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http://laptop-motherboard-schematic.blogspot.com/

Jinmao

CPU : Arrandale PGA
Chip Set : Intel Ibex Peak
GFX : N12M / INT.GFX
Remarks : Calpella Platform

Model Name : Jinmao
PBA Name : MAIN
PCB Code : BA41-01432A (GCE)
BA41-01433A (NY)
BA41-01434A (HAN)
BA41-01435A (GBM)
Dev. Step : PR
Revision : 1.0
T.R. Date : 2010.11.26

Design	CHECK	APPROVAL
MS YANG	*MK KIM*	*BL LEE*

■ ***Owner : SEC IT Solution N/P LAB*** ***Signature : mansu***

sheet01 : Cover
sheet02 : BLOCK DIAGRAM
sheet03 : BOARD INFORMATION
sheet04 : POWER DIAGRAM
sheet05 : POWER RAILS
sheet06 : POWER SEQUENCE
sheet07 : CLOCK DISTRIBUTION
sheet08 : CK505-SHRINK
sheet09 : Thermal Sensor
sheet10 : CPU
sheet11 : CPU
sheet12 : CPU
sheet13 : CPU
sheet14 : DDR3 SODIMM #0
sheet15 : DDR3 SODIMM #1
sheet16 : PCH-IbexPeak
sheet17 : PCH-IbexPeak
sheet18 : PCH-IbexPeak
sheet19 : PCH-IbexPeak
sheet20 : PCH-IbexPeak
sheet21 : 80 port
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sheet23 : N12M-GE2
sheet24 : N12M-GE2
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sheet26 : GFX memory
sheet27 : GFX memory
sheet28 : LVDS / CAMERA
sheet29 : CRT
sheet30 : HDMI
sheet31 : Audio - ALC269
sheet32 : Audio - HP/MIC WOOFER(2.1CH)
sheet33 : LAN (Realtek 8111E)
sheet34 : WLAN
sheet35 : SATA HDD, IR
sheet36 : MICOM / BIOS
sheet37 : MICOM Glue Logic (KBD)
sheet38 : USB
sheet39 : Power - charger
sheet40 : Power - P3.3V_AUX / P5.0V_AUX
sheet41 : Power - P1.05V (Chipset Power)
sheet42 : Power - DDR3
sheet43 : Power - CPU VRM
sheet44 : Power - IGFX_CORE
sheet45 : Power - EGFX_CORE
sheet46 : Power - Switched Power 1
sheet47 : Power - Power Discharge
sheet48 : 3-in-1 card (AU6437)
sheet49 : ODD Sub B'd
sheet50 : Touchpad & LED
sheet51 : MOUNT HOLE
sheet52 : Power - Switched Power 2

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APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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D:/users/mobile39/mentor/Jinmao-L/Main/PR/Jinmao-L_MAIN

