

SAMOA(DDR3)

CPU : PENRYN SFF
Chip Set : CANTIGA GS & ICH9M SFF
Remarks : INTEL MONTEVINA SFF

Model Name : SAMOA
PCB Part No : BA41-00905A(Nanya)
BA41-00906A(GCE)
Dev. Step : PR/MP
Revision : 1.1
T.R. Date :

DRAW	CHECK	APPROVAL
Jun PARK	HJ KIM	JS EUH

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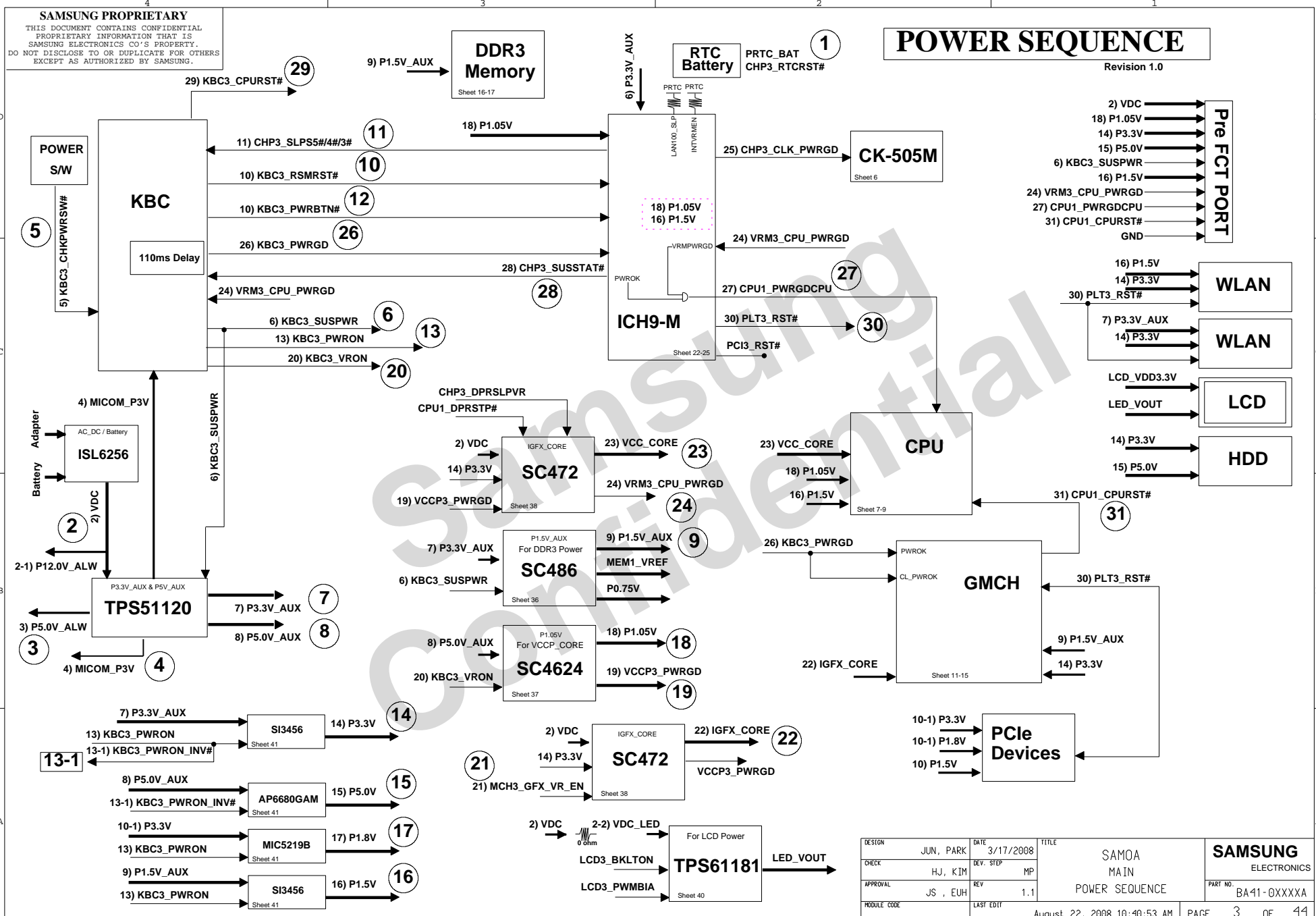
DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN COVER	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	1	OF 44

Revision 1.0



POWER SEQUENCE

Revision 1.0

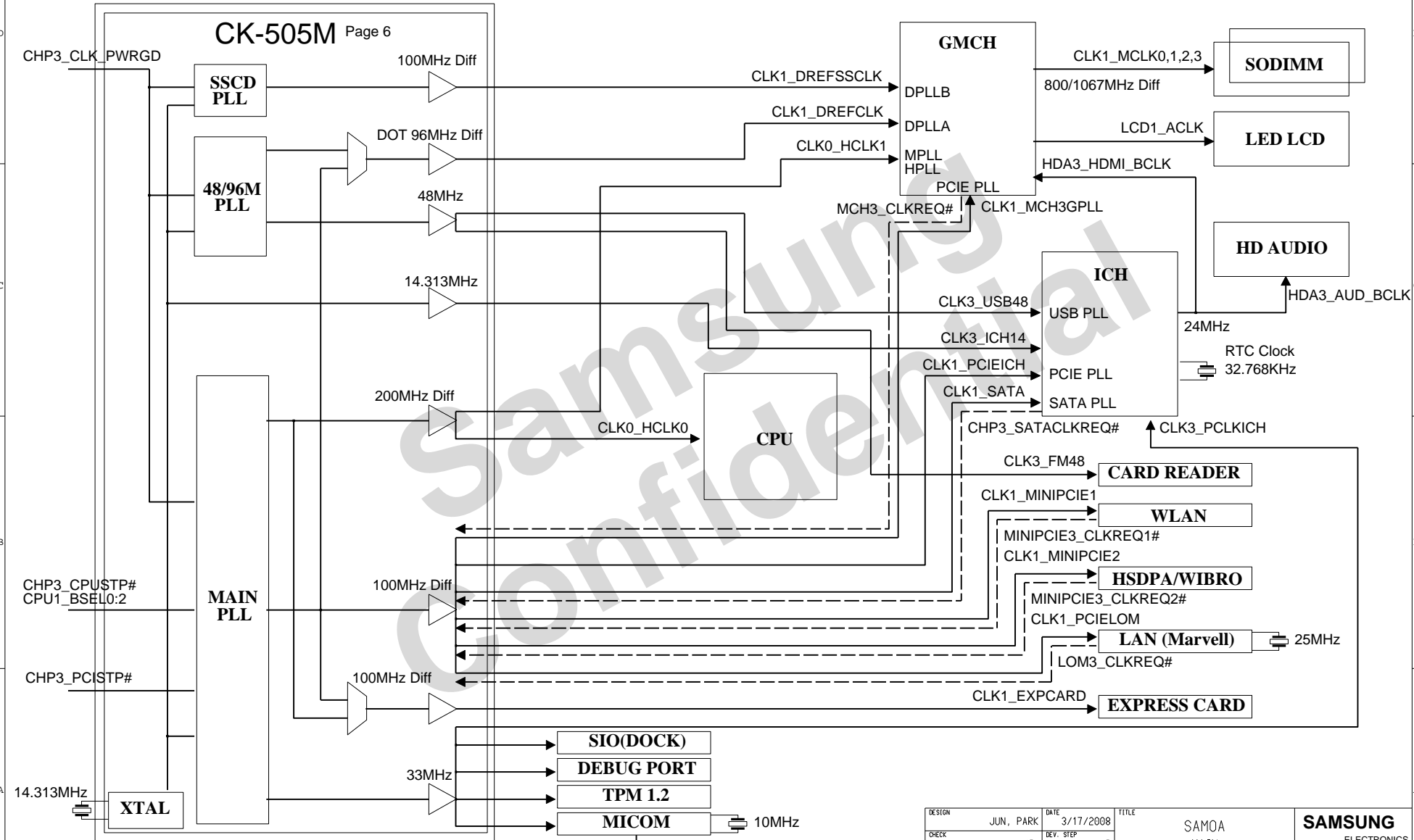


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN POWER SEQUENCE	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	3	OF 44

CLOCK DISTRIBUTION

Revision 1.0

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DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN CLOCK DISTRIBUTION	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	4	OF 44

BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
USB LPC Bridge/IDE/AC97/SMBUS Internal MAC	AD29(internal) AD31(internal) AD24(internal)	Programmable	

I²C / SMB Address

Devices	Address	Hex	Bus
ICH9M	Master		SMBUS Master
CK-505M (Clock Generator)	1101 001X	D2h	Clock, Unused Clock Output Disable
SODIMM0	1010 000X	A0h	
SODIMM1	1010 001X	A4h	
PI3HDMI412AD	1010 001X	C0h	
MICOM	Master		
BATTERY	0001 011X	16h	
EMC2102	0111 101X	7Ah	

USB PORT Assign

Port Number	ASSIGNED TO	Port Number	ASSIGNED TO
UHCL_0 0	USB PORT (LEFT)	UHCL_3 6	USB PROT (RIGHT2)
1	USB PORT (RIGHT1)		EXPRESS CARD
2	USB HUB1 (DOCK)	UHCL_4 8	CAMERA
3	USB HUB2 (DOCK)	UHCL_5 9	FINGER PRINT
4	BLUETOOTH		WLAN for Combo
UHCL_2 5	AU6371	UHCL_5 11	HSDPA

System Power States

Power Rail	Devices (Page Number)
P5.0V	EMC2102 (10) ICH9M (21) 1.8" SATA HDD (25) MICOM (26) Pre FCT PORT (32) DISCHARGE, CAMERA, TOUCHPAD (33) SC472 (38) SC454 (39) AP6680 (41) PISV330QX (24,42) HDMI CONN. (SUB_10) CRT CONN. (SUB_9)
P3.3V	CK505M (6) FAN (10) CANTIGA GS (14) SPI ROM (19) ICH9M (21) LED LCD (23) 1.8" SATA HDD (25) WLAN (29) HSDPA (30) PI3HDMI412AD (31) Pre FCT PORT (32) DEBUG PORT, Pre FCT PORT & WHITE LED (32) DISCHARGE & BLUETOOTH (33) SWITCHED (41) LPC47N207 (43) ALC262-VC2 (SUB_4) R5538 (SUB_7) POWER S/W LED (SUB_11) AU6371 (SUB_12) AES1610 (SUB_14)
P1.8V	CANTIGA GS (14) DISCHARGE (33) SWITCHED (41)
P1.5V	CK505M (6) PENRYN ULV (8) CANTIGA GS (14) ICH9M (21) WLAN (29) HSDPA (30) Pre FCT PORT (32) DISCHARGE (33) SWITCHED (41) ALC262-VC2 (SUB_4) R5538 (SUB_7)
P1.05V	PENRYN ULV (8) CANTIGA GS (11,14) ICH9M (21) Pre FCT PORT (32) DISCHARGE (33) SC4624 (37)
P0.75V	DDR3 (16, 17) SC486 (36)
P5V_AUX	ICH9M (21) TPS51120 (35) SC486 (36) SC4624 (37) SWITCHED (41) USB PORT (7,11)
P3.3V_AUX	EMC2102 (10) ICH9M (21) 88E8055 (27) STMUX1000 (28) WLAN (29) LAN JACK LED (32) TPS51120 (35) SWITCHED (41) SLB9635 (43) R5538 (SUB_7)
P1.5V_AUX	CANTIGA GS (14) DDR3 (16, 17) ICH9M (21) SC486 (36) SWITCHED (41)
VCC_CORE	PENRYN ULV (8,9) SC454 (39)
VCC_CORE	CANTIGA GS (12)

Voltage Rails

Power Rail	Descriptions	Power Rail	Descriptions
AD_DC VDC	Primary DC system power supply (9 to 19V)	P1.05V_PEG	P1.05V (Direct Media Interface Compensation)
CHG_REF	Charger Reference Voltage Source	P5.0V	5.0V Power Rail (off in S3-S5)
PRTC_BAT	3.3V supply for the RTC well.	P3.3V	3.3V Power Rail (off in S3-S5)
P5.0V_FILT	???	P1.8V	1.8V Power Rail (off in S3-S5)
P12.0V_ALW	???	P1.5V	1.5V Power Rail (off in S3-S5)
P5.0V_ALW	???	P1.05	1.05V Power Rail (off in S3-S5)
		P0.75V	DDR3 Termination
		P5.0V_AUX	5.0V Power Rail (off in S4-S5)
		P3.3V_AUX	3.3V Power Rail (off in S4-S5)
		P1.5_AUX	1.5V Power Rail (off in S4-S5)
		VCC_CORE	Core Voltage for PENRYN ULV
		IGFX_CORE	Core Voltage for CANTIGA GS
MICOM_P3V	Output voltage of ISL6256(Charger) (if VDC is removed, it will be off)	AUD_P5V	5.0V switched power rail (off in S3-S5)
LCD_VDD3V	3.3V (LED LCD)	AMP_VDD	5.0V (Audio AMP)
LED_VOUT	7V-19V (LED LCD)	AVDD	5.0V (ADI1986)
VDC_LED	VDC (LED LCD)		
P5.0V_CRT	5.0V (CRT Conn.)	P1.5V_EXT	1.5V (R5538, EXPRESS CARD)
VCC_CRT	5.0V (CRT)	P3.3V_AUX_EXT	3.3V (R5538, EXPRESS CARD)
		P3.3V_EXT	
P1.2V_LAN		3.3V_VDD	3.3V (AES1610, FINGER PRINT)
P1.8V_P2.5V_LAN	Internal Regulator's Power of LAN Controller	FP_P3.3V	3.3V (AES1610, FINGER PRINT)
P3.3V_MCD	3.3V (7-in-1 Socket)		

CPU Core Voltage Table

VID6	VID5	VID4	VID3	VID2	VID1	VID0	Voltage	VID6	VID5	VID4	VID3	VID2	VID1	VID0	Voltage	VID6	VID5	VID4	VID3	VID2	VID1	VID0	Voltage
0	0	0	0	0	0	0	1.5000	0	1	0	0	0	0	0	1.1000	1	0	0	0	0	0	0	0.7000
0	0	0	0	0	0	1	1.4875	0	1	0	0	0	0	1	1.0875	1	0	0	0	0	0	0	0.6875
0	0	0	0	0	0	1	1.4750	0	1	0	0	0	0	1	1.0750	1	0	0	0	0	0	1	0.6750
0	0	0	0	0	1	1	1.4625	0	1	0	0	0	0	1	1.0625	1	0	0	0	0	1	1	0.6625
0	0	0	0	1	0	0	1.4500	0	1	0	0	0	1	0	1.0500	1	0	0	0	1	0	0	0.6500
0	0	0	0	1	0	1	1.4375	0	1	0	0	1	0	1	1.0375	1	0	0	0	1	0	1	0.6375
0	0	0	0	1	1	0	1.4250	0	1	0	0	1	1	0	1.0250	1	0	0	0	1	1	0	0.6250
0	0	0	0	1	1	1	1.4125									1	0	0	0	1	1	0	0.6125
0	0	0	1	0	0	0	1.4000									1	0	0	0	1	0	0	0.6000
0	0	0	1	0	0	1	1.3875									1	0	0	1	0	0	1	0.5875
0	0	0	1	0	1	0	1.3750									1	0	0	1	0	1	0	0.5750
0	0	0	1	0	1	1	1.3625									1	0	0	1	0	1	1	0.5625
0	0	0	1	1	0	0	1.3500									1	0	0	1	1	0	0	0.5500
0	0	0	1	1	0	1	1.3375									1	0	0	1	1	0	1	0.5375
0	0	0	1	1	1	0	1.3250									1	0	0	1	1	1	0	0.5250
0	0	0	1	1	1	1	1.3125									1	0	0	1	1	1	1	0.5125
0	0	0	1	0	0	0	1.3000									1	0	0	1	1	0	0	0.5000
0	0	0	1	0	0	1	1.2875																
0	0	0	1	0	1	0	1.2750																
0	0	0	1	0	1	1	1.2625																
0	0	0	1	0	1	0	1.2500																
0	0	0	1	0	1	1	1.2375																
0	0	0	1	1	0	0	1.2250																
0	0	0	1	1	0	1	1.2125																
0	0	0	1	1	0	0	1.2000																
0	0	0	1	1	0	1	1.1875																
0	0	0	1	1	1	0	1.1750																
0	0	0	1	1	1	1	1.1625																
0	0	0	1	1	1	0	1.1500																
0	0	0	1	1	1	1	1.1375																
0	0	0	1	1	1	0	1.1250																
0	0	0	1	1	1	1	1.1125																

Active Mode

Active / Deeper Sleep Dual Mode

Deeper Sleep / Deep Power Down Mode

Programmable Deep Power Down

GMCH Core Voltage

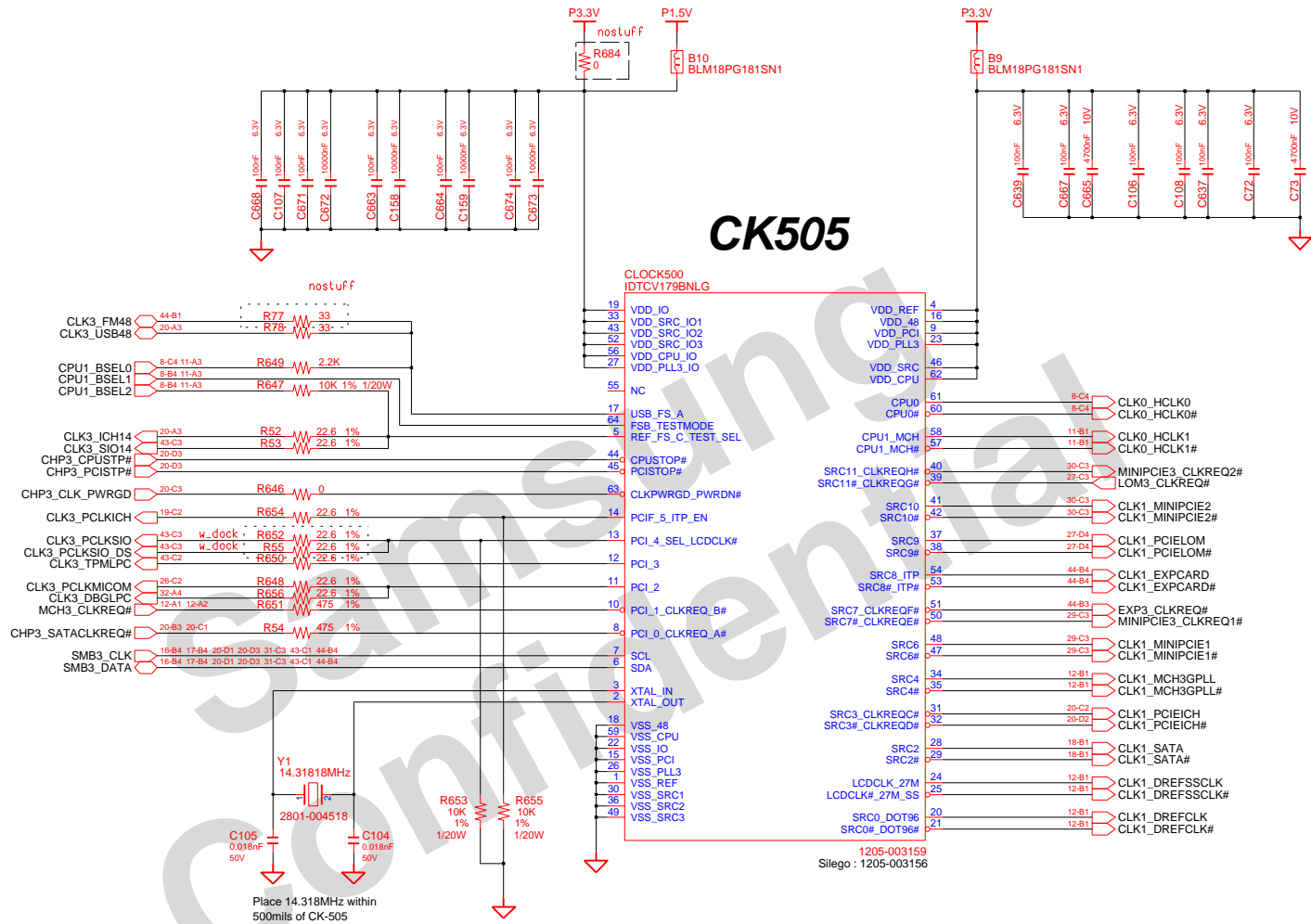
EN	V4	V3	V2	V1	V0	Voltage
1	0	0	0	0	0	1.250
1	0	0	0	0	1	1.225
1	0	0	0	1	0	1.200
1	0	0	0	1	1	1.175
1	0	0	1	0	0	1.150
1	0	0	1	0	1	1.125
1	0	0	1	1	0	1.100
1	0	0	1	1	1	1.075
1	0	1	0	0	0	1.050
1	0	1	0	0	1	1.025
1	0	1	0	1	0	1.000
1	0	1	0	1	1	0.975
1	0	1	1	0	0	0.950
1	0	1	1	0	1	0.925
1	0	1	1	1	0	0.900
1	0	1	1	1	1	0.875
1	1	0	0	0	0	0.850
1	1	0	0	0	1	0.825
1	1	0	0	1	0	0.800
1	1	0	0	1	1	0.775
1	1	0	1	0	0	0.750
1	1	0	1	0	1	0.725
1	1	0	1	1	0	0.700
1	1	0	1	1	1	0.675
1	1	1	0	0	0	0.650
1	1	1	0	0	1	0.625
1	1	1	0	1	0	0.600
1	1	1	0	1	1	0.575
1	1	1	1	0	0	0.550
1	1	1	1	0	1	0.525
1	1	1	1	1	0	0.500
0	0	X	X	X	X	0.400

Render Performance States

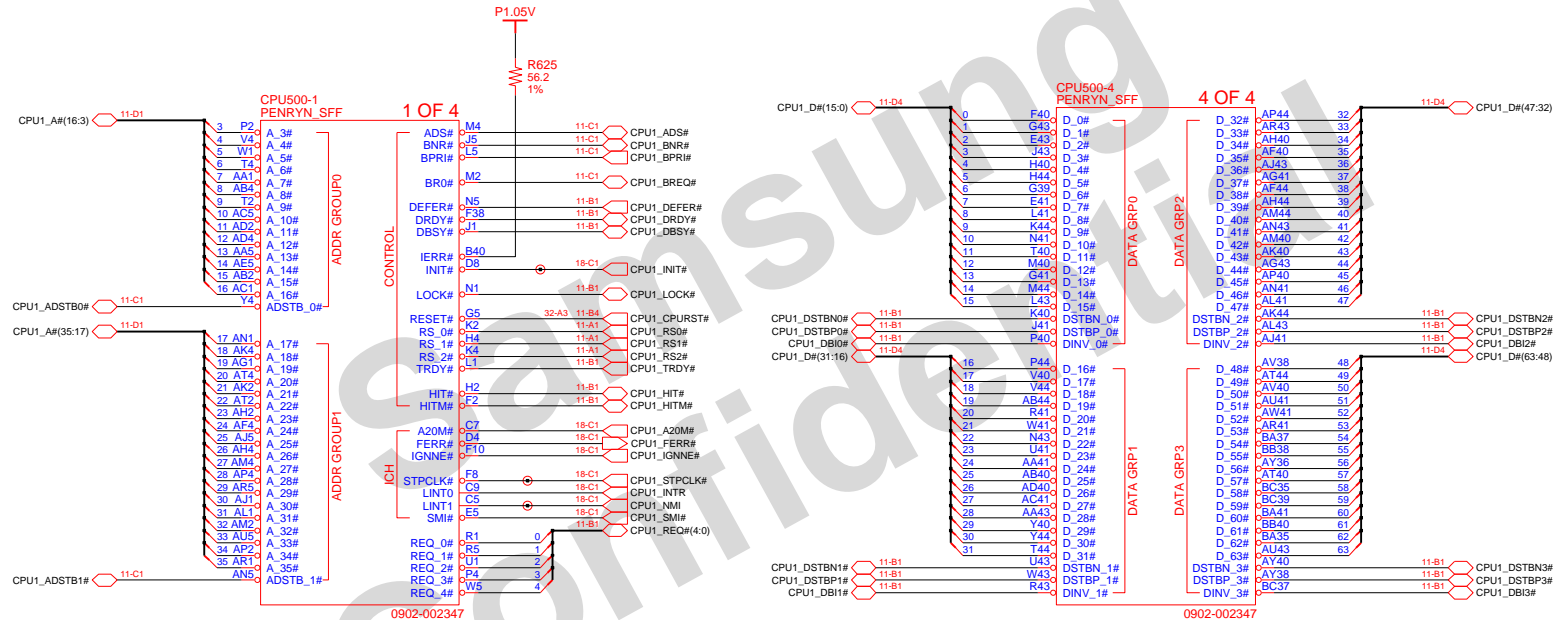
Render Suspend States

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA	SAMSUNG
CHECK	HJ, KIM	DEV. STEP	MP		MAIN	ELECTRONICS
APPROVAL	JS, EUH	REV	1.1		BOARD INFORMATION	PART NO. BA41-0XXXXA
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FSC BSEL2	FSB BSEL1	FSA BSEL0	HOST CLK
0	0	0	266 MHz
0	0	1	RSVD
0	1	0	200 MHz
0	1	1	166 MHz
1	0	0	RSVD
1	0	1	RSVD
1	1	0	RSVD
1	1	1	RSVD



