

MACAO

CPU : STEALEY (A110)
Chip Set : 945GU + ICH7-U
Remarks : Ultra Mobile PC
WSVGA, HSDPA, DMB

Model Name : MACAO
PBA Name : BA41-00743A

Dev. Step : SR
Revision : 0.1
T.R. Date : 2007.03.15

DRAW	CHECK	APPROVAL
W.S. Ko	H.K. Park	J.S. Euh

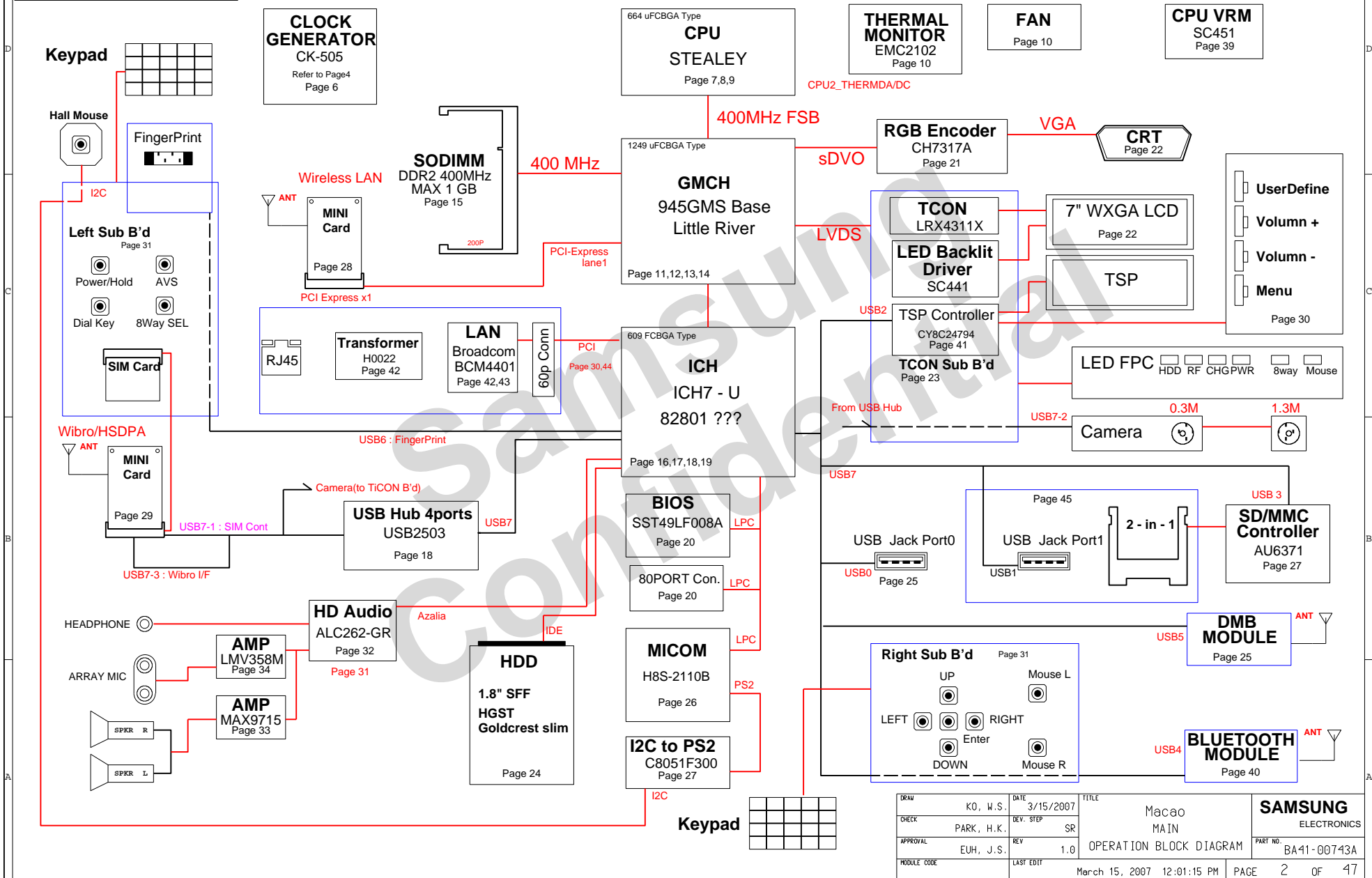
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OPERATION BLOCK DIAGRAM



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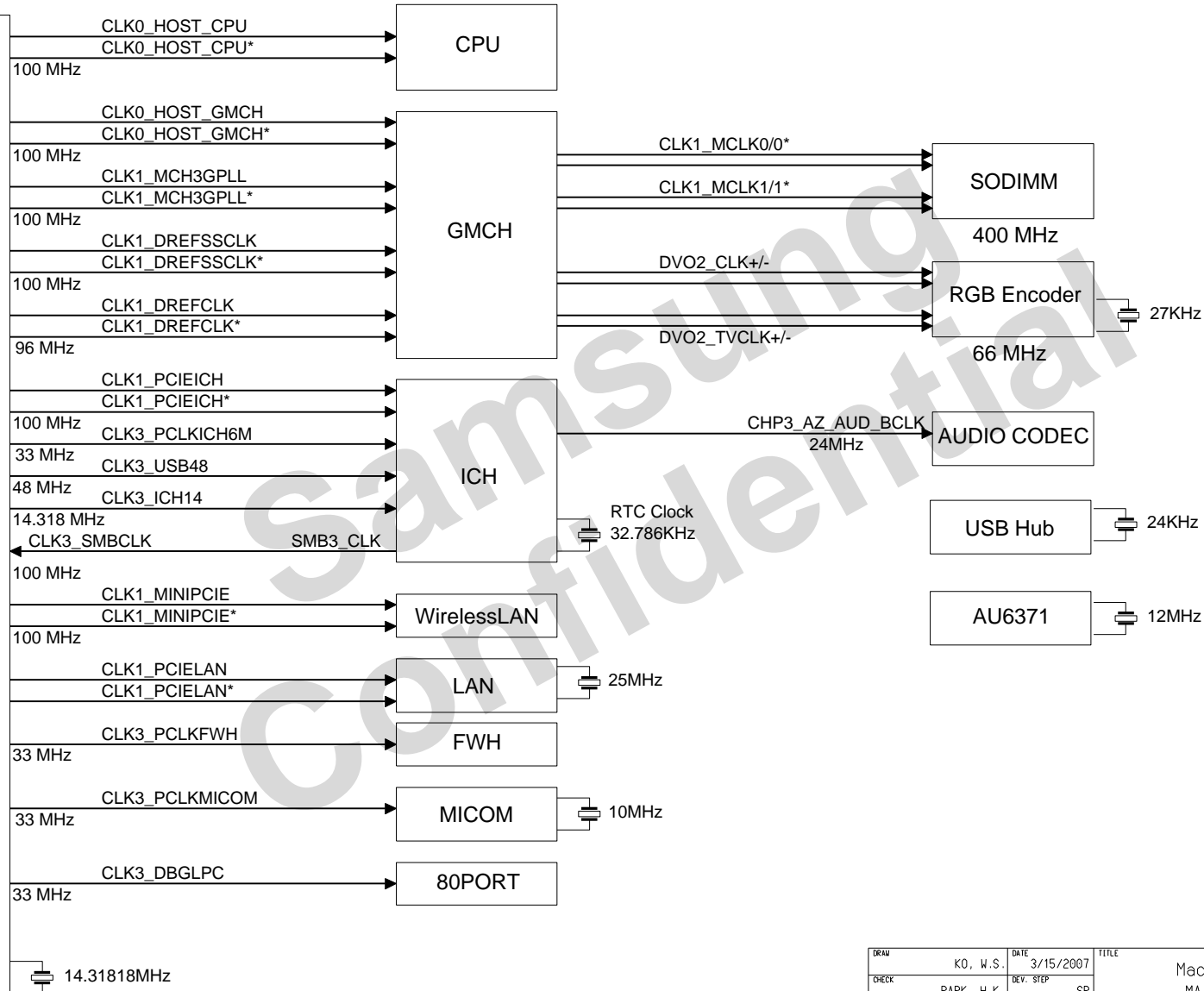
CLOCK DISTRIBUTION

CLOCK GENERATOR

CK-505

SLG8SP513r05

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BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
Wired LAN	AD21	3	G
USB Hub to PCI LPC Bridge/IDE/AC97/SMBUS	AD29(internal) AD30(internal) AD31(internal)	Programable	

I²C / SMB Address

Devices	Address	Hex	Bus
ICH6M	Master	-	SMBUS Master
CK-510M (Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
SODIMMO	1010 000X	A0h	-
USB Hub	1010 000X	A0h	-
MICOM	Master		
BATTERY	0001 011h	16h	
THERMAL MORNITOR	x111 1010	7Ah	
HALL MOUSE	x001 1100	1Ch	

USB PORT Assign

Port0	Right USB JACK
Port1	Left USB JACK
Port2	Touch Sensor Panel
Port3	SD/MMC Controller
Port4	Bluetooth
Port5	DMB
Port6	FingerPrint
Port7	USB Hub - 1. USIM Controller
	2. Camera
	3. Wibro / HSDPA

System Power States

Power Rail	Devices (Page Number)
P5V	FAN(10) 80PORT(20) MICOM(25) DMB(25) RGB_ENCODER(21) AUDIO AMP(32)
P3.3V	CLOCK(6) Thermal sensor(10) SODIMM(15) ICH7(17) 80PORT(20) HDD(24)WIBRO/HSDPA(29)SD/MMC(27) MICOM(26) DMB(25) I2CtoPS2(24)GMCH(11)Wireless_LAN(28)
P1.5V	CPU(7) GMCH(11) ICH7(16) WIBRO/HSDPA(29)SC1485(37)
P2.5V	GMCH(11)ICH7(16)RGB_ENCODER(21)
P5V_AUX	ICH7(16) USB0(25)USB1(45)MAX8734(36)
P3.3V_AUX	ICH7(16)Wired_LAN(30) WIBRO/HSDPA(29)MAX8734(36)
P1.8V_AUX	GMCH(11) SODIMM(15) SC486(35)
VCCP_CORE	CPU(7) GMCH(11) ICH7(16) SC1485(37)
VCC_CORE	CPU(7)SC451(39)

Voltage Rails

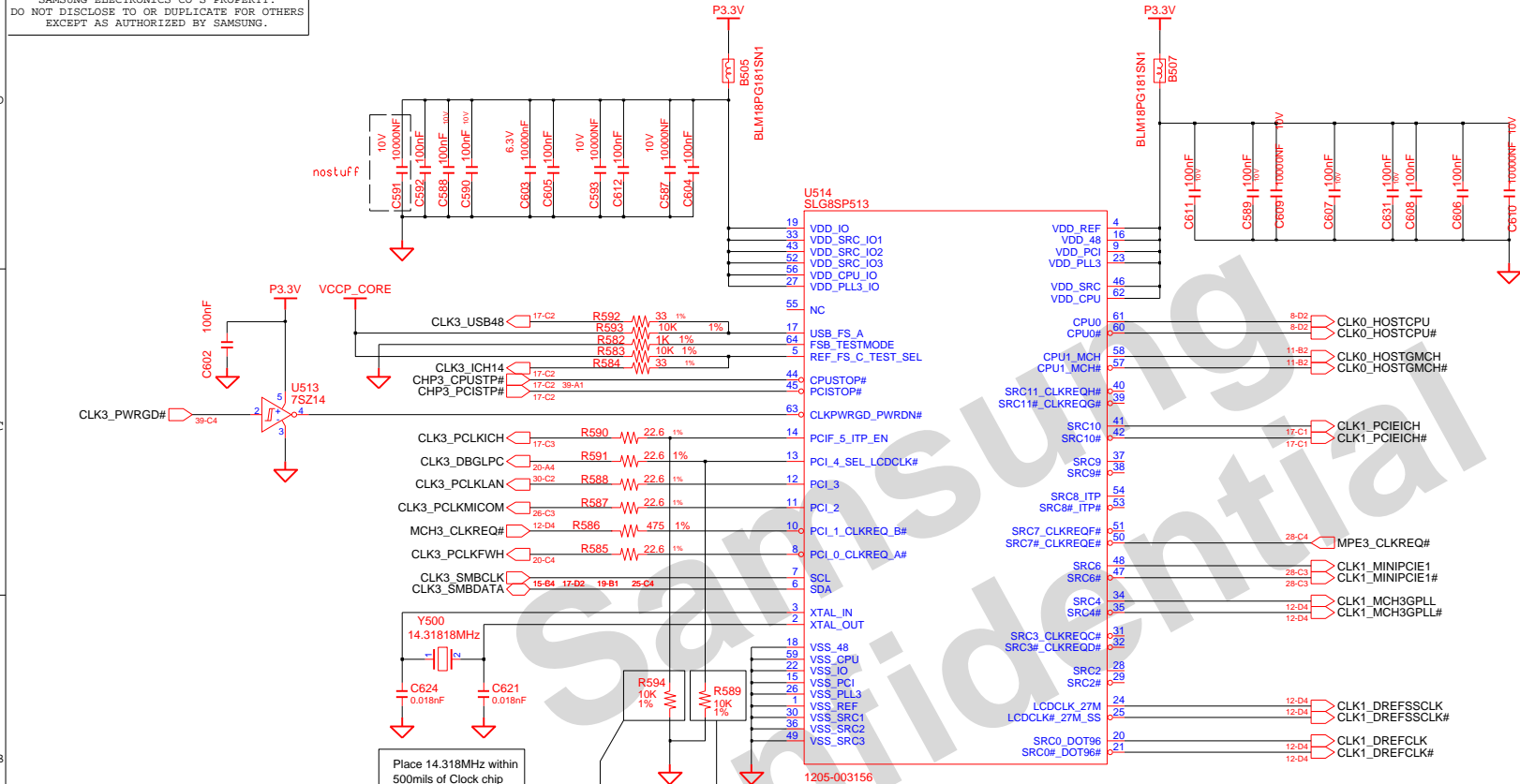
Power Rail	Descriptions
PRTC_BAT VDC	3.3V (can drop to 2.0V min. in G3 state) supply for the RTC well. Primary DC system power supply (6 to 19V)
P5V_AUX P3.3V_AUX P1.8V_AUX	5.0V power rail (off in S4-S5) 3.3V power rail (off in S4-S5) GMCH/DDR II Power Source(off in S4-S5)
P5V P3.3V P1.5V P2.5V VCCP_CORE CPU_CORE	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.5V switched power rail (off in S3-S5) 2.5V LDO power rail (off in S3-S5) 1.05V power rail, GMCH core, CPU/GMCH FSB Termination. Core voltage for Stealey CPU (0.74~1.30V)
P3.3V_MICOM P1.5V_DMI	3.3V always on power rail for MICOM 1.5V (Direct Media Interface Compensation)
LCD_VDD3V VCC_CRT	3.3V (LCD) 5V (CRT)
P4.75_AUD P5.0V_AMP	4.75V (ALC262) 5V (Audio AMP)

CPU Core Voltage Table

VID5	VID4	VID3	VID2	VID1	VID0	Voltage	VID5	VID4	VID3	VID2	VID1	VID0	Voltage	
0	0	0	0	0	0	1.708 V	1	0	0	0	0	0	1.196 V	
0	0	0	0	0	1	1.692 V	1	0	0	0	0	1	1.180 V	
0	0	0	0	1	0	1.676 V	1	0	0	0	1	0	1.164 V	
0	0	0	0	1	1	1.660 V	1	0	0	0	1	1	1.148 V	
0	0	0	1	0	0	1.644 V	1	0	0	1	0	0	1.132 V	
0	0	0	1	0	1	1.628 V	1	0	0	1	0	1	1.116 V	
0	0	0	1	1	0	1.612 V	1	0	0	1	1	0	1.100 V	
0	0	0	1	1	1	1.596 V	1	0	0	1	1	1	1.084 V	
0	0	1	0	0	0	1.580 V	1	0	1	0	0	0	1.068 V	
0	0	1	0	0	1	1.564 V	1	0	1	0	1	0	1.052 V	
0	0	1	0	1	0	1.548 V	1	0	1	0	1	0	1.036 V	
0	0	1	0	1	1	1.532 V	1	0	1	0	1	1	1.020 V	
0	0	1	1	0	0	1.516 V	1	0	1	1	0	0	1.004 V	
0	0	1	1	0	1	1.500 V	1	0	1	1	1	0	0.988 V	
0	0	1	1	1	0	1.484 V	1	0	1	1	1	0	0.972 V	
0	0	1	1	1	1	1.468 V	1	0	1	1	1	1	0.956 V	
0	1	0	0	0	0	1.452 V	1	1	0	0	0	0	0.940 V	DOTHAN-ULV Base Stealey HIGH FREQUENCY MODE
0	1	0	0	0	1	1.436 V	1	1	0	0	0	1	0.924 V	
0	1	0	0	1	0	1.420 V	1	1	0	0	1	0	0.908 V	
0	1	0	0	1	1	1.404 V	1	1	0	0	1	1	0.892 V	
0	1	0	1	0	0	1.388 V	1	1	0	1	0	0	0.876 V	
0	1	0	1	0	1	1.372 V	1	1	0	1	0	1	0.860 V	
0	1	0	1	1	0	1.356 V	1	1	0	1	1	0	0.844 V	
0	1	0	1	1	1	1.340 V	1	1	0	1	1	1	0.828 V	
0	1	1	0	0	0	1.324 V	1	1	1	0	0	0	0.812 V	DOTHAN-ULV Base Stealey LOW FREQUENCY MODE
0	1	1	0	0	1	1.308 V	1	1	1	0	0	1	0.796 V	
0	1	1	0	1	0	1.292 V	1	1	1	0	1	0	0.780 V	
0	1	1	0	1	1	1.276 V	1	1	1	0	1	1	0.764 V	
0	1	1	1	0	0	1.260 V	1	1	1	1	0	0	0.748 V	
0	1	1	1	0	1	1.244 V	1	1	1	1	0	1	0.732 V	
0	1	1	1	1	0	1.228 V	1	1	1	1	1	0	0.716 V	DOTHAN-ULV Base Stealey DEEPER SLEEP MODE
0	1	1	1	1	1	1.212 V	1	1	1	1	1	1	0.700 V	Refer to page??

