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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 : X

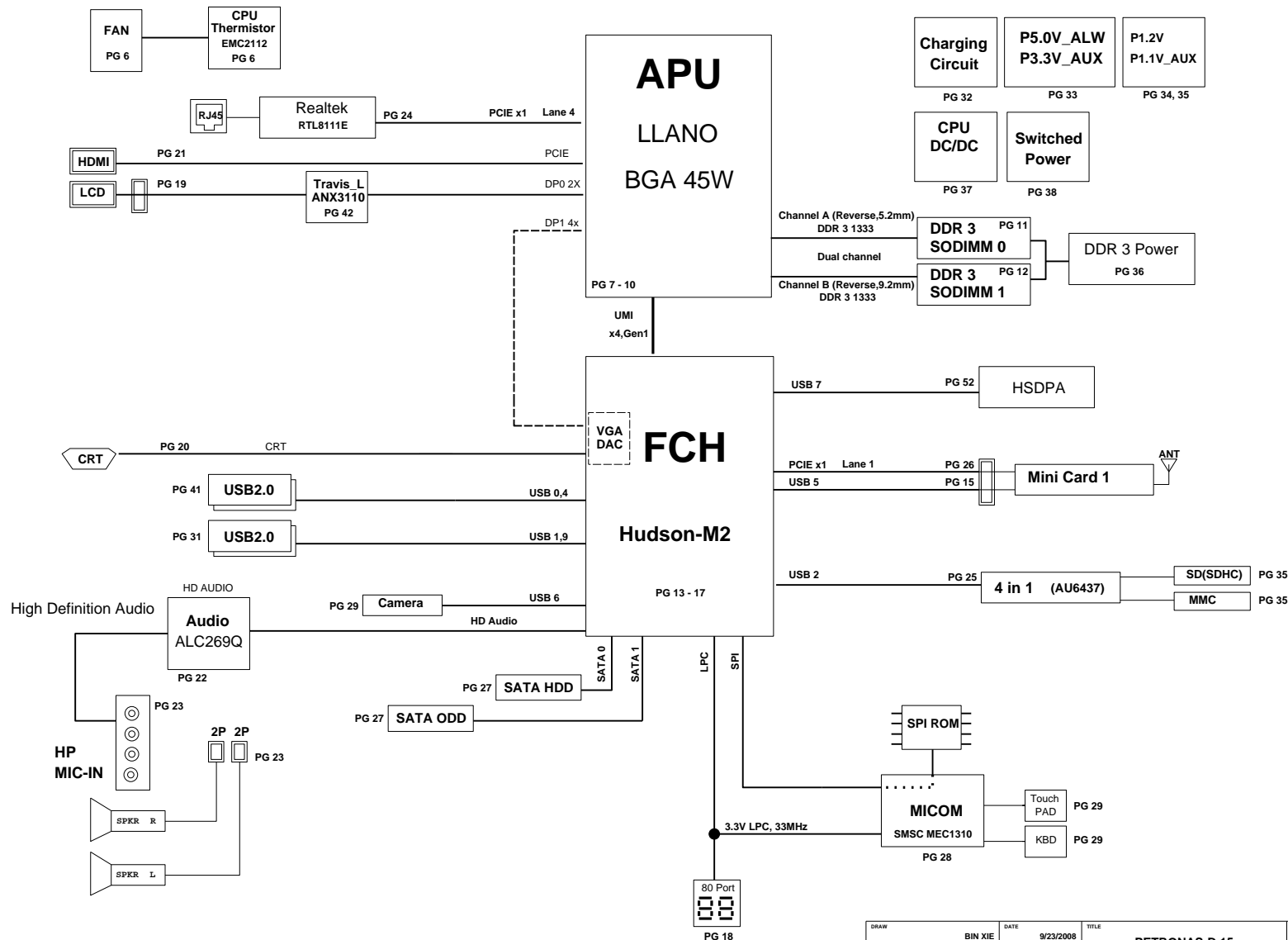
sheet01 : Cover
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sheet03 : BOARD INFORMATION
sheet04 : POWER DIAGRAM
sheet05 : CLOCK DISTRIBUTION
sheet06 : Thermal Sensor
sheet07 : APU
sheet08 : APU
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sheet30 : CRT
sheet31 : HDMI
sheet32 : Audio - 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		ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	COVER		PART NO. BA41-####A
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	1	OF 54

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BLOCK DIAGRAM



DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV	MAIN		
APPROVAL	BC LEE	REV	REV 1.0	BLOCK DIAGRAM	PART NO. BA41-####A	
MODULE CODE		LAST EDIT			May 10, 2011 10:53:25 AM	PAGE 2 OF 54

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails	Active in
VDC Primary DC system power supply (7 to 21V) P3.3V_MICOM 3.3V always power rail (for Microm) P5.0V_ALW 5.0V always power rail P5.0V_STB 5.0V always power rail	S4 - S5
P5.0V_AUX 5.0V switched on power rail (off in S4-S5) P3.3V_AUX 3.3V switched on power rail (off in S4-S5) P1.1V_AUX 1.5V power rail for DDR (off in S4-S5)	S3
P5.0V 5.0V switched power rail (off in S3-S5) P3.3V 3.3V switched power rail (off in S3-S5) P1.1V 1.1V switched power rail (off in S3-S5) P0.75V 0.75V power rail for DDR (off in S3-S5)	S0
CPU_CORE Core Voltage for CPU CPU_VDDNB Core Voltage for CPU P1.2V (VDDP/VDDR) 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	MMC 14"	3	NC
3	USIM	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		

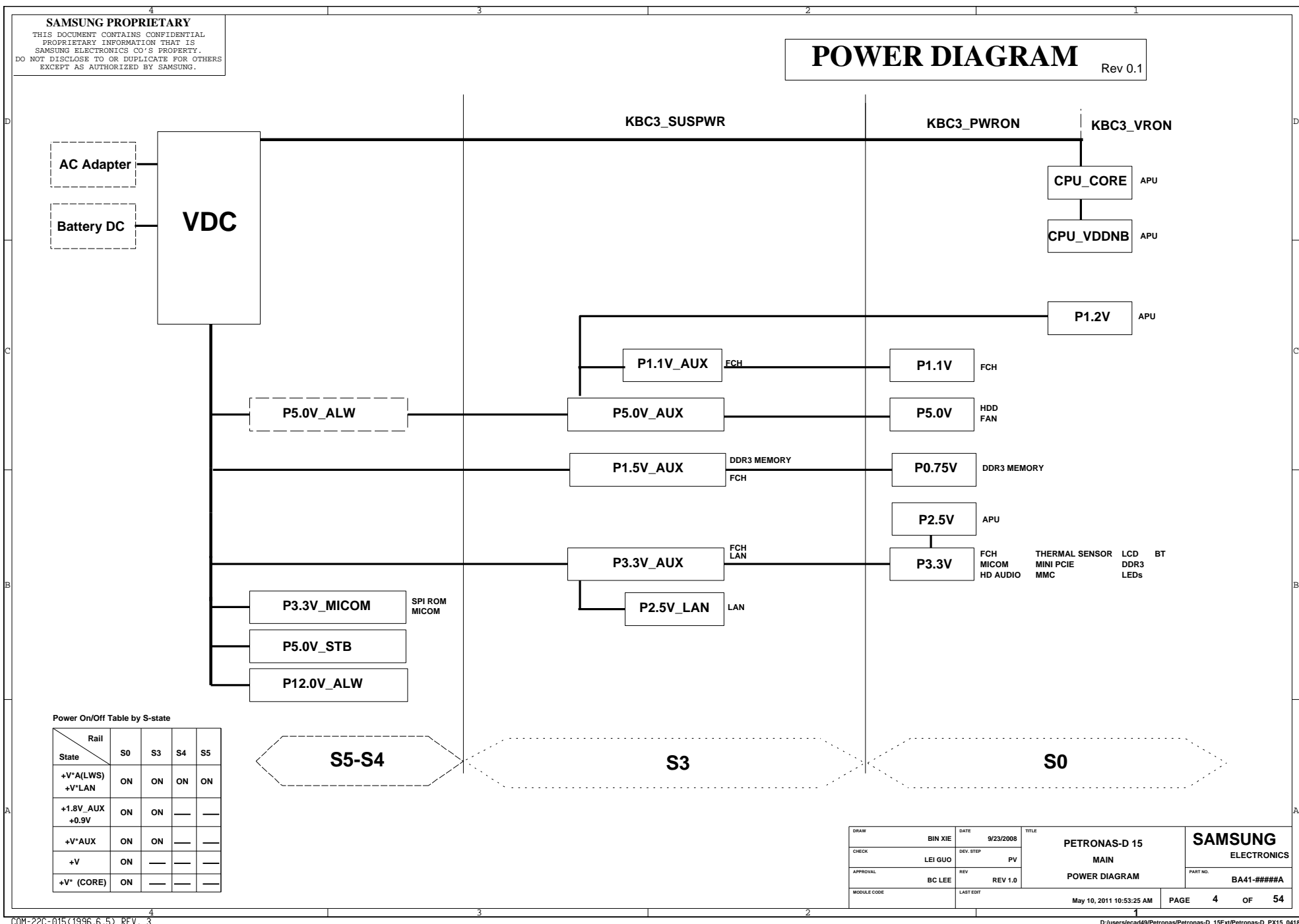
SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	ODD
2	NC
3	NC
4	NC
5	NC

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

LCD Pannel Detect (TBD)		
Devices	Resolution	PANNEL_DETECT_0

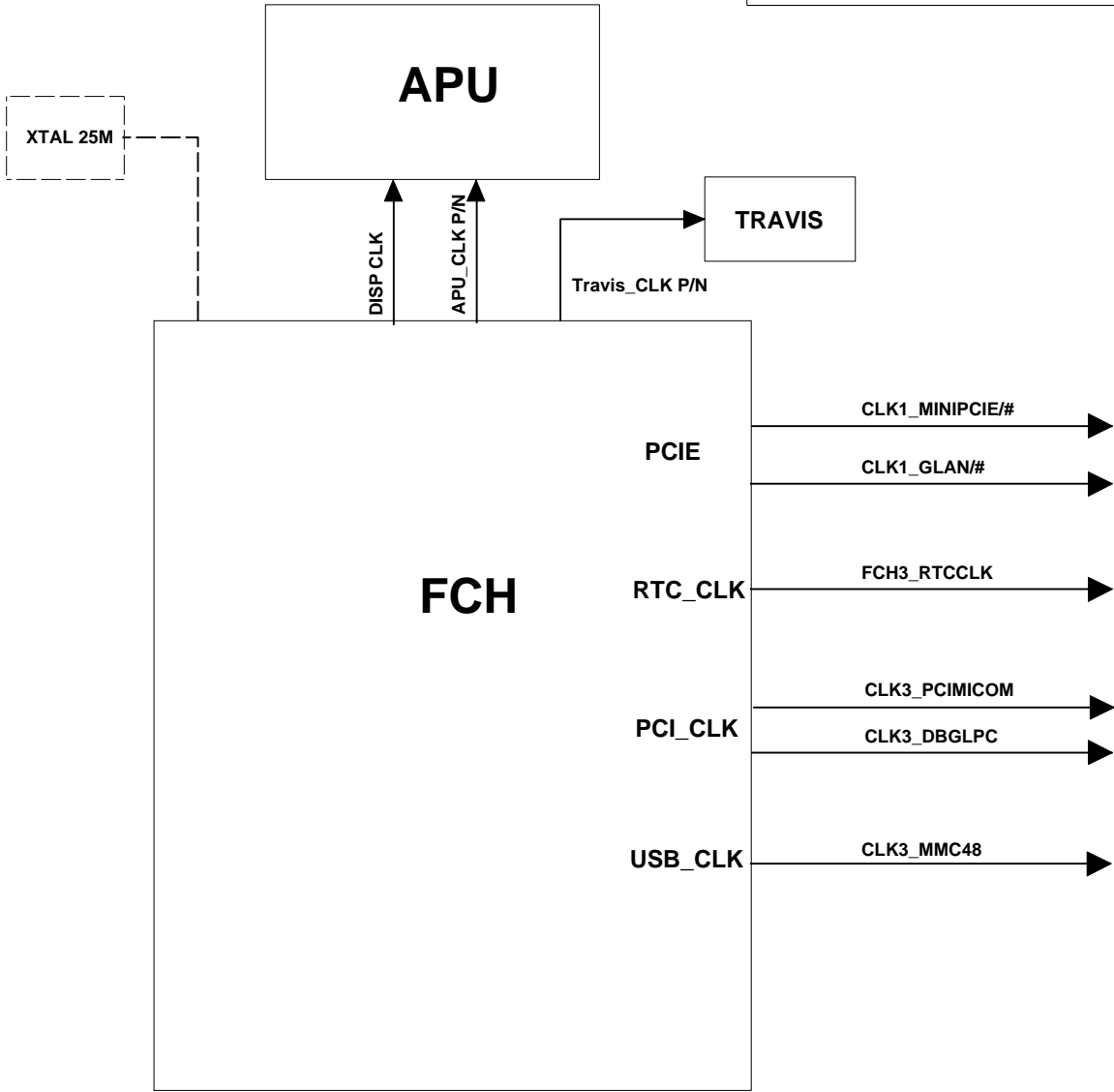
Devices	Address	Hex	Bus
IBEX PEAK	Master	-	SMBUS Master
CPU Thermal Sensor	0111 101x	7Ah	Thermal Sensor
SODIMM0	1010 000x	A0h	-
SODIMM1	1010 010x	A4h	-
Thermal Sensor on SODIMM0	0011 000x	30h	-
Thermal Sensor on SODIMM1	0011 010x	34h	-

DRAW	BIN XIE	DATE	9/23/2008	PETRONAS-D 15 MAIN BOARD INFO		SAMSUNG ELECTRONICS			
CHECK	LEI GUO	REV. STEP	PV			PART NO.	BA41-####A		
APPROVAL	BC LEE	REV	REV 1.0						
MODULE CODE	LAST EDIT		May 10, 2011 10:53:25 AM			PAGE	3	OF	54



CLOCK DISTRIBUTION

Rev. 0.1



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	CLOCK DIAGRAM	PART NO.	BA41-####A
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	5	OF 54

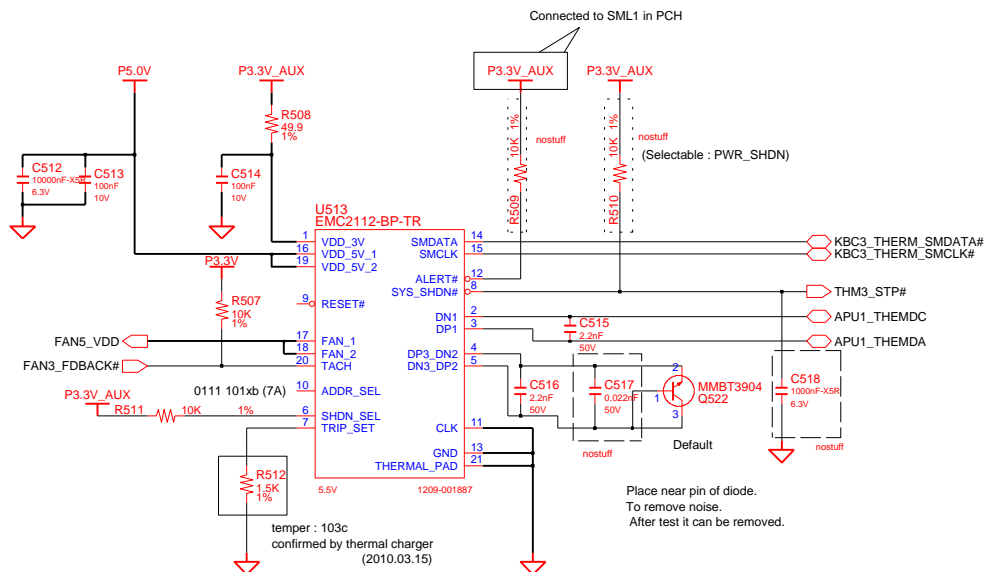
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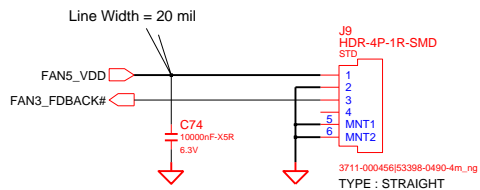
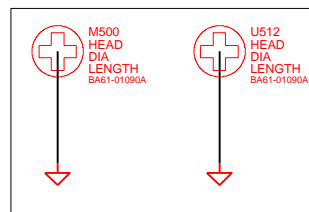
THERMAL SENSOR & FAN CONTROL

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

SHDNSEL MODE	
0	INTEL TR MODE
HIGH Z	AMD CPU/DIODE MODE
✓ 1	EXT.DIODE 2 MODE

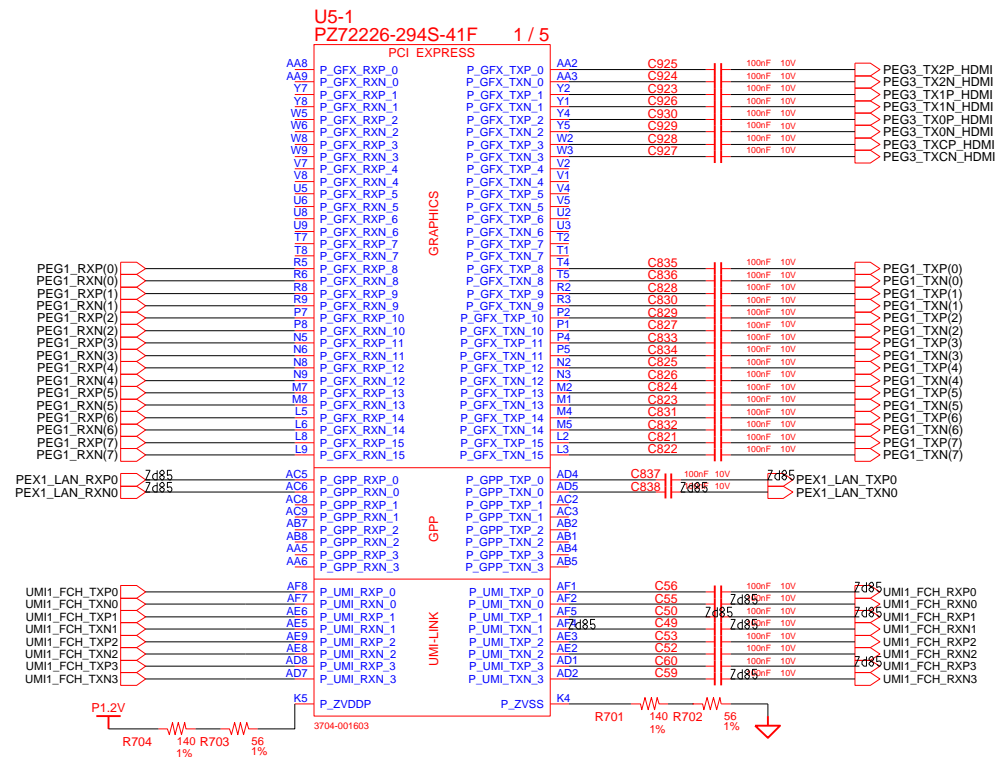


FAN PEM

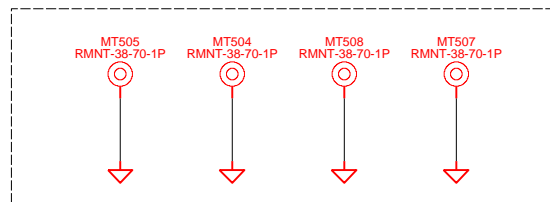


DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV		THERMAL SENSOR	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		THERMAL SENSOR EMC2112	PART NO. BA41-####A
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE 6	OF 54

Llano Processor (FS1)

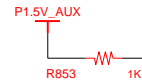
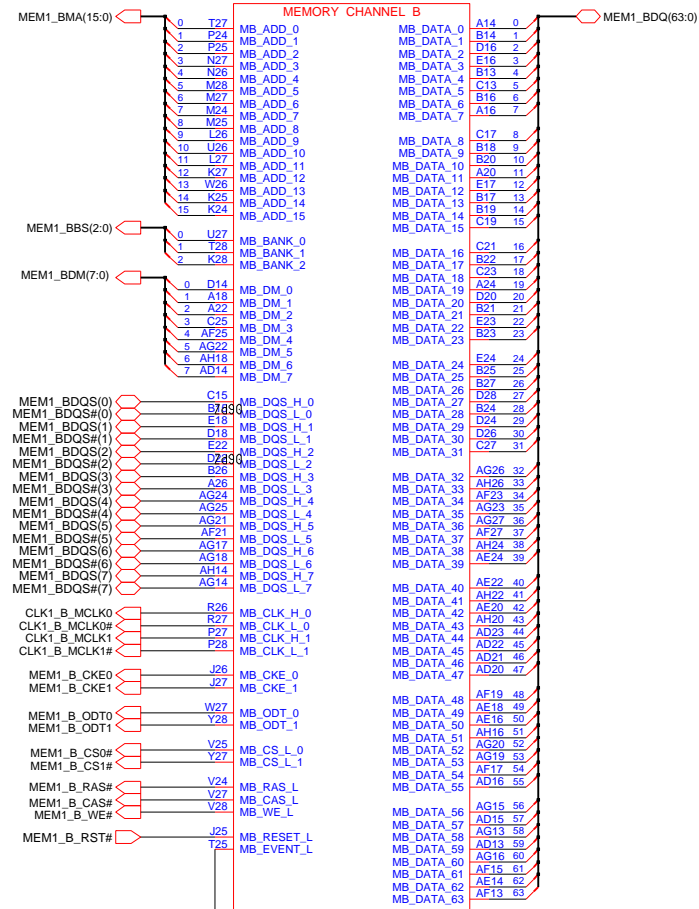
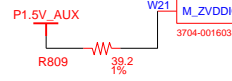
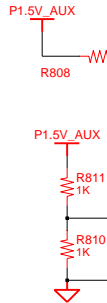
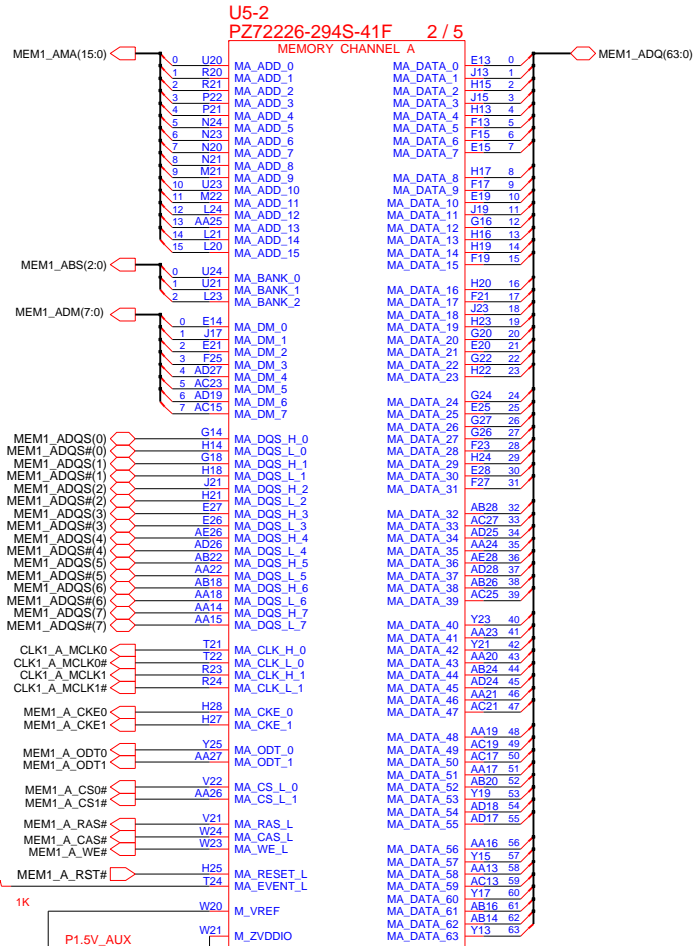


