BREMEN-M 15"/17"

CPU : Intel Arrandale
Chip Set : Intel Ibex Peak(PM55)
GFX : N11P/ M-GE1(40nm)
Remarks : Calpella Platform

Model Name	: BREMEN-M
PBA Name	: MAIN
PCB Code	: BA41-01174A
Dev. Step	: PV
Revision	: 0.9
T.R. Date	: 2009.10.22

Design	CHECK	APPROVAL

■ *Owner : SEC Mobile R & D* *Signature :* *X*

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

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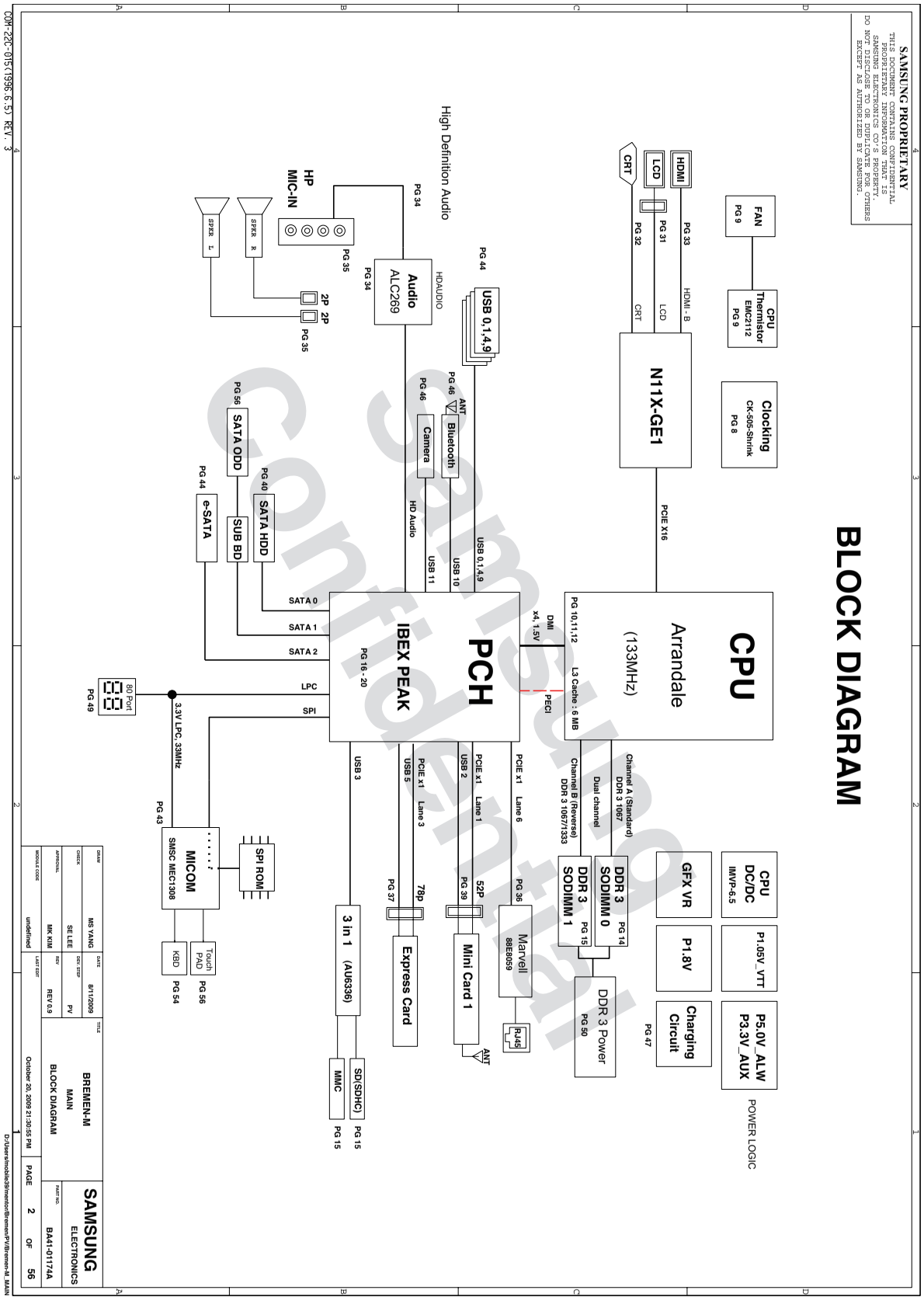
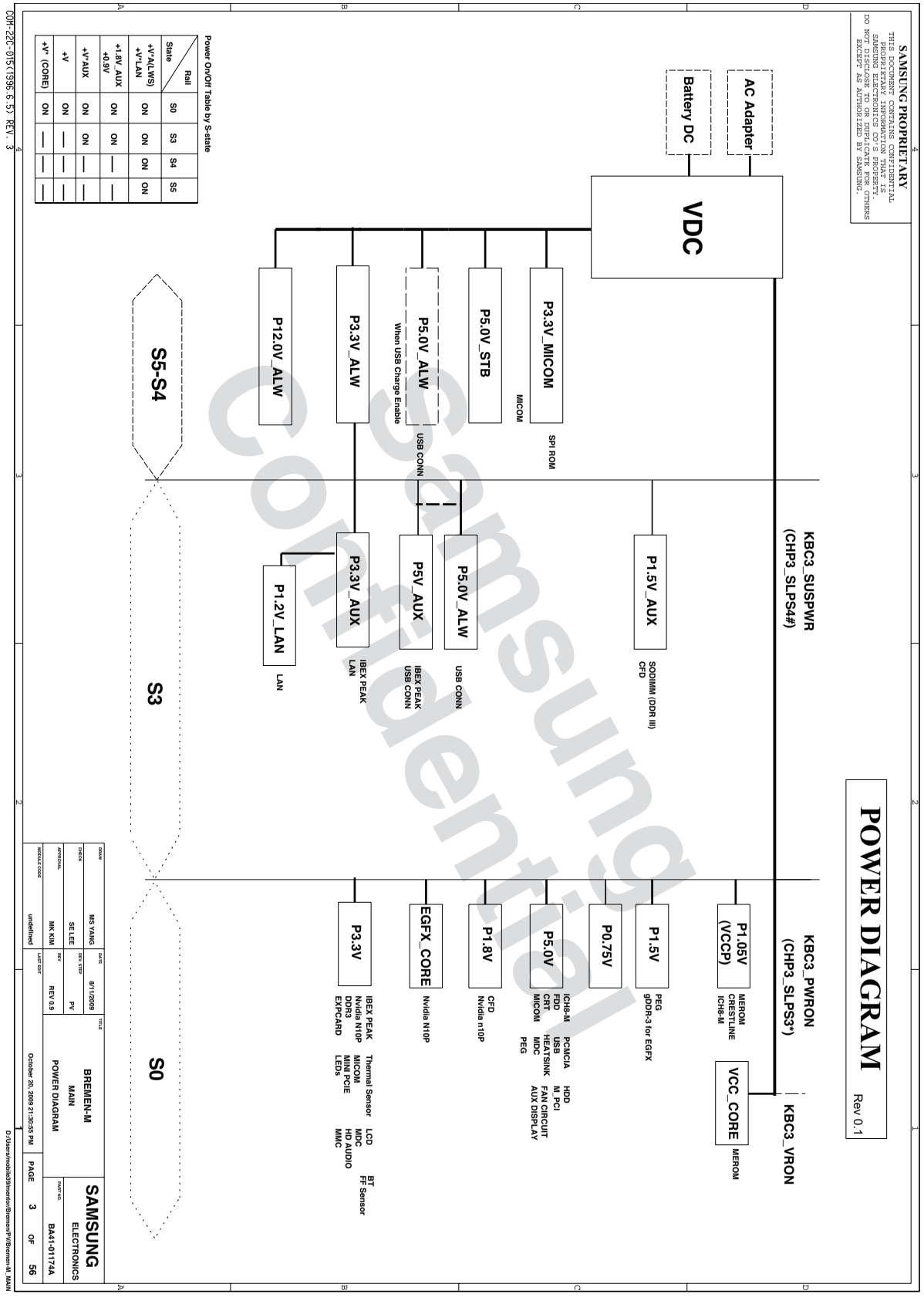
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN

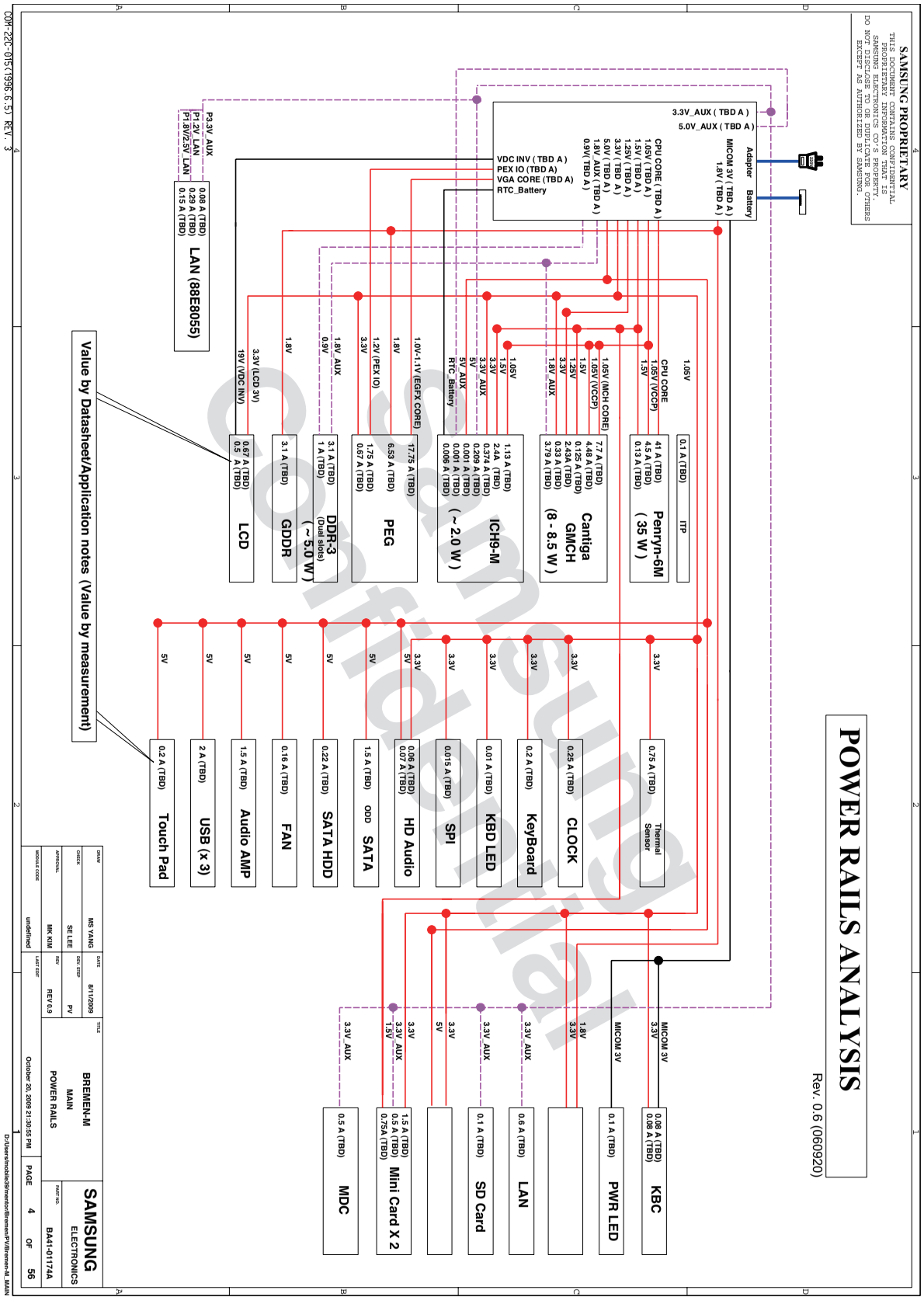
8. Block Diagram and Schematic



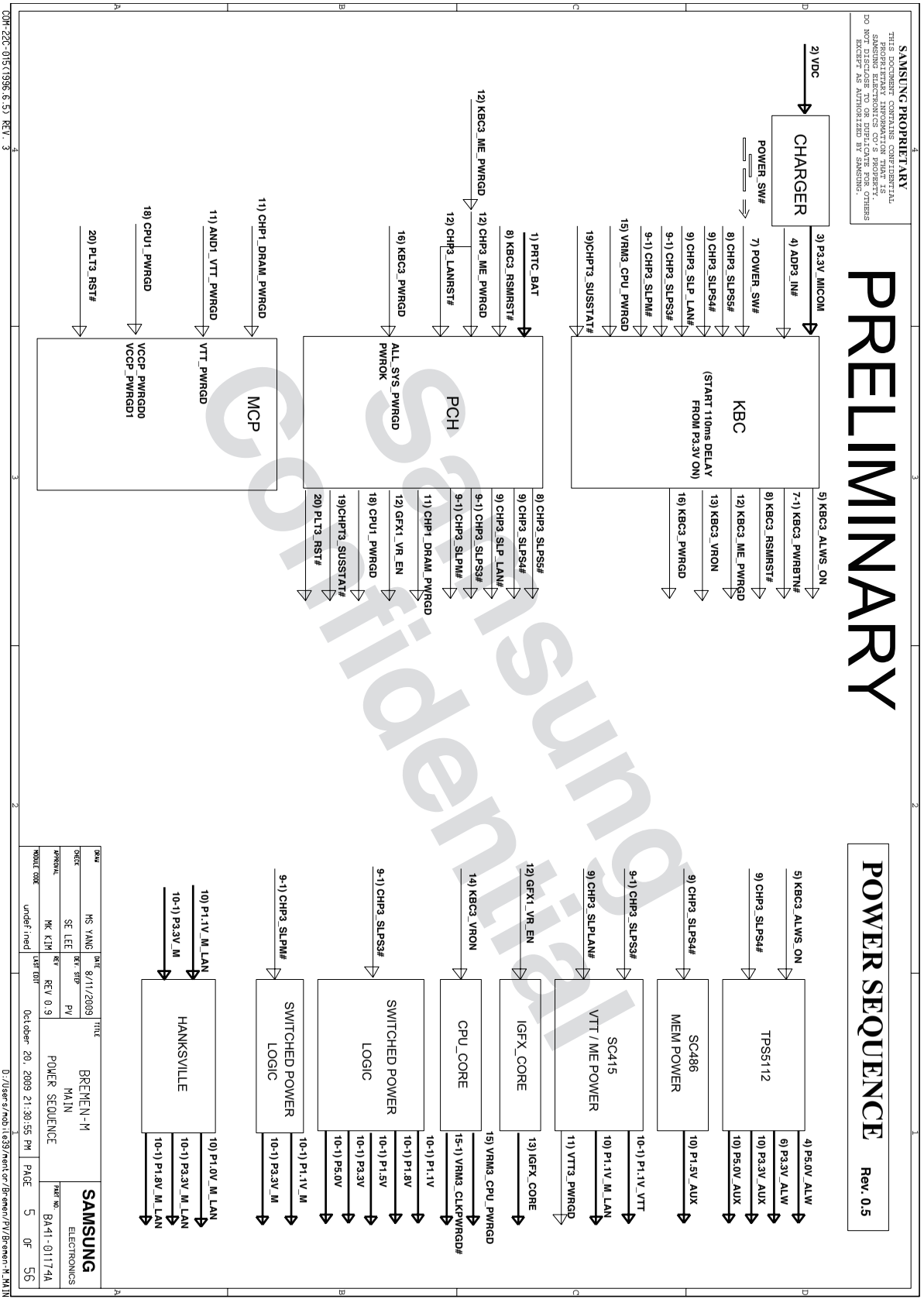
8. Block Diagram and Schematic



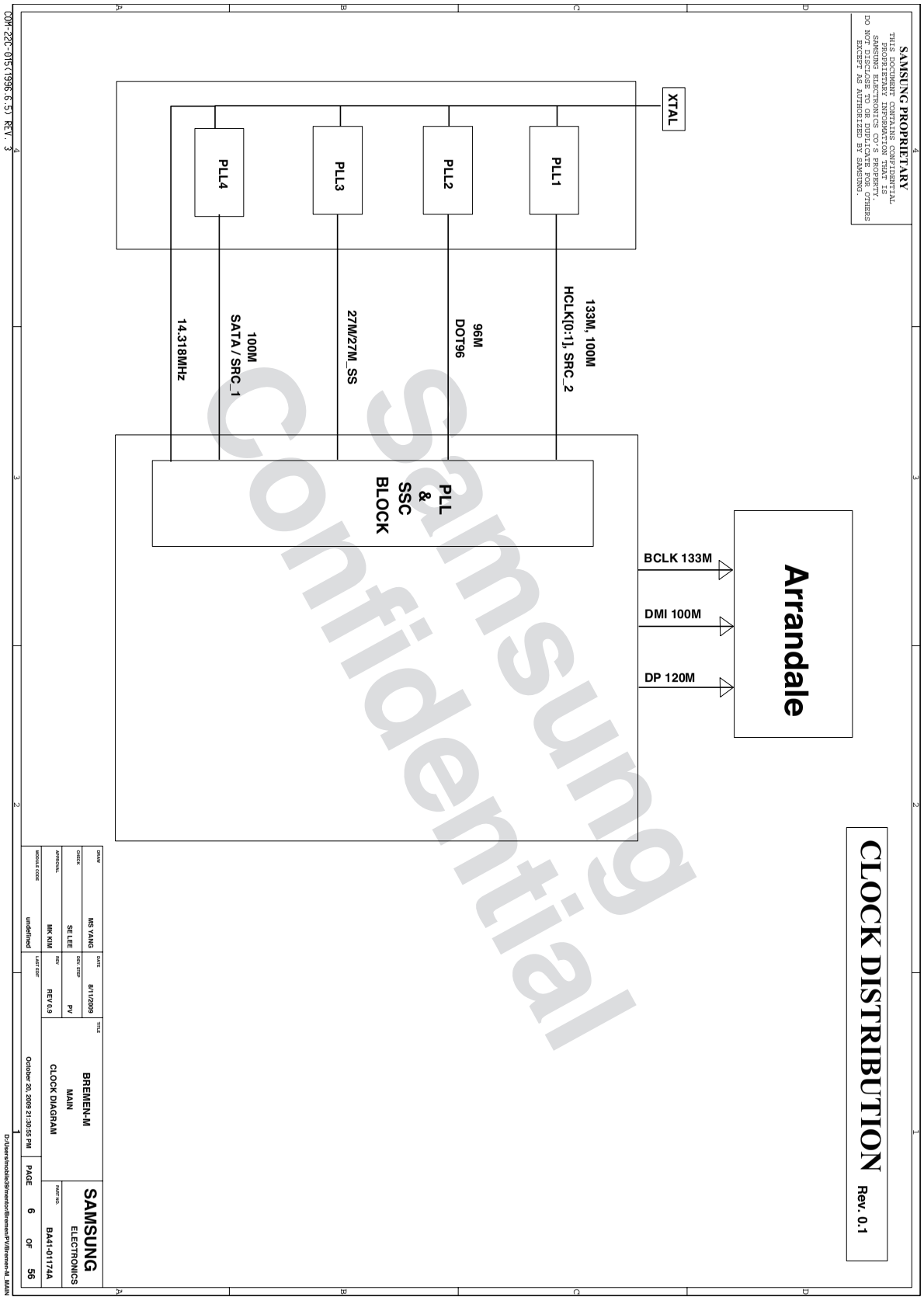
8. Block Diagram and Schematic



8. Block Diagram and Schematic



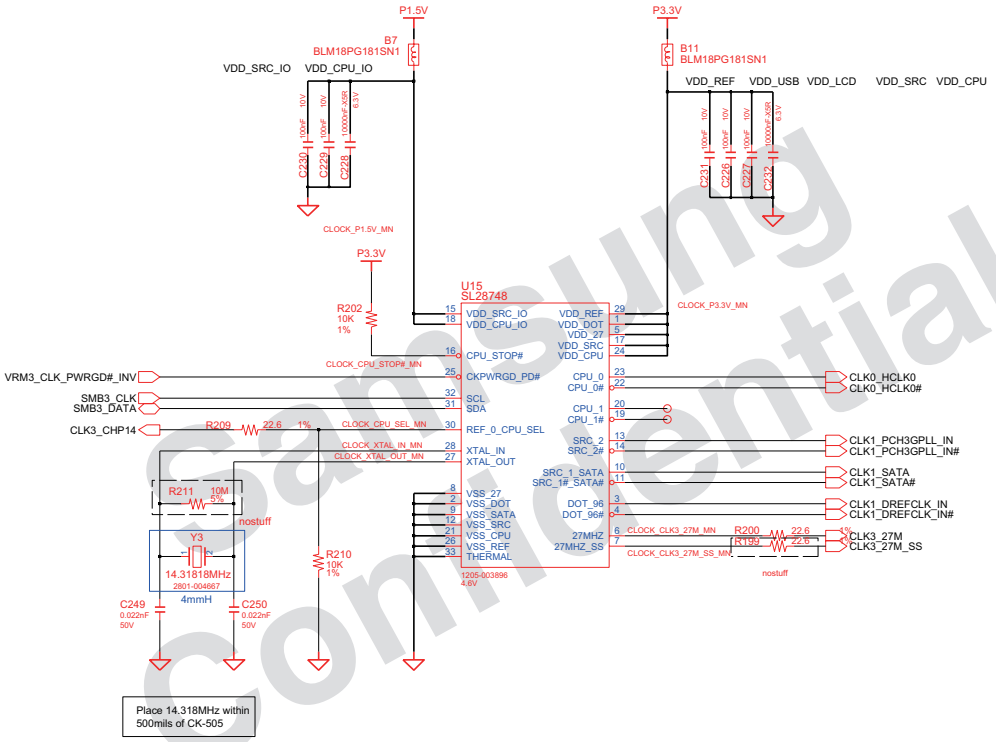
8. Block Diagram and Schematic



CK505M SHRINK VERSION

CPU_MODE SEL

Pin 30	CPU_0	CPU_1
CPU_SEL = 0	133MHz	133MHz



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

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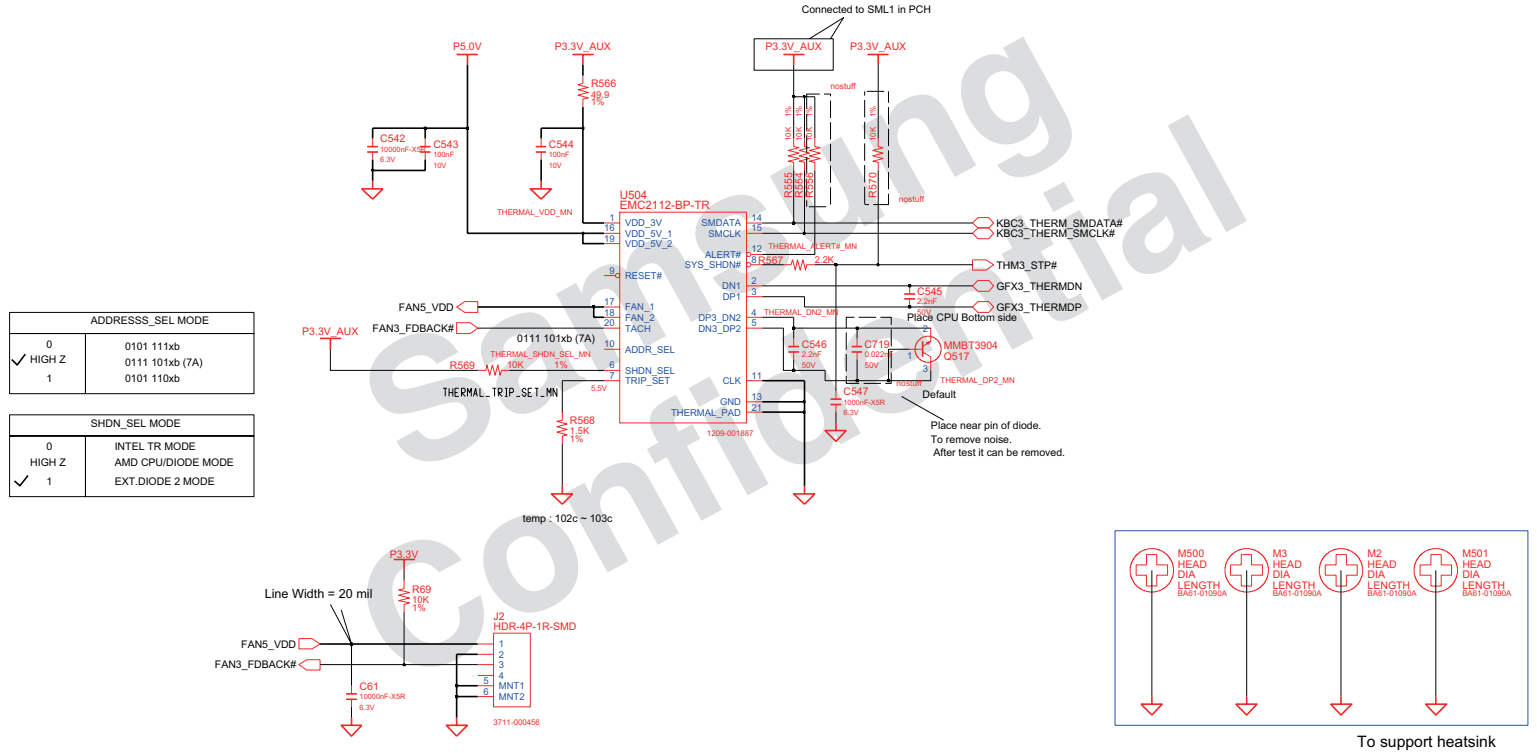
THERMAL SENSOR & FAN CONTROL