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SMBUS Address "D2h"

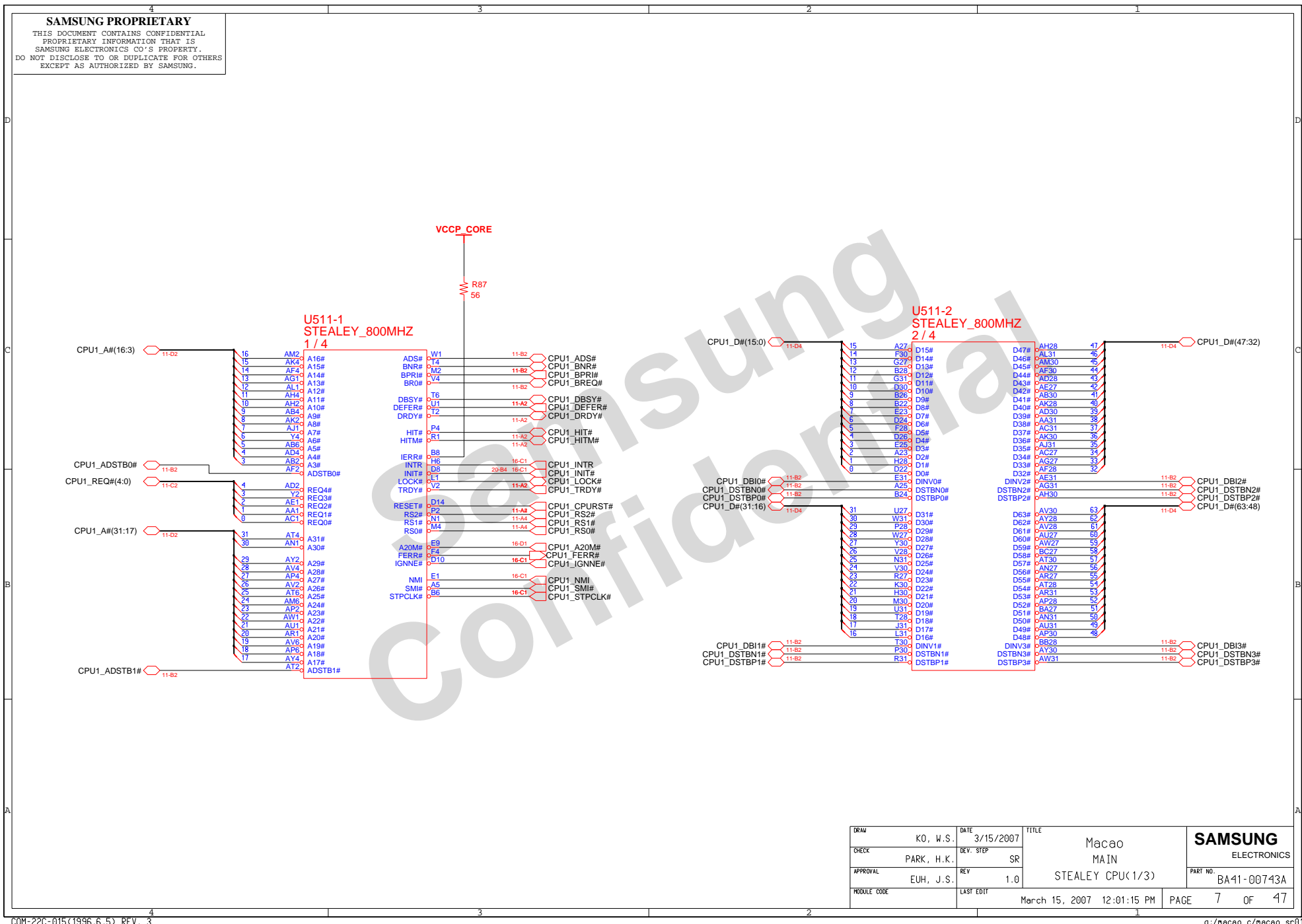
IDT : ICTCH179BNLG
 Silego : SLG8SP513

CLKREQ	DEVICE	SRS PORT
A	GMCH Mini Card	SRC2
B		SRC4
E		SRC6
F		SRC8

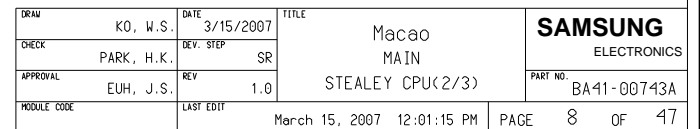
CPU	FSA	FSB	FSC	HOST CLK
0	0	0	0	266 MHz
0	0	1	0	333 MHz
0	1	0	0	200 MHz
0	1	1	0	400 MHz
1	0	0	1	133 MHz
1	0	1	1	100 MHz
1	1	0	0	166 MHz
1	1	1	1	RSVD

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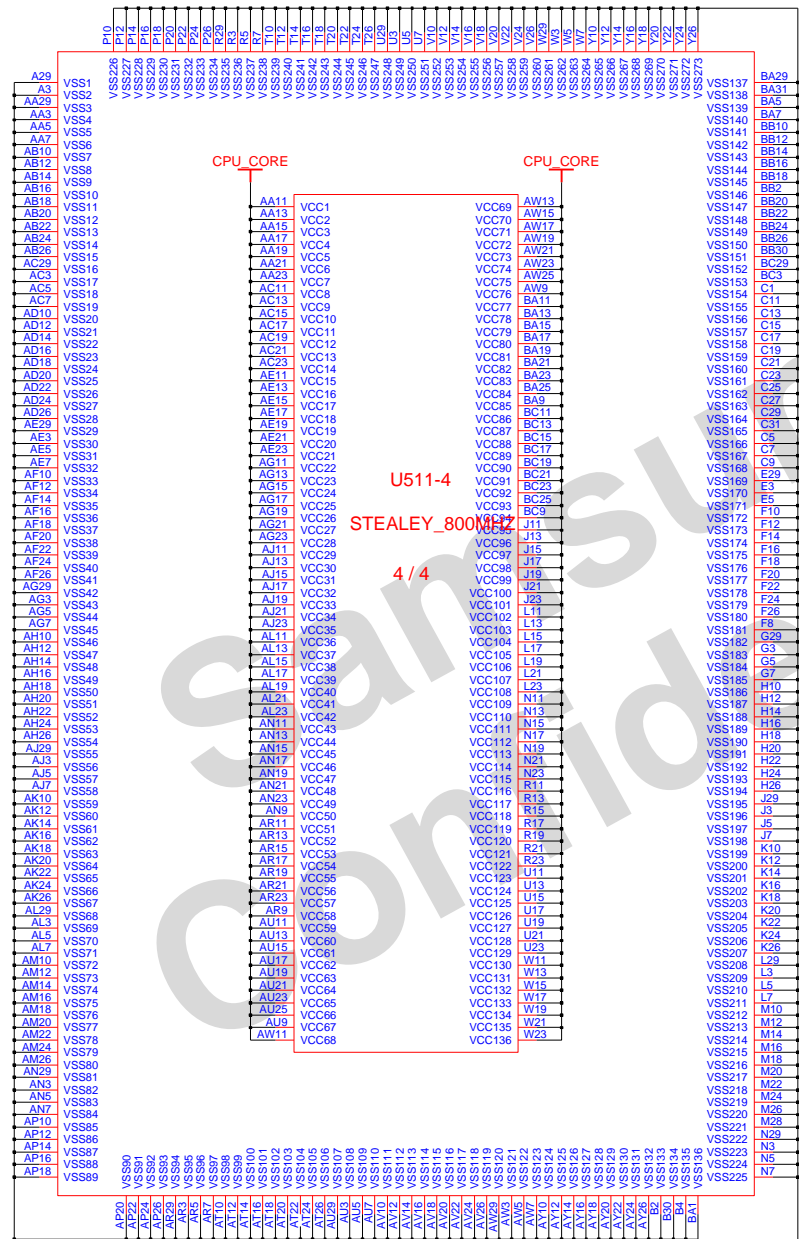


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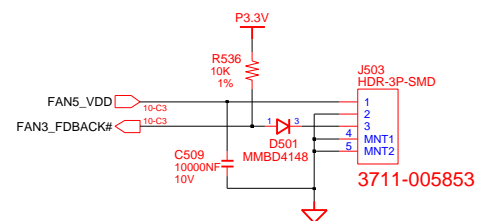
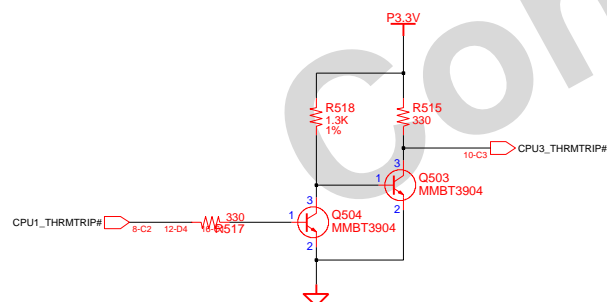
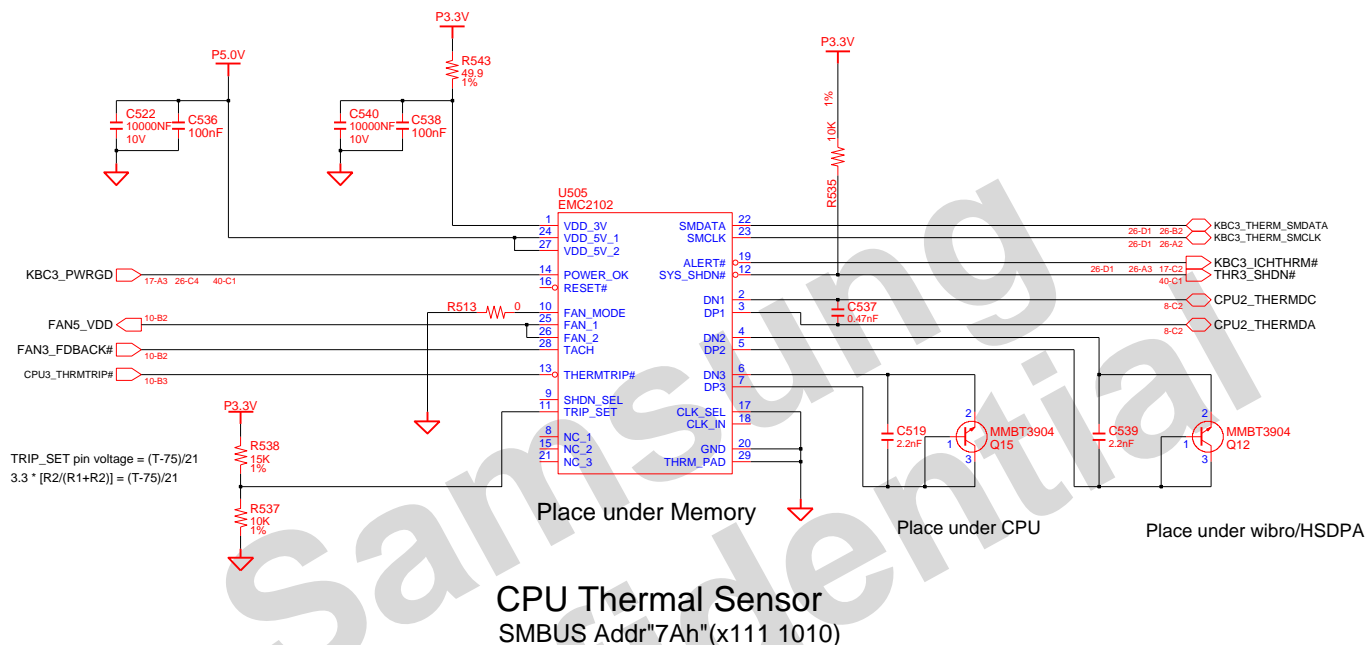
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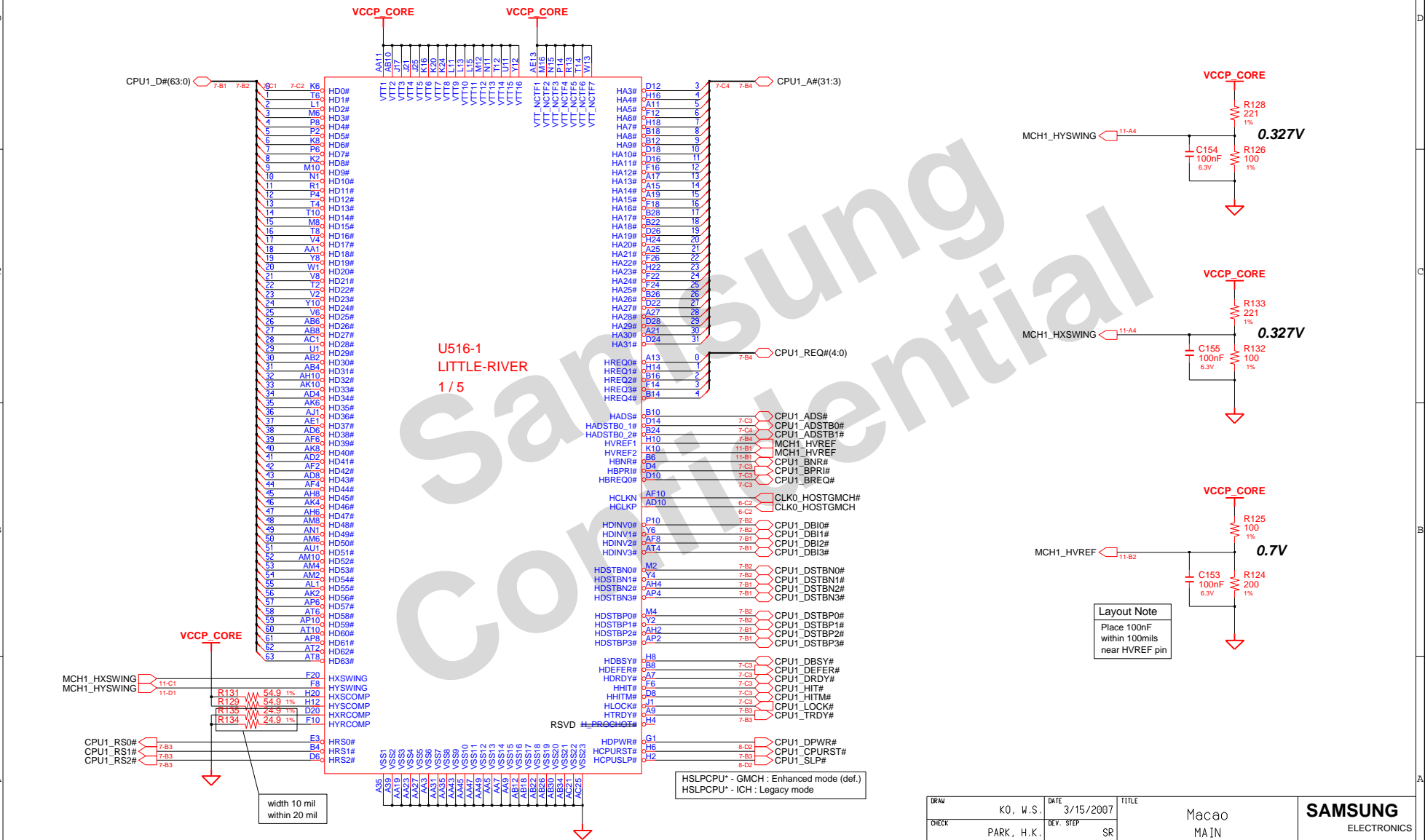
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APPROVAL	EUH, J.S.	REV	1.0		Thermal, FAN, Shutdown	
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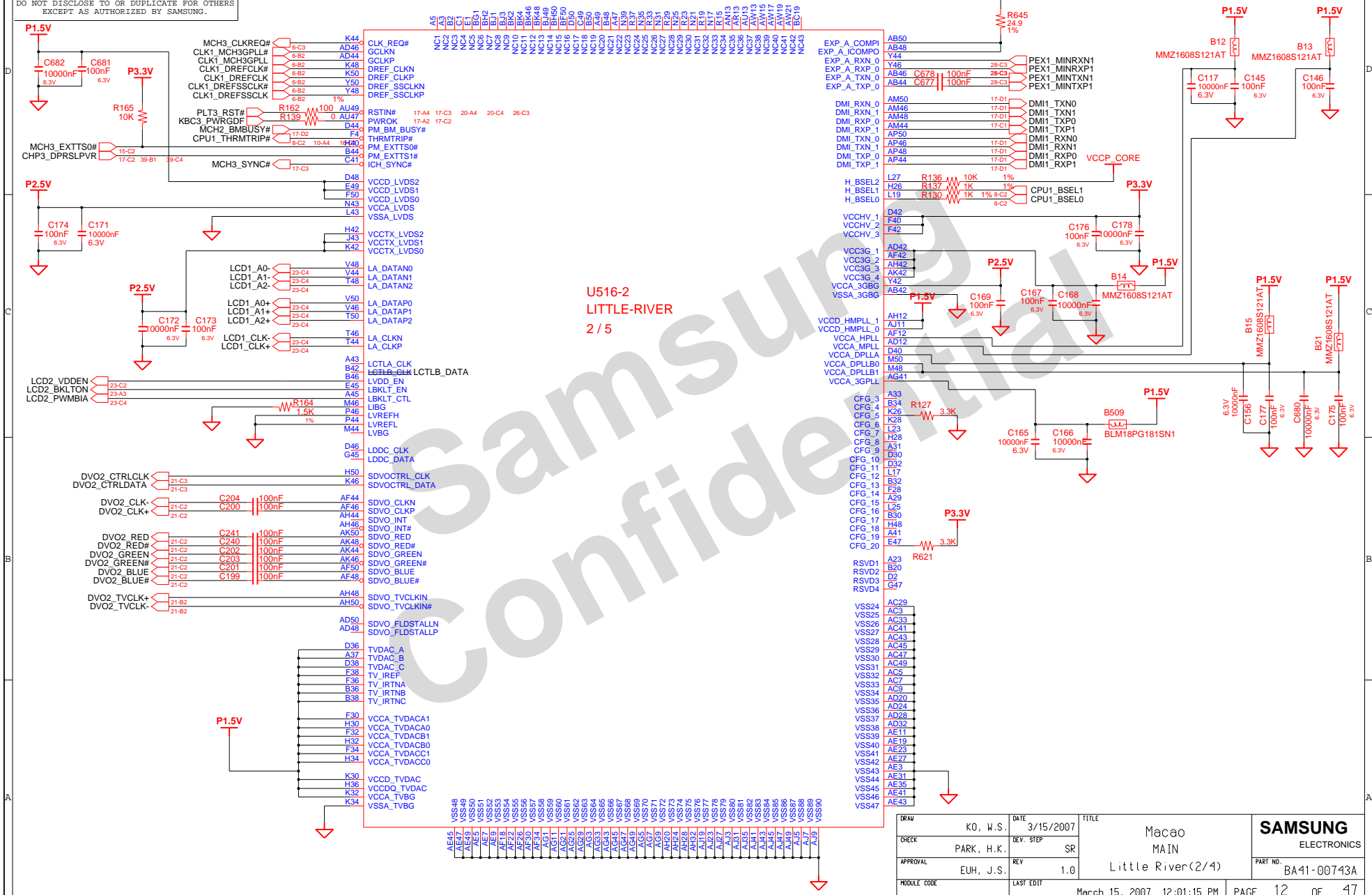


