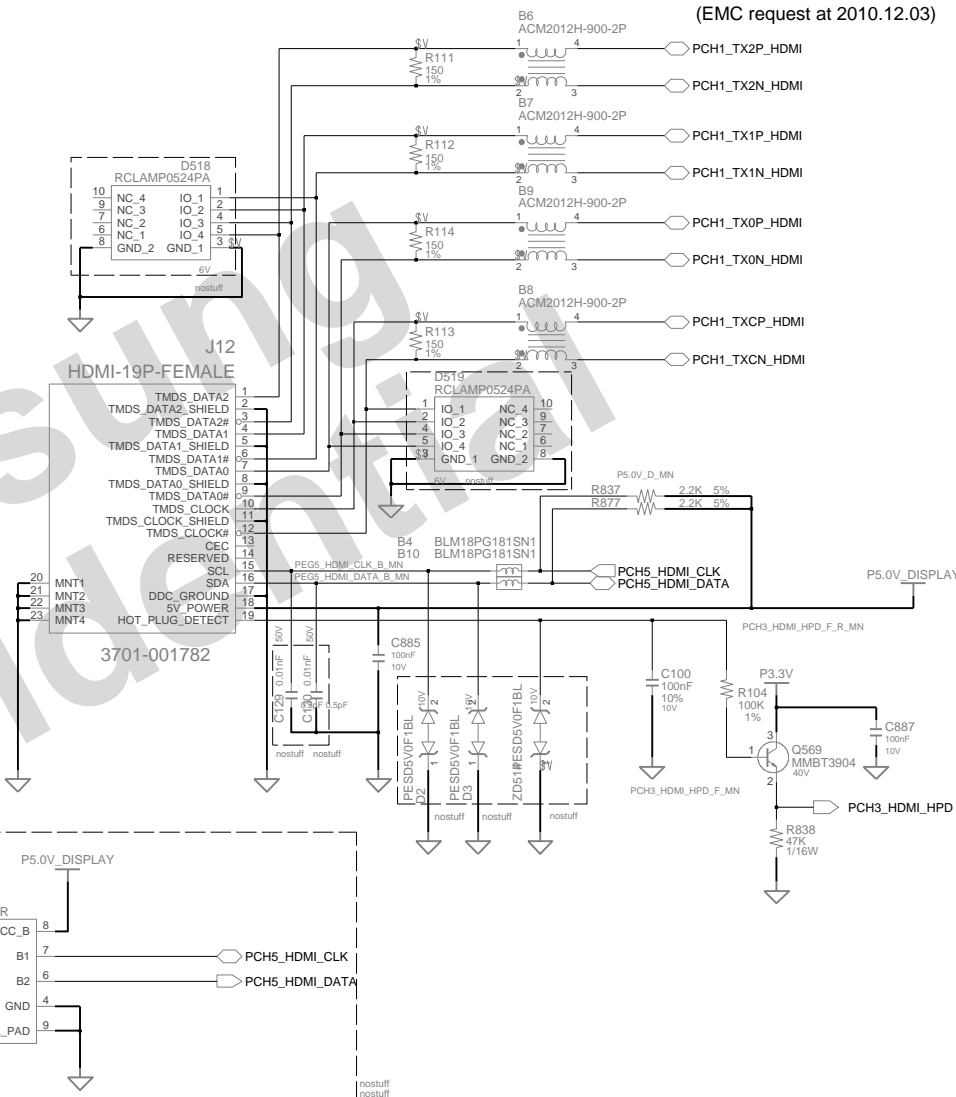
FOR HDMI VERIFICATION TEST



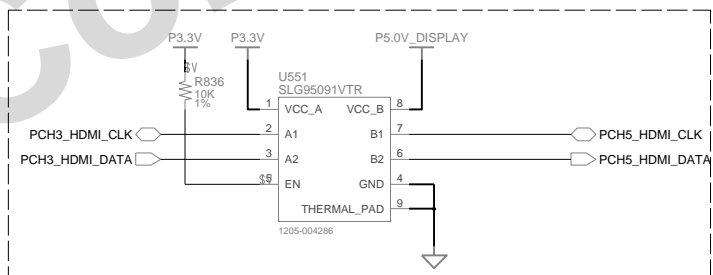
N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

Petronas-14CRV use 3701-001785

J12 HDMI-19P-FEMALE



3701-001782



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

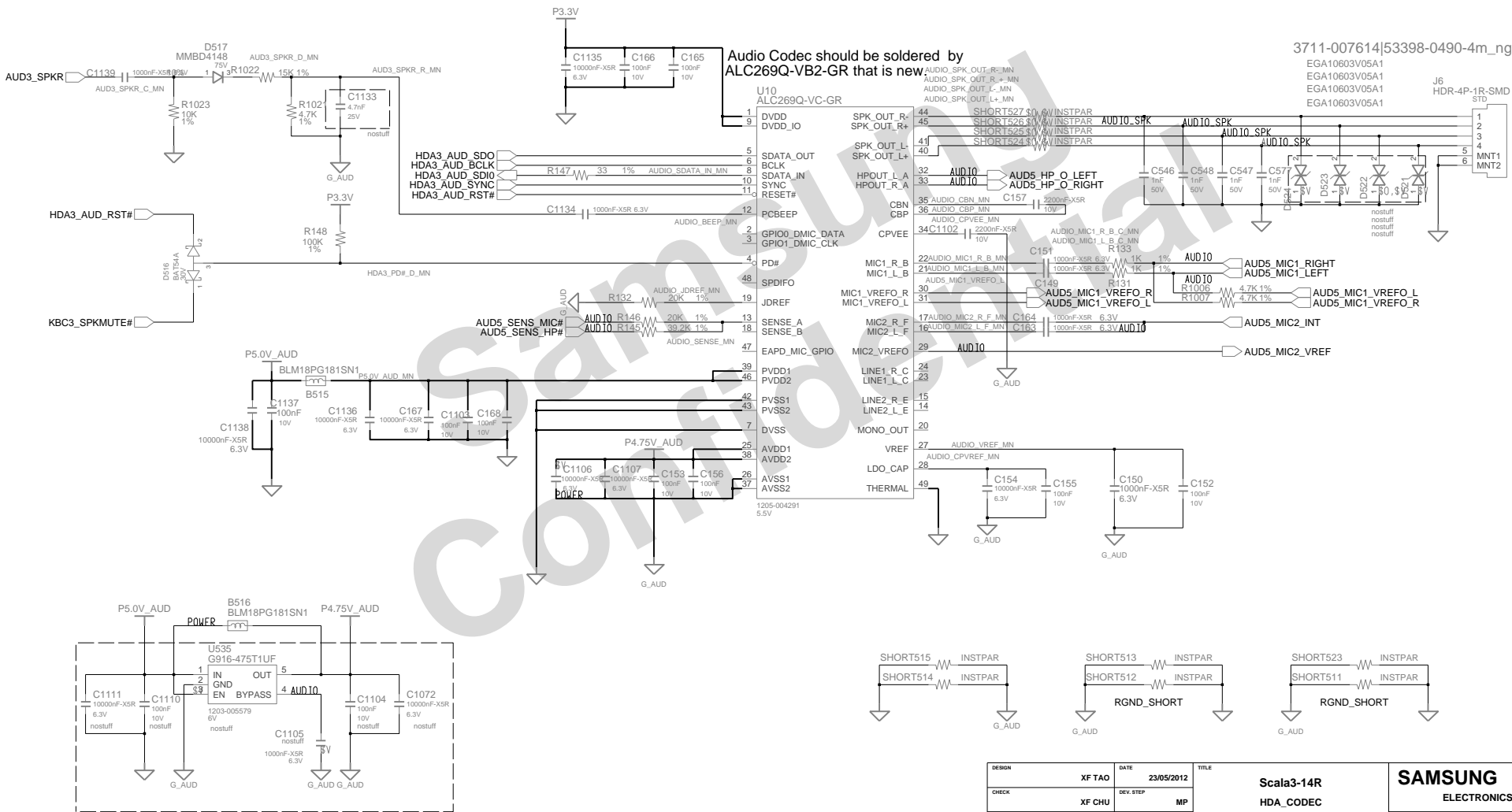
SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

www.hobi-elektronika.blogspot.com

HD AUDIO

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

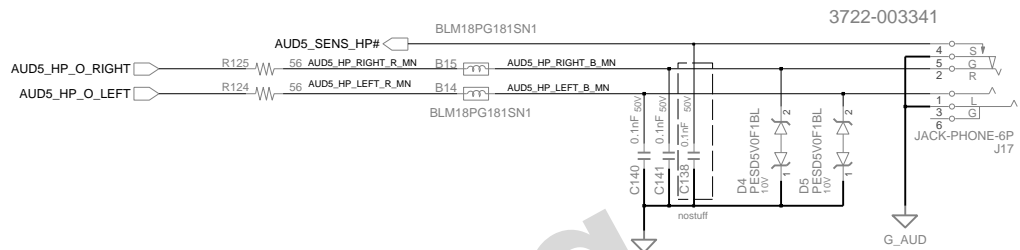


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV.STEP	MP		HDA_CODEC		PART.NO. BA41-02092-94A
APPROVAL	BL LEE	REV	REV 1.0		AUDIO CODEC ALC269		
MODULE CODE		LAST EDIT					
May 23, 2012 08:40:30 AM						PAGE	30 OF 51

SAMSUNG PROPRIETARY

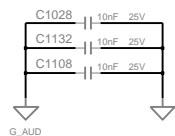
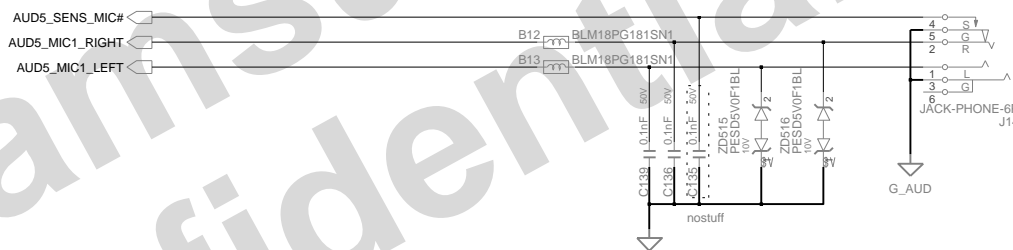
THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

