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Lotus-13T

CPU : Ivy Bridge ULV
Chip Set : Intel Cougar Point
GFX : INTEL HD 4000
Remarks : Chief River Platform

Model Name : Lotus-13T

PBA Name : MAIN

PCB Code : BA41-02154A (GCE)
BA41-02155A (NY)
BA41-02156A (AT&S)
BA41-02157A (UMT)

Dev. Step : PR

Revision : 1.0

T.R. Date : 2012.08.14

Design	CHECK	APPROVAL
SY KIM	SJ KIM	MK KIM

Owner : SEC Mobile R & D

Signature :

X

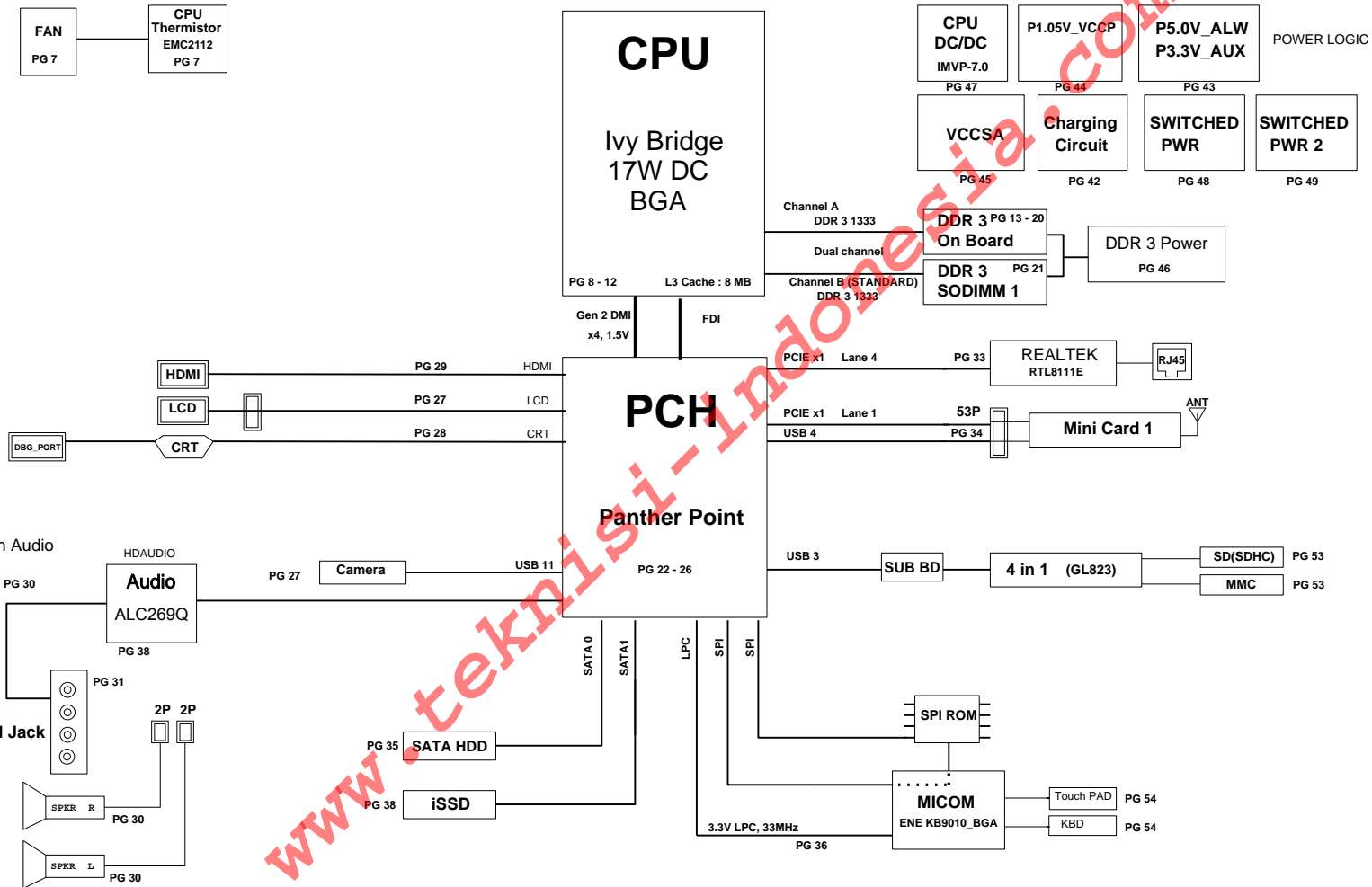
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sheet39 : USB 3.0 BRIDGE CHIP (ASM1042)
sheet40 : USB connector
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sheet42 : Power - charger
sheet43 : Power - P3.3V_AUX / P5.0V_AUX
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sheet46 : Power - DDR3
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sheet50 : Power - Power Discharge
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DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		MAIN	
APPROVAL	MK KIM	REV	1.0		COVER	
MODULE CODE		LAST EDIT	August 14, 2012 19:25:14 PM	PAGE	1	OF 54

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BLOCK DIAGRAM



DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR			PART NO. BA41-02154A
APPROVAL	MK KIM	REV	1.0			
MODULE CODE	undefined	LAST EDIT	August 14, 2012 19:25:14 PM	PAGE	2	OF 54

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BOARD INFORMATION**SCHEMATIC ANNOTATIONS AND BOARD INFORMATION**

Voltage Rails	Active in
VDC P3.3V_MICOM P5.0V_ALW P5.0V_STB	Primary DC system power supply (7 to 21V) 3.3V always power rail (for Micom) 5.0V always power rail 5.0V always power rail
P5.0V_AUX P3.3V_AUX P1.5V_AUX	5.0V switched on power rail (off in S4-S5) 3.3V switched on power rail (off in S4-S5) 1.5V power rail for DDR3 (off in S4-S5)
P5.0V P3.3V P1.8V P1.5V P0.75V P0.85V	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.8V switched power rail (off in S3-S5) 1.5V switched power rail (off in S3-S5) 0.75V power rail for DDR3 (off in S3-S5) 0.85V switched power rail (off in S3-S5)
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for COUGARPOINT

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 1	2	NC
2	Mini PCI Express (WLAN)	3	NC
3	Multi Memory Card Controller	4	LAN CONTROLLER
4	NC	5	USB3.0 BRIDGE
5	NC	6	NC
6	NC (N/A WITH HM65)	7	NC
7	NC (N/A WITH HM65)	8	NC
8	Mini PCI Express (HSPA)		
9	SYSTEM PORT 2		
10	NC		
11	Camera		
12	USIM		
13			

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	SSD
3	
4	
5	

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	COUGAR POINT	Real Time Clock
Crystal	25MHz	LAN	REALTEK
Crystal	25MHz	COUGAR POINT	
Crystal	27MHz	N12P	
Crystal	24MHz	USB3.0 CHIP	

LCD Pannel Detect (TBD)

Devices	Resolution	PANNEL_DETECT_0
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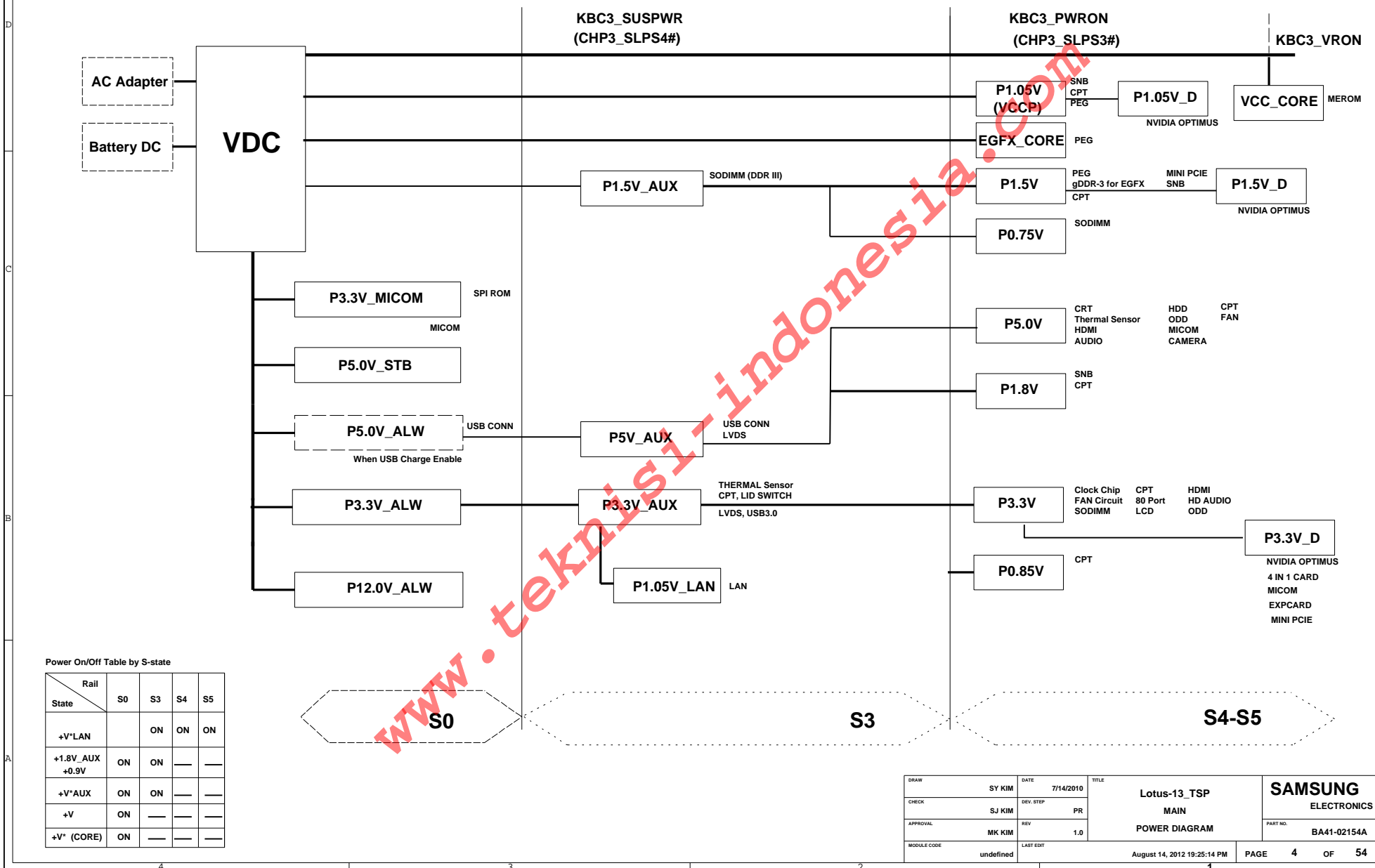
I²C / SMB Address

Devices	Address	Hex	Bus
COUGARPOINT	Master	-	SMBUS Master
CPU Thermal Sensor	0011 000X	30h	-
SODIMM0	1010 000x	A0h	-
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-
on board DDR3 thermal Sensor	1001 100x	98h	-
Platform thermal management TS	1001 011x	96h	-

DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP MAIN BOARD INFO	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0			
MODULE CODE	undefined	LAST EDIT	August 14, 2012 19:25:14 PM			
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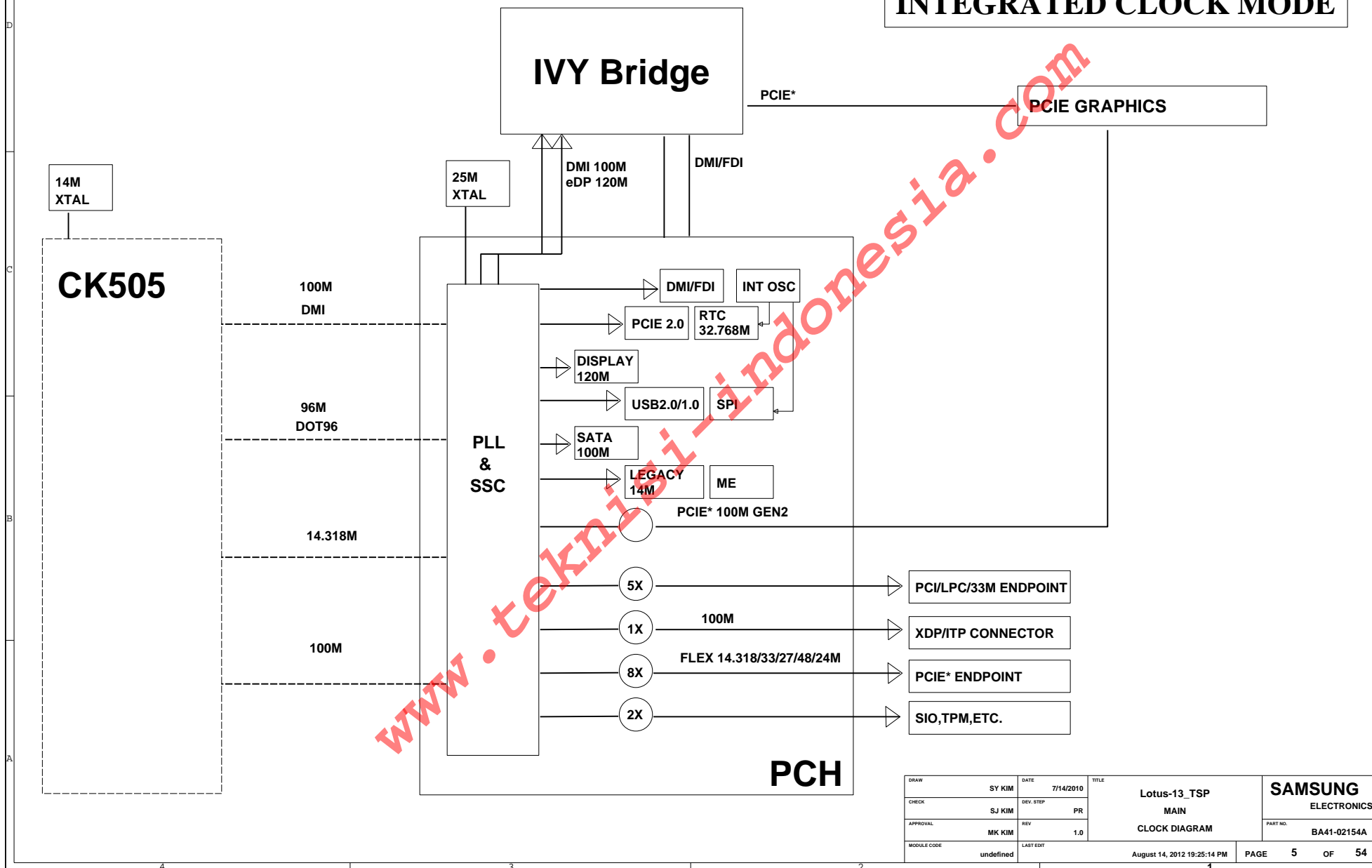
POWER DIAGRAM

Rev 0.7



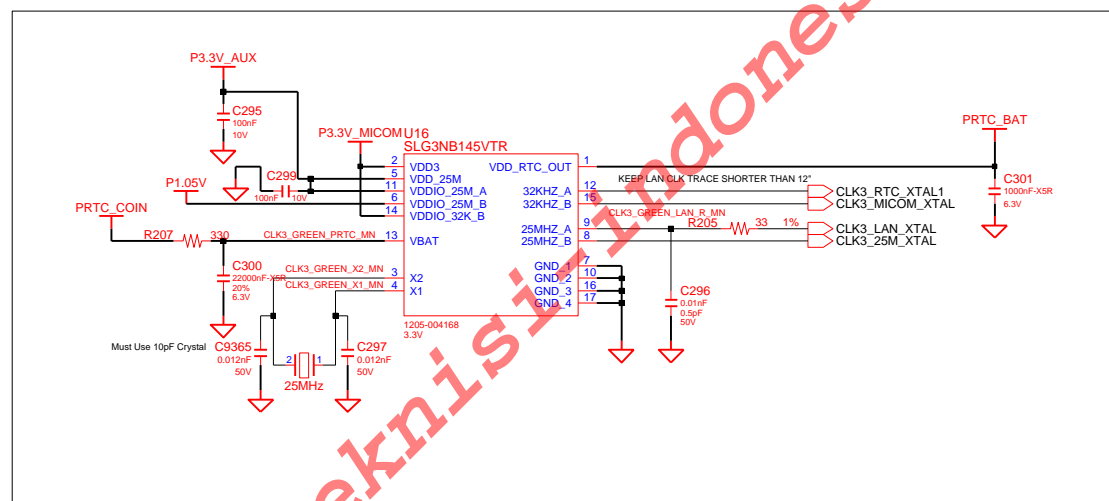
CLOCK DISTRIBUTION Rev. 1.0

INTEGRATED CLOCK MODE



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CLOCK DISTRIBUTOR

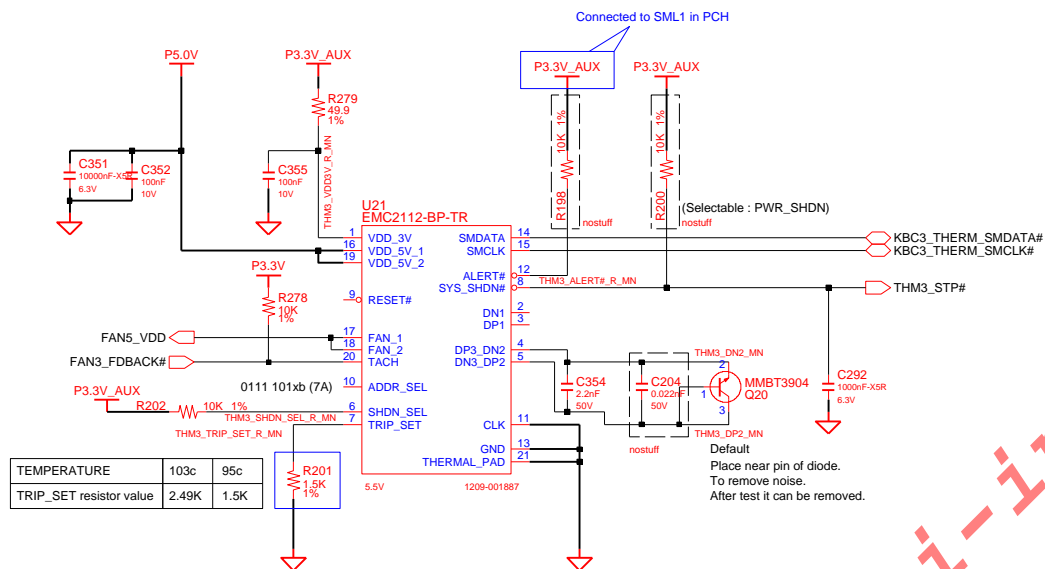
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK

DESIGN	SY KIM	DATE	1/03/2011	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR	CLOCK		
APPROVAL	MK KIM	REV	1.0	CLOCK DISTRIBUTION	PART NO. BA41-02154A	
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE	6 OF 54

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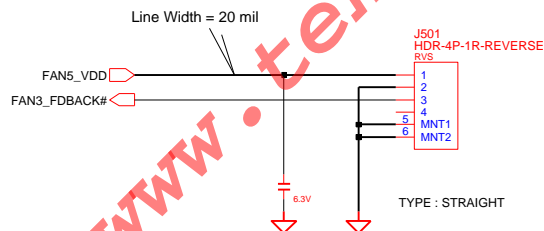
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THERMAL SENSOR & FAN CONTROL



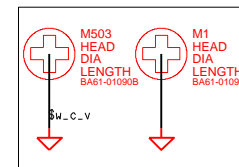
TEMPERATURE	103c	95c
TRIP_SET resistor value	2.49K	1.5K

