

BREMEN-M 15"/17"

CPU : Intel Arrandale
 Chip Set : Intel Ixex 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

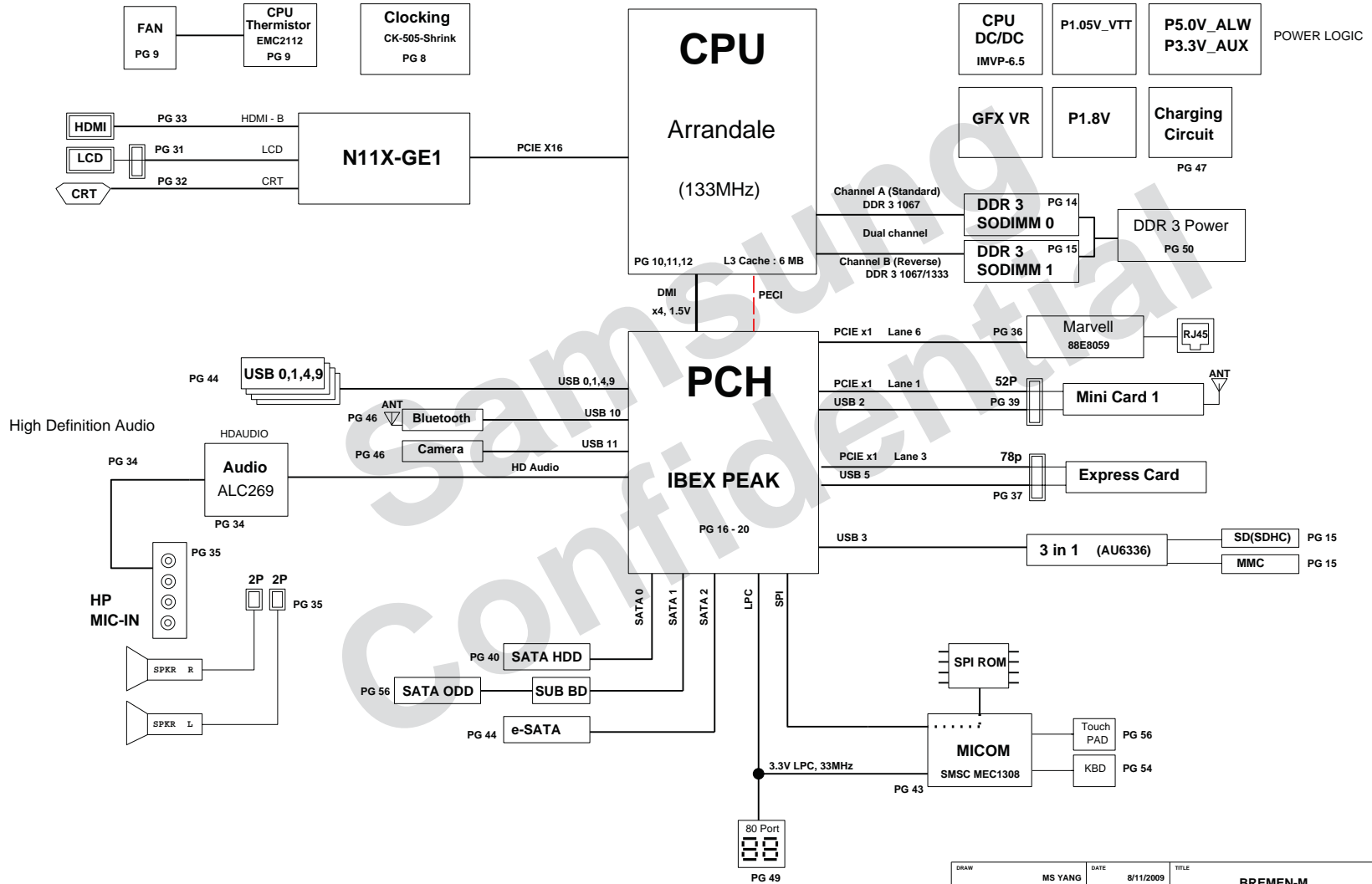
Owner : SEC Mobile R & D Signature : X

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

BLOCK DIAGRAM

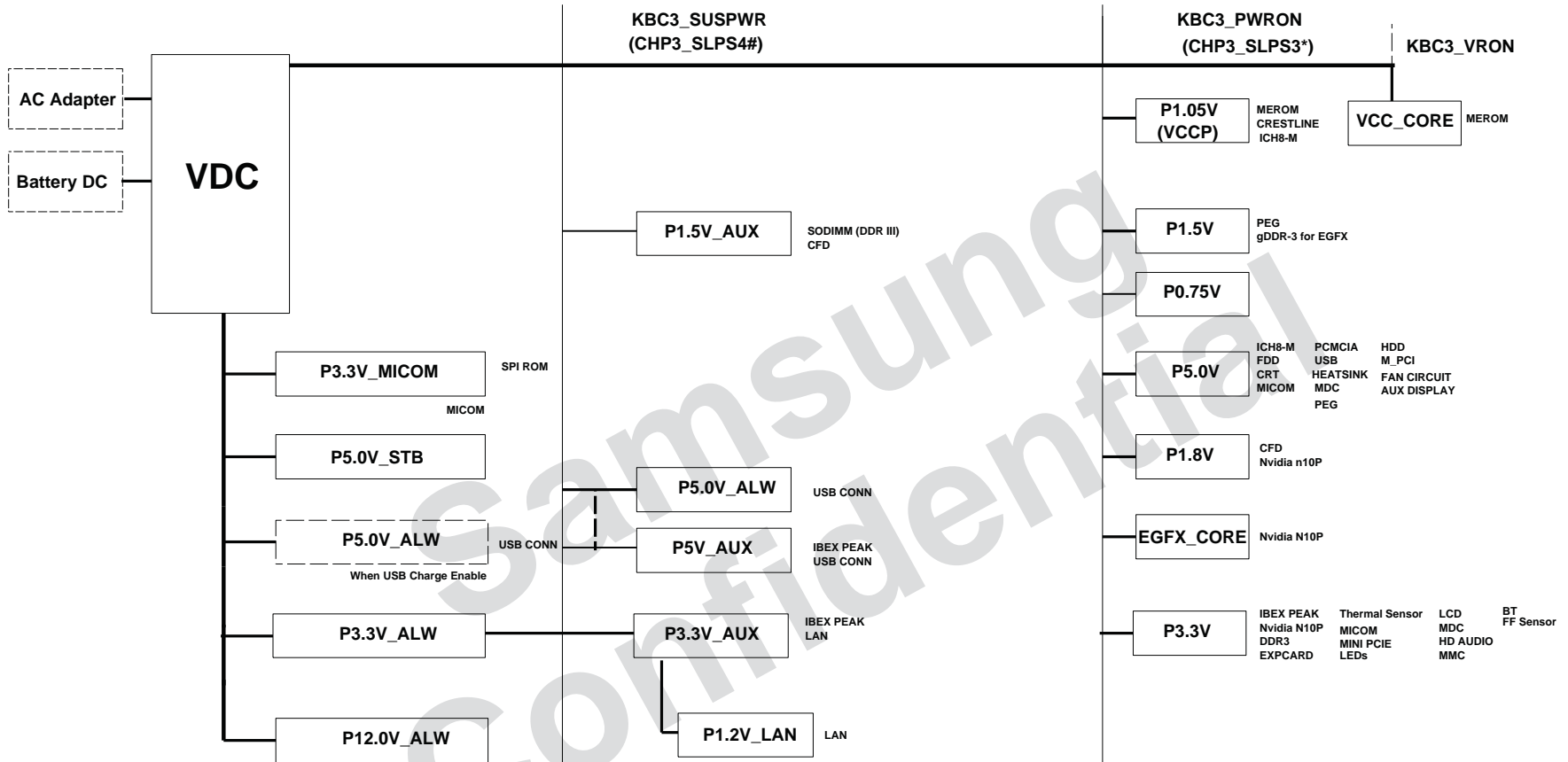


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MODULE CODE	undefined	LAST EDIT				
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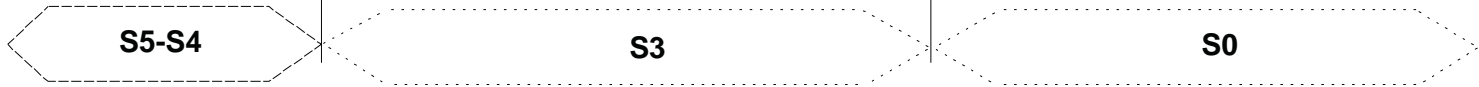
POWER DIAGRAM

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	—	—	—

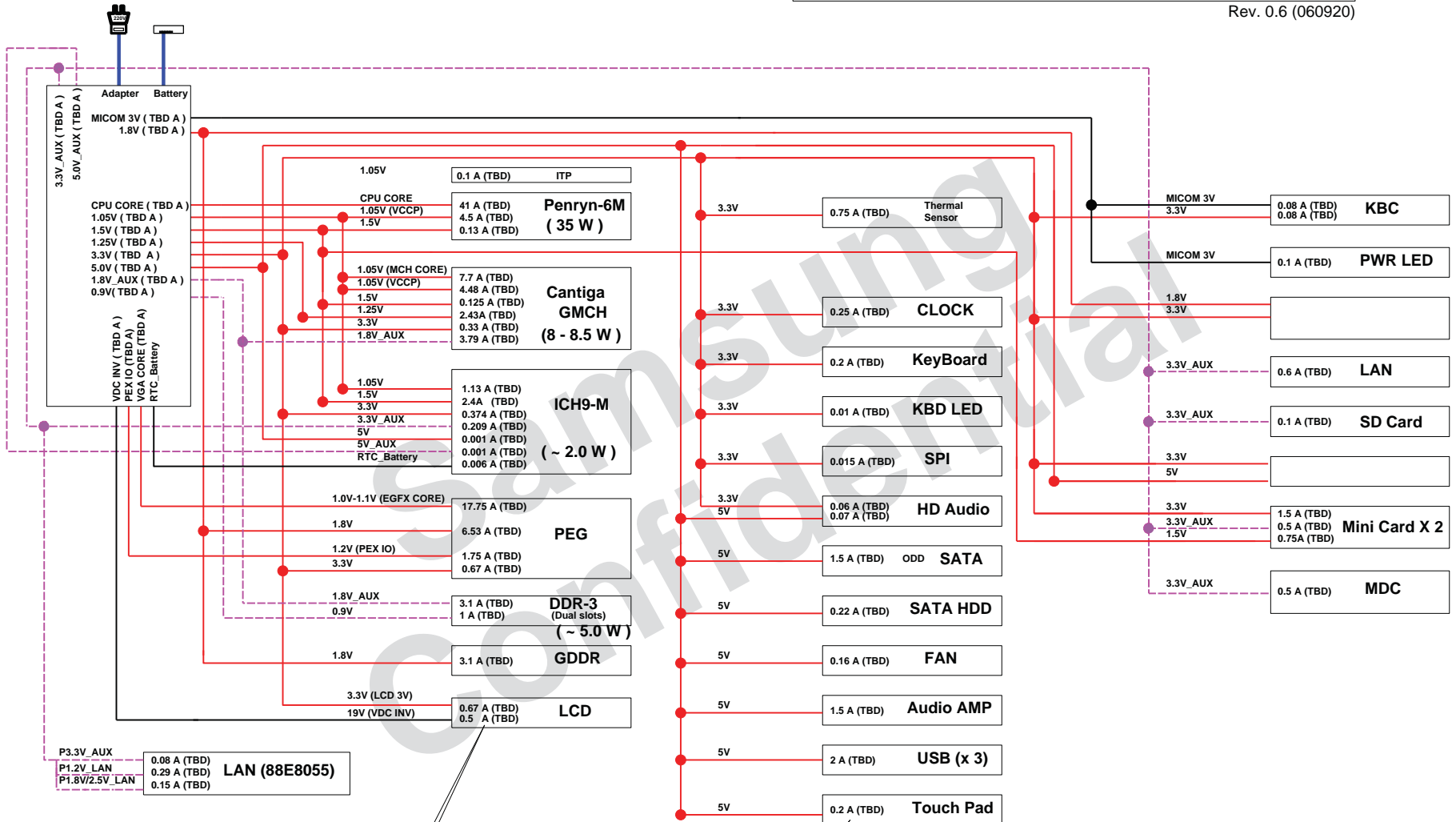


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APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	3 OF 56

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POWER RAILS ANALYSIS

Rev. 0.6 (060920)



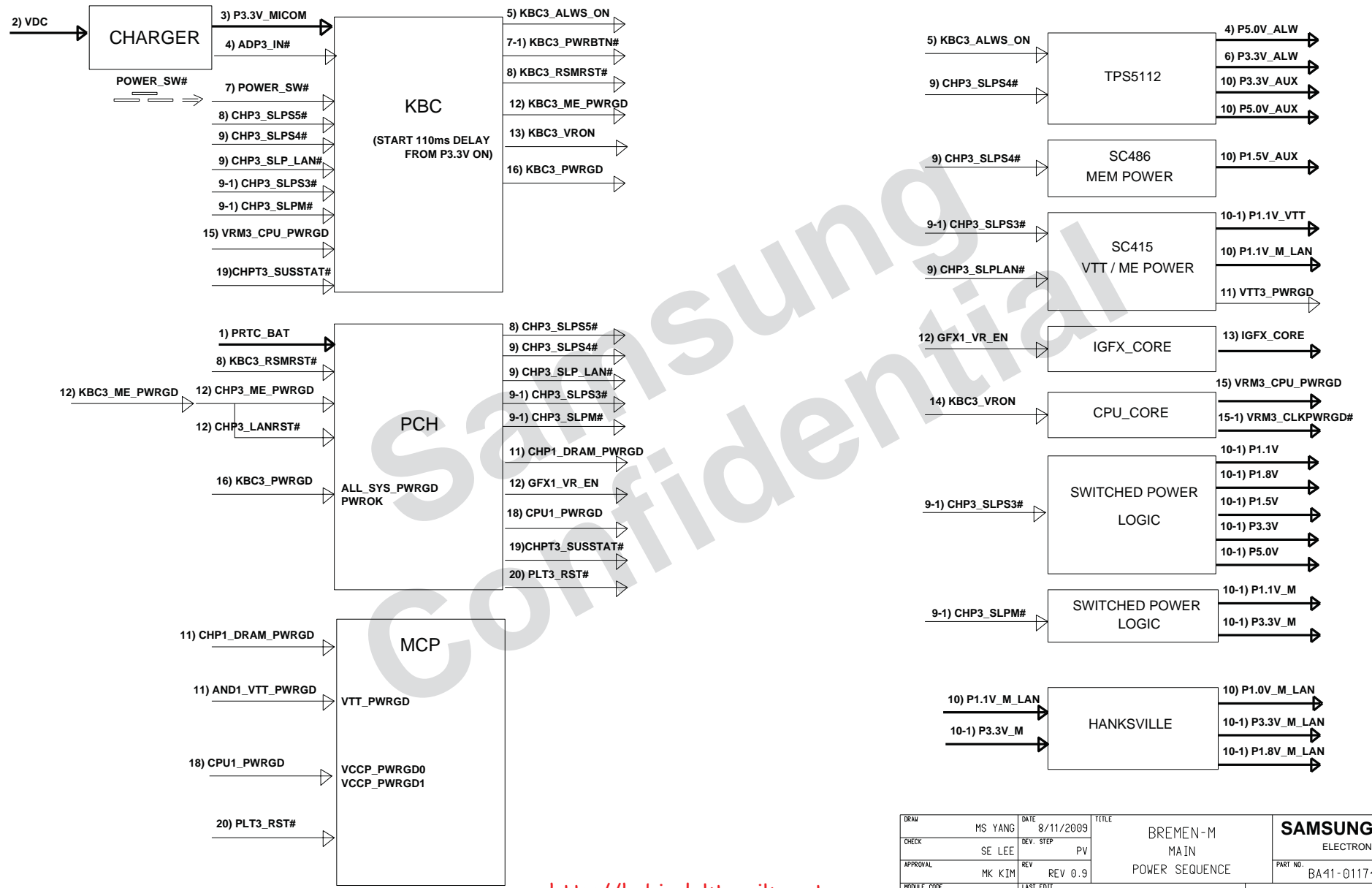
Value by Datasheet/Application notes (Value by measurement)

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CHECK	SE LEE	DEV. STEP	PV	POWER RAILS	PART NO. BA41-01174A	
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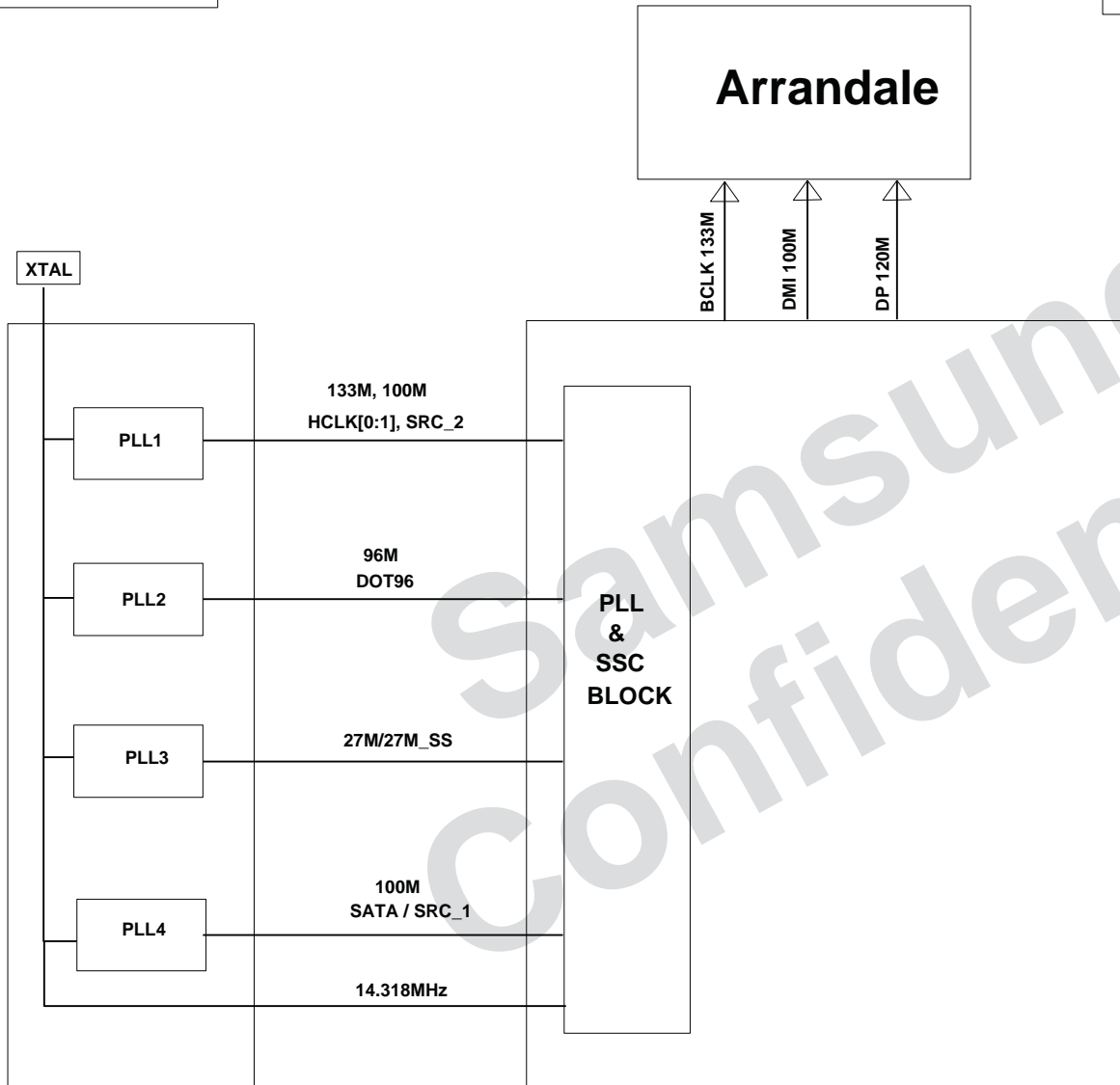
PRELIMINARY

POWER SEQUENCE Rev. 0.5



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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	5 OF 56	



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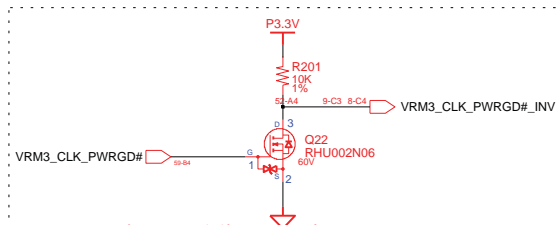
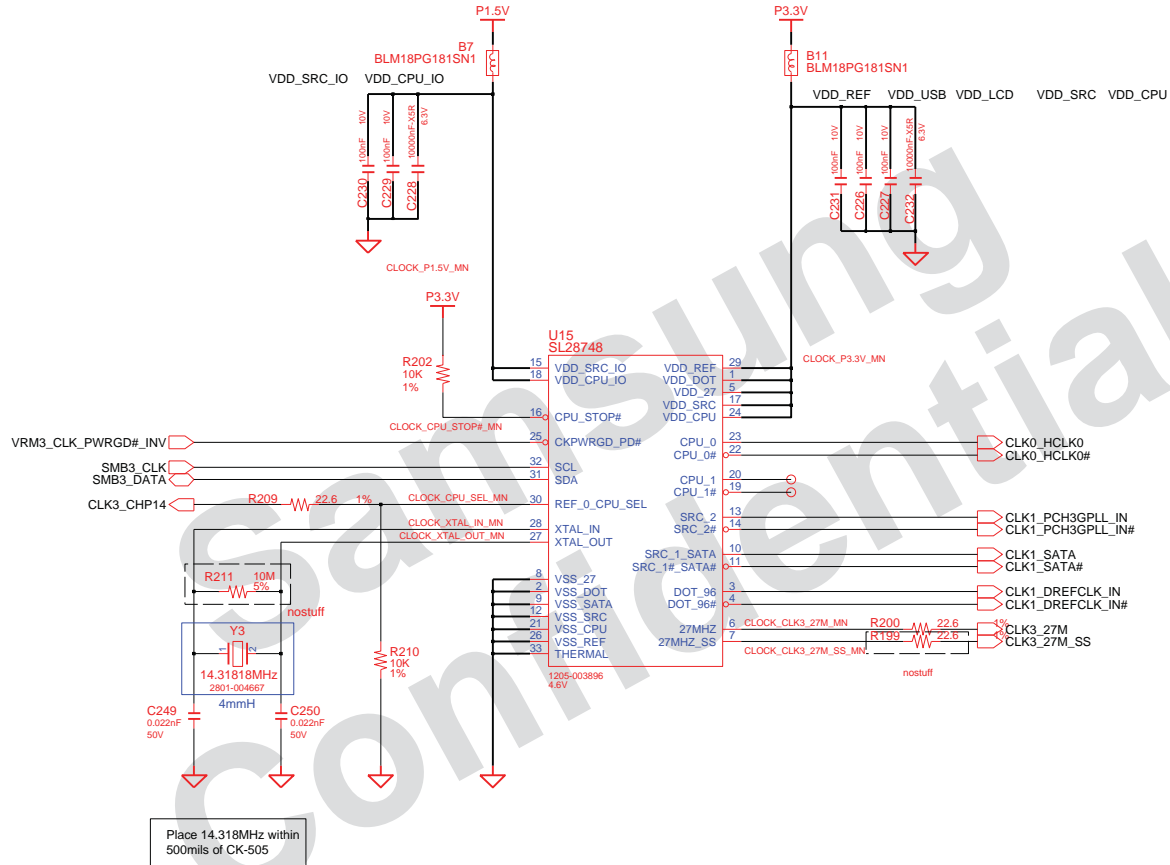
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DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MAIN	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	CLOCK DIAGRAM	PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM	PAGE	6 OF 56

CK505M SHRINK VERSION

CPU_MODE SEL

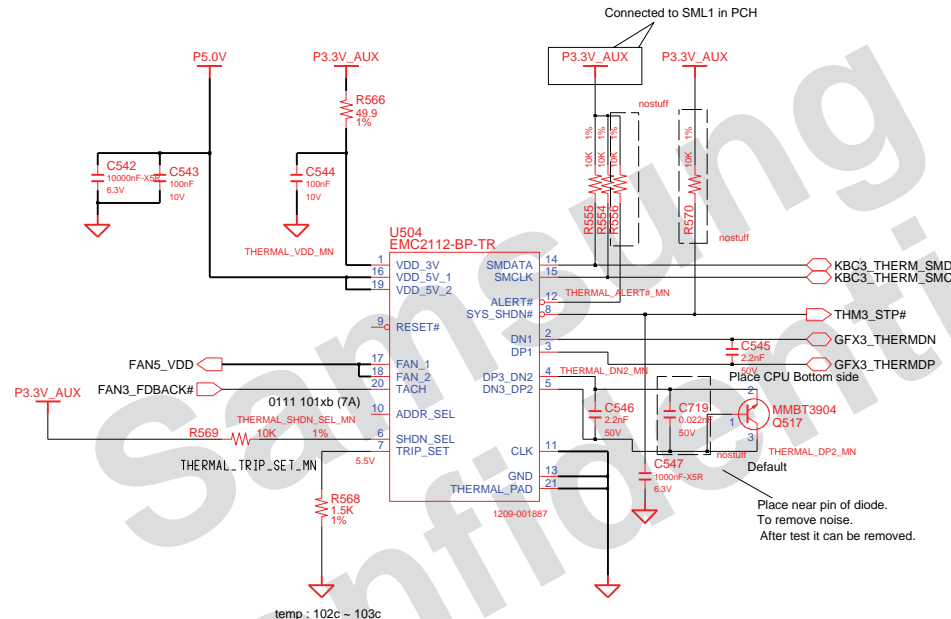
Pin 30	CPU_0	CPU_1
CPU_SEL = 0	133MHz	133MHz



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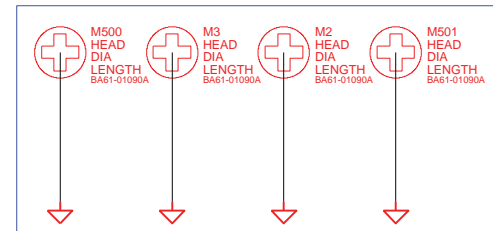
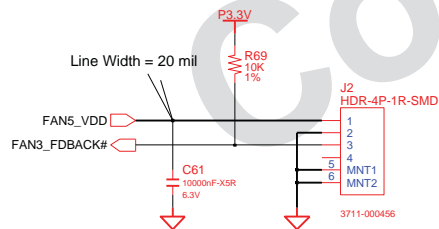
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG
CHECK	SE LEE	DEV. STEP	PV	CLOCK	CLOCK	ELECTRONICS
APPROVAL	MK KIM	REV	REV 0.9	CK505-SHRINK	CK505-SHRINK	PART NO.
MODULE CODE		LAST EDIT				BA41-01174A
				October 20, 2009 21:30:55 PM	PAGE	7 OF 56