HEADPHONE

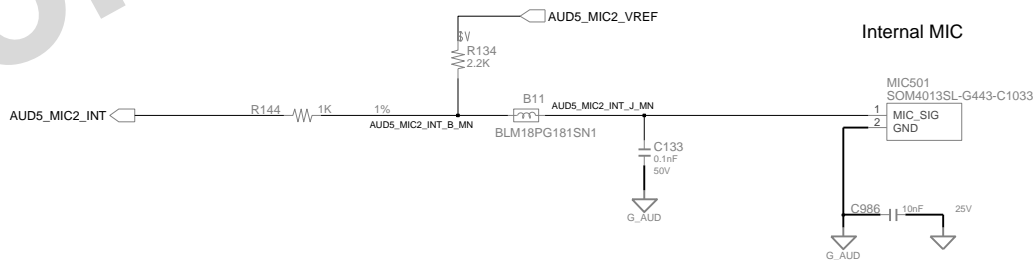


Petrones-14CRV J14 J17 use 3722-003324

MIC JACK



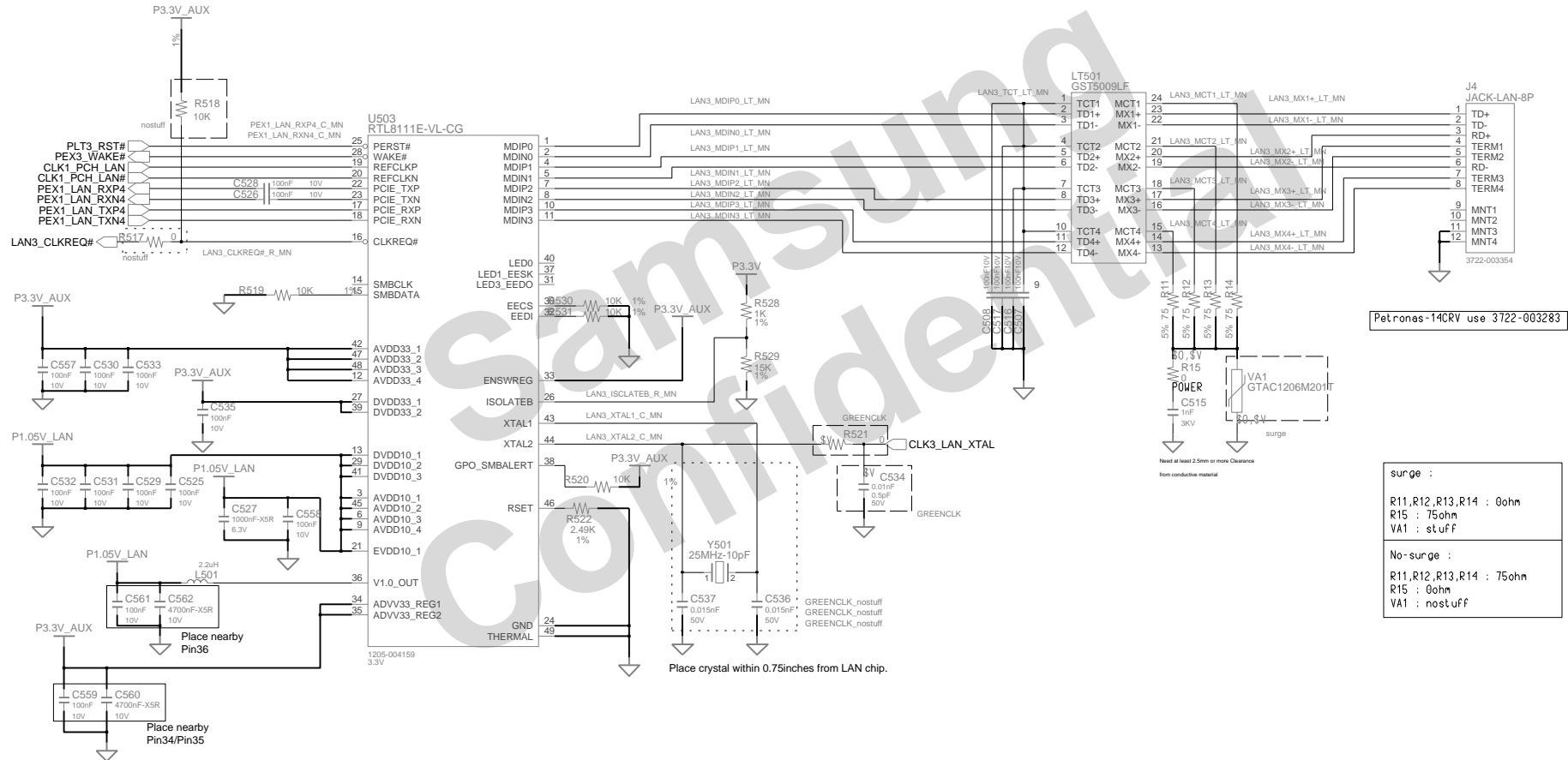
Internal MIC



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

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

Reatek RTL8111E



Petronas-14CRV use 3722-003283

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

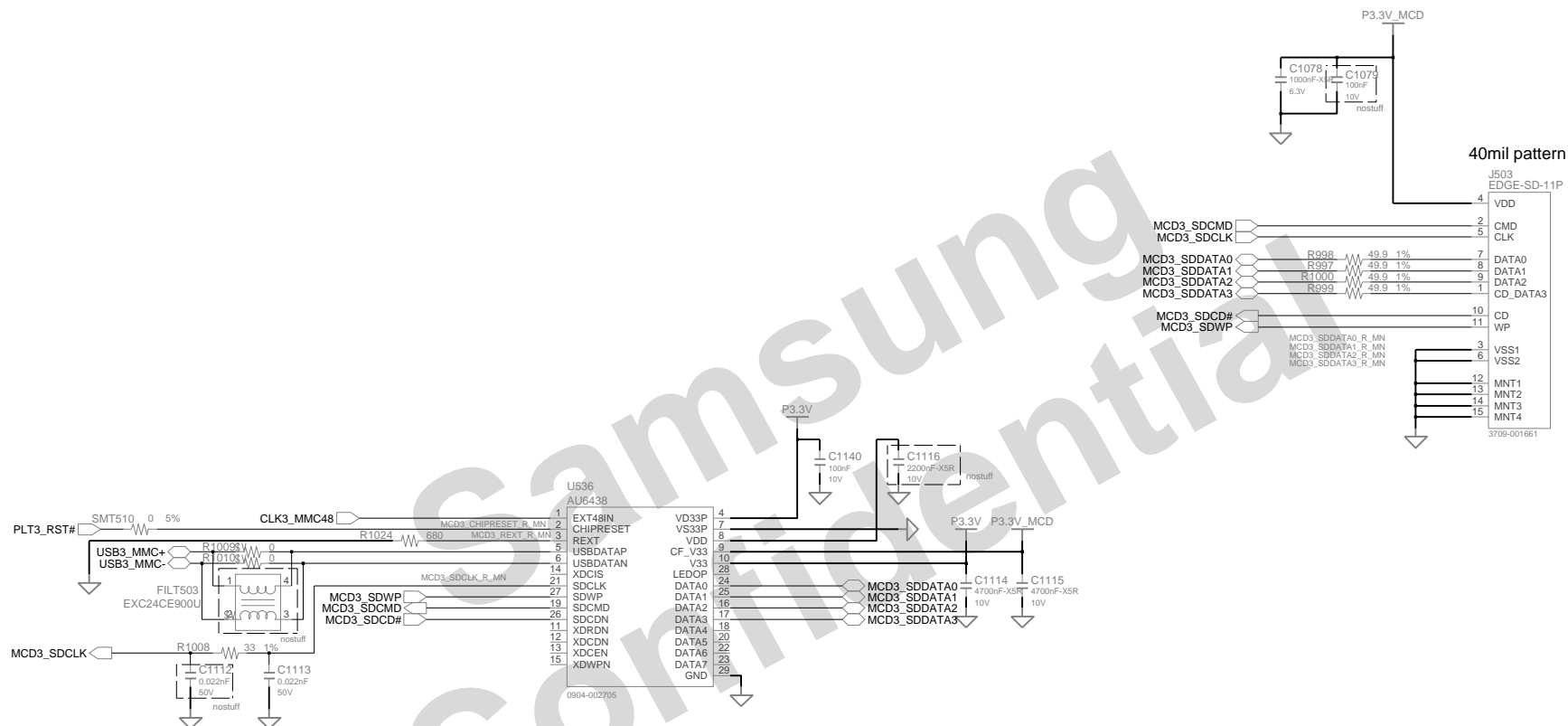
No-surge :
 R11,R12,R13,R14 : 75ohm
 R15 : 0ohm
 VA1 : nostuff

DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
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

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

4 IN 1 CARD

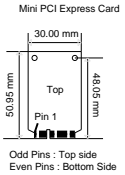
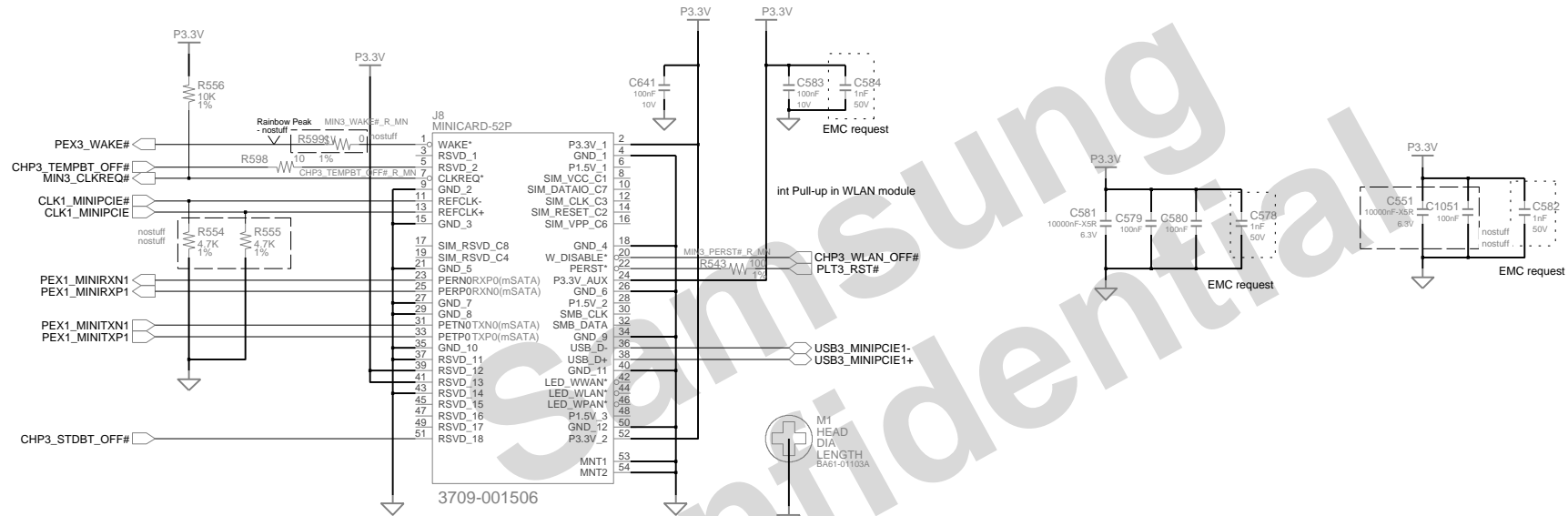


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MULTICARD	
APPROVAL	BL LEE	REV	REV 1.0		4 IN 1 CARD(AU6438)	PART NO. BA41-02092-94A
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	33 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

