

Table of Contents

GENEVA 2 EXT

CPU : Penryn
Chip Set : Cantiga + ICH9M
Remarks : Mobility Platform

Model Name :	GENEVA 2 EXT
PBA Name :	MAIN
PCB Code :	SGCE BA41-00930A NAYA BA41-00936A
Dev. Step :	PV1.0
Revision :	1.0
T.R. Date :	

DRAW	CHECK	APPROVAL
SUN XIAO	WUSHIJIANG	BC.LEE

DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG
CHECK	WU SHIJIANG,	DEV. STEP	PV			ELECTRONICS
APPROVAL	BYEONGCHANG LEE,	REV	1.0	COVER		PART NO.
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1	OF 23

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Mobile Processor
Penryn-6M
(1066MHz)
478pin
PG 26,27,28 L2 Cache : 4 MB

GMCH-M
Cantiga-GM/PM
(TBD)
1299 FCBGA
PG 29 - 33

ICH9-M
676 BGA
PG 36-40

ON BOARD

CPU DC/DC IMVP-6 PG 51
Charging Circuit PG 49
Smart Battery Module PG 49
DC/DC 46
IGFX / EGFX CORE PG 52

Termination PG 18,19
VCCP / DC-DC PG 74
DDR III SODIMM 0 PG 35
DDR III SODIMM 1 PG 36
DDR III Power PG 76

Channel A (Reverse) DDR III 1066
Dual channel
Channel B (Reverse) DDR III 1066

MINI CARD ROBSON
DVB-T OPTION
PG 78
52P
PCIE x1 Lane 0
USB 3
GLCI (Lane5) 82566Mx (Nineveh)
LCI 82562V
PCIE x1 Lane 1
USB 4
CLINK

Marvell 8E8055(GLAN) PG 57
OPTION
RJ45 PG 43
ANT

Mini Card Shiry Peak PG 37

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BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
Cardbus	AD25	3	B,C,D
DT PCI SLOT	AD22	1	B,C,D,C
MiniPCI SLOT	AD23	2	A,B
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
MCH_CORE	Core Voltage for CPU
ICH_CORE	Core Voltage for CPU
P1.05V (VCCP)	VTT for CPU, Crestline & ICH8-M
P1.05V_M	1.05V switched power rail for ME (on in M0/M1)
P1.25V_M	1.25V switched power rail for ME (on in M0/M1)
P3.3V_M	3.3V switched power rail for ME (on in M0/M1)
P3.3V_A	3.3V always power rail (by KBC3_ALWS_ON)
MICOM_P3V	3.3V always power rail (for Micom)
LAN_3.3V	3.3V always power rail (for LAN)
P1.5V	1.5V switched off power rail (off in S3-S5)
P1.5V_AUX	1.5V switched on power rail
P2.5V	2.5V switched off power rail (off in S3-S5)
P1.8V	1.8V switched off power rail (off in S3-S5)
P1.8V_AUX	1.8V power rail for DDR
P0.9V	0.9V power rail for DDR
P3.3V	3.3V switched off power rail (off in S3-S5)
P3.3V_AUX	3.3V switched on power rail
P5V	5.0V switched off power rail (off in S3-S5)
P5V_AUX	5.0V switched on power rail

USB PORT Assign

PORT #	ASSIGNED TO
0	SYSTEM PORT 0
1	SYSTEM PORT 1
2	DMB
3	Expresas Card
4	DOCKING PORT 0
5	Bluetooth
6	Mini PCI Express
7	Aux Display
8	Test Port (RSVD)
9	WWAN/WIBRO (TBD)

PCI Express Assign

PORT #	ASSIGNED TO
0	PCIE x1 Slot
1	Mini Card (Golan)
2	Mini Card (WIBRO : RSVD)
3	Expresas Card
4	DOCKING PORT 0
5	GLAN

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	24.576MHz	Cardbus Controller	1394
Crystal	25MHz	LAN	Intel LAN
Crystal	27MHz (TBD)	VIDEO	PEG
Crystal	24.576MHz (TBD)	HD Audio	Audio

LCD Pannel Detect

(TBD)

Devices	Resolution	PANNEL_DETECT_0

I²C / SMB Address

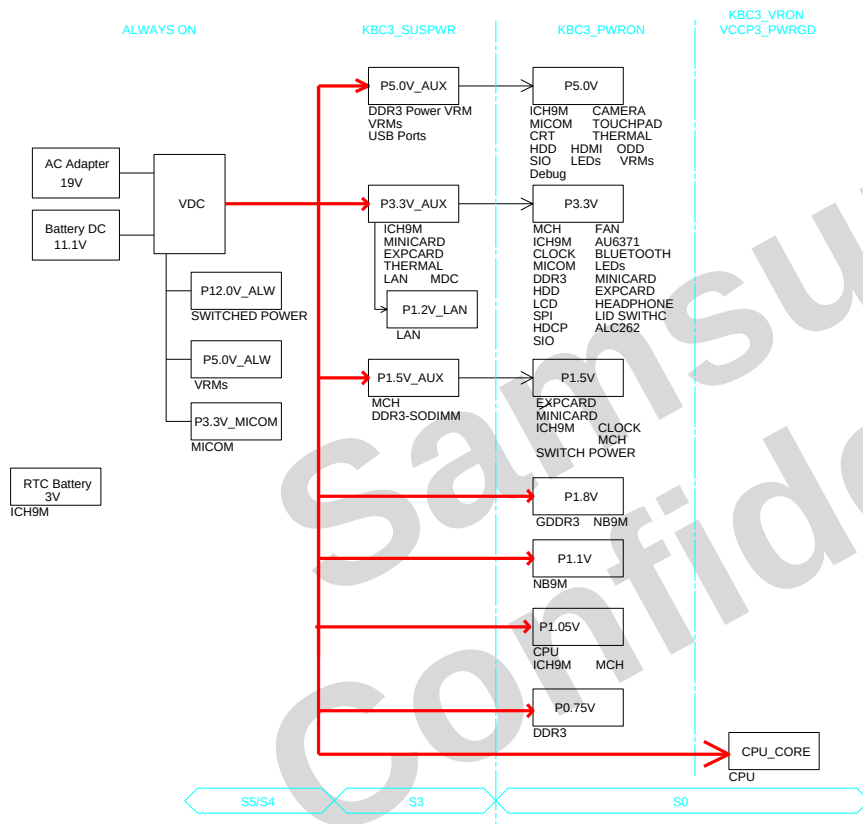
Devices	Address	Hex	Bus
ICH8-m	Master	-	SMBUS Master
CPU Thermal Sensor	1001 110x	9Ch	Thermal Sensor
SODIMM0	1010 000x	A0h	-
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
CK-505M (Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
DB400 (PCI Express Clocks)	1101 110x	DCh	Clock Buffer for PCI Express
TBD	0100 1100	4Ch	Thermal Sensor
TBD : (LVDS BackLight Inverter)	0101 1000	58h	-
TBD : (ALS)	0111 0010	72h	Ambient Light Sensor
TBD : (AUX DISPLAY)	0011 110x	3Ch	EMA
LAN	1100 1000	C8h	82566
PCI Express Docking	TBD	TBD	TBD
TPM	TBD	TBD	TBD

REVISION HISTORY

See rev notes for more information.

DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext	SAMSUNG ELECTRONICS
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0	BOARD INFO		PART NO. BA41-####A
MODULE CODE		LAST EDIT			May 08, 2008 19:01:59 PM	PAGE 3 OF 23

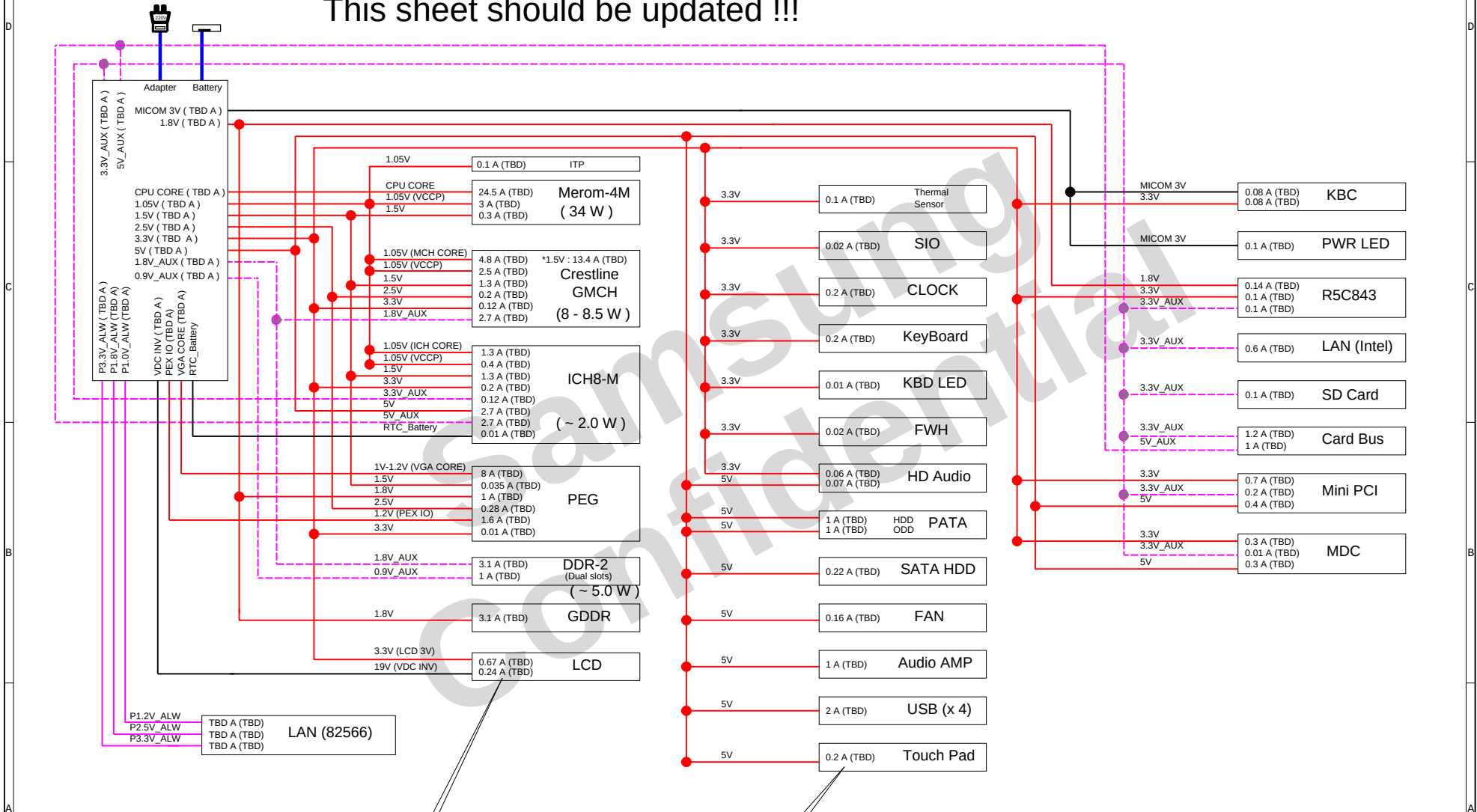
POWER DIAGRAM



State	Rail	+V*Always	+V*AUX	+V	SUSPWR	PWRON	VRON
Full On		ON	ON	ON	H	H	H
S3		ON	ON	OFF	H	L	L
S4		ON	OFF	OFF	H	L	L
S5		ON	OFF	OFF	L	L	L

DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0	POWER DIAGRAM		
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	4 OF 23	

This sheet should be updated !!!

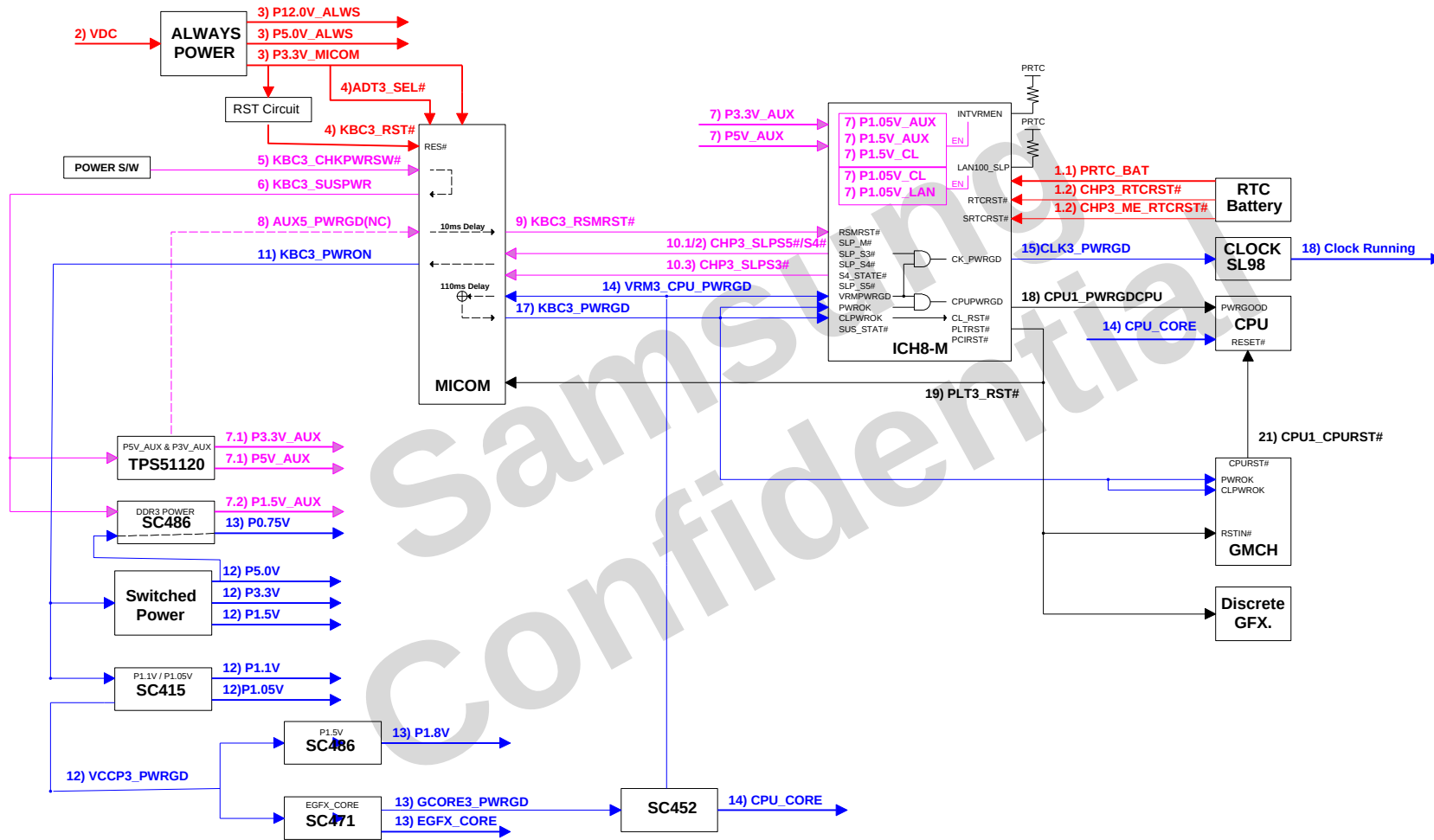


Value by Datasheet/Application notes (Value by measurement)

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CHECK	WU SHIJIANG,	DEV. STEP	PV			ELECTRONICS
APPROVAL	BYEONGCHANG LEE,	REV	1.0	POWER RAILS	PART NO.	BA41-####A
MODULE CODE		LAST EDIT				
				May 08, 2008 19:01:59 PM	PAGE	5 OF 23

POWER SEQUENCE

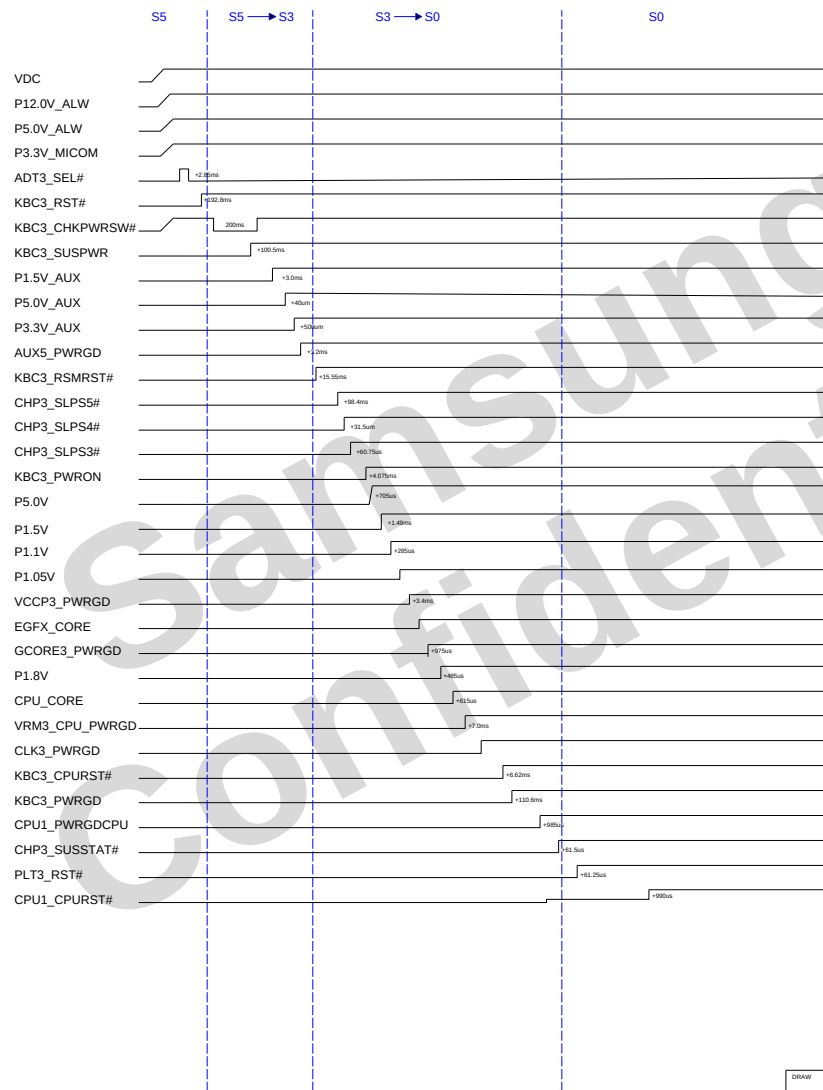
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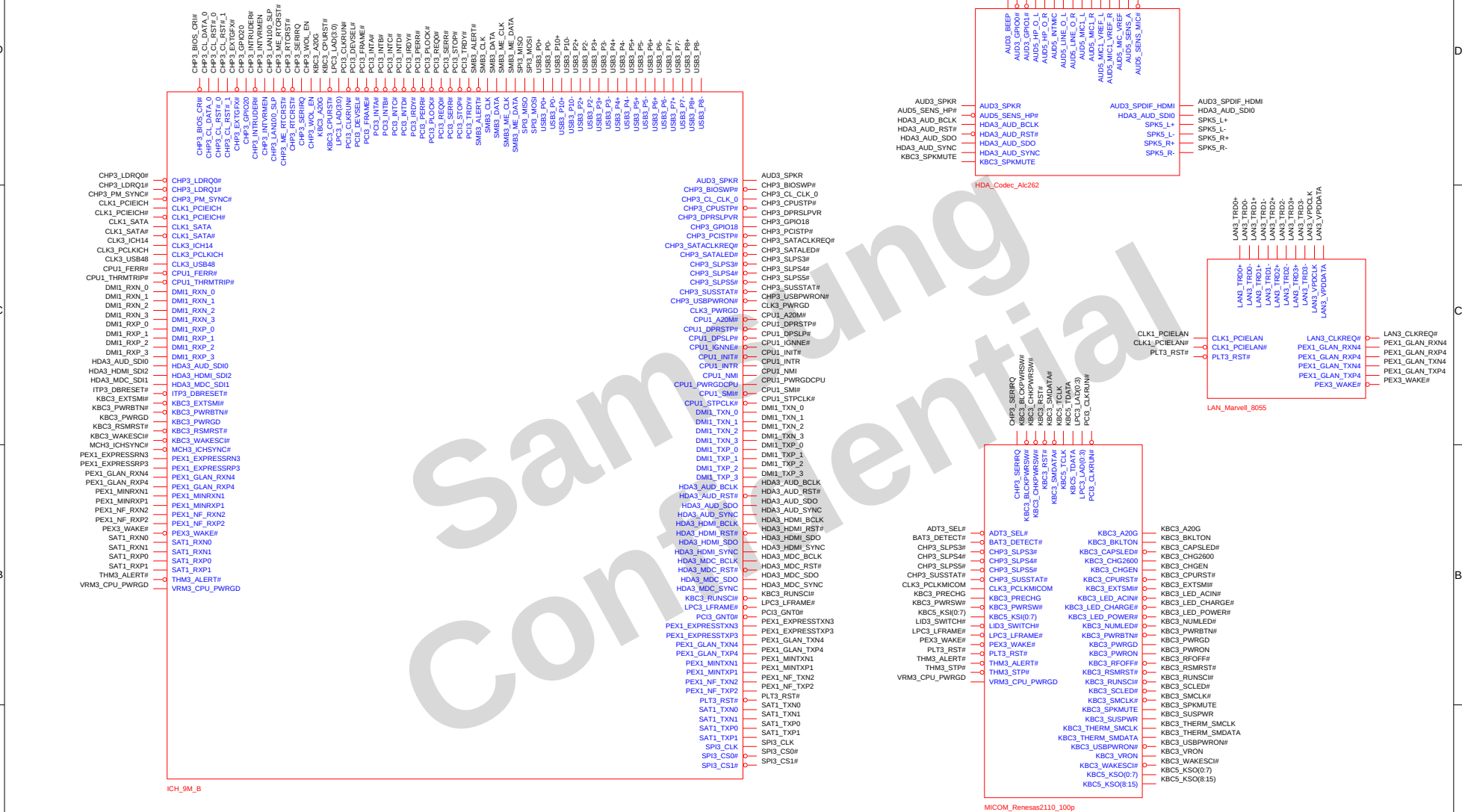
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Timing Diagram, Power ON Rev. 1.0 2008-05--5

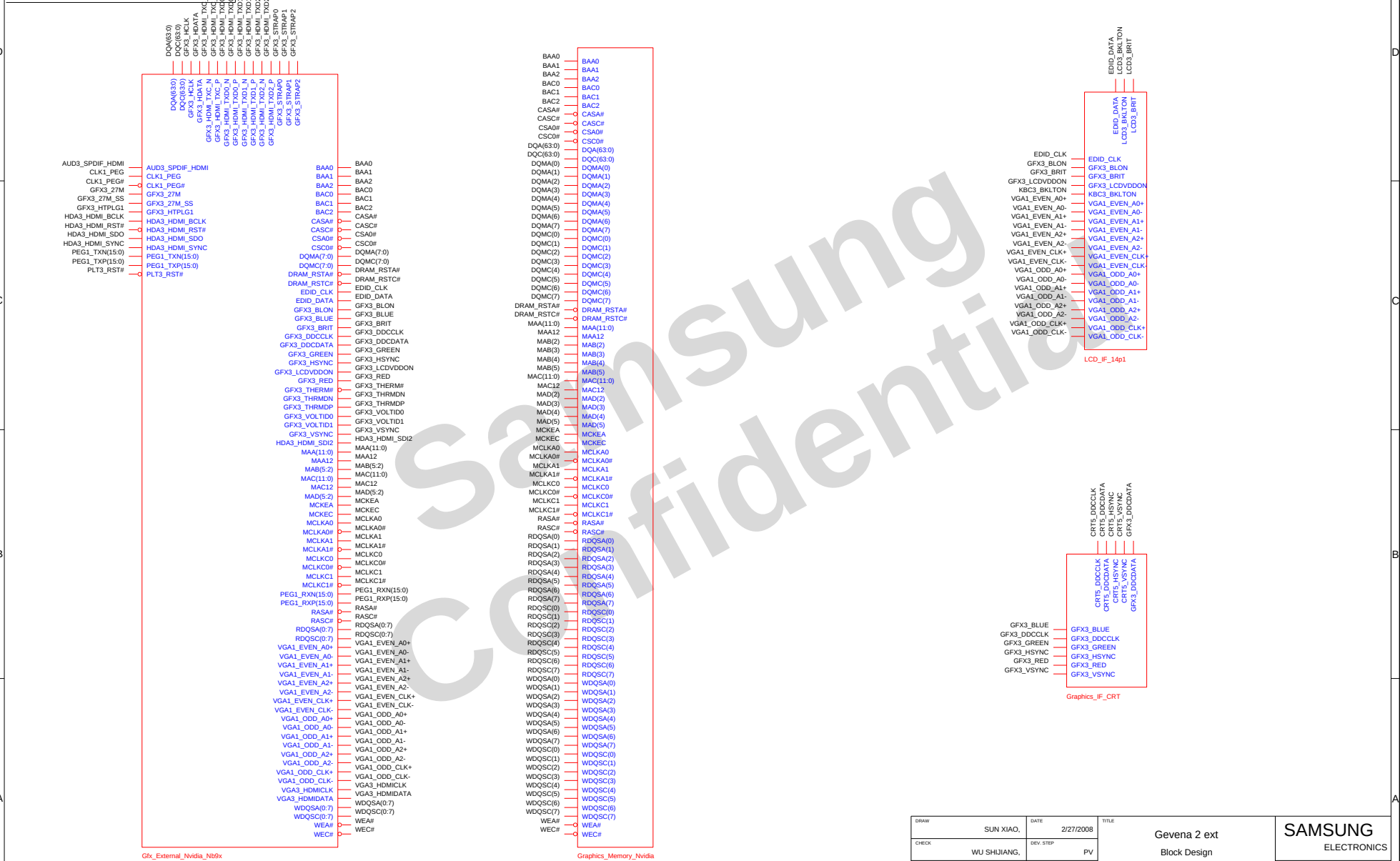


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APPROVAL	BYEONGCHANG LEE,	REV	1.0	CLOCK DIAGRAM		PART NO. BA41-####A
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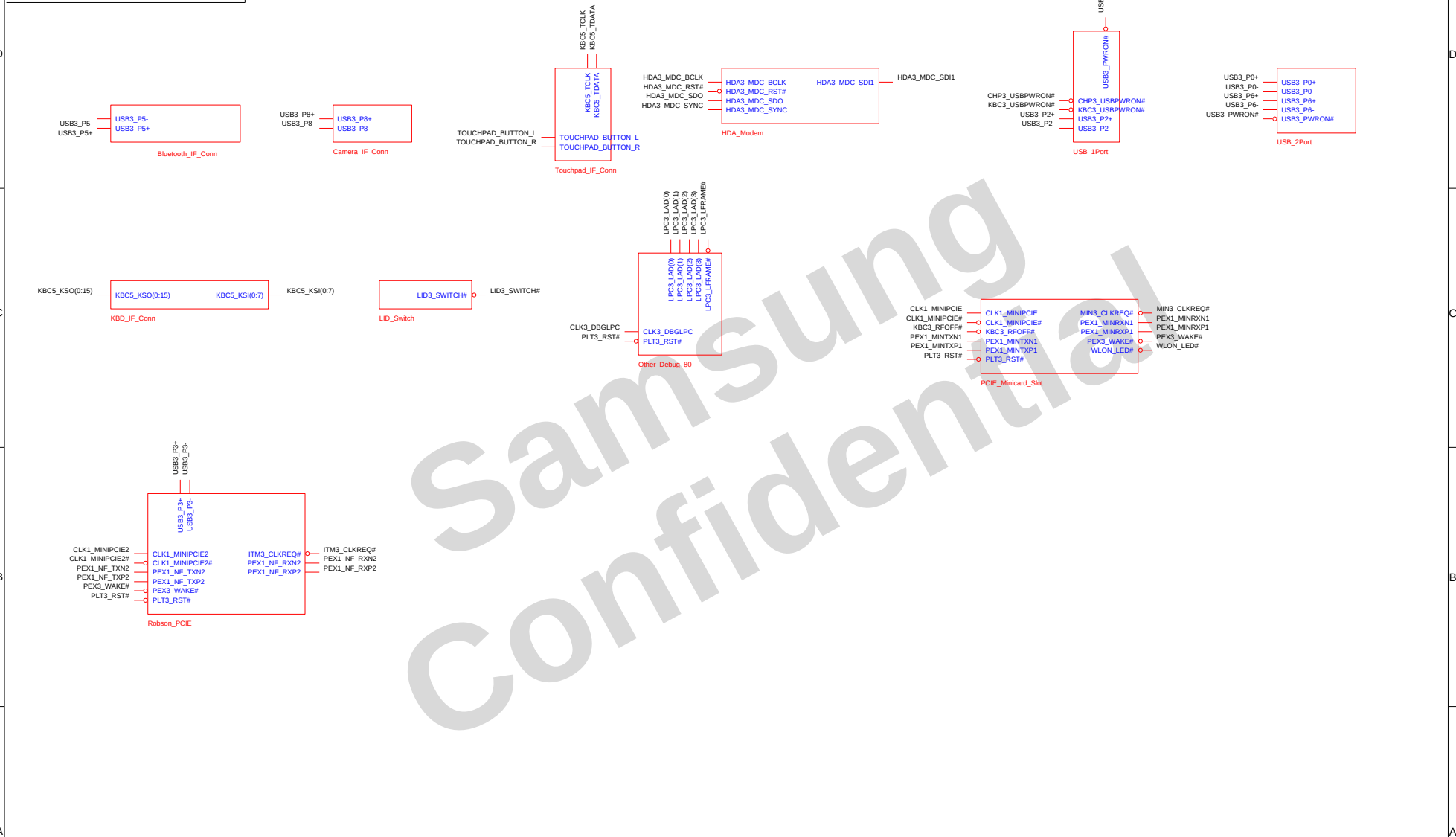
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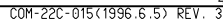