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

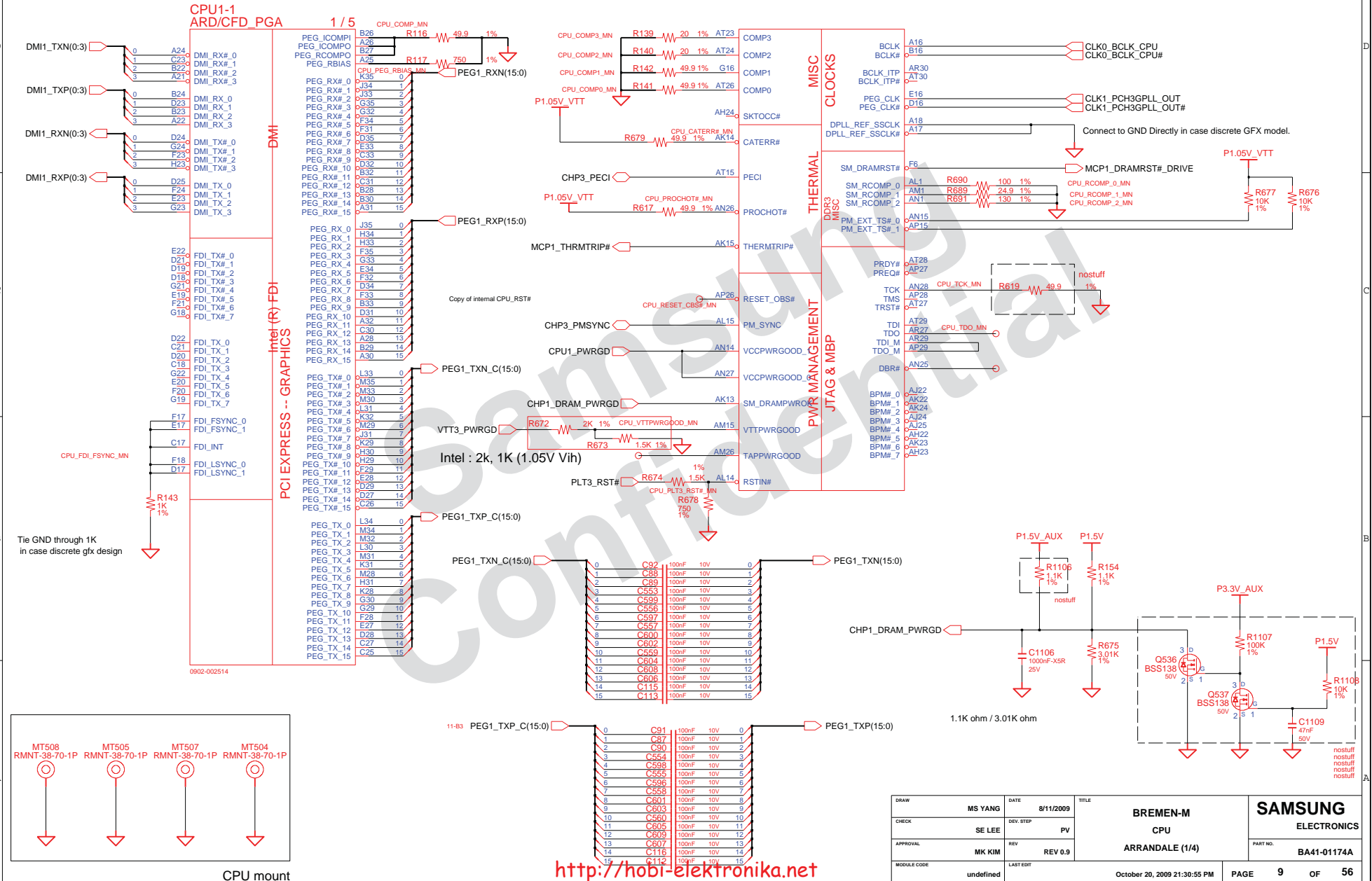


To support heatsink

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

ARRANDALE PROCESSOR (DMI,PEG, FDI)

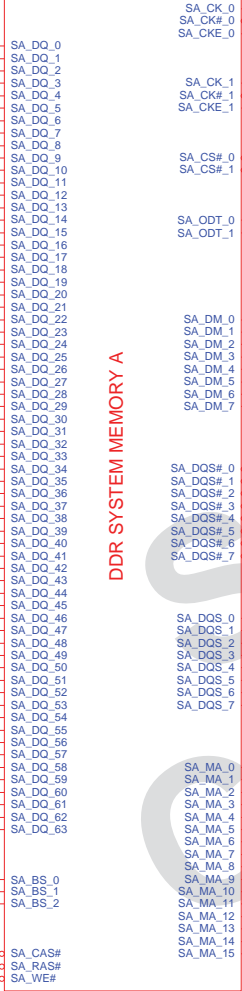
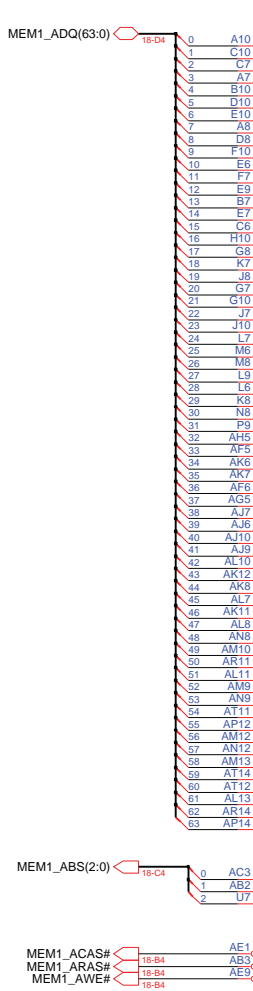
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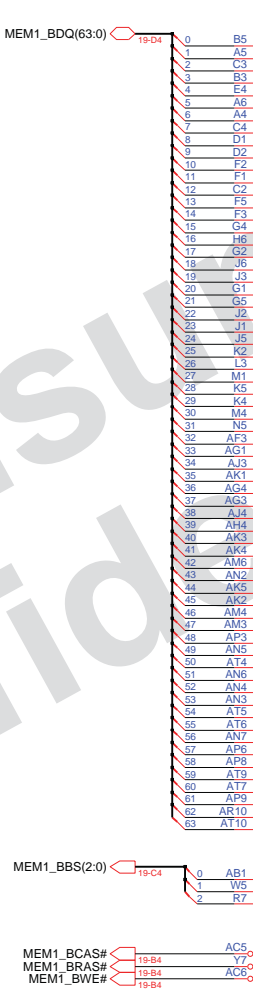
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CHECK	SE LEE	DEV. STEP	PV		ARRANDALE (1/4)	
APPROVAL	MK KIM	REV	REV 0.9			PART NO. BA41-01174A
MODULE CODE	undefined	LAST EDIT			October 20, 2009 21:30:55 PM	PAGE 9 OF 56

**CPU1-2
 ARD/CFD PGA 2 / 5**



DDR SYSTEM MEMORY A

9902-002514



DDR SYSTEM MEMORY B

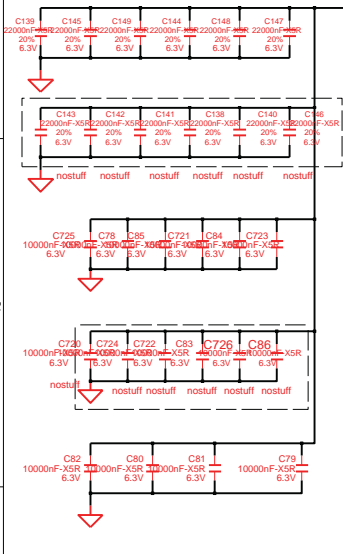
9902-002514

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

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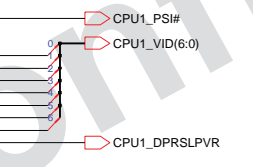
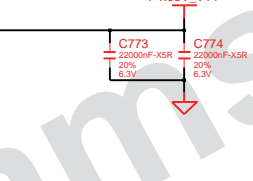
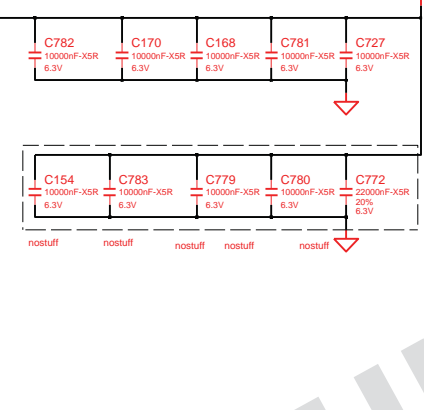
ALL VTT DECAP IS SHARED

4x 470 uF : CPU VR side

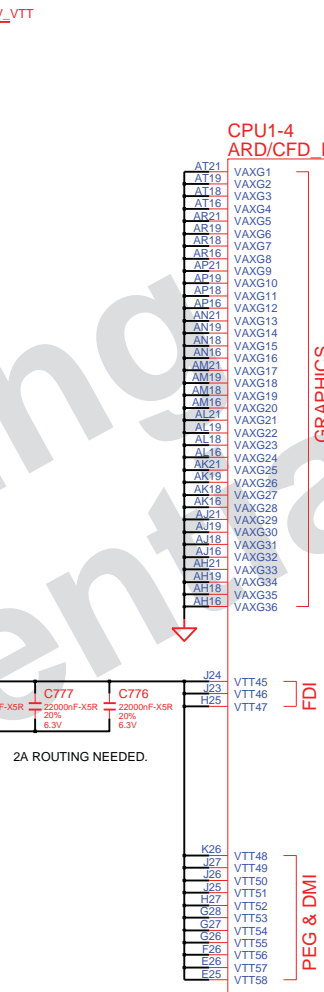
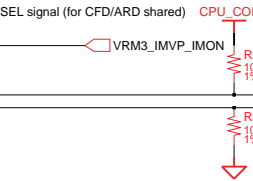


Stuff/NoStuff Check ?
 (depends on placement)

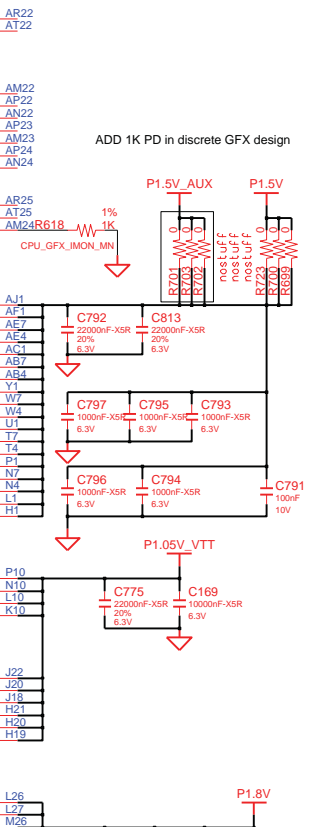
CPU CORE	CPU1-3 ARD/CFD PGA
AG35	VCC1
AG34	VCC2
AG33	VCC3
AG32	VCC4
AG31	VCC5
AG30	VCC6
AG29	VCC7
AG28	VCC8
AG27	VCC9
AG26	VCC10
AF35	VCC11
AF34	VCC12
AF33	VCC13
AF32	VCC14
AF31	VCC15
AF30	VCC16
AF29	VCC17
AF28	VCC18
AF27	VCC19
AD35	VCC20
AD34	VCC22
AD33	VCC23
AD32	VCC24
AD31	VCC25
AD30	VCC26
AD29	VCC27
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
Y35	VCC51
Y34	VCC52
Y33	VCC53
Y32	VCC54
Y31	VCC55
Y30	VCC56
Y29	VCC57
Y28	VCC58
Y27	VCC59
Y26	VCC60
V35	VCC61
V34	VCC62
V33	VCC63
V32	VCC64
V31	VCC65
V30	VCC66
V29	VCC67
V28	VCC68
V27	VCC69
V26	VCC70
U35	VCC71
U34	VCC72
U33	VCC73
U32	VCC74
U31	VCC75
U30	VCC76
U29	VCC77
U28	VCC78
U27	VCC79
U26	VCC80
R35	VCC81
R34	VCC82
R33	VCC83
R32	VCC84
R31	VCC85
R30	VCC86
R29	VCC87
R28	VCC88
R27	VCC89
R26	VCC90
P35	VCC91
P34	VCC92
P33	VCC93
P32	VCC94
P31	VCC95
P30	VCC96
P29	VCC97
P28	VCC98
P27	VCC99
P26	VCC100



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



CPU1-4 ARD/CFD PGA 4 / 5



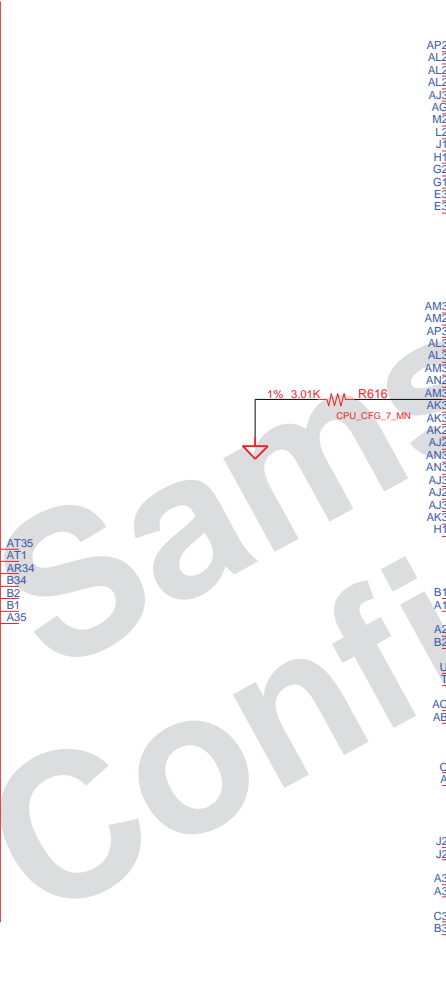
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DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M CPU (3/4)	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	ARRANDALE (3/4)	PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9	October 20, 2009 21:30:55 PM	PAGE 11 OF 56	
MODULE CODE		LAST EDIT				

**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	AC7
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
AP2	VSS21	VSS101	AB29
AN34	VSS22	VSS102	AB28
AN31	VSS23	VSS103	AB27
AN23	VSS24	VSS104	AB26
AN20	VSS25	VSS105	AB25
AN17	VSS26	VSS106	AA10
AM29	VSS27	VSS107	Y8
AM27	VSS28	VSS108	Y4
AM25	VSS29	VSS109	W35
AM20	VSS30	VSS110	W34
AM17	VSS31	VSS111	W33
AM14	VSS32	VSS112	W32
AM11	VSS33	VSS113	W31
AM8	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	U4
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
AK15	VSS50	VSS130	T29
AK13	VSS51	VSS131	T28
AK10	VSS52	VSS132	T27
AK7	VSS53	VSS133	T26
AK4	VSS54	VSS134	T25
AK1	VSS55	VSS135	T6
AJ17	VSS56	VSS136	R10
AJ15	VSS57	VSS137	P8
AJ12	VSS58	VSS138	P2
AJ9	VSS59	VSS139	N35
AJ5	VSS60	VSS140	N34
AJ3	VSS61	VSS141	N33
AJ2	VSS62	VSS142	N32
AH33	VSS63	VSS143	N31
AH31	VSS64	VSS144	N30
AH29	VSS65	VSS145	N28
AH28	VSS66	VSS146	N28
AH27	VSS67	VSS147	N27
AH26	VSS68	VSS148	N26
AH20	VSS69	VSS149	N6
AH17	VSS70	VSS150	N4
AH13	VSS71	VSS151	L35
AH9	VSS72	VSS152	L32
AH6	VSS73	VSS153	L29
AH3	VSS74	VSS154	L6
AG10	VSS75	VSS155	L5
AF8	VSS76	VSS156	L2
AF4	VSS77	VSS157	K34
AF2	VSS78	VSS158	K33
AE55	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	VSS174
H15	VSS175
H13	VSS176
H11	VSS177
H8	VSS178
H5	VSS179
H2	VSS180
G34	VSS181
G31	VSS182
G20	VSS183
G9	VSS184
G6	VSS185
G3	VSS186
F30	VSS187
F27	VSS188
F25	VSS189
F22	VSS190
F19	VSS191
F16	VSS192
F15	VSS193
F12	VSS194
E35	VSS195
E32	VSS196
E29	VSS197
E24	VSS198
E21	VSS199
E18	VSS200
E13	VSS201
E11	VSS202
E8	VSS203
E5	VSS204
E2	VSS205
B33	VSS206
B30	VSS207
B26	VSS208
B23	VSS209
B2	VSS210
B1	VSS211
A35	VSS212
AR34	VSS213
B34	VSS214
B2	VSS215
A35	VSS216
A31	VSS217
A30	VSS218
A29	VSS219
A27	VSS220
A23	VSS221
A21	VSS222
A18	VSS223
A17	VSS224
A13	VSS225
A11	VSS226
A9	VSS227
A8	VSS228
A7	VSS229
A6	VSS230
A5	VSS231
A4	VSS232
A3	VSS233



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
L28	RSVD7	RSVD_NCTF_38	AJ26
H17	RSVD8	RSVD38	AJ27
G25	SA_DIMM_VREFDD	RSVD39	
G17	SB_DIMM_VREFDD		
E31	RSVD11		
E30	RSVD12	RSVD_NCTF_40	AP1
	RSVD13	RSVD_NCTF_41	AT2
	RSVD14	RSVD_NCTF_42	AT3
		RSVD_NCTF_43	AR1
AM30	RSVD45	AL28	
AM28	CFG_0	AL29	
AP31	CFG_1	AP30	
AL32	CFG_2	AP32	
AL30	CFG_3	RSVD48	
AM32	CFG_4	RSVD49	
AM29	CFG_5	RSVD50	
AM32	CFG_6	RSVD51	AP33
AK32	CFG_7	RSVD52	AR33
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	
AJ29	CFG_13		
AJ29	CFG_14	RSVD_TP_69	E15
AJ30	CFG_15	RSVD_TP_69	F15
AK30	CFG_16	KEY	A2
H16	CFG_17	RSVD62	D15
	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	AA4
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	AG7
		RSVD_TP_75	AE3
C1	RSVD_NCTF_23	RSVD_TP_76	V4
A3	RSVD_NCTF_24	RSVD_TP_77	V5
		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		
	(VSS) RSVD86	AP34	

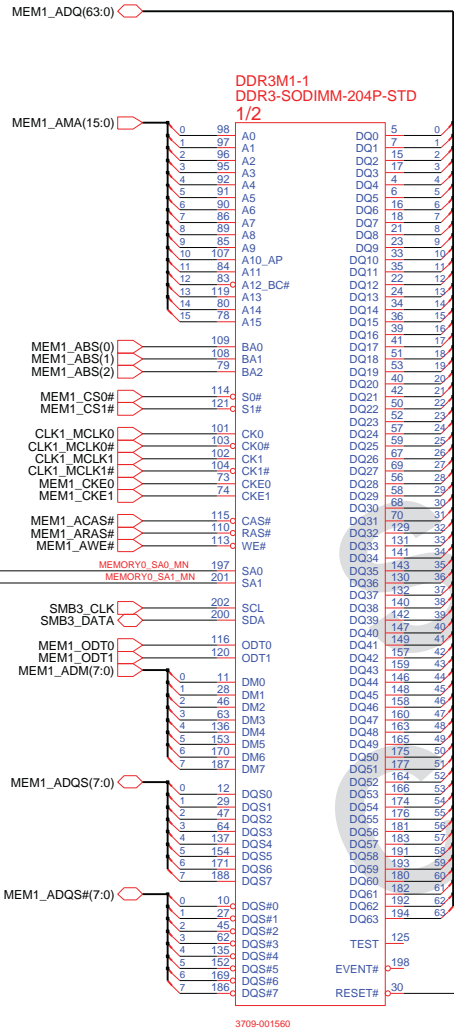
CFG Straps for Processor

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

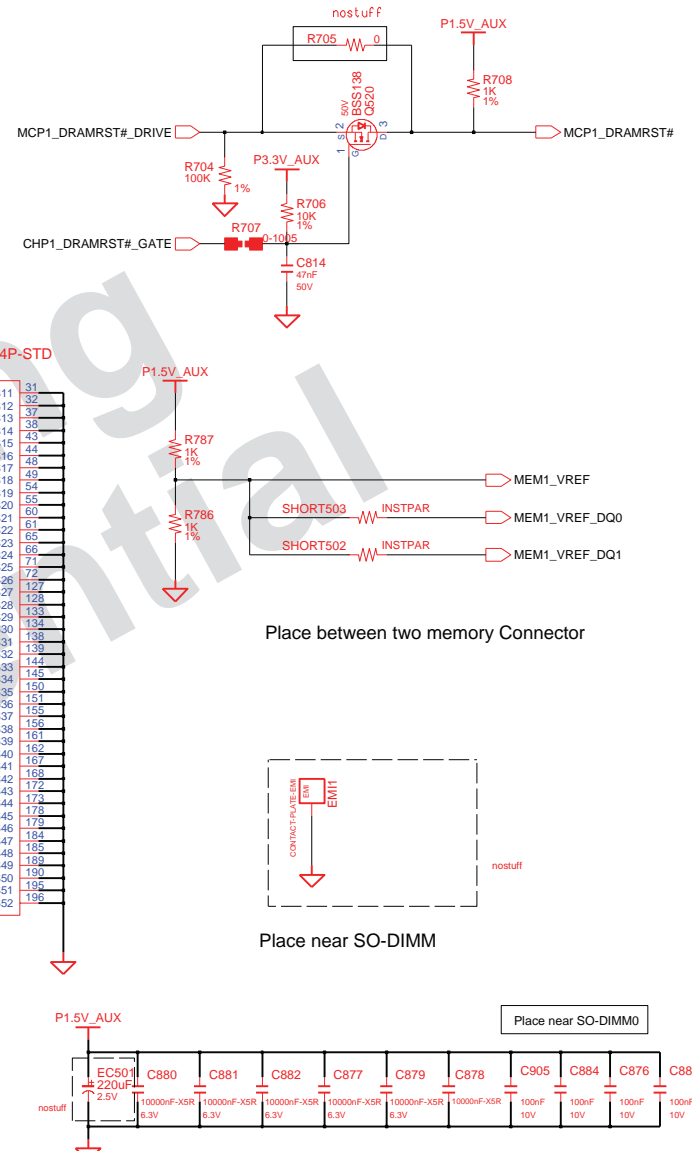
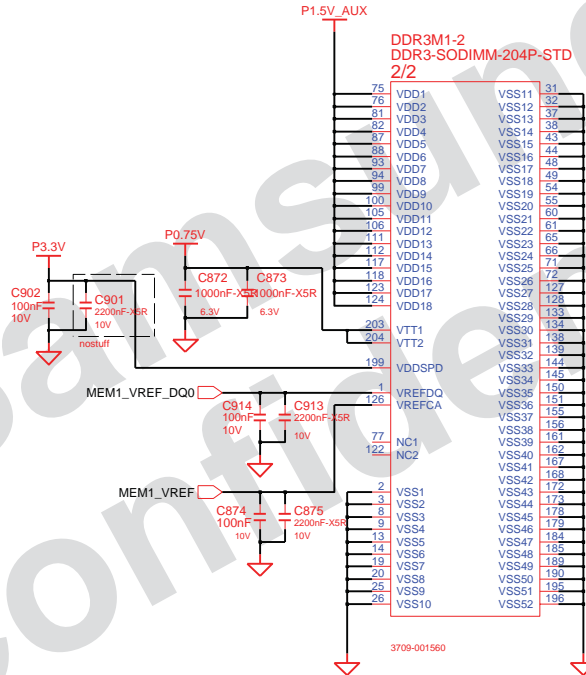
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		CPU	
APPROVAL	MK KIM	REV	REV 0.9		ARRANDALE (4/4)	PART NO. BA41-01174A
MODULE CODE	undefined	LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE	12 OF 56

DDR SO-DIMM #0

Height : 4 mm (STANDARD)
 P/N : 3709-001532 (Molex)
 P/N : 3709-001560 (Foxconn)



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



Place between two memory Connector

Place near SO-DIMM

Place near SO-DIMM0

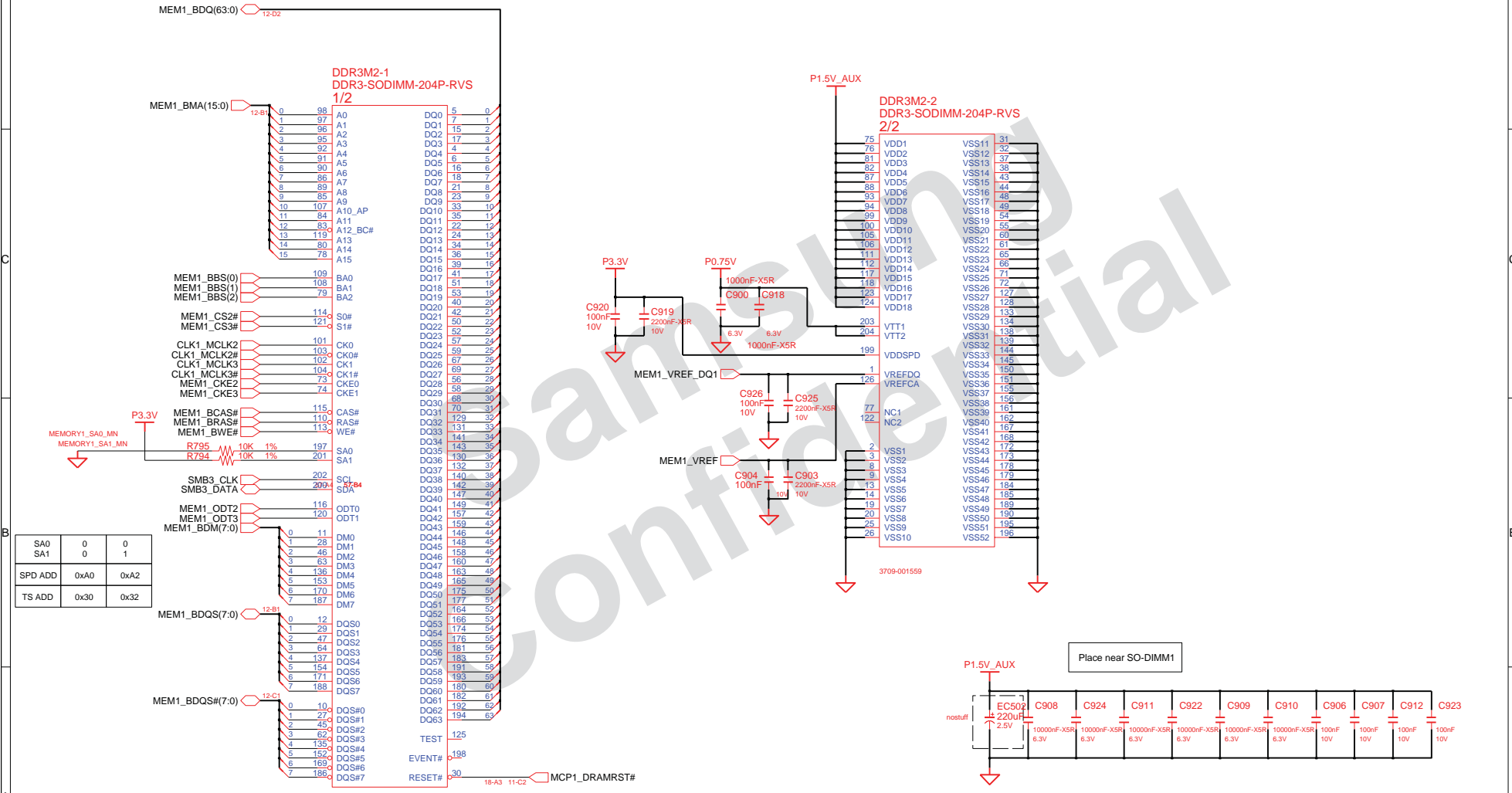
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M SODIMM A	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE	13 OF 56

