

BREMEN2-L

CPU : Intel Arrandale
Chip Set : Intel Ibex Peak(HM55)
GFX : M92-XTX / Park-XT
Remarks : Calpella Platform

Model Name : BREMEN2-L
PBA Name : MAIN
PCB Code : BA41-01285A
BA41-01286A
BA41-01287A
Dev. Step : PR
Revision : 0.9
T.R. Date : 2010.04.25

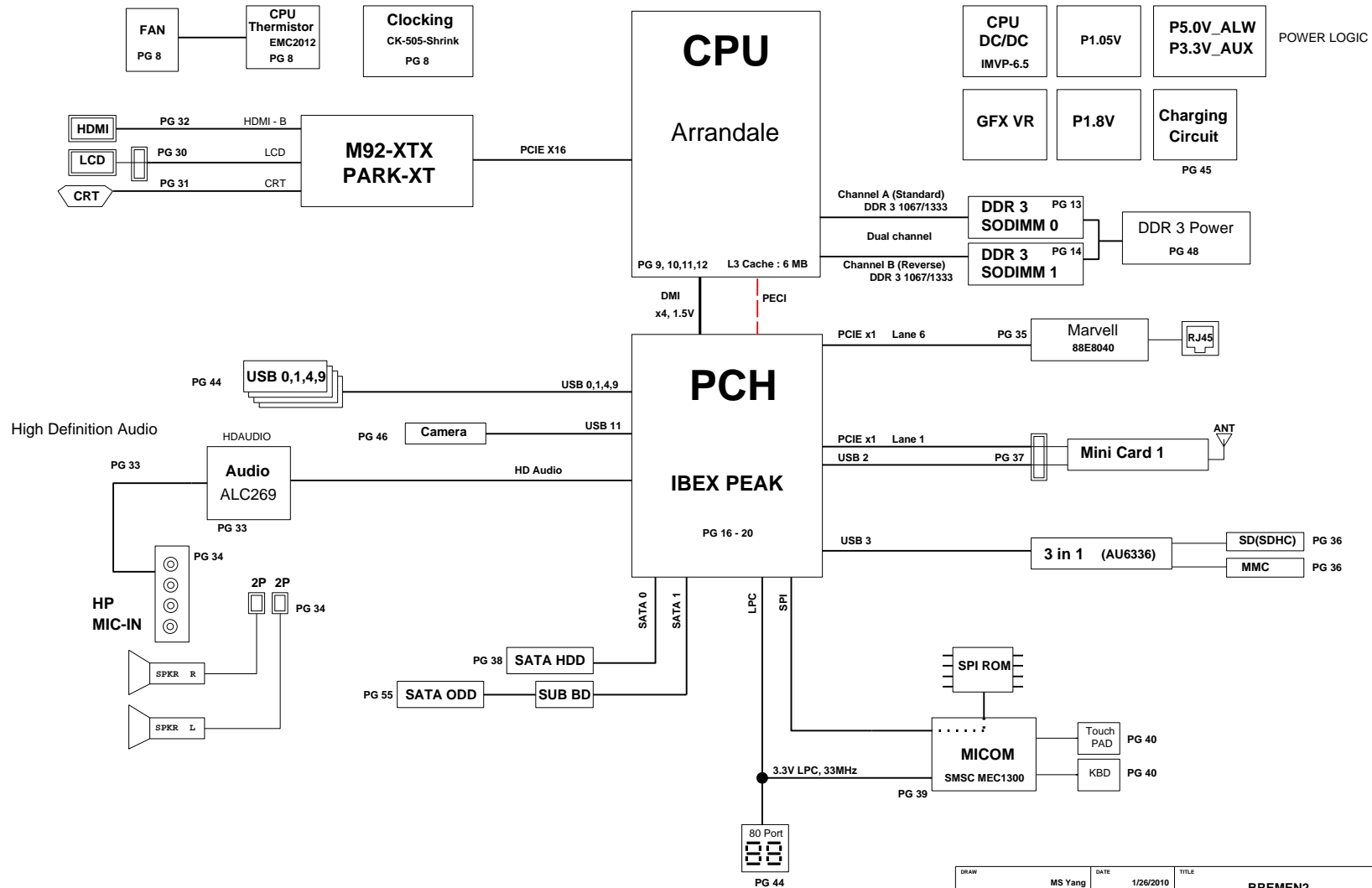
Design	CHECK	APPROVAL
MS Yang	SE Lee	MK Kim

Owner : SEC Mobile R & D Signature : X

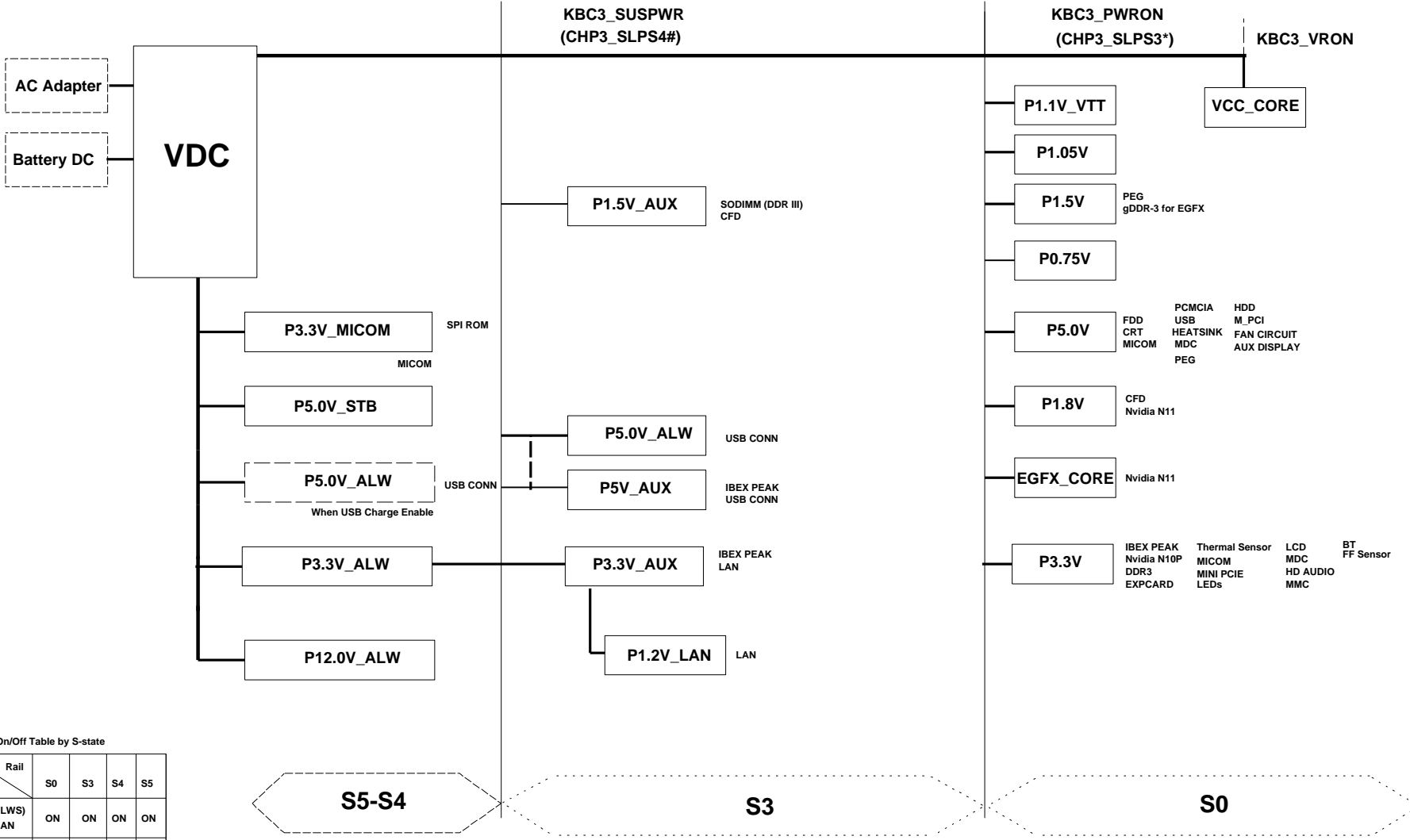
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DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2	SAMSUNG
CHECK	SE Lee	REV. STEP	ADV		MAIN	ELECTRONICS
APPROVAL	MK Kim	REV	REV 0.1		COVER	PART NO.
MODULE CODE		LAST EDIT				BA41-
				March 06, 2010 17:48:35 PM	PAGE	1 OF 54

BLOCK DIAGRAM



DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV			PART NO.
APPROVAL	MK Kim	REV	REV 0.1			BA41-
MODULE CODE	undefined	LAST EDIT				
				March 06, 2010 17:48:35 PM	PAGE	2 OF 54



Power On/Off Table by S-state

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

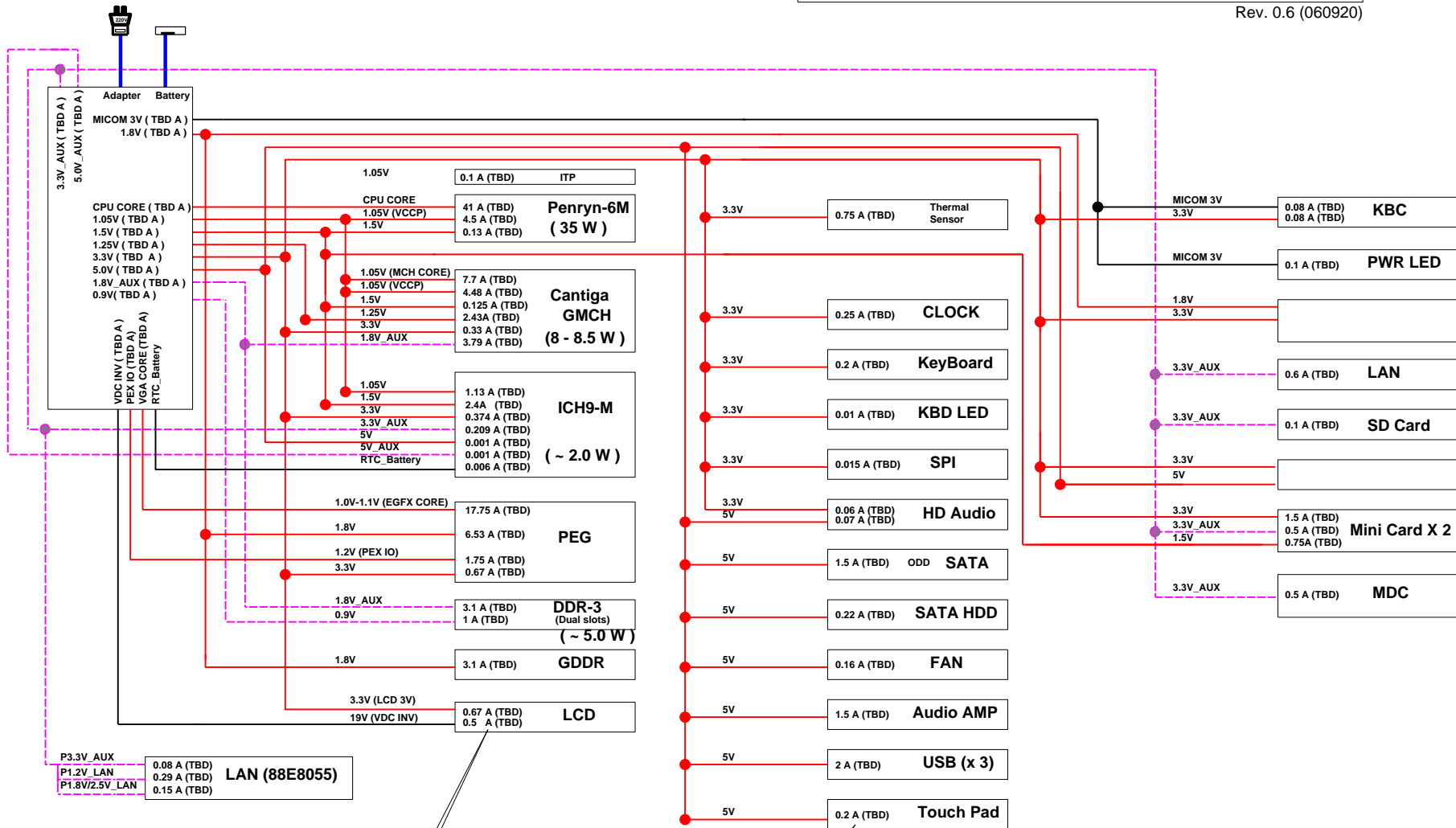


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POWER RAILS ANALYSIS

Rev. 0.6 (060920)

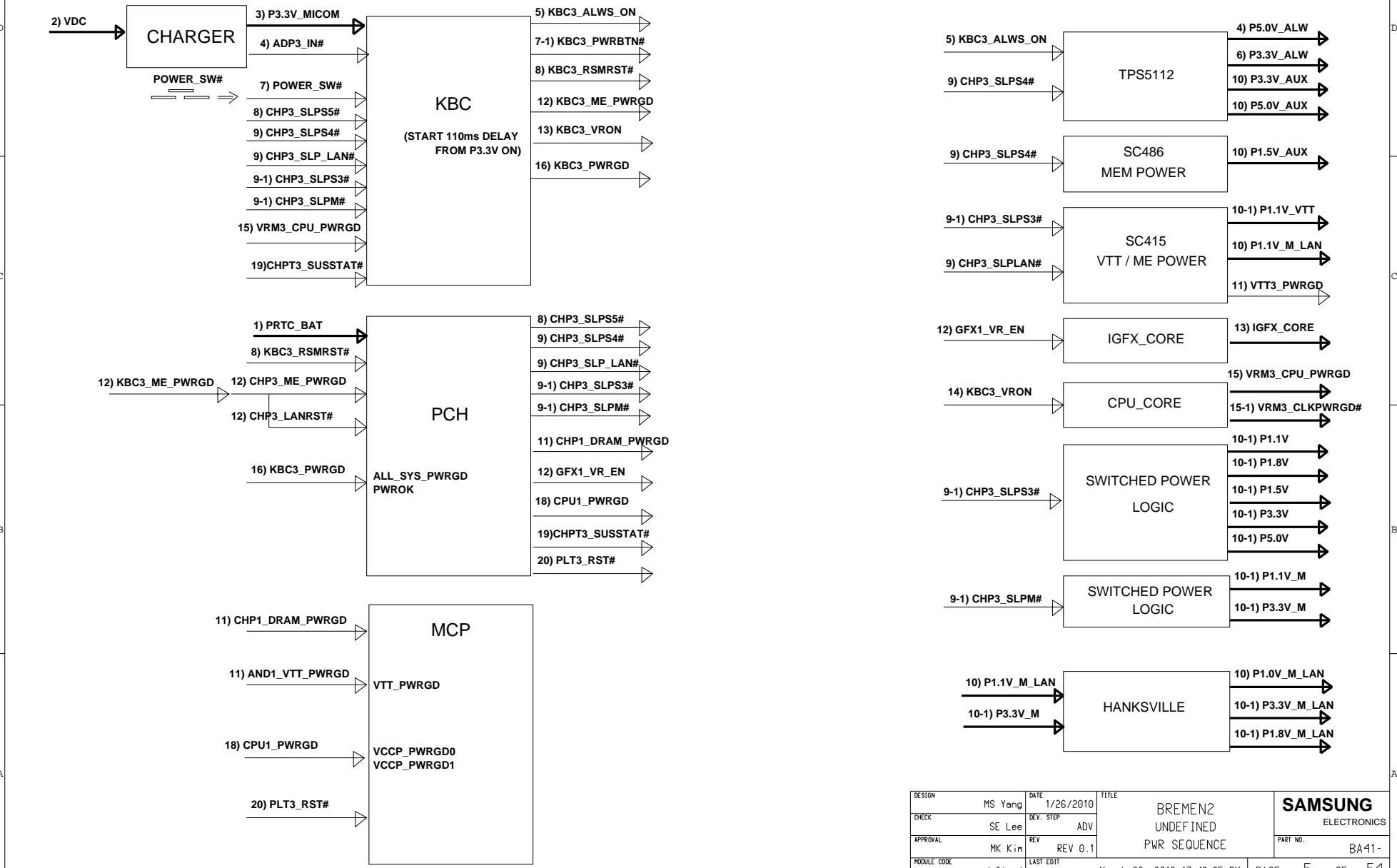


Value by Datasheet/Application notes (Value by measurement)

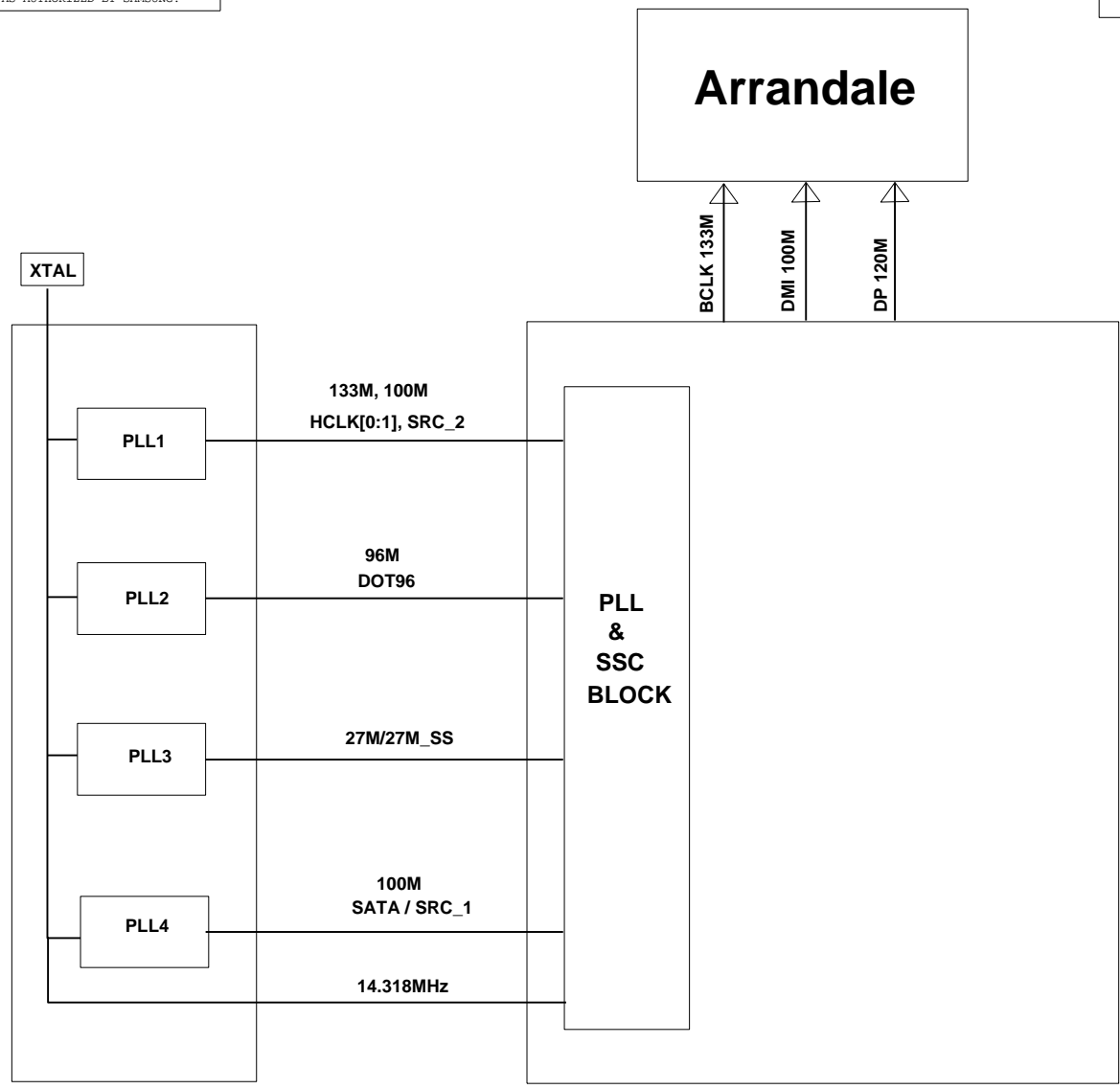
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APPROVAL	MK Kim	REV	REV 0.1			BA41-
MODULE CODE	undefined	LAST EDIT		March 06, 2010 17:48:35 PM	PAGE 4 OF 54	