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

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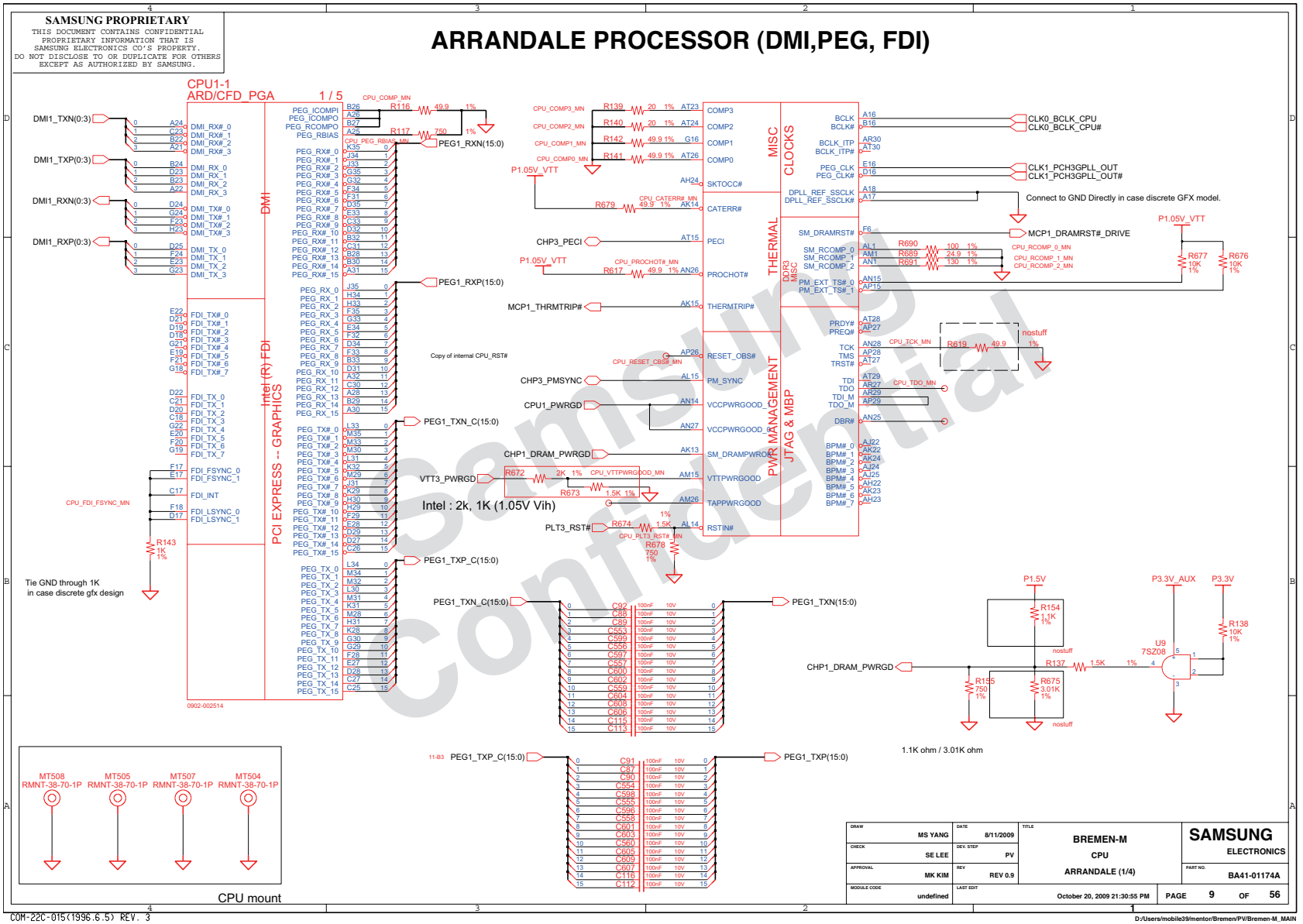
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN

ARRANDALE PROCESSOR (DMI,PEG, FDI)



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

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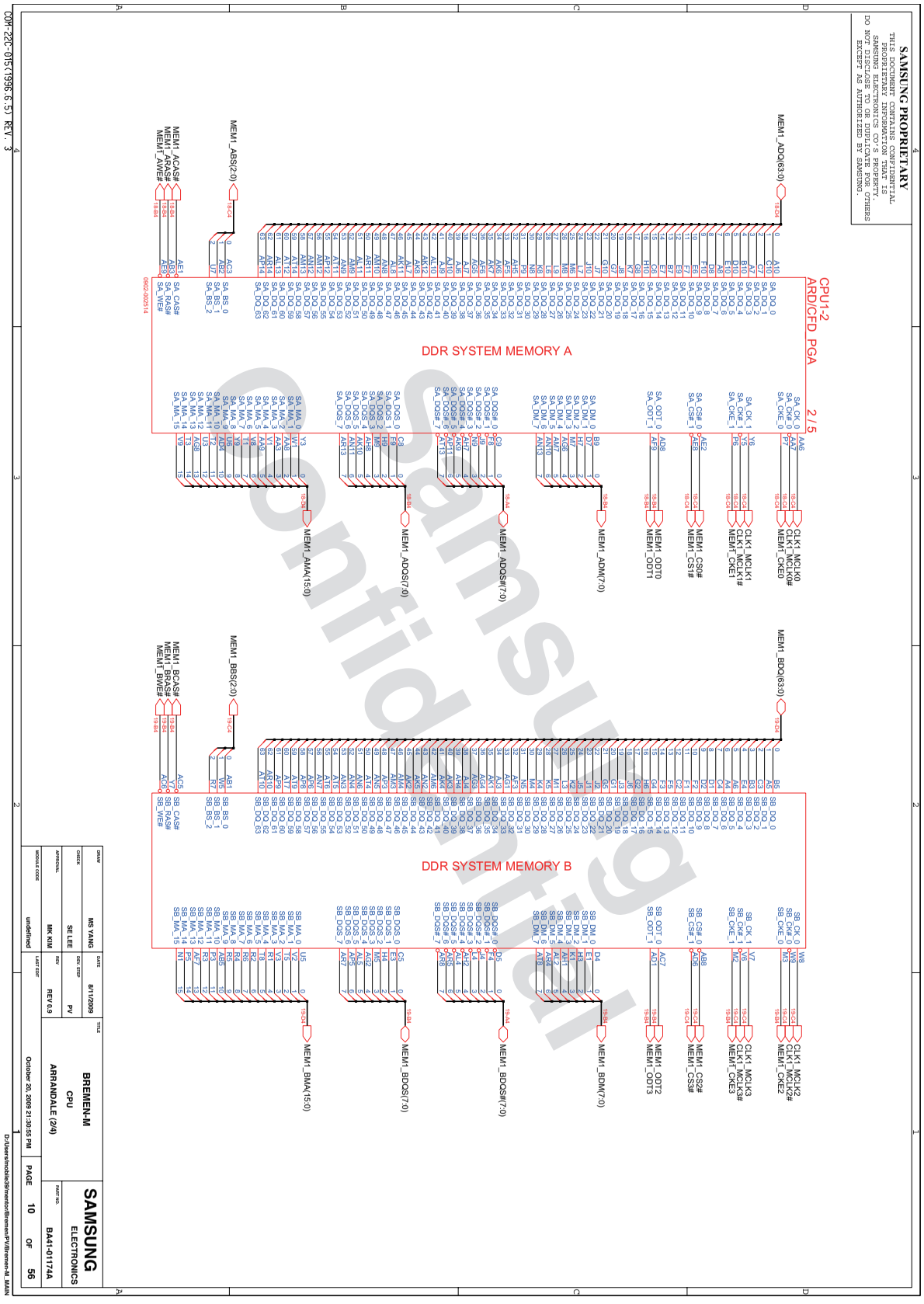
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN

8. Block Diagram and Schematic



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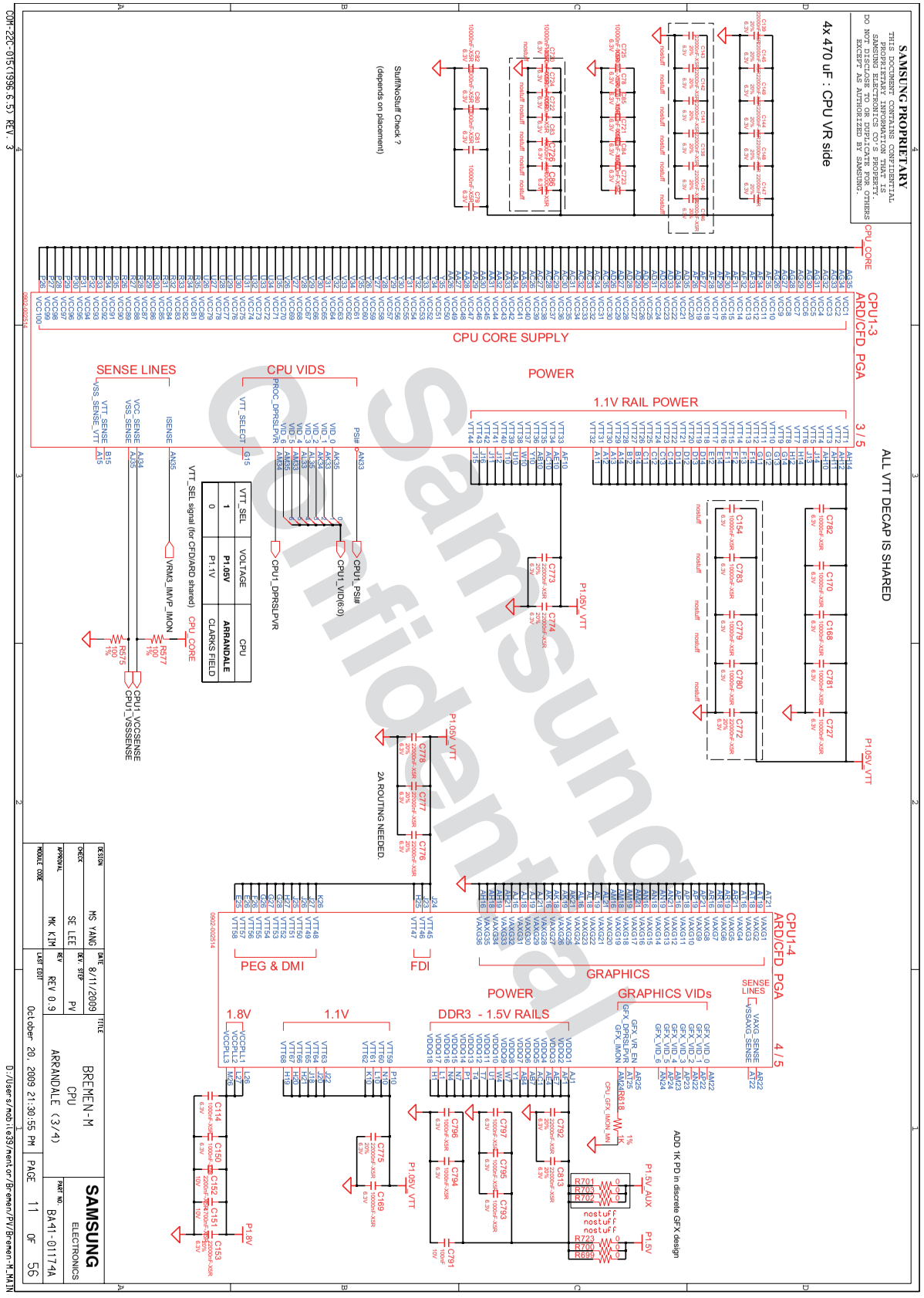

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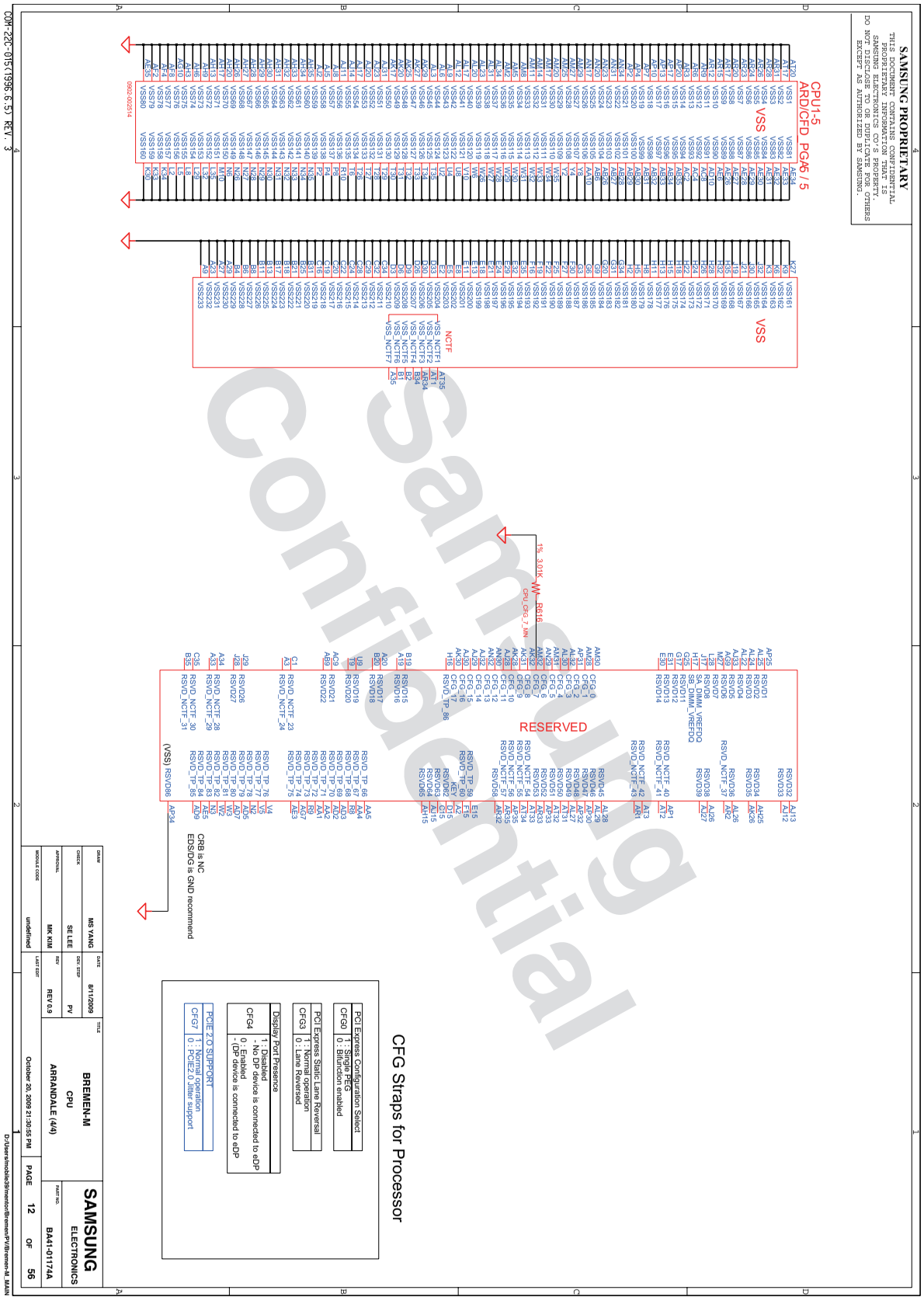

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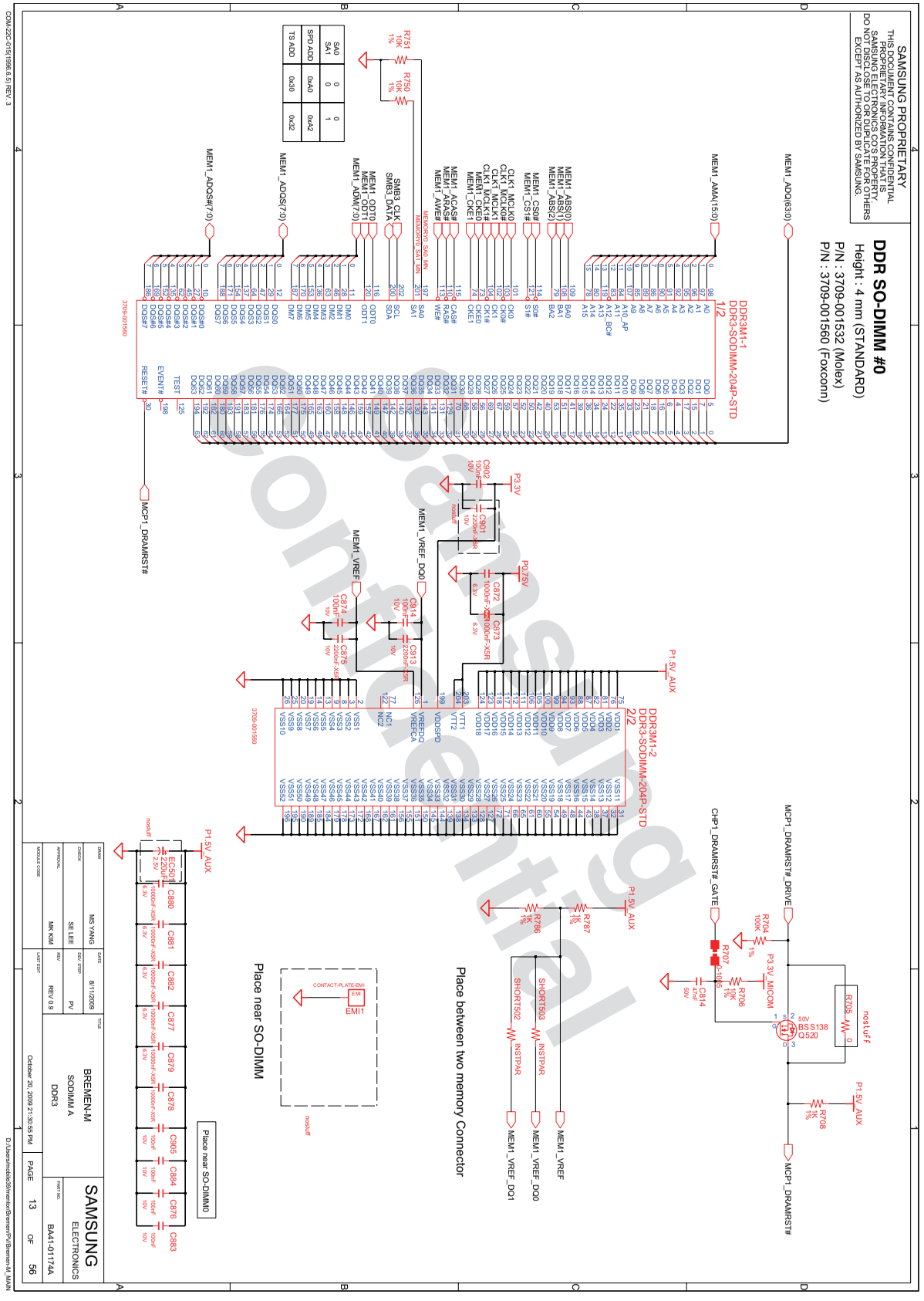

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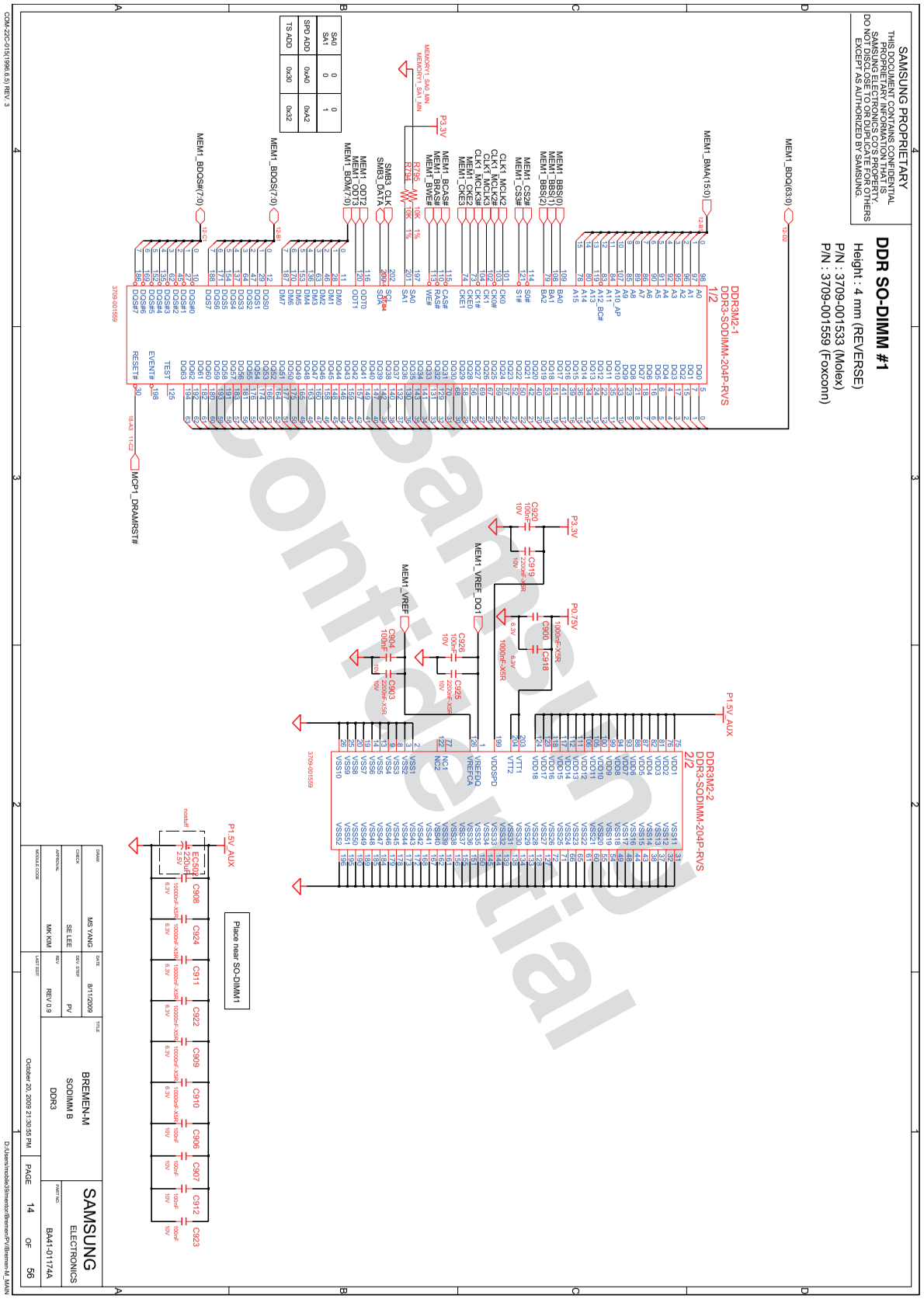

