

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.

Petronas-15

CPU : LLANO

Chip Set : AMD HUDSON M2(A60M)

GFX : PX

Remarks : SABINE PLATFORM

Model Name :	Petronas-D 15
PBA Name :	MAIN
PCB Code :	BA41-01681A (GCE) BA41-01681A (GBM) BA41-01681A (NY)

Dev. Step : PR

Revision : 1.0

T.R. Date : 2011.05.17

Design	CHECK	APPROVAL

■ Owner : SEC Mobile R & D Signature : 

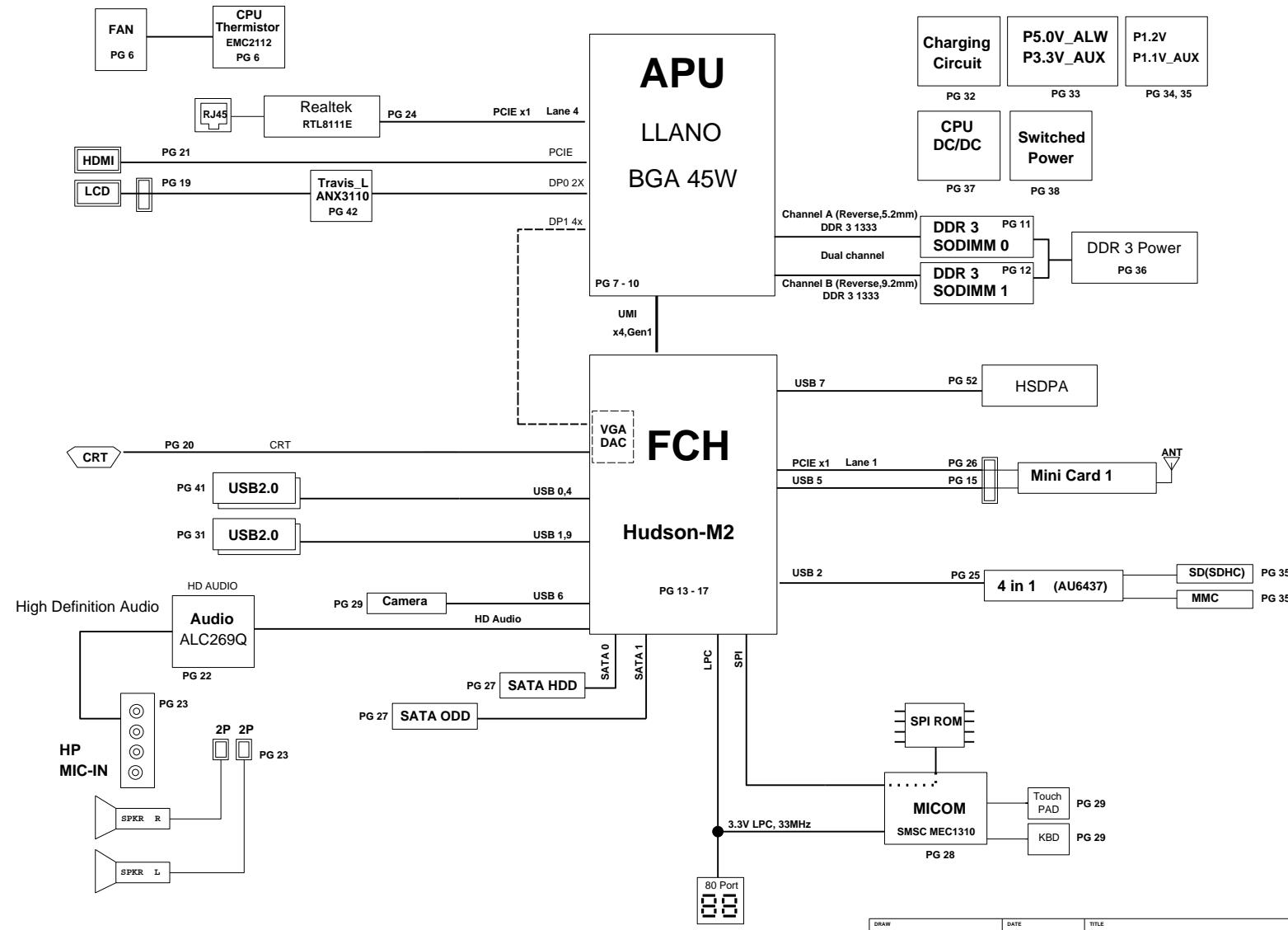
sheet01 : Cover
 sheet02 : BLOCK DIAGRAM
 sheet03 : BOARD INFORMATION
 sheet04 : POWER DIAGRAM
 sheet05 : CLOCK DISTRIBUTION
 sheet06 : Thermal Sensor
 sheet07 : APU
 sheet08 : APU
 sheet09 : APU
 sheet10 : APU
 sheet11 : DDR3 SODIMM #0
 sheet12 : DDR3 SODIMM #1
 sheet13 : FCH-Hudson M2
 sheet14 : FCH-Hudson M2
 sheet15 : FCH-Hudson M2
 sheet16 : FCH-Hudson M2
 sheet17 : FCH-Hudson M2
 sheet18 : 80 port
 sheet19 : GPU
 sheet20 : GPU
 sheet21 : GPU
 sheet22 : GPU
 sheet23 : GPU
 sheet24 : VRAM
 sheet25 : VRAM
 sheet26 : VRAM
 sheet27 : VRAM
 sheet28 : GPU STRAPS

sheet29 : LVDS/CAMERA
 sheet30 : CRT
 sheet31 : HDMI
 sheet32 : Audio - ALC269
 sheet33 : Audio - HP/MIC
 sheet34 : LAN (Realtek RTL8111E)
 sheet35 : 4-in-1 card (AU6437)
 sheet36 : WLAN
 sheet37 : SATA interface
 sheet38 : MICOM / BIOS
 sheet39 : MICOM Glue Logic (KBD / TP)
 sheet40 : LED for 15"
 sheet41 : USB connector
 sheet42 : Power - charger
 sheet43 : Power - P3.3V_AUX / P5.0V_AUX
 sheet44 : Power - P1.1V_AUX (Chipset Power)
 sheet45 : Power - P1.2V (Chipset Power)
 sheet46 : Power - DDR3
 sheet47 : Power - CPU VRM
 sheet48 : Power - GPU CORE
 sheet49 : Power - Switched Power 1
 sheet50 : Power - Switched Power 2
 sheet51 : Power - Power Discharge
 sheet52 : Mount Hole / Thermal Hole
 sheet53 : USB Sub B'D
 sheet54 : Travis_L

DRAW	BIN XIE	DATE	10/10/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	MAIN	COVER	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	PART NO.	BA41-#####	
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	1 OF 54

4
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.

BLOCK DIAGRAM



DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	MAIN		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	BLOCK DIAGRAM		
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	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.

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	S4 - S5
P5.0V_AUX P3.3V_AUX P1.1V_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 DDR (off in S4-S5)	S3
P5.0V P3.3V P1.1V P0.75V	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.1V switched power rail (off in S3-S5) 0.75V power rail for DDR (off in S3-S5)	S0
CPU_CORE CPU_VDDNB P1.2V(VDDP/VDDR)	Core Voltage for CPU Core Voltage for CPU VCC for APU	S0

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 1	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 2	2	NC
2	MIC 14"	3	NC
3	USB	4	NC
4	SYSTEM PORT 3	5	NC
5	Mini Card 1 (WLAN)	6	NC
6	Camera	7	NC
7	HSDPA	8	NC
8	BLUETOOTH		
9	SYSTEM PORT 4		
10	NC		
11	NC		
12	NC		
13	NC		

SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	ODD
2	NC
3	NC
4	NC
5	NC

Crystal / Oscillator			
TYPE	FREQ	DEVICE	USAGE
Crystal	32.768KHz	FCH	Real Time Clock
Crystal	25MHz	LAN	Wired LAN
Crystal	25MHz	FCH	

LCD Panel Detect (TBD)		
Devices	Resolution	PANEL_DETECT_0

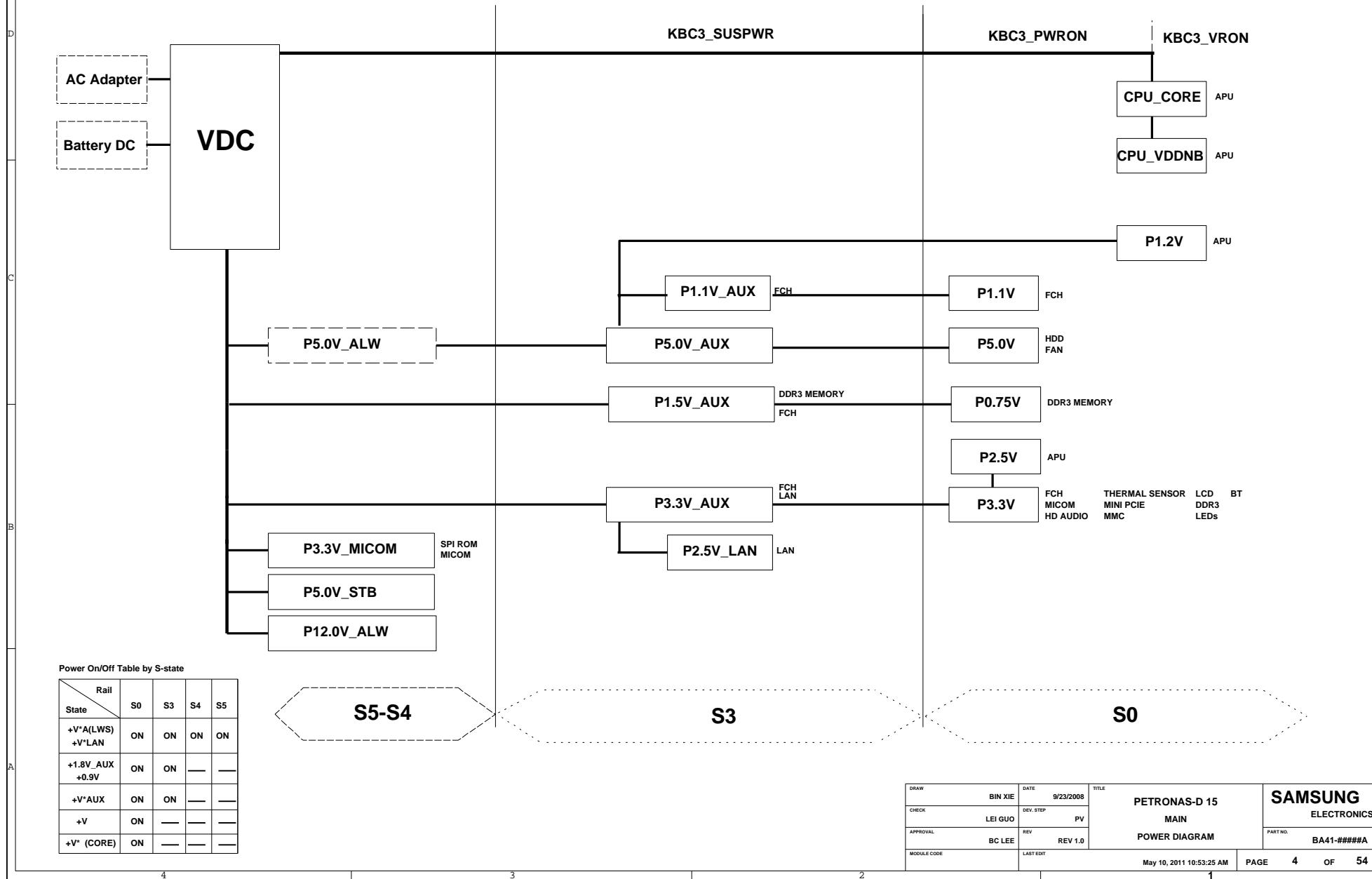
Devices	Address	Hex	Bus
IBEX PEAK	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	Thermal Sensor
SODIMMO	1010 000x	A0h	-
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMMO	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-

DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15 MAIN BOARD INFO	SAMSUNG ELECTRONICS	
CHECK	LEI GUO	DEV. STEP	PV	PART NO.			BA41-#####A
APPROVAL	BC LEE	REV	REV 1.0	MODULE CODE			
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	3			

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.

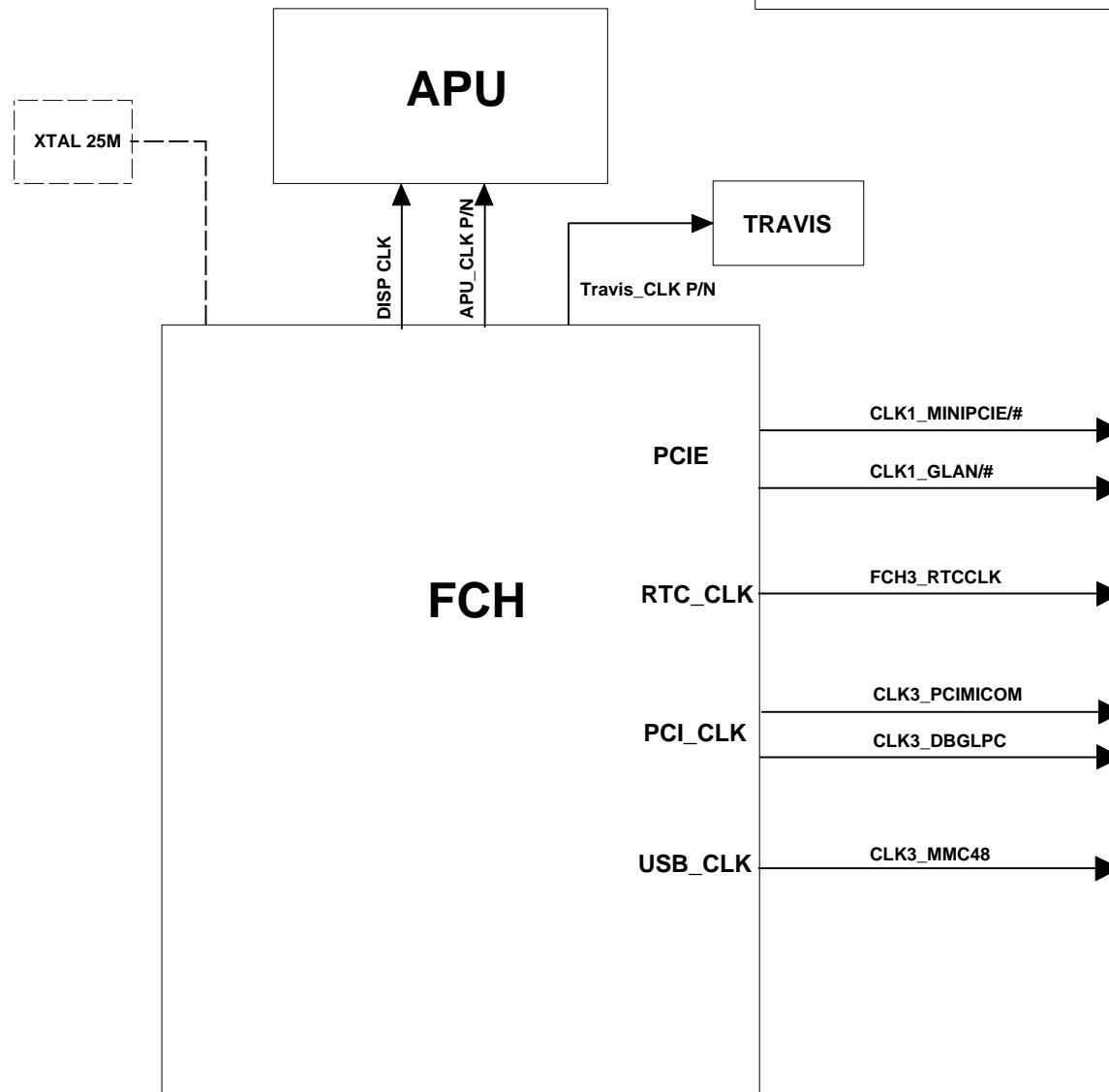
POWER DIAGRAM

Rev 0.1



4
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.

3
2
1
CLOCK DISTRIBUTION Rev. 0.1



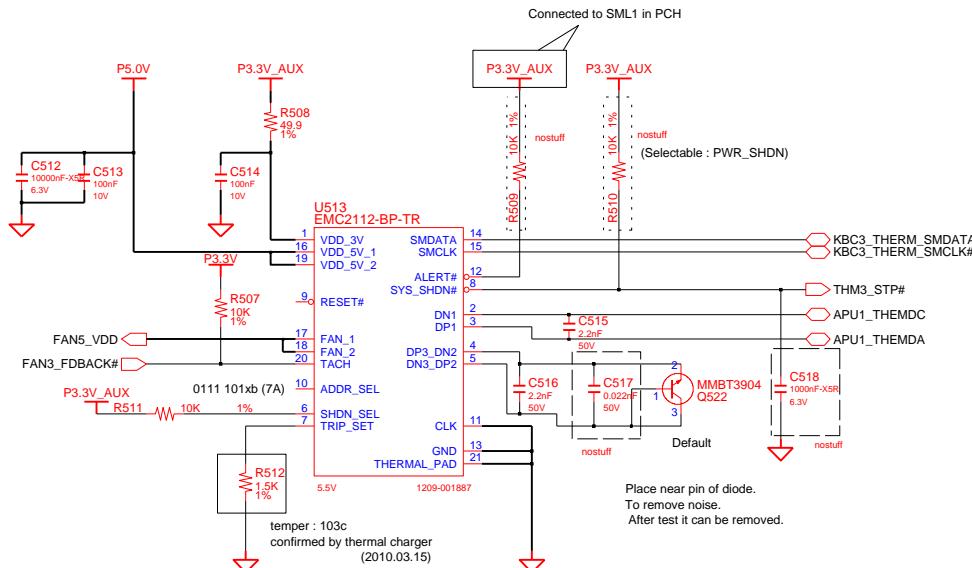
DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	MAIN	CLOCK DIAGRAM	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	PART NO.	BA41-#####A	
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	5	OF	54

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.

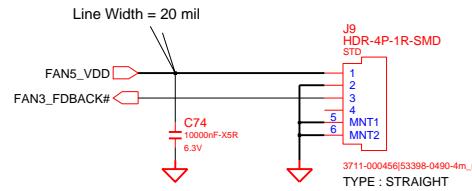
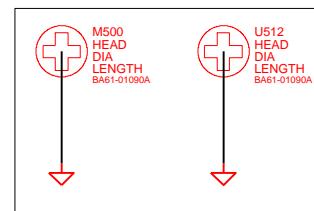
THERMAL SENSOR & FAN CONTROL

ADDRESSSEL MODE	
0 <input checked="" type="checkbox"/> HIGH Z	0101 111xb 0111 101xb (7A) 0101 110xb
1	

SHDNSEL MODE	
0 <input checked="" type="checkbox"/> HIGH Z	INTEL TR MODE AMD CPU/DIODE MODE EXT.DIODE 2 MODE
1	



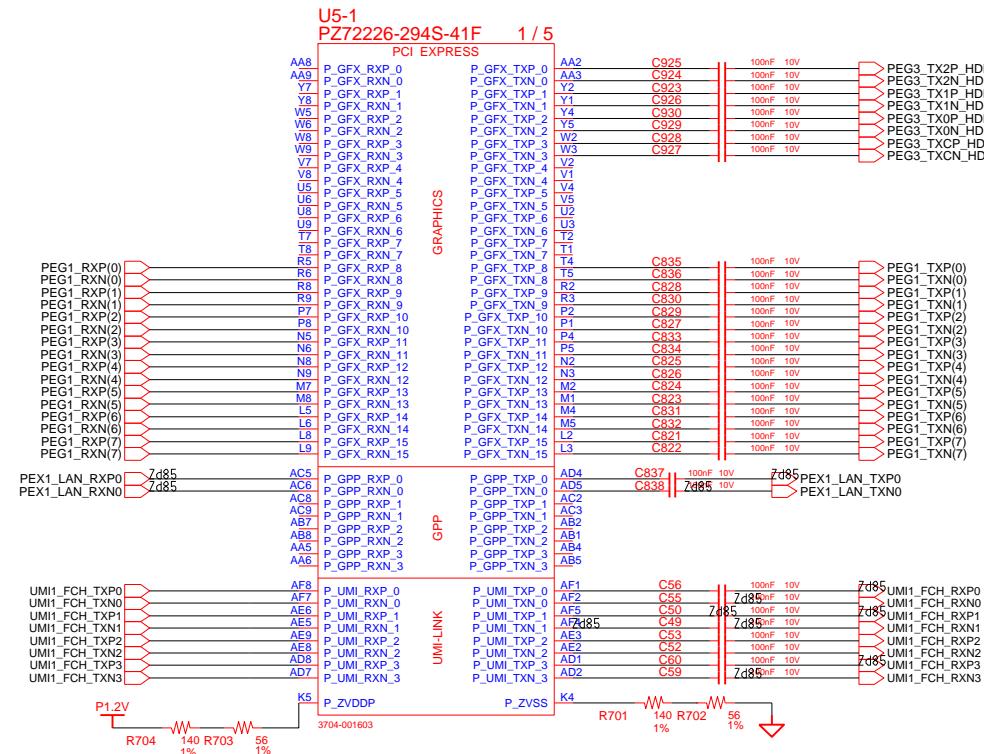
FAN PEM



DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	THERMAL SENSOR	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	THERMAL SENSOR EMC2112	PART NO.	
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	6 OF 54
					1	

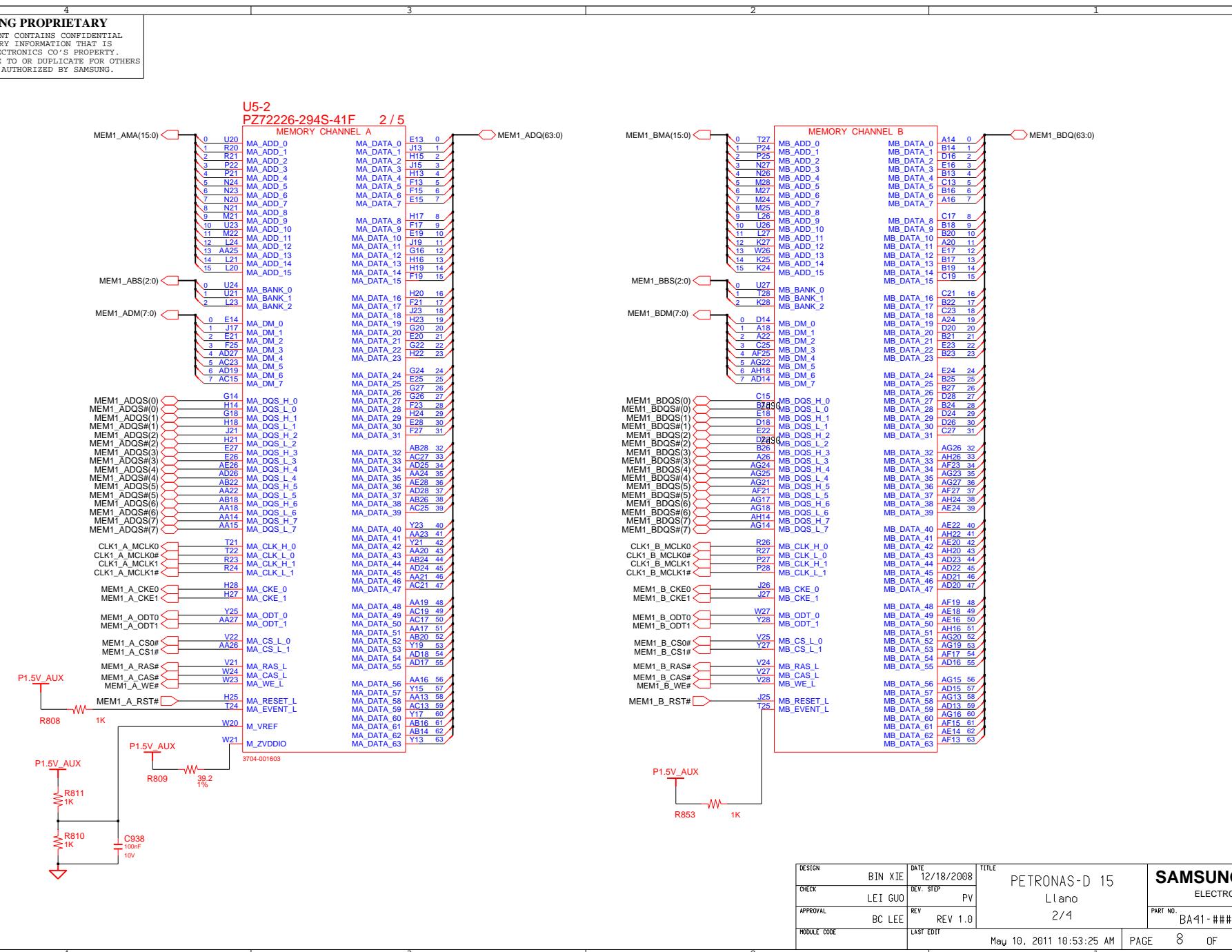
4
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

Llano Processor (FS1)



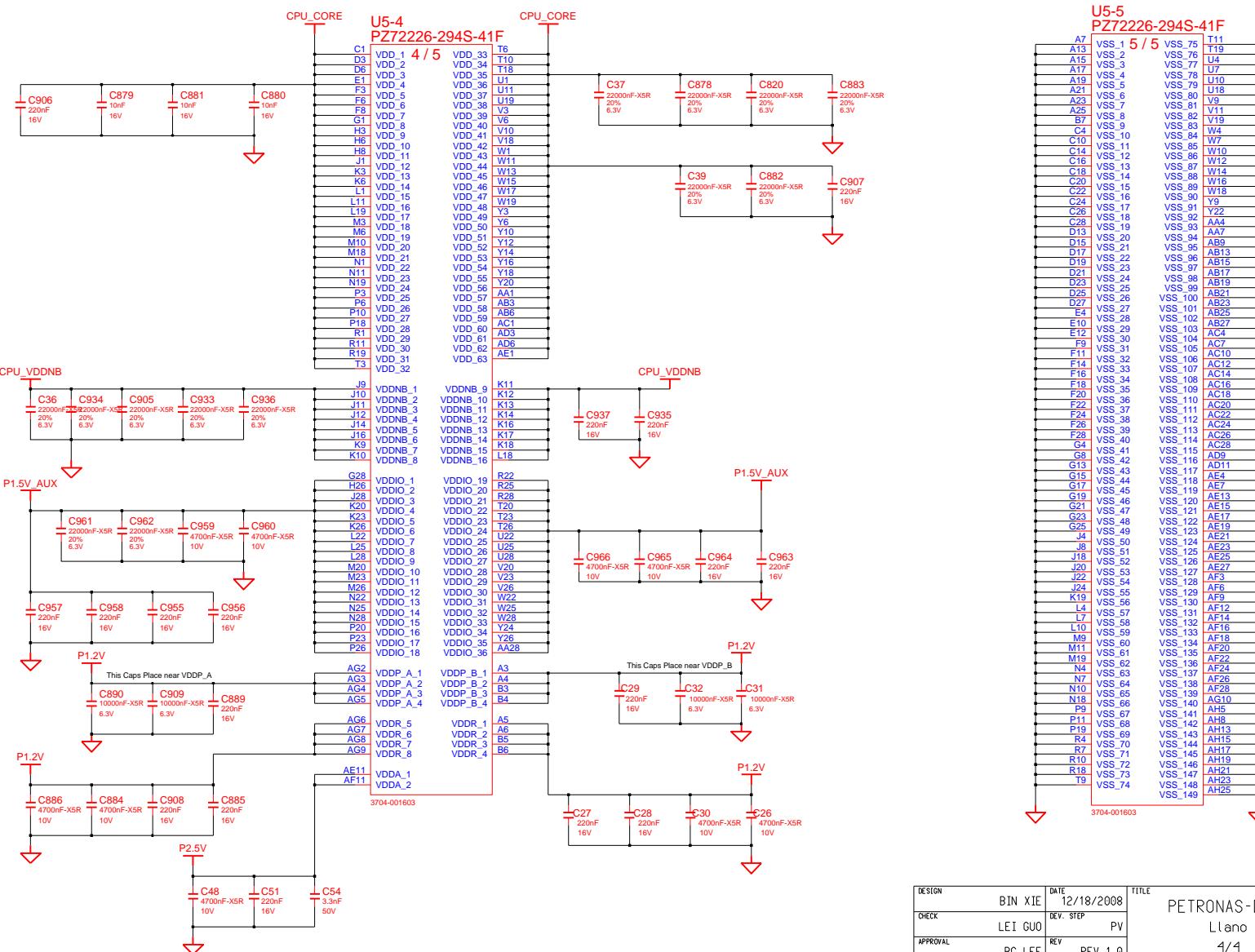
DESIGN	BIN XIE	DATE	TITLE	SAMSUNG
		12/18/2008		
CHECK	LEI GUO	DEV. STEP	PV	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	PART NO.
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	BA41- #####A
			PAGE	7 OF 54

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.



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

4
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.

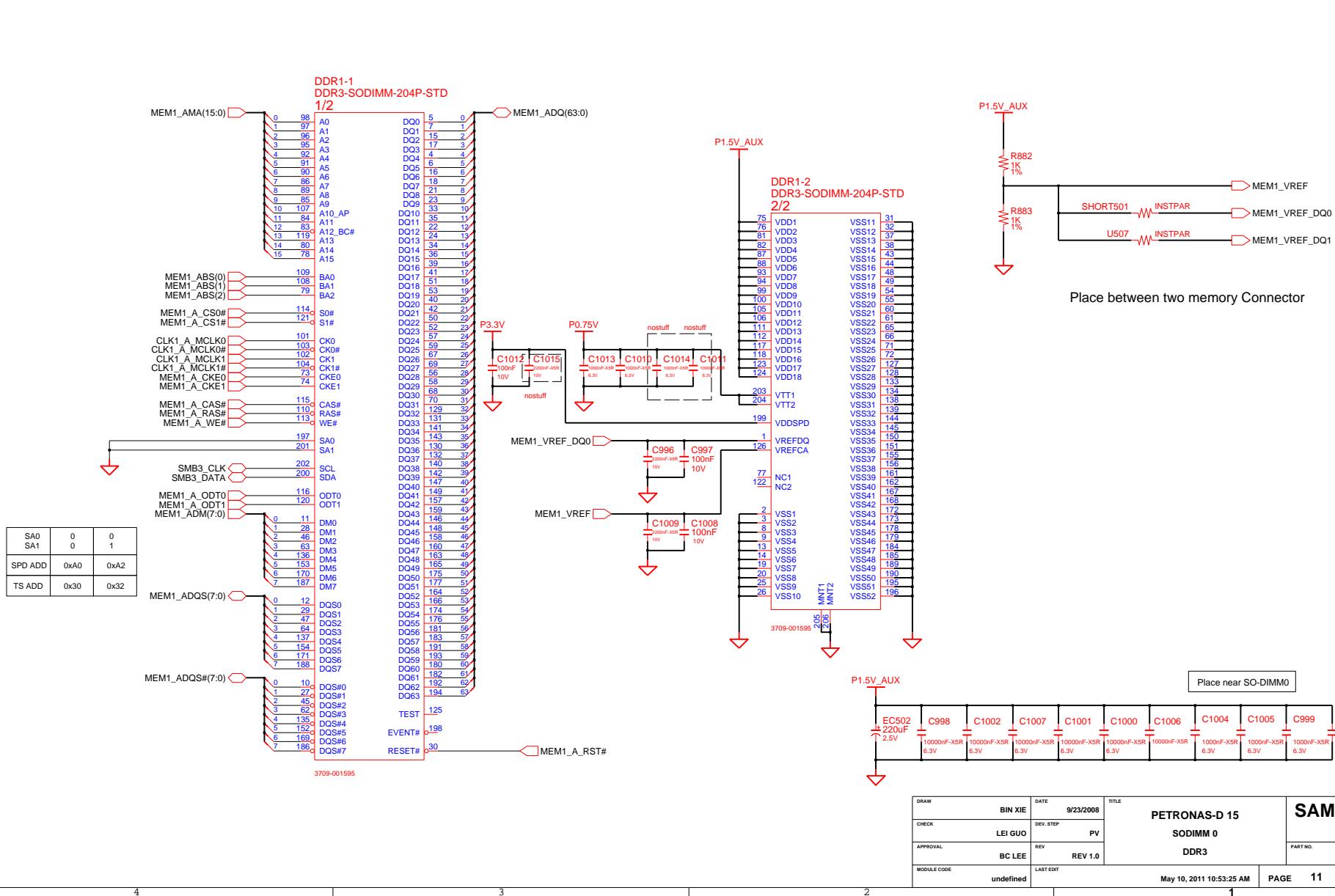


SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

SO-DIMM#0 : 2nd SO-DIMM

DDR SO-DIMM #0

Height : 9.2 mm (STD)



4
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.

3

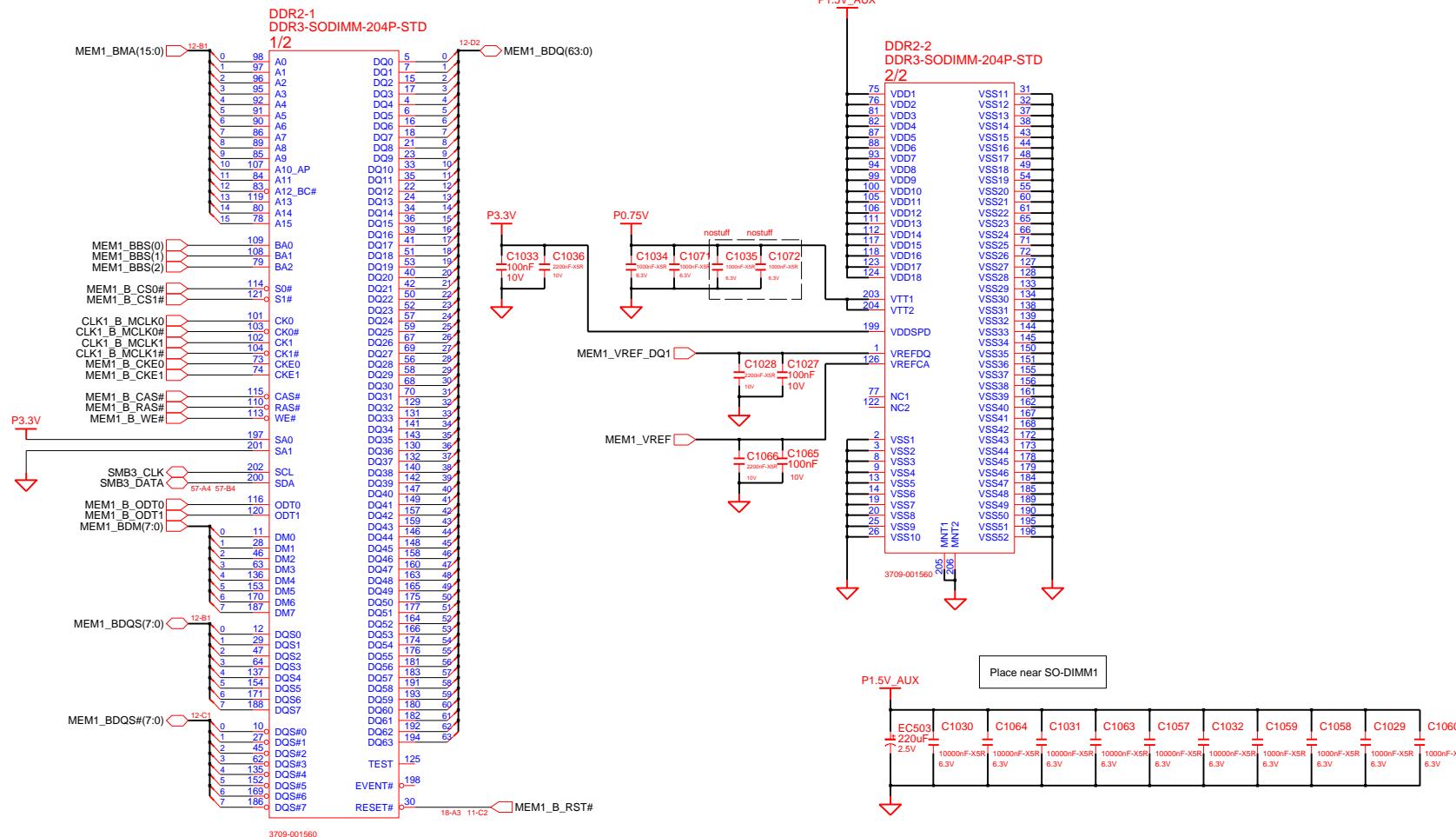
2

1

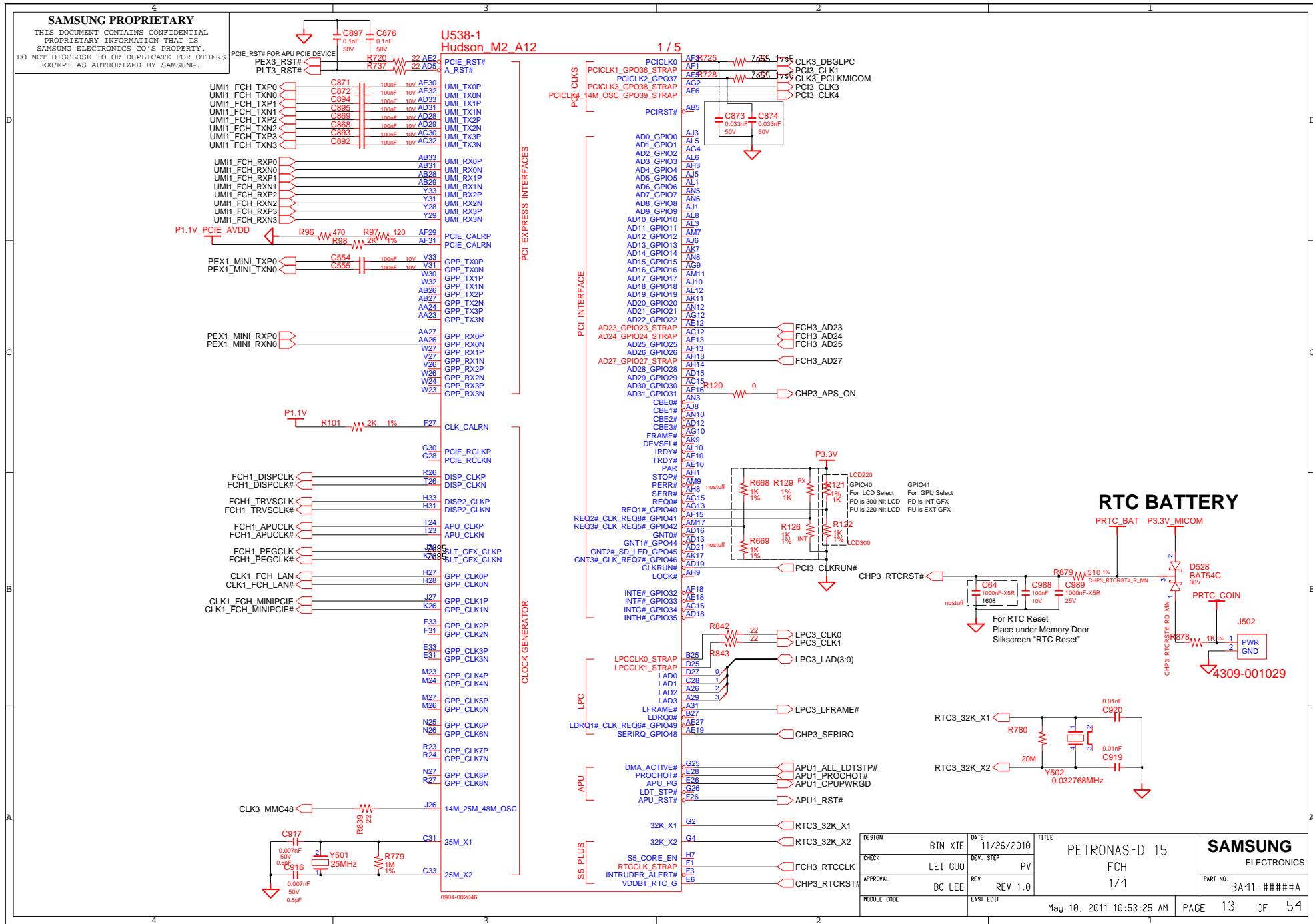
SO-DIMM#1 : 1st SO-DIMM

DDR SO-DIMM #1

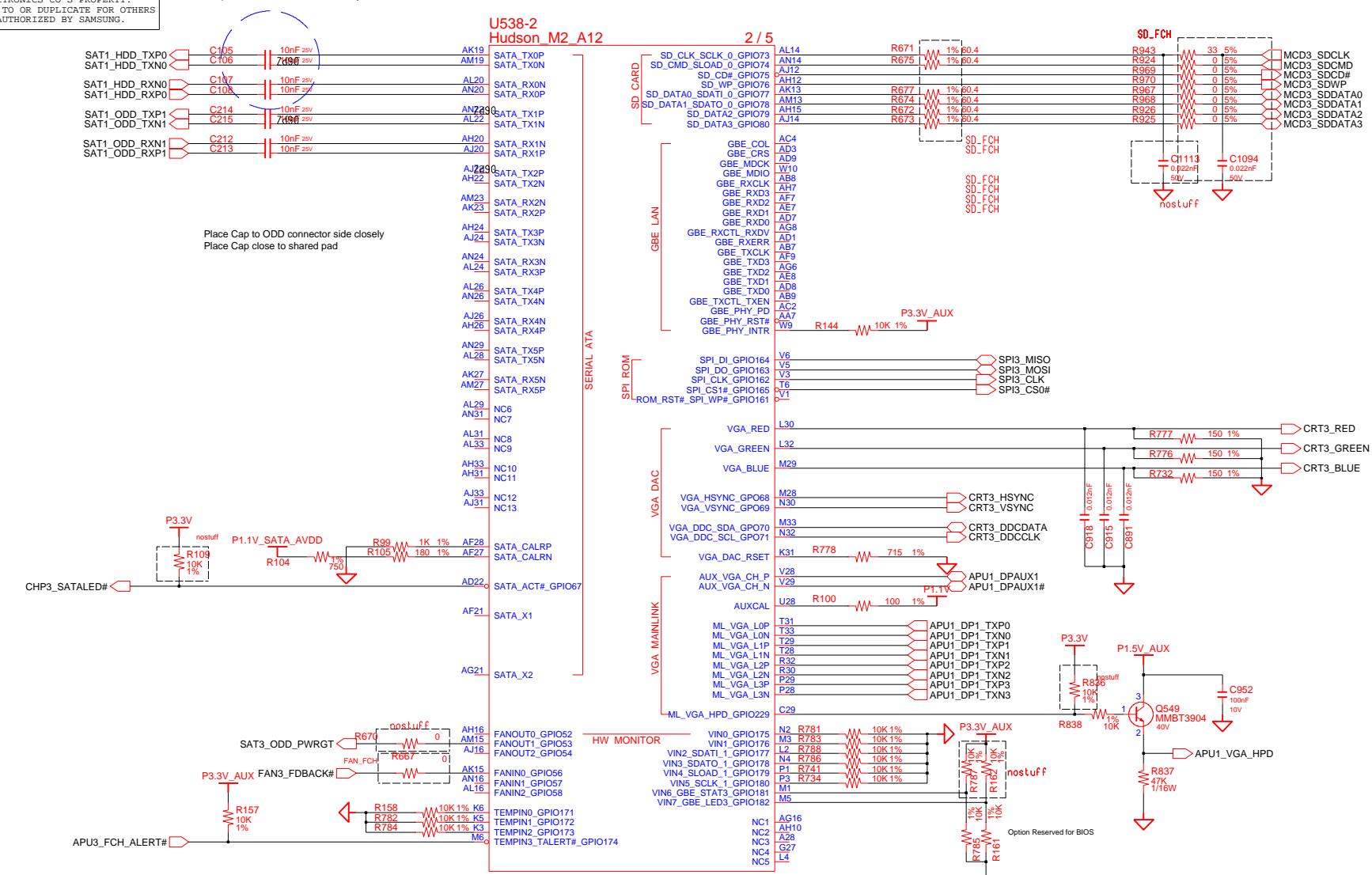
Height : 4.0mm (STD)



DRAW	BIN XIE	DATE	2/27/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV STEP	PV	ELECTRONICS		
APPROVAL	BC LEE	REV	REV 1.0	PART NO.		
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	12	OF	54

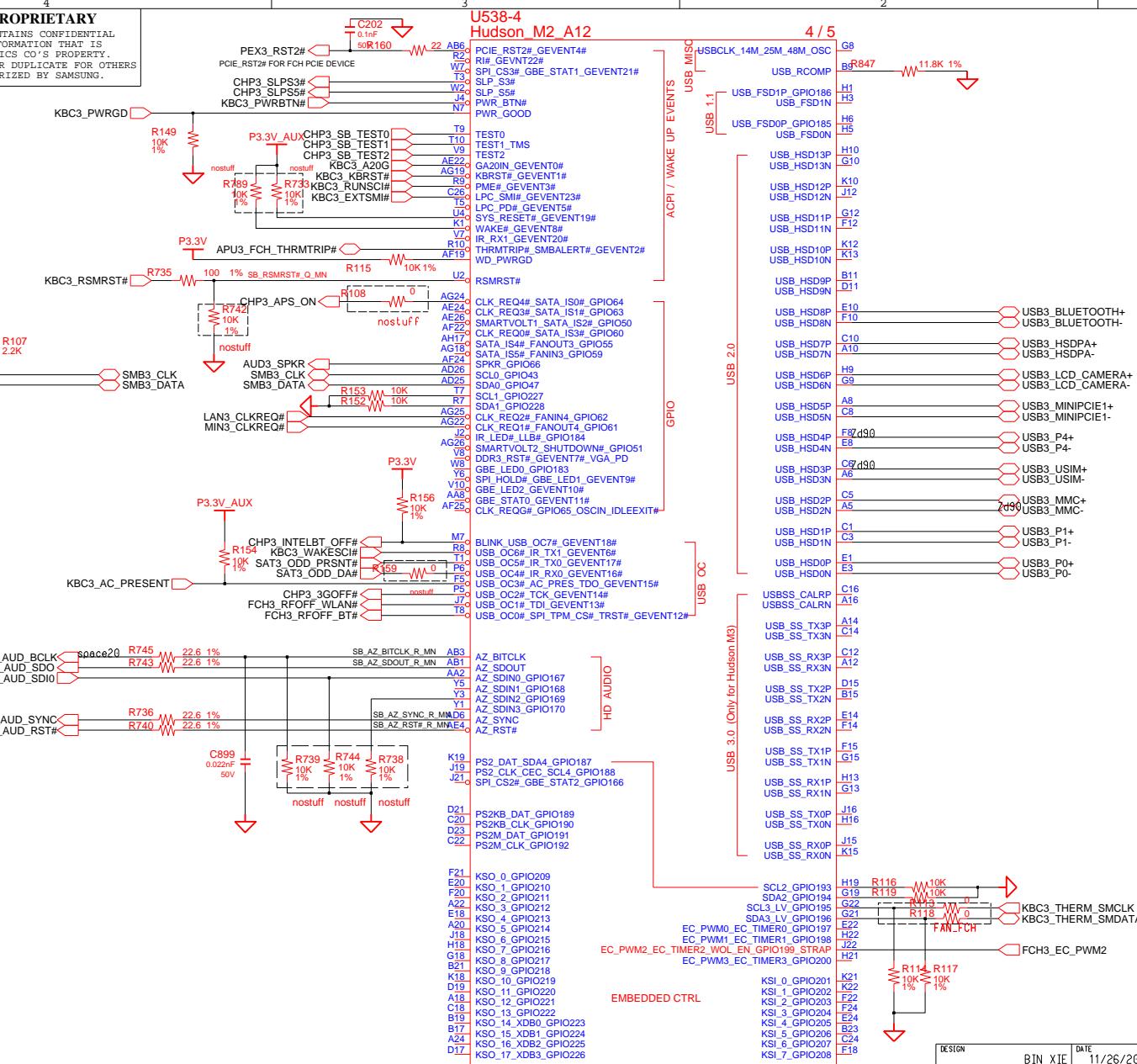


SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.



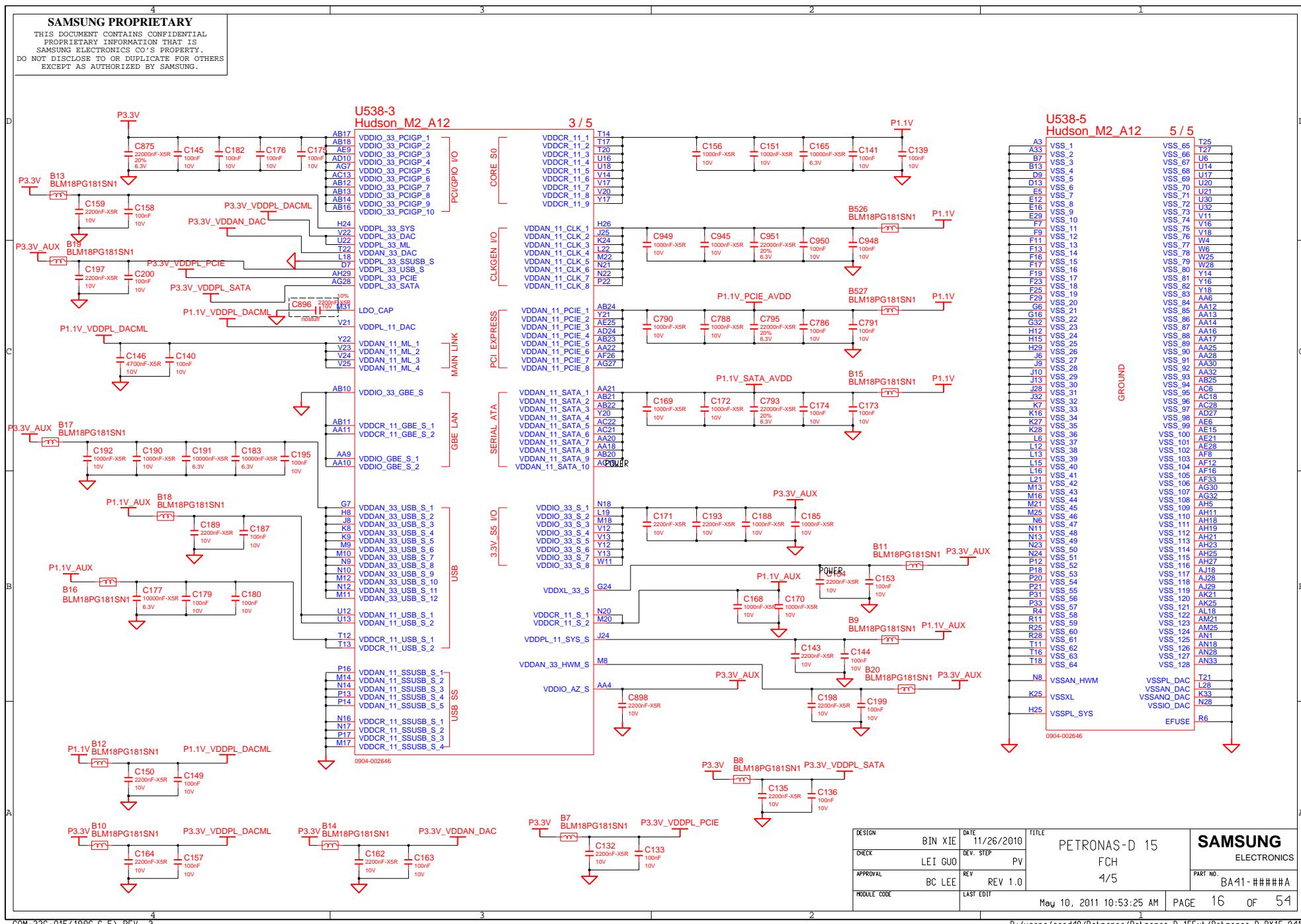
DESIGN	BIN XIE	DATE	TITLE	SAMSUNG
		11/26/2010		ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV	
APPROVAL	BC LEE	REV	REV 1.0	PART NO.
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	14 OF 54

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.

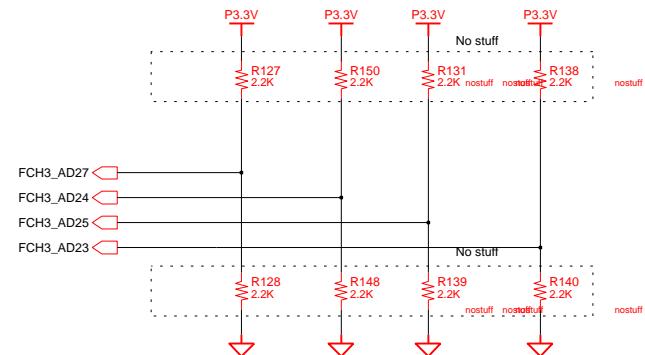


DESIGN	BIN XIE	DATE 11/26/2010	TITLE PETRONAS-D 15	SAMSUNG ELECTRONICS	
CHECK	LEI GUO	DEV. STEP PV	FCH	PART NO. BA41-#####A	
APPROVAL	BC LEE	REV REV 1.0	3/4		
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM		PAGE 15	OF 54

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.

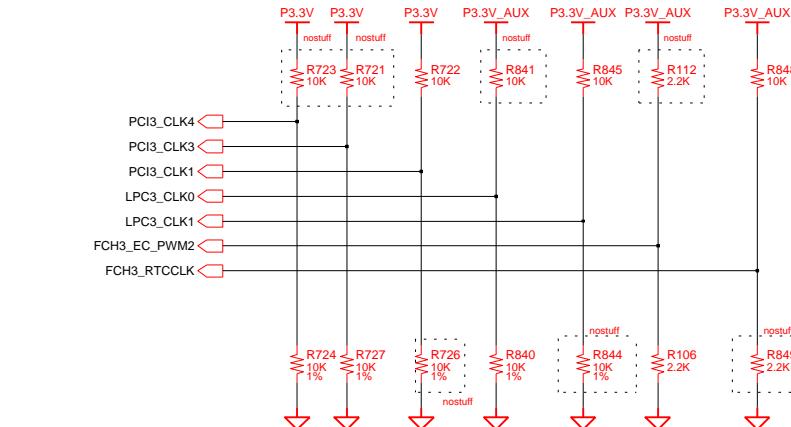


SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

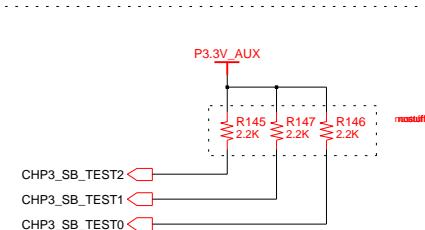


DEBUG STRAPS

	PCI3_AD(27)	PCI3_AD(25)	PCI3_AD(24)	PCI3_AD(23)
STRAP HIGH	USE PCI PLL	Nomal REFCLK Termination	DISABLE I2C ROM	DISABLED BOOT FROM PCI MEM
STRAP LOW	BYPASS PCI PLL	Inverted REFCLK Termination	ENABLE I2C ROM	ENABLED BOOT FROM PCI MEM



	PCI3_CLK1	PCI3_CLK3	PCI3_CLK4	LPC3_CLK0	LPC3_CLK1	EC_PWM2	RTC_CLK
STRAP HIGH	ALLOW PCIE GEN2 DEFAULT	USER DEBUG STRAPS	NON_FUSION CLOCK MODE	EC ENABLED	CLKGEN ENABLED	LPC ROM	S5 PLUS MODE DISABLE DEFAULT
STRAP LOW	FORCE PCIE GEN1	IGNORE DEBUG STRAPS	FUSION CLOCK MODE DEFAULT	EC DISABLED	CLKGEN DISABLED	SPI ROM DEFAULT	S5 PLUS MODE ENABLED

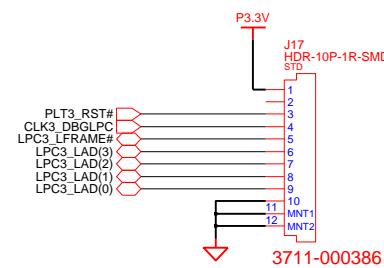


Remove SB_TEST pins for mass production. (For ASIC debug only - AMD)

DRAW	BIN XIE	DATE	09/16/2010	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	FCH Strap	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0		PART NO.	
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM		PAGE	17	
				OF	54	

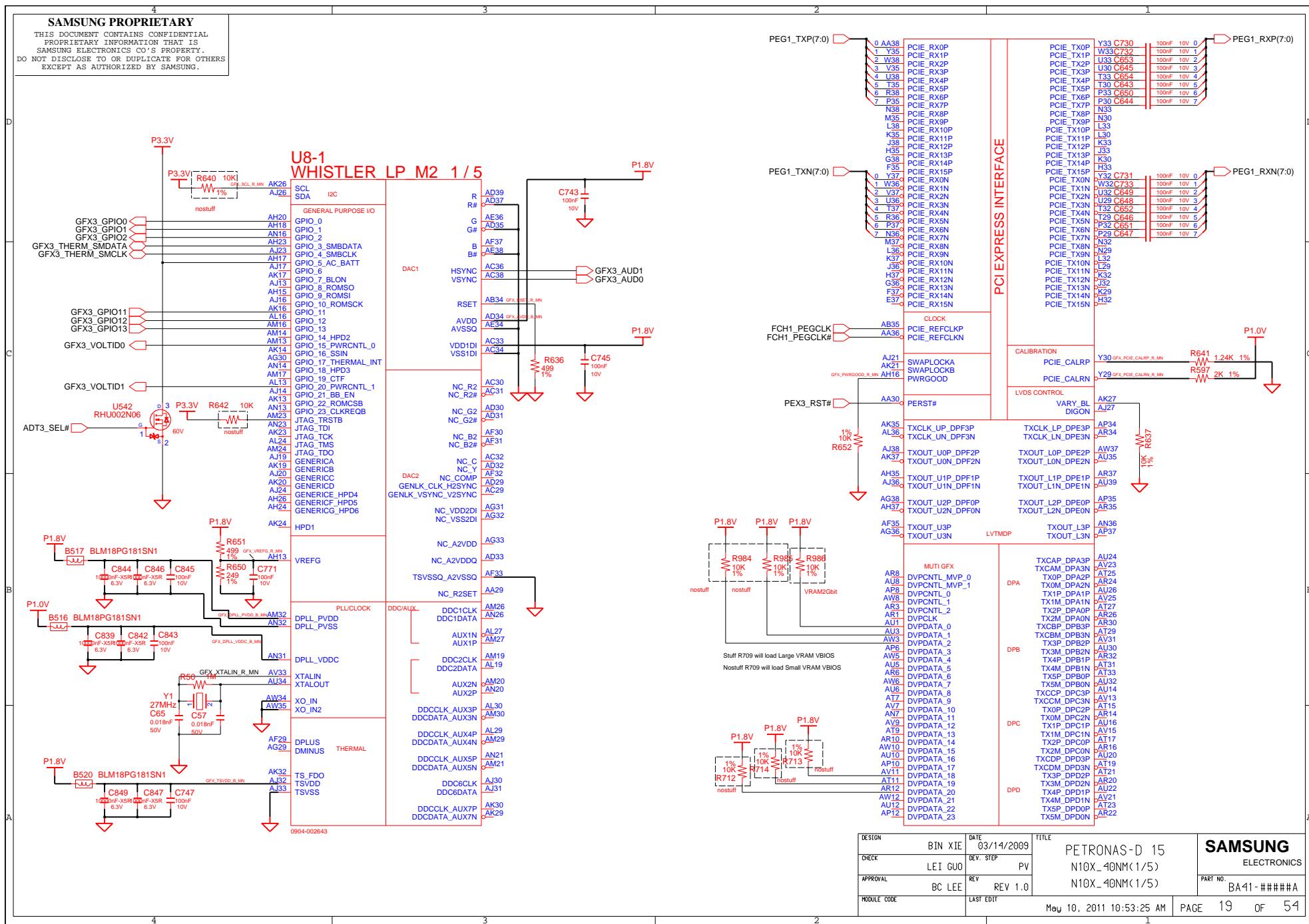
SAMSUNG PROPRIETARY
 THIS DOCUMENT CONTAINS CONFIDENTIAL
 PROPRIETARY INFORMATION THAT IS
 SAMSUNG ELECTRONICS CO.'S PROPERTY.
 DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
 EXCEPT AS AUTHORIZED BY SAMSUNG.

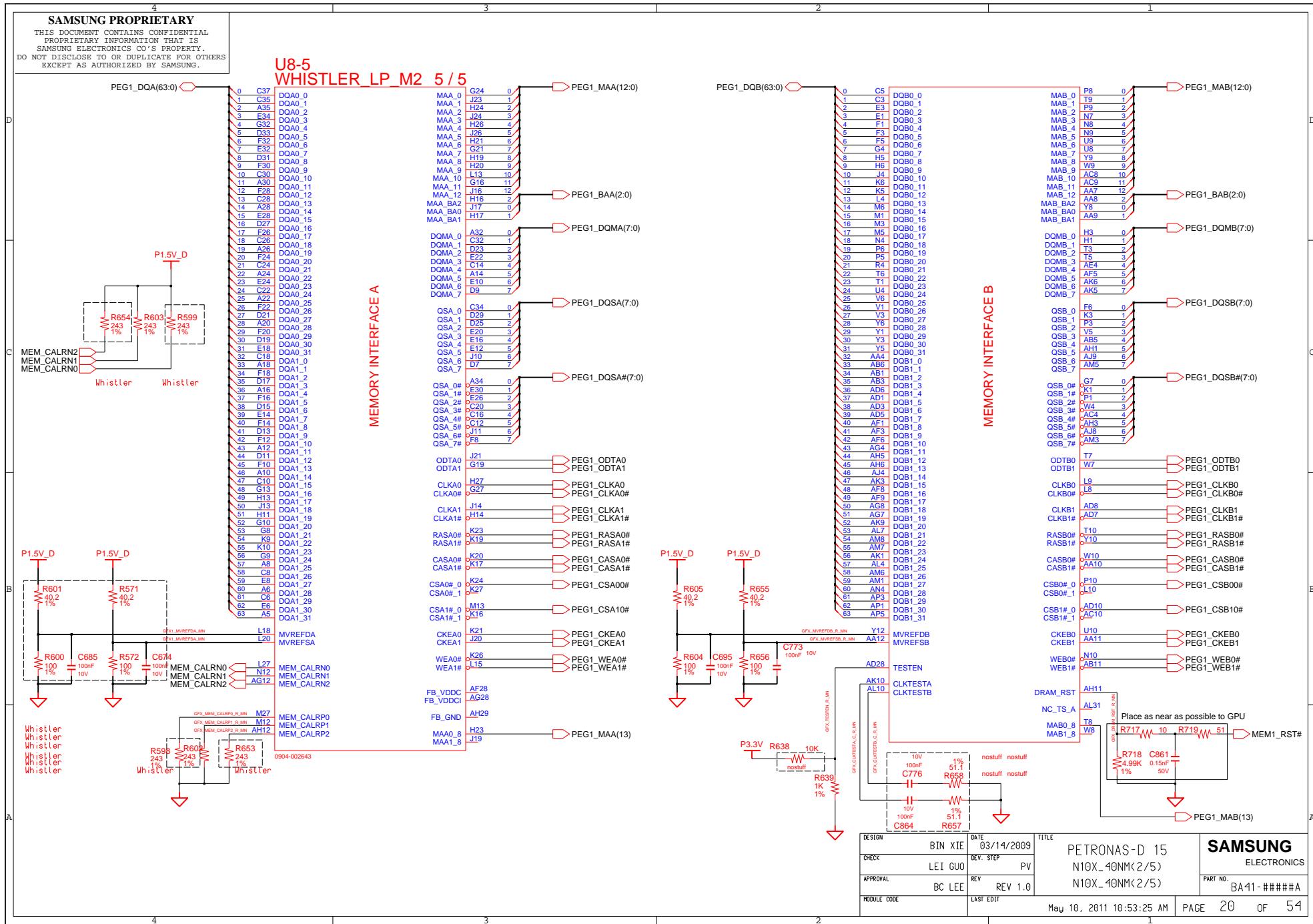
80H PORT DEBUG



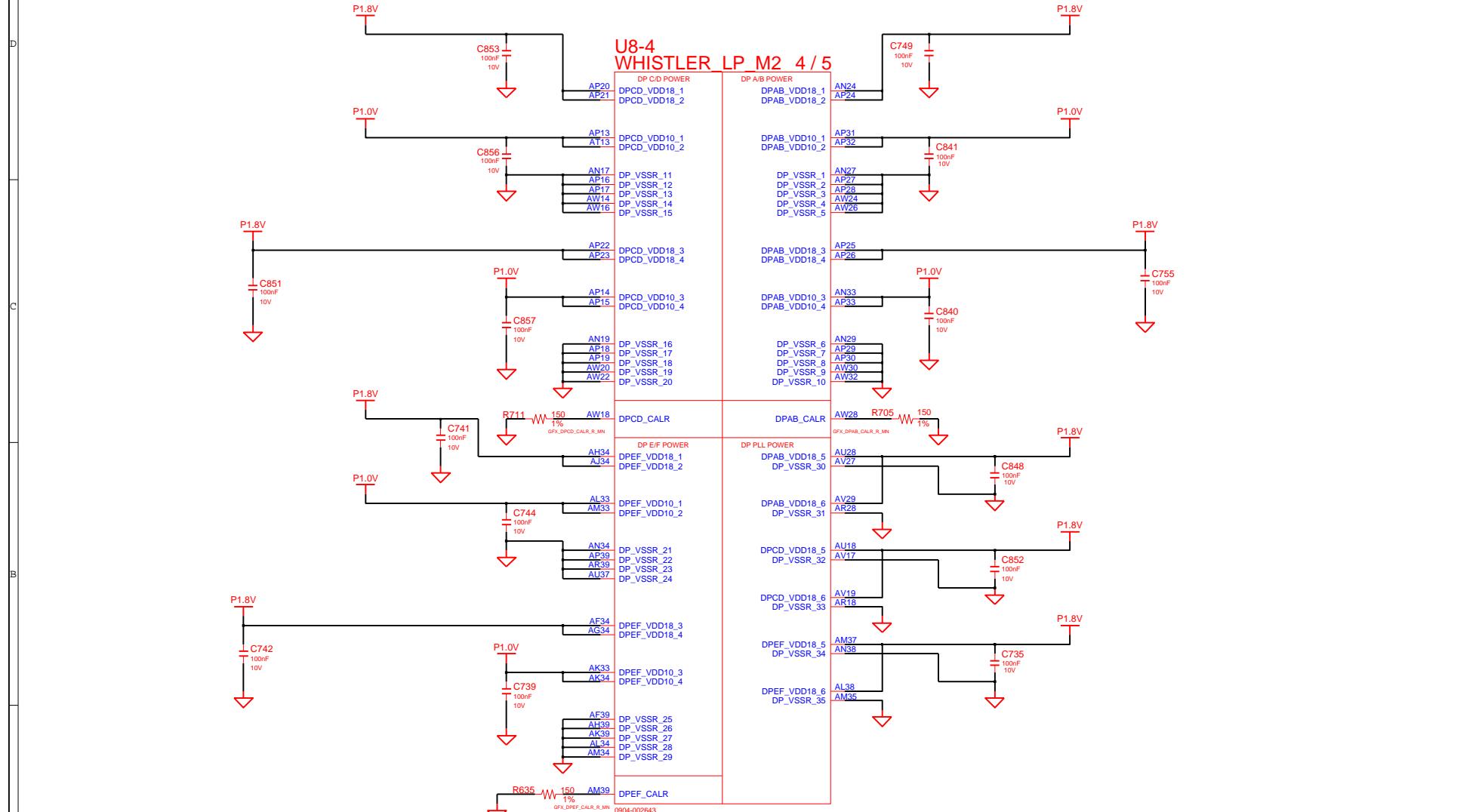
DESIGN	BIN XIE	DATE	11/10/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	DEBUG PORT	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	80H DECODER		PART NO.
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM		PAGE	18 OF 54	BA41- #####A

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.



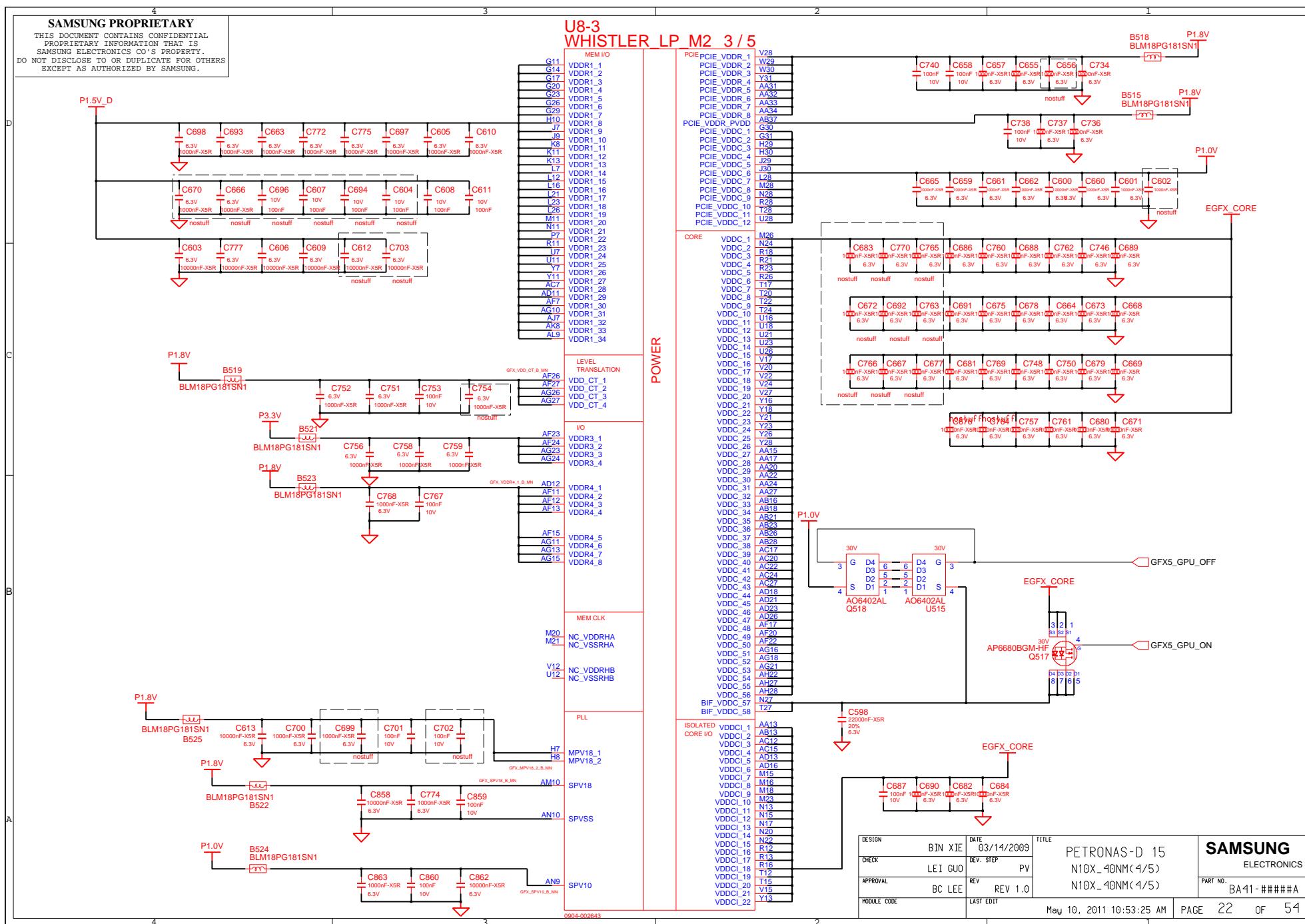


SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.



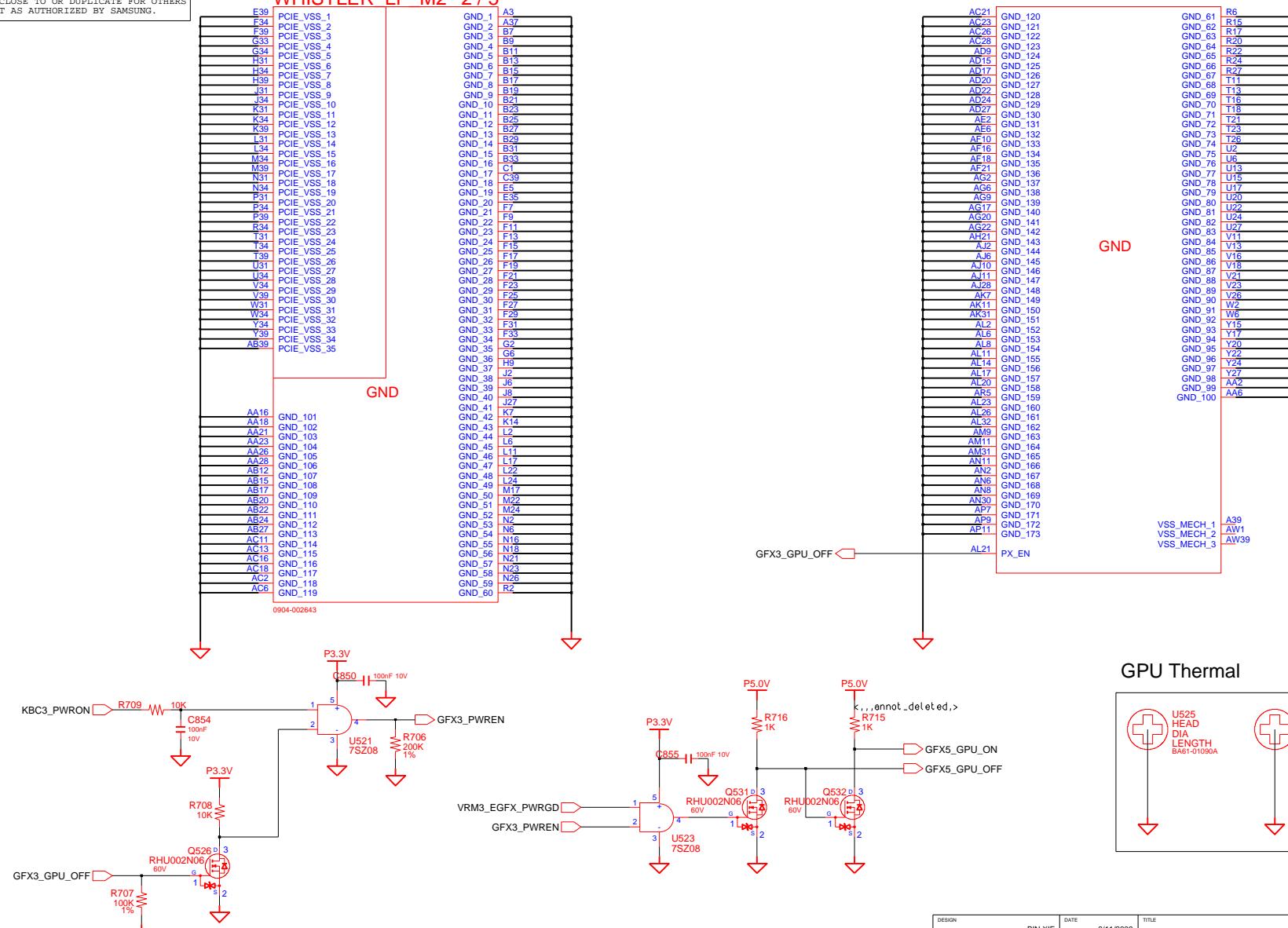
DESIGN	BIN XIE	DATE 03/14/2009	TITLE PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP PV	N10X_40NM(3/5)	PART NO. BA41-#####A
APPROVAL	BC LEE	REV REV 1.0	N10X_40NM(3/5)	
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM		PAGE 21 OF 54

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.



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.

U8-2 WHISTLER LP M2 2 / 5

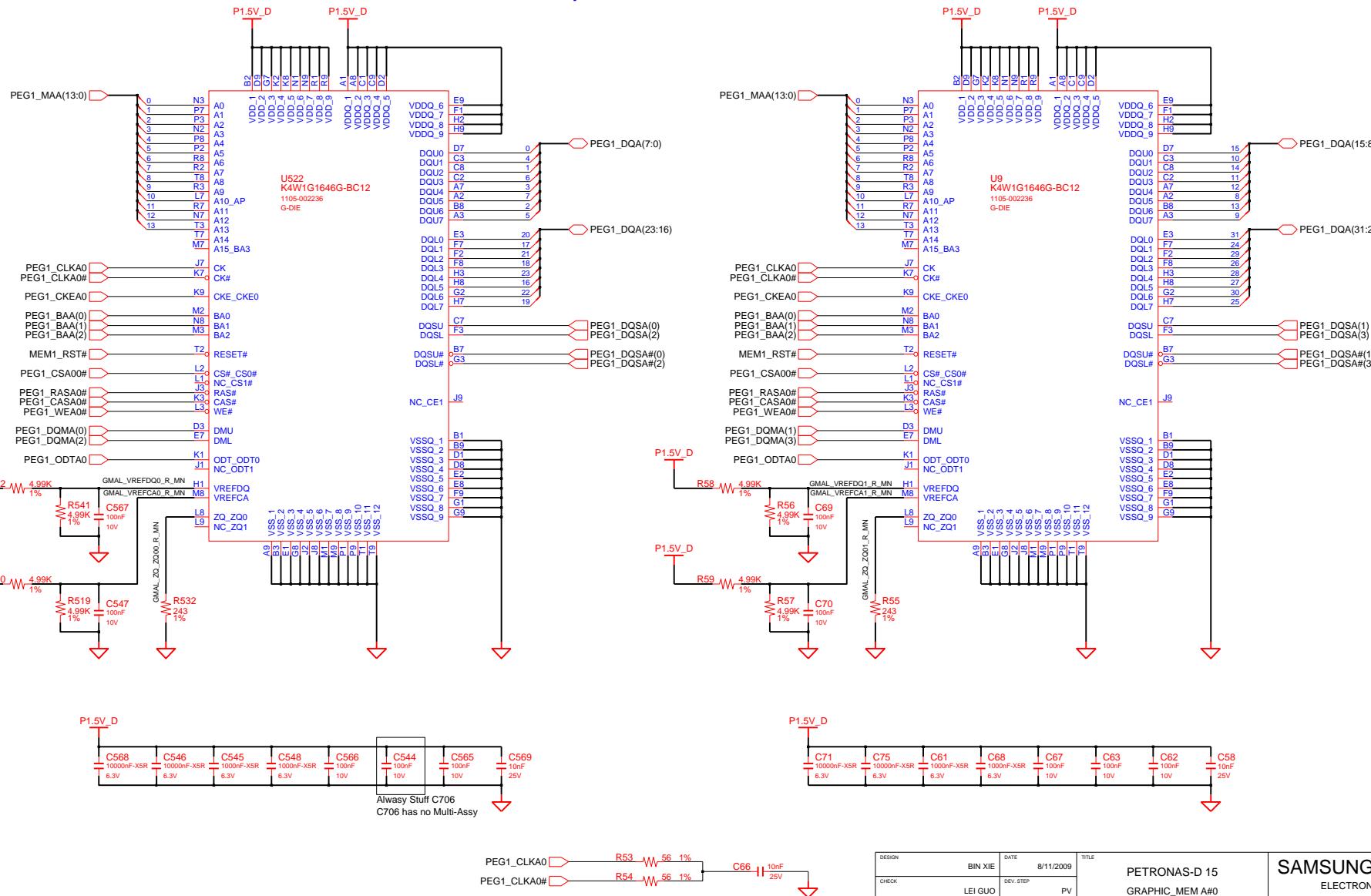


DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV		N11X_40NM(5/5)	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		N11X_40NM(5/5)	PART NO.
MODULE CODE		LAST EDIT			BA41-#####	
		May 10, 2011 10:53:25 AM			PAGE 23 OF 54	

Whistler

A-channel Lower Data

Seymour M2 doesn't use A Channel

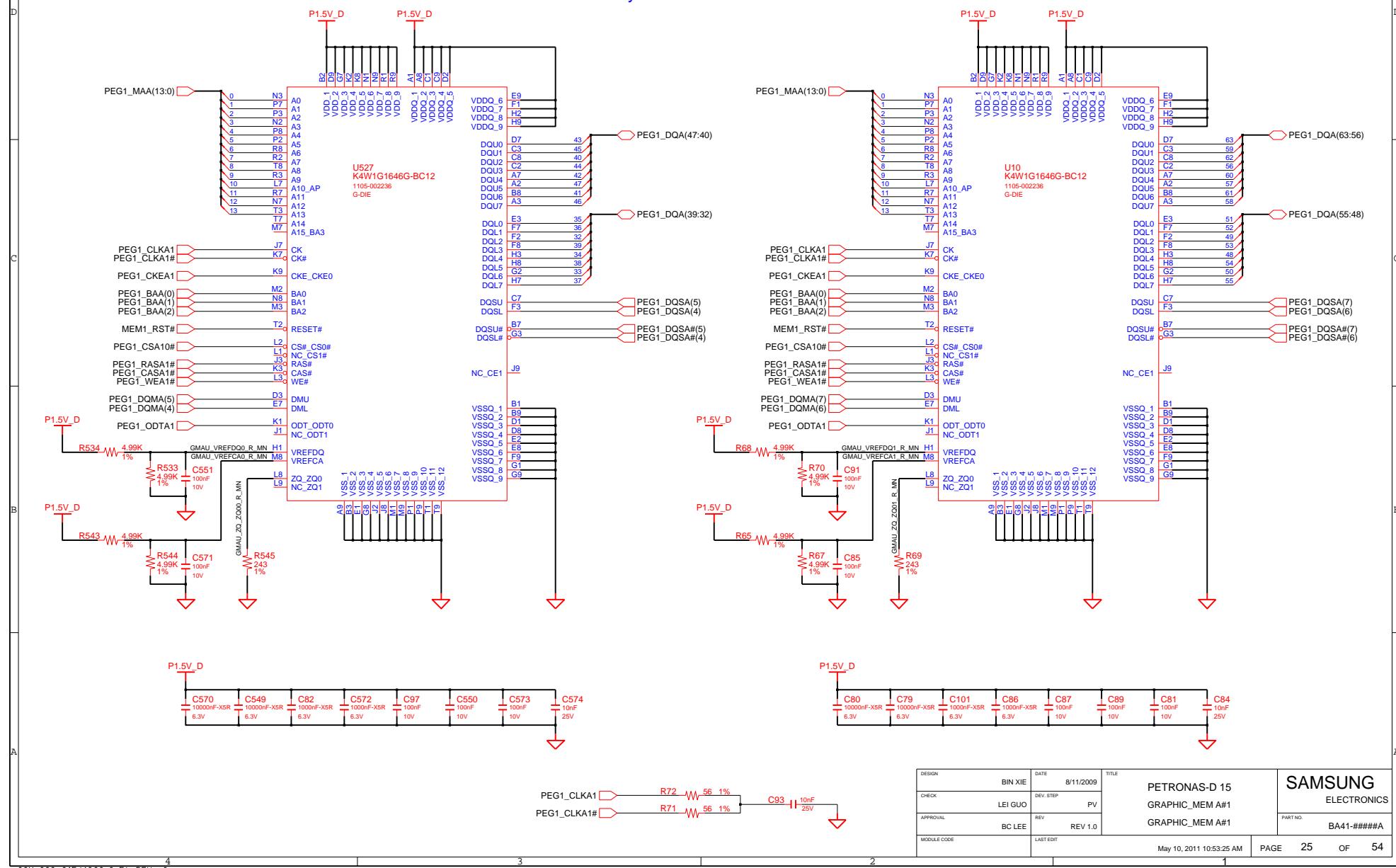


SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

A-channel Upper Data

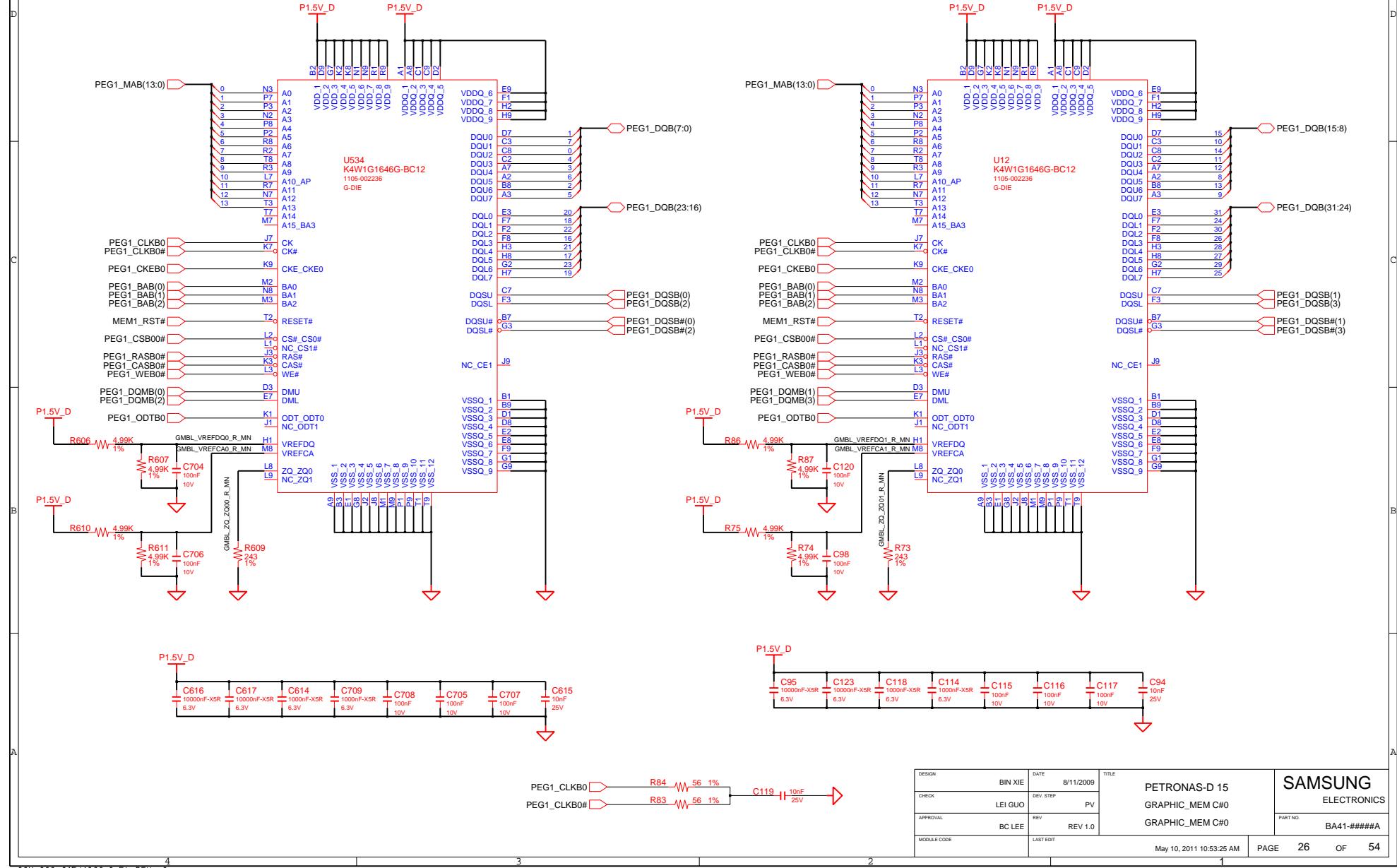
Seymour M2 doesn't use A Channel

Whistler



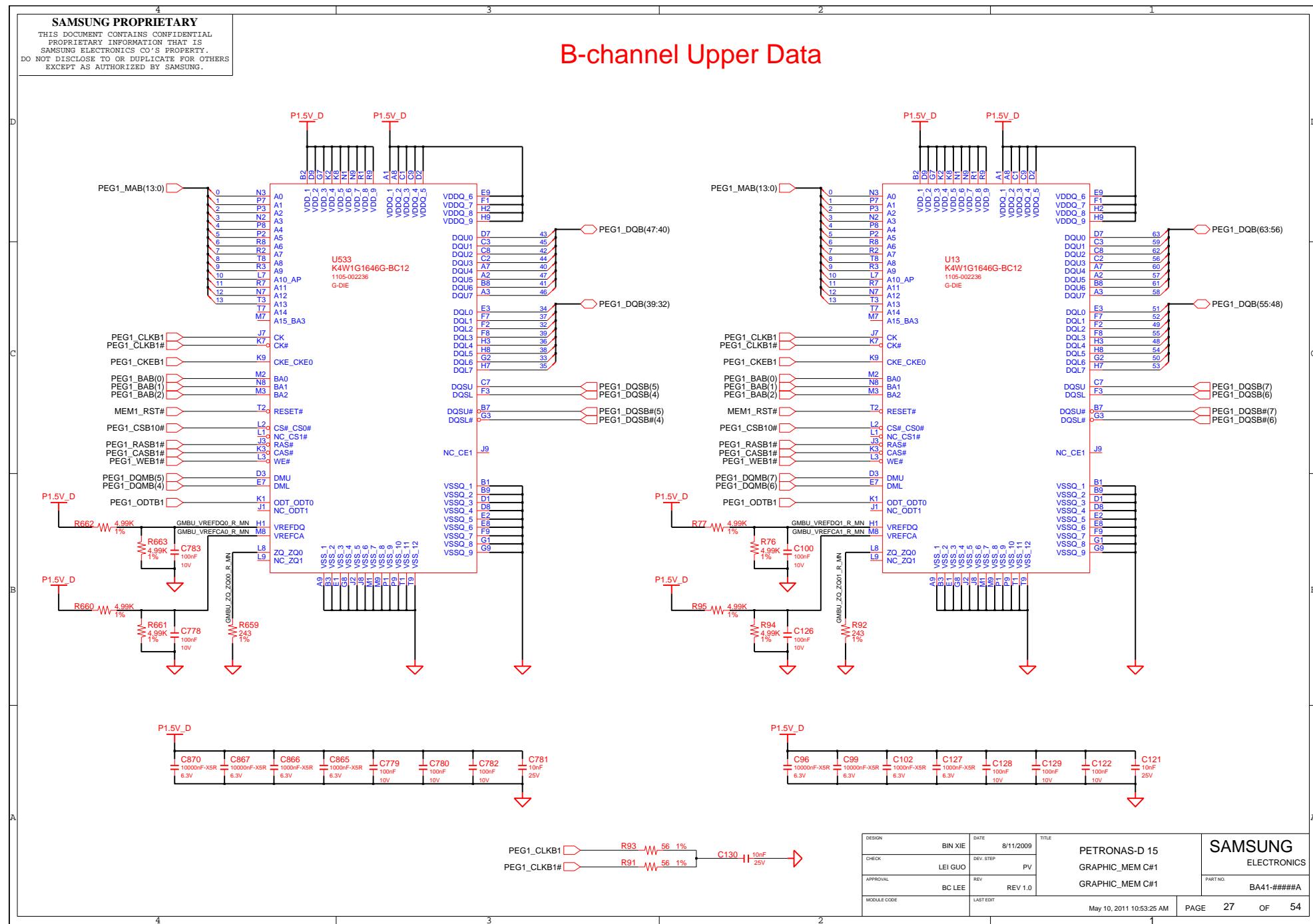
4
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

B-channel Lower Data



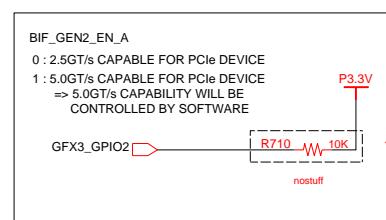
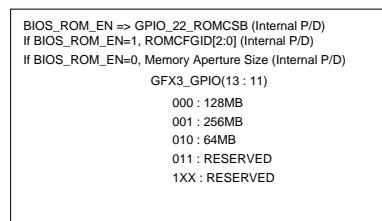
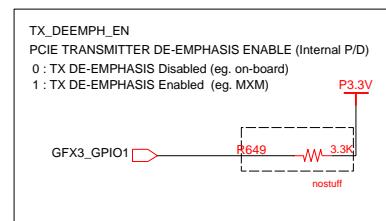
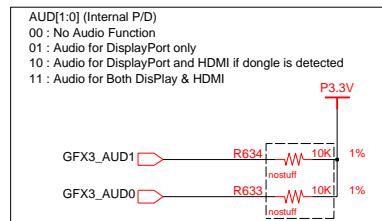
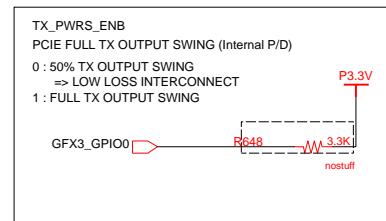
4
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

B-channel Upper Data



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

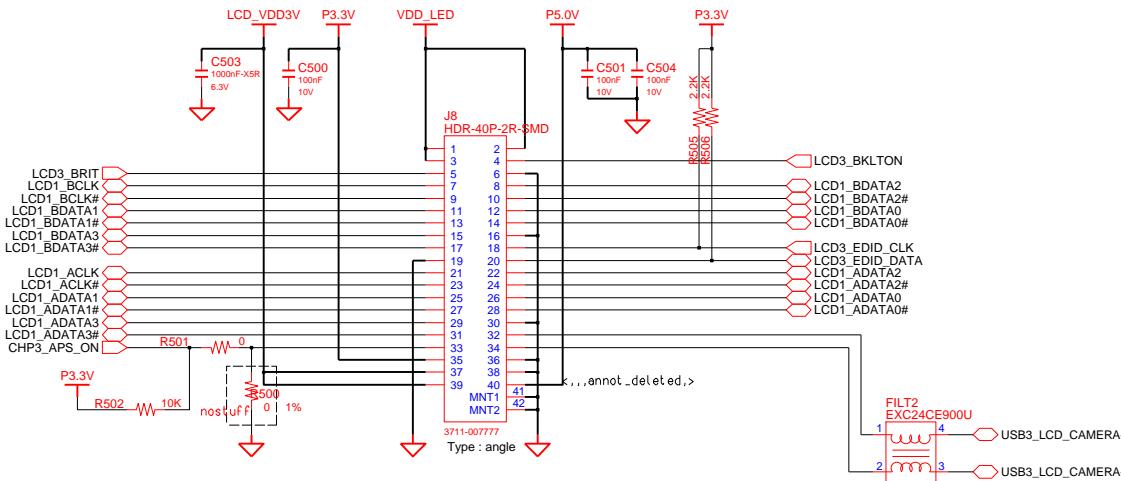


DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	N11X_40NM STRAP	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	N11X_40NM STRAP	PART NO.	BA41-#####
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	28 OF 54

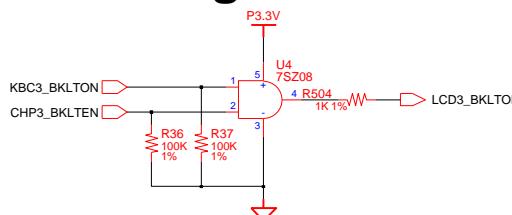
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

LVDS LOGIC

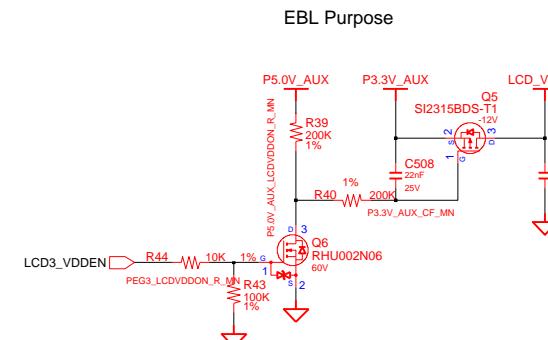
1Ch. LCD Connector + CAMERA



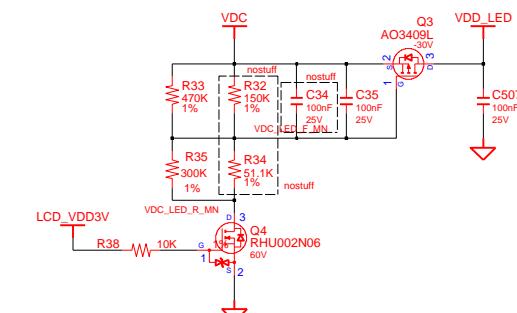
Backlight On

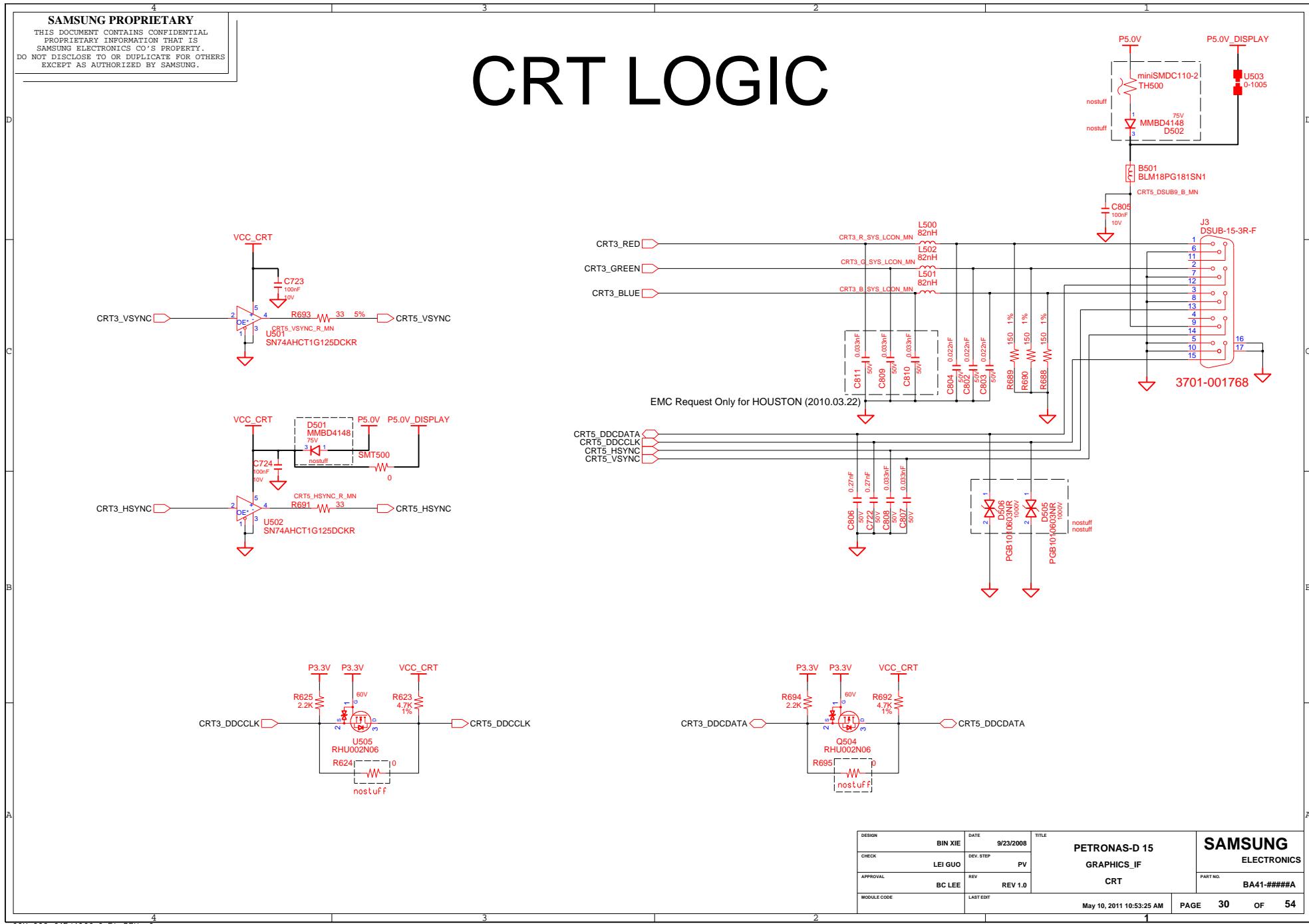


LCD Power



LED Power



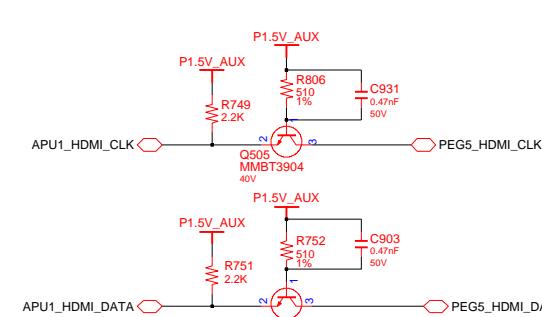
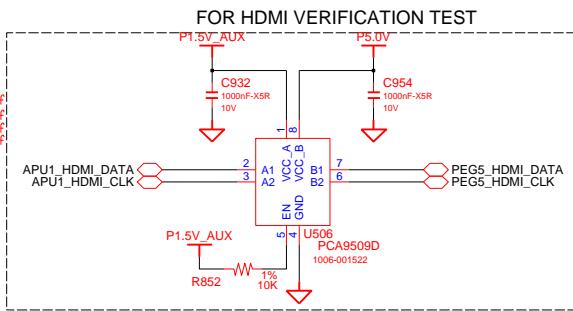
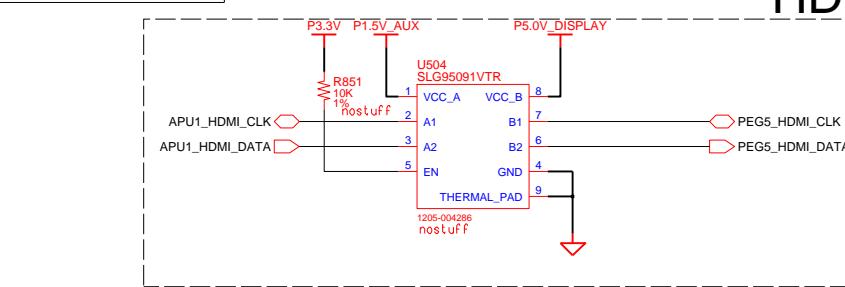


DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	GRAPHICS_IF	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	CRT	PART NO.	
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	30 OF 54

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.

FOR HDMI VERIFICATION TEST

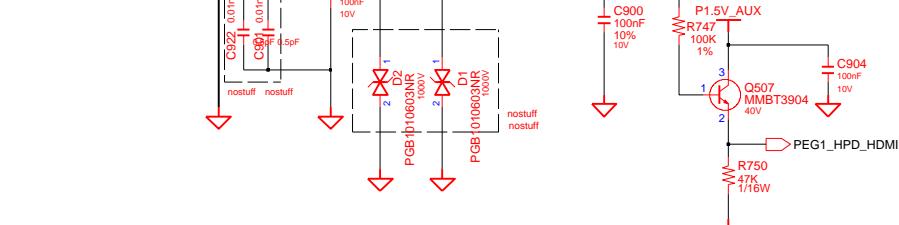
HDMI Graphic



J6
HDMI-19P-FEMALE

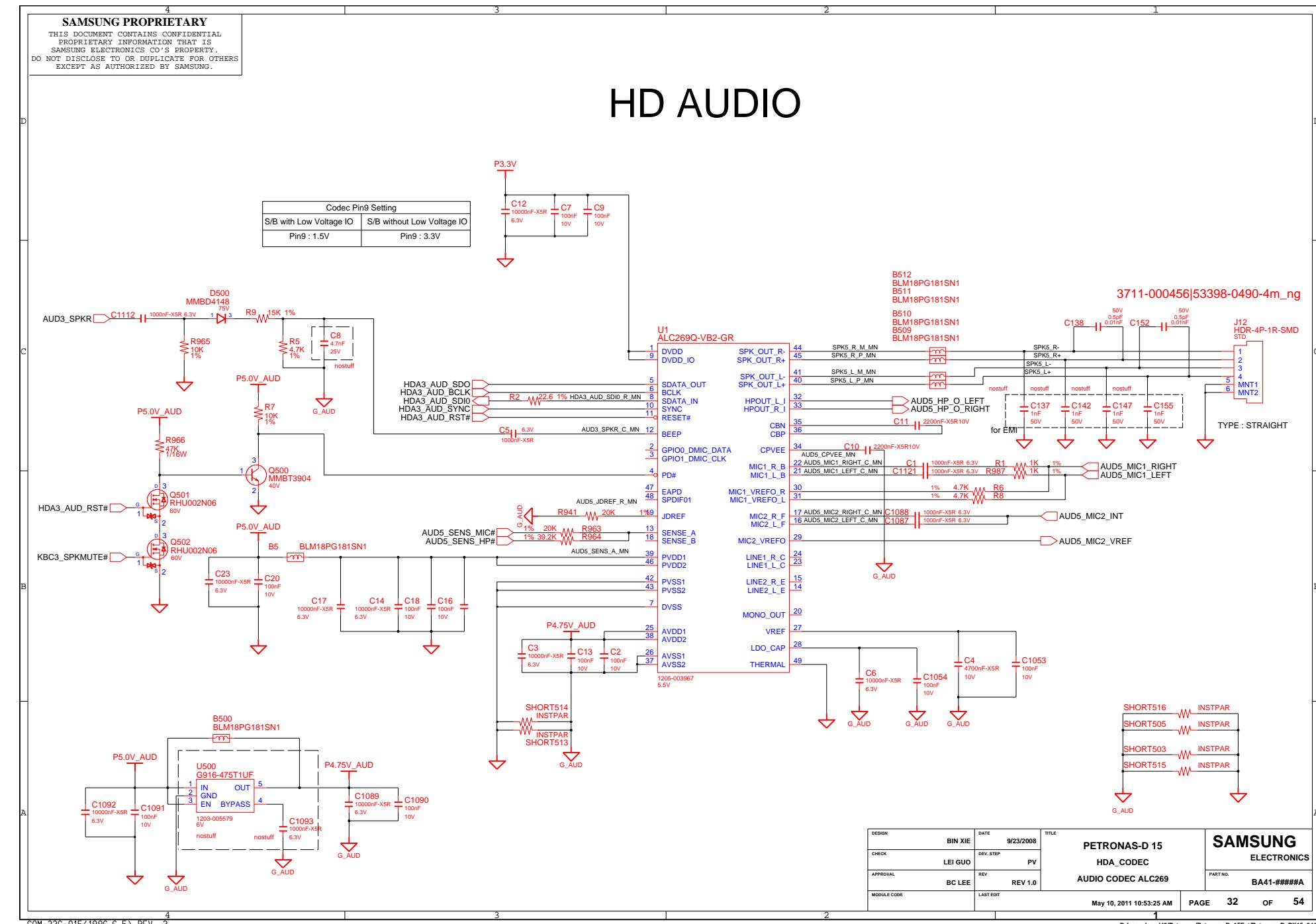
TMDS_DATA2	1
TMDS_DATA2_SHIELD	2
TMDS_DATA2#	3
TMDS_CLOCK#	4
TMDS_DATA0	5
TMDS_DATA0_SHIELD	6
TMDS_DATA0#	7
TMDS_CLOCK	8
TMDS_CLOCK_SHIELD	9
CE	10
RESERVED	11
SCL	12
SDA	13
DDC_GROUND	14
5V_POWER	15
HOT_PLUG_DETECT	16
MNT1	17
MNT2	18
MNT3	19
MNT4	20

3701-001782



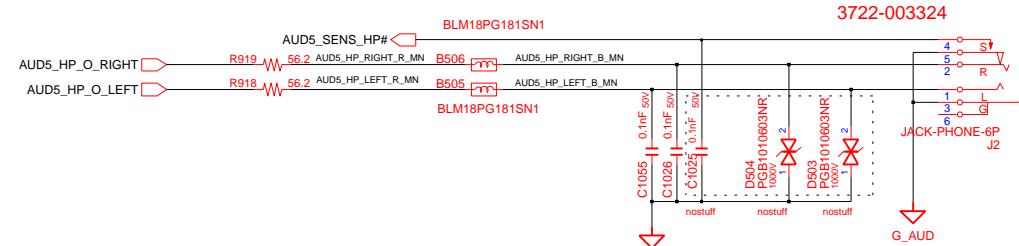
DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	GRAPHICS_IF	HDMI	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	PART NO. BA41-####A		
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	31 OF 54

4
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.

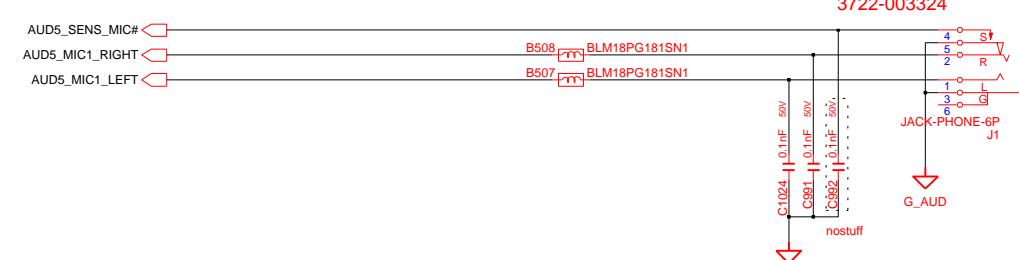


SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

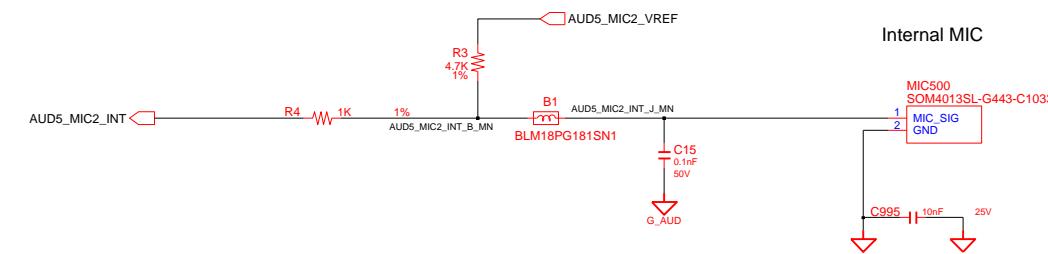
HEADPHONE



MIC JACK



Internal MIC



DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	HDA_CODEC	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	AUDIO JACK		
MODULE CODE		LAST EDIT			PART NO.	BA41-#####
					May 10, 2011 10:53:25 AM	PAGE 33 OF 54

4
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.

3

2

1

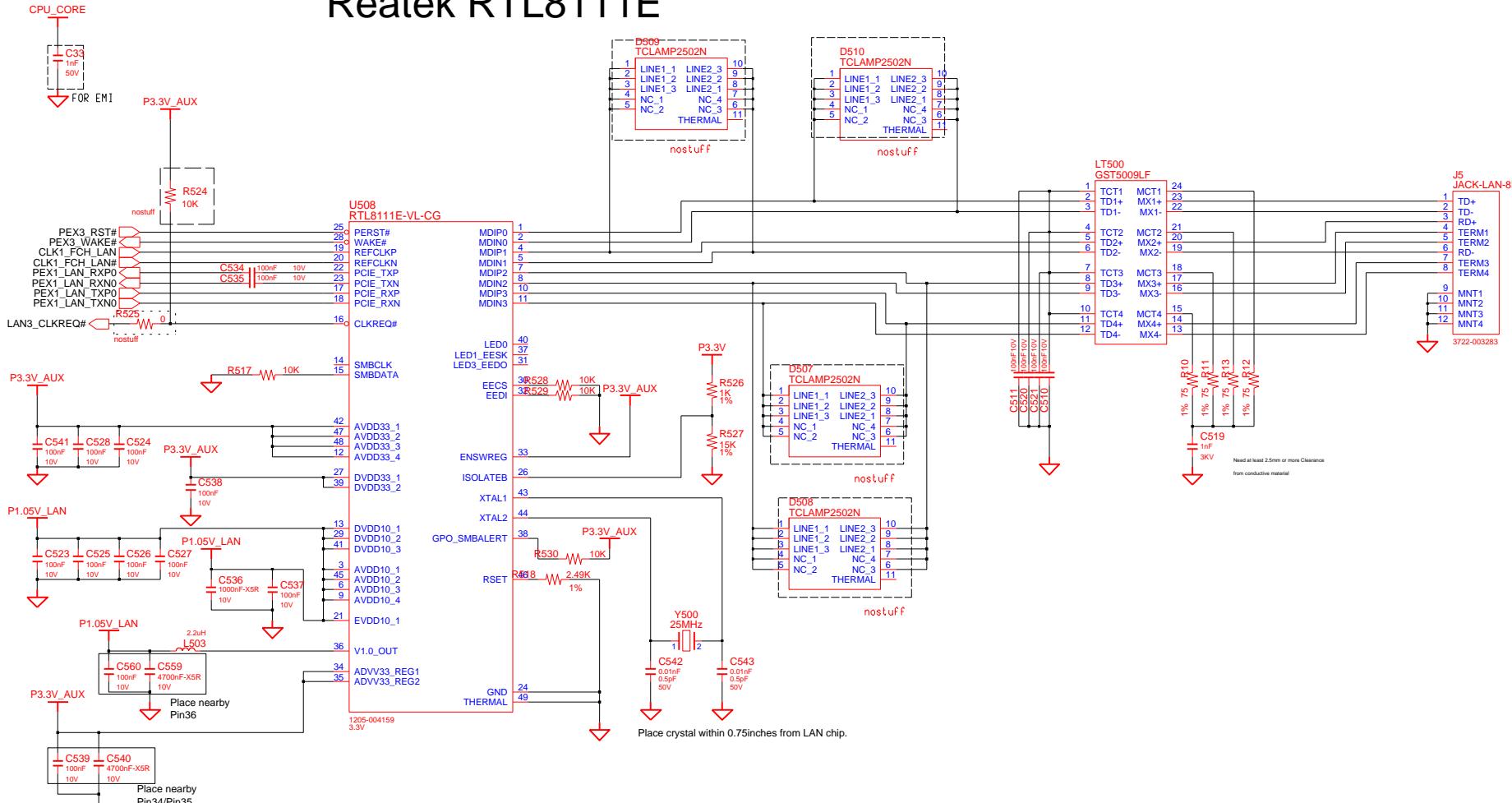
4
COM-22C-015(1996.6.5) REV. 3

3

2

1

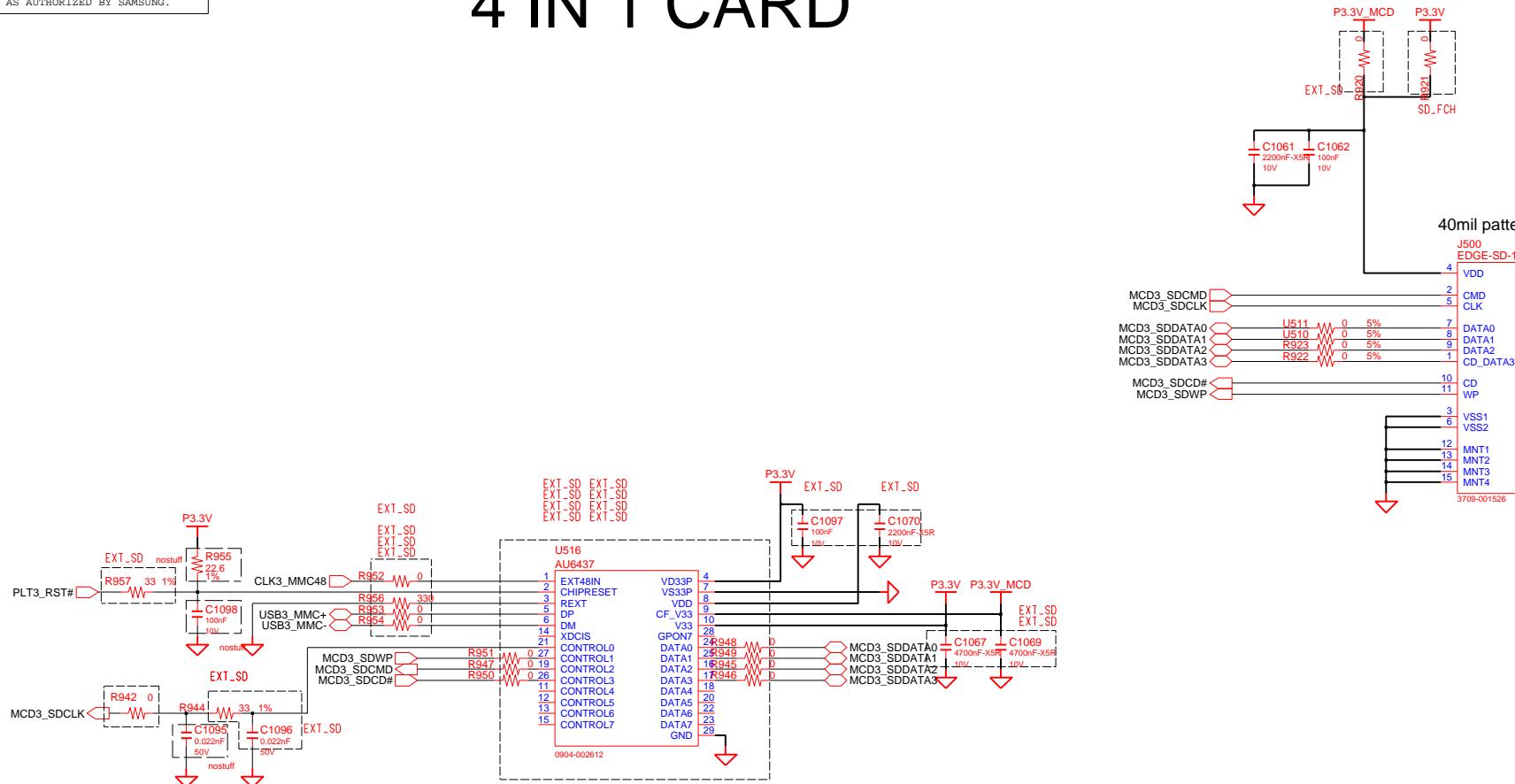
Reatek RTL8111E



DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	LAN	LAN	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	LAN_Realtek_RTL8103EL	PART NO.	BA41-#####
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	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.

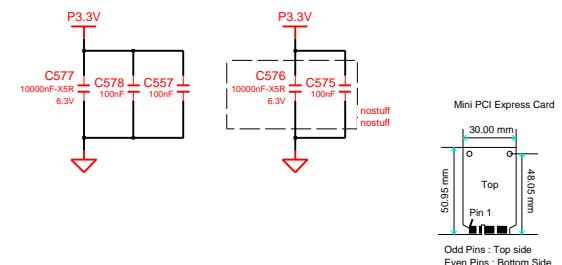
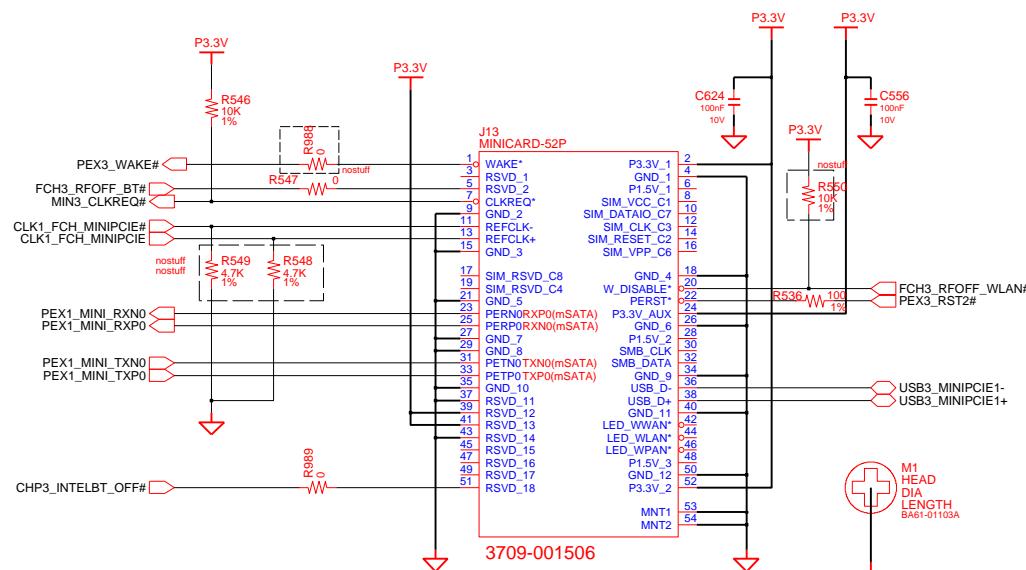
4 IN 1 CARD



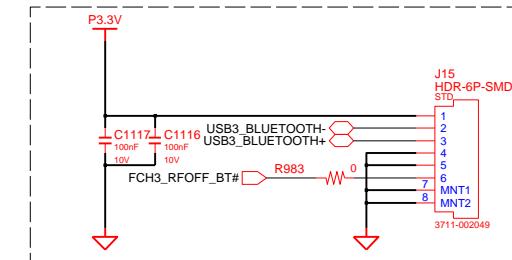
DESIGN	BIN XIE	DATE 9/23/2008	TITLE 3 IN 1 CARD(AU6473)	PETRONAS-D 15 MULTICARD	SAMSUNG
CHECK	LEI GUO	DEV. STEP PV			ELECTRONICS
APPROVAL	BC LEE	REV REV 1.0			PART NO. BA41-#####A
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE 35	OF 54	

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.

WLAN, 7mm



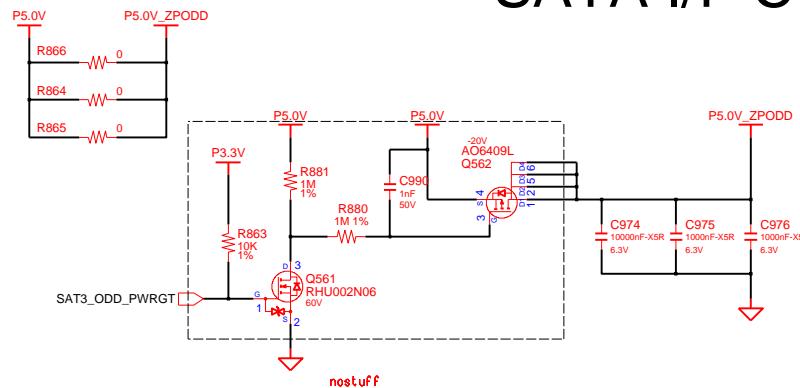
Bluetooth Interface



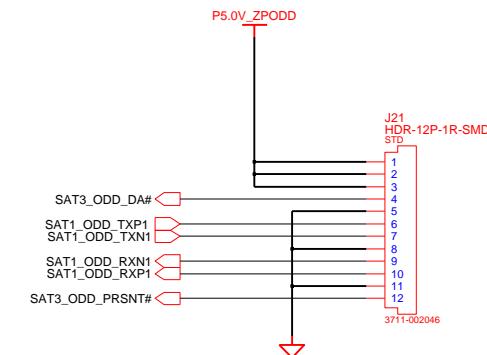
DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	MINI_PCIE_CONN		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	WLAN		PART NO.
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	36 OF 54

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.

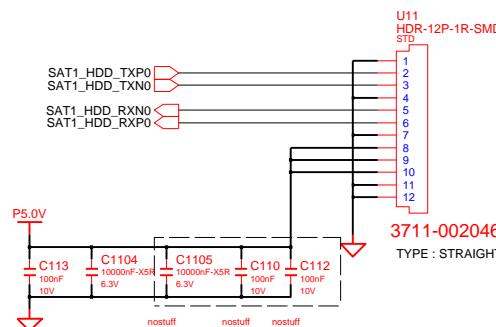
SATA I/F CONN



SATA ODD CONN 15"



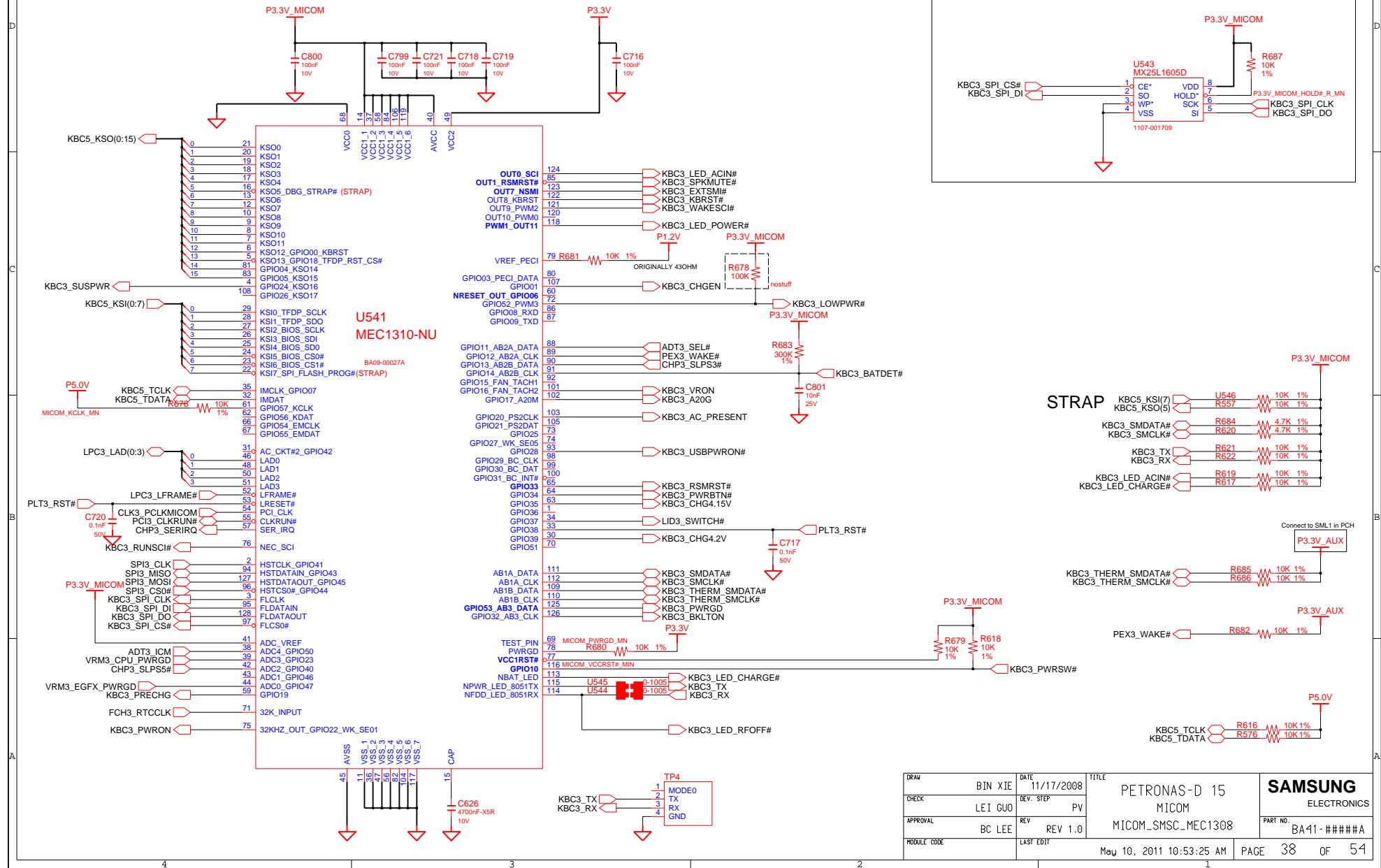
SATA HDD CONN



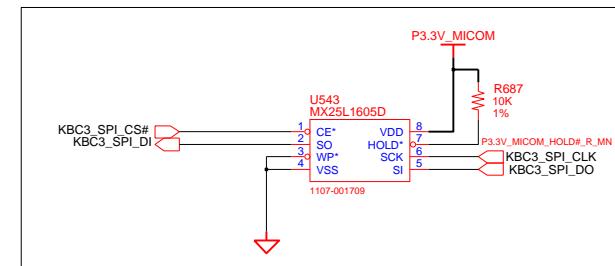
DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK		DEV. STEP	PV	SATA_DEVICES		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	HDD & ODD SUB CONNECTOR		PART NO.
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	37	OF 54

4
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 BOARD (MICOM)



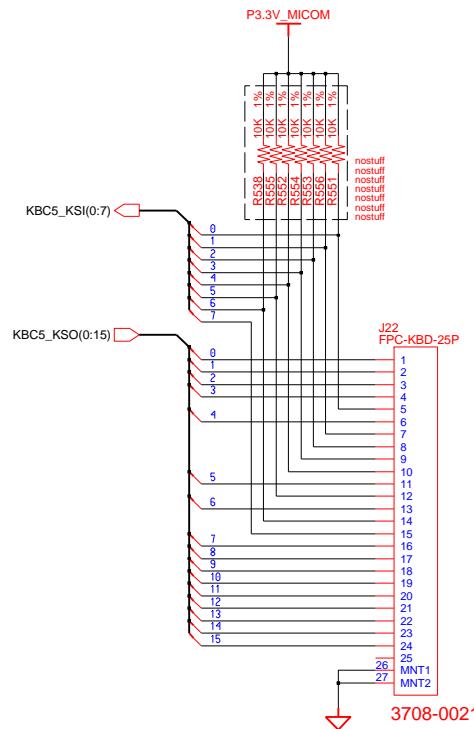
BE CAUTION SPI ROM SIZE!!



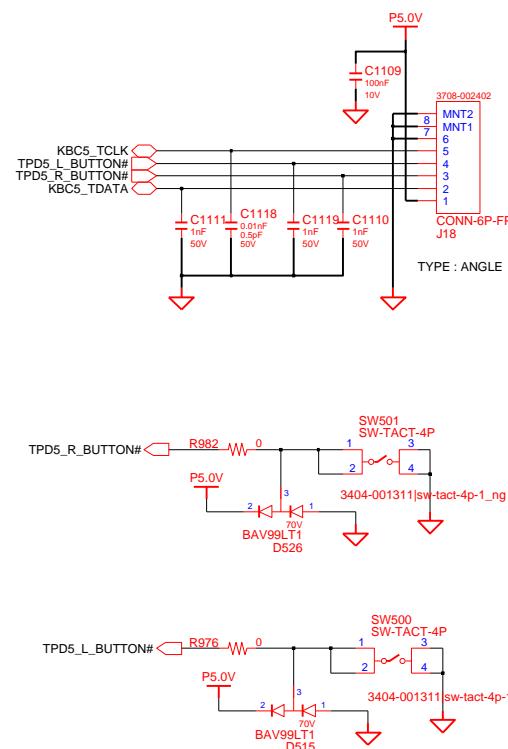
4
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

Micom Glue Logic

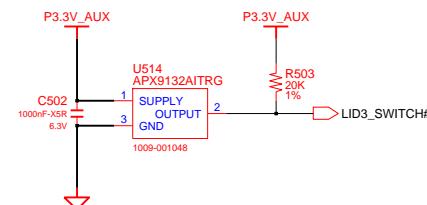
KEYBOARD



TOUCHPAD



LID_SWITCH

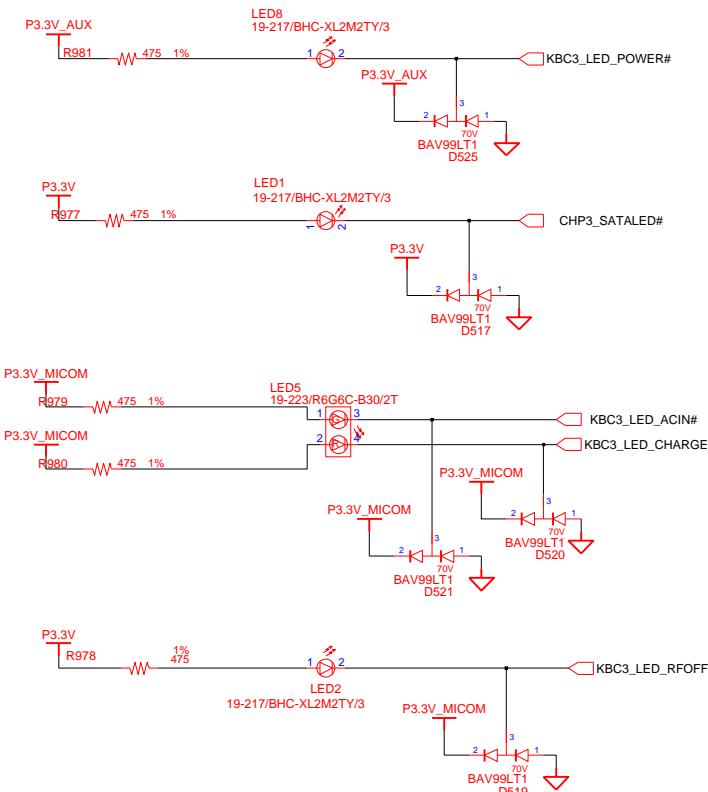


DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	MICOM GLUE LOGIC	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	KETBOARD & TOUCHPAD	PART NO.	
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	39 OF 54

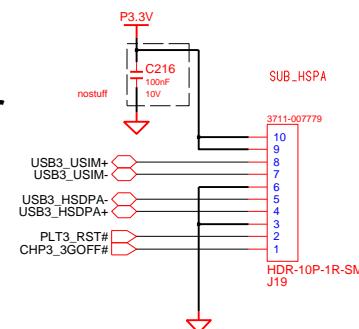
4
3
2
1

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.

LED MAIN



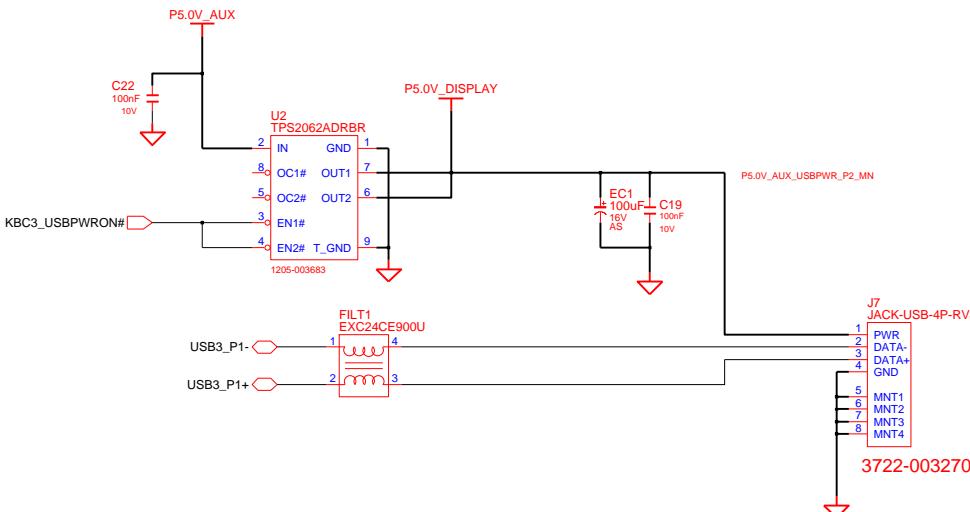
HSPA Sub board Connector



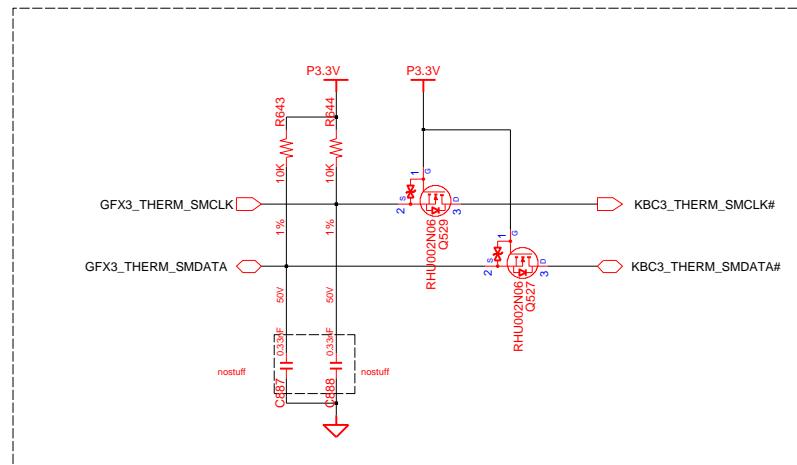
DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	LED_SWITCH	LED_SWITCH	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0			PART NO.
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	40 OF 54

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.

USB Single connector



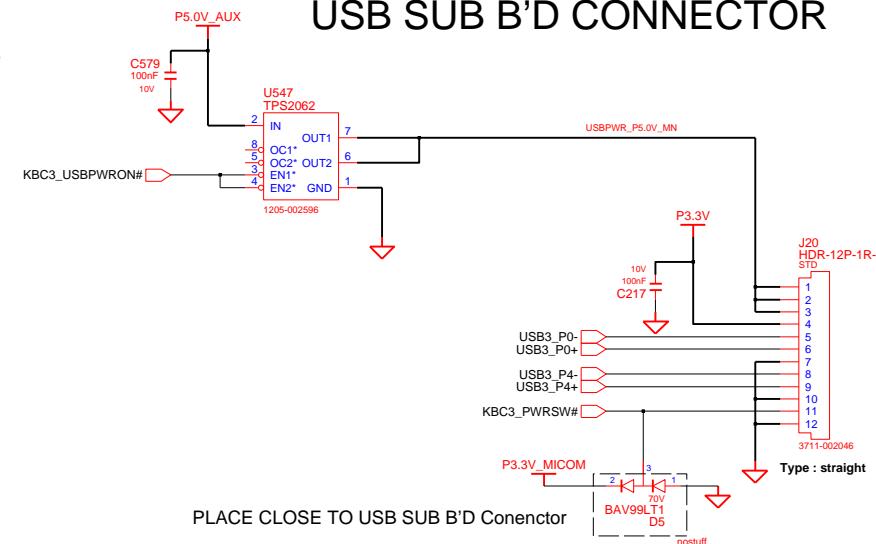
GPU LEVEL SHIFTER FOR POWEREXPRESS



MAIN TO SUB USB CONN

Right 2USB Port

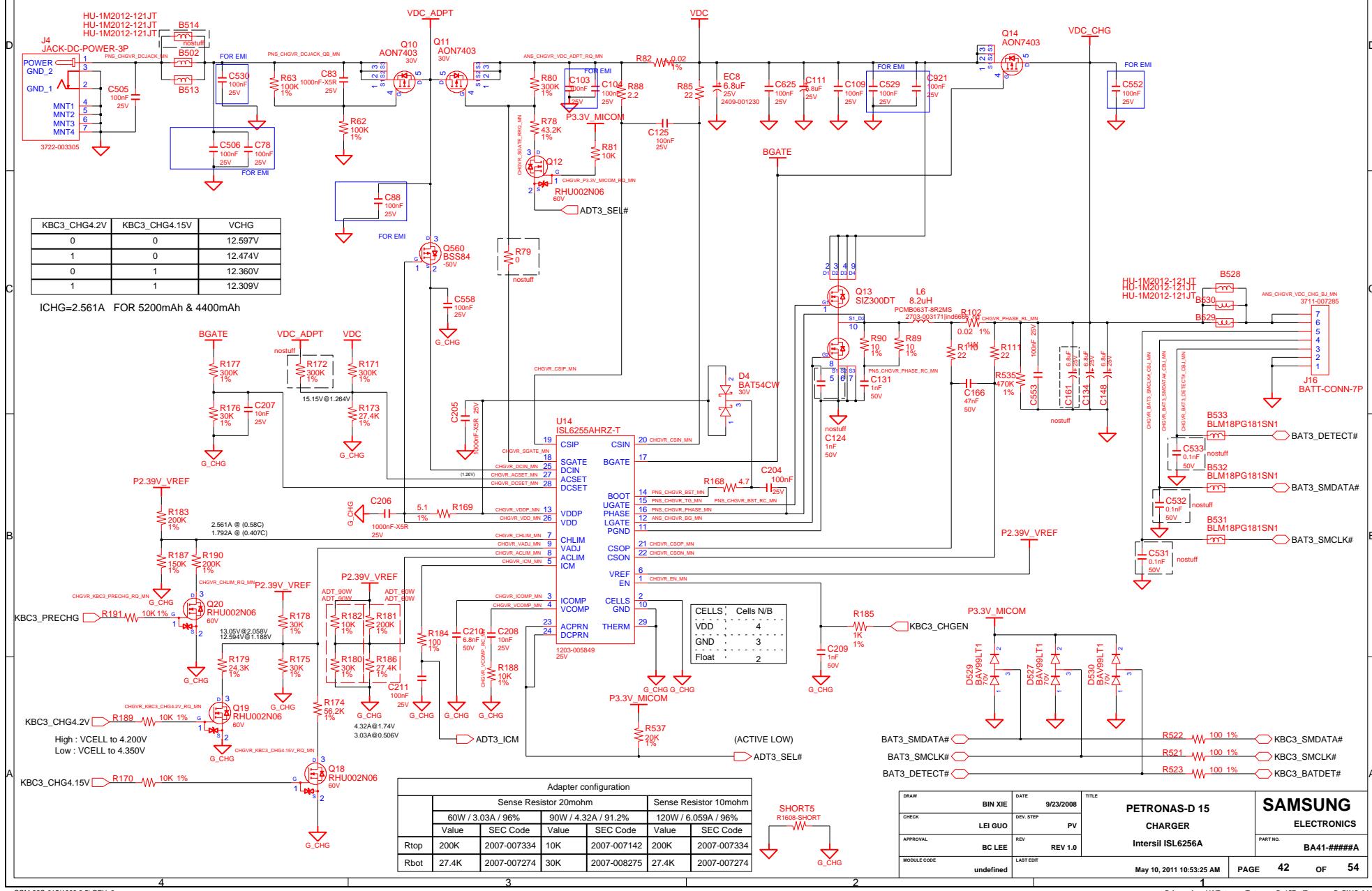
USB SUB B'D CONNECTOR



DESIGN	BIN XIE	DATE 9/23/2008	TITLE	PETRONAS-D 15 USB_CONN USB & eSATA	SAMSUNG
CHECK	LEI GUO	DEV. STEP PV			ELECTRONICS
APPROVAL	BC LEE	REV REV 1.0			PART NO. BA41-#####A
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE 41 OF 54

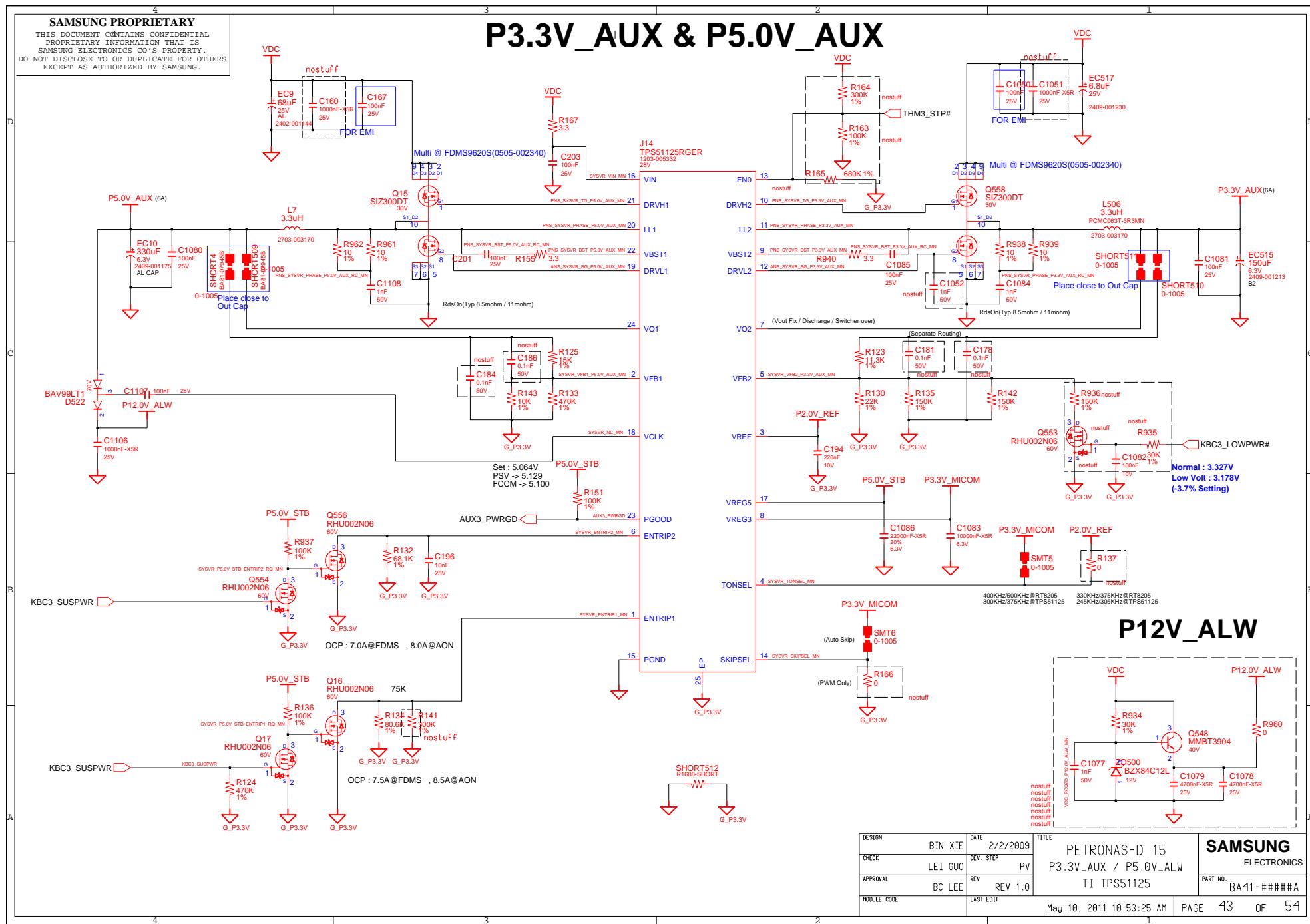
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

CHARGER & POWER MANAGEMENT



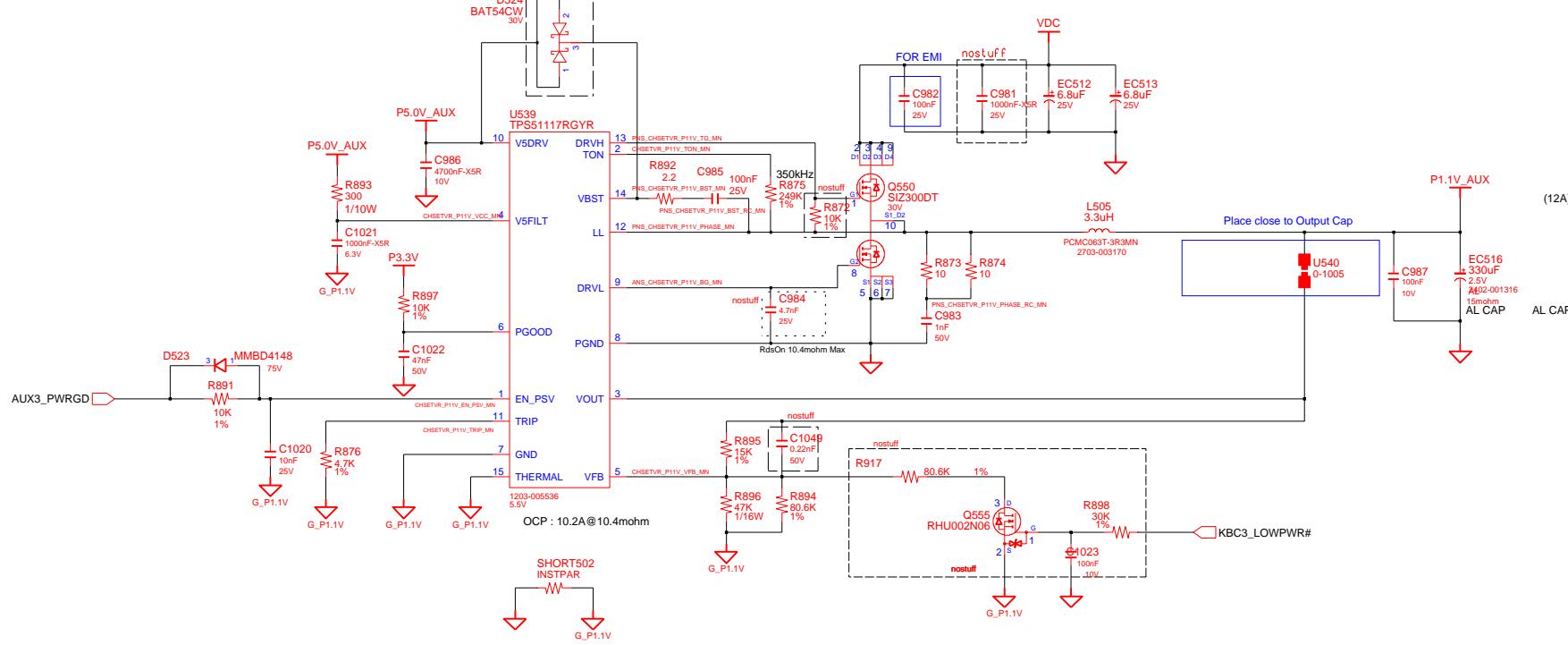
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

P3.3V_AUX & P5.0V_AUX



4
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.

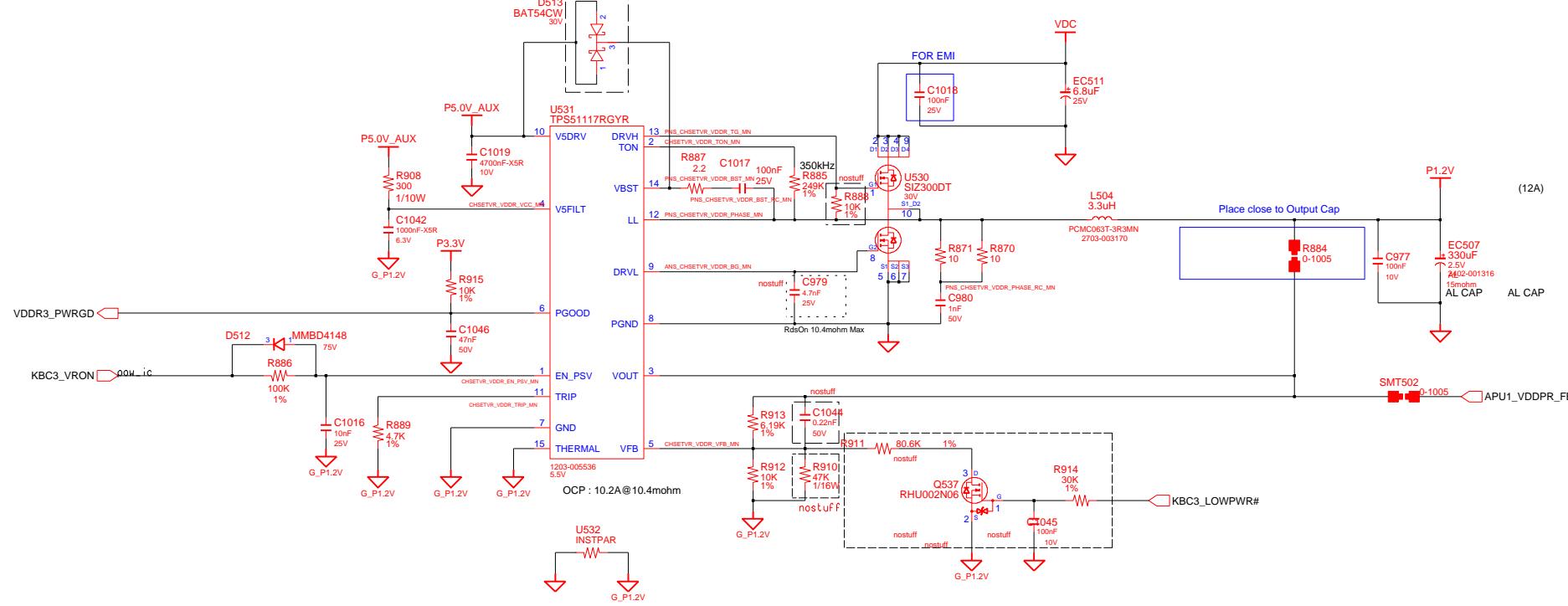
Chipset Power (P1.1V_AUX)



DRAW	BIN XIE	DATE	TITLE	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	PART NO.
MODULE CODE	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE 44 OF 54	BA41- #####A
				D:/users/eced49/Petronas/Petronas_D_15Ext/Petronas_D_PX15_0418

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.

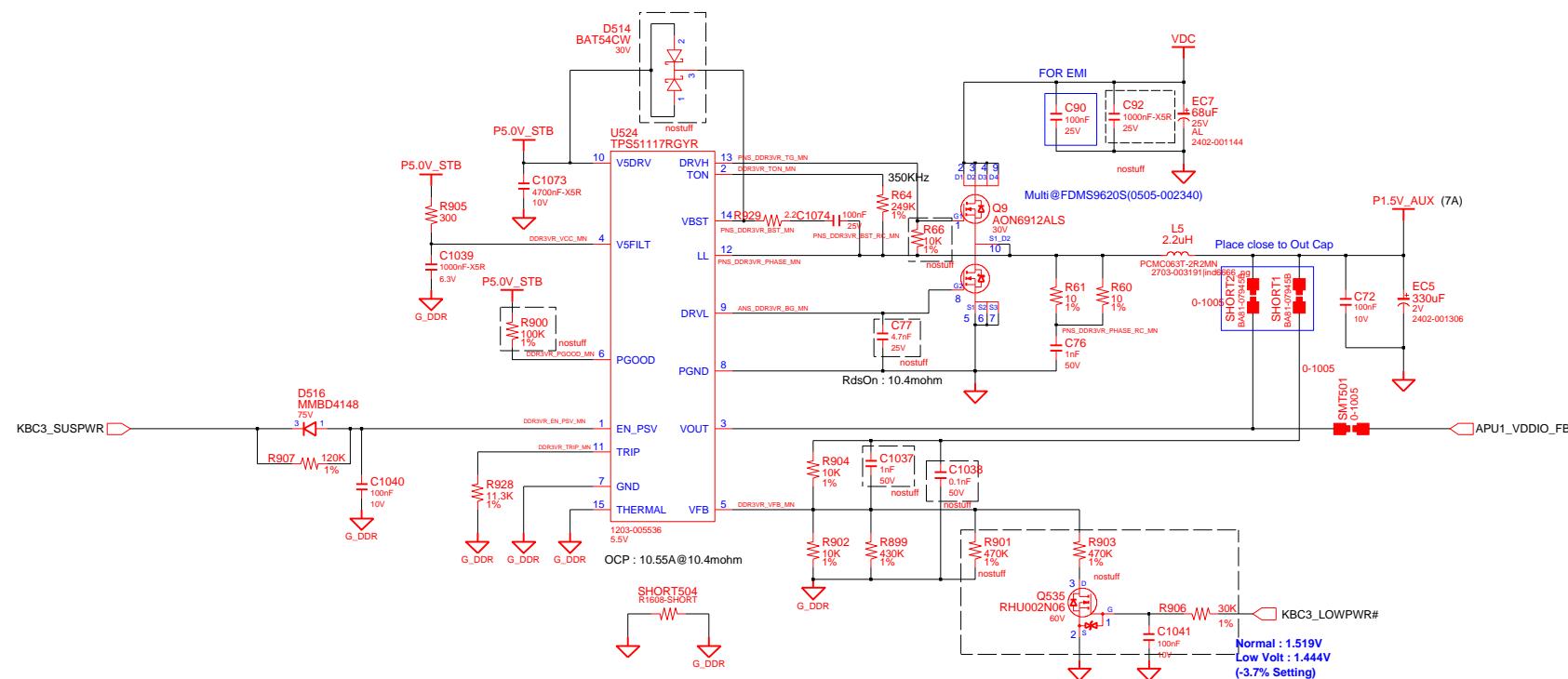
Chipset Power (P1.2V)



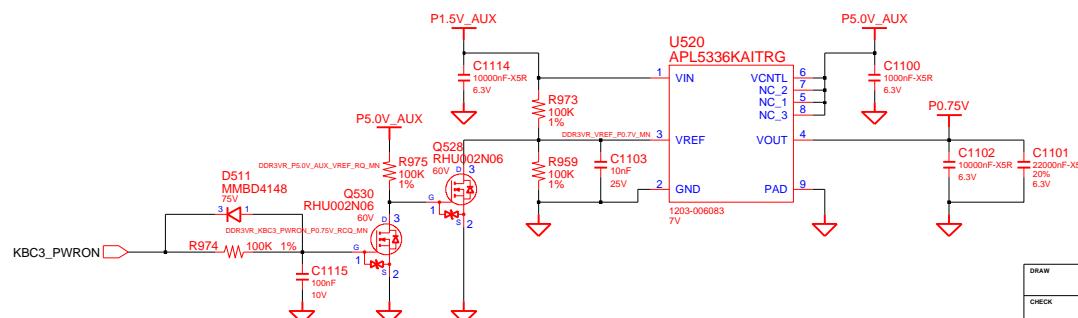
DRAW	BIN XIE	DATE 10/22/2010	TITLE PETRONAS-D 15	SAMSUNG	
CHECK	LEI GUO	DEV. STEP PV	P1.2V	ELECTRONICS	
APPROVAL	BC LEE	REV REV 1.0	P1.2V(Chipset Power)	PART NO. BA41-#####A	
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE 45	OF 54

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.

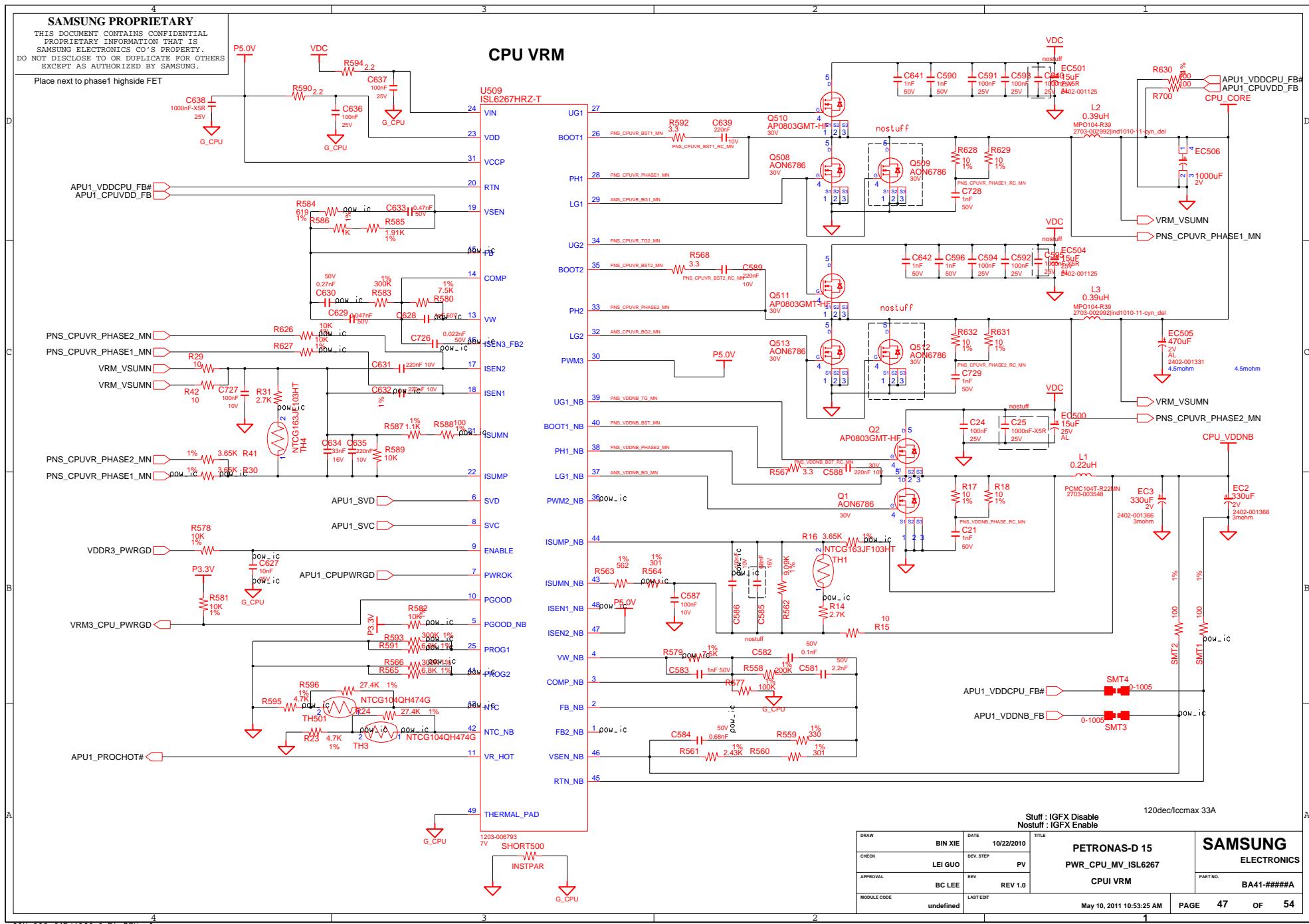
DDR3 Power



DDR3 VTT(0.75V)



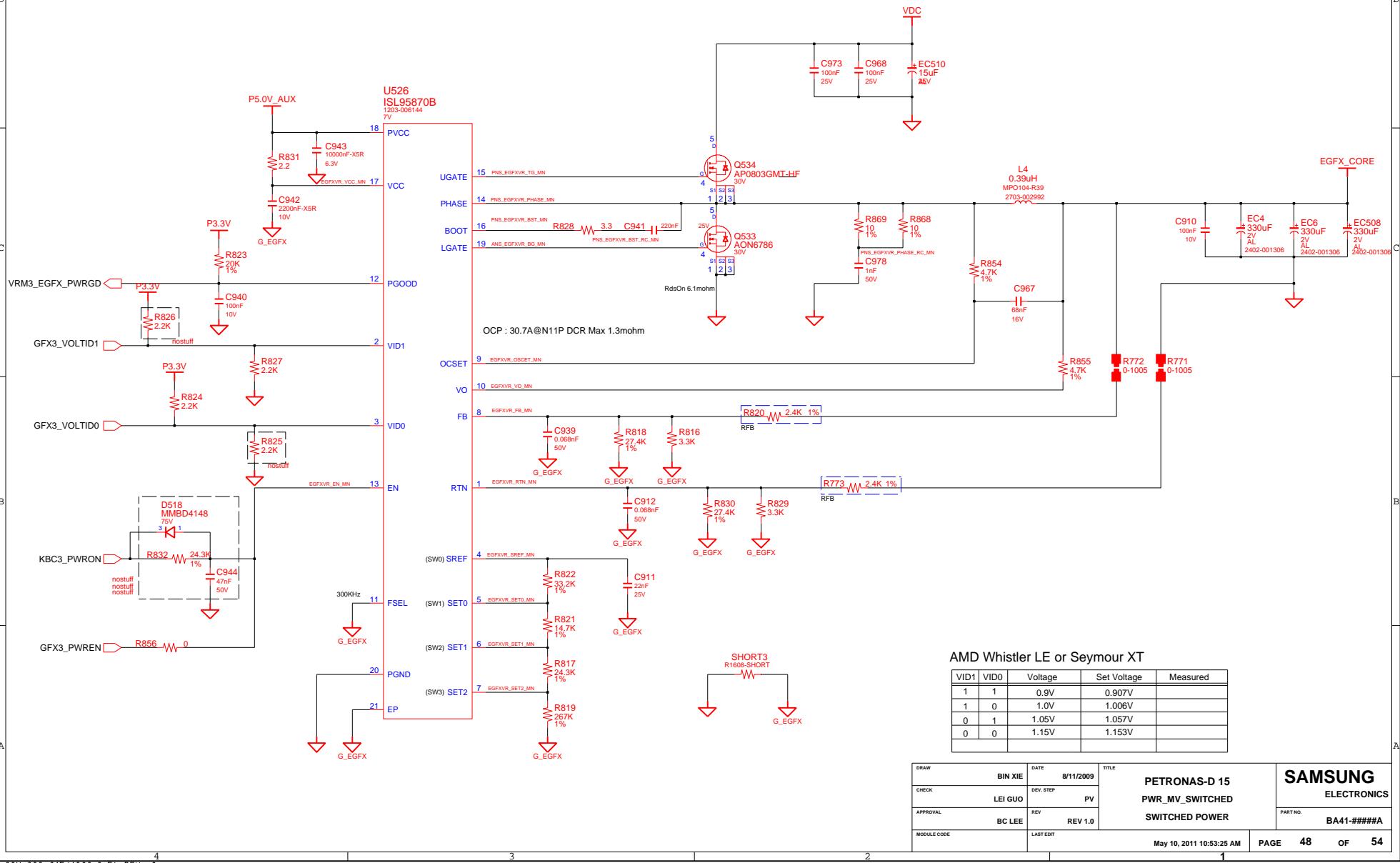
DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	PWR_MEMORY	DDR3 POWER	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0			PART NO.
MODULE CODE	undefined	LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	46 OF 54



Stuff : IGFX Disable Nostuff : IGFX Enable			
DRAW	BIN XIE	DATE	10/22/2010
CHECK	LEI GUO	DEV. STEP	PV
APPROVAL	BC LEE	REV	REV 1.0
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM
			PAGE 47 OF 54
			PART NO. BA41-####A
			TITLE PETRONAS-D 15
			PWR_CPU_MV_ISL6267
			CPU VRM

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

External Graphic Core Power



AMD Whistler LE or Seymour XT

VID1	VID0	Voltage	Set Voltage	Measured
1	1	0.9V	0.907V	
1	0	1.0V	1.006V	
0	1	1.05V	1.057V	
0	0	1.15V	1.153V	

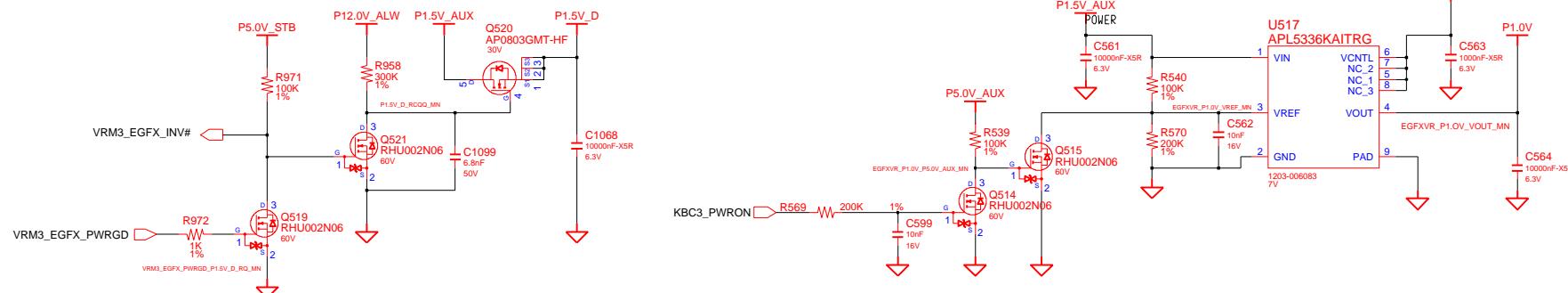
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

Switched Power 2 (For AMD GFX Power Sequence)

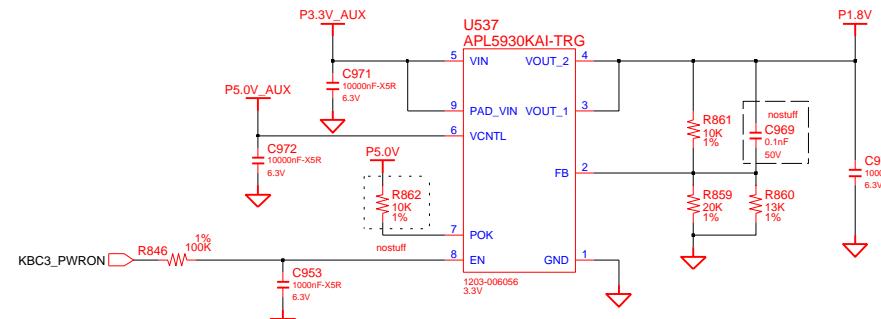
Sequence (D3.3V -> GFX Core -> D1.5V -> D1.05V)

P1.0V

Discrete Switched Power (D1.5V : Max 5.0A)



P1.8V(LDO)

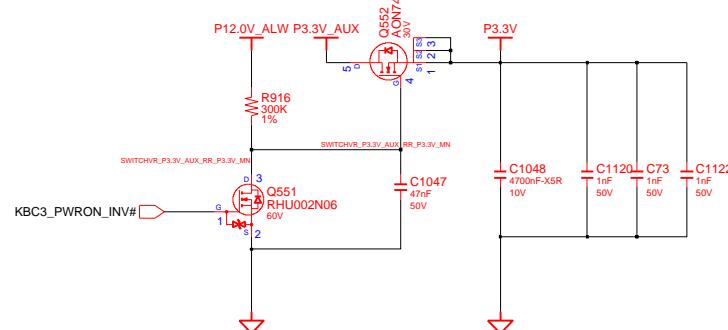


DRAW	BIN XIE	DATE	7/14/2010	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	Switched PWR 2	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	FOR OPTIMUS PWR	PART NO.	
MODULE CODE	LAST EDIT					
					May 10, 2011 10:53:25 AM	PAGE 49 OF 54

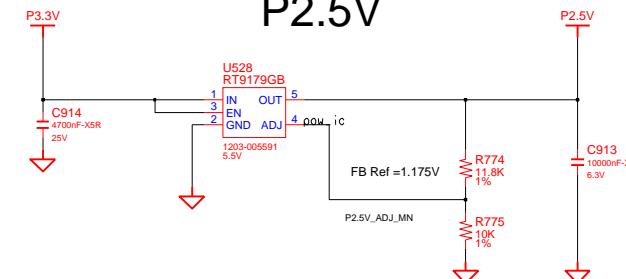
SAMSUNG PROPRIETARY
THIS DOCUMENT CONTAINS CONFIDENTIAL
PROPRIETARY INFORMATION THAT IS
SAMSUNG ELECTRONICS CO.'S PROPERTY.
DO NOT DISCLOSE TO OR DUPLICATE FOR OTHERS
EXCEPT AS AUTHORIZED BY SAMSUNG.

Switched Power

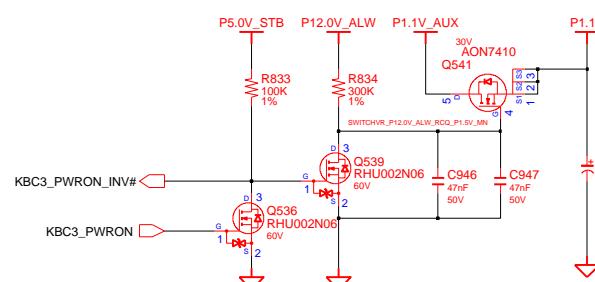
Switched Power On (P3.3V)



P2.5V

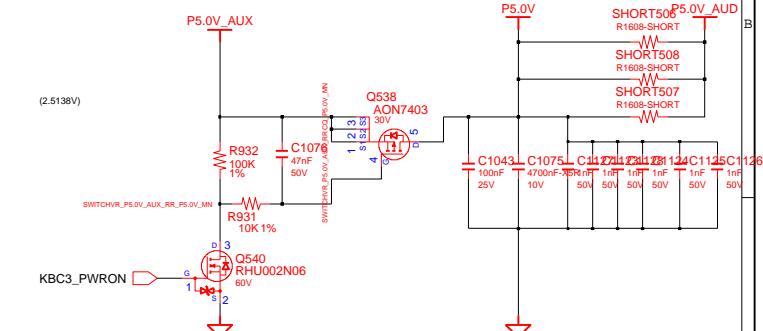


Switched Power On (P1.1V)



Switched Power On (P5.0V)

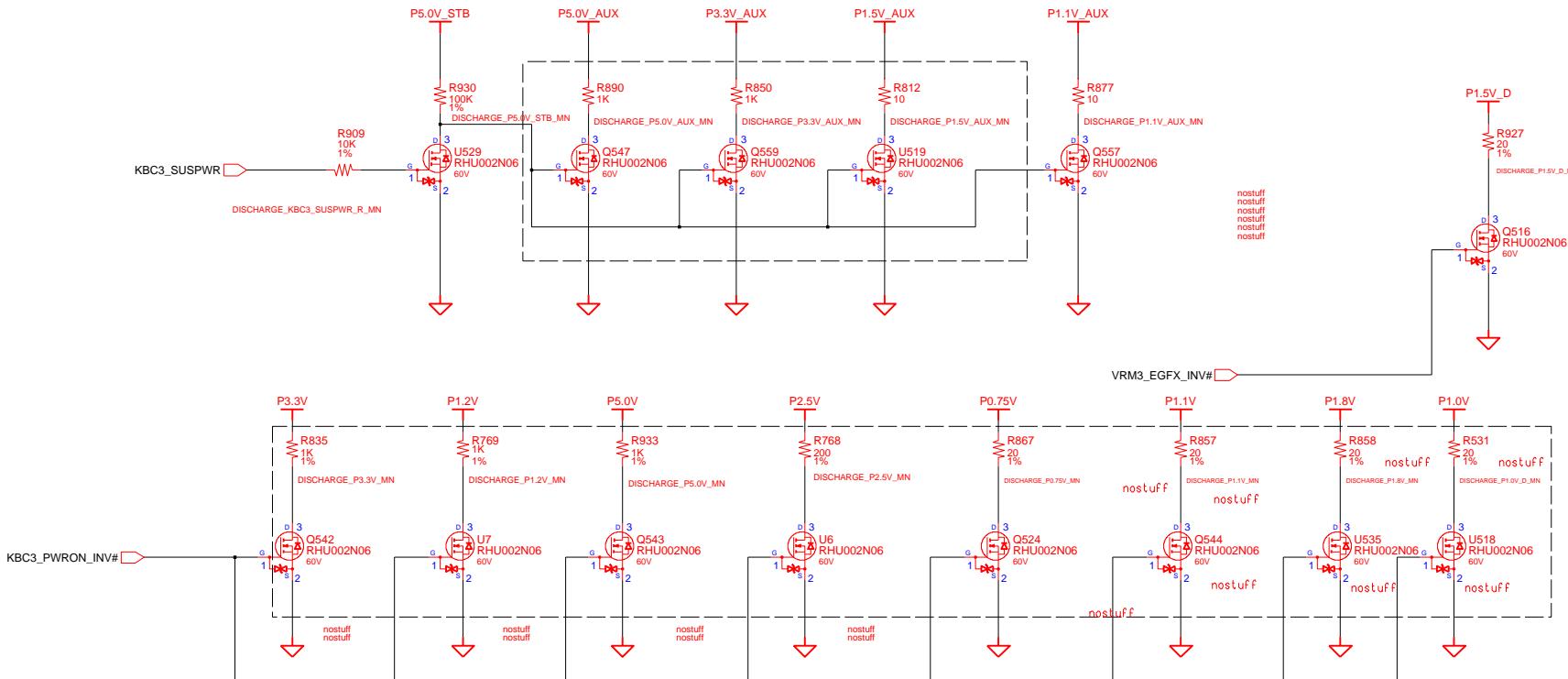
Multi@Si4435DDY



DRAW	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV		PWR_SWITCH	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		SWITCH Power	
MODULE CODE	undefined	LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	50 OF 54

4
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.

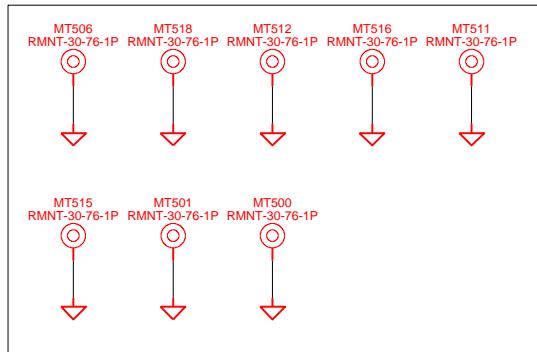
POWER DISCHARGER



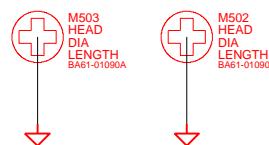
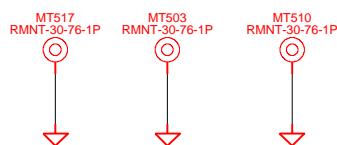
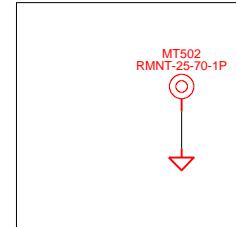
DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK		DEV. STEP	PV		PWR_DISCHARGE	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		PWR_DISCHARGE	
MODULE CODE		LAST EDIT			May 10, 2010 10:53:25 AM	PAGE 51 OF 54

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.

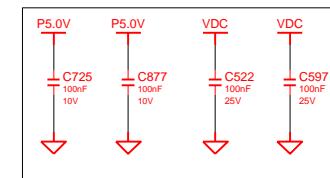
Mainboard Mount ((30-80)X8EA)



PCB FIX



For EMI



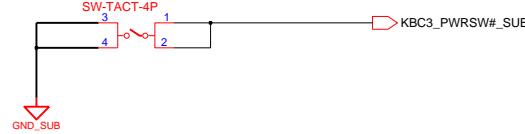
DESIGN	BIN XIE	DATE	6/4/2010	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	OUNT		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	OUNT		
MODULE CODE	LAST EDIT			May 10, 2011 10:53:25 AM	PAGE	52 OF 54

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.

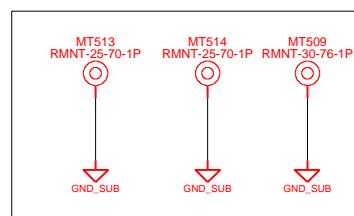
USB SUB BOARD



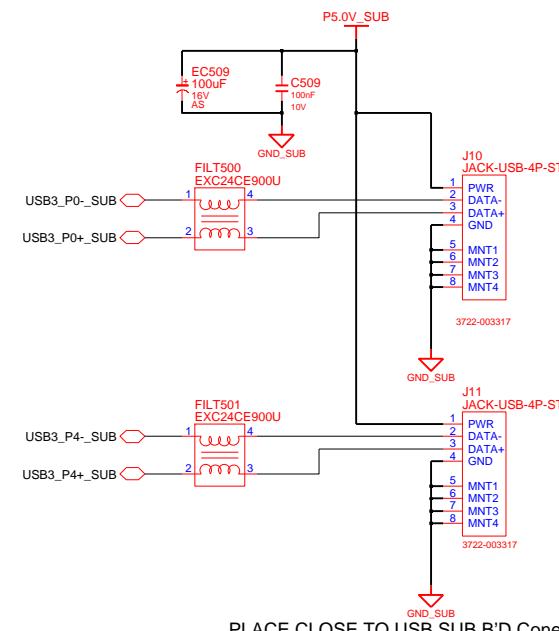
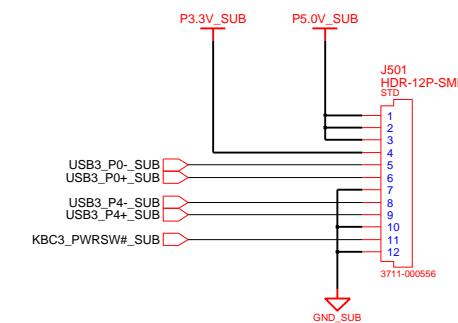
Power Switch Button



PCB Mount



SUB TO MAIN

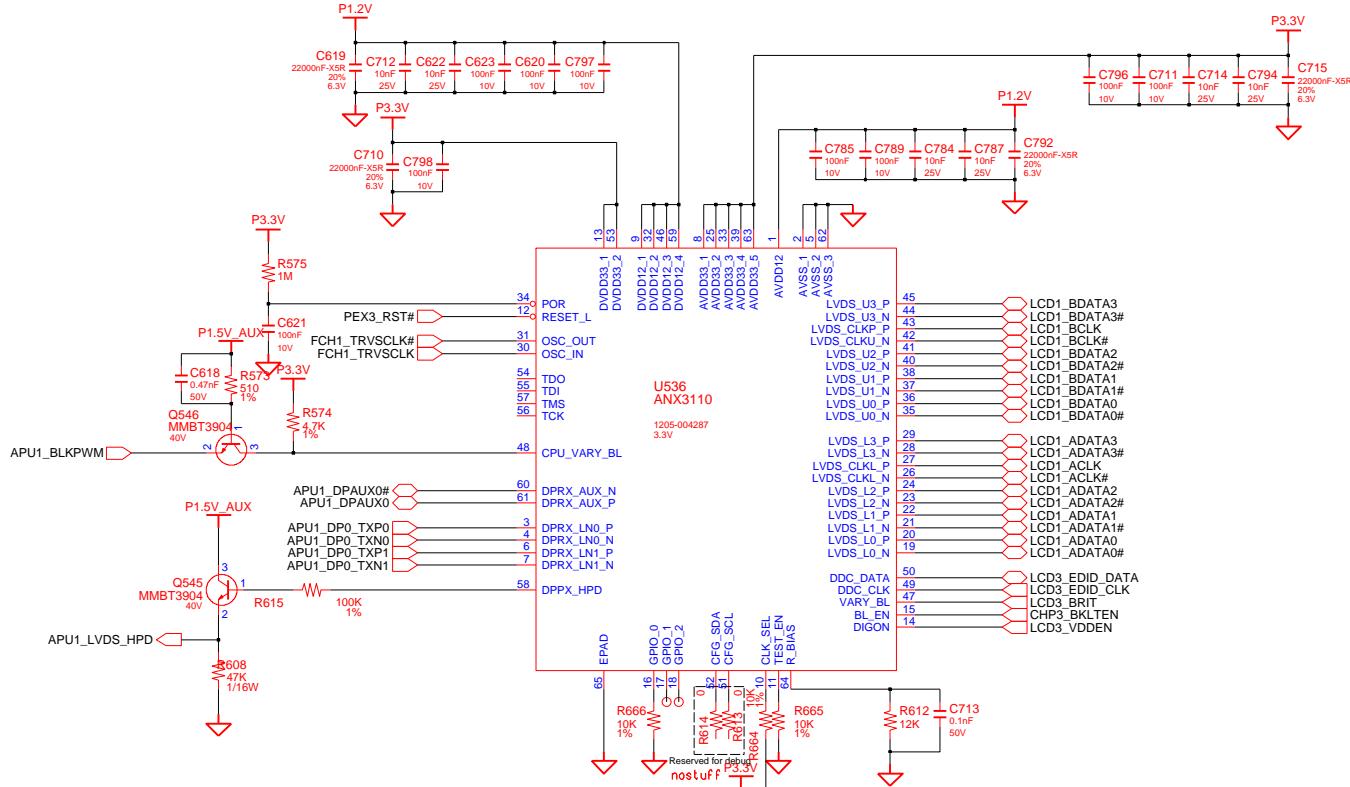


PLACE CLOSE TO USB SUB B'D Conenctor

DESIGN	BIN XIE	DATE	6/4/2010	TITLE	PETRONAS-D_15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	USB SUB BOARD		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	SUB BOARD		
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	53 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.

Travis_L (ANX3110)



DESIGN	BIN XIE	DATE	3/12/2011	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	TRAVIS_L_ANX3110	ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0	TRAVIS_L	PART NO.	
MODULE CODE	LAST EDIT					BA41- #####A
						May 10, 2011 10:53:25 AM
					PAGE	54 OF 54

www.s-manuals.com