

OSLO

CPU : Intel Merom-4M (800/667 MHz)
 Chip Set : Intel Crestline & ICH8-M
 Remarks : Mobility Platform

Model Name : SANTA ROSA STD
 PBA Name : MAIN
 PCB Code : BA41-#####A
 Dev. Step : MP
 Revision : 1.0
 T.R. Date : 2007.03.02

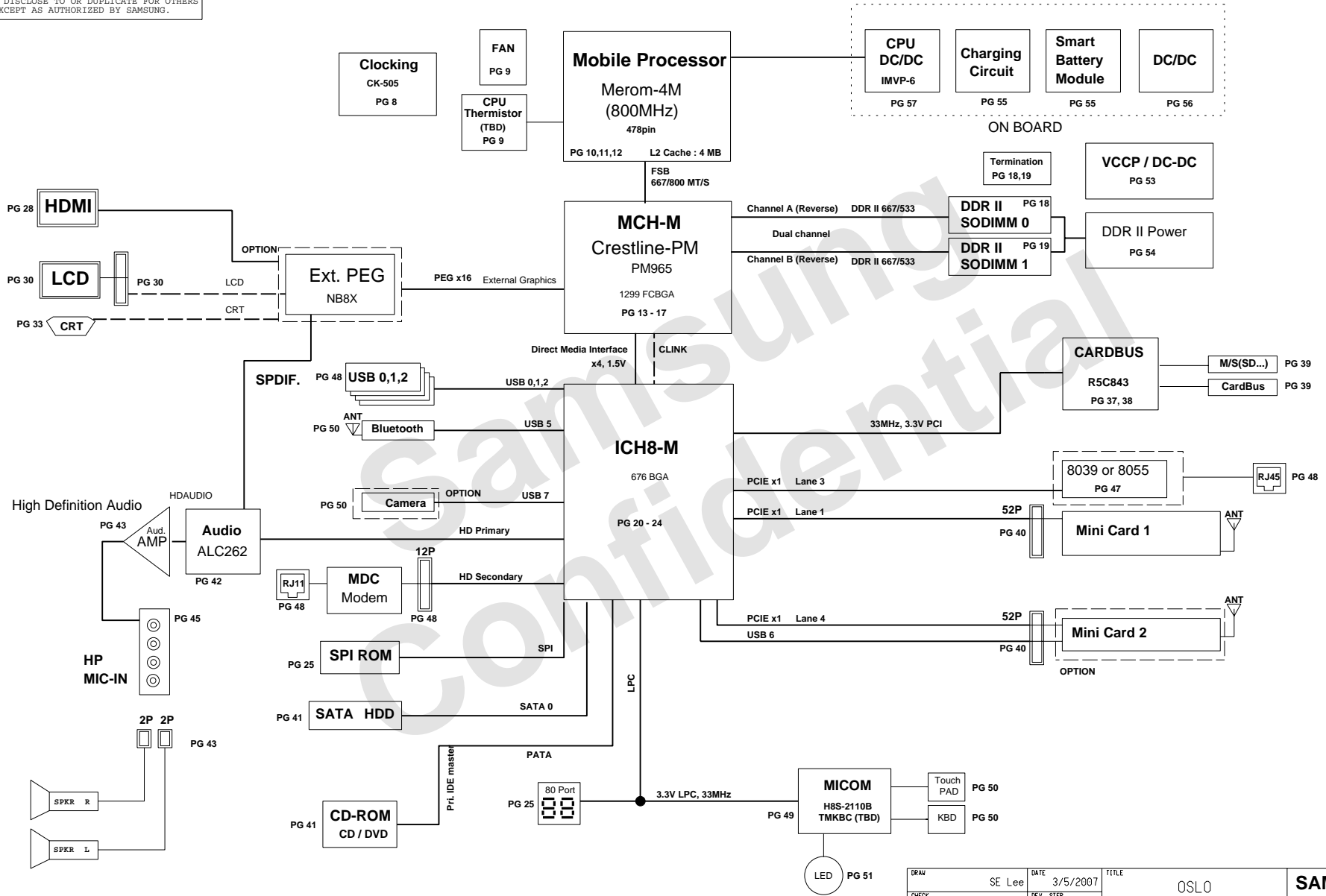
DESIGN	CHECK	APPROVAL

Owner : SEC Mobile R & D Signature : X

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DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO MAIN COVER	SAMSUNG ELECTRONICS PART NO. BA41-#####A
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				March 5, 2007 2:44:01 PM	PAGE	1 OF 60

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MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE 2 OF 60		

BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
Cardbus	AD25	3	A,B,C
USB	AD29(internal)	-	USB2.0 #0 (USB0) : A USB2.0 #1 (USB1) : D USB2.0 #2 (USB4) : C USB2.0 #3 (USB5) : E USB2.0 #4 (EHCI) : H
Hub to PCI	AD30(internal)	-	-
LPC bridge/IDE/AC97/SMBUS	AD31(internal)	-	B
Internal MAC	AD24(internal)	-	E
AC Link	-	-	B
GLAN	-	-	F

Voltage Rails

VDC	Primary DC system power supply (7 to 21V)
VCC_CORE	Core Voltage for CPU
GFx_CORE	Core Voltage for GPU
P1.05V (VCCP)	VTT for CPU, Crestline & ICH8-M
P3.3V_MICOM	3.3V always power rail (for Micom)
P1.5V	1.5V switched power rail (off in S3-S5)
P1.8V	1.8V switched power rail (off in S3-S5)
P1.8V_AUX	1.8V power rail for DDR (off in S4-S5)
P0.9V	0.9V power rail for DDR (off in S3-S5)
P3.3V	3.3V switched power rail (off in S3-S5)
P3.3V_AUX	3.3V switched on power rail (off in S4-S5)
P5.0V	5.0V switched power rail (off in S3-S5)
P5.0V_AUX	5.0V switched on power rail (off in S4-S5)
P5.0V_ALW	5.0V always power rail

USB PORT Assign

PORT #	ASSIGNED TO
0	SYSTEM PORT 0
1	SYSTEM PORT 1
2	SYSTEM PORT 2
3	NC
4	NC
5	Bluetooth
6	Mini PCI Express 2
7	Camera
8	NC
9	NC

PCI Express Assign

PORT #	ASSIGNED TO
0	NC
1	Mini Card 1 (WLAN)
2	NC
3	LOM
4	Mini Card 2 (ROBSON or DVB-T)
5	NC

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	ICH8-M	Real Time Clock
Crystal	10MHz	MICOM	HD64F2169/2160
Crystal	14.318MHz	CLOCK-Generator	CK-505
Crystal	25MHz	LAN	Intel LAN

LCD Panel Detect (TBD)

Devices	Resolution	PANNEL_DETECT_0

I²C / SMB Address

Devices	Address	Hex	Bus
ICH8-m	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	Thermal Sensor
SODIMM0	1010 000x	A0h	-
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
CK-505M (Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable

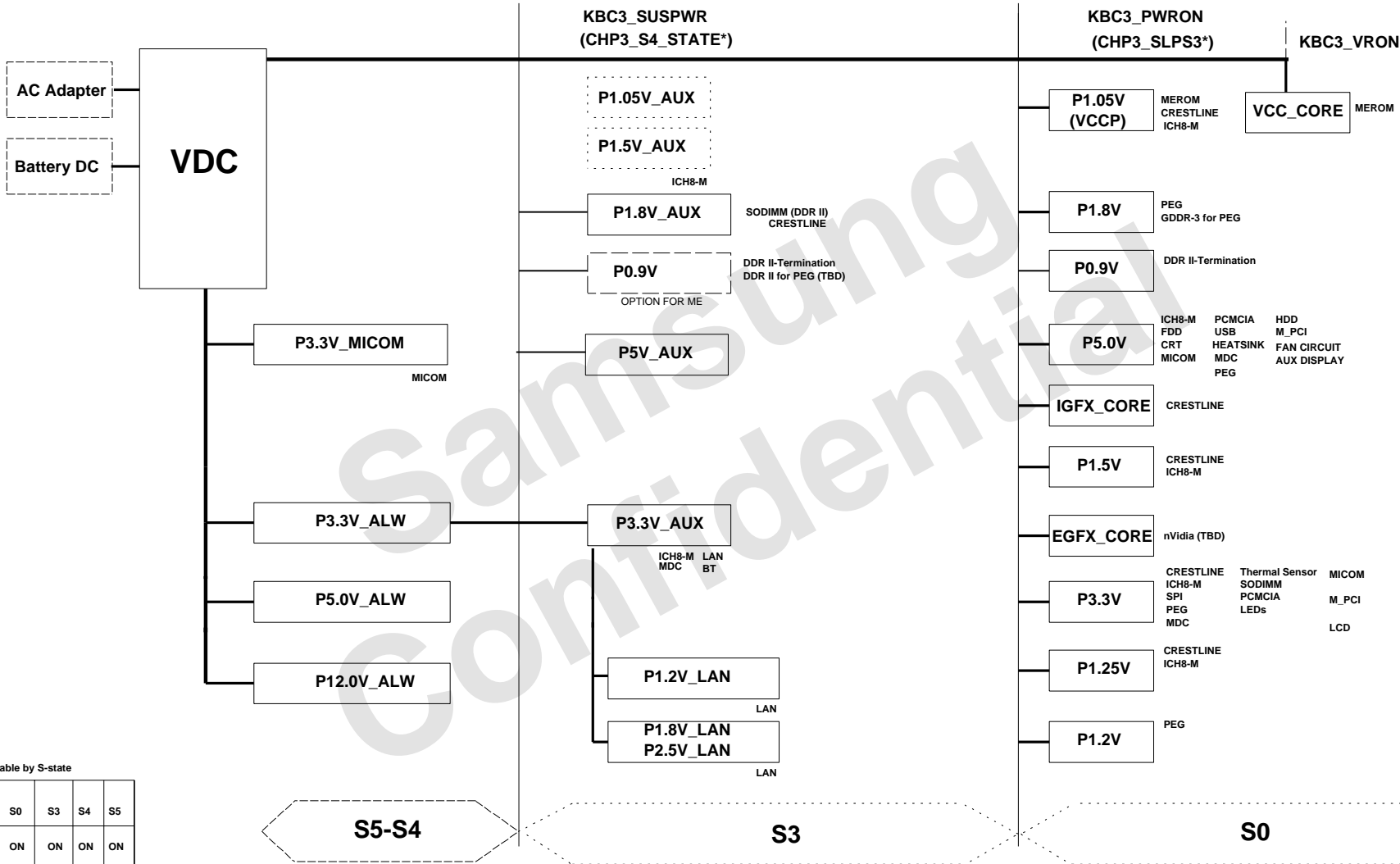
REVISION HISTORY

See rev notes for more information.

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POWER DIAGRAM



Power On/Off Table by S-state

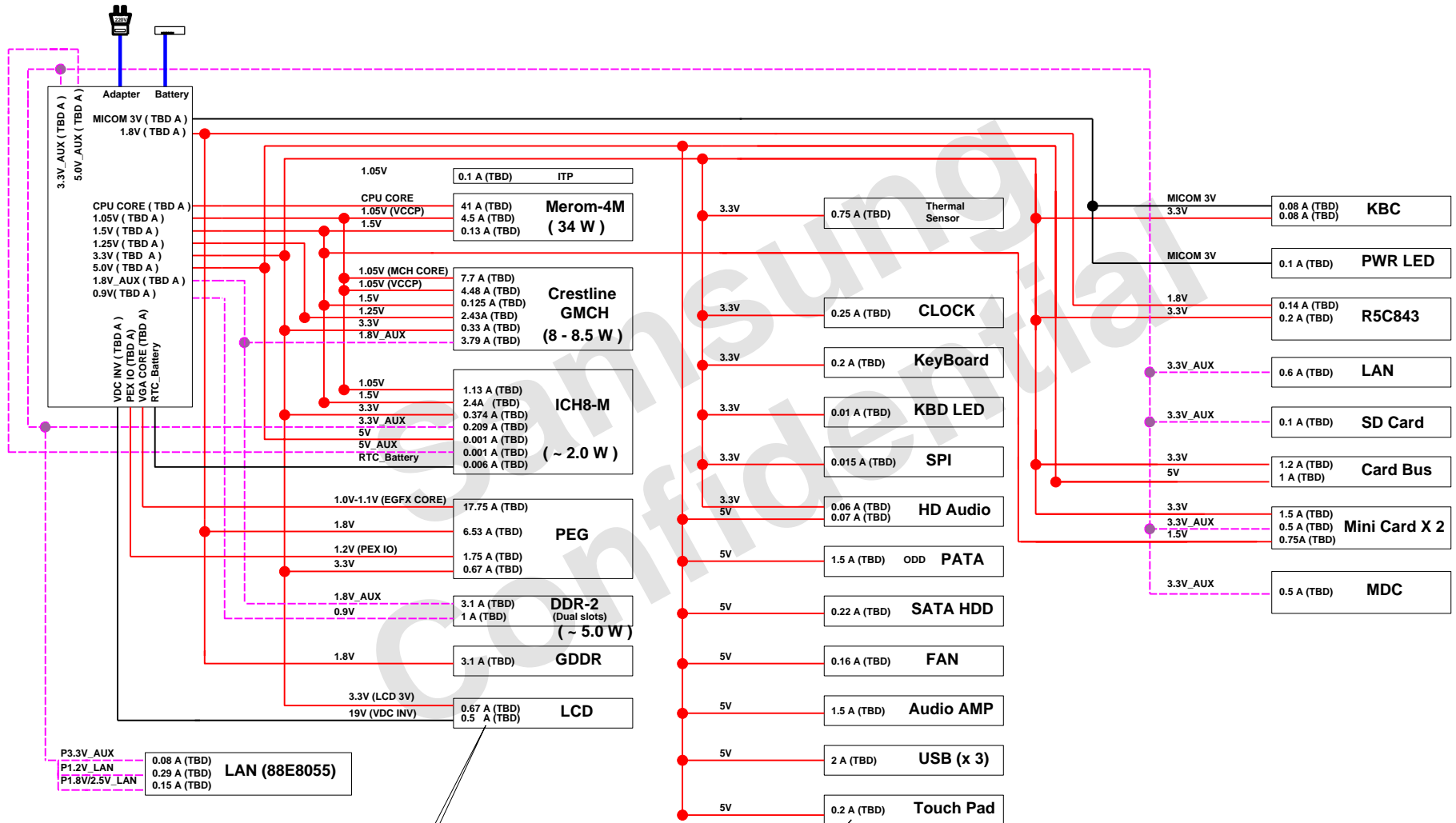
Rail \ State	S0	S3	S4	S5
+V*A(LWS) +V*LAN	ON	ON	ON	ON
+1.8V_AUX +0.9V	ON	ON	—	—
+V*AUX	ON	ON	—	—
+V	ON	—	—	—
+V* (CORE)	ON	—	—	—



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO MAIN	SAMSUNG ELECTRONICS
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MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	4	OF 60

POWER RAILS ANALYSIS

Rev. 0.6 (060920)



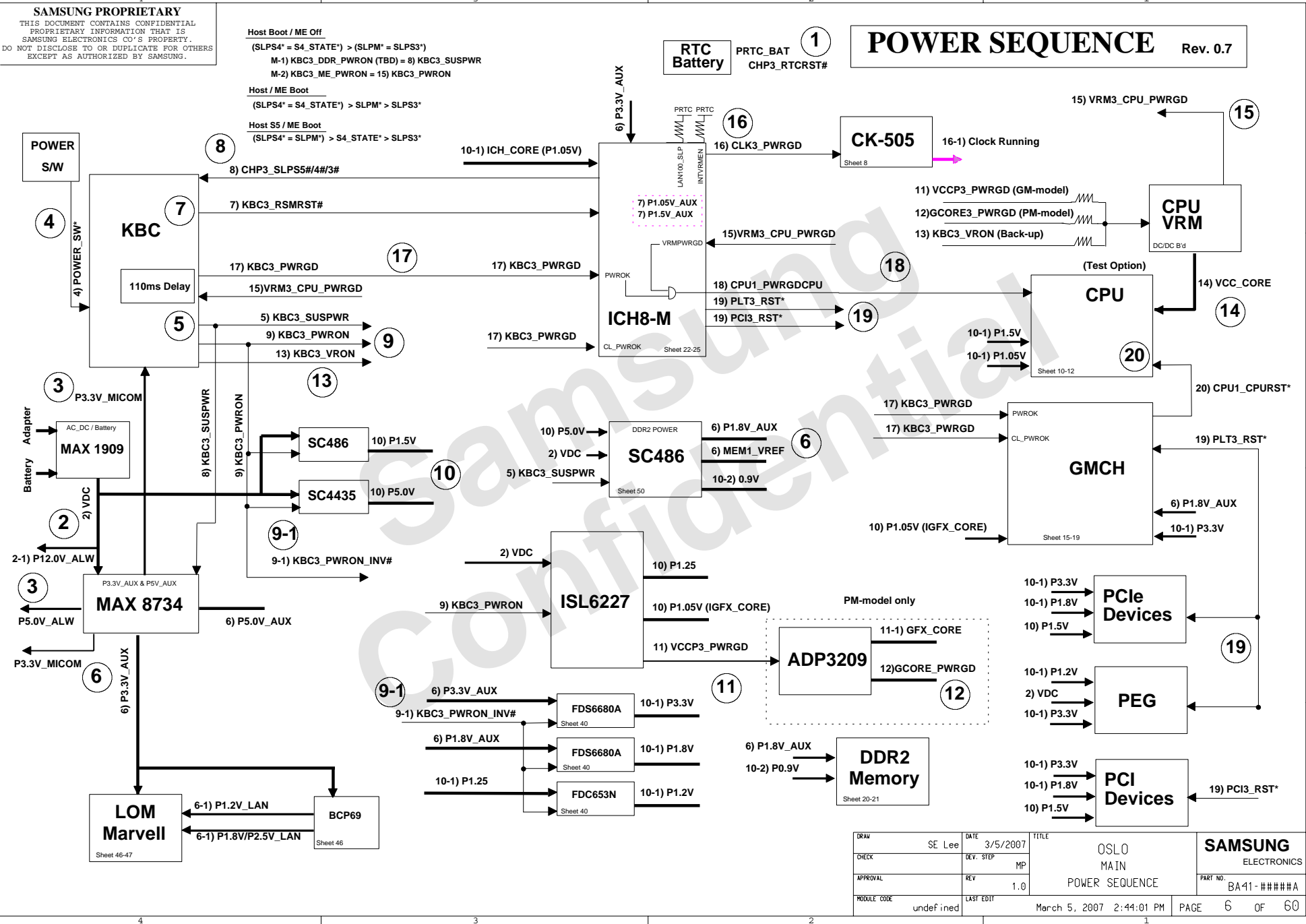
Value by Datasheet/Application notes (Value by measurement)

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO MAIN POWER RAILS	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			PART NO. BA41-#####
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Host Boot / ME Off
 (SLPS4* = S4_STATE*) > (SLPM* = SLPS3*)
 M-1) KBC3_DDR_PWRON (TBD) = 8) KBC3_SUSPWR
 M-2) KBC3_ME_PWRON = 15) KBC3_PWRON

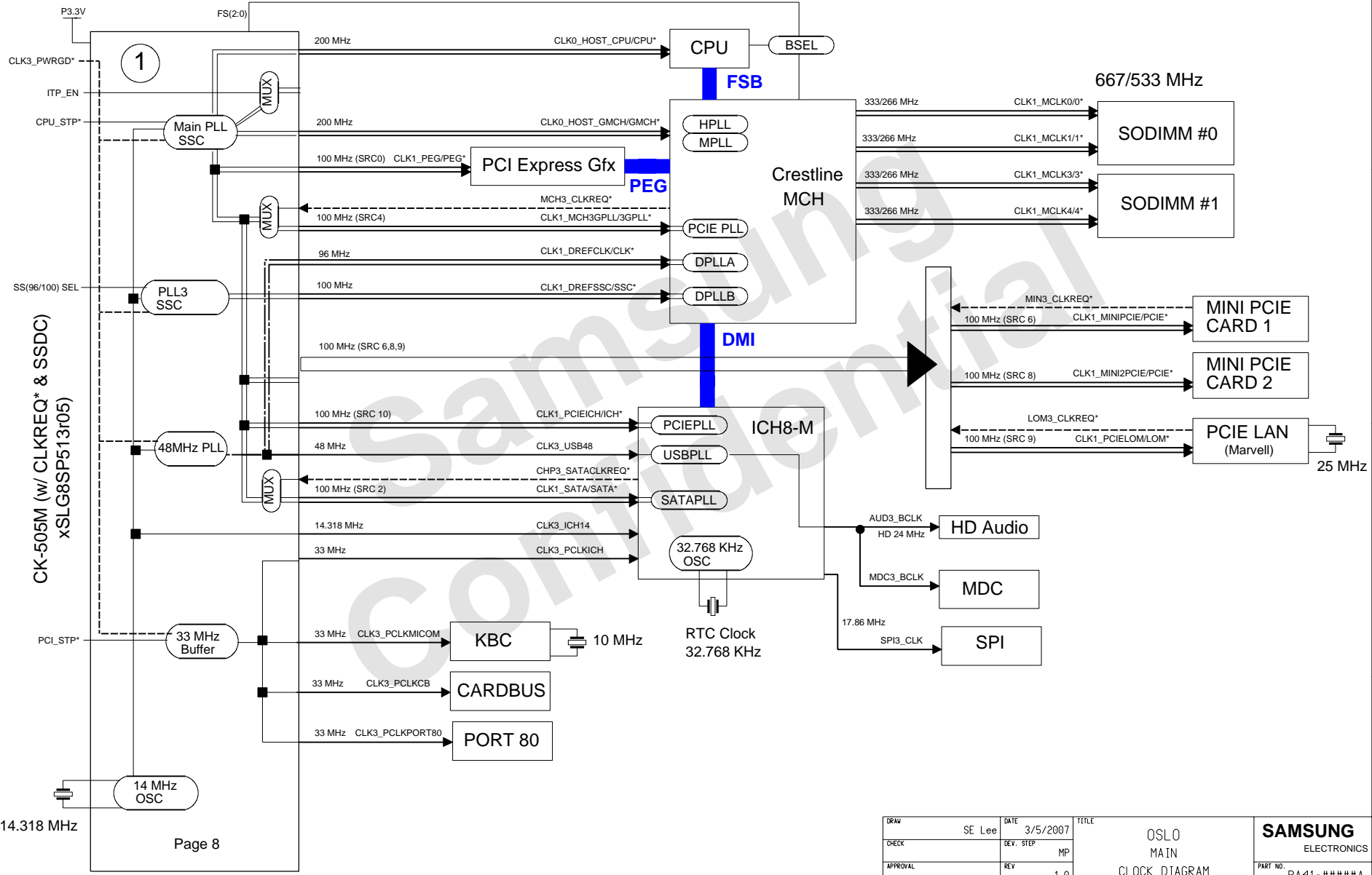
Host / ME Boot
 (SLPS4* = S4_STATE*) > SLPM* > SLPS3*

Host S5 / ME Boot
 (SLPS4* = SLPM*) > S4_STATE* > SLPS3*



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO MAIN POWER SEQUENCE	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	6	OF 60