PRELIMINARY

POWER SEQUENCE Rev. 0.5



DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 UNDEFINED PWR SEQUENCE	SAMSUNG ELECTRONICS
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APPROVAL	MK Kin	REV	REV 0.1			
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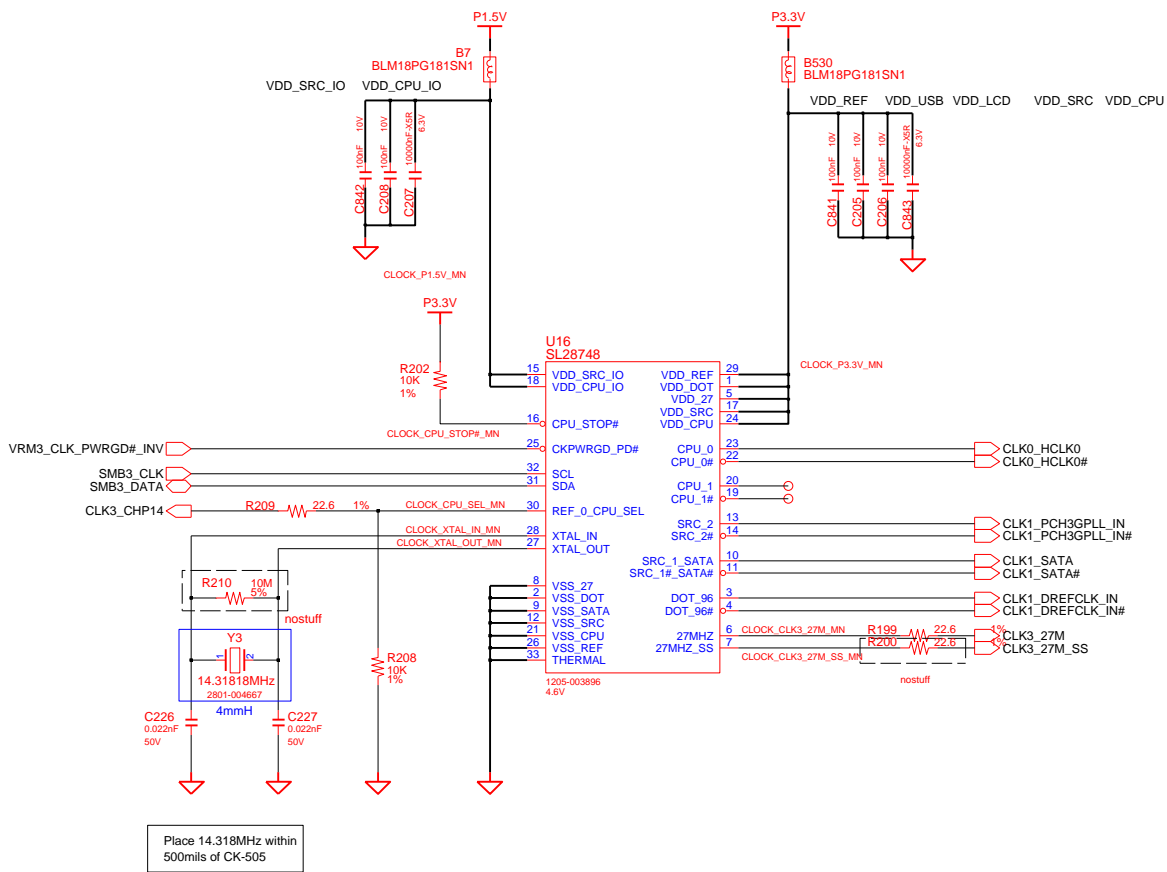


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APPROVAL	MK Kim	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	6	OF 54
MODULE CODE	undefined					

CK505M SHRINK VERSION

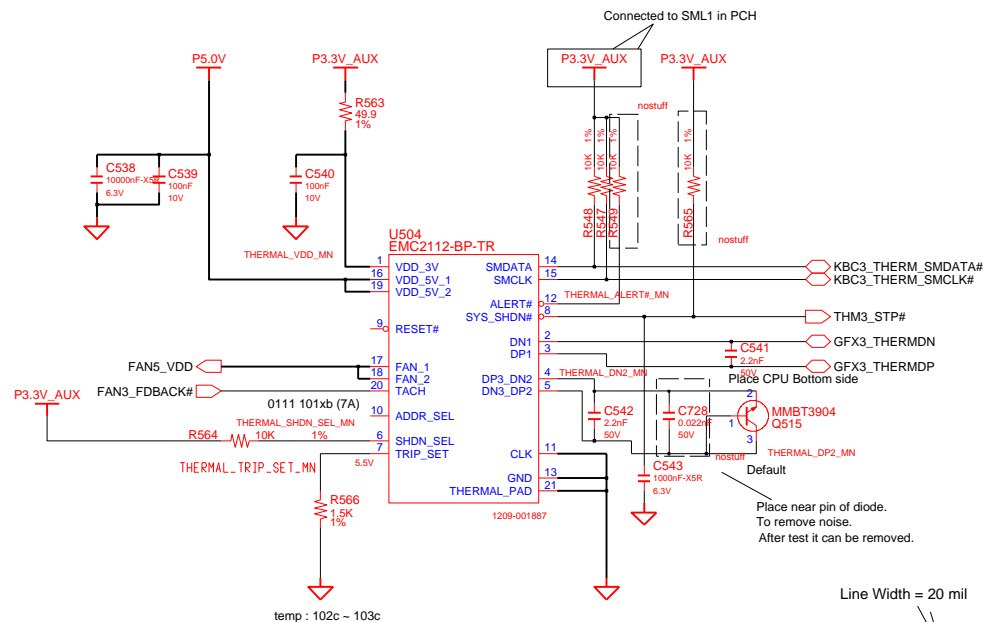
CPU_MODE SEL

Pin 30	CPU_0	CPU_1
CPU_SEL = 0	133MHz	133MHz



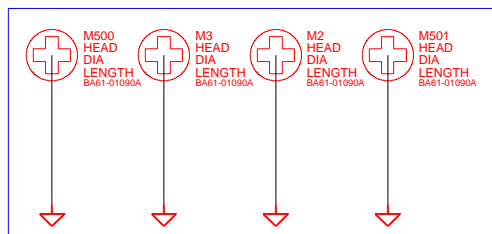
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APPROVAL	MK Kim	REV	REV 0.1	CK505-SHRINK		
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM			
PAGE 7 OF 54						PART NO. BA41-

THERMAL SENSOR & FAN CONTROL

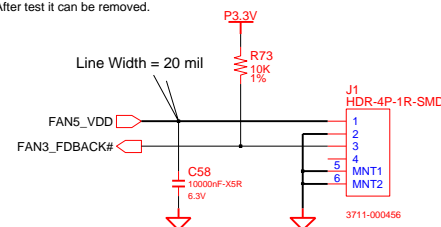


ADDRESSSEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

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



To support heatsink



ARRANDALE PROCESSOR (DMI,PEG, FDI)

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CPU1-1

ARD/CFD PGA

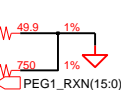
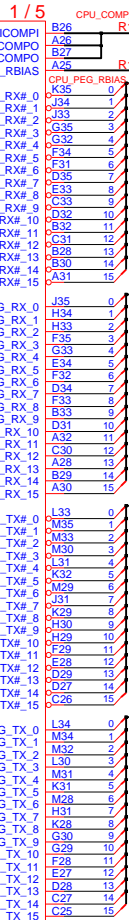
1 / 5

Intel(R) FDI

DMI

FDI

PCI EXPRESS -- GRAPHICS

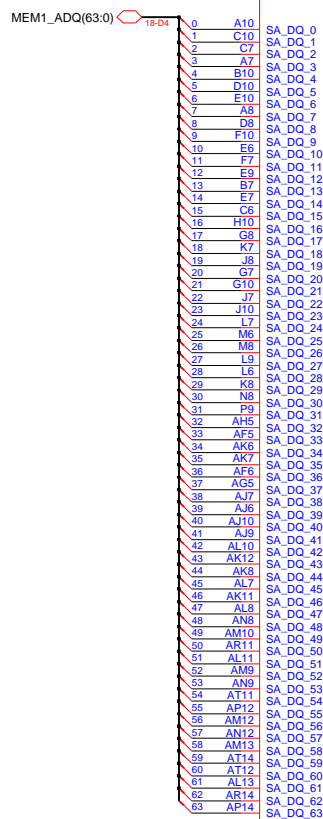


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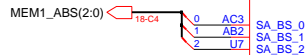
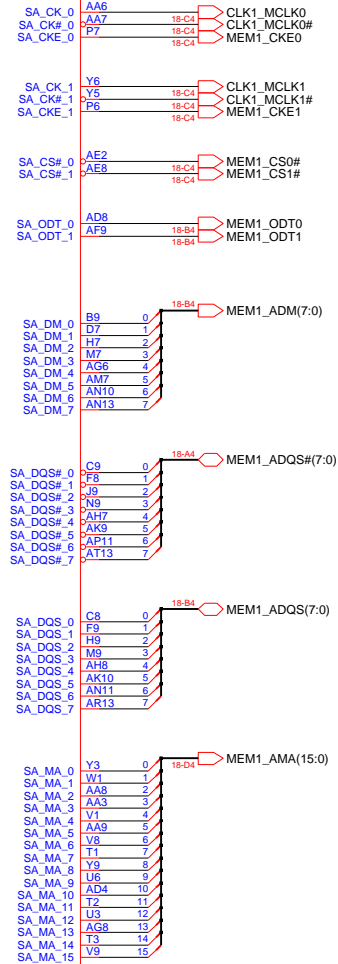
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CPU1-2
ARD/CFD_PGA

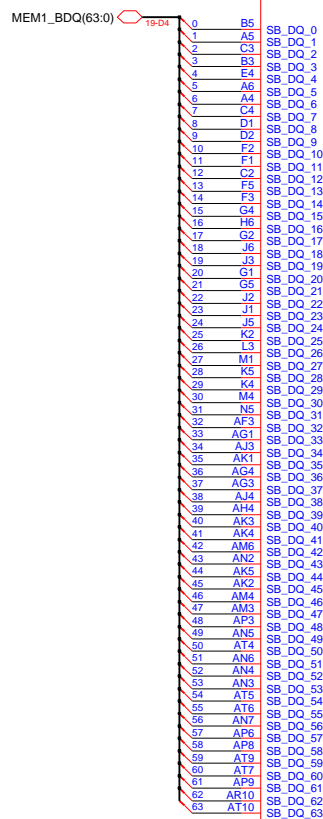
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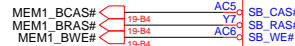
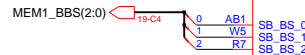
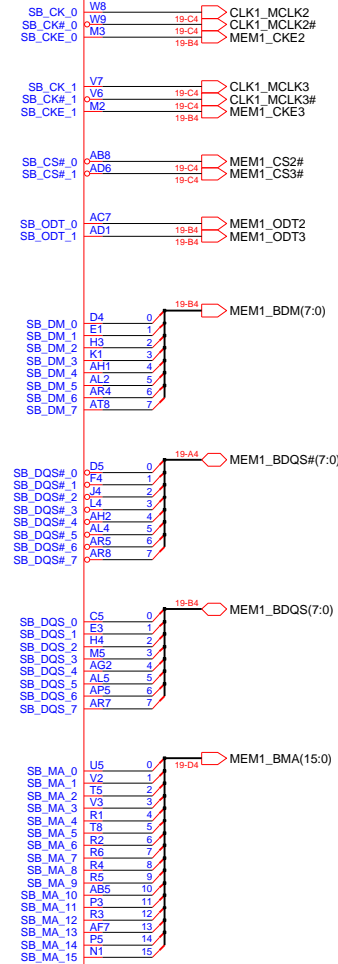
DDR SYSTEM MEMORY A



0902-002514

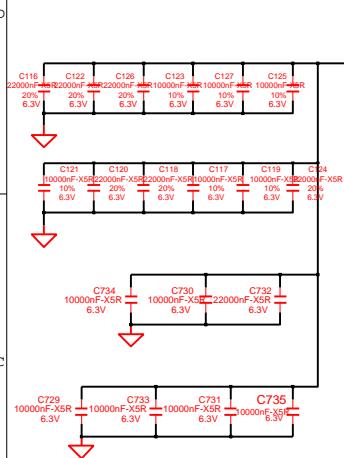


DDR SYSTEM MEMORY B

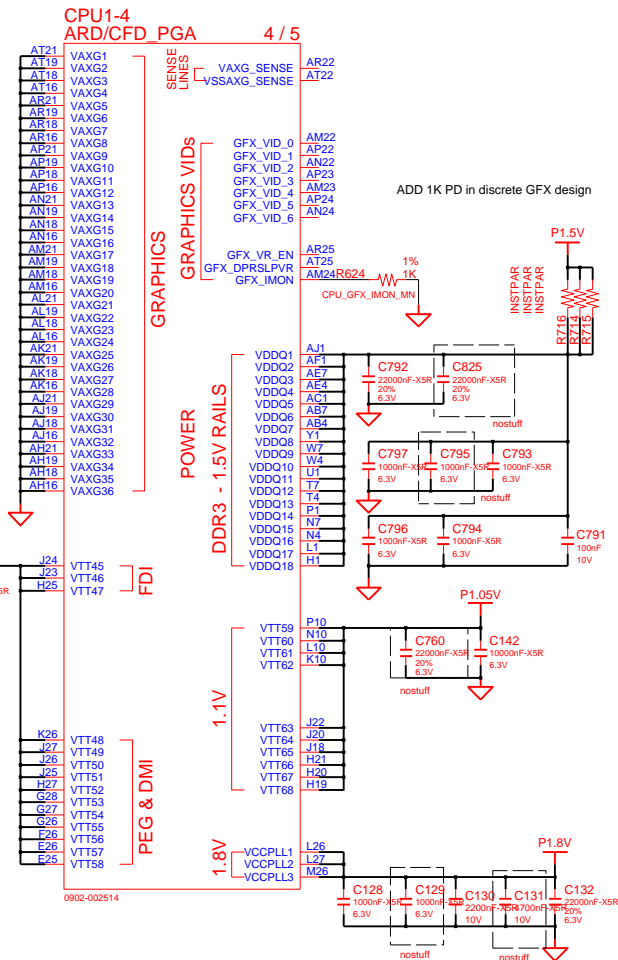
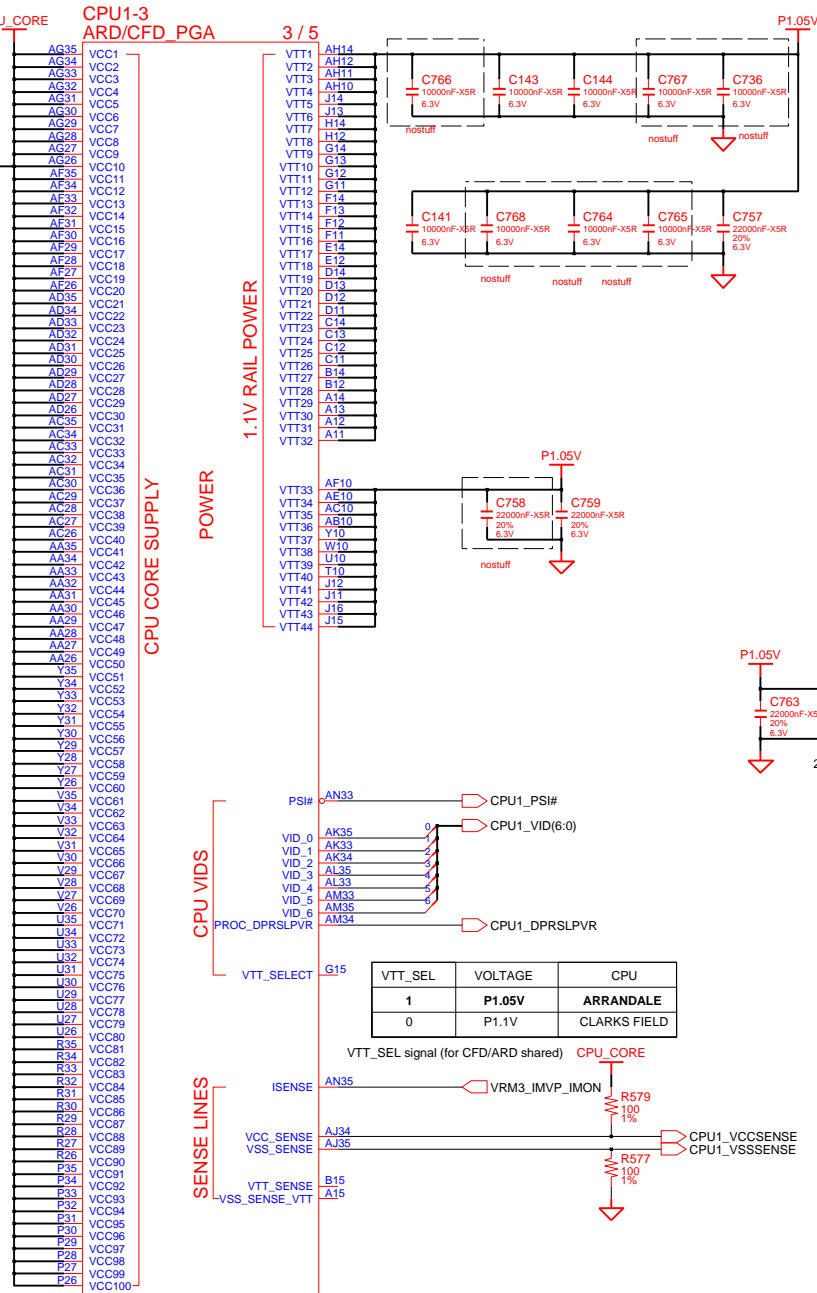


DRWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 CPU	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV	ARRANDALE (2/4)	PART NO.	
APPROVAL	REV	REV	REV 0.1		BA41-	
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	10 OF 54	

4x 470 μ F : CPU VR side



Stuff/NoStuff Check ?
(depends on placement)



DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 CPU	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			
APPROVAL	REV	REV 0.1	ARRANDALE (3/4)			
MODULE CODE	LAST EDIT					
						PART NO. BA41-

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CPU1-5
ARD/CFD_PG5 / 5

AT20	VSS1	VSS81	AE34
AT17	VSS2	VSS82	AE33
AR31	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
AR15	VSS10	VSS90	AE25
AR12	VSS11	VSS91	AE24
AR9	VSS12	VSS92	AE23
AR6	VSS13	VSS93	AE22
AR3	VSS14	VSS94	AE21
AP20	VSS15	VSS95	AE20
AP13	VSS16	VSS96	AE19
AP17	VSS17	VSS97	AE18
AP10	VSS18	VSS98	AE17
AP7	VSS19	VSS99	AE16
AP4	VSS20	VSS100	AE15
AP2	VSS21	VSS101	AE14
AN34	VSS22	VSS102	AE13
AN31	VSS23	VSS103	AE12
AN23	VSS24	VSS104	AE11
AN20	VSS25	VSS105	AE10
AN17	VSS26	VSS106	AE9
AM29	VSS27	VSS107	AE8
AM27	VSS28	VSS108	AE7
AM25	VSS29	VSS109	AE6
AM20	VSS30	VSS110	AE5
AM17	VSS31	VSS111	AE4
AM14	VSS32	VSS112	AE3
AM11	VSS33	VSS113	AE2
AM8	VSS34	VSS114	AE1
AM5	VSS35	VSS115	AE0
AM2	VSS36	VSS116	AE-1
AL34	VSS37	VSS117	AE-2
AL31	VSS38	VSS118	AE-3
AL23	VSS39	VSS119	AE-4
AL20	VSS40	VSS120	AE-5
AL17	VSS41	VSS121	AE-6
AL12	VSS42	VSS122	AE-7
AL9	VSS43	VSS123	AE-8
AL6	VSS44	VSS124	AE-9
AL3	VSS45	VSS125	AE-10
AK29	VSS46	VSS126	AE-11
AK27	VSS47	VSS127	AE-12
AK25	VSS48	VSS128	AE-13
AK20	VSS49	VSS129	AE-14
AK17	VSS50	VSS130	AE-15
AJ31	VSS51	VSS131	AE-16
AJ23	VSS52	VSS132	AE-17
AJ20	VSS53	VSS133	AE-18
AJ17	VSS54	VSS134	AE-19
AJ14	VSS55	VSS135	AE-20
AJ11	VSS56	VSS136	AE-21
AJ8	VSS57	VSS137	AE-22
AJ5	VSS58	VSS138	AE-23
AJ2	VSS59	VSS139	AE-24
AH35	VSS60	VSS140	AE-25
AH34	VSS61	VSS141	AE-26
AH33	VSS62	VSS142	AE-27
AH32	VSS63	VSS143	AE-28
AH31	VSS64	VSS144	AE-29
AH30	VSS65	VSS145	AE-30
AH29	VSS66	VSS146	AE-31
AH28	VSS67	VSS147	AE-32
AH27	VSS68	VSS148	AE-33
AH26	VSS69	VSS149	AE-34
AH20	VSS70	VSS150	AE-35
AH17	VSS71	VSS151	AE-36
AH13	VSS72	VSS152	AE-37
AH9	VSS73	VSS153	AE-38
AH6	VSS74	VSS154	AE-39
AH3	VSS75	VSS155	AE-40
AG10	VSS76	VSS156	AE-41
AF9	VSS77	VSS157	AE-42
AF4	VSS78	VSS158	AE-43
AF2	VSS79	VSS159	AE-44
AE35	VSS80	VSS160	AE-45

0902-002514

K27	VSS161	AE34
K9	VSS162	AE33
K6	VSS163	AE32
K3	VSS164	AE31
J32	VSS165	AE30
J30	VSS166	AE29
J21	VSS167	AE28
J19	VSS168	AE27
H35	VSS169	AE26
H32	VSS170	AE25
H28	VSS171	AE24
H26	VSS172	AE23
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H22	VSS174	AE21
H18	VSS175	AE20
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H11	VSS177	AE18
H8	VSS178	AE17
H5	VSS179	AE16
H2	VSS180	AE15
G34	VSS181	AE14
G31	VSS182	AE13
G20	VSS183	AE12
G9	VSS184	AE11
G6	VSS185	AE10
G3	VSS186	AE9
F30	VSS187	AE8
F27	VSS188	AE7
F25	VSS189	AE6
F22	VSS190	AE5
F19	VSS191	AE4
F16	VSS192	AE3
F13	VSS193	AE2
F11	VSS194	AE1
E32	VSS195	AE0
E29	VSS196	AE-1
E24	VSS197	AE-2
E21	VSS198	AE-3
E16	VSS199	AE-4
E13	VSS200	AE-5
E11	VSS201	AE-6
E8	VSS202	AE-7
E5	VSS203	AE-8
E2	VSS204	AE-9
D33	VSS205	AE-10
D30	VSS206	AE-11
D26	VSS207	AE-12
D9	VSS208	AE-13
D6	VSS209	AE-14
D3	VSS210	AE-15
C34	VSS211	AE-16
C32	VSS212	AE-17
C29	VSS213	AE-18
C28	VSS214	AE-19
C24	VSS215	AE-20
C22	VSS216	AE-21
C20	VSS217	AE-22
C19	VSS218	AE-23
C16	VSS219	AE-24
B31	VSS220	AE-25
B25	VSS221	AE-26
B21	VSS222	AE-27
B18	VSS223	AE-28
B17	VSS224	AE-29
B13	VSS225	AE-30
B11	VSS226	AE-31
B8	VSS227	AE-32
B6	VSS228	AE-33
B4	VSS229	AE-34
A29	VSS230	AE-35
A27	VSS231	AE-36
A23	VSS232	AE-37
A9	VSS233	AE-38

