

## 8. Block Diagram and Schematic

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# WINCHESTER2

CPU : INTEL DIAMONDVILLE  
 Chip Set : INTEL 945GSE  
 Remarks :

Model Name : WINCHESTER2 MAIN  
 PCB Part No : BA41-01056A (GCE)  
                   BA41-01057A (NY)  
                   BA41-01058A (HS)  
 Dev. Step : PR (WINCHESTER2)  
 Revision : 0.90  
 T.R. Date : 2009.03.02

DRAW	CHECK	APPROVAL

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ESTION	KIM_JUN	DATE	01/05/2009	TITLE	WINCHESTER2	PART NO.	SAMSUNG
DRG	PARK_RK	DESIGN	PR		MAIN	ELECTRONICS	
APPROVAL		DATE	0.90		COVER	BA41-01056A	
CHKM.	YB	DATE					
PRODUCT CODE		DATE					

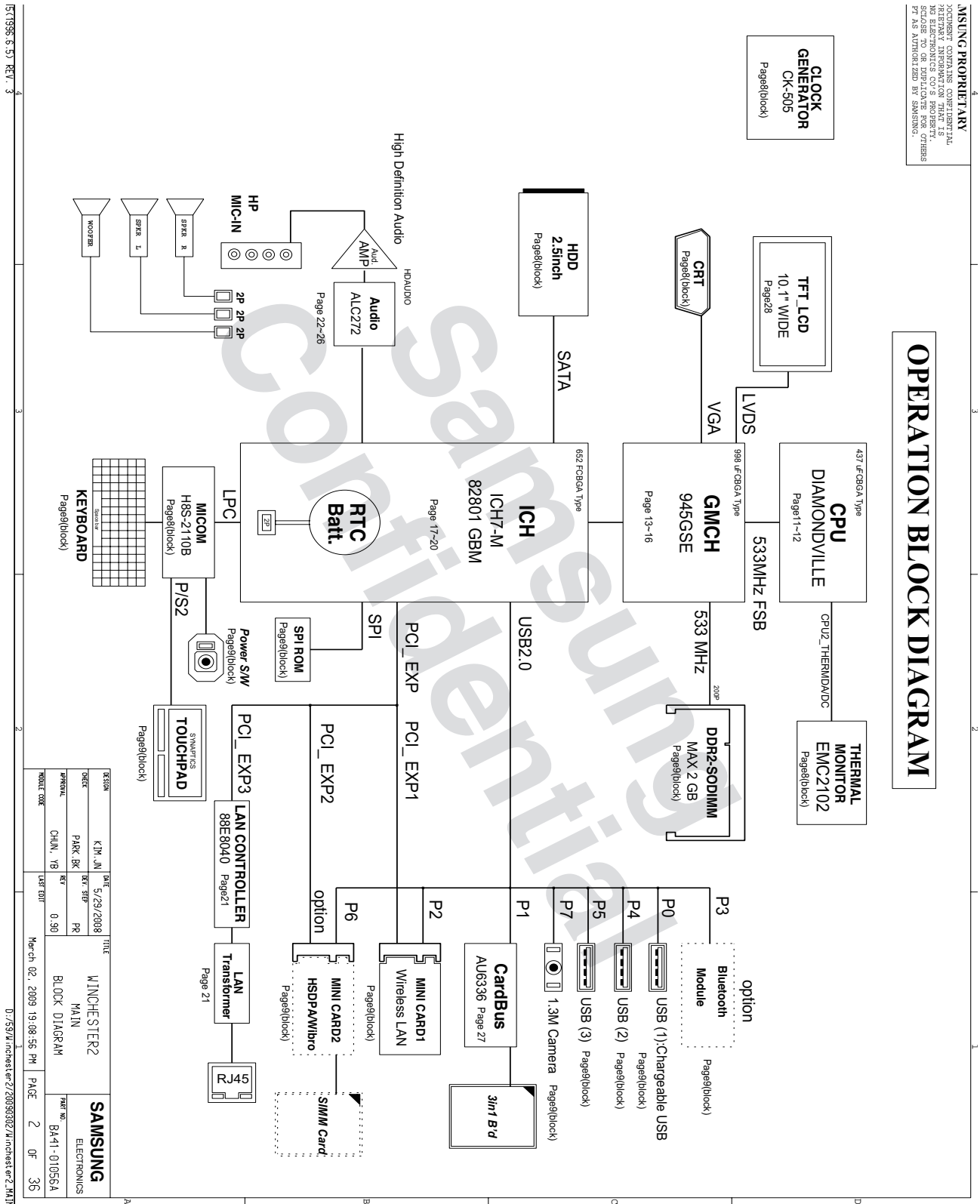
00H-22C-015X1995.6.51 REV. 3

2

0:759/A/index/er2/20809002/A/index/er2 MAIN  
 SRP Sheet Number.: 1 of 56

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### BOARD INFORMATION

#### CHEMATIC ANNOTATIONS AND BOARD INFORMATION

##### PCI Devices

Devices	IDSEL#	REGONTH#	Interrupts
USB HID to PCI AD224 (Internal) AD224 (Internal) Internal MAC	AD224 (Internal) AD224 (Internal) AD224 (Internal)		Programmable

##### PC / SMB Address

Devices	Address	Hex	Bus
IC8P7M1	Master		SMB's Master
GS3520M1 (Clock Generator)	1001 001X	D2h	Clock, Unused, Clock Output, Disable
Free Fall Sensor	0111 101X	7Ah	Thermal Sensor
FREE FALL SENSOR	TBD		

##### USB PORT Assign

Port Number	ASSIGNED TO	Port Number	ASSIGNED TO
UH0_0 1	USB PORT	UH0_2 4	USB PORT
UH0_1 2	WIRELESS LAN	UH0_3 5	USB PORT
UH0_1 3	BLUETOOTH	UH0_3 7	USB PORT CAMERA

##### PCI Express Assign

Port Number	ASSIGNED TO
1	Mini Card 1 (Wireless LAN)
2	Mini Card 2 (HSDPA/WiBro)
3	LAN

##### Voltage Rails

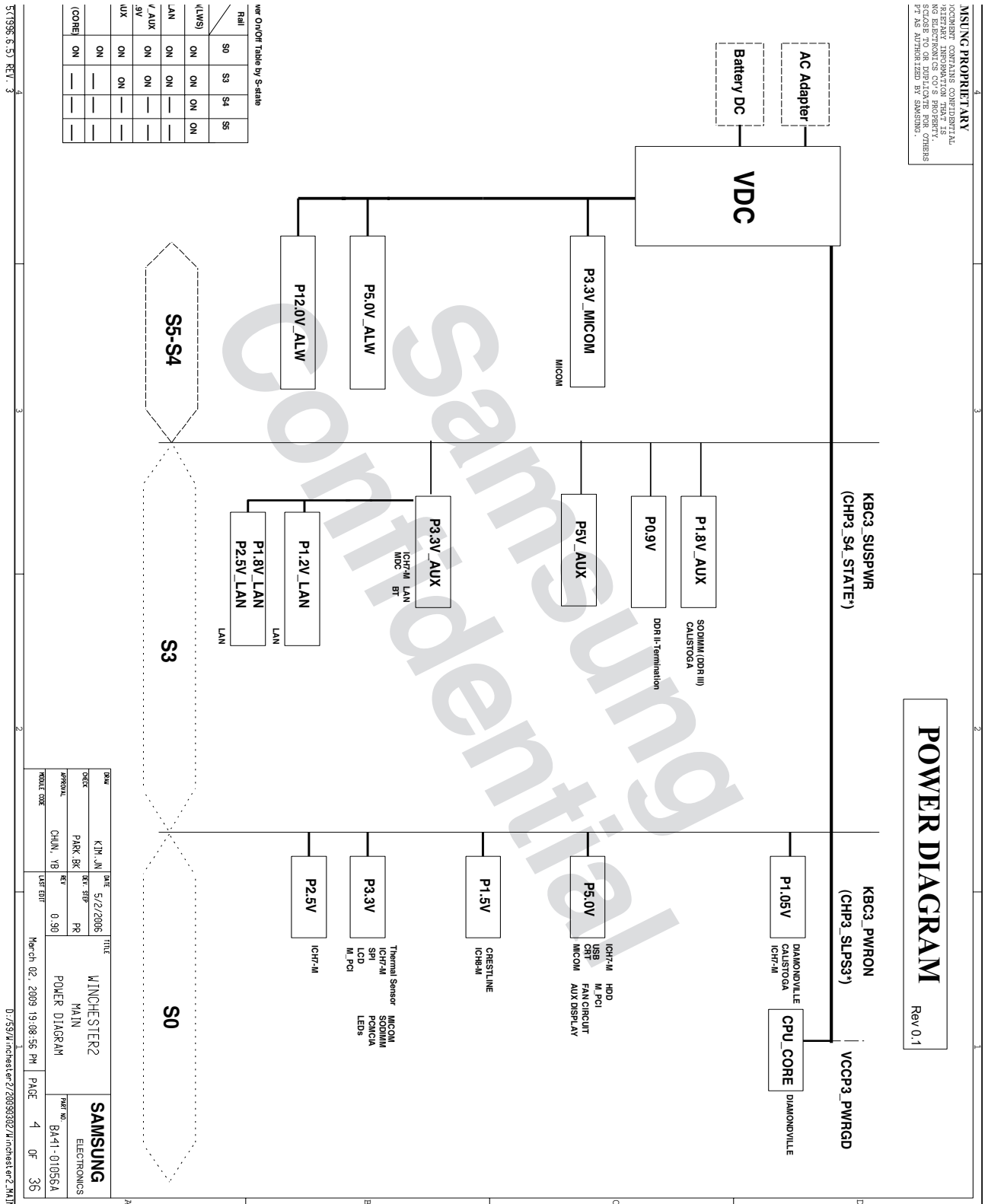
Power Rail	Descriptions
PRTC_BAT	3.3V (can drop to 2.0V min. in G3 state) supply for the RTC well.
VCC	Primary DC system power supply (9 to 1.8V).
P1_0V_VCCP	VTT for CPU, Cache, SRAM & ICH-AT
P1_0V_VCCM	VTT for CPU, Cache, SRAM & ICH-AT
P1_0V_VCCM	1.5V switched power rail (off in S3-S5)
P1_0V_AUX	1.5V power rail for DDR (off in S4-S5)
P1_0V_AUX	5.0V power rail (off in S4-S5)
P1_0V_AUX	5.0V power rail (off in S4-S5)
P1_0V_AUX	3.3V power rail (off in S4-S5)
P1_0V_AUX	5.0V switched power rail (off in S3-S5)
P1_0V_AUX	5.0V switched power rail (off in S3-S5)
P1_0V_AUX	Core voltage for Atom CPU
P1_0V_AUX	5.0V always power rail

DRW	KIM, JIN	DATE	5/2/2006	TITLE	WINCHESTER2 MAIN
CKEY	PARK, EK	PR		BOARD INFORMATION	SAMSUNG ELECTRONICS
TRF0001	CHUN, YB	REV	0.90		BA41-01056A
TR0002_C00K	CHUN, YB	DATE	2009.02.20	TIME	19:08:56 PM
		PAGE	3	OF	36

5/19/06 6:53 REV. 3

D:\FS9\Winchester2\20090302\Winchester2\_MAIN

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Ver OVI/OVT Table by S-state

File	S0	S3	S4	S5
(LWS)	ON	ON	ON	ON
LAN	ON	ON	ON	ON
/_AUX	ON	ON	ON	ON
3V	ON	ON	ON	ON
5V	ON	ON	ON	ON
(CORE)	ON	ON	ON	ON

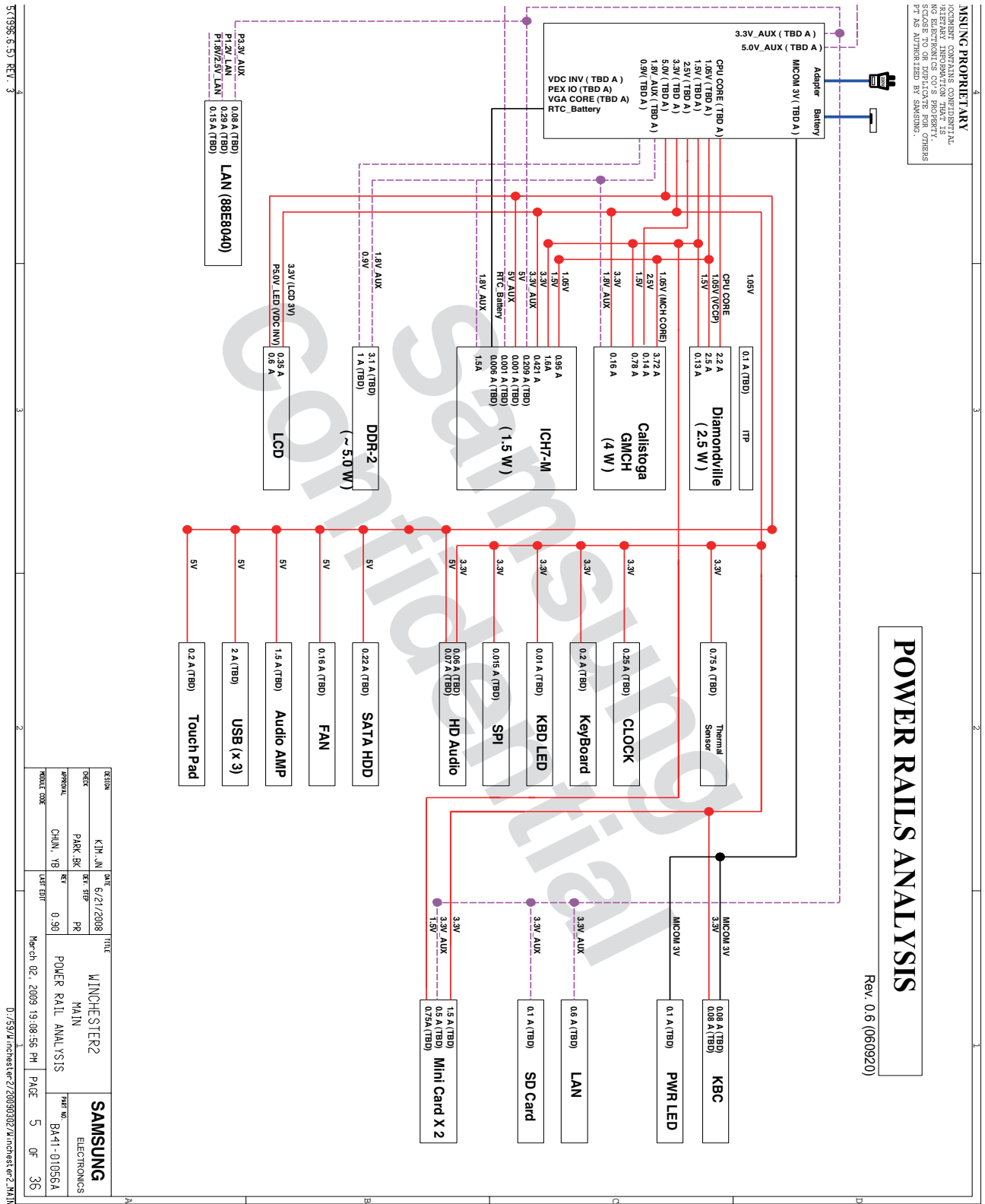
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5/2/2005	KIM, JIN	5/2/2005	1	MINCHESTER2 MAIN POWER DIAGRAM
	PARK, BK		PR	
	CHUN, YB		0.30	

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D:\759\MI\mchester\er2\20090302\MI\mchester\er2\_KIM\MI

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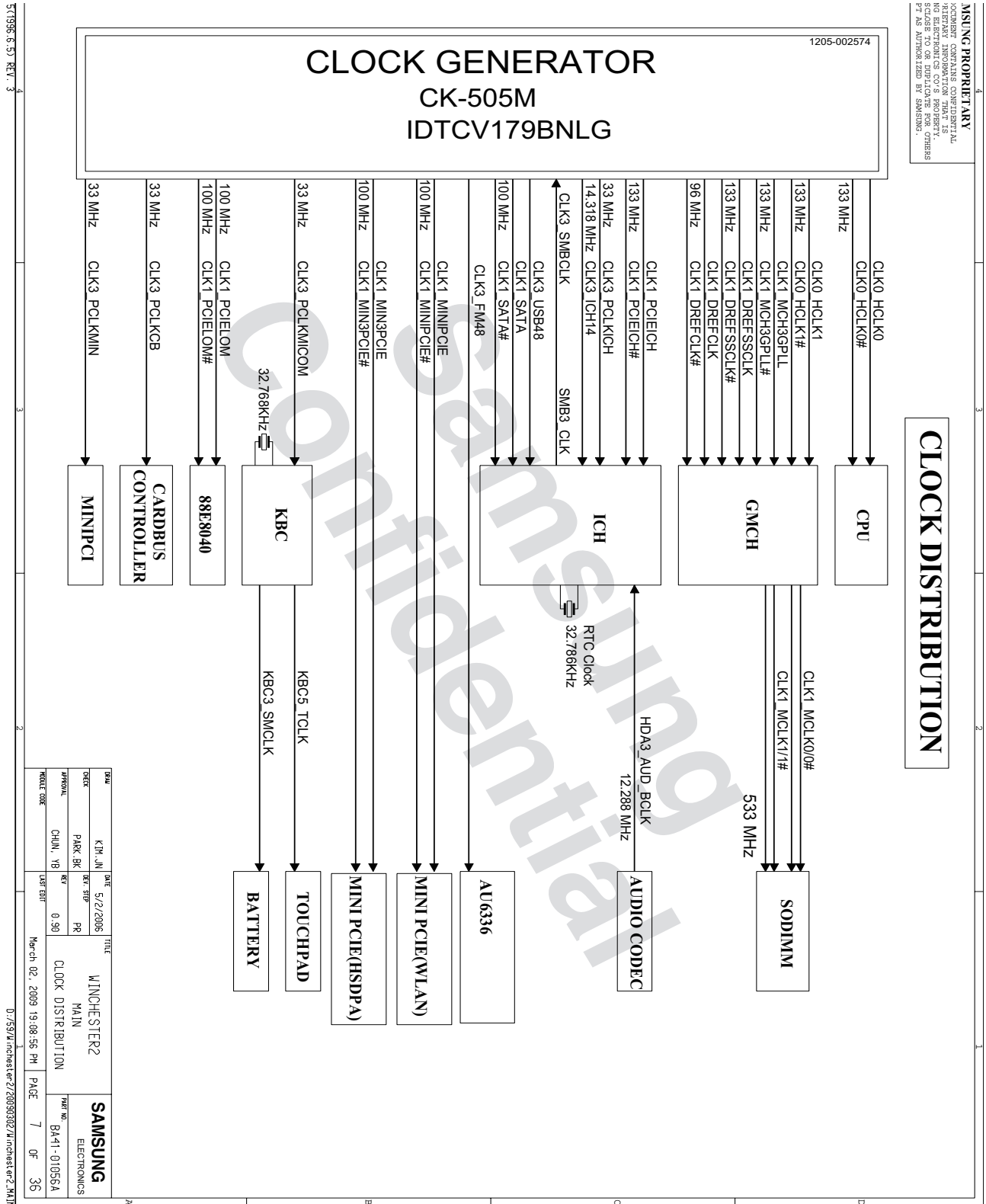
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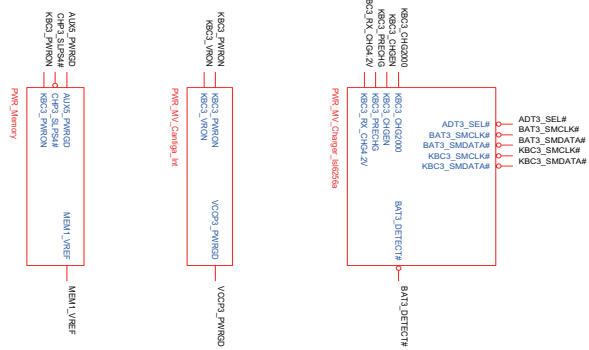




