

BREMEN-M 15"/17"

CPU : Intel Arrandale
 Chip Set : Intel Ihex Peak(HM55)
 GFX : N11P/ M-GE1(40nm)
 Remarks : Calpella Platform

Model Name : BREMEN-M
 PBA Name : MAIN
 PCB Code : BA41-01174A
 Dev. Step : PR
 Revision : 1.0
 T.R. Date : 2009.11.12

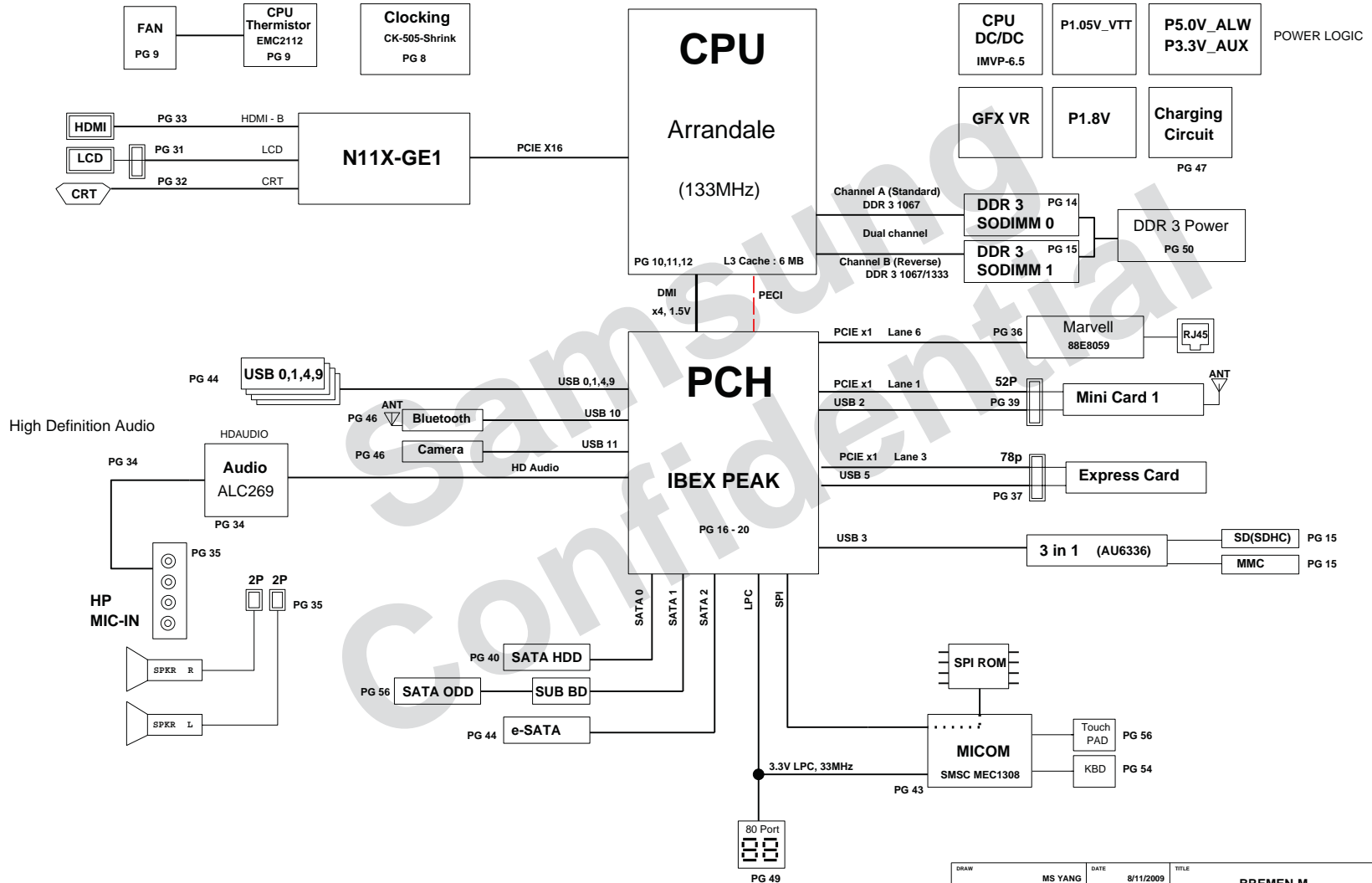
Design	CHECK	APPROVAL

Owner : SEC Mobile R & D Signature : X

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DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	MAIN	PART NO.	
APPROVAL	MK KIM	REV	REV 0.9	COVER	BA41-01174A	
MODULE CODE	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	1 OF 56

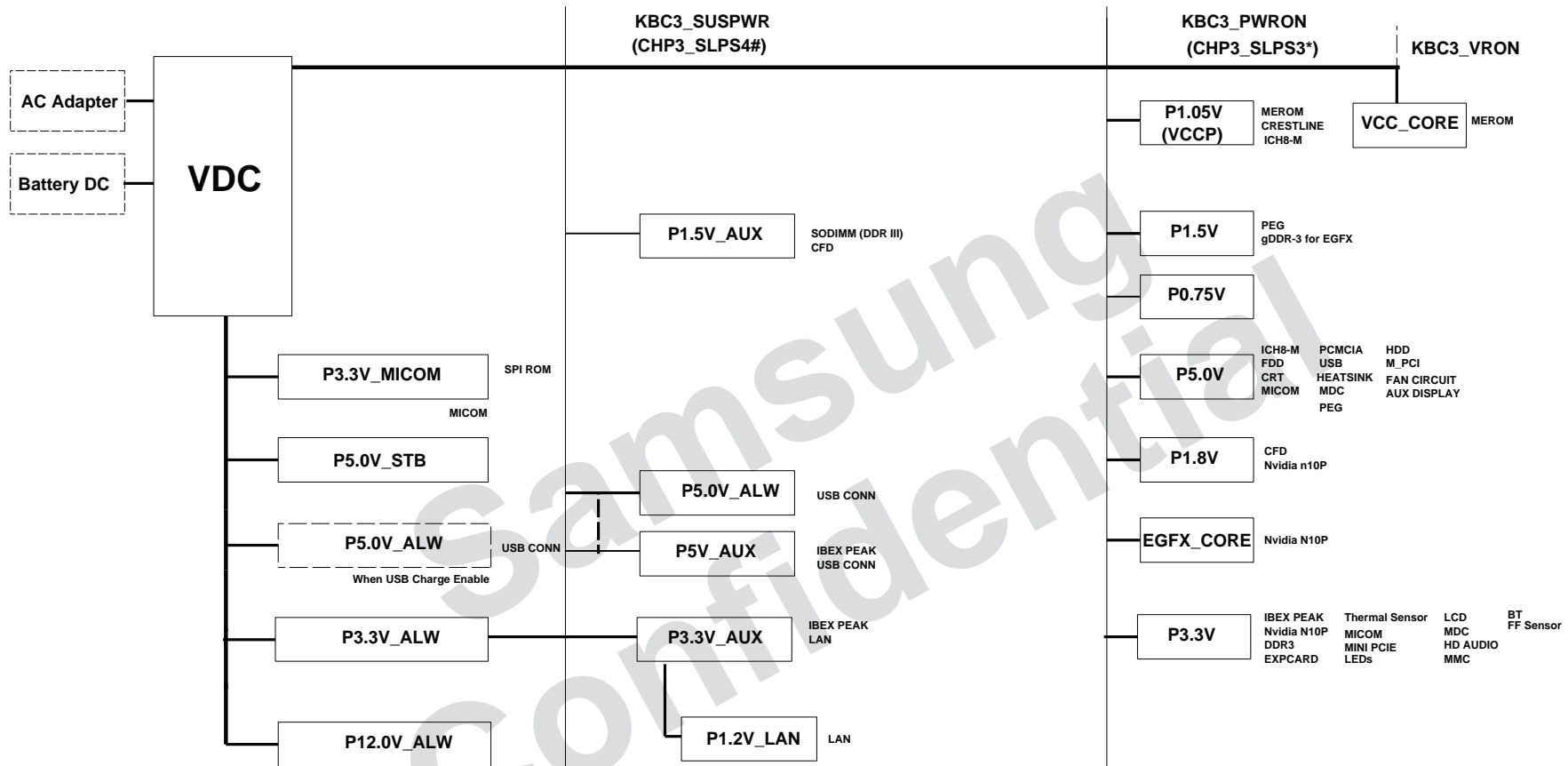
BLOCK DIAGRAM



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE	undefined	LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE	2 OF 56

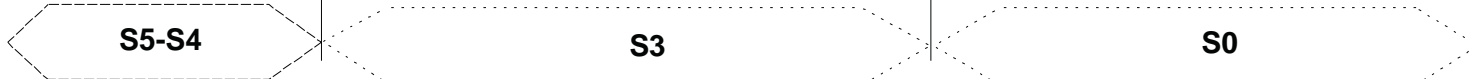
POWER DIAGRAM

Rev 0.1



Power On/Off Table by S-state

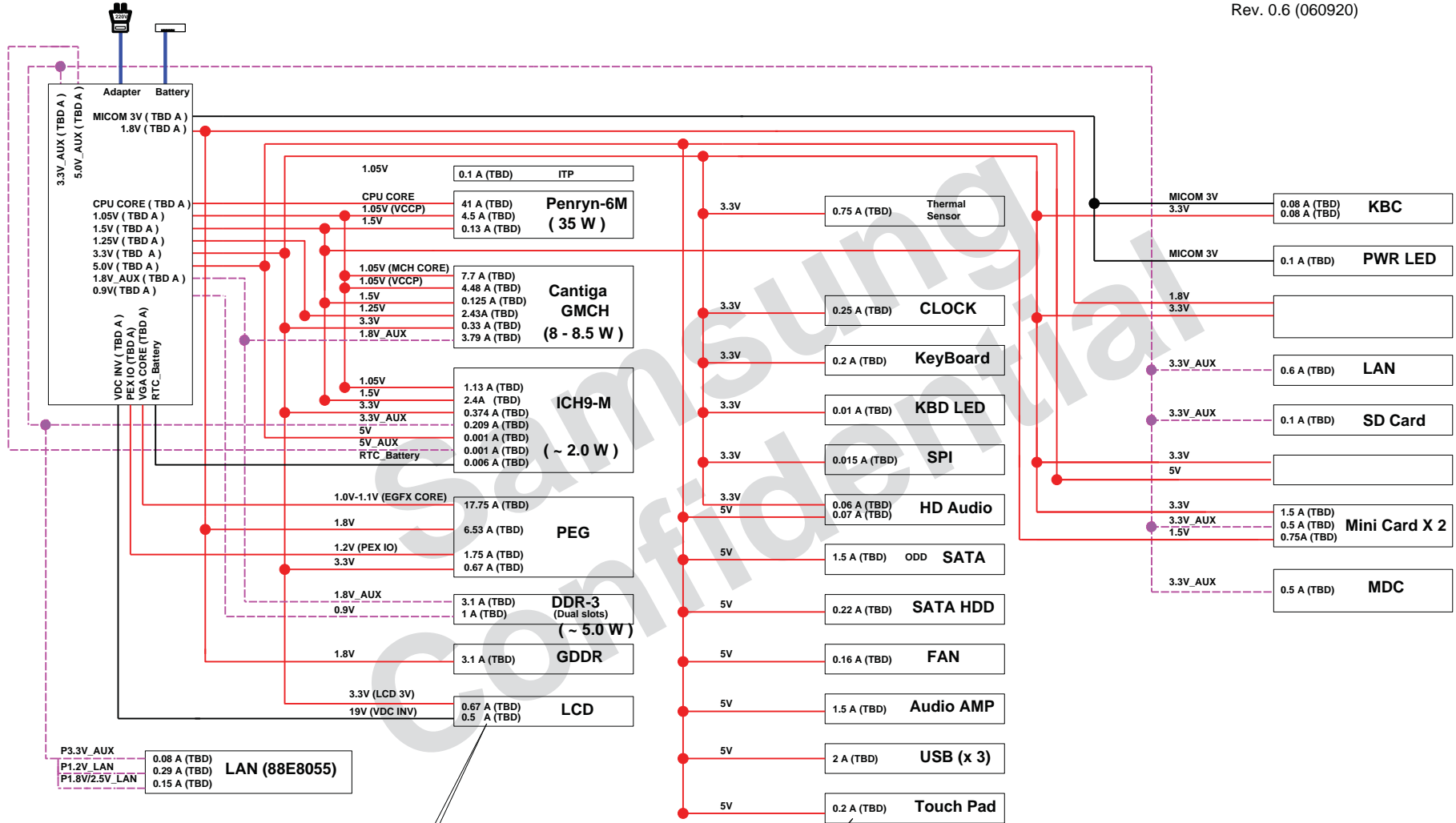
Rail \ State	S0	S3	S4	S5
+V*(LWS) +V*LAN	ON	ON	ON	ON
+1.8V_AUX +0.9V	ON	ON	---	---
+V*AUX	ON	ON	---	---
+V	ON	---	---	---
+V* (CORE)	ON	---	---	---



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MAIN	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	POWER DIAGRAM	PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM	PAGE	3 OF 56

POWER RAILS ANALYSIS

Rev. 0.6 (060920)

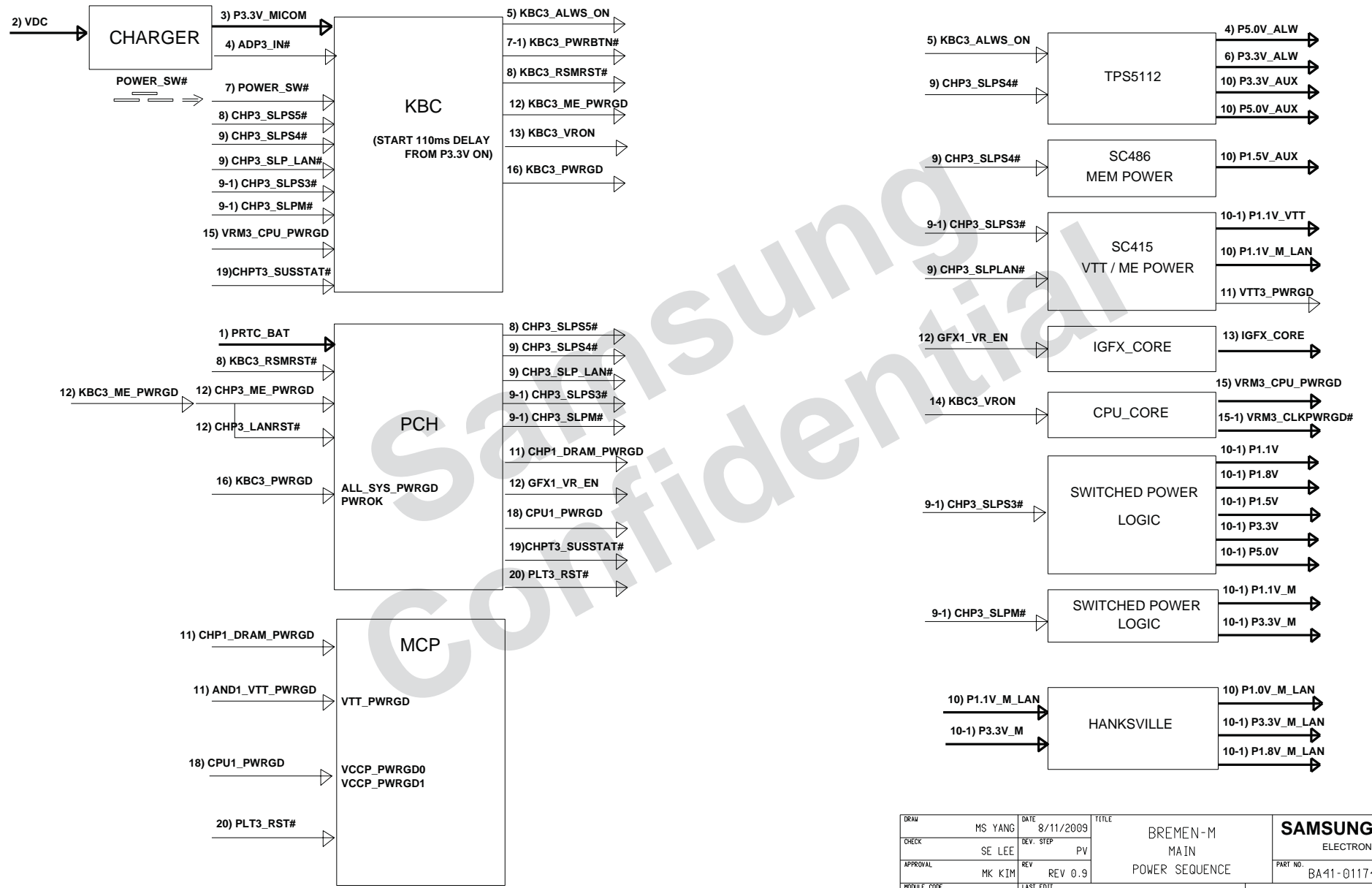


Value by Datasheet/Application notes (Value by measurement)

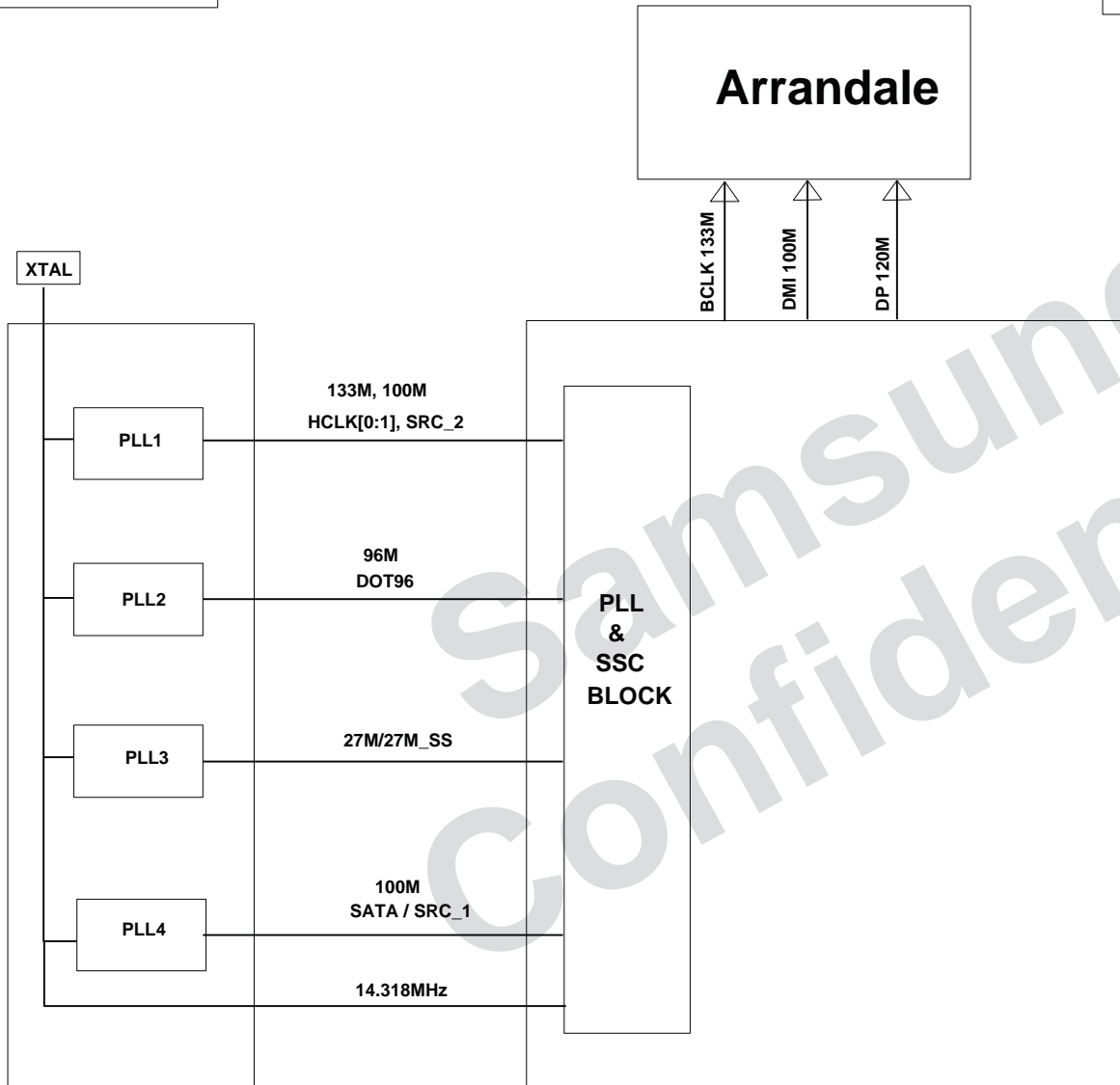
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CHECK	SE LEE	DEV. STEP	PV	POWER RAILS	PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE	undefined	LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE	4 OF 56

PRELIMINARY

POWER SEQUENCE Rev. 0.5



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MAIN	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	POWER SEQUENCE	PART NO.	
APPROVAL	MK KIM	REV	REV 0.9		BA41-01174A	
MODULE CODE	undefined	LAST EDIT	October 20, 2009 21:30:55 PM	PAGE	5	OF 56

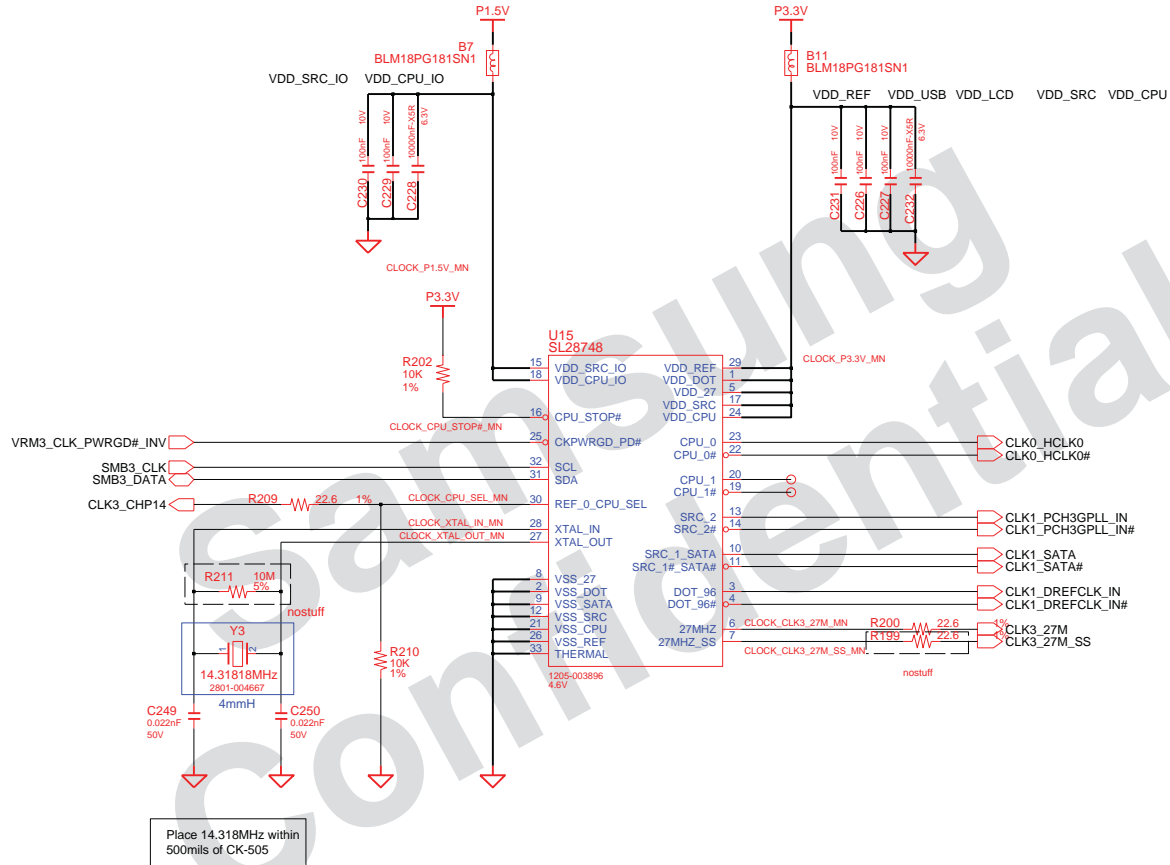


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CHECK	SE LEE	DEV. STEP	PV	CLOCK DIAGRAM	PART NO. BA41-01174A	
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MODULE CODE	undefined	LAST EDIT				

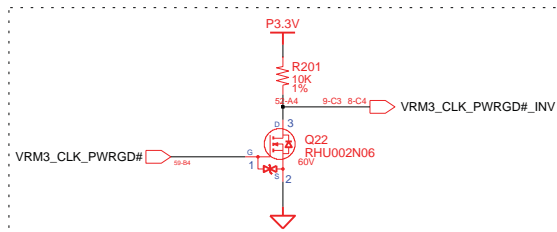
CK505M SHRINK VERSION

CPU_MODE SEL

Pin 30	CPU_0	CPU_1
CPU_SEL = 0	133MHz	133MHz

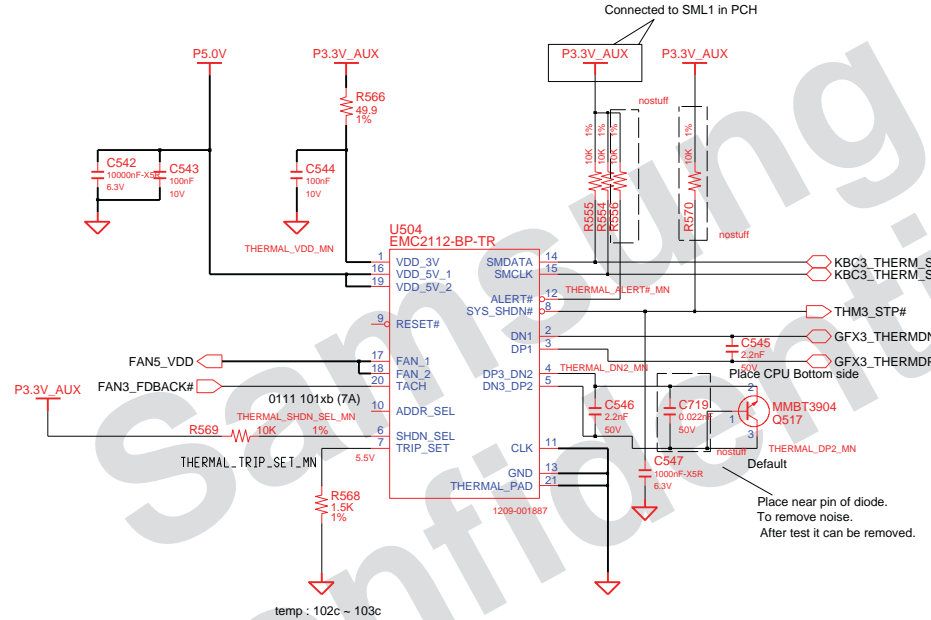


Place 14.318MHz within 500mils of CK-505



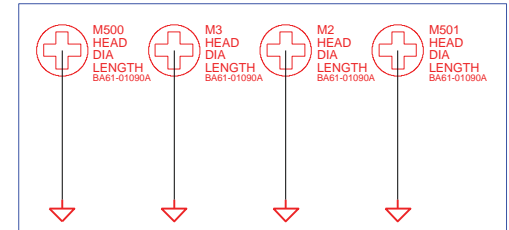
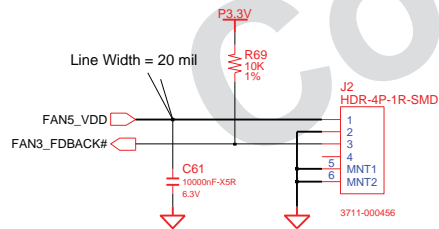
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M CLOCK		SAMSUNG ELECTRONICS	
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	MK KIM	REV 0.9		PART NO. BA41-01174A
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM				PAGE 7 OF 56