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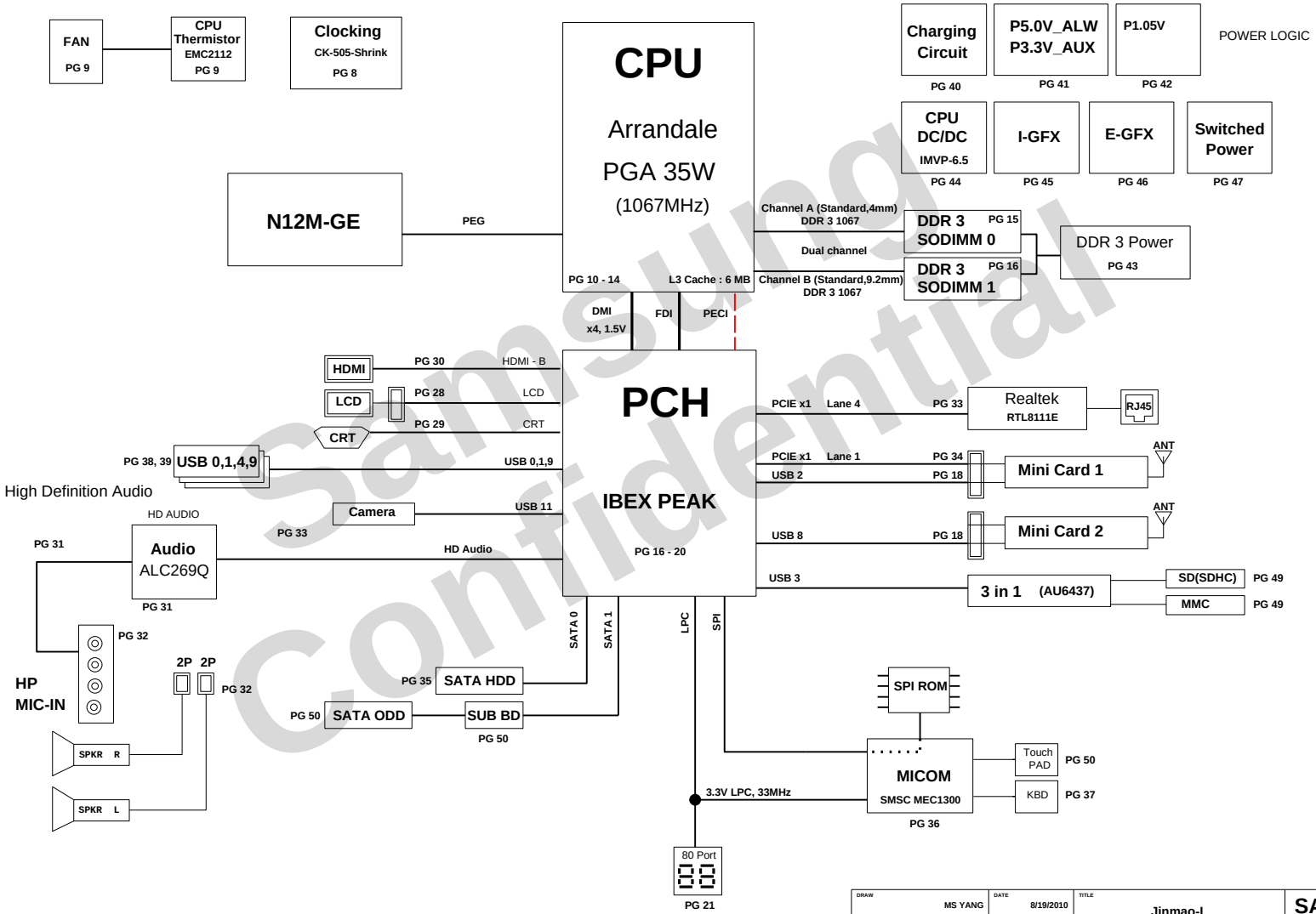
BLOCK DIAGRAM



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BOARD INFORMATION

SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

Voltage Rails		Active in
VDC	Primary DC system power supply (7 to 21V)	S4 - S5
P12.0V_ALW	12.0V always power rail	
P3.3V_MICOM	3.3V always power rail (for Micom)	
P5.0V_ALW	5.0V always power rail	
P5.0V_STB	5.0V always power rail	
P5.0V_AUX	5.0V switched on power rail (off in S4-S5)	S3
P3.3V_AUX	3.3V switched on power rail (off in S4-S5)	
P1.5V_AUX	1.5V power rail for DDR (off in S4-S5)	
P5.0V	5.0V switched power rail (off in S3-S5)	S0
P3.3V	3.3V switched power rail (off in S3-S5)	
P1.8V	1.8V switched power rail (off in S3-S5)	
P1.5V	1.5V switched power rail (off in S3-S5)	
P1.05V	1.05V power rail for chipset (off in S3-S5)	
P0.75V	0.9V power rail for DDR (off in S3-S5)	
VCC_CORE	Core Voltage for CPU	S0
IGFX_CORE	Core Voltage for IGFX	
EGFX_CORE	Core Voltage for GPU	
P1.05V (VCCP)	VCC for Arrandale & IBEX Peak	

Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	IBEX-PEAK	Real Time Clock
Crystal	14.318MHz	CLOCK-Generator	CK-505
Crystal	25MHz	LAN	Intel LAN

LCD Pannel Detect

Devices	Resolution	PANNEL_DETECT_0
LTN140AT17	HD(1366x768)	SEC3250

I²C / SMB Address

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	-
CK-505M Shrink(Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
Thermal Sensor on board	1101 100x	98h	
Power thermal management TS	1101 011x	96h	