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571936:6.5) REV. 3

DESIGN	KIM, JIN	DATE	7/11/2008	TITLE	WINCHESTER2 MAIN POWER	PAGE NO.	BA41-01055A
DESIGNER	PARK, JIK	REV. SIB	PR			PAGE	10 OF 35
APPROVAL	CHUN, YB	REV	0.30				
DATE							

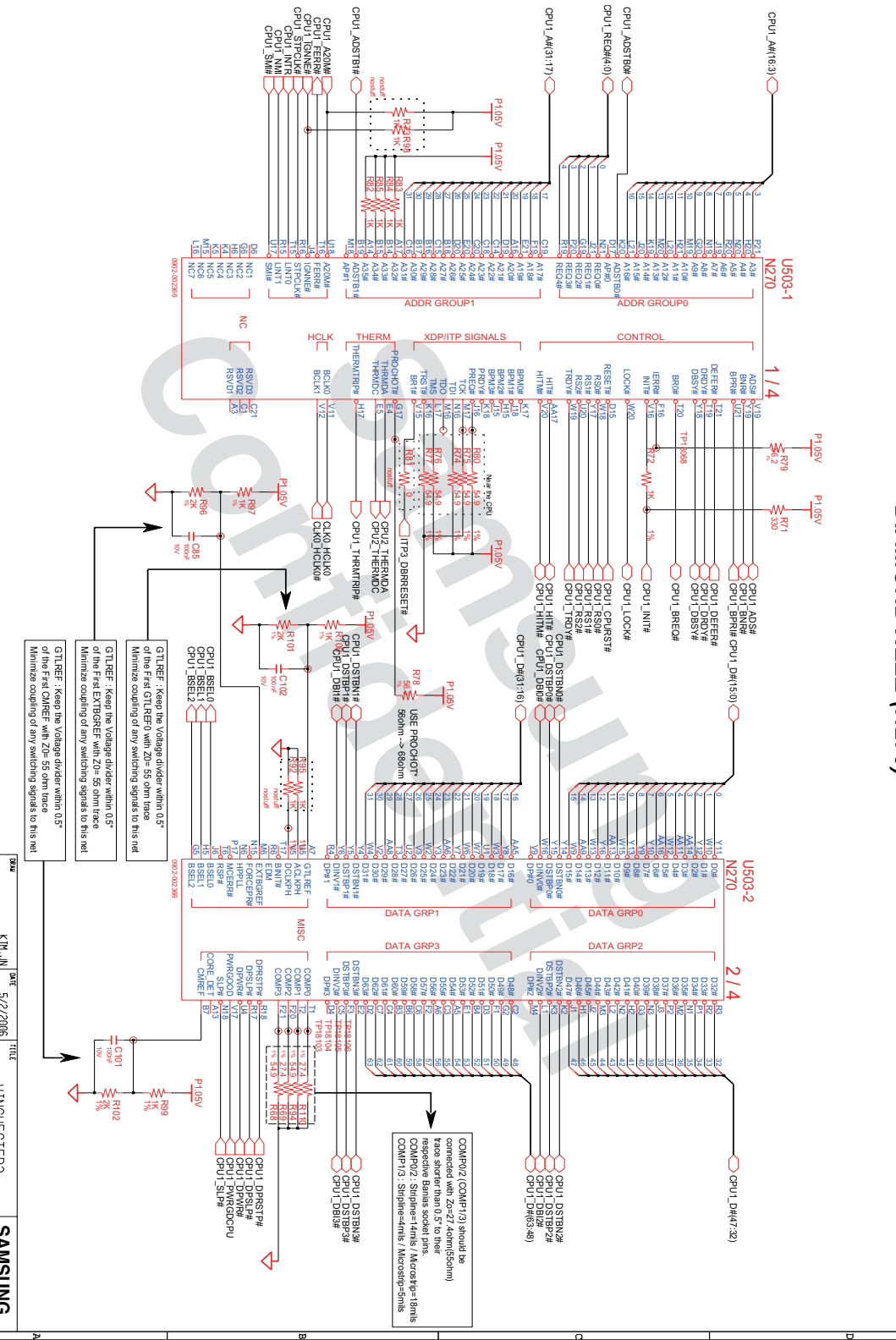
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### DIAMONDVILLE (N270)



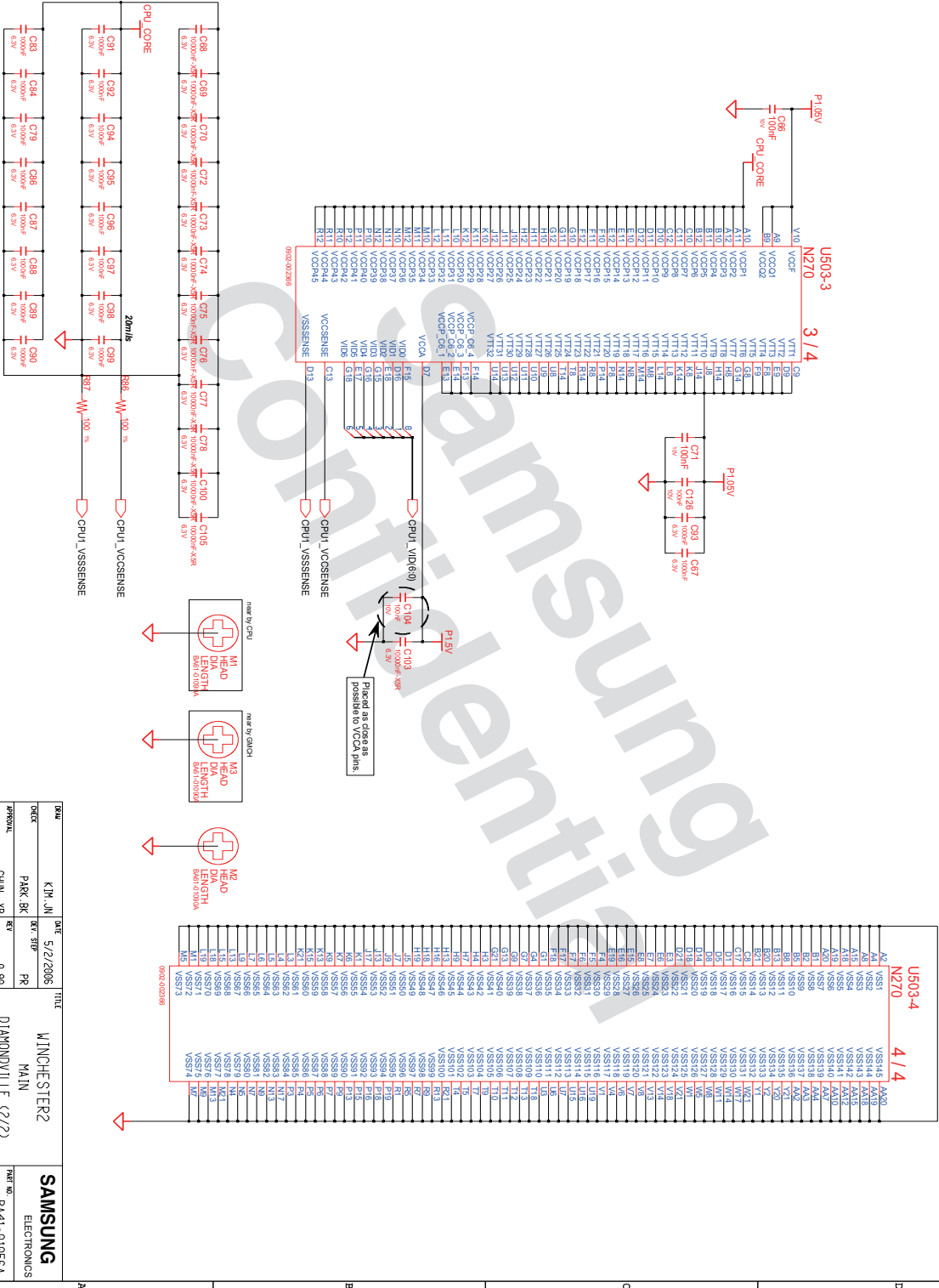
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 DESIGNED: CHUN\_VB, CHECKED: LSH\_EBH, DATE: March 02, 2009 19:08:56 PM, PAGE: 11 OF 36  
 D:\7591\winchester2\26090902\winchester2 MAIN

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### DIAMONDVILLE (N270)



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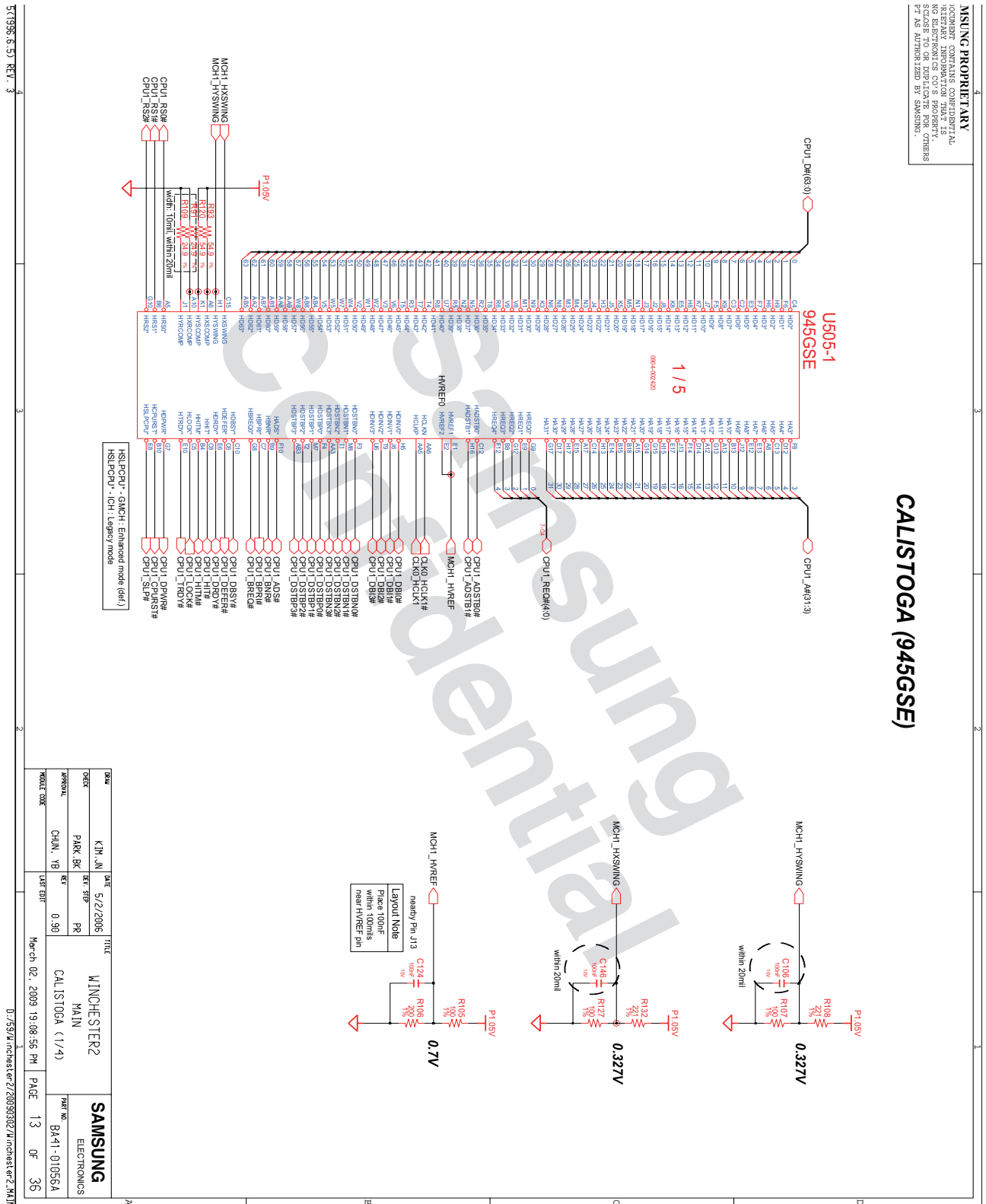
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002	REV. 01	MAIN	PARK, JIK
003	REV. 02	DIAMONDVILLE (2/2)	CHUN, YB

