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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

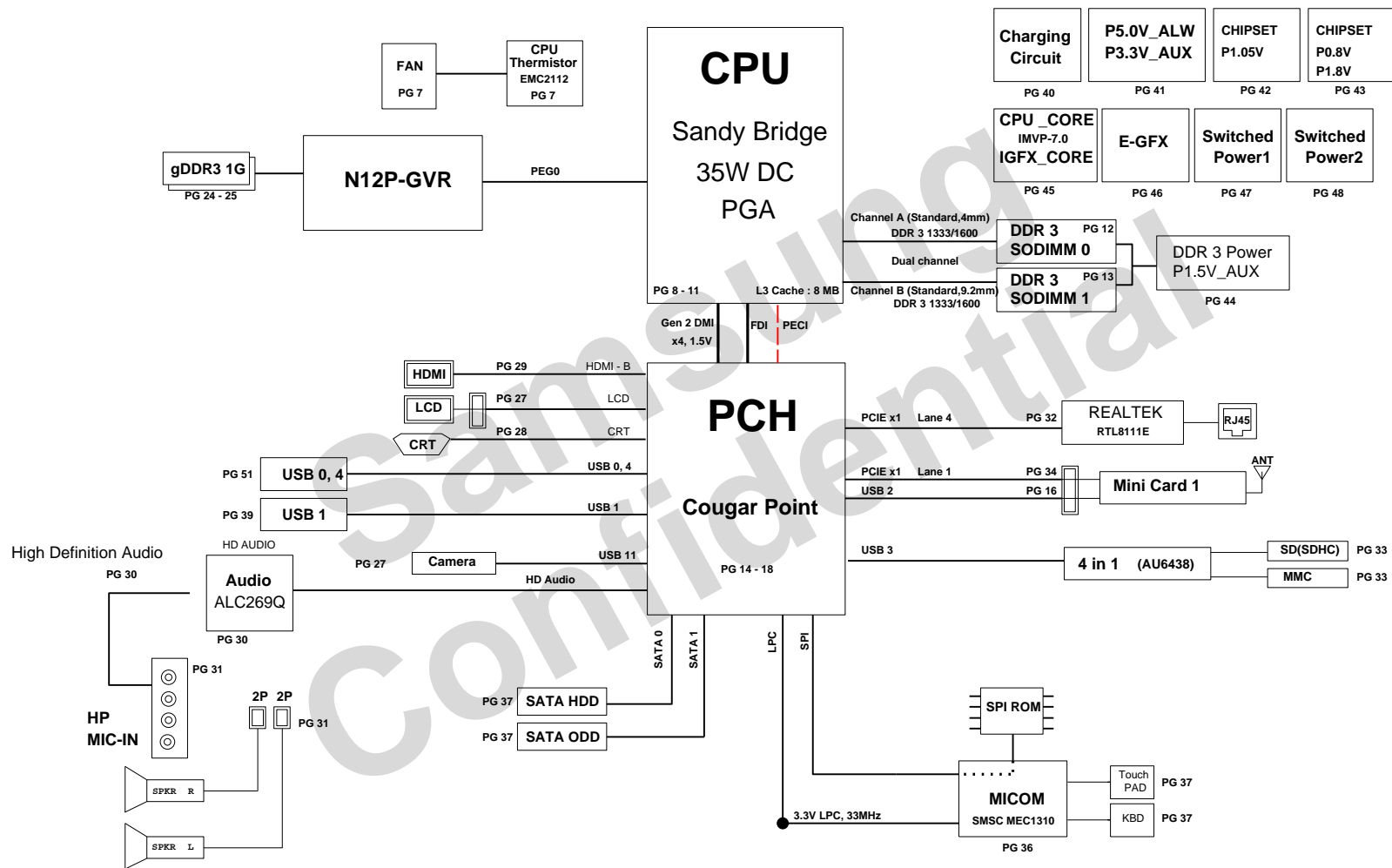
Owner : SEC Mobile R & D Signature : X

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sheet22 : N12P-GVR
sheet23 : N12P-GVR
sheet24 : GFX memory
sheet25 : GFX memory
sheet26 : STRAP
sheet27 : LVDS/CAMERA
sheet28 : CRT
sheet29 : HDMI
sheet30 : Audio - ALC269
sheet31 : Audio - HP/MIC
sheet32 : LAN (Realtek RTL8111E)
sheet33 : 4-in-1 card (AU6437)
sheet34 : WLAN
sheet35 : SATA interface
sheet36 : MICOM / BIOS
sheet37 : MICOM Glue Logic (KBD / TP)
sheet38 : LED for 14" & for 15"
sheet39 : USB connector
sheet40 : Power - charger
sheet41 : Power - P3.3V_AUX / P5.0V_AUX
sheet42 : Power - P1.05V (Chipset Power)
sheet43 : Power - P0.8V (Chipset Power)
sheet44 : Power - DDR3
sheet45 : Power - CPU VRM
sheet46 : Power - EGFX_CORE
sheet47 : Power - Switched Power 1
sheet48 : Power - Switched Power 2
sheet49 : Power - Power Discharge
sheet50 : Mount Hole / Thermal Hole
sheet51 : USB Sub B'D

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

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BLOCK DIAGRAM



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

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		BOARD INFO	PART NO.
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	3	OF 51

POWER DIAGRAM

Rev 0.8

KBC3_SUSPWR
(CHP3_SLPS4#)

KBC3_PWRON
(CHP3_SLPS3#)

KBC3_VRON

AC Adapter

Battery DC

VDC

P3.3V_MICOM

MICOM
SPI ROM
GREEN CLK
KBD

P5.0V_STB

P5.0V_ALW

USB PWR S/W
Chipset PWR IC
When USB Charge Enable

P3.3V_ALW

Thermal Sensor
PCH

P12.0V_ALW

P1.5V_AUX

SODIMM (DDR3)

P5.0V_AUX

P3.3V_AUX

LID S/W

P1.05V_M

P3.3V_M

P1.05V
(VCCP)

CPU
PCH

P1.05V_D

NVIDIA

EGFX_CORE

N12P

P1.5V

CPU
PCH

Express card

P1.5V_D

NVIDIA

P0.75V

SODIMM (DDR3)

P1.05V_USB

USB3.0

P5.0V

Thermal Sensor
PCH

LVDS

CRT

Touchpad
HDMI
SATA IF

P1.8V

CPU
PCH

N12P

P3.3V_D

NVIDIA

P3.3V

GREEN CLK
SODIMM (DDR3)

PCH

HDMI
AUDIO

80PORT
LVDS

CRT

P0.85V_SA

CPU

P3.3V_USB

USB3.0

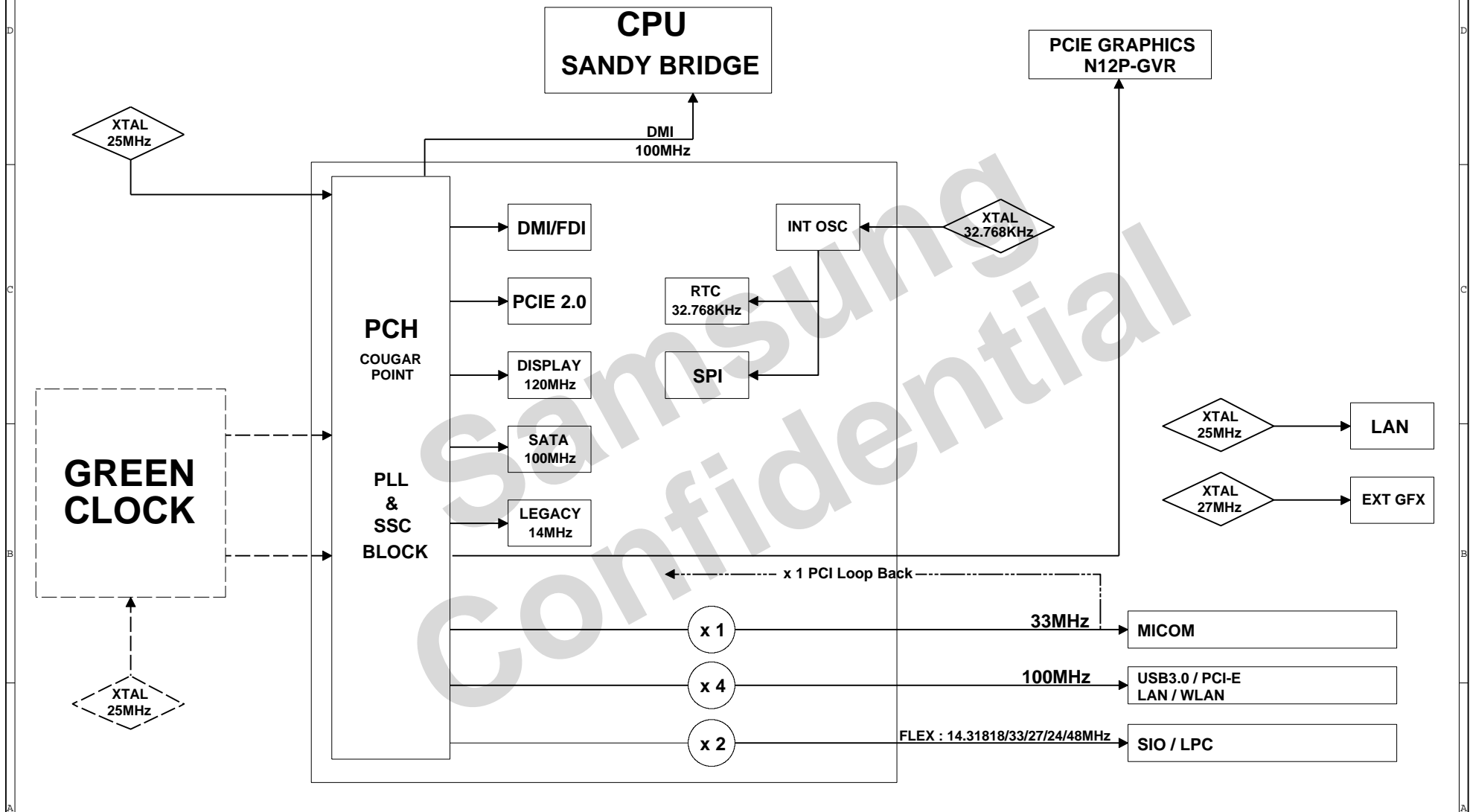
S5-S4

S3

S0

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.
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	4	BA41-01666A
				OF	51	

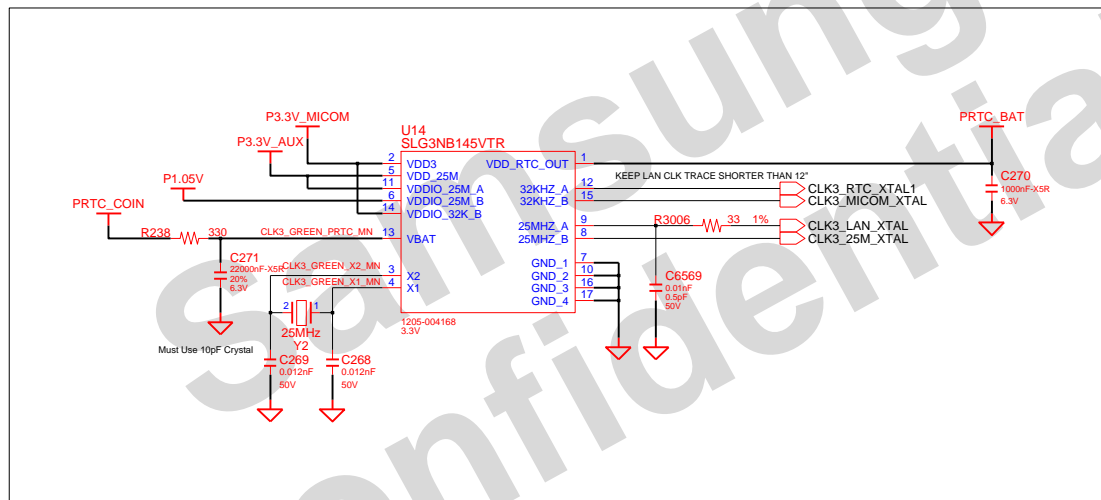
CLOCK DISTRIBUTION Rev. 0.8



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
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	5	OF 51

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CLOCK DISTRIBUTOR



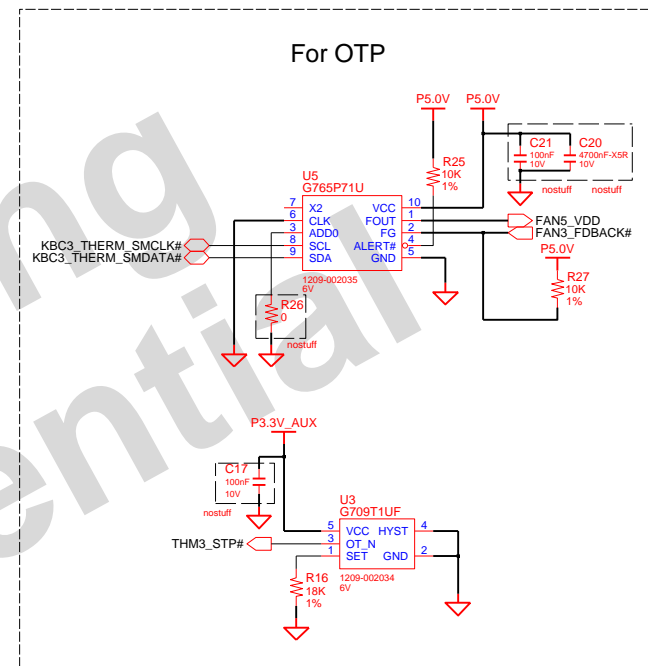
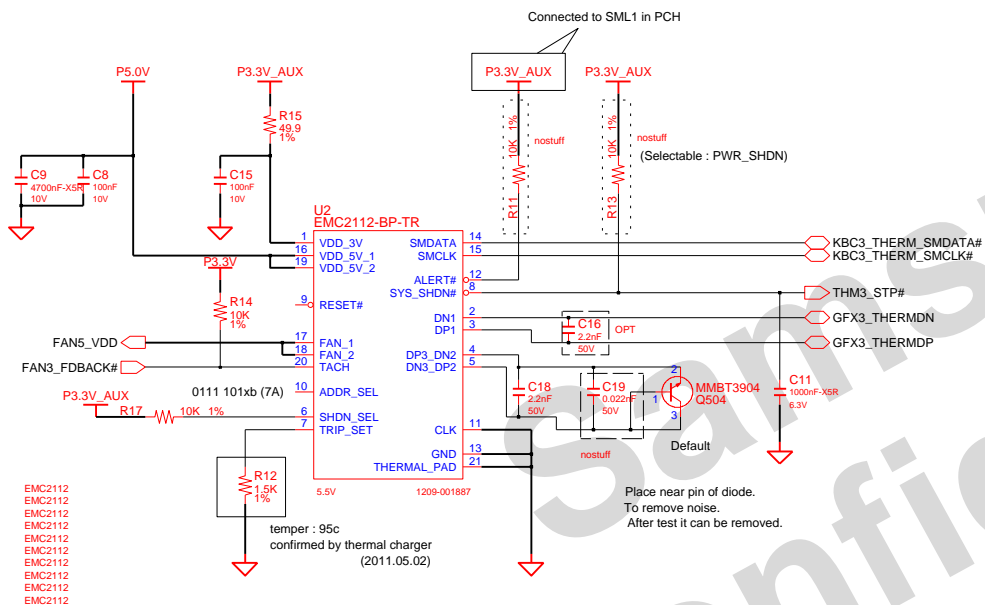
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK
GREENCLK

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

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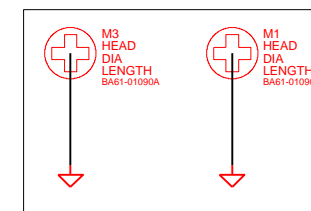
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THERMAL SENSOR & FAN CONTROL



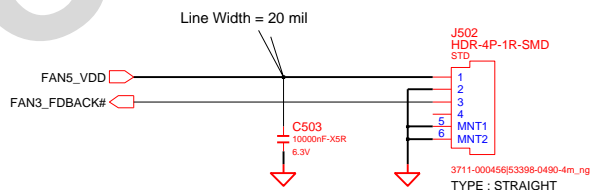
Temperature : 95.78c
confirmed by thermal charger
(2011.05.02)
 $R_{th}(\text{kohm}) = 0.0012T^2 - 0.9308T + 96.147$

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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U503-1 SANDBRIDGE 1/5

DMI

DMI1_TXN(0:3) 0 B27 DMI_RX#0 1 B28 DMI_RX#1 2 A25 DMI_RX#2 3 B24 DMI_RX#3

DMI1_TXP(0:3) 0 B28 DMI_RX0 1 B26 DMI_RX1 2 A24 DMI_RX2 3 B23 DMI_RX3

DMI1_RXN(0:3) 0 G21 DMI_TX#0 1 E22 DMI_TX#1 2 F23 DMI_TX#2 3 D21 DMI_TX#3

DMI1_RXP(0:3) 0 G22 DMI_TX0 1 D22 DMI_TX1 2 F20 DMI_TX2 3 C21 DMI_TX3

FDI

FDI1_TXN(0:7) 0 A21 FDI0_TX#0 1 H19 FDI0_TX#1 3 F18 FDI0_TX#2 4 B21 FDI0_TX#3 5 C20 FDI1_TX#0 6 D18 FDI1_TX#2 7 E17 FDI1_TX#3

FDI1_TXP(0:7) 0 A22 FDI0_TX0 1 G19 FDI0_TX1 2 E20 FDI0_TX2 3 G18 FDI0_TX3 4 B20 FDI1_TX0 5 C19 FDI1_TX1 6 D19 FDI1_TX2 7 F17 FDI1_TX3

FDI

FDI1_FSYNC0 FDI0_FSYNC0 FDI1_FSYNC1 FDI0_FSYNC1 J18 FDI0_FSYNC

FDI1_INT FDI0_INT H20 FDI0_INT

FDI1_LSYNC0 FDI0_LSYNC0 FDI1_LSYNC1 FDI0_LSYNC1 J19 FDI0_LSYNC

eDP

EDP_COMPIO A18 24.9 1% R322

EDP_ICOMPO A17 1% R321

EDP_AUX D18 C15

EDP_TX0 C17

EDP_TX1 F18

EDP_TX2 C16

EDP_TX3 G15

EDP_TX#0 C18

EDP_TX#1 F16

EDP_TX#2 D16

EDP_TX#3 F15

PCI EXPRESS* - GRAPHICS

PEG1_RXN(15:0) J22 PEG1_RX#0 J21 PEG1_RX#1 J22 PEG1_RX#2 J22 PEG1_RX#3 J22 PEG1_RX#4 J22 PEG1_RX#5 J22 PEG1_RX#6 J22 PEG1_RX#7 J22 PEG1_RX#8 J22 PEG1_RX#9 J22 PEG1_RX#10 J22 PEG1_RX#11 J22 PEG1_RX#12 J22 PEG1_RX#13 J22 PEG1_RX#14 J22 PEG1_RX#15 J22

PEG1_RXP(15:0) J22 PEG1_RX#0 J21 PEG1_RX#1 J22 PEG1_RX#2 J22 PEG1_RX#3 J22 PEG1_RX#4 J22 PEG1_RX#5 J22 PEG1_RX#6 J22 PEG1_RX#7 J22 PEG1_RX#8 J22 PEG1_RX#9 J22 PEG1_RX#10 J22 PEG1_RX#11 J22 PEG1_RX#12 J22 PEG1_RX#13 J22 PEG1_RX#14 J22 PEG1_RX#15 J22