ULV CPU(Penryn SFF)



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN PENRYN ULV CPU(1/3)	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	7 OF 44	

ULV CPU(Penryn SFF)

VCC_CORE

AA33	VCC.1	V20	VCC.220	M22	VCC.175
AB16	VCC.2	V20	VCC.219	M20	VCC.174
AB18	VCC.3	V20	VCC.218	M18	VCC.173
AB20	VCC.4	V20	VCC.217	M16	VCC.172
AB22	VCC.5	V20	VCC.216	L33	VCC.171
AB24	VCC.6	V20	VCC.215	K32	VCC.170
AB26	VCC.7	V20	VCC.214	K28	VCC.169
AB28	VCC.8	V20	VCC.213	K25	VCC.168
AB30	VCC.9	V20	VCC.212	K21	VCC.167
AB32	VCC.10	V20	VCC.211	K18	VCC.166
AC33	VCC.11	V20	VCC.210	K16	VCC.165
AD16	VCC.12	V20	VCC.209	K12	VCC.164
AD18	VCC.13	V20	VCC.208	K10	VCC.163
AD20	VCC.14	V20	VCC.207	K8	VCC.162
AD22	VCC.15	V20	VCC.206	H32	VCC.161
AD24	VCC.16	V20	VCC.205	H30	VCC.160
AD26	VCC.17	V20	VCC.204	H28	VCC.159
AD28	VCC.18	V20	VCC.203	H26	VCC.158
AD30	VCC.19	V20	VCC.202	H24	VCC.157
AD32	VCC.20	V20	VCC.201	H22	VCC.156
AE33	VCC.21	V20	VCC.200	H20	VCC.155
AF16	VCC.22	V20	VCC.199	H18	VCC.154
AF18	VCC.23	V20	VCC.198	H16	VCC.153
AF20	VCC.24	V20	VCC.197	G32	VCC.152
AF22	VCC.25	V20	VCC.196	G30	VCC.151
AF24	VCC.26	V20	VCC.195	F32	VCC.150
AF26	VCC.27	V20	VCC.194	F30	VCC.149
AF28	VCC.28	V20	VCC.193	F28	VCC.148
AF30	VCC.29	V20	VCC.192	F26	VCC.147
AF32	VCC.30	V20	VCC.191	F24	VCC.146
AG33	VCC.31	V20	VCC.190	F22	VCC.145
AH16	VCC.32	V20	VCC.189	F20	VCC.144
AH18	VCC.33	V20	VCC.188	F18	VCC.143
AH20	VCC.34	V20	VCC.187	F16	VCC.142
AH22	VCC.35	V20	VCC.186	F14	VCC.141
AH24	VCC.36	V20	VCC.185	D32	VCC.140
AH26	VCC.37	V20	VCC.184	D30	VCC.139
AH28	VCC.38	V20	VCC.183	D28	VCC.138
AH30	VCC.39	V20	VCC.182	D26	VCC.137
AH32	VCC.40	V20	VCC.181	D24	VCC.136
AJ33	VCC.41	V20	VCC.180	D22	VCC.135
AJ36	VCC.42	V20	VCC.179	D20	VCC.134
AK18	VCC.43	V20	VCC.178	D18	VCC.133
AK20	VCC.44	V20	VCC.177	D16	VCC.132
AK22	VCC.45	V20	VCC.176	D14	VCC.131
AK24	VCC.46	V20	VCC.175	D12	VCC.130
AK26	VCC.47	V20	VCC.174	D10	VCC.129
AK28	VCC.48	V20	VCC.173	D8	VCC.128
AK30	VCC.49	V20	VCC.172	D6	VCC.127
AK32	VCC.50	V20	VCC.171	D4	VCC.126
AL33	VCC.51	V20	VCC.170	D2	VCC.125
AM14	VCC.52	V20	VCC.169	D0	VCC.124
AM16	VCC.53	V20	VCC.168	C32	VCC.123
AM18	VCC.54	V20	VCC.167	C30	VCC.122
AM20	VCC.55	V20	VCC.166	C28	VCC.121
AM22	VCC.56	V20	VCC.165	C26	VCC.120
AM24	VCC.57	V20	VCC.164	C24	VCC.119
AM26	VCC.58	V20	VCC.163	C22	VCC.118
AM28	VCC.59	V20	VCC.162	C20	VCC.117
AM30	VCC.60	V20	VCC.161	C18	VCC.116
AM32	VCC.61	V20	VCC.160	C16	VCC.115
AN33	VCC.62	V20	VCC.159	C14	VCC.114
AP14	VCC.63	V20	VCC.158	C12	VCC.113
AP16	VCC.64	V20	VCC.157	C10	VCC.112
AP18	VCC.65	V20	VCC.156	C8	VCC.111

CPU500-3
PENRYN_SFF
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0902-002347

A5	VSS.1	VSS.132	AP34
A7	VSS.2	VSS.131	AP8
A9	VSS.3	VSS.130	AP6
A11	VSS.4	VSS.129	AN30
A15	VSS.5	VSS.128	AN28
A17	VSS.6	VSS.127	AN26
A21	VSS.7	VSS.126	AN24
A23	VSS.8	VSS.125	AN22
A25	VSS.9	VSS.124	AN20
A27	VSS.10	VSS.123	AN18
A29	VSS.11	VSS.122	AN16
A31	VSS.12	VSS.121	AN14
A33	VSS.13	VSS.120	AN12
A35	VSS.14	VSS.119	AN10
A37	VSS.15	VSS.118	AN8
A39	VSS.16	VSS.117	AM32
A41	VSS.17	VSS.116	AM30
A43	VSS.18	VSS.115	AM28
A45	VSS.19	VSS.114	AM26
A47	VSS.20	VSS.113	AM24
A49	VSS.21	VSS.112	AM22
A51	VSS.22	VSS.111	AM20
A53	VSS.23	VSS.110	AM18
A55	VSS.24	VSS.109	AM16
A57	VSS.25	VSS.108	AM14
A59	VSS.26	VSS.107	AM12
A61	VSS.27	VSS.106	AM10
A63	VSS.28	VSS.105	AM8
A65	VSS.29	VSS.104	AM6
A67	VSS.30	VSS.103	AM4
A69	VSS.31	VSS.102	AM2
A71	VSS.32	VSS.101	AL32
A73	VSS.33	VSS.100	AL30
A75	VSS.34	VSS.99	AL28
A77	VSS.35	VSS.98	AL26
A79	VSS.36	VSS.97	AL24
A81	VSS.37	VSS.96	AL22
A83	VSS.38	VSS.95	AL20
A85	VSS.39	VSS.94	AL18
A87	VSS.40	VSS.93	AL16
A89	VSS.41	VSS.92	AL14
A91	VSS.42	VSS.91	AL12
A93	VSS.43	VSS.90	AL10
A95	VSS.44	VSS.89	AL8
A97	VSS.45	VSS.88	AL6
A99	VSS.46	VSS.87	AL4
A101	VSS.47	VSS.86	AL2
A103	VSS.48	VSS.85	AL0
A105	VSS.49	VSS.84	AL32
A107	VSS.50	VSS.83	AL30
A109	VSS.51	VSS.82	AL28
A111	VSS.52	VSS.81	AL26
A113	VSS.53	VSS.80	AL24
A115	VSS.54	VSS.79	AL22
A117	VSS.55	VSS.78	AL20
A119	VSS.56	VSS.77	AL18
A121	VSS.57	VSS.76	AL16
A123	VSS.58	VSS.75	AL14
A125	VSS.59	VSS.74	AL12
A127	VSS.60	VSS.73	AL10
A129	VSS.61	VSS.72	AL8
A131	VSS.62	VSS.71	AL6
A133	VSS.63	VSS.70	AL4
A135	VSS.64	VSS.69	AL2
A137	VSS.65	VSS.68	AL0
A139	VSS.66	VSS.67	AL32

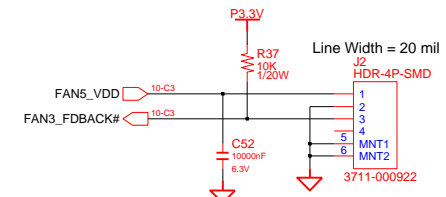
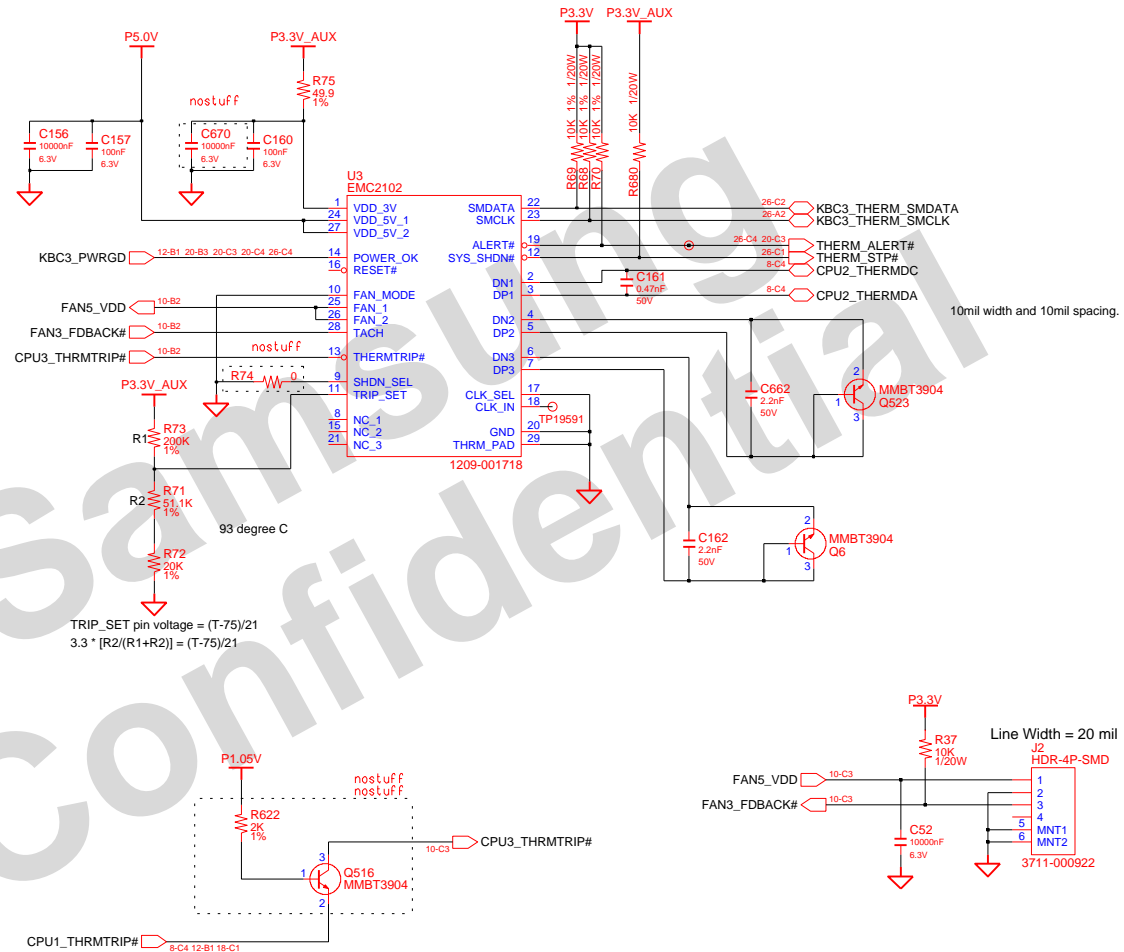
AR13	VSS.133	VSS.264	E19
AR15	VSS.134	VSS.263	E17
AR17	VSS.135	VSS.262	E15
AR19	VSS.136	VSS.261	E13
AR21	VSS.137	VSS.260	E11
AR23	VSS.138	VSS.259	E9
AR25	VSS.139	VSS.258	E7
AR27	VSS.140	VSS.257	E5
AR29	VSS.141	VSS.256	E3
AR31	VSS.142	VSS.255	D5
AR33	VSS.143	VSS.254	D3
AR35	VSS.144	VSS.253	D1
AR37	VSS.145	VSS.252	D0
AR39	VSS.146	VSS.251	C9
AR41	VSS.147	VSS.250	C7
AR43	VSS.148	VSS.249	C5
AR45	VSS.149	VSS.248	C3
AR47	VSS.150	VSS.247	C1
AR49	VSS.151	VSS.246	C0
AR51	VSS.152	VSS.245	B9
AR53	VSS.153	VSS.244	B7
AR55	VSS.154	VSS.243	B5
AR57	VSS.155	VSS.242	B3
AR59	VSS.156	VSS.241	B1
AR61	VSS.157	VSS.240	B0
AR63	VSS.158	VSS.239	B36
AR65	VSS.159	VSS.238	B34
AR67	VSS.160	VSS.237	B32
AR69	VSS.161	VSS.236	B30
AR71	VSS.162	VSS.235	B28
AR73	VSS.163	VSS.234	B26
AR75	VSS.164	VSS.233	B24
AR77	VSS.165	VSS.232	B22
AR79	VSS.166	VSS.231	B20
AR81	VSS.167	VSS.230	B18
AR83	VSS.168	VSS.229	B16
AR85	VSS.169	VSS.228	B14
AR87	VSS.170	VSS.227	B12
AR89	VSS.171	VSS.226	B10
AR91	VSS.172	VSS.225	B8
AR93	VSS.173	VSS.224	B6
AR95	VSS.174	VSS.223	B4
AR97	VSS.175	VSS.222	B2
AR99	VSS.176	VSS.221	B0
AR101	VSS.177	VSS.220	B36
AR103	VSS.178	VSS.219	B34
AR105	VSS.179	VSS.218	B32
AR107	VSS.180	VSS.217	B30
AR109	VSS.181	VSS.216	B28
AR111	VSS.182	VSS.215	B26
AR113	VSS.183	VSS.214	B24
AR115	VSS.184	VSS.213	B22
AR117	VSS.185	VSS.212	B20
AR119	VSS.186	VSS.211	B18
AR121	VSS.187	VSS.210	B16
AR123	VSS.188	VSS.209	B14
AR125	VSS.189	VSS.208	B12
AR127	VSS.190	VSS.207	B10
AR129	VSS.191	VSS.206	B8
AR131	VSS.192	VSS.205	B6
AR133	VSS.193	VSS.204	B4
AR135	VSS.194	VSS.203	B2
AR137	VSS.195	VSS.202	B0
AR139	VSS.196	VSS.201	B36
AR141	VSS.197	VSS.200	B34
AR143	VSS.198	VSS.199	B32


E21	VSS.265	VSS.395	Y42
E23	VSS.266	VSS.394	Y38
E25	VSS.267	VSS.393	Y36
E27	VSS.268	VSS.392	Y34
E29	VSS.269	VSS.391	Y32
E31	VSS.270	VSS.390	Y30
E33	VSS.271	VSS.389	Y28
E35	VSS.272	VSS.388	Y26
E37	VSS.273	VSS.387	Y24
E39	VSS.274	VSS.386	Y22
E41	VSS.275	VSS.385	Y20
E43	VSS.276	VSS.384	Y18
E45	VSS.277	VSS.383	Y16
E47	VSS.278	VSS.382	Y14
E49	VSS.279	VSS.381	Y12
E51	VSS.280	VSS.380	Y10
E53	VSS.281	VSS.379	Y8
E55	VSS.282	VSS.378	Y6
E57	VSS.283	VSS.377	Y4
E59	VSS.284	VSS.376	Y2
E61	VSS.285	VSS.375	V6
E63	VSS.286	VSS.374	V8
E65	VSS.287	VSS.373	V10
E67	VSS.288	VSS.372	V12
E69	VSS.289	VSS.371	V14
E71	VSS.290	VSS.370	V16
E73	VSS.291	VSS.369	V18
E75	VSS.292	VSS.368	V20
E77	VSS.293	VSS.367	V22
E79	VSS.294	VSS.366	V24
E81	VSS.295	VSS.365	V26
E83	VSS.296	VSS.364	V28
E85	VSS.297	VSS.363	V30
E87	VSS.298	VSS.362	V32
E89	VSS.299	VSS.361	V34
E91	VSS.300	VSS.360	V36
E93	VSS.301	VSS.359	V38
E95	VSS.302	VSS.358	V40
E97	VSS.303	VSS.357	V42
E99	VSS.304	VSS.356	V44
E101	VSS.305	VSS.355	V46
E103	VSS.306	VSS.354	V48
E105	VSS.307	VSS.353	V50
E107	VSS.308	VSS.352	V52
E109	VSS.309	VSS.351	V54
E111	VSS.310	VSS.350	V56
E113	VSS.311	VSS.349	V58
E115	VSS.312	VSS.348	V60
E117	VSS.313	VSS.347	V62
E119	VSS.314	VSS.346	V64
E121	VSS.315	VSS.345	V66
E123	VSS.316	VSS.344	V68
E125	VSS.317	VSS.343	V70
E127	VSS.318	VSS.342	V72
E129	VSS.319	VSS.341	V74
E131	VSS.320	VSS.340	V76
E133	VSS.321	VSS.339	V78
E135	VSS.322	VSS.338	V80
E137	VSS.323	VSS.337	V82
E139	VSS.324	VSS.336	V84
E141	VSS.325	VSS.335	V86
E143	VSS.326	VSS.334	V88
E145	VSS.327	VSS.333	V90
E147	VSS.328	VSS.332	V92
E149	VSS.329	VSS.331	V94
E151	VSS.330		V96

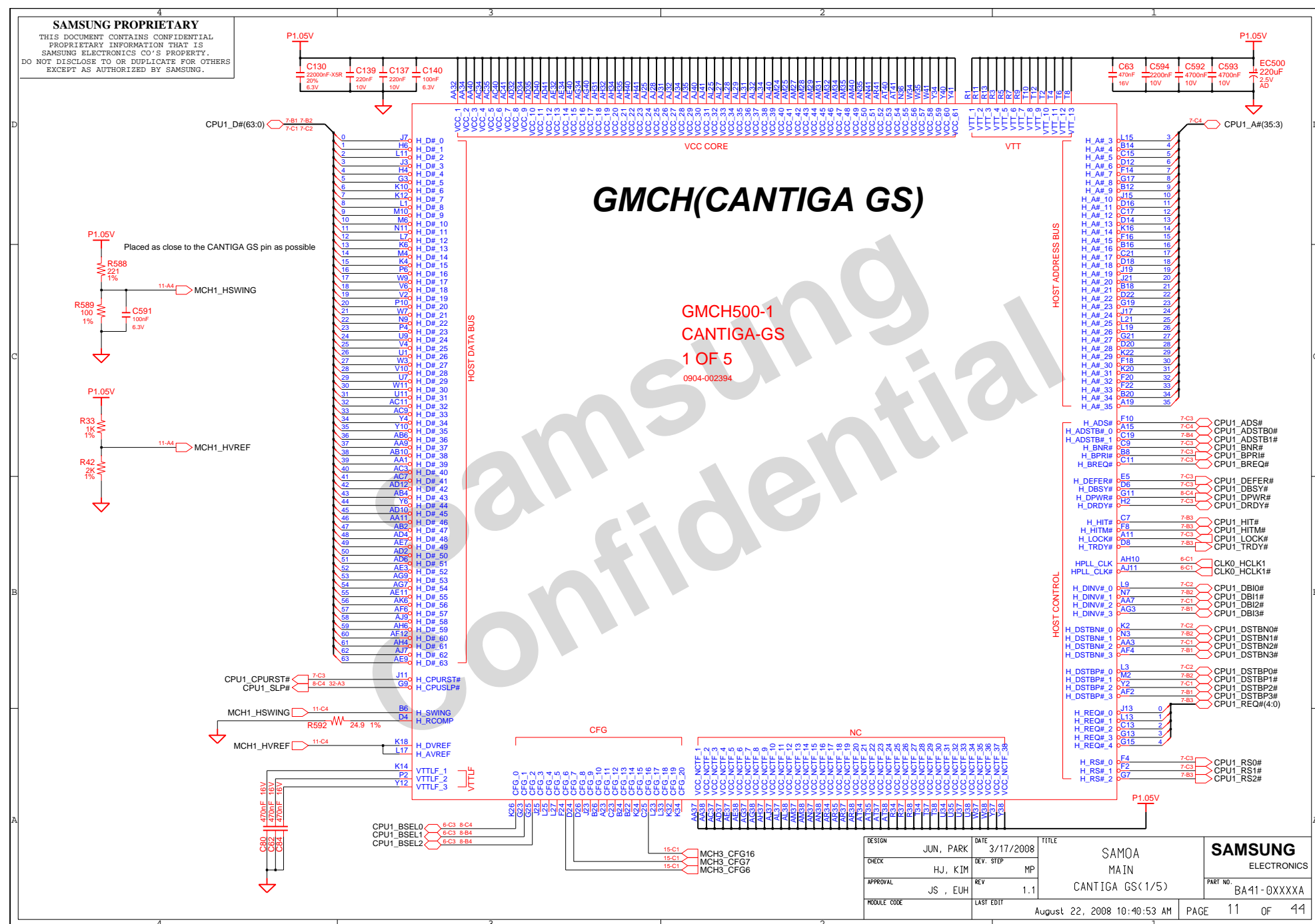
DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA	SAMSUNG
CHECK	HJ, KIM	DEV. STEP	MP	MAIN	ELECTRONICS	
APPROVAL	JS, EUH	REV	1.1	PENRYN ULV CPU(3/3)	PART NO.	BA41-0XXXXA
MODULE CODE		LAST EDIT		August 22, 2008 10:40:53 AM	PAGE	9 OF 44

FAN MODE	
0	0% Drive
Open	60% drive after spin up routine
1	75% drive after spin up routine

SHDN_SEL	
0	Intel Mode
High-Z	Diode Mode
1	Disabled



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE SAMOA MAIN THERMAL MONITOR			
CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS , EUH	REV	1.1				
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM			PAGE	10



P3.3V

DISPLAY PORT#

DPD1_LANE7# 42-B3

DPD1_LANE6# 42-B3

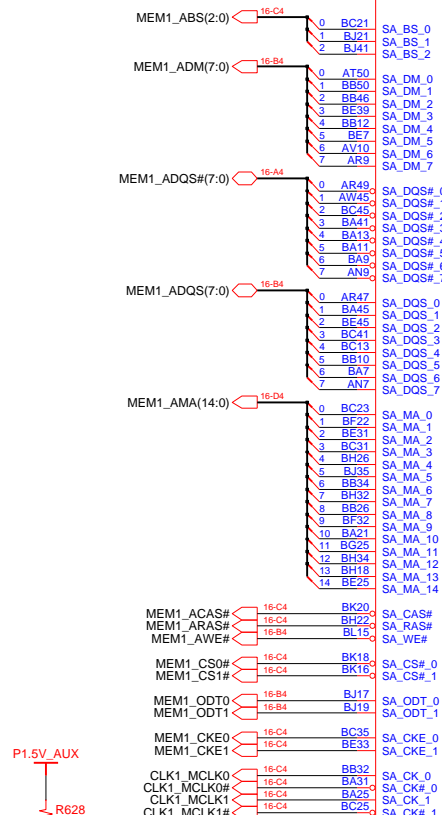
DPD1_LANE5# 42-C3

DPD1_LANE4# 42-C3



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GMCH(CANTIGA GS)

GMCH500-3
CANTIGA-GS
3 OF 5

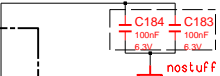
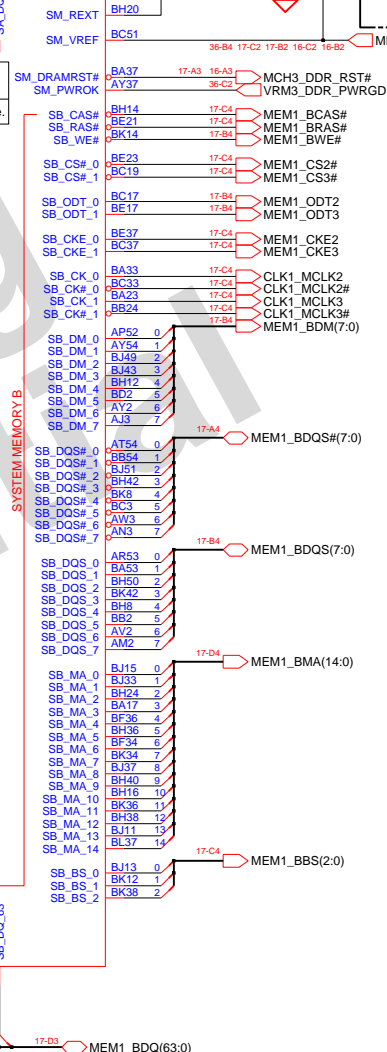
0904-002394

SYSTEM MEMORY B

SYSTEM MEMORY A

SYSTEM MEMORY A

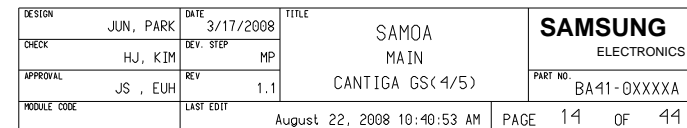
SM_DRAMRST#	Leave as NC in DDR2 mode. Used only in DDR3 mode.
SM_PWROK	Connect to GND in DDR2 mode.