DDR SO-DIMM #1

Height : 4 mm (REVERSE)

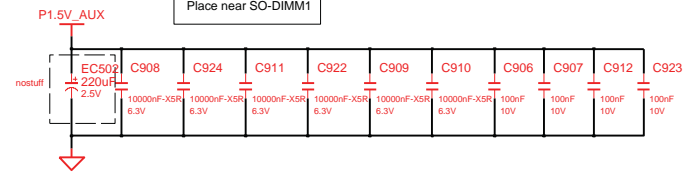
P/N : 3709-001533 (Molex)

P/N : 3709-001559 (Foxconn)



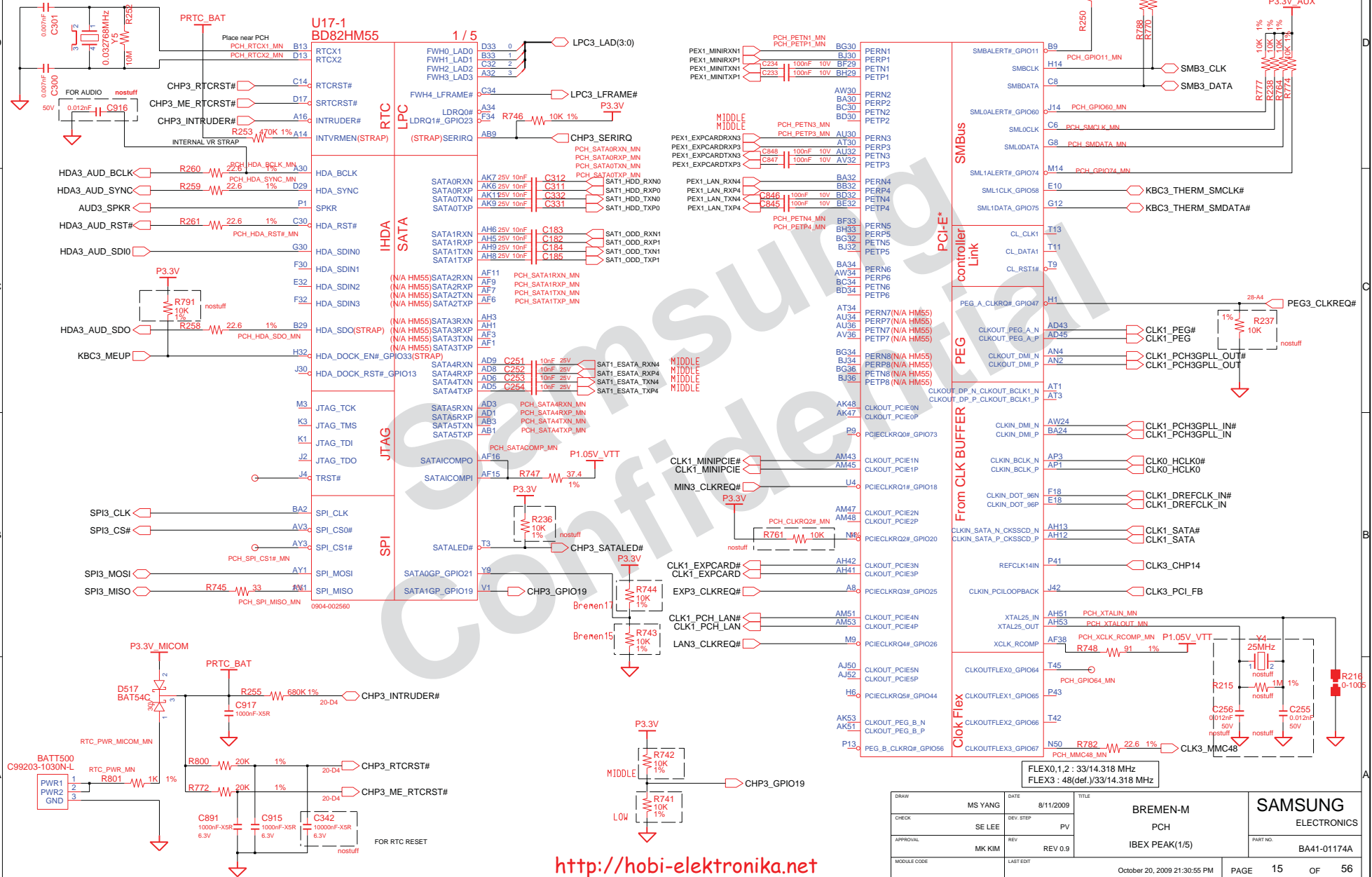
SA0	0	0
SA1	0	1
SPD ADD	0xA0	0xA2
TS ADD	0x30	0x32

Place near SO-DIMM1



DRAW	MS YANG	DATE	B/11/2009	TITLE	BREMEN-M SODIMM B	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9		DDR3	PART NO. BA41-01174A
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

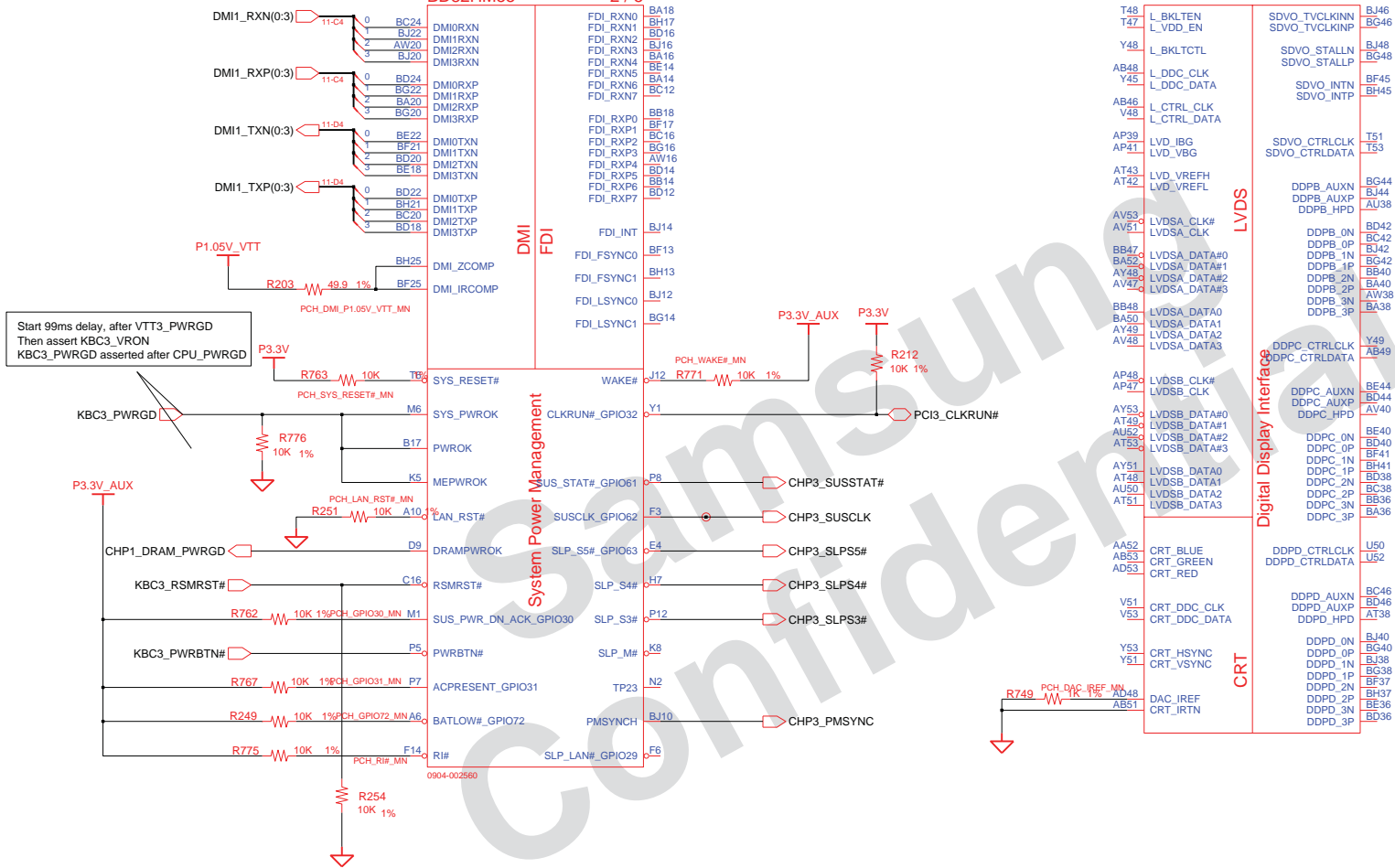
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D
C
B
A

**U17-2
BD82HM55**

2 / 5



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DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PCH IBEX PEAK(2/5)	SAMSUNG ELECTRONICS <small>PART NO.</small> BA41-01174A
CHECK	DEV. STEP		PV			
APPROVAL	REV		REV 0.9			
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		
J34	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	BE6
K48	AD18	NV_DQ10_NV_I010	BD6
F40	AD19	NV_DQ11_NV_I011	BB7
C42	AD20	NV_DQ12_NV_I012	BC8
K49	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	NV_WR#0_RE#	AY8
		NV_WR#1_RE#	AY5
		NV_WE#_CK0	AV11
		NV_WE#_CK1	AV5
J50	C_BE0#		
G42	C_BE1#		
H47	C_BE2#		
G36	C_BE3#		
	P_IRQA#_MN	P_IRQA#	H50
	P_IRQB#_MN	P_IRQB#	H51
	P_IRQC#_MN	P_IRQC#	H52
	P_IRQD#_MN	P_IRQD#	H53
	P_REQ0#_MN	REQ0#	F50
		REQ1#_GPIO50	A46
		REQ2#_GPIO52	B45
		REQ3#_GPIO54	M55
	F49	GNT0#(STRAP)	
	K45	GNT1#_GPIO15(STRAP)	
	F36	GNT2#_GPIO53	
	H53	GNT3#_GPIO55(STRAP)	
	B41	PIRQE#_GPIO2	
	K53	PIRQF#_GPIO3	
	A36	PIRQG#_GPIO4	
	A48	PIRQH#_GPIO5	
		(N/A HM55)USBP6N	
		(N/A HM55)USBP6P	
		(N/A HM55)USBP7N	
		(N/A HM55)USBP7P	
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		USBP8P	J22
		USBP9N	F22
		USBP9P	E22
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		USBP10P	C22
		USBP11N	H24
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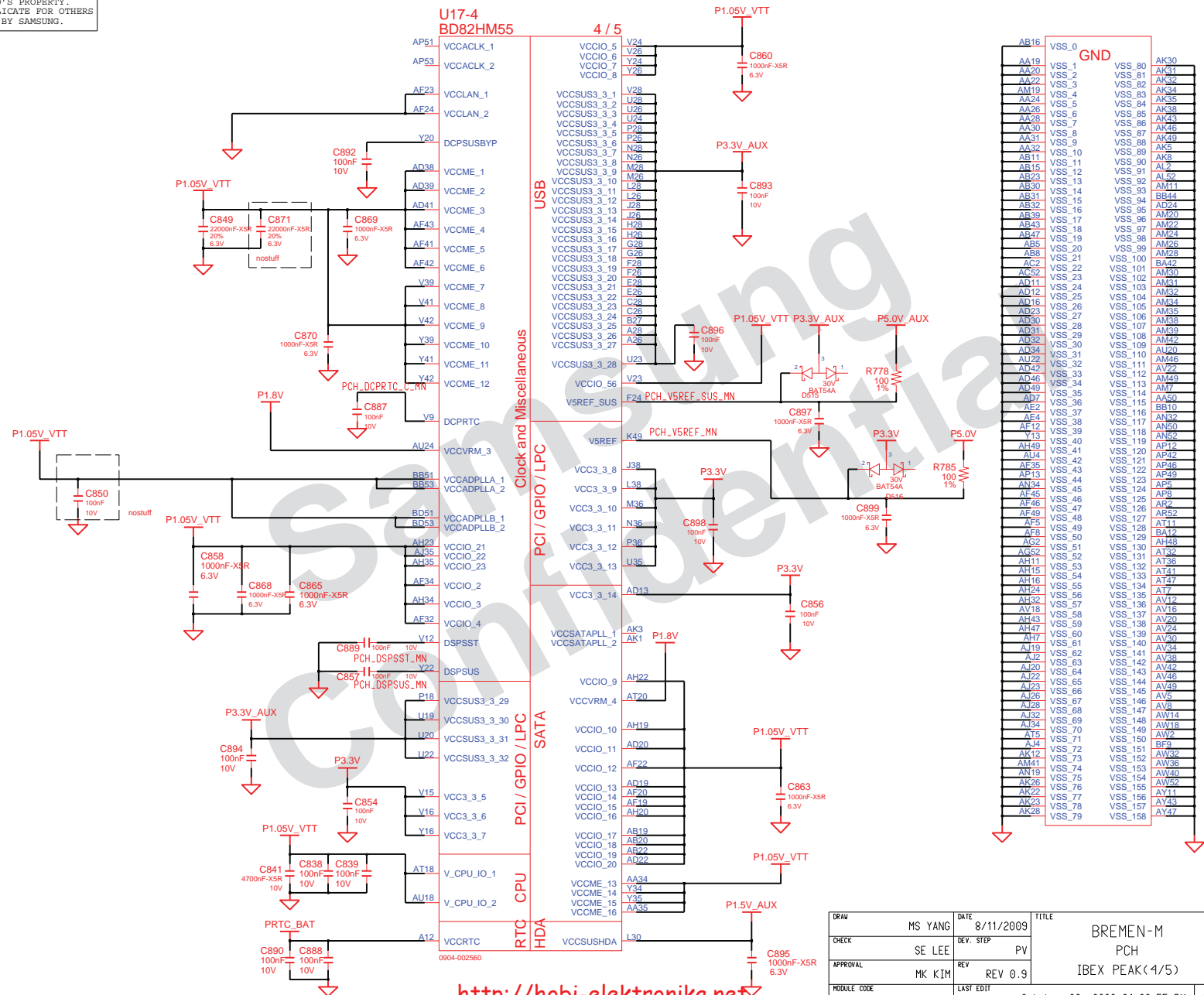
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U17-4
BD82HM55

4 / 5

P1.05V_VTT

P3.3V_AUX

P1.05V_VTT

P3.3V_AUX

P5.0V_AUX

P1.05V_VTT

P1.8V

P1.05V_VTT

P1.05V_VTT

P3.3V_AUX

P3.3V

P1.05V_VTT

PRTC_BAT

P1.05V_VTT

P1.5V_AUX

AB16 VSS_0 GND

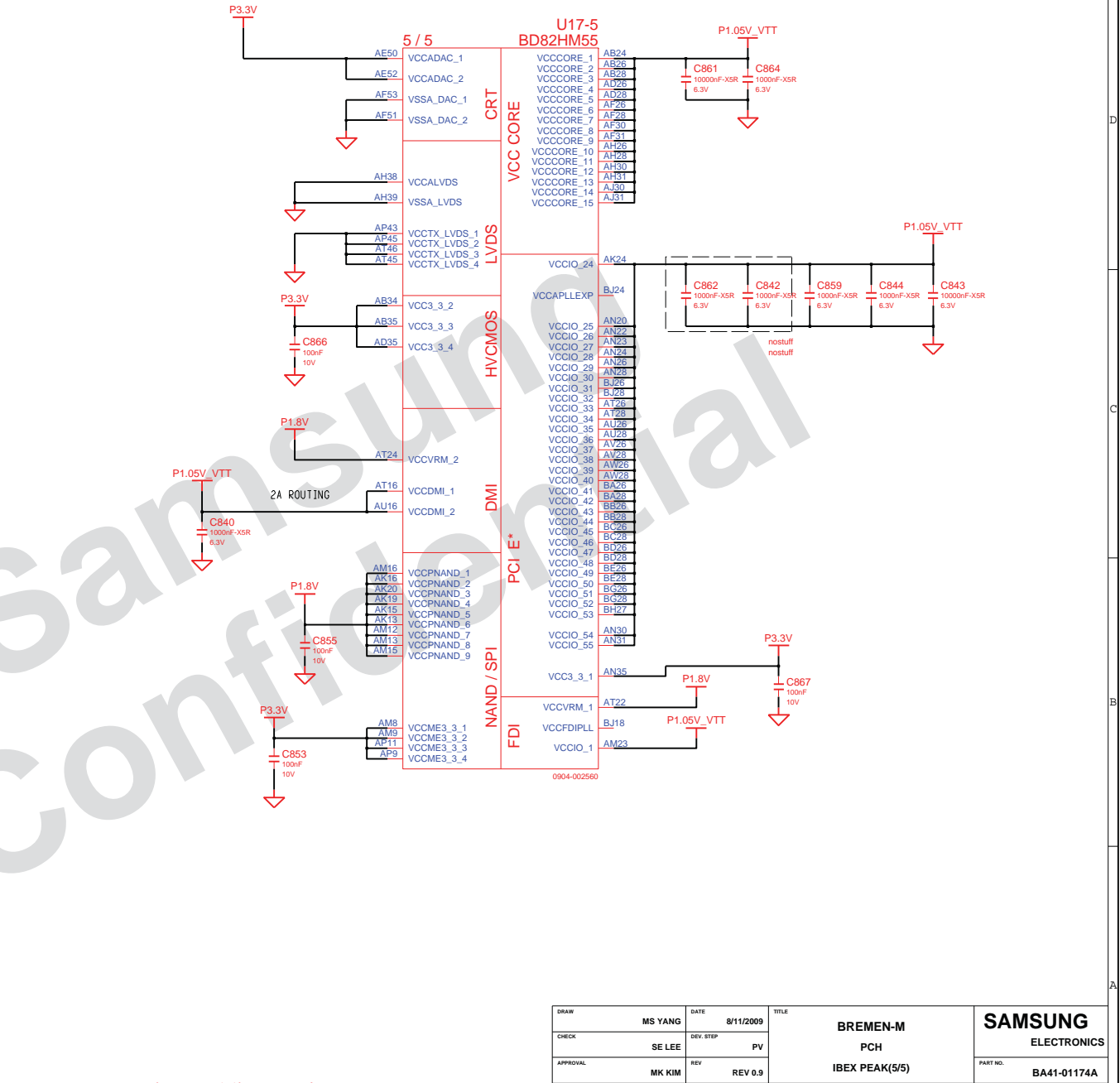
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AA20	VSS_2	VSS_81	AK31
AA21	VSS_3	VSS_82	AK32
AA22	VSS_4	VSS_83	AK33
AA23	VSS_5	VSS_84	AK34
AA24	VSS_6	VSS_85	AK35
AA25	VSS_7	VSS_86	AK36
AA26	VSS_8	VSS_87	AK37
AA27	VSS_9	VSS_88	AK38
AA28	VSS_10	VSS_89	AK39
AA29	VSS_11	VSS_90	AK40
AA30	VSS_12	VSS_91	AK41
AA31	VSS_13	VSS_92	AK42
AA32	VSS_14	VSS_93	AK43
AA33	VSS_15	VSS_94	AK44
AA34	VSS_16	VSS_95	AK45
AA35	VSS_17	VSS_96	AK46
AA36	VSS_18	VSS_97	AK47
AA37	VSS_19	VSS_98	AK48
AA38	VSS_20	VSS_99	AK49
AA39	VSS_21	VSS_100	AK50
AA40	VSS_22	VSS_101	AK51
AA41	VSS_23	VSS_102	AK52
AA42	VSS_24	VSS_103	AK53
AA43	VSS_25	VSS_104	AK54
AA44	VSS_26	VSS_105	AK55
AA45	VSS_27	VSS_106	AK56
AA46	VSS_28	VSS_107	AK57
AA47	VSS_29	VSS_108	AK58
AA48	VSS_30	VSS_109	AK59
AA49	VSS_31	VSS_110	AK60
AA50	VSS_32	VSS_111	AK61
AA51	VSS_33	VSS_112	AK62
AA52	VSS_34	VSS_113	AK63
AA53	VSS_35	VSS_114	AK64
AA54	VSS_36	VSS_115	AK65
AA55	VSS_37	VSS_116	AK66
AA56	VSS_38	VSS_117	AK67
AA57	VSS_39	VSS_118	AK68
AA58	VSS_40	VSS_119	AK69
AA59	VSS_41	VSS_120	AK70
AA60	VSS_42	VSS_121	AK71
AA61	VSS_43	VSS_122	AK72
AA62	VSS_44	VSS_123	AK73
AA63	VSS_45	VSS_124	AK74
AA64	VSS_46	VSS_125	AK75
AA65	VSS_47	VSS_126	AK76
AA66	VSS_48	VSS_127	AK77
AA67	VSS_49	VSS_128	AK78
AA68	VSS_50	VSS_129	AK79
AA69	VSS_51	VSS_130	AK80
AA70	VSS_52	VSS_131	AK81
AA71	VSS_53	VSS_132	AK82
AA72	VSS_54	VSS_133	AK83
AA73	VSS_55	VSS_134	AK84
AA74	VSS_56	VSS_135	AK85
AA75	VSS_57	VSS_136	AK86
AA76	VSS_58	VSS_137	AK87
AA77	VSS_59	VSS_138	AK88
AA78	VSS_60	VSS_139	AK89
AA79	VSS_61	VSS_140	AK90
AA80	VSS_62	VSS_141	AK91
AA81	VSS_63	VSS_142	AK92
AA82	VSS_64	VSS_143	AK93
AA83	VSS_65	VSS_144	AK94
AA84	VSS_66	VSS_145	AK95
AA85	VSS_67	VSS_146	AK96
AA86	VSS_68	VSS_147	AK97
AA87	VSS_69	VSS_148	AK98
AA88	VSS_70	VSS_149	AK99
AA89	VSS_71	VSS_150	AK100
AA90	VSS_72	VSS_151	AK101
AA91	VSS_73	VSS_152	AK102
AA92	VSS_74	VSS_153	AK103
AA93	VSS_75	VSS_154	AK104
AA94	VSS_76	VSS_155	AK105
AA95	VSS_77	VSS_156	AK106
AA96	VSS_78	VSS_157	AK107
AA97	VSS_79	VSS_158	AK108

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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 60

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
P22	VSS_288	VSS_188	BC40
P30	VSS_289	VSS_189	BC44
P32	VSS_290	VSS_190	BC52
P34	VSS_291	VSS_191	BH9
P42	VSS_292	VSS_192	BD48
P45	VSS_293	VSS_193	BD49
P47	VSS_294	VSS_194	BD5
P2	VSS_295	VSS_195	BE12
L12	VSS_296	VSS_196	BE20
T41	VSS_297	VSS_197	BE16
T46	VSS_298	VSS_198	BE24
T49	VSS_299	VSS_199	BE30
T5	VSS_300	VSS_200	BE38
T8	VSS_301	VSS_201	BE42
U30	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
V20	VSS_310	VSS_210	BG18
V22	VSS_311	VSS_211	BG24
V30	VSS_312	VSS_212	BG4
V31	VSS_313	VSS_213	BG44
V32	VSS_314	VSS_214	BH11
V34	VSS_315	VSS_215	BH15
V35	VSS_316	VSS_216	BH19
V38	VSS_317	VSS_217	BH23
V43	VSS_318	VSS_218	BH31
V45	VSS_319	VSS_219	BH35
V49	VSS_320	VSS_220	BH39
V46	VSS_321	VSS_221	BH43
V47	VSS_322	VSS_222	BH47
V49	VSS_323	VSS_223	BH7
V5	VSS_324	VSS_224	C12
V7	VSS_325	VSS_225	C50
V8	VSS_326	VSS_226	D51
V2	VSS_327	VSS_227	E12
W52	VSS_328	VSS_228	E16
Y11	VSS_329	VSS_229	E20
Y12	VSS_330	VSS_230	E24
Y15	VSS_331	VSS_231	E30
Y19	VSS_332	VSS_232	E34
Y23	VSS_333	VSS_233	E38
Y28	VSS_334	VSS_234	E42
Y30	VSS_335	VSS_235	E48
Y31	VSS_336	VSS_236	E49
Y32	VSS_337	VSS_237	E6
Y38	VSS_338	VSS_238	E8
Y43	VSS_339	VSS_239	F49
Y46	VSS_340	VSS_240	F5
Y49	VSS_341	VSS_241	G10
Y5	VSS_342	VSS_242	G14
Y6	VSS_343	VSS_243	G18
Y8	VSS_344	VSS_244	G2
T24	VSS_345	VSS_245	G22
T43	VSS_346	VSS_246	G32
AD51	VSS_347	VSS_247	G36
AT8	VSS_348	VSS_248	G40
AD47	VSS_349	VSS_249	G44
Y47	VSS_350	VSS_250	G52
AT12	VSS_351	VSS_251	AF39
AM6	VSS_352	VSS_252	H16
AT13	VSS_353	VSS_253	H20
AM5	VSS_354	VSS_254	H30
AK45	VSS_355	VSS_255	H34
AK39	VSS_356	VSS_256	H38
AV14	VSS_366	VSS_257	H42
		VSS_258	