FAN PEM



ADDRESSSEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

SHDN_SEL MODE	
✓ 1	AMD CPU/DIODE MODE EXT.DIODE 2 MODE

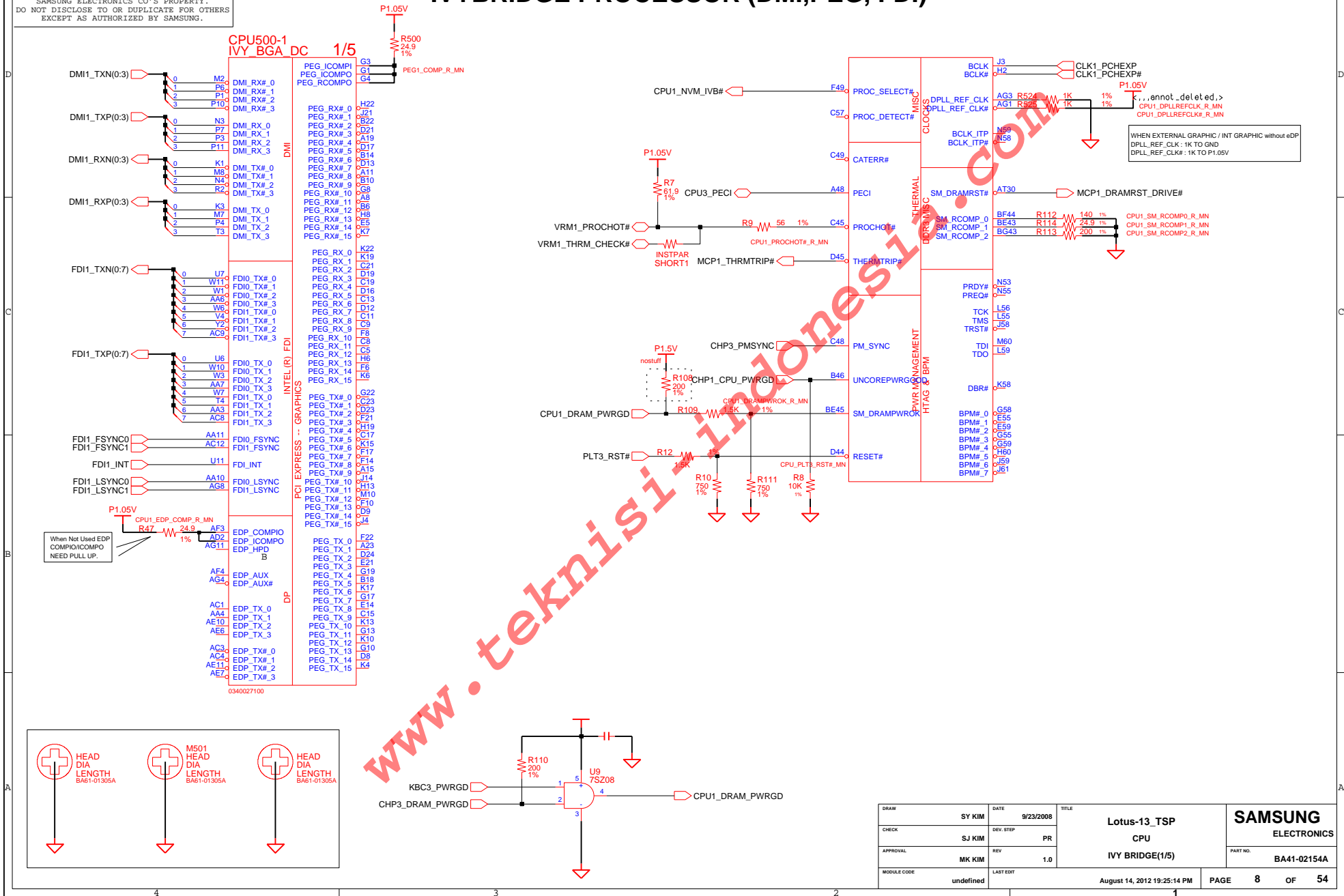


DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG
CHECK	SJ KIM	DEV. STEP	PR		THERMAL SENSOR	ELECTRONICS
APPROVAL	MK KIM	REV	1.0		THERMAL SENSOR EMC2112	PART NO. BA41-02154A
MODULE CODE	LAST EDIT		August 14, 2012 19:25:14 PM		PAGE	7 OF 54

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IVYBRIDGE PROCESSOR (DMI,PEG, FDI)



DRAW	SY KIM	DATE	9/23/2008	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS
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APPROVAL	MK KIM	REV	1.0		IVY BRIDGE(1/5)	
MODULE CODE	undefined	LAST EDIT	August 14, 2012 19:25:14 PM	PAGE	8	OF 54

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MEM1_ADQ(63:0) 19-D4

CPU500-2
 IVY BGA DC 2/5

0 AG6 SA_DQ_0
 1 AJ6 SA_DQ_1
 2 AP11 SA_DQ_2
 3 AL6 SA_DQ_3
 4 AJ10 SA_DQ_4
 5 AJ8 SA_DQ_5
 6 AL8 SA_DQ_6
 7 AL7 SA_DQ_7
 8 AR11 SA_DQ_8
 9 AP6 SA_DQ_9
 10 AU6 SA_DQ_10
 11 AV9 SA_DQ_11
 12 AR6 SA_DQ_12
 13 AP8 SA_DQ_13
 14 AT13 SA_DQ_14
 15 AU13 SA_DQ_15
 16 BC7 SA_DQ_16
 17 BB7 SA_DQ_17
 18 BA13 SA_DQ_18
 19 BB11 SA_DQ_19
 20 BA7 SA_DQ_20
 21 BA9 SA_DQ_21
 22 BB9 SA_DQ_22
 23 AV13 SA_DQ_23
 24 AV14 SA_DQ_24
 25 AR14 SA_DQ_25
 26 AY17 SA_DQ_26
 27 AR19 SA_DQ_27
 28 BA14 SA_DQ_28
 29 AU14 SA_DQ_29
 30 BB14 SA_DQ_30
 31 BB17 SA_DQ_31
 32 BA45 SA_DQ_32
 33 AR43 SA_DQ_33
 34 AW48 SA_DQ_34
 35 BC48 SA_DQ_35
 36 BC45 SA_DQ_36
 37 AR45 SA_DQ_37
 38 AT48 SA_DQ_38
 39 AY48 SA_DQ_39
 40 BA49 SA_DQ_40
 41 AY49 SA_DQ_41
 42 BB51 SA_DQ_42
 43 AY53 SA_DQ_43
 44 BB49 SA_DQ_44
 45 AU49 SA_DQ_45
 46 BA53 SA_DQ_46
 47 BB55 SA_DQ_47
 48 BA55 SA_DQ_48
 49 AV56 SA_DQ_49
 50 AP50 SA_DQ_50
 51 AP53 SA_DQ_51
 52 AV54 SA_DQ_52
 53 AT54 SA_DQ_53
 54 AP56 SA_DQ_54
 55 AP52 SA_DQ_55
 56 AN57 SA_DQ_56
 57 AN53 SA_DQ_57
 58 AG56 SA_DQ_58
 59 AG53 SA_DQ_59
 60 AN55 SA_DQ_60
 61 AN52 SA_DQ_61
 62 AG55 SA_DQ_62
 63 AK56 SA_DQ_63

SA_CLK_0
 SA_CLK#_0
 SA_CKE_0
 SA_CLK_1
 SA_CLK#_1
 SA_CKE_1
 SA_CS#_0
 SA_CS#_1
 SA_ODT_0
 SA_ODT_1
 SA_DQS#_0
 SA_DQS#_1
 SA_DQS#_2
 SA_DQS#_3
 SA_DQS#_4
 SA_DQS#_5
 SA_DQS#_6
 SA_DQS#_7
 SA_DQS_54
 SA_MA_0
 SA_MA_1
 SA_MA_2
 SA_MA_3
 SA_MA_4
 SA_MA_5
 SA_MA_6
 SA_MA_7
 SA_MA_8
 SA_MA_9
 SA_MA_10
 SA_MA_11
 SA_MA_12
 SA_MA_13
 SA_MA_14
 SA_MA_15

CLK1_A_MCLK0
 CLK1_A_MCLK0#
 MEM1_A_CKE0
 CLK1_A_MCLK1
 CLK1_A_MCLK1#
 MEM1_A_CKE1
 MEM1_A_CS0#
 MEM1_A_CS1#
 MEM1_A_ODT0
 MEM1_A_ODT1
 MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_CS0#
 MEM1_CS1#
 MEM1_ODT0
 MEM1_ODT1
 MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_A_ODT0
 MEM1_A_ODT1
 MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_ADQS#(7:0)
 MEM1_ADQS(7:0)
 MEM1_AMA(14:0)

MEM1_ABS(2:0) 18-C4

MEM1_ACAS# 18-B4
 MEM1_ARAS# 18-B4
 MEM1_AWE# 18-B4

MEM1_BDQ(63:0) 19-D4

0 AL4 SB_DQ_0
 1 AL1 SB_DQ_1
 2 AN3 SB_DQ_2
 3 AR4 SB_DQ_3
 4 AK4 SB_DQ_4
 5 AK3 SB_DQ_5
 6 AN4 SB_DQ_6
 7 AR1 SB_DQ_7
 8 AU4 SB_DQ_8
 9 AT2 SB_DQ_9
 10 AV4 SB_DQ_10
 11 BA4 SB_DQ_11
 12 AU3 SB_DQ_12
 13 AR9 SB_DQ_13
 14 AY2 SB_DQ_14
 15 BA3 SB_DQ_15
 16 BE9 SB_DQ_16
 17 BD9 SB_DQ_17
 18 BD13 SB_DQ_18
 19 BF12 SB_DQ_19
 20 BF8 SB_DQ_20
 21 BD10 SB_DQ_21
 22 BD14 SB_DQ_22
 23 BE13 SB_DQ_23
 24 BF16 SB_DQ_24
 25 BE17 SB_DQ_25
 26 BE18 SB_DQ_26
 27 BE14 SB_DQ_27
 28 BG14 SB_DQ_28
 29 BD29 SB_DQ_29
 30 BG18 SB_DQ_30
 31 BF19 SB_DQ_31
 32 BD50 SB_DQ_32
 33 BF48 SB_DQ_33
 34 BD63 SB_DQ_34
 35 BF62 SB_DQ_35
 36 BD49 SB_DQ_36
 37 BE49 SB_DQ_37
 38 BD54 SB_DQ_38
 39 BE63 SB_DQ_39
 40 BF66 SB_DQ_40
 41 BE67 SB_DQ_41
 42 BC69 SB_DQ_42
 43 AY60 SB_DQ_43
 44 BE54 SB_DQ_44
 45 BG54 SB_DQ_45
 46 BA58 SB_DQ_46
 47 AW59 SB_DQ_47
 48 AW58 SB_DQ_48
 49 AU58 SB_DQ_49
 50 AN61 SB_DQ_50
 51 AN59 SB_DQ_51
 52 AU59 SB_DQ_52
 53 AU61 SB_DQ_53
 54 AN58 SB_DQ_54
 55 AR58 SB_DQ_55
 56 SB_DQ_56
 57 AL58 SB_DQ_57
 58 SB_DQ_58
 59 AG59 SB_DQ_59
 60 AM60 SB_DQ_60
 61 AT59 SB_DQ_61
 62 AF61 SB_DQ_62
 63 AH60 SB_DQ_63

SB_CLK_0
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 SB_CKE_0
 SB_CLK_1
 SB_CLK#_1
 SB_CKE_1
 SB_CS#_0
 SB_CS#_1
 SB_ODT_0
 SB_ODT_1
 SB_DQS#_0
 SB_DQS#_1
 SB_DQS#_2
 SB_DQS#_3
 SB_DQS#_4
 SB_DQS#_5
 SB_DQS#_6
 SB_DQS#_7
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 SB_MA_1
 SB_MA_2
 SB_MA_3
 SB_MA_4
 SB_MA_5
 SB_MA_6
 SB_MA_7
 SB_MA_8
 SB_MA_9
 SB_MA_10
 SB_MA_11
 SB_MA_12
 SB_MA_13
 SB_MA_15

CLK1_B_MCLK0
 CLK1_B_MCLK0#
 MEM1_B_CKE0
 CLK1_B_MCLK1
 CLK1_B_MCLK1#
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 MEM1_B_CS0#
 MEM1_B_CS1#
 MEM1_B_ODT0
 MEM1_B_ODT1
 MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_B_CS0#
 MEM1_B_CS1#
 MEM1_B_ODT0
 MEM1_B_ODT1
 MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_B_ODT0
 MEM1_B_ODT1
 MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_BDQS#(7:0)
 MEM1_BDQS(7:0)
 MEM1_BMA(15:0)

MEM1_BBS(2:0) 19-C4

MEM1_BCAS# 19-A4
 MEM1_BRAS# 19-B4
 MEM1_BWE# 19-B4

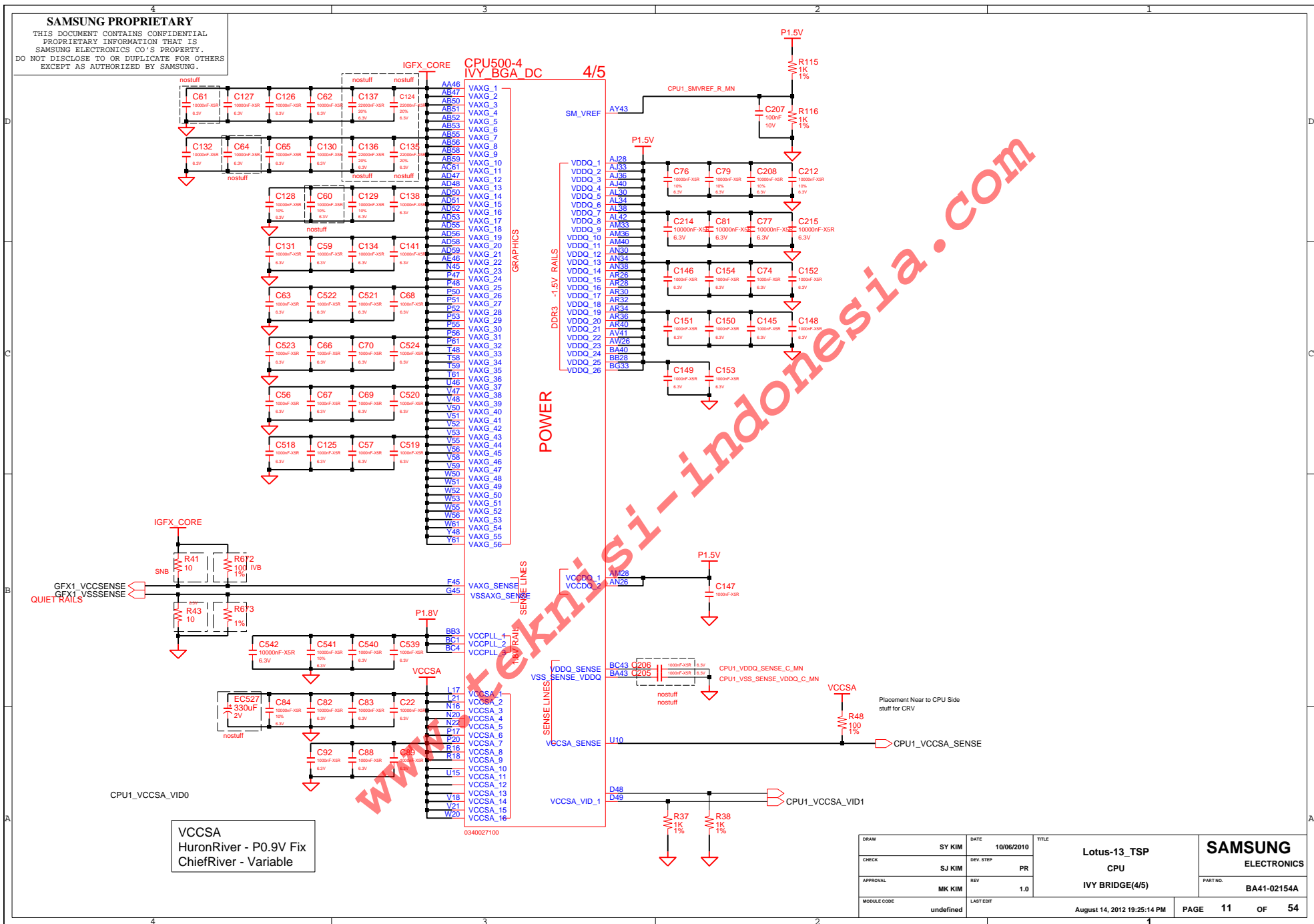
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CHECK	SJ KIM	DEV. STEP	PR		CPU	
APPROVAL	MK KIM	REV	1.0		IVY BRIDGE(2/5)	
MODULE CODE	undefined	LAST EDIT	August 14, 2012 19:25:14 PM	PAGE	9 OF 54	

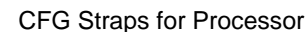
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DESIGN	SY KIM	DATE	6/26/2009	TITLE Lotus-13_TSP CPU IVY BRIDGE(3/5)	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR		
APPROVAL	MK KIM	REV	1.0		
MODULE CODE	LAST EDIT			August 14, 2012 19:25:14 PM	PART NO. BA41-02154A
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PCI Express Static Lane Reversal	
CFG2	1 : Normal operation 0 : Lane Reversed

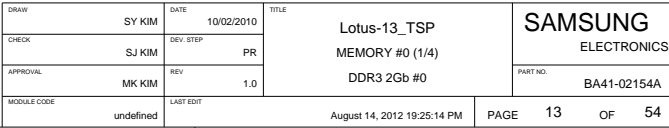
PCIE PORT BIFURCATION	
00	1 x 8, 2 x 4 PCI Express
10	2 x 8 PCI Express
11	1 x 16 PCI Express

PEG DEFER TRAINING	
CFG7	1 : (DEFAULT) PEG TRAIN IMMEDIATELY FOLLOWING XXRESETB DEASEERTION 0 : PCIE 2.0 PEG WAIT FOR BIOS FOR TRAINING

Display Port Presence	
CFG4	1 : Disabled - No DP device is connected to eDP - (DP device is connected to eDP

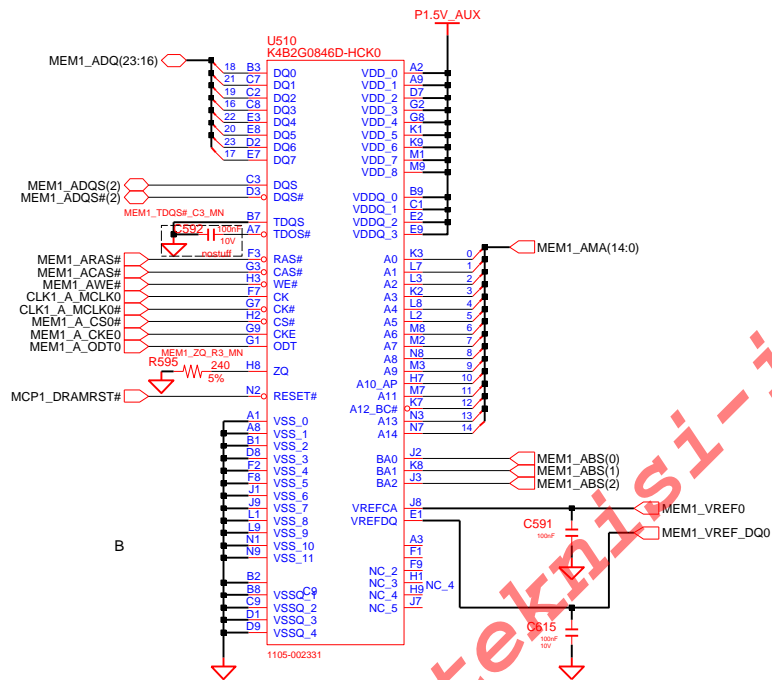
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CHECK	SJ KIM	DEV. STEP	PR		
APPROVAL	MK KIM	REV	1.0		
MODULE CODE		LAST EDIT			
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DDR3 on board #0 (1/4)