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APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	11	OF 23

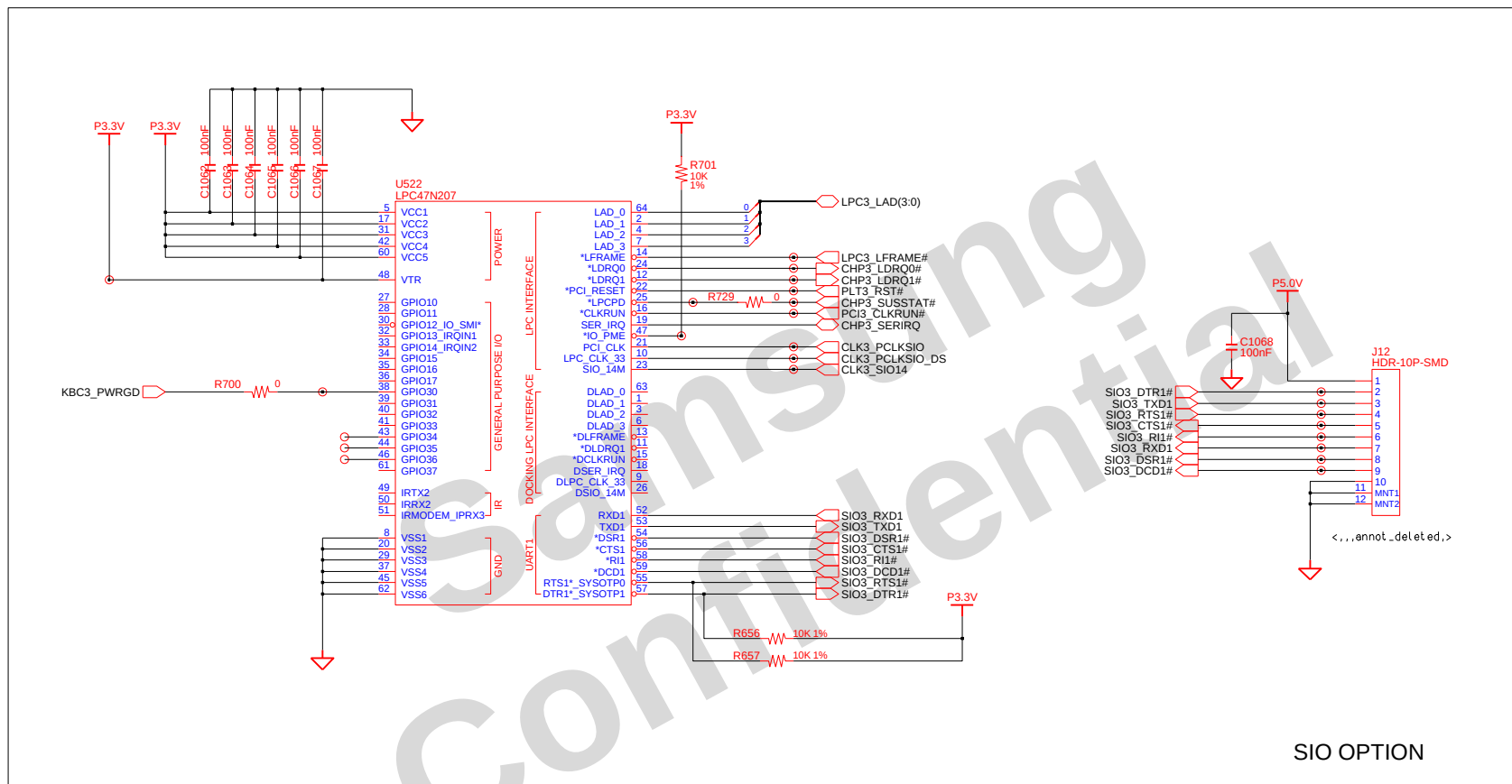
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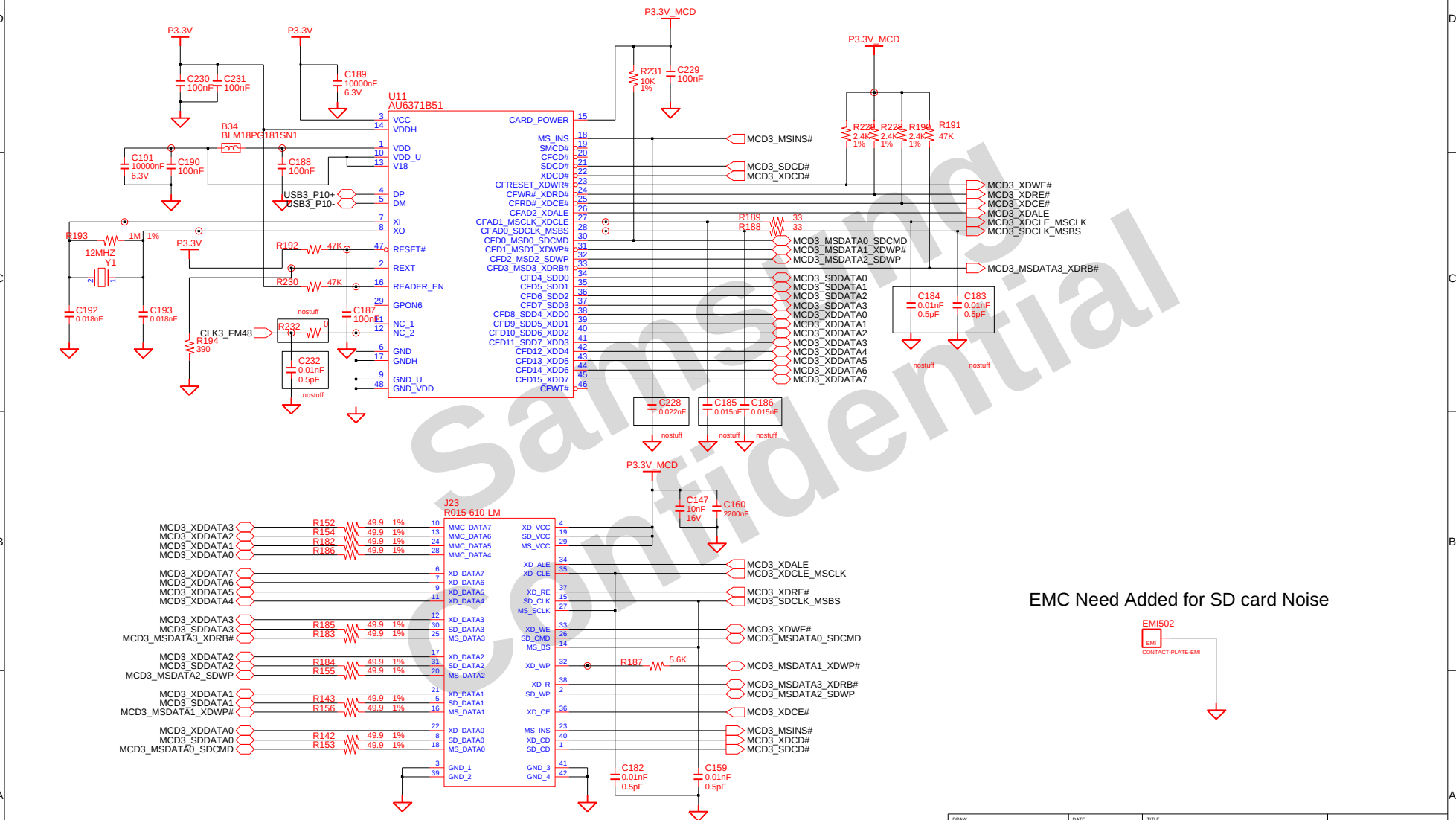


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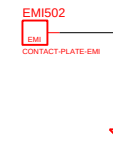


DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext SIO CHIPSET	SAMSUNG ELECTRONICS
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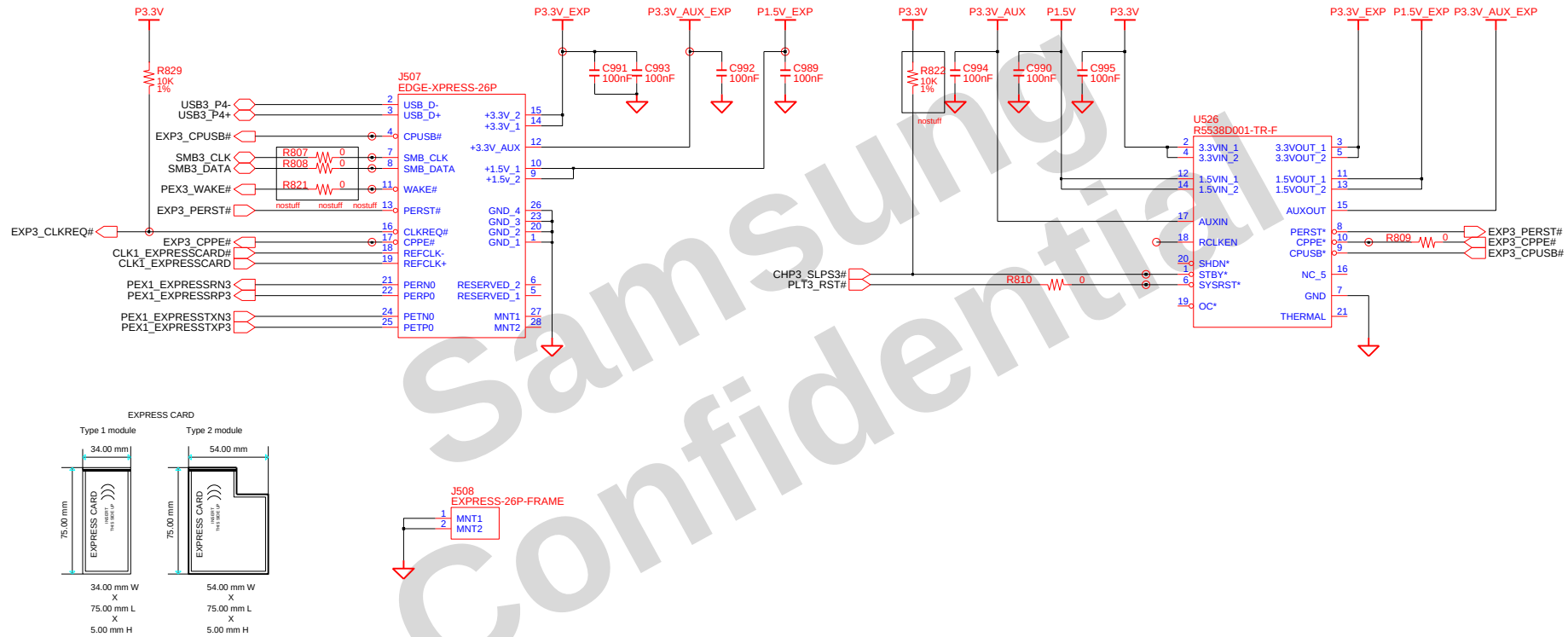


EMC Need Added for SD card Noise



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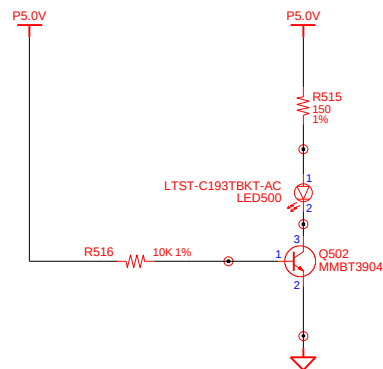
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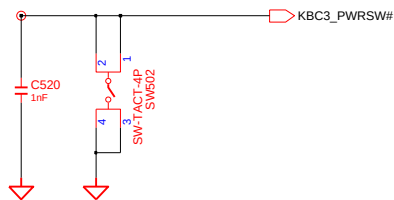
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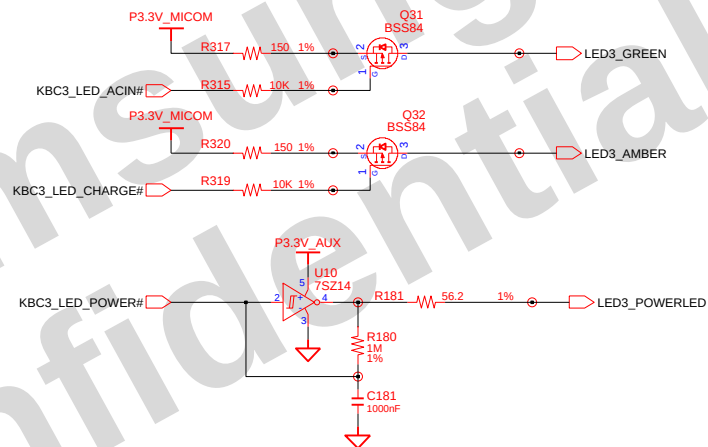
POWER ON LED



POWER ON SW BUTTON



ADAPTERIN/CHARGING LED

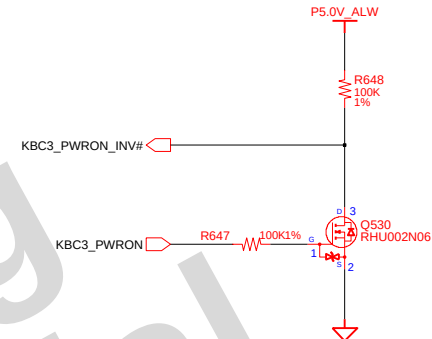
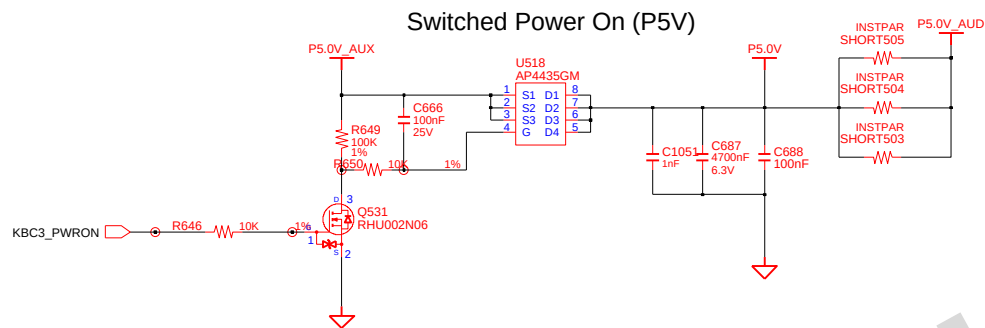


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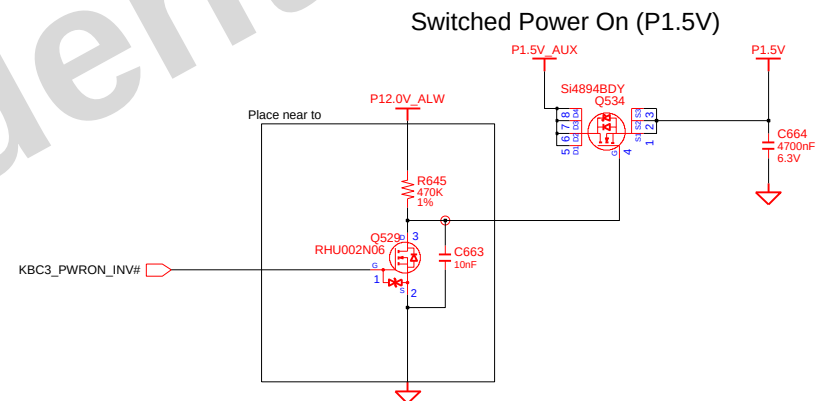
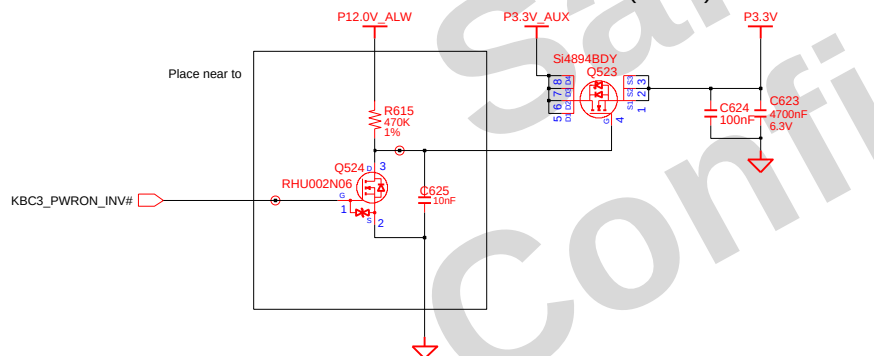
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SIGNAL SWITCH

Switched Power On (P5V)



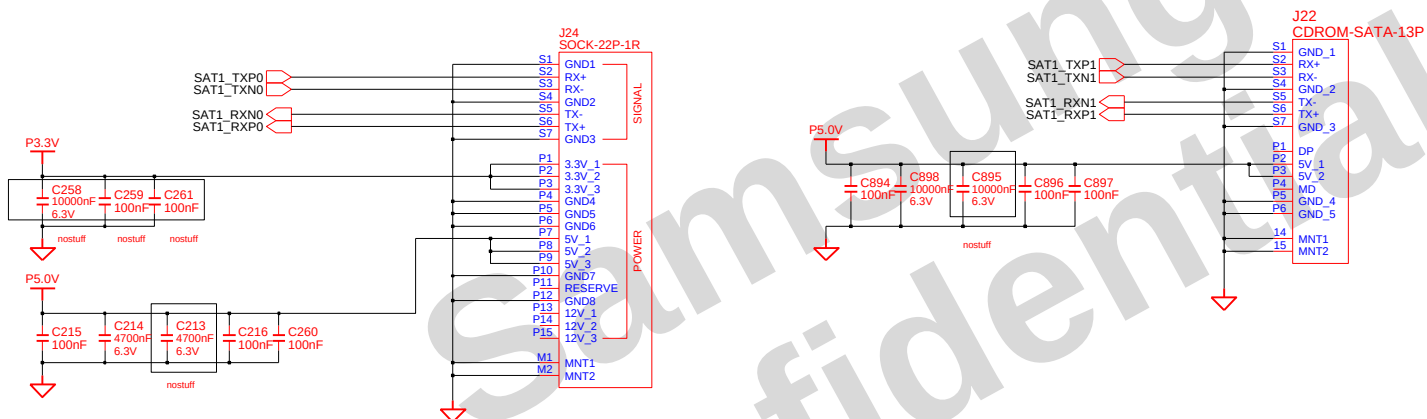
Switched Power On (P3.3V)



DRAW	SUN XIAO,	DATE	2/27/2008	Gevena 2 ext MAIN SWITCH POWER P1.5V		SAMSUNG	
CHECK	WU SHIJIAN,	DEV. STEP	PV			ELECTRONICS	
APPROVAL	BYEONGCHANG LEE,	REV	1.0			PART NO.	BA41-####A
MODULE CODE	LAST EDIT			May 08, 2008 19:01:59 PM	PAGE	18	OF 23

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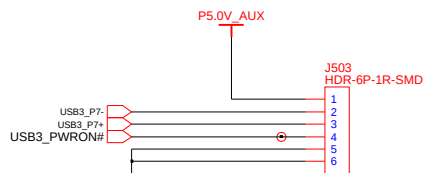
Main to HDD



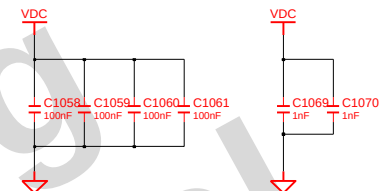
DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext CONNECTOR	SAMSUNG ELECTRONICS
CHECK	WU SHIJIANG,	DEV. STEP	PV			PART NO. BA41-####A
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDD & ODD CONNECTOR	
MODULE CODE		LAST EDIT		May 08, 2008 19:01:59 PM	PAGE 19 OF 23	

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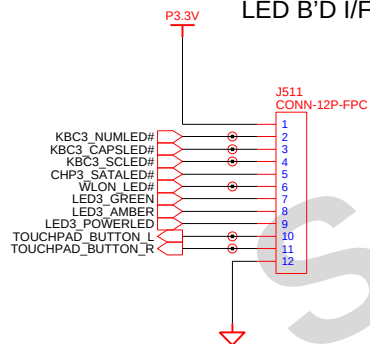
USB I/F B'D



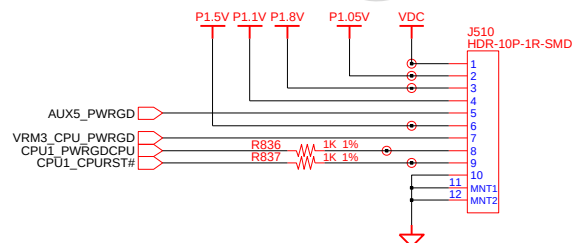
EMC ADD decap CAP



LED B'D I/F



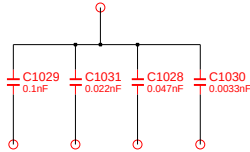
ICT PORT



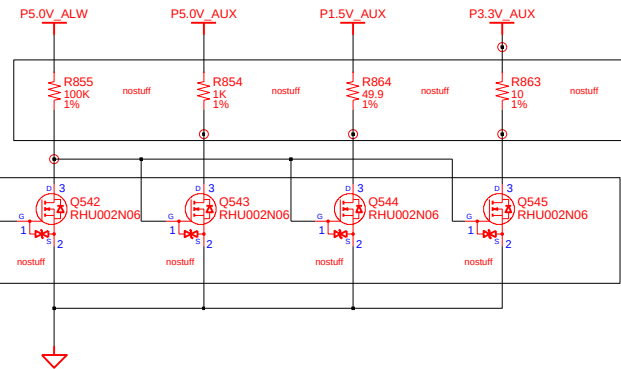
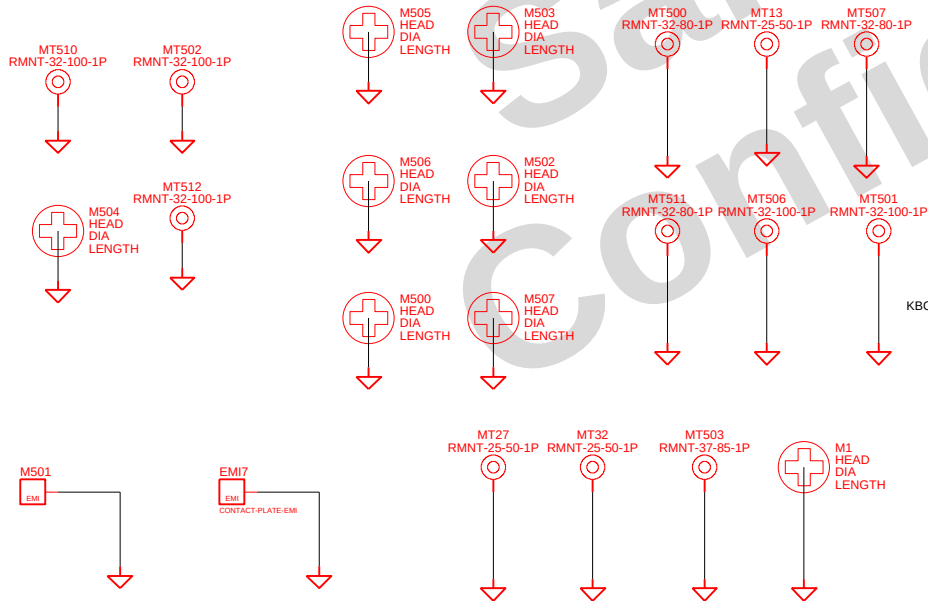
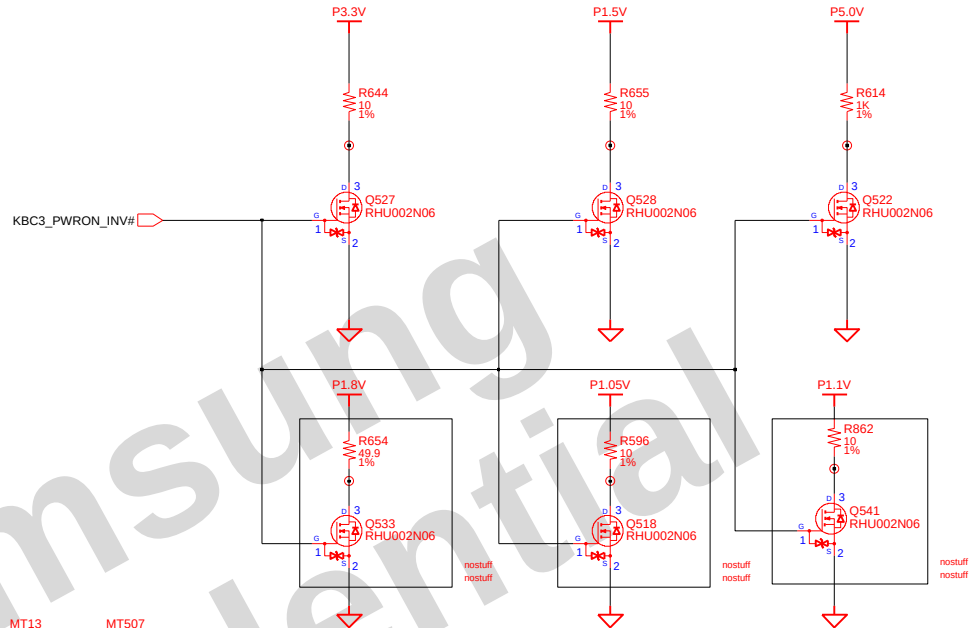
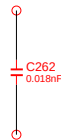
DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG
CHECK	WU SHIJIAN,	DEV. STEP	PV	KEYBOARD 80PORT ICT PORT		ELECTRONICS
APPROVAL	BYEONGCHANG LEE,	REV	1.0	LID SWITCH LED B'D USB I/O B'D	PART NO.	BA41-####A
MODULE CODE		LAST EDIT		May 08, 2008 19:01:59 PM	PAGE	20 OF 23