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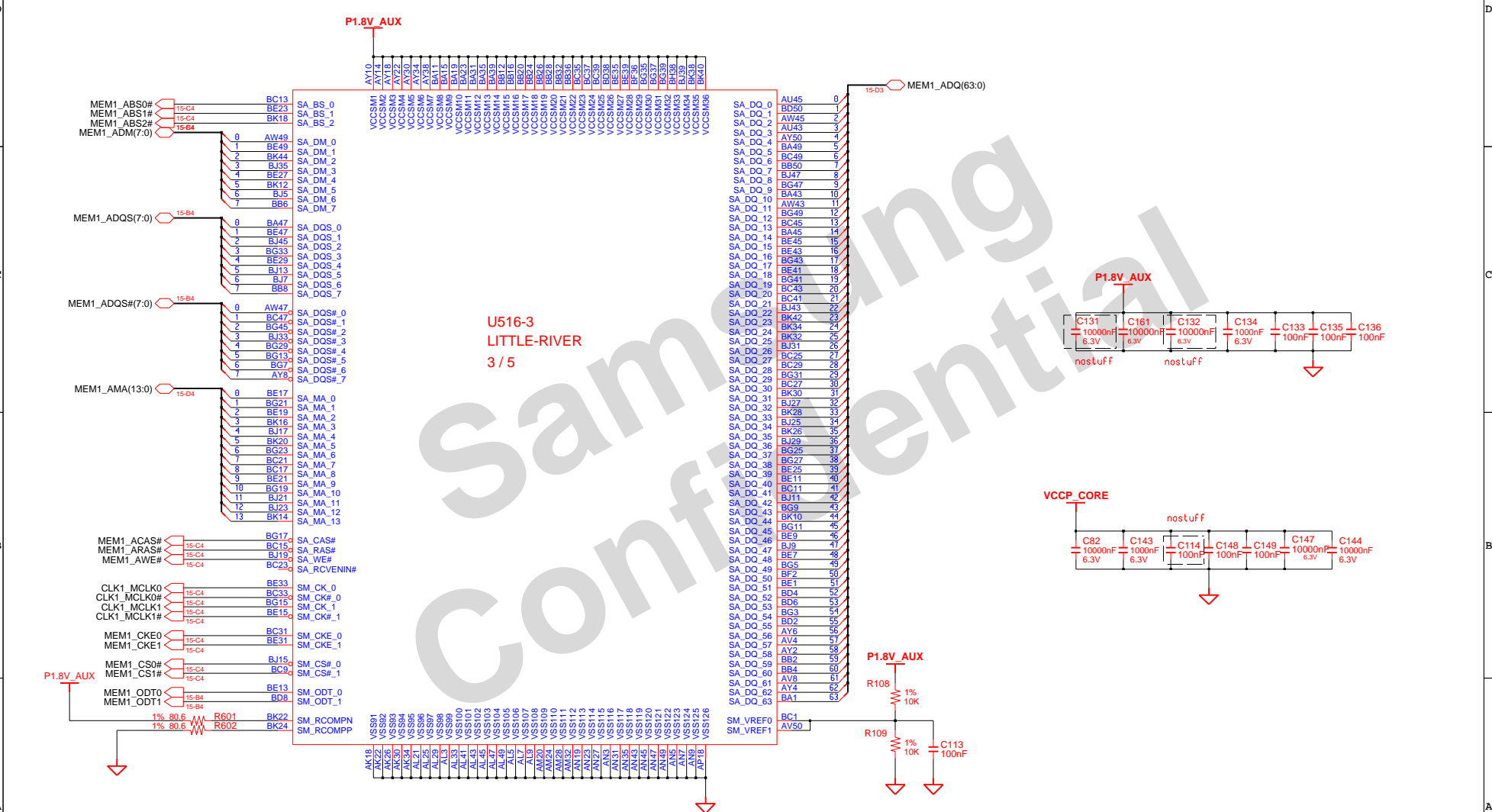
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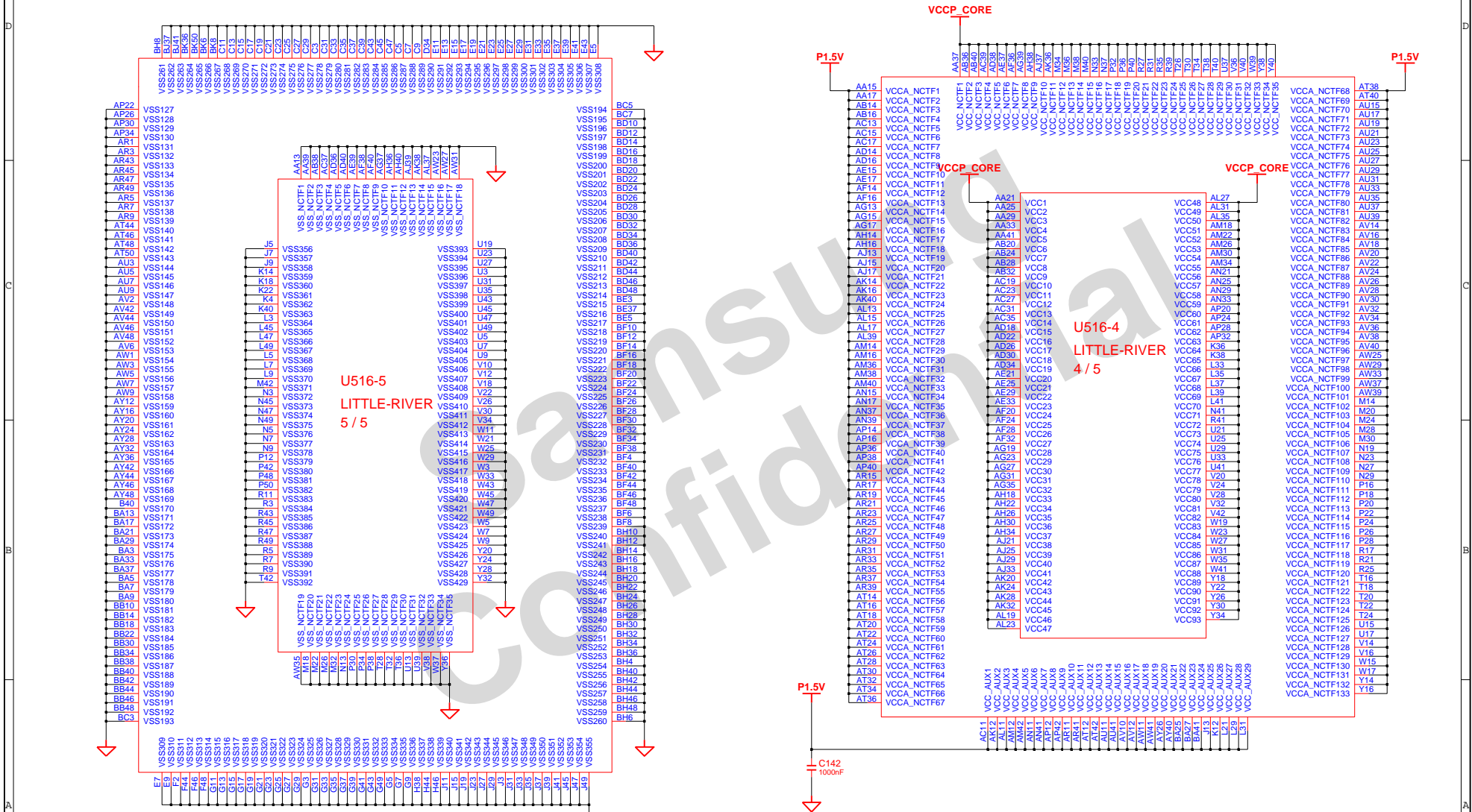
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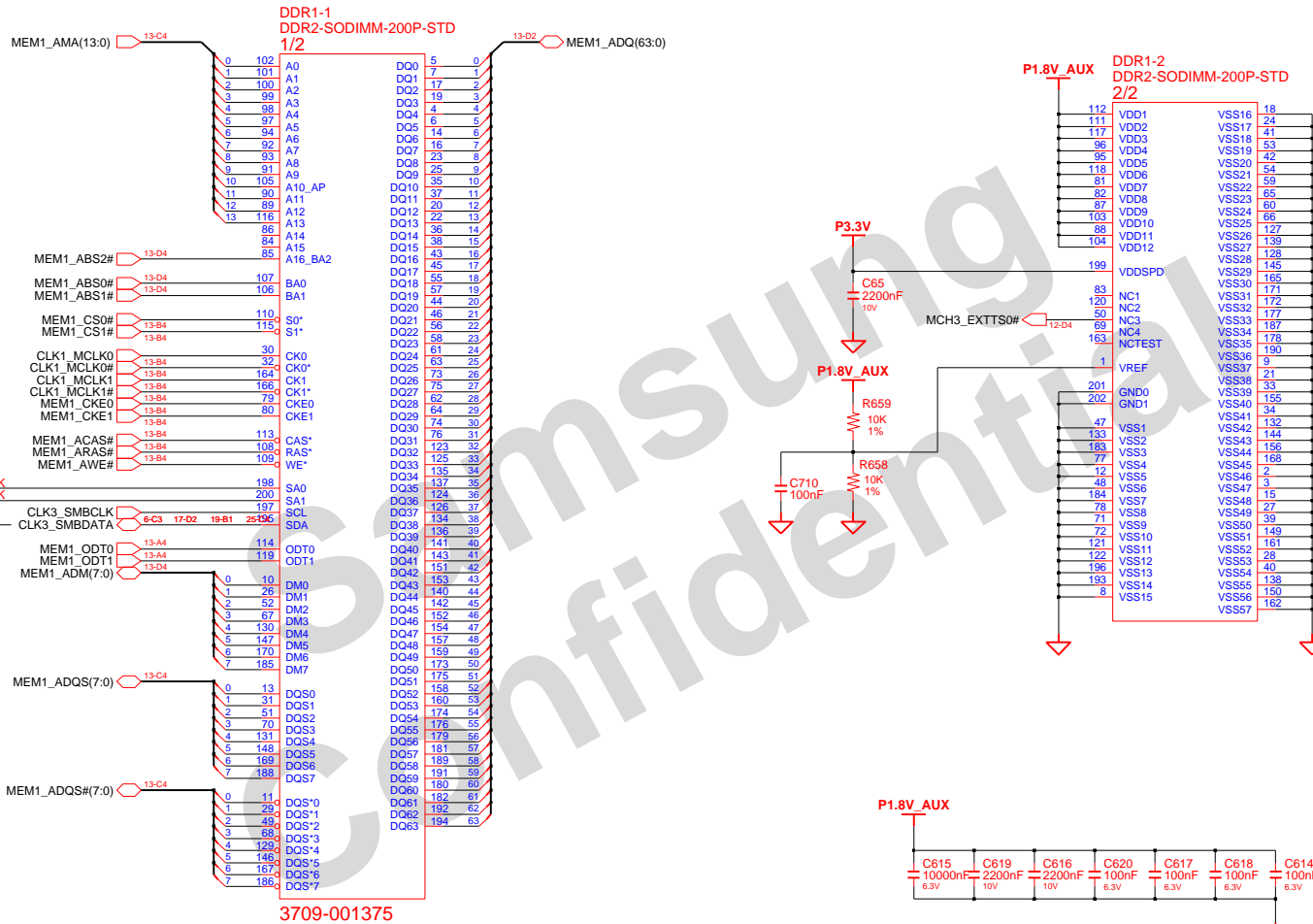
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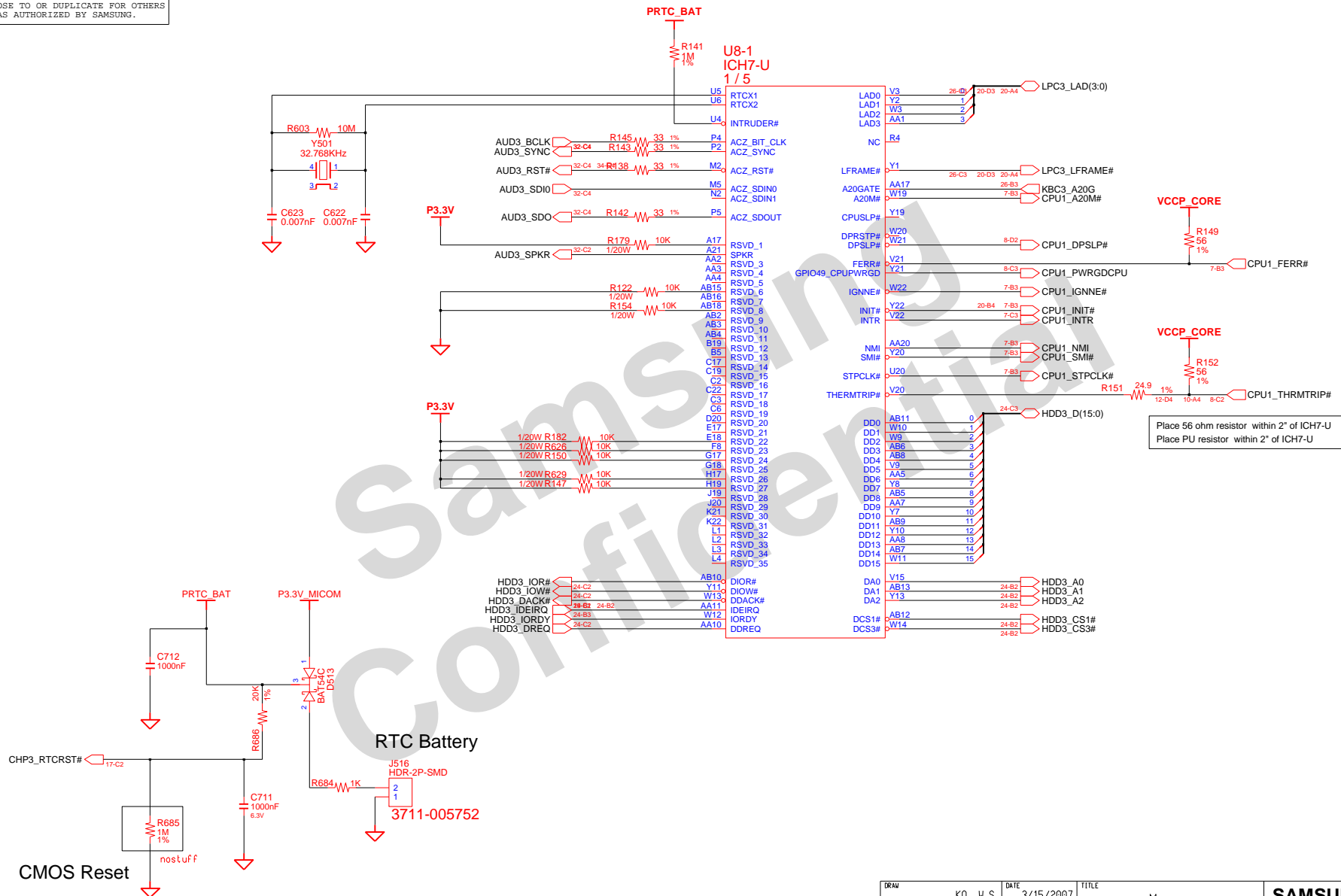
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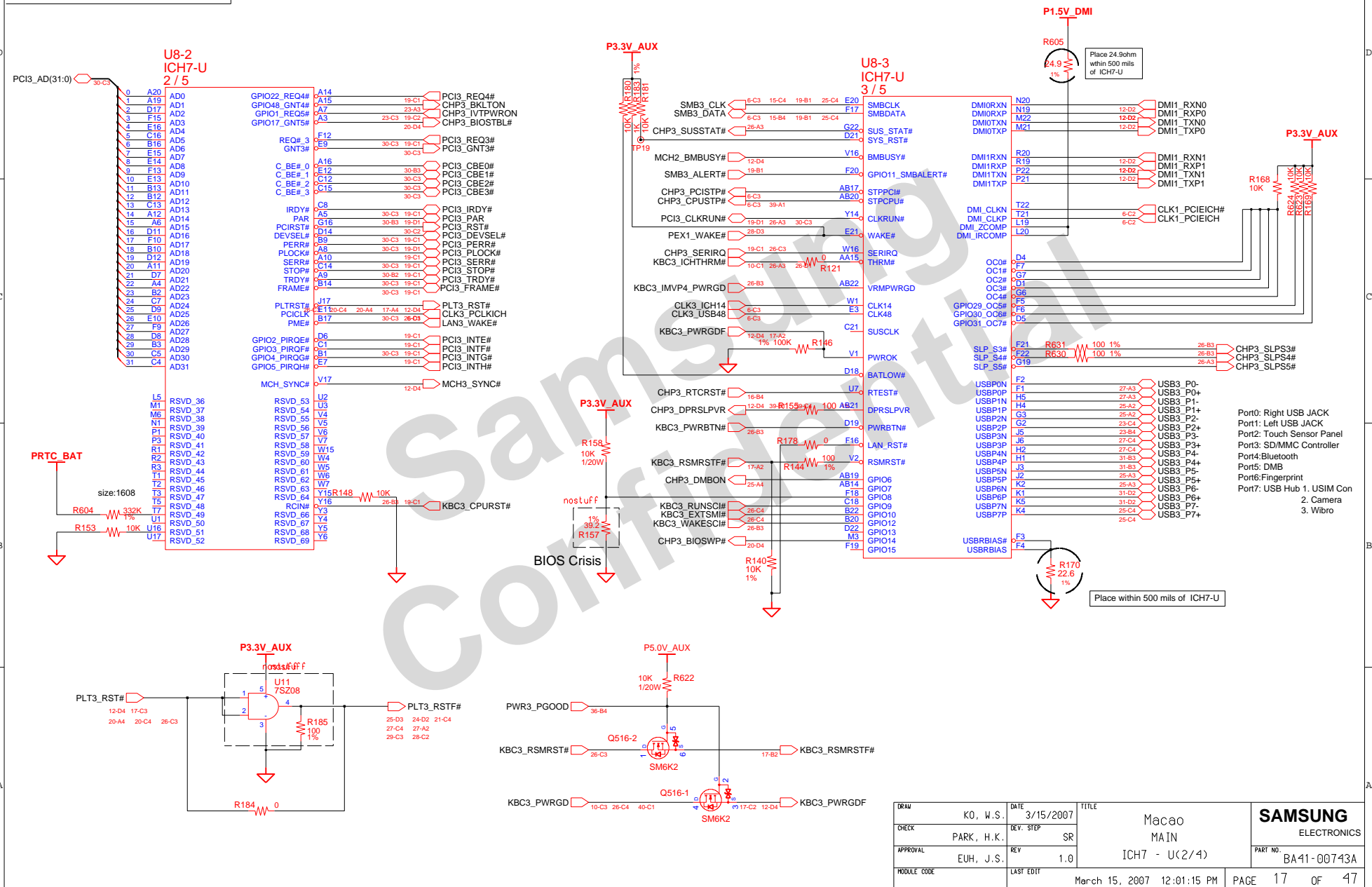
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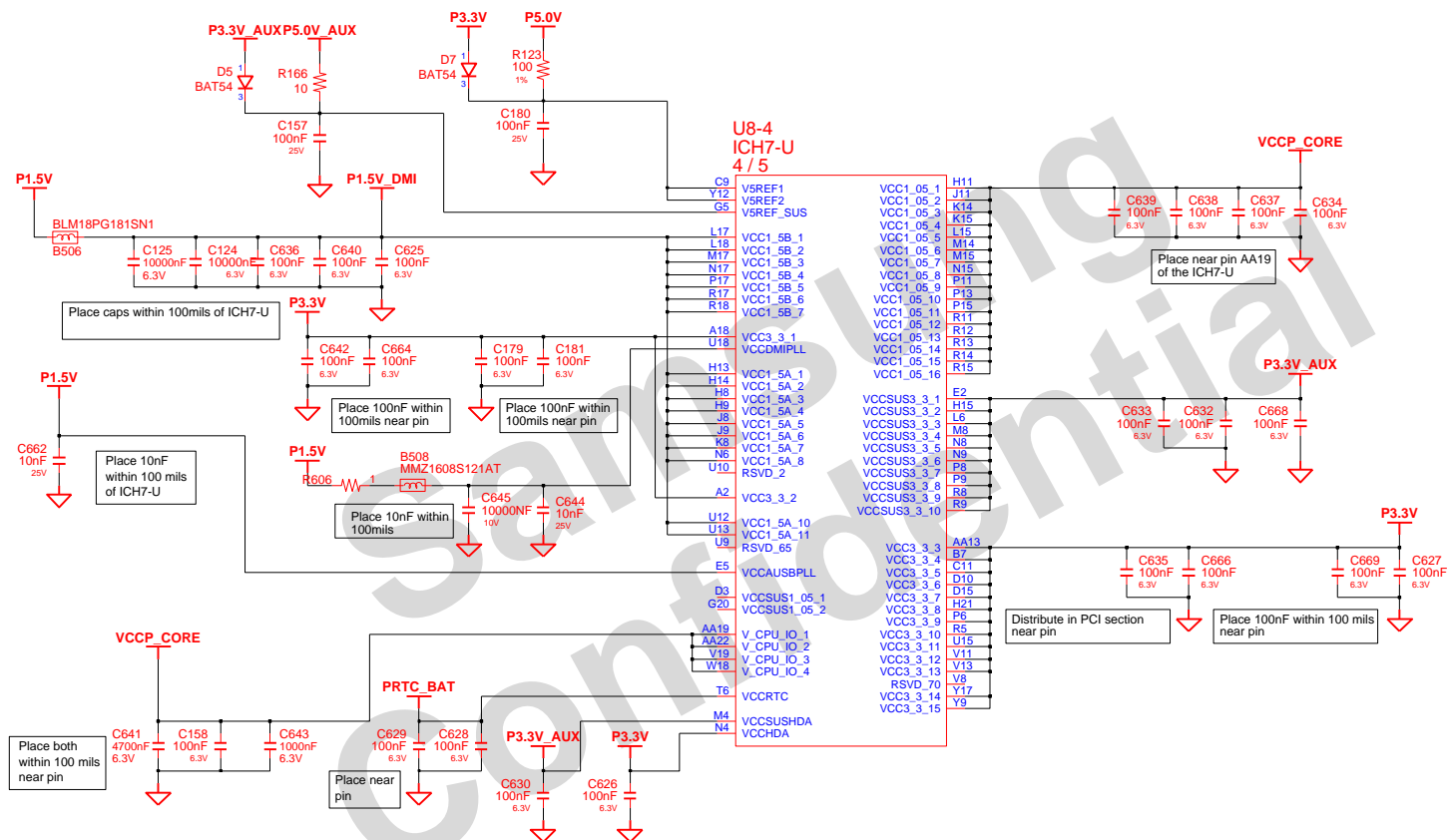
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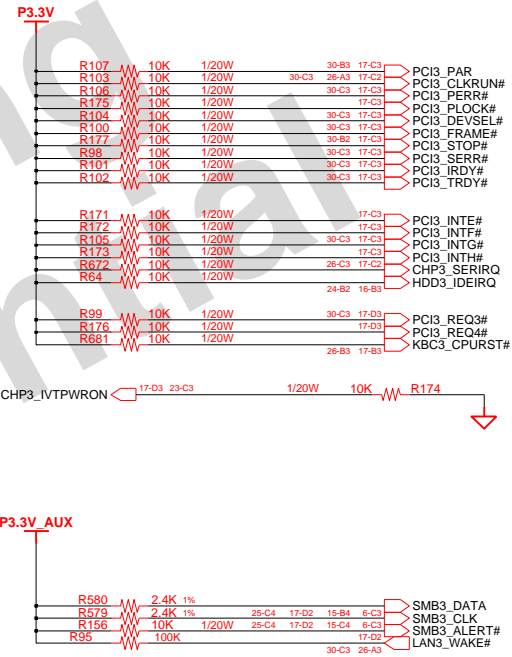
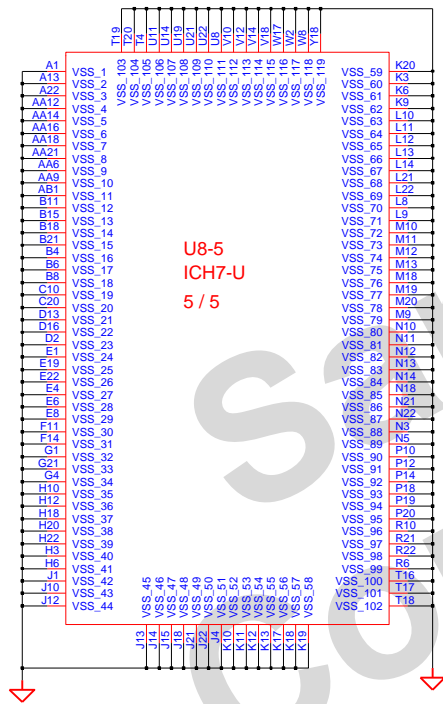
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66 CONFIGURE ADVANCE CACHE REG.
6A DISPLAY EXTERNAL CACHE SIZE
6C DISPLAY SHADOW MESSAGE
6E DISPLAY NON-DISPOSABLE SEGMENT
70 DISPLAY ERROR MESSAGE
72 CHECK FOR CONFIGURATION ERROR
74 TEST REAL-TIME CLOCK
76 CHECK FOR KEYBOARD ERROR
7C SETUP HARDWARE INTERRUPT VECTOR
7E TEST COPROCESSOR IF PRESENT
80 DISABLE ON-BOARD I/O PORT
82 DETECT AND INSTALL EXT.RS232C
84 DETECT AND INSTALL EXT.PARALLEL
86 RE-INIT. ON-BOARD I/O PORT
88 INIT. BIOS DATA ROM
8A INIT.EXTENDED BIOS DATA AREA
8C INIT. FDD CONTROLLER
9A SHADOW OPTION ROMS
9C SETUP POWER MANAGEMENT
9E ENABLE H/W INTERRUPT
A0 SET TIME OF DAY
A4 INIT. TYPEMATIC RATE
A8 ERASE F2 PROMPT
AA SCAN FOR F2 KEY STROKE
AC ENTER SETUP
AE CLEAR IN POST FLAG
B0 CHECK FOR ERRORS
B2 POST DONE-PREPARE TO BOOT O/S
B4 ONE BEEP
B6 CHECK PASSWORD (OPTION)
B7 ACPI INIT
BA DMI INIT
BE CLEAR SCREEN
C0 TRY BOOT WITH INT19
D0 INTERRUPT HANDLER ERROR
D2 UNKNOWN INTERRUPT ERROR
D4 PENDING INTERRUPT ERROR
D6 SHUTDOWN 5
D8 SHUTDOWN ERROR
DA EXTENDED BLOCK MOVE
DC SHUTDOWN 10
89 ENABLE NMI
90 INIT. HDD CONTROLLER
91 INIT. LOCAL BUS HDD CONTROLLER
92 JUMP TO USER PATCH 2
94 DISABLE A20 ADDRESS LINE
96 CLEAR HUGE ES SEGMENT REG.
98 SEARCH FOR OPTION ROMS