PEG1_TXN_C(15:0) M29 PEG1_TX#0 M32 PEG1_TX#1 M31 PEG1_TX#2 M31 PEG1_TX#3 M31 PEG1_TX#4 M31 PEG1_TX#5 M31 PEG1_TX#6 M31 PEG1_TX#7 M31 PEG1_TX#8 M31 PEG1_TX#9 M31 PEG1_TX#10 M31 PEG1_TX#11 M31 PEG1_TX#12 M31 PEG1_TX#13 M31 PEG1_TX#14 M31 PEG1_TX#15 M31

PEG1_TXP_C(15:0) M28 PEG1_TX0 M33 PEG1_TX1 M30 PEG1_TX2 L31 PEG1_TX3 L28 PEG1_TX4 L28 PEG1_TX5 K30 PEG1_TX6 K27 PEG1_TX7 J27 PEG1_TX8 H28 PEG1_TX9 H28 PEG1_TX10 G28 PEG1_TX11 E28 PEG1_TX12 F28 PEG1_TX13 D27 PEG1_TX14 E26 PEG1_TX15 D25

CPU1_NVM_IVB# C26

SKTOCC# AN34

CATERR# AL33

PECI AN33

PROCHOT# AL32

THERMTRIP# AN32

PM_SYNC AM34

UNCOREPWRGOOD AP33

SM_DRAMPWROK V8

RESET# AR33

CHP3_PMSYNC R375

CHP1_CPU_PWRGD R376

CPU1_DRAM_PWRGD R377

PLT3_RST# R272

CPU_PLT3_RST# R295

PEG1_TXN(15:0) 0 C321 100nF 10V 1 OPT 1 C322 100nF 10V 2 OPT 2 C323 100nF 10V 3 OPT 3 C327 100nF 10V 4 OPT 4 C328 100nF 10V 5 OPT 5 C331 100nF 10V 6 OPT 6 C332 100nF 10V 7 OPT 7 C334 100nF 10V 8 OPT 8 C336 100nF 10V 9 OPT 9 C338 100nF 10V 10 OPT 10 C340 100nF 10V 11 OPT 11 C342 100nF 10V 12 OPT 12 C345 100nF 10V 13 OPT 13 C346 100nF 10V 14 OPT 14 C348 100nF 10V 15 OPT 15 C350 100nF 10V 16 OPT

PEG1_TXP(15:0) 0 C320 100nF 10V 1 OPT 1 C325 100nF 10V 2 OPT 2 C327 100nF 10V 3 OPT 3 C328 100nF 10V 4 OPT 4 C329 100nF 10V 5 OPT 5 C330 100nF 10V 6 OPT 6 C333 100nF 10V 7 OPT 7 C335 100nF 10V 8 OPT 8 C337 100nF 10V 9 OPT 9 C339 100nF 10V 10 OPT 10 C341 100nF 10V 11 OPT 11 C343 100nF 10V 12 OPT 12 C344 100nF 10V 13 OPT 13 C347 100nF 10V 14 OPT 14 C349 100nF 10V 15 OPT 15 C351 100nF 10V 16 OPT

CLK1_PCHEXP A28

CLK1_PCHEXP# A27

BCLK A28

BCLK# A27

DPLL_REF_SSCLK A16

DPLL_REF_SSCLK# A15

SM_DRAMRST# R8

SM_RCOMP1 AK1

SM_RCOMP2 A5

MCP1_DRAMRST_DRIVE# R611

PRODYR AP29

PREQ# AP27

TCK AR26

TMS AR27

TRST# AP30

TDI AR28

TDO AP26

DBR# AL35

BPM#0 AT28

BPM#1 AR29

BPM#2 AR30

BPM#3 AT30

BPM#4 AP32

BPM#5 AR31

BPM#6 AT31

BPM#7 AR32

P3.3V_AUX C540

CPU1_DRAM_PWRGD U13

MT11 RMNT-38-70-1P

MT10 RMNT-38-70-1P

MT7 RMNT-38-70-1P

MT6 RMNT-38-70-1P

CPU mount

MS YANG DATE 3/11/2011 TITLE PETRONAS-14DC CPU

BL LEE REV 1.2

SANDY BRIDGE (1/4)

SAMSUNG ELECTRONICS

BA41-01666A

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DRAW	MS YANG	DATE	3/11/2011	PETRONAS-14DC CPU Sandy Bridge (2/4)	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP		
APPROVAL	BL LEE	REV	REV 1.2		
MODULE CODE	undefined	LAST EDIT			
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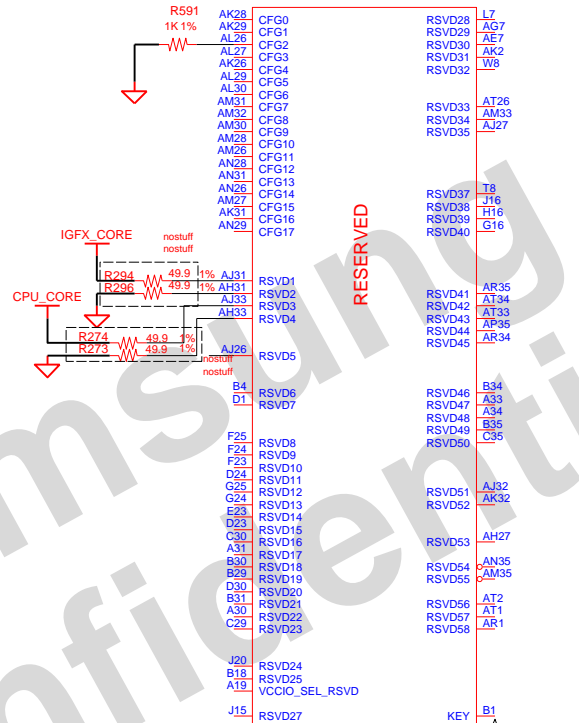
**U503-5
SANDBRIDGE 5/5**

AT35	VSS1	VSS81	AJ22
AT32	VSS2	VSS82	AJ19
AT29	VSS3	VSS83	AJ16
AT26	VSS4	VSS84	AJ13
AT23	VSS5	VSS85	AJ10
AT20	VSS6	VSS86	AJ7
AT17	VSS7	VSS87	AJ3
AT14	VSS8	VSS88	AJ2
AT11	VSS9	VSS89	AJ1
AT8	VSS10	VSS90	AH35
AT4	VSS11	VSS91	AH34
AT3	VSS12	VSS92	AH32
AR25	VSS13	VSS93	AH31
AR22	VSS14	VSS94	AH30
AR19	VSS15	VSS95	AH29
AR16	VSS16	VSS96	AH28
AR13	VSS17	VSS97	AH26
AR10	VSS18	VSS98	AH25
AR7	VSS19	VSS99	AH22
AR4	VSS20	VSS100	AH19
AR2	VSS21	VSS101	AH7
AP34	VSS22	VSS102	AH4
AP31	VSS23	VSS103	AH3
AP28	VSS24	VSS104	AG9
AP25	VSS25	VSS105	AG8
AP22	VSS26	VSS106	AG4
AP19	VSS27	VSS107	AF6
AP16	VSS28	VSS108	AF5
AP13	VSS29	VSS109	AF2
AP10	VSS30	VSS110	AE35
AP7	VSS31	VSS111	AE34
AP4	VSS32	VSS112	AE33
AP1	VSS33	VSS113	AE31
AN30	VSS34	VSS114	AE29
AN27	VSS35	VSS115	AE28
AN25	VSS36	VSS116	AE27
AN22	VSS37	VSS117	AE26
AN19	VSS38	VSS118	AE25
AN16	VSS39	VSS119	AE24
AN13	VSS40	VSS120	AE23
AN10	VSS41	VSS121	AE22
AN7	VSS42	VSS122	AE21
AN4	VSS43	VSS123	AE20
AN29	VSS44	VSS124	AE19
AN26	VSS45	VSS125	AE18
AN23	VSS46	VSS126	AE17
AN20	VSS47	VSS127	AE16
AN17	VSS48	VSS128	AE15
AN14	VSS49	VSS129	AE14
AN11	VSS50	VSS130	AE13
AM7	VSS51	VSS131	AE12
AM4	VSS52	VSS132	AE11
AM3	VSS53	VSS133	AE10
AM2	VSS54	VSS134	AE9
AM1	VSS55	VSS135	AE8
AL34	VSS56	VSS136	AE7
AL31	VSS57	VSS137	AE6
AL28	VSS58	VSS138	AE5
AL25	VSS59	VSS139	AE4
AL22	VSS60	VSS140	AE3
AL19	VSS61	VSS141	AE2
AL16	VSS62	VSS142	AE1
AL13	VSS63	VSS143	Y3
AL10	VSS64	VSS144	Y2
AL7	VSS65	VSS145	W35
AL4	VSS66	VSS146	W34
AL2	VSS67	VSS147	W33
AK33	VSS68	VSS148	W32
AK30	VSS69	VSS149	W31
AK27	VSS70	VSS150	W30
AK25	VSS71	VSS151	W29
AK22	VSS72	VSS152	W28
AK19	VSS73	VSS153	W27
AK16	VSS74	VSS154	W26
AK13	VSS75	VSS155	U9
AK10	VSS76	VSS156	U8
AK7	VSS77	VSS157	U6
AK4	VSS78	VSS158	U5
AJ25	VSS79	VSS159	U3
	VSS80	VSS160	U2

VSS

VSS

T35	VSS161	VSS234	F22
T34	VSS162	VSS235	F19
T32	VSS163	VSS236	E30
T31	VSS164	VSS237	E27
T30	VSS165	VSS238	E24
T29	VSS166	VSS239	E21
T28	VSS167	VSS240	E15
T27	VSS168	VSS241	E13
T26	VSS169	VSS242	E10
T25	VSS170	VSS243	E9
T24	VSS171	VSS244	E8
T23	VSS172	VSS245	E7
T22	VSS173	VSS246	E6
T21	VSS174	VSS247	E5
T20	VSS175	VSS248	E4
T19	VSS176	VSS249	E3
T18	VSS177	VSS250	E2
T17	VSS178	VSS251	E1
T16	VSS179	VSS252	D35
T15	VSS180	VSS253	D32
T14	VSS181	VSS254	D29
T13	VSS182	VSS255	D26
T12	VSS183	VSS256	D20
T11	VSS184	VSS257	D17
T10	VSS185	VSS258	C34
T9	VSS186	VSS259	C31
T8	VSS187	VSS260	C28
T7	VSS188	VSS261	C25
T6	VSS189	VSS262	C23
T5	VSS190	VSS263	C10
T4	VSS191	VSS264	C1
T3	VSS192	VSS265	B22
T2	VSS193	VSS266	B19
T1	VSS194	VSS267	B17
	VSS195	VSS268	B15
	VSS196	VSS269	B13
	VSS197	VSS270	B11
	VSS198	VSS271	B9
	VSS199	VSS272	B8
	VSS200	VSS273	B7
	VSS201	VSS274	B6
	VSS202	VSS275	B5
	VSS203	VSS276	B4
	VSS204	VSS277	B3
	VSS205	VSS278	B2
	VSS206	VSS279	B1
	VSS207	VSS280	A29
	VSS208	VSS281	A26
	VSS209	VSS282	A23
	VSS210	VSS283	A20
	VSS211	VSS284	A17
	VSS212	VSS285	A14
	VSS213		
	VSS214		
	VSS215		
	VSS216		
	VSS217		
	VSS218		
	VSS219		
	VSS220		
	VSS221		
	VSS222		
	VSS223		
	VSS224		
	VSS225		
	VSS226		
	VSS227		
	VSS228		
	VSS229		
	VSS230		
	VSS231		
	VSS232		
	VSS233		



CFG Straps for Processor

PEG STATIC LANE REVERSAL - CFG2 IS FOR THE 16X	
CFG2	11 : (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 0 : 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)	
MODULE CODE		LAST EDIT				
August 15, 2011 11:04:51 AM						PAGE 11 OF 51

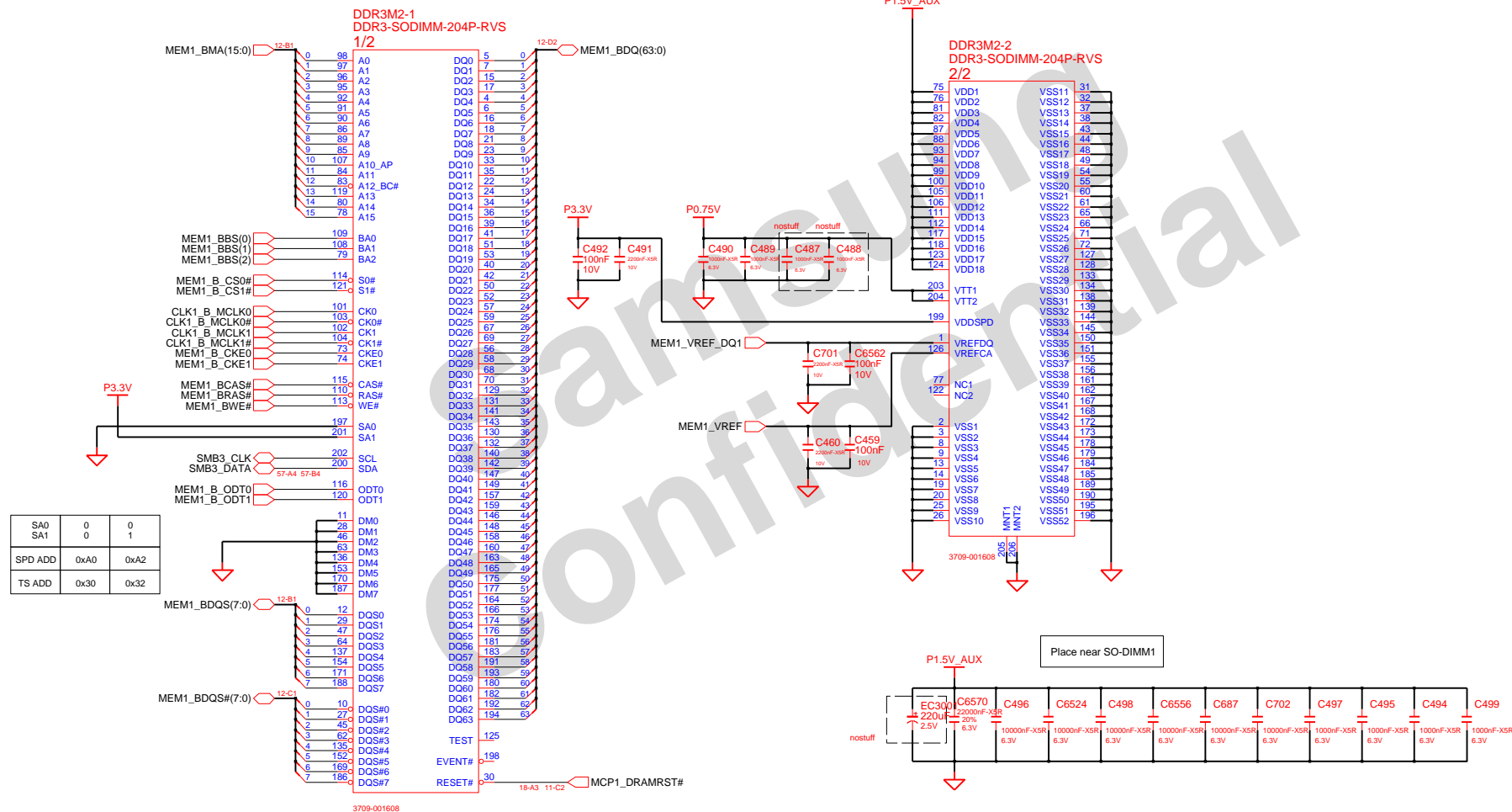
SO-DIMM#1 : 1st SO-DIMM

DDR SO-DIMM #1

Height : 4.0 mm (REVERSE)

P/N : 3709-001654 (Foxconn)

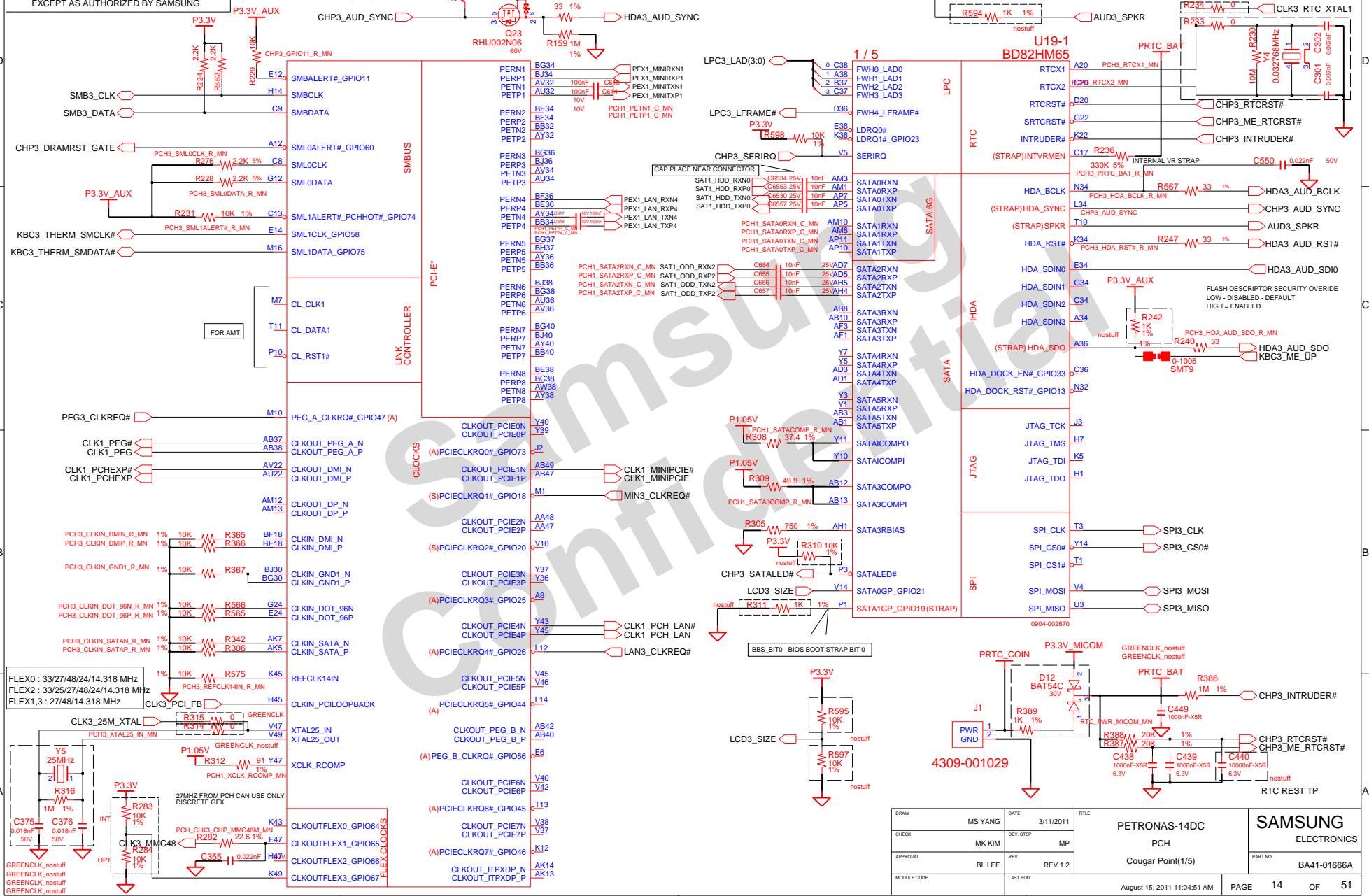
P/N : 3709-001608 (Concraft)