USB PORT Assign

PORT #	ASSIGNED TO
0	SYSTEM PORT 0
1	SYSTEM PORT 1
2	Mini PCI Express
3	Multi Memory Card Controller
4	NC
5	NC
6	NC (N/A WITH HM55)
7	NC (N/A WITH HM55)
8	NC
9	SYSTEM PORT 2 (SUB BOARD)
10	Bluetooth
11	Camera
12	NC
13	NC

PCI Express Assign

PORT #	ASSIGNED TO
1	Mini Card 1 (WLAN)
2	NC
3	NC
4	LAN CONTROLLER
5	NC
6	NC
7	NC (N/A WITH HM55)
8	NC (N/A WITH HM55)

SATA PORT Assign

PORT #	ASSIGNED TO
0	HDD
1	ODD
2	(N/A WITH HM55)
3	(N/A WITH HM55)
4	
5	

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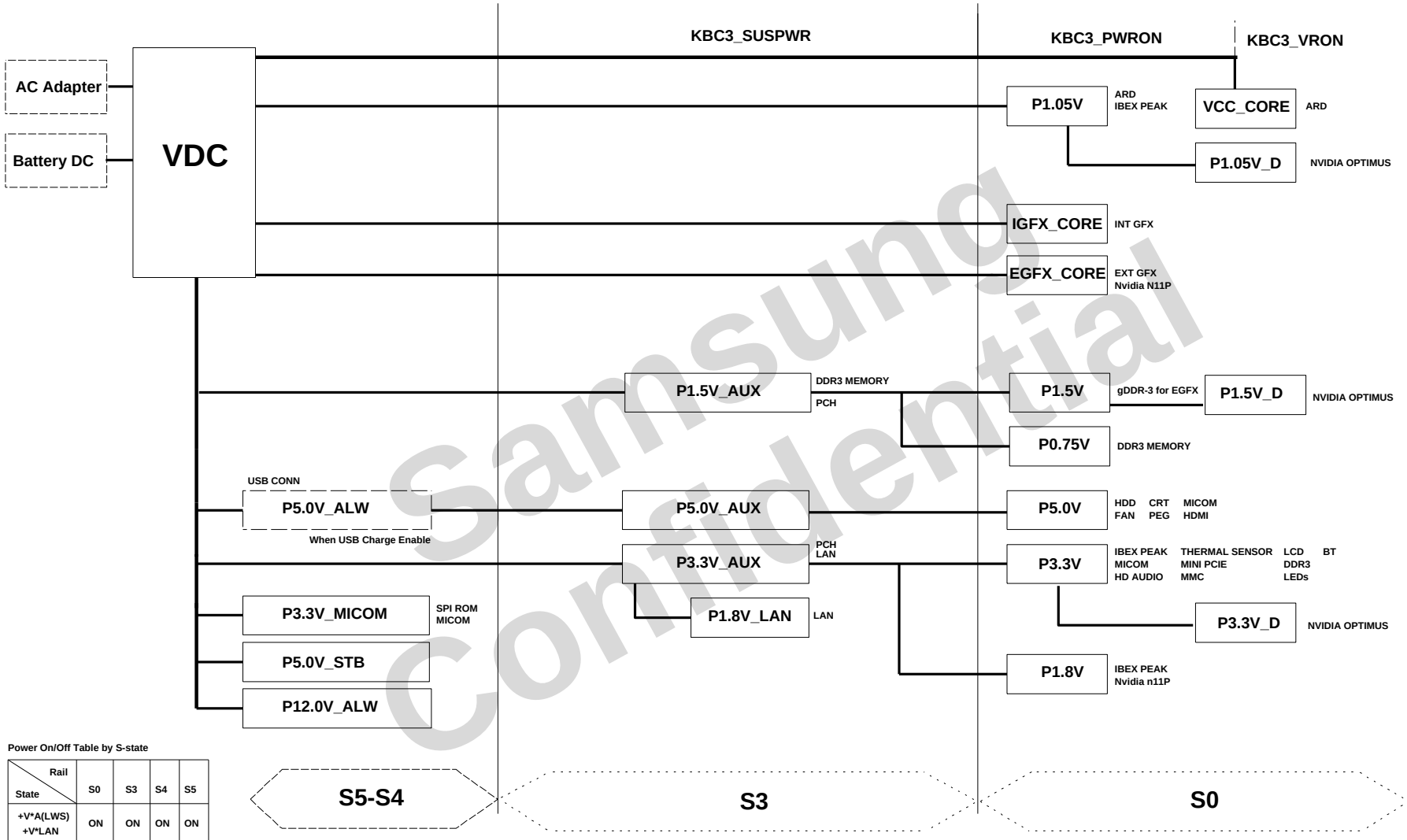
POWER DIAGRAM