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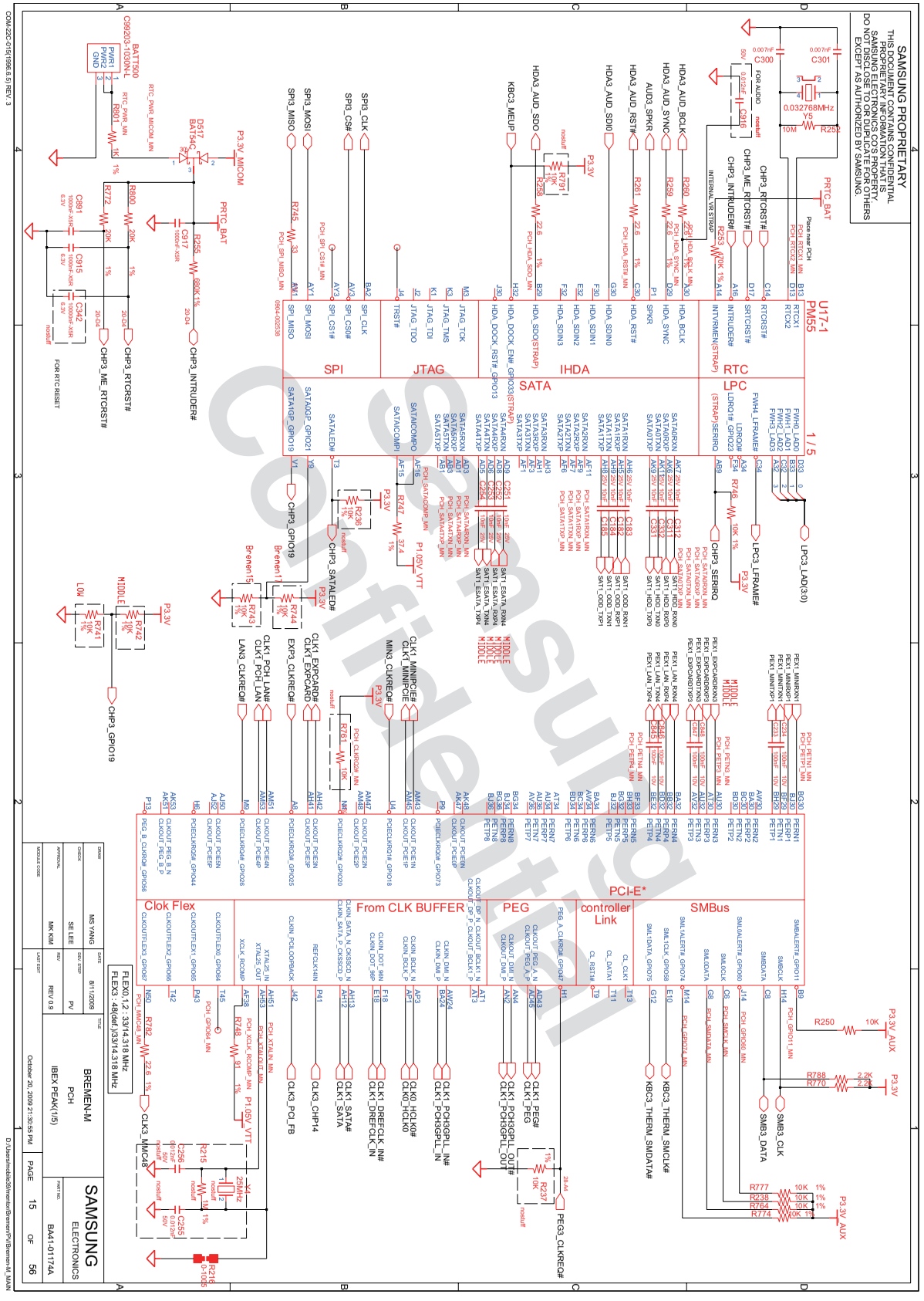

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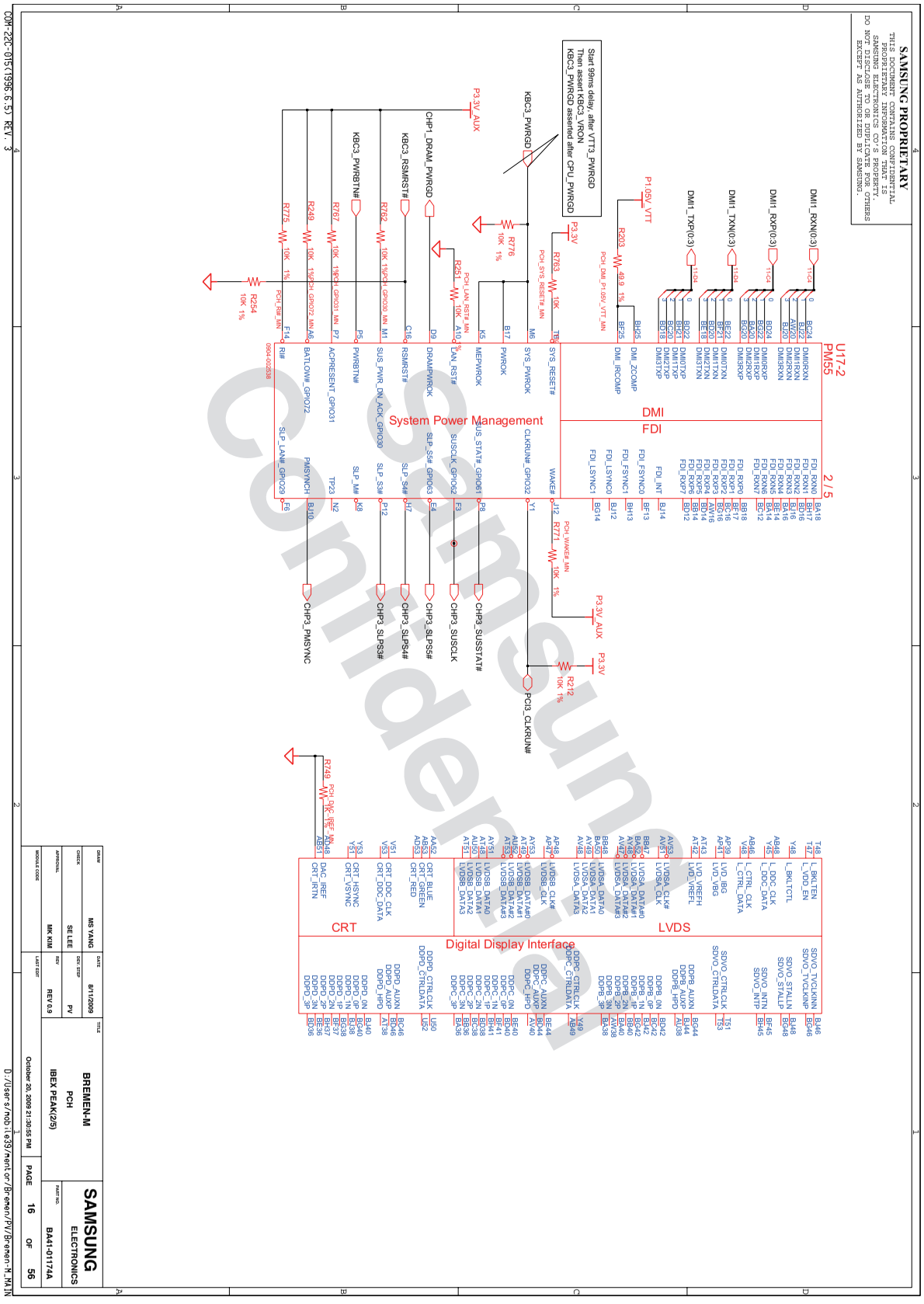

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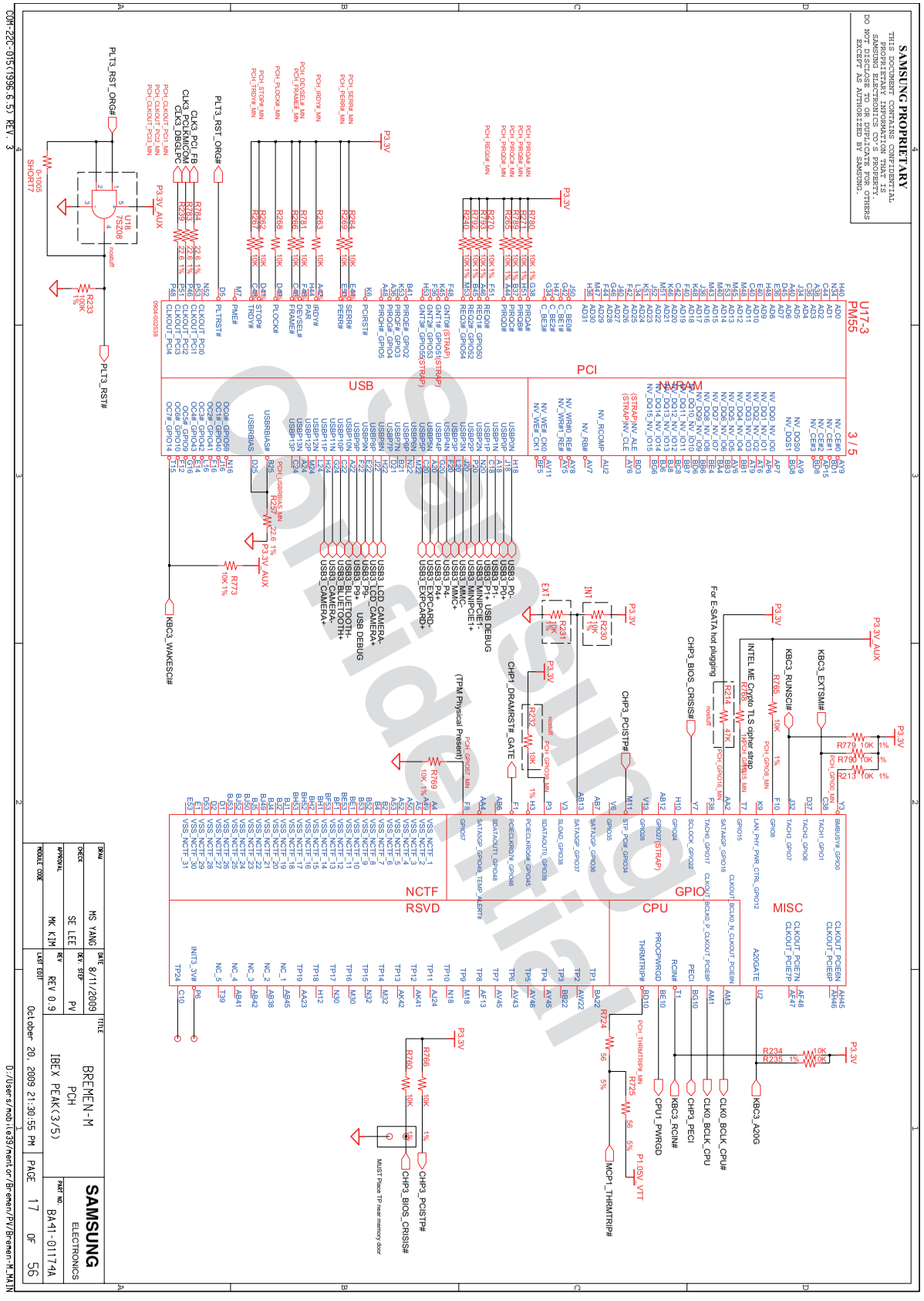

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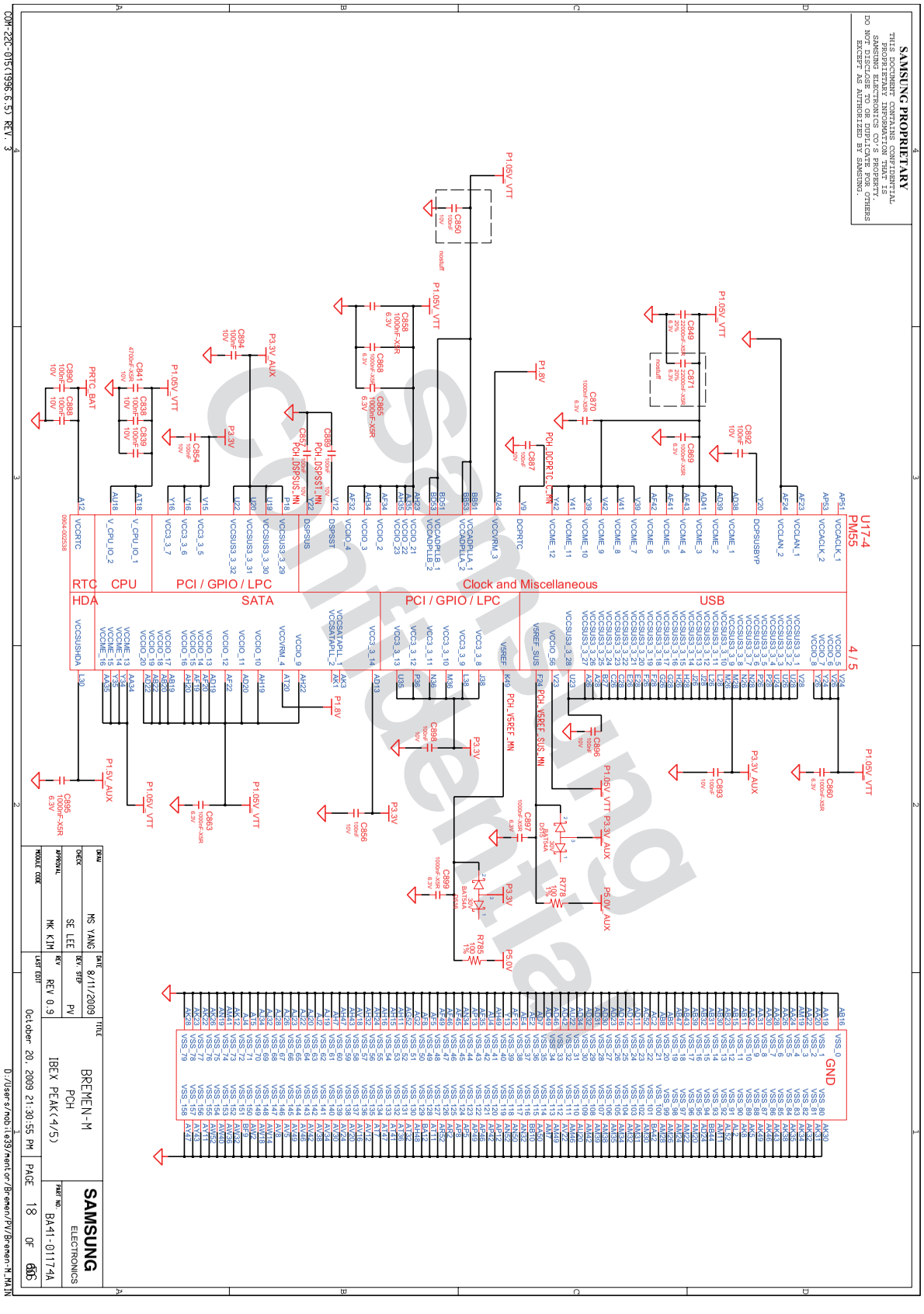

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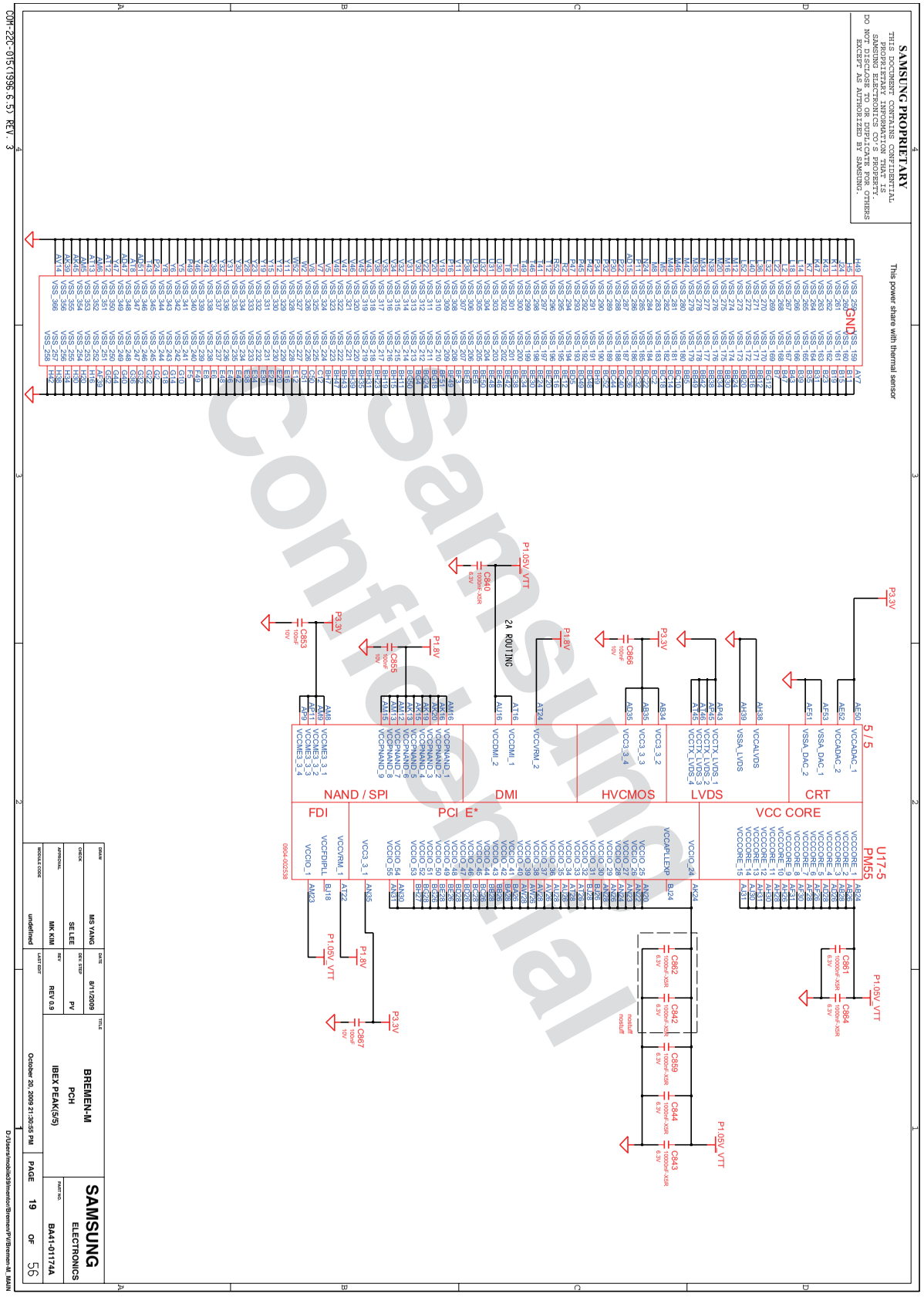

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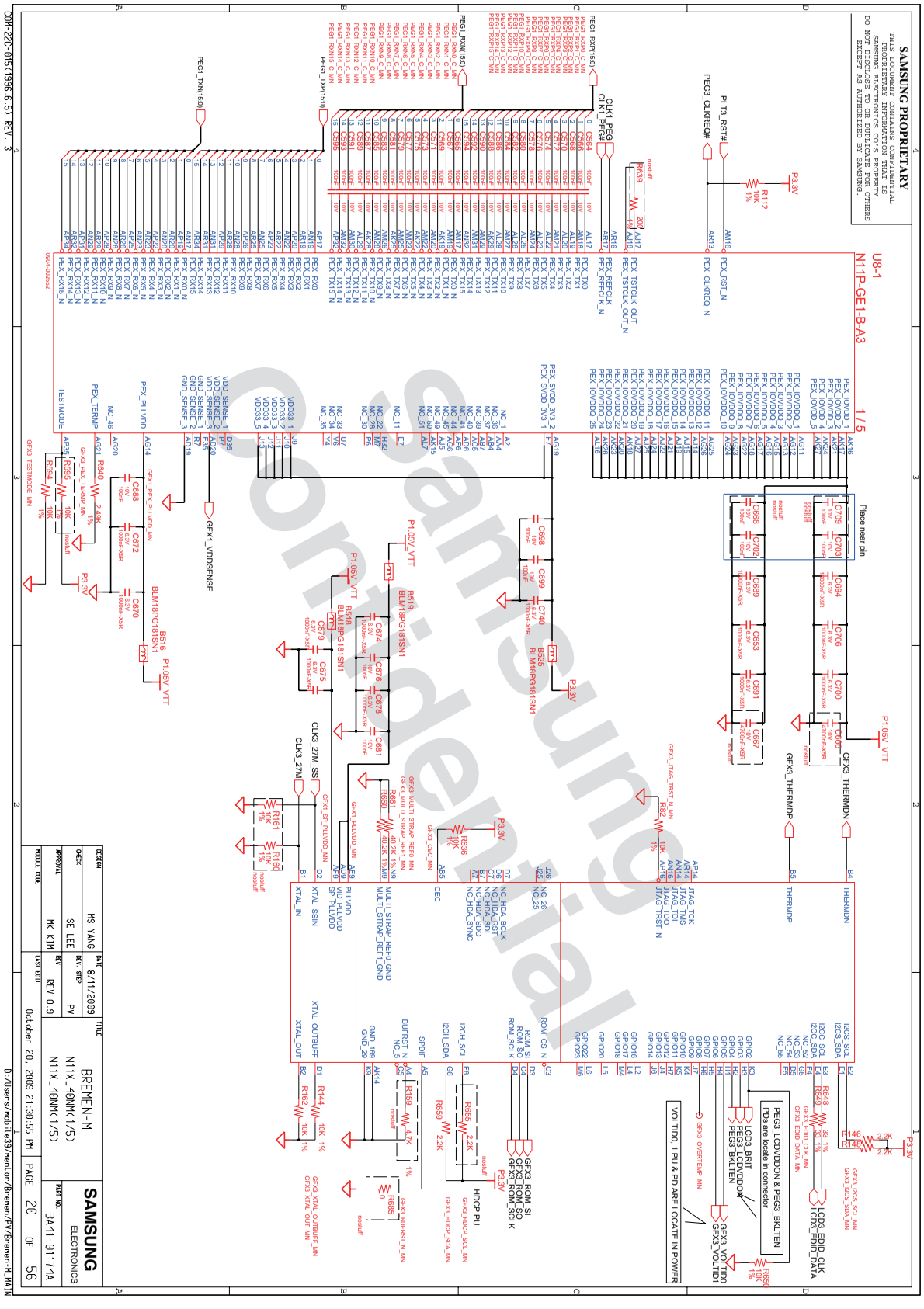