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TOP SIDE



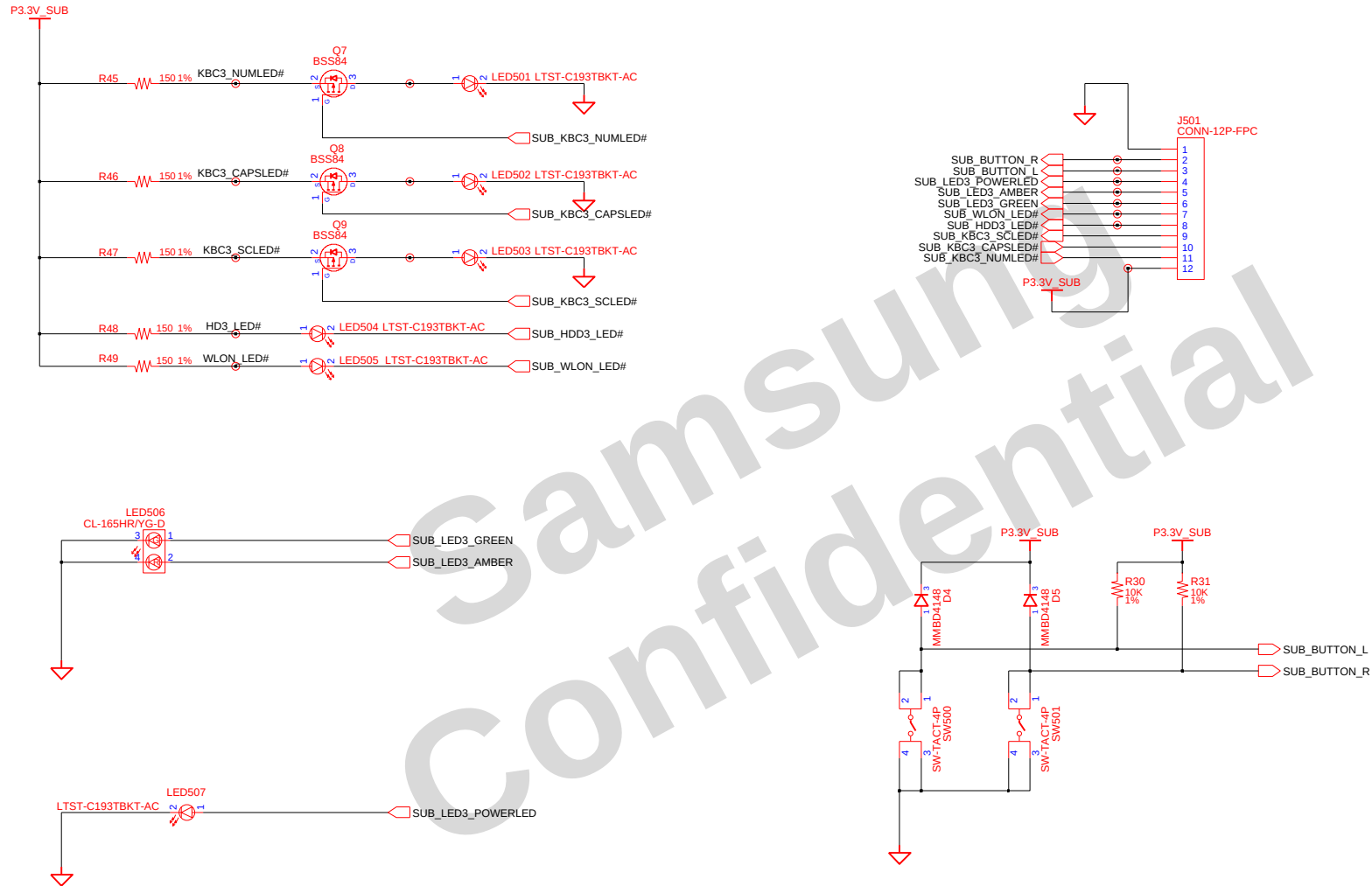
BOTTOM SIDE



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext OTHERS	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 21 OF 23

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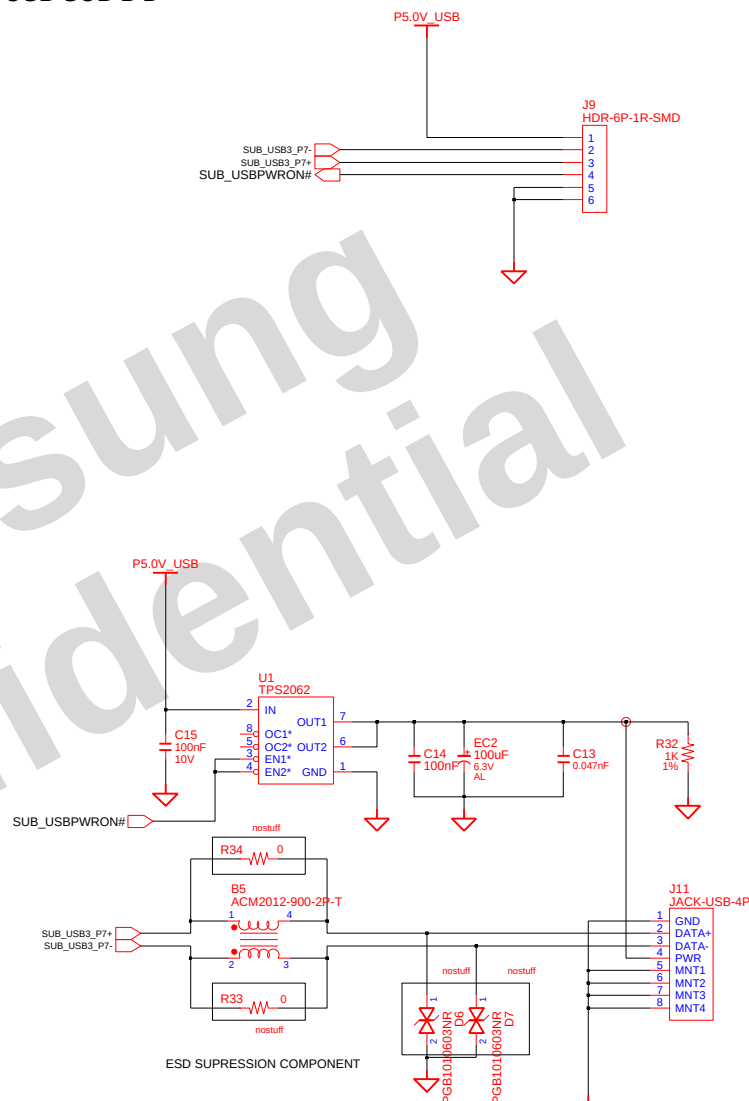
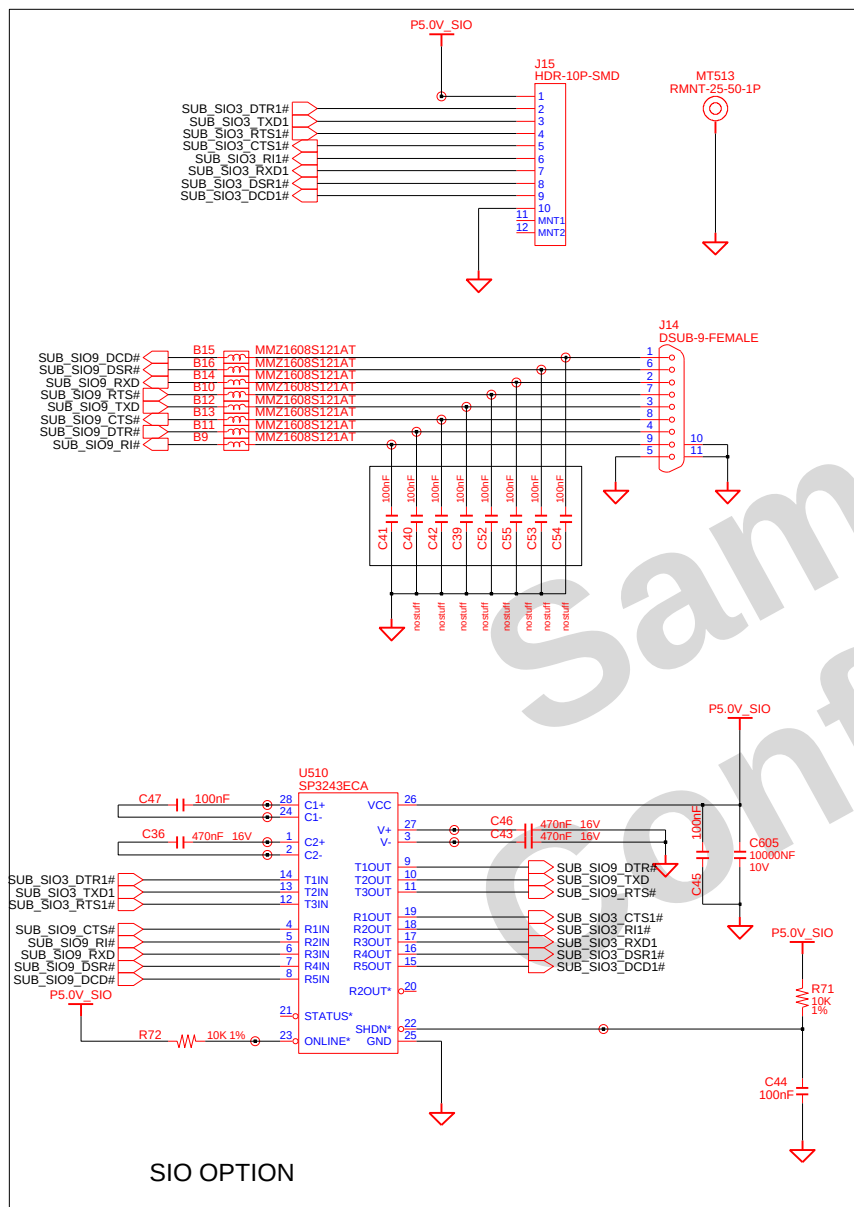
TOUCHPAD AND LED B'D



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext TOUCHPAD AND LED B'D	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 22 OF 60

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SIO AND USB SUB B'D



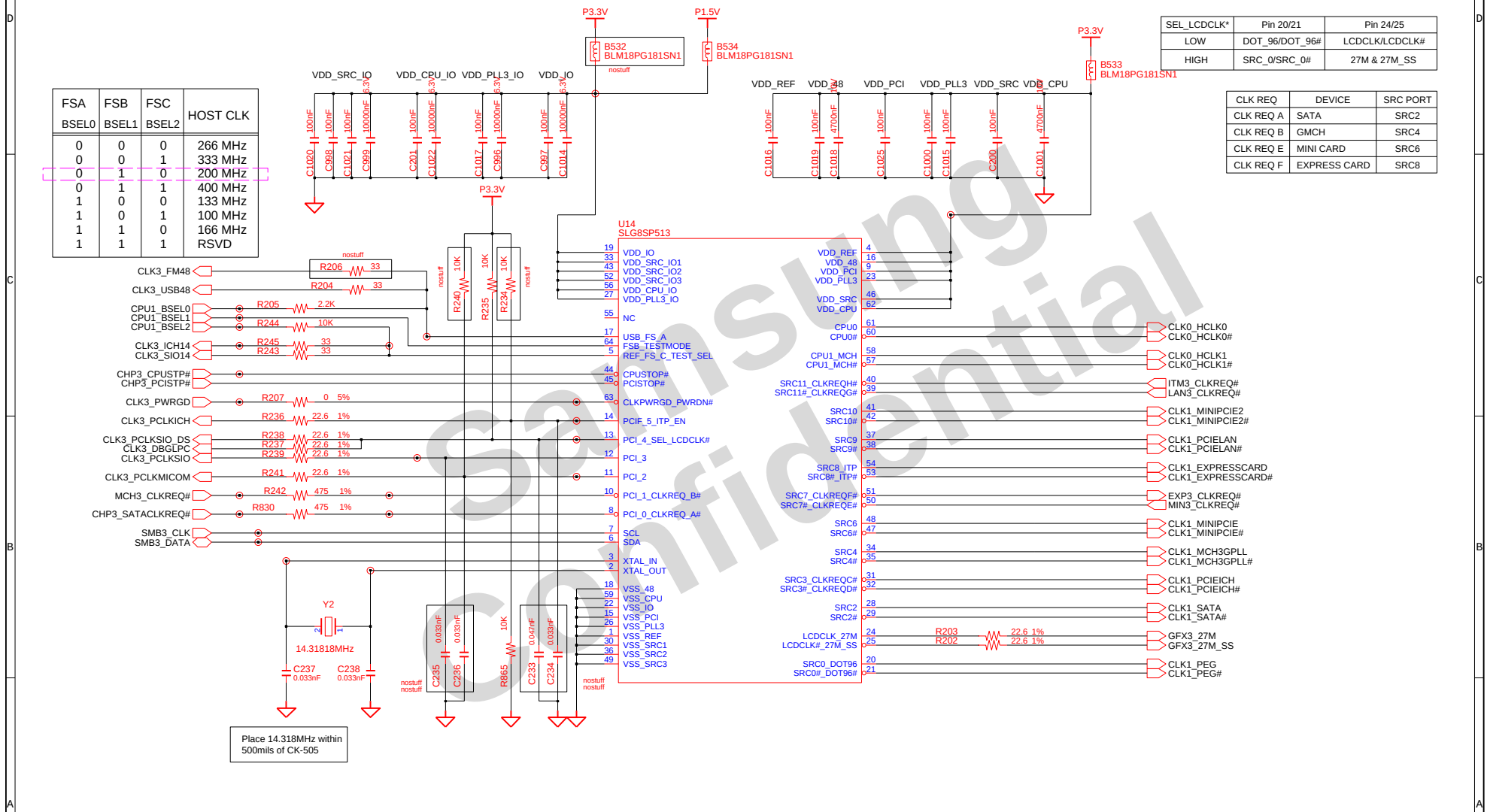
DRAW		DATE		TITLE		SAMSUNG	
SUN XIAO,		2/27/2008		Gevena 2 ext		ELECTRONICS	
CHECK		DEV. STEP		MIO BOARD		PART NO.	
WU SHIJIANG,		PV		USB AND SIO SUB B'D		BA141-####A	
APPROVAL		REV					
BYEONGCHANG LEE,		1.0					
MODULE CODE		LAST EDIT		May 08, 2008 19:01:59 PM		PAGE 23 OF 60	

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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

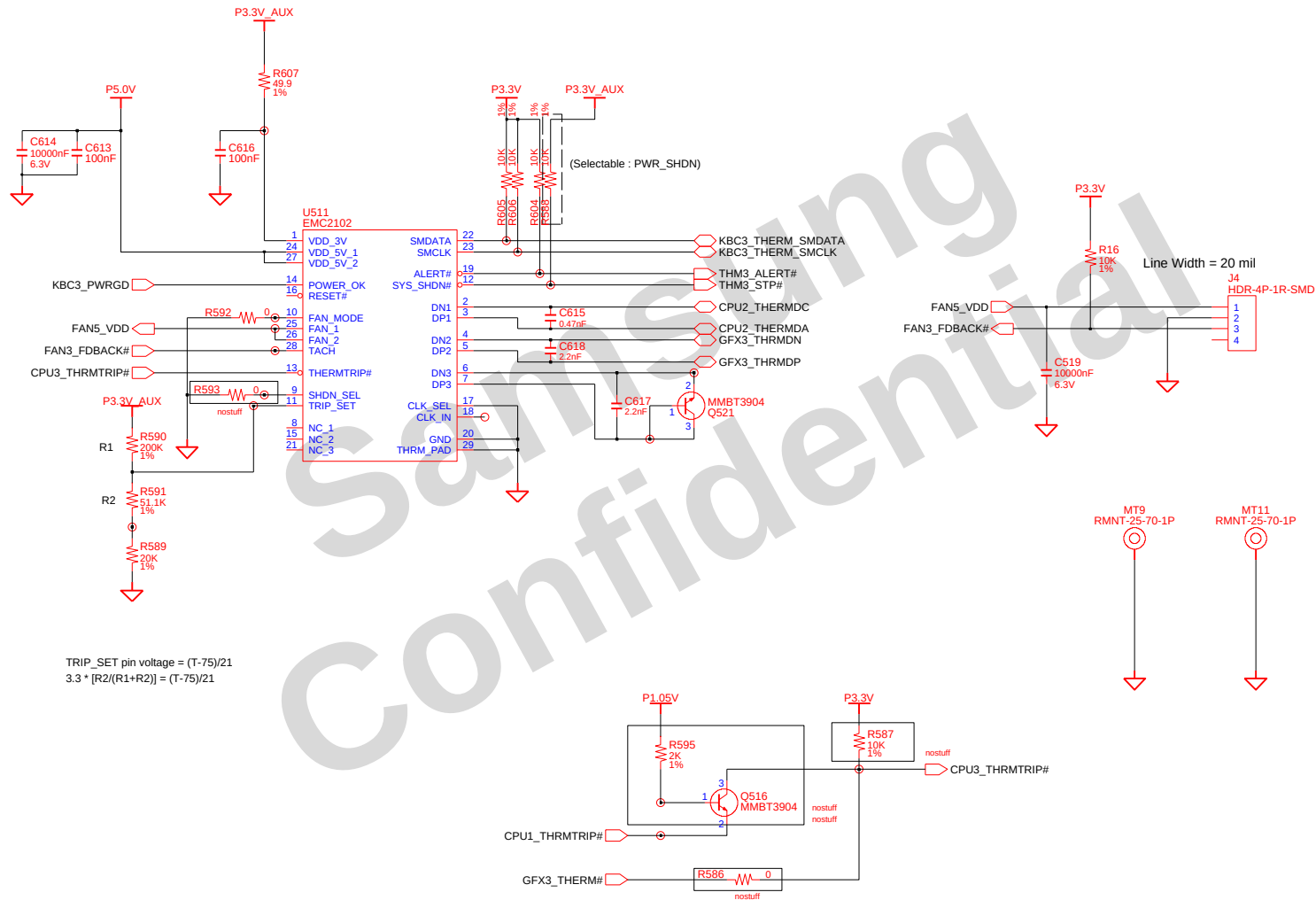
SEL_LCDCCLK*	Pin 20/21	Pin 24/25
LOW	DOT_96/DOT_96#	LCDCCLK/LCDCCLK#
HIGH	SRC_0/SRC_0#	27M & 27M_SS

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



DRAW	SUN XIAO,	DATE	2/27/2007	TITLE	Gevena 2 ext Main_Clock_Circuit CK-Clock_505M	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

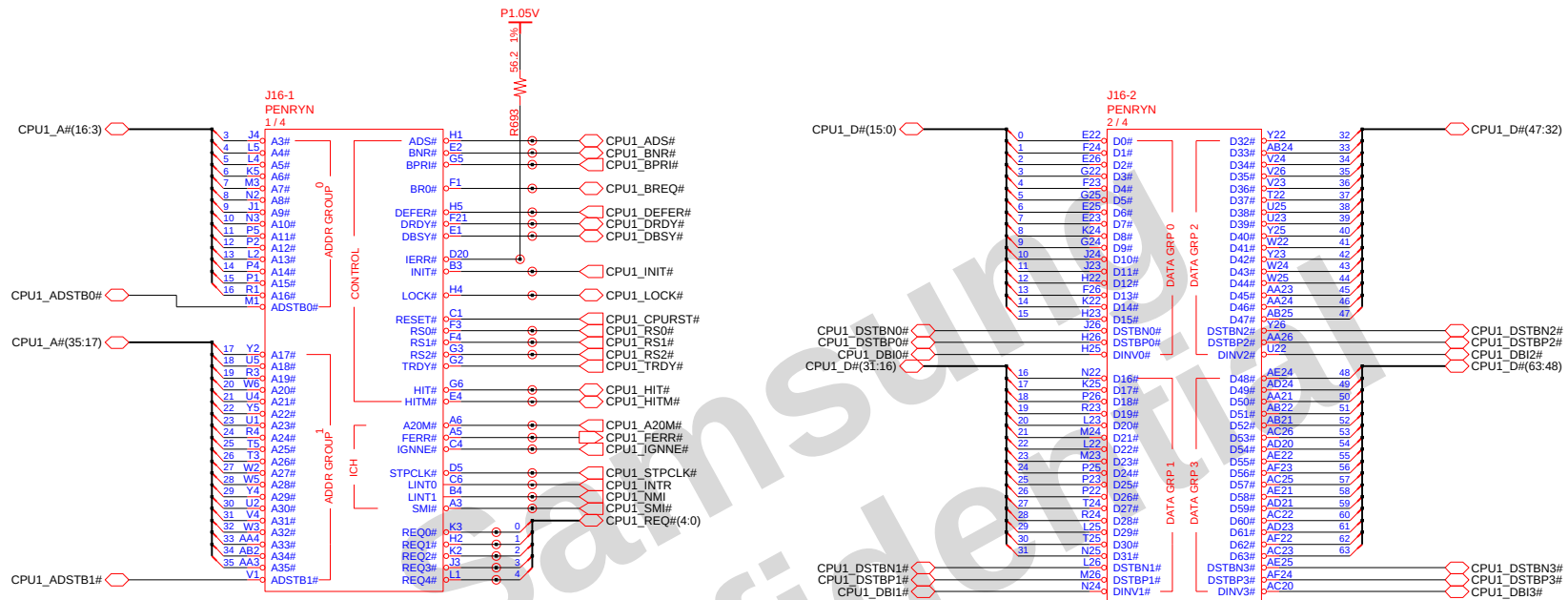
THERMAL SENSOR & FAN CONTROL



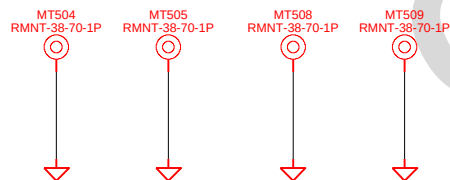
TRIP_SET pin voltage = (T-75)/21
3.3 * [R2/(R1+R2)] = (T-75)/21

DESIGN	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV	THERMAL_SENSOR_SMSC-EMC2102		
APPROVAL	BYEONGCHANG LEE,	REV	1.0	THERMAL_SENSOR_SMSC-EMC2102		
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

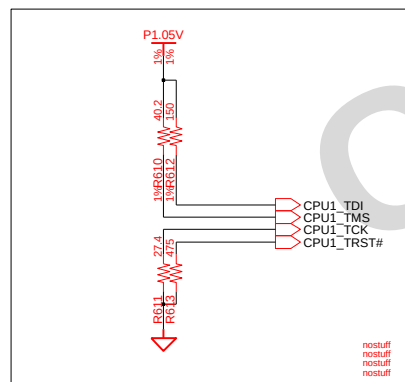
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CPU CONNECTOR P/N 3704-001153



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext CPU PENRYN (1/3)	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 3	