NCTF

VSS_NCTF1

VSS_NCTF2

VSS_NCTF3

VSS_NCTF4

VSS_NCTF5

VSS_NCTF6

VSS_NCTF7

AT35

AT1

AR34

B34

B2

B1

A35

VSS_NCTF7

VSS_NCTF7

VSS_NCTF7

VSS_NCTF7

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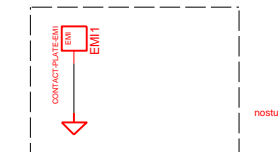
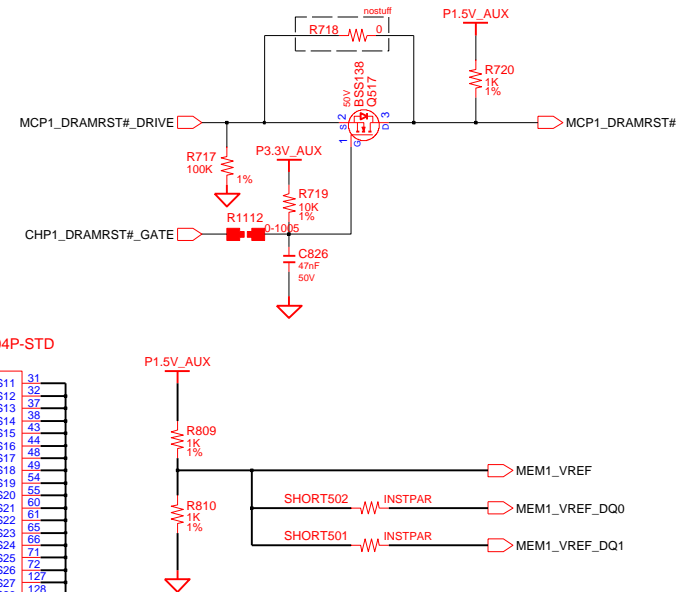
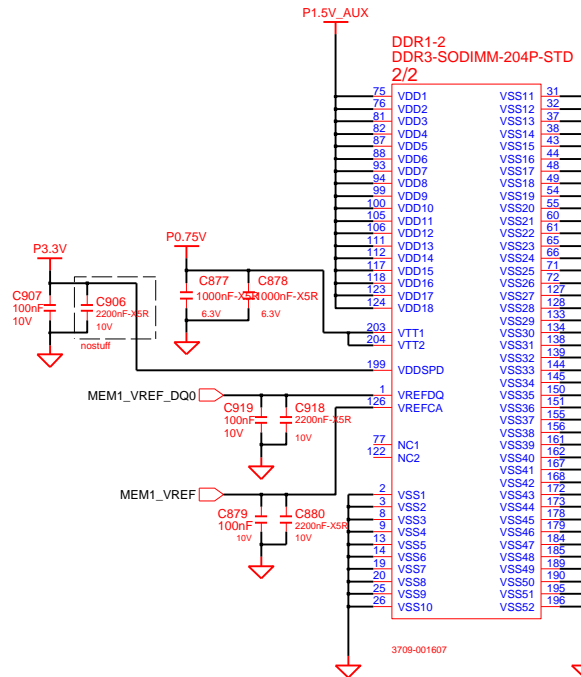
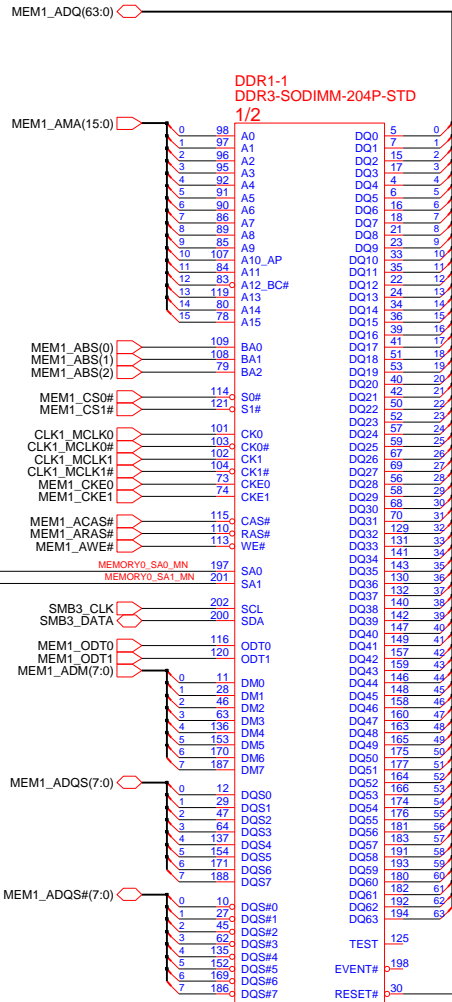
V

DDR SO-DIMM #0

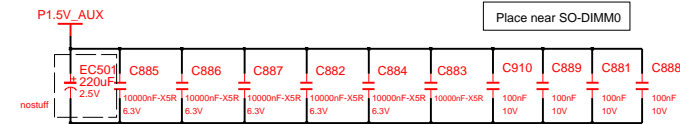
Height : 4 mm (STANDARD)

P/N : 3709-001532 (Molex)

P/N : 3709-001560 (Foxconn)



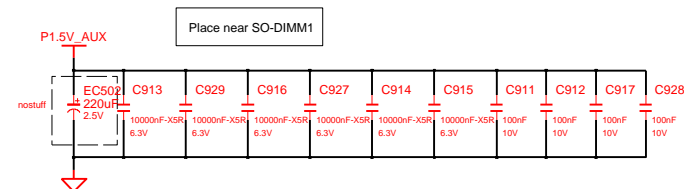
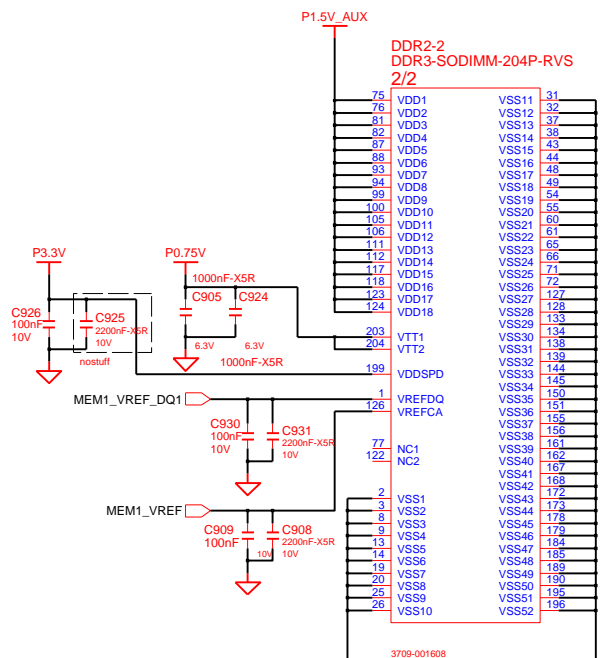
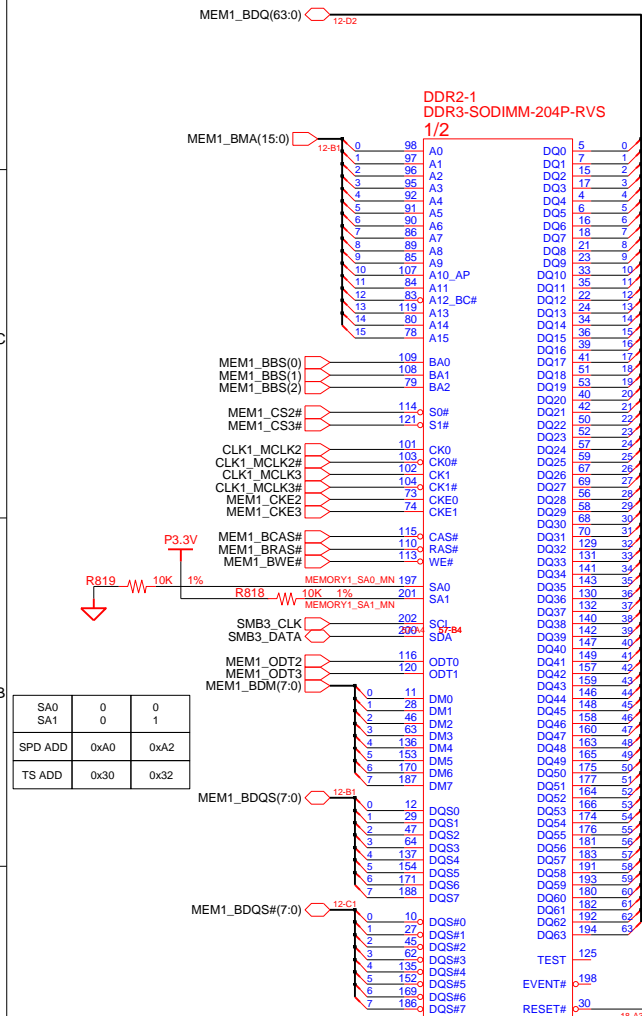
Place near SO-DIMM



DRAW	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 SODIMM A DDR3	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			PART NO. BA41-
APPROVAL	MK Kim	REV	REV 0.1			
MODULE CODE	undefined	LAST EDIT		March 06, 2010 17:48:35 PM	PAGE	13 OF 54

DDR SO-DIMM #1

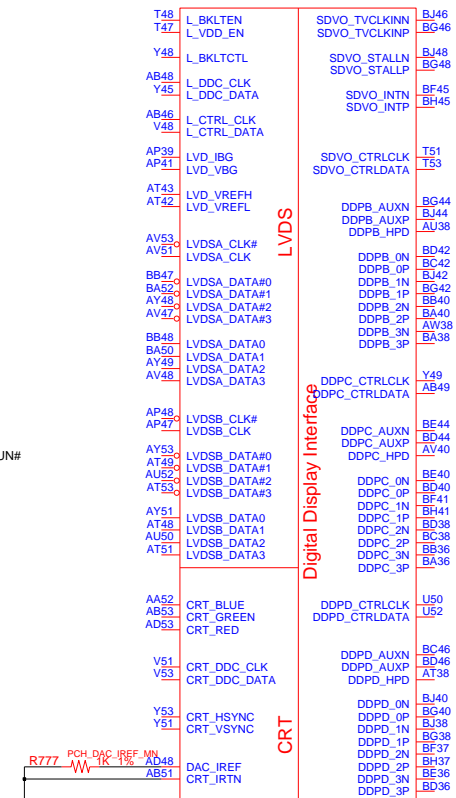
Height : 4 mm (REVERSE)
P/N : 3709-001533 (Molex)
P/N : 3709-001559 (Foxconn)



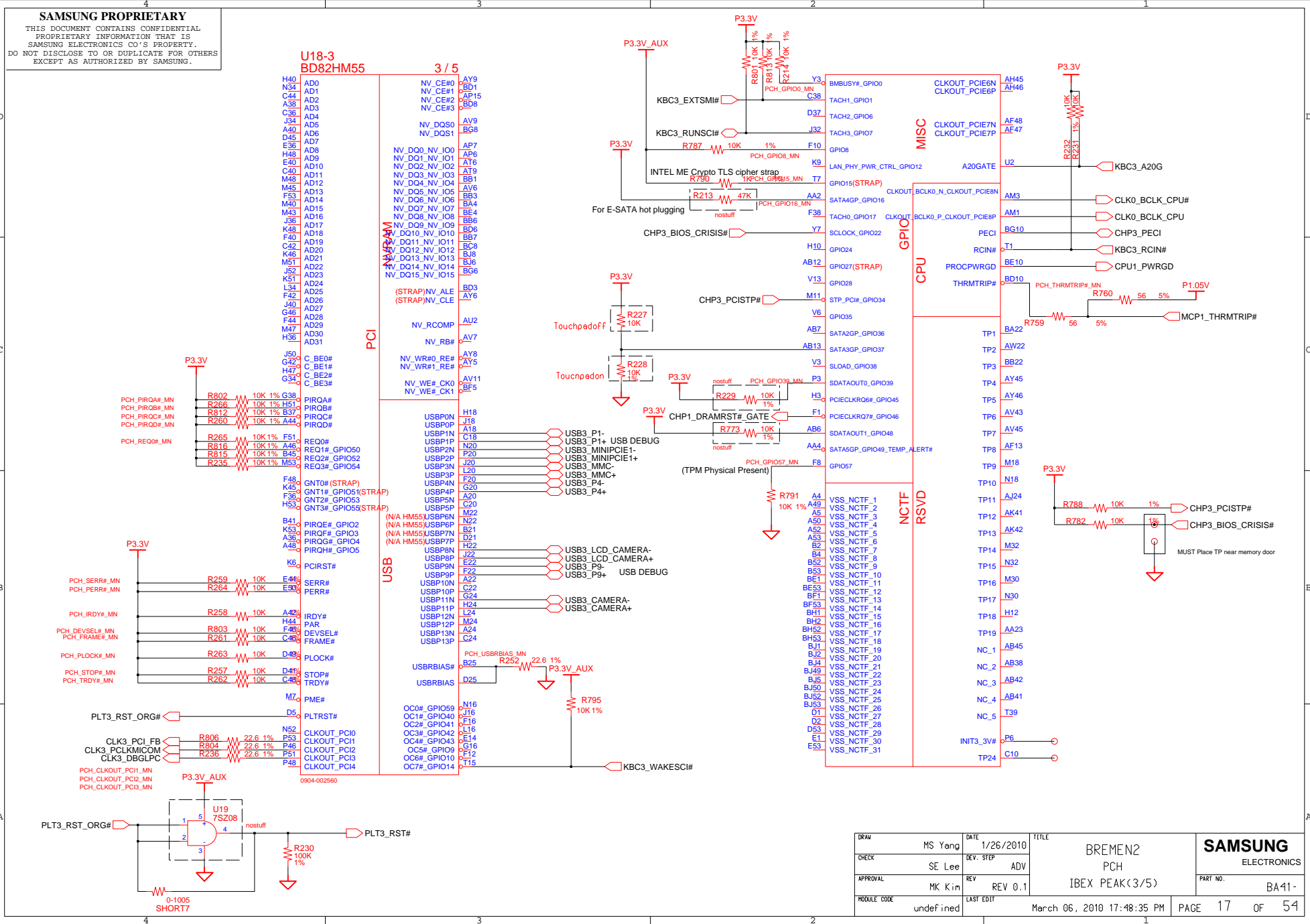
DRAW	MS Yang	DATE	1/26/2010	TITLE BREMEN2 SODIMM B DDR3	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV		
APPROVAL	MK Kim	REV	REV 0.1		
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM		
				PAGE	14 OF 54

[illegible]

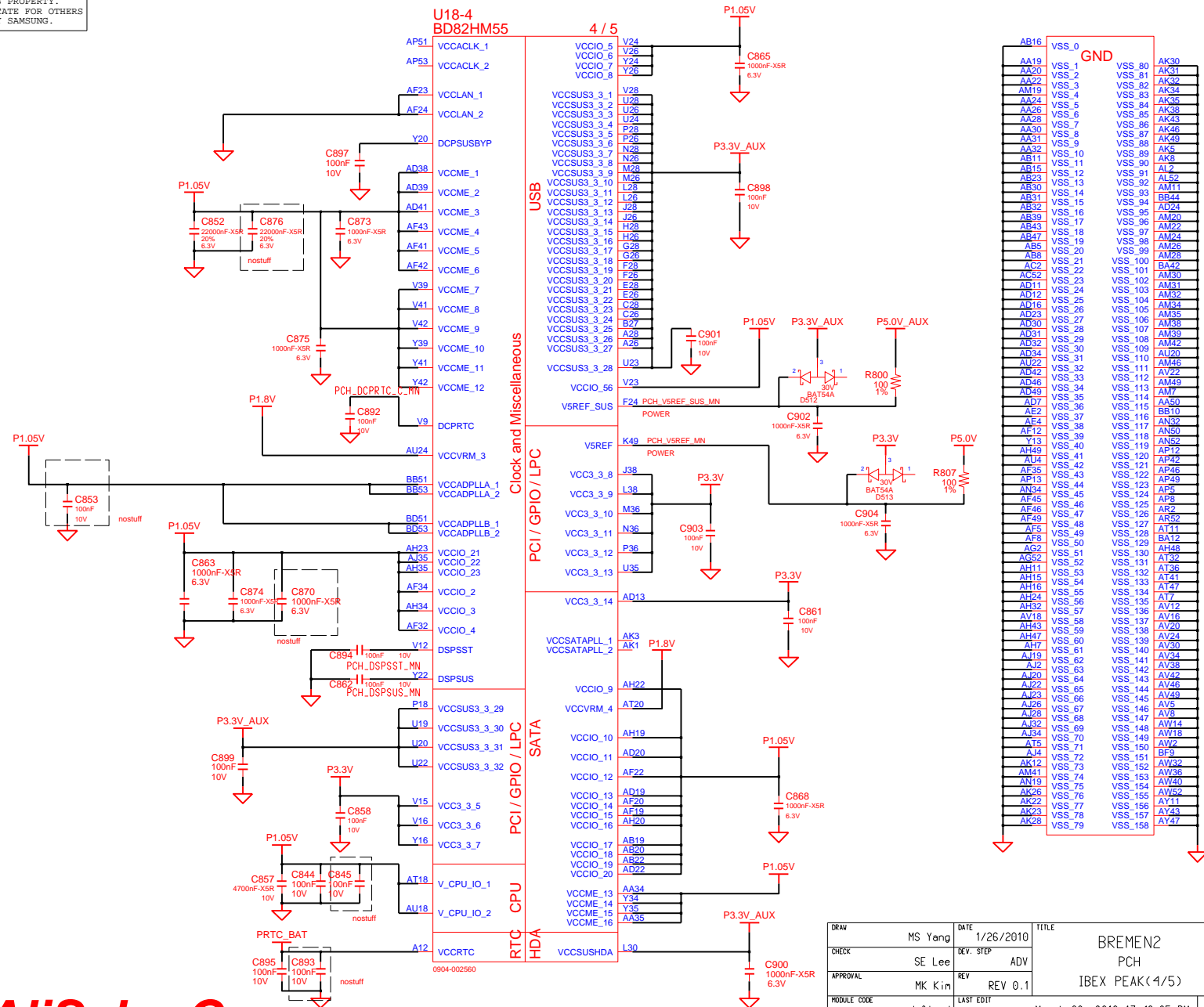
DRAW	MS Yang	DATE	1/26/2010	TITLE BREMEN2 PCH IBEX PEAK(1/5)	SAMSUNG ELECTRONICS				
CHECK	SE Lee	DEV. STEP	ADV		PART NO.	15	OF		
APPROVAL	MK Kim	REV	REV 0.1						
MODULE CODE		undefined		LAST EDIT March 06, 2010 17:48:35 PM		PAGE	15	OF	54



DRAW	MS Yang	DATE	1/26/2010	TITLE BREMEN2 PCH IBEX PEAK(2/5)	SAMSUNG ELECTRONICS			
CHECK	SE Lee	DEV. STEP	ADV		PART NO.	BA41-		
APPROVAL	MK Kim	REV	REV 0.1					
MODULE CODE	LAST EDIT							
				March 06, 2010 17:48:35 PM	PAGE	16	OF	54