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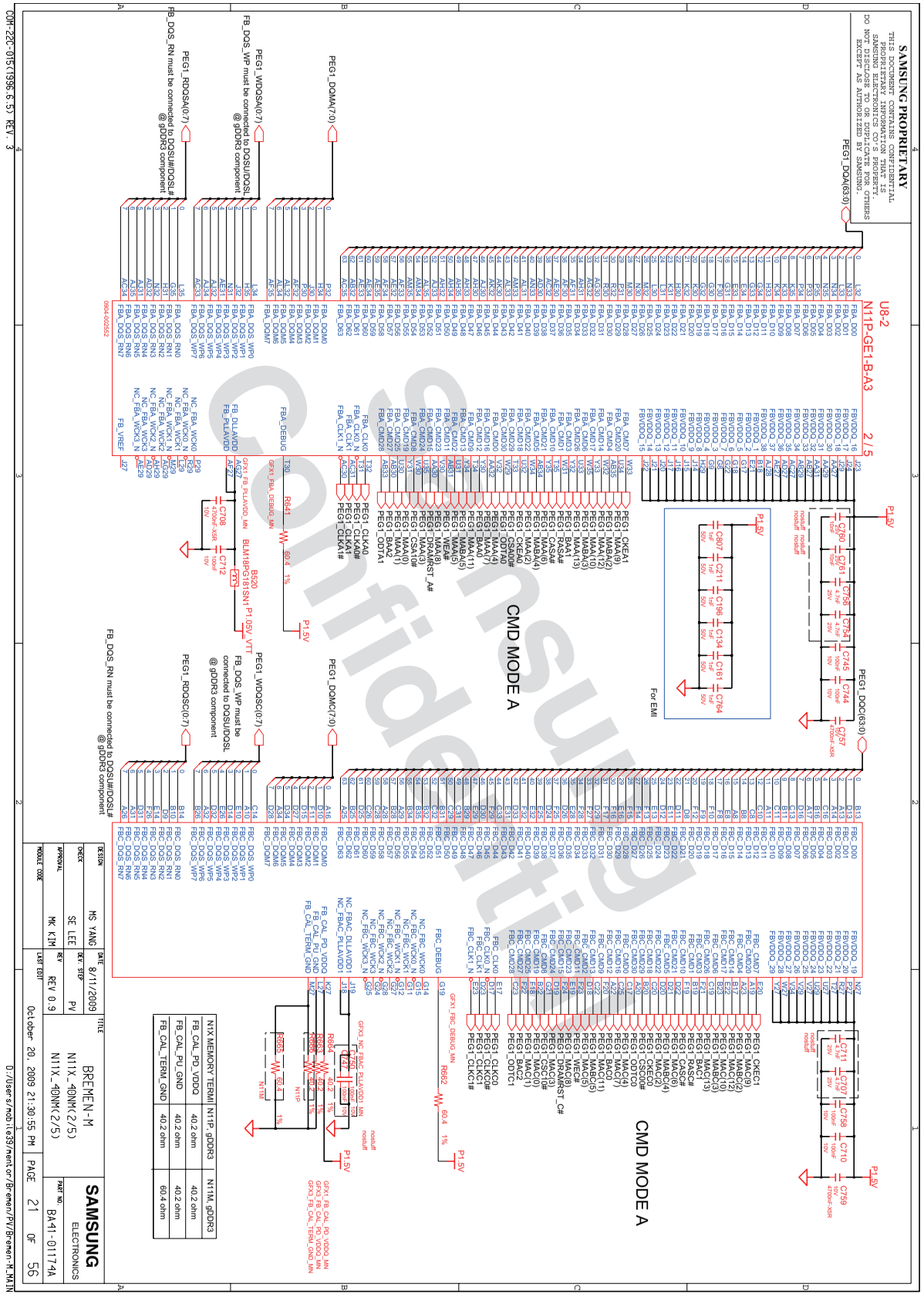

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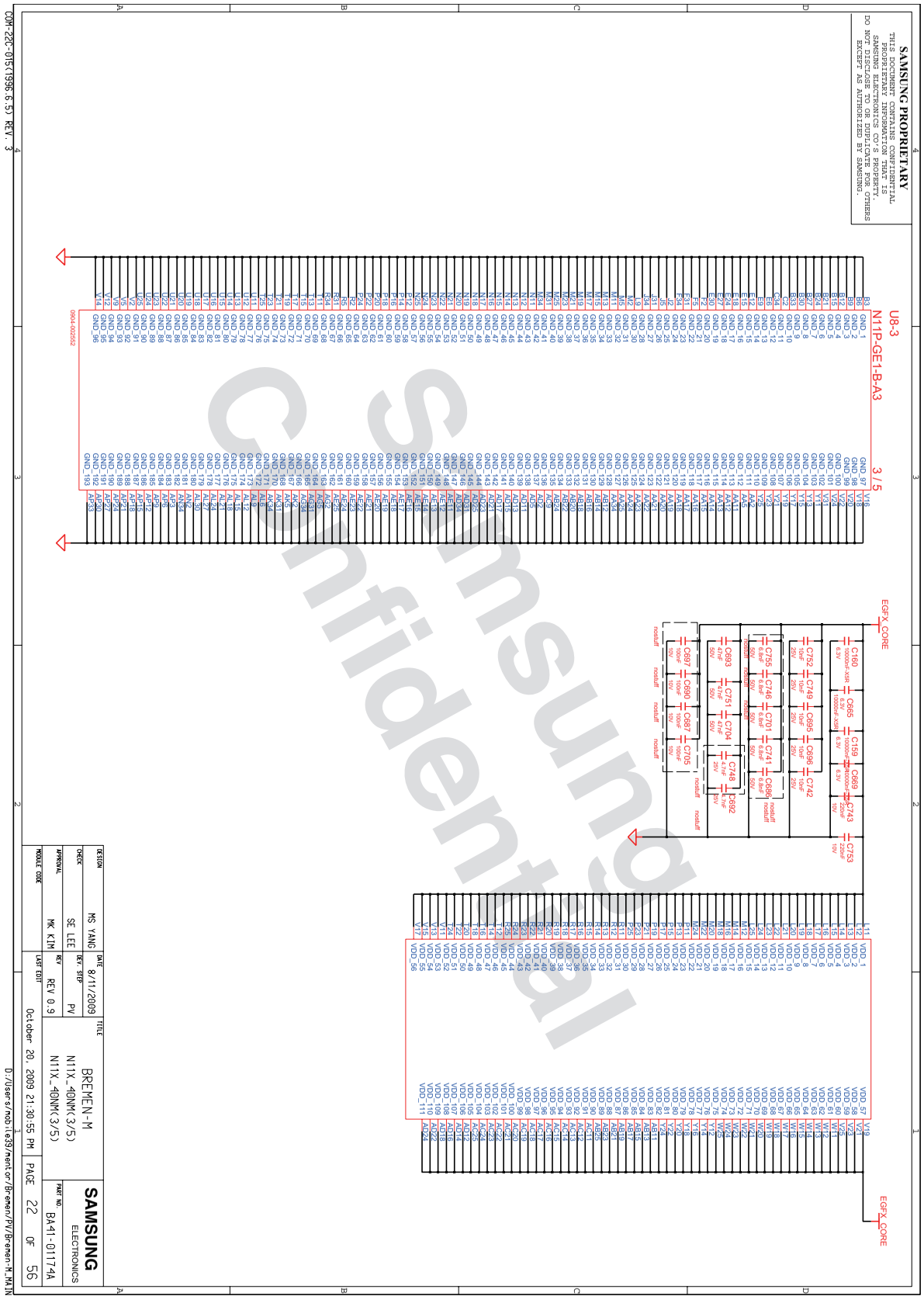

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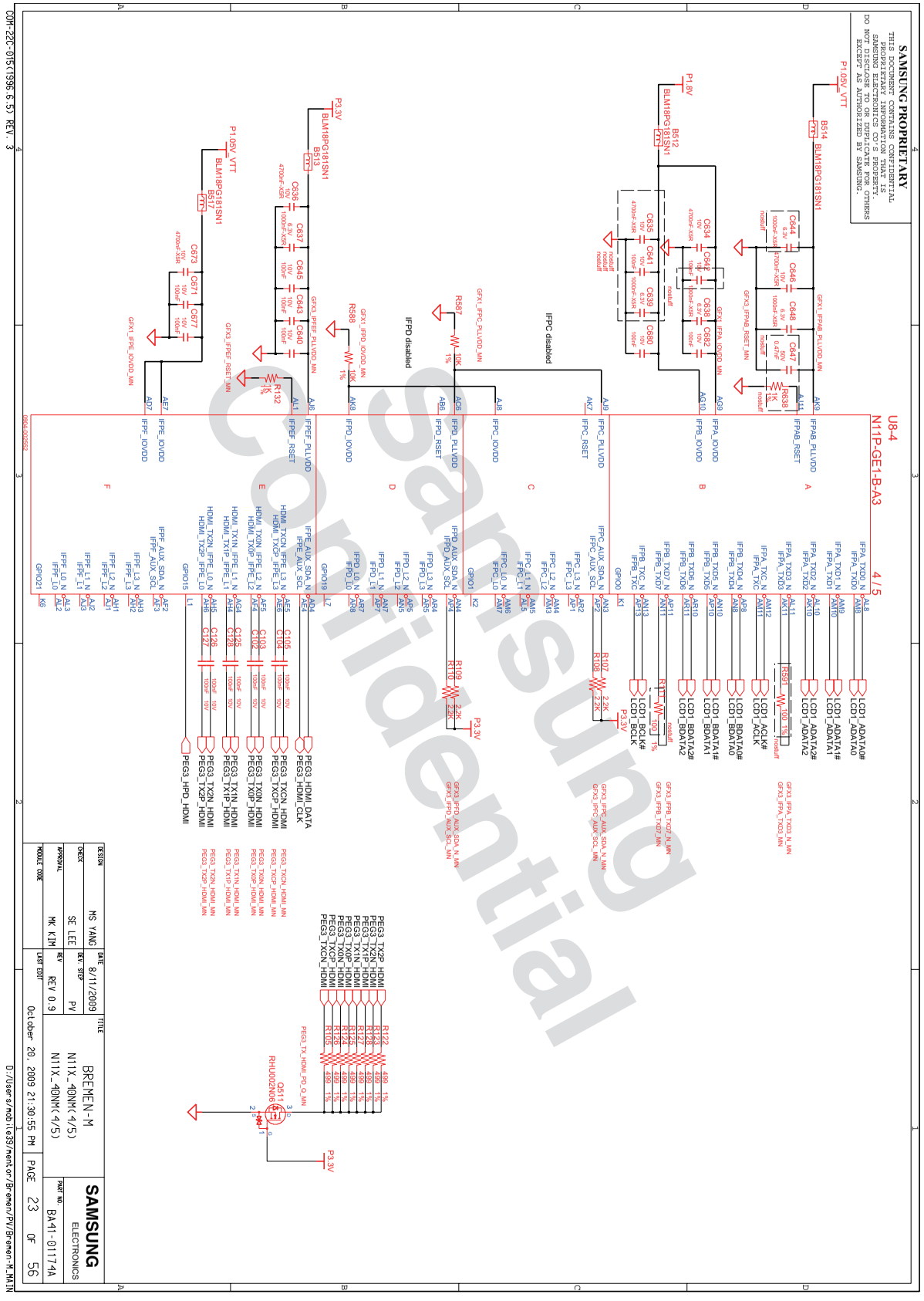

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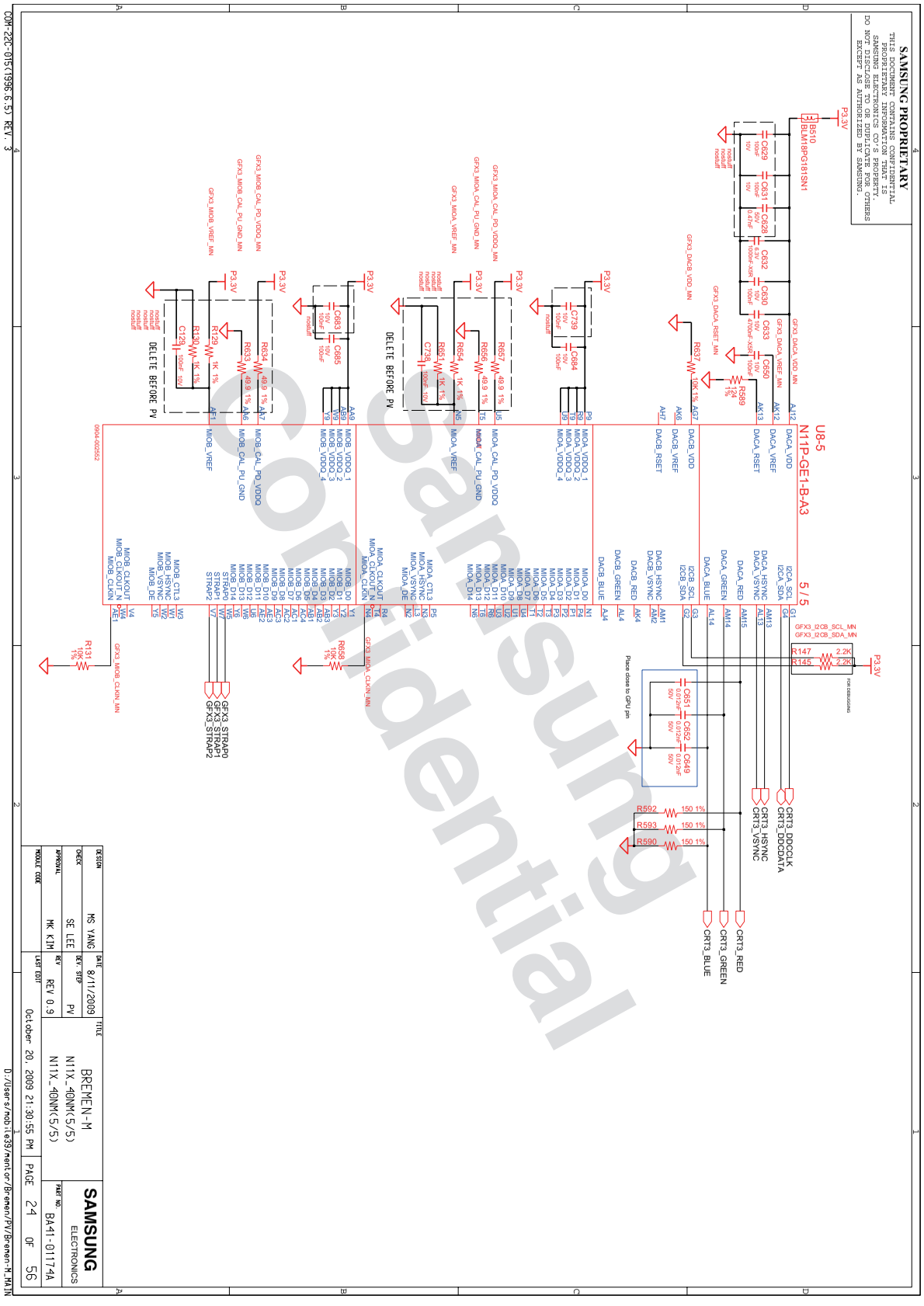

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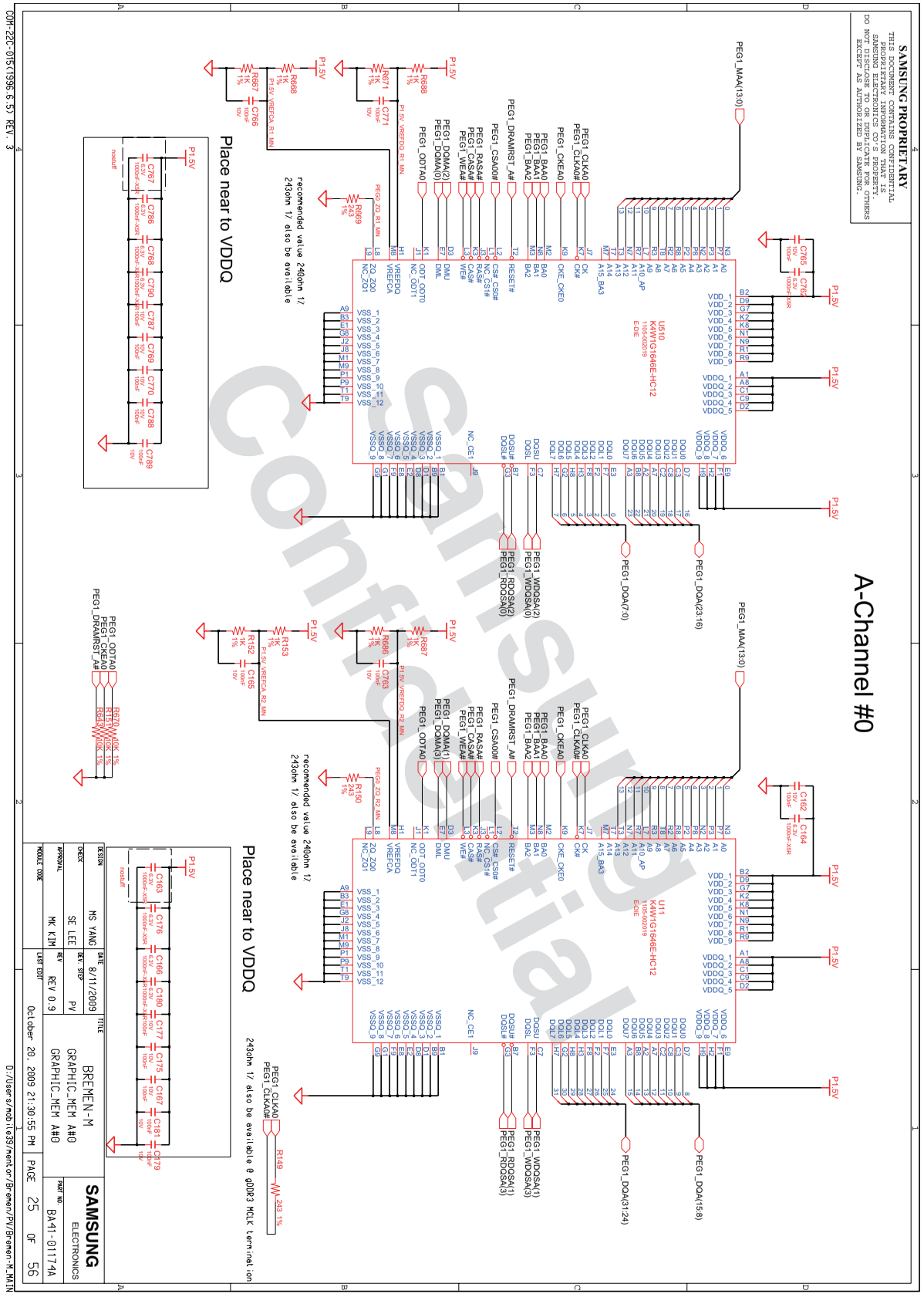

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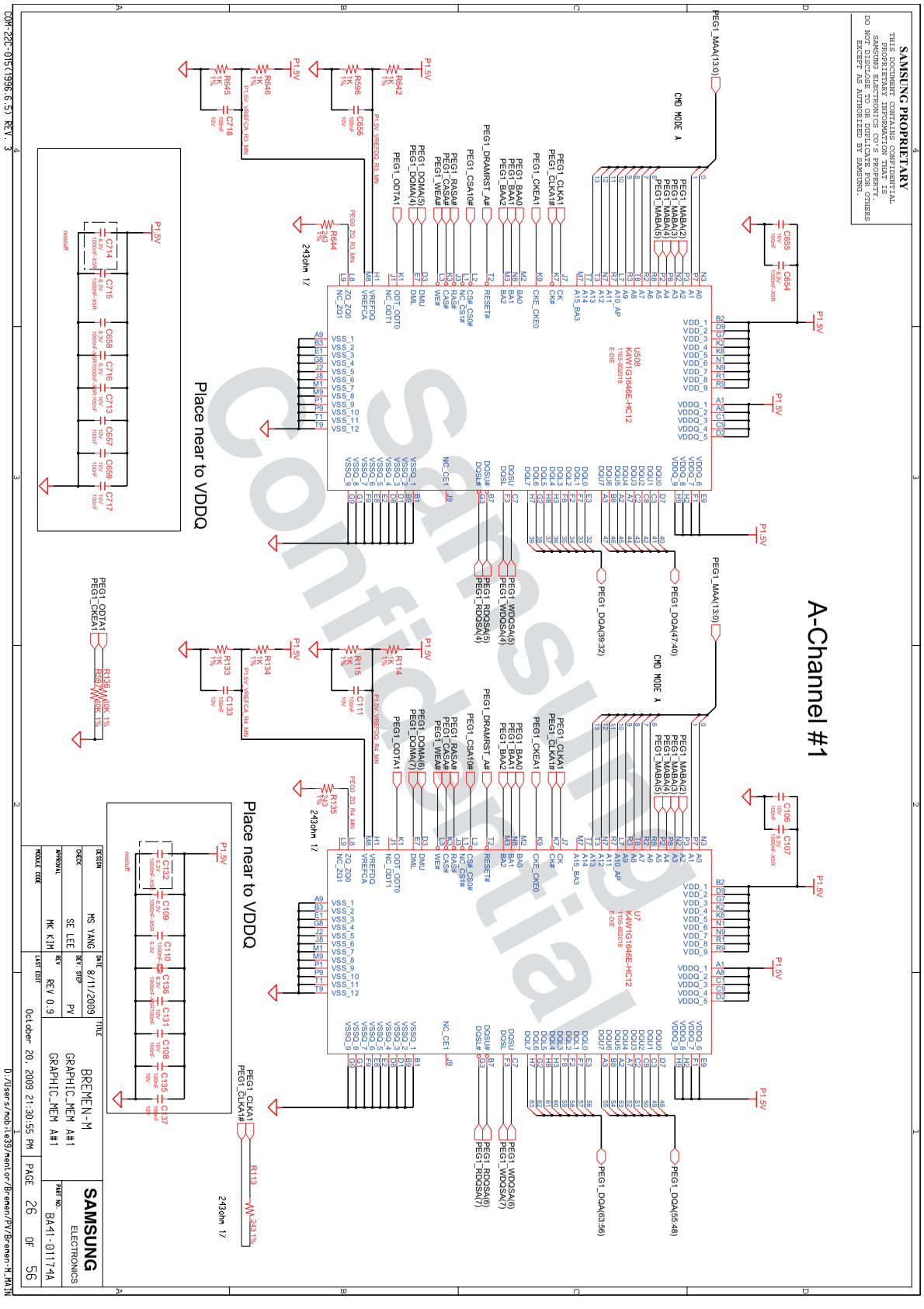
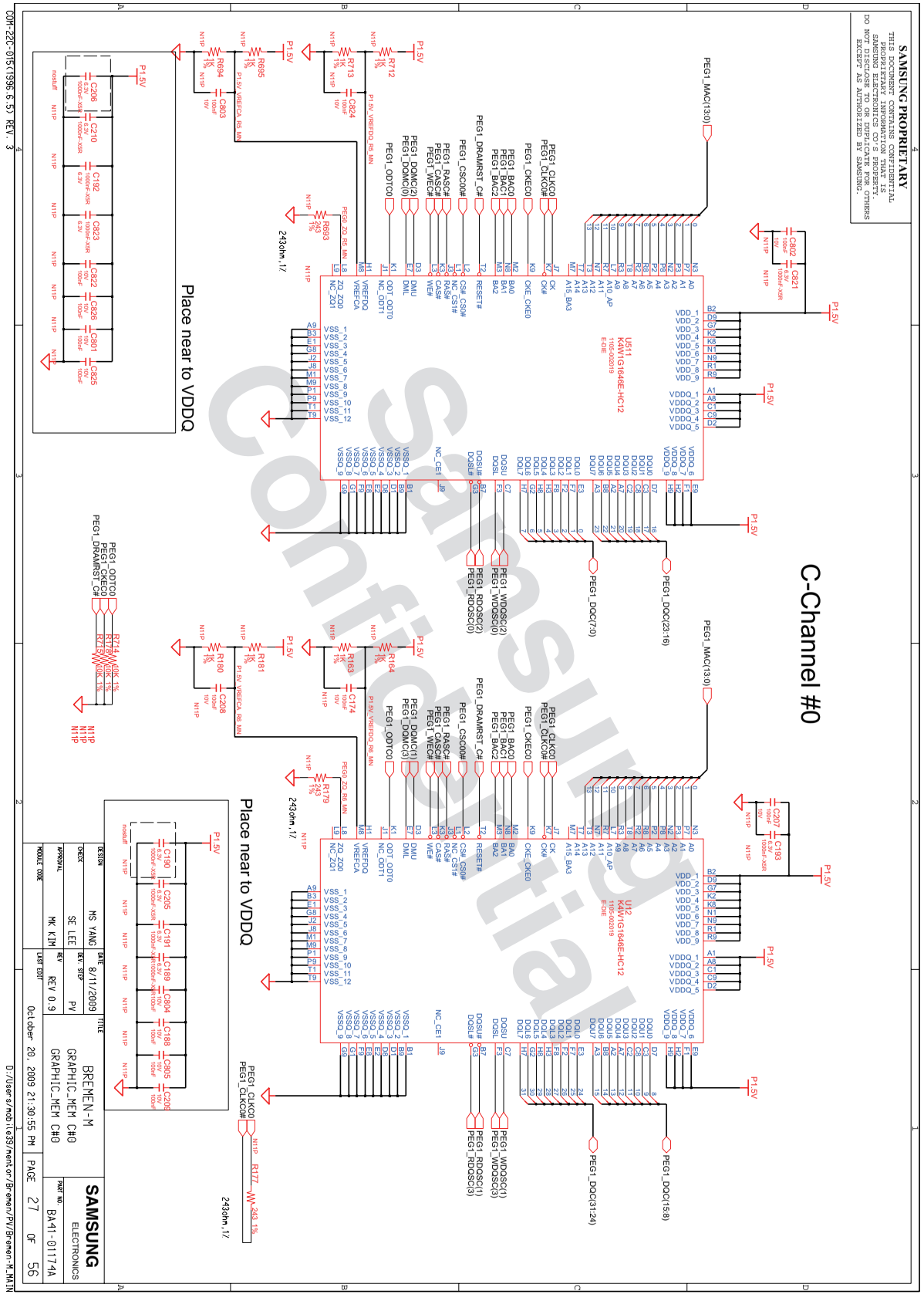