March 02, 2009 19:08:56 PM PAGE 12 OF 35

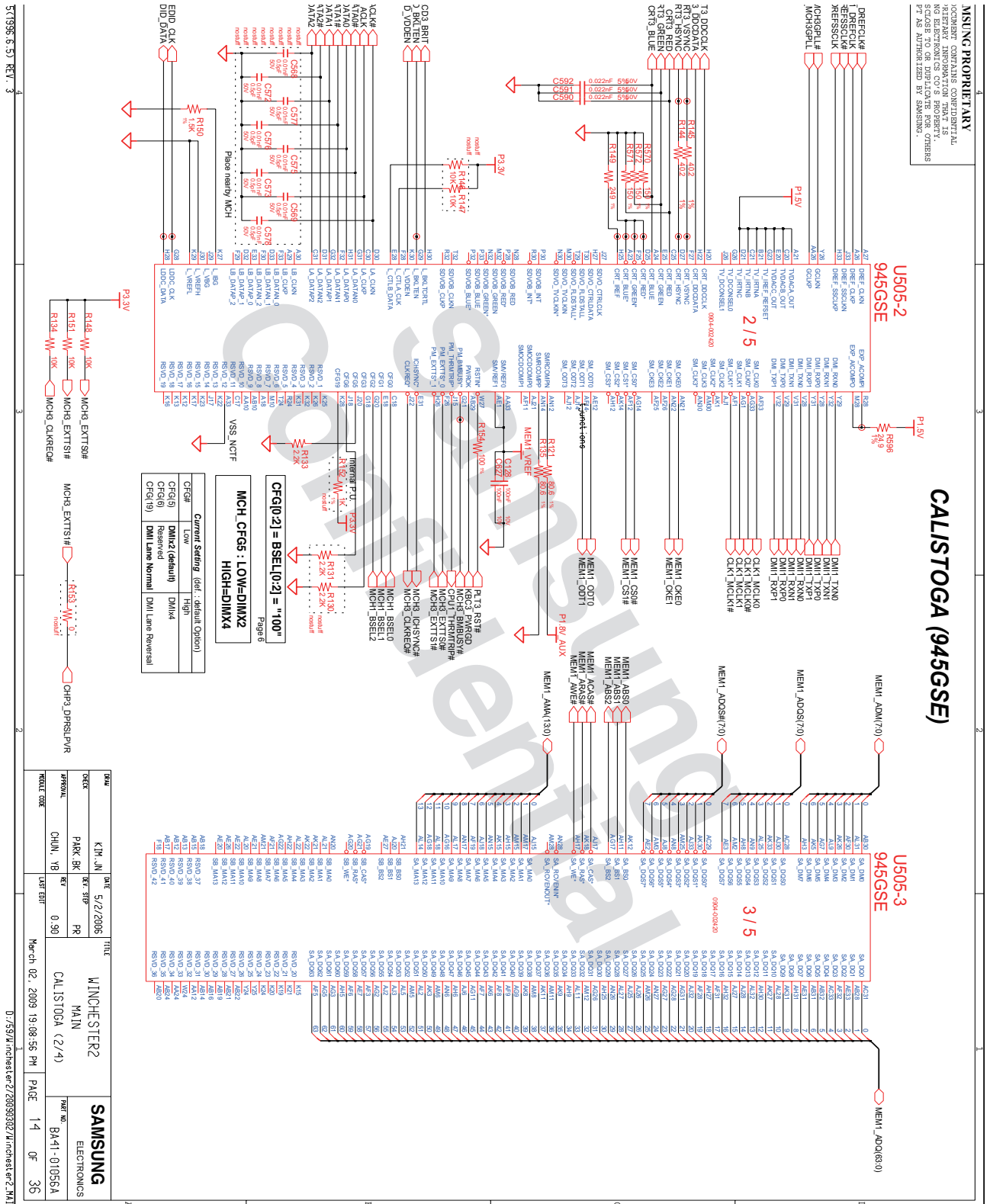
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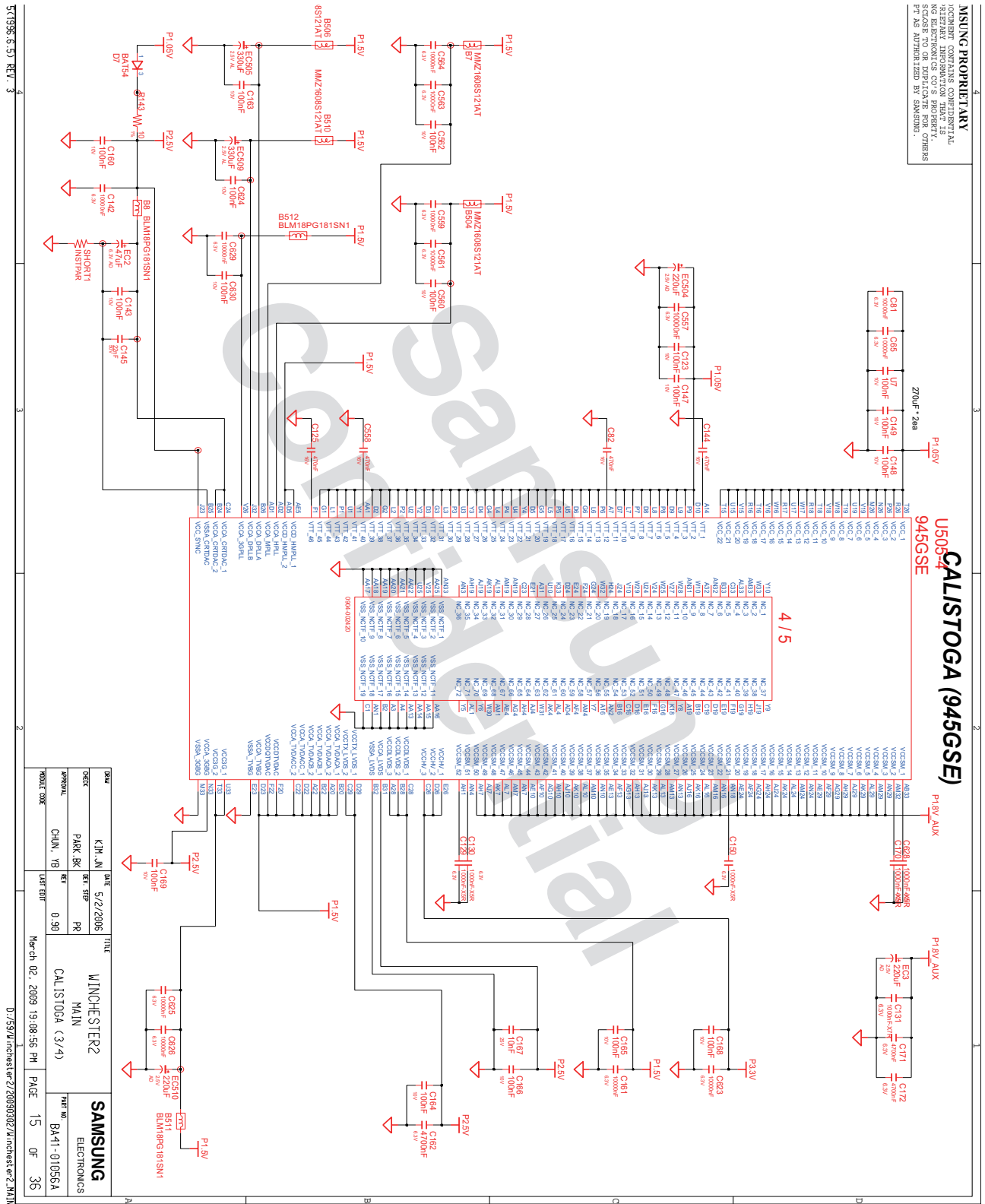
# 8. Block Diagram and Schematic



# 8. Block Diagram and Schematic

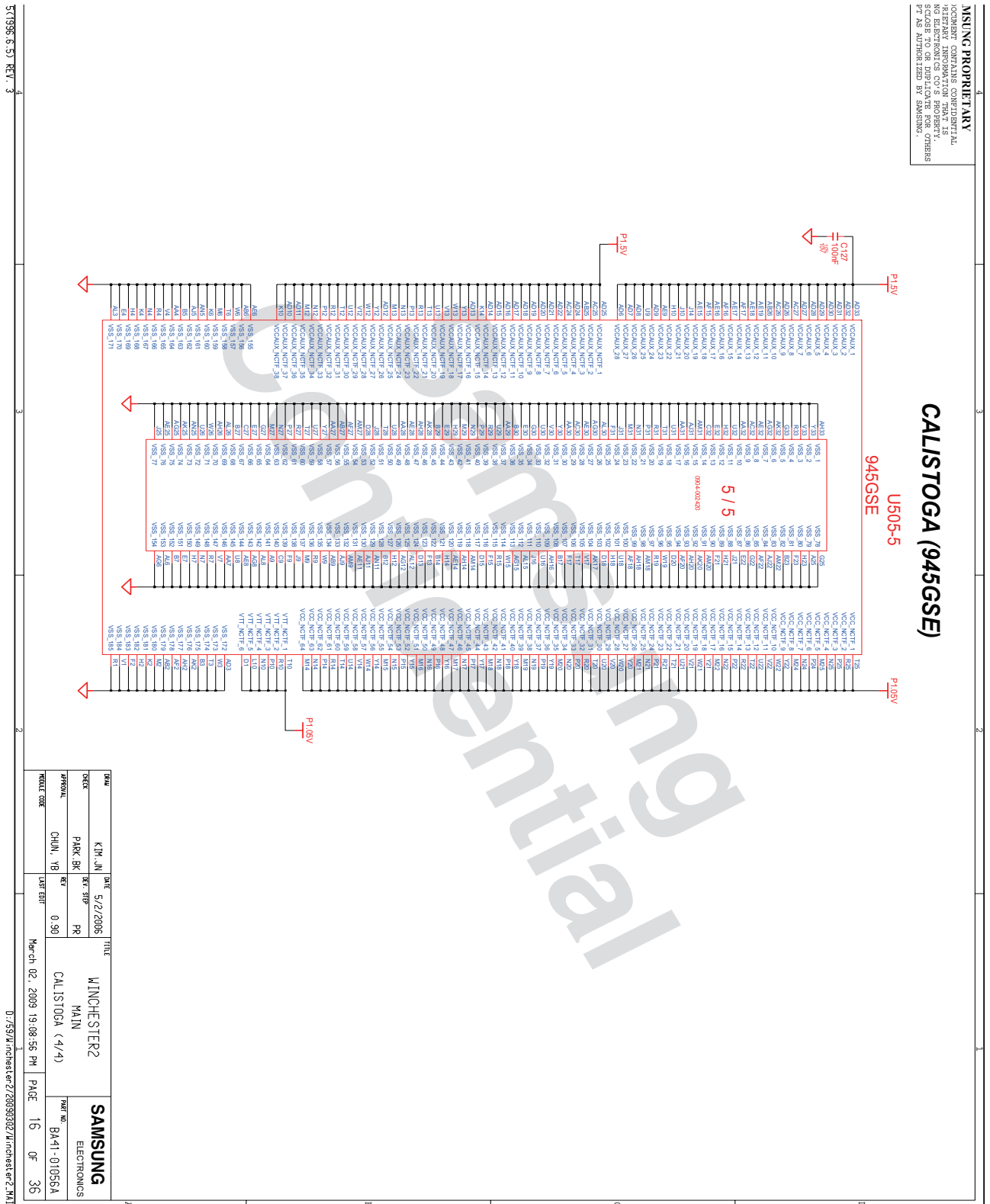


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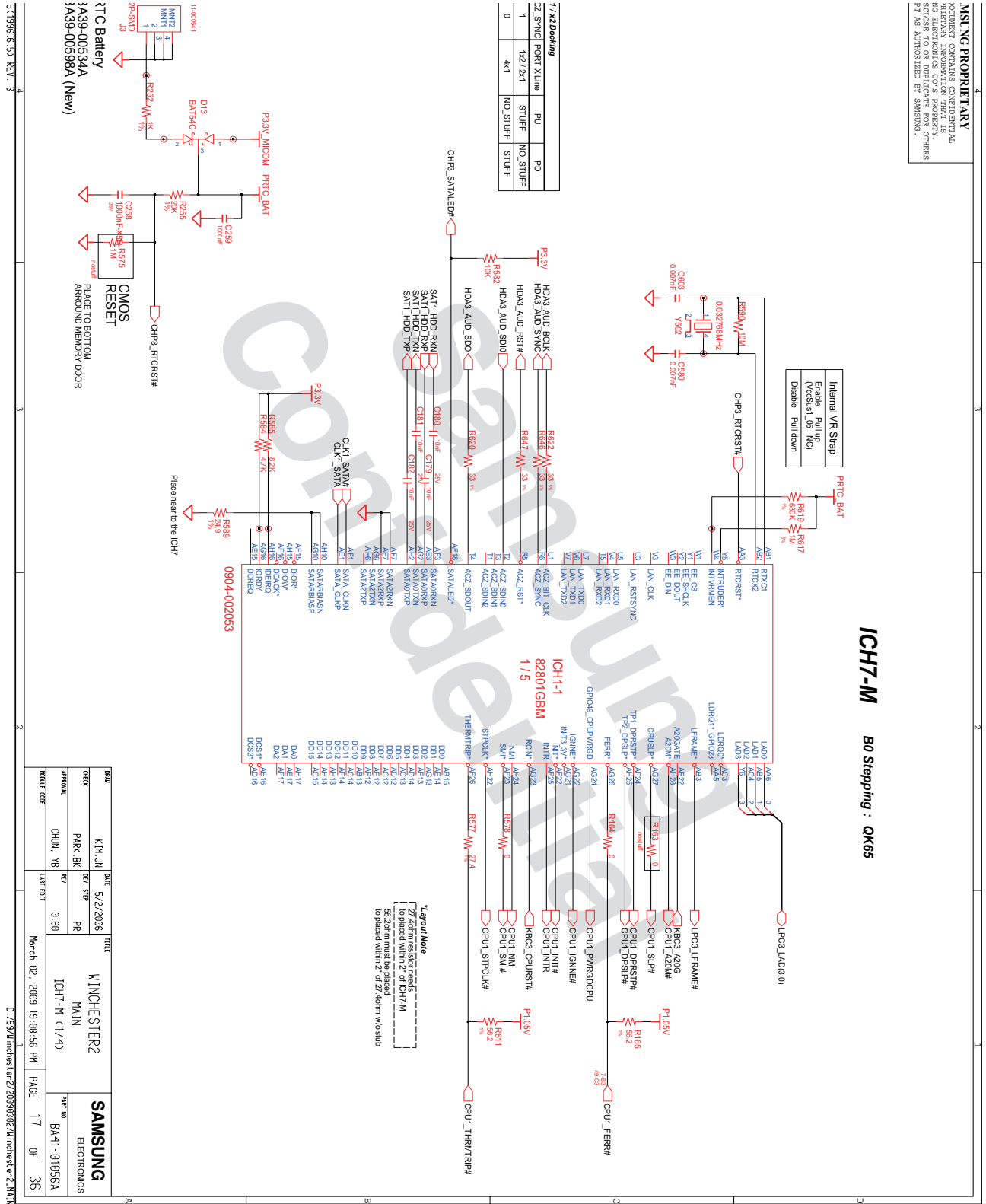




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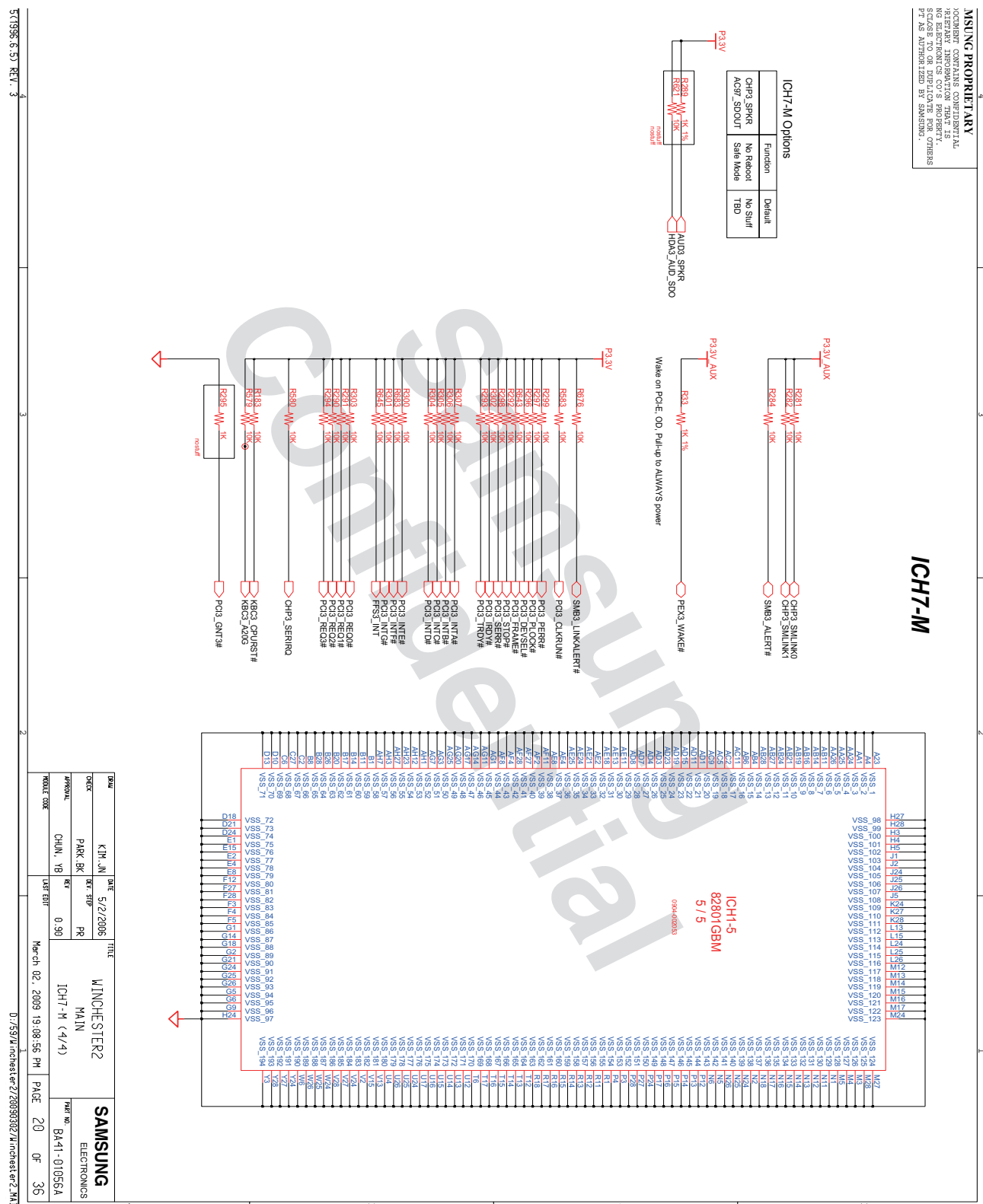






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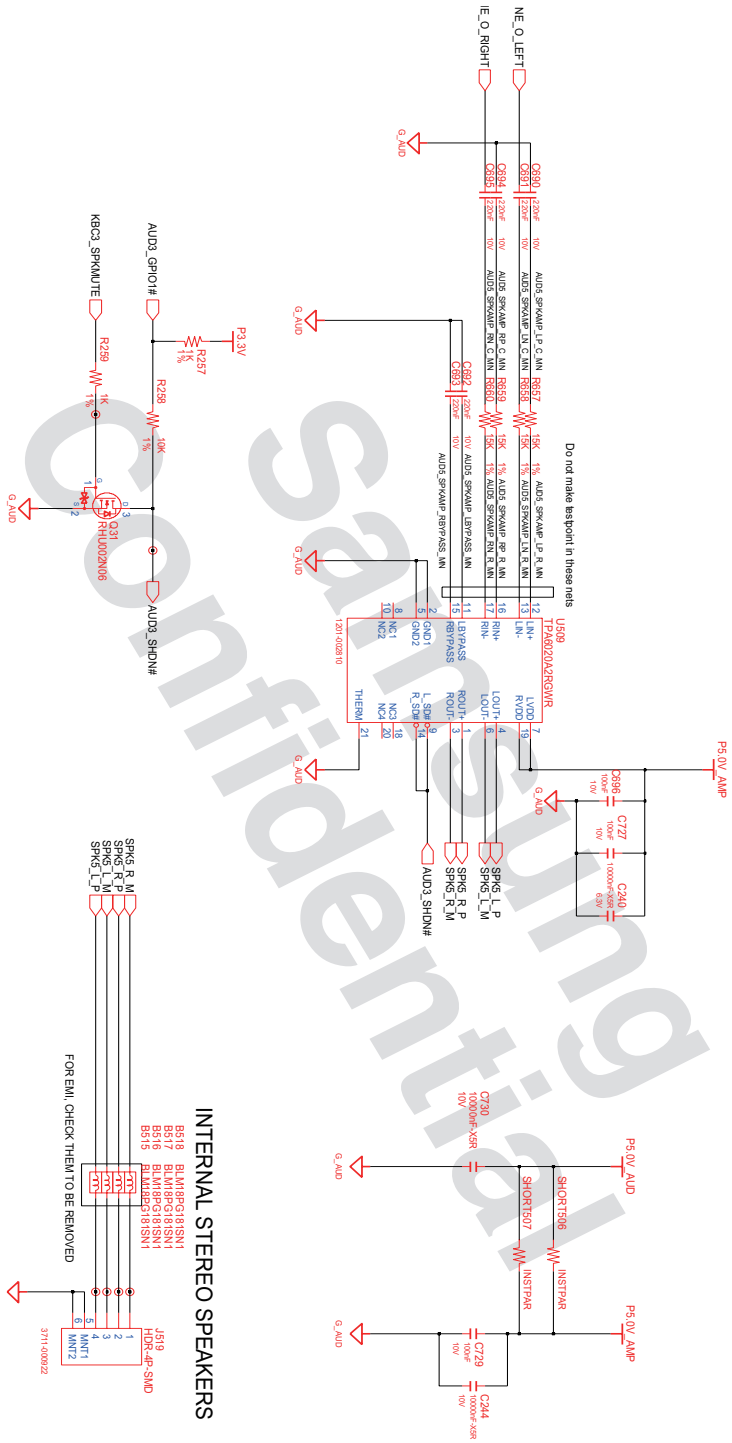