THERMAL SENSOR & FAN CONTROL



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

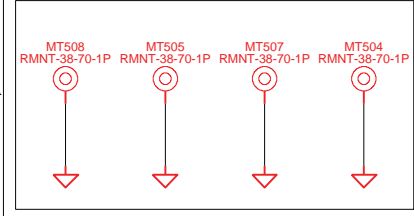
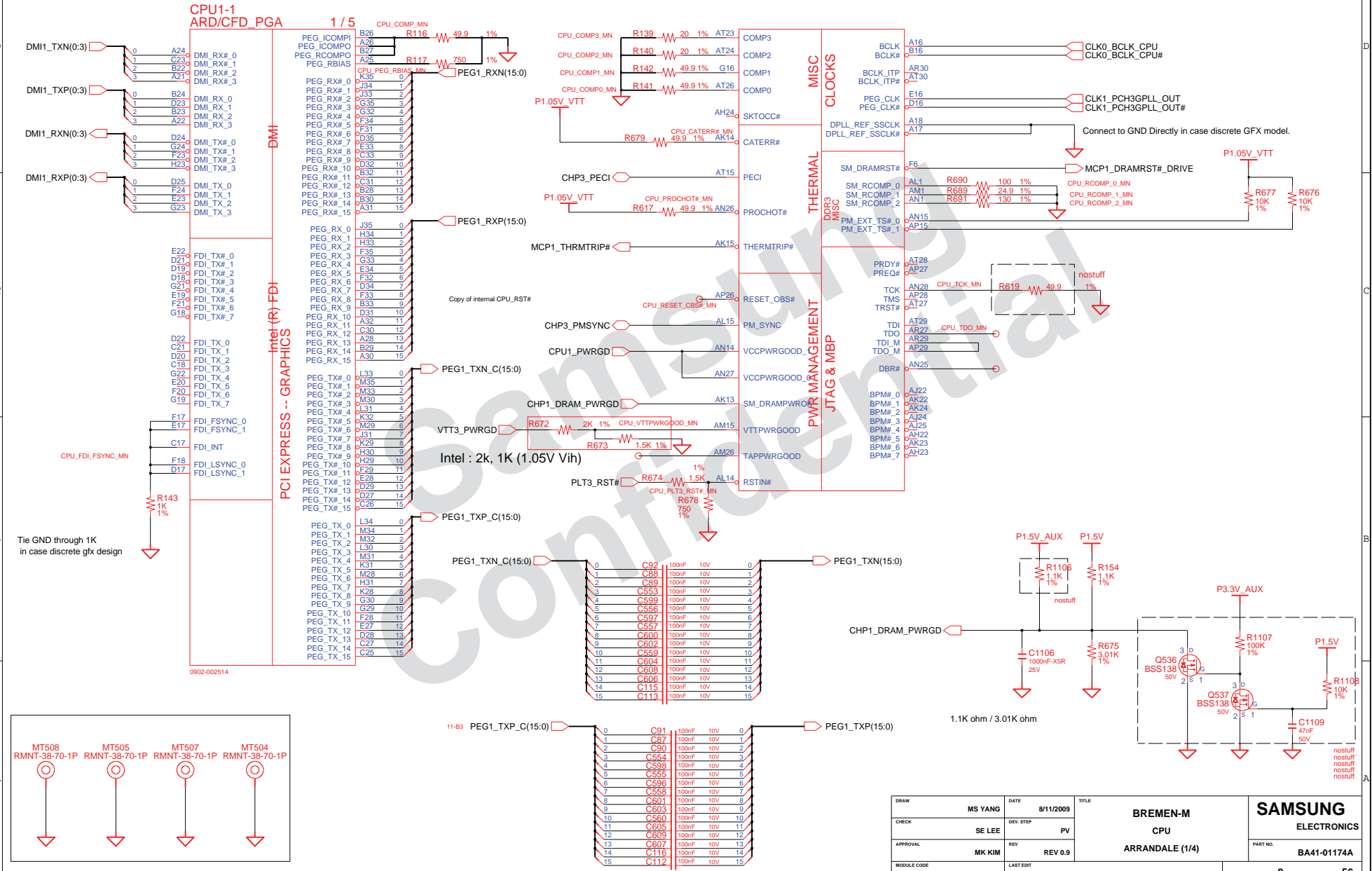


To support heatsink

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M THERMAL SENSOR		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	MK KIM	REV 0.9	
MODULE CODE		LAST EDIT		THERMAL SENSOR EMC2112			PART NO. BA41-01174A
				October 20, 2009 21:30:55 PM		PAGE	8 OF 56

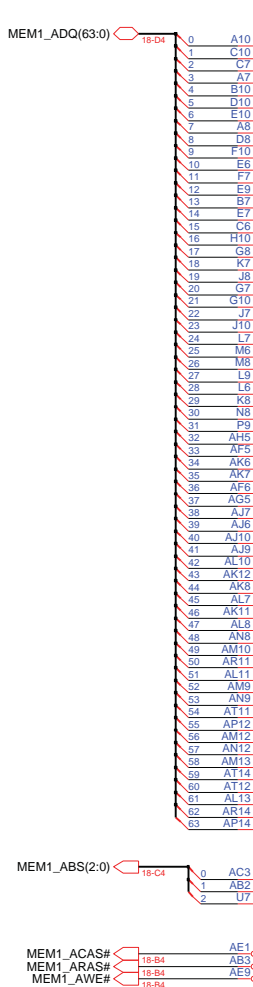
ARRANDALE PROCESSOR (DMI,PEG, FDI)

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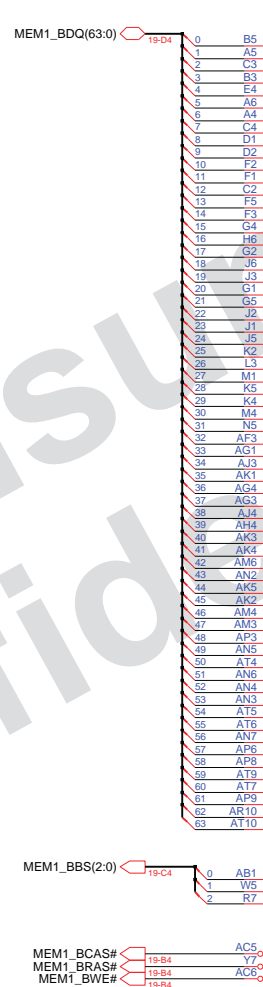
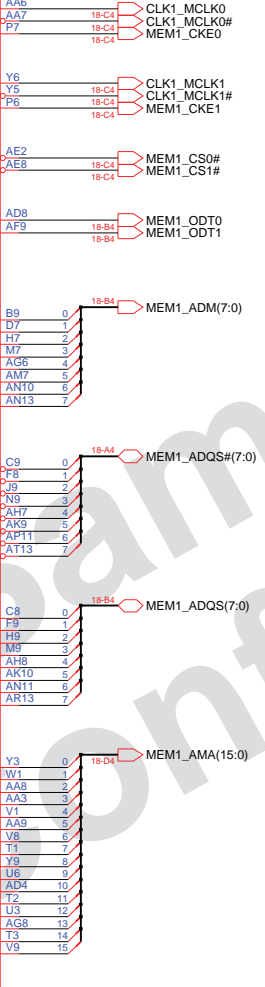


DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		CPU	
APPROVAL	MK KIM	REV	REV 0.9		ARRANDALE (1/4)	PART NO. BA41-01174A
MODULE CODE	undefined	LAST EDIT			October 20, 2009 21:30:55 PM	PAGE 9 OF 56

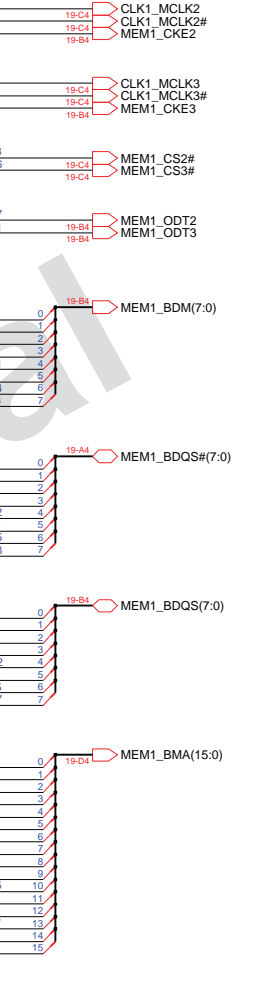
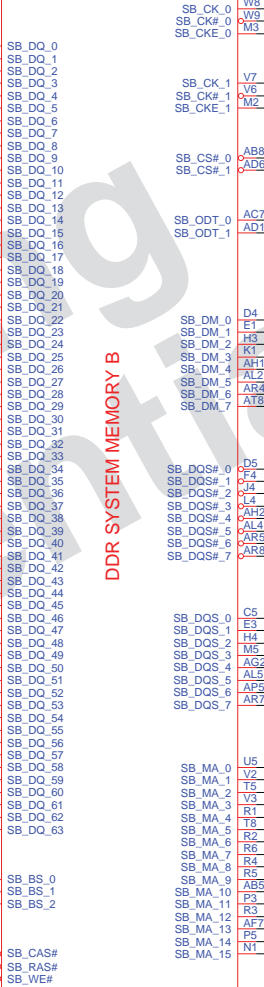
CPU1-2
ARD/CFD_PGA 2/5



DDR SYSTEM MEMORY A



DDR SYSTEM MEMORY B

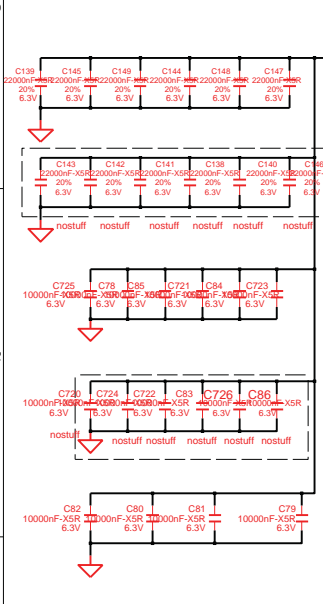


9902-002514

DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	CPU	ARRANDALE (2/4)	
APPROVAL	MK KIM	REV	REV 0.9			PART NO. BA41-01174A
MODULE CODE	undefined	LAST EDIT			October 20, 2009 21:30:55 PM	PAGE 10 OF 56

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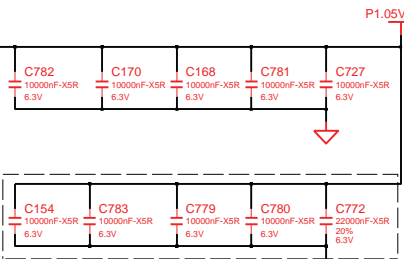
4x 470 uF : CPU VR side



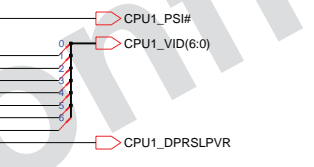
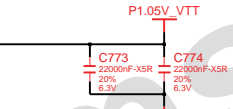
Stuff/NoStuff Check ?
 (depends on placement)

CPU CORE	CPU1-3 ARD/CFD PGA	3 / 5
VCC1	AH14	VTT1
VCC2	AH12	VTT2
VCC3	AH11	VTT3
VCC4	AH10	VTT4
VCC5	J14	VTT5
VCC6	H14	VTT6
VCC7	H12	VTT7
VCC8	G14	VTT8
VCC9	G13	VTT9
VCC10	G12	VTT10
VCC11	G11	VTT11
VCC12	F14	VTT12
VCC13	F13	VTT13
VCC14	F12	VTT14
VCC15	F11	VTT15
VCC16	E14	VTT16
VCC17	E13	VTT17
VCC18	E12	VTT18
VCC19	D13	VTT19
VCC20	D12	VTT20
VCC21	D11	VTT21
VCC22	C14	VTT22
VCC23	C13	VTT23
VCC24	C12	VTT24
VCC25	C11	VTT25
VCC26	B14	VTT26
VCC27	B13	VTT27
VCC28	B12	VTT28
VCC29	A14	VTT29
VCC30	A13	VTT30
VCC31	A12	VTT31
VCC32	A11	VTT32
VCC33		VTT33
VCC34	AF10	VTT34
VCC35	AE10	VTT35
VCC36	AC10	VTT36
VCC37	AB10	VTT37
VCC38	Y10	VTT38
VCC39	W10	VTT39
VCC40	V10	VTT40
VCC41	U10	VTT41
VCC42	T10	VTT42
VCC43	J11	VTT43
VCC44	J12	VTT44
VCC45	J13	
VCC46	J14	
VCC47	J15	
VCC48		
VCC49		
VCC50		
VCC51		
VCC52		
VCC53		
VCC54		
VCC55		
VCC56		
VCC57		
VCC58		
VCC59		
VCC60		
VCC61		
VCC62		
VCC63		
VCC64		
VCC65		
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VCC68		
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VCC99		
VCC100		

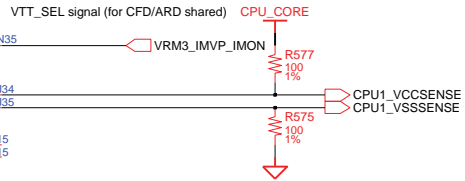
ALL VTT DECAP IS SHARED



1.1V RAIL POWER

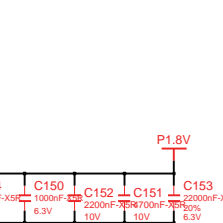
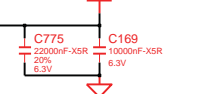
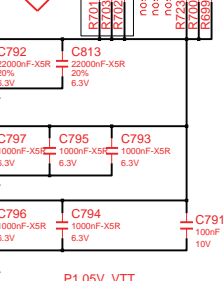
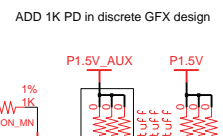
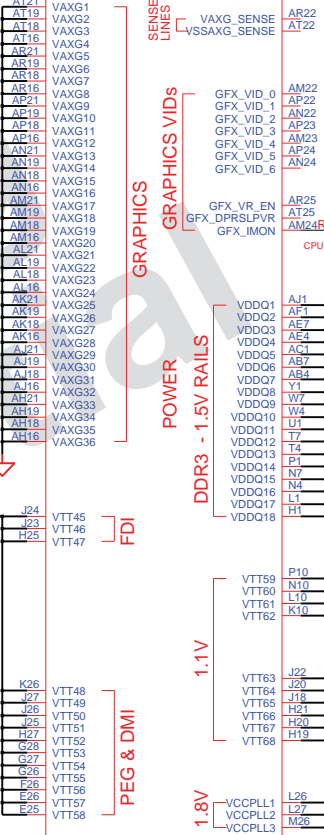


VTT_SEL	VOLTAGE	CPU
1	P1.05V	ARRANDALE
0	P1.1V	CLARKS FIELD



P1.05V_VTT

CPU1-4
ARD/CFD PGA 4 / 5



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M CPU ARRANDALE (3/4)	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				

**CPU1-5
 ARD/CFD_PG45 / 5**

AT20	VSS1	VSS81	AE34
AT17	VSS2	VSS82	AE33
AR37	VSS3	VSS83	AE32
AR28	VSS4	VSS84	AE31
AR26	VSS5	VSS85	AE30
AR24	VSS6	VSS86	AE29
AR23	VSS7	VSS87	AE28
AR20	VSS8	VSS88	AE27
AR17	VSS9	VSS89	AE26
VSS10	VSS10	VSS90	AE6
AR12	VSS11	VSS91	AD10
AR9	VSS12	VSS92	AC2
AR6	VSS13	VSS93	AC2
AR3	VSS14	VSS94	AC2
AP20	VSS15	VSS95	AB35
AP17	VSS16	VSS96	AB34
AP13	VSS17	VSS97	AB33
AP10	VSS18	VSS98	AB32
AP7	VSS19	VSS99	AB31
AP4	VSS20	VSS100	AB30
AN34	VSS21	VSS101	AB29
AN31	VSS22	VSS102	AB28
AN23	VSS23	VSS103	AB27
AN20	VSS24	VSS104	AB26
AN17	VSS25	VSS105	AA10
AM29	VSS26	VSS106	Y8
AM27	VSS27	VSS107	Y8
AM25	VSS28	VSS108	Y4
AM20	VSS29	VSS109	W35
AM17	VSS30	VSS110	W34
AM14	VSS31	VSS111	W33
AM11	VSS32	VSS112	W32
AM8	VSS33	VSS113	W31
AM6	VSS34	VSS114	W30
AM2	VSS35	VSS115	W29
AL34	VSS36	VSS116	W28
AL31	VSS37	VSS117	W27
AL29	VSS38	VSS118	W26
AL20	VSS39	VSS119	W6
AL17	VSS40	VSS120	W10
AL12	VSS41	VSS121	U8
AL9	VSS42	VSS122	U8
AL6	VSS43	VSS123	U2
AL3	VSS44	VSS124	T35
AK29	VSS45	VSS125	T34
AK27	VSS46	VSS126	T33
AK25	VSS47	VSS127	T32
AK20	VSS48	VSS128	T31
AK17	VSS49	VSS129	T30
AK13	VSS50	VSS130	T29
AK23	VSS51	VSS131	T28
AK20	VSS52	VSS132	T27
AJ17	VSS53	VSS133	T26
AJ14	VSS54	VSS134	T25
AJ11	VSS55	VSS135	T6
AJ9	VSS56	VSS136	R10
AJ6	VSS57	VSS137	P4
AJ2	VSS58	VSS138	P2
AH35	VSS59	VSS139	N35
AH34	VSS60	VSS140	N34
AH33	VSS61	VSS141	N33
AH32	VSS62	VSS142	N32
AH31	VSS63	VSS143	N31
AH30	VSS64	VSS144	N30
AH29	VSS65	VSS145	N29
AH28	VSS66	VSS146	N28
AH27	VSS67	VSS147	N27
AH26	VSS68	VSS148	N26
AH20	VSS69	VSS149	N6
AH17	VSS70	VSS150	N6
AH13	VSS71	VSS151	L35
AH9	VSS72	VSS152	L32
AH6	VSS73	VSS153	L32
AH3	VSS74	VSS154	L29
AG10	VSS75	VSS155	L5
AF8	VSS76	VSS156	L2
AF4	VSS77	VSS157	K34
AF2	VSS78	VSS158	K33
AE56	VSS79	VSS159	K30
VSS80	VSS80	VSS160	K30

K27	VSS161
K6	VSS162
K3	VSS163
K32	VSS164
J30	VSS165
J21	VSS166
J19	VSS167
H35	VSS168
H32	VSS169
H28	VSS170
H26	VSS171
H24	VSS172
H22	VSS173
H18	VSS175
H15	VSS176
H11	VSS177
H8	VSS178
H5	VSS179
H2	VSS180
G34	VSS181
G31	VSS182
G20	VSS183
G9	VSS184
G6	VSS185
G3	VSS186
F30	VSS188
F27	VSS189
F25	VSS190
F22	VSS191
F19	VSS192
F16	VSS193
F15	VSS194
E32	VSS195
E29	VSS196
E24	VSS197
E21	VSS198
E18	VSS199
E13	VSS200
E11	VSS201
E8	VSS202
E5	VSS203
E2	VSS204
B33	VSS205
B30	VSS206
B26	VSS207
B2	VSS208
D9	VSS209
D6	VSS210
D3	VSS211
C34	VSS212
C28	VSS213
C26	VSS214
C24	VSS215
C22	VSS216
C20	VSS217
C16	VSS218
C11	VSS219
B31	VSS220
B25	VSS221
B21	VSS222
B18	VSS223
B17	VSS224
B13	VSS225
B11	VSS226
B8	VSS227
B6	VSS228
B4	VSS229
A29	VSS230
A27	VSS231
A23	VSS232
A9	VSS233

VSS

NCTF

VSS_NCTF1

VSS_NCTF2

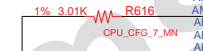
VSS_NCTF3

VSS_NCTF4

VSS_NCTF5

VSS_NCTF6

VSS_NCTF7



AP25	RSVD1	RSVD32	AJ13
AL25	RSVD2	RSVD33	AJ12
AL22	RSVD3	RSVD34	AH25
AJ33	RSVD4	RSVD35	AK26
AG9	RSVD5	RSVD36	AL26
M27	RSVD6	RSVD_NCTF_37	AR2
L26	RSVD7	RSVD_NCTF_38	AJ26
H17	RSVD8	RSVD38	AJ27
G25	SA_DIMM_VREFDD	RSVD39	
G17	SB_DIMM_VREFDD		
E31	RSVD11	RSVD_NCTF_40	AP1
E30	RSVD13	RSVD_NCTF_41	AT2
	RSVD14	RSVD_NCTF_42	AT3
		RSVD_NCTF_43	AR1
AM30	CFG_0	RSVD45	AL28
AM28	CFG_1	RSVD46	AL29
AP31	CFG_2	RSVD47	AP30
AL32	CFG_3	RSVD48	AP32
AL30	CFG_4	RSVD49	AL27
AN29	CFG_5	RSVD50	AT31
AM32	CFG_6	RSVD51	AT32
AK32	CFG_7	RSVD52	AP33
AK31	CFG_8	RSVD_NCTF_54	AT33
AK28	CFG_9	RSVD_NCTF_55	AT34
AJ28	CFG_10	RSVD_NCTF_56	AR35
AN30	CFG_11	RSVD_NCTF_57	AR32
AK32	CFG_12	RSVD58	
AK32	CFG_13		
AJ29	CFG_14	RSVD_TP_69	E15
AJ29	CFG_15	RSVD_TP_69	F15
AK30	CFG_16	KEY	A2
AK30	CFG_17	KEY	D15
H16	RSVD_TP_86	RSVD62	C15
		RSVD63	AJ15
		RSVD64	AH15
		RSVD65	
B19	RSVD15		
A19	RSVD16		
A20	RSVD17		
B20	RSVD18		
U9	RSVD19	RSVD_TP_66	AA5
T9	RSVD20	RSVD_TP_67	V4
AC9	RSVD21	RSVD_TP_68	R8
AB9	RSVD22	RSVD_TP_69	AD3
		RSVD_TP_70	AD2
		RSVD_TP_71	AA2
		RSVD_TP_72	AA1
		RSVD_TP_73	R9
		RSVD_TP_74	AE7
		RSVD_TP_75	AE3
C1	RSVD_NCTF_23	RSVD_TP_76	V4
A3	RSVD_NCTF_24	RSVD_TP_77	V4
		RSVD_TP_78	N2
		RSVD_TP_79	AD5
J29	RSVD26	RSVD_TP_80	AD7
J28	RSVD27	RSVD_TP_81	W3
		RSVD_TP_82	W2
A34	RSVD_NCTF_28	RSVD_TP_83	N3
A33	RSVD_NCTF_29	RSVD_TP_84	AE5
C35	RSVD_NCTF_30	RSVD_TP_85	AD9
B35	RSVD_NCTF_31		

RESERVED

CRB is NC
 EDS/DG is GND recommend

CFG Straps for Processor

PCI Express Configuration Select	
CFG0	1: Single PEG 0: Bifunction enabled
PCI Express Static Lane Reversal	
CFG3	1: Normal operation 0: Lane Reversed
Display Port Presence	
CFG4	1: Disabled - No DP device is connected to eDP 0: Enabled - (DP device is connected to eDP
PCIe 2.0 SUPPORT	
CFG7	1: Normal operation 0: PCIe2.0 Jitter support

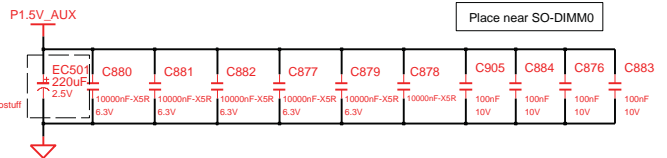
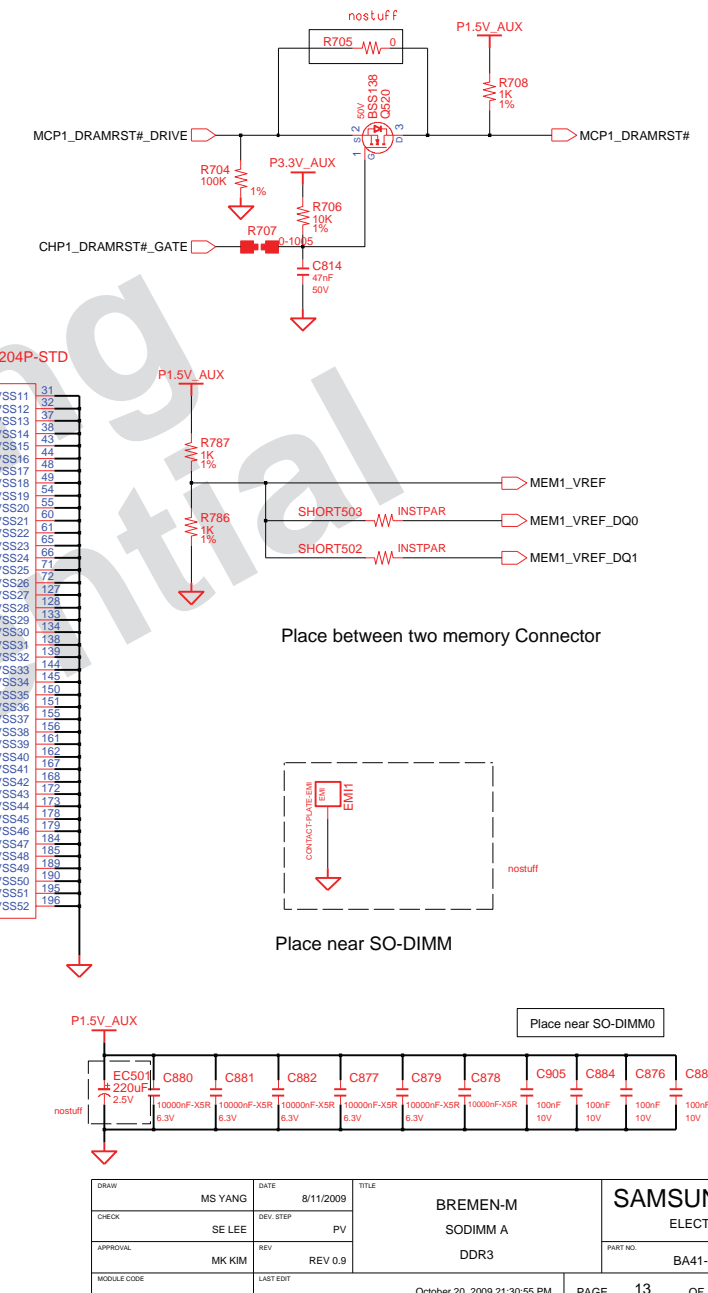
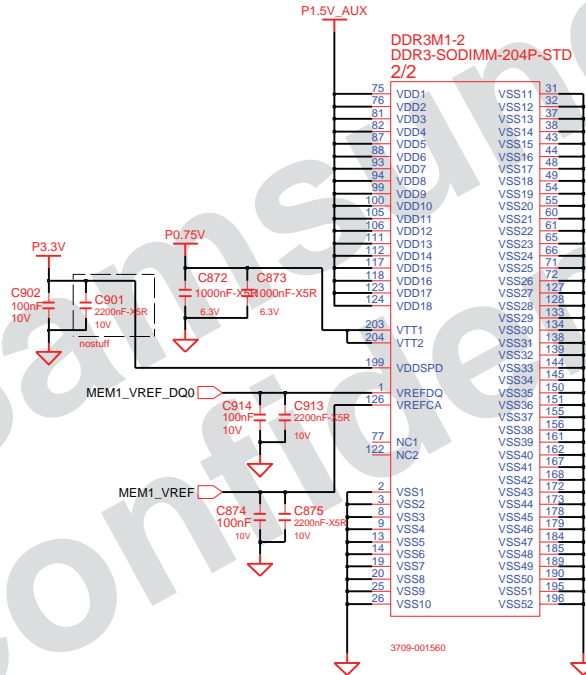
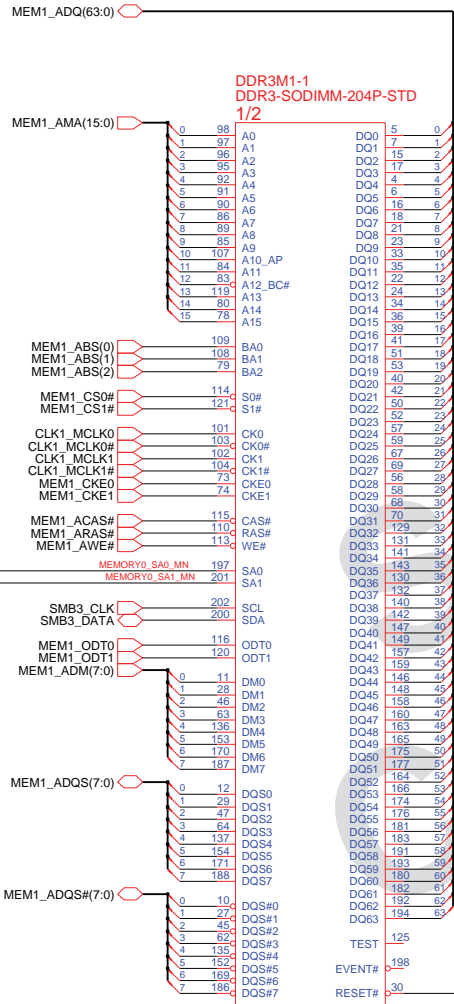
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		CPU	
APPROVAL	MK KIM	REV	REV 0.9		ARRANDALE (4/4)	PART NO. BA41-01174A
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM	PAGE	12 OF 56

DDR SO-DIMM #0

Height : 4 mm (STANDARD)

P/N : 3709-001532 (Molex)

P/N : 3709-001560 (Foxconn)