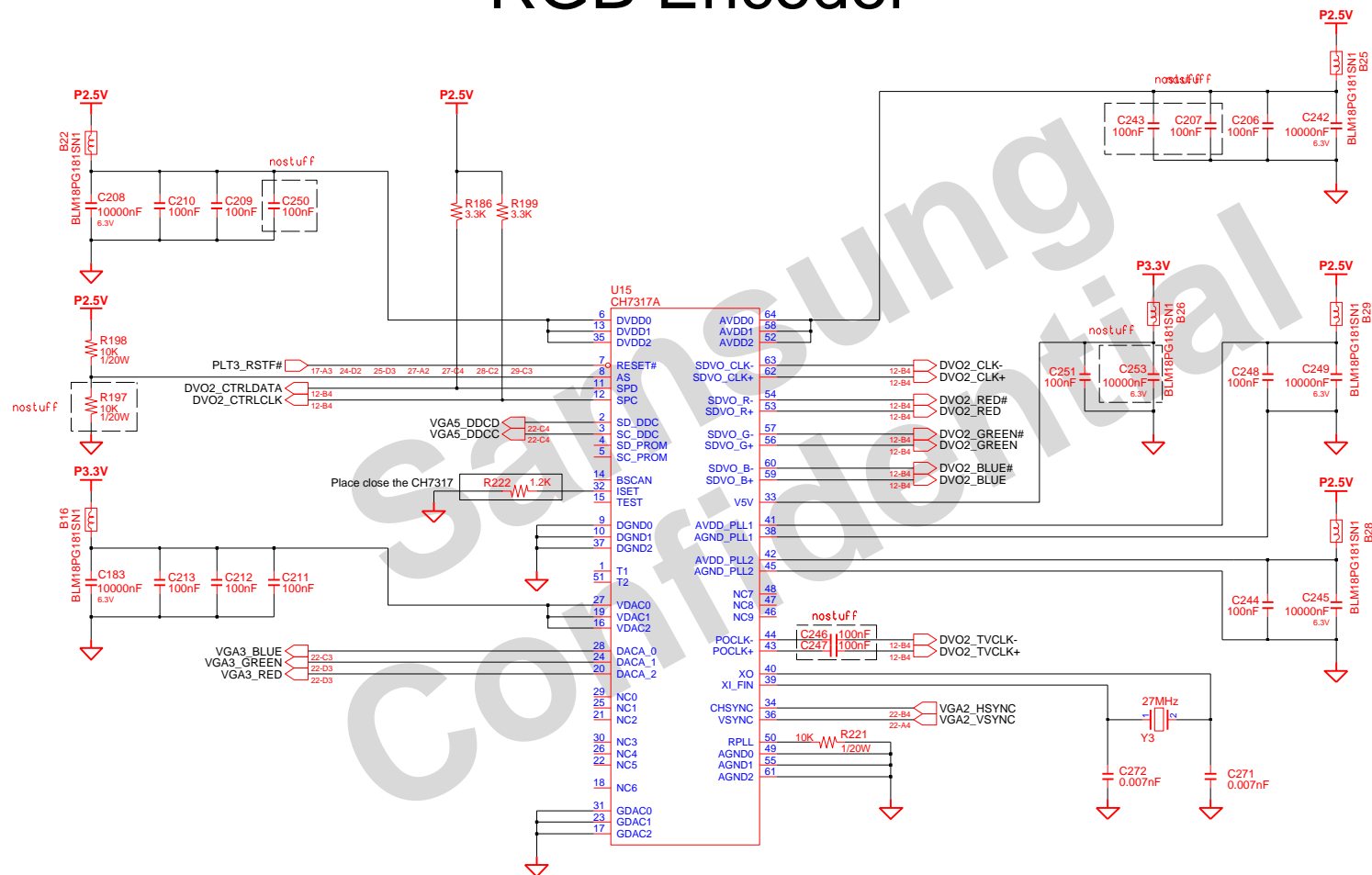
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DATE	3/15/2007	TITLE	Macao MAIN FWH & 80port			
DRAW	KO, W.S.					
CHECK	PARK, H.K.	SR				
APPROVAL	EUH, J.S.	REV 1.0				
MODULE CODE	LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	20	OF	47

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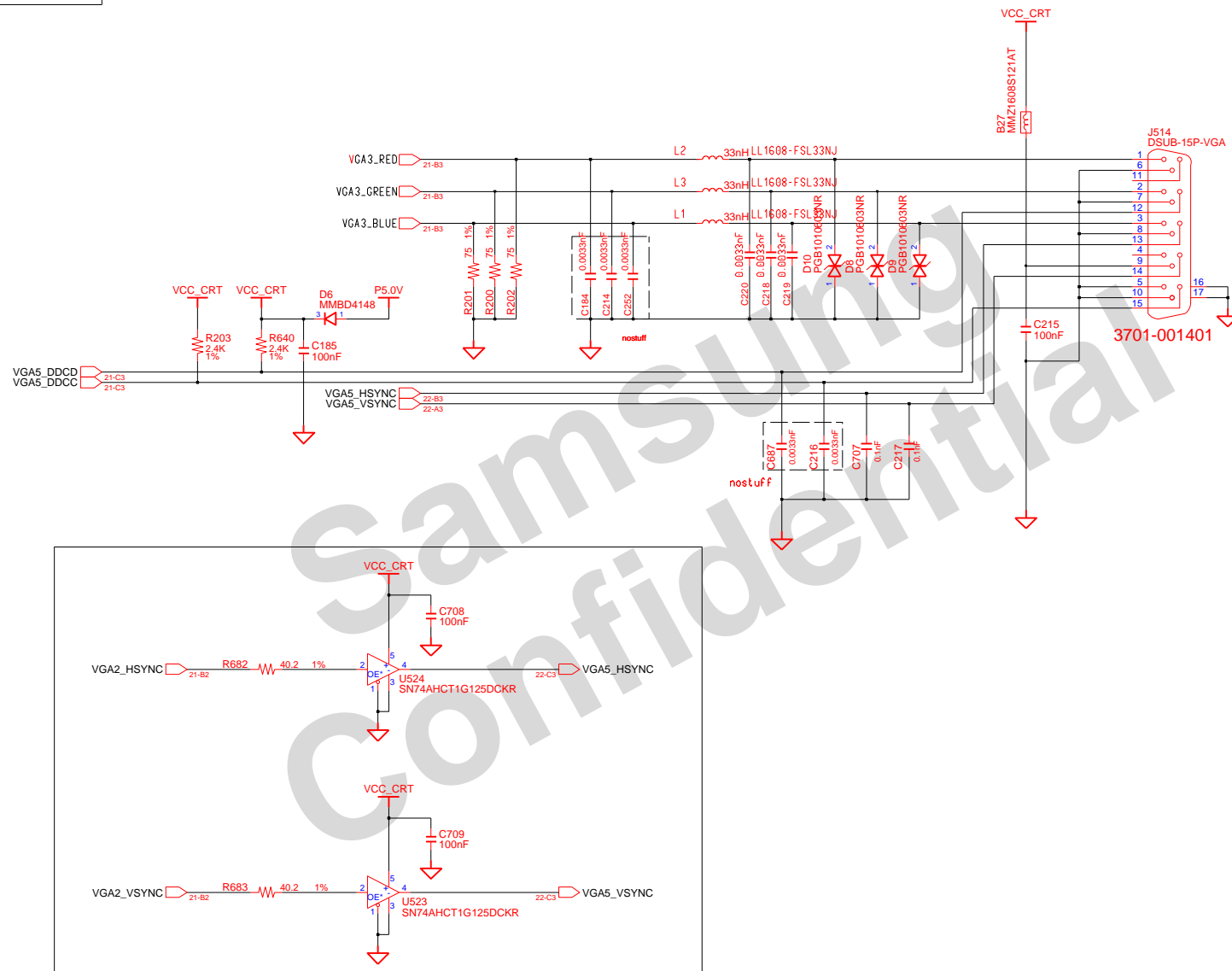
RGB Encoder



DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		MAIN	
APPROVAL	EUH, J.S.	REV	1.0		SDVO to RGB	PART NO. BA41-00743A
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	21	OF 47

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DRAW	KO, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR	MAIN		
APPROVAL	EUH, J.S.	REV	1.0	VGA Conn(CRT)	PART NO.	BA41-00743A
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	22	OF 47


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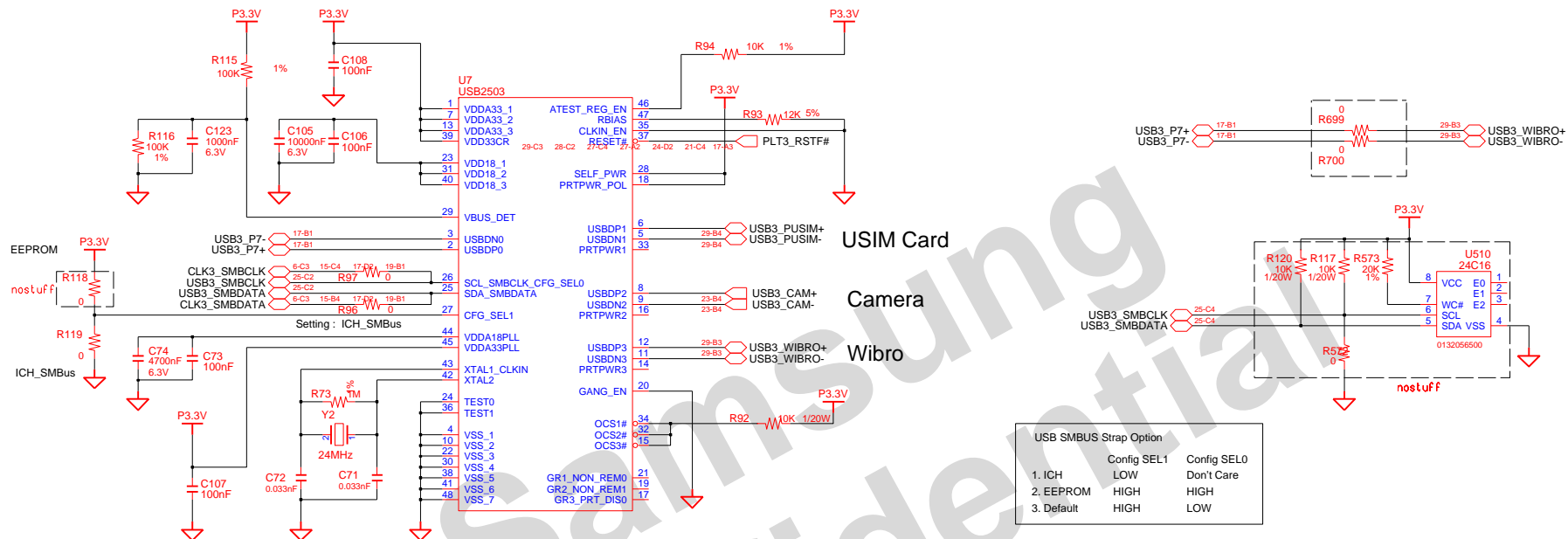
DRAM	K0, W.S.	DATE	3/15/2007	TITLE	Macao MAIN TCON Sub Conn	SAMSUNG ELECTRONICS PART NO. BA41-00743A
CHECK	PARK, H.K.	DEV. STEP	SR			
APPROVAL	EUH, J.S.	REV	1.0			
MODULE CODE	LAST EDIT					
				March 15, 2007 12:01:15 PM	PAGE	23 OF 47