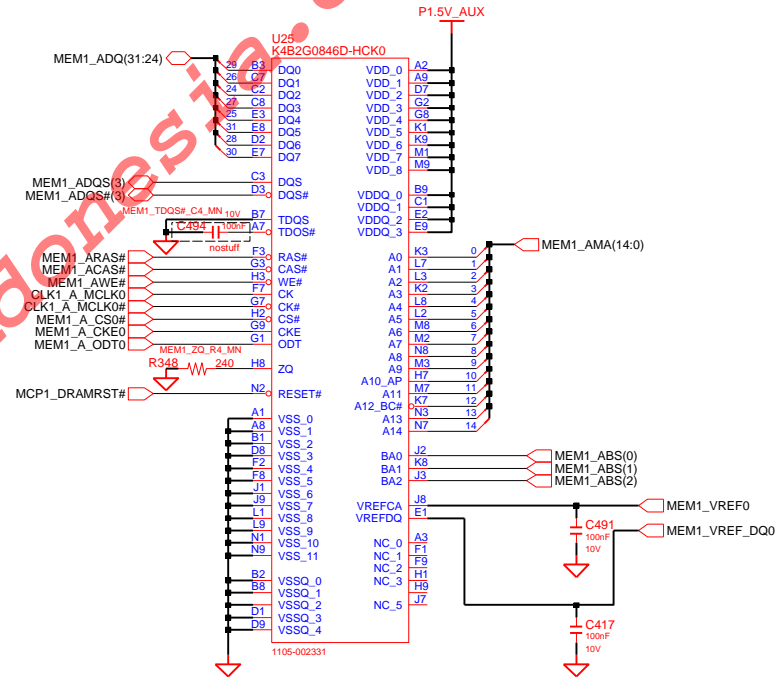


DDR3 on board #0 (2/4)

1 RANK



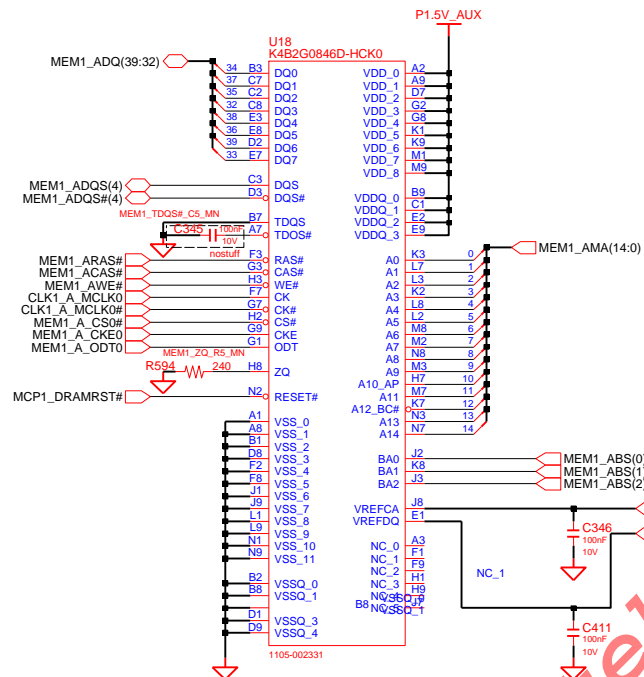
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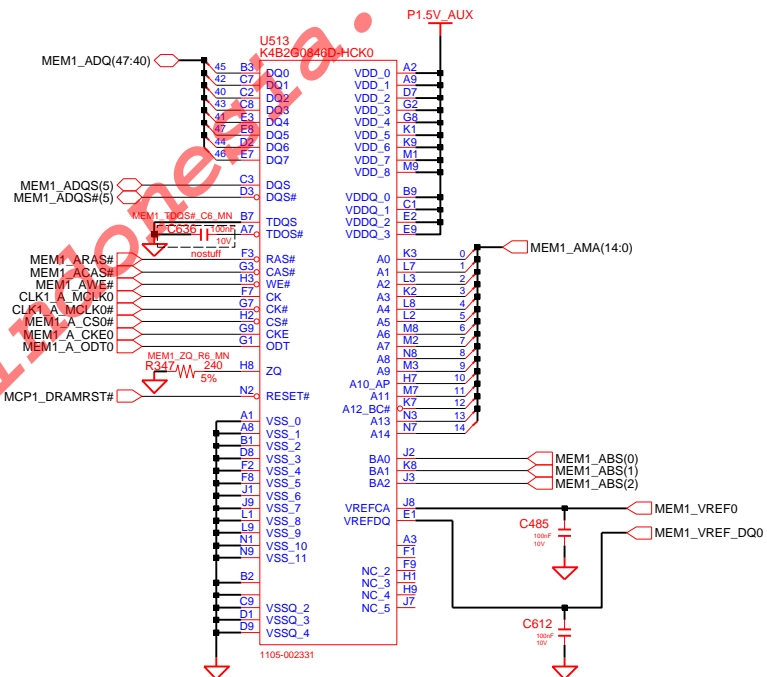
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CHECK	SJ KIM	DEV. STEP	PR		MEMORY #0 (2/4)	
APPROVAL	MK KIM	REV	1.0		DDR3 2Gb #0	
MODULE CODE	undefined	LAST ENT				
August 14, 2012 19:25:14 PM						PAGE 14 OF 54

DDR3 on board #0 (3/4)

1 RANK



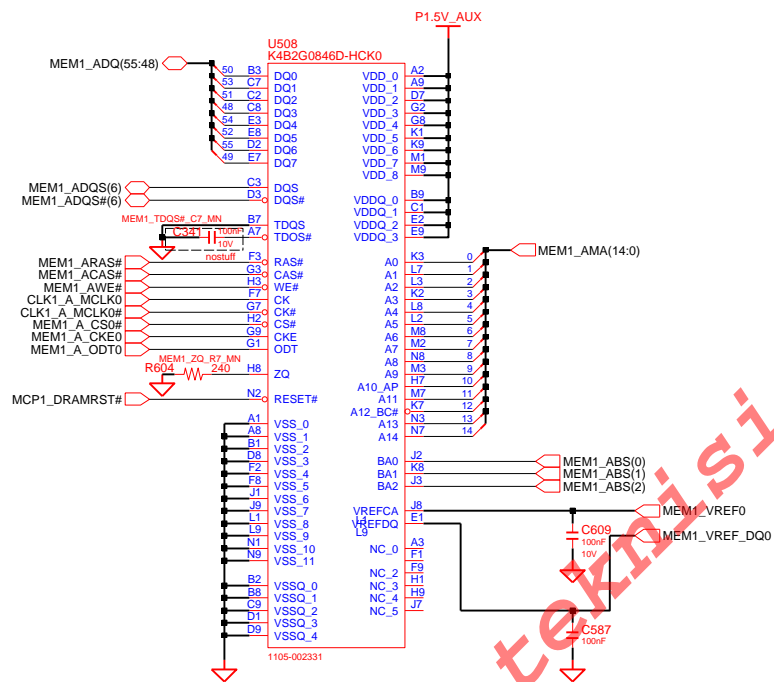
1 RANK



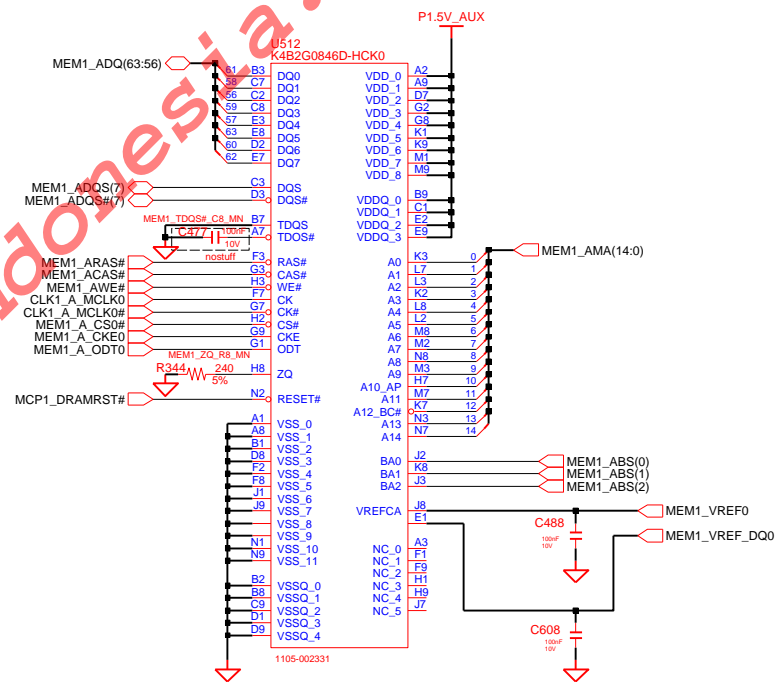
DRAW	SY KIM	DATE	10/02/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		MEMORY #0 (3/4)	
APPROVAL	MK KIM	REV	1.0		DDR3 2Gb #0	
MODULE CODE	undefined	LAST ENT				

DDR3 on board #0 (4/4)

1 RANK



1 RANK

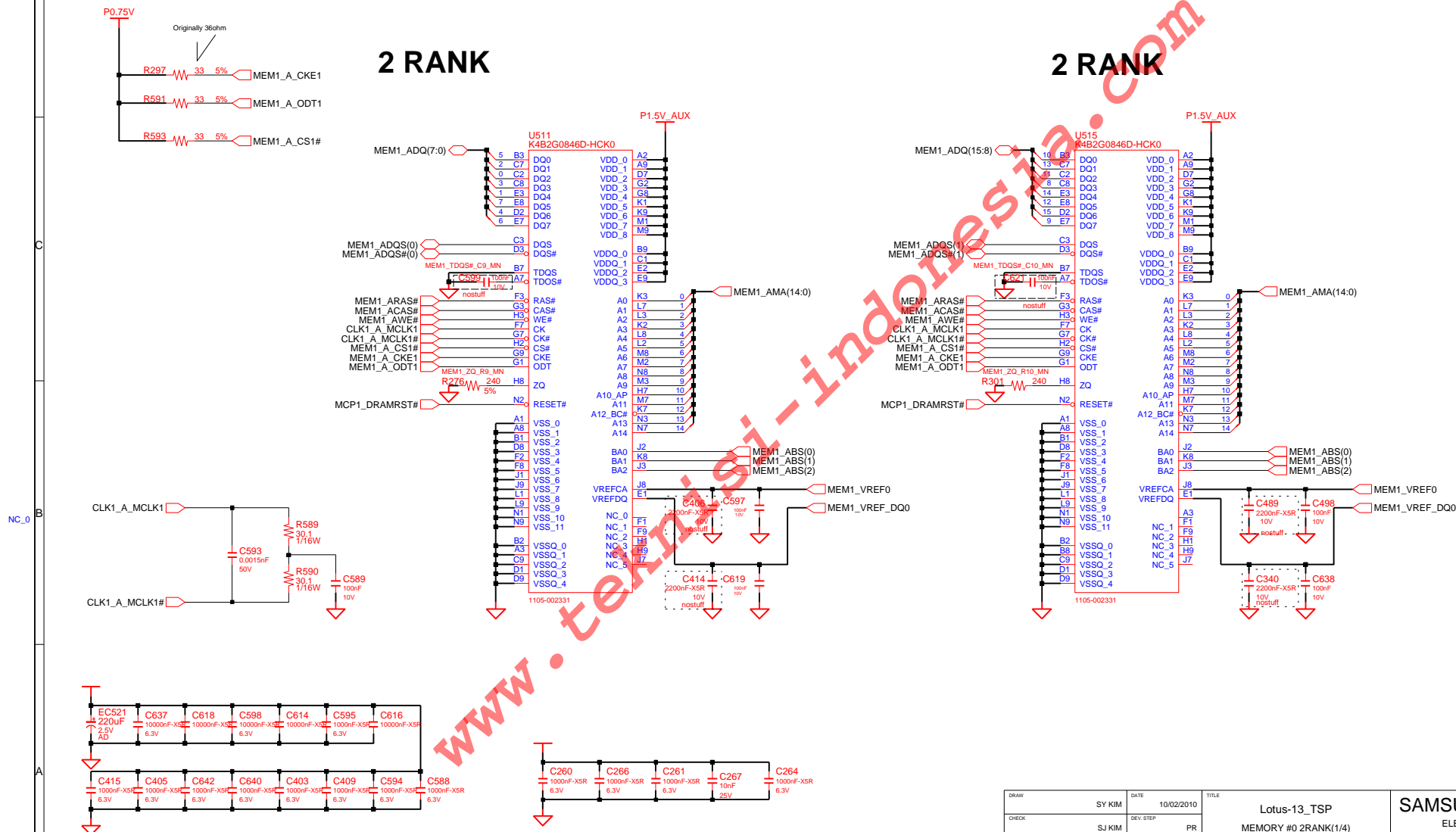


DRAW	SY KIM	DATE	10/02/2010	TITLE	Lotus-13_TSP	SAMSUNG
CHECK	SJ KIM	DEV. STEP	PR		MEMORY #0 (4/4)	ELECTRONICS
APPROVAL	MK KIM	REV	1.0		DDR3 2Gb #0	PART NO.
MODULE CODE	undefined	LAST ENT				BA41-02154A
				August 14, 2012 19:25:14 PM	PAGE	16 OF 54

DDR3 on board #0 (1/4)

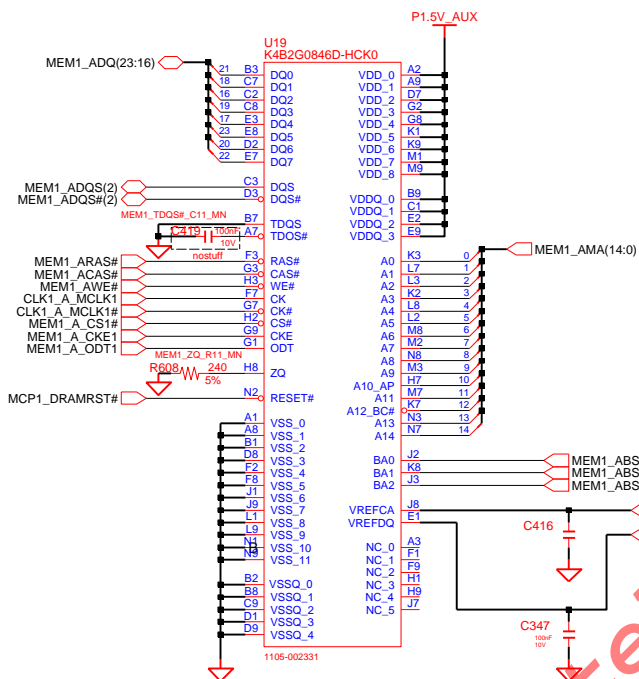
2 RANK

2 RANK

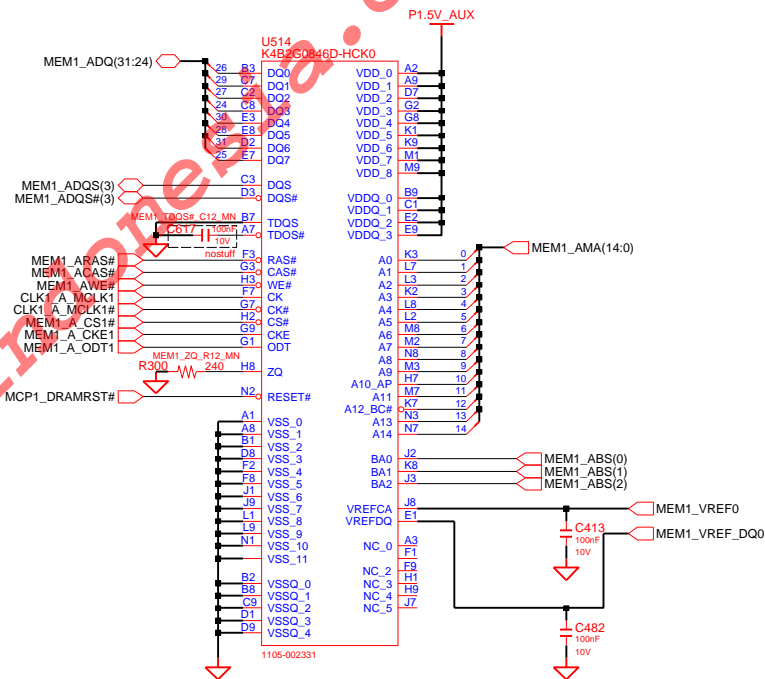


DRAW	SY KIM	DATE	10/02/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		MEMORY #0 2RANK(1/4)	
APPROVAL	MK KIM	REV	1.0		DDR3 2Gb #0	
MODULE CODE	undefined	LAST ENT				
August 14, 2012 19:25:14 PM						PAGE 17 OF 54

2 RANK

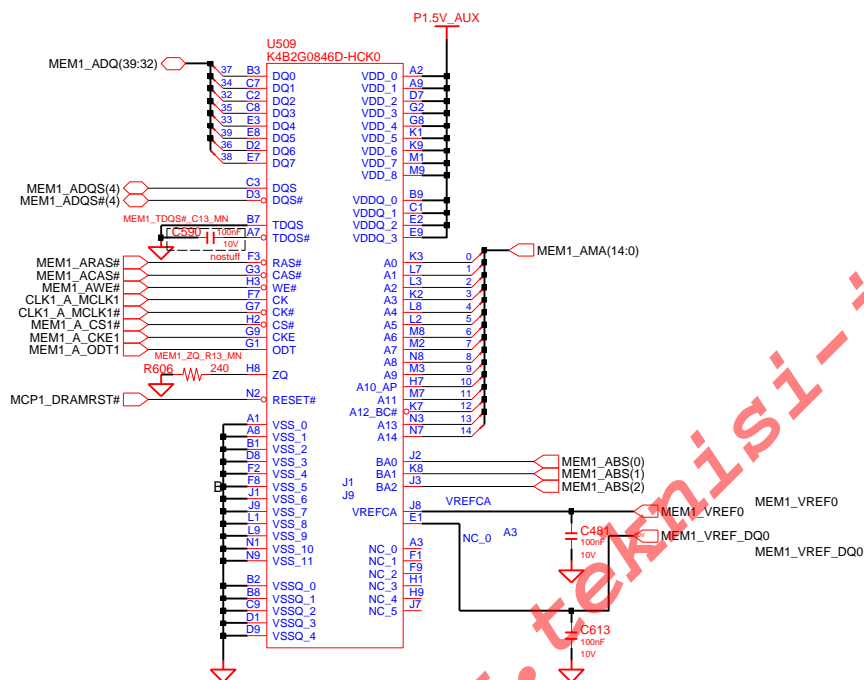


2 RANK

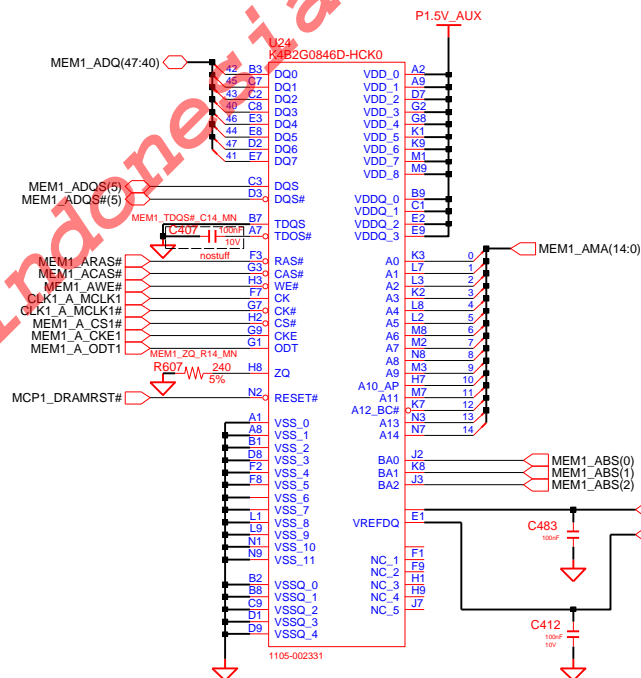



DRAW	SY KIM	DATE	10/02/2010	TITLE Lotus-13_TSP MEMORY #0 2RANK(2/4) DDR3 2Gb #0	SAMSUNG ELECTRONICS	
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0		PART NO.	BA41-02154A
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE 18	OF 54