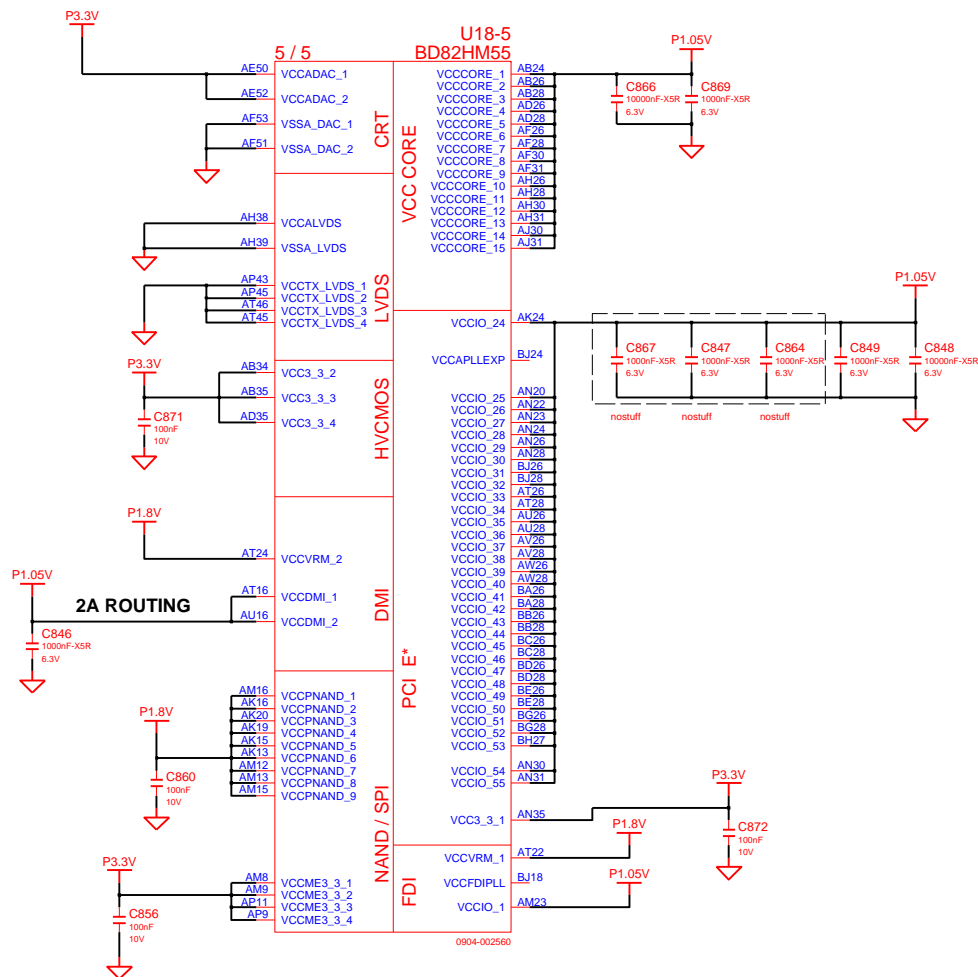
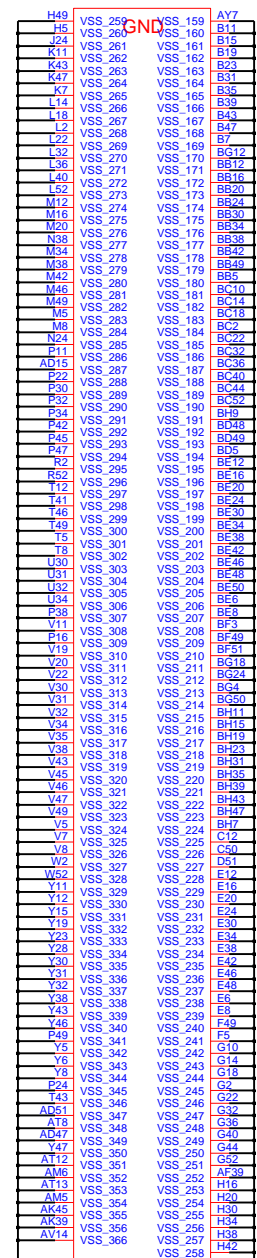


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DRAW	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 PCH IBEX PEAK(4/5)	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			
APPROVAL	MK Kim	REV	REV 0.1			
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM			
				PAGE	18	OF 604

This power share with thermal sensor

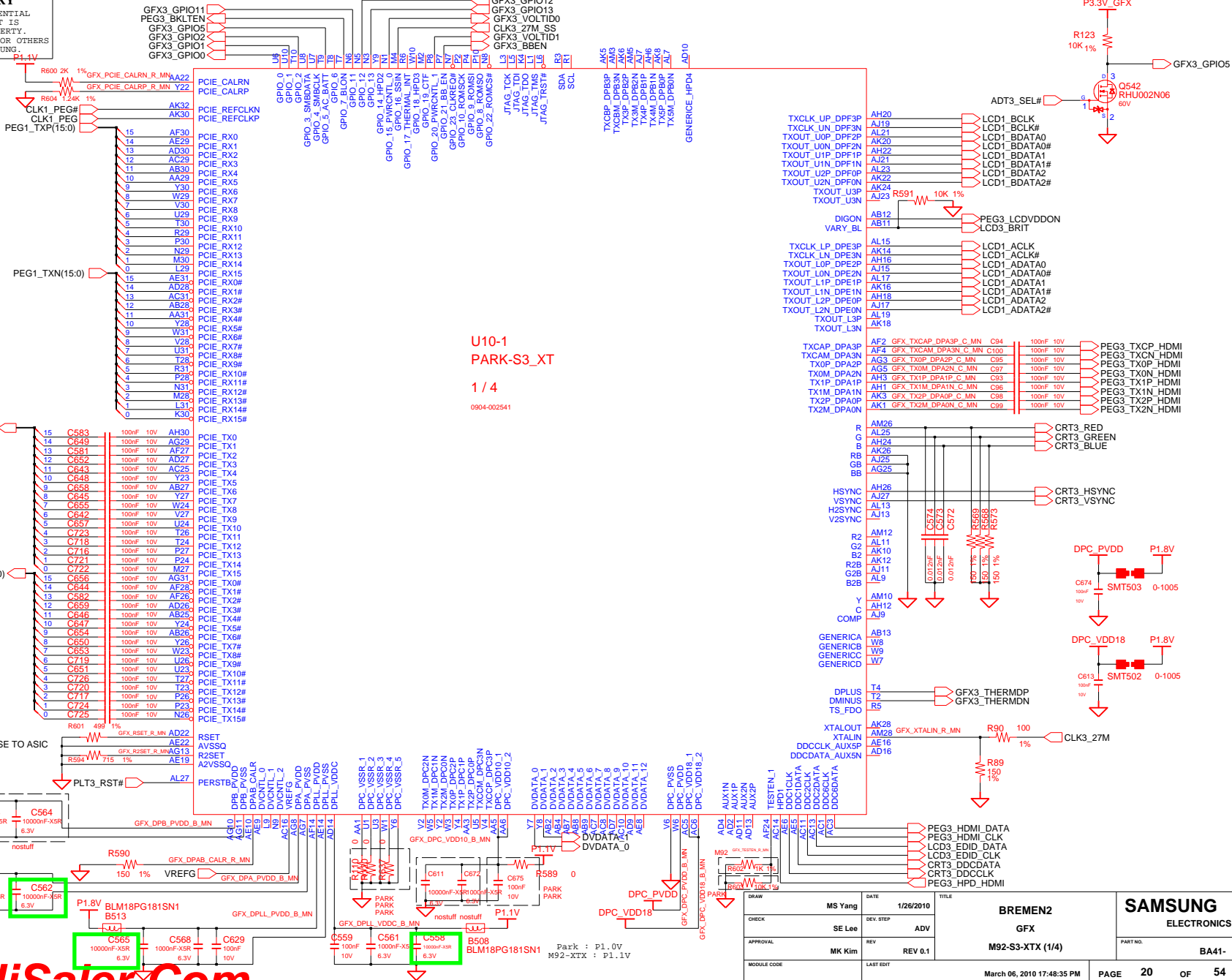


DRAW	MS Yang	DATE	1/26/2010	BREMEN2 PCH IBEX PEAK(5/5)	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV		
APPROVAL	MK Kim	REV	REV 0.1		
PART NO. BA41-					
MODULE CODE	undefined	LAST EDIT		March 06, 2010 17:48:35 PM	PAGE 19 OF 54

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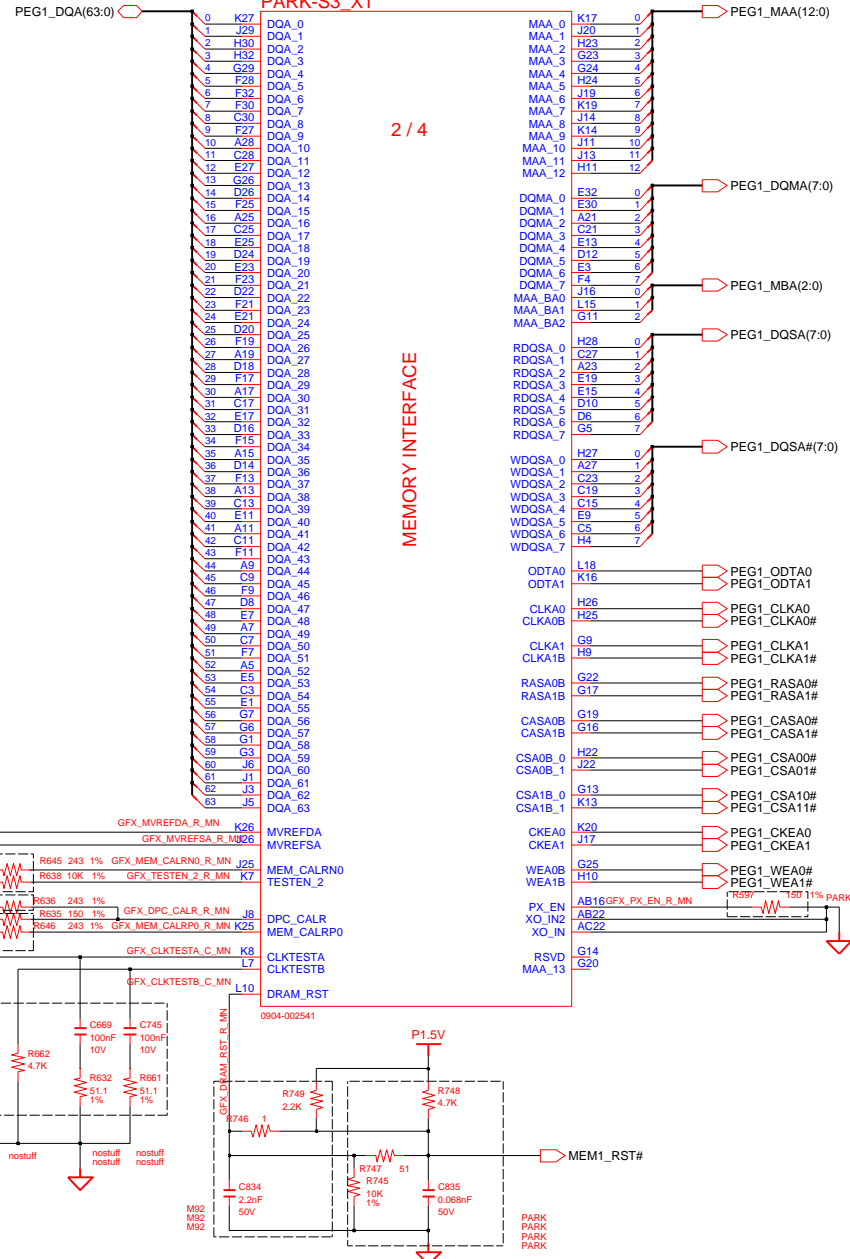
Park : P1.0V
M92-XTX : P1.1V



U10-2
PARK-S3_XT

2 / 4

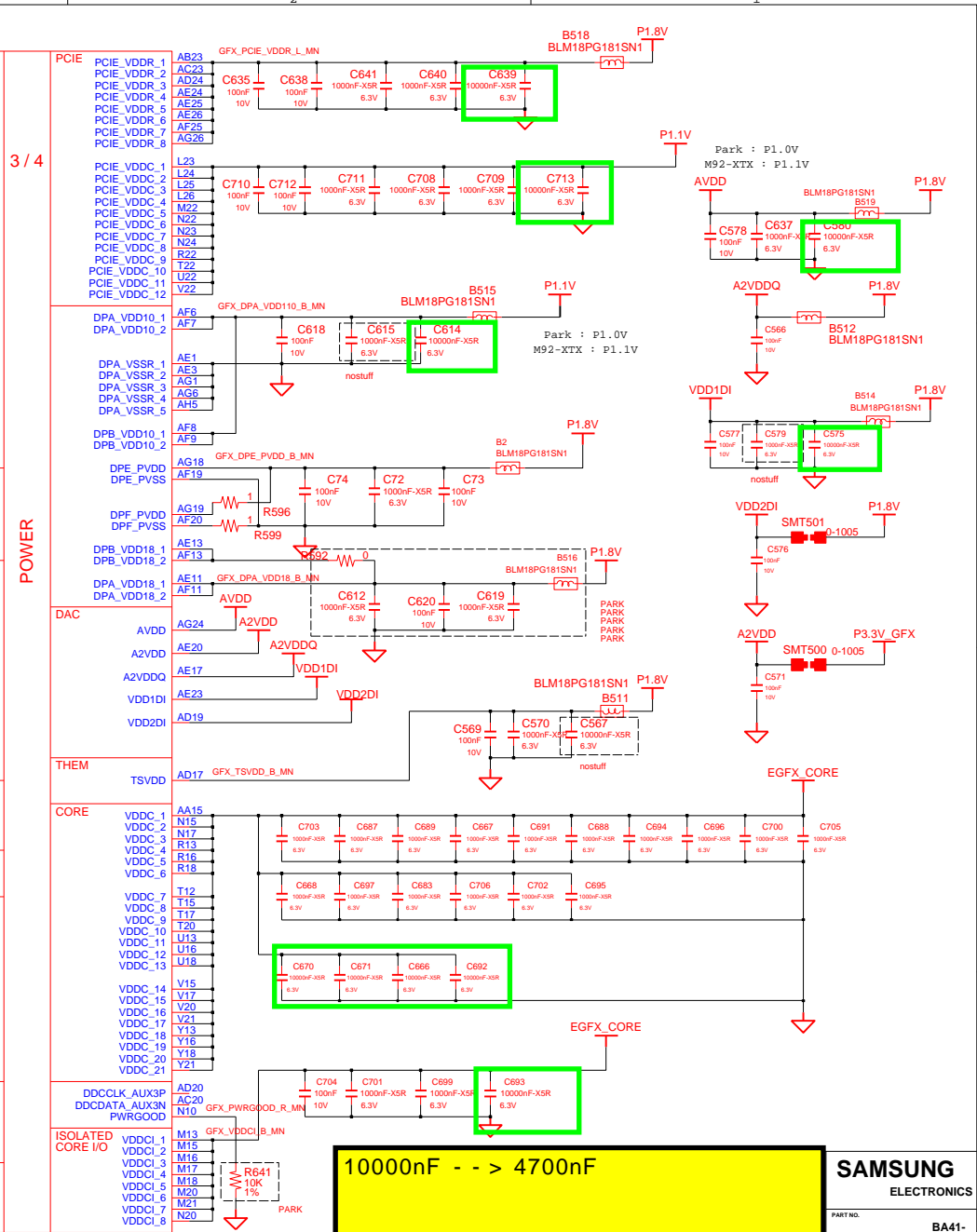
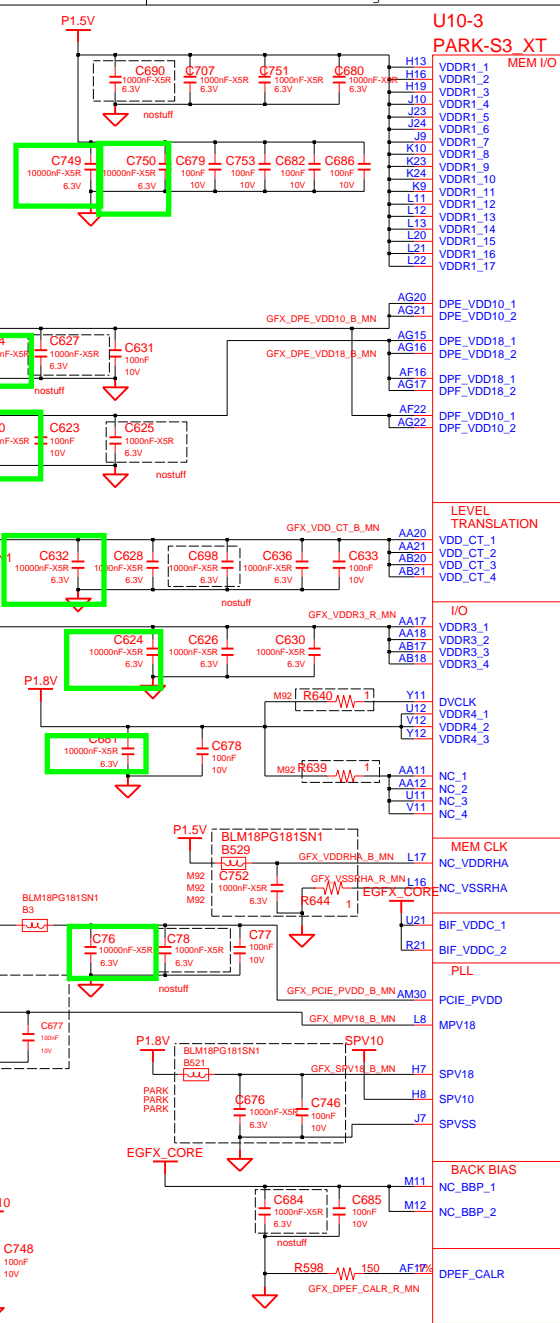
MEMORY INTERFACE



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Park : P1.0V
M92-XTX : P1.1V

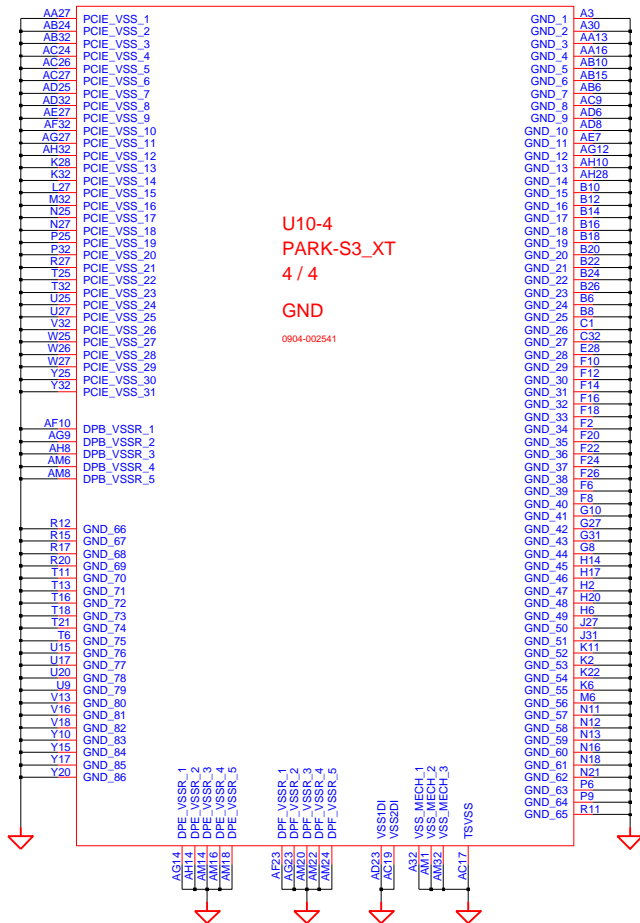
Park : P1.0V
M92-XTX : P1.1V



10000nF - -> 4700nF

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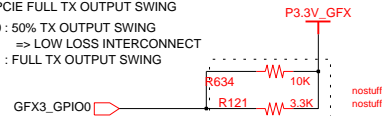


PARK-S3 Straps

TX_PWRS_ENB

PCIE FULL TX OUTPUT SWING

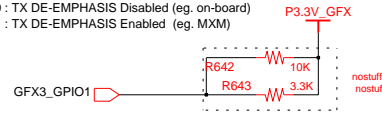
0 : 50% TX OUTPUT SWING
=> LOW LOSS INTERCONNECT
1 : FULL TX OUTPUT SWING



TX_DEEMPH_EN

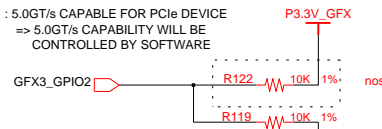
PCIE TRANSMITTER DE-EMPHASIS ENABLED

0 : TX DE-EMPHASIS Disabled (eg. on-board)
1 : TX DE-EMPHASIS Enabled (eg. MXM)

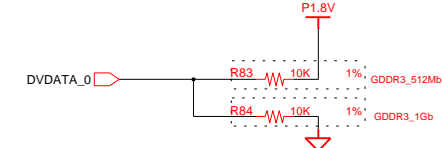


BIF_GEN2_EN_A

0 : 2.5GT/s CAPABLE FOR PCIe DEVICE
1 : 5.0GT/s CAPABLE FOR PCIe DEVICE
=> 5.0GT/s CAPABILITY WILL BE
CONTROLLED BY SOFTWARE

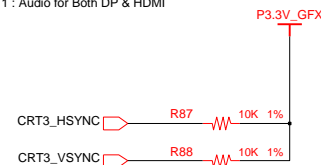


DVDATA_0



AUD[1:0]

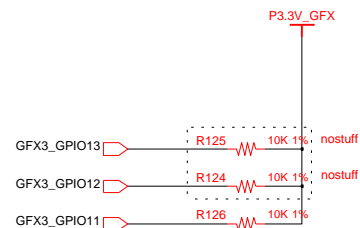
00 : No Audio Function
01 : Audio for DP Only
10 : Audio for DP & HDMI if dongles is detected
11 : Audio for Both DP & HDMI



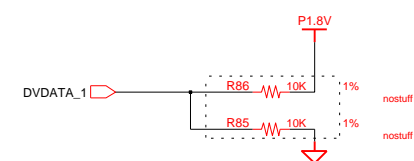
If BIOS_ROM_EN=1, ROMCFGID[2:0]
If BIOS_ROM_EN=0, Memory Aperture Size

GFX3_GPIO(13 : 11)