CPU MOUNT

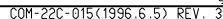


DESIGN	BIN XIE	DATE	12/18/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV	Llano		
APPROVAL	BC LEE	REV	REV 1.0	1/4		
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE 7 OF 54	

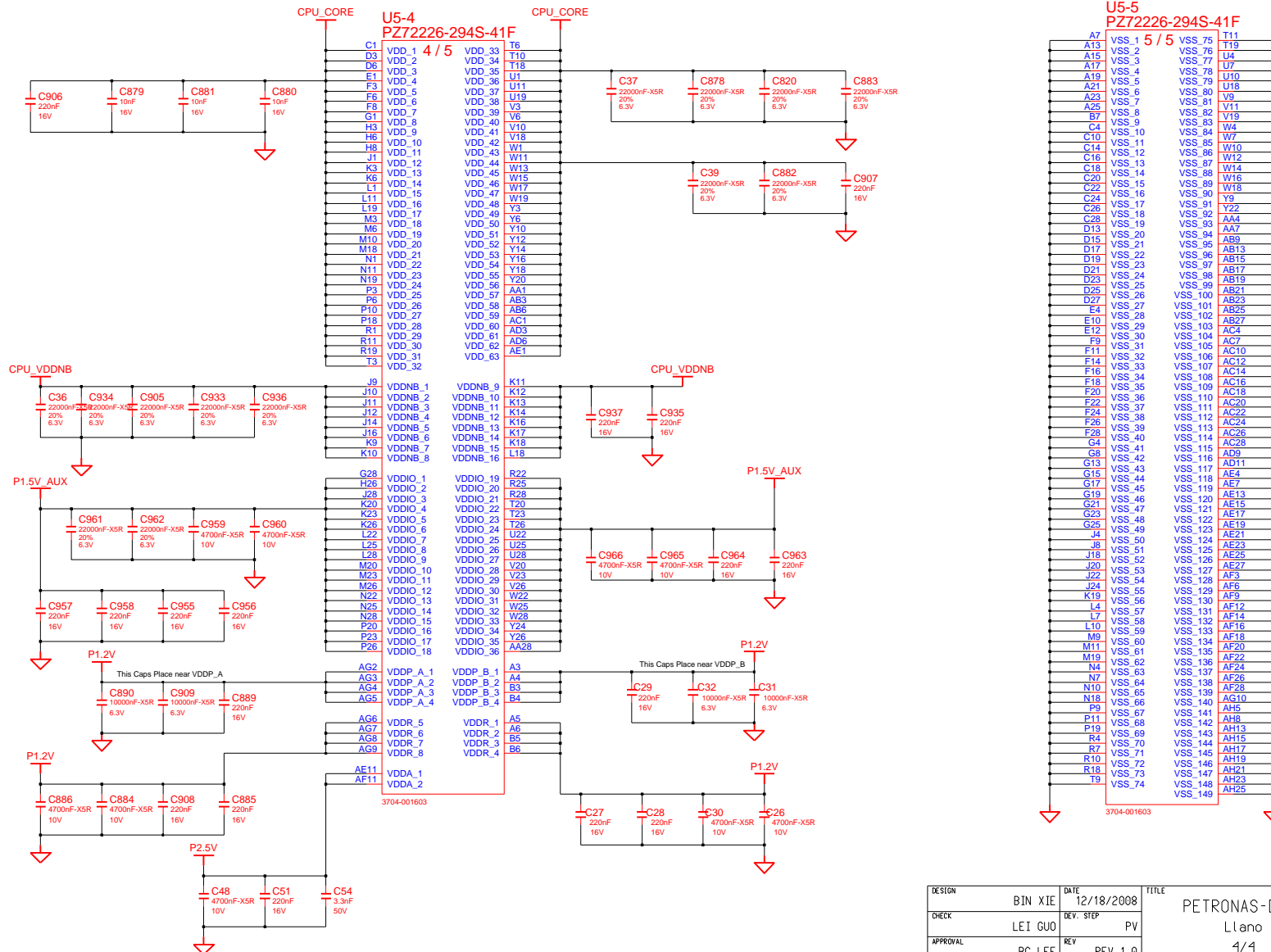
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DESIGN	BIN XIE	DATE	12/18/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV	Llano		
APPROVAL	BC LEE	REV	REV 1.0	2/4		
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE 8 OF 54	



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DESIGN	BIN XIE	DATE	12/18/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV		Llano	
APPROVAL	BC LEE	REV	REV 1.0		4/4	
MODULE CODE		LAST EDIT				
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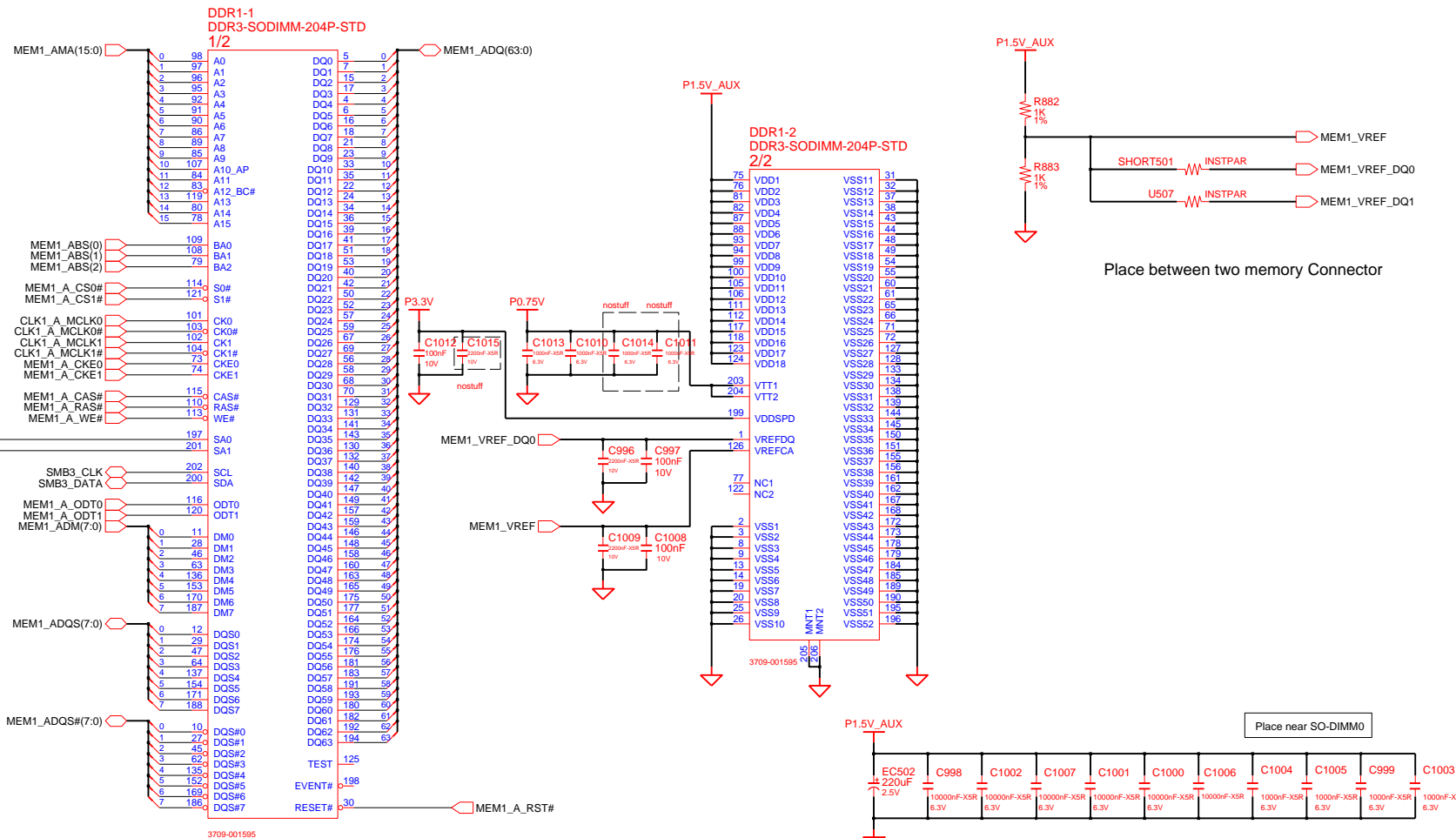
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SO-DIMM#0 : 2nd SO-DIMM

DDR SO-DIMM #0

Height : 9.2 mm (STD)



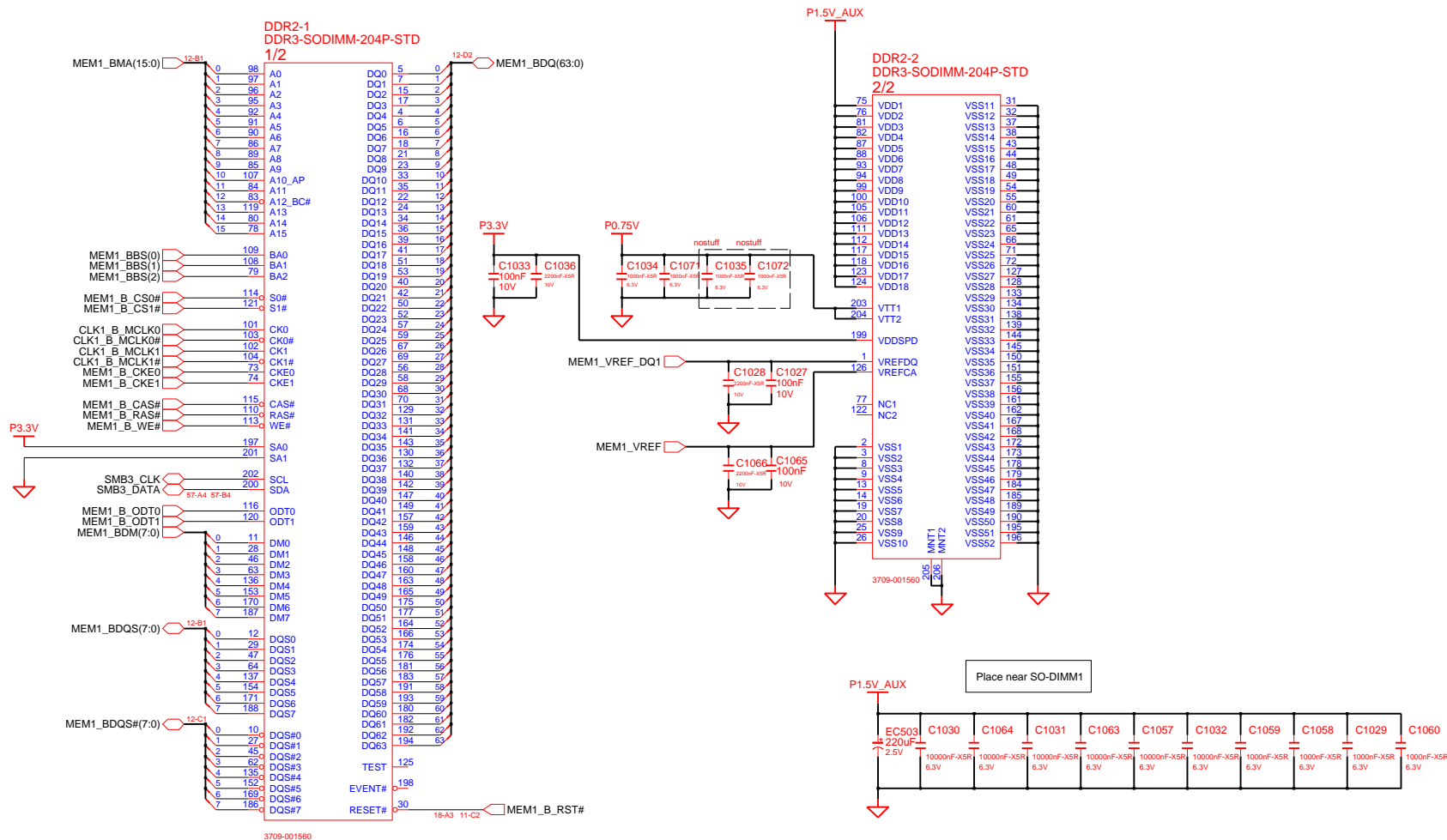
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APPROVAL	BC LEE	REV	REV 1.0		DDR3	PART NO.
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM			BA41-####A
			PAGE	11	OF	54

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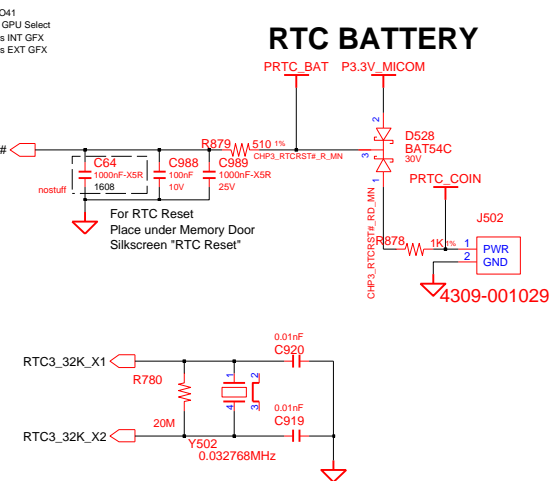
SO-DIMM#1 : 1st SO-DIMM

DDR SO-DIMM #1

Height : 4.0mm (STD)



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U538-2
Hudson M2 A12

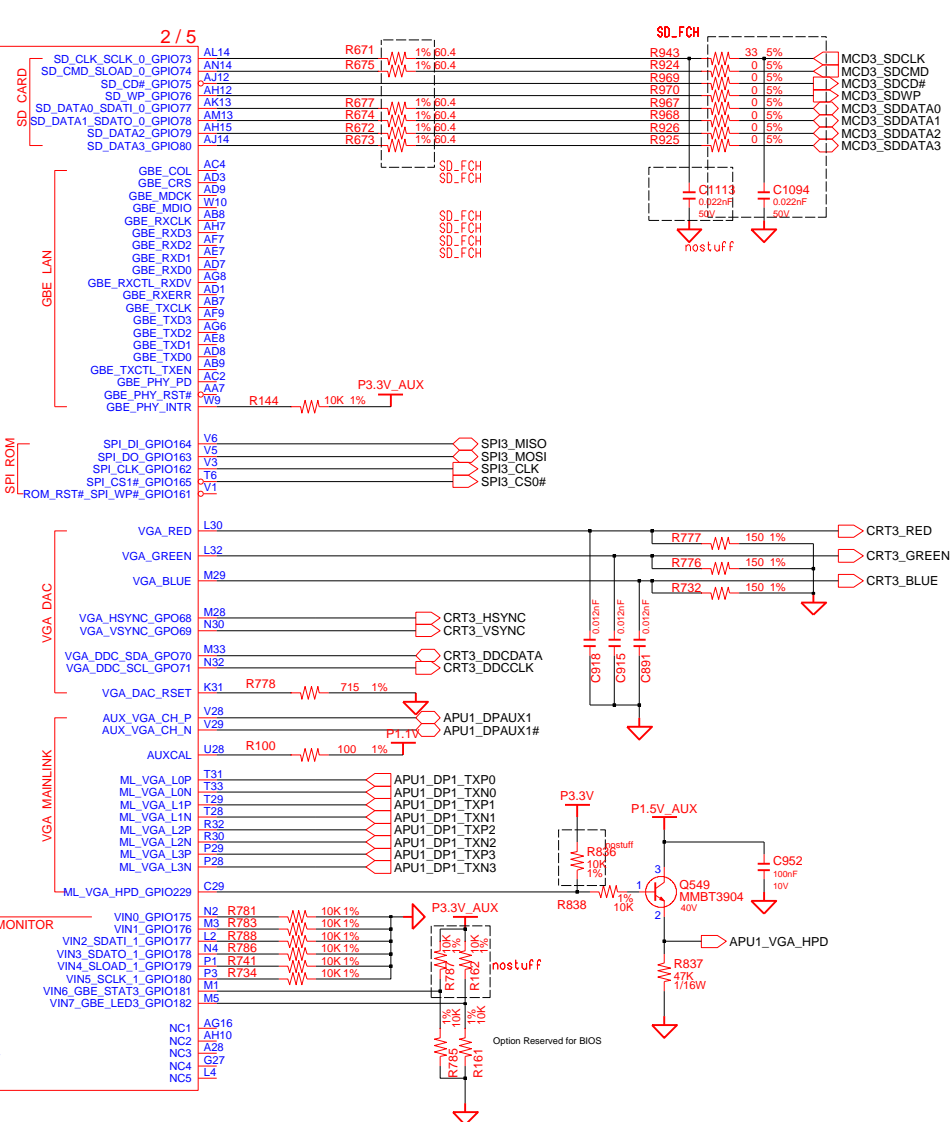
SAT1_HDD_TXP0 C105 10nF 25V AK19 SATA_TX0P
SAT1_HDD_TXN0 C106 10nF 25V AM19 SATA_TX0N
SAT1_HDD_RXN0 C107 10nF 25V AL20 SATA_RX0N
SAT1_HDD_RXP0 C108 10nF 25V AN20 SATA_RX0P
SAT1_ODD_TXP1 C214 10nF 25V AN23 SATA_TX1P
SAT1_ODD_TXN1 C215 10nF 25V AL23 SATA_TX1N
SAT1_ODD_RXN1 C212 10nF 25V AH22 SATA_TX2P
SAT1_ODD_RXP1 C213 10nF 25V AM23 SATA_TX2N
AK23 SATA_RX2N
AH24 SATA_RX2P
AJ24 SATA_TX3N
AN24 SATA_RX3N
AL24 SATA_RX3P
AL26 SATA_TX4P
AN26 SATA_TX4N
AJ26 SATA_RX4N
AH26 SATA_RX4P
AN29 SATA_TX5P
AL28 SATA_TX5N
AK27 SATA_RX5N
AM27 SATA_RX5P
AL29 NC6
AN31 NC7
AL31 NC8
AH33 NC9
AH31 NC10
AJ33 NC11
AJ31 NC12
NC13

Place Cap to ODD connector side closely
Place Cap close to shared pad

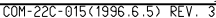
CHP3_SATALED# P3.3V R109 10K 1% R104 1% 750 P1.1V_SATA_AVDD R99 1K 1% R105 180 1% AF28 SATA_CALRP
AF27 SATA_CALRN
AD22 SATA_ACT#_GPIO67
AF21 SATA_X1
AG21 SATA_X2

SAT3_ODD_PWRGT R670 0 AH16 FANOUT0_GPIO52
FAN_FCH R667 01 AM15 FANOUT1_GPIO53
FAN3_FDBACK# R158 10K 1% K6 FANOUT2_GPIO54
R782 10K 1% K3
R784 10K 1% K3
AP03_FCH_ALERT# R157 10K 1% M6 FANIN0_GPIO56
FANIN1_GPIO57
FANIN2_GPIO58
TEMPIN0_GPIO171
TEMPIN1_GPIO172
TEMPIN2_GPIO173
TEMPIN3_TALERT#_GPIO174

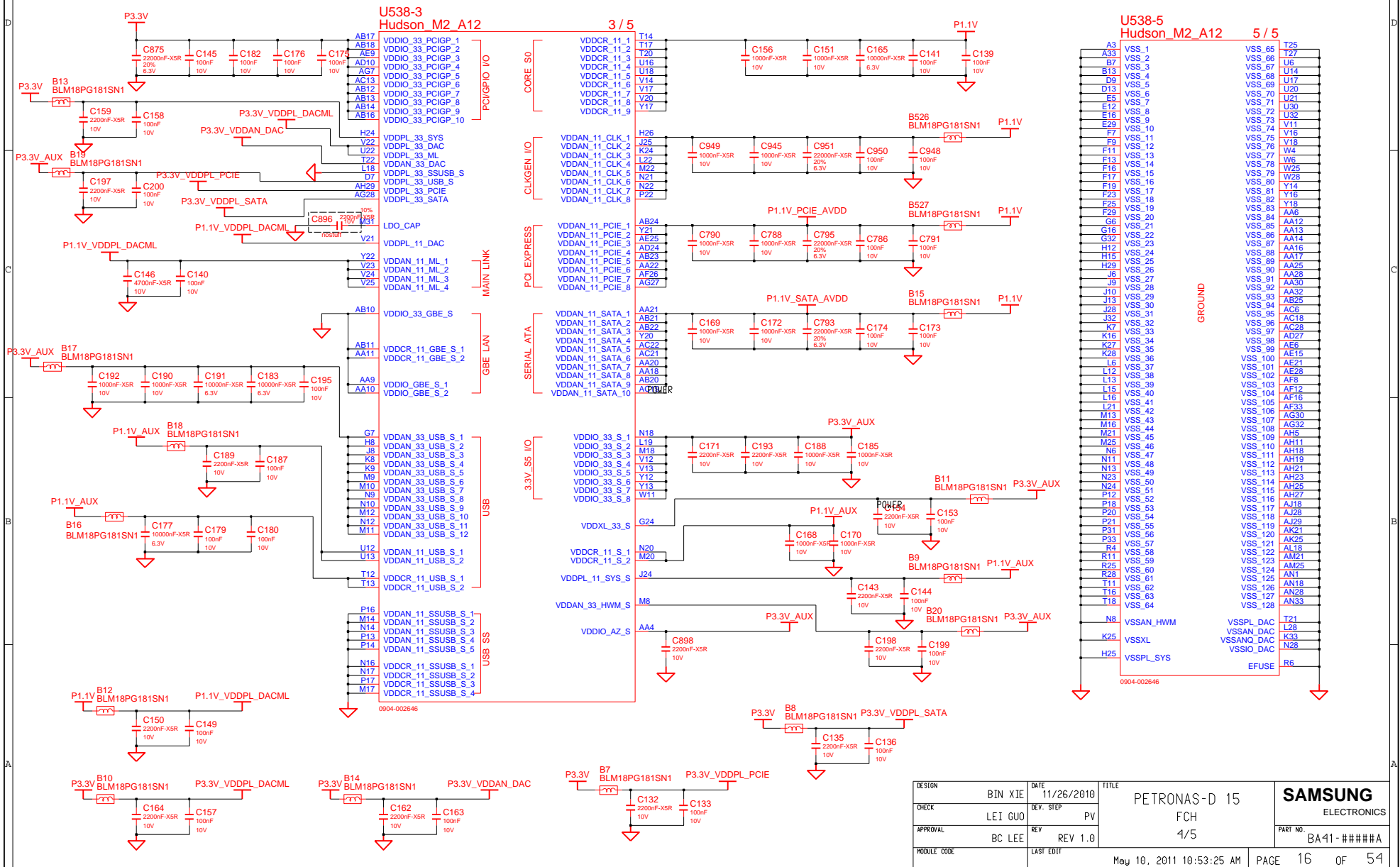
0904-002646



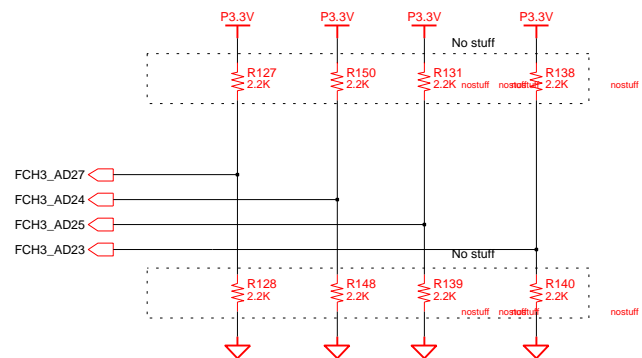
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CHECK	LEI GUO	DEV. STEP	PV				FCH
APPROVAL	BC LEE	REV	REV 1.0				2/4
MODULE CODE	LAST EDIT		May 10, 2011 10:53:25 AM				PAGE 14 OF 54
					PART NO.	BA41-#####	



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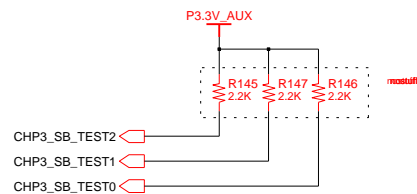
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The schematic diagram illustrates the power supply network for the FCH3 module. It shows connections for P3.3V, P3.3V_AUX, and P3.3V_AUX_AUX. The diagram includes pull-up resistors (R723, R721, R722, R841, R845, R112, R848) and pull-down resistors (R724, R727, R726, R840, R844, R106, R849) connected to various signals like PCI3_CLK4, PCI3_CLK3, PCI3_CLK1, LPC3_CLK0, LPC3_CLK1, FCH3_EC_PWM2, and FCH3_RTCLK. The diagram also shows the connection of the P3.3V_AUX_AUX signal to the P3.3V_AUX signal.

