

**SAMSUNG PROPRIETARY**

THIS DOCUMENT CONTAINS CONFIDENTIAL  
PROPRIETARY INFORMATION THAT IS  
SAMSUNG ELECTRONICS CO.'S PROPERTY.  
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
EXCEPT AS AUTHORIZED BY SAMSUNG.

# 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 : 1.1  
T.R. Date : 2007.04.10

DRAW	CHECK	APPROVAL
-	-	-

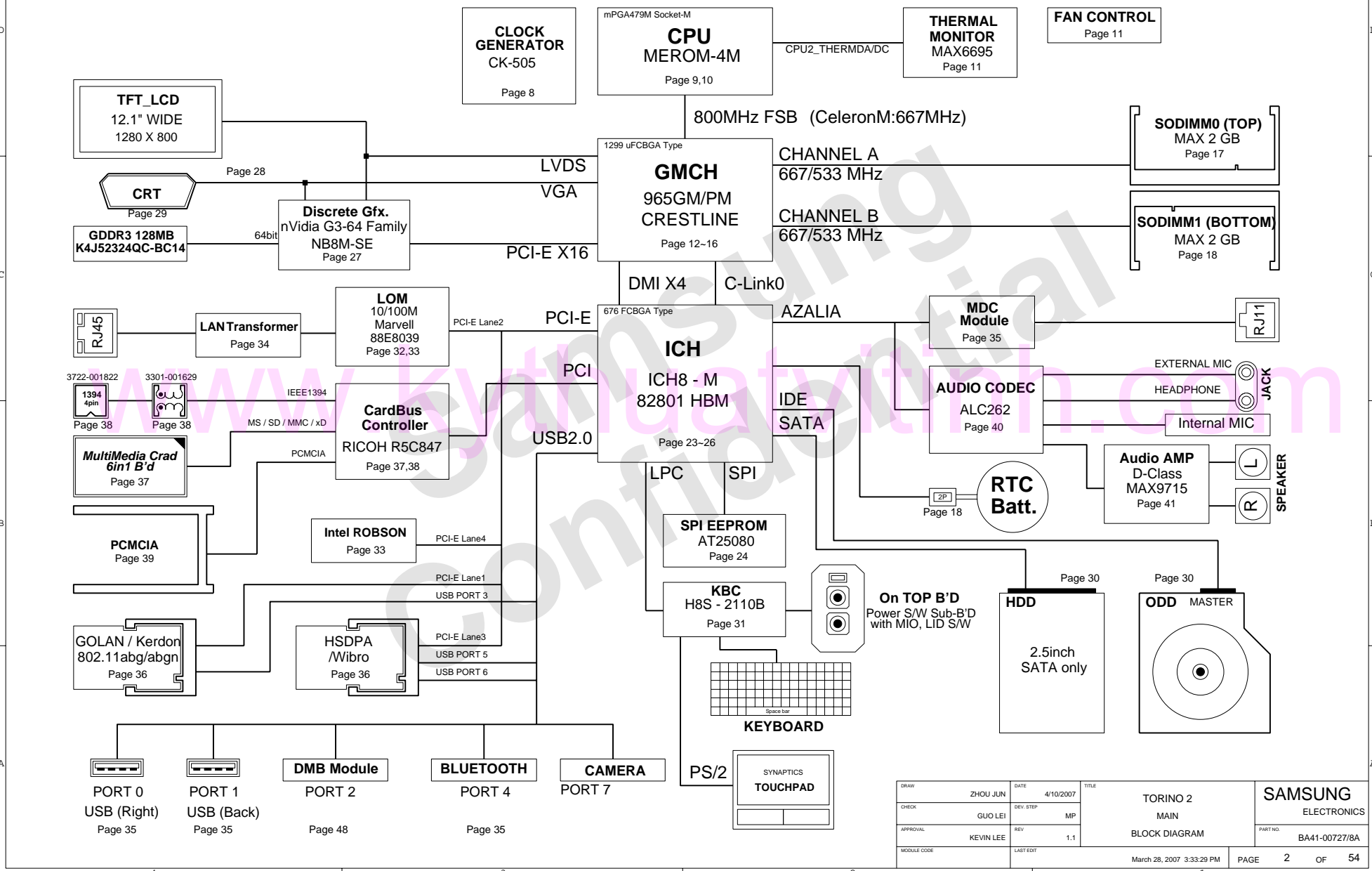
## Table of Contents

Page. 1	---	COVER	
Page. 2	---	OPERATION BLOCK DIAGRAM	] DIAGRAM
Page. 3	---	POWER DIAGRAM	
Page. 4	---	POWER SEQUENCE	
Page. 5	---	POWER RAIL	
Page. 6	---	CLOCK DISTRIBUTION	
Page. 7	---	BOARD INFORMATION	
Page. 8	---	CLOCK GENERATOR (CK-505)	
Page. 9~10	---	MEROM	
Page. 11	---	THERMAL MONITOR	
Page. 12~16	---	CRESTLINE (965GM)	
Page. 17	---	DDR2 SODIMM (TOP)	
Page. 18	---	DDR2 SODIMM (BOTTOM)	
Page. 19	---	DDR2 TERMINATION	
Page. 20~23	---	DISCRETE GFX (NB8M-SE & GDDR3)	
Page. 24~27	---	ICH8-M	
Page. 28	---	LCD (LVDS) CONN.	
Page. 29	---	CRT CONN.	
Page. 30	---	HDD & ODD CONNECTOR	
Page. 31	---	MICOM	
Page. 32	---	LAN CONTROLLER (10/100M)	
Page. 33	---	ROBSON	
Page. 34	---	USB PORT, MDC CONN. & BLUETOOTH	
Page. 35	---	MINI CARD SOCKET (WLAN/HSDPA/WIBRO)	
Page. 36	---	CARDBUS CONTROLLER(1) & 4IN1	
Page. 37	---	CARDBUS CONTROLLER(2) & 1394(4P)	
Page. 38	---	PCMCIA SOCKET	
Page. 39	---	AUDIO CODEC	
Page. 40	---	AUDIO AMP	
Page. 41	---	AUDIO JACK	
Page. 42	---	CHARGER	
Page. 43	---	P3.3V_AUX & P5V_AUX	
Page. 44	---	DDR2 POWER	
Page. 45	---	CPU VRM POWER	
Page. 46	---	P1.25V & P1.05V POWER	
Page. 47	---	GFX CORE & P1.5V POWER	
Page. 48	---	SWITCHED POWER	
Page. 49	---	POWER S/W, DMB, DEBUG & KEYBOARD CONN.	
Page. 50	---	LEDS & TOUCHPAD	
Page. 51	---	MOUNT HOLE	
Page. 52	---	TEST POINTS	
Page. 53	---	REVISION HISTORY	

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		COVER	
APPROVAL	KEVIN LEE	REV	1.1		CONTENTS	PART NO. BA41-00727/8A
MODULE CODE		LAST ENT		March 28, 2007 3:33:29 PM	PAGE	1 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# OPERATION BLOCK DIAGRAM

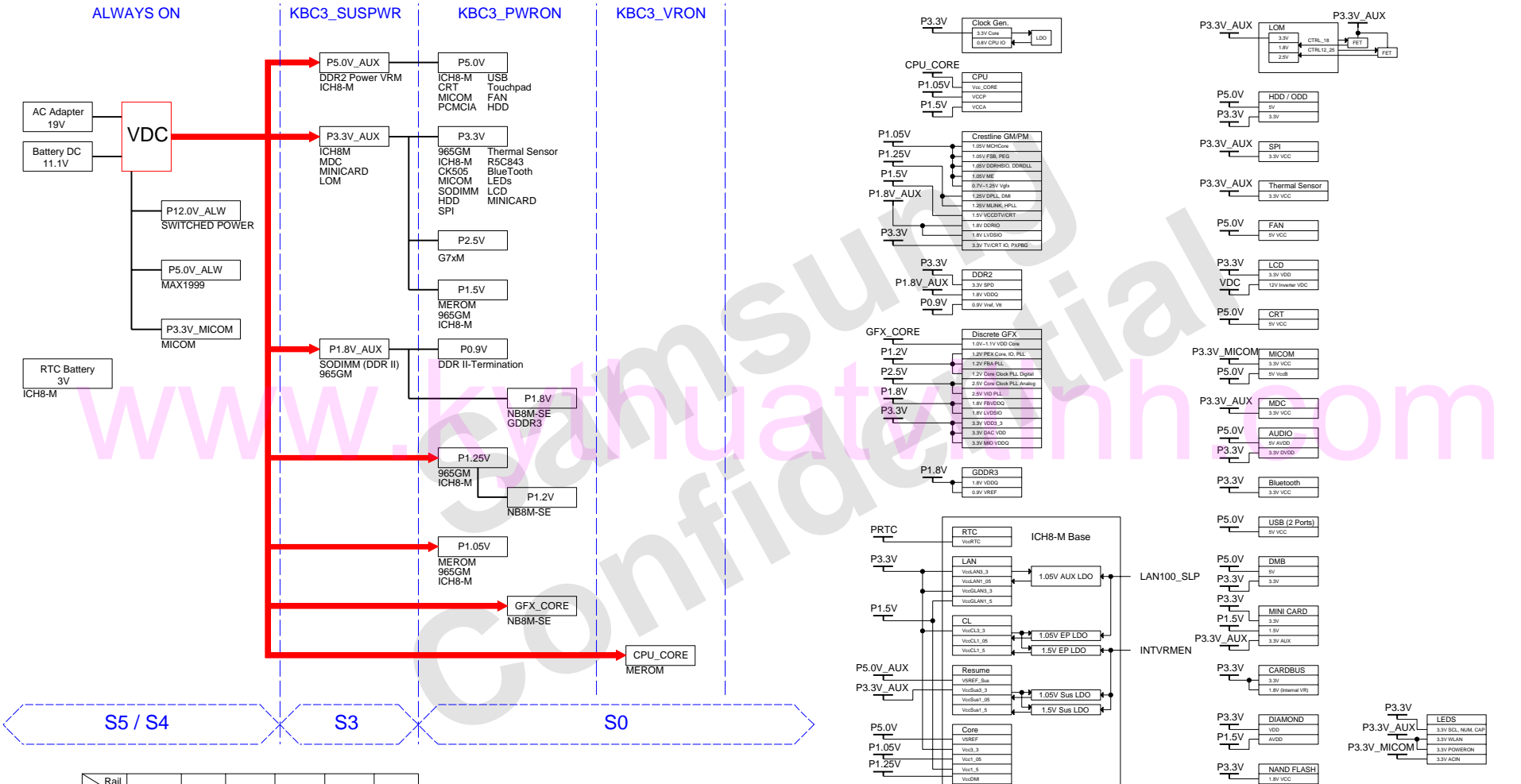


DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.1		BLOCK DIAGRAM	PART NO. BA41-00727/8A
MODULE CODE		LAST ENT				
				March 28, 2007 3:33:29 PM	PAGE	2 OF 54

**SAMSUNG PROPRIETARY**

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

# POWER DIAGRAM

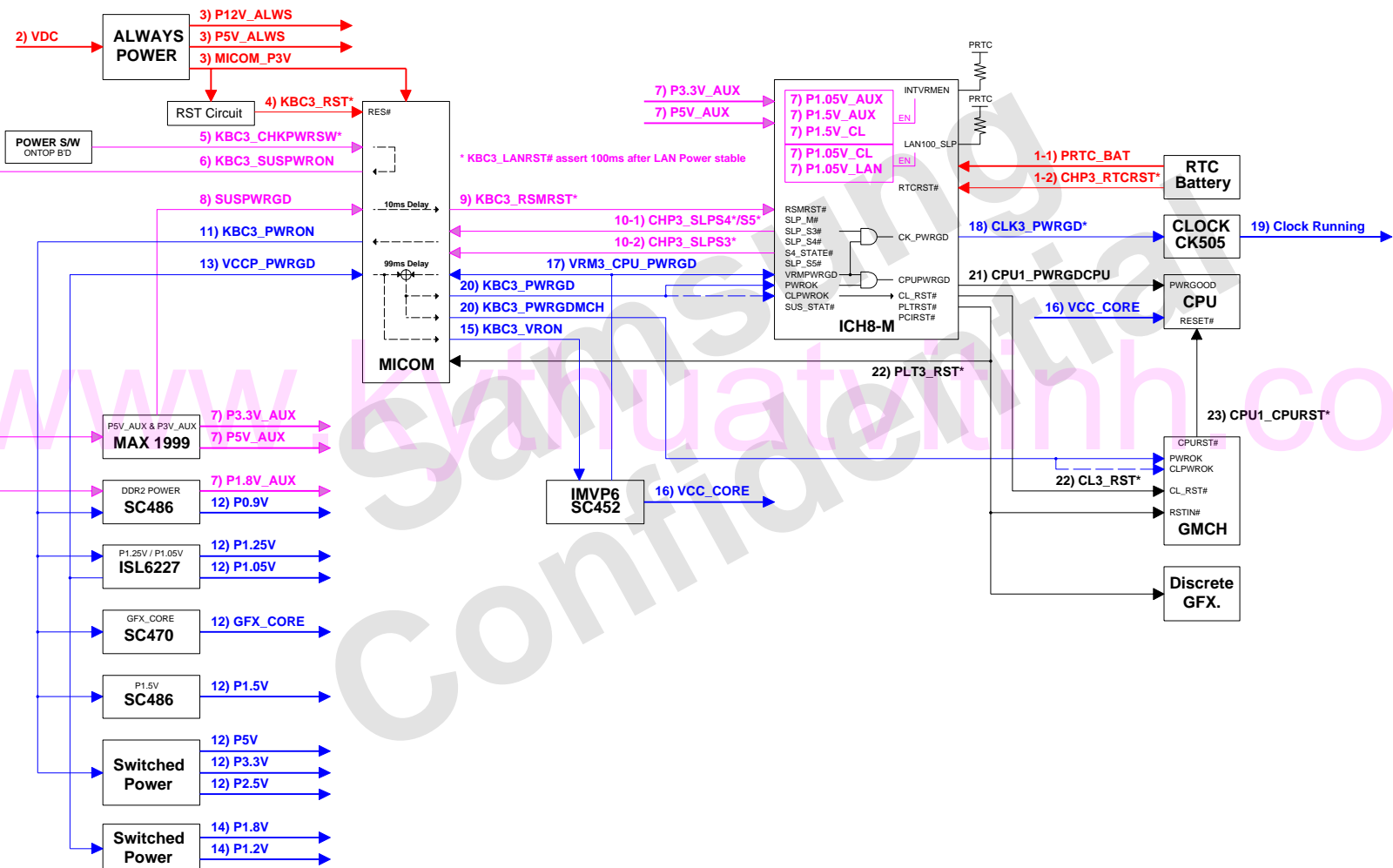


Rail State	+V*Always	+V*AUX	+V	SUSPWR	PWRON	VRON
Full On	ON	ON	ON	H	H	H
S3	ON	ON	OFF	H	L	L
S4	ON	OFF	OFF	H	L	L
S5	ON	OFF	OFF	L	L	L

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN POWER DIAGRAM	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.1			
MODULE CODE		LAST ENT				
March 28, 2007 3:33:29 PM						PAGE 3 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# POWER SEQUENCE Rev. 0.1



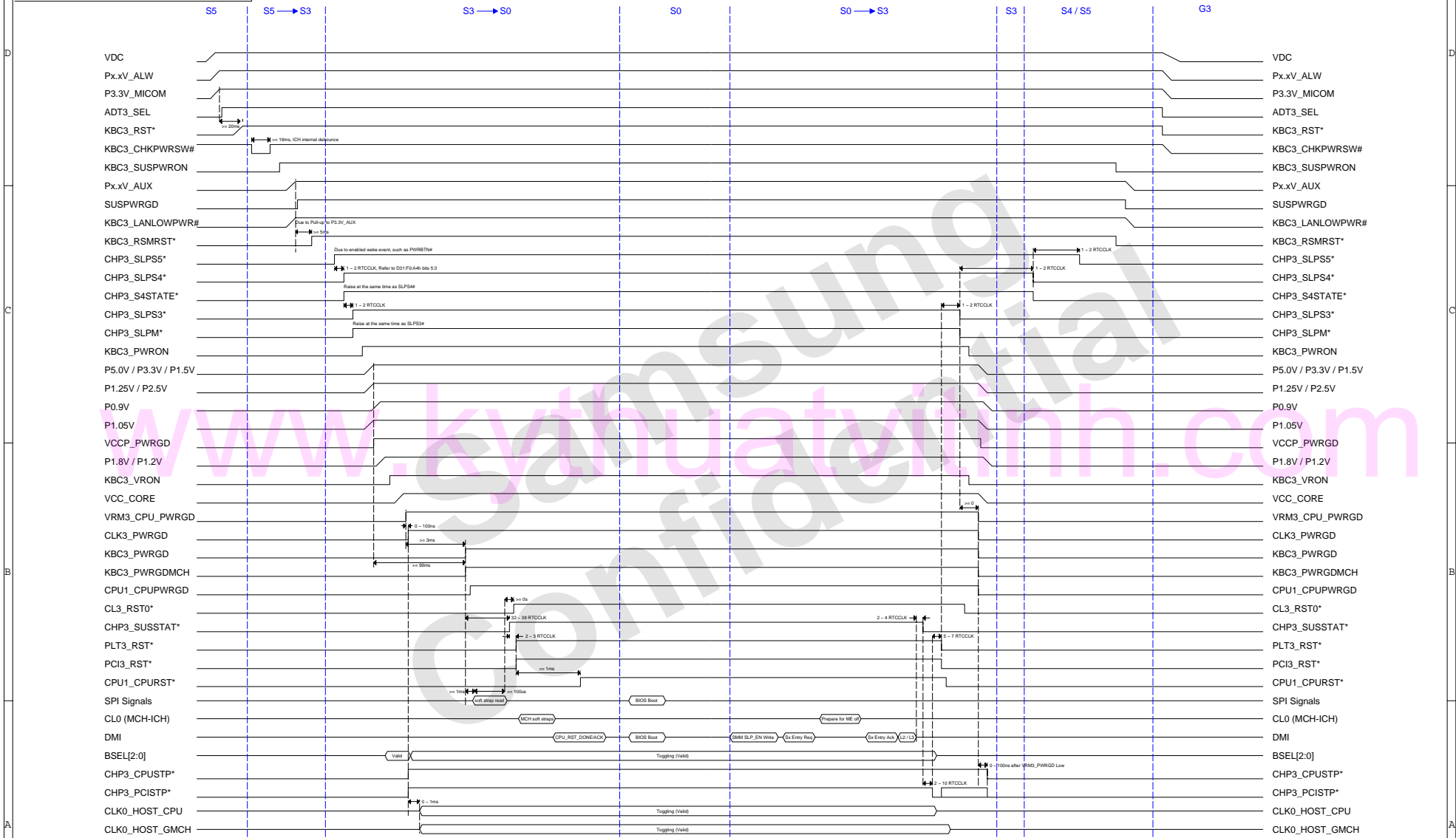
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN POWER SEQUENCE	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 4 OF 54

**SAMSUNG PROPRIETARY**

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

**Timing Diagram, no ME**

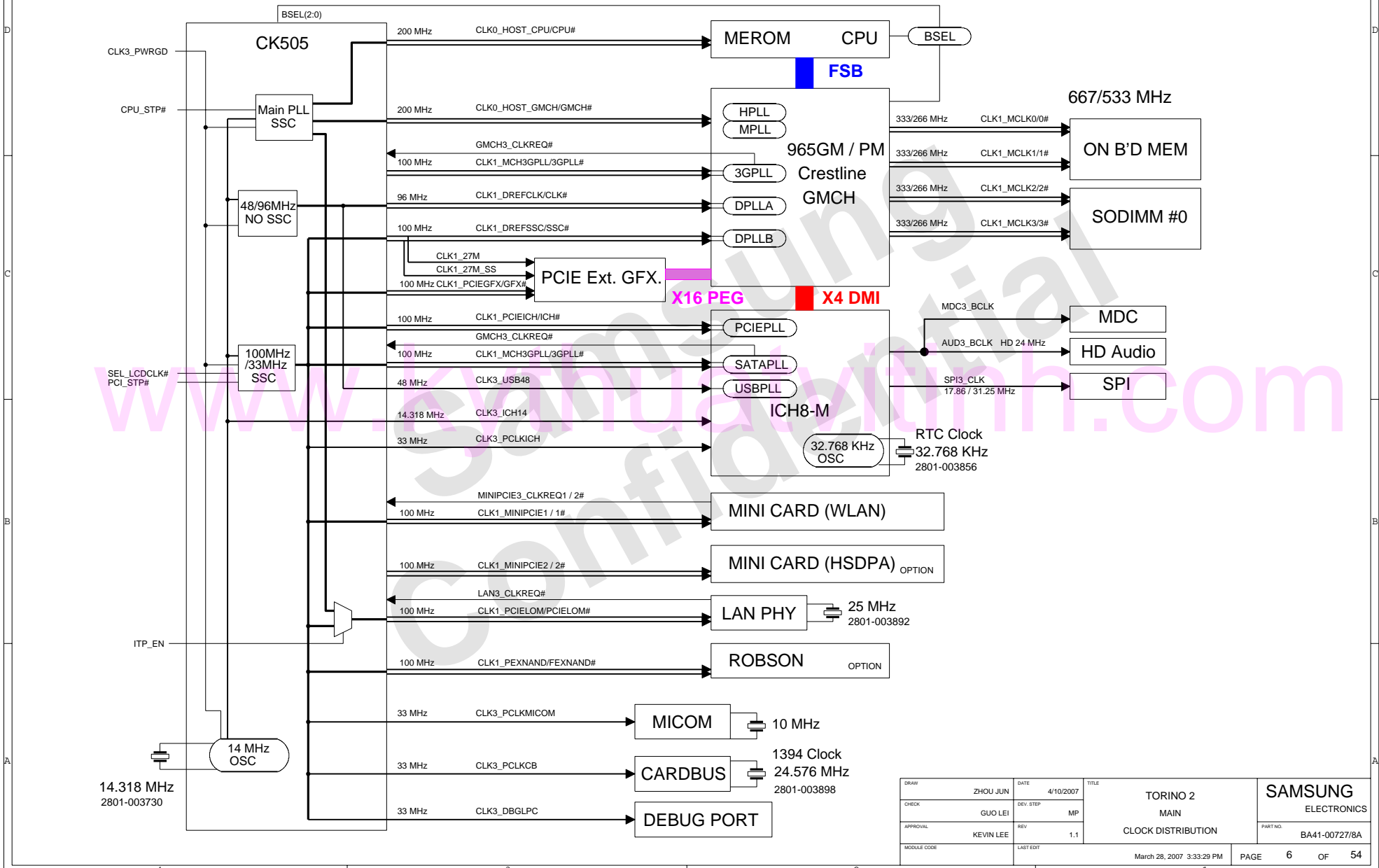
Rev. 0.2 Phil 2006-9-21



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS	
CHECK	GUO LEI	DEV. STEP	MP		MAIN		
APPROVAL	KEVIN LEE	REV	1.1		TIMING DIAGRAM	PART NO. BA41-00727/8A	
MODULE CODE		LAST EDIT				March 28, 2007 3:33:29 PM	
						PAGE	5 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# CLOCK DISTRIBUTION Rev. 0.1



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN CLOCK DISTRIBUTION	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.1			
MODULE CODE		LAST EDIT				
March 28, 2007 3:33:29 PM				PAGE	6	OF 54

**SAMSUNG PROPRIETARY**

THIS DOCUMENT CONTAINS CONFIDENTIAL PROPRIETARY INFORMATION THAT IS SAMSUNG ELECTRONICS CO.'S PROPERTY. DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS EXCEPT AS AUTHORIZED BY SAMSUNG.

**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 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	0.4750 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 1 0 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 1	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 1 0	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 1	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 0 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 1 1	0.6125 V	1 1 1 0 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 0	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 0 1 1 1	0.5125 V	1 1 1 1 0 0 0	0.0000 V
		1 0 0 0 1 1 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.