000 : 128MB
001 : 256MB
010 : 64MB
011 : RESERVED
1XX : RESERVED

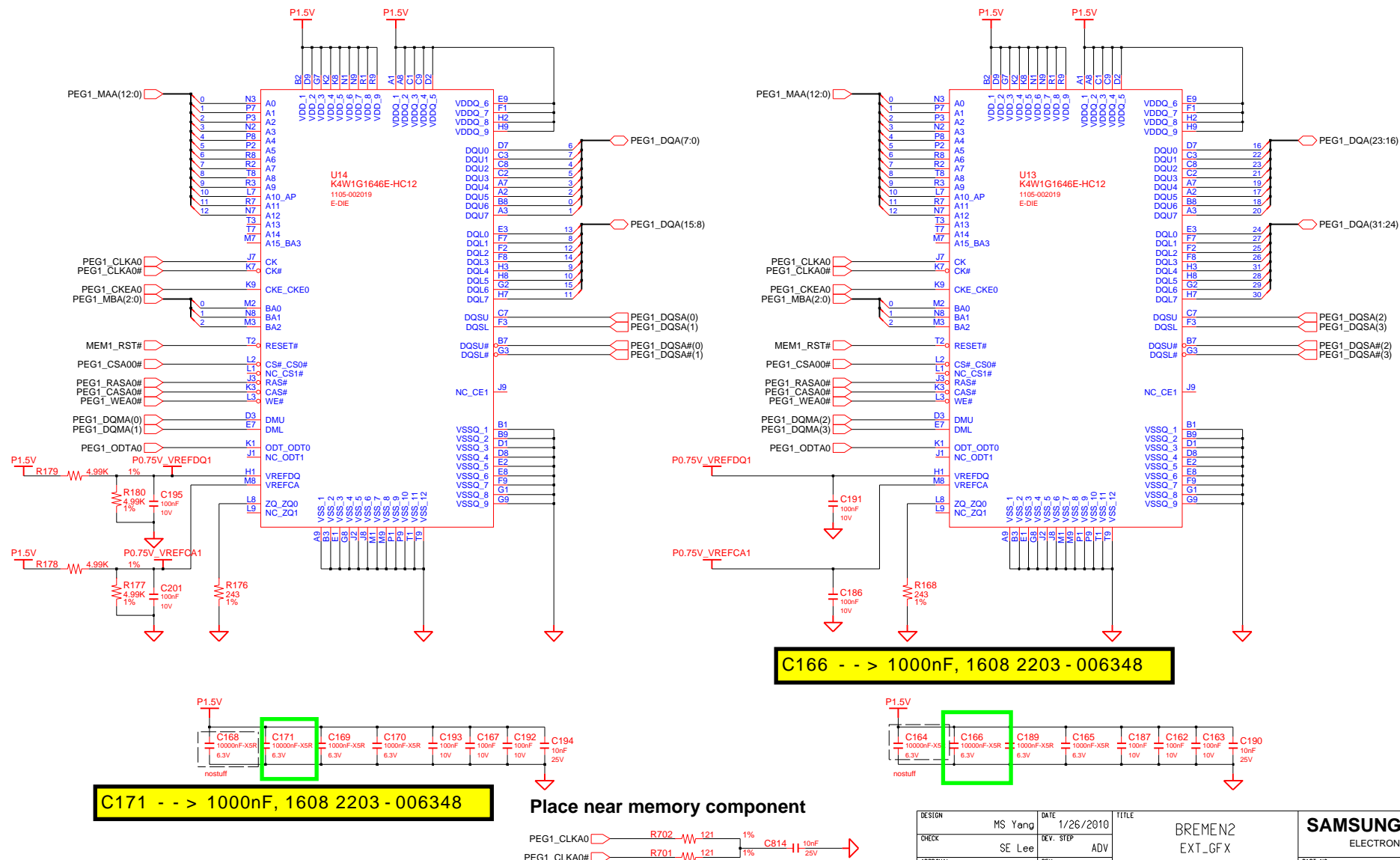


DVDATA_1



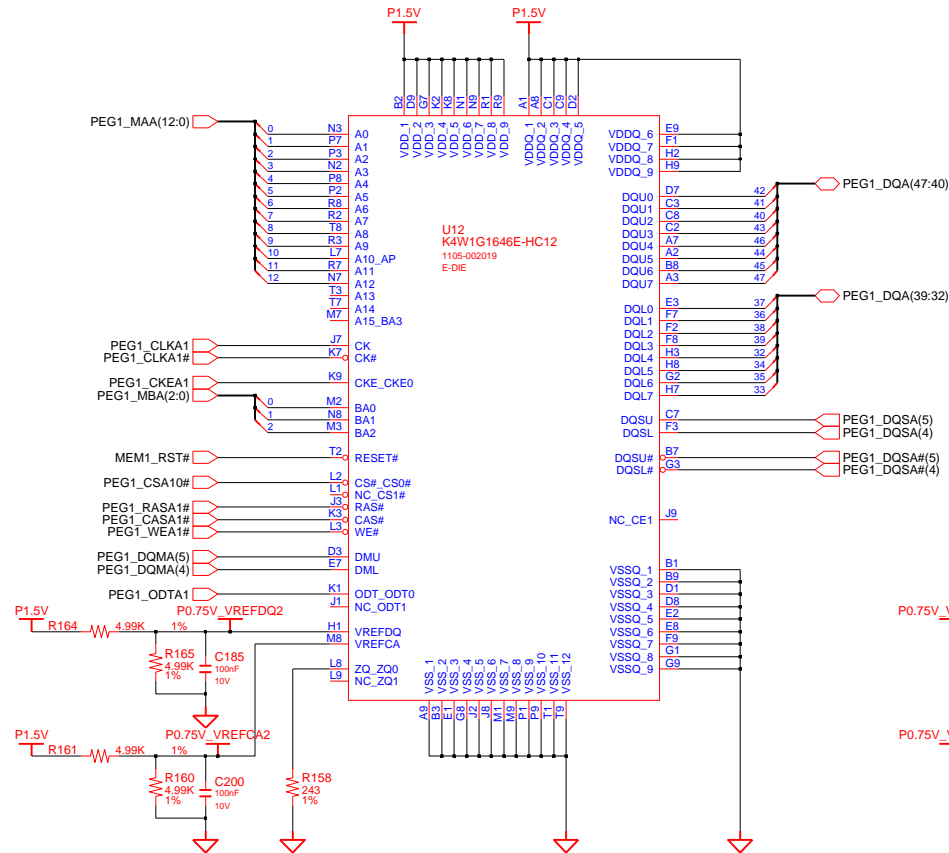
DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 GFX	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			PART NO.
APPROVAL	MK Kim	REV	REV 0.1		M92-S3-XTX (4/4)	BA41-
MODULE CODE		LAST EDIT				
					March 06, 2010 17:48:35 PM	PAGE 23 OF 54

place near memory component

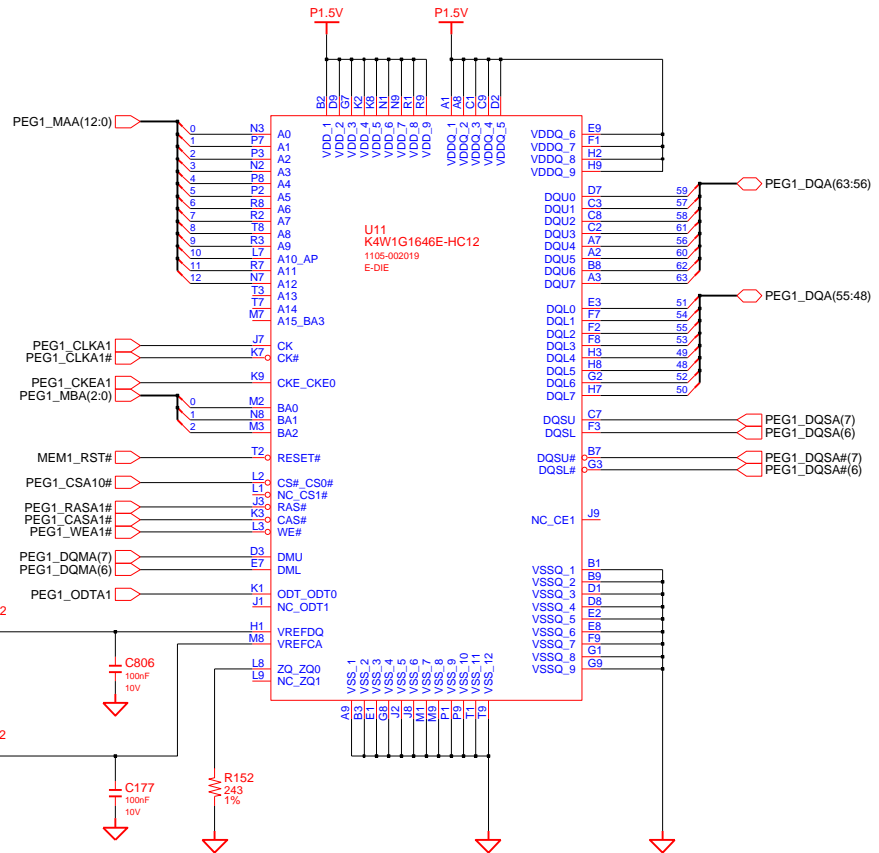
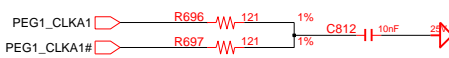
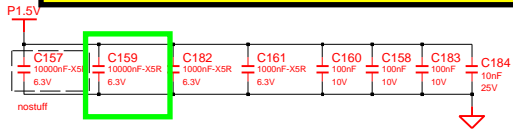


DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 EXT_GFX	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			
APPROVAL	REV	REV 0.1				
MODULE CODE	LAST EDIT					

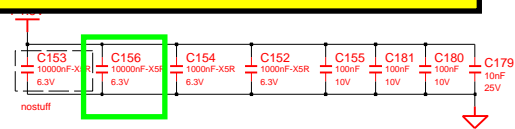
RANK0 Upper Data



C159 - - > 1000nF, 1608 2203 - 006348

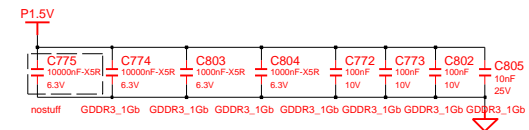
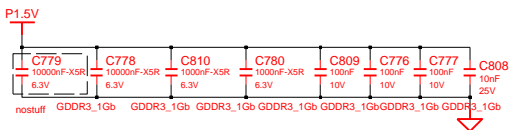
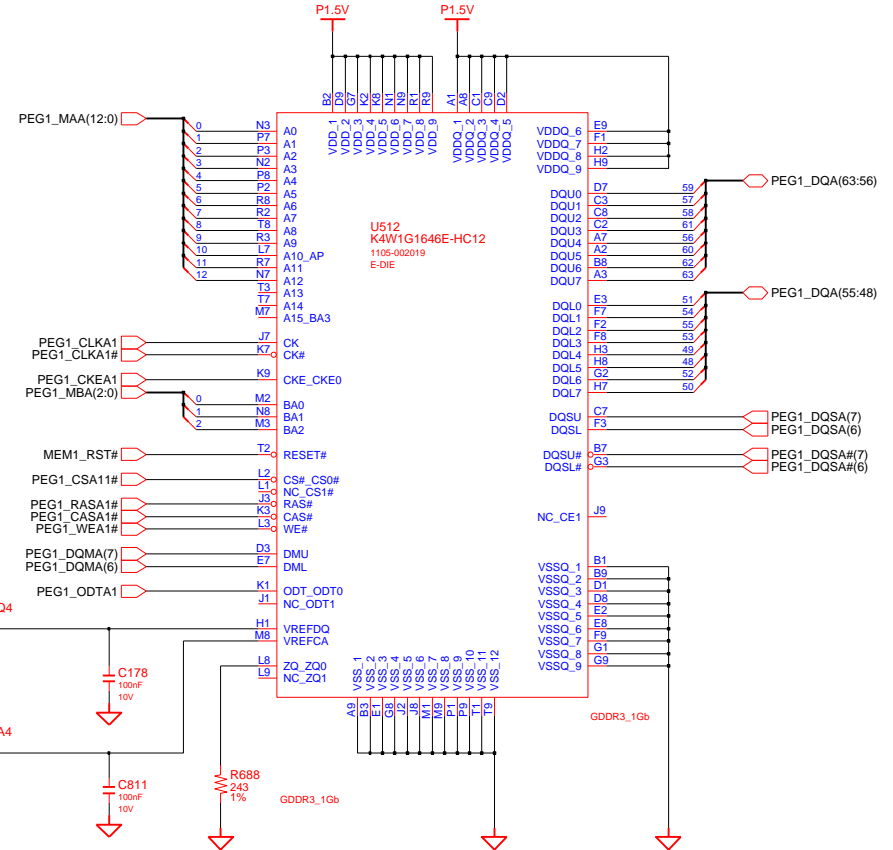
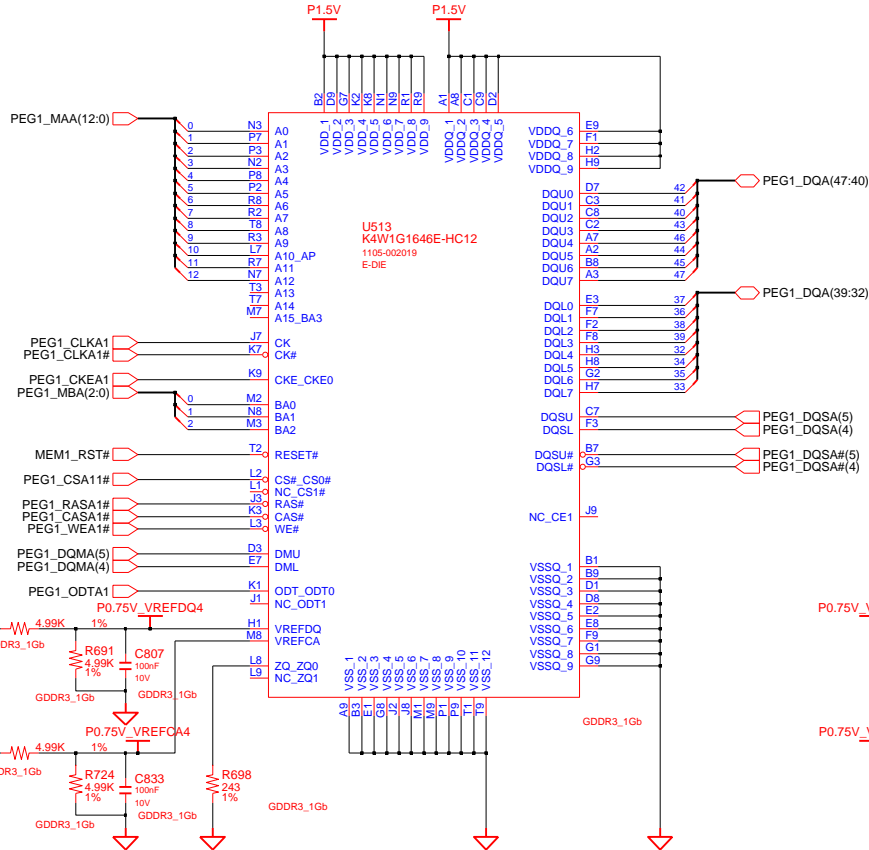


C156 - - > 1000nF, 1608 2203 - 006348



DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 EXT_GFX	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV	REV	GDDR3 (2/4)	
APPROVAL	MK Kin	REV	0.1	LAST EDIT		
MODULE CODE						
March 06, 2010 17:48:35 PM						PAGE 25 OF 54

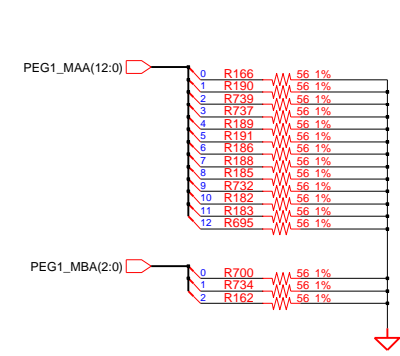
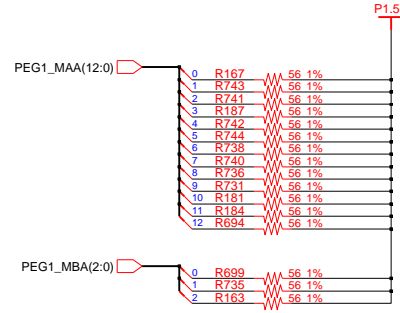
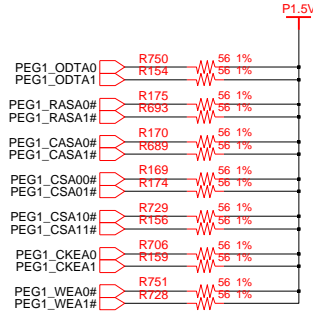
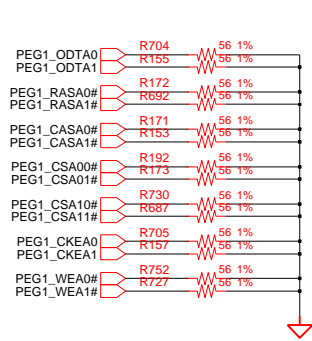
RANK1 Upper Data



DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 EXT_GFX	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV	REV	GDDR3 (4/4)	
APPROVAL	MK Kin	REV	0.1	PART NO.	BA41-	
MODULE CODE		LAST EDIT				

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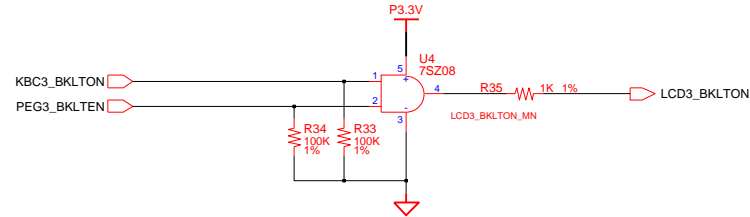
DUAL RANK Terminations



DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2	SAMSUNG
CHECK	SE Lee	DEV. STEP	ADV	GFX	ELECTRONICS	
APPROVAL	MK Kim	REV	REV 0.1	Dual Strap	PART NO.	BA41-
MODULE CODE		LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	28	OF 54