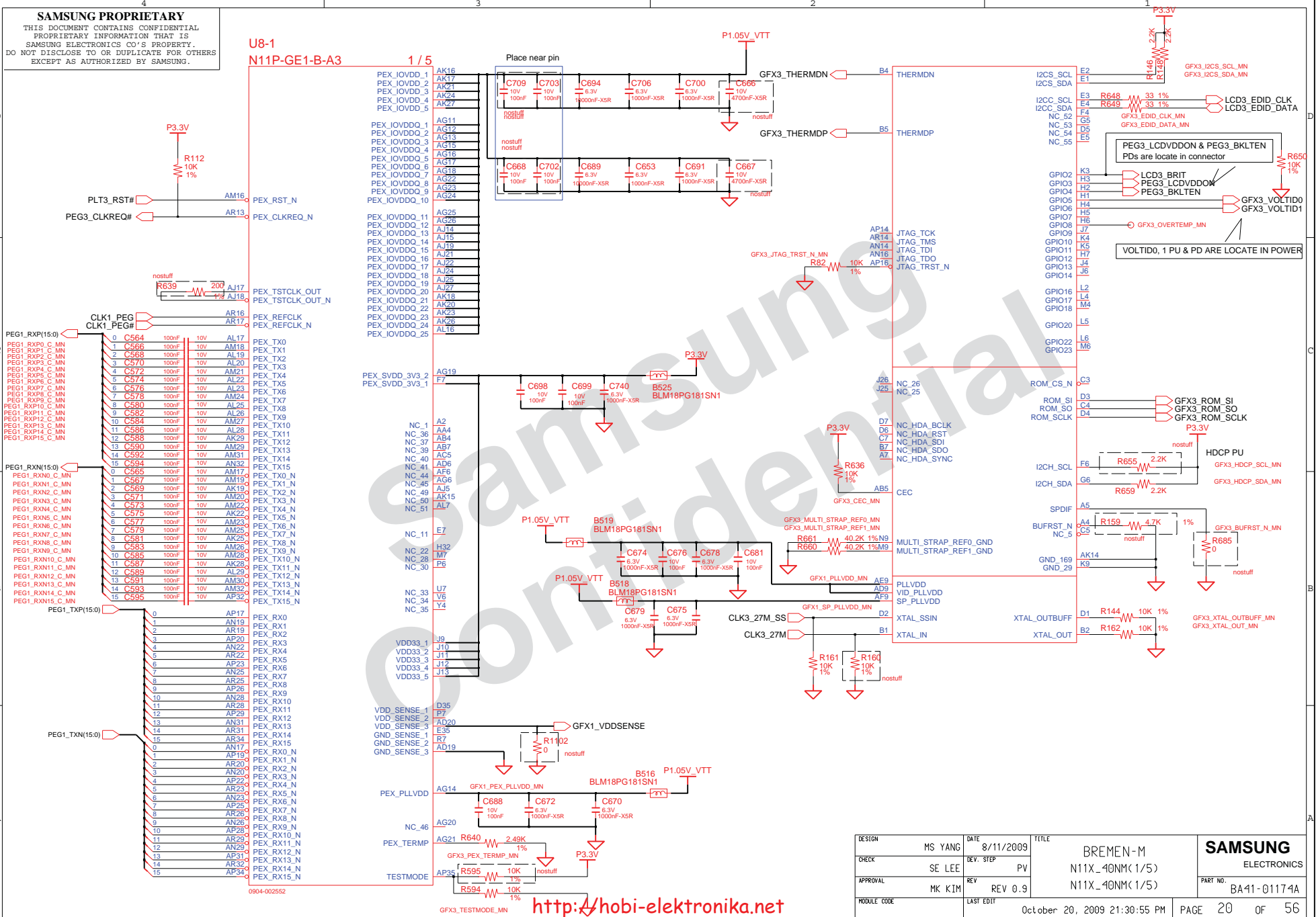


<http://hobi-elektronika.net>

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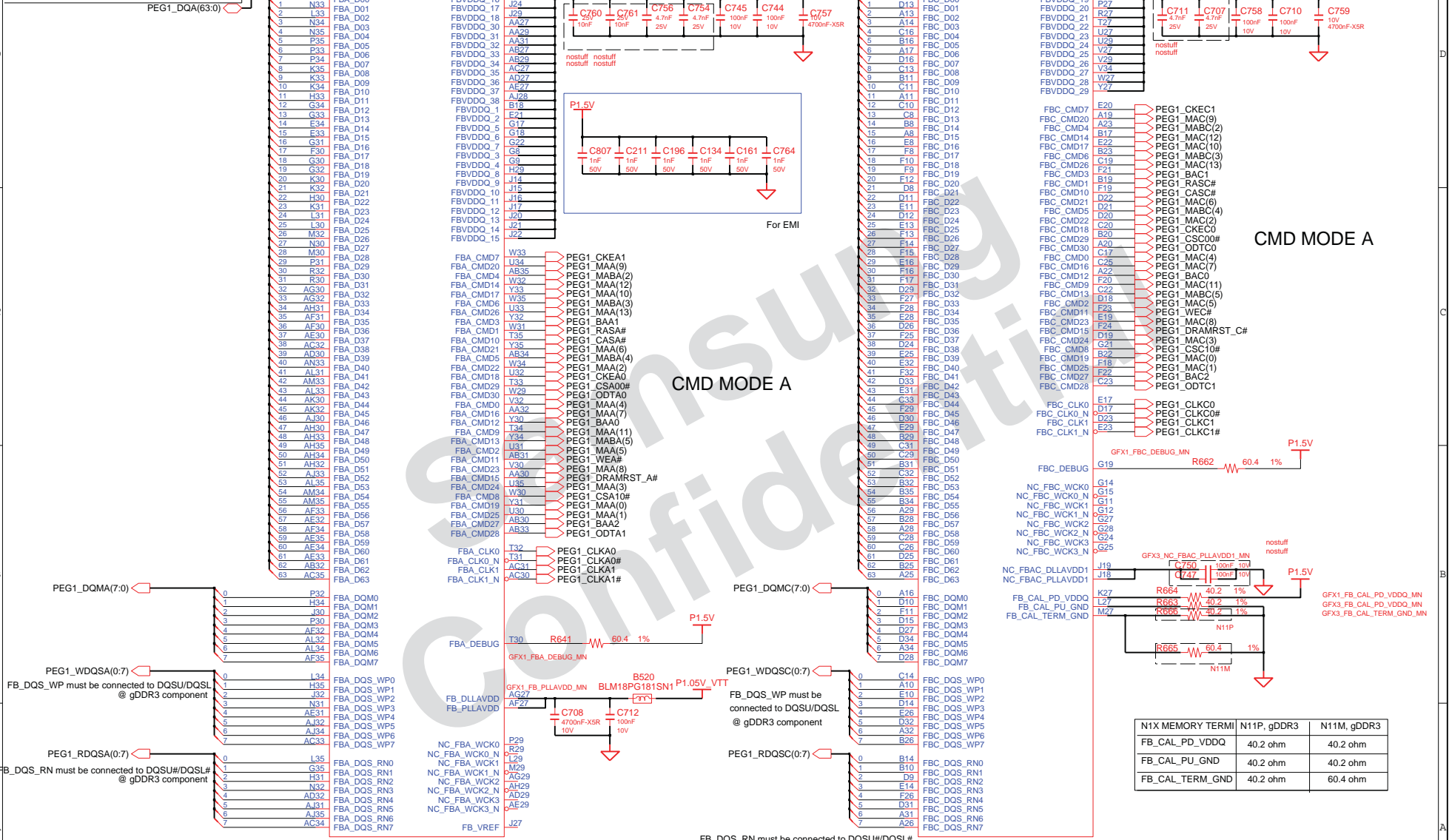
U8-1
N11P-GE1-B-A3 1 / 5



<http://hobi-elektronika.net>

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

FB_DQS_RN 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			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				

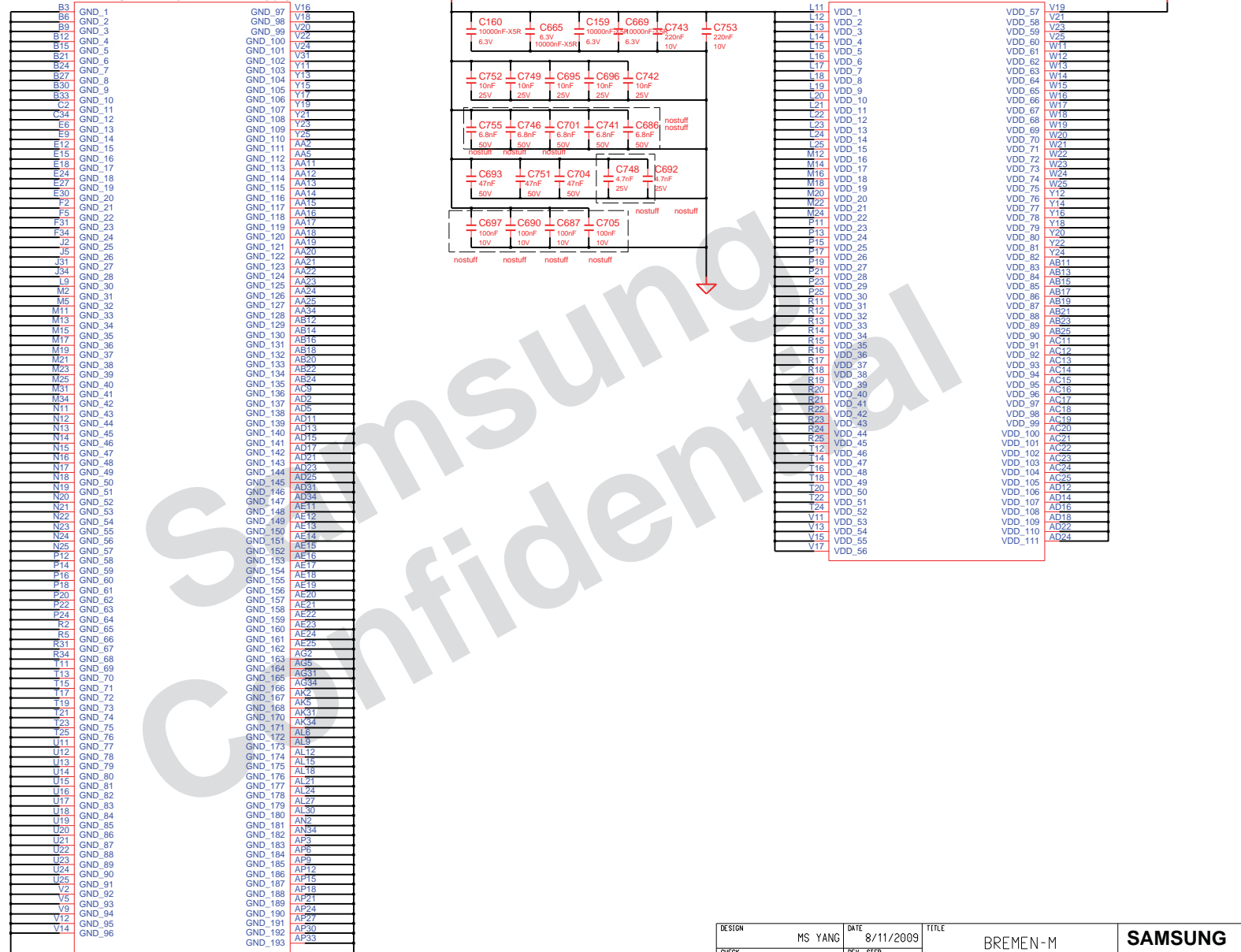
<http://hobi-elektronika.net>

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

EGFX_CORE

EGFX_CORE



0904-002552

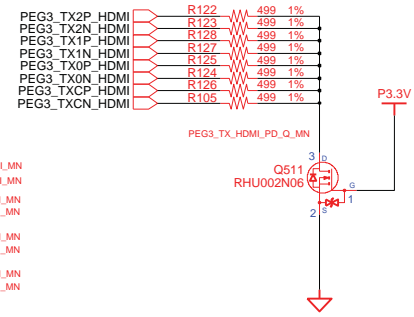
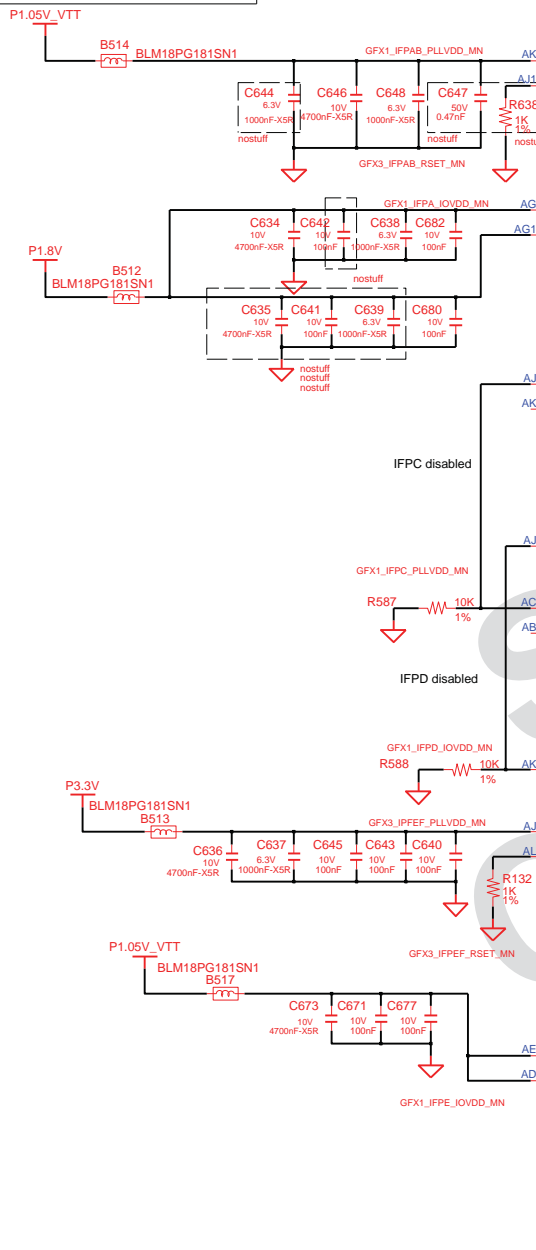
<http://hobi-elektronika.net>

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

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

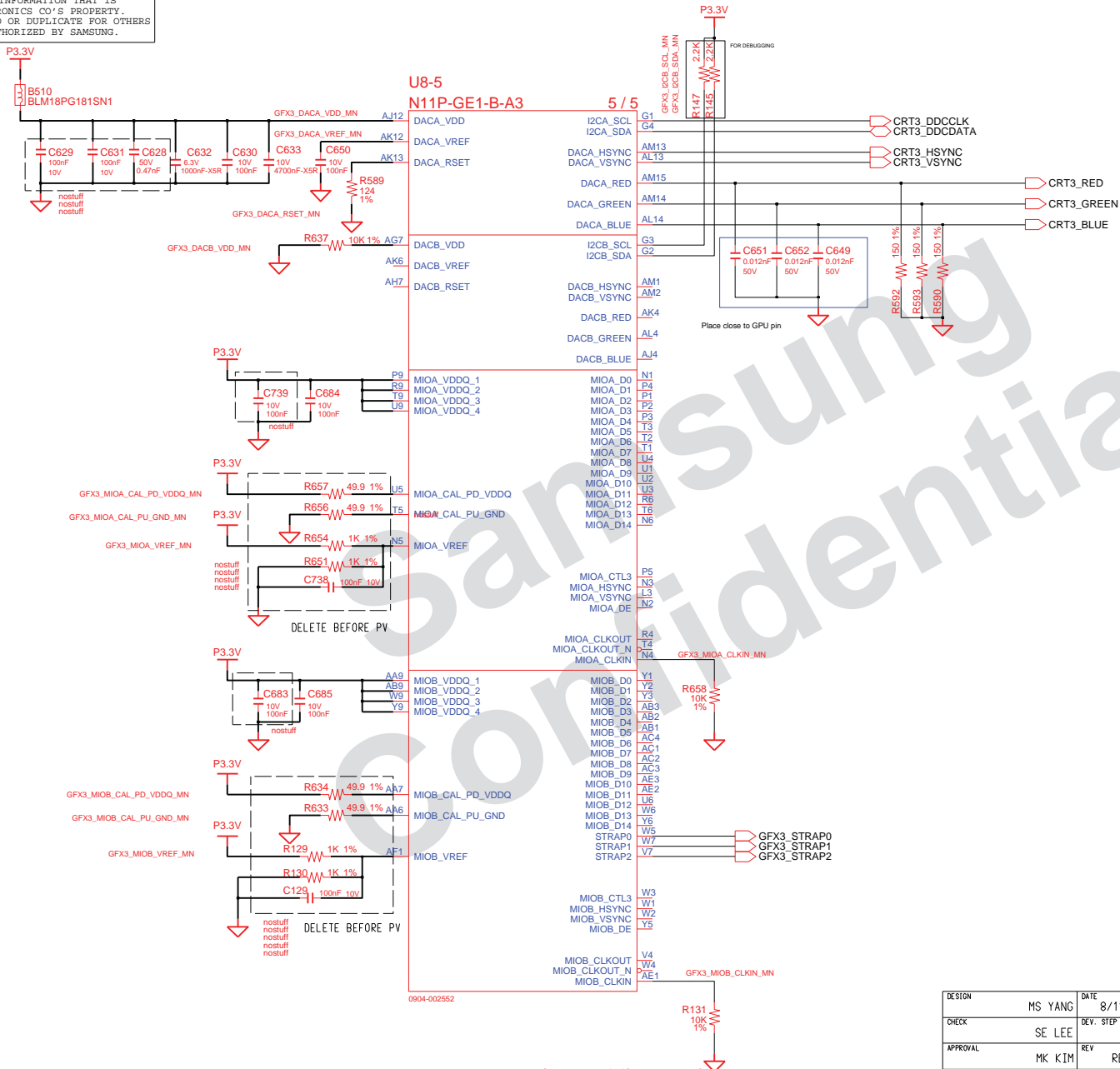


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M N11X_40NM(4/5) N11X_40NM(4/5)	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 23 OF 56	

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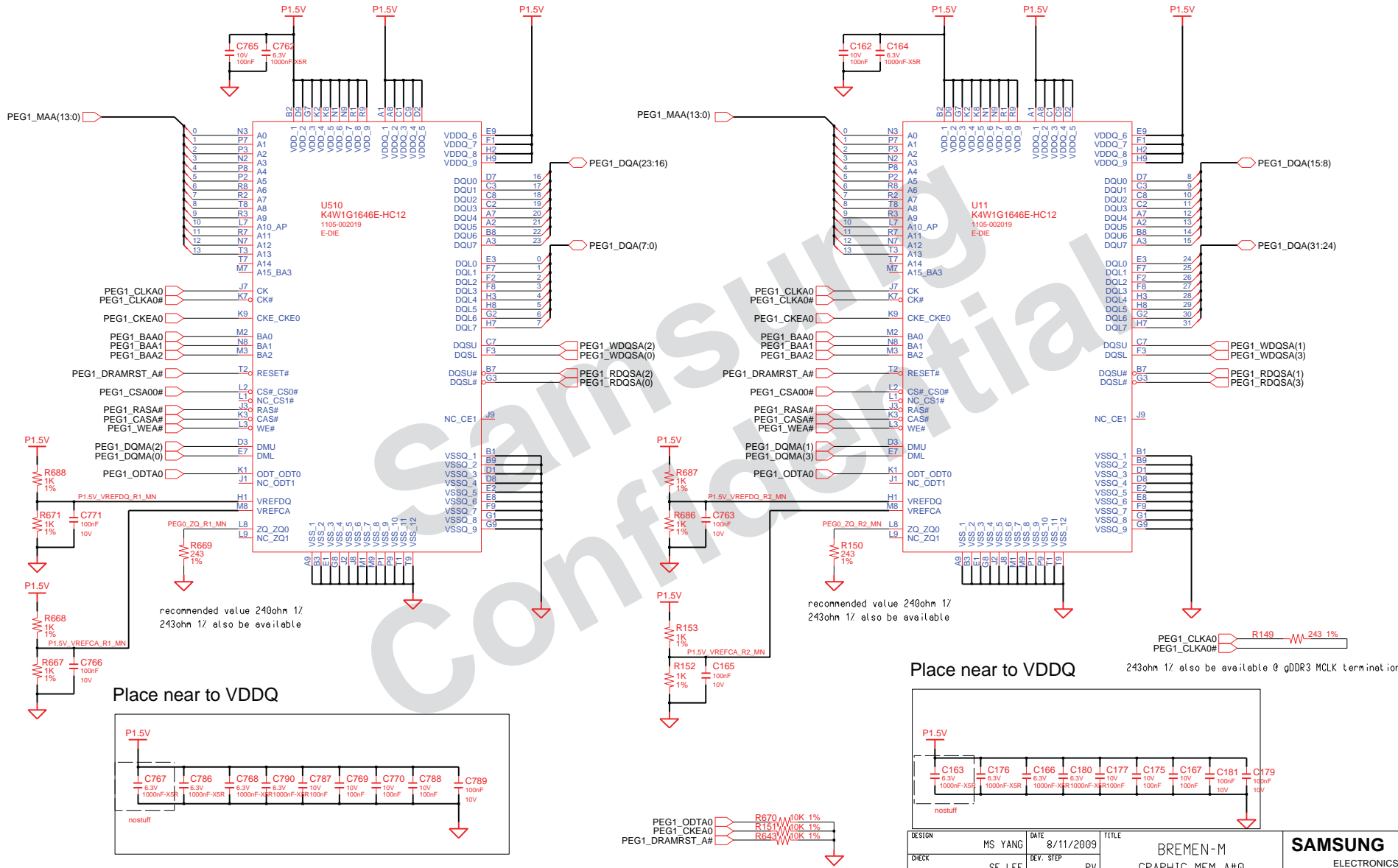
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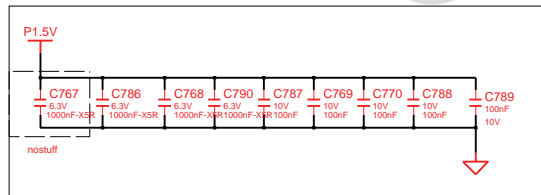
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DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		N11X_40NM(5/5)	
APPROVAL	MK KIM	REV	REV 0.9		N11X_40NM(5/5)	
MODULE CODE		LAST EDIT				PART NO. BA41-01174A
				October 20, 2009 21:30:55 PM	PAGE 24	OF 56

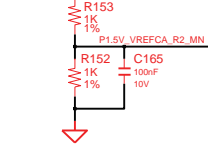
A-Channel #0



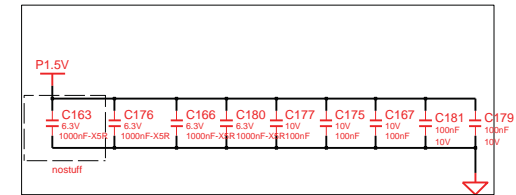
Place near to VDDQ



recommended value 240ohm 1/
243ohm 1/ also available



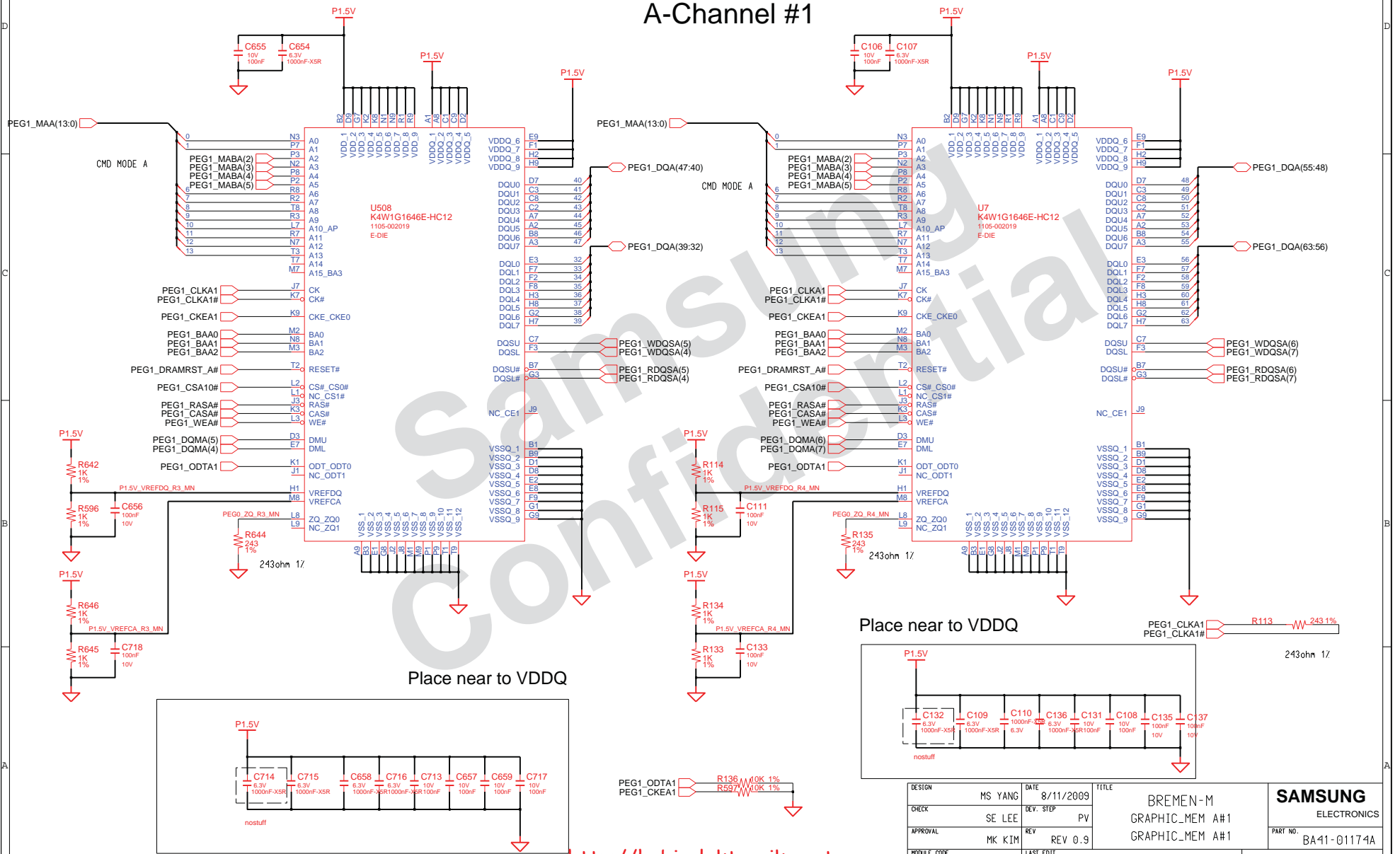
Place near to VDDQ



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	GRAPHIC_MEM A#0		
APPROVAL	MK KIM	REV	REV 0.9	GRAPHIC_MEM A#0		PART NO. BA41-01174A
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM		PAGE 25 OF 56