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Power On/Off Table by S-state

Rail / State	S0	S3	S4	S5
+V*A(LWS) +V*LAN	ON	ON	ON	ON
+V*AUX	ON	ON	—	—
+V	ON	—	—	—
+V* (CORE)	ON	—	—	—

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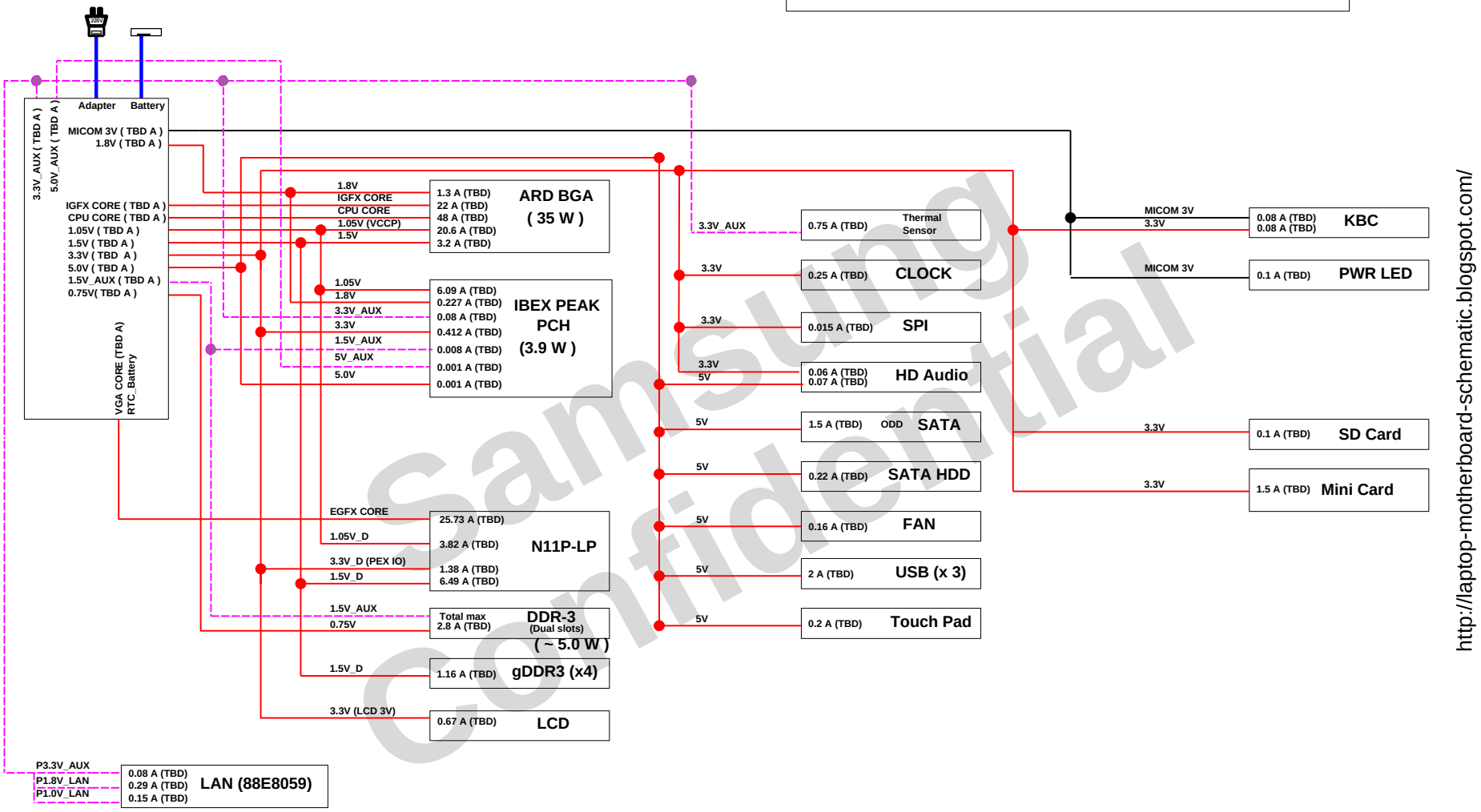
POWER RAILS ANALYSIS