8. Block Diagram and Schematic



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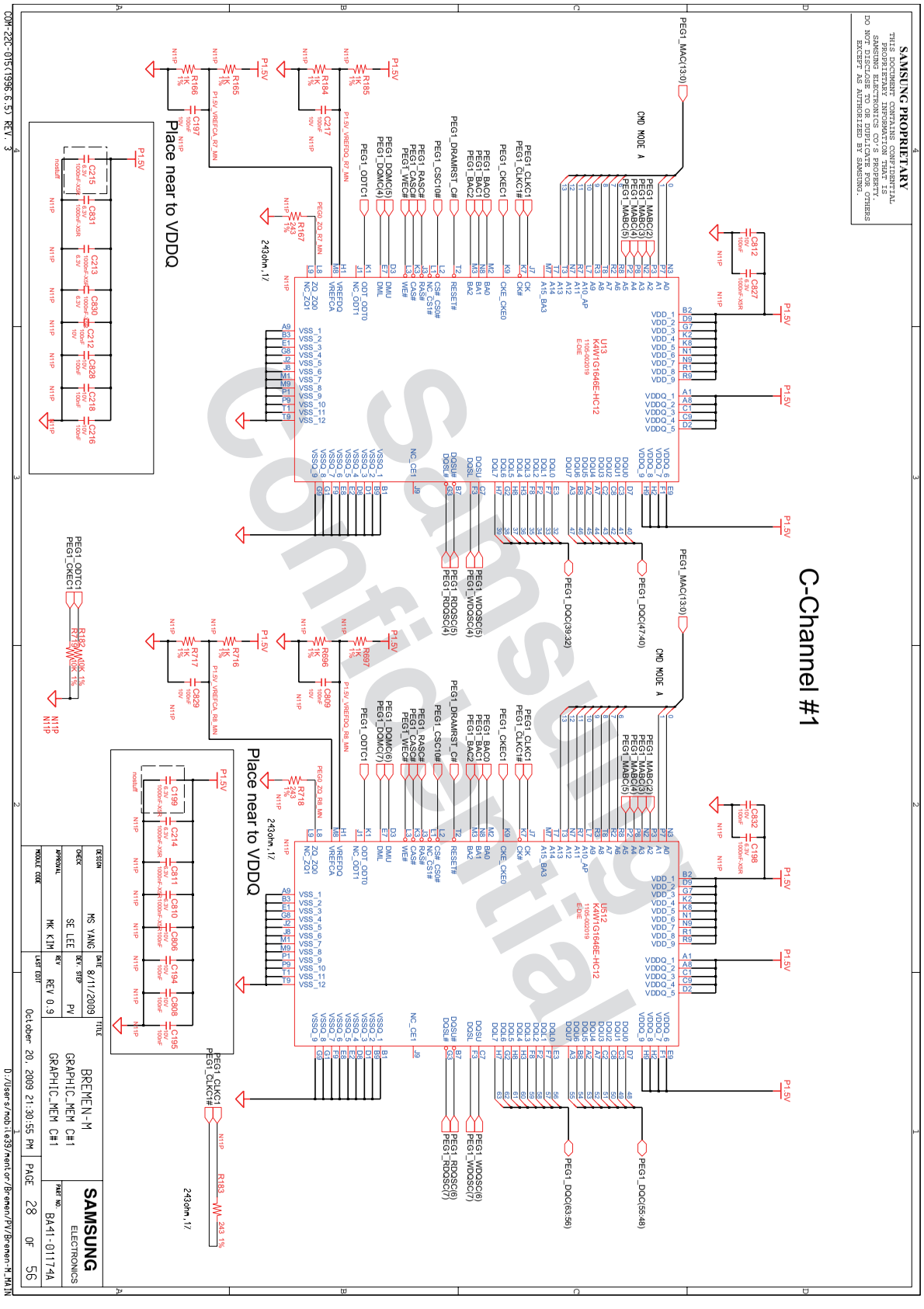
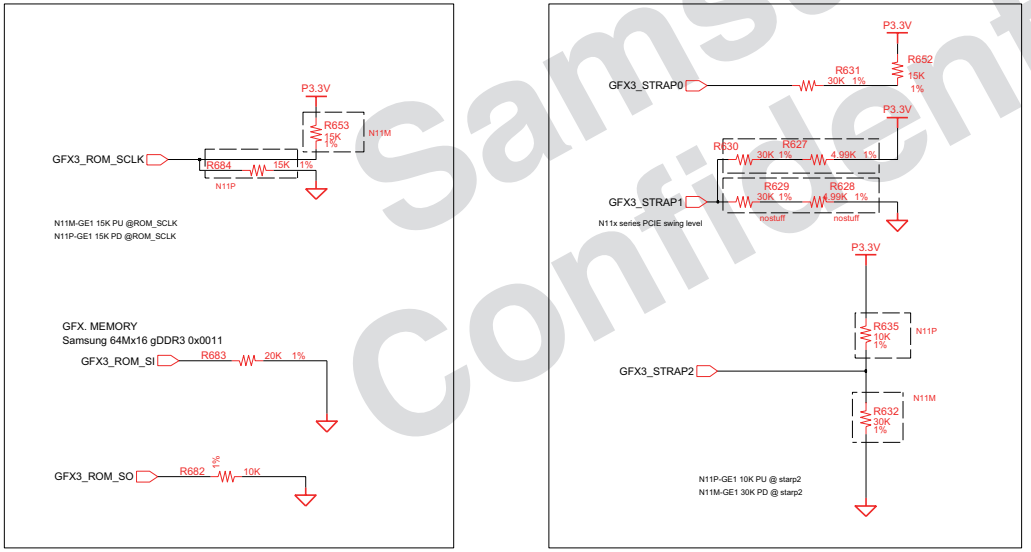


N11x_40nm STRAP

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

RESISTOR	PULL UP	PULL DOWN
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111



DESIGN: MS YANG	DATE: 8/11/2009	TITLE: BREMEN-M	SAMSUNG ELECTRONICS
CHECK: SE LEE	DEV. STEP: PV	N11X_40NM STRAP	
APPROVAL: MK KIM	REV: REV 0.9	N11X_40NM STRAP	PART NO.: BA41-01174A
MODULE CODE	LAST EDIT: October 20, 2009 21:30:55 PM	PAGE 29 OF 56	

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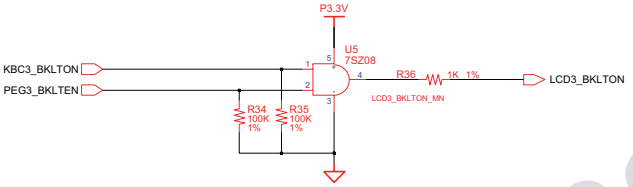
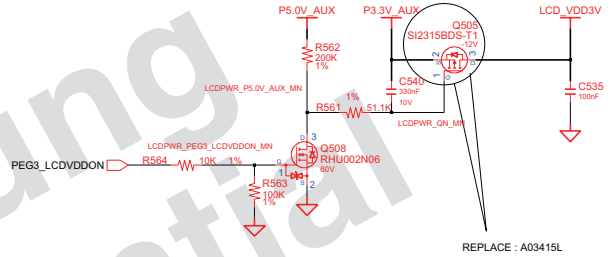
LVDS

Backlight On

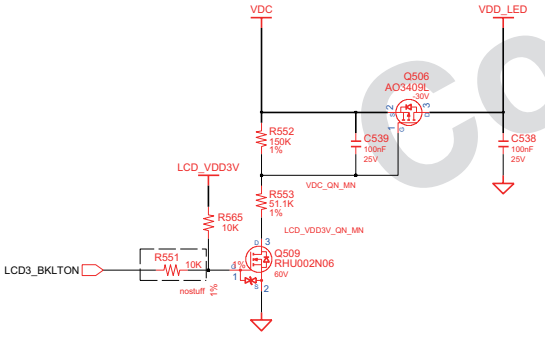


LCD Power

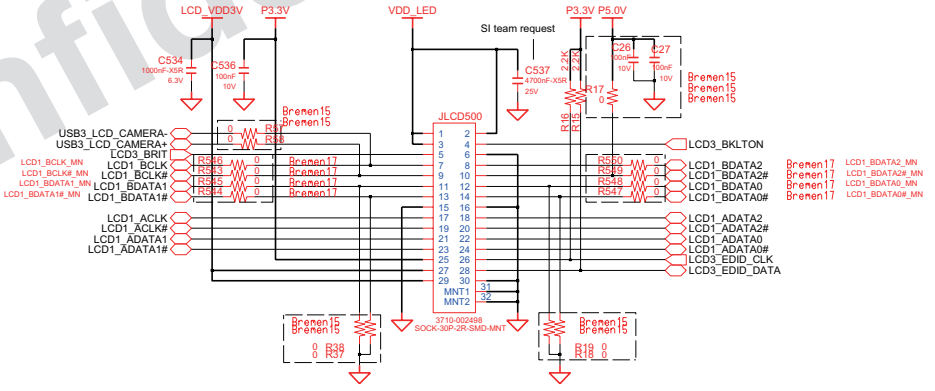
EBL Purpose



LED Power



Camera + LCD Connector



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

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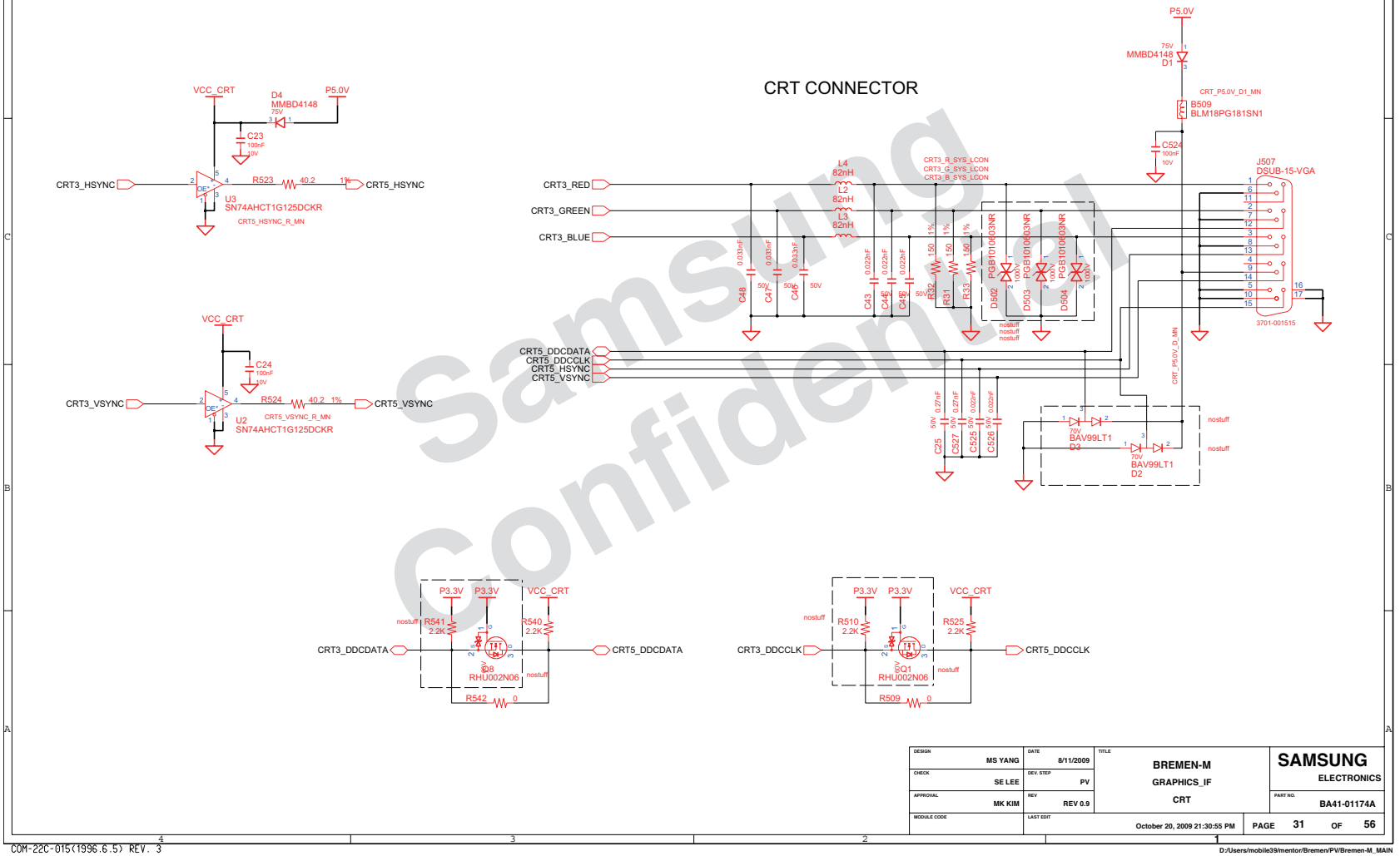
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN

CRT



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

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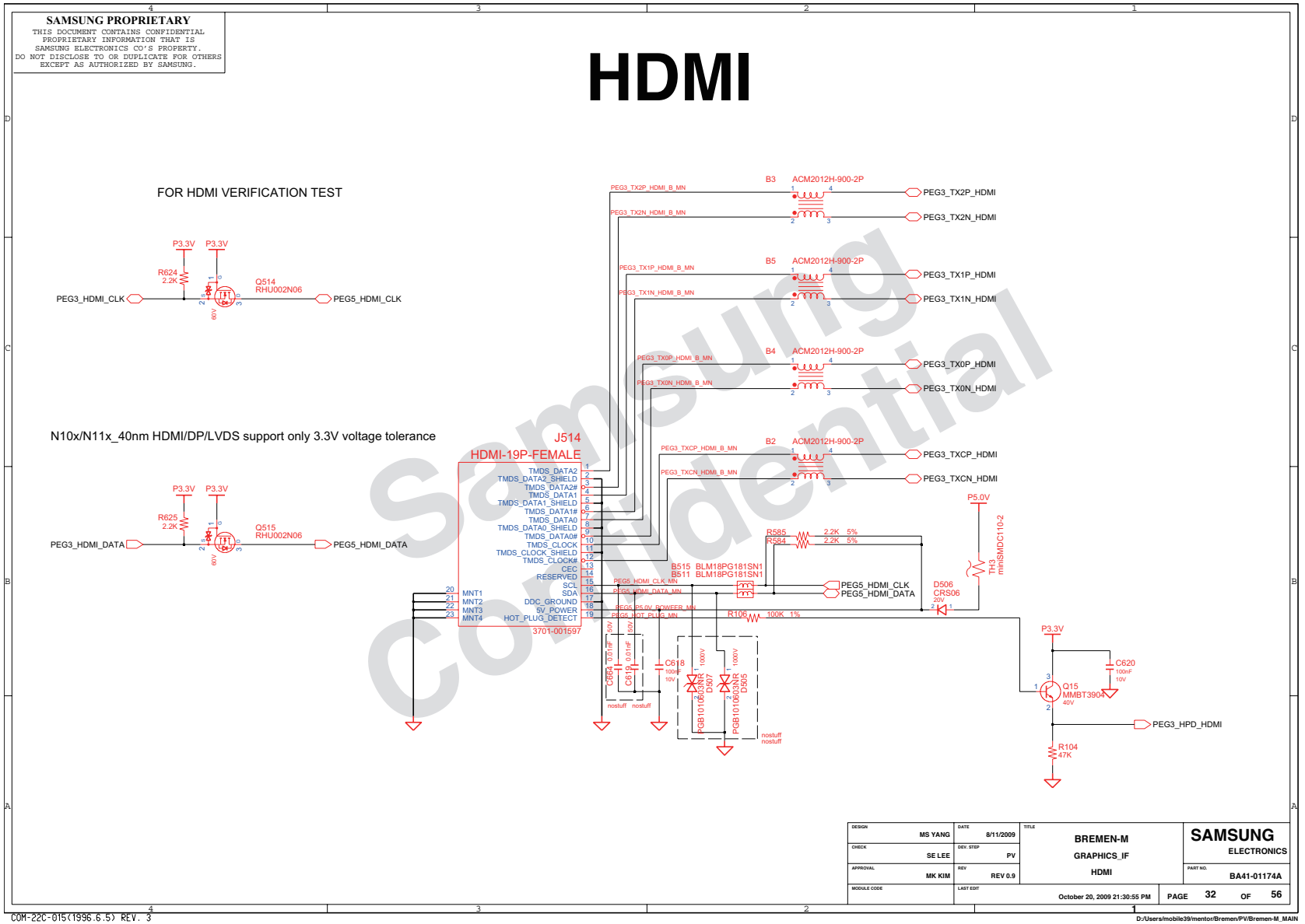
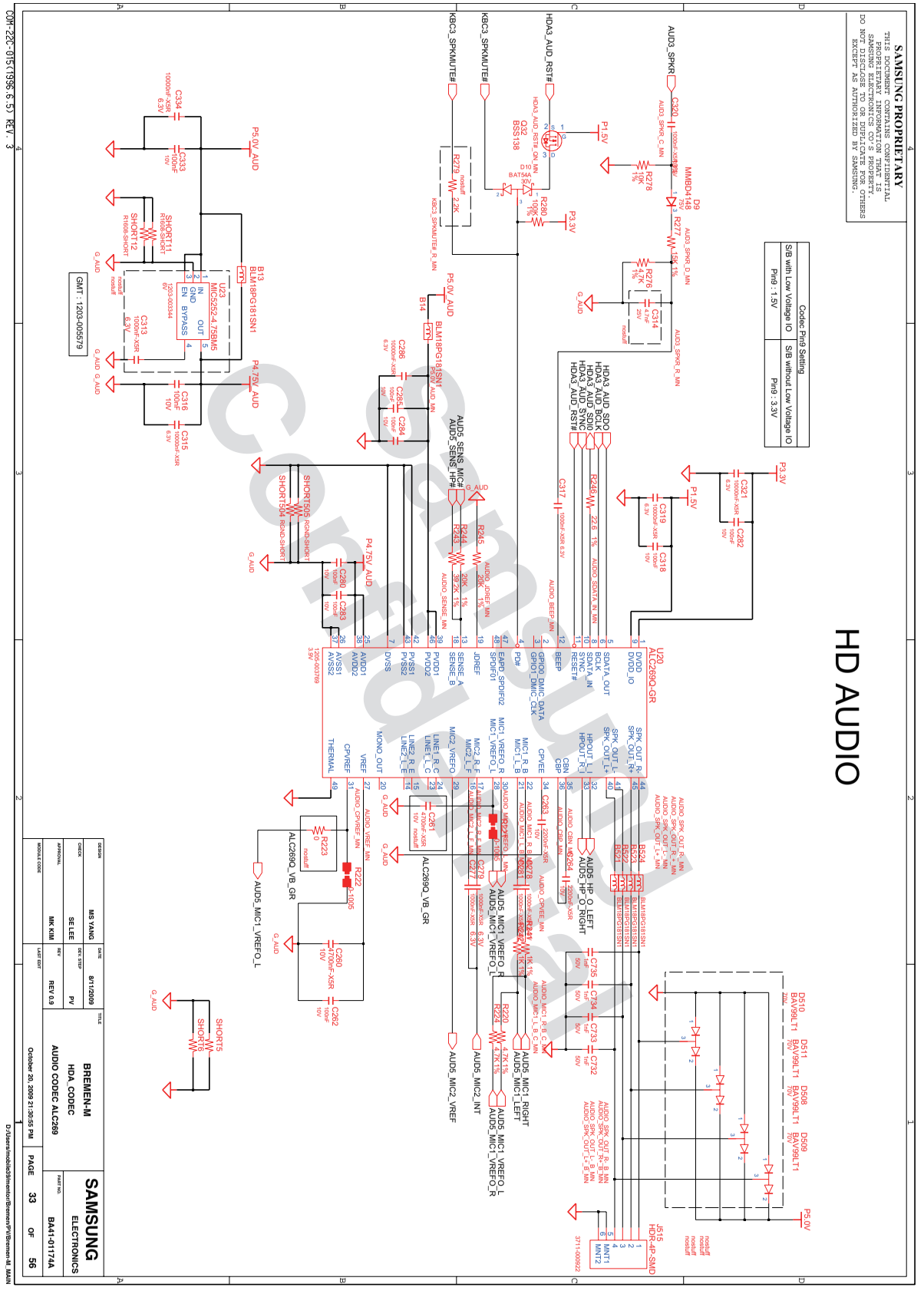
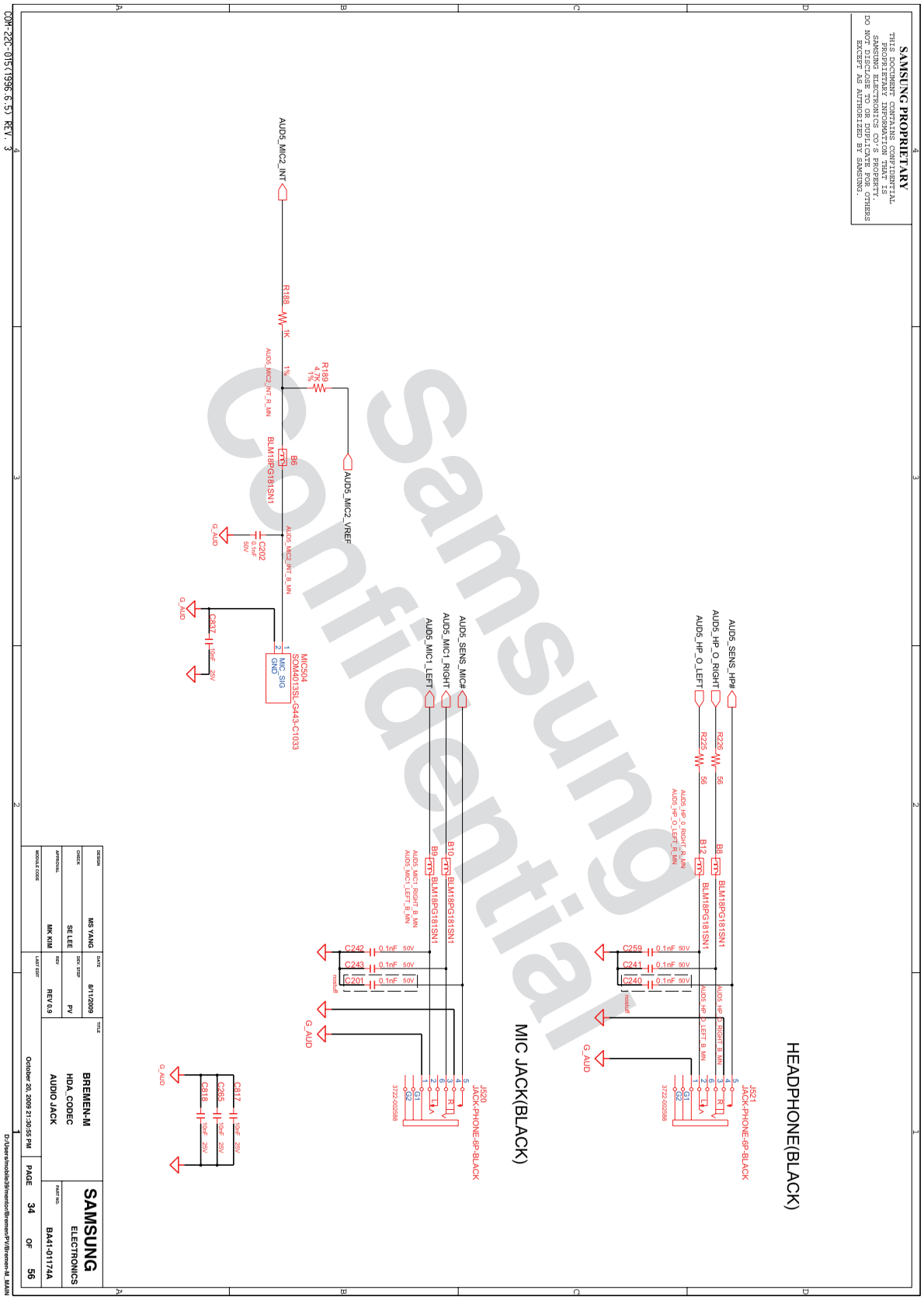
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN



8. Block Diagram and Schematic

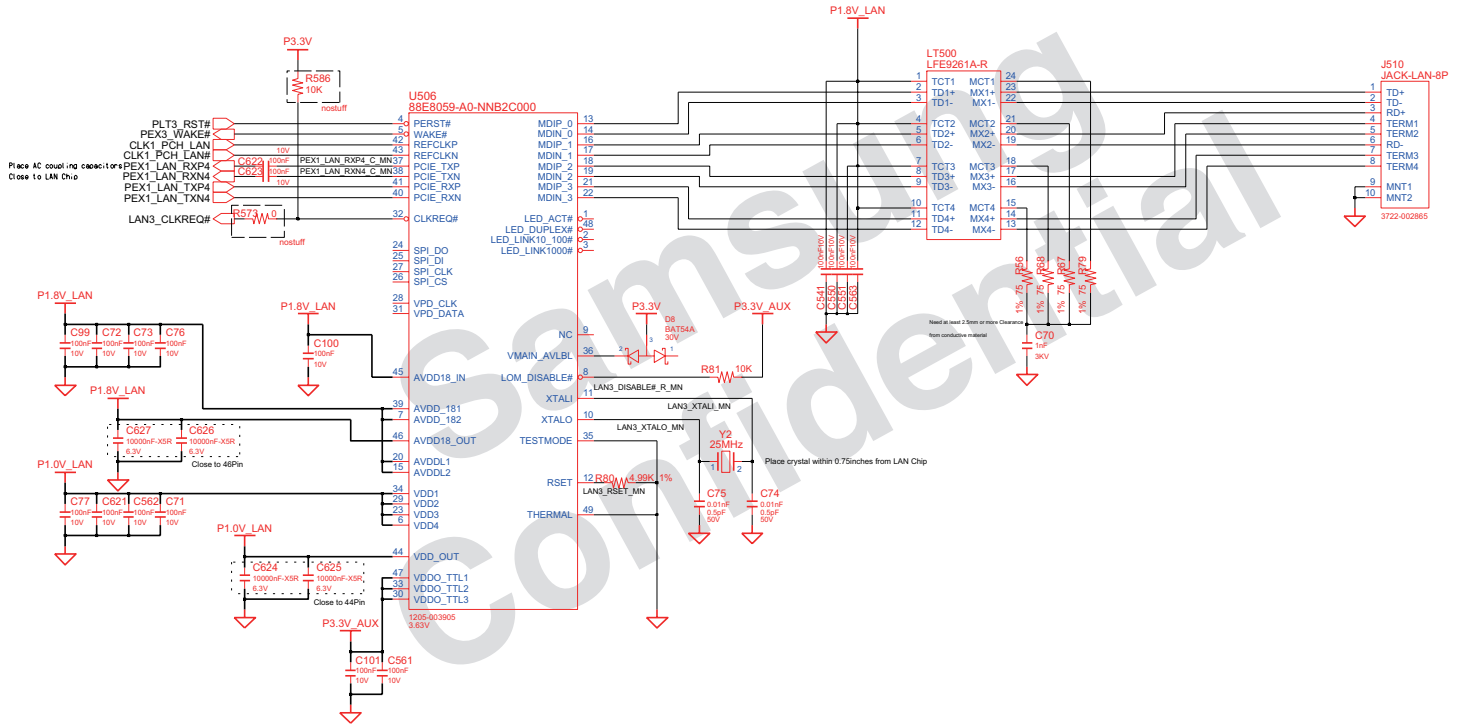


8. Block Diagram and Schematic



8. Block Diagram and Schematic

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



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

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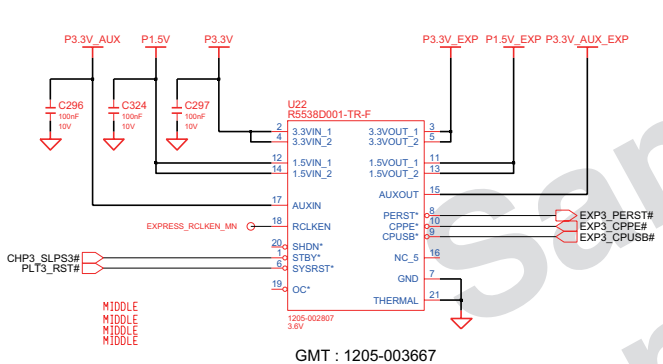
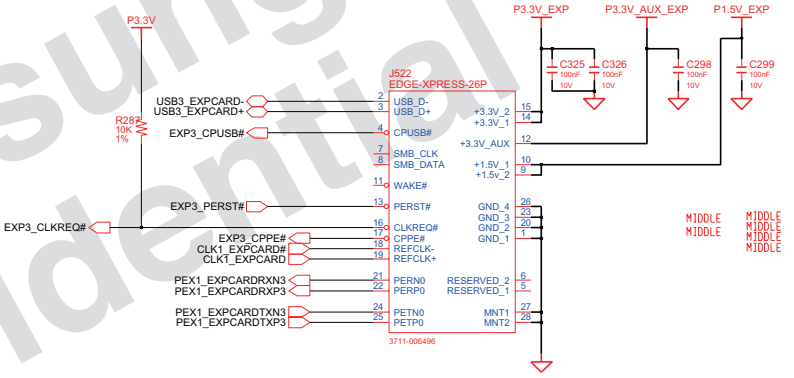
Express Card

Express Card Power Switch



GMT : 1205-003667



TYPE - I

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

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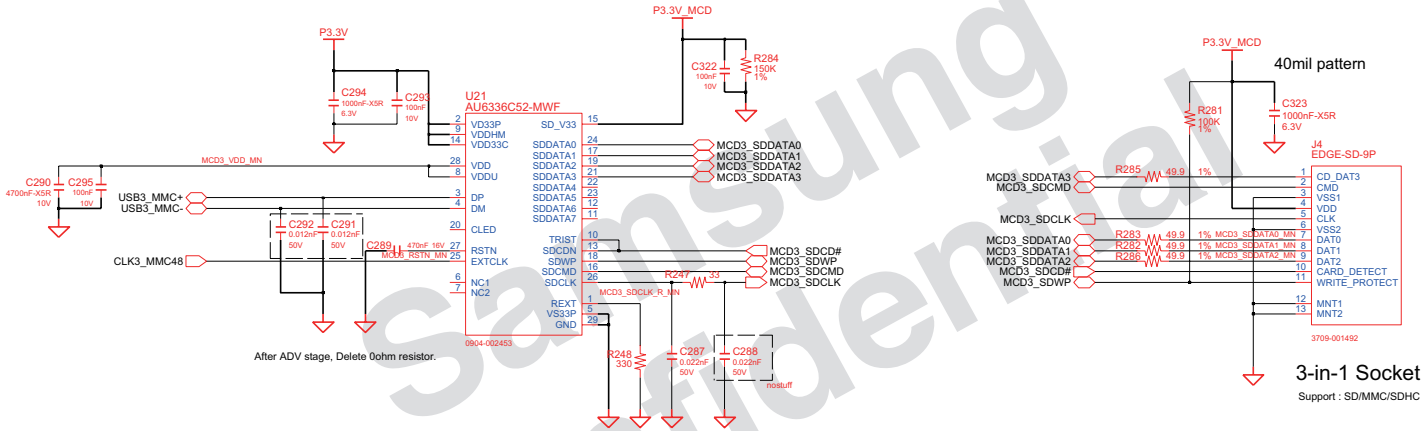
3 IN 1 CARD (AU6336)

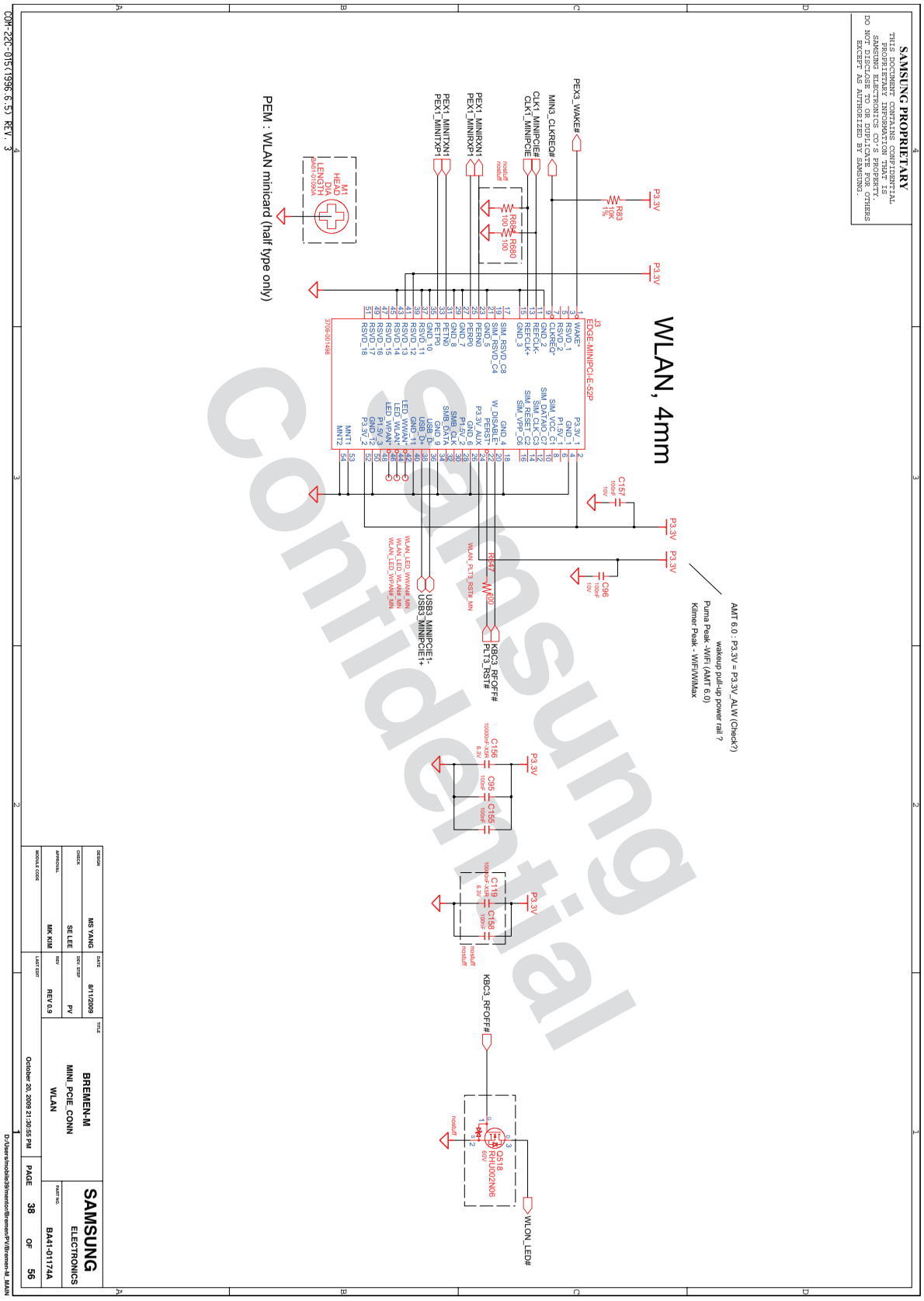


DESIGN: MS YANG	DATE: 8/11/2009	TITLE: BREMEN-M MULTICARD 3 IN 1 CARD(GL827S)	SAMSUNG ELECTRONICS
CHECK: SE LEE	DEV. STEP: PV		
APPROVAL: MK KIM	REV: REV 0.9		PART NO.: BA41-01174A
MODULE CODE:	LAST EDIT: October 20, 2009 21:30:55 PM	PAGE 37 OF 56	

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

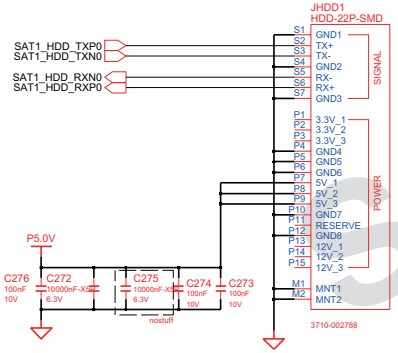
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN

8. Block Diagram and Schematic

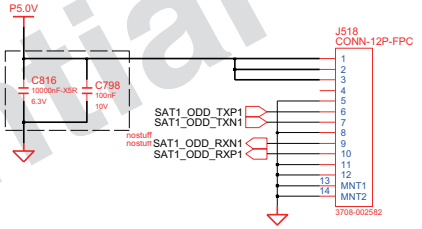


SATA I/F CONN

SATA HDD CONN



MAIN TO SUB SATA ODD CONN



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

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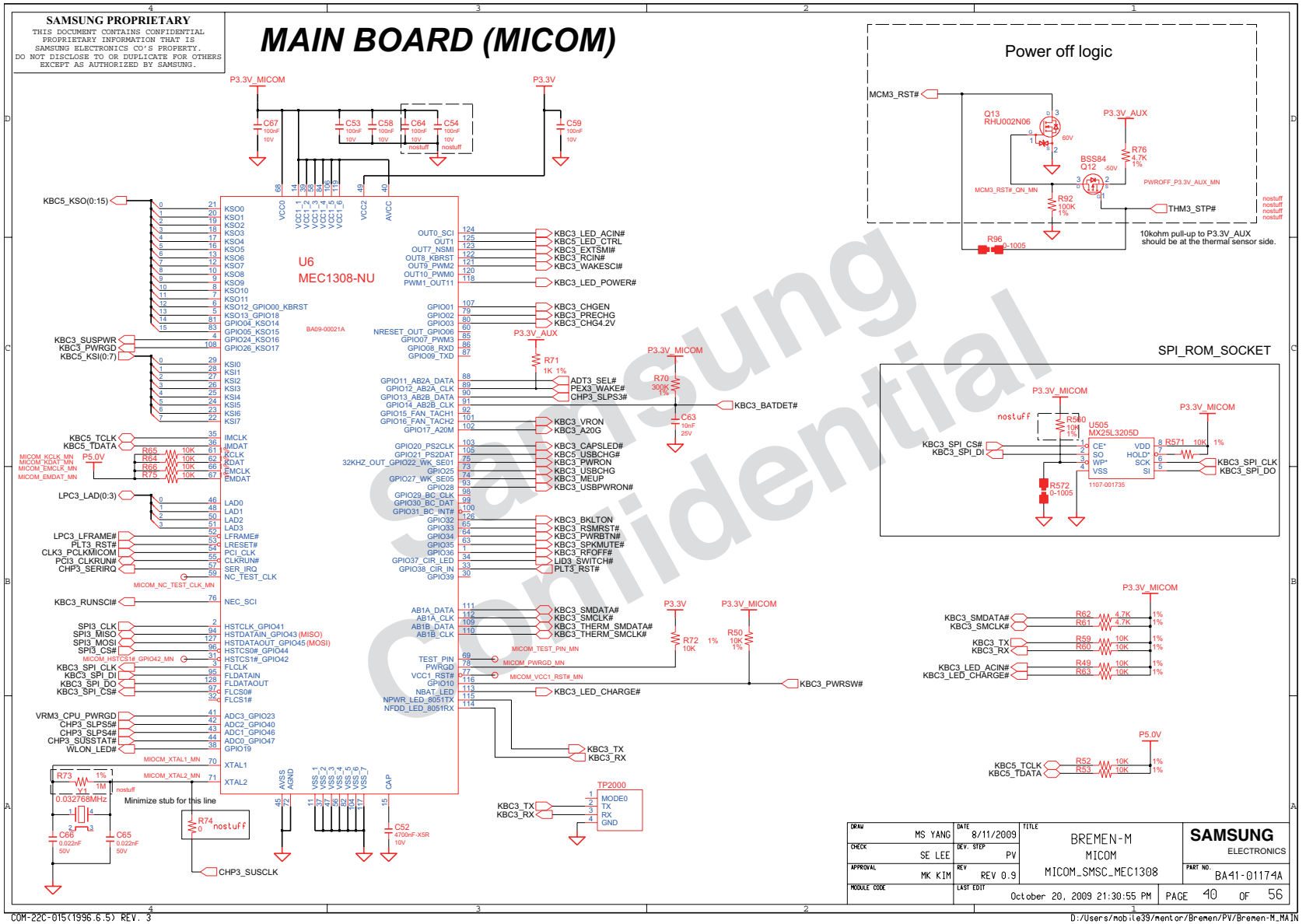
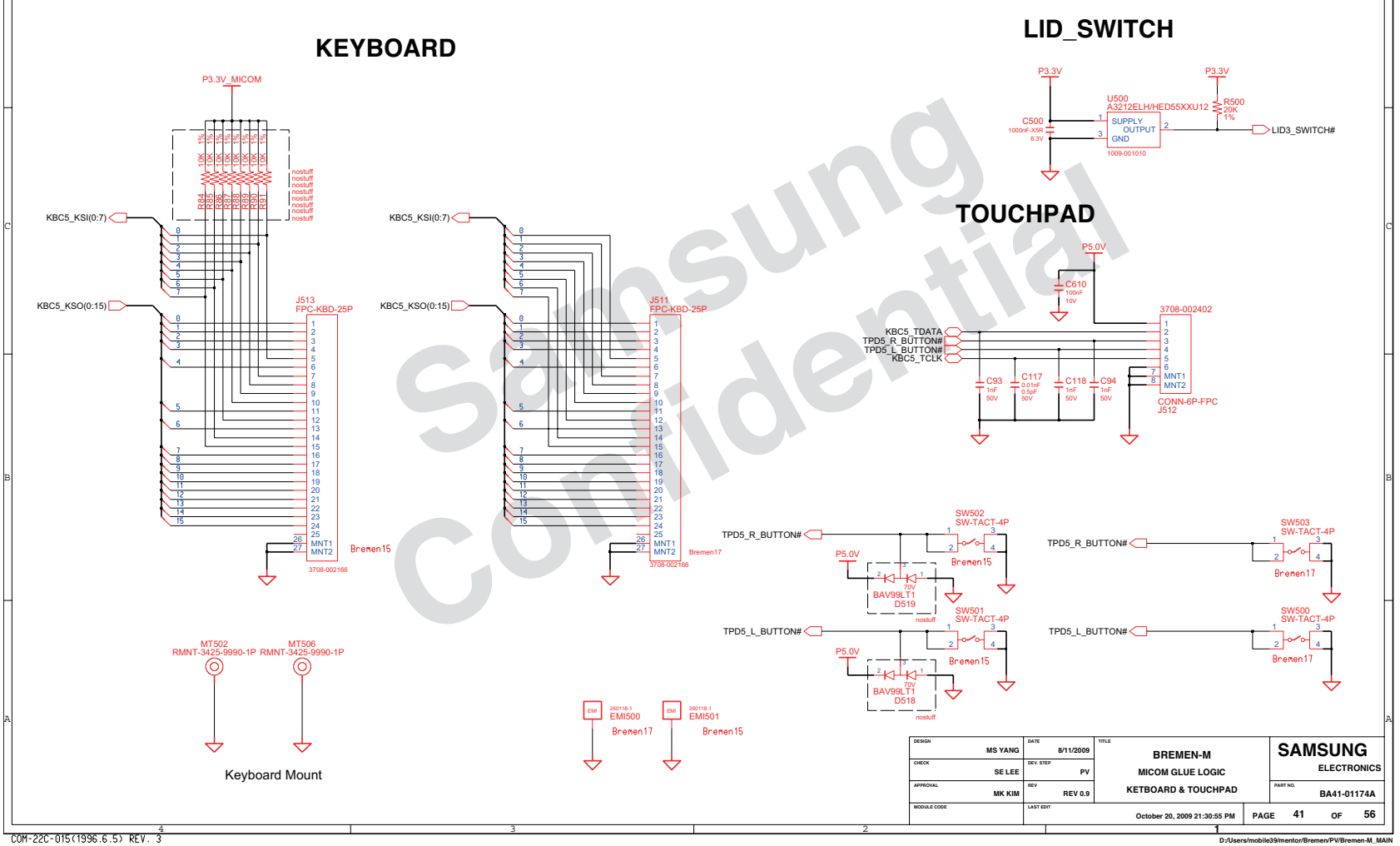
D:/Users/mobile39/mentor/Bremen/PV/Bremen-M_MAIN