WLAN, 7mm

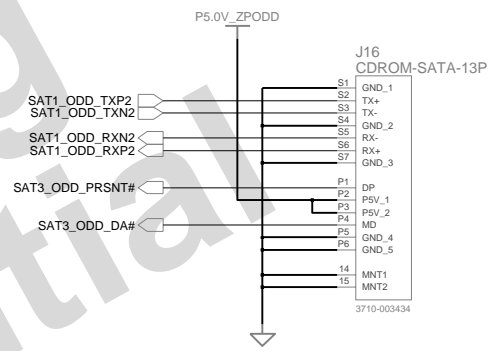
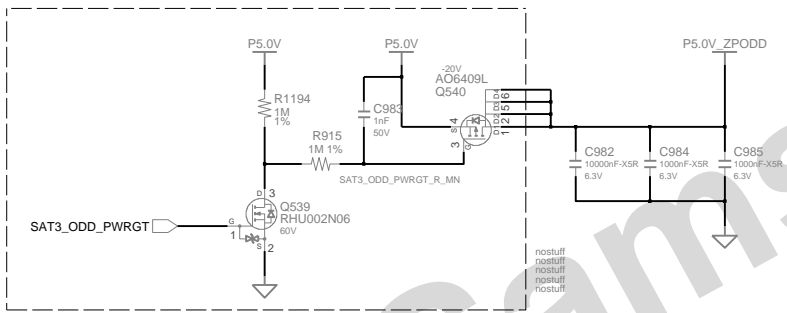


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	MINI_PCIE_CONN	PART NO.	
APPROVAL	BL LEE	REV	REV 1.0	WLAN	BA41-02092-94A	
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE	34 OF 51

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

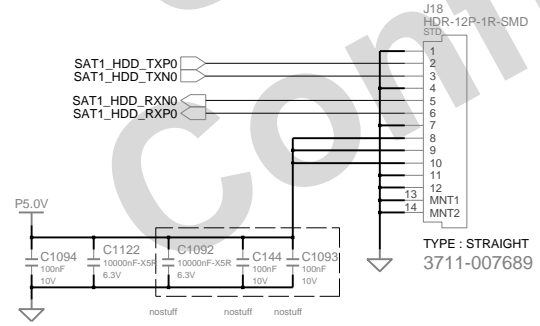
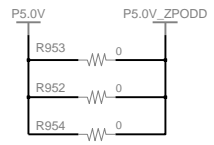
SATA I/F CONN

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

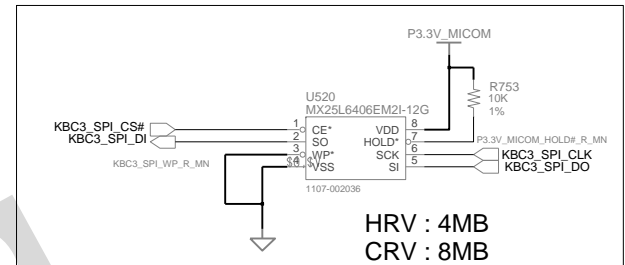
SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

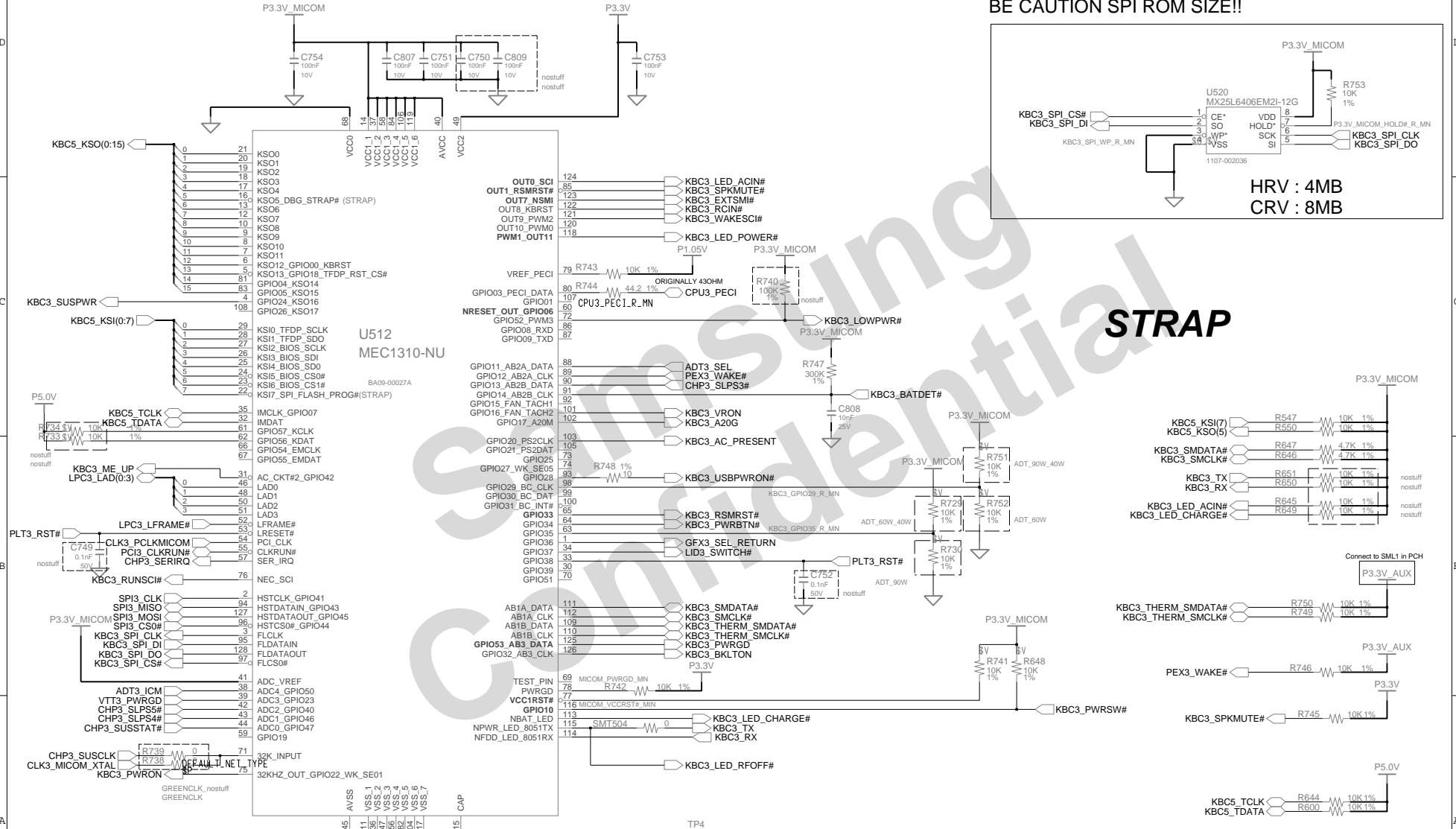
www.hobi-elektronika.blogspot.com

MAIN BOARD (MICOM)

BE CAUTION SPI ROM SIZE!!



STRAP



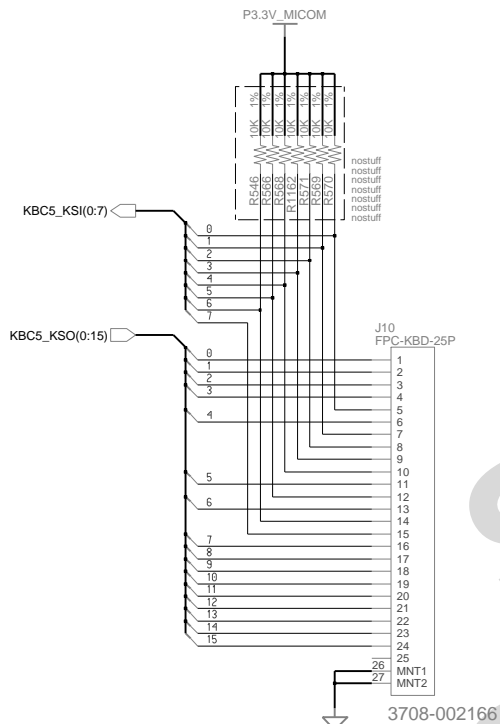
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		MICOM
APPROVAL	BL LEE	REV	REV 1.0		MICOM_SMSC_MEC1310
MODULE CODE		LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	36 OF 51

SAMSUNG PROPRIETARY

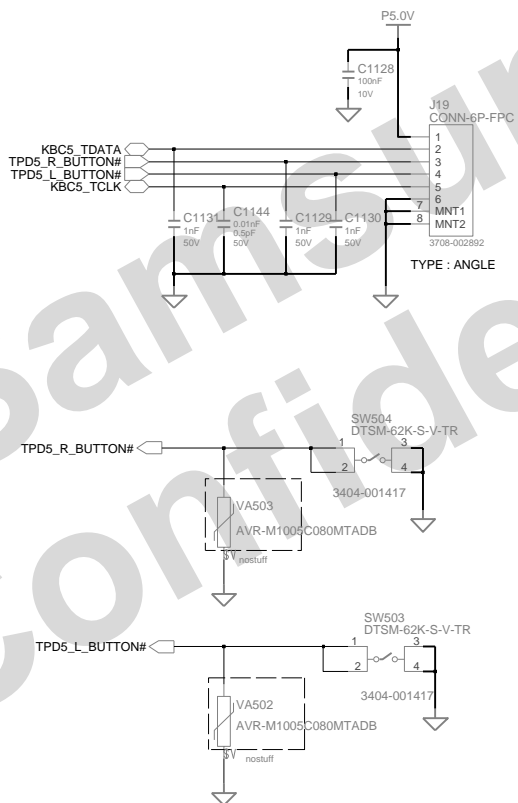
THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