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A-Channel #1



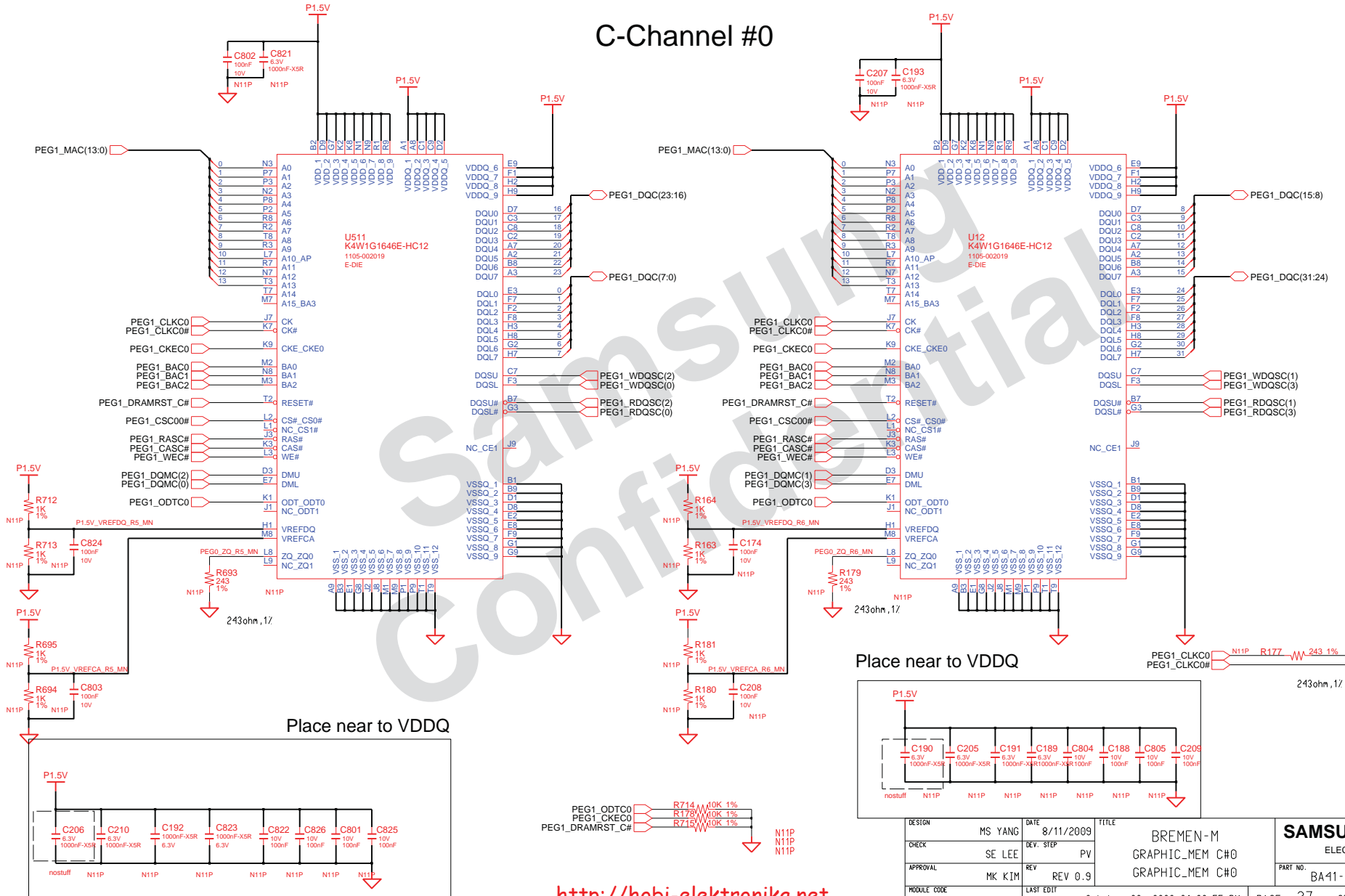
Place near to VDDQ

Place near to VDDQ

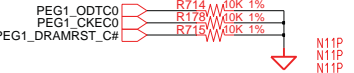
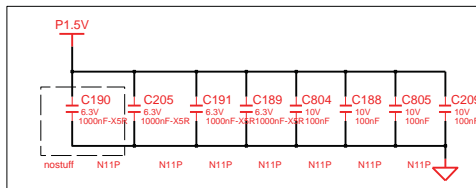
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DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		GRAPHIC_MEM A#1	
APPROVAL	MK KIM	REV	REV 0.9		GRAPHIC_MEM A#1	PART NO. BA41-01174A
MODULE CODE		LAST EDIT				October 20, 2009 21:30:55 PM
						PAGE 26 OF 56

C-Channel #0



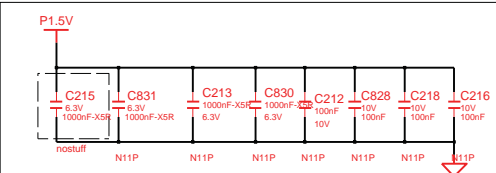
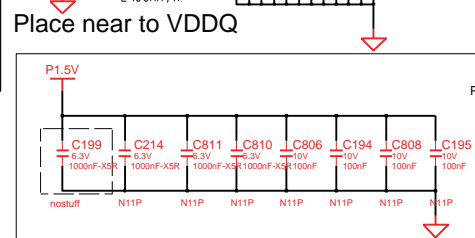
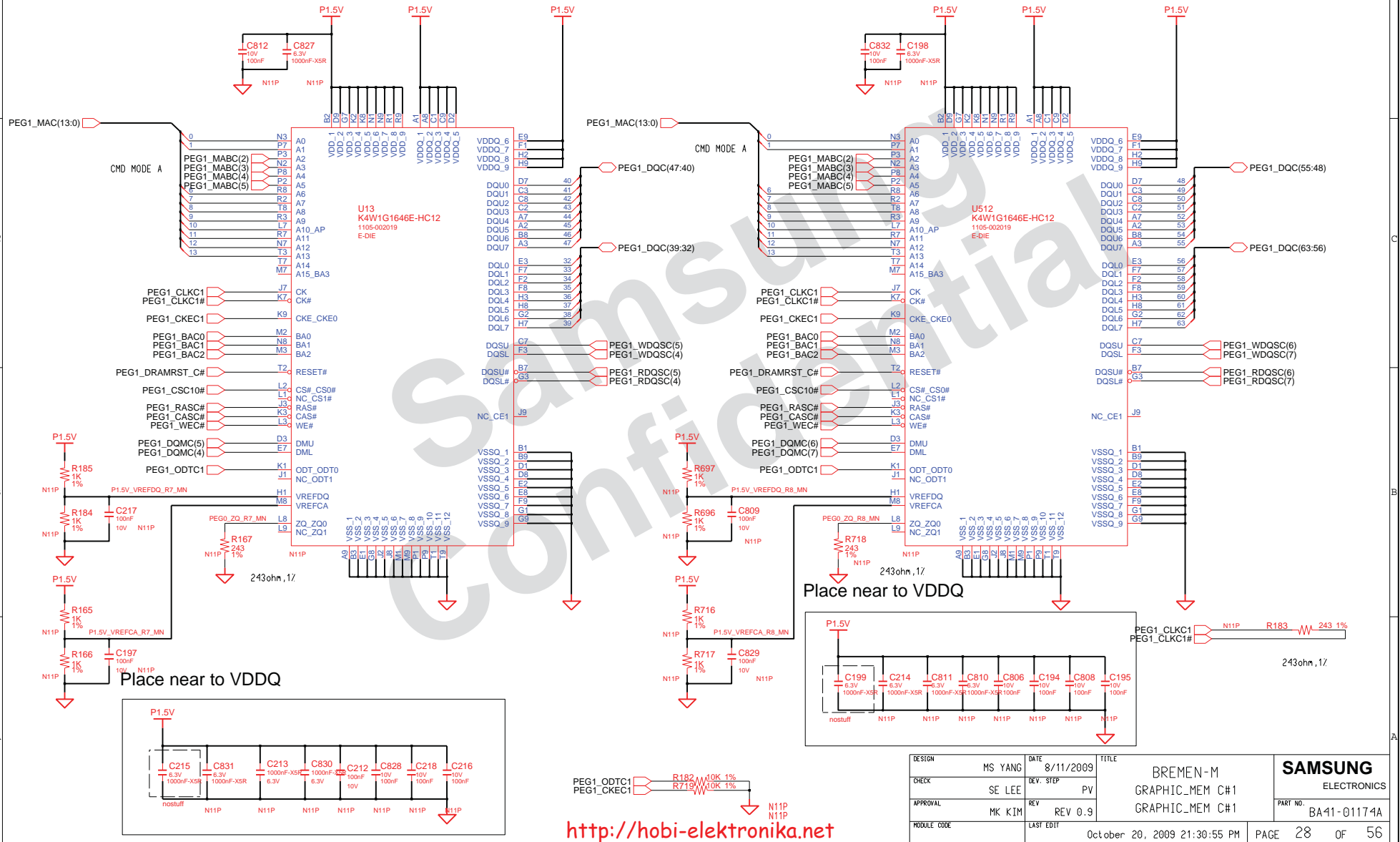
Place near to VDDQ



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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

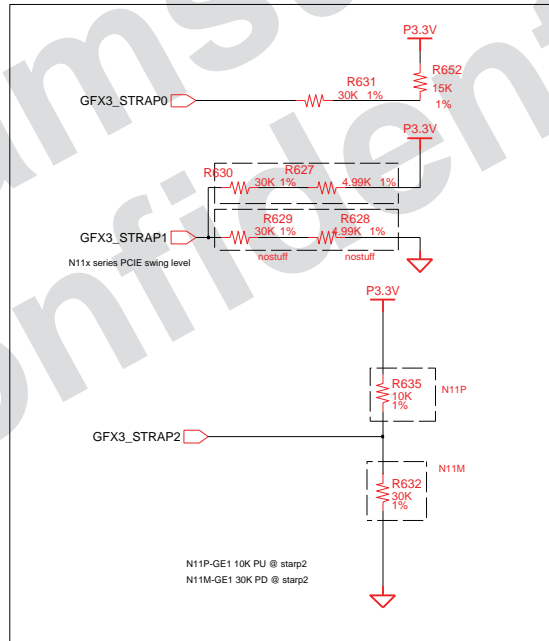
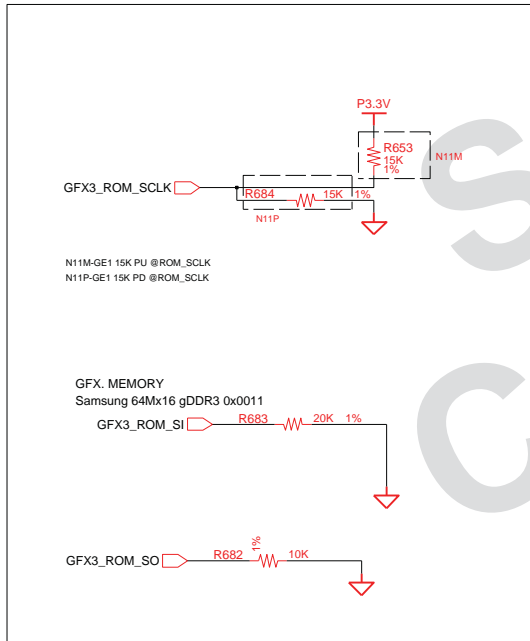
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N11x_40nm STRAP

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

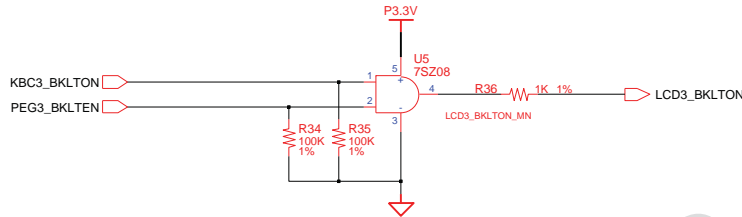


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	N11X_40NM STRAP	PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9	N11X_40NM STRAP		
MODULE CODE		LAST EDIT				

<http://hobi-elektronika.net>

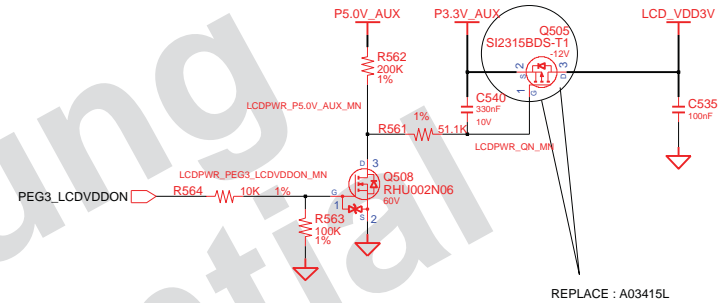
LVDS

Backlight On



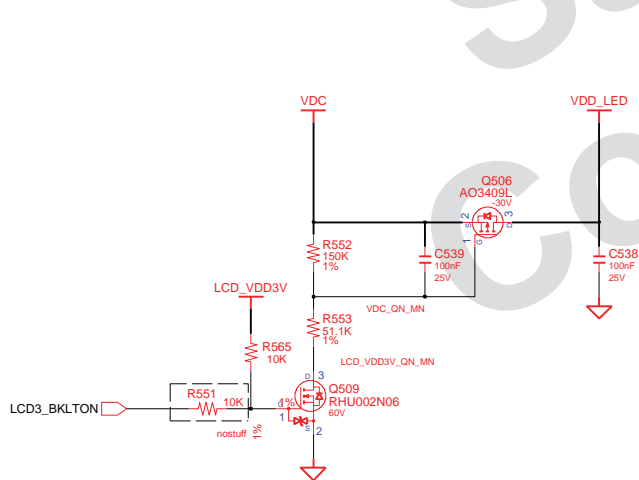
LCD Power

EBL Purpose

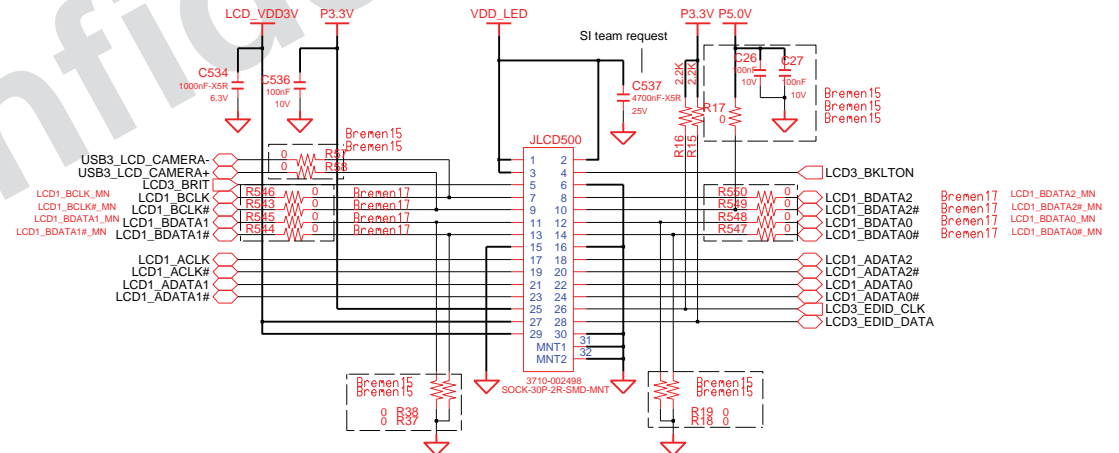


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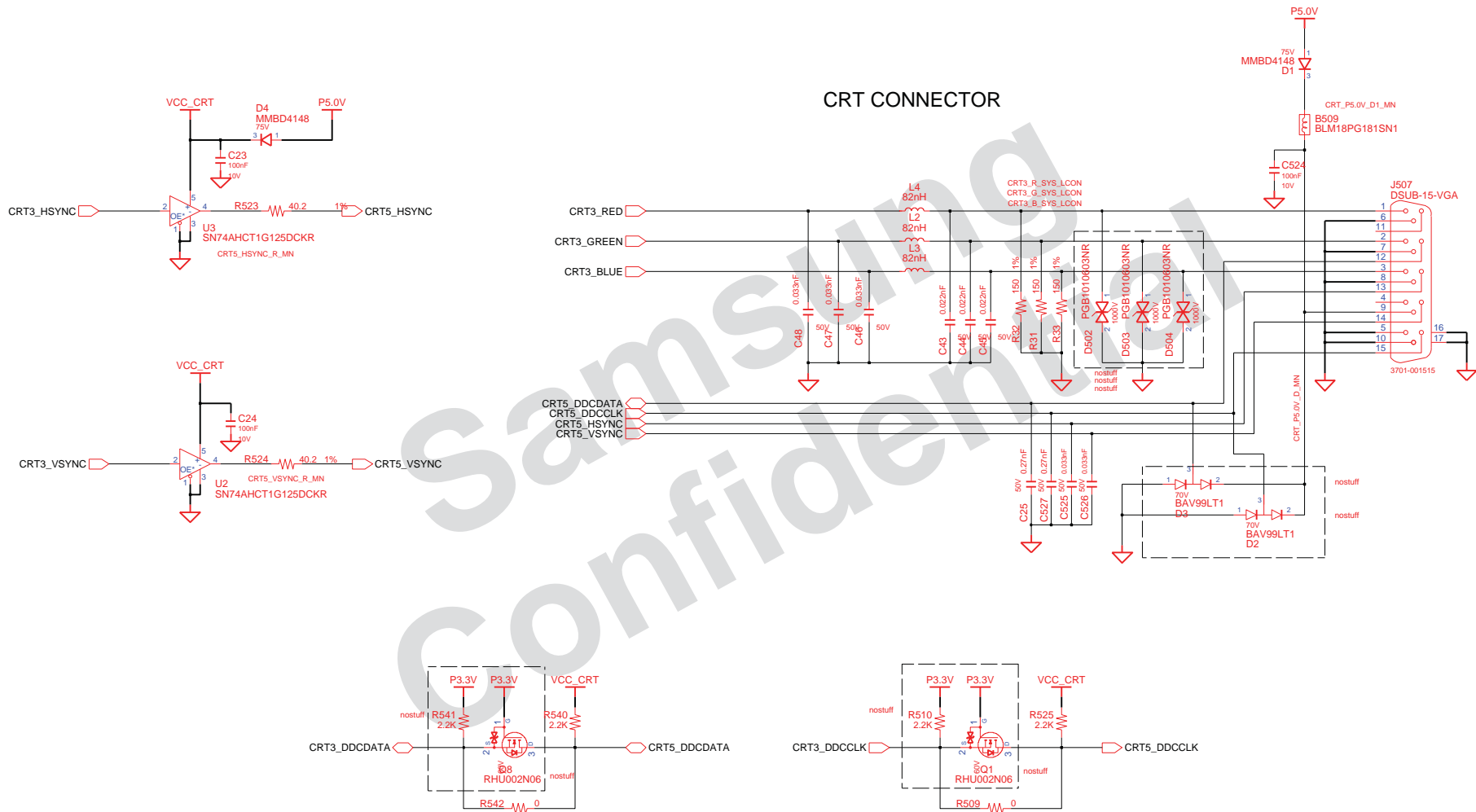
LED Power



Camera + LCD Connector



CRT

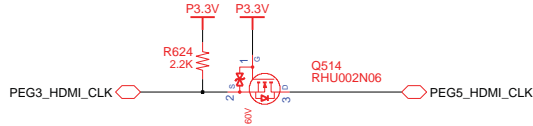


<http://hobi-elektronika.net>

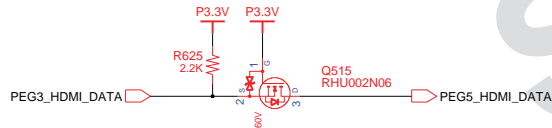
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M GRAPHICS_IF CRT	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM		PAGE 31 OF 56

HDMI

FOR HDMI VERIFICATION TEST

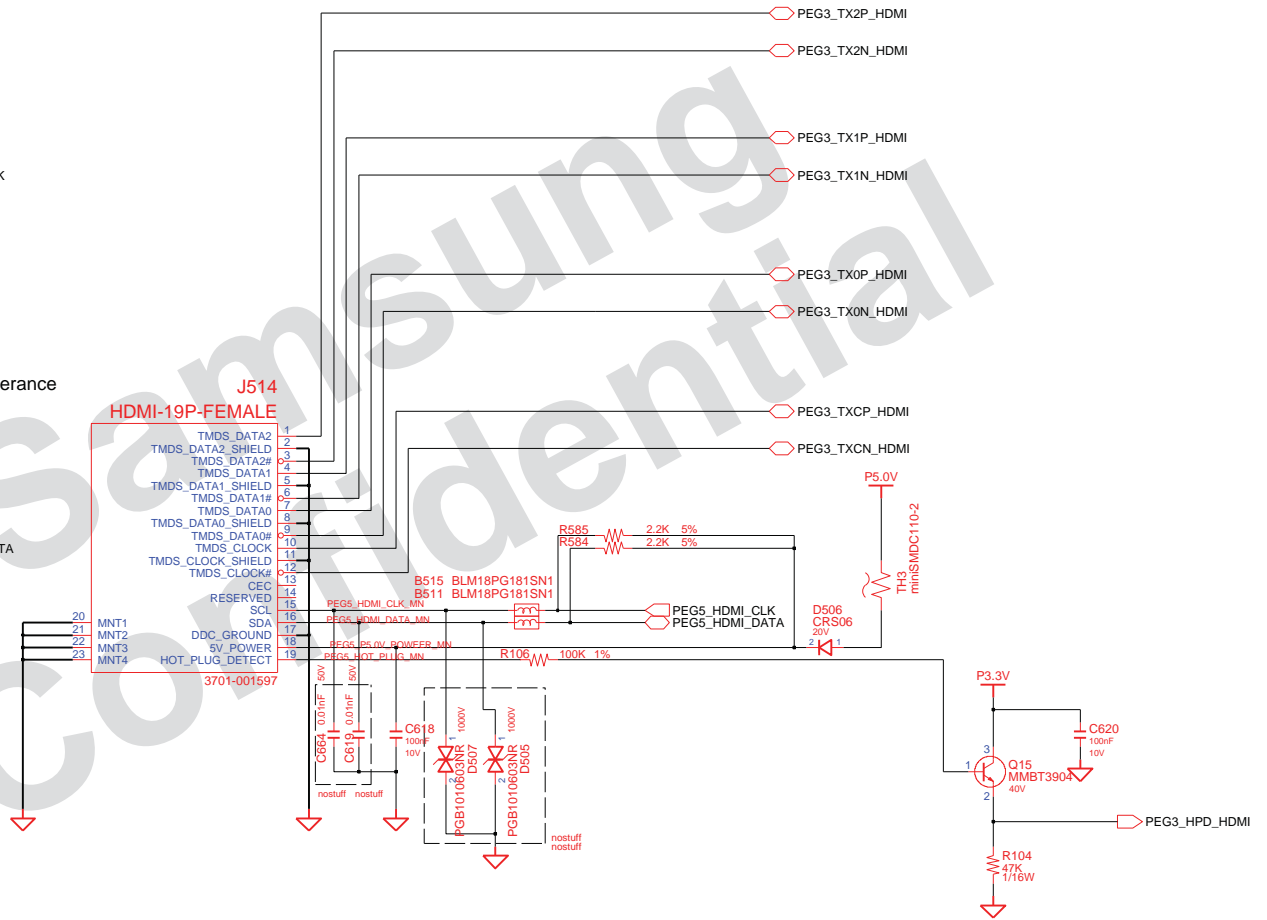


N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance



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

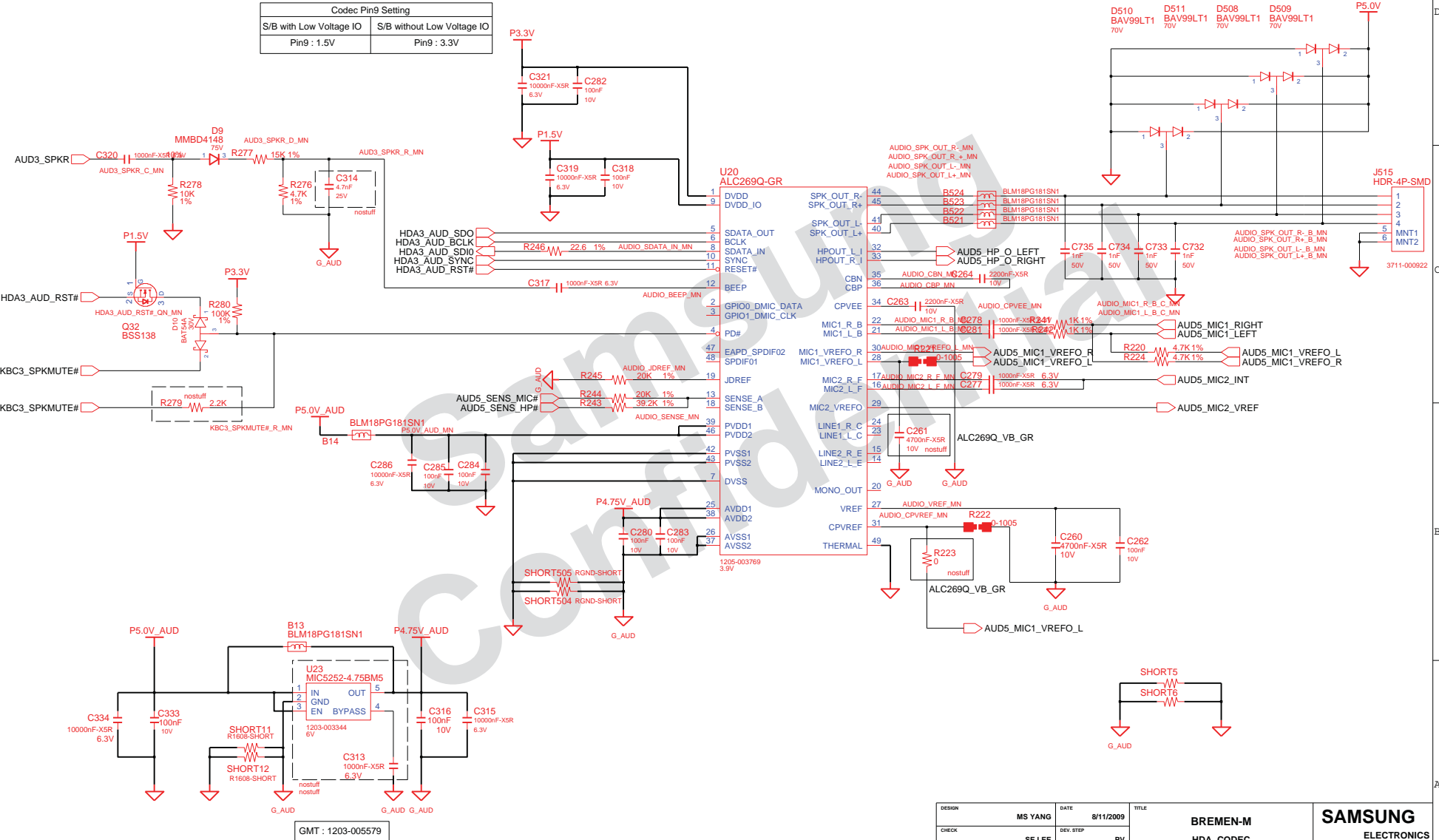


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	GRAPHICS_IF		
APPROVAL	MK KIM	REV	REV 0.9	HDMI	PART NO.	BA41-01174A
MODULE CODE		LAST EDIT				

