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SCALA2-EXT

CPU : Arrandale PGA
Chip Set : Intel Ibex Peak
GFX : N11M
Remarks : Calpella Platform

Model Name : SCALA2-EXT
PBA Name : MAIN
PCB Code : BA41-01424A (GCE)
BA41-01423A (NY)
BA41-01425A (HAN)
Dev. Step : MP1.1
Revision : 1.1
T.R. Date : 2010.12.10

Design	CHECK	APPROVAL
<i>QZ DAI</i>	<i>SIMMAN WU</i>	<i>BC LEE</i>

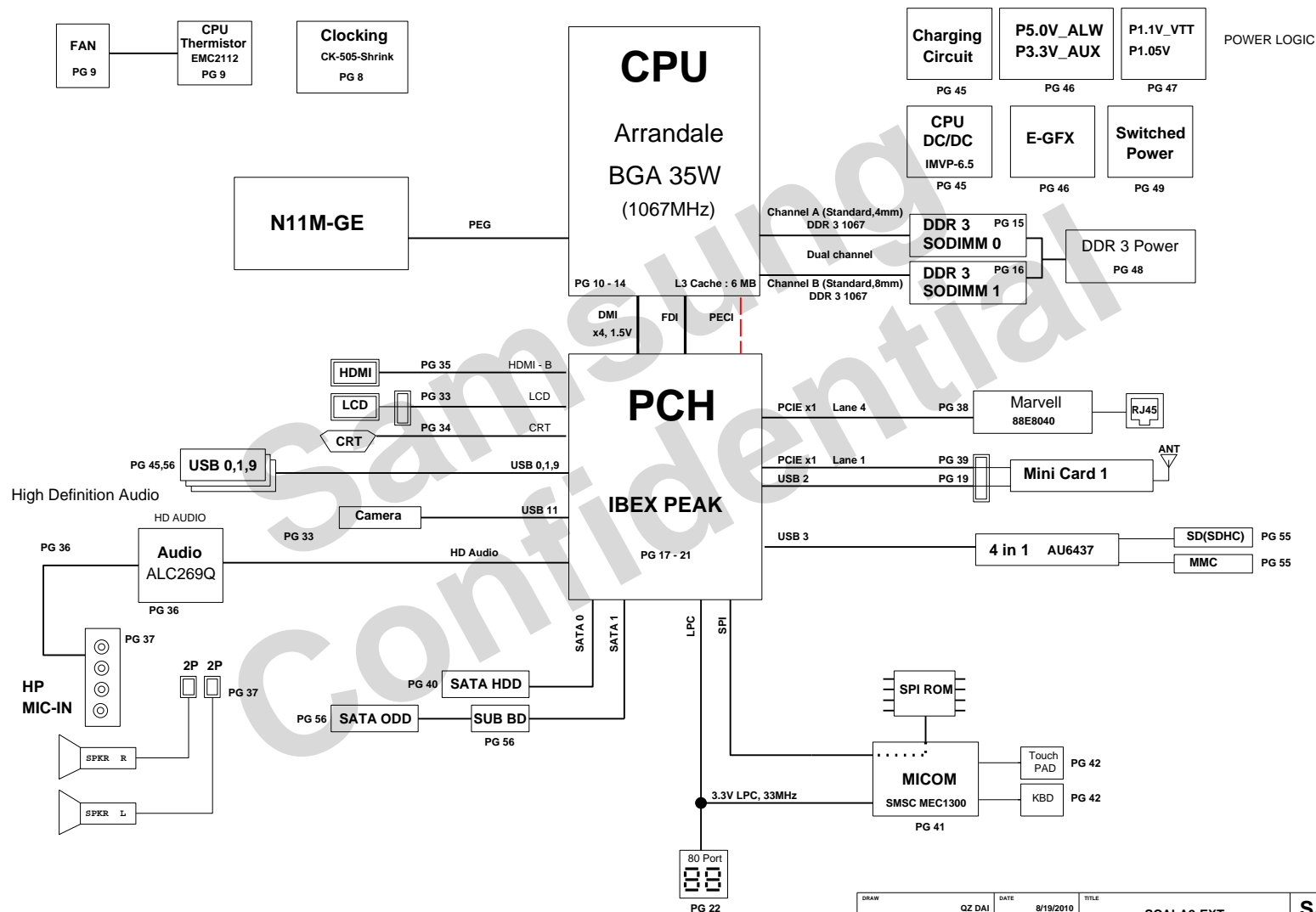
■ Owner : SEC IT Solution N/P LAB Signature : wanni

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DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP	MAIN		ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1	COVER		PART NO. BA41-01423A
MODULE CODE		LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	1	OF 52

BLOCK DIAGRAM



DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE	undefined	LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 2 OF 52	

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BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails		Active in
VDC P12.0V_ALW P3.3V_MICOM P5.0V_ALW P5.0V_STB	Primary DC system power supply (7 to 21V) 12.0V always power rail 3.3V always power rail (for Micom) 5.0V always power rail 5.0V always power rail	S4 - S5
P5.0V_AUX P3.3V_AUX P1.5V_AUX	5.0V switched on power rail (off in S4-S5) 3.3V switched on power rail (off in S4-S5) 1.5V power rail for DDR (off in S4-S5)	
P5.0V P3.3V P1.8V P1.5V P1.05V P0.75V	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.8V switched power rail (off in S3-S5) 1.5V switched power rail (off in S3-S5) 1.05V power rail for chipset (off in S3-S5) 0.9V power rail for DDR (off in S3-S5)	
VCC_CORE IGFX_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for IGFX Core Voltage for GPU VCC for Arrandale & IBEX Peak	

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 1	2	NC
2	Mini PCI Express	3	NC
3	Multi Memory Card Controller	4	LAN CONTROLLER
4	NC	5	NC
5	NC	6	NC
6	NC (N/A WITH HM55)	7	NC (N/A WITH HM55)
7	NC (N/A WITH HM55)	8	NC (N/A WITH HM55)
8	NC		
9	SYSTEM PORT 2 (SUB BOARD)		
10	Bluetooth		
11	Camera		
12	NC		
13	NC		

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	ODD
2	(N/A WITH HM55)
3	(N/A WITH HM55)
4	
5	

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	IBEX-PEAK	Real Time Clock
Crystal	14.318MHz	CLOCK-Generator	CK-505
Crystal	25MHz	LAN	Intel LAN

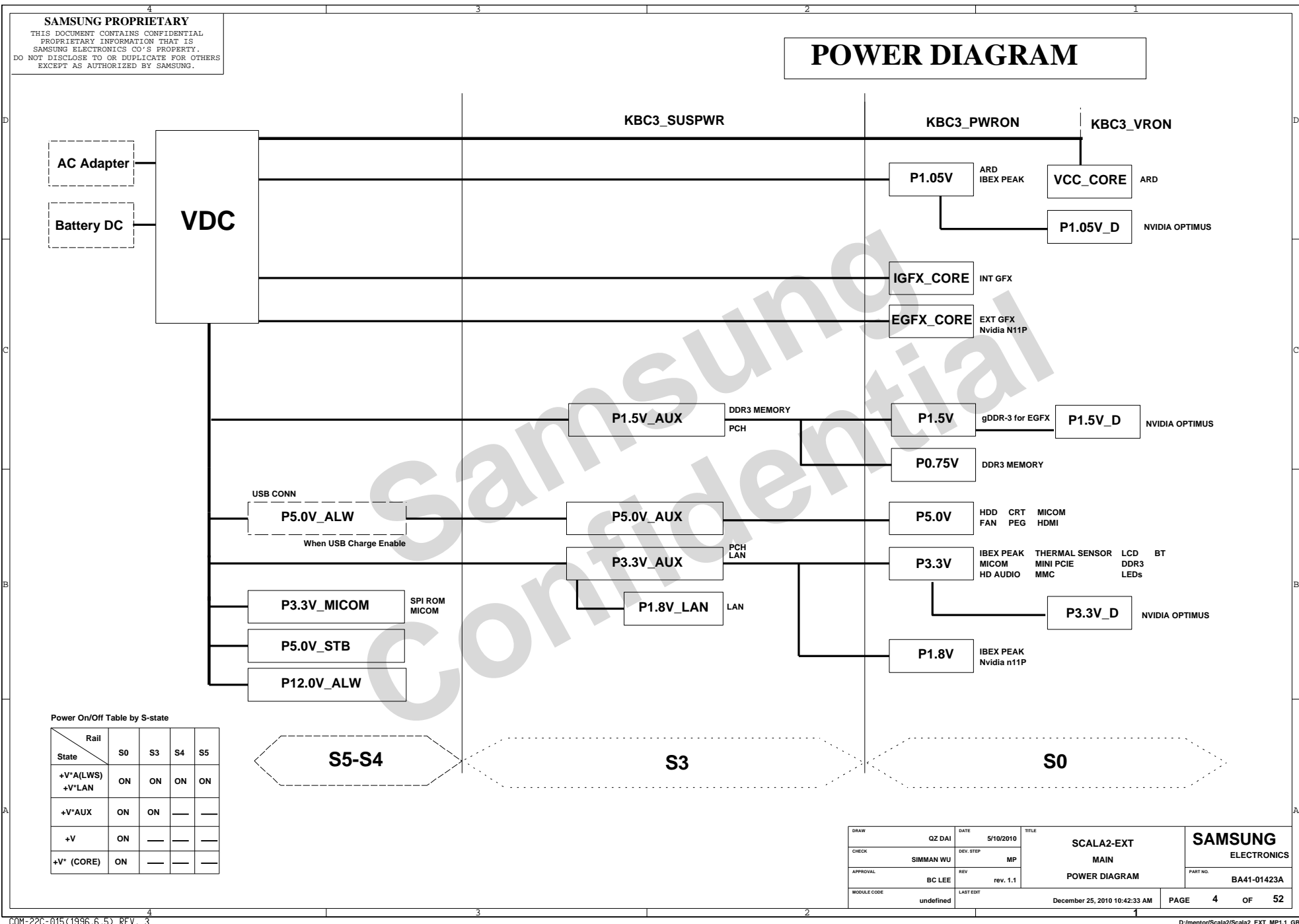
LCD Pannel Detect

Devices	Resolution	PANNEL_DETECT_0
LTN140AT17	HD(1366x768)	SEC3250

I²C / SMB Address

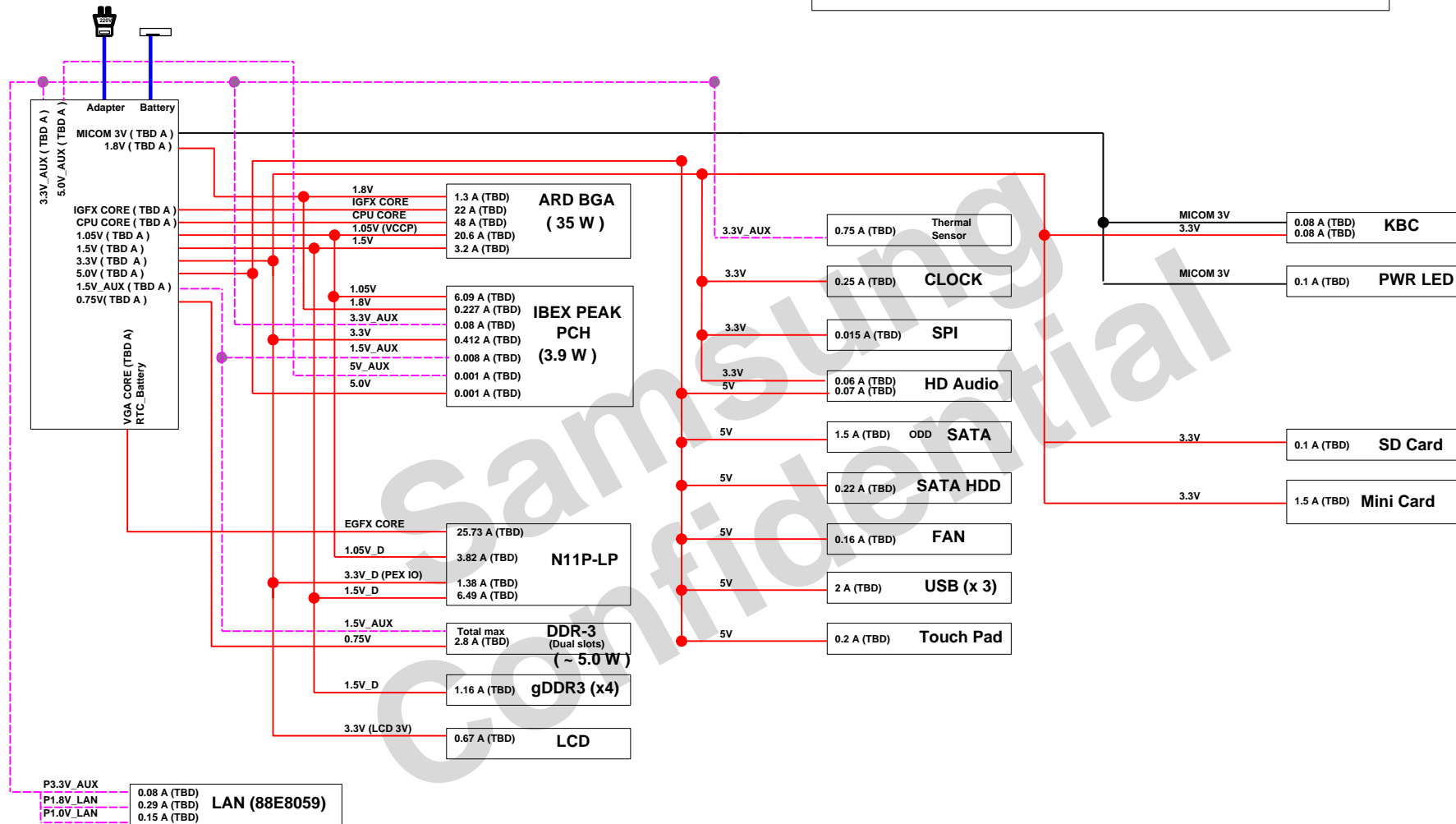
Devices	Address	Hex	Bus
IBEX PEAK	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	
SODIMM0	1010 000x	A0h	Thermal Sensor
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
CK-505M Shrink(Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
Thermal Sensor on board	1101 100x	98h	
Power thermal management TS	1101 011x	96h	

DRAW	QZ DAI	DATE	8/19/2010	TITLE SCALA2-EXT MAIN BOARD INFO	SAMSUNG ELECTRONICS PART NO. BA41-01423A
CHECK	SIMMAN WU	DEV. STEP	MP		
APPROVAL	BC LEE	REV	rev. 1.1		
MODULE CODE	undefined	LAST EDIT	December 25, 2010 10:42:33 AM		
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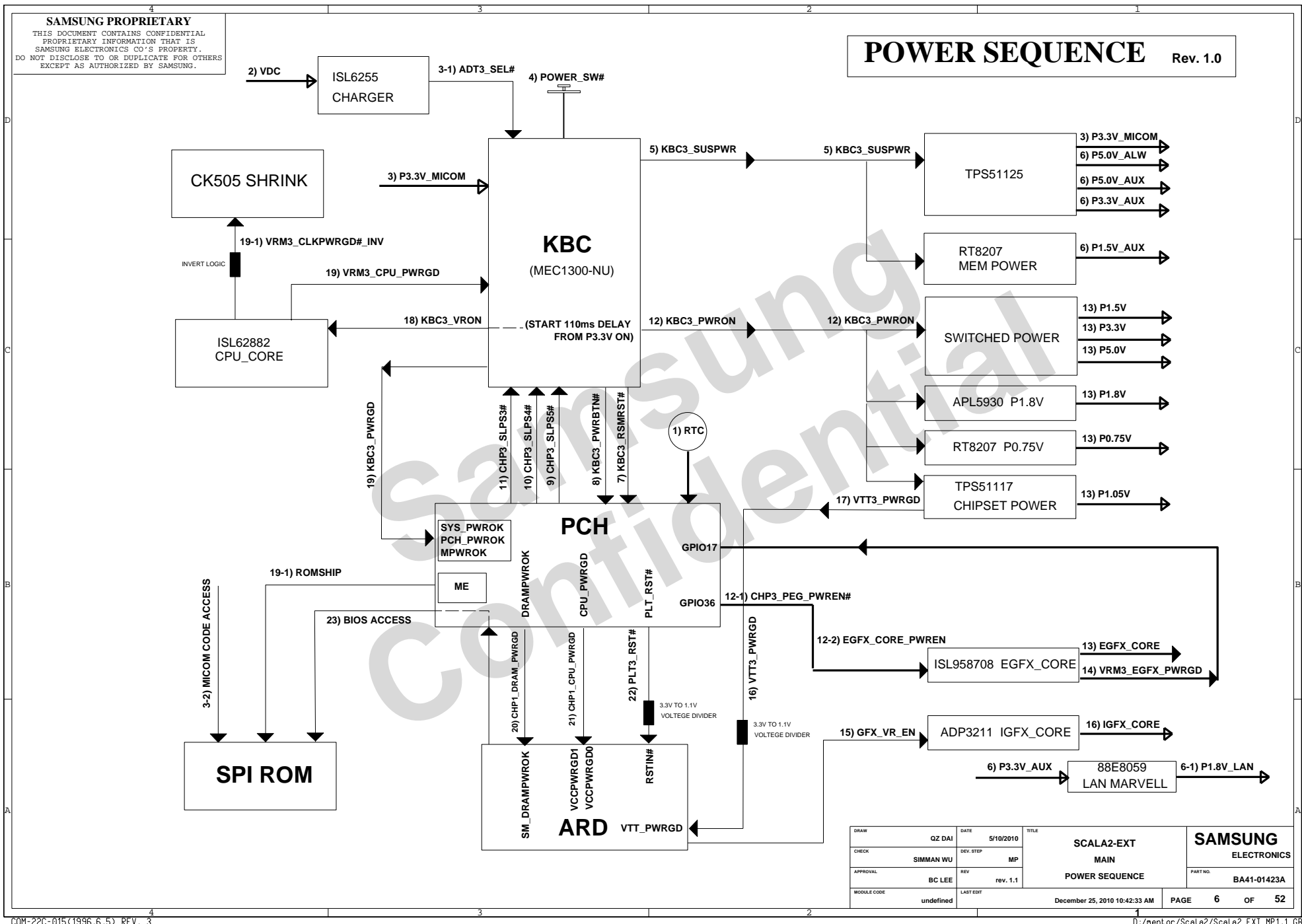


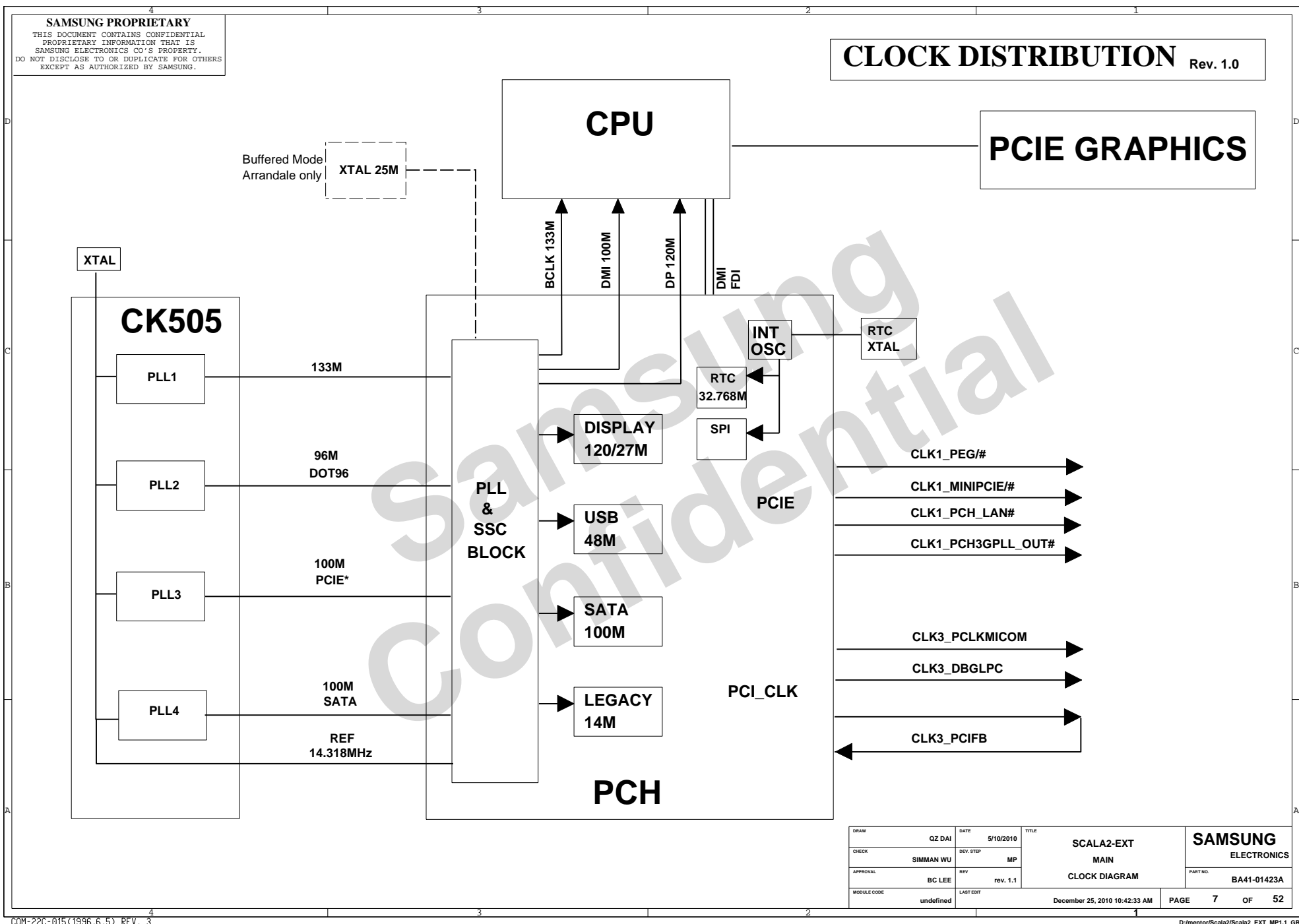
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POWER RAILS ANALYSIS