CLOCK DISTRIBUTION Rev. 0.5

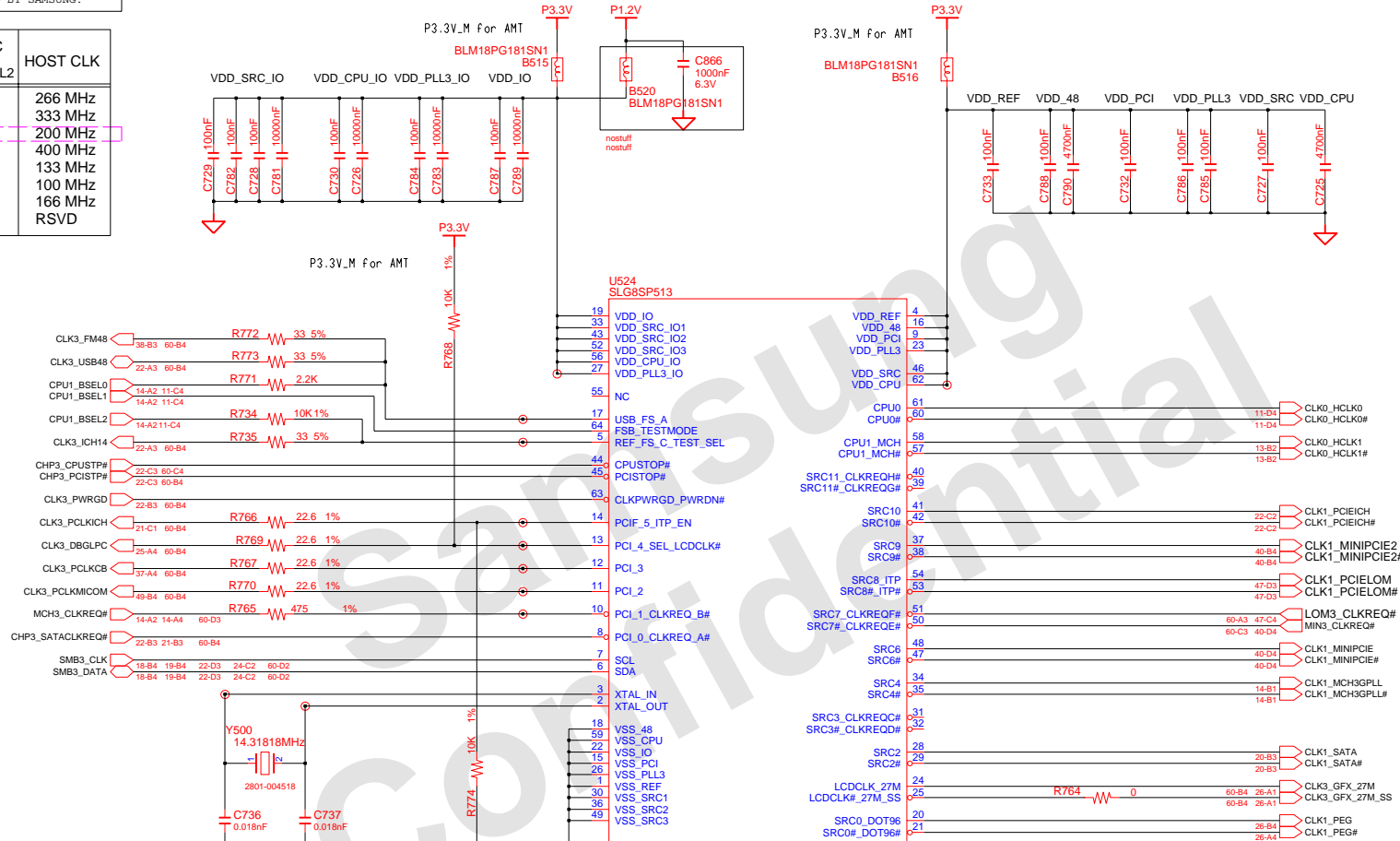


CK-505M (w/ CLKREQ* & SSSDC) xSLG8SP513105

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO MAIN	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	CLOCK DIAGRAM		
APPROVAL		REV	1.0			PART NO. BA41-#####A
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FSA	FSB	FSC	HOST CLK
BSEL0	BSEL1	BSEL2	
0	0	0	266 MHz
0	0	1	333 MHz
0	1	0	200 MHz
0	1	1	400 MHz
1	0	0	133 MHz
1	0	1	100 MHz
1	1	0	166 MHz
1	1	1	RSVD



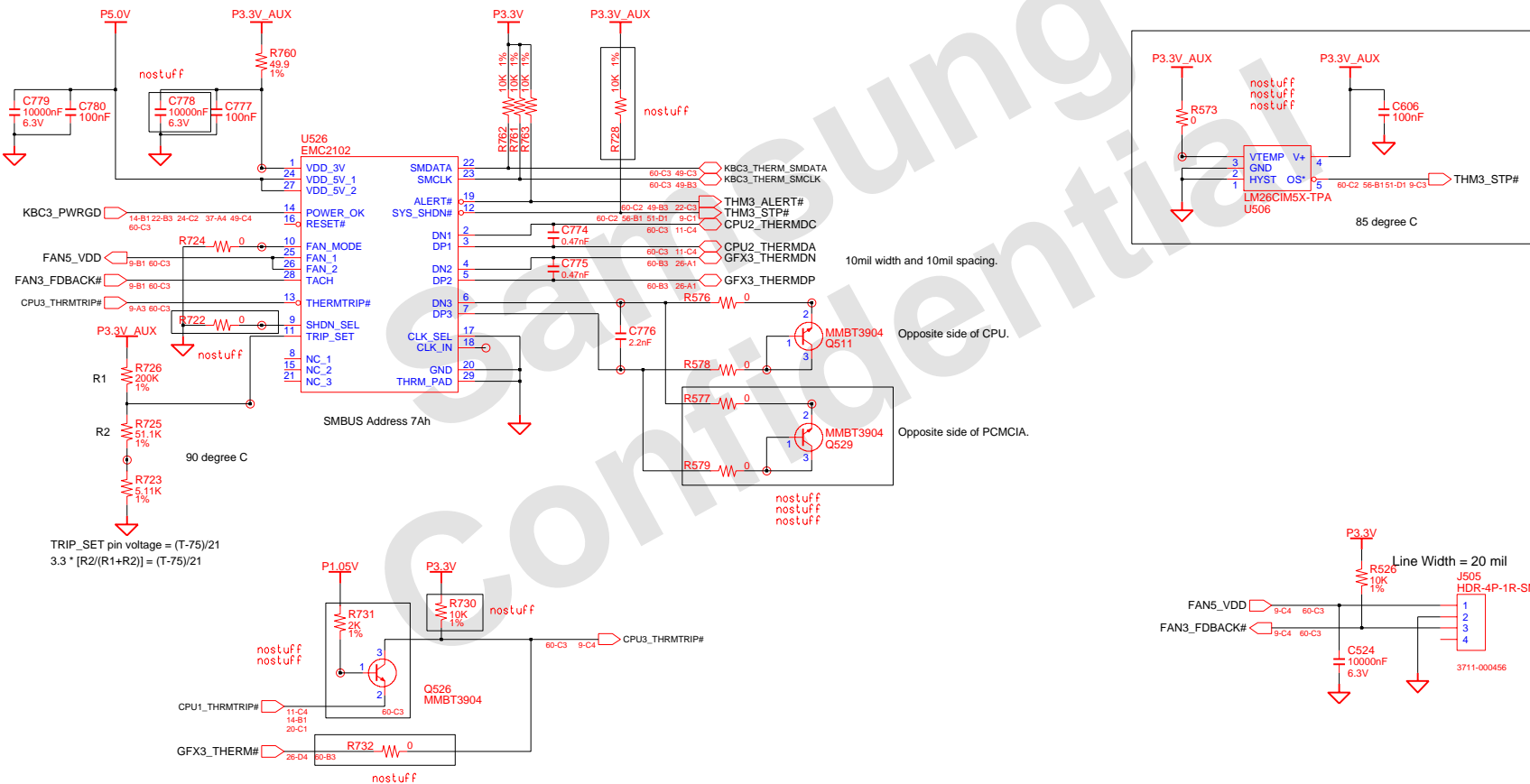
Place 14.31818MHz within 500mils of CK-505

This part is 64pin QFN package.

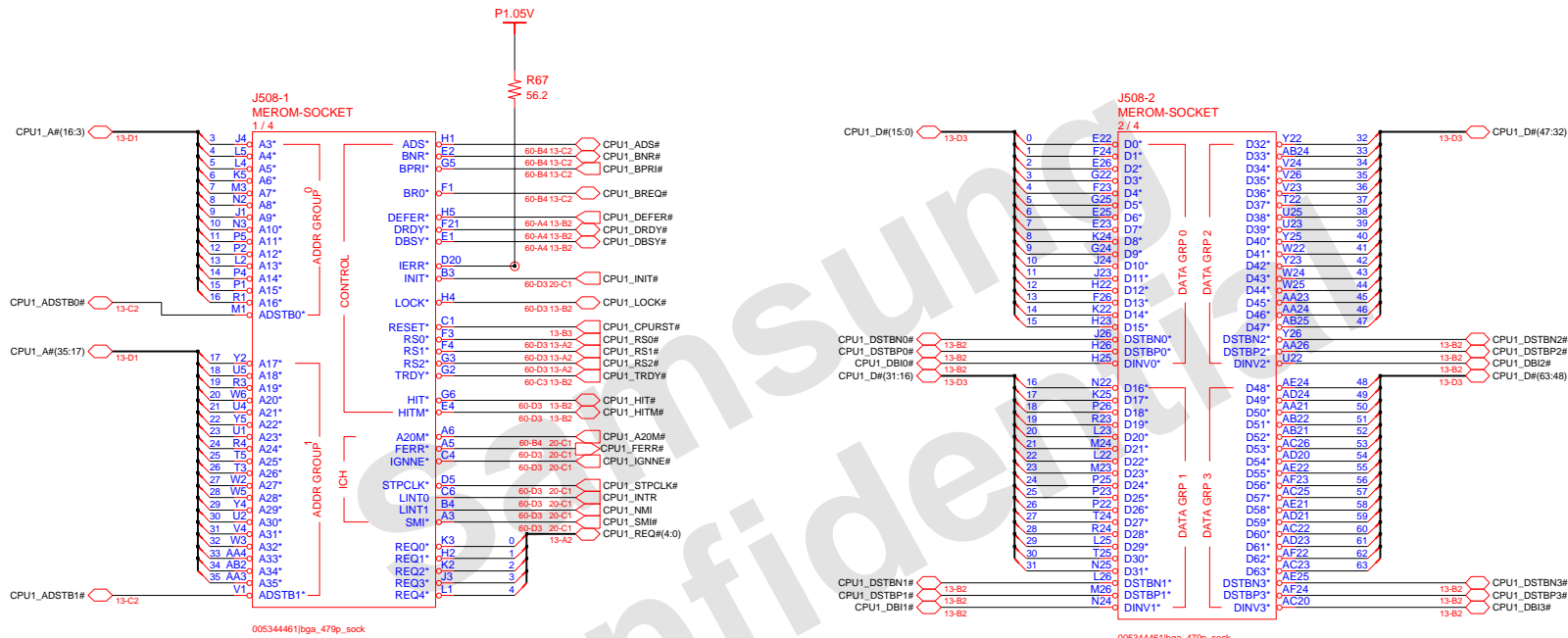
CLK REQ	DEVICE	SRC PORT
CLK REQ A	SATA	SRC2
CLK REQ B	GMCH	SRC4
CLK REQ E	MINI CARD	SRC6
CLK REQ F	LOM	SRC8

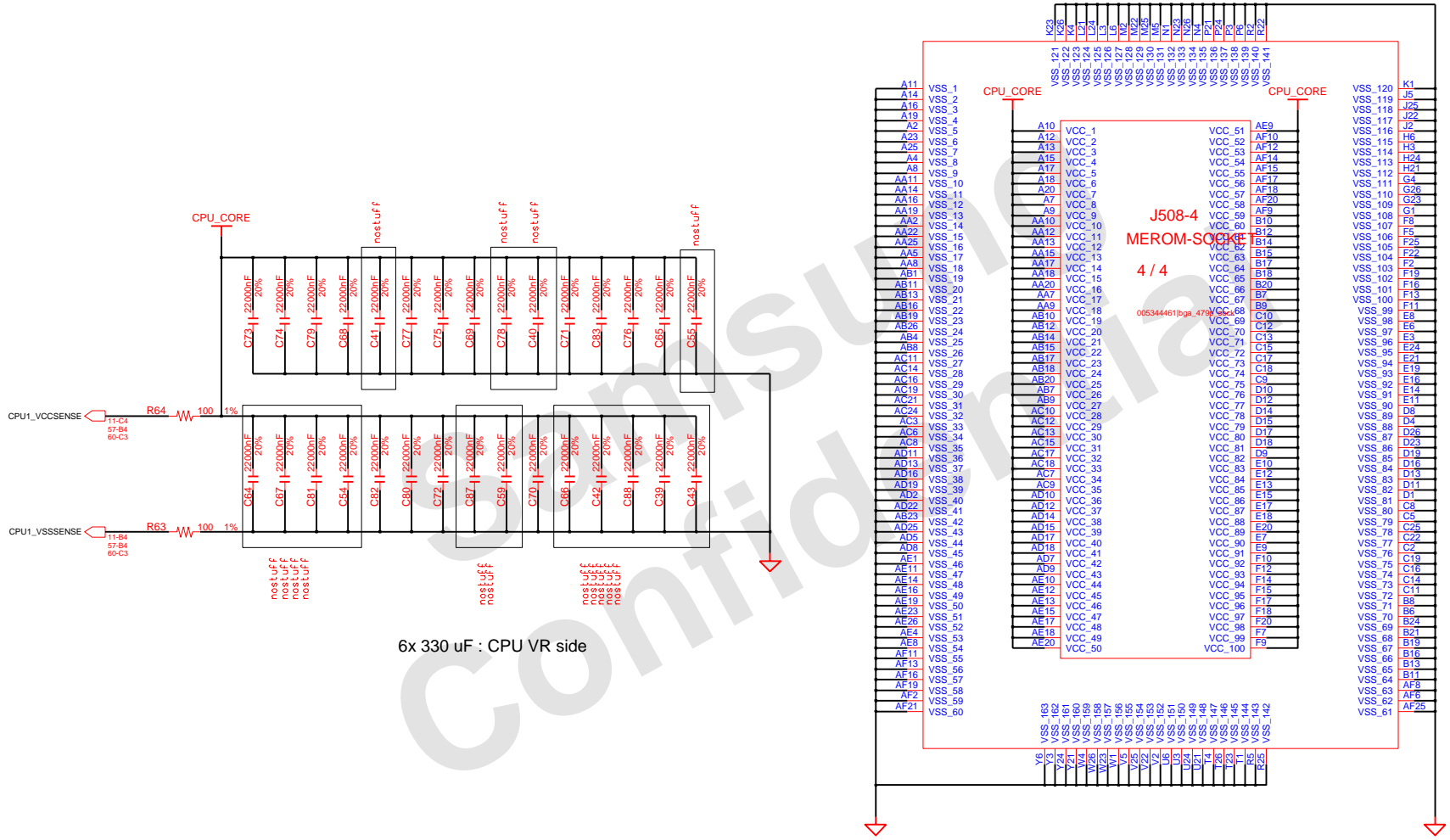
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MODULE CODE	undefined	LAST EDIT			March 5, 2007 2:44:01 PM	PAGE 8 OF 60

THERMAL SENSOR & FAN CONTROL



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO THERMAL BLOCK	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	THERMAL & FAN CONTROL		
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE 9 OF 60	





DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO CPU MEROM (3/3)	SAMSUNG ELECTRONICS PART NO. BA41-#####
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APPROVAL		REV	1.0			
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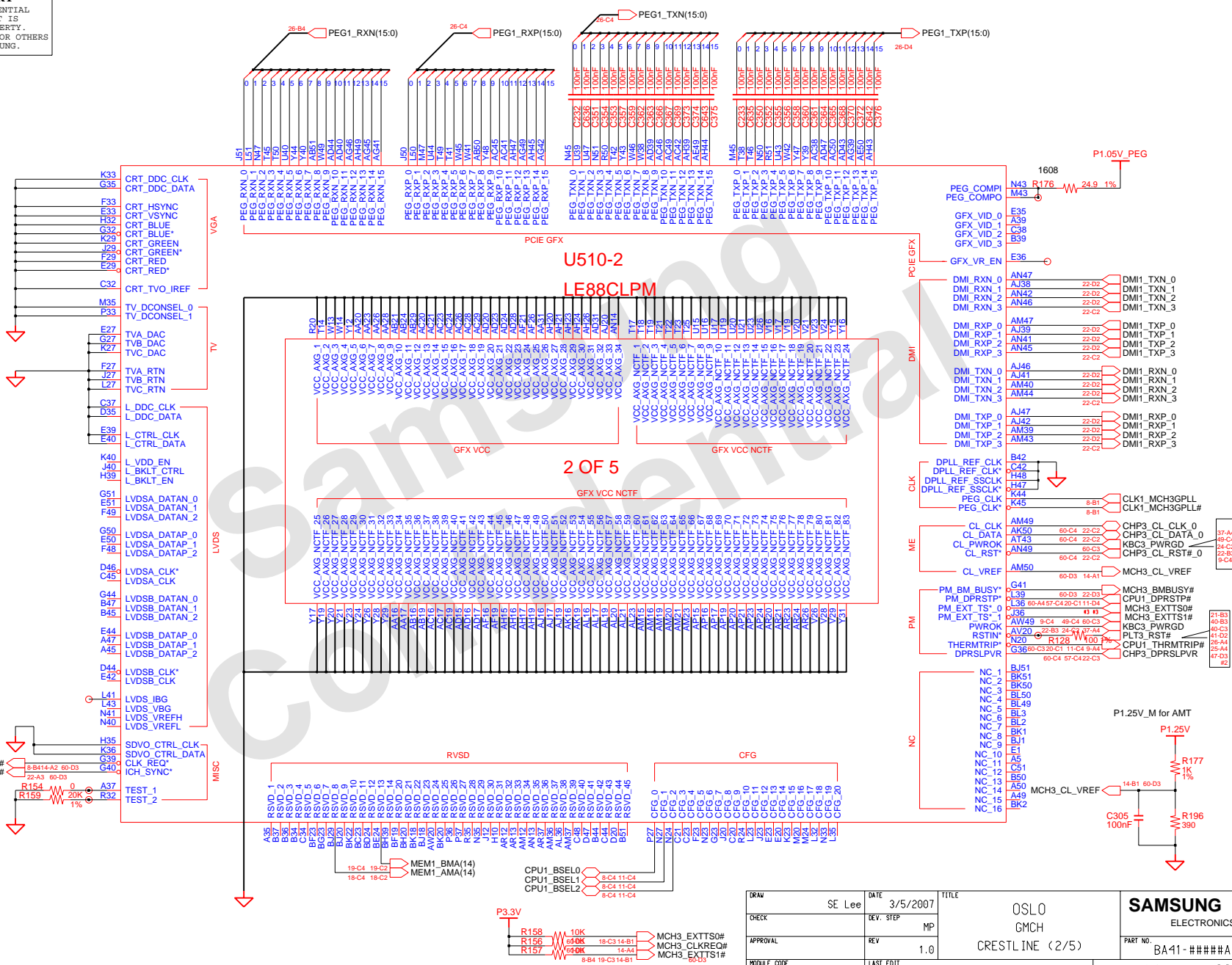
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D

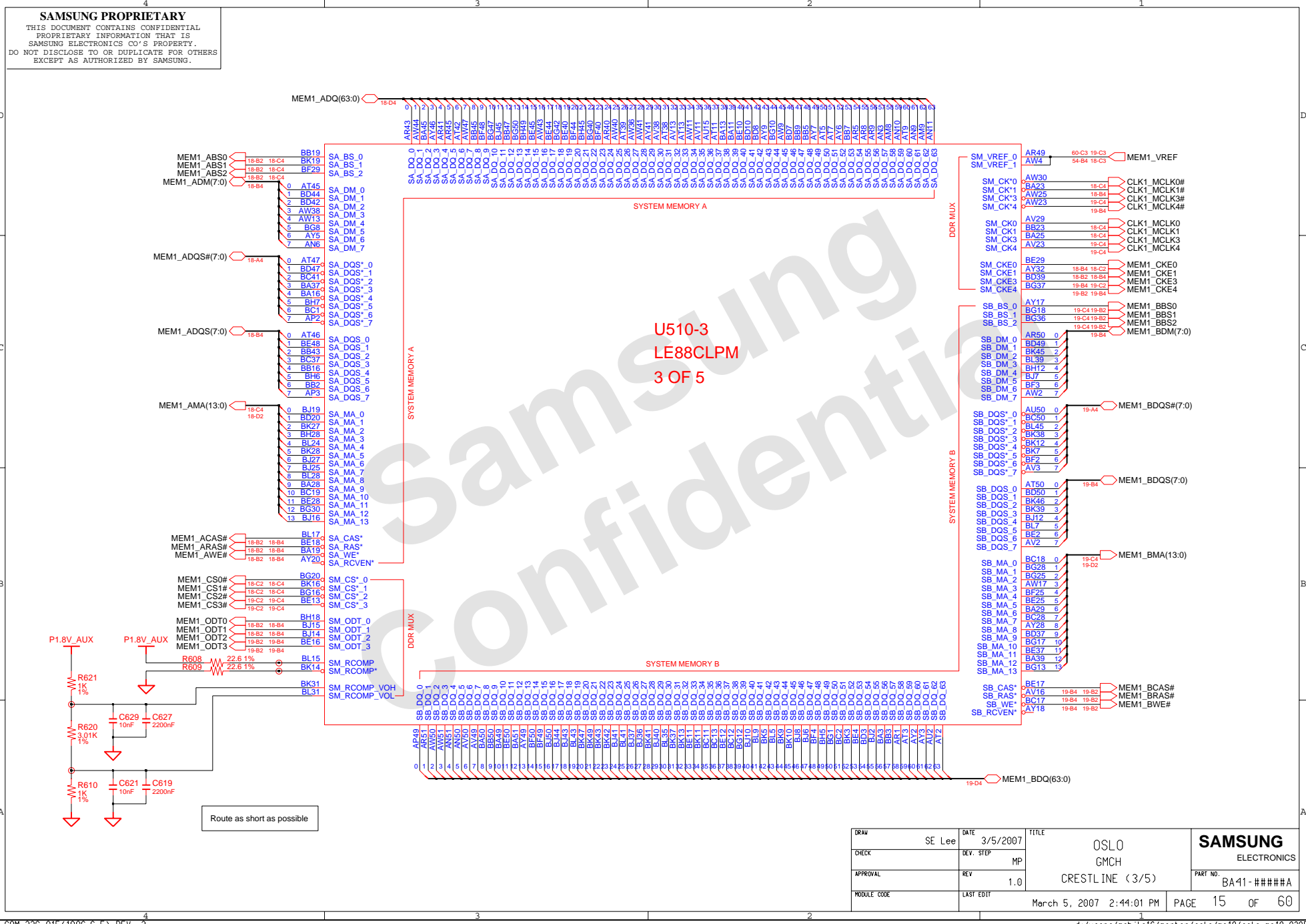
C

B

A



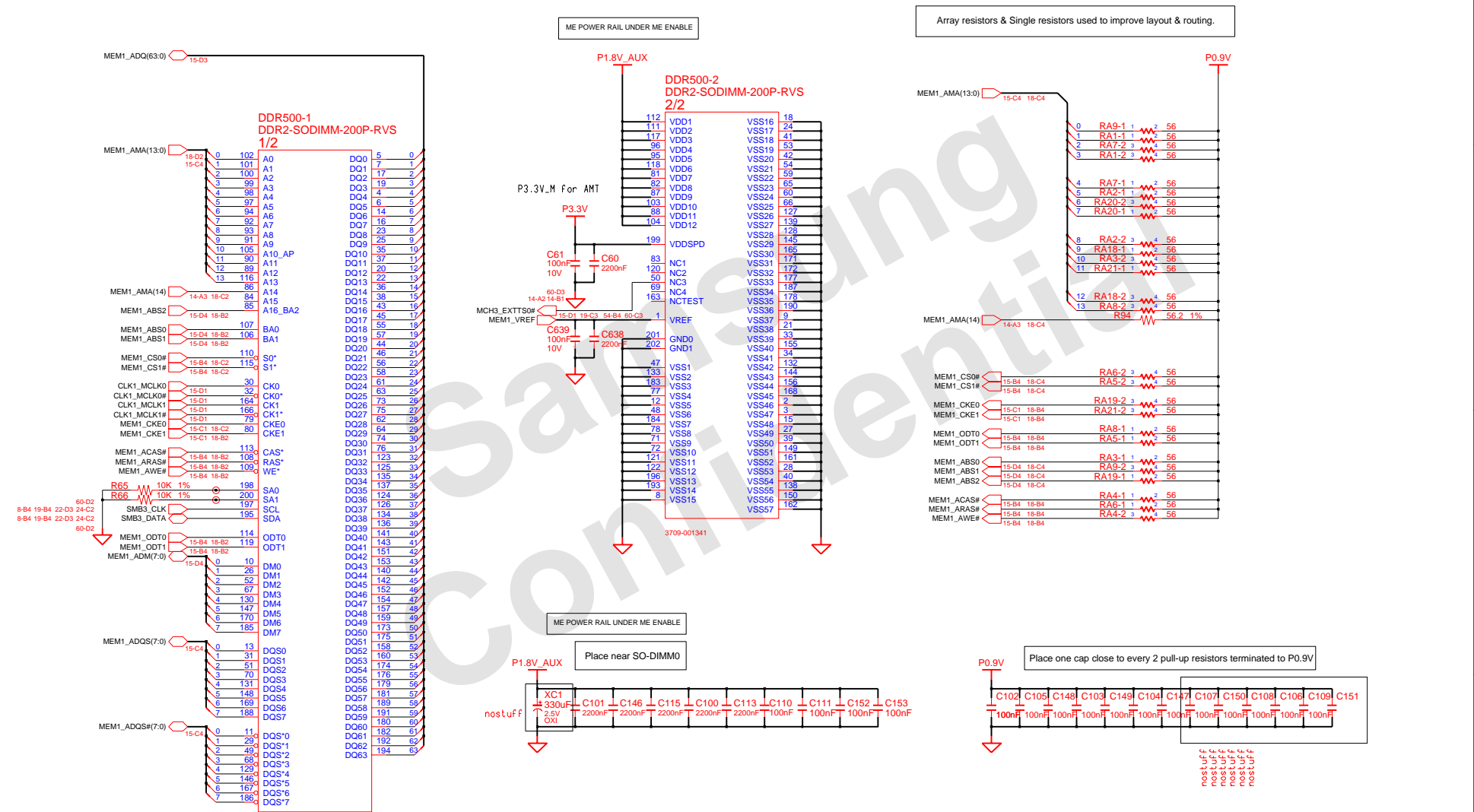
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO GMCH CRESTLINE (2/5)	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	14	OF 60