Micom Glue Logic

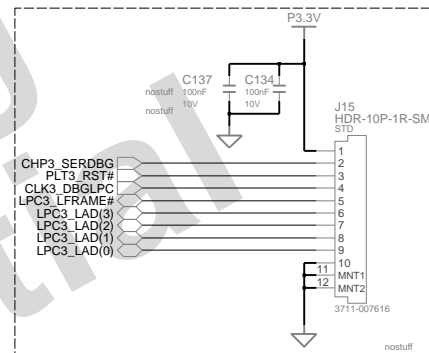
KEYBOARD



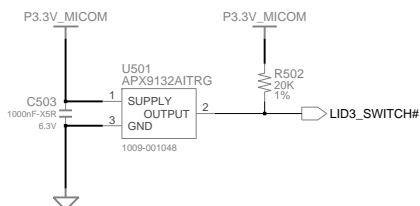
TOUCHPAD



80H PORT DEBUG



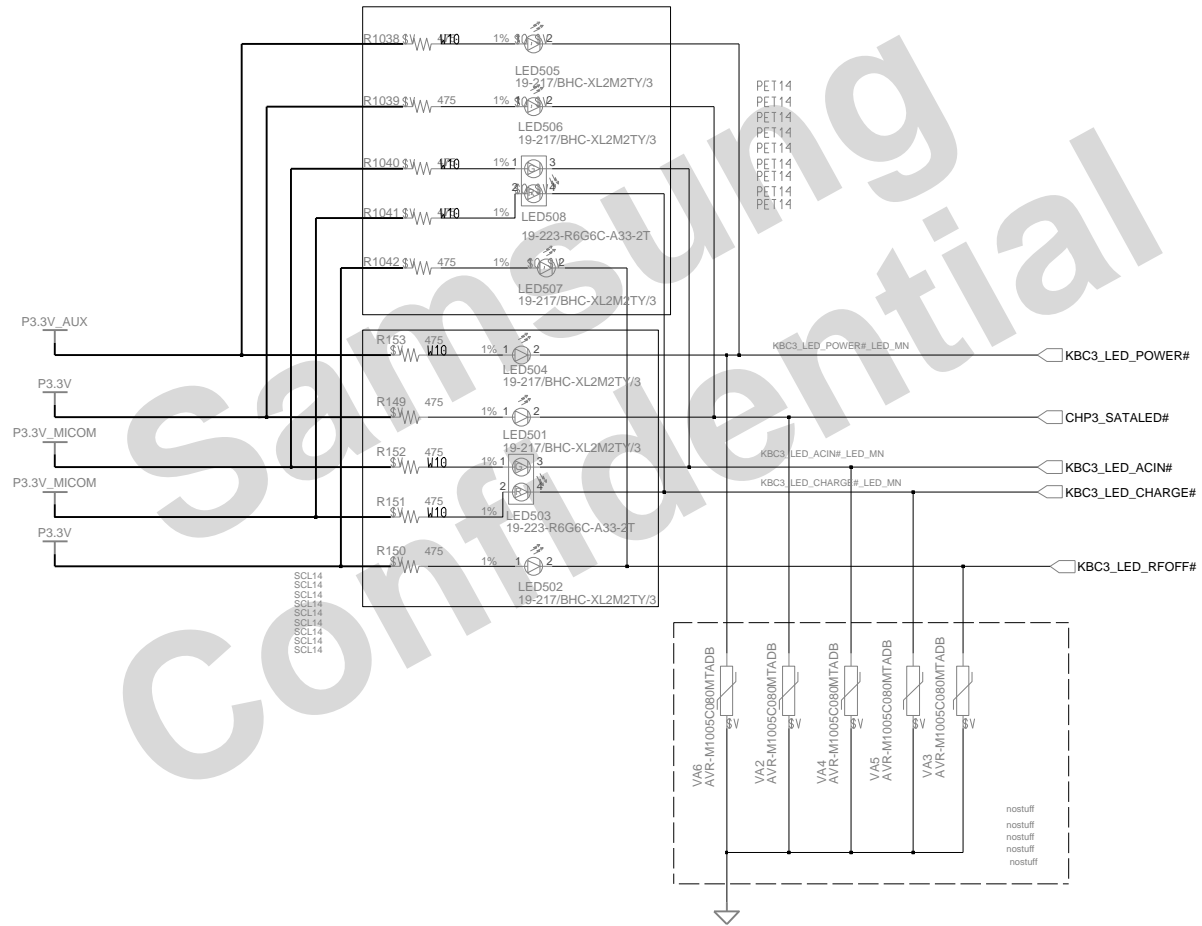
LID_SWITCH



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

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

LED for 14"

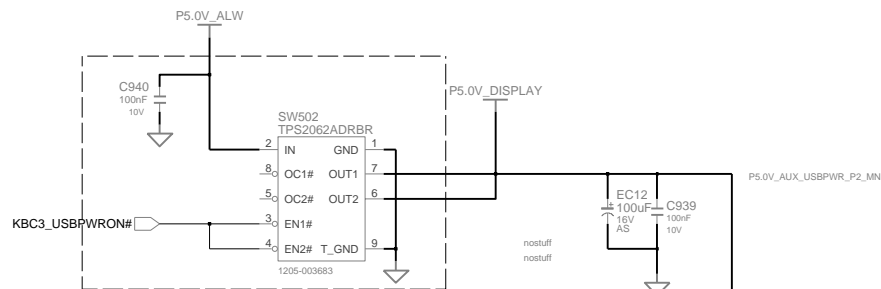


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP	LED_SWITCH	LED_SWITCH	
APPROVAL	BL LEE	REV	REV 1.0	LED_SWITCH	LED_SWITCH	PART NO. BA41-02092-94A
MODULE CODE		LAST EDIT			May 23, 2012 08:40:30 AM	PAGE 38 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