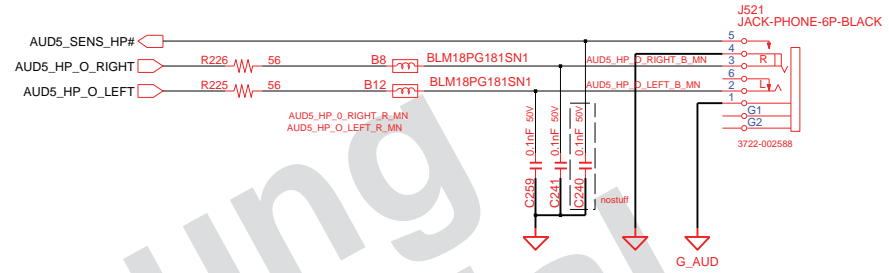
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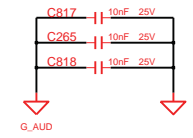
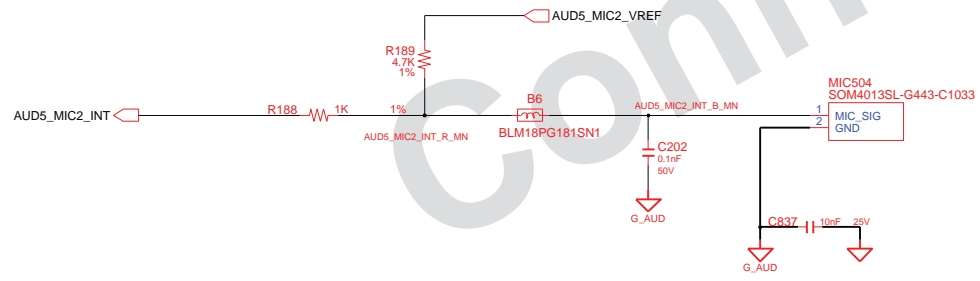
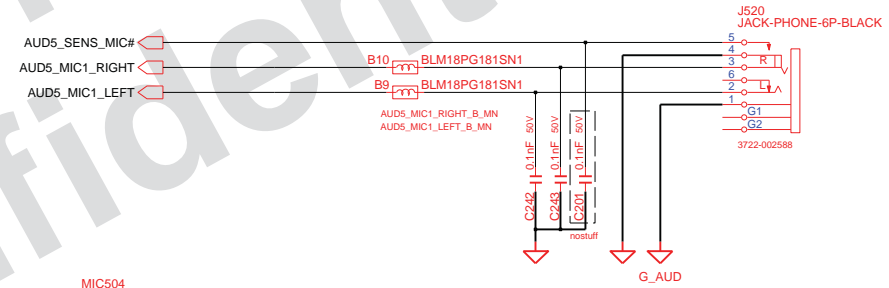
HD AUDIO



HEADPHONE(BLACK)

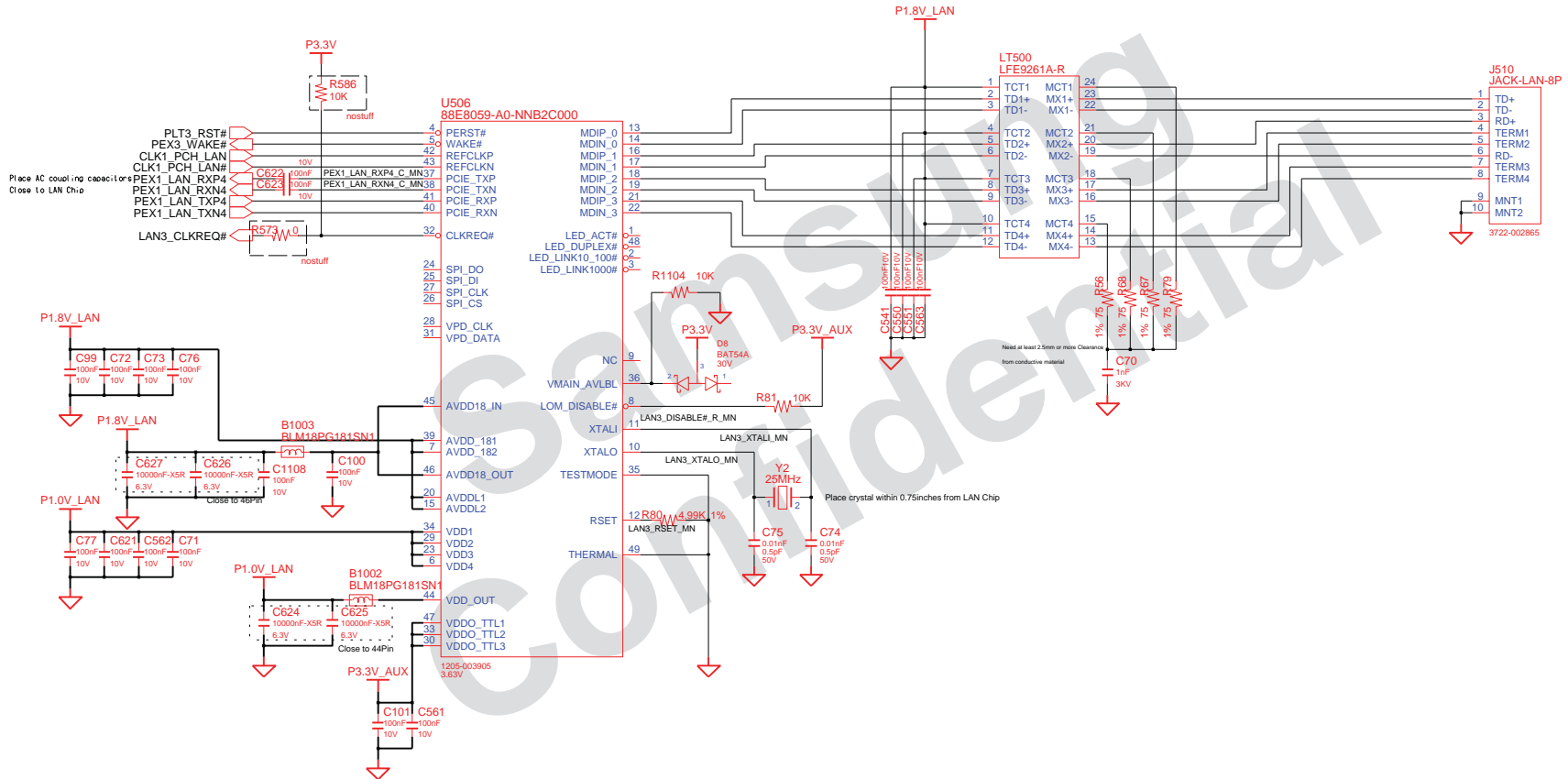


MIC JACK(BLACK)



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

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

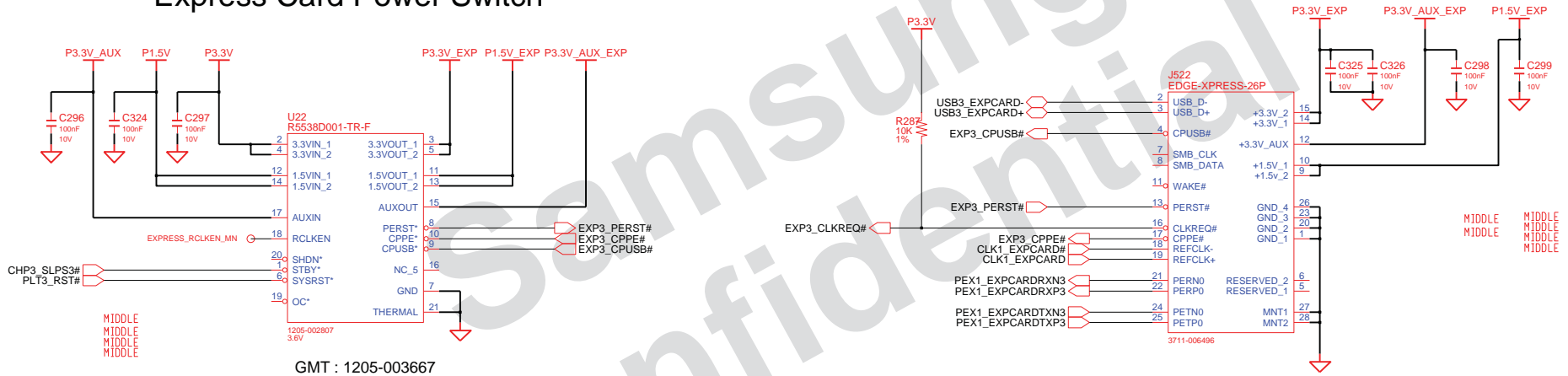


<http://hobi-elektronika.net>

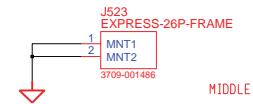
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	LAN		
APPROVAL	MK KIM	REV	REV 0.9	LAN_Realtek_RTL8103EL		PART NO. BA41-01174A
MODULE CODE	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	35 OF 56

Express Card

Express Card Power Switch

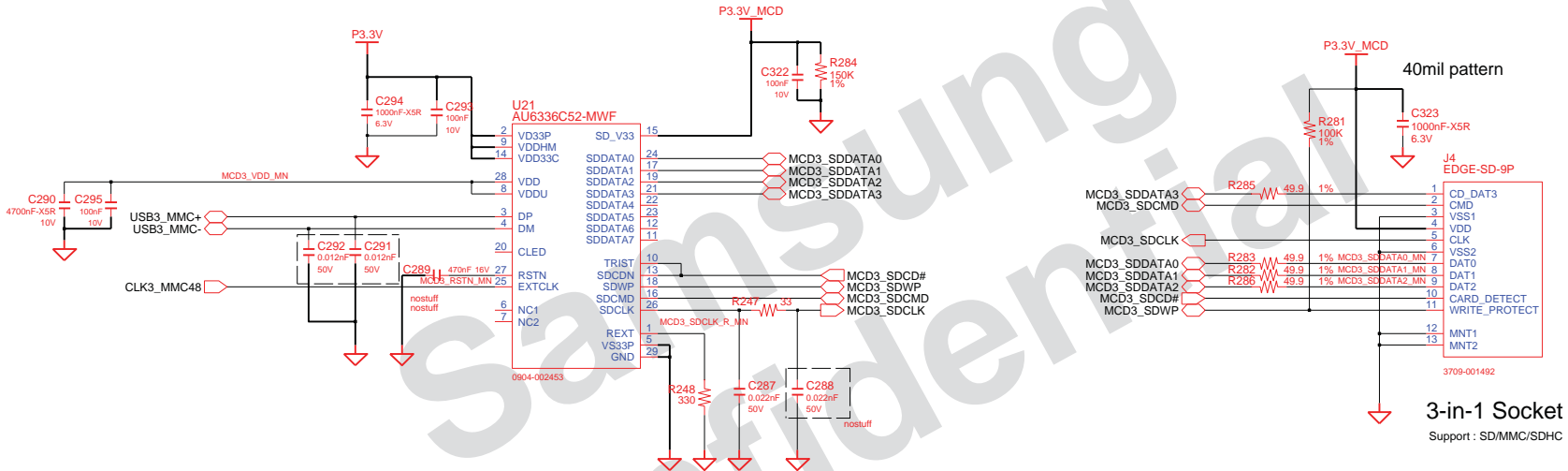


TYPE - I



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

3 IN 1 CARD (AU6336)

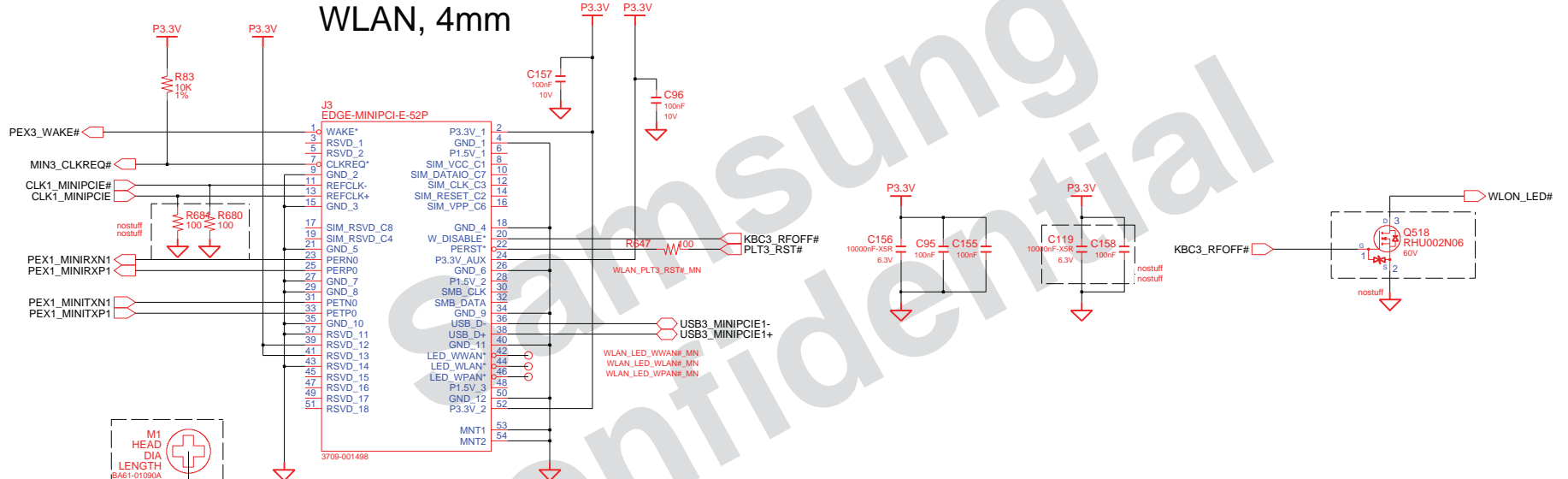


<http://hobi-elektronika.net>

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MULTICARD	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	3 IN 1 CARD(GL8275)		
APPROVAL	MK KIM	REV	REV 0.9		PART NO.	BA41-01174A
MODULE CODE		LAST EDIT			October 20, 2009 21:30:55 PM	PAGE 37 OF 56

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

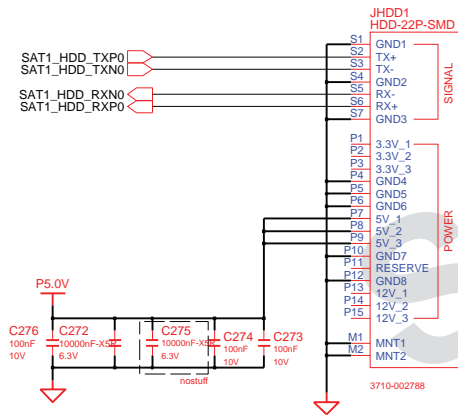


PEM : WLAN minicard (half type only)

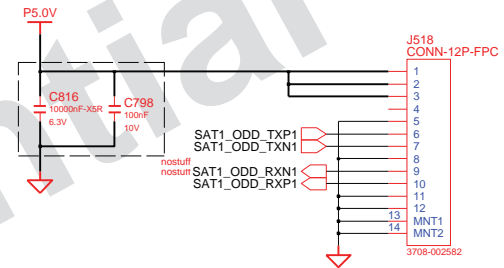
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MINI_PCIE_CONN	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	WLAN	
MODULE CODE	MK KIM	REV	REV 0.9	LAST EDIT		October 20, 2009 21:30:55 PM
						PAGE 38 OF 56

SATA I/F CONN

SATA HDD CONN

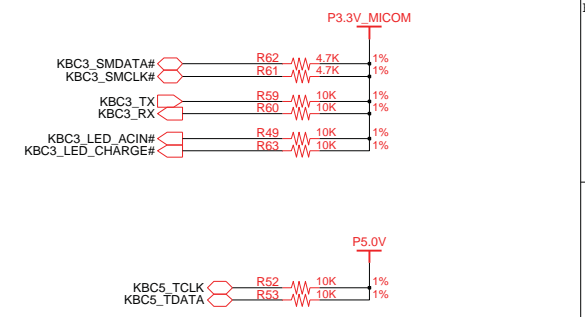
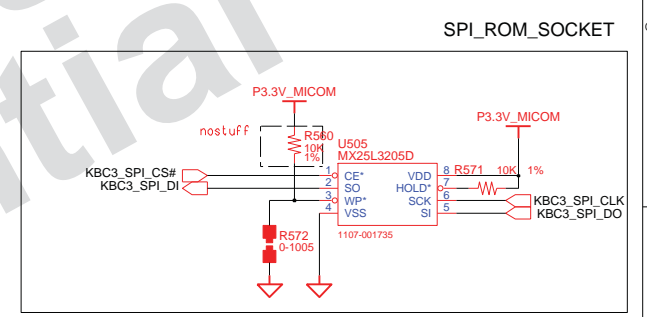
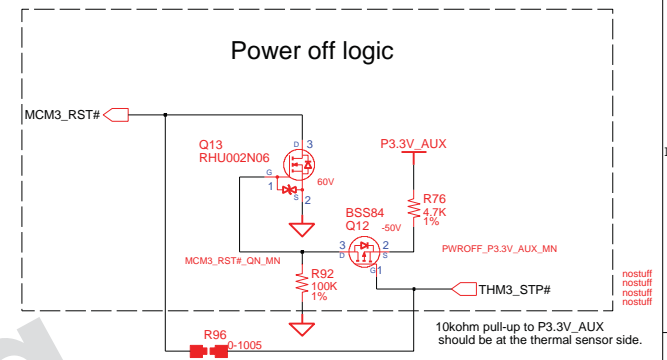
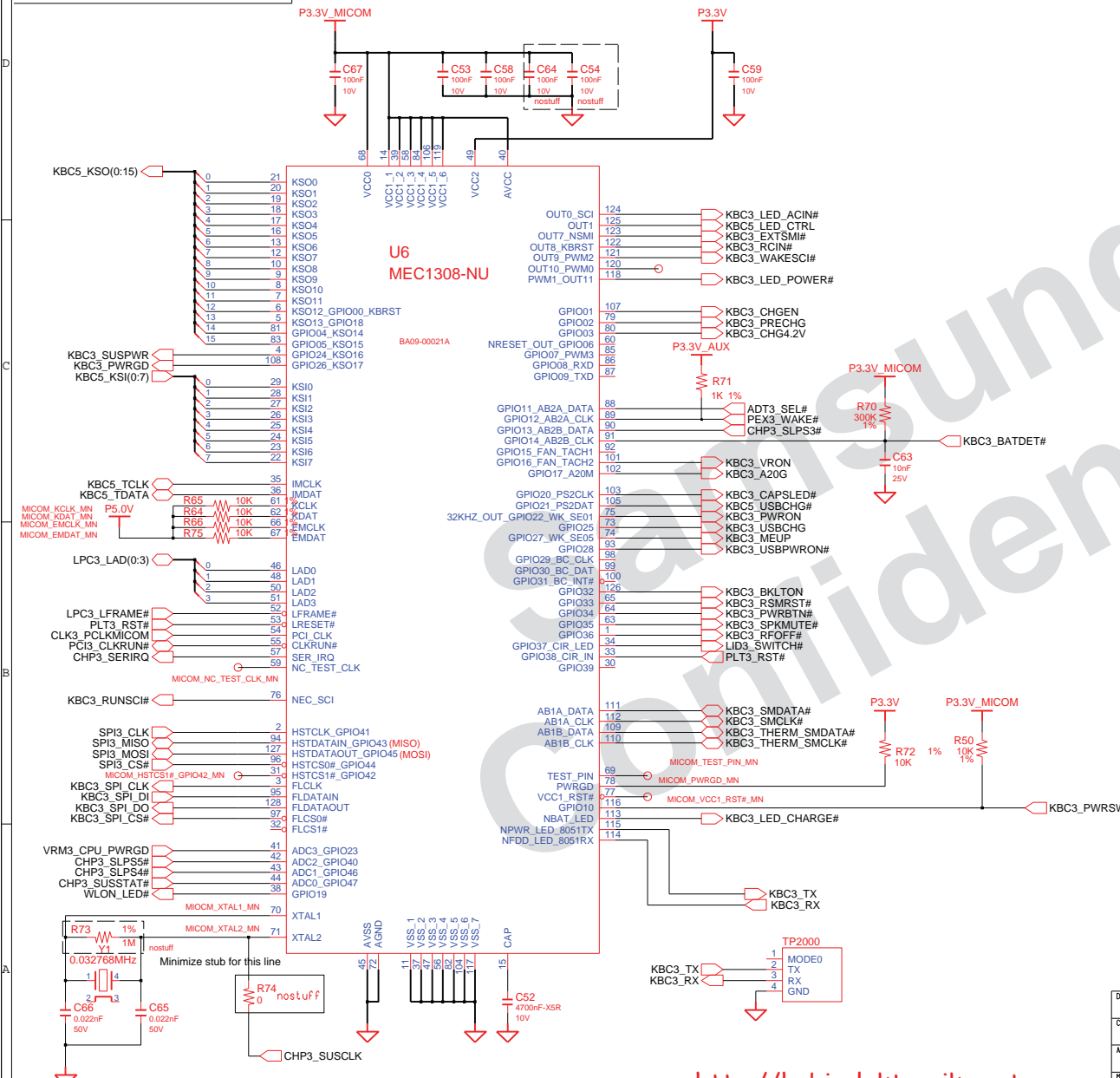


MAIN TO SUB SATA ODD CONN



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

MAIN BOARD (MICOM)

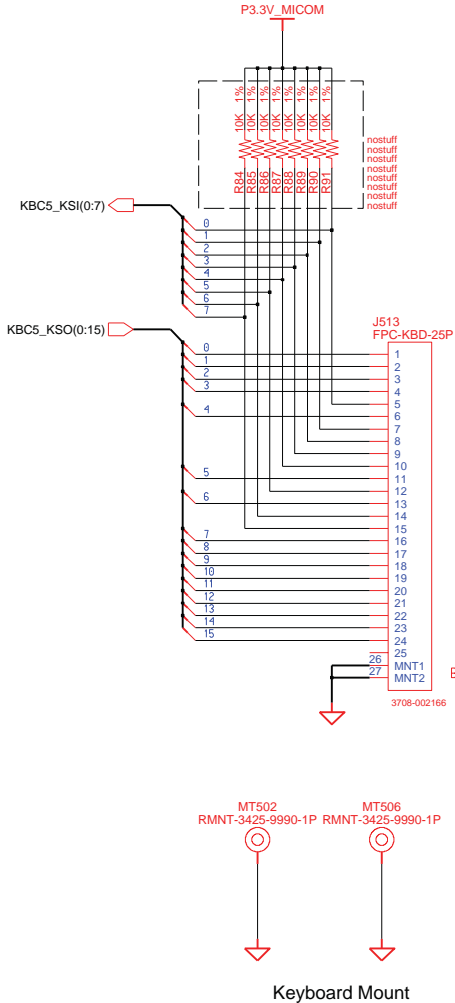


<http://hobi-elektronika.net>

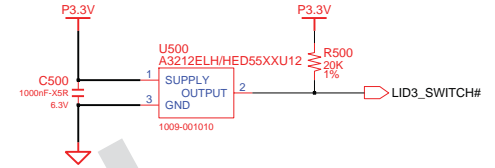
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M MICOM	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	MK KIM	
MODULE CODE		REV	REV 0.9	PART NO.	BA41-01174A	
LAST EDIT				October 20, 2009 21:30:55 PM	PAGE	40 OF 56

Micom Glue Logic

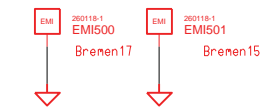
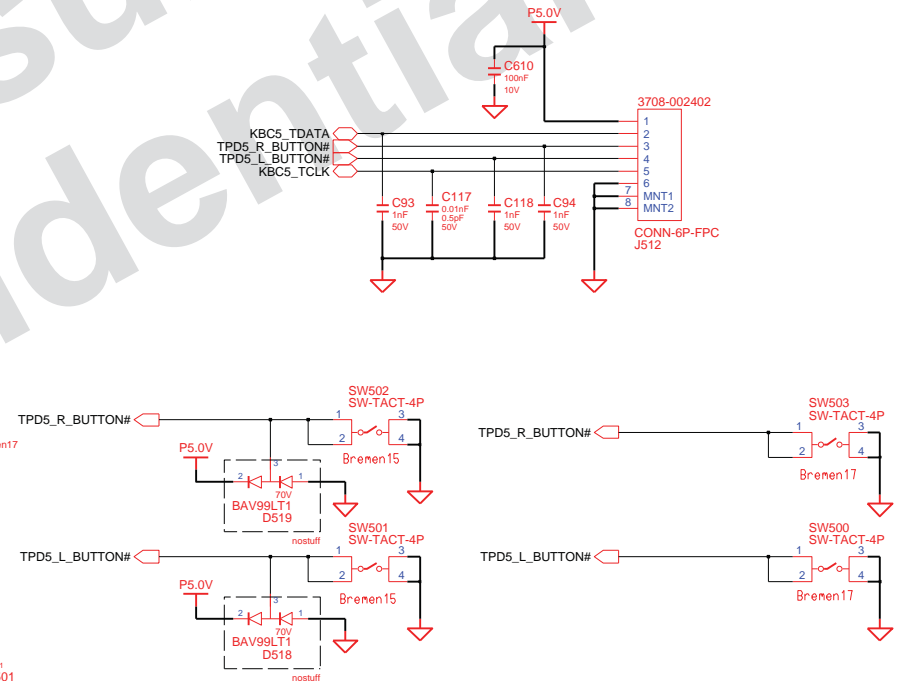
KEYBOARD