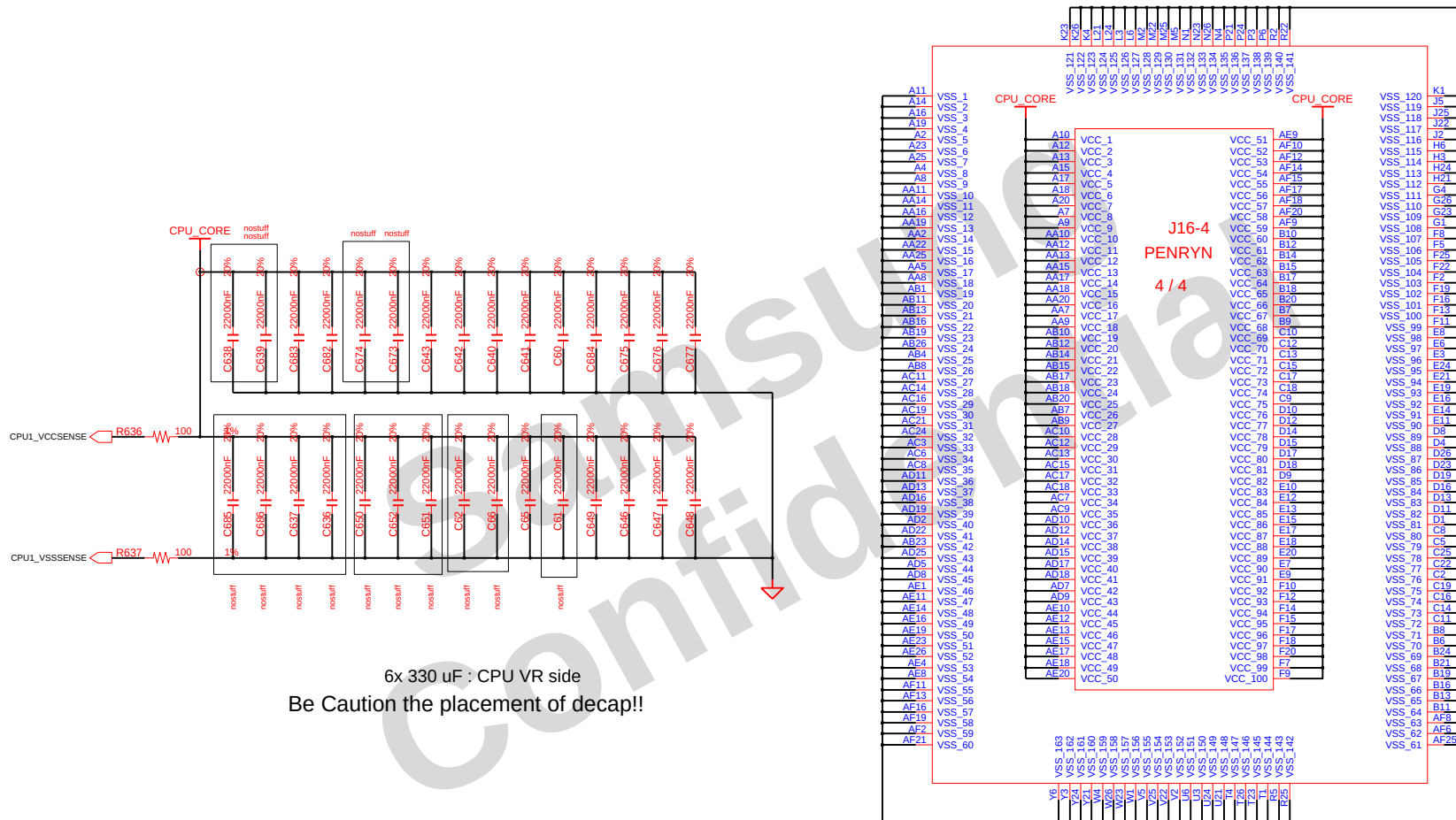
Active Mode		Active/Deeper Sleep Dual Mode Region		Deeper Sleep/Extended Deeper Sleep Dual Mode Region	
VID(6:0)	Voltage	VID(6:0)	Voltage	VID(6:0)	Voltage
0 0 0 0 0 0 0	1.5000 V	0 1 0 1 0 0 0	1.0000 V	1 0 1 0 0 0 1	0.4875 V
0 0 0 0 0 0 1	1.4875 V	0 1 0 1 0 0 1	0.9875 V	1 0 1 0 0 1 0	0.4825 V
0 0 0 0 0 1 0	1.4750 V	0 1 0 1 0 1 0	0.9750 V	1 0 1 0 0 1 1	0.4625 V
0 0 0 0 0 1 1	1.4625 V	0 1 0 1 0 1 1	0.9625 V	1 0 1 0 1 0 0	0.4500 V
0 0 0 0 1 0 0	1.4500 V	0 1 0 1 0 1 0	0.9500 V	1 0 1 0 1 0 1	0.4450 V
0 0 0 0 1 0 1	1.4375 V	0 1 0 1 1 0 0	0.9375 V	1 0 1 1 0 0 1	0.4250 V
0 0 0 0 1 1 0	1.4250 V	0 1 0 1 1 0 1	0.9250 V	1 0 1 1 0 1 0	0.4125 V
0 0 0 0 1 1 1	1.4125 V	0 1 0 1 1 1 0	0.9125 V	1 0 1 1 1 0 0	0.4000 V
0 0 0 1 0 0 0	1.4000 V	0 1 1 0 0 0 0	0.9000 V	1 0 1 1 1 0 1	0.3875 V
0 0 0 1 0 0 1	1.3875 V	0 1 1 0 0 0 1	0.8875 V	1 0 1 1 1 0 1	0.3750 V
0 0 0 1 0 1 0	1.3750 V	0 1 1 0 0 1 0	0.8750 V	1 0 1 1 1 1 0	0.3550 V
0 0 0 1 0 1 1	1.3625 V	0 1 1 0 0 1 1	0.8625 V	1 0 1 1 1 1 0	0.3500 V
0 0 0 1 1 0 0	1.3500 V	0 1 1 0 1 0 0	0.8500 V	1 0 1 1 1 1 0	0.3375 V
0 0 0 1 1 0 1	1.3375 V	0 1 1 0 1 0 1	0.8375 V	1 0 1 1 1 1 0	0.3250 V
0 0 0 1 1 1 0	1.3250 V	0 1 1 0 1 1 0	0.8250 V	1 0 1 1 1 1 1	0.3125 V
0 0 0 1 1 1 1	1.3125 V	0 1 1 1 0 0 0	0.8125 V	1 1 1 0 0 0 0	0.3000 V
0 0 1 0 0 0 0	1.3000 V	0 1 1 1 0 0 0	0.8000 V	1 1 0 0 0 0 1	0.2875 V
0 0 1 0 0 0 1	1.2875 V	0 1 1 1 0 0 1	0.7875 V	1 1 0 0 0 0 1	0.2750 V
0 0 1 0 0 1 0	1.2750 V	0 1 1 1 0 1 0	0.7750 V	1 1 0 0 0 1 1	0.2625 V
0 0 1 0 0 1 1	1.2625 V	0 1 1 1 0 1 1	0.7625 V	1 1 0 0 1 0 0	0.2500 V
0 0 1 0 1 0 0	1.2500 V	0 1 1 1 1 0 0	0.7500 V	1 1 0 0 1 0 1	0.2375 V
0 0 1 0 1 0 1	1.2375 V	0 1 1 1 1 0 1	0.7375 V	1 1 0 0 1 1 0	0.2250 V
0 0 1 0 1 1 0	1.2250 V	0 1 1 1 1 1 0	0.7250 V	1 1 0 0 1 1 1	0.2125 V
0 0 1 0 1 1 1	1.2125 V	0 1 1 1 1 1 1	0.7125 V	1 1 0 1 0 0 0	0.2000 V
0 0 1 1 0 0 0	1.2000 V	1 0 0 0 0 0 0	0.7000 V	1 1 0 1 0 0 1	0.1875 V
0 0 1 1 0 0 1	1.1875 V	1 0 0 0 0 0 0	0.6875 V	1 1 0 1 0 1 0	0.1750 V
0 0 1 1 0 1 0	1.1750 V	1 0 0 0 0 0 1	0.6750 V	1 1 0 1 0 1 0	0.1625 V
0 0 1 1 0 1 1	1.1625 V	1 0 0 0 0 0 1	0.6625 V	1 1 0 1 1 0 0	0.1500 V
0 0 1 1 1 0 0	1.1500 V	1 0 0 0 0 1 0	0.6500 V	1 1 0 1 1 0 1	0.1375 V
0 0 1 1 1 0 1	1.1375 V	1 0 0 0 0 1 0	0.6375 V	1 1 0 1 1 1 0	0.1250 V
0 0 1 1 1 1 0	1.1250 V	1 0 0 0 0 1 1	0.6250 V	1 1 0 1 1 1 1	0.1125 V
0 0 1 1 1 1 1	1.1125 V	1 0 0 0 1 0 0	0.6125 V	1 1 1 0 0 0 0	0.1000 V
0 0 1 0 0 0 0	1.1000 V	1 0 0 0 1 0 0	0.6000 V	1 1 1 0 0 0 1	0.0875 V
0 0 1 0 0 0 1	1.0875 V	1 0 0 0 1 0 1	0.5875 V	1 1 1 0 0 1 0	0.0750 V
0 0 1 0 0 1 0	1.0750 V	1 0 0 0 1 0 1	0.5750 V	1 1 1 0 0 1 1	0.0625 V
0 0 1 0 0 1 1	1.0625 V	1 0 0 0 1 0 1	0.5625 V	1 1 1 0 1 0 0	0.0500 V
0 0 1 0 0 1 0	1.0500 V	1 0 0 0 1 1 0	0.5500 V	1 1 1 0 1 0 1	0.0375 V
0 0 1 0 0 1 1	1.0375 V	1 0 0 0 1 1 0	0.5375 V	1 1 1 0 1 1 0	0.0250 V
0 0 1 0 0 1 1	1.0250 V	1 0 0 0 1 1 1	0.5250 V	1 1 1 0 1 1 1	0.0125 V
0 1 0 0 0 1 1	1.0125 V	1 0 0 0 1 1 1	0.5125 V	1 1 1 1 0 0 0	0.0000 V
		1 0 1 0 0 0 0	0.5000 V	1 1 1 1 0 0 0	0.0000 V
				1 1 1 1 0 0 1	0.0000 V
				1 1 1 1 0 1 0	0.0000 V

GTLREF : Keep the Voltage divider within 0.5" of the first GTLREF0 pin with $Z_0=55\Omega$ trace. Minimize coupling of any switching signals to this net.

GND test points within 100mil of the VCC/VSSense at the end of the line. Route the VCC/VSSense as a Zo=55ohm traces with equal length. Observe 3:1 spacing b/w VCC/VSSense lines and 25mil away (preferred 50mil) from any other signal. And GND via 100mil away from each of the VCC/VSS test point vias.

DRWN	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext CPU PENRYN (2/3)		SAMSUNG ELECTRONICS	
CHECK	WU SHIJANG,	REV. STEP	PV					
APPROVAL	BYEONGCHANG LEE,	REV	1.0					
MODULE CODE	undef:ined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE				
						PART NO.	BA1A-####A	

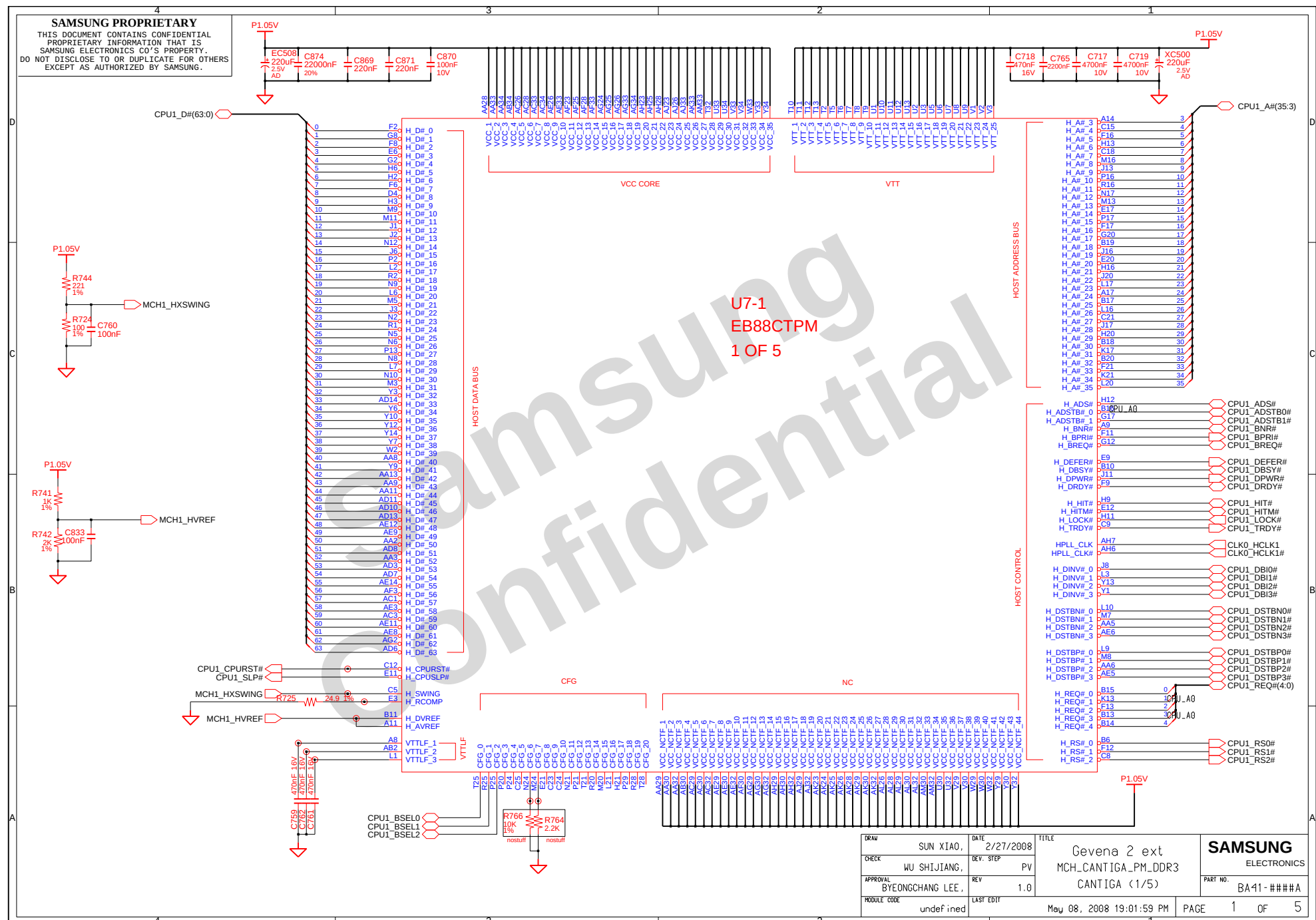
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DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext
CHECK	WU SHIJIANG,	DEV. STEP	PV	CPU	
APPROVAL	BYEONGCHANG LEE,	REV	1.0	PENRYN (3/3)	
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	3 OF 3

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ELECTRONICS
PART NO. BA41-####A

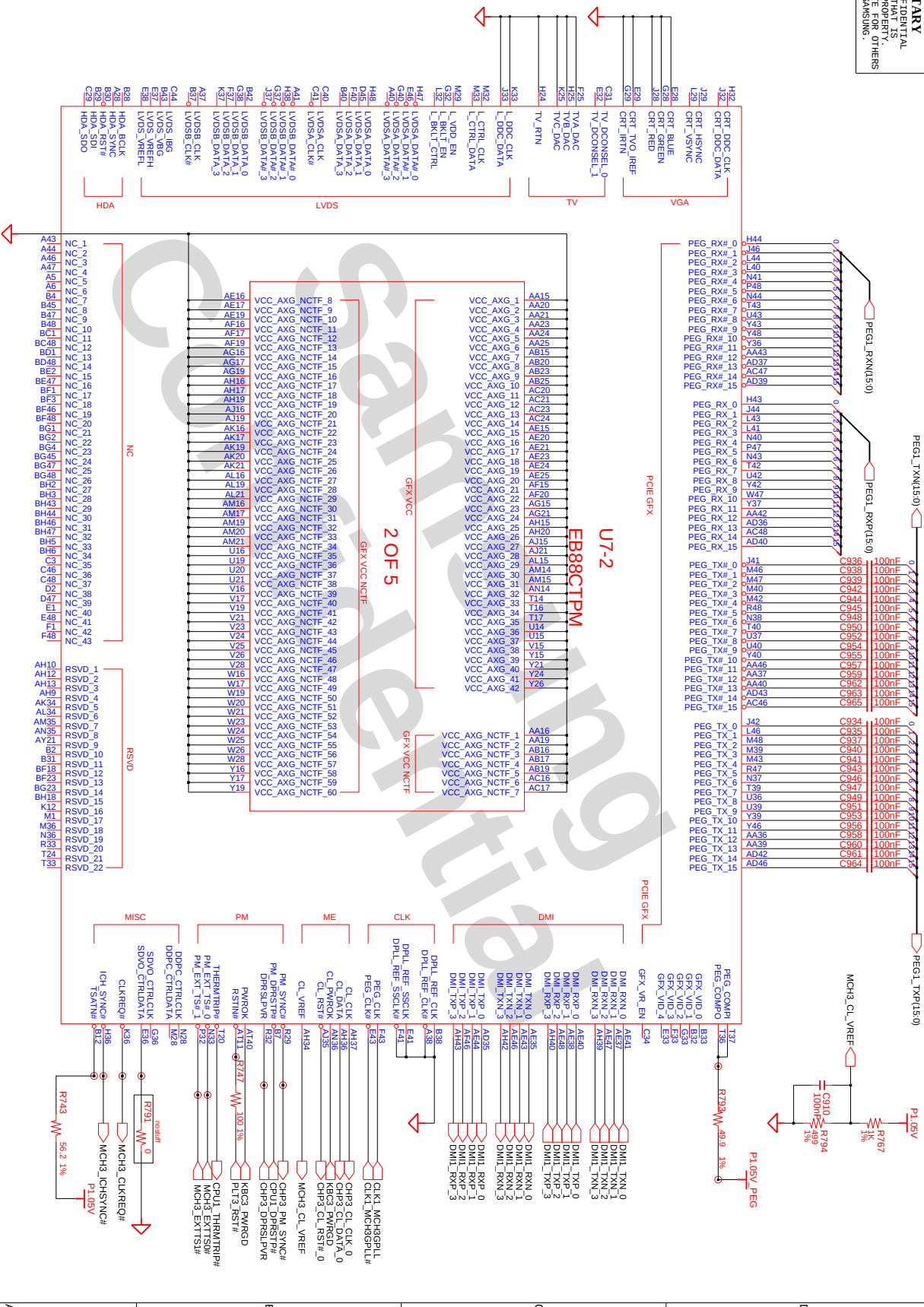
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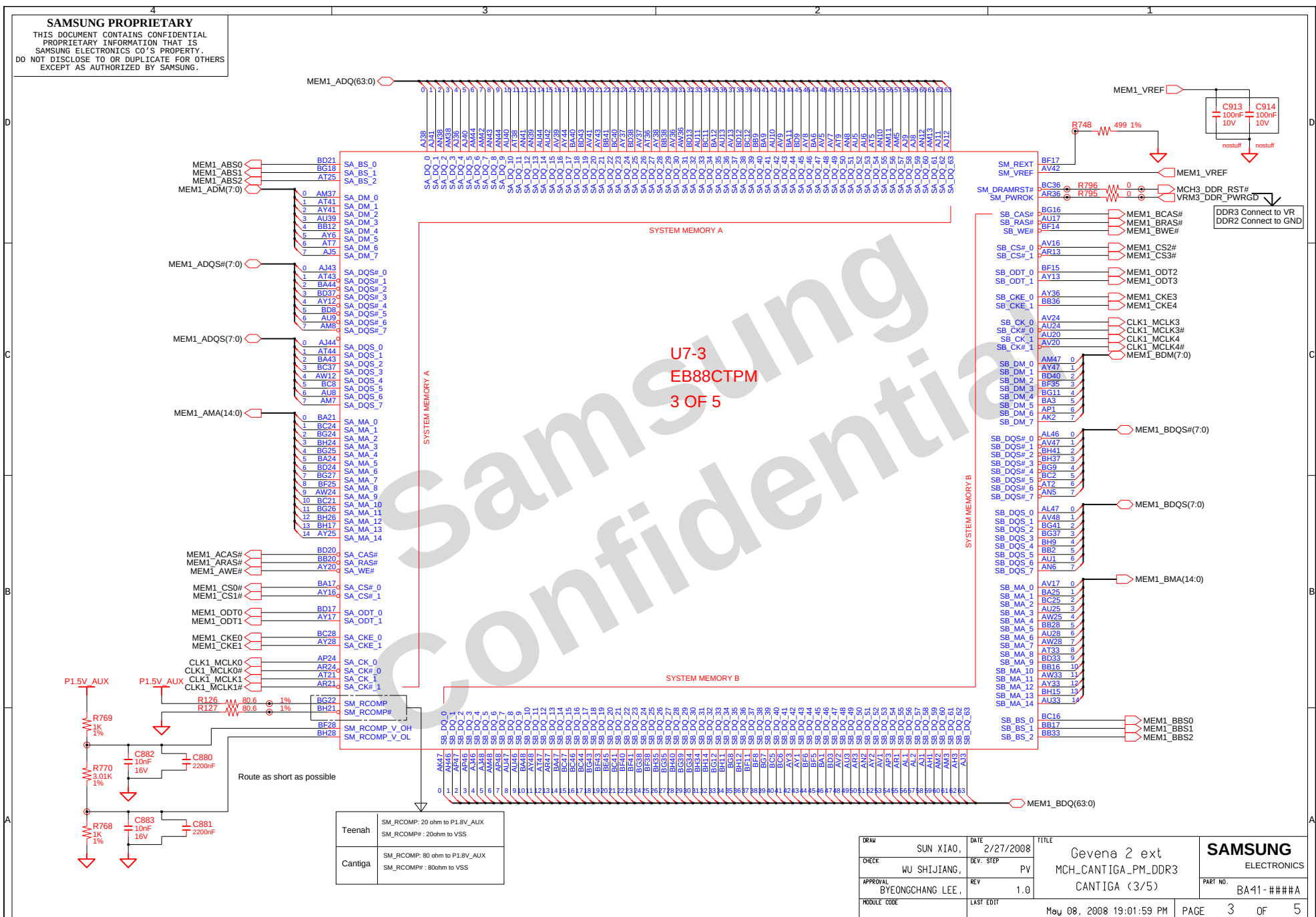
U7-1
EB88CTPM
1 OF 5

DRAM	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext
CHECK	WU SHIJIANG,	DEV. STEP	PV		MCH_CANTIGA_PM_DDR3
APPROVAL	BYEONGCHANG LEE,	REV	1.0		CANTIGA (1/5)
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 5

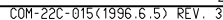
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PART NO. BA41-####A



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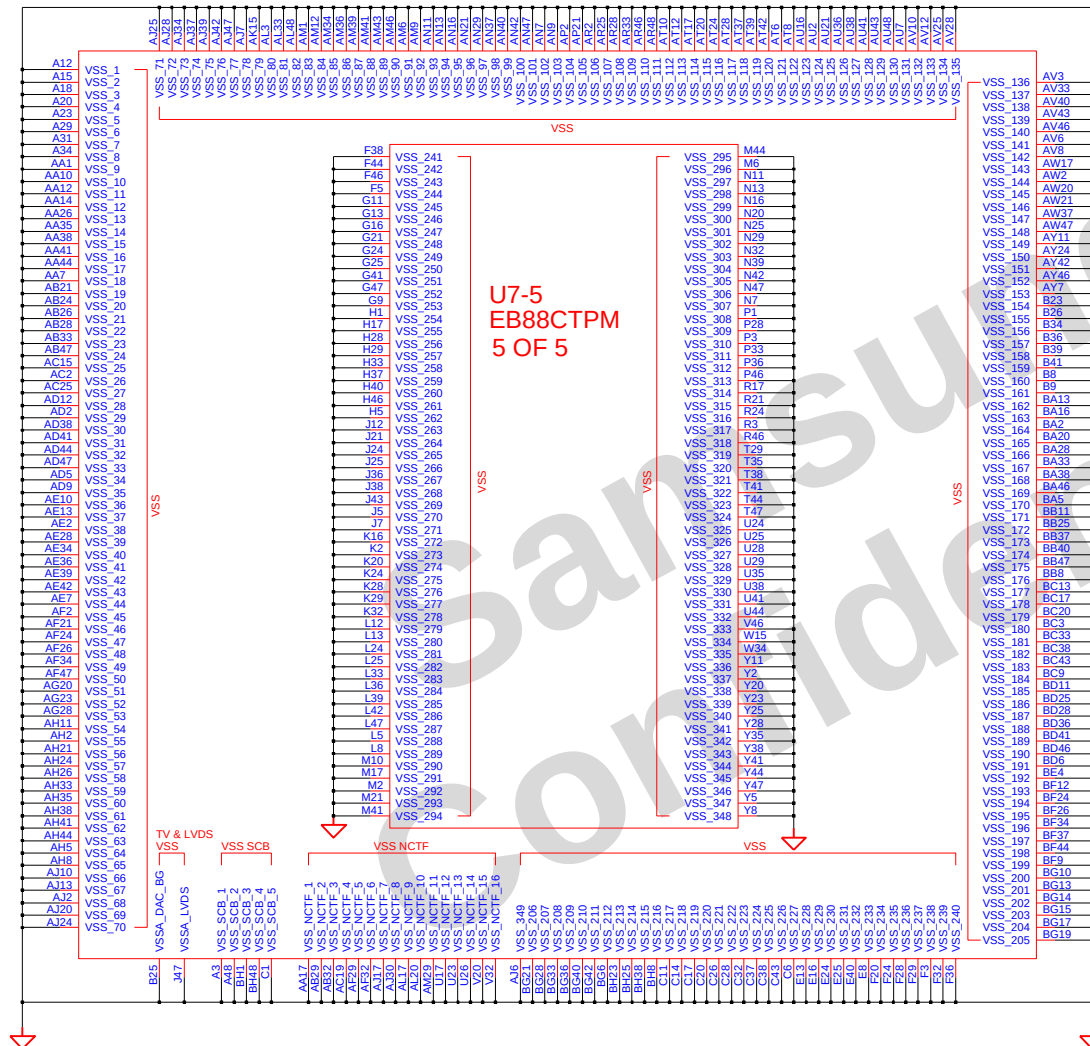


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D:\mentor\Geneva2\Geneva2_ext_PV_0507\design_blocks\MCH_CANTIGA_PM_DDR3
SRP Sheet Number: 32 of 78

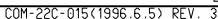
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DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext MCH_CANTIGA_PM_DDR3 CANTIGA (5/5)	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT				

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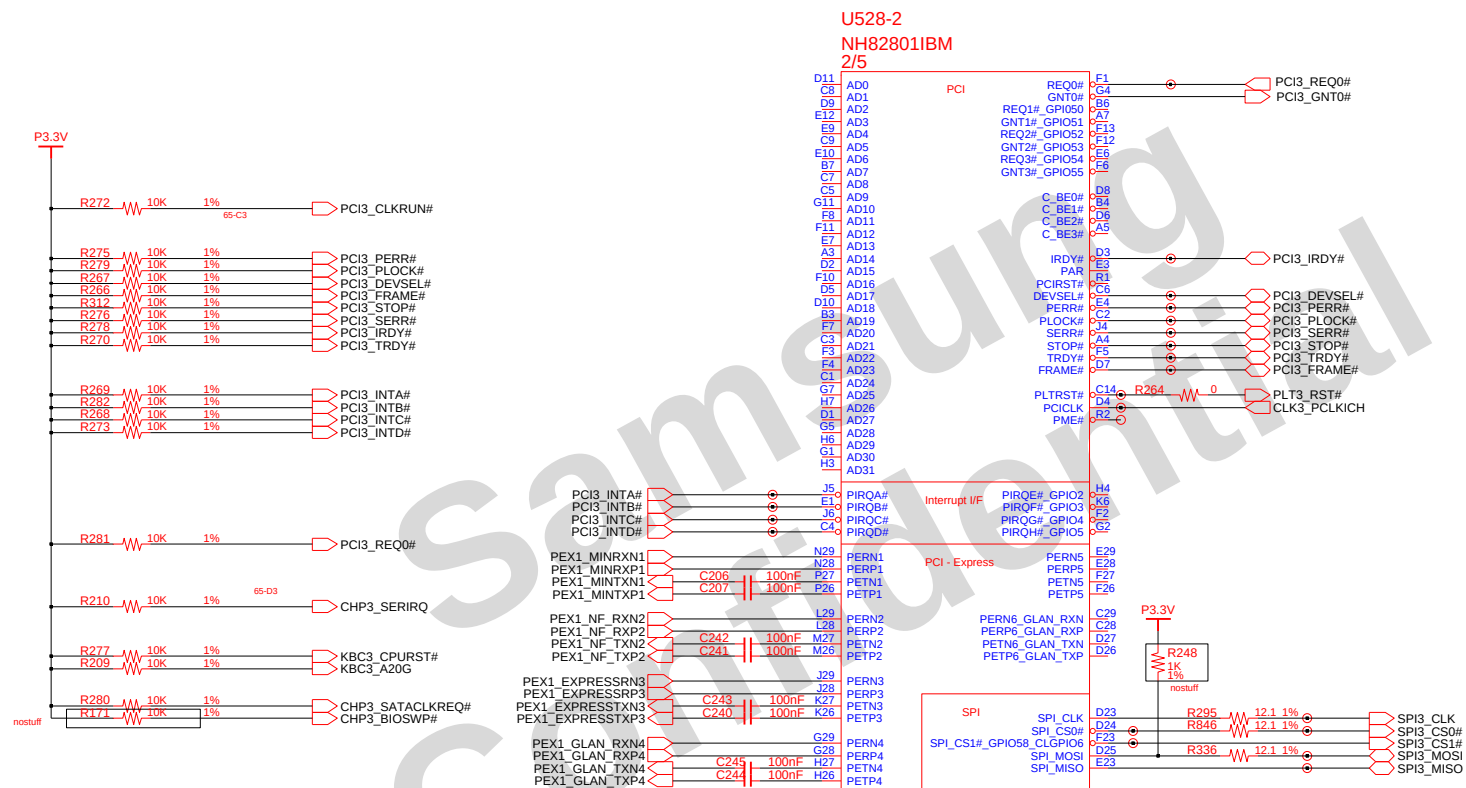
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COM-22C-015(1996.6.5) REV. 3

