

Tianjin

CPU : Intel Penryn-6M (1067/800) MHz
Chip Set : Intel Cantiga & ICH9M
Remarks : Montevina Platform

Model Name : TIANJIN_EXT
PBA Name : MAIN
PCB Code : BA41-00897A/898A
Dev. Step : PR
Revision : 1.0
T.R. Date : 2008.06.03

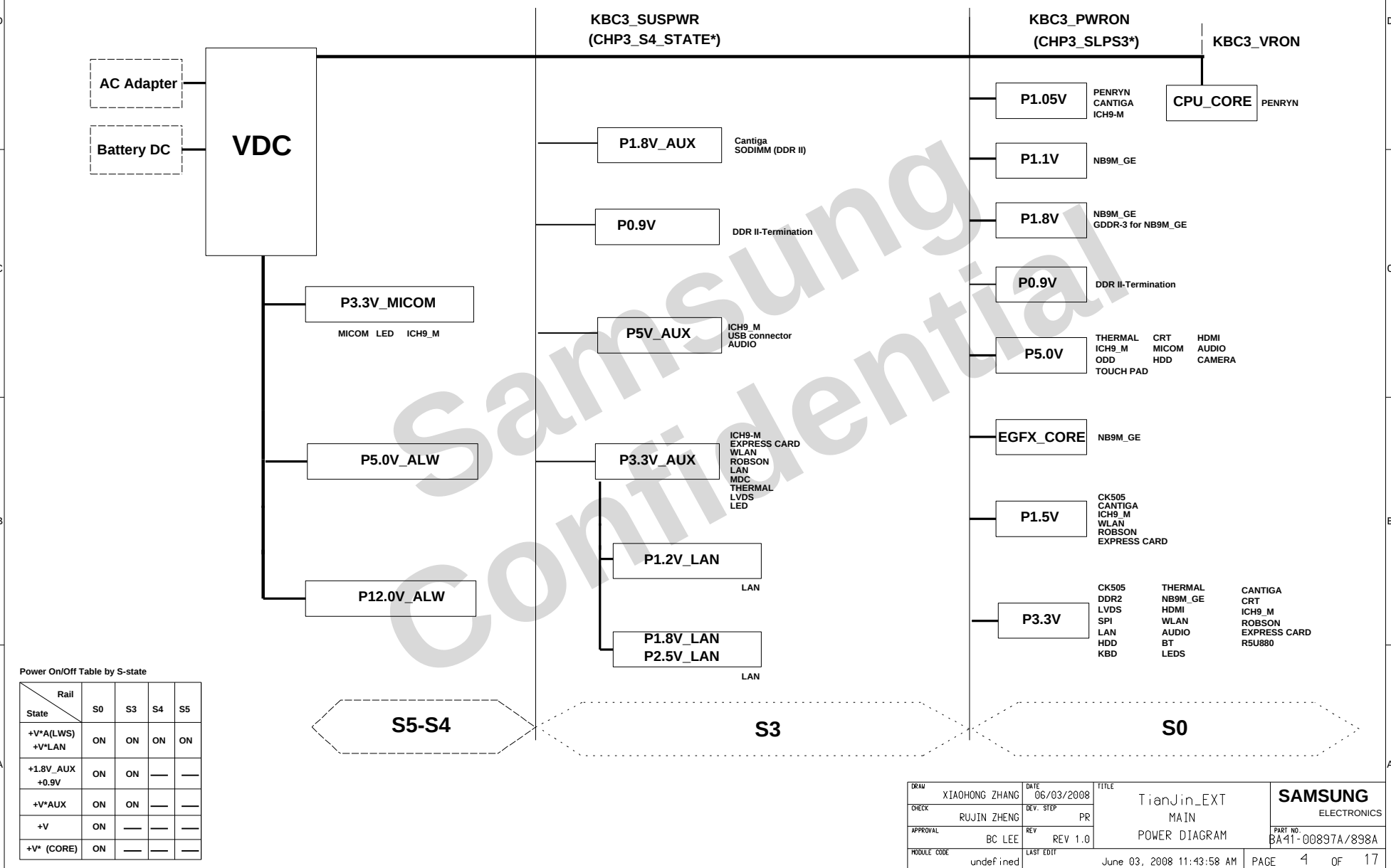
Design	CHECK	APPROVAL
XIAOHONG ZHANG	RUJIN ZHENG	BC LEE

Owner : SESC Mobile R & D Signature : X

BLOCK DESIGN

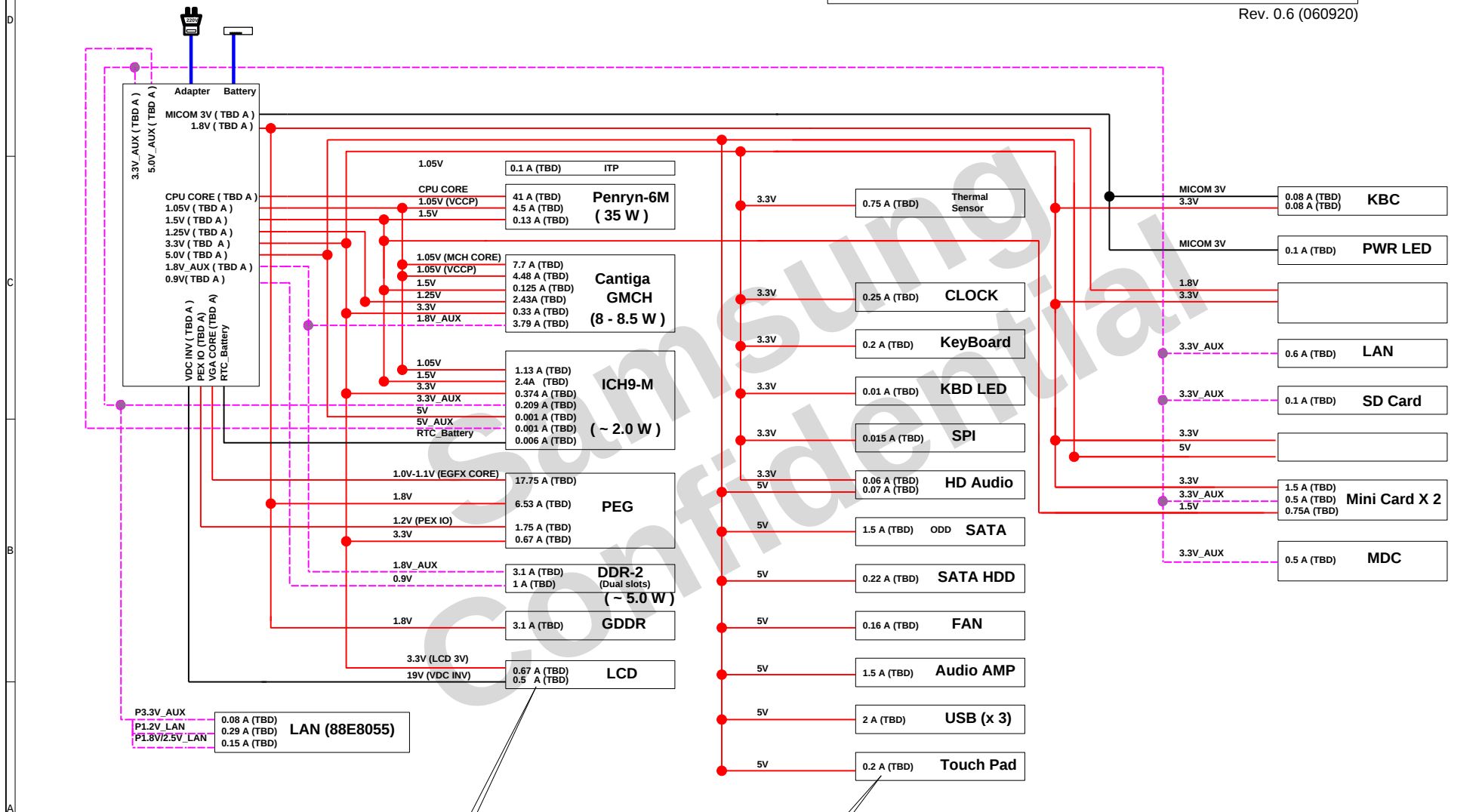
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CHECK	RUJIN ZHENG	DEV. STEP	PR		MAIN	
APPROVAL	BC LEE	REV	REV 1.0		COVER	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 17	

Rev 0.1



POWER RAILS ANALYSIS

Rev. 0.6 (060920)

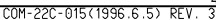


Value by Datasheet/Application notes (Value by measurement)

DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR		MAIN	
APPROVAL	BC LEE	REV	REV 1.0		POWER RAILS	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	5 OF 17	

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

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



D:/mentor/tianjin/tmp/tianjin_ext_pr_0603
SRP Sheet Number: 8 of 70

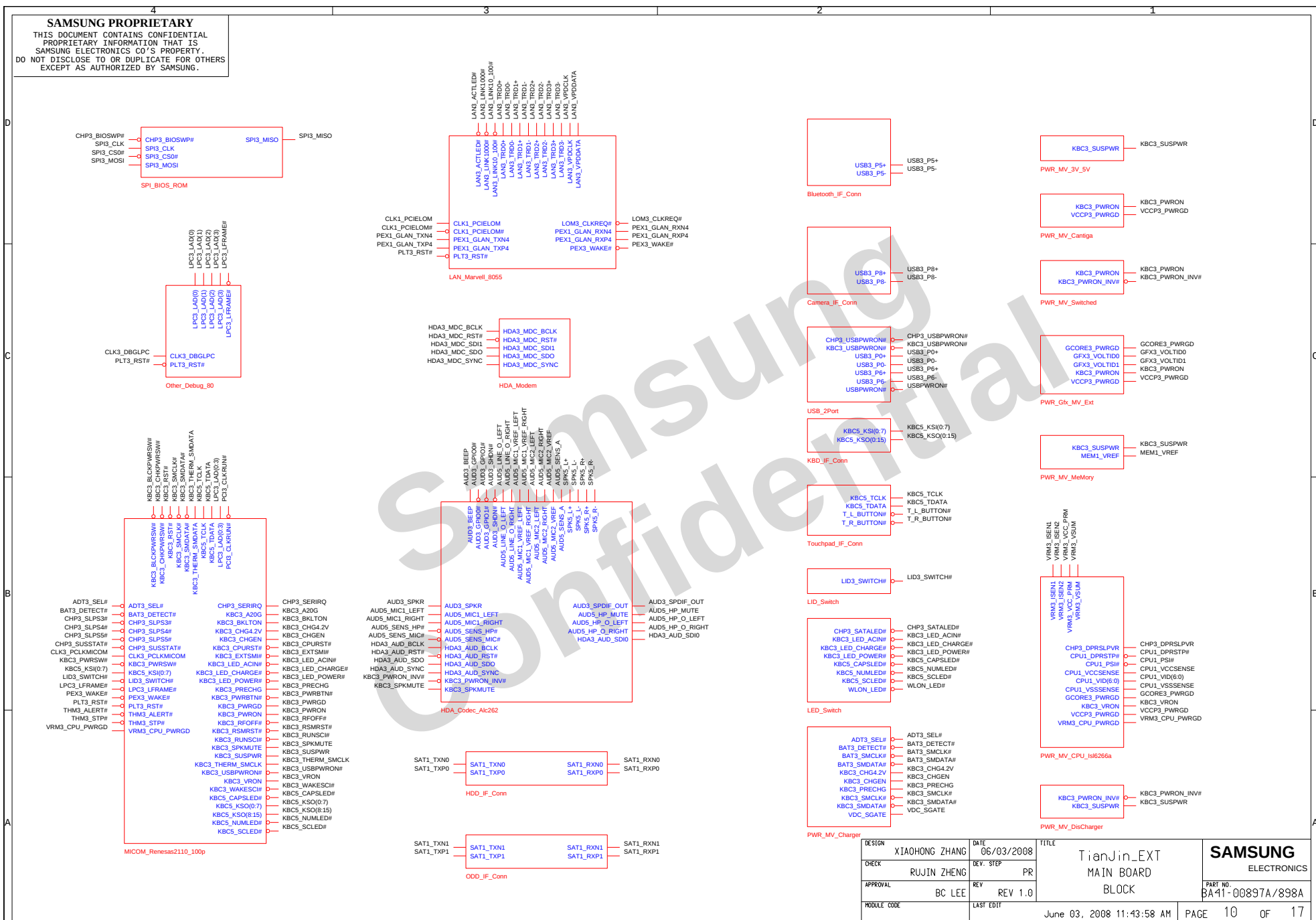
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HDMI Si1390

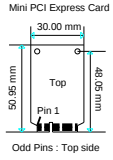
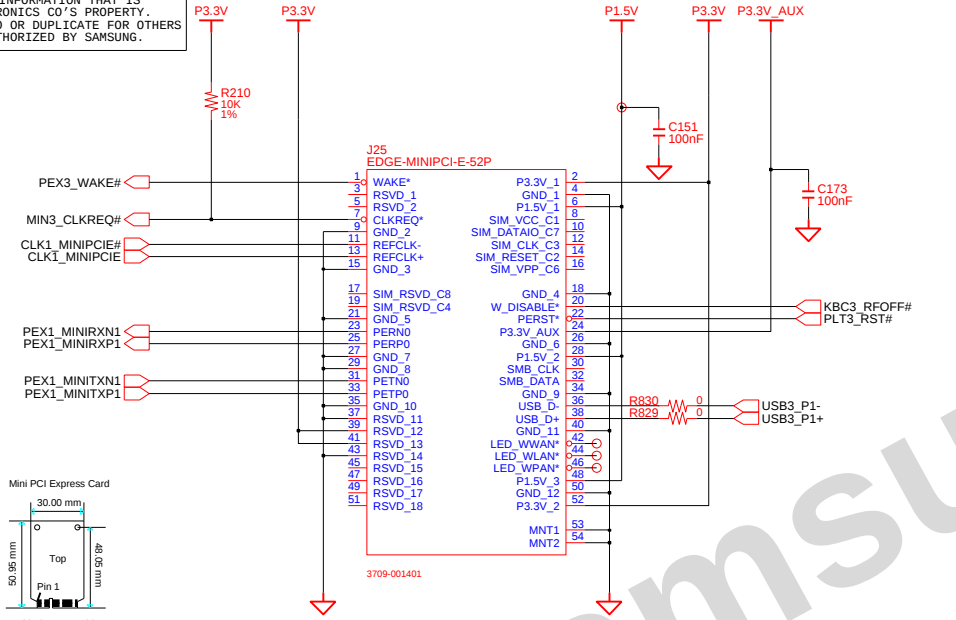
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CHECK	RUJIN ZHENG	DEV. STEP	PR				
APPROVAL	BC LEE	REV	REV 1.0				
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM				PAGE
				PART NO.		8A41-00897A/898A	

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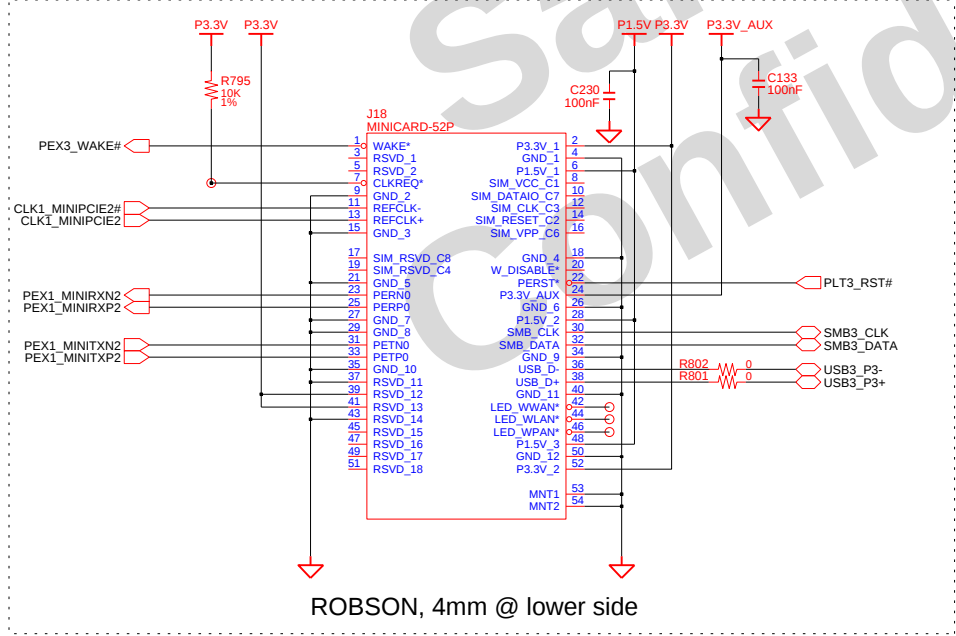


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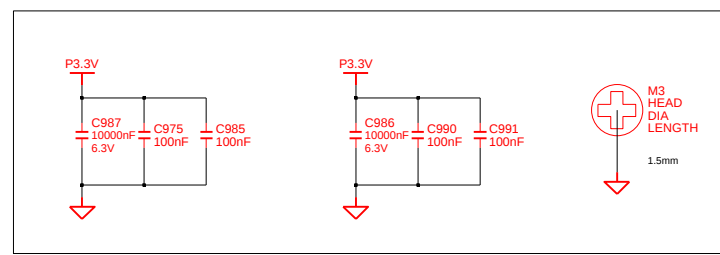
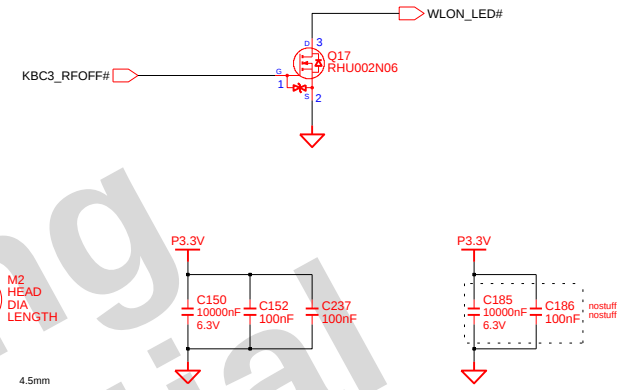
WLAN, 7mm @ Upper side



ROBSON

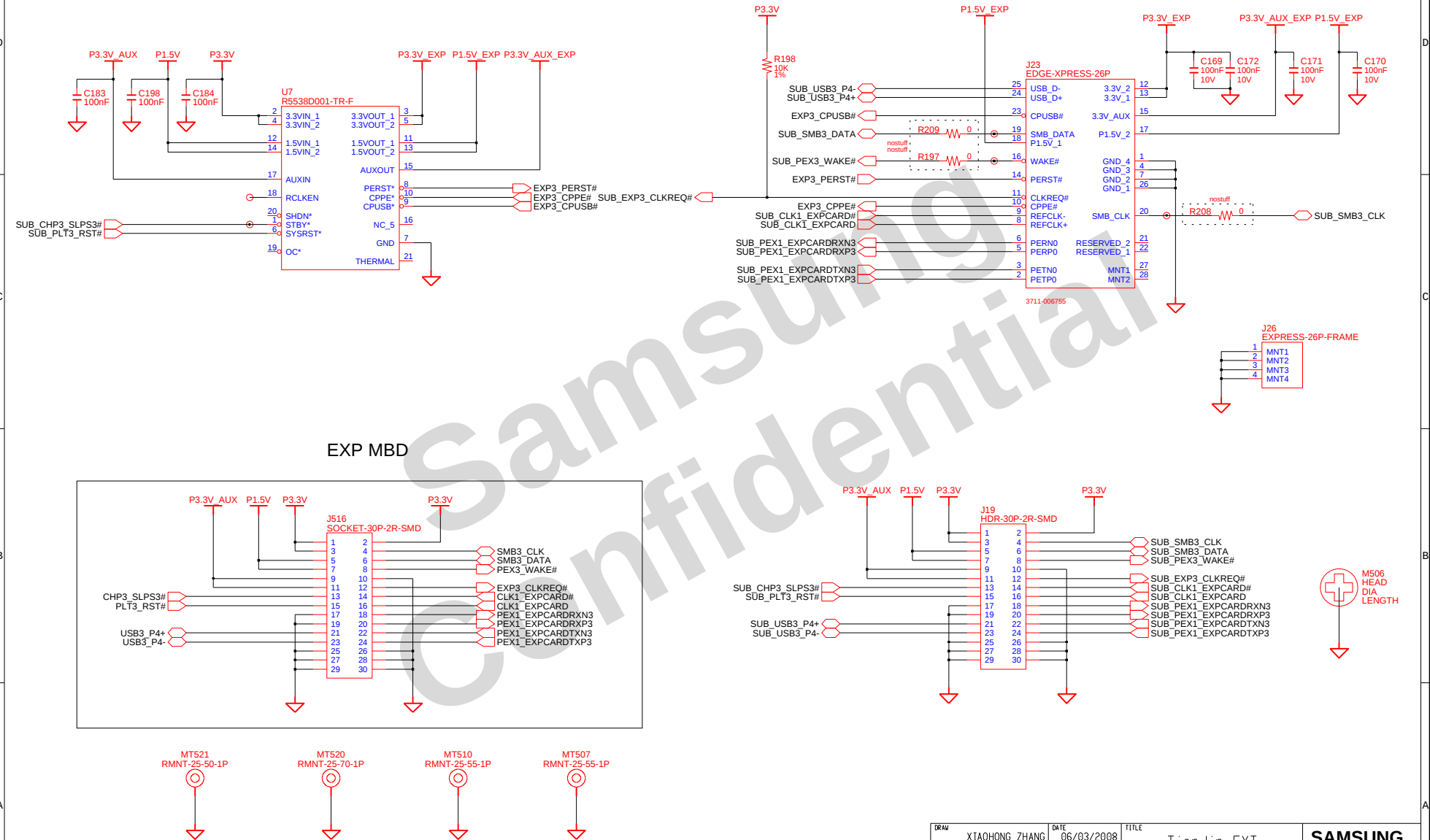


ROBSON, 4mm @ lower side



DESIGN	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		MAIN BOARD	
APPROVAL	BC LEE	REV	REV 1.0		BLOCK	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 11 OF 17	