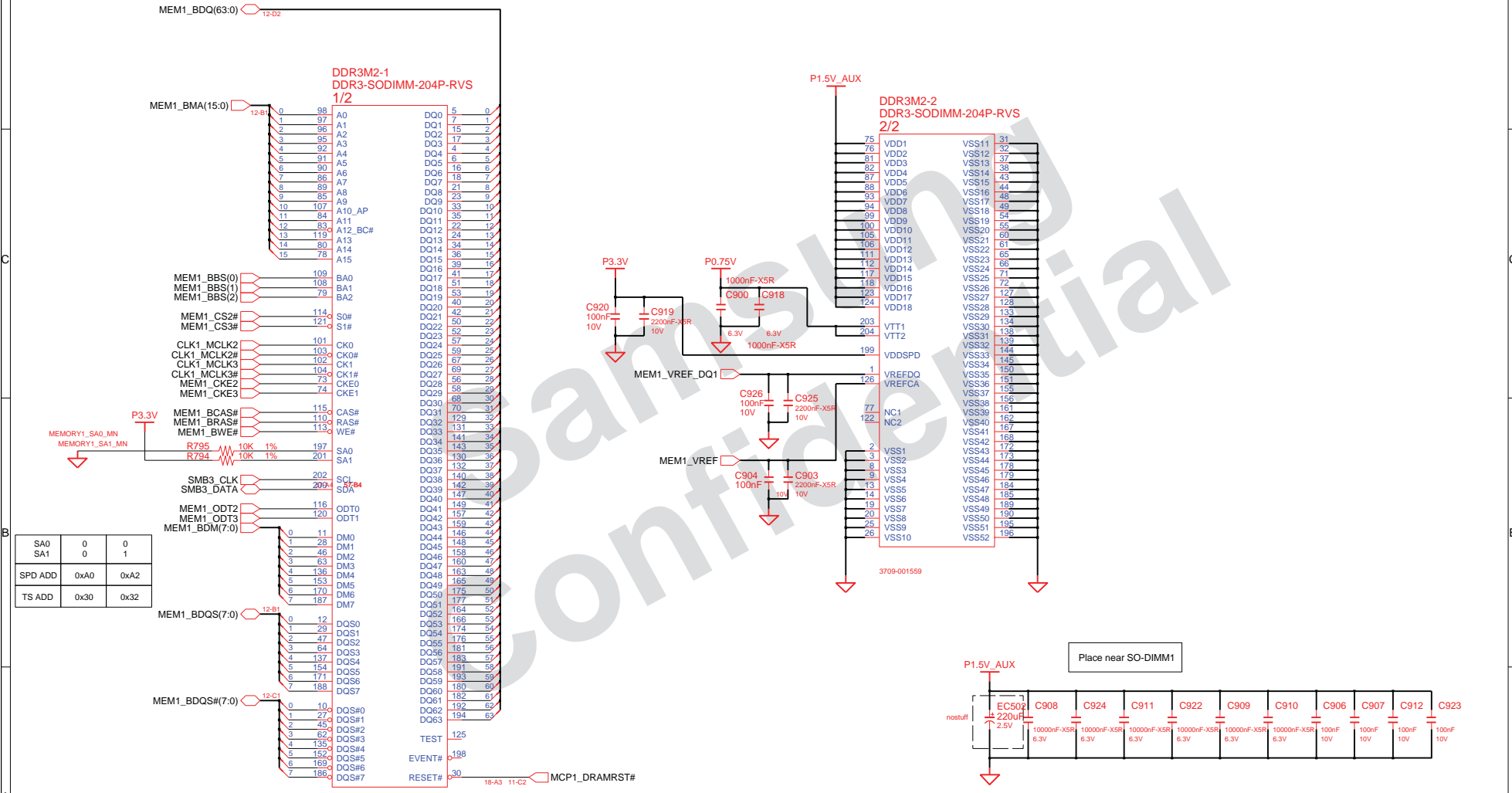
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M SODIMM A		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	DDR3		PART NO.	
APPROVAL	MK KIM	REV	REV 0.9			BA41-01174A	
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 13 OF 56	

DDR SO-DIMM #1

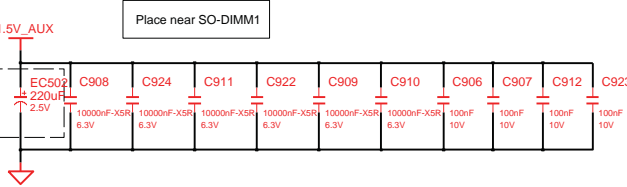
Height : 4 mm (REVERSE)

P/N : 3709-001533 (Molex)

P/N : 3709-001559 (Foxconn)

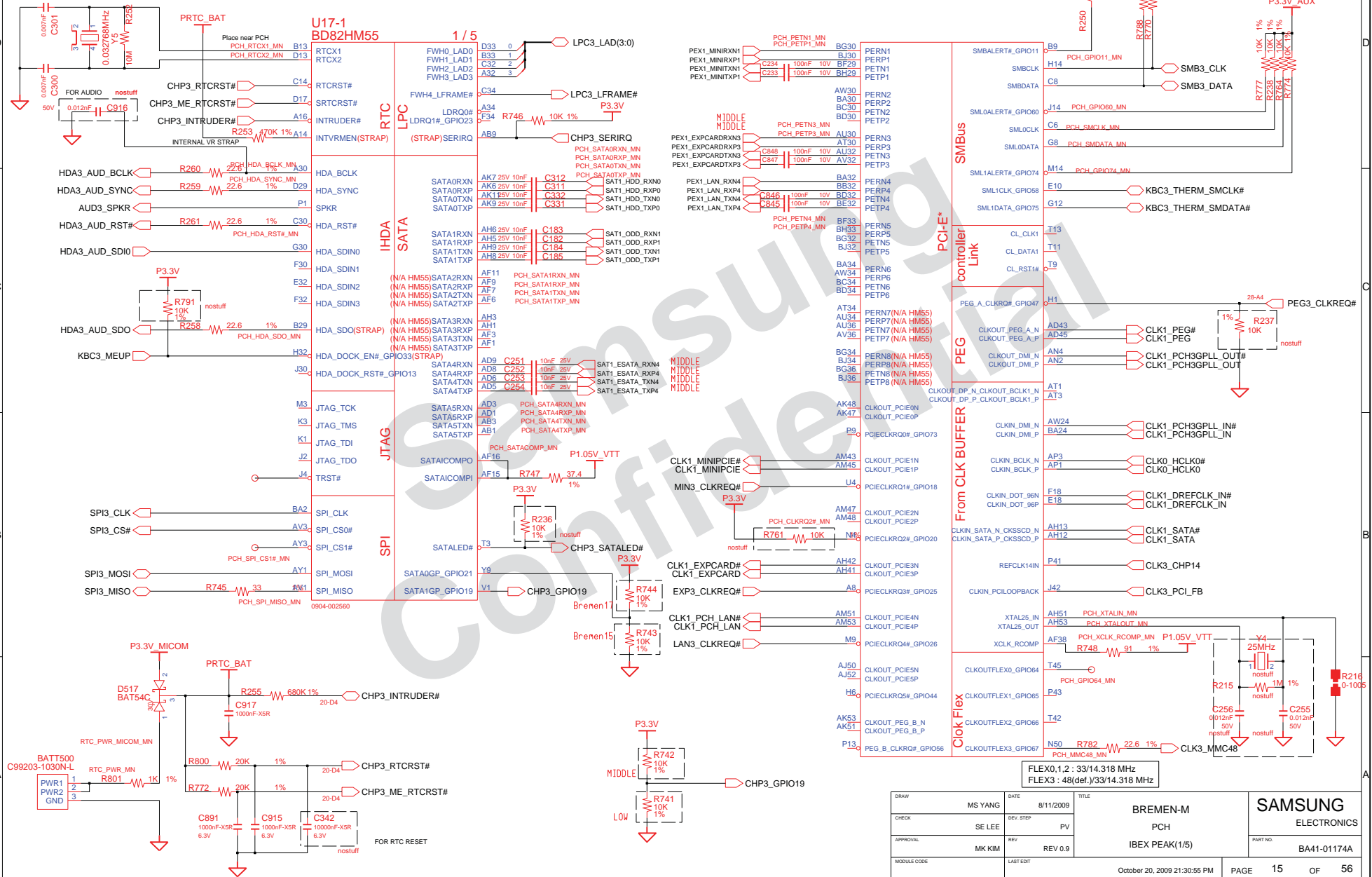


SA0	0	0
SA1	0	1
SPD ADD	0xA0	0xA2
TS ADD	0x30	0x32



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M SODIMM B	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	DDR3	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		
MODULE CODE		LAST EDIT				
October 20, 2009 21:30:55 PM						PAGE 14 OF 56

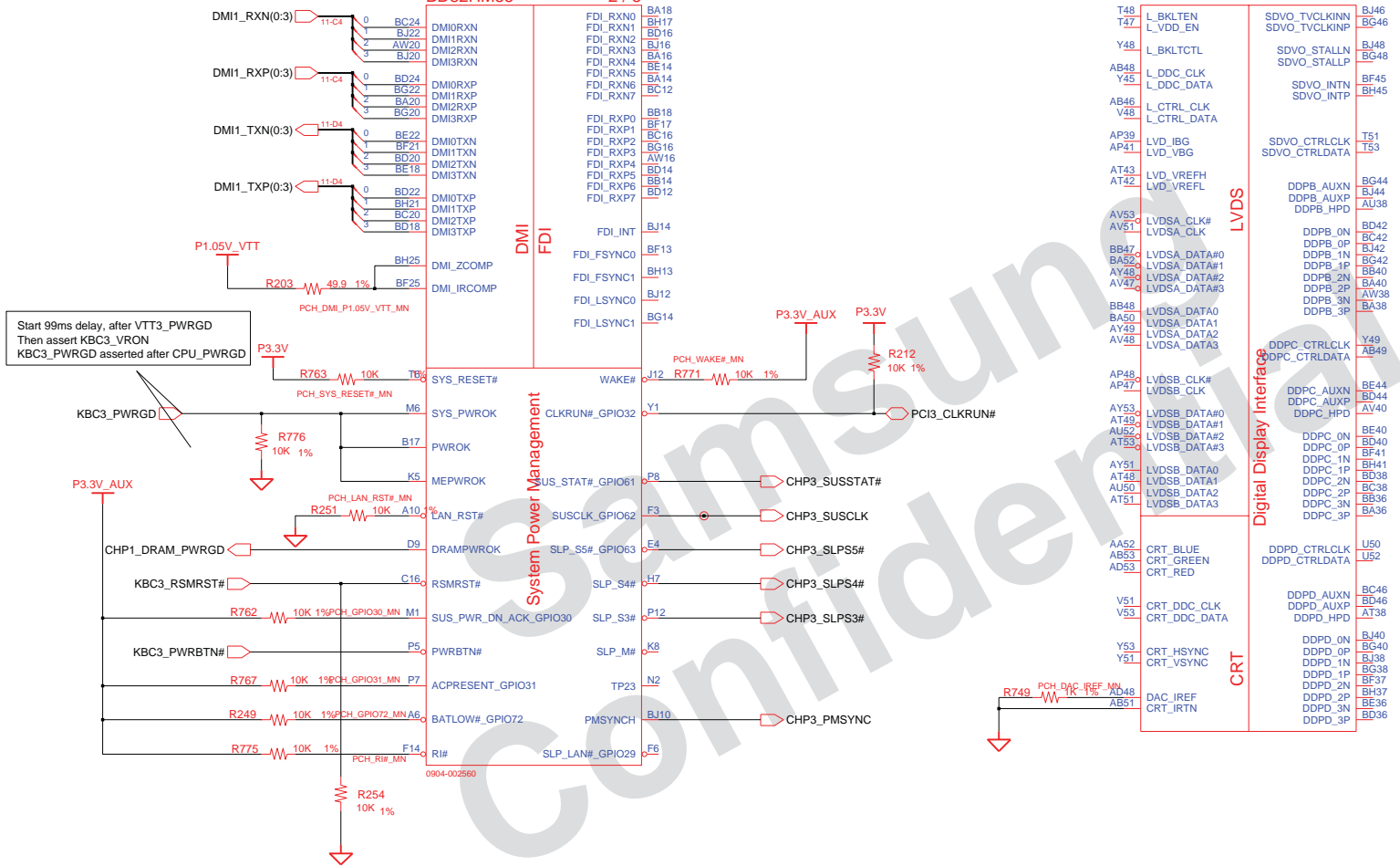
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DRAW	MS YANG	DATE	B/11/2009	TITLE	BREMEN-M		SAMSUNG	
CHECK	SE LEE	DEV. STEP	PV		PCH		ELECTRONICS	
APPROVAL	MK KIM	REV	0.9		IBEX PEAK(1/5)		PART NO.	
MODULE CODE		LAST EDIT					BA41-01174A	
					October 20, 2009 21:30:55 PM		PAGE 15 OF 56	

**U17-2
 BD82HM55**

2 / 5



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PCH	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		IBEX PEAK(2/5)	
APPROVAL	MK KIM	REV	REV 0.9			PART NO. BA41-01174A
MODULE CODE		LAST EDIT				October 20, 2009 21:30:55 PM
						PAGE 16 OF 56

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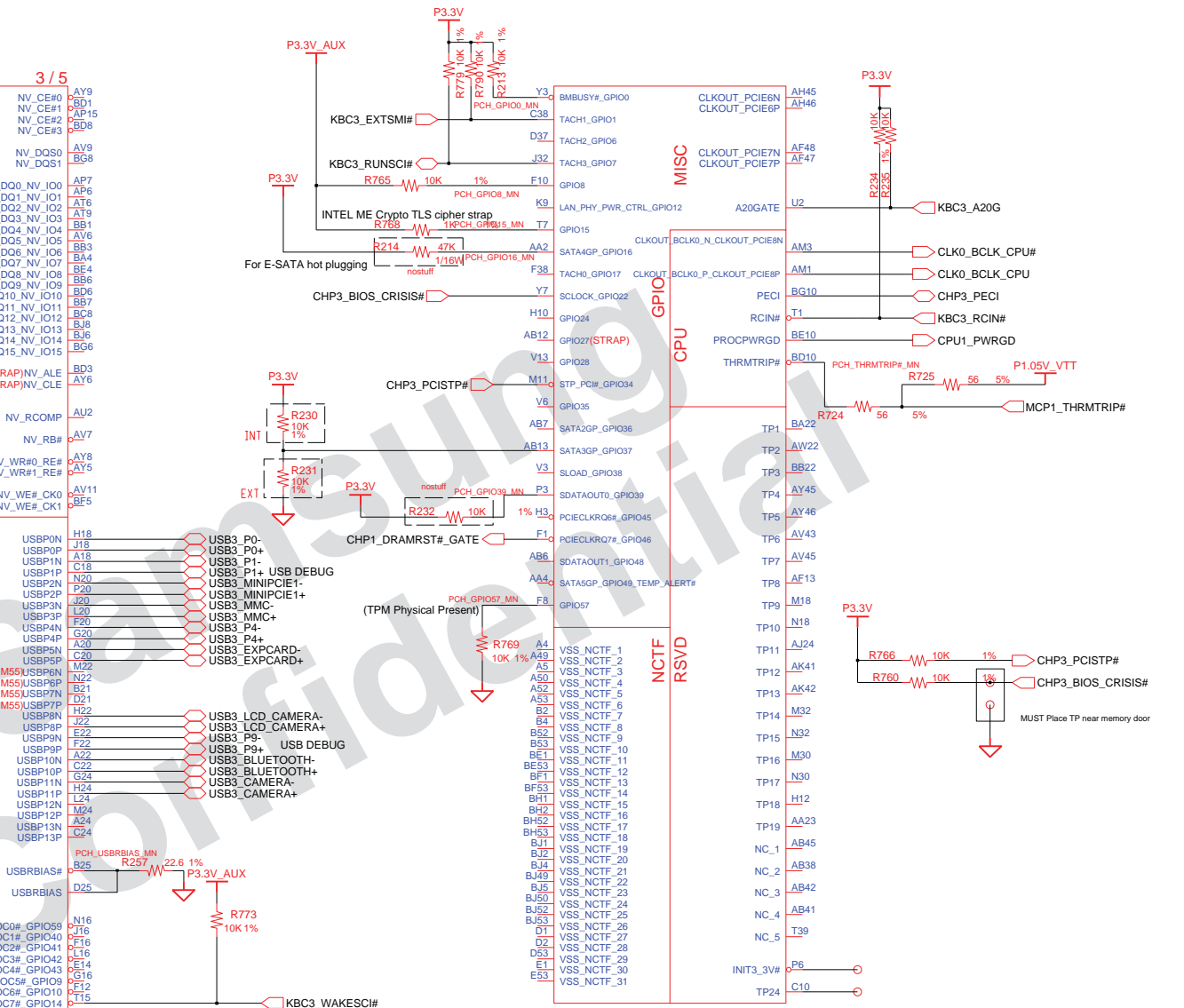
**U17-3
BD82HM55**

H40	AD0	NV_CE#0	AY9
N34	AD1	NV_CE#1	BD1
C44	AD2	NV_CE#2	AP15
A39	AD3	NV_CE#3	BD8
C38	AD4		
U34	AD5	NV_DQS0	AV9
A40	AD6	NV_DQS1	BG9
D45	AD7		
E38	AD8	NV_DQ0_NV_I00	AP7
H48	AD9	NV_DQ1_NV_I01	AP6
E40	AD10	NV_DQ2_NV_I02	AT6
C40	AD11	NV_DQ3_NV_I03	AT9
M49	AD12	NV_DQ4_NV_I04	EB1
M45	AD13	NV_DQ5_NV_I05	AV6
F53	AD14	NV_DQ6_NV_I06	BB3
M40	AD15	NV_DQ7_NV_I07	BA4
M43	AD16	NV_DQ8_NV_I08	BE4
J35	AD17	NV_DQ9_NV_I09	BB6
K48	AD18	NV_DQ10_NV_I010	BD6
F40	AD19	NV_DQ11_NV_I011	BB7
C42	AD20	NV_DQ12_NV_I012	BC8
K48	AD21	NV_DQ13_NV_I013	BJ8
M51	AD22	NV_DQ14_NV_I014	BJ6
J52	AD23	NV_DQ15_NV_I015	BG6
K51	AD24		
L34	AD25		
F42	AD26	(STRAP)NV_ALE	BD3
J40	AD27	(STRAP)NV_CLE	AY6
G46	AD28		
F44	AD29	NV_RCOMP	AU2
M47	AD30	NV_RB#	AV7
H36	AD31		
J50	C_BE0#		
G42	C_BE1#		
H47	C_BE2#		
G36	C_BE3#		
	PIRQA#		
	PIRQB#		
	PIRQC#		
	PIRQD#		
	REQ0#		
	REQ1#_GPIO50		
	REQ2#_GPIO52		
	REQ3#_GPIO54		
	GNT0#(STRAP)		
	GNT1#_GPIO51(STRAP)		
	GNT2#_GPIO53		
	GNT3#_GPIO55(STRAP)		
	PIRQE#_GPIO2		
	PIRQF#_GPIO3		
	PIRQG#_GPIO4		
	PIRQH#_GPIO5		
	PCIRST#		
	SERR#		
	PERR#		
	IRDY#		
	PAR		
	DEVSEL#		
	FRAME#		
	PLOCK#		
	STOP#		
	TRDY#		
	PME#		
	PLTRST#		
	CLKOUT_PCIO		
	CLKOUT_PC1		
	CLKOUT_PC2		
	CLKOUT_PC3		
	CLKOUT_PC14		
	OC0#_GPIO59		
	OC1#_GPIO40		
	OC2#_GPIO41		
	OC3#_GPIO42		
	OC4#_GPIO43		
	OC5#_GPIO9		
	OC6#_GPIO10		
	OC7#_GPIO14		

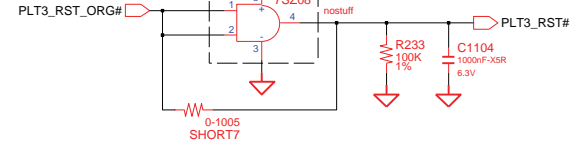
WAFRAM

PCI

USB



0904-002560



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PCH	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		IBEX PEAK(3/5)	
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				PART NO. BA41-01174A
				October 20, 2009 21:30:55 PM	PAGE 17 OF 56	

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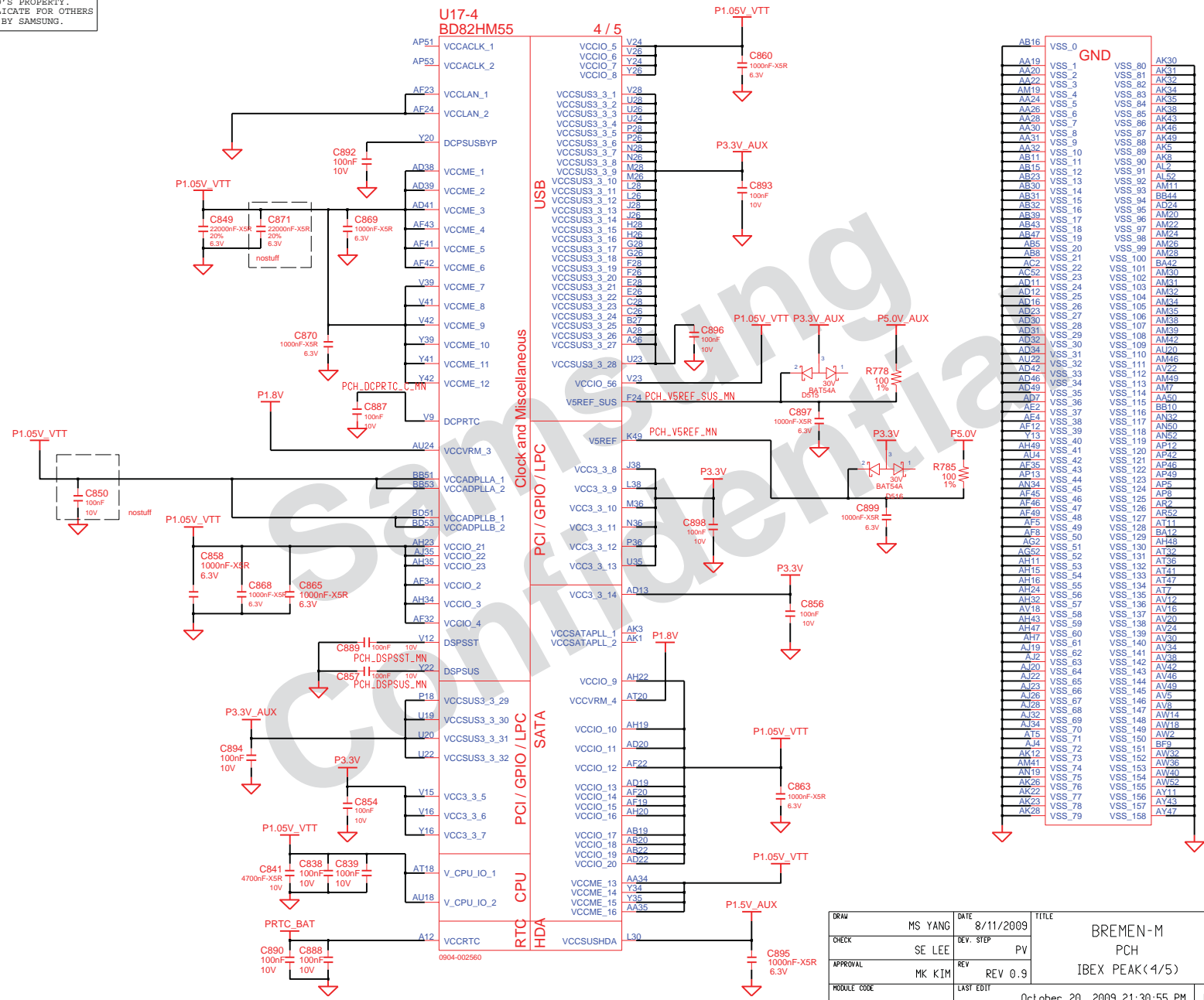
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4

3

2

1



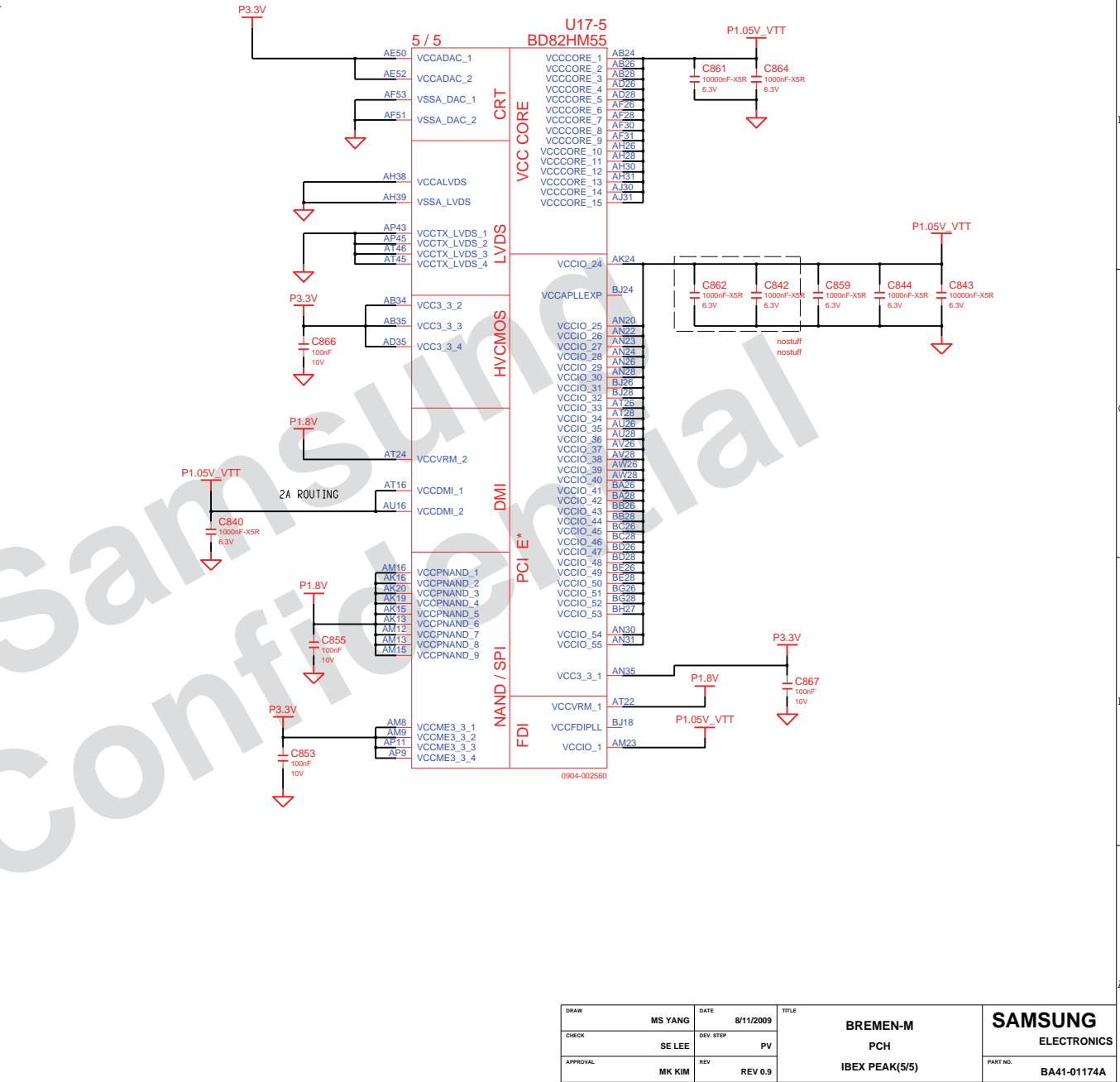
AB16	VSS_0	GND	AK30
AA19	VSS_1	VSS_80	AK31
AA20	VSS_2	VSS_81	AK32
AA21	VSS_3	VSS_82	AK33
AA22	VSS_4	VSS_83	AK34
AA23	VSS_5	VSS_84	AK35
AA24	VSS_6	VSS_85	AK38
AA25	VSS_7	VSS_86	AK39
AA26	VSS_8	VSS_87	AK46
AA27	VSS_9	VSS_88	AK49
AA28	VSS_10	VSS_89	AK5
AA29	VSS_11	VSS_90	AL2
AA30	VSS_12	VSS_91	AL52
AA31	VSS_13	VSS_92	AL2
AA32	VSS_14	VSS_93	AM11
AA33	VSS_15	VSS_94	BB44
AA34	VSS_16	VSS_95	AM20
AA35	VSS_17	VSS_96	AM22
AA36	VSS_18	VSS_97	AM24
AA37	VSS_19	VSS_98	AM28
AA38	VSS_20	VSS_99	AM29
AA39	VSS_21	VSS_100	BA42
AA40	VSS_22	VSS_101	AM30
AA41	VSS_23	VSS_102	AM30
AA42	VSS_24	VSS_103	AM31
AA43	VSS_25	VSS_104	AM32
AA44	VSS_26	VSS_105	AM34
AA45	VSS_27	VSS_106	AM35
AA46	VSS_28	VSS_107	AM38
AA47	VSS_29	VSS_108	AM39
AA48	VSS_30	VSS_109	AJ20
AA49	VSS_31	VSS_110	AM42
AA50	VSS_32	VSS_111	AM46
AA51	VSS_33	VSS_112	AV22
AA52	VSS_34	VSS_113	AM49
AA53	VSS_35	VSS_114	AM7
AA54	VSS_36	VSS_115	AM7
AA55	VSS_37	VSS_116	BB10
AA56	VSS_38	VSS_117	AK32
AA57	VSS_39	VSS_118	AN52
AA58	VSS_40	VSS_119	AK30
AA59	VSS_41	VSS_120	AP12
AA60	VSS_42	VSS_121	AP42
AA61	VSS_43	VSS_122	AP49
AA62	VSS_44	VSS_123	AP5
AA63	VSS_45	VSS_124	AP8
AA64	VSS_46	VSS_125	AP8
AA65	VSS_47	VSS_126	AP8
AA66	VSS_48	VSS_127	AT11
AA67	VSS_49	VSS_128	AP46
AA68	VSS_50	VSS_129	BA12
AA69	VSS_51	VSS_130	AH48
AA70	VSS_52	VSS_131	AT36
AA71	VSS_53	VSS_132	AT41
AA72	VSS_54	VSS_133	AT41
AA73	VSS_55	VSS_134	AT47
AA74	VSS_56	VSS_135	AT7
AA75	VSS_57	VSS_136	AV16
AA76	VSS_58	VSS_137	AV30
AA77	VSS_59	VSS_138	AV20
AA78	VSS_60	VSS_139	AV24
AA79	VSS_61	VSS_140	AV34
AA80	VSS_62	VSS_141	AV38
AA81	VSS_63	VSS_142	AV32
AA82	VSS_64	VSS_143	AV42
AA83	VSS_65	VSS_144	AV48
AA84	VSS_66	VSS_145	AV5
AA85	VSS_67	VSS_146	AV8
AA86	VSS_68	VSS_147	AV8
AA87	VSS_69	VSS_148	AV14
AA88	VSS_70	VSS_149	AV18
AA89	VSS_71	VSS_150	AV18
AA90	VSS_72	VSS_151	AV2
AA91	VSS_73	VSS_152	AV32
AA92	VSS_74	VSS_153	AV36
AA93	VSS_75	VSS_154	AV38
AA94	VSS_76	VSS_155	AV40
AA95	VSS_77	VSS_156	AY11
AA96	VSS_78	VSS_157	AY43
AA97	VSS_79	VSS_158	AY47

DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	PCH		
APPROVAL	MK KIM	REV	REV 0.9	IBEX PEAK(4/5)		PART NO. BA41-01174A
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM	PAGE 18	OF 66

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This power share with thermal sensor

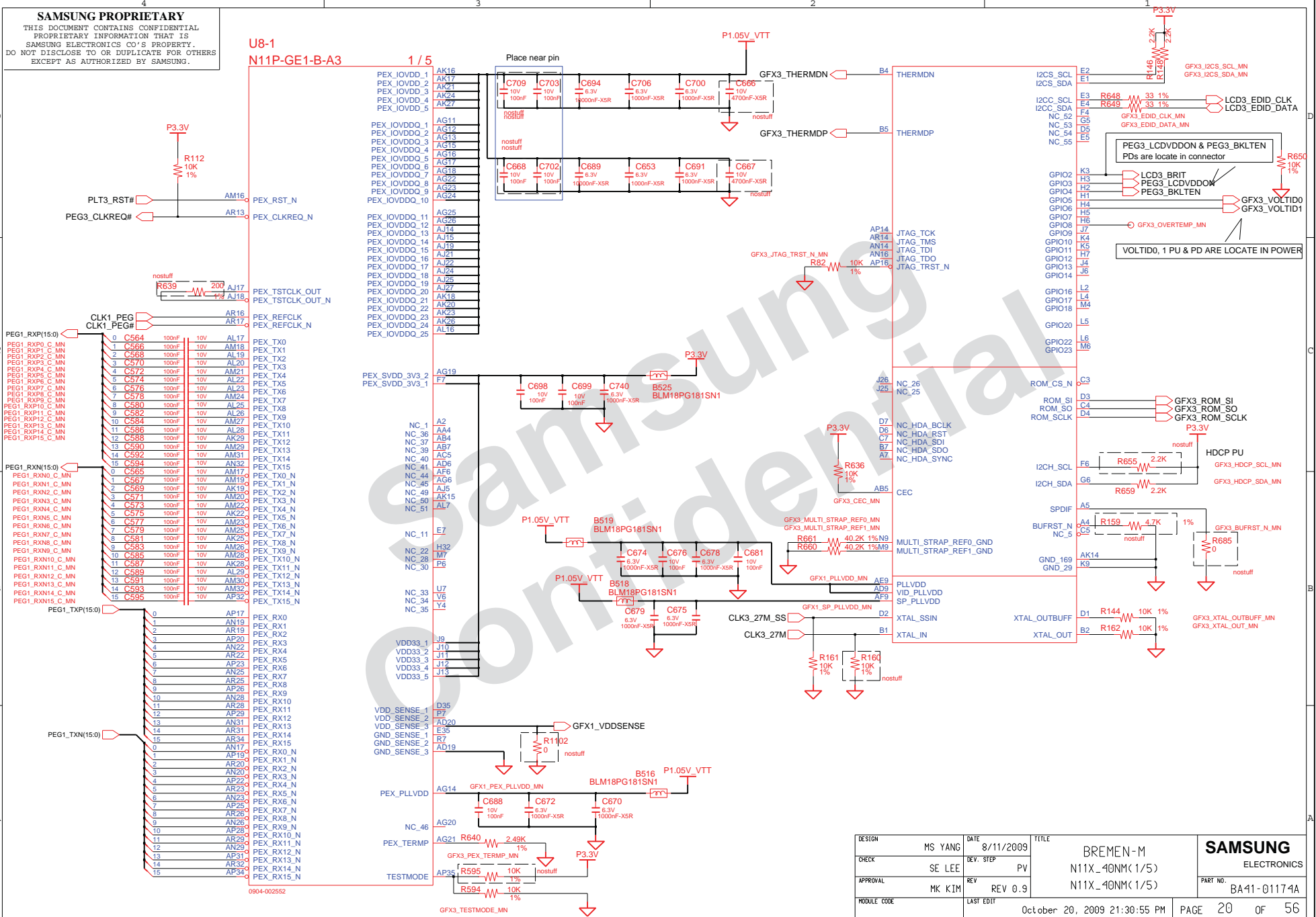
H49	VSS_259	VSS_159	AY7
H5	VSS_260	VSS_160	B11
J24	VSS_261	VSS_161	B15
K11	VSS_262	VSS_162	B19
K43	VSS_263	VSS_163	B23
K47	VSS_264	VSS_164	B31
K7	VSS_265	VSS_165	B35
L14	VSS_266	VSS_166	B39
L18	VSS_267	VSS_167	B43
L2	VSS_268	VSS_168	B47
L22	VSS_269	VSS_169	B7
L32	VSS_270	VSS_170	BG12
L36	VSS_271	VSS_171	BB12
L40	VSS_272	VSS_172	BB16
L52	VSS_273	VSS_173	BB20
M12	VSS_274	VSS_174	BB24
M16	VSS_275	VSS_175	BB30
M20	VSS_276	VSS_176	BB34
M38	VSS_277	VSS_177	BB38
M34	VSS_278	VSS_178	BB42
M38	VSS_279	VSS_179	BB49
M42	VSS_280	VSS_180	BB5
M46	VSS_281	VSS_181	BC10
M49	VSS_282	VSS_182	BC14
M5	VSS_283	VSS_183	BC2
M8	VSS_284	VSS_184	BC22
N24	VSS_285	VSS_185	BC26
F11	VSS_286	VSS_186	BC32
AD15	VSS_287	VSS_187	BC36
F22	VSS_288	VSS_188	BC40
F30	VSS_289	VSS_189	BC44
F32	VSS_290	VSS_190	BC52
F34	VSS_291	VSS_191	BH9
P42	VSS_292	VSS_192	BD48
P45	VSS_293	VSS_193	BD49
P47	VSS_294	VSS_194	BD5
R2	VSS_295	VSS_195	BE12
R12	VSS_296	VSS_196	BE20
R52	VSS_297	VSS_197	BE16
T41	VSS_298	VSS_198	BE24
T46	VSS_299	VSS_199	BE30
T49	VSS_300	VSS_200	BE38
T5	VSS_301	VSS_201	BE42
T8	VSS_302	VSS_202	BE46
U30	VSS_303	VSS_203	BE48
U31	VSS_304	VSS_204	BE50
U32	VSS_305	VSS_205	BE6
U34	VSS_306	VSS_206	BE8
P38	VSS_307	VSS_207	BF3
V11	VSS_308	VSS_208	BF48
P16	VSS_309	VSS_209	BF51
P19	VSS_310	VSS_210	BG18
V20	VSS_311	VSS_211	BG24
V22	VSS_312	VSS_212	BG4
V30	VSS_313	VSS_213	BG15
V31	VSS_314	VSS_214	BG20
V32	VSS_315	VSS_215	BG24
V34	VSS_316	VSS_216	BH11
V35	VSS_317	VSS_217	BH15
V38	VSS_318	VSS_218	BH19
V43	VSS_319	VSS_219	BH23
V45	VSS_320	VSS_220	BH31
V46	VSS_321	VSS_221	BH39
V47	VSS_322	VSS_222	BH43
V49	VSS_323	VSS_223	BH47
V5	VSS_324	VSS_224	BH7
V7	VSS_325	VSS_225	C12
V8	VSS_326	VSS_226	C50
V2	VSS_327	VSS_227	D51
W52	VSS_328	VSS_228	E12
Y11	VSS_329	VSS_229	E16
Y12	VSS_330	VSS_230	E20
Y15	VSS_331	VSS_231	E24
Y19	VSS_332	VSS_232	E30
Y23	VSS_333	VSS_233	E34
Y28	VSS_334	VSS_234	E38
Y30	VSS_335	VSS_235	E42
Y31	VSS_336	VSS_236	E48
Y32	VSS_337	VSS_237	E49
Y38	VSS_338	VSS_238	E6
Y43	VSS_339	VSS_239	E8
Y46	VSS_340	VSS_240	F49
F49	VSS_341	VSS_241	F5
Y5	VSS_342	VSS_242	G10
V6	VSS_343	VSS_243	G14
Y8	VSS_344	VSS_244	G18
T24	VSS_345	VSS_245	G2
T43	VSS_346	VSS_246	G22
AD51	VSS_347	VSS_247	G32
AT8	VSS_348	VSS_248	G36
AD47	VSS_349	VSS_249	G40
Y47	VSS_350	VSS_250	G44
AT12	VSS_351	VSS_251	G52
AM6	VSS_352	VSS_252	AF39
AT13	VSS_353	VSS_253	H16
AM5	VSS_354	VSS_254	H20
AK45	VSS_355	VSS_255	H30
AK39	VSS_356	VSS_256	H34
AV14	VSS_366	VSS_257	H38
		VSS_258	H42



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	PCH		PART NO.	
APPROVAL	MK KIM	REV	REV 0.9	IBEX PEAK(5/5)		BA41-01174A	
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	19 OF 56

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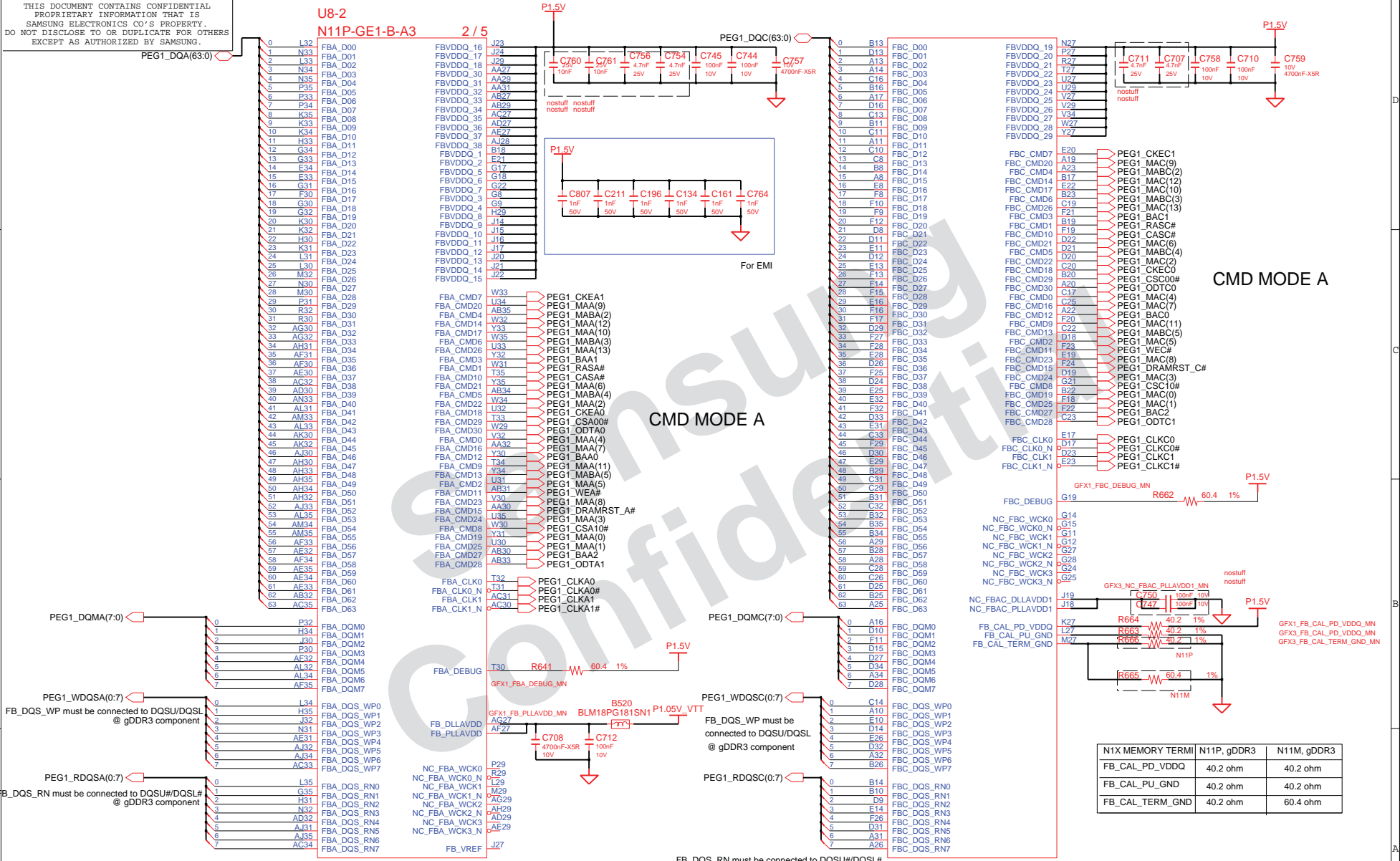
U8-1
N11P-GE1-B-A3 1 / 5



0904-002552

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M N11X_40NM(1/5) N11X_40NM(1/5)	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 20 OF 56	

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CMD MODE A

CMD MODE A

N1X MEMORY TERM1	N11P, gDDR3	N11M, gDDR3
FB_CAL_PD_VDDQ	40.2 ohm	40.2 ohm
FB_CAL_TERM_GND	40.2 ohm	40.2 ohm
FB_CAL_TERM_GND	40.2 ohm	60.4 ohm

0904-002552

FB_DQS_RN must be connected to DQSU#/DQSL# @ gDDR3 component

FB_DQS_WP must be connected to DQSU/DQSL @ gDDR3 component

FB_DQS_WP must be connected to DQSU/DQSL @ gDDR3 component

FB_DQS_WP must be connected to DQSU/DQSL @ gDDR3 component

FB_DQS_WP must be connected to DQSU/DQSL @ gDDR3 component

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M N11X_40NM(2/5) N11X_40NM(2/5)	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV	October 20, 2009 21:30:55 PM	PAGE 21 OF 56	
APPROVAL	MK KIM	REV	REV 0.9			
MIDDLE CODE		LAST EDIT				

0094-002552

COM-22C-015(1996.6.5) REV. 3

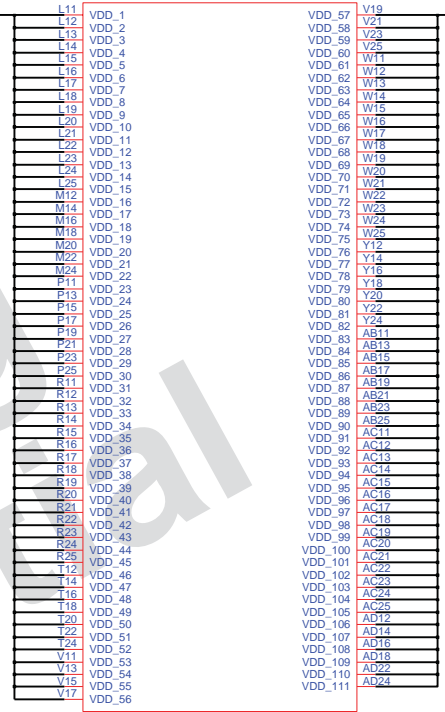
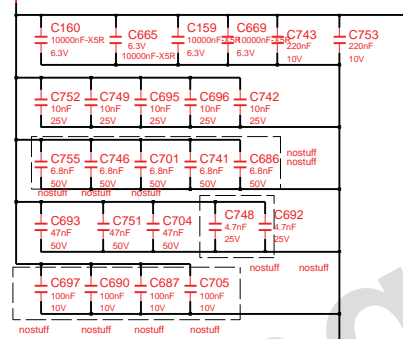
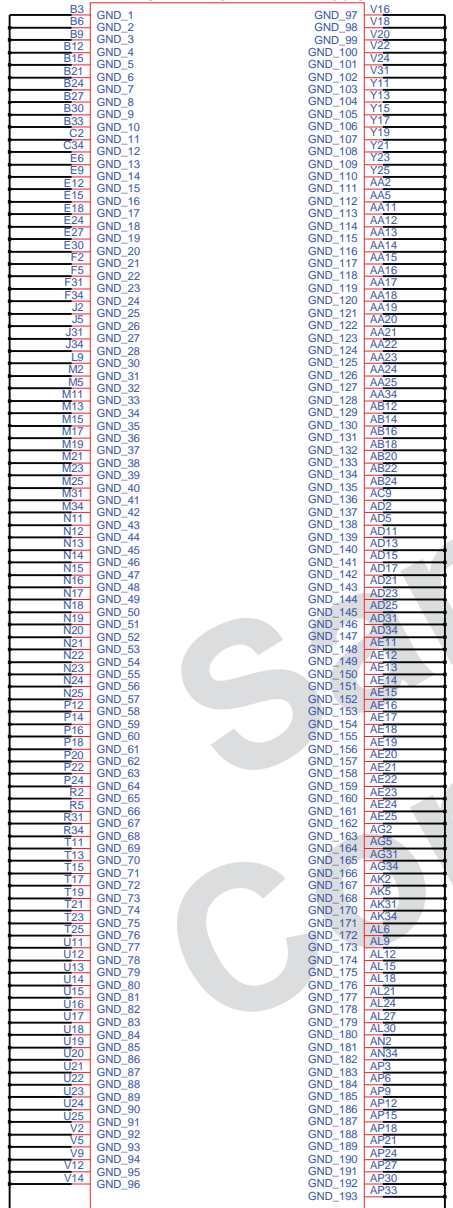
D:\Users\nobite39\mentor\Bremen\PV\Bremen-M_MAI

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U8-3
 N11P-GE1-B-A3 3 / 5

EGFX_CORE

EGFX_CORE



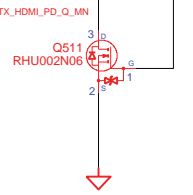
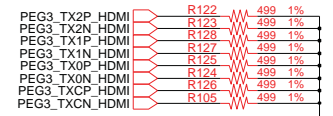
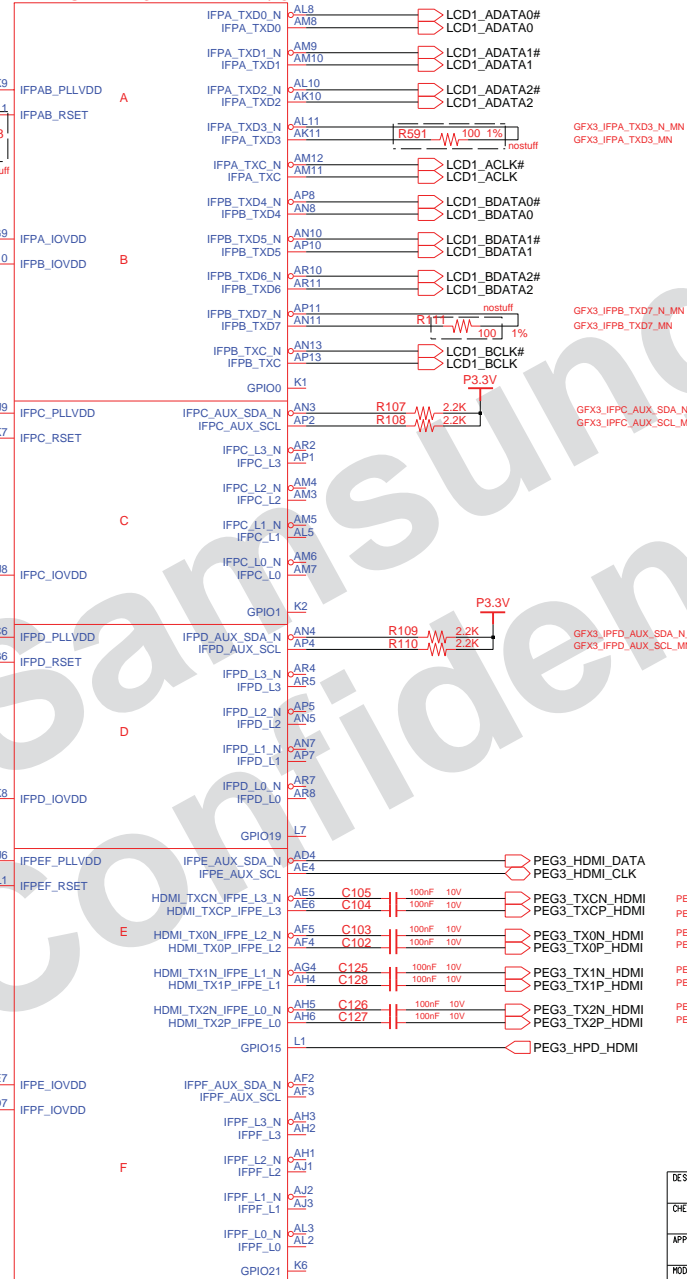
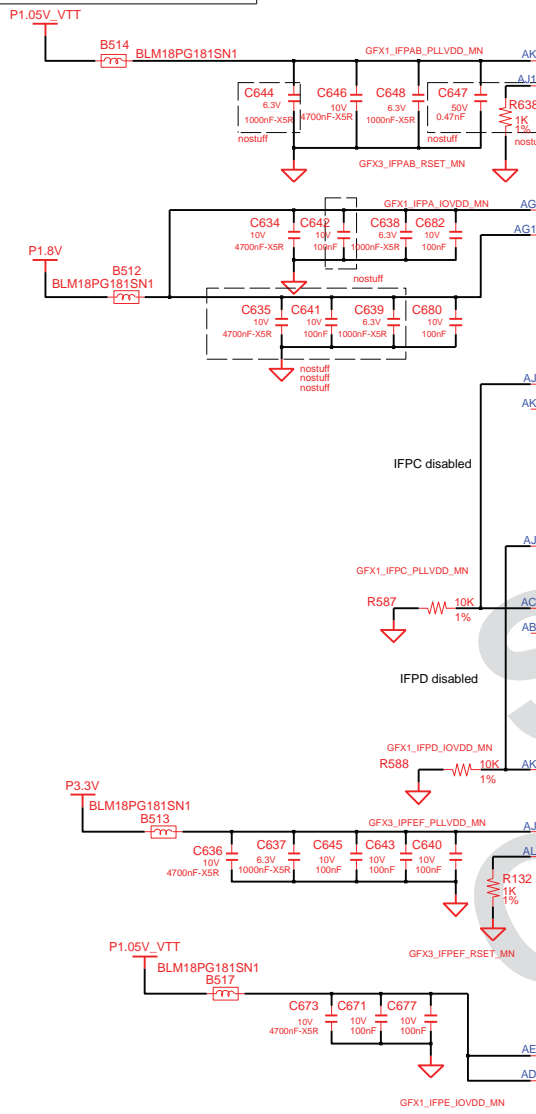
0904-002552

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M N11X_40NM(3/5) N11X_40NM(3/5)		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	22 OF 56

SAMSUNG PROPRIETARY

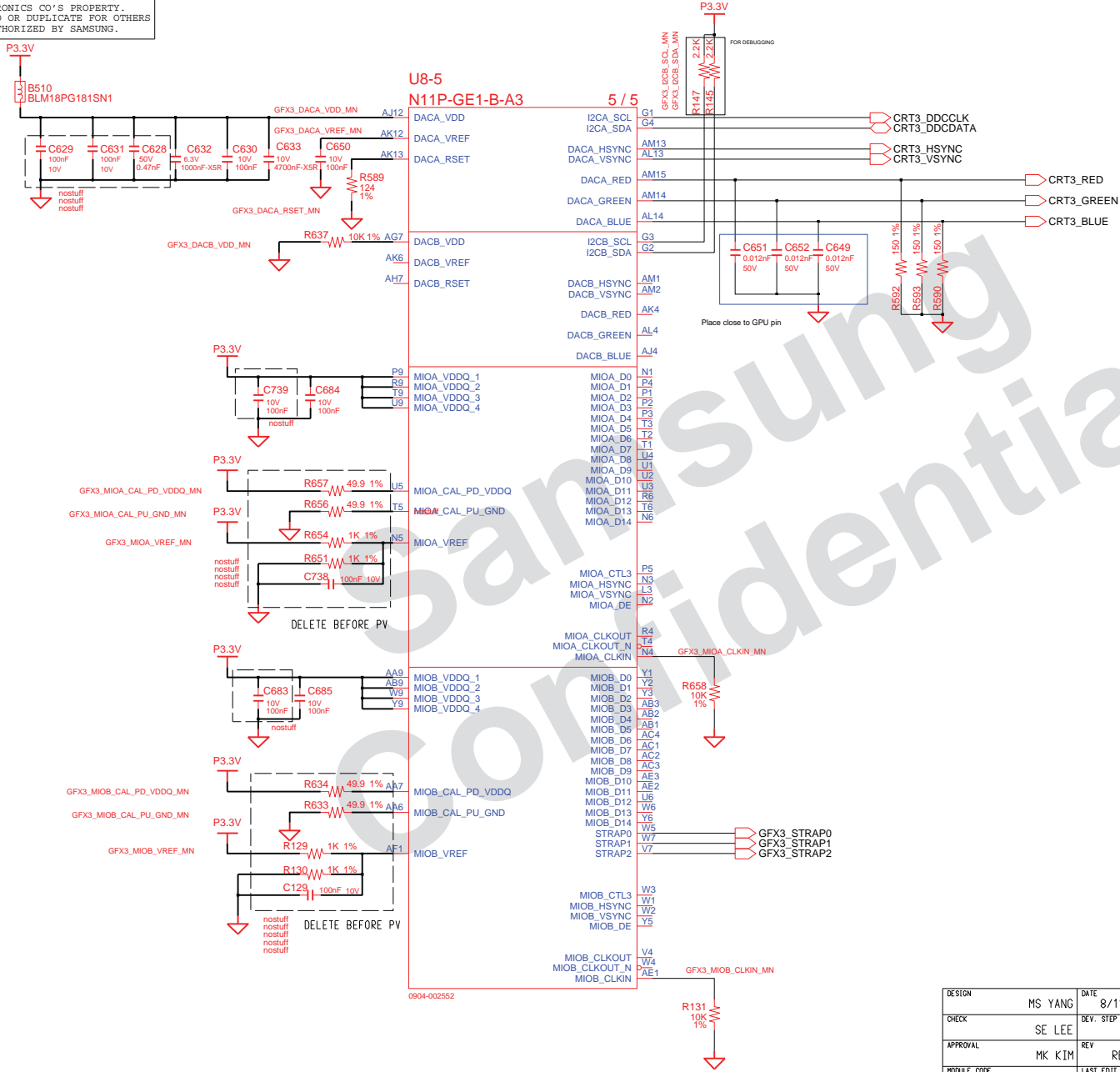
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**U8-4
N11P-GE1-B-A3 4 / 5**



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M N11X_40NM(4/5) N11X_40NM(4/5)	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 23	OF 56

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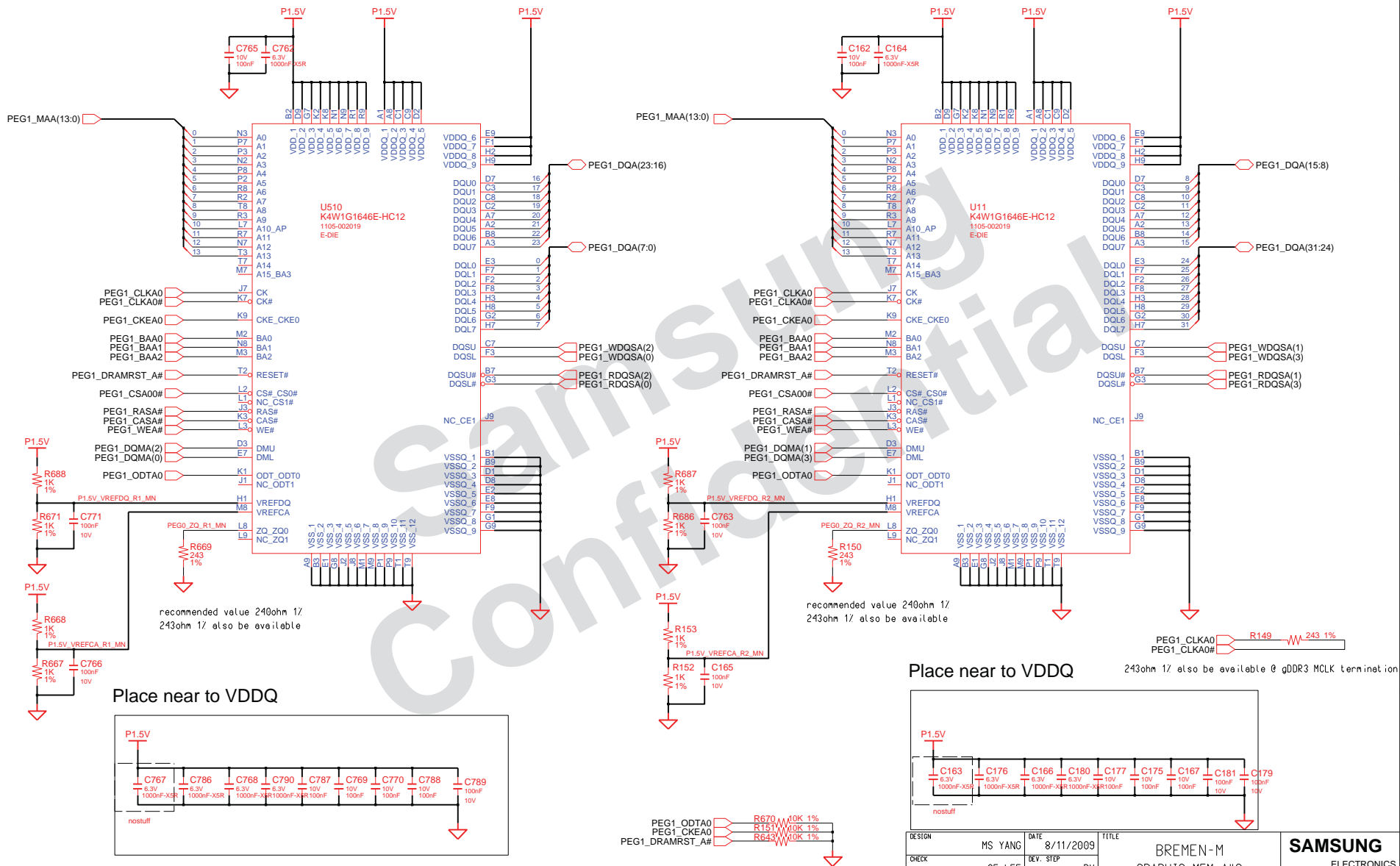