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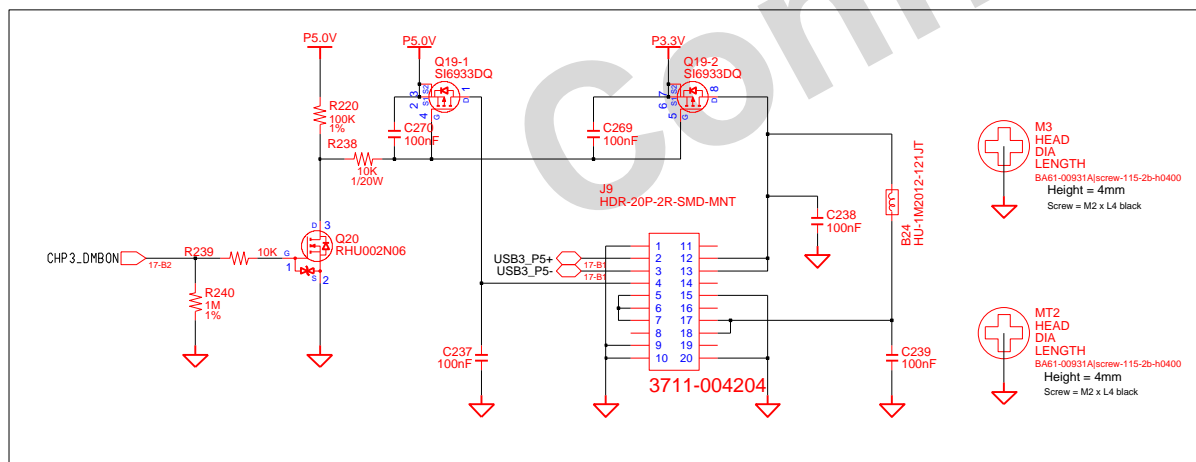


DRAM	KO, W.S.	DATE	3/15/2007	TITLE	Macao MAIN HDD CONNECTOR	
CHECK	PARK, H.K.	DEV. STEP	SR			
APPROVAL	EUH, J.S.	REV	1.0			
MODULE CODE	LAST EDIT		March 15, 2007 12:01:15 PM			
				PART NO.	BA41-00743A	

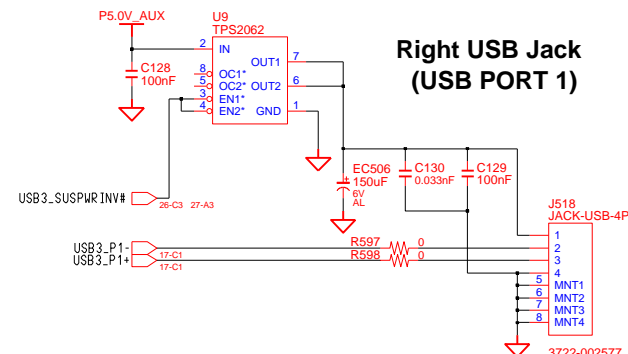
USB Hub 4 ports + EEPROM




DMB Connector & Pem(4mm Height)

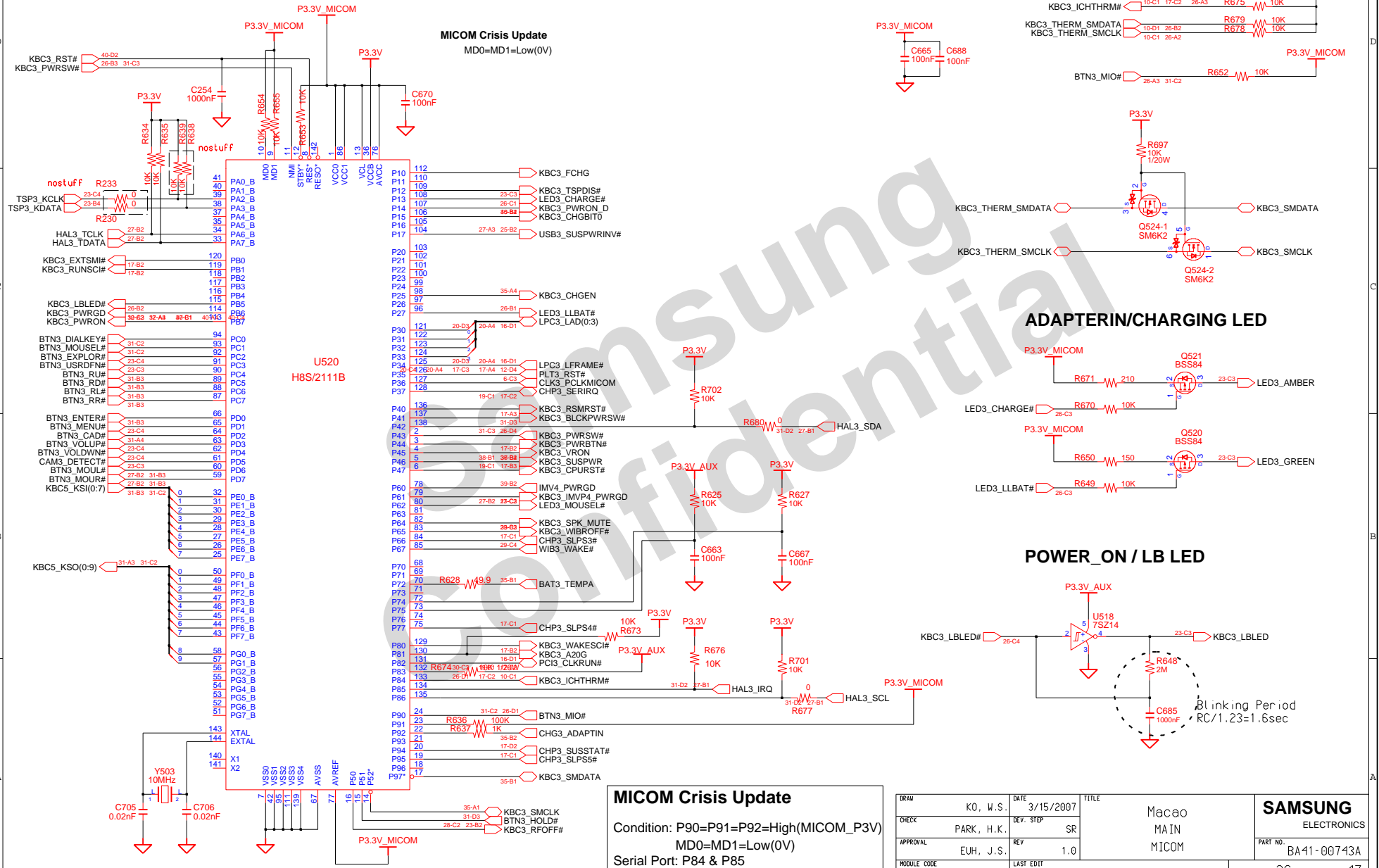


**Right USB Jack
(USB PORT 1)**



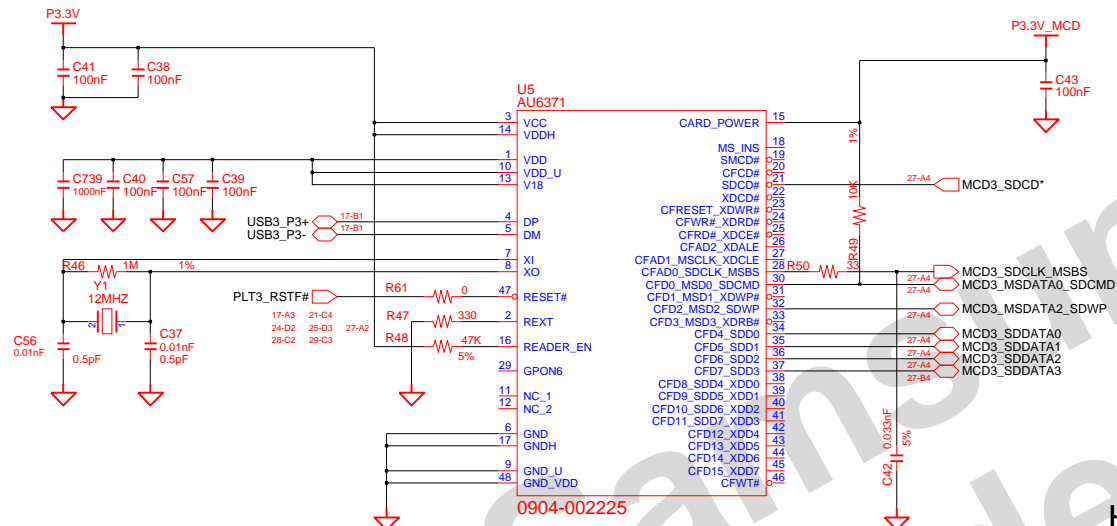
DRAM	K0, W.S.	DATE	3/15/2007	TITLE Macao MAIN USB & DMB	
CHECK	PARK, H.K.	DEV. STEP	SR		
APPROVAL	EUH, J.S.	REV	1.0		
MODULE CODE	LAST EDIT		March 15, 2007 12:01:15 PM		

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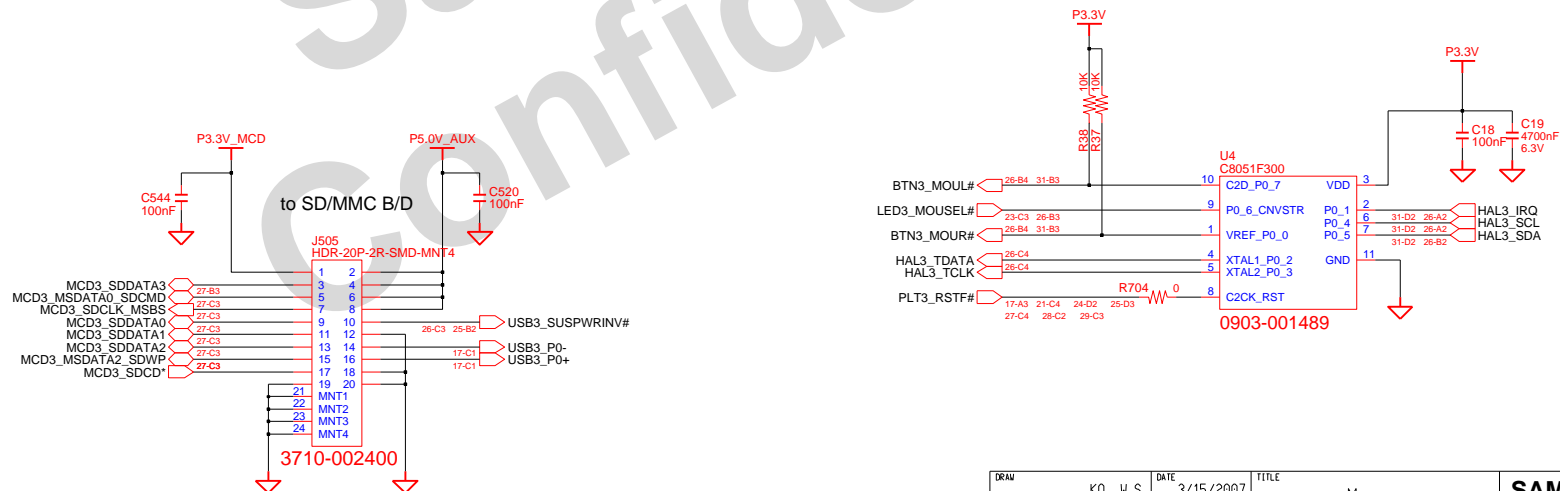


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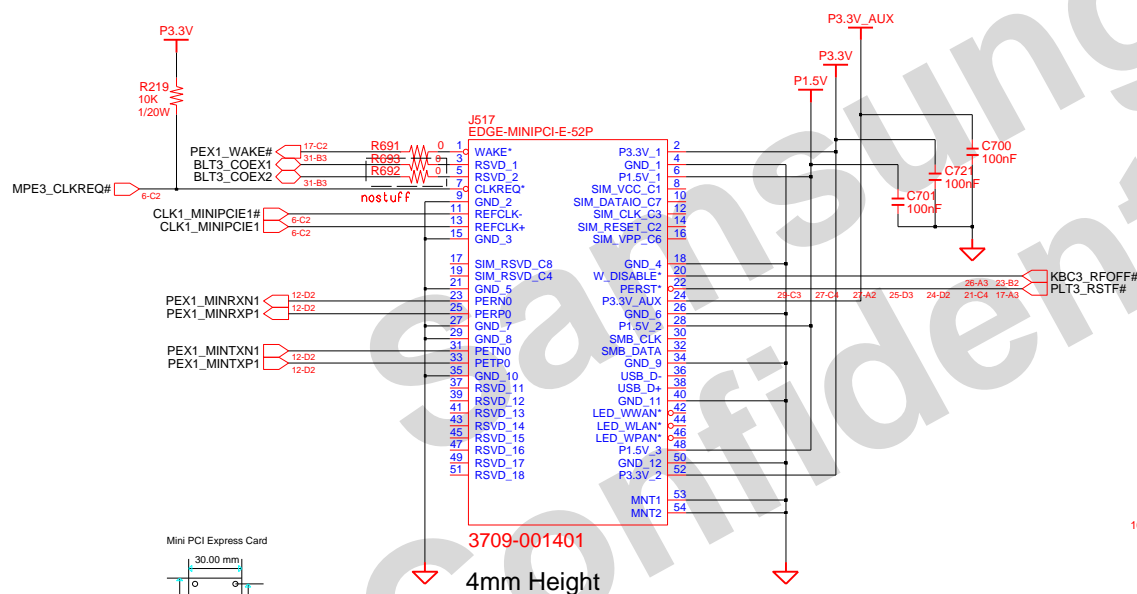
Hall Mouse IC (I2C to PS2 Conversion IC)



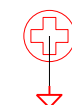
DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		MAIN	
APPROVAL	EUH, J.S.	REV	1.0		SD/MMC Controller	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM		PAGE 27 OF 47	

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WirelessLAN (PCI-E 1x)



Insert PEM



M500
HEAD
DIA
LENGTH
BA61-00955A
Height = 2mm
Screw = M2 x L4, black

Mini PCI Express Card

30.00 mm

50.95 mm

48.05 mm

Top

Pin 1

Odd Pins : Top side
Even Pins : Bottom Side

Mini PCI Express

PCI Express Mini Card ElectroMechanical Spec. 1.0

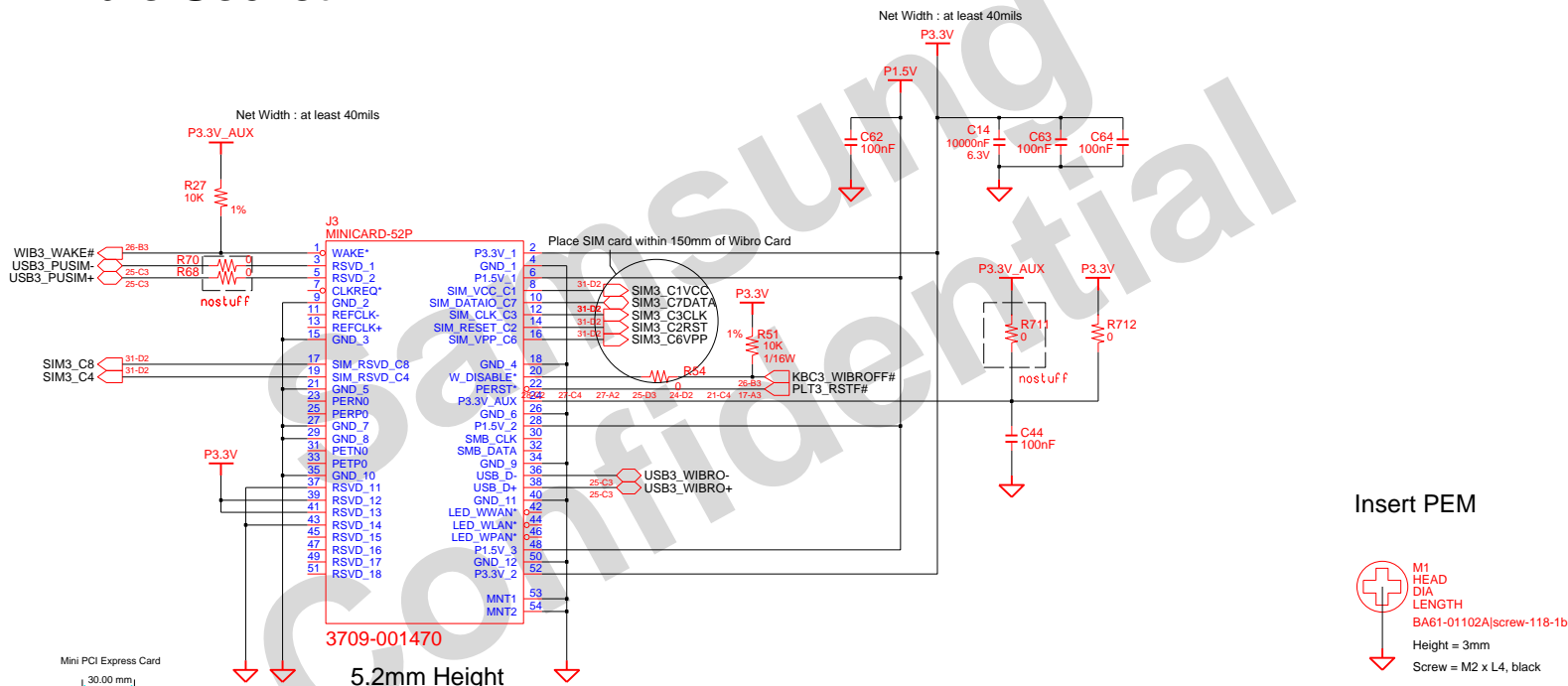
DRAM	K0, W.S.	DATE	3/15/2007	TITLE Macao MAIN WirelessLAN	SAMSUNG ELECTRONICS PART NO. BA41-00743A
CHECK	PARK, H.K.	DEV. STEP	SR		
APPROVAL	EUH, J.S.	REV	1.0		
MODULE CODE	LAST EDIT				
				March 15, 2007 12:01:15 PM	PAGE 28 OF 47

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Wibro / HSDPA (USB 4)

Wibro Socket



Mini Card (Socket Only)

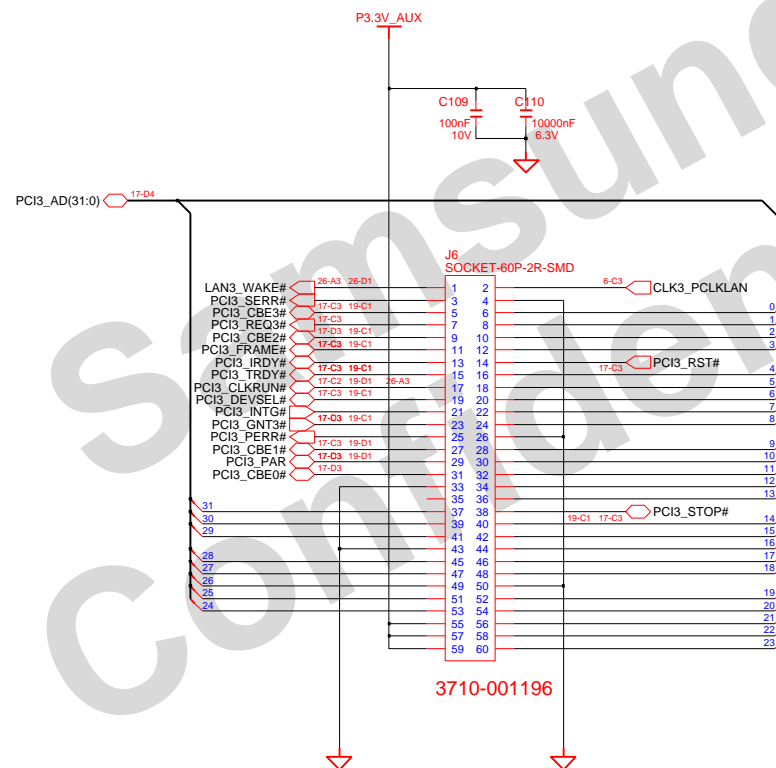
PCI Express Mini Card ElectroMechanical Spec. 1.0