DRAW	QZ DAI	DATE	5/10/2010	TITLE	SCALA2-EXT MAIN POWER RAILS	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
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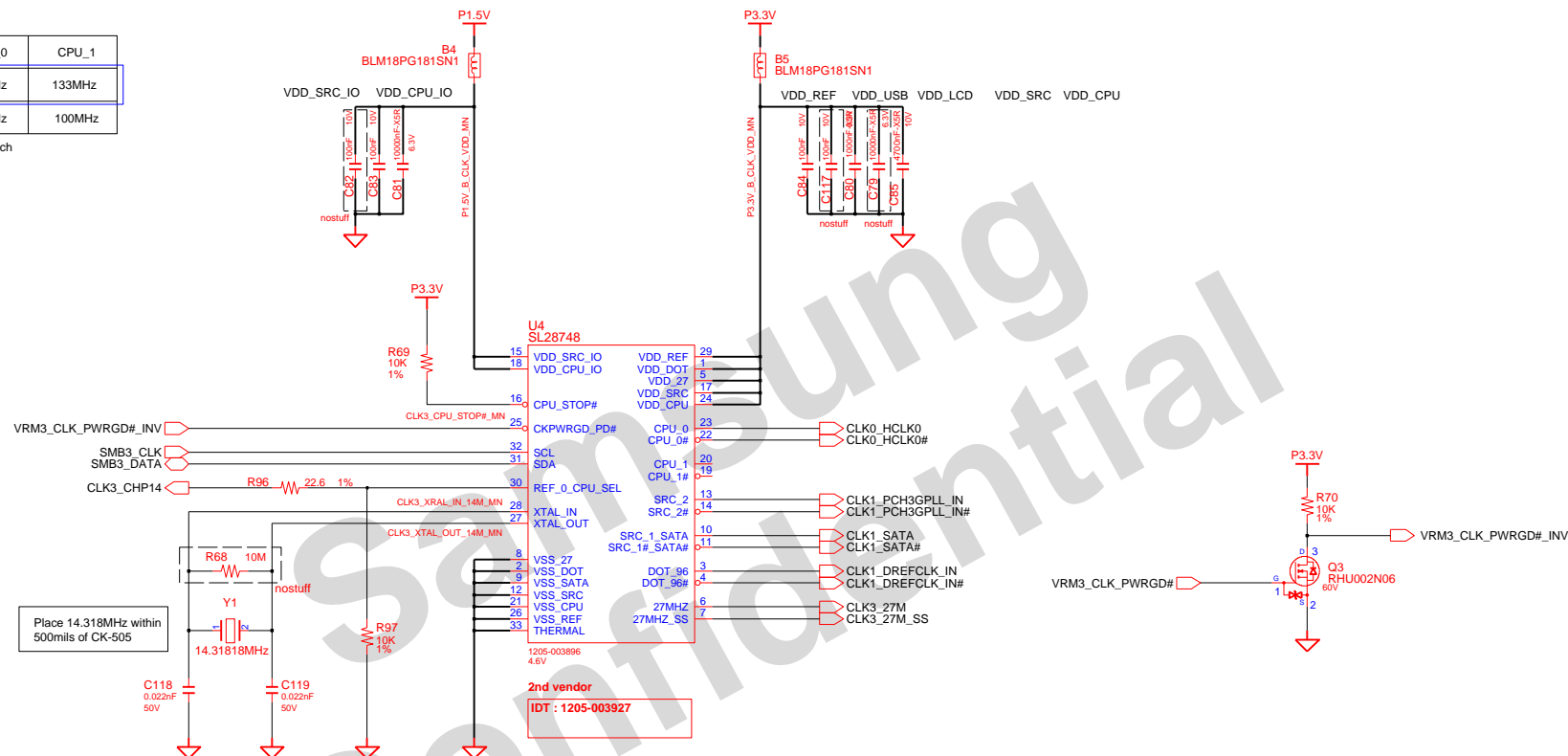
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CK505M SHRINK VERSION

CPU_MODE SEL

Pin 30	CPU_0	CPU_1
CPU_SEL = 0	133MHz	133MHz
CPU_SEL = 1	100MHz	100MHz

*CPU_SEL During CK_PWRGD Latch



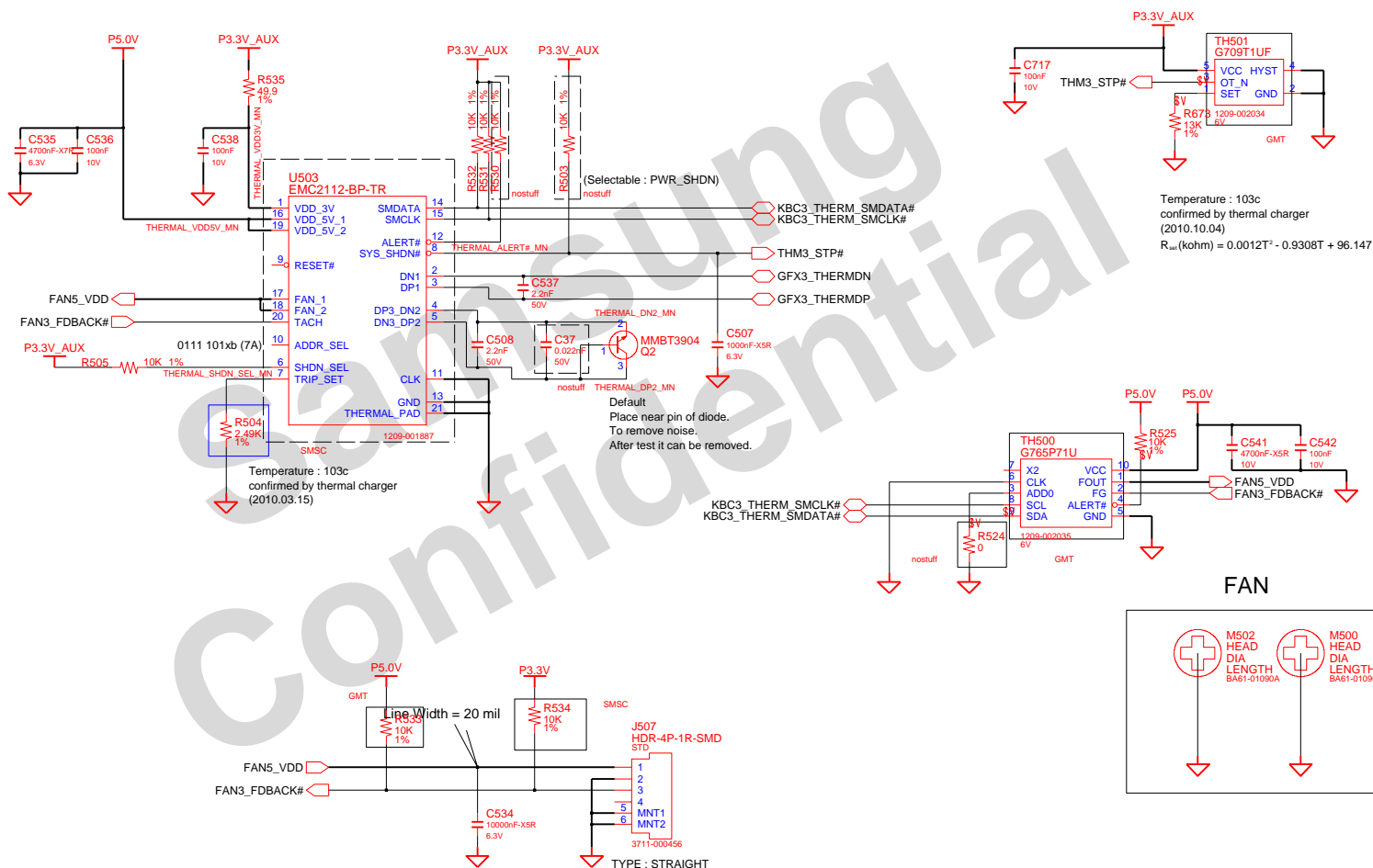
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THERMAL SENSOR & FAN CONTROL

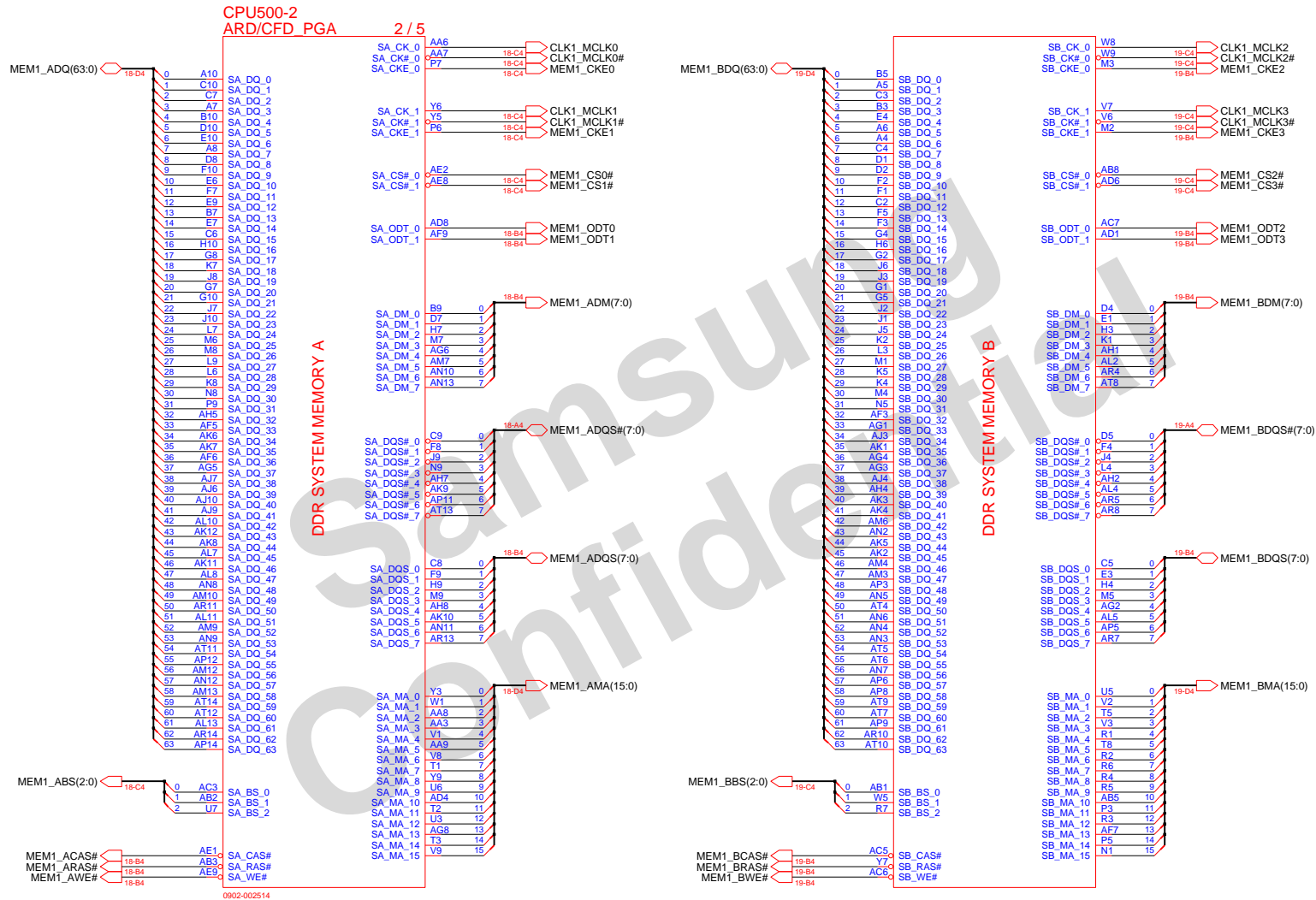
ADDRESSSEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

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



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP		THERMAL SENSOR	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		THERMAL SENSOR EMC2112	PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
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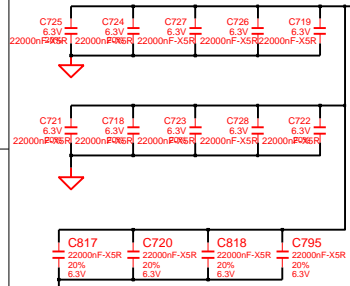
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DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT CPU BGA CPU (2/5)	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE	undefined	LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	11	OF 52

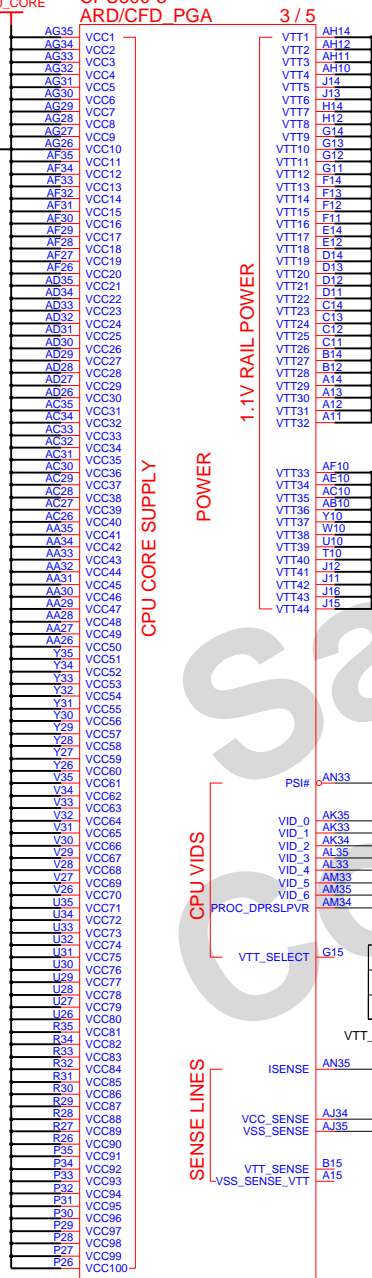
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14x 22 uF : CPU VR side

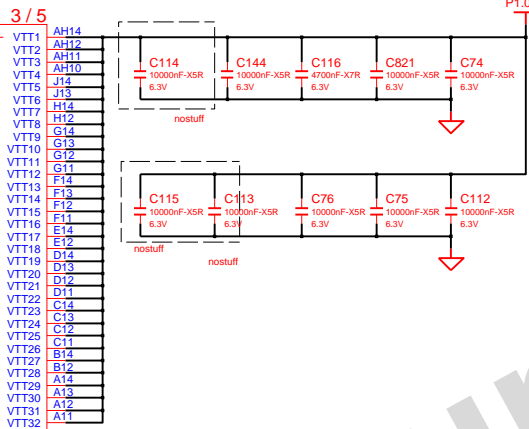


Stuff/NoStuff Check ?
(depends on placement)

**CPU500-3
ARD/CFD PGA**



ALL VTT DECAP IS SHARED



1.1V RAIL POWER

CPU CORE SUPPLY

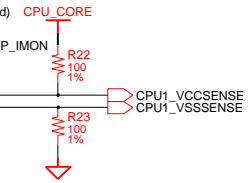
POWER

CPU VIDS

SENSE LINES

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

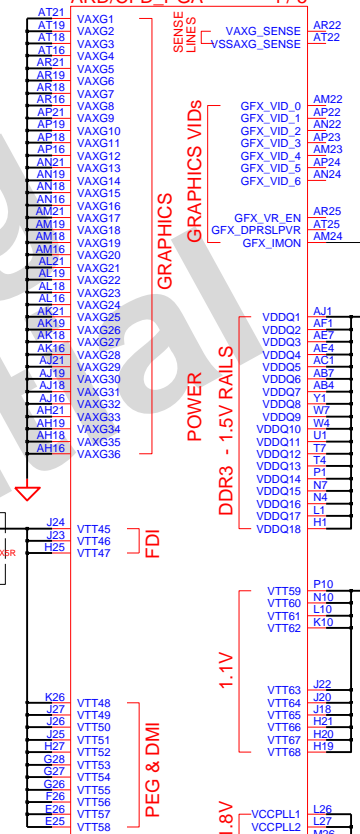
VTT_SEL signal (for CFD/ARD shared)



****VTT POWER SELECTION**

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

**CPU500-4
ARD/CFD PGA**



GRAPHICS VIDS

POWER

DDR3 - 1.5V RAILS

1.1V

1.8V

VCCPLL1

VCCPLL2

VCCPLL3

VTTSEL

VTTSEL

VTTSEL

VTTSEL

VTTSEL

VTTSEL

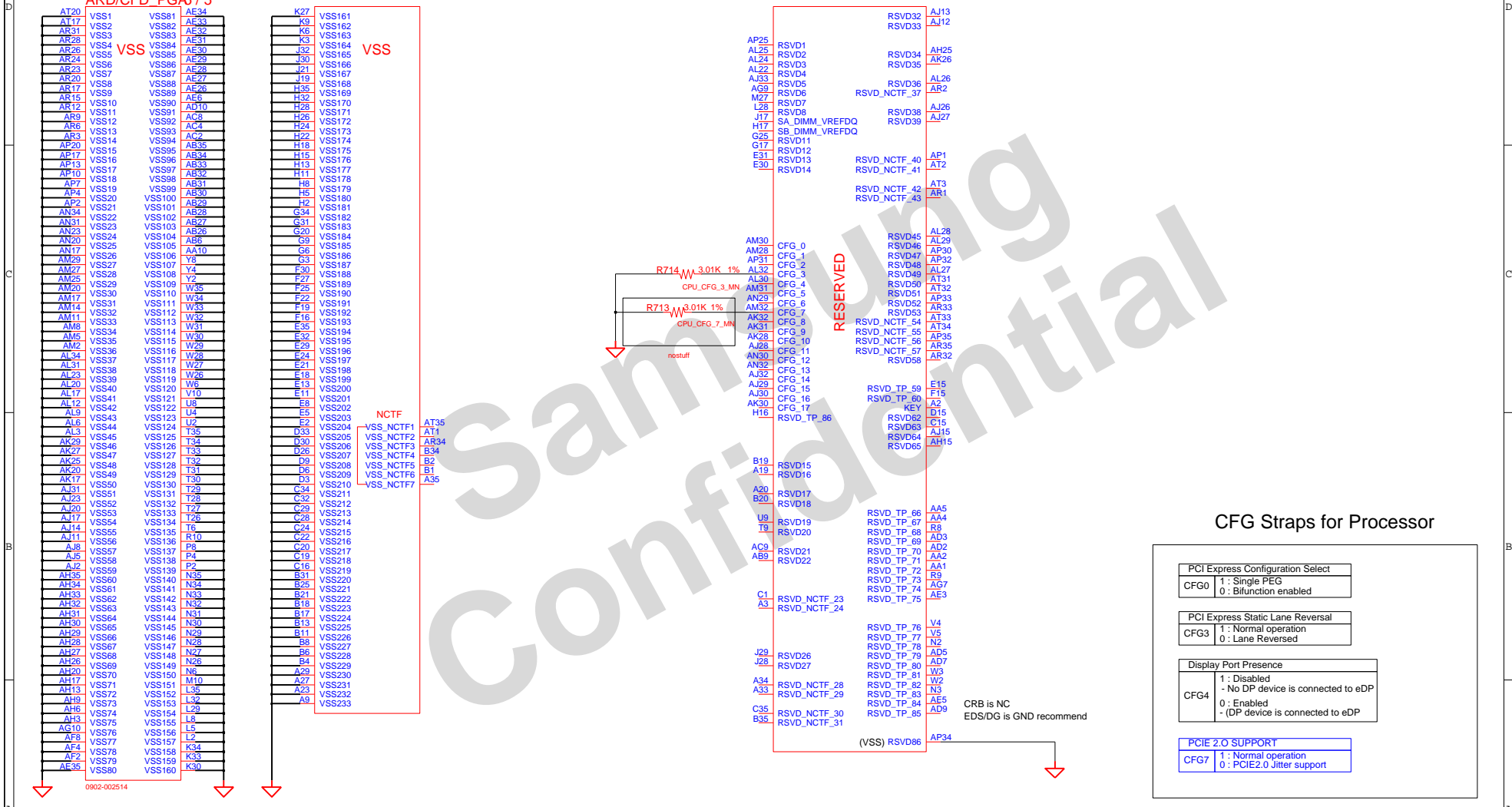
VTTSEL

VTTSEL

	1uF	10uF	22uF	330uF
w Proddizer	25 pcs	0 pcs	16 pcs	0 pcs
w/o Proddizer	25 pcs	16 pcs	12 pcs	4 pcs