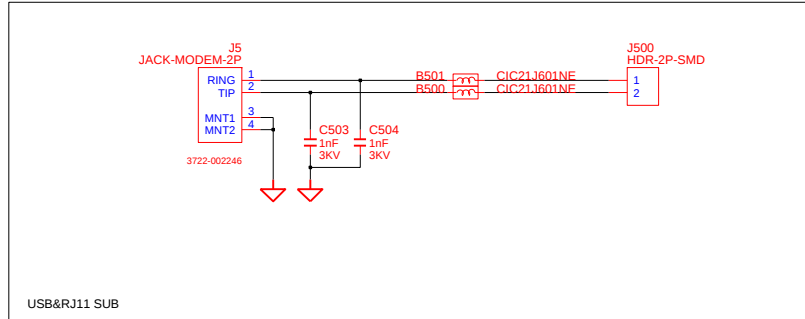
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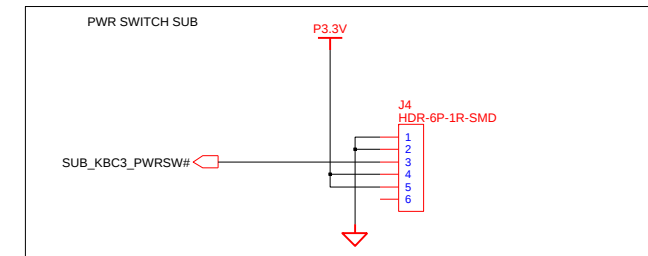
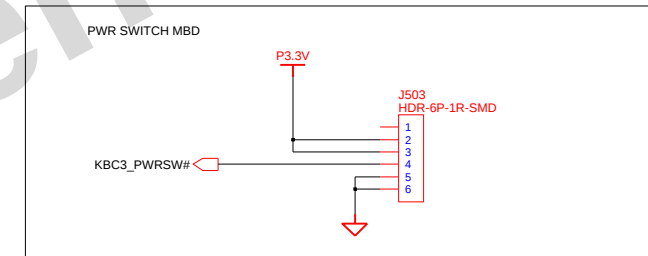
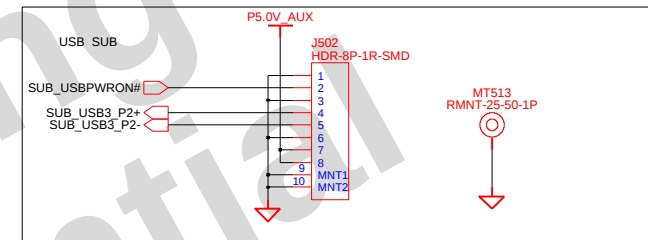
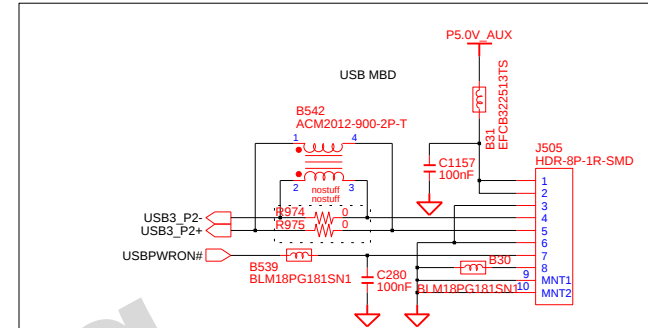
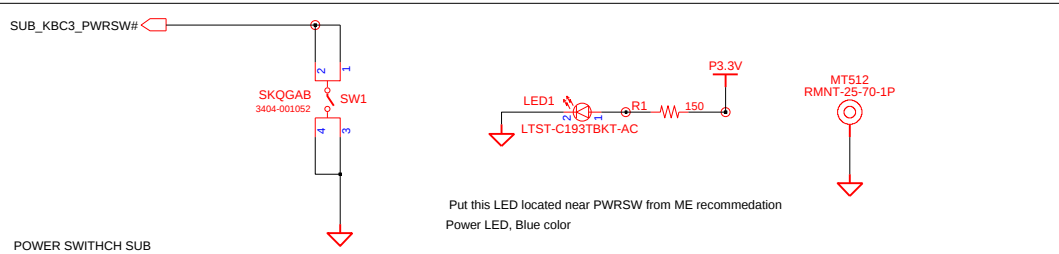
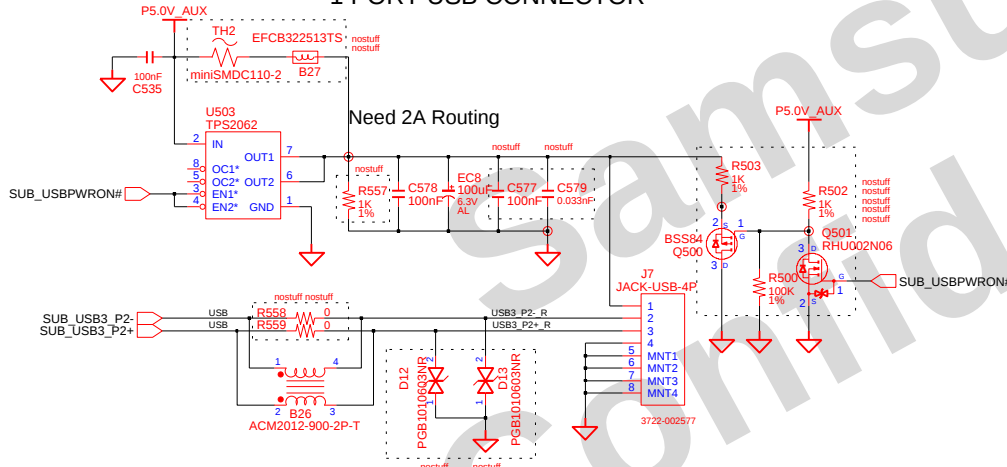
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CHECK	RUJIN ZHENG	DEV. STEP	PR			PART NO. BA41-00897A/898A
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	12	OF 17

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MDC



1 PORT USB CONNECTOR

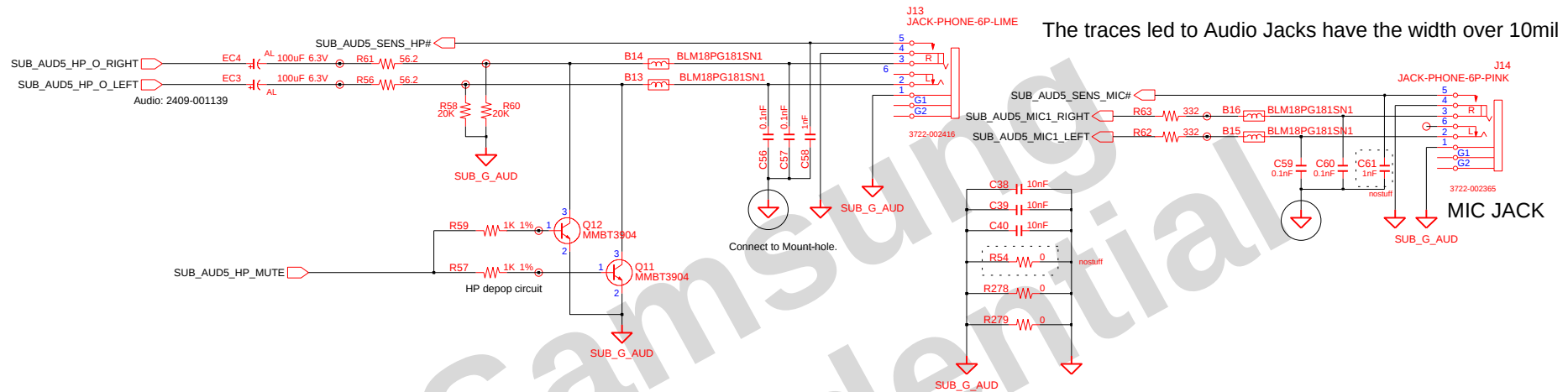


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CHECK	RUJIN ZHENG	DEV. STEP	PR	MDC & USB1 & PWRSW SUB	PART NO.	
APPROVAL	BC LEE	REV	REV 1.0		BA41-00897A/898A	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 13 OF 17	

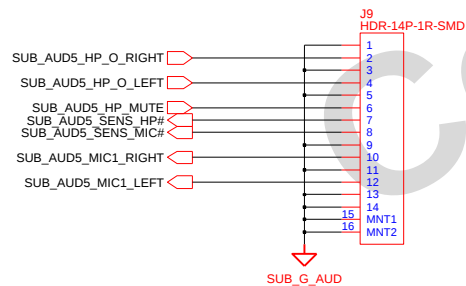
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AUD_SUB

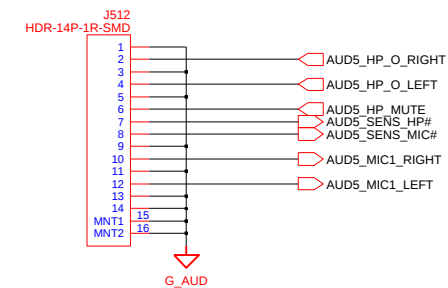
HEADPHONE



AUD_SUB



AUD_MBD

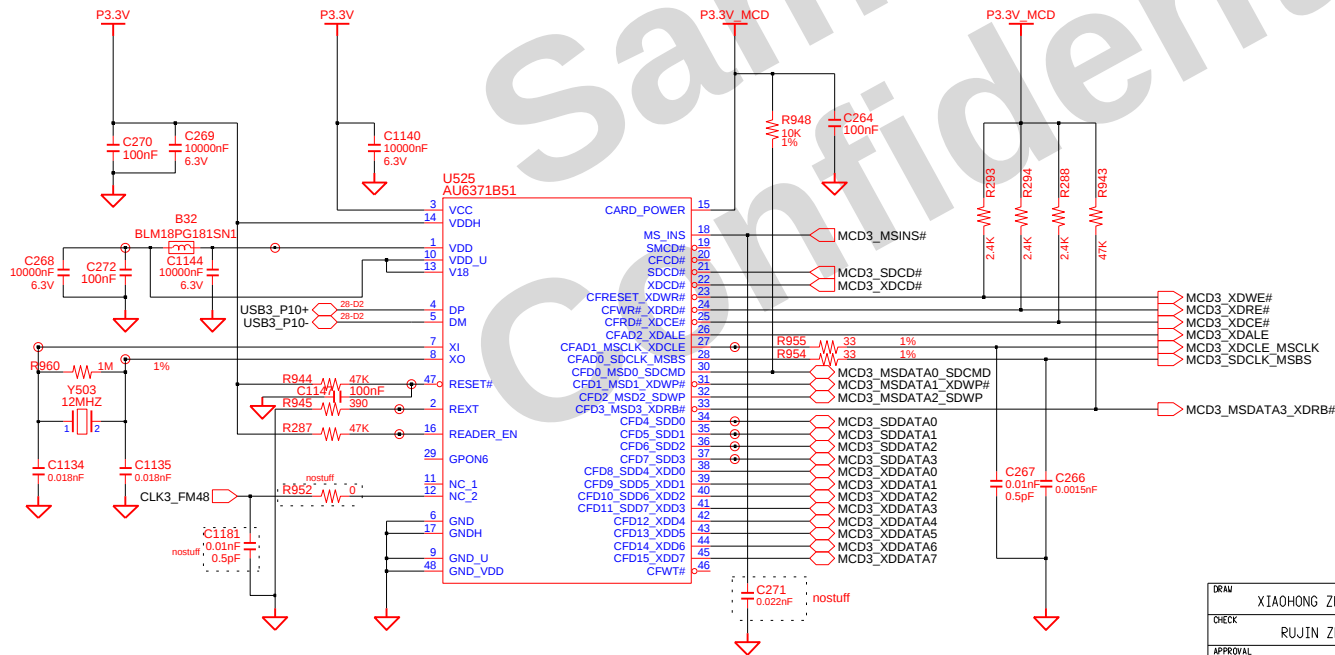


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CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PAGE 14 OF 17

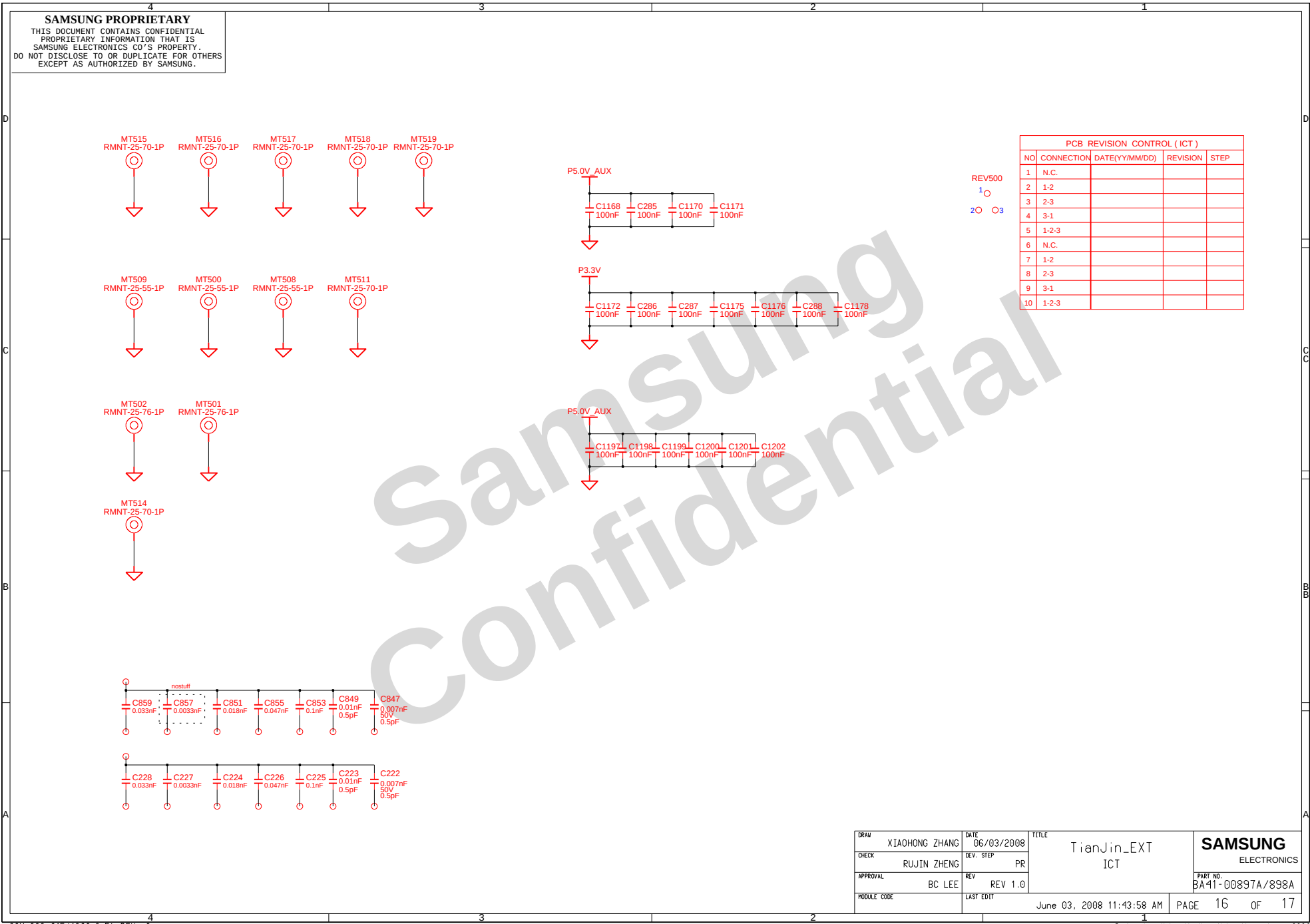
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[illegible]

MSEL5	SD Write Protec Selection
Connected to VCC	High Enable
Connected to GND	Low Enable
MSEL7	PLL BASE CLOCK SELECTION
Connected to VCC	12MHz
Connected to GND	48MHz



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT 7 IN 1	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE	LAST EDIT		June 03, 2008 11:43:58 AM			
				PART NO.	BA41-00897A/898A	



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT ICT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 16 OF 17	

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TP19744○ADT3_SEL#
TP19745○AUD3_BEEP
TP19746○AUD3_GPRO#
TP19747○AUD3_GPIO#
TP19748○AUD3_SHDN#
TP19749○AUD3_SPDIF_OUT
TP19750○AUD3_SPRR
TP19751○AUD5_HP_MUTE
TP19752○AUD5_HP_O_LEFT
TP19753○AUD5_HP_O_RIGHT
TP19754○AUD5_LINE_O_LEFT
TP19755○AUD5_LINE_O_RIGHT
TP19756○AUD5_MIC1_LEFT
TP19757○AUD5_MIC1_RIGHT
TP19758○AUD5_MIC1_VREF_LEFT
TP19759○AUD5_MIC1_VREF_RIGHT
TP19760○AUD5_MIC2_LEFT
TP19761○AUD5_MIC2_RIGHT
TP19762○AUD5_MIC2_VREF
TP19763○AUD5_SENS_A
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TP19765○AUD5_SENS_MIC#
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TP19767○BAT3_SMCLK#
TP19768○BAT3_SMDATA#
TP19769○CAS#
TP19770○CHP3_BIOSWP#
TP19771○CHP3_BIOS_CR#
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TP19773○CHP3_CL_DATA_0
TP19774○CHP3_CL_RST_0#
TP19775○CHP3_CPUSTP#
TP19776○CHP3_DPRSLPVR
TP19777○CHP3_GPRO18
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TP19781○CHP3_PCISTP#
TP19782○CHP3_PM_SYNC#

TP19736○CHP3_SATACLKREQ#
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TP19738○CHP3_SERRQ
TP19739○CHP3_SLP3#
TP19740○CHP3_SLP4#
TP19741○CHP3_SLP5#
TP19742○CHP3_SUSSTAT#
TP19743○CHP3_USBPWRON#
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TP19745○CLK3_FMA8
TP19746○CLK3_GFX_27M
TP19747○CLK3_GFX_27M_SS
TP19748○CLK3_ICH14
TP19749○CLK3_PCLKICH
TP19750○CLK3_PCLKMICOM
TP19751○CLK3_USB48

TP19702○CPU1_VCCSENSE
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TP19705○CPU1_VID(2)
TP19706○CPU1_VID(3)
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TP19712○CPU2_THERMDC
TP19713○CPU3_THERMTRIP#
TP19714○EXP3_CLKREQ#
TP19715○EXP3_CPRPE#
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TP19674○GFX3_I2CSDATA
TP19675○GFX3_ROMSCLK
TP19676○GFX3_ROMSI
TP19677○GFX3_ROMSO
TP19678○GFX3_STRAP0

TP19680○GFX3_STRAP2
TP19681○GFX3_THERMAL#
TP19682○GFX3_THERMDN
TP19683○GFX3_THERMDP
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TP19685○GFX3_VOLDIO1
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TP19693○HDA3_HDMI_SDO1
TP19694○HDA3_HDMI_SDO
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TP19607○MCD3_MSINS#

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TP19597○MCH3_CLKREQ#
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TP19600○MCH3_IHSYNCR#
TP19601○MCKEA
TP20043○MIN3_CLKREQ#
TP20044○PCB_CLKRUN#
TP20045○PEG3_BKLTEN
TP20046○PEG3_HPD_HDMI
TP20047○PEG3_LCDVDDON
TP20048○PEG5_HDMI_CLK
TP20049○PEG5_HDMI_DATA
TP20050○PEX3_WAKE#
TP20051○PLT3_RST_ORG#
TP20021○RASA#
TP20022○SMB3_ALERT#
TP20023○SMB3_CLK
TP20024○SMB3_DATA
TP20025○SPI3_CLK
TP20026○SPI3_CS0#
TP20027○SPI3_MISO
TP20028○SPI3_MOSI

TP19870○P3.3V

TP19870○P3.3V

TP19874○SUB○P3.3V_AUX
TP19875○SUB○P3.3V_AUX

TP19878○SUB○P3.3V_AUX_EXP
TP19879○SUB○P3.3V_AUX_EXP

TP19886○SUB○P3.3V_EXP

TP19890○P3.3V_MCD

TP19893○P3.3V_MCD

TP20029○SUB○SUB_AUD5_HP_MUTE
TP20030○SUB○SUB_AUD5_HP_O_LEFT
TP20031○SUB○SUB_AUD5_HP_O_RIGHT
TP20032○SUB○SUB_AUD5_MIC1_LEFT
TP20033○SUB○SUB_AUD5_MIC1_RIGHT
TP20034○SUB○SUB_AUD5_SENS_HP#
TP20035○SUB○SUB_AUD5_SENS_MIC#
TP20037○SUB○SUB_EXP3_CLKREQ#
TP20039○SUB○SUB_PEX3_WAKE#
TP20040○SUB○SUB_PLT3_RST#
TP20041○SUB○SUB_SMB3_CLK
TP20042○SUB○SUB_SMB3_DATA