U8-5
N11P-GE1-B-A3

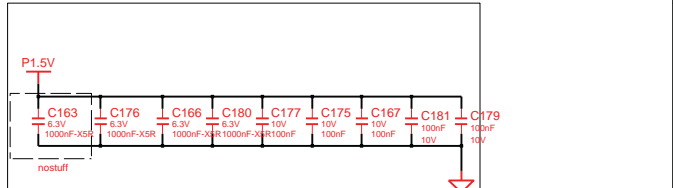
- 5 / 5**
- G1 I2CA_SCL
 - G4 I2CA_SDA
 - AM13 DACA_HSYNC
 - AL13 DACA_VSYNC
 - AM15 DACA_RED
 - AM14 DACA_GREEN
 - AL14 DACA_BLUE
 - G3 I2CB_SCL
 - G2 I2CB_SDA
 - AM1 DACB_HSYNC
 - AM2 DACB_VSYNC
 - AK4 DACB_RED
 - AL4 DACB_GREEN
 - AL4 DACB_BLUE
 - N1 MIOA_D0
 - P4 MIOA_D1
 - P1 MIOA_D2
 - P2 MIOA_D3
 - P3 MIOA_D4
 - T3 MIOA_D5
 - T2 MIOA_D6
 - T1 MIOA_D7
 - U1 MIOA_D8
 - U2 MIOA_D9
 - U3 MIOA_D10
 - U3 MIOA_D11
 - R6 MIOA_D12
 - T6 MIOA_D13
 - N6 MIOA_D14
 - P5 MIOA_CTL3
 - N3 MIOA_HSYNC
 - L3 MIOA_VSYNC
 - N2 MIOA_DE
 - R4 MIOA_CLKOUT
 - T4 MIOA_CLKOUT_N
 - N4 MIOA_CLKIN
 - Y1 MIOB_D0
 - Y2 MIOB_D1
 - Y3 MIOB_D2
 - AB3 MIOB_D3
 - AB2 MIOB_D4
 - AB1 MIOB_D5
 - AC4 MIOB_D6
 - AC1 MIOB_D7
 - AC2 MIOB_D8
 - AC3 MIOB_D9
 - AE2 MIOB_D10
 - U6 MIOB_D11
 - MIOB_D12
 - MIOB_D13
 - W6 MIOB_D14
 - Y6 MIOB_D15
 - W5 STRAP0
 - W7 STRAP1
 - V7 STRAP2
 - W3 MIOB_CTL3
 - W1 MIOB_HSYNC
 - W2 MIOB_VSYNC
 - Y5 MIOB_DE
 - V4 MIOB_CLKOUT
 - W4 MIOB_CLKOUT_N
 - AE1 MIOB_CLKIN

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		N11X_40NM(5/5)	
APPROVAL	MK KIM	REV	REV 0.9		N11X_40NM(5/5)	
MODULE CODE		LAST EDIT				PART NO. BA41-01174A
				October 20, 2009 21:30:55 PM	PAGE	24 OF 56

A-Channel #0

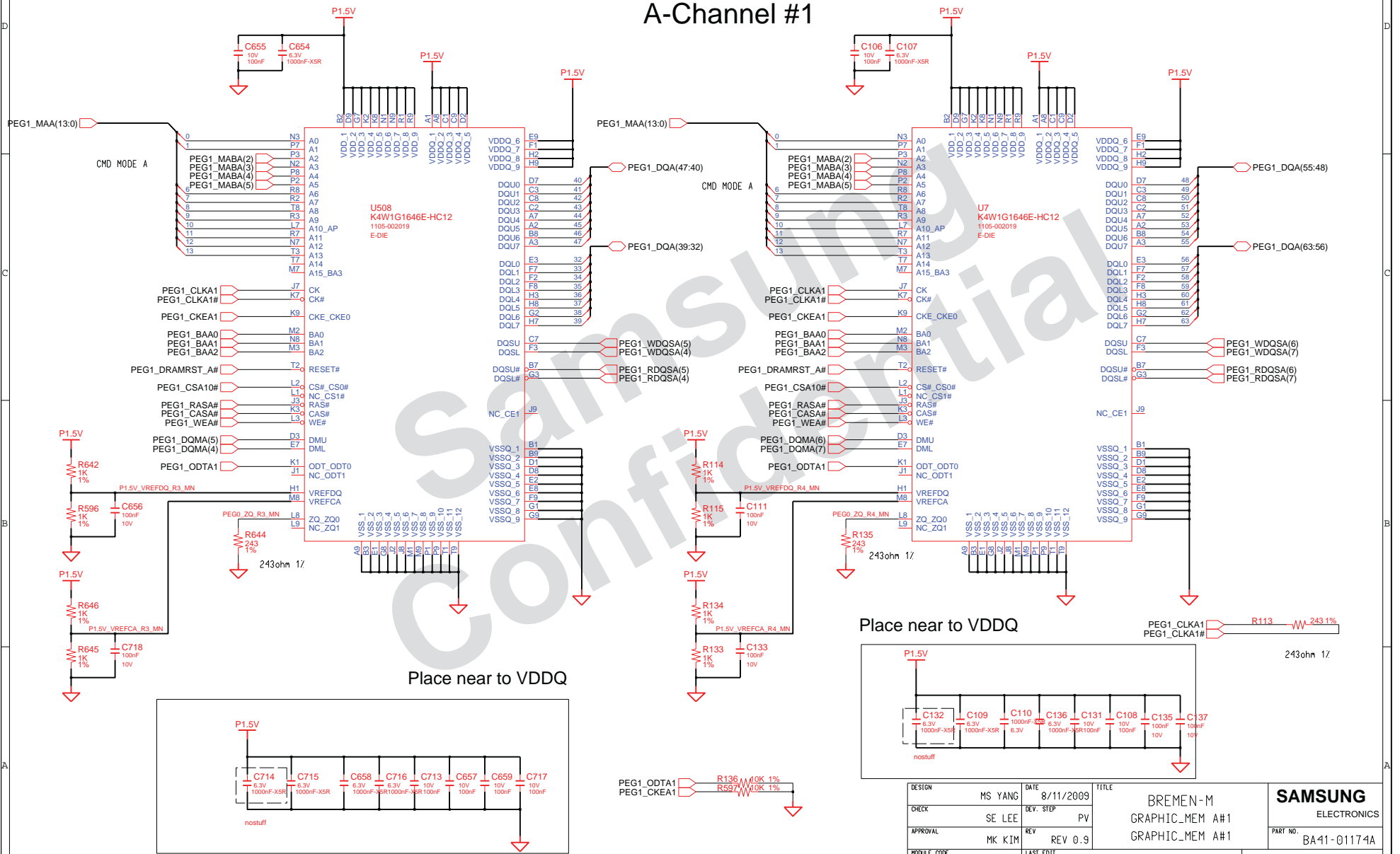


Place near to VDDQ 243ohm 1/ also be available @ gDDR3 MCLK termination



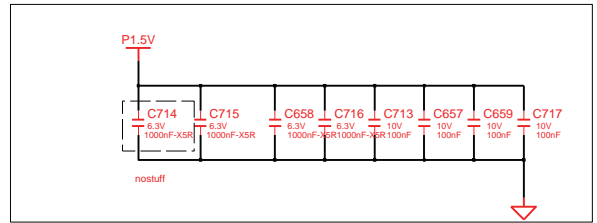
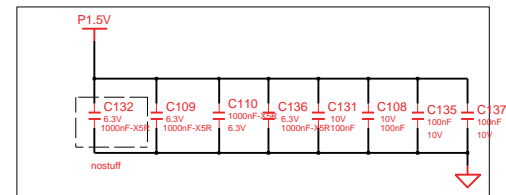
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M GRAPHIC_MEM A#0	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	GRAPHIC_MEM A#0	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		PART NO. BA41-01174A
		LAST EDIT				

A-Channel #1



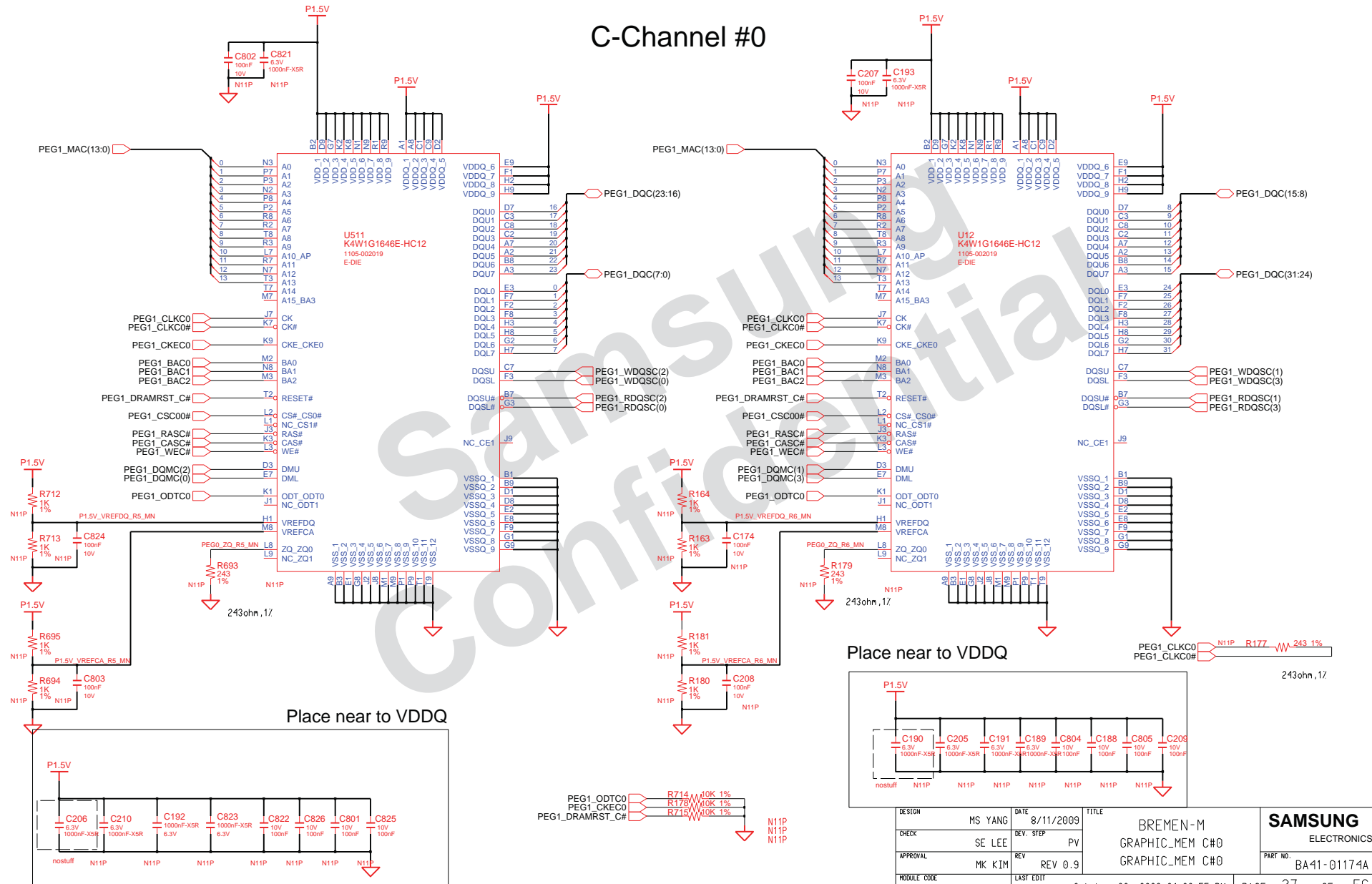
Place near to VDDQ

Place near to VDDQ

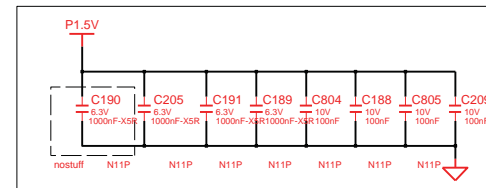


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	GRAPHIC_MEM A#1		
APPROVAL	MK KIM	REV	REV 0.9	GRAPHIC_MEM A#1		PART NO. BA41-01174A
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 26 OF 56

C-Channel #0

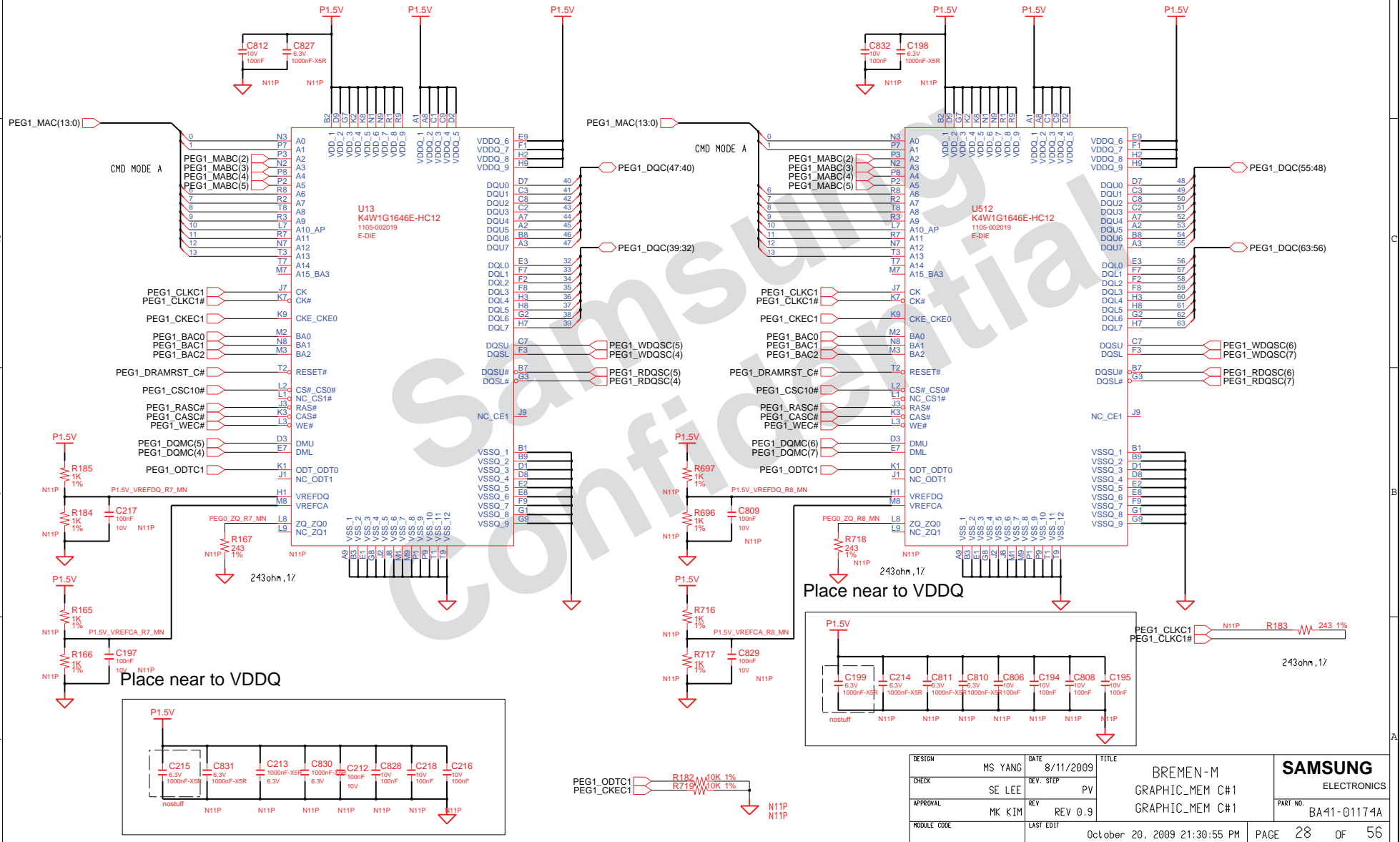


Place near to VDDQ



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	GRAPHIC_MEM C#0		
APPROVAL	MK KIM	REV	REV 0.9	GRAPHIC_MEM C#0		PART NO. BA41-01174A
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM	PAGE 27 OF 56	

C-Channel #1

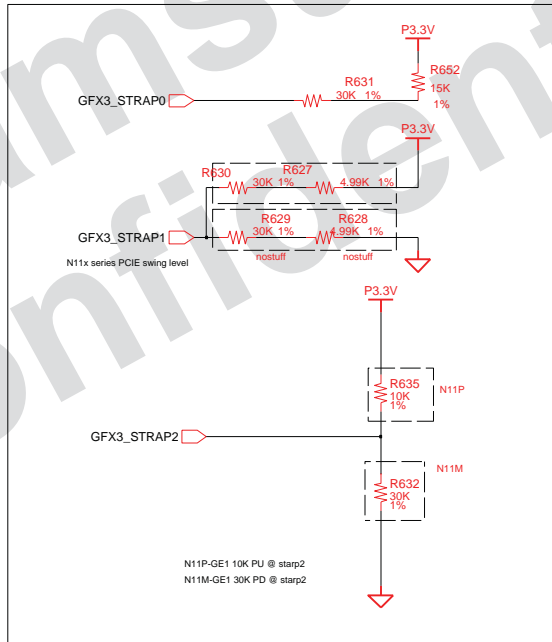
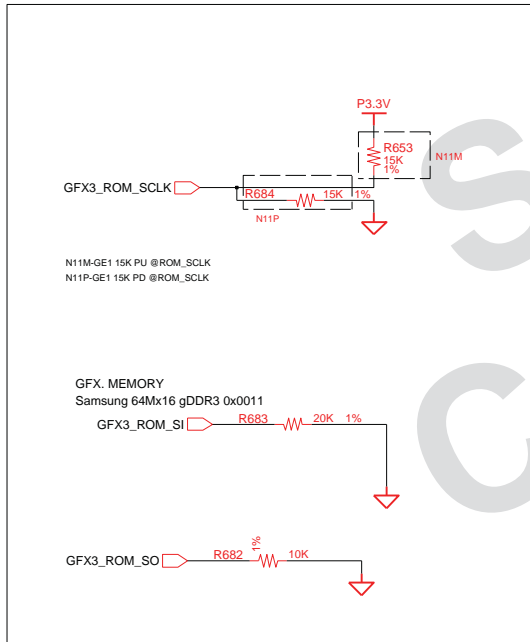


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	GRAPHIC_MEM CH1		
APPROVAL	MK KIM	REV	REV 0.9	GRAPHIC_MEM CH1		PART NO. BA41-01174A
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 28	OF 56

N11x_40nm STRAP

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

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

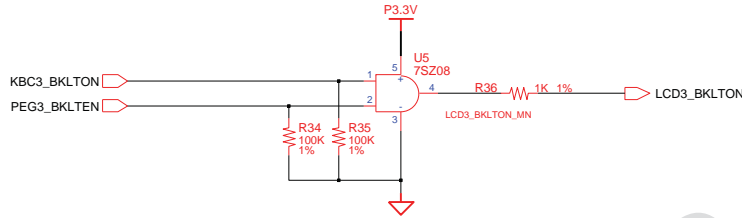


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M N11X_40NM STRAP	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				

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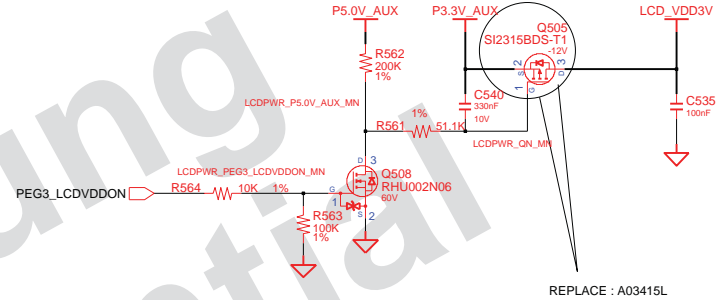
LVDS

Backlight On



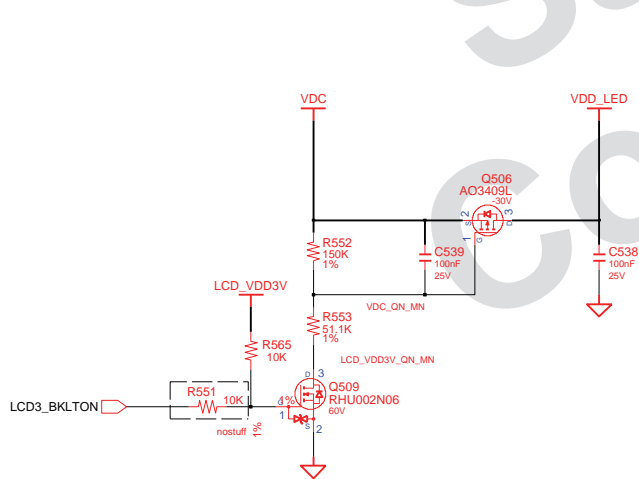
LCD Power

EBL Purpose

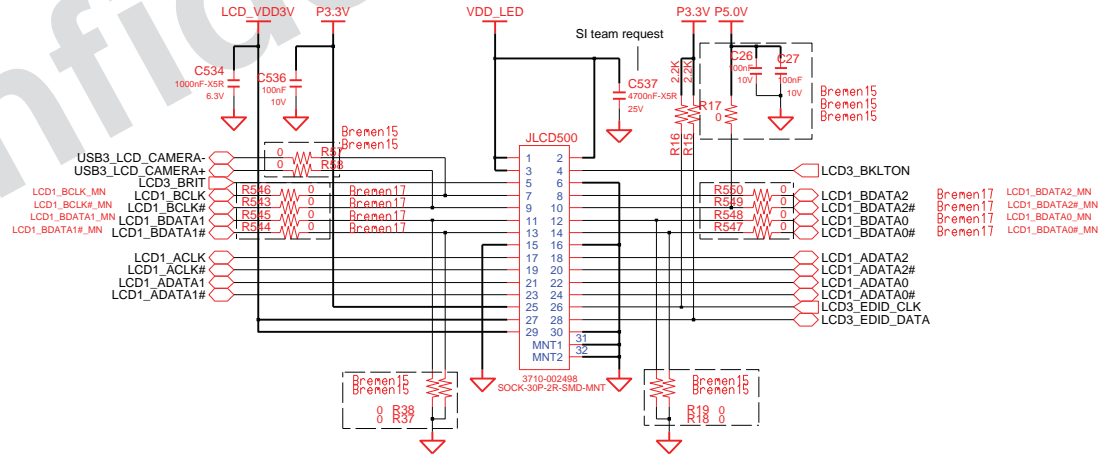


REPLACE : A03415L

LED Power



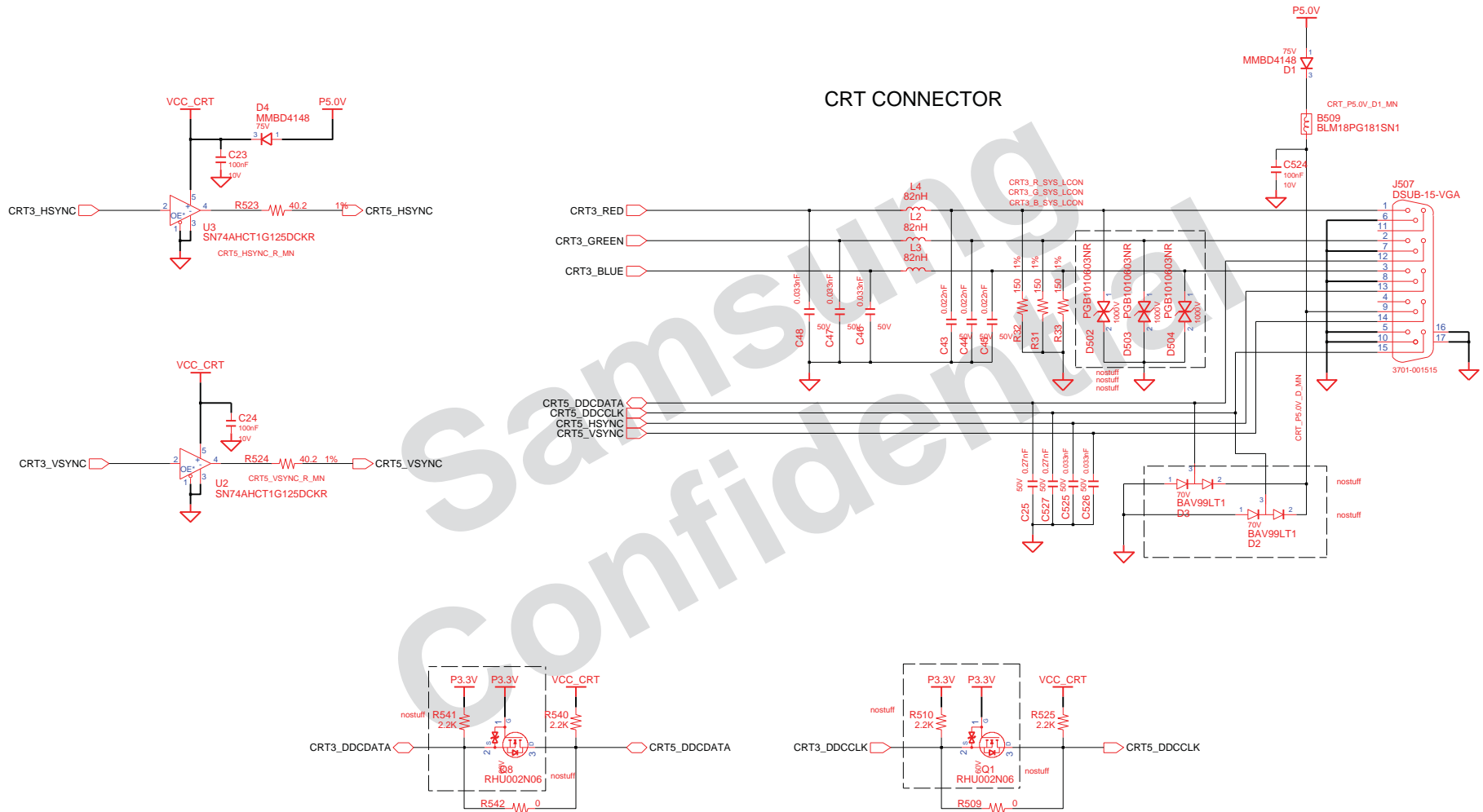
Camera + LCD Connector



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M GRAPHICS_IF	SAMSUNG
CHECK	SE LEE	DEV. STEP	PV			ELECTRONICS
APPROVAL	MK KIM	REV	REV 0.9			PART NO. BA41-01174A
MODULE CODE		LAST EDIT				
October 20, 2009 21:30:55 PM					PAGE	30 OF 56

CRT

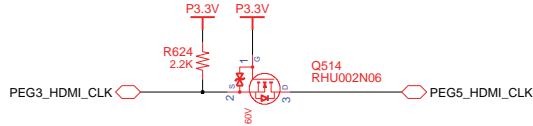
CRT CONNECTOR



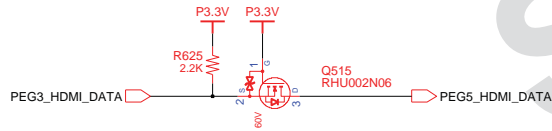
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M GRAPHICS_IF CRT	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM		PAGE 31 OF 56