**I<sup>2</sup>C / 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**

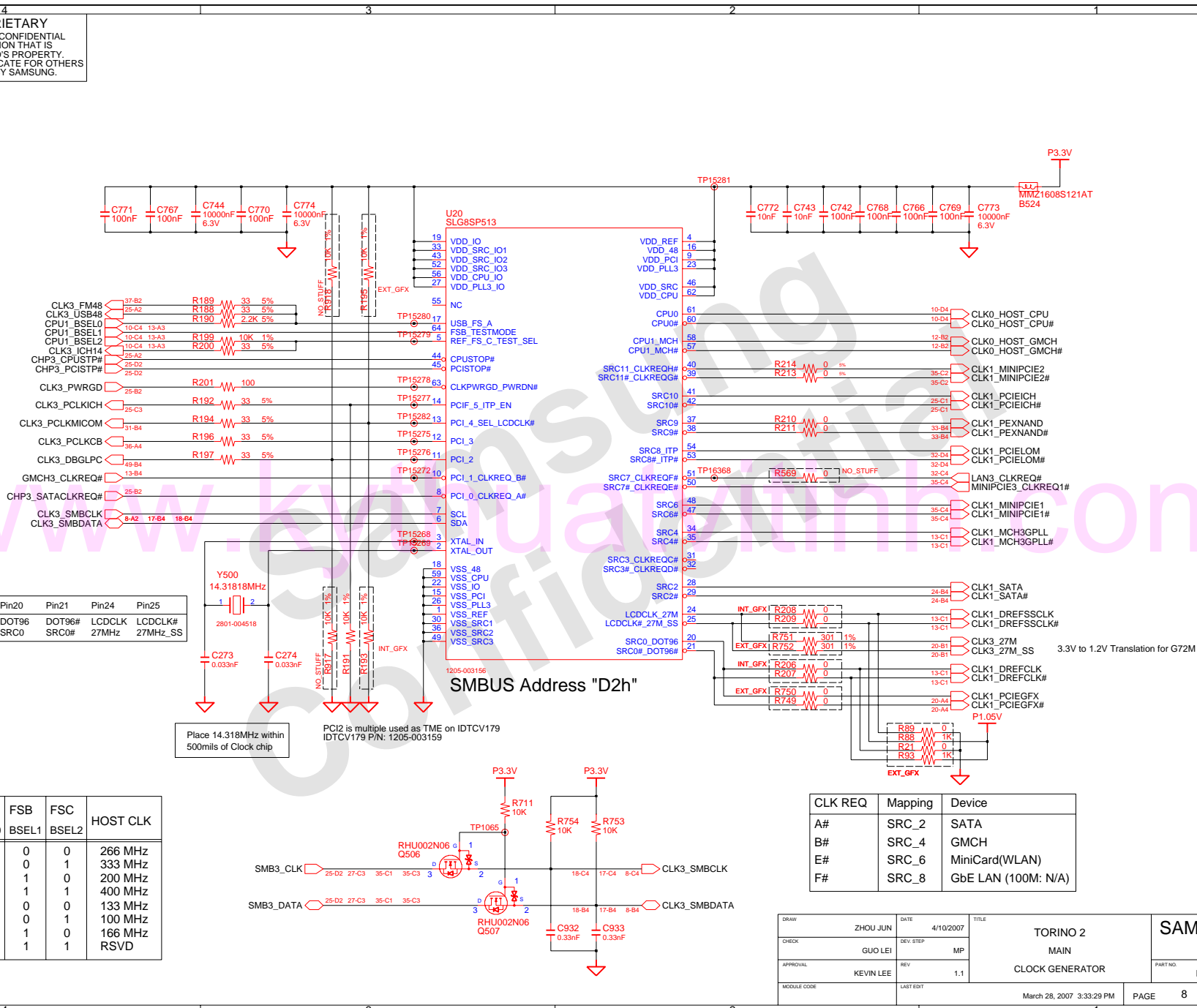
PORT NUMBER	ASSIGNED TO
0	SYSTEM PORT A
1	SYSTEM PORT B
2	DMB CARD
3	MINIPIE
4	BLUETOOTH
5	WIBRO SIM CARD
6	HSDPA
7	CAMERA

**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.

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG
CHECK	GUO LEI	DEV. STEP	MP		MAIN	ELECTRONICS
APPROVAL	KEVIN LEE	REV	1.1		BOARD INFORMATION	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 7 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



SEL_LCDCLK#	Pin20	Pin21	Pin24	Pin25
0	DOT96	DOT96#	LCDCLK	LCDCLK#
1	SRC0	SRC0#	27MHz	27MHz_SS

CPU	FSA	FSB	FSC	HOST CLK
	BSEL0	BSEL1	BSEL2	
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	0	RSVD

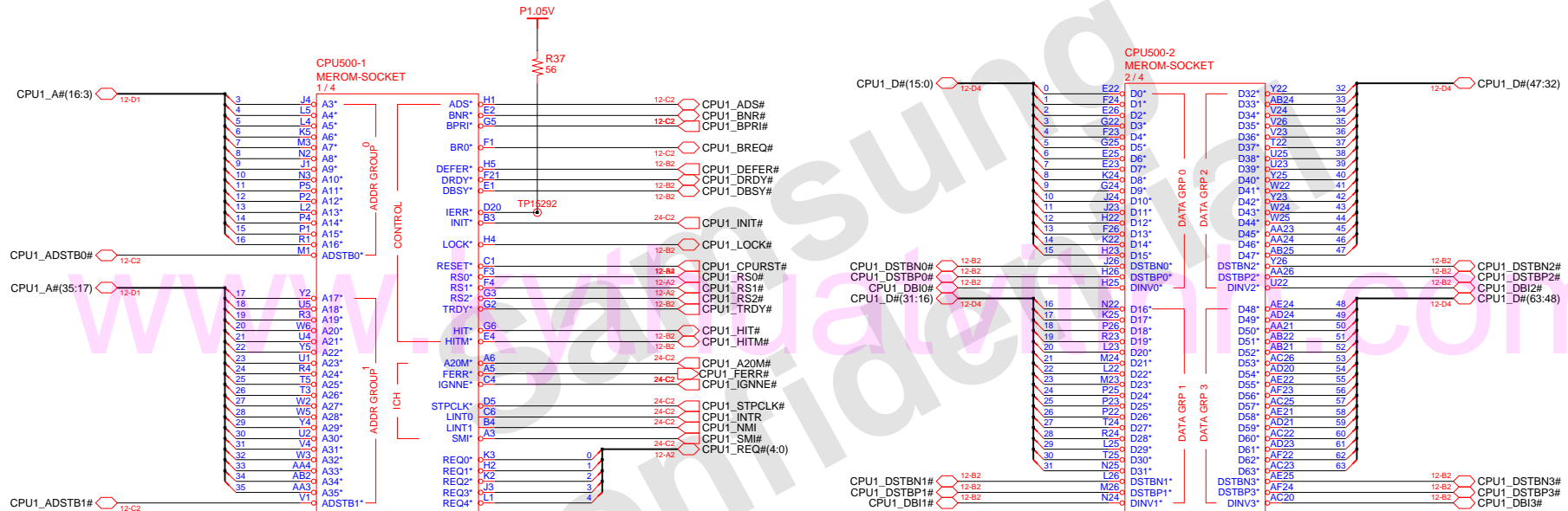
CLK REQ	Mapping	Device
A#	SRC_2	SATA
B#	SRC_4	GMCH
E#	SRC_6	MiniCard(WLAN)
F#	SRC_8	GbE LAN (100M: N/A)

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN	BA41-00727/8A	
APPROVAL	KEVIN LEE	REV	1,1	CLOCK GENERATOR		
MODULE CODE		LAST EDIT				
				March 28, 2007 3:33:29 PM	PAGE	8 OF 54



SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

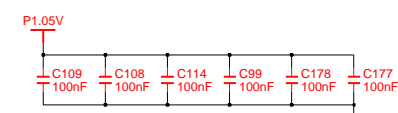
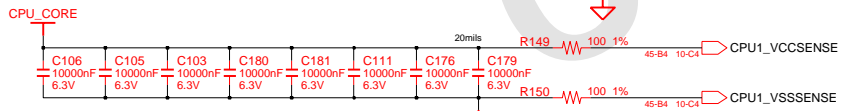
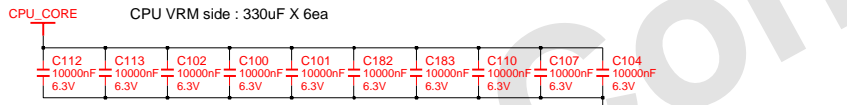
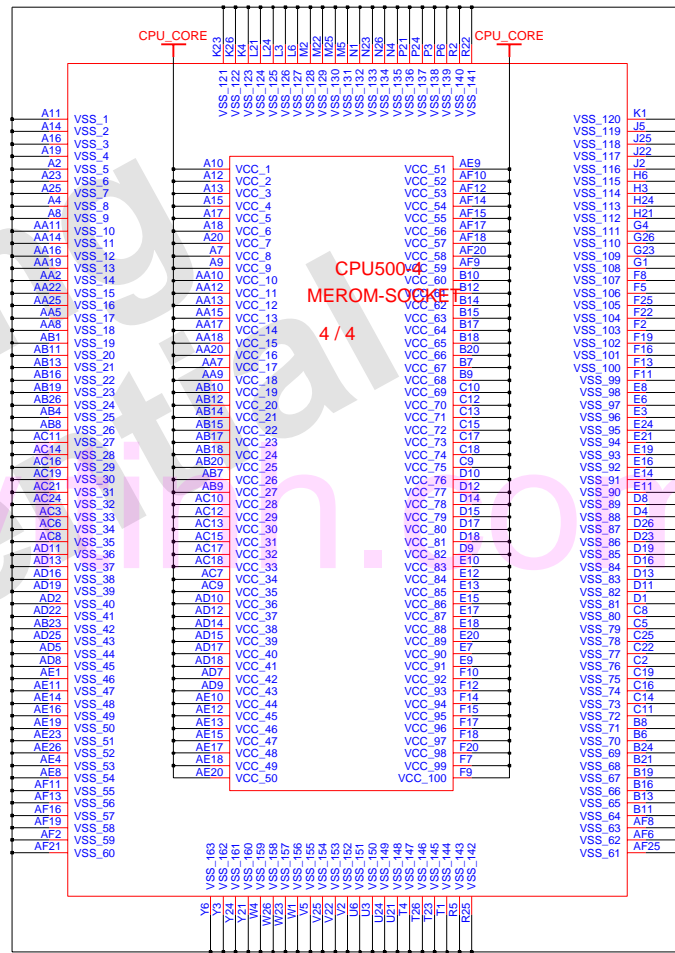
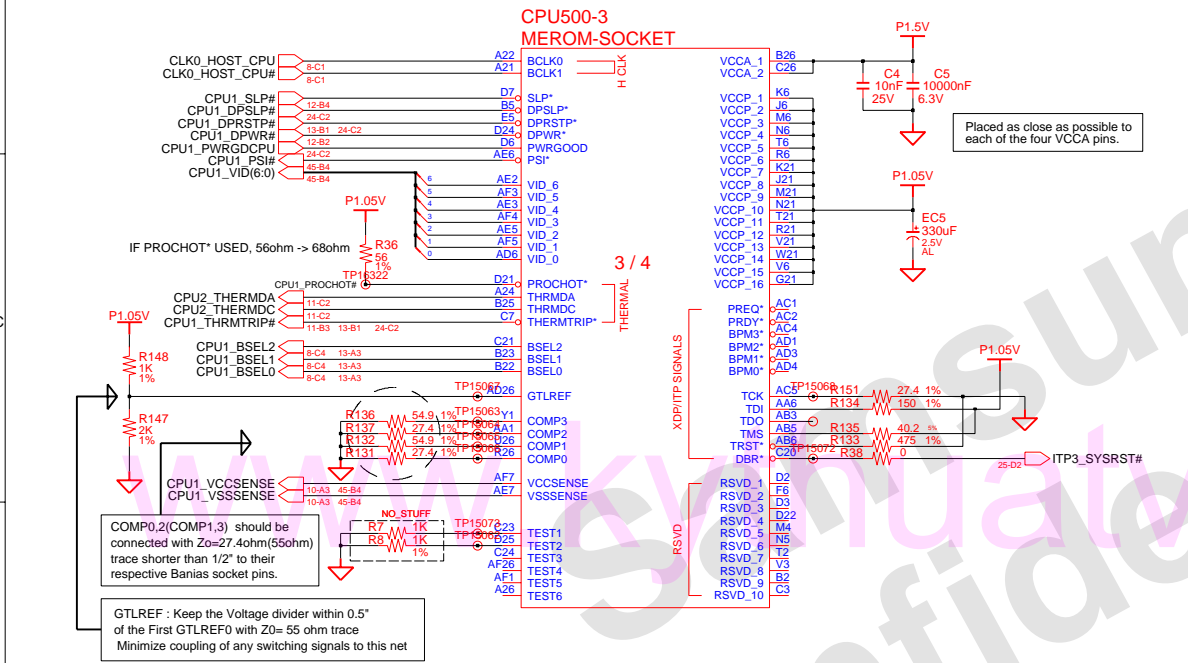
# CPU SOCKET : MEROM



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN	MAIN	
APPROVAL	KEVIN LEE	REV	1.1	MEROM(1)	PART NO. BA41-00727/8A	
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 9 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# CPU SOCKET : MEROM

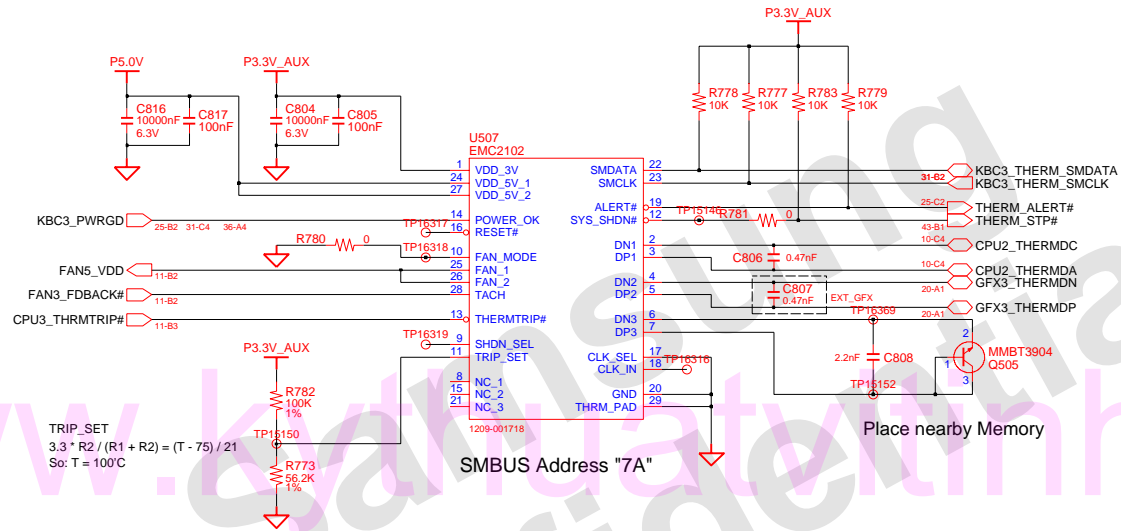


CHECK BULK CAP USING IF IT DOUBLED

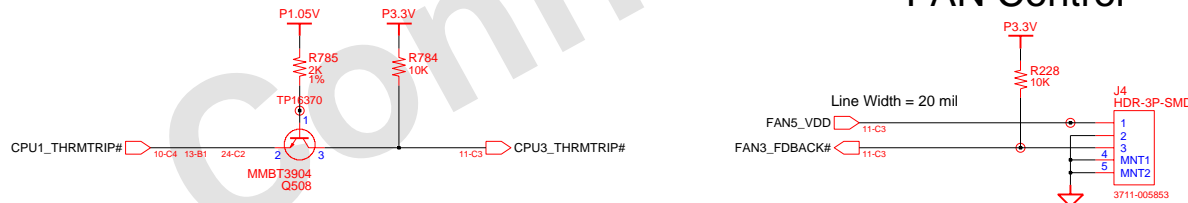
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN	BA41-00727/8A	
APPROVAL	KEVIN LEE	REV	1.1	MEROM(2)	PART NO.	
MODULE CODE		LAST ENT				
				March 28, 2007 3:33:29 PM	PAGE	10 OF 54

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

## Thermal Monitor

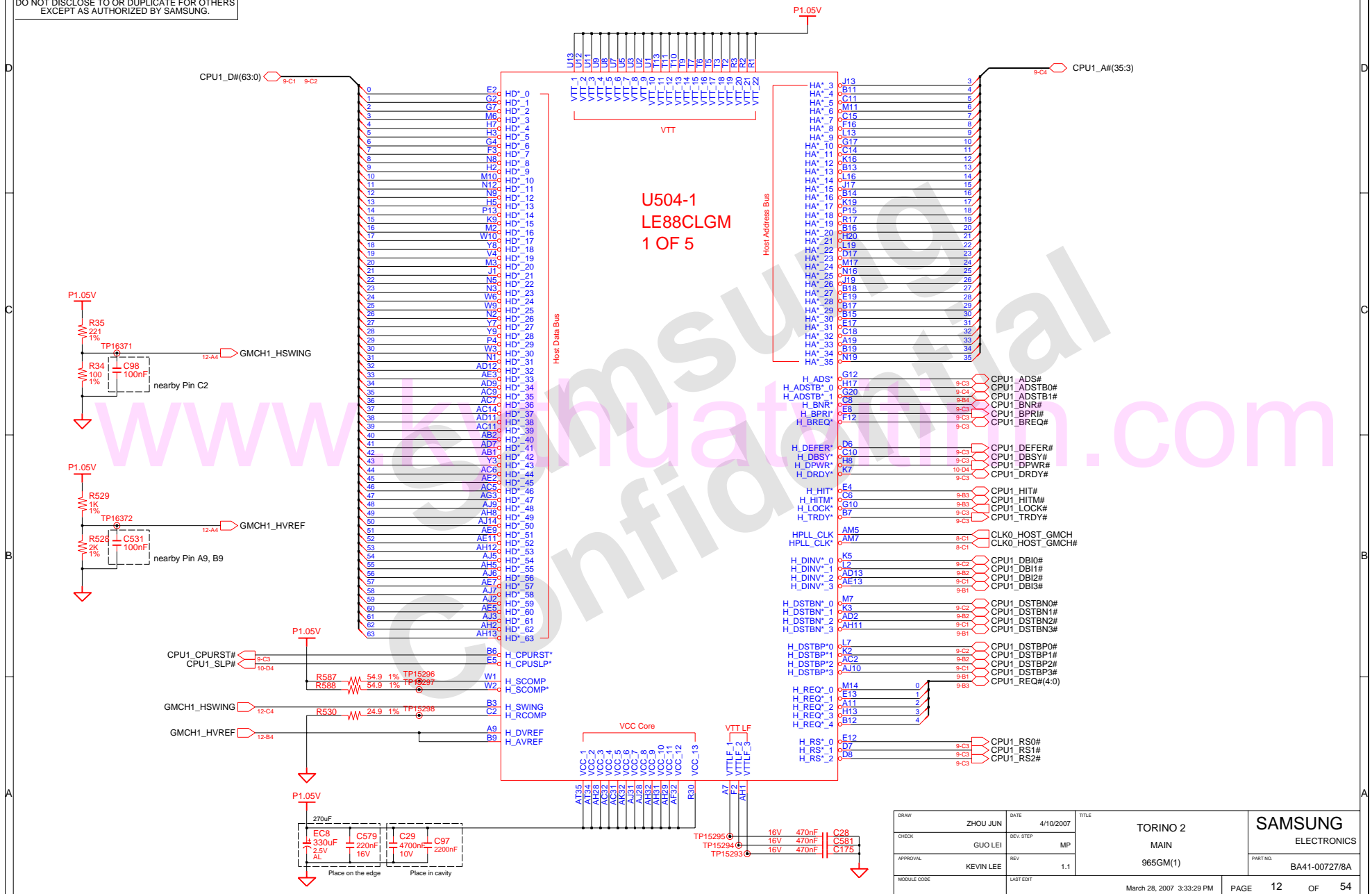


## FAN Control



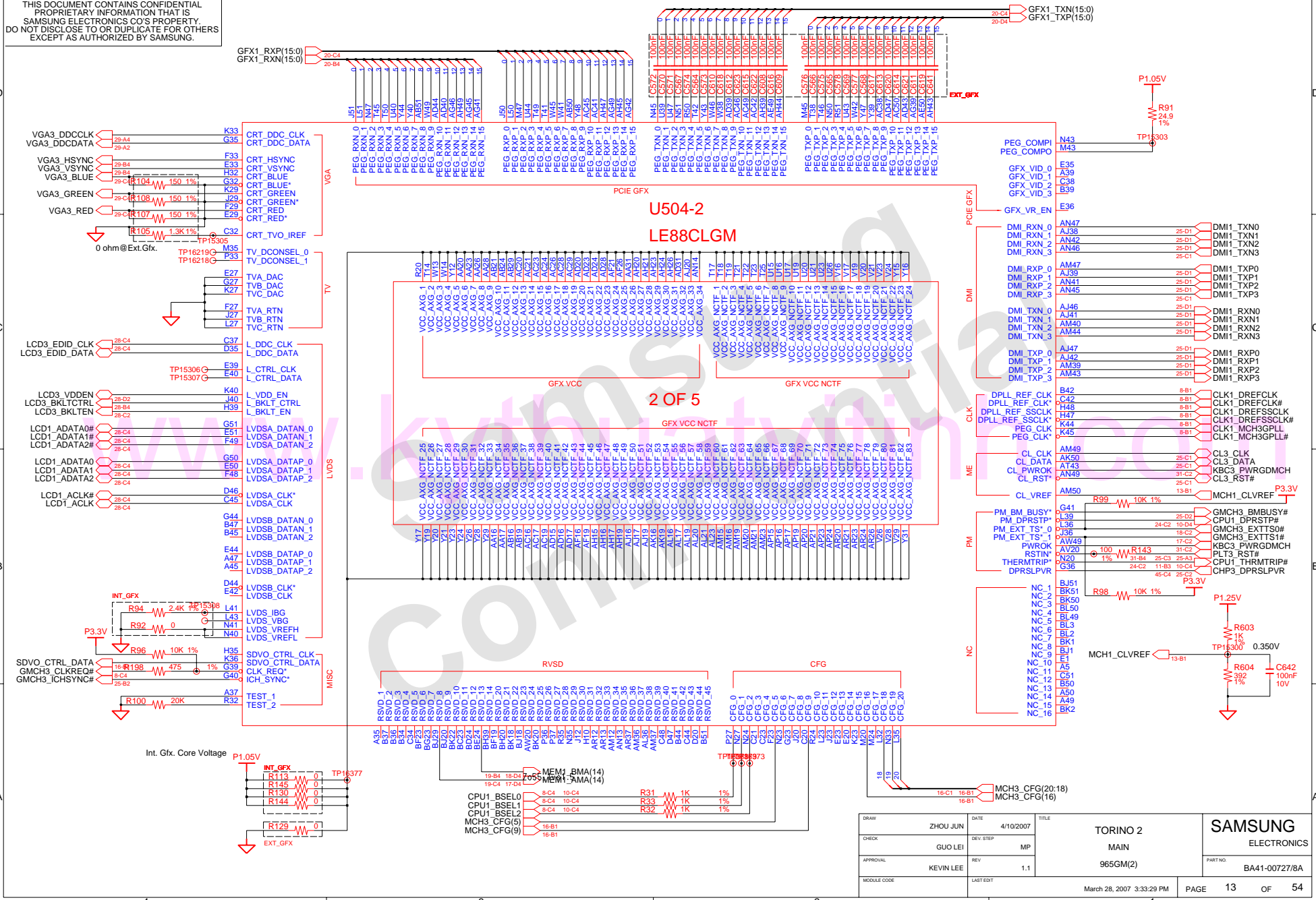
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN THERMAL MONITOR	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			PART NO. BA41-00727/8A
APPROVAL	KEVIN LEE	REV	1,1			
MODULE CODE		LAST EDIT		March 28, 2007 3:33:29 PM	PAGE 11 OF 54	

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	965GM(1)	
APPROVAL	KEVIN LEE	REV	1.1			
MODULE CODE		LAST EDIT				PART NO. BA41-00727/8A
				March 28, 2007 3:33:29 PM	PAGE	12 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2
CHECK	GUO LEI	DEV_STEP	MP		MAIN
APPROVAL	KEVIN LEE	REV	1.1		965GM(2)
MODULE CODE		LAST EDIT			

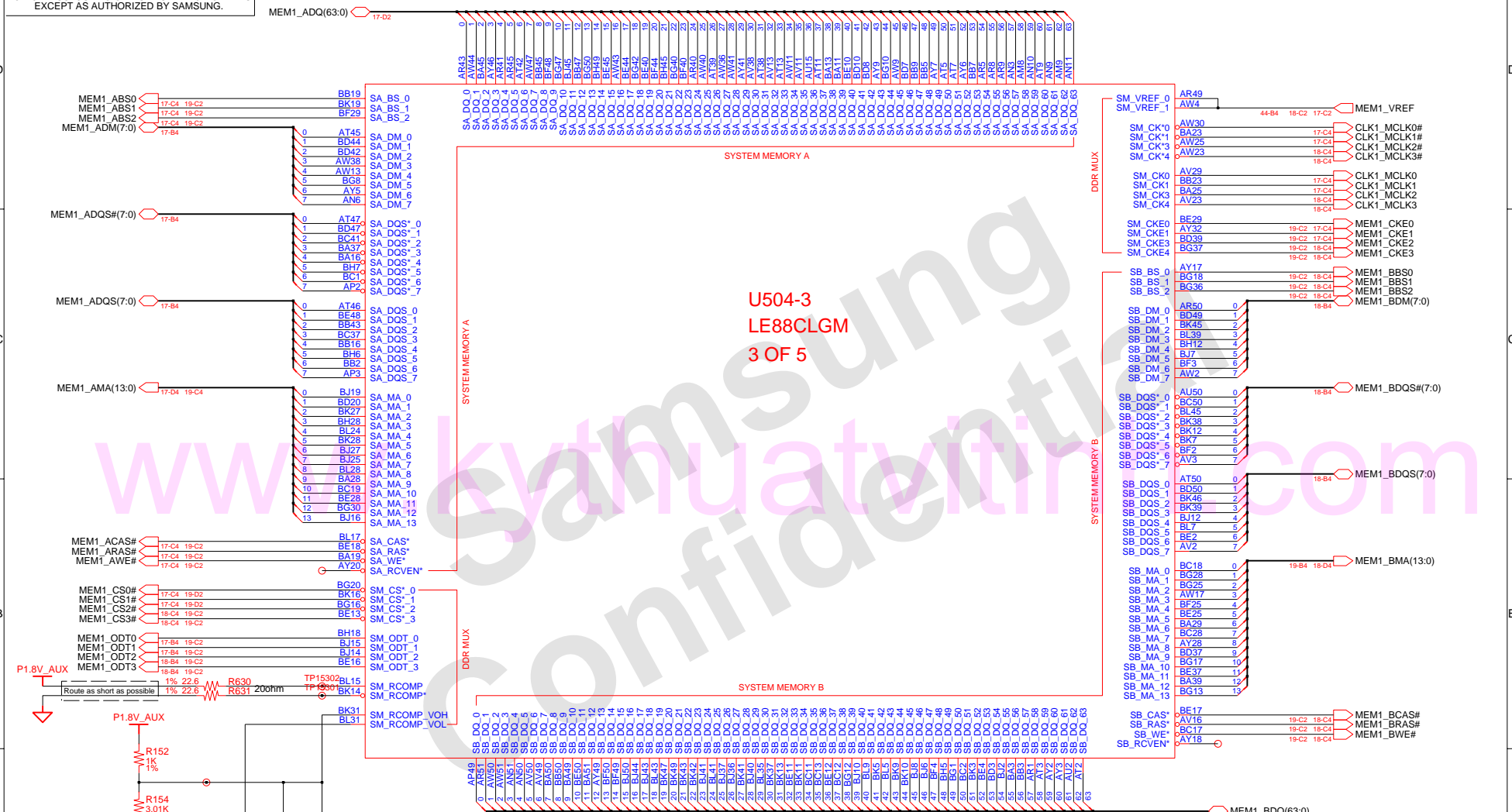
  

March 28, 2007 3:33:29 PM	PAGE	13	OF	54
---------------------------	------	----	----	----