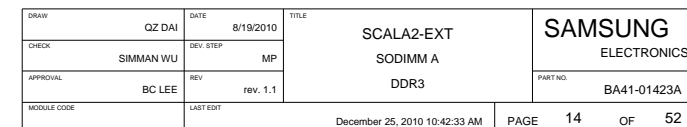
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CHECK	SIMMAN WU	DEV. STEP	MP				
APPROVAL	BC LEE	REV	rev. 1.1				
						PART NO.	BA41-01423A
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CPU500-5
ARD/CFD PGA5 / 5

DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT CPU BGA CPU (4/5)	SAMSUNG ELECTRONICS		
CHECK	SIMMAN WU	DEV. STEP	MP					
APPROVAL	BC LEE	REV	rev. 1.1				PART NO.	BA41-01423A
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DDR SO-DIMM #1
Height : 4 mm (STANDARD)
P/N : 3709-001560 (FOXCONN)
P/N : 3709-001607 (CONCRAFT)

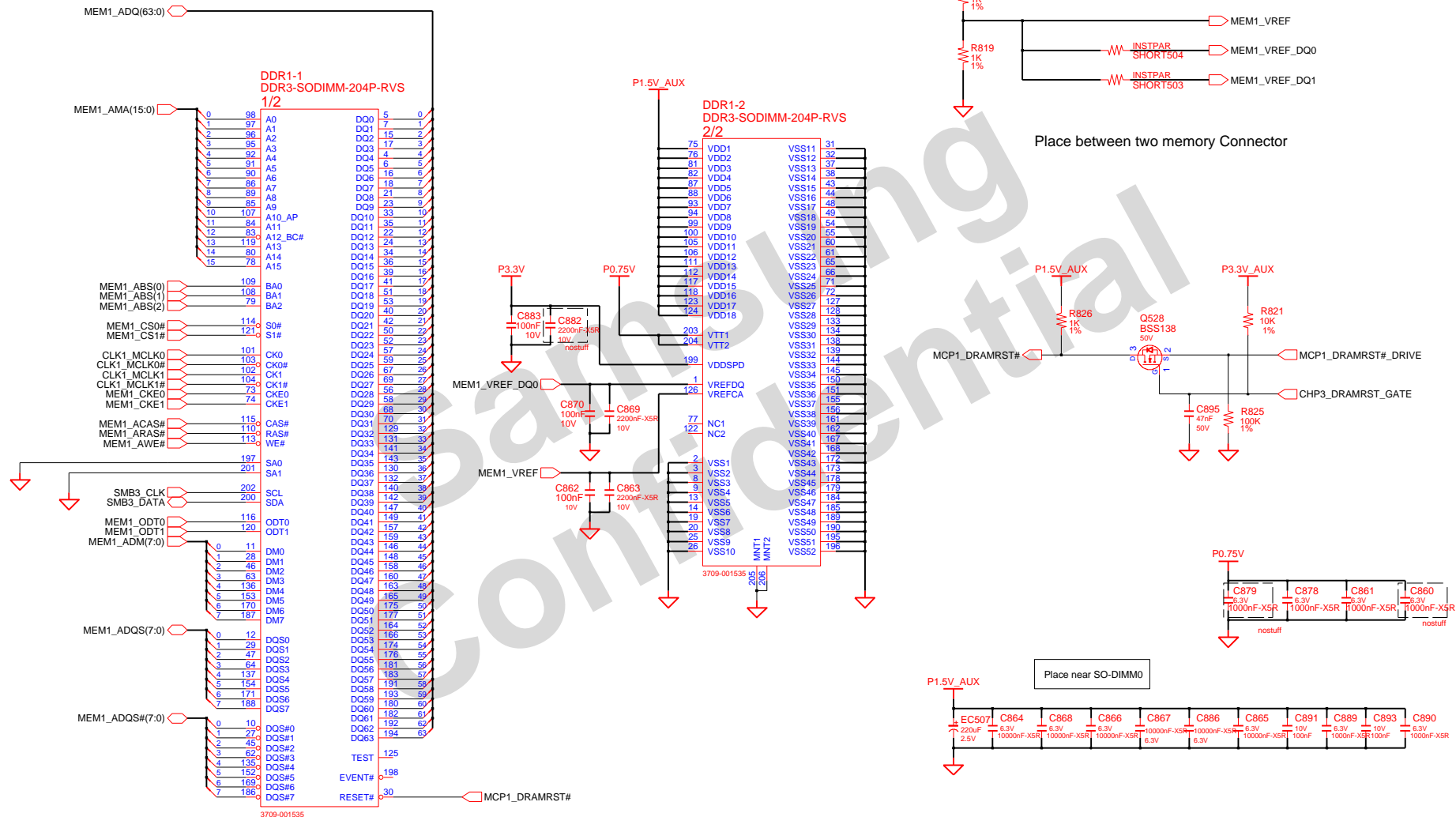


DDR SO-DIMM #0

Height : 8 mm (STANDARD)

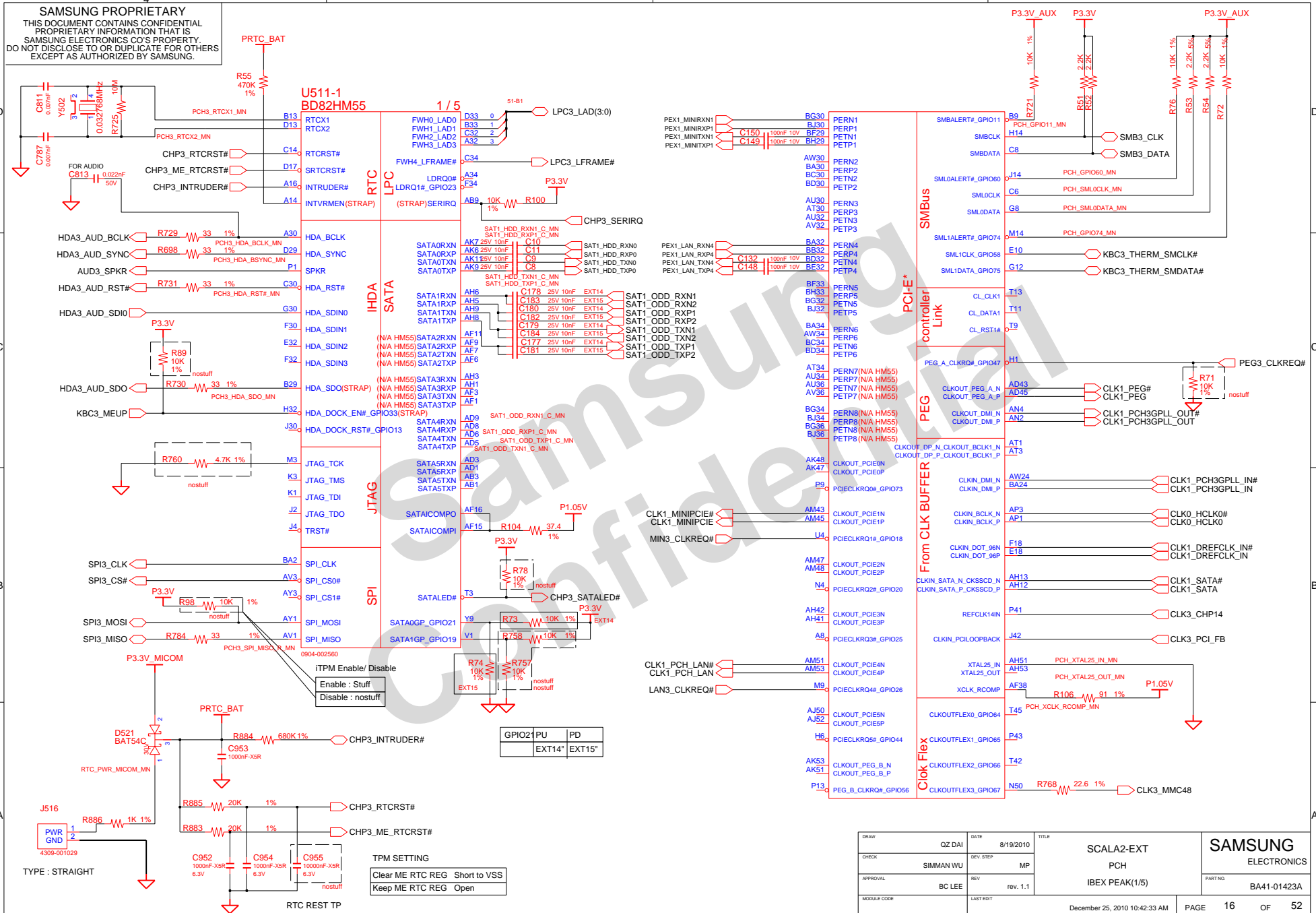
P/N : 3709-001615 (FOXCONN)

P/N : 3709-001622 (CONCRAFT)



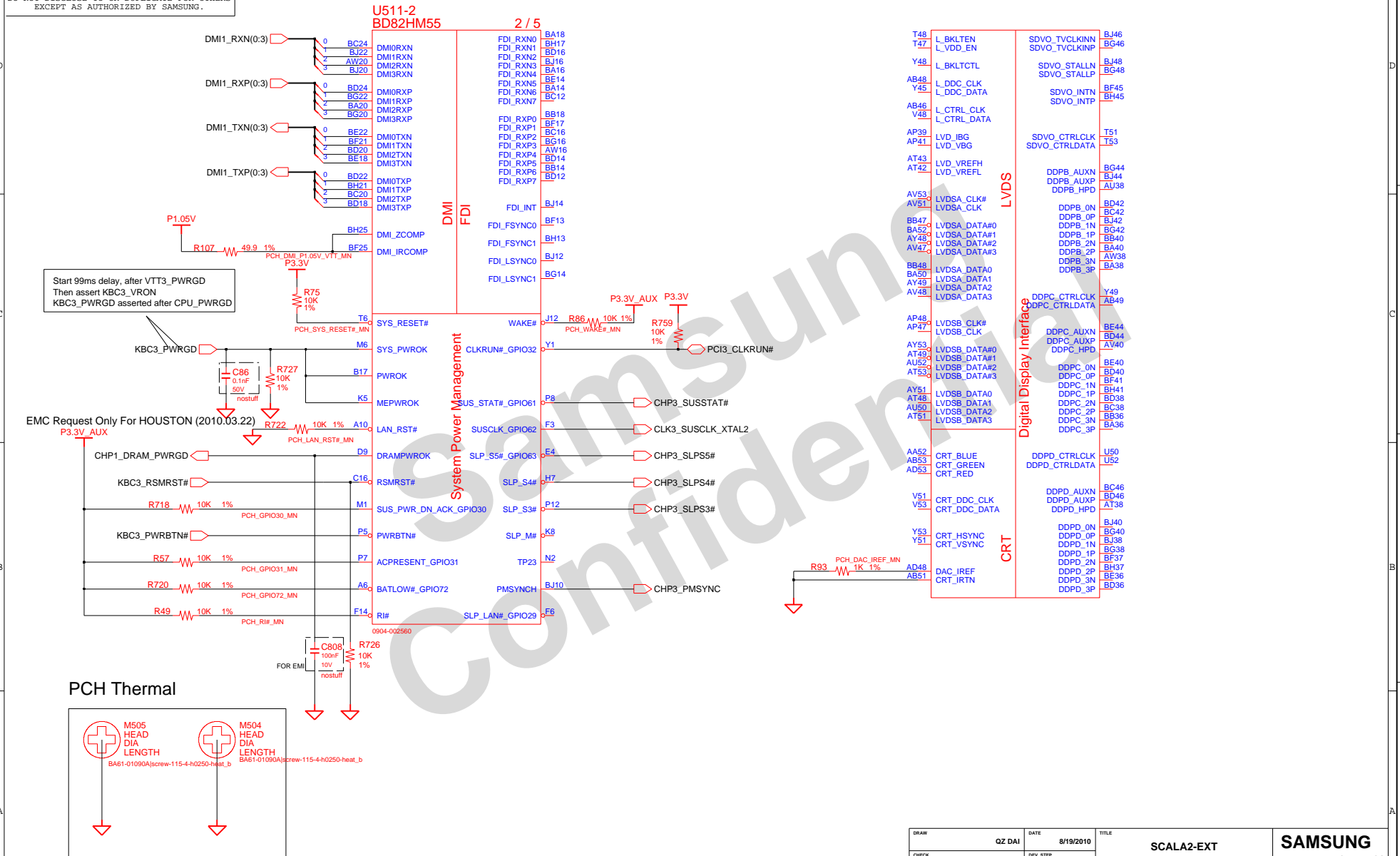
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CHECK	SIMMAN WU	DEV. STEP	MP		SODIMM B	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		DDR3	PART NO.
MODULE CODE		LAST ENT				BA41-01423A
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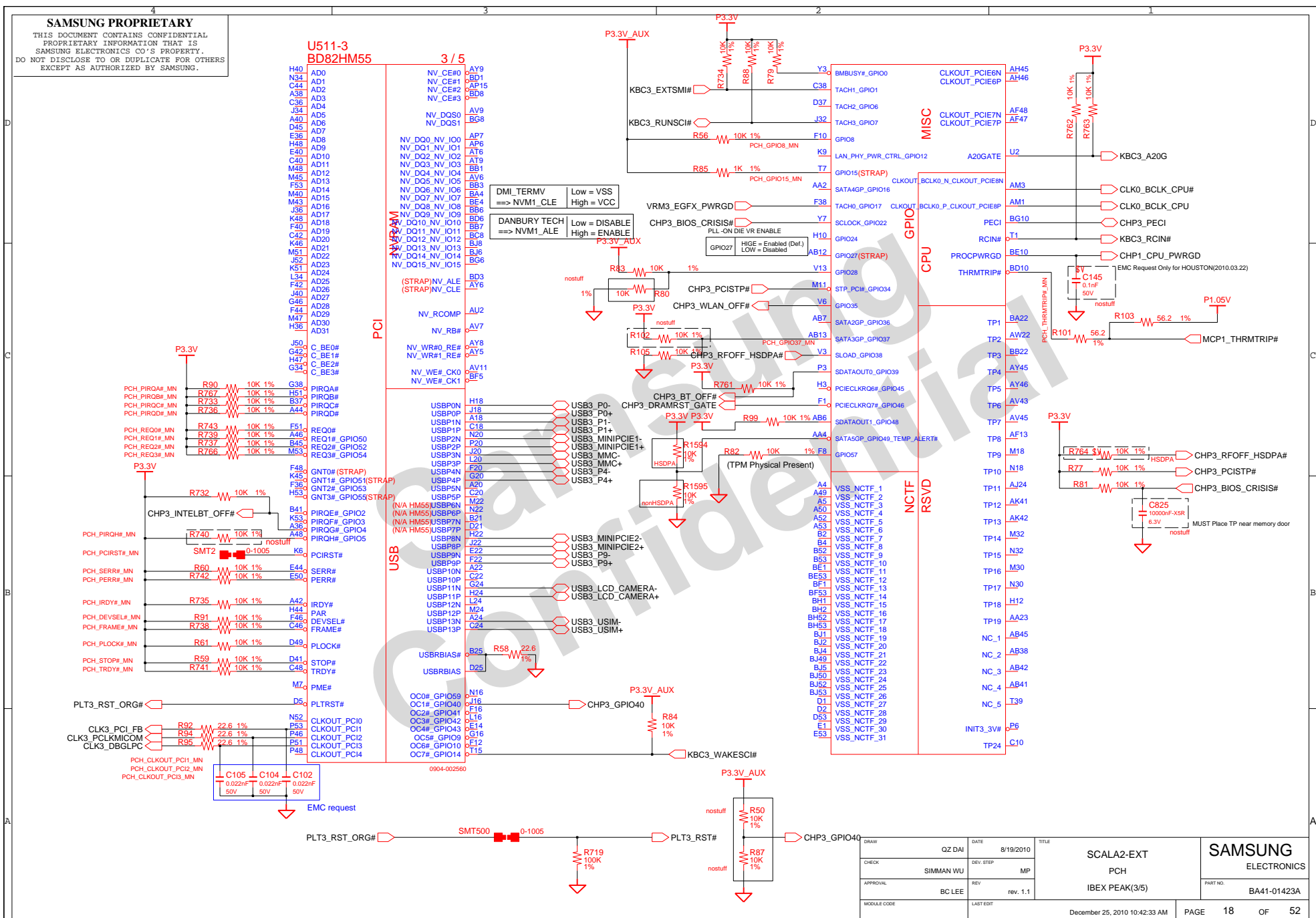
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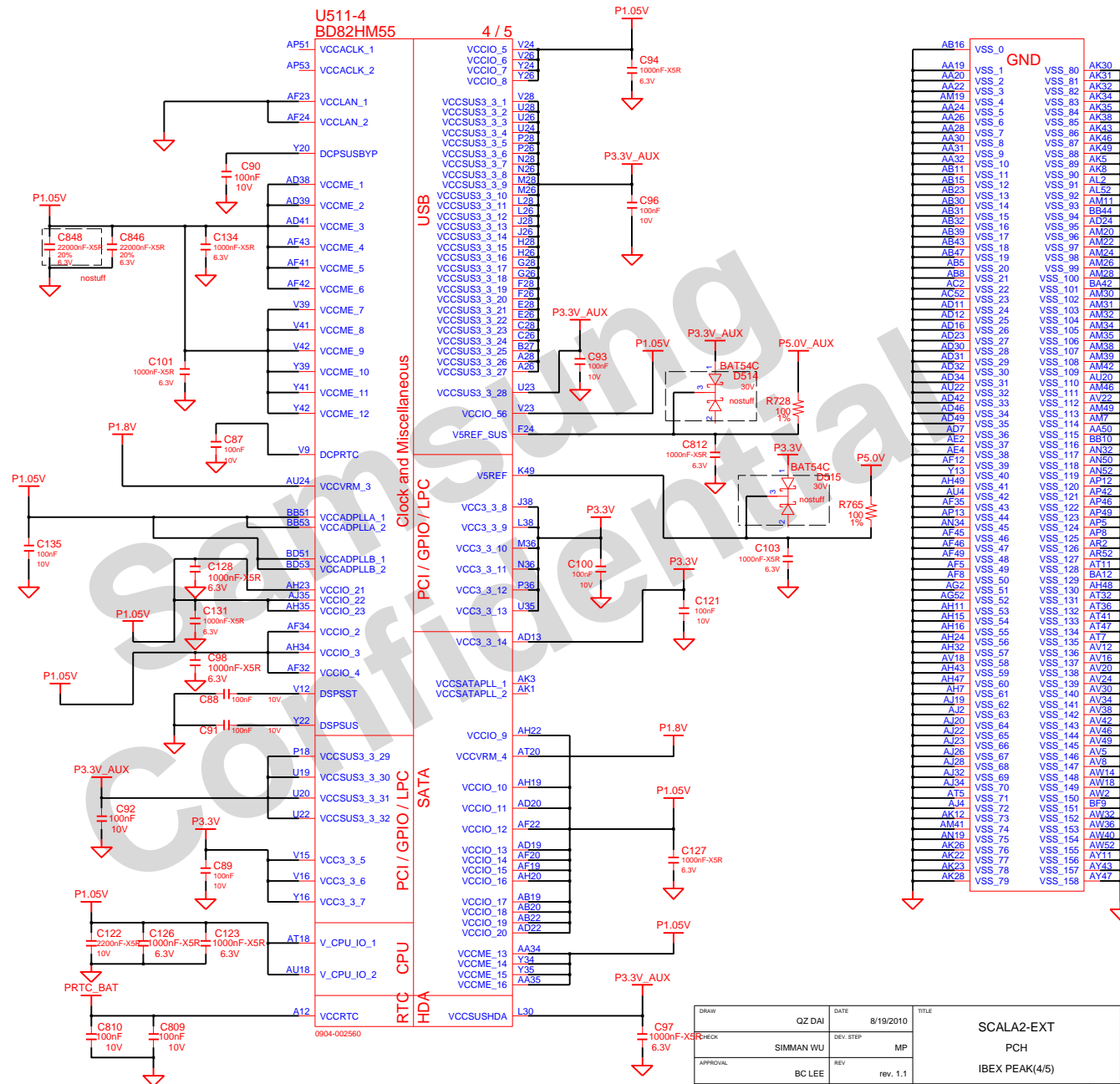
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CHECK	SIMMAN WU	DEV. STEP	MP			
APPROVAL	BC LEE	REV	rev. 1.1			
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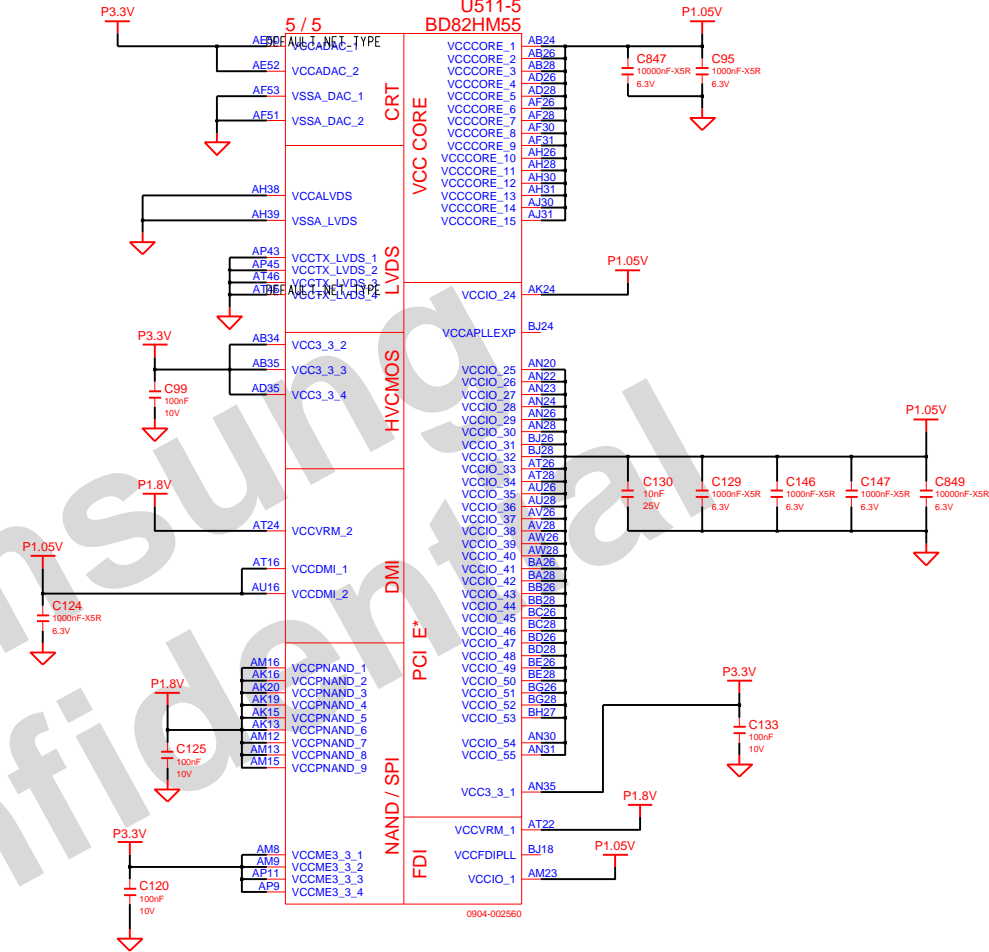