TP19806○THM3_ALERT#
TP19807○T_L_BUTTON#
TP19808○T_R_BUTTON#
TP19809○VCCP3_PWRGD
TP19810○VRM3_CPU_PWRGD
TP19811○VRM3_ISEN1
TP19812○VRM3_ISEN2
TP19813○VRM3_VCC_PRM

TP19994○WEA#
TP19995○WILON_LED#

TP19850○P5.0V_AUX
TP19851○P5.0V_AUX

TP19961○SUB○P1.5V

TP19902○SUB○P1.5V_EXP
TP19903○SUB○P1.5V_EXP

TP20016○G_AUO
TP20017○G_AUO

TP19823○SUB○SUB_G_AUO

TP19826○SUB○SUB_G_AUO

DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT TP	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	17 OF 17	

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FSA BSEL0	FSB BSEL1	FSC BSEL2	HOST CLK
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

[illegible]

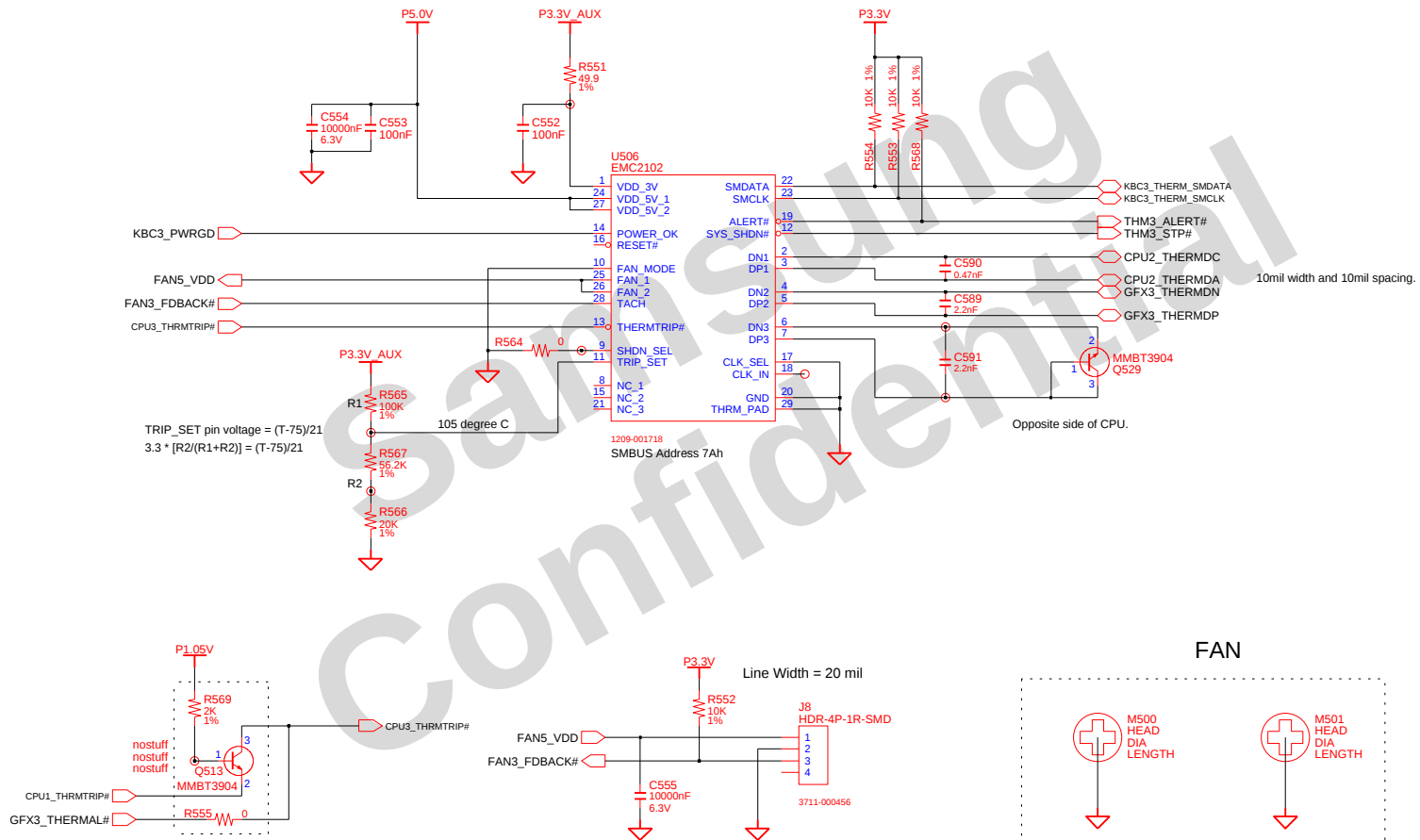
This part is 64pin QFN package.

CLK REQ	DEVICE	SRC PORT
CLK REQ A	SATA	SRC2
CLK REQ B	GMCH	SRC4
CLK REQ E	MINI CARD	SRC6
CLK REQ F	EXP3_CLKREQ#	SRC8
CLK REQ G	LOM3_CLKREQ#	SRC9

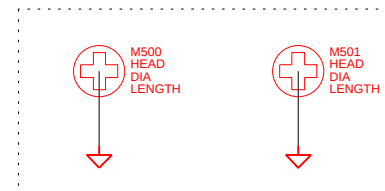
SEL_LCDCLK*	Pin 20/21	Pin 24/25
LOW	DOT_96/DOT_96#	PEG_CLK/PEG_CLK#
HIGH	SRC_0/SRC_0#	27M & 27M_SS

DRAM	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TienJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR	Main_Clock_Circuit		
APPROVAL	BC LEE	REV	REV 1.0	CK_Clock_505M	PART NO. BA41-00897A/898A	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 1	

THERMAL SENSOR & FAN CONTROL

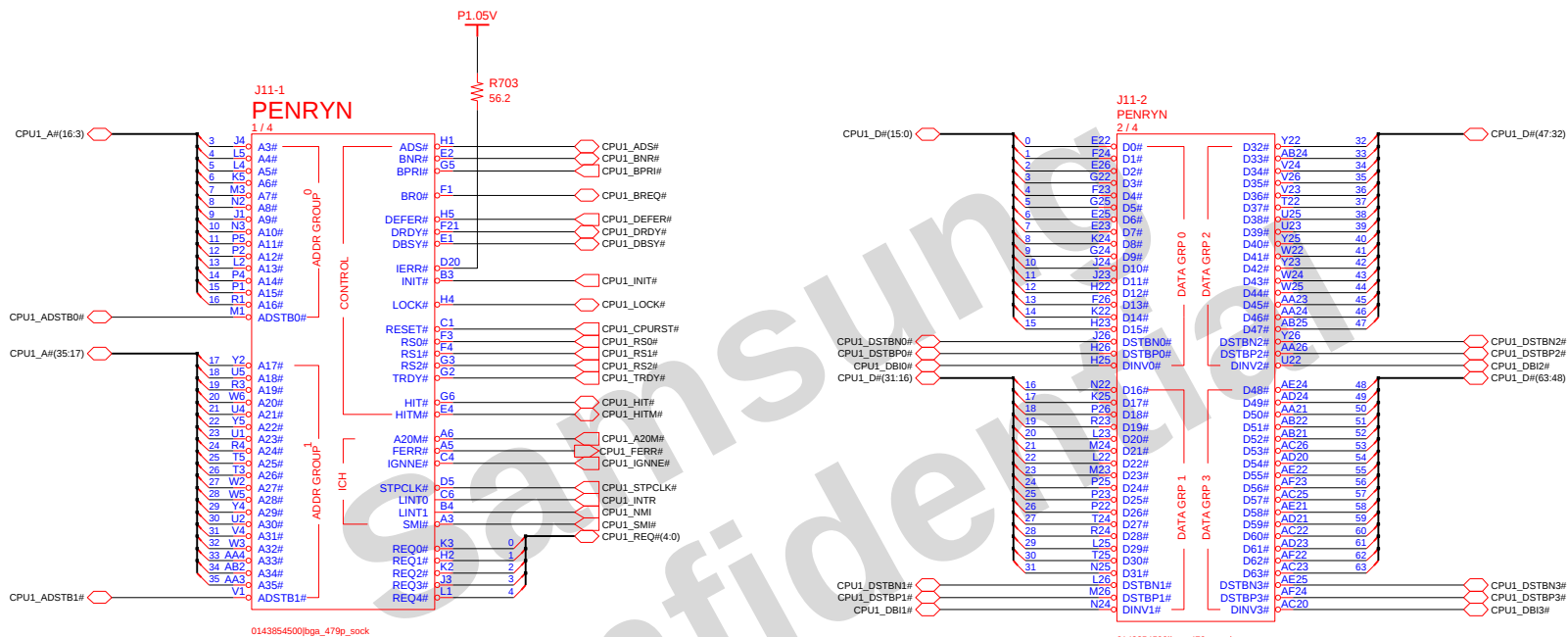


FAN

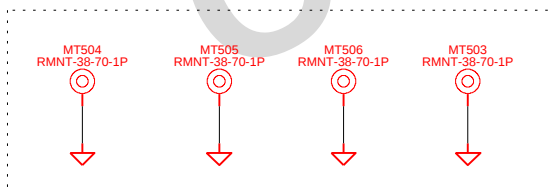


DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG
CHECK	RUJIN ZHENG	DEV. STEP	PR	Thermal_Sensor_SMSC_Emc2102		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	Thermal_Sensor_SMSC_Emc2102	PART NO.	BA41-00897A/898A
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1	OF 1

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CPU Mount

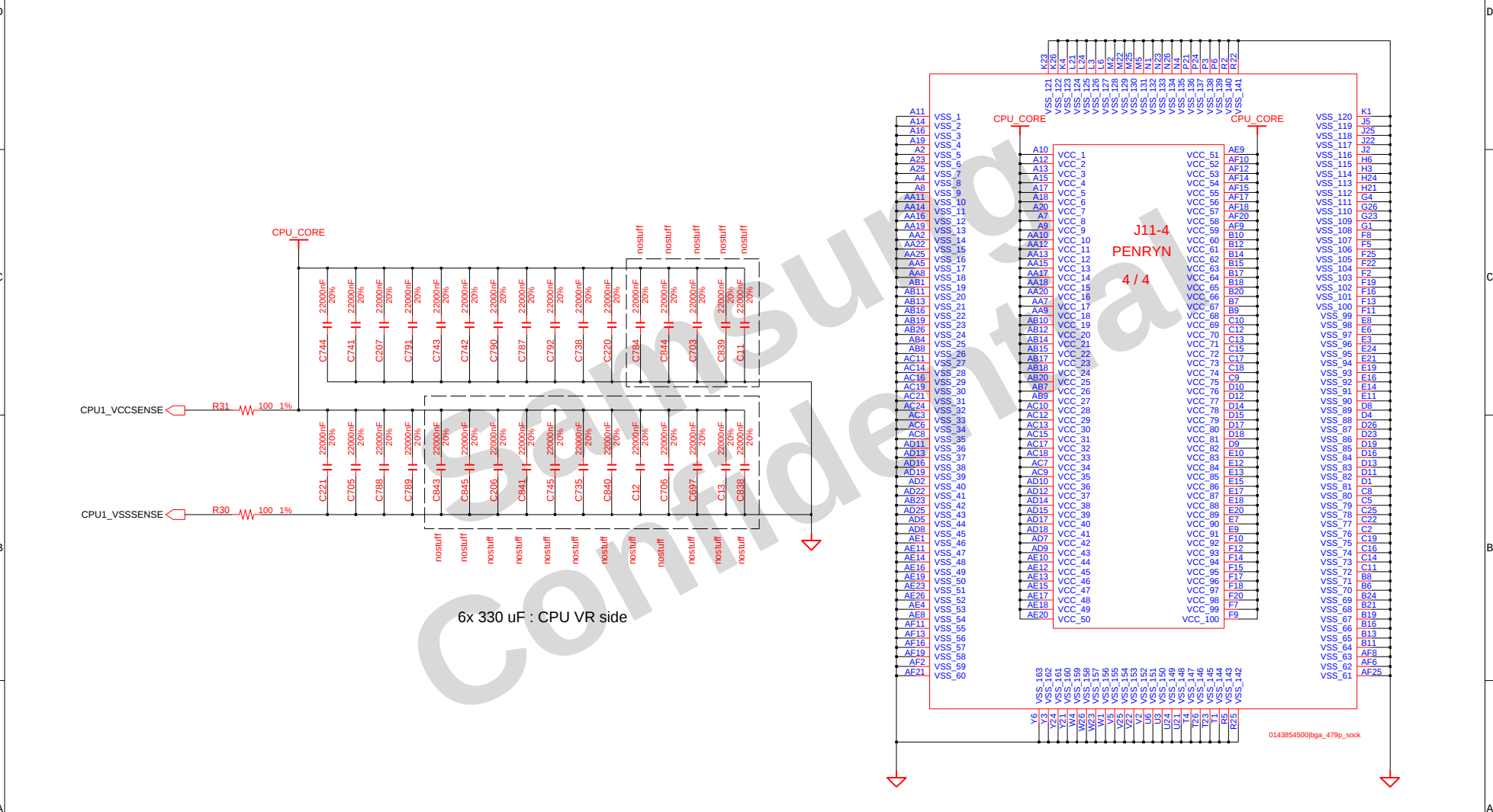


DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT CPU PENRYN (1/3)	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 3	

*Yonah Processor (2.33 GHz / 800 MHz : TBD)

D:/mentor/tianjin/tmp/tianjin_ext_pr_0603/design_blocks/CPU_Penryn_MV_SV
SRP Sheet Number: 21 of 70

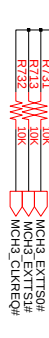
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DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT
CHECK	RUJIN ZHENG	DEV. STEP	PR	CPU	
APPROVAL	BC LEE	REV	REV 1.0	PENRYN (3/3)	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	3 OF 3

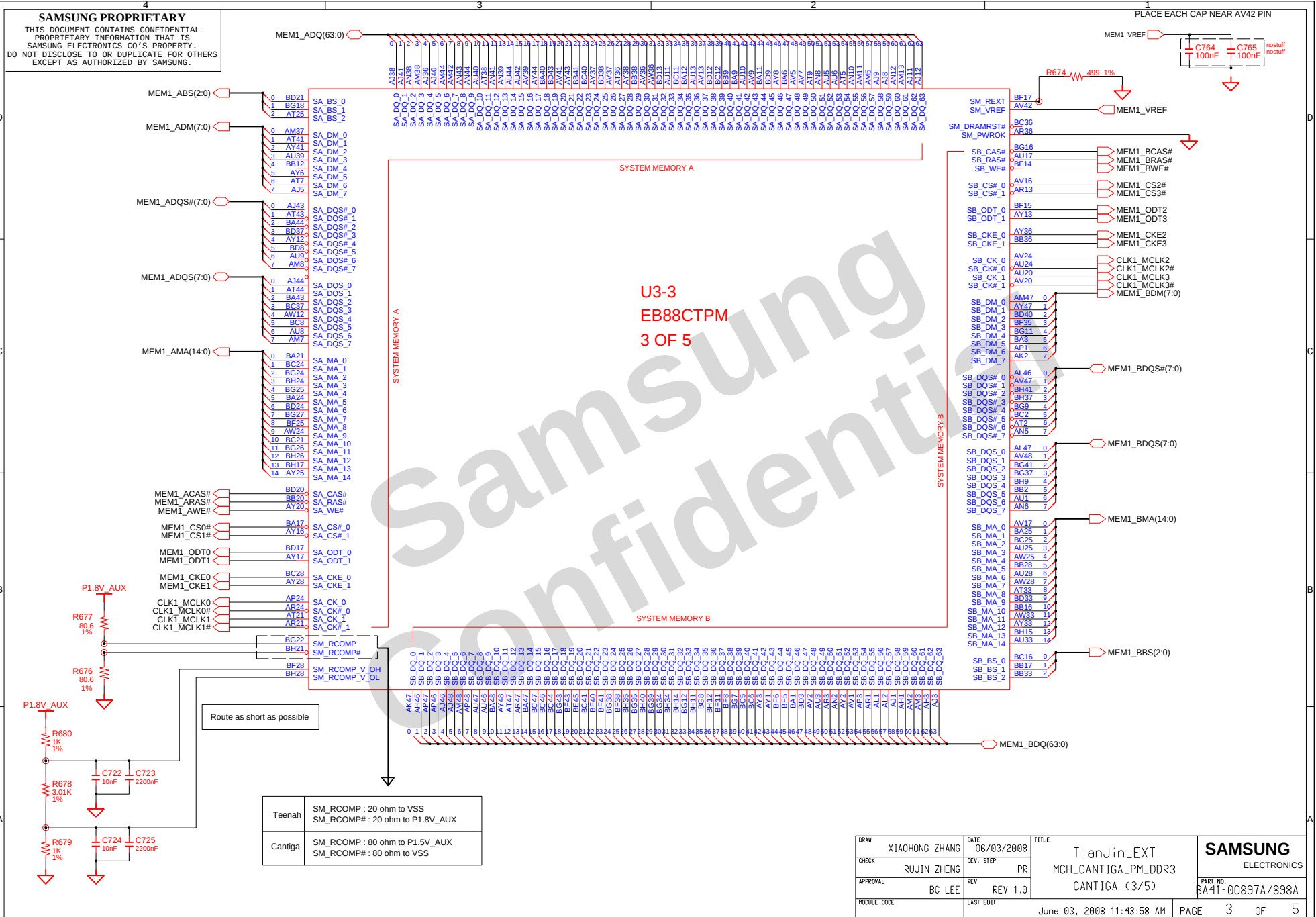
SAMSUNG
ELECTRONICS
PART NO.
BA41-00897A/898A