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 ENT				
				August 15, 2011 11:04:51 AM	PAGE	13 OF 51

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NO REBOOT STRAP



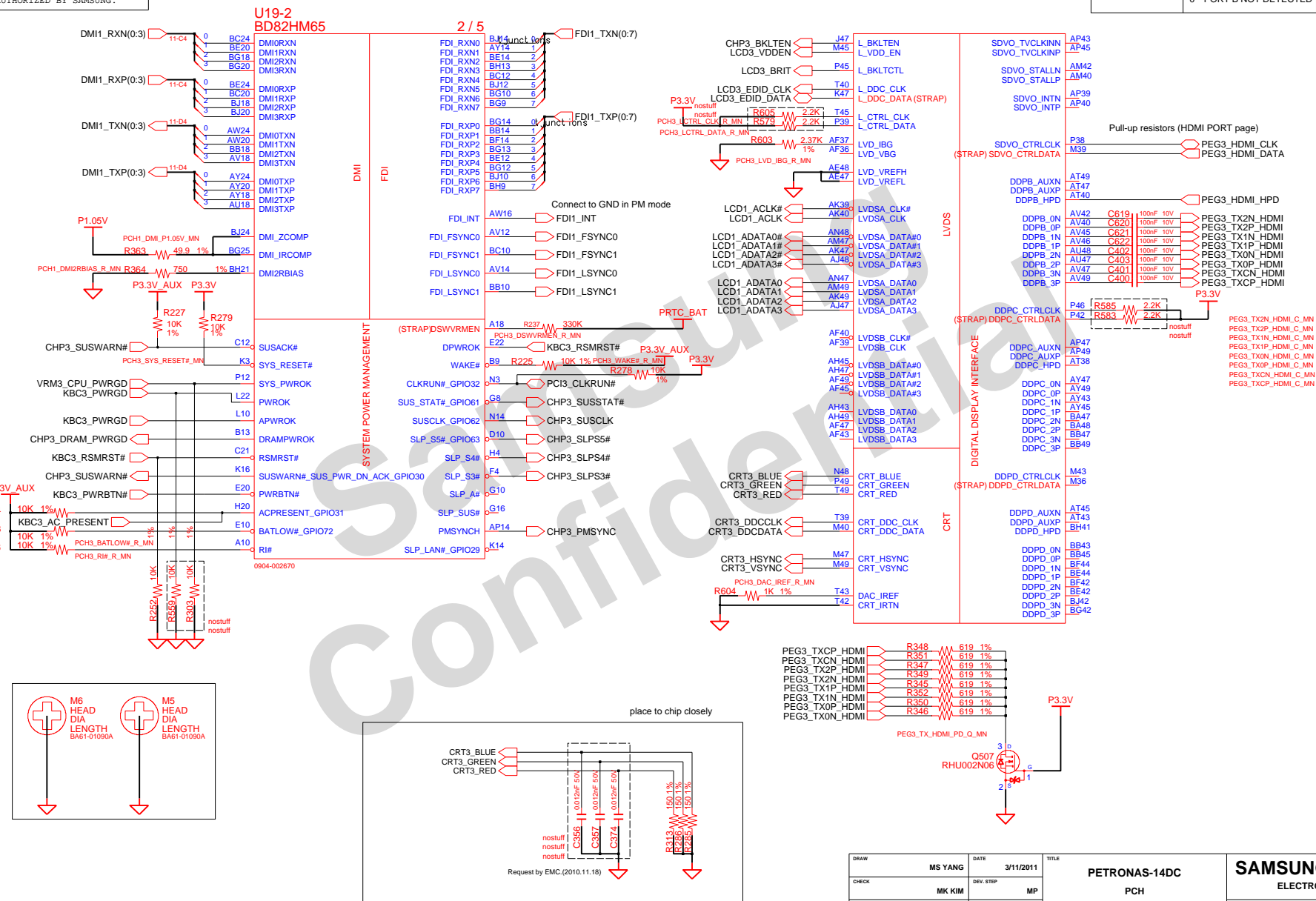
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CHECK	MK KIM	DEV. STEP	MP		PCH
APPROVAL	BL LEE	REV	REV 1.2		Cougar Point(1/5)
MODULE CODE		LAST ENT			
August 15, 2011 11:04:51 AM				PAGE	14 OF 51

SAMSUNG
ELECTRONICS

PART NO.
BA41-01666A

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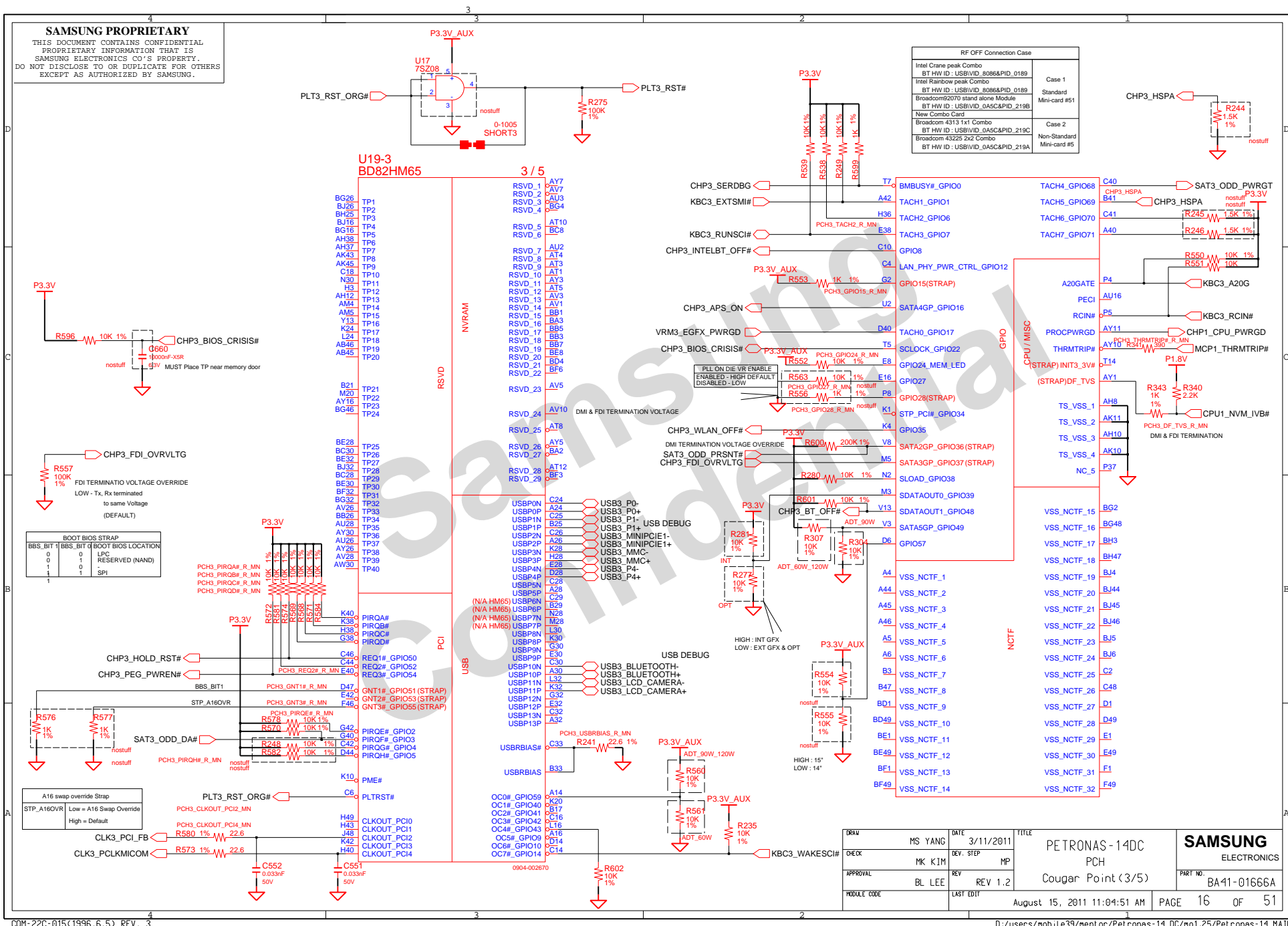
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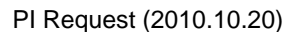
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APPROVAL	BL LEE	REV	REV 1.2		Cougar Point(2/5)
MODULE CODE		LAST EDIT			

August 15, 2011 11:04:51 AM	PAGE	15	OF	51
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COM-22C-015(1996.6.5) REV. 3

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U19-5
BD82HM65

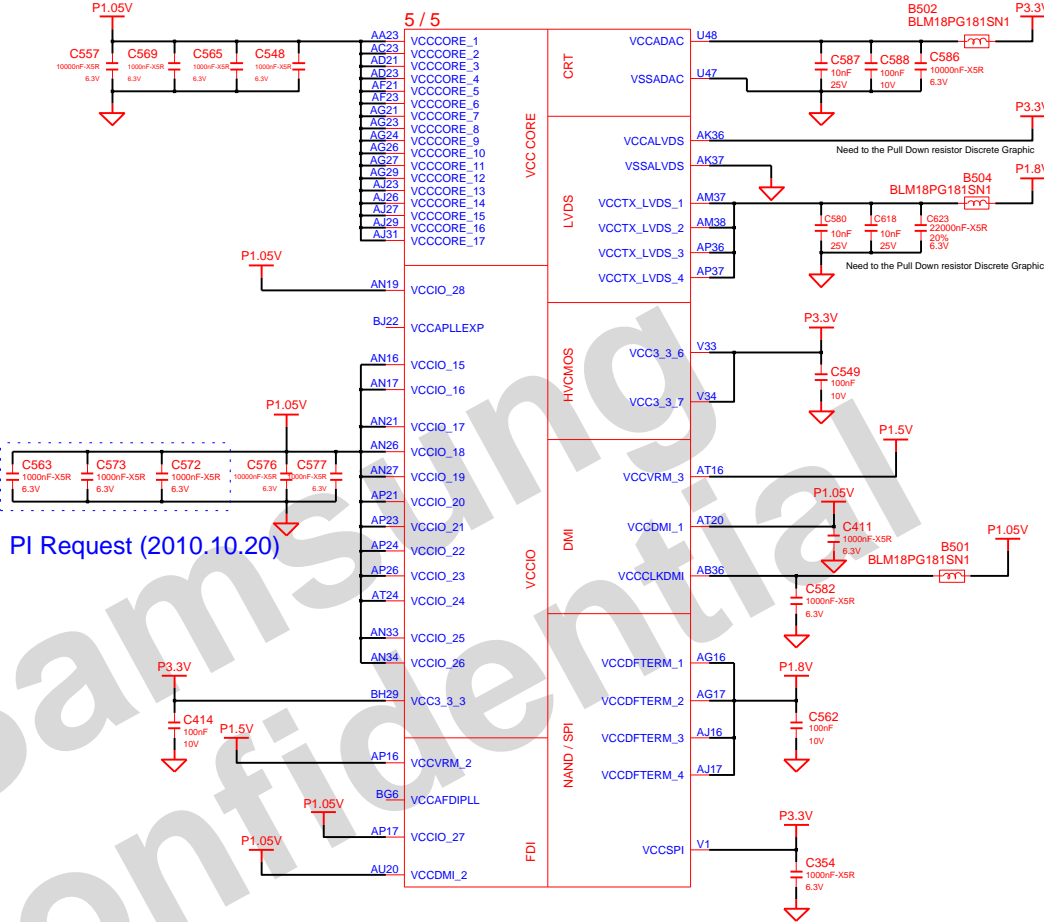
This power share with thermal sensor

5 / 5

AY4	VSS159	VSS259	H46
AY42	VSS160	VSS260	K18
AY46	VSS161	VSS261	K26
AY8	VSS162	VSS262	K30
B11	VSS163	VSS263	K46
B15	VSS164	VSS264	K7
B19	VSS165	VSS265	L18
B23	VSS166	VSS266	L2
B27	VSS167	VSS267	L20
B31	VSS168	VSS268	L26
B35	VSS169	VSS269	L28
B39	VSS170	VSS270	L36
B7	VSS171	VSS271	L48
F45	VSS172	VSS272	M12
BB12	VSS173	VSS273	P16
BB16	VSS174	VSS274	M18
BB20	VSS175	VSS275	M22
BB22	VSS176	VSS276	M24
BB24	VSS177	VSS277	M30
BB28	VSS178	VSS278	M32
BB30	VSS179	VSS279	M34
BB38	VSS180	VSS280	M36
BB4	VSS181	VSS281	M4
BB46	VSS182	VSS282	M42
BC14	VSS183	VSS283	M46
BC18	VSS184	VSS284	N18
BC2	VSS185	VSS285	P30
BC22	VSS186	VSS286	N47
BC26	VSS187	VSS287	P11
BC32	VSS188	VSS288	P16
BC34	VSS189	VSS289	T33
BC36	VSS190	VSS290	P40
BC42	VSS191	VSS291	P47
BC48	VSS192	VSS292	P47
BD46	VSS193	VSS293	P7
BD5	VSS194	VSS294	R2
BE22	VSS195	VSS295	R48
BE26	VSS196	VSS296	T12
BE40	VSS197	VSS297	T31
BF10	VSS198	VSS298	T37
BF12	VSS199	VSS299	T4
BF16	VSS200	VSS300	W34
BF20	VSS201	VSS301	T46
BF22	VSS202	VSS302	T47
BF24	VSS203	VSS303	T8
BF26	VSS204	VSS304	V17
BF28	VSS205	VSS305	V26
BF3	VSS206	VSS306	V27
BF30	VSS207	VSS307	V29
BF38	VSS208	VSS308	V36
BF40	VSS209	VSS309	V37
BF9	VSS210	VSS310	V38
BG17	VSS211	VSS311	V39
BG21	VSS212	VSS312	V43
BG23	VSS213	VSS313	V7
BG33	VSS214	VSS314	W17
BG44	VSS215	VSS315	W19
B9	VSS216	VSS316	W2
BH11	VSS217	VSS317	W27
BH15	VSS218	VSS318	W48
BH17	VSS219	VSS319	Y12
BH19	VSS220	VSS320	Y38
H10	VSS221	VSS321	Y4
BH27	VSS222	VSS322	Y42
BH31	VSS223	VSS323	Y46
BH33	VSS224	VSS324	Y8
BH36	VSS225	VSS325	BG29
BH43	VSS226	VSS326	N24
BH47	VSS227	VSS327	AJ3
D3	VSS228	VSS328	AD47
D12	VSS229	VSS329	B43
D16	VSS230	VSS330	BE10
D18	VSS231	VSS331	BG41
D22	VSS232	VSS332	G14
D24	VSS233	VSS333	H16
D26	VSS234	VSS334	T36
D30	VSS235	VSS335	BG22
D32	VSS236	VSS336	BG24
D34	VSS237	VSS337	C22
D36	VSS238	VSS338	AP13
D42	VSS239	VSS339	M14
D8	VSS240	VSS340	AP3
E18	VSS241	VSS341	AP1
E26	VSS242	VSS342	BE18
E16	VSS243	VSS343	BC16
G20	VSS244	VSS344	BG28
G26	VSS245	VSS345	BJ28
G28	VSS246	VSS346	
G36	VSS247	VSS347	
G48	VSS248	VSS348	
H12	VSS249	VSS349	
H18	VSS250	VSS350	
H22	VSS251	VSS351	
H26	VSS252	VSS352	
H30	VSS253		
H32	VSS254		
H34	VSS255		
H36	VSS256		
H38	VSS257		
H40	VSS258		

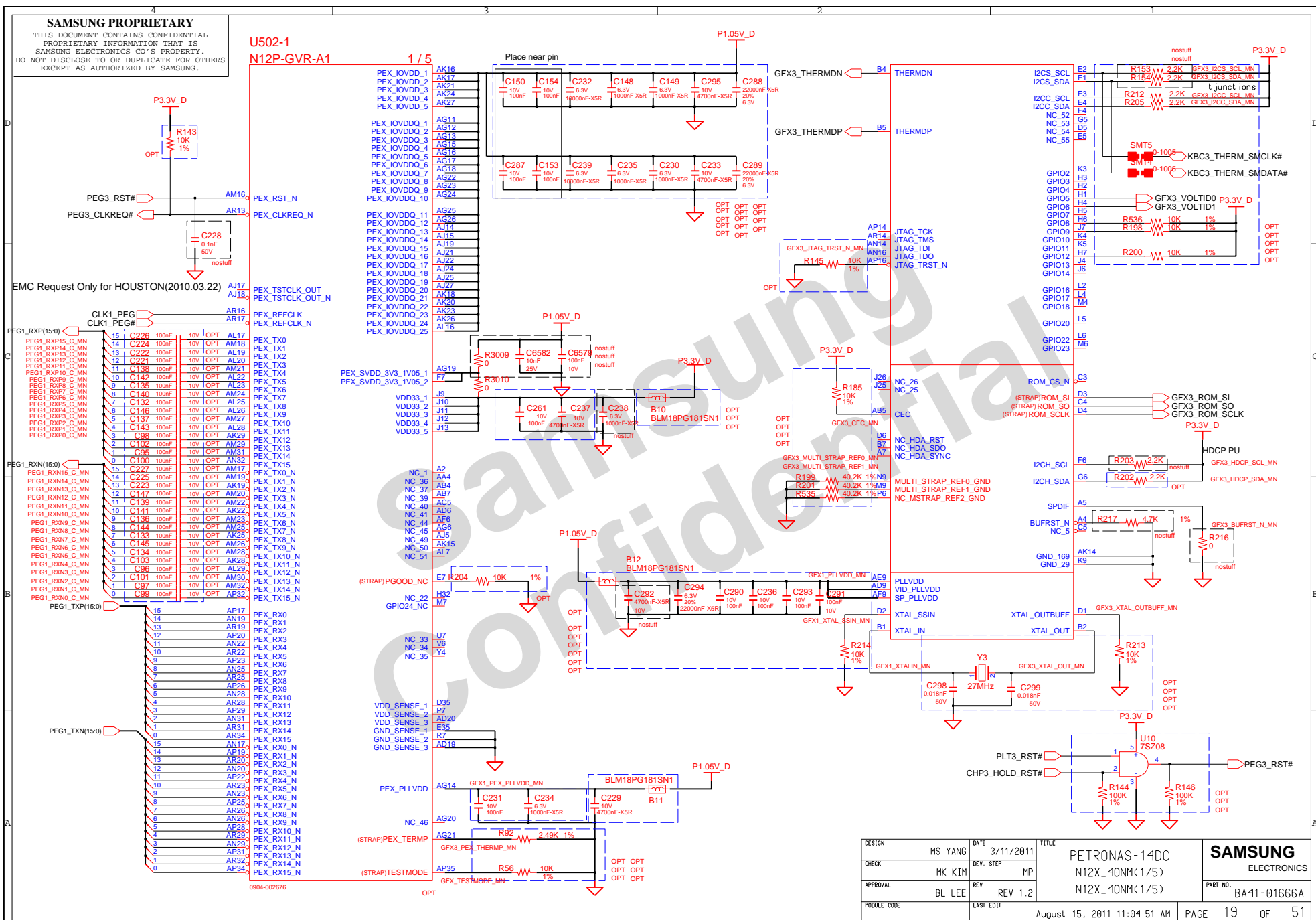
0904-002670

PI Request (2010.10.20)