2 RANK



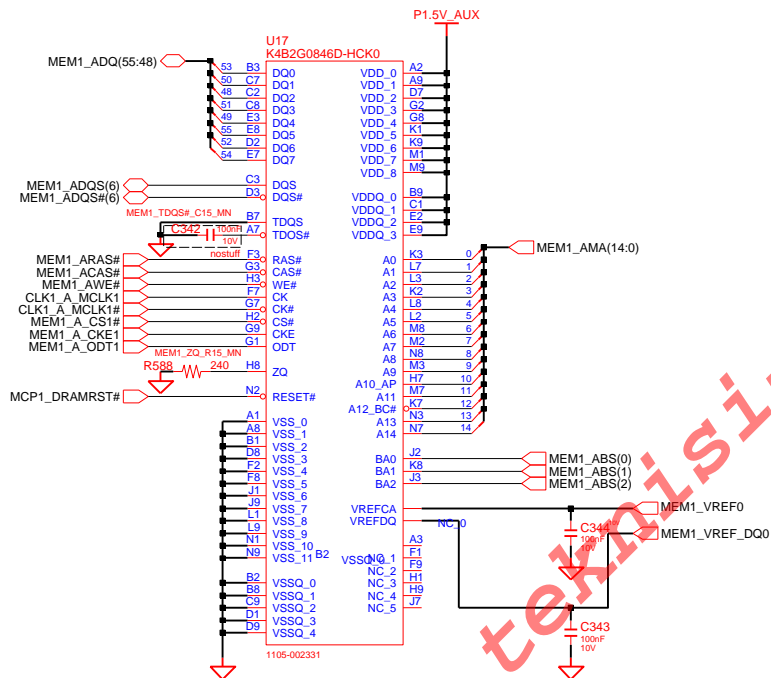
2 RANK



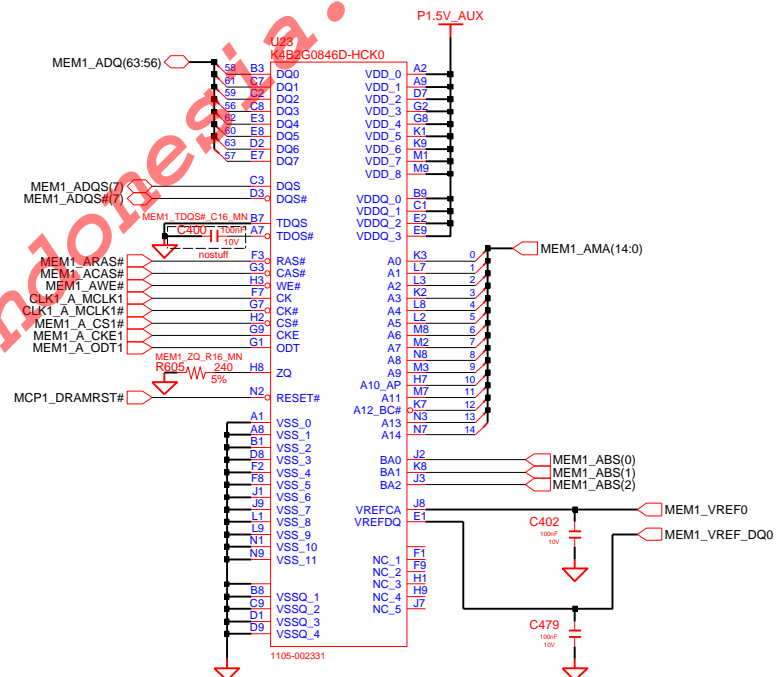
DRAWN	SY KIM	DATE	10/02/2010	TITLE Lotus-13_TSP MEMORY #0 2RANK(3/4) DDR3 2Gb #0	
CHECK	SJ KIM	DEV. STEP	PR		
APPROVAL	MK KIM	REV	1.0		
MODULE CODE	undefined	LAST EDIT			

DDR3 on board #0 (4/4)

2 RANK

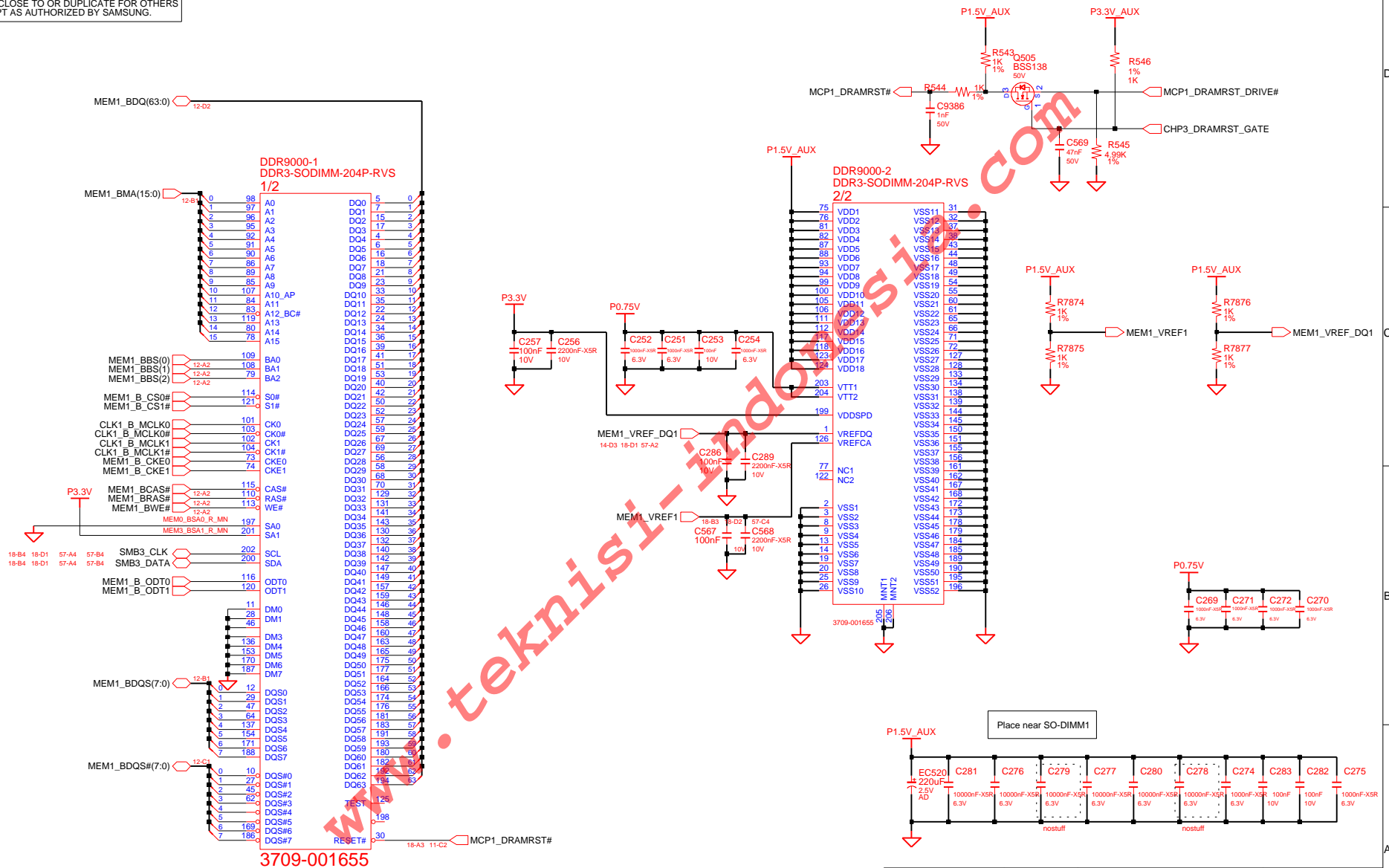


2 RANK



DRAW	SY KIM	DATE	10/02/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR		MEMORY #0 2 RANK(4/4)	
APPROVAL	MK KIM	REV	1.0		DDR3 2Gb #0	
MODULE CODE	undefined	LAST ENT				
August 14, 2012 19:25:14 PM						PAGE 20 OF 54

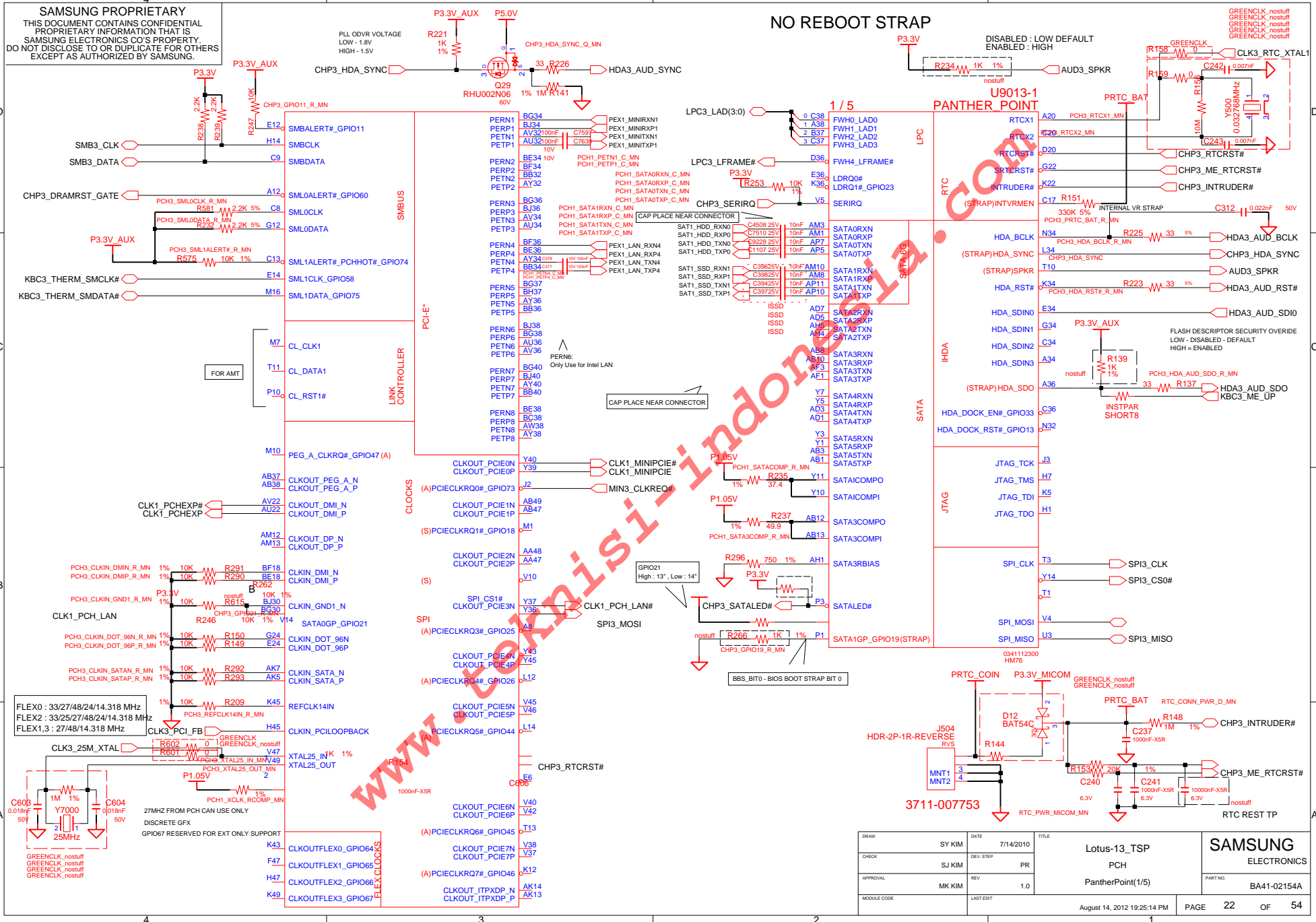
DDR3 SO-DIMM #1



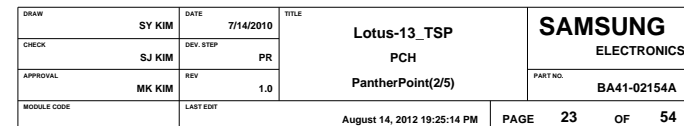
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CHECK	SJ KIM	DEV. STEP	PR		SODIMM A	
APPROVAL	MK KIM	REV	1.0		DDR3 SODIMM #1	
MODULE CODE	undefined	LAST ENT				
August 14, 2012 19:25:14 PM						PAGE 21 OF 54

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NO REBOOT STRAP



DRAW	SY KIM	DATE	7/14/2010	Lotus-13_TSP PCH PantherPoint (1/5)	SAMSUNG ELECTRONICS	
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0		PART NO.	BA41-02154A
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE	22 OF 54
				1		



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U9013-4 PANTHER POINT

4 / 5

PI Request (2010.10.20)

VCCIO_29

VCCIO_30

VCCIO_31

VCCIO_32

VCCIO_33

VCCIO_34

VCCIO_35

VCCIO_36

VCCIO_37

VCCIO_38

VCCIO_39

VCCIO_40

VCCIO_41

VCCIO_42

VCCIO_43

VCCIO_44

VCCIO_45

VCCIO_46

VCCIO_47

VCCIO_48

VCCIO_49

VCCIO_50

VCCIO_51

VCCIO_52

VCCIO_53

VCCIO_54

VCCIO_55

VCCIO_56

VCCIO_57

VCCIO_58

VCCIO_59

VCCIO_60

VCCIO_61

VCCIO_62

VCCIO_63

VCCIO_64

VCCIO_65

VCCIO_66

VCCIO_67

VCCIO_68

VCCIO_69

VCCIO_70

VCCIO_71

VCCIO_72

VCCIO_73

VCCIO_74

VCCIO_75

VCCIO_76

VCCIO_77

VCCIO_78

VCCIO_79

VCCIO_80

VCCIO_81

VCCIO_82

VCCIO_83

VCCIO_84

VCCIO_85

VCCIO_86

VCCIO_87

VCCIO_88

VCCIO_89

VCCIO_90

VCCIO_91

VCCIO_92

VCCIO_93

VCCIO_94

VCCIO_95

VCCIO_96

VCCIO_97

VCCIO_98

VCCIO_99

VCCIO_100

VCCIO_101

VCCIO_102

VCCIO_103

VCCIO_104

VCCIO_105

VCCIO_106

VCCIO_107

VCCIO_108

VCCIO_109

VCCIO_110

VCCIO_111

VCCIO_112

VCCIO_113

VCCIO_114

VCCIO_115

VCCIO_116

VCCIO_117

VCCIO_118

VCCIO_119

VCCIO_120

VCCIO_121

VCCIO_122

VCCIO_123

VCCIO_124

VCCIO_125

VCCIO_126

VCCIO_127

VCCIO_128

VCCIO_129

VCCIO_130

VCCIO_131

VCCIO_132

VCCIO_133

VCCIO_134

VCCIO_135

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VCCIO_137

VCCIO_138

VCCIO_139

VCCIO_140

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VCCIO_146

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VCCIO_150

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VCCIO_152

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VCCIO_154

VCCIO_155

VCCIO_156

VCCIO_157

VCCIO_158

VCCIO_159

VCCIO_160

VCCIO_161

VCCIO_162

VCCIO_163

VCCIO_164

VCCIO_165

VCCIO_166

VCCIO_167

VCCIO_168

VCCIO_169

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VCCIO_173

VCCIO_174

VCCIO_175

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VCCIO_179

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VCCIO_187

VCCIO_188

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VCCIO_198

VCCIO_199

VCCIO_200

VCCIO_201

VCCIO_202

VCCIO_203

VCCIO_204

VCCIO_205

VCCIO_206

VCCIO_207

VCCIO_208

VCCIO_209

VCCIO_210

VCCIO_211

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VCCIO_213

VCCIO_214

VCCIO_215

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VCCIO_233

VCCIO_234

VCCIO_235

VCCIO_236

VCCIO_237

VCCIO_238

VCCIO_239

VCCIO_240

VCCIO_241

VCCIO_242

VCCIO_243

VCCIO_244

VCCIO_245

VCCIO_246

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VCCIO_248

VCCIO_249

VCCIO_250

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VCCIO_252

VCCIO_253

VCCIO_254

VCCIO_255

VCCIO_256

VCCIO_257

VCCIO_258

VCCIO_259

VCCIO_260

VCCIO_261

VCCIO_262

VCCIO_263

VCCIO_264

VCCIO_265

VCCIO_266

VCCIO_267

VCCIO_268

VCCIO_269

VCCIO_270

VCCIO_271

VCCIO_272

VCCIO_273

VCCIO_274

VCCIO_275

VCCIO_276

VCCIO_277

VCCIO_278

VCCIO_279

VCCIO_280

VCCIO_281

VCCIO_282

VCCIO_283

VCCIO_284

VCCIO_285

VCCIO_286

VCCIO_287

VCCIO_288

VCCIO_289

VCCIO_290

VCCIO_291

VCCIO_292

VCCIO_293

VCCIO_294

VCCIO_295

VCCIO_296

VCCIO_297

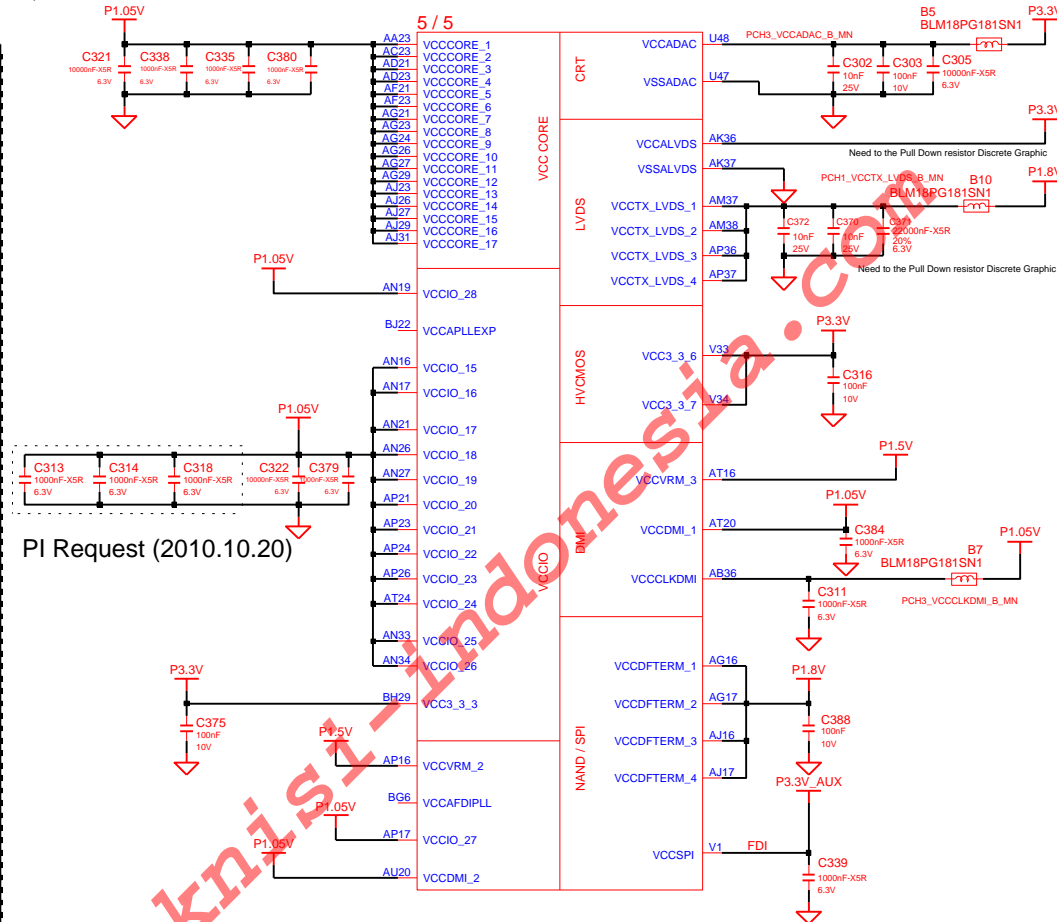
VCCIO_298

VCCIO_299

VCCIO_300

VCCIO_301

This power share with thermal sensor



PI Request (2010.10.20)

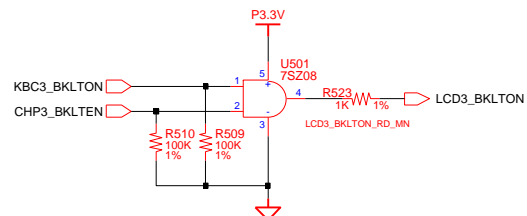
DRAW	SY KIM	DATE	7/14/2010	Lotus-13_TSP PCH Cougarpoint(5/5)	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV_STEP	PR		
APPROVAL	MK KIM	REV	1.0		
MODULE CODE	undefined	LAST EDIT August 14, 2012 19:25:14 PM			PAGE 26 OF 54