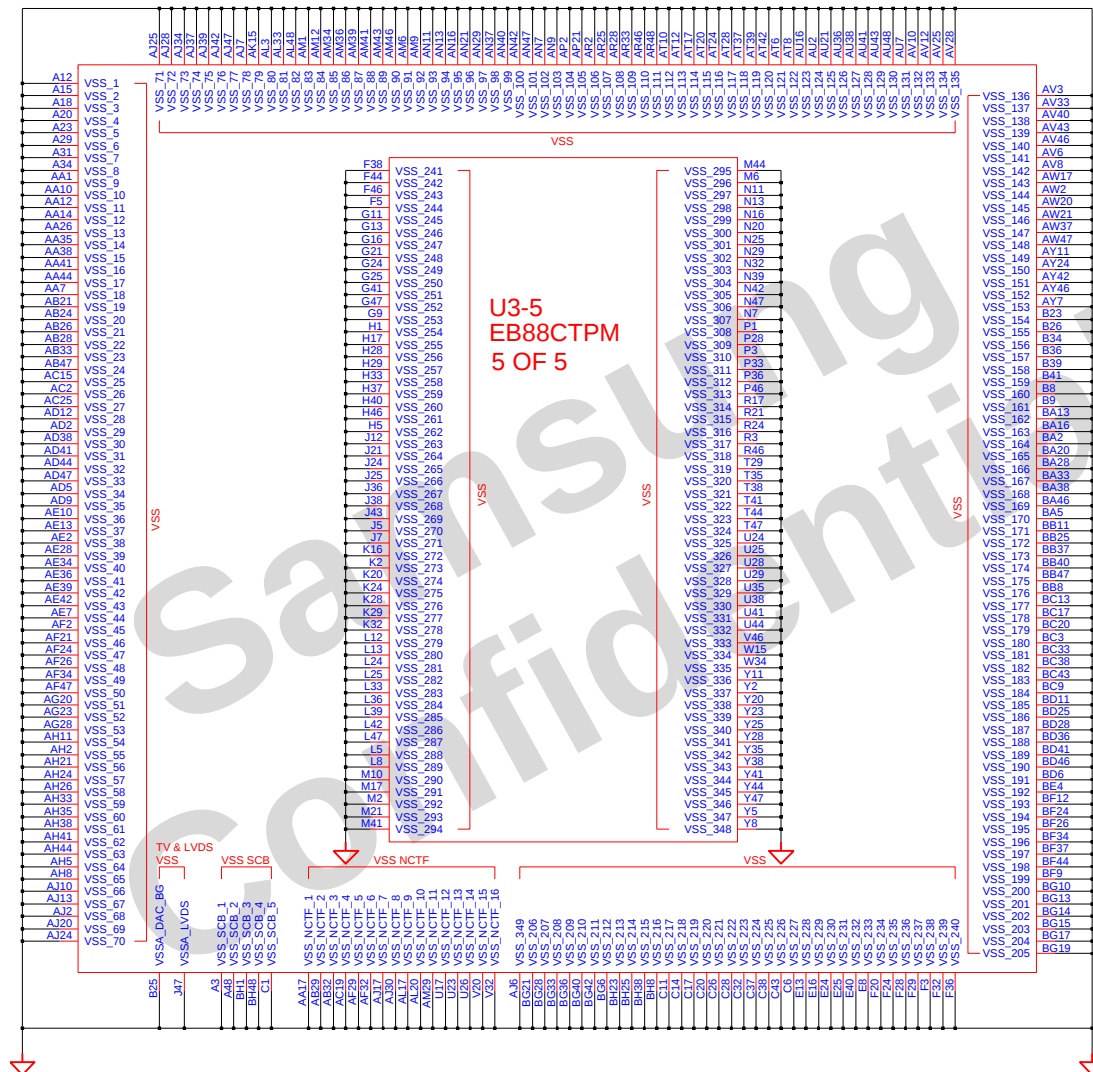


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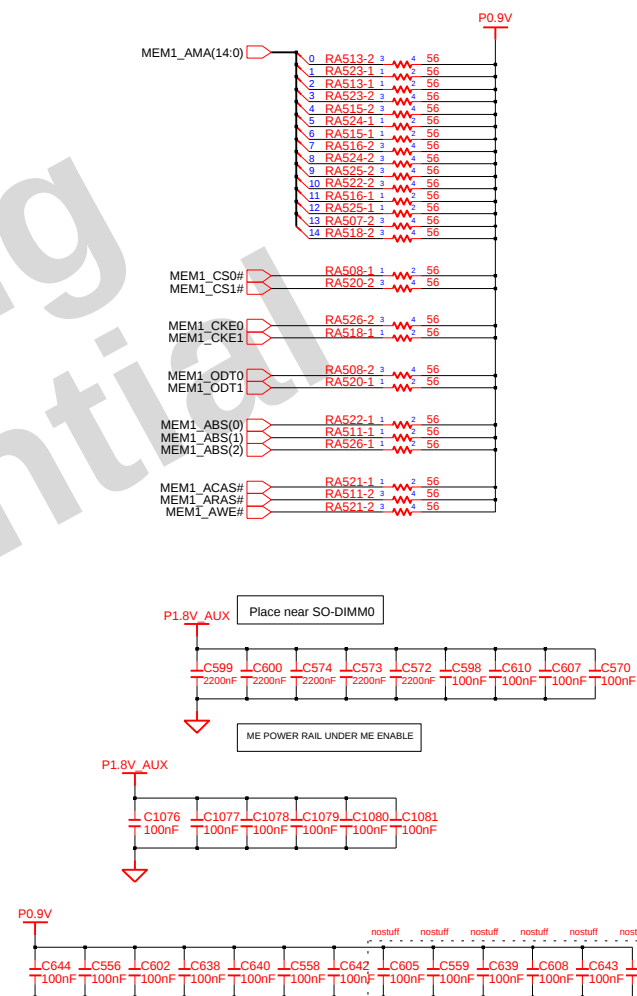
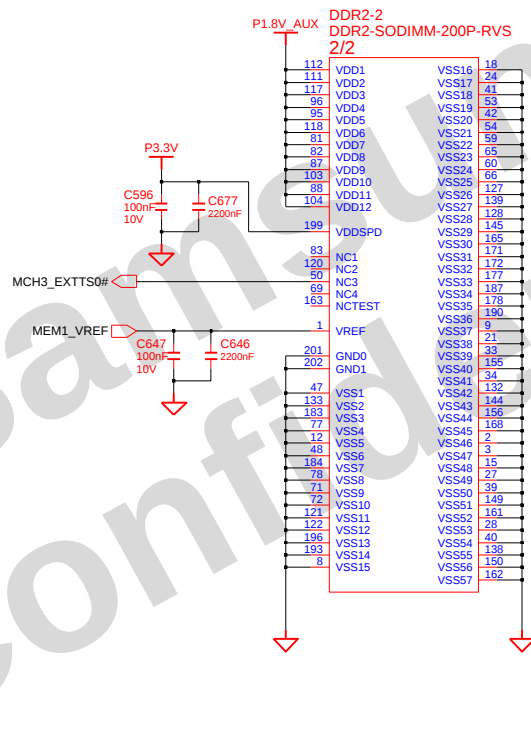
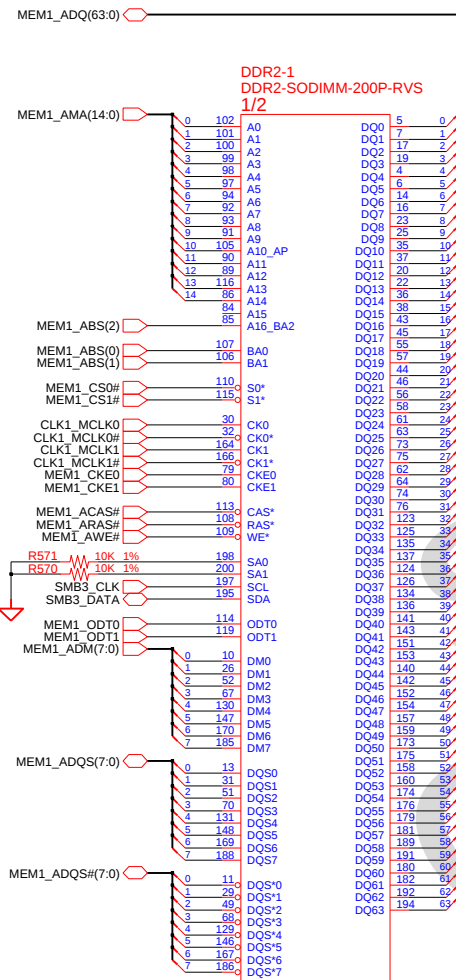


DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-000897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		MCH_CANTIGA_PM_DDR3	
APPROVAL	BC LEE	REV	REV 1.0		CANTIGA (5/5)	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 5 OF 5	

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DDR SO-DIMM #0

Height : 5.2mm (Reverse)

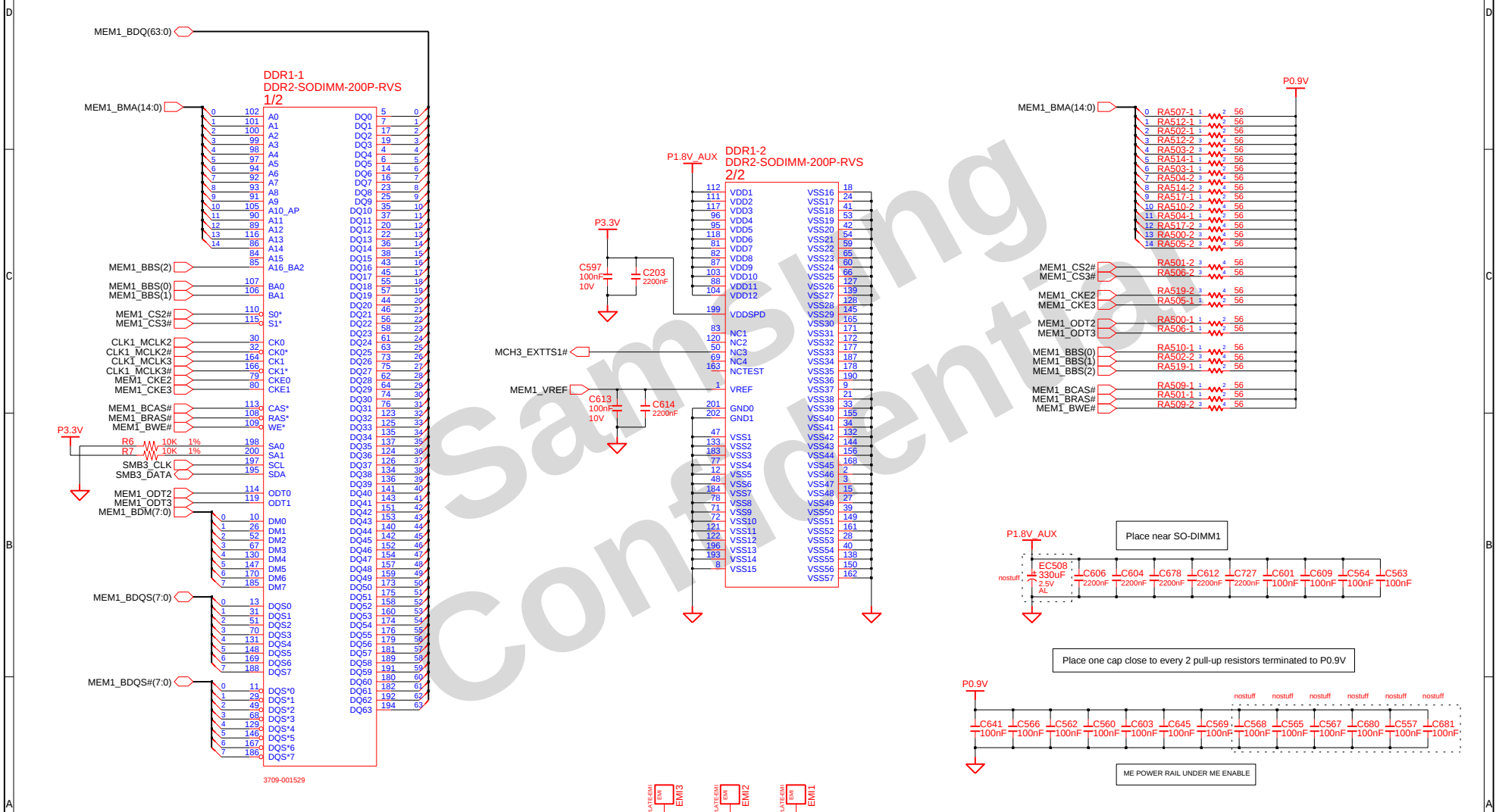


DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		SODIMM_DDR2	
APPROVAL	BC LEE	REV	REV 1.0		SODIMM_DDR2 #1	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 2	

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DDR SO-DIMM #1

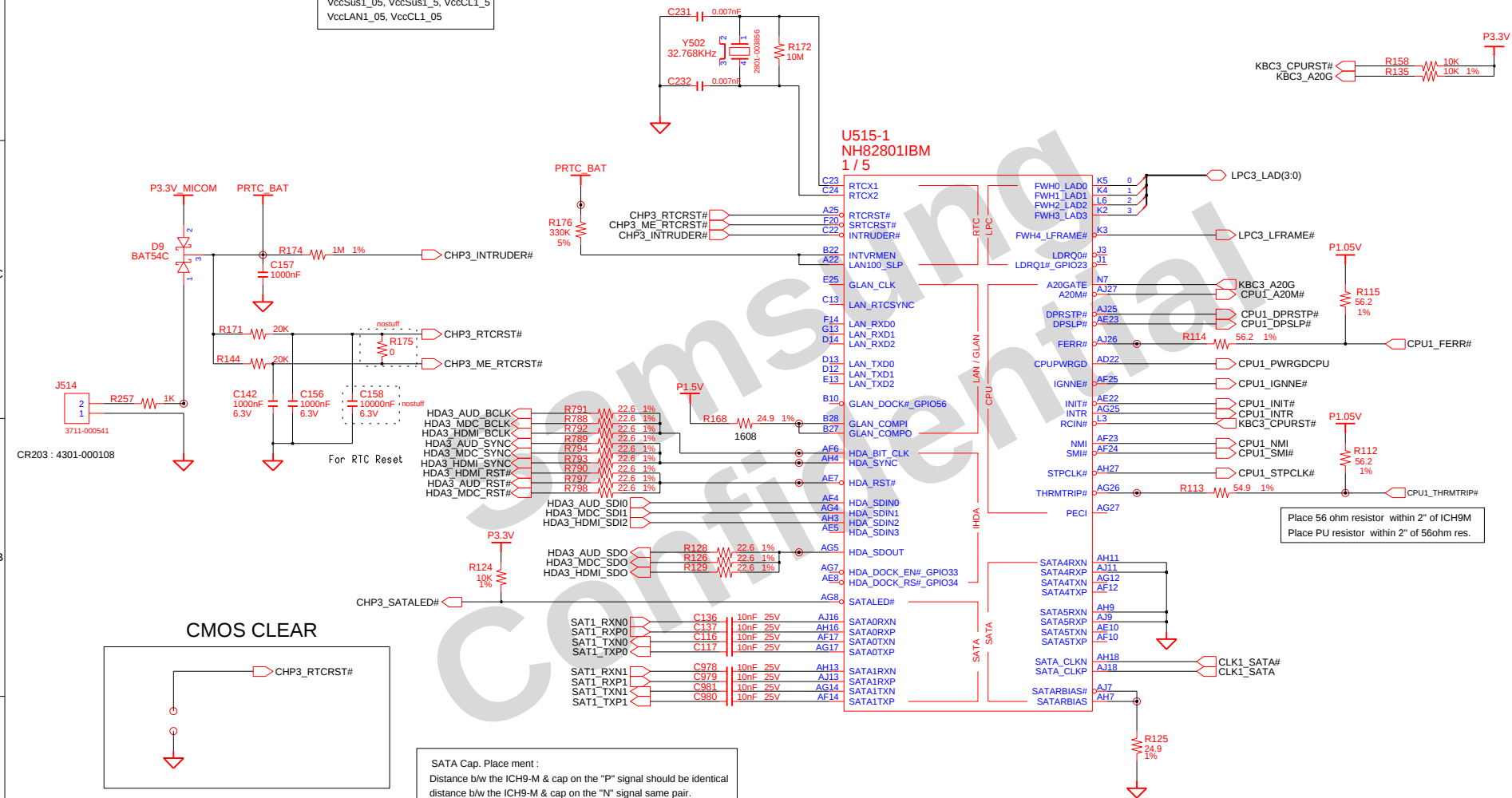
Height : 9.2mm (Reverse)



DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR	
APPROVAL	BC LEE	REV	REV 1.0	PART NO. BA41-00897A/898A
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	
			PAGE	2 OF 2

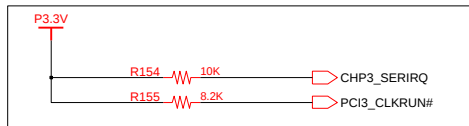
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Internal VR Strap	
INTVRMEN	Pull up
VccSus1_05, VccSus1_5, VccCL1_5	
VccLAN1_05, VccCL1_05	

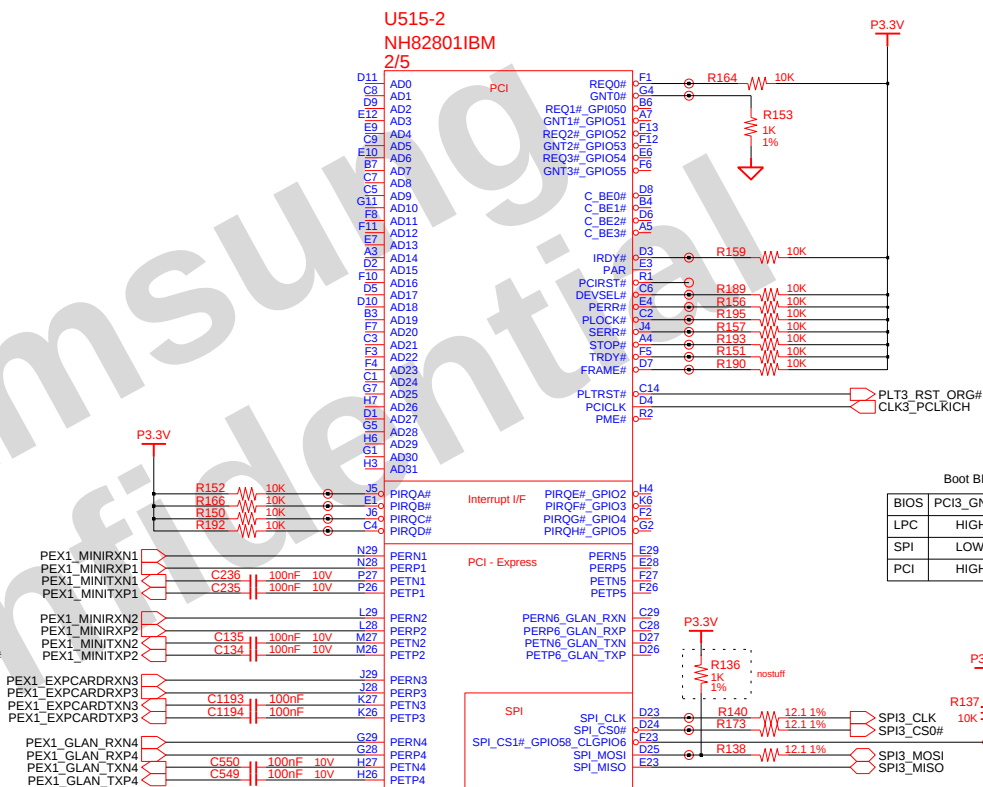
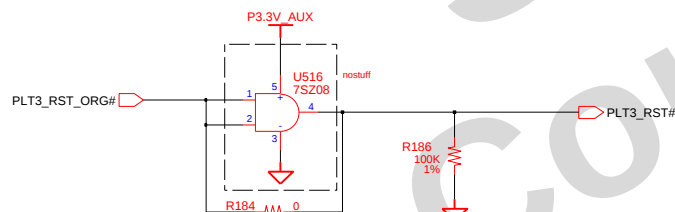


DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		ICH9M_B	
APPROVAL	BC LEE	REV	REV 1.0		ICH9-M (1/5)	
MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PAGE 1 OF 5

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LPC option ; These are used with LPC

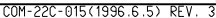


Boot BIOS Select		
BIOS	PCI3_GNT0#	SPI3_CS1#
LPC	HIGH	HIGH
SPI	LOW	HIGH
PCI	HIGH	LOW

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

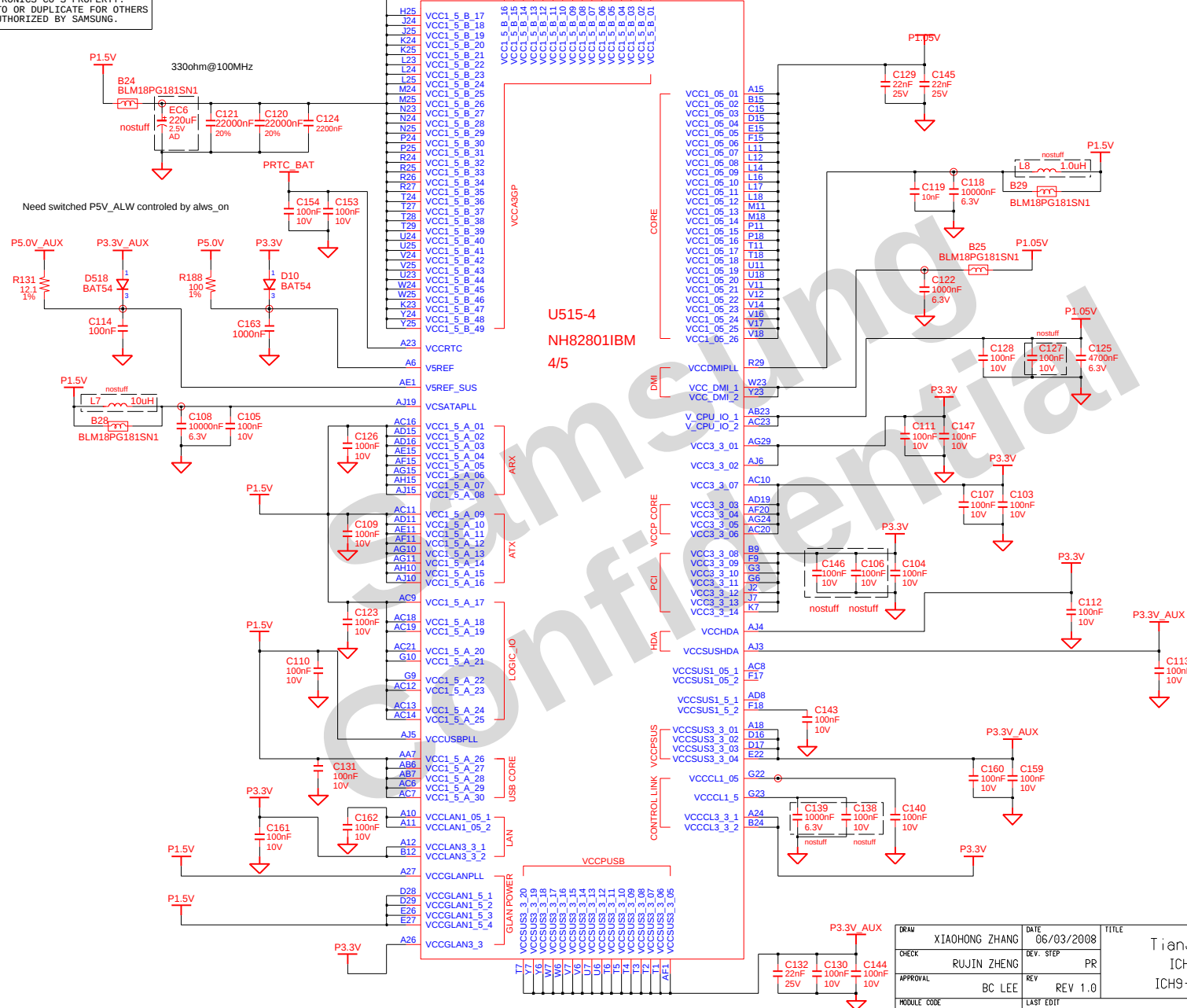
DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT ICH_9M_B ICH9-M (2/5)	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR			PART NO. BA41-00897A/898A
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	2	OF 5

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D:/mentor/tianjin/tmp/tianjin_ext_pr_0603/design_blocks/ICH_9M_B
SRP Sheet Number: 32 of 70

