

Petronas-14 DC

CPU : Sandy Bridge PGA
Chip Set : Intel Cougar Point
GFX : NVIDIA N12P-GVR
Remarks : Huron River Platform

Model Name : Petronas-14
PBA Name : MAIN_Dual
PCB Code : BA41-01666A

Dev. Step : MP
Revision : 1.2
T.R. Date : 2011.08.12

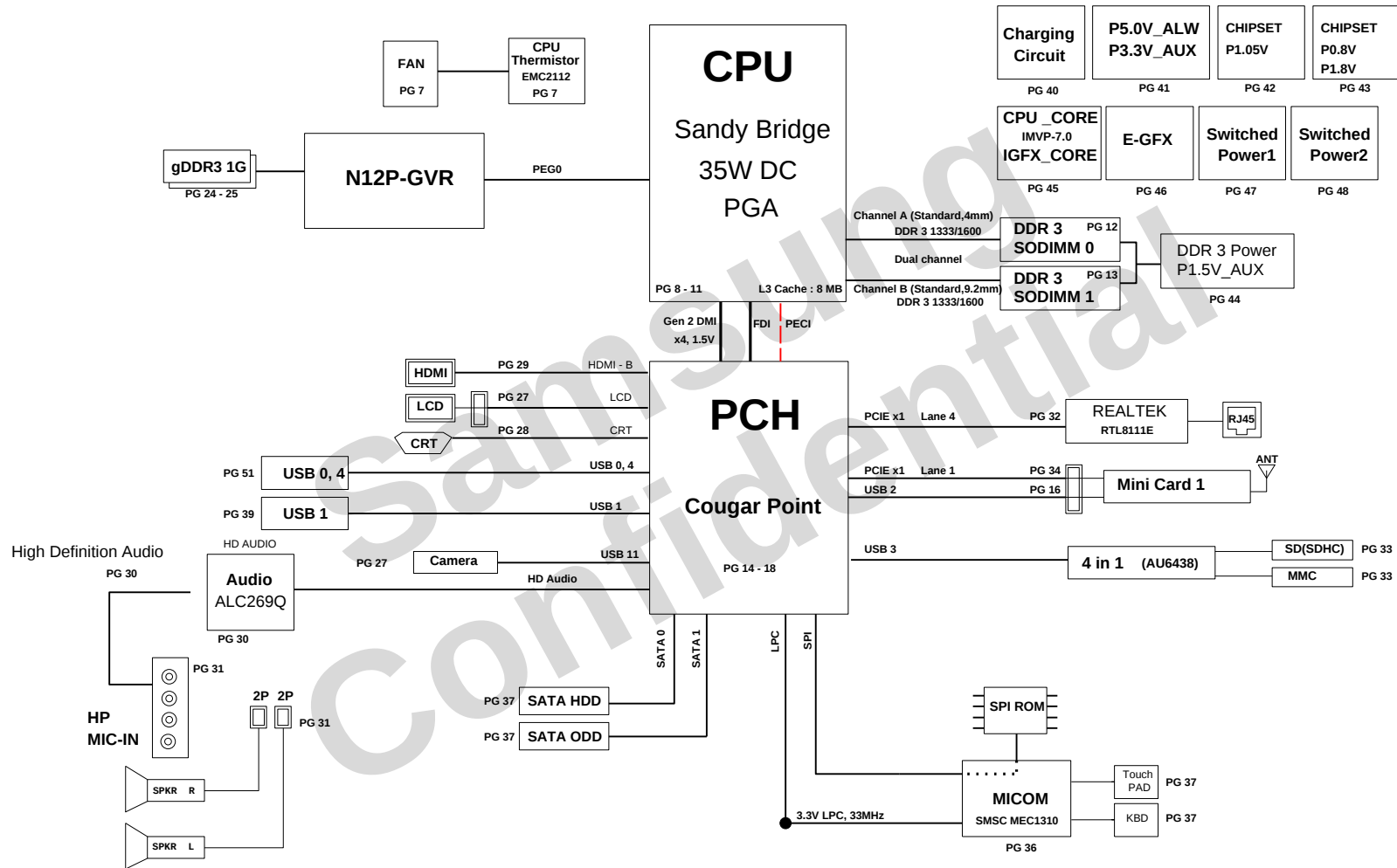
Design	CHECK	APPROVAL
MS YANG	MK KIM	BL LEE

Owner : SEC Mobile R & D Signature : X

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DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	MAIN		ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2	COVER		PART NO. BA41-01666A
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	1	OF 51

BLOCK DIAGRAM



DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC MAIN BLOCK DIAGRAM	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	2	OF 51

BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails		Active in
VDC P3.3V_MICOM P5.0V_STB P5.0V_ALW P3.3V_ALW P12.0V_ALW	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 3.3V always power rail 12.0V always power rail	S4 - S5
P5.0V_AUX P3.3V_AUX P1.5V_AUX	5.0V switched on power rail (off in S4-S5) 3.3V switched on power rail (off in S4-S5) 1.5V power rail for DDR3 (off in S4-S5)	
P5.0V P3.3V P1.8V P1.5V P0.75V P0.8V	5.0V switched power rail (off in S3-S5) 3.3V switched power rail (off in S3-S5) 1.8V switched power rail (off in S3-S5) 1.5V switched power rail (off in S3-S5) 0.75V power rail for DDR3 (off in S3-S5) 0.8V switched power rail (off in S3-S5)	
VCC_CORE EGFX_CORE P1.05V (VCCP)	Core Voltage for CPU Core Voltage for GPU VCC for COUGARPOINT	
P3.3V_D P1.5V_D P1.05V_D	3.3V discrete power rail for N12X 1.5V discrete power rail for N12X 1.05V discrete power rail for N12X	
		S3
		S0
		S0

USB PORT Assign		PCI Express Assign	
PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	1	Mini Card 1 (WLAN)
1	SYSTEM PORT 1	2	NC
2	Mini PCI Express	3	NC
3	Multi Memory Card Controller	4	LAN CONTROLLER
4	SYSTEM PORT 2	5	NC
5	NC	6	NC
6	NC	7	NC
7	NC	8	NC
8	NC		
9	NC		
10	BLUETOOTH		
11	Camera(LCD Cable)		
12	NC		
13	NC		

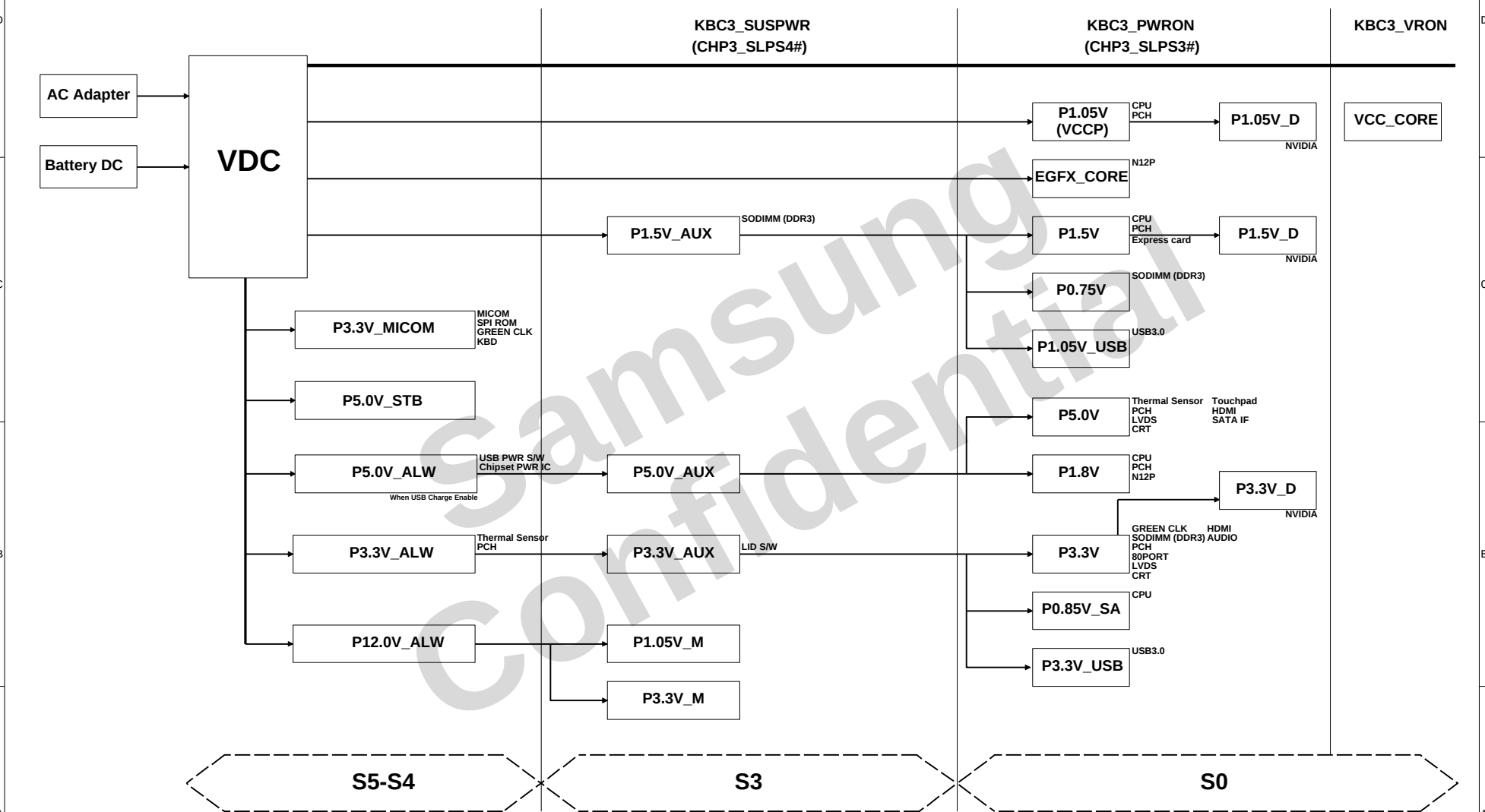
SATA PORT Assign	
PORT #	ASSIGNED TO
0	HDD
1	NC
2	ODD
3	NC
4	NC
5	NC

Crystal / Oscillator			
TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	HM65	Real Time Clock
Crystal	25MHz	LAN	Intel LAN
Crystal	25MHz	GREENCLK	GREENCLK
Crystal	25MHz	HM65	INTEL
Crystal	27MHz	N12P-GVR	NVIDIA

LCD Pannel Detect (TBD)		
Devices	Resolution	PANNEL_DETECT_0

I ² C / SMB Address			
Devices	Address	Hex	Bus
HM65	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	
Thermal Sensor on board	1101 100x	98h	
Power thermal management TS	1101 011x	96h	

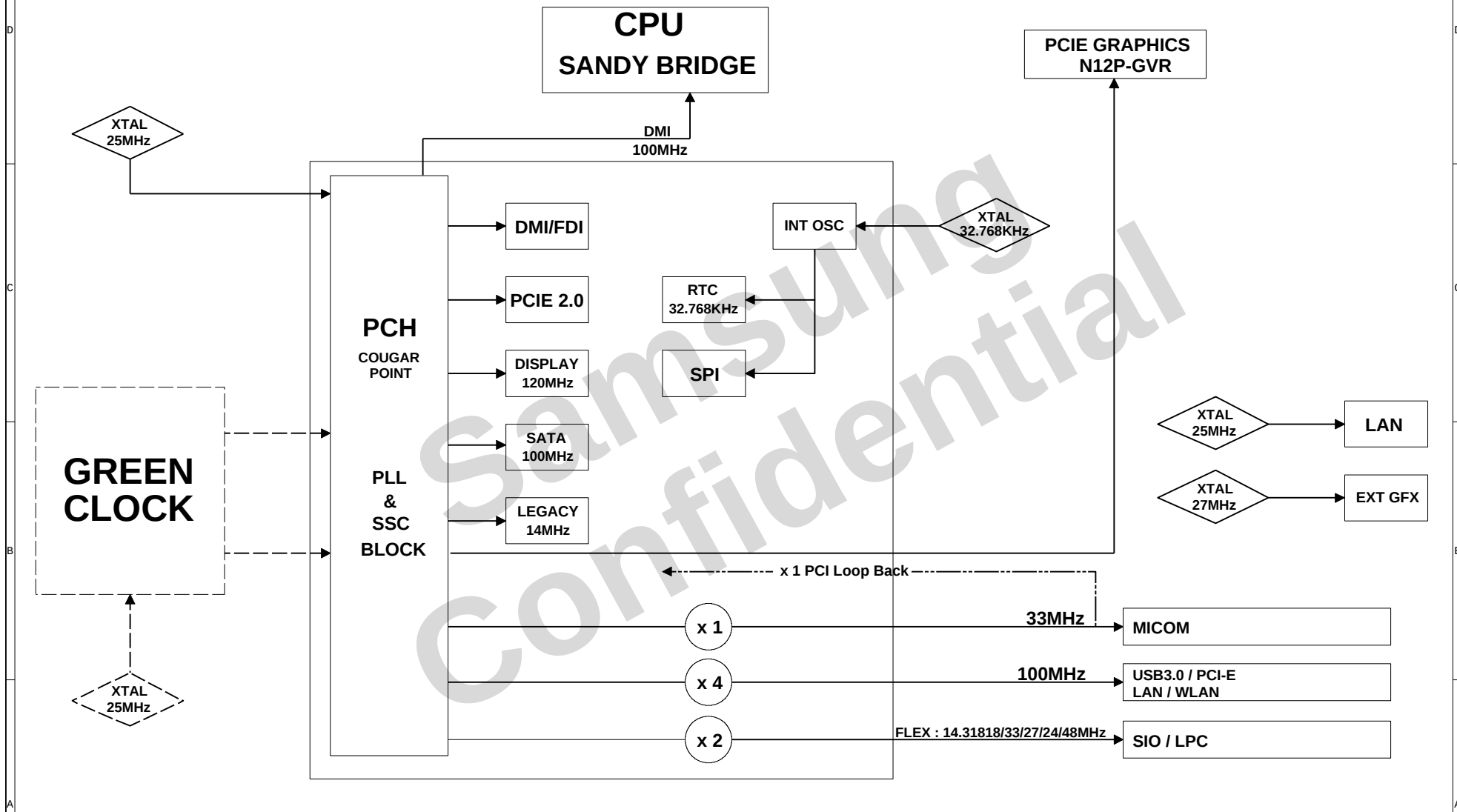
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CHECK	MK KIM	DEV. STEP	MP		MAIN	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2		BOARD INFO	PART NO.
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	3	BA41-01666A
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DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	MAIN	POWER DIAGRAM	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2			PART NO.
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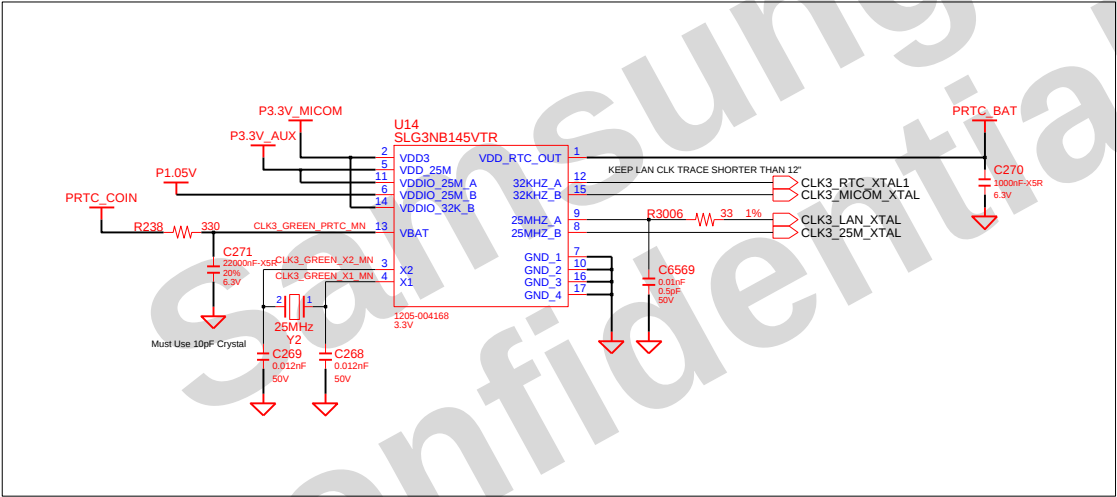
CLOCK DISTRIBUTION