8. Block Diagram and Schematic



Micom Glue Logic



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

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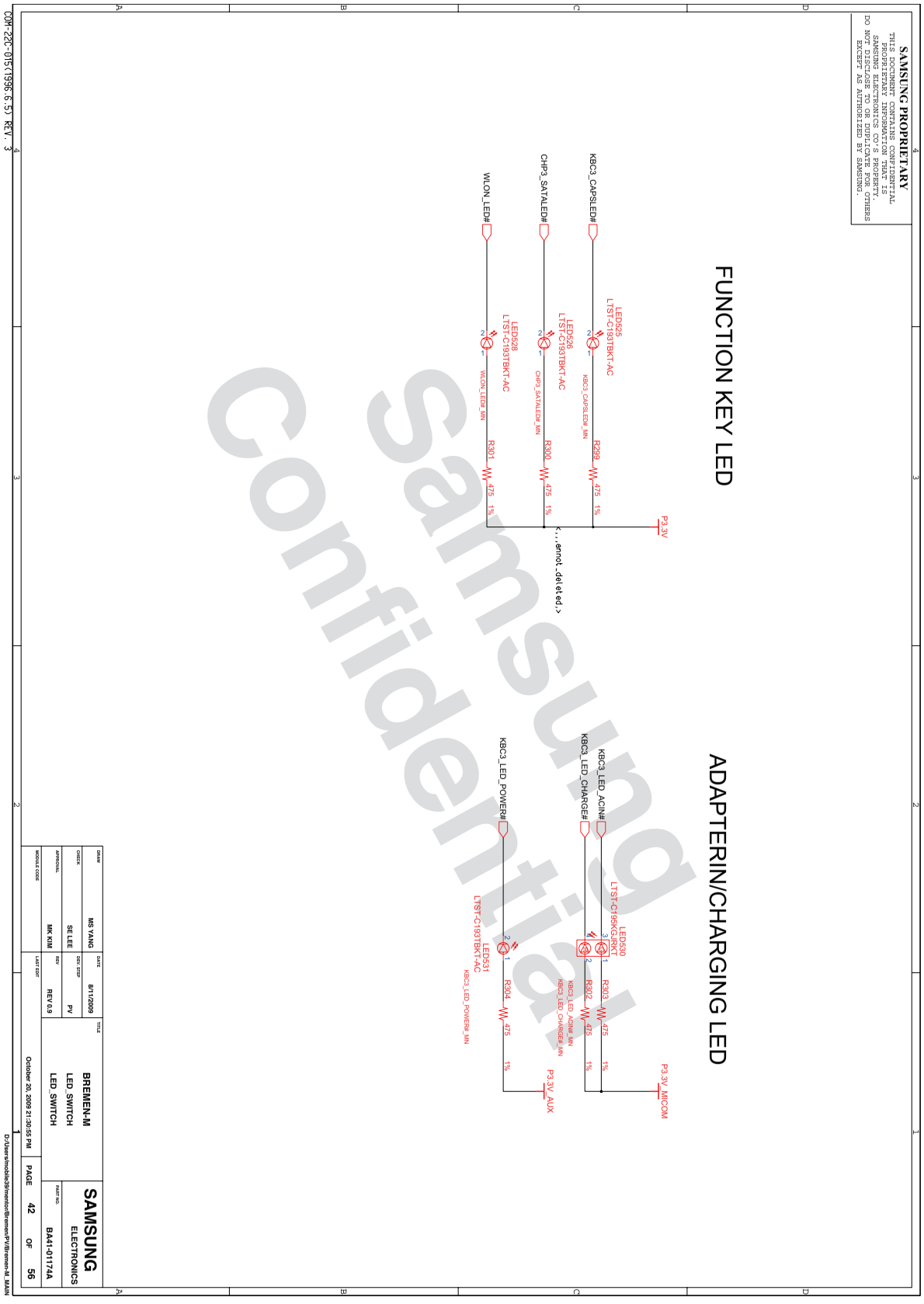
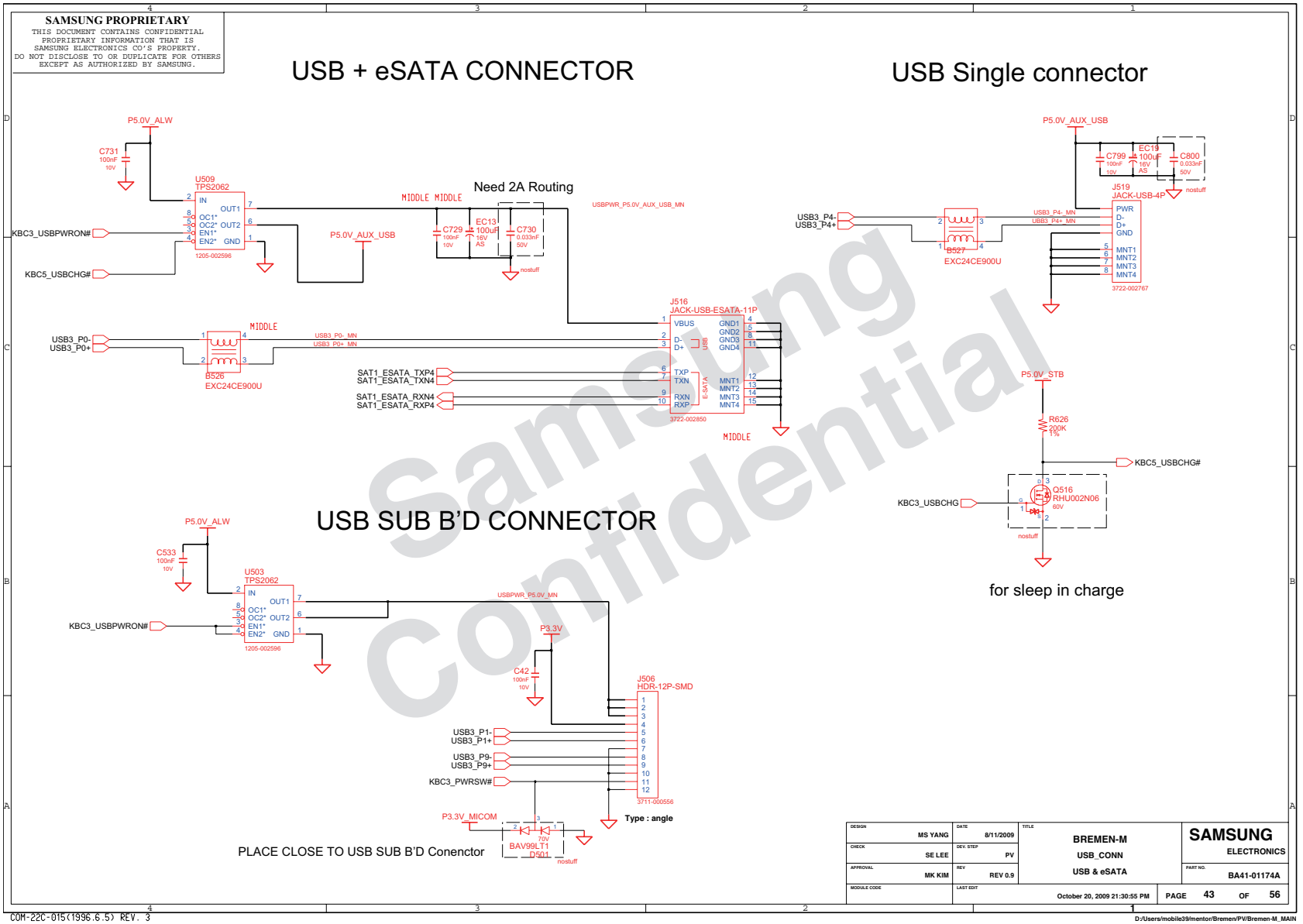
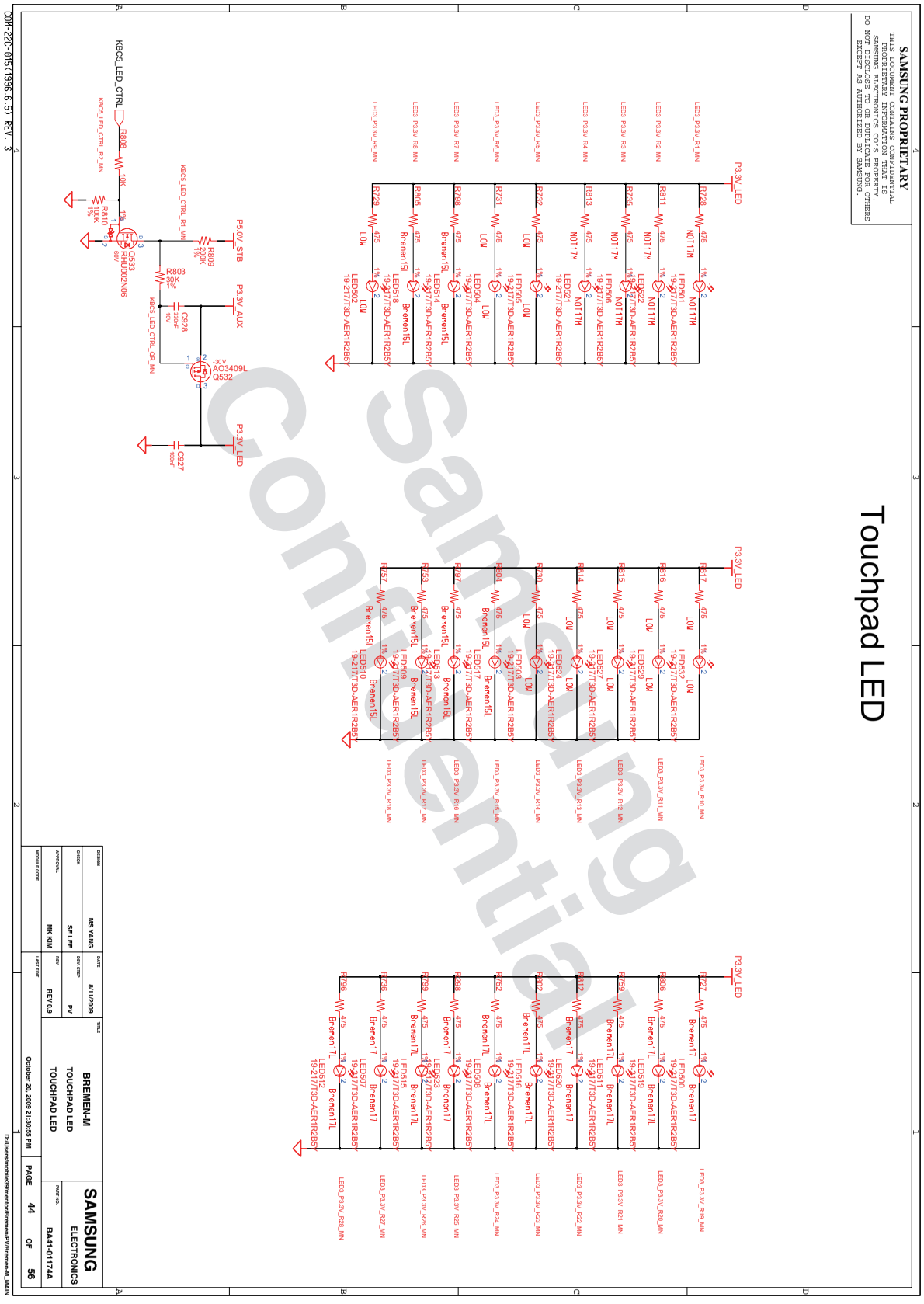
8. Block Diagram and Schematic