U510-3
 LE88CLPM
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DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO GMCH	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	CRESTLINE (3/5)		
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE	15 OF 60

DDR SO-DIMM #0



DRAW SE Lee CHECK DEV. STEP APPROVAL REV 1.0 MODULE CODE LAST EDIT	DATE 3/5/2007 TITLE OSLO SODIMM DDR II CH A March 5, 2007 2:44:01 PM	PART NO. SAMSUNG ELECTRONICS BA41-##### PAGE 18 OF 60
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DDR SO-DIMM #1

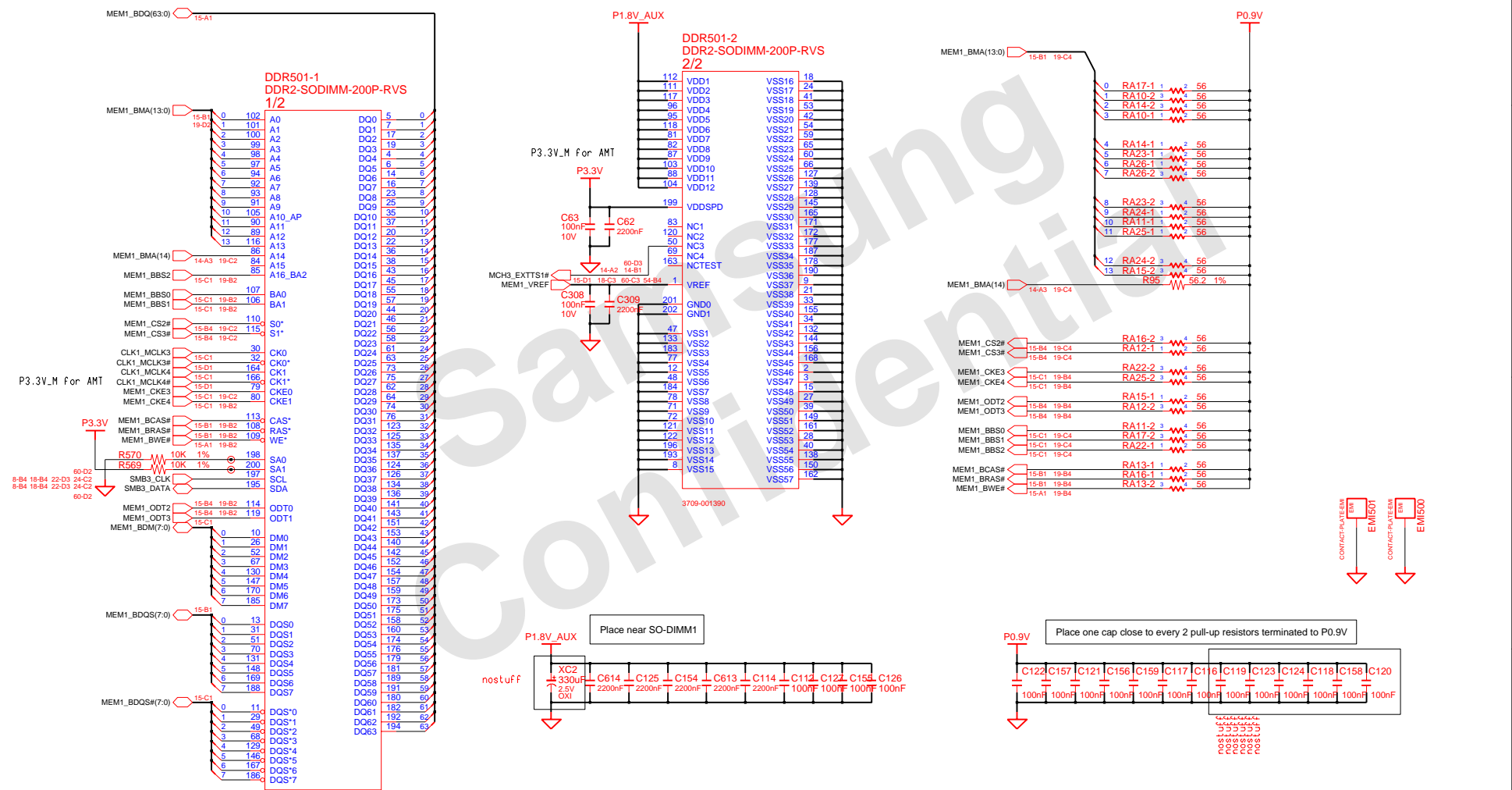
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C

B

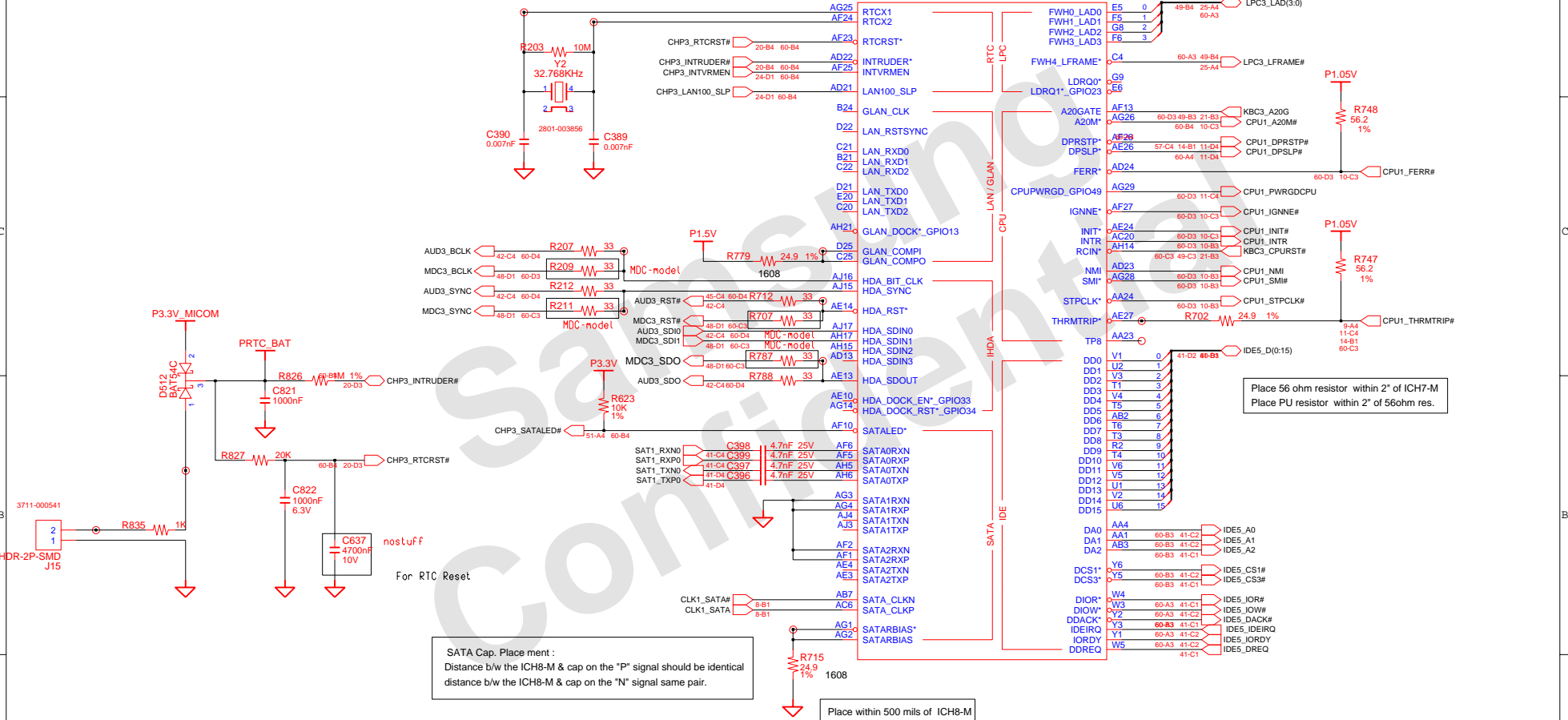
A

Array resistors & Single resistors used to improve layout & routing.



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APPROVAL		REV	1.0			PART NO. BA41-####A
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE	19 OF 60

**U11-1
 NH82801HEM
 1 / 5**

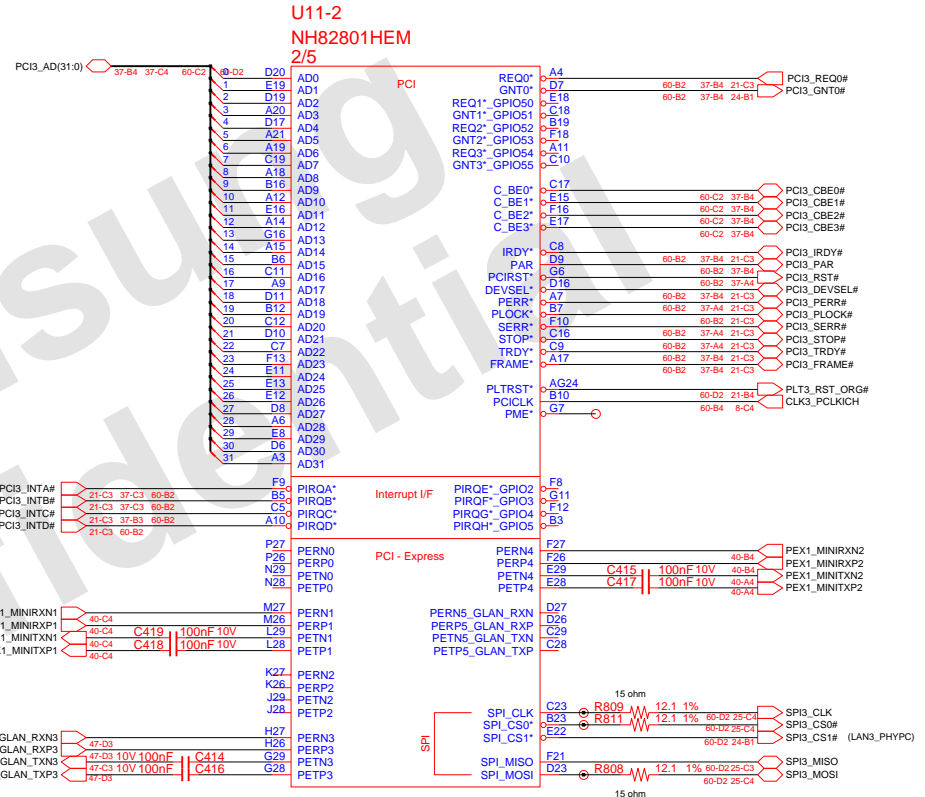
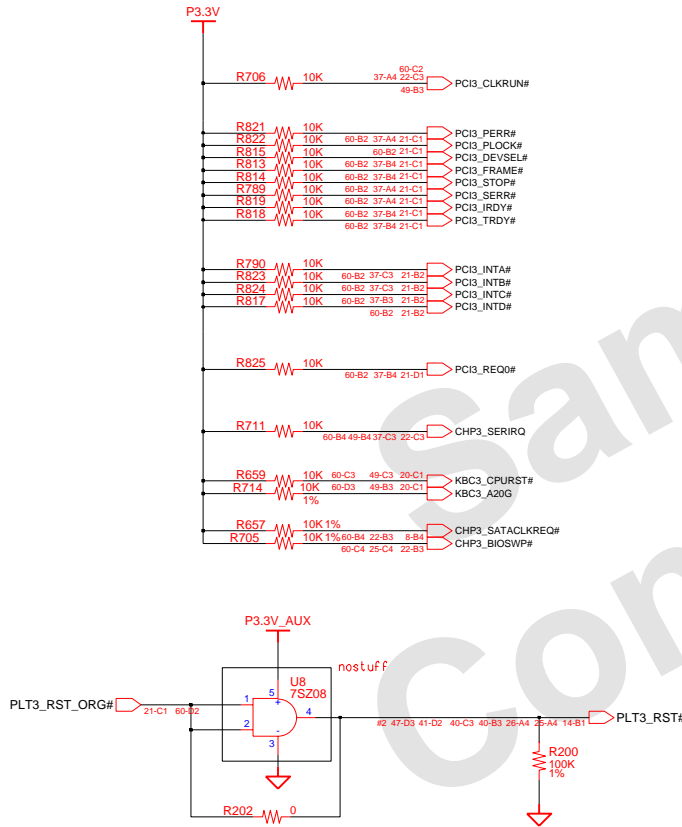


Place 56 ohm resistor within 2" of ICH7-M
 Place PU resistor within 2" of 56ohm res.

SATA Cap. Place ment :
 Distance b/w the ICH8-M and cap on the "P" signal should be identical
 distance b/w the ICH8-M & cap on the "N" signal same pair.

Place within 500 mils of ICH8-M

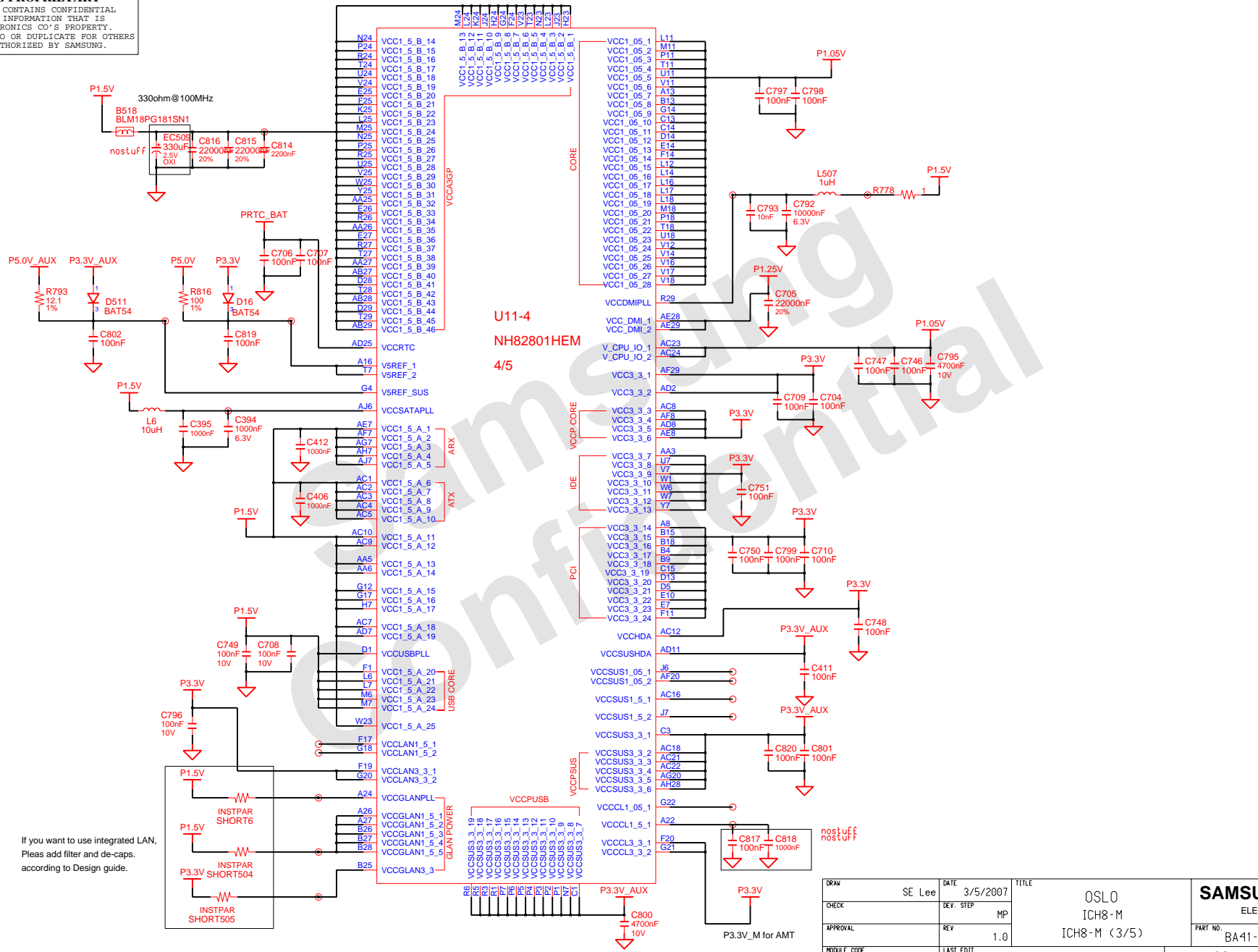
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MODULE CODE		LAST EDIT			March 5, 2007 2:44:01 PM	PAGE 20 OF 60

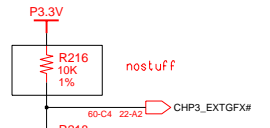
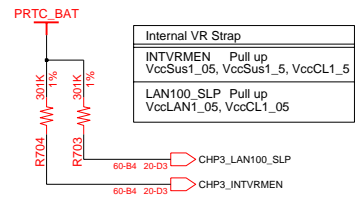
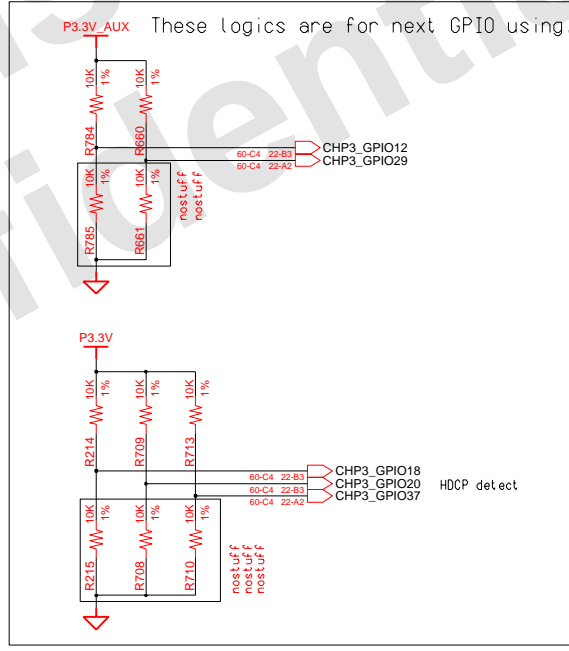
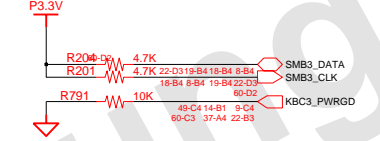
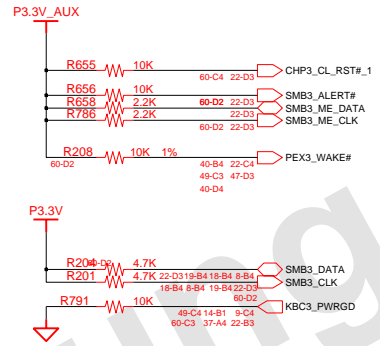
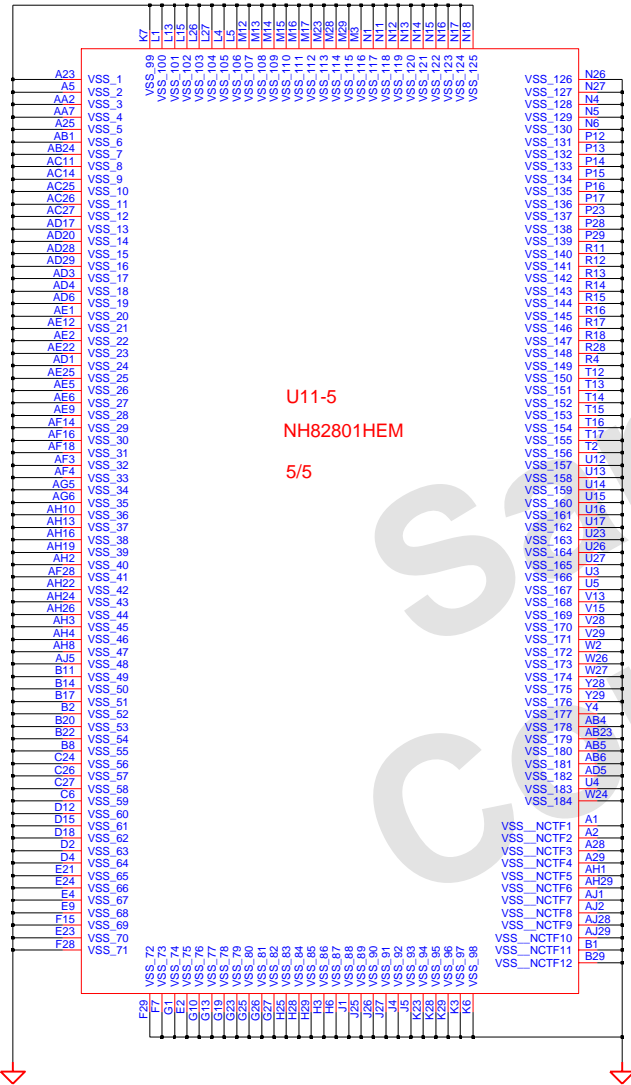


AC caps : PCIe need to be within 250mils of the driver
 Resistor for Test : Place Stuffed Option to minimize stubs

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO ICH8-M	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP		ICH8-M(2/5)	
APPROVAL		REV	1.0			PART NO. BA41-#####
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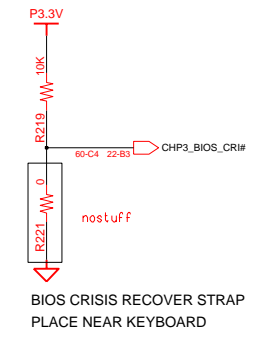
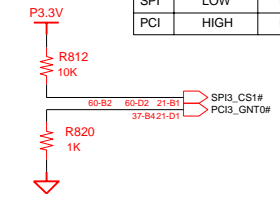
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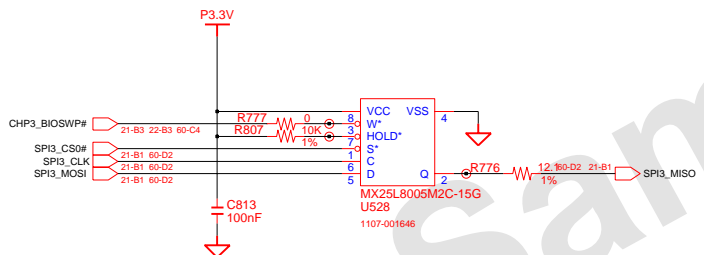
Boot BIOS Select

BIOS	PCI3_GNT0*	SPI3_CS1*
LPC	HIGH	HIGH
SPI	LOW	HIGH
PCI	HIGH	LOW

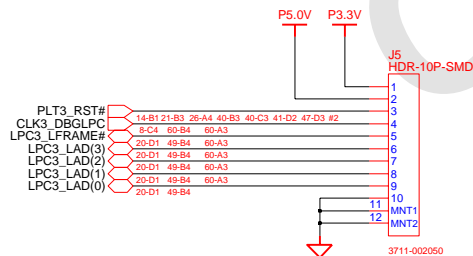


- SPI ROM LIST -

- ▶ Macronix - MX25L8005M2C-15G
- ▶ STM - M25PE80
- ▶ ATMEL - AT26DF081A-SU
- SST - 25VF080B-50-4C-S2AF
- WINBOND - W25X80-VSSI-G