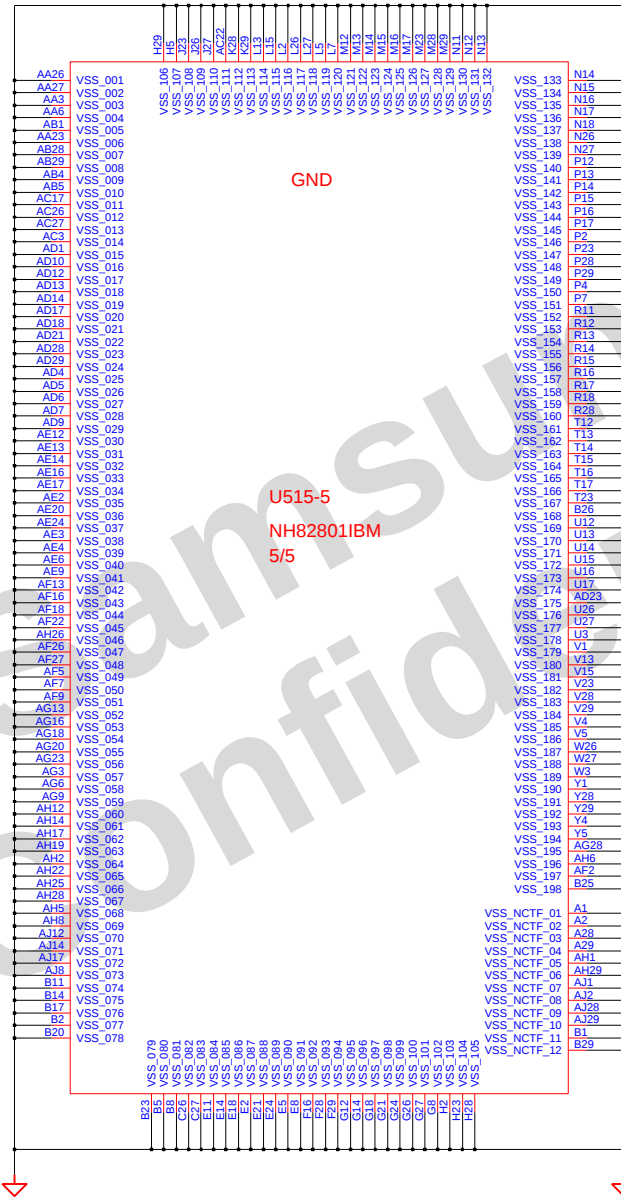
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DRAM	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT ICH9M.B ICH9-M (3/5)	
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM		PAGE	4 OF 5

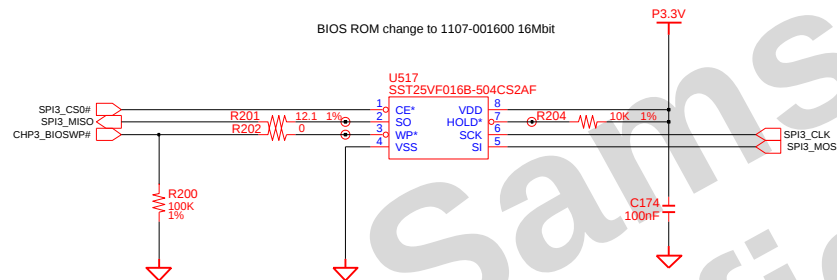
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DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		ICH_9M_B	
APPROVAL	BC LEE	REV	REV 1.0		ICH9-M (5/5)	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 5 OF 5	

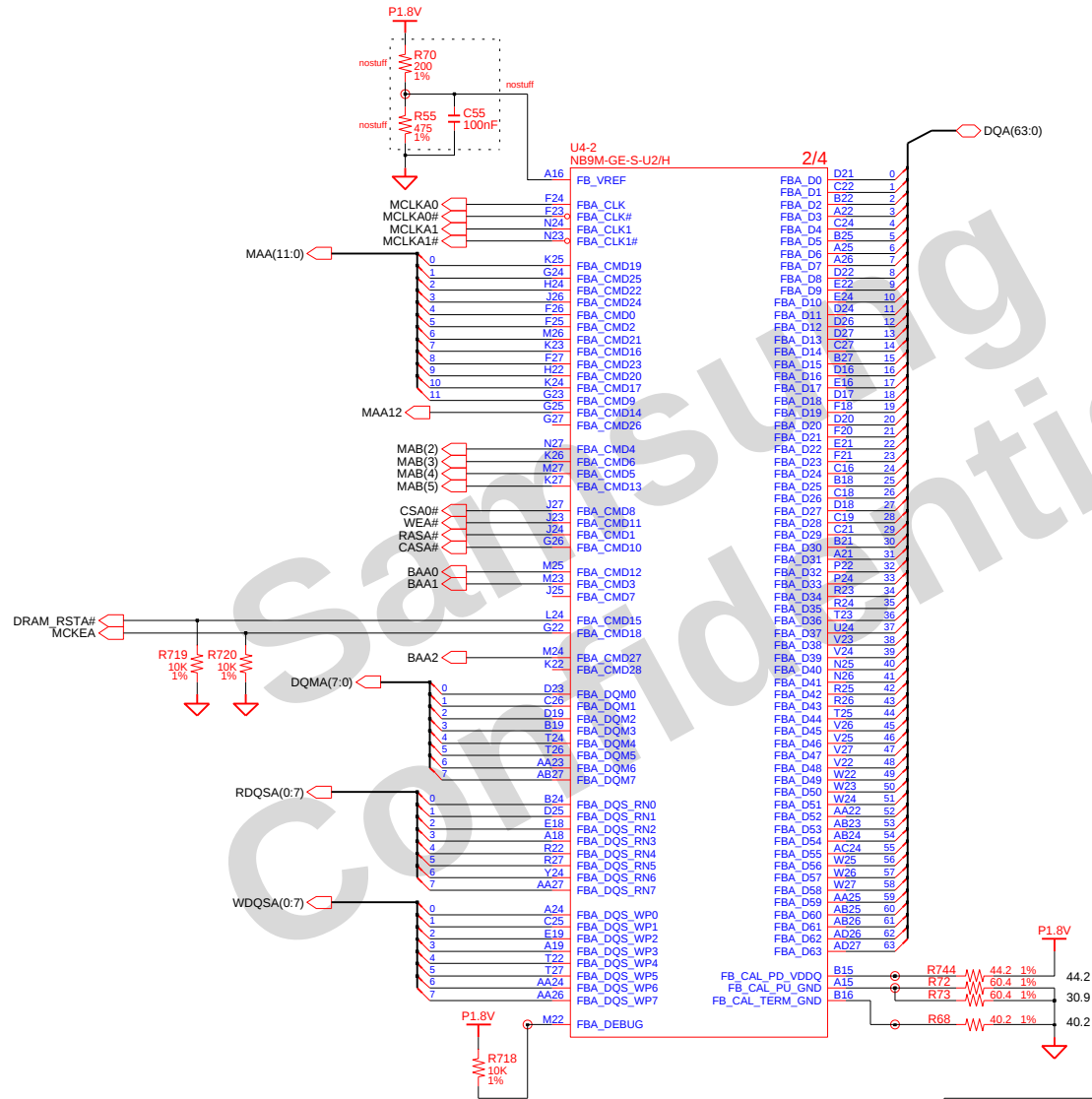
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- | | | | |
|----|---|----|---------------------------------|
| 02 | VERIFY REAL MODE | 66 | CONFIGURE ADVANCE CACHE REG. |
| 03 | DISABLE NMI | 6A | DISPLAY EXTERNAL CACHE SIZE |
| 04 | GET CPU TYPE | 6C | DISPLAY SHADOW MESSAGE |
| 06 | INIT. SYSTEM 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 HW INTERRUPT |
| 22 | TEST 8742 KEYBOARD CONTROLLER | A0 | SET TIME OF DAY |
| 24 | SET ES SEGMENT REG. TO 4GB | A4 | INIT. TYPEMATIC 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	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR		SPI.BIOS_ROM	
APPROVAL	BC LEE	REV	REV 1.0		SPI.BIOS_ROM	
MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PART NO. BA41-00897A/898A
PAGE 1 OF 1						

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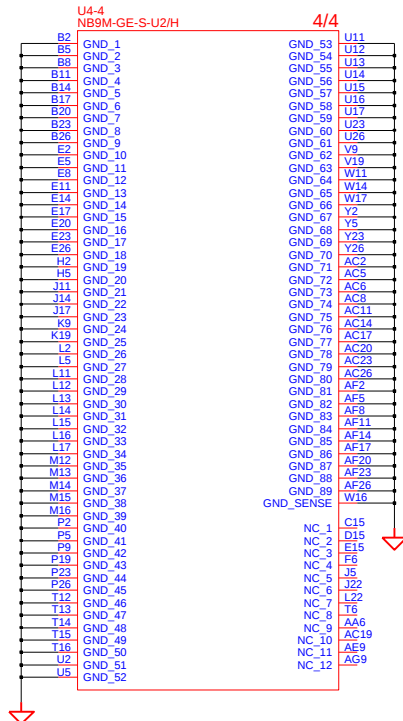
DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT EXT NB9X NB9X CHIP (2/4)	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	2 OF 6	

D:/mentor/tianjin/tmp/tianjin_ext_pr_0603/design_blocks/Gfx_External_Nvidia-Nb9x
SRP Sheet Number: 38 of 70

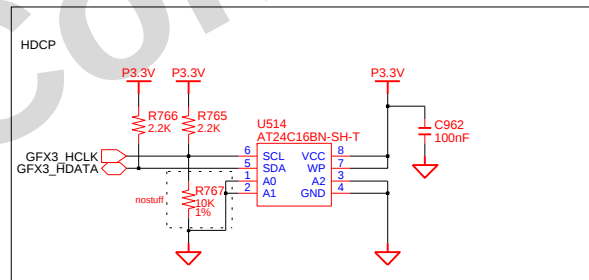
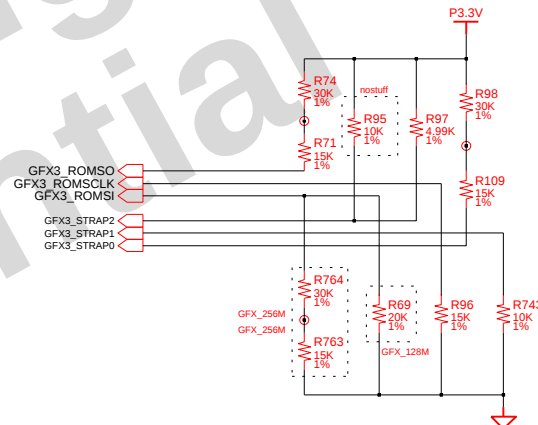
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Pin	Description	Activate
GPIO(0)	DVI detect	High
GPIO(1)	TV detect	Low
GPIO(2)	PWM Brightness control	High
GPIO(3)	LCD VDD on enable	High
GPIO(4)	Backlight on/off	High
GPIO(5)	GPU VID0	High = 1.0V, Low = 1.1V
GPIO(6)	GPU VID1	NC
GPIO(7)	GPU VID2 or Mem VID	NC
GPIO(8)	Thermal diode Alert	LOW
GPIO(9)	Fan control	NC
GPIO(10)	Memory VREF switch	NC
GPIO(11)	SLI Rater sync	HIGH
GPIO(12)	AC Power dection input	NC
GPIO(13)	Power supply control	NC
GPIO(14)	Power supply control	NC
GPIO(15)	HDMI Detect	High
GPIO(16)	DP Detect	High

Strap option	Bit 3	Bit 2	Bit 1	Bit 0
ROM_SO	XCLK_27	TVMODE[2]	TVMODE[1]	TVMODE[0]
ROM_SCLK	DEVID[4]	VENID	CLK_CFG	PLL_TERM
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	DEVID[3]	DEVID[2]	DEVID[1]	DEVID[0]
STRAP1	PADCFG[3]	PADCFG[2]	PADCFG[1]	PADCFG[0]
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
Resistor value	PU to VDD	PD to GND	XCLK27 = 1.27MHz	
5K ohm	1000	0000	RAM CFG (SEC)	
10 Kohm	1001	0001	0011 512Mbit 0111 256Mbit	
15K ohm	1010	0010	USER[3:0]=1111 for EDID	
20K ohm	1011	0011	PADCFG[3:0]=0001 of NP	
25K ohm	1100	0100	NB9M-GS:0x06E9 (01001)	
30K ohm	1101	0101	NB9M-GE:0x06E8 (01000)	
35K ohm	1110	0110	NB9P-GS:0x06A9 (01001)	
45K ohm	1111	0111	NB9P-GE:0x0406 (00110)	
			NB9P-GE2:0x07?? (0?????)	



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

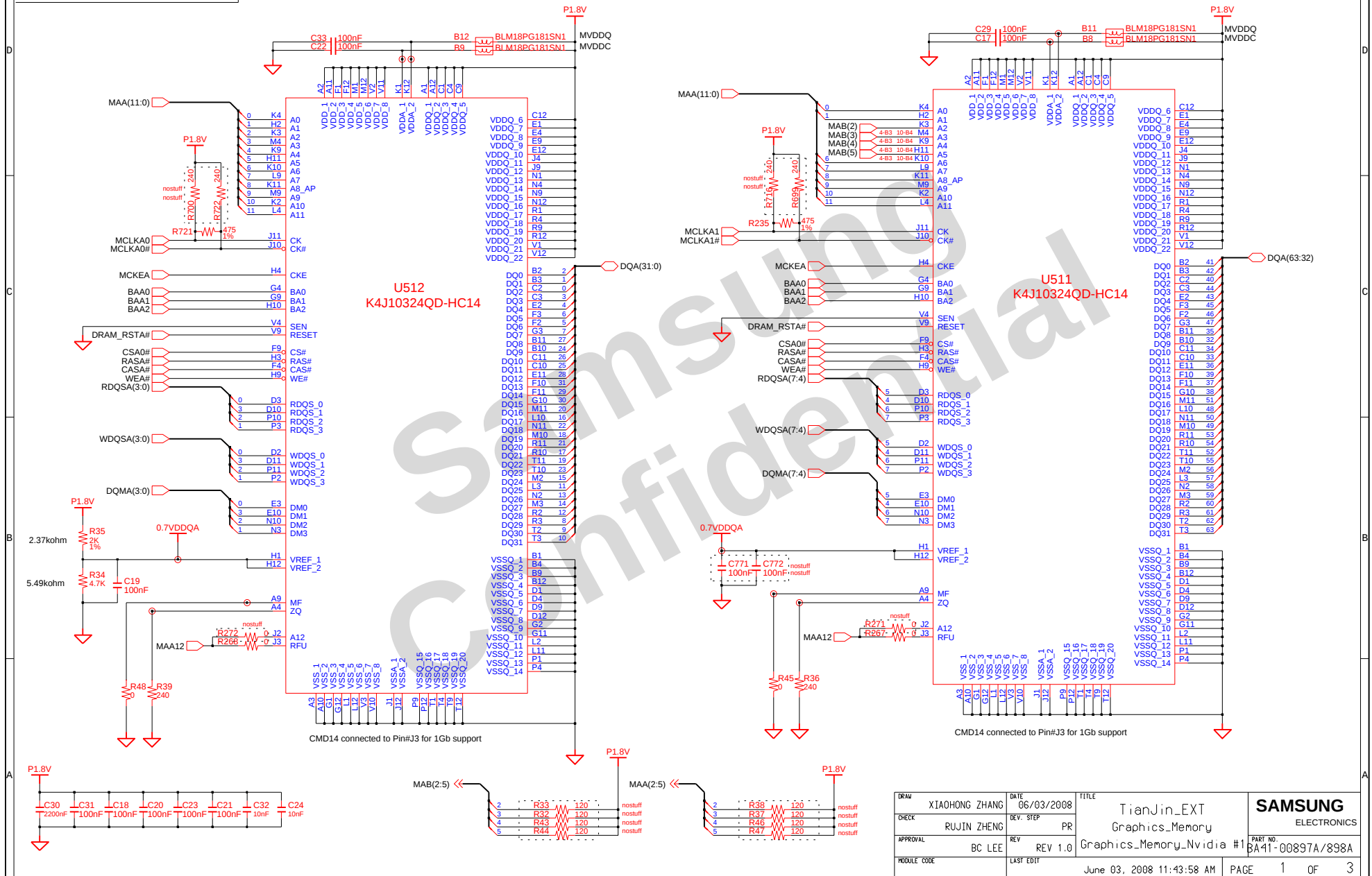


PU is for I2C ROM (AT24C16B, A0-A2 = 000)
PD is for Crypto ROM

DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR		EXT NB9X	
APPROVAL	BC LEE	REV	REV 1.0		NB9X CHIP (4/4)	
MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PART NO. BA41-00897A/898A
PAGE 4 OF 6						

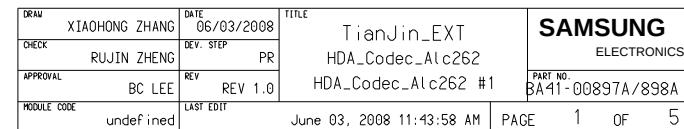
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A-channel