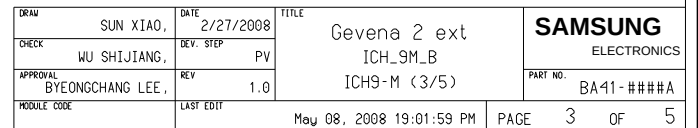
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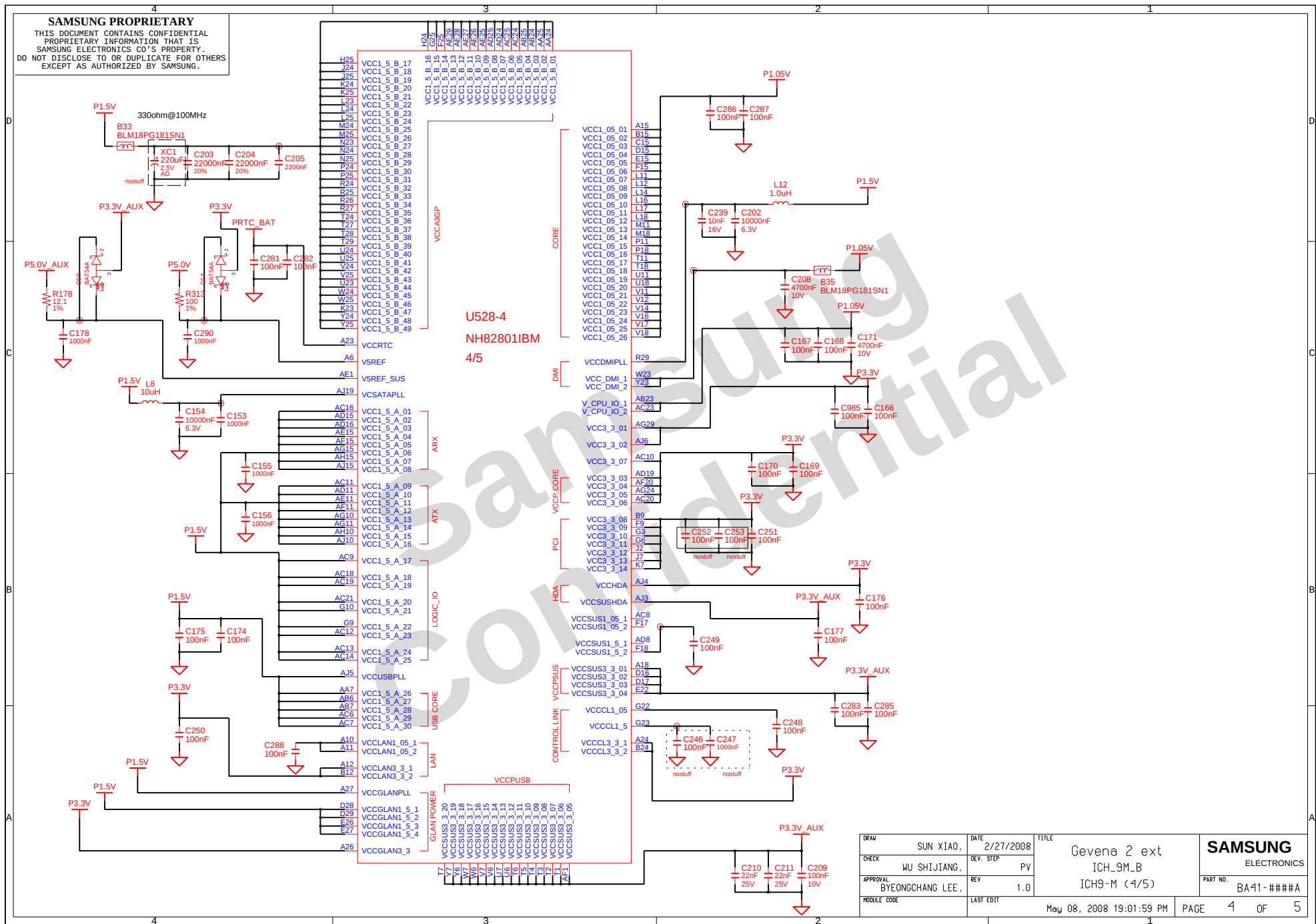


DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		ICH_9M_B	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		ICH9-M (2/5)	
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	2 OF 5	

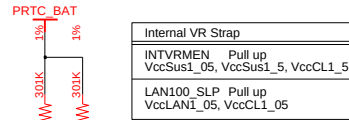
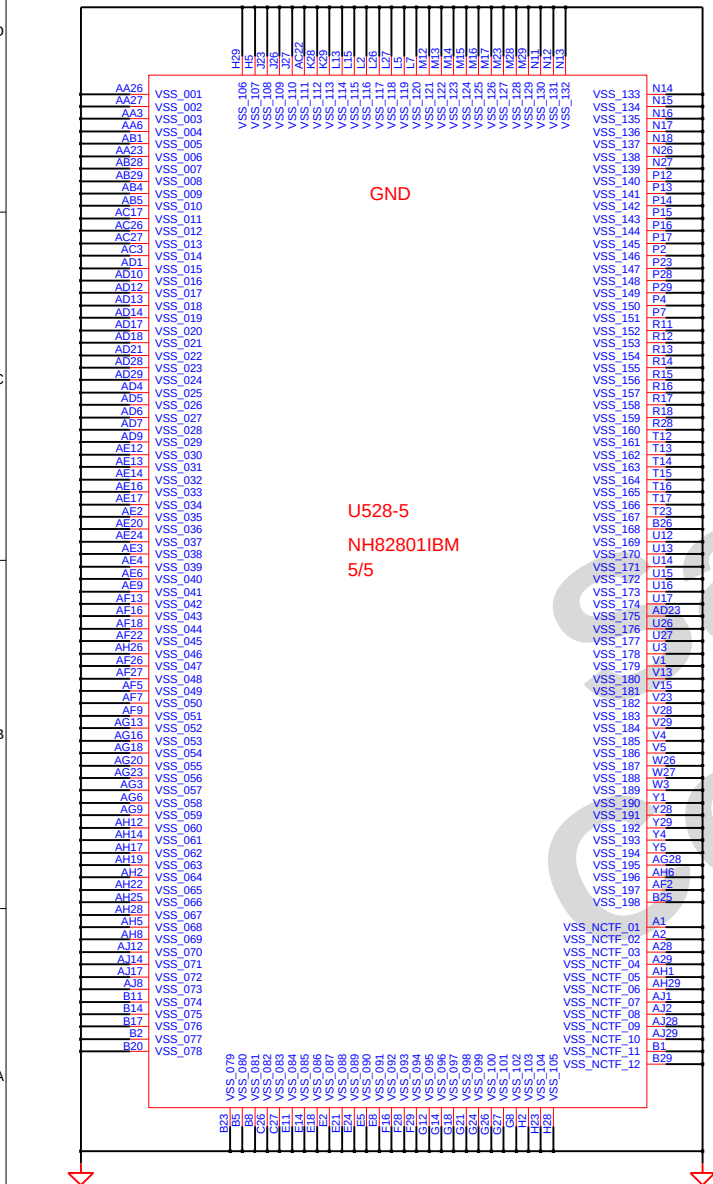
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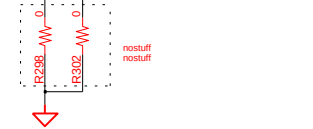
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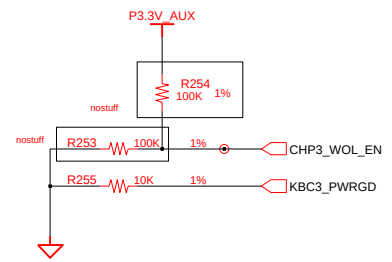
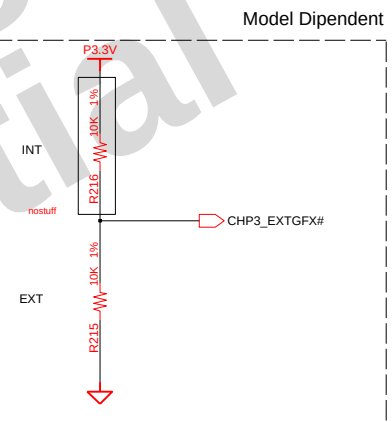
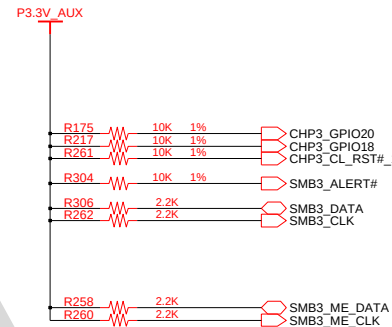
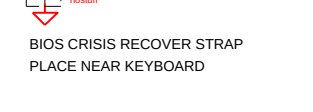
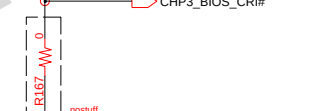
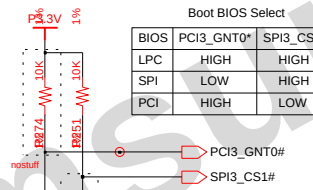
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Internal VR Strap
INTVRMEN Pull up
VccSus1_05, VccSus1_5, VccCL1_5
LAN100_SLP Pull up
VccLAN1_05, VccCL1_05



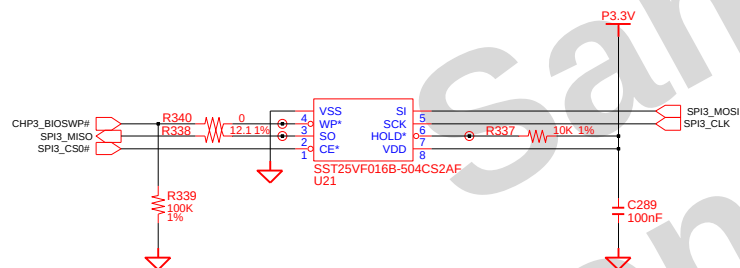
Boot BIOS Select		
BIOS	PCI3_GNT0*	SPI3_CS1*
LPC	HIGH	HIGH
SPI	LOW	HIGH
PCI	HIGH	LOW



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		ICH9M_B	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		ICH9-M (5/5)	
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 5 OF 5

- SPI ROM LIST -

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



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 COPROCESSOR 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. 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	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		SPI1.BIOS_ROM	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		SPI1.BIOS_ROM	
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 1 OF 1

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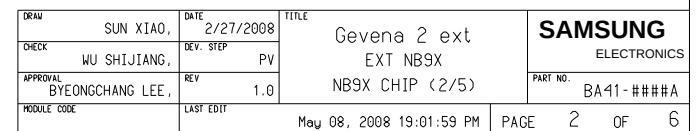
PEG1_RXN(15:0) PEG1_RXP(15:0) PEG1_TXN(15:0) PEG1_TXP(15:0)

CLK1_PEG1 CLK1_PEG1 PLT3_RST#

AP17 PEX_RX0 AN19 PEX_RX1 AR19 PEX_RX2 AP20 PEX_RX3 AN22 PEX_RX4 AP23 PEX_RX5 AN25 PEX_RX6 AR25 PEX_RX7 AN28 PEX_RX8 AP29 PEX_RX9 AN31 PEX_RX10 AR31 PEX_RX11 AN34 PEX_RX12 AR34 PEX_RX13 AN37 PEX_RX14 AR37 PEX_RX15 AN39 PEX_RX16 AR39 PEX_RX17 AN42 PEX_RX18 AR42 PEX_RX19 AN45 PEX_RX20 AN48 PEX_RX21 AN51 PEX_RX22 AN54 PEX_RX23 AN57 PEX_RX24 AN60 PEX_RX25 AN63 PEX_RX26 AN66 PEX_RX27 AN69 PEX_RX28 AN72 PEX_RX29 AN75 PEX_RX30 AN78 PEX_RX31 AN81 PEX_RX32 AN84 PEX_RX33 AN87 PEX_RX34 AN90 PEX_RX35 AN93 PEX_RX36 AN96 PEX_RX37 AN99 PEX_RX38 AR16 PEX_REFCLK AR17 PEX_REFCLK_N# AM16 PEX_RST_N# AG21 PEX_TERM# AG19 NC_PEX_RFU1 AG20 NC_PEX_RFU2 AR13 NC_PEX_CLKREQ

PEX_TX0 PEX_TX1 PEX_TX2 PEX_TX3 PEX_TX4 PEX_TX5 PEX_TX6 PEX_TX7 PEX_TX8 PEX_TX9 PEX_TX10 PEX_TX11 PEX_TX12 PEX_TX13 PEX_TX14 PEX_TX15 PEX_TX16 PEX_TX17 PEX_TX18 PEX_TX19 PEX_TX20 PEX_TX21 PEX_TX22 PEX_TX23 PEX_TX24 PEX_TX25 PEX_TX26 PEX_TX27 PEX_TX28 PEX_TX29 PEX_TX30 PEX_TX31 PEX_TX32 PEX_TX33 PEX_TX34 PEX_TX35 PEX_TX36 PEX_TX37 PEX_TX38 PEX_TX39 PEX_TX40 PEX_TX41 PEX_TX42 PEX_TX43 PEX_TX44 PEX_TX45 PEX_TX46 PEX_TX47 PEX_TX48 PEX_TX49 PEX_TX50 PEX_TX51 PEX_TX52 PEX_TX53 PEX_TX54 PEX_TX55 PEX_TX56 PEX_TX57 PEX_TX58 PEX_TX59 PEX_TX60 PEX_TX61 PEX_TX62 PEX_TX63 PEX_TX64 PEX_TX65 PEX_TX66 PEX_TX67 PEX_TX68 PEX_TX69 PEX_TX70 PEX_TX71 PEX_TX72 PEX_TX73 PEX_TX74 PEX_TX75 PEX_TX76 PEX_TX77 PEX_TX78 PEX_TX79 PEX_TX80 PEX_TX81 PEX_TX82 PEX_TX83 PEX_TX84 PEX_TX85 PEX_TX86 PEX_TX87 PEX_TX88 PEX_TX89 PEX_TX90 PEX_TX91 PEX_TX92 PEX_TX93 PEX_TX94 PEX_TX95 PEX_TX96 PEX_TX97 PEX_TX98 PEX_TX99 PEX_TX100 PEX_TX101 PEX_TX102 PEX_TX103 PEX_TX104 PEX_TX105 PEX_TX106 PEX_TX107 PEX_TX108 PEX_TX109 PEX_TX110 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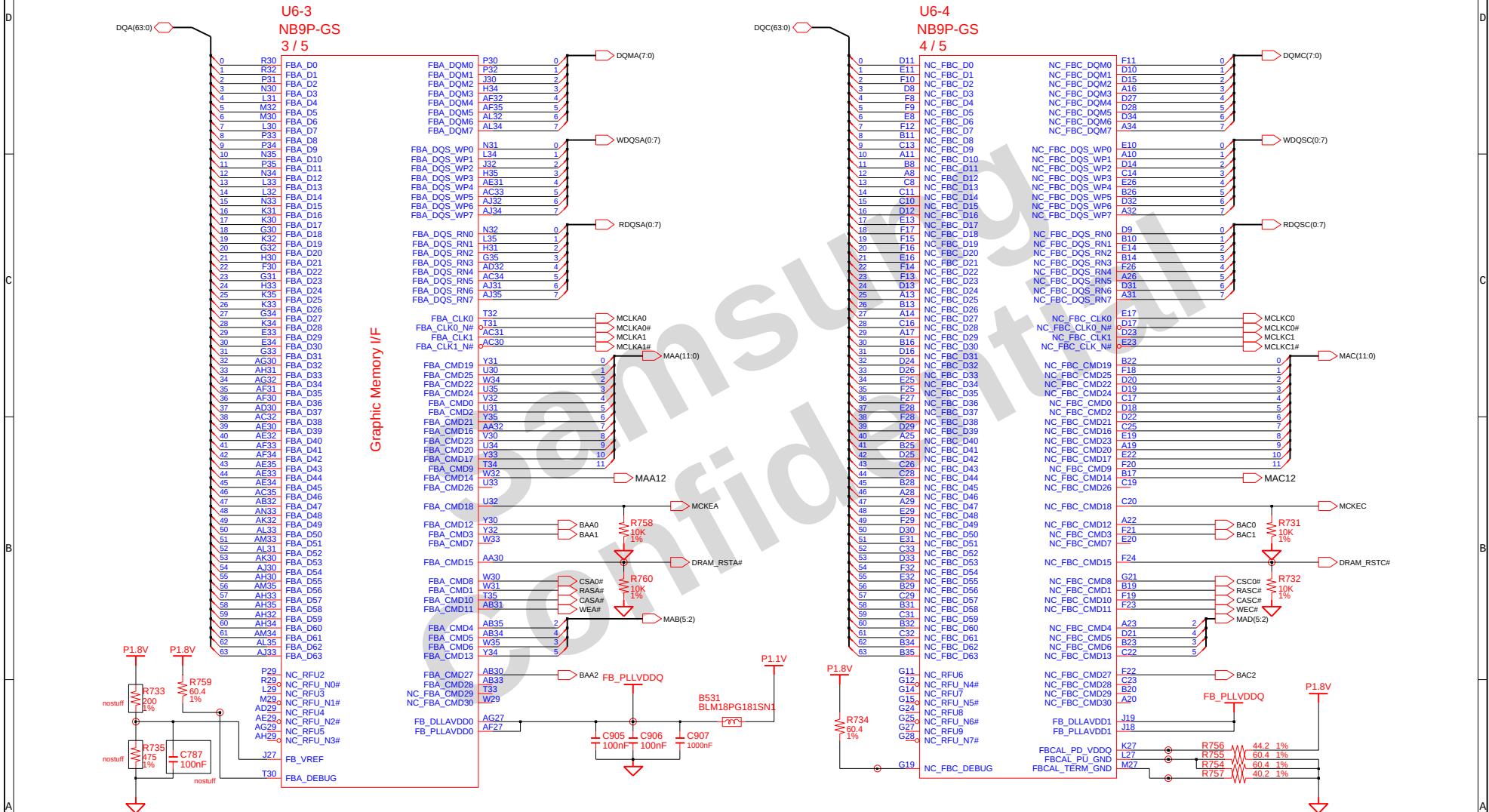
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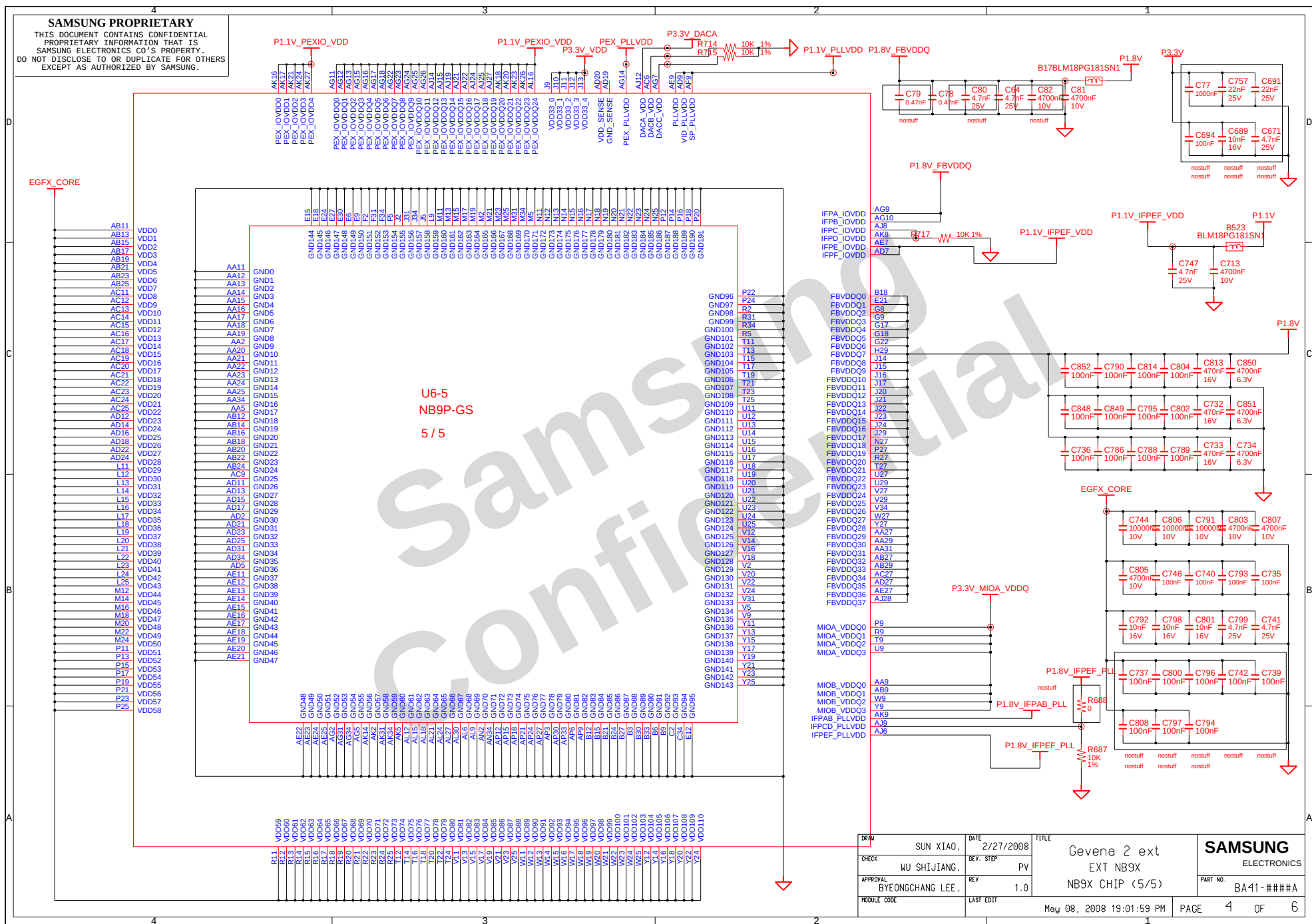
Graphic Memory I/F (Using FBA Channel)

Graphic Memory I/F (Using FBC Channel)



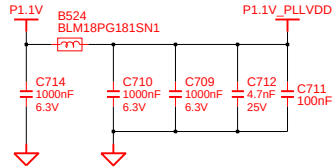
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APPROVAL	BYEONGCHANG LEE,	REV	1.0		NB9X CHIP (3/5) (4/5)
MODULE CODE		LAST EDIT			
				May 08, 2008 19:01:59 PM	PAGE 3 OF 6

SAMSUNG ELECTRONICS
PART NO. BA41-####A

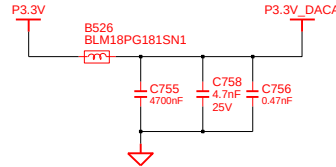


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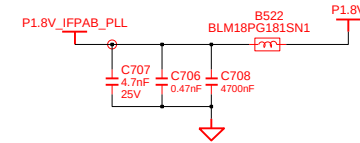
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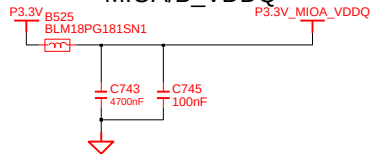
DACA/B/C



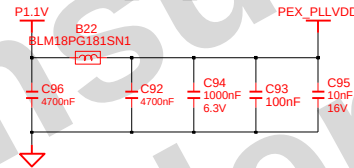
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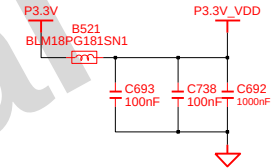
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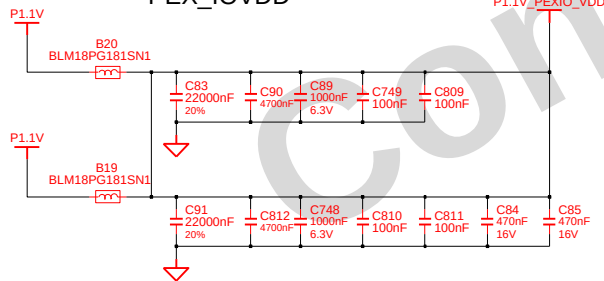
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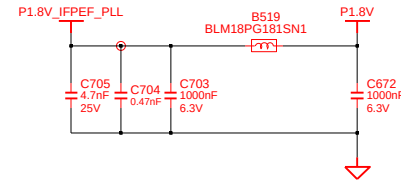
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PEX_IOVDD



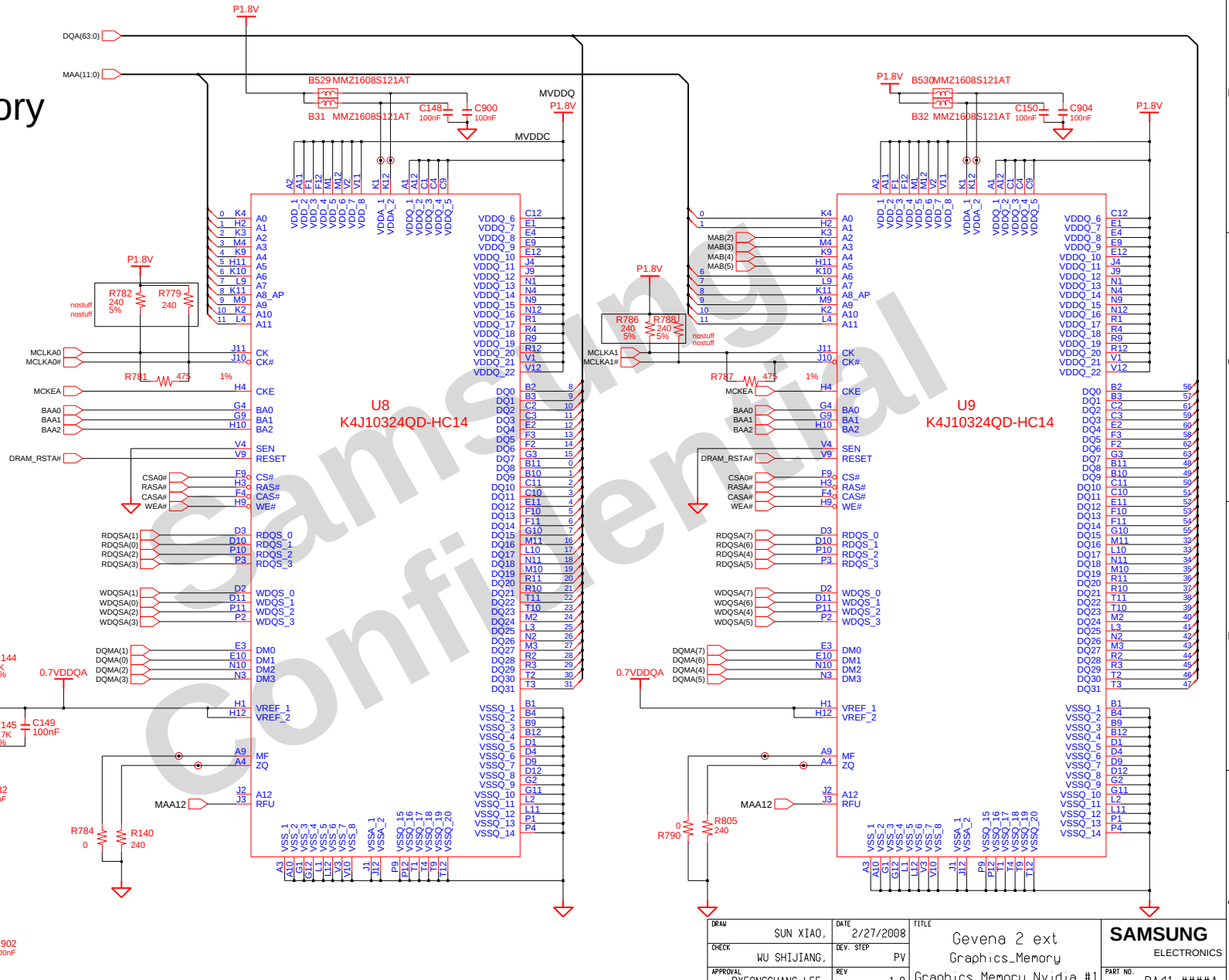
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APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT				
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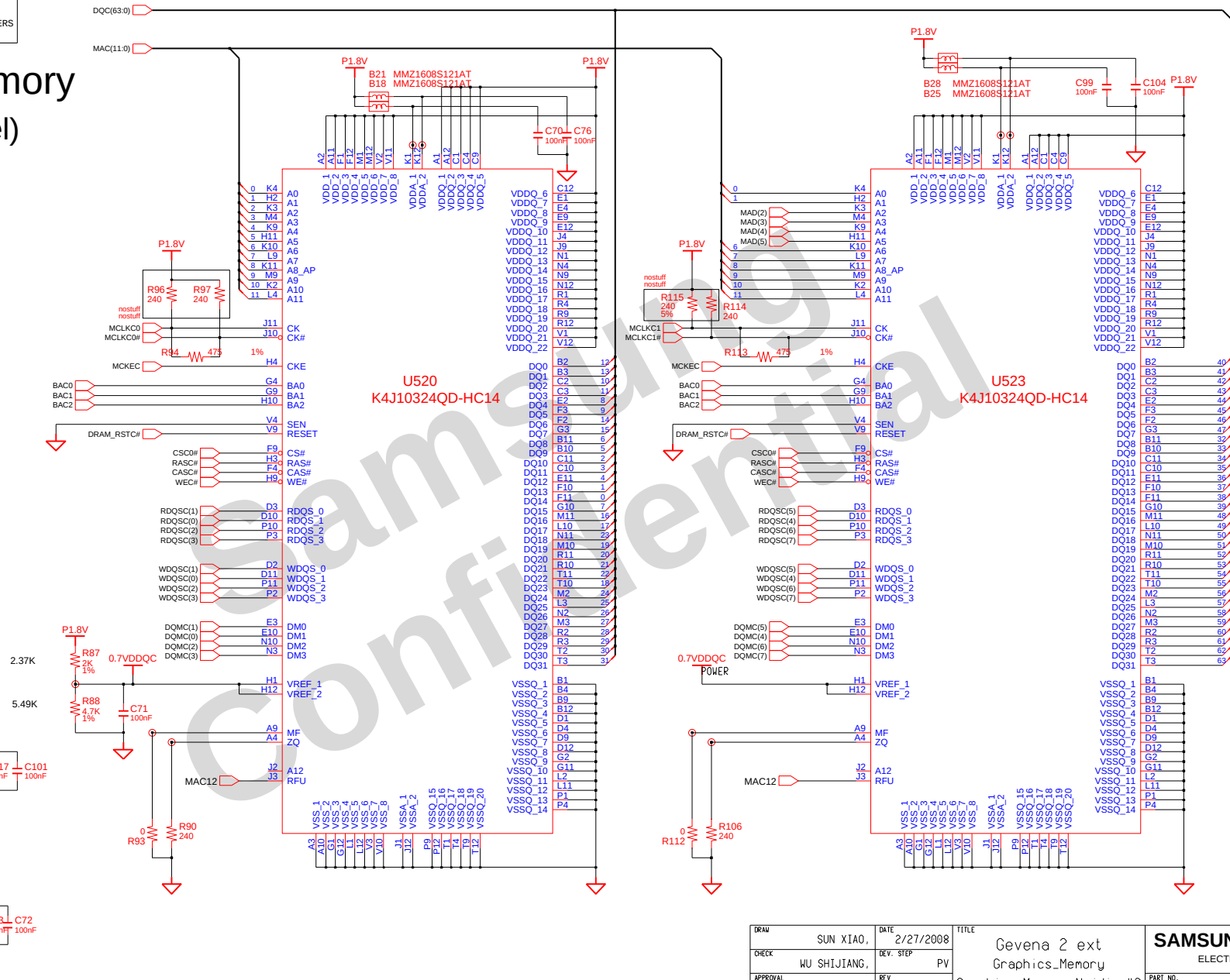


