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TORINO 2

PCB Thickness:1mm

CPU :INTEL MEROM
Chip Set :INTEL 965GM & ICH8-M
Remarks :w/o INTEL AMT
2 SODIMMs

Model Name : TORINO 2
PBA Name : MAIN
PCB Code : BA41-00727A / 728A
Dev. Step : MP
Revision : 1.0
T.R. Date : 2007.03.09

DRAW	CHECK	APPROVAL
-	-	-

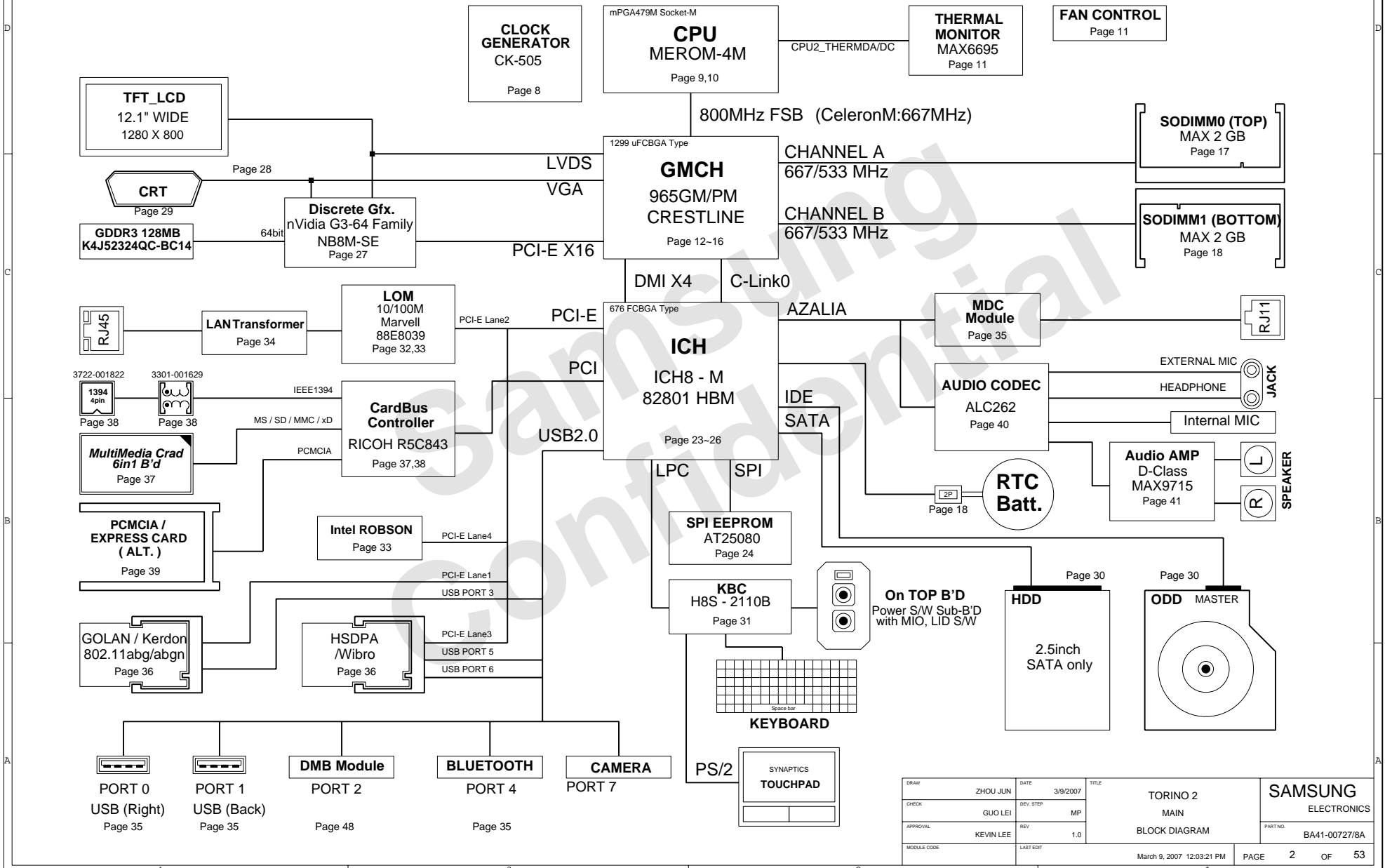
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DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		COVER	
APPROVAL	KEVIN LEE	REV	1.0		CONTENTS	PART NO. BA41-00727/8A
MODULE CODE		LAST ENT		March 9, 2007 12:03:21 PM	PAGE	1 OF 53

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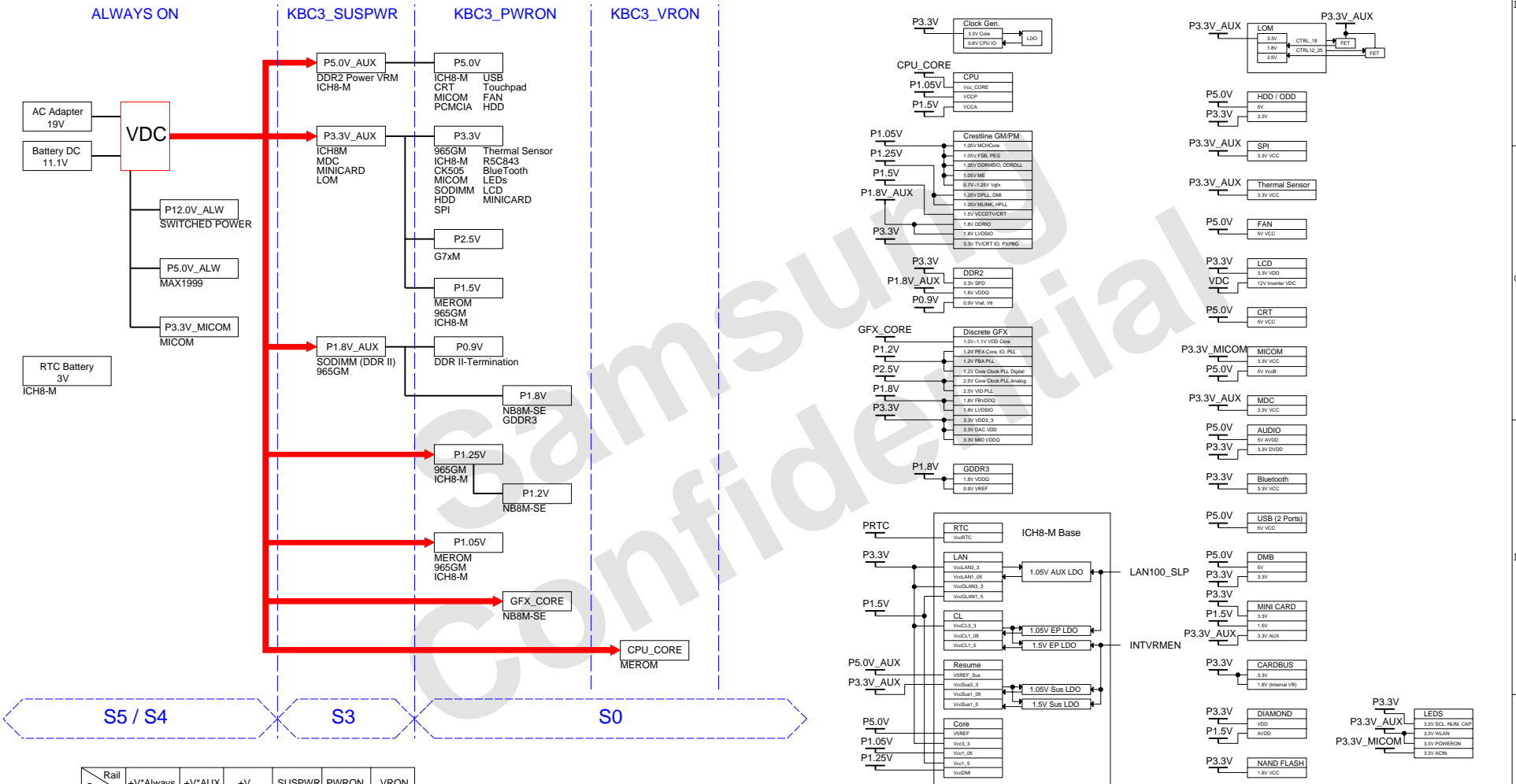
OPERATION BLOCK DIAGRAM



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
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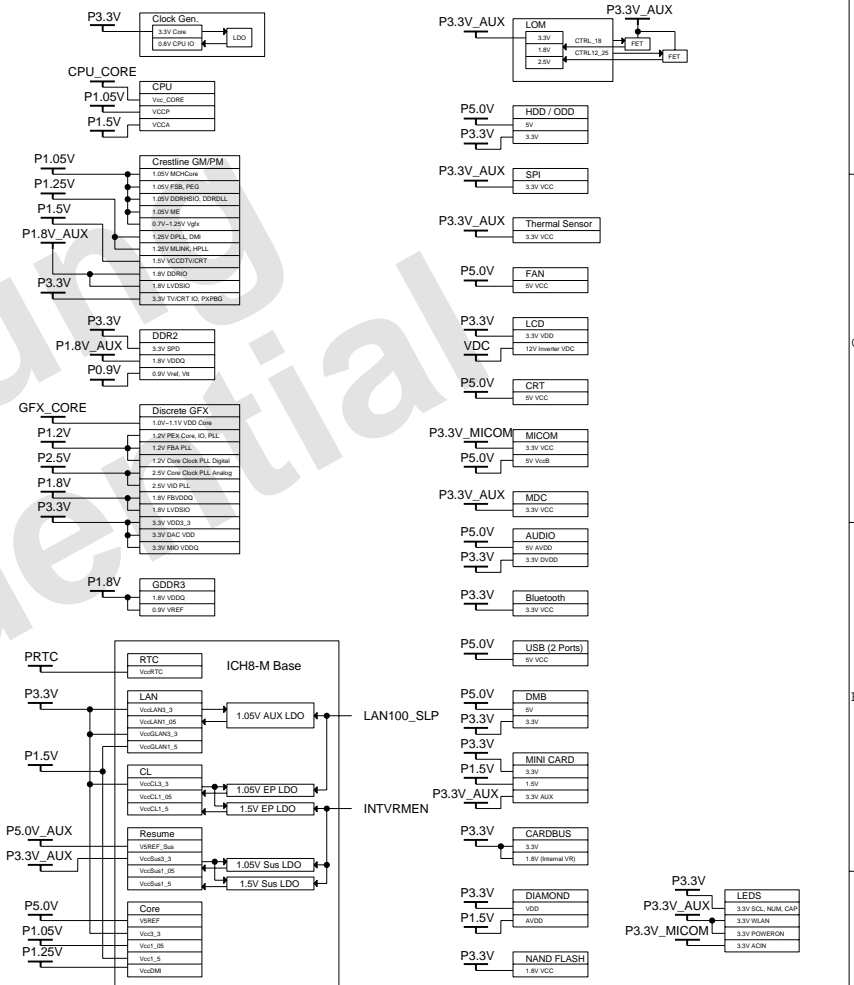
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POWER DIAGRAM



S5 / S4 S3 S0

Rail State	+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

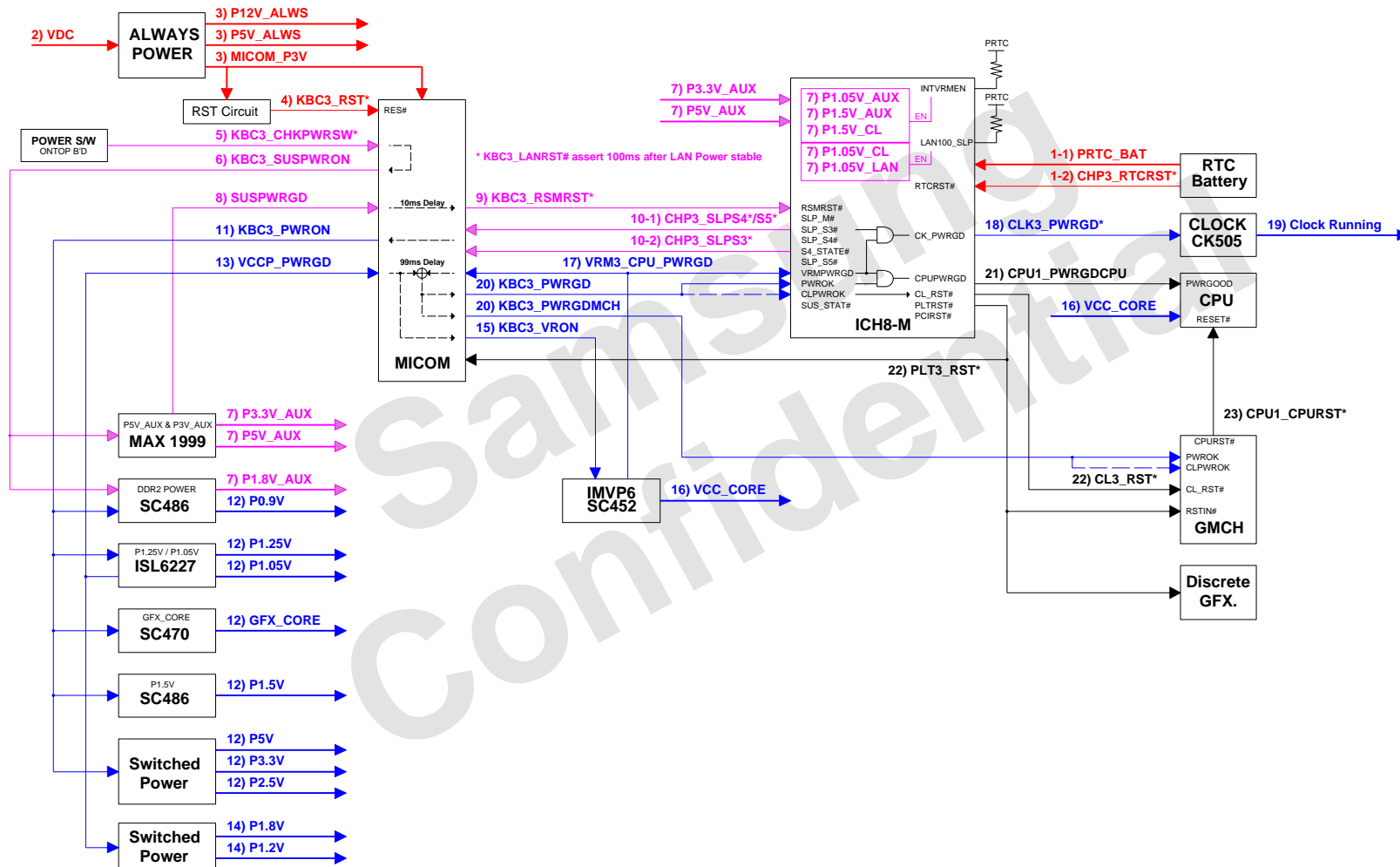


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POWER SEQUENCE Rev. 0.1

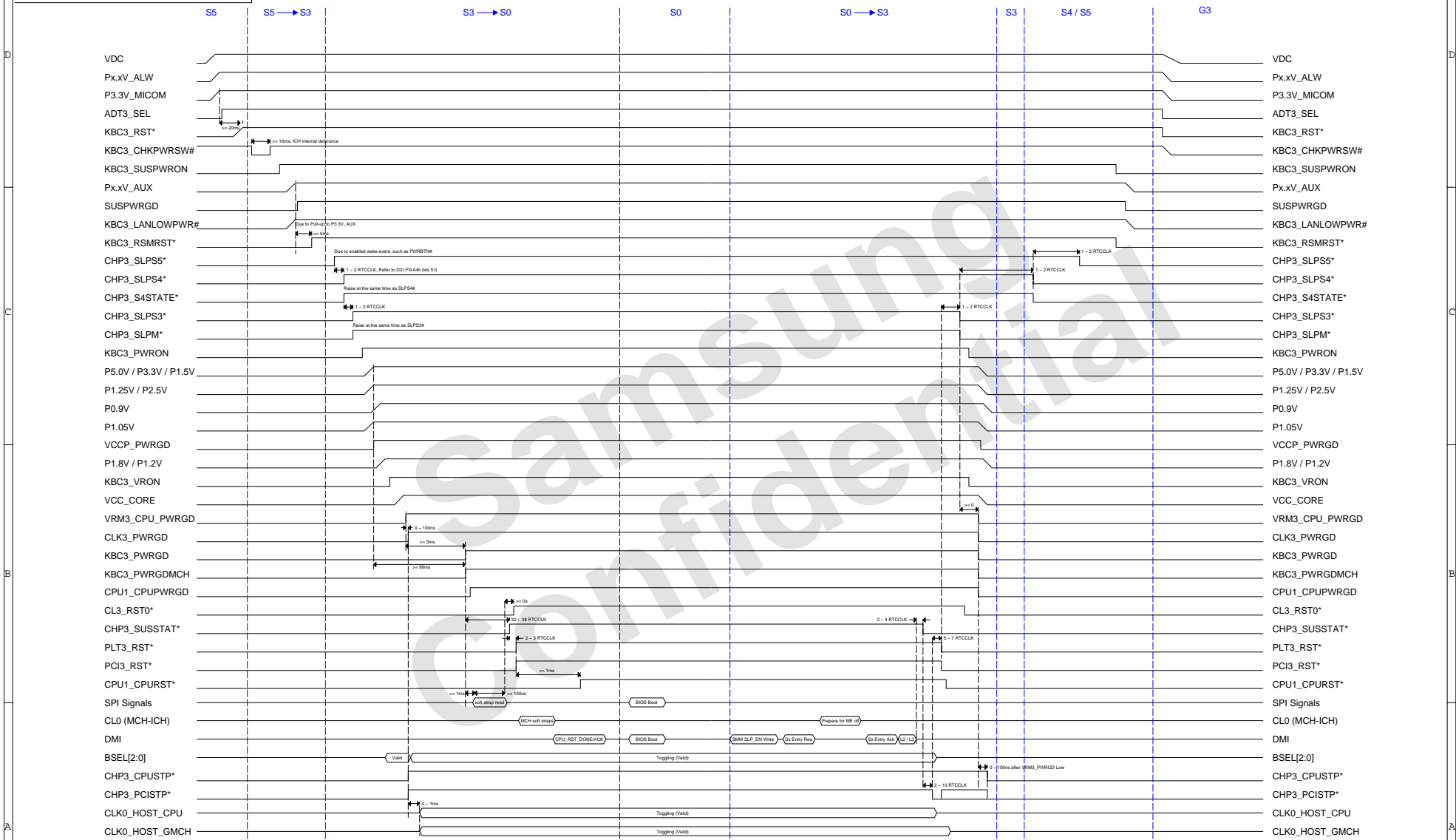


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Timing Diagram, no ME

Rev. 0.2 Phil 2006-9-21

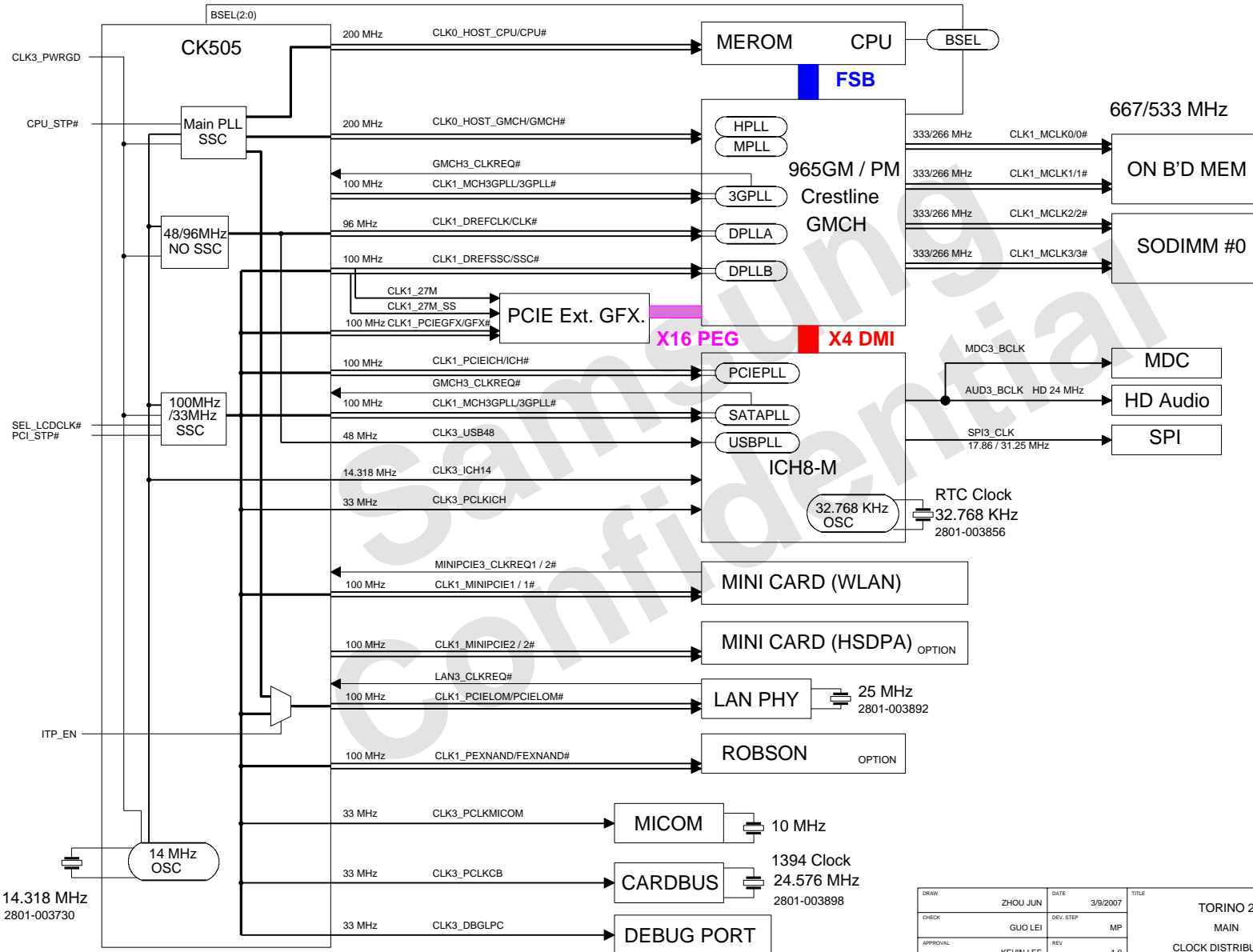


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CLOCK DISTRIBUTION Rev. 0.1



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BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
Cardbus	AD25	0	E,F,G

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	ICH8-M	Real Time Clock
Crystal	10MHz	MICOM	H8S/2110BV
Crystal	14.318MHz	CLOCK-Generator	CK-505
Crystal	24.576MHz	Cardbus Controller	1394
Crystal	25MHz	LAN	LAN

Voltage Rails

VDC	Primary DC system power supply (7 to 21V)
CPU_CORE	Core voltage for Processor (1.308-1.068V)
P1.05V	Processor System Bus(PSB) Termination (1.05V)
GFX_CORE	GMCH & ICH8 Core Voltage
P1.8V_AUX	Core voltage for NB8M-SE (1.0 - 1.1V)
P0.9V	1.8V power rail for DDR2 (off in S4-S5)
P1.8V	0.9V switched power rail (off in S3-S5)
P1.2V	1.8V power rail for GDDR3 (off in S3-S5)
P1.5V	1.2V switched power rail (off in S3-S5)
P2.5V	1.5V switched power rail (off in S3-S5)
P3.3V	2.5V switched power rail (off in S3-S5)
P5.0V	3.3V switched power rail (off in S3-S5)
P3.3V_AUX	5.0V switched power rail (off in S3-S5)
P5V_AUX	3.3V power rail (off in S4-S5)
PRTC_BAT	5.0V power rail (off in S4-S5)
P3.3V_MICOM	3.0V power rail (ALWAYS ON)
P5.0V_ALW	3.3V always on power rail for MICOM
P12.0V_ALW	5V power rail (Always On)
	12V power rail (Always On)

CPU Core Voltage Table IMVP-6

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 0	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	0.4750 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 1 0 0	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 1 0 1	0.9500 V	1 0 1 0 1 0 1	0.4375 V
0 0 0 0 1 0 1	1.4375 V	0 1 0 1 1 1 0	0.9375 V	1 0 1 0 1 1 0	0.4250 V
0 0 0 0 1 1 0	1.4250 V	0 1 0 1 1 1 1	0.9250 V	1 0 1 1 0 0 0	0.4125 V
0 0 0 0 1 1 1	1.4125 V	0 1 0 1 1 1 1	0.9125 V	1 0 1 1 0 0 1	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 0 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 0 1 0	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 0 1 1	0.3625 V
0 0 0 1 0 1 1	1.3625 V	0 1 1 0 1 0 0	0.8625 V	1 0 1 1 1 0 0	0.3500 V
0 0 0 1 1 0 0	1.3500 V	0 1 1 0 1 0 1	0.8500 V	1 0 1 1 1 0 1	0.3375 V
0 0 0 1 1 0 1	1.3375 V	0 1 1 0 1 1 0	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 1 0 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 1 1	0.8125 V	1 1 0 0 0 0 0	0.3000 V
0 0 1 0 0 0 0	1.3000 V	0 1 1 1 0 1 1	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 0	0.7875 V	1 1 0 0 0 1 0	0.2750 V
0 0 1 0 0 1 0	1.2750 V	0 1 1 1 0 0 1	0.7750 V	1 1 0 0 0 1 1	0.2625 V
0 0 1 0 1 0 0	1.2625 V	0 1 1 1 0 1 0	0.7625 V	1 1 0 0 1 0 0	0.2500 V
0 0 1 0 1 0 1	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 1 0	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 1	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 1 0 0 0	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 1	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 1 0	1.1875 V	1 0 0 0 0 0 1	0.6875 V	1 1 0 1 0 1 0	0.1750 V
0 0 1 1 0 1 1	1.1750 V	1 0 0 0 0 1 0	0.6750 V	1 1 0 1 0 1 1	0.1625 V
0 0 1 1 1 0 0	1.1625 V	1 0 0 0 0 1 1	0.6625 V	1 1 0 1 1 0 0	0.1500 V
0 0 1 1 1 0 1	1.1500 V	1 0 0 0 1 0 0	0.6500 V	1 1 0 1 1 0 1	0.1375 V
0 0 1 1 1 1 0	1.1375 V	1 0 0 0 1 0 1	0.6375 V	1 1 0 1 1 1 0	0.1250 V
0 0 1 1 1 1 1	1.1250 V	1 0 0 0 1 1 0	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 1 1	0.6125 V	1 1 1 1 0 0 0	0.1000 V
0 1 0 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 1 0 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 1 0 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 1 0 0 0 1 1	1.0625 V	1 0 0 0 1 1 0	0.5625 V	1 1 1 0 1 0 0	0.0500 V
0 1 0 0 1 0 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 1 0 0 1 0 1	1.0375 V	1 0 0 0 1 1 1	0.5375 V	1 1 1 0 1 1 0	0.0250 V
0 1 0 0 1 1 0	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 1 1 1	1.0125 V	1 0 0 1 0 0 0	0.5125 V	1 1 1 1 0 0 0	0.0000 V
		1 0 0 1 0 0 1	0.5000 V	1 1 1 1 0 0 1	0.0000 V
				1 1 1 1 0 1 0	0.0000 V
				1 1 1 1 0 1 1	0.0000 V
				1 1 1 1 1 0 0	0.0000 V
				1 1 1 1 1 0 1	0.0000 V
				1 1 1 1 1 1 0	0.0000 V
				1 1 1 1 1 1 1	0.0000 V
				1 1 1 1 1 1 1	0.0000 V

Active: DPRSLPVR 0, DPRSTP* 1, PSI2* 0 or 1
Deeper Slip: DPRSLPVR 1, DPRSTP* 0, PSI2* 0 or 1

***11111111** : 0V power good asserted.

I²C / SMB Address

Devices	Address	Hex	Bus
ICH8	Master	-	SMBUS Master
SODIMM0	1010 000X	A0h	-
SODIMM1	1010 010X	A4h	-
CK-505 (Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
MICOM	Master	-	SMBUS Master
BATTERY	0001 011X	16h	-
EMC2102(Termal Sensor)	0111 101X	7Ah	Thermal Sensor

USB PORT Assign

PORT NUMBER	ASSIGNED TO
0	SYSTEM PORT A
1	SYSTEM PORT B
2	DMB CARD
3	MINIPIE
4	BLUETOOTH
5	WIBRO SIM CARD
6	HSDPA
7	CAMERA

System Power States

CHP3_SLPS1* S1, Powered-On-Suspend(POS) : In this state, all clocks(except the 32.768KHz clock) are stopped. The system context is maintained in system DRAM. Power is maintained to PCI, the CPU, memory controller, memory, and all other critical subsystems. Note that this state does not preclude power being removed from non-essential devices, such as disk drives. During this state, CPU can be selected for either Deep Sleep or Deeper Sleep.