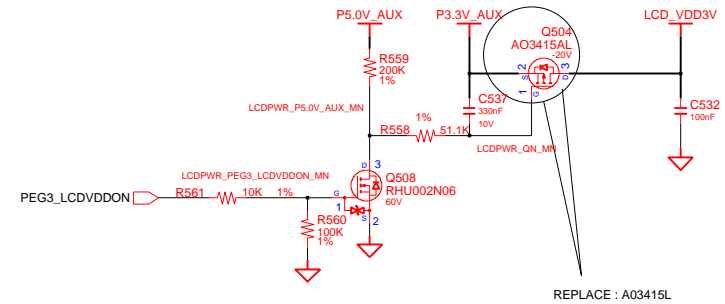
LVDS

Backlight On

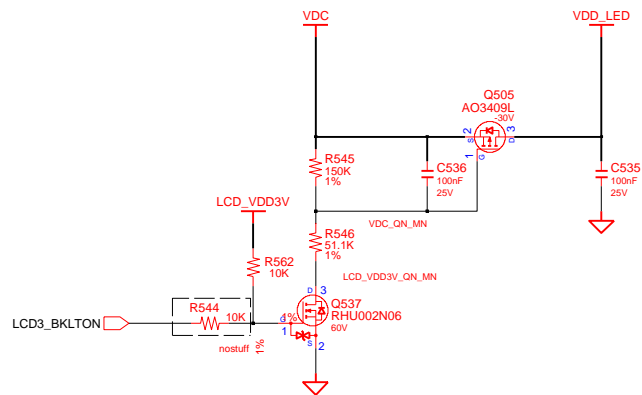


LCD Power

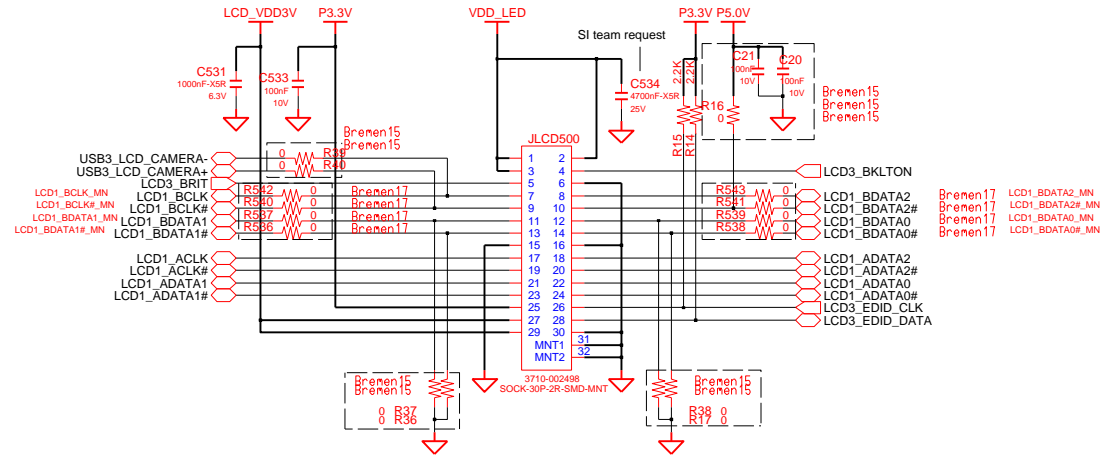
EBL Purpose



LED Power

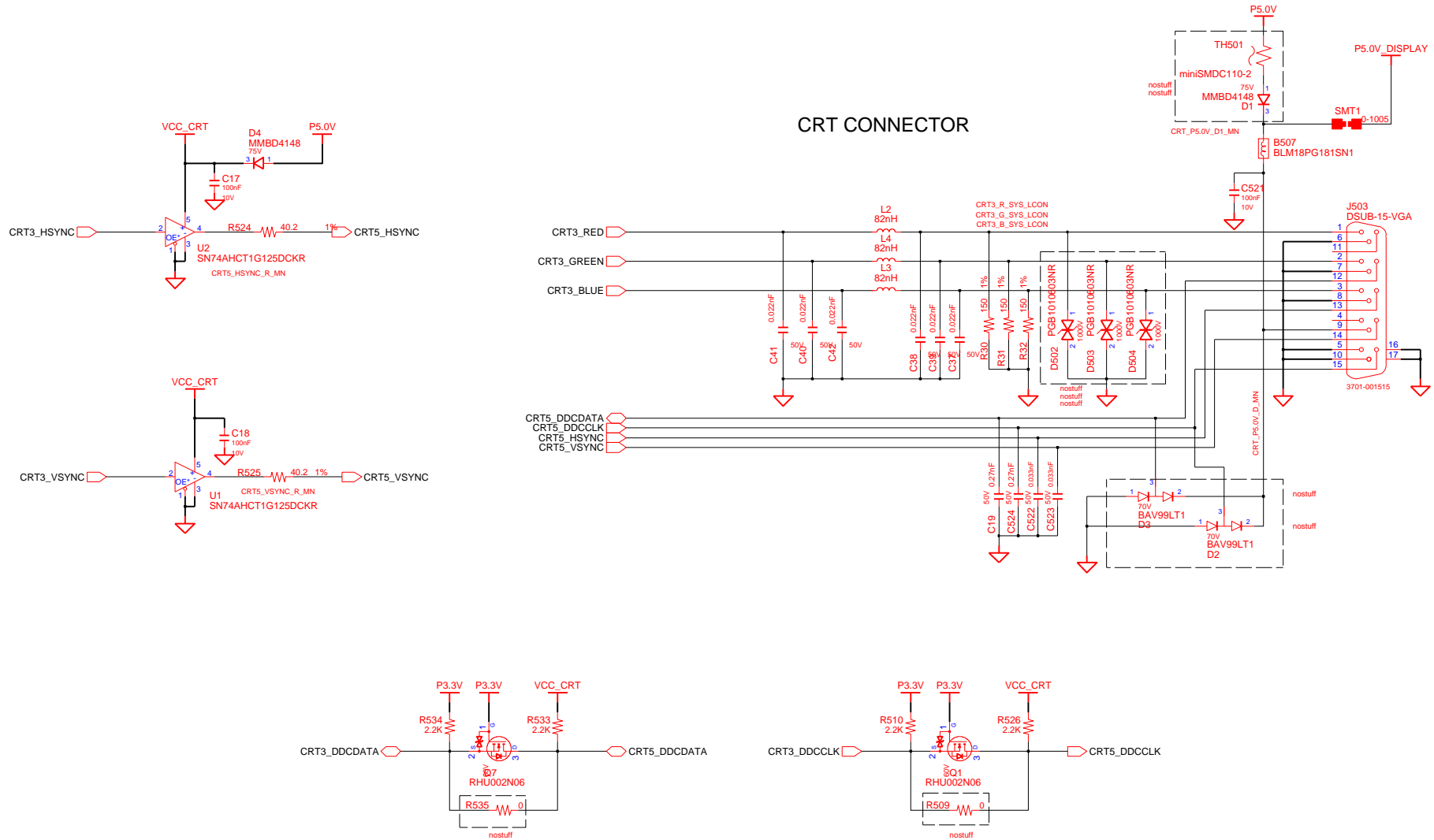


Camera + LCD Connector



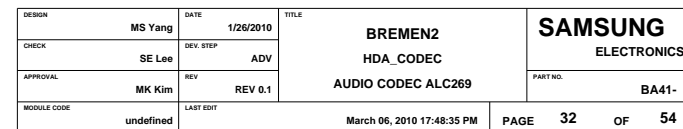
DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 GRAPHICS_IF LVDS	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV	REV	REV 0.1	PART NO.
APPROVAL	MK Kim	LAST EDIT				BA41-
MODULE CODE	undefined					
					March 06, 2010 17:48:35 PM	PAGE 29 OF 54

CRT

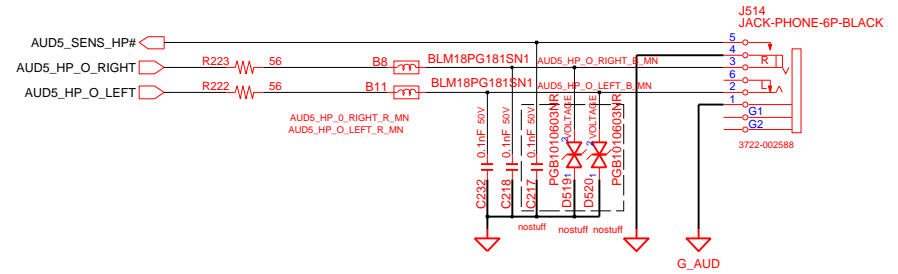


DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 GRAPHICS_IF CRT	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV			PART NO.
APPROVAL	MK Kim	REV	REV 0.1			BA41-
MODULE CODE		LAST EDIT				
March 06, 2010 17:48:35 PM						PAGE 30 OF 54

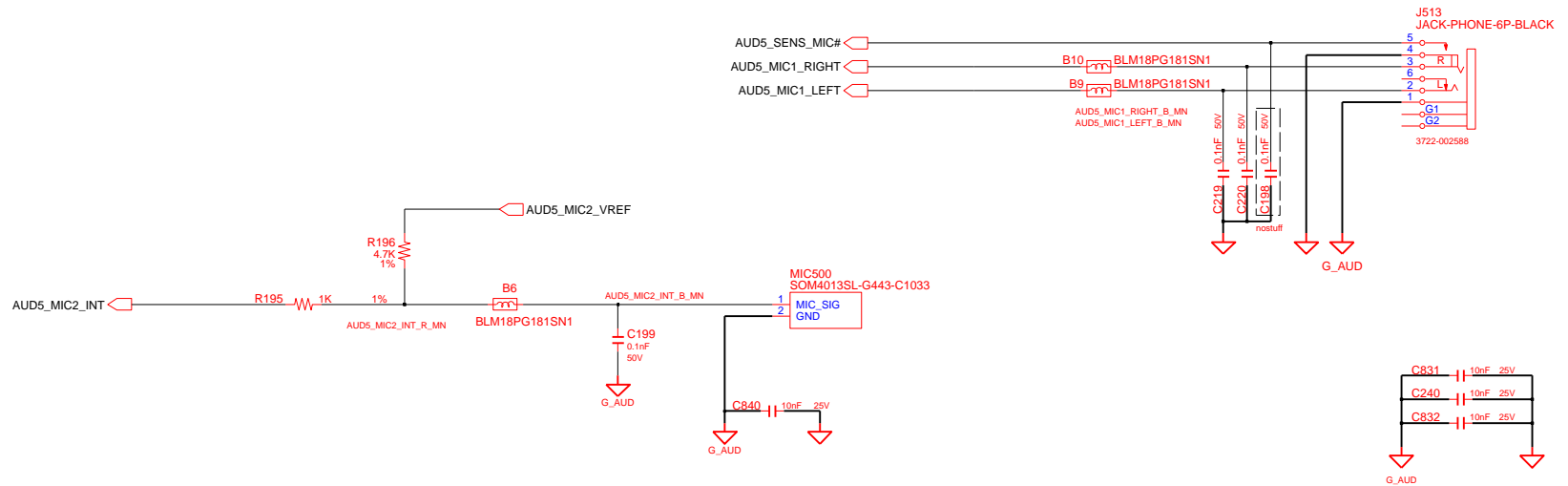
Codec Pin9 Setting	
S/B with Low Voltage IO	S/B without Low Voltage IO
Pin9 : 1.5V	Pin9 : 3.3V



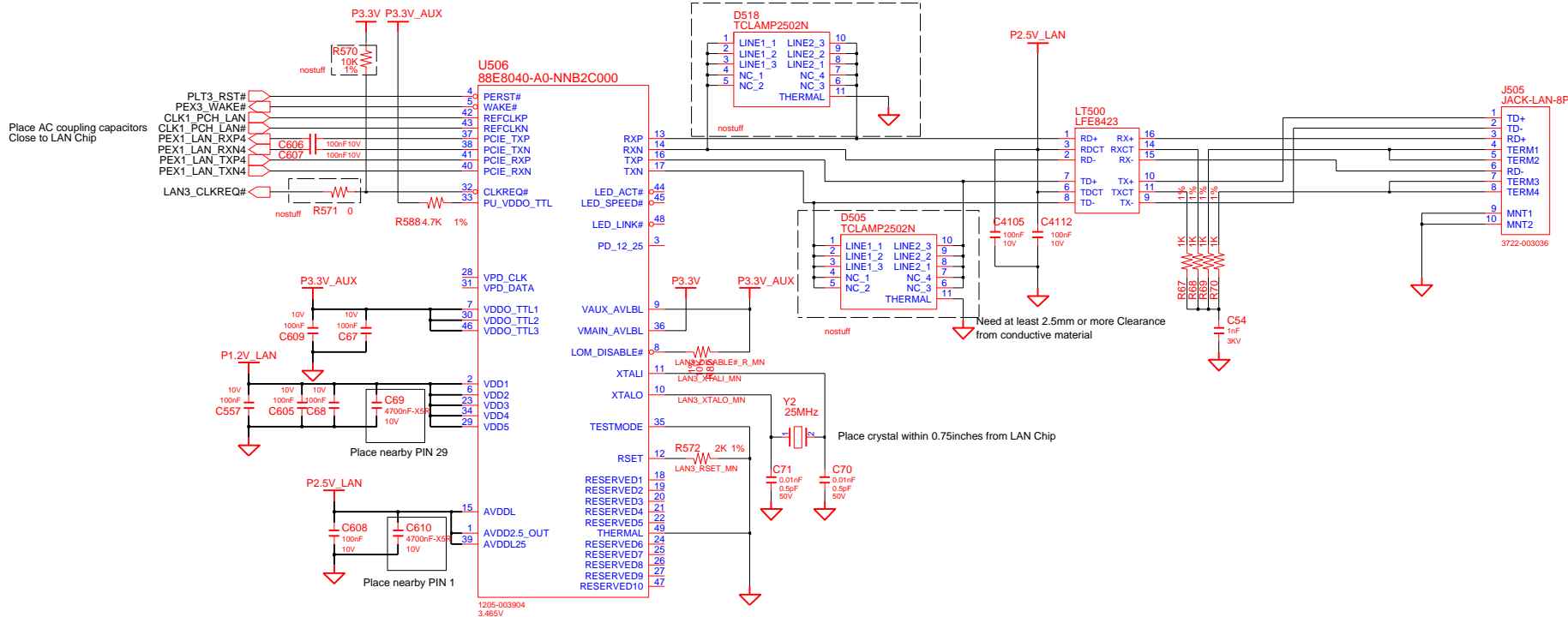
HEADPHONE(BLACK)



MIC JACK(BLACK)



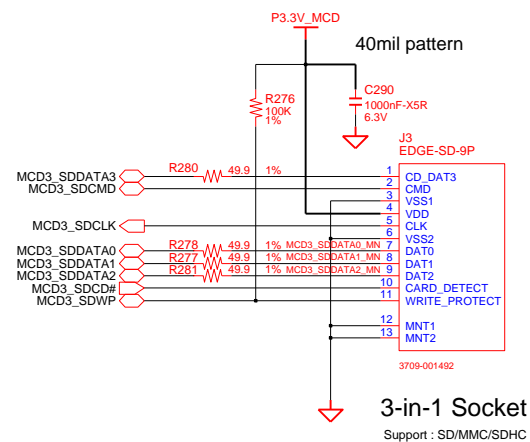
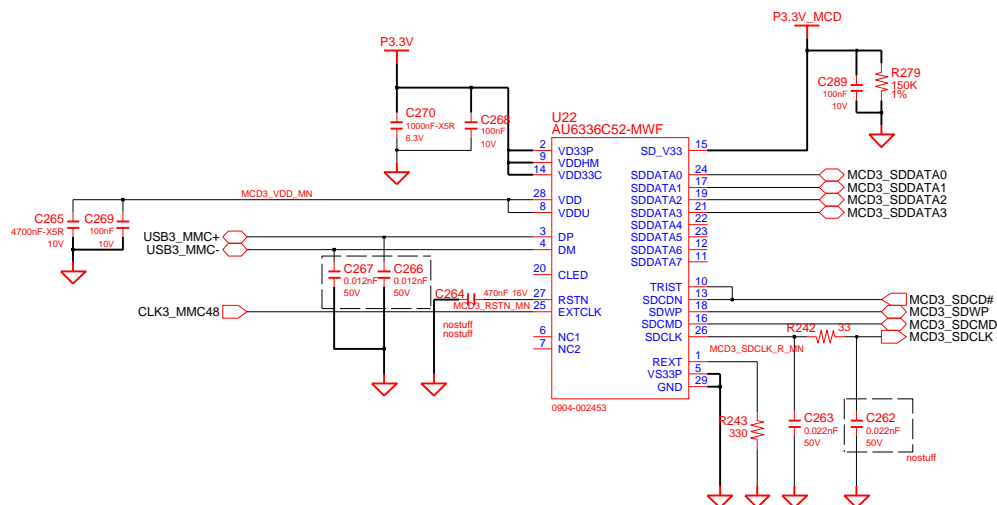
DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 HDA_CODEC AUDIO JACK	SAMSUNG ELECTRONICS PART NO. BA41-
CHECK	SE Lee	REV. STEP	ADV			
APPROVAL	MK Kim	REV	REV 0.1			
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	33 OF 54	



DESIGN	MS Yang	DATE	1/26/2010	BREMEN2 LAN LAN_Marvell_88E8040	SAMSUNG ELECTRONICS		
CHECK	SE Lee	DEV. STEP	ADV				
APPROVAL	MK Kim	REV	REV 0.1			PART NO.	BA41-
MODULE CODE	undefined	LAST EDIT				MARCH 06, 2010 17:48:35 PM	PAGE 34 OF 54

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3 IN 1 CARD (AU6336)

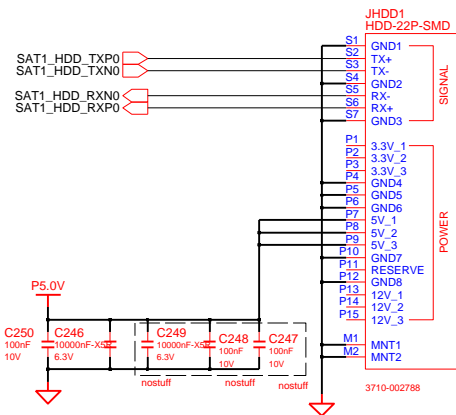


DESIGN	MS Yang	DATE	8/11/2009	BREMEN2 MULTICARD 3 IN 1 CARD(GL827S)	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV		
APPROVAL	MK Kim	REV	REV 0.1		
MODULE CODE		LAST EDIT			
March 06, 2010 17:48:35 PM				PAGE	35 OF 54

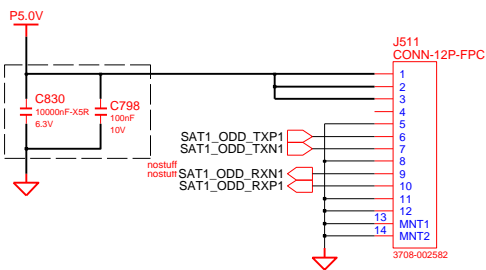


SATA I/F CONN

SATA HDD CONN



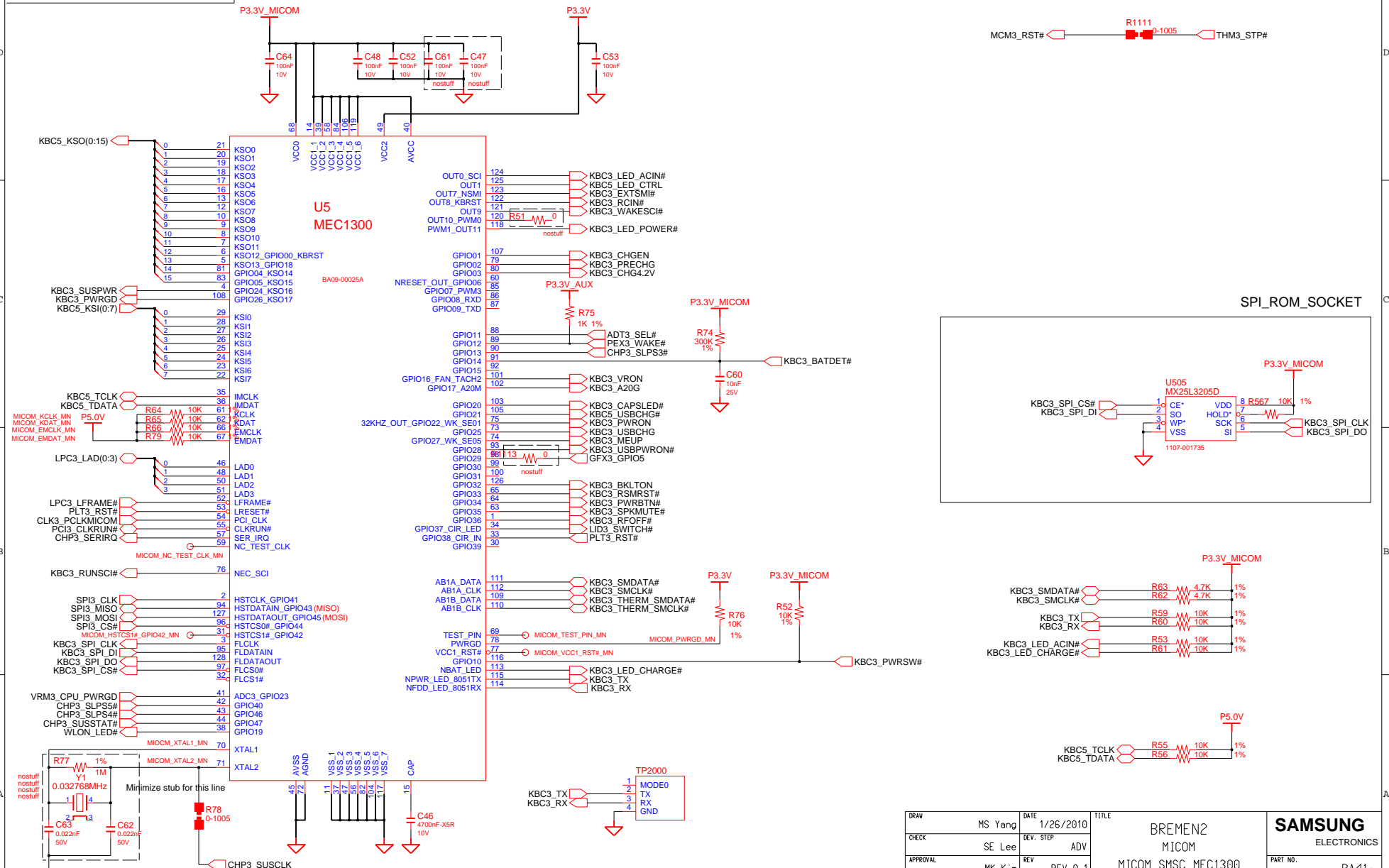
MAIN TO SUB SATA ODD CONN



DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 SATA_DEVICES HDD & ODD SUB CONNECTOR	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV	REV	REV 0.1	PART NO. BA41-
APPROVAL	MK Kim	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	37	OF 54
MODULE CODE	undefined					

MAIN BOARD (MICOM)

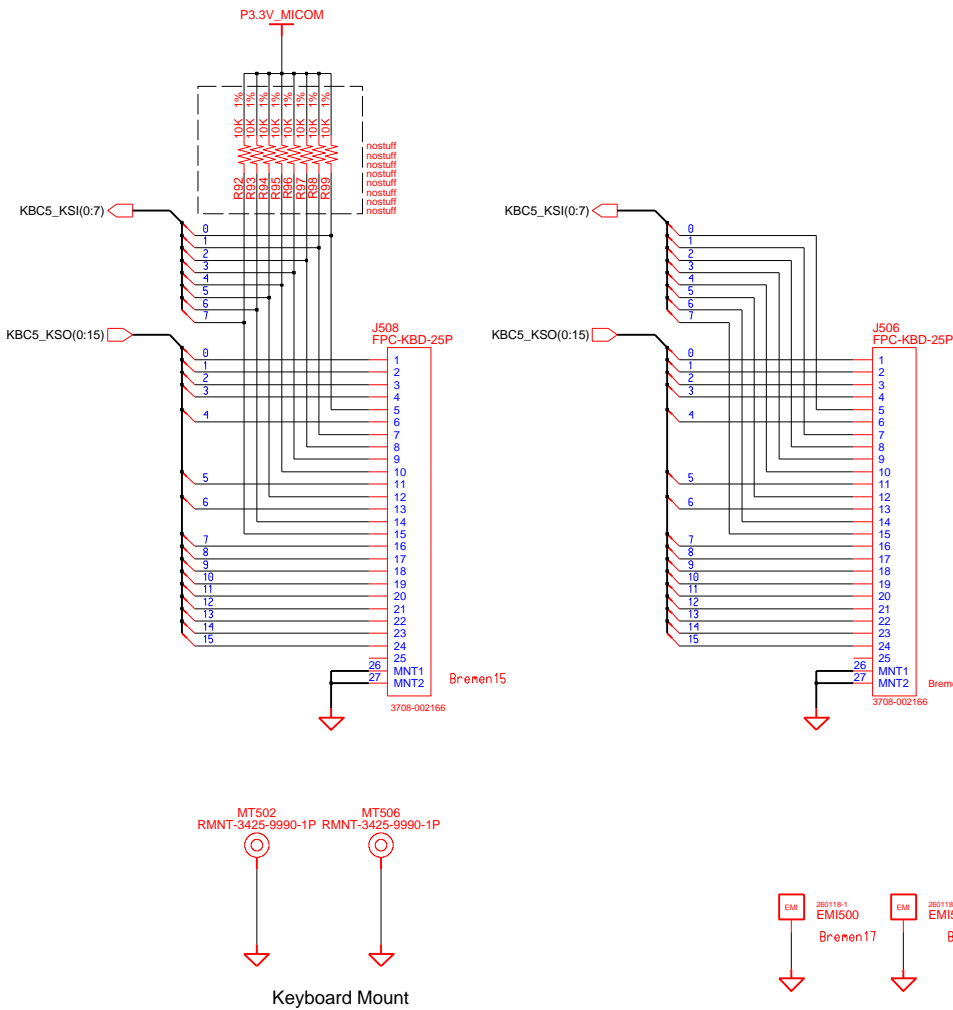
Power off logic



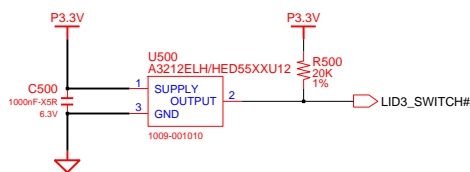
DRAW	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 MICOM	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			
APPROVAL	MK Kin	REV	REV 0.1			
MODULE CODE		LAST EDIT				
				March 06, 2010 17:48:35 PM	PAGE 38 OF 54	