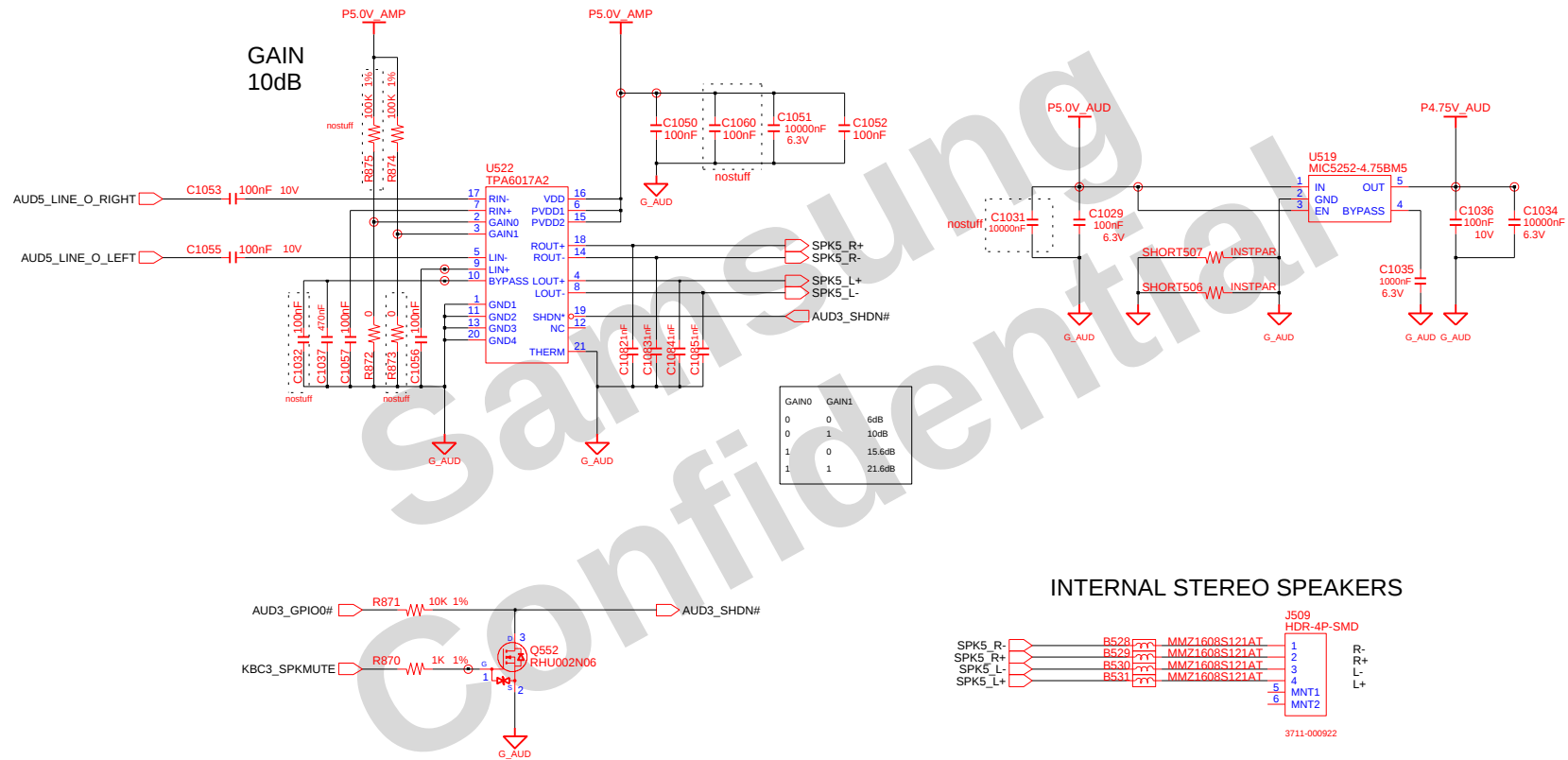


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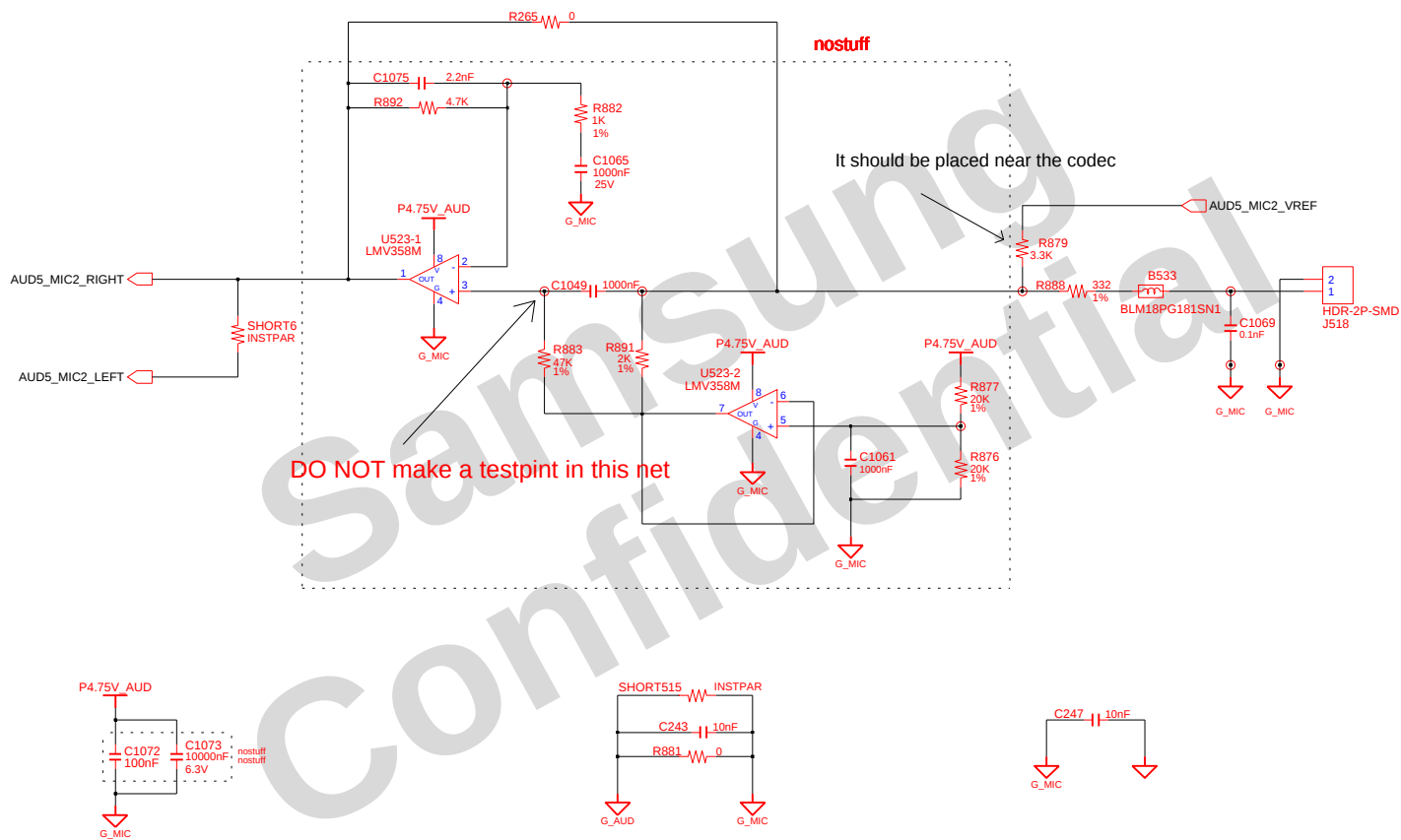
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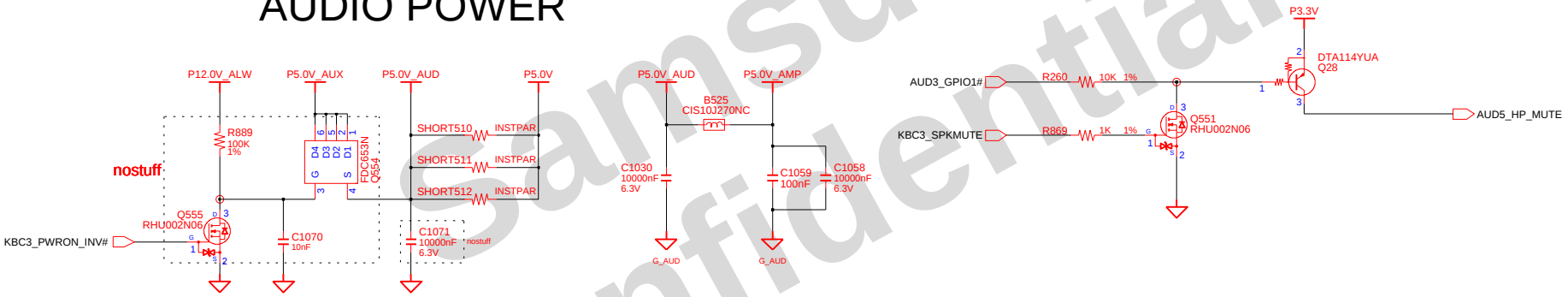
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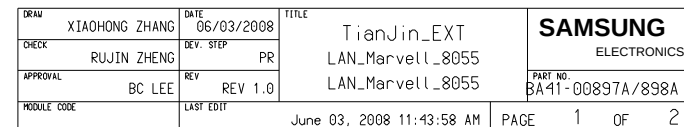
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APPROVAL	BC LEE	REV	REV 1.0		HDA_Codec_Alc262 #3	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	3 OF 5	

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AUDIO POWER

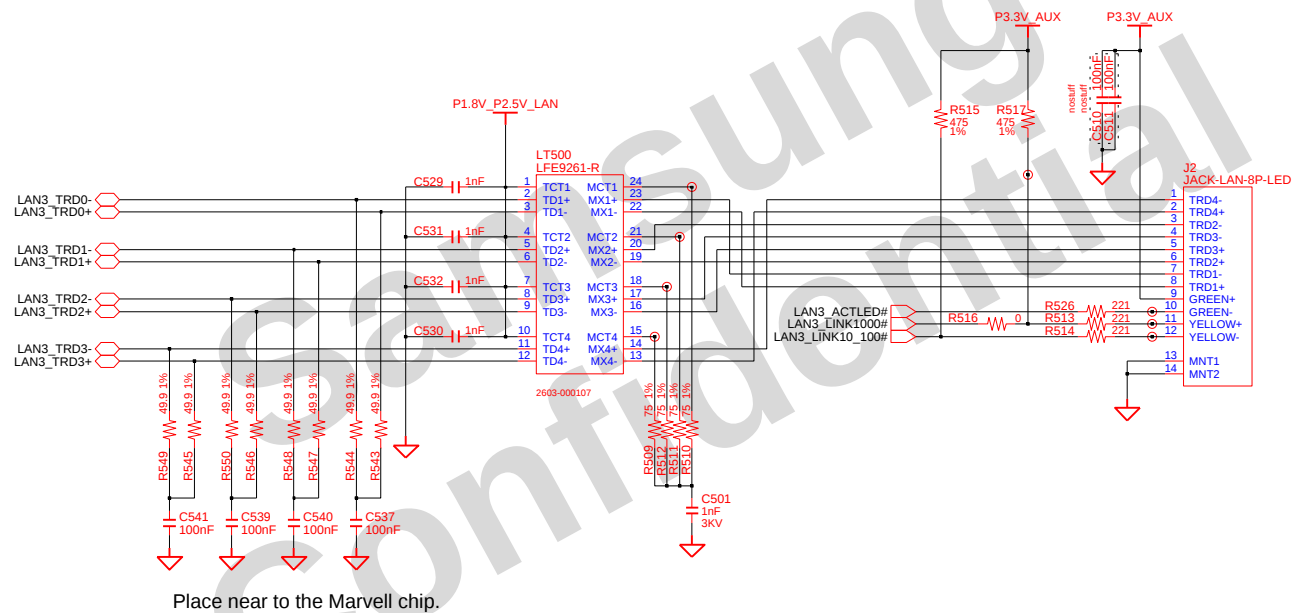


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CHECK	RUJIN ZHENG	DEV. STEP	PR		HDA_Codec_Alc262	
APPROVAL	BC LEE	REV	REV 1.0		HDA_Codec_Alc262 #5	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	5 OF 5	



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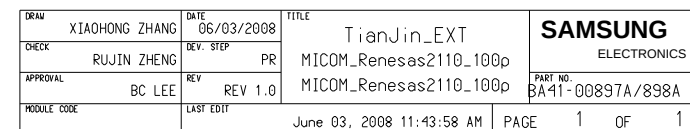
The distance between LAN controller
and transformer is designed to extend less than two inches.



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		LAN_Marvell_8055	
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MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PAGE 2 OF 2

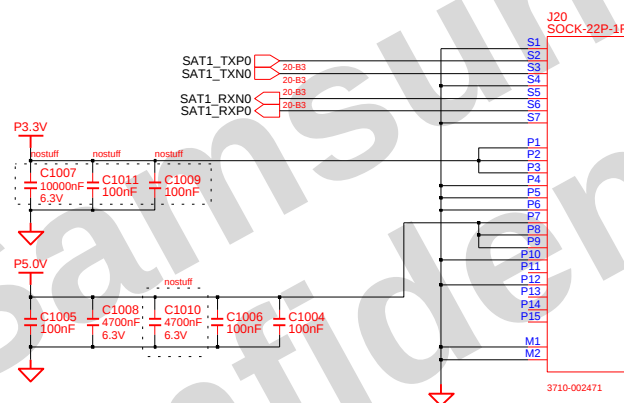
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KBC3 RST#



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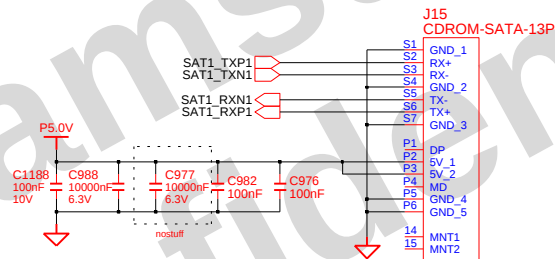
Main to HDD



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		HDD_IF_Conn	
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MODULE CODE		LAST EDIT				
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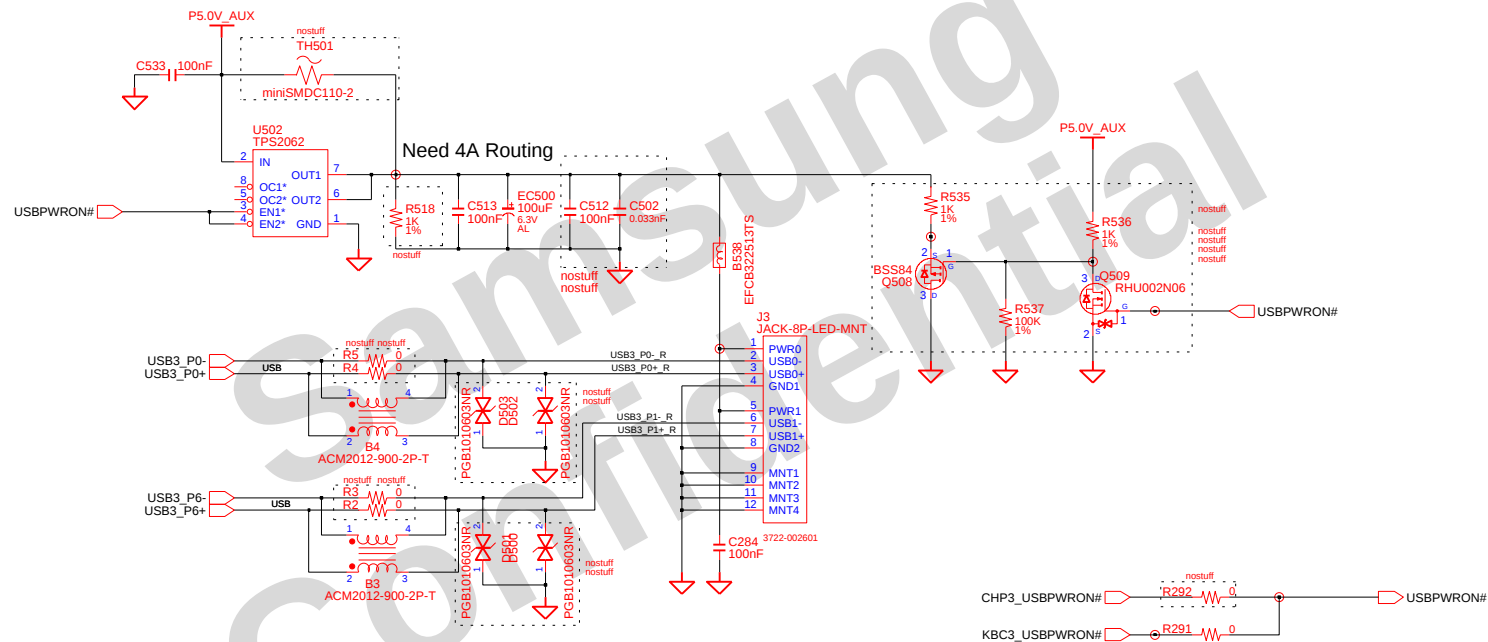
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SATA ODD



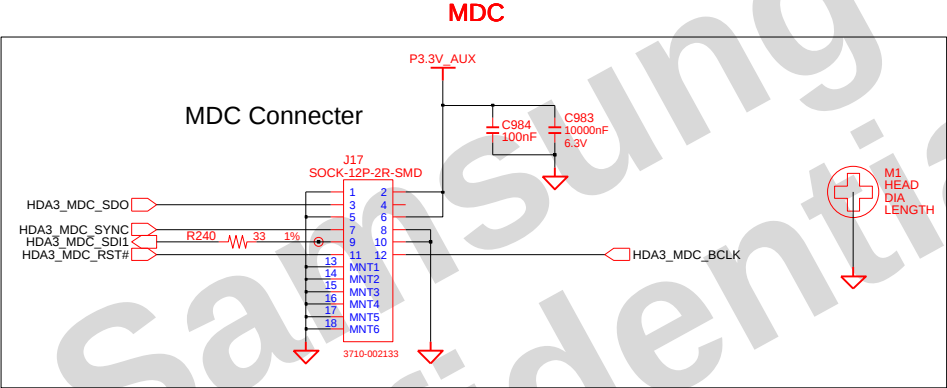
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APPROVAL	BC LEE	REV	REV 1.0		ODD_IF_Conn	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 1	

2 PORT USB CONNECTOR



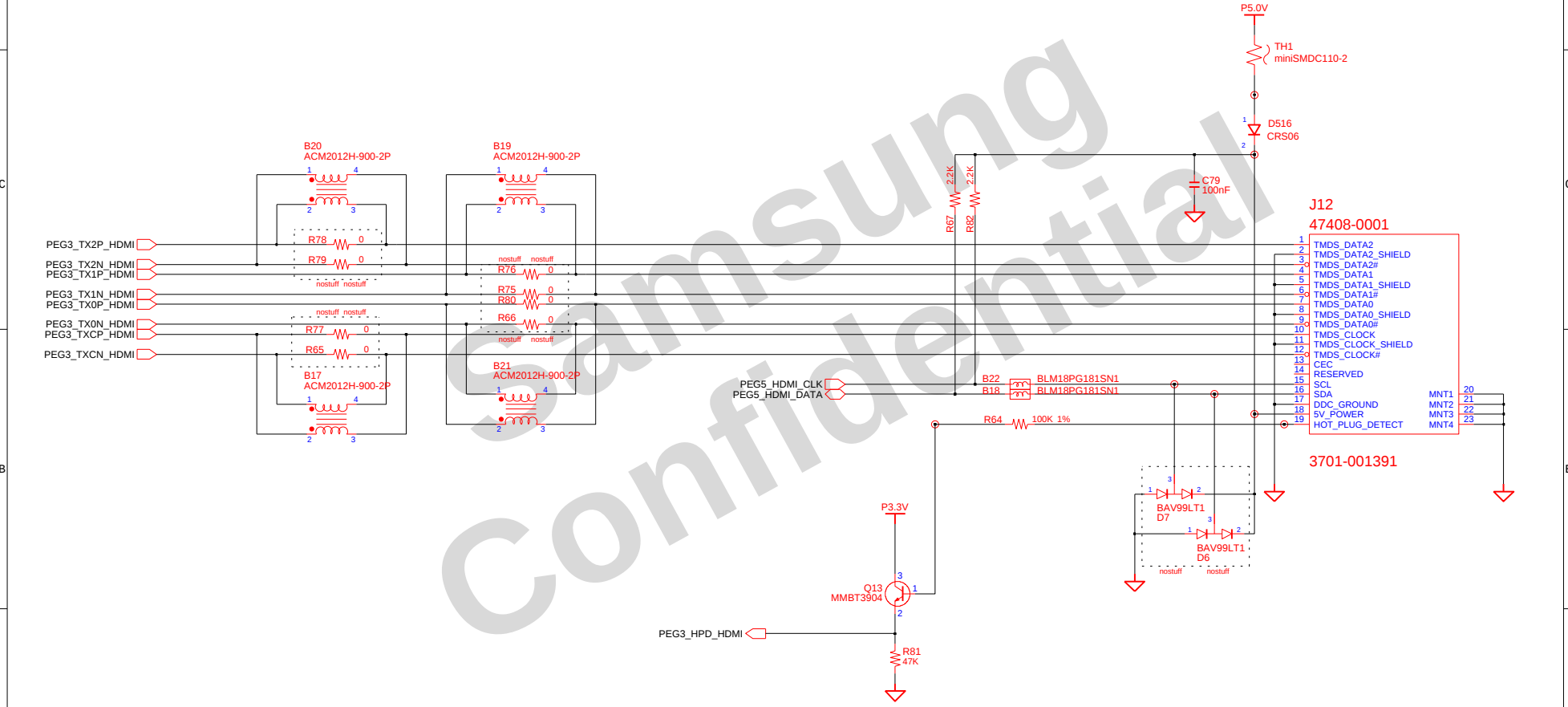
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CHECK	RUJIN ZHENG	DEV. STEP	PR		USB_2Port	
APPROVAL	BC LEE	REV	REV 1.0		USB_2Port	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 1	

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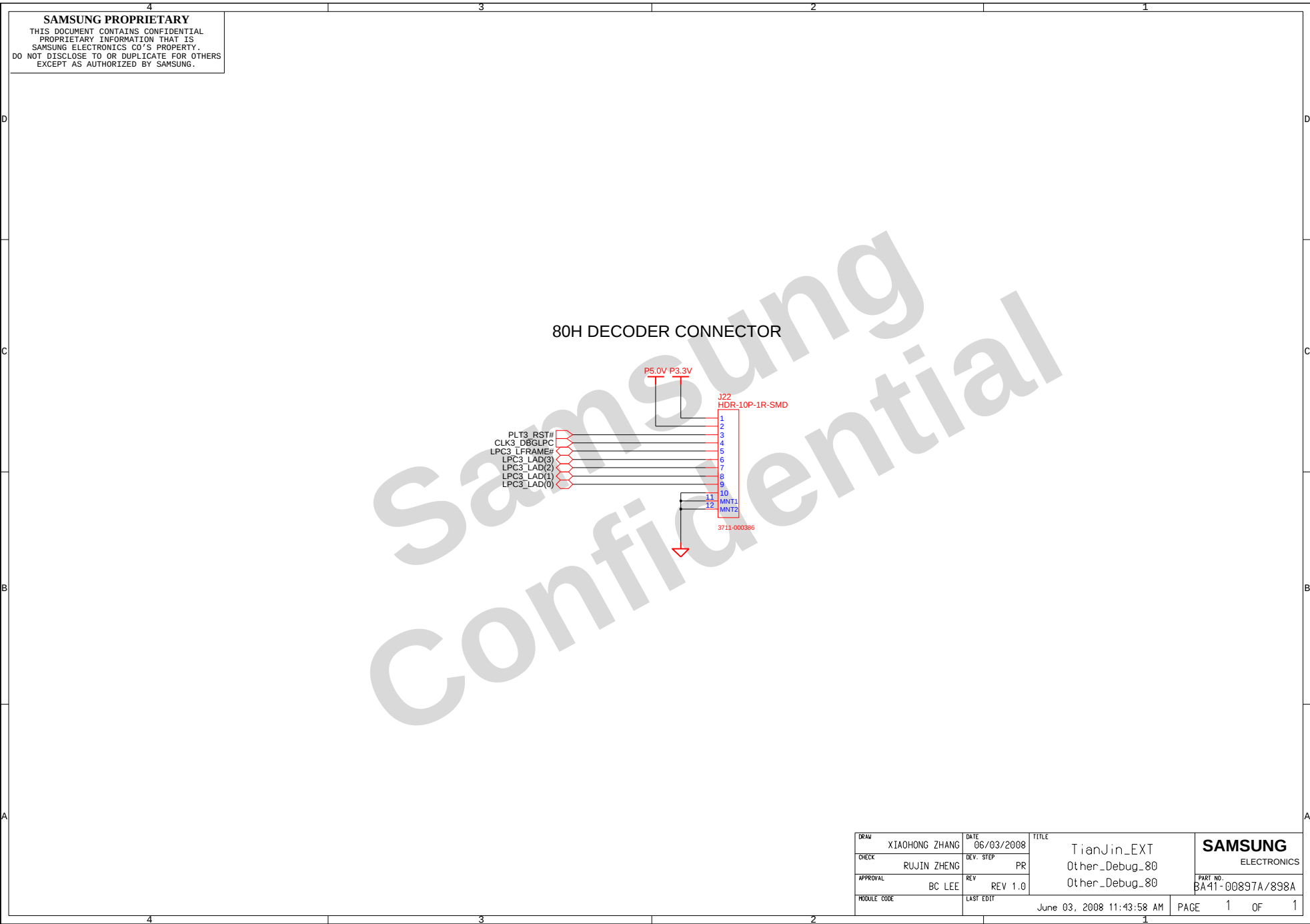