80H DECODER CONNECTOR

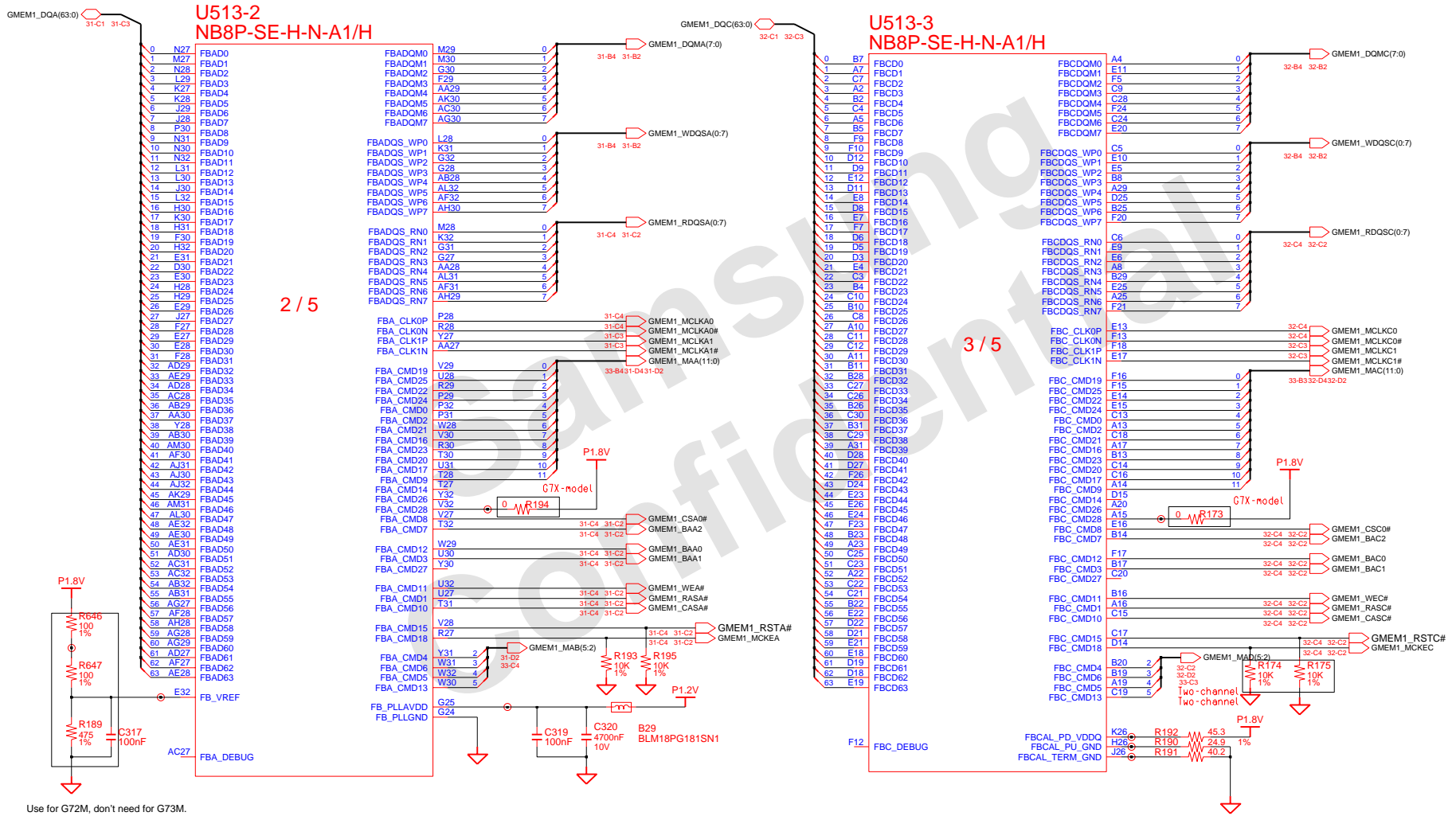


02	VERIFY REAL MODE	66	CONFIGURE ADVANCE CACHE REG.
03	DISABLE NMI	6A	DISPLAY EXTERNAL CACHE SIZE
04	GET CPU TYPE	6C	DISPLAY SHADOW MESSAGE
06	INIT. SYSTEM H/W	6E	DISPLAY NON-DISPOSABLE SEGMENT
08	INIT. CHIPSET REG.	70	DISPLAY ERROR MESSAGE
09	SET IN POST FLAG	72	CHECK FOR CONFIGURATION ERROR
0A	INIT CPU.REG	74	TEST REAL-TIME CLOCK
0B	CPU CACHE ON	76	CHECK FOR KEYBOARD ERROR
0C	INIT.CACHE TO POST	7C	SETUP HARDWARE INTERRUPT VECTOR
0E	INIT. I/O VALUE	7E	TEST COPROCESSER IF PRESENT
0F	ENABLE THE L-BUS IDE	80	DISABLE ON-BOARD I/O PORT
10	INIT. POWER MANAGER	82	DETECT AND INSTALL EXT.RS232C
11	LOAD ALTERNATE REG.	84	DETECT AND INSTALL EXT.PARALLEL
13	PCI BUS MASTER RESET WITH INITIAL POST VALUE	86	RE-INIT. ON-BOARD I/O PORT
14	INIT. KEYBOARD CONTROLLER	88	INIT. BIOS DATA ROM
16	CHECK CHECKSUM	8A	INIT.EXTENDED BIOS DATA AREA
18	8254 TIMER INIT.	8C	INIT. FDD CONTROLLER
1A	8237 DMA CONTROLLER INIT.	9A	SHADOW OPTION ROMS
1C	RESET INTERRUPT CONTROLLER	9C	SETUP POWER MANAGEMENT
20	TEST DRAM REFRESH	9E	ENABLE H/W INTERRUPT
22	TEST 8742 KEYBOARD CONTROLLER	A0	SET TIME OF DAY
24	SET ES SEGMENT REG. TO 4GB	A4	INIT. TYPOMATIC RATE
26	ENABLE A20	A8	ERASE F2 PROMPT
28	AUTO SIZING DRAM	AA	SCAN FOR F2 KEY STROKE
32	COMPUTE THE CPU SPEED	AC	ENTER SETUP
34	TESET CMOS RAM	AE	CLEAR IN POST FLAG
38	SHADOW SYSTEM BIOS ROM	B0	CHECK FOR ERRORS
3A	AUTO SIZING CACHE	B2	POST DONE-PREPARE TO BOOT O/S
3C	CONFIGURE ADVANCED CHIPSET REG.	B4	ONE BEEP
3D	LOAD ALTER REG. WITH CMOS VALUE	B6	CHECK PASSWORD (OPTION)
42	INIT. INTERRUPT VECTOR	B7	ACPI INIT
44	INIT. BIOS INTERRUPT	BA	DMI INIT
46	CHECK ROM COPYRIGHT NOTICE	BE	CLEAR SCREEN
47	INIT. I20 SUPPORT IF INSTALLED	C0	TRY BOOT WITH INT19
48	CHECK VIDEO CONFIGURE AGAINST CMOS	D0	INTERRUPT HANDLER ERROR
49	INIT. PCI BUS AND DEVICE	D2	UNKNOWN INTERRUPT ERROR
4A	INIT. ALL VIDEO BIOS ROM	D4	PENDING INTERRUPT ERROR
4C	SHADOW VIDEO BIOS ROM	D6	SHUTDOWN 5
50	DISPLAY CPU TYPE AND SPEED	D8	SHUTDOWN ERROR
52	TEST KEYBOARD	DA	EXTENDED BLOCK MOVE
54	SET KEYCLICK IF ENABLED	DC	SHUTDOWN 10
56	ENABLE KEYBOARD	89	ENABLE NMI
58	TEST FOR UNEXPECTED INTERRUPTS	90	INIT. HDD CONTROLLER
5A	DISPLAY " PRESS SETUP"	91	INIT. LOCAL BUS HDD CONTROLLER
5C	TEST RAM BETWEEN 512K AND 640K	92	JUMP TO USER PATCH 2
60	TEST EXTENDED MEMORY	94	DISABLE A20 ADDRESS LINE
62	TEST EXTENDED MEMORY ADDRESS LINE	96	CLEAR HUGE ES SEGMENT REG.
64	JUMP TO USER PATCH 1	98	SEARCH FOR OPTION ROMS

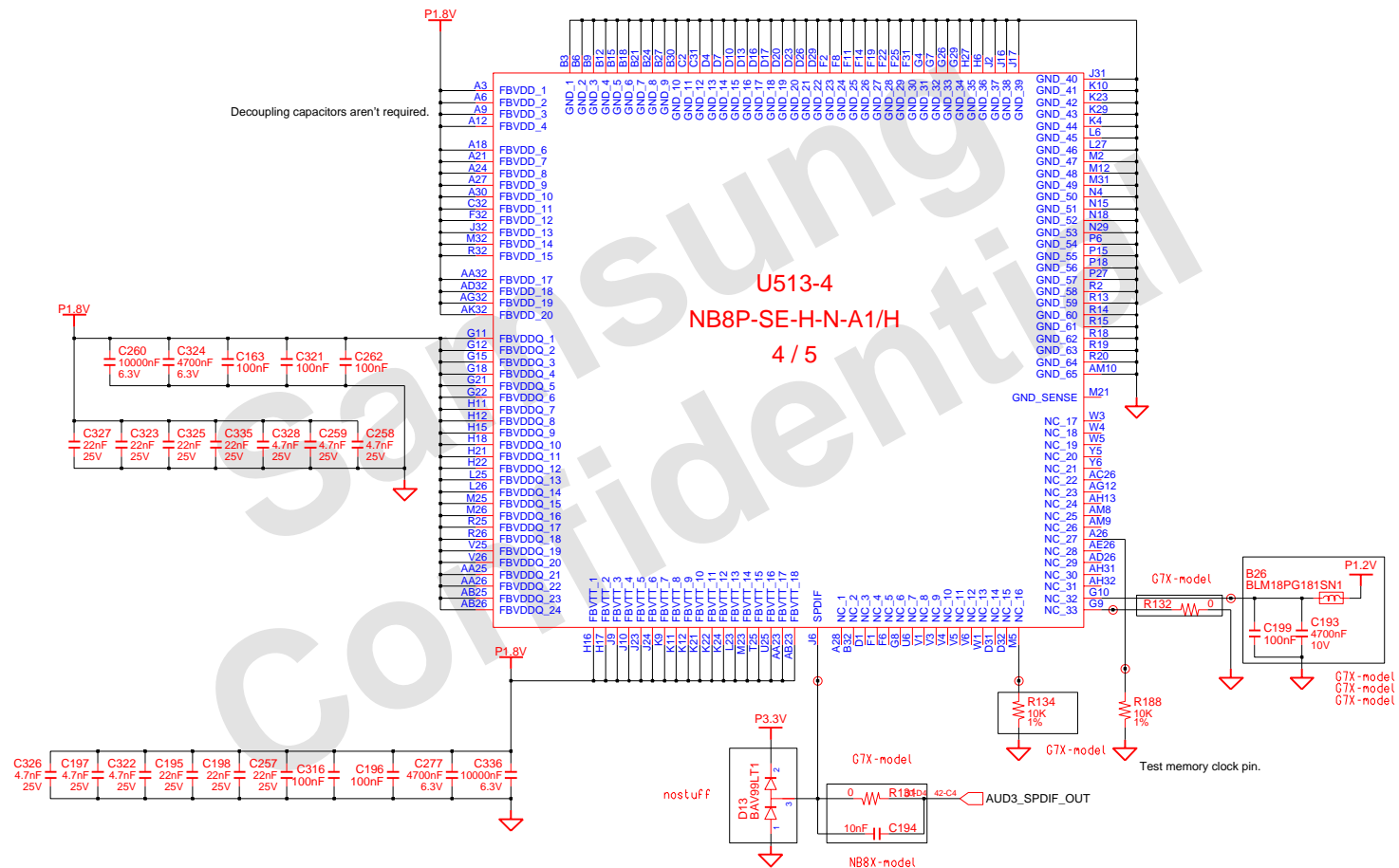
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO SPI ROM SPI ROM	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP		PART NO.	
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Graphic Memory I/F (Using FBA Channel)

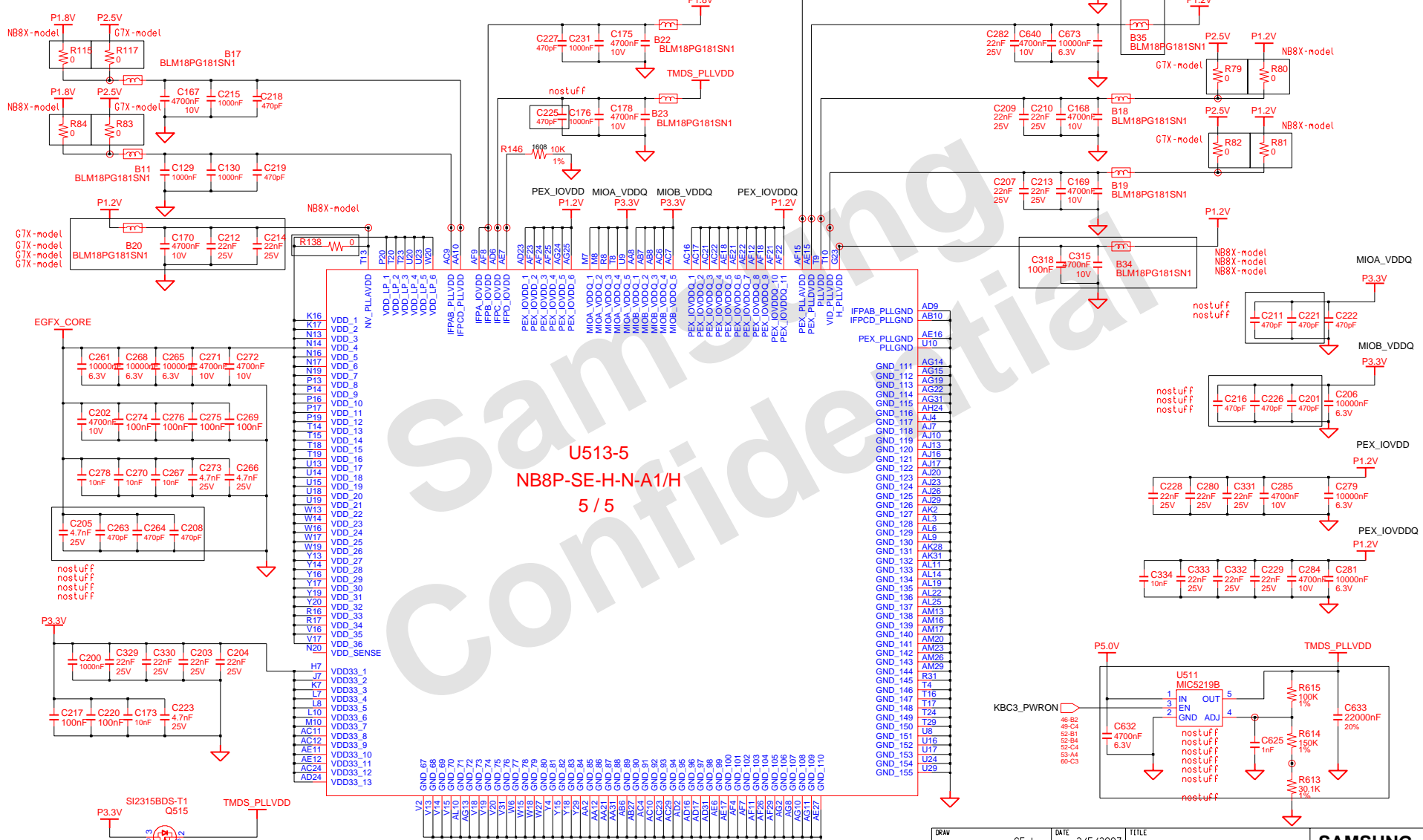
Graphic Memory I/F (Using FBC Channel)



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO EXT GFX	SAMSUNG ELECTRONICS
CHECK		REV. STEP	MP	EXT GFX CHIP (2/4)		
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	27	OF 60



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO EXT GFX EXT GFX CHIP (3/4)	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	28	OF 60



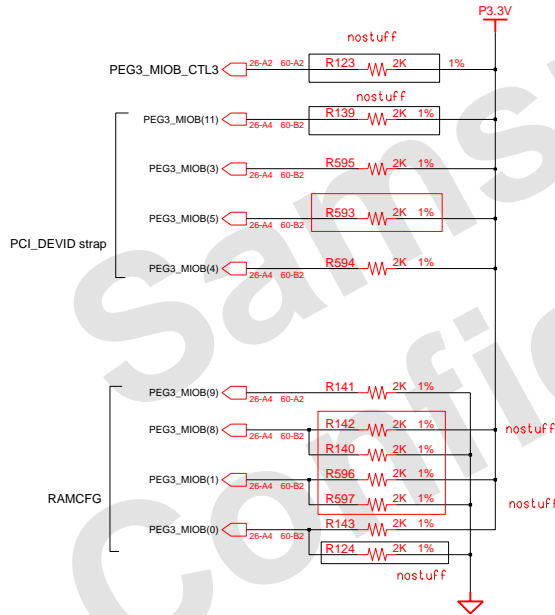
U513-5
NB8P-SE-H-N-A1/H
 5 / 5

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO EXT GFX	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	EXT GFX CHIP (4/4)		
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE	29 OF 60

Need to modify

	R677	R80	R78	R79
72M-V	no-stuff	stuff	stuff	stuff
72M	stuff	no-stuff	no-stuff	no-stuff
73M	stuff	no-stuff	no-stuff	no-stuff

	R680	R78	R81	R82
SS 256Mb	stuff	no-stuff	stuff	no-stuff
INF 256Mb	stuff	no-stuff	no-stuff	stuff
SS 512Mb	no-stuff	stuff	stuff	no-stuff
INF 512Mb	no-stuff	stuff	no-stuff	stuff

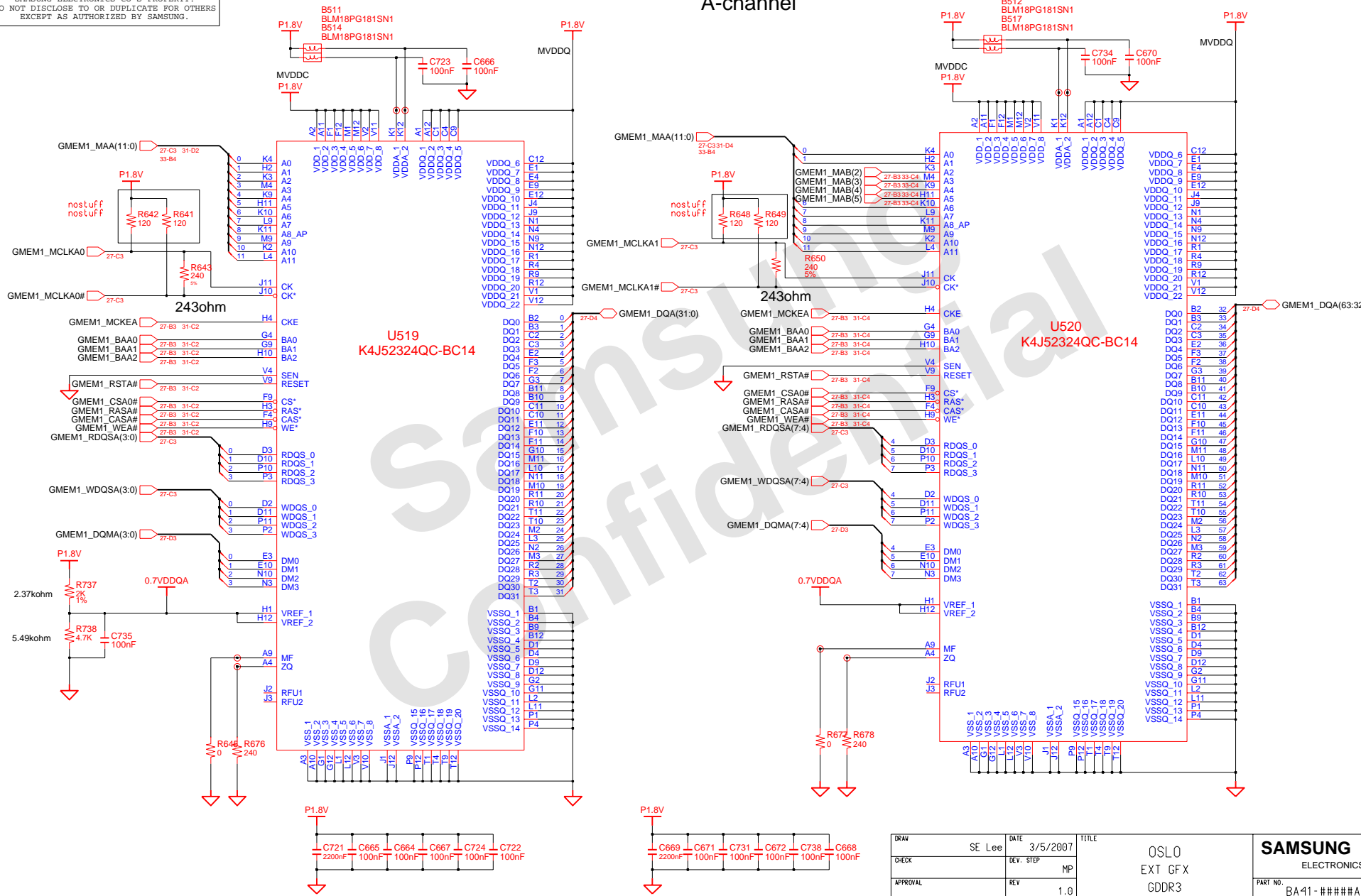


NB8X

Straps	Pin # (Rev.A02)	Descriptions
SUB_VENDOR	MIOAD(1)	0 : No BIOS 1 : Read from BIOS(Default)
RAMCFG(3:0) [9,8,1,0]	MIOB(9) MIOB(8) MIOB(1) MIOB(0)	0111 : samsung GDDR3 256Mbit 0101 : infineon GDDR3 256Mbit 0011 : samsung GDDR3 512Mbit 0001 : infineon GDDR3 512Mbit
CRYSTAL	MIOB(2)	0 : 27 MHz (Default) 1 : Reserved
TV_MODE(2:0)	MIOB(6) MIOAD(10) MIOAD(7)	000 : NTSC M 001 : NTSC J (default) 010 : PAL M 011 : PAL N 100 : PAL CN 101 : PAL BDGHI 110 : Reserved 111 : Reserved
PCI_DEVID(4:0) [CTL3, 11,3,5,4]	CTL 3 MIOB(11) MIOB(3) MIOB(5) MIOB(4)	NB8P-GS : 0x407 (0111) NB8P-SE : 0x425 (0101) NB8M-GS : 0x427 (0111) 73M : 0X0398
ROM_TYPE(1:0)	MIOBVSYN MIOB(10)	No ROM (NC)
USER STRAP	MIOAD(5:2)	EDID

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO EXT GFX STRAP	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE		LAST EDIT				
				March 5, 2007 2:44:01 PM	PAGE 30	OF 60

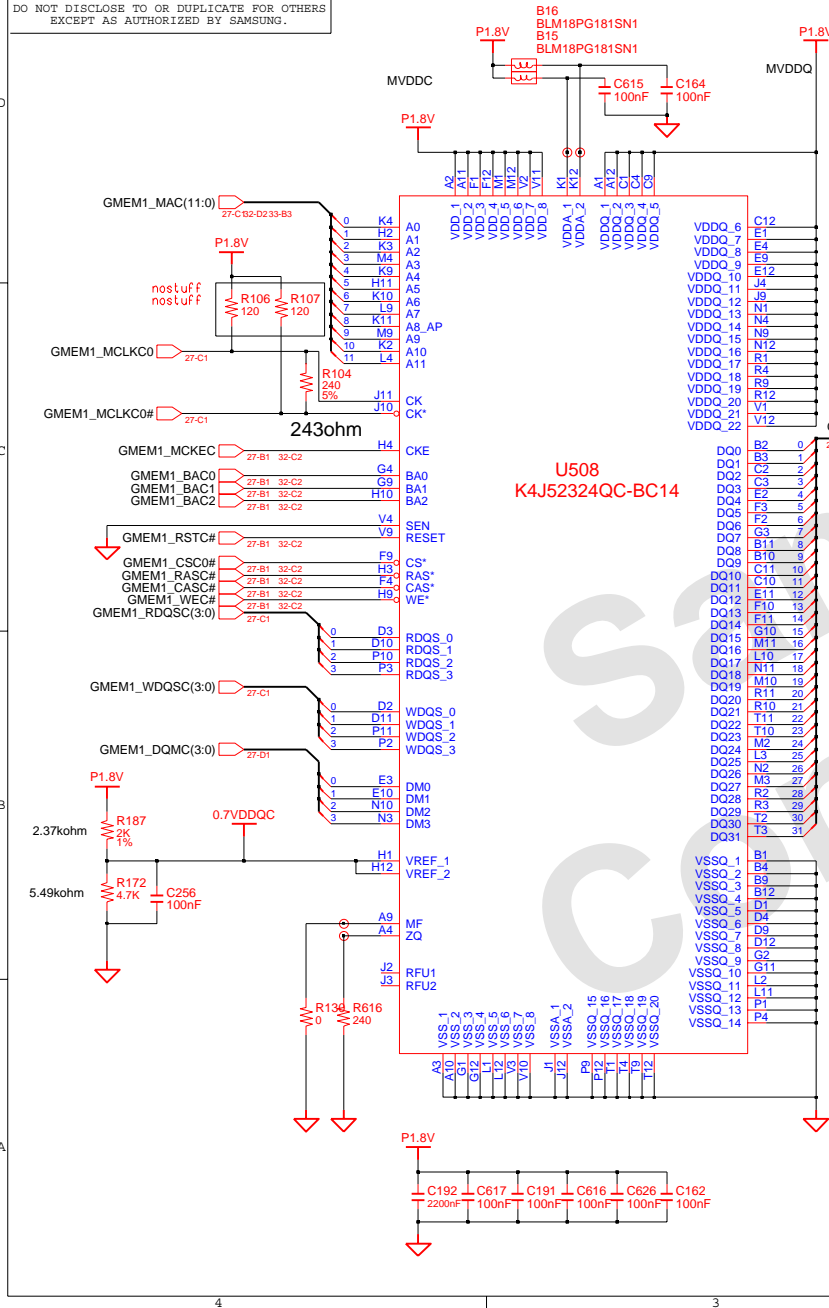
A-channel

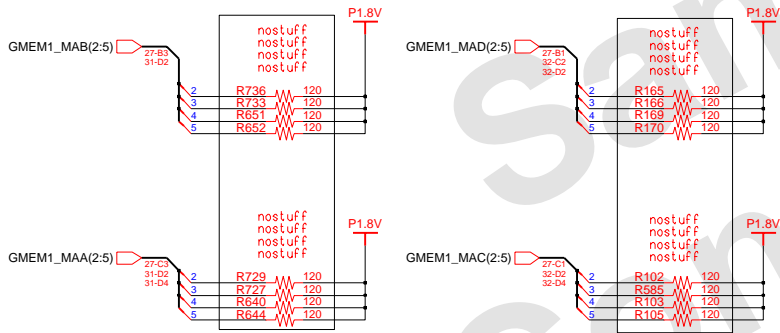


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO EXT GFX GDDR3	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE		LAST EDIT				
				March 5, 2007 2:44:01 PM	PAGE 31 OF 60	

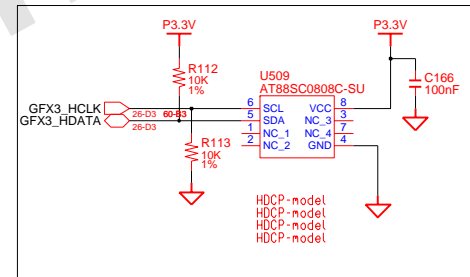
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This page is for "2channel-model".