Micom Glue Logic

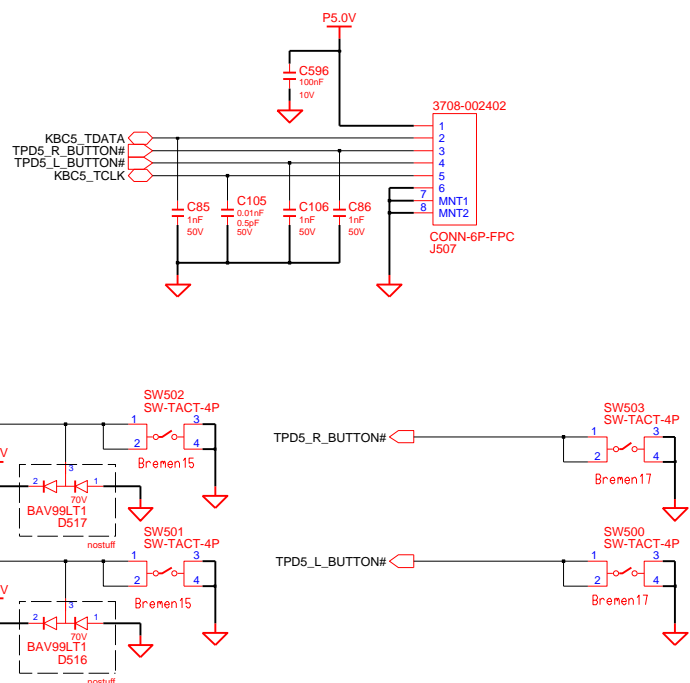
KEYBOARD



LID_SWITCH

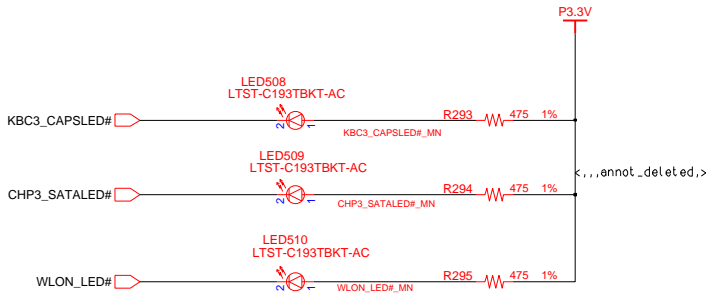


TOUCHPAD

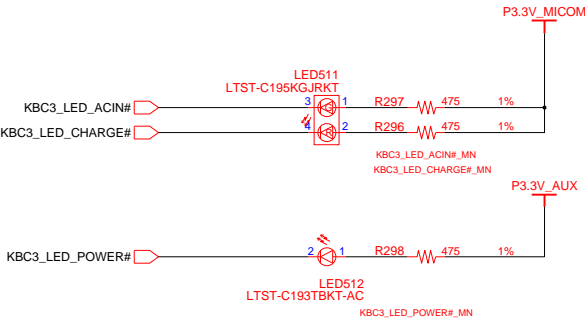


DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 MICOM GLUE LOGIC KEYBOARD & TOUCHPAD	SAMSUNG ELECTRONICS PART NO. BA41-
CHECK	SE Lee	REV. STEP	ADV			
APPROVAL	MK Kim	REV	REV 0.1			
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	39 OF 54	

FUNCTION KEY LED

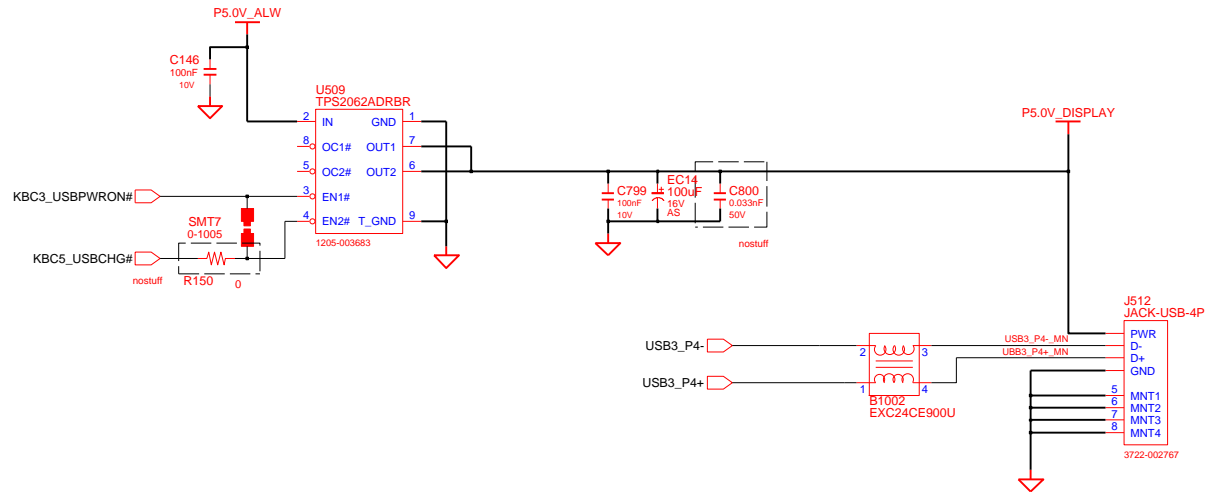


ADAPTERIN/CHARGING LED

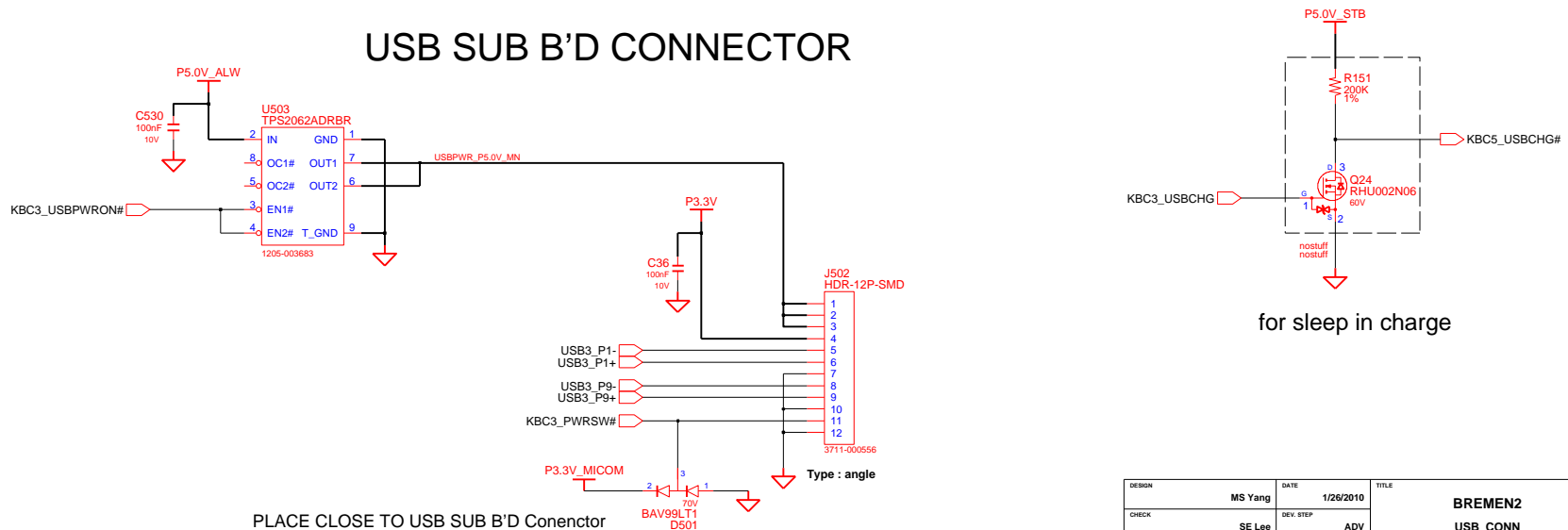


DRAW	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 LED_SWITCH	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV	REV	LED_SWITCH	PART NO.
APPROVAL	MK Kim	REV	REV 0.1	LAST EDIT	March 06, 2010 17:48:35 PM	BA41-
MODULE CODE					PAGE 40 OF 54	

USB Single connector



USB SUB B'D CONNECTOR

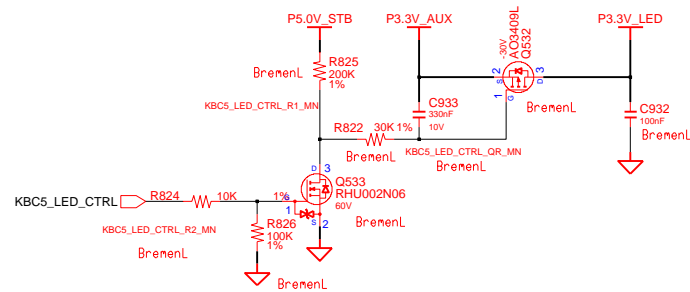
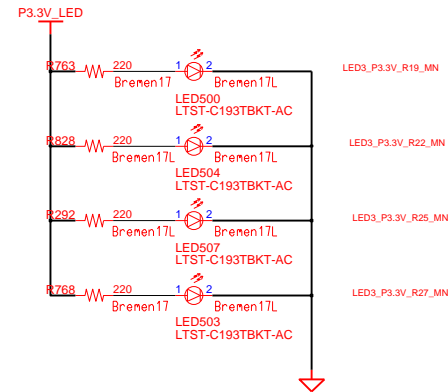
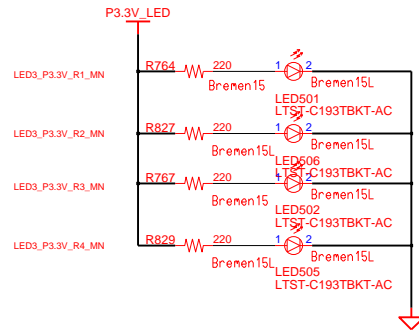


PLACE CLOSE TO USB SUB B'D Conenctor

for sleep in charge

DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 USB_CONN	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV	REV	Single USB	
APPROVAL	MK Kim	REV	REV 0.1	LAST EDIT	March 06, 2010 17:48:35 PM	PART NO. BA41-
MODULE CODE	undefined					BA41-
PAGE 41 OF 54						

Touchpad LED



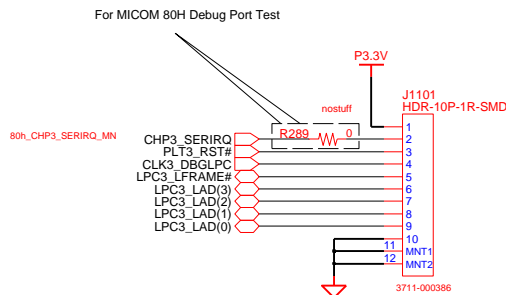
DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 TOUCHPAD LED TOUCHPAD LED	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV			PART NO.
APPROVAL	MK Kim	REV	REV 0.1			BA41-
MODULE CODE		LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	42	OF 54

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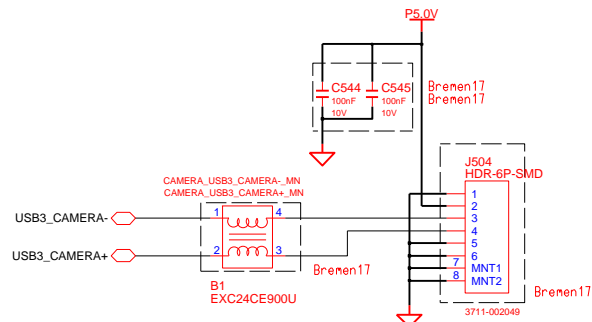
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USB I/F Devices

80h PORT DEBUG

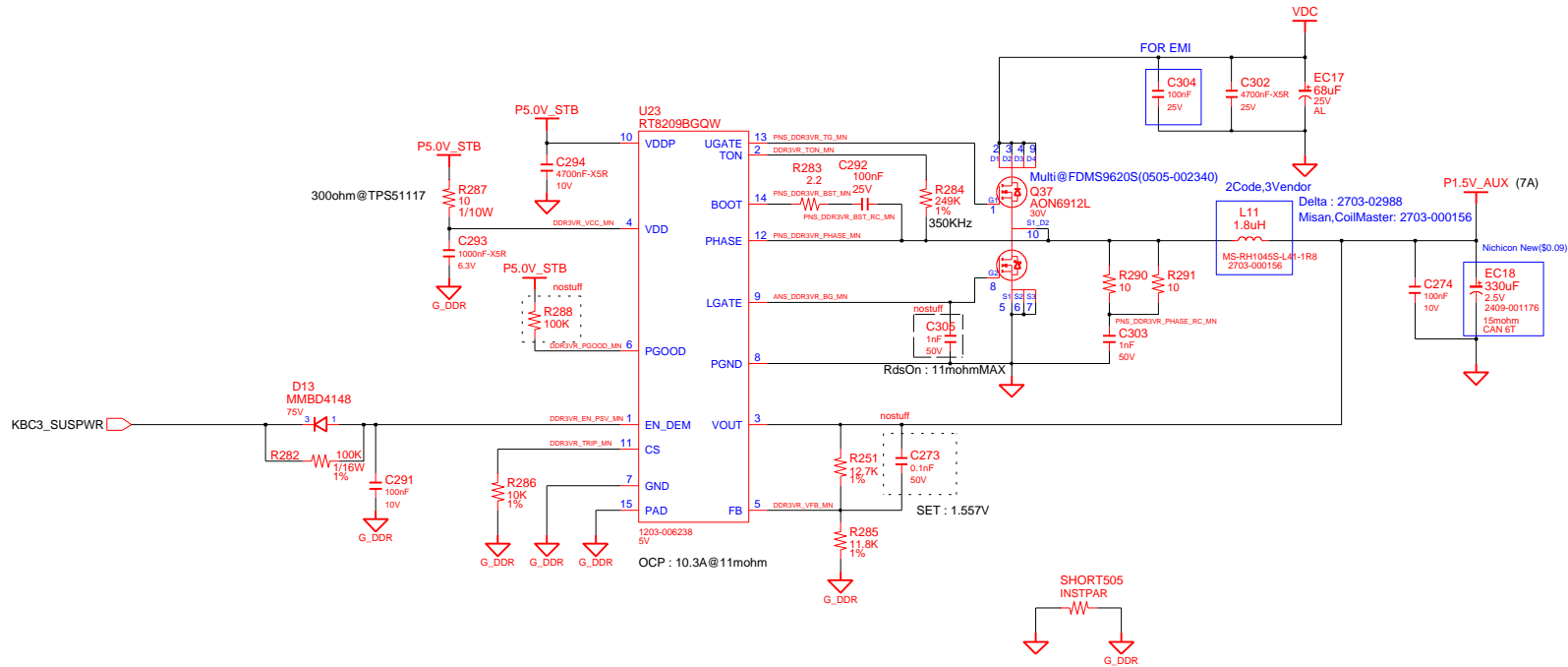


CAMERA (17Inch)

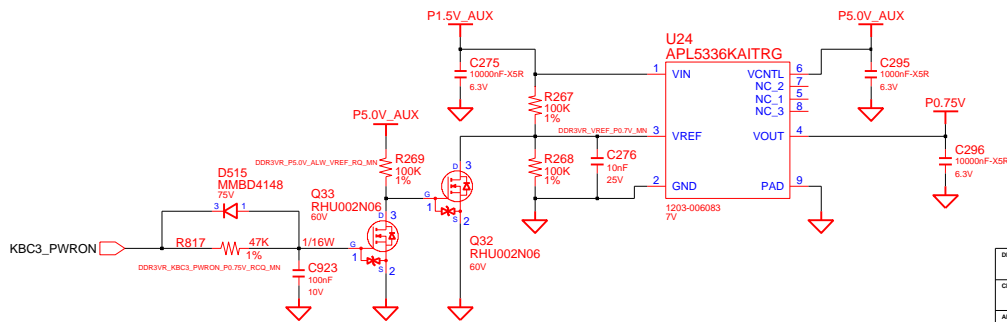


DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 USB_DEVICES	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV			
APPROVAL	MK Kim	REV	REV 0.1		CAMERA	PART NO. BA41-
MODULE CODE	undefined	LAST EDIT		March 06, 2010 17:48:35 PM	PAGE 43 OF 54	

DDR3 Power

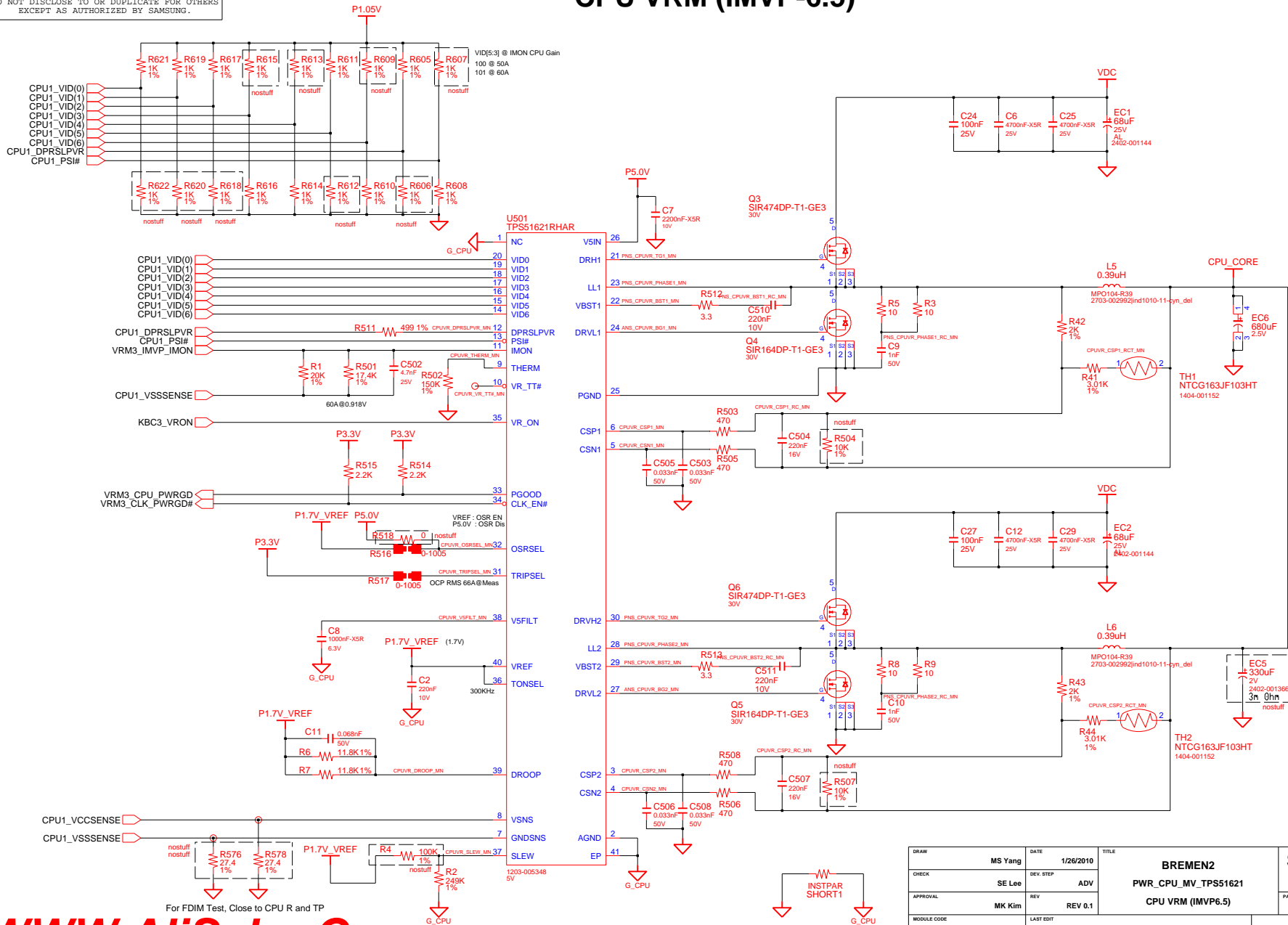


DDR3 VTT(0.75V)