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APPROVAL	BL LEE	REV	REV 1.2		Cougar Point(5/5)	PART NO.
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	18	BA41-01666A
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DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC N12X-40NM(2/5) N12X-40NM(2/5)	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	LAST EDIT		August 15, 2011 11:04:51 AM		PAGE	20 OF 51

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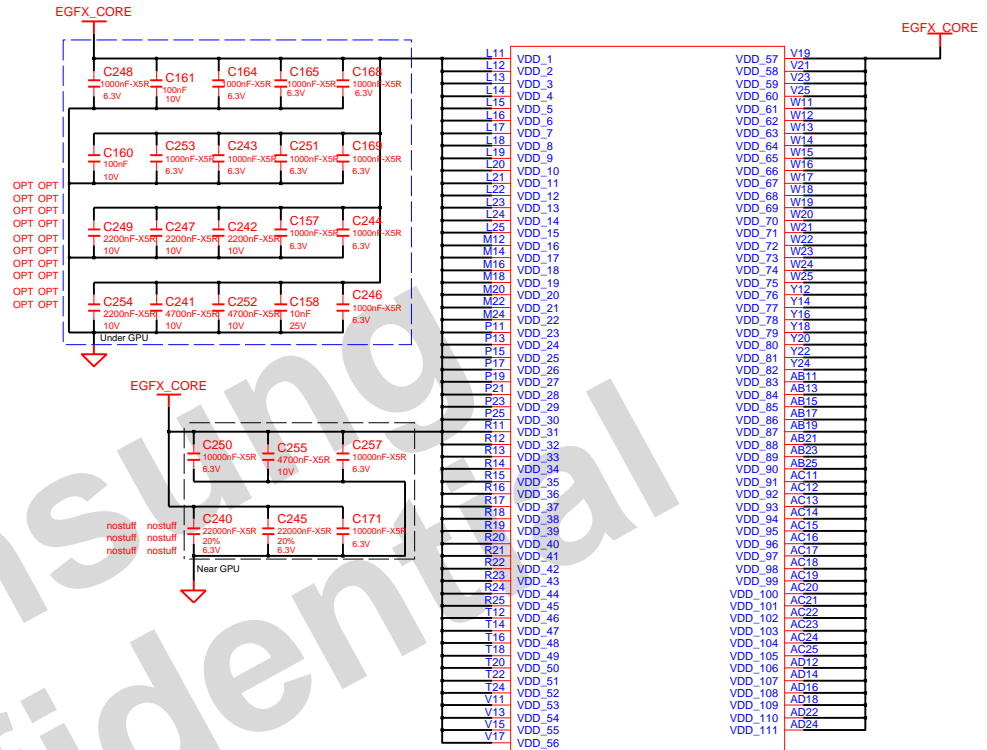
U502-3
N12P-GVR-A1

3/5

B3	GND_1	GND_97	V16
B6	GND_2	GND_98	V18
B9	GND_3	GND_99	V20
B12	GND_4	GND_100	V22
B15	GND_5	GND_101	V31
B21	GND_6	GND_102	V33
B24	GND_7	GND_103	Y11
B27	GND_8	GND_104	Y13
B30	GND_9	GND_105	Y15
B33	GND_10	GND_106	Y17
C2	GND_11	GND_107	Y19
C34	GND_12	GND_108	Y21
E6	GND_13	GND_109	Y23
E9	GND_14	GND_110	Y25
F12	GND_15	GND_111	AA2
E15	GND_16	GND_112	AA5
E18	GND_17	GND_113	AA11
E24	GND_18	GND_114	AA12
E27	GND_19	GND_115	AA13
E30	GND_20	GND_116	AA14
F2	GND_21	GND_117	AA15
F5	GND_22	GND_118	AA16
F31	GND_23	GND_119	AA17
F34	GND_24	GND_120	AA18
J5	GND_25	GND_121	AA19
J31	GND_26	GND_122	AA20
J34	GND_27	GND_123	AA22
L9	GND_28	GND_124	AA23
M2	GND_30	GND_125	AA24
M5	GND_31	GND_126	AA25
M11	GND_32	GND_127	AA34
M13	GND_33	GND_128	AB12
M15	GND_34	GND_129	AB14
M17	GND_35	GND_130	AB16
M19	GND_36	GND_131	AB18
M21	GND_37	GND_132	AB20
M23	GND_38	GND_133	AB22
M25	GND_39	GND_134	AB24
M31	GND_40	GND_135	AC9
M34	GND_41	GND_136	AD2
N11	GND_42	GND_137	AD5
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N13	GND_44	GND_139	AD13
N14	GND_45	GND_140	AD15
N15	GND_46	GND_141	AD17
N16	GND_47	GND_142	AD21
N17	GND_48	GND_143	AD23
N18	GND_49	GND_144	AD25
N19	GND_50	GND_145	AD31
N20	GND_51	GND_146	AD33
N21	GND_52	GND_147	AE11
N22	GND_53	GND_148	AE12
N23	GND_54	GND_149	AE13
N24	GND_55	GND_150	AE15
N25	GND_56	GND_151	AE16
P12	GND_57	GND_152	AE17
P14	GND_58	GND_153	AE18
P16	GND_59	GND_154	AE19
P18	GND_60	GND_155	AE20
P20	GND_61	GND_156	AE21
P22	GND_62	GND_157	AE22
P24	GND_63	GND_158	AE23
R2	GND_64	GND_159	AE24
R5	GND_65	GND_160	AG2
R31	GND_66	GND_161	AG5
R34	GND_67	GND_162	AG31
T11	GND_68	GND_163	AG34
T13	GND_69	GND_164	AK2
T15	GND_70	GND_165	AK5
T17	GND_71	GND_166	AK31
T19	GND_72	GND_167	AK34
T21	GND_73	GND_168	AL6
T23	GND_74	GND_169	AL9
T25	GND_75	GND_170	AL12
U11	GND_76	GND_171	AL15
U12	GND_77	GND_172	AL18
U13	GND_78	GND_173	AL21
U14	GND_79	GND_174	AL24
U15	GND_80	GND_175	AL27
U16	GND_81	GND_176	AL30
U17	GND_82	GND_177	AN2
U18	GND_83	GND_178	AN34
U19	GND_84	GND_179	AP3
U20	GND_85	GND_180	AP6
U21	GND_86	GND_181	AP12
U22	GND_87	GND_182	AP15
U23	GND_88	GND_183	AP18
U24	GND_89	GND_184	AP21
U25	GND_90	GND_185	AP24
V2	GND_91	GND_186	AP27
V5	GND_92	GND_187	AP30
V9	GND_93	GND_188	AP33
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		GND_192	
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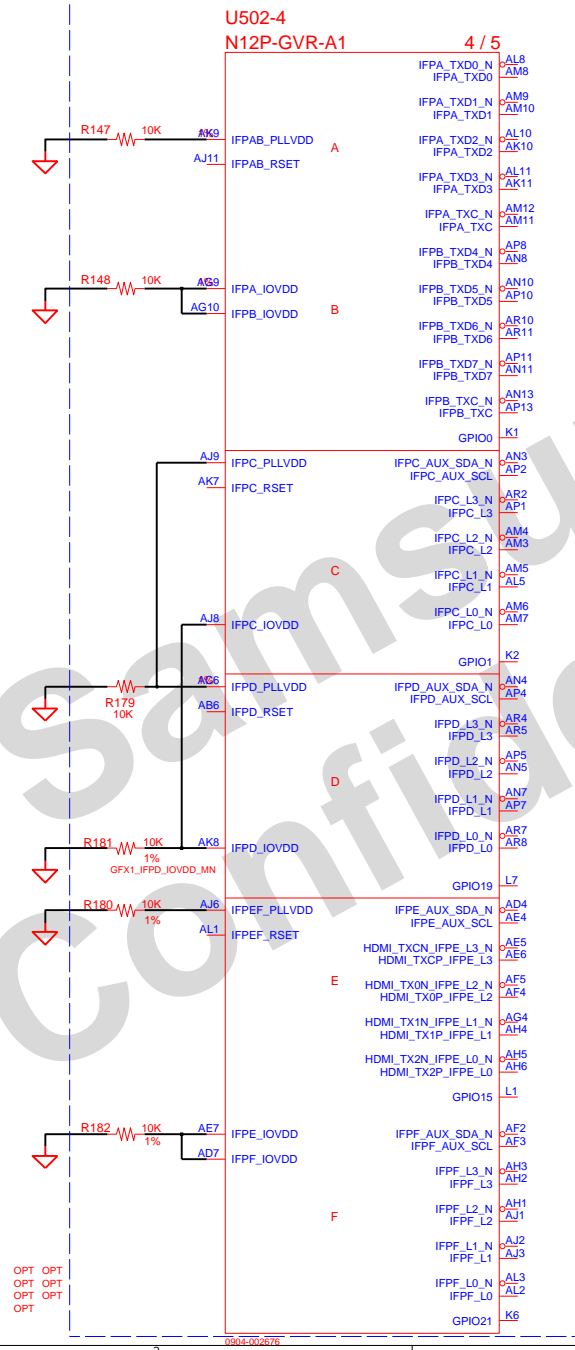
0904-002676

OPT



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS PART NO. BA41-01666A
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APPROVAL	BL LEE	REV	REV 1.2		N12X_40NM(3/5)	
MODULE CODE		LAST EDIT		August 15, 2011 11:04:51 AM		
PAGE 21 OF 51						

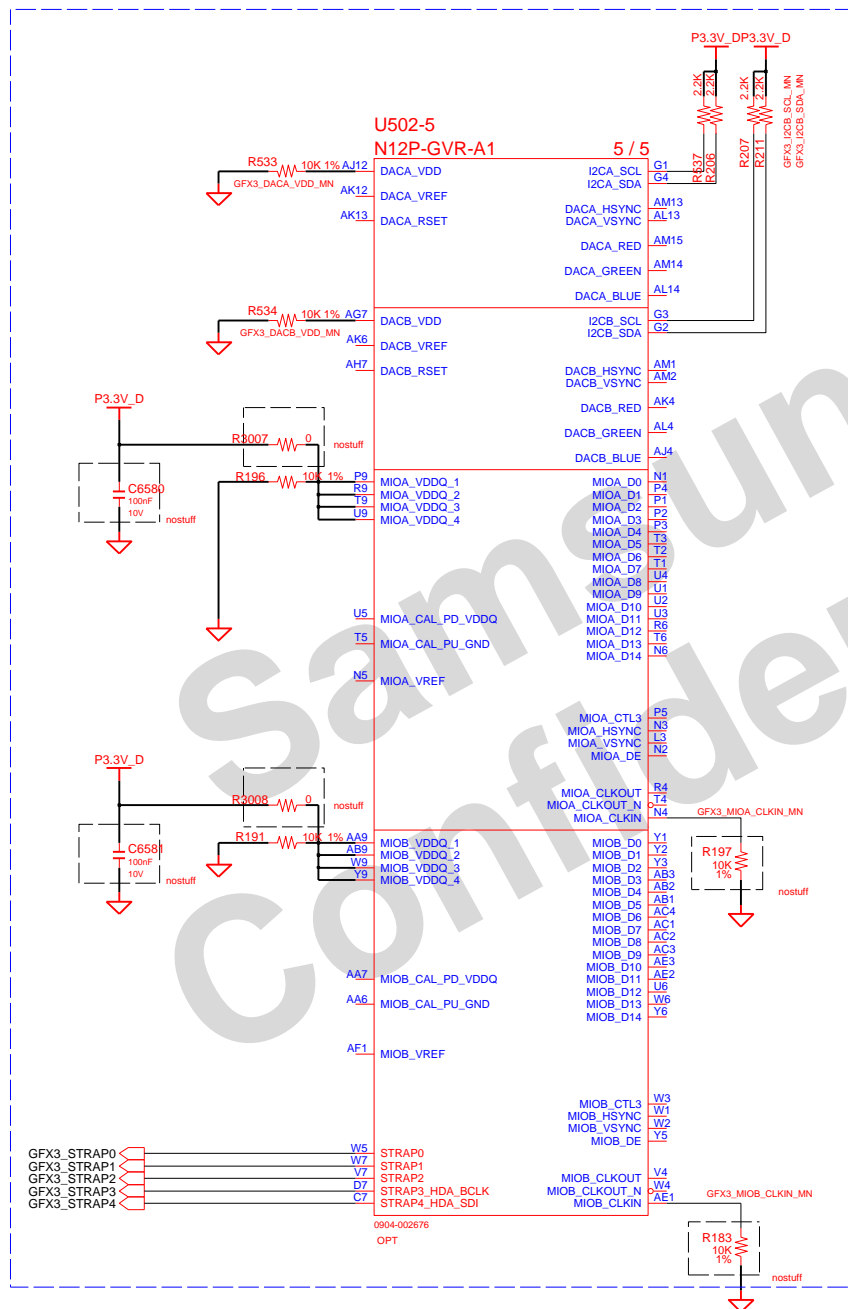
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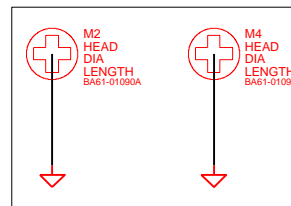
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APPROVAL	BL LEE	REV	REV 1.2		N12X_40NM(4/5)	
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	22 OF 51	

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GPU Thermal

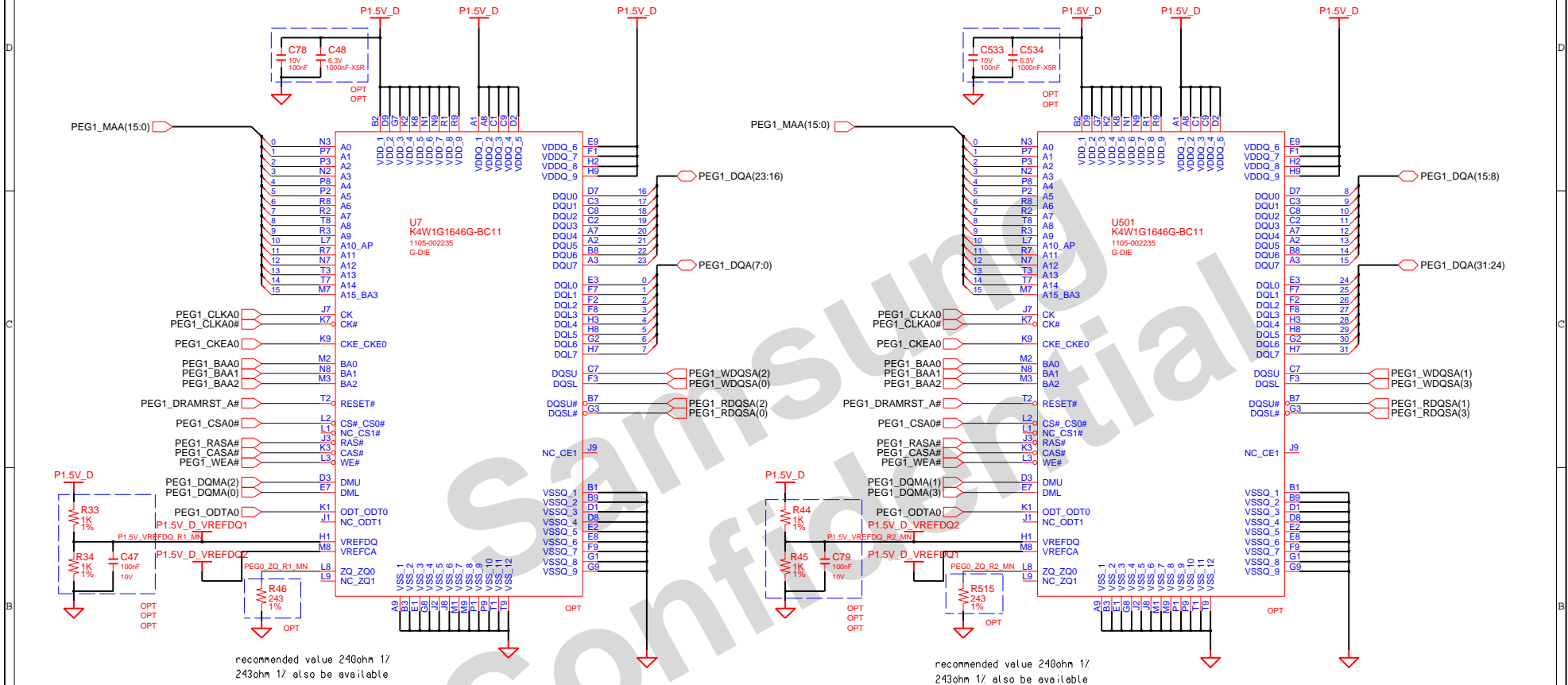


INT GFX and OPT GFX model need.