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### AUDIO AMP & SPEAKER

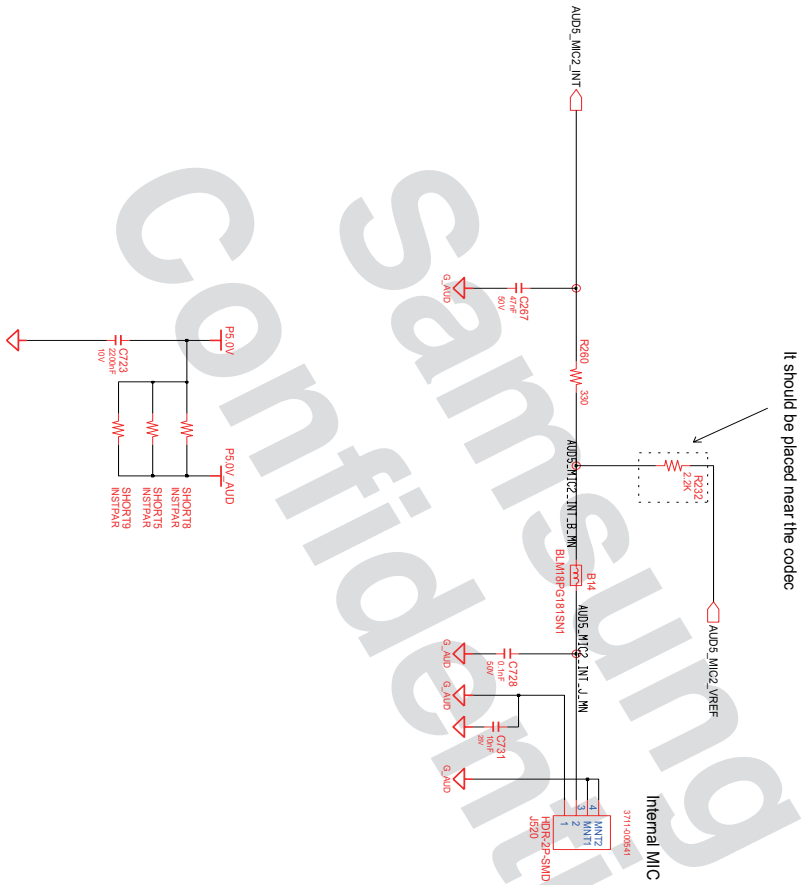


579995-6-53 REV. 3

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## INTERNAL MIC



579396 (6.5) REV. 3

DESIGN	KIM, JIN	DATE	1/5/2009	TITLE	WINCHESTER2	SAMSUNG
CHECK	PARK, JIK	REV. STEP	PR	MAIN	INTERNAL MIC	ELECTRONICS
APPROVAL	CHUN, YB	REV	0.30			PART NO. BA-41-01056A
EXCUTE DATE	DATE EDIT			March 02, 2009 19:08:58 PM	PAGE 24	OF 35

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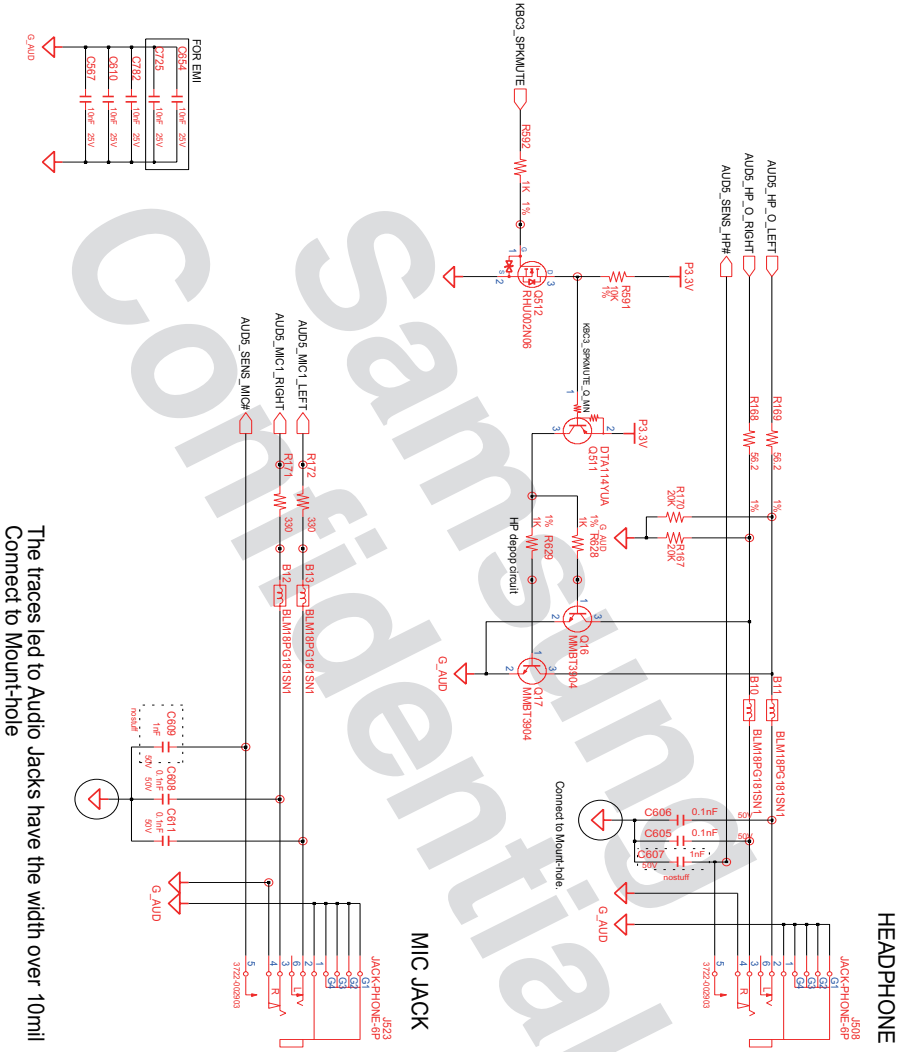


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### HEADPHON & MIC JACKS



579956.53 REV. 3

DESIGN	KIM, JUN	DATE	6/19/2008	TITLE	WINCHESTER2	SAMSUNG
CHECK	PARK, BIK	LEFT STR	PR	MAIN		ELECTRONICS
APPROVAL	CHUN, YB	REV	0.39	HEADPHONE & MIC JACKS		BA41-0105SA
TRAXEL CODE	LAB ENH			March 02, 2009 19:08:56 PM	PAGE 25	OF 36

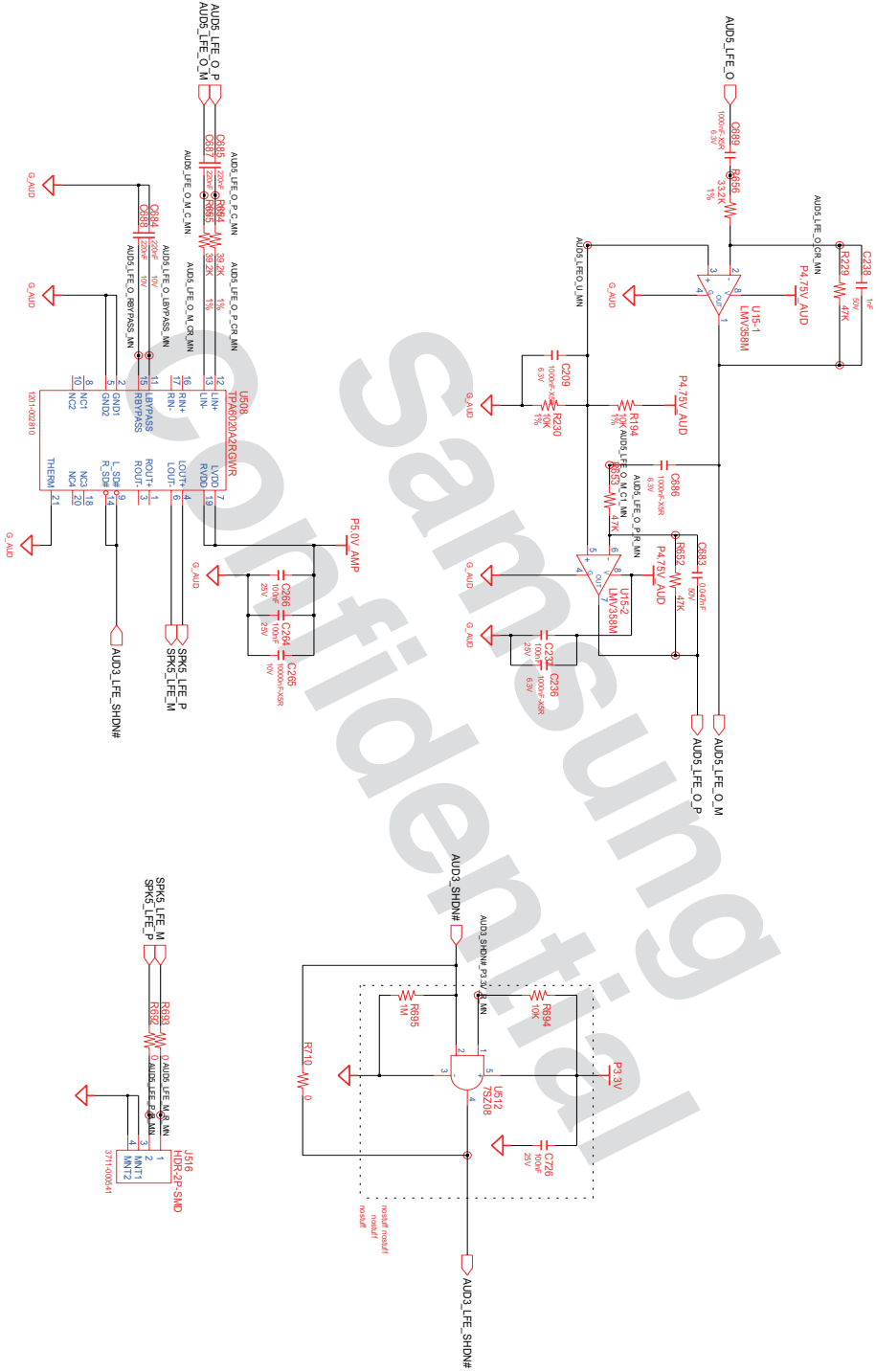
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## SUB-WOOFER



DESIGN	KIM_JN	DATE	6/19/2008	TITLE	WINCHESTER2	SAMSUNG
CHECK	PARK_BK	REV	STP	PR	MAIN	ELECTRONICS
APPROVAL	CHUN_VB	REV	0.30	SUB-WOOFER		PART NO. BA-41-01056A
BOARD BOX	DATE BOM	March 02, 2009 19:08:56 PM		PAGE	26	OF 36

5719396 (6.5) REV. 3

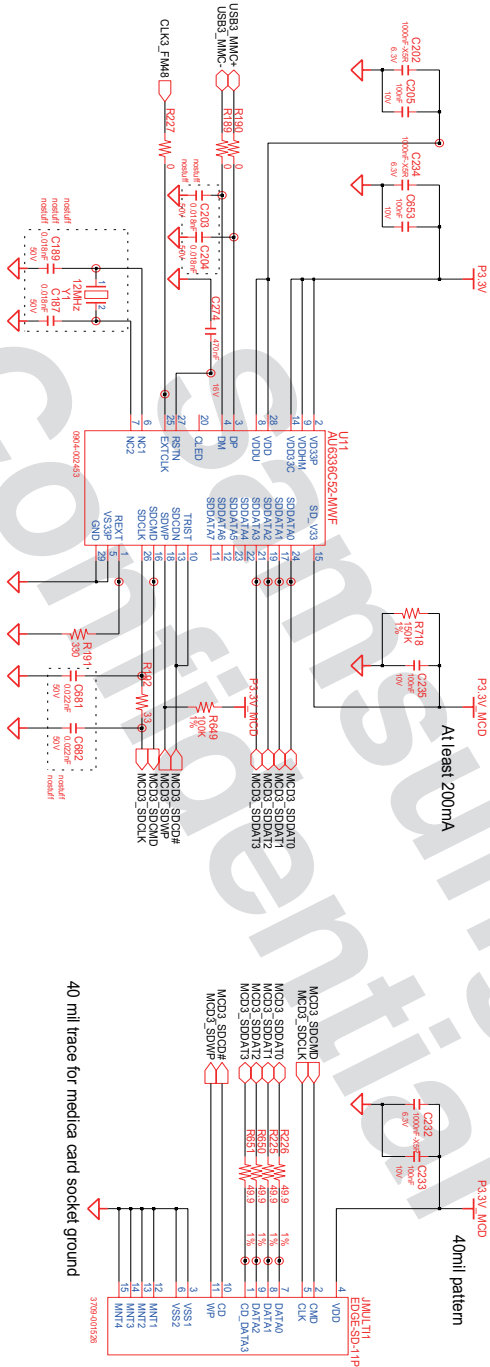
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### CARDBUS AU6336



P3.3V\_MCD distance between RSU880 and socket should be less than 2 inches

TRIST	
PD	NORMAL MODE
SDSD#	LOW POWER MODE
CLKSEL	PULL BASE CLOCK SELECTION
NC_1	EXTERNAL 48M
0	12M CRYSTAL

REV	DATE	TITLE	SAMSUNG
04W	KIM, JIN 8/17/2007	WINCHESTER2	ELECTRONICS
DESIGN	PARK, BK	PR	MAIN
PERSONAL	CHUN, YB	0.39	CARDBUS (AUS336)
TRAXEL CODE	LAB ENH	March 02, 2009 19:08:56 PM	PAGE 15 of 47 med

579936:6.53 REV. 3

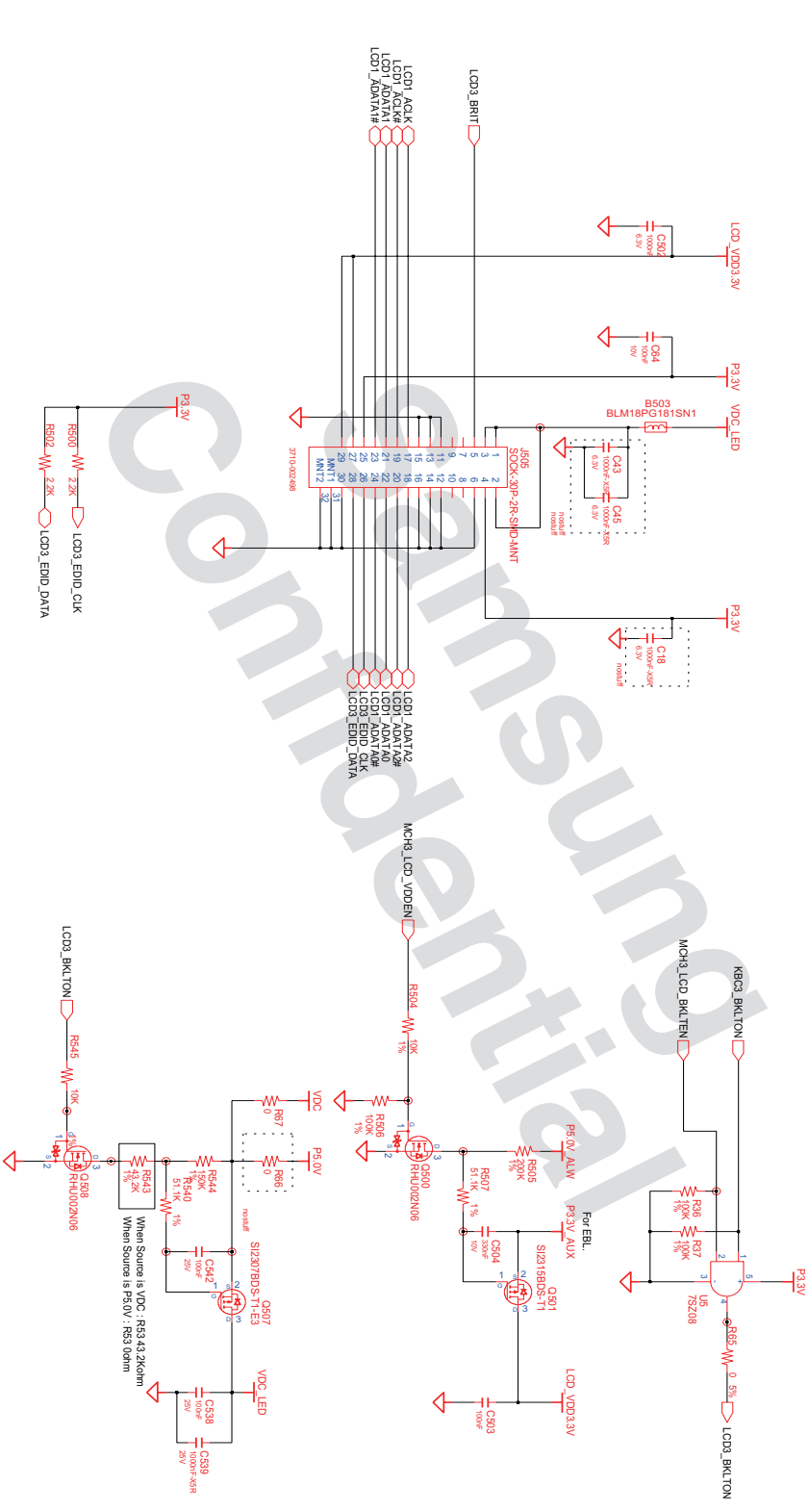
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## LCD INTERFACE