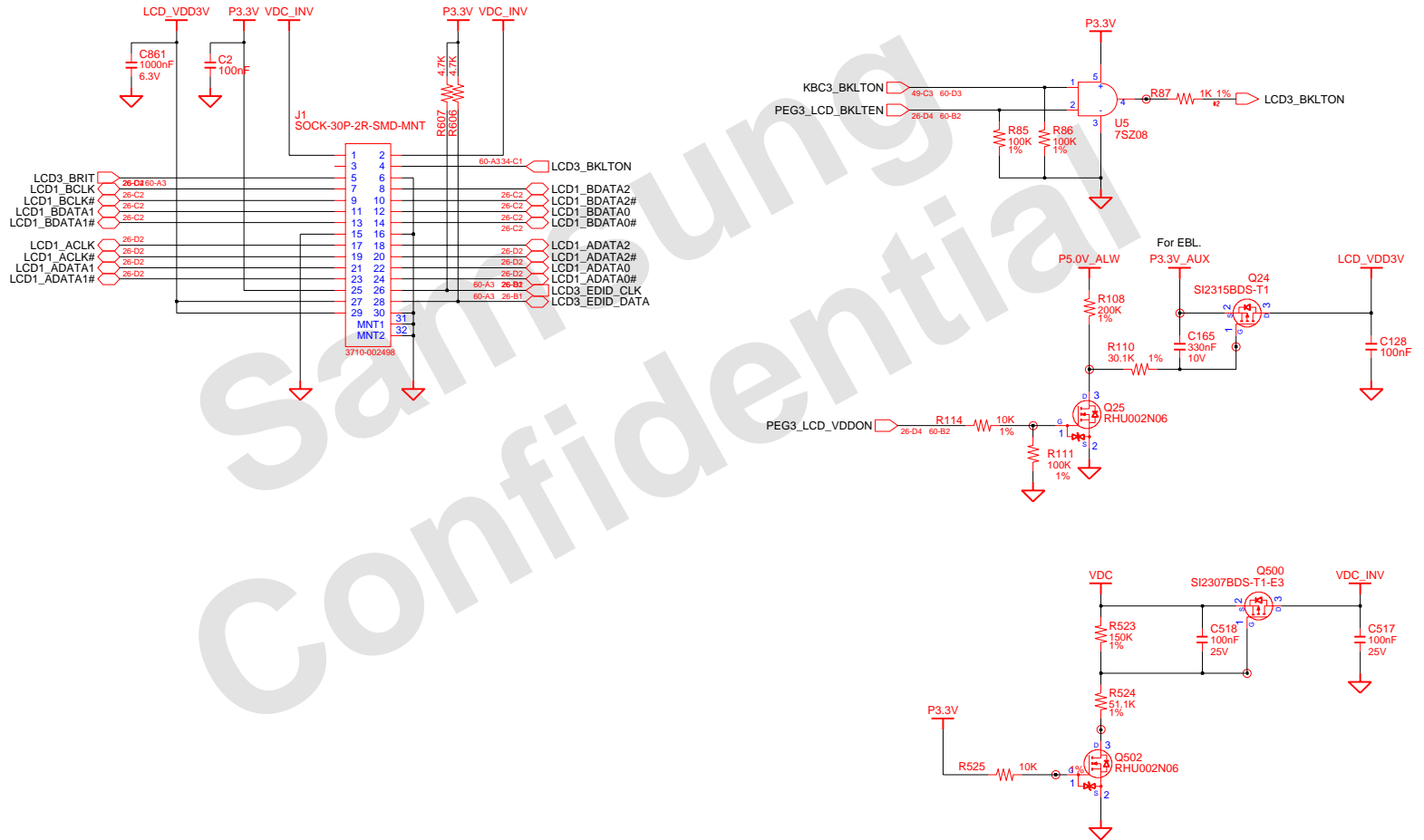


HDCP ROM

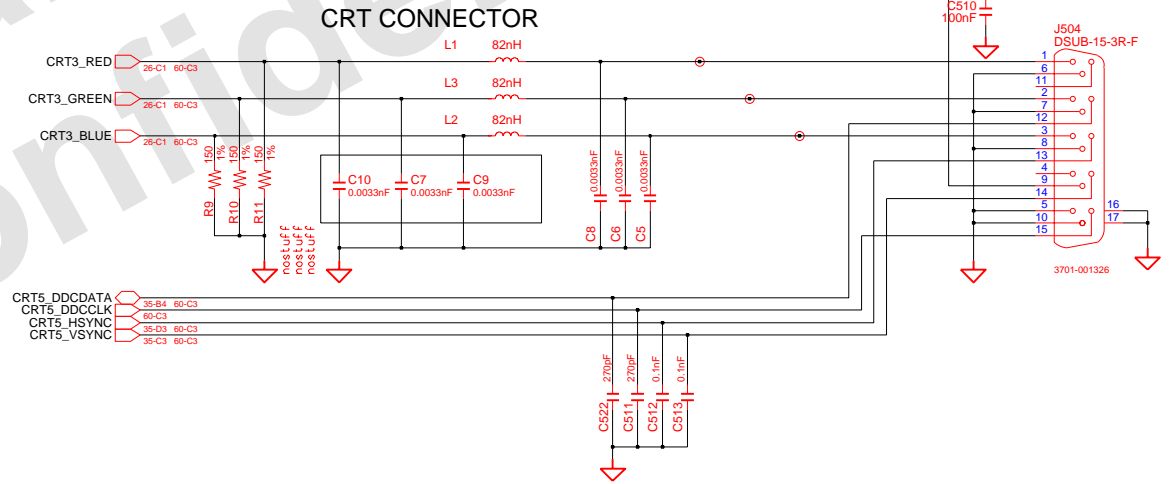
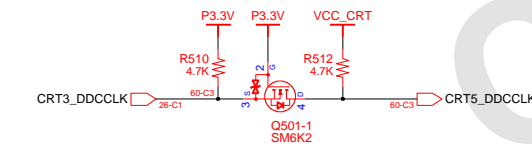
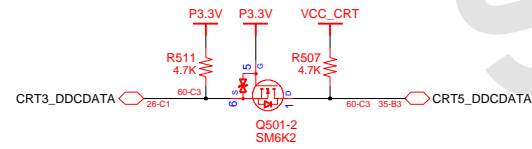
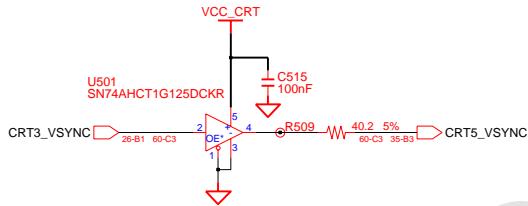
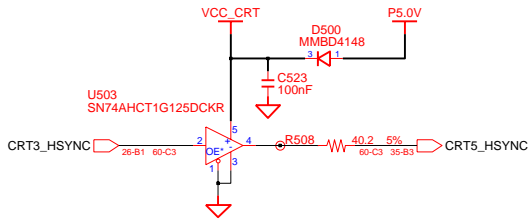


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO EXT GFX HDCP ROM	SAMSUNG ELECTRONICS PART NO. BA41-#####A
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	33	OF 60

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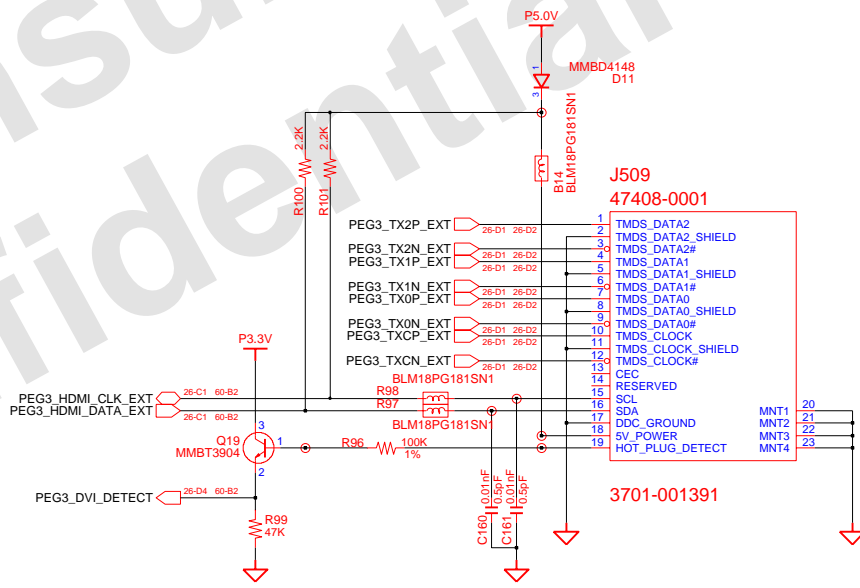
<table border="1"> <tr><td>DRAW</td><td>SE Lee</td></tr> <tr><td>CHECK</td><td></td></tr> <tr><td>APPROVAL</td><td></td></tr> <tr><td>MODULE CODE</td><td>undefined</td></tr> </table>	DRAW	SE Lee	CHECK		APPROVAL		MODULE CODE	undefined	<table border="1"> <tr><td>DATE</td><td>3/5/2007</td></tr> <tr><td>DEV. STEP</td><td>MP</td></tr> <tr><td>REV</td><td>1.0</td></tr> <tr><td>LAST EDIT</td><td></td></tr> </table>	DATE	3/5/2007	DEV. STEP	MP	REV	1.0	LAST EDIT		<table border="1"> <tr><td>TITLE</td><td>OSLO LCD</td></tr> <tr><td></td><td>LCD OPTION & LCD VDDEN</td></tr> </table>	TITLE	OSLO LCD		LCD OPTION & LCD VDDEN	<table border="1"> <tr><td>SAMSUNG ELECTRONICS</td></tr> <tr><td>PART NO. BA41-#####</td></tr> </table>	SAMSUNG ELECTRONICS	PART NO. BA41-#####
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CHECK																									
APPROVAL																									
MODULE CODE	undefined																								
DATE	3/5/2007																								
DEV. STEP	MP																								
REV	1.0																								
LAST EDIT																									
TITLE	OSLO LCD																								
	LCD OPTION & LCD VDDEN																								
SAMSUNG ELECTRONICS																									
PART NO. BA41-#####																									
<table border="1"> <tr><td>PAGE</td><td>34</td></tr> <tr><td>OF</td><td>60</td></tr> </table>		PAGE	34	OF	60	<table border="1"> <tr><td>PAGE</td><td>34</td></tr> <tr><td>OF</td><td>60</td></tr> </table>		PAGE	34	OF	60														
PAGE	34																								
OF	60																								
PAGE	34																								
OF	60																								



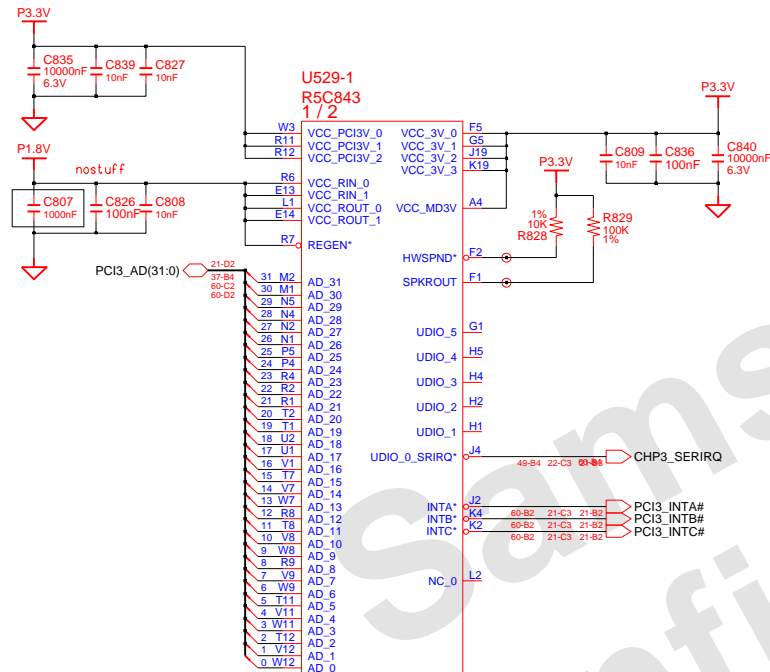
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CHECK	CHO, KS	DEV. STEP	MP	PART NO.		
APPROVAL	KOO, JG	REV	1.0			
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE 35	OF 60

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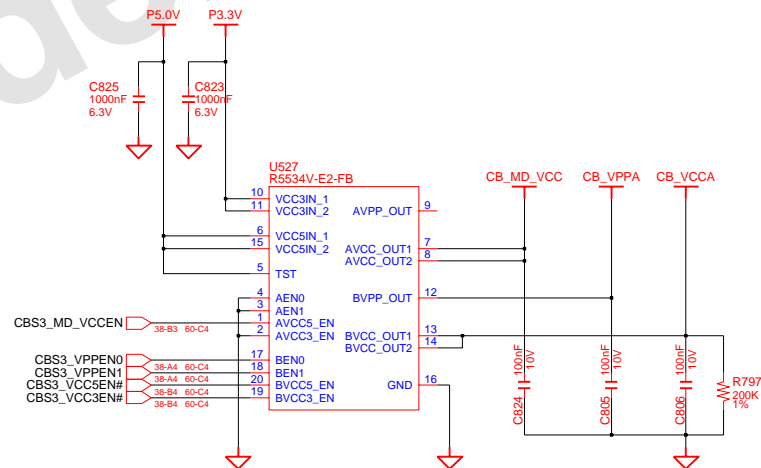
Samsung
Confidential



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO VIDEO HDMI	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	PART NO.		
APPROVAL		REV	1.0	BA41-#####A		
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE 36 OF 60	



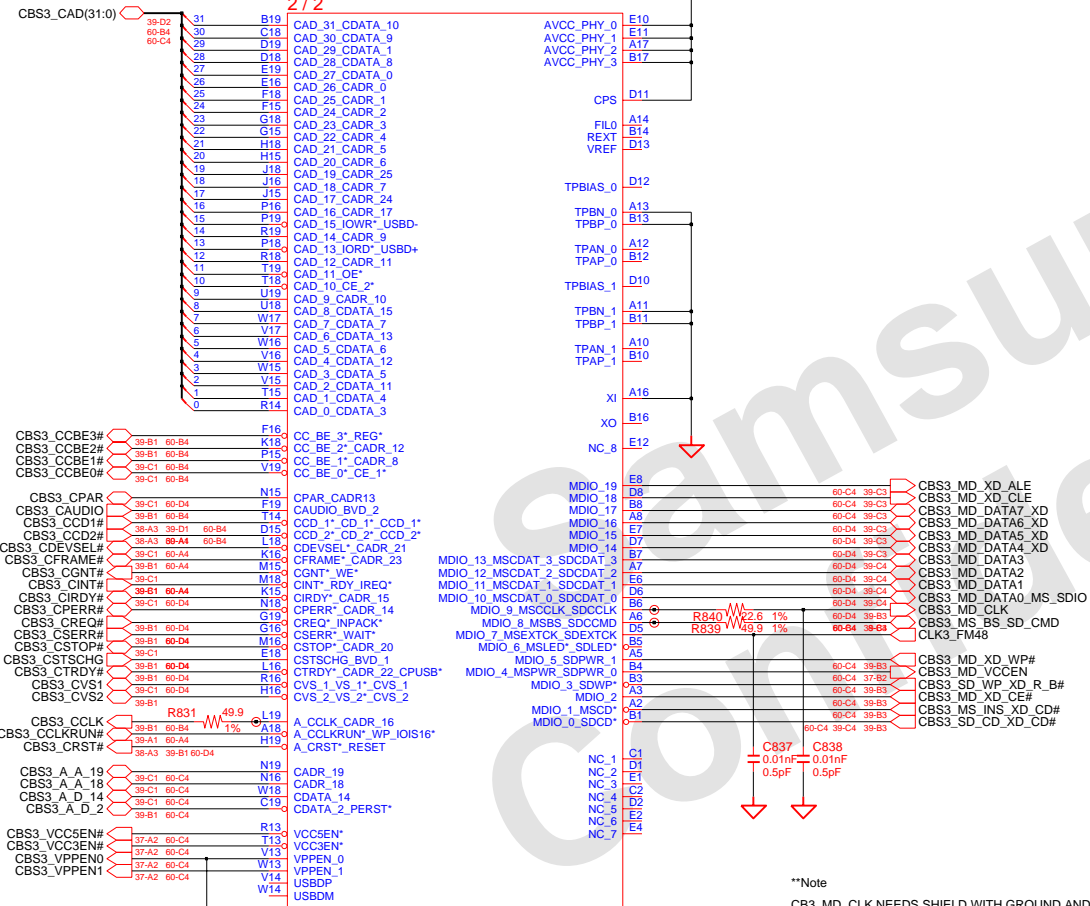
- PCI3_AD(31:0) 21-D2 31-M2, 30-M1, 29-N5, 28-N4, 27-N2, 26-N1, 25-P5, 24-P4, 23-R4, 22-R2, 21-R1, 20-T2, 19-T1, 18-U2, 17-U1, 16-V1, 15-V7, 14-V7, 13-W7, 12-R8, 11-T8, 10-V8, 9-W8, 8-R9, 7-V9, 6-W9, 5-T11, 4-V11, 3-W11, 2-T12, 1-V12, 0-W12
- PCI3_PAR 21-C1 60-B2 V6 PAR
- PCI3_CBE3# 21-C1 60-C2 W2 C_BE_3*
- PCI3_CBE2# 21-C1 60-C2 W6 C_BE_2*
- PCI3_CBE1# 21-C1 60-C2 T9 C_BE_1*
- PCI3_CBE0# 21-C1 60-C2 R850 C_BE_0*
- PCI3_AD(25) 21-B2 37-C2 100 1% P1 IDSEL
- PCI3_REO0# 21-C3 21-D1 60-B2 M4 REQ*
- PCI3_GNT0# 21-D1 24-B1 60-B2 V3 GNT*
- PCI3_FRAME# 21-C1 21-C3 60-B2 V4 FRAME*
- PCI3_IRDY# 21-C1 21-C3 60-B2 W4 IRDY*
- PCI3_TRDY# 21-C1 21-C3 60-B2 V5 TRDY*
- PCI3_DEVSEL# 21-C1 21-C3 60-B2 T5 DEVSEL*
- PCI3_STOP# 21-C1 21-C3 60-B2 V5 STOP*
- PCI3_PERR# 21-C1 21-C3 60-B2 W6 PERR*
- PCI3_SERR# 21-C1 21-C3 60-B2 T6 SERR*
- KBC3_PWRGD 8-C1 16-B1 22-B3 24-C2 49-C4 60-C4 G2 GBRST*
- PCI3_RST# 21-C1 60-B2 K1 PCIRST*
- CLK3_PCLKCB 8-B4 60-B4 K1 PCICKL*
- PCI3_CLKRUN# 60-C2 L5 CLKRUN*
- 21-C3 22-C3 49-B3 G4 RI_OUT*_PME*



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO CARD BUS CONTROLLER R5C843(1/2)	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	37	OF 60