<b>SAMSUNG</b>	
ELECTRONICS	
PART NO.	BA41-00727/8A

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

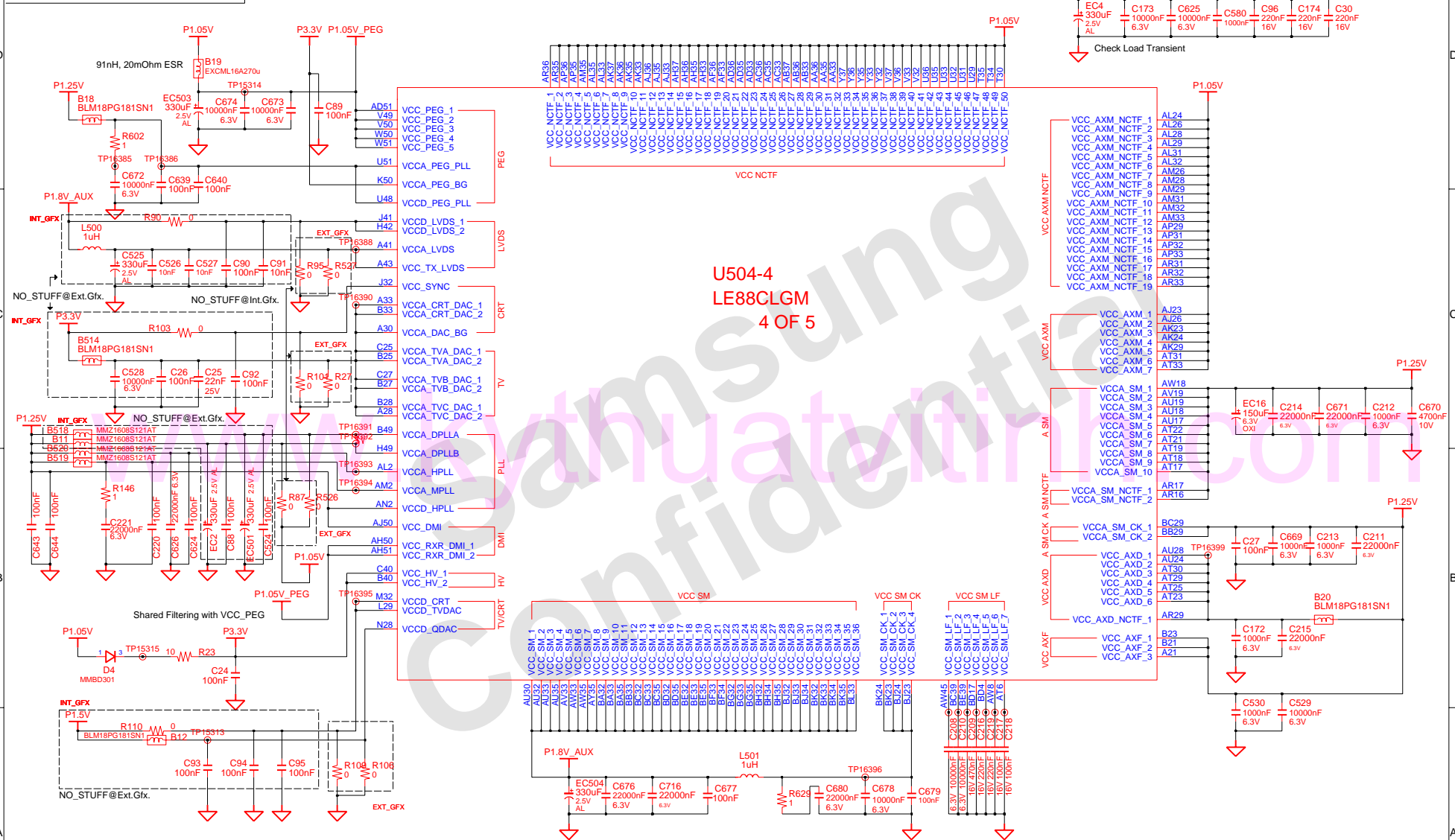


U504-3  
 LE88CLGM  
 3 OF 5

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	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.1		965GM(3)	
MODULE CODE		LASTEST				PART NO. BA41-00727/8A
March 28, 2007 3:33:29 PM						PAGE 14 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

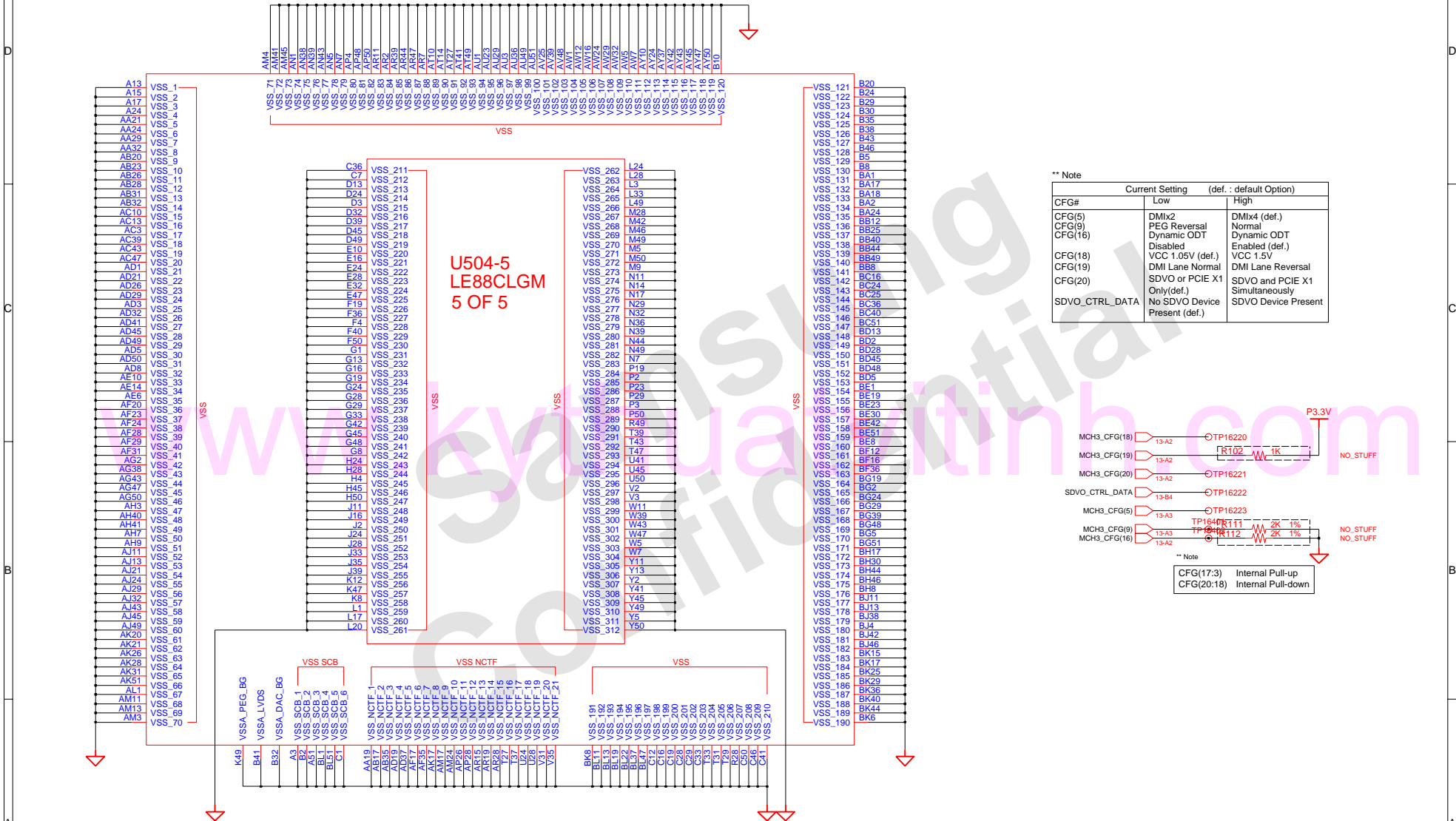


U504-4  
 LE88CLGM  
 4 OF 5

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	965GM(4)	
APPROVAL	KEVIN LEE	REV	1.1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT				
				March 28, 2007 3:33:29 PM	PAGE	15 OF 54

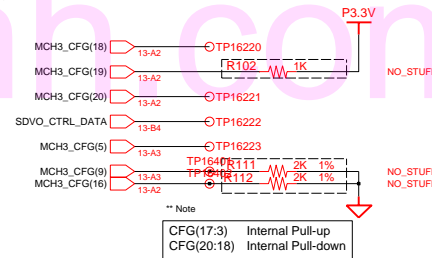


**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



\*\* 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



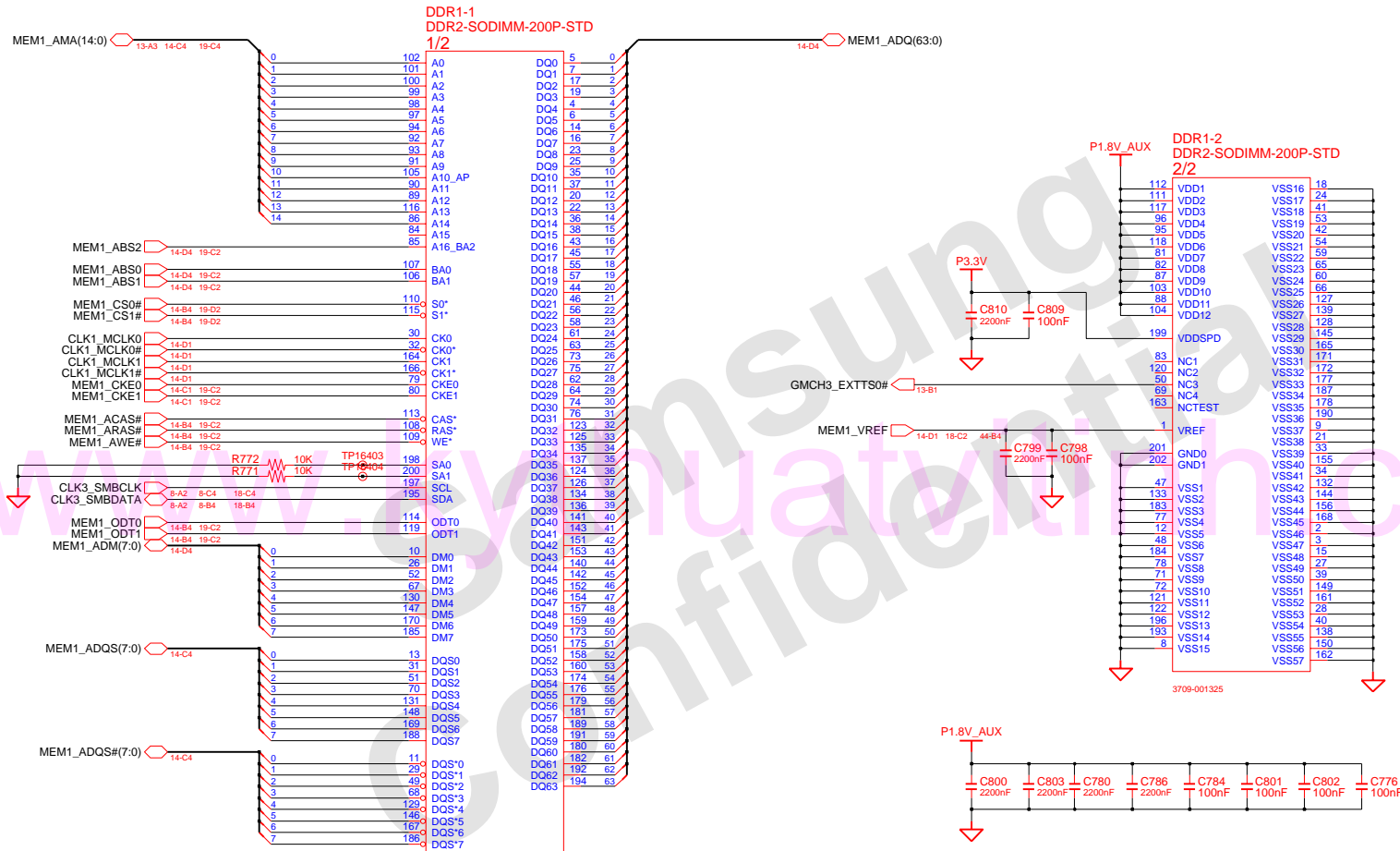
\*\* Note  
 CFG(17:3) Internal Pull-up  
 CFG(20:18) Internal Pull-down

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN	965GM(5)	
APPROVAL	KEVIN LEE	REV	1.1			PART NO. BA41-00727/8A
MODULE CODE		LAST ENT		March 28, 2007 3:33:29 PM	PAGE	16 OF 54



SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

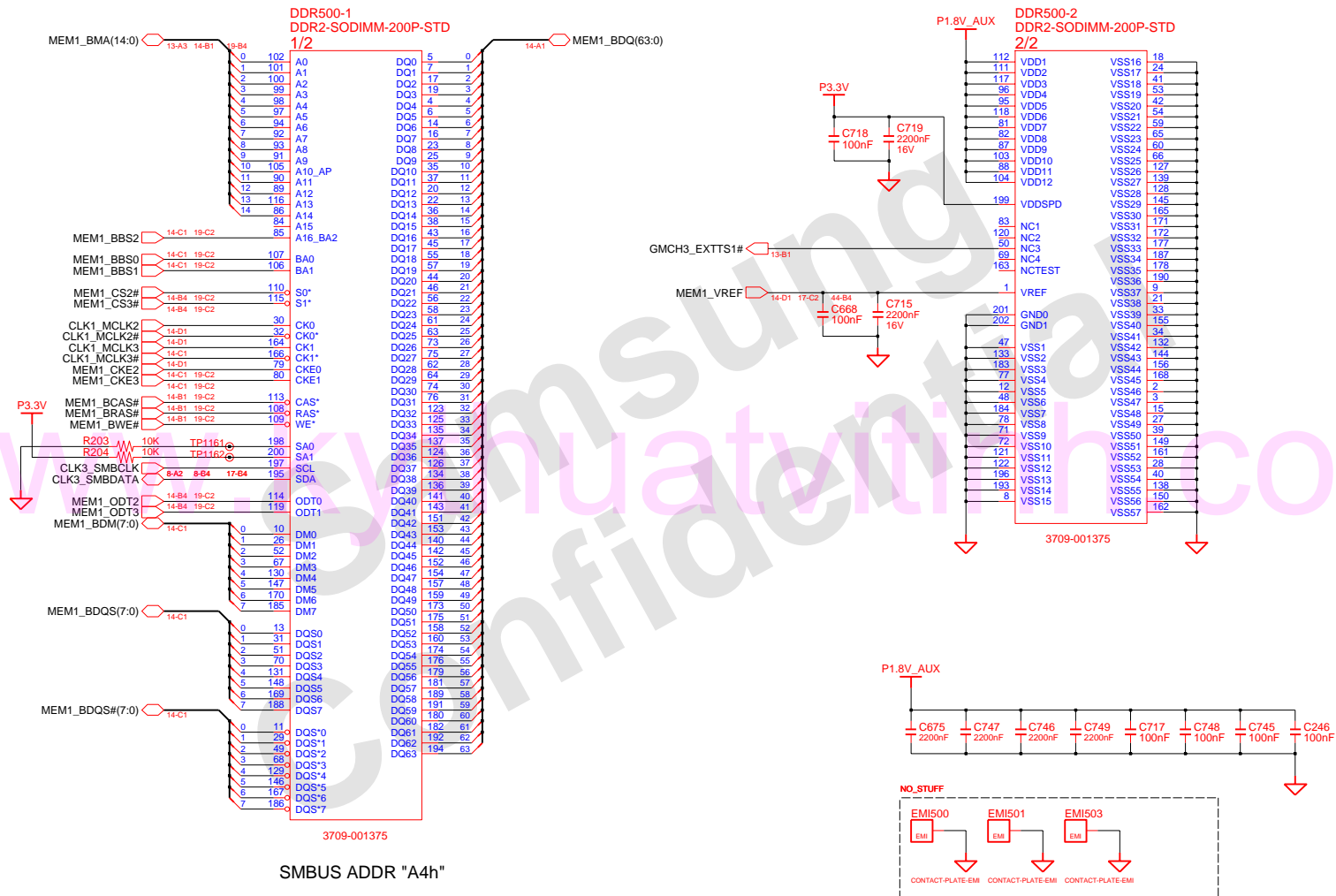
### SODIMM0 (TOP)



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN DDR2 SODIMM (TOP)	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1.1			PART NO. BA41-00727/8A
MODULE CODE		LAST ENT		March 28, 2007 3:33:29 PM	PAGE 17 OF 54	

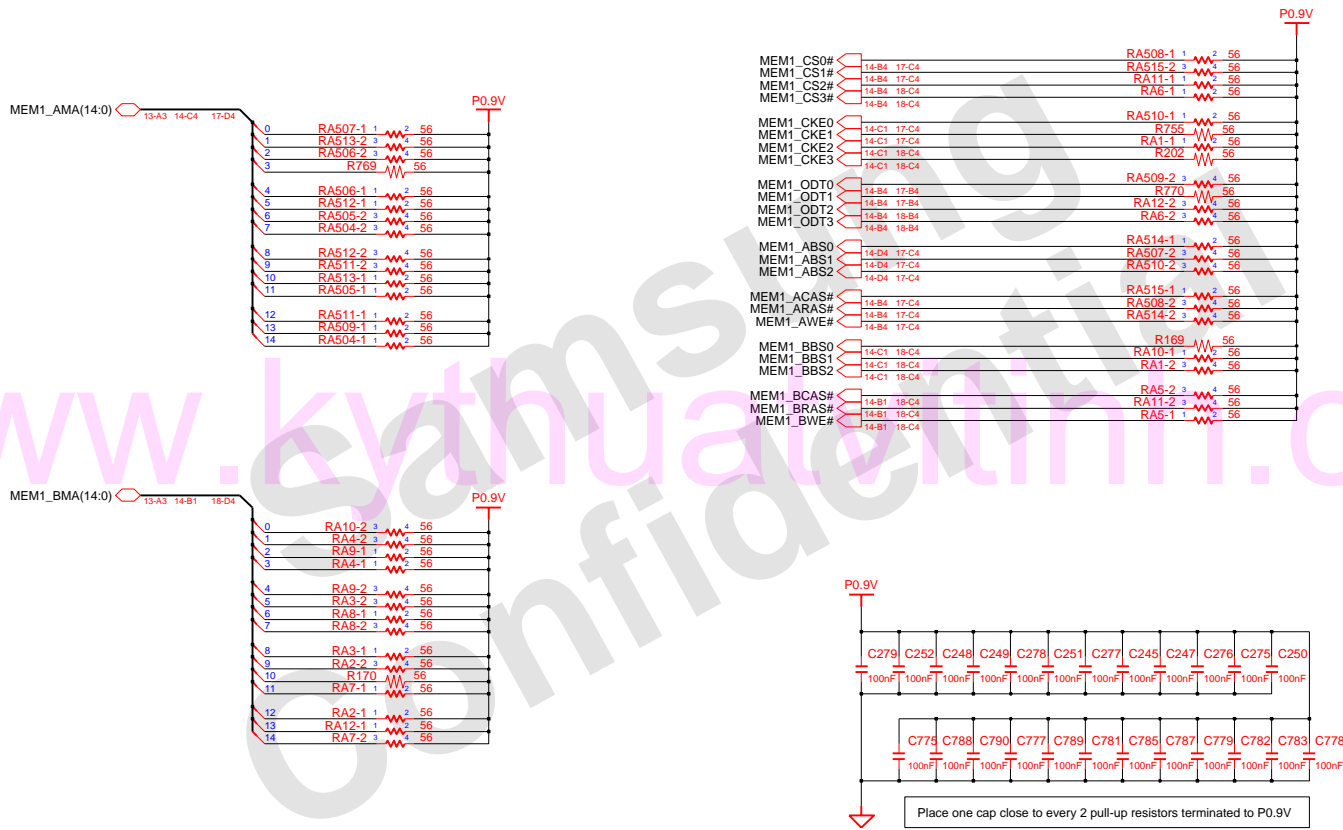
**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

SODIMM1 (BOTTOM)



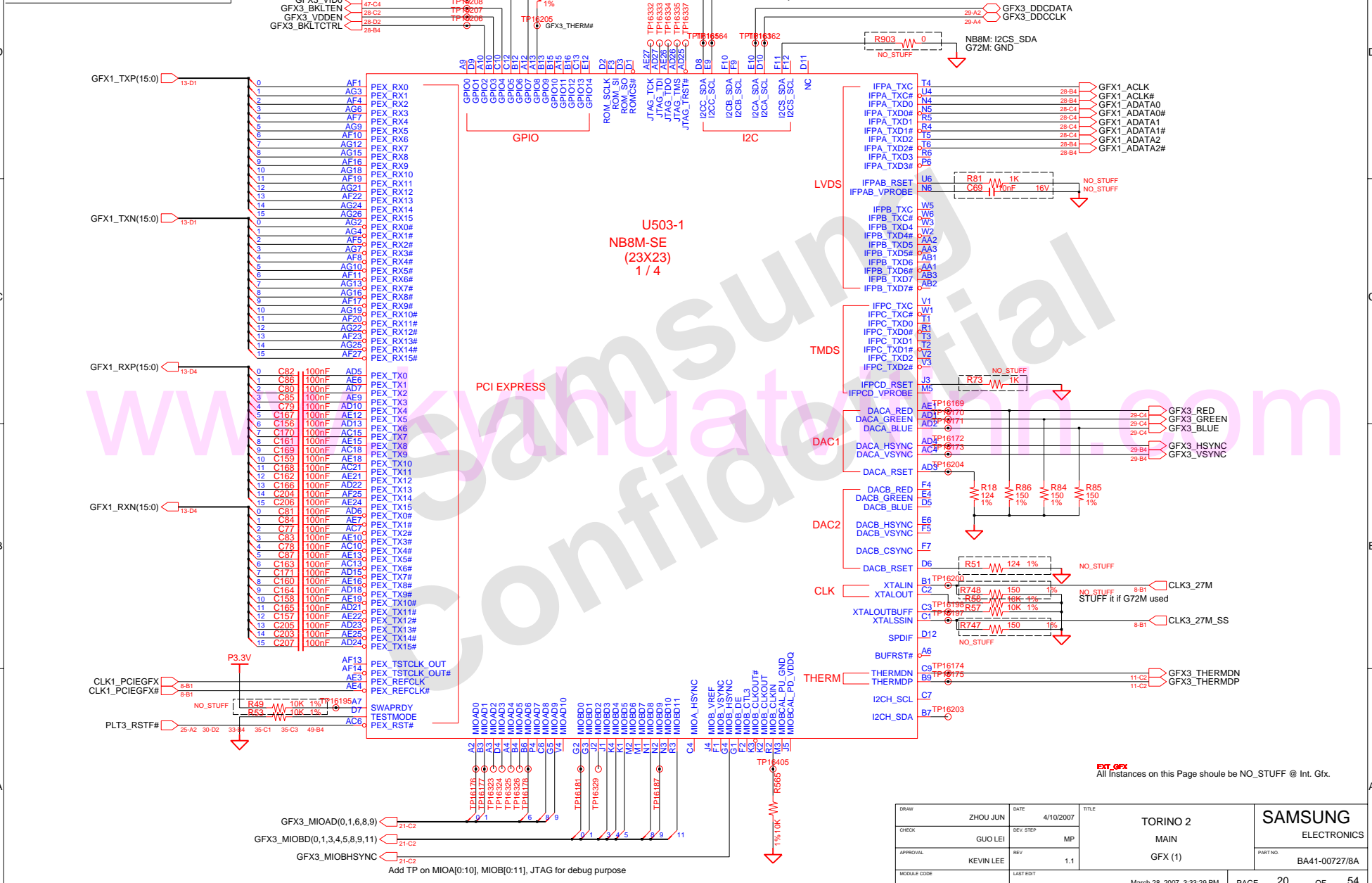
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1.1		DDR2 SODIMM (BOTTOM)	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 18 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN DDR2 TERMINATION	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1,1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT		March 28, 2007 3:33:29 PM	PAGE 19 OF 54	

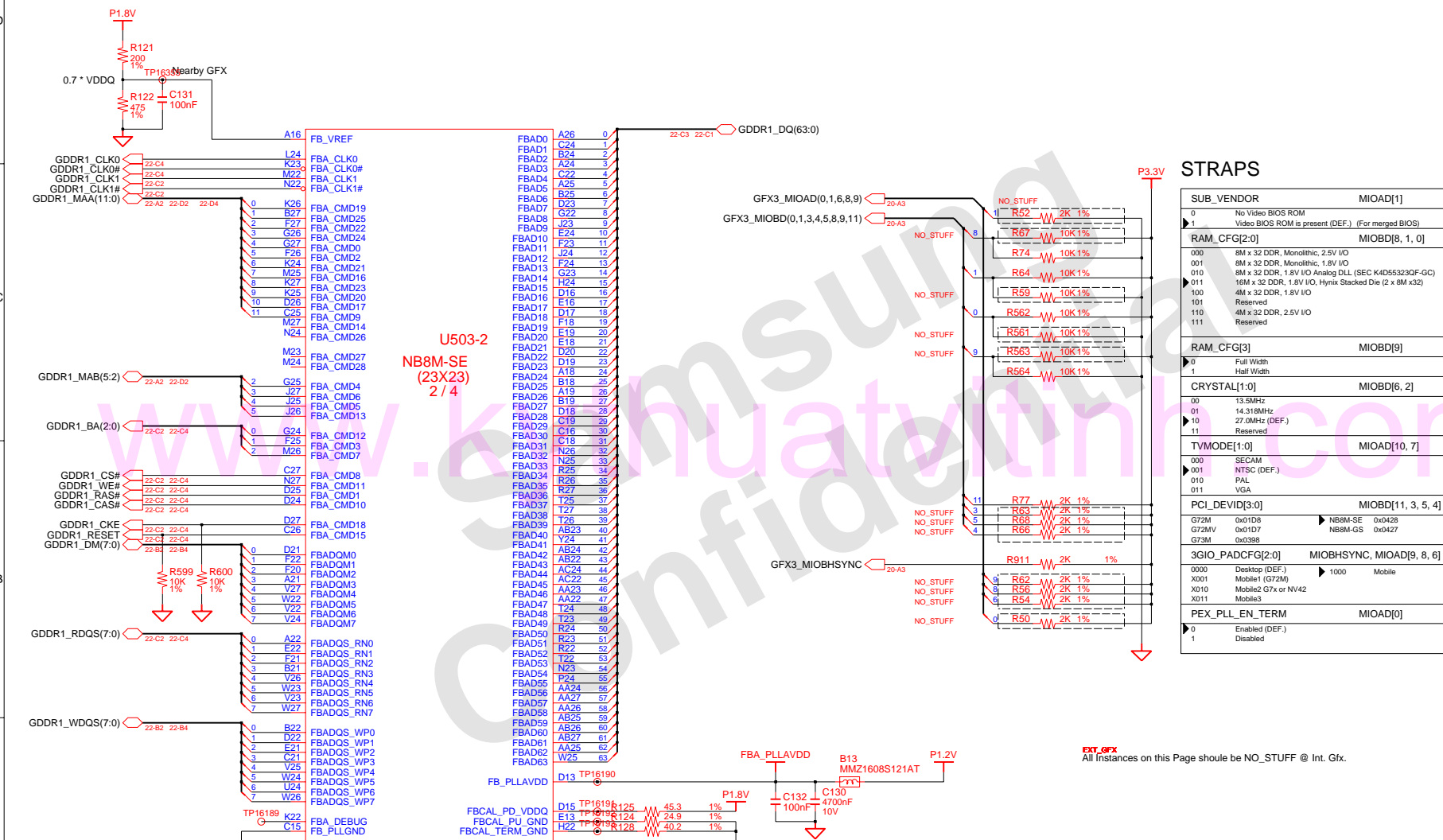
**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