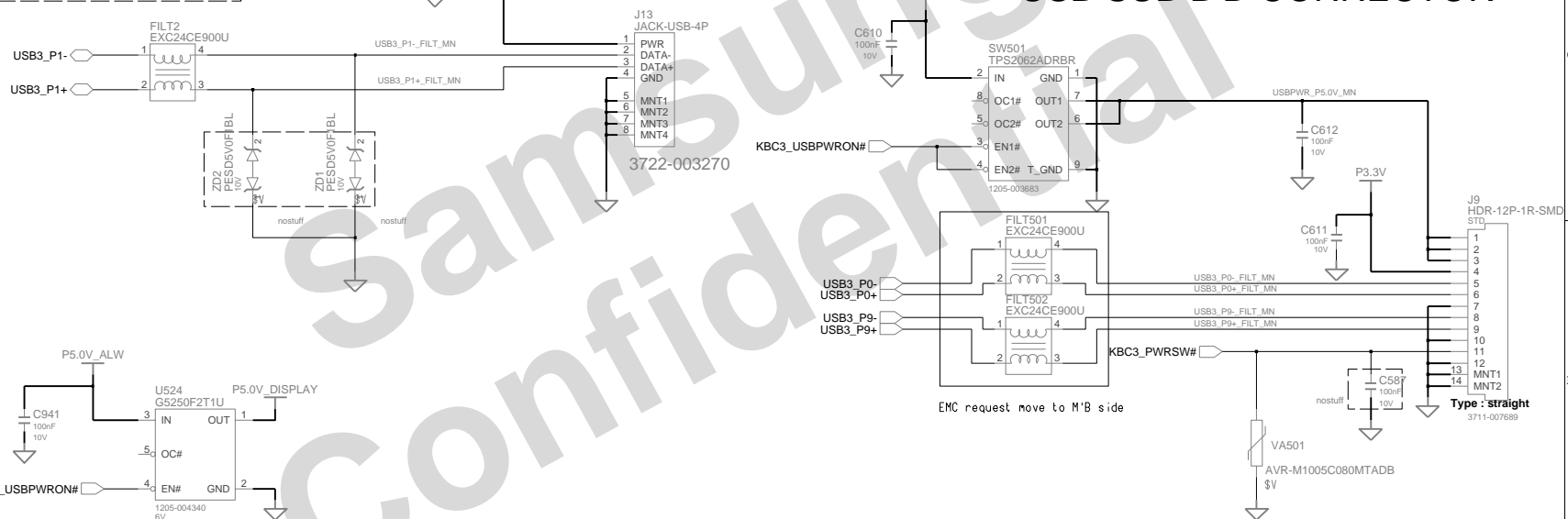
USB Single connector



MAIN TO SUB USB CONN

Right 2USB Port

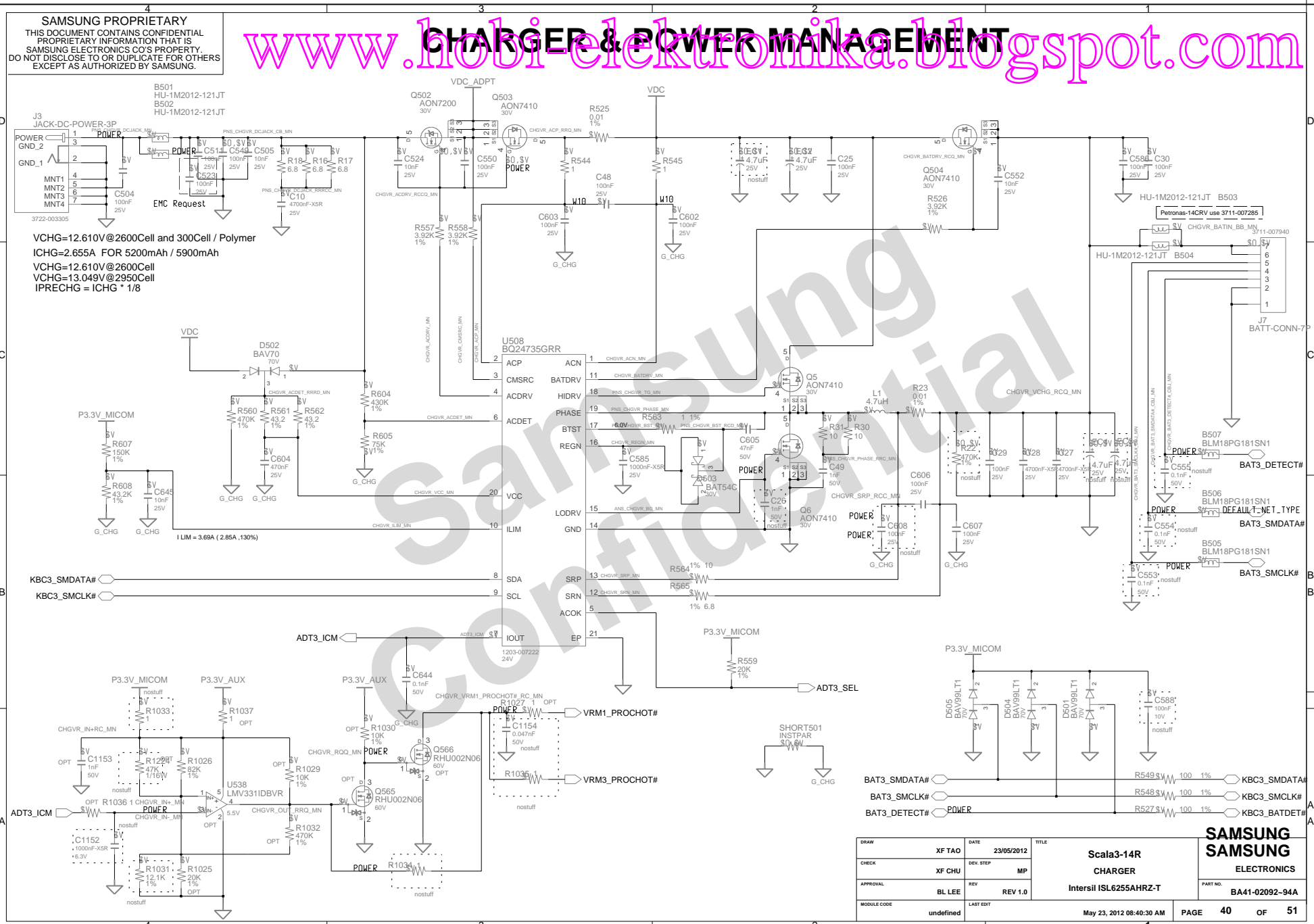
USB SUB B'D CONNECTOR



ENC request move to M'B side

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

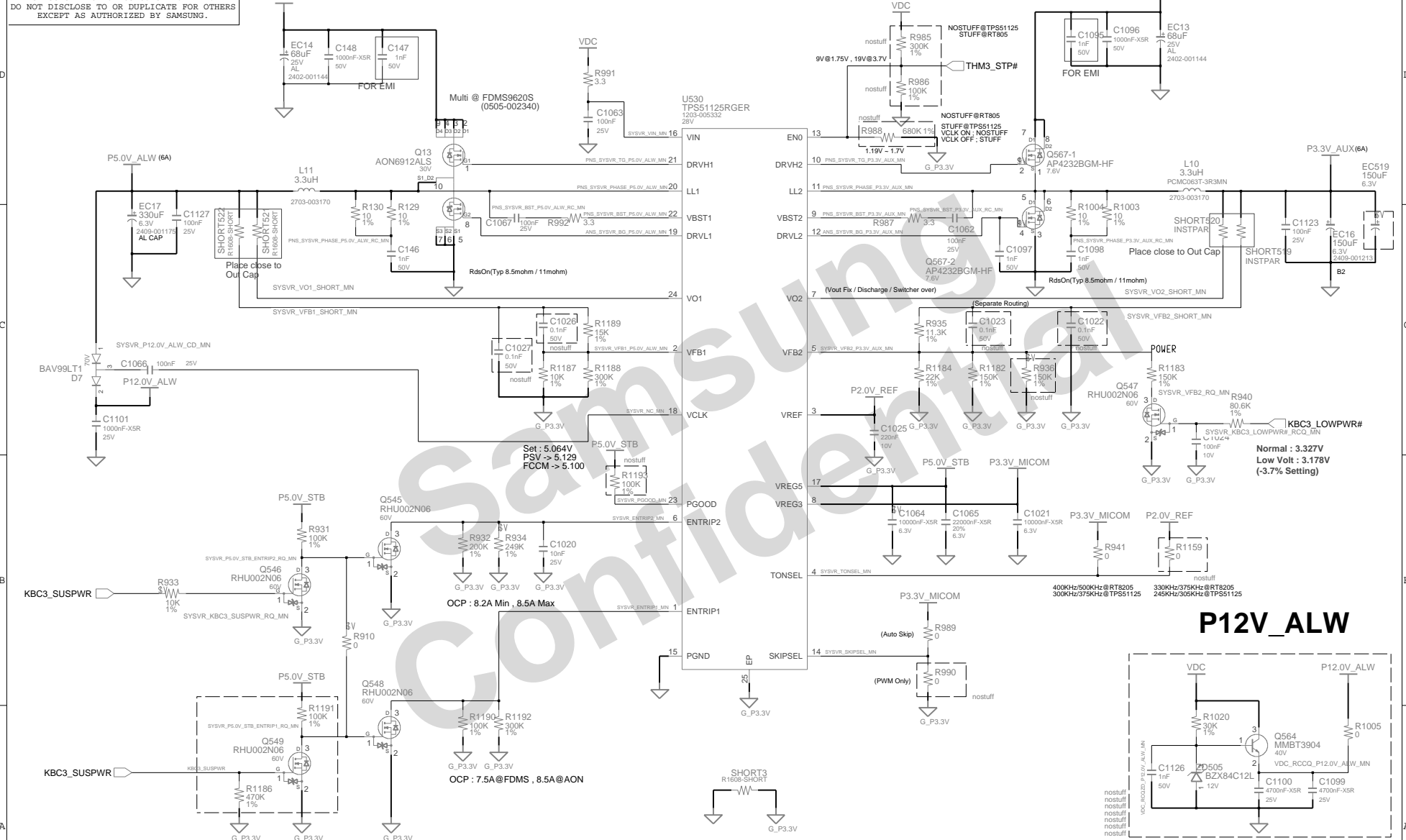


DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV. STEP	MP		CHARGER		
APPROVAL	BL LEE	REV	REV 1.0		Intersil ISL6255AHR-T	PART NO.	
MODULE CODE	undefined	LAST EDIT			May 23, 2012 08:40:30 AM	BA41-02092-94A	
						PAGE	40 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

P3.3V_ALW & P5.0V_ALW

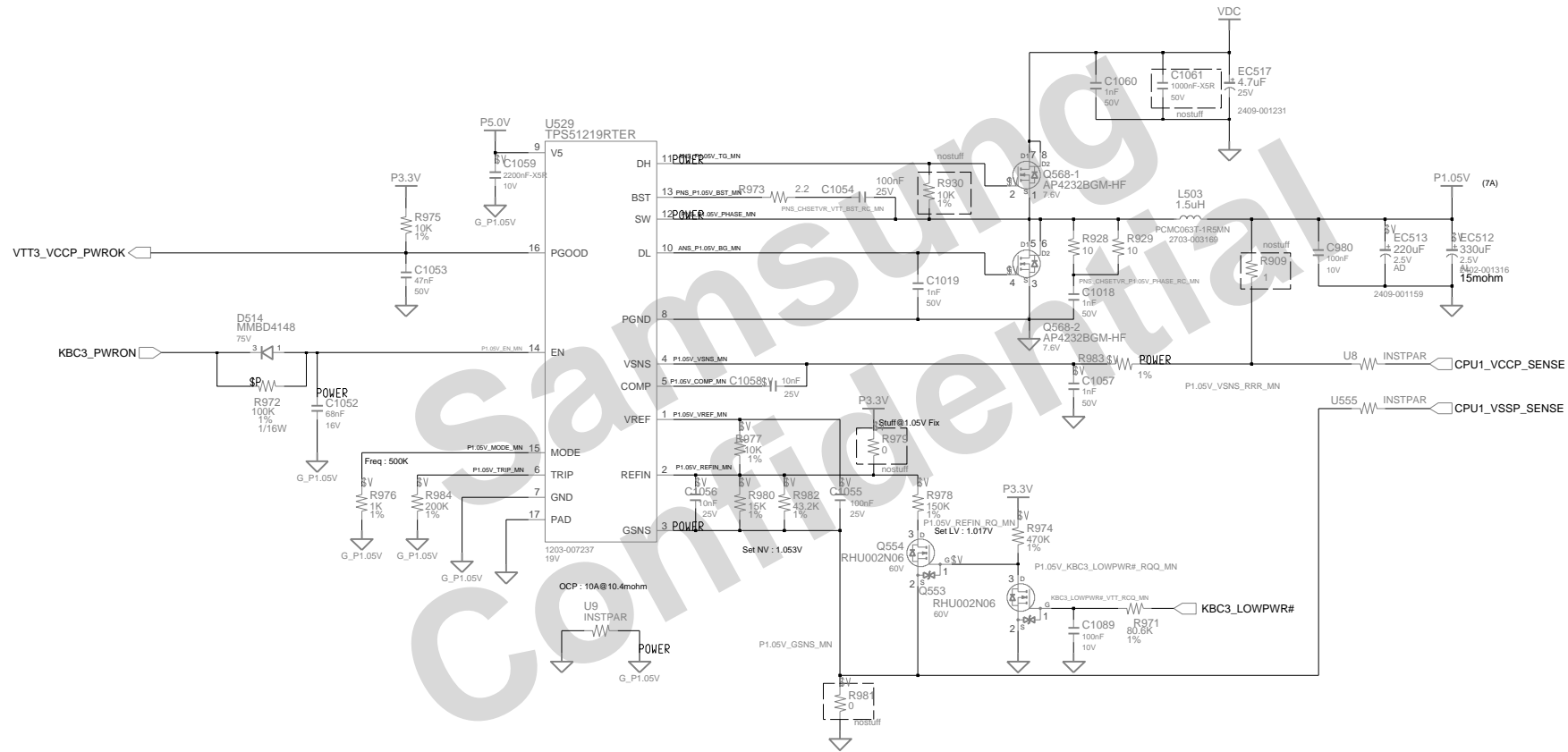


www.hobi-elektronika.blogspot.com

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

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

Chipset Power (P1.05V)