Video Memory (A Channel)



DRAM	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		Graphics_Memory	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		Graphics_Memory_Nvidia #1	
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 1 OF 2

Video Memory (C Channel)



DRAM	SUN XIAO,	DATE	2/27/2008	TITLE Gevena 2 ext Graphics_Memory Graphics_Memory.Nvidia #2	SAMSUNG ELECTRONICS
CHECK	WU SHIJIANG,	DEV. STEP	PV		
APPROVAL	BYEONGCHANG LEE,	REV	1.0		
MODULE CODE	LAST EDIT		May 08, 2008 19:01:59 PM		
				PART NO.	BA41-####A

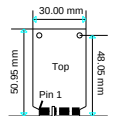
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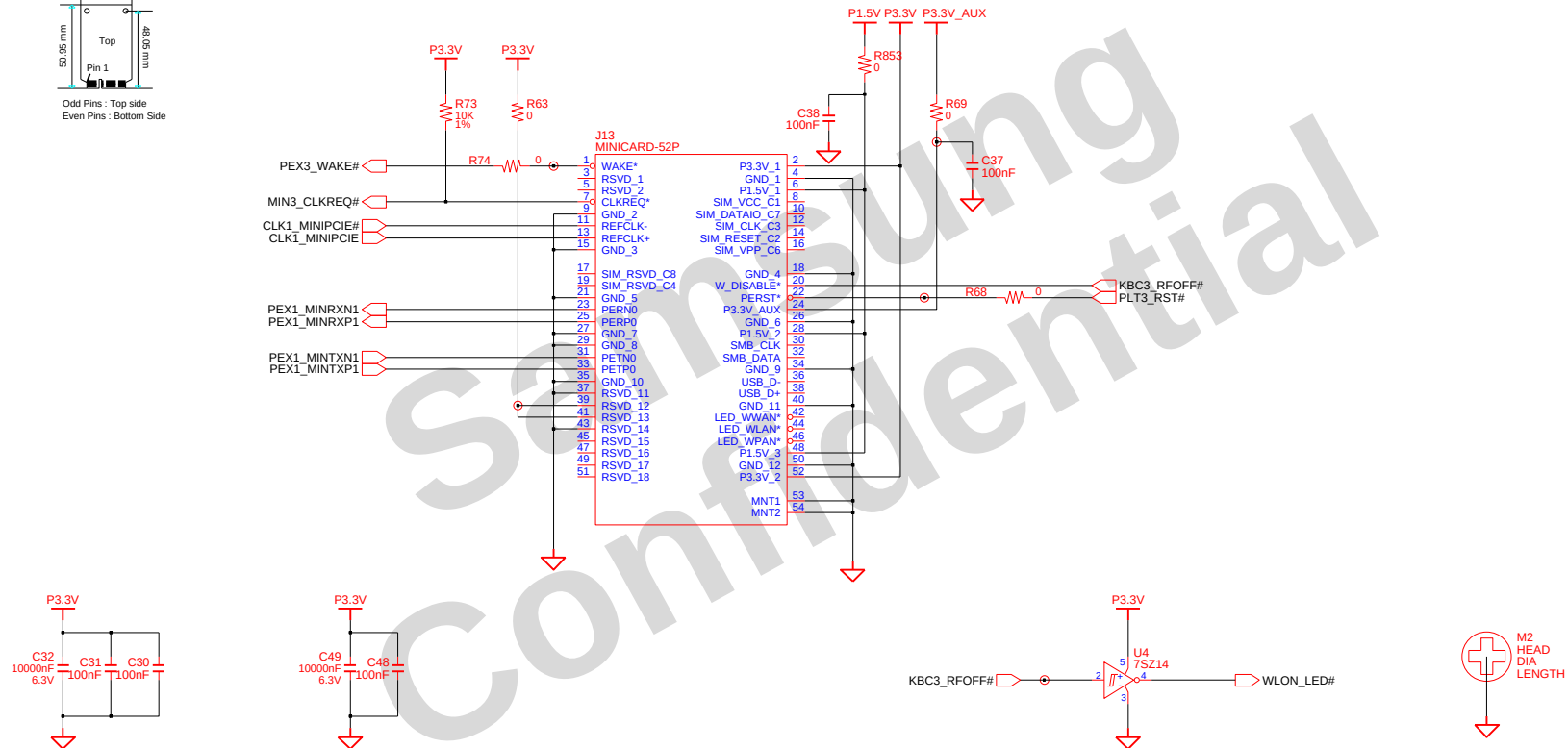
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APPROVAL	BYEONGCHANG LEE,	REV	1.0		
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM		
				PAGE	3 OF 3

Mini Card

Mini PCI Express Card

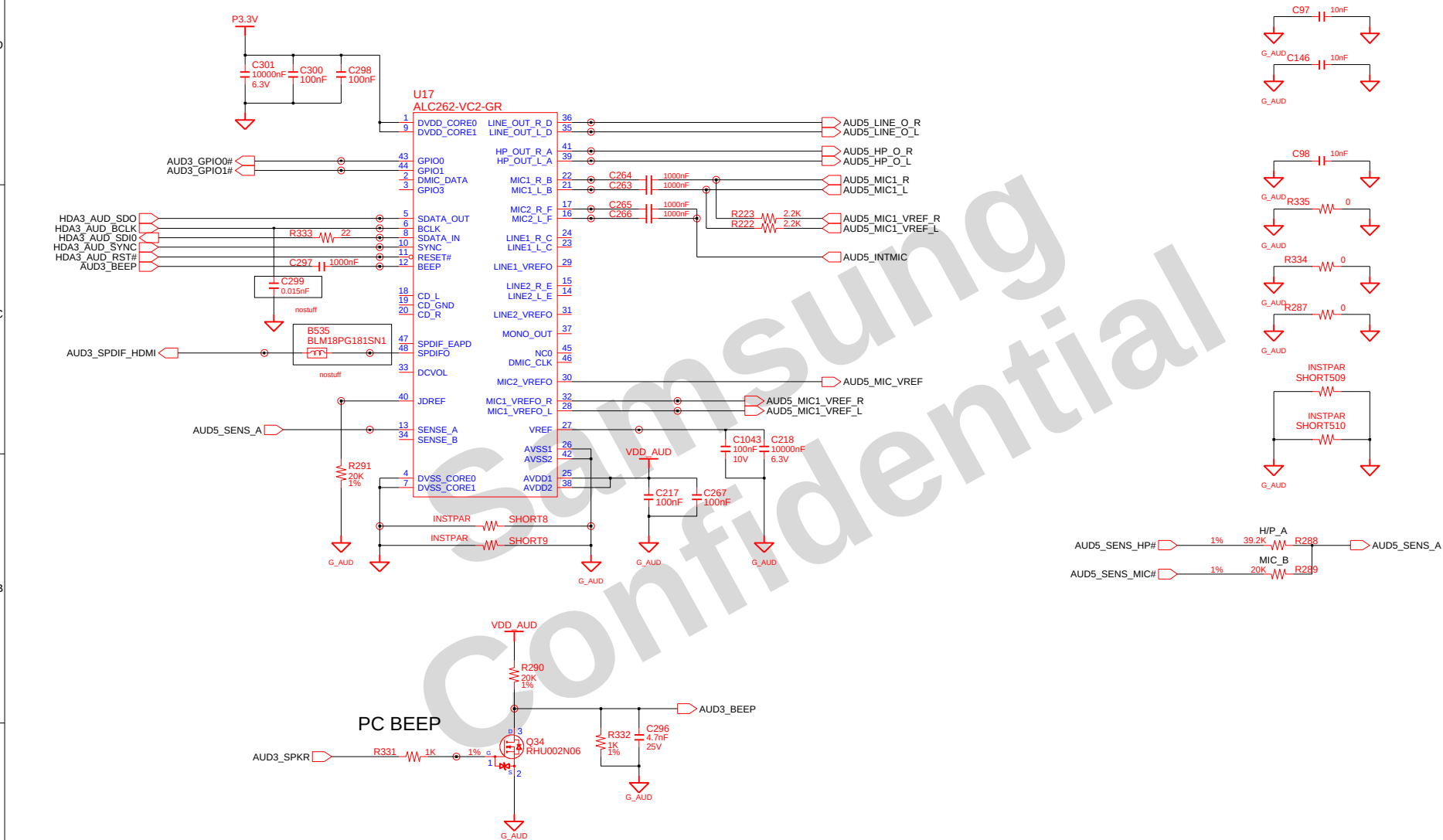


Odd Pins : Top side
Even Pins : Bottom Side



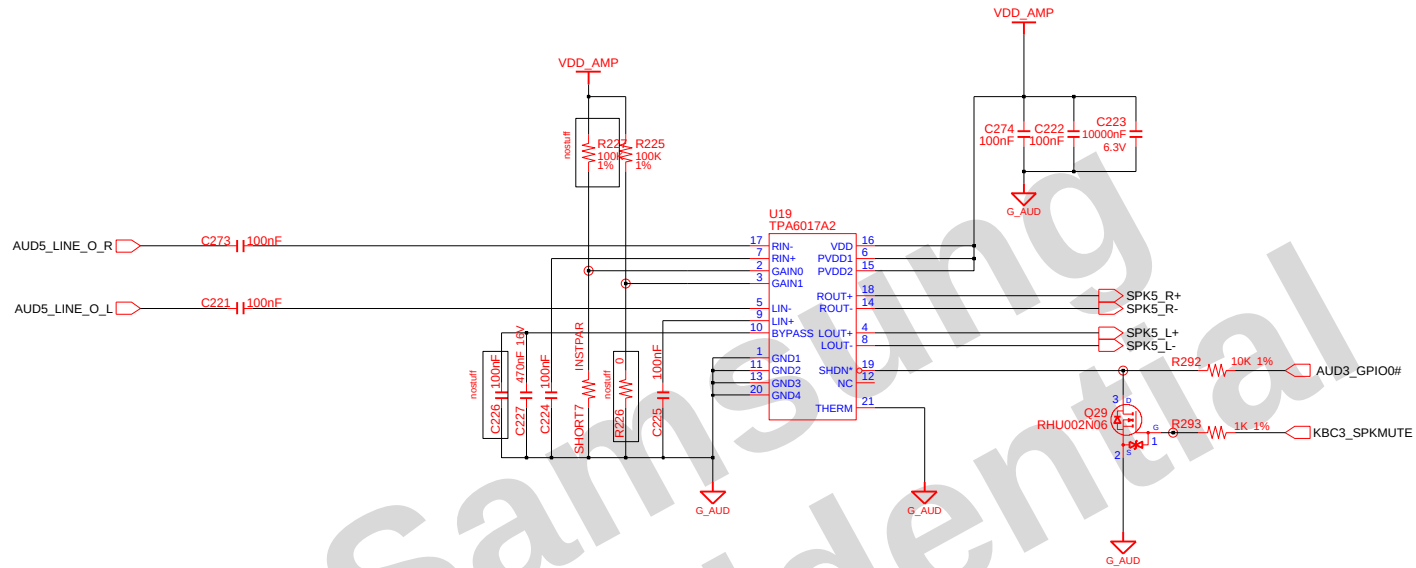
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CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

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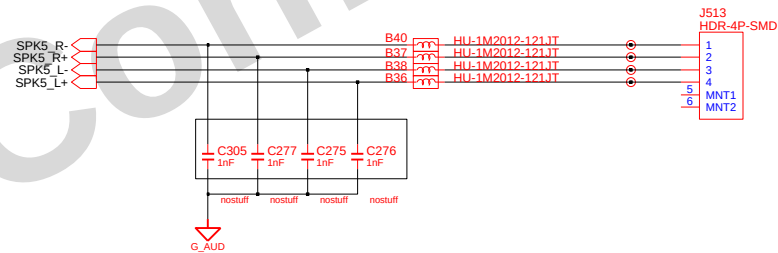


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CHECK	WU SHIJIANG,	DEV. STEP	PV		HDA_Codec_Alc262	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDA_Codec_Alc262 #1	
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 5	

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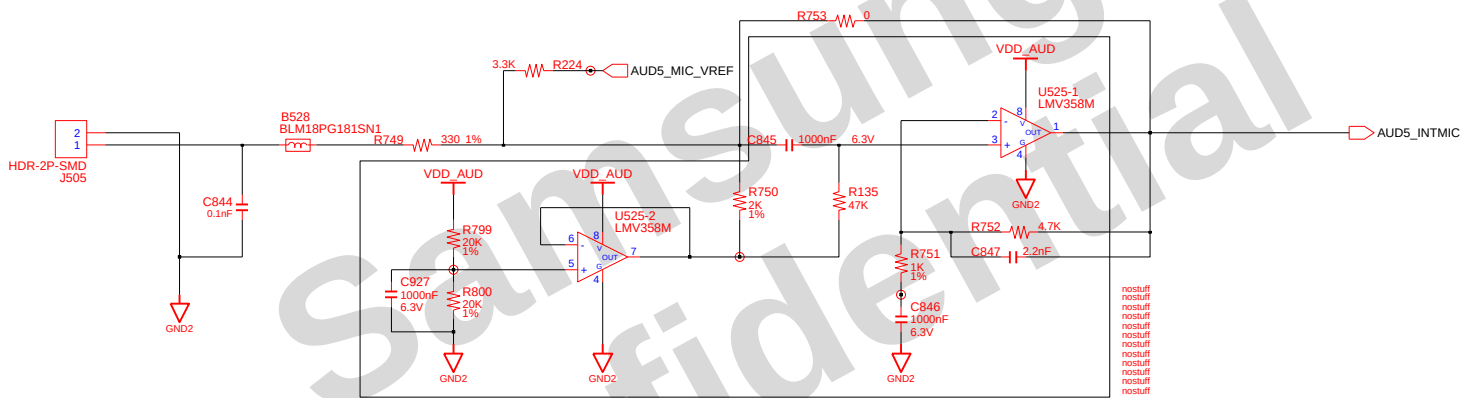
INTERNAL STEREO SPEAKERS



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CHECK	WU SHIJIANG,	DEV. STEP	PV		HDA_Codec_Alc262	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDA_Codec_Alc262 #2	
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 2 OF 5

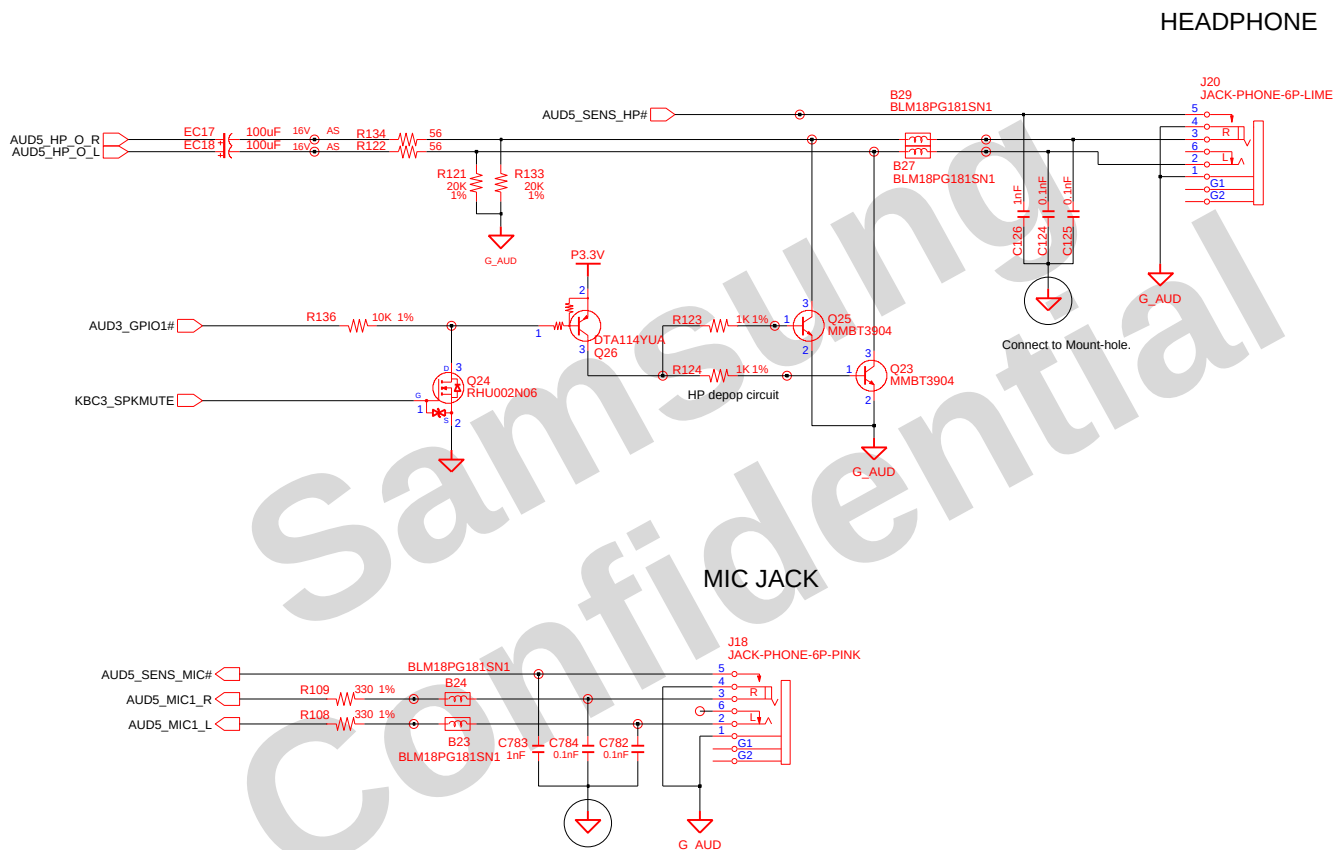
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Internal MIC



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		HDA_Codec_Alc262	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDA_Codec_Alc262 #3	
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	3 OF 5	

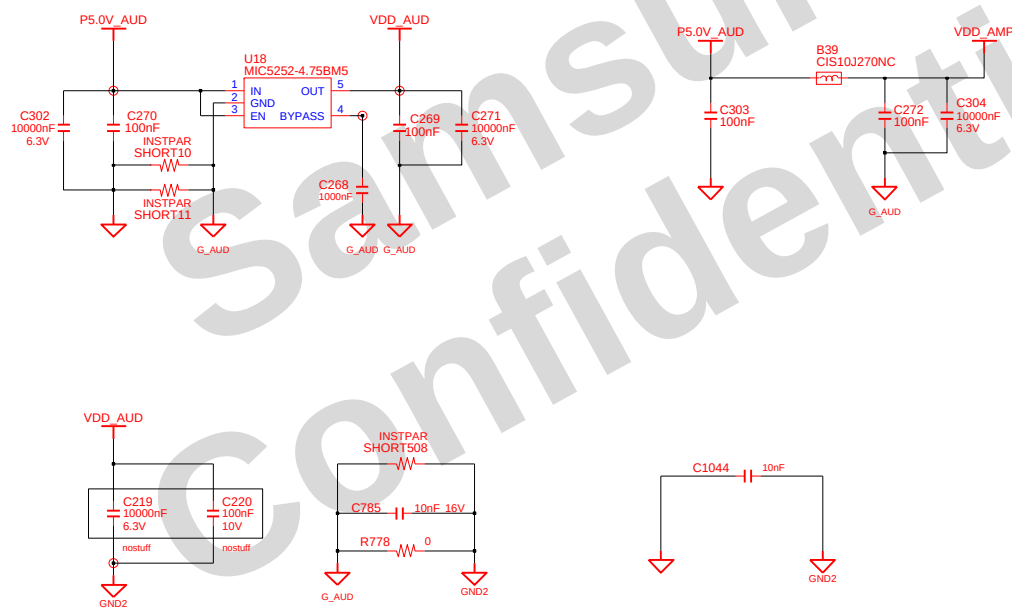
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The traces led to Audio Jacks have the width over 10mil

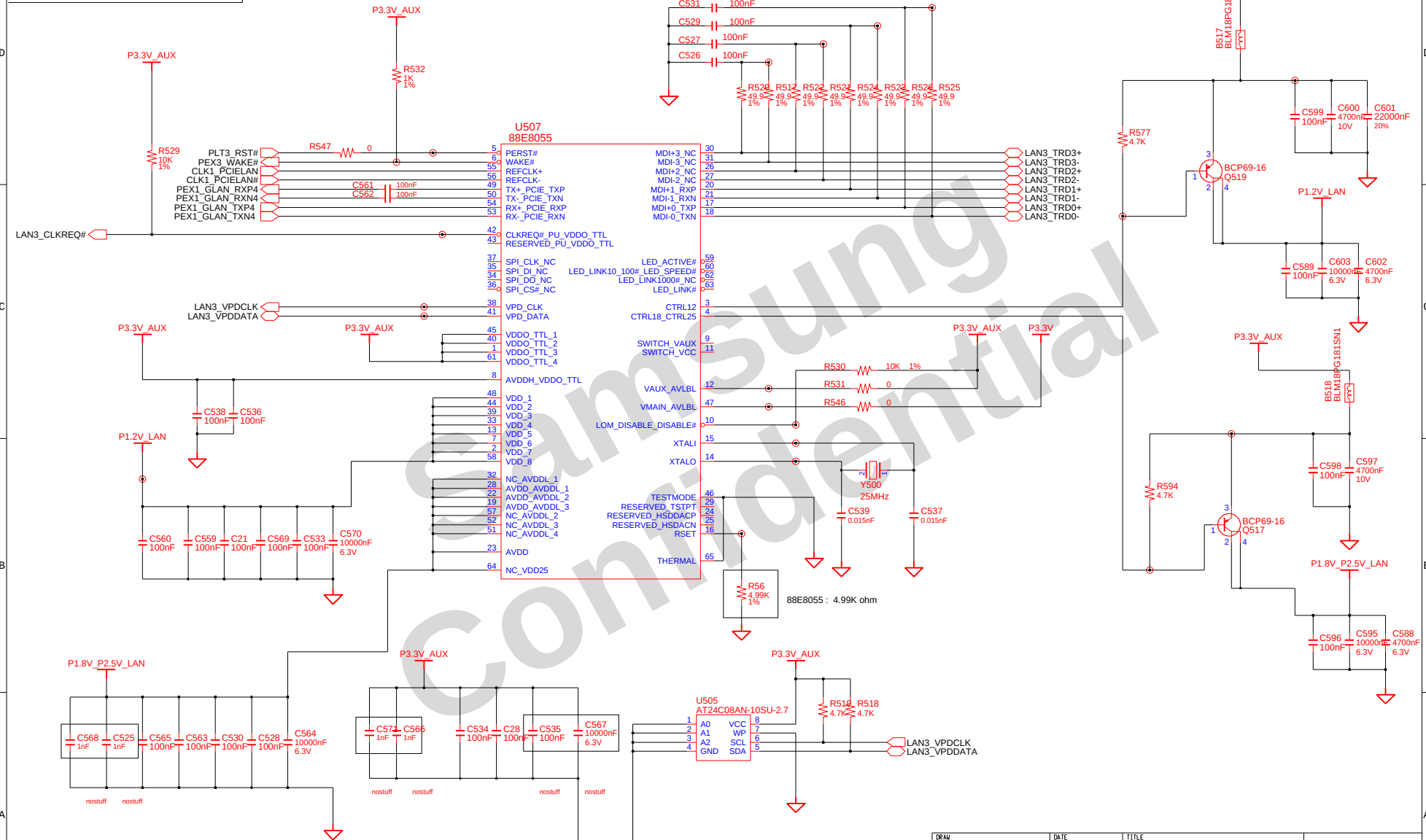
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CHECK	WU SHIJIANG,	DEV. STEP	PV		HDA_Codec_Alc262	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDA_Codec_Alc262 #4	
MODULE CODE		LAST EDIT				
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AUDIO POWER



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		HDA_Codec_Alc262	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDA_Codec_Alc262 #5	
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	5 OF 5	