**EXT\_GFX**  
 All instances on this Page should be NO\_STUFF @ Int. Gfx.

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.1	GFX (1)	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 20 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



**STRAPS**

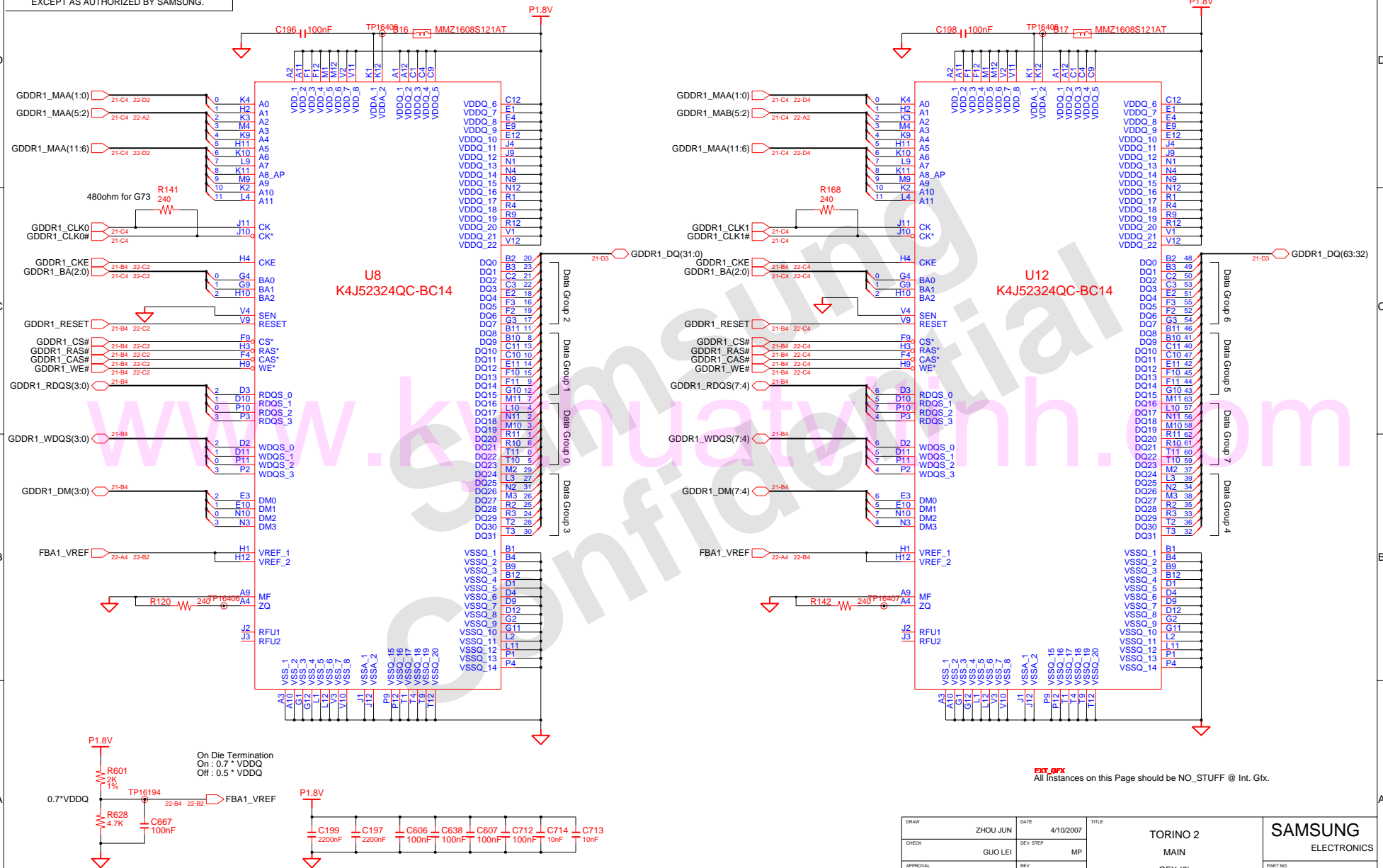
SUB_VENDOR	MIOAD[1]		
0	No Video BIOS ROM		
1	Video BIOS ROM is present (DEF.) (For merged BIOS)		
RAM_CFG[2:0]	MIOBD[8, 1, 0]		
000	8M x 32 DDR, Monolithic, 2.5V I/O		
001	8M x 32 DDR, Monolithic, 1.8V I/O		
010	8M x 32 DDR, 1.8V I/O Analog DLL (SEC K4D55320F-GC)		
011	16M x 32 DDR, 1.8V I/O, Hynix 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]	MIOAD[10, 7]		
000	SECAM		
001	NTSC (DEF.)		
010	PAL		
011	VGA		
PCI_DEVID[3:0]	MIOBD[11, 3, 5, 4]		
G72M	0x01D8	NB8M-SE	0x0428
G72M	0x01D7	NB8M-GS	0x0427
G73M	0x0398		
3GIO_PADCFG[2:0]	MIOBHSYNC, MIOAD[9, 8, 6]		
0000	Desktop (DEF.)	1000	Mobile
X001	Mobile1 (G72M)		
X010	Mobile2 G7x or NV42		
X011	Mobile3		
PEX_PLL_EN_TERM	MIOAD[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	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1,1		GFX (2)	
MODULE CODE		LAST ENT				PART NO. BA41-00727/8A
March 28, 2007 3:33:29 PM						PAGE 21 OF 54

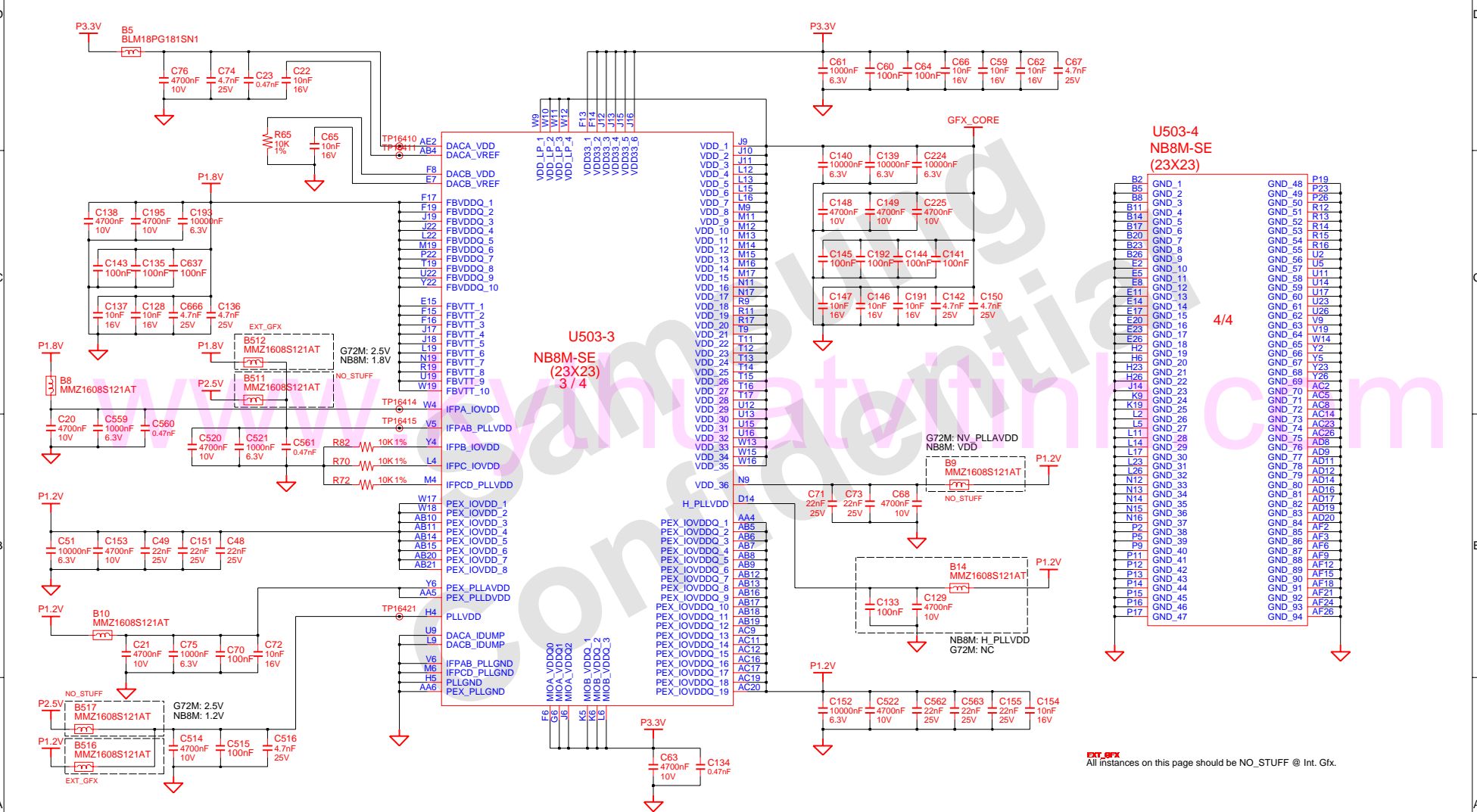
**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



EXT GFX  
 All instances on this Page should be NO\_STUFF @ Int. Gfx.

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS	
CHECK	GUO LEI	DEV_STEP	MP		MAIN		
APPROVAL	KEVIN LEE	REV	1.1		GFX (3)	PART NO. BA41-00727/8A	
MODULE CODE		LAST EDIT					
March 28, 2007 3:33:29 PM						PAGE	22 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



**EXT\_GFX**  
 All instances on this page should be NO\_STUFF @ Int. Gfx.

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN	MAIN	
APPROVAL	KEVIN LEE	REV	1.1	GFX (4)		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 23 OF 54

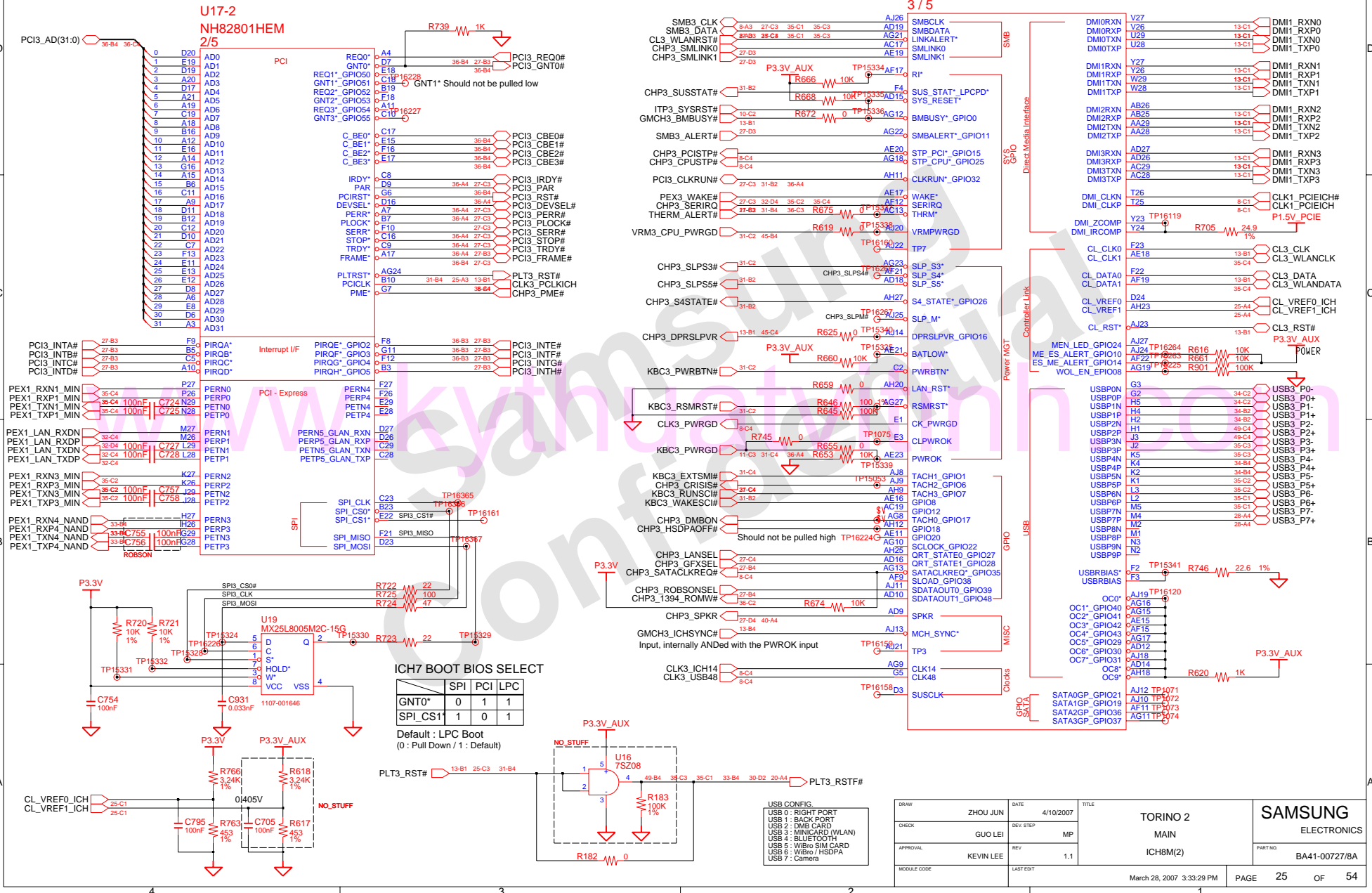




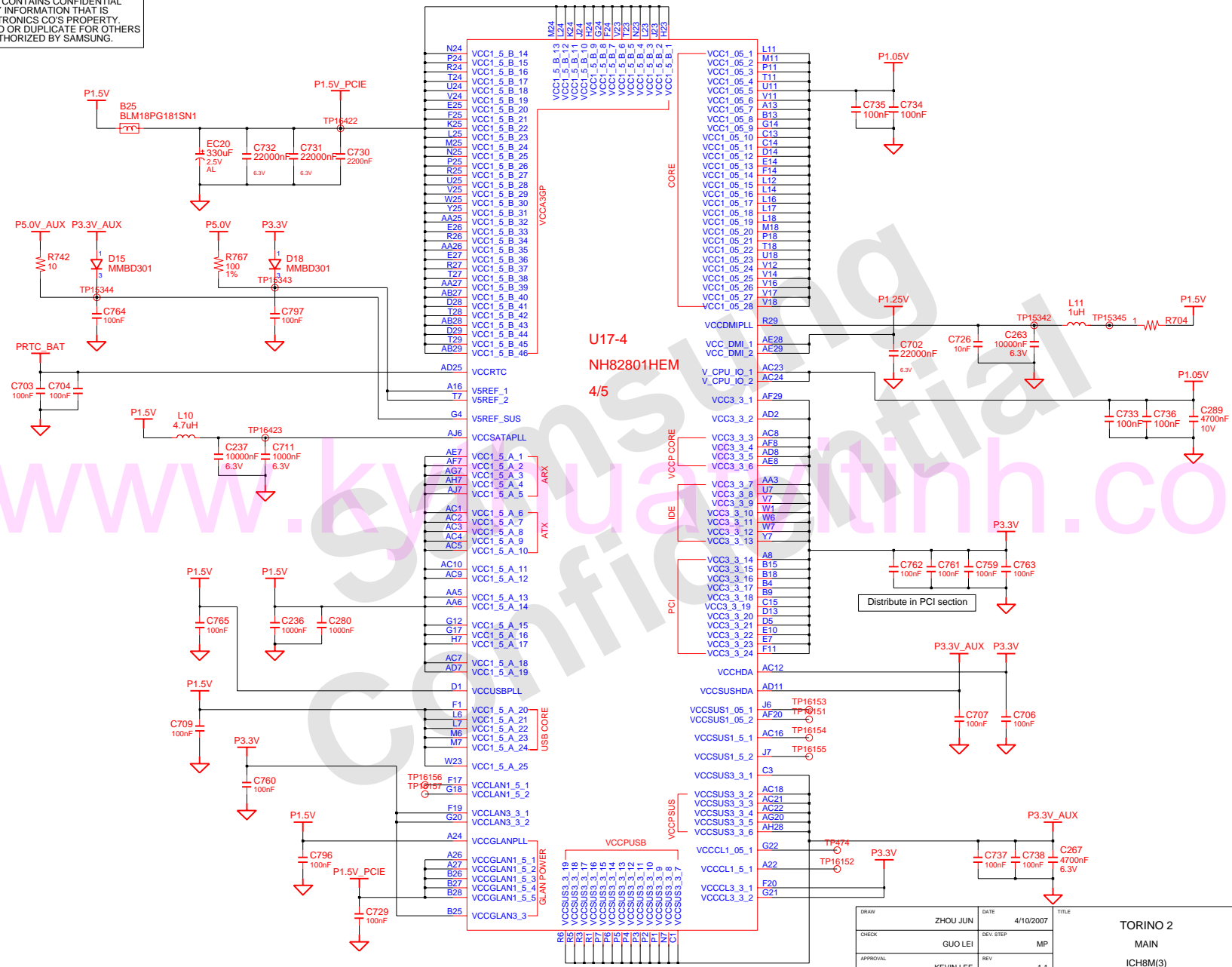


**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

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



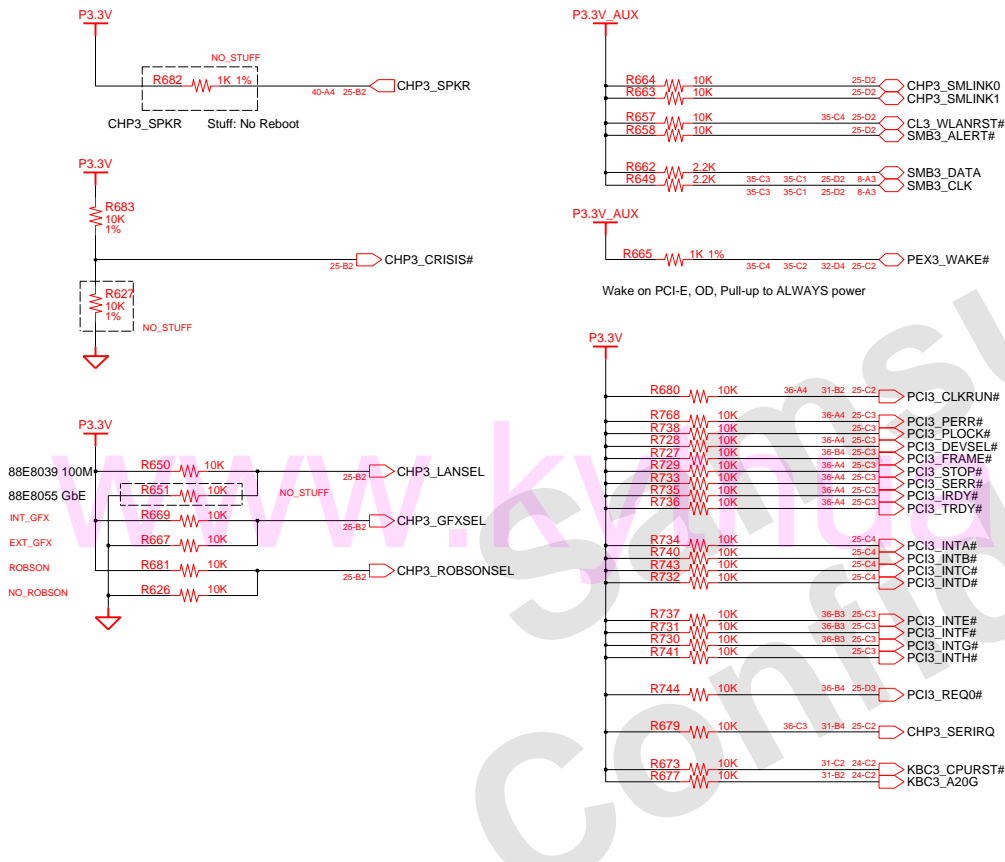
**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



**U17-4**  
**NH82801HEM**  
**4/5**

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	ICH8M(3)	
APPROVAL	KEVIN LEE	REV	1,1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT				
				March 28, 2007 3:33:29 PM	PAGE	26 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



A23	VSS_1	VSS_126	N26
A5	VSS_2	VSS_127	N27
AA2	VSS_3	VSS_128	N4
AA7	VSS_4	VSS_129	N6
A6	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	R4
AD1	VSS_24	VSS_149	T12
AE25	VSS_25	VSS_150	T13
AE5	VSS_26	VSS_151	T14
AE6	VSS_27	VSS_152	T15
AE9	VSS_28	VSS_153	T16
AF14	VSS_29	VSS_154	T17
AF16	VSS_30	VSS_155	T2
AF18	VSS_31	VSS_156	U13
AF3	VSS_32	VSS_157	U14
AF4	VSS_33	VSS_158	U15
AG5	VSS_34	VSS_159	U16
AG6	VSS_35	VSS_160	U17
AH10	VSS_36	VSS_161	U23
AH13	VSS_37	VSS_162	U26
AH16	VSS_38	VSS_163	U27
AH19	VSS_39	VSS_164	U28
AH2	VSS_40	VSS_165	U3
AH22	VSS_41	VSS_166	U5
AH26	VSS_42	VSS_167	V13
AH24	VSS_43	VSS_168	V15
AH28	VSS_44	VSS_169	V28
AH3	VSS_45	VSS_170	V29
AH4	VSS_46	VSS_171	W2
AH44	VSS_47	VSS_172	W26
AH8	VSS_48	VSS_173	W27
B11	VSS_49	VSS_174	W28
B14	VSS_50	VSS_175	Y29
B17	VSS_51	VSS_176	Y4
B2	VSS_52	VSS_177	AB4
B20	VSS_53	VSS_178	AB23
B22	VSS_54	VSS_179	AB5
C24	VSS_55	VSS_180	AB6
C26	VSS_56	VSS_181	AD5
C27	VSS_57	VSS_182	U4
C6	VSS_58	VSS_183	W24
D12	VSS_59	VSS_184	
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
VSS_72	VSS_71	VSS_NCTF11	B29
VSS_73	VSS_72	VSS_NCTF12	
VSS_74	VSS_73		
VSS_75	VSS_74		
VSS_76	VSS_75		
VSS_77	VSS_76		
VSS_78	VSS_77		
VSS_79	VSS_78		
VSS_80	VSS_79		
VSS_81	VSS_80		
VSS_82	VSS_81		
VSS_83	VSS_82		
VSS_84	VSS_83		
VSS_85	VSS_84		
VSS_86	VSS_85		
VSS_87	VSS_86		
VSS_88	VSS_87		
VSS_89	VSS_88		
VSS_90	VSS_89		
VSS_91	VSS_90		
VSS_92	VSS_91		
VSS_93	VSS_92		
VSS_94	VSS_93		
VSS_95	VSS_94		
VSS_96	VSS_95		
VSS_97	VSS_96		
VSS_98	VSS_97		
VSS_99	VSS_98		

U17-5  
 NH82801HEM  
 5/5

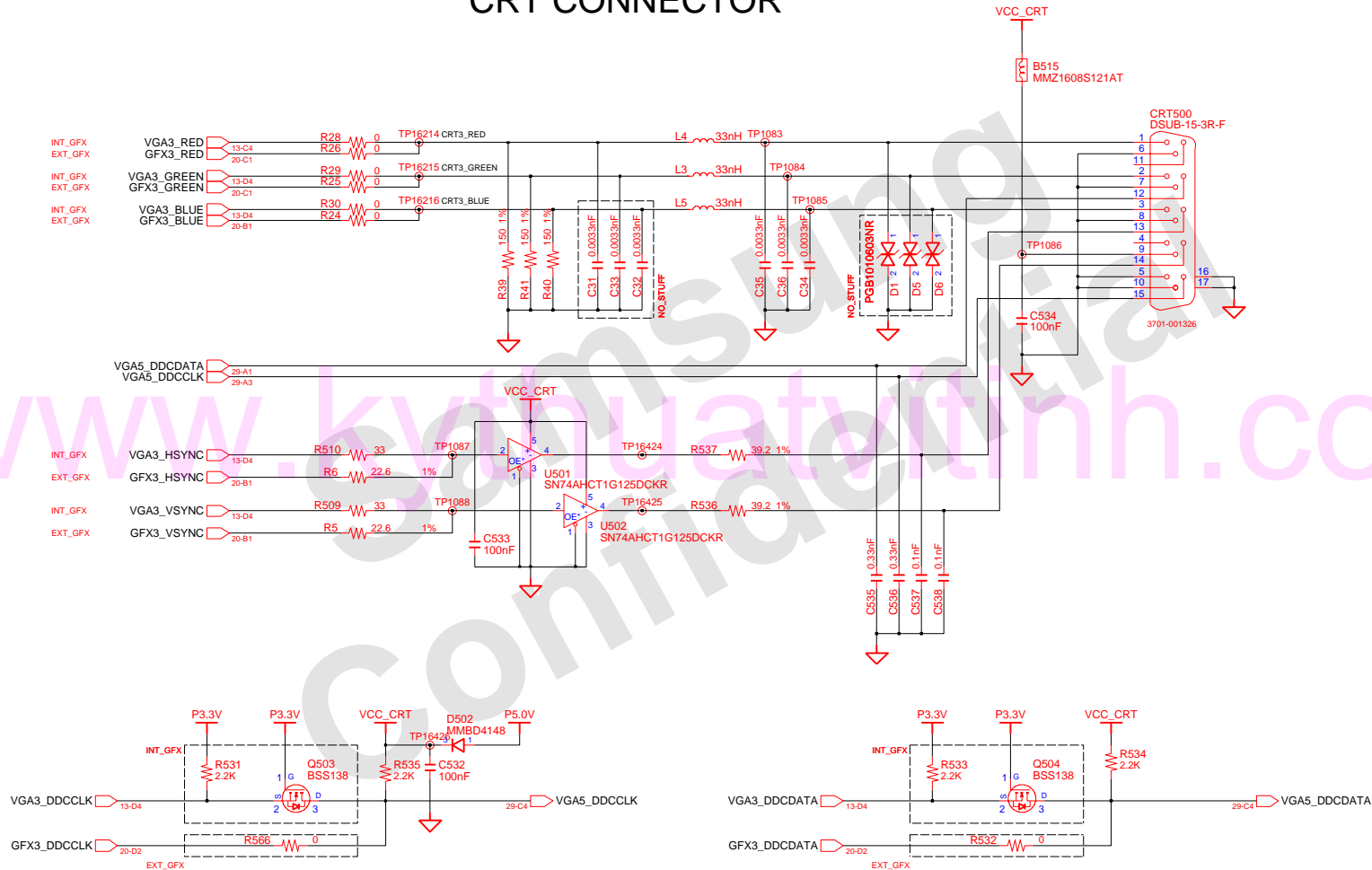
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1,1		ICH8M(4)	PART NO. BA41-00727/8A
MODULE CODE		LAST ENT				PAGE 27 OF 54