LID_SWITCH



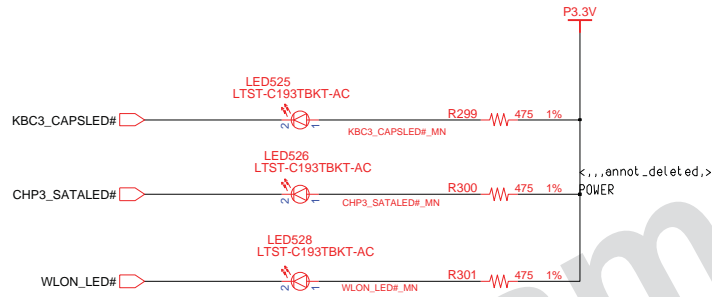
TOUCHPAD



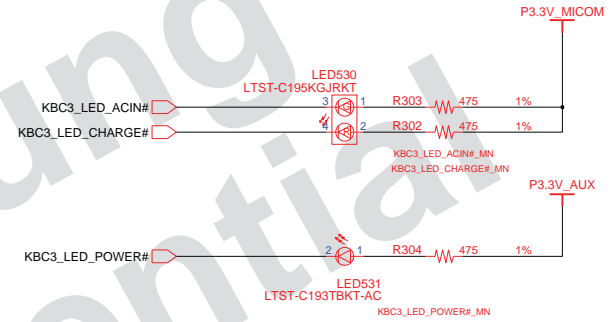
<http://hobi-elektronika.net>

DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	MICOM GLUE LOGIC			
APPROVAL	MK KIM	REV	REV 0.9	KEYBOARD & TOUCHPAD			
MODULE CODE	LAST EDIT			October 20, 2009 21:30:55 PM		PAGE	41 OF 56

FUNCTION KEY LED



ADAPTERIN/CHARGING LED



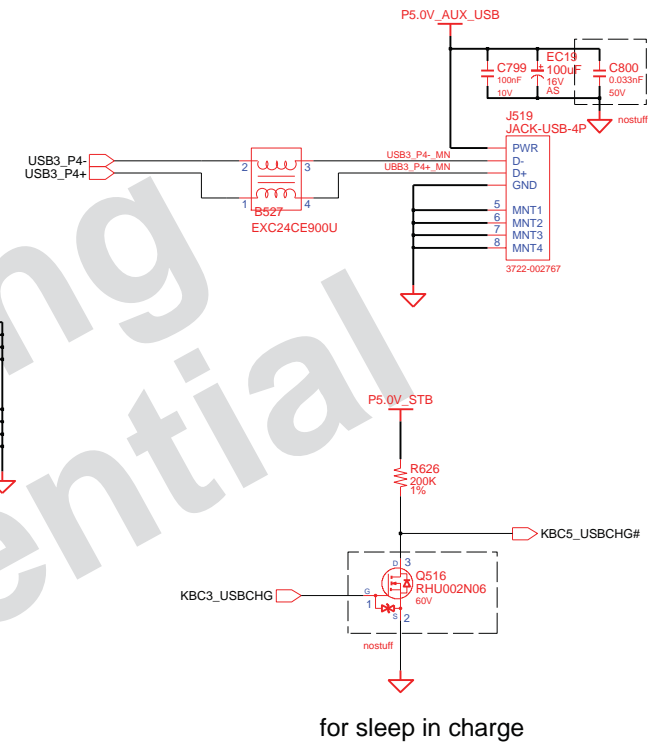
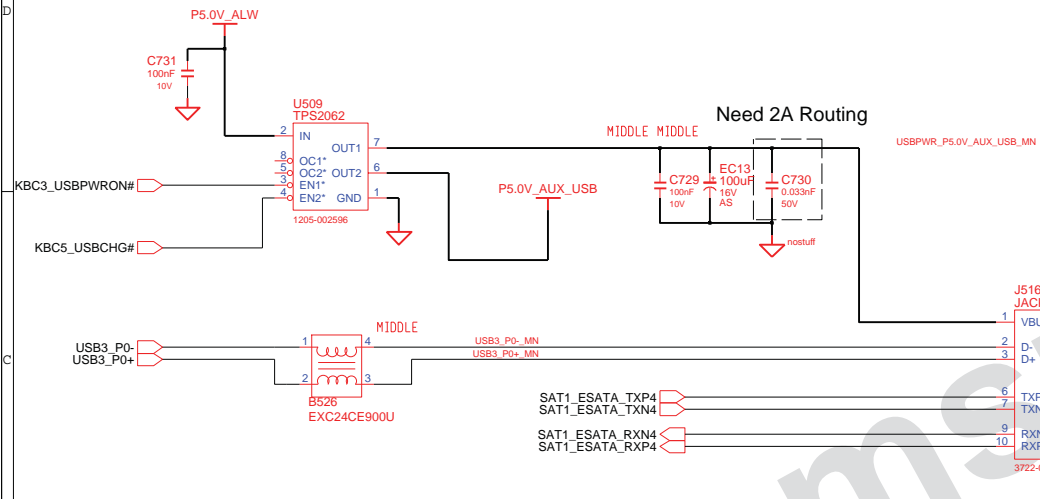
Samsung
Confidential

<http://hobi-elektronika.net>

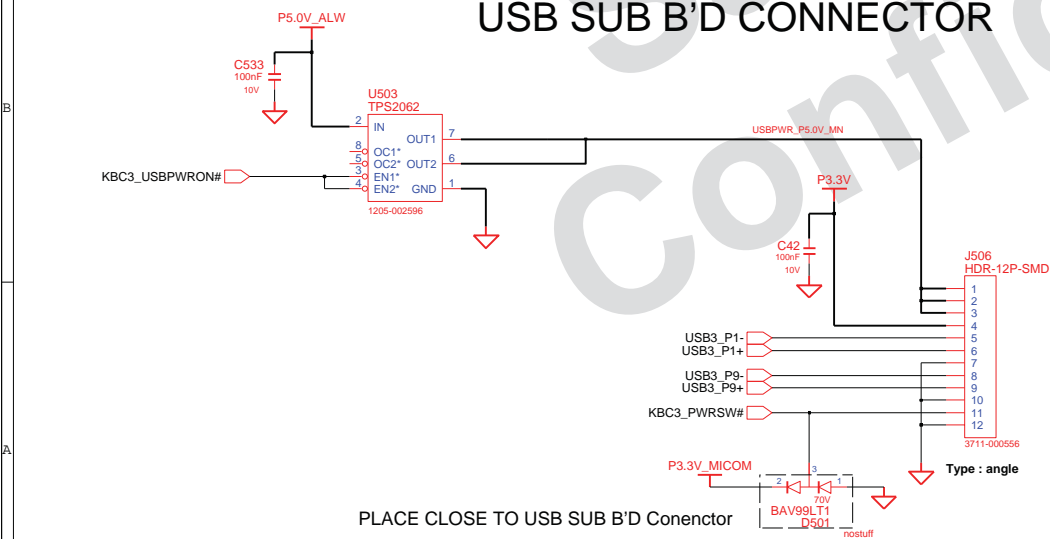
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M LED_SWITCH	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9		LED_SWITCH	PART NO. BA41-01174A
MODULE CODE		LAST EDIT				October 20, 2009 21:30:55 PM
						PAGE 42 OF 56

USB + eSATA CONNECTOR

USB Single connector

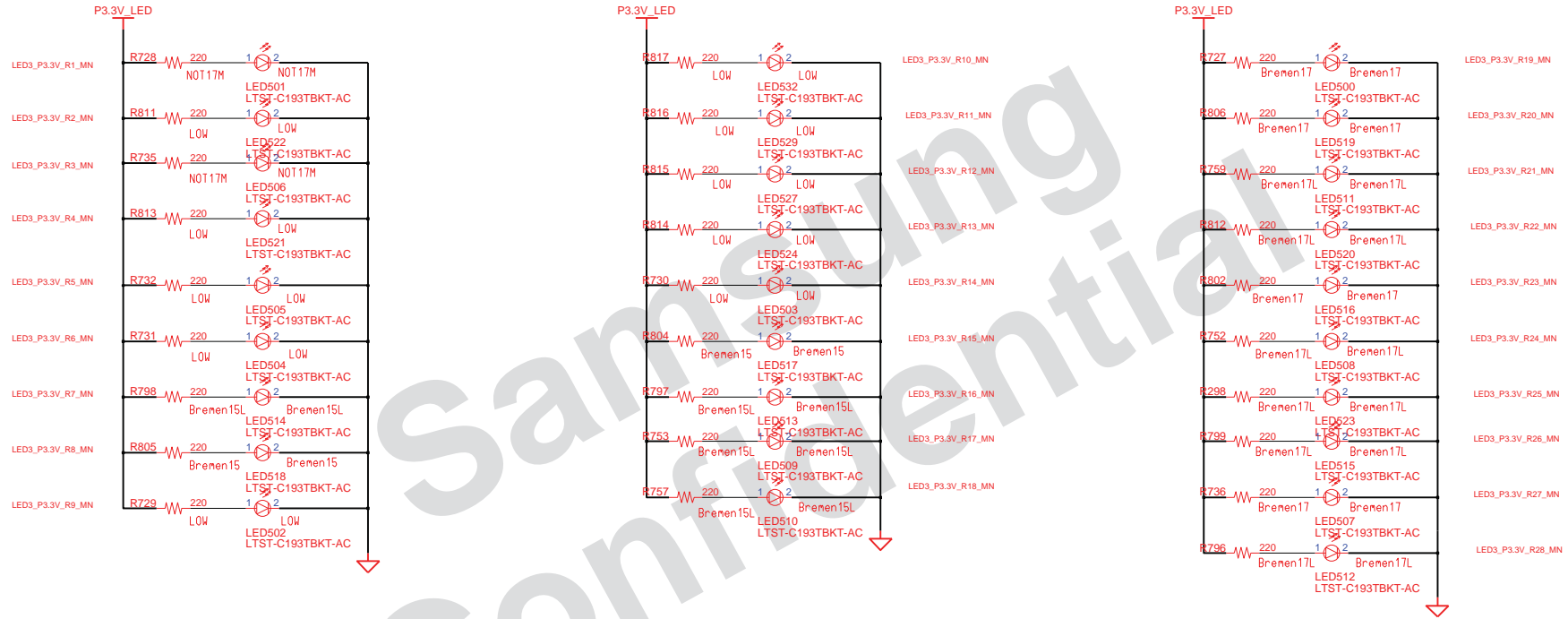


USB SUB B'D CONNECTOR

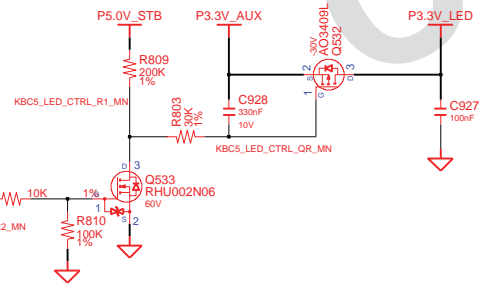


DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M USB_CONN	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	USB & eSATA	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		PART NO. BA41-01174A
		LAST EDIT				October 20, 2009 21:30:55 PM
						PAGE 43 OF 56

Touchpad LED



Samsung Confidential

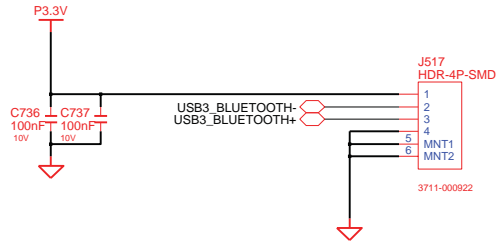


<http://hobi-elektronika.net>

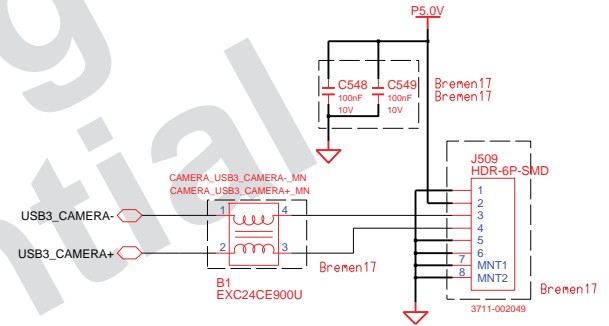
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M TOUCHPAD LED	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV			
APPROVAL	MK KIM	REV	REV 0.9			PART NO. BA41-01174A
MODULE CODE		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 44	OF 56

USB I/F Devices

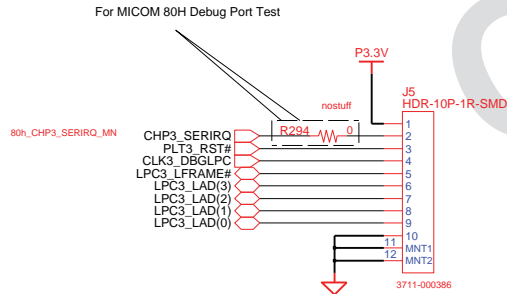
Bluetooth Interface



CAMERA (17Inch)



80h PORT DEBUG

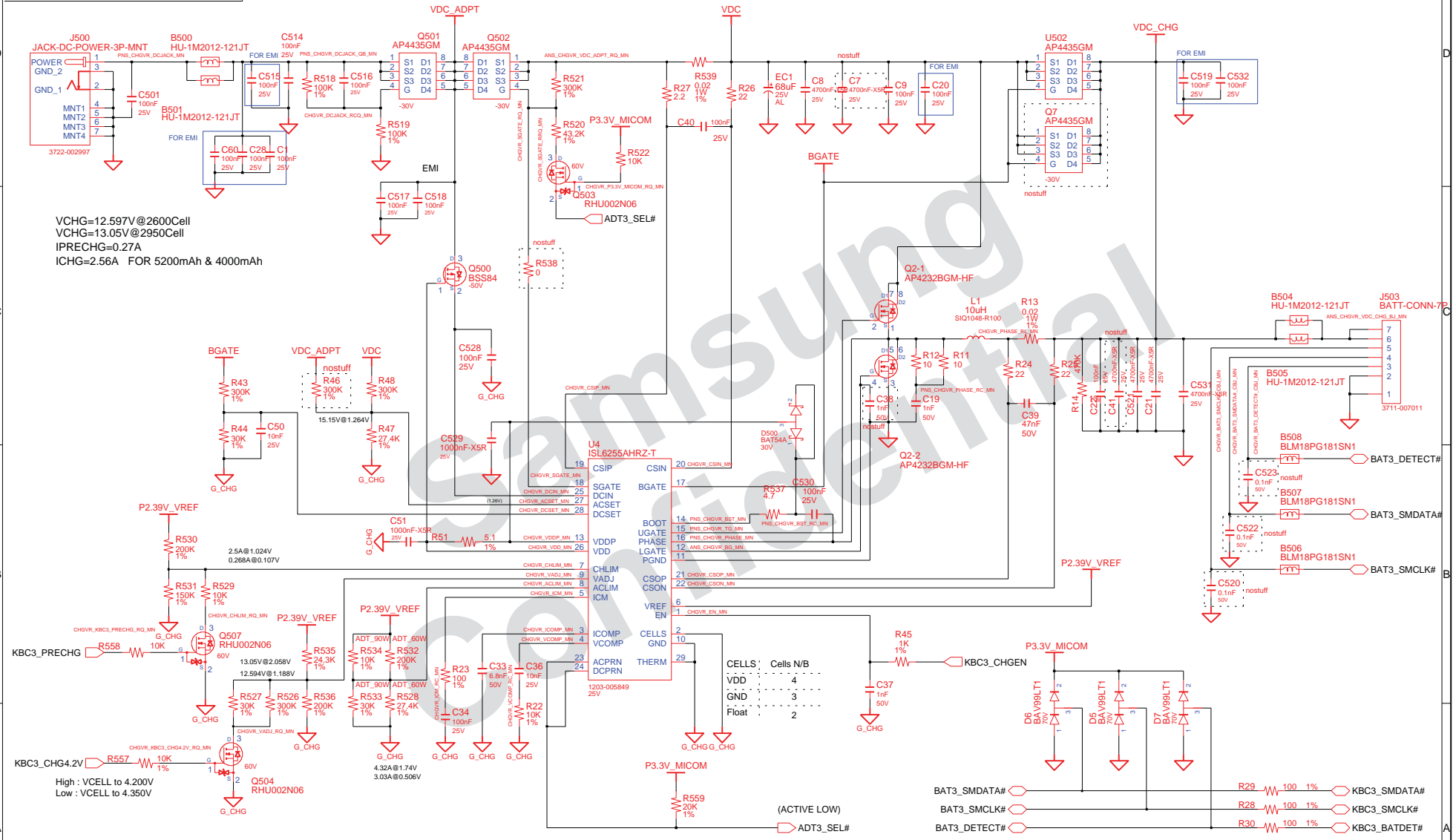


<http://hobi-elektronika.net>

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				
MODULE CODE	LAST EDIT				October 20, 2009 21:30:55 PM	PAGE 45	OF 56

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 EXCEPT AS AUTHORIZED BY SAMSUNG.

CHARGER & POWER MANAGEMENT



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

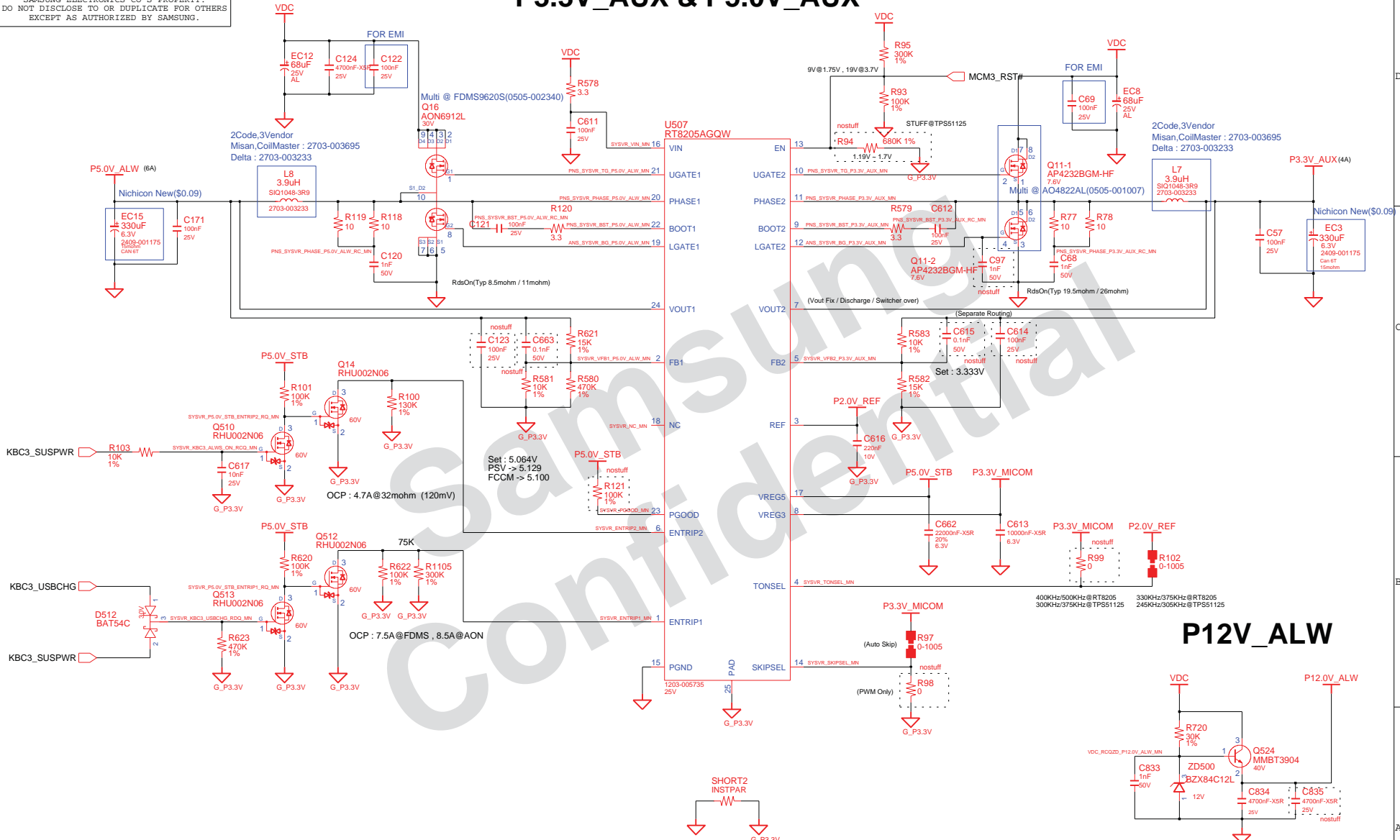
SHORT500
 INSTPAR
 G_CHG

<http://hobi-elektronika.net>

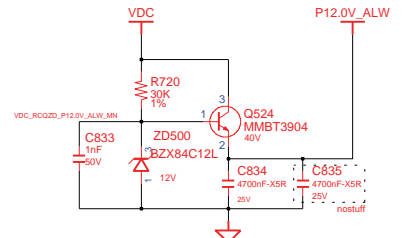
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M CHARGER	SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV		Charger	PART NO. BA41-01174A
APPROVAL	MK KIM	REV	REV 0.9			
MODULE CODE	undefined	LAST EDIT			October 20, 2009 21:30:55 PM	PAGE 46 OF 56

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P3.3V_AUX & P5.0V_AUX



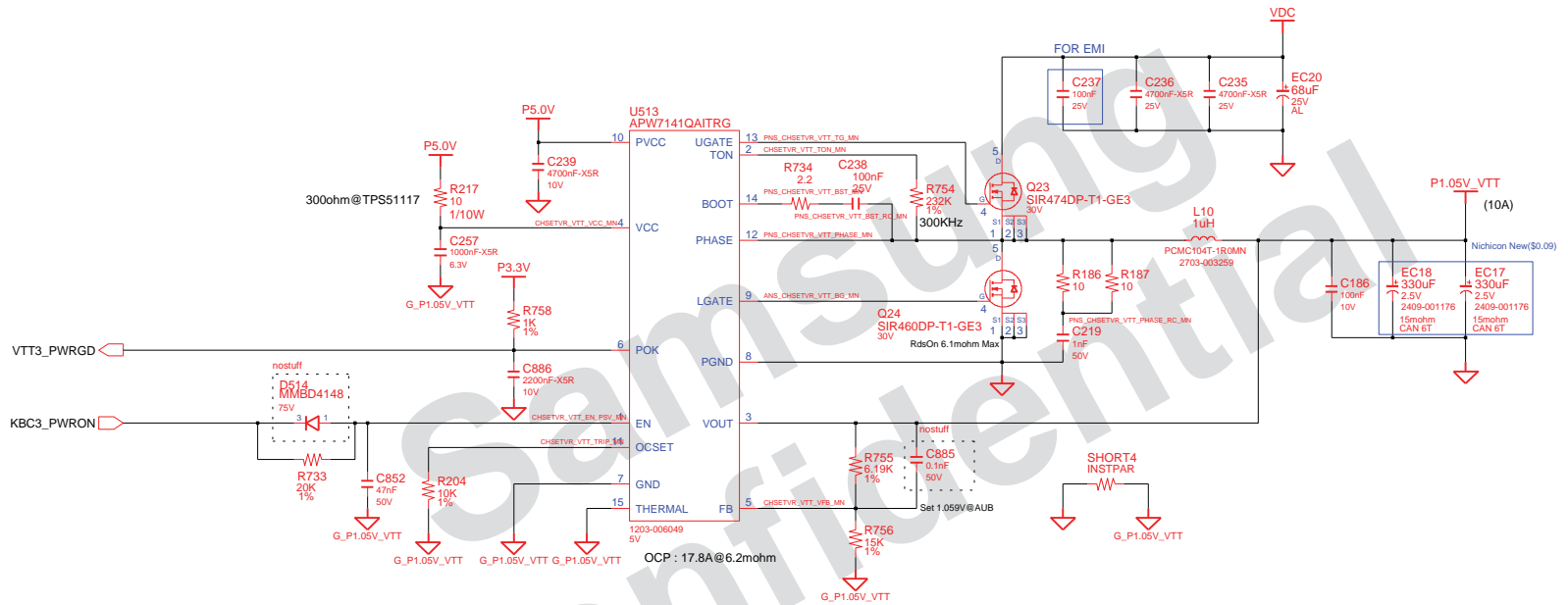
P12V_ALW



DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV	P3.3V_ALW / P5.0V_ALW		
APPROVAL	MK KIM	REV	REV 0.9	P3.3V_AUX & P5.0V_AUX		
MODULE CODE		LAST EDIT		October 20, 2009 21:30:55 PM	PAGE 47 OF 56	

<http://hobi-elektronika.net>

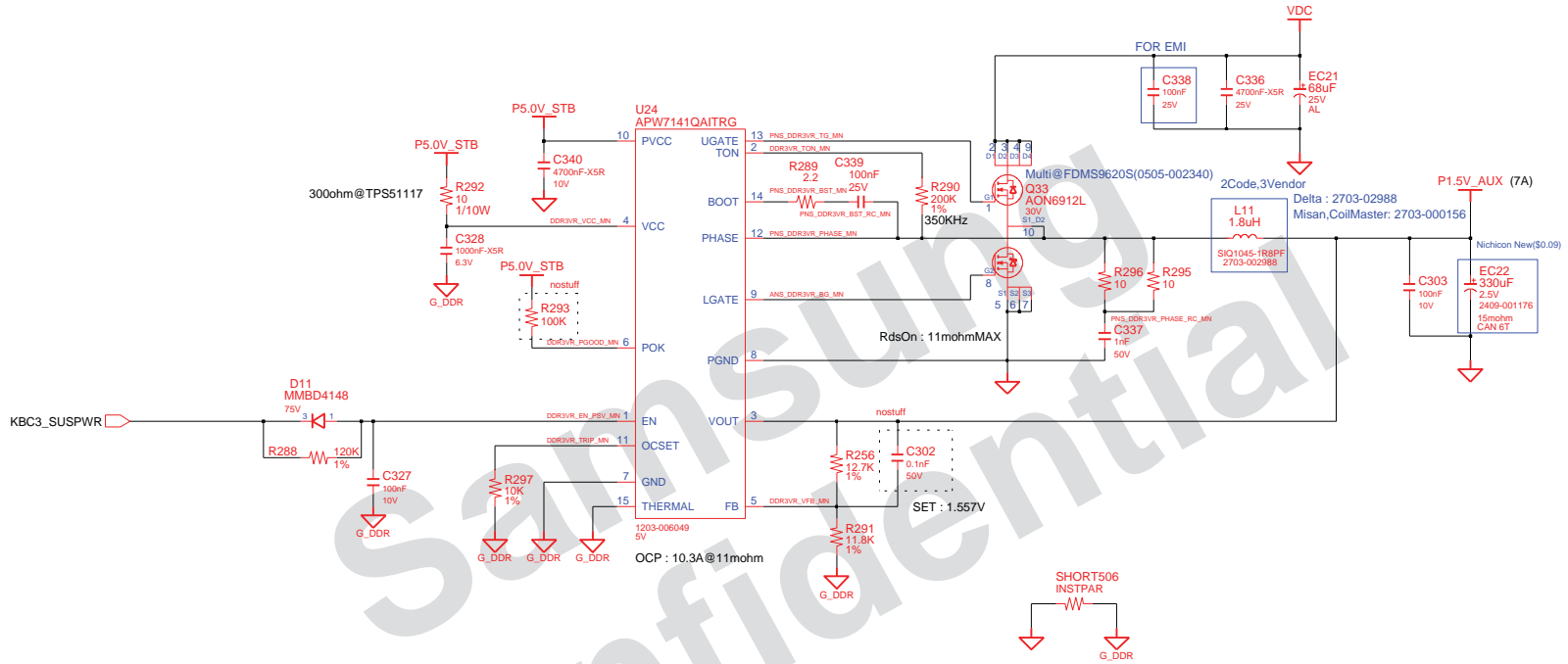
CHIPSET POWER(P1.05V_VTT)