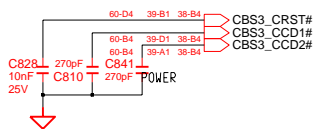
U529-2
 R5C843
 2/2

P3.3V

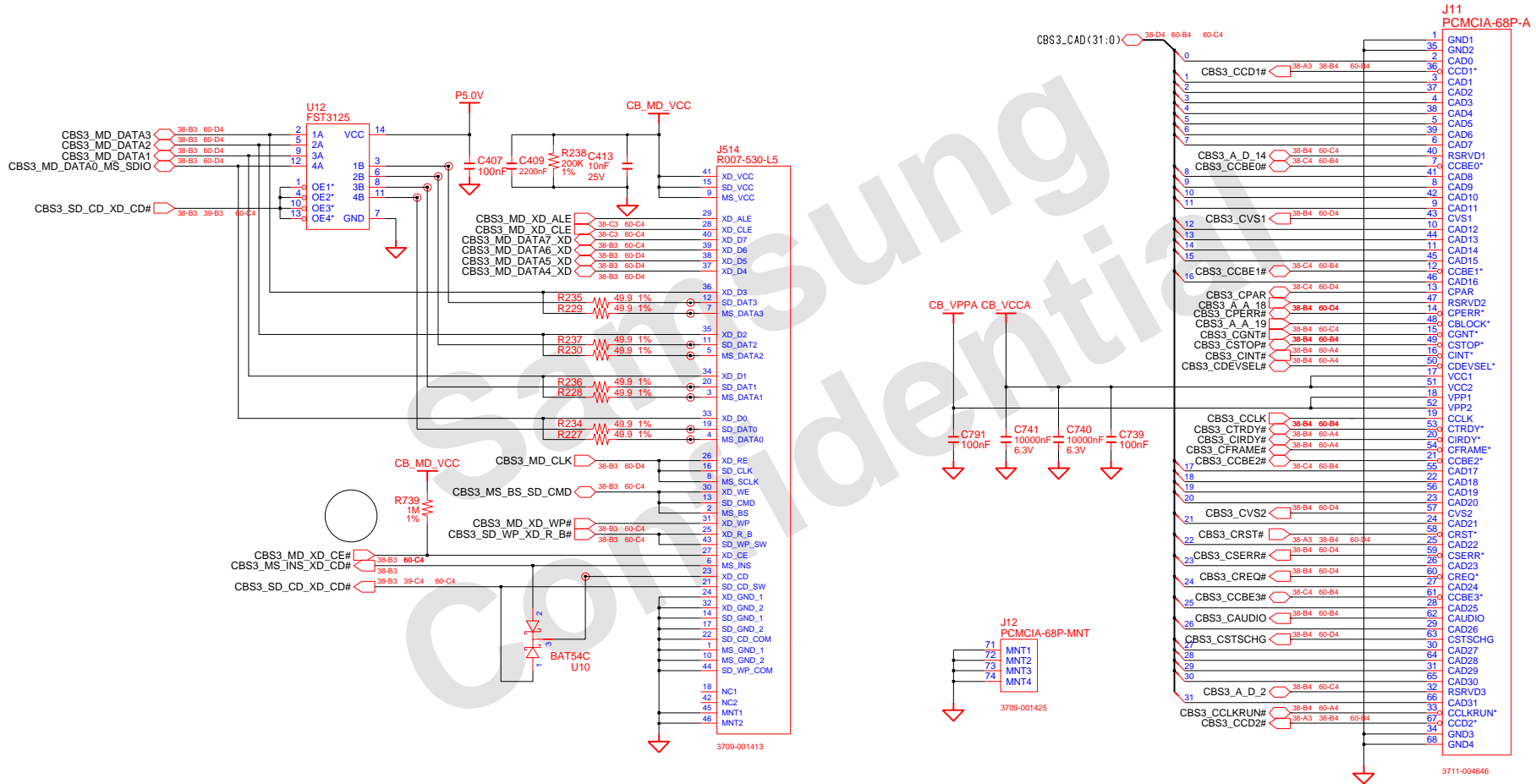


****Note**
 CB3_MD_CLK NEEDS SHIELD WITH GROUND AND
 22.6 OHM NEEDS AS CLOSE AS POSSIBLE TO R5C843

****Note**
 CB3_CLK NEEDS SHIELD WITH GROUND AND
 47 OHM NEEDS AS CLOSE AS POSSIBLE TO R5C843

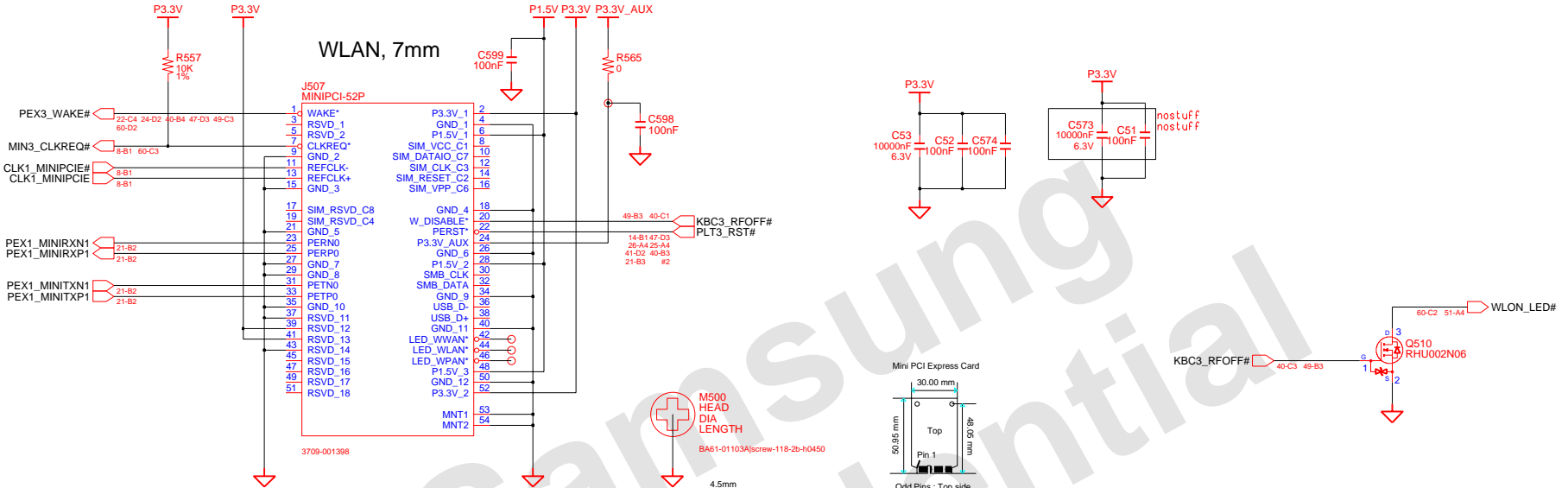


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO CARD BUS CONTROLLER R5C843(2/2)	SAMSUNG ELECTRONICS PART NO. BA41-#####
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APPROVAL		REV	1.0			
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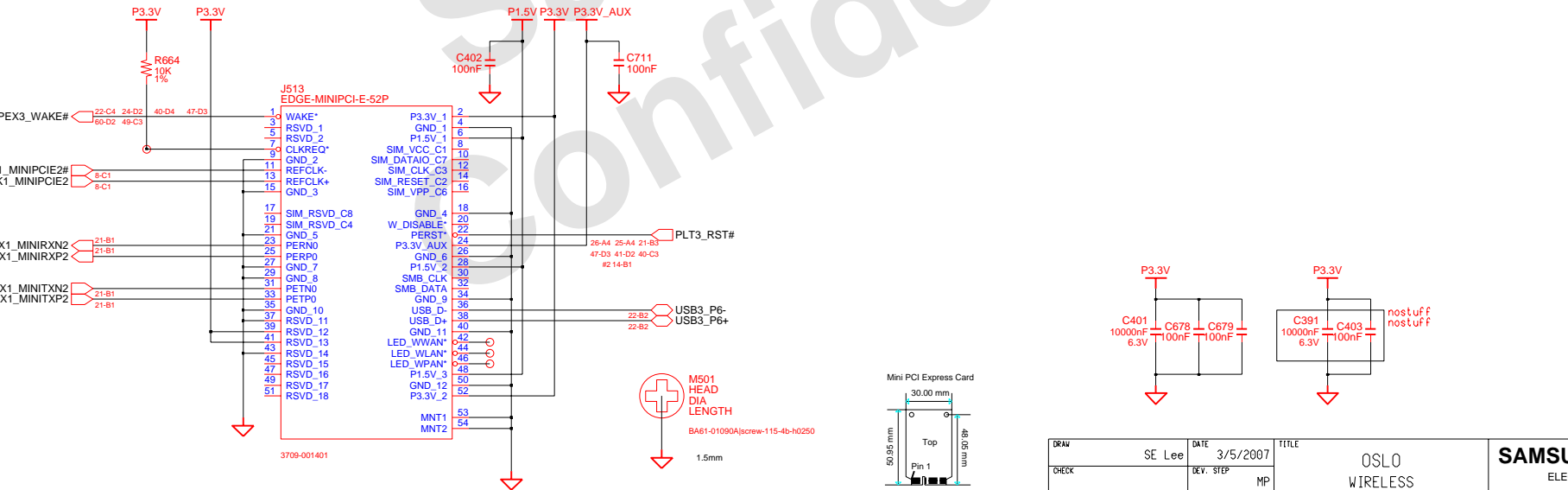


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO CARD BUS CONTROLLER 4-I ONE CONNECTOR	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	39 OF 60	

WLAN, 7mm

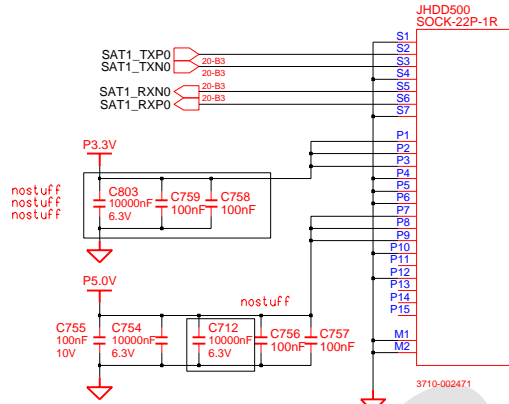


ROBSON or DVB-T, 4mm

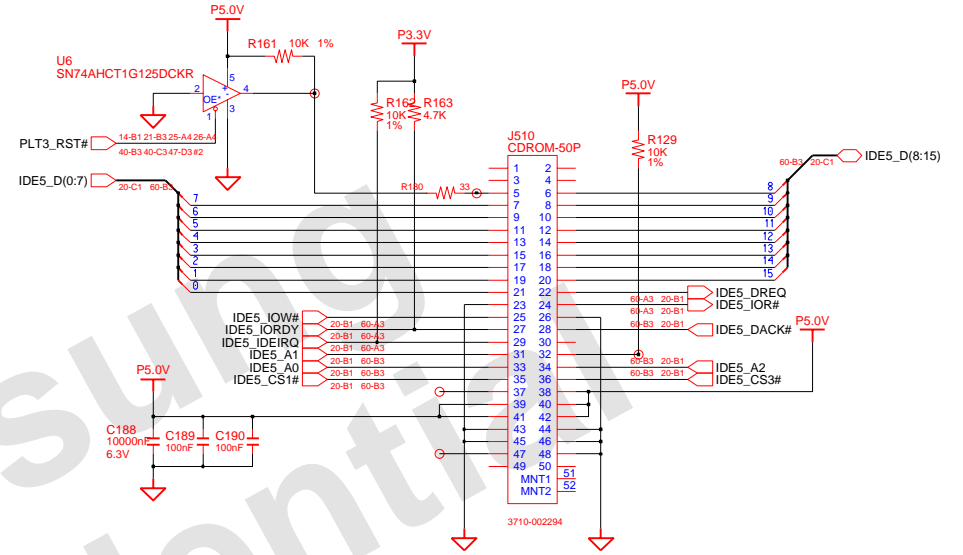


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO WIRELESS MINI CARD	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP	REV	1.0	
APPROVAL		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	40	OF 60

Main to HDD



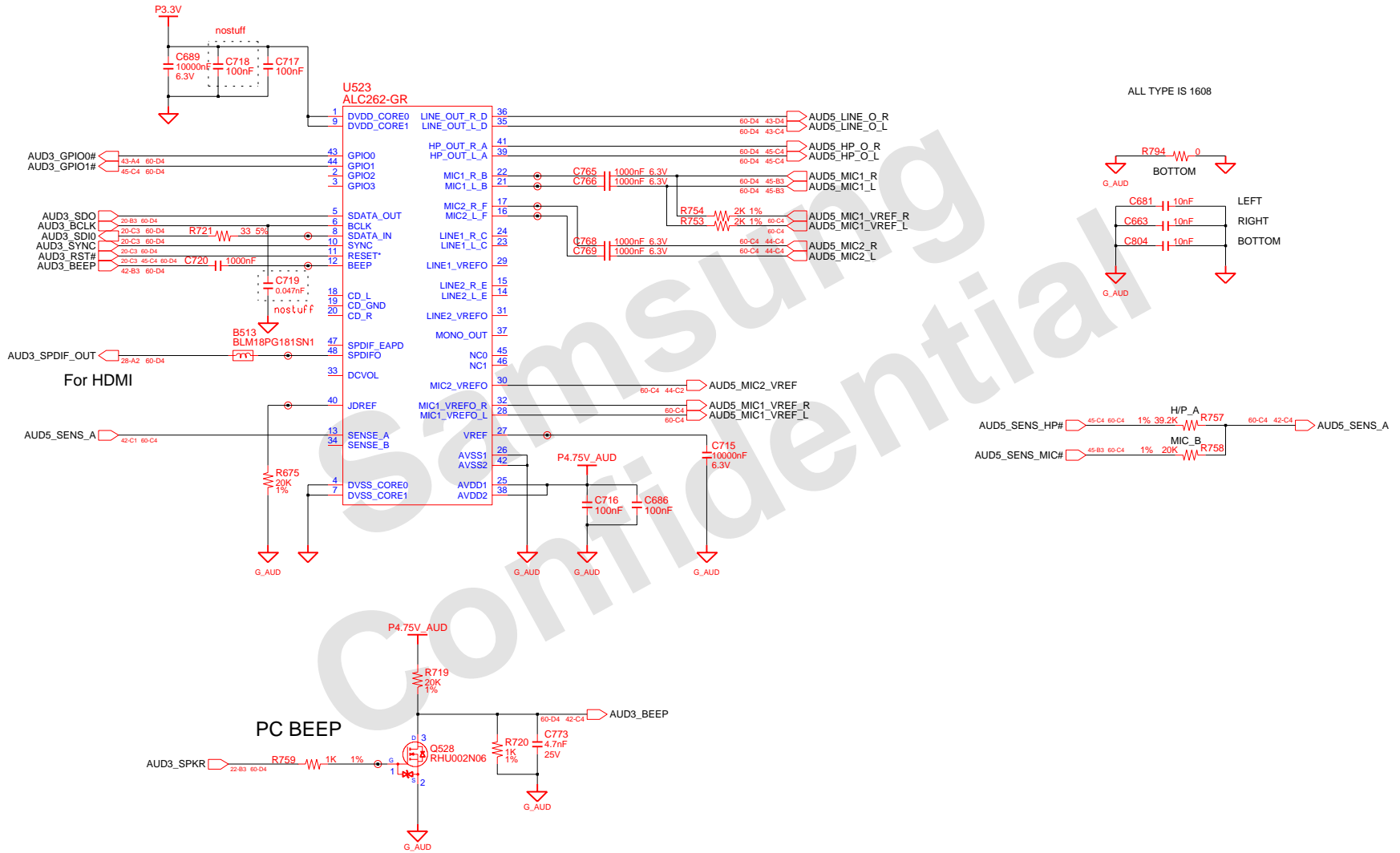
Main to Swap B'd



	SATA_DET*	ODD (IDE)	2nd HDD (IDE)
If SATA Detected	0	CSEL(#47) : Open (Master)	CSEL(#28) : GND (Master)
If SATA not Detected	1	CSEL(#47) : GND (Slave)	CSEL(#28) : Open (Slave)

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO HDD & ODD HDD & ODD	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			PART NO. BA41-####A
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE 41	OF 60

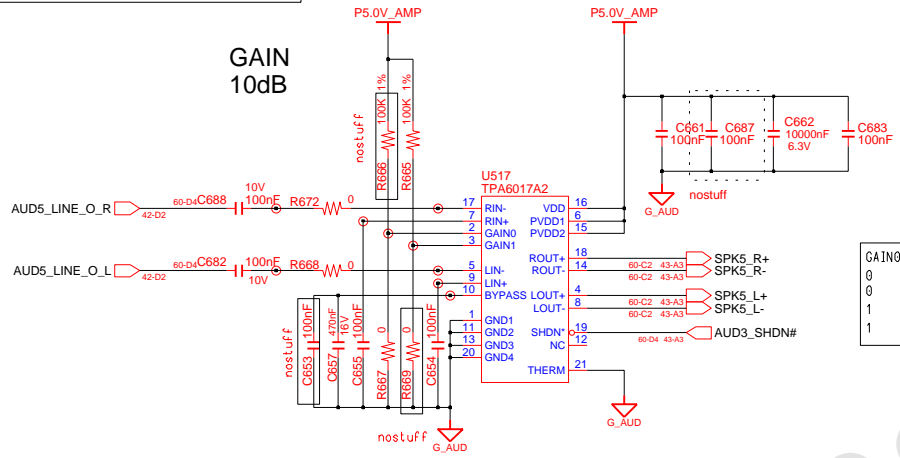
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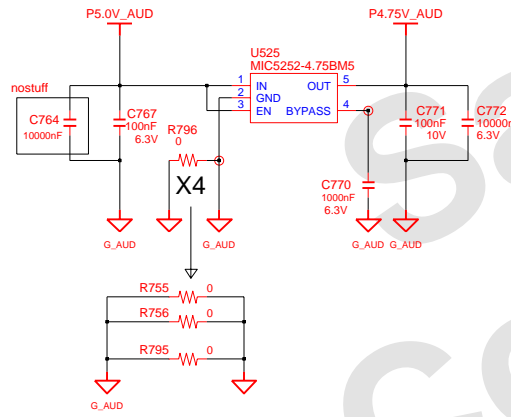
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APPROVAL		REV	1.0			PART NO. BA41-#####A
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	42	OF 60

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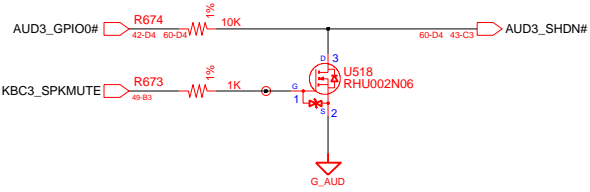
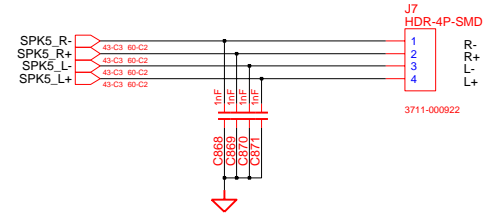
**GAIN
10dB**



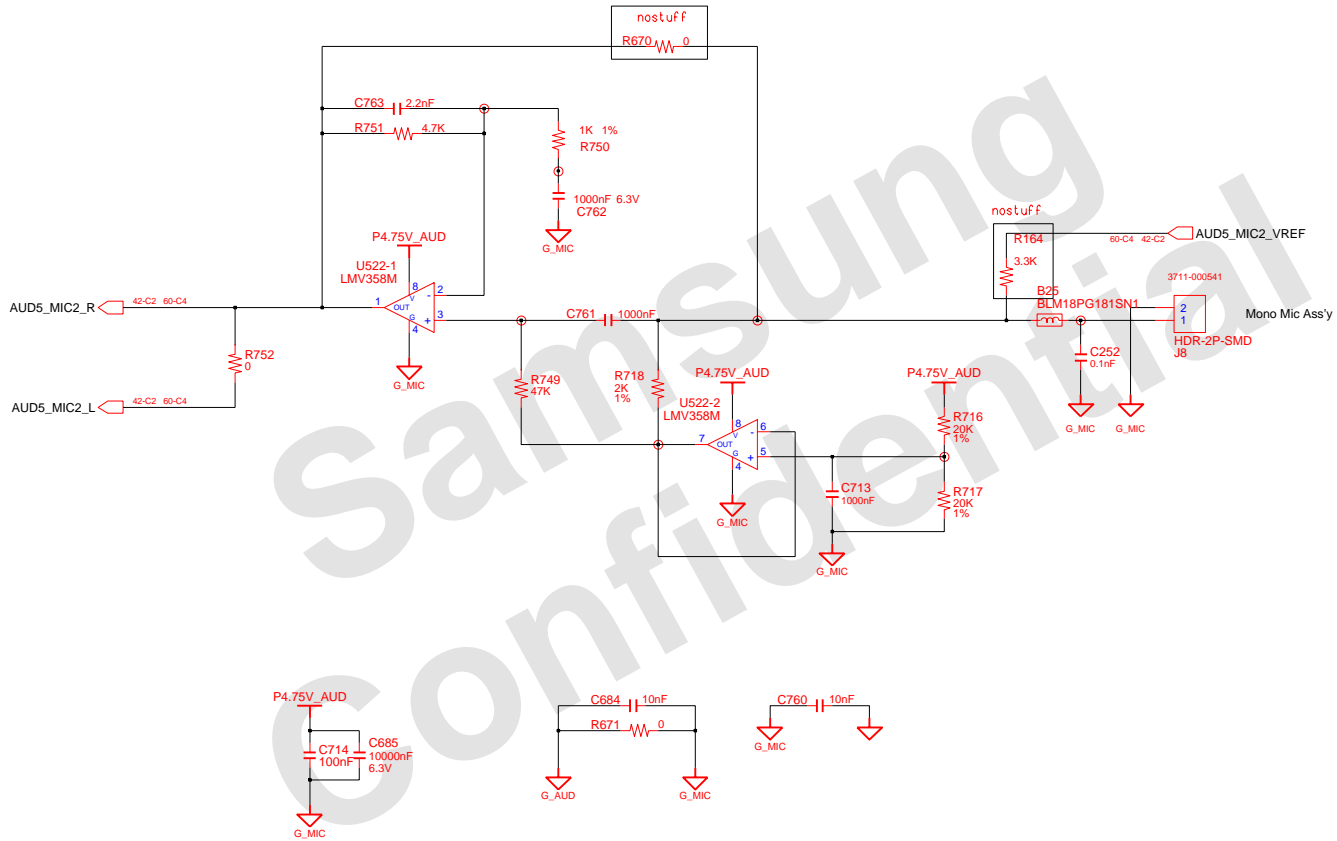
GAIN0	GAIN1	
0	0	6dB
0	1	10dB
1	0	15.6dB
1	1	21.6dB



INTERNAL STEREO SPEAKERS



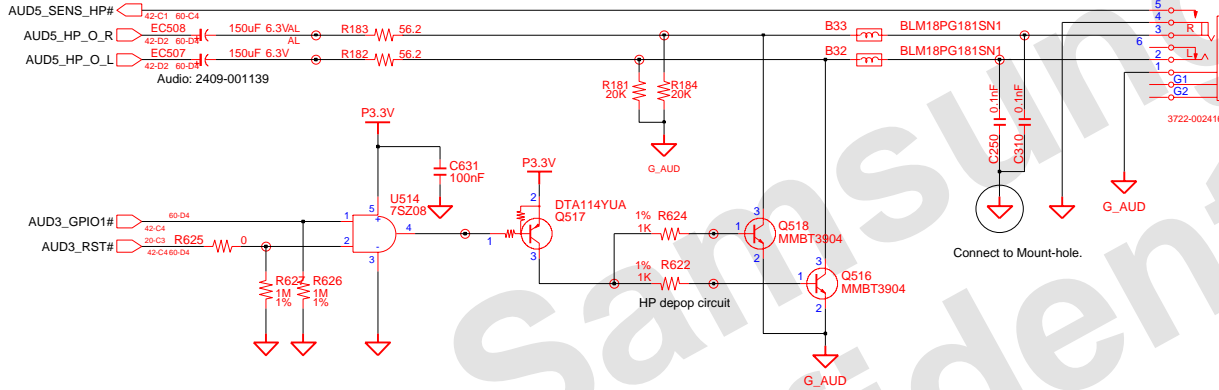
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CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0		PART NO.	BA41-#####
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE	43 OF 60



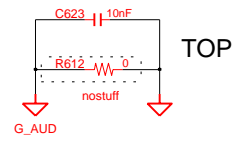
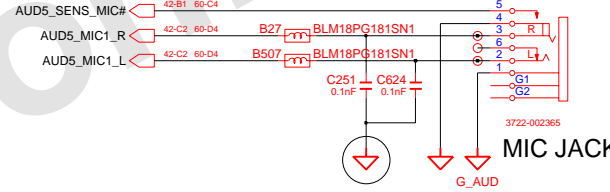
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CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	44	OF 60