March 28, 2007 3:33:29 PM



SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

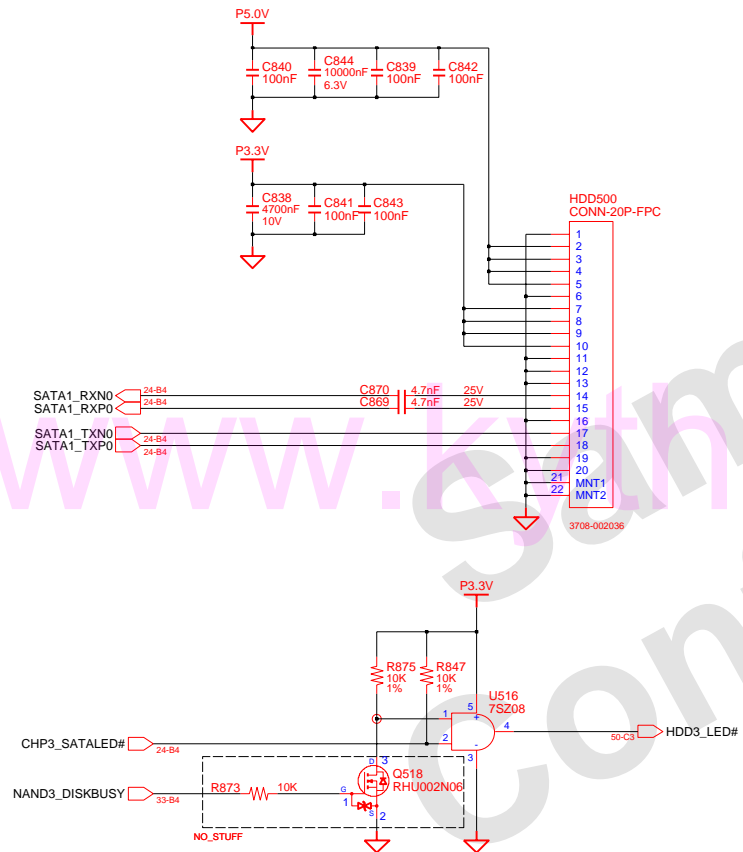
# CRT CONNECTOR



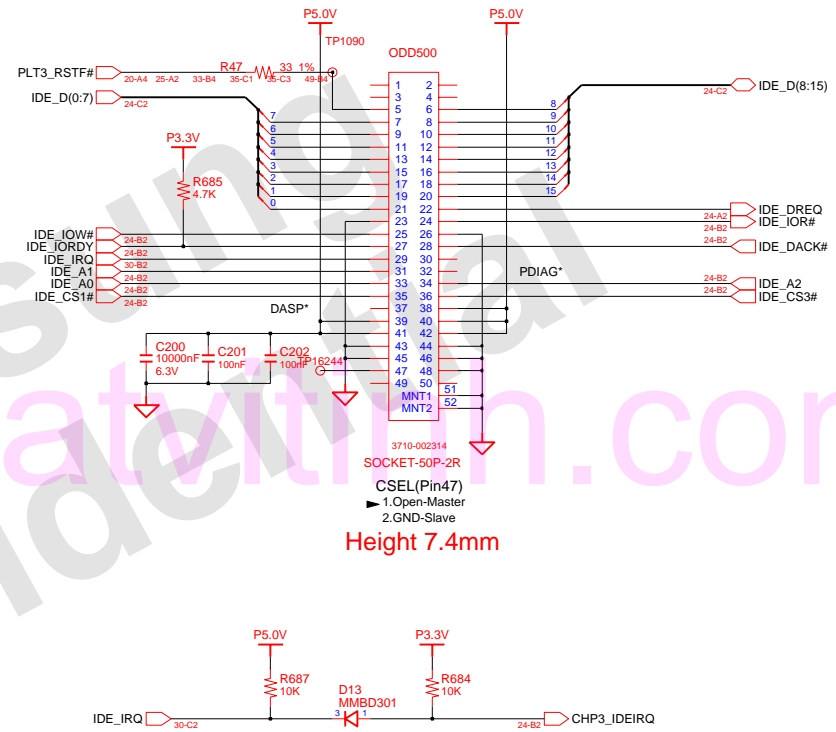
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1,1	CRT	PART NO.	
MODULE CODE		LAST EDIT			BA41-00727/8A	
				March 28, 2007 3:33:29 PM	PAGE	29 OF 54

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

### Main to HDD

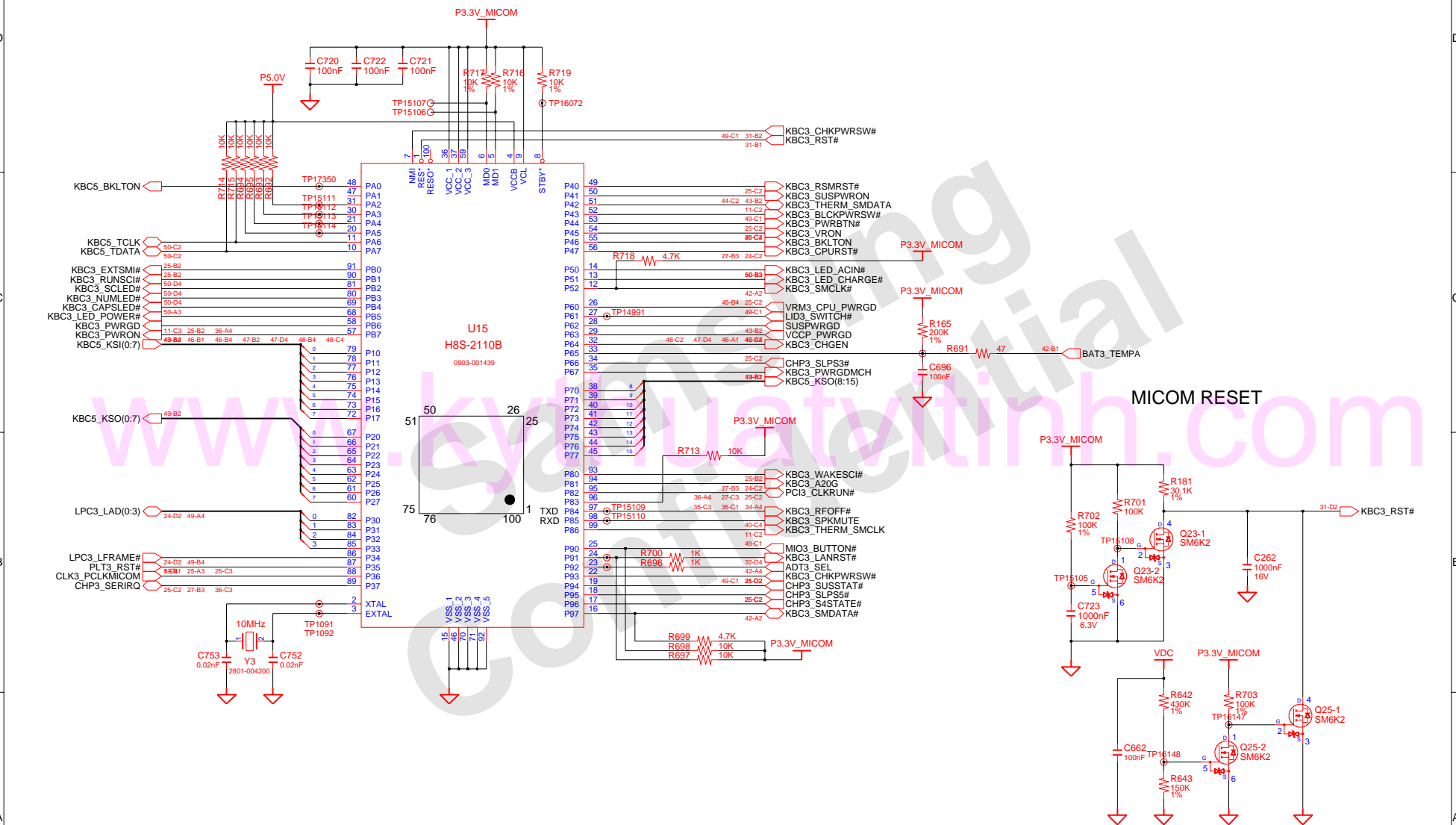


### Main to ODD



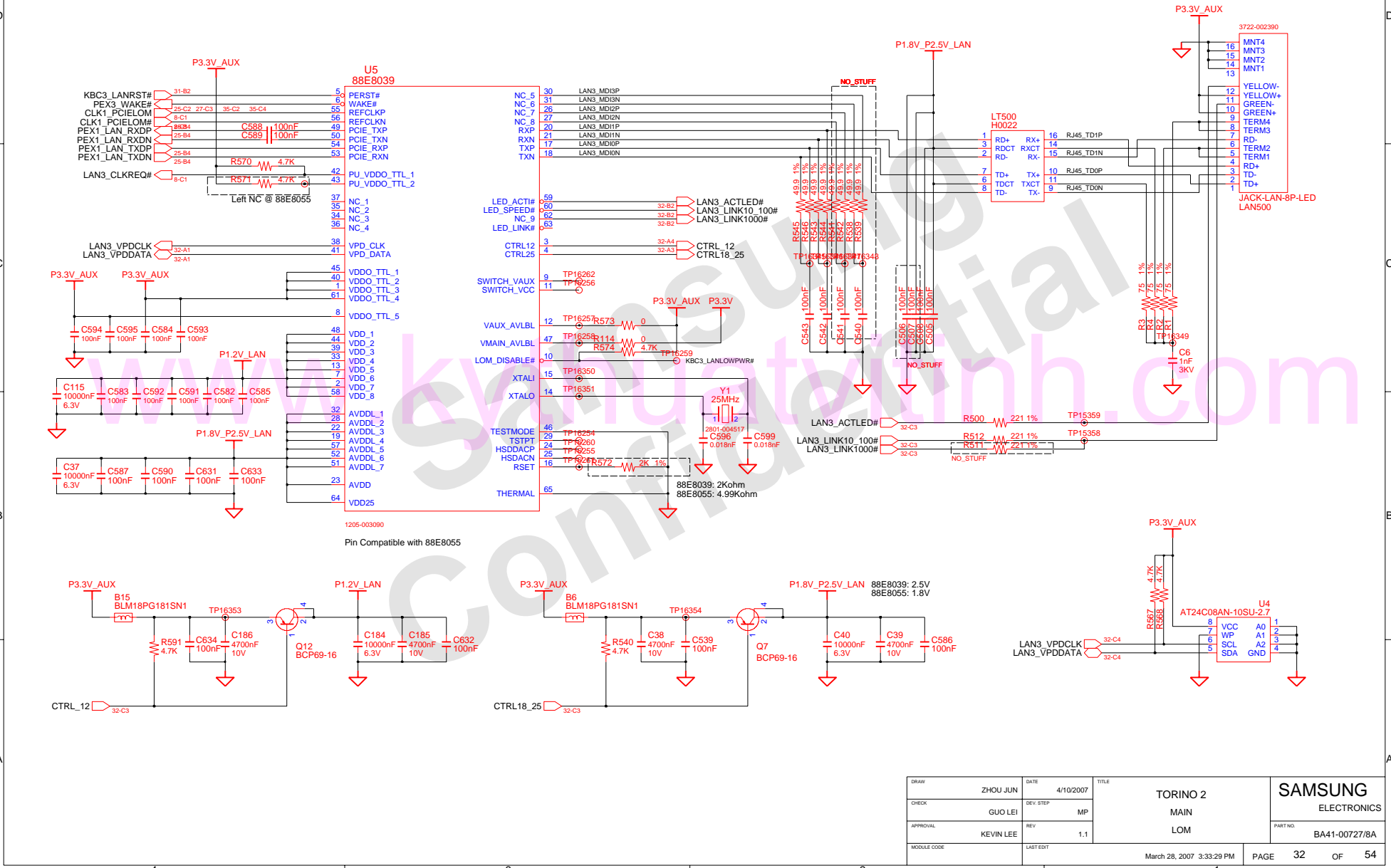
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1,1		IDE	
MODULE CODE		LAST EDIT				PART NO. BA41-00727/8A
				March 28, 2007 3:33:29 PM	PAGE	30 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN	MICOM	
APPROVAL	KEVIN LEE	REV	1,1			PART NO. BA41-00727/8A
MODULE CODE		LAST ENT			March 28, 2007 3:33:29 PM	PAGE 31 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

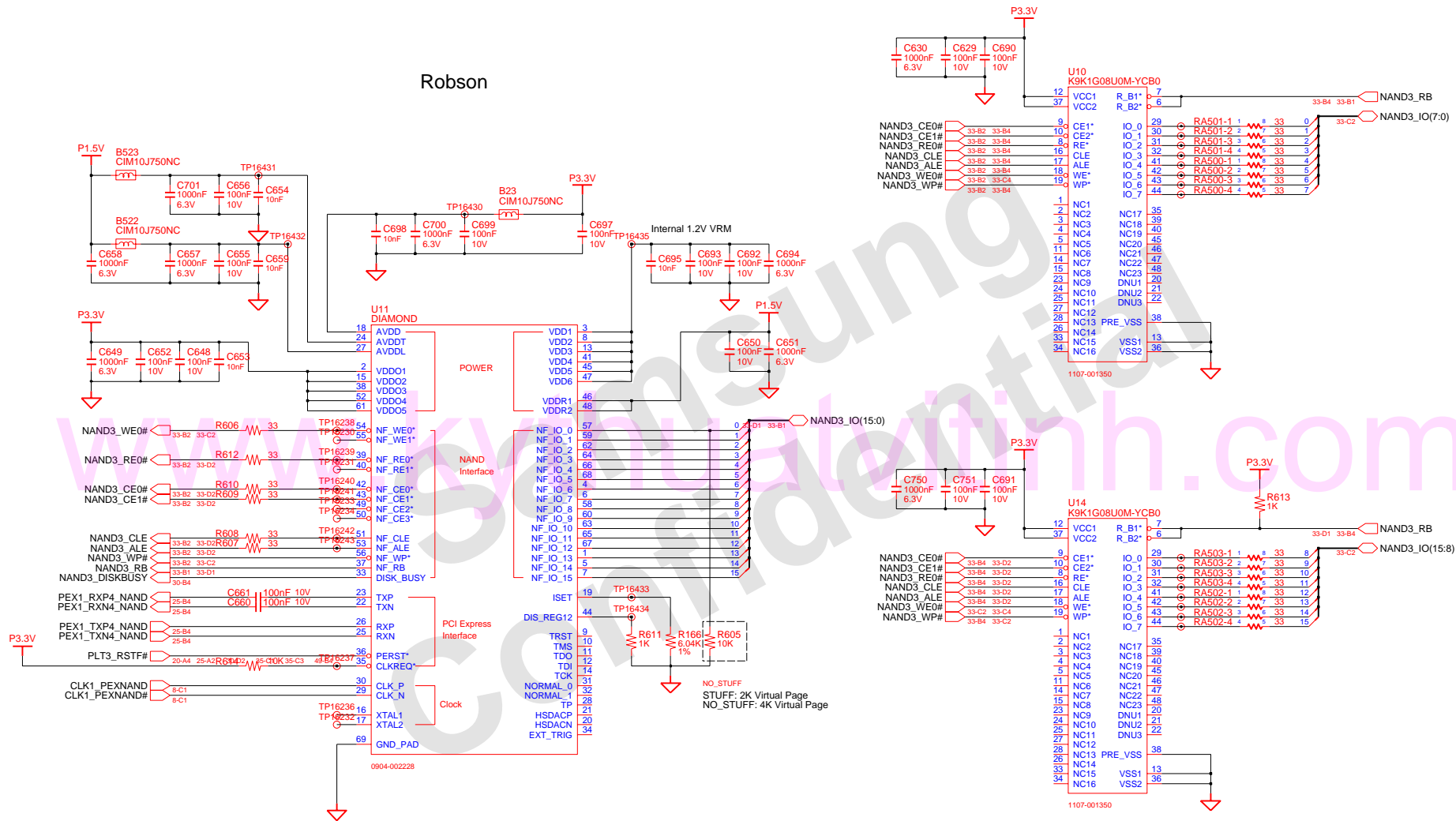


DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV_STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.1	LOM		
MODULE CODE		LAST EDIT				PART NO. BA41-00727/8A
					March 28, 2007 3:33:29 PM	PAGE 32 OF 54



**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# Robson

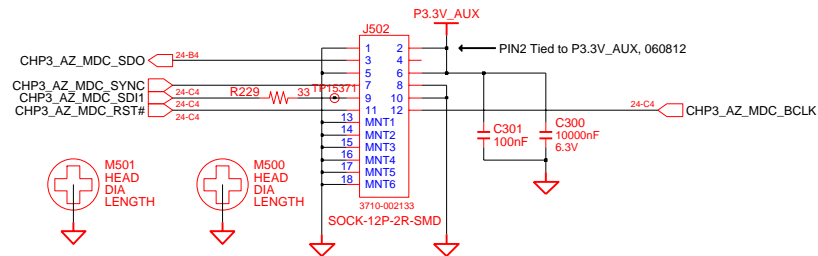


**ROBSON**  
 All instances on this page should be NO\_STUFF if ROBSON is N/A

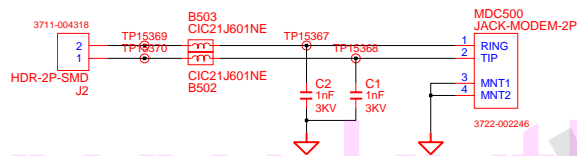
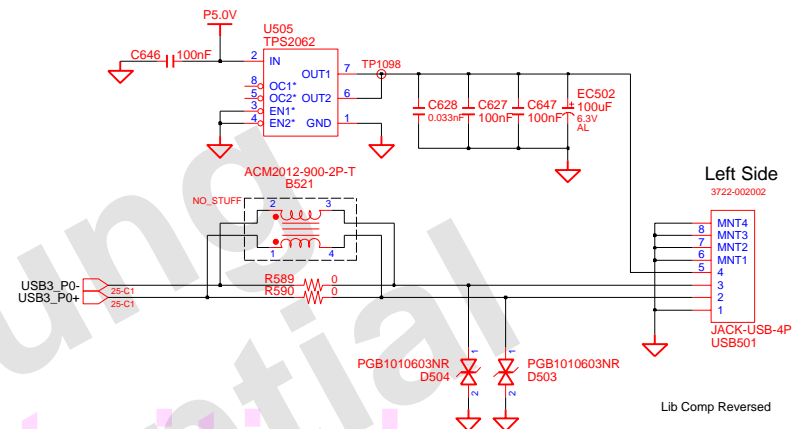
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG	
CHECK	GUO LEI	DEV. STEP	MP		MAIN	ELECTRONICS	
APPROVAL	KEVIN LEE	REV	1.1		ROBSON	PART NO.	
MODULE CODE		LAST EDIT				BA41-00727/8A	
March 28, 2007 3:33:29 PM						PAGE	33 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

### MDC connector

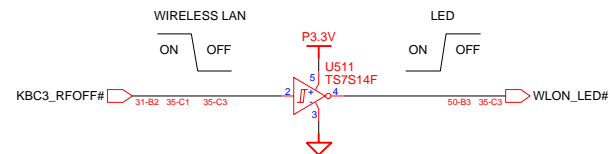
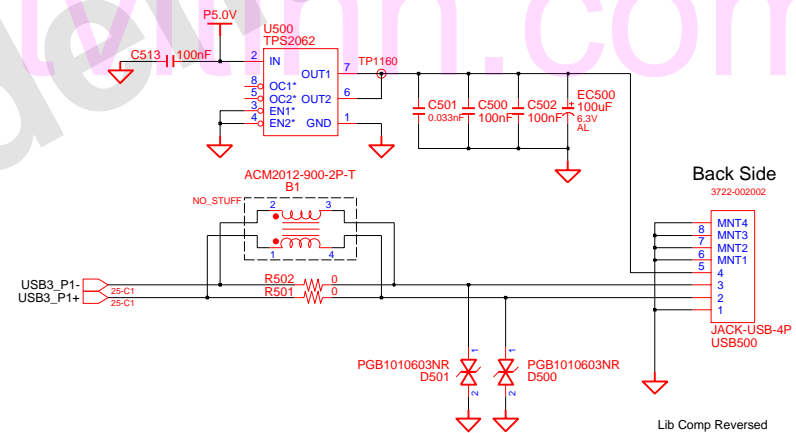
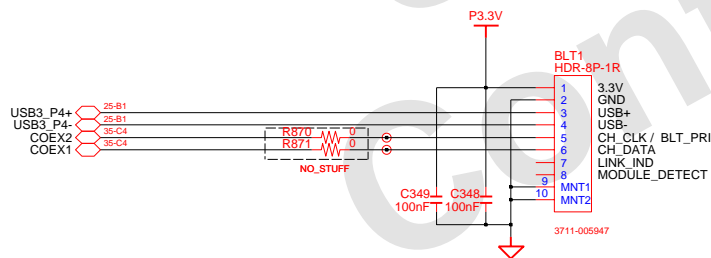


### USB Port



### BLUETOOTH

Bluetooth 2.0 Standard

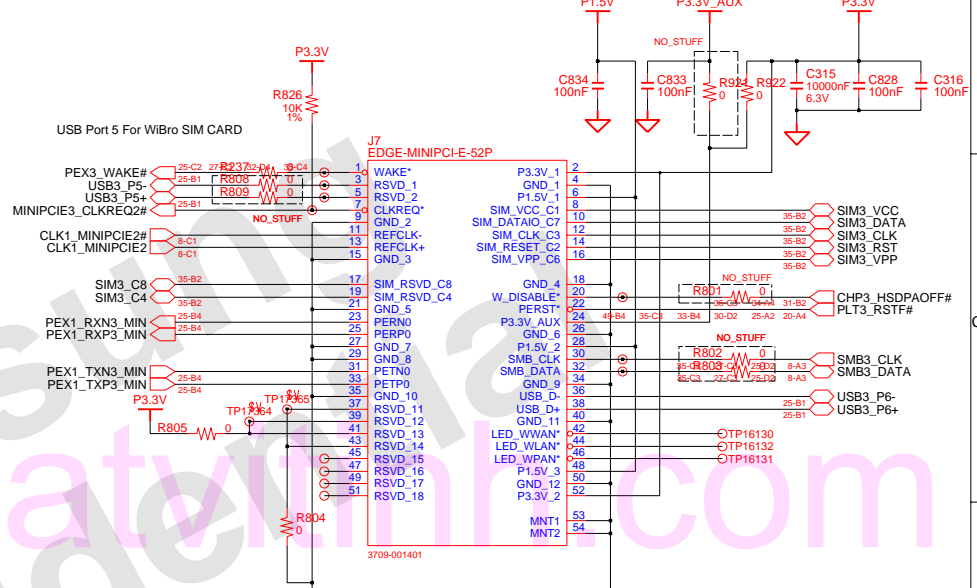
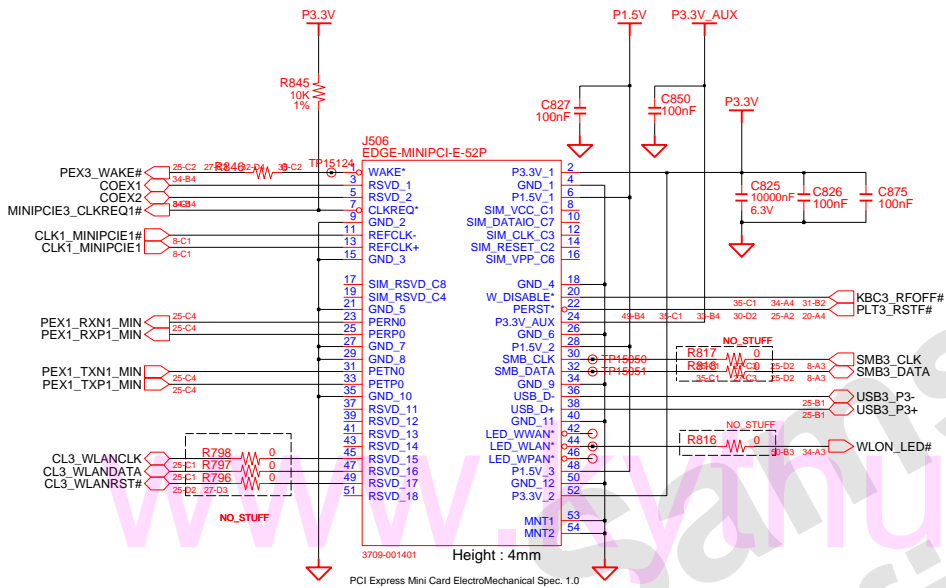


DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN	PART NO.	
APPROVAL	KEVIN LEE	REV	1,1	USB,MDC & BLUETOOTH	BA41-00727/8A	
MODULE CODE		LAST EDIT		March 28, 2007 3:33:29 PM	PAGE 34 OF 54	

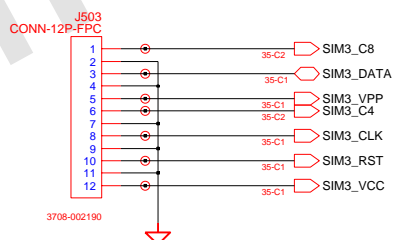
SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