HDMI

FOR HDMI VERIFICATION TEST

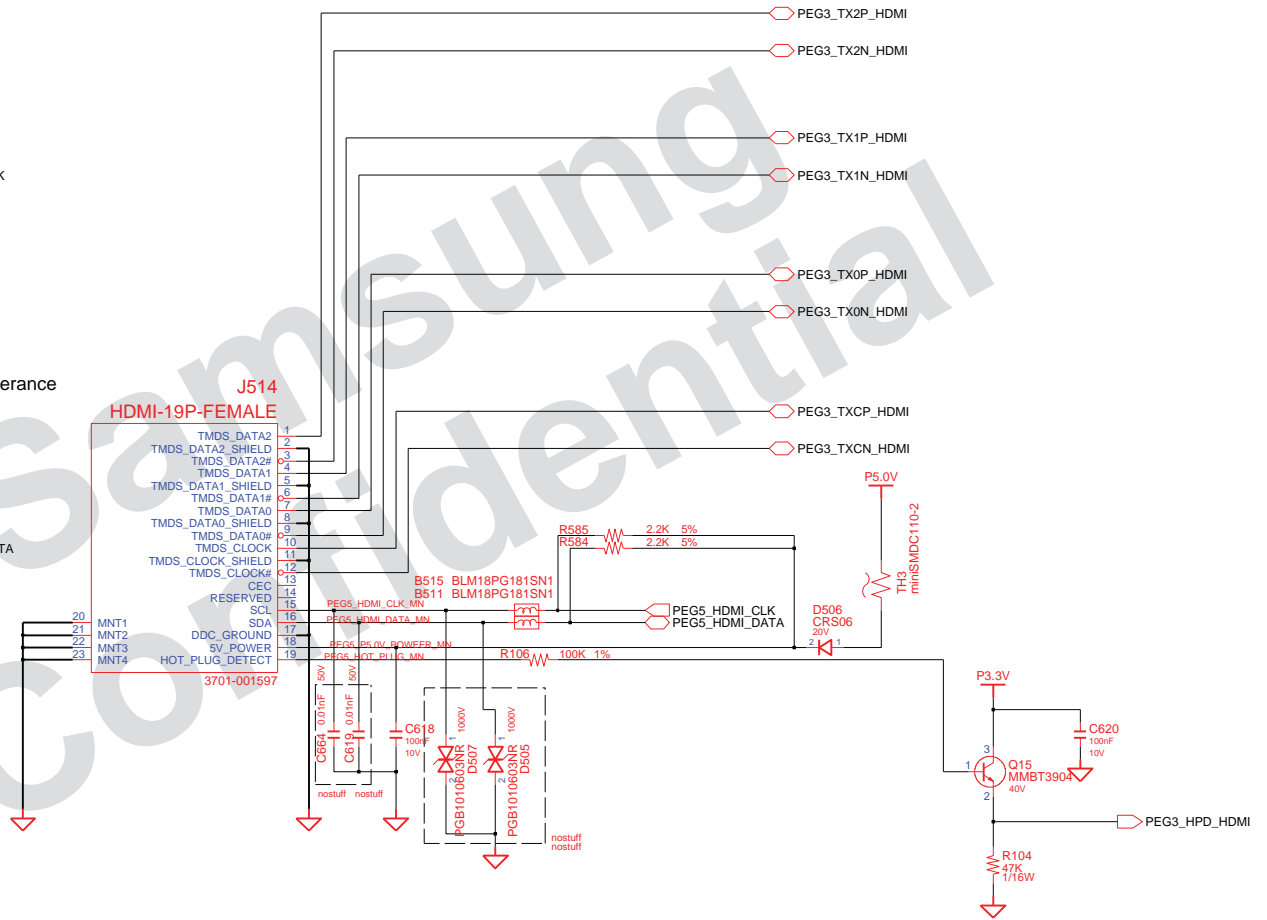


N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance



J514
HDMI-19P-FEMALE

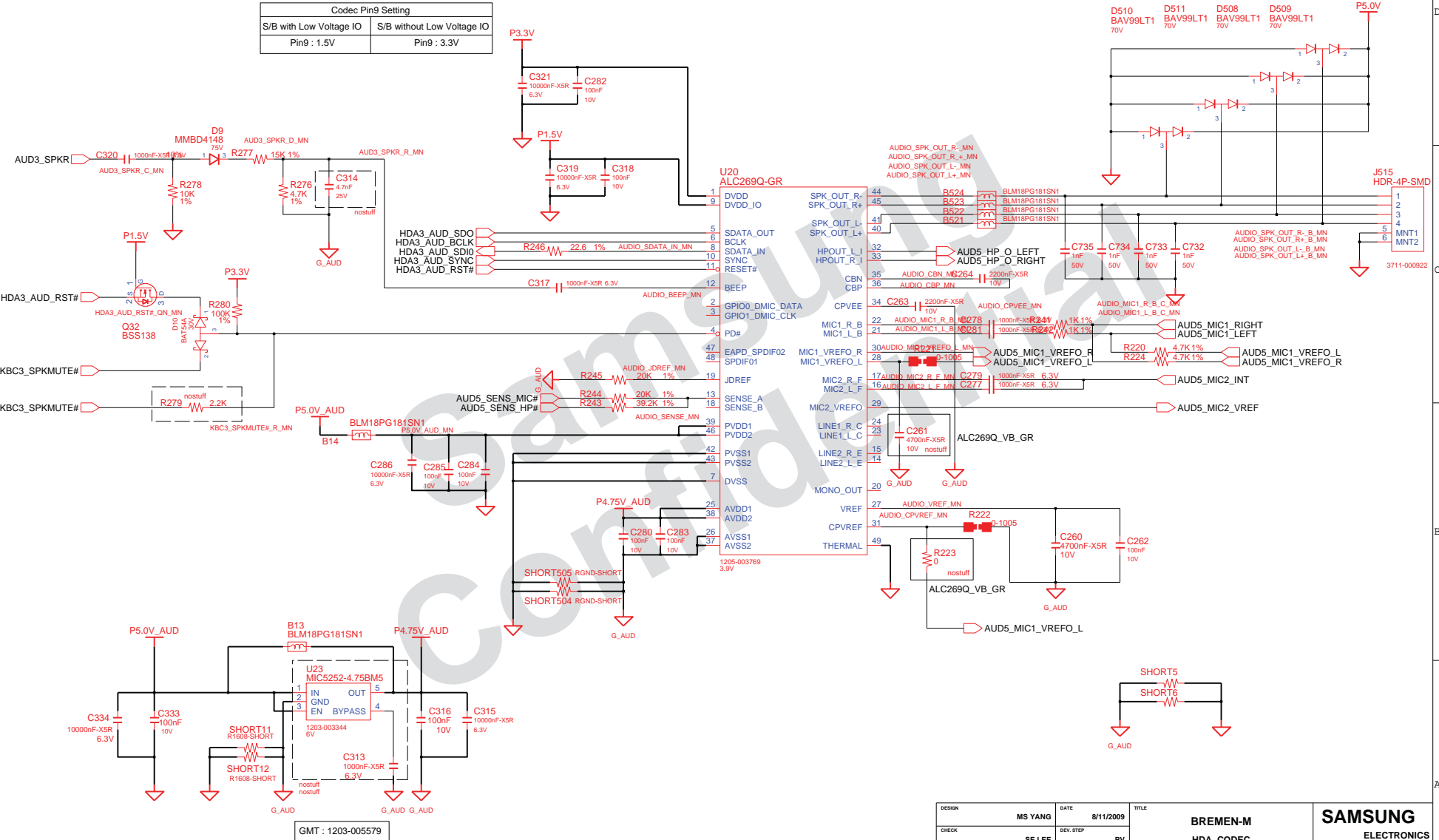
- 1 TMS_DATA2
- 2 TMS_DATA2_SHIELD
- 3 TMS_DATA2#
- 4 TMS_DATA1
- 5 TMS_DATA1#
- 6 TMS_DATA1#
- 7 TMS_DATA0
- 8 TMS_DATA0_SHIELD
- 9 TMS_DATA0#
- 10 TMS_CLOCK
- 11 TMS_CLOCK_SHIELD
- 12 TMS_CLOCK#
- 13 RESERVED
- 14 CEC
- 15 SCL
- 16 SDA
- 17 MNT1
- 18 DDC_GROUND
- 19 MNT2
- 20 SV_POWER
- 21 MNT3
- 22 MNT4
- 23 HOT_PLUG_DETECT



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	GRAPHICS_IF	BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9	HDMI	PART NO.	BA41-01174A
MODULE CODE		LAST EDIT				

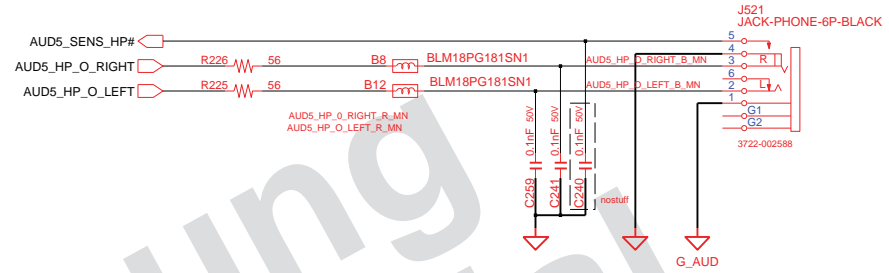
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HD AUDIO

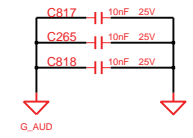
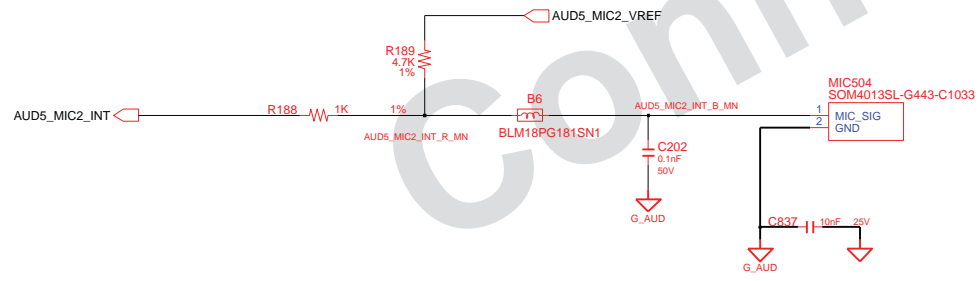
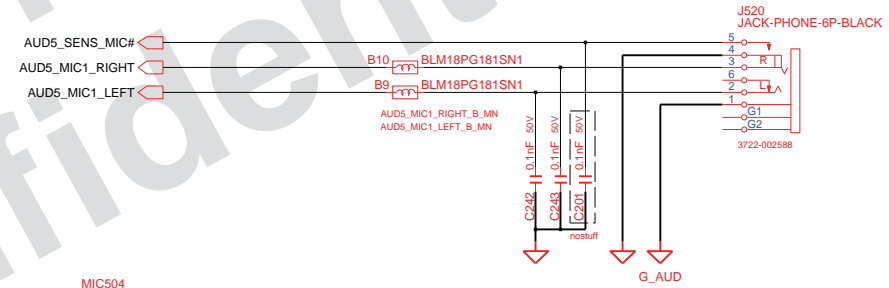


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M HDA_CODEC
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	MK KIM
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE	LAST EDIT
				SAMSUNG ELECTRONICS PART NO. BA41-01174A	
				October 20, 2009 21:30:55 PM	
				PAGE 33 OF 56	

HEADPHONE(BLACK)

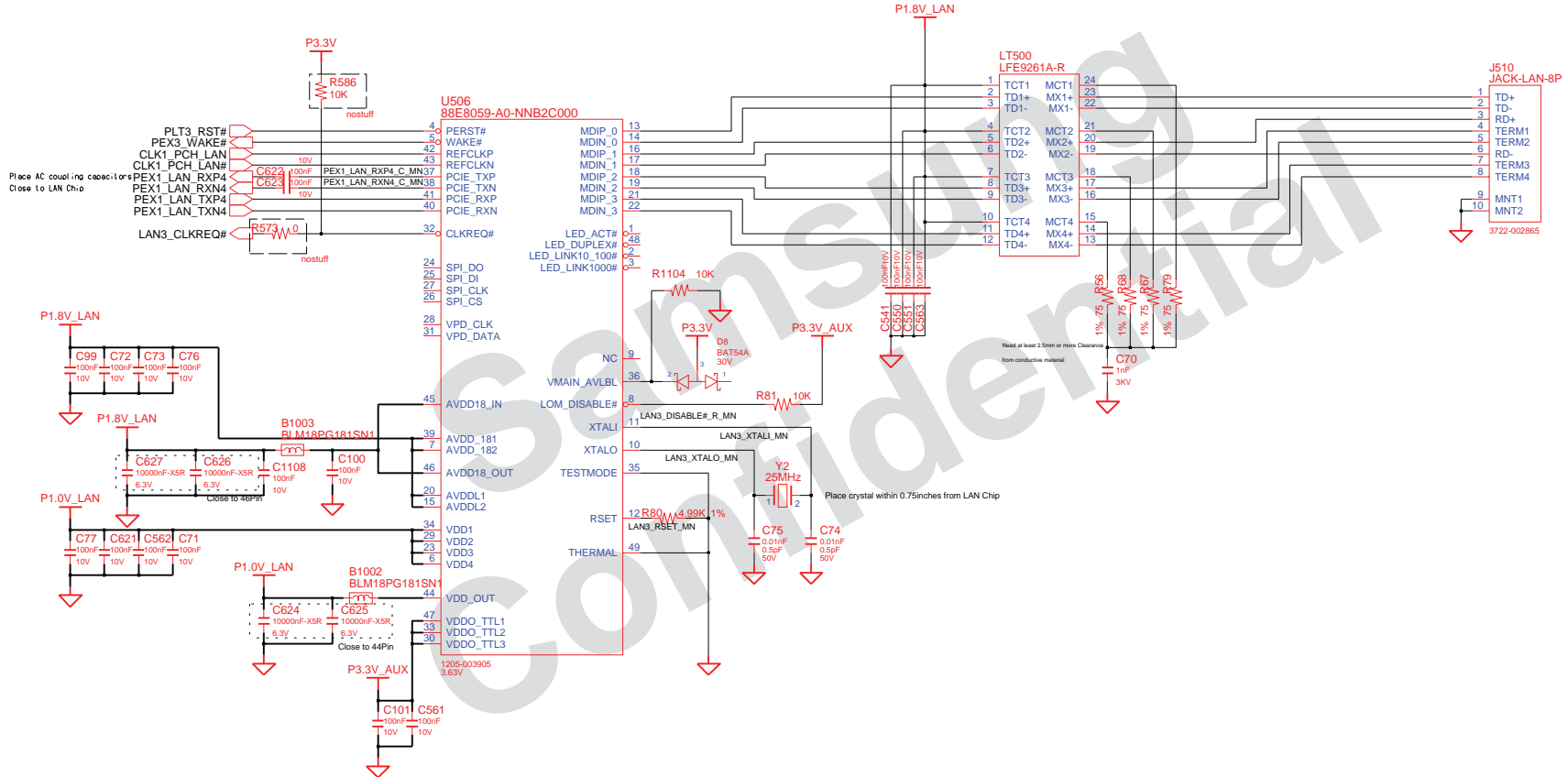


MIC JACK(BLACK)



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M HDA_CODEC	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	AUDIO JACK	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 34	OF 56

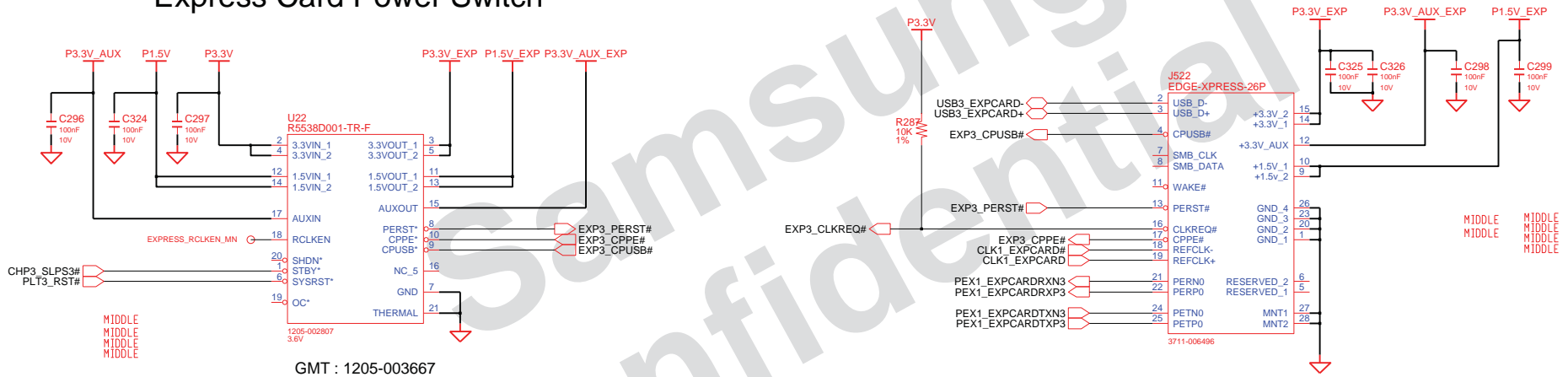
Marvell 88E8059(48pin, QFN,no LED)



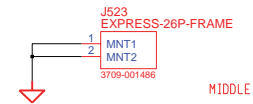
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CHECK	SE LEE	DEV. STEP	PV	APPROVAL	LAN_Realtek_RTL8103EL	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		PART NO. BA41-01174A
October 20, 2009 21:30:55 PM						PAGE 35 OF 56

Express Card

Express Card Power Switch

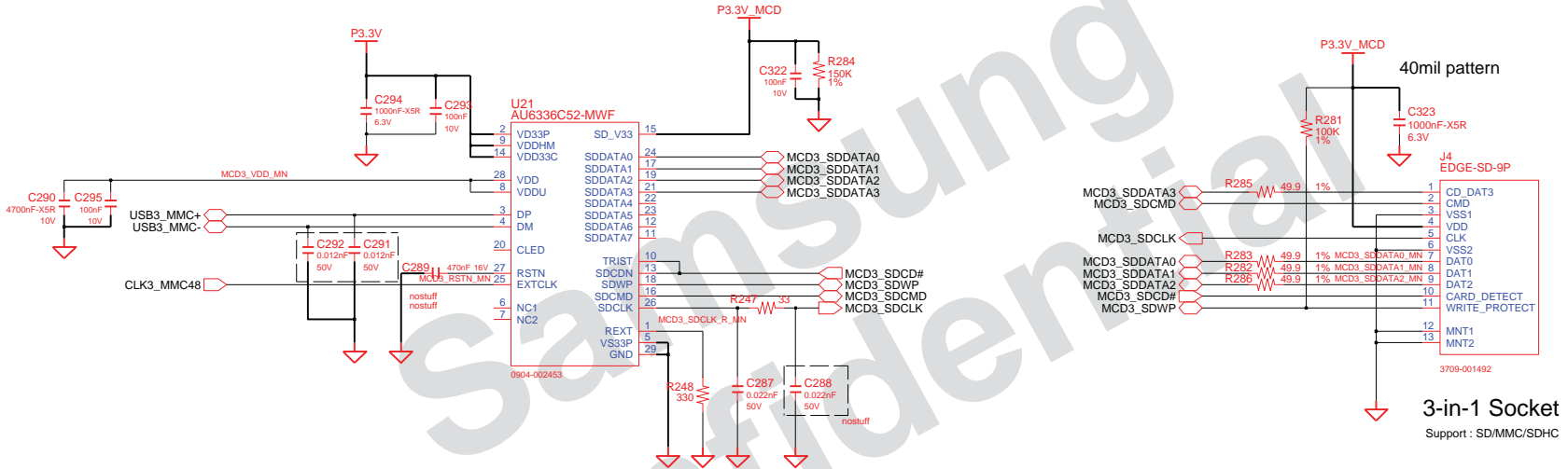


TYPE - I



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M EXPRESS CARD EXPRESS CARD	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				PART NO. BA41-01174A
				October 20, 2009 21:30:55 PM	PAGE	36 OF 56

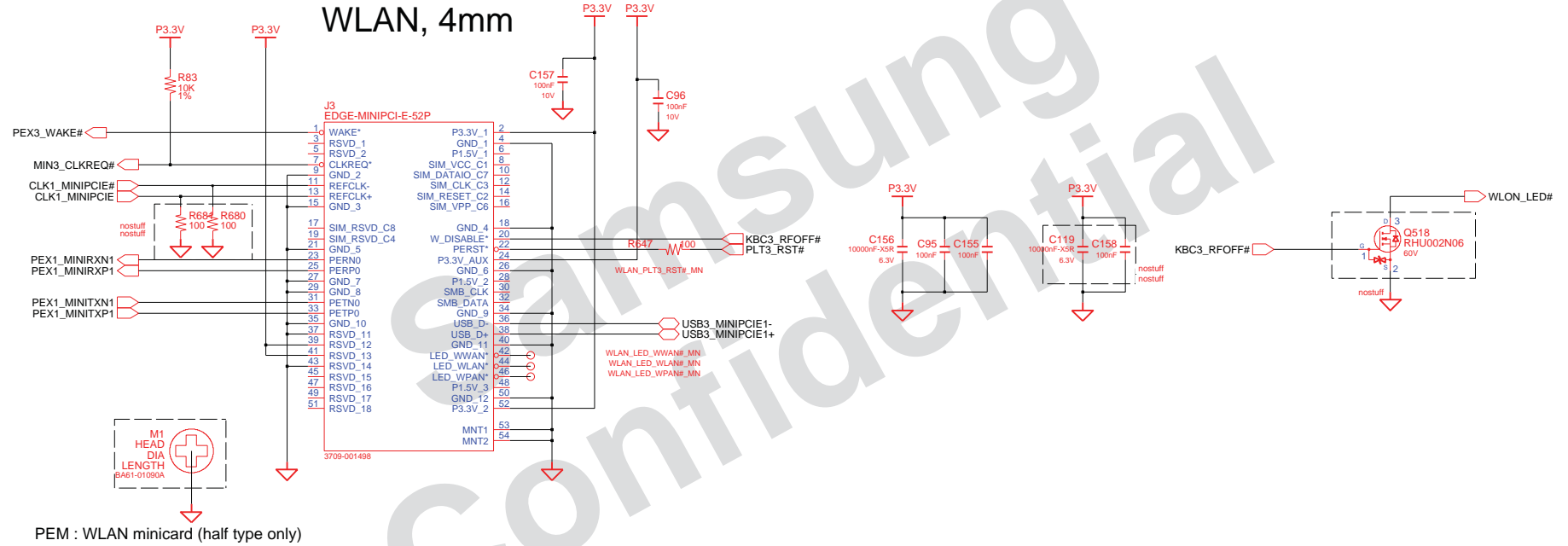
3 IN 1 CARD (AU6336)



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MULTICARD	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	3 IN 1 CARD(GL8275)	PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				

WLAN, 4mm

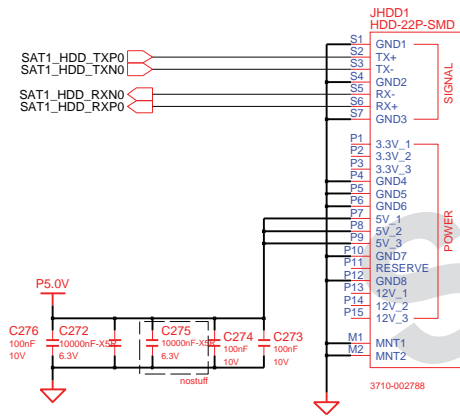
AMT 6.0 : P3.3V = P3.3V_ALW (Check?)
 wakeup pull-up power rail ?
 Puma Peak -WiFi (AMT 6.0)
 Kilmer Peak - WiFi/WiMax



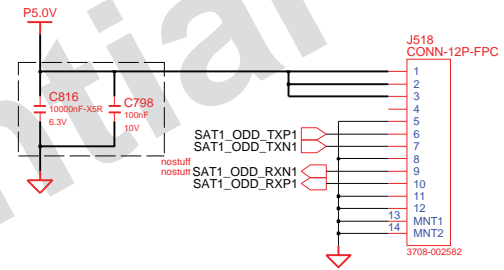
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MINI_PCIE_CONN	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 38	OF 56

SATA I/F CONN

SATA HDD CONN

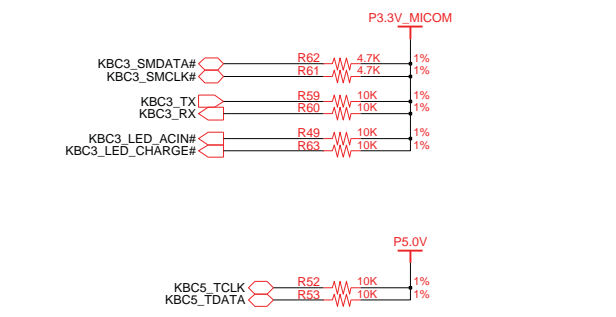
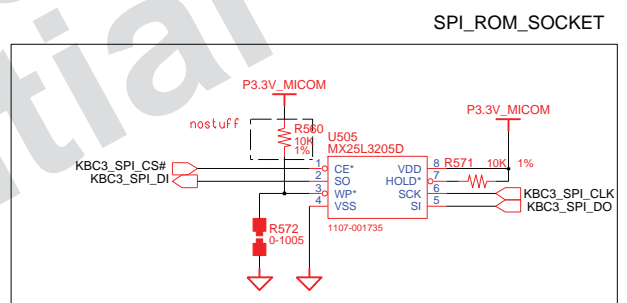
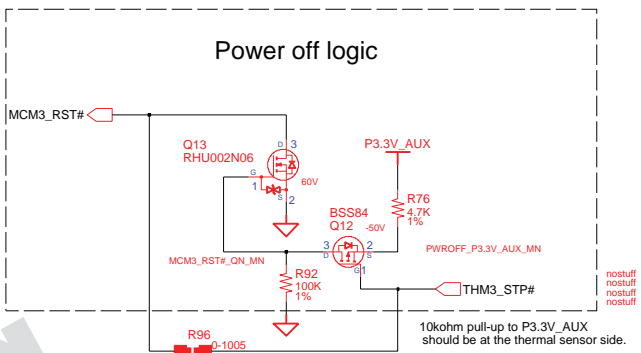
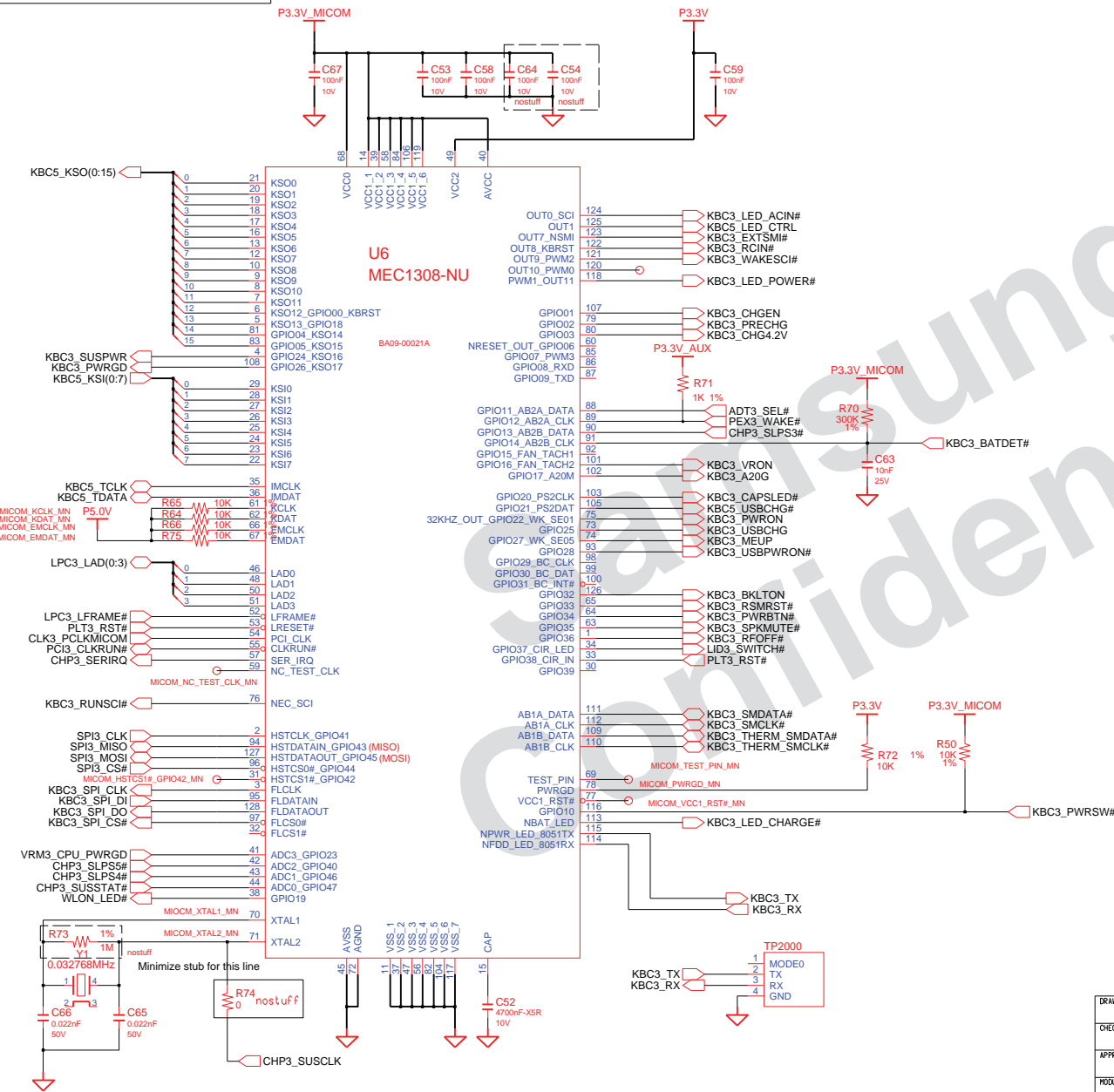


MAIN TO SUB SATA ODD CONN



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M SATA_DEVICES	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9		HDD & ODD SUB CONNECTOR	PART NO. BA41-01174A
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 39	OF 56