HEADPHONE

J512
 JACK-PHONE-6P-LIME



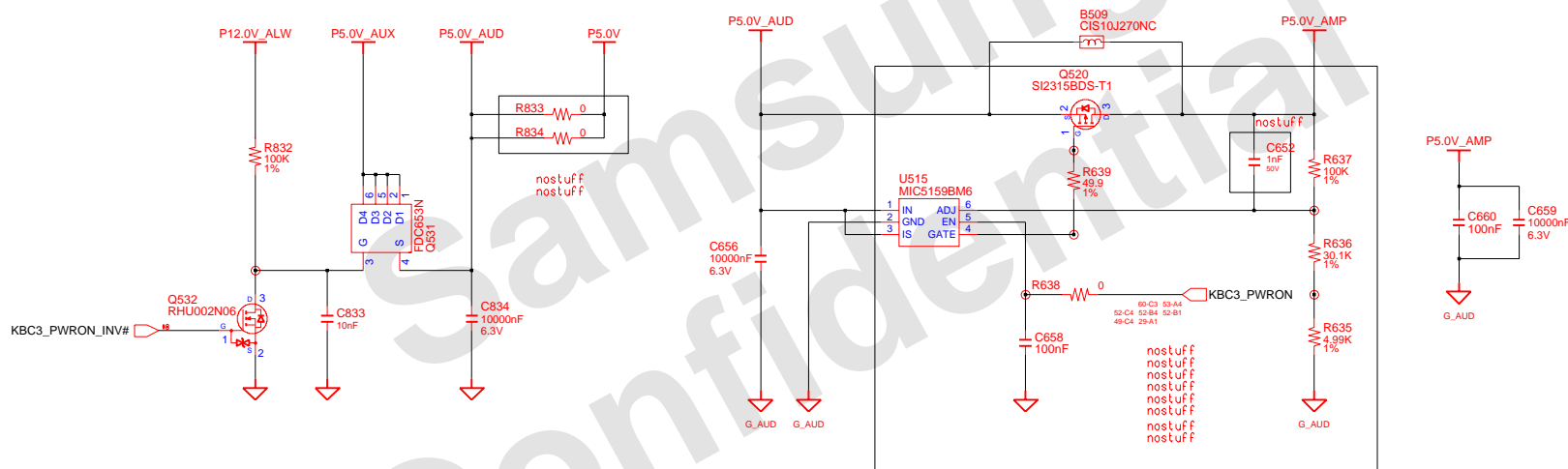
J511
 JACK-PHONE-6P-PINK



The traces led to Audio Jacks have the width over 10mil

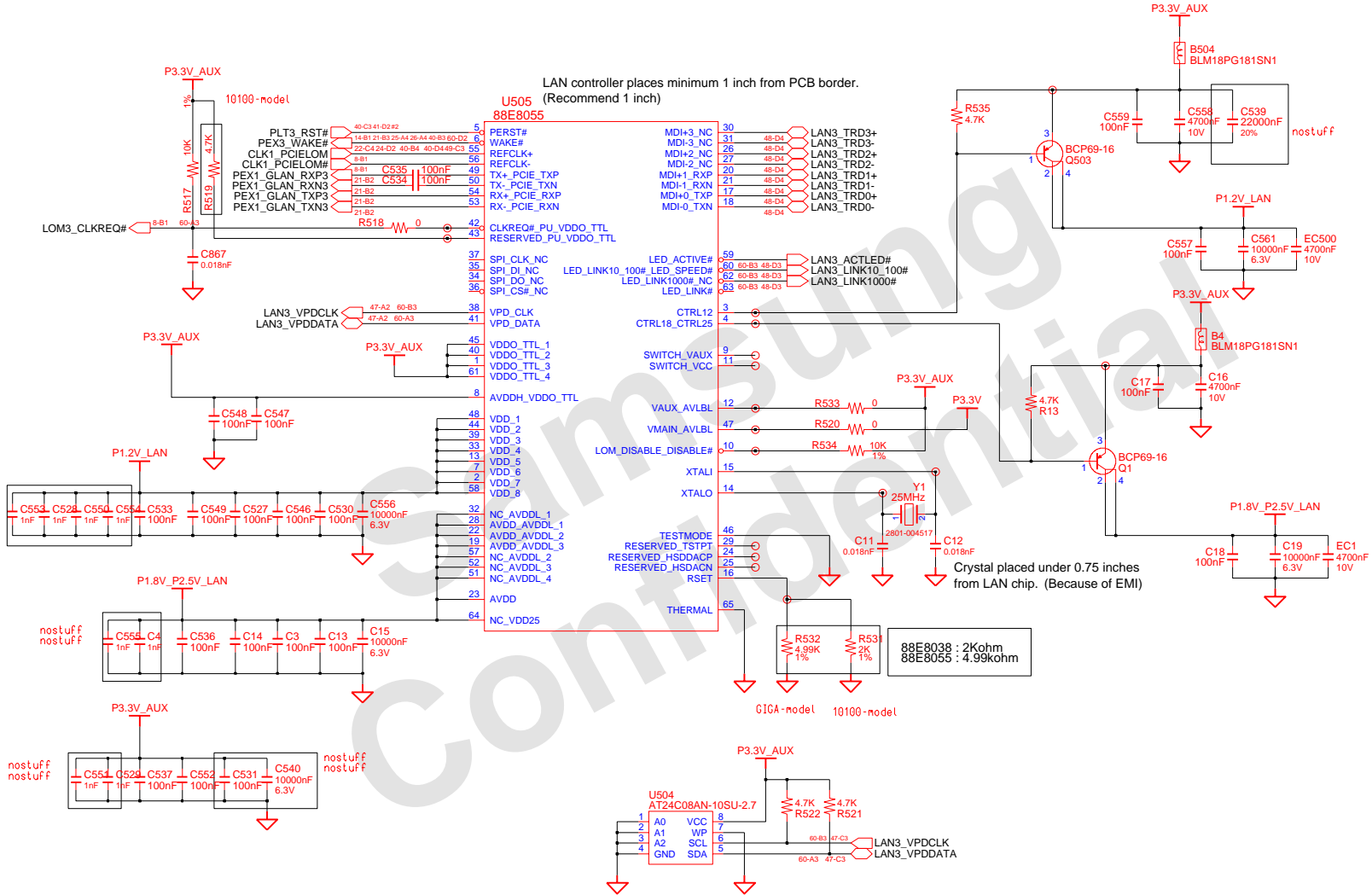
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO HD AUDIO	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	HEAD PHON & MIC JACK		
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE 45	OF 60

AUDIO POWER



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO HD AUDIO AUDIO AMP POWER	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	PART NO.		
APPROVAL		REV	1.0			
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	46	OF 60

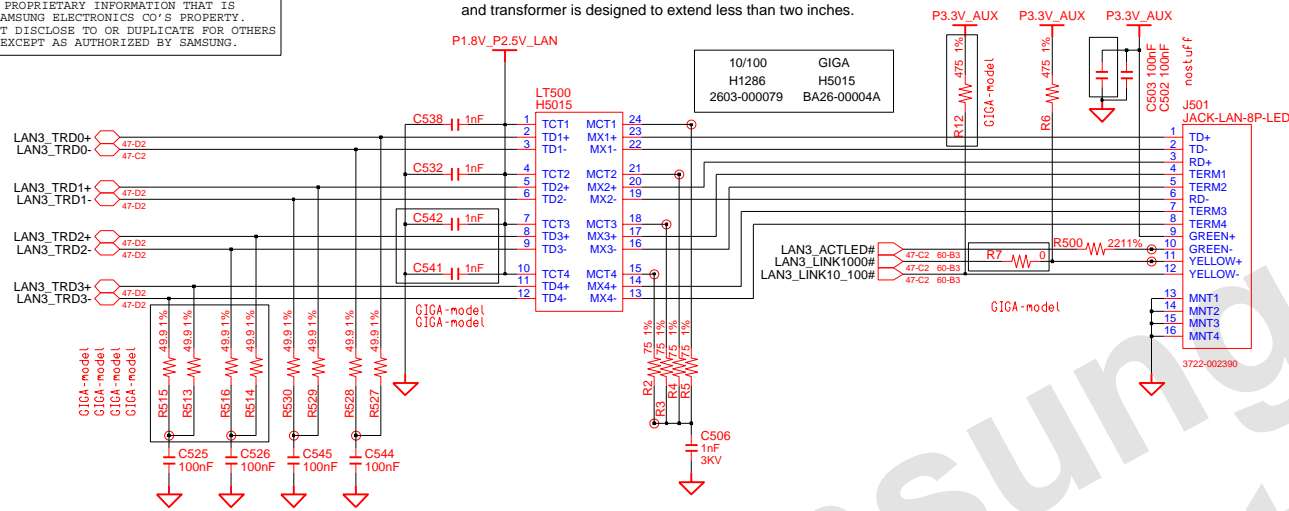
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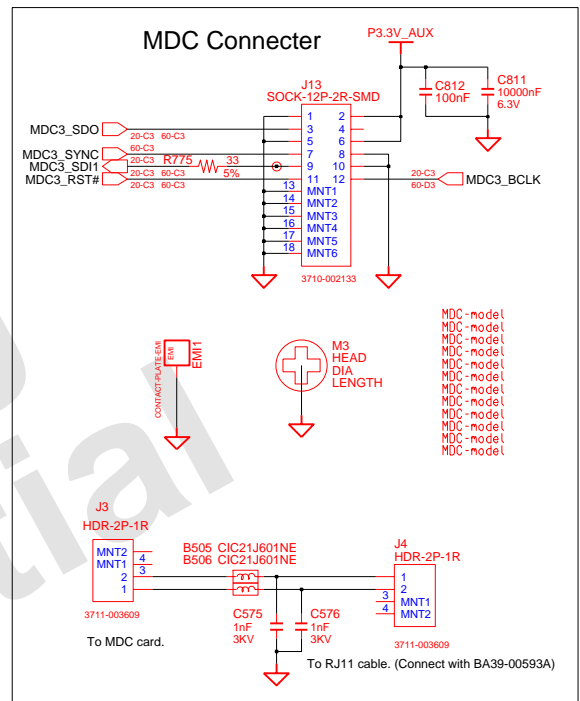
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO WIRE LAN	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP		82566/NINEVEH	
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT			March 5, 2007 2:44:01 PM	PAGE 47 OF 60

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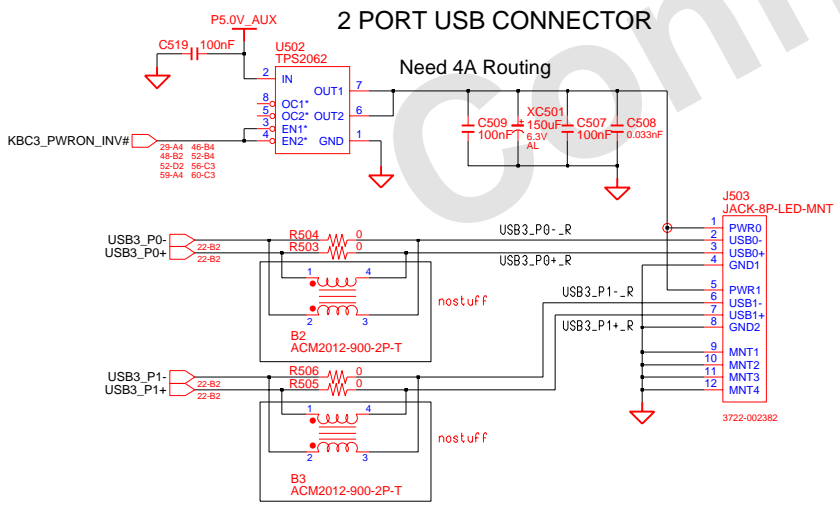
The distance between LAN controller
 and transformer is designed to extend less than two inches.



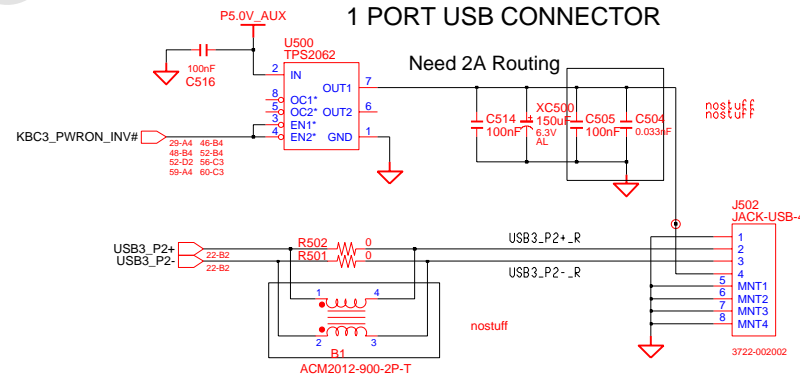
Place near to the Marvell chip.



2 PORT USB CONNECTOR

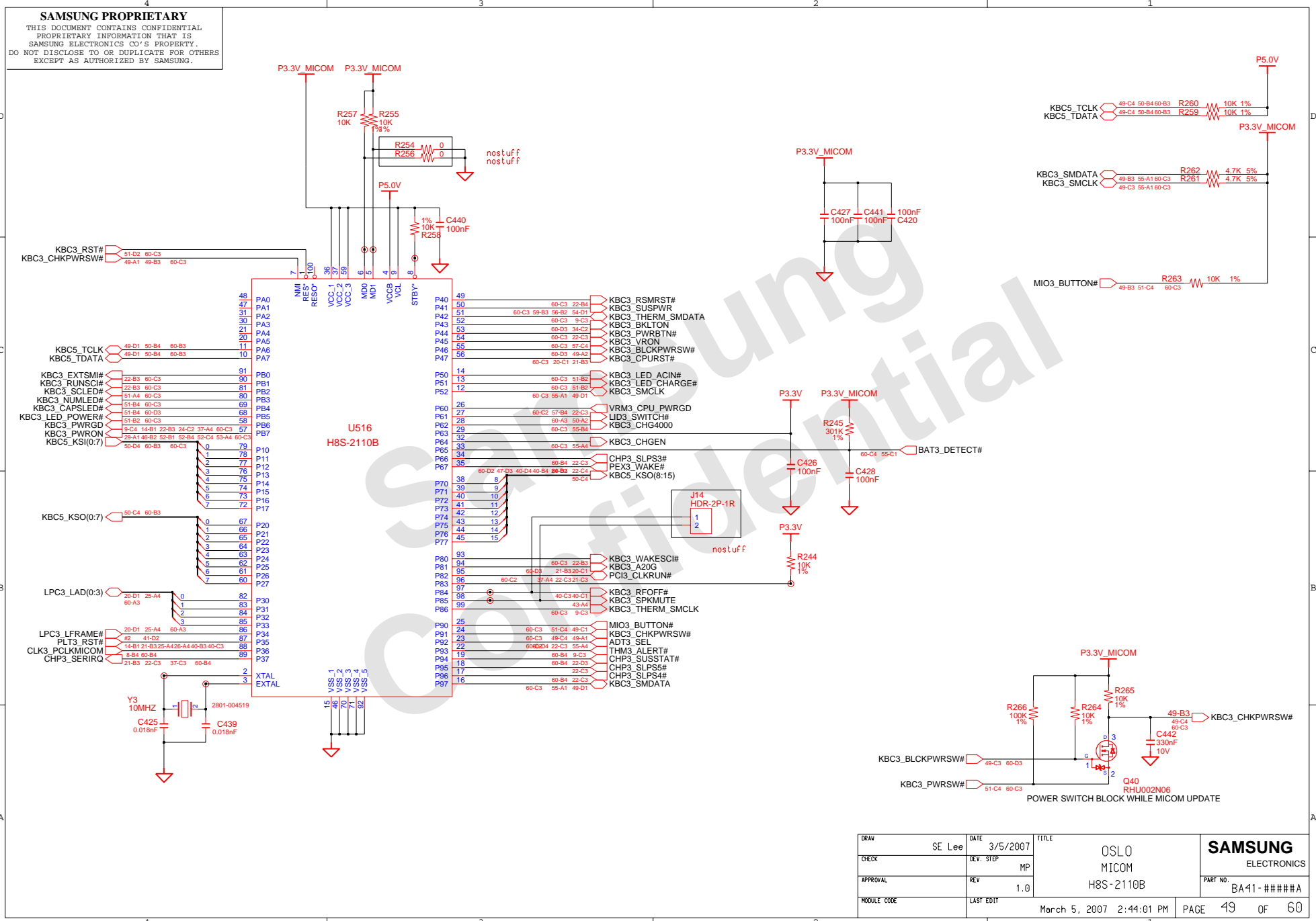


1 PORT USB CONNECTOR



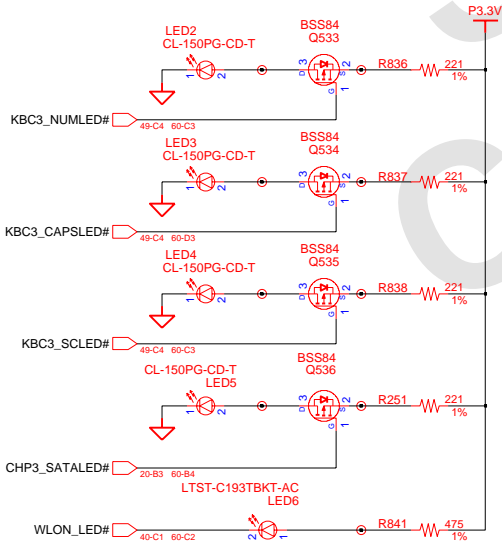
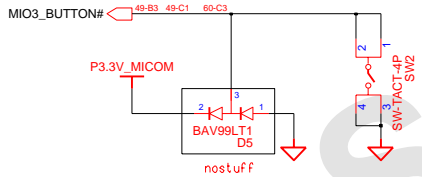
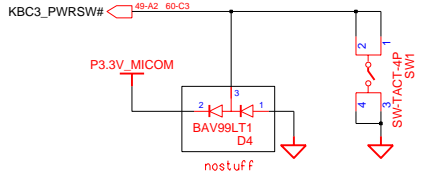
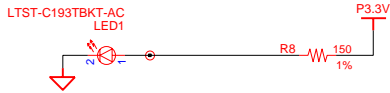
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO WIRED LAN RJ45 USB & MODEM	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	REV	1.0	
APPROVAL		LAST EDIT				PART NO. BA41-#####
MODULE CODE						March 5, 2007 2:44:01 PM PAGE 48 OF 60

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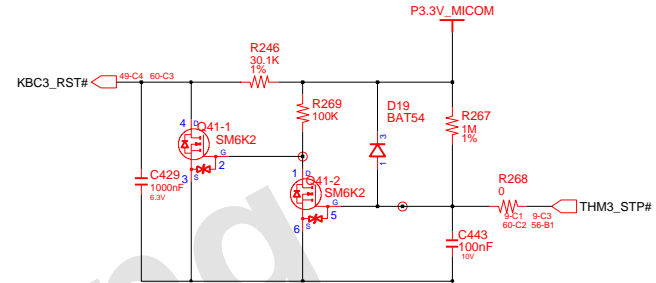


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO MICOM H8S-2110B	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	49	OF 60

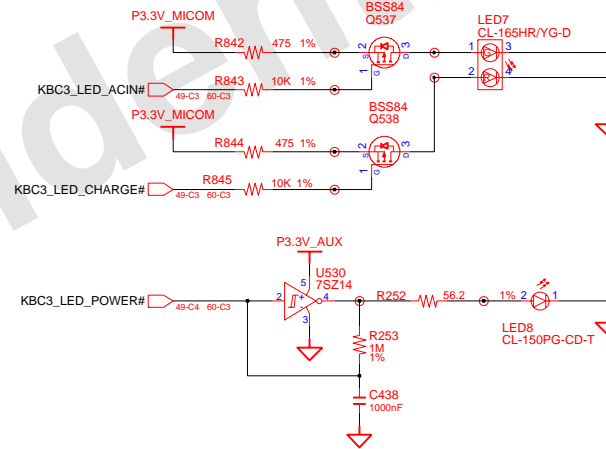
Power LED, Blue color



MICOM RESET

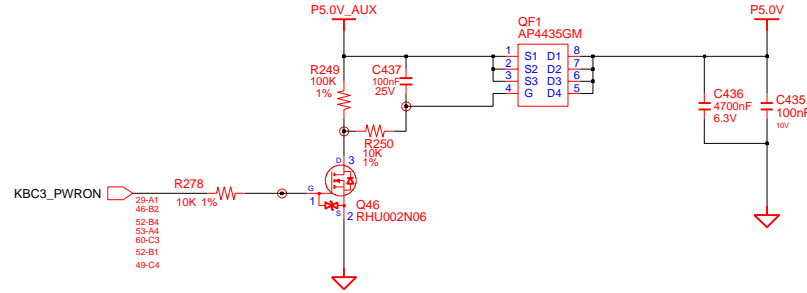


ADAPTERIN/CHARGING LED

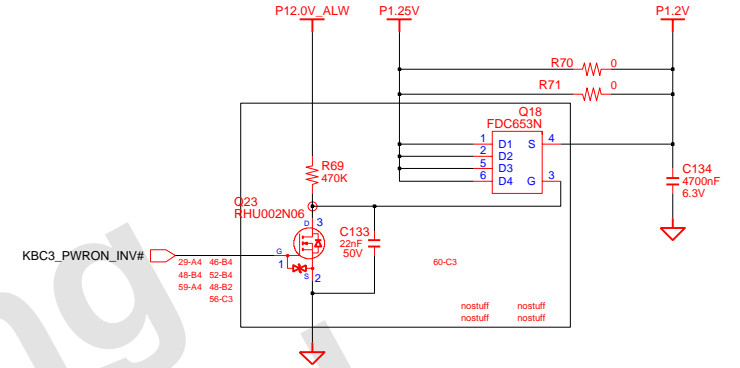


DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO LED LOGICS LED LOGICS	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE		LAST EDIT		March 5, 2007 2:44:01 PM	PAGE	51 OF 60

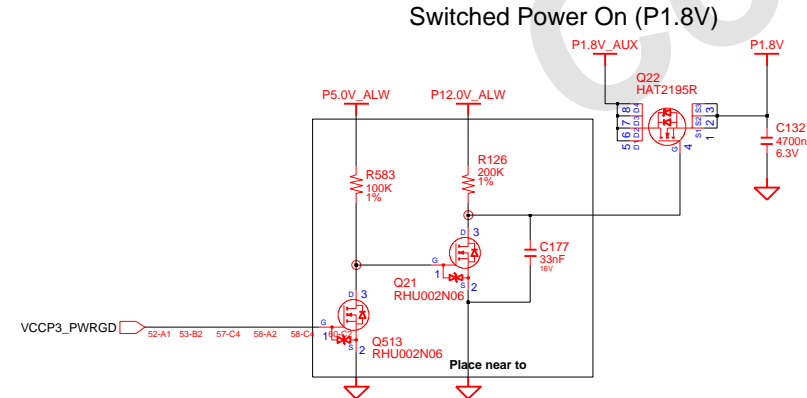
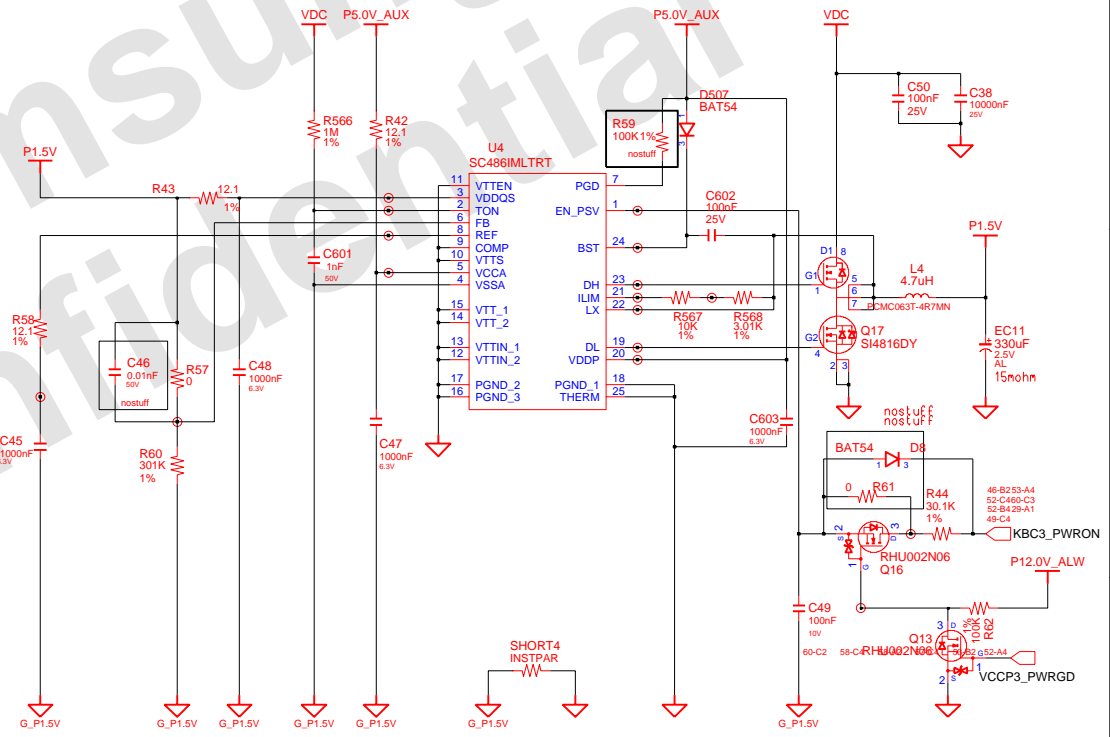
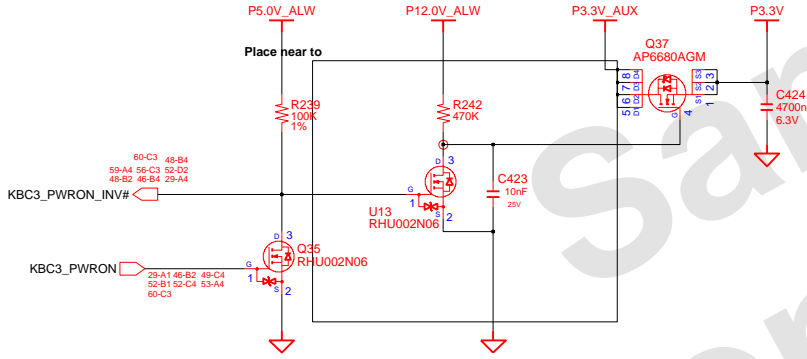
Switched Power On (P5.0V)



Switched Power On (P1.2V)