## Mini PCI-E Card (WLAN)

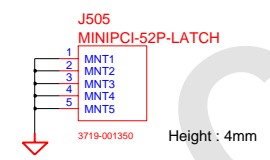
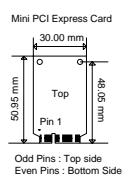
## Mini PCI-E Card (HSDPA)



### SIM Card FFC CONN

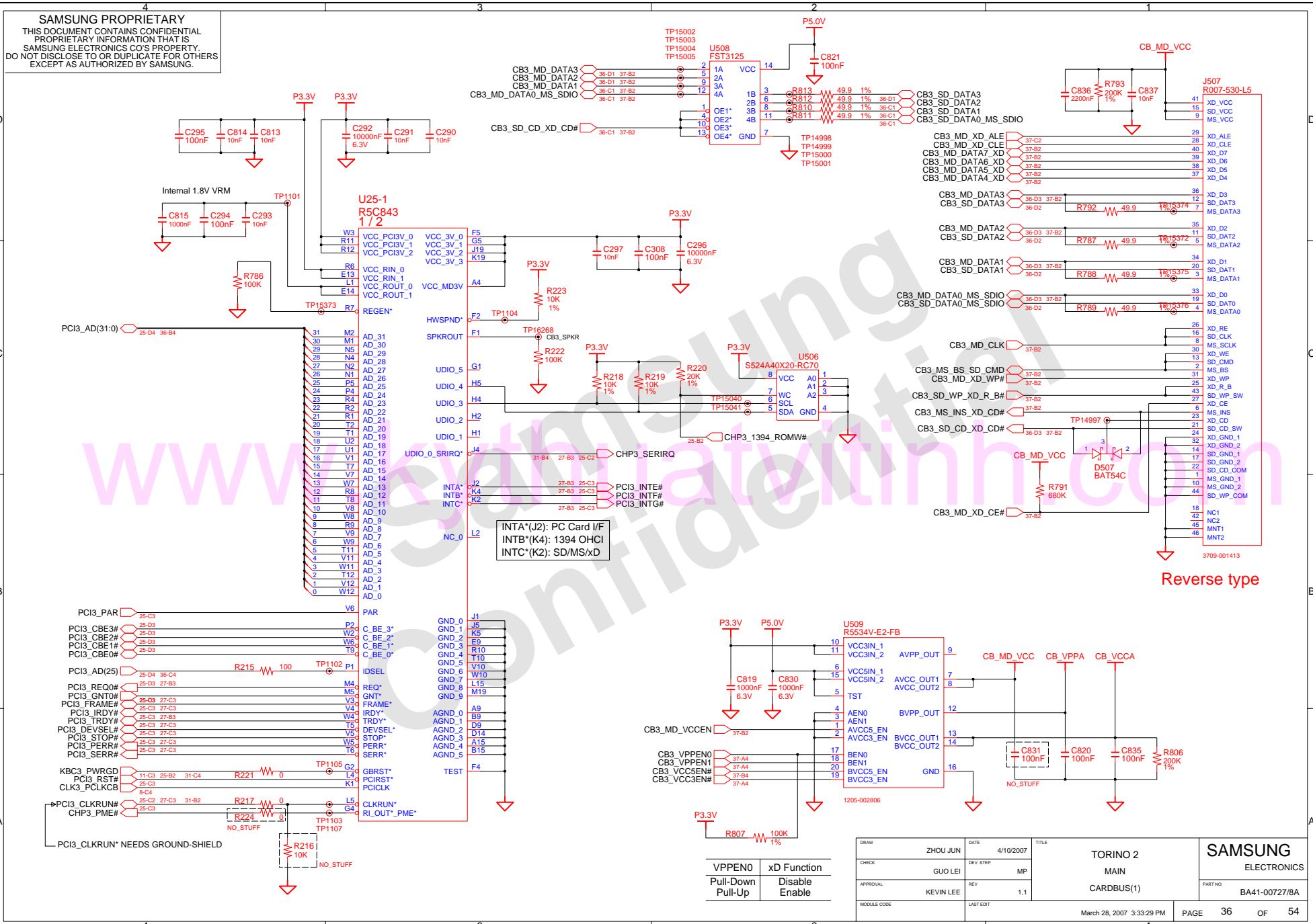


### PEM



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN	MAIN CARD	
APPROVAL	KEVIN LEE	REV	1.1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT				
				March 28, 2007 3:33:29 PM	PAGE	35 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



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

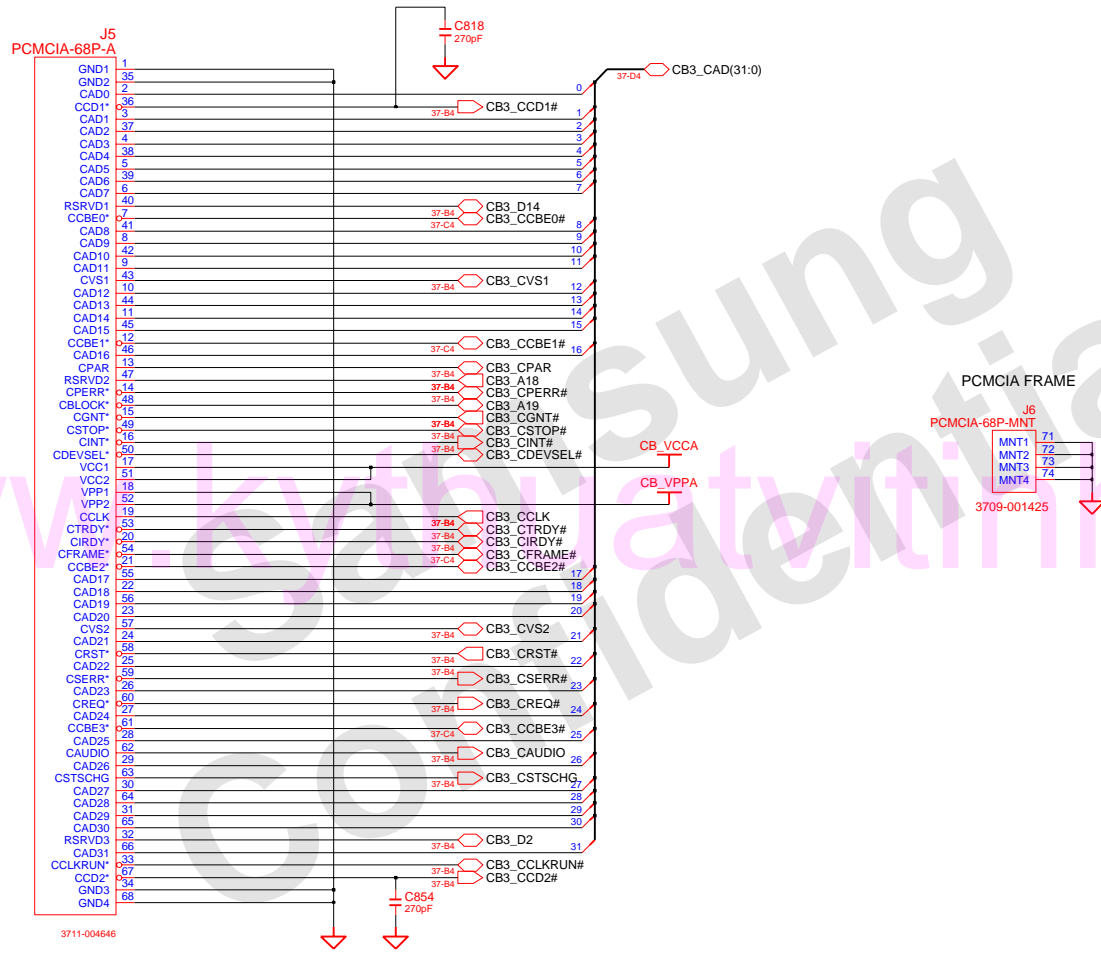
Reverse type

VPPEN0	xD Function
Pull-Down	Disable
Pull-Up	Enable

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS			
CHECK	GUO LEI	DEV_STEP	MP		MAIN				
APPROVAL	KEVIN LEE	REV	1.1		CARDBUS(1)				
MODULE CODE		LAST EDIT				PART NO. BA41-00727/8A			
March 28, 2007 3:33:29 PM						PAGE	36	OF	54



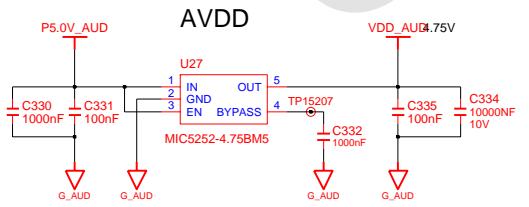
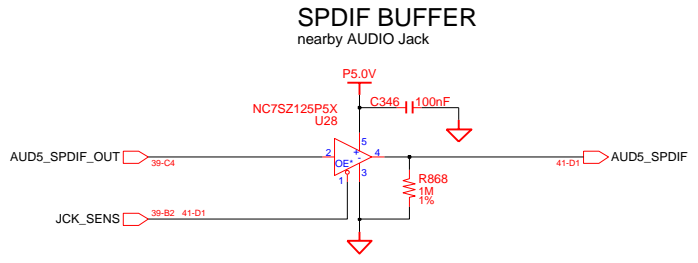
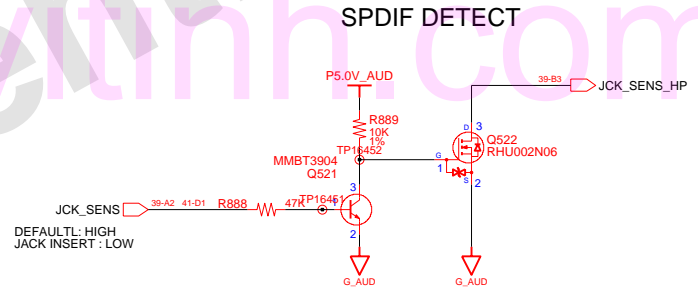
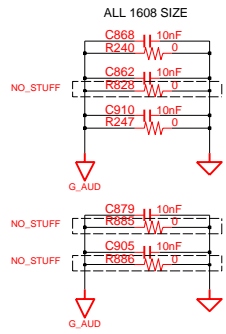
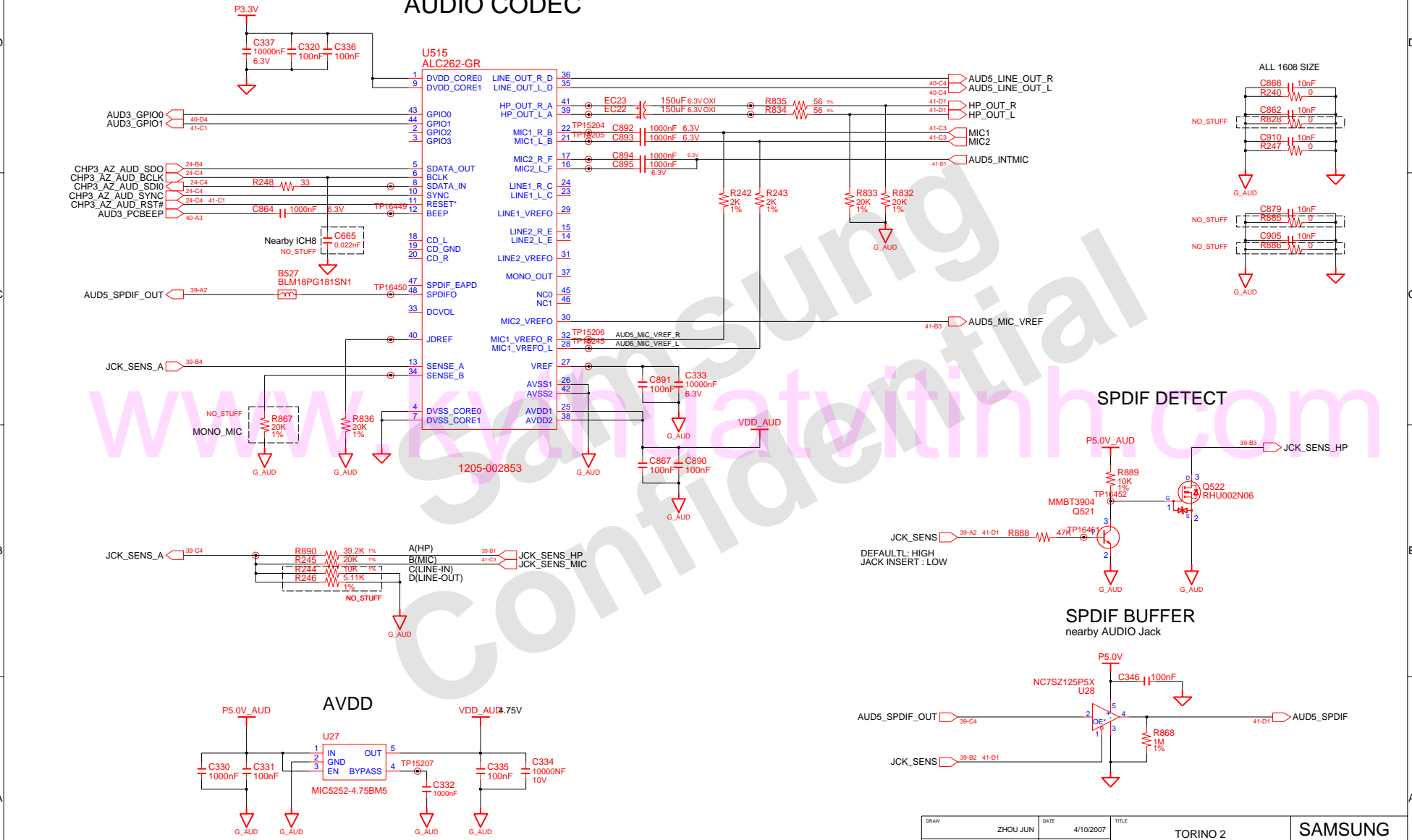
SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1,1	CARBUS (3)	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT	March 28, 2007 3:33:29 PM	PAGE	38	OF 54

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

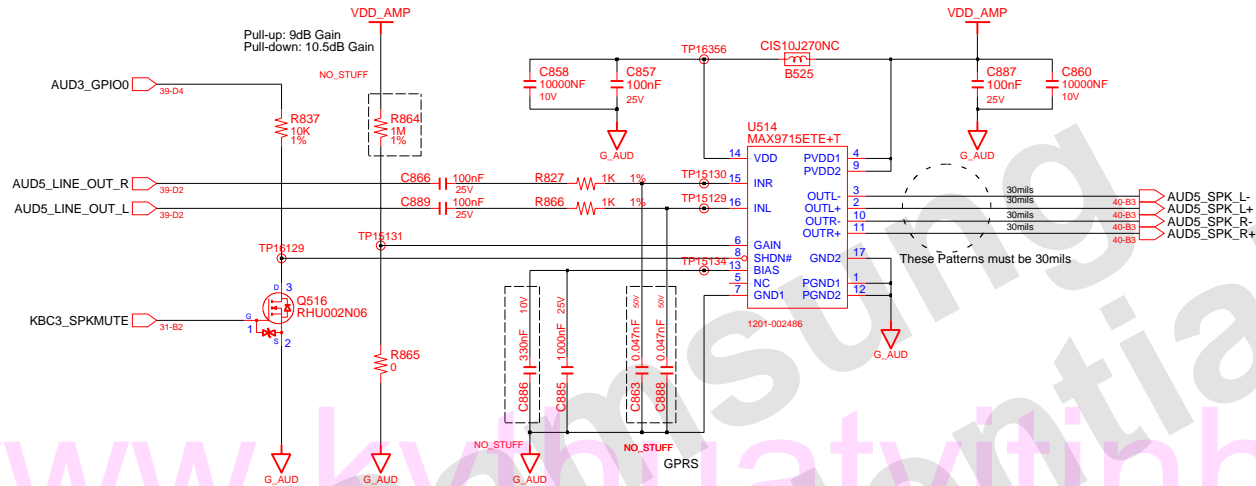
# AUDIO CODEC



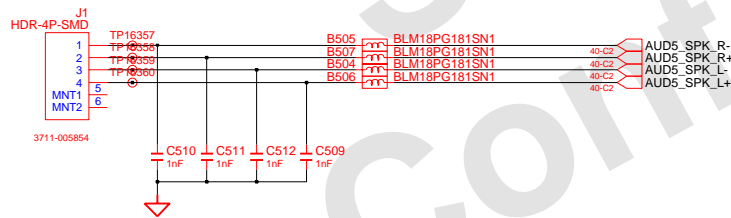
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1.1	AUDIO CODEC	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 39 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

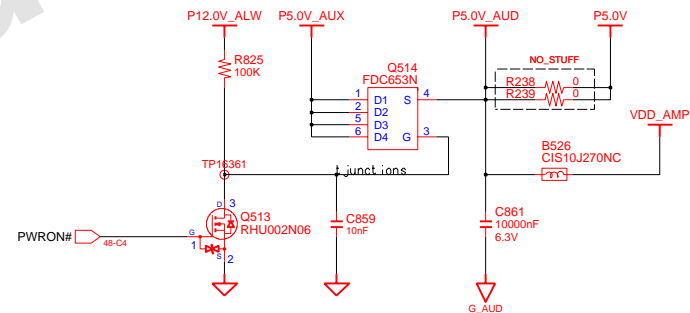
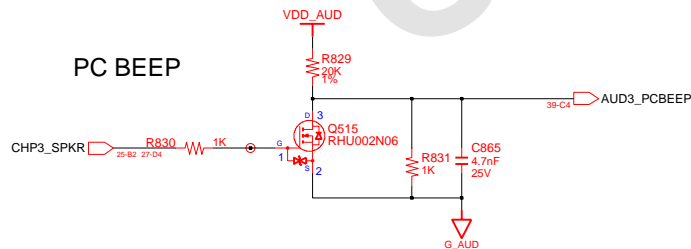
# AUDIO AMP



## INTERNAL STEREO SPEAKERS



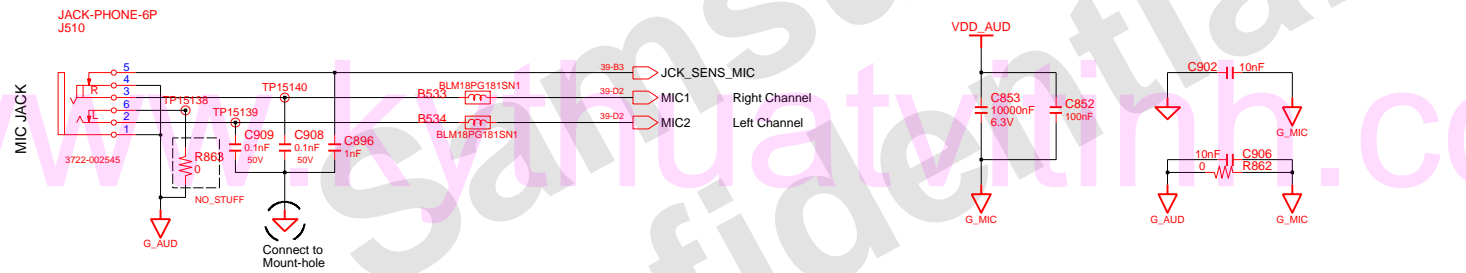
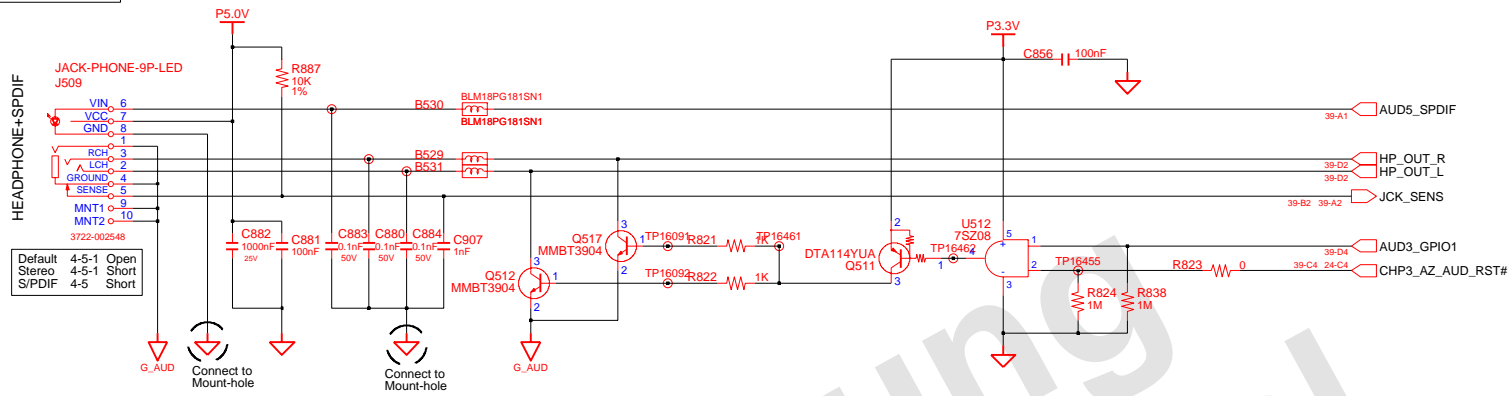
## PC BEEP



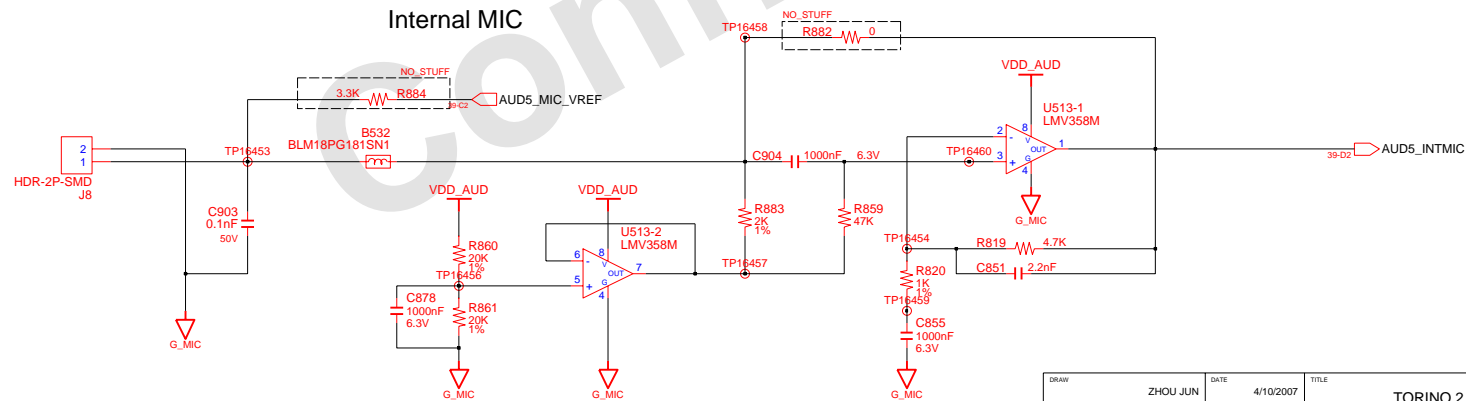
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN AUDIO AMPLIFIER	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1,1			PART NO. BA41-00727/8A
MODULE CODE		LAST ENT				
March 28, 2007 3:33:29 PM						PAGE 40 OF 54



**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



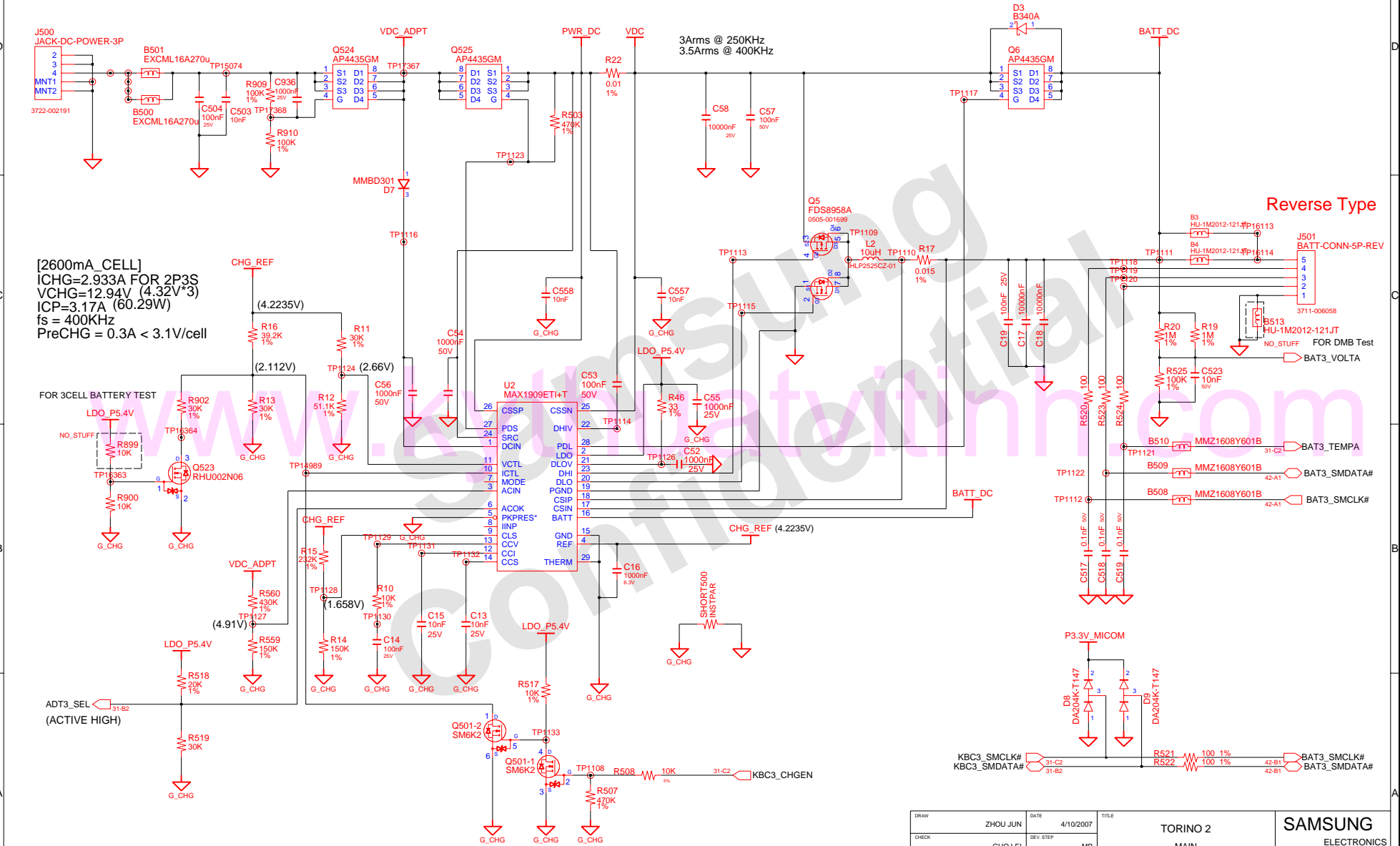
**Internal MIC**



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN AUDIO JACK	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1,1			
MODULE CODE		LAST EDIT				
March 28, 2007 3:33:29 PM						PAGE 41 OF 54