In Deeper Sleep, CPU voltage reduced in this state to reduce the leakage power.

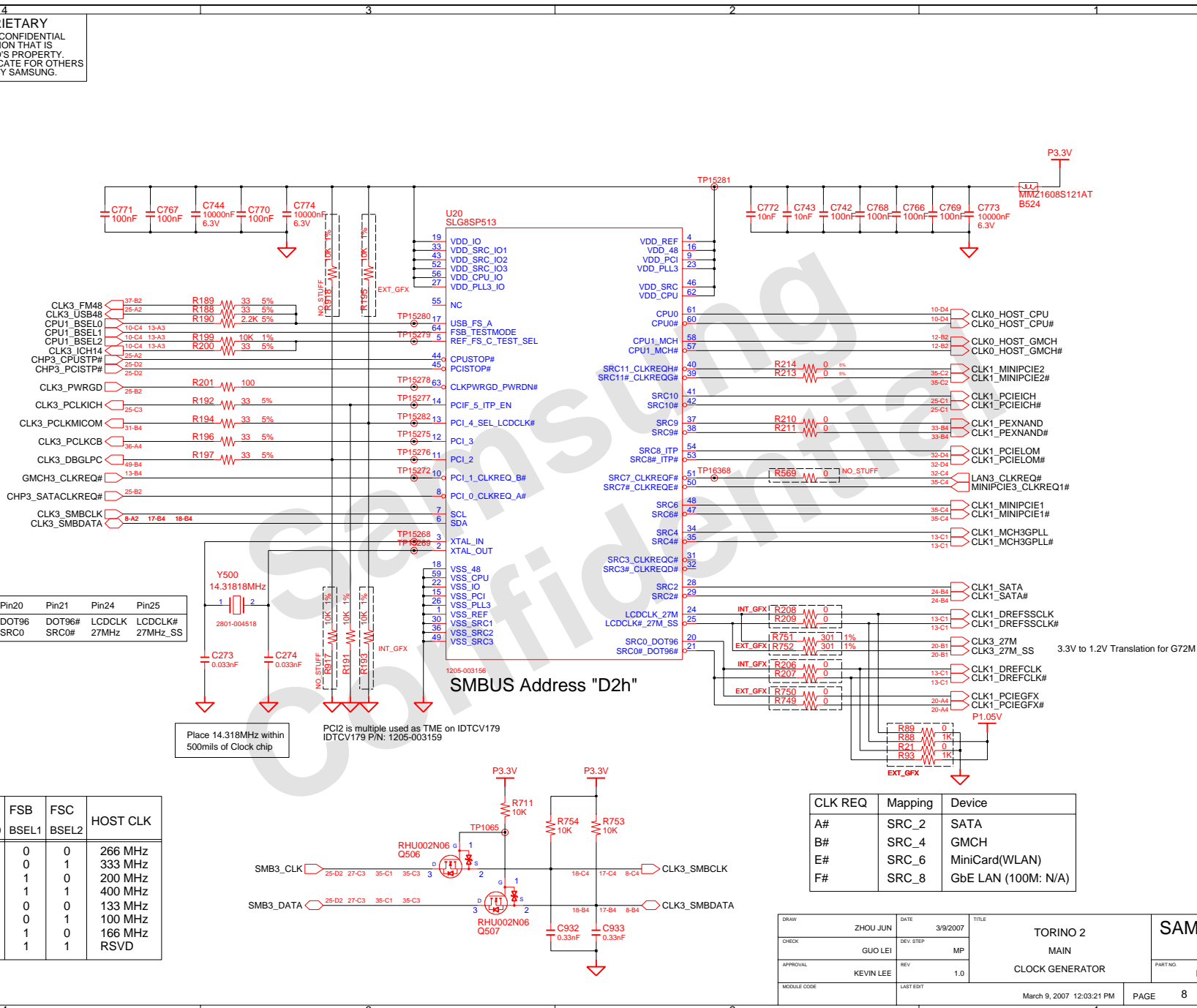
CHP3_SLPS3* S3, Suspend-To-RAM(STR) : The system context is maintained in system DRAM, but power is shut off to non-critical circuits. Memory is retained, and refreshes continue. All clocks stop except RTC clock.

CHP3_SLPS4* S4, Suspend-To-Disk(STD) : The Context of the system is maintained on the disk. All power is then shut off to the system except for the logic required to resume. Externally appears same as S5, but may have different wake events.

CHP3_SLPS5* S5, Soft Off(SOFF) : System context is not maintained. All power is shut off except for the logic required to restart. A full boot is required when waking.

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CHECK	GUO LEI	DEV. STEP	MP		MAIN	ELECTRONICS
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SEL_LCDCLK#	Pin20	Pin21	Pin24	Pin25
0	DOT96	SRC0	LCDCLK	LCDCLK#
1			27MHz	27MHz_SS

Place 14.318MHz within 500mils of Clock chip

PCI2 is multiple used as TME on IDTCV179
 IDTCV179 P/N: 1205-003159

SMBUS Address "D2h"

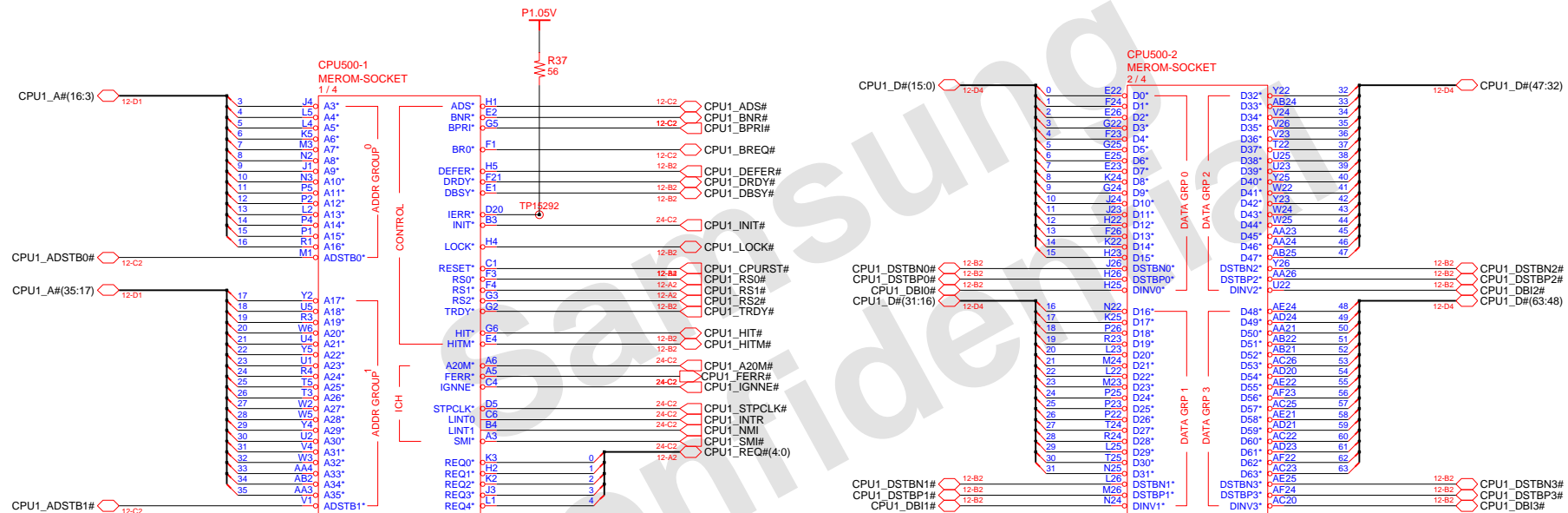
3.3V to 1.2V Translation for G72M

CPU	FSA BSEL0	FSB BSEL1	FSC BSEL2	HOST CLK
0	0	0	0	266 MHz
0	0	0	1	333 MHz
0	1	0	0	200 MHz
0	1	1	1	400 MHz
1	0	0	0	133 MHz
1	0	1	1	100 MHz
1	1	0	1	166 MHz
1	1	1	1	RSVD

CLK REQ	Mapping	Device
A#	SRC_2	SATA
B#	SRC_4	GMCH
E#	SRC_6	MiniCard(WLAN)
F#	SRC_8	GbE LAN (100M: N/A)

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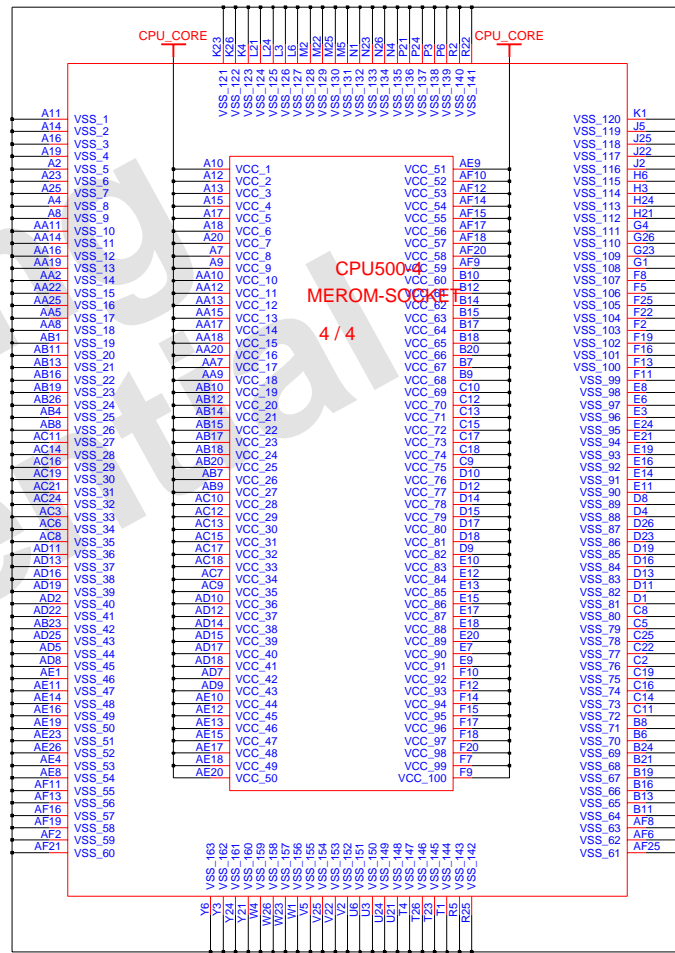
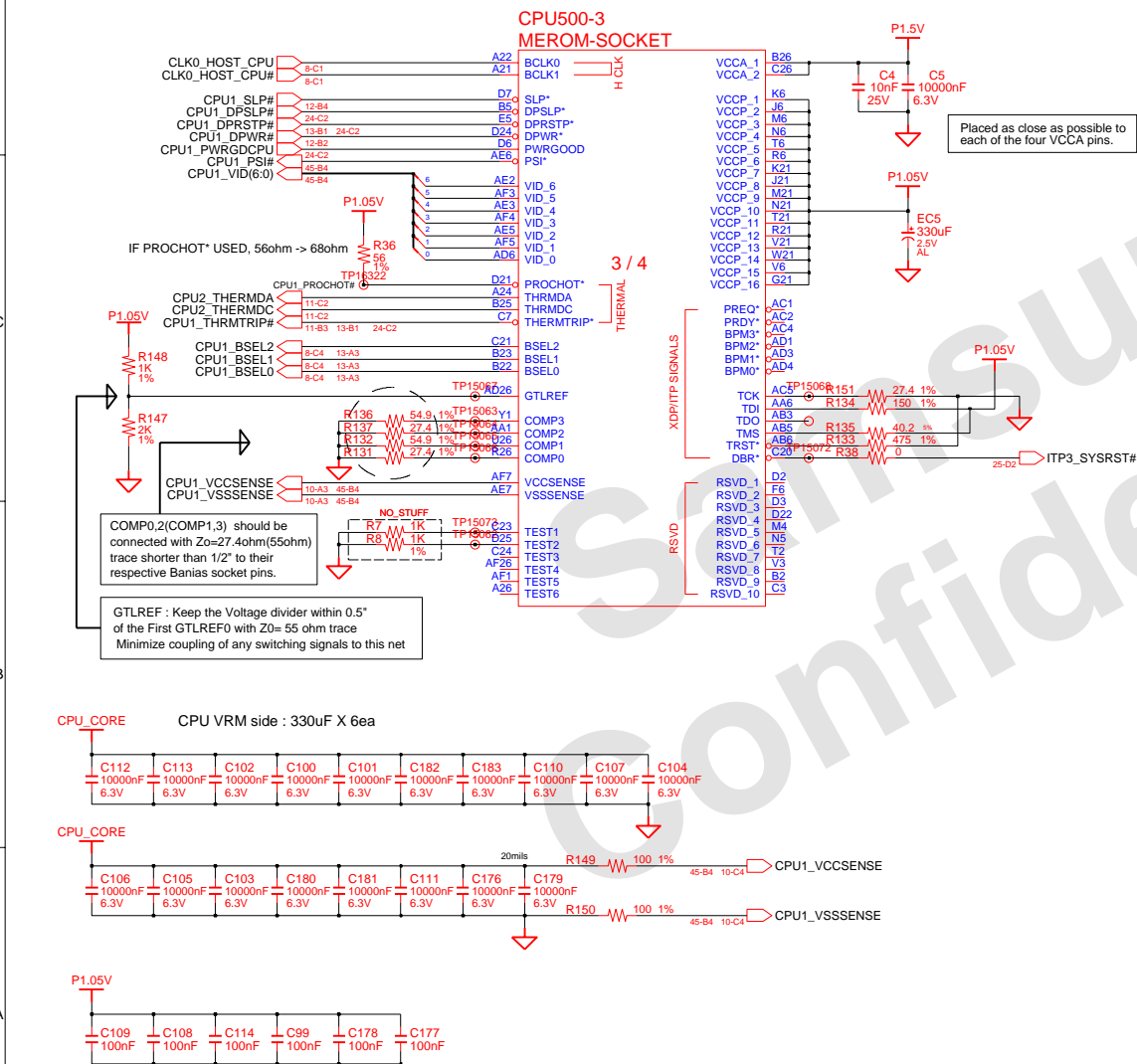
CPU SOCKET : MEROM



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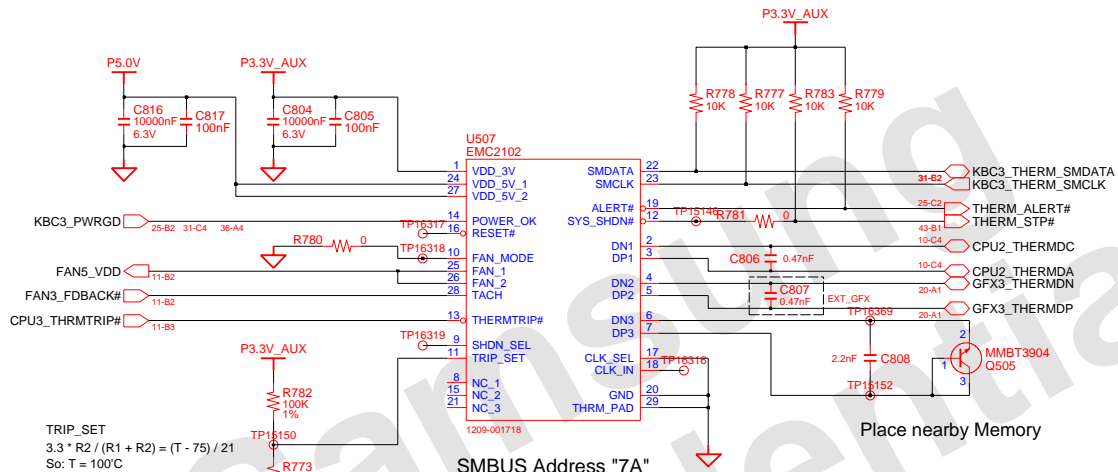
CPU SOCKET : MEROM



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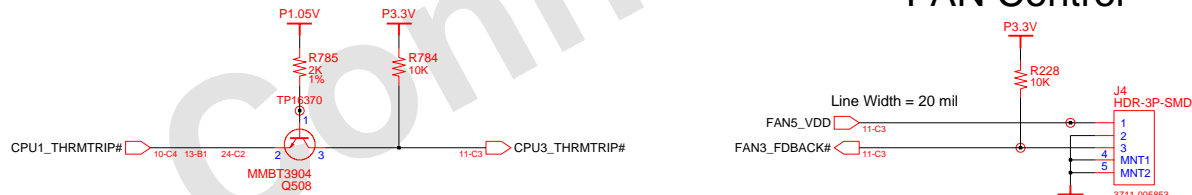
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Thermal Monitor



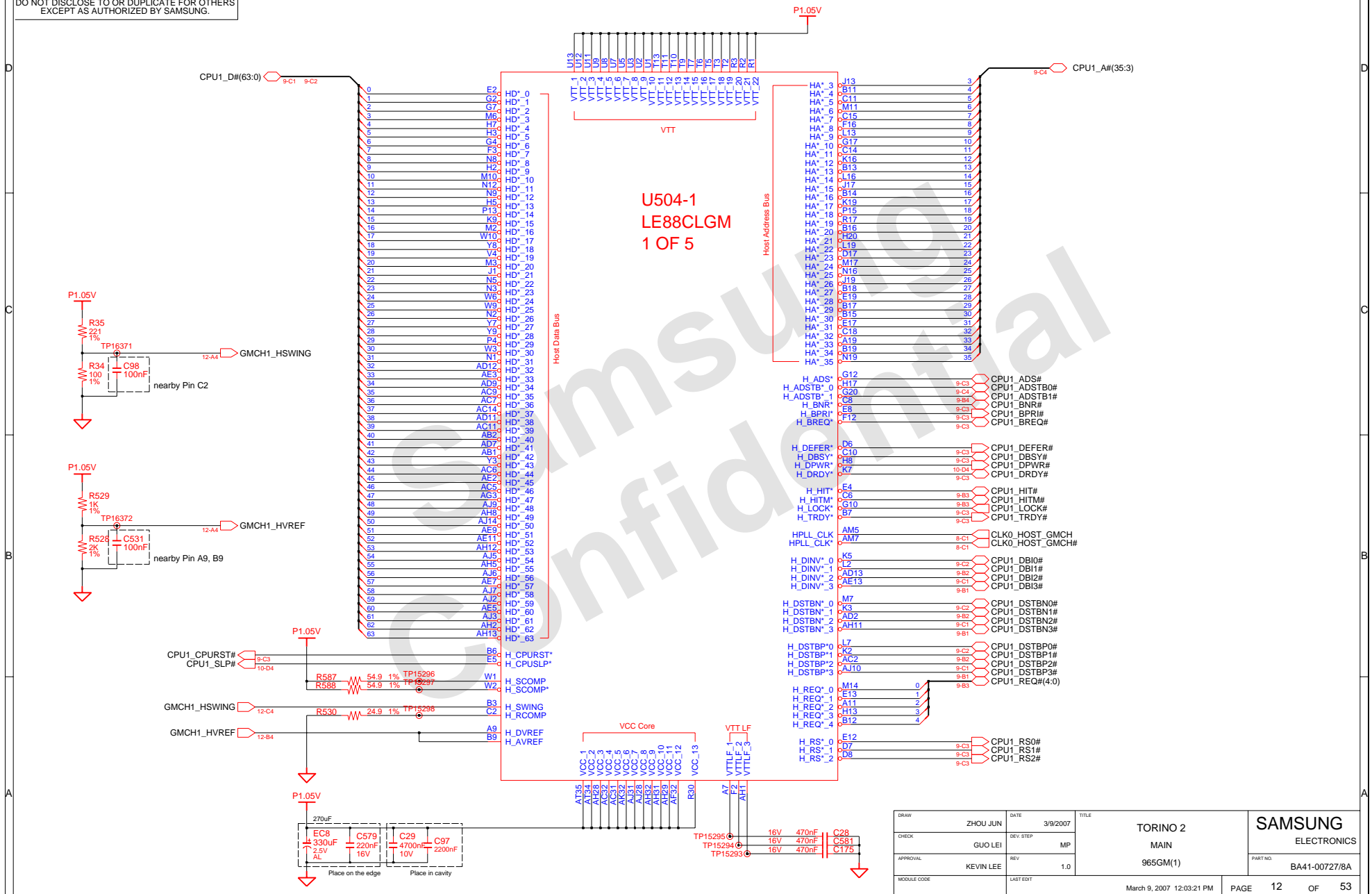
TRIP_SET
 $3.3 * R2 / (R1 + R2) = (T - 75) / 21$
 So: $T = 100^{\circ}\text{C}$

FAN Control



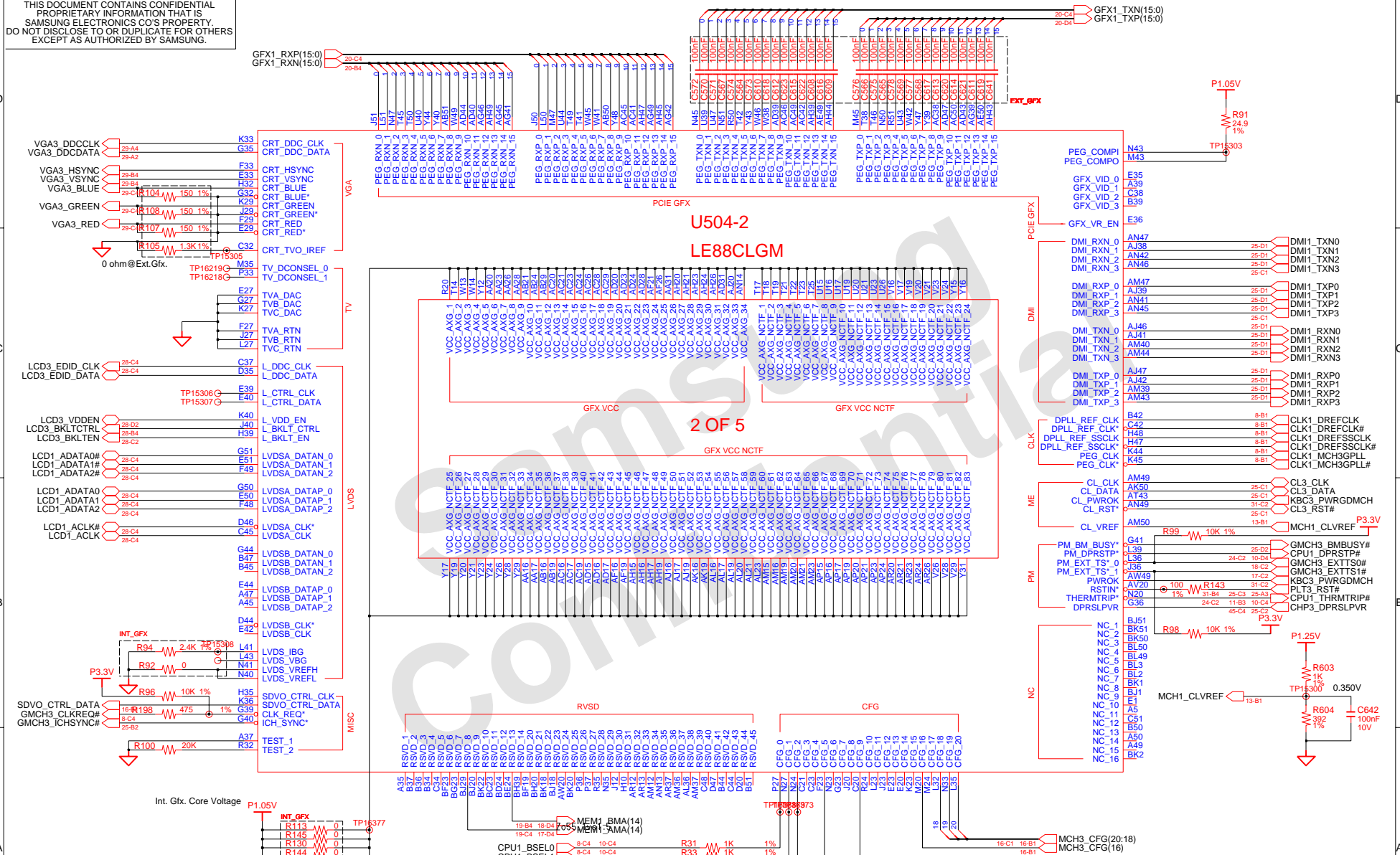
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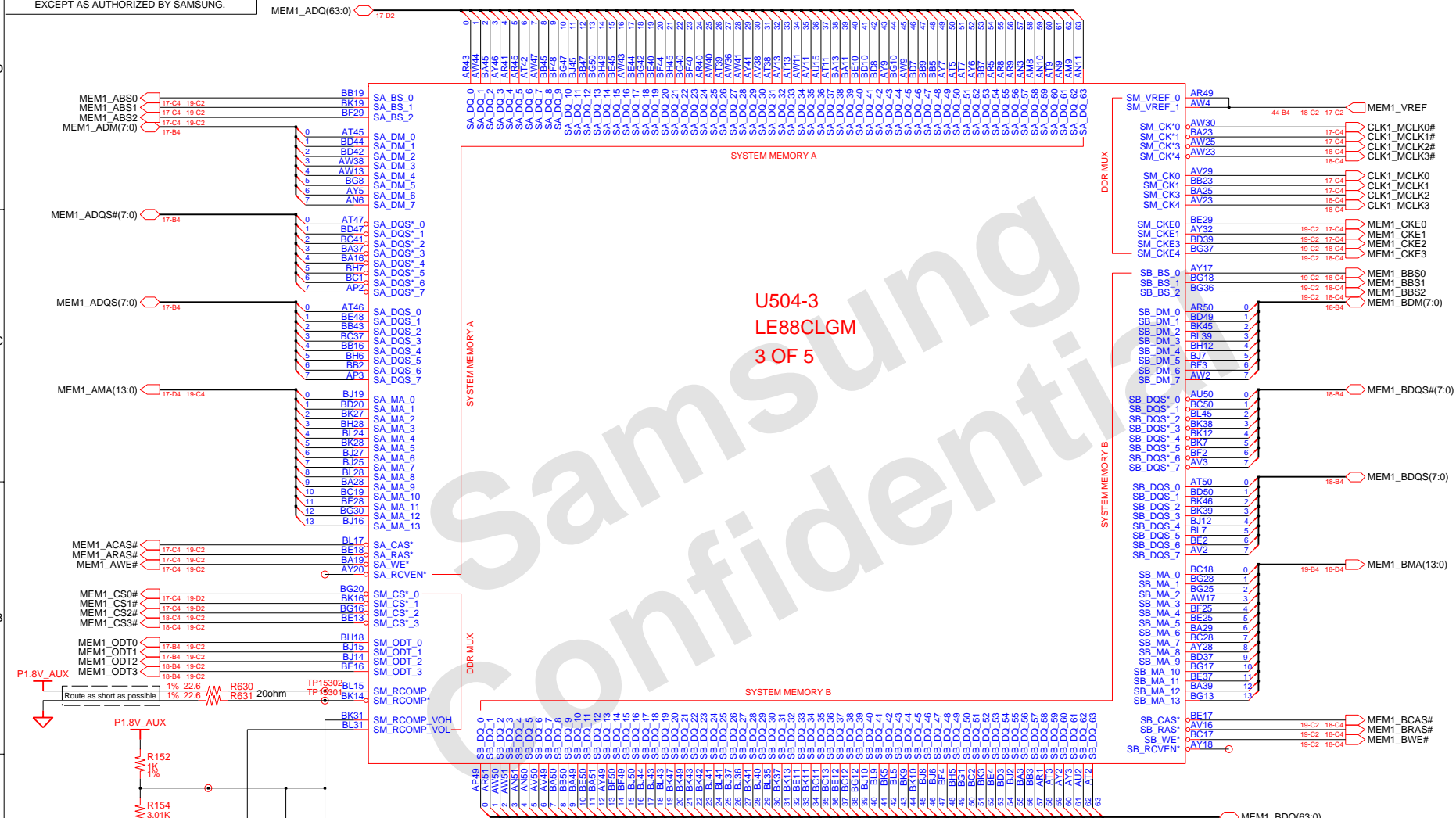
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DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN	965GM(2)	
APPROVAL	KEVIN LEE	REV	1.0			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	13	OF 53