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REGION	DATE	TITLE	
KJM-JUN	6/26/2008	WINCHESTER2	SAMSUNG
PARK, BK	PR	MAIN	ELECTRONICS
CHUN, YB	0.30	LCD I/F	
UPT: E01	March 02, 2009 19:08:56 PM	PAGE 28	OF 35
MODEL: 80K			

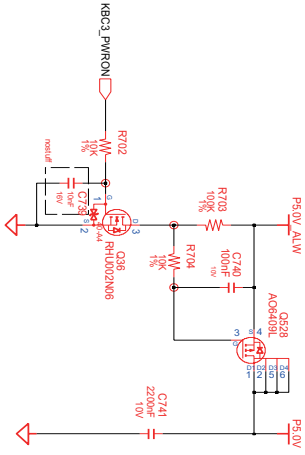


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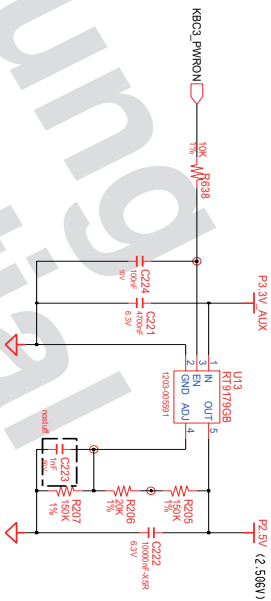
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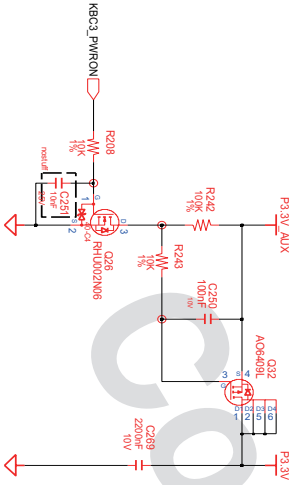
Load Switch Control(P5.0V)



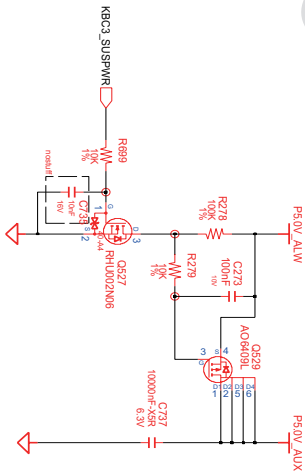
LDO Power (P2.5V)



Load Switch Control(P3.3V)



Load Switch Control(P5.0V\_AUX)



571936:6.5) REV. 3

REVISION	DATE	TITLE	SAMSUNG
0001	5/30/2008	WINCHESTER2	ELECTRONICS
0002	6/11/2008	MAIN	
0003	6/11/2008	SWITCHED POWER	
0004	6/11/2008	MAIN, VB	
0005	6/11/2008	MAIN, VB	
0006	6/11/2008	MAIN, VB	
0007	6/11/2008	MAIN, VB	
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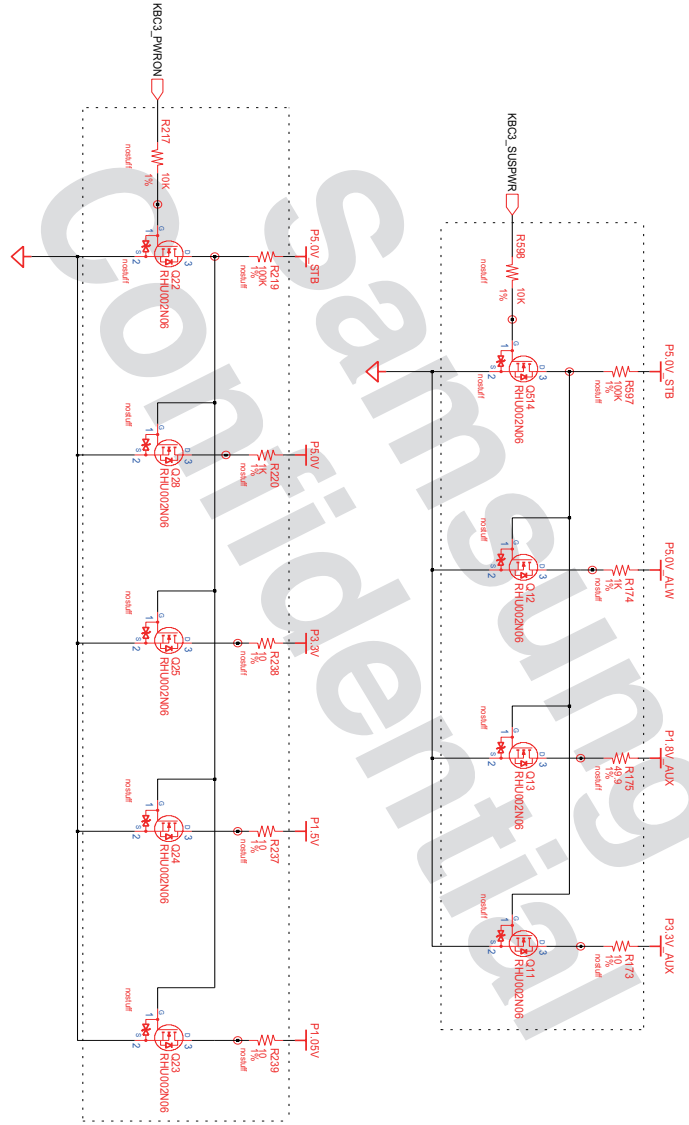
March 02, 2009 19:08:58 PM PAGE 30 OF 35

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### POWER DISCHARGER



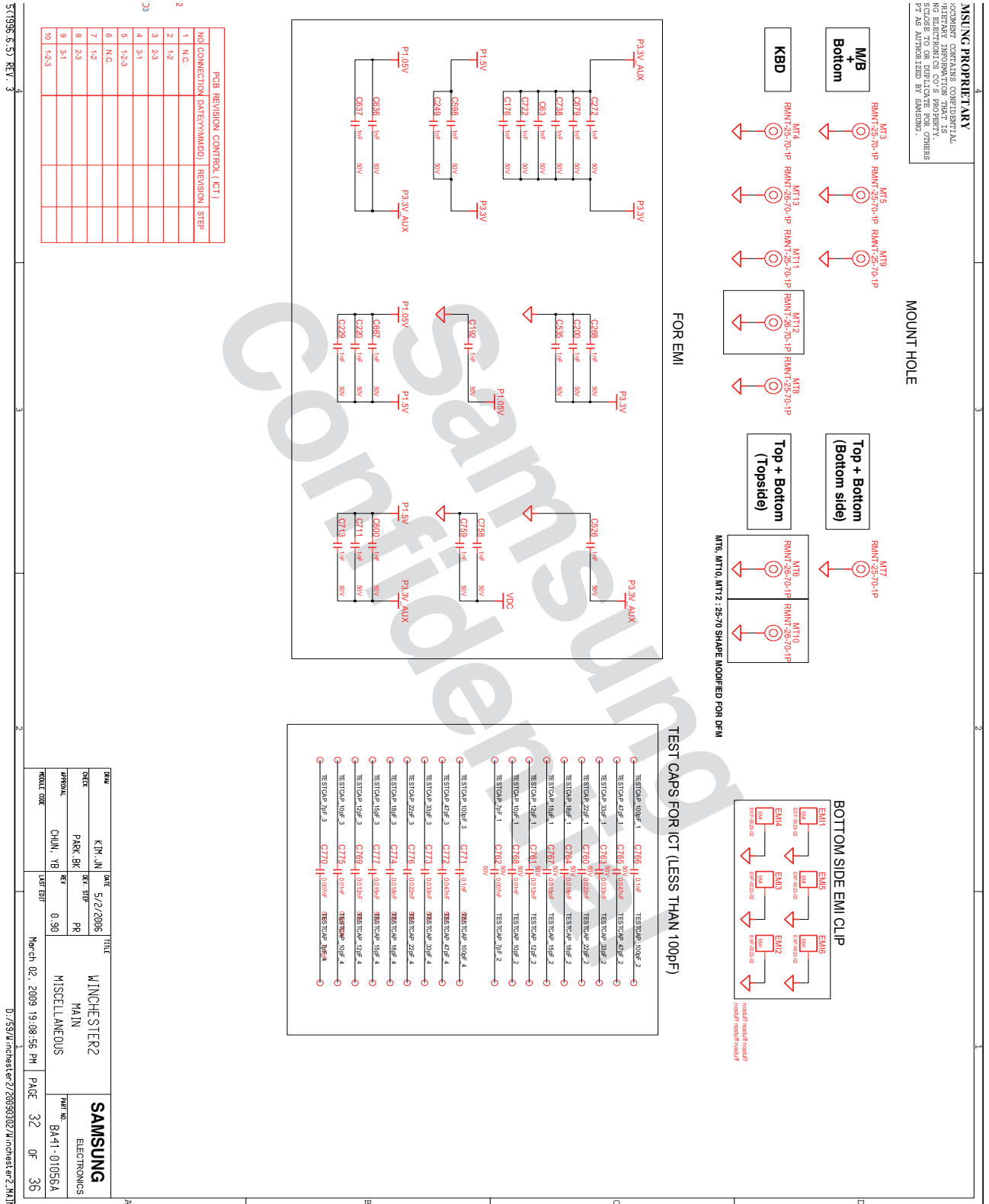
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DESK	PARK, BOK	DEPT	STP	PR	MAIN	
PERSONAL	CHUN, YB	REV	0.39	DISCHARGER		
MODEL_CODE	LABE_B01	March 02, 2009 19:08:56 PM				
				PAGE	31	OF 36

579956-53 REV. 3

D:\7597M\inchester2\20090302\WINCHESTER2\_MAIN

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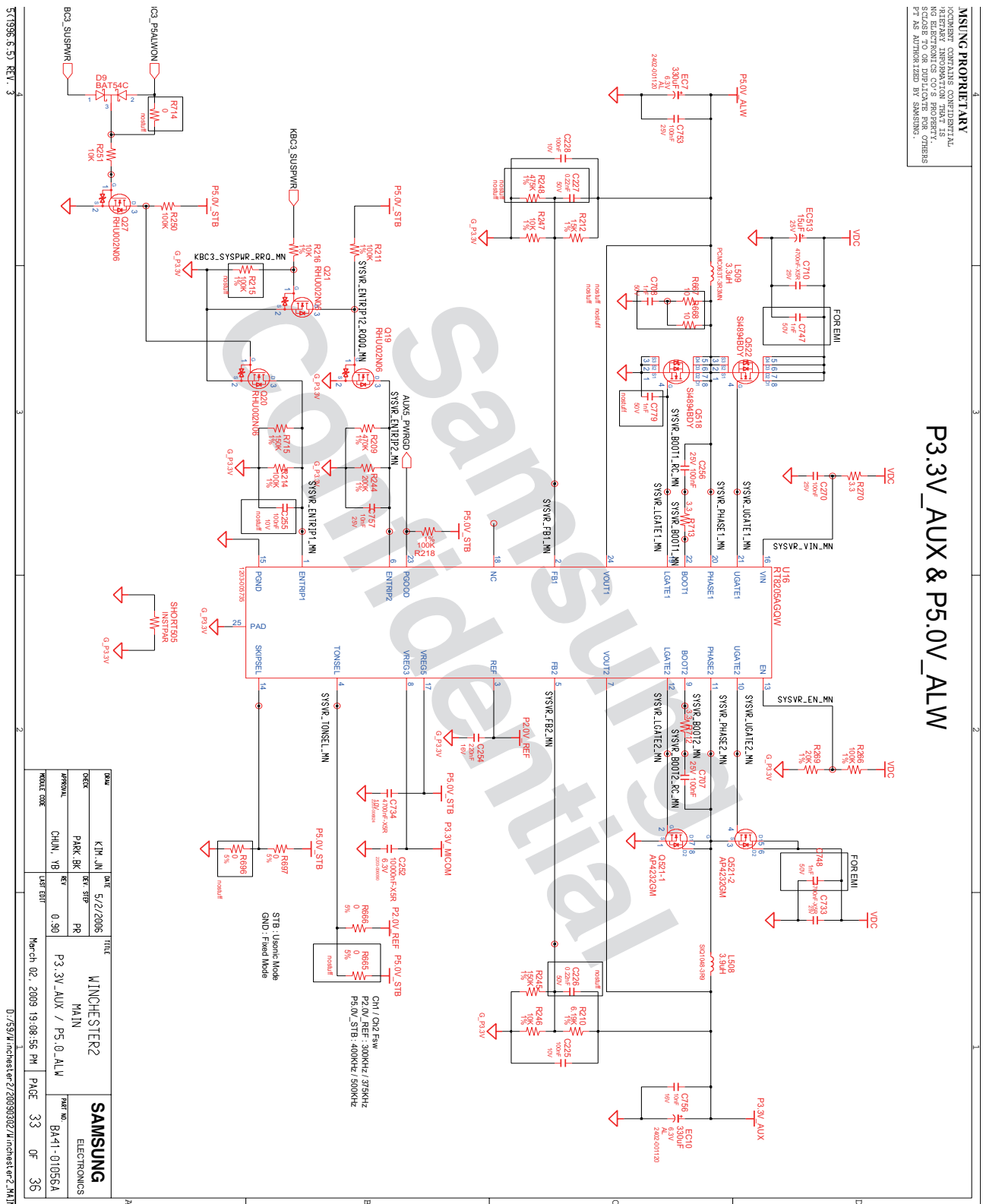
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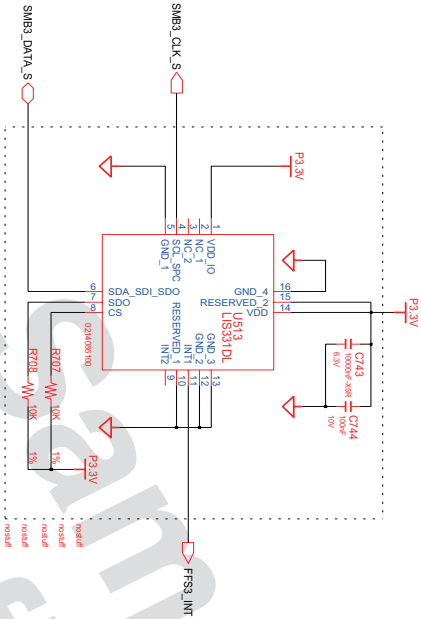


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### FREE FALL SENSOR



571936-6-53 REV. 3

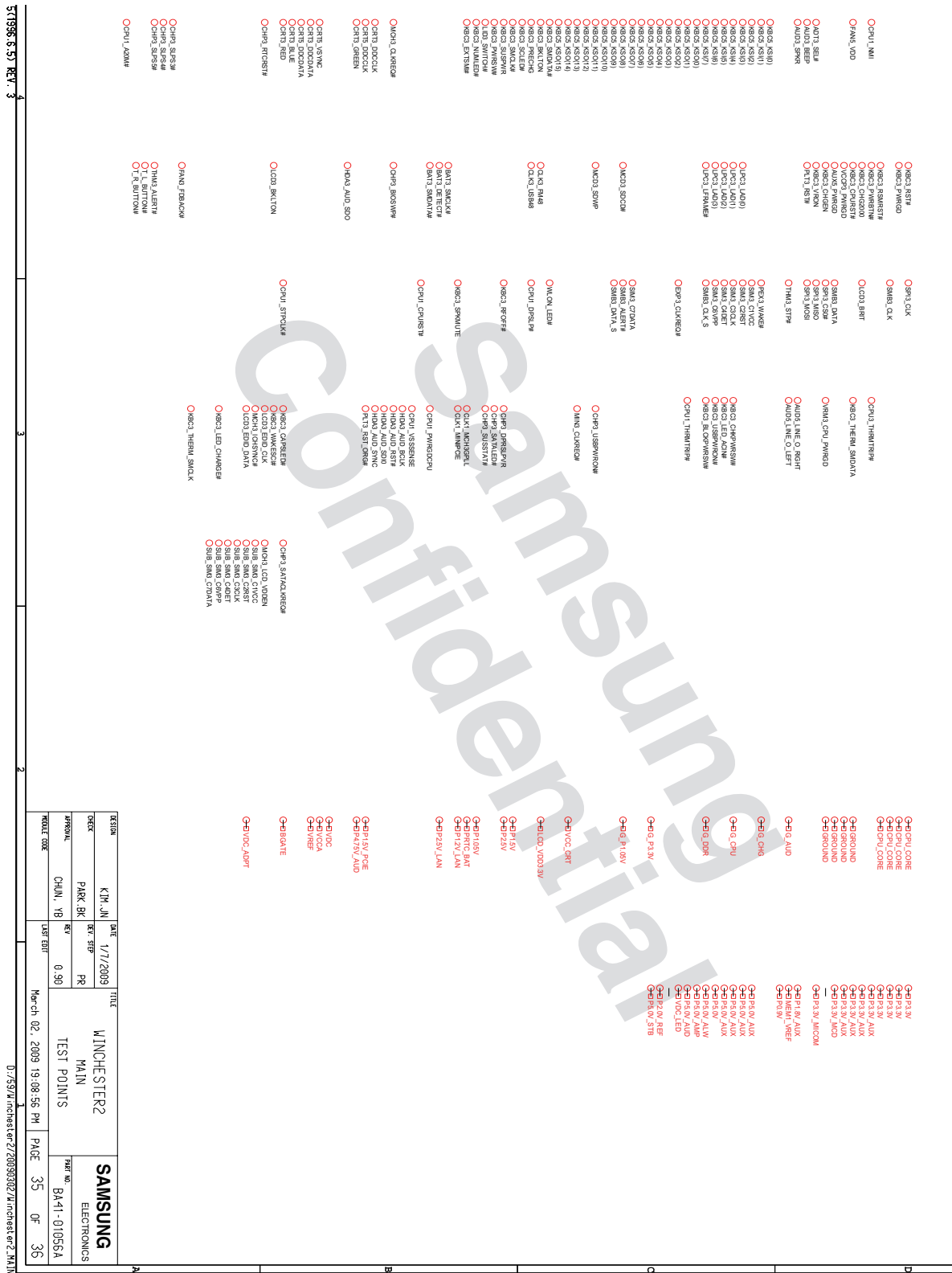
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DESIGNER	KIM, JN	PR	MAIN	ELECTRONICS
APPROVAL	PARK, JK	DATE	FREE FALL SENSOR	REV. NO.
CHKD	CHUN, YB	0.30	March 02, 2009 19:08:55 PM	BA41-01055A
REWORK			PAGE	34
			OF	35