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# CHARGER & POWER MANAGEMENT



[2600mA\_CELL]  
 ICHG=2.933A FOR 2P3S  
 VCHG=12.94V (4.32V\*3)  
 ICP=3.17A (60.29W)  
 fs = 400KHz  
 PreCHG = 0.3A < 3.1V/cell

FOR 3CELL BATTERY TEST

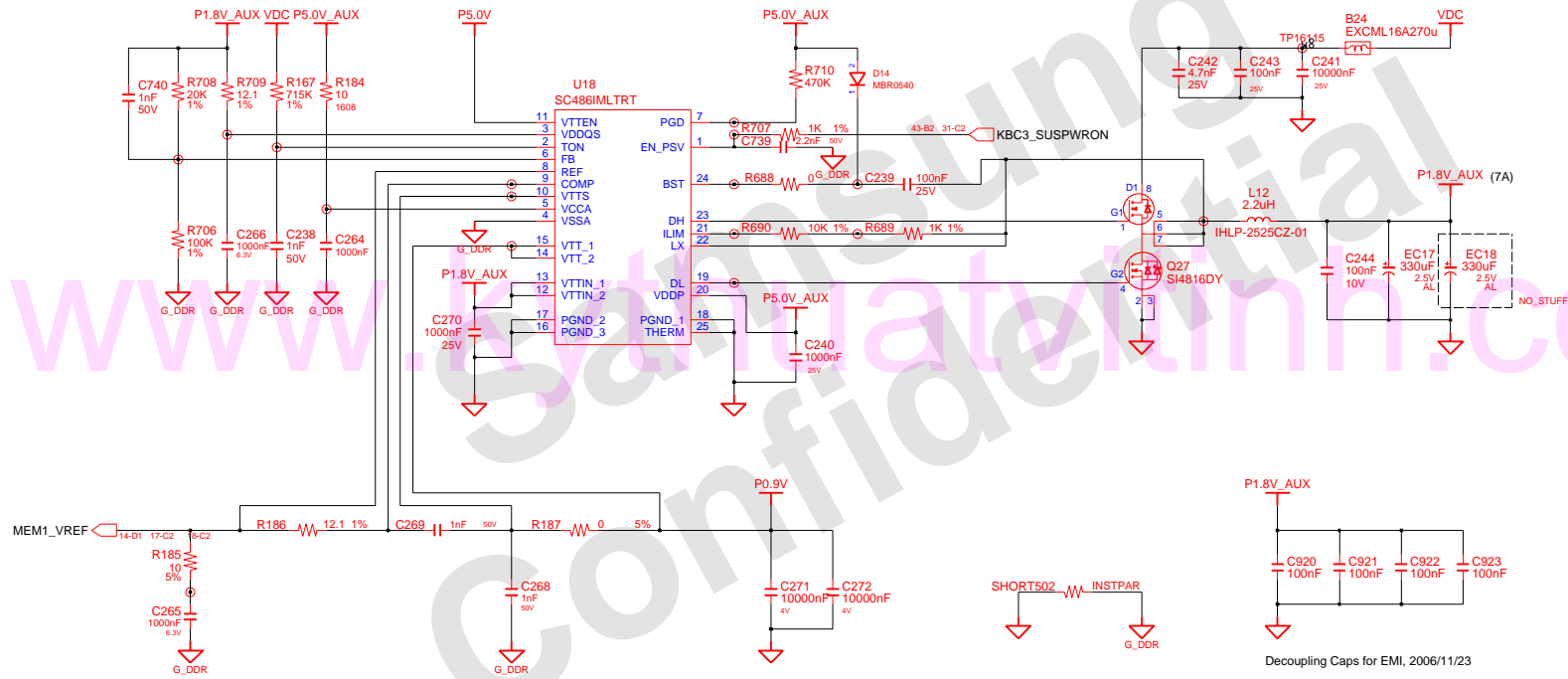
Reverse Type

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG
CHECK	GUO LEI	DEV_STEP	MP		MAIN	ELECTRONICS
APPROVAL	KEVIN LEE	REV	1.1		VDC & CHARGER	PART NO.
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	BA41-00727/8A
					PAGE	42 OF 54



SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# DDR2 POWER

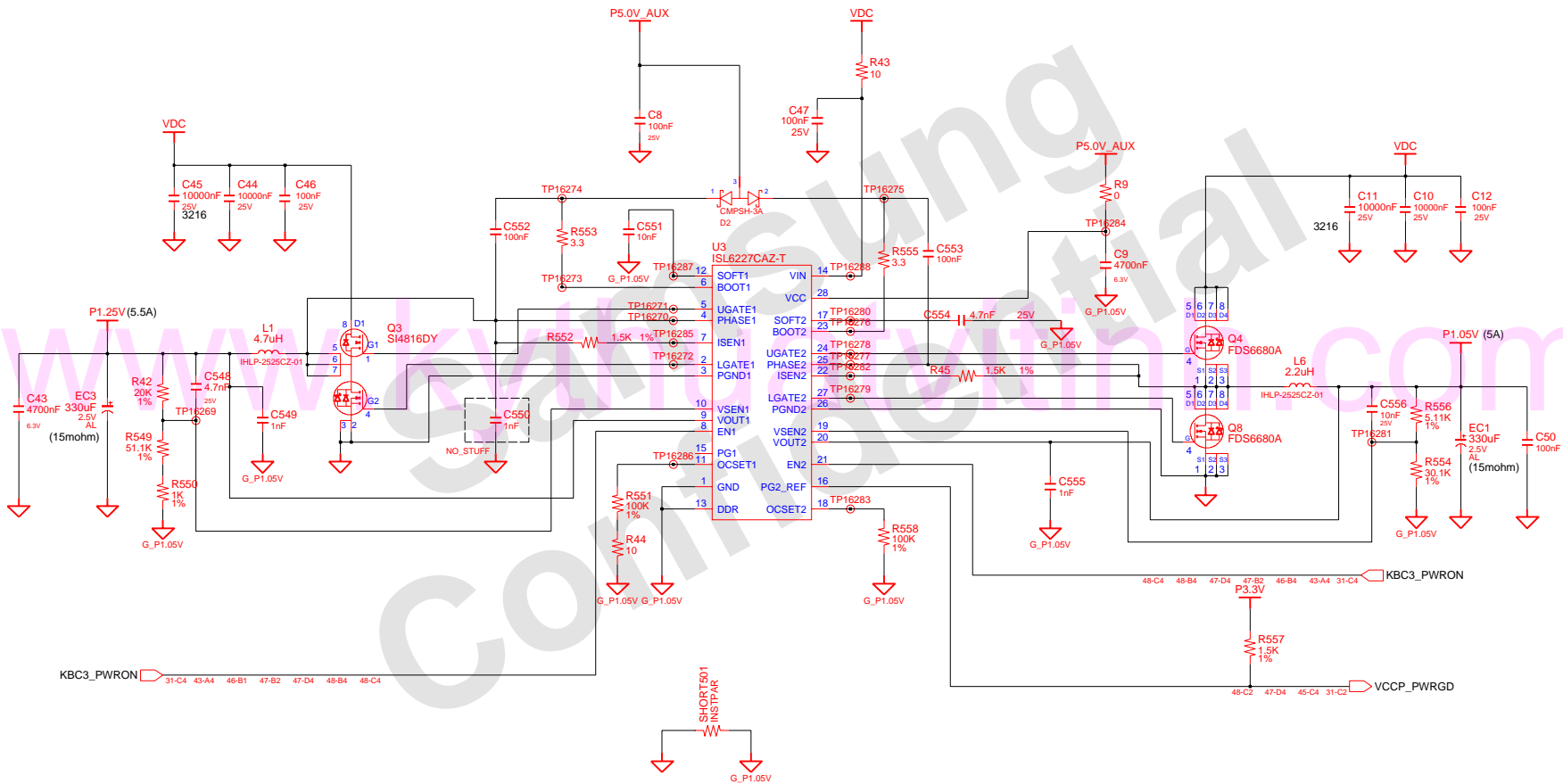


DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN DDR2 POWER	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1,1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 44 OF 54



SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

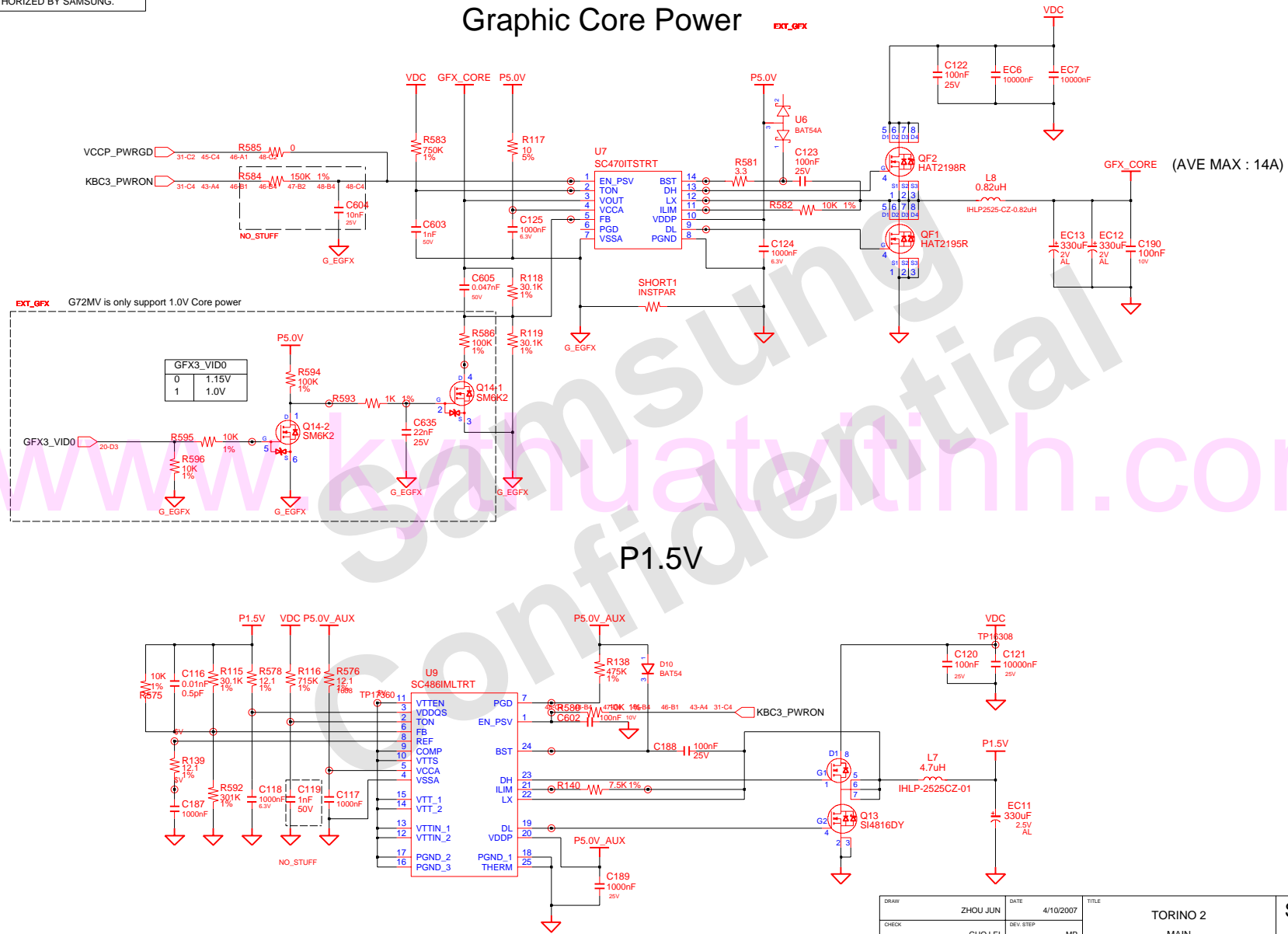
# P1.25V & P1.05V



DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP		MAIN	
APPROVAL	KEVIN LEE	REV	1,1		P1.25V & P1.05V	PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT		March 28, 2007 3:33:29 PM	PAGE	46 OF 54

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

# Graphic Core Power

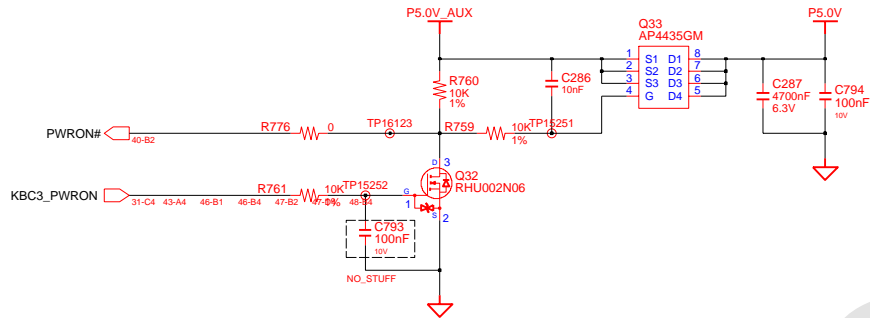


DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1,1	GFX_CORE & P1.5V	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT			March 28, 2007 3:33:29 PM	PAGE 47 OF 54

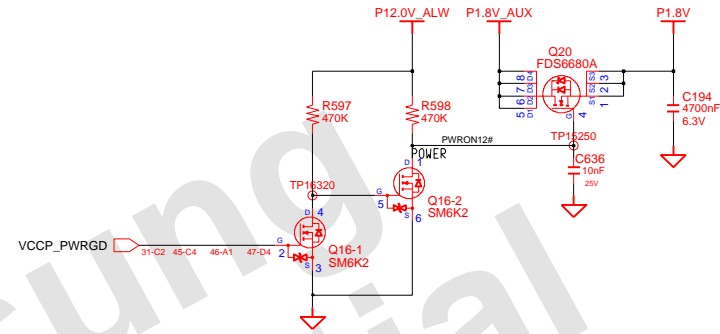


SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO.'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

### Switched Power On (P5V)

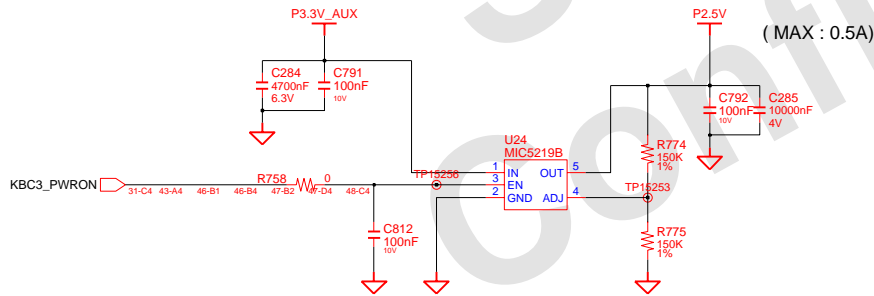


### Switched Power On (P1.8V)



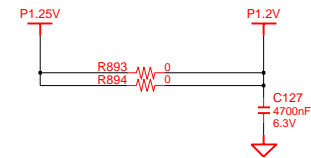
### Switched Power On (P2.5V)

NO\_STUFF  
 It's only used for G72M



### Switched Power On (P1.2V)

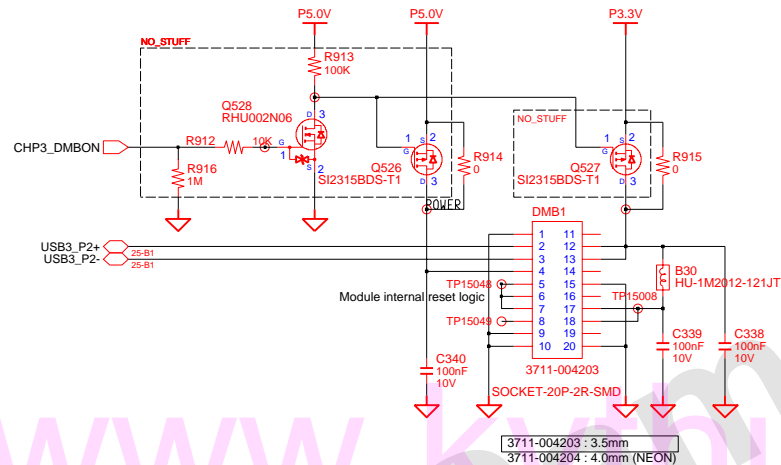
EXT\_GFX



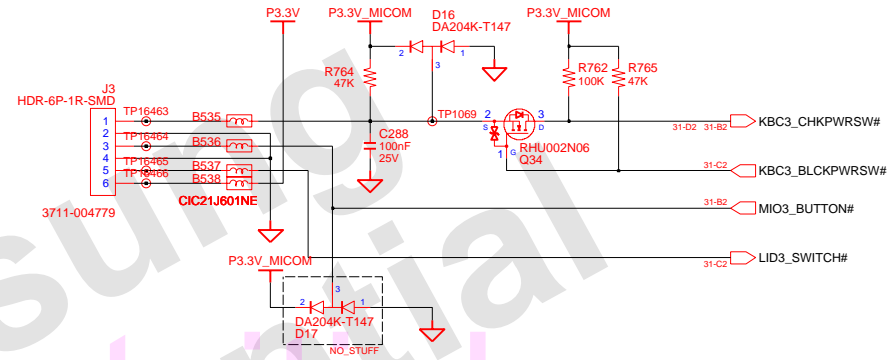
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN SWITCHED POWER	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1,1			PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT	March 28, 2007 3:33:29 PM	PAGE	48	OF 54

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

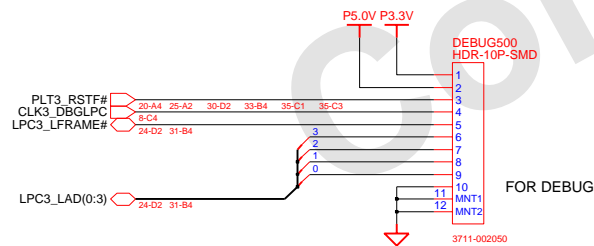
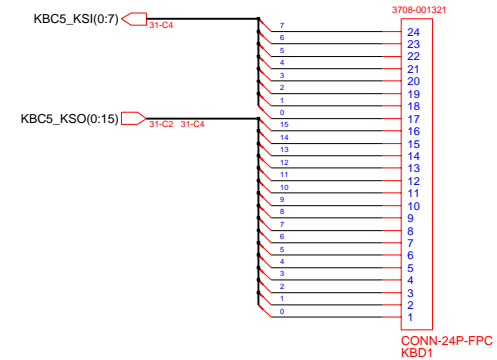
### OPTION: DMB INTERFACE



### Power Switch Connector

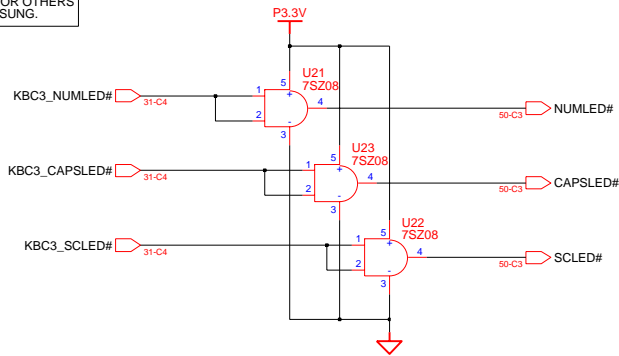


### KEYBOARD

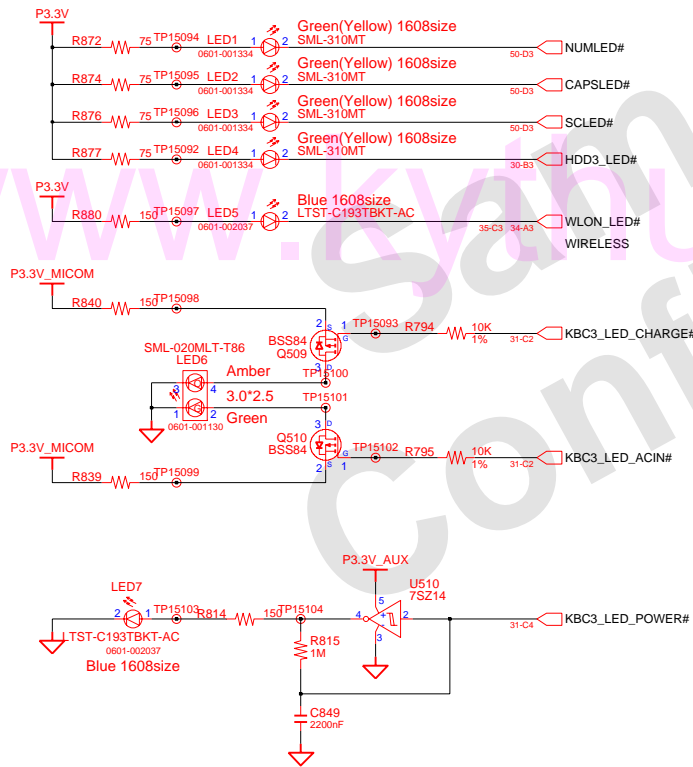


DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1,1	DMB & KBD & DEBUG & POWER S/W	PART NO.	BA41-00727/8A
MODULE CODE		LAST EDIT		March 28, 2007 3:33:29 PM	PAGE	49 OF 54

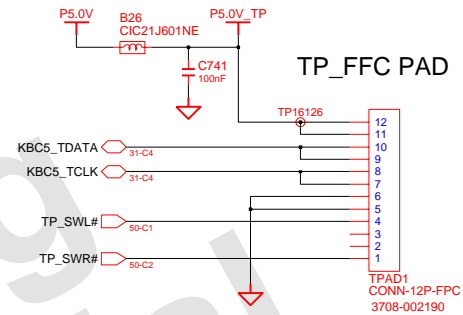
**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.



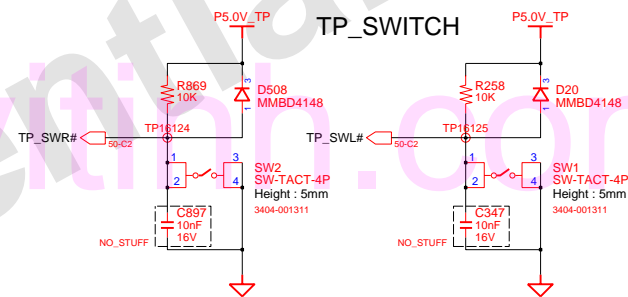
### LEDS



### TOUCH PAD



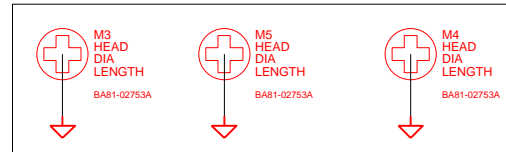
### TP\_SWITCH



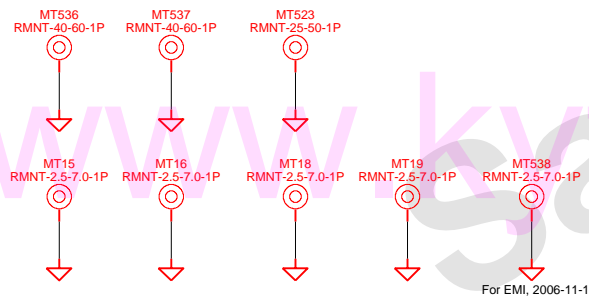
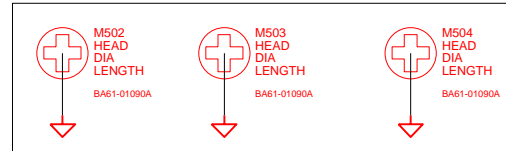
DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP	MAIN	MAIN	
APPROVAL	KEVIN LEE	REV	1,1	TOUCH PAD & LEDS		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT		March 28, 2007 3:33:29 PM	PAGE	50 OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

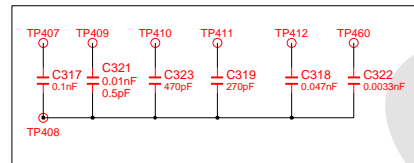
**DMB-NUT**



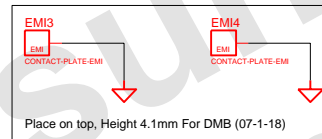
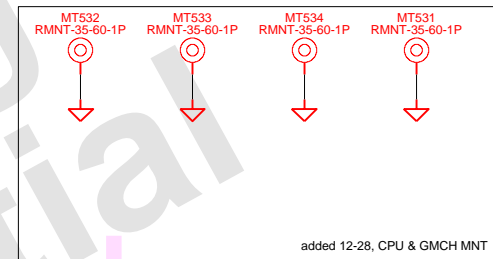
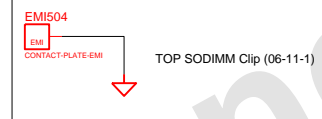
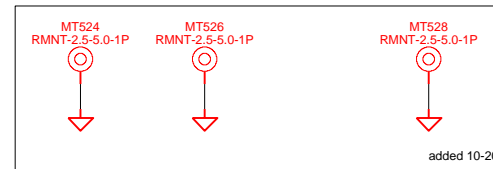
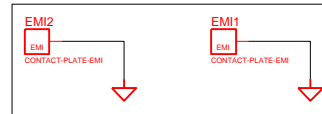
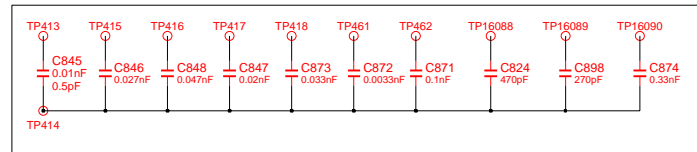
NUT for RHE, Locate on TOP of PCB



**1 - 499 SIDE**



**500 - SIDE**



REV1  
 1 O  
 2 O O3

PCB REVISION CONTROL ( ICT )				
NO	CONNECTION	DATE(Y/M/D)	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	4/10/2007	TITLE	TORINO 2 MAIN MOUNT HOLE	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV. STEP	MP			
APPROVAL	KEVIN LEE	REV	1,1			
MODULE CODE		LAST EDIT				
			March 28, 2007 3:33:29 PM	PAGE	51	OF 54