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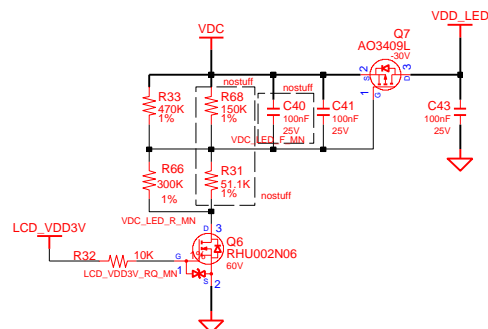
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LVDS LOGIC

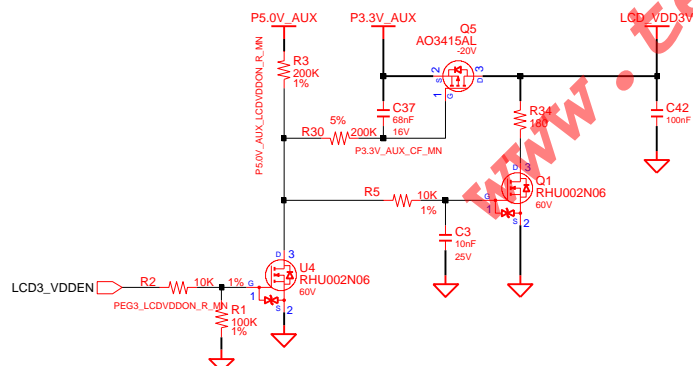
Backlight On



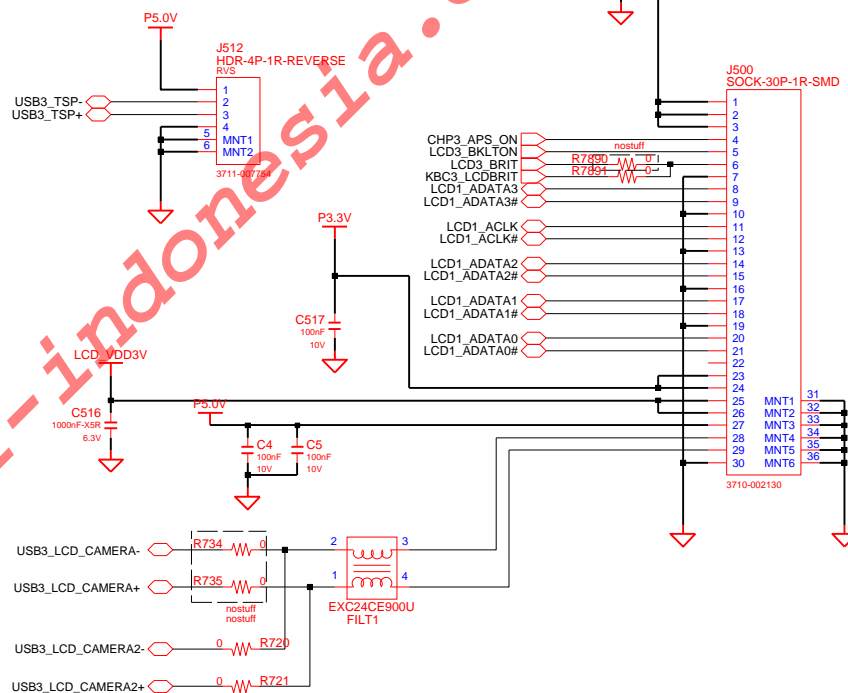
LED Power



LCD Power



TSP connector

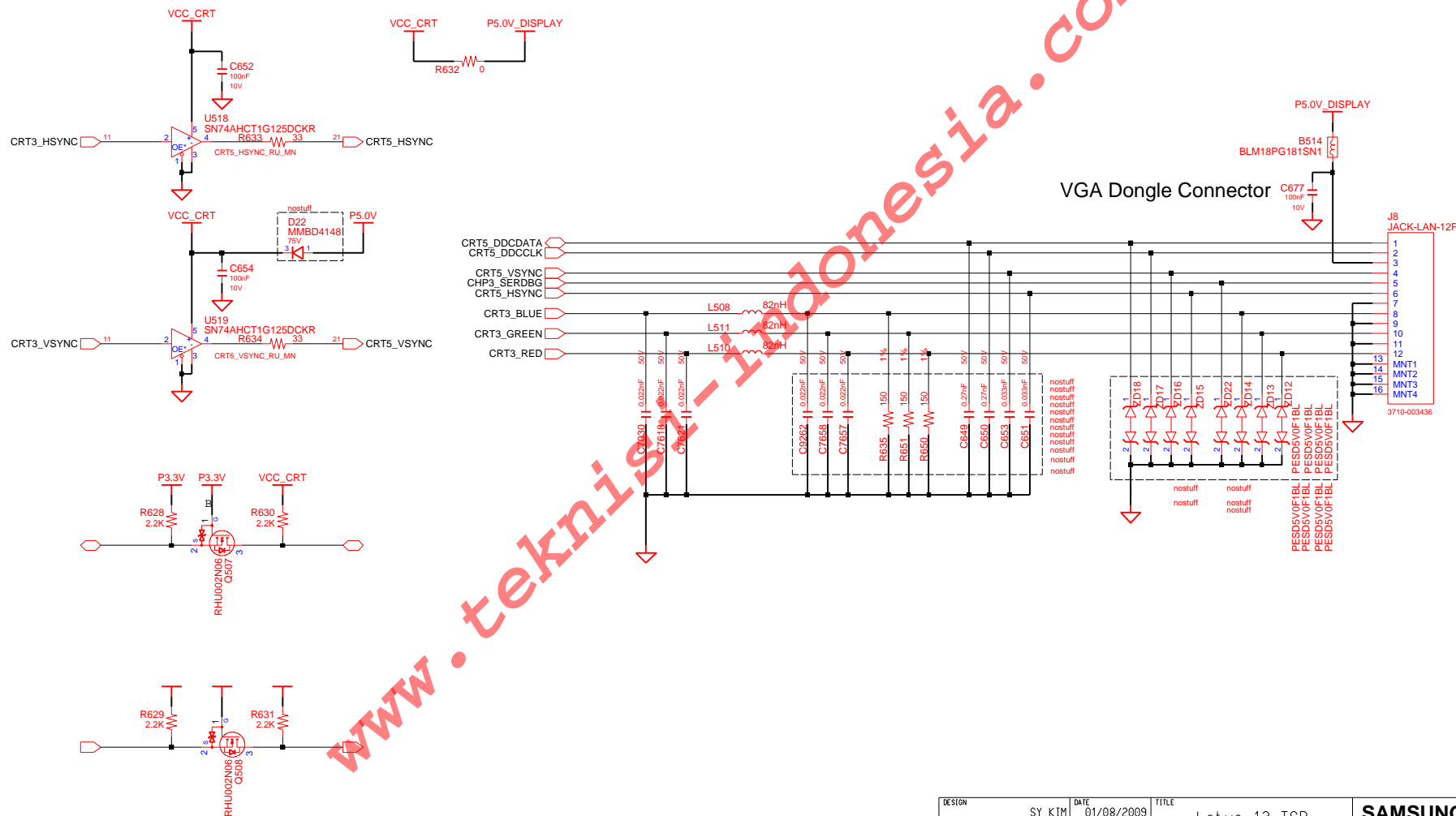


DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		GRAPHICS_IF	
APPROVAL	MK KIM	REV	1.0		LVDS	
MODULE CODE		LAST EDIT				

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VGA Dongle



DESIGN	SY KIM	DATE	01/08/2009	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		GRAPHIC_IF	
APPROVAL	MK KIM	REV	1.0		CRT	
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE 28 OF 54	

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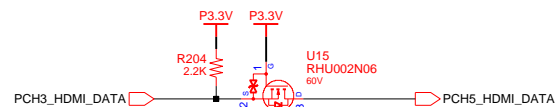
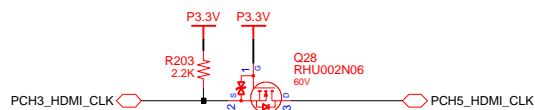
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HDMI Graphic

After checking, Houston need to use CMC for each signal.

(EMC request at 2010.04.15)

FOR HDMI VERIFICATION TEST



J3
HDMI-19P-FEMALE

1 TMDS_DATA2
2 TMDS_DATA2_SHIELD
3 TMDS_DATA2#
4 TMDS_DATA1
5 TMDS_DATA1_SHIELD
6 TMDS_DATA1#
7 TMDS_DATA0
8 TMDS_DATA0_SHIELD
9 TMDS_DATA0#
10 TMDS_CLOCK
11 TMDS_CLOCK_SHIELD
12 TMDS_CLOCK#
13 CEC
14 RESERVED
15 SCL
16 DDC_GROUND
17 5V_POWER
18 HOT_PLUG_DETECT
19

3701-001775

20 MNT1
21 MNT2
22 MNT3
23 MNT4

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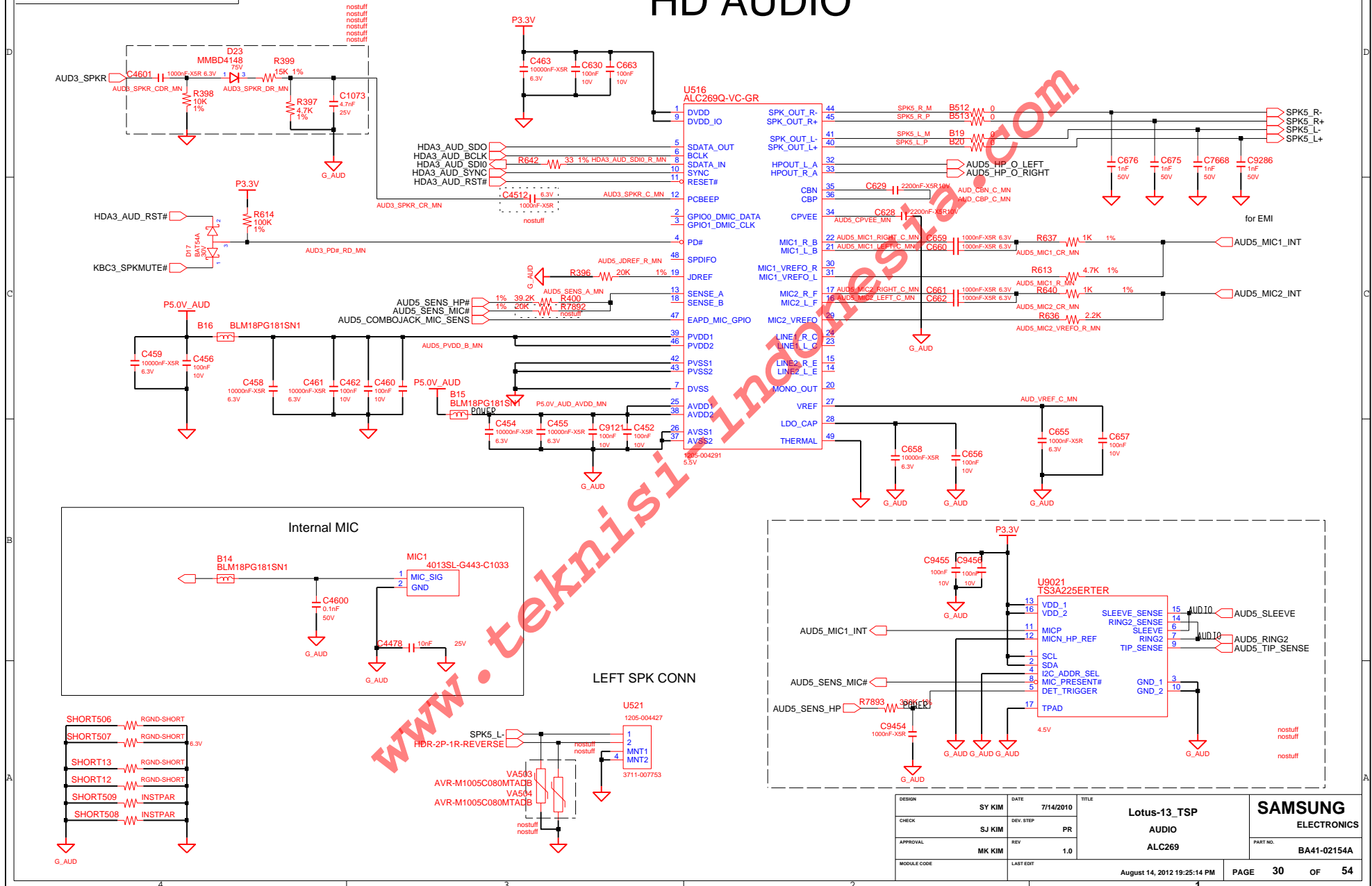
329

330

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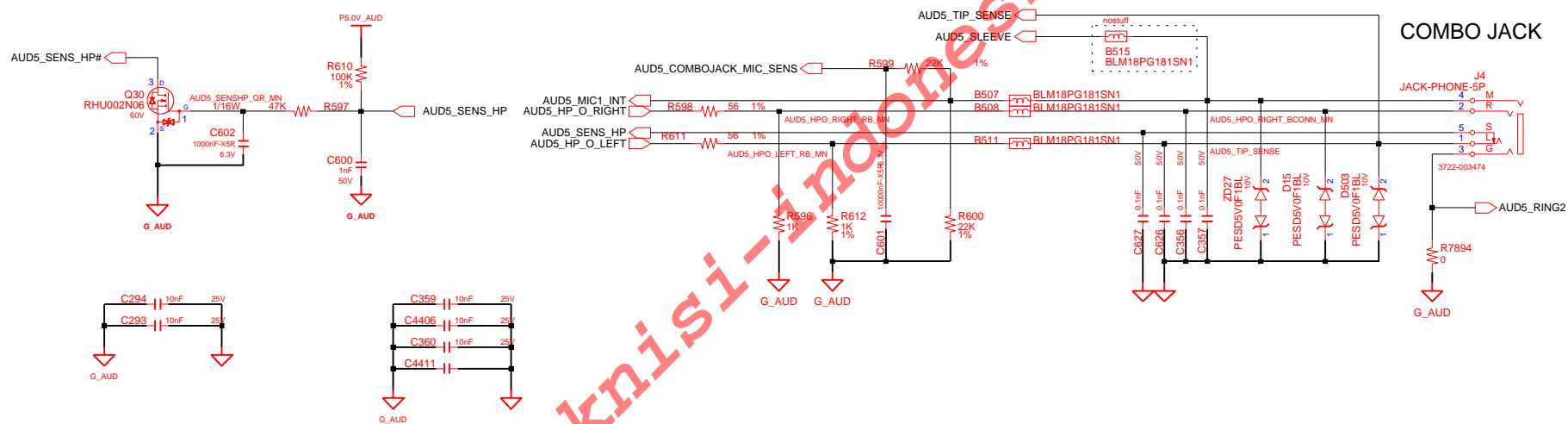
HD AUDIO



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HD AUDIO

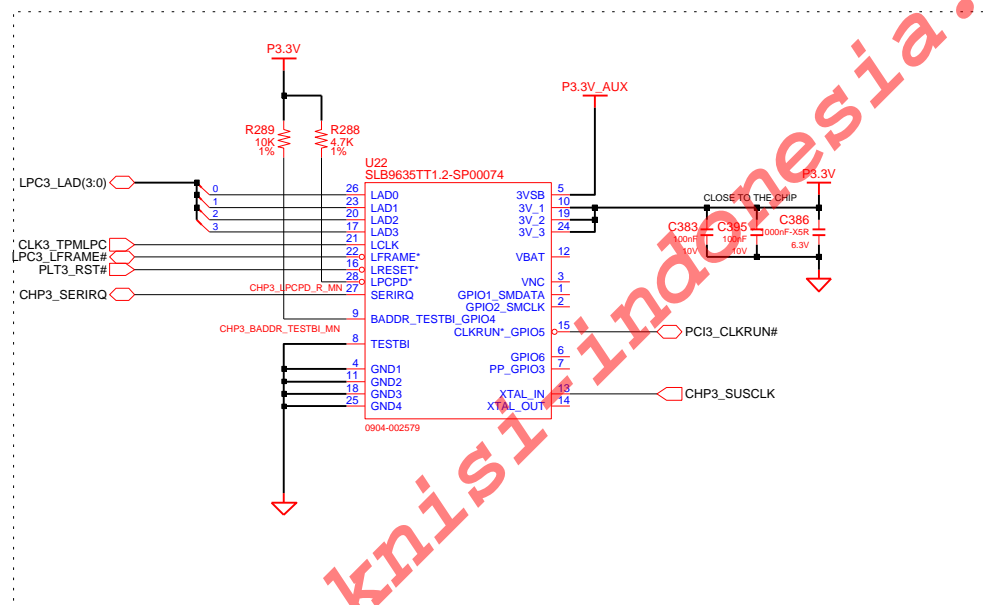


DESIGN	SY KIM	DATE	7/14/2010	Lotus-13_TSP HDA_CODEC AUDIO CODEC ALC269		SAMSUNG			
CHECK	SJ KIM	DEV. STEP	PR			ELECTRONICS			
APPROVAL	MK KIM	REV	1.0			PART NO.	BA41-02154A		
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM		PAGE	31	OF	54

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TPM1.2



TPM
TPM
TPM
TPM
TPM

DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG
CHECK	SJ KIM	DEV. STEP	PR	AUDIO COMBO JACK	AUDIO COMBO JACK	ELECTRONICS
APPROVAL	MK KIM	REV	1.0	AUDIO COMBO JACK	PART NO.	BA41-02154A
MODULE CODE	LAST EDIT		August 14, 2012 19:25:14 PM		PAGE	32 OF 54

[illegible]

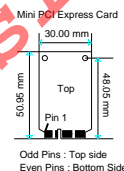
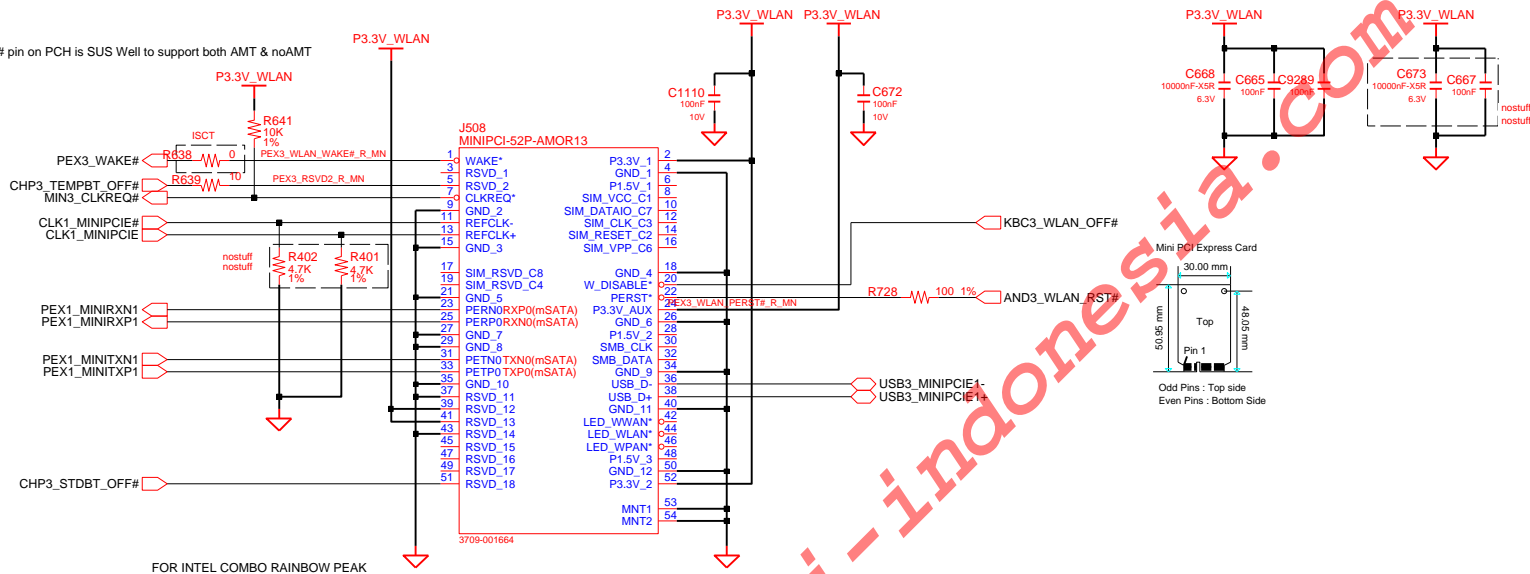
DESIGN	SY KIM	DATE	7/14/2010	Lotus-13_TSP LAN LAN_Realtek_RTL8111E)	SAMSUNG ELECTRONICS	
CHECK	SJ KIM	DEV_STEP	PR			
APPROVAL	MK KIM	REV	1.0			PART NO.
MODULE CODE	LAST EDIT					August 14, 2012 19:25:14 PM