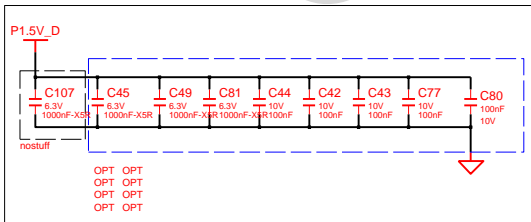
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APPROVAL	BL LEE	REV	REV 1.2		N12X_40NM(5/5)	PART NO.
MODULE CODE		LAST EDIT				BA41-01666A
				August 15, 2011 11:04:51 AM	PAGE	23 OF 51

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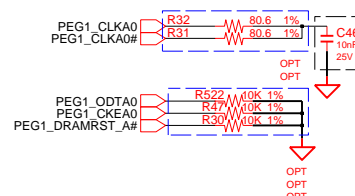
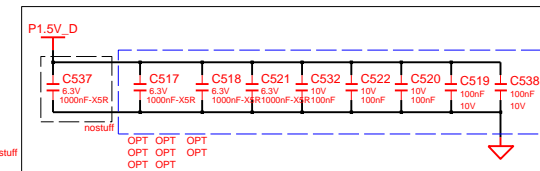
A-Channel #0 (E-mode)



Place near to VDDQ



Place near to VDDQ

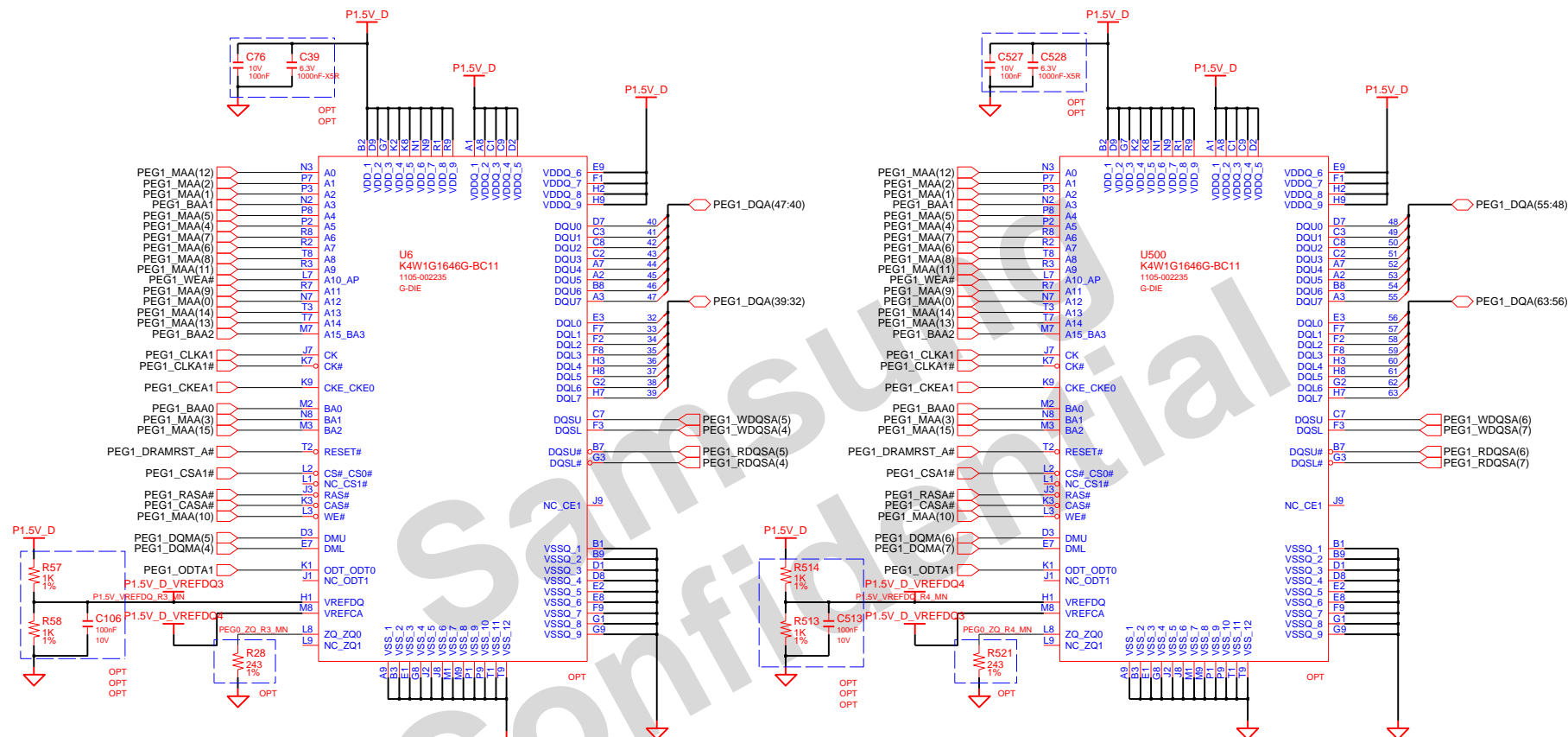


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CHECK	MK KIM	DEV. STEP	MP		GRAPHIC_MEM A#0	
APPROVAL	BL LEE	REV	REV 1.2		GRAPHIC_MEM A#0	PART NO. BA41-01666A
MODULE CODE		LAST EDIT				
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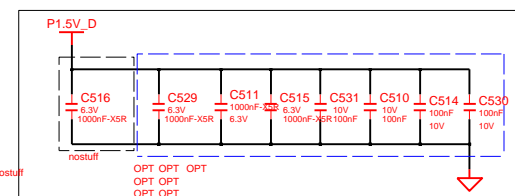
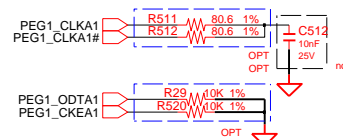
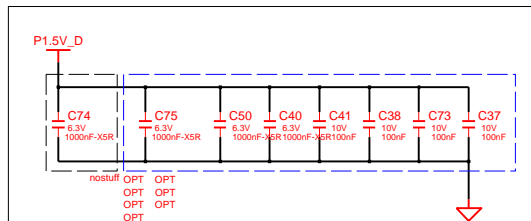
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A-Channel #1 (E-mode)



Place near to VDDQ

Place near to VDDQ



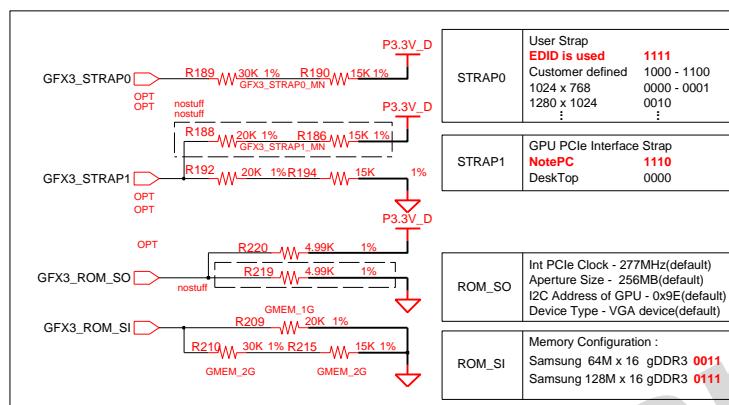
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APPROVAL	BL LEE	REV	REV 1.2	GRAPHIC_MEM A#1	PART NO.	BA41-01666A
MODULE CODE		LAST EDIT				
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SAMSUNG PROPRIETARY

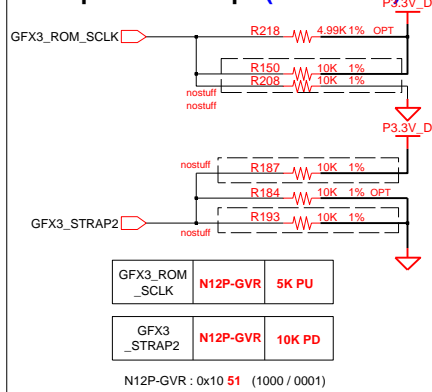
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N12x_40nm STRAP

Function Straps



Chip Select Straps (N12P-GV1)



Only for GV

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

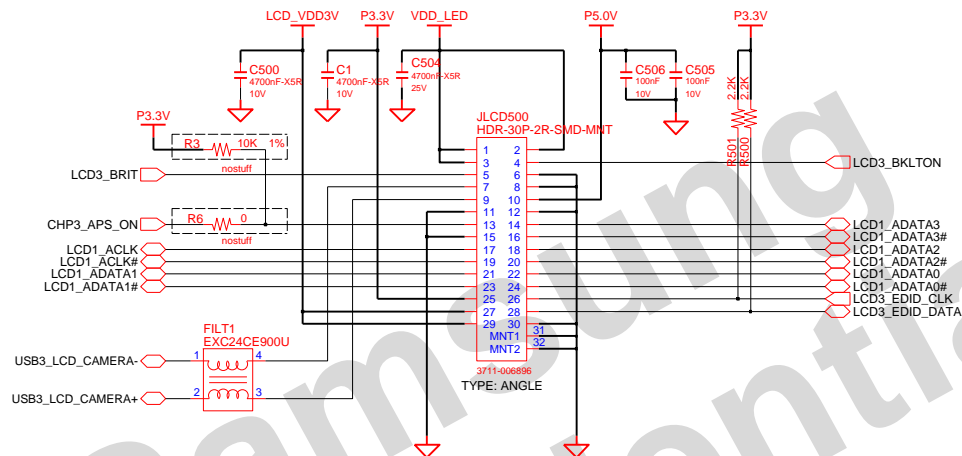
DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP		GRAPHIC_MEM C#0	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2		GRAPHIC_MEM C#0	PART NO.
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	26	BA41-01666A
				OF	51	

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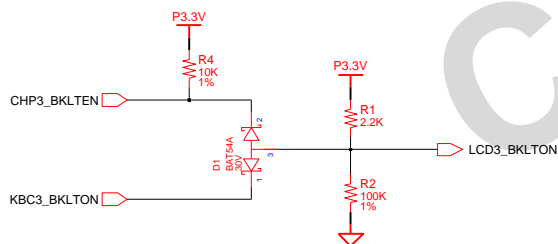
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LVDS LOGIC

1Ch. LCD Connector + CAMERA

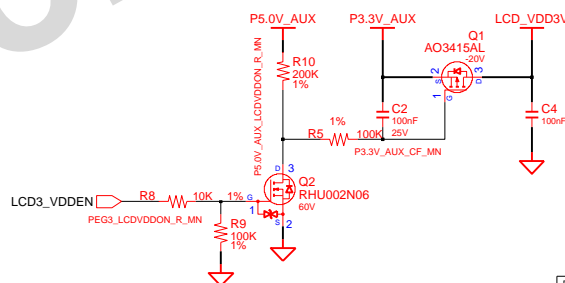


Backlight On

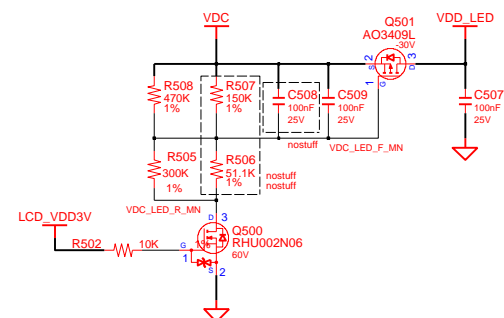


LCD Power

EBL Purpose



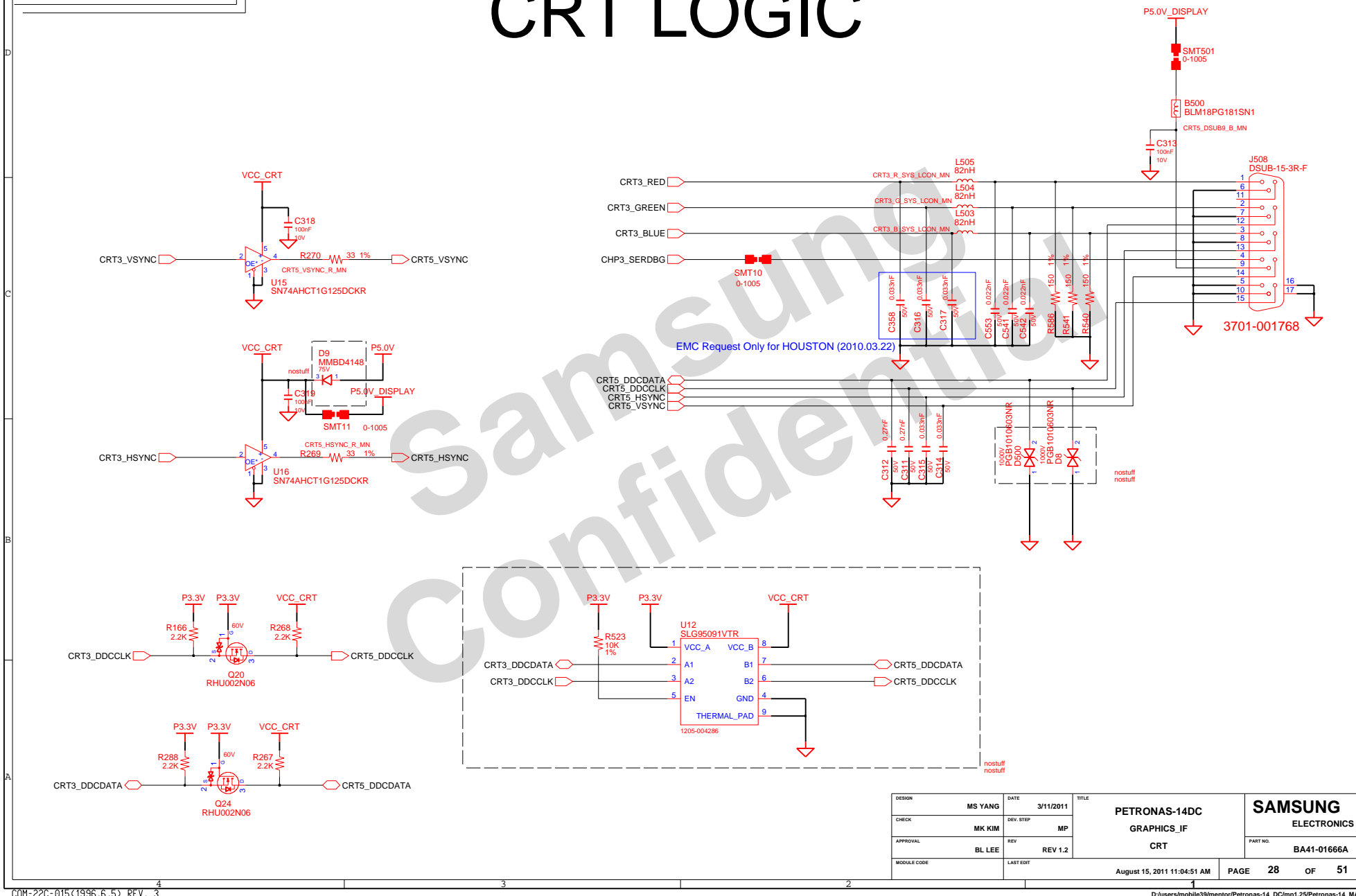
LED Power



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP	GRAPHICS_IF		
APPROVAL	BL LEE	REV	REV 1.2	LVDS		
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	27	OF 51

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CRT LOGIC



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

(EMC request at 2010.04.15)

After checking, Veyron_R don't need to use CMC for each signal.

(EMC request at 2010.12.03)

PEG3_HDMI_CLK

P3.3V

R609 2.2K

Q506 RH-U002N06 60V

PEG5_HDMI_CLK

N10x/N11x_40nm HDMI/DP/LVDS support only 3.3V voltage tolerance

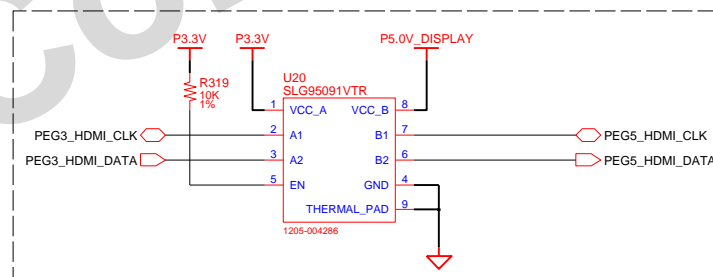
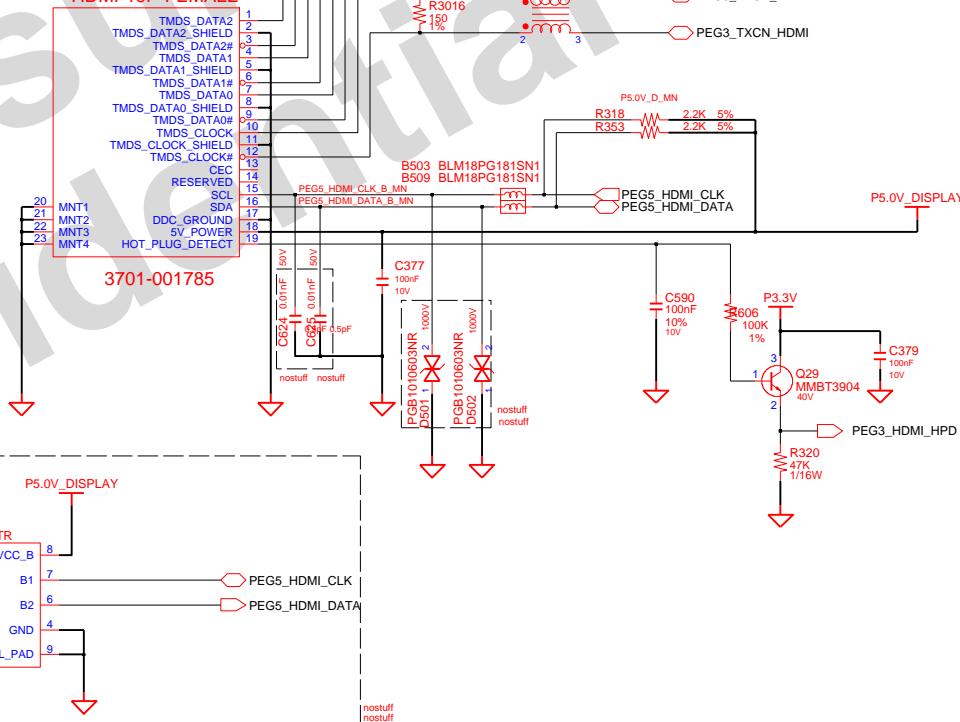
PEG3 HDMI DATA