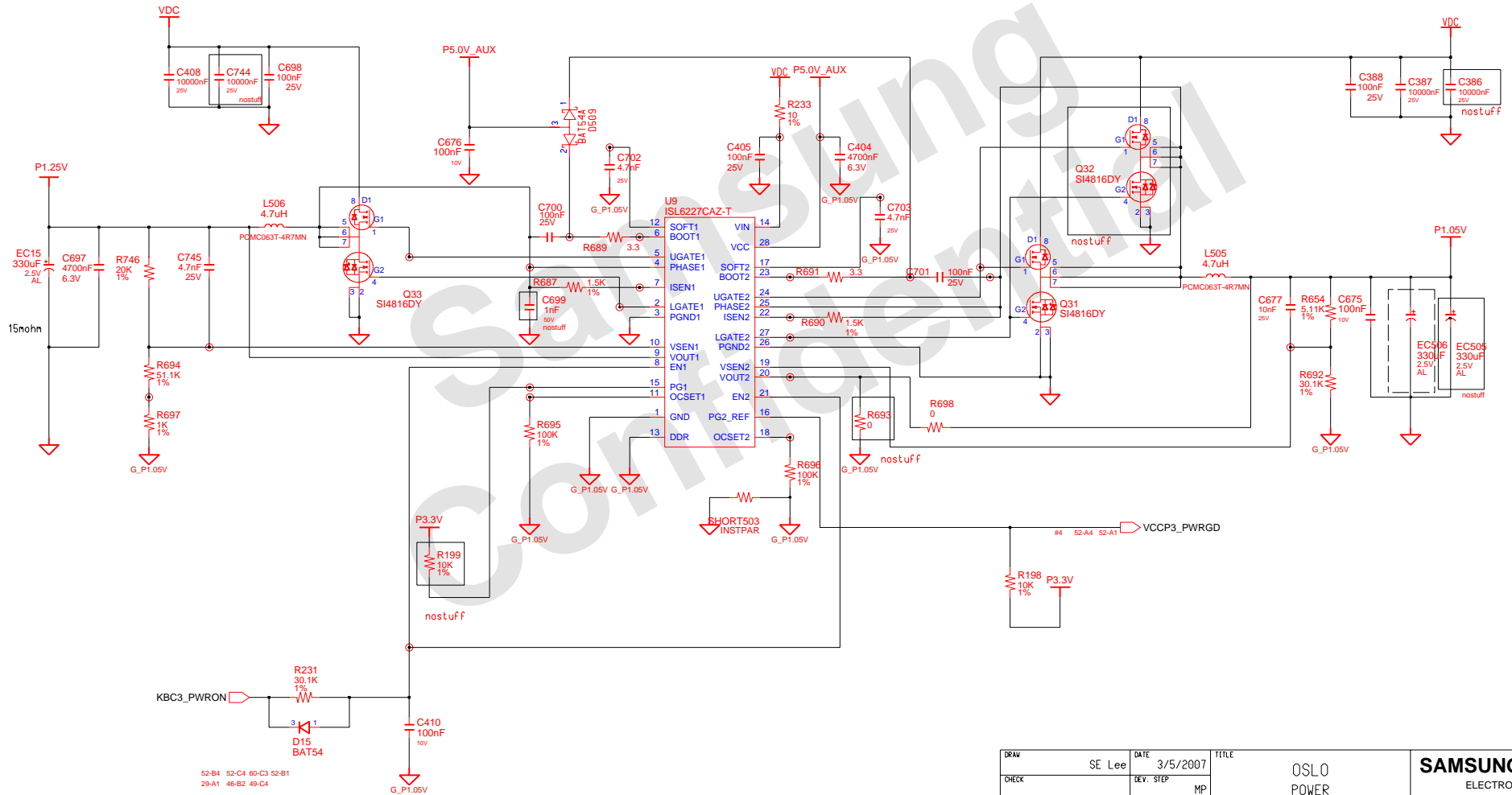
Switched Power On (P3.3V)



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO POWER	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	SWITCHED POWER	PART NO.	
APPROVAL		REV	1.0		BA41-#####	
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	52	OF 60

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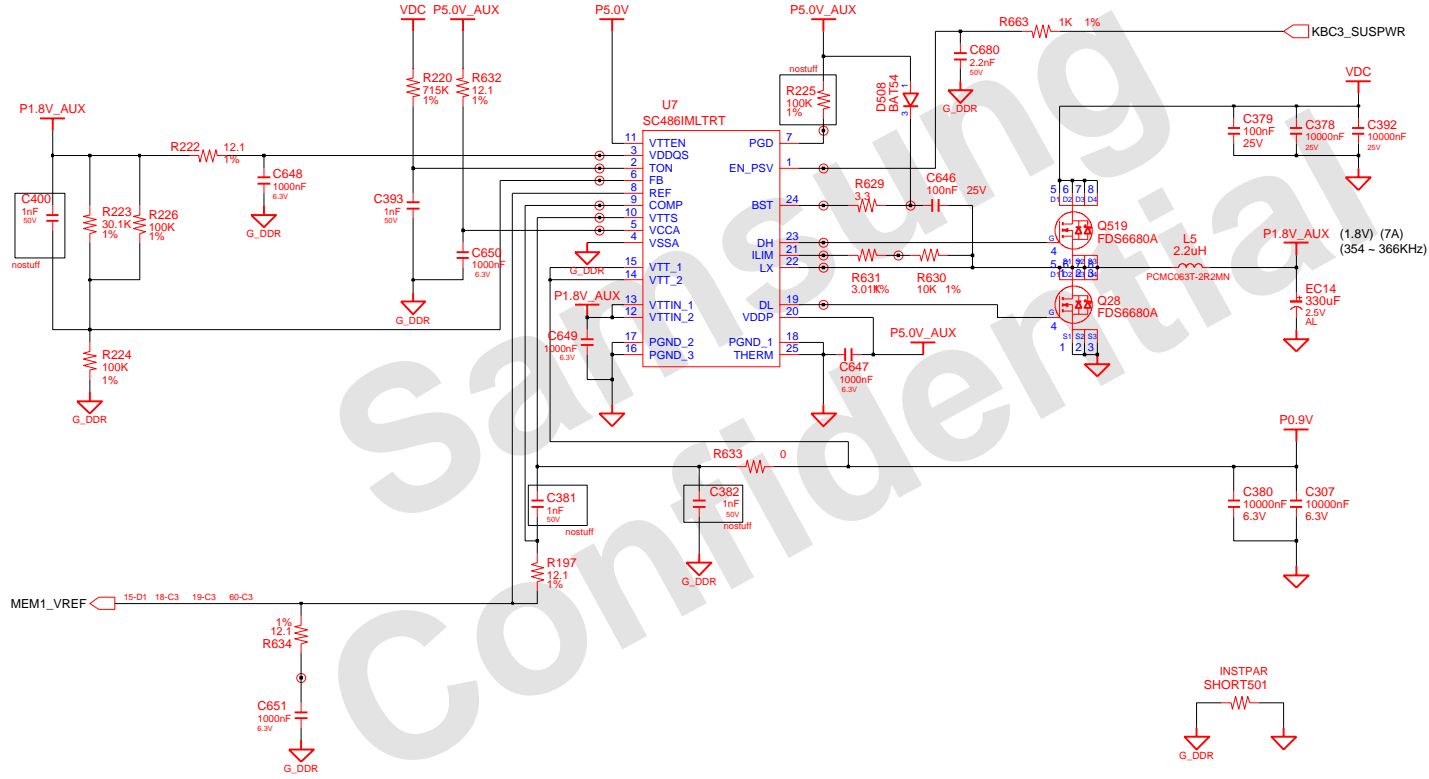


53-B4 52-C4 60-C3 52-B1
29-A1 46-B2 49-C4

DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO POWER ISL6227	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	PART NO.		
APPROVAL		REV	1.0	BA41-####A		
MODULE CODE		LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	53	OF 60

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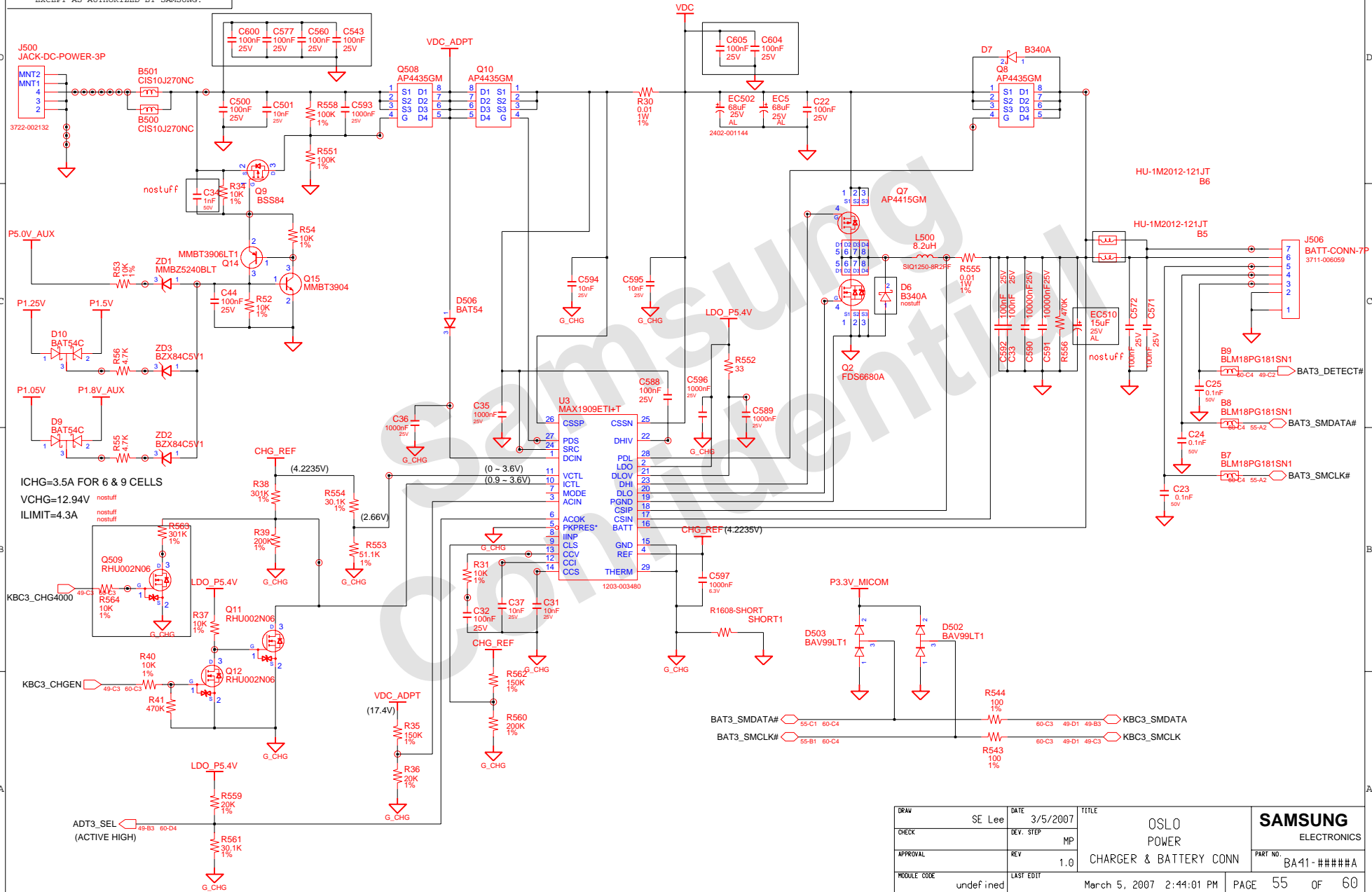
DDR2 Power



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO POWER DDR2 POWER	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0		PART NO.	BA41-#####
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	54	OF 60

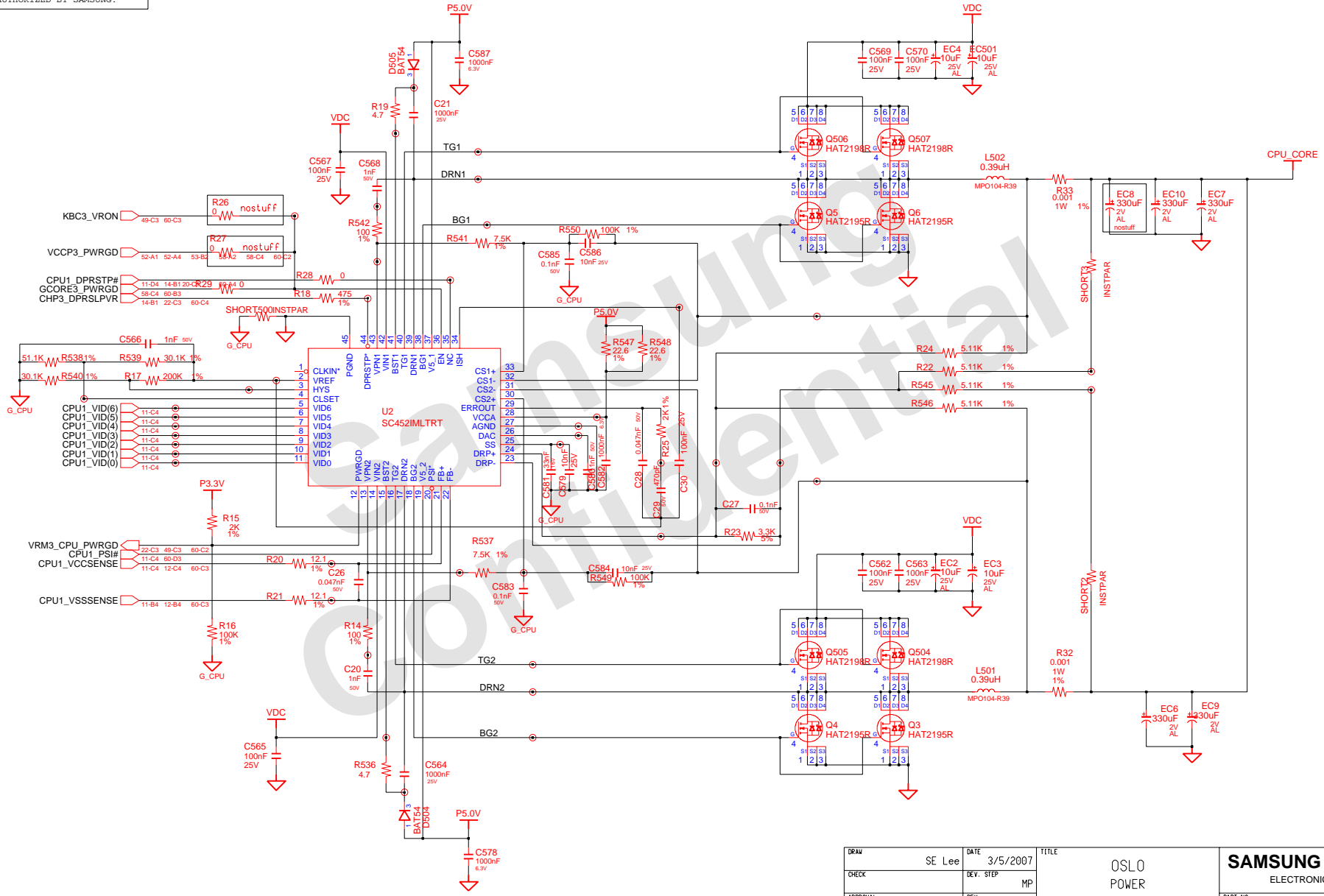
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CHARGER & POWER MANAGEMENT



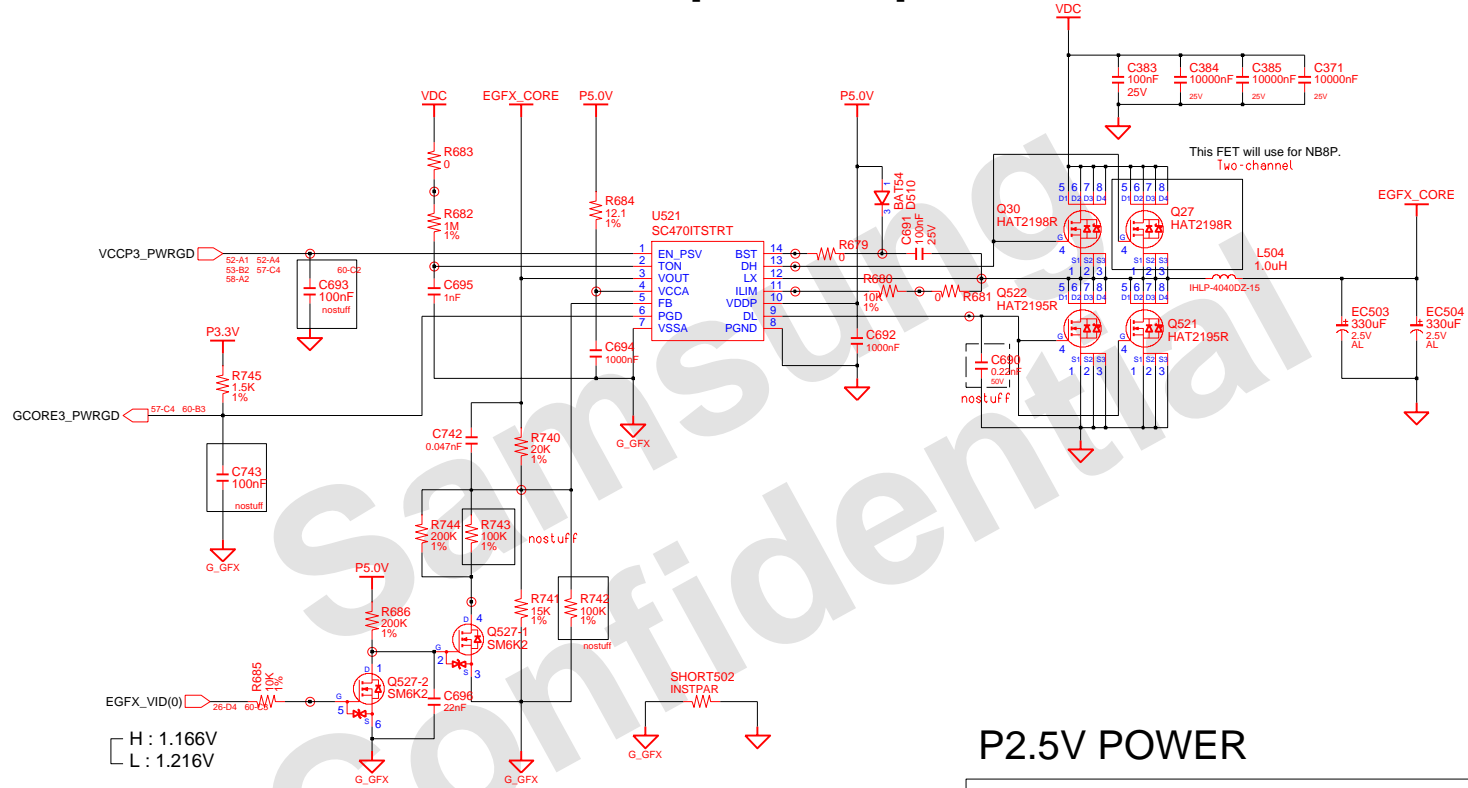
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO POWER CHARGER & BATTERY CONN	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	55 OF 60	

CPU VRM [SEMTECH]



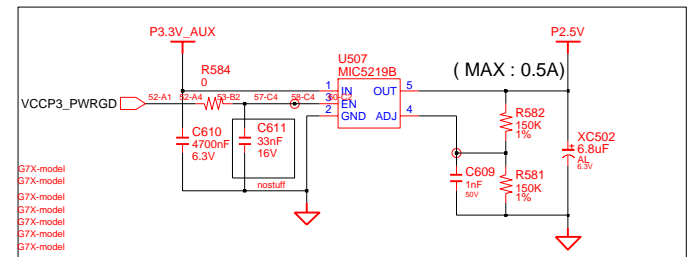
DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO POWER CPU1 VRM (IMVP6+)	SAMSUNG ELECTRONICS
CHECK		REV. STEP	MP			
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	57	OF 60

GFX CORE [SEMTECH]



H : 1.166V
 L : 1.216V

P2.5V POWER



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO POWER	SAMSUNG ELECTRONICS
CHECK		DEV. STEP	MP	GFX CORE VRM		
APPROVAL		REV	1.0			PART NO. BA41-#####
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	58	OF 60

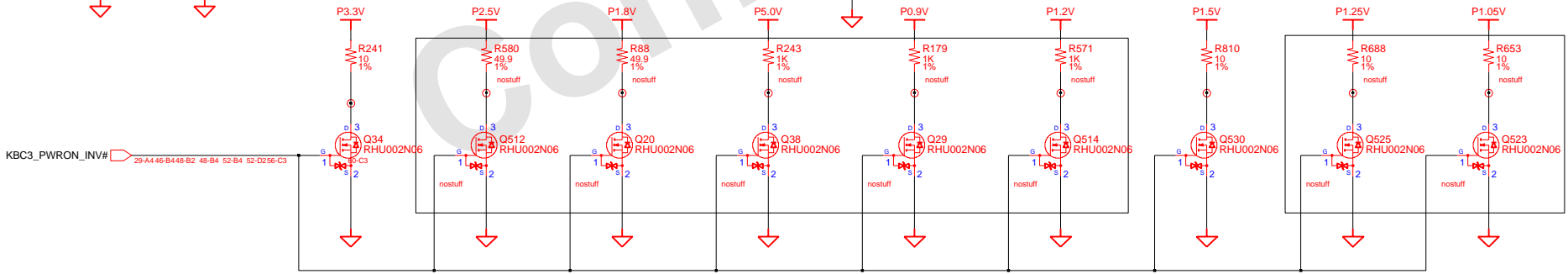
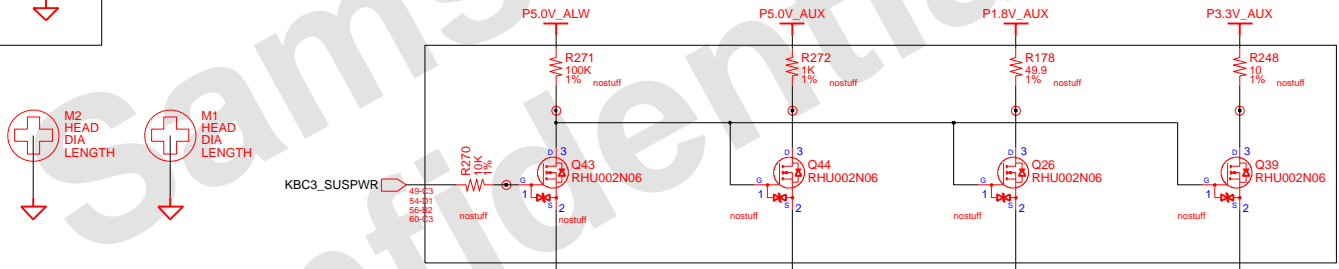
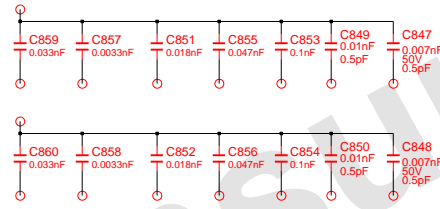
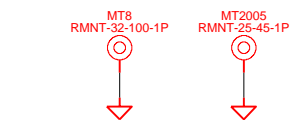
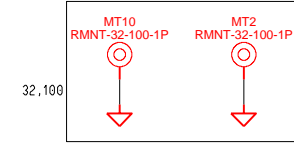
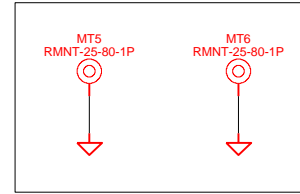
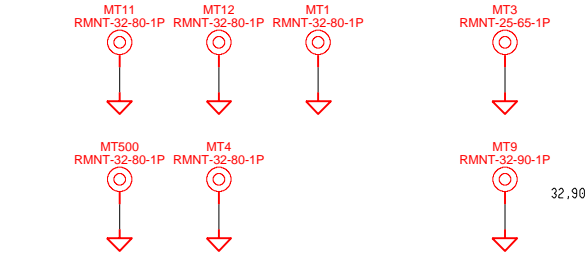
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For KBD support

PCB REVISION CONTROL (ICT)				
NO	CONNECTION	DATE(Y/M/DD)	REVISION	STEP
1	N.C.			
2	1-2			
3	2-3			
4	3-1			
5	1-2-3			
6	N.C.			
7	1-2			
8	2-3			
9	3-1			
10	1-2-3			

REV500
1 ○
2 ○ 3



DRAW	SE Lee	DATE	3/5/2007	TITLE	OSLO ETC DISCHARGING LOGIC	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK		DEV. STEP	MP			
APPROVAL		REV	1.0			
MODULE CODE	undefined	LAST EDIT	March 5, 2007 2:44:01 PM	PAGE	59	OF 60