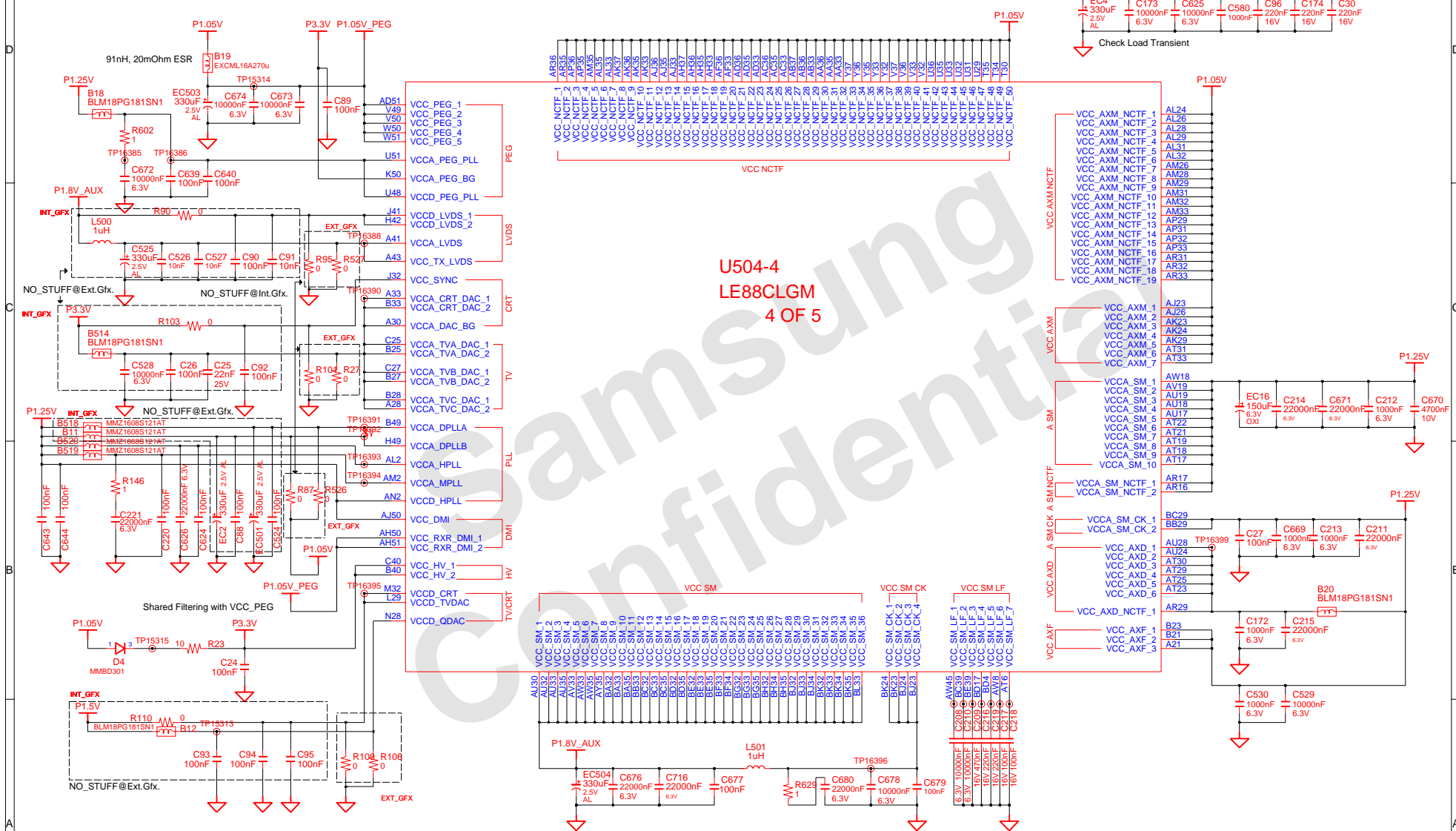
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Dual Channel	Ch. A (So-DIMM A)	Ch. B (So-DIMM B)
SM_CK(2:0)	SA_CK(2:0)	N/A
SM_CK(2:0)*	SA_CK(2:0)*	N/A
SM_CK(5:3)	N/A	SB_CK(2:0)
SM_CK(5:3)*	N/A	SB_CK(2:0)*
SM_CS(1:0)*	SA_CS(1:0)*	N/A
SM_CKE(1:0)	SA_CKE(1:0)	N/A
SM_ODT(1:0)	SA_ODT(1:0)	N/A
SM_CS(3:2)	N/A	SB_CS(3:2)*
SM_SKE(3:2)	N/A	SB_CKE(3:2)
SM_ODT(3:2)	N/A	SB_ODT(3:2)

DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG
CHECK	GUO LEI	DEV_STEP	MP		MAIN	ELECTRONICS
APPROVAL	KEVIN LEE	REV	1.0		965GM(3)	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 14 OF 53

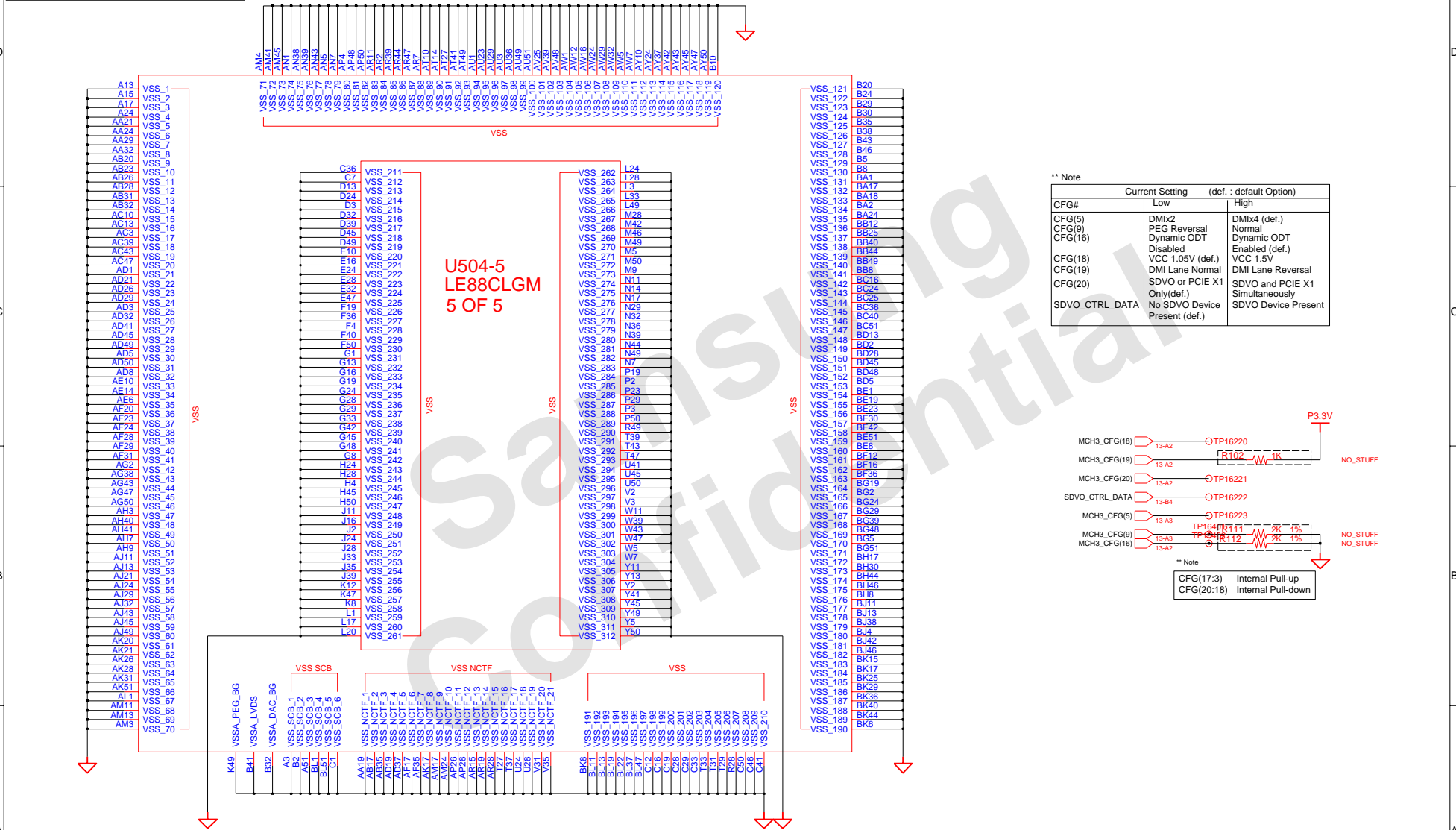
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U504-4
 LE88CLGM
 4 OF 5

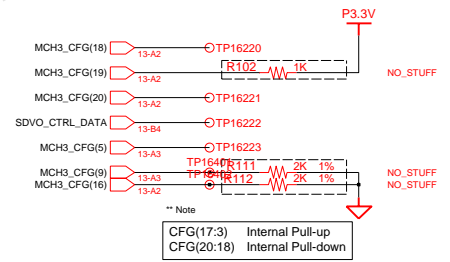
DRAW	DATE	TITLE	TORINO 2 MAIN 965GM(4)	SAMSUNG	
ZHOU JUN	3/9/2007			ELECTRONICS	
CHECK	DEV. STEP	MP		PART NO.	BA41-00727/8A
APPROVAL	REV	1.0			
MODULE CODE	LAST ENT				
March 9, 2007 12:03:21 PM			PAGE	15 OF 53	

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**** Note**

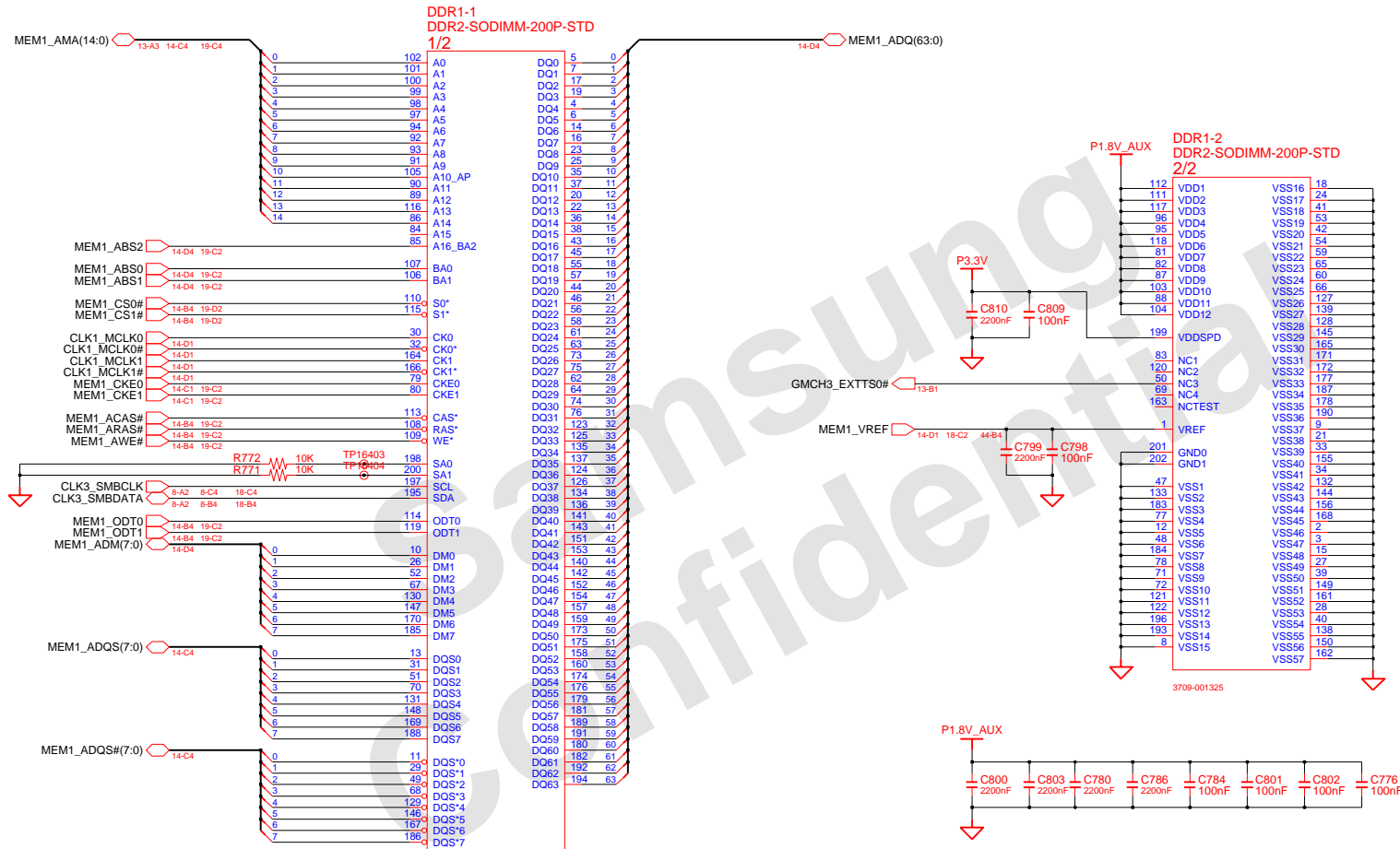
CFG#	Current Setting (def. : default Option)	
	Low	High
CFG(5)	DMix2	DMix4 (def.)
CFG(9)	PEG Reversal	Normal
CFG(16)	Dynamic ODT	Dynamic ODT
	Disabled	Enabled (def.)
CFG(18)	VCC 1.05V (def.)	VCC 1.5V
CFG(19)	DMI Lane Normal	DMI Lane Reversal
CFG(20)	SDVO or PCIE X1 Only(def.)	SDVO and PCIE X1 Simultaneously
SDVO_CTRL_DATA	No SDVO Device Present (def.)	SDVO Device Present



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS	
CHECK	GUO LEI	DEV_STEP	MP		MAIN		
APPROVAL	KEVIN LEE	REV	1.0		965GM(5)	PART NO. BA41-00727/8A	
MODULE CODE		LAST ENT					
March 9, 2007 12:03:21 PM						PAGE	16 OF 53

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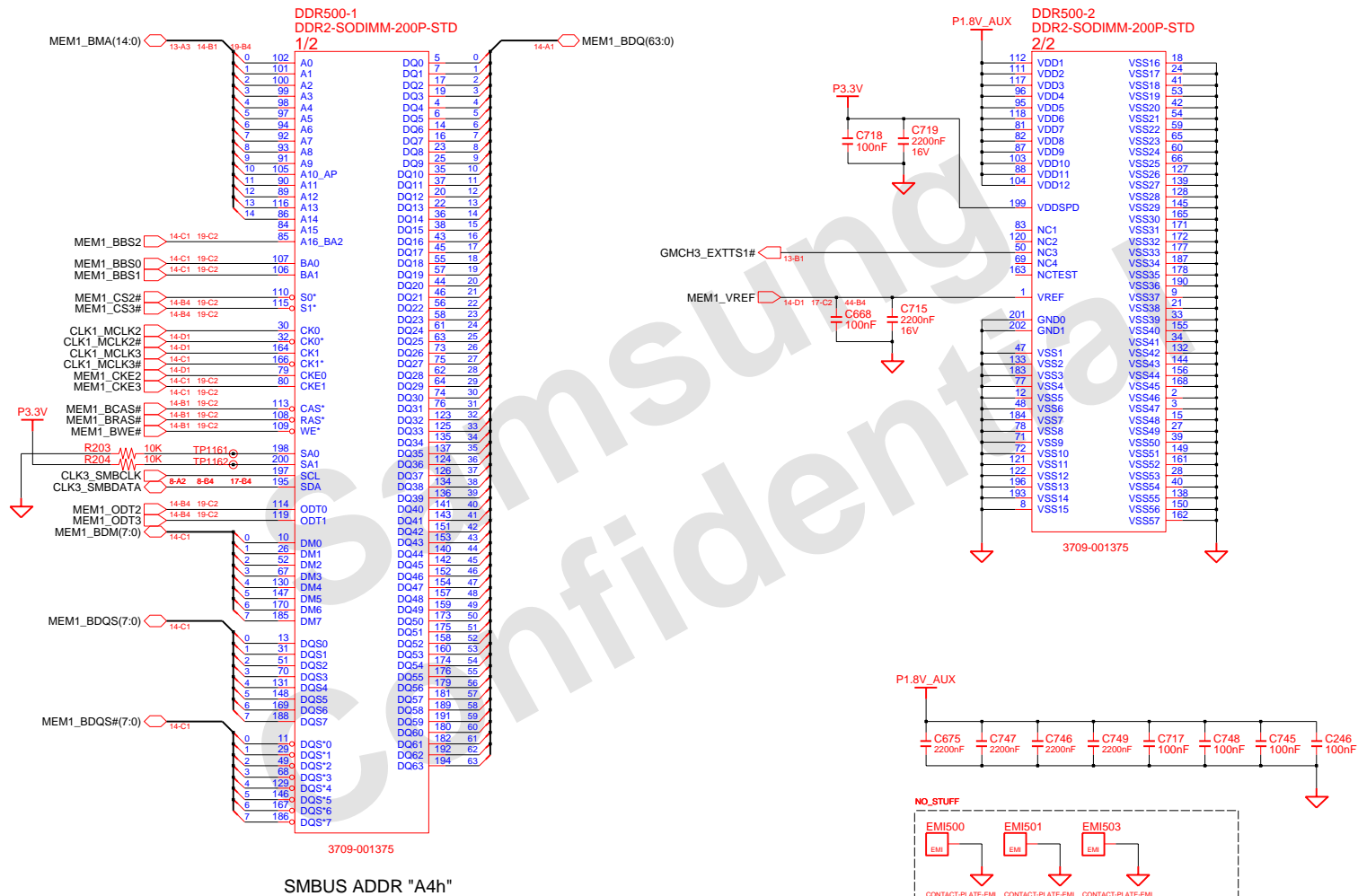
SODIMM0 (TOP)



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN	MAIN	
APPROVAL	KEVIN LEE	REV	1.0	DDR2 SODIMM (TOP)		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT		March 9, 2007 12:03:21 PM	PAGE	17 OF 53

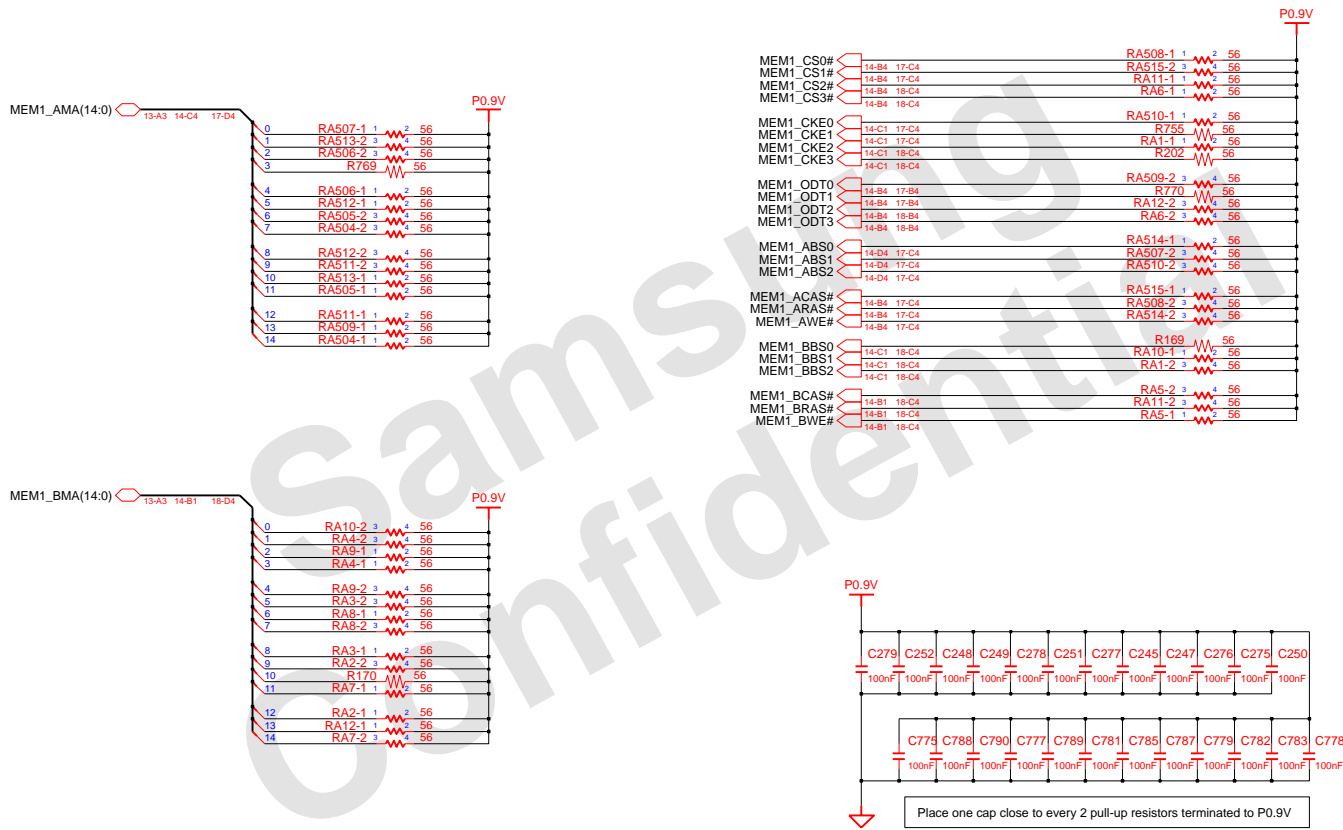
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SODIMM1 (BOTTOM)



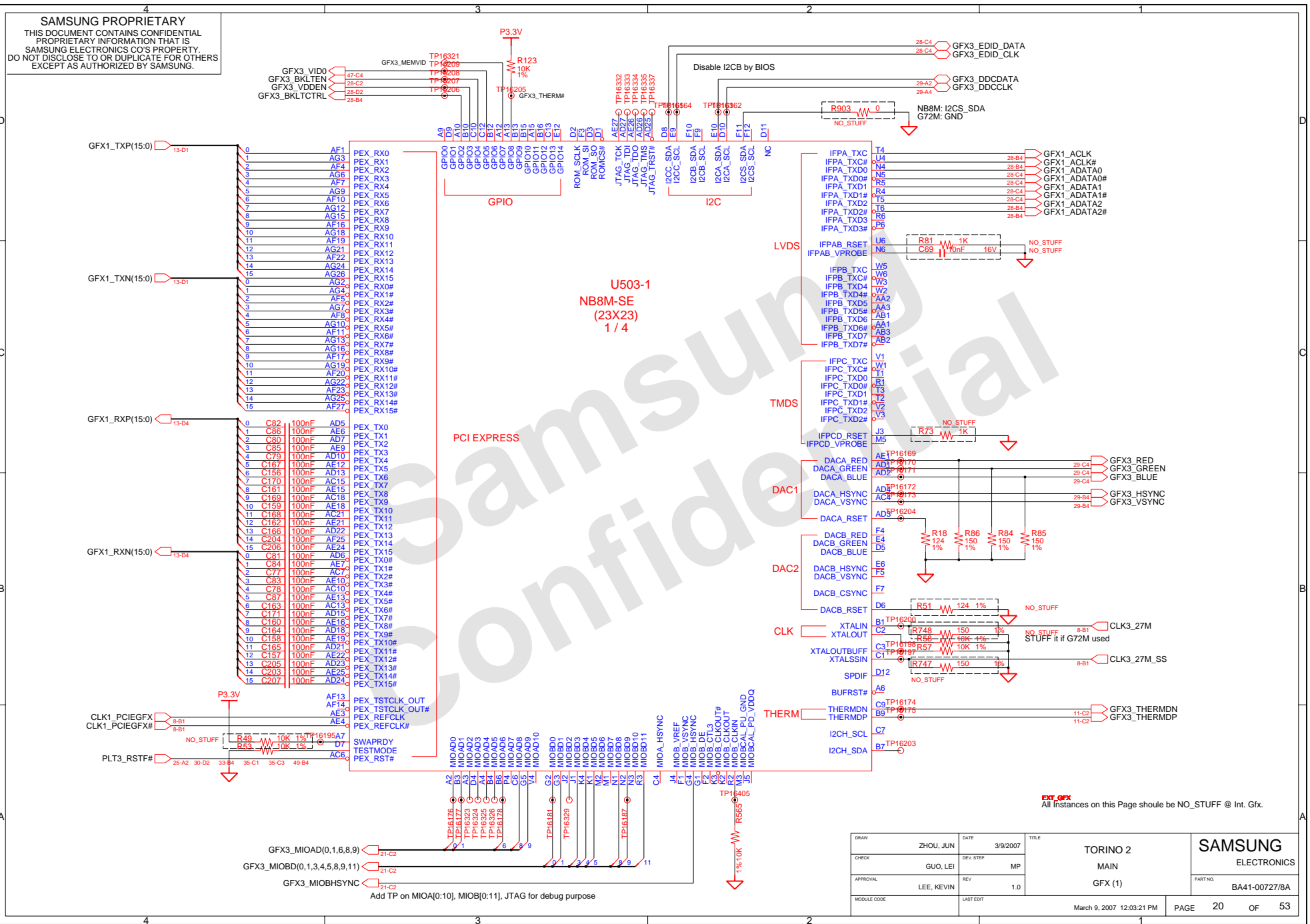
DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.0		DDR2 SODIMM (BOTTOM)	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 18 OF 53