P3.3V

R608 2.2K

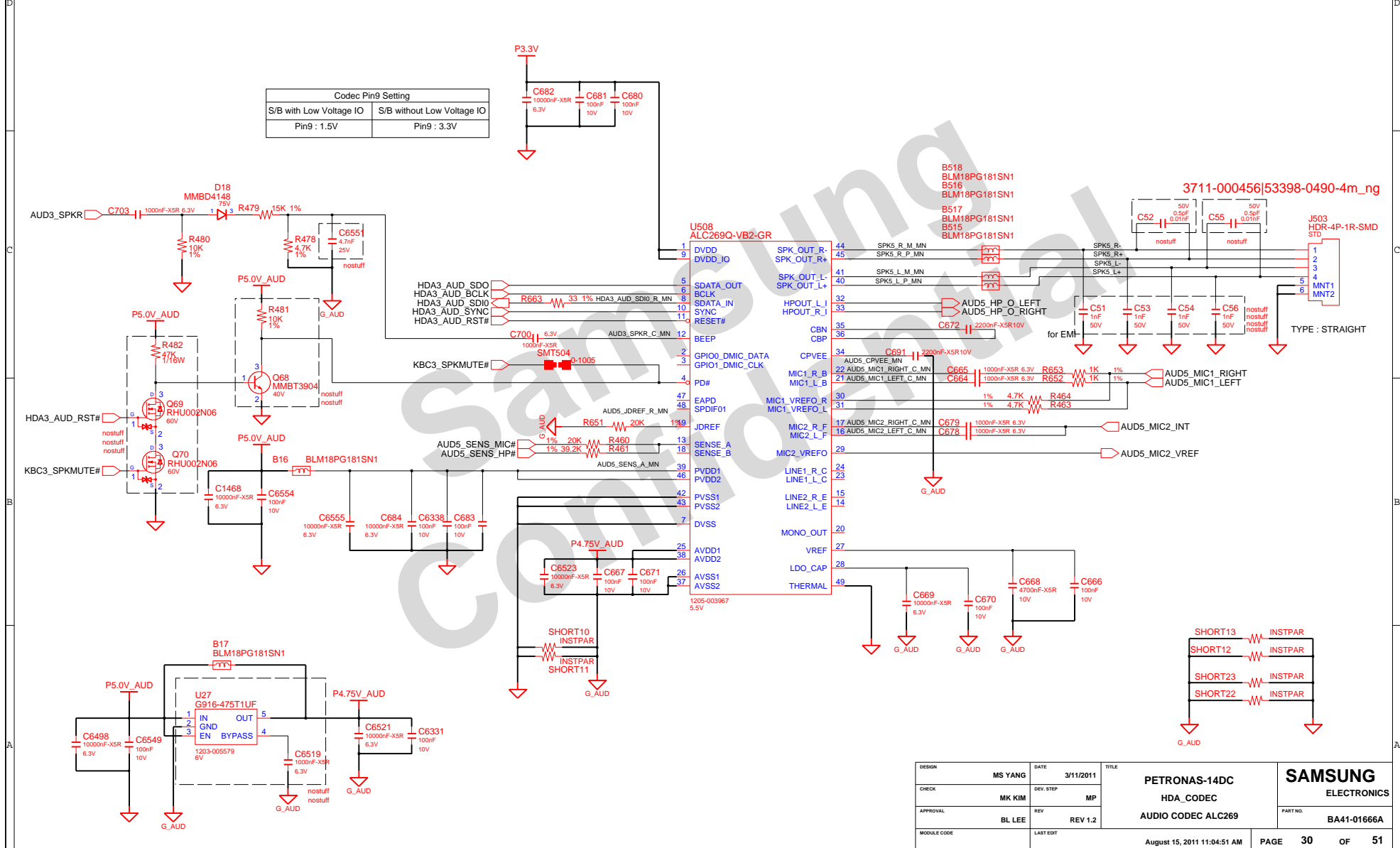
U504 RH-U002N06 60V

PEG5 HDMI DATA



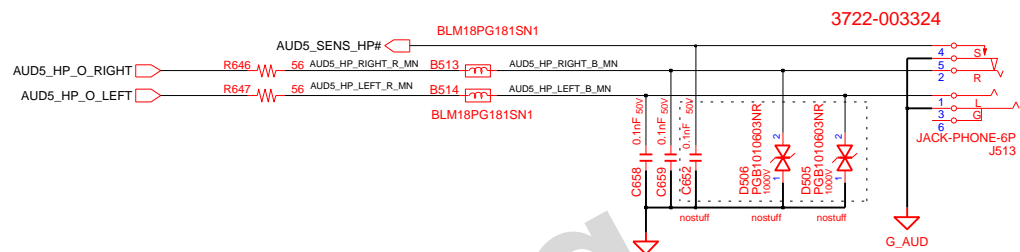
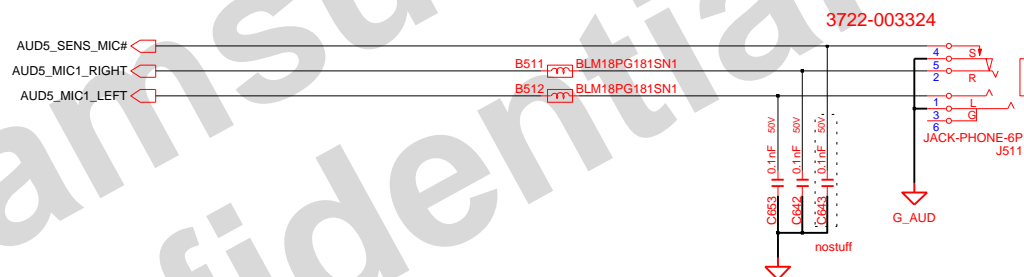
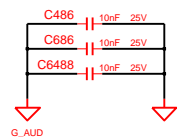
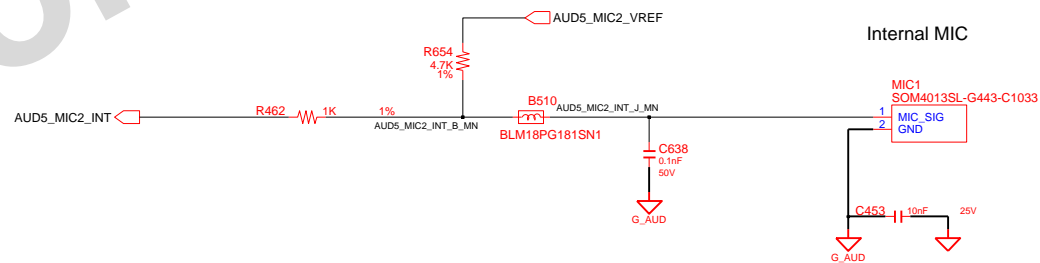
DESIGN	MS YANG	DATE	3/11/2011	PETRONAS-14DC GRAPHICS_IF HDMI	SAMSUNG ELECTRONICS	
CHECK	MK KIM	DEV. STEP	MP		PART NO.	BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	LAST EDIT				August 15, 2011 11:04:51 AM	PAGE 29 OF 51

HD AUDIO



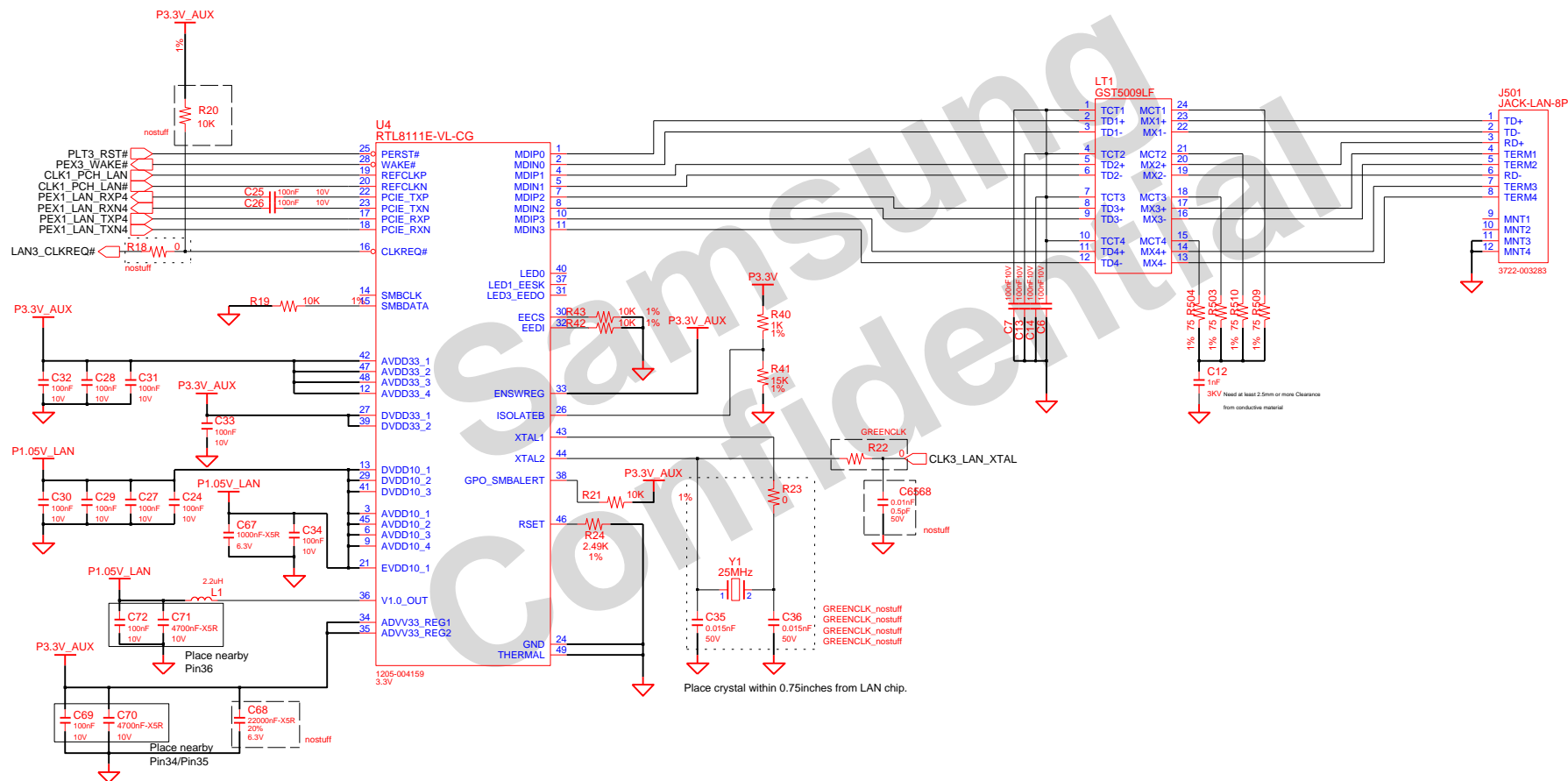
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HEADPHONE**MIC JACK****Internal MIC**

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

Reatek RTL8111E



DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC
CHECK	MK KIM	DEV. STEP	MP		LAN
APPROVAL	BL LEE	REV	REV 1.2		LAN_Reatek_RTL8111E
MODULE CODE		LAST EDIT			
				August 15, 2011 11:04:51 AM	PAGE 32 OF 51
				SAMSUNG ELECTRONICS	
				PART NO. BA41-01666A	

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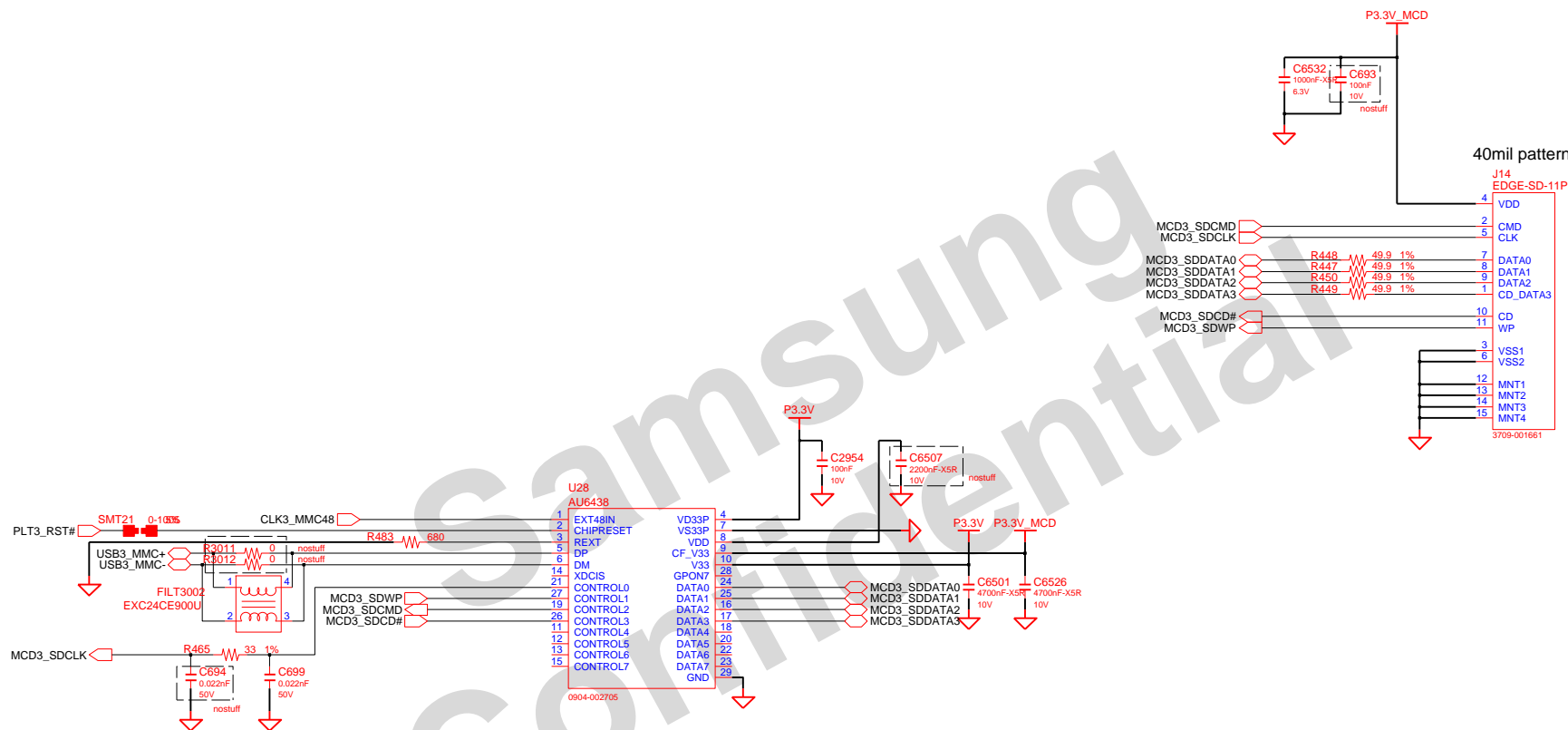
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4 IN 1 CARD

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

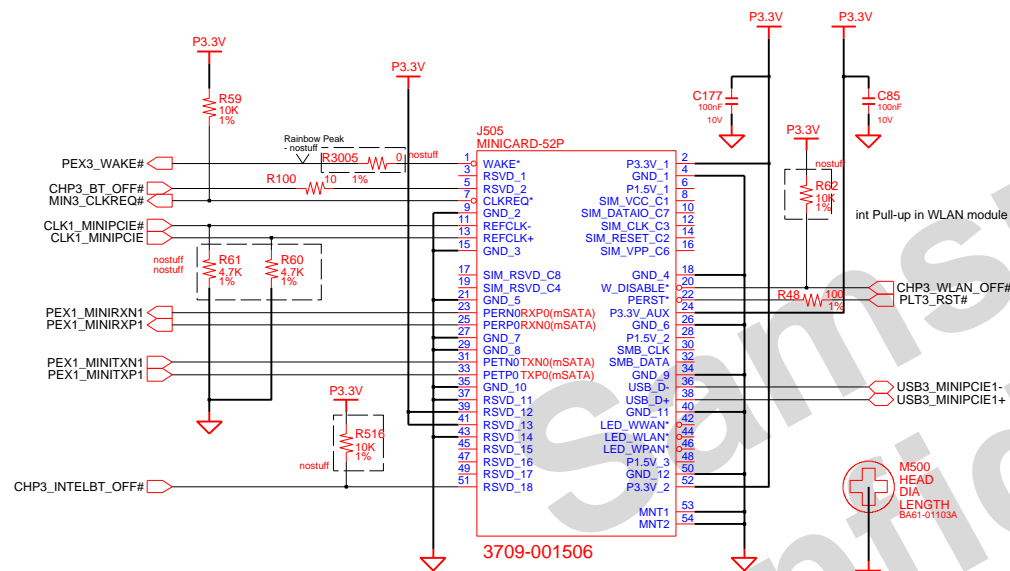


DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC MULTICARD 4 IN 1 CARD(AU6438)	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	33	OF 51

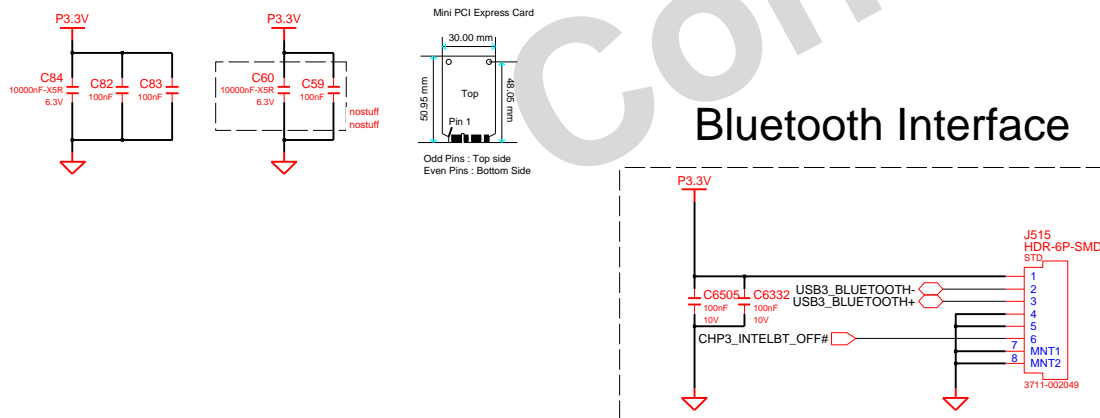
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WLAN, 7mm



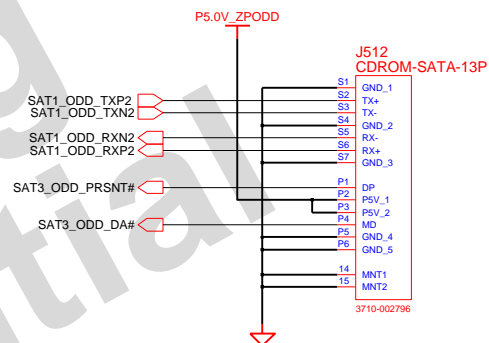
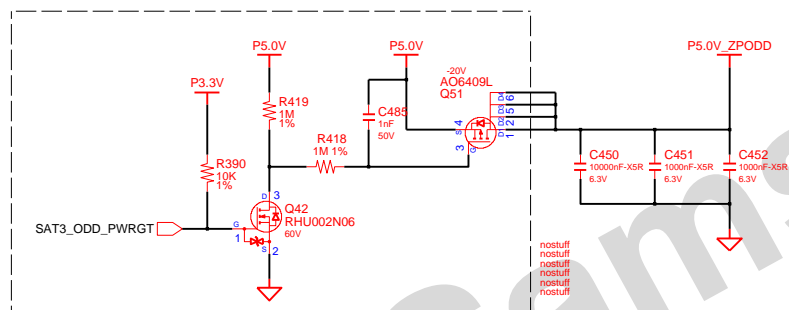
Bluetooth Interface



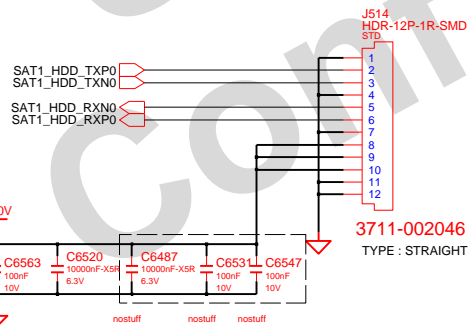
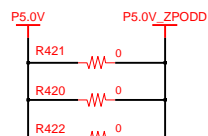
DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC MINI_PCIE_CONN WLAN	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE		LAST EDIT		August 15, 2011 11:04:51 AM	PAGE 34 OF 51	

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SATA ODD CONN 14"



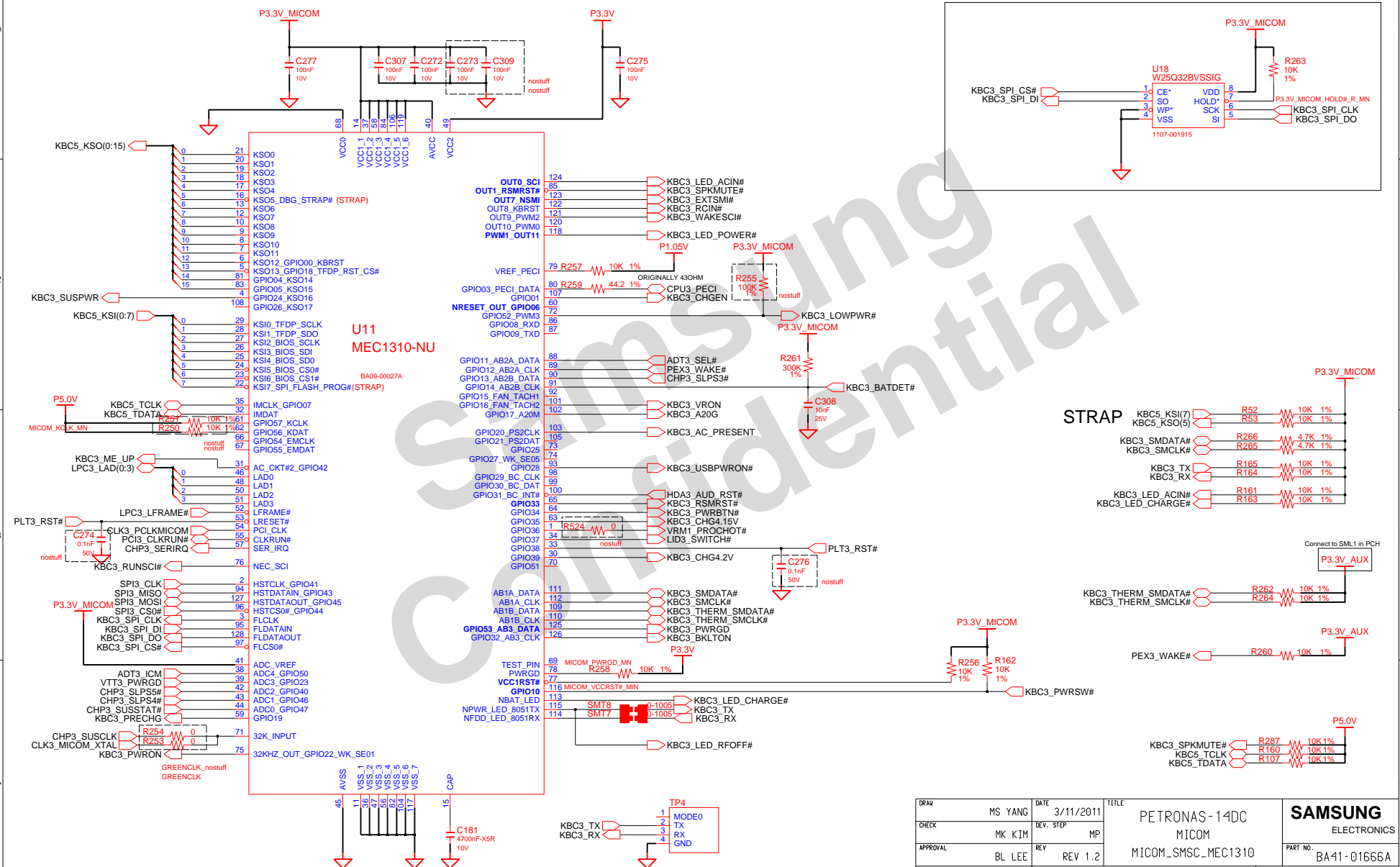
SATA HDD CONN



DESIGN	MS YANG	DATE	3/11/2011	PETRONAS-14DC SATA_DEVICES HDD & ODD SUB CONNECTOR	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 35 OF 51