VTT_SEL	VOLTAGE	CPU
1	P1.05V	ARRANDALE
0	P1.1V	CLARKS FIELD



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H49	VSS_255	VSS_159	AV7
H5	VSS_261	VSS_160	B11
J24	VSS_261	VSS_161	B15
K11	VSS_262	VSS_162	B19
K43	VSS_263	VSS_163	B23
K47	VSS_263	VSS_163	B31
K7	VSS_264	VSS_164	B35
L14	VSS_265	VSS_165	B39
L18	VSS_266	VSS_166	B43
L2	VSS_267	VSS_167	B47
L22	VSS_268	VSS_168	B51
L32	VSS_269	VSS_169	B55
L36	VSS_270	VSS_170	B59
L40	VSS_271	VSS_171	B63
L52	VSS_272	VSS_172	B67
M12	VSS_273	VSS_173	B71
M16	VSS_274	VSS_174	B75
M20	VSS_275	VSS_175	B79
N38	VSS_276	VSS_176	B83
M34	VSS_277	VSS_177	B87
M38	VSS_278	VSS_178	B91
M42	VSS_279	VSS_179	B95
M46	VSS_280	VSS_180	BC10
M49	VSS_281	VSS_181	BC14
M5	VSS_282	VSS_182	BC18
M8	VSS_283	VSS_183	BC22
N24	VSS_284	VSS_184	BC26
P11	VSS_285	VSS_185	BC30
AD15	VSS_286	VSS_186	BC34
P22	VSS_287	VSS_187	BC38
P30	VSS_288	VSS_188	BC42
P32	VSS_289	VSS_189	BC46
P34	VSS_290	VSS_190	BC50
P42	VSS_291	VSS_191	BC54
P45	VSS_292	VSS_192	BC58
P47	VSS_293	VSS_193	BC62
R2	VSS_294	VSS_194	BC66
R52	VSS_295	VSS_195	BC70
T12	VSS_296	VSS_196	BC74
T41	VSS_297	VSS_197	BC78
T46	VSS_298	VSS_198	BC82
T49	VSS_299	VSS_199	BC86
T5	VSS_300	VSS_200	BC90
T8	VSS_301	VSS_201	BC94
U30	VSS_302	VSS_202	BC98
U31	VSS_303	VSS_203	BC102
U32	VSS_304	VSS_204	BC106
U34	VSS_305	VSS_205	BC110
P38	VSS_306	VSS_206	BC114
V11	VSS_307	VSS_207	BC118
P16	VSS_308	VSS_208	BC122
V19	VSS_309	VSS_209	BC126
V20	VSS_310	VSS_210	BC130
V22	VSS_311	VSS_211	BC134
V30	VSS_312	VSS_212	BC138
V31	VSS_313	VSS_213	BC142
V32	VSS_314	VSS_214	BC146
V34	VSS_315	VSS_215	BC150
V35	VSS_316	VSS_216	BC154
V38	VSS_317	VSS_217	BC158
V43	VSS_318	VSS_218	BC162
V45	VSS_319	VSS_219	BC166
V46	VSS_320	VSS_220	BC170
V47	VSS_321	VSS_221	BC174
V49	VSS_322	VSS_222	BC178
V5	VSS_323	VSS_223	BC182
V7	VSS_324	VSS_224	BC186
V8	VSS_325	VSS_225	BC190
W2	VSS_326	VSS_226	BC194
W52	VSS_327	VSS_227	BC198
Y11	VSS_328	VSS_228	BC202
Y12	VSS_329	VSS_229	BC206
Y23	VSS_330	VSS_230	BC210
Y15	VSS_331	VSS_231	BC214
Y19	VSS_332	VSS_232	BC218
Y23	VSS_333	VSS_233	BC222
Y28	VSS_334	VSS_234	BC226
Y30	VSS_335	VSS_235	BC230
Y31	VSS_336	VSS_236	BC234
Y32	VSS_337	VSS_237	BC238
Y38	VSS_338	VSS_238	BC242
Y43	VSS_339	VSS_239	BC246
Y46	VSS_340	VSS_240	BC250
P49	VSS_341	VSS_241	BC254
Y5	VSS_342	VSS_242	BC258
Y6	VSS_343	VSS_243	BC262
Y8	VSS_344	VSS_244	BC266
P24	VSS_345	VSS_245	BC270
T43	VSS_346	VSS_246	BC274
AD51	VSS_347	VSS_247	BC278
AT8	VSS_348	VSS_248	BC282
AD47	VSS_349	VSS_249	BC286
Y47	VSS_350	VSS_250	BC290
AT12	VSS_351	VSS_251	BC294
AM6	VSS_352	VSS_252	BC298
AT13	VSS_353	VSS_253	BC302
AM5	VSS_354	VSS_254	BC306
AK45	VSS_355	VSS_255	BC310
AK39	VSS_356	VSS_256	BC314
AV14	VSS_357	VSS_257	BC318
	VSS_358	VSS_258	BC322

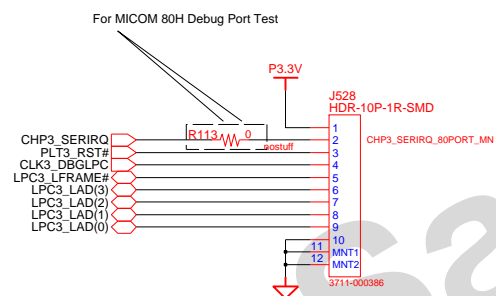


DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP		PCH	
APPROVAL	BC LEE	REV	rev. 1.1		IBEX PEAK(5/5)	
MODULE CODE	undefined	LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	20	OF 52

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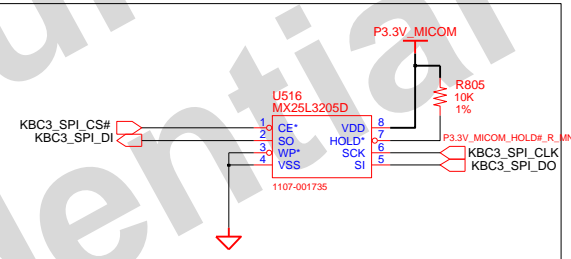
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80H PORT DEBUG




BE CAUTION SPI ROM SIZE!!

SPI_ROM_SOCKET



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT DEBUG PORT 80H DECODER	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE		LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	21	OF 52

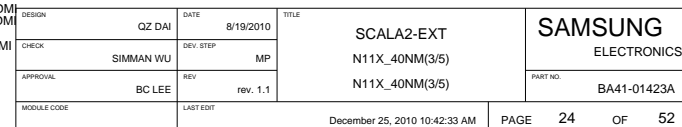


DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT		
CHECK	SIMMAN WU	DEV. STEP	MP		N11X_40NM(1/5)		
APPROVAL	BC LEE	REV	rev. 1.1		N11X_40NM(1/5)	PART NO.	BA41-01423A
MODULE CODE	LAST EDIT			December 25, 2010 10:42:33 AM		PAGE	22 OF 52



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT N11X_40NM(2/5) N11X_40NM(2/5)	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE	LAST EDIT			December 25, 2010 10:42:33 AM	PAGE	23 OF 52
				PART NO.		BA41-01423A

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Pin	Description	Activate
GPIO(0)	General Purpose	NC
GPIO(1)	HPD-C	NC
GPIO(2)	LCD0_BL_PWM	High
GPIO(3)	LCD0_VDD	High
GPIO(4)	LCD0_BL_EN	High
GPIO(5)	GPU VID0	00 0.8V 10 0.95V
GPIO(6)	GPU VID1	01 0.85V 11 1.03V
GPIO(7)	GPU VID2	NC
GPIO(8)	OVERT	LOW
GPIO(9)	ALERT	NC
GPIO(10)	MEM_VREF	NC
GPIO(11)	SLI_SYNC	NC
GPIO(12)	PWR_LEVEL	NC
GPIO(13)	MEM_VID	NC
GPIO(14)	PWR_CTRL1	NC
GPIO(15)	HPD-E	High
GPIO(16)	FAN_PWM	NC
GPIO(17)	Reserved	NC
GPIO(18)	Reserved	NC
GPIO(19)	HPD-D	NC

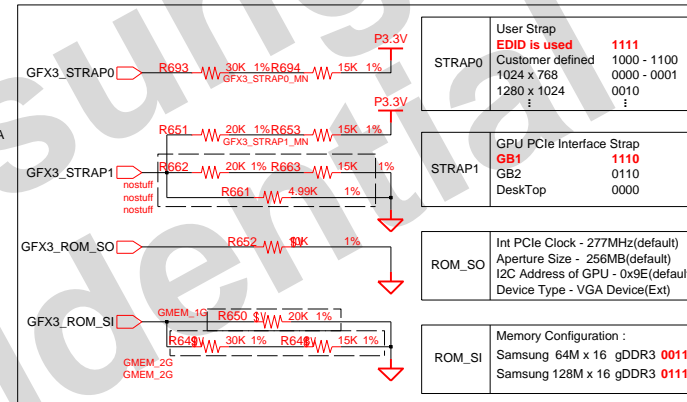
Strap option	Bit 3	Bit 2	Bit 1	Bit 0
ROM_SO	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SCLK	DEVID[4]	VENID	CLK_CFG	PLL_TERM
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	DEVID[3]	DEVID[2]	DEVID[1]	DEVID[0]
STRAP1	PADCFG[3]	PADCFG[2]	PADCFG[1]	PADCFG[0]
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
Resistor value	PU to VDD	PD to GND	XCLK417 = 0 27MHz	
5K ohm	1000	0000	RAM CFG (SEC)	
10 Kohm	1001	0001	0011 gDDR3 1Gb	
15K ohm	1010	0010	USER[3:0]=1111 for EDID	
20K ohm	1011	0011	PADCFG[3:0]=0110 for NB	
25K ohm	1100	0100		
30K ohm	1101	0101		
35K ohm	1110	0110		
45K ohm	1111	0111		

	Bit3	Bit2	Bit1	Bit0
ROMSO	0	0	0	27M
SCLK	1	0	1	0
	0	0	1	0
	0	0	1	0
SI	0	0	1	1
SI	0	1	1	1
Strap2	0	0	0	0
Strap2	0	1	0	1
Strap1	1	1	1	0
Strap0	1	1	1	1

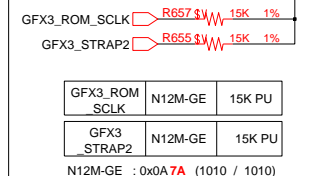
U3-5
N11M-GE2-S-B1

5 / 5

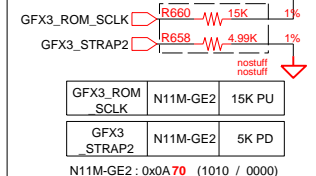
Function Straps



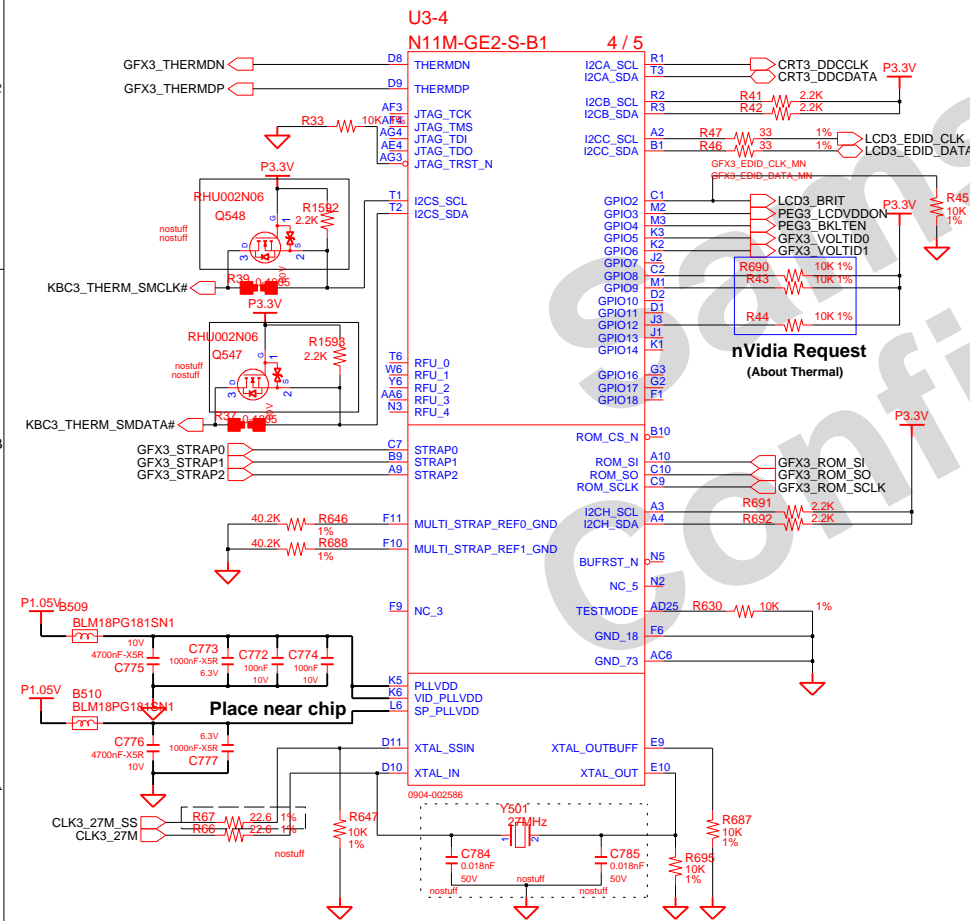
Chip Select Straps (N12M-GB1)



Chip Select Straps (N11M-GB1)



Place near chip

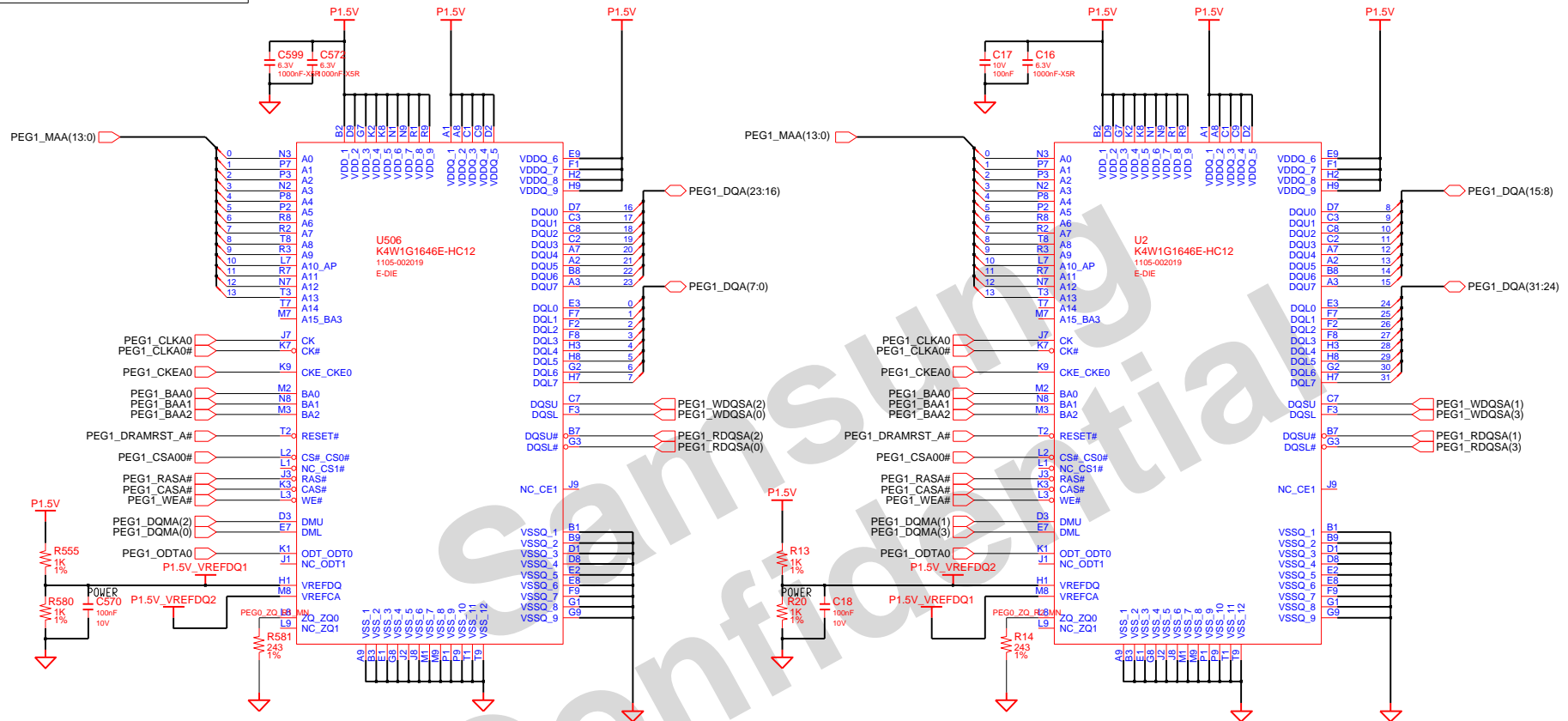


DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP		N11X_40NM(4/5)	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		N11X_40NM(4/5)	PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
					December 25, 2010 10:42:33 AM	PAGE 25 OF 52