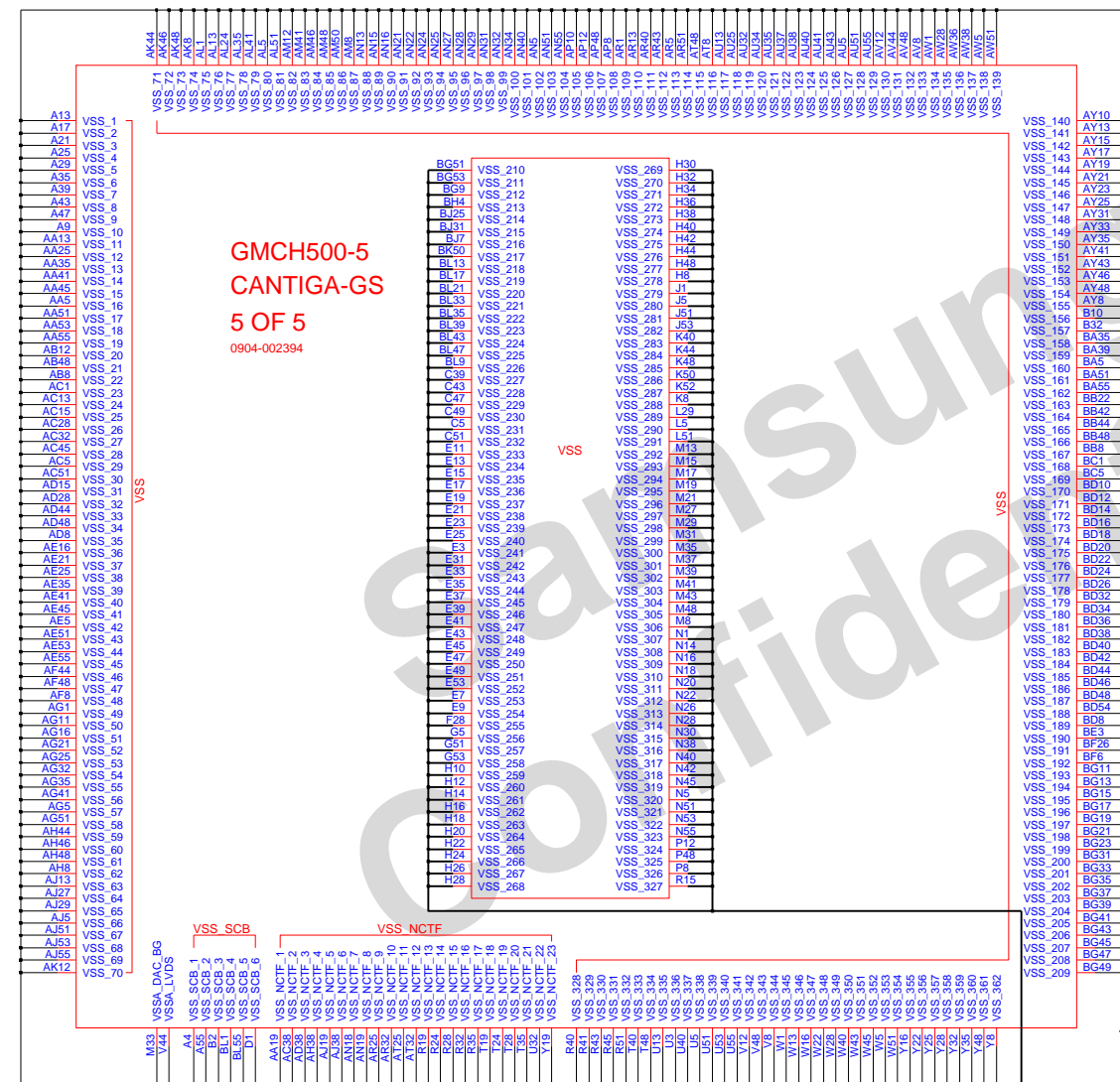
Cantiga SM_RCOMP : 80 ohm to P1.5V_AUX
SM_RCOMP# : 80 ohm to VSS
P1.8V_AUX FOR DDR2

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1		CANTIGS GS(3/5)	
MODULE CODE		LAST EDIT		August 22, 2008 10:40:53 AM	PAGE 13 OF 44	

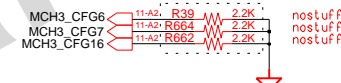
GMCH500-4
CANTIGA-GS
4 OF 5
0904-002394



GMCH(CANTIGA GS)



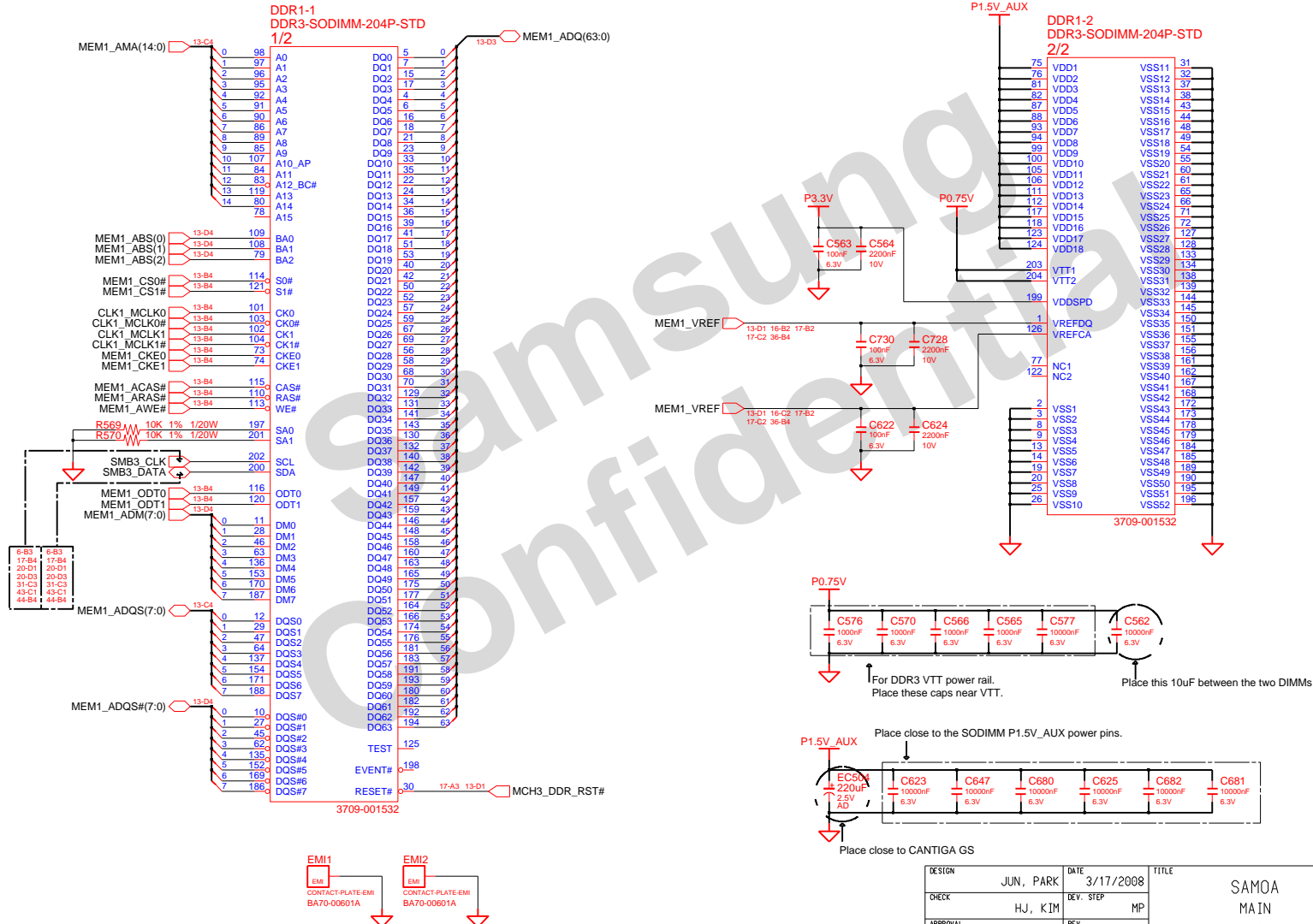
	Current Setting (def. : default Option)	
CFG#	Low	High
CFG(6)	ITPM Host Interface Enable	ITPM Host Interface Disable (def.)



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE SAMOA MAIN CANTIGS GS(5/5)	SAMSUNG ELECTRONICS		
CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS , EUH	REV	1.1				
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM			PAGE	15
				PART NO.	BA41-0XXXXA		

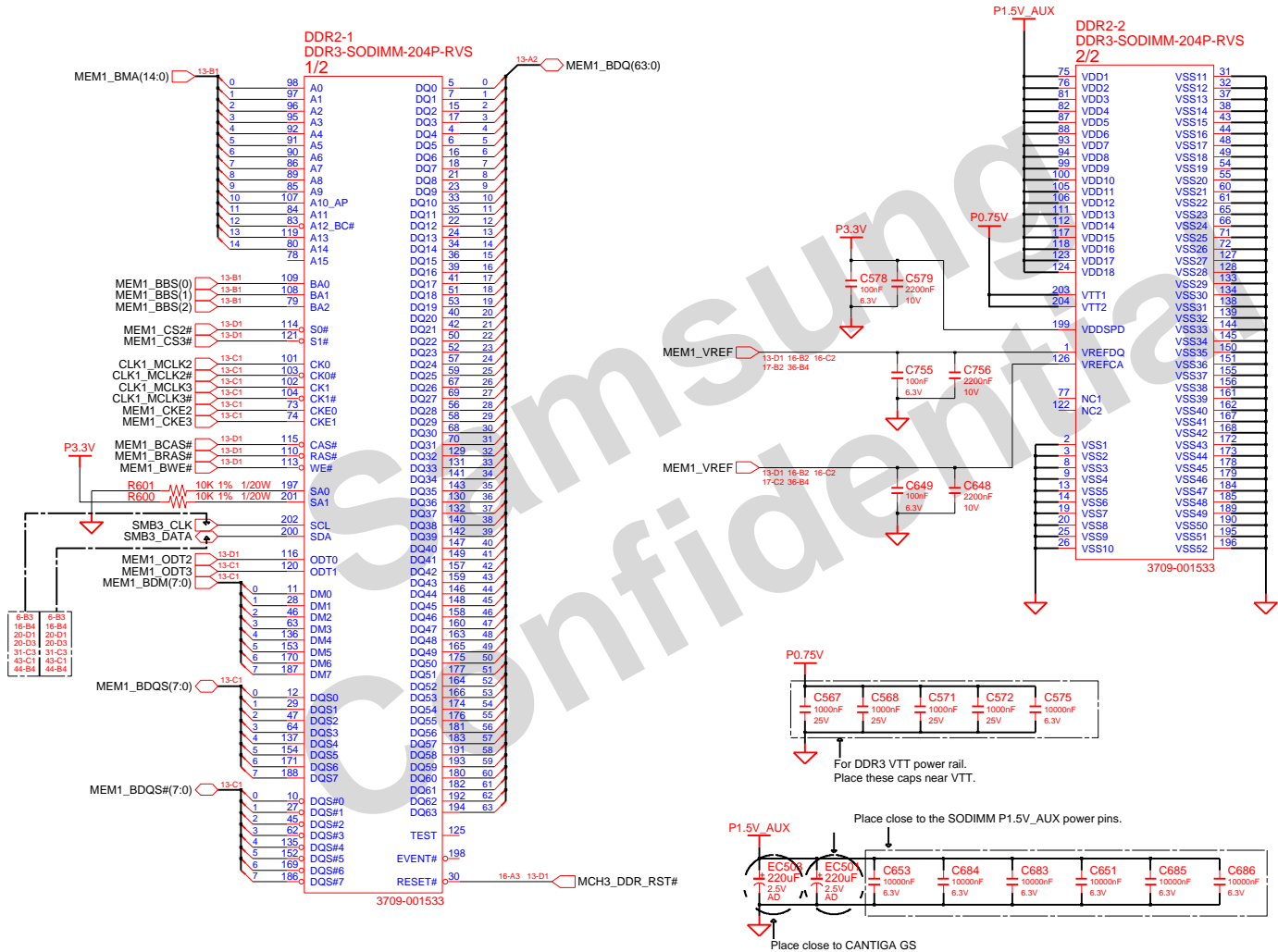
DDR3 SO-DIMM #0

Height : 4.0mm (Standard)



DDR3 SO-DIMM #1

Height : 4.0mm (Reverse)



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1		DDR3 SODIMM CH.1	
MODULE CODE		LAST EDIT				

August 22, 2008 10:40:53 AM

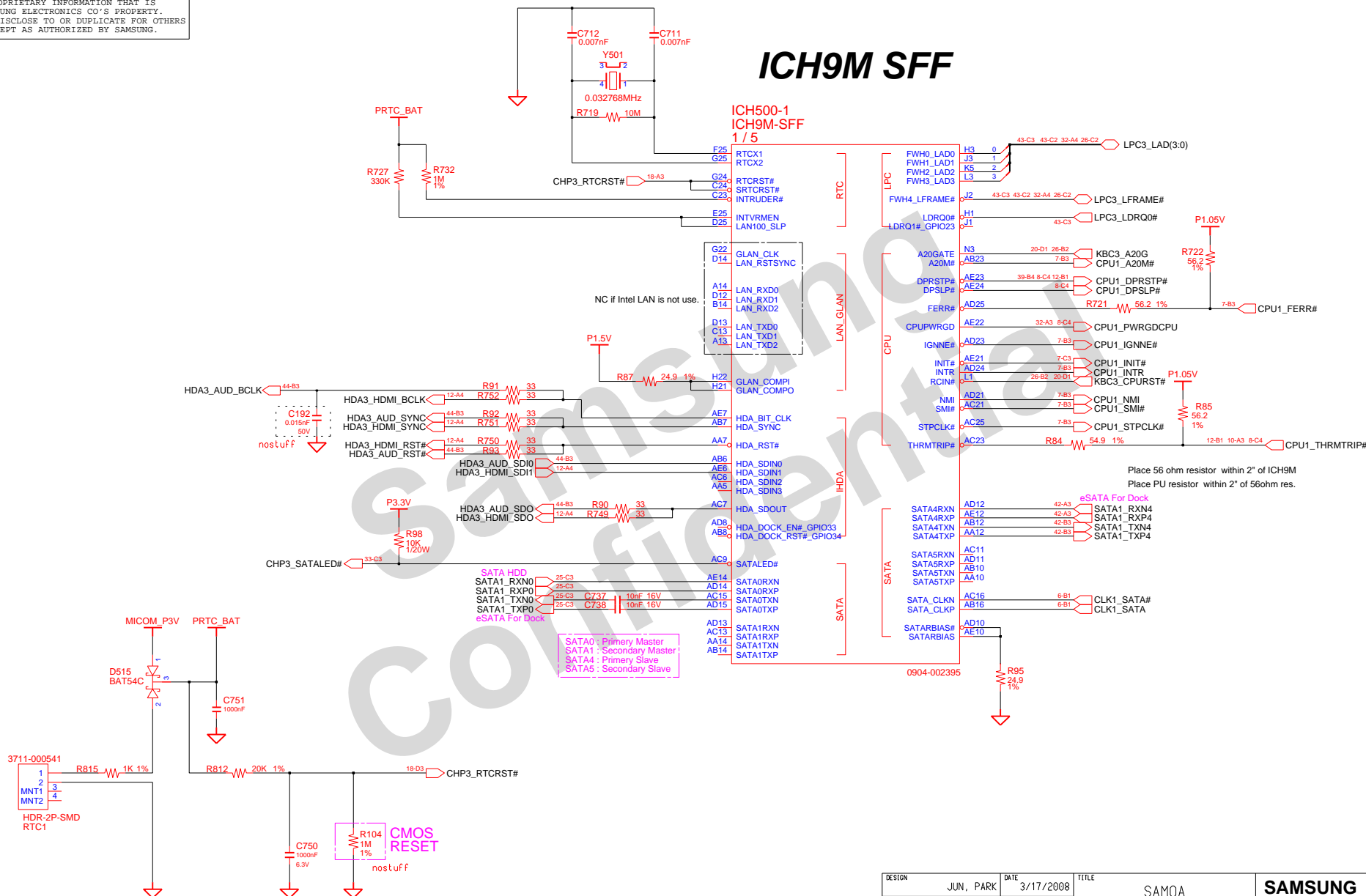
PAGE 17 OF 44

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ICH9M SFF

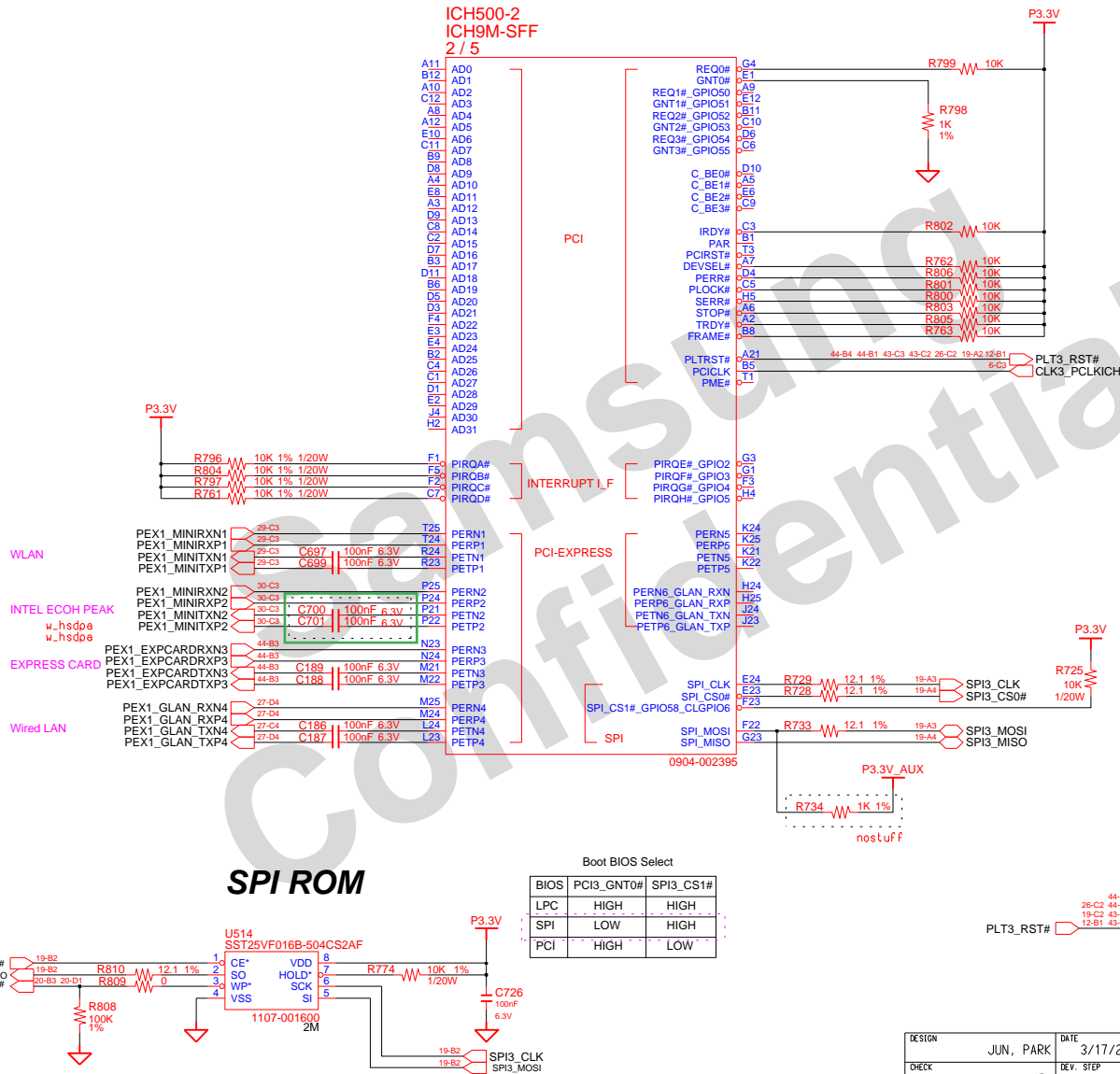
ICH500-1
 ICH9M-SFF
 1 / 5



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1	ICH9M SFF(1/5)	PART NO.	
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	18 OF 44	