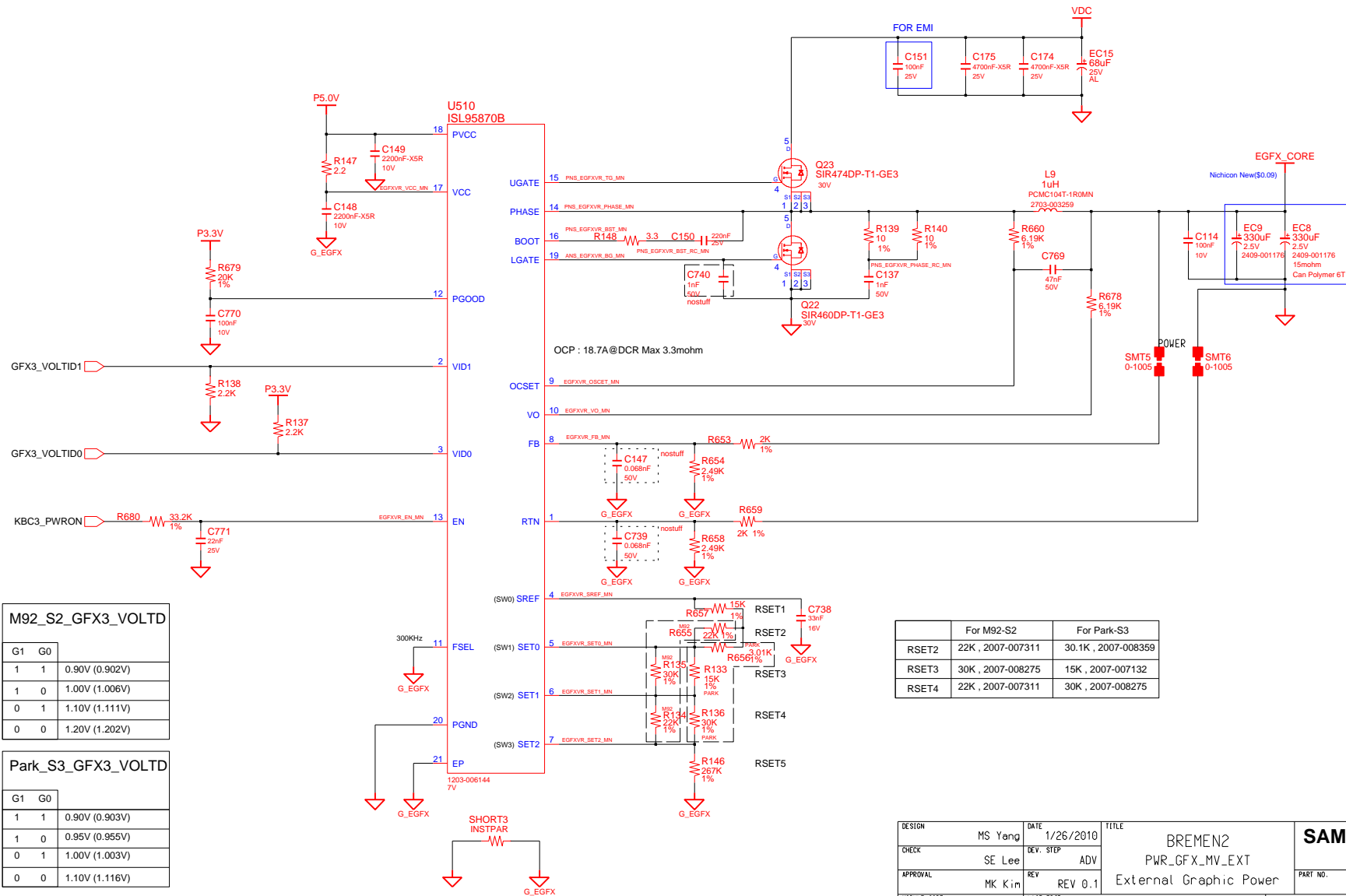
DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 PWR_MEMORY	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV			PART NO.
APPROVAL	MK Kim	REV	REV 0.1		DDR3 POWER	BA41-
MODULE CODE	undefined	LAST EDIT				
				March 06, 2010 17:48:35 PM	PAGE	47 OF 54

CPU VRM (IMVP-6.5)



DATE	1/26/2010	TITLE	BREMEN2	SAMSUNG
CHECK	MS Yang	REV. STEP	PWR_CPU_MV_TPS51621	ELECTRONICS
APPROVAL	SE Lee	REV	CPU VRM (IMVP6.5)	PART NO.
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM	BA41-
PAGE 48				OF 54

Graphic Core Power

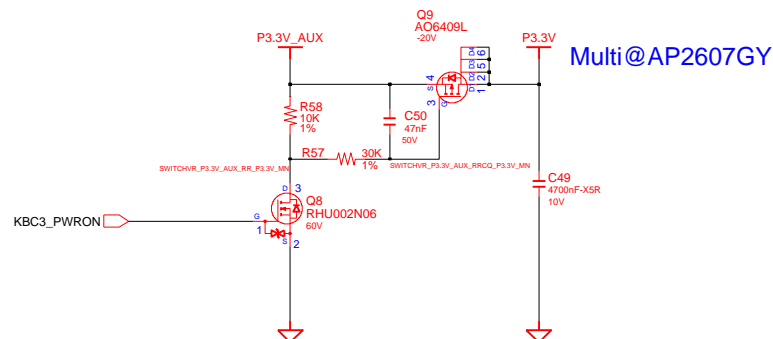


	For M92-S2	For Park-S3
RSET2	22K , 2007-007311	30.1K , 2007-00835
RSET3	30K , 2007-008275	15K , 2007-007132
RSET4	22K , 2007-007311	30K , 2007-008275

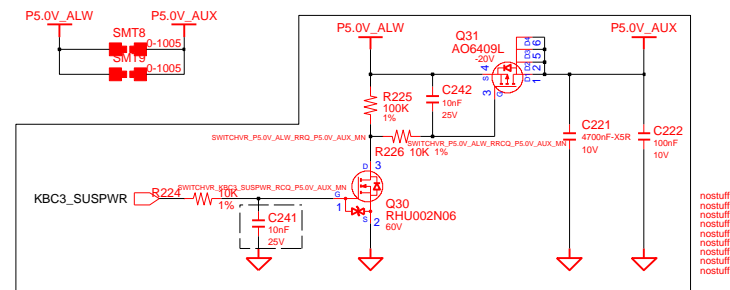
DESIGN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2		SAMSUNG	
CHECK	SE Lee	DEV. STEP	ADV	PWR_GFX_MV_EXT		ELECTRONICS		
APPROVAL	MK Kim	REV	REV 0.1	External Graphic Power		PART NO.	BA41-	
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM			PAGE	49	OF 54

Switched Power

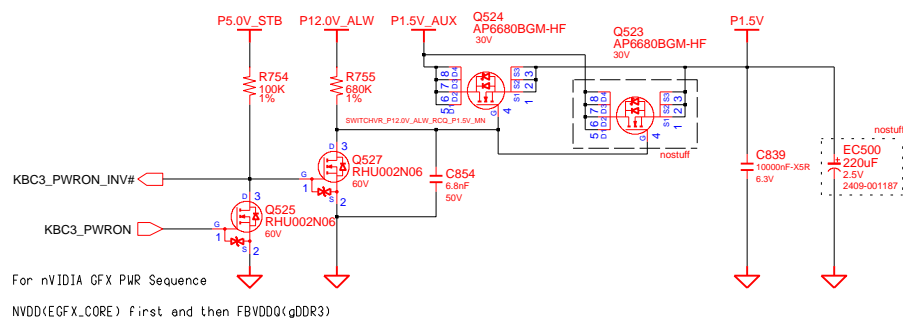
Switched Power On (P3.3V)



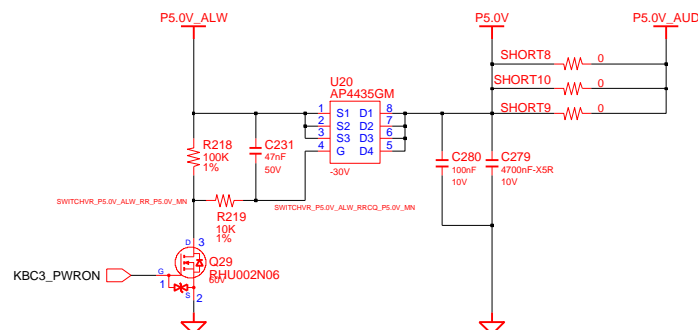
Sleep'n Charger



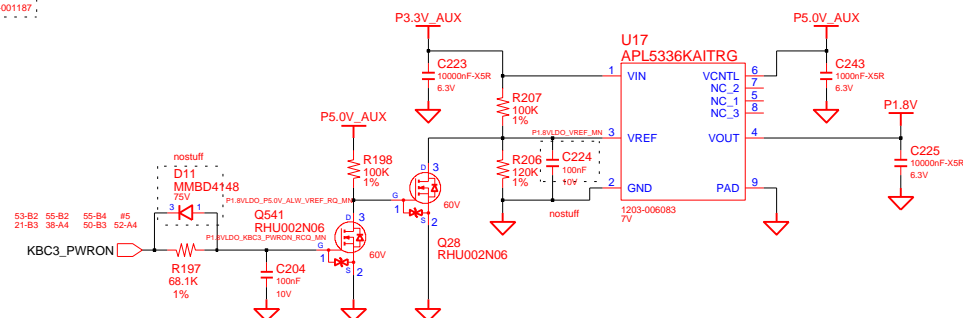
Switched Power On (P1.5V) Multi@AO4476L




Switched Power On (P5.0V) Multi@Si4435DDY

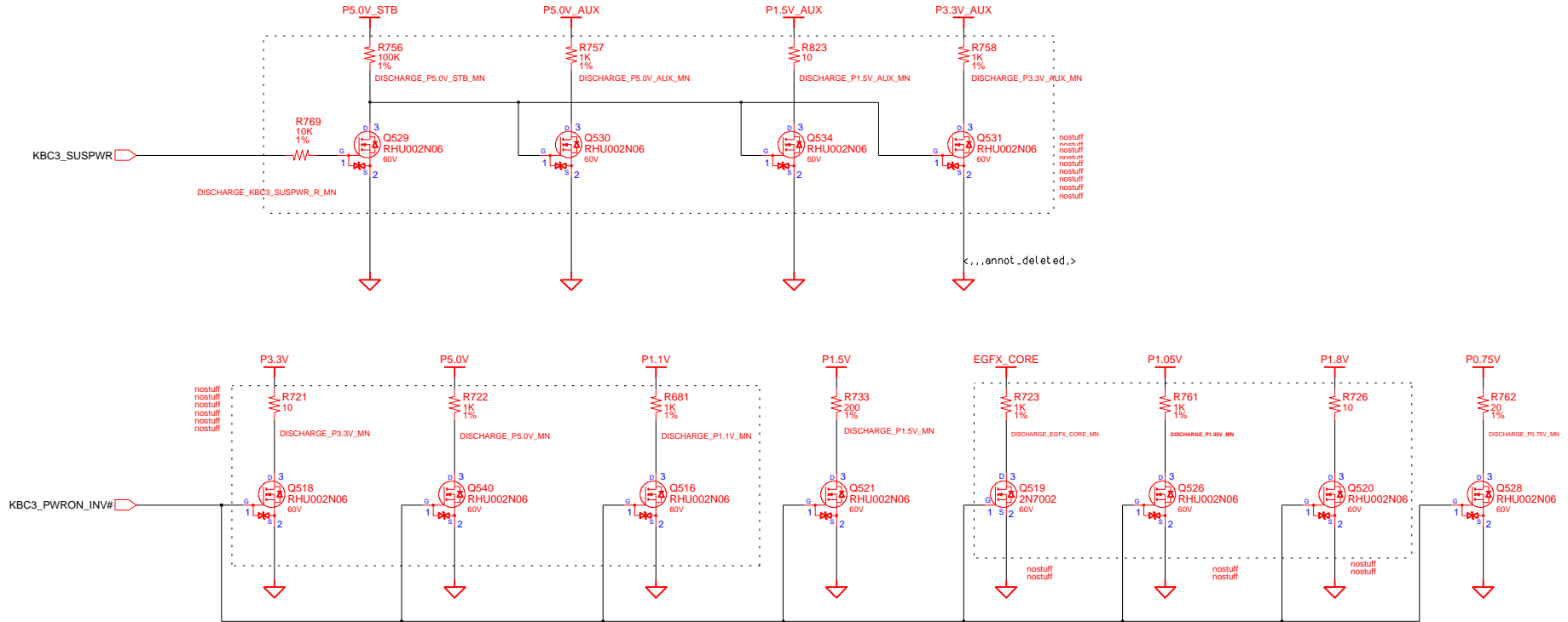


P1.8V(LDO)



DRAW	MS Yang	DATE	1/26/2010	BREMEN2 PWR_MV_SWITCHED SWITCHED POWER	
CHECK	SE Lee	DEV. STEP	ADV		
APPROVAL	MK Kim	REV	REV 0.1		
MODULE CODE			undefined		
		LAST EDIT	March 06, 2010 17:48:35 PM		PAGE 50 OF 54

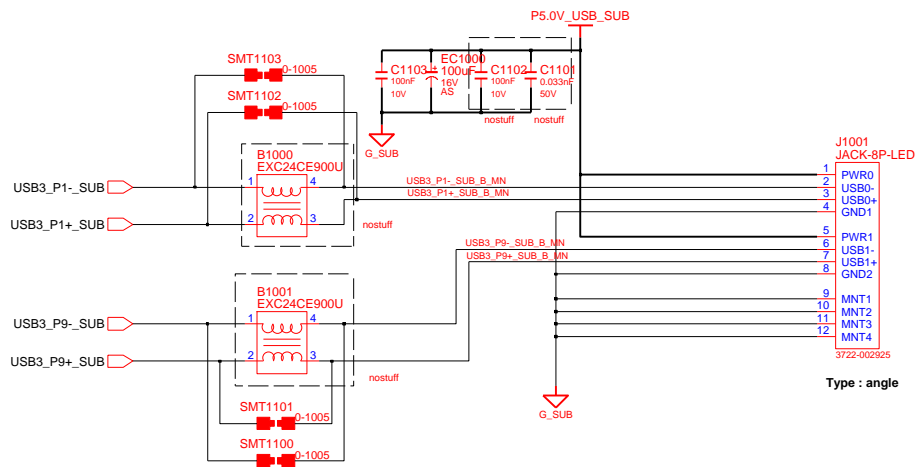
POWER DISCHARGER



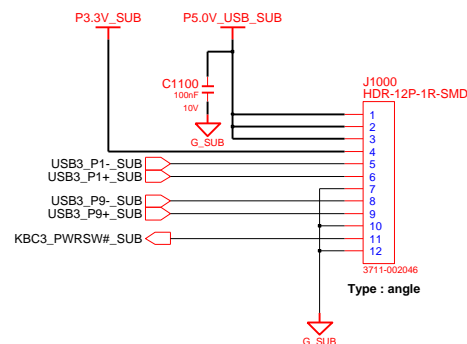
DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV	PWR_MV_DISCHARGER		
APPROVAL	MK Kim	REV	REV 0.1	DISCHARGING LOGIC	PART NO.	BA41-
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	51	OF 54

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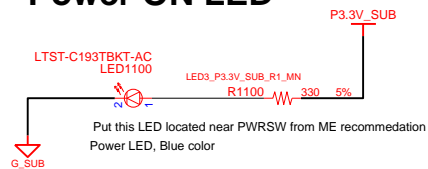
2 USB PORT & POWER S/W SUB B'D



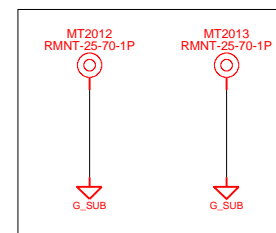
SUB TO MAIN USB CONN



Power ON LED



Power Button



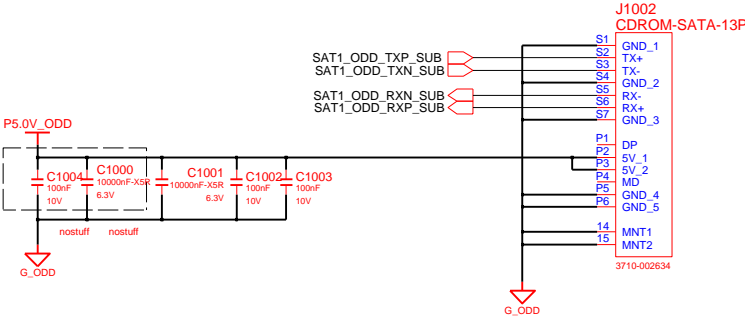
USB sub board mount hole

DESIGN	MS Yang	DATE	1/26/2010	BREMEN2 SUB BOARD1 2 USB & POWER SW	SAMSUNG ELECTRONICS
CHECK	SE Lee	DEV. STEP	ADV		
APPROVAL	MK Kim	REV	REV 0.1		
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM		
				PART NO.	BA41-
				PAGE	52 OF 54

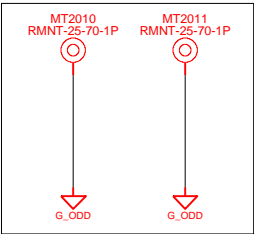
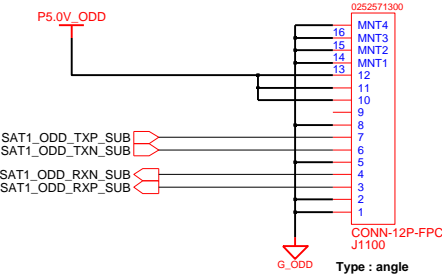
SATA ODD SUB BOARD

SATA ODD SUB BOARD

SATA ODD CONN

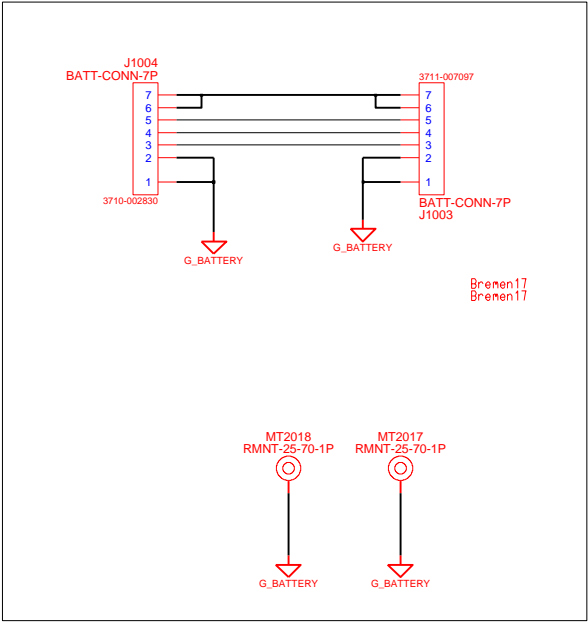


SUB TO MAIN SATA ODD CONN



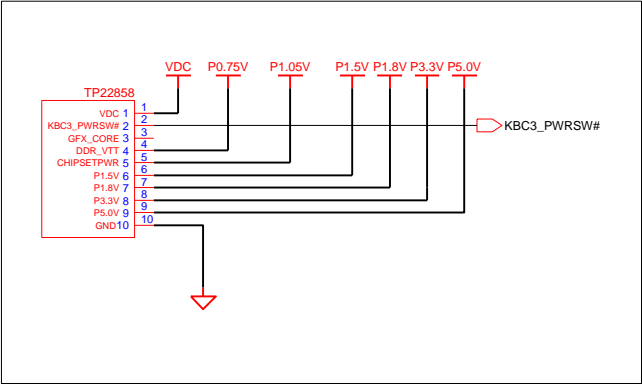
ODD sub board mount hole

17" BATTERY SUBBOARD

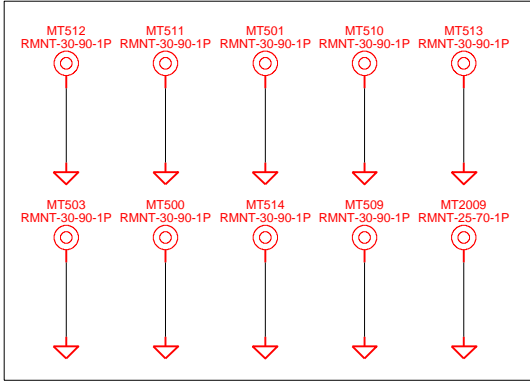


DRAWN	MS Yang	DATE	1/26/2010	TITLE	BREMEN2 SUB BOARD2 SATA ODD SUB BOARD	SAMSUNG ELECTRONICS
CHECK	SE Lee	REV. STEP	ADV			PART NO.
APPROVAL	MK Kim	REV	REV 0.1			BA41-
MODULE CODE	undefined	LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	53	OF 54

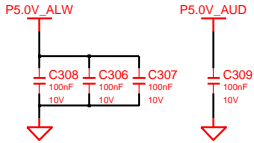
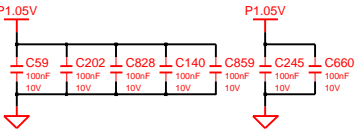
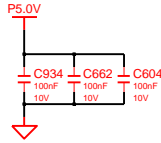
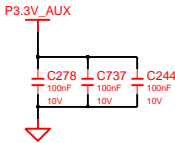
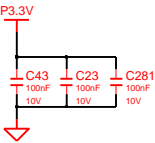
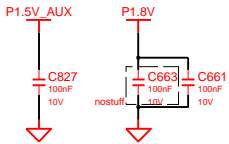
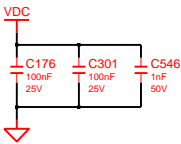
ICT PORT



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	1/26/2010	TITLE	BREMEN2	SAMSUNG
CHECK	SE Lee	REV. STEP	ADV	ICT PORT	ICT PORT	ELECTRONICS
APPROVAL	MK Kim	REV	REV 0.1	ICT PORT	PART NO.	BA41-
MODULE CODE		LAST EDIT	March 06, 2010 17:48:35 PM	PAGE	54	OF 54