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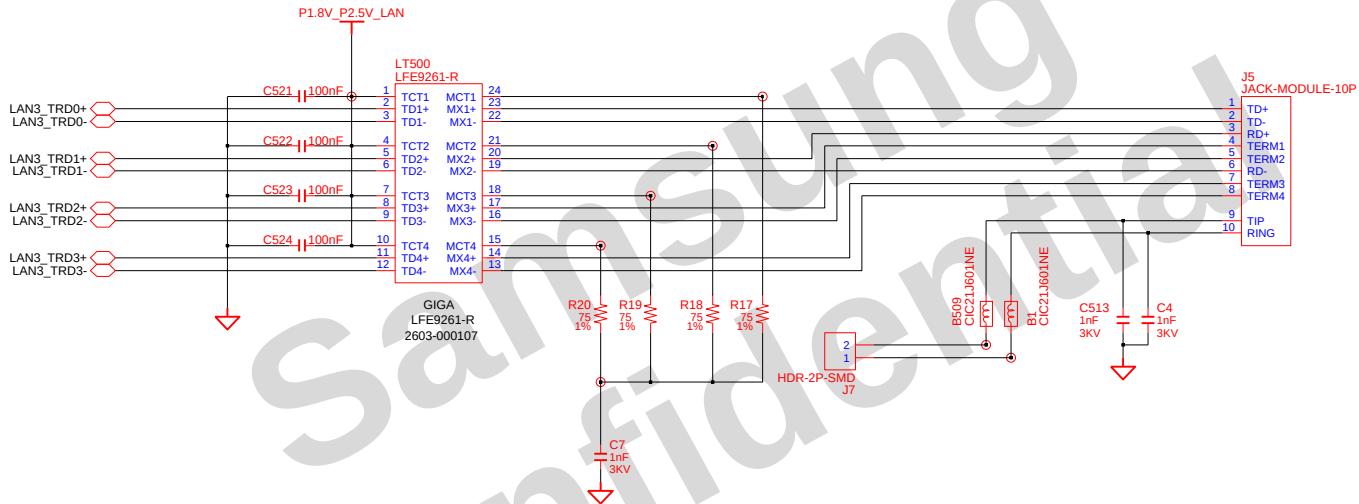


DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext
CHECK	WU SHIJIANG,	DEV. STEP	PV		LAN_Marvell_8055
APPROVAL	BYEONGCHANG LEE,	REV	1.0		LAN_Marvell_8055
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 2

SAMSUNG
ELECTRONICS
PART NO. BA41-####A

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



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		LAN_Marvell_8055	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		LAN_Marvell_8055	
MODULE CODE		LAST EDIT				
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DRAW		SUN XIAO,		DATE	2/27/2008		TITLE		Gevena 2 ext		SAMSUNG ELECTRONICS				
CHECK		WU SHIJIANG,		DEV. STEP	PV		MICOM_Renasas2110_100p		PART NO.						
APPROVAL		BYEONGCHANG LEE,		REV	1.0		MICOM_Renasas2110_100p		BA41-####A						
MODULE CODE				LAST EDIT				May 08, 2008 19:01:59 PM				PAGE	1	OF	1

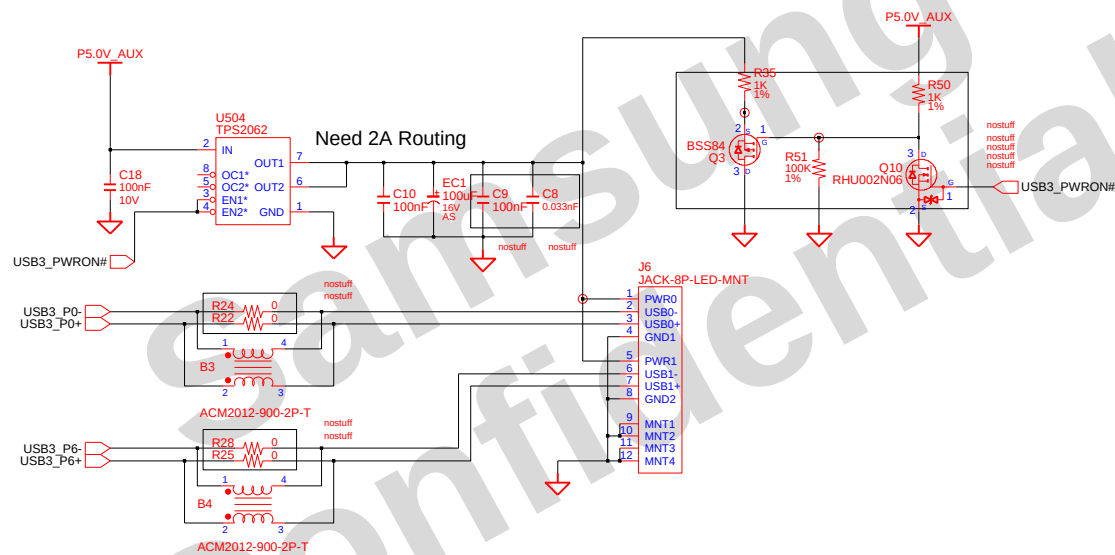
The schematic diagram illustrates a USB3.0 power management circuit. Key components and connections include:

- Power Input:** P5.0V_AUX (5.0V) connected to the IN pin of the TPS2062 (U5).
- Control Signal:** USB3_PWRON# connected to the EN1 pin of the TPS2062 (U5).
- TPS2062 (U5):** A 2A routing component with pins IN, OUT1, OUT2, EN1, EN2, and GND. The OUT1 pin is connected to the BSS84 Q22 (Q1) MOSFET.
- BSS84 Q22 (Q1):** A MOSFET with pins 1, 2, 3, and 4. The gate is connected to the OUT1 pin of the TPS2062 (U5).
- RHU002N06 (Q18):** A MOSFET with pins 1, 2, 3, and 4. The gate is connected to the OUT2 pin of the TPS2062 (U5).
- Capacitors:** C86 (100nF, 10V), C67 (100nF), EC15 (100uF, 16V, AS), C69 (100nF), C68 (0.033nF), R81 (100K, 1%), R85 (1K, 1%), and R80 (1K, 1%).
- Resistors:** R84 (0), R83 (0), R82 (0), and R86 (0).
- ESD Suppression Component:** B520 ACM2012-900-2P-T.
- Connector:** JACK-USB-4P (J17) with pins 1 (GND), 2 (DATA+), 3 (DATA-), 4 (PWR), 5 (MNT1), 6 (MNT2), 7 (MNT3), and 8 (MNT4).
- Output:** USB3_PWRON# signal connected to the output of the circuit.

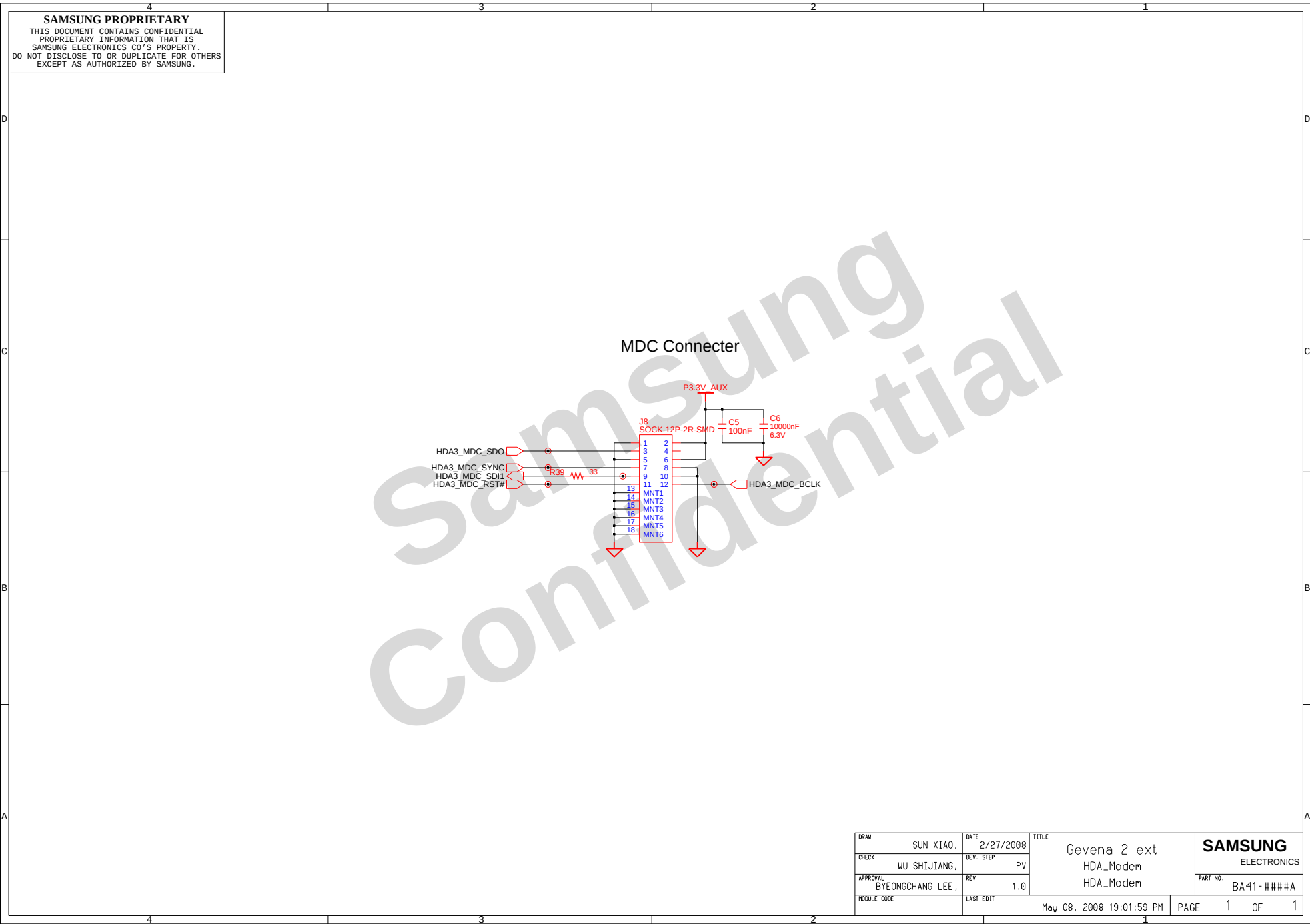
D:/mentor/Geneva2/Geneva2_ext_PV_0507/design_blocks/USB_1Port
SRP Sheet Number: 60 of 78

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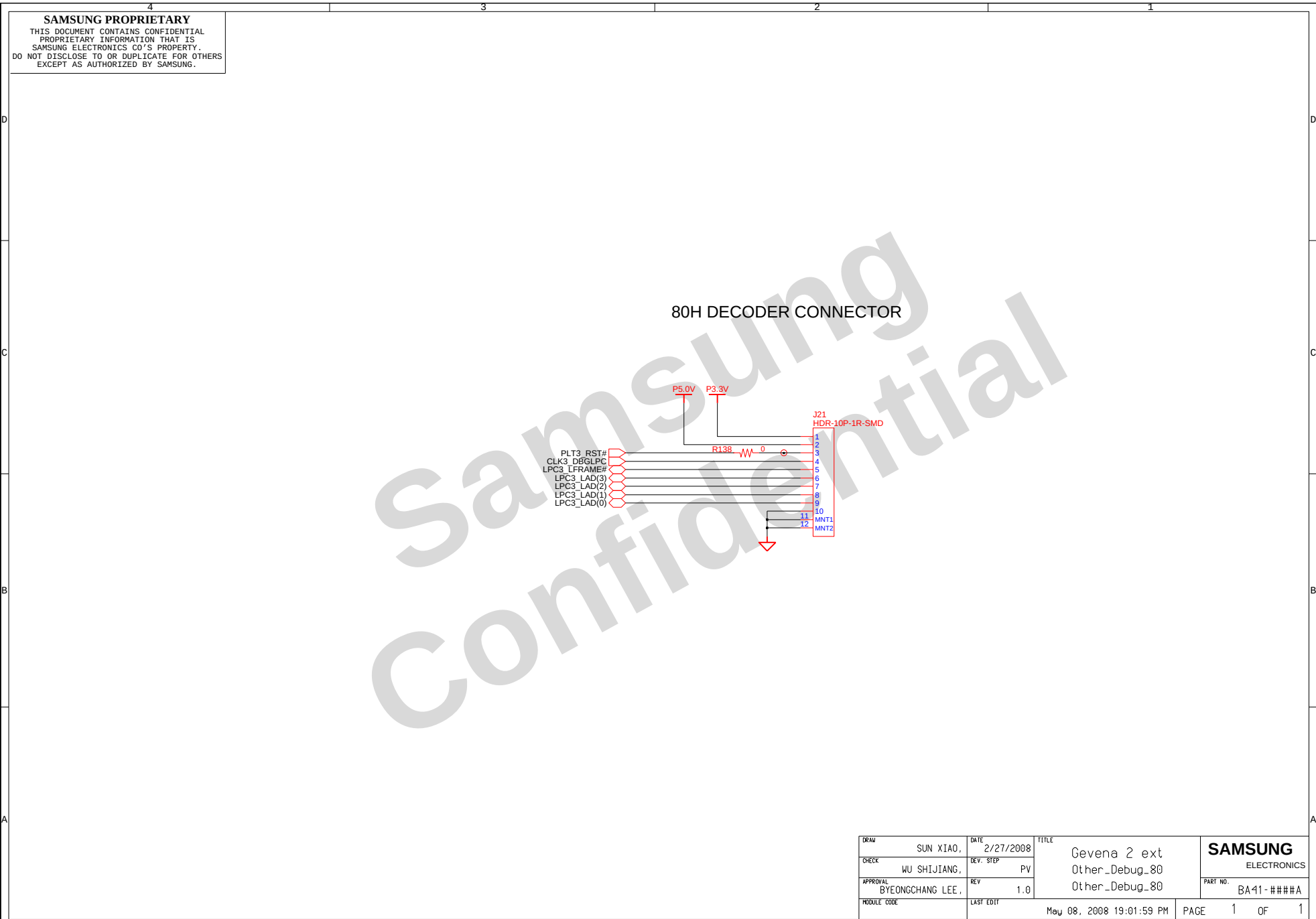
2 PORT USB CONNECTOR



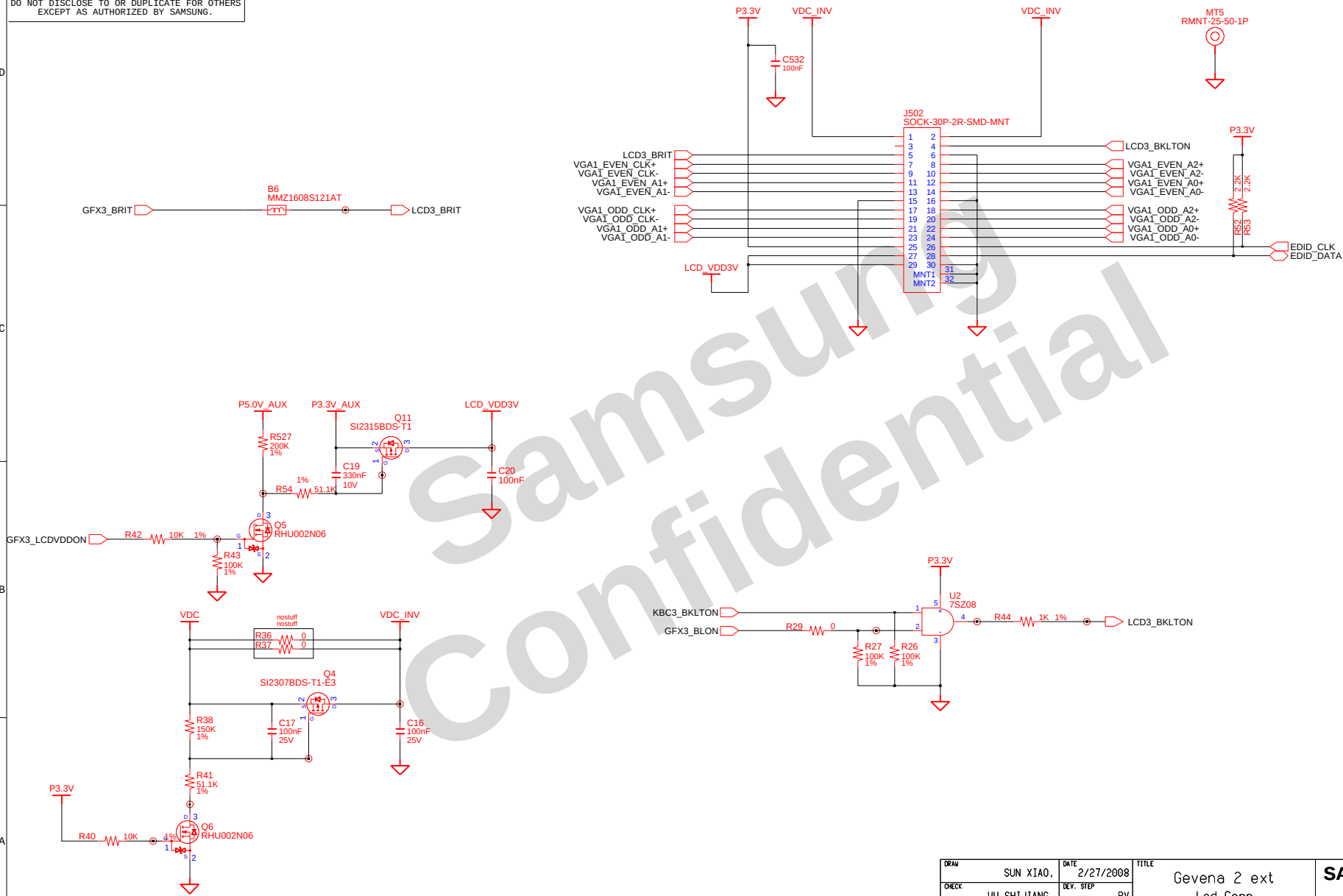
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CHECK	WU SHIJIANG,	DEV. STEP	PV			PART NO. BA41-####A
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Geneva 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		HDA_Modem	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		HDA_Modem	
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	



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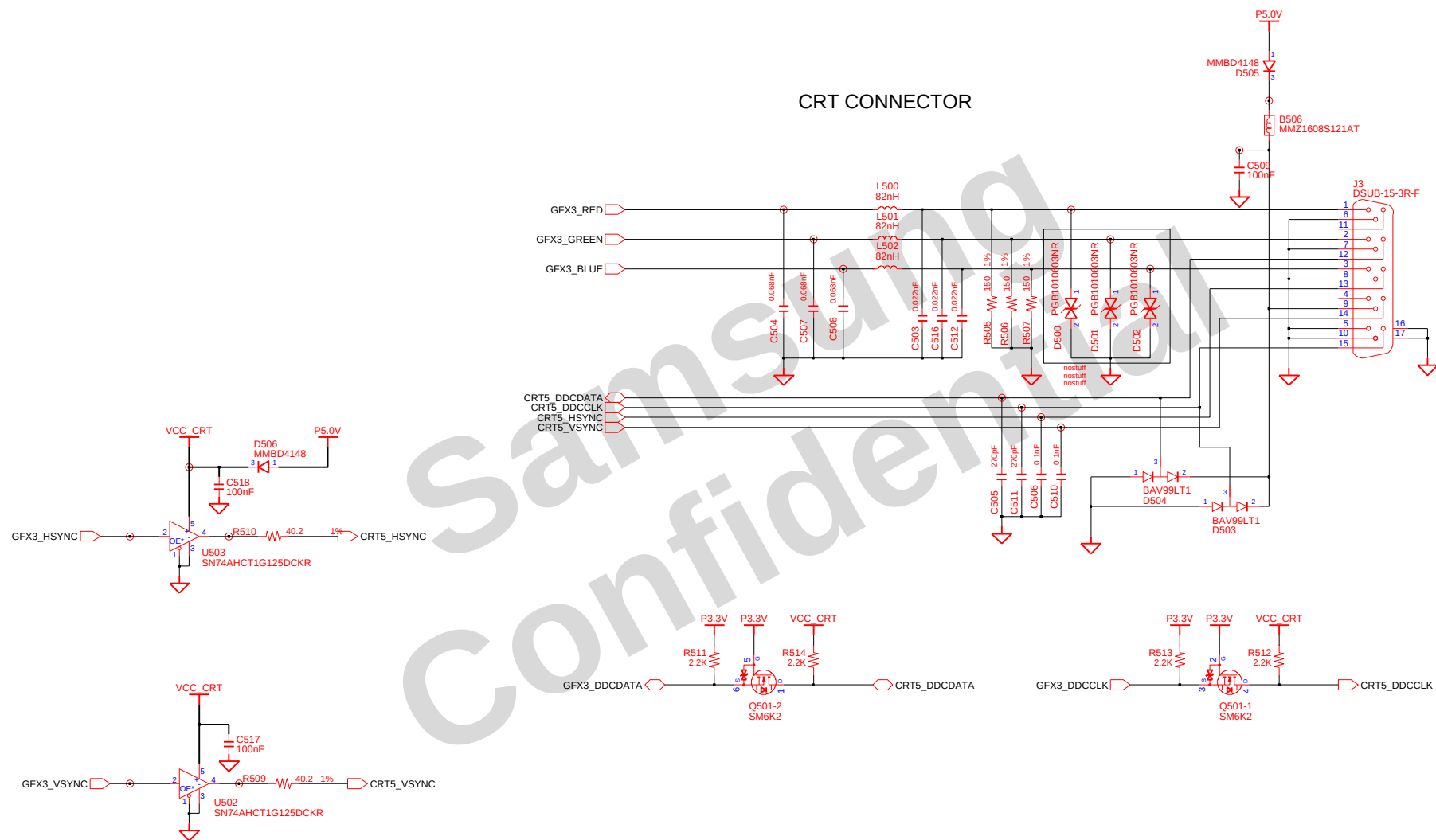


DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext Lcd Conn	SAMSUNG ELECTRONICS PART NO. BA41-####A
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APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

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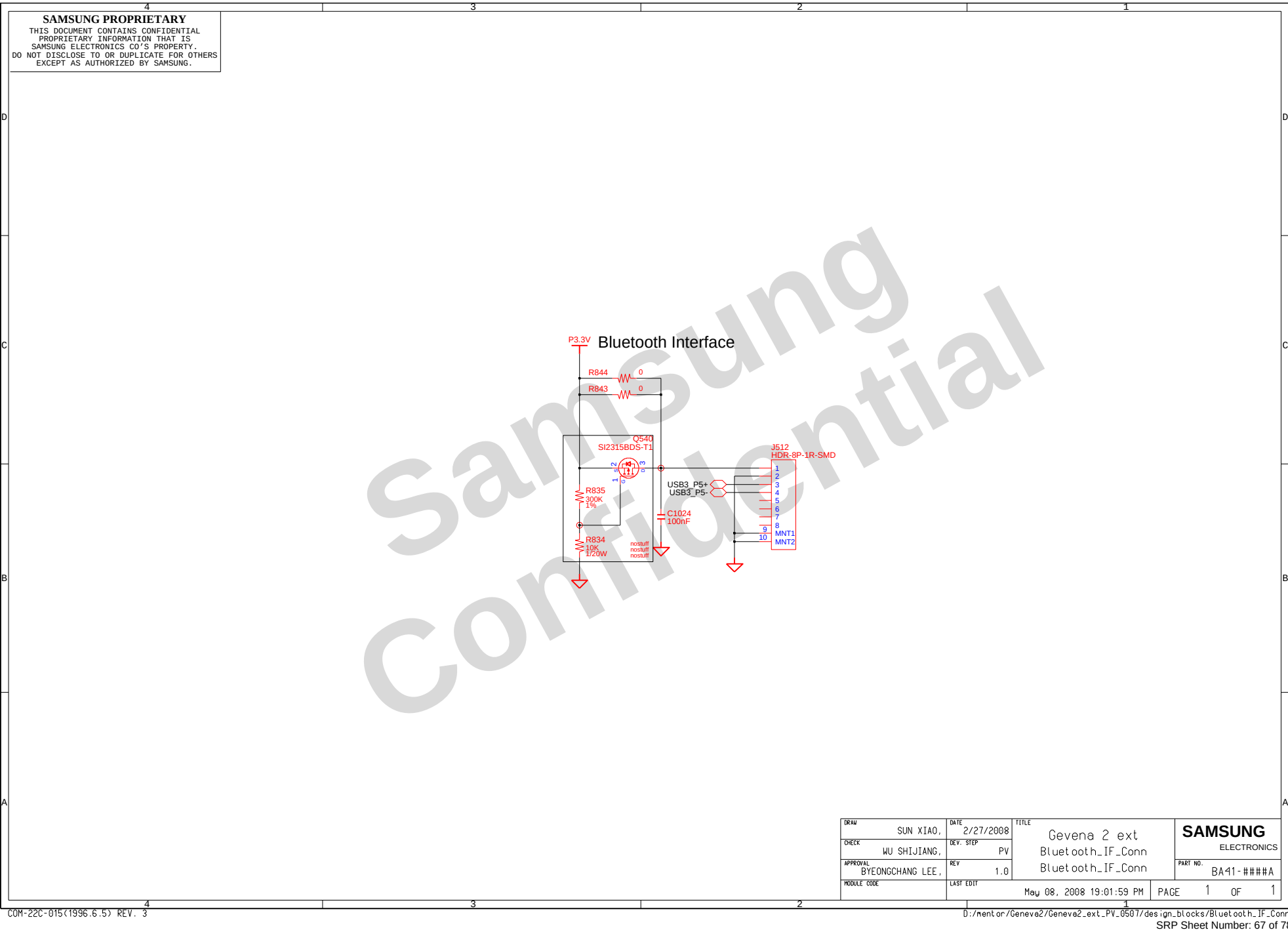
CRT CONNECTOR