DRAW	KO, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		MAIN	
APPROVAL	EUH, J.S.	REV	1.0		Wibro/HSDPA	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	29 OF 47	

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Wired LAN : 60p Conn

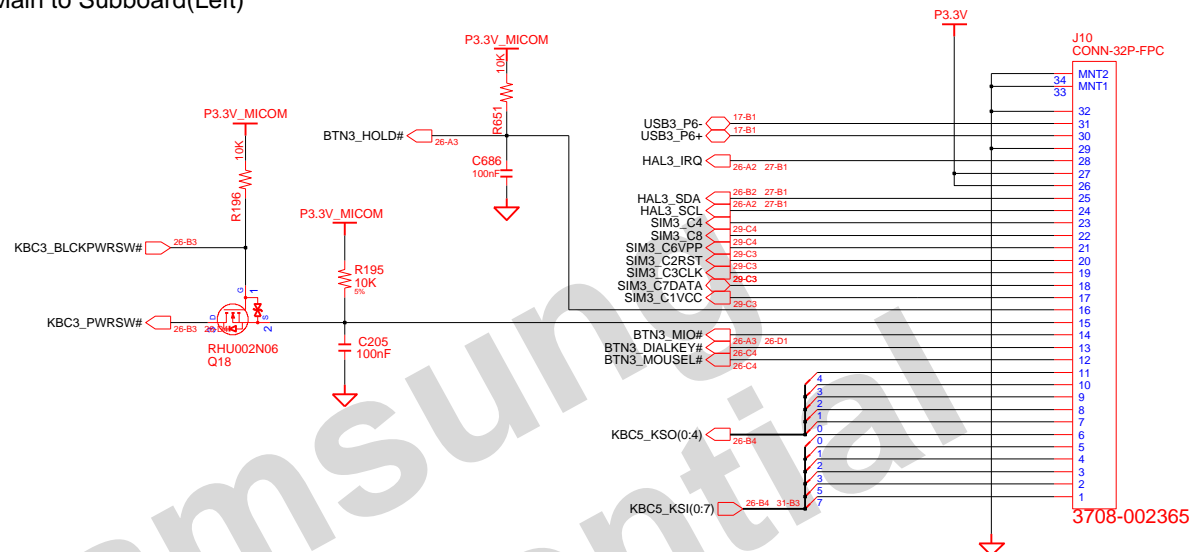


3710-001196

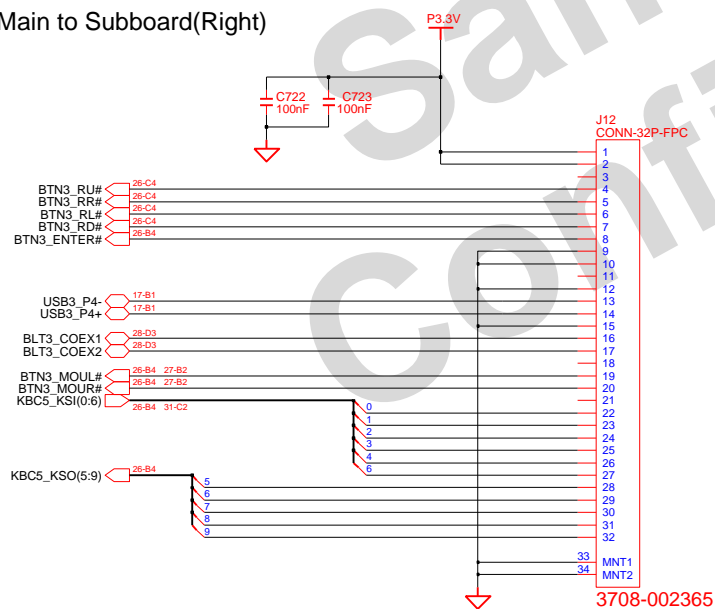
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CHECK	PARK, H.K.	DEV. STEP	SR				
APPROVAL	EUH, J.S.	REV	1.0				
MODULE CODE	LAST EDIT			March 15, 2007 12:01:15 PM	PAGE	30	OF 47

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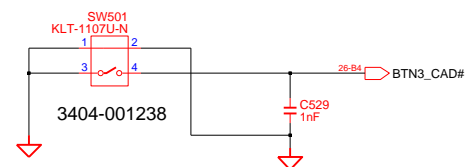
Main to Subboard(Left)



Main to Subboard(Right)

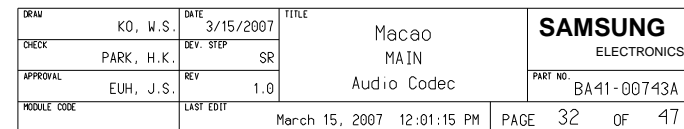


Ctrl_Alt_Del Button



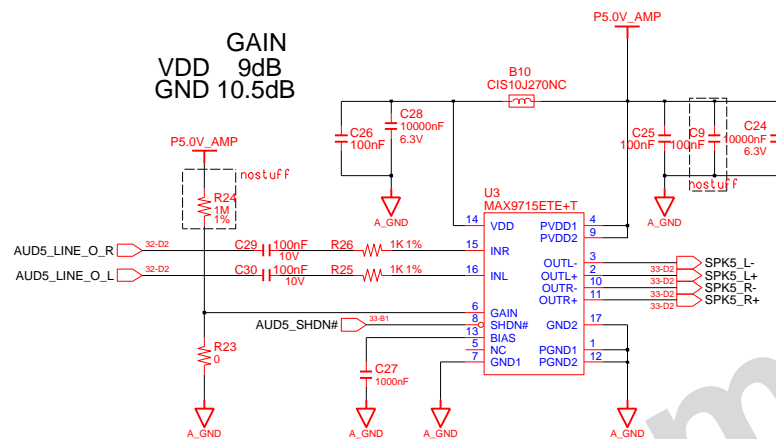
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CHECK	PARK, H. K.	DEV. STEP	SR			
APPROVAL	EUH, J. S.	REV	1.0	SUB B'D Conn. & S/W		PART NO. BA41-00743A
MODULE CODE	LAST EDIT					
				March 15, 2007 12:01:15 PM	PAGE	31 OF 47

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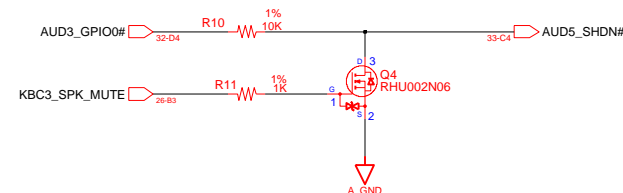
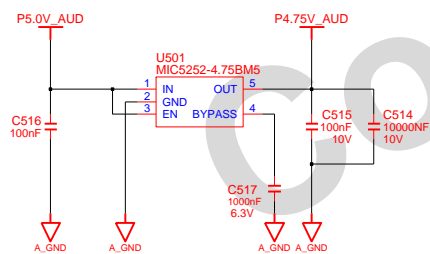
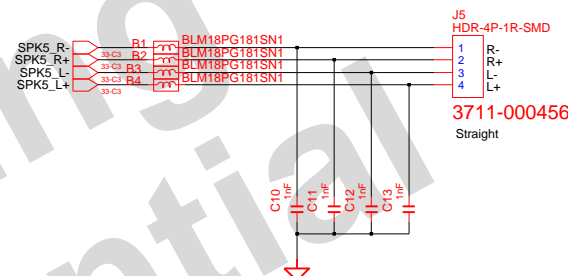


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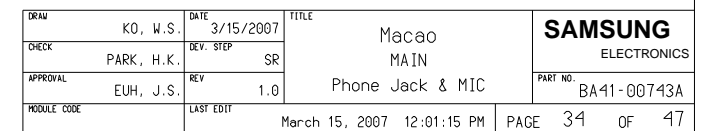
INTERNAL STEREO SPEAKERS



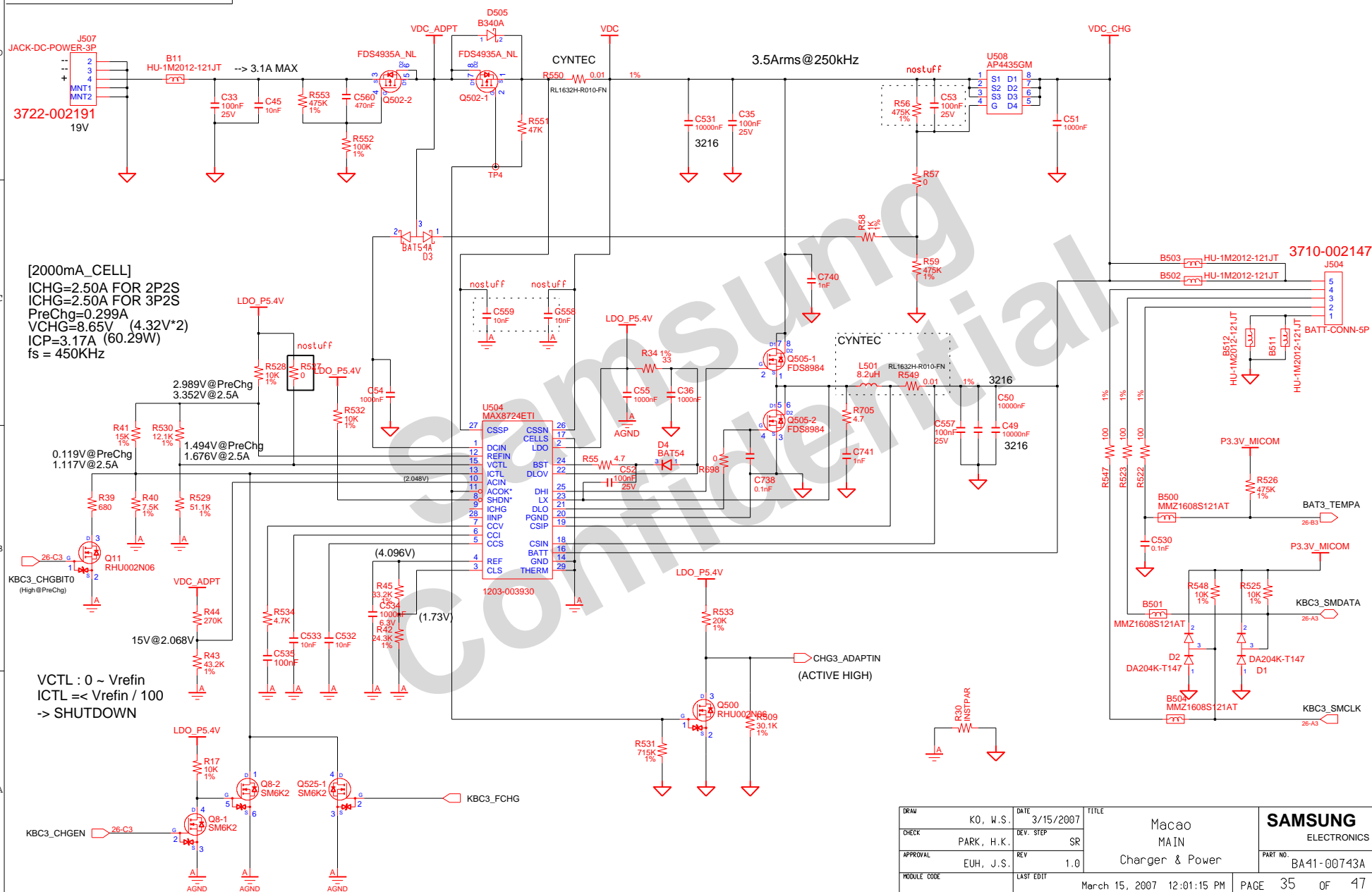
DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		MAIN	
APPROVAL	EUH, J.S.	REV	1.0		AMP & Spkr Conn	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	33 OF 47	

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TOP



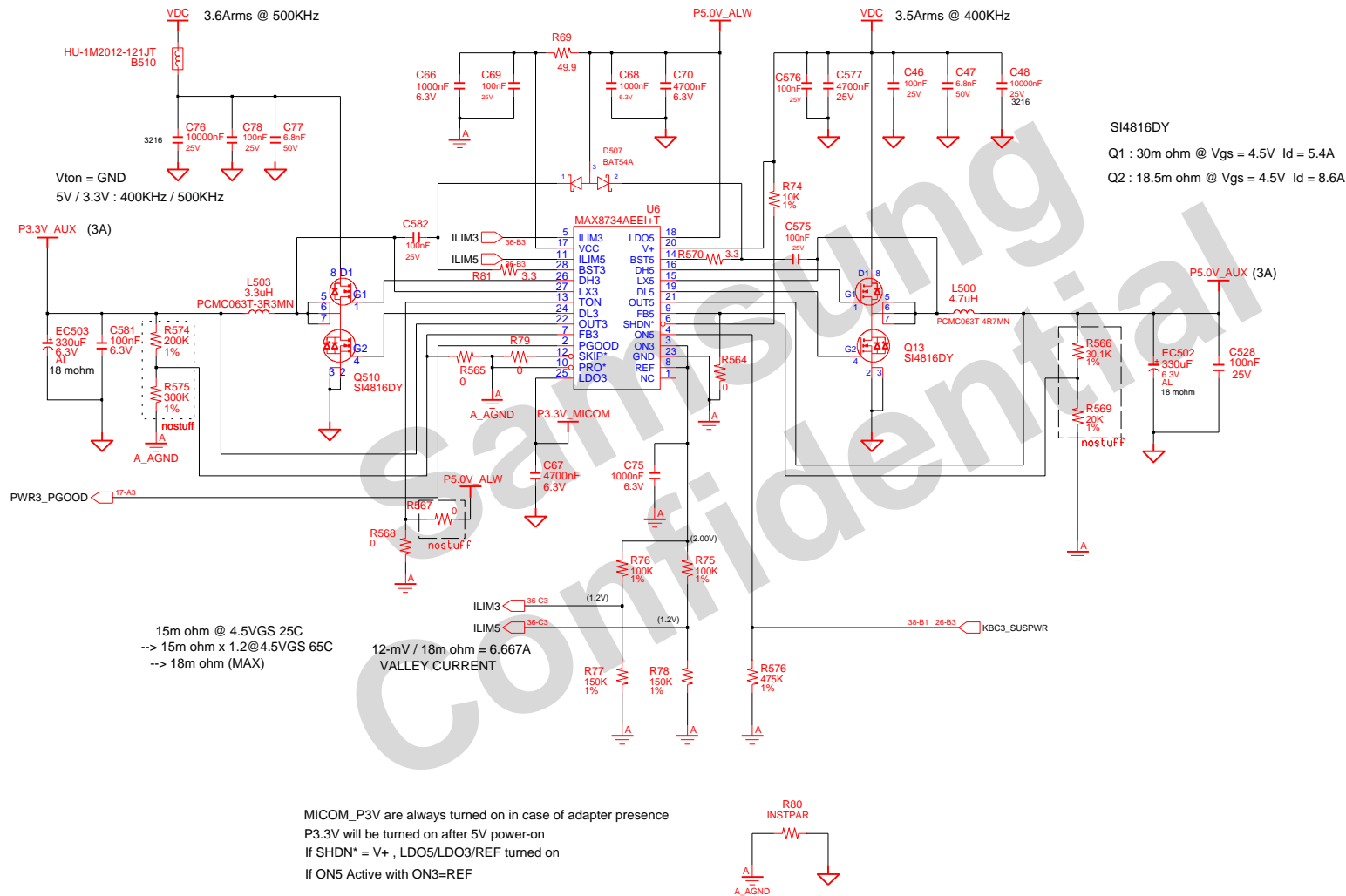
CHARGER & POWER MANAGEMENT



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P3.3V_AUX & P5V_AUX & P3.3V_MICOM

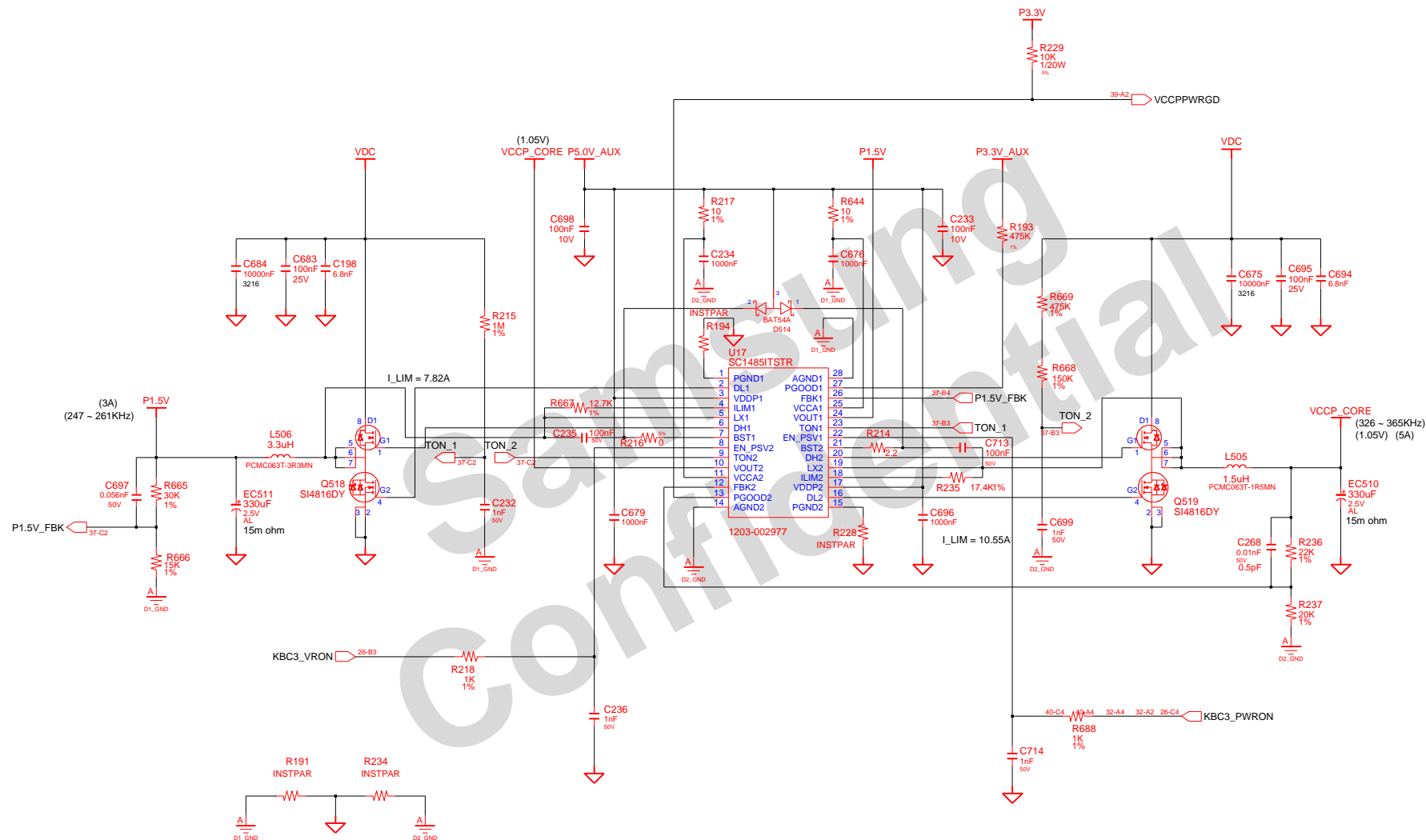


DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		MAIN	
APPROVAL	EUH, J.S.	REV	P3	P3V_AUX & P5V_AUX & MICOM_P3V	BA41-00743A	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	36	OF 47