Rev. 0.8



DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	MAIN		ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2	CLOCK DIAGRAM	PART NO.	BA41-01666A
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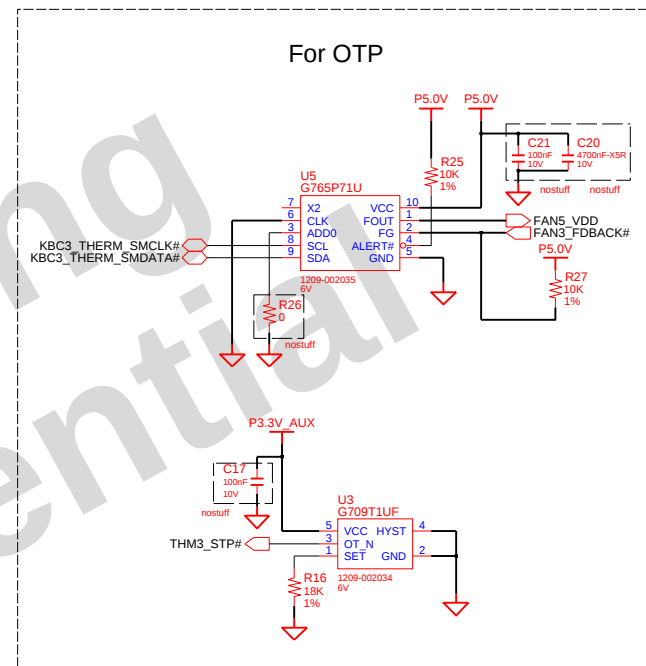
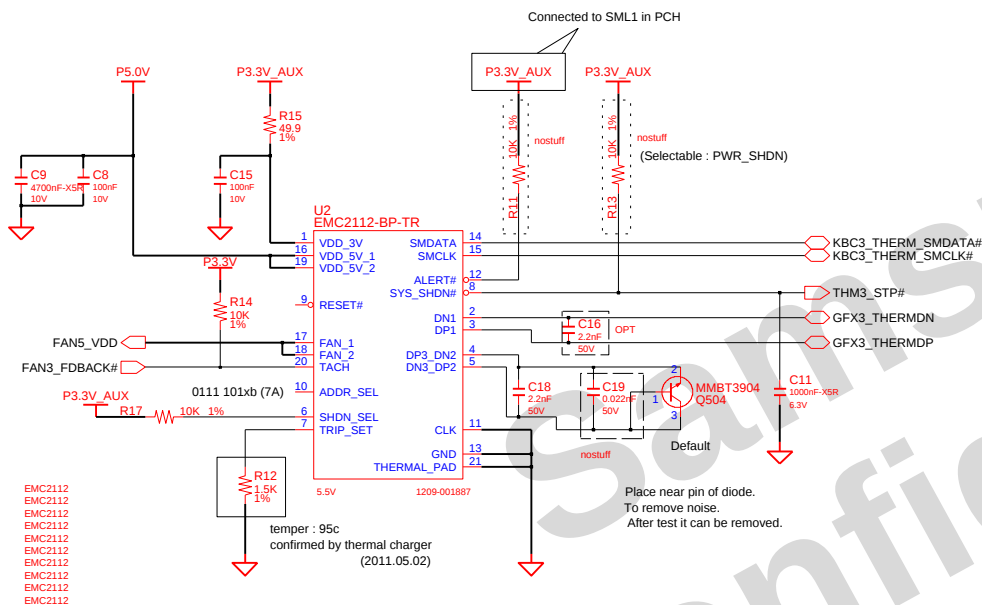
CLOCK DISTRIBUTOR



GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK

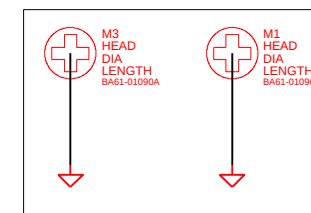
DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC CLOCK CLOCK DISTRIBUTION	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	6	OF 51

THERMAL SENSOR & FAN CONTROL



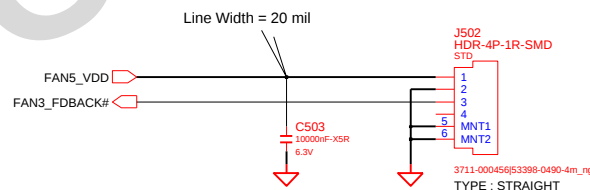
Temperature : 95.78c
confirmed by thermal charger
(2011.05.02)
 $R_{th}(\text{kohm}) = 0.0012T^2 - 0.9308T + 96.147$

FAN PEM



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

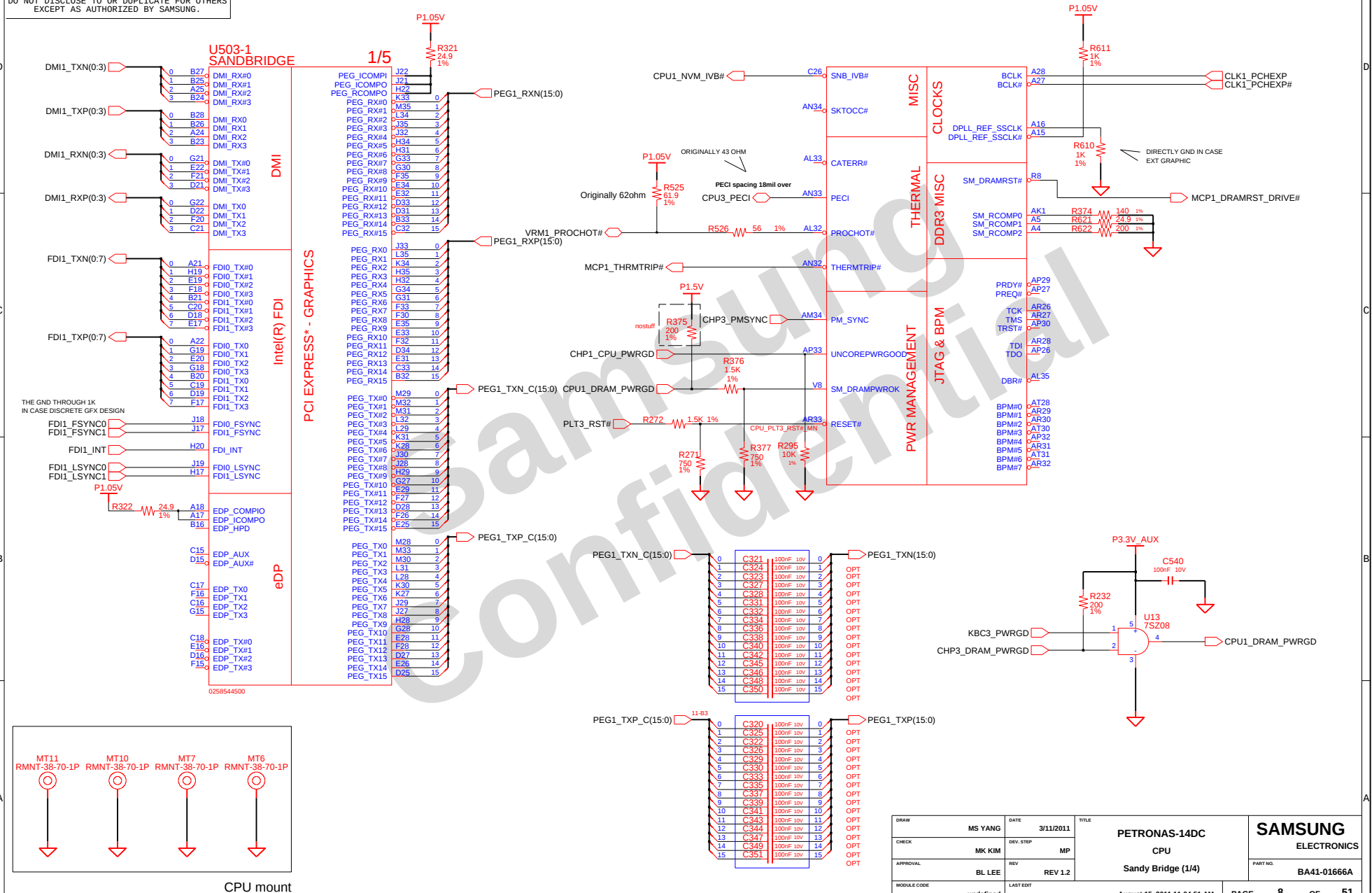
SHDN_SEL MODE	
0	INTEL TR MODE
✓ HIGH Z	AMD CPU/DIODE MODE
1	EXT.DIODE 2 MODE



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC THERMAL SENSOR	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.2		THERMAL SENSOR EMC2112	PART NO. BA41-01666A
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SANDYBRIDGE PROCESSOR (DMI,PEG, FDI)

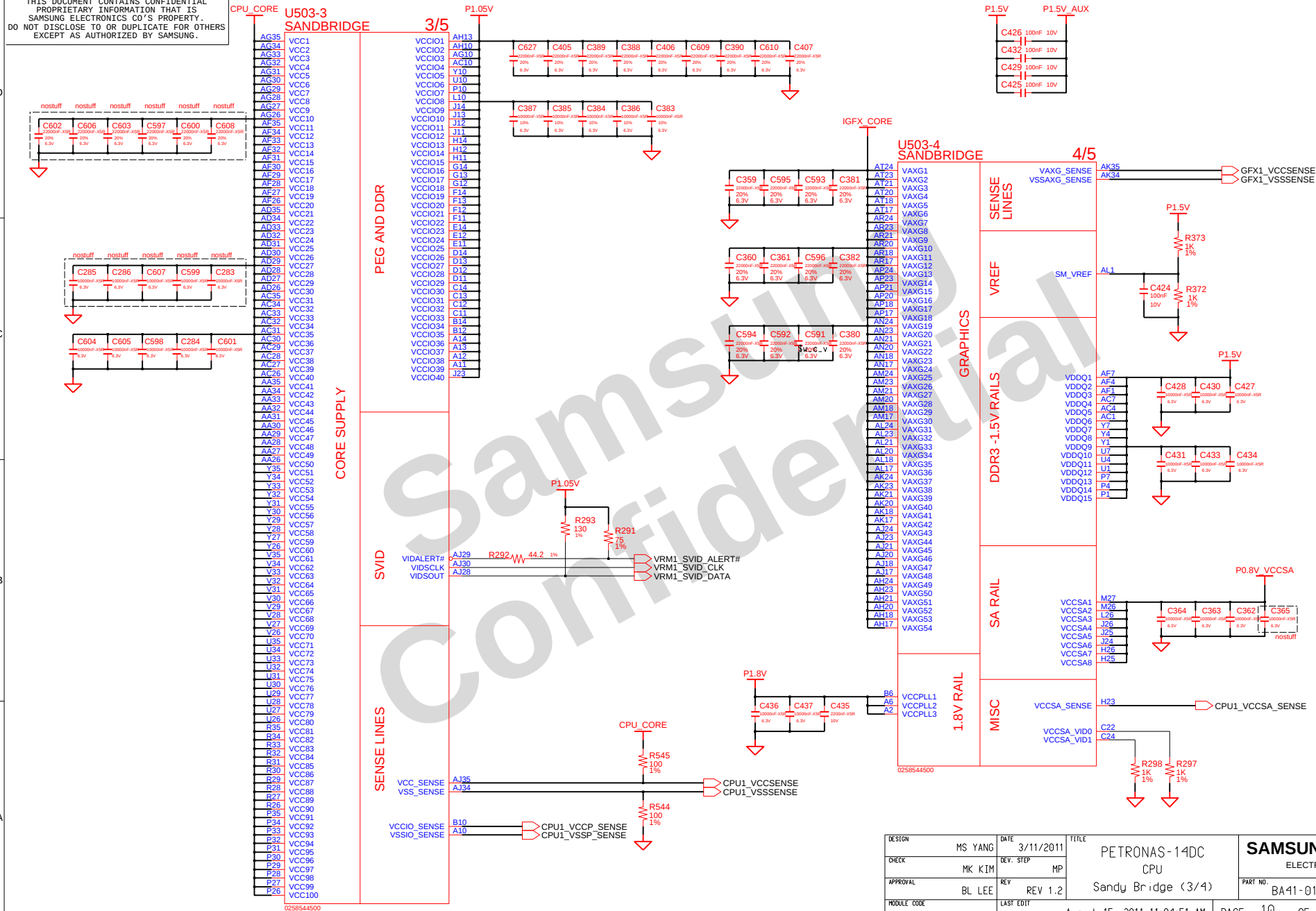


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CHECK	MK KIM	DEV. STEP	MP		CPU
APPROVAL	BL LEE	REV	REV 1.2		Sandy Bridge (1/4)
MODULE CODE	undefined	LAST EDIT			
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SAMSUNG	
ELECTRONICS	
PART NO.	BA41-01666A

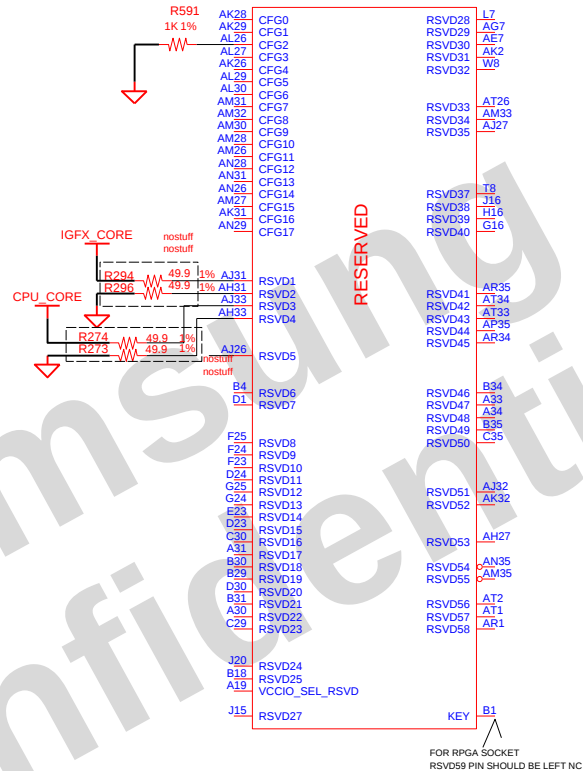
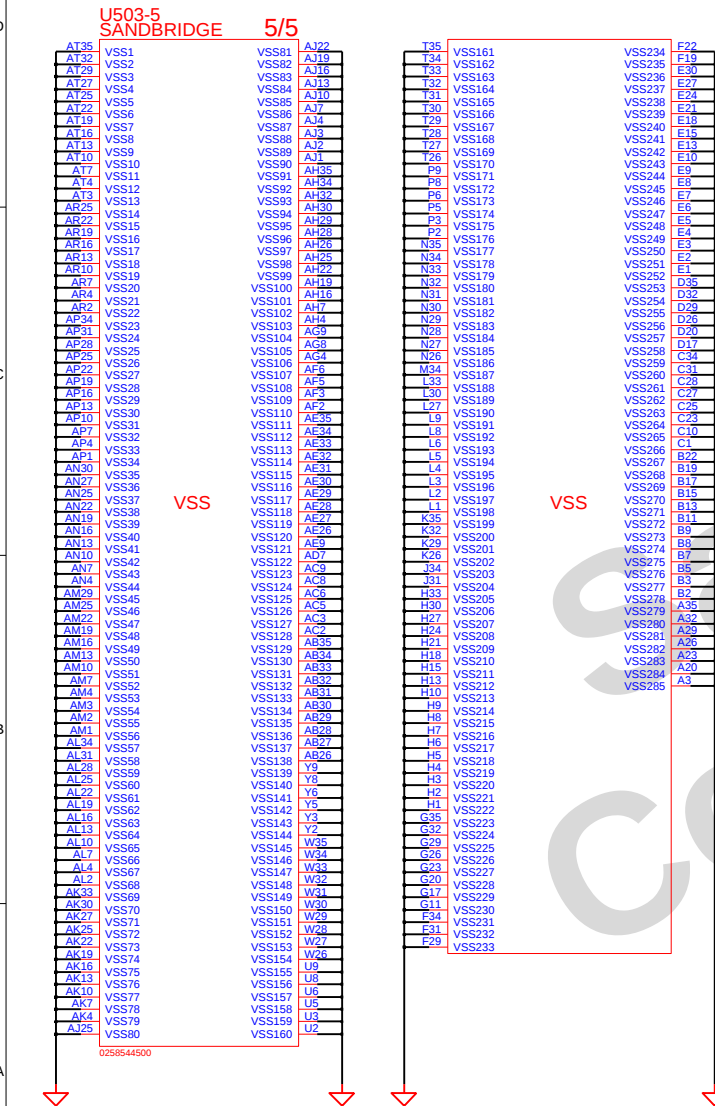
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DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC
CHECK	MK KIM	DEV. STEP	MP		CPU
APPROVAL	BL LEE	REV	REV 1.2		Sandy Bridge (3/4)
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SAMSUNG ELECTRONICS
PART NO. BA-01-01666A