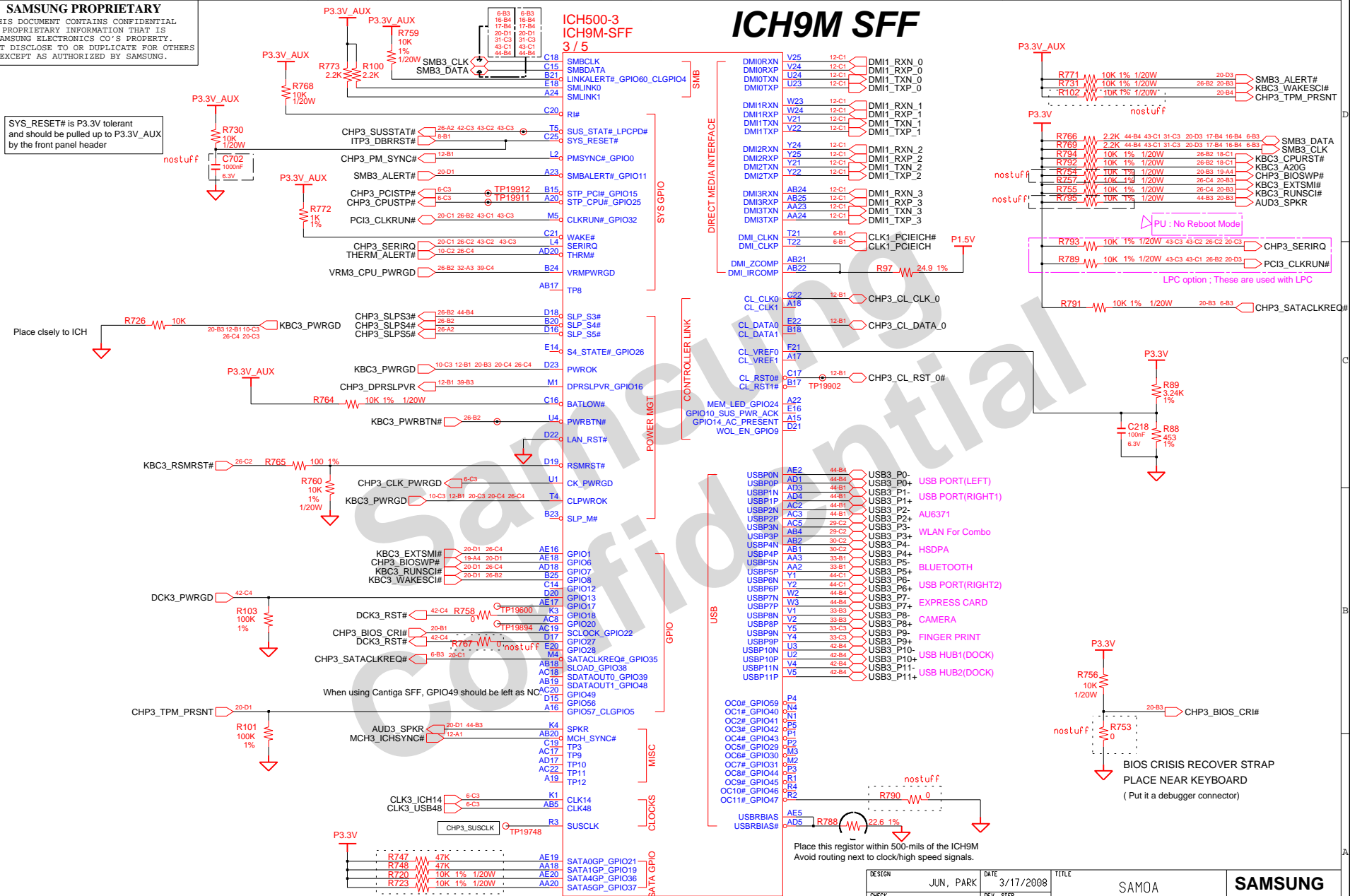
ICH9M SFF

ICH500-2
ICH9M-SFF
2 / 5



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1		ICH9M SFF(2/5)	
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	19 OF 44	

SYS_RESET# is P3.3V tolerant
and should be pulled up to P3.3V_AUX
by the front panel header

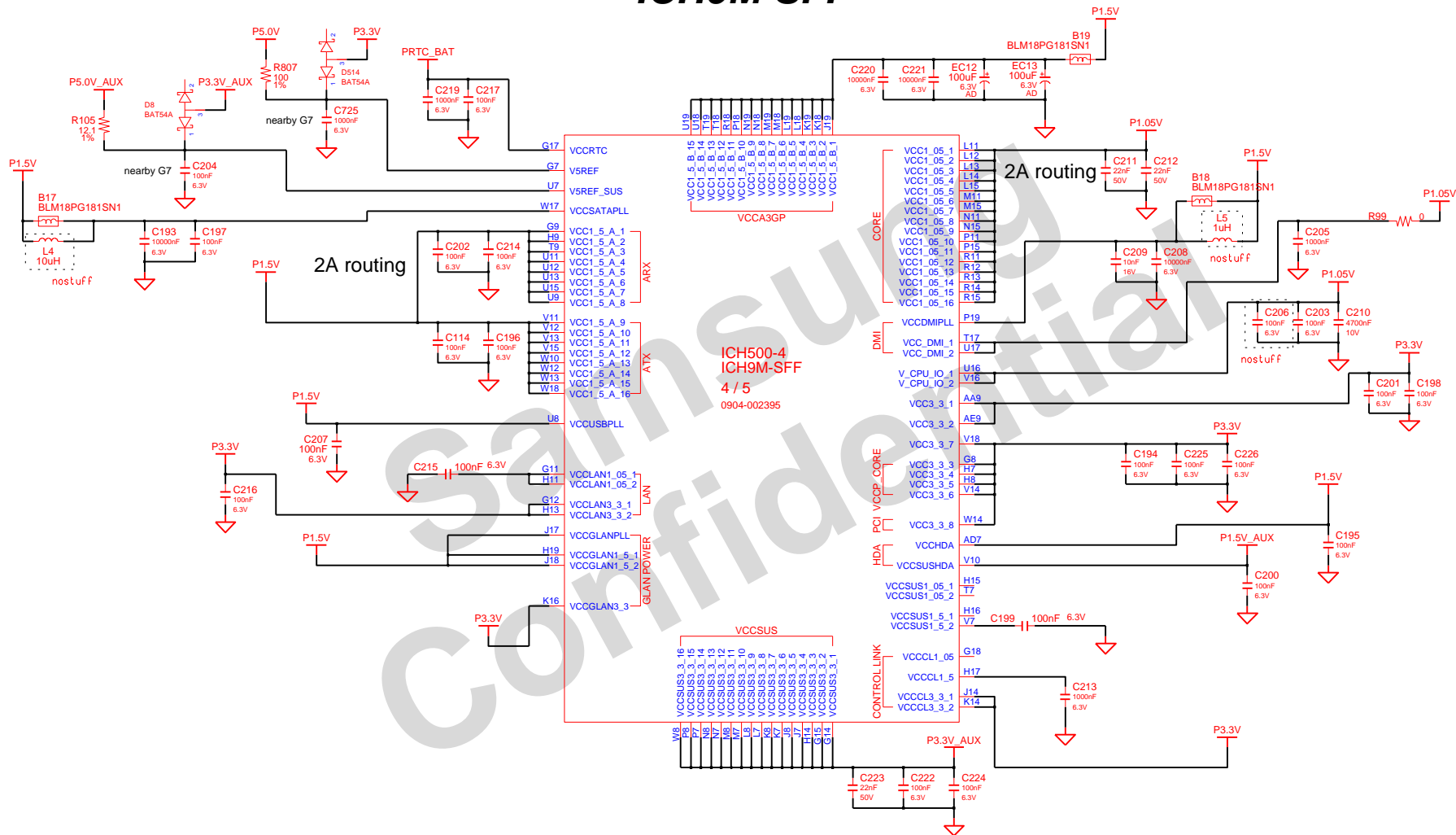



ICH9M SFF

ICH500-3 ICH9M-SFF 3/5

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1		ICH9M SFF(3/5)	PART NO.
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	20	BA1-0XXXXA

ATX ICH500-4
ICH9M-SFF
4 / 5
0904-002395



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN ICH9M SFF(4/5)	
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM			
					PAGE	21 OF 44

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BIOS CODE

ICH9M SFF

02 VERIFY REAL MODE
03 DISABLE NMI
04 GET CPU TYPE
06 INIT. SYSTEM H/W
08 INIT. CHIPSET REG.
09 SET IN POST FLAG
0A INIT CPU.REG
0B CPU CACHE ON
0C INIT.CACHE TO POST
OE INIT. I/O VALUE
0F ENABLE THE L-BUS IDE
10 INIT. POWER MANAGER
11 LOAD ALTERNATE REG.
13 PCI BUS MASTER RESET
WITH INITIAL POST VALUE
14 INIT. KEYBOARD CONTROLLER
16 CHECK CHECKSUM
18 8254 TIMER INIT.
1A 8237 DMA CONTROLLER INIT.
1C RESET INTERRUPT CONTROLLER
20 TEST DRAM REFRESH
22 TEST 8742 KEYBOARD CONTROLLER
24 SET ES SEGMENT REG. TO 4GB
26 ENABLE A20
28 AUTO SIZING DRAM
32 COMPUTE THE CPU SPEED
34 TESET CMOS RAM
38 SHADOW SYSTEM BIOS ROM
3A AUTO SIZING CACHE
3C CONFIGURE ADVANCED CHIPSET REG.
3D LOAD ALTER REG. WITH CMOS VALUE
42 INIT. INTERRUPT VECTOR
44 INIT. BIOS INTERRUPT
46 CHECK ROM COPYRIGHT NOTICE
47 INIT. I20 SUPPORT IF INSTALLED
48 CHECK VIDEO CONFIGURE AGAINST CMOS
49 INIT. PCI BUS AND DEVICE
4A INIT. ALL VIDEO BIOS ROM
4C SHADOW VIDEO BIOS ROM
50 DISPLAY CPU TYPE AND SPEED
52 TEST KEYBOARD
54 SET KEYCLICK IF ENABLED
56 ENABLE KEYBOARD
58 TEST FOR UNEXPECTED INTERRUPTS
5A DISPLAY "PRESS SETUP"
5C TEST RAM BETWEEN 512K AND 640K
60 TEST EXTENDED MEMORY
62 TEST EXTENDED MEMORY ADDRESS LINE
64 JUMP TO USER PATCH 1

66 CONFIGURE ADVANCE CACHE REG.
6A DISPLAY EXTERNAL CACHE SIZE
6C DISPLAY SHADOW MESSAGE
6E DISPLAY NON-DISPOSABLE SEGMENT
70 DISPLAY ERROR MESSAGE
72 CHECK FOR CONFIGURATION ERROR
74 TEST REAL-TIME CLOCK
76 CHECK FOR KEYBOARD ERROR
7C SETUP HARDWARE INTERRUPT VECTOR
7E TEST COPROCESSOR IF PRESENT
80 DISABLE ON-BOARD I/O PORT
82 DETECT AND INSTALL EXT.RS232C
84 DETECT AND INSTALL EXT.PARALLEL
86 RE-INIT. ON-BOARD I/O PORT
88 INIT. BIOS DATA ROM
8A INIT.EXTENDED BIOS DATA AREA
8C INIT. FDD CONTROLLER
9A SHADOW OPTION ROMS
9C SETUP POWER MANAGEMENT
9E ENABLE H/W INTERRUPT
A0 SET TIME OF DAY
A4 INIT. TYPEMATIC RATE
A8 ERASE F2 PROMPT
AA SCAN FOR F2 KEY STROKE
AC ENTER SETUP
AE CLEAR IN POST FLAG
B0 CHECK FOR ERRORS
B2 POST DONE-PREPARE TO BOOT O/S
B4 ONE BEEP
B6 CHECK PASSWORD (OPTION)
B7 ACPI INIT
BA DMI INIT
BE CLEAR SCREEN
C0 TRY BOOT WITH INT19
D0 INTERRUPT HANDLER ERROR
D2 UNKNOWN INTERRUPT ERROR
D4 PENDING INTERRUPT ERROR
D6 SHUTDOWN 5
D8 SHUTDOWN ERROR
DA EXTENDED BLOCK MOVE
DC SHUTDOWN 10

89 ENABLE NMI
90 INIT. HDD CONTROLLER
91 INIT. LOCAL BUS HDD CONTROLLER
92 JUMP TO USER PATCH 2
94 DISABLE A20 ADDRESS LINE
96 CLEAR HUGE ES SEGMENT REG.
98 SEARCH FOR OPTION ROMS

AA1	VSS. 1	VSS. 133	R9
AA11	VSS. 2	VSS. 134	T10
AA13	VSS. 3	VSS. 135	T11
AA15	VSS. 4	VSS. 136	T12
AA16	VSS. 5	VSS. 137	T13
AA17	VSS. 6	VSS. 138	T14
AA19	VSS. 7	VSS. 139	T15
AA21	VSS. 8	VSS. 140	T16
AA22	VSS. 9	VSS. 141	T2
AA25	VSS. 10	VSS. 142	T23
AA4	VSS. 11	VSS. 143	T8
AA6	VSS. 12	VSS. 144	U10
AA8	VSS. 13	VSS. 145	U14
AB11	VSS. 14	VSS. 146	U21
AB13	VSS. 15	VSS. 147	U22
AB15	VSS. 16	VSS. 148	U25
AB3	VSS. 17	VSS. 149	U5
AB9	VSS. 18	VSS. 150	V17
AC1	VSS. 19	VSS. 151	V19
AC10	VSS. 20	VSS. 152	V23
AC12	VSS. 21	VSS. 153	V3
AC14	VSS. 22	VSS. 154	V8
AC24	VSS. 23	VSS. 155	V9
AC4	VSS. 24	VSS. 156	W1
AD16	VSS. 25	VSS. 157	W11
AD19	VSS. 26	VSS. 158	W15
AD2	VSS. 27	VSS. 159	W16
AD22	VSS. 28	VSS. 160	W19
AD6	VSS. 29	VSS. 161	W21
AD9	VSS. 30	VSS. 162	W22
AE11	VSS. 31	VSS. 163	W25
AE13	VSS. 32	VSS. 164	W4
AE15	VSS. 33	VSS. 165	W5
AE3	VSS. 34	VSS. 166	W9
AE4	VSS. 35	VSS. 167	Y23
AE8	VSS. 36	VSS. 168	Y3
B10	VSS. 37		
B13	VSS. 38		
B16	VSS. 39		
B19	VSS. 40		
B22	VSS. 41		
B4	VSS. 42		
B7	VSS. 43		
D2	VSS. 44		
D24	VSS. 45		
E11	VSS. 46		
E13	VSS. 47		
E15	VSS. 48		
E17	VSS. 49		
E19	VSS. 50		
E21	VSS. 51		
E5	VSS. 52		
E7	VSS. 53		
E9	VSS. 54		
F24	VSS. 55		
G10	VSS. 56		
G13	VSS. 57		
G16	VSS. 58		
G19	VSS. 59		
G2	VSS. 60		
G21	VSS. 61		
G5	VSS. 62		
H10	VSS. 63		
H12	VSS. 64		
H18	VSS. 65		
H23	VSS. 66		
I10	VSS. 67		
J11	VSS. 68		
J12	VSS. 69		
J13	VSS. 70		
J15	VSS. 71		
J16	VSS. 72		
J21	VSS. 73		
J25	VSS. 74		
J5	VSS. 75		
J9	VSS. 76		
J9	VSS. 77		
K10	VSS. 78		
K11	VSS. 79		
K12	VSS. 80		
K15	VSS. 81		
K17	VSS. 82		
K23	VSS. 83		
K24	VSS. 84		
K25	VSS. 85		
L10	VSS. 86		
L17	VSS. 87		
L21	VSS. 88		
L22	VSS. 89		
L23	VSS. 90		
L24	VSS. 91		
L25	VSS. 92		
L9	VSS. 93		
M10	VSS. 94		
M12	VSS. 95		
M14	VSS. 96		
M15	VSS. 97		
M16	VSS. 98		
M17	VSS. 99		
M18	VSS. 100		
N10	VSS. 101		
N12	VSS. 102		
N13	VSS. 103		
N14	VSS. 104		
N15	VSS. 105		
N16	VSS. 106		
N17	VSS. 107		
N18	VSS. 108		
N19	VSS. 109		
N2	VSS. 110		
N23	VSS. 111		
N24	VSS. 112		
N25	VSS. 113		
N6	VSS. 114		
N8	VSS. 115		
N9	VSS. 116		
P1	VSS. 117		
P2	VSS. 118		
P3	VSS. 119		
P4	VSS. 120		
P5	VSS. 121		
P6	VSS. 122		
P7	VSS. 123		
P8	VSS. 124		
P9	VSS. 125		
Q1	VSS. 126		
Q2	VSS. 127		
Q3	VSS. 128		
Q4	VSS. 129		
Q5	VSS. 130		
Q6	VSS. 131		
Q7	VSS. 132		
Q8	VSS. 133		

ICH500-5
ICH9M-SFF

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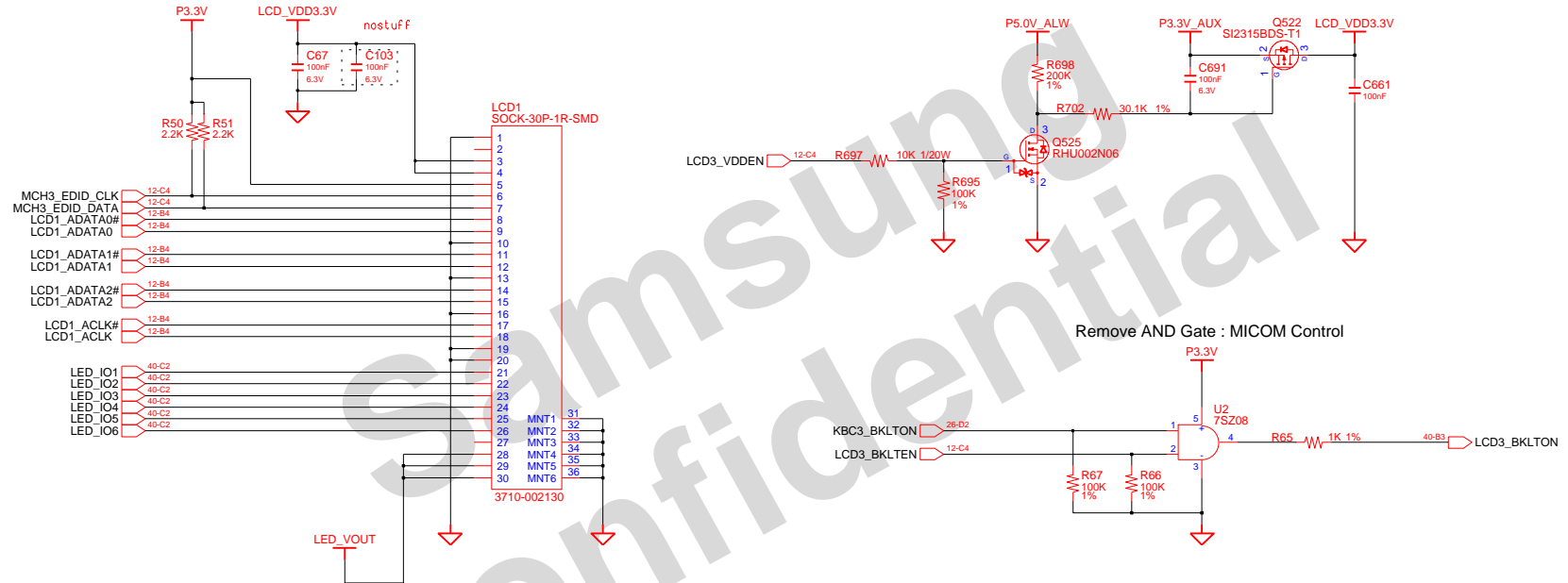
GND

0904-002395

VSS_NCTF_1
VSS_NCTF_2
VSS_NCTF_3
VSS_NCTF_4

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA	SAMSUNG
CHECK	HJ, KIM	DEV. STEP	MP	MAIN	MAIN	ELECTRONICS
APPROVAL	JS, EUH	REV	1.1	ICH9M SFF(5/5)	PART NO.	BA41-0XXXXA
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	22	OF 44

LED LCD CONNECTOR

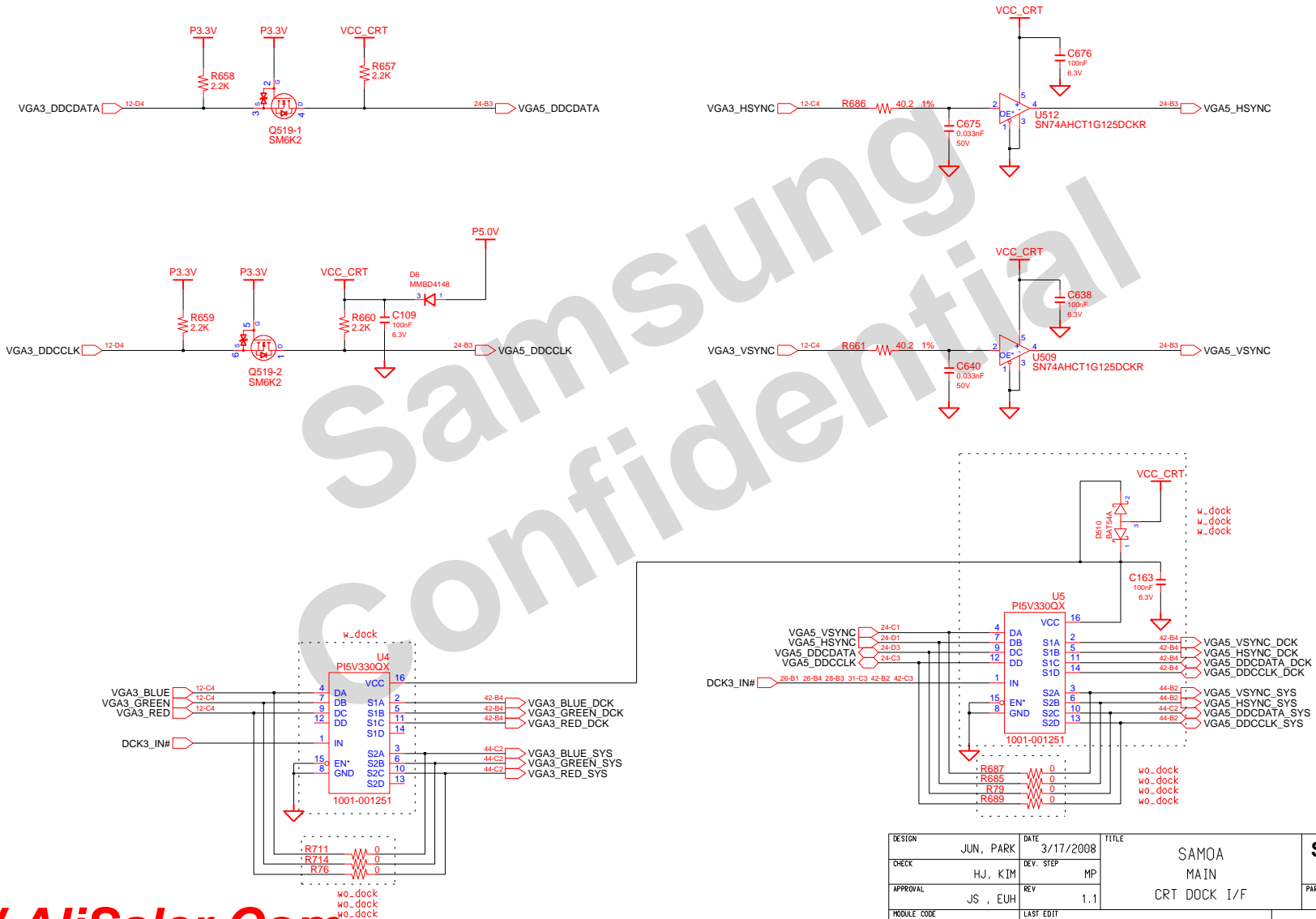


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN LED LCD I/F	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	23 OF 44	

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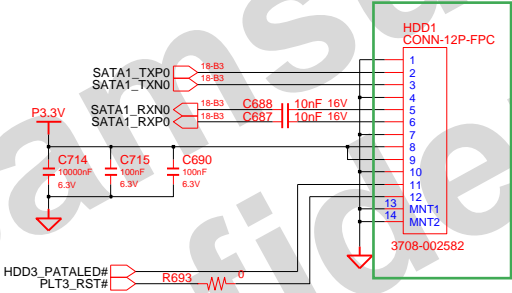
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CRT DOCK I/F