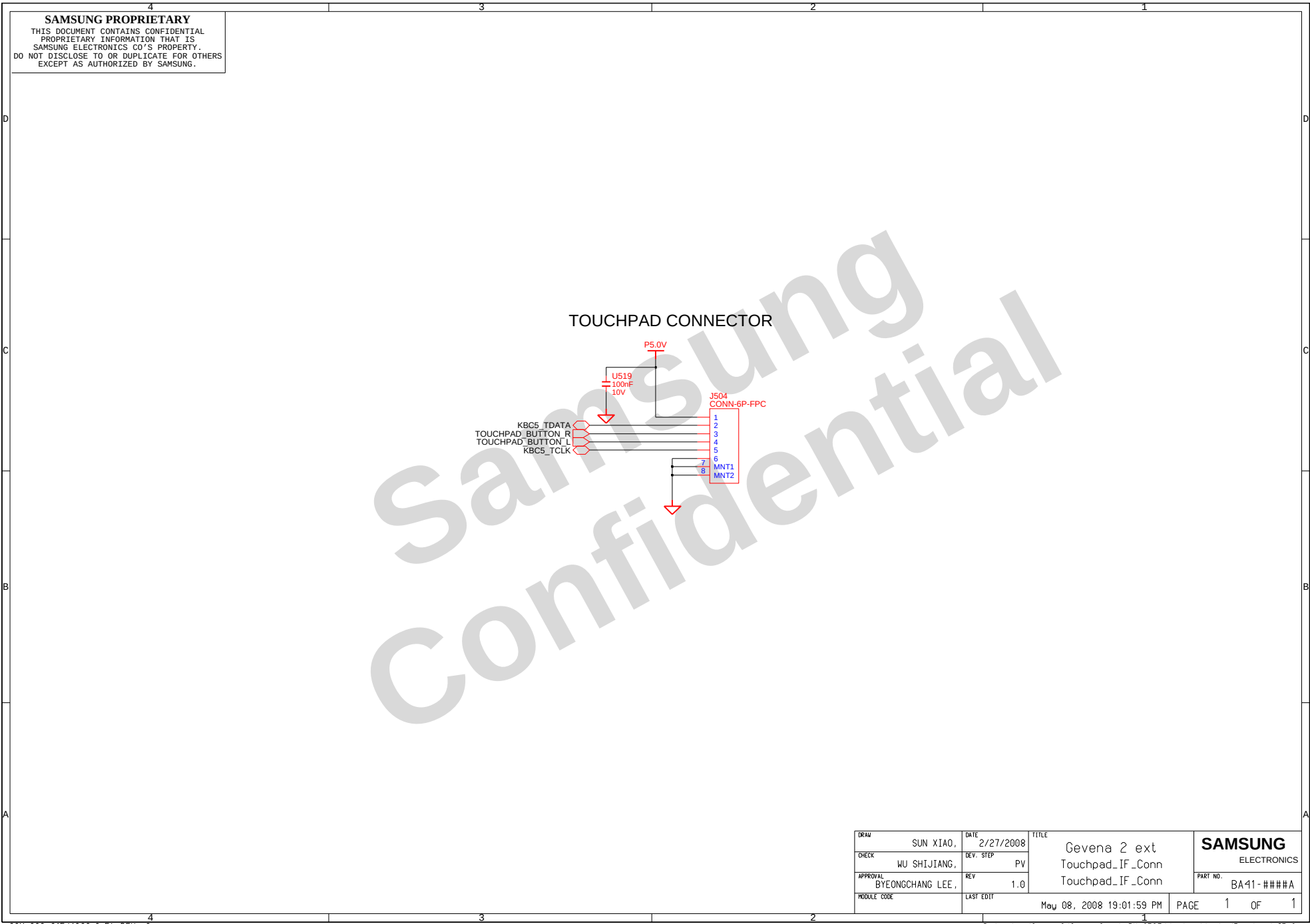


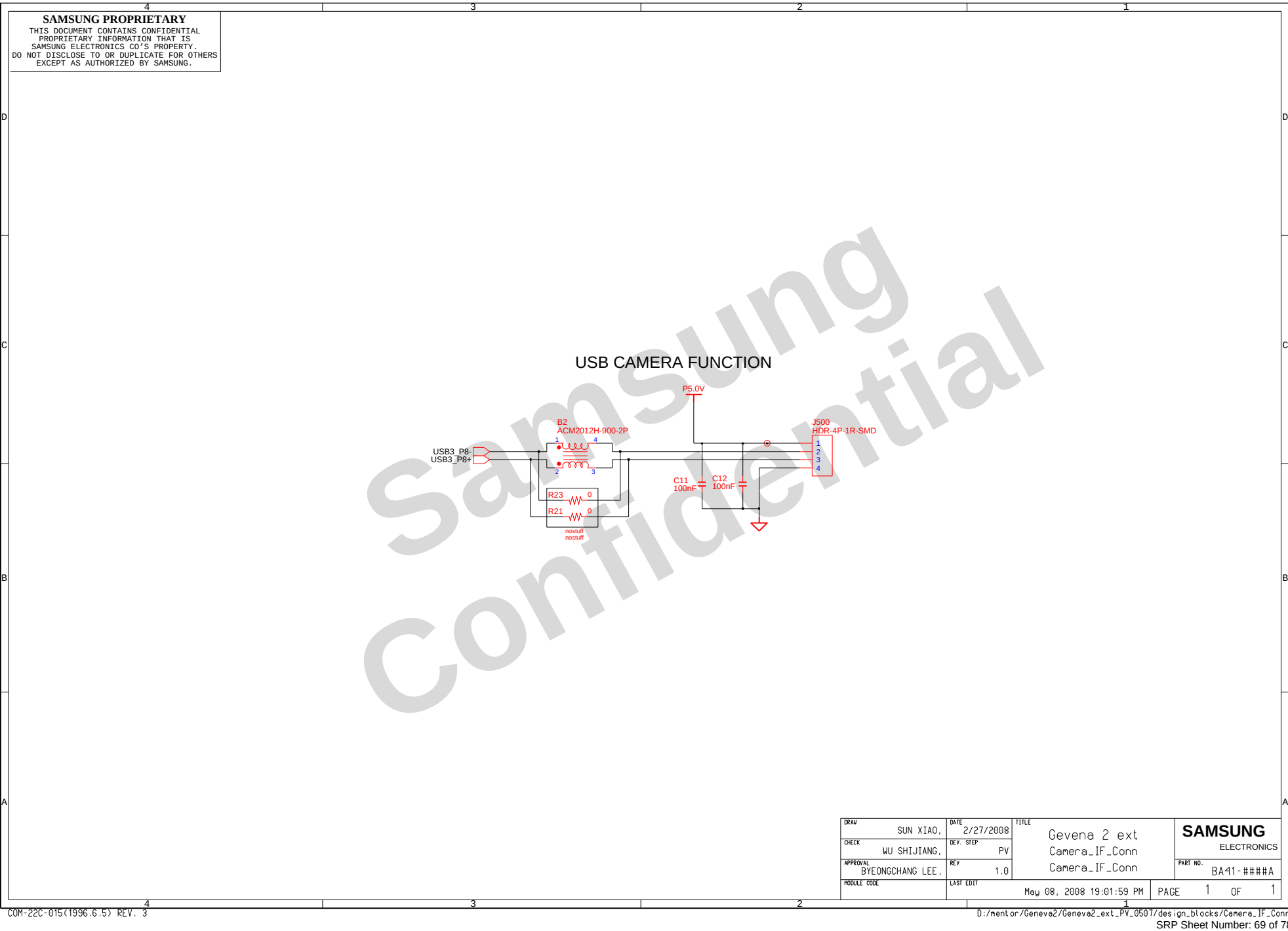
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CHECK	WU SHIJIANG,	DEV. STEP	PV			
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT				

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D:/mentor/Geneve2/Geneve2_ext_PV_0507/design_blocks/KBD_1f_Conn
SRP Sheet Number: 66 of 78

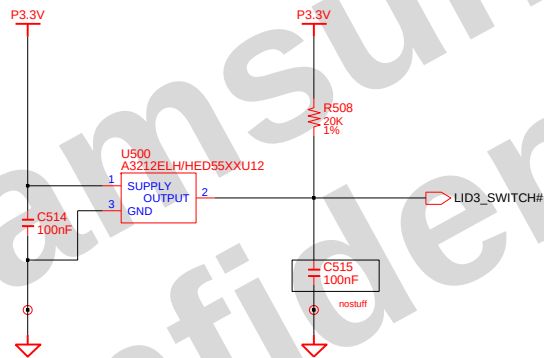






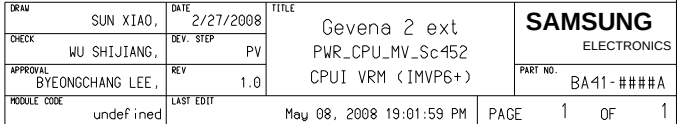
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LID_SWITCH



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		LID_Switch	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		LID_Switch	
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

CPU VRM [SEMTECH]



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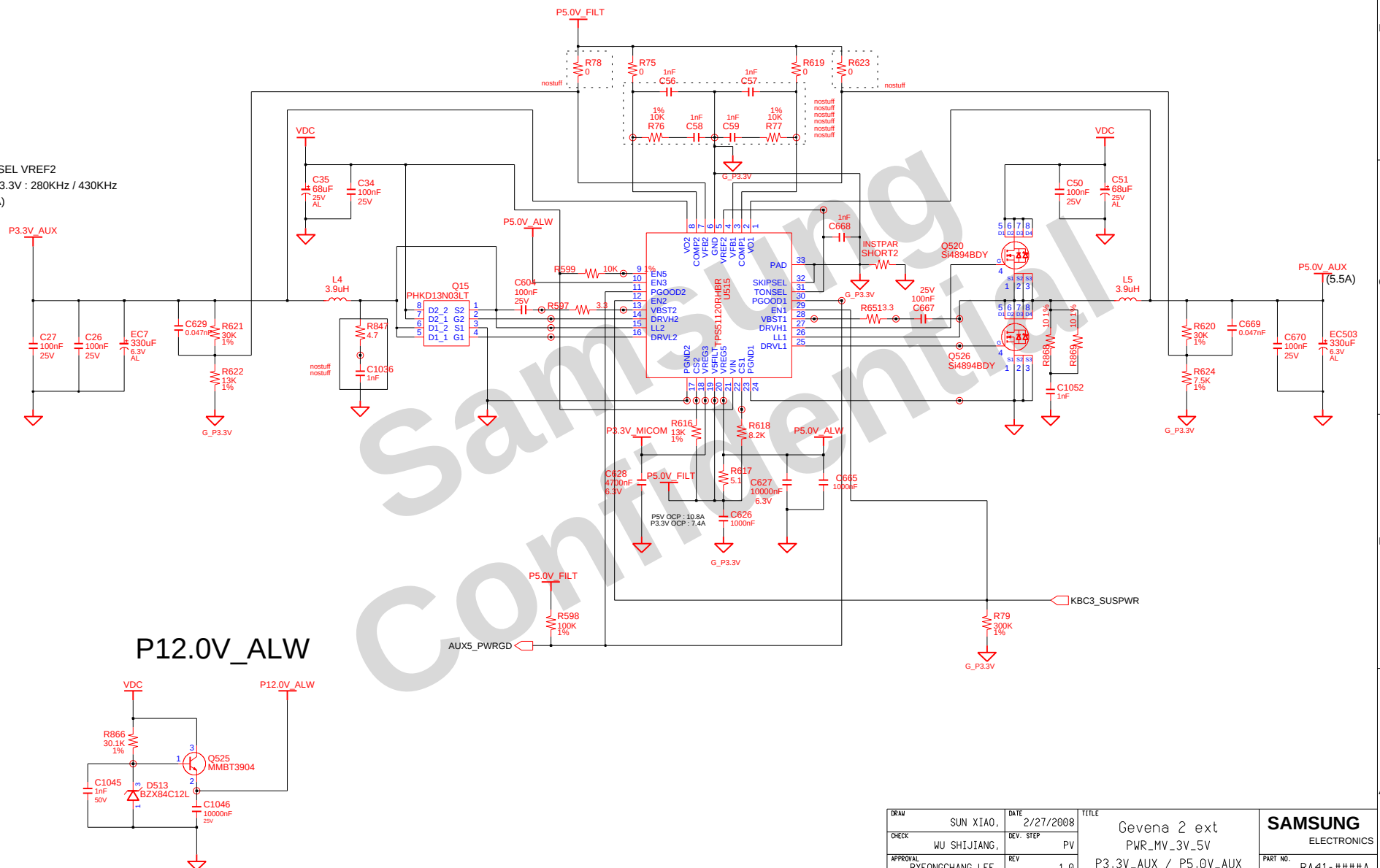
COM-22C-015(1996.6.5) REV. 3

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P3.3V_AUX & P5.0V_AUX

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



P12.0V_ALW

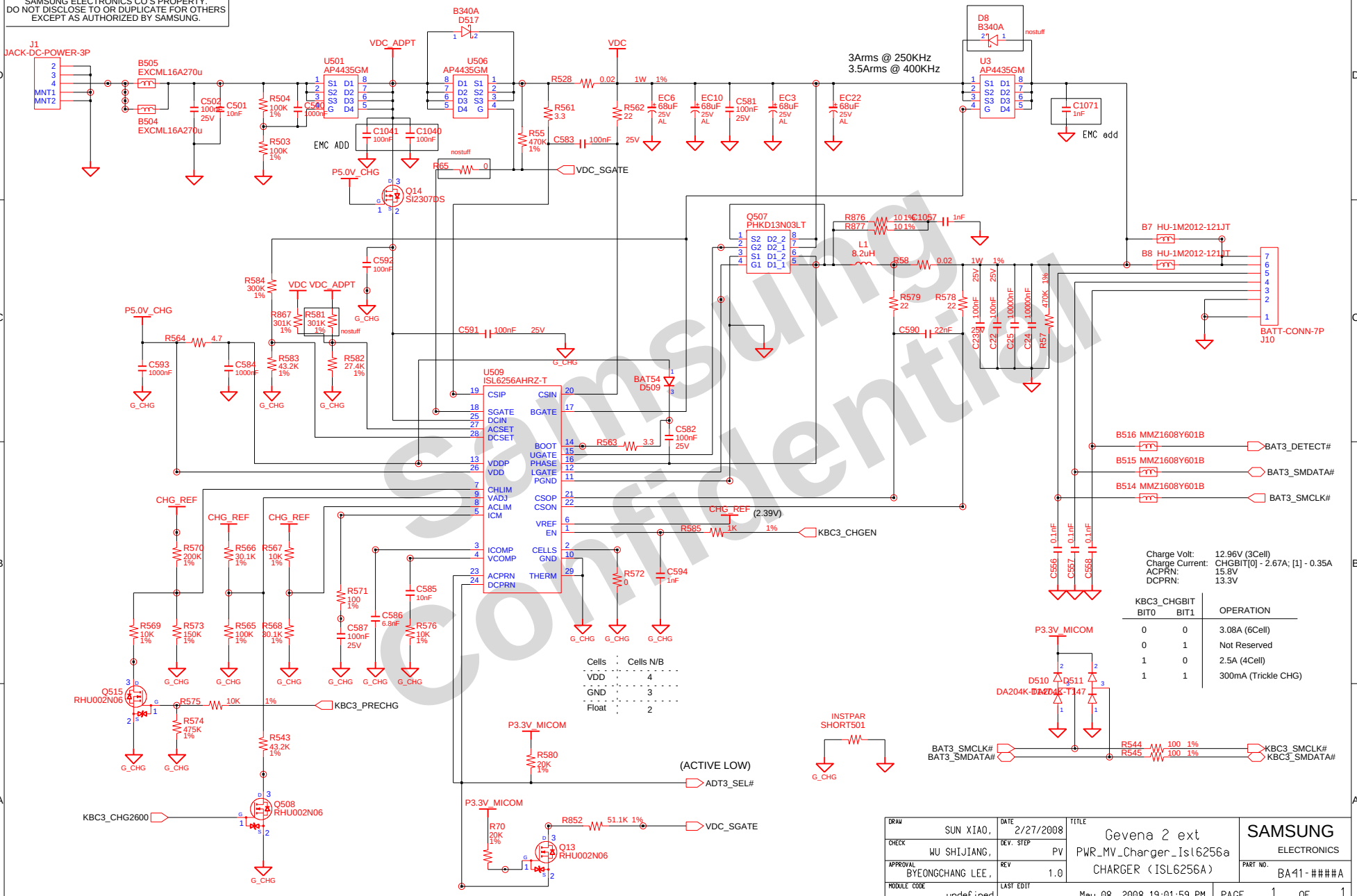
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CHECK	WU SHIJIANG,	DEV. STEP	PV		PWR_MV_3V_5V	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		P3.3V_AUX / P5.0V_AUX	PART NO.
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1	OF 1

[illegible]

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

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CHARGER & POWER MANAGEMENT

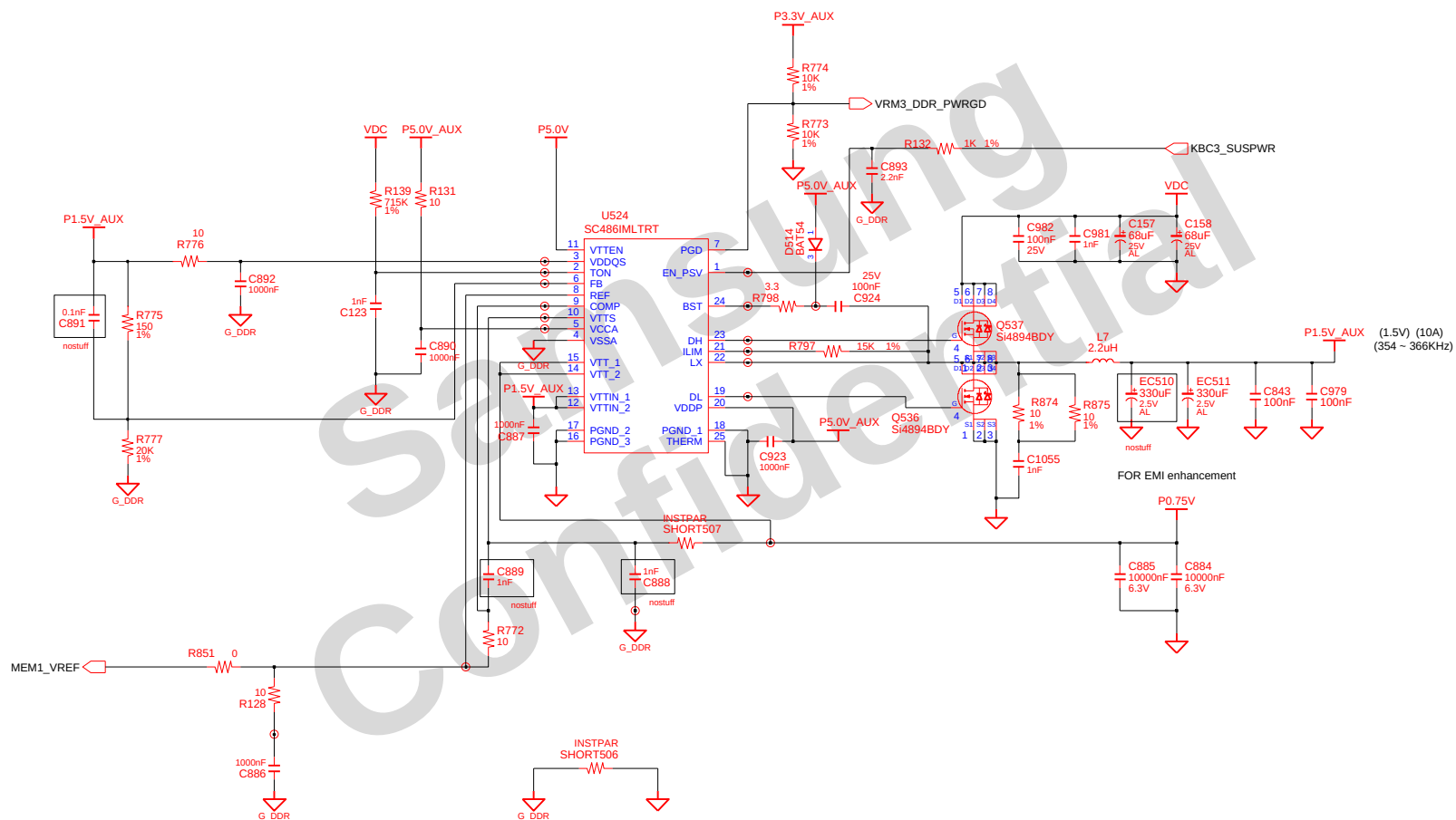


Charge Volt:	12.96V (3Cell)
Charge Current:	CHGBIT[0] - 2.67A; [1] - 0.35A
ACPRN:	15.8V
DCPRN:	13.3V

KBC3_CHGBIT BIT0	BIT1	OPERATION
0	0	3.08A (6Cell)
0	1	Not Reserved
1	0	2.5A (4Cell)
1	1	300mA (Trickle CHG)

DRAW		DATE		TITLE		SAMSUNG	
SUN XIAO,		2/27/2008		Gevena 2 ext		ELECTRONICS	
CHECK		REV. STEP		PWR_MV_Charger_Is16256a		PART NO.	
WU SHIJIANG,		PV		CHARGER (ISL6256A)		BA41-####A	
APPROVAL		REV					
BYEONGCHANG LEE,		1.0					
MODULE CODE		LAST EDIT		May 08, 2008 19:01:59 PM		PAGE 1 OF 1	
undefined							

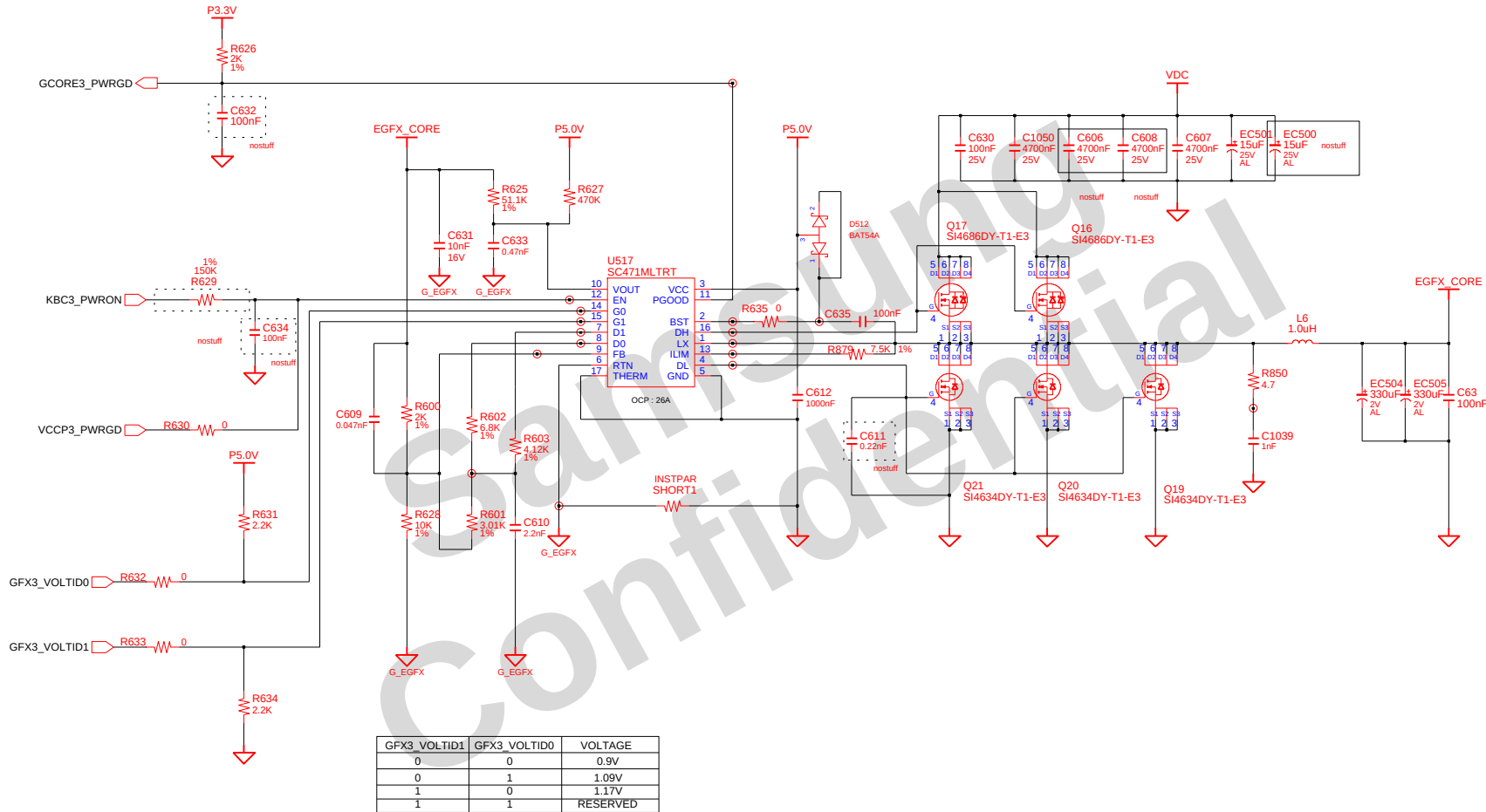
DDR3 Power



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		PWR_MV_Memory	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		DDR3 POWER (P1.5V_AUX)	
MODULE CODE	undefined	LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

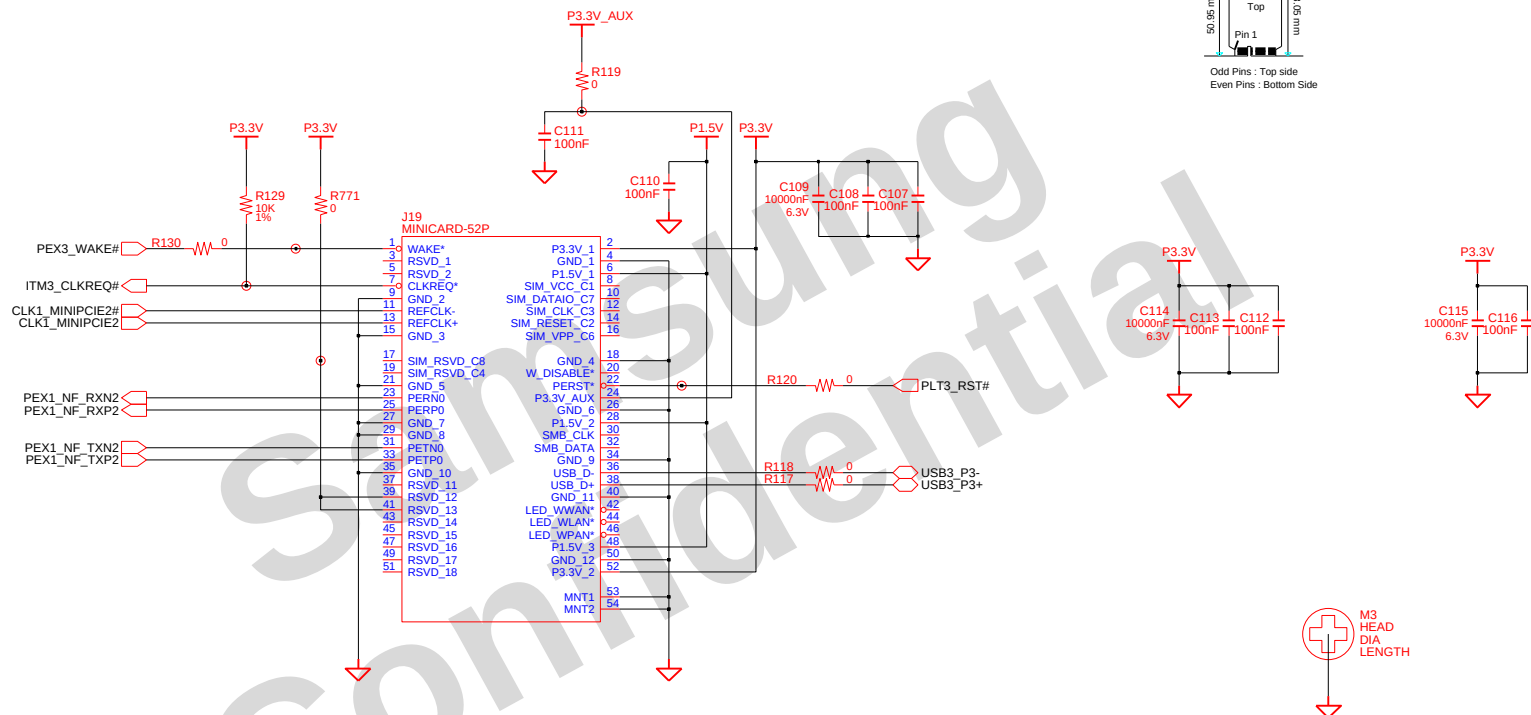
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Graphic Core Power



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	WU SHIJIANG,	DEV. STEP	PV		PWR_Gfx_MV_Ext	
APPROVAL	BYEONGCHANG LEE,	REV	1.0		Ext Gfx Core(SC471)	
MODULE CODE		LAST EDIT				
May 08, 2008 19:01:59 PM						PAGE 2 OF 2

MINI CARD FOR ROBSON



DRAW	SUN XIAO,	DATE	2/27/2008	TITLE	Gevena 2 ext Robson_PCIE Robson_PCIE	SAMSUNG ELECTRONICS
CHECK	WU SHIJIANG,	DEV. STEP	PV			PART NO. BA41-####A
APPROVAL	BYEONGCHANG LEE,	REV	1.0			
MODULE CODE		LAST EDIT	May 08, 2008 19:01:59 PM	PAGE	1 OF 1	

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