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MAIN BOARD (MICOM)



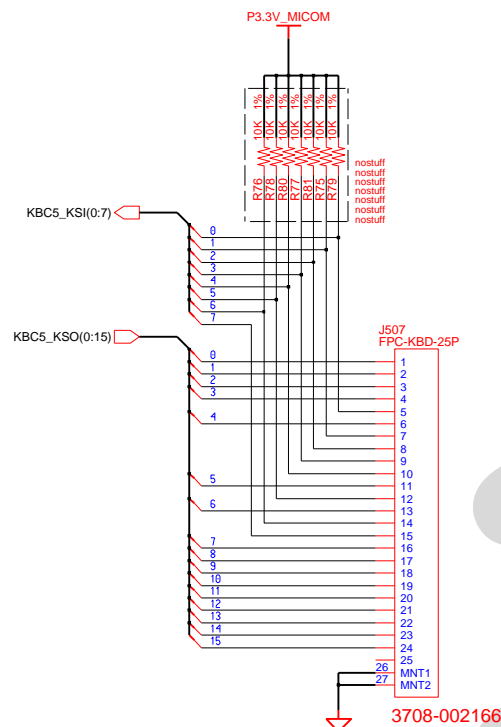
DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG ELECTRONICS	
CHECK	MK KIM	DEV. STEP	MP	MICOM			
APPROVAL	BL LEE	REV	REV 1.2	MICOM_SMSC_MEC1310	PART NO.	BA41-01666A	
MODULE CODE	LAST EDIT			August 15, 2011 11:04:51 AM	PAGE	36	OF 51

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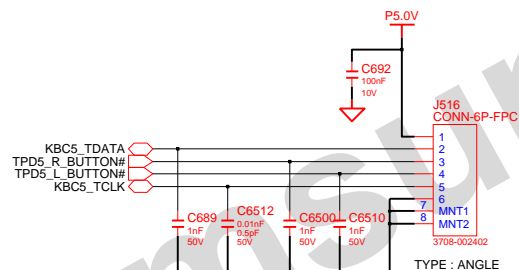
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Micom Glue Logic

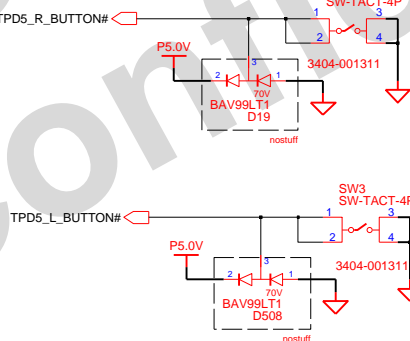
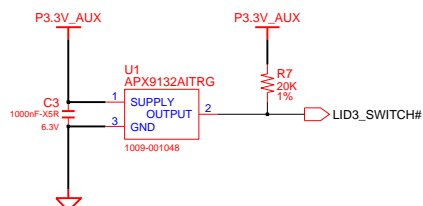
KEYBOARD



TOUCHPAD



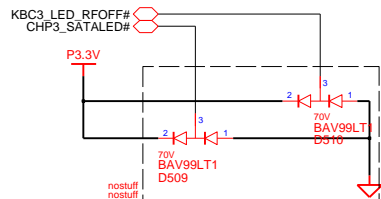
LID_SWITCH



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

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The schematic diagram illustrates the LED driver circuit for the KBC3 module. The circuit is powered by P3.3V_AUX and P3.3V_MICOM. It features a series of resistors (R673, R665, R670, R669, R667, R674, R666, R671, R672, R668) and LEDs (LED4, LED1, LED3, LED2, LED503, LED500, LED502, LED501) connected in a daisy-chain configuration. The LEDs are labeled with their part numbers: 19-217/BHC-XL2M2TY/3 and 19-223/R6G6C-B30/2T. The circuit is controlled by SCL14 and PET14 signals. A separate section shows the connection of the LEDs to the KBC3 module pins: KBC3_LED_POWER#, CHP3_SATALED#, KBC3_LED_ACIN#, KBC3_LED_CHARGE#, and KBC3_LED_RFOFF#.

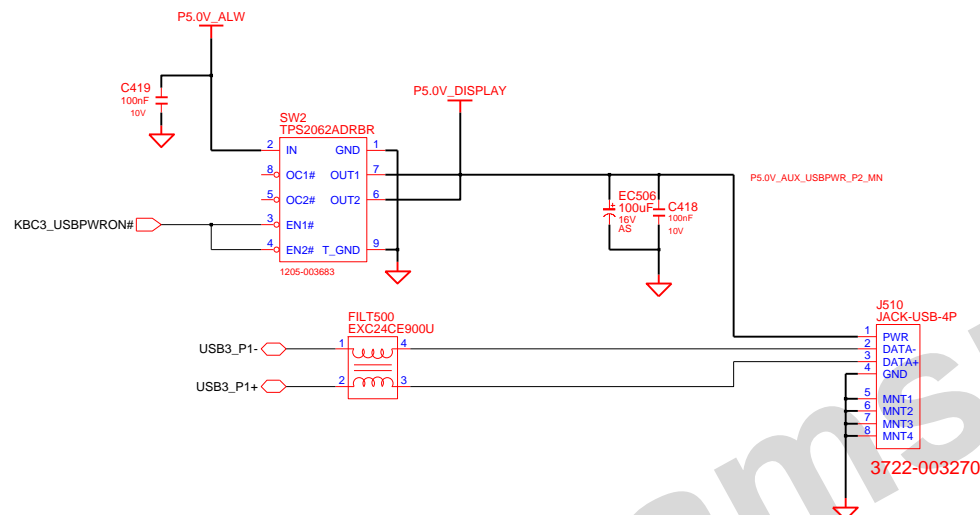


DRAW	MS YANG	DATE	3/11/2011	TITLE PETRONAS-14DC LED_SWITCH LED_SWITCH	SAMSUNG ELECTRONICS				
CHECK	MK KIM	DEV. STEP	MP						
APPROVAL	BL LEE	REV	REV 1.2						
PART NO.						BA41-01666A			
MODULE CODE		LAST EDIT			August 15, 2011 11:04:51 AM	PAGE	38	OF	51

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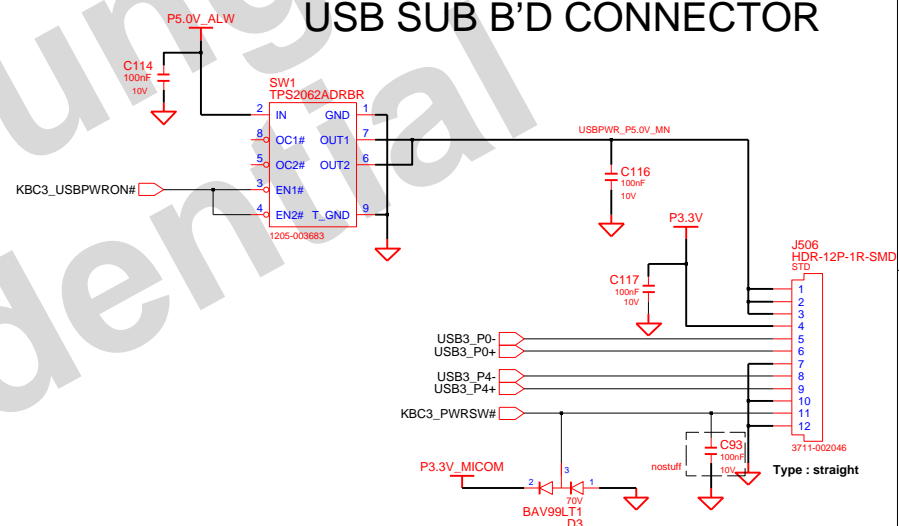
USB Single connector



MAIN TO SUB USB CONN

Right 2USB Port

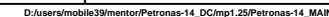
USB SUB B'D CONNECTOR



PLACE CLOSE TO USB SUB B'D Conenctor

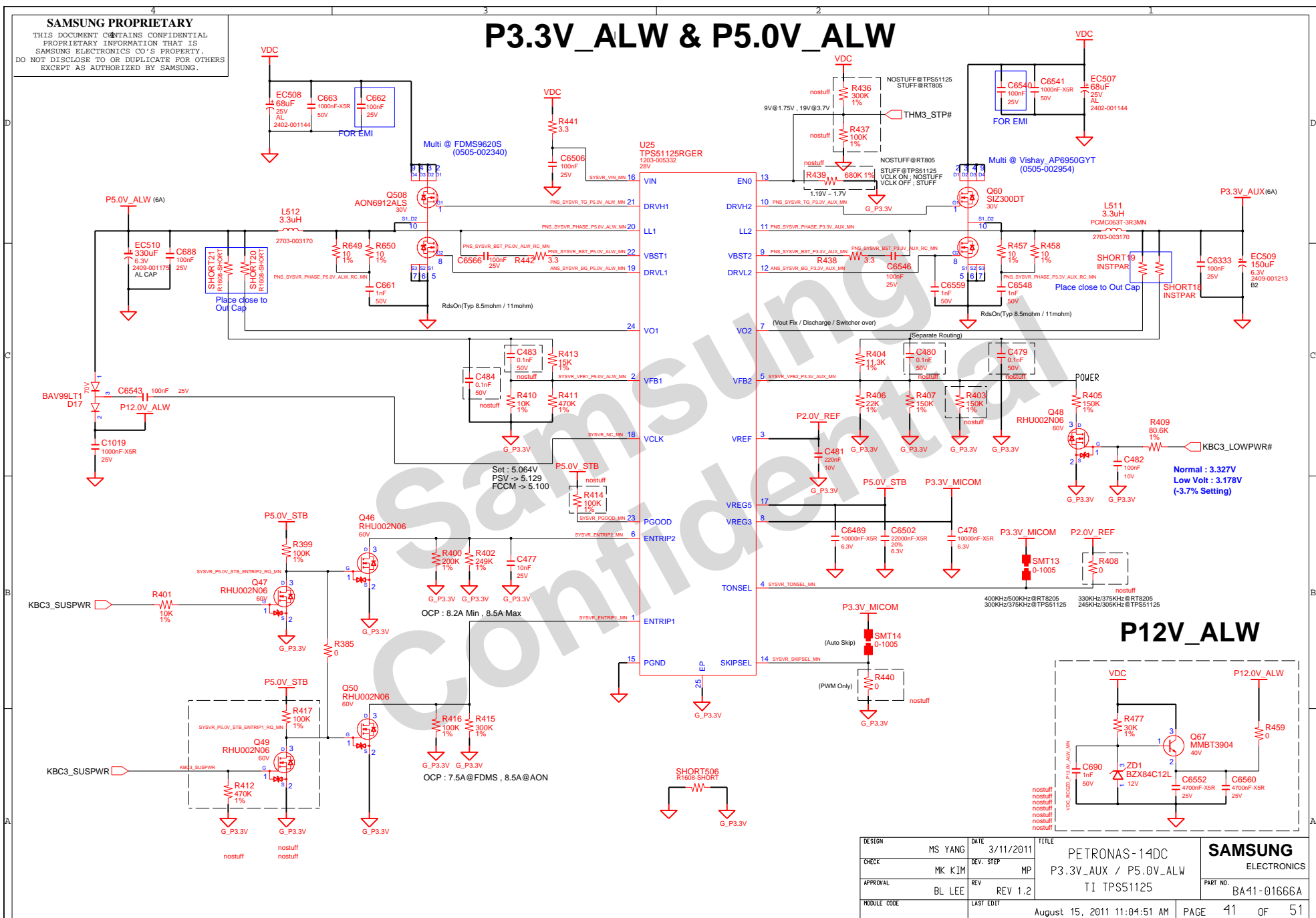
DESIGN	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC	SAMSUNG
CHECK	MK KIM	DEV. STEP	MP	USB_CONN	USB_CONN	ELECTRONICS
APPROVAL	BL LEE	REV	REV 1.2	USB Port		PART NO.
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM			BA41-01666A
			PAGE	39	OF	51

CHARGER & POWER MANAGEMENT



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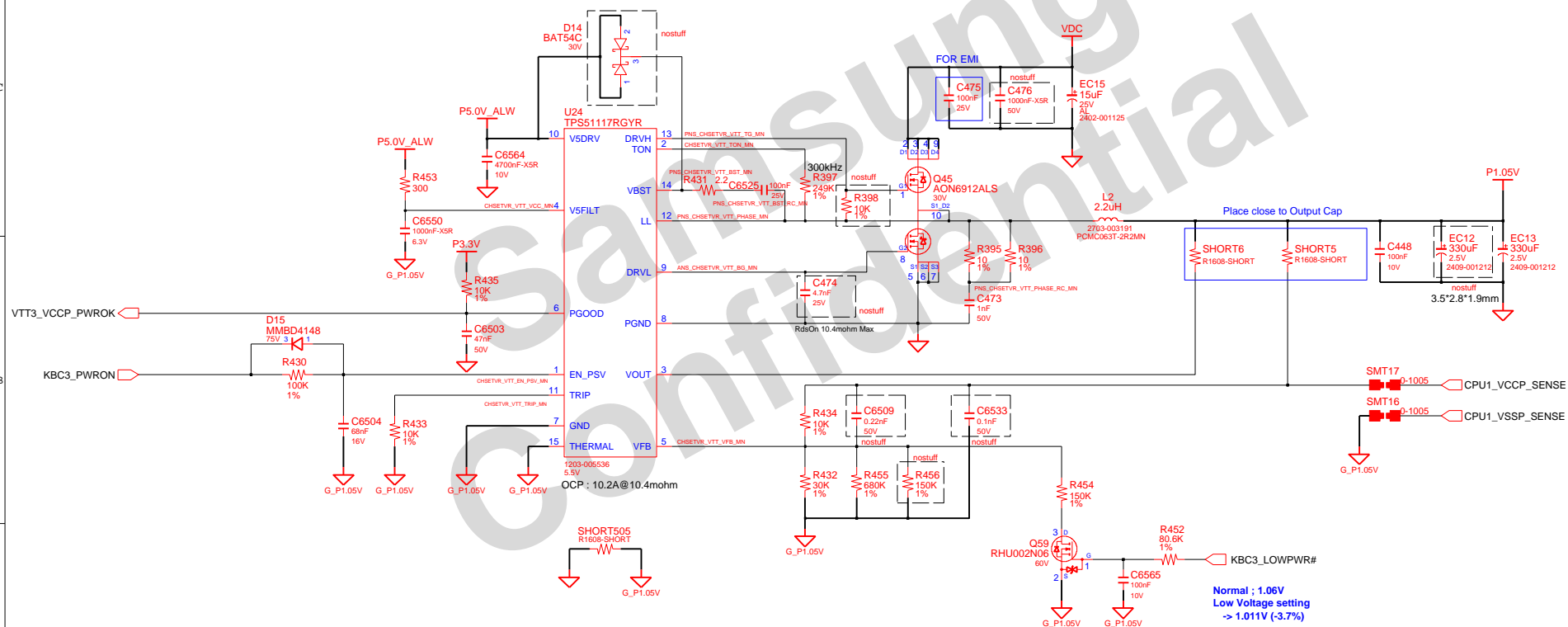
P3.3V ALW & P5.0V ALW



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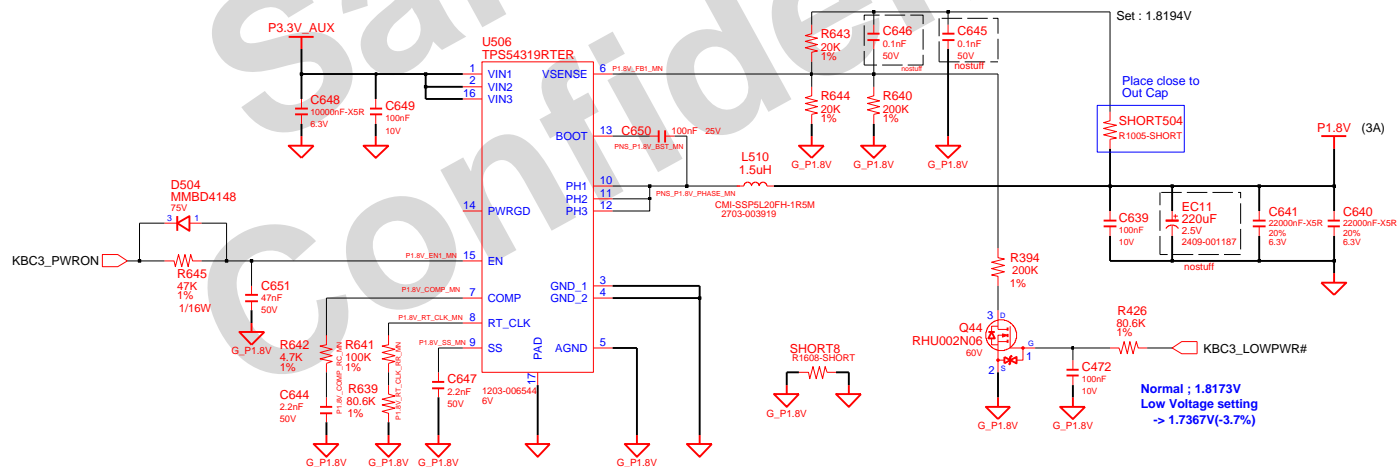
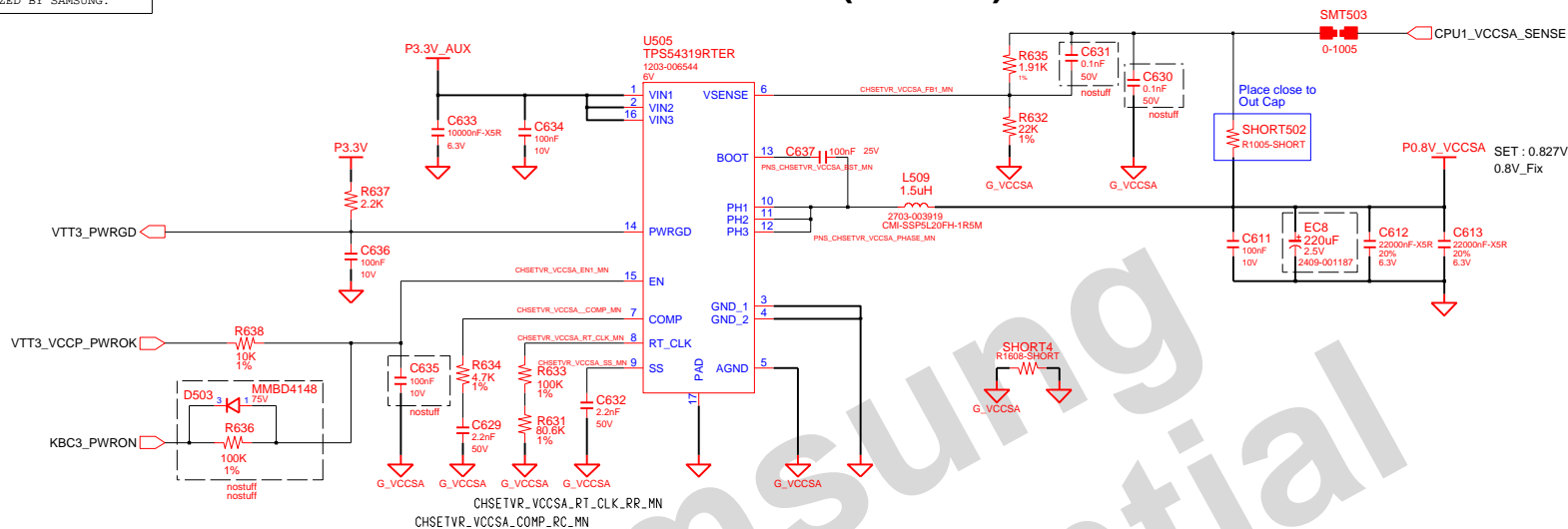
Chipset Power (P1.05V)



DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC P1.05V TI TPS5117	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	42	OF 51

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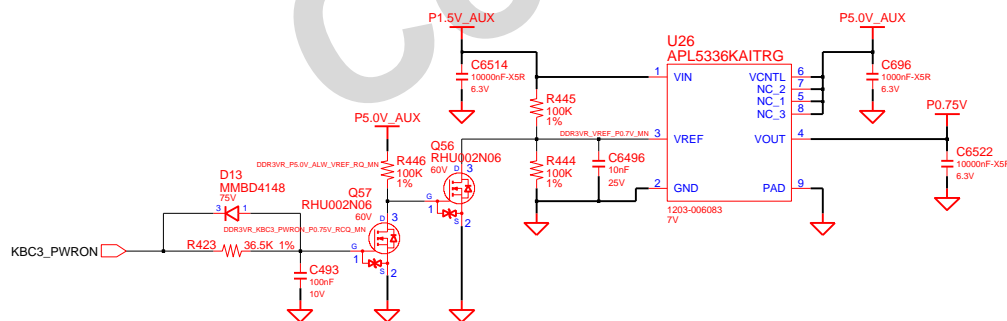
CHIPSET POWER(P1.8V)



DESIGN	MS YANG	DATE	3/11/2011	TITLE PETRONAS-14DC PWR_CHIPSET TI TPS54319	SAMSUNG ELECTRONICS	
CHECK	MK KIM	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	LAST EDIT					August 15, 2011 11:04:51 AM
					PART NO.	BA41-01666A

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DDR3 VTT(0.75V)

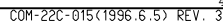


DRAW	MS YANG	DATE	3/11/2011	TITLE		<div style="text-align: center;"> PETRONAS-14DC PWR_MEMORY DDR3 POWER </div>		<div style="text-align: center;"> SAMSUNG ELECTRONICS </div>	
CHECK	MK KIM	DEV. STEP	MP						
APPROVAL	BL LEE	REV	REV 1.2			PART NO.		BA41-01666A	
MODULE CODE		undefined		LAST EDIT		August 15, 2011 11:04:51 AM		PAGE	44 OF 51

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Place next to phase1 highside FET

GFX Loadline -3.9mohm
CPU Loadline -1.9mohm



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N12P-GVR@20W

VID1	VID0			N12P-GVR	Design Value
1	1				0.828V
1	0			0.85V	0.852V
0	1			0.95V	0.956V
0	0			1.075V	1.075V

DRAW	MS YANG	DATE	3/11/2011	PETRONAS-14DC PWR_GRAPHIC ISL95870	SAMSUNG ELECTRONICS	PART NO. BA41-01666A
CHECK	MK KIM	DEV. STEP	MP			
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	LAST EDIT					

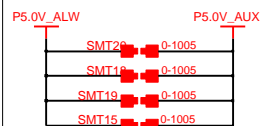
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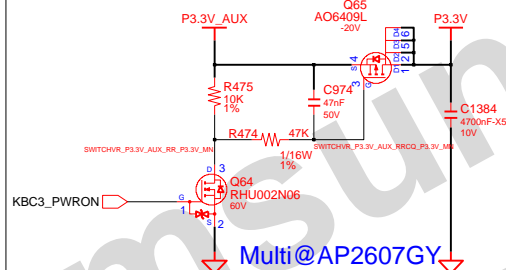
Switched Power 1

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

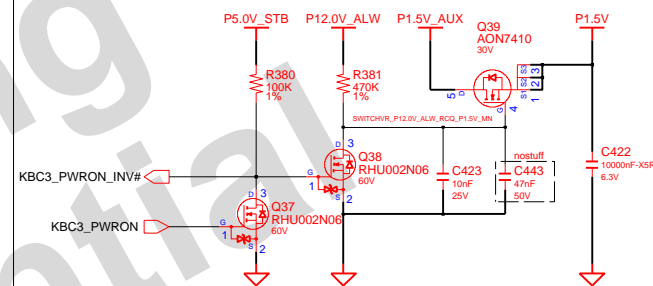
P5.0V_AUX



Switched Power On (P3.3V)

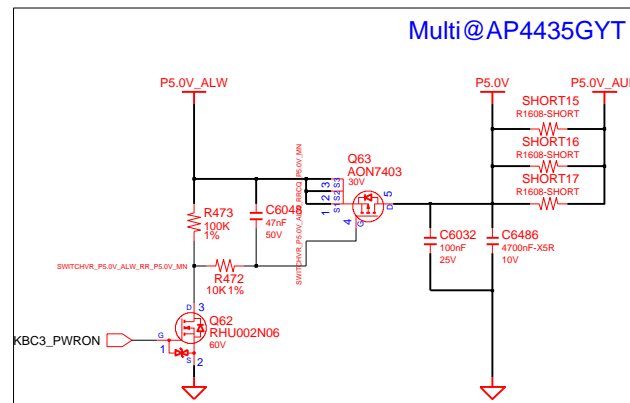


Switched Power On (P1.5V)



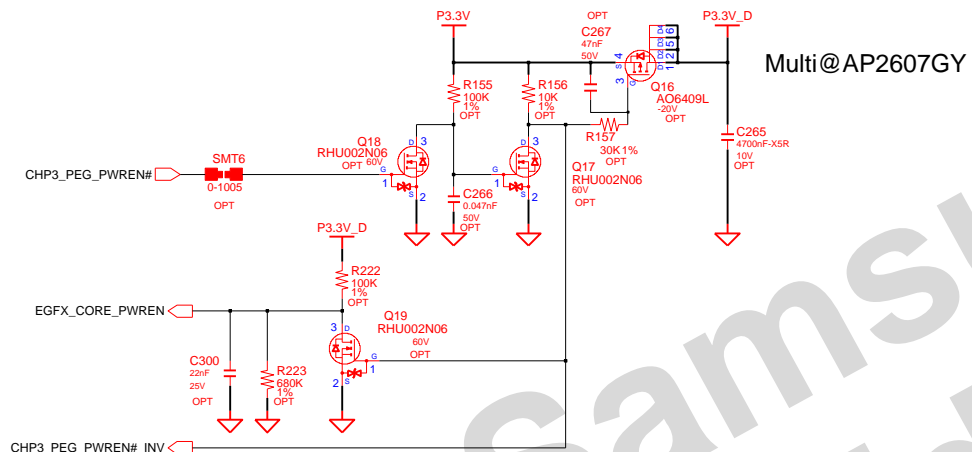
For nVIDIA GFX PWR Sequence
NVDD(EGFX_CORE) first and then FBVDDQ(gDDR3)

Switched Power On (P5.0V)

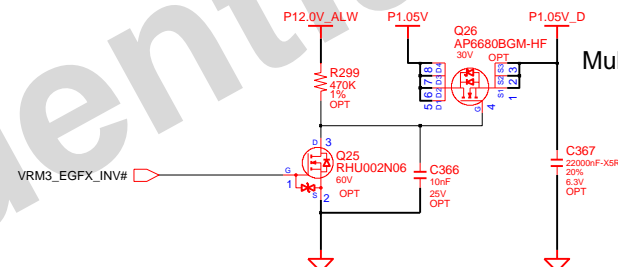


DRAW	MS YANG	DATE	3/11/2011	TITLE	PETRONAS-14DC Switched PWR 2 Switched Power	SAMSUNG ELECTRONICS
CHECK	MK KIM	DEV. STEP	MP			PART NO. BA41-01666A
APPROVAL	BL LEE	REV	REV 1.2			
MODULE CODE	undefined	LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	47	OF 51

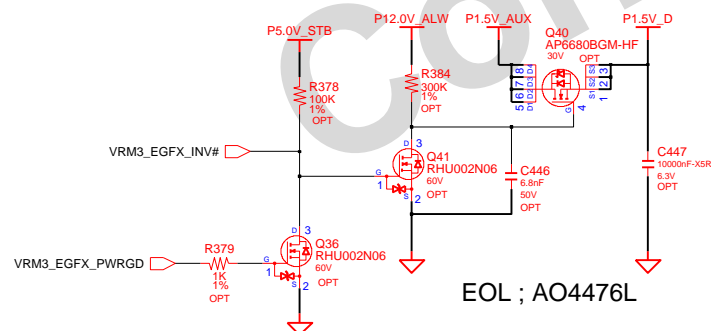
Discrete Switched Power (D3.3V : Max_1.2A)



Multi@AO4476L



EOL ; AO4476L

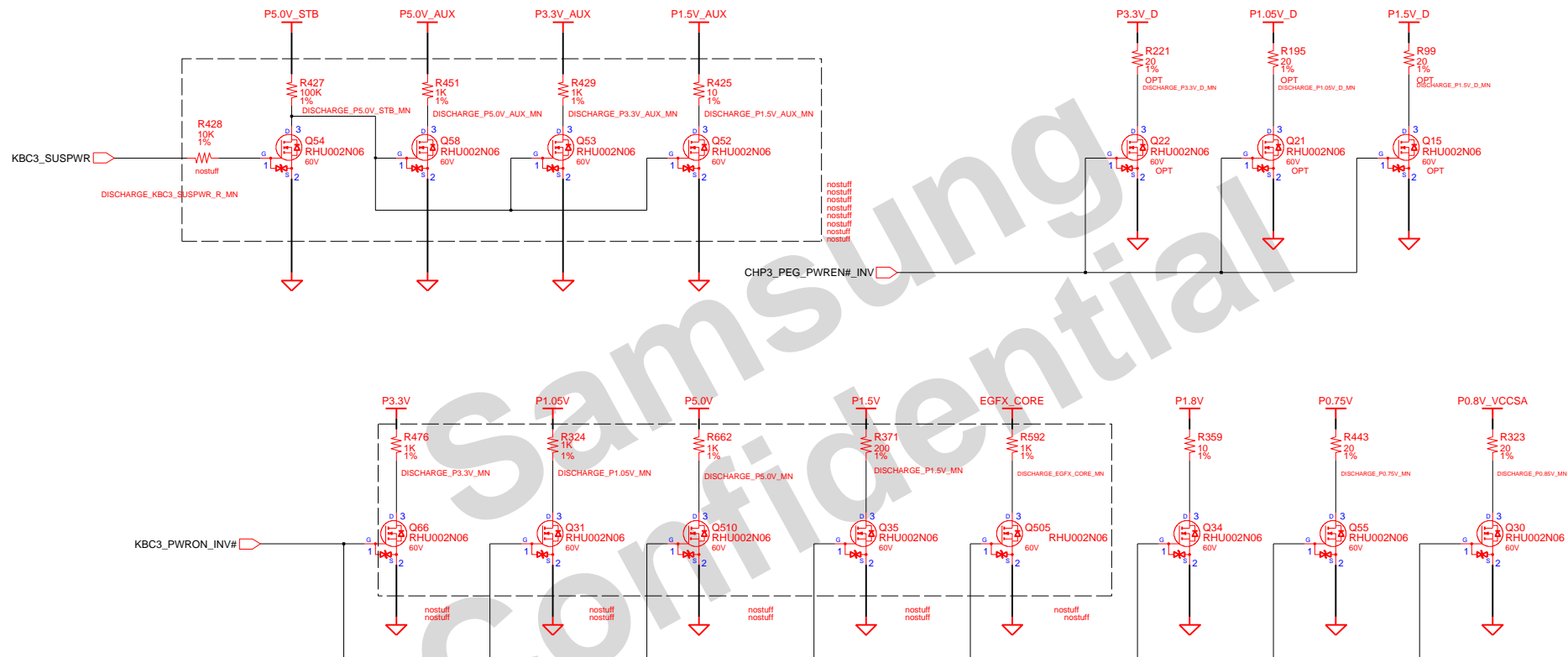


DRAW	MS YANG	DATE	3/11/2011	PETRONAS-14DC Switched PWR FOR OPTIMUS PWR	SAMSUNG ELECTRONICS			
CHECK	MK KIM	DEV. STEP	MP		PART NO.	BA41-01666A		
APPROVAL	BL LEE	REV	REV 1.2					
MODULE CODE	LAST EDIT				August 15, 2011 11:04:51 AM	PAGE	48	OF

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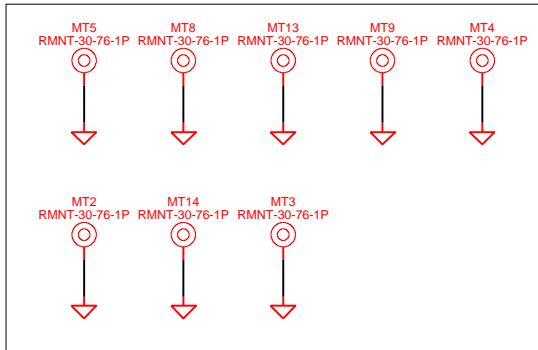
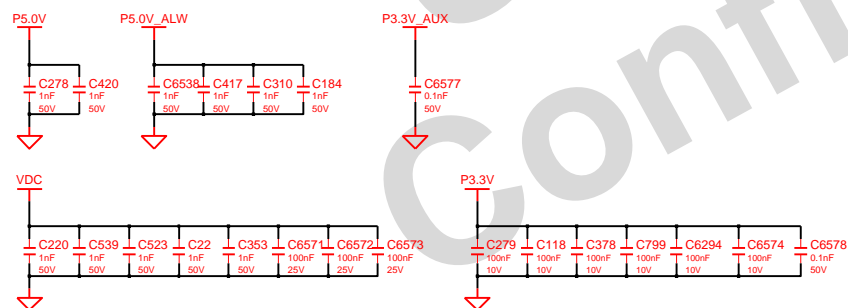
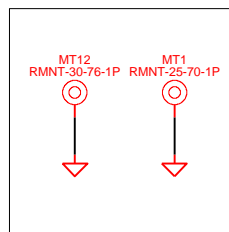
POWER DISCHARGER



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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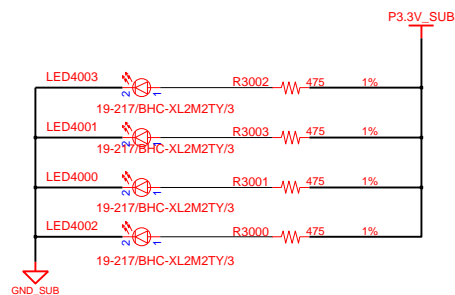
Mainboard Mount ((30-76)X8EA)**PCB FIX**

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		
MODULE CODE		LAST EDIT	August 15, 2011 11:04:51 AM	PAGE	50 OF 51	PART NO. BA41-01666A

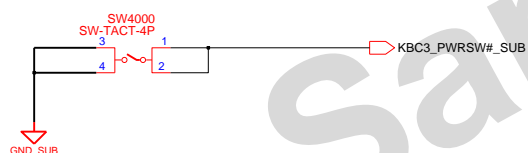
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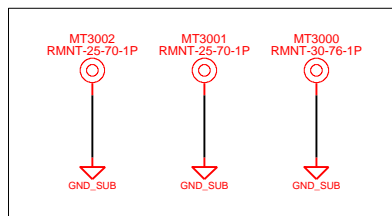
USB SUB BOARD



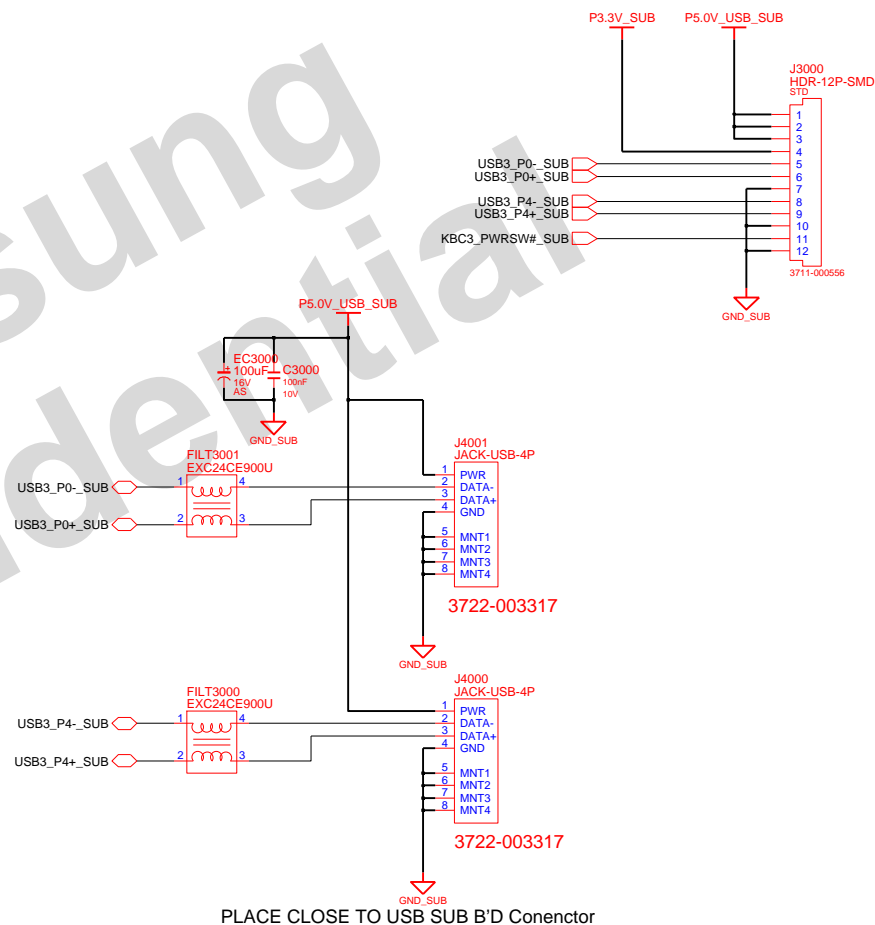
Power Switch Button



PCB Mount



SUB TO MAIN



PLACE CLOSE TO USB SUB B'D Conenctor

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