CFG Straps for Processor

PEG STATIC LANE REVERSAL - CFG2 IS FOR THE 16X	
CFG2	1 : (DEFAULT) NORMAL OPERATION 0 : LANE REVERSED
PCIe PORT BIFURCATION STRAPS	
CFG[6:5]	11 : (DEFAULT) X16 - DEVICE 1 FUNCTIONS 1 AND 2 DISABLED 10 : X8, X8 - DEVICE 1 FUNCTION 1 ENABLED ; FUNCTION 2 DISABLED 01 : RESERVED - (DEVICE 1 FUNCTION 1 DISABLED ; FUNCTION 2 ENABLED) 00 : X8, X4, X4 - DEVICE 1 FUNCTIONS 1 AND 2 ENABLED
Display Port Presence	
CFG4	1 : Disabled - No DP device is connected to eDP 0 : Enabled - (DP device is connected to eDP)
PEG DEFER TRAINING	
CFG7	1 : (DEFAULT) PEG TRAIN IMMEDIATELY FOLLOWING XXRESETB DEASSERTION 0 : PEG WAIT FOR BIOS FOR TRAINING

DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS PART NO. BA41-01666A
CHECK	MK KIM	DEV. STEP	MP	CPU		
APPROVAL	BL LEE	REV	REV 1.2	Sandy Bridge (4/4)		
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P/N : 3709-001609 (Concraft)

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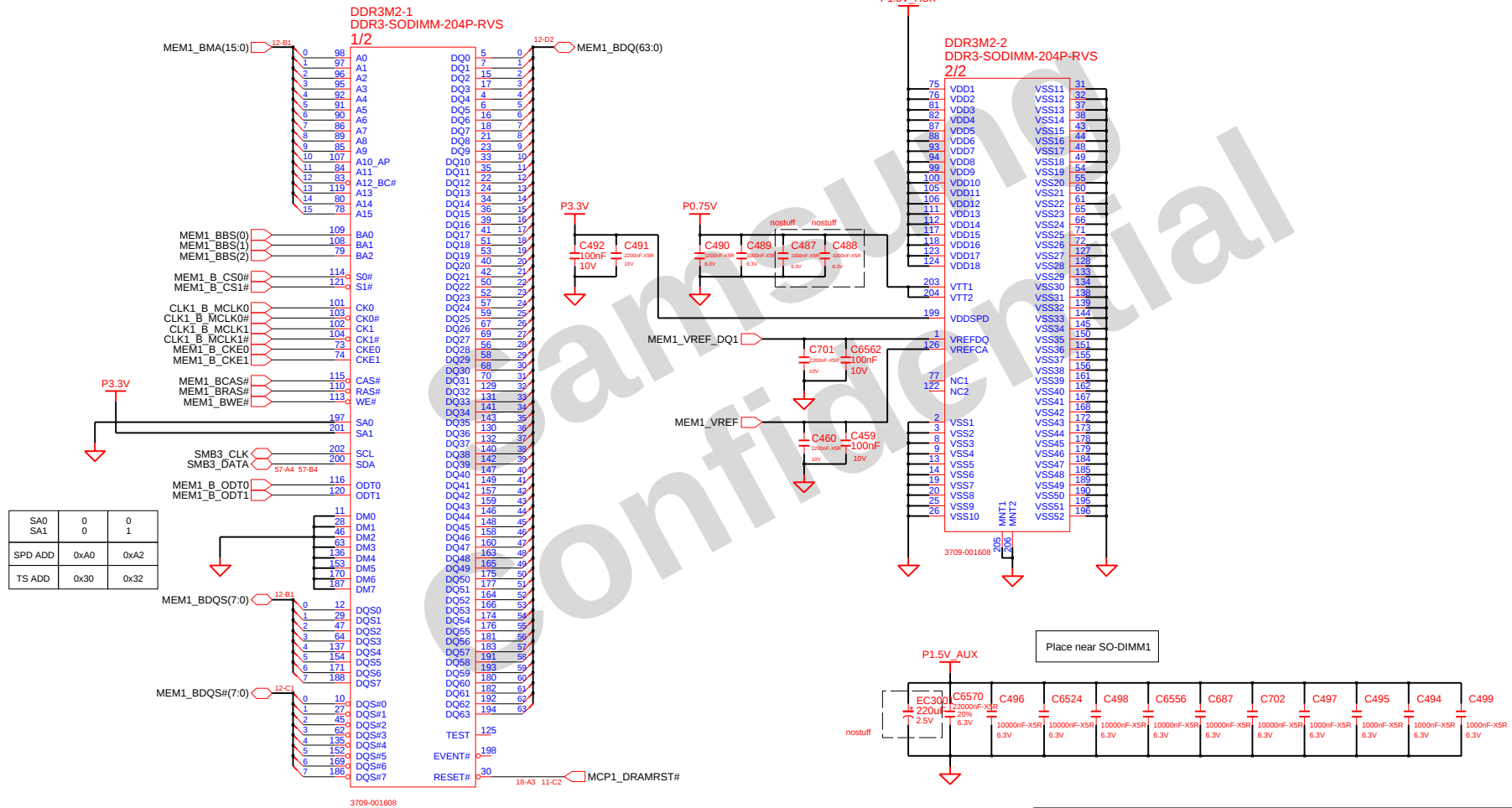
SO-DIMM#1 : 1st SO-DIMM

DDR SO-DIMM #1

Height : 4.0 mm (REVERSE)

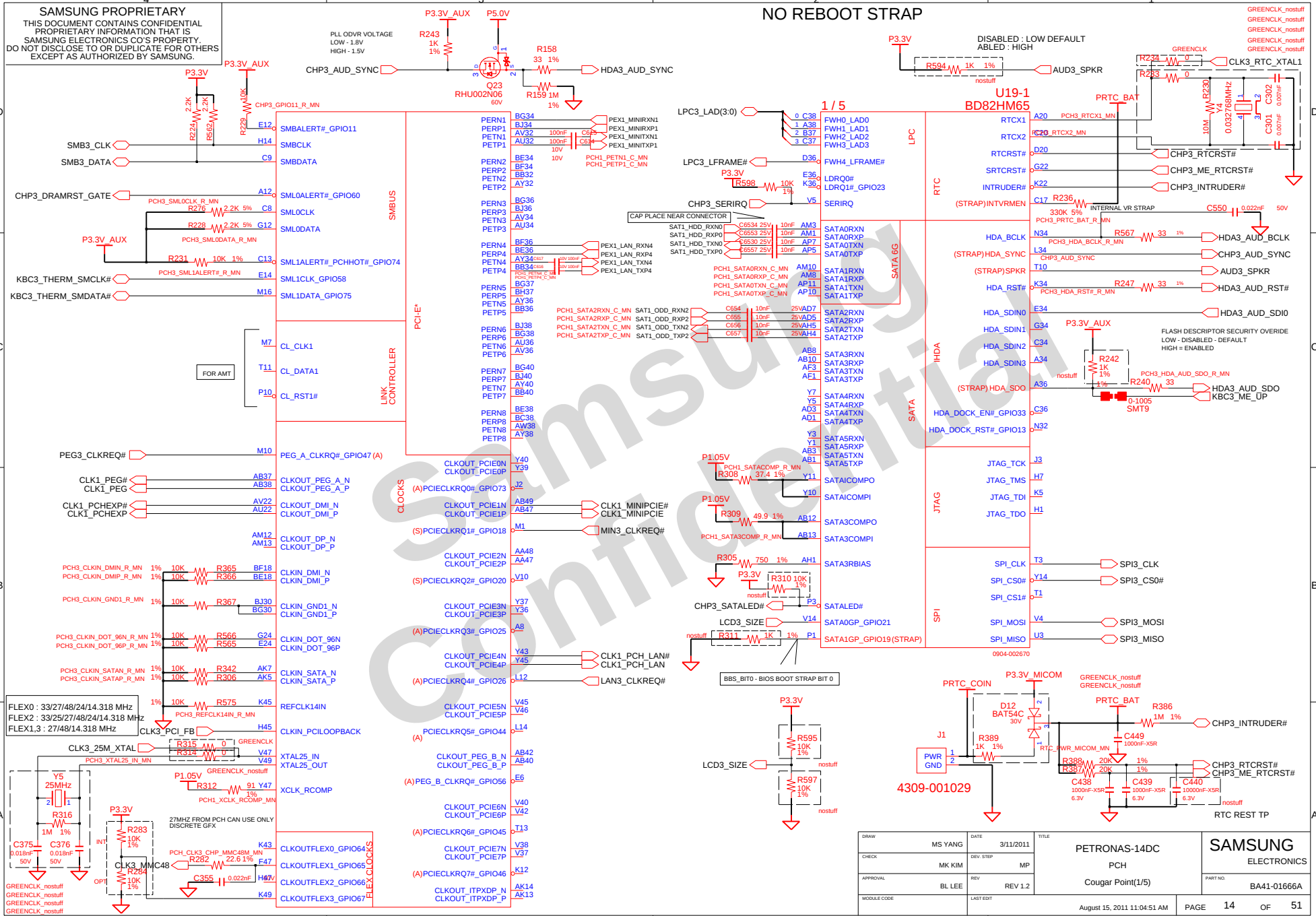
P/N : 3709-001654 (Foxconn)

P/N : 3709-001608 (Concraft)

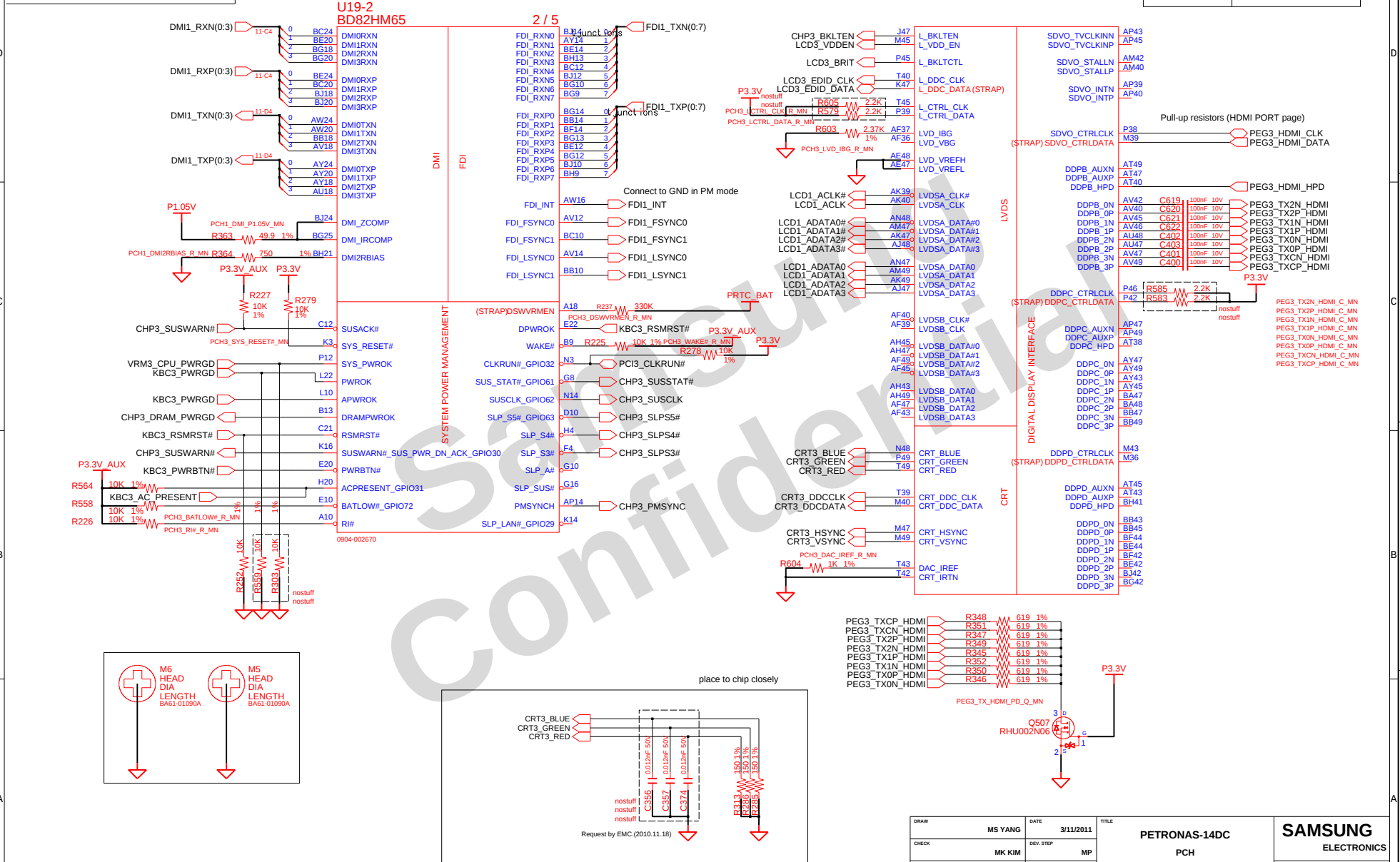


DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	SODIMM B	ELECTRONICS	
APPROVAL	BL LEE	REV	REV 1.2	DDR3	PART NO.	BA41-01666A
MODULE CODE		LAST EDIT				
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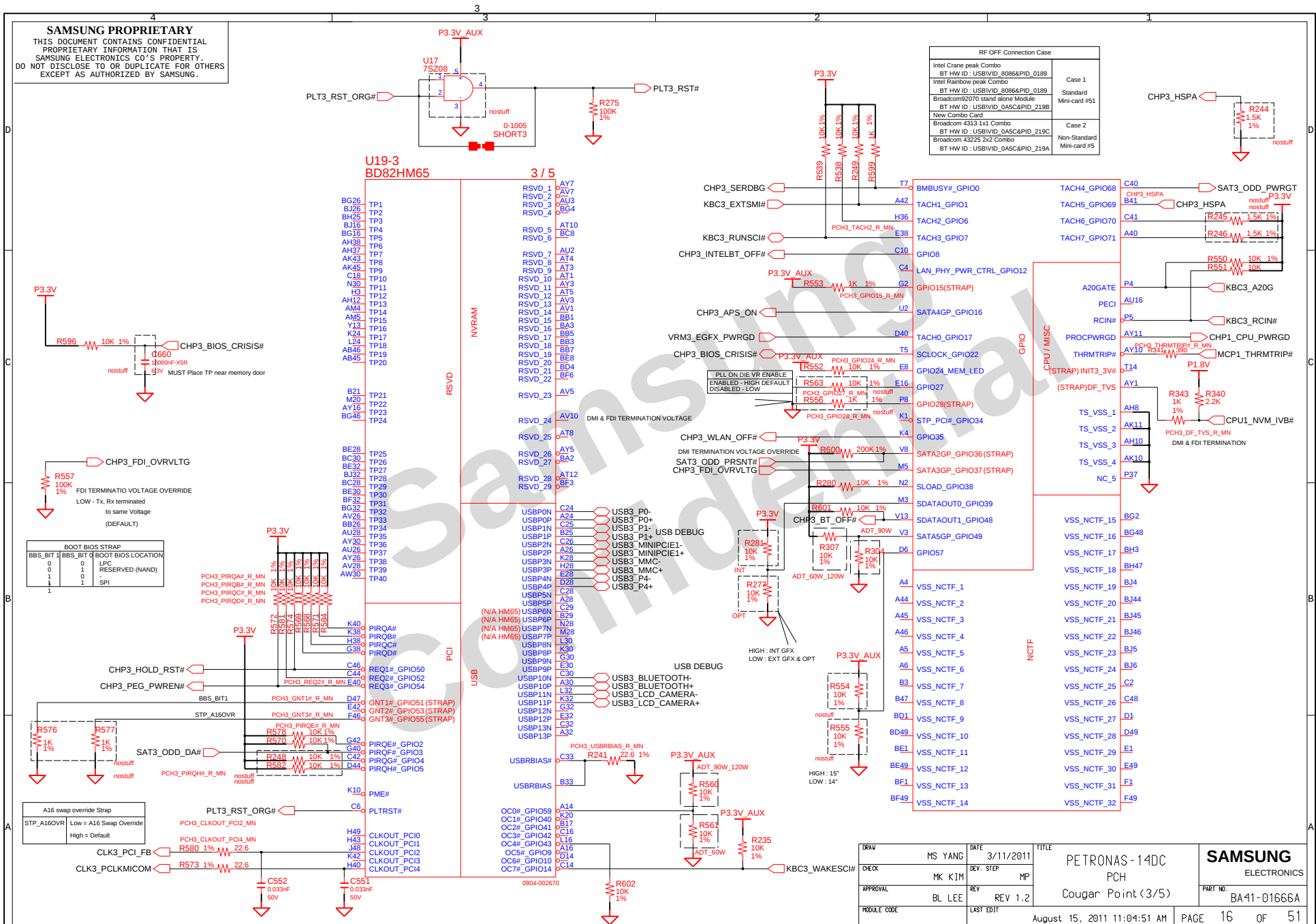