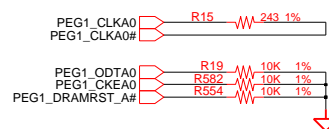
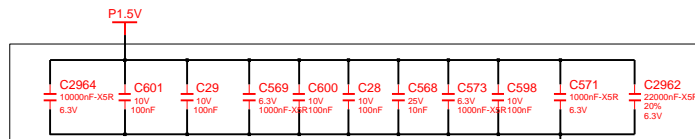
A-Channel #0

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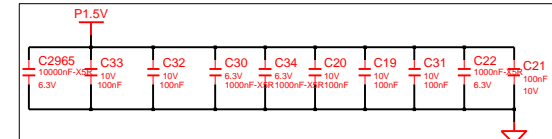
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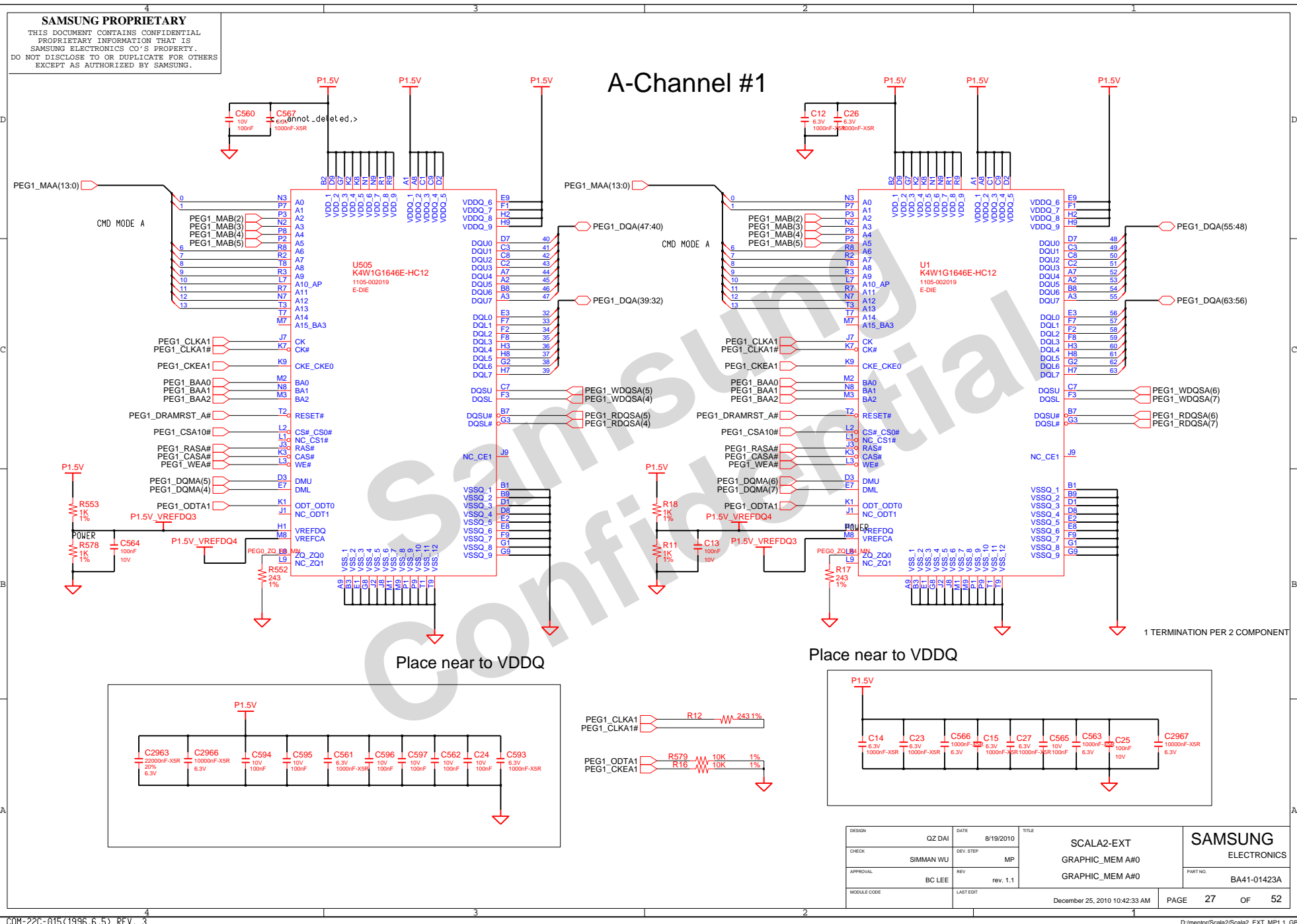
Place near to VDDQ



Place near to VDDQ



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP		N11X_40NM(5/5)	
APPROVAL	BC LEE	REV	rev. 1.1		N11X_40NM(5/5)	PART NO. BA41-01423A
MODULE CODE		LAST EDIT				PAGE 26 OF 52

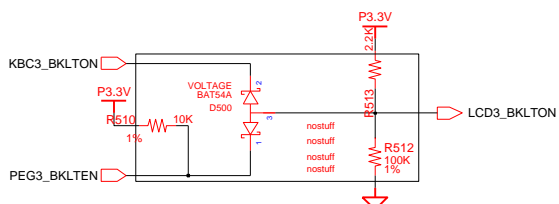
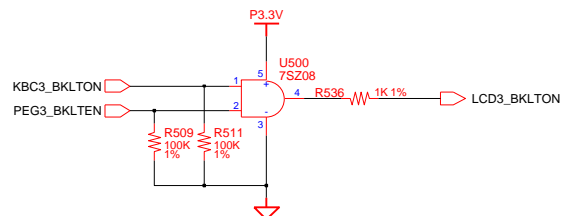


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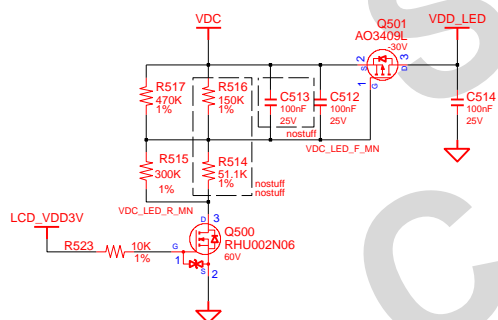
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LVDS LOGIC

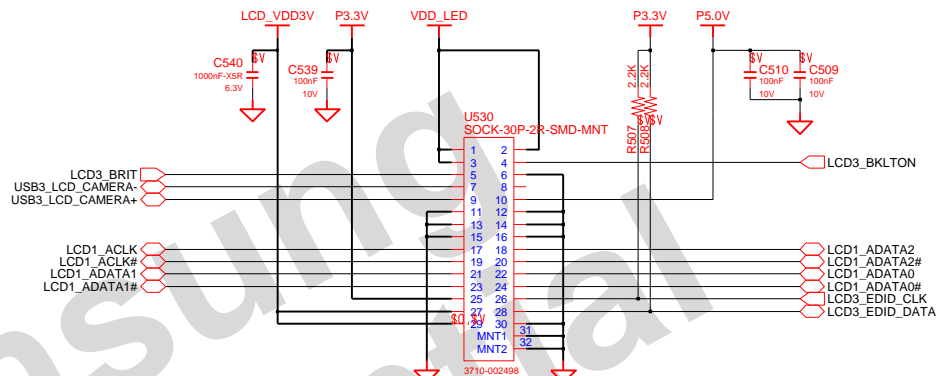
Backlight On



LED Power

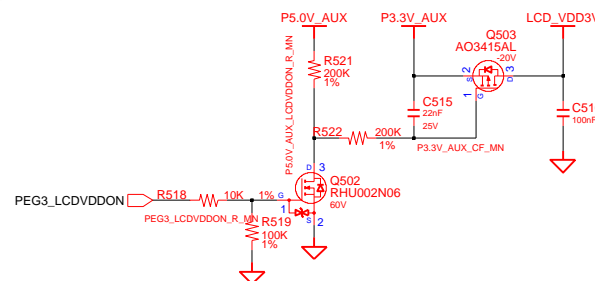


LCD Connector + CAMERA



TYPE: ANGLE

LCD Power

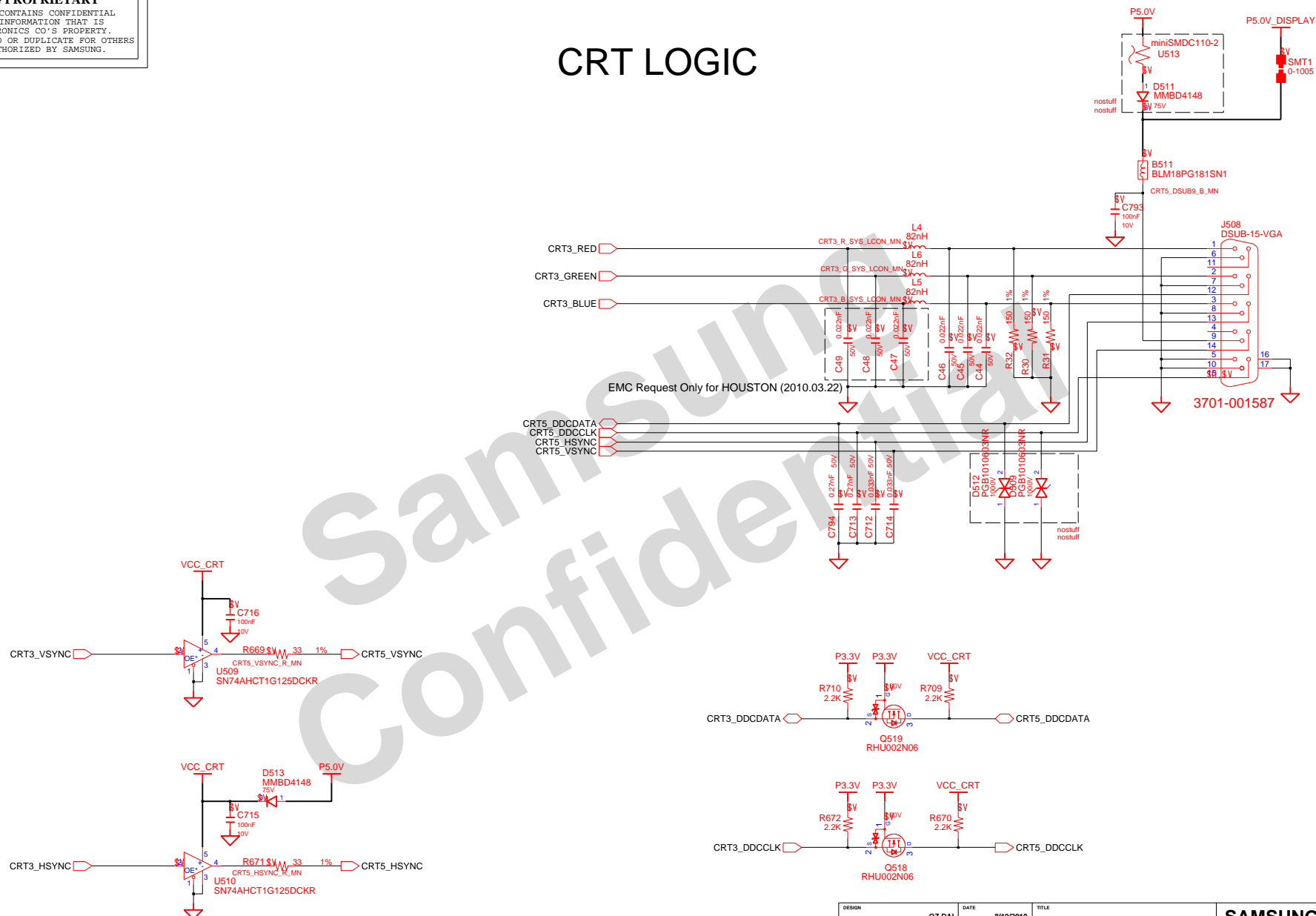


DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP	GRAPHICS_IF	GRAPHICS_IF	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1	LVDS	LVDS	PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
				December 25, 2010 10:42:33 AM	PAGE	28 OF 52

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CRT LOGIC



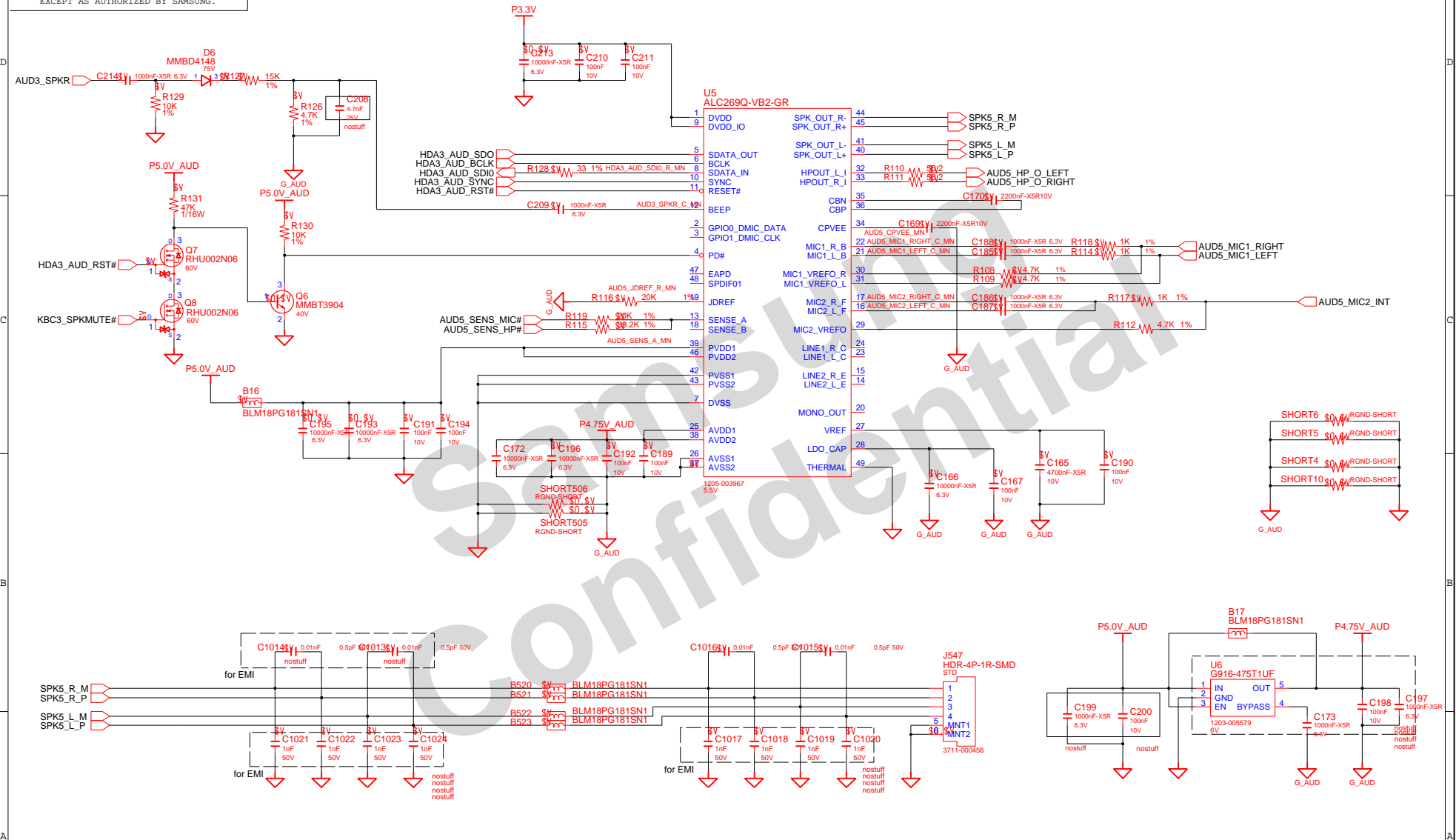
DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP	GRAPHICS_IF		
APPROVAL	BC LEE	REV	rev. 1.1	CRT		
MODULE CODE		LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 29 OF 52	PART NO. BA41-01423A

(EMC request at 2010.04.15)

DESIGN	QZ DAI	DATE	8/19/2010	SCALA2-EXT GRAPHICS_IF HDMI	
CHECK	SIMMAN WU	DEV. STEP	MP		
APPROVAL	BC LEE	REV	REV. 1.1		
MODULE CODE	LAST EDIT				
				December 25, 2010 10:42:33 AM	PAGE 30 OF 52

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HD AUDIO

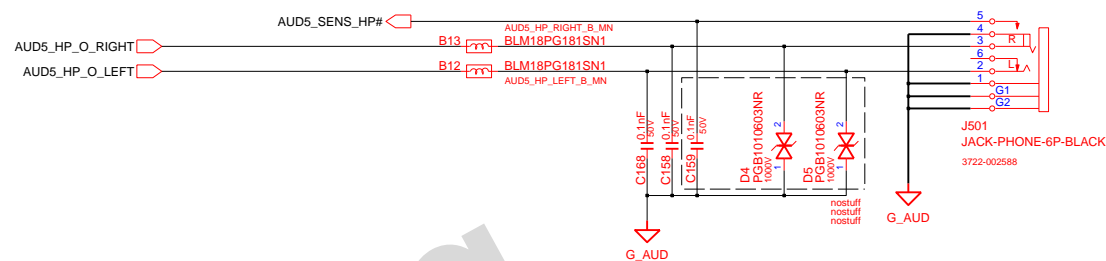
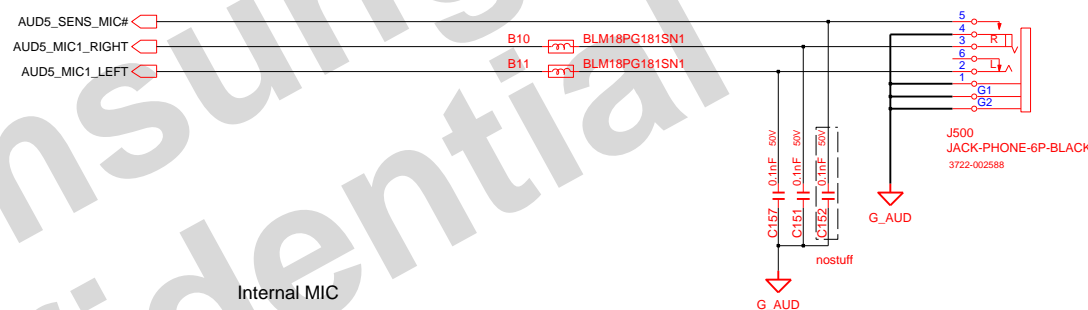
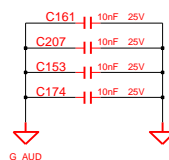
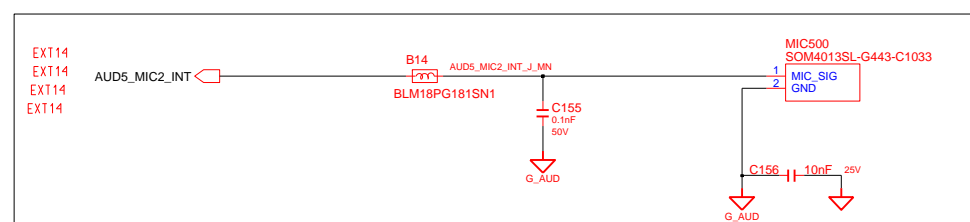
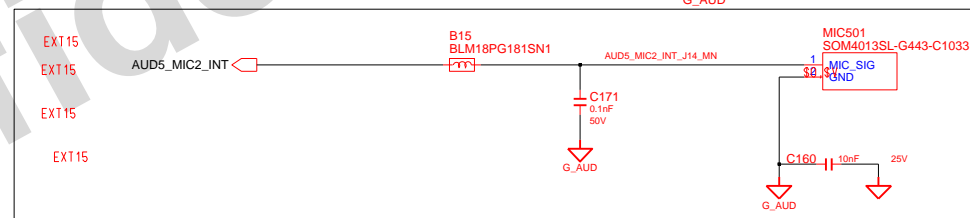


DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT
CHECK	SIMMAN WU	DEV. STEP	MP		HDA_CODEC SUB
APPROVAL	BC LEE	REV	rev. 1.1		AUDIO CODEC ALC269 SUB
MODULE CODE		LAST EDIT			
				December 25, 2010 10:42:33 AM	PAGE 31 OF 52