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DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.0		DDR2 TERMINATION	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 19 OF 53

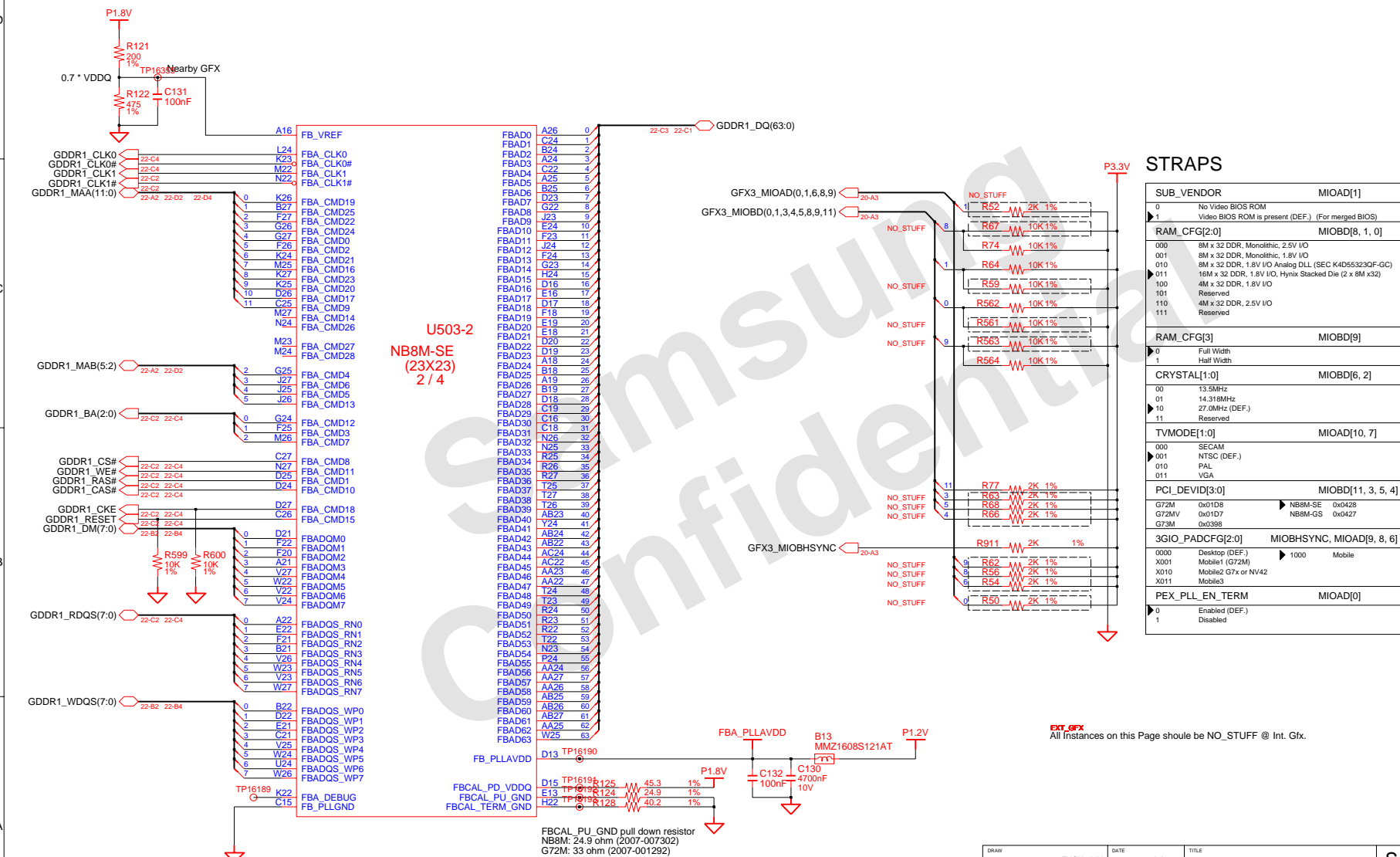
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EXT_GFX
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DRAW	ZHOU, JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG	
CHECK	GUO, LEI	DEV_STEP	MP		MAIN		
APPROVAL	LEE, KEVIN	REV	1.0		GFX (1)	ELECTRONICS	
MODULE CODE	LAST EDIT					PART NO.	
						BA41-00727/8A	
			March 9, 2007 12:03:21 PM	PAGE	20	OF	53

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STRAPS

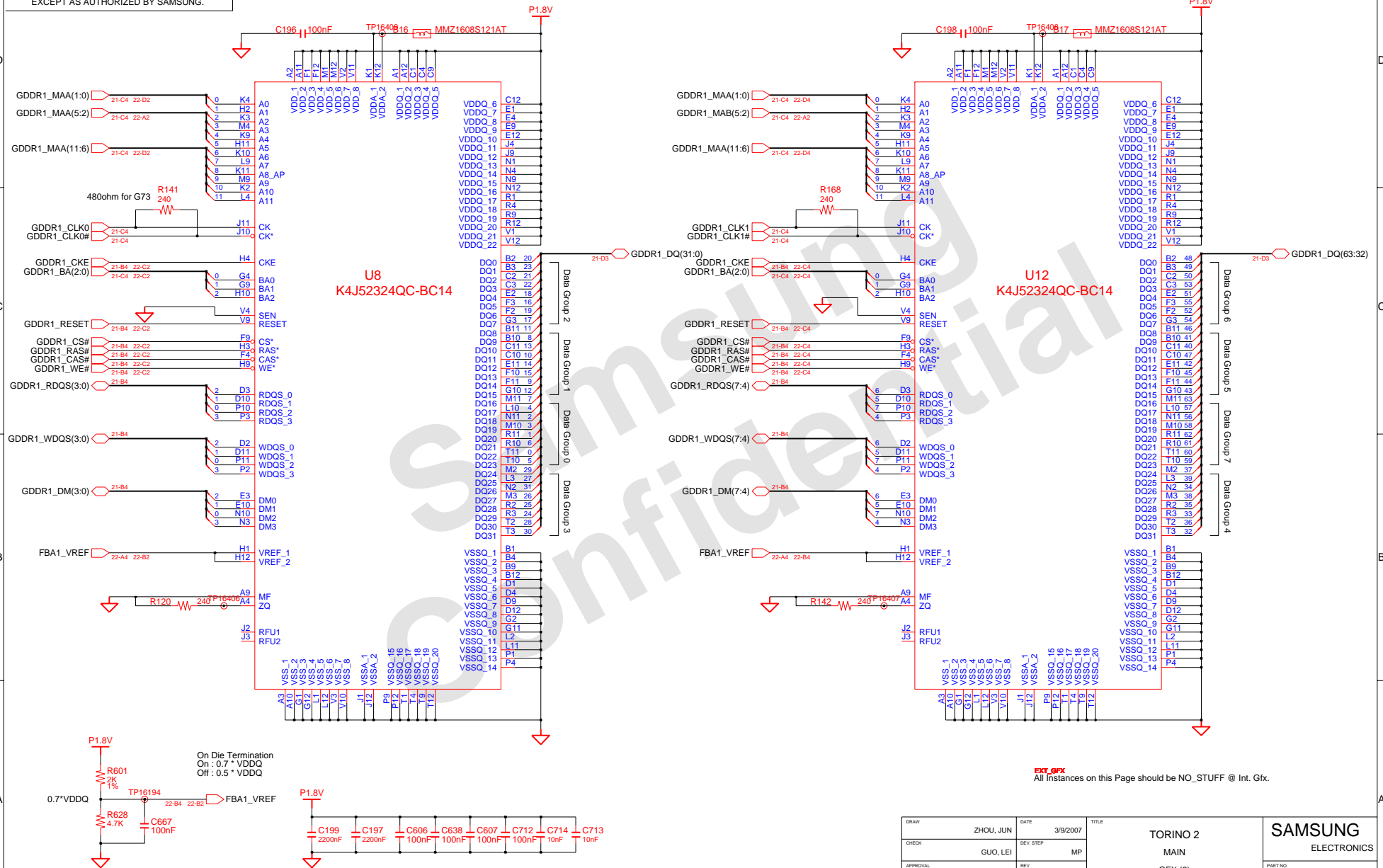
SUB_VENDOR	MIOAD[1]
0	No Video BIOS ROM
1	Video BIOS ROM is present (DEF.) (For merged BIOS)
RAM_CFG[2:0]	MIOBD[8, 1, 0]
000	8M x 32 DDR, Monolithic, 2.5V I/O
001	8M x 32 DDR, Monolithic, 1.8V I/O
010	8M x 32 DDR, 1.8V I/O Analog DLL (SEC K4D5532QF-GC)
011	16M x 32 DDR, 1.8V I/O, Hynix Stacked Die (2 x 8M x32)
100	4M x 32 DDR, 1.8V I/O
101	Reserved
110	4M x 32 DDR, 2.5V I/O
111	Reserved
RAM_CFG[3]	MIOBD[9]
0	Full Width
1	Half Width
CRYSTAL[1:0]	MIOBD[6, 2]
00	13.5MHz
01	14.318MHz
10	27.0MHz (DEF.)
11	Reserved
TMODE[1:0]	MIOD[10, 7]
000	SECAM
001	NTSC (DEF.)
010	PAL
011	VGA
PCI_DEVID[3:0]	MIOBD[11, 3, 5, 4]
G72M	0x01D8
G72M	0x01D7
G73M	0x0398
	NB8M-SE 0x0428
	NB8M-GS 0x0427
3GIO_PADCFG[2:0]	MIOBHSYNC, MIOAD[9, 8, 6]
0000	Desktop (DEF.)
X001	Mobile1 (G72M)
X010	Mobile2 G7x or NV42
X011	Mobile3
	1000 Mobile
PEX_PLL_EN_TERM	MIOD[0]
0	Enabled (DEF.)
1	Disabled

EXT_GFX
 All Instances on this Page should be NO_STUFF @ Int. Gfx.

FBCAL_PU_GND pull down resistor
 NB8M: 24.9 ohm (2007-007302)
 G72M: 33 ohm (2007-001292)

DRAW	ZHOU, JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO, LEI	DEV_STEP	MP	MAIN		
APPROVAL	LEE, KEVIN	REV	1.0	GFX (2)	PART NO.	BA41-00727/8A
MODULE CODE		LAST ENT			March 9, 2007 12:03:21 PM	PAGE 21 OF 53

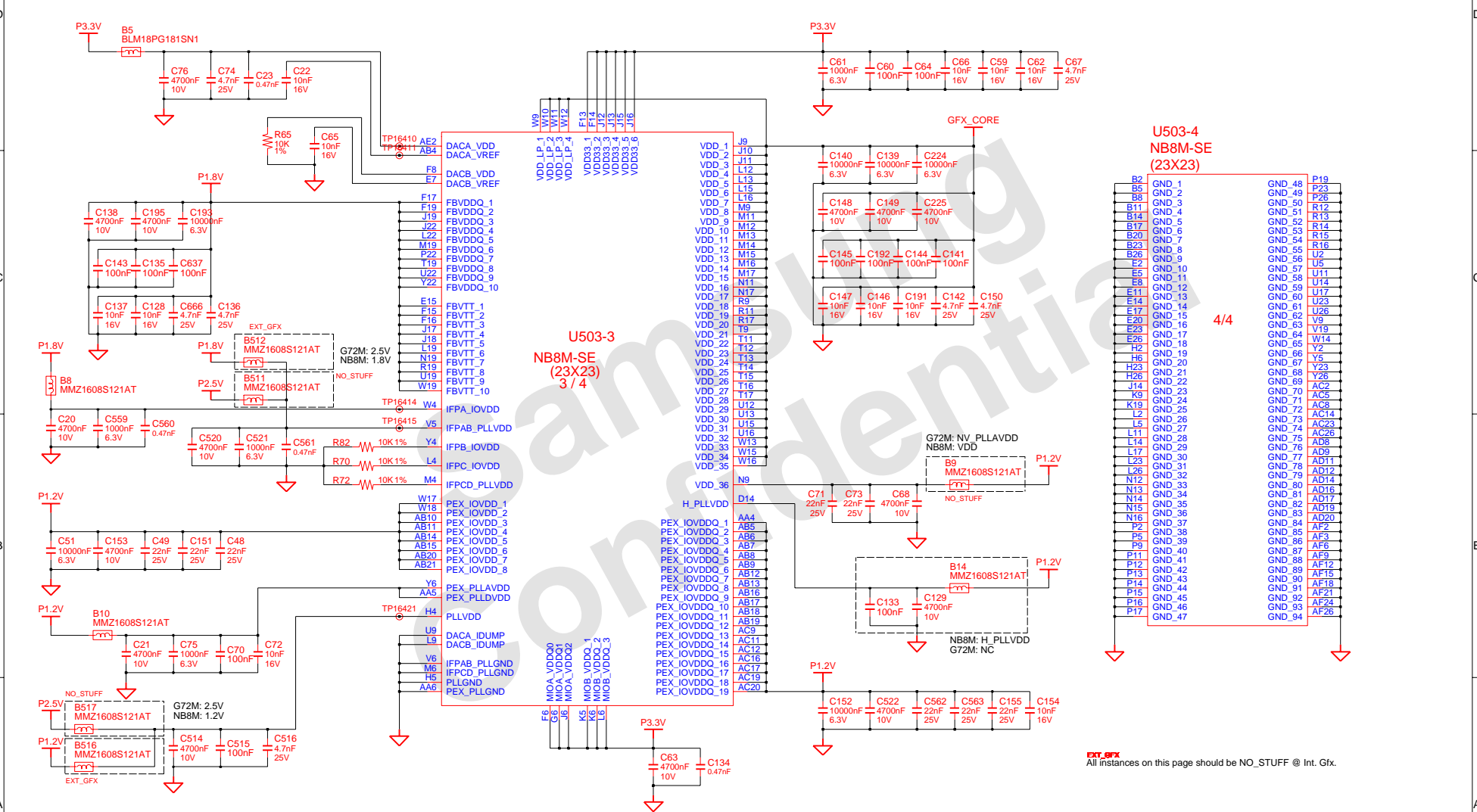
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EXT GFX
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DRAW	ZHOU, JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO, LEI	DEV STEP	MP	MAIN	BA41-00727/8A	
APPROVAL	LEE, KEVIN	REV	1.0	GFX (3)	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	22 OF 53

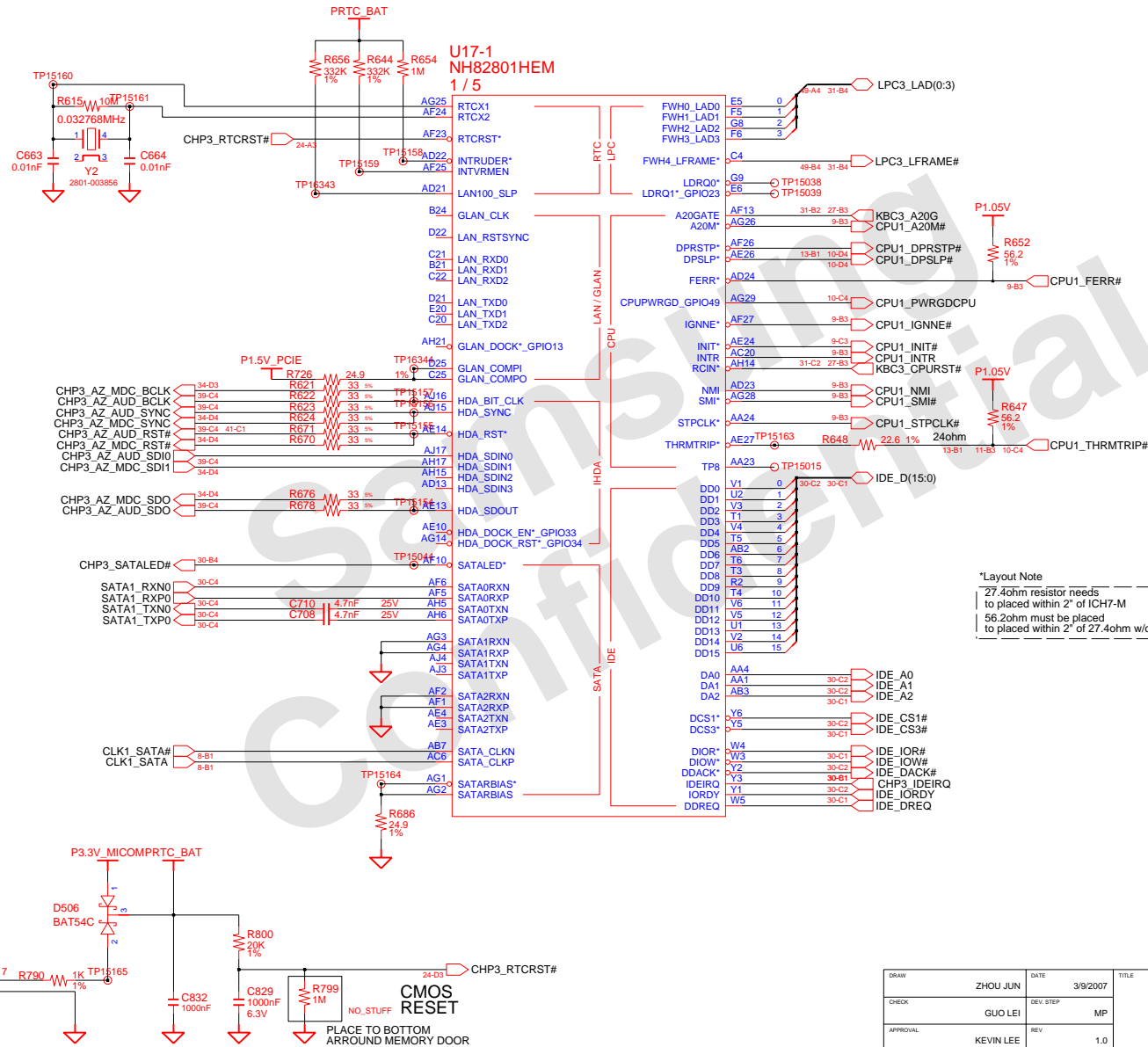
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EXT_GFX
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DRAW	ZHOU, JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO, LEI	DEV_STEP	MP	MAIN	MAIN	
APPROVAL	LEE, KEVIN	REV	1.0	GFX (4)		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 23 OF 53

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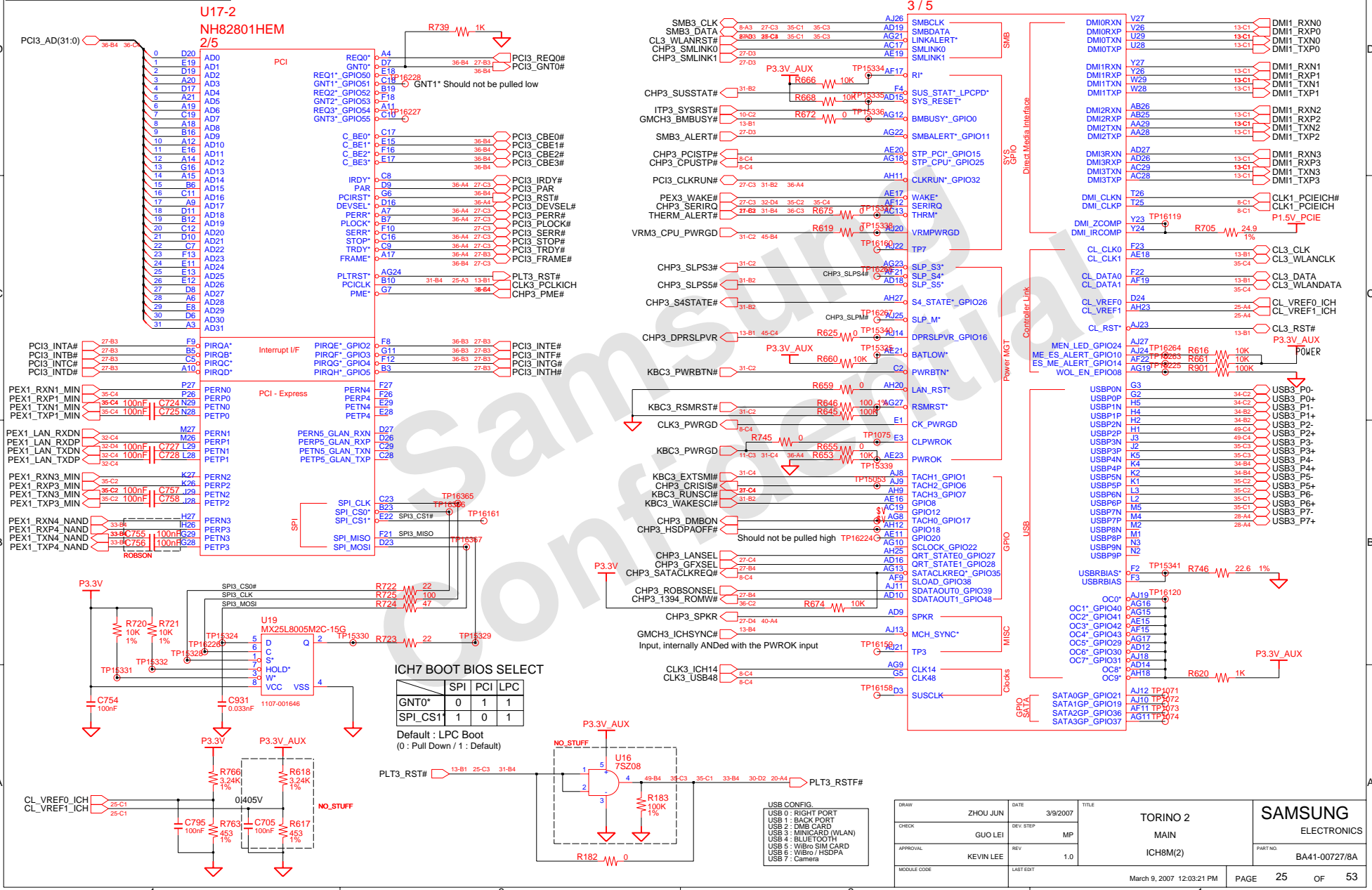


*Layout Note
 27.4ohm resistor needs
 to be placed within 2" of ICH7-M
 56.2ohm must be placed
 to be placed within 2" of 27.4ohm w/o stub

DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.0		ICH8M(1)	
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	24	OF 53

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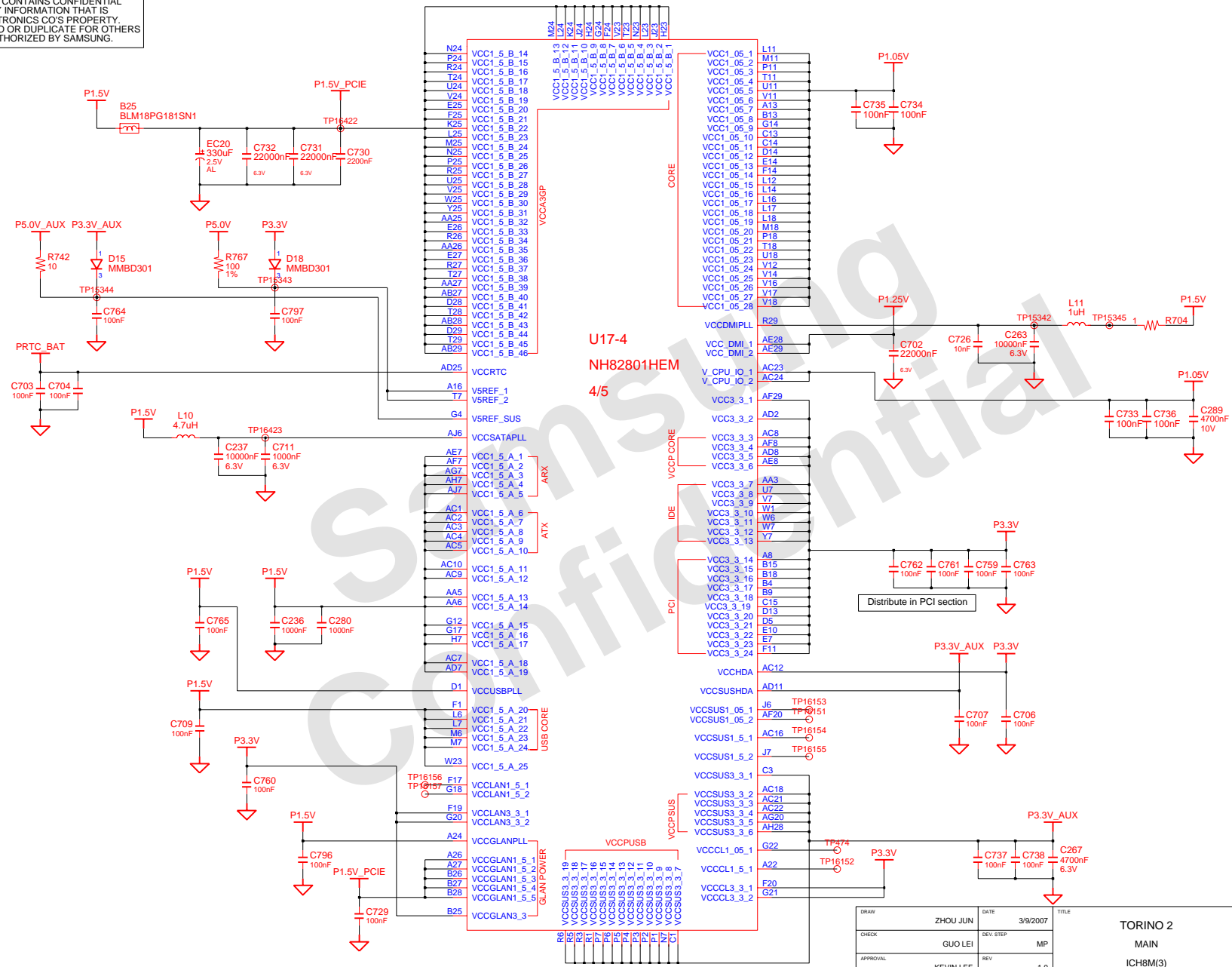
AC caps : PCIe need to be within 250mils of the driver
 Resistor for Test : Place Stuffing Option to minimize stubs