D:\759\Minchester\er2\20090302\Minchester\_er2\_MN.M

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571936-53 REV. 3

DESIGN	K1N_JN	DATE	1/7/2009	TITLE	WINCHESTER2 MAIN
DRAWN	PAK_BK	DESIGNER	PR	TEST POINTS	
APPROVAL	CHUN_VB	CHECKED	0.39		
TRIAL CODE		CAD FILE			
				March 02, 2009 19:08:56 PM	PAGE 35 OF 36
				D:\5971\inchest\er27209393027\Winchester2.MAIN	
			<b>SAMSUNG</b> ELECTRONICS		
			PART NO. BA41-01055A		

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571936(6.5) REV. 3

DESIGN	KIM, JIN	DATE	12/11/2008	TITLE	MINCHESTER2	<b>SAMSUNG</b> ELECTRONICS
DRAWN	PARK, JIK	REV. STEP	PR	MAIN	TEST POINTS	
APPROVAL	CHUN, YB	REV	0.30			PART NO. BA41-01056A
TABLE SIZE		CURT SIZE		March 02, 2009 19:08:56 PM	PAGE	36 OF 36

D:\759\Minchester\er2\20090302\Minchester'er2\_MJN\N

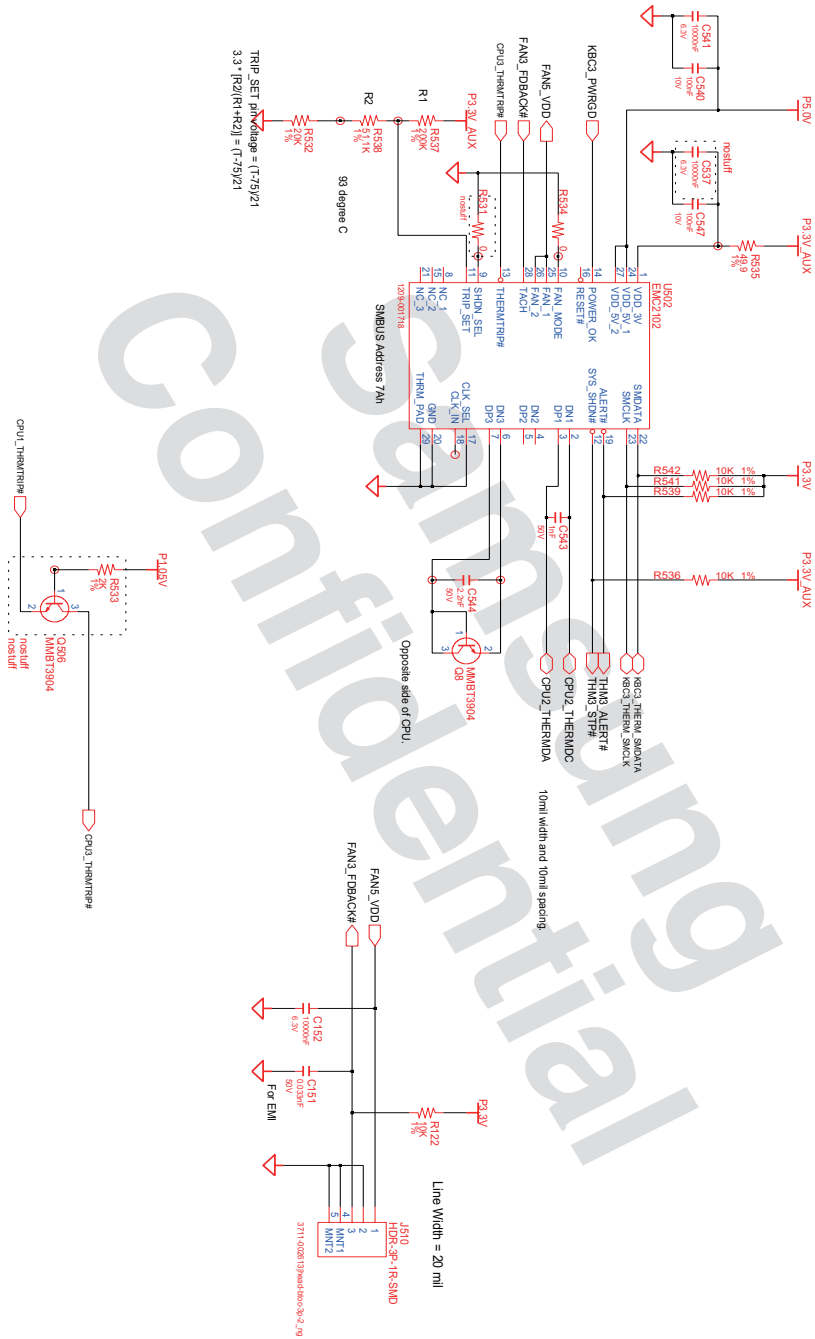


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### THERMAL SENSOR & FAN CONTROL



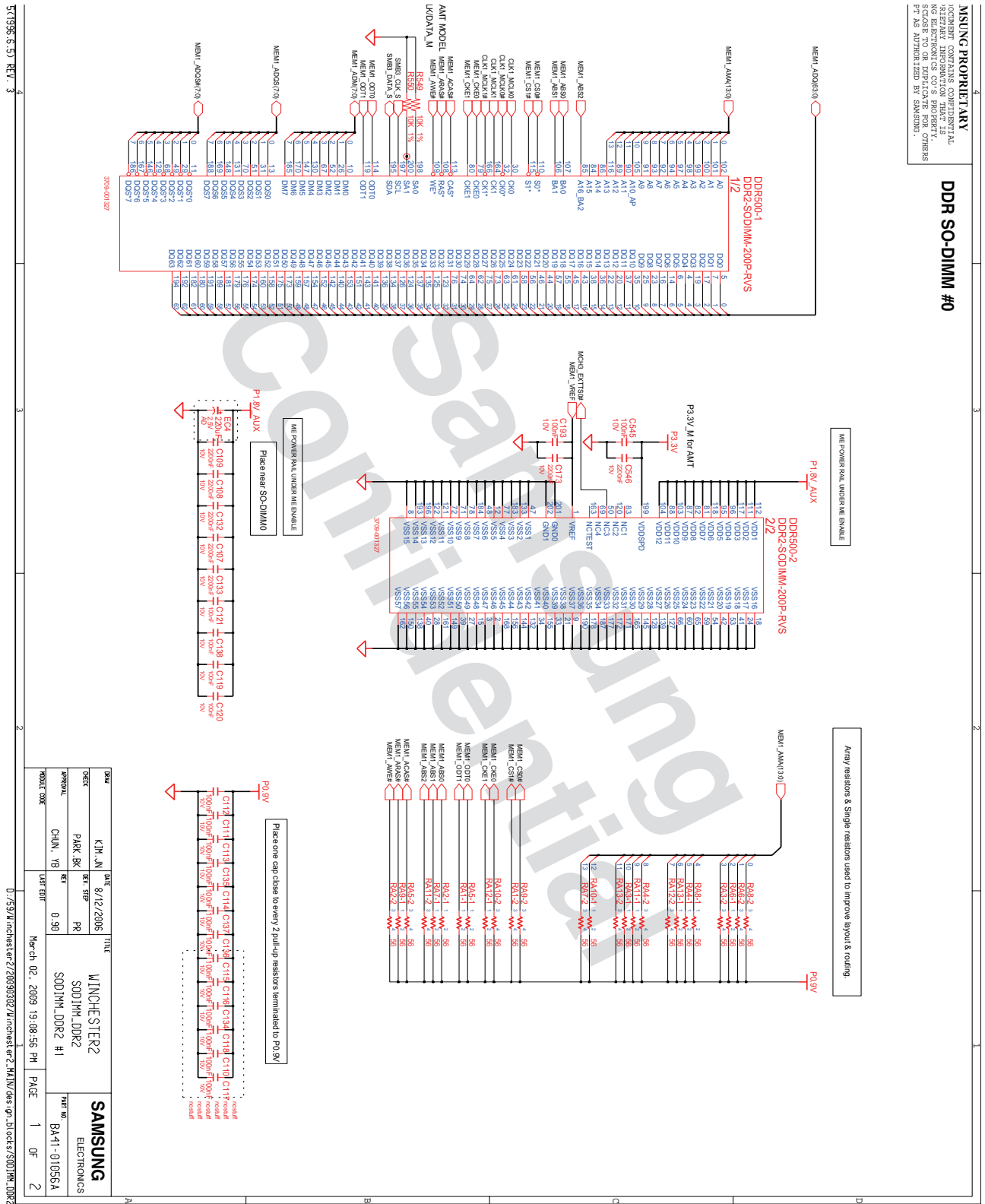
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0003	0.301	Thermal_Sensor_SMSC_Enc2102	
0004	March 02, 2009 19:08:58 PM		

5719396 (6.5) REV. 3

D:\7159\A\invest\er2\200909102\A\invest\er2\_M1\N\des\gn\_b\locks\Thermal\_Sensor\_SMSC\_Enc2102

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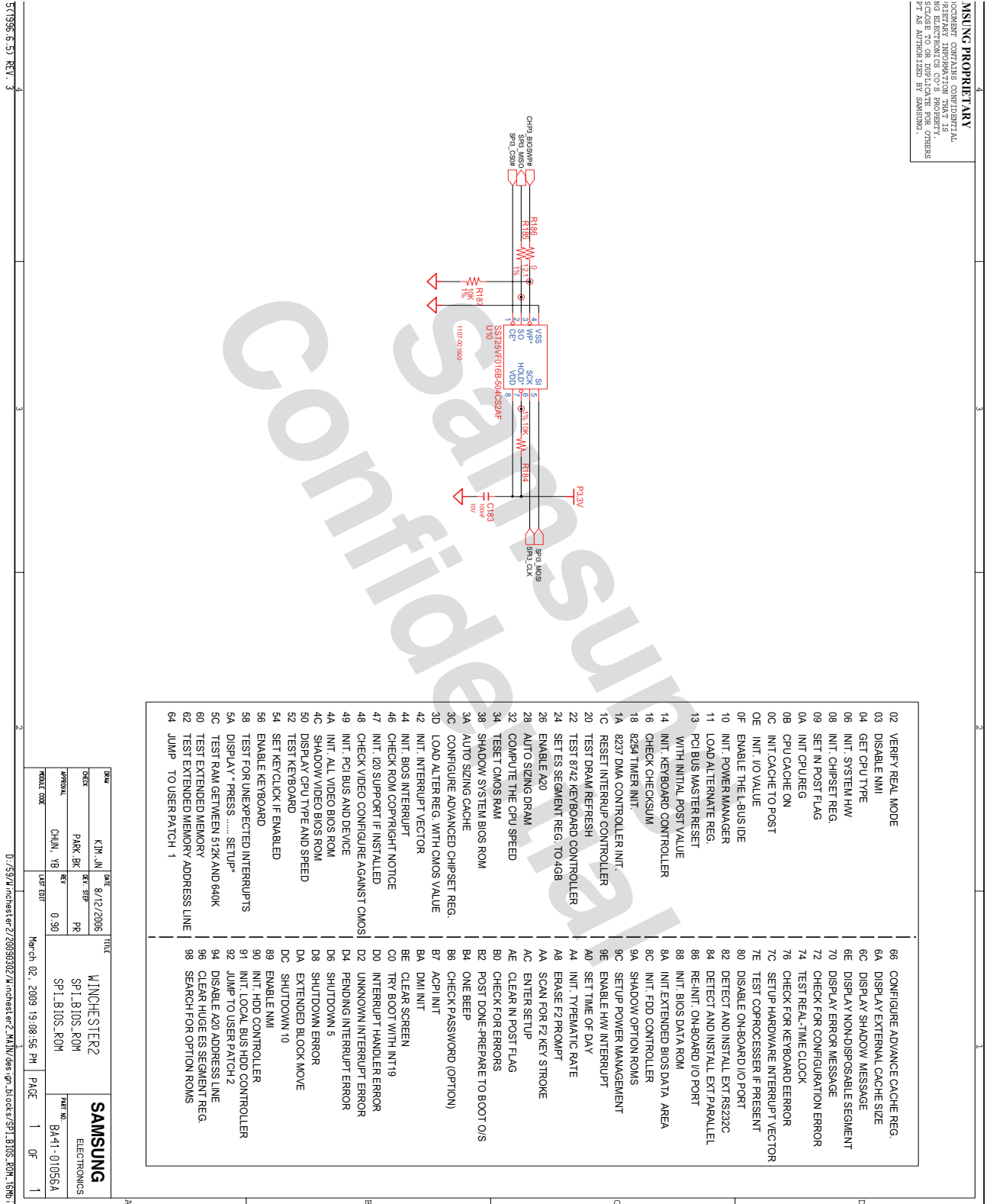
570995-6-53 REV. 3  
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REV	DATE	TITLE
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06EY	6/17/2006	SODIMM_DDR2
PROBVAL	PR	SODIMM_DDR2 #1
DESIGN	0.39	
TRACED_CODE	CHEUNG_VB	
	CAR EBT	

March 02, 2009 19:08:56 PM PAGE 1 OF 2

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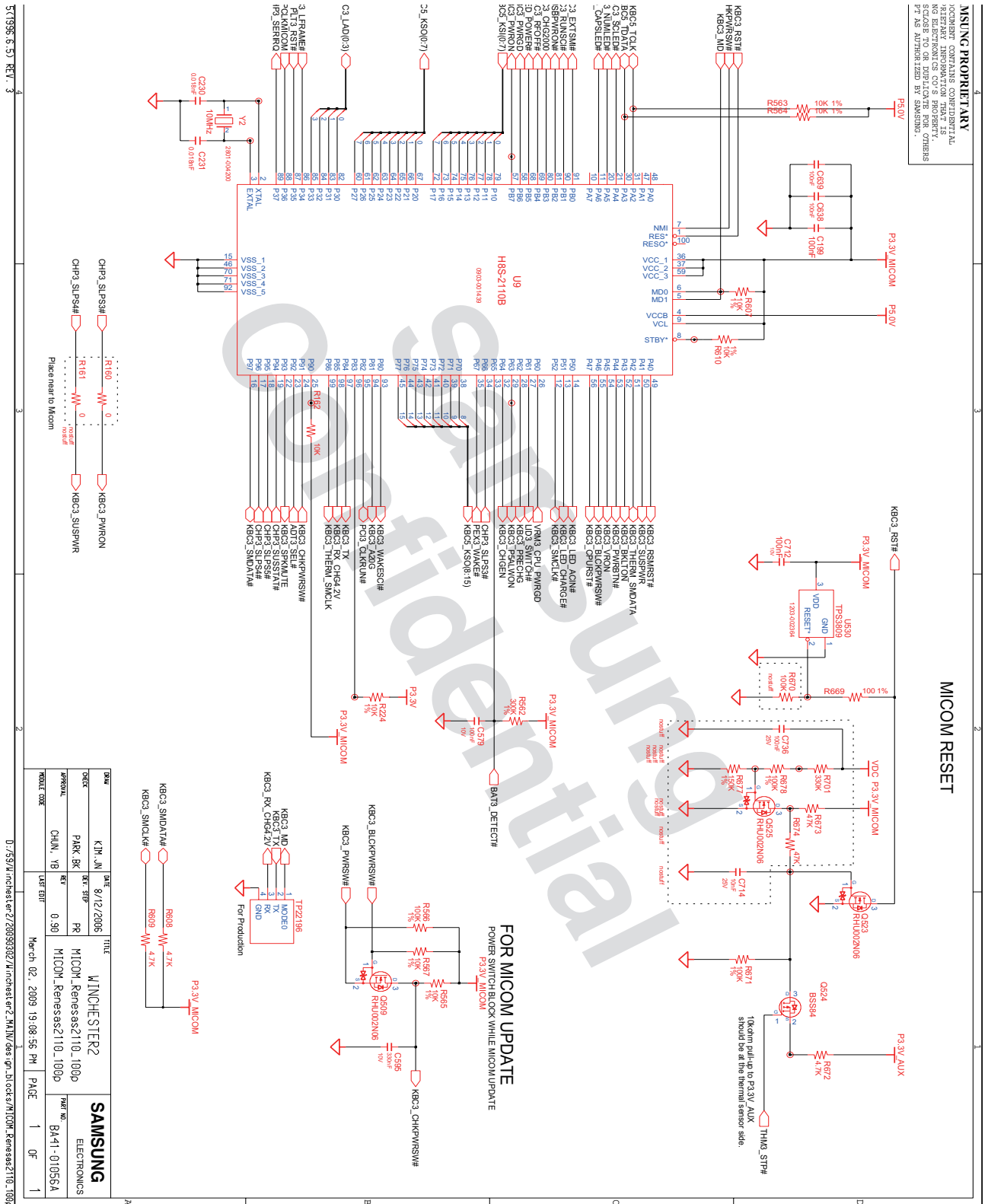