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DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS PART NO. BA41-01666A
CHECK	MK KIM	DEV. STEP	MP		PCH	
APPROVAL	BL LEE	REV	REV 1.2		Cougar Point(2/5)	
MODULE CODE		LAST EDIT			August 15, 2011 11:04:51 AM	PAGE 15 OF 51

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U19-4
BD82HM65

AD49 VCCACLK

T16 VCCDSW3_3

V12 DCPSUS8YP

T38 VCC3_3_5

P1.05V BH23 VCCAPLLDM2

AL29 VCCIO_14

AL24 DCPSUS_3

AA19 VCCASW_1

AA21 VCCASW_2

AA24 VCCASW_3

AA26 VCCASW_4

AA27 VCCASW_5

AA29 VCCASW_6

AA31 VCCASW_7

AC26 VCCASW_8

AC27 VCCASW_9

AC29 VCCASW_10

AC31 VCCASW_11

AD29 VCCASW_12

AD31 VCCASW_13

W21 VCCASW_14

W23 VCCASW_15

W24 VCCASW_16

W26 VCCASW_17

W29 VCCASW_18

W31 VCCASW_19

W33 VCCASW_20

N16 DCPRTC

Y49 VCCVRM_4

BD47 VCCADPLLA

BF47 VCCADPLLB

AF17 VCCIO_7

AF33 VCCDIFFCLKN_1

AF34 VCCDIFFCLKN_2

AG34 VCCDIFFCLKN_3

AG33 VCCSSC

V16 DCPSST

T17 DCPSUS_1

V19 DCPSUS_2

B38 V_PROC_IO

A22 VCCRTC

0904-002670

4 / 5

VCCIO_29

VCCIO_30

VCCIO_31

VCCIO_32

VCCIO_33

VCCSUS3_3_7

VCCSUS3_3_8

VCCSUS3_3_9

VCCSUS3_3_10

VCCSUS3_3_1

V5REF

VCCSUS3_3_2

VCCSUS3_3_3

VCCSUS3_3_4

VCCSUS3_3_5

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VCC3_3_8

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VCC3_3_2

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VCCIO_6

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VCCVRM_1

VCCIO_2

VCCIO_3

VCCIO_4

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VCCASW_23

VCCASW_21

VCCSUSHDA

4 / 5

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VCCSUSHDA

4 / 5

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4 / 5

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4 / 5

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VCCSUSHDA

4 / 5

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VCCASW_21

VCCSUSHDA

4 / 5

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VCCIO_33

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VCCASW_21

VCCSUSHDA

4 / 5

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VCCIO_2

VCCIO_3

VCCIO_4

VCCASW_22

VCCASW_23

VCCASW_21

VCCSUSHDA

4 / 5

VCCIO_29

VCCIO_30

VCCIO_31

VCCIO_32

VCCIO_33

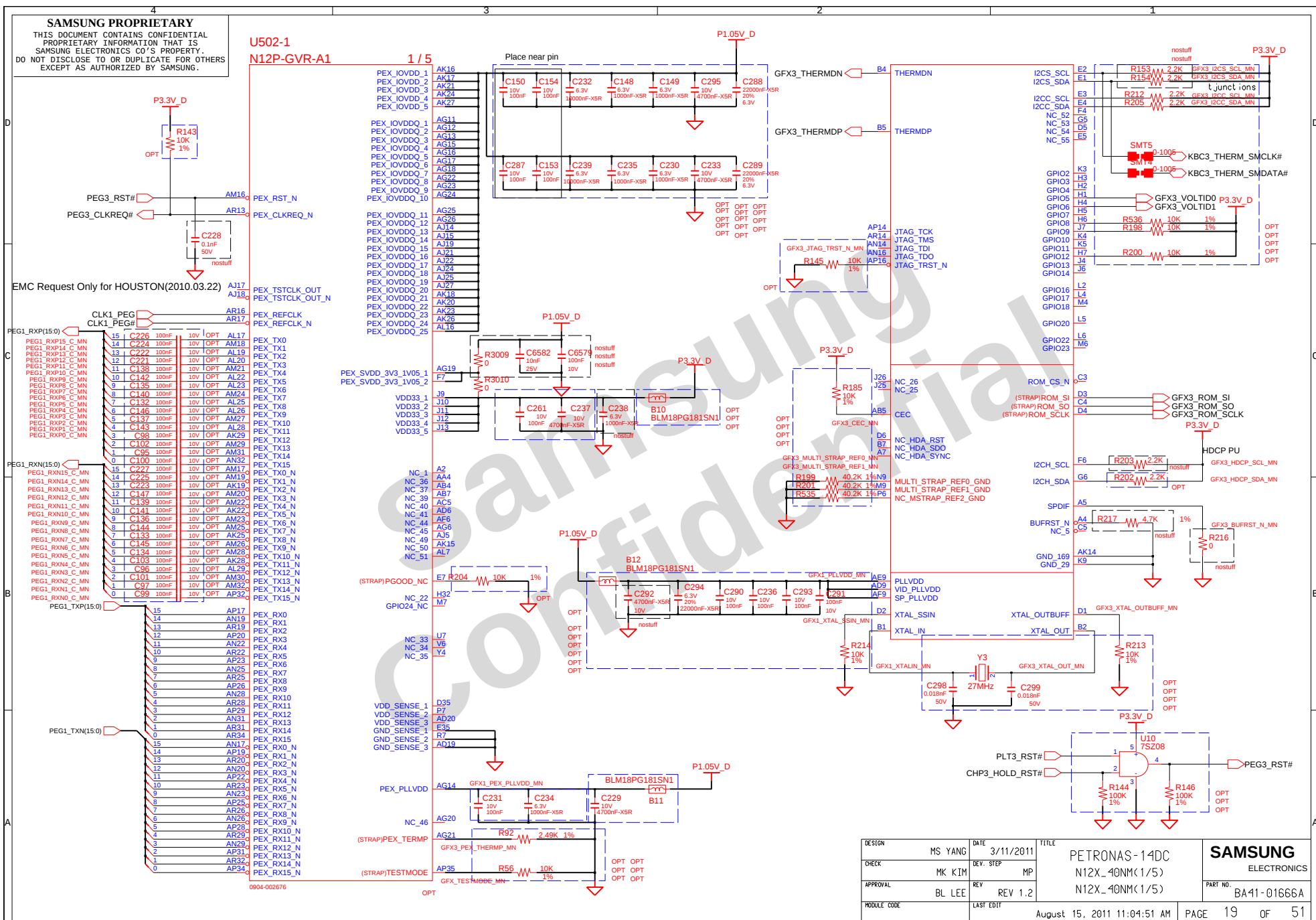
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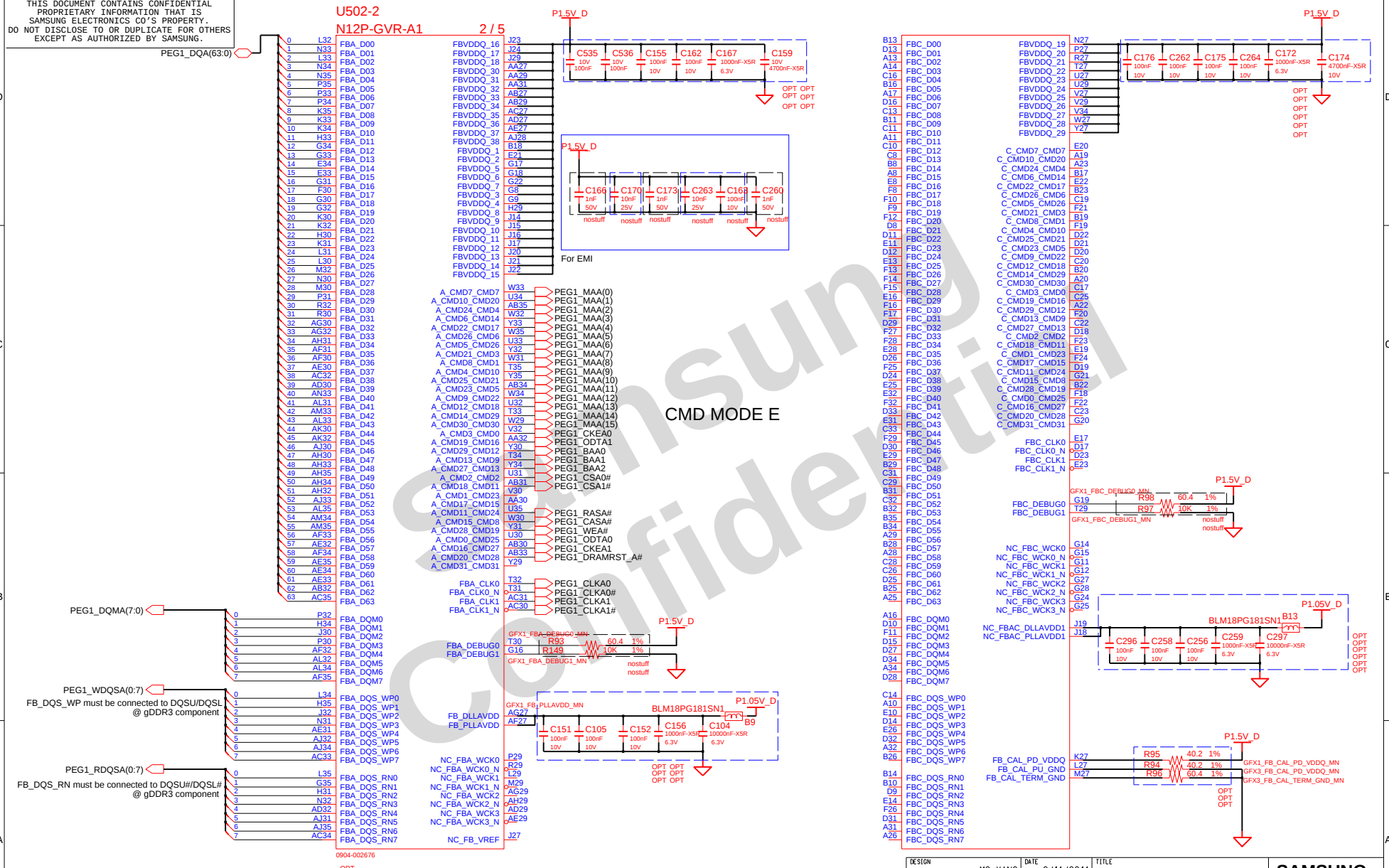
U19-5
BD82HM65

This power share with thermal sensor

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AY4	VSS159	VSS259	H46
AY2	VSS160	VSS260	K18
AY6	VSS161	VSS261	K39
AY8	VSS162	VSS262	K46
B11	VSS163	VSS263	L18
B15	VSS164	VSS264	L2
B19	VSS165	VSS265	L20
B23	VSS166	VSS266	L26
B27	VSS167	VSS267	L28
B31	VSS168	VSS268	L36
B35	VSS169	VSS269	L48
B39	VSS170	VSS270	M12
B7	VSS171	VSS271	M16
F45	VSS172	VSS272	M22
BB12	VSS173	VSS273	M24
BB16	VSS174	VSS274	M30
BB20	VSS175	VSS275	M32
BB22	VSS176	VSS276	M34
BB24	VSS177	VSS277	M36
BB28	VSS178	VSS278	M42
BB30	VSS179	VSS279	M46
BB38	VSS180	VSS280	M48
BB4	VSS181	VSS281	N18
BB46	VSS182	VSS282	N19
BC14	VSS183	VSS283	N30
BC18	VSS184	VSS284	N47
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BC22	VSS186	VSS286	P15
BC26	VSS187	VSS287	P16
BC32	VSS188	VSS288	P17
BC34	VSS189	VSS289	P18
BC36	VSS190	VSS290	P19
BC40	VSS191	VSS291	P20
BC42	VSS192	VSS292	P21
BC48	VSS193	VSS293	P22
BD46	VSS194	VSS294	P23
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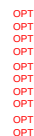


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CHECK	MK KIM	DEV. STEP	MP					
APPROVAL	BL LEE	REV	REV 1.2				PART NO.	BA41-01666A
MODULE CODE	LAST EDIT		August 15, 2011 11:04:51 AM				PAGE 20 OF 51	

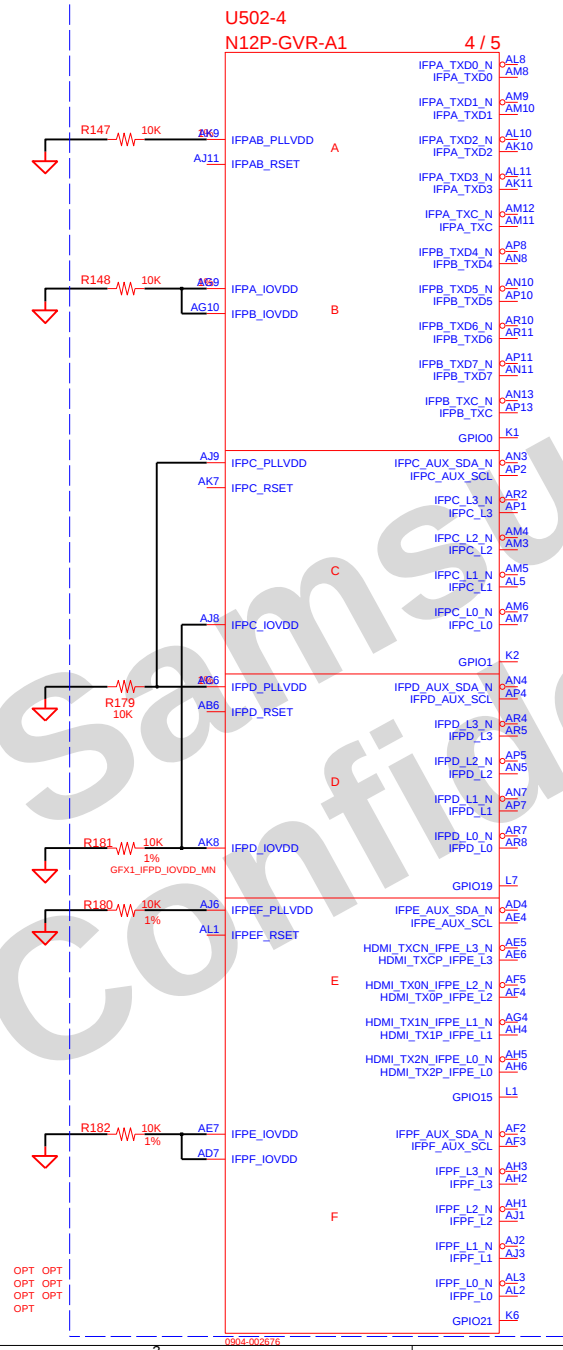
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0904-002676