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2
CHECK	GUO LEI	DEV STEP	MP		MAIN
APPROVAL	KEVIN LEE	REV	1.0		ICH8M(2)
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	25 OF 53

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 PART NO. BA41-00727/8A

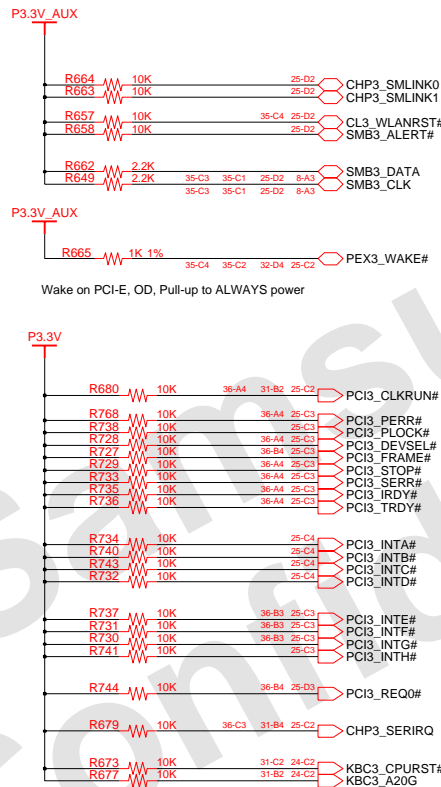
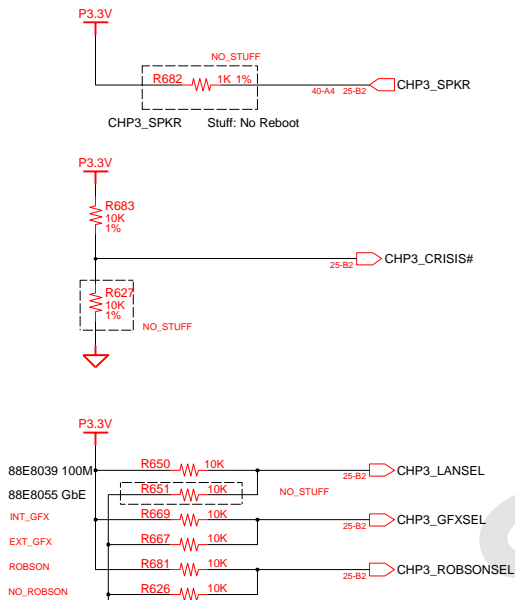
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U17-4
NH82801HEM
4/5

DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	BA41-00727/8A	
APPROVAL	KEVIN LEE	REV	1.0	ICH8M(3)		
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	26 OF 53

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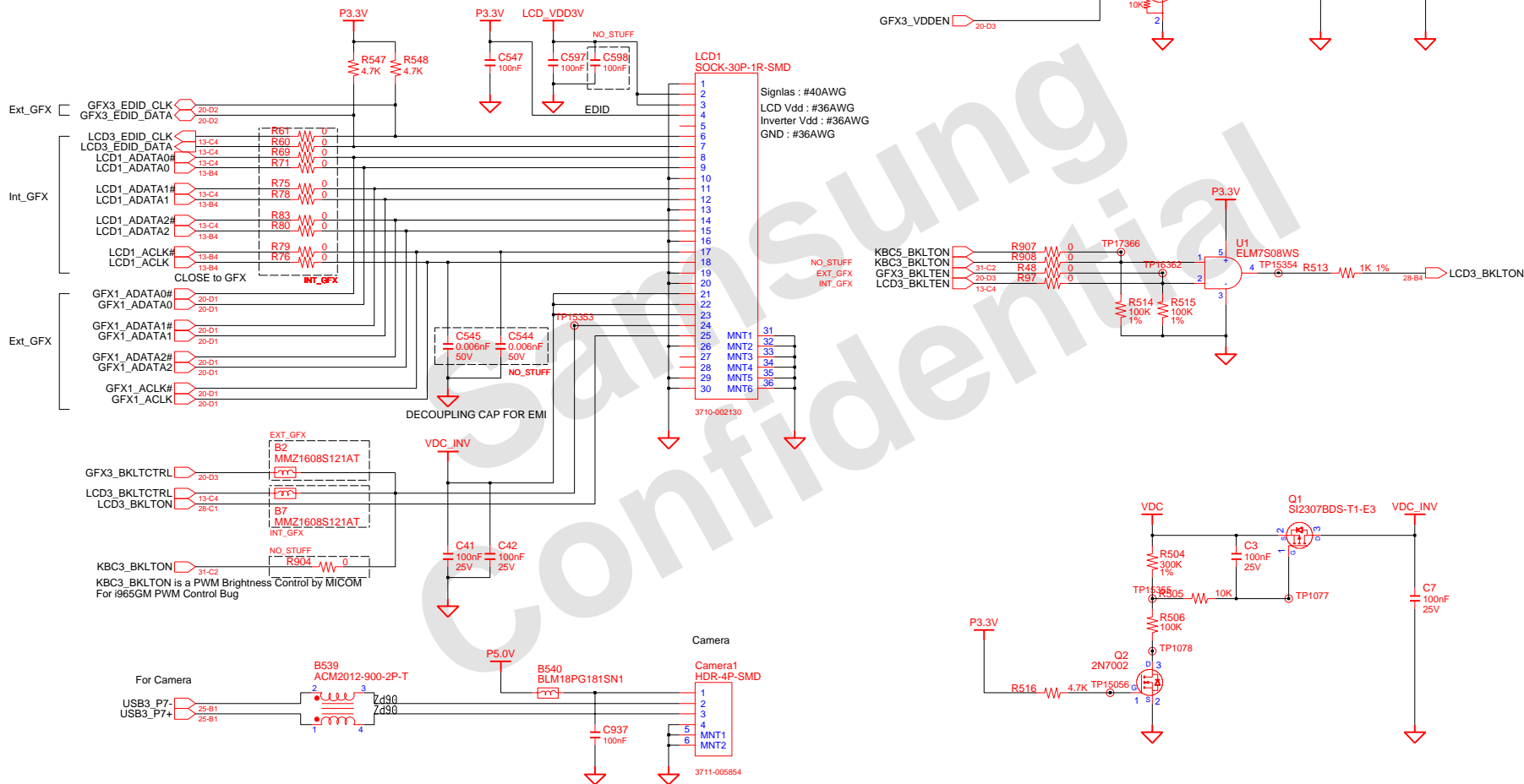
A23	VSS_1	VSS_126	N26
A5	VSS_2	VSS_127	N27
AA2	VSS_3	VSS_128	N4
AA7	VSS_4	VSS_129	N6
A65	VSS_5	VSS_130	N8
AB1	VSS_6	VSS_131	P12
AB24	VSS_7	VSS_132	P13
AC11	VSS_8	VSS_133	P14
AC14	VSS_9	VSS_134	P15
AC25	VSS_10	VSS_135	P16
AC26	VSS_11	VSS_136	P17
AC27	VSS_12	VSS_137	P23
AD17	VSS_13	VSS_138	F28
AD20	VSS_14	VSS_139	P29
AD28	VSS_15	VSS_140	R11
AD29	VSS_16	VSS_141	R12
AD3	VSS_17	VSS_142	R13
AD4	VSS_18	VSS_143	R14
AD6	VSS_19	VSS_144	R15
AE1	VSS_20	VSS_145	R16
AE12	VSS_21	VSS_146	R17
AE2	VSS_22	VSS_147	R18
AE22	VSS_23	VSS_148	R19
AD1	VSS_24	VSS_149	R4
AE25	VSS_25	VSS_150	T12
AE5	VSS_26	VSS_151	T13
AE6	VSS_27	VSS_152	T14
AE9	VSS_28	VSS_153	T15
AF14	VSS_29	VSS_154	T16
AF16	VSS_30	VSS_155	T17
AF18	VSS_31	VSS_156	T2
AF3	VSS_32	VSS_157	U13
AG5	VSS_33	VSS_158	U14
AG6	VSS_34	VSS_159	U15
AG6	VSS_35	VSS_160	U15
AH10	VSS_36	VSS_161	U16
AH13	VSS_37	VSS_162	U17
AH16	VSS_38	VSS_163	U23
AH19	VSS_39	VSS_164	U26
AH2	VSS_40	VSS_165	U27
AF26	VSS_41	VSS_166	U3
AH22	VSS_42	VSS_167	U5
AH24	VSS_43	VSS_168	V13
AH26	VSS_44	VSS_169	V15
AH3	VSS_45	VSS_170	V28
AH4	VSS_46	VSS_171	V28
AH8	VSS_47	VSS_172	W2
AJ5	VSS_48	VSS_173	W26
B11	VSS_49	VSS_174	W27
B14	VSS_50	VSS_175	Y28
B17	VSS_51	VSS_176	Y29
B2	VSS_52	VSS_177	Y4
B20	VSS_53	VSS_178	AB4
B22	VSS_54	VSS_179	AB23
C24	VSS_55	VSS_180	AB5
C26	VSS_56	VSS_181	AB6
C27	VSS_57	VSS_182	AD5
C6	VSS_58	VSS_183	U4
D12	VSS_59	VSS_184	W24
D15	VSS_60	VSS_NCTF1	A1
D18	VSS_61	VSS_NCTF2	A2
D2	VSS_62	VSS_NCTF3	A28
D4	VSS_63	VSS_NCTF4	A29
E21	VSS_64	VSS_NCTF5	AH1
E24	VSS_65	VSS_NCTF6	AH29
E4	VSS_66	VSS_NCTF7	AJ1
E9	VSS_67	VSS_NCTF8	AJ2
F15	VSS_68	VSS_NCTF9	AJ28
E23	VSS_69	VSS_NCTF9	AJ29
F28	VSS_70	VSS_NCTF10	B1
F29	VSS_71	VSS_NCTF11	B29
F7	VSS_72	VSS_97	
G1	VSS_73	VSS_98	
G10	VSS_74		
G10	VSS_75		
G13	VSS_76		
G19	VSS_77		
G23	VSS_78		
G28	VSS_79		
G28	VSS_80		
G27	VSS_81		
H25	VSS_82		
H25	VSS_83		
H25	VSS_84		
H25	VSS_85		
H25	VSS_86		
H25	VSS_87		
H25	VSS_88		
H25	VSS_89		
H25	VSS_90		
J27	VSS_91		
J4	VSS_92		
K21	VSS_93		
K21	VSS_94		
K28	VSS_95		
K28	VSS_96		
K28	VSS_97		
K28	VSS_98		
L6	VSS_99		

U17-5
 NH82801HEM
 5/5

DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	MAIN	
APPROVAL	KEVIN LEE	REV	1.0	ICH8M(4)	ICH8M(4)	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 27 OF 53

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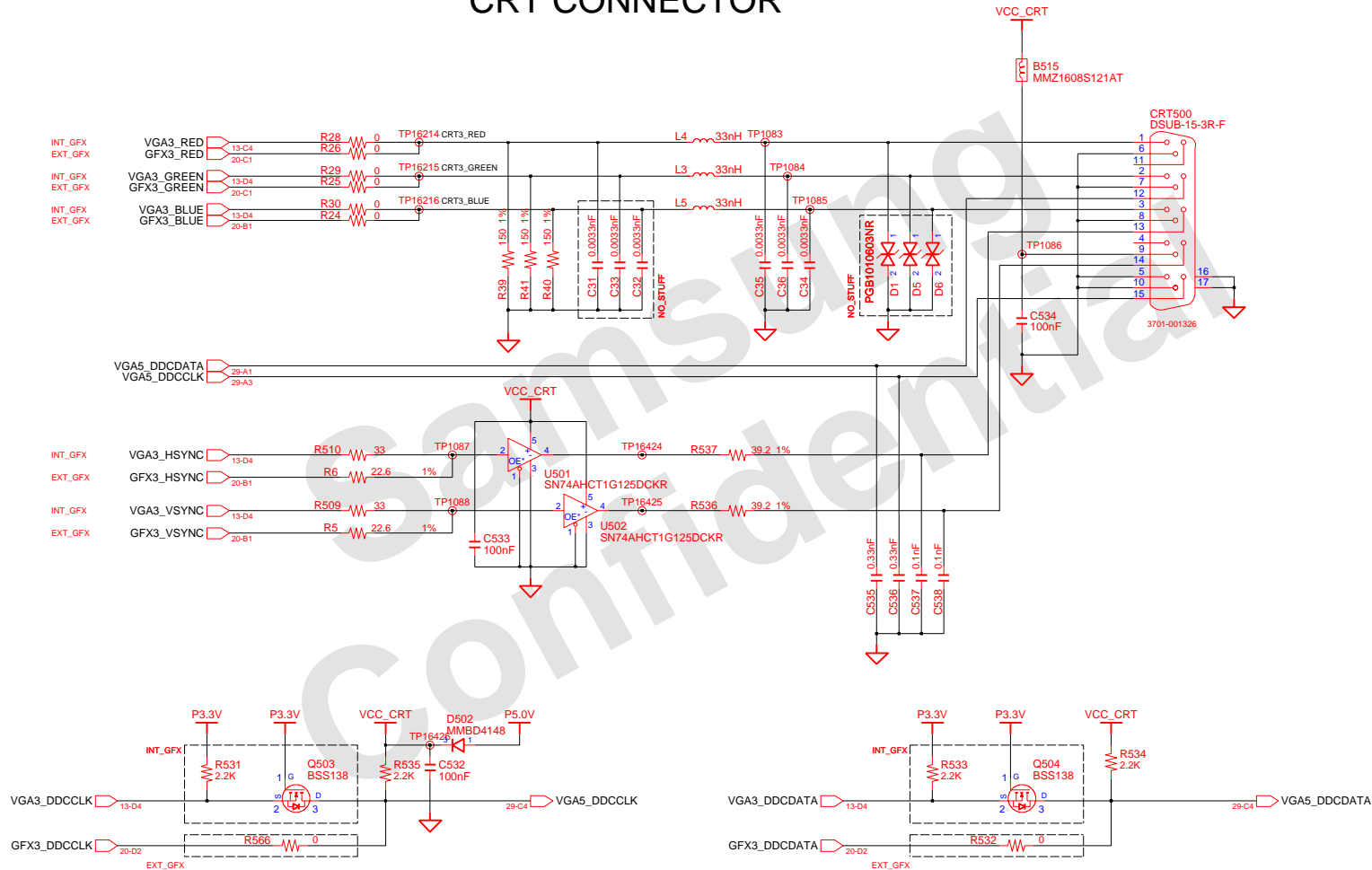
WXGA LCD CONNECTOR



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG
CHECK	GUO LEI	DEV. STEP	MP	MAIN	MAIN	ELECTRONICS
APPROVAL	KEVIN LEE	REV	1.0	LVDS	LVDS	PART NO.
MODULE CODE		LAST ENT				BA41-00727/8A
				March 9, 2007 12:03:21 PM	PAGE	28 OF 53

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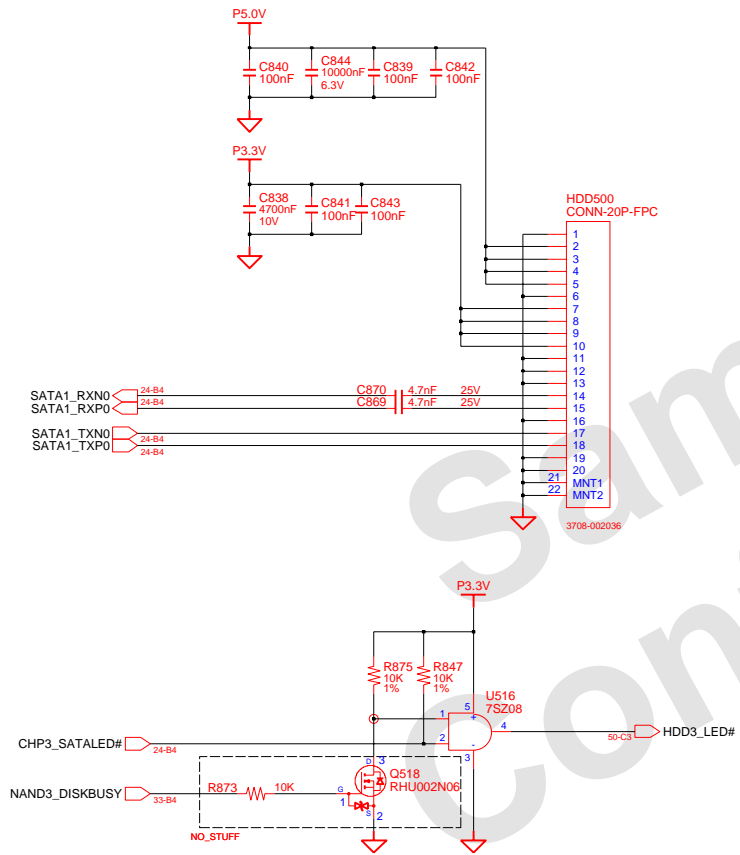
CRT CONNECTOR



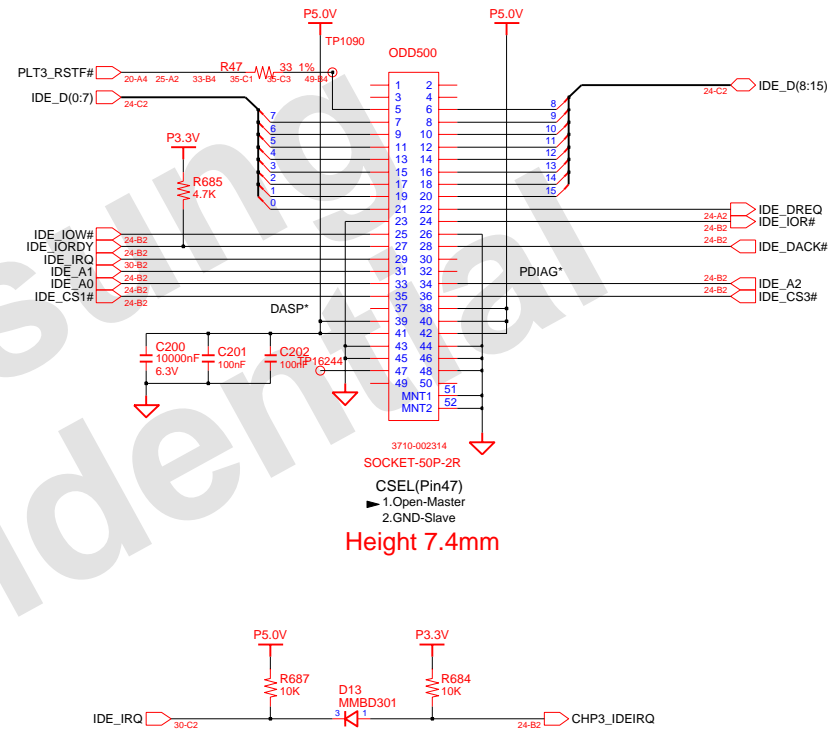
DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.0	CRT	PART NO.	
MODULE CODE		LAST ENT			BA41-00727/8A	
				March 9, 2007 12:03:21 PM	PAGE	29 OF 53

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Main to HDD

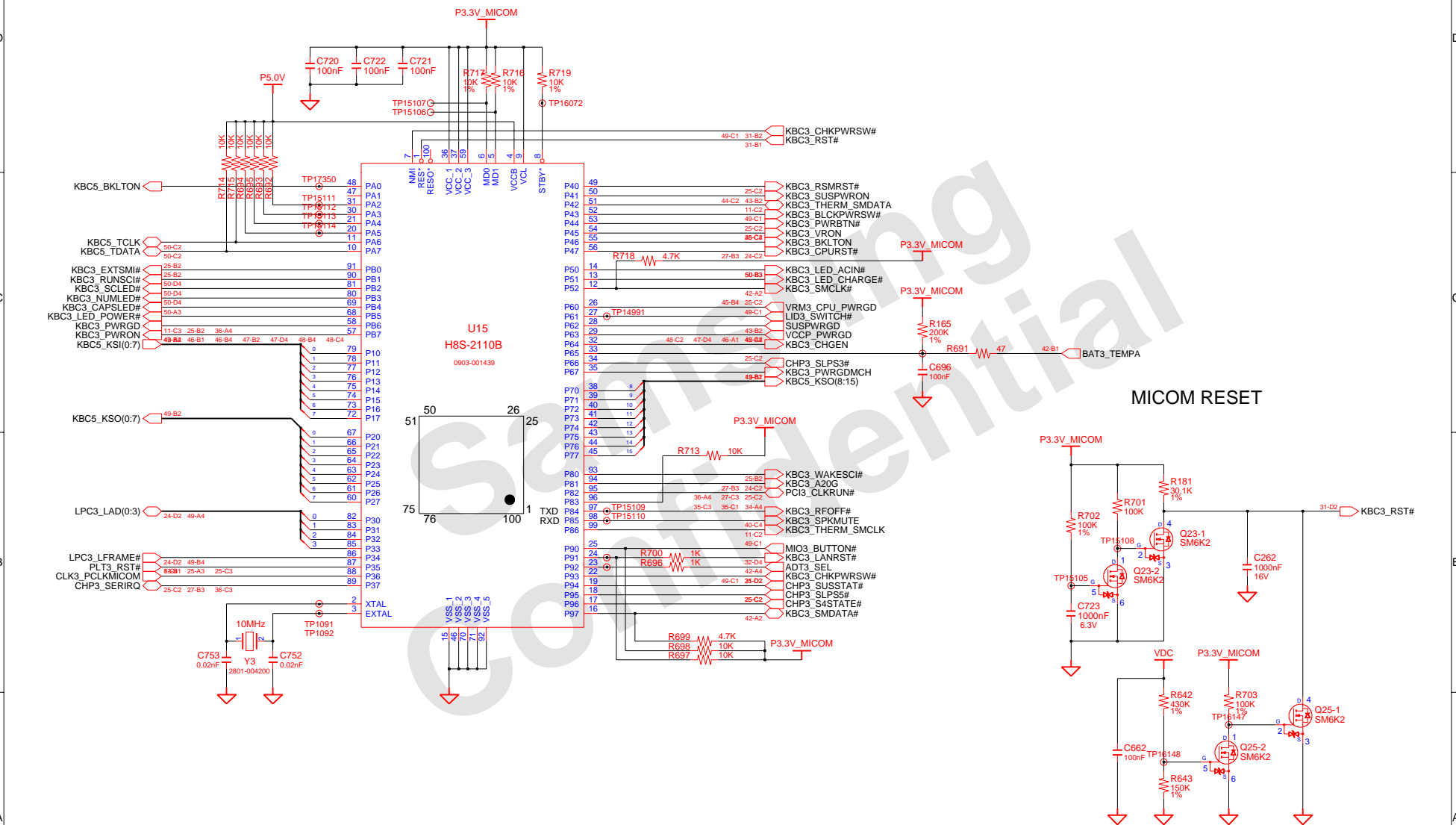


Main to ODD

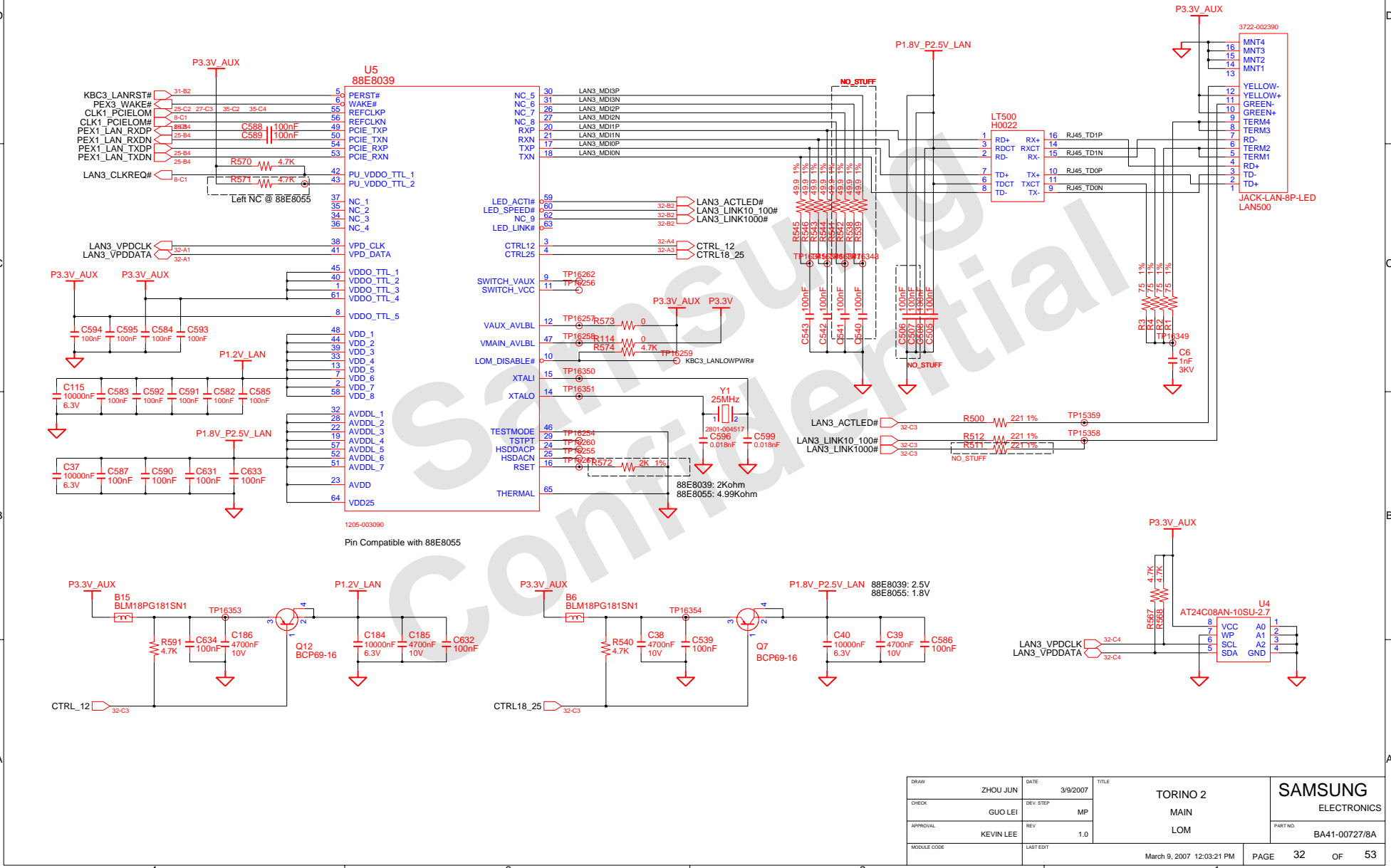


DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN	PART NO.	
APPROVAL	KEVIN LEE	REV	1.0	IDE	BA41-00727/8A	
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	30 OF 53