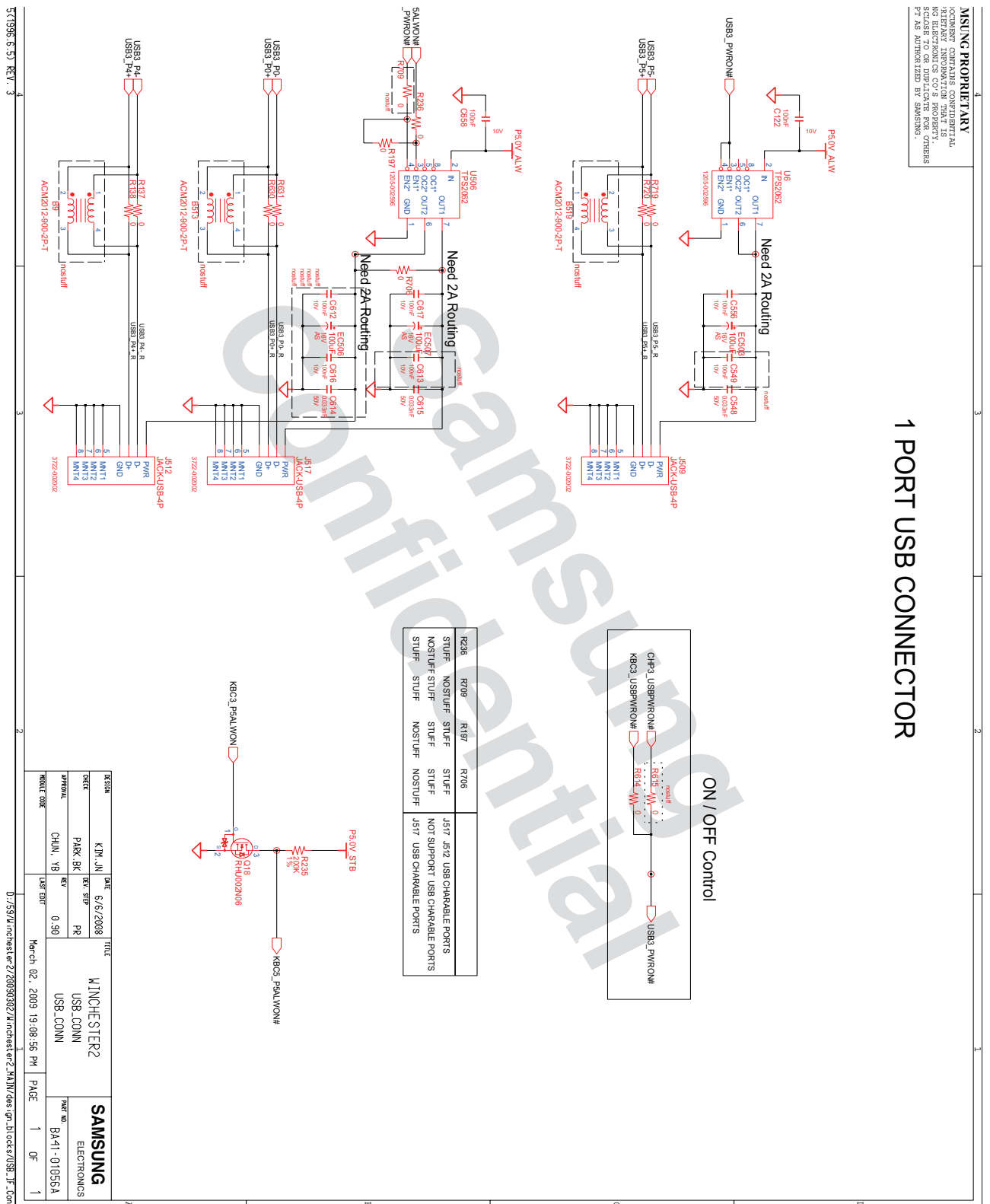
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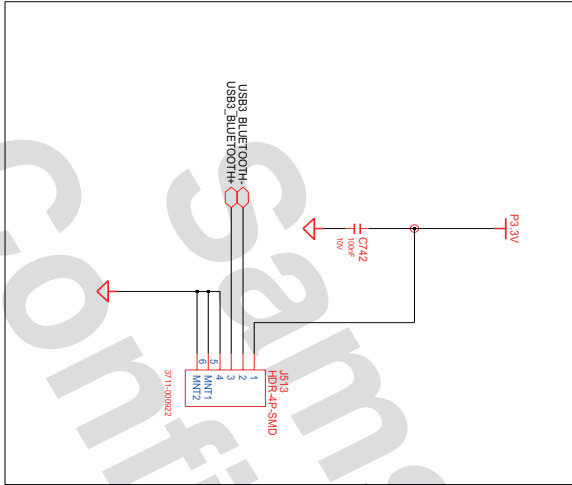
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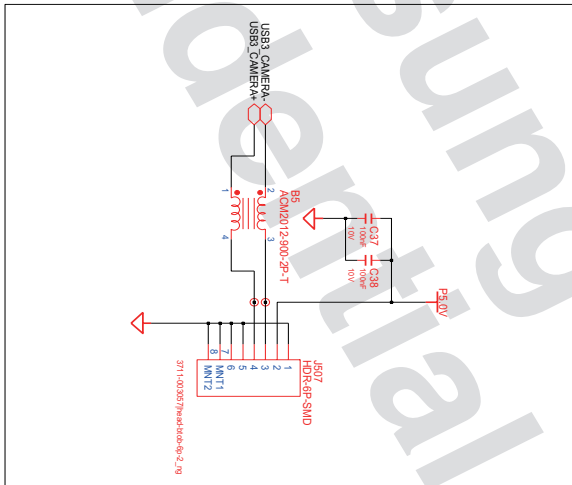
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### USB I/F Devices

#### Bluetooth Interface



#### CAMERA



5719396 (6.5) REV. 3

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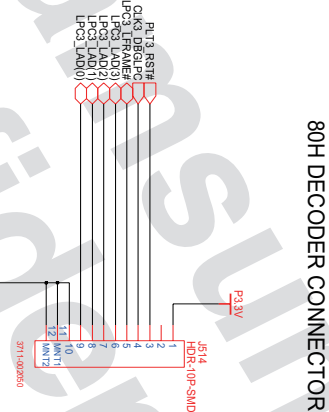
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0100	CHUN, YB	USB DEVICES	

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DATE	DATE	FILE	
2006	2006	WINCHESTER2	
DESIGNER	DESIGNER	01her-Debug_80	
CHKD BY	CHKD BY	01her-Debug_80	
APPROVAL	APPROVAL		
CHKD BY	CHKD BY		
DATE	DATE		
2009	2009		
DATE	DATE		
2009	2009		
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2009	2009		

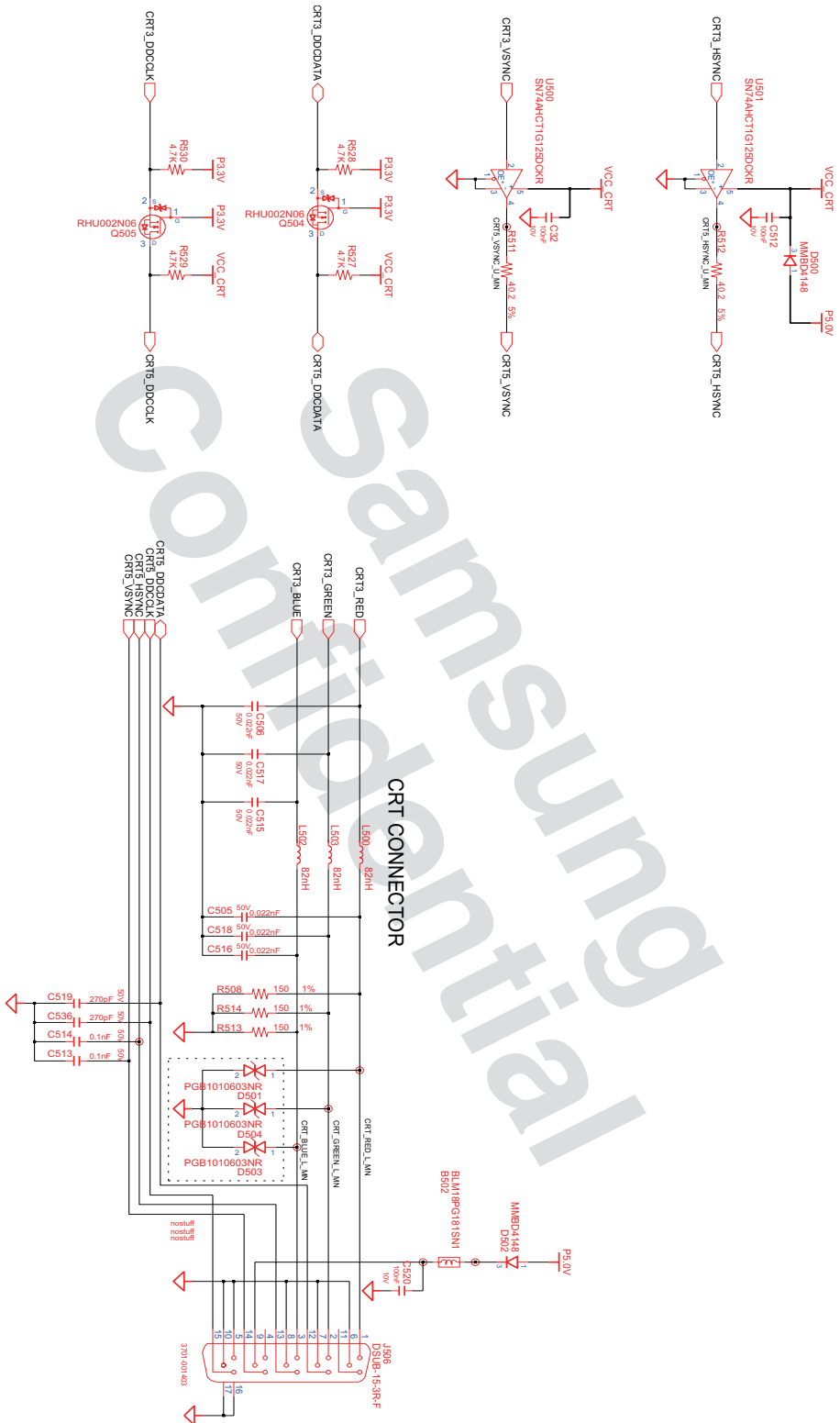
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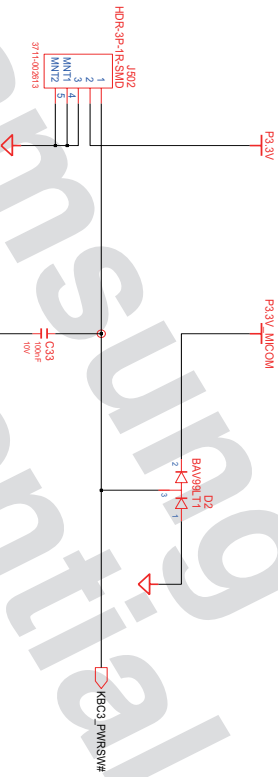
0. /59/M/inches1 er 7/20093382/M/inches er 2 MAIN/ des ign. li cker/ graphics. JF. CRT

DATE	8/12/2005	TITLE	MINCHESTER2	SAMSUNG
DESIGNER	KIM, JIN	PR	Interface_Circuit	ELECTRONICS
CHECKER	PARK, BK	REV	Graphics_JF_CRT	BA-41-01056A
APPROVAL	CHUN, YB	DATE	March 02, 2009 19:08:58 PM	PAGE 1 OF 1
TRIAL	0.30			

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REV	DATE	TITLE	SAMSUNG
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APPROVAL	CHK	0.39	
CHUN, YB			
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579956-53 REV. 3

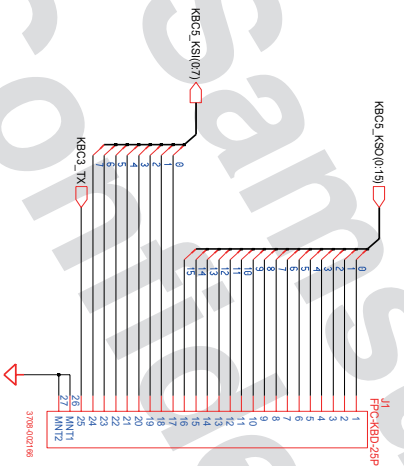
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### KEYBOARD



5719396 (6.5) REV. 3

REV	DATE	TITLE	SAMSUNG
0001	8/12/2005	MINCHESTER2	ELECTRONICS
0002	8/12/2005	KBD_IF-Conn	
0003	8/12/2005	KBD_IF-Conn	
0004	8/12/2005	KBD_IF-Conn	
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0006	8/12/2005	KBD_IF-Conn	
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0009	8/12/2005	KBD_IF-Conn	
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0097	8/12/2005	KBD_IF-Conn	
0098	8/12/2005	KBD_IF-Conn	
0099	8/12/2005	KBD_IF-Conn	
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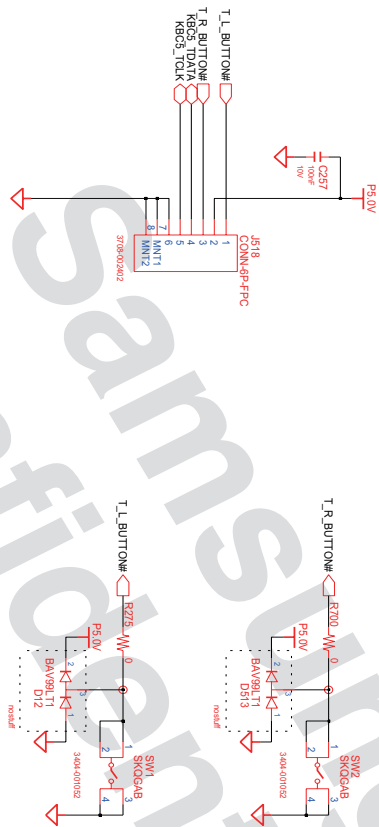


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### TOUCHPAD



579956-53 REV. 3

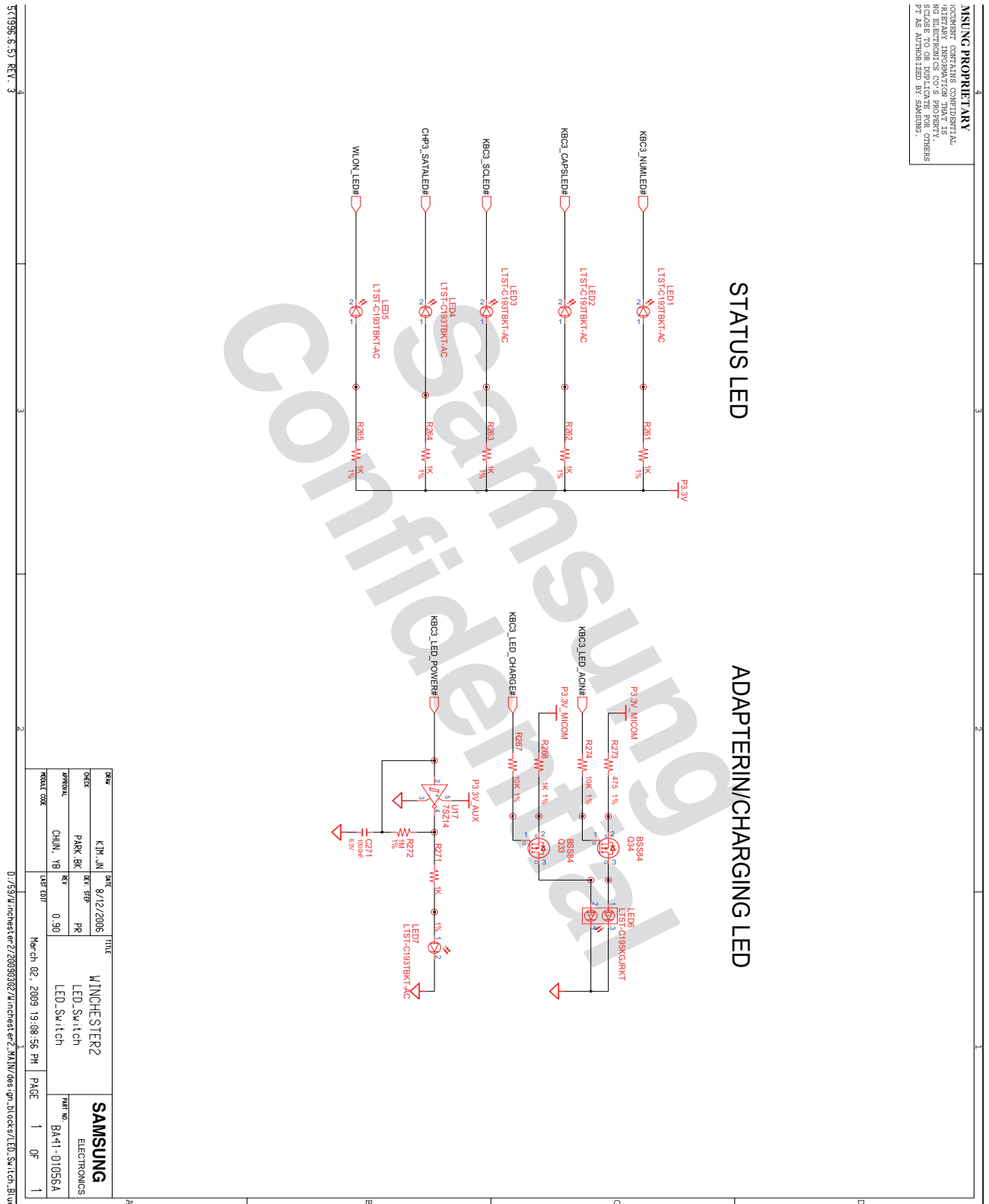
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03/02	CHUN, YB	0.39	Touchpad_If_Conn	03/02	CHUN, YB	PR	Touchpad_If_Conn
03/02	CHUN, YB	0.39	Touchpad_If_Conn	03/02	CHUN, YB	PR	Touchpad_If_Conn
03/02	CHUN, YB	0.39	Touchpad_If_Conn	03/02	CHUN, YB	PR	Touchpad_If_Conn