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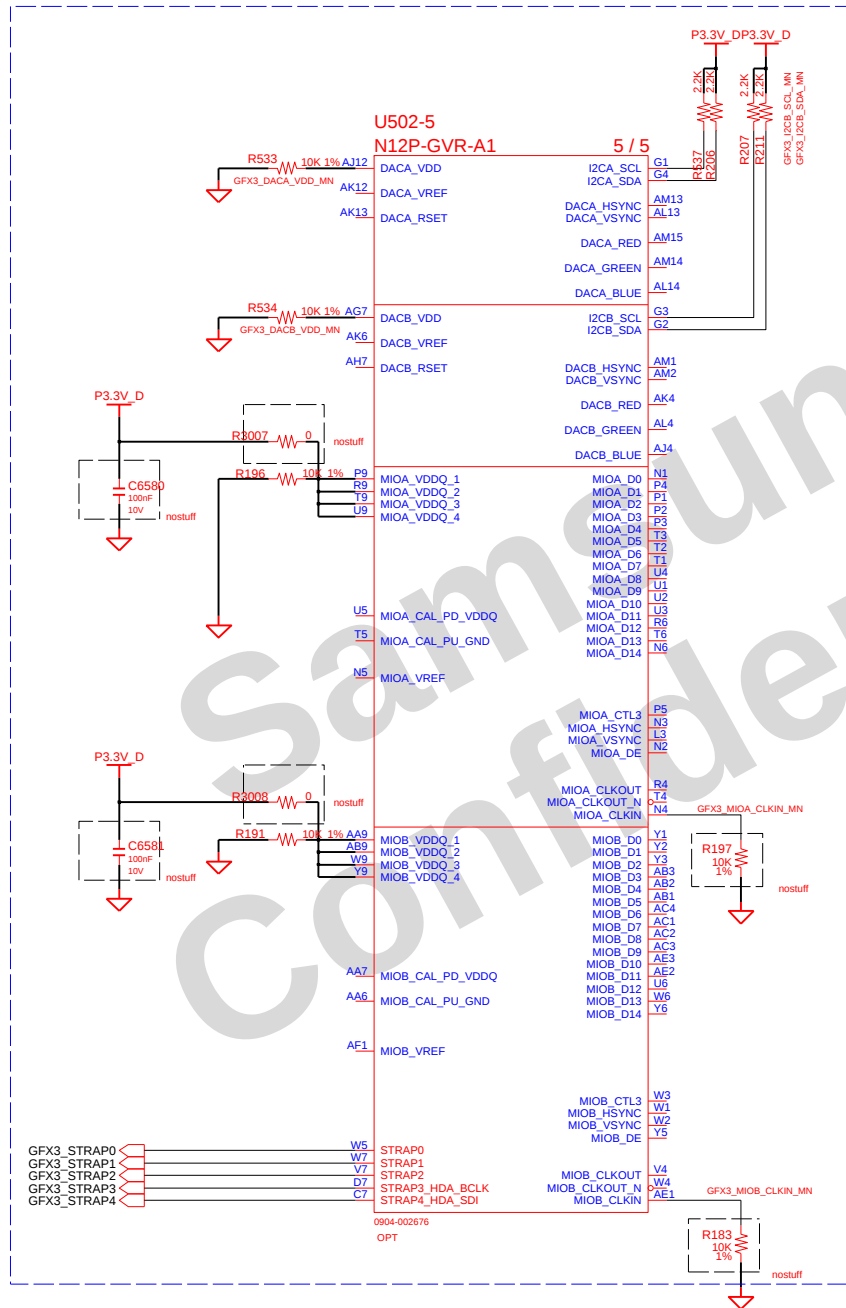
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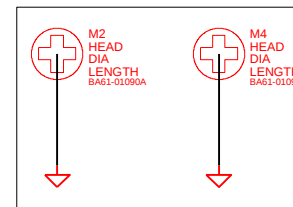


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APPROVAL	BL LEE	REV	REV 1.2		N12X_40NM(4/5)	
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	22 OF 51	

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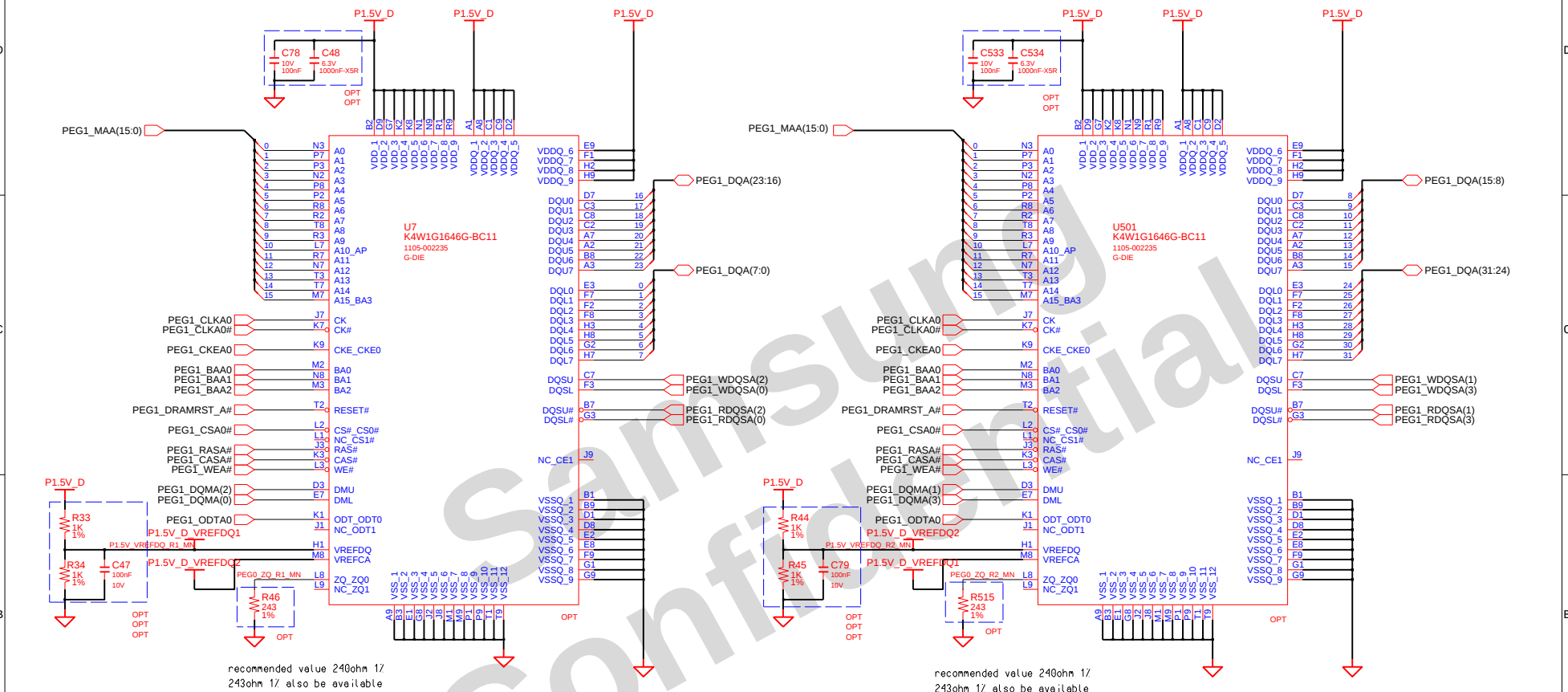
GPU Thermal



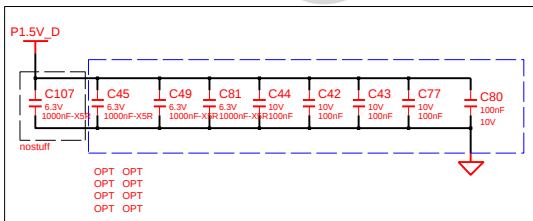
INT GFX and OPT GFX model need.

DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP		N12X_40NM(5/5)	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2		N12X_40NM(5/5)	PART NO.
MODULE CODE		LAST EDIT				BA41-01666A
				August 15, 2011 11:04:51 AM	PAGE	23 OF 51

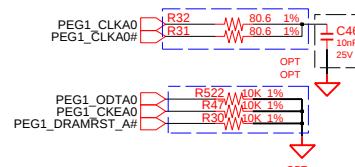
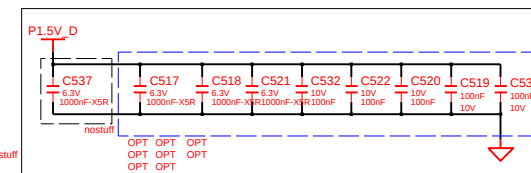
A-Channel #0 (E-mode)



Place near to VDDQ

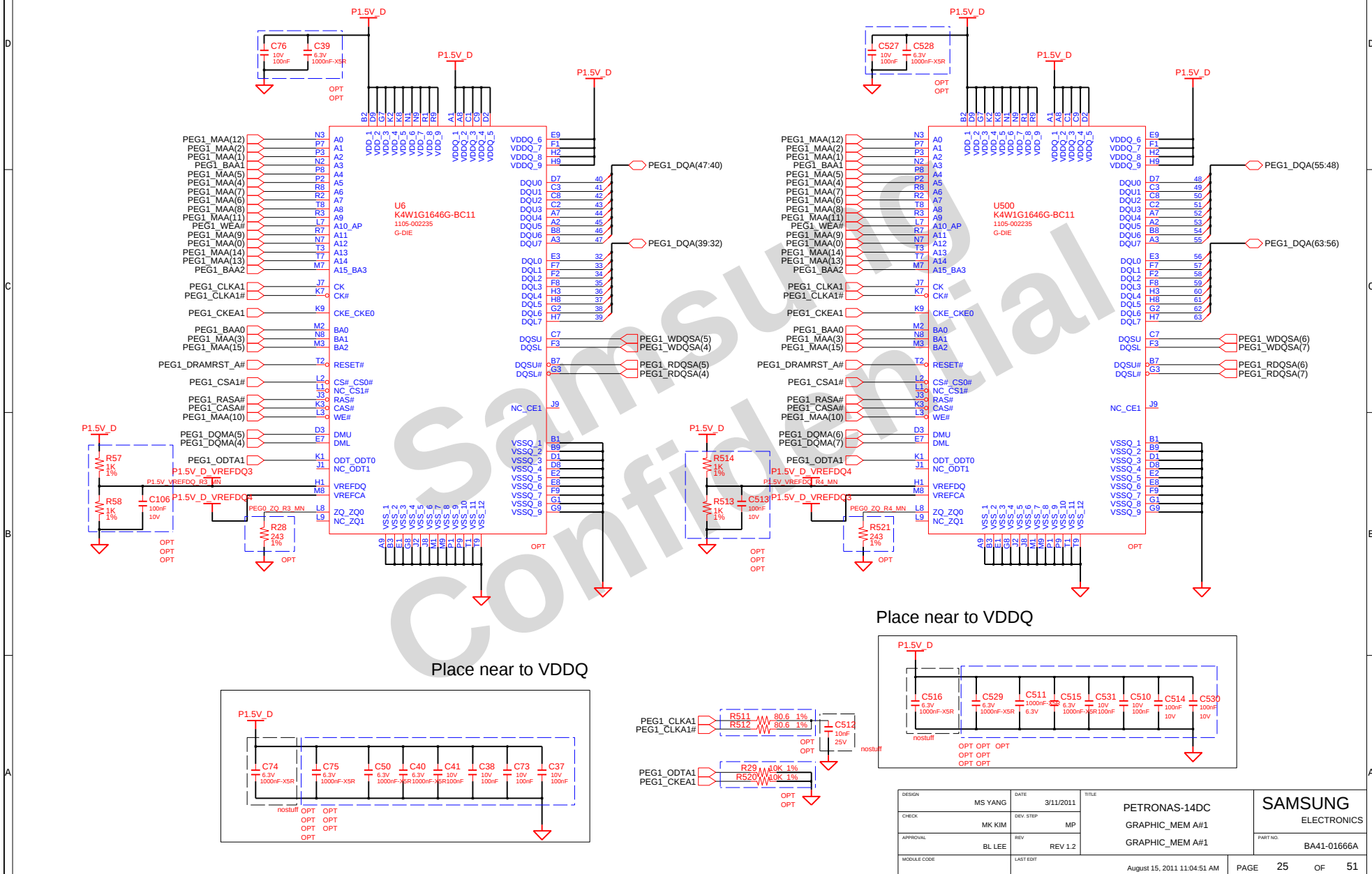


Place near to VDDQ



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS
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APPROVAL	BL LEE	REV	REV 1.2		GRAPHIC_MEM A#0	
MODULE CODE		LAST EDIT				
August 15, 2011 11:04:51 AM						PAGE 24 OF 51

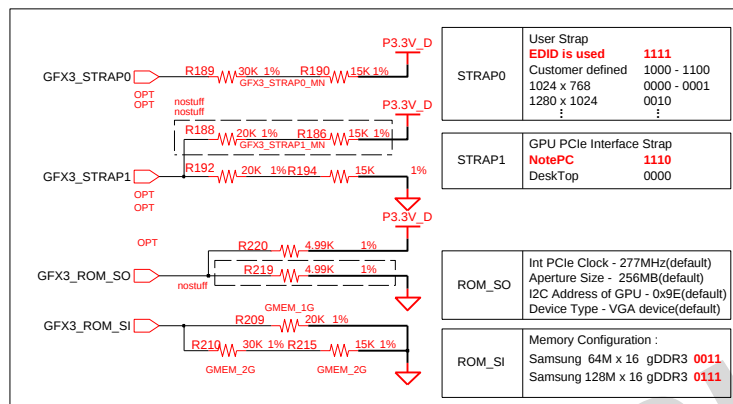
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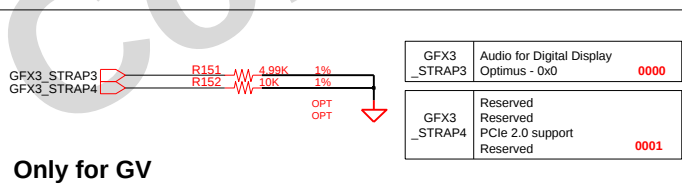
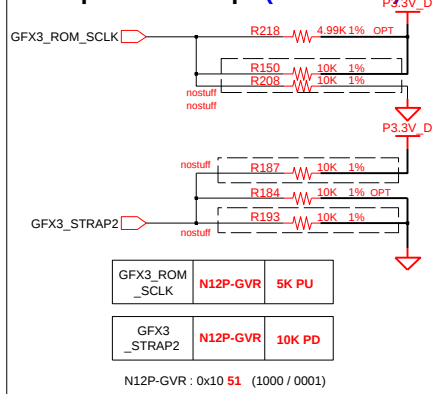
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APPROVAL	BL LEE	REV	REV 1.2		GRAPHIC_MEM A#1	
MODULE CODE		LAST EDIT				
August 15, 2011 11:04:51 AM						PAGE 25 OF 51

N12x_40nm STRAP

Function Straps



Chip Select Straps (N12P-GV1)



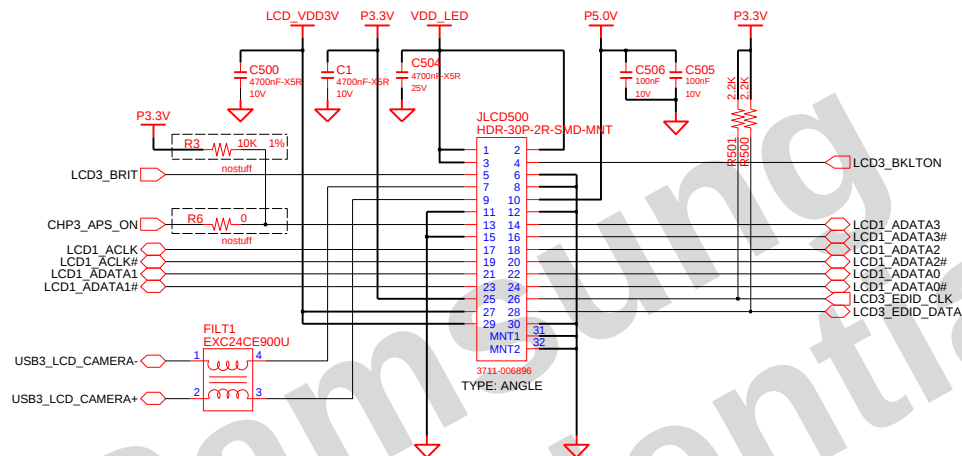
RESISTOR	PULL UP	PULL DOWN
5K	1000	0000
10K	1001	0001
15K	1010	0010
20K	1011	0011
25K	1100	0100
30K	1101	0101
35K	1110	0110
45K	1111	0111

STRAP PIN	BIT 3	BIT 2	BIT 1	BIT 0
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
STRAP1	3GIO_PADCFG[3]	3GIO_PADCFG[2]	3GIO_PADCFG[1]	3GIO_PADCFG[0]
ROM_SO	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	PCI_DEVID[3]	PCI_DEVID[2]	PCI_DEVID[1]	PCI_DEVID[0]
ROM_SCLK	PCI_DEVID[4]	SUB_VENDOR	SLOT_CLK_CFG	PEX_PLL_EN_TERM