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ELECTRONICS
PART NO. BA41-01423A

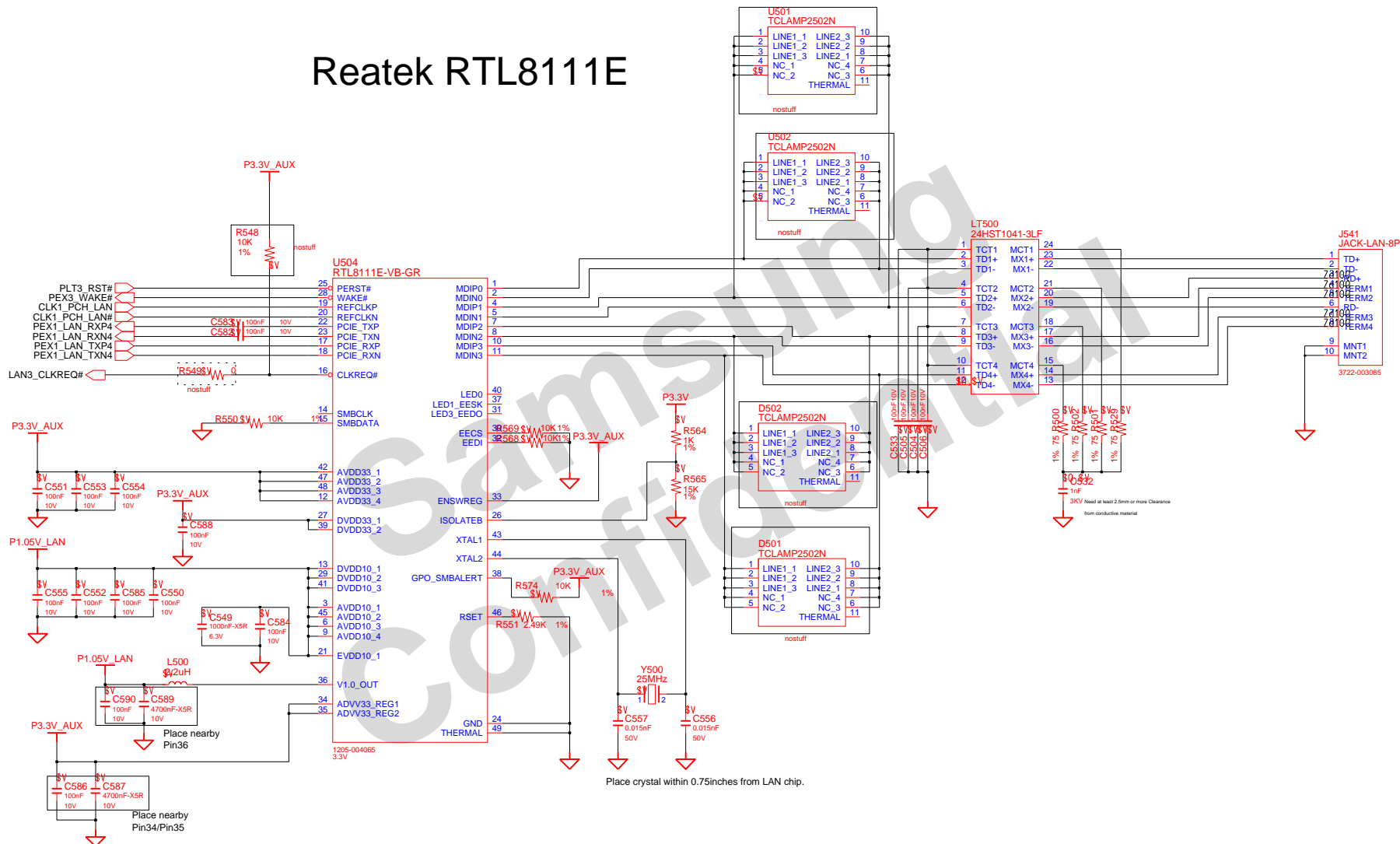
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HEADPHONE**MIC JACK****Internal MIC**

DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP		HDA_CODEC & LED SUB	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		AUDIO JACK & LED SUB	PART NO.
MODULE CODE		LAST EDIT	December 25, 2010 10:42:33 AM			BA41-01423A
				PAGE	32	OF 52

Reatek RTL8111E



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT LAN	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			
APPROVAL	BC LEE	REV	rev. 1.1		LAN_Reatek_RTL8111	PART NO. BA41-01423A
MODULE CODE		LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 33	OF 52

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WLAN

Height : 7.0mm

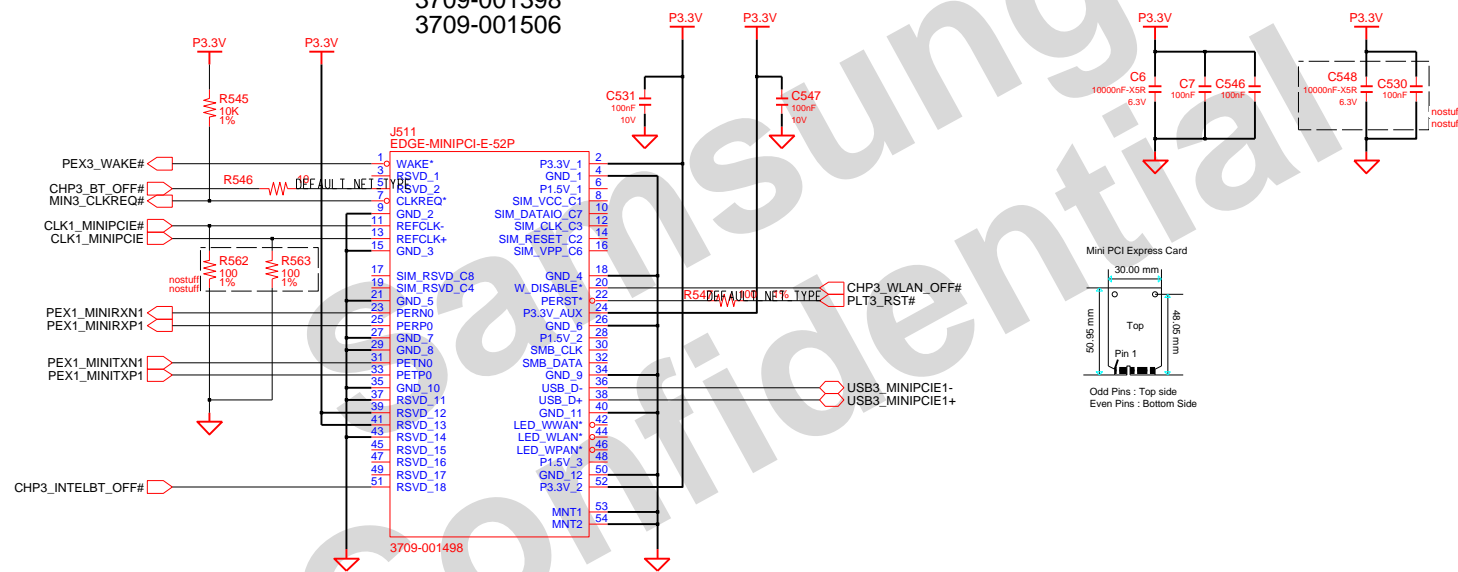
3709-001398
3709-001506

AMT 6.0 : P3.3V = P3.3V_ALW (Check?)

wakeup pull-up power rail ?

Puma Peak -WiFi (AMT 6.0)

Kilmer Peak - WiFi/WiMax



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT MULTICARD 3 IN 1 CARD(GL827S)	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE		LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 34 OF 52	

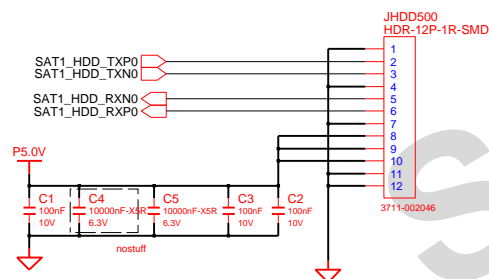
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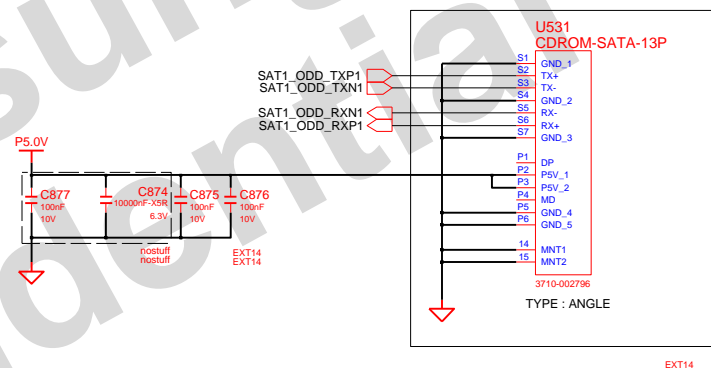
SATA I/F CONN

SATA HDD CONN

Cable Connector Type

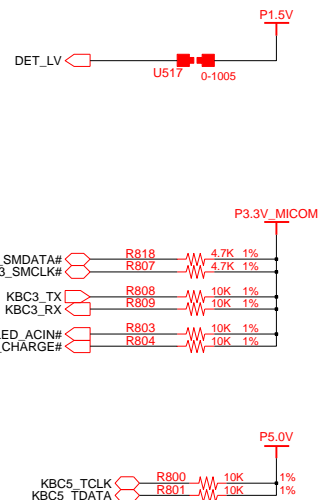


SATA ODD CONN



DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP	SATA I/F	SATA I/F	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1	SATA I/F		PART NO.
MODULE CODE		LAST EDIT	December 25, 2010 10:42:33 AM			BA41-01423A
				PAGE	35	OF 52

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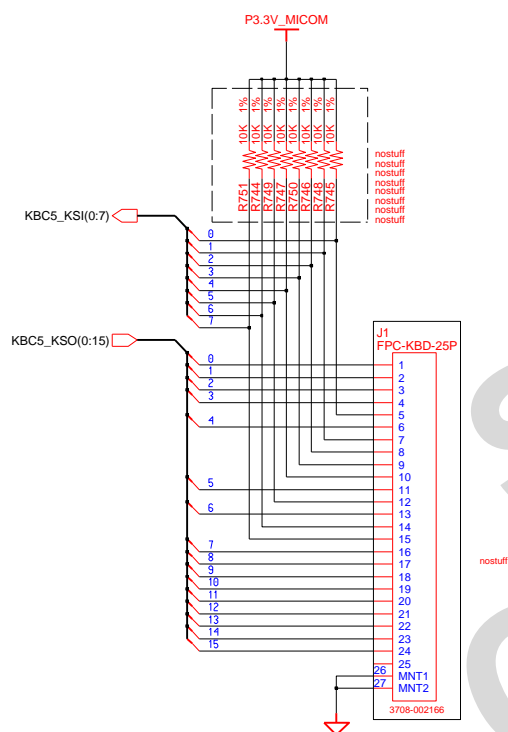
DESIGN	QZ DAI	DATE	8/19/2010	SCALA2-EXT MICOM SMSC MEC1300	SAMSUNG ELECTRONICS					
CHECK	SIMMAN WU	DEV. STEP	MP							
APPROVAL	BC LEE	REV	rev. 1.1							
					PART NO.	BA41-01423A				
MODULE CODE		LAST EDIT			December 25, 2010 10:42:33 AM		PAGE	36	OF	52

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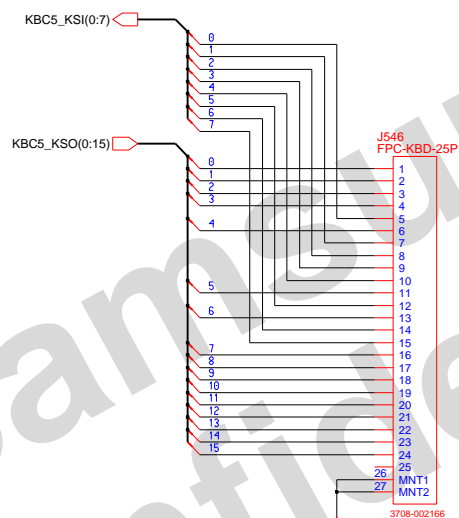
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Micom Glue Logic

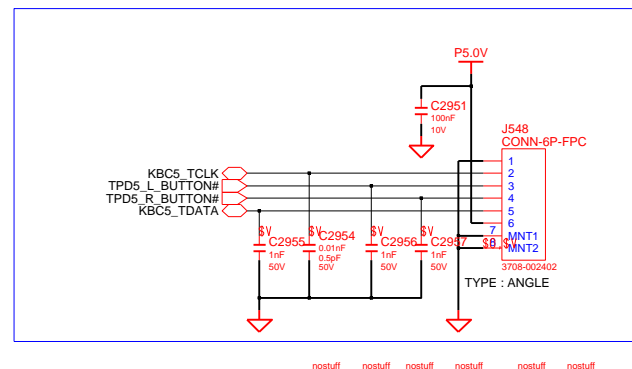
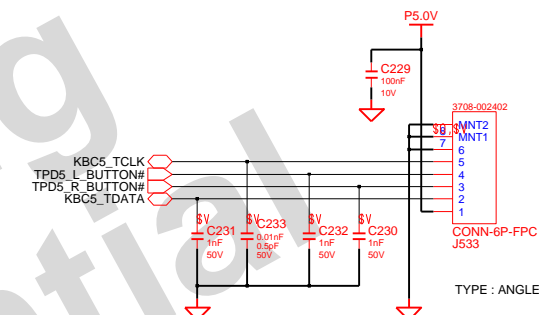
KEYBOARD on TOP



KEYBOARD on Bottom



TOUCHPAD

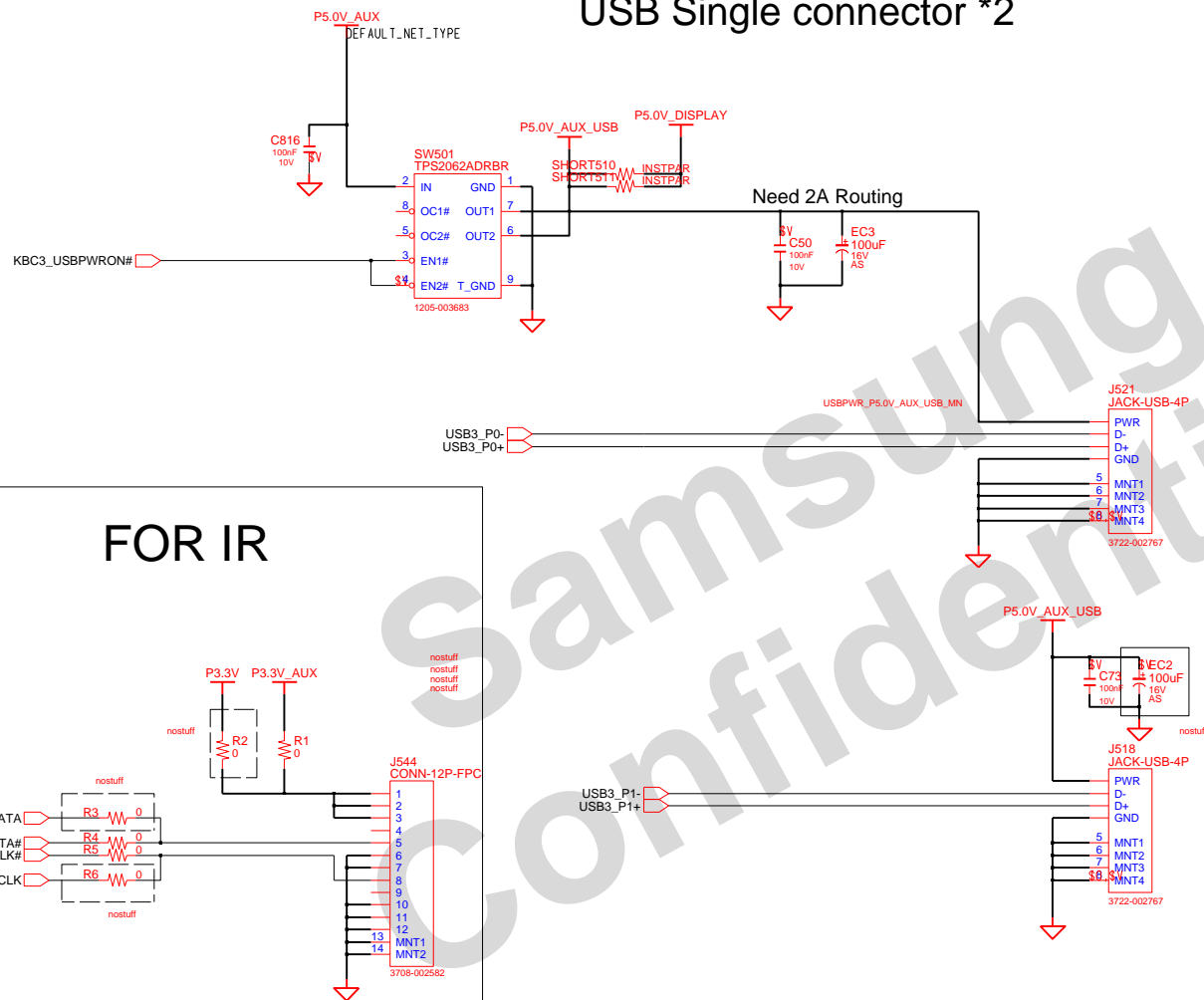


DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP		MICOM GLUE LOGIC	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		MICOM GLUE LOGIC	PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
				December 25, 2010 10:42:33 AM	PAGE	37 OF 52

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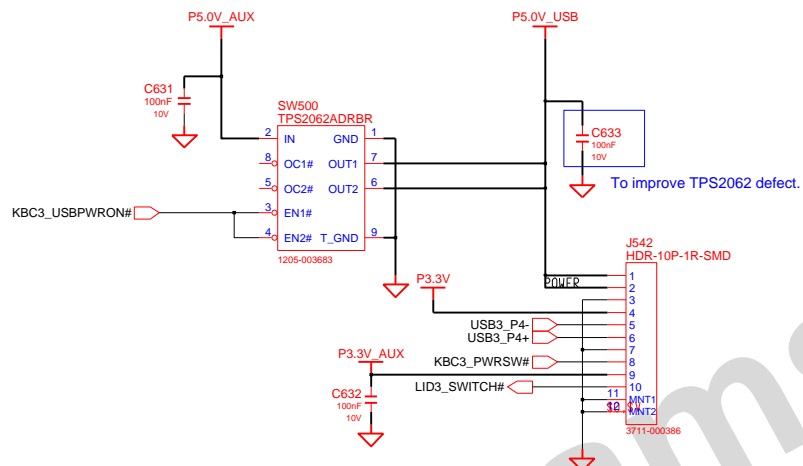
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USB Single connector *2

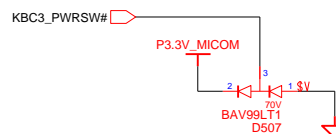
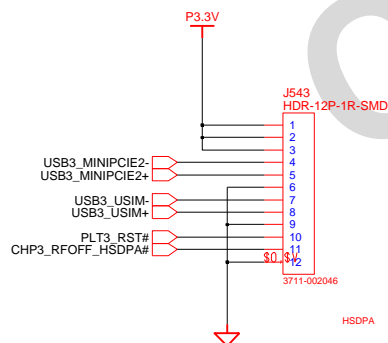


DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT USB CONN & BLUETOOTH	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1		USB	
MODULE CODE		LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 38 OF 52	