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P1.5V & VCCP_CORE



DRAW	KO, W.S.	DATE	3/15/2007	TITLE	Macao MAIN P1.5V & VCCP	SAMSUNG ELECTRONICS PART NO. BA41-00743A
CHECK	PARK, H.K.	DEV. STEP	SR			
APPROVAL	EUH, J.S.	REV	1.0			
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	37 OF 47	

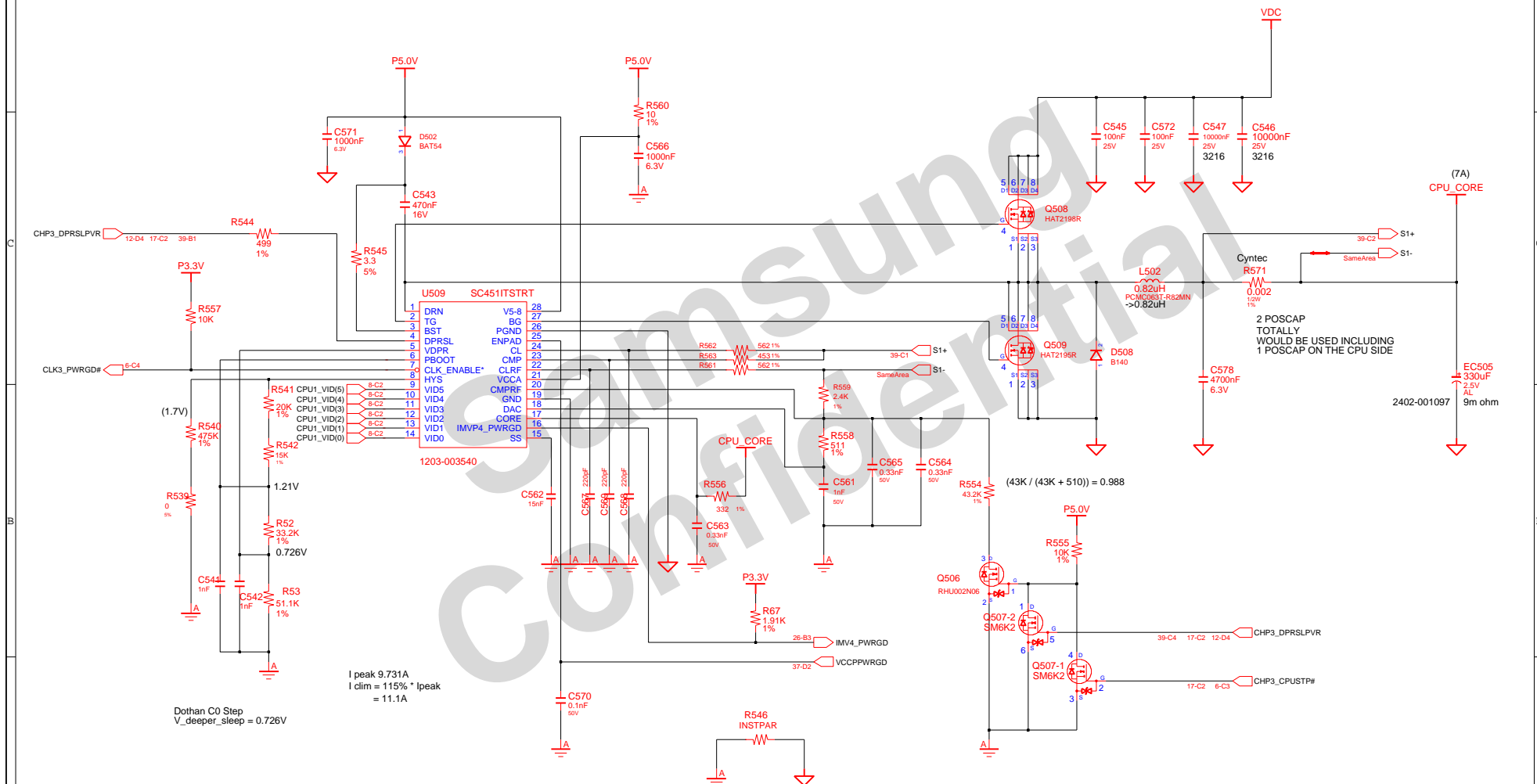
DDR2 POWER

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

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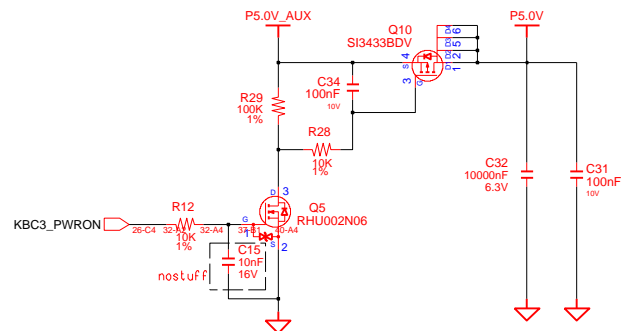
CPU VRM



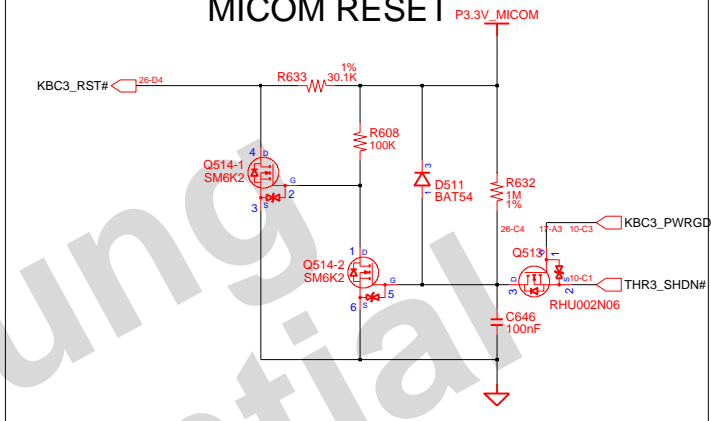
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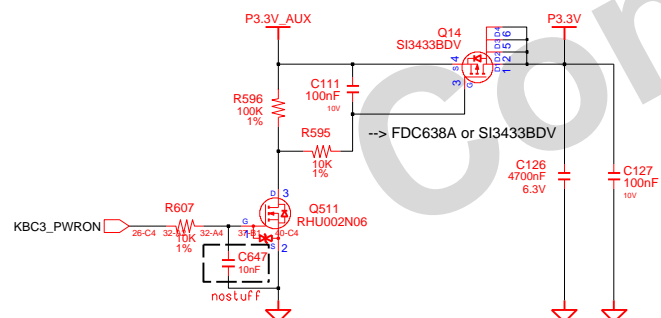
Load Switch Control(P5.0V)



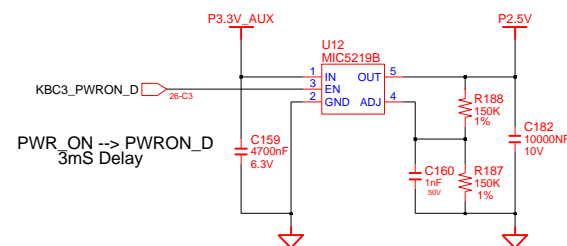
MICOM RESET



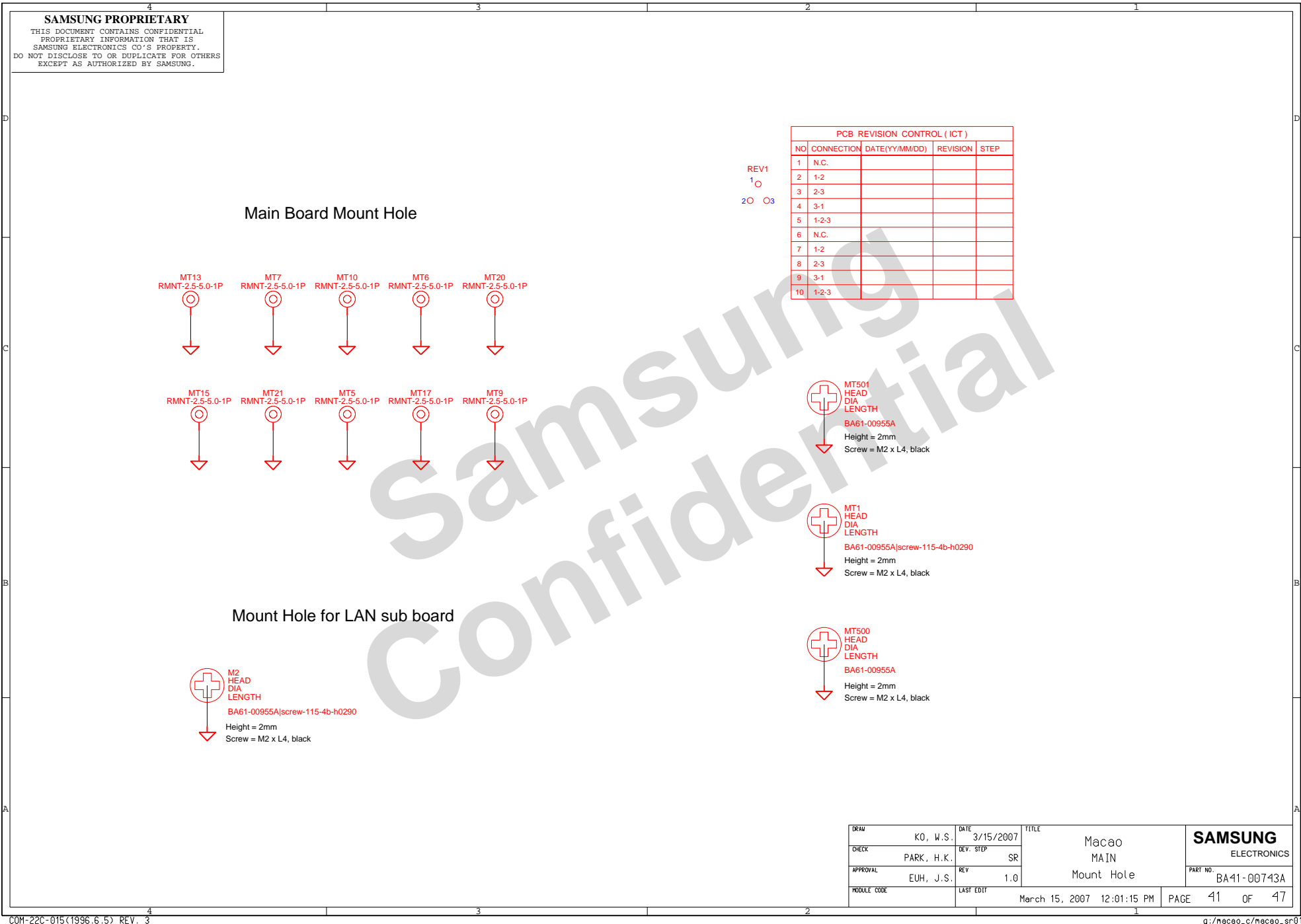
Load Switch Control(P3.3V)



LDO Power (P2.5V)



DRAW	K0, W.S.	DATE	3/15/2007	TITLE Macao MAIN Switched Power		SAMSUNG ELECTRONICS PART NO. BA41-00743A	
CHECK	PARK, H.K.	DEV. STEP	SR				
APPROVAL	EUH, J.S.	REV	1.0				
MODULE CODE	LAST EDIT			March 15, 2007 12:01:15 PM	PAGE	40	OF 47

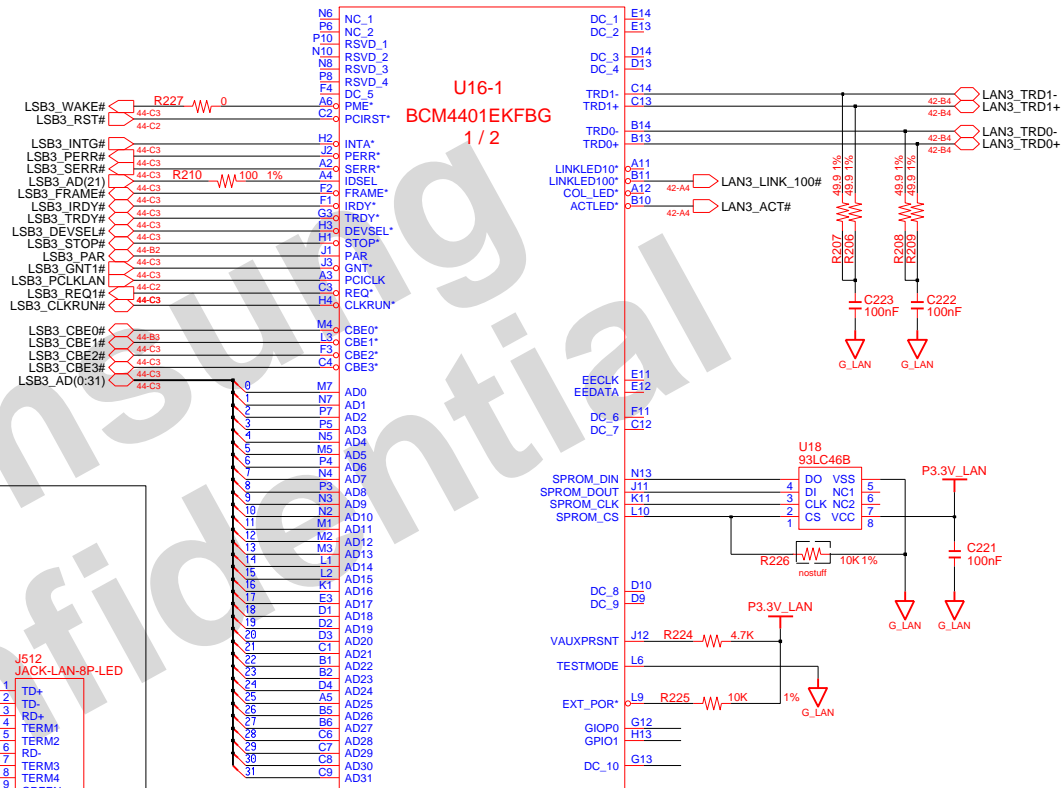
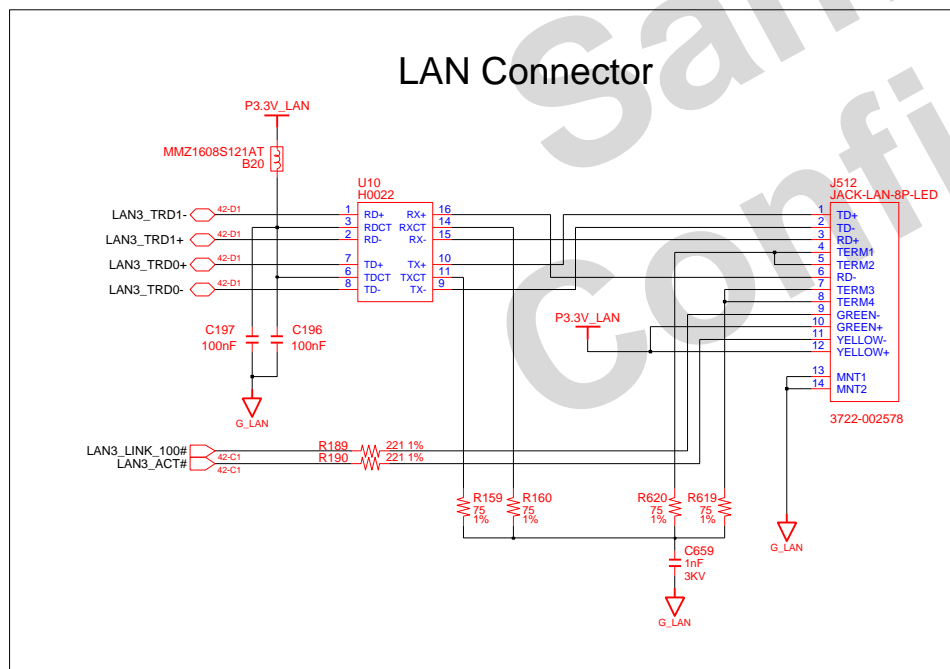


DRAW	KO, W.S.	DATE	3/15/2007	TITLE	Macao MAIN	SAMSUNG ELECTRONICS PART NO. BA41-00743A
CHECK	PARK, H.K.	DEV. STEP	SR			
APPROVAL	EUH, J.S.	REV	1.0			
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	41 OF 47	

LAN Board

(Page 42 ~ 44)

LAN Controller (Only 10/100M)