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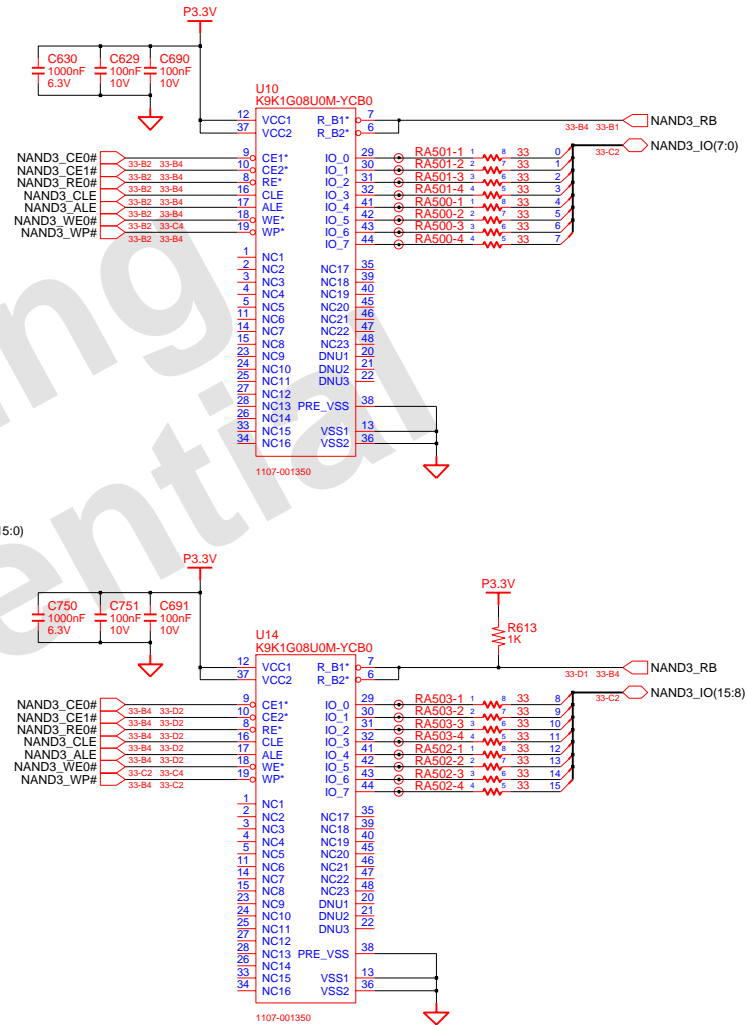
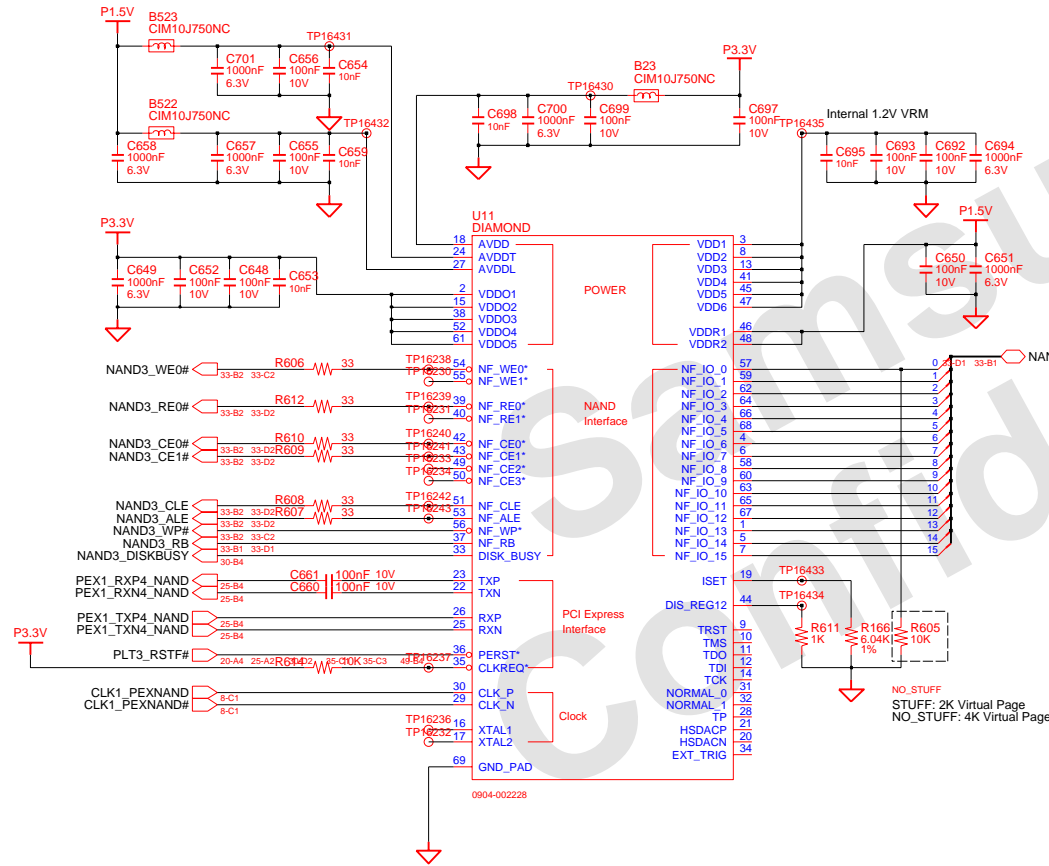
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DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.0	LOM		
MODULE CODE		LAST EDIT				PART NO. BA41-00727/8A
March 9, 2007 12:03:21 PM						PAGE 32 OF 53

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Robson

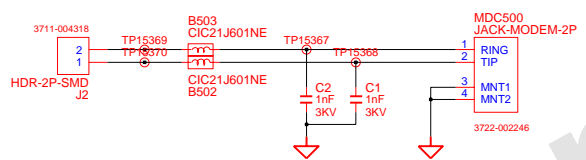
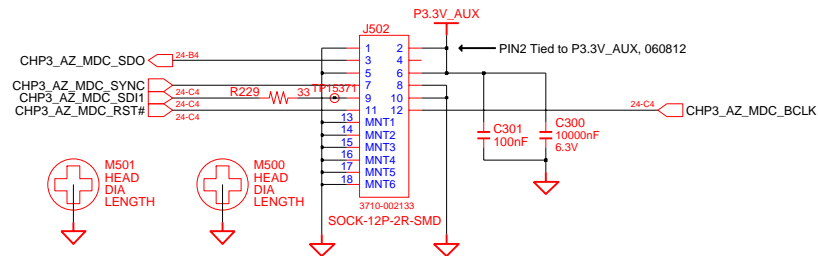


ROBSON
 All instances on this page should be NO_STUFF if ROBSON is N/A

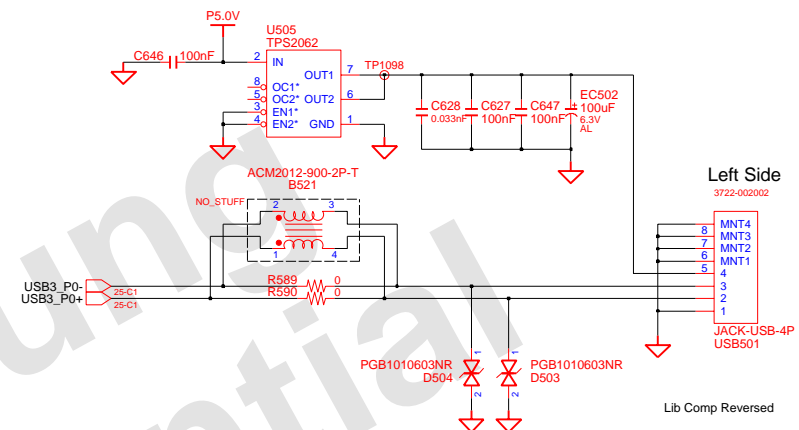
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CHECK	GUO LEI	DEV_STEP	MP	MAIN	ROBSON	
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	33 OF 53

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MDC connector

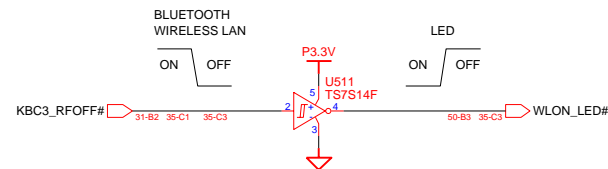
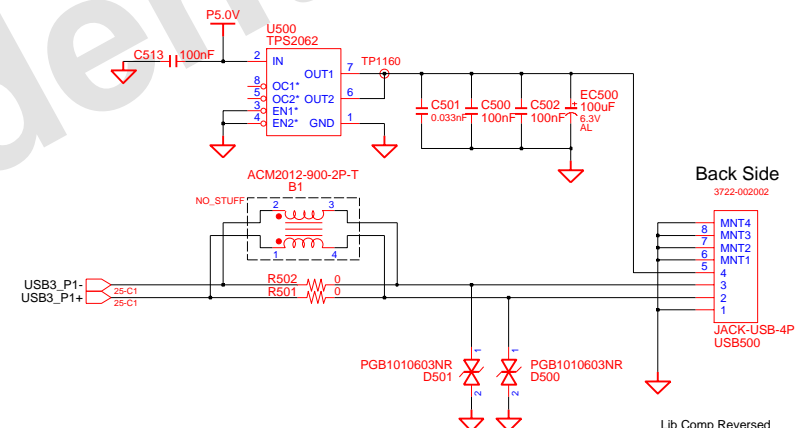
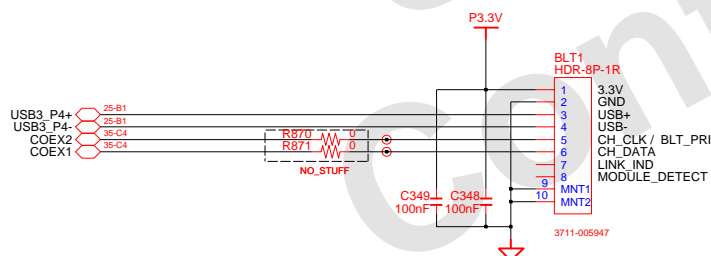


USB Port



BLUETOOTH

Bluetooth 2.0 Standard

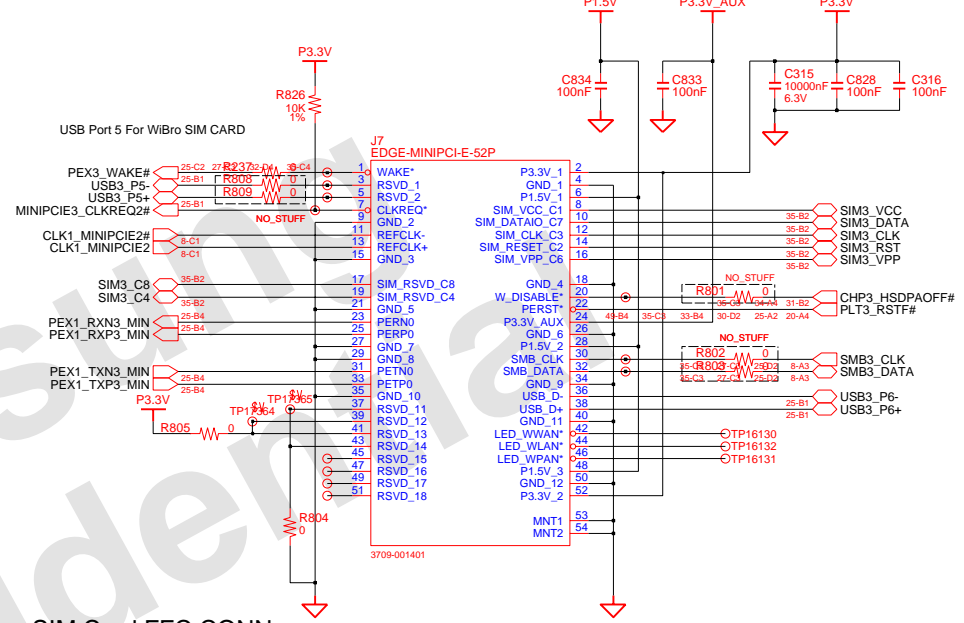
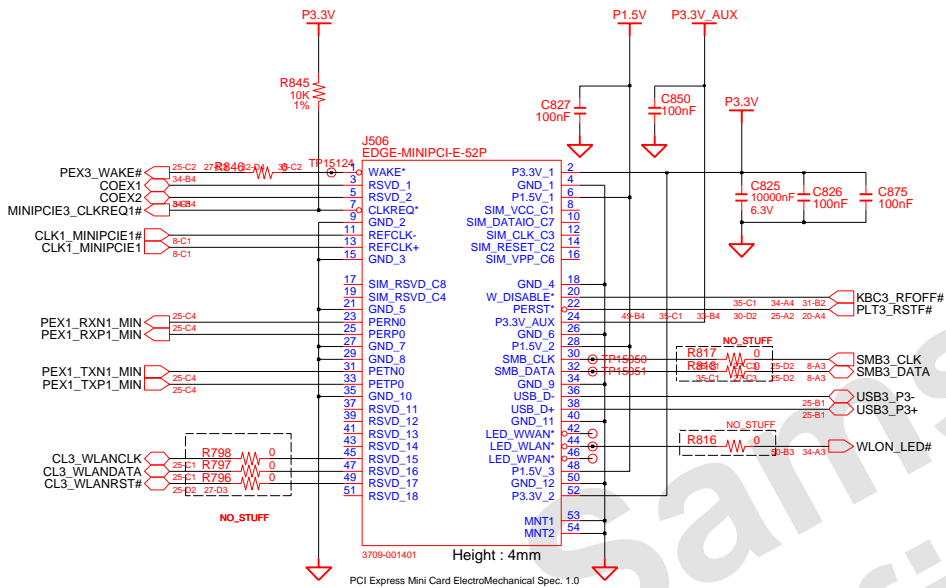


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CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.0		USB, MDC & BLUETOOTH	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT				PAGE 34 OF 53

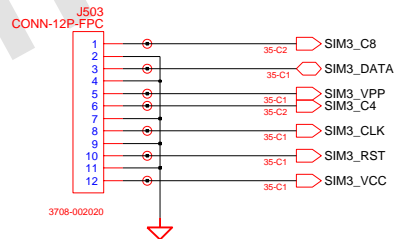
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Mini PCI-E Card (WLAN)

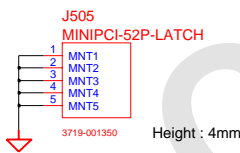
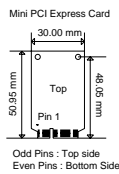
Mini PCI-E Card (HSDPA)



SIM Card FFC CONN

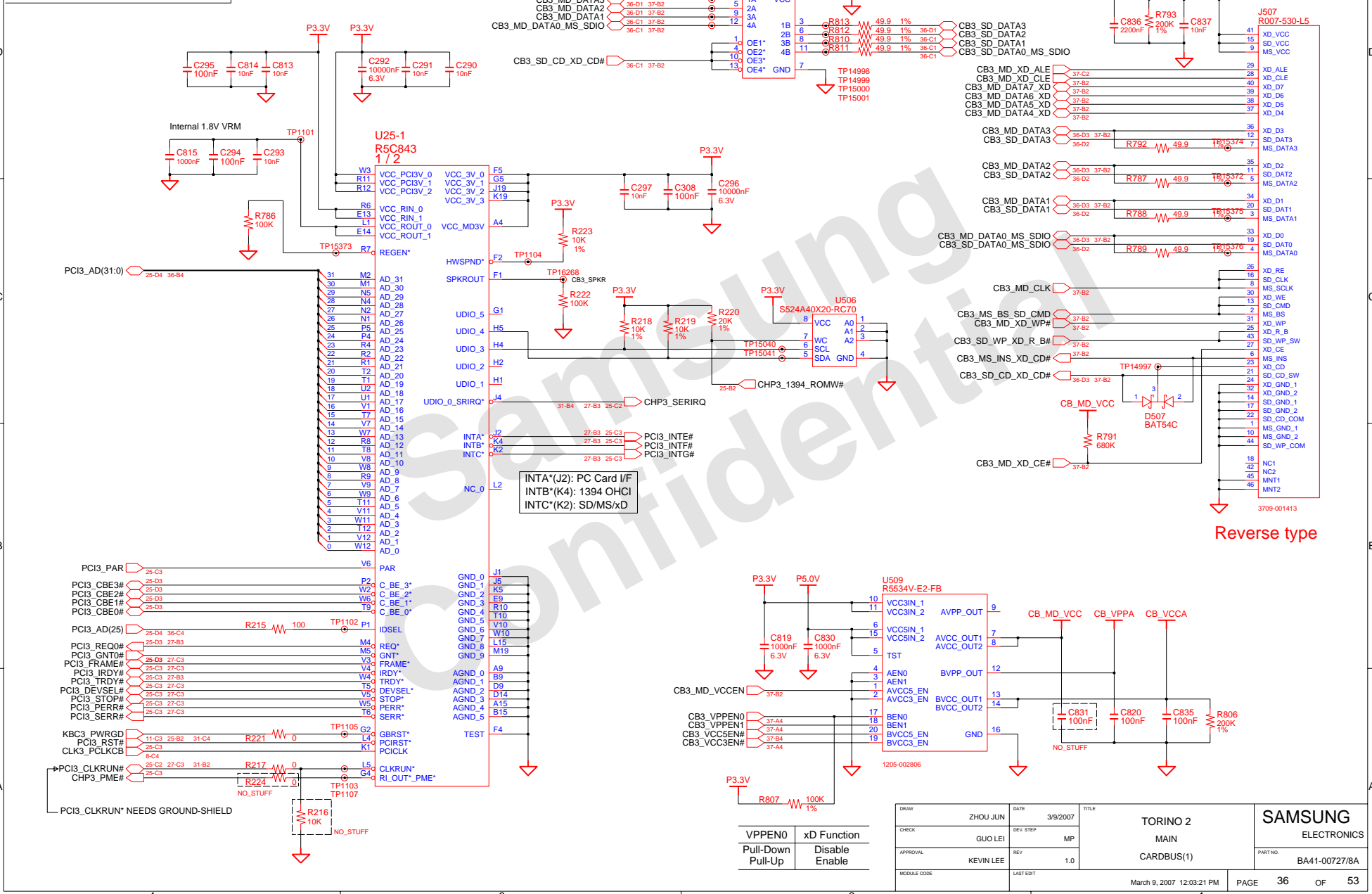


PEM



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN MINI CARD	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		PART NO. BA41-00727/8A	
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	35 OF 53

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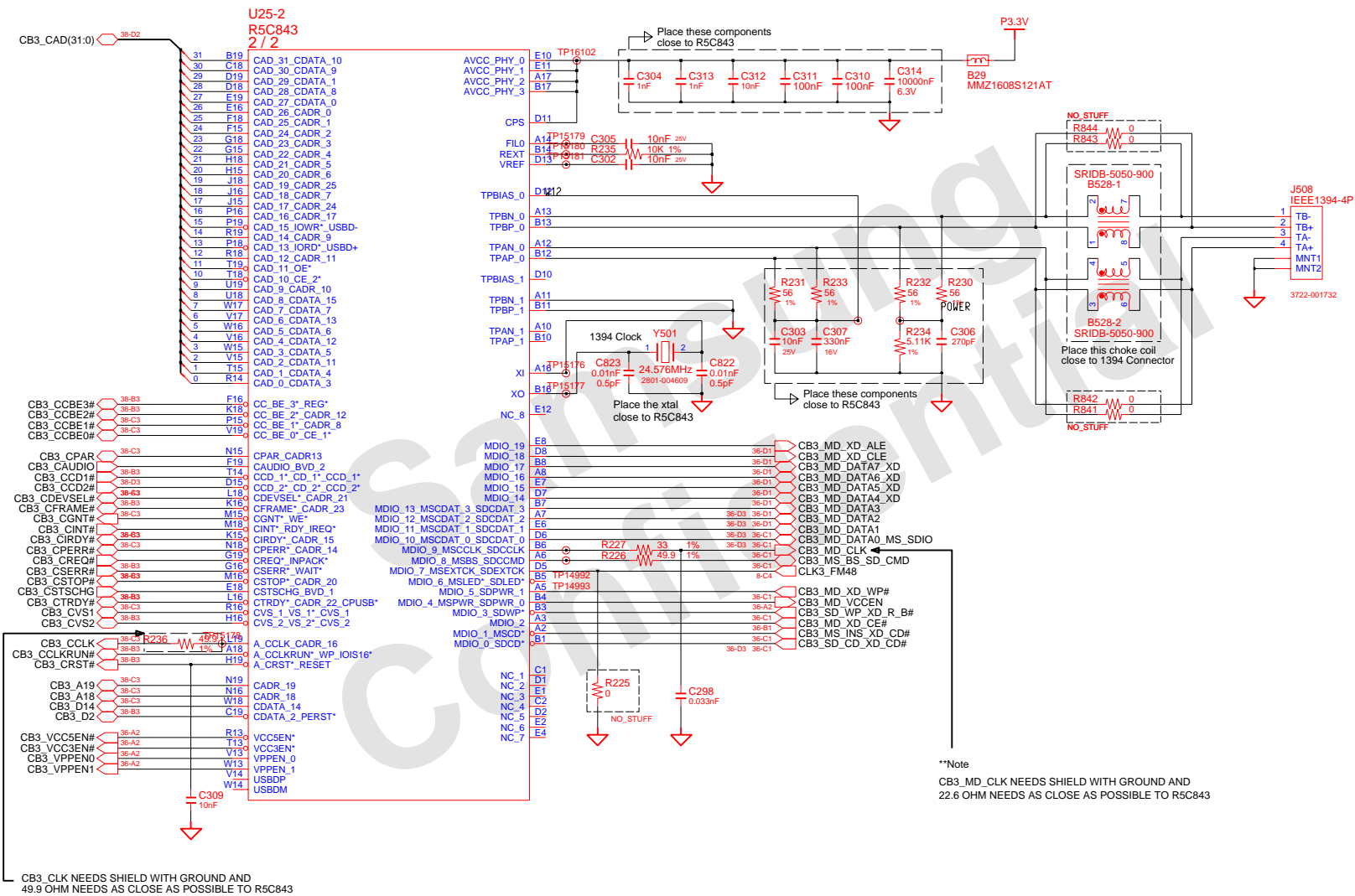
INTA*(J2): PC Card I/F
 INTB*(K4): 1394 OHCI
 INTC*(K2): SD/MS/xD

Reverse type

DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN CARDBUS(1)	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			PART NO. BA41-00727/8A
MODULE CODE		LAST ENT				PAGE 36 OF 53

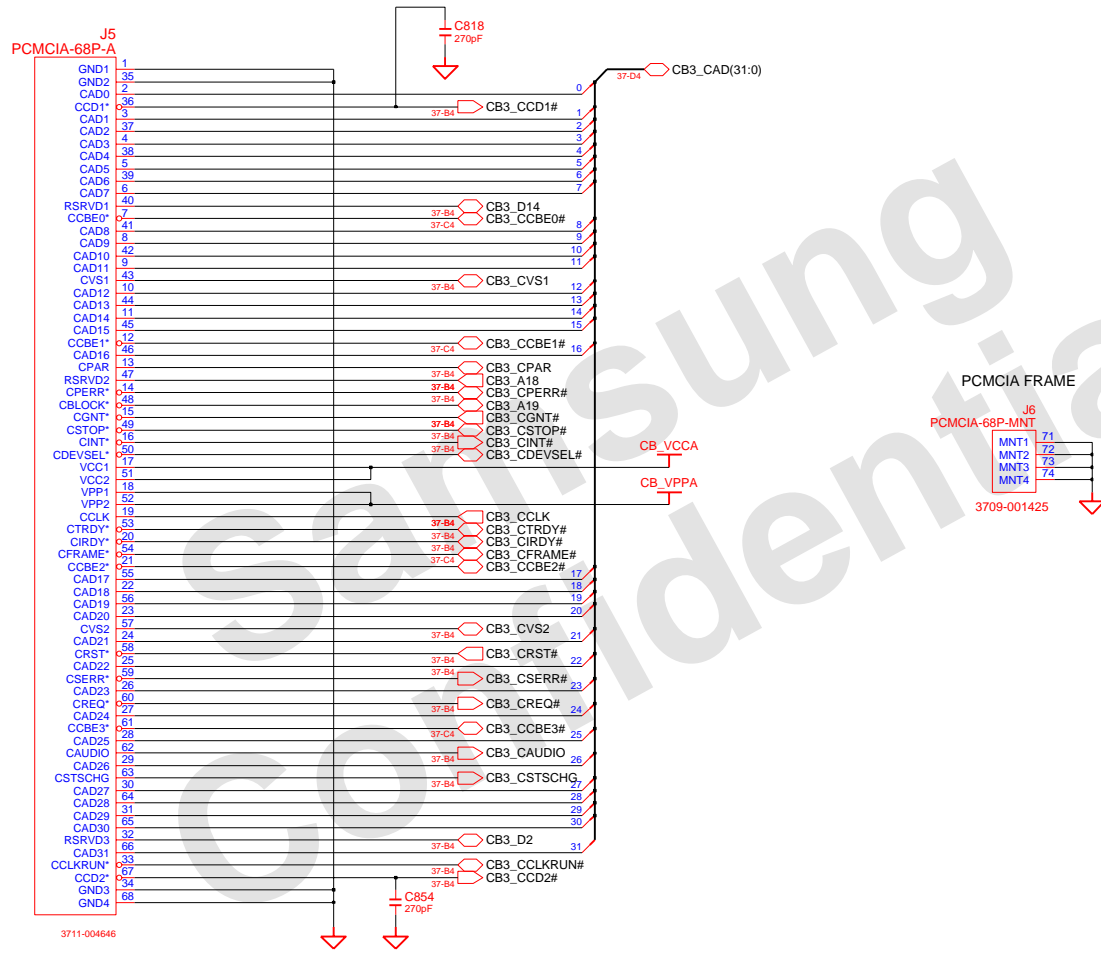
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DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN CARDBUS(2)	SAMSUNG ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST ENT				
March 9, 2007 12:03:21 PM						PAGE 37 OF 53