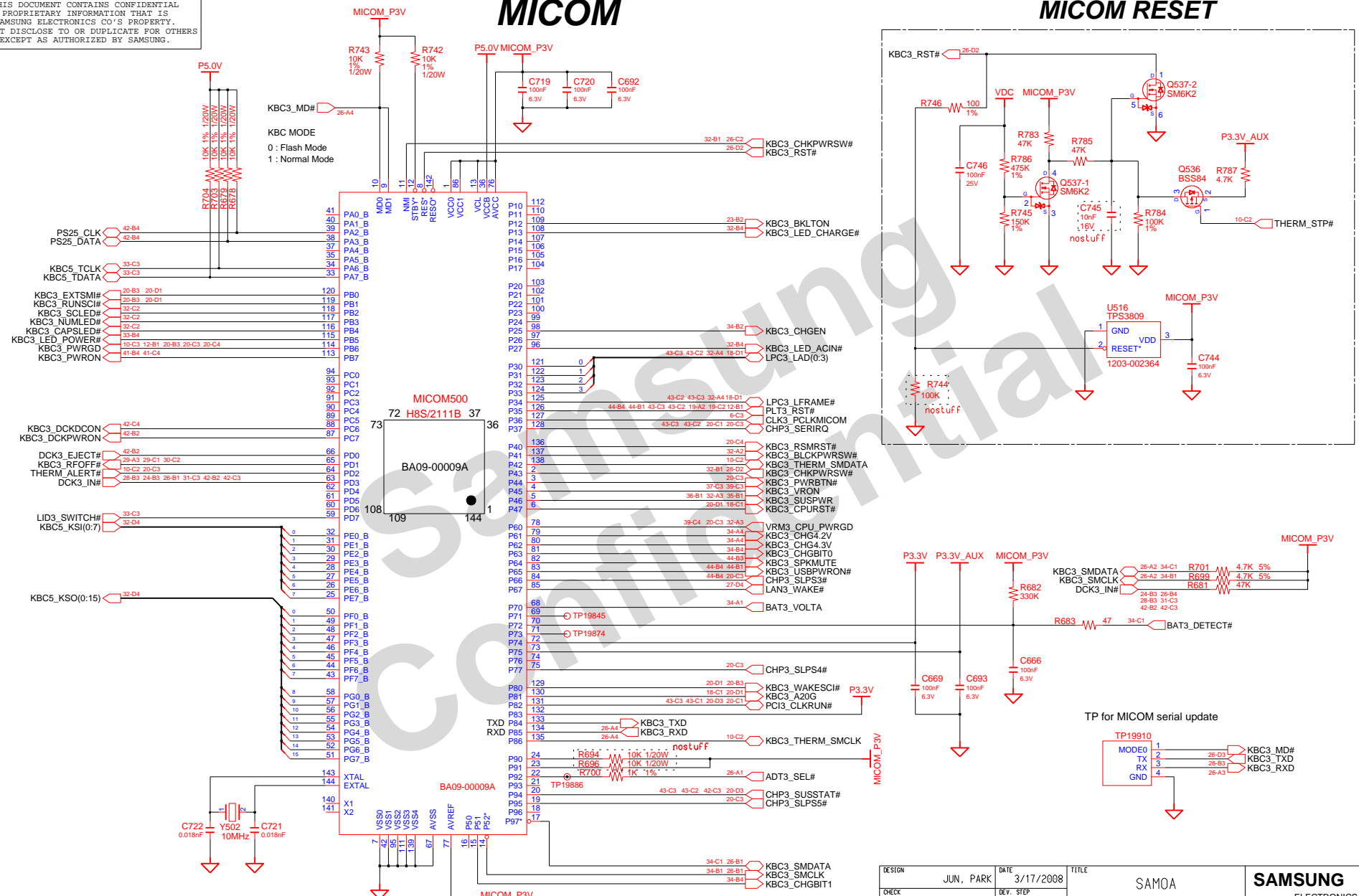
DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN CRT DOCK I/F	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	24 OF 44	

1.8" SATA HDD I/F



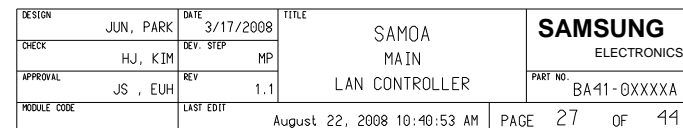
DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1	1.8inch SATA HDD I/F	PART NO. BA41-0XXXXA	
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	25	OF 44

MICOM RESET

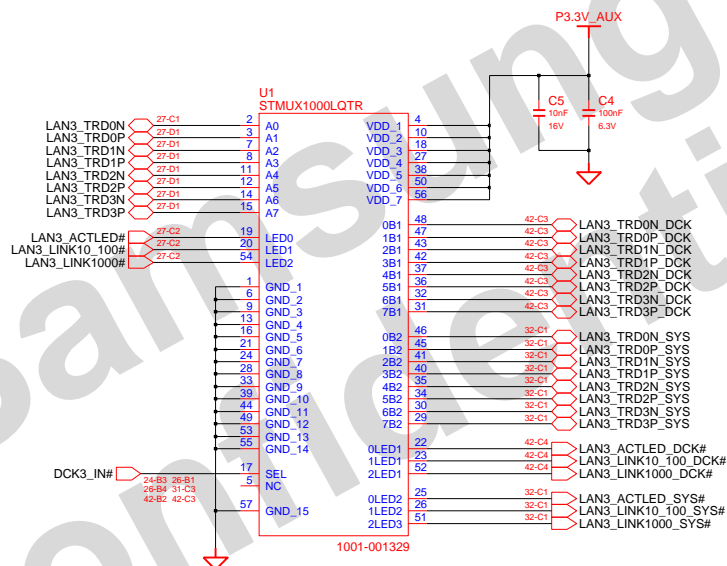


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE SAMOA MAIN KEYBOARD CONTROLLER		SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA			
CHECK	HJ, KIM	DEV. STEP	MP						
APPROVAL	JS , EUH	REV	1.1						
MODULE CODE		LAST EDIT		August 22, 2008 10:40:53 AM		PAGE	26	OF	44

LAN controller places minimum 1 inch from PCB border.
(Recommend 1 inch)



LAN PASSTHRU BRIDGE CHIP

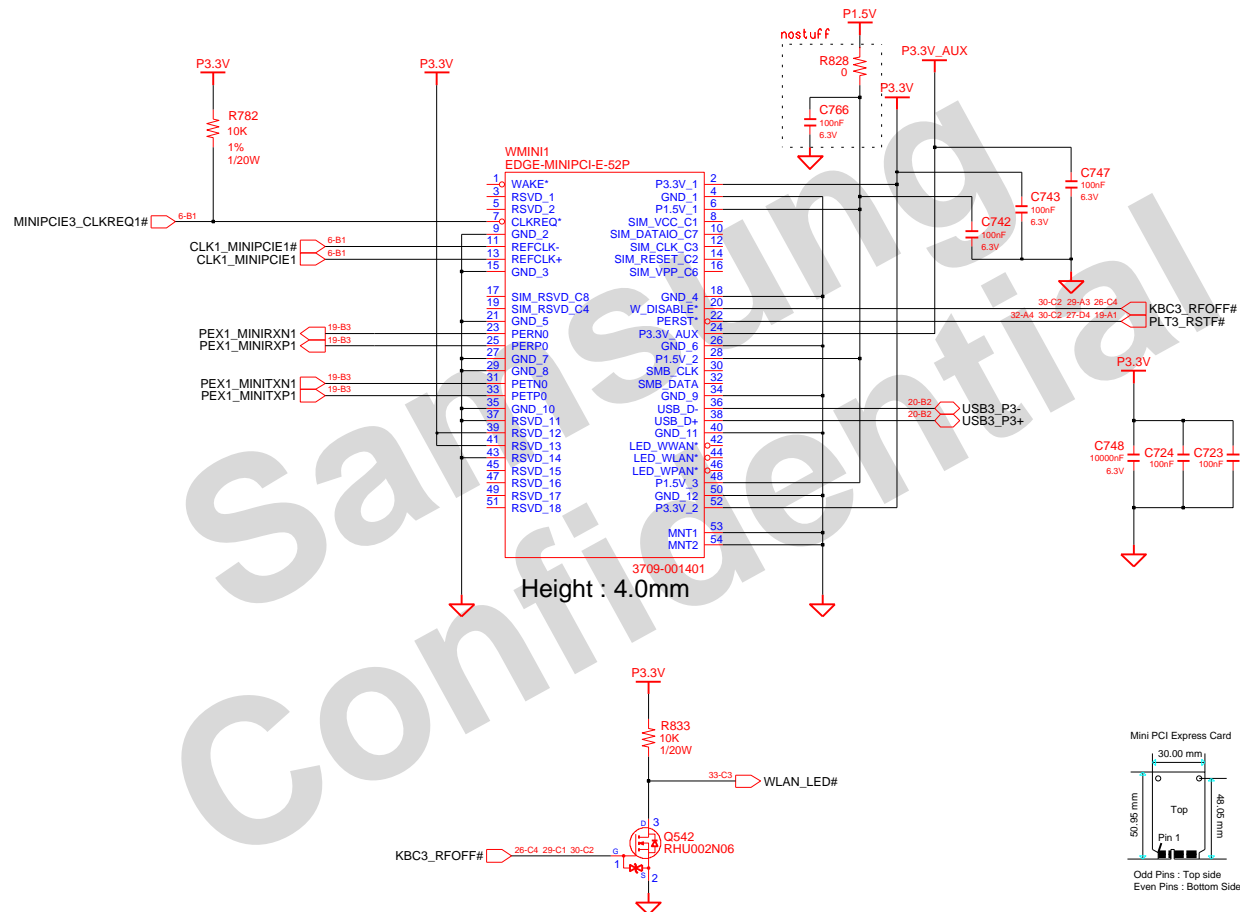


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN LAN DOCK I/F	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	28	OF 44

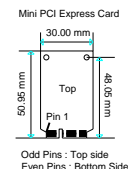
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MINICARD(WLAN)

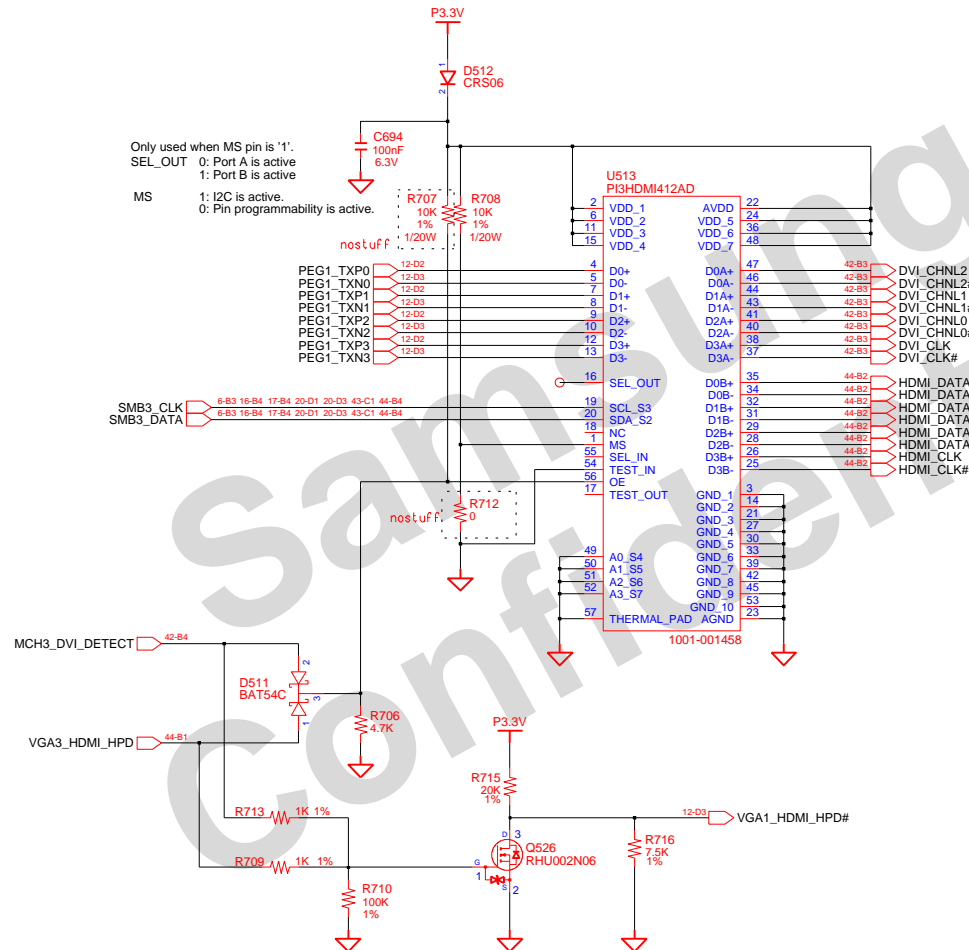


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN WIRELESS LAN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	29	OF 44

HMINI1
EDGE-MINIPCI-E-52P

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN HSDPA	
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM			
				PAGE	30	OF 44

HDMI & DVI I/F

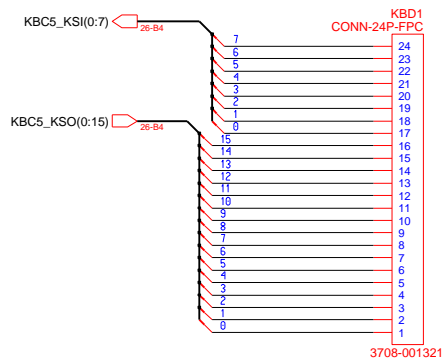


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1	HDMI & DVI I/F	PART NO. BA41-0XXXXA	
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	31	OF 44

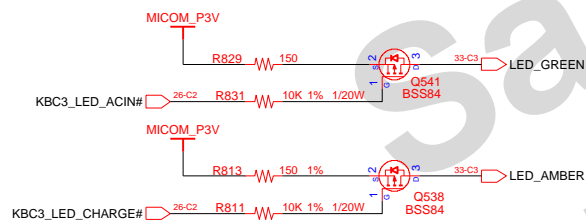
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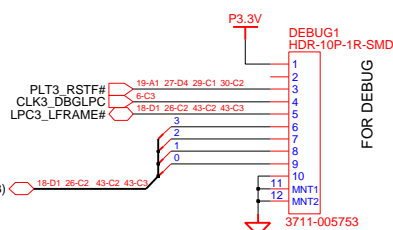
KEYBOARD CONNECTOR



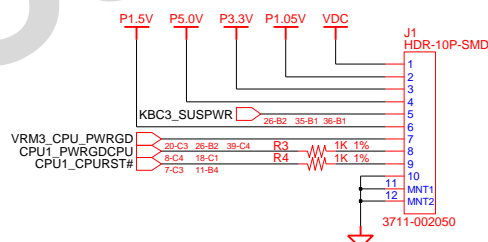
ADAPTERIN / CHARGING LED



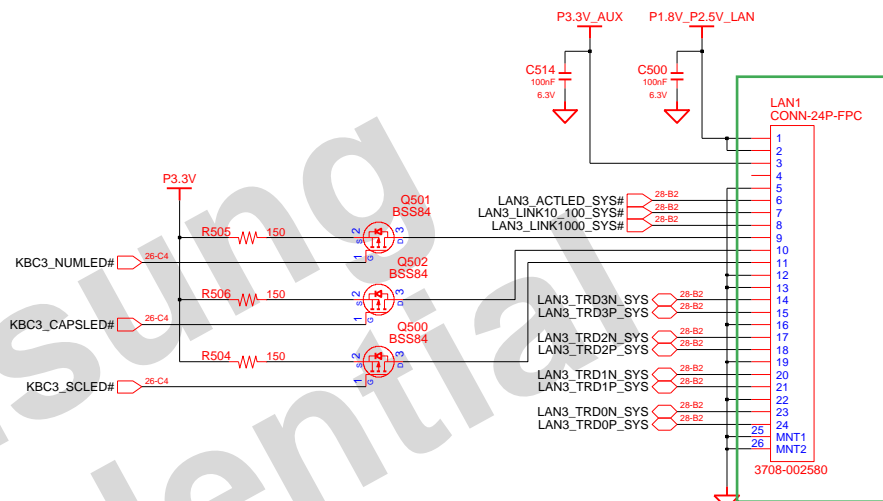
DEBUG PORT



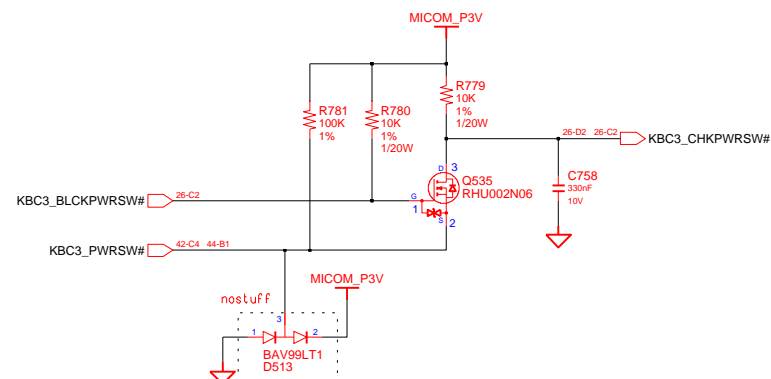
Pre FCT PORT



LAN BOARD CONNECTOR

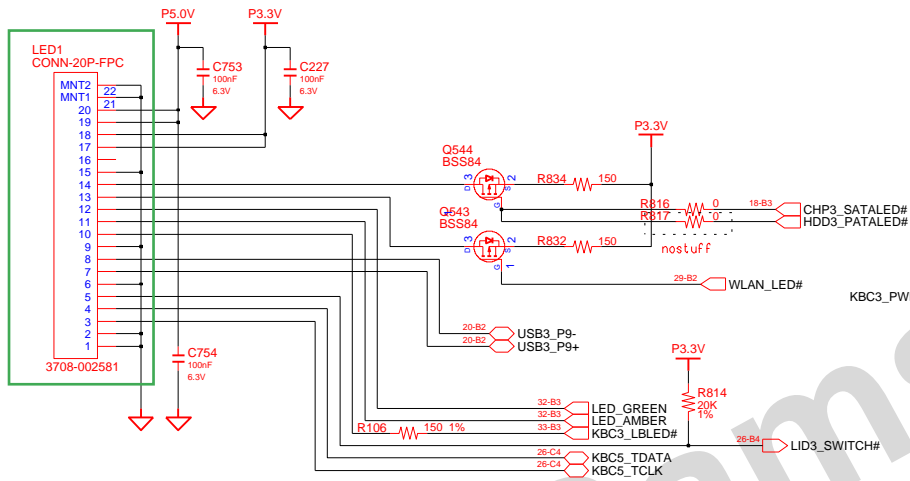


POWER S/W

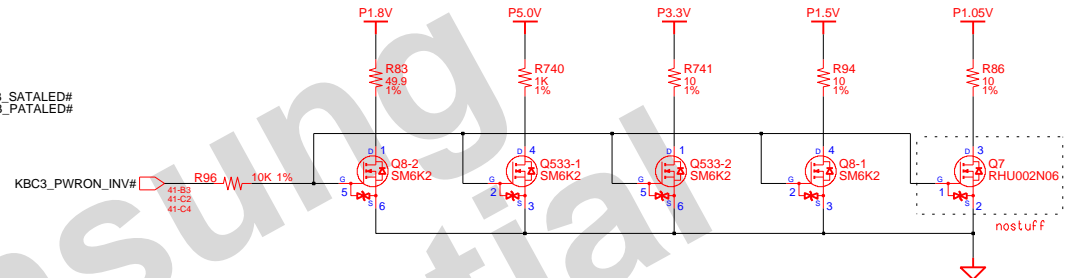


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1	KBD/LED/DEBUG/SUB CONN.	PART NO.	BA41-0XXXXA
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	32	OF 44

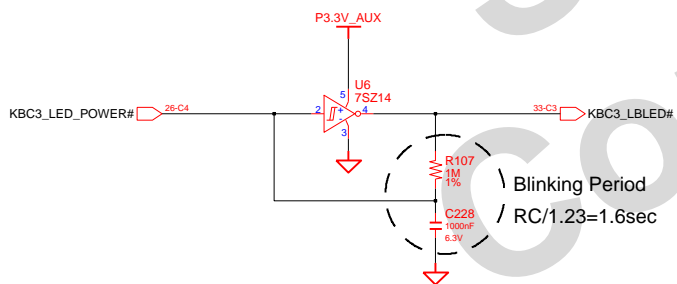
LED & T/P FPC CONNECTOR



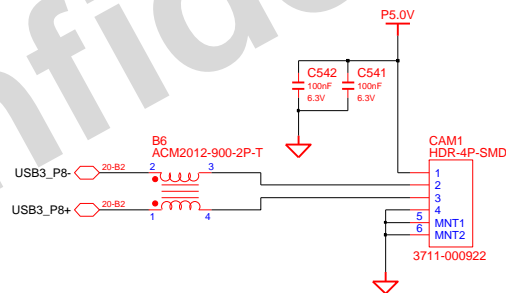
DISCHARGE



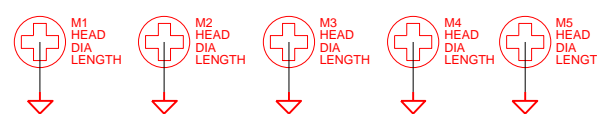
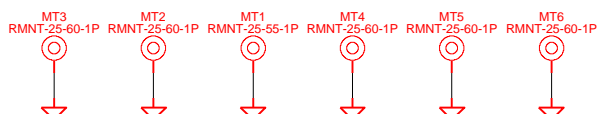
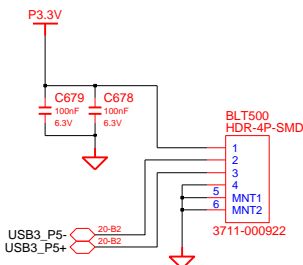
POWR ON / LB LED



CAMERA



BLUETOOTH

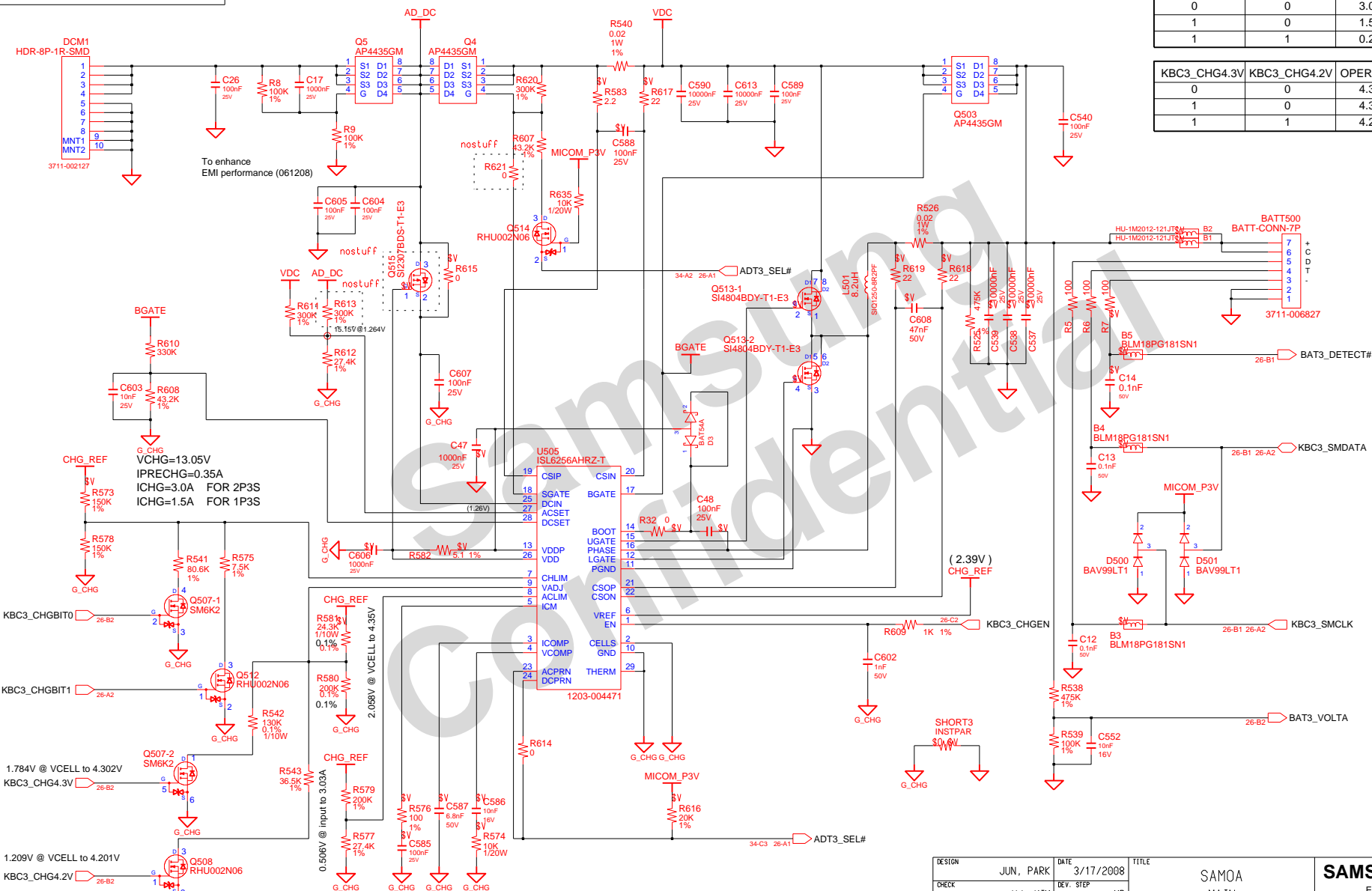



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1	CAMERA, BLUETOOTH & LED		PART NO. BA41-0XXXXA
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	33	OF 44