MAIN to SUB

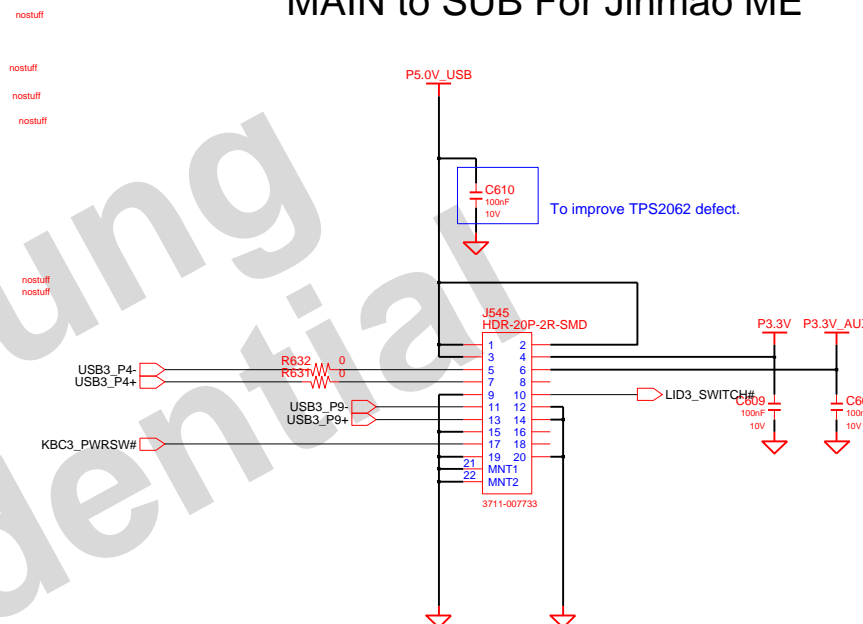



HSPA MAIN TO SUB CONN



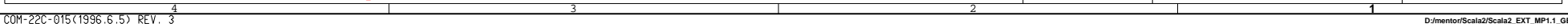
POWER S/W SUB B'D CONNECTOR

MAIN to SUB For Jinmao ME



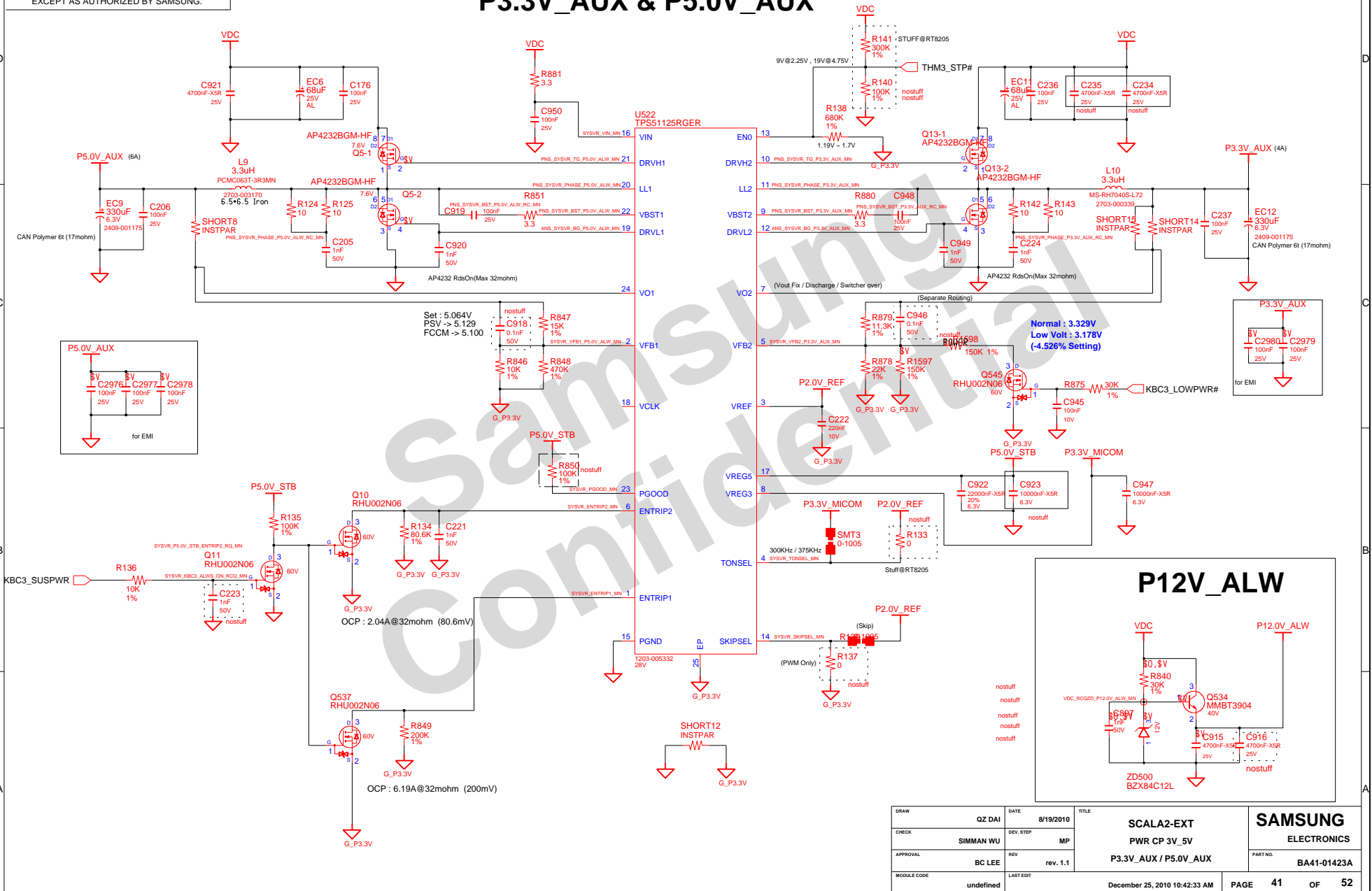
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CHECK	SIMMAN WU	DEV. STEP	MP					
APPROVAL	BC LEE	REV	REV. 1.1					
MODULE CODE	LAST EDIT							
December 25, 2010 10:42:33 AM					PAGE	39	OF	52

VDC_ADPT **VDC**



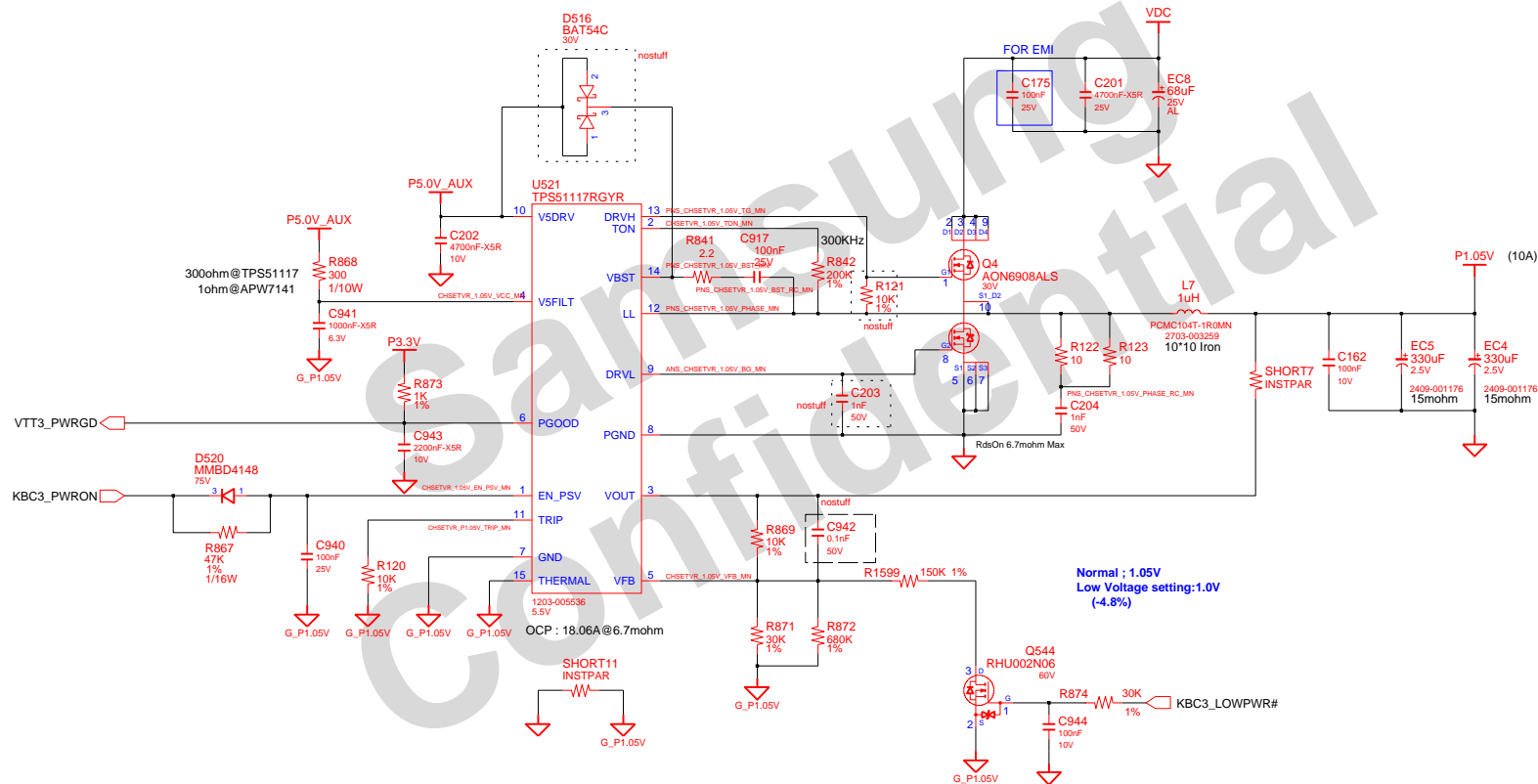
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P3.3V_AUX & P5.0V_AUX



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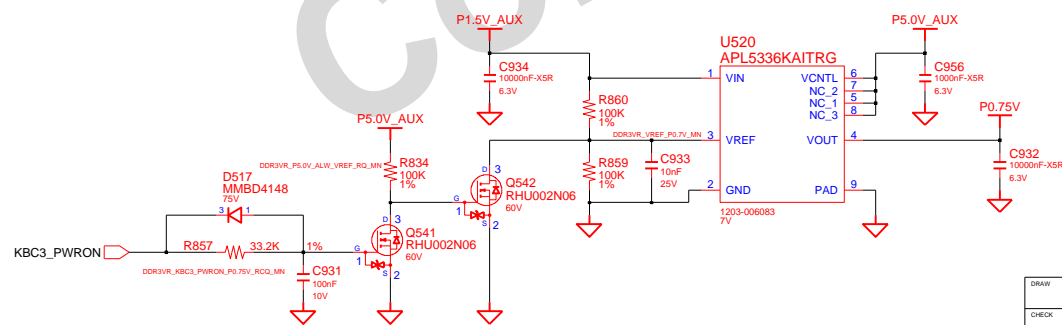
CHIPSET POWER(P1.05V)

DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT P1.05V TI TPS5117R	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE		LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 42 OF 52	

DDR3 Power

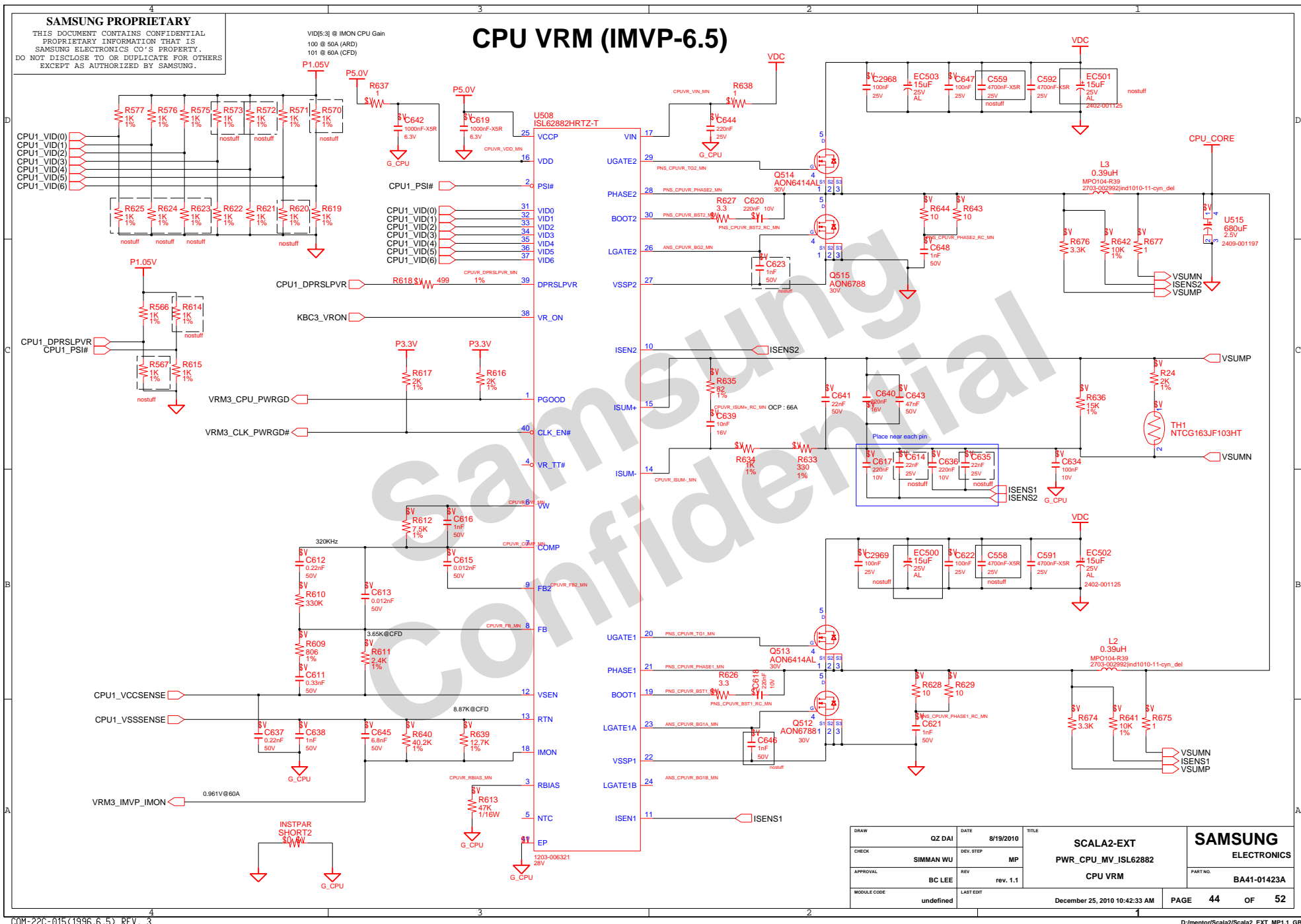
[illegible]

DDR3 VTT(0.75V)



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

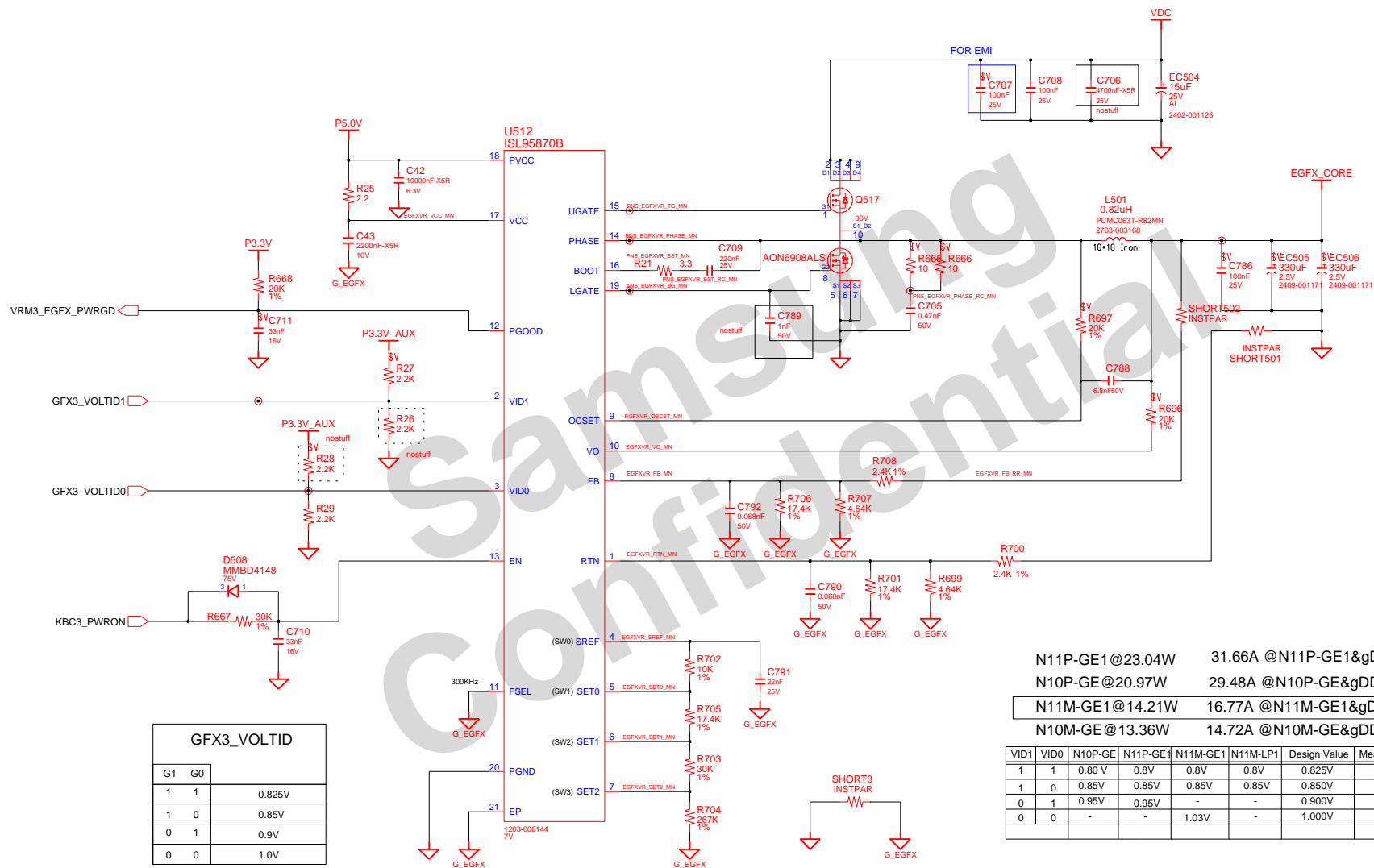
D:/mentor/Scale2/Scale2_EXT_MP1.1_GB



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External GFX Core Power



N11P-GE1@23.04W 31.66A @N11P-GE1&gDDR3
N10P-GE@20.97W 29.48A @N10P-GE&gDDR3
N11M-GE1@14.21W 16.77A @N11M-GE1&gDDR3
N10M-GE@13.36W 14.72A @N10M-GE&gDDR3

VID1	VID0	N10P-GE	N11P-GE	N11M-GE	N11M-LP1	Design Value	Measured Value
1	1	0.80 V	0.8V	0.8V	0.8V	0.825V	
1	0	0.85V	0.85V	0.85V	0.85V	0.850V	
0	1	0.95V	0.95V	-	-	0.900V	
0	0	-	-	1.03V	-	1.000V	

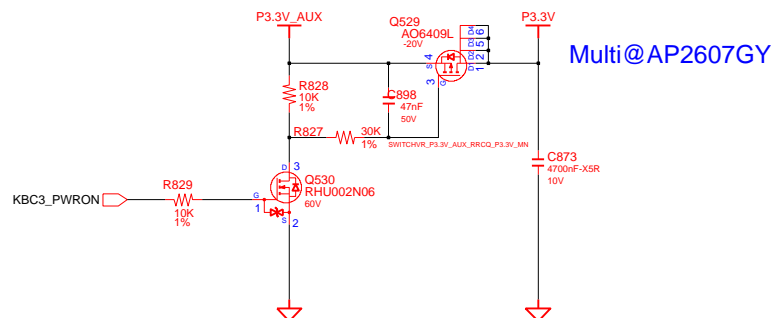
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CHECK	SIMMAN WU	DEV. STEP	MP		PWR_GFX_MV_EXT	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		External Graphic Power	PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
				December 25, 2010 10:42:33 AM	PAGE	45 OF 52

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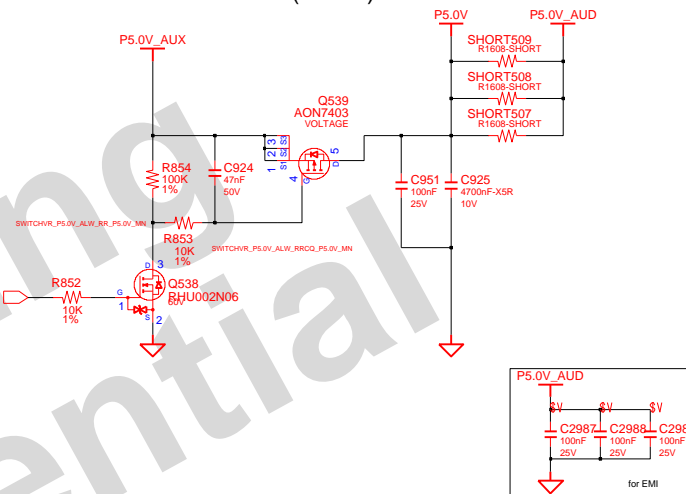
Switched Power

Switched Power On (P3.3V)