STRAP HIGH	PCI3_AD(27)	PCI3_AD(25)	PCI3_AD(24)	PCI3_AD(23)
	USE PCI PLL	Normal 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)

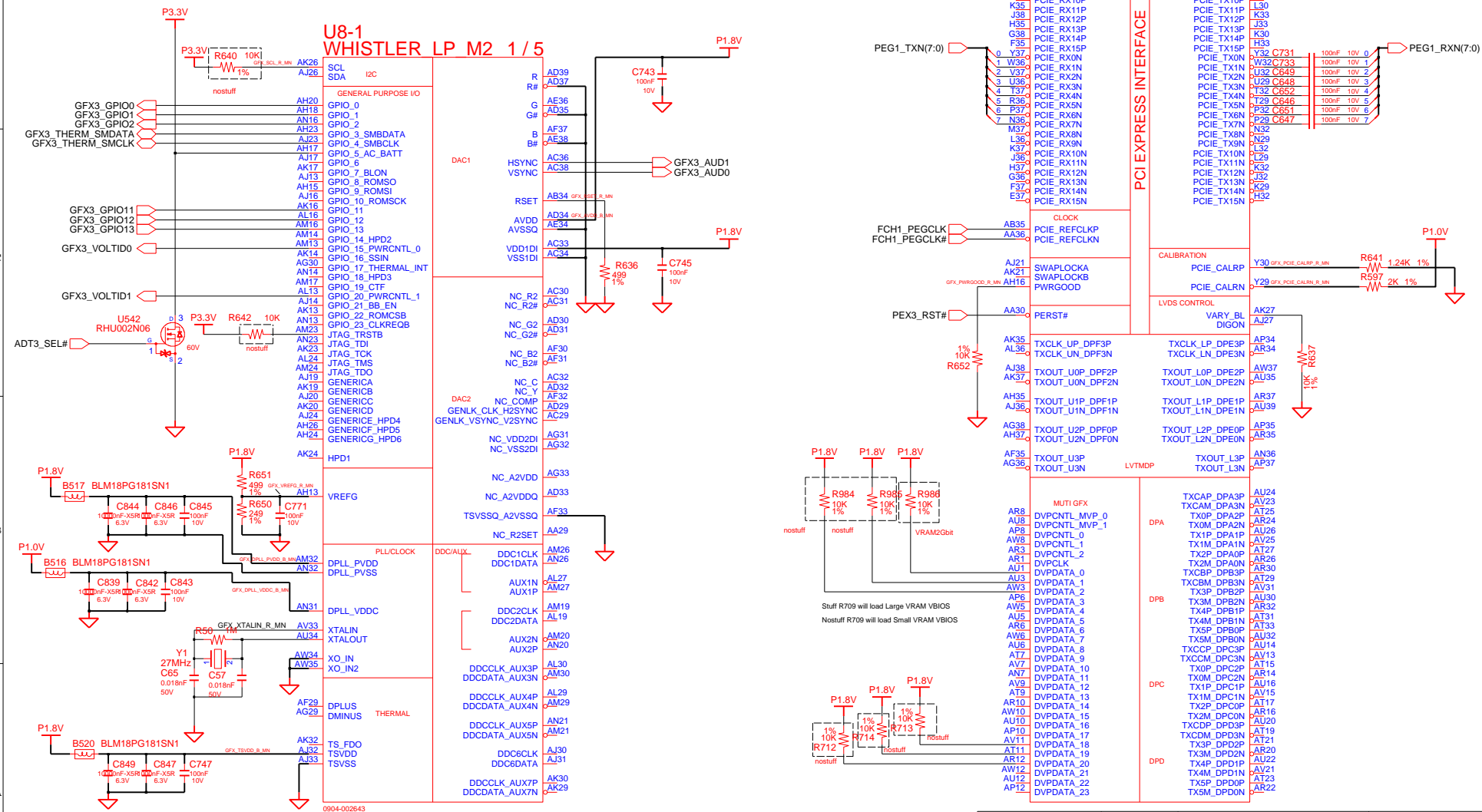
DRAW	BIN XIE	DATE	09/16/2010	TITLE PETRONAS-D 15 FCH Strap	SAMSUNG ELECTRONICS	
CHECK	LEI GUO	DEV. STEP	PV			
APPROVAL	BC LEE	REV	REV 1.0		PART NO.	BA41-####A
MODULE CODE	LAST EDIT				May 10, 2011 10:53:25 AM	PAGE 17 OF 54

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Pin connection diagram for the 3711-000386 module. The diagram shows a 12-pin connector (J17) with pins 1 through 12. Pin 1 is connected to P3.3V. Pin 2 is connected to PLT3_RST#. Pin 3 is connected to CLK3_DBG LPC. Pin 4 is connected to LPC3_LFRAME#. Pin 5 is connected to LPC3_LAD(3). Pin 6 is connected to LPC3_LAD(2). Pin 7 is connected to LPC3_LAD(1). Pin 8 is connected to LPC3_LAD(0). Pin 9 is connected to MNT1. Pin 10 is connected to MNT2. Pin 11 is connected to MNT2. Pin 12 is connected to MNT2. The module is labeled 3711-000386.

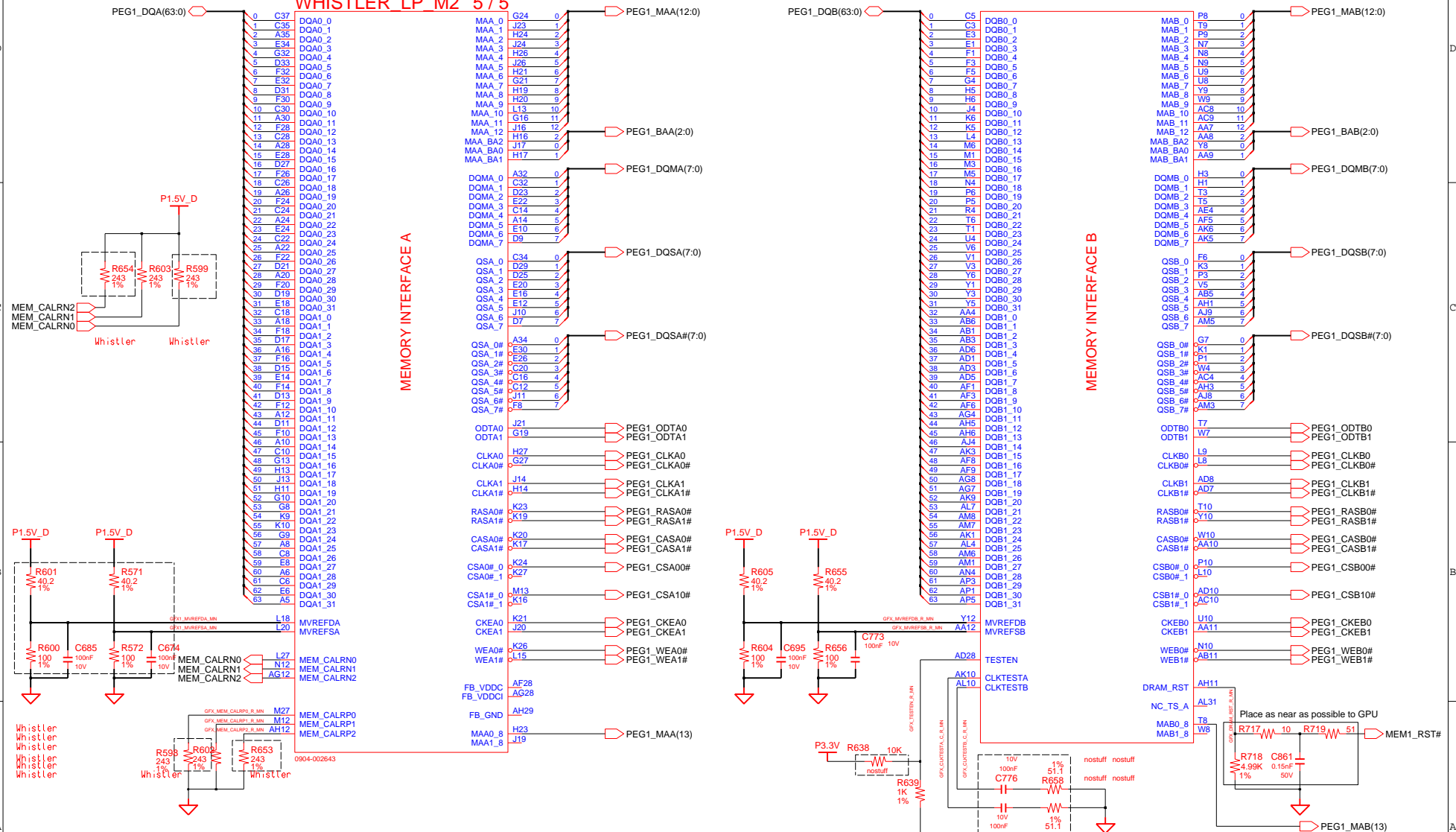
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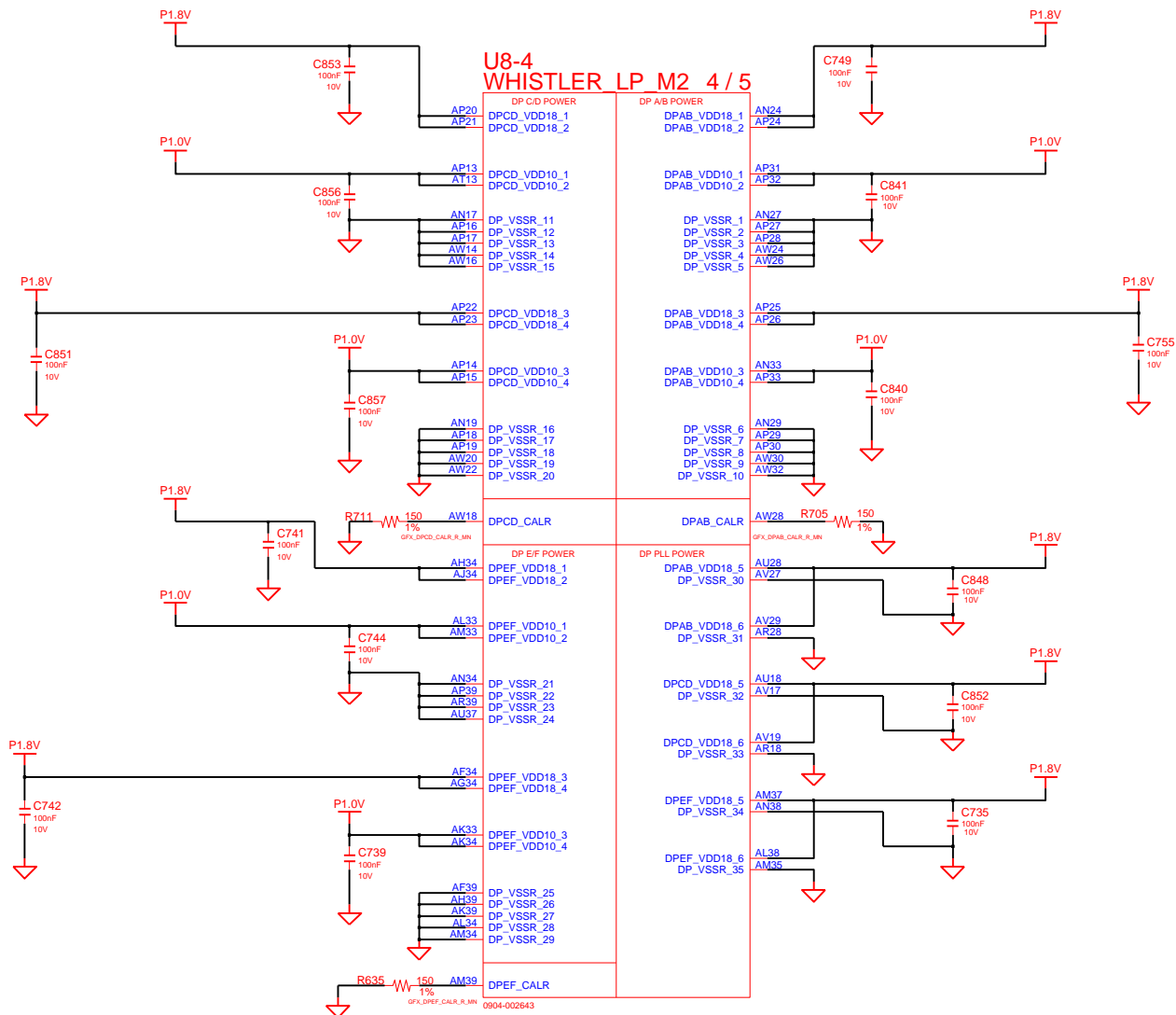
DESIGN	BIN XIE	DATE	03/14/2009	TITLE	PETRONAS-D 15 N10X_40NM(1/5) N10X_40NM(1/5)	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV			
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE	LAST EDIT		May 10, 2011 10:53:25 AM			
				PART NO.	BA41-#####	

U8-5
WHISTLER_LP_M2 5 / 5



DESIGN	BIN XIE	DATE	03/14/2009	TITLE	PETRONAS-D 15 N10X_40NM(2/5) N10X_40NM(2/5)	SAMSUNG ELECTRONICS		
CHECK	LEI GUO	DEV. STEP	PV					
APPROVAL	BC LEE	REV	REV 1.0				PART NO.	BA41-#####
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM				PAGE 20 OF 54	

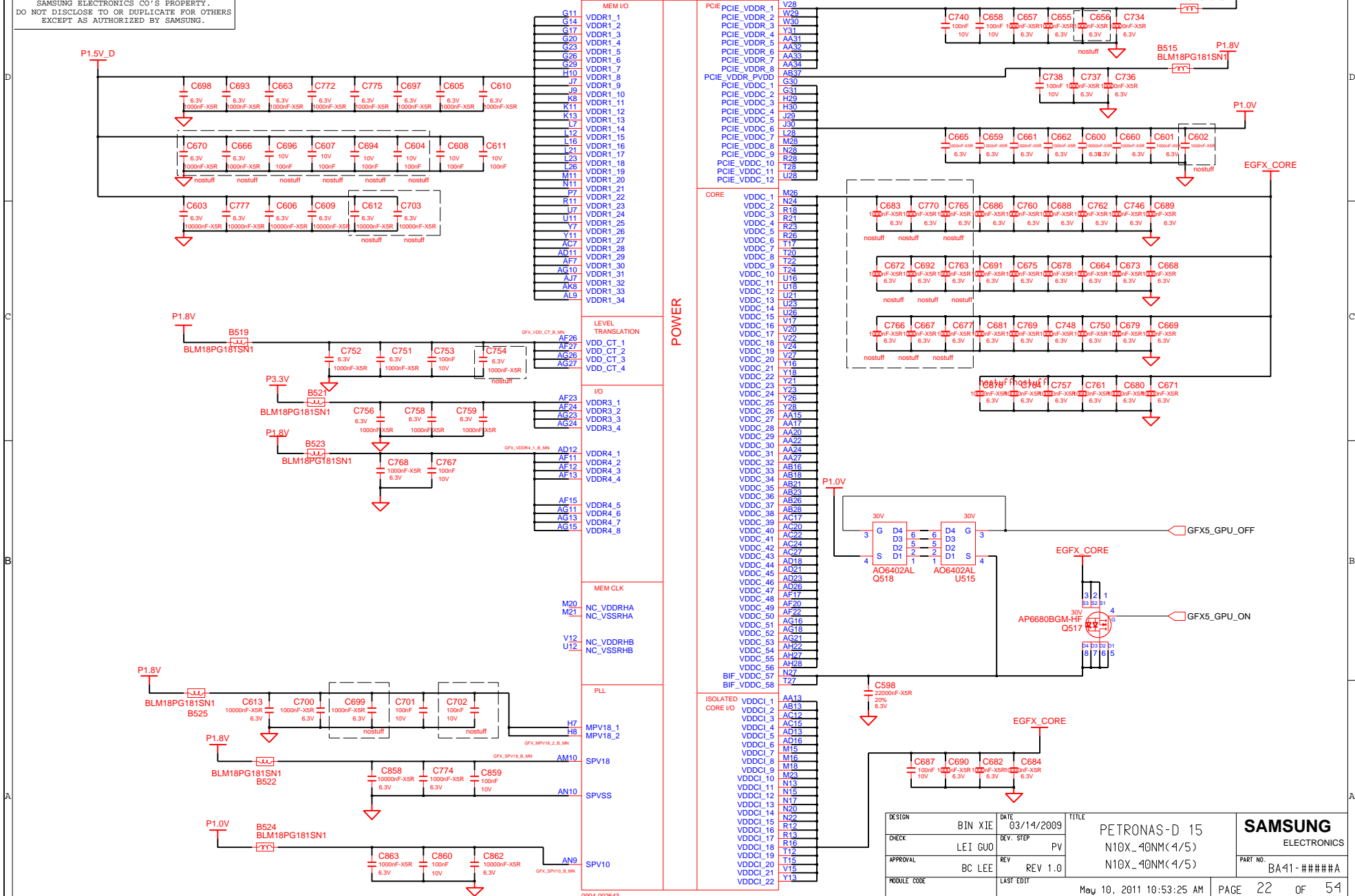
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DESIGN	BIN XIE	DATE	03/14/2009	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV		N10X_40NM(3/5)	
APPROVAL	BC LEE	REV	REV 1.0		N10X_40NM(3/5)	
MODULE CODE		LAST EDIT				PART NO. BA41-####A
				May 10, 2011 10:53:25 AM	PAGE	21 OF 54

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MEM I/O		PCIE	PCIE VDDP 1
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**U8-2
WHISTLER LP M2 2/5**

E39 PCIE_VSS_1
F34 PCIE_VSS_2
F39 PCIE_VSS_3
G33 PCIE_VSS_4
H31 PCIE_VSS_5
H34 PCIE_VSS_6
H39 PCIE_VSS_7
J31 PCIE_VSS_8
K31 PCIE_VSS_9
K34 PCIE_VSS_10
K39 PCIE_VSS_11
L31 PCIE_VSS_12
L34 PCIE_VSS_13
M34 PCIE_VSS_14
M39 PCIE_VSS_15
N31 PCIE_VSS_16
N34 PCIE_VSS_17
P31 PCIE_VSS_18
P34 PCIE_VSS_19
P39 PCIE_VSS_20
R34 PCIE_VSS_21
T31 PCIE_VSS_22
T34 PCIE_VSS_23
T39 PCIE_VSS_24
U31 PCIE_VSS_25
U34 PCIE_VSS_26
V39 PCIE_VSS_27
W31 PCIE_VSS_28
W34 PCIE_VSS_29
Y39 PCIE_VSS_30
Y34 PCIE_VSS_31
Y39 PCIE_VSS_32
Y34 PCIE_VSS_33
Y39 PCIE_VSS_34
AB39 PCIE_VSS_35

A3 GND_1
A37 GND_2
B7 GND_3
B9 GND_4
B11 GND_5
B13 GND_6
B15 GND_7
B17 GND_8
B19 GND_9
B21 GND_10
B23 GND_11
B25 GND_12
B27 GND_13
B29 GND_14
B31 GND_15
B33 GND_16
C1 GND_17
C39 GND_18
E5 GND_19
E35 GND_20
F7 GND_21
F9 GND_22
F11 GND_23
F13 GND_24
F15 GND_25
F17 GND_26
F19 GND_27
F21 GND_28
F23 GND_29
F25 GND_30
F27 GND_31
F29 GND_32
F31 GND_33
F33 GND_34
G2 GND_35
G6 GND_36
H9 GND_37
J6 GND_38
J8 GND_39
J27 GND_40
K7 GND_41
K14 GND_42
L2 GND_43
L6 GND_44
L11 GND_45
L17 GND_46
L22 GND_47
L24 GND_48
M17 GND_49
M22 GND_50
M24 GND_51
N2 GND_52
N18 GND_53
N16 GND_54
N21 GND_55
N23 GND_56
N26 GND_57
N26 GND_58
R2 GND_59
R2 GND_60

GND

0904-002643

AC21 GND_120
AC23 GND_121
AC26 GND_122
AC28 GND_123
AD9 GND_124
AD15 GND_125
AD17 GND_126
AD20 GND_127
AD22 GND_128
AD24 GND_129
AD27 GND_130
AE2 GND_131
AE6 GND_132
AF10 GND_133
AF16 GND_134
AF18 GND_135
AF21 GND_136
AG2 GND_137
AG6 GND_138
AG9 GND_139
AG17 GND_140
AG20 GND_141
AG22 GND_142
AH21 GND_143
AJ2 GND_144
AJ6 GND_145
AJ10 GND_146
AJ11 GND_147
AJ28 GND_148
AK7 GND_149
AK11 GND_150
AK31 GND_151
AL2 GND_152
AL6 GND_153
AL8 GND_154
AL11 GND_155
AL17 GND_156
AL20 GND_157
AL20 GND_158
AR5 GND_159
AL23 GND_160
AL26 GND_161
AM9 GND_162
AM11 GND_163
AM31 GND_164
AN11 GND_165
AN2 GND_166
AN6 GND_167
AN8 GND_168
AN30 GND_169
AP9 GND_170
AP9 GND_171
AP11 GND_172
AL21 GND_173

GND

R6 GND_61
R15 GND_62
R17 GND_63
R20 GND_64
R22 GND_65
R24 GND_66
R27 GND_67
T11 GND_68
T13 GND_69
T16 GND_70
T18 GND_71
T21 GND_72
T23 GND_73
T26 GND_74
U2 GND_75
U6 GND_76
U13 GND_77
U15 GND_78
U17 GND_79
U20 GND_80
U22 GND_81
U24 GND_82
U27 GND_83
V11 GND_84
V13 GND_85
V16 GND_86
V18 GND_87
V21 GND_88
V23 GND_89
V26 GND_90
W2 GND_91
W6 GND_92
Y15 GND_93
Y17 GND_94
Y20 GND_95
Y22 GND_96
Y24 GND_97
Y27 GND_98
AA2 GND_99
AA6 GND_100