CHARGER & POWER MANAGEMENT

KBC3_CHGBIT0	KBC3_CHGBIT1	OPERATIO
0	0	3.0A
1	0	1.5A
1	1	0.25A

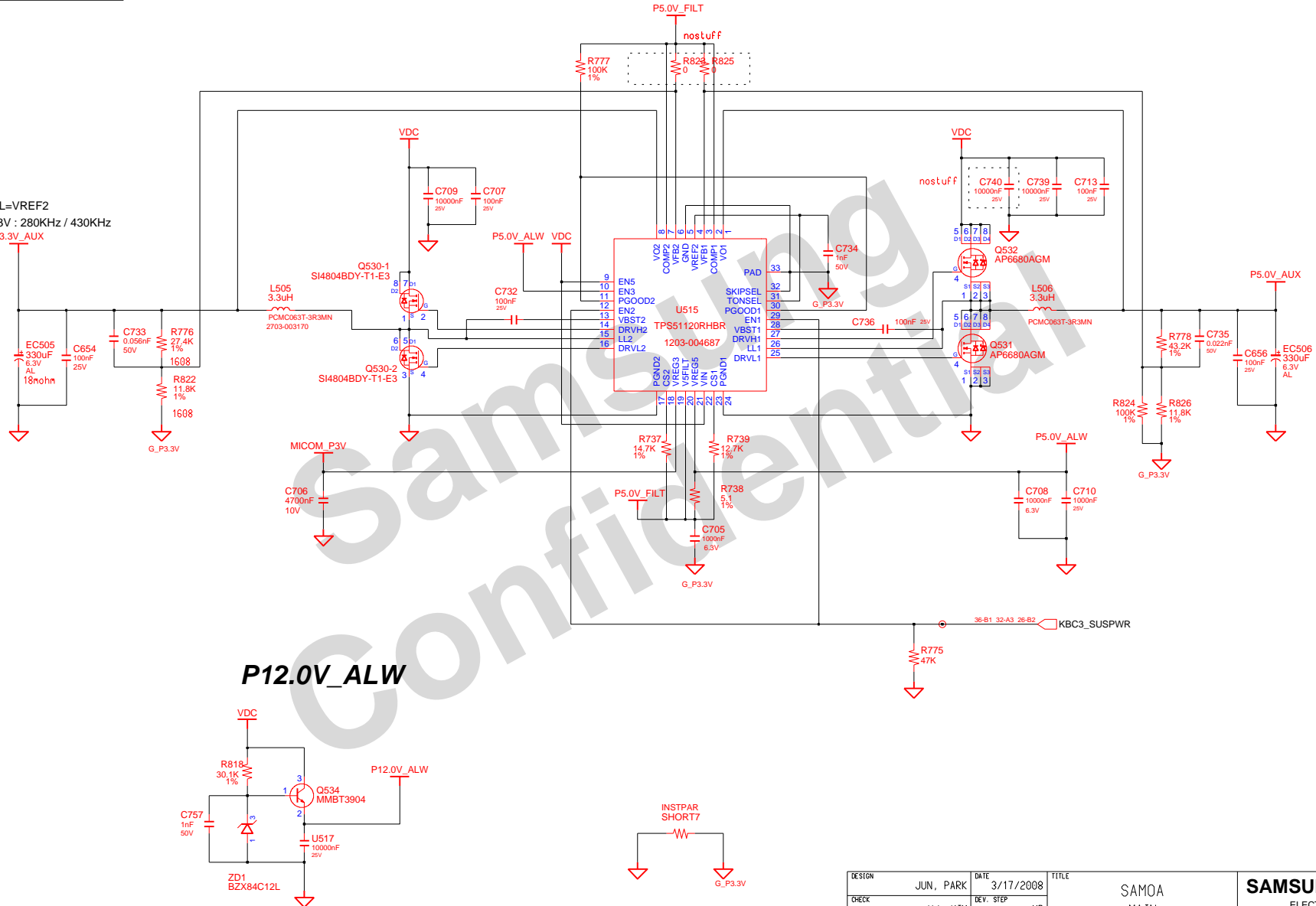
KBC3_CHG4.3V	KBC3_CHG4.2V	OPERATIO
0	0	4.35V
1	0	4.3V
1	1	4.2V



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN CHARGER	
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS , EUH	REV	1.1			
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM			

P5.0V_AUX & P3.3V_AUX

TONSEL=VREF2
5V / 3.3V : 280KHz / 430KHz
P3.3V_AUX



P12.0V_ALW

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN P5.0V & P3.3V	SAMSUNG ELECTRONICS PART NO. BA41-0XXXXA
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT				

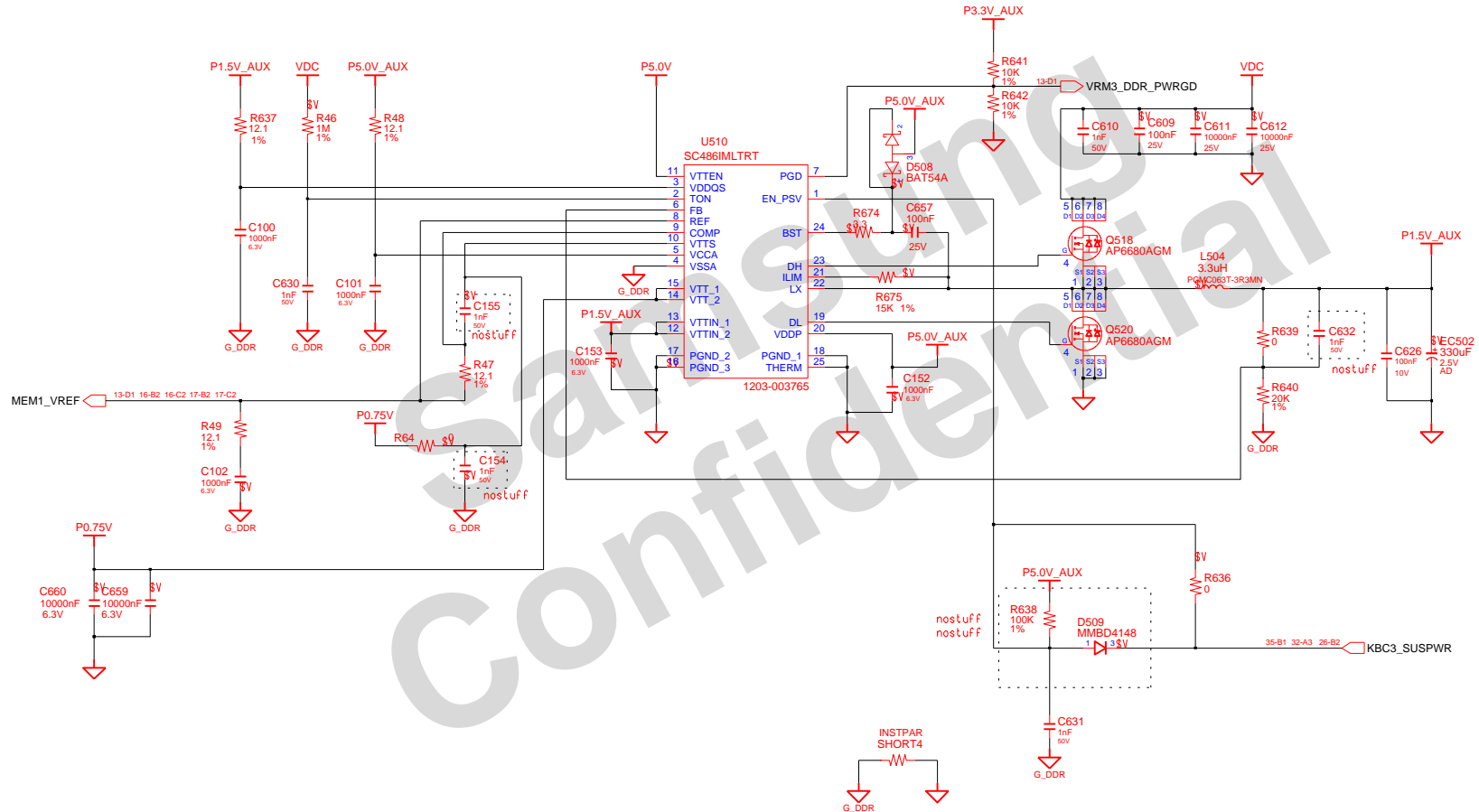
August 22, 2008 10:40:53 AM

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DDR3 Power

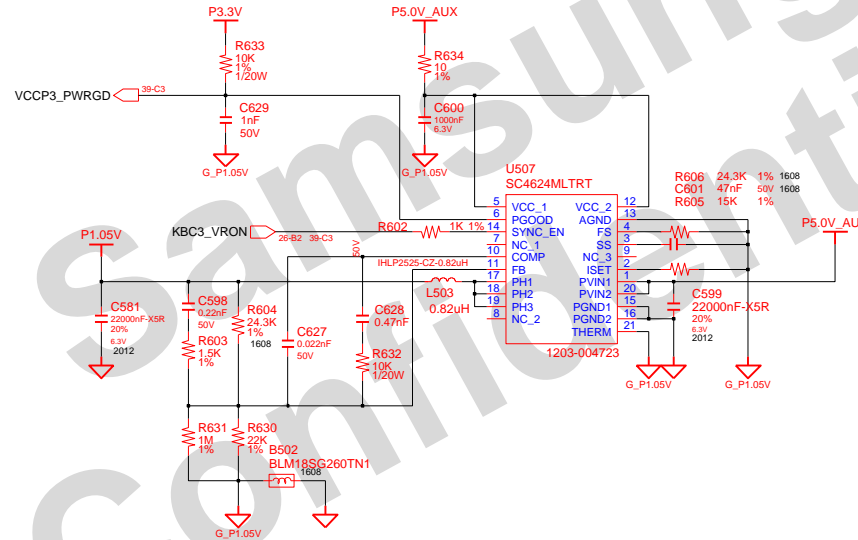


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN DDR3 POWER	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	36	OF 44

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VCCP_CORE



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN DDR2 POWER	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-0XXXXA
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	37	OF 44

The schematic diagram illustrates the MCH3 board, centered around the SC472BMLTR IC (U502). The IC is connected to various power and ground planes, including P5.0V, P3.3V, and VDC. Key components include:

- Power and Ground Connections:** P5.0V, P3.3V, VDC, GND, and G_I/GFX connections.
- IC Pins and Connections:**
 - Pin 1: VID4
 - Pin 2: VID3
 - Pin 3: VID2
 - Pin 4: VID1
 - Pin 5: VID0
 - Pin 6: HYS
 - Pin 7: THERM
 - Pin 8: CLSET
 - Pin 9: VREF
 - Pin 10: AGND
 - Pin 11: FB
 - Pin 12: SS
 - Pin 13: FB+
 - Pin 14: CS+
 - Pin 15: RAMP
 - Pin 16: EN
 - Pin 17: PWRGD
 - Pin 18: U502
 - Pin 19: PMON
 - Pin 20: BG
 - Pin 21: DRN
 - Pin 22: TG
 - Pin 23: BST
 - Pin 24: P5.0V
- Resistors and Capacitors:** R23, R24, R25, R26, R27, R28, R29, R30, R31, R36, R593, R594, R595, R596, R597, R598, R599, R551, R552, R553, R554, R555, R556, R557, R558, R559, R560, R561, R562, R563, R564, R565, R566, R567, R568, R569, R570, R571, R572, R573, R574, R575, R576, R577, R578, R579, R580, R581, R582, R583, R584, R585, R586, R587, R588, R589, R590, R591, R592, R593, R594, R595, R596, R597, R598, R599, R600, R601, R602, R603, R604, R605, R606, R607, R608, R609, R610, R611, R612, R613, R614, R615, R616, R617, R618, R619, R620, R621, R622, R623, R624, R625, R626, R627, R628, R629, R630, R631, R632, R633, R634, R635, R636, R637, R638, R639, R640, R641, R642, R643, R644, R645, R646, R647, R648, R649, R650, R651, R652, R653, R654, R655, R656, R657, R658, R659, R660, R661, R662, R663, R664, R665, R666, R667, R668, R669, R670, R671, R672, R673, R674, R675, R676, R677, R678, R679, R680, R681, R682, R683, R684, R685, R686, R687, R688, R689, R690, R691, R692, R693, R694, R695, R696, R697, R698, R699, R700, R701, R702, R703, R704, R705, R706, R707, R708, R709, R710, R711, R712, R713, R714, R715, R716, R717, R718, R719, R720, R721, R722, R723, R724, R725, R726, R727, R728, R729, R730, R731, R732, R733, R734, R735, R736, R737, R738, R739, R740, R741, R742, R743, R744, R745, R746, R747, R748, R749, R750, R751, R752, R753, R754, R755, R756, R757, R758, R759, R760, R761, R762, R763, R764, R765, R766, R767, R768, R769, R770, R771, R772, R773, R774, R775, R776, R777, R778, R779, R780, R781, R782, R783, R784, R785, R786, R787, R788, R789, R790, R791, R792, R793, R794, R795, R796, R797, R798, R799, R800, R801, R802, R803, R804, R805, R806, R807, R808, R809, R810, R811, R812, R813, R814, R815, R816, R817, R818, R819, R820, R821, R822, R823, R824, R825, R826, R827, R828, R829, R830, R831, R832, R833, R834, R835, R836, R837, R838, R839, R840, R841, R842, R843, R844, R845, R846, R847, R848, R849, R850, R851, R852, R853, R854, R855, R856, R857, R858, R859, R860, R861, R862, R863, R864, R865, R866, R867, R868, R869, R870, R871, R872, R873, R874, R875, R876, R877, R878, R879, R880, R881, R882, R883, R884, R885, R886, R887, R888, R889, R890, R891, R892, R893, R894, R895, R896, R897, R898, R899, R900, R901, R902, R903, R904, R905, R906, R907, R908, R909, R910, R911, R912, R913, R914, R915, R916, R917, R918, R919, R920, R921, R922, R923, R924, R925, R926, R927, R928, R929, R930, R931, R932, R933, R934, R935, R936, R937, R938, R939, R940, R941, R942, R943, R944, R945, R946, R947, R948, R949, R950, R951, R952, R953, R954, R955, R956, R957, R958, R959, R960, R961, R962, R963, R964, R965, R966, R967, R968, R969, R970, R971, R972, R973, R974, R975, R976, R977, R978, R979, R980, R981, R982, R983, R984, R985, R986, R987, R988, R989, R990, R991, R992, R993, R994, R995, R996, R997, R998, R999, R1000, R1001, R1002, R1003, R1004, R1005, R1006, R1007, R1008, R1009, R1010, R1011, R1012, R1013, R1014, R1015, R1016, R1017, R1018, R1019, R1020, R1021, R1022, R1023, R1024, R1025, R1026, R1027, R1028, R1029, R1030, R1031, R1032, R1033, R1034, R1035, R1036, R1037, R1038, R1039, R1040, R1041, R1042, R1043, R1044, R1045, R1046, R1047, R1048, R1049, R1050, R1051, R1052, R1053, R1054, R1055, R1056, R1057, R1058, R1059, R1060, R1061, R1062, R1063, R1064, R1065, R1066, R1067, R1068, R1069, R1070, R1071, R1072, R1073, R1074, R1075, R1076, R1077, R1078, R1079, R1080, R1081, R1082, R1083, R1084, R1085, R1086, R1087, R1088, R1089, R1090, R1091, R1092, R1093, R1094, R1095, R1096, R1097, R1098, R1099, R1100, R1101, R1102, R1103, R1104, R1105, R1106, R1107, R1108, R1109, R1110, R1111, R1112, R1113, R1114, R1115, R1116, R1117, R1118, R1119, R1120, R1121, R1122, R1123, R1124, R1125, R1126, R1127, R1128, R1129, R1130, R1131, R1132, R1133, R1134, R1135, R1136, R1137, R1138, R1139, R1140, R1141, R1142, R1143, R1144, R1145, R1146, R1147, R1148, R1149, R1150, R1151, R1152, R1153, R1154, R1155, R1156, R1157, R1158, R1159, R1160, R1161, R1162, R1163, R1164, R1165, R1166, R1167, R1168, R1169, R1170, R1171, R1172, R1173, R1174, R1175, R1176, R1177, R1178, R1179, R1180, R1181, R1182, R1183, R1184, R1185, R1186, R1187, R1188, R1189, R1190, R1191, R1192, R1193, R1194, R1195, R1196, R1197, R1198, R1199, R1200, R1201, R1202, R1203, R1204, R1205, R1206, R1207, R1208, R1209, R1210, R1211, R1212, R1213, R1214, R1215

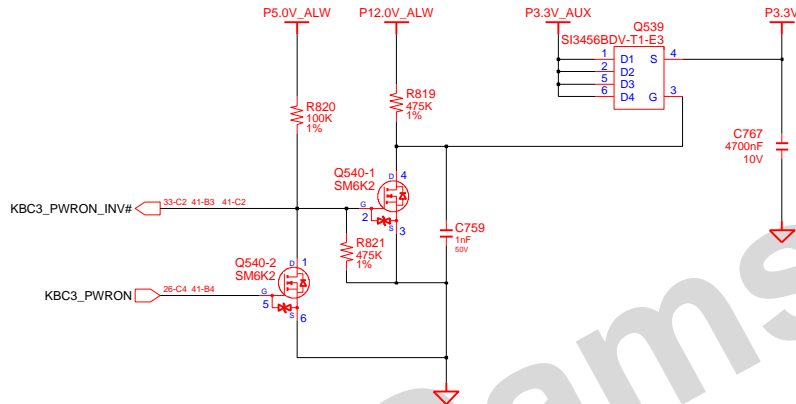
DESIGN	JUN, PARK	DATE	3/17/2008	TITLE SAMOA MAIN INTERNAL GFX CORE		SAMSUNG ELECTRONICS	
CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS , EUH	REV	1.1			PART NO.	BA41-0XXXXA
MODULE CODE	LAST EDIT			August 22, 2008 10:40:53 AM	PAGE	38	OF 44

DESIGN	JUN, PARK	DATE	3/17/2008	TITLE SAMOA MAIN CPU VRM POWER	PART NO. BA41-0XXXXA	SAMSUNG ELECTRONICS	
CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS , EUH	REV	1.1				
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM				PAGE

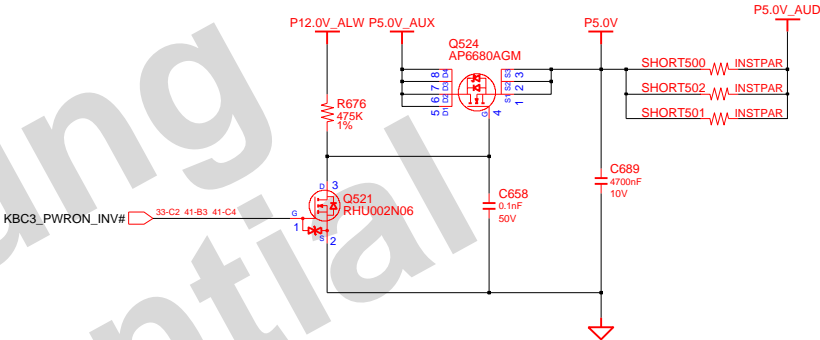
DESIGN	JUN, PARK	DATE	3/17/2008	TITLE SAMOA MAIN LED DRIVER		SAMSUNG ELECTRONICS	
CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS, EUH	REV	1.1				
MODULE CODE	LAST EDIT						
				August 22, 2008 10:40:53 AM	PAGE	40	OF 44

SWITCHED POWER

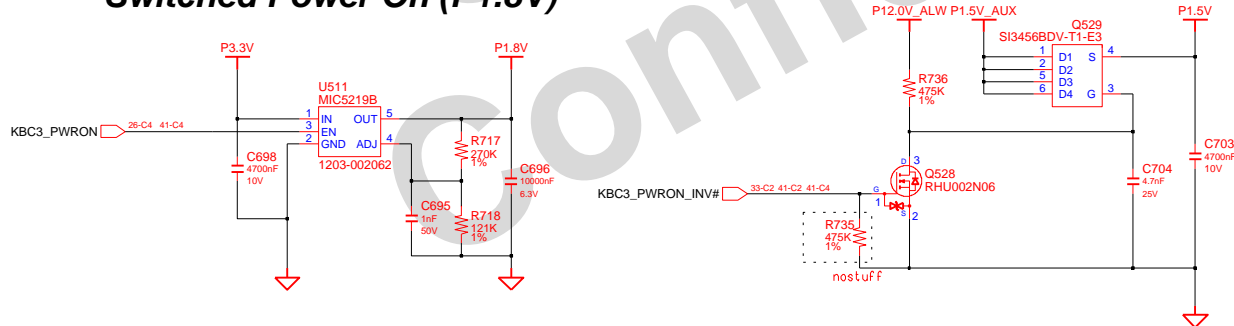
Switched Power On (P3.3V)



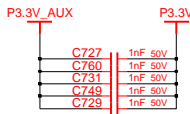
Switched Power On (P5V)



Switched Power On (P1.5V)