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APPROVAL	BC LEE	REV	REV 1.0		HDA_Modem	
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 1	PART NO. BA41-00897A/898A

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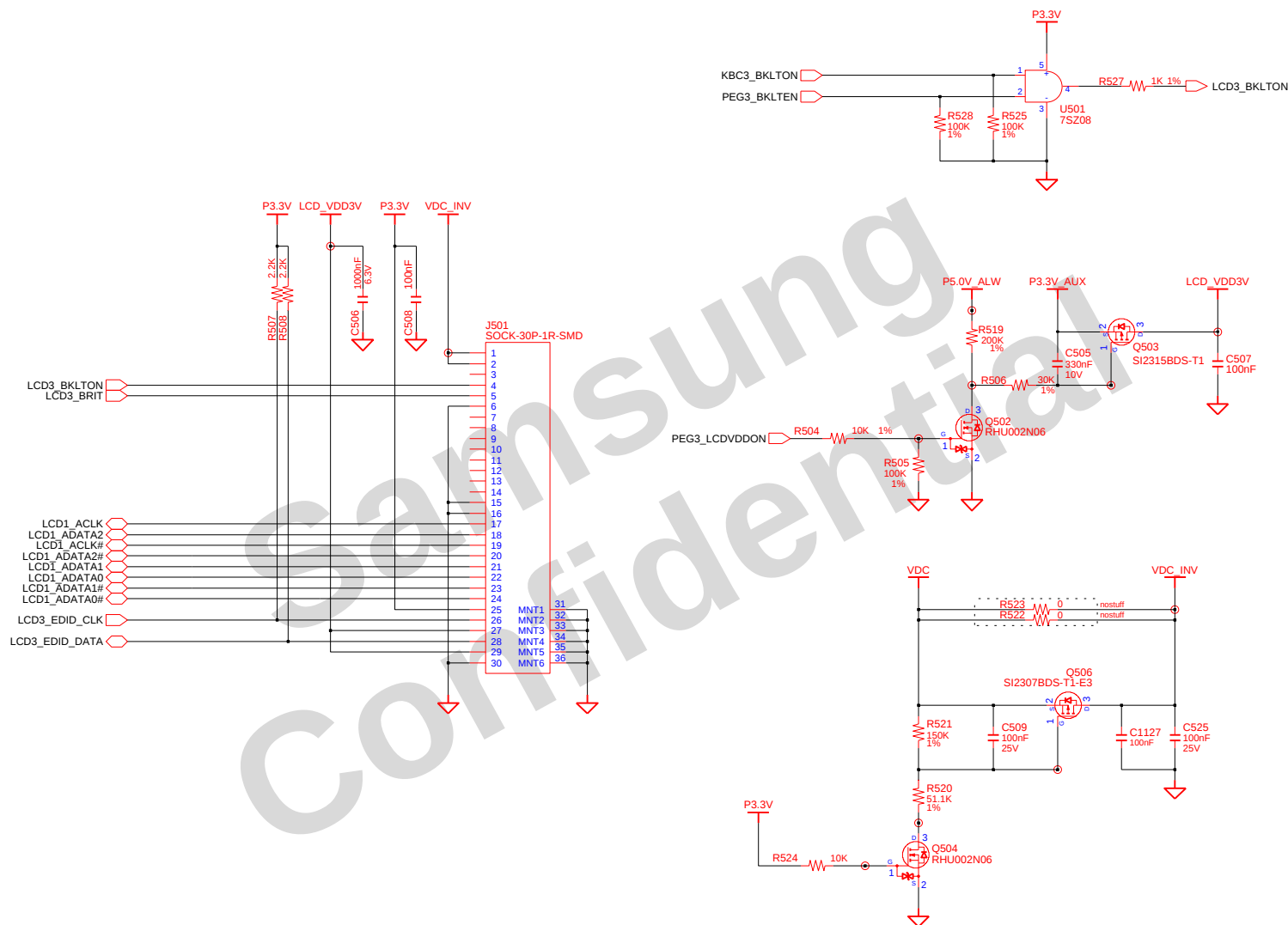
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CHECK	RUJIN ZHENG	DEV. STEP	PR		DMB_IF_Conn	
APPROVAL	BC LEE	REV	REV 1.0		DMB_IF_Conn	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 1	



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR		Other_Debug_80	
APPROVAL	BC LEE	REV	REV 1.0		Other_Debug_80	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE	1 OF 1

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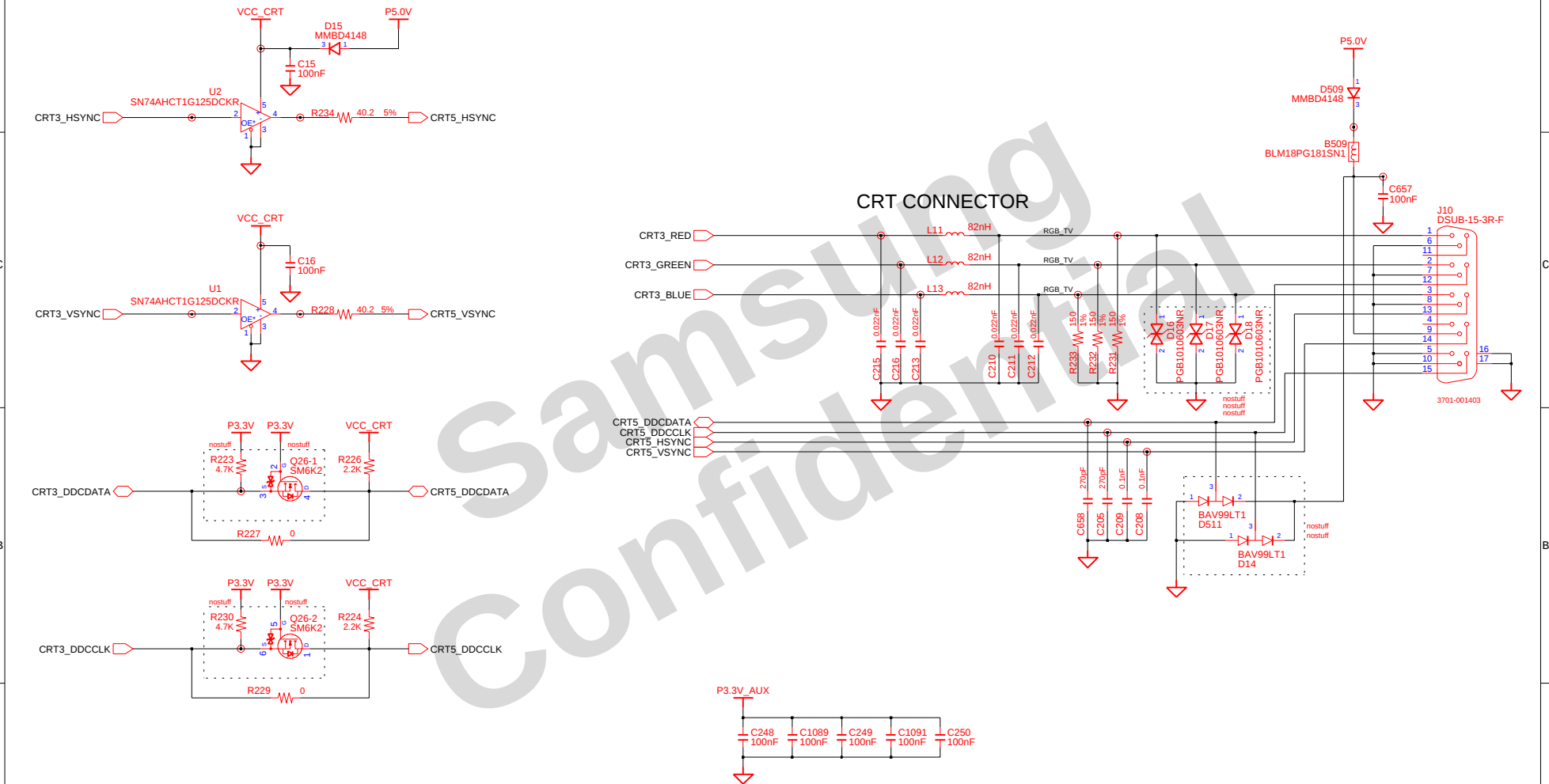
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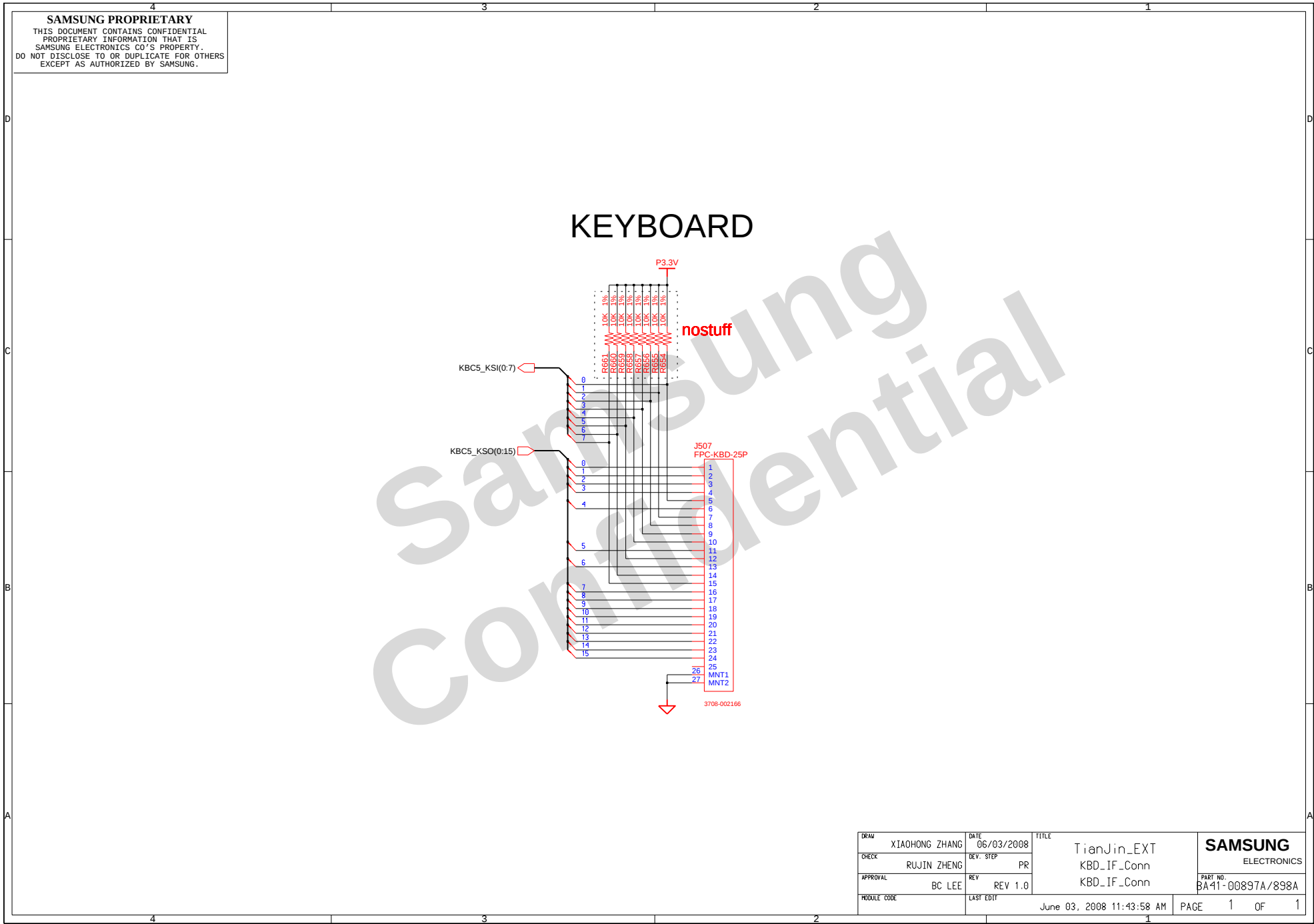
COM-22C-015(1996.6.5) REV. 3

DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		LCD_IF_14p1	
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MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 1	

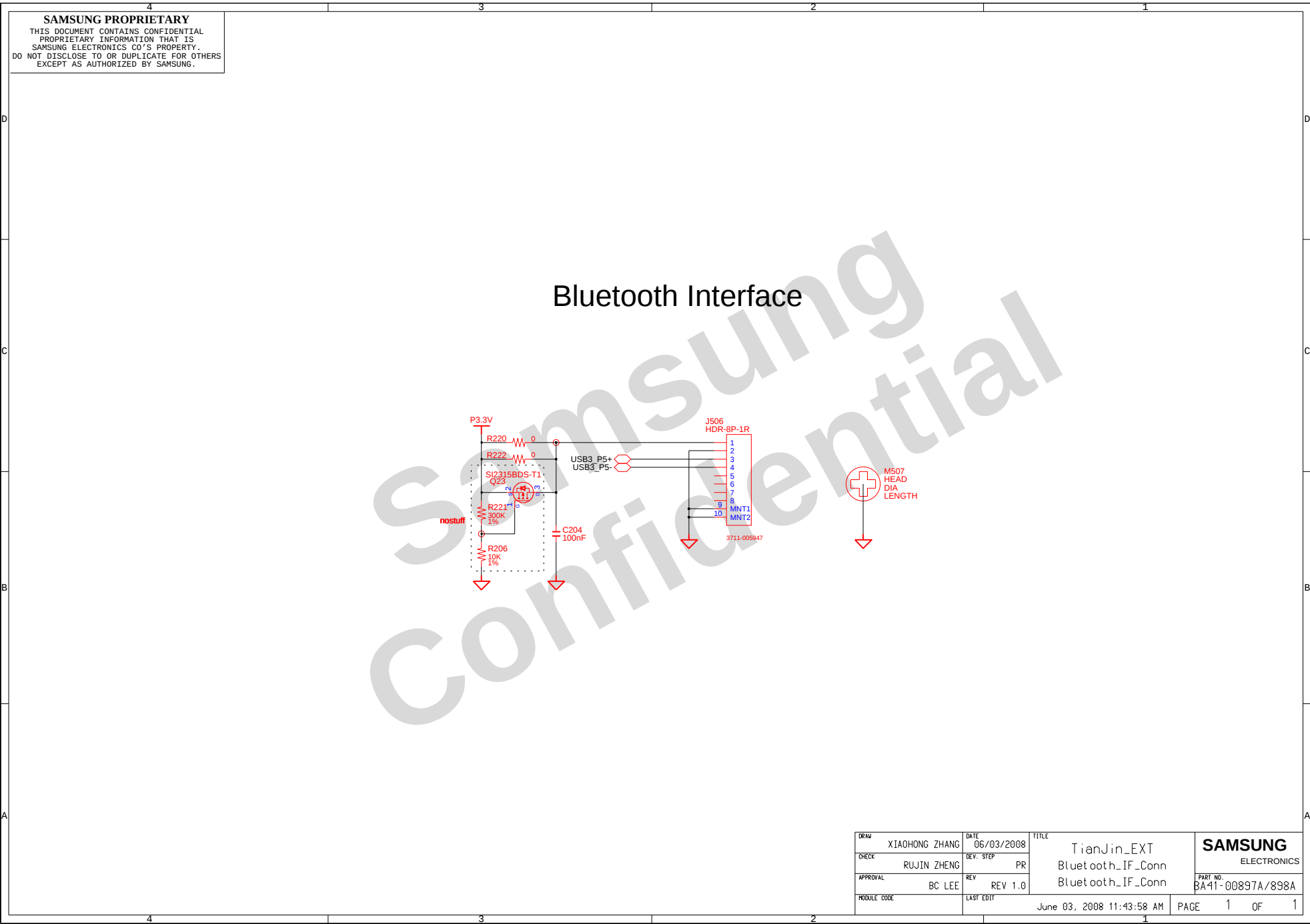
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DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT Interface_Circuit Graphics_IF_CRT	SAMSUNG ELECTRONICS PART NO. BA41-000897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT				
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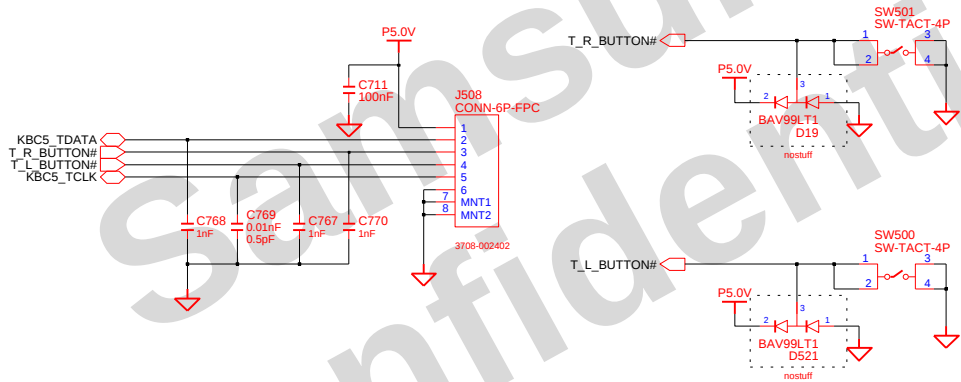


DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
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APPROVAL	BC LEE	REV	REV 1.0		KBD_IF_Conn	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 1	



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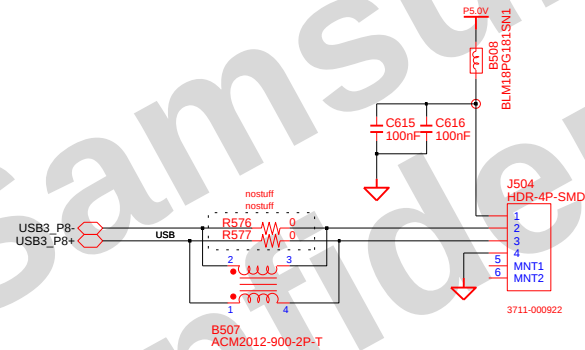
TOUCHPAD



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR		Touchpad_IF_Conn	
APPROVAL	BC LEE	REV	REV 1.0		Touchpad_IF_Conn	
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 1	

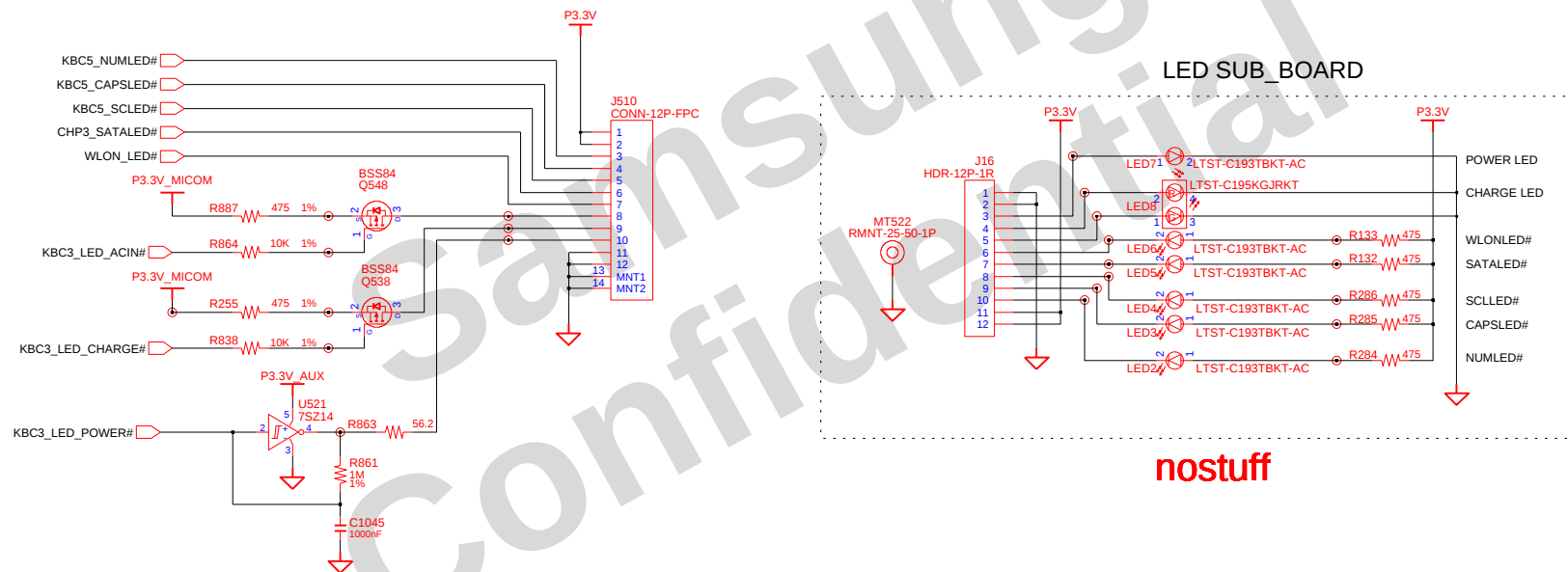
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CAMERA