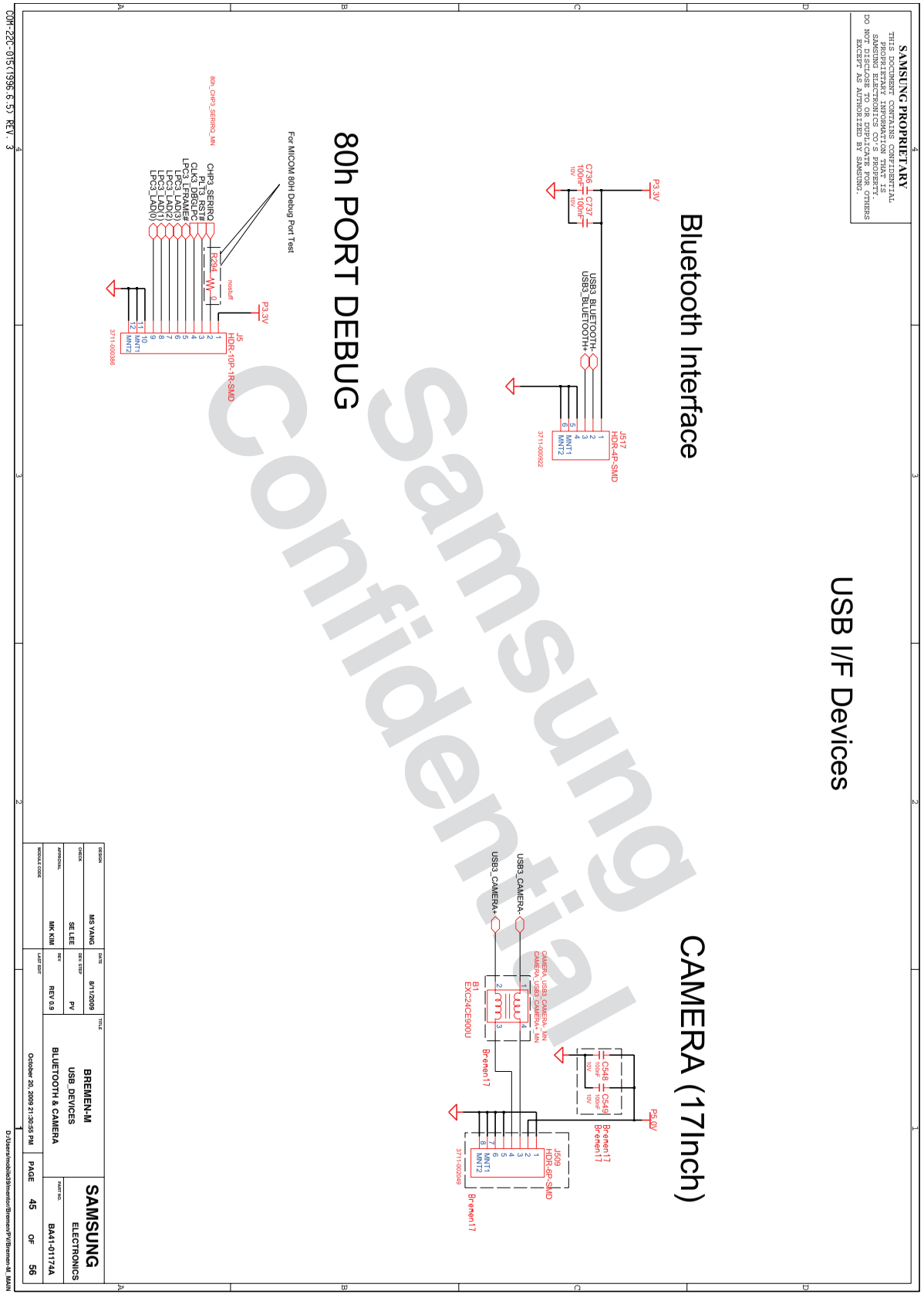
8. Block Diagram and Schematic



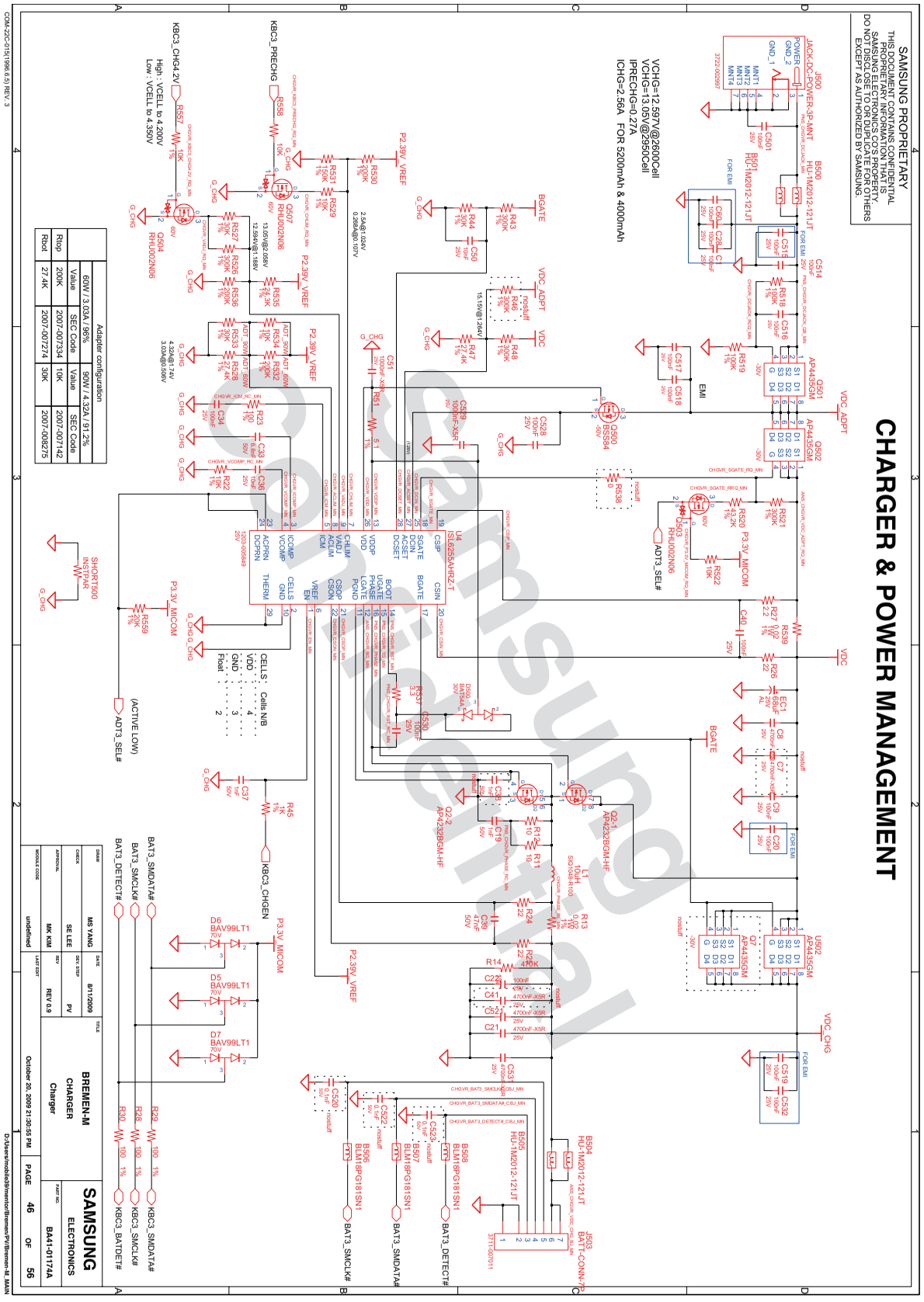
8. Block Diagram and Schematic



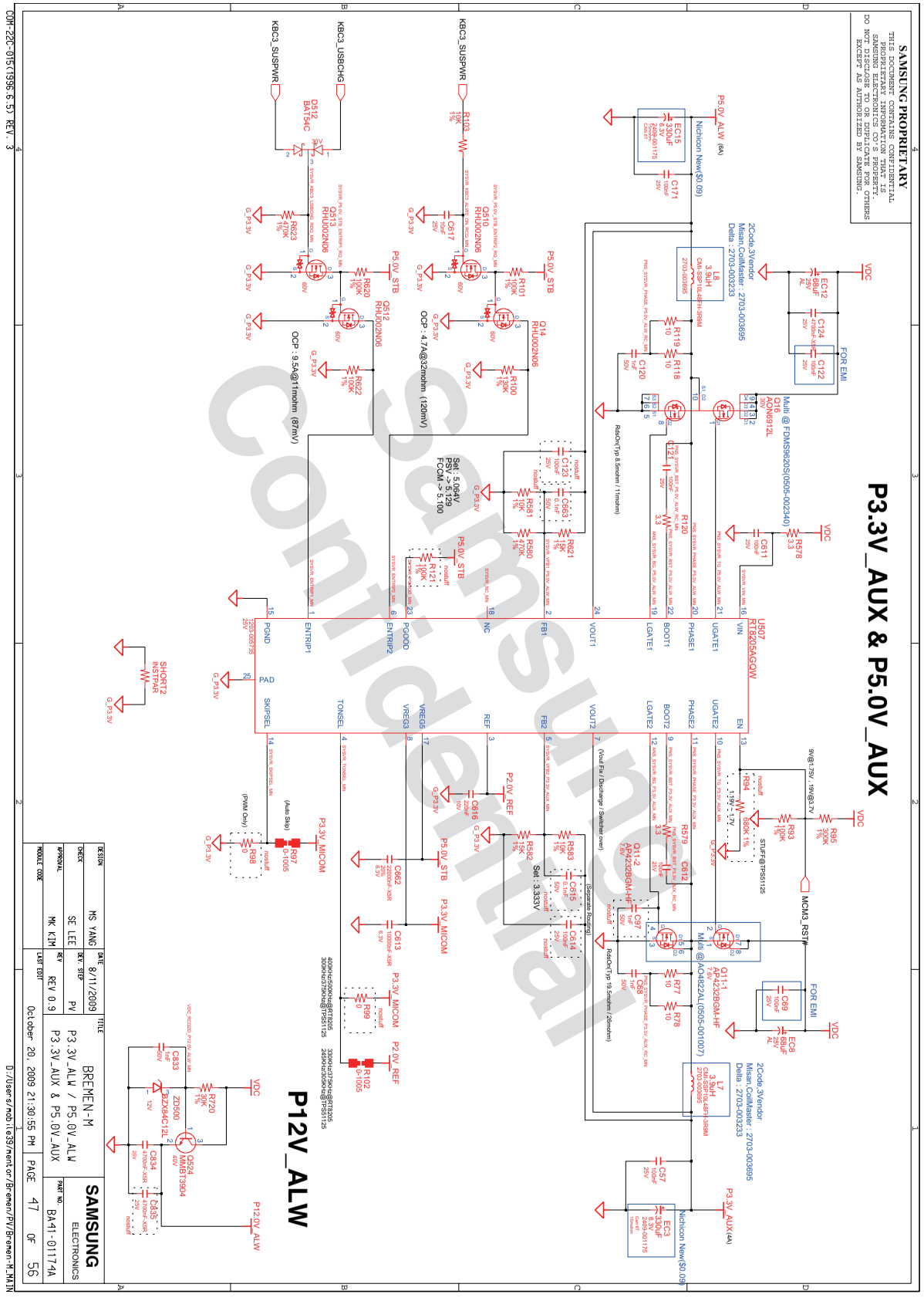
8. Block Diagram and Schematic



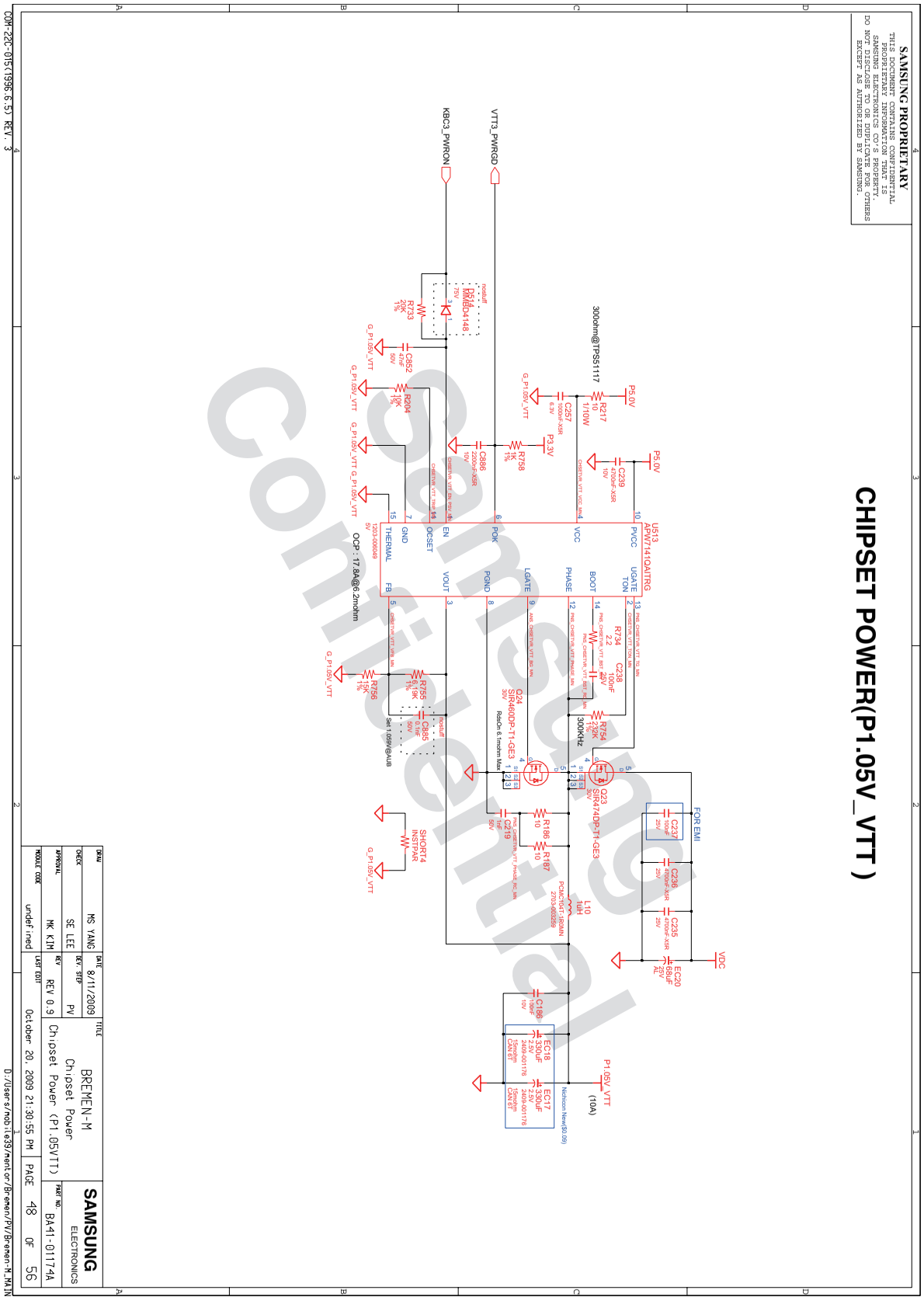
8. Block Diagram and Schematic



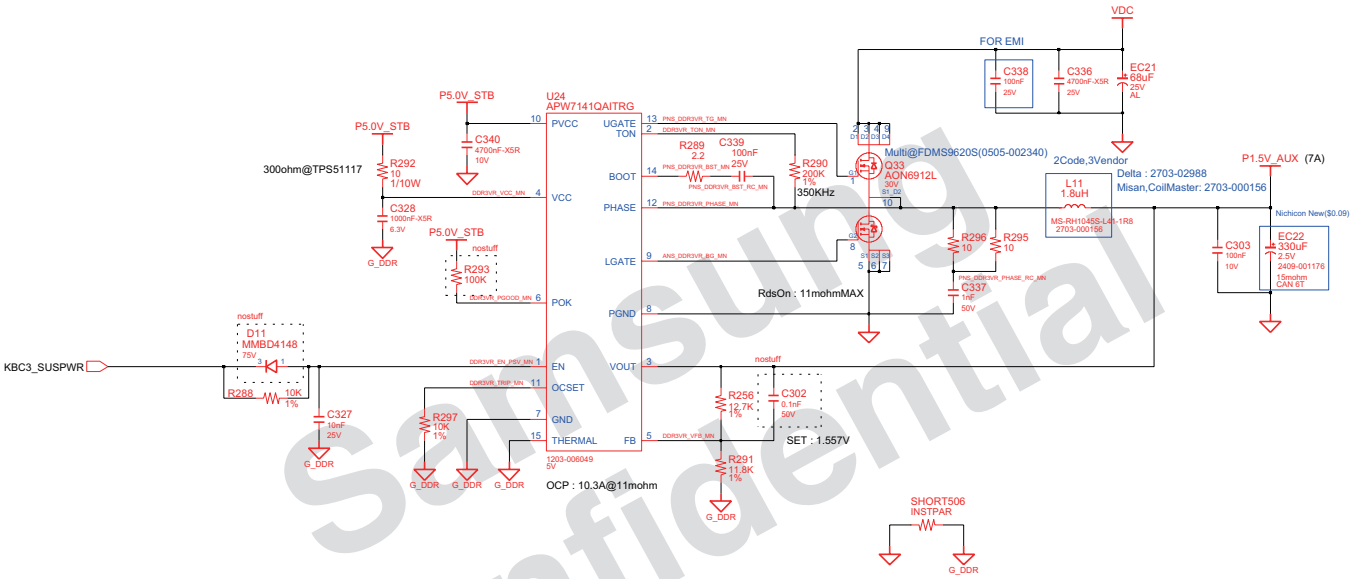
8. Block Diagram and Schematic



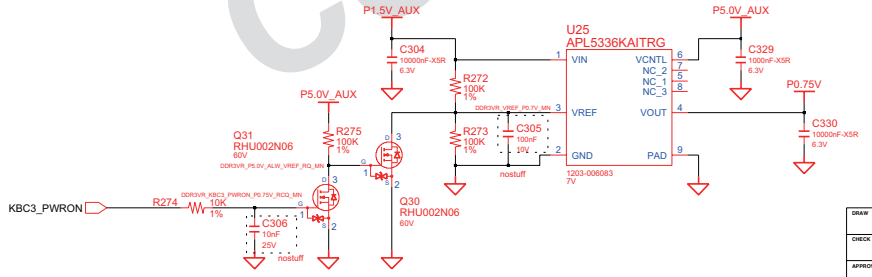
8. Block Diagram and Schematic



DDR3 Power



DDR3 VTT(0.75V)



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

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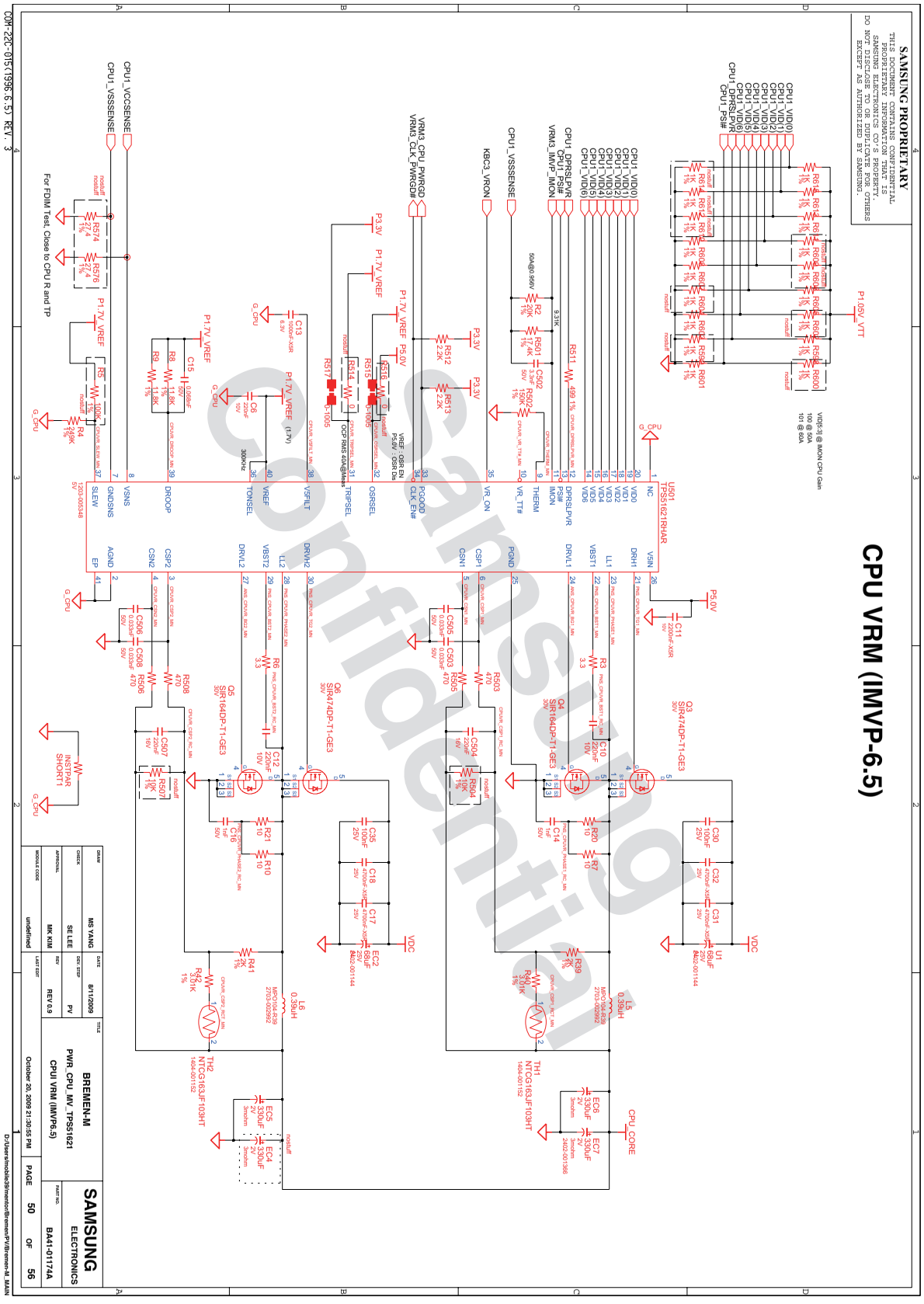
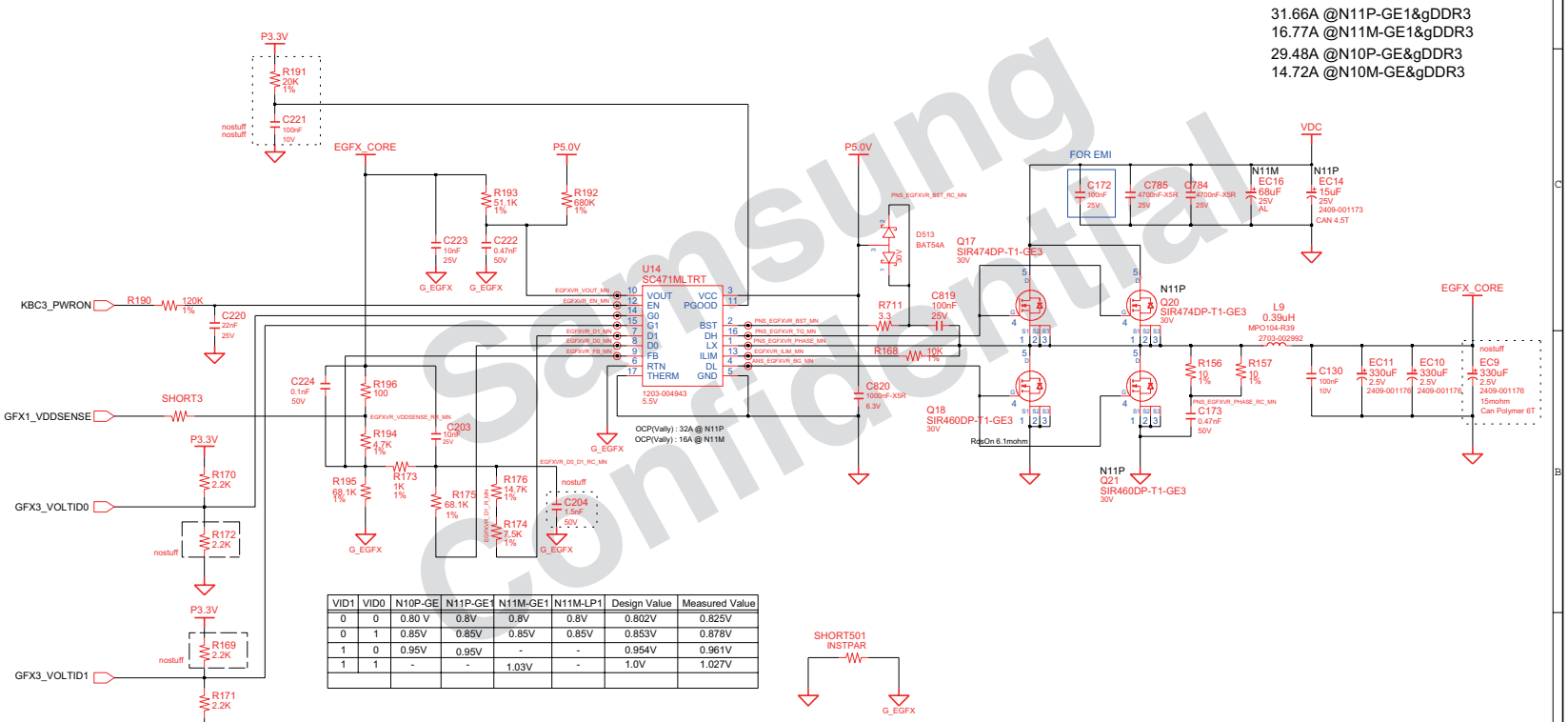
8. Block Diagram and Schematic



External Graphic Core Power



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

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

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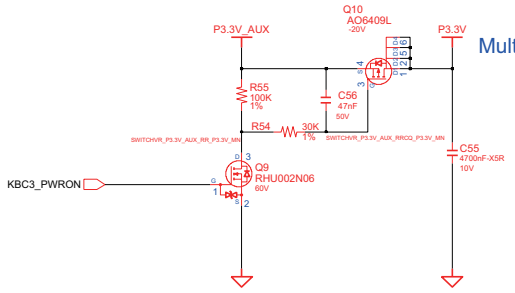
8. Block Diagram and Schematic

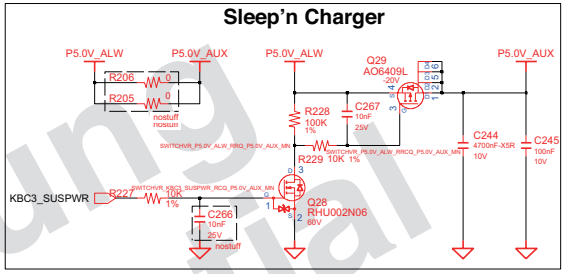
Switched Power

Switched Power On (P3.3V)

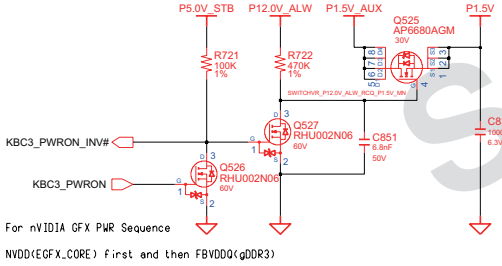


Multi@AP2607GY,Si3433BDV

Sleep'n Charger

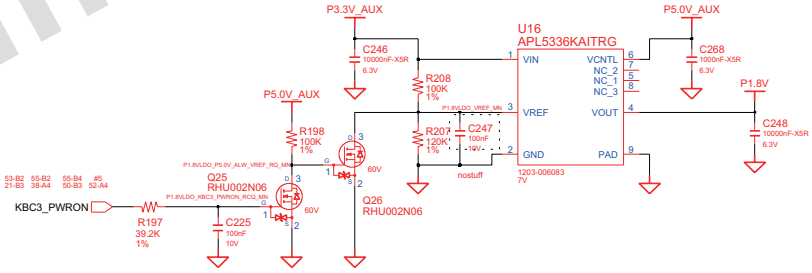


Switched Power On (P1.5V)



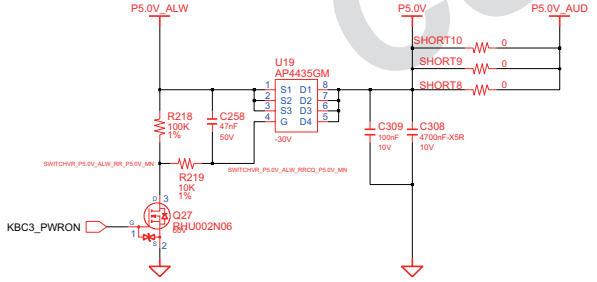
Multi@AP6680BGM,AO4476L

P1.8V(LDO)



Switched Power On (P5.0V)

Multi@Si443DDY



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

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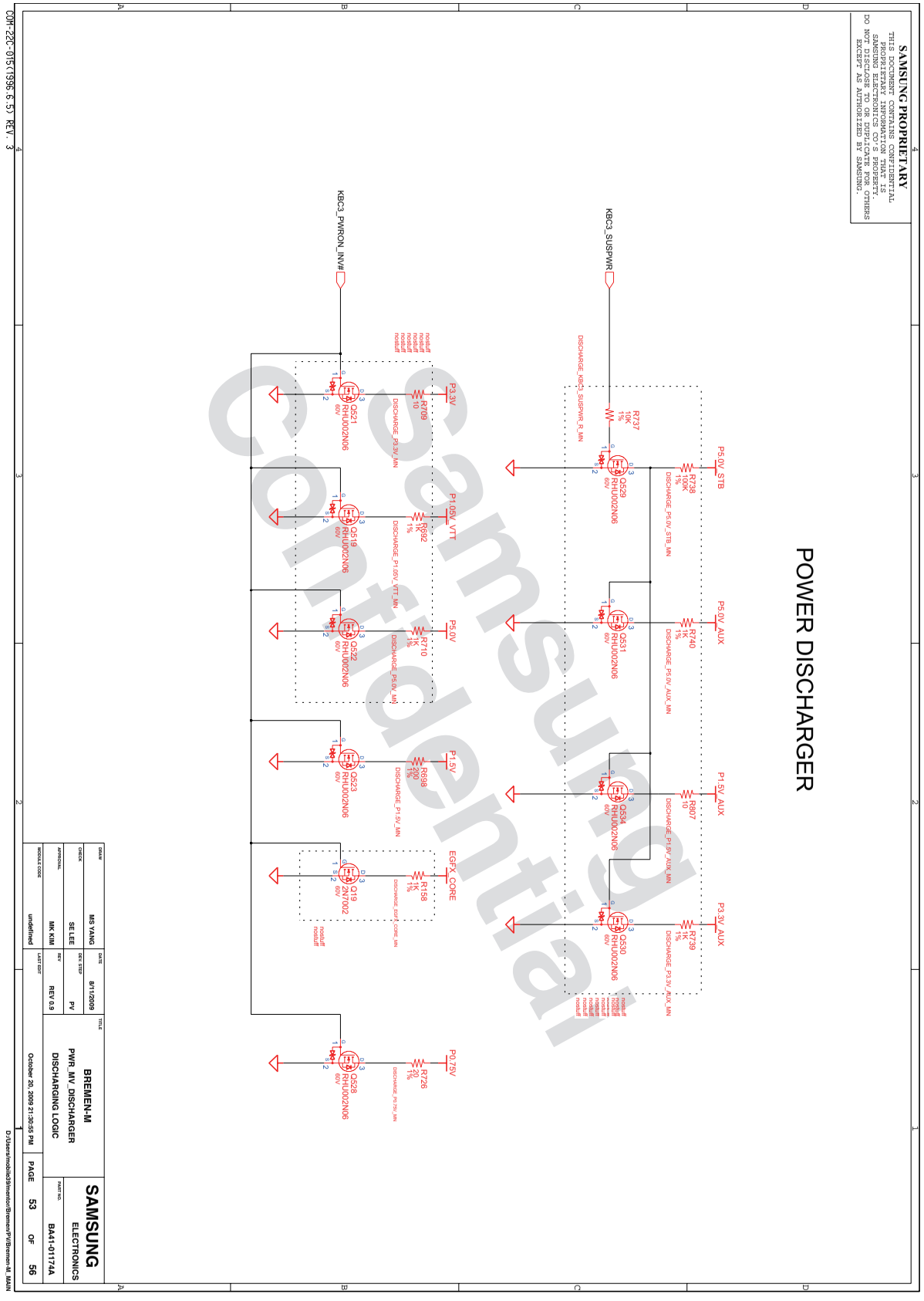
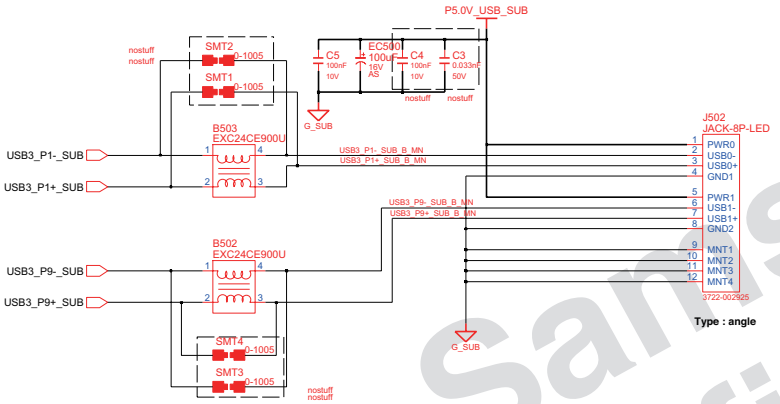
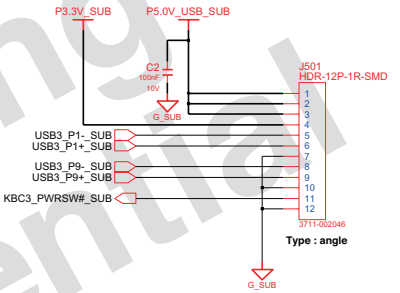
8. Block Diagram and Schematic



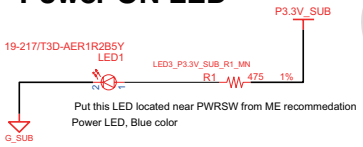
2 USB PORT & POWER S/W SUB B'D



SUB TO MAIN USB CONN

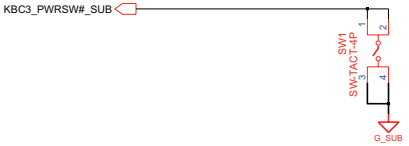


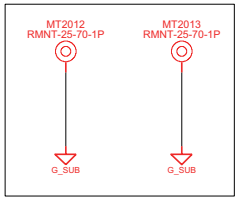
Power ON LED



Put this LED located near PWRSW from ME recommedation
Power LED, Blue color

Power Button





USB sub board mount hole

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

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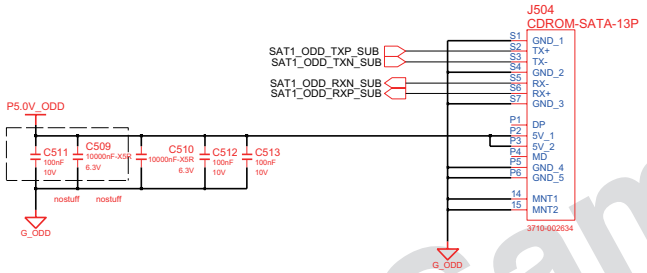
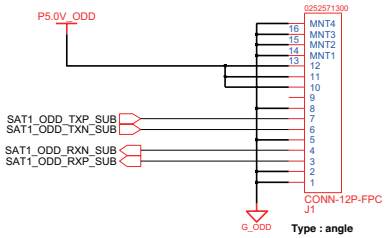
SATA ODD SUB BOARD

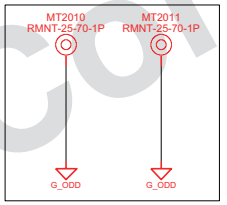
SATA ODD SUB BOARD

SATA ODD CONN



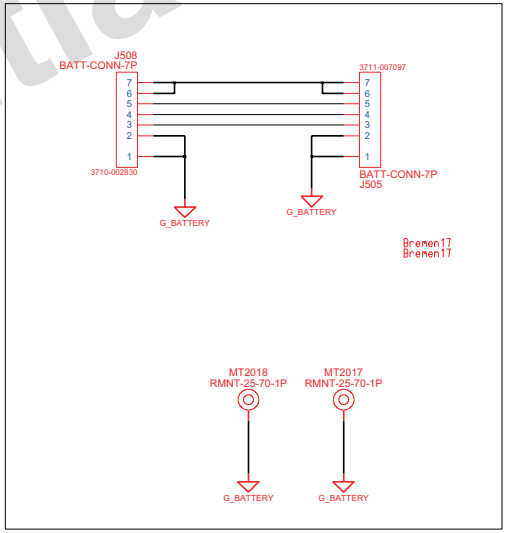
SUB TO MAIN SATA ODD CONN





ODD sub board mount hole

17" BATTERY SUBBOARD



DRAW: MS YANG	DATE: 8/11/2009	TITLE: BREMEN-M	SAMSUNG ELECTRONICS
CHECK: SE LEE	DEV. STEP: PV	SUB BOARD2	
APPROVAL: MK KIM	REV: REV 0.9	SATA ODD SUB BOARD	PART NO.: BA41-01174A
MODULE CODE: undefined	LAST EDIT: October 20, 2009 21:30:55 PM	PAGE 55 OF 56	

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8. Block Diagram and Schematic