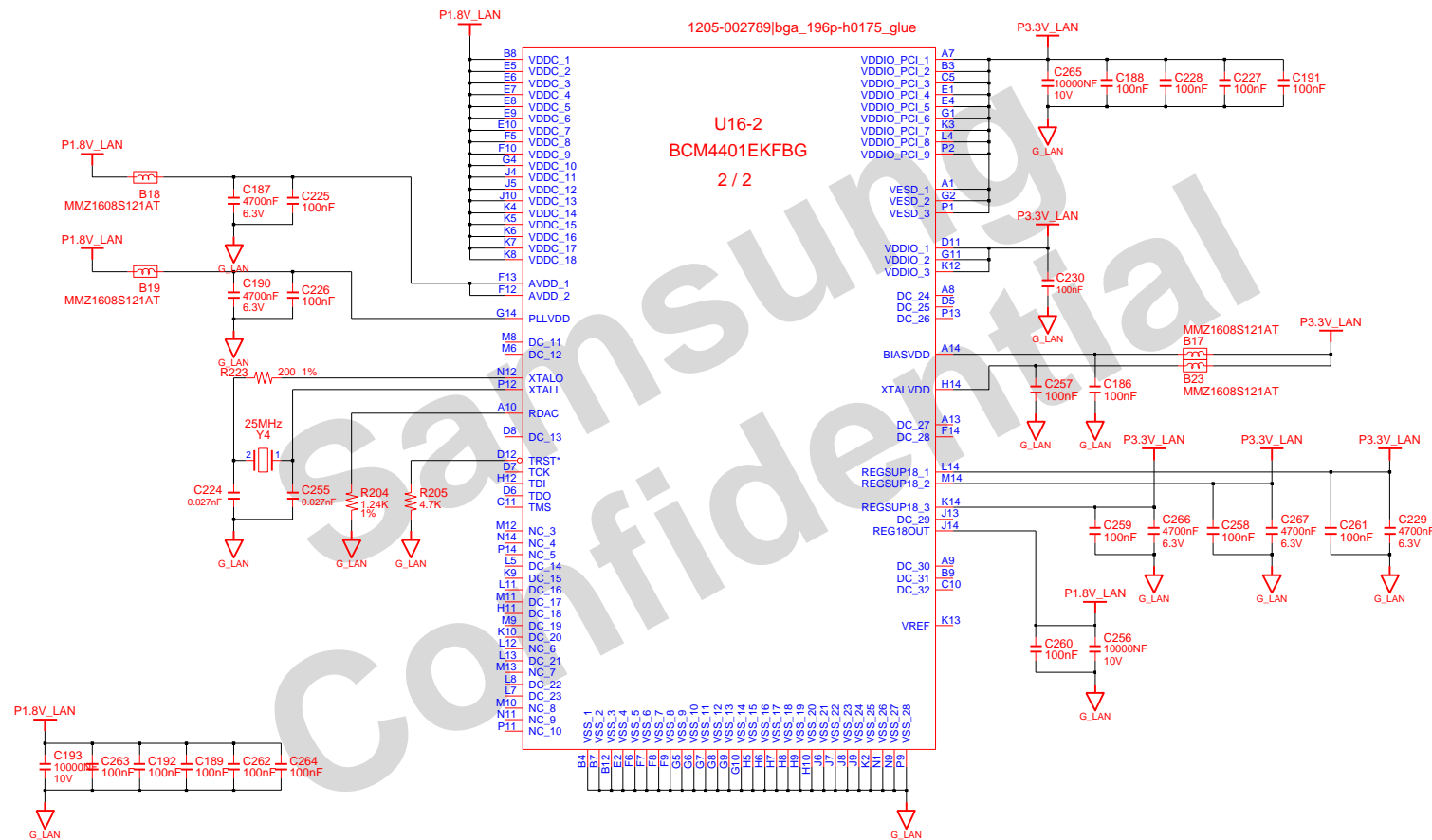


DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		LAN B'd	
APPROVAL	EUH, J.S.	REV	1.0		LAN(1/3)	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	42 OF 47	

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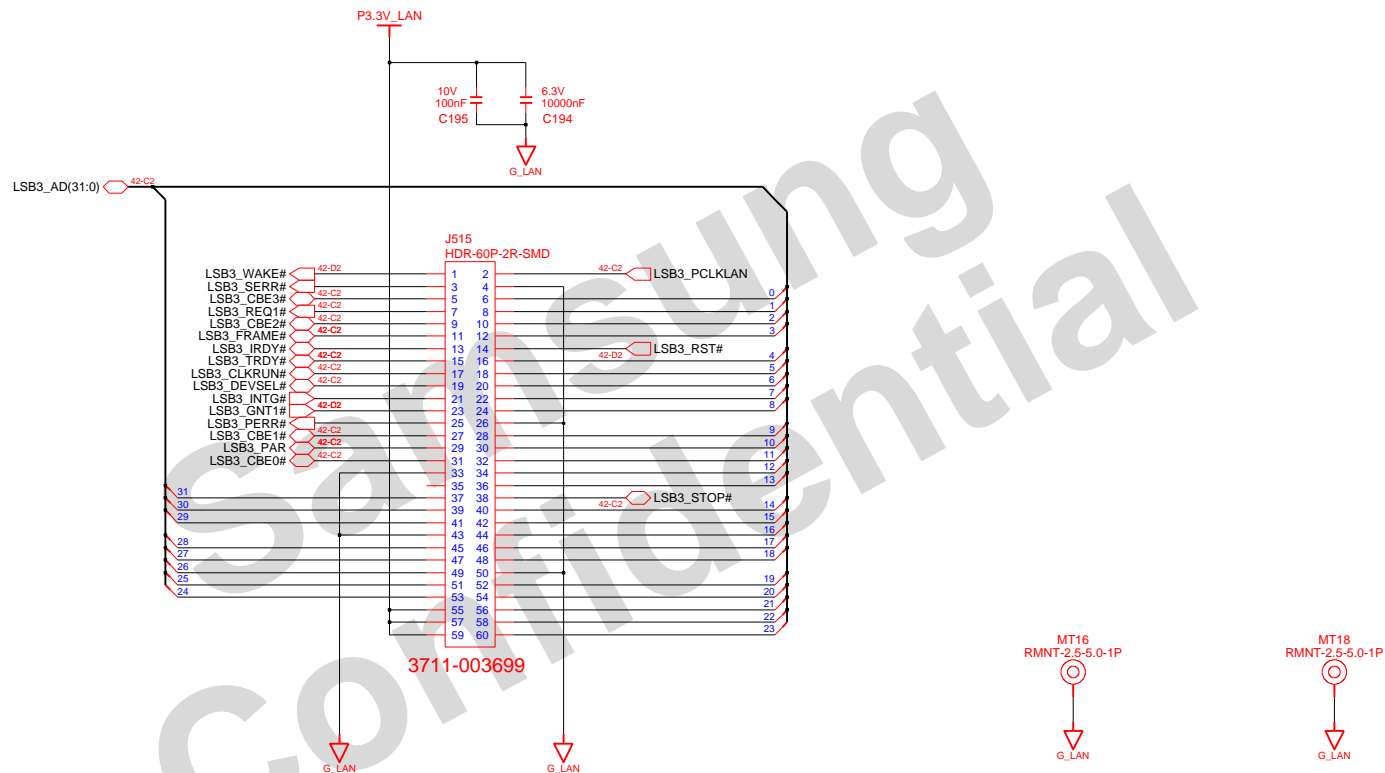
LAN Controller (Only 10/100M)



DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao LAN B'd LAN(2/3)	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR			PART NO. BA41-00743A
APPROVAL	EUH, J.S.	REV	1.0			
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	43	OF 47

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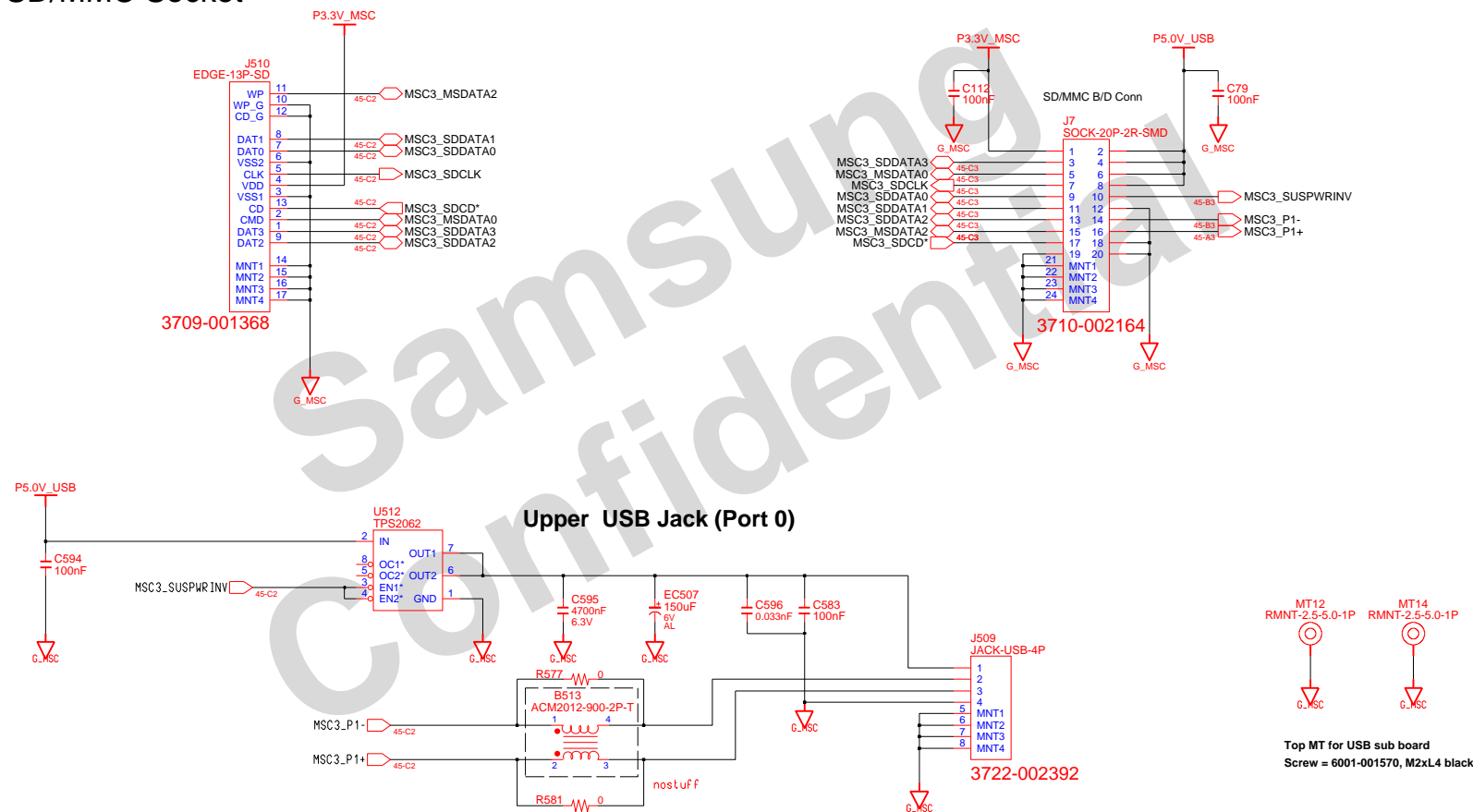
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Bottom MT for LAN sub board
Screw = 6001-001570, M2xL4 black

DRAW	KO, W.S.	DATE	3/15/2007	TITLE	Macao	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR		LAN B'd	
APPROVAL	EUH, J.S.	REV	1.0		LAN(3/3)	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	44 OF 47	

SD/MMC Socket



DRAW	KO, W. S.	DATE	3/15/2007	TITLE	Macao		SAMSUNG	
CHECK	PARK, H. K.	DEV. STEP	SR	SD/MMC Socket B'd		ELECTRONICS		
APPROVAL	EUH, J. S.	REV	1.0	SD/MMC Socket		PART NO.	BA41-00743A	
MODULE CODE	LAST EDIT		March 15, 2007 12:01:15 PM			PAGE	45	OF 47

Sub Board Left

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Sub Left Board to Main board

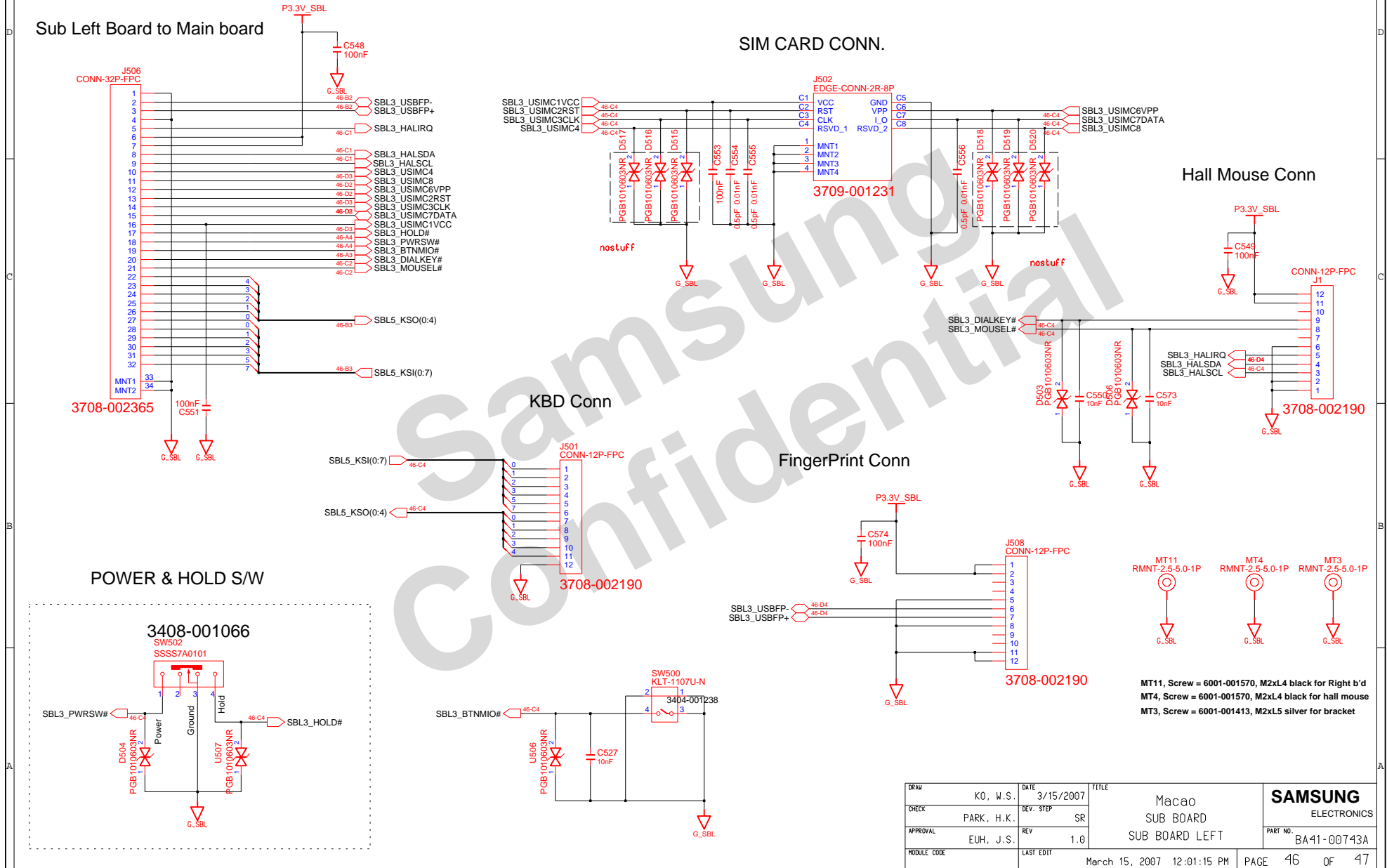
SIM CARD CONN.

Hall Mouse Conn

KBD Conn

FingerPrint Conn

POWER & HOLD S/W



DRAW	KO, W.S.	DATE	3/15/2007	TITLE	Macao
CHECK	PARK, H.K.	DEV. STEP	SR	SUB BOARD	
APPROVAL	EUH, J.S.	REV	1.0	SUB BOARD LEFT	
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	46 OF 47

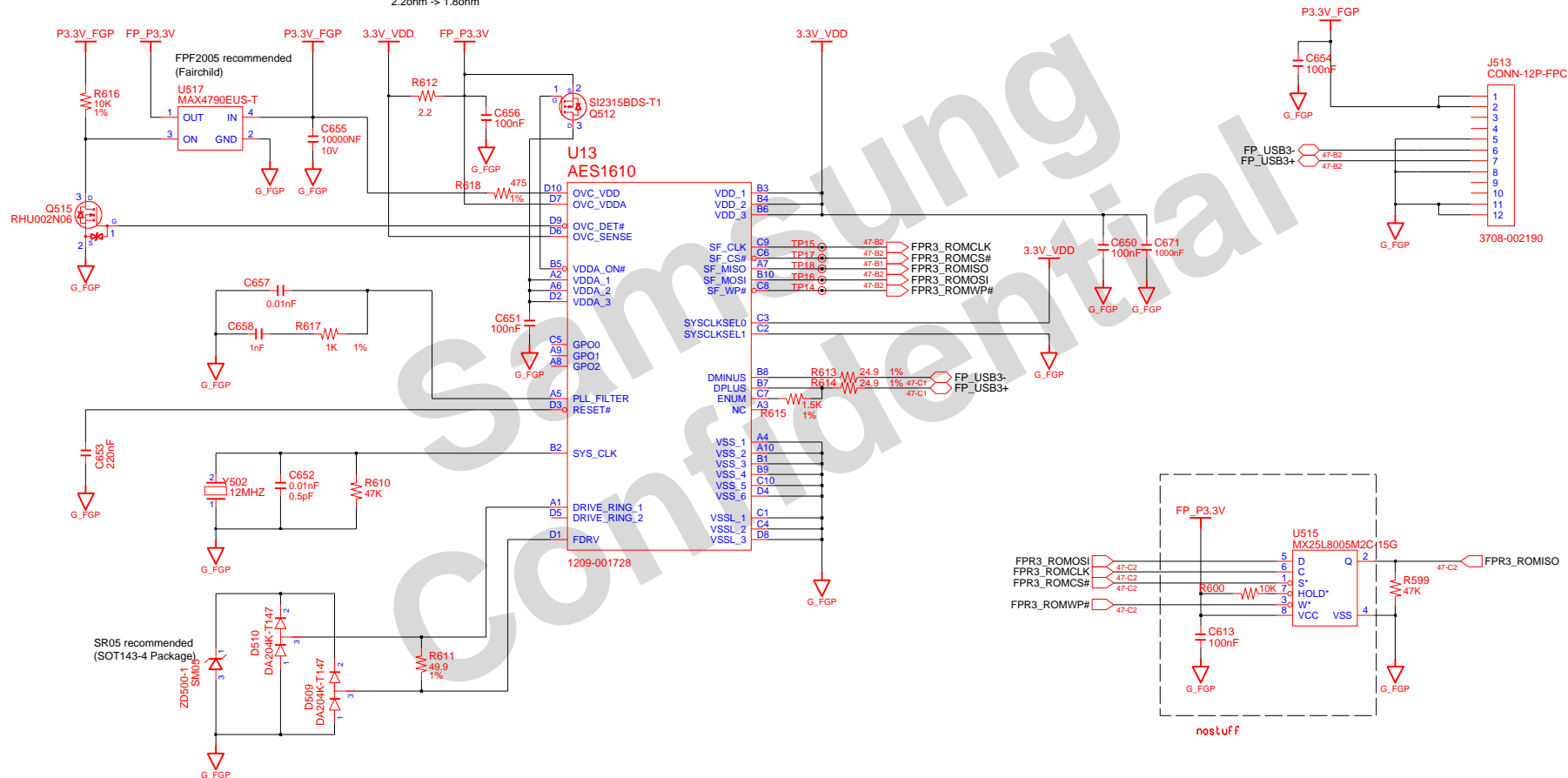
SAMSUNG
ELECTRONICS
PART NO. BA41-00743A

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Finger Print Sub Board

Recommend value
2.2ohm -> 1.8ohm



DRAW	K0, W.S.	DATE	3/15/2007	TITLE	Macao SUB BOARD FINGERPRINT	SAMSUNG ELECTRONICS
CHECK	PARK, H.K.	DEV. STEP	SR			PART NO. BA41-00743A
APPROVAL	EUH, J.S.	REV	1.0			
MODULE CODE		LAST EDIT	March 15, 2007 12:01:15 PM	PAGE	47	OF 47