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

TP17080 ADT3\_SEL  
 TP17081 AUD3\_GP00  
 TP17082 AUD3\_GP01  
 TP17083 AUD3\_PCBEPP  
 TP17084 AUD5\_INTMIC  
 TP17085 AUD5\_LINE\_OUT\_L  
 TP17086 AUD5\_LINE\_OUT\_R  
 TP17087 AUD5\_MIC\_VREF  
 TP17088 AUD5\_SPDIF  
 TP17089 AUD5\_SPDIF\_OUT  
 TP17090 AUD5\_SPK\_L+  
 TP17091 AUD5\_SPK\_L-  
 TP17092 AUD5\_SPK\_R+  
 TP17093 AUD5\_SPK\_R-  
 TP17094 BAT3\_SMCLK#  
 TP17096 BAT3\_TEMP  
 TP17097 BAT3\_VOLTA  
 TP17098 CAPSLED#  
 TP17099 CB3\_A18  
 TP17100 CB3\_A19  
 TP17101 CB3\_CAD(0)  
 TP17102 CB3\_CAD(1)  
 TP17103 CB3\_CAD(10)  
 TP17104 CB3\_CAD(11)  
 TP17105 CB3\_CAD(12)  
 TP17106 CB3\_CAD(13)  
 TP17107 CB3\_CAD(14)  
 TP17108 CB3\_CAD(15)  
 TP17109 CB3\_CAD(16)  
 TP17110 CB3\_CAD(17)  
 TP17111 CB3\_CAD(18)  
 TP171048 CB3\_CAD(19)  
 TP171049 CB3\_CAD(2)  
 TP17050 CB3\_CAD(20)  
 TP17051 CB3\_CAD(21)  
 TP17052 CB3\_CAD(22)  
 TP17053 CB3\_CAD(23)  
 TP17054 CB3\_CAD(24)  
 TP17055 CB3\_CAD(25)  
 TP17056 CB3\_CAD(26)  
 TP17057 CB3\_CAD(27)  
 TP17058 CB3\_CAD(28)  
 TP17059 CB3\_CAD(29)  
 TP17060 CB3\_CAD(3)  
 TP17061 CB3\_CAD(30)  
 TP17062 CB3\_CAD(31)  
 TP17063 CB3\_CAD(4)  
 TP17064 CB3\_CAD(5)  
 TP17065 CB3\_CAD(6)  
 TP17066 CB3\_CAD(7)  
 TP17067 CB3\_CAD(8)  
 TP17068 CB3\_CAD(9)  
 TP17069 CB3\_CAUDIO  
 TP17070 CB3\_CCBED#  
 TP17071 CB3\_CCBE1#  
 TP17072 CB3\_CCBE2#  
 TP17073 CB3\_CCBE3#  
 TP17074 CB3\_CCD1#  
 TP17075 CB3\_CCD2#  
 TP17076 CB3\_CCLK  
 TP17077 CB3\_CCLKMCOM  
 TP17078 CB3\_CDEVSE/L#  
 TP17079 CB3\_CFRAME#  
 TP17016 CB3\_CGN#  
 TP17017 CB3\_CINT#  
 TP17018 CB3\_CIRDY#  
 TP17019 CB3\_CIPAR  
 TP17020 CB3\_CIPERR#  
 TP17021 CB3\_CCREQ#  
 TP17022 CB3\_CCRST#  
 TP17023 CB3\_CCSERR#  
 TP17024 CB3\_CSTOP#  
 TP17025 CB3\_CSTSCG#  
 TP17026 CB3\_CTRDY#  
 TP17027 CB3\_CVSI#  
 TP17028 CB3\_CVSI2  
 TP17029 CB3\_D14  
 TP17030 CB3\_D2  
 TP17031 CB3\_MD\_CLK

TP17032 CB3\_MD\_DATA4\_XD  
 TP17033 CB3\_MD\_DATA5\_XD  
 TP17034 CB3\_MD\_DATA6\_XD  
 TP17035 CB3\_MD\_DATA7\_XD  
 TP17036 CB3\_MD\_VCCEN  
 TP17037 CB3\_MD\_XD\_ALE  
 TP17038 CB3\_MD\_XD\_CE#  
 TP17039 CB3\_MD\_XD\_CLE  
 TP17040 CB3\_MD\_XD\_WP#  
 TP17041 CB3\_MS\_BS\_SD\_CMD  
 TP17042 CB3\_MS\_MS\_XD\_CDM  
 TP17043 CB3\_SD\_CD\_XD\_CDM#  
 TP17044 CB3\_SD\_DATA0\_MS\_SDI0  
 TP17045 CB3\_SD\_DATA1  
 TP17046 CB3\_SD\_DATA2  
 TP17047 CB3\_SD\_DATA3  
 TP17048 CB3\_SD\_WP\_XD\_R\_B#  
 TP16985 CB3\_VCC3EN#  
 TP16986 CB3\_VCC3EN#  
 TP16987 CB3\_VPPEN0  
 TP16988 CB3\_VPPEN1  
 TP16989 CB3\_CAD(0)  
 TP16990 CB3\_CAD(1)  
 TP16991 CB3\_CAD(10)  
 TP16992 CB3\_CAD(11)  
 TP16993 CB3\_CAD(12)  
 TP16994 CB3\_CAD(13)  
 TP16995 CB3\_CAD(14)  
 TP16996 CB3\_CAD(15)  
 TP16997 CB3\_CAD(16)  
 TP16998 CB3\_CAD(17)  
 TP16999 CB3\_CAD(18)  
 TP17000 CB3\_CAD(19)  
 TP17001 CB3\_CAD(2)  
 TP17002 CB3\_CAD(20)  
 TP17003 CB3\_CAD(21)  
 TP17004 CB3\_CAD(22)  
 TP17005 CB3\_CAD(23)  
 TP17006 CB3\_CAD(24)  
 TP17007 CB3\_CAD(25)  
 TP17008 CB3\_CAD(26)  
 TP17009 CB3\_CAD(27)  
 TP17010 CB3\_CAD(28)  
 TP17011 CB3\_CAD(29)  
 TP17012 CB3\_CAD(3)  
 TP17013 CB3\_CAD(30)  
 TP17014 CB3\_CAD(31)  
 TP17015 CB3\_CAD(4)  
 TP16952 CB3\_SPKR  
 TP16953 CB3\_SUSSTAT#  
 TP16954 CL3\_CLK  
 TP16955 CL3\_DATA  
 TP16956 CL3\_RST#  
 TP16957 CL3\_WLANCLK  
 TP16958 CL3\_WLANDATA  
 TP16959 CL3\_WLANRST#  
 TP16928 CLK3\_DRGLPC  
 TP16929 CLK3\_FM48  
 TP16930 CLK3\_ICH14  
 TP16931 CLK3\_PCLKCB  
 TP16932 CLK3\_PCLKICH  
 TP16933 CLK3\_PCLKMCOM  
 TP16934 CLK3\_PWRGD  
 TP16935 CLK3\_SMBCLK  
 TP16936 CLK3\_SMBDATA  
 TP16937 CLK3\_USB8  
 TP16938 CL\_VREF0\_ICH  
 TP16939 CL\_VREF1\_ICH  
 TP16940 COEX1  
 TP16941 COEX2  
 TP16918 CPU1\_BSEL0  
 TP16919 CPU1\_BSEL1  
 TP16856 CPU1\_BSEL2  
 TP16768 CPU1\_STPCLK#  
 TP16769 CPU1\_THRMTRIP#  
 TP16771 CPU1\_VCCSENSE  
 TP16772 CPU1\_VSSSENSE  
 TP16773 CPU2\_THERMDA  
 TP16774 CPU2\_THERMDC  
 TP16775 CPU3\_THRMTRIP#

TP16776 CTRL18\_25  
 TP16777 CTRL12  
 TP16599 GMCH3\_EMBUSY#  
 TP16536 GMCH3\_EXITS0#  
 TP16537 GMCH3\_EXITS1#  
 TP16538 GMCH3\_IHSYNC#  
 TP16539 HDD3\_LED#  
 TP16540 HP\_OUT\_L  
 TP16541 HP\_OUT\_R  
 TP16542 IDE\_A0  
 TP16543 IDE\_A1  
 TP16544 IDE\_A2  
 TP16545 IDE\_CS1#  
 TP16546 IDE\_CS3#  
 TP16547 IDE\_D(0)  
 TP16548 IDE\_D(1)  
 TP16550 IDE\_D(11)  
 TP16551 IDE\_D(12)  
 TP16552 IDE\_D(13)  
 TP16553 IDE\_D(14)  
 TP16554 IDE\_D(15)  
 TP16555 IDE\_D(2)  
 TP16556 IDE\_D(3)  
 TP16557 IDE\_D(4)  
 TP16558 IDE\_D(5)  
 TP16559 IDE\_D(6)  
 TP16560 IDE\_D(7)  
 TP16561 IDE\_D(8)  
 TP16562 IDE\_D(9)  
 TP16563 IDE\_DACK#  
 TP16564 IDE\_DREQ  
 TP16565 IDE\_JOR#  
 TP16566 IDE\_JORDY  
 TP16567 IDE\_IOW#  
 TP16504 IDE\_IRQ  
 TP16505 ILM3  
 TP16506 ILM6  
 TP16507 JCK\_SENS  
 TP16508 JCK\_SENS\_HP  
 TP16509 JCK\_SENS\_MIC  
 TP16510 KBC3\_A20G  
 TP16511 KBC3\_BKLTON  
 TP16512 KBC3\_BCLKPWRSSW#  
 TP16513 KBC3\_CAPSLED#  
 TP16514 KBC3\_CHGEN  
 TP16515 KBC3\_CHKPWRSSW#  
 TP16516 KBC3\_CPUREST#  
 TP16517 KBC3\_EXTSM#  
 TP16518 KBC3\_LANRST#  
 TP16519 KBC3\_LED\_AGIN#  
 TP16520 KBC3\_LED\_CHARGE#  
 TP16521 KBC3\_LED\_POWER#  
 TP16522 KBC3\_NUMLED#  
 TP16523 KBC3\_PWRBTF#  
 TP16524 KBC3\_PWRGD  
 TP16525 KBC3\_PWRGDMDCH  
 TP16526 KBC3\_PWRON  
 TP16527 KBC3\_RSMRST#  
 TP16528 KBC3\_RST#  
 TP16529 KBC3\_RUNSCH#  
 TP16530 KBC3\_SCLEDD#  
 TP16531 KBC3\_SMCLK#  
 TP16532 KBC3\_SMDATA#  
 TP16533 KBC3\_SUSPWRON  
 TP16534 KBC3\_THERM\_SMCLK  
 TP16535 KBC3\_THERM\_SMDATA  
 TP16472 KBC3\_VRON  
 TP16473 KBC3\_WAKESC#  
 TP16474 KBC5\_KSI(0)  
 TP16475 KBC5\_KSI(1)  
 TP16476 KBC5\_KSI(2)  
 TP16477 KBC5\_KSI(3)  
 TP16478 KBC5\_KSI(4)  
 TP16479 KBC5\_KSI(5)  
 TP16480 KBC5\_KSI(6)  
 TP16481 KBC5\_KSI(7)  
 TP16482 KBC5\_KSO(0)  
 TP16483 KBC5\_KSO(1)  
 TP16484 KBC5\_KSO(10)

TP16485 KBC5\_KSO(11)  
 TP16486 KBC5\_KSO(12)  
 TP16487 KBC5\_KSO(13)  
 TP16488 KBC5\_KSO(14)  
 TP16489 KBC5\_KSO(15)  
 TP16490 KBC5\_KSO(2)  
 TP16491 KBC5\_KSO(3)  
 TP16492 KBC5\_KSO(4)  
 TP16493 KBC5\_KSO(5)  
 TP16494 KBC5\_KSO(6)  
 TP16495 KBC5\_KSO(7)  
 TP16496 KBC5\_KSO(8)  
 TP16497 KBC5\_KSO(9)  
 TP17353 KBC5\_TCLK  
 TP17354 KBC5\_TDATA  
 TP16498 LAN3\_ACTLED#  
 TP16499 LAN3\_CLKREQ#  
 TP16500 LAN3\_LINK1000#  
 TP16501 LAN3\_LINK10\_1000#  
 TP17113 LAN3\_VPDATA  
 TP17114 LCD3\_BKLTCTRL  
 TP17116 LCD3\_BKLTON  
 TP17118 LCD3\_EDID\_DATA  
 TP17120 LPC3\_LAD(0)  
 TP17121 LPC3\_LAD(1)  
 TP17122 LPC3\_LAD(2)  
 TP17123 LPC3\_LAD(3)  
 TP17124 LPC3\_LFRAME#  
 TP17125 MEM1\_VREF  
 TP17126 MIC1  
 TP17127 MIC2  
 TP17128 MINIPIC3\_CLKREQ#  
 TP17357 MIO3\_BUTTON#  
 TP17310 NAND3\_ALE  
 TP17312 NAND3\_CEM#  
 TP17313 NAND3\_CE1#  
 TP17314 NAND3\_CLE  
 TP17315 NAND3\_DISKBUSY  
 TP17316 NAND3\_IO(0)  
 TP17317 NAND3\_IO(1)  
 TP17318 NAND3\_IO(10)  
 TP17319 NAND3\_IO(11)  
 TP17320 NAND3\_IO(12)  
 TP17321 NAND3\_IO(13)  
 TP17322 NAND3\_IO(14)  
 TP17323 NAND3\_IO(15)  
 TP17324 NAND3\_IO(2)  
 TP17325 NAND3\_IO(3)  
 TP17326 NAND3\_IO(4)  
 TP17327 NAND3\_IO(5)  
 TP17328 NAND3\_IO(6)  
 TP17329 NAND3\_IO(7)  
 TP17330 NAND3\_IO(8)  
 TP17331 NAND3\_IO(9)  
 TP17332 NAND3\_RB  
 TP17333 NAND3\_RE0#  
 TP17334 NAND3\_WED#  
 TP17335 NAND3\_WEP#  
 TP17336 NAND3\_WEP#  
 TP17337 PC13\_AD(0)  
 TP17338 PC13\_AD(1)  
 TP17339 PC13\_AD(10)  
 TP17129 PC13\_AD(11)  
 TP17130 PC13\_AD(12)  
 TP17131 PC13\_AD(13)  
 TP17132 PC13\_AD(14)  
 TP17133 PC13\_AD(15)  
 TP17134 PC13\_AD(16)  
 TP17135 PC13\_AD(17)  
 TP17136 PC13\_AD(18)  
 TP17137 PC13\_AD(19)  
 TP17138 PC13\_AD(2)  
 TP17139 PC13\_AD(20)  
 TP17140 PC13\_AD(21)  
 TP17141 PC13\_AD(22)  
 TP17142 PC13\_AD(23)

TP17143 PC13\_AD(24)  
 TP17144 PC13\_AD(25)  
 TP17145 PC13\_AD(26)  
 TP17146 PC13\_AD(27)  
 TP17147 PC13\_AD(28)  
 TP17148 PC13\_AD(29)  
 TP17149 PC13\_AD(3)  
 TP17150 PC13\_AD(30)  
 TP17151 PC13\_AD(31)  
 TP17152 PC13\_AD(4)  
 TP17153 PC13\_AD(5)  
 TP17154 PC13\_AD(6)  
 TP17155 PC13\_AD(7)  
 TP17156 PC13\_AD(8)  
 TP17157 PC13\_AD(9)  
 TP17158 PC13\_CBE0#  
 TP17159 PC13\_CBE1#  
 TP17160 PC13\_CBE2#  
 TP17161 PC13\_CBE3#  
 TP17162 PC13\_CLKRUM#  
 TP17163 PC13\_DEVSEL#  
 TP17164 PC13\_FRAME#  
 TP17165 PC13\_GNT0#  
 TP17166 PC13\_INT#  
 TP17167 PC13\_INT#  
 TP17168 PC13\_INT#  
 TP17169 PC13\_INT#  
 TP17170 PC13\_INT#  
 TP17171 PC13\_INT#  
 TP17172 PC13\_INT#  
 TP17173 PC13\_INT#  
 TP17174 PC13\_IRDY#  
 TP17175 PC13\_PAR  
 TP17176 PC13\_PERR#  
 TP17177 PC13\_PLOCK#  
 TP17178 PC13\_REQ0#  
 TP17179 PC13\_RST#  
 TP17180 PC13\_SEREN#  
 TP17181 PC13\_STDP#  
 TP17182 PC13\_TRDY#  
 TP17340 PEX3\_WAKE#  
 TP17341 PFLT3\_RST#  
 TP17342 PFLT3\_RST#  
 TP17343 PWRON#  
 TP17344 SLED#  
 TP17345 OSMB3\_ALERT#  
 TP17346 OSMB3\_CLK  
 TP17347 OSMB3\_DATA  
 TP17348 THERM\_ALERT#  
 TP17349 THERM\_STP#  
 TP17183 VCCP\_PWRGD  
 TP17184 VGA3\_BLUE  
 TP17185 VGA3\_DDCCLK  
 TP17186 VGA3\_DDCDATA  
 TP17187 VGA3\_GREEN  
 TP17188 VGA3\_HSYNC  
 TP17189 VGA3\_RED  
 TP17190 VGA3\_VSYNC  
 TP17191 VGA5\_DDCCLK  
 TP17192 VGA5\_DDCDATA  
 TP17193 VPM3\_CPU\_PWRGD  
 TP17194 WLAN\_LED#  
 TP17195 QCB\_MD\_VCC  
 TP17196 QCB\_VCCA  
 TP17207 OCHG\_REF  
 TP17211 OCPU\_CORE  
 TP17212 OCPU\_CORE  
 TP17213 OCPU\_CORE  
 TP17214 OCPU\_CORE  
 TP17215 OGF\_X\_CORE  
 TP17216 OGF\_X\_CORE  
 TP17217 OGF\_X\_CORE  
 TP17218 OGF\_X\_CORE  
 TP17219 OGF\_X\_CORE  
 TP17220 OGF\_X\_CORE  
 TP17221 OGF\_X\_CORE  
 TP17222 OGF\_X\_CORE  
 TP17223 OGF\_X\_CORE  
 TP17225 OGF\_X\_CORE  
 TP17227 OGF\_X\_CORE

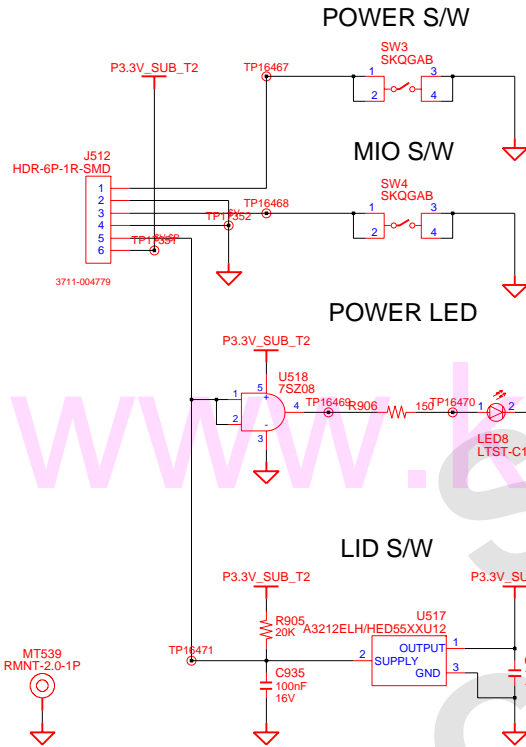
TP17229 O\_G\_MIC  
 TP17231 O\_P1\_05V  
 TP17233 O\_P3\_3V  
 TP17235 O\_LCD\_VDD3V  
 TP17236 O\_LD0\_P5\_4V  
 TP17237 O\_P1\_05V  
 TP17238 O\_P1\_05V  
 TP17239 O\_P1\_05V  
 TP17240 O\_P1\_05V  
 TP17241 O\_P1\_25V  
 TP17242 O\_P1\_25V  
 TP17243 O\_P1\_25V  
 TP17244 O\_P1\_25V  
 TP17245 O\_P1\_2V  
 TP17246 O\_P1\_2V  
 TP17247 O\_P1\_2V  
 TP17248 O\_P1\_2V  
 TP17249 O\_P1\_2V\_LAN  
 TP17250 O\_P1\_2V\_LAN  
 TP17251 O\_P1\_2V\_LAN  
 TP17252 O\_P1\_2V\_LAN  
 TP17253 O\_P1\_5V  
 TP17254 O\_P1\_5V  
 TP17255 O\_P1\_5V  
 TP17256 O\_P1\_5V  
 TP17257 O\_P1\_8V  
 TP17258 O\_P1\_8V  
 TP17259 O\_P1\_8V  
 TP17260 O\_P1\_8V\_AUX  
 TP17261 O\_P1\_8V\_AUX  
 TP17262 O\_P1\_8V\_AUX  
 TP17263 O\_P1\_8V\_AUX  
 TP17264 O\_P1\_8V\_AUX  
 TP17265 O\_P1\_8V\_P2\_5V\_LAN  
 TP17266 O\_P1\_8V\_P2\_5V\_LAN  
 TP17267 O\_P1\_8V\_P2\_5V\_LAN  
 TP17268 O\_P1\_8V\_P2\_5V\_LAN  
 TP17269 O\_P1\_8V\_ALW  
 TP17270 O\_P1\_8V\_ALW  
 TP17271 O\_P1\_2\_0V\_ALW  
 TP17272 O\_P1\_2\_0V\_ALW  
 TP17273 O\_P2\_5V  
 TP17274 O\_P2\_5V  
 TP17275 O\_P2\_5V  
 TP17276 O\_P2\_5V  
 TP17354 O\_P3\_3V  
 TP17358 O\_P3\_3V  
 TP17359 O\_P3\_3V  
 TP17355 O\_P3\_3V  
 TP17277 O\_P3\_3V\_AUX  
 TP17278 O\_P3\_3V\_AUX  
 TP17279 O\_P3\_3V\_AUX  
 TP17280 O\_P3\_3V\_AUX  
 TP17281 O\_P3\_3V\_MICOM  
 TP17282 O\_P3\_3V\_MICOM  
 TP17283 O\_P3\_3V\_MICOM  
 TP17284 O\_P3\_3V\_MICOM  
 TP17285 O\_P5\_0V  
 TP17286 O\_P5\_0V  
 TP17287 O\_P5\_0V  
 TP17288 O\_P5\_0V  
 TP17289 O\_P5\_0V\_ALW  
 TP17290 O\_P5\_0V\_ALW  
 TP17291 O\_P5\_0V\_ALW  
 TP17292 O\_P5\_0V\_ALW  
 TP17293 O\_P5\_0V\_ALW  
 TP17294 O\_P5\_0V\_ALW  
 TP17295 O\_P5\_0V\_ALW  
 TP17296 O\_PRTC\_BAT  
 TP17300 O\_PWR\_DC  
 TP17301 O\_PWR\_DC  
 TP17302 O\_PWR\_DC  
 TP17303 O\_PWR\_DC  
 TP17304 O\_VDD\_INV  
 TP17305 O\_VDD\_INV  
 TP17306 O\_VDD\_INV  
 TP17307 O\_VDD\_INV  
 TP17308 O\_VDD\_AMP  
 TP17309 O\_VDD\_AUD  
 TP17376 O\_GROUND  
 TP17378 O\_GROUND  
 TP17379 O\_GROUND  
 TP17380 O\_GROUND

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN TEST POINT	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-00727/8A
CHECK	GUO LEI	DEV_STEP	MP			
APPROVAL	KEVIN LEE	REV	1.1			
MODULE CODE		LAST EDIT				
			March 28, 2007 3:33:29 PM	PAGE	52 OF 54	

SAMSUNG PROPRIETARY  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

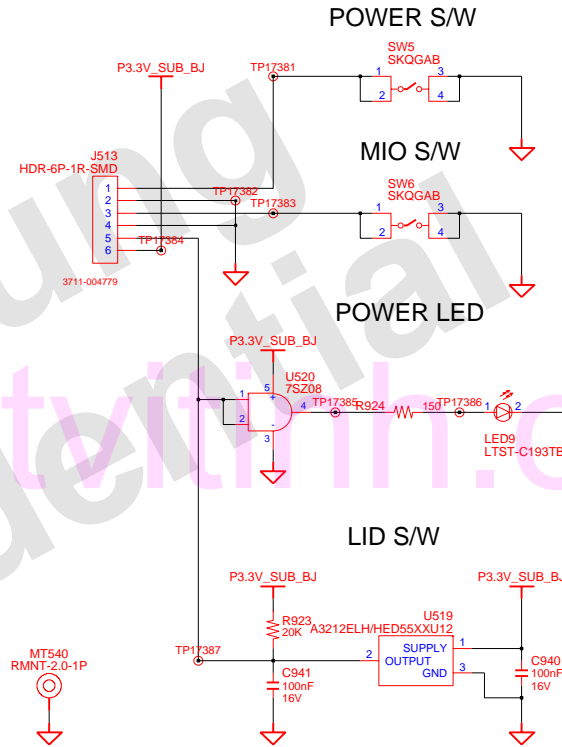
### TORINO2 ON TOP BOARD

T2\_SUB



### BEIJING ON TOP BOARD

BJ\_SUB



Drill size: 2.2mm  
 PAD size: TOP 6.0mm  
 Bottom 5.0mm

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2 MAIN ON TOP BOARD	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV. STEP	MP			PART NO. BA41-00727/8A
APPROVAL	KEVIN LEE	REV	1,1			PAGE 53 OF 54
MODULE CODE		LAST EDIT	March 28, 2007 3:33:29 PM			

**SAMSUNG PROPRIETARY**  
 THIS DOCUMENT CONTAINS CONFIDENTIAL  
 PROPRIETARY INFORMATION THAT IS  
 SAMSUNG ELECTRONICS CO'S PROPERTY.  
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS  
 EXCEPT AS AUTHORIZED BY SAMSUNG.

REVISION HISTORY

REVISION	DATE	NO.#	CONTENTS
----------	------	------	----------

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-??????

Samsung  
Confidential

www.kythuatvitinh.com

DRAW	ZHOU JUN	DATE	4/10/2007	TITLE	TORINO 2	SAMSUNG ELECTRONICS
CHECK	GUO LEI	DEV STEP	MP	MAIN		
APPROVAL	KEVIN LEE	REV	1,1	REVISION HISTORY		PART NO. BA41-00727/8A
MODULE CODE		LAST EDIT	March 28, 2007 3:33:29 PM	PAGE	54	OF 54