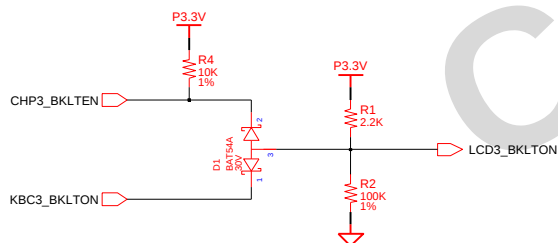
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APPROVAL	BL LEE	REV	REV 1.2						
				PART NO.	BA41-01666A				
MODULE CODE	LAST EDIT			August 15, 2011 11:04:51 AM		PAGE	26	OF	51

LVDS LOGIC

1Ch. LCD Connector + CAMERA

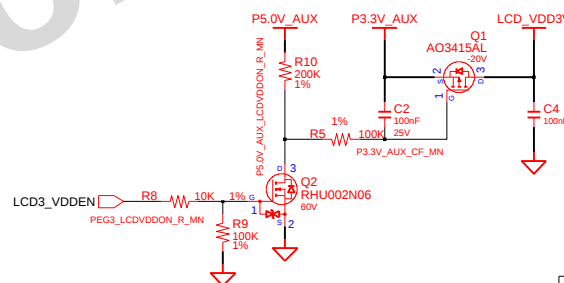


Backlight On

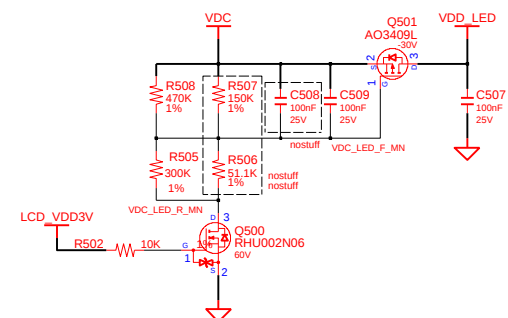


LCD Power

EBL Purpose



LED Power

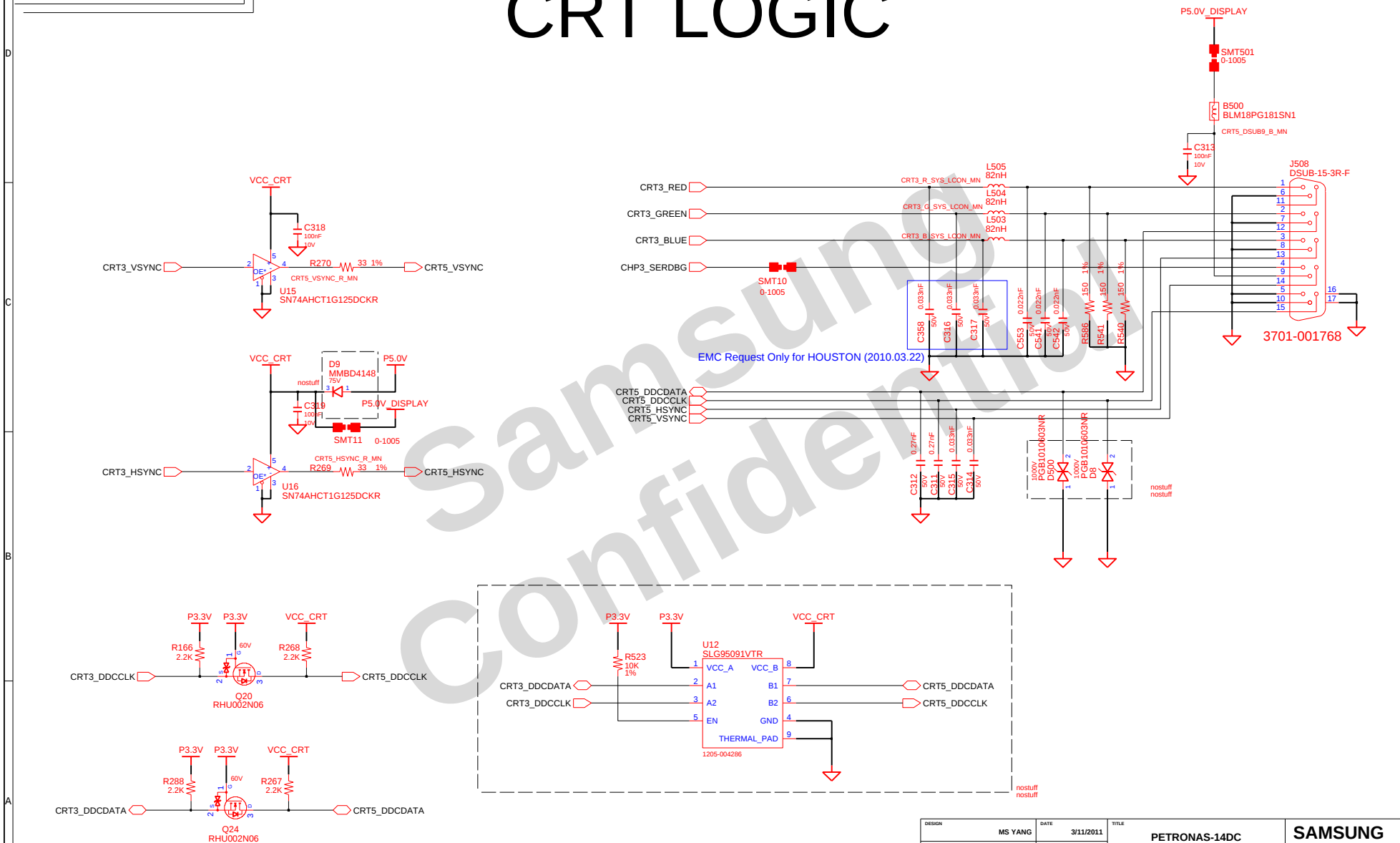


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CHECK	MK KIM	DEV. STEP	MP	GRAPHICS_IF	ELECTRONICS	
APPROVAL	BL LEE	REV	REV 1.2	LVDS	PART NO.	BA41-01666A
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	27	OF 51

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CRT LOGIC

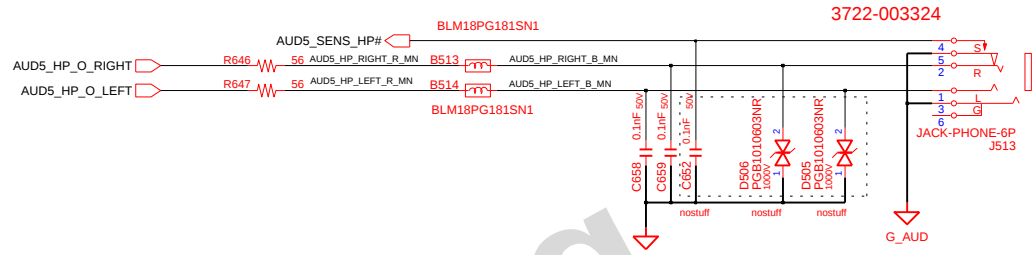


DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC GRAPHICS_IF	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2		CRT	
MODULE CODE		LAST EDIT		August 15, 2011 11:04:51 AM	PAGE 28 OF 51	

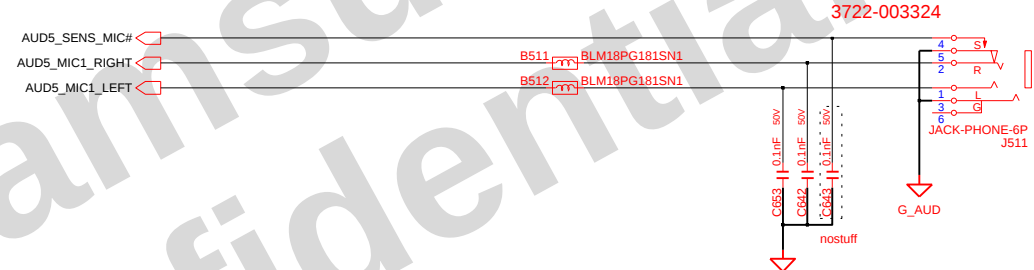
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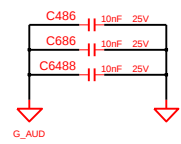
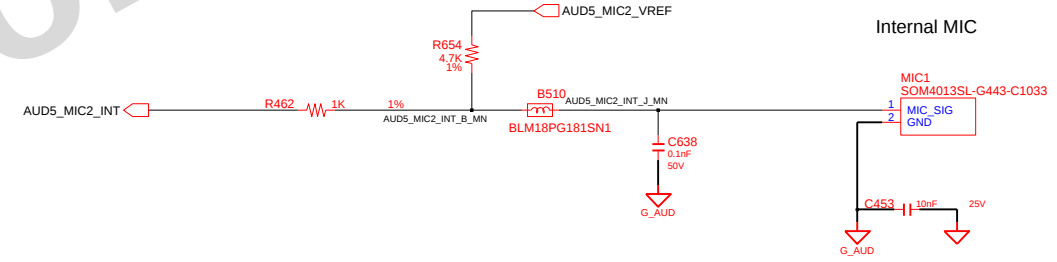
HEADPHONE



MIC JACK



Internal MIC



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC HDA_CODEC AUDIO JACK	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.2			
PART NO.			BA41-01666A			
MODULE CODE	LAST EDIT		August 15, 2011 11:04:51 AM		PAGE	31 OF 51

[illegible]COM-22C-015(1996.6.5) REV. 3

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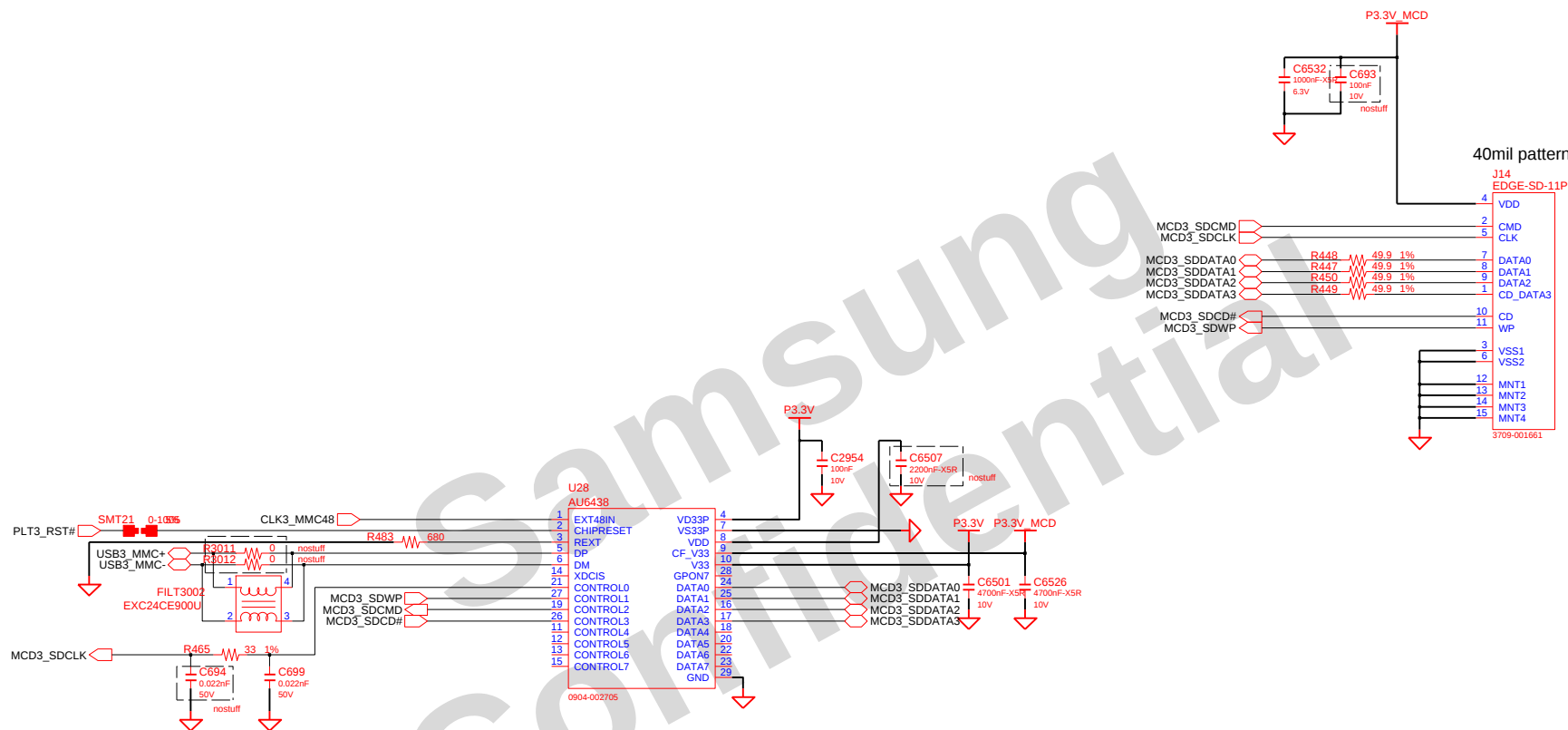
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4 IN 1 CARD

40mil pattern

J14
EDGE-SD-11P

4 VDD
2 CMD
5 CLK
7 DATA0
8 DATA1
9 DATA2
1 CD_DATA3
10 CD
11 WP
3 VSS1
6 VSS2
12 MNT1
13 MNT2
14 MNT3
15 MNT4
3709-001661

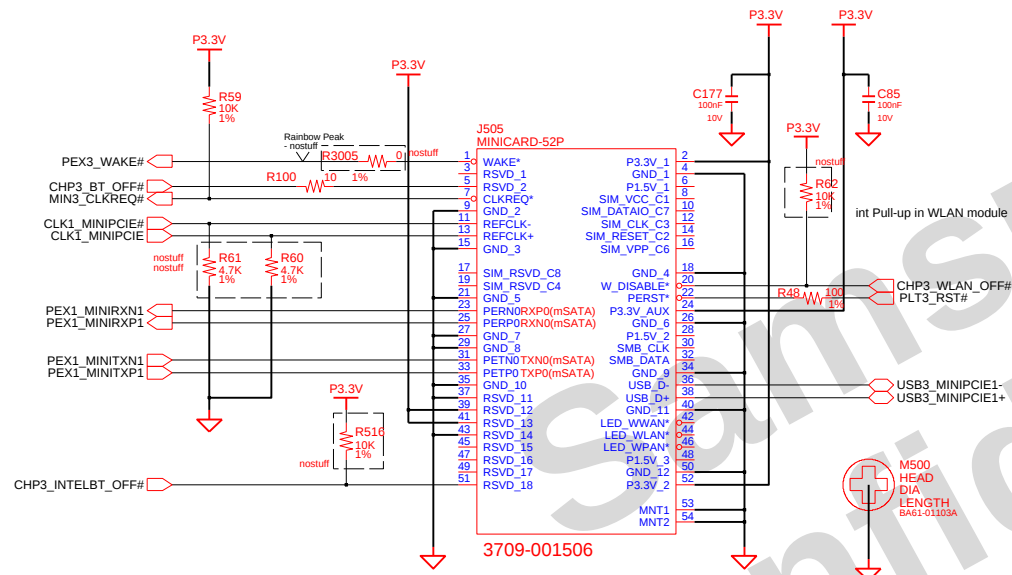


DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC MULTICARD 4 IN 1 CARD(AU6438)	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	33	OF 51

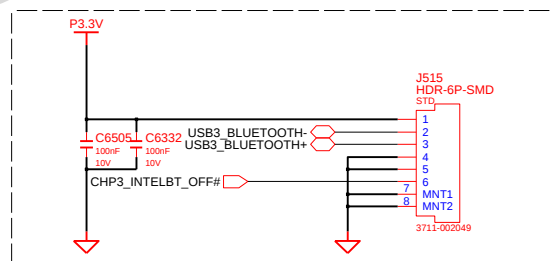
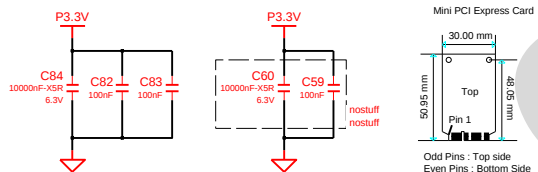
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WLAN, 7mm