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WLAN

CLKREQ# pin on PCH is SUS Well to support both AMT & noAMT



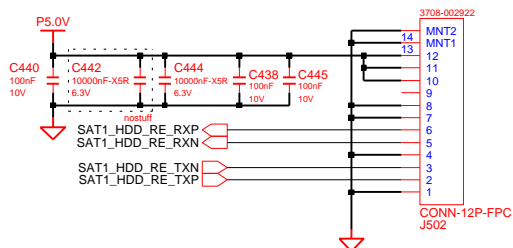
DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		WLAN	
APPROVAL	MK KIM	REV	1.0		WLAN	
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE 34 OF 54	

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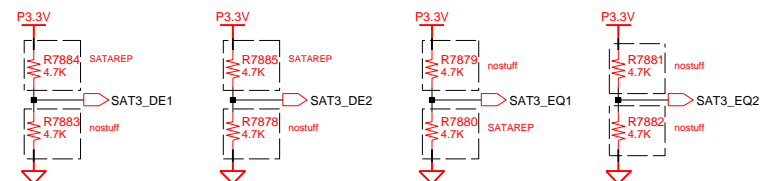
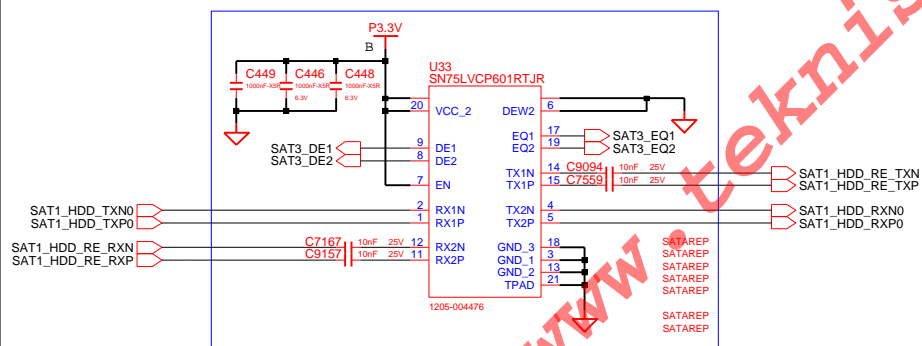
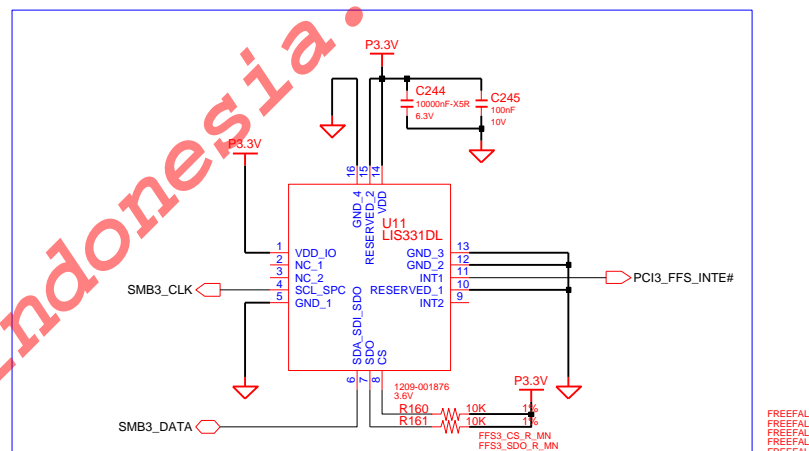
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SATA I/F CONN

SATA HDD CONN



Free Fall Sensor

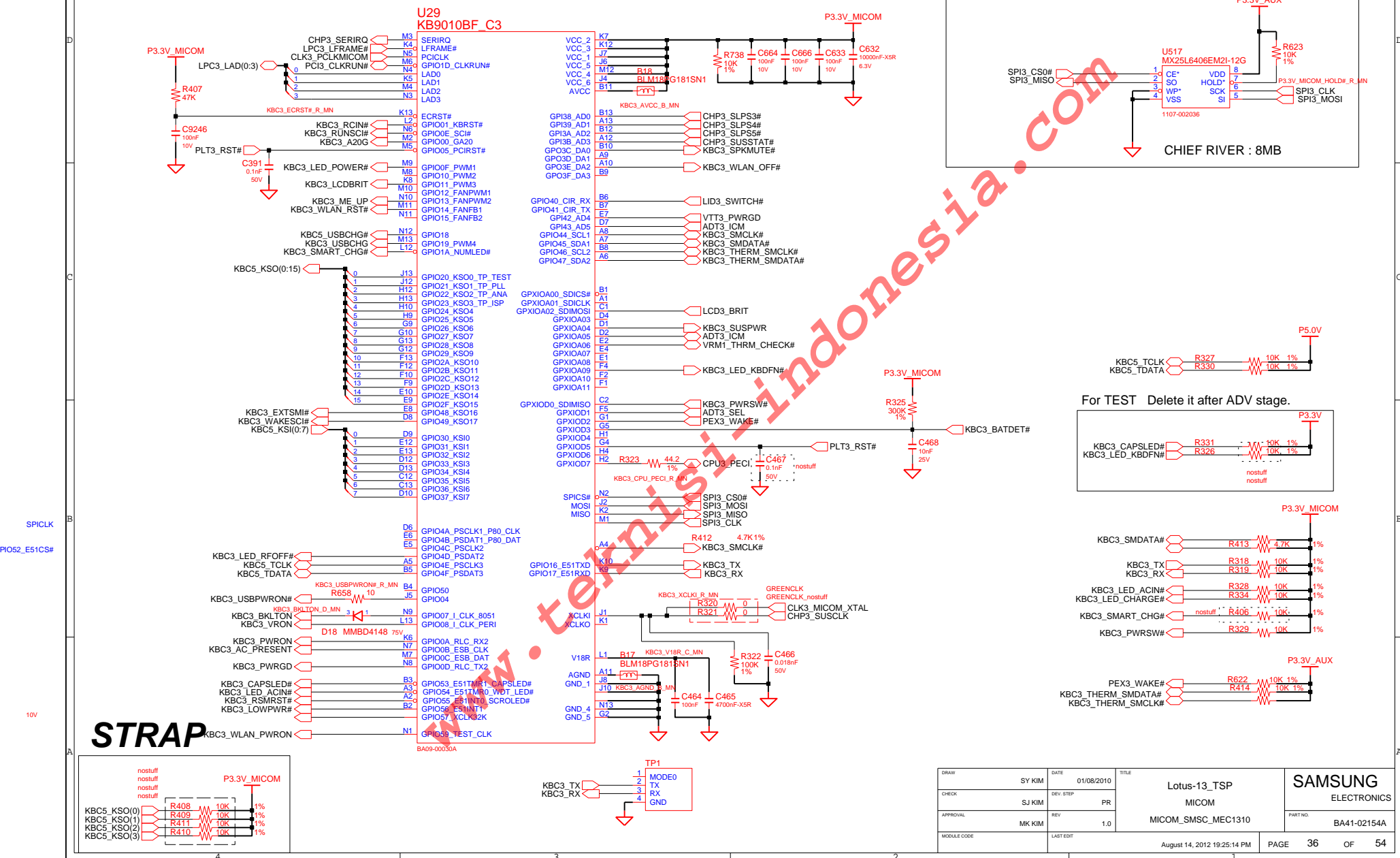


DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR		SATA I/F	
APPROVAL	MK KIM	REV	1.0		SATA I/F	
MODULE CODE		LAST EDIT			August 14, 2012 19:25:14 PM	PAGE 35 OF 54

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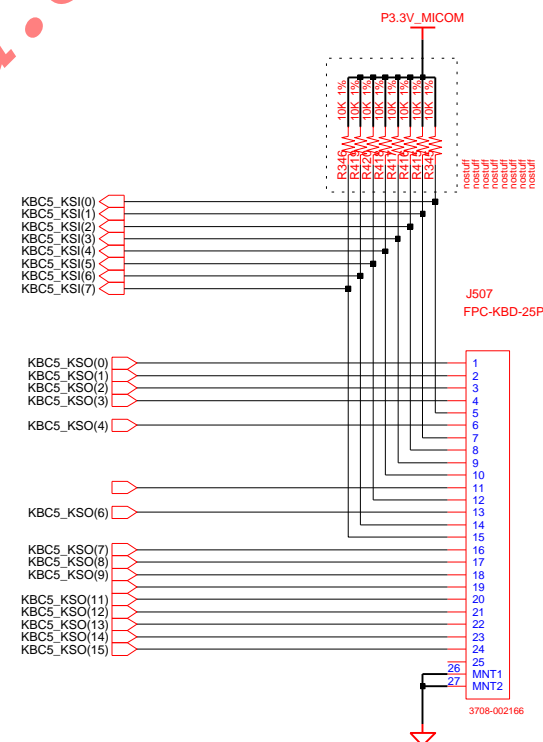
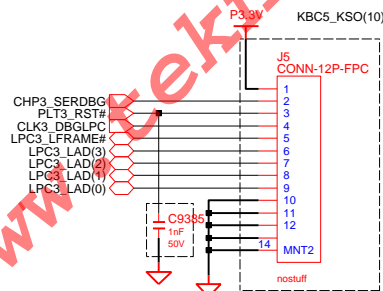
MAIN BOARD (MICOM)



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KEYBOARD

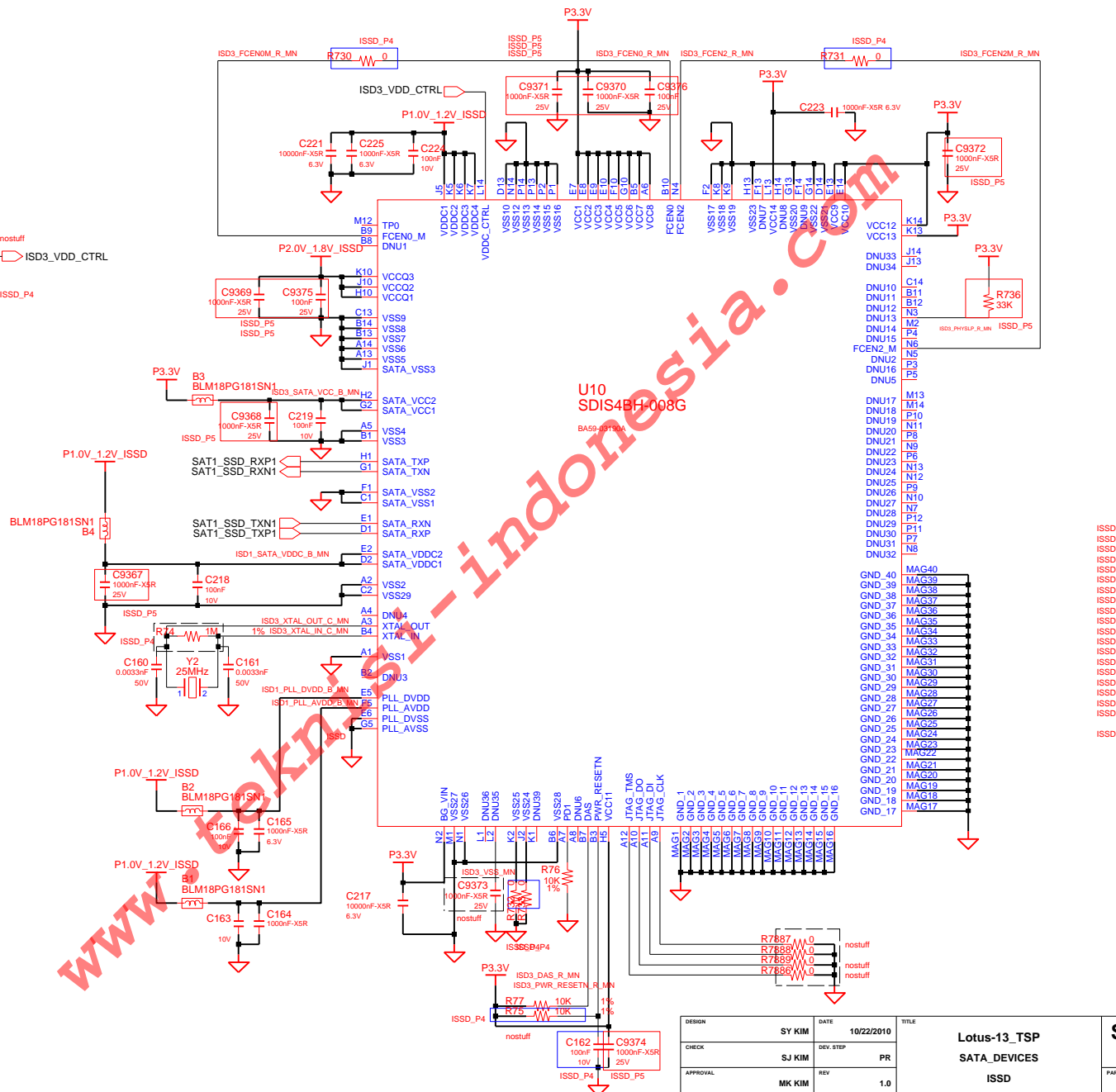
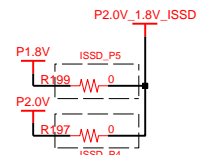
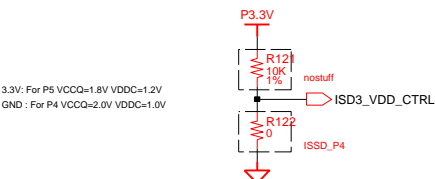
80H PORT DEBUG




DRAW	SY KIM	DATE	7/14/2010	TITLE Lotus-13_TSP MICOM MICOM GLUE LOGIC	SAMSUNG ELECTRONICS	
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0		PART NO.	BA41-02154A
MODULE CODE	LAST EDIT				August 14, 2012 19:25:14 PM	PAGE 37 OF 54

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GND : For P4 VCCQ=2.0V VDDC=1.0V

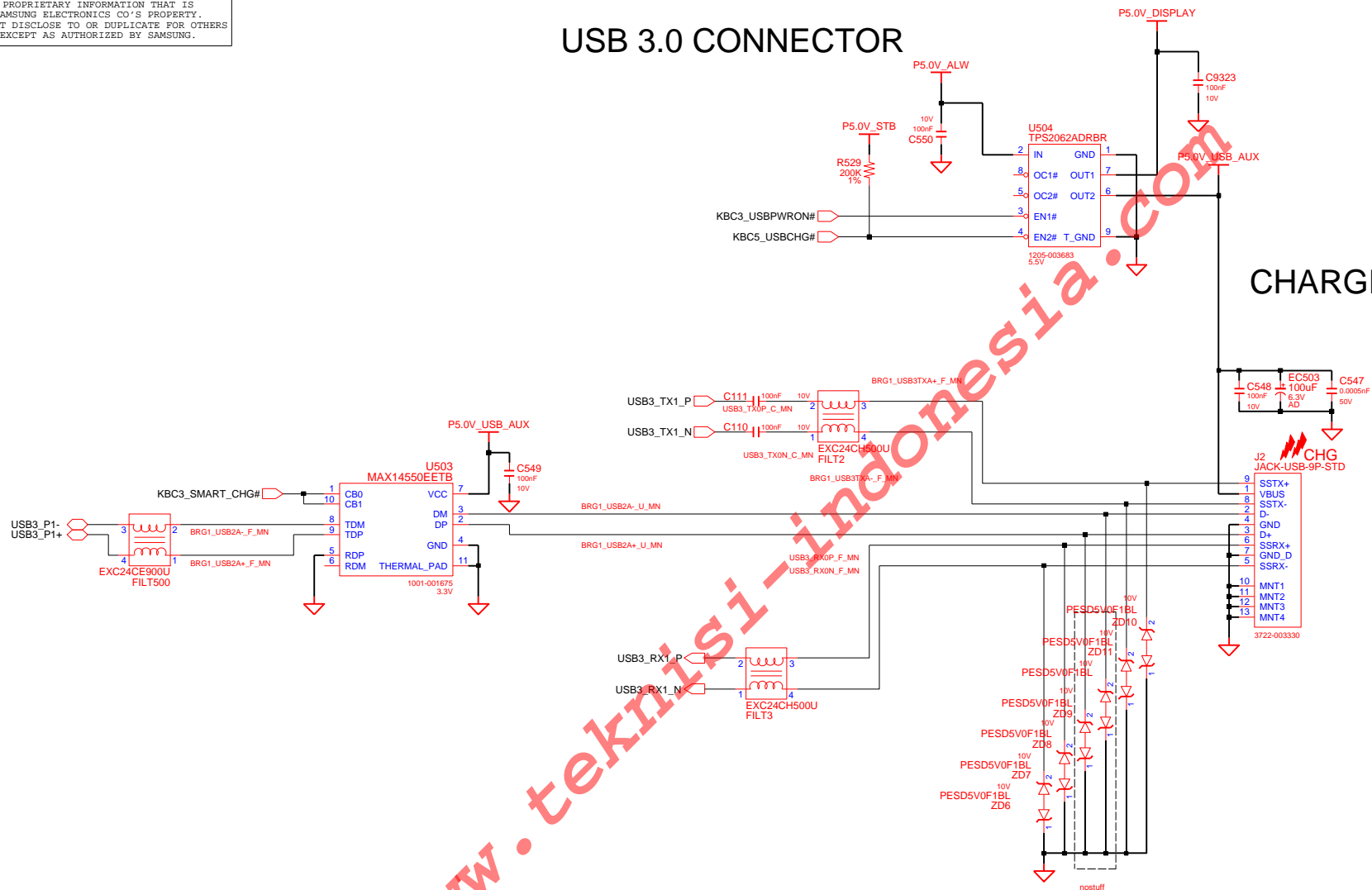


DESIGN	SY KIM	DATE	10/22/2010	Lotus-13_TSP SATA_DEVICES ISSD		
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0			
MODULE CODE	LAST EDIT					
August 14, 2012 19:25:14 PM					PAGE	38 OF 54

<div><div>SAMSUNG PROPRIETARY</div><div>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.</div></div>				1 USB PORT 3.0										
<div>www.teknisi-indonesia.com</div>				DRAW		SY KIM	DATE	7/14/2010	TITLE		Lotus-13_TSP		SAMSUNG	
				CHECK		SJ KIM	DEV. STEP	PR	USB 3.0 BRIDGE		ELECTRONICS			
				APPROVAL		MK KIM	REV	1.0	USB 3.0 BRIDGE		PART NO.			
				MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM		PAGE 39 OF 54				