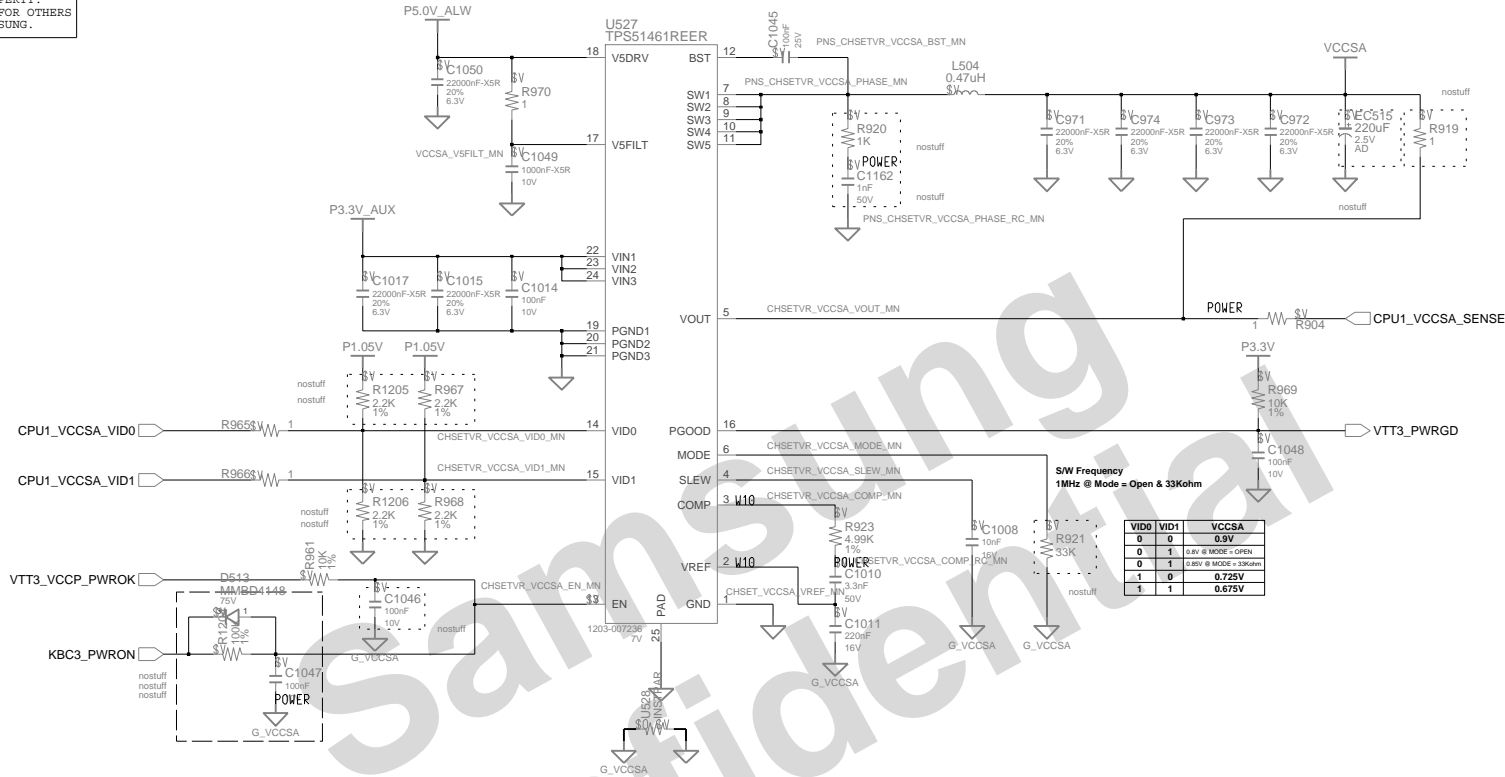
www.hobi-elektronika.blogspot.com

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

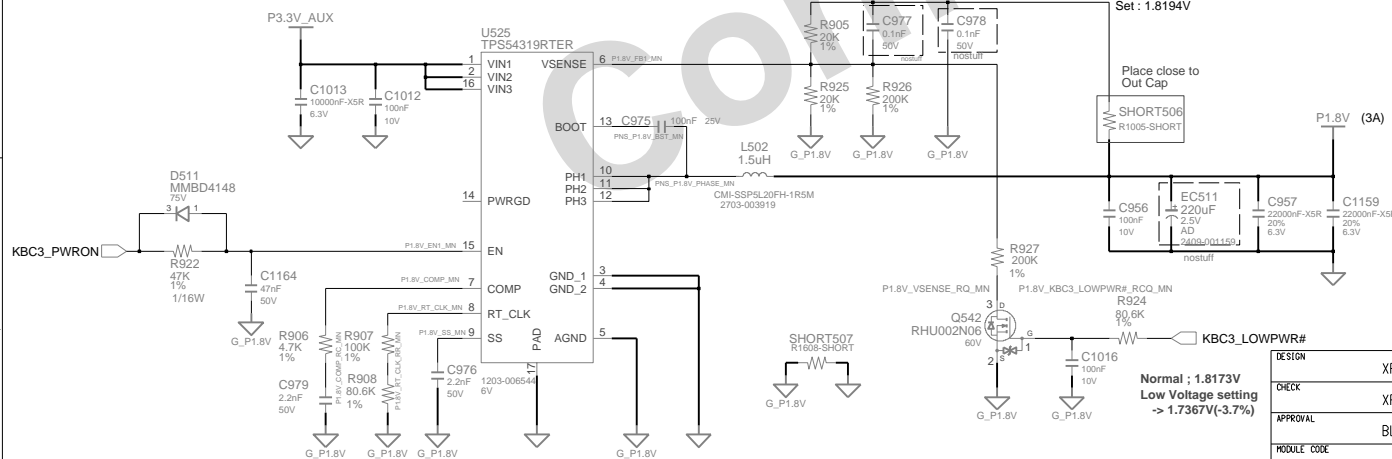
SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

CHIPSET POWER(VCCSA)



CHIPSET POWER(P1.8V)



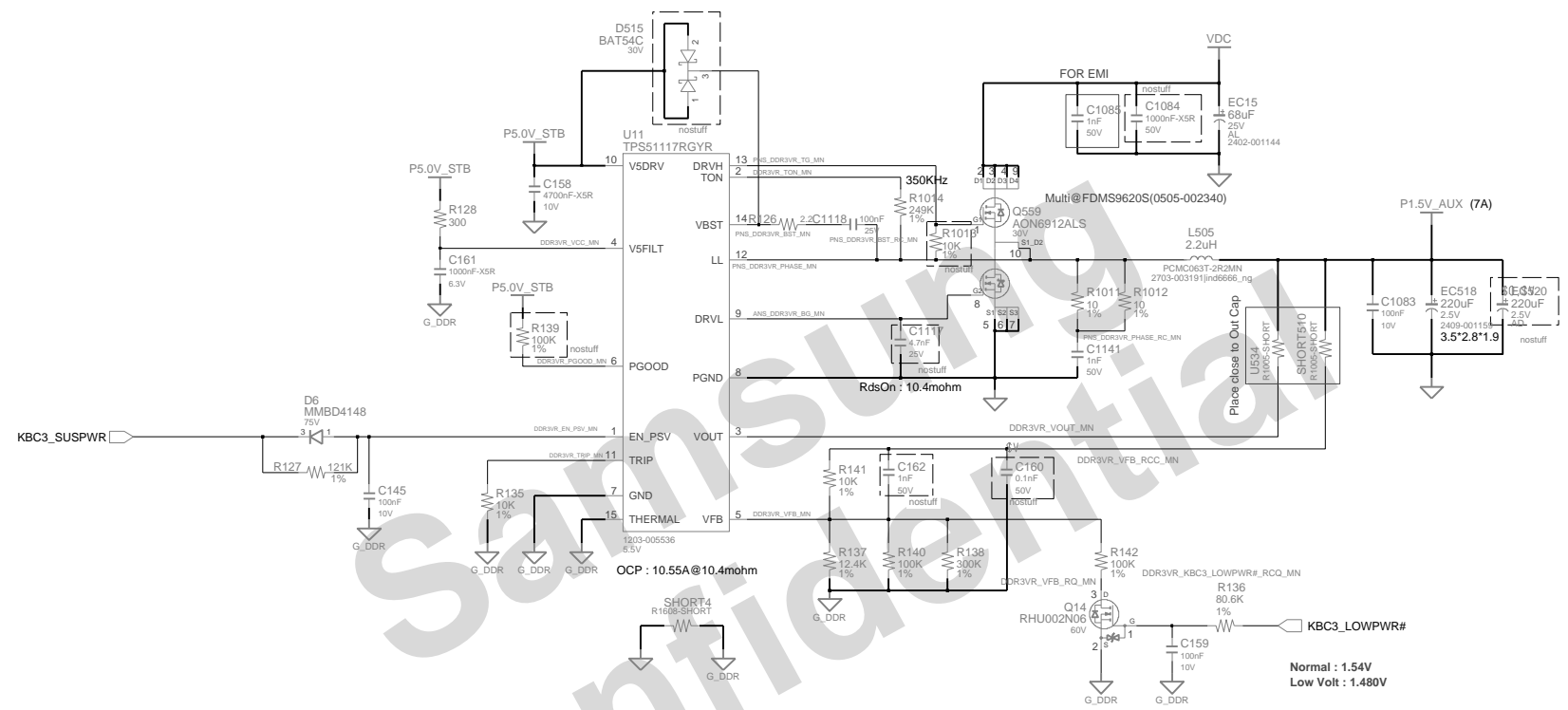
DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R P1.1V_VTT
CHECK	XF CHU	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.0		
MODULE CODE		LAST EDIT			

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

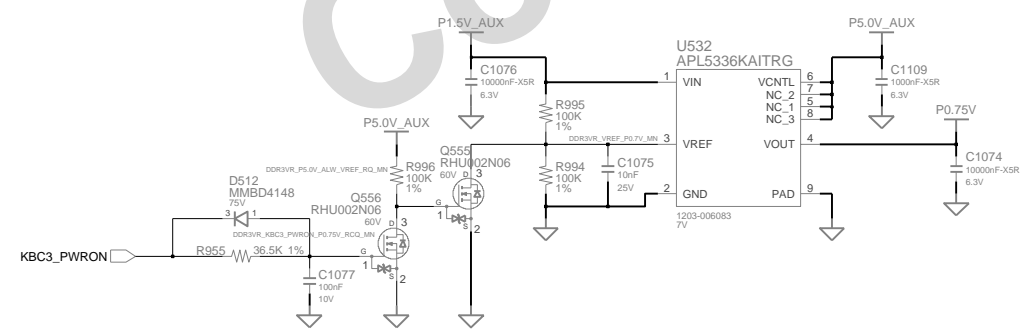
SAMSUNG
ELECTRONICS
PART NO.
BA41-02092*94A

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

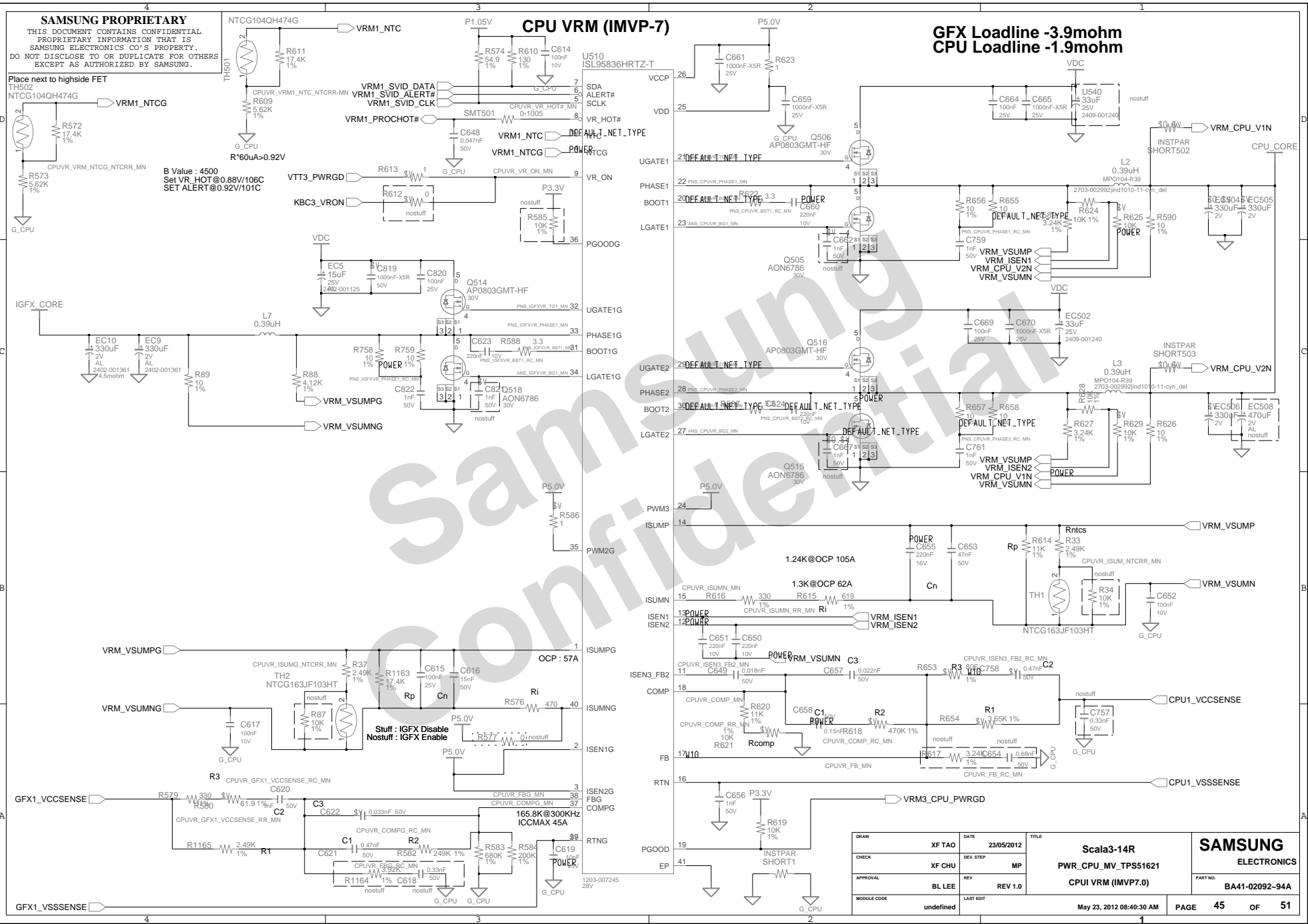
DDR3 Power



DDR3 VTT(0.75V)