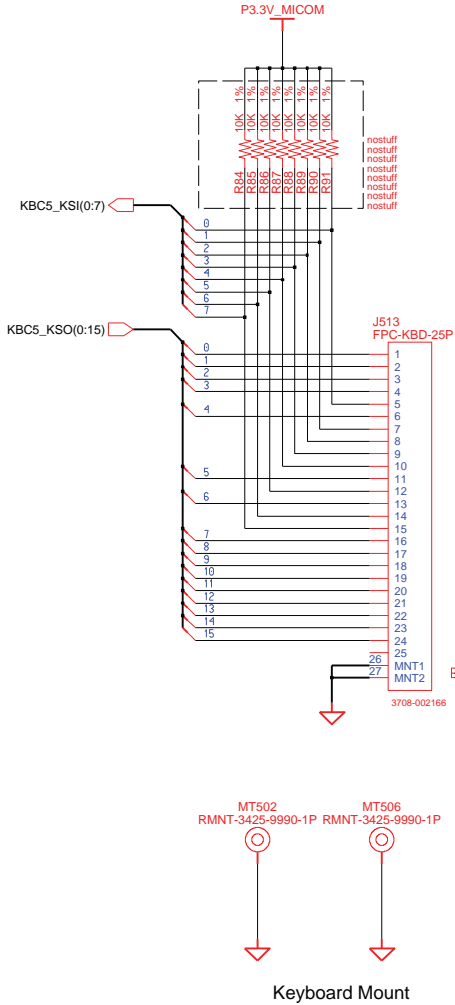
MAIN BOARD (MICOM)



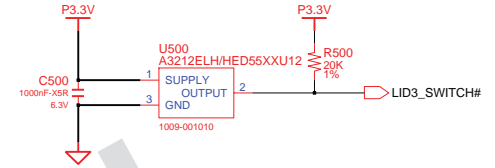
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MICOM	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			PART NO. BA41-01174A
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 40 OF 56

Micom Glue Logic

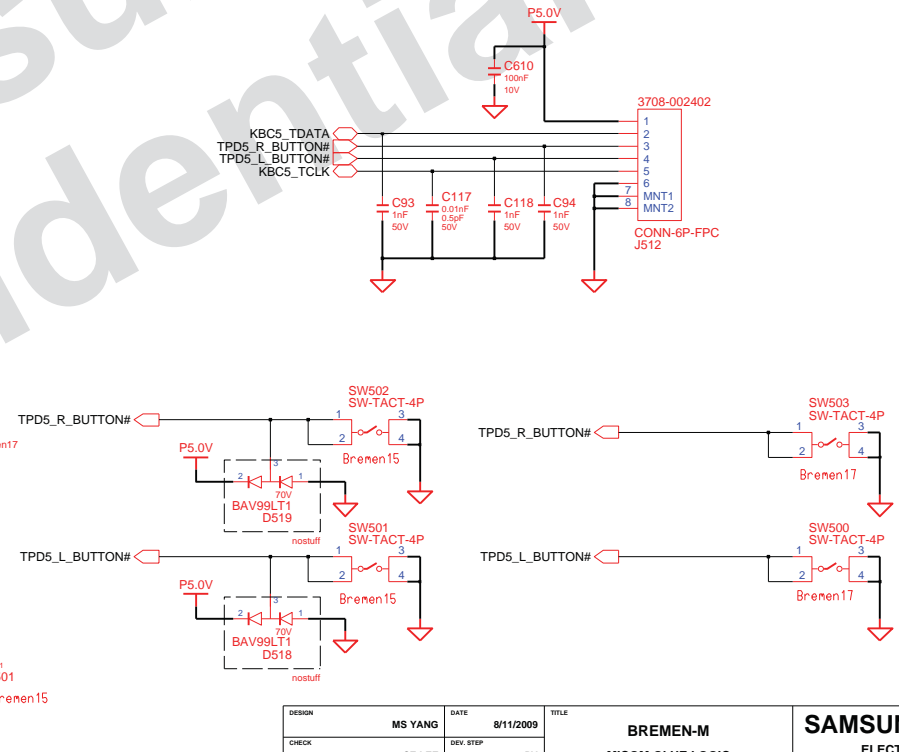
KEYBOARD



LID_SWITCH

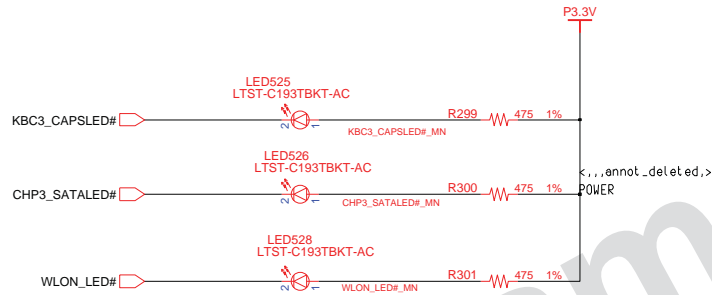


TOUCHPAD

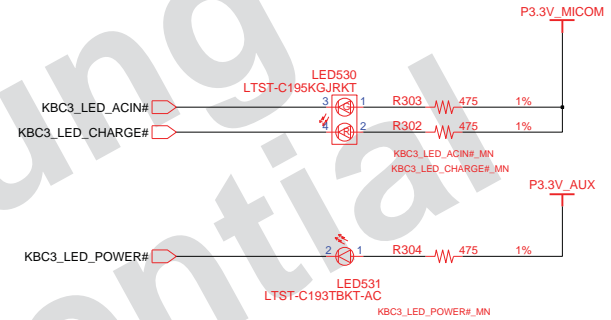


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M		SAMSUNG
CHECK	SE LEE	DEV. STEP	PV	MICOM GLUE LOGIC		ELECTRONICS	
APPROVAL	MK KIM	REV	REV 0.9	KETBOARD & TOUCHPAD		PART NO.	BA41-01174A
MODULE CODE	LAST EDIT			October 20, 2009 21:30:55 PM		PAGE	41 OF 56

FUNCTION KEY LED



ADAPTERIN/CHARGING LED

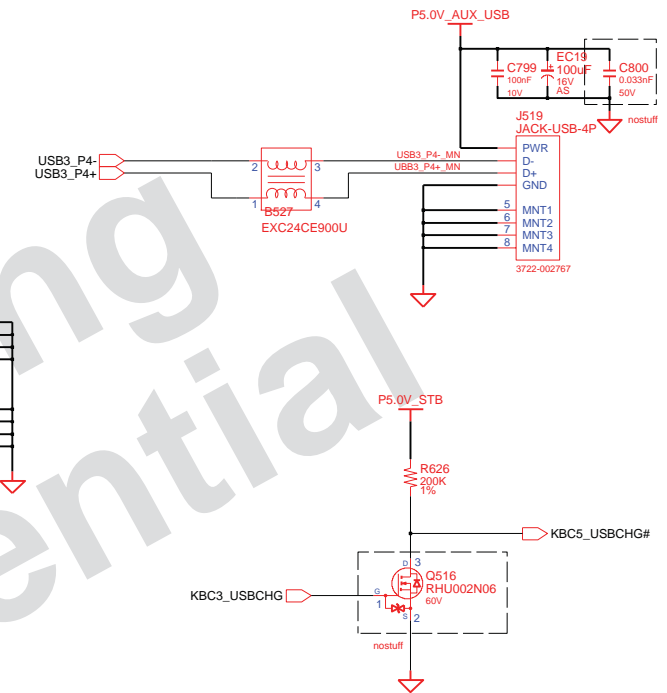
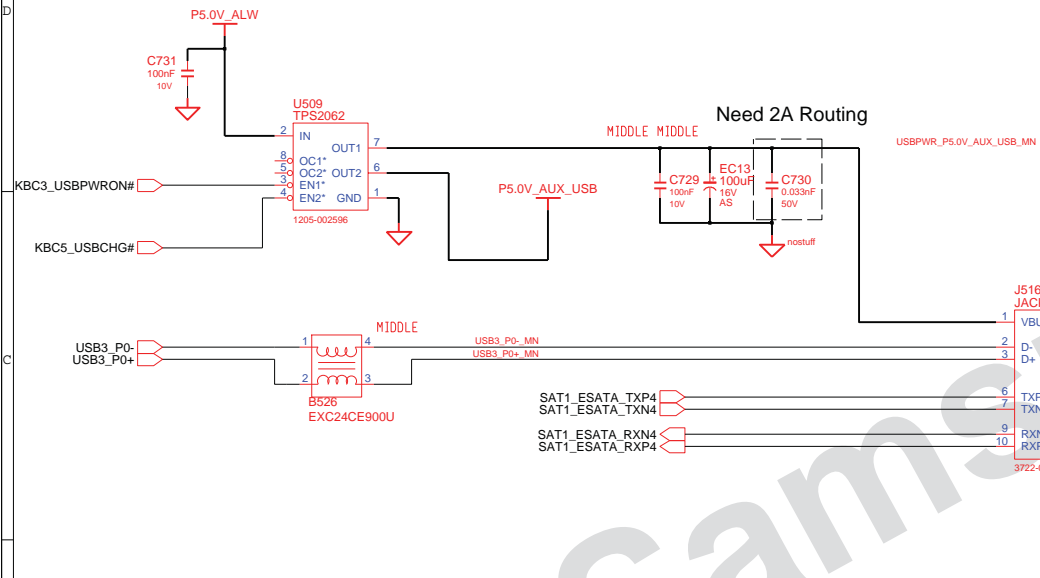


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Confidential

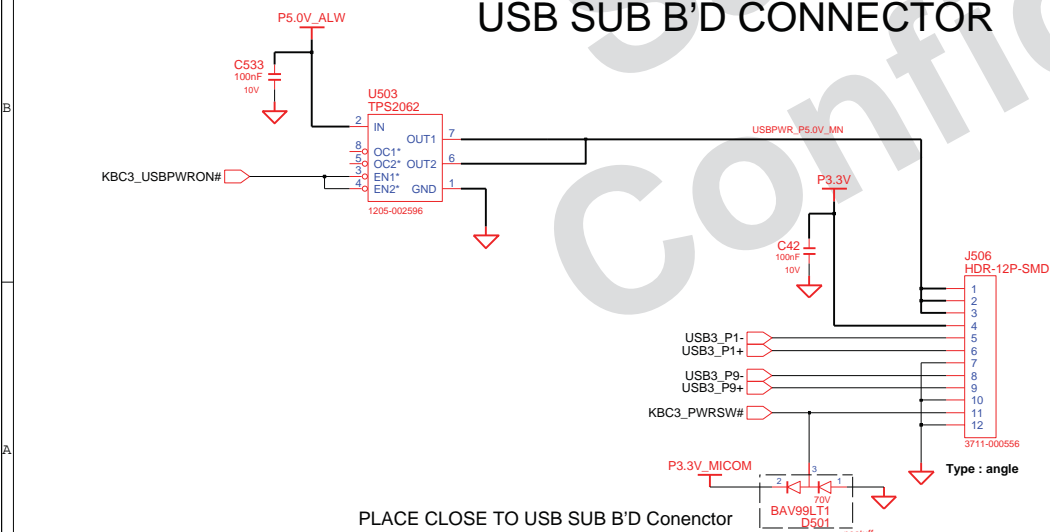
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M LED_SWITCH	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9		LED_SWITCH	PART NO. BA41-01174A
MODULE CODE		LAST EDIT				October 20, 2009 21:30:55 PM
						PAGE 42 OF 56

USB + eSATA CONNECTOR

USB Single connector

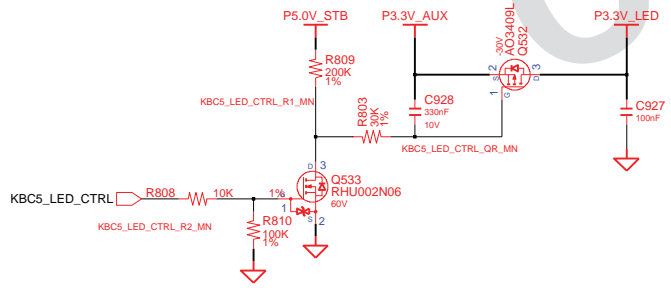
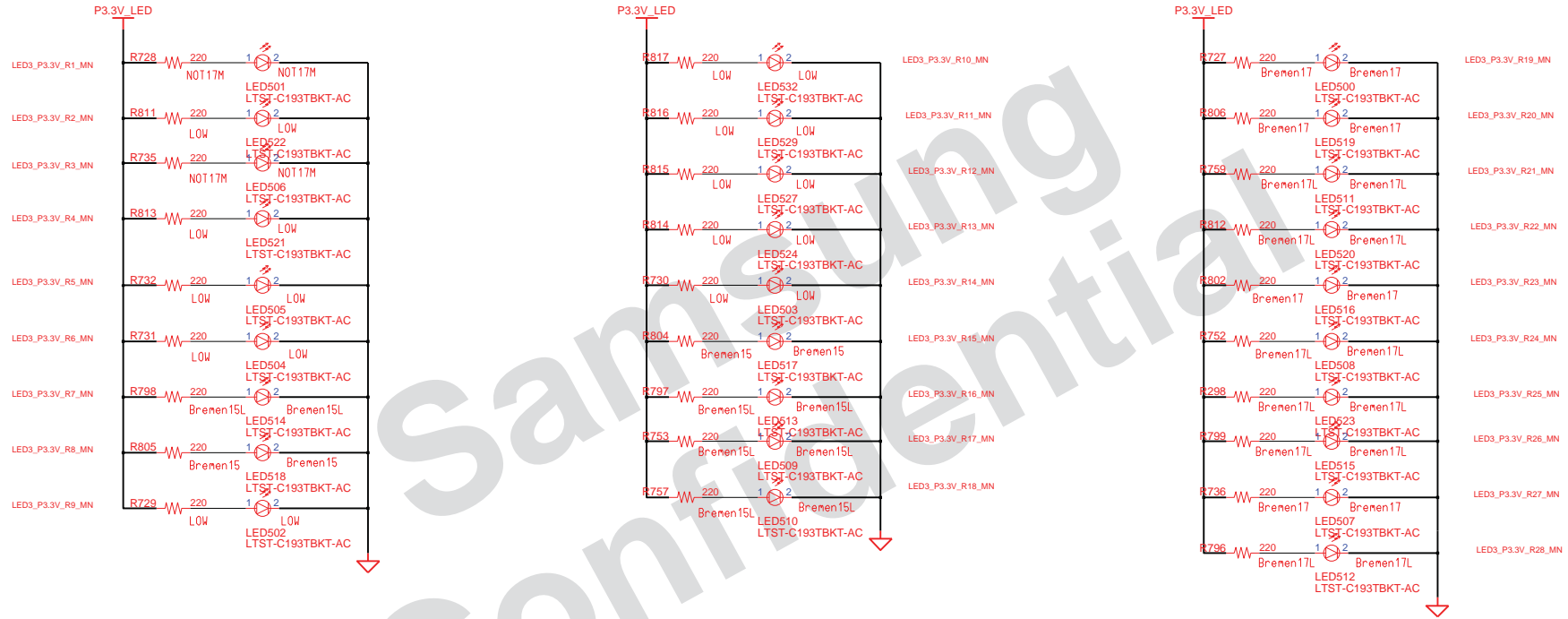


USB SUB B'D CONNECTOR



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M USB_CONN	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	USB & eSATA	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		PART NO. BA41-01174A
		LAST EDIT				October 20, 2009 21:30:55 PM
						PAGE 43 OF 56

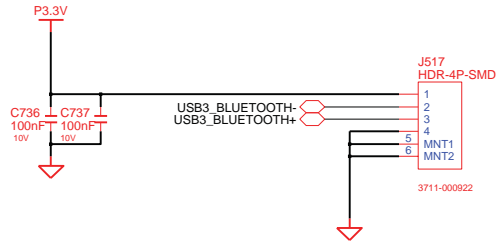
Touchpad LED



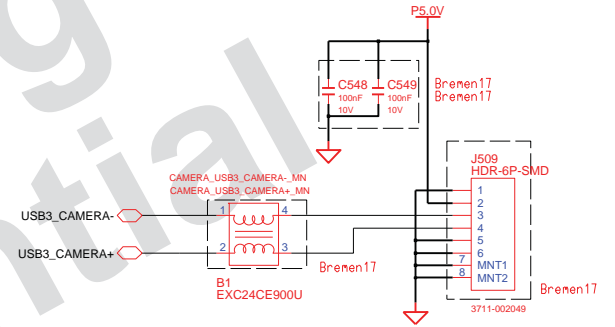
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M TOUCHPAD LED		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	TOUCHPAD LED		PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE	LAST EDIT						
						October 20, 2009 21:30:55 PM	PAGE 44 OF 56

USB I/F Devices

Bluetooth Interface

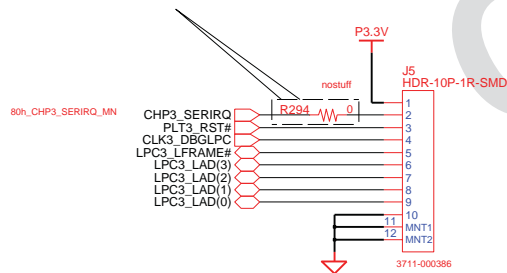


CAMERA (17Inch)



80h PORT DEBUG

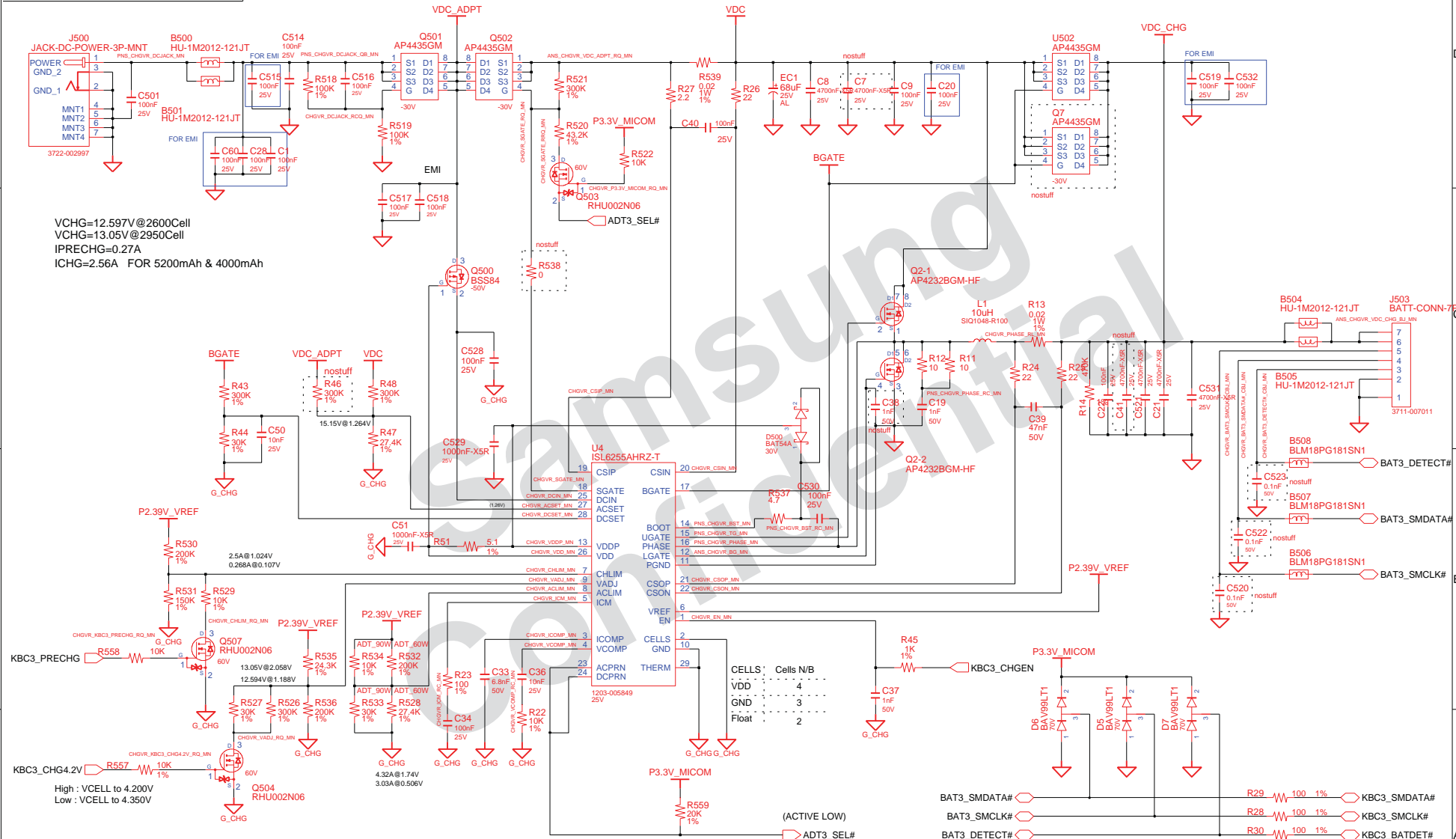
For MICOM 80H Debug Port Test



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M USB_DEVICES		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	BLUETOOTH & CAMERA		PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9	October 20, 2009 21:30:55 PM		PAGE	45 OF 56
MODULE CODE	LAST EDIT						

CHARGER & POWER MANAGEMENT

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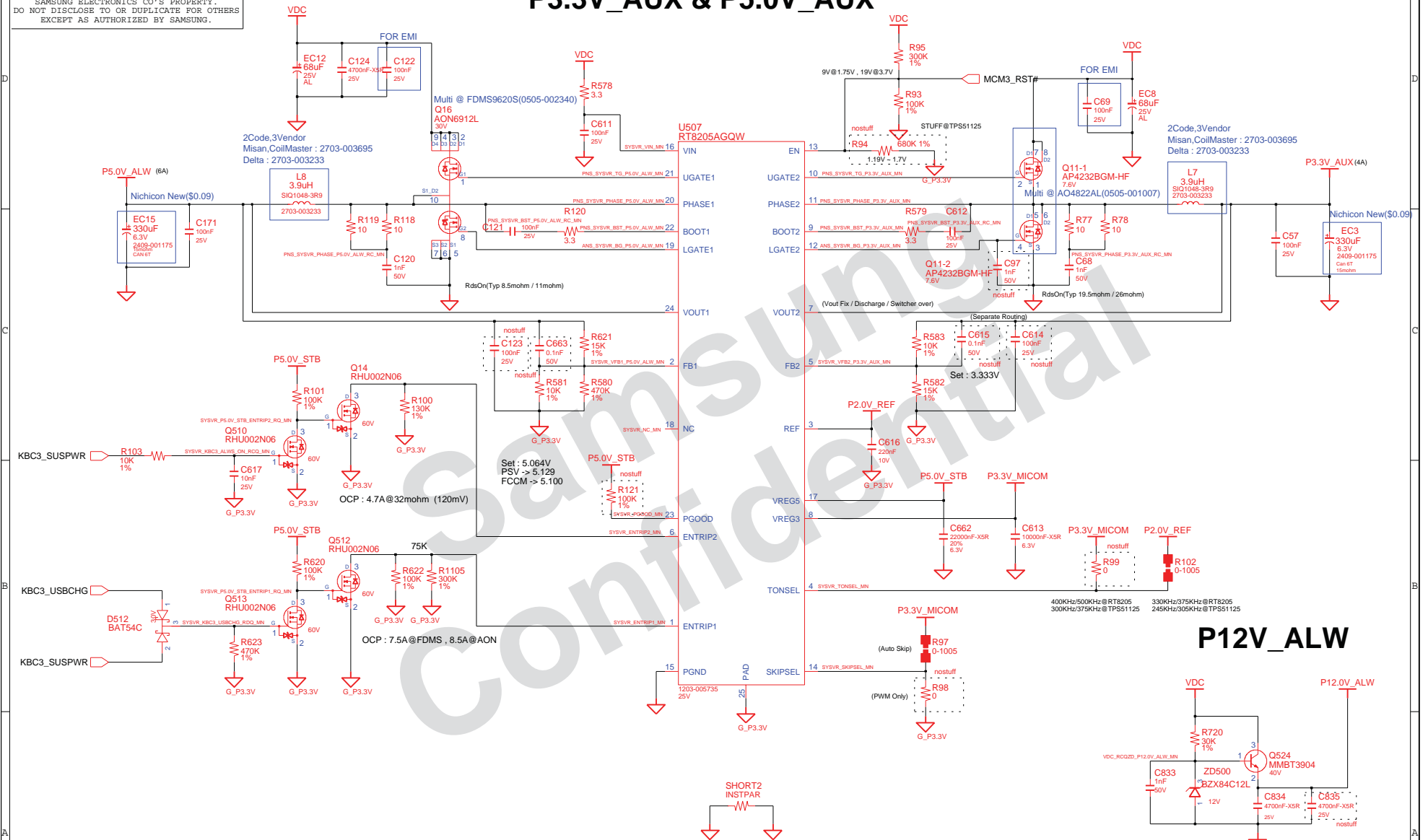
Adapter configuration			
60W / 3.03A / 96%		90W / 4.32A / 91.2%	
Value	SEC Code	Value	SEC Code
Rtop	200K	2007-007334	10K
Rbot	27.4K	2007-007274	30K
			2007-008275



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M CHARGER	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	MODULE CODE	undefined	PART NO. BA41-01174A
APPROVAL	MK KIM	REV	REV 0.9	LAST EDIT	October 20, 2009 21:30:55 PM	PAGE 46 OF 56

P3.3V_AUX & P5.0V_AUX

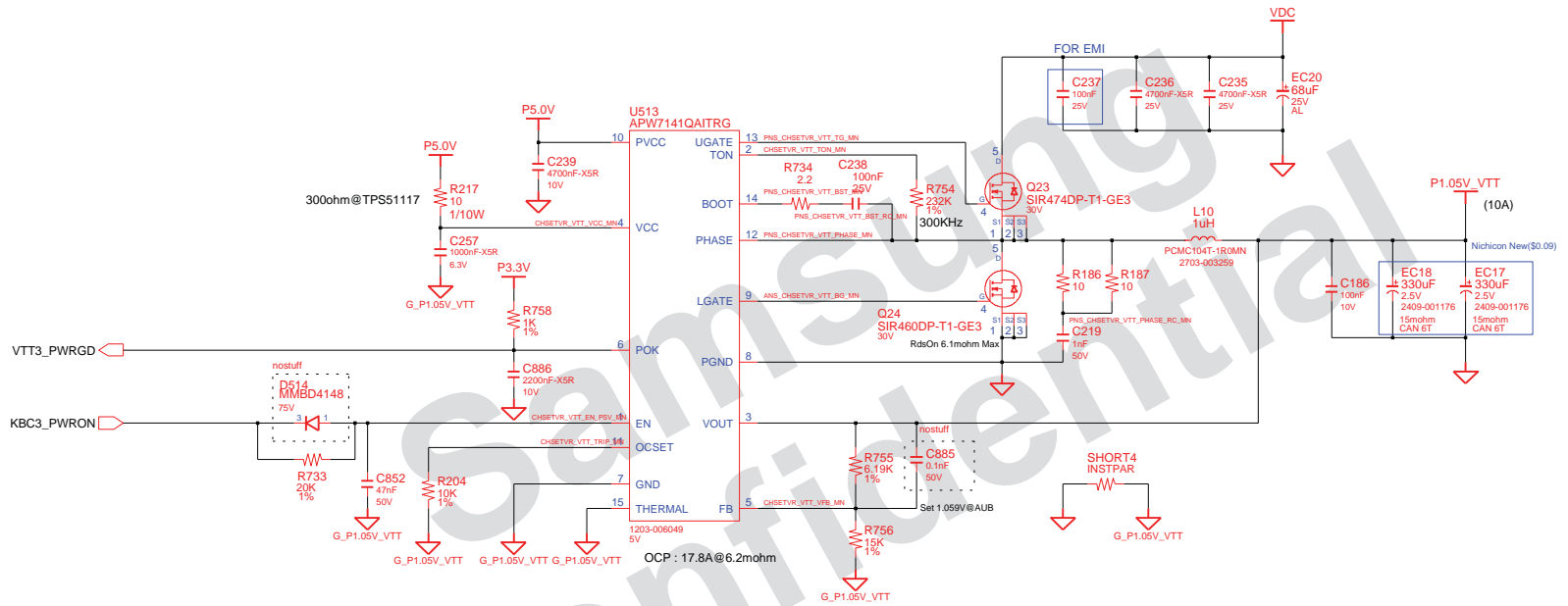
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P12V_ALW