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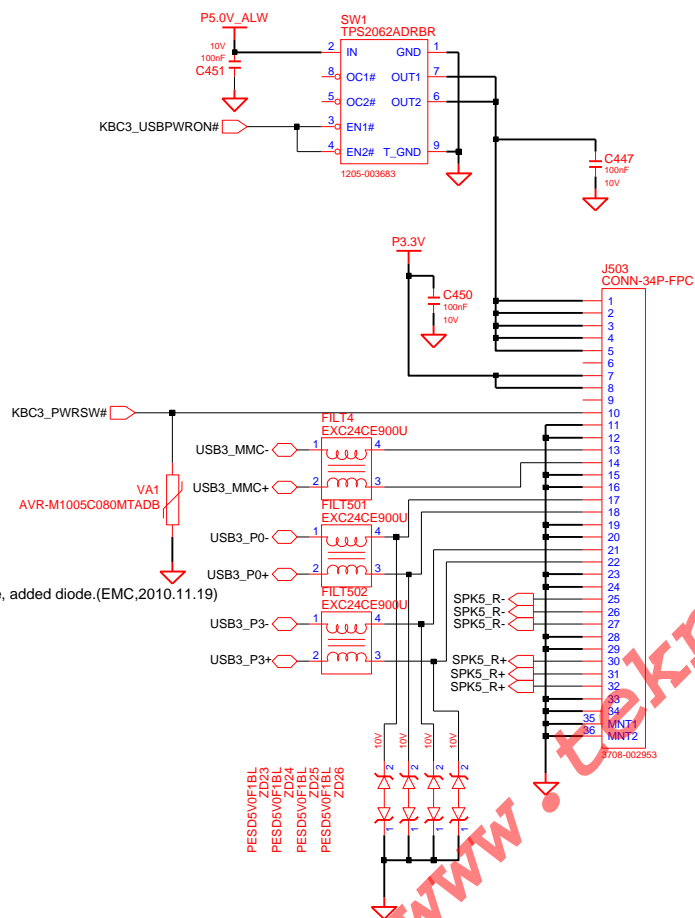
USB 3.0 CONNECTOR



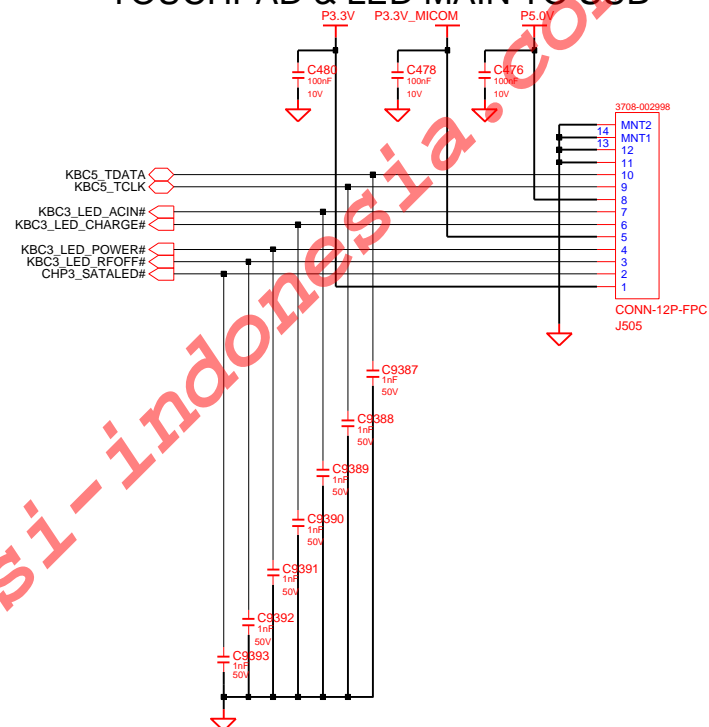
CHARGEABLE USB

DRAW	SY KIM	DATE	7/14/2010	TITLE Lotus-13_TSP USB & BLUETOOTH USB & BLUETOOTH	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR		
APPROVAL	MK KIM	REV	1.0		
PART NO. BA41-02154A					
MODULE CODE	LAST EDIT			August 14, 2012 19:25:14 PM	PAGE 40 OF 54

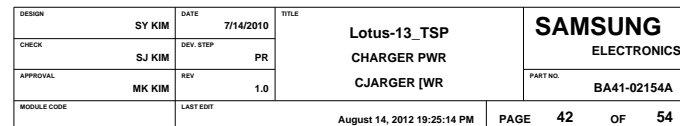
MAIN to SUB



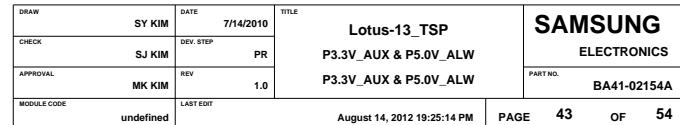
TOUCHPAD & LED MAIN TO SUB



DESIGN	SY KIM	DATE	7/14/2010	TITLE Lotus-13_TSP SUB BOARD CONNECTOR MAIN TO SUB	SAMSUNG ELECTRONICS	
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0			
MODULE CODE						
LAST EDIT				August 14, 2012 19:25:14 PM	PAGE	41 OF 54



P3.3V_AUX & P5.0V_ALW



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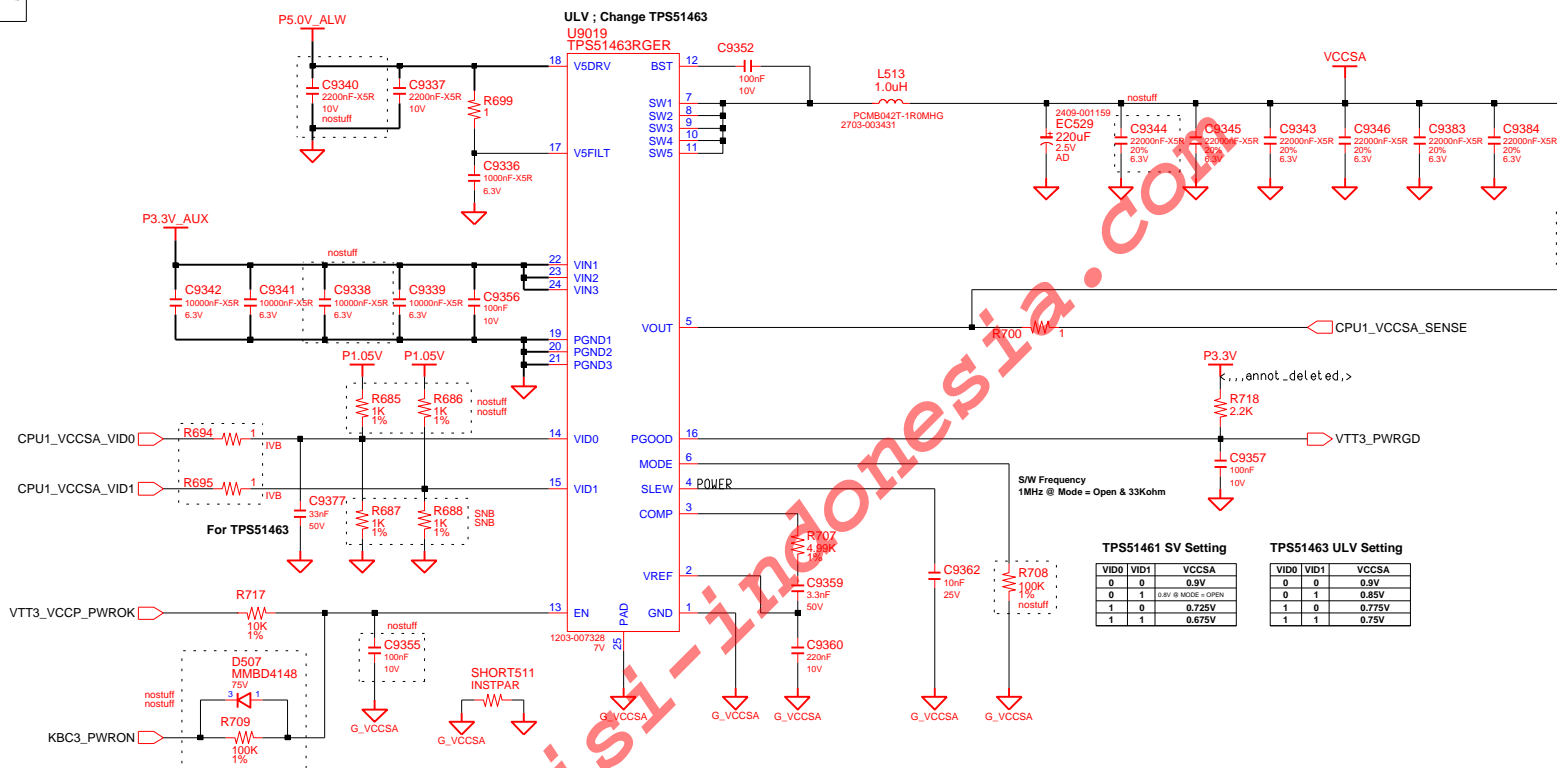
Chipset Power (P1.05V)

DESIGN	SY KIM	DATE	7/14/2010	Lotus-13_TSP CHIPSET PWR P1.05V	SAMSUNG ELECTRONICS	
CHECK	SJ KIM	DEV. STEP	PR			
APPROVAL	MK KIM	REV	1.0			
					PART NO.	BA41-02154A
MODULE CODE		LAST EDIT			August 14, 2012 19:25:14 PM	PAGE 44 OF 54

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CHIPSET POWER(VCCSA)



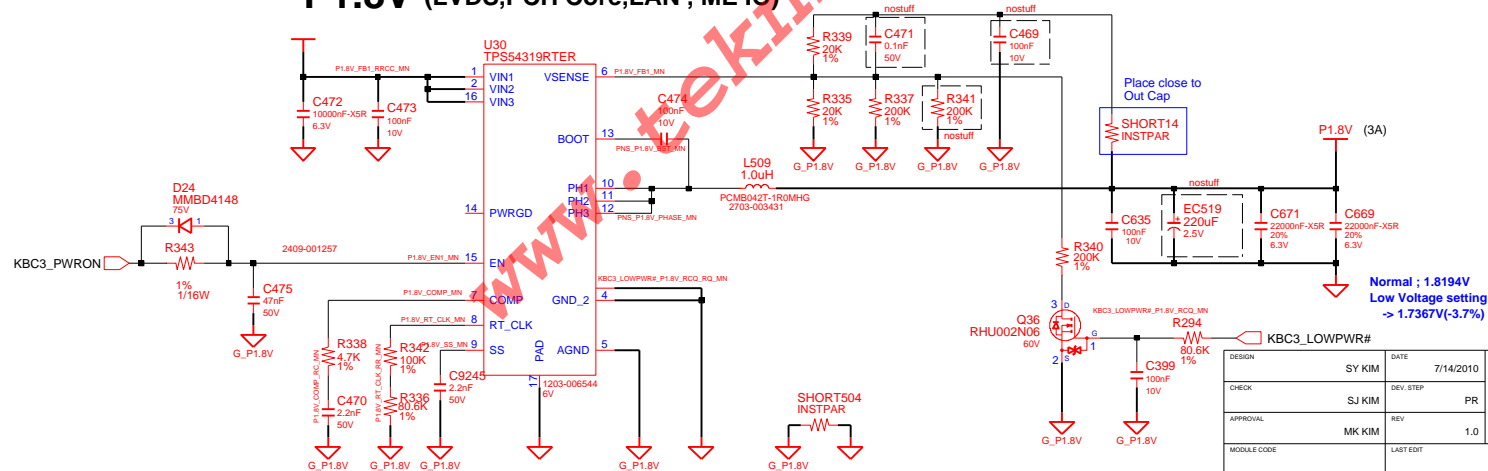
TPS51461 SV Setting

VID0	VID1	VCCSA
0	0	0.9V
0	1	0.8V @ Mode = OPEN
1	0	0.725V
1	1	0.675V

TPS51463 ULV Setting

VID0	VID1	VCCSA
0	0	0.9V
0	1	0.85V
1	0	0.775V
1	1	0.75V

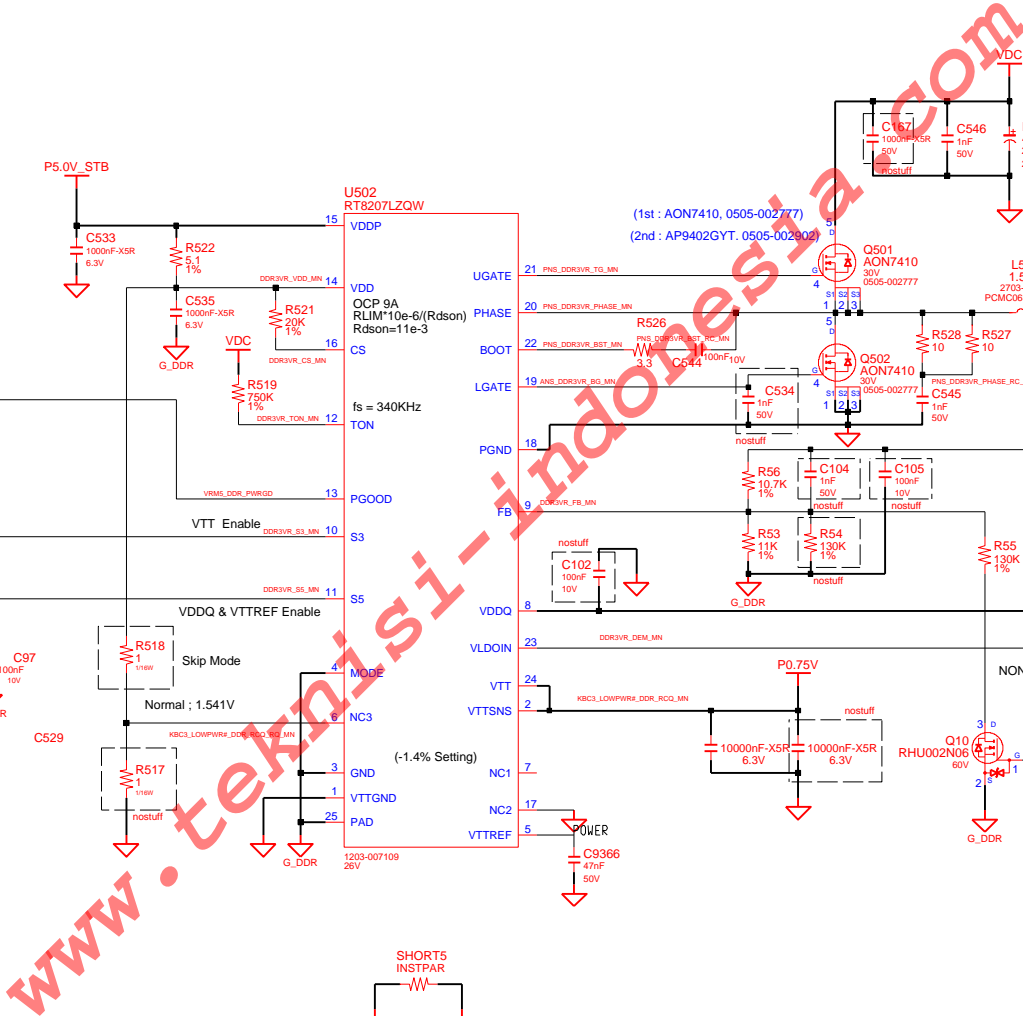
P1.8V (LVDS,PCH Core,LAN , ME IO)



DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP
CHECK	SJ KIM	DEV. STEP	PR		VCCSA
APPROVAL	MK KIM	REV	1.0		VCCSA
MODULE CODE		LAST EDIT			
				August 14, 2012 19:25:14 PM	PAGE 45 OF

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ELECTRONICS
PART NO. BA41-02154A

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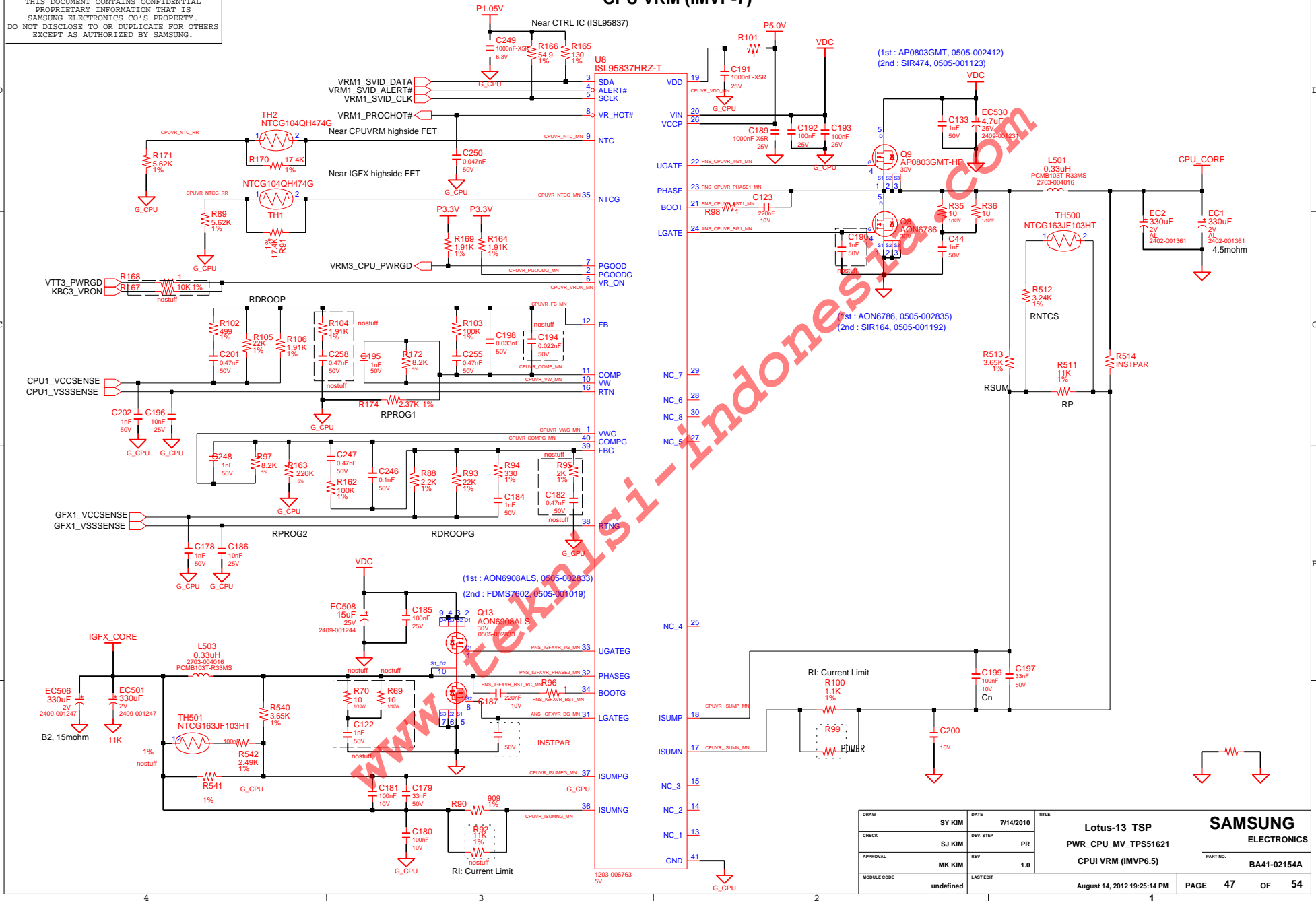
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CHECK	SJ KIM	DEV. STEP	PR		PART NO.	BA41-02154A		
APPROVAL	MK KIM	REV	1.0					
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE	46	OF	54

CPU VRM (IMVP-7)

□

c

1

[illegible]

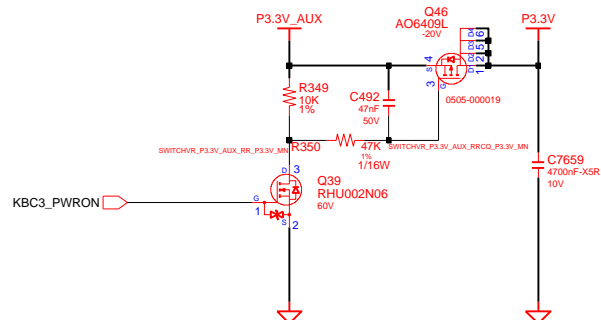
DRAW	SY KIM	DATE	7/14/2010	Lotus-13_TSP PWR_CPU_MV_TPS1621 CPU1 VRM (IMVP6.5)	SAMSUNG ELECTRONICS		
CHECK	SJ KIM	DEV. STEP	PR				
APPROVAL	MK KIM	REV	1.0			PART NO.	BA41-02154A
MODULE CODE	undefined	LAST EDIT				August 14, 2012 19:25:14 PM	PAGE 47 OF 54

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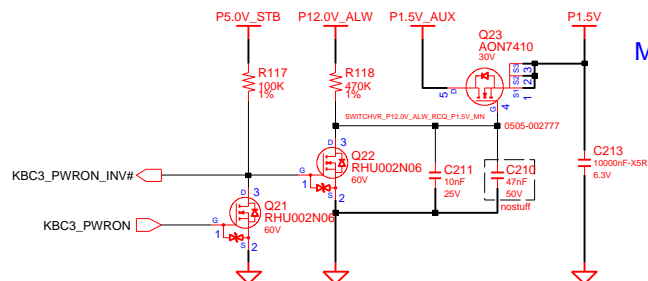
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Switched Power

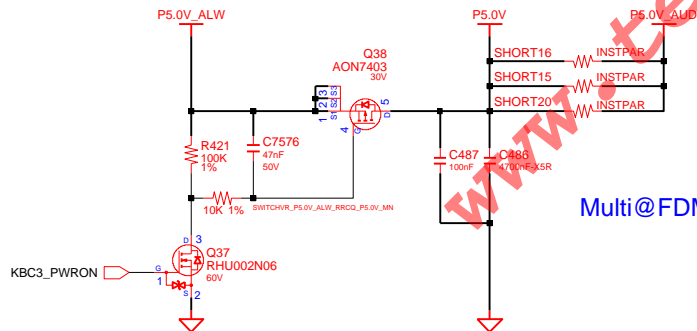
Switched Power On (P3.3V) Multi@AP2607GY



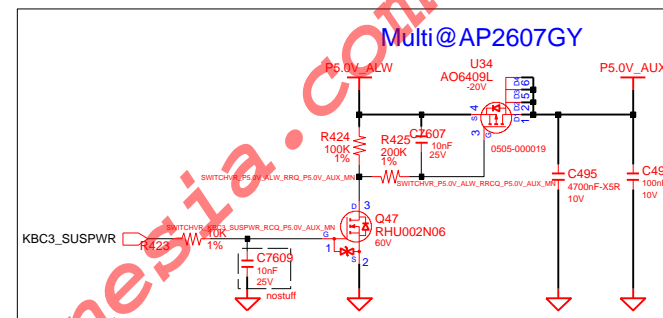
Switched Power On (P1.5V)



Switched Power On (P5.0V)



P5.0V_AUX



Multi@AP9402GYT

Multi@FDMC4435, 0505-001694

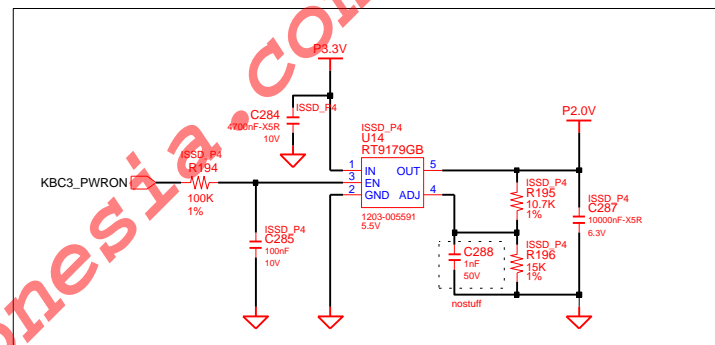
DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		PWR_MV_SWITCHED	
APPROVAL	MK KIM	REV	1.0		SWITCHED POWER	
MODULE CODE		LAST EDIT				
August 14, 2012 19:25:14 PM						PAGE 48 OF 54

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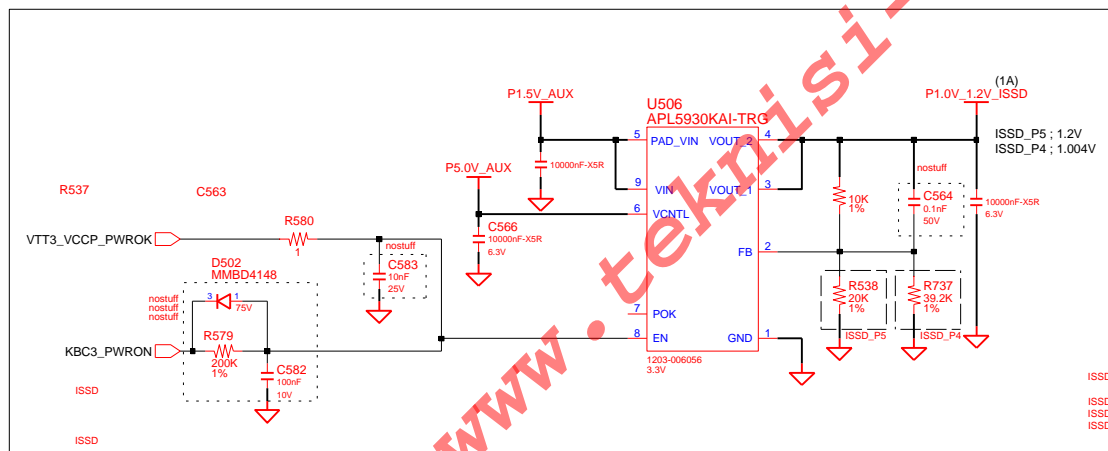
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Switched Power 2 (ISSD & USB3 BRIDGE PWR)

ISSD Power (P2.0V : Max 0.5A)



ISSD Power (P1.0V_P1.2V : Max 1.0A)

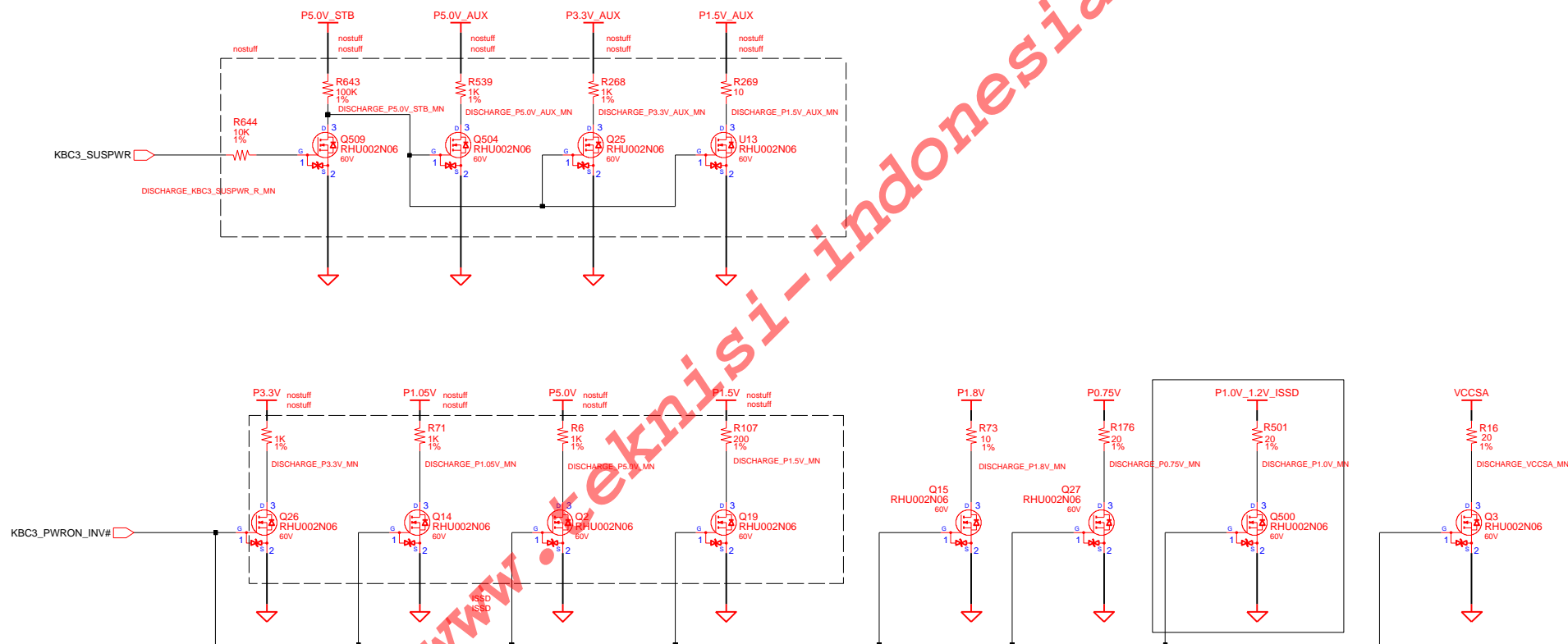


DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG
CHECK	SJ KIM	DEV. STEP	PR	Switched PWR 2		ELECTRONICS
APPROVAL	MK KIM	REV	1.0	FOT POWER XPRESS & USB3.0 PWR	PART NO.	BA41-02154A
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE	49 OF 54

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POWER DISCHARGER

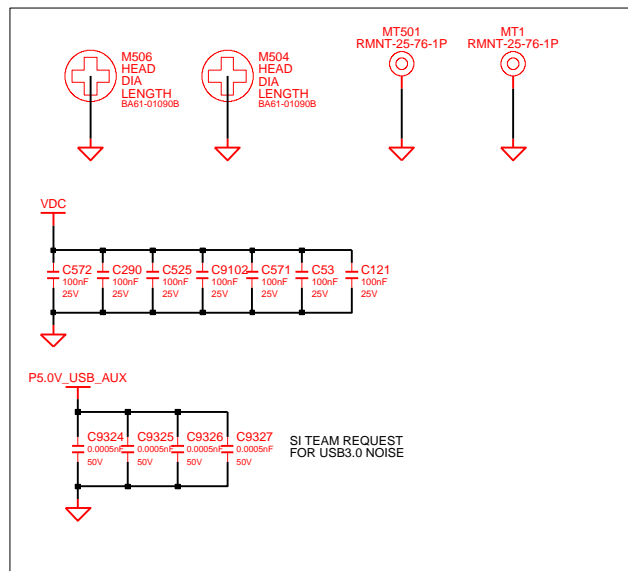


DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS PART NO. BA41-02154A
CHECK	SJ KIM	DEV. STEP	PR		PWR_MV_DISCHARGER	
APPROVAL	MK KIM	REV	1.0		DISCHARGING LOGIC	
MODULE CODE	undefined	LAST EDIT	August 14, 2012 19:25:14 PM	PAGE	50 OF 54	

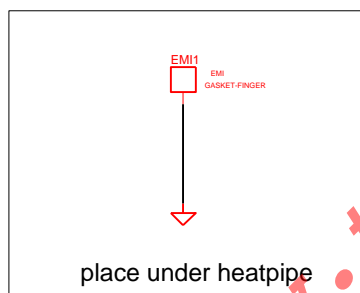
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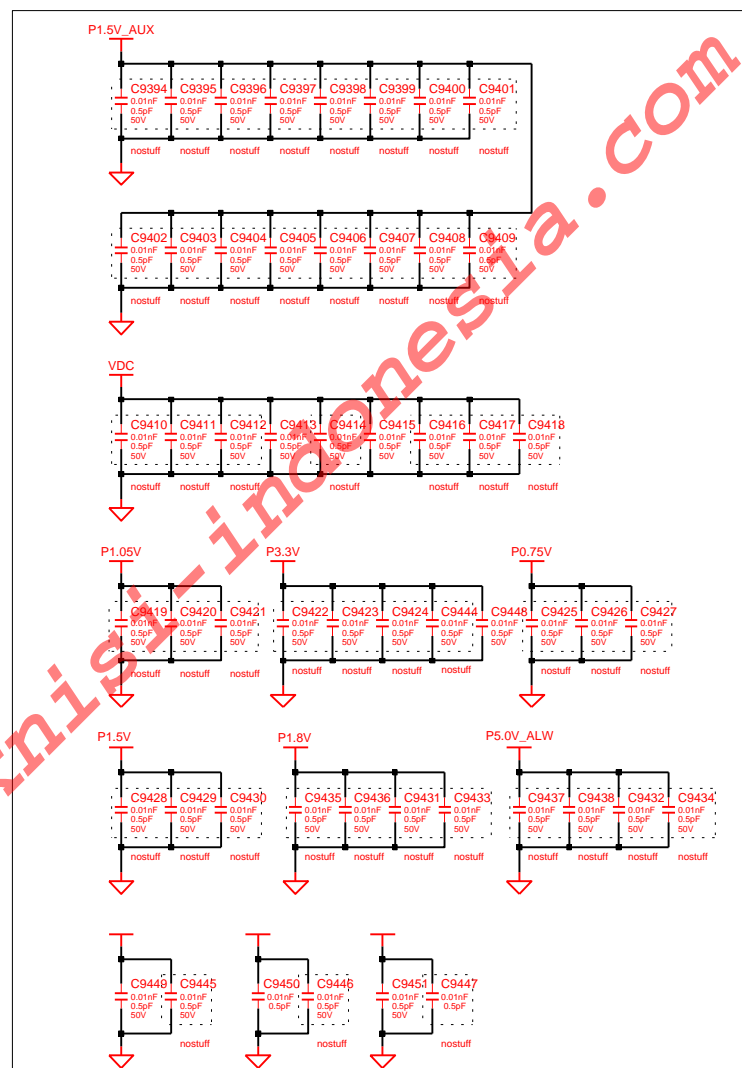
Mainboard PEM / Mount ((BA61-01090A)X3EA, (25-76)X1EA)



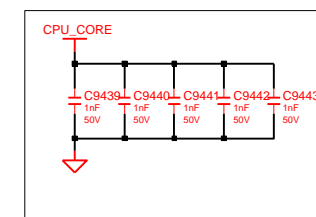
WLAN Performance issue



WLAN Performance issue



BB Noise issue



DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP
CHECK	SJ KIM	DEV. STEP	PR		MOUNT HOLE
APPROVAL	MK KIM	REV	1.0		MOUNT HOLE
MODULE CODE		LAST EDIT			
				August 14, 2012 19:25:14 PM	PAGE 51 OF 54

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 PART NO. BA41-02154A

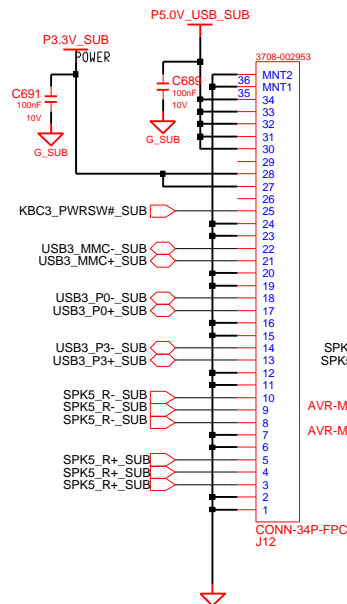
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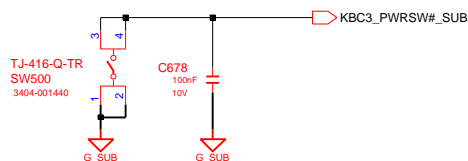
Sub board1

PWR SW & USB & 4IN1 SUB Board

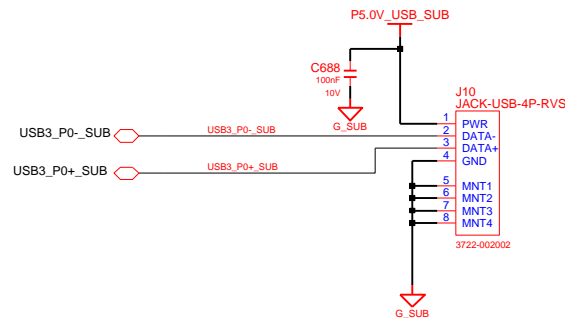
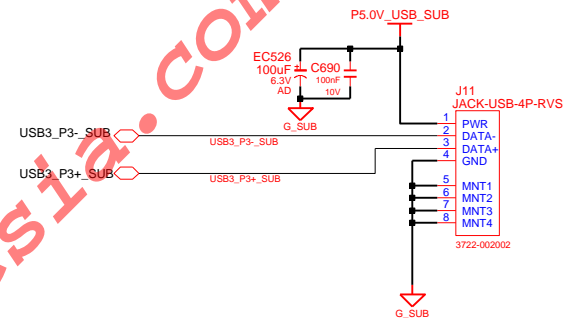
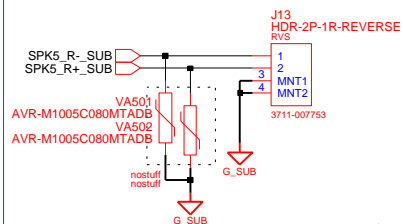
SUB to MAIN



Power Switch Button



Right Speaker



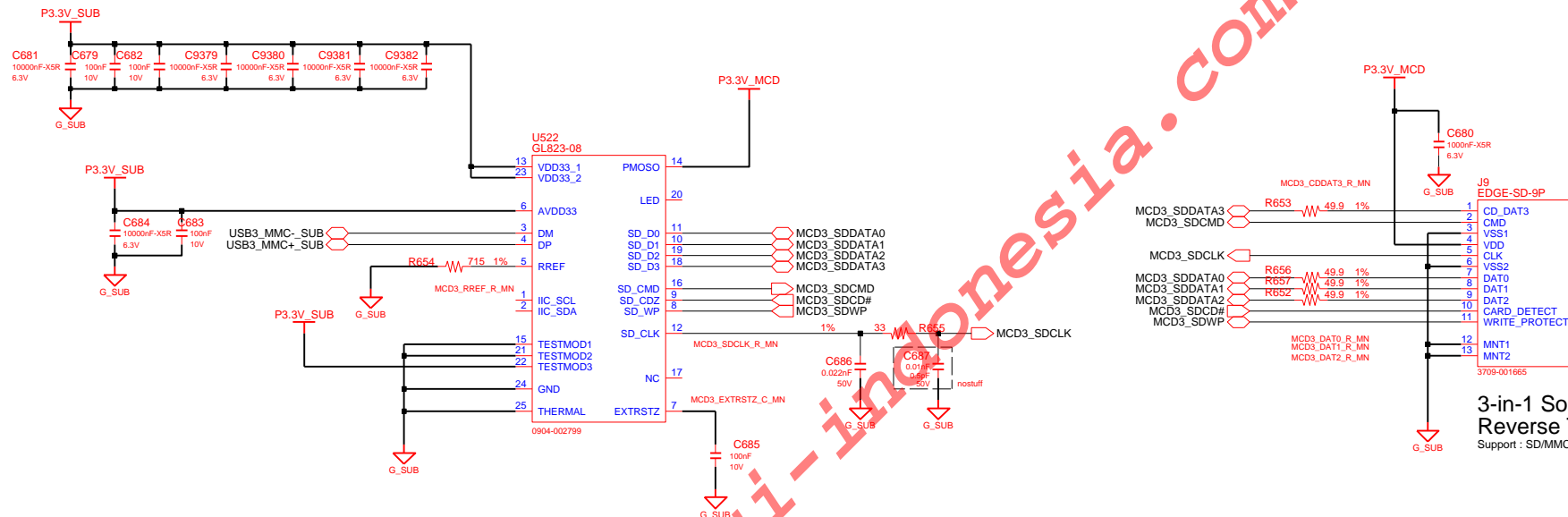
DESIGN	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR		SUB BOARD1	
APPROVAL	MK KIM	REV	1.0		POWER SW & USB & SPKR	PART NO. BA41-02154A
MODULE CODE		LAST EDIT			August 14, 2012 19:25:14 PM	PAGE 52 OF 54

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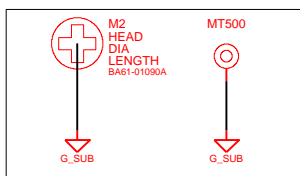
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Sub board1

PWR SW & USB & 4IN1 SUB Board




3-in-1 Socket
Reverse Type
Support : SD/MMC/SDHC



DRAW	SY KIM	DATE	7/14/2010	TITLE	Lotus-13_TSP	SAMSUNG ELECTRONICS
CHECK	SJ KIM	DEV. STEP	PR	SUB BOARD1		
APPROVAL	MK KIM	REV	1.0	4IN1	PART NO. BA41-02154A	
MODULE CODE		LAST EDIT		August 14, 2012 19:25:14 PM	PAGE	53 OF 54

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TSP SUB

DESIGN	SY KIM	DATE	1/03/2011	TITLE Lotus-13_TSP CAMERA SUB CAMERA SUB	
CHECK	SJ KIM	DEV. STEP	PR		
APPROVAL	MK KIM	REV	1.0		
MODULE CODE	LAST EDIT			August 14, 2012 19:25:14 PM	PAGE 54 OF 54