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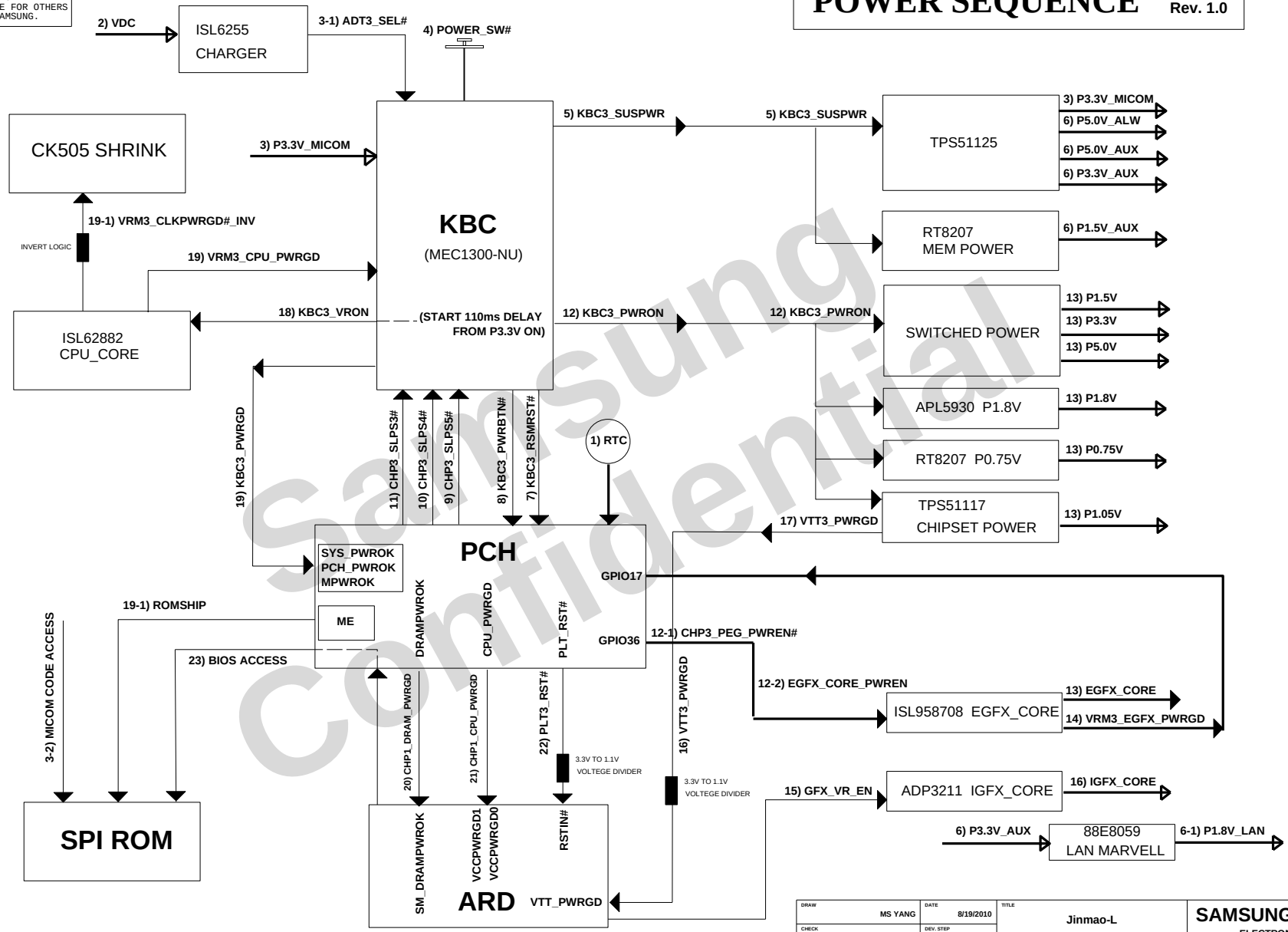
POWER SEQUENCE Rev. 1.0