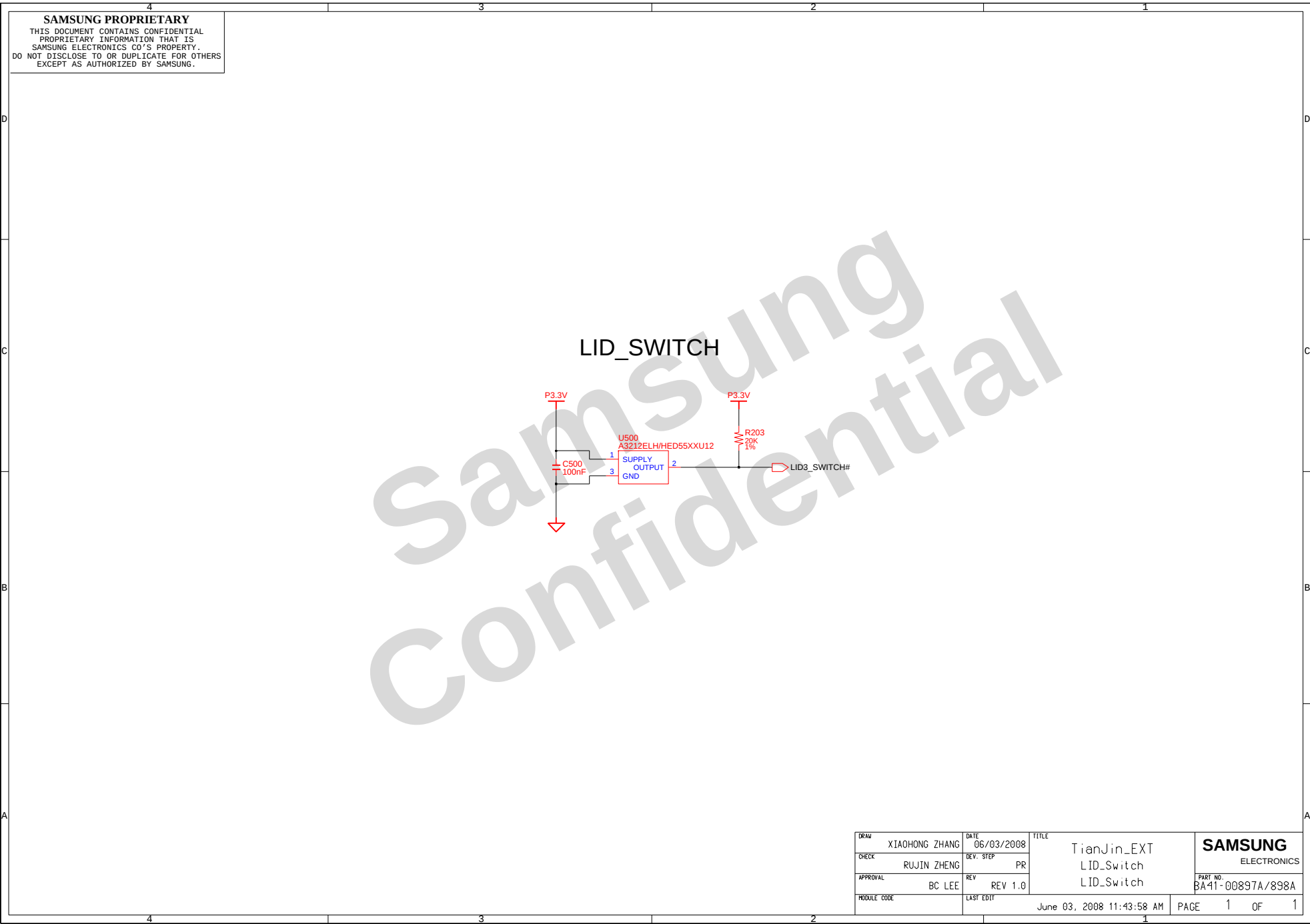
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CHECK	RUJIN ZHENG	DEV. STEP	PR		Camera_IF_Conn	
APPROVAL	BC LEE	REV	REV 1.0		Camera_IF_Conn	
MODULE CODE		LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 1	PART NO. BA41-00897A/898A

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nostuff

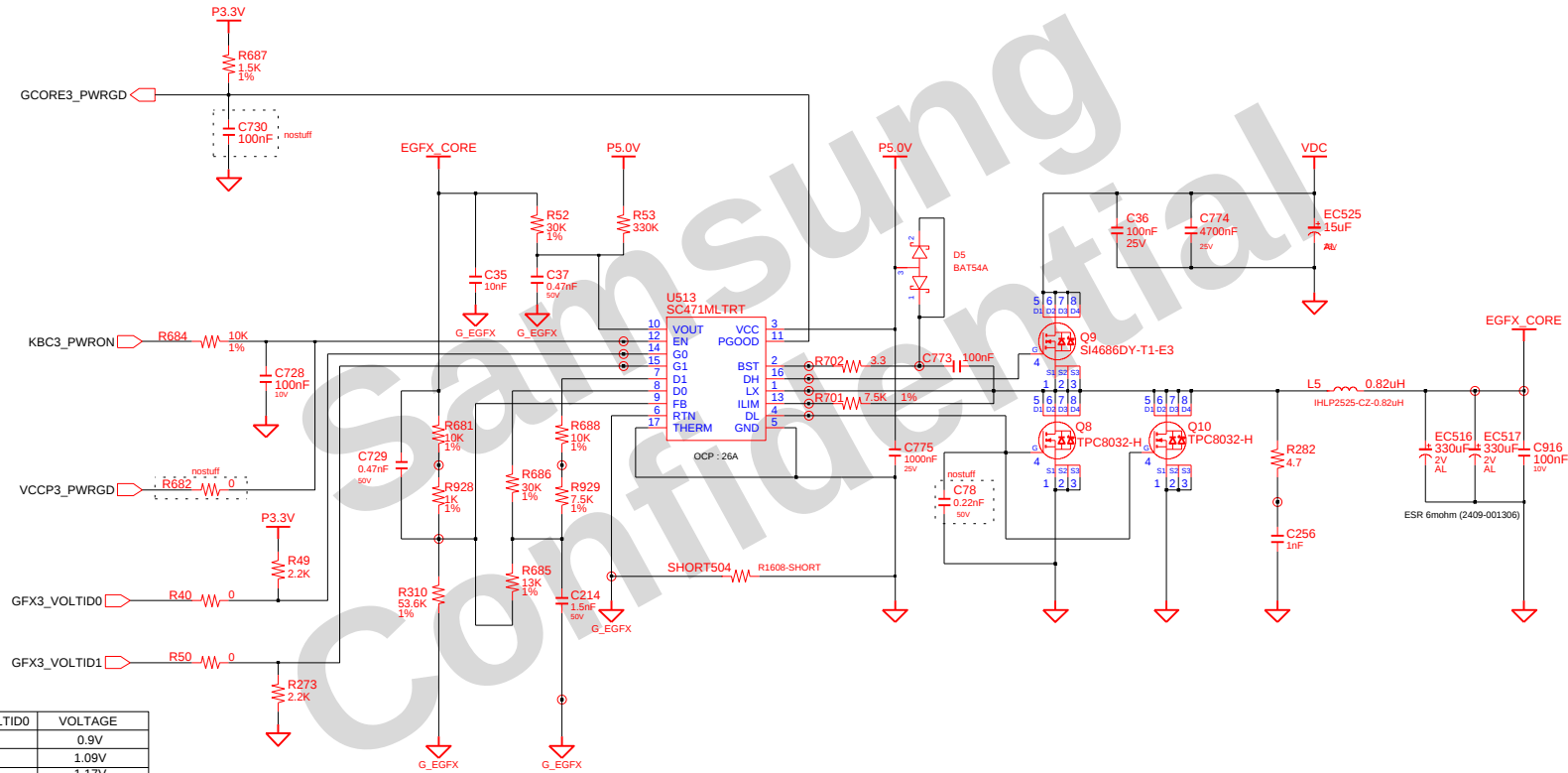
DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT LED_Switch LED_Switch	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PAGE 1 OF 1



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		LID_Switch	
APPROVAL	BC LEE	REV	REV 1.0		LID_Switch	
MODULE CODE		LAST EDIT		June 03, 2008 11:43:58 AM	PAGE 1 OF 1	

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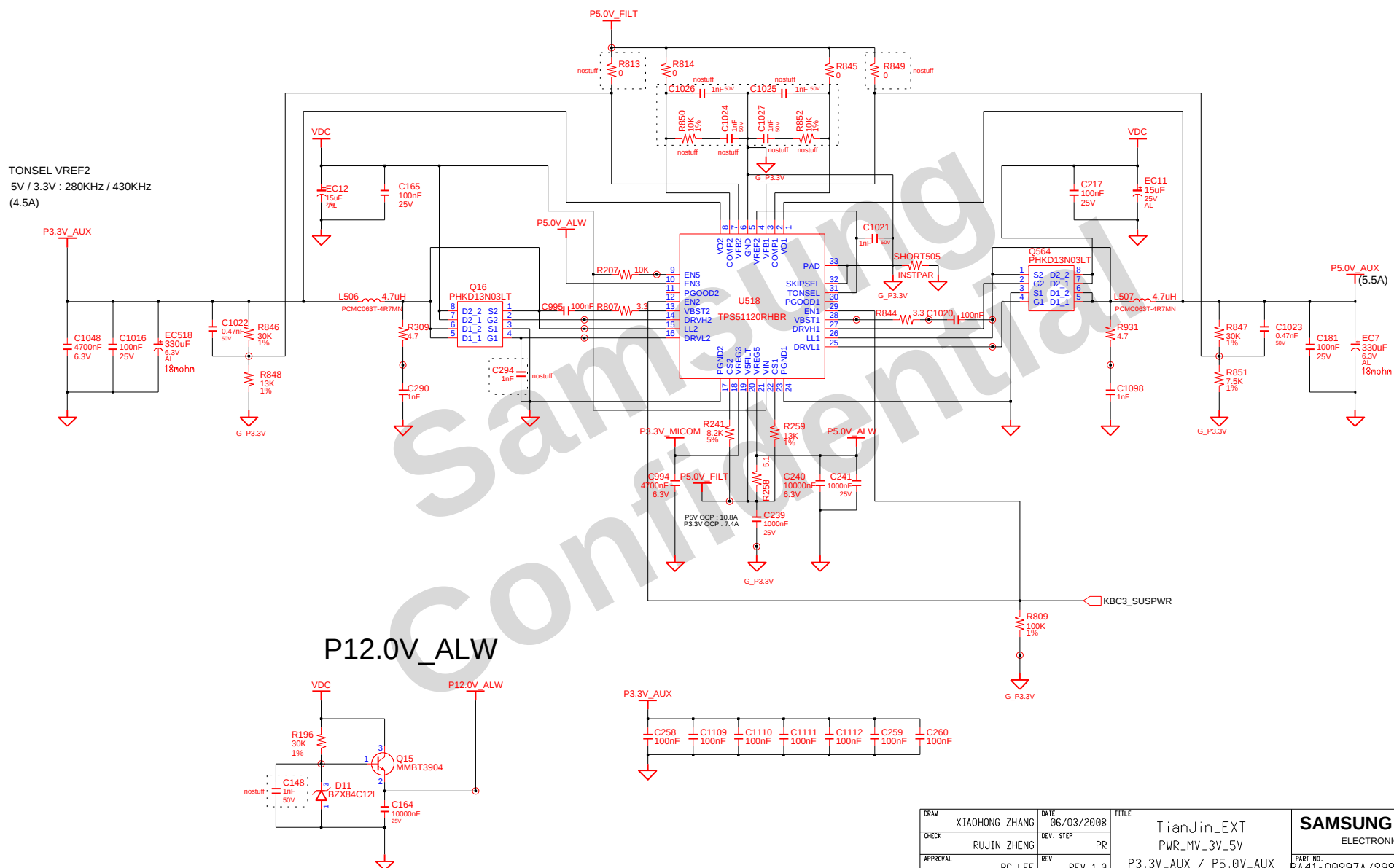
Graphic Core Power



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS
CHECK	RUJIN ZHENG	DEV. STEP	PR		PWR_Gfx_MV_Ext	
APPROVAL	BC LEE	REV	REV 1.0		Ext Gfx Memory(SC486)	
MODULE CODE		LAST EDIT				
June 03, 2008 11:43:58 AM						PART NO. BA41-00897A/898A
PAGE 1 OF 2						

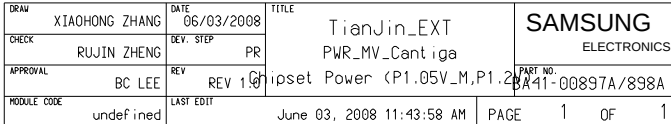
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TONSEL VREF2
5V / 3.3V : 280KHz / 430KHz
(4.5A)

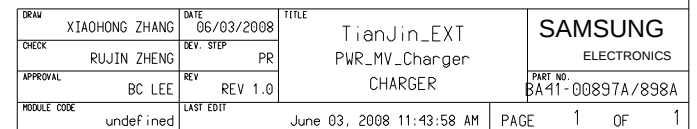


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CHECK	RUJIN ZHENG	DEV. STEP	PR	PWR_MV_3V.5V		
APPROVAL	BC LEE	REV	REV 1.0	P3.3V_AUX / P5.0V_AUX	PART NO. BA41-00897A/898A	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1	OF 1

CHIPSET POWER(P1.05V & P1.1V)

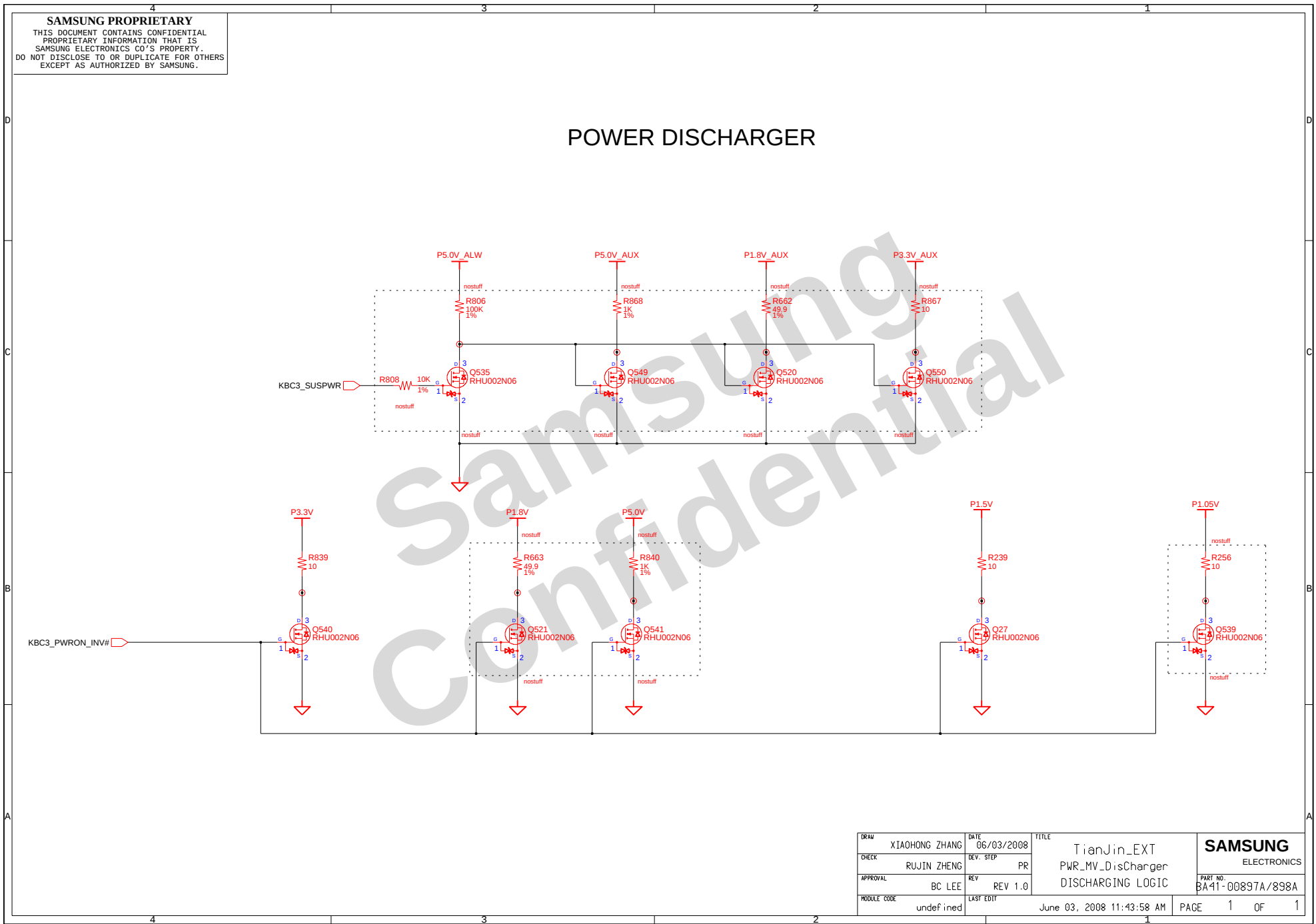


CHARGER & POWER MANAGEMENT



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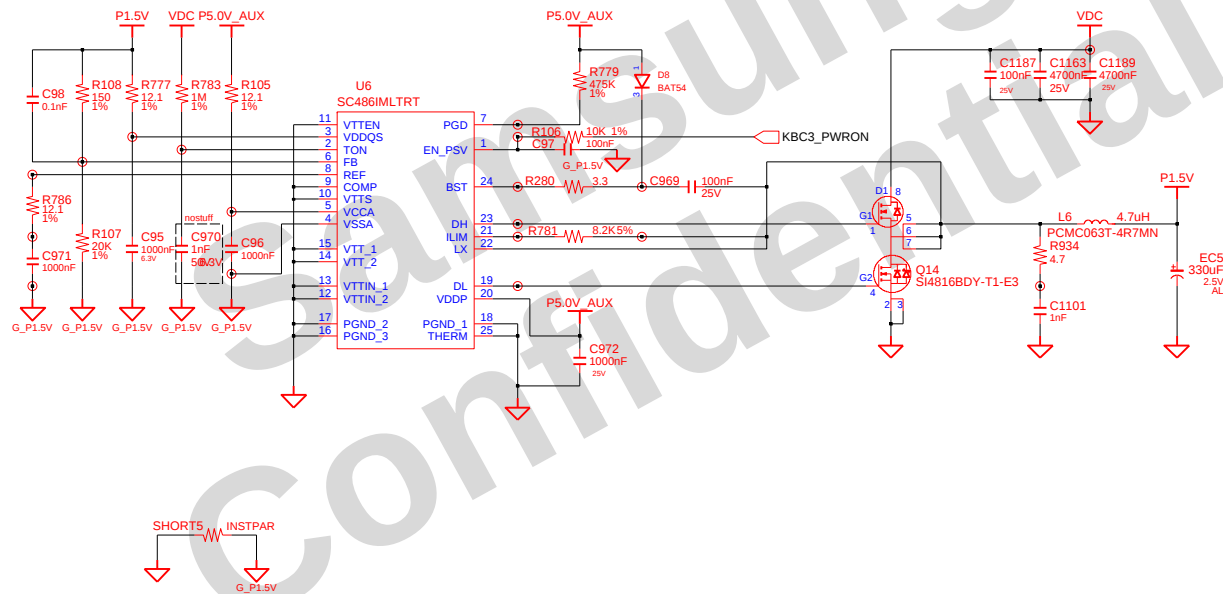
DRAM	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT		SAMSUNG	
CHECK	RUJIN ZHENG	REV. STEP	PR	PWR_MW_CPU.Is16266a		ELECTRONICS		
APPROVAL	BC LEE	REV	REV 1.0	CPU VRM (IMVP6+) Intersil		PART NO.	BA41-00897A/898A	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM			PAGE	1	OF 1



DRAW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR		PWR_MV_DisCharger	
APPROVAL	BC LEE	REV	REV 1.0		DISCHARGING LOGIC	
MODULE CODE	undefined	LAST EDIT	June 03, 2008 11:43:58 AM	PAGE	1 OF 1	

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P1.5V



DRW	XIAOHONG ZHANG	DATE	06/03/2008	TITLE	TianJin_EXT PWR_MV_Switched SWITCHED POWER	SAMSUNG ELECTRONICS PART NO. BA41-00897A/898A
CHECK	RUJIN ZHENG	DEV. STEP	PR			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT				
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The schematic diagram illustrates the power plane for the NVIDIA GTX 1080 Ti. It shows the connection of the KBC3_PWRON signal to the GPU's power management ICs (Q519-1, Q519-2, Q518) and the resulting power rails (P12.0V, P1.8V, P1.8V). The diagram includes the following components and connections:

- Power Rails:**
 - P12.0V ALW:** Connected to the VDD1 pin of Q519-1 and Q519-2.
 - P1.8V AUX:** Connected to the VDD2 pin of Q519-1 and Q519-2.
 - P1.8V:** Connected to the VDD3 pin of Q519-1 and Q519-2.
- Resistors:**
 - R643 (470K 1%):** Connected between P12.0V ALW and the VDD1 pin of Q519-1 and Q519-2.
 - R644 (200K 1%):** Connected between P1.8V AUX and the VDD2 pin of Q519-1 and Q519-2.
- Capacitors:**
 - C715 (10nF 2V):** Connected between P12.0V ALW and ground.
 - C713 (10nF):** Connected between P1.8V AUX and ground.
 - C712 (10nF):** Connected between P1.8V and ground.
 - C714 (4700nF 6.3V):** Connected between P1.8V and ground.
- ICs:**
 - Q519-1 (SM6K2):** A power management IC with pins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714,

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