Bluetooth Interface

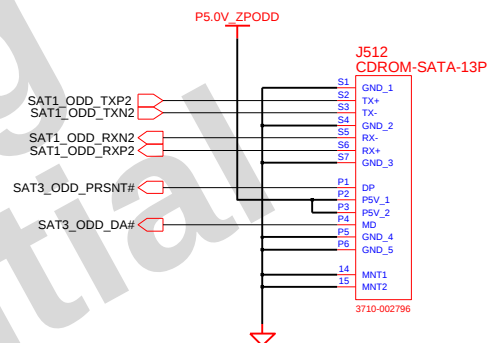
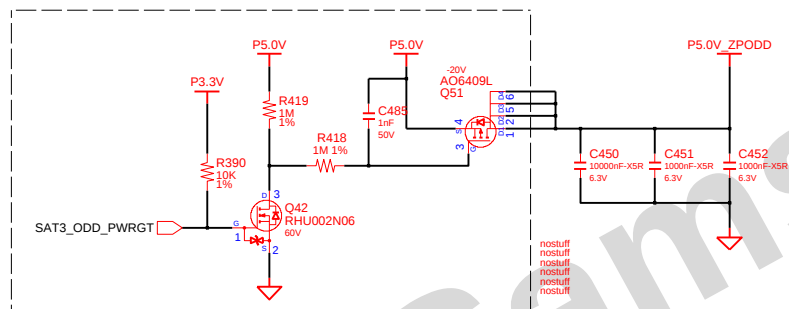


DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	MINI_PCIE_CONN	ELECTRONICS	
APPROVAL	BL LEE	REV	REV 1.2	WLAN	PART NO.	BA41-01666A
MODULE CODE		LAST EDIT				
				August 15, 2011 11:04:51 AM	PAGE	34 OF 51

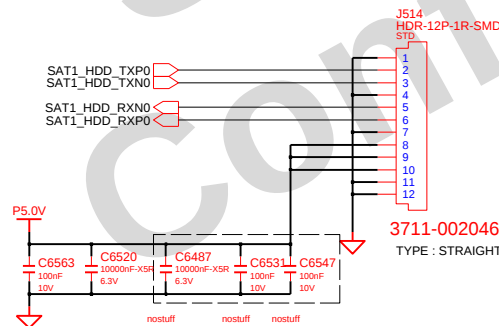
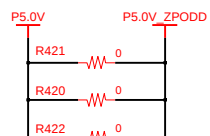
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SATA I/F CONN

SATA ODD CONN 14"

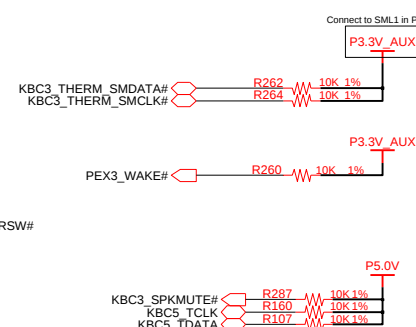
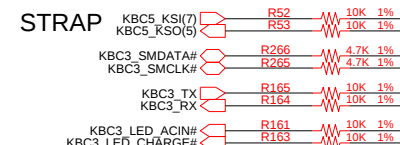


SATA HDD CONN



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC SATA_DEVICES HDD & ODD SUB CONNECTOR	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	35	OF 51

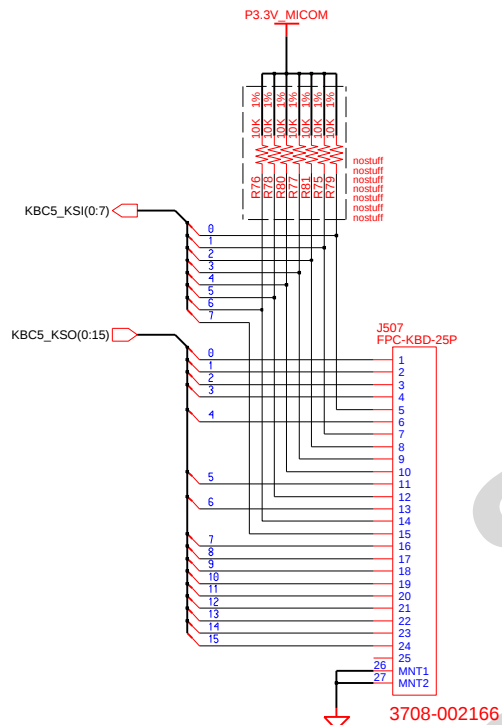
MAIN BOARD (MICOM)

[illegible]

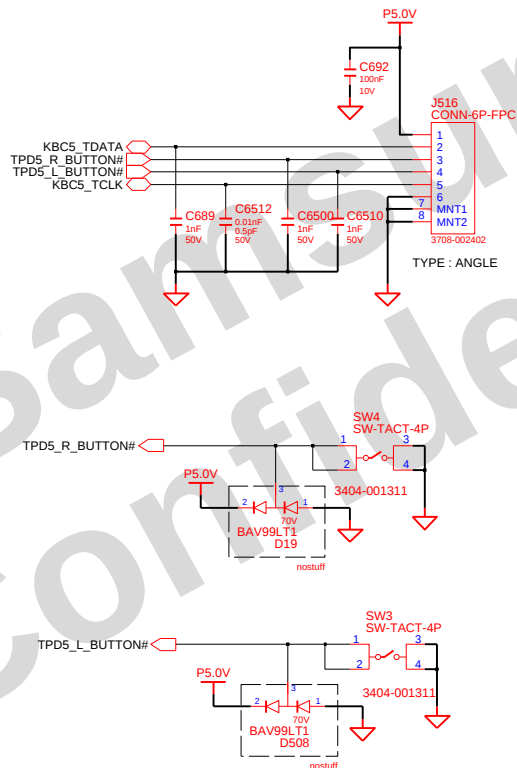
DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG	
CHECK	MK KIM	DEV. STEP	MP		MICOM	ELECTRONICS	
APPROVAL	BL LEE	REV	REV 1.2		MICOM_SMSC_MEC1310	PART NO.	BA41-01666A
MODULE CODE	LAST EDIT			August 15, 2011 11:04:51 AM		PAGE	36 OF 51

Micom Glue Logic

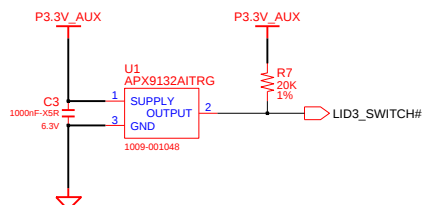
KEYBOARD



TOUCHPAD



LID_SWITCH



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC MICOM GLUE LOGIC KEYBOARD & TOUCHPAD	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	37	OF 51

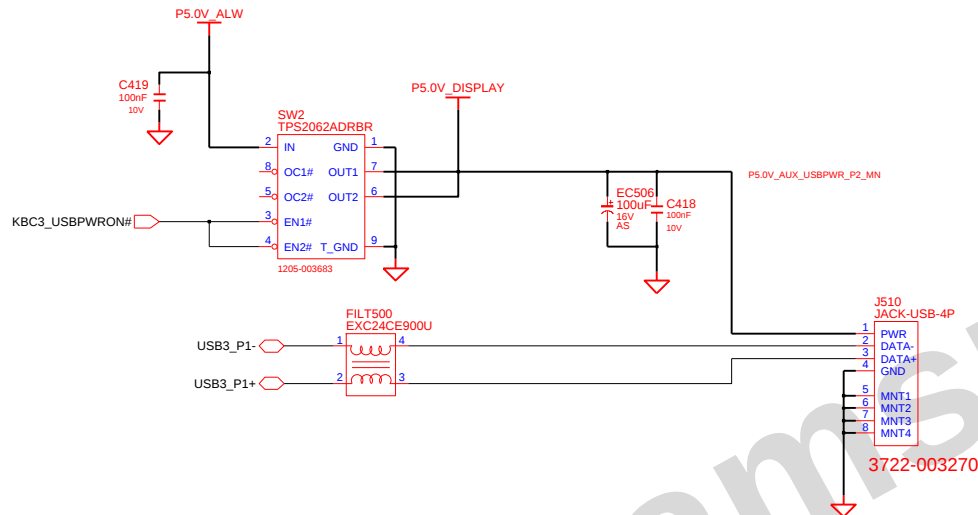
A

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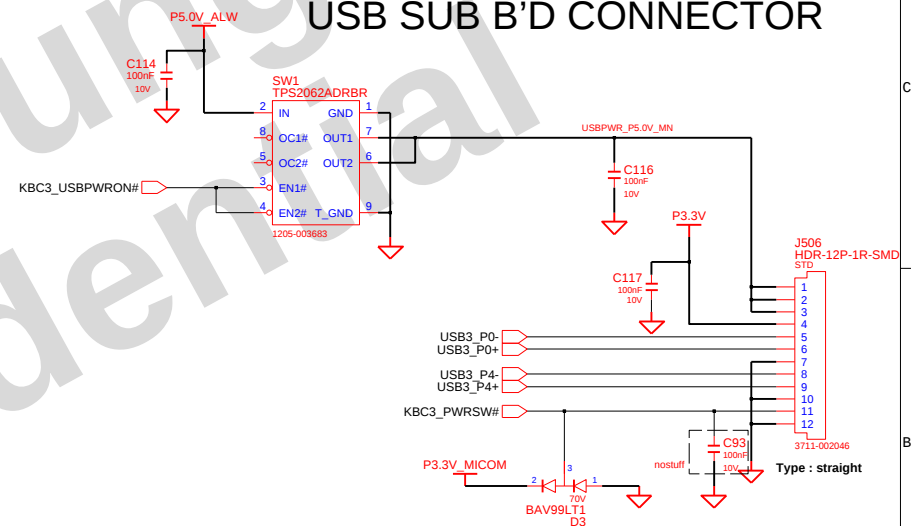
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USB Single connector

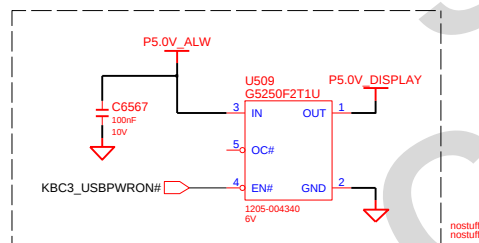


MAIN TO SUB USB CONN Right 2USB Port

USB SUB B'D CONNECTOR

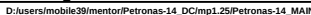


PLACE CLOSE TO USB SUB B'D Conenctor



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP	USB_CONN	USB_CONN	
APPROVAL	BL LEE	REV	REV 1.2	USB Port	USB Port	
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	39	OF 51

CHARGER & POWER MANAGEMENT



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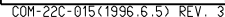
P3.3V_ALW & P5.0V_ALW

P12V_ALW

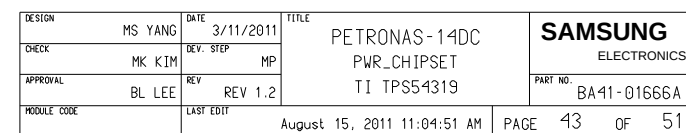
SAMSUNG ELECTRONICS
PART NO. BA41-01666A

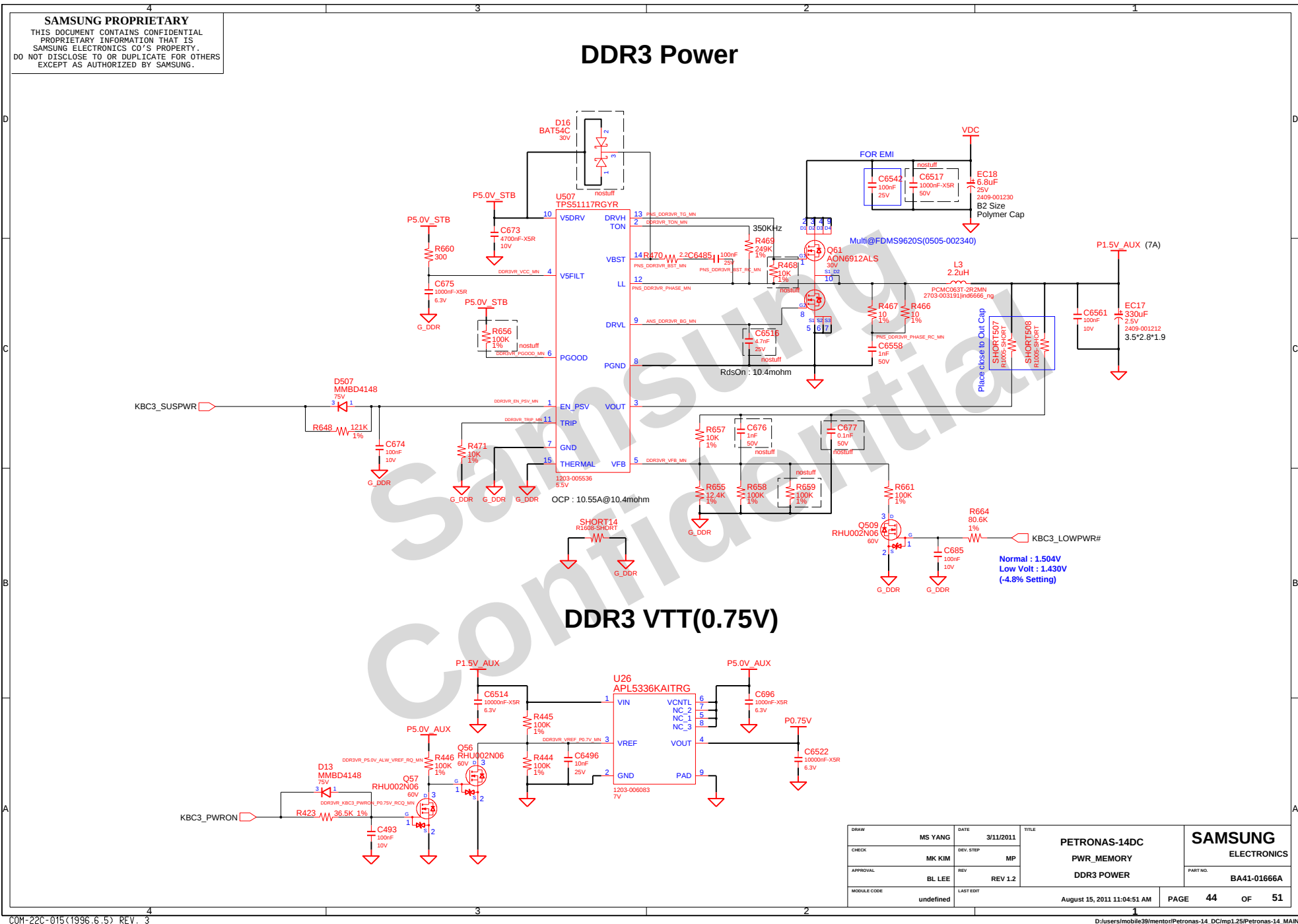
August 15, 2011 11:04:51 AM PAGE 41 OF 51

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[illegible]D:/users/mobile39/mentor/Petronas-14_DC/mp1.25/Petronas-14_MAIN

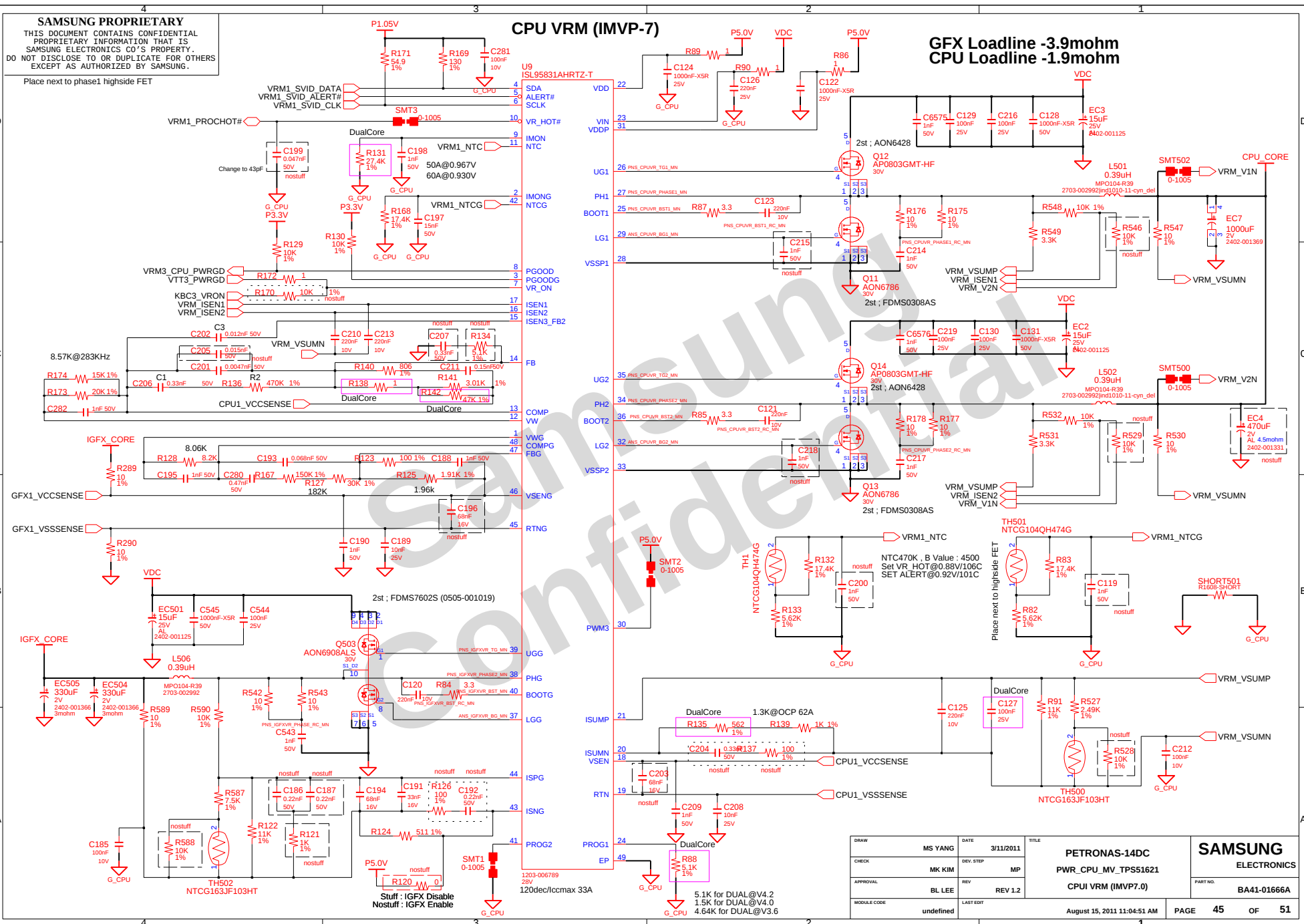
CHIPSET POWER(VCCSA)