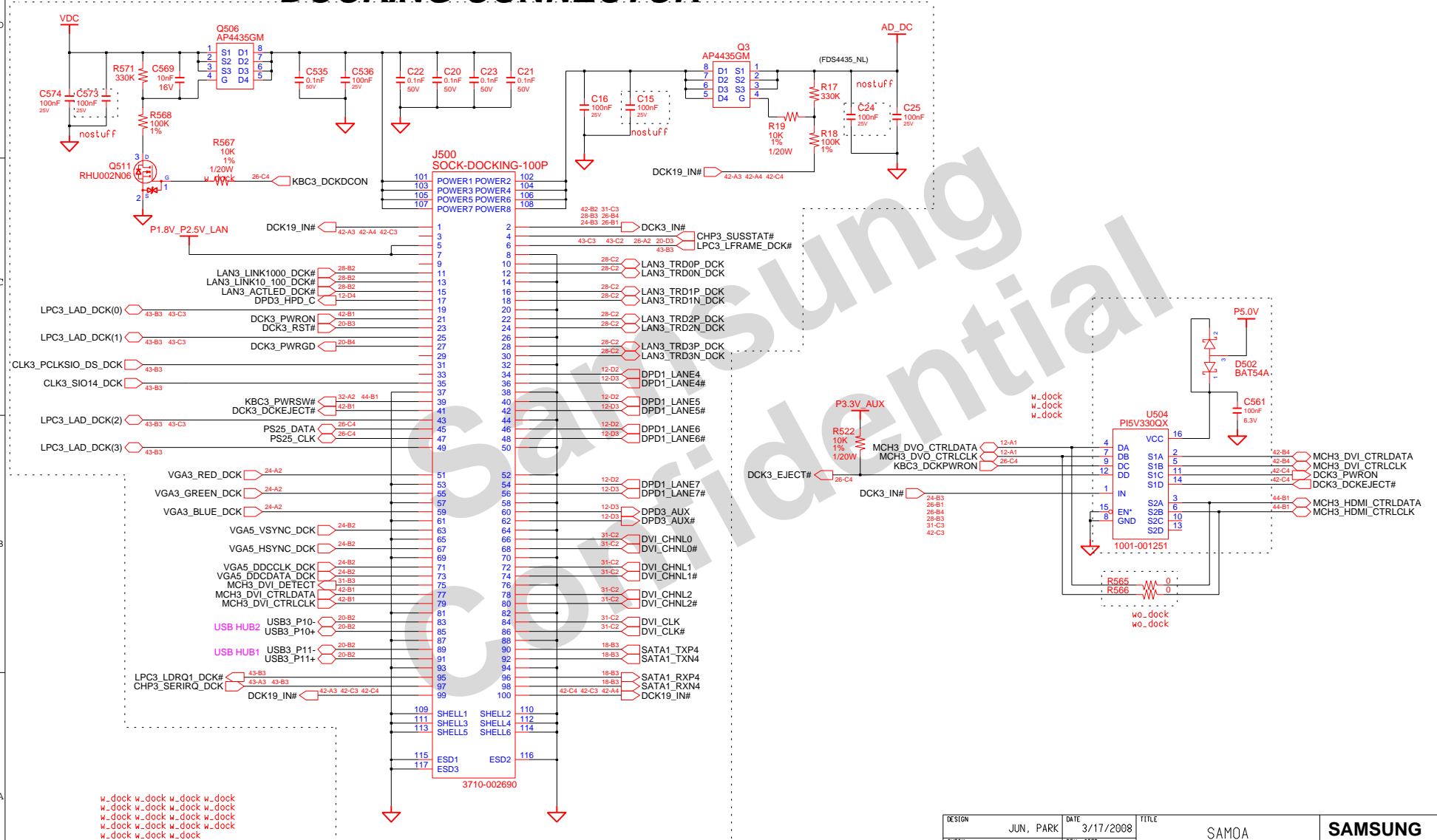
Stiching caps(For EMC)



DESIGN	JUN, PARK	DATE	3/17/2008	TITLE	SAMOA MAIN	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1		SWITCHED POWER	PART NO. BA41-0XXXXA
MODULE CODE		LAST EDIT	August 22, 2008 10:40:53 AM	PAGE	41	OF 44

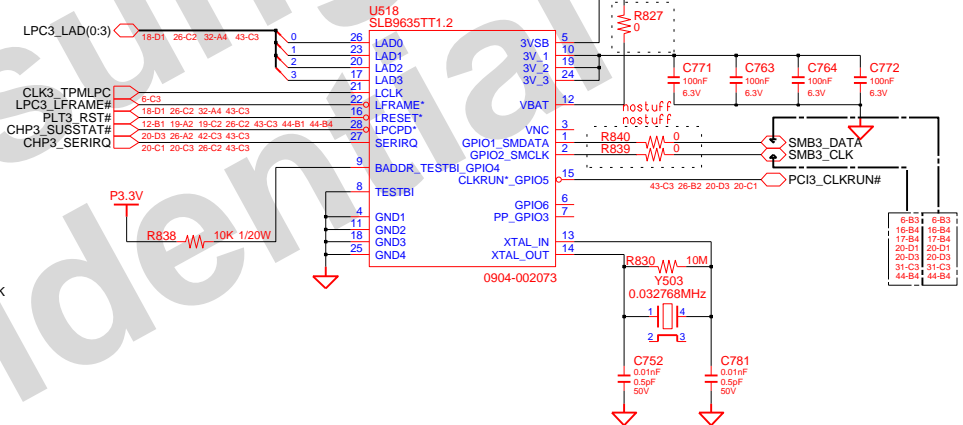
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DOCKING CONNECTOR



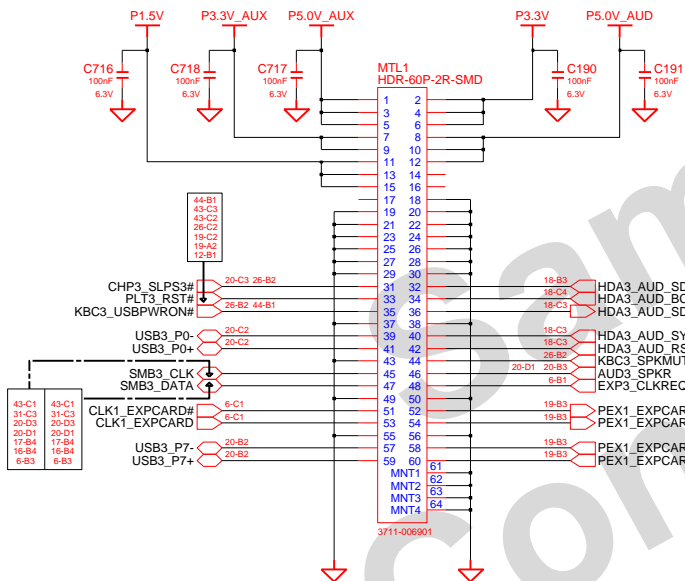
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CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS , EUH	REV	1.1				
MODULE CODE	LAST EDIT		August 22, 2008 10:40:53 AM				PAGE

TPM 1.2

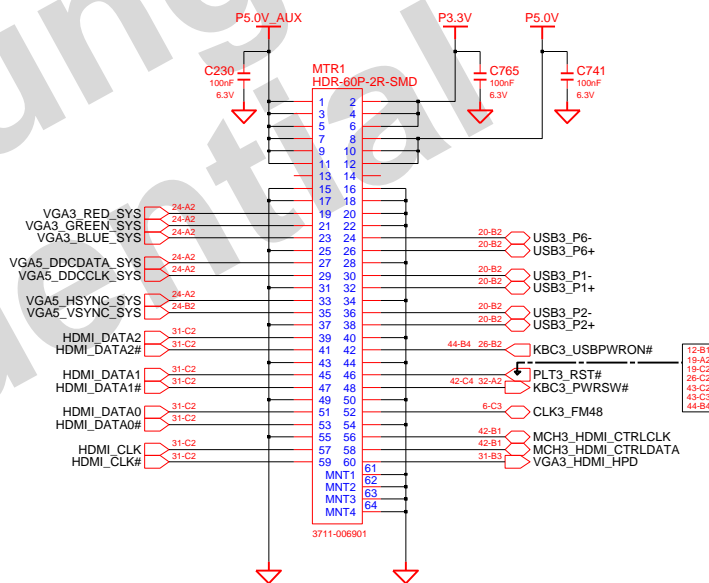


DESIGN	JUN, PARK	DATE	3/17/2008	TITLE			
CHECK	HJ, KIM	DEV. STEP	MP				
APPROVAL	JS, EUH	REV	1.1				
MODULE CODE		LAST EDIT					
				August 22, 2008 10:40:53 AM		PAGE	43 OF 44

FOR SUB LEFT BOARD



FOR SUB RIGHT BOARD



DESIGN	JUN, PARK	DATE	1/4/2008	TITLE SAMOA MAIN LEFT SUB CONNECTOR	SAMSUNG ELECTRONICS	
CHECK	HJ, KIM	DEV. SHEET	MP			
APPROVAL	JS, EUH	REV	1.1		PART NO.	BA41-0XXXXA
MODULE CODE	LAST EDIT				August 22, 2008 10:40:53 AM	PAGE 44 OF 44

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SAMOA SUB

CPU : PENRYN SFF

Chip Set : CANTIGA GS & ICH9M SFF

Remarks : INTEL MONTEVINA SFF

Model Name : SAMOA SUB BOARD
PCB Code : BA41-00903A(Nanya_CHN)
BA41-00904A(GCE_CHN)
Dev. Step : PR/MP
Revision : 1.1
T.R. Date :

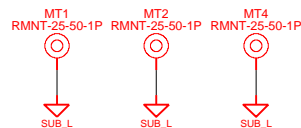
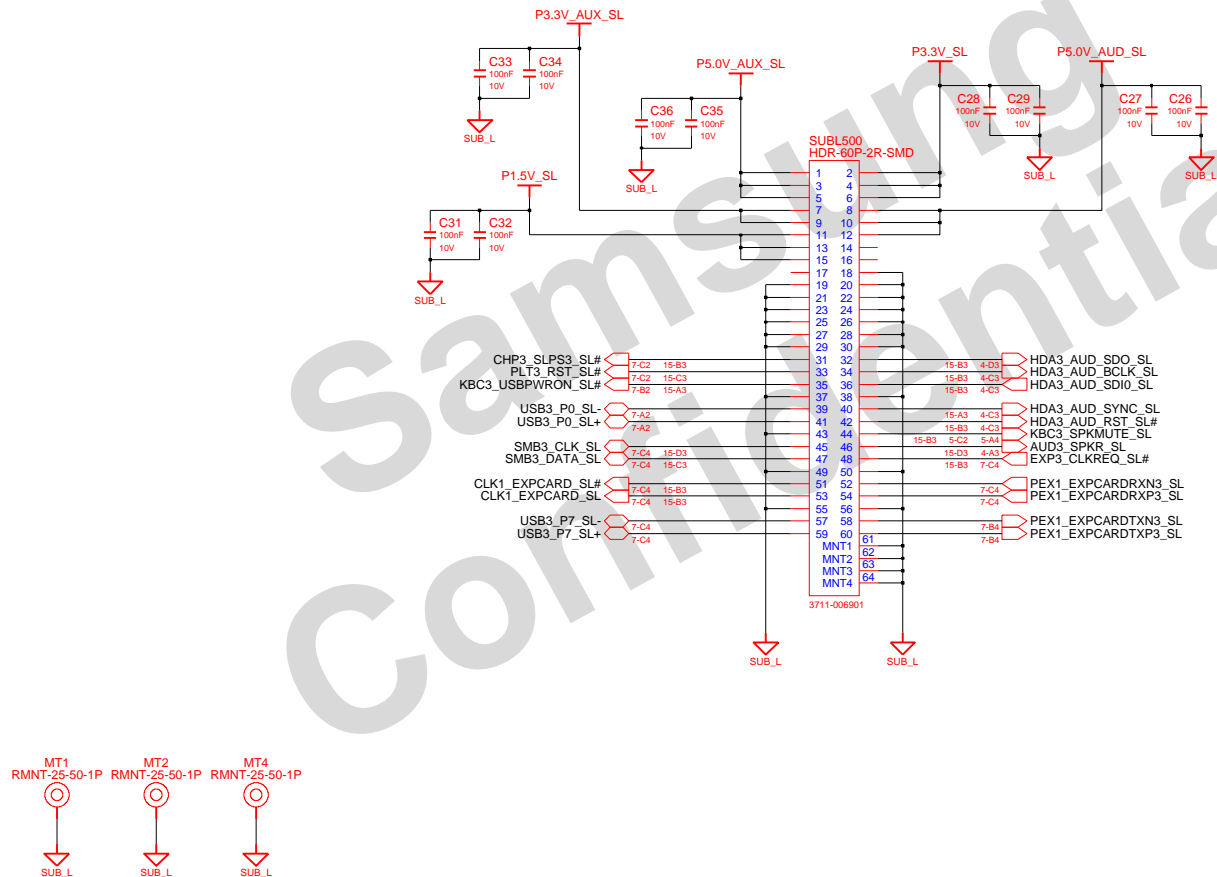
DESIGN	CHECK	APPROVAL
Jun PARK	HJ KIM	JS EUH

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DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAMOA SUB BOARD COVER	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-####A
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	1	OF 15

MAIN to SUB CONNECTOR(SUB_L)

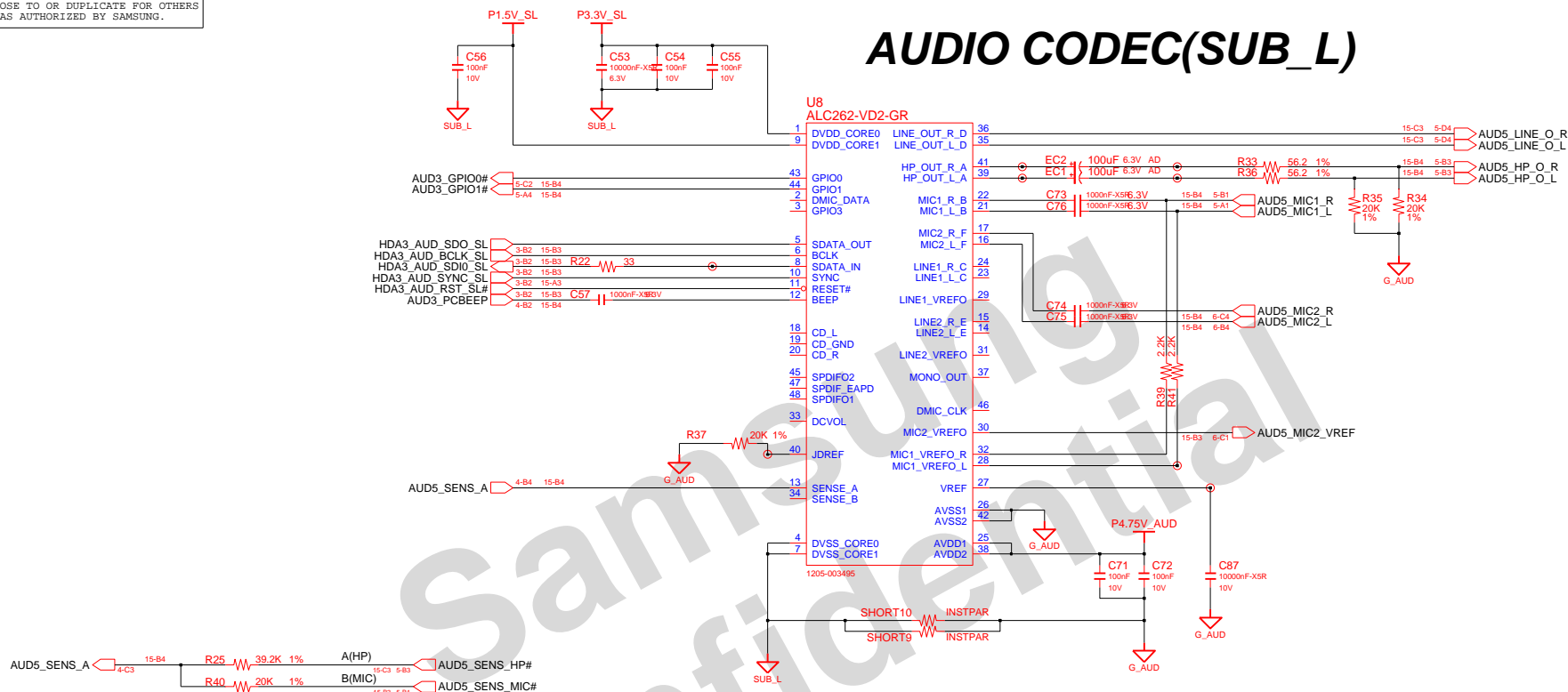


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CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-#####A
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	3	OF 15

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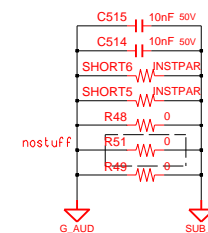
AUDIO CODEC(SUB_L)



PC BEEP SOUND(SUB_L)

1.AGND_AUD	Audio Ground
2.GND	Digital Ground

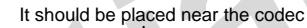
ALL 1608 SIZE



DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAMOA SUB LEFT AUDIO CODEC	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	4 OF 15	

DESIGN	JUN, PARK	DATE	1/17/2008	TITLE SAMOA SUB LEFT AUDIO AMP & JACK		SAMSUNG ELECTRONICS	
CHECK	HJ, KJM	DEV. STEP	MP				
APPROVAL	JS, EUH	REV	1.1				
MODULE CODE	LAST EDIT			August 22, 2008 10:42:11 AM		PAGE	5 OF 15

DO NOT make a testpoint in this net

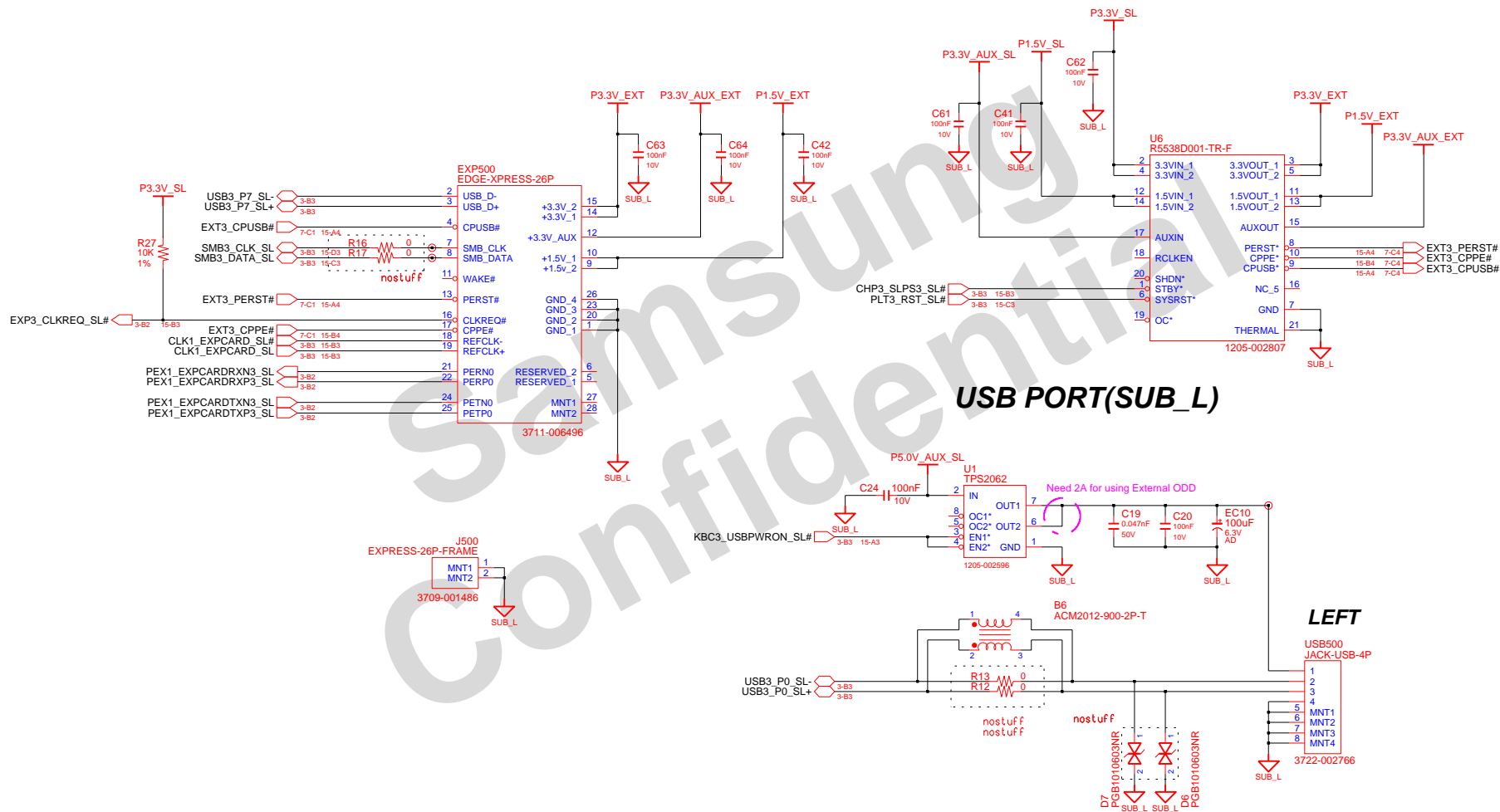


DESIGN	JUN, PARK	DATE	1/17/2008	TITLE SAMOA SUB LEFT INTERNAL MIC		SAMSUNG ELECTRONICS PART NO. BA41-#####	
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APPROVAL	JS, EUH	REV	1.1				
MODULE CODE	LAST EDIT						
				August 22, 2008 10:42:11 AM		PAGE 6 OF 15	

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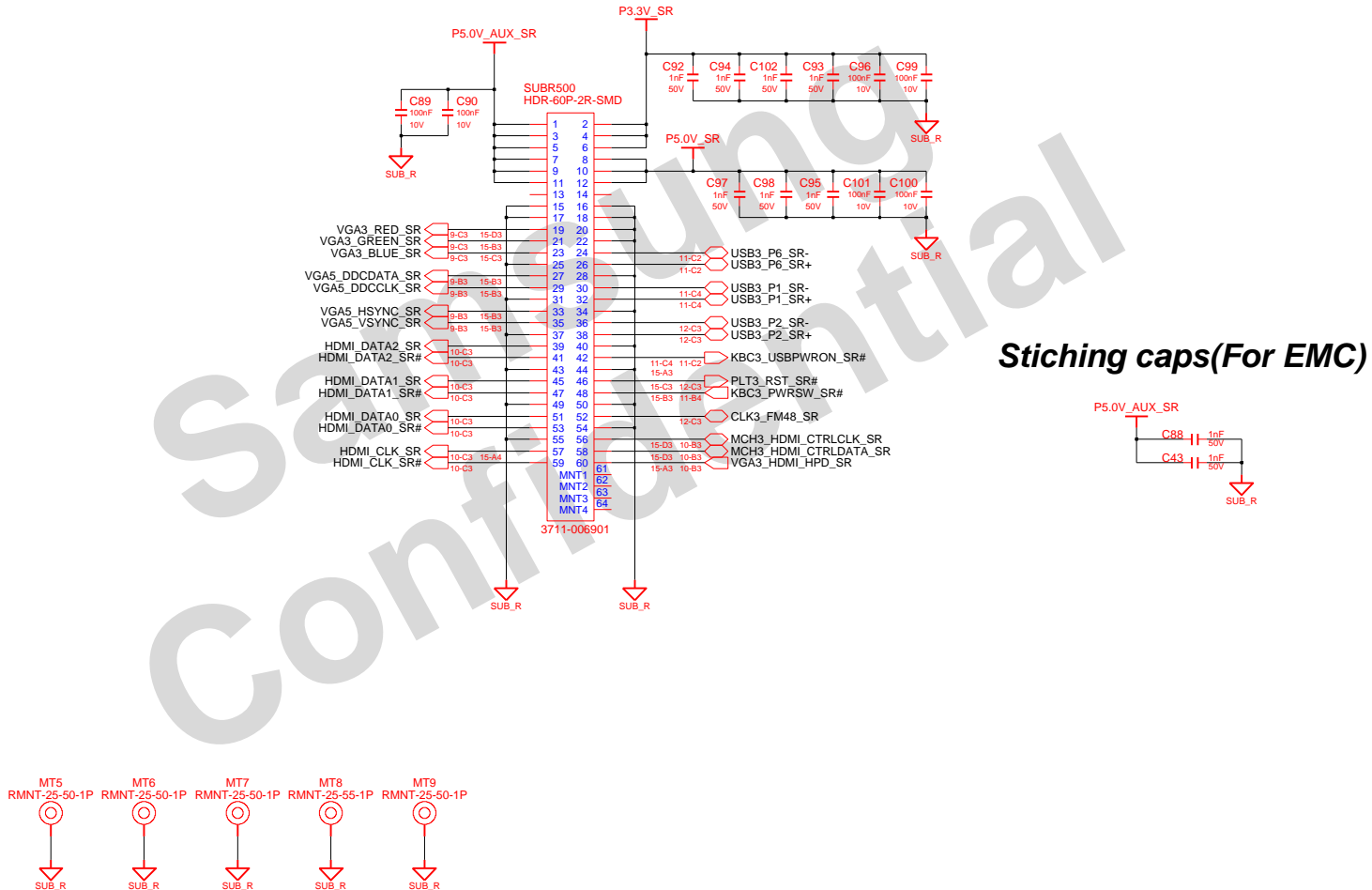
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EXPRESS CARD(SUB_L)



DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAMOA SUB LEFT EXPRESS CARD & USB PORT	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-#####
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT		August 22, 2008 10:42:11 AM	PAGE	7 OF 15

MAIN to SUB CONNECTOR(SUB_R)

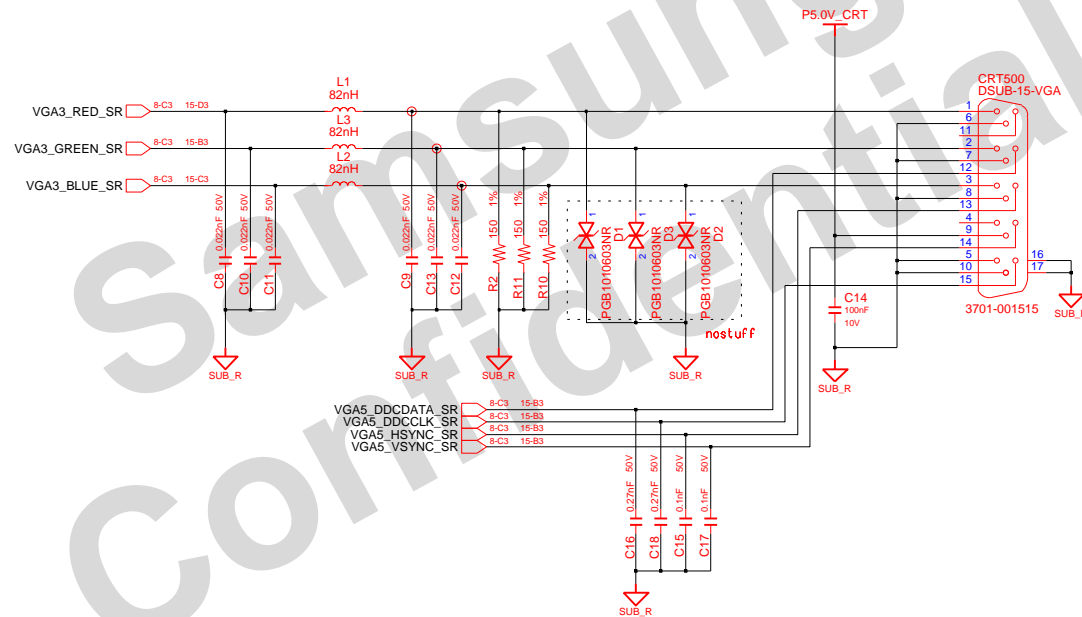


DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAMOA SUB RIGHT MAIN TO SUB CONNECTOR	SAMSUNG ELECTRONICS
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MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	8 OF 15	

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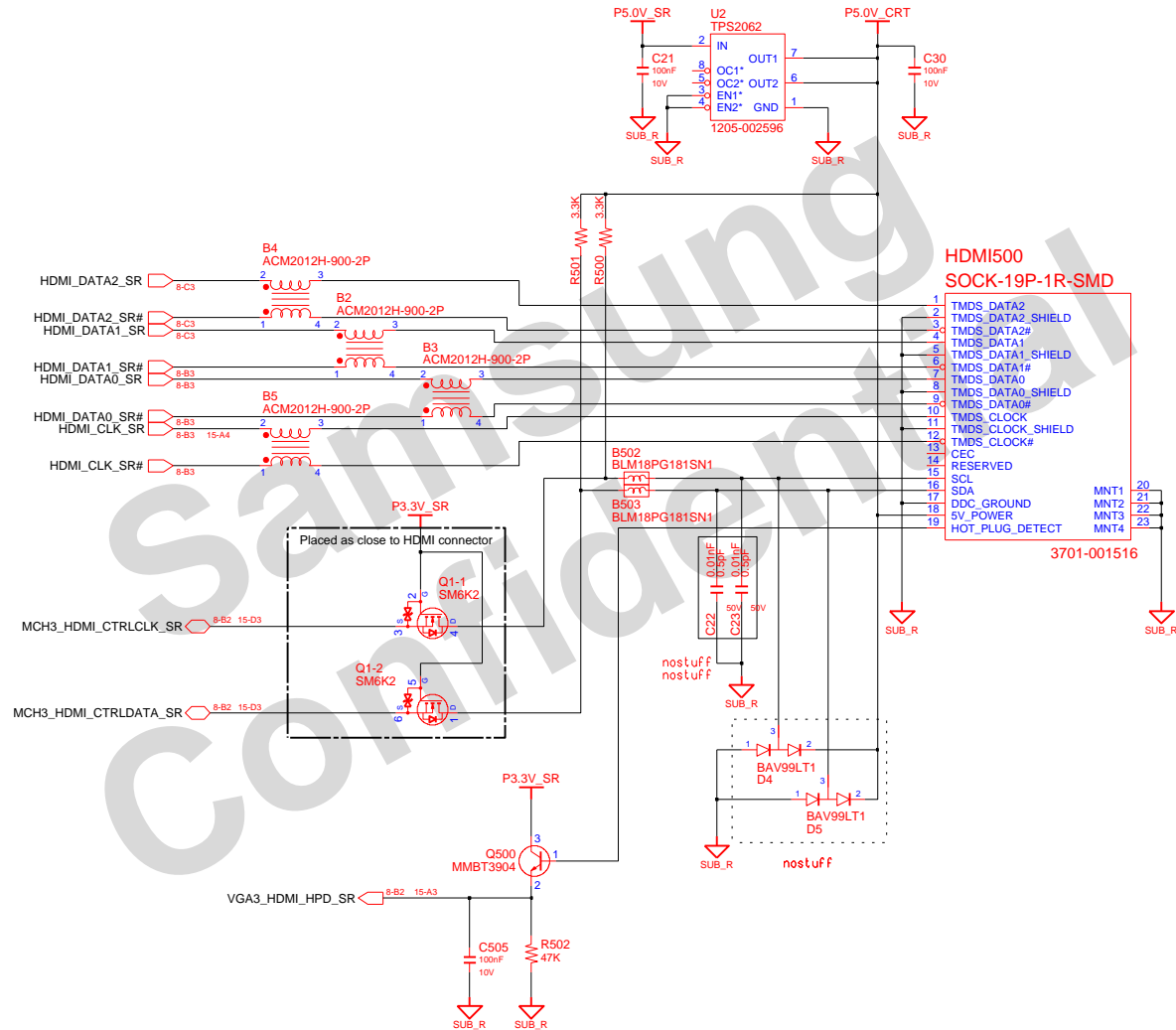
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CRT CONNECTOR(SUB_R)



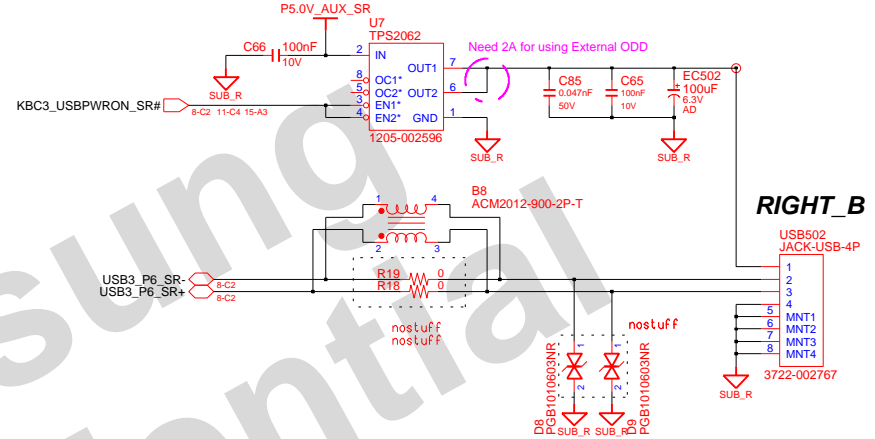
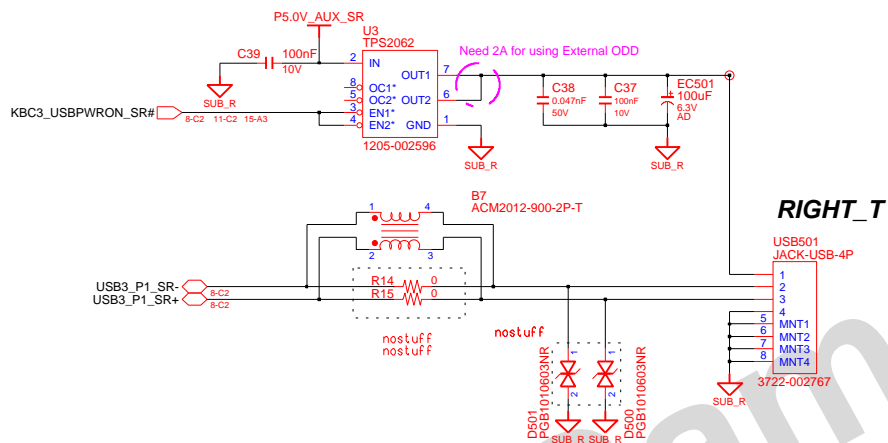
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CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-####A
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	9 OF 15	

HDMI CONNECTOR(SUB_R)

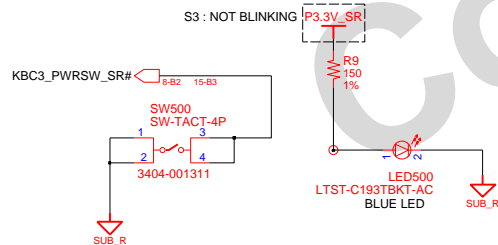


DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAM0A SUB RIGHT HDMI CONNECTOR	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-#####A
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	10	OF 15

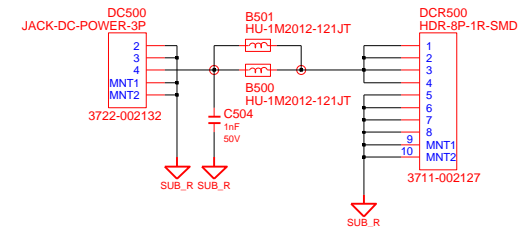
USB PORT(SUB_R)



POWER S/W(SUB_R)



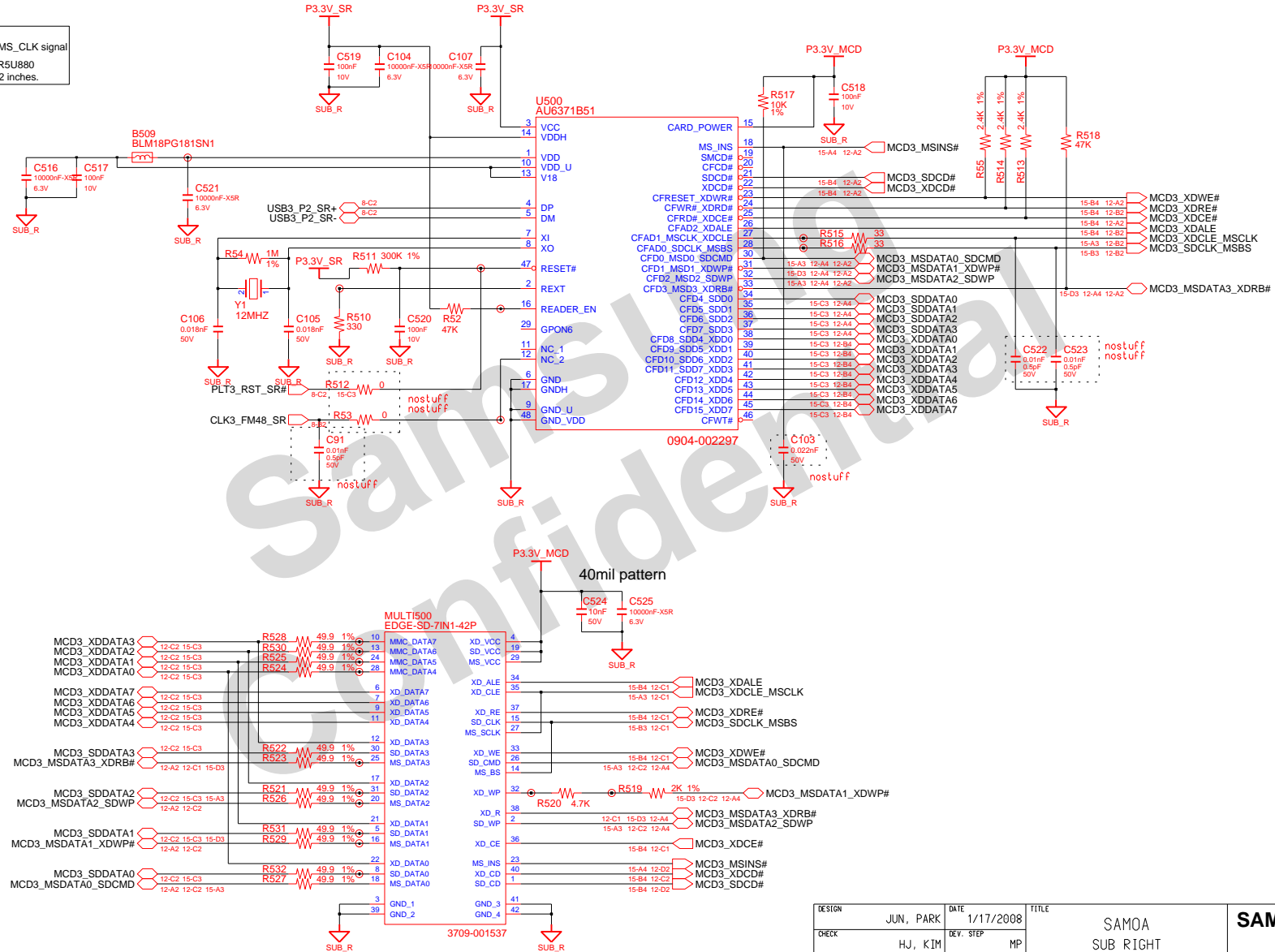
DC JACK(SUB_R)



DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAMOA SUB RIGHT	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM			
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CARD READER(AU6371, SUB_R)

40mil pattern
Apply shield GND for SD/MMC/MS_CLK signal
P3.3V_MCD distance between R5U880
and socket should be less than 2 inches.



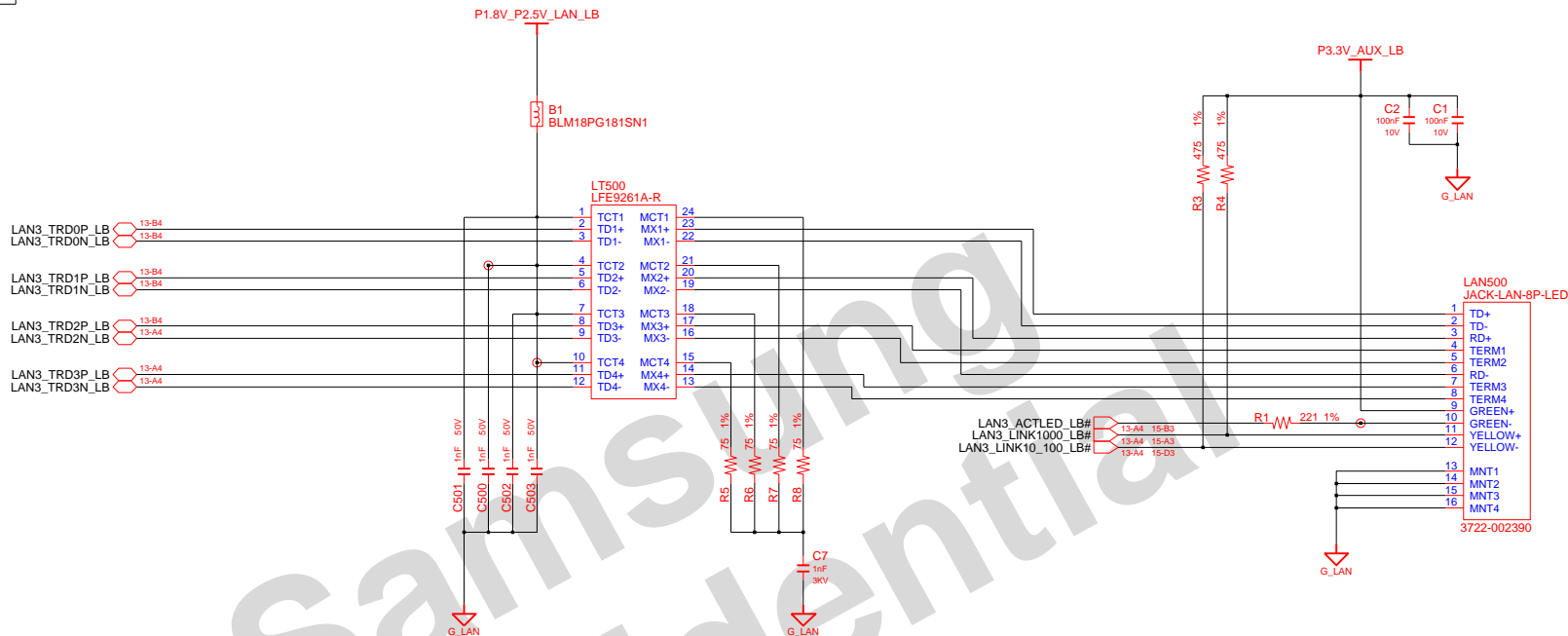
DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAMOA SUB RIGHT CARD READER & 7-IN-1	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-#####A
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	12	OF 15

40 mil trace for medica card socket ground

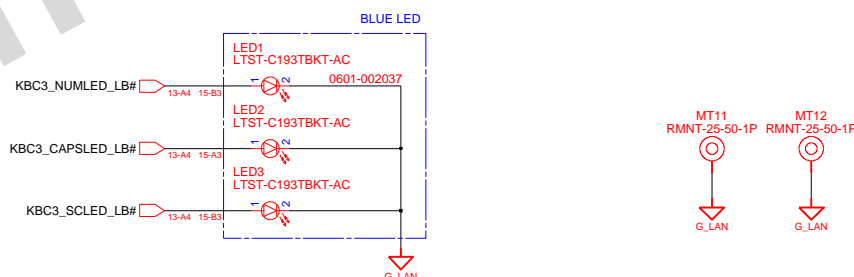
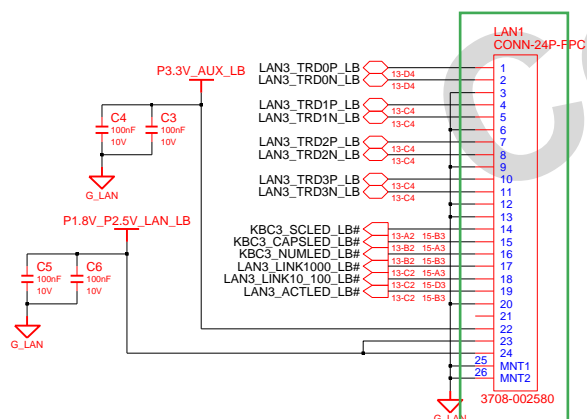
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LAN JACK BOARD

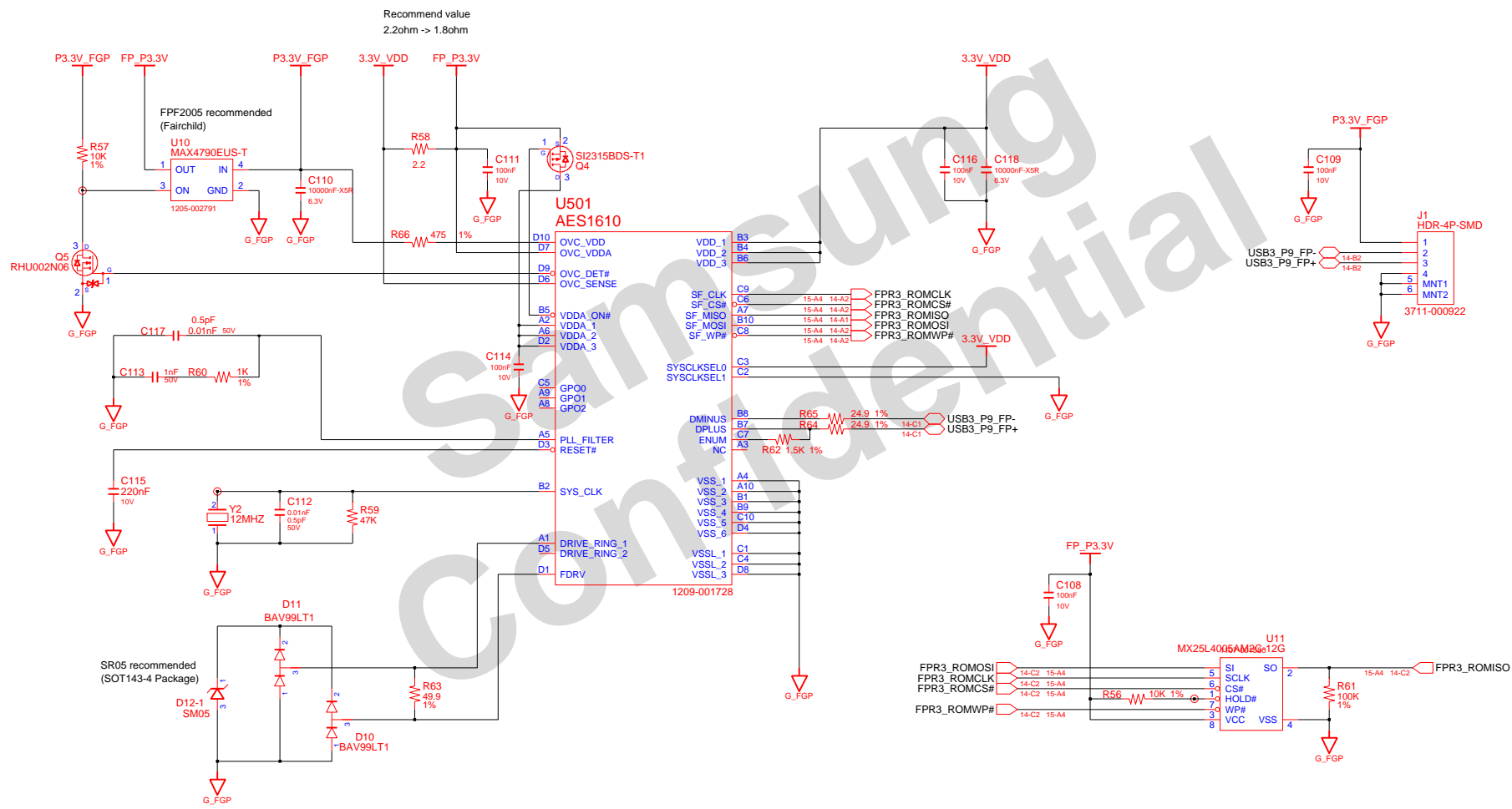


LAN SUB BOARD CONNECTOR



DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAM0A SUB LAN LAN I/F	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP			PART NO. BA41-#####
APPROVAL	JS, EUH	REV	1.1			
MODULE CODE		LAST EDIT	August 22, 2008 10:42:11 AM	PAGE	13	OF 15

FINGER PRINT BOARD



DESIGN	JUN, PARK	DATE	1/17/2008	TITLE	SAM0A	SAMSUNG ELECTRONICS
CHECK	HJ, KIM	DEV. STEP	MP		SUB FINGER PRINT	
APPROVAL	JS, EUH	REV	1.1		FINGER PRINT I/F	
MODULE CODE		LAST EDIT				
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