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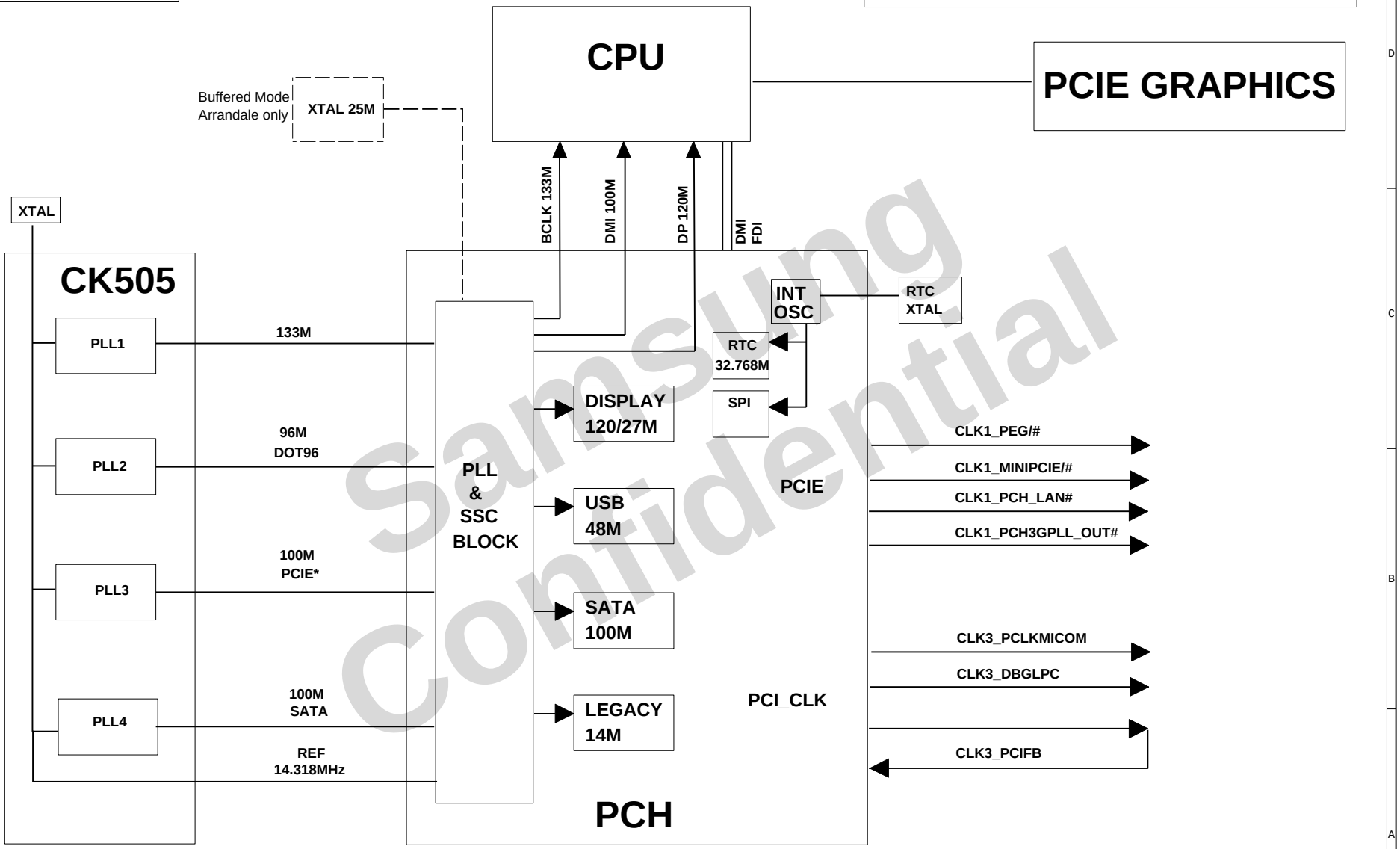
CLOCK DISTRIBUTION Rev. 1.0



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