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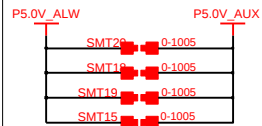
Place next to phase1 highside FET



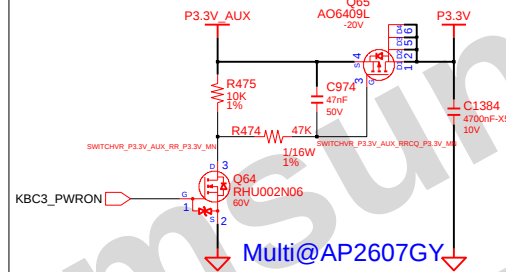
Switched Power 1

(P5.0V -> P3.3V -> EGFX_CORE -> P1.8V -> P1.5V -> P0.75V -> P1.05V -> P0.85V_SA -> CPU_CORE)

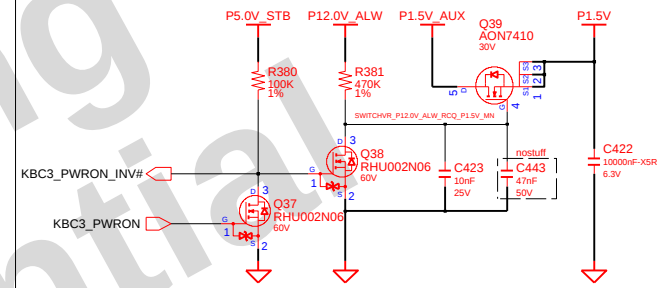
P5.0V_AUX



Switched Power On (P3.3V)

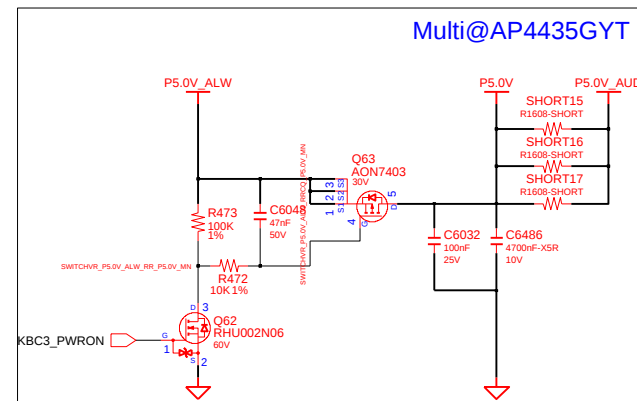


Switched Power On (P1.5V)



For nVIDIA GFX PWR Sequence
NVDD(EGFX_CORE) first and then FBVDDQ(qDDR3)

Switched Power On (P5.0V)



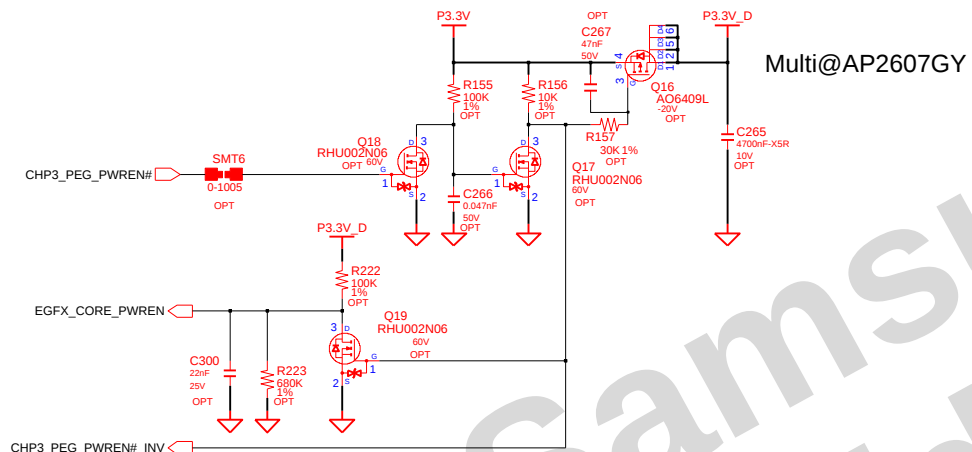
DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP		Switched PWR 2	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2		Switched Power	PART NO.
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM			BA41-01666A
				PAGE	47	OF 51

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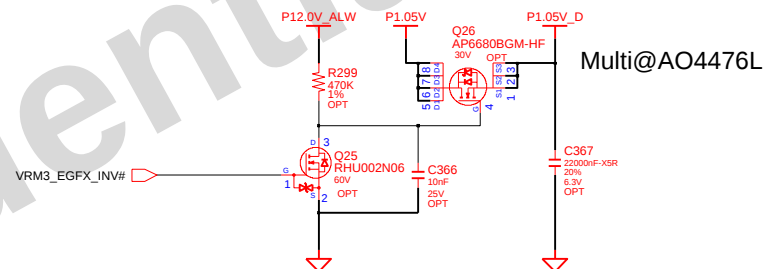
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Switched Power 2 (For nVidia GFX Power Sequence)

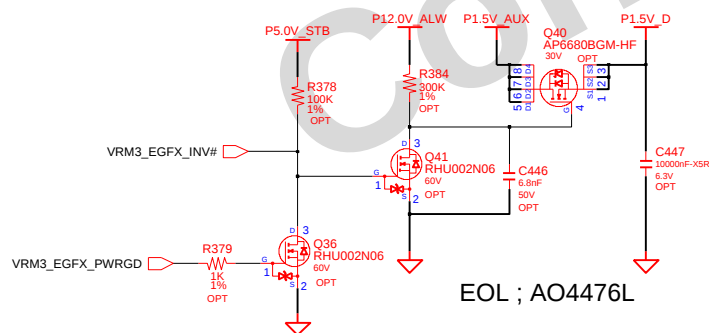
Discrete Switched Power (D3.3V : Max_1.2A)



Discrete Switched Power (D1.05V : Max 3.6A)

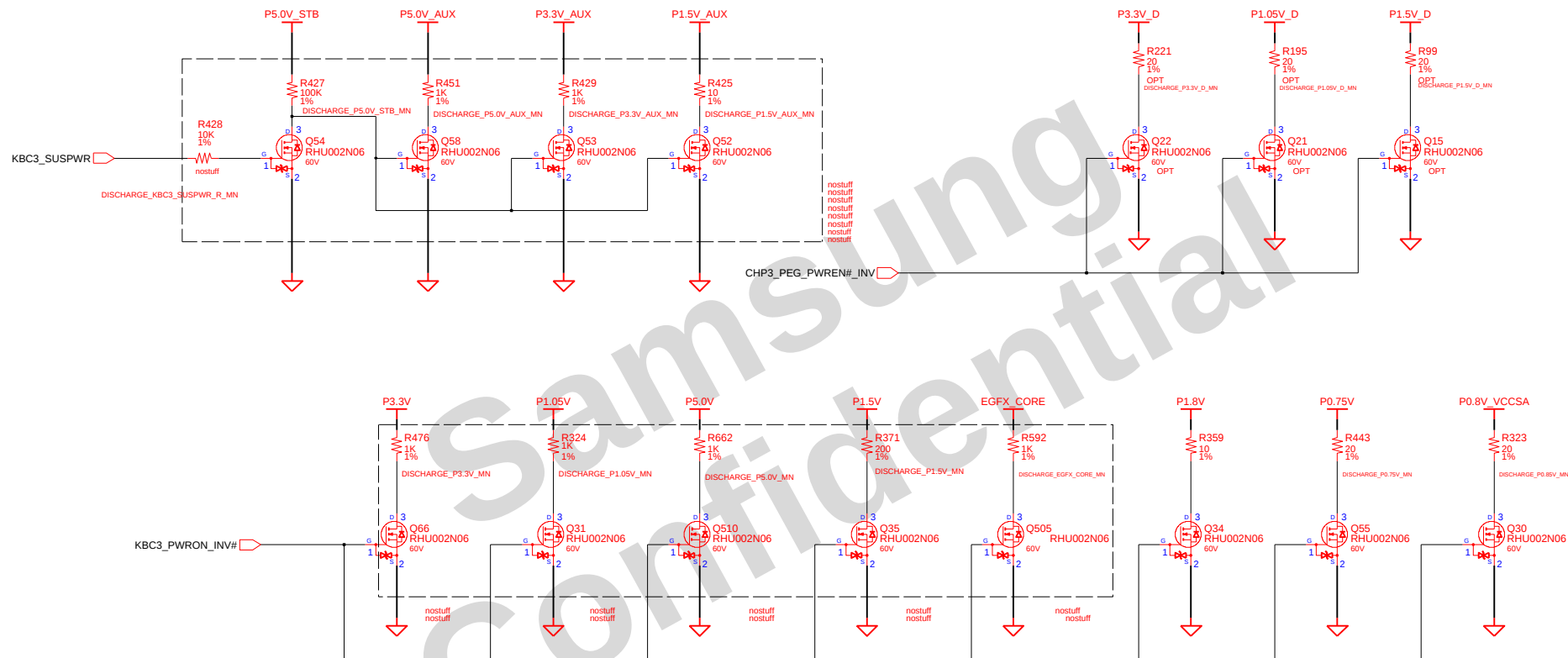


Discrete Switched Power (D1.5V : Max 5.0A)



DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	Switched PWR	FOR OPTIMUS PWR	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2			PART NO.
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	48	BA41-01666A
				OF	51	

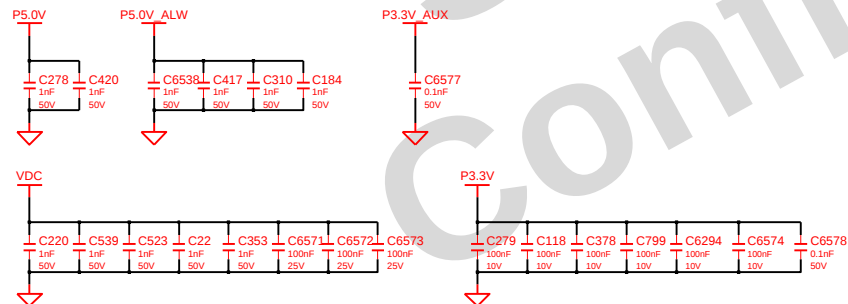
POWER DISCHARGER



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC DISCHARGER LOGIC DISCHARGING LOGIC	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	49	OF 51

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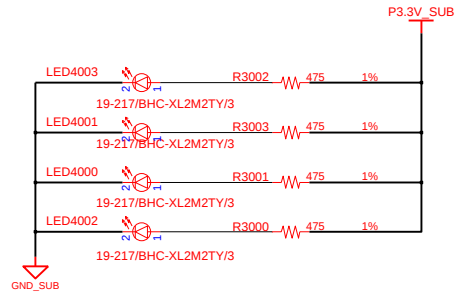
Diagram showing the connection of 8 pins (MT2, MT3, MT4, MT5, MT8, MT9, MT13, MT14) to the RMNT-30-76-1P connector. Each pin is connected to a corresponding pin on the connector via a vertical line and a downward-pointing triangle.



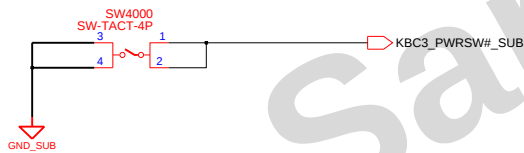
DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS			
CHECK	MK KIM	DEV. STEP	MP				MT Hole		
APPROVAL	BL LEE	REV	REV 1.2				MT Hole	PART NO.	BA41-01666A
MODULE CODE	LAST EDIT		August 15, 2011 11:04:51 AM				PAGE	50 OF 51	

USB SUB BOARD

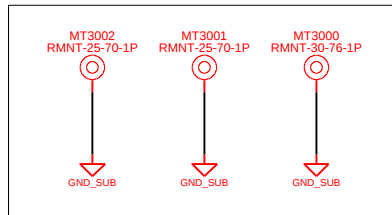
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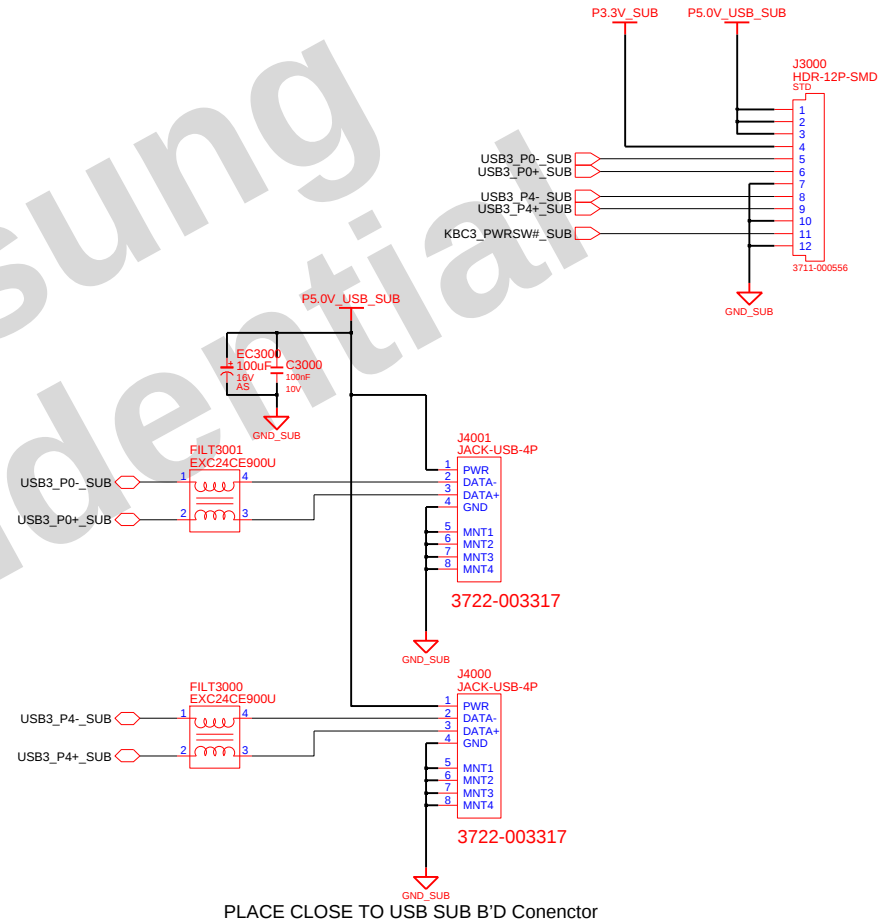
Power Switch Button



PCB Mount



SUB TO MAIN



PLACE CLOSE TO USB SUB B'D Conenctor

DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC SUB BOARD	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP		SUB BOARD	
APPROVAL	BL LEE	REV	REV 1.2		SUB BOARD	PART NO. BA41-01666A
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	51	OF 51