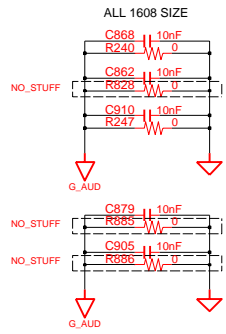
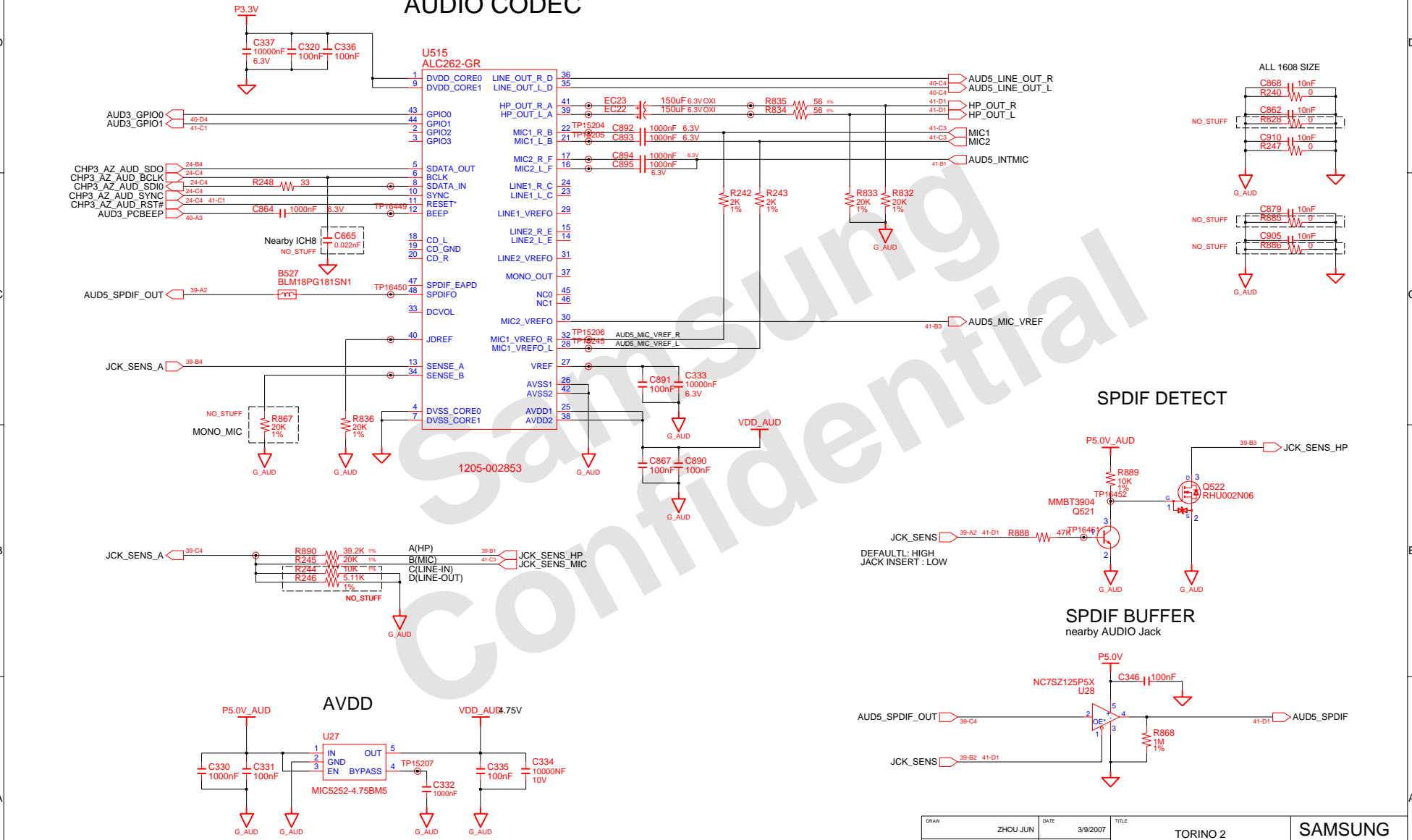
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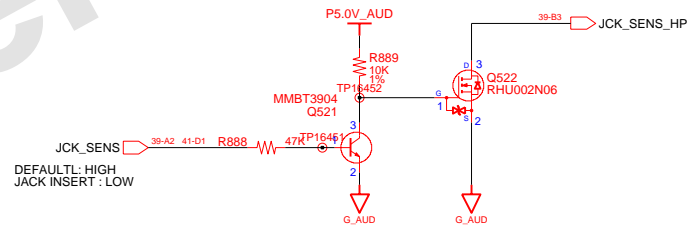
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APPROVAL	KEVIN LEE	REV	1.0	CARDBUS (3)	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	38	OF 53

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AUDIO CODEC

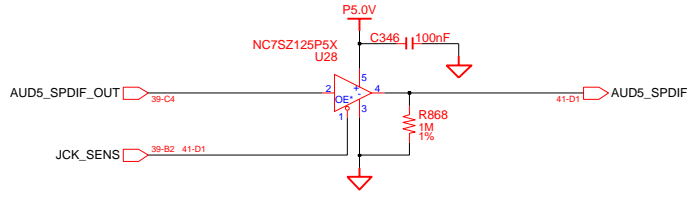


SPIDF DETECT

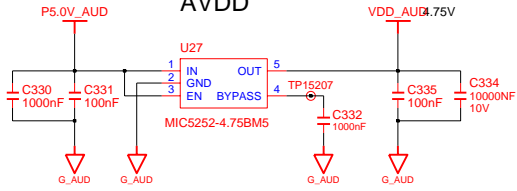


SPIDF BUFFER

nearby AUDIO Jack



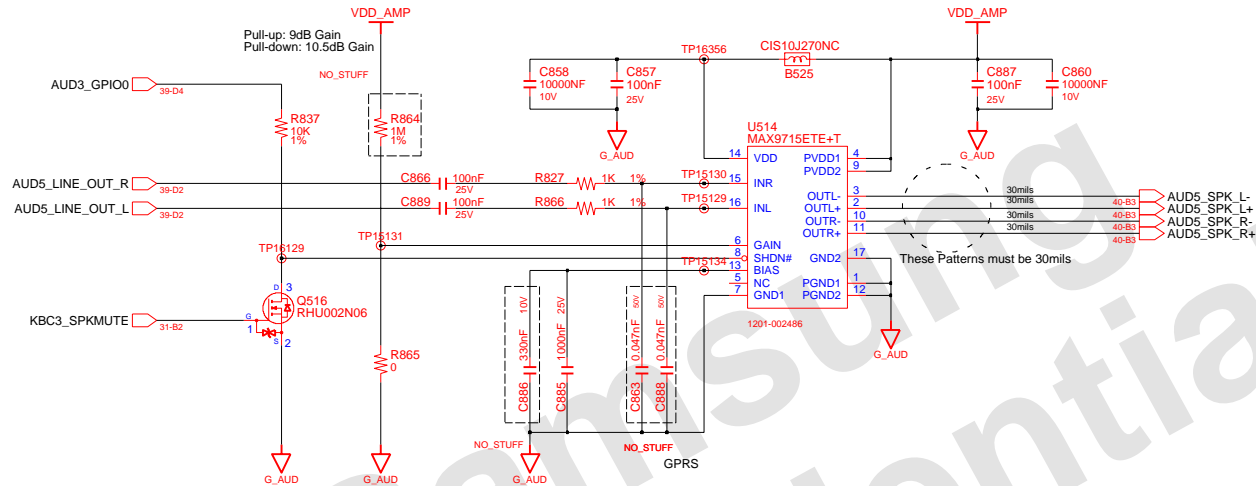
AVDD



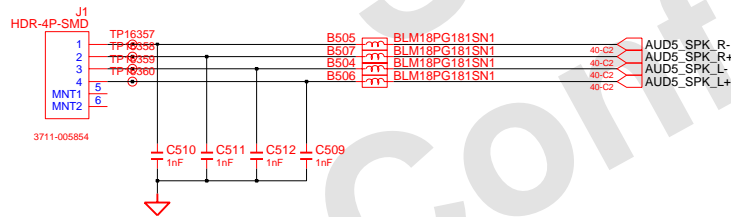
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CHECK	GUO LEI	DEV STEP	MP	MAIN	BA41-00727/8A	
APPROVAL	KEVIN LEE	REV	1.0	AUDIO CODEC		
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	39 OF 53

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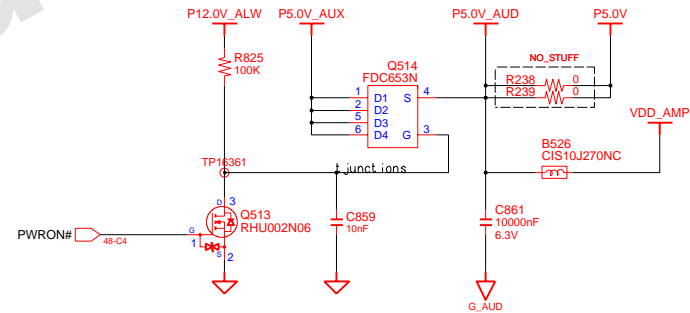
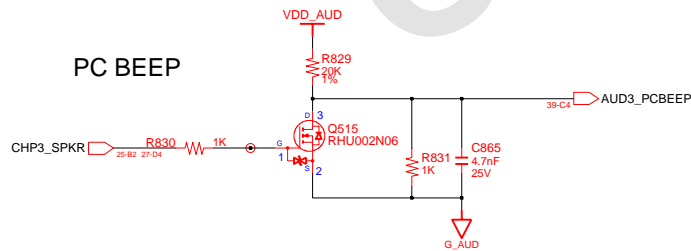
AUDIO AMP



INTERNAL STEREO SPEAKERS

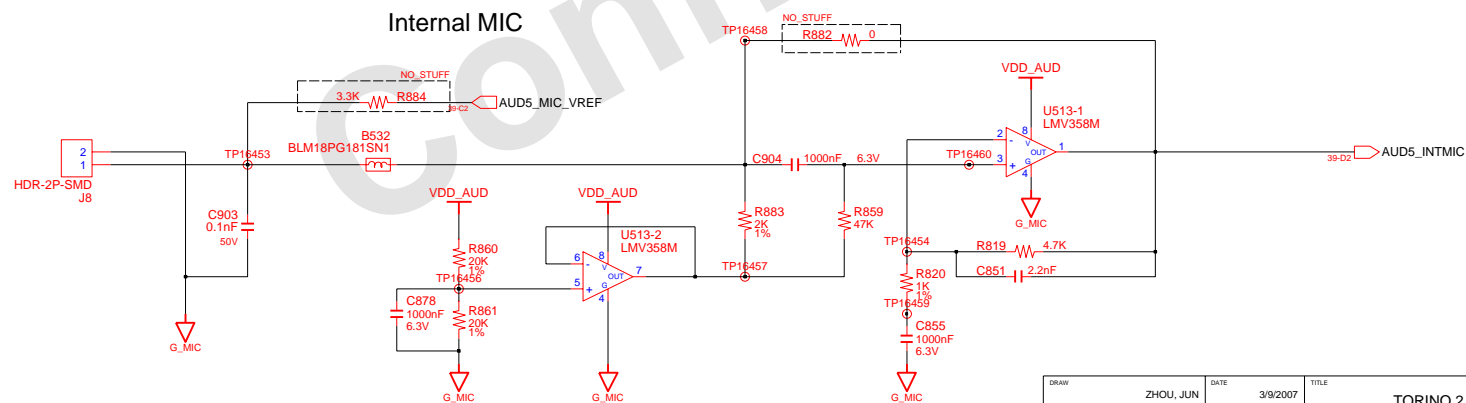
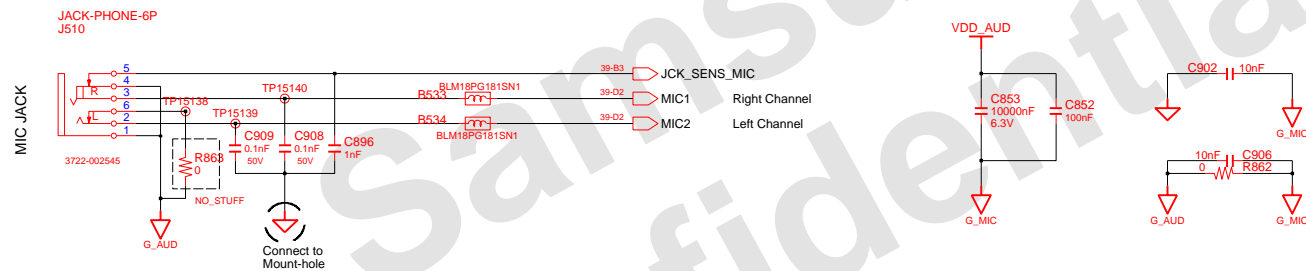
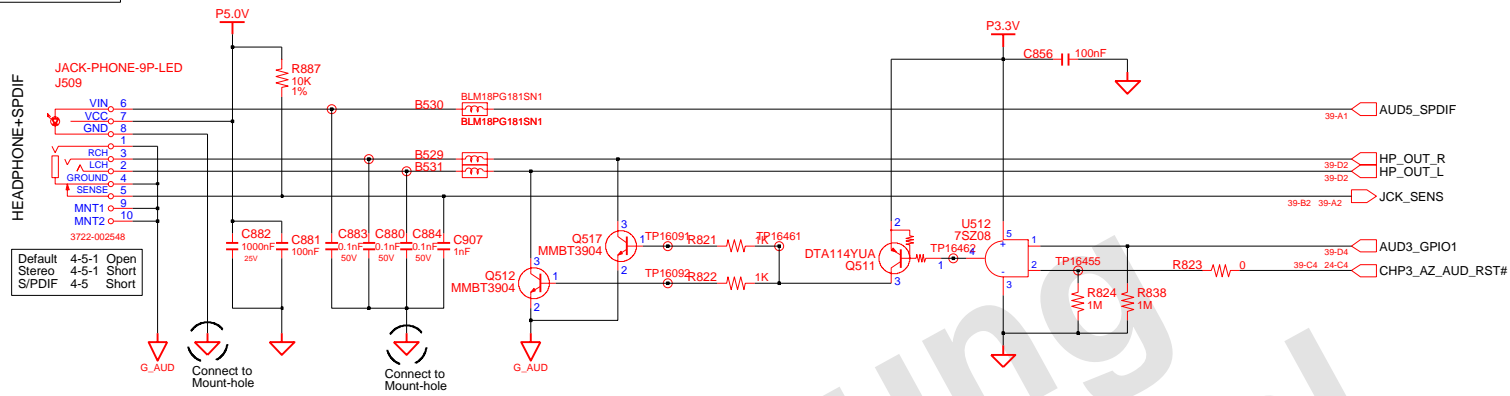


PC BEEP



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN AUDIO AMPLIFIER	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			PART NO. BA41-00727/8A
MODULE CODE		LAST ENT				
March 9, 2007 12:03:21 PM						PAGE 40 OF 53

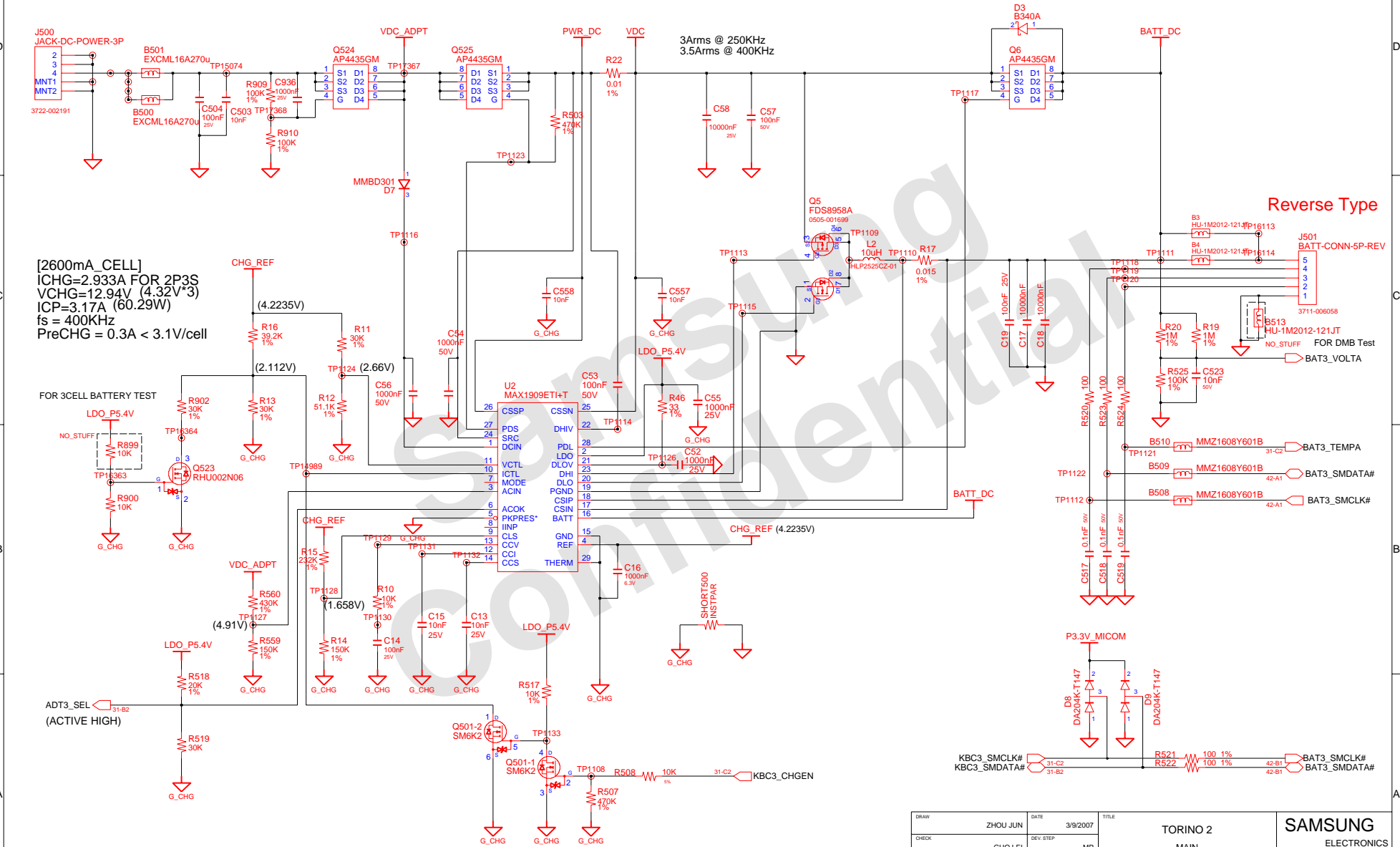
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DRAW	ZHOU, JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO, LEI	DEV. STEP	MP	MAIN	MAIN	
APPROVAL	LEE, KEVIN	REV	1.0	AUDIO JACK	PART NO. BA41-00727/8A	
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 41 OF 53

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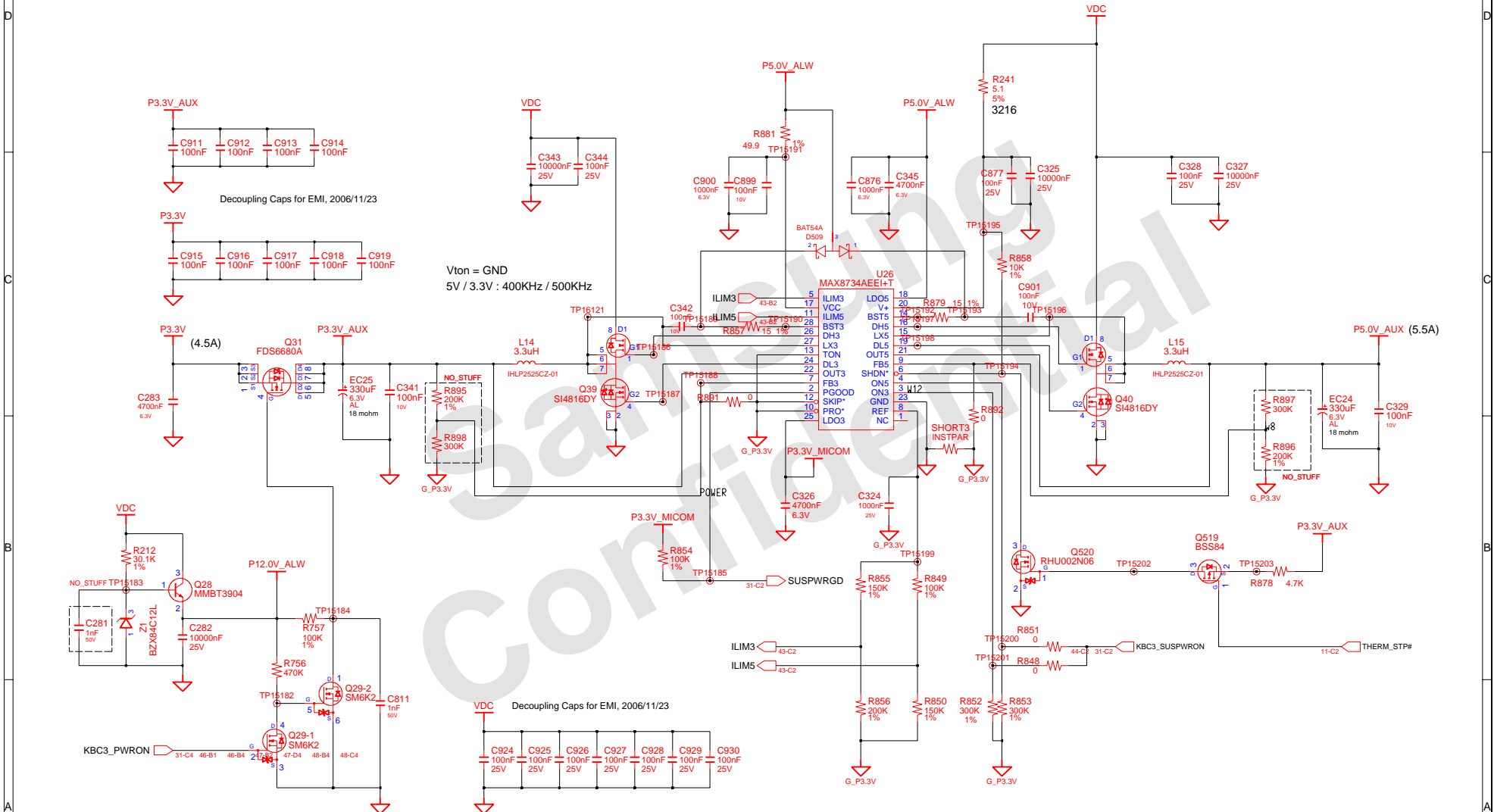
CHARGER & POWER MANAGEMENT



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	VDC & CHARGER	PART NO. BA41-00727/8A	
APPROVAL	KEVIN LEE	REV	1.0	March 9, 2007 12:03:21 PM	PAGE	42 OF 53
MODULE CODE		LAST ENT				

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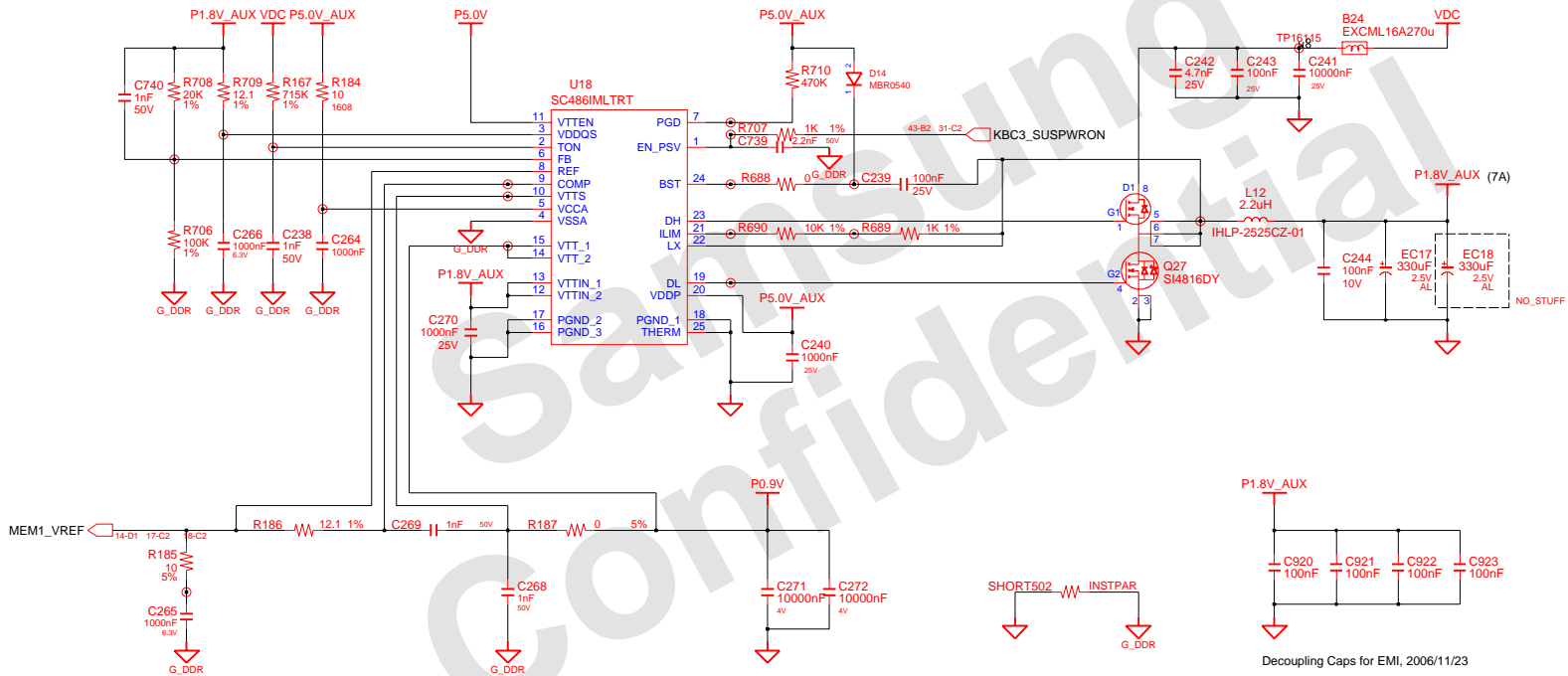
P5V_AUX & P3.3V_AUX



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS	
CHECK	GUO LEI	DEV_STEP	MP	MAIN	MAIN		
APPROVAL	KEVIN LEE	REV	1.0		P5V_AUX & P3.3V_LAN(AUX)	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT				PAGE	43 OF 53
					March 9, 2007 12:03:21 PM		