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D:\759\Winchester2\20090302\Winchester2\MIN\des\gr\Di\oers\touchpad\_If\_Conn

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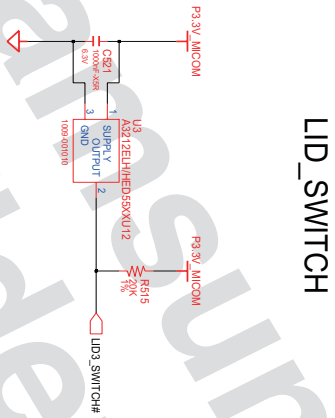
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LID\_SWITCH

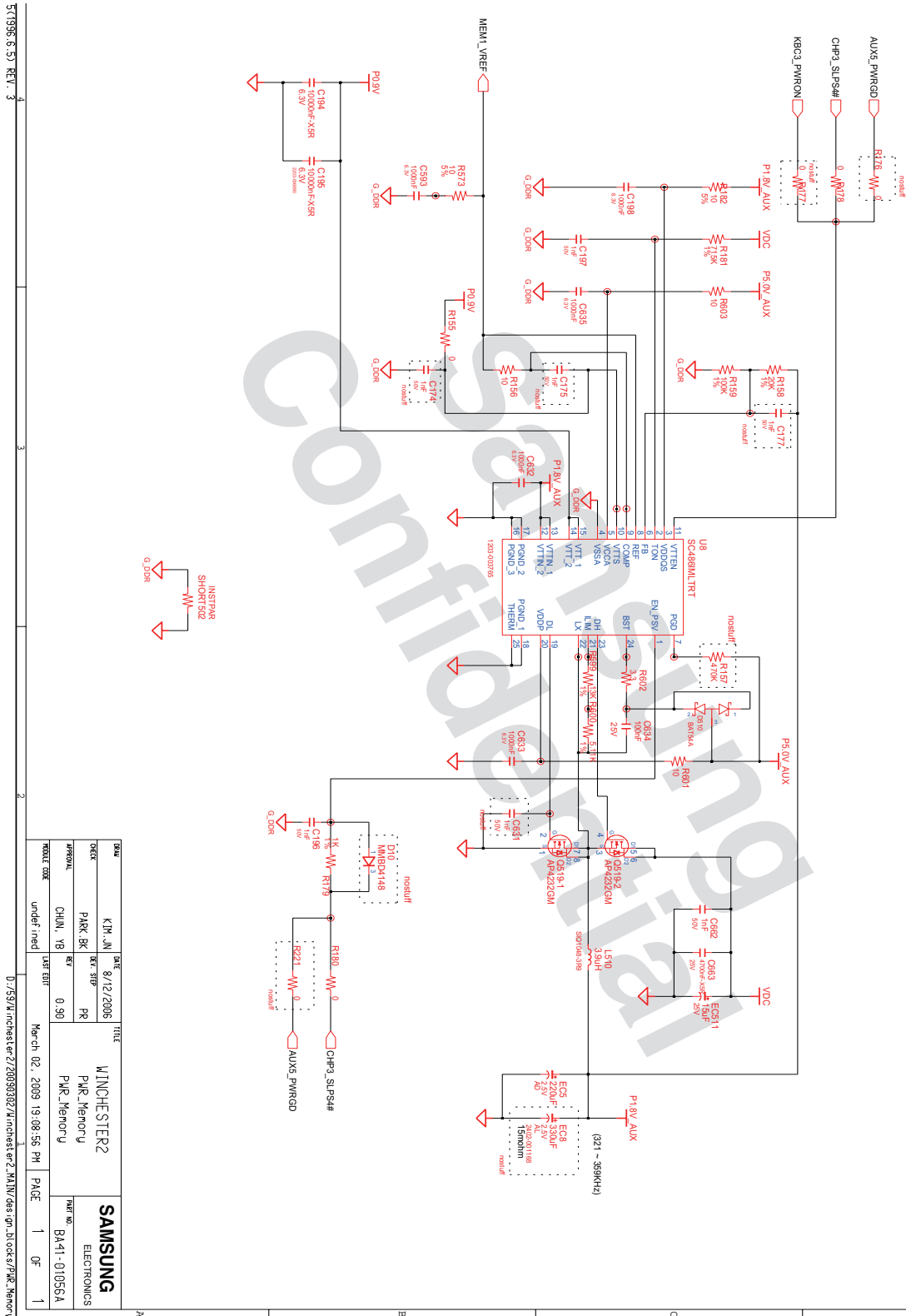
REV	KIM, JIN	DATE	8/12/2006	TITLE	WINCHESTER2	
ORDER	PARK, BK	DEPT	SRP	PR	LID_Switch	
APPROVAL	CHUN, YB	REV	0.39		LID_Switch	
TRACK CODE		DATE				

D:/5914/mchaster2/20090302/Mchster2\_MAIN/des\_0n\_docs/LID\_Switch

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### DDR2 Power



REV	DATE	TITLE	SAMSUNG
004	8/12/2005	WINCHESTER2	ELECTRONICS
003	PR	PMR_Memory	
002	PR	PMR_Memory	
001	0.30	CHUN, YB	
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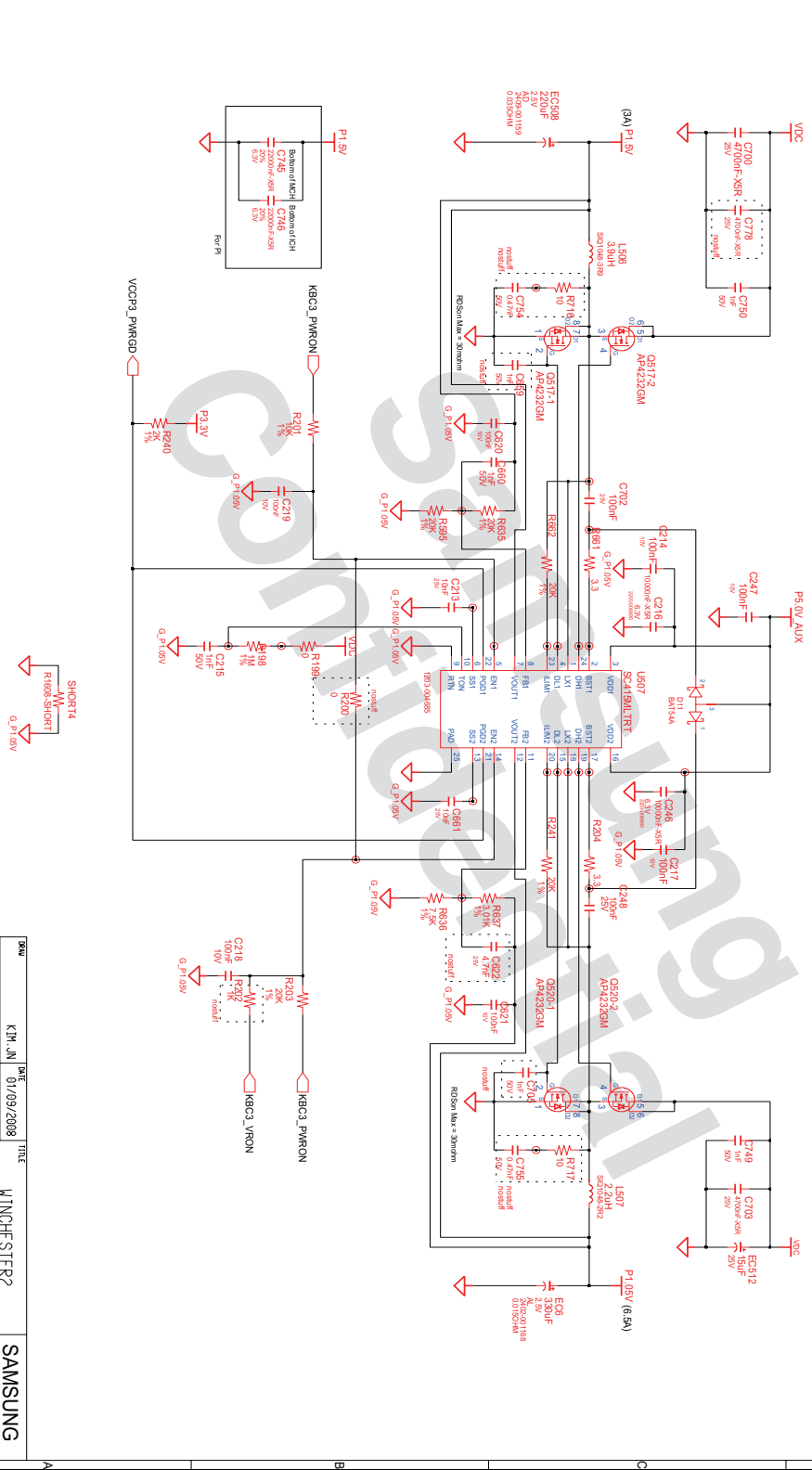
D:\59171\mchestr2\7269938387\mchestr2\_2M1N\des\pm\lock\PMR\_Memory

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### CHIPSET POWER(P1.5V\_AUX & P1.05V)



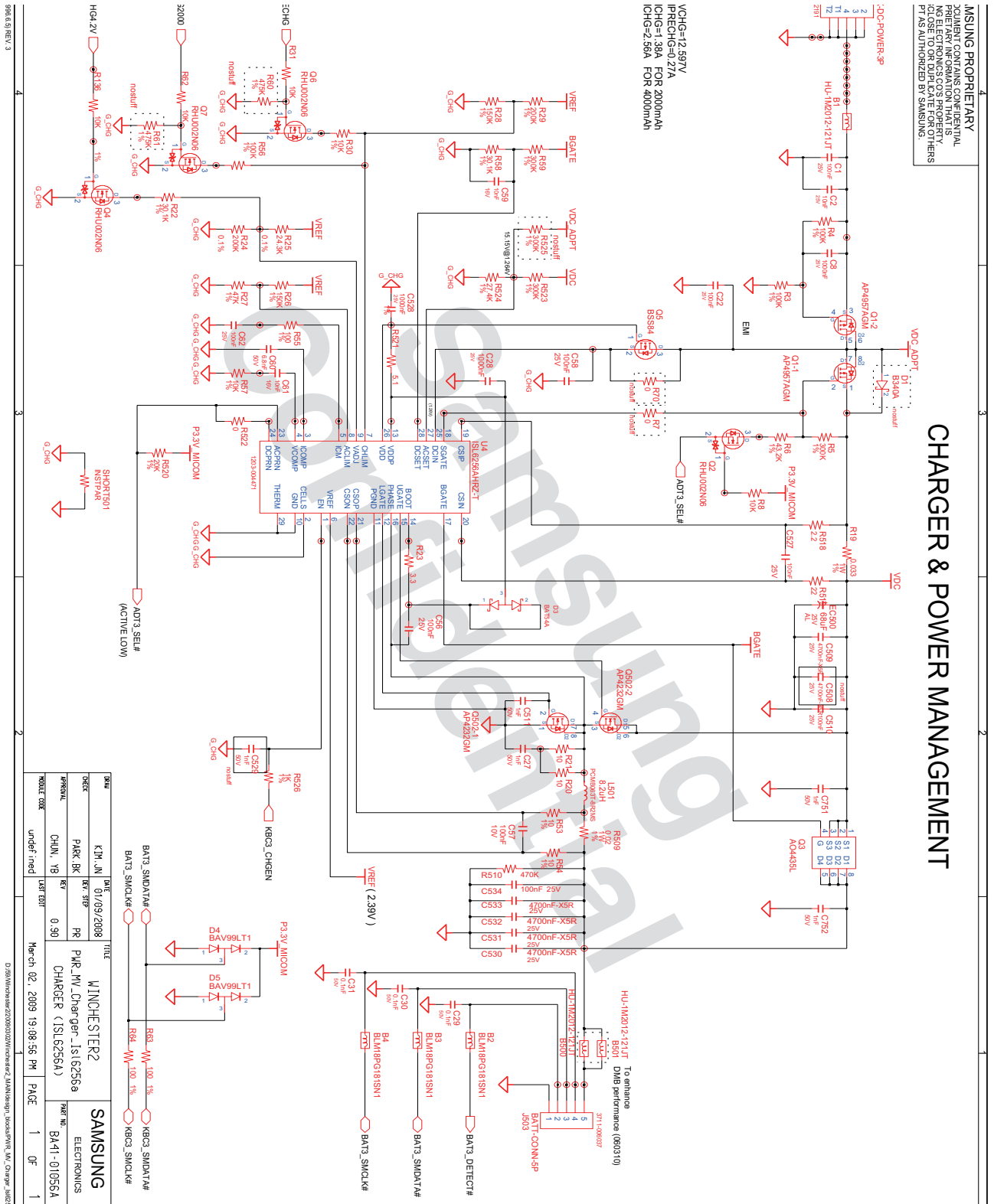
REV	DATE	BY	TITLE
01	01/09/2008	KIM, JIN	MINICHESTER2
02		PARK, BK	PMR_MV_Cent:1ga_1nt
03		CHUN, YB	Chipset Power (P1.5V_AUX, P1.05V)
04		under'ined	

996.6.9 REV. 3

D:\99\winchestr2\20080202\winchestr2\_MN\Design\_Doc\SWR\_MV\_Cent\PMR\_MV\_Cent\1ga\_1nt\Chipset Power (P1.5V\_AUX, P1.05V).dwg

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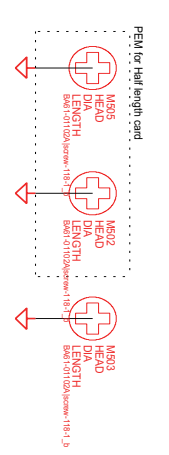
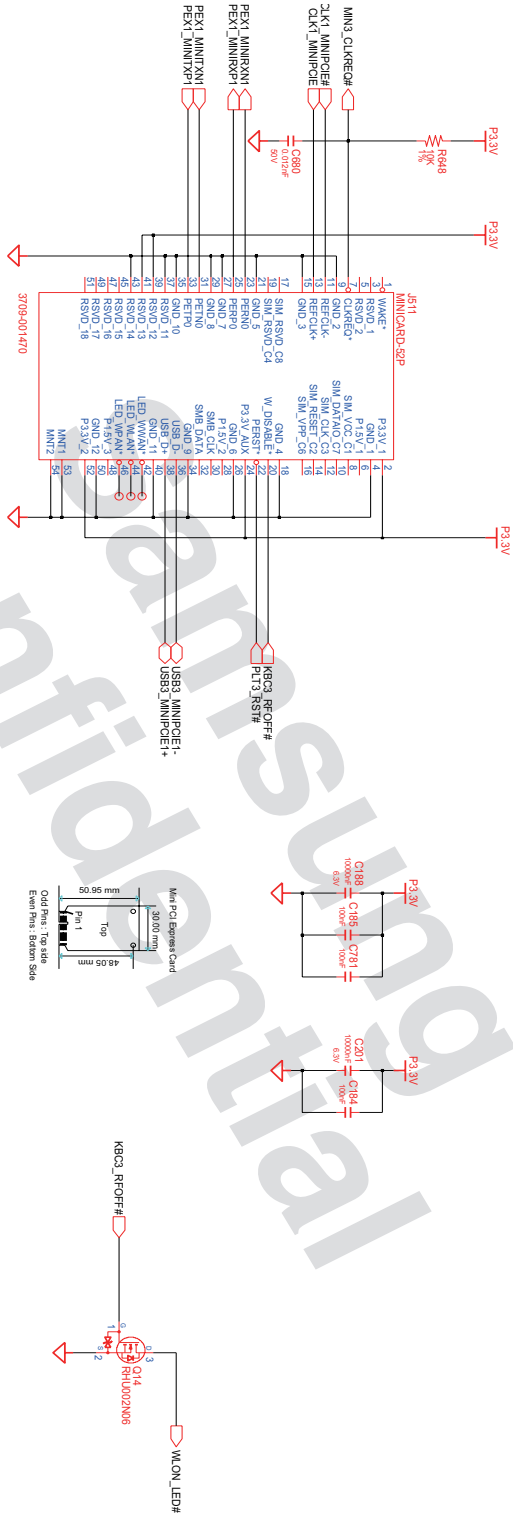


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WLAN, 5.2mm



DESIGN	KIM, JUN	DATE	6/6/2008	TITLE	MINICHESTER2	SAMSUNG
ORDER	PARC_BK	REV	PR		MINI_PCIE_CONN	ELECTRONICS
PERSONAL	CHUN, YB	REV	0.90		MINI_PCIE_CONN	REV NO: BA-41-0105SA
PROJECT CODE		DATE	March 02, 2009 19:08:56 PM	PAGE	1	OF 1

12759\A\inches\er2\20890302\A\inches\er2\_MAIN\des gn\_block.s\m\m\PCIE.Conn

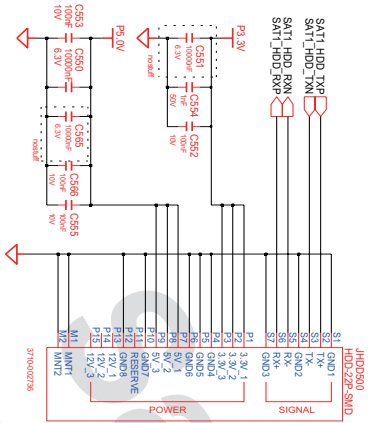
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### SATA I/F CONN

SATA HDD CONN



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DESIGN	KJM_JN	DATE	6/6/2008	TITLE	WINCHESTER2	PART NO.	SAMSUNG
CHKD	PARK_BK	REV	THP		SATA DEVICES		ELECTRONICS
APPROVAL	CHUN_YB	REV	PAR		SATA DEVICES	BA41-01056A	
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CONF-220-015(1996.6.5) REV. 3  
 D:/S3/Winchester2/220090302/Winchester2 MAIN/Case/BIOS/SATA\_IF\_Conn SRP Sheet Number: 56 of 56



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