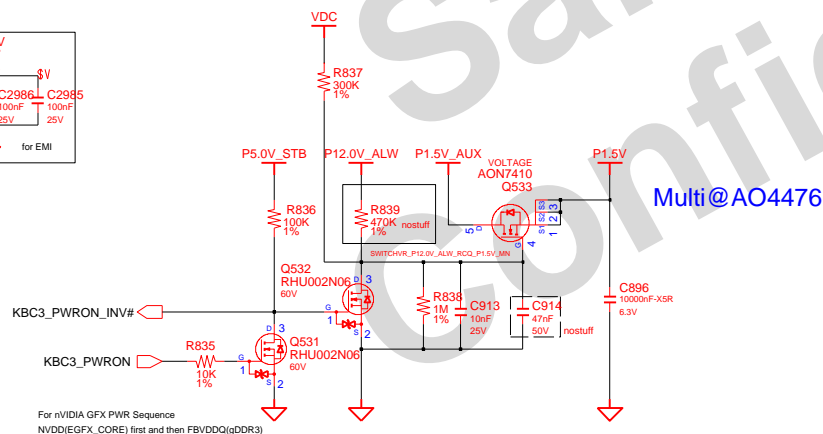
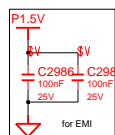
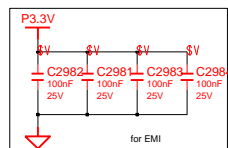


Switched Power On (P5.0V)

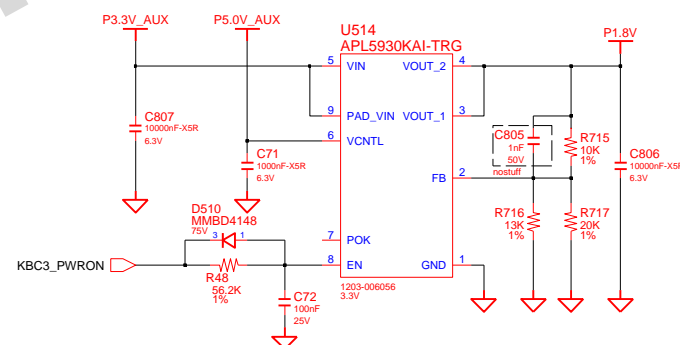
Multi@Si443DDY



Switched Power On (P1.5V)



P1.8V(LDO)

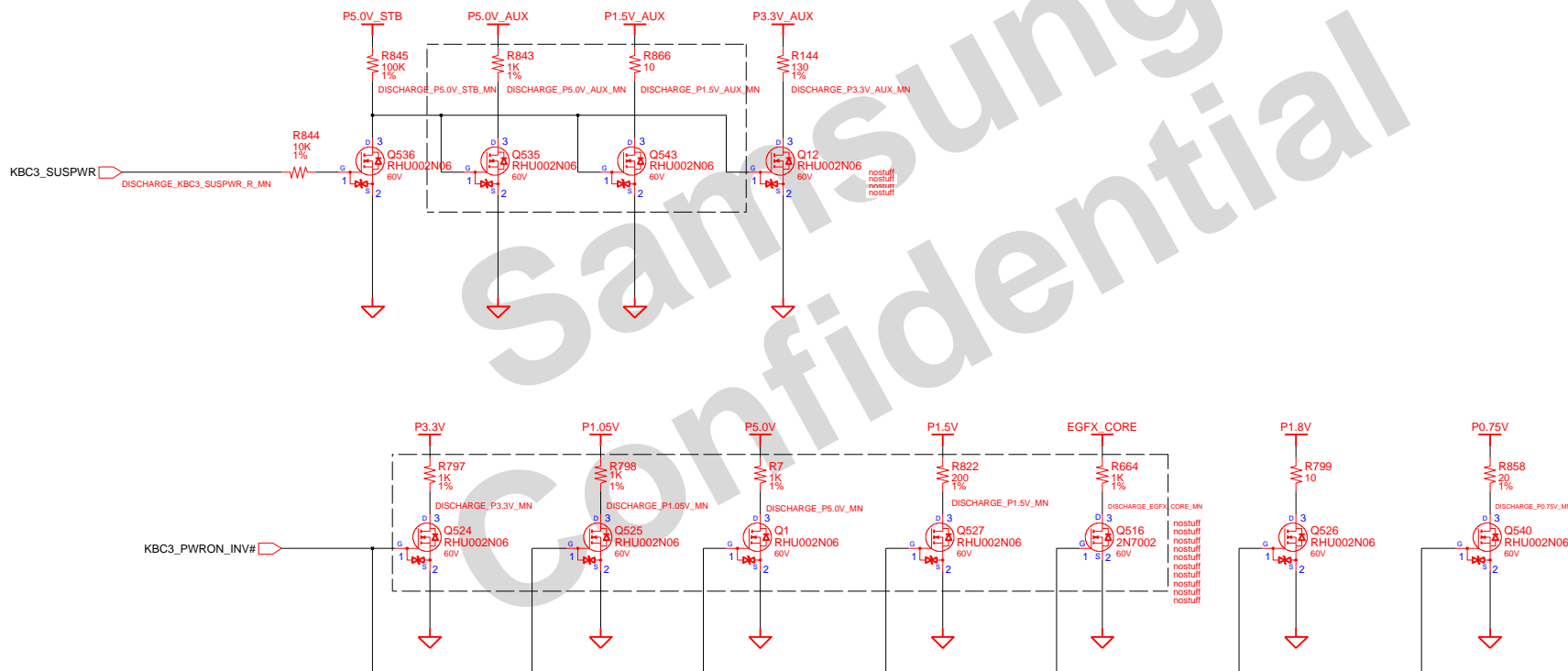


DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP		PWR_MV_SWITCHED	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1		SWITCHED POWER	PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
				December 25, 2010 10:42:33 AM	PAGE	46 OF 52

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POWER DISCHARGER

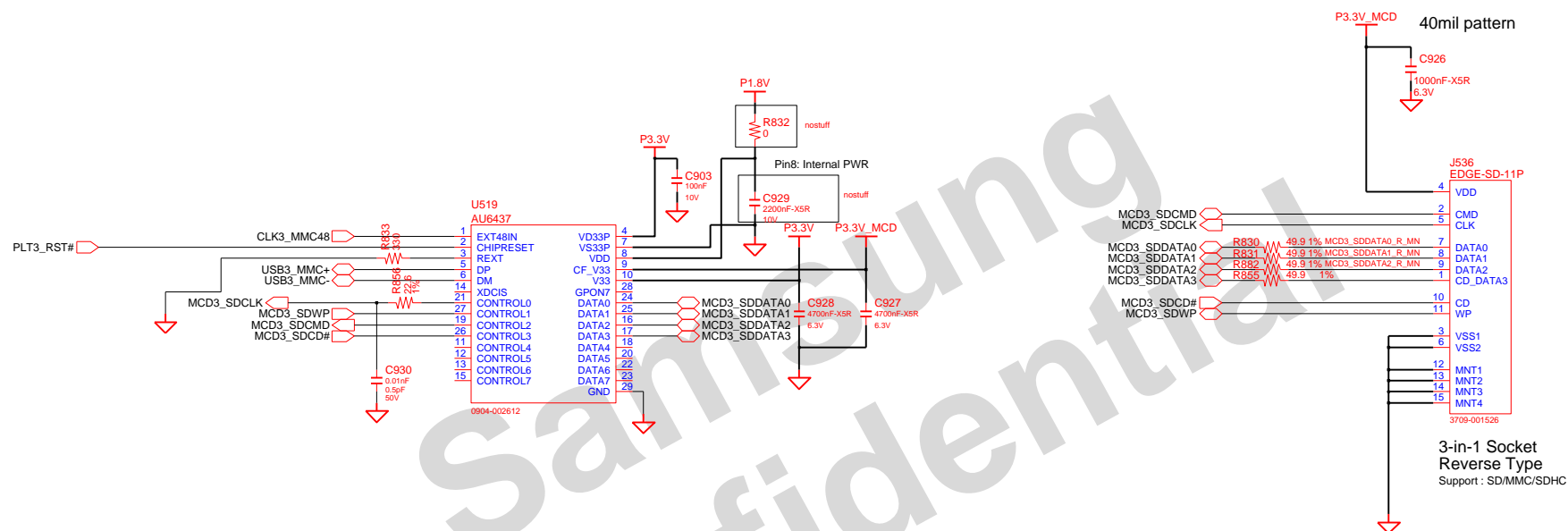


DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP	PWR_MV_DISCHARGER	DISCHARGING LOGIC	ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1			PART NO. BA41-01423A
MODULE CODE	undefined	LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	47	OF 52

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3 IN 1 CARD (AU6437)

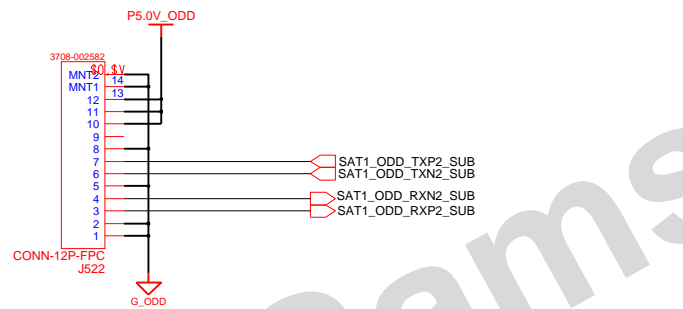


DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT SUB BOARD2 3 in 1 SUB	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE		LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	48	OF 52

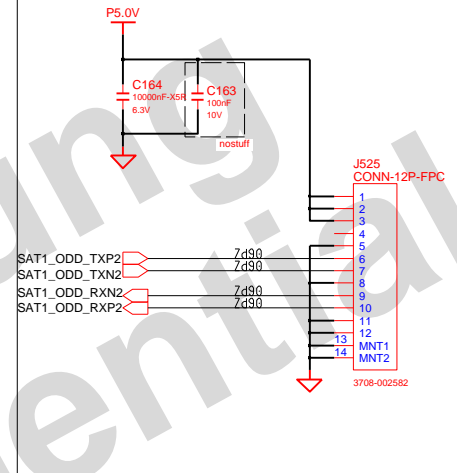
SATA ODD SUB BOARD

15.6"

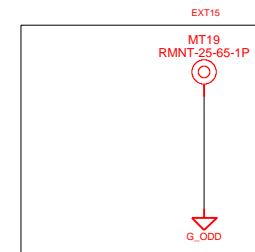
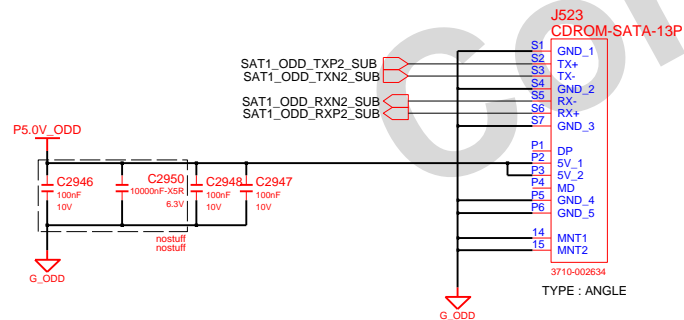
SUB TO MAIN : SATA ODD CONN



MAIN TO SUB : SATA ODD CONN



SATA ODD CONN



ODD sub board mount hole

DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP		SUB BOARD3	
APPROVAL	BC LEE	REV	rev. 1.1		ODD SUB	
MODULE CODE		LAST EDIT		December 25, 2010 10:42:33 AM	PAGE 49 OF 52	PART NO. BA41-01423A

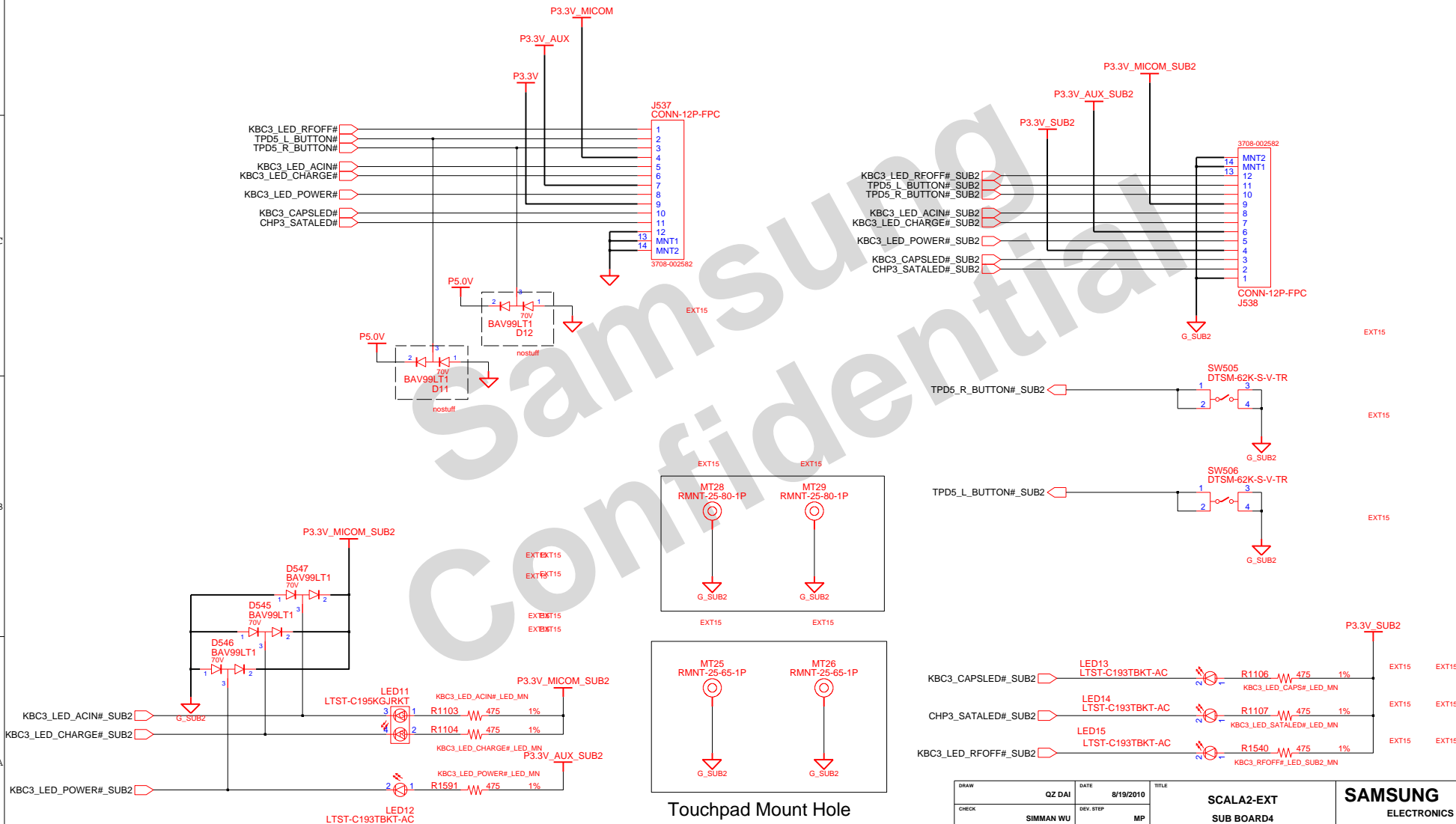
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15.6"

TOUCHPAD MAIN TO SUB

TOUCHPAD SUB TO MAIN



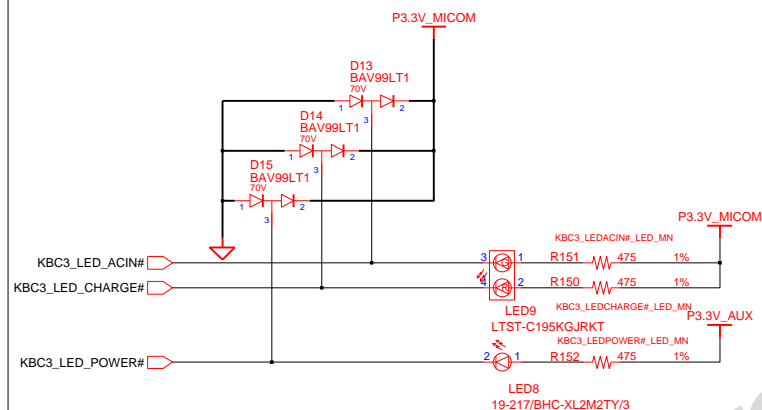
Touchpad Mount Hole

DRAW	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT SUB BOARD4 MULTIMEDIA SUB	SAMSUNG ELECTRONICS
CHECK	SIMMAN WU	DEV. STEP	MP			PART NO. BA41-01423A
APPROVAL	BC LEE	REV	rev. 1.1			
MODULE CODE		LAST EDIT				
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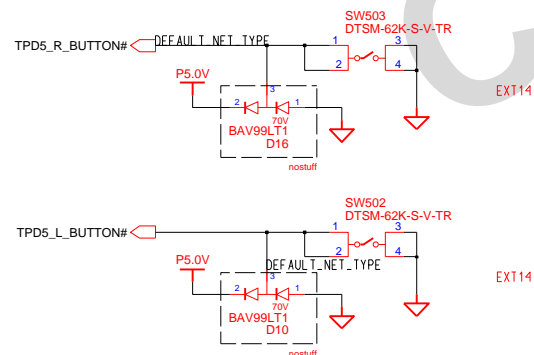
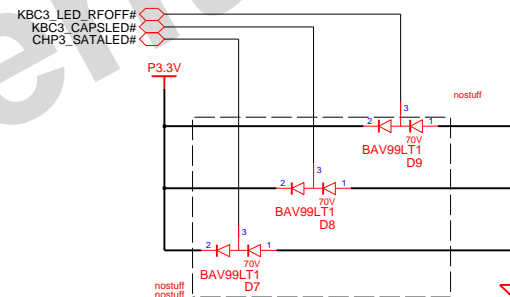
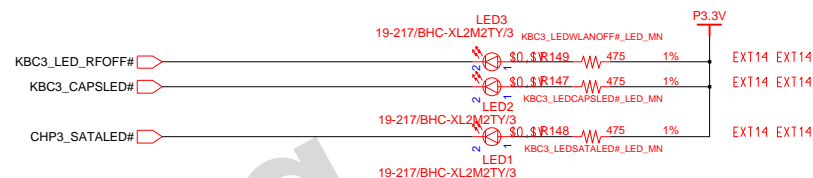
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ADAPTERIN/CHARGING LED



EXT14
 EXT14 EXT14
 EXT14 EXT14
 EXT14 EXT14

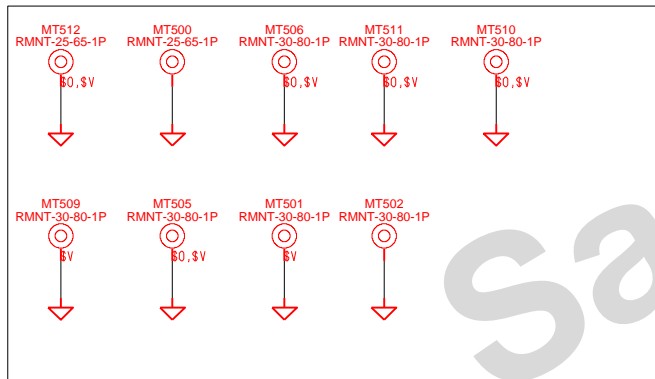
ADAPTERIN/CHARGING LED



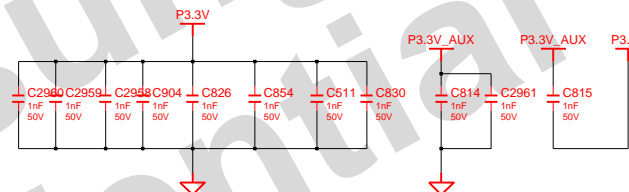
DESIGN	QZ DAI	DATE	8/19/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP	MNT hole		ELECTRONICS
APPROVAL	BC LEE	REV	rev. 1.1	MNT hole		PART NO.
MODULE CODE		LAST EDIT				BA41-01423A
				December 25, 2010 10:42:33 AM	PAGE	51 OF 52

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Mainboard Mount ((25-65)X2EA, (30-80)X7EA)



EMI CAP



DRAW	QZ DAI	DATE	5/10/2010	TITLE	SCALA2-EXT	SAMSUNG
CHECK	SIMMAN WU	DEV. STEP	MP	Switched PWR 2	ELECTRONICS	
APPROVAL	BC LEE	REV	rev. 1.1	FOR OPTIMUS PWR	PART NO.	BA41-01423A
MODULE CODE		LAST EDIT	December 25, 2010 10:42:33 AM	PAGE	52	OF 52