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



SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

Place next to highside FET
 TH502
 NTCG104QH474G → VRM1_NTCG

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

CPU VRM (IMVP-7)

**GFX Loadline -3.9mohm
 CPU Loadline -1.9mohm**

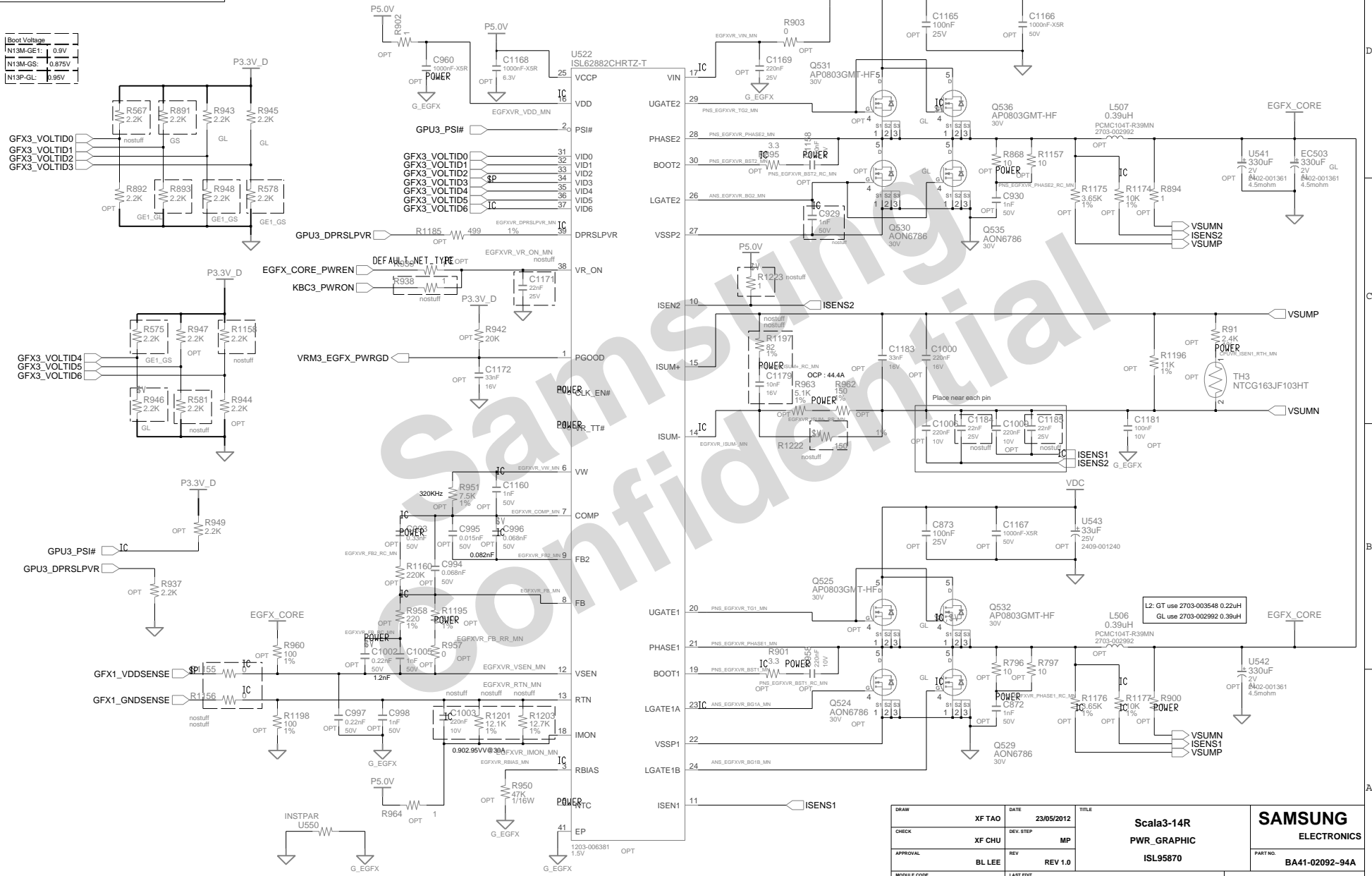
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV.STEP	MP		PWR_CPU_MV_TPS51621
APPROVAL	BL LEE	REV	REV 1.0		CPU VRM (IMVP7.0)
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM	PAGE	45 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

External Graphic Core Power

Slot Voltage	
N13M-GE1	0.9V
N13M-GS	0.875V
N13P-GL	0.95V



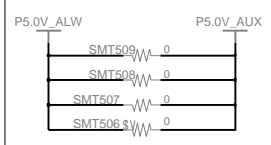
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R
CHECK	XF CHU	DEV. STEP	MP		PWR_GRAPHIC
APPROVAL	BL LEE	REV	REV 1.0		ISL95870
MODULE CODE		LAST EDIT			May 23, 2012 08:40:30 AM
				PAGE	46 OF 51
			SAMSUNG ELECTRONICS PART NO. BA41-02092-94A		

SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

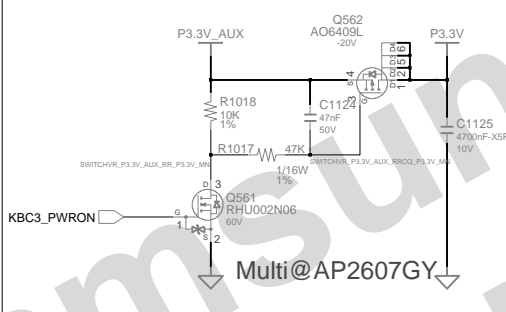
www.hobi-elektronika.blogspot.com
Switched Power 1

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

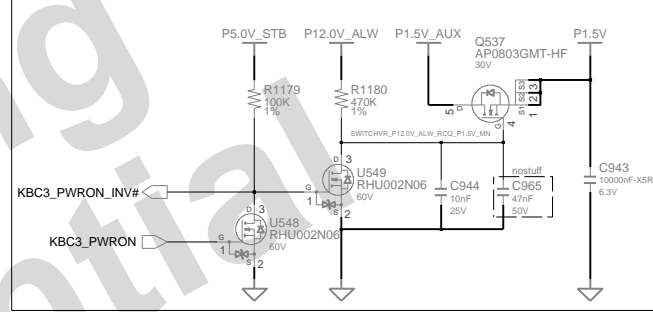
P5.0V_AUX



Switched Power On (P3.3V)

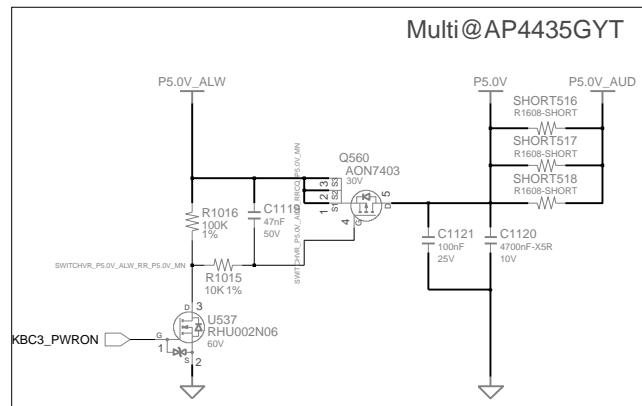


Switched Power On (P1.5V)



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

Switched Power On (P5.0V)



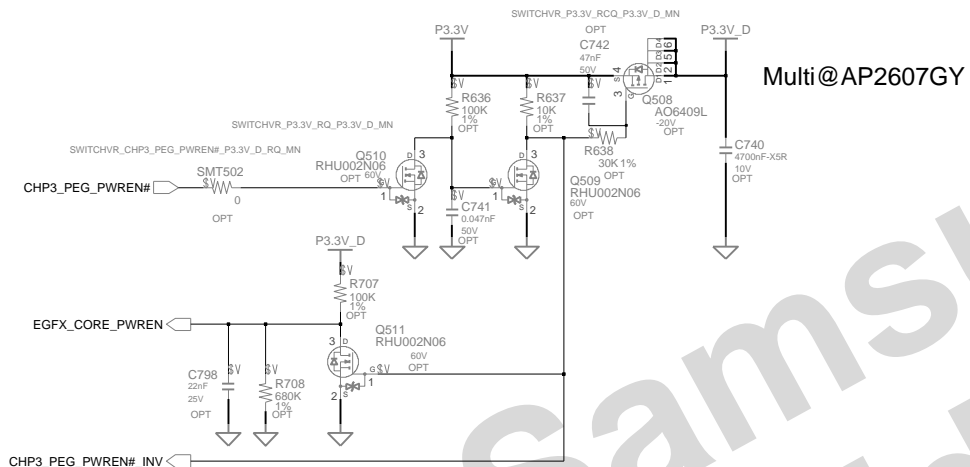
DRAW	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS	
CHECK	XF CHU	DEV.STEP	MP		Switched PWR 2		
APPROVAL	BL LEE	REV	REV 1.0		Switched Power		
MODULE CODE	undefined	LAST EDIT	May 23, 2012 08:40:30 AM				
						PART NO.	BA41-02092-94A
						PAGE	47 OF 51

SAMSUNG PROPRIETARY

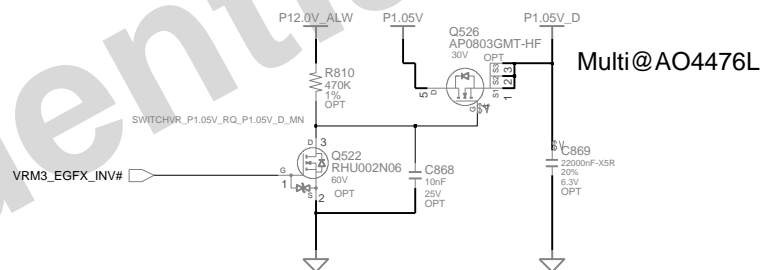
THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

Switched Power 2 (For nVidia GFX Power Sequence)

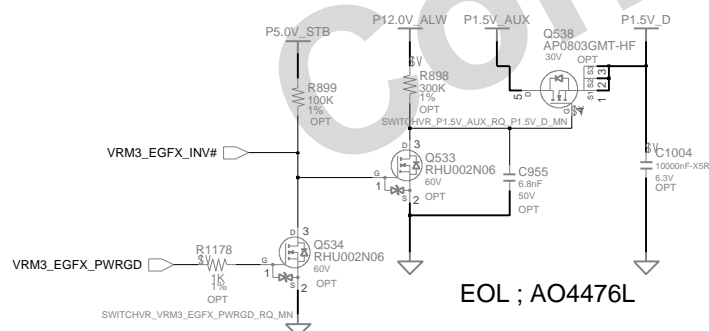
Discrete Switched Power (D3.3V : Max_1.2A)