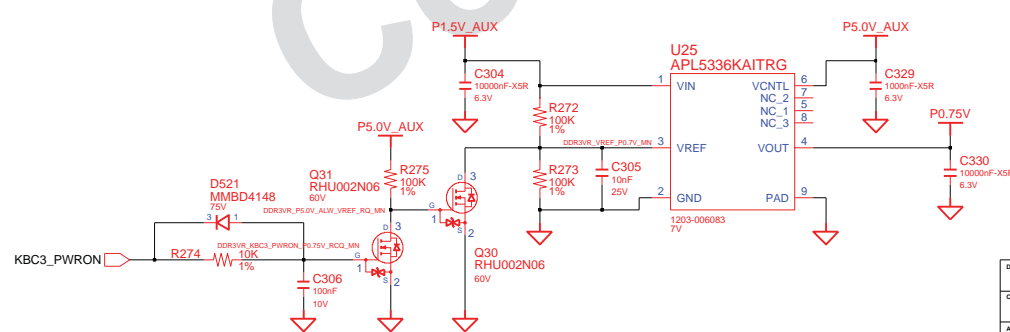
<http://hobi-elektronika.net>

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

DDR3 Power



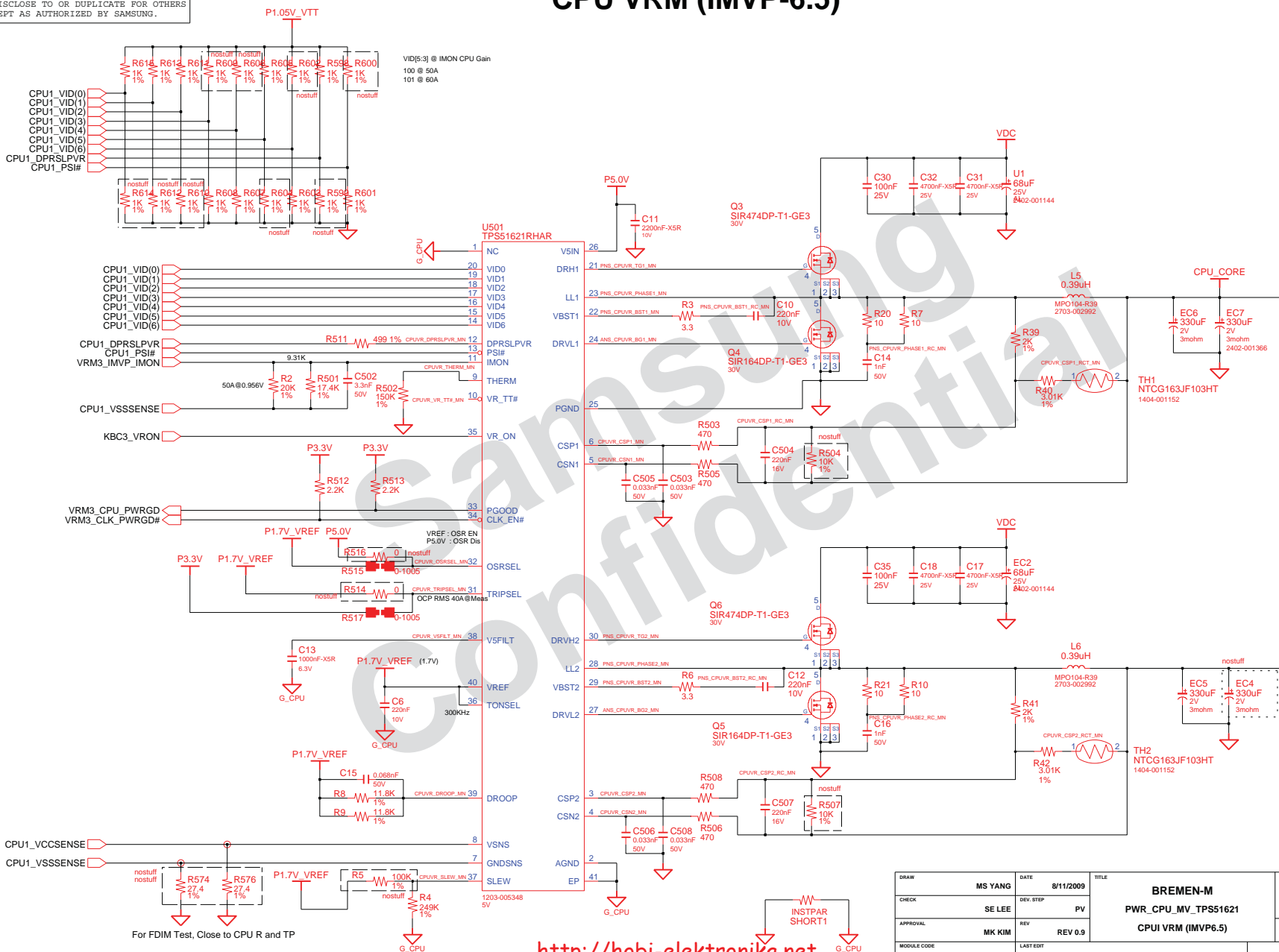
DDR3 VTT(0.75V)



<http://hobi-elektronika.net>

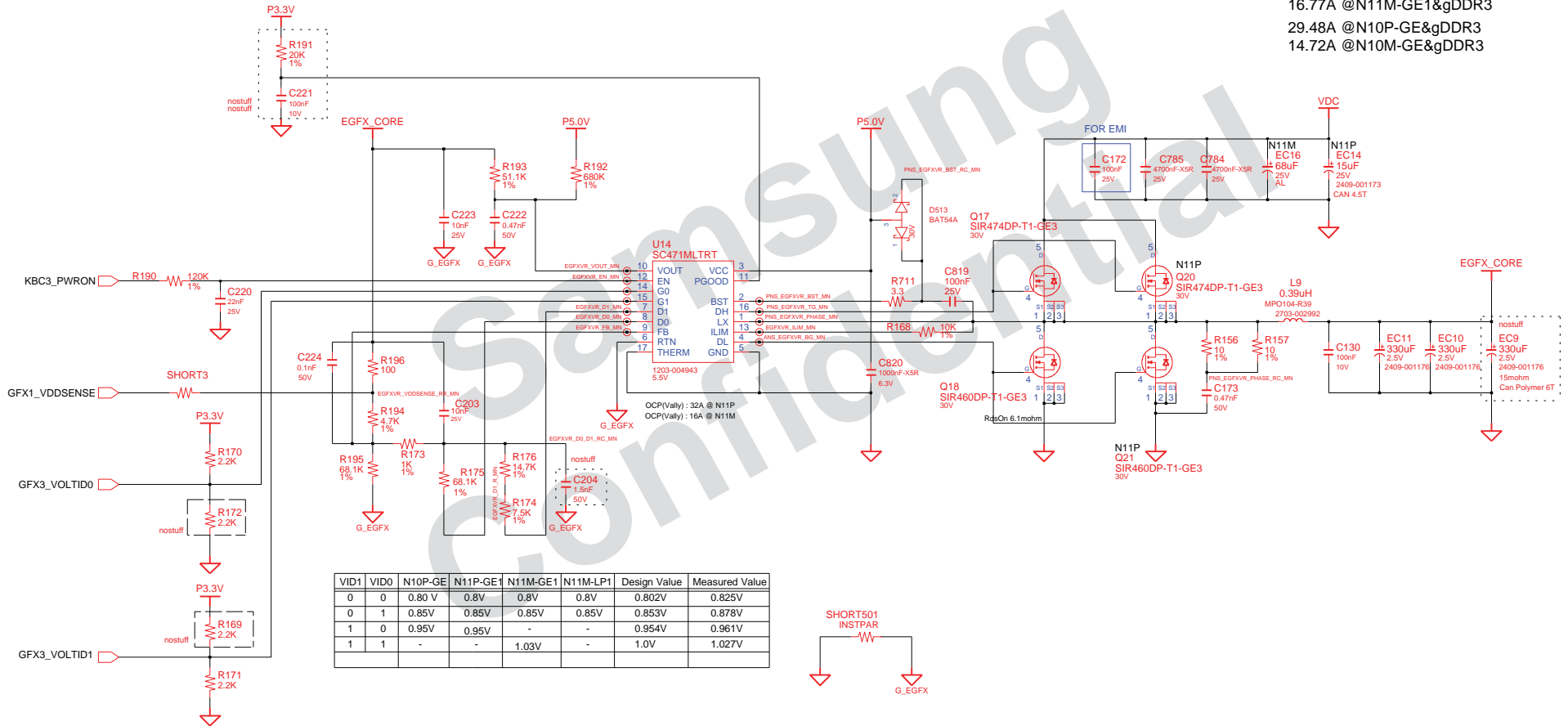
DRAW	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PWR_MEMORY		SAMSUNG ELECTRONICS
CHECK	SE LEE	DEV. STEP	PV	DDR3 POWER		PART NO. BA41-01174A	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	49 OF 56

CPU VRM (IMVP-6.5)



External Graphic Core Power

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

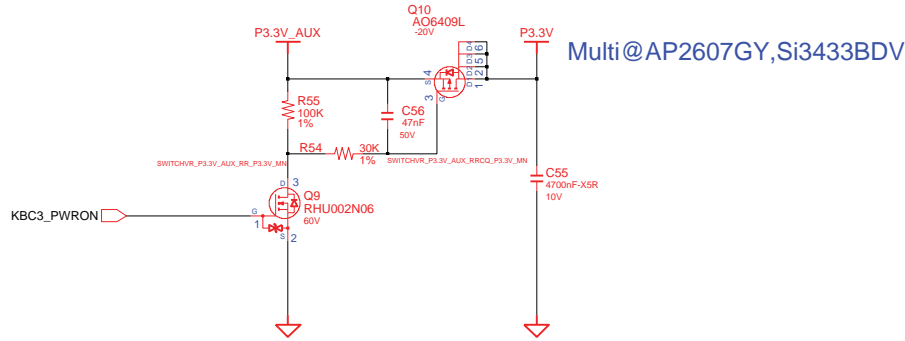


VID1	VID0	N10P-GE	N11P-GE1	N11M-GE1	N11M-LP1	Design Value	Measured Value
0	0	0.80 V	0.8V	0.8V	0.8V	0.802V	0.825V
0	1	0.85V	0.85V	0.85V	0.85V	0.853V	0.878V
1	0	0.95V	0.95V	-	-	0.954V	0.961V
1	1	-	-	1.03V	-	1.0V	1.027V

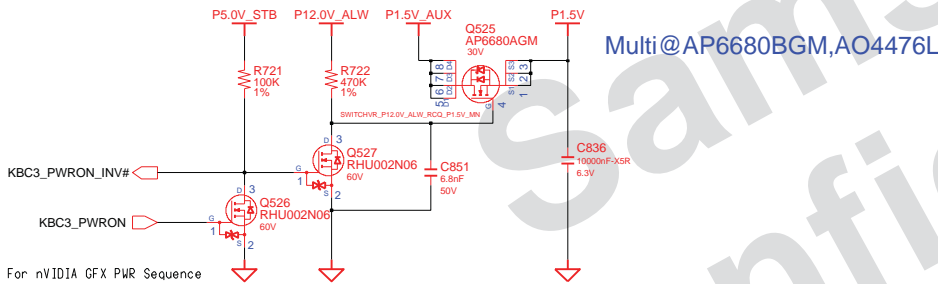
DESIGN	MS YANG	DATE	8/11/2009	TITLE	BREMEN-M PWR_GFX_MW_EXT	SAMSUNG ELECTRONICS PART NO. BA41-01174A
CHECK	SE LEE	DEV. STEP	PV	APPROVAL	External Graphic Power	
APPROVAL	MK KIM	REV	REV 0.9	MODULE CODE		
		LAST EDIT				
				October 20, 2009 21:30:55 PM	PAGE 51 OF 56	

Switched Power

Switched Power On (P3.3V)



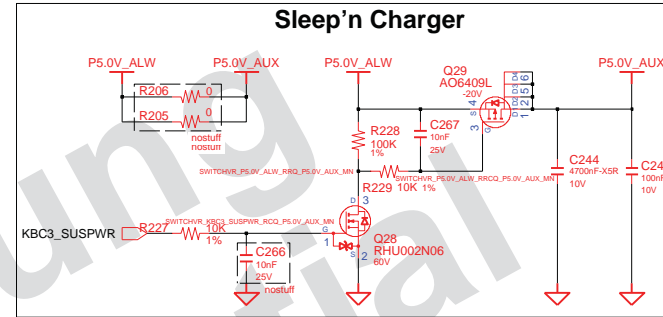
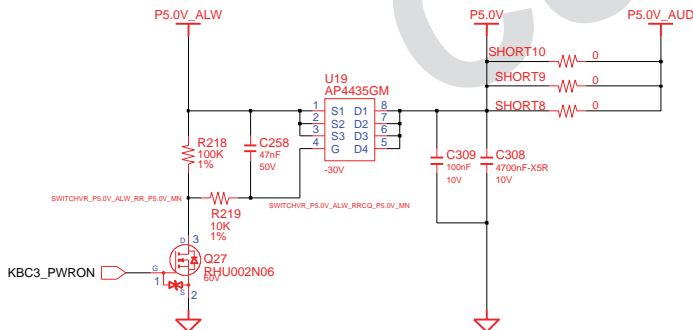
Switched Power On (P1.5V)



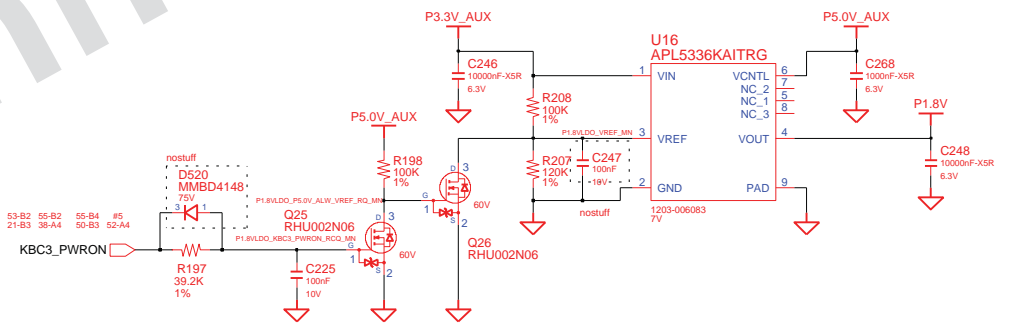
For nVIDIA GFX PWR Sequence

NVDD(EGFX_CORE) First and then FBVDD0(gDDR3)

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

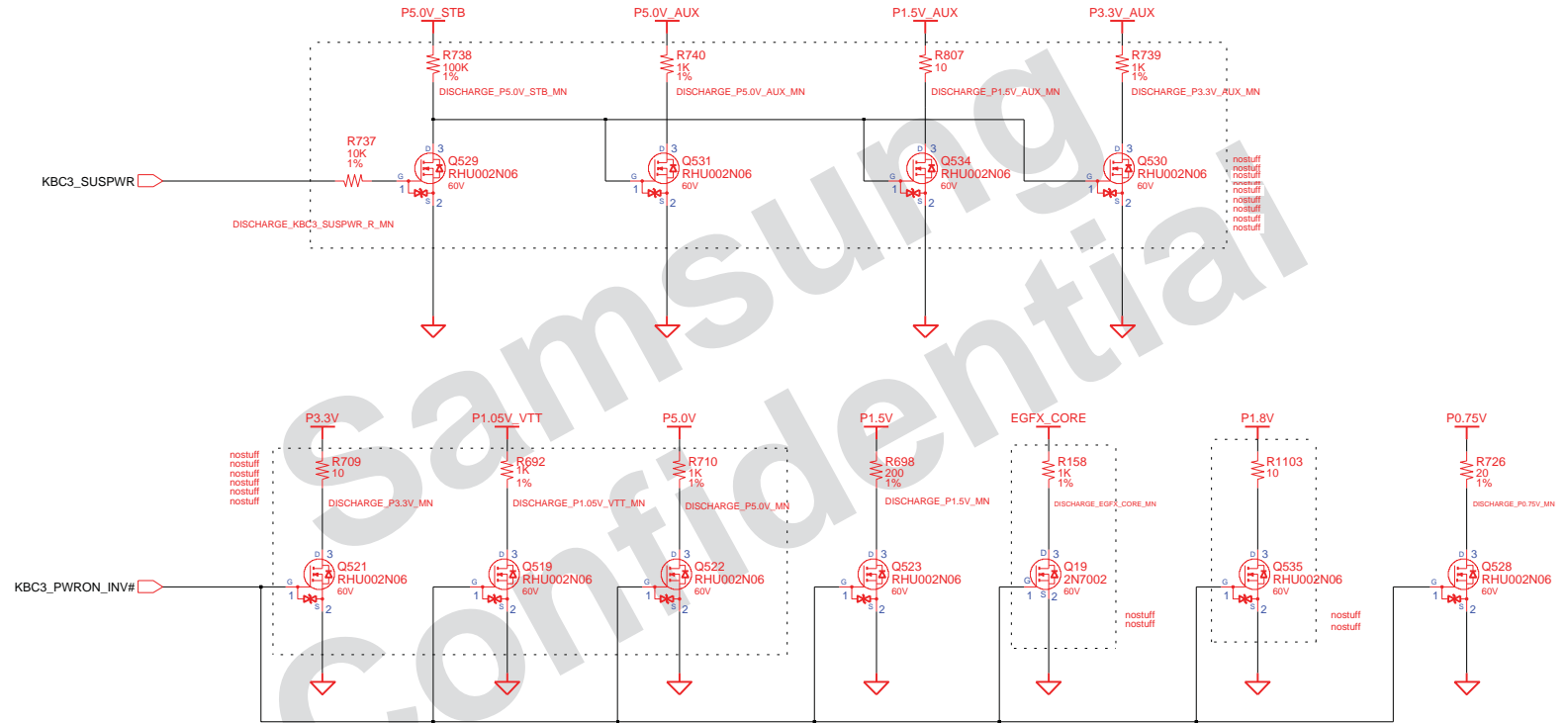


P1.8V(LDO)



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	October 20, 2009 21:30:55 PM		PAGE	52 OF 56
MODULE CODE	LAST EDIT						

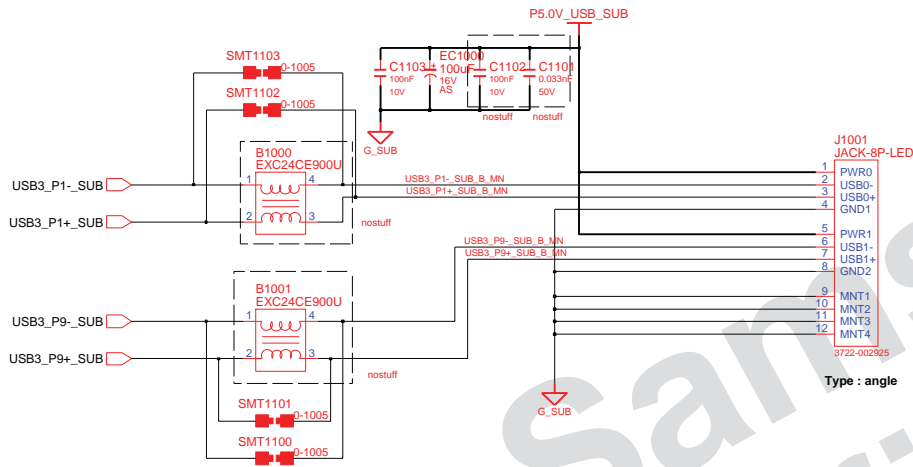
POWER DISCHARGER



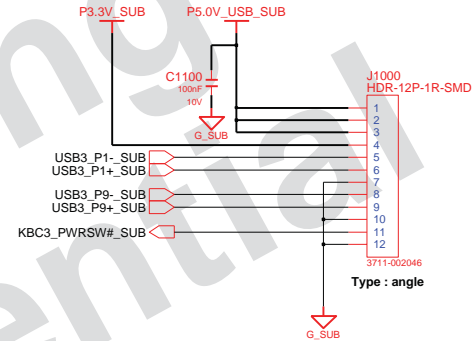
<http://hobi-elektronika.net>

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

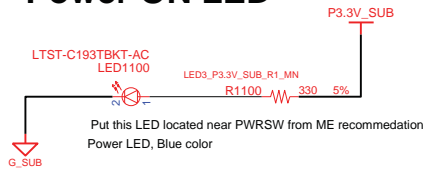
2 USB PORT & POWER S/W SUB B'D



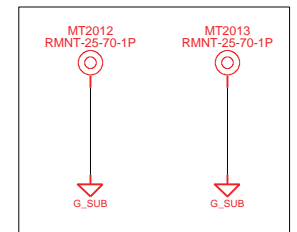
SUB TO MAIN USB CONN



Power ON LED



Power Button



USB sub board mount hole

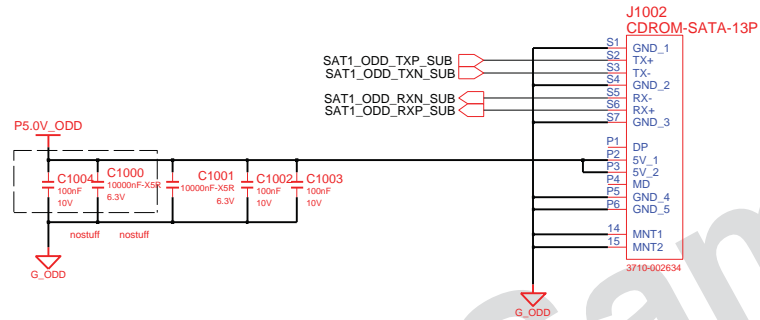
<http://hobi-elektronika.net>

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

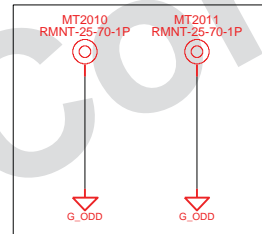
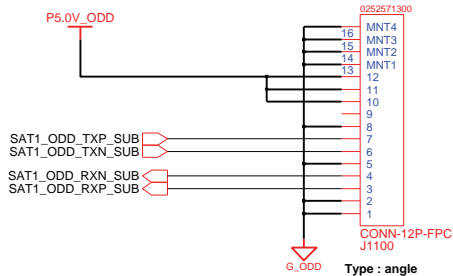
SATA ODD SUB BOARD

SATA ODD SUB BOARD

SATA ODD CONN

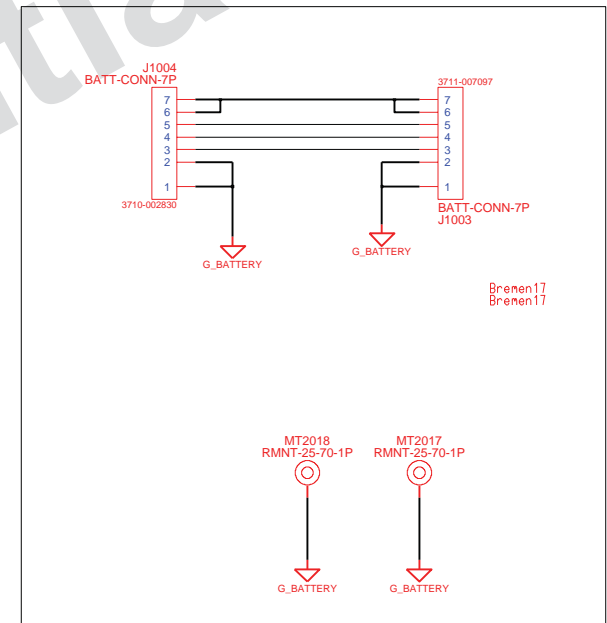


SUB TO MAIN SATA ODD CONN



ODD sub board mount hole

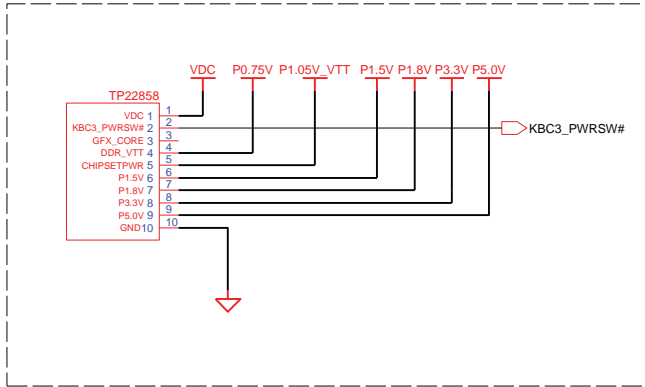
17" BATTERY SUBBOARD



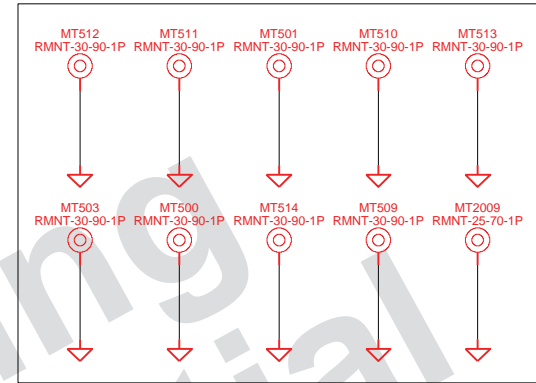
Bremen17
Bremen17

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	
APPROVAL	MK KIM	REV	REV 0.9				
MODULE CODE	undefined	LAST EDIT		October 20, 2009 21:30:55 PM		PAGE	55 OF 56

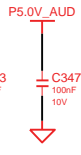
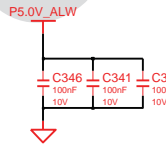
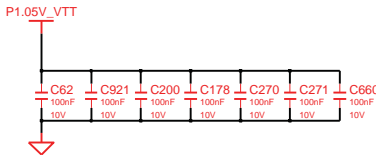
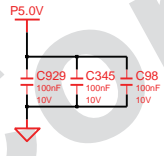
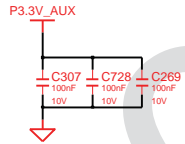
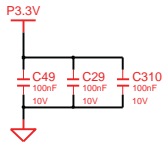
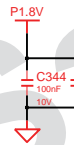
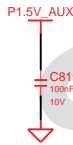
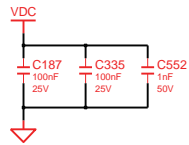
ICT PORT



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