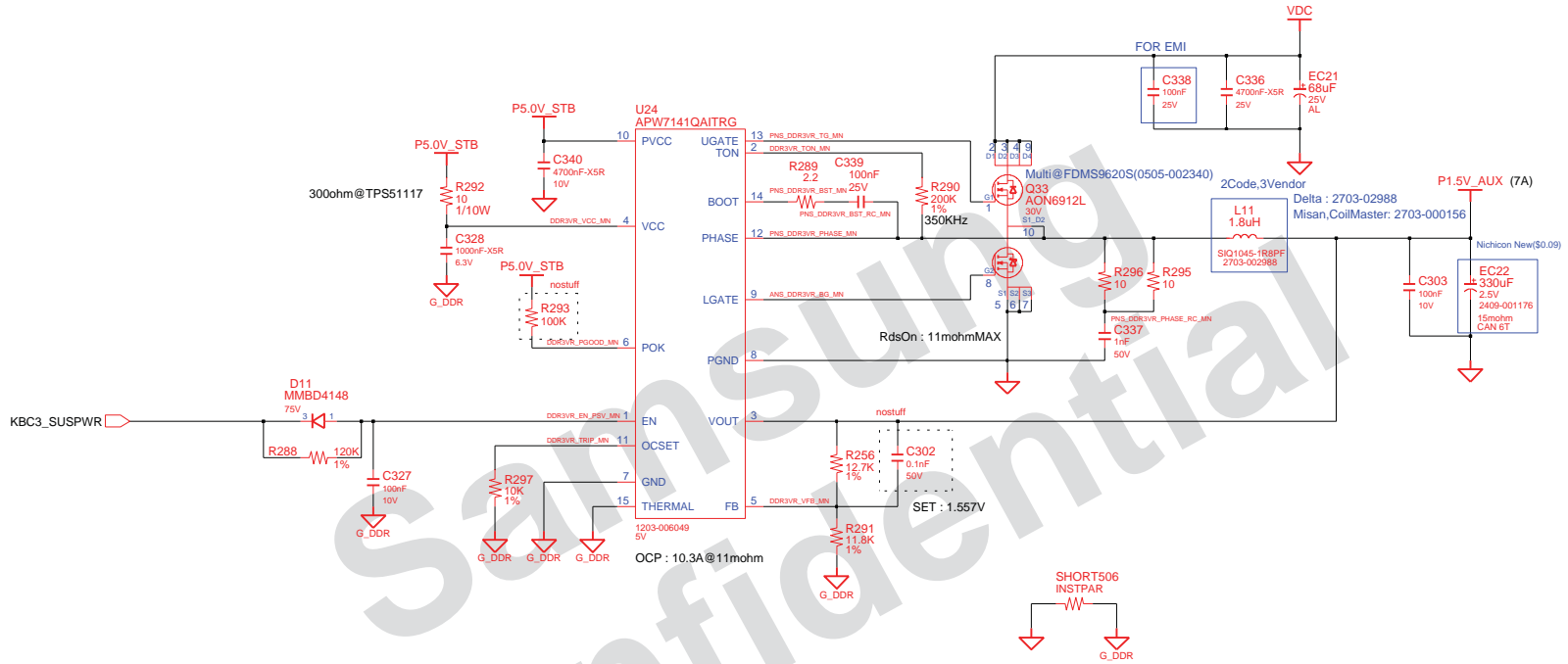
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	P3.3V_ALW / P5.0V_ALW	PART NO.	
APPROVAL	MK KIM	REV	REV 0.9	P3.3V_AUX & P5.0V_AUX	BA41-01174A	
MODULE CODE		LAST EDIT				

CHIPSET POWER(P1.05V_VTT)

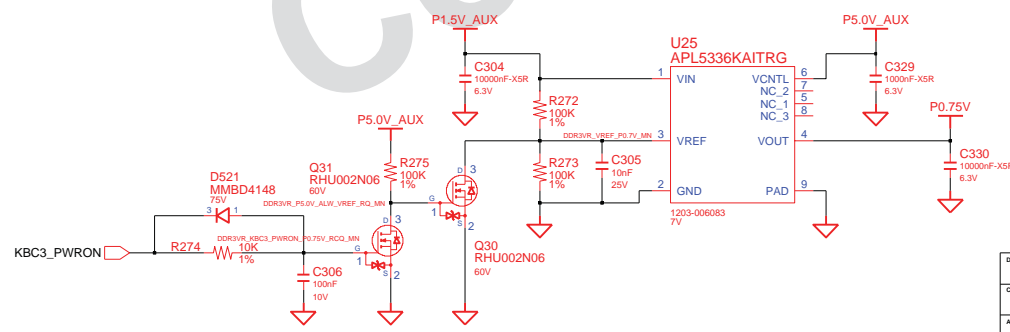


DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M Chipset Power	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	REV	Chipset Power (P1.05VTT)	
APPROVAL	MK KIM	REV	0.9	LAST EDIT	October 20, 2009 21:30:55 PM	PART NO. BA41-01174A
MODULE CODE	undefined					PAGE 48 OF 56

DDR3 Power

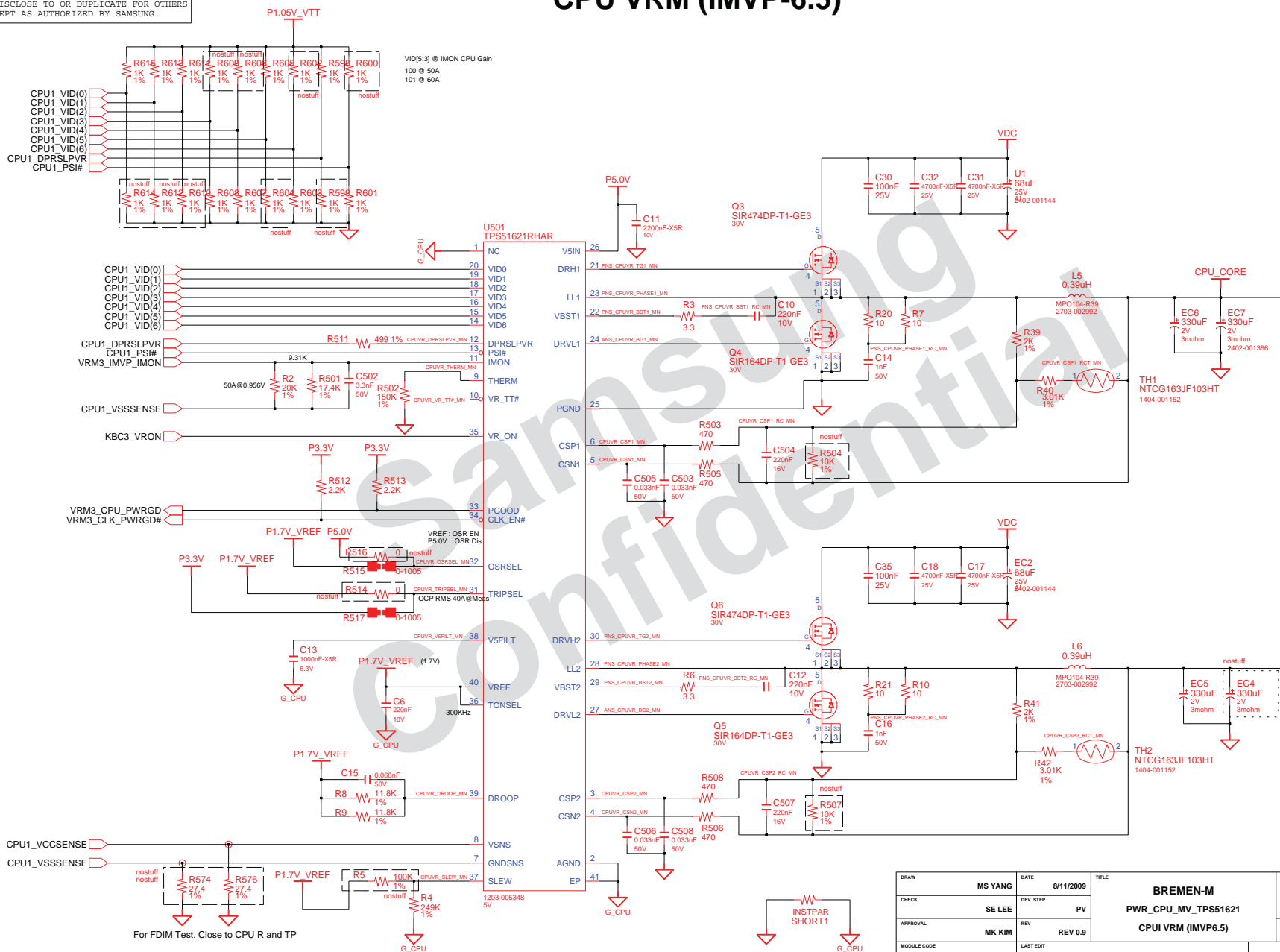


DDR3 VTT(0.75V)



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PWR_MEMORY		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	DDR3 POWER		PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 49	OF 56

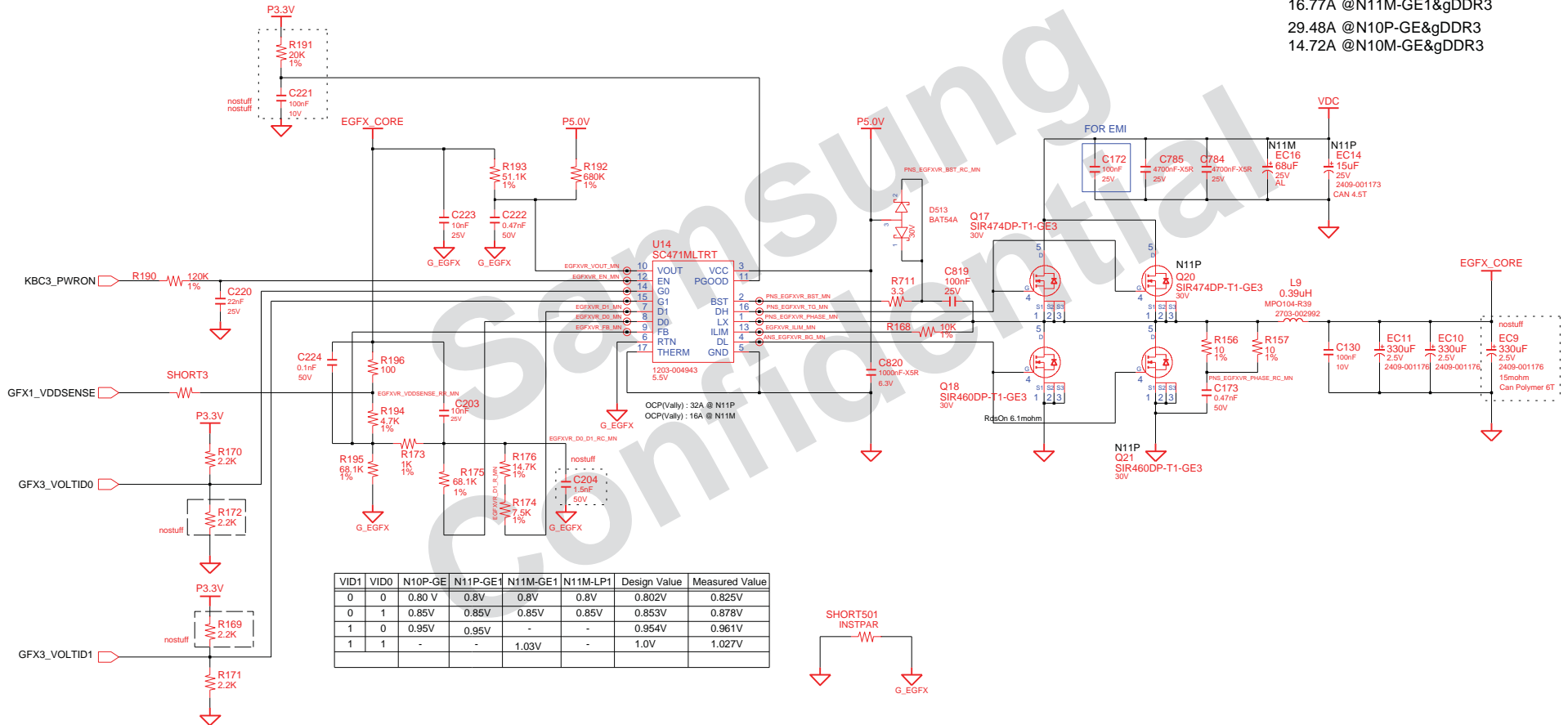
CPU VRM (IMVP-6.5)



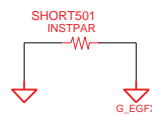
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	PWR_CPU_MV_TPS51621		
APPROVAL	MK KIM	REV	REV 0.9	CPU1 VRM (IMVP6.5)		PART NO. BA41-01174A
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 50 OF 56

External Graphic Core Power

31.66A @N11P-GE1&gDDR3
 16.77A @N11M-GE1&gDDR3
 29.48A @N10P-GE&gDDR3
 14.72A @N10M-GE&gDDR3



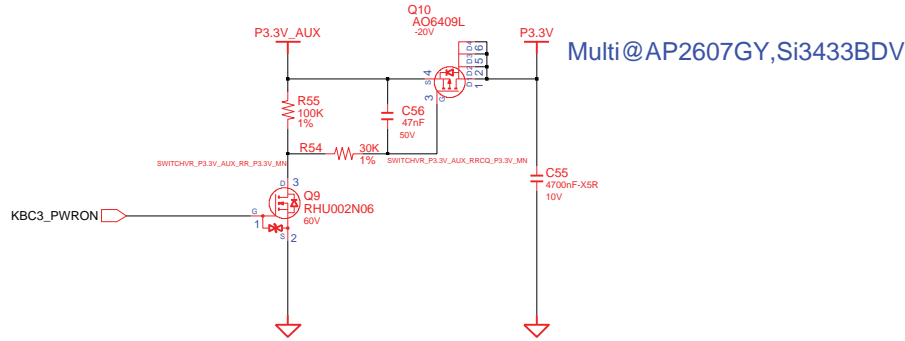
VID1	VID0	N10P-GE	N11P-GE1	N11M-GE1	N11M-LP1	Design Value	Measured Value
0	0	0.80 V	0.8V	0.8V	0.8V	0.802V	0.825V
0	1	0.85V	0.85V	0.85V	0.85V	0.853V	0.878V
1	0	0.95V	0.95V	-	-	0.954V	0.961V
1	1	-	-	1.03V	-	1.0V	1.027V



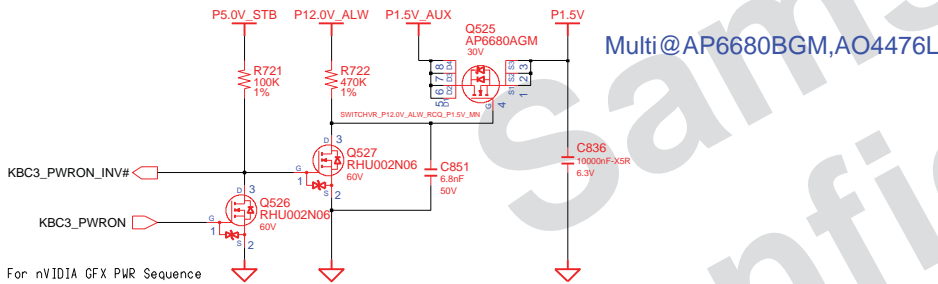
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PWR_GFX_MW_EXT	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV	External Graphic Power		
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE	LAST EDIT					

Switched Power

Switched Power On (P3.3V)



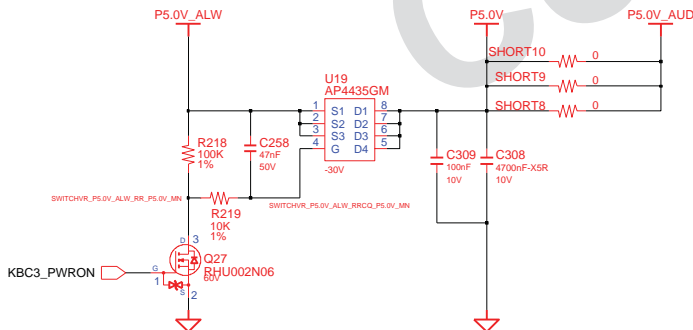
Switched Power On (P1.5V)



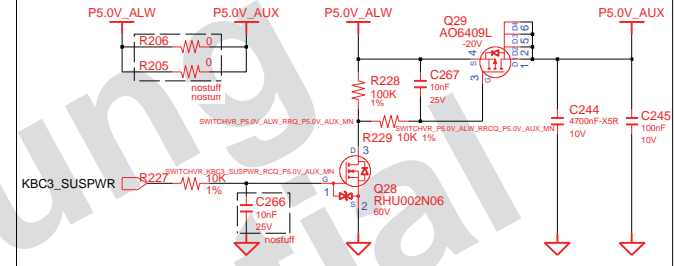
For nVIDIA GFX PWR Sequence

NVDD(EGFX_CORE) First and then FBVDD0(gDDR3)

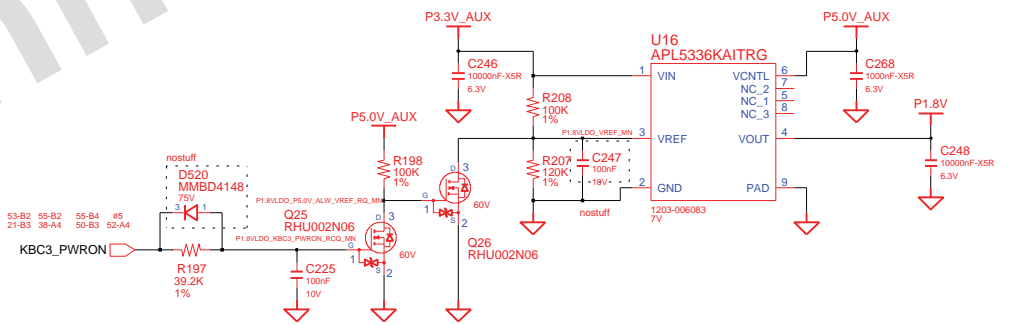
Switched Power On (P5.0V) Multi@Si443DDY



Sleep'n Charger

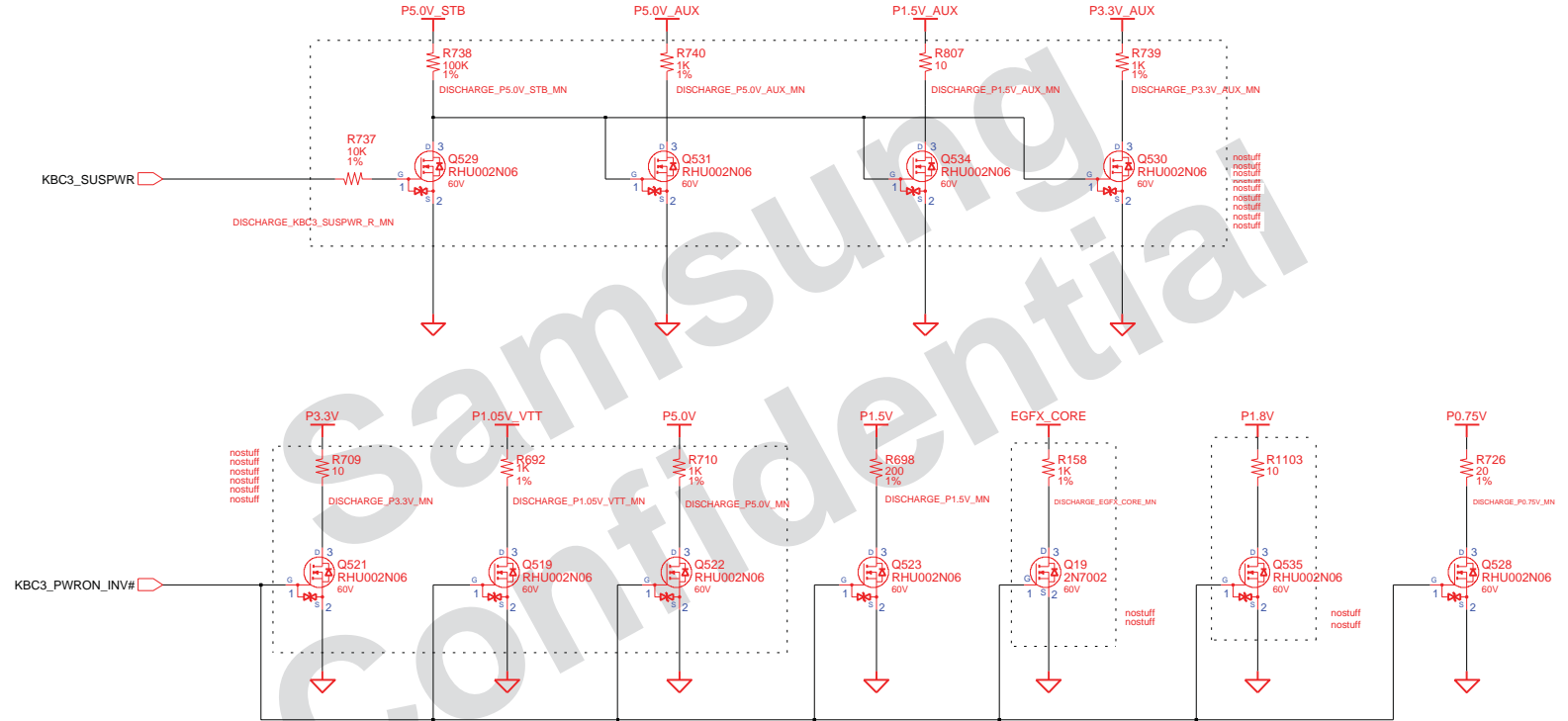


P1.8V(LDO)



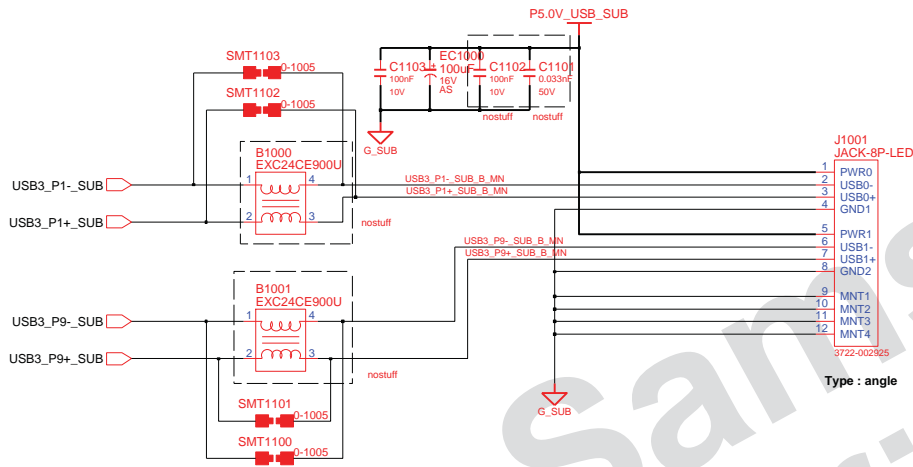
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PWR_MV_SWITCHED		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	SWITCHED POWER		PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE		LAST EDIT					
October 20, 2009 21:30:55 PM						PAGE	52 OF 56

POWER DISCHARGER

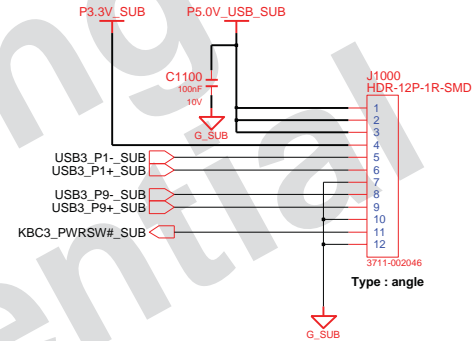


DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PWR_MV_DISCHARGER		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	DISCHARGING LOGIC		PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 53	OF 56

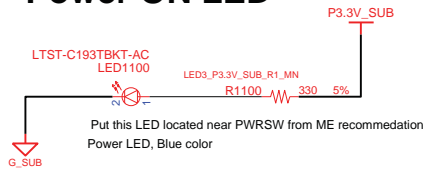
2 USB PORT & POWER S/W SUB B'D



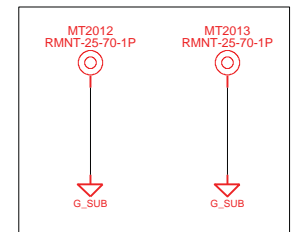
SUB TO MAIN USB CONN



Power ON LED



Power Button



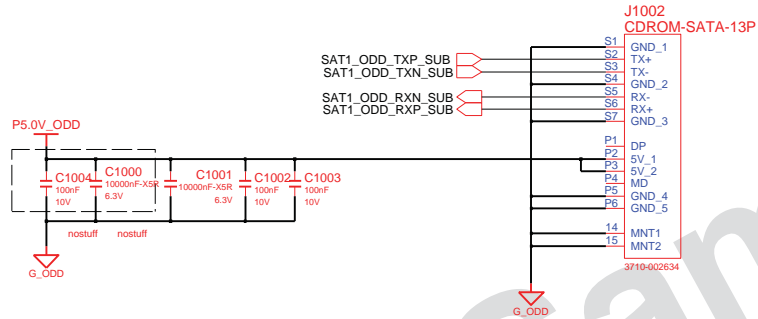
USB sub board mount hole

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M SUB BOARD1	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	2 USB & POWER SW		
APPROVAL	MK KIM	REV	REV 0.9		PART NO.	BA41-01174A
MODULE CODE		LAST EDIT			October 20, 2009 21:30:55 PM	PAGE 54 OF 56

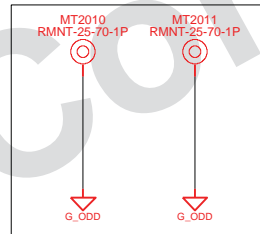
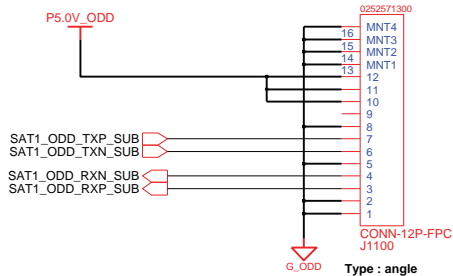
SATA ODD SUB BOARD

SATA ODD SUB BOARD

SATA ODD CONN

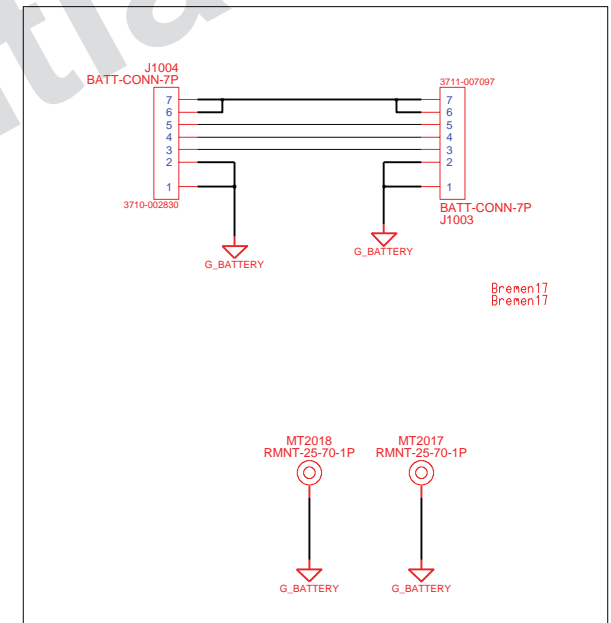


SUB TO MAIN SATA ODD CONN



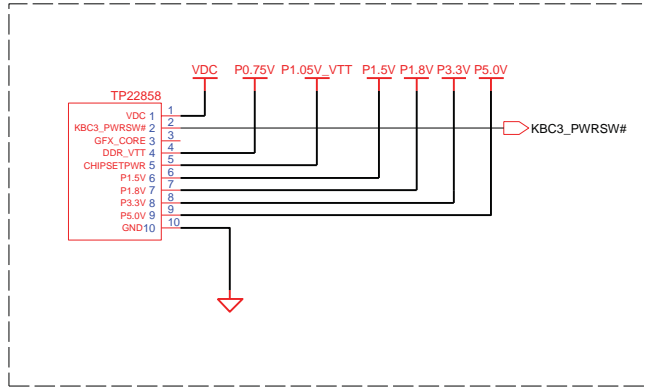
ODD sub board mount hole

17" BATTERY SUBBOARD

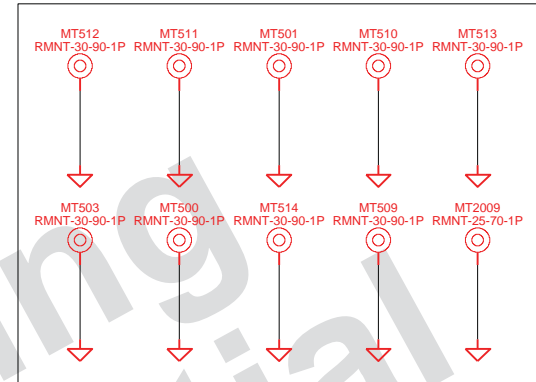


DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M SUB BOARD2		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	SATA ODD SUB BOARD		PART NO. BA41-01174A	
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MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	55 OF 56

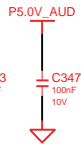
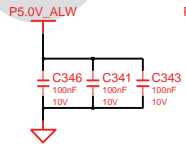
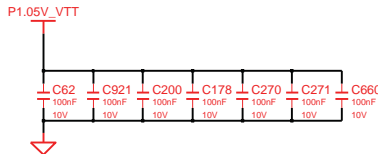
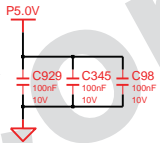
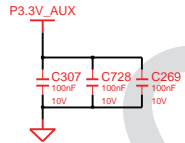
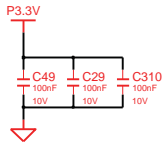
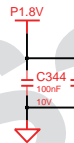
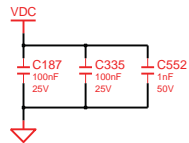
ICT PORT



Mainboard Mount ((30,80)x9), ((30,90)x9), ((25,70)x1))



Top : (30,80) x 9
 Bot : (30,90) x 9



DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M ICT PORT ICT PORT	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				PART NO. BA41-01174A
				October 20, 2009 21:30:55 PM	PAGE	56 OF 56