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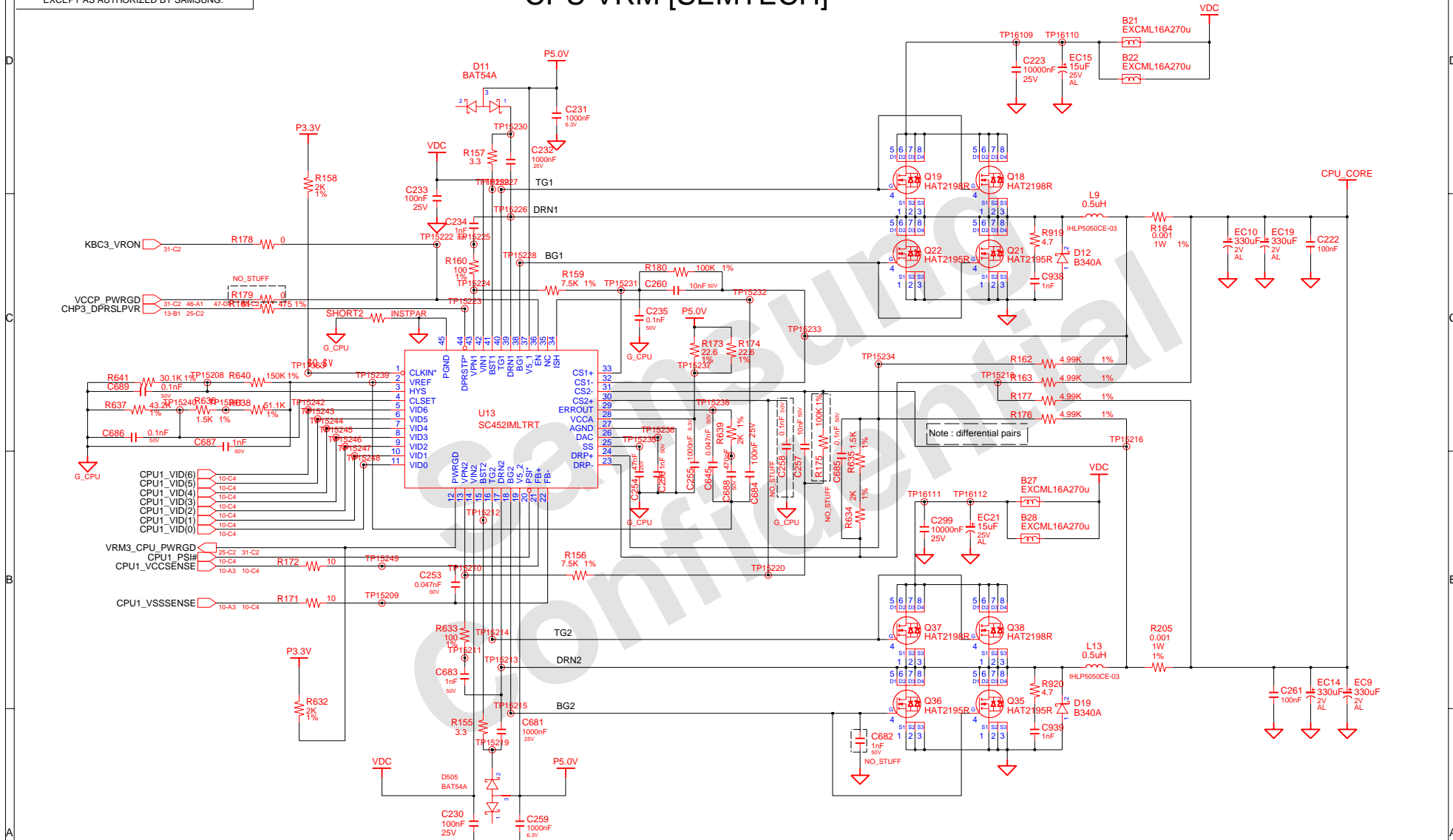
DDR2 POWER



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN DDR2 POWER	SAMSUNG ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST EDIT				
			March 9, 2007 12:03:21 PM	PAGE	44	OF 53

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CPU VRM [SEMTECH]

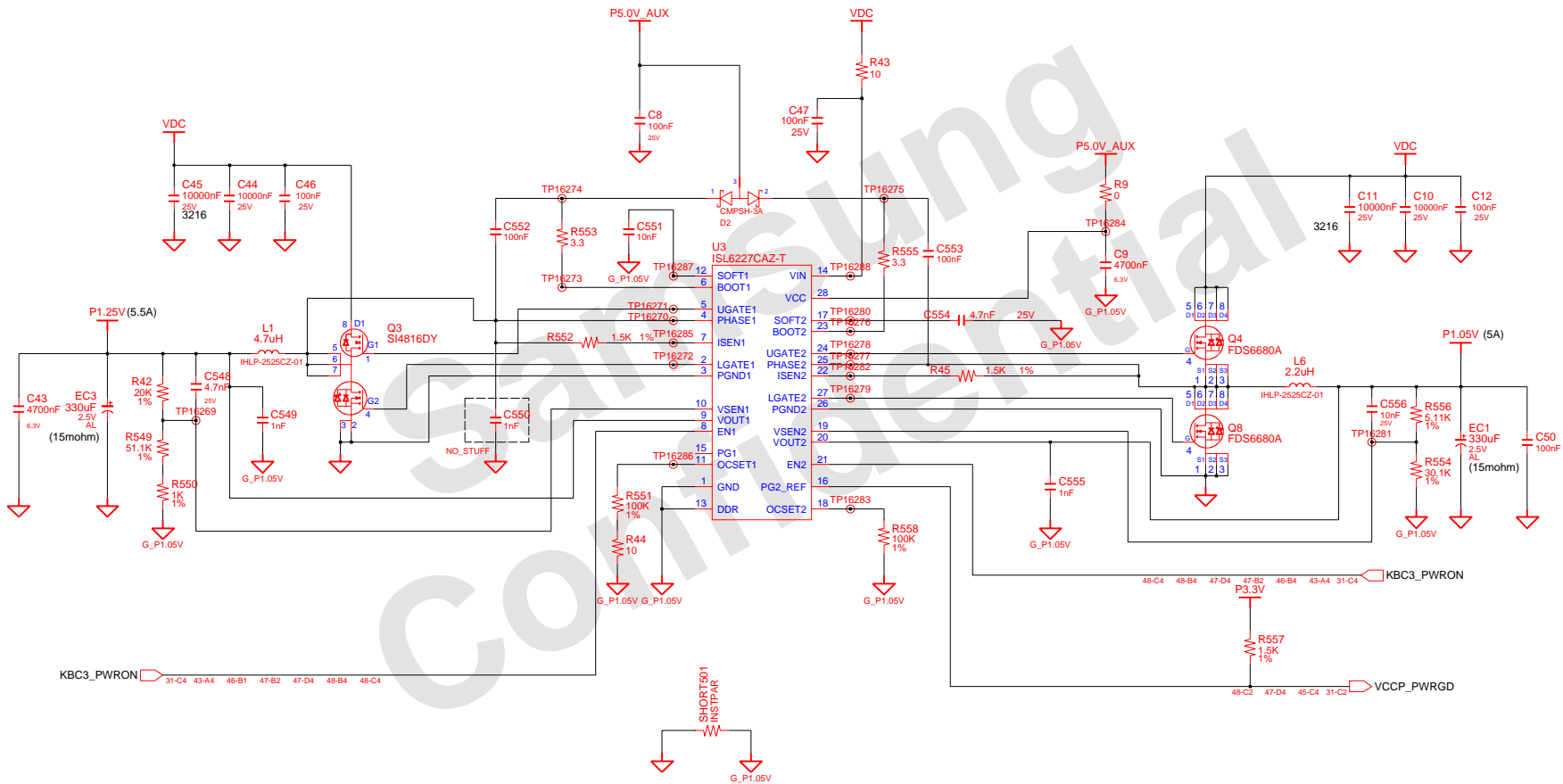


DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN CPU VRM	SAMSUNG ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST EDIT				

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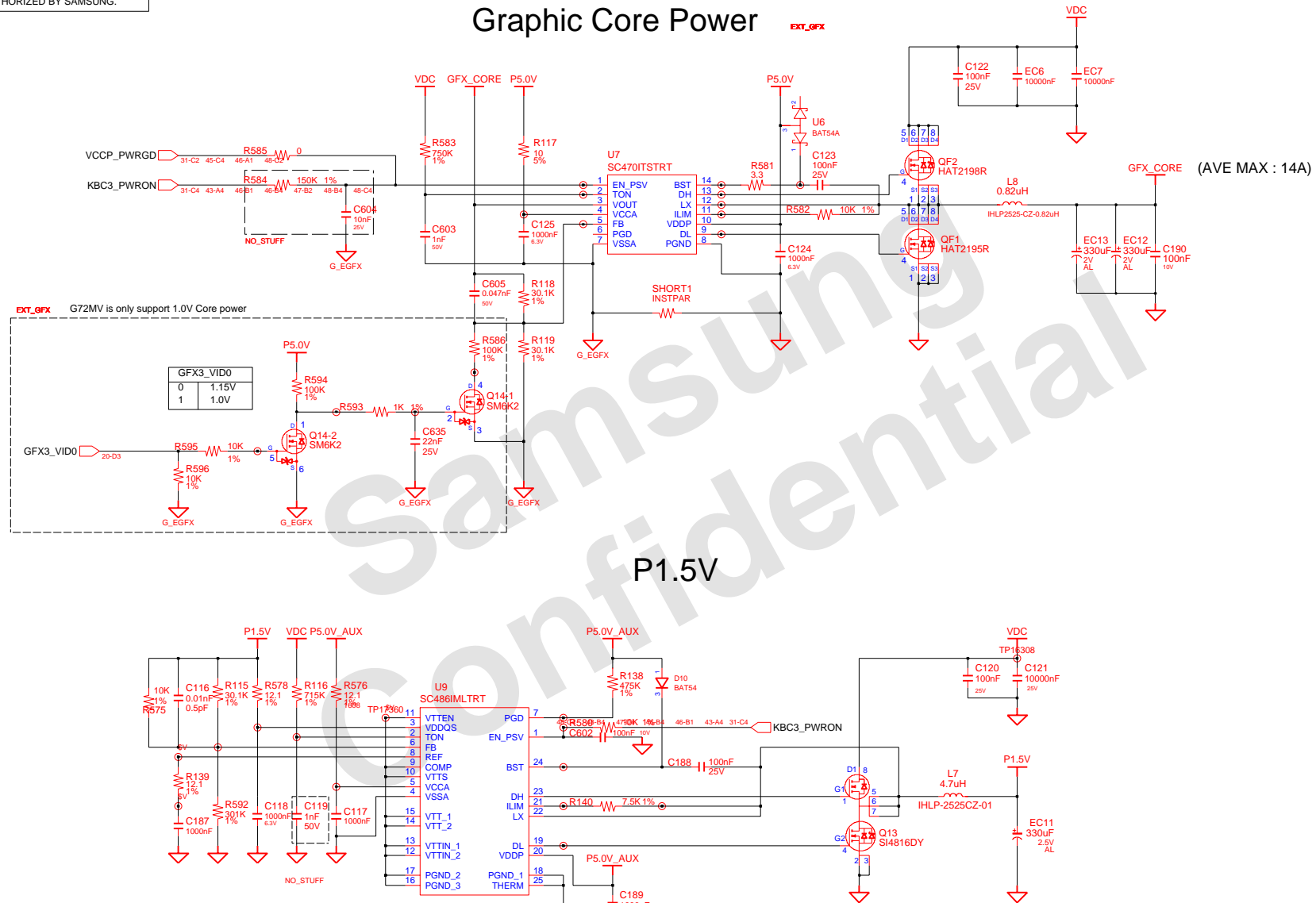
P1.25V & P1.05V



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.0		P1.25V & P1.05V	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 9, 2007 12:03:21 PM	PAGE 46 OF 53

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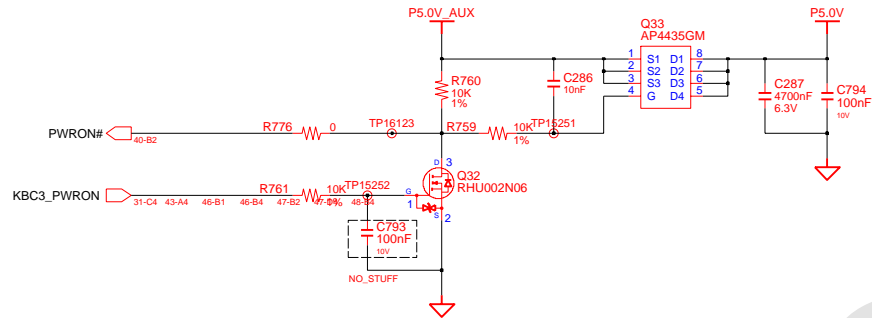
Graphic Core Power



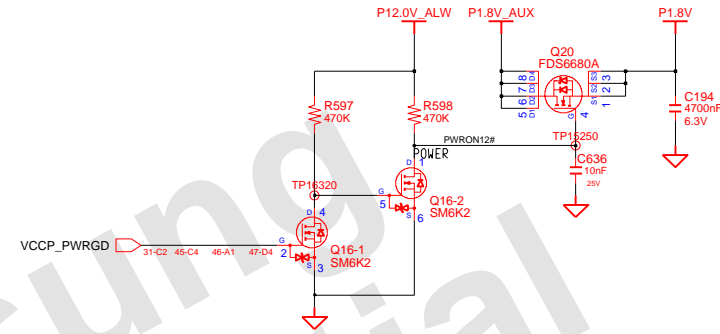
DRAW	ZHOU, JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO, LEI	DEV. STEP	MP		MAIN	
APPROVAL	LEE, KEVIN	REV	1.0		GFX_CORE & P1.5V	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT				
				March 9, 2007 12:03:21 PM	PAGE	47 OF 53

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Switched Power On (P5V)

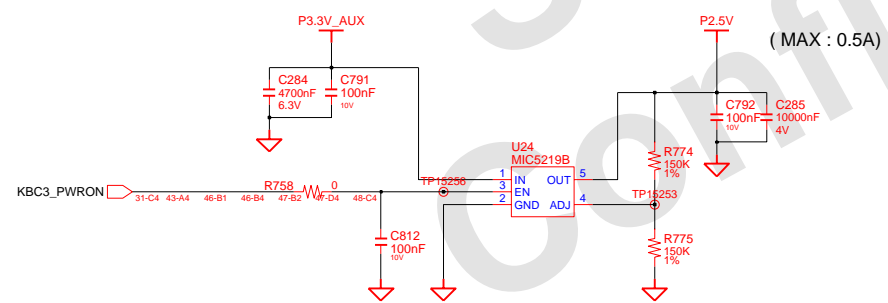


Switched Power On (P1.8V)

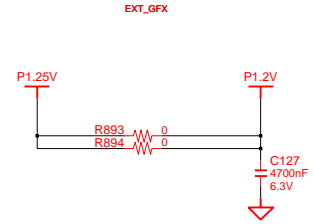


Switched Power On (P2.5V)

NO_STUFF
 It's only used for G72M
 (MAX : 0.5A)



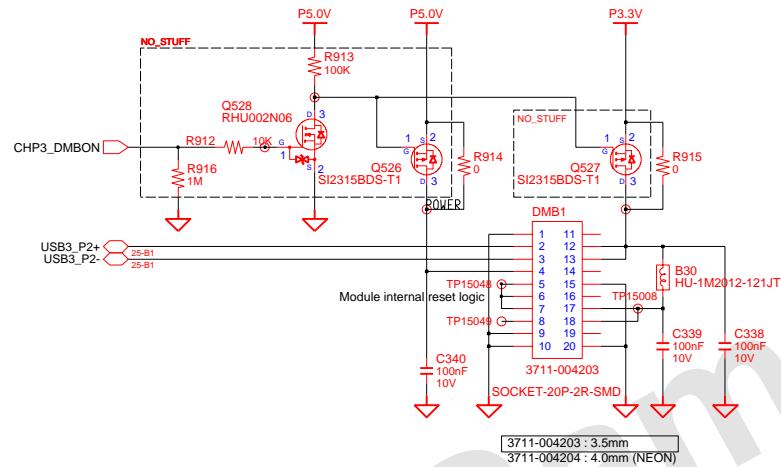
Switched Power On (P1.2V)



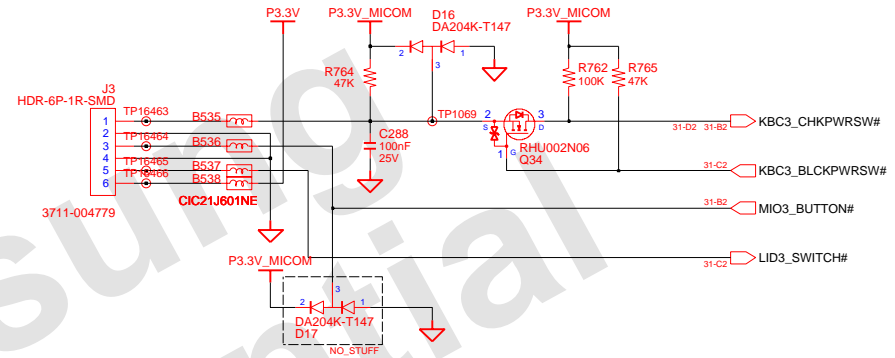
DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN SWITCHED POWER	SAMSUNG ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	48 OF 53	

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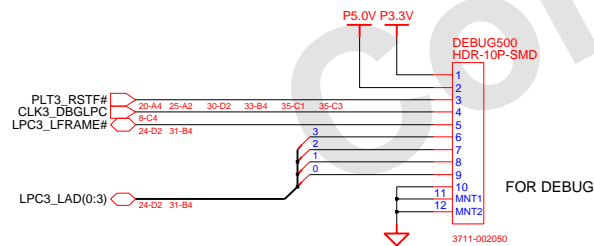
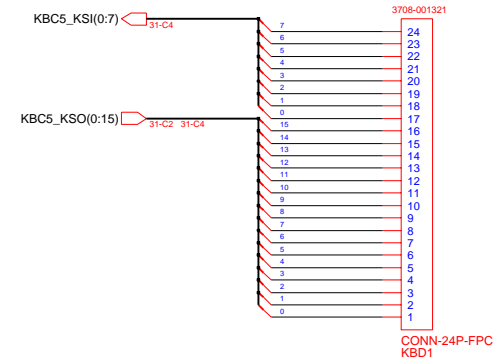
OPTION: DMB INTERFACE



Power Switch Connector

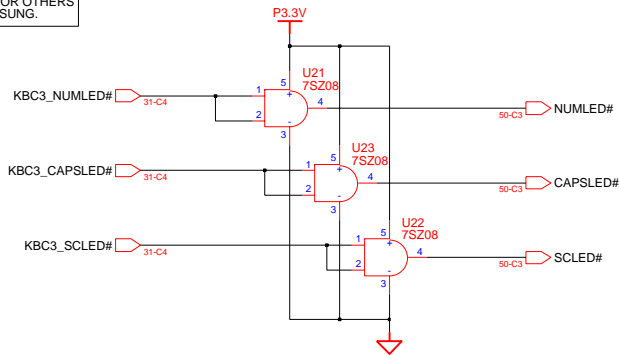


KEYBOARD

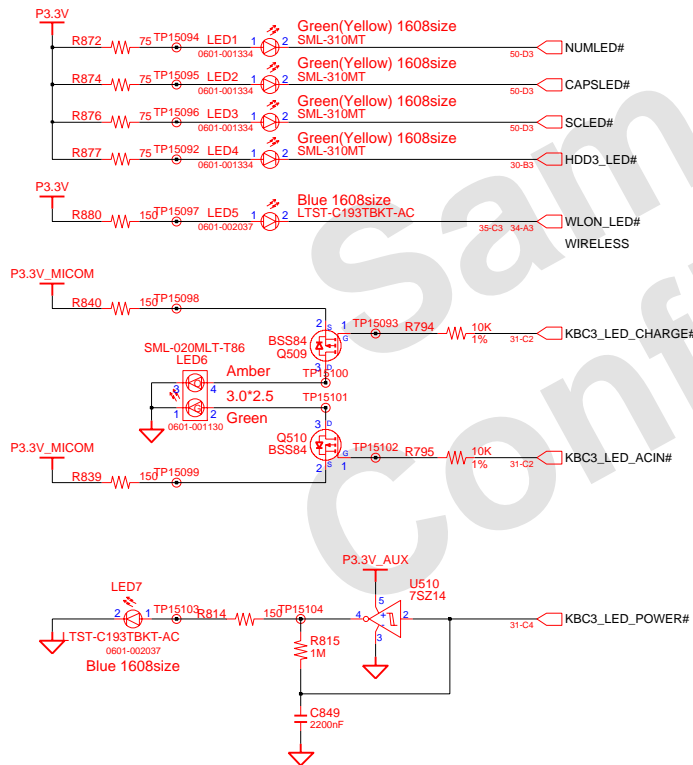


DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.0	DMB & KBD & DEBUG & POWER S/W		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT		March 9, 2007 12:03:21 PM	PAGE	49 OF 53

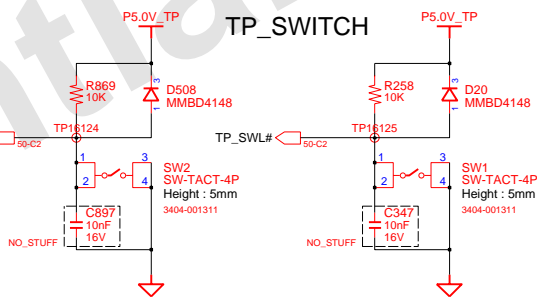
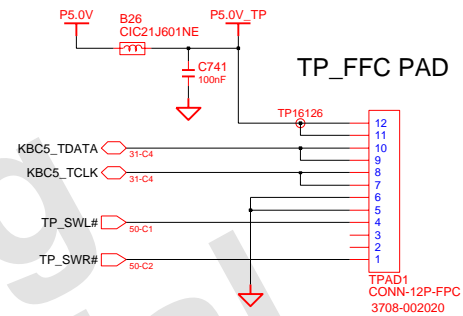
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LEDS



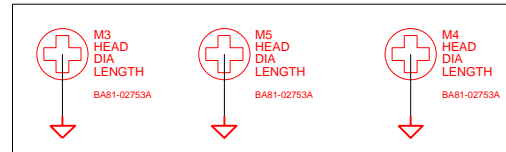
TOUCH PAD



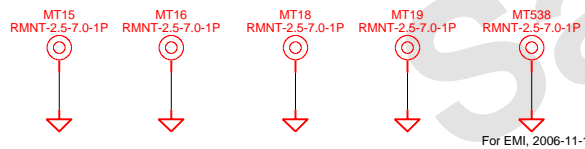
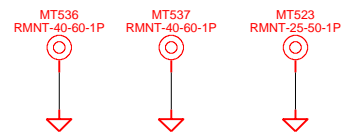
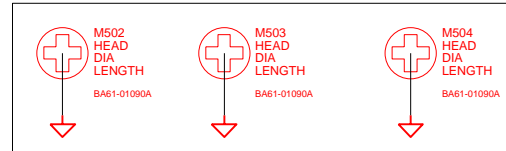
DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.0	TOUCH PAD & LEDS	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	50	OF 53

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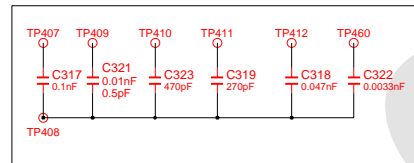
DMB-NUT



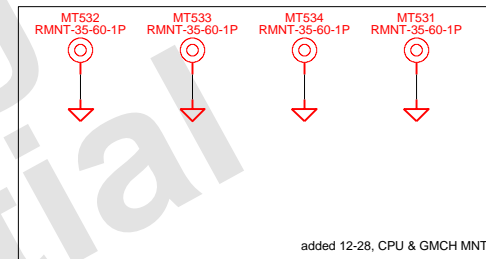
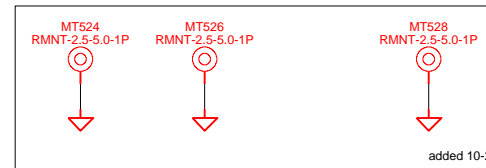
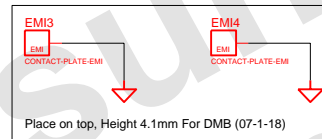
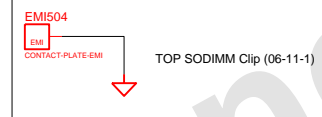
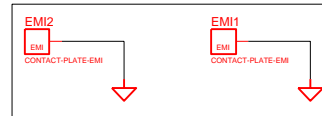
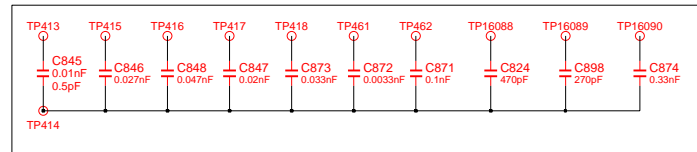
NUT for RHE, Locate on TOP of PCB



1 - 499 SIDE



500 - SIDE



REV1
 1 O
 2 O O3

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

DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2 MAIN MOUNT HOLE	SAMSUNG ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.0			
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	51 OF 53	

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REVISION HISTORY

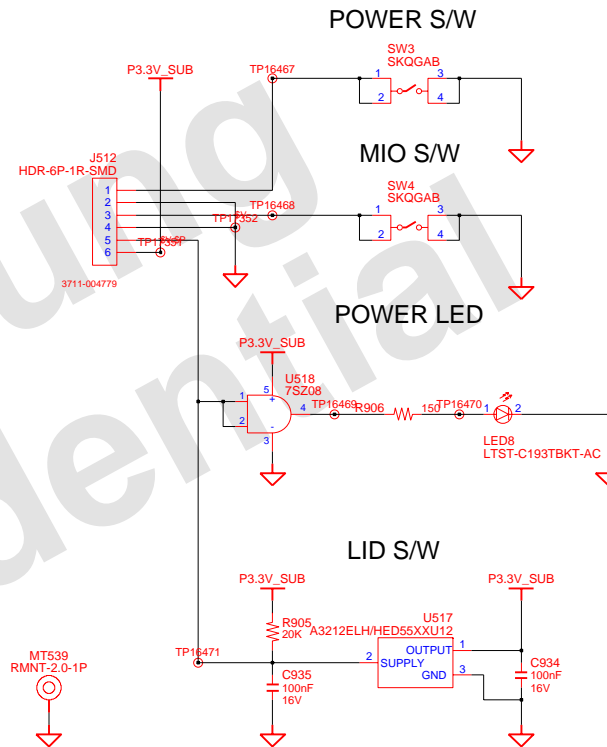
REVISION	DATE	NO.#	CONTENTS
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NOTES

Note1. Schematic Revision: MP 1.0.0
 Development Stage
 PCB Version
 Schematic Version

Note2. PCB SEC Code
 Vendor: SGCE P/N: BA41-??????
 Vendor: TPT P/N: BA41-??????

ON TOP BOARD



DRAW	ZHOU JUN	DATE	3/9/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	MAIN	
APPROVAL	KEVIN LEE	REV	1.0	REVISION HISTORY		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT	March 9, 2007 12:03:21 PM	PAGE	53	OF 53