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



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

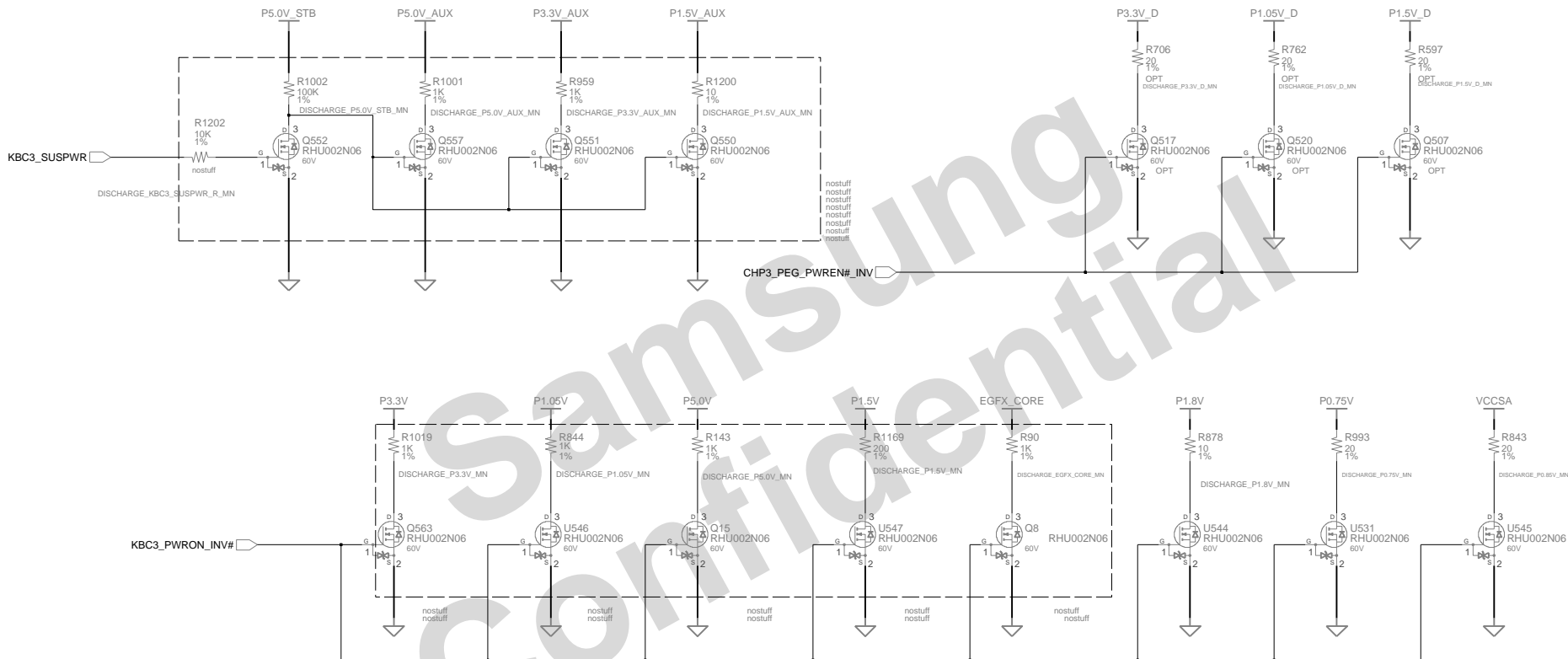


DRAW	DATE	TITLE	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
XF TAO	23/05/2012	Scala3-14R	
CHECK	DEV.STEP	Switched PWR	
APPROVAL	REV	FOR OPTIMUS PWR	
MODULE CODE	LAST EDIT		
XF CHU	MP		
BL LEE	REV 1.0		
		May 23, 2012 08:40:30 AM	PAGE 48 OF 51

SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

POWER DISCHARGER

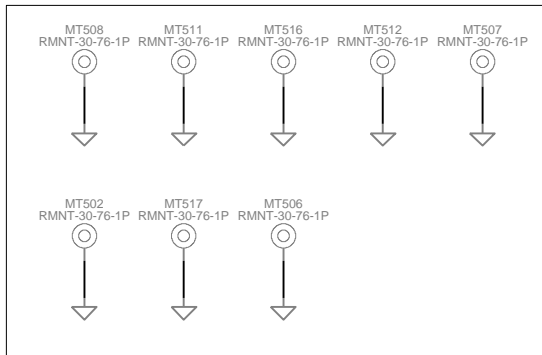


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS PART NO. BA41-02092-94A
CHECK	XF CHU	DEV. STEP	MP	DISCHARGER LOGIC		
APPROVAL	BL LEE	REV	REV 1.0	DISCHARGING LOGIC		
MODULE CODE		LAST EDIT		May 23, 2012 08:40:30 AM	PAGE 49 OF 51	

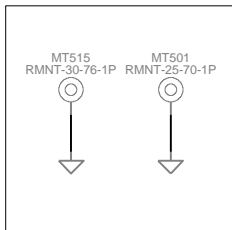
SAMSUNG PROPRIETARY

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

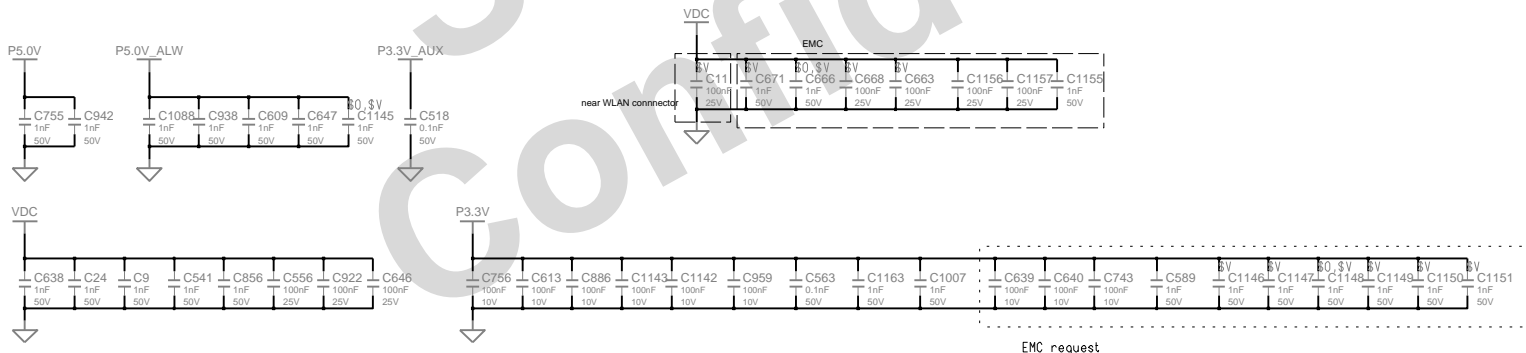
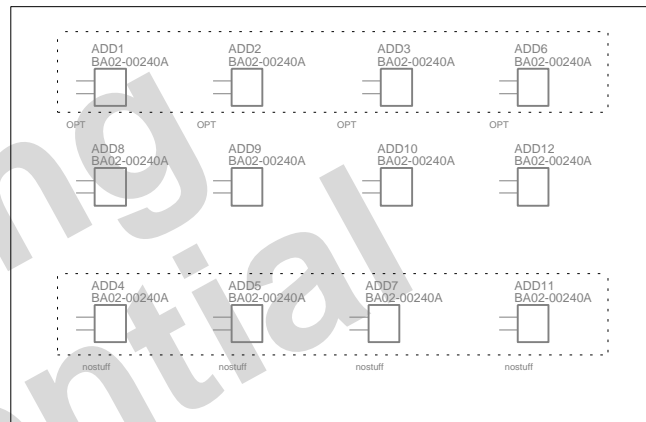
Mainboard Mount ((30-76)X8EA)



PCB FIX



Corner Fill for GPU, PCH

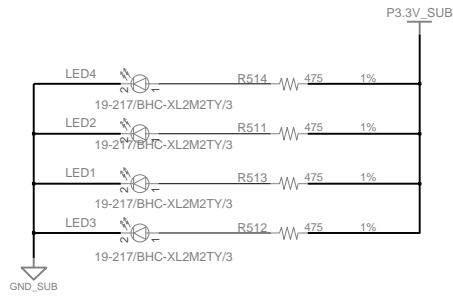


DESIGN	XF TAO	DATE	23/05/2012	TITLE	Scala3-14R	SAMSUNG ELECTRONICS
CHECK	XF CHU	DEV. STEP	MP		MT Hole	
APPROVAL	BL LEE	REV	REV 1.0		MT Hole	PART NO. BA41-02092-94A
MODULE CODE		LAST EDIT				

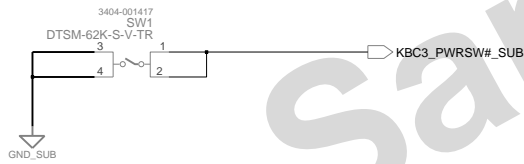
USB SUB BOARD

SAMSUNG PROPRIETARY

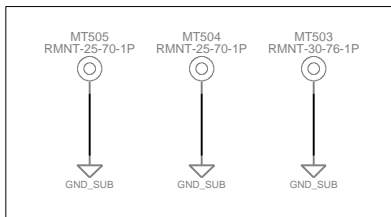
THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.



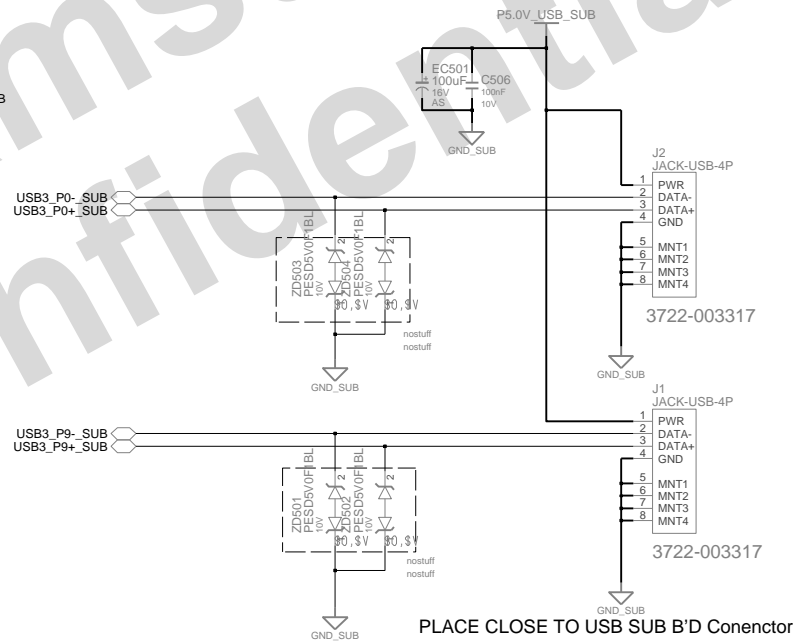
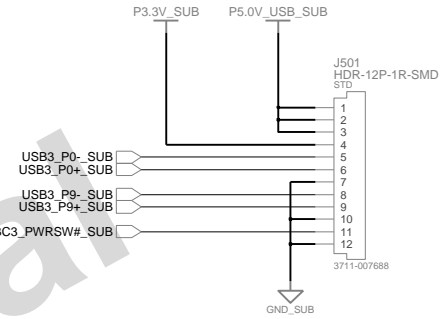
Power Switch Button



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