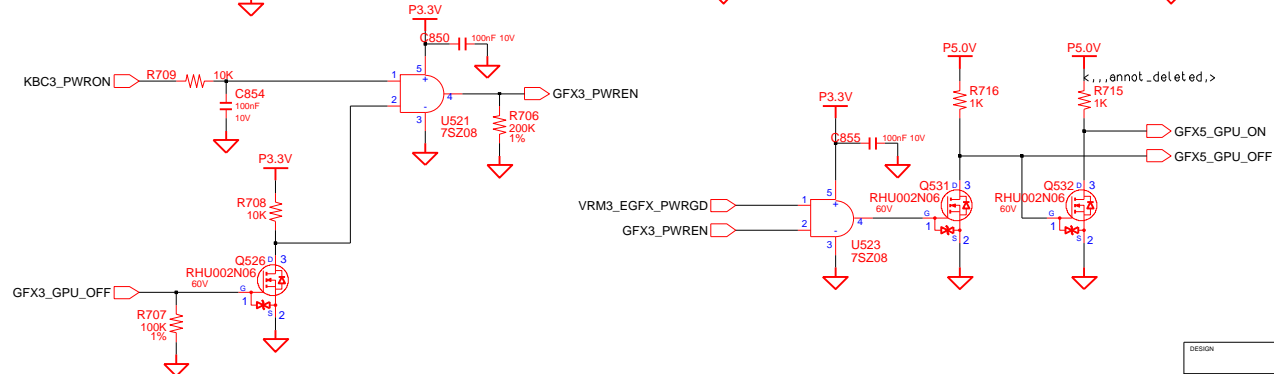
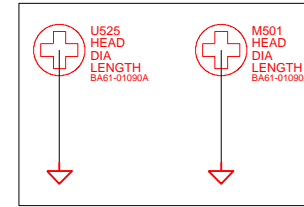
VSS_MECH_1
VSS_MECH_2
VSS_MECH_3

A39
AW1
AW39

GFX3_GPU_OFF

PX_EN

GPU Thermal

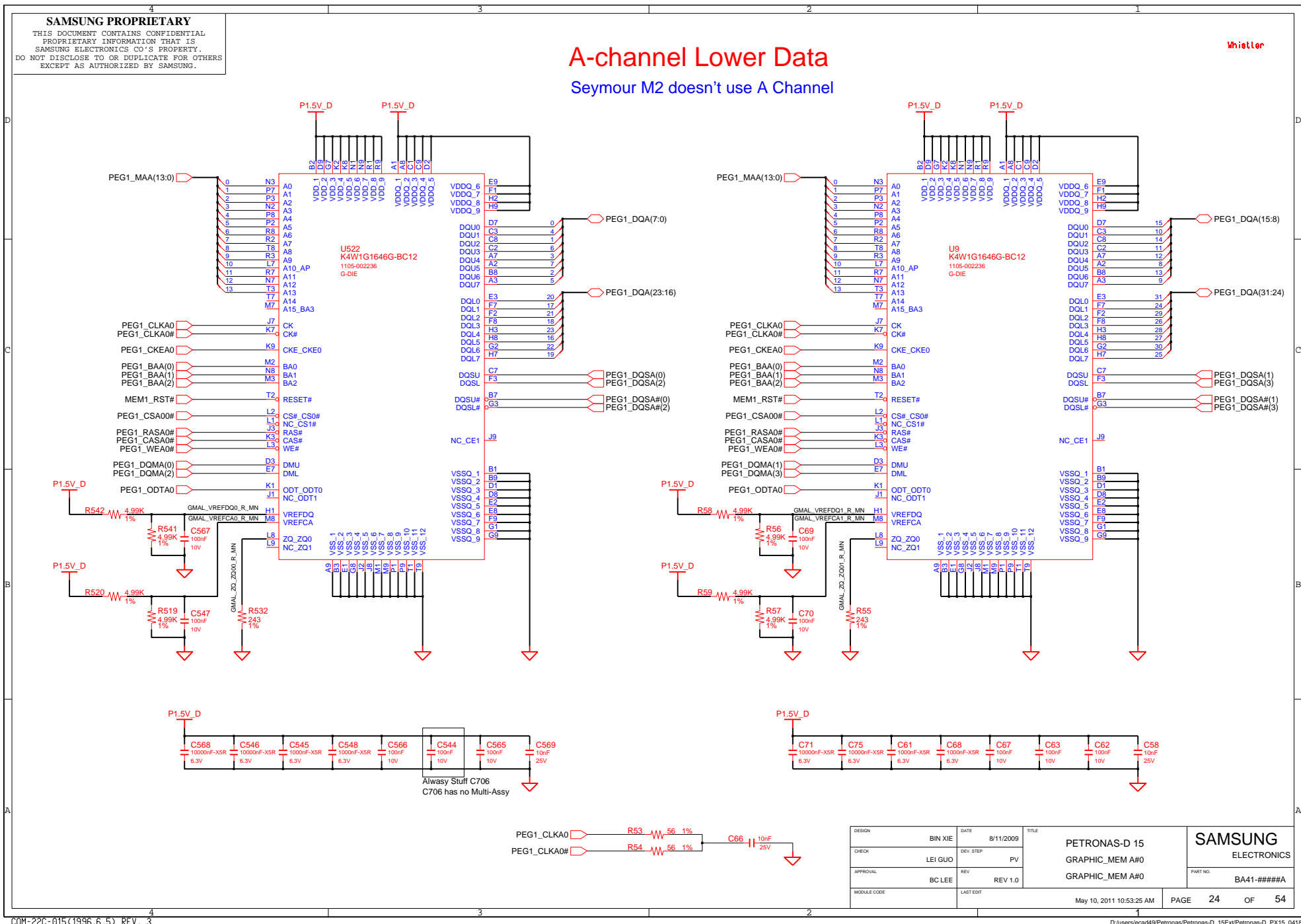


DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV		N11X_40NM(5/5)	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		N11X_40NM(5/5)	PART NO.
MODULE CODE		LAST EDIT				BA41-####A
				May 10, 2011 10:53:25 AM	PAGE	23 OF 54

A-channel Lower Data

Seymour M2 doesn't use A Channel

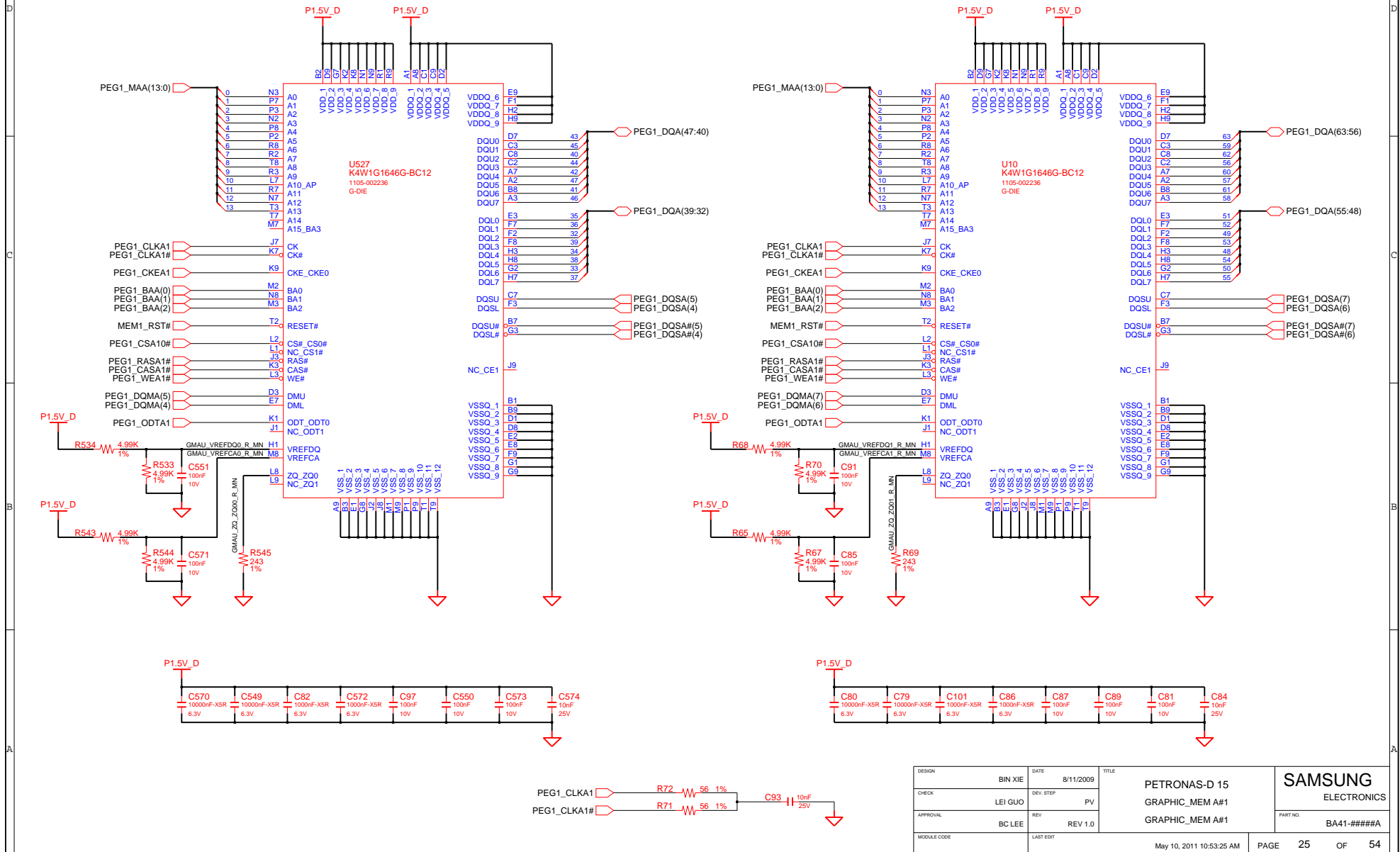
Whittler



A-channel Upper Data

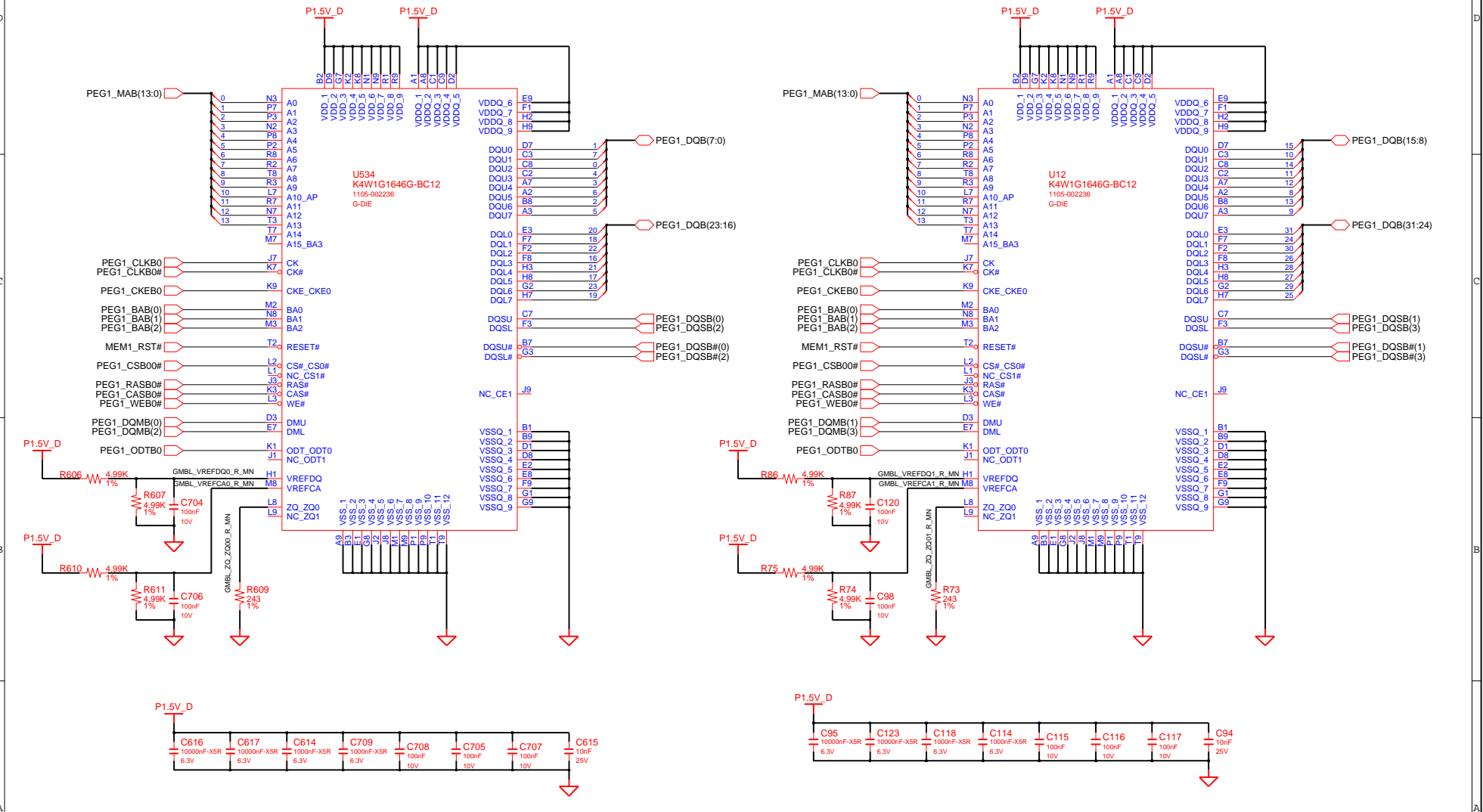
Seymour M2 doesn't use A Channel

Whistler



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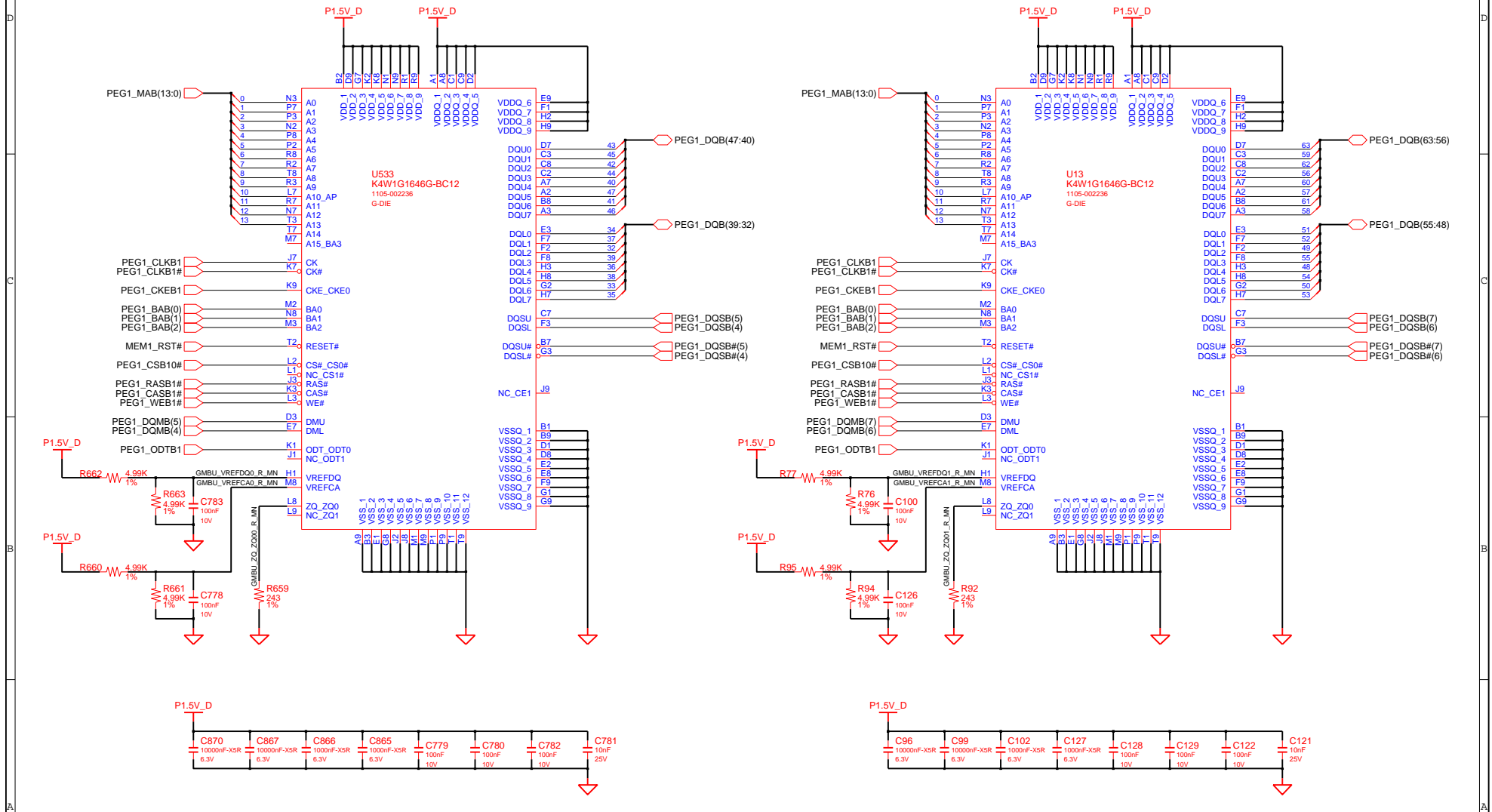
B-channel Lower Data



DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV		GRAPHIC_MEM C#0	
APPROVAL	BC LEE	REV	REV 1.0		GRAPHIC_MEM C#0	
MODULE CODE		LAST EDIT				PART NO. BA41-####A
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B-channel Upper Data

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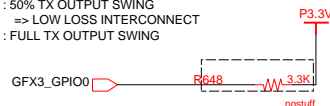
DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV		GRAPHIC_MEM C#1	
APPROVAL	BC LEE	REV	REV 1.0		GRAPHIC_MEM C#1	
MODULE CODE		LAST EDIT				
May 10, 2011 10:53:25 AM						PAGE 27 OF 54

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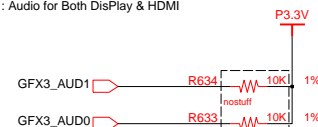
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Straps

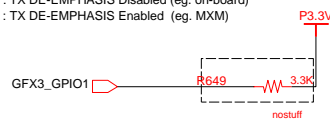
TX_PWRS_ENB
PCIE FULL TX OUTPUT SWING (Internal P/D)
0 : 50% TX OUTPUT SWING
=> LOW LOSS INTERCONNECT
1 : FULL TX OUTPUT SWING



AUD[1:0] (Internal P/D)
00 : No Audio Function
01 : Audio for DisplayPort only
10 : Audio for DisplayPort and HDMI if dongle is detected
11 : Audio for Both Display & HDMI



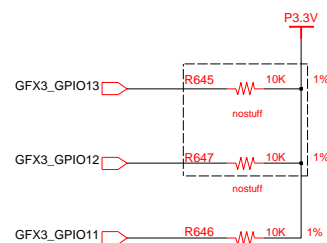
TX_DEEMPH_EN
PCIE TRANSMITTER DE-EMPHASIS ENABLE (Internal P/D)
0 : TX DE-EMPHASIS Disabled (eg. on-board)
1 : TX DE-EMPHASIS Enabled (eg. MXM)



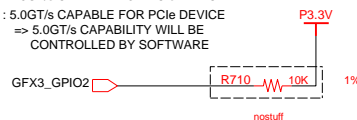
BIOS_ROM_EN => GPIO_22_ROMCSB (Internal P/D)
If BIOS_ROM_EN=1, ROMCFGID[2:0] (Internal P/D)
If BIOS_ROM_EN=0, Memory Aperture Size (Internal P/D)

GFX3_GPIO[13:11]

000 : 128MB
001 : 256MB
010 : 64MB
011 : RESERVED
1XX : RESERVED



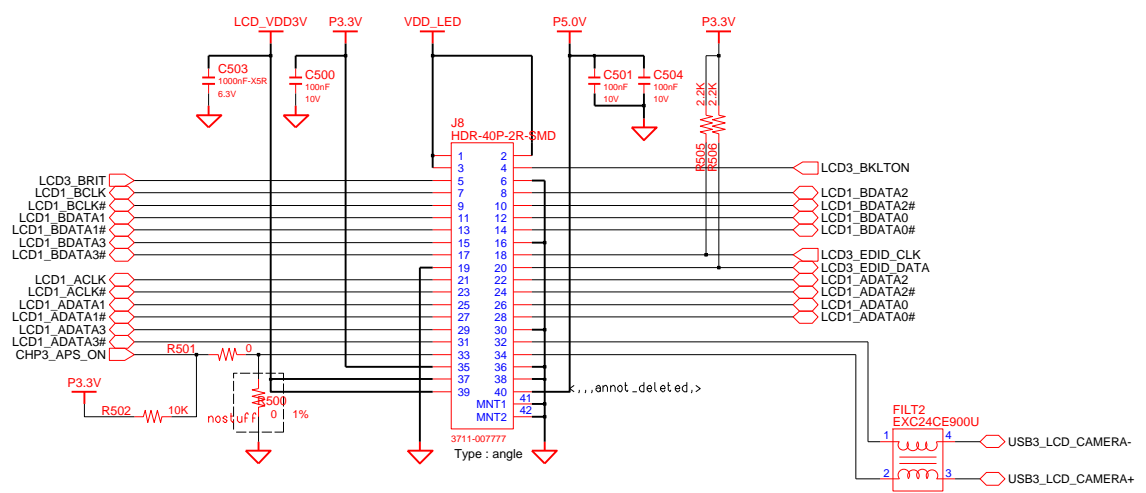
BIF_GEN2_EN_A
0 : 2.5GT/s CAPABLE FOR PCIe DEVICE
1 : 5.0GT/s CAPABLE FOR PCIe DEVICE
=> 5.0GT/s CAPABILITY WILL BE
CONTROLLED BY SOFTWARE



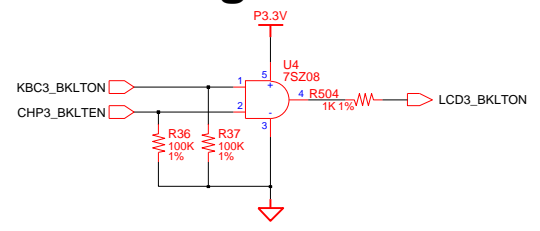
DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV		N11X_40NM STRAP	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		N11X_40NM STRAP	PART NO.
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	28	BA41-####A
				OF	54	

LVDS LOGIC

1Ch. LCD Connector + CAMERA

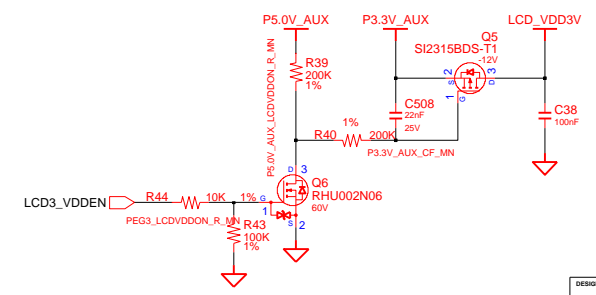


Backlight On

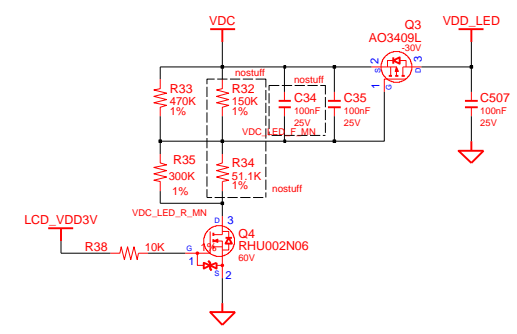


LCD Power

EBL Purpose



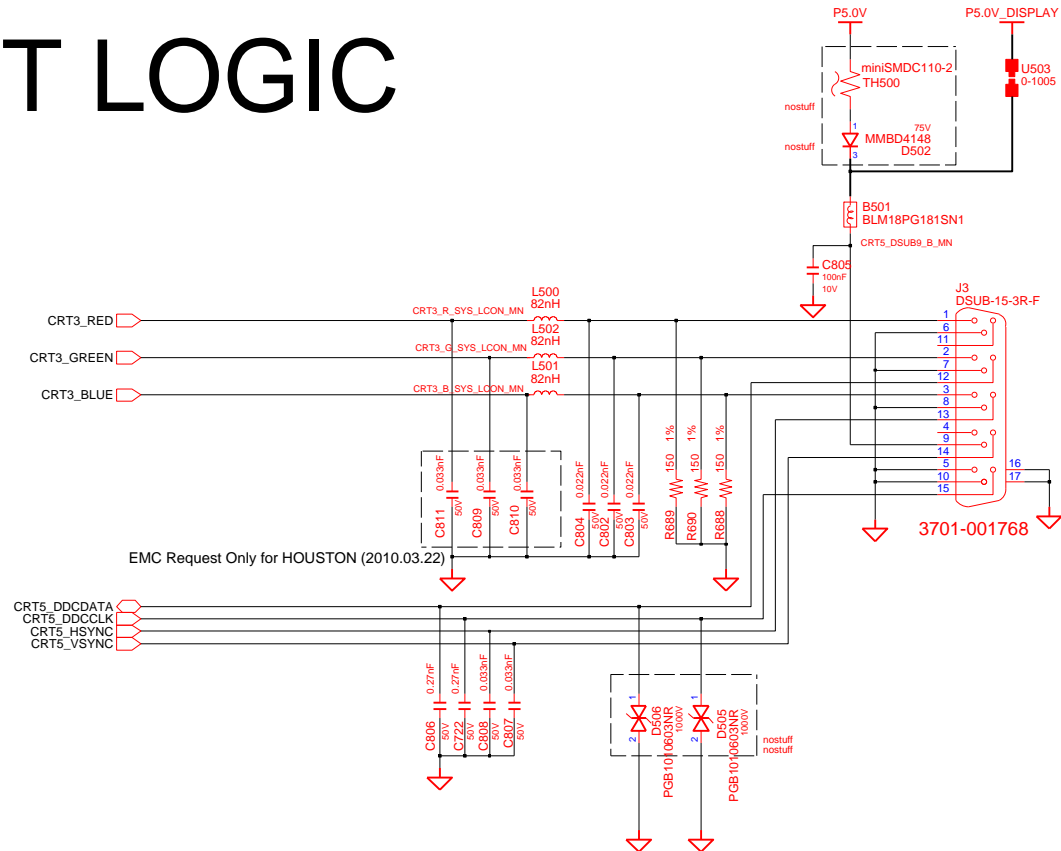
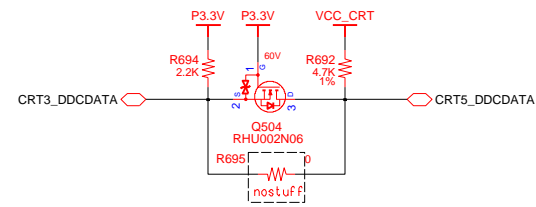
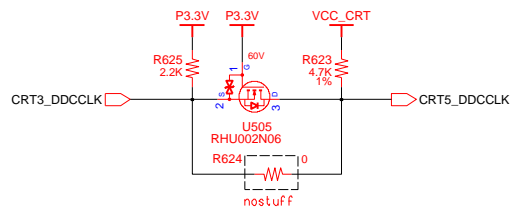
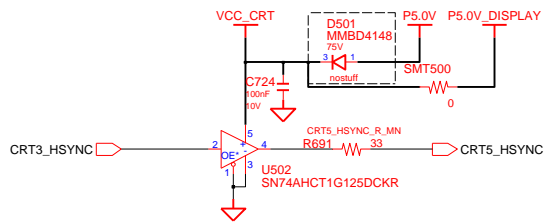
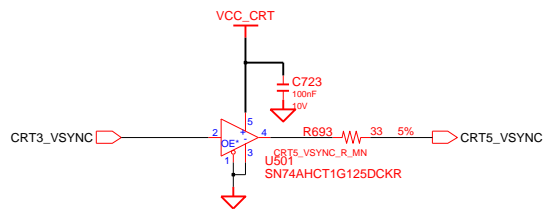
LED Power



DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV	GRAPHICS_IF		
APPROVAL	BC LEE	REV	REV 1.0	LVDS		
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	29	OF 54

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CRT LOGIC



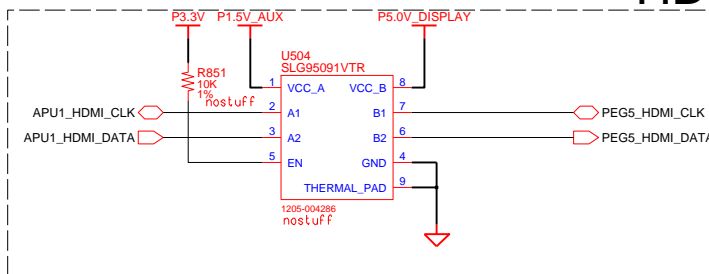
DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV		GRAPHICS_IF	
APPROVAL	BC LEE	REV	REV 1.0		CRT	
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE 30 OF 54	PART NO. BA41-####A

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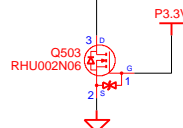
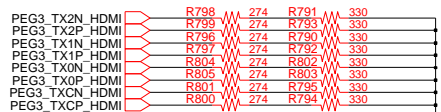
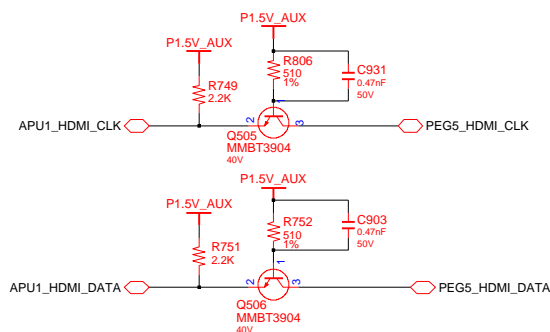
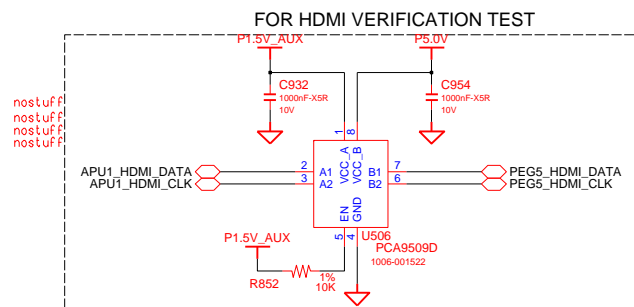
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FOR HDMI VERIFICATION TEST

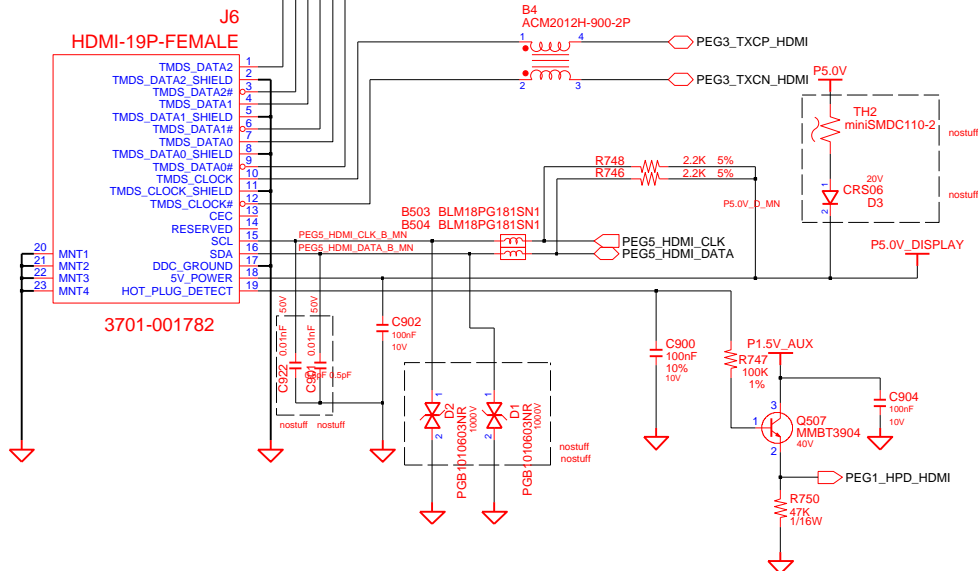
HDMI Graphic



FOR HDMI VERIFICATION TEST

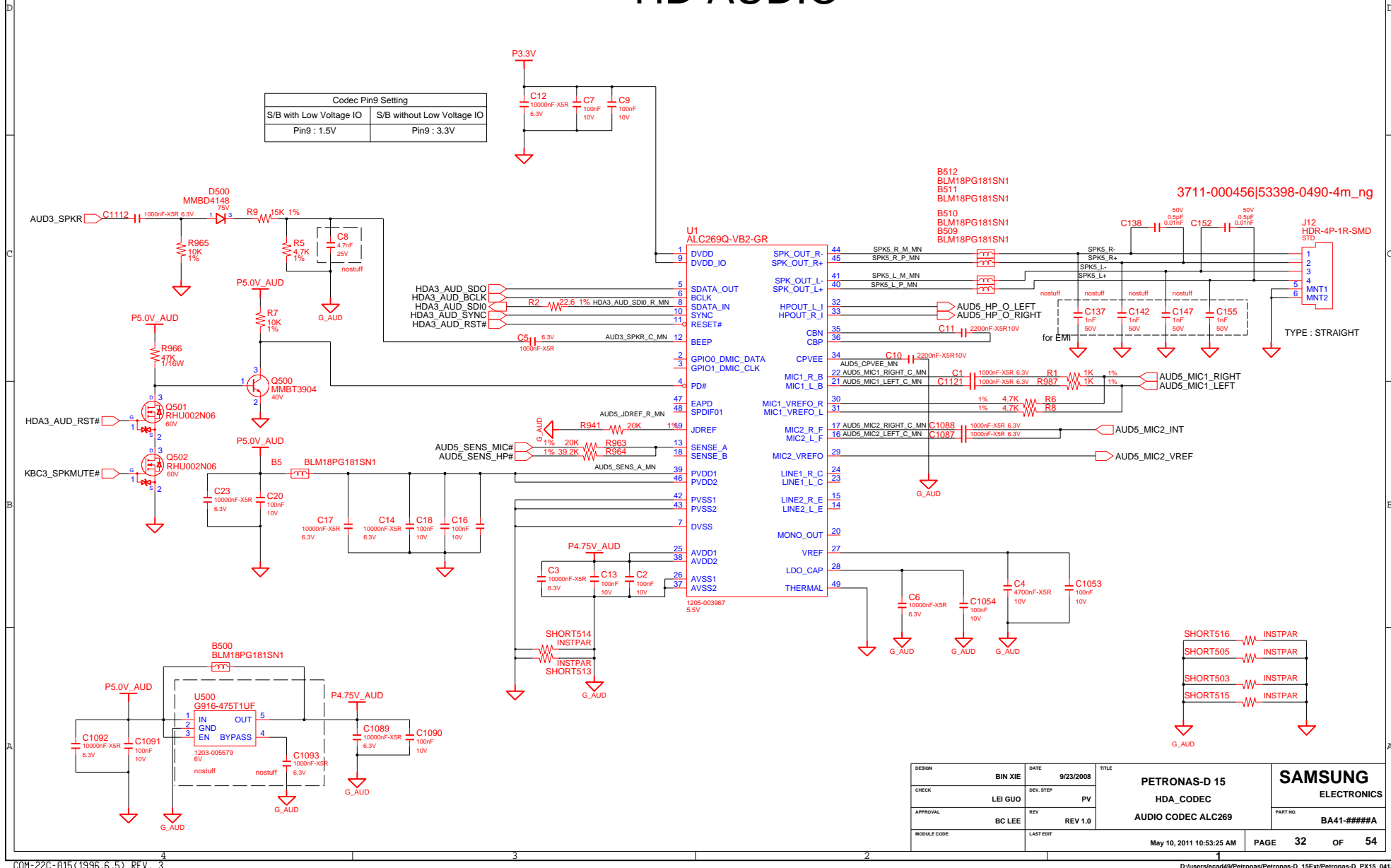


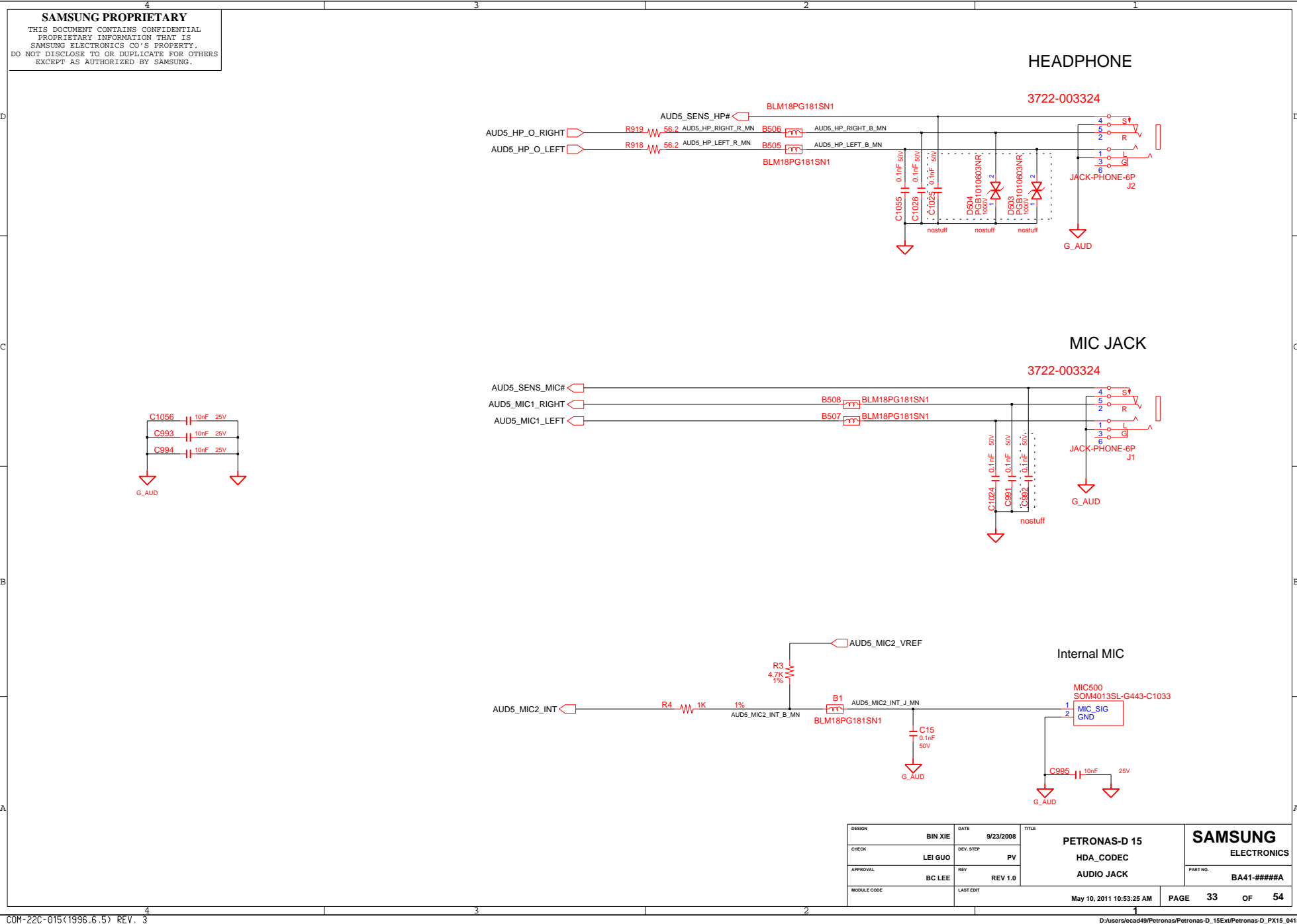
J6 HDMI-19P-FEMALE



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HD AUDIO





Reatek RTL8111E

CPU CORE

FOR EM1

P3.3V_AUX

R524 10K

U508 RTL8111E-VL-CG

PERST#

WAKE#

REFCLKP

REFCLKN

MDIO1

PCIE_TXP

PCIE_TXN

PCIE_RXP

PCIE_RXN

CLKREQ#

LED0

LED1_EESK

LED3_EEEO

EESCS

EED1

ENSWREG

ISOLATEB

XTAL1

XTAL2

GPO_SMBALERT

RSET

GND THERMAL

AVDD33_1

AVDD33_2

AVDD33_3

AVDD33_4

DVDD33_1

DVDD33_2

DVDD10_1

DVDD10_2

DVDD10_3

DVDD10_4

EVDD10_1

V1.0_OUT

ADV33_REG1

ADV33_REG2

1205-004159 3.3V

D509 TCLAMP2502N

D510 TCLAMP2502N

D507 TCLAMP2502N

D508 TCLAMP2502N

LT500 GST5009LF

J5 JACK-LAN-8P

TD+

TD-

RD+

RD-

TERM1

TERM2

TERM3

TERM4

MNT1

MNT2

MNT3

MNT4

3722-003283

C33 100nF 50V

C34 100nF 10V

C35 100nF 10V

C36 100nF 10V

C37 100nF 10V

C38 100nF 10V

C39 100nF 10V

C40 100nF 10V

C41 100nF 10V

C42 100nF 10V

C43 100nF 10V

C44 100nF 10V

C45 100nF 10V

C46 100nF 10V

C47 100nF 10V

C48 100nF 10V

C49 100nF 10V

C50 100nF 10V

C51 100nF 10V

C52 100nF 10V

C53 100nF 10V

C54 100nF 10V

C55 100nF 10V

C56 100nF 10V

C57 100nF 10V

C58 100nF 10V

C59 100nF 10V

C60 100nF 10V

C61 100nF 10V

C62 100nF 10V

C63 100nF 10V

C64 100nF 10V

C65 100nF 10V

C66 100nF 10V

C67 100nF 10V

C68 100nF 10V

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C71 100nF 10V

C72 100nF 10V

C73 100nF 10V

C74 100nF 10V

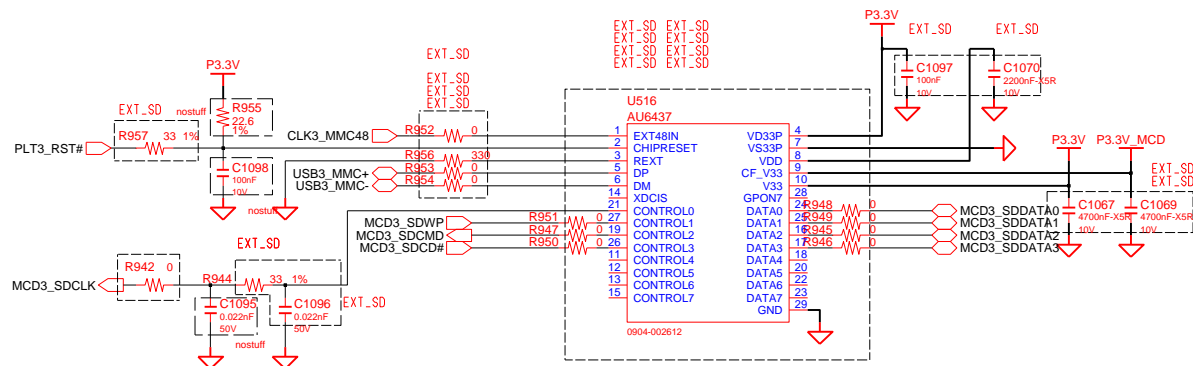
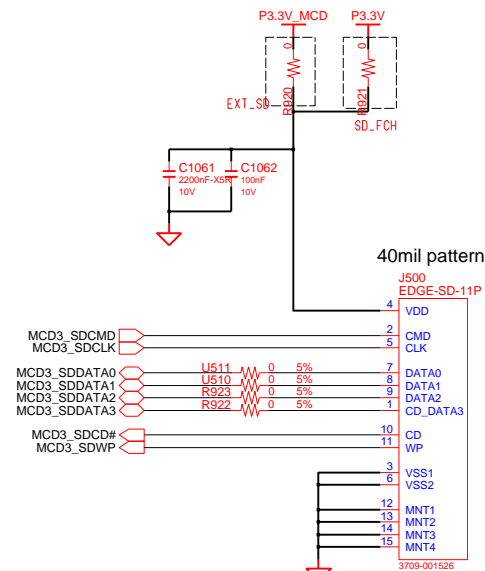
C75 1

DESIGN	BIN XIE	DATE	9/23/2008	PETRONAS-D 15 LAN LAN_Realtek_RTL8103EL	SAMSUNG ELECTRONICS	
CHECK	LEI GUO	REV. STEP	PV			
APPROVAL	BC LEE	REV	REV 1.0		PART NO.	BA41-####A
MODULE CODE	LAST EDIT		May 10, 2011 10:53:25 AM		PAGE 34 OF 54	

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4 IN 1 CARD

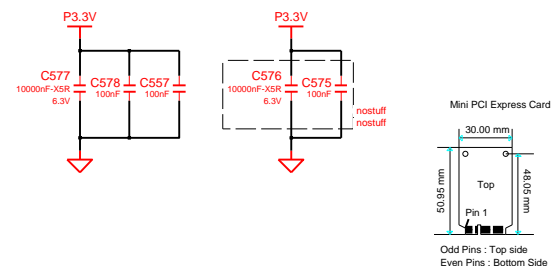


DESIGN	BIN XIE	DATE	9/23/2008	PETRONAS-D 15 MULTICARD 3 IN 1 CARD(AU6473)		SAMSUNG	
CHECK	LEI GUO	DEV. STEP	PV			ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0			PART NO. BA41-####A	
MODULE CODE	LAST EDIT		May 10, 2011 10:53:25 AM		PAGE	35	OF 54

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The diagram illustrates the electrical connections for the J13 MINICARD-52P connector. The connector pins are numbered 1 through 54. The connections are as follows:

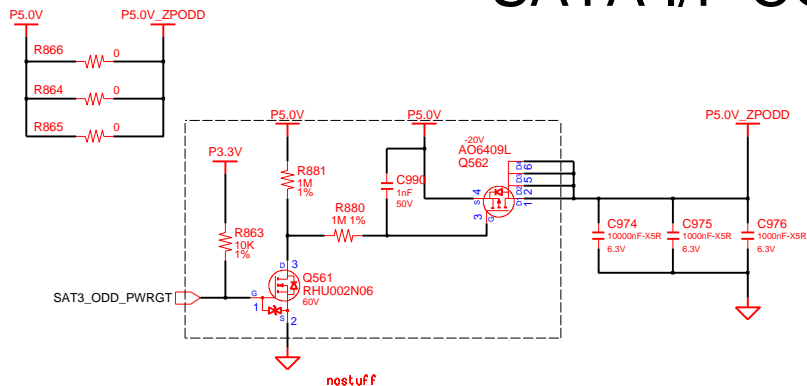
- Power Connections:**
 - Pins 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51 are connected to the P3.3V power plane.
 - Pins 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52 are connected to the P3.3V power plane.
 - Pins 53 and 54 are connected to the MNT1 and MNT2 ground points.
- Signal Connections:**
 - Pin 1: PEX3_WAKE#
 - Pin 3: FCH3_RFFOFF_BT#
 - Pin 5: MIN3_CLKREQ#
 - Pin 7: CLK1_FCH_MINIPICIE#
 - Pin 9: CLK1_FCH_MINIPICIE
 - Pin 11: PEX1_MINI_RXN0
 - Pin 13: PEX1_MINI_RXP0
 - Pin 15: PEX1_MINI_TXN0
 - Pin 17: PEX1_MINI_TXP0
 - Pin 19: CHP3_INTELBT_OFF#
 - Pin 21: FCH3_RFFOFF_WLAN#
 - Pin 23: PEX3_RST2#
 - Pin 25: USB3_MINIPICIE1-
 - Pin 27: USB3_MINIPICIE1+
 - Pin 29: LED_WWAN*
 - Pin 31: LED_WLAN*
 - Pin 33: LED_WPAN*
 - Pin 35: P1.5V_3
 - Pin 37: GND_12
 - Pin 39: P3.3V_2
- Component Values:**
 - Resistors: R546 (10K 1%), R547 (0), R548 (4.7K 1%), R549 (4.7K 1%), R536 (100K 1%), R537 (100K 1%), R538 (100K 1%), R539 (100K 1%), R540 (100K 1%), R541 (100K 1%), R542 (100K 1%), R543 (100K 1%), R544 (100K 1%), R545 (100K 1%), R546 (10K 1%), R547 (0), R548 (4.7K 1%), R549 (4.7K 1%), R550 (10K 1%), R551 (100K 1%), R552 (100K 1%), R553 (100K 1%), R554 (100K 1%), R555 (100K 1%), R556 (100K 1%), R557 (100K 1%), R558 (100K 1%), R559 (100K 1%), R560 (100K 1%), R561 (100K 1%), R562 (100K 1%), R563 (100K 1%), R564 (100K 1%), R565 (100K 1%), R566 (100K 1%), R567 (100K 1%), R568 (100K 1%), R569 (100K 1%), R570 (100K 1%), R571 (100K 1%), R572 (100K 1%), R573 (100K 1%), R574 (100K 1%), R575 (100K 1%), R576 (100K 1%), R577 (100K 1%), R578 (100K 1%), R579 (100K 1%), R580 (100K 1%), R581 (100K 1%), R582 (100K 1%), R583 (100K 1%), R584 (100K 1%), R585 (100K 1%), R586 (100K 1%), R587 (100K 1%), R588 (100K 1%), R589 (100K 1%), R590 (100K 1%), R591 (100K 1%), R592 (100K 1%), R593 (100K 1%), R594 (100K 1%), R595 (100K 1%), R596 (100K 1%), R597 (100K 1%), R598 (100K 1%), R599 (100K 1%), R600 (100K 1%), R601 (100K 1%), R602 (100K 1%), R603 (100K 1%), R604 (100K 1%), R605 (100K 1%), R606 (100K 1%), R607 (100K 1%), R608 (100K 1%), R609 (100K 1%), R610 (100K 1%), R611 (100K 1%), R612 (100K 1%), R613 (100K 1%), R614 (100K 1%), R615 (100K 1%), R616 (100K 1%), R617 (100K 1%), R618 (100K 1%), R619 (100K 1%), R620 (100K 1%), R621 (100K 1%), R622 (100K 1%), R623 (100K 1%), R624 (100K 1%), R625 (100K 1%), R626 (100K 1%), R627 (100K 1%), R628 (100K 1%), R629 (100K 1%), R630 (100K 1%), R631 (100K 1%), R632 (100K 1%), R633 (100K 1%), R634 (100K 1%), R635 (100K 1%), R636 (100K 1%), R637 (100K 1%), R638 (100K 1%), R639 (100K 1%), R640 (100K 1%), R641 (100K 1%), R642 (100K 1%), R643 (100K 1%), R644 (100K 1%), R645 (100K 1%), R646 (100K 1%), R647 (100K 1%), R648 (100K 1%), R649 (100K 1%), R650 (100K 1%), R651 (100K 1%), R652 (100K 1%), R653 (100K 1%), R654 (100K 1%), R655 (100K 1%), R656 (100K 1%), R657 (100K 1%), R658 (100K 1%), R659 (100K 1%), R660 (100K 1%), R661 (100K 1%), R662 (100K 1%), R663 (100K 1%), R664 (100K 1%), R665 (100K 1%), R666 (100K 1%), R667 (100K 1%), R668 (100K 1%), R669 (100K 1%), R670 (100K 1%), R671 (100K 1%), R672 (100K 1%), R673 (100K 1%), R674 (100K 1%), R675 (100K 1%), R676 (100K 1%), R677 (100K 1%), R678 (100K 1%), R679 (100K 1%), R680 (100K 1%), R681 (100K 1%), R682 (100K 1%), R683 (100K 1%), R684 (100K 1%), R685 (100K 1%), R686 (100K 1%), R687 (100K 1%), R688 (100K 1%), R689 (100K 1%), R690 (100K 1%), R691 (100K 1%), R692 (100K 1%), R693 (100K 1%), R694 (100K 1%), R695 (100K 1%), R696 (100K 1%), R697 (100K 1%), R698 (100K 1%), R699 (100K 1%), R700 (100K 1%), R701 (100K 1%), R702 (100K 1%), R703 (100K 1%), R704 (100K 1%), R705 (100K 1%), R706 (100K 1%), R707 (100K 1%), R708 (100K 1%), R709 (100K 1%), R710 (100K 1%), R711 (100K 1%), R712 (100K 1%), R713 (100K 1%), R714 (100K 1%), R715 (100K 1%), R716 (100K 1%), R717 (100K 1%), R718 (100K 1%), R719 (100K 1%), R720 (100K 1%), R721 (100K 1%), R722 (100K 1%), R723 (100K 1%), R724 (100K 1%), R725 (100K 1%), R726 (100K 1%), R727 (100K 1%), R728 (100K 1%), R729 (100K 1%), R730 (100K 1%), R731 (100K 1%), R732 (100K 1%), R733 (100K 1%), R734 (100K 1%), R735 (100K 1%), R736 (100K 1%), R737 (100K 1%), R738 (100K 1%), R739 (100K 1%), R740 (100K 1%), R741 (100K 1%), R742 (100K 1%), R743 (100K 1%), R744 (100K 1%), R745 (100K 1%), R746 (100K 1%), R747 (100K 1%), R748 (100K 1%), R749 (100K 1%), R750 (100K 1%), R751 (100K 1%), R752 (100K 1%), R753 (100K 1%), R754 (100K 1%), R755 (100K 1%), R756 (100K 1%), R757 (100K 1%), R758 (100K 1%), R759 (100K 1%), R760 (100K 1%), R761 (100K 1%), R762 (100K 1%), R763 (100K 1%), R764 (100K 1%), R765 (100K 1%), R766 (100K 1%), R767 (100K 1%), R768 (100K 1%), R769 (100K 1%), R770 (100K 1%), R771 (100K 1%), R772 (100K 1%), R773 (100K 1%), R774 (100K 1%), R775 (100K 1%), R776 (100K 1%), R777 (100K 1%), R778 (100K 1%), R779 (100K 1%), R780 (100K 1%), R781 (100K 1%), R782 (100K 1%), R783 (100K 1%), R784 (100K 1%), R785 (100K 1%), R786 (100K 1%), R787 (100K 1%), R788 (100K 1%), R789 (100K 1%), R790 (100K 1%), R791 (100K 1%), R792 (100K 1%), R793 (100K 1%), R794 (100K 1%), R795 (100K 1%), R796 (100K 1%), R797 (100K 1%), R798 (100K 1%), R799 (100K 1%), R800 (100K 1%), R801 (100K 1%), R802 (100K 1%), R803 (100K 1%), R804 (100K 1%), R805 (100K 1%), R806 (100K 1%), R807 (100K 1%), R808 (100K 1%), R809 (100K 1%), R810 (100K 1%), R811 (100K 1%), R812 (

[illegible]

DESIGN	BIN XIE	DATE	9/23/2008	TITLE PETRONAS-D 15 MINI_PCIE_CONN WLAN	SAMSUNG ELECTRONICS	
CHECK	LEI GUO	DEV. STEP	PV			
APPROVAL	BC LEE	REV	REV 1.0		PART NO.	BA41-####A
MODULE CODE	LAST EDIT				May 10, 2011 10:53:25 AM	PAGE 36 OF 54

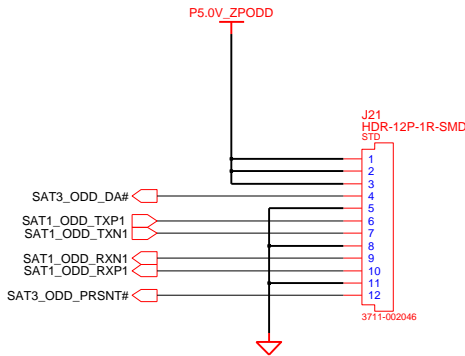
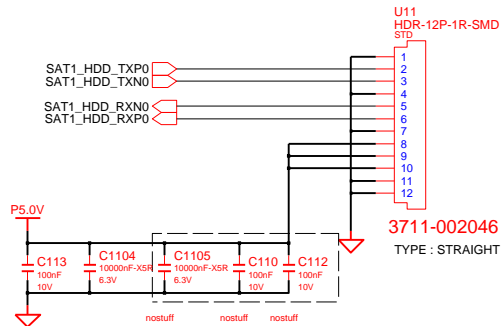
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SATA I/F CONN



SATA ODD CONN 15"

SATA HDD CONN



DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV	SATA_DEVICES		
APPROVAL	BC LEE	REV	REV 1.0	HDD & ODD SUB CONNECTOR		
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	37 OF 54	

MAIN BOARD (MICOM)

U543 MX25L1605D

1107-001709

1 CE+ 2 SO 3 WP- 4 VSS 7 VDD 8 HOLD# 6 SCK 5 SI

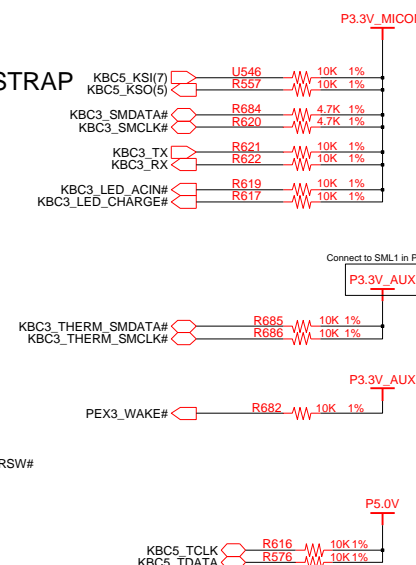
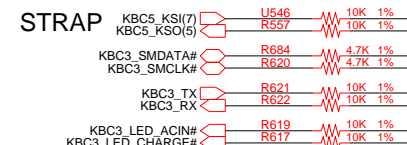
KBC3_SPI_CS# KBC3_SPI_DI#

P3.3V_MICOM

R687 10K 1%

P3.3V_MICOM_HOLD#_R_MN

KBC3_SPI_CLK KBC3_SPI_DO

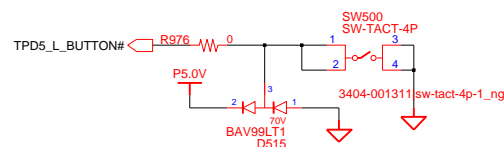
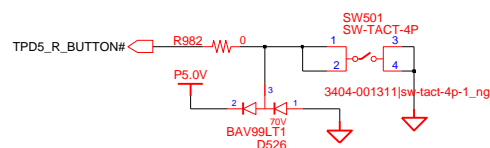
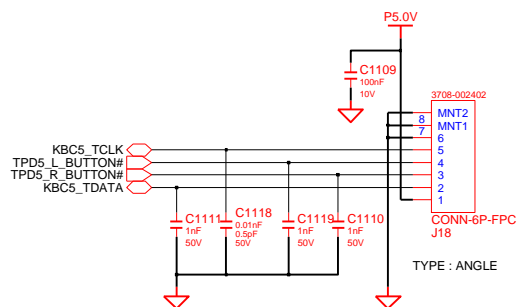


DRAM	BIN XIE	DATE	11/17/2008	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV	MICOM		
APPROVAL	BC LEE	REV	REV 1.0	MICOM_SMSC_MEC1308		
MODULE CODE	LAST EDIT		May 10, 2011 10:53:25 AM		PAGE	
						38 OF 54

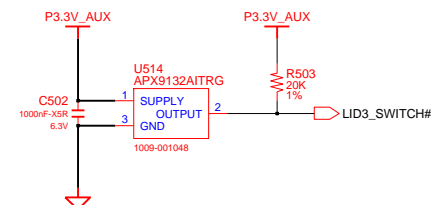
Micom Glue Logic

The diagram illustrates the electrical connections for the KBC5 module. At the top, a P3.3V_MICOM supply is connected to a 10K pull-up network. The module contains several resistors: R5538, R5539, R5540, R5541, R5542, R5543, R5544, R5545, R5546, R5547, R5548, R5549, R5550, R5551, R5552, R5553, R5554, R5555, R5556, R5557, R5558, R5559, R5560, R5561, R5562, R5563, R5564, R5565, R5566, R5567, R5568, R5569, R5570, R5571, R5572, R5573, R5574, R5575, R5576, R5577, R5578, R5579, R5580, R5581, R5582, R5583, R5584, R5585, R5586, R5587, R5588, R5589, R5590, R5591, R5592, R5593, R5594, R5595, R5596, R5597, R5598, R5599, R5600, R5601, R5602, R5603, R5604, R5605, R5606, R5607, R5608, R5609, R5610, R5611, R5612, R5613, R5614, R5615, R5616, R5617, R5618, R5619, R5620, R5621, R5622, R5623, R5624, R5625, R5626, R5627, R5628, R5629, R5630, R5631, R5632, R5633, R5634, R5635, R5636, R5637, R5638, R5639, R5640, R5641, R5642, R5643, R5644, R5645, R5646, R5647, R5648, R5649, R5650, R5651, R5652, R5653, R5654, R5655, R5656, R5657, R5658, R5659, R5660, R5661, R5662, R5663, R5664, R5665, R5666, R5667, R5668, R5669, R5670, R5671, R5672, R5673, R5674, R5675, R5676, R5677, R5678, R5679, R5680, R5681, R5682, R5683, R5684, R5685, R5686, R5687, R5688, R5689, R5690, R5691, R5692, R5693, R5694, R5695, R5696, R5697, R5698, R5699, R5700, R5701, R5702, R5703, R5704, R5705, R5706, R5707, R5708, R5709, R5710, R5711, R5712, R5713, R5714, R5715, R5716, R5717, R5718, R5719, R5720, R5721, R5722, R5723, R5724, R5725, R5726, R5727, R5728, R5729, R5730, R5731, R5732, R5733, R5734, R5735, R5736, R5737, R5738, R5739, R5740, R5741, R5742, R5743, R5744, R5745, R5746, R5747, R5748, R5749, R5750, R5751, R5752, R5753, R5754, R5755, R5756, R5757, R5758, R5759, R5760, R5761, R5762, R5763, R5764, R5765, R5766, R5767, R5768, R5769, R5770, R5771, R5772, R5773, R5774, R5775, R5776, R5777, R5778, R5779, R5780, R5781, R5782, R5783, R5784, R5785, R5786, R5787, R5788, R5789, R5790, R5791, R5792, R5793, R5794, R5795, R5796, R5797, R5798, R5799, R5800, R5801, R5802, R5803, R5804, R5805, R5806, R5807, R5808, R5809, R5810, R5811, R5812, R5813, R5814, R5815, R5816, R5817, R5818, R5819, R5820, R5821, R5822, R5823, R5824, R5825, R5826, R5827, R5828, R5829, R5830, R5831, R5832, R5833, R5834, R5835, R5836, R5837, R5838, R5839, R5840, R5841, R5842, R5843, R5844, R5845, R5846, R5847, R5848, R5849, R5850, R5851, R5852, R5853, R5854, R5855, R5856, R5857, R5858, R5859, R5860, R5861, R5862, R5863, R5864, R5865, R5866, R5867, R5868, R5869, R5870, R5871, R5872, R5873, R5874, R5875, R5876, R5877, R5878, R5879, R5880, R5881, R5882, R5883, R5884, R5885, R5886, R5887, R5888, R5889, R5890, R5891, R5892, R5893, R5894, R5895, R5896, R5897, R5898, R5899, R5900, R5901, R5902, R5903, R5904, R5905, R5906, R5907, R5908, R5909, R5910, R5911, R5912, R5913, R5914, R5915, R5916, R5917, R5918, R5919, R5920, R5921, R5922, R5923, R5924, R5925, R5926, R5927, R5928, R5929, R5930, R5931, R5932, R5933, R5934, R5935, R5936, R5937, R5938, R5939, R5940, R5941, R5942, R5943, R5944, R5945, R5946, R5947, R5948, R5949, R5950, R5951, R5952, R5953, R5954, R5955, R5956, R5957, R5958, R5959, R5960, R5961, R5962, R5963, R5964, R5965, R5966, R5967, R5968, R5969, R5970, R5971, R5972, R5973, R5974, R5975, R5976, R5977, R5978, R5979, R5980, R5981, R5982, R5983, R5984, R5985, R5986, R5987, R5988, R5989, R5990, R5991, R5992, R5993, R5994, R5995, R5996, R5997, R5998, R5999, R6000, R6001, R6002, R6003, R6004, R6005, R6006, R6007, R6008, R6009, R6010, R6011, R6012, R6013, R6014, R6015, R6016, R6017, R6018, R6019, R6020, R6021, R6022, R6023, R6024, R6025, R6026, R6027, R6028, R6029, R6030, R6031, R6032, R6033, R6034, R6035, R6036, R6037, R6038, R6039, R6040, R6041, R6042, R6043, R6044, R6045, R6046, R6047, R6048, R6049, R6050, R6051, R6052, R6053, R6054, R6055, R6056, R6057, R6058, R6059, R6060, R6061, R6062, R6063, R6064, R6065, R6066, R6067, R6068, R6069, R6070, R6071, R6072, R6073, R6074, R6075, R6076, R6077, R6078, R6079, R6080, R6081, R6082, R6083, R6084, R6085, R6086, R6087, R6088, R6089, R6090, R6091, R6092, R6093, R6094, R6095, R6096, R6097, R6098, R6099, R6100, R6101, R6102, R6103, R6104, R6105, R6106, R6107, R6108, R6109, R6110, R6111, R6112, R6113, R6114, R6115, R6116, R6117, R6118, R6119, R6120, R6121, R6122, R6123, R6124, R6125, R6126, R6127, R6128, R6129, R6130, R6131, R6132, R6133, R6134, R6135, R6136, R6137, R6138, R6139, R6140, R6141, R6142, R6143, R6144, R6145, R6146, R6147, R6148, R6149, R6150, R6151, R6152, R6153, R6154, R6155, R6156, R6157, R6158, R6159, R6160, R6161, R6162, R6163, R6164, R6165, R6166, R6167, R6168, R6169, R6170, R6171, R6172, R6173, R6174, R6175, R6176, R6177, R6178, R6179, R6180, R6181, R6182, R6183, R6184, R6185, R6186, R6187, R6188, R6189, R6190, R6191, R6192, R6193, R6194, R6195, R6196, R6197, R6198, R6199,

TOUCHPAD



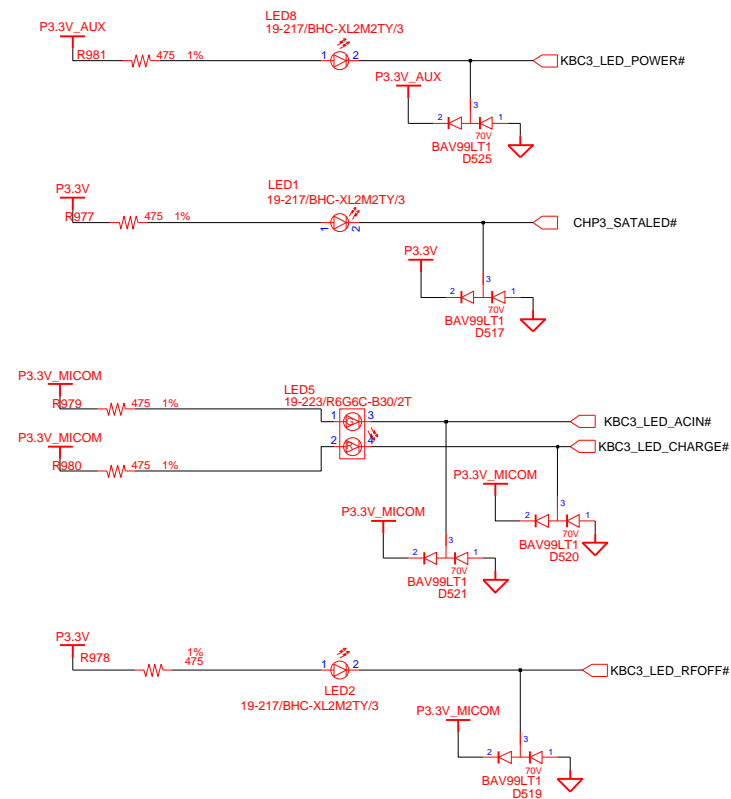
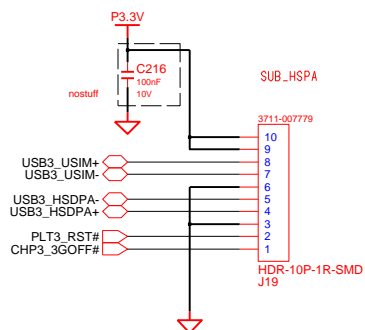
LID_SWITCH



DESIGN	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15 MICOM GLUE LOGIC KETBOARD & TOUCHPAD	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	39	OF

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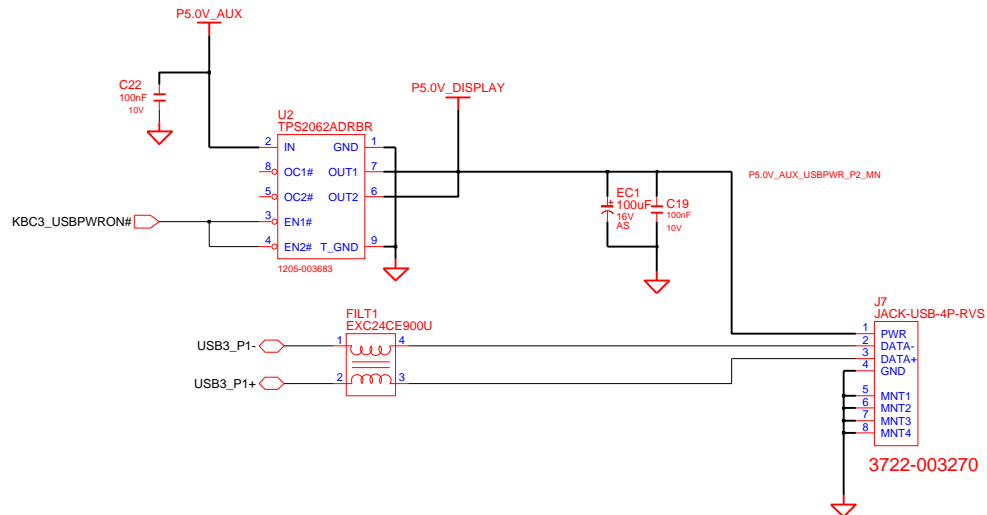
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LED MAIN**HSPA Sub board Connector**

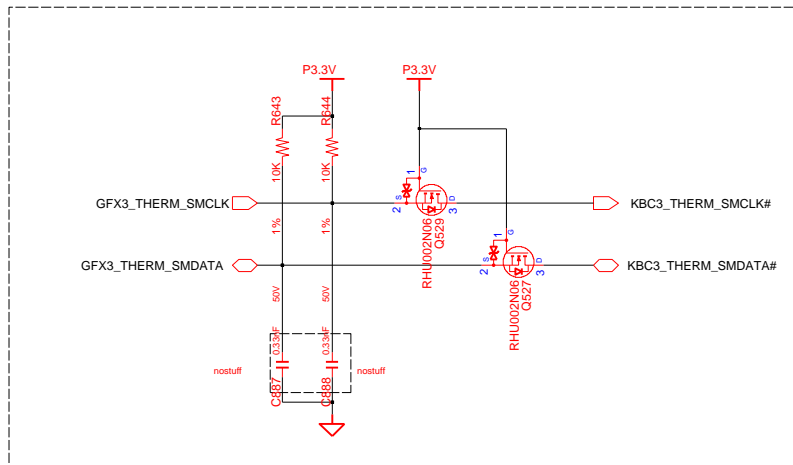
DRAW	BIN XIE	DATE	9/23/2008	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	LED_SWITCH	LED_SWITCH	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0	LED_SWITCH	PART NO.	BA41-####A
MODULE CODE		LAST EDIT				
				May 10, 2011 10:53:25 AM	PAGE	40 OF 54

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USB Single connector



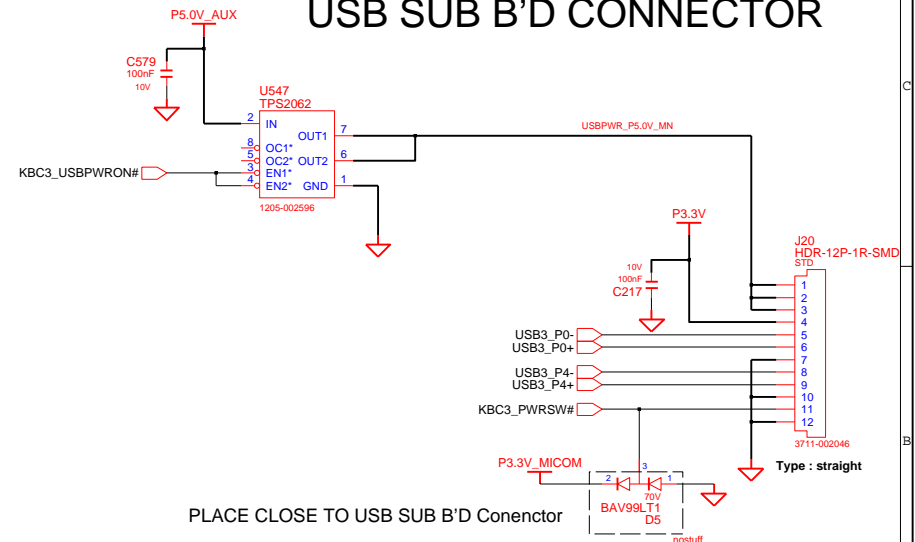
GPU LEVEL SHIFTER FOR POWERXPRESS



MAIN TO SUB USB CONN

Right 2USB Port

USB SUB B'D CONNECTOR

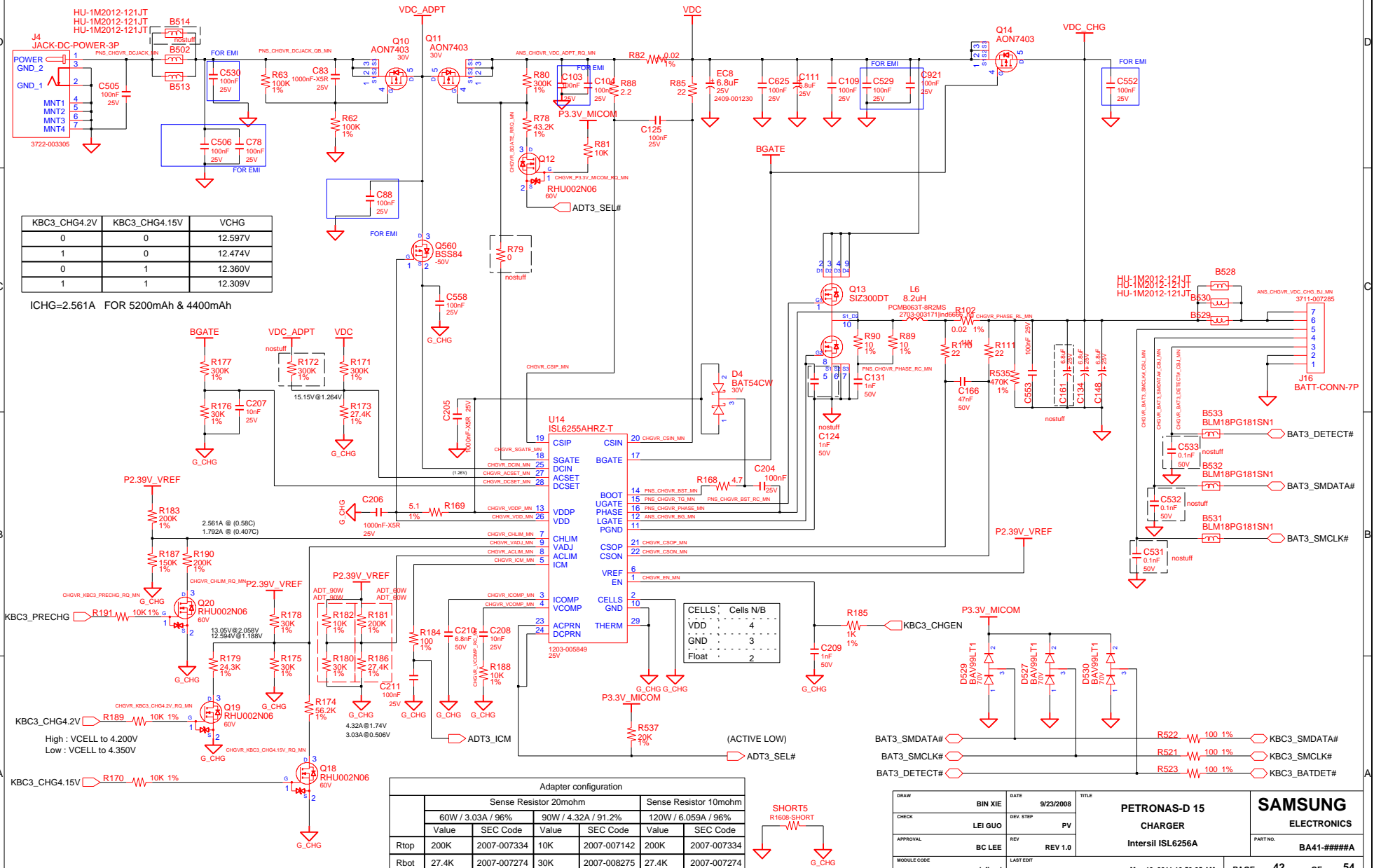


PLACE CLOSE TO USB SUB B'D Conenctor

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

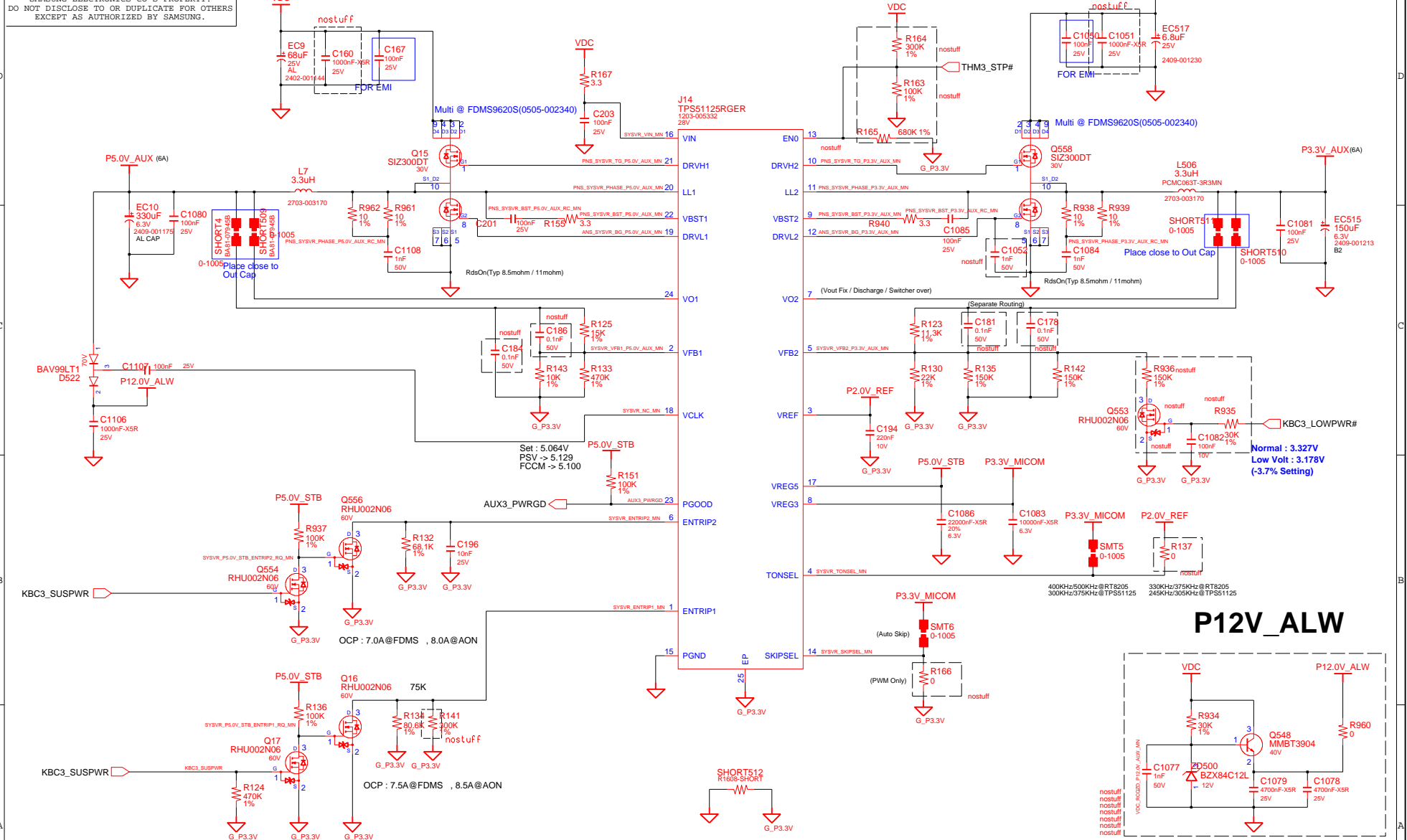
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CHARGER & POWER MANAGEMENT



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P3.3V_AUX & P5.0V_AUX



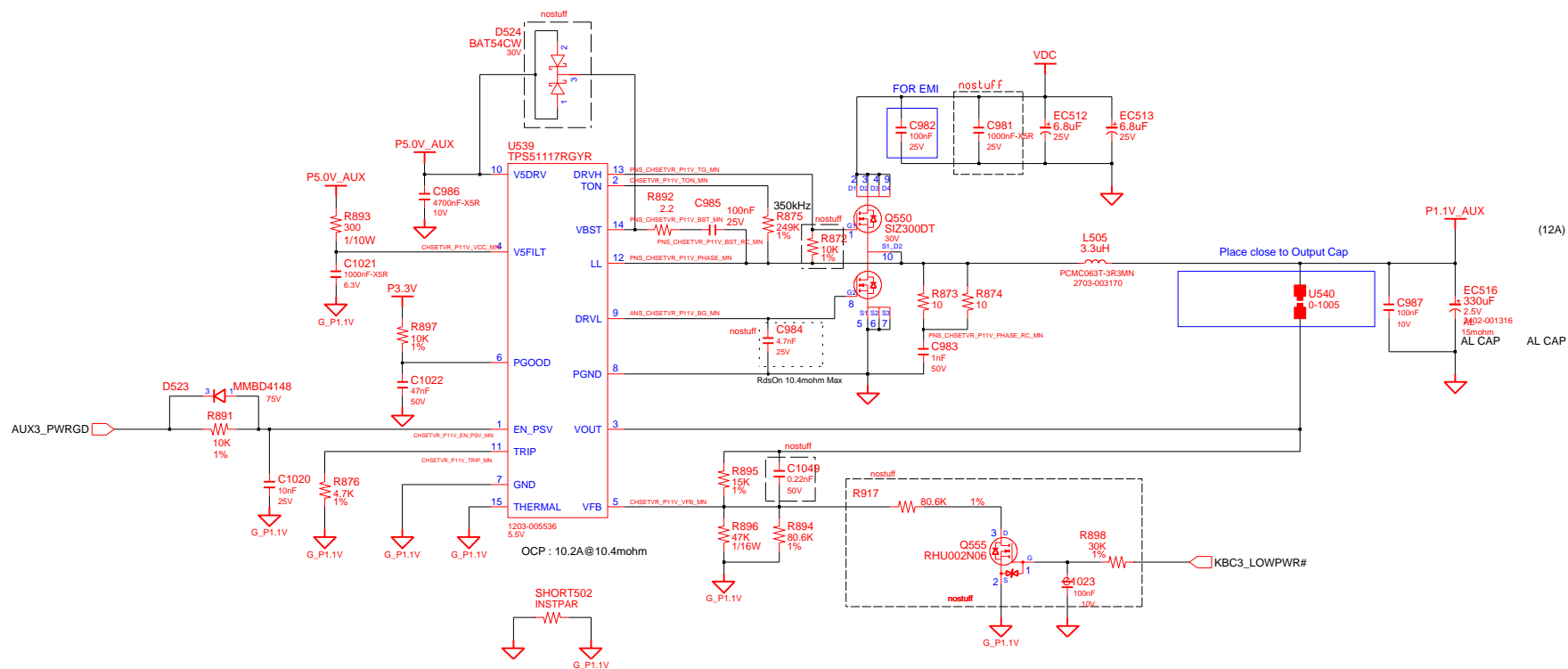
P12V_ALW

DESIGN	BIN XIE	DATE	2/2/2009	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-#####A
CHECK	LEI GUO	DEV. STEP	PV		P3.3V_AUX / P5.0V_ALW	
APPROVAL	BC LEE	REV	REV 1.0		TI TPS51125	
MODULE CODE		LAST EDIT				
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Chipset Power (P1.1V_AUX)



DRAW	BIN XIE	DATE	10/22/2010	TITLE	PETRONAS-D 15 P1.1V_AUX P1.1V_AUX	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV			PART NO. BA41-#####A
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	44	OF 54

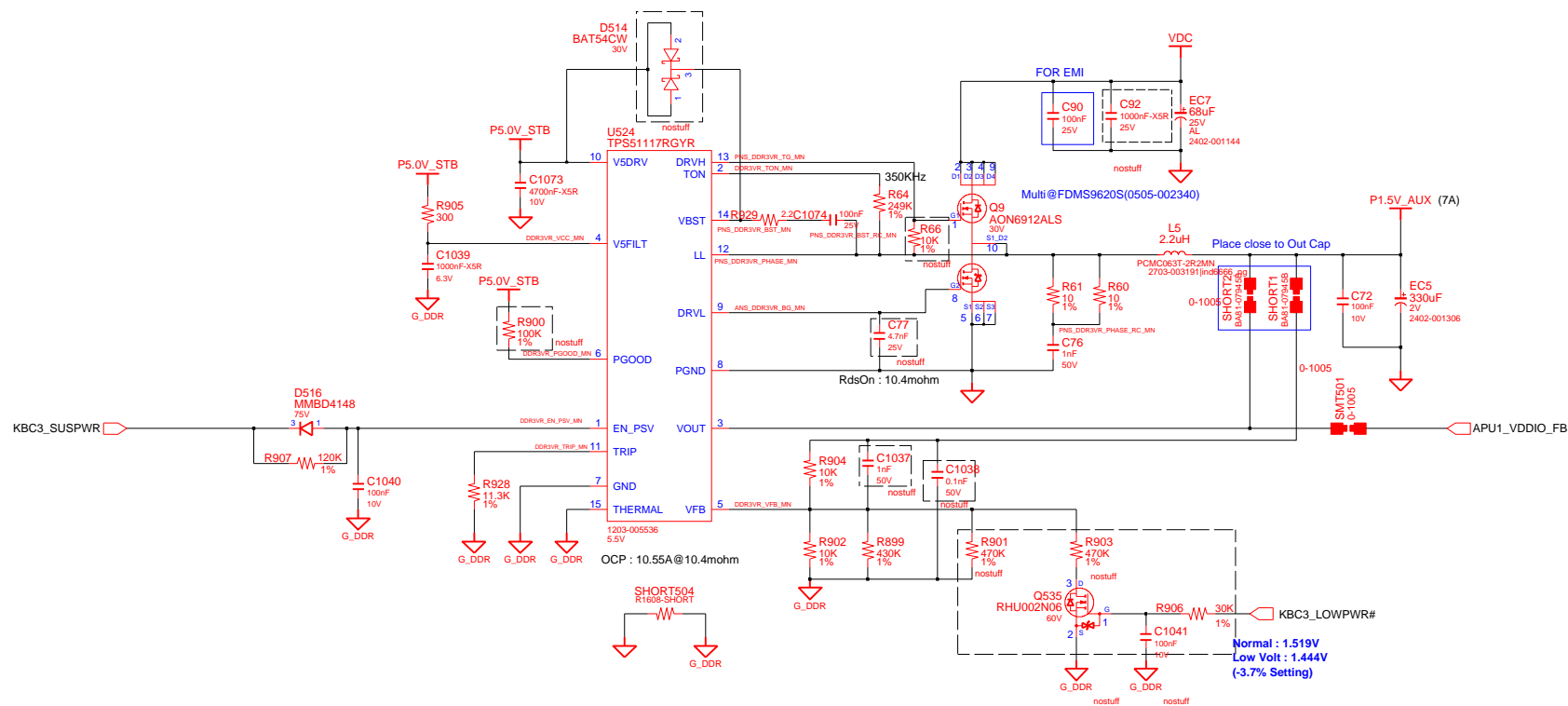
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DRAM	BIN XIE	DATE	10/22/2010	TITLE PETRONAS-D 15 P1.2V P1.2V(Chipset Power)		SAMSUNG ELECTRONICS	
CHECK	LEI GUO	DEV. STEP	PV				
APPROVAL	BC LEE	REV	REV 1.0				
MODULE CODE	undefined	LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	45	OF 54

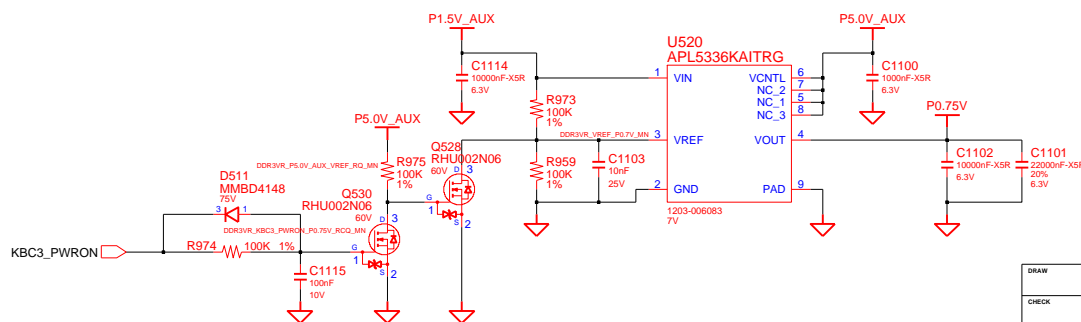
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DDR3 Power

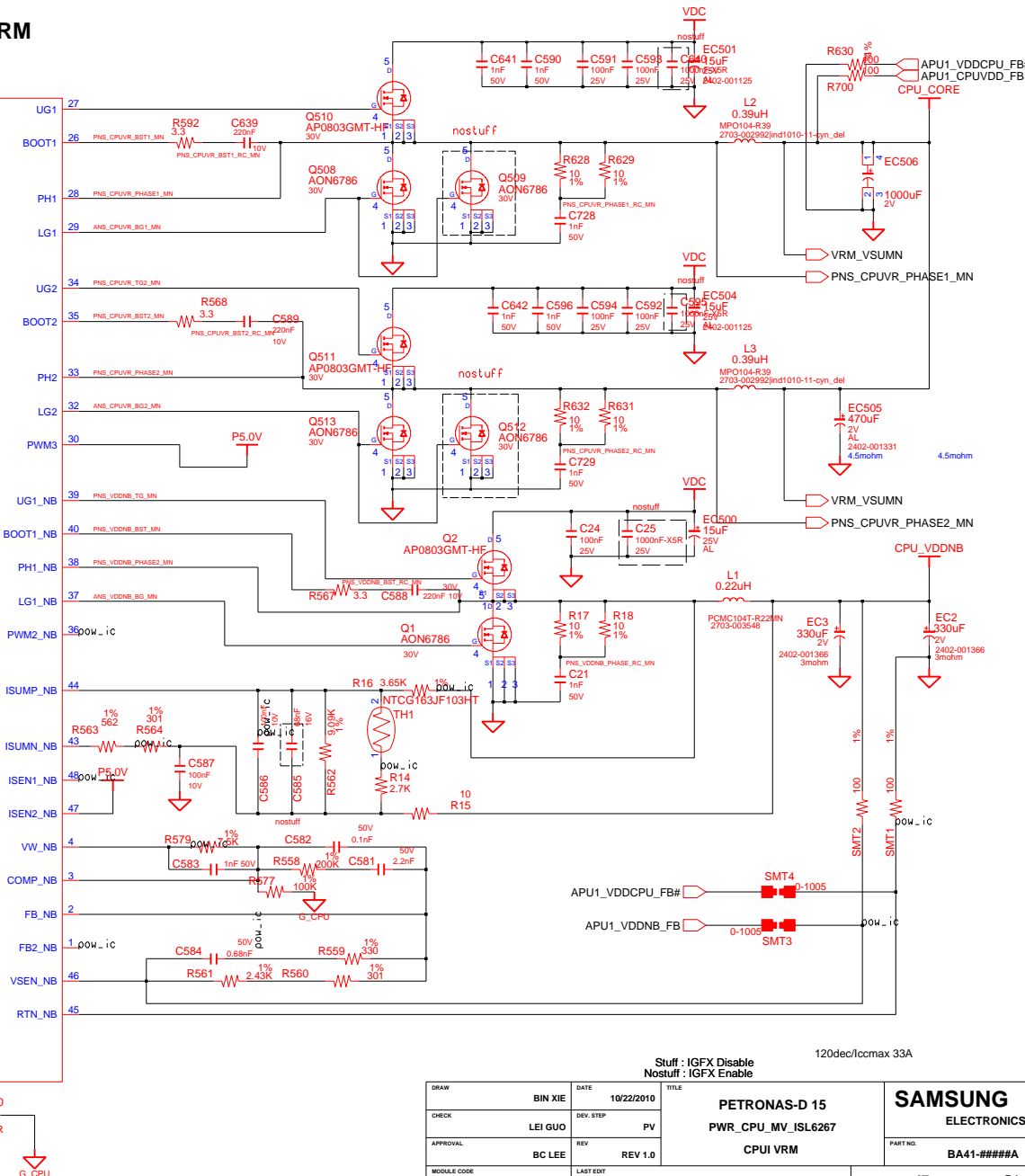


DDR3 VTT(0.75V)



DRAW	BIN XIE	DATE	9/23/2008	TITLE		PETRONAS-D 15		SAMSUNG	
CHECK	LEI GUO	DEV. STEP	PV			PWR_MEMORY		ELECTRONICS	
APPROVAL	BC LEE	REV	REV 1.0			DDR3 POWER		PART NO.	BA41-####A
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM			PAGE	46	OF	54

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[illegible]U509
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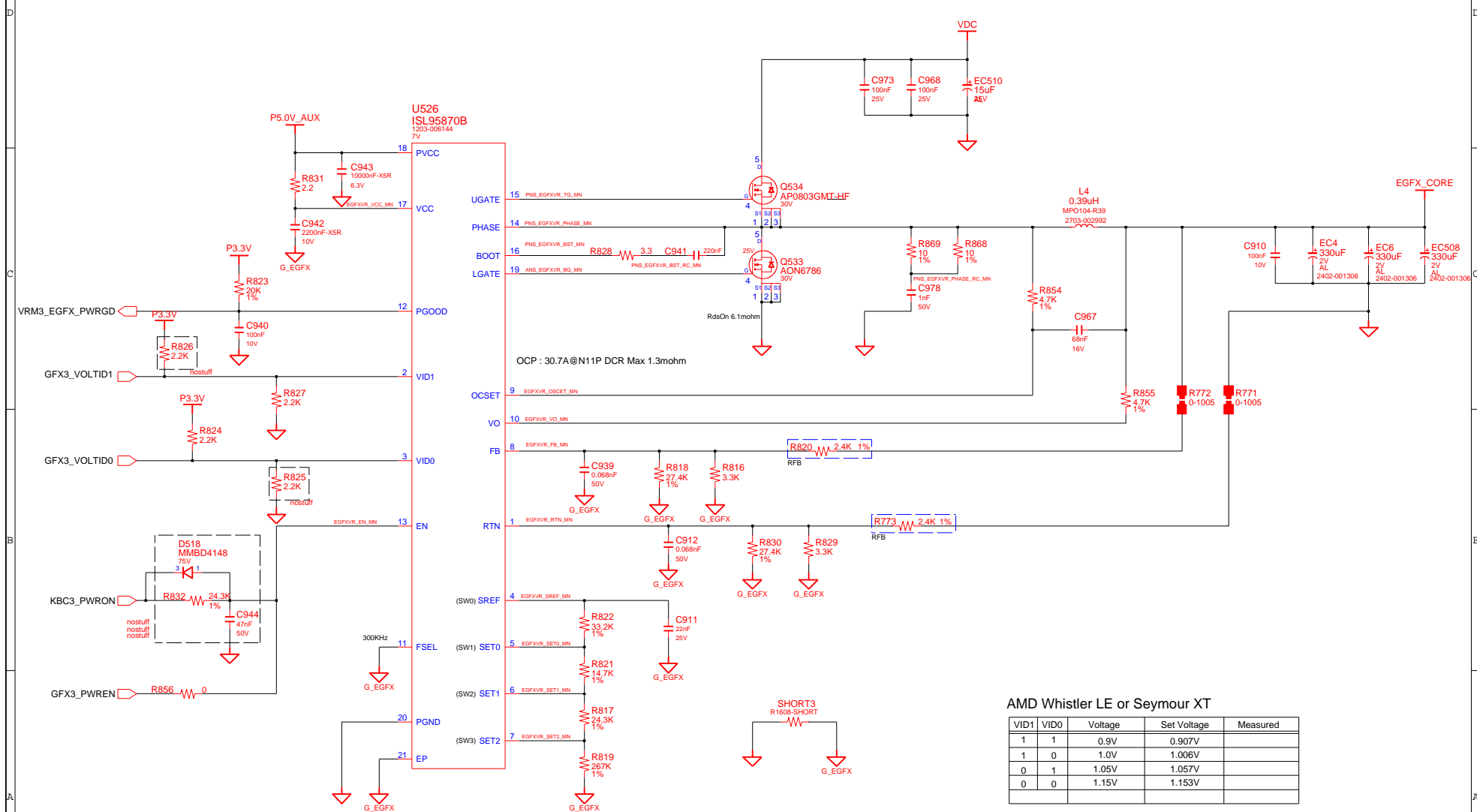
120dec/lccmax 33A

DRAW	BIN XIE	DATE	10/22/2010	TITLE PETRONAS-D 15 PWR_CPU_MV_ISL6267 CPU1 VRM	SAMSUNG ELECTRONICS	
CHECK	LEI GUO	DEV. STEP	PV			
APPROVAL	BC LEE	REV	REV 1.0		PART NO.	BA41-####A
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM		PAGE	47 OF 54

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External Graphic Core Power

**AMD Whistler LE or Seymour XT**

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

DRAW	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV		PWR_MV_SWITCHED	
APPROVAL	BC LEE	REV	REV 1.0		SWITCHED POWER	
MODULE CODE		LAST EDIT			May 10, 2011 10:53:25 AM	PAGE 48 OF 54

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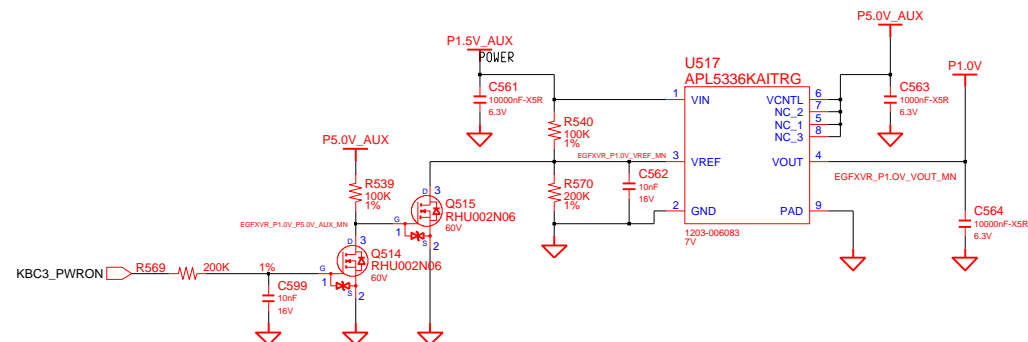
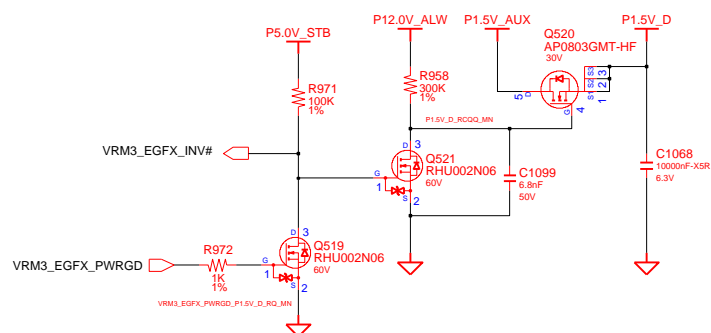
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Switched Power 2 (For AMD GFX Power Sequence)

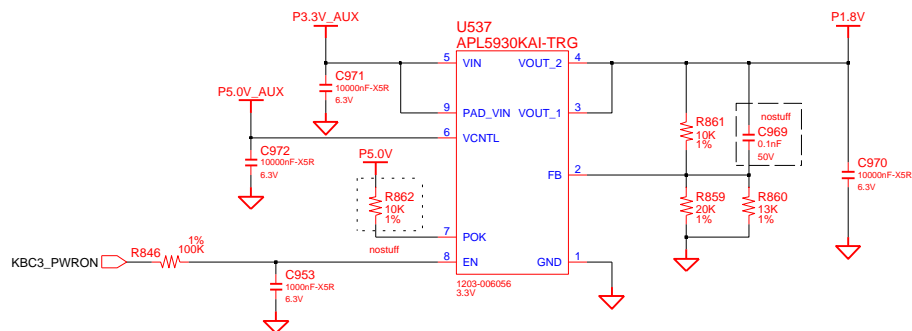
Sequence (D3.3V -> GFX Core -> D1.5V -> D1.05V)

P1.0V

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



P1.8V(LDO)



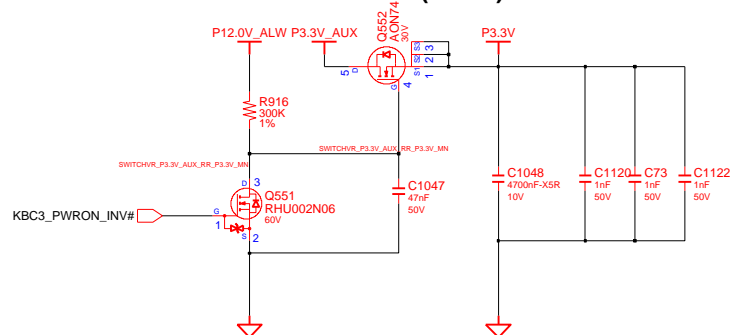
DRAW	BIN XIE	DATE	7/14/2010	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV	Switched PWR 2	FOR OPTIMUS PWR	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0			PART NO. BA41-####A
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE 49	OF 54

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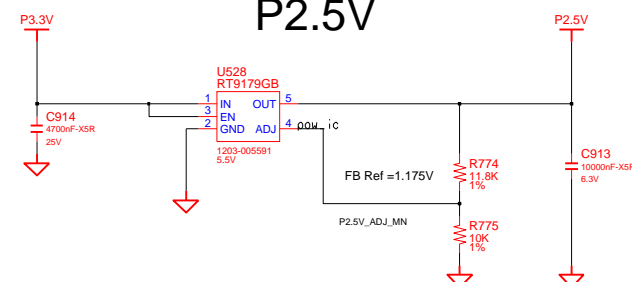
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Switched Power

Switched Power On (P3.3V)

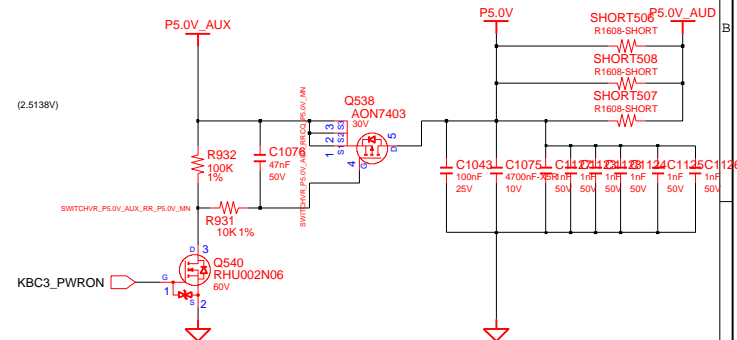


P2.5V

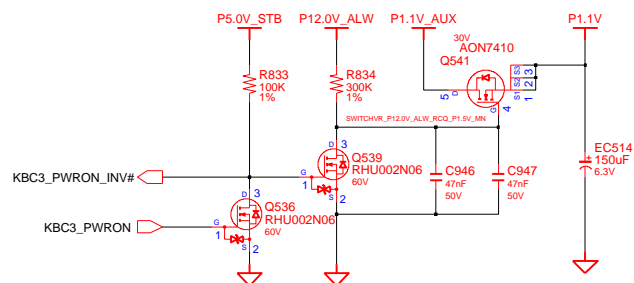


Switched Power On (P5.0V)

Multi@Si4435DDY



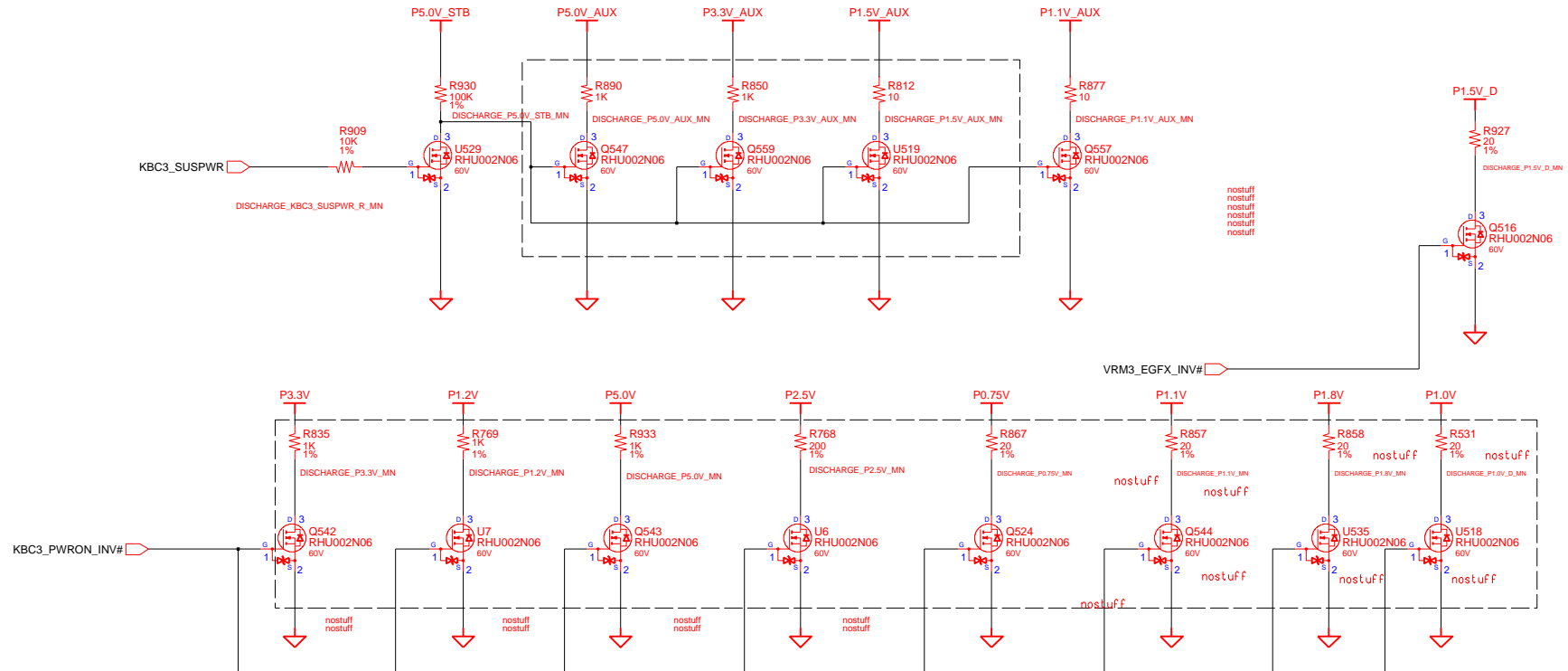
Switched Power On (P1.1V)



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	PART NO.
MODULE CODE	undefined	LAST EDIT	May 10, 2011 10:53:25 AM			BA41-####A
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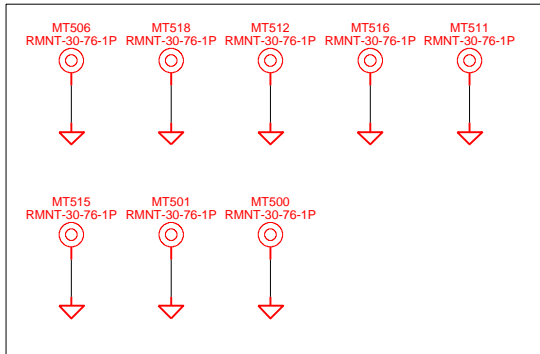
POWER DISCHARGER



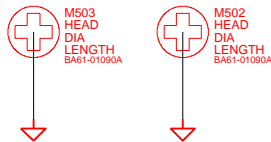
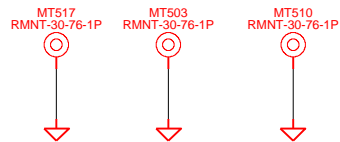
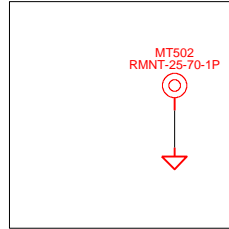
DESIGN	BIN XIE	DATE	8/11/2009	TITLE	PETRONAS-D 15	SAMSUNG
CHECK	LEI GUO	DEV. STEP	PV		PWR_DISCHARGE	ELECTRONICS
APPROVAL	BC LEE	REV	REV 1.0		PWR_DISCHARGE	PART NO.
MODULE CODE		LAST EDIT				BA41-####A
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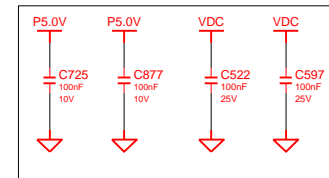
Mainboard Mount ((30-80)X8EA)



PCB FIX



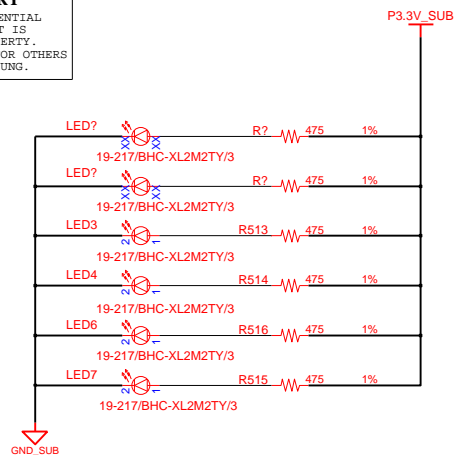
For EMI



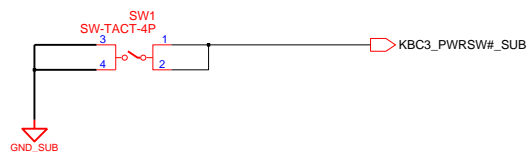
DESIGN	BIN XIE	DATE	6/4/2010	TITLE	PETRONAS-D 15 MOUNT MOUNT	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV			PART NO. BA41-#####A
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	52	OF 54

USB SUB BOARD

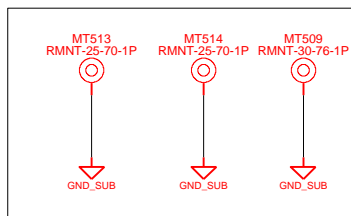
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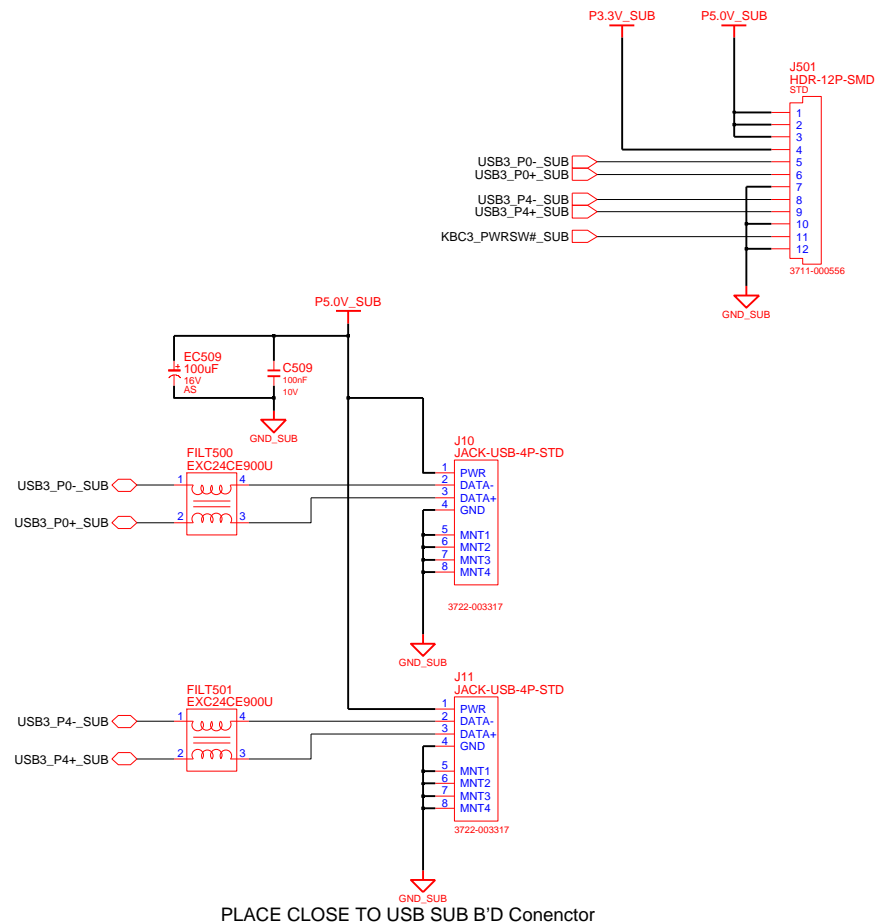
Power Switch Button



PCB Mount



SUB TO MAIN



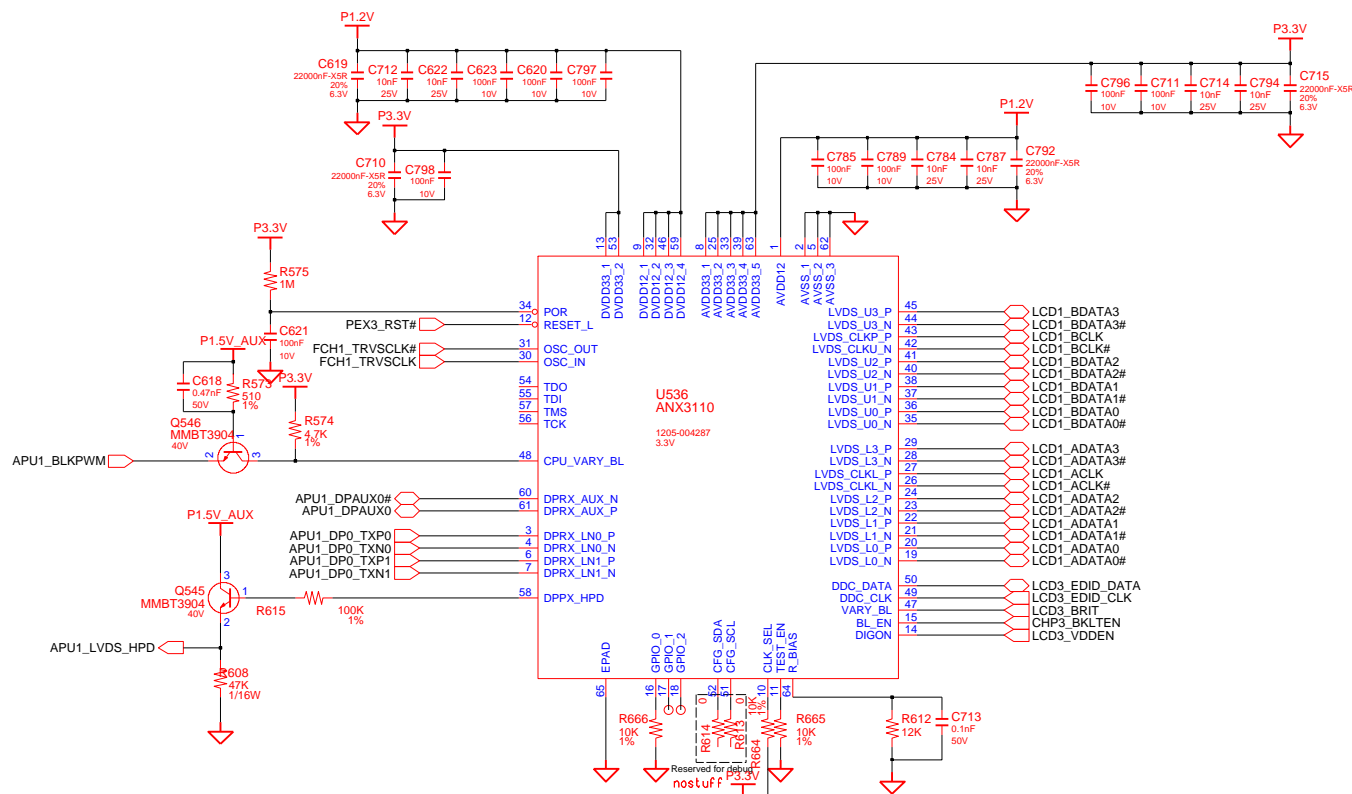
PLACE CLOSE TO USB SUB B'D Conenctor

DESIGN	BIN XIE	DATE	6/4/2010	TITLE	PETRONAS-D 15	SAMSUNG ELECTRONICS PART NO. BA41-####A
CHECK	LEI GUO	DEV. STEP	PV	USB SUB BOARD		
APPROVAL	BC LEE	REV	REV 1.0	SUB BOARD		
MODULE CODE		LAST EDIT	May 10, 2011 10:53:25 AM	PAGE	53 OF 54	

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Travis_L (ANX3110)



DESIGN	BIN XIE	DATE	3/12/2011	TITLE	PETRONAS-D 15 TRAVIS_L-ANX3110 TRAVIS_L	SAMSUNG ELECTRONICS
CHECK	LEI GUO	DEV. STEP	PV			PART NO. BA41-####A
APPROVAL	BC LEE	REV	REV 1.0			
MODULE CODE		LAST EDIT		May 10, 2011 10:53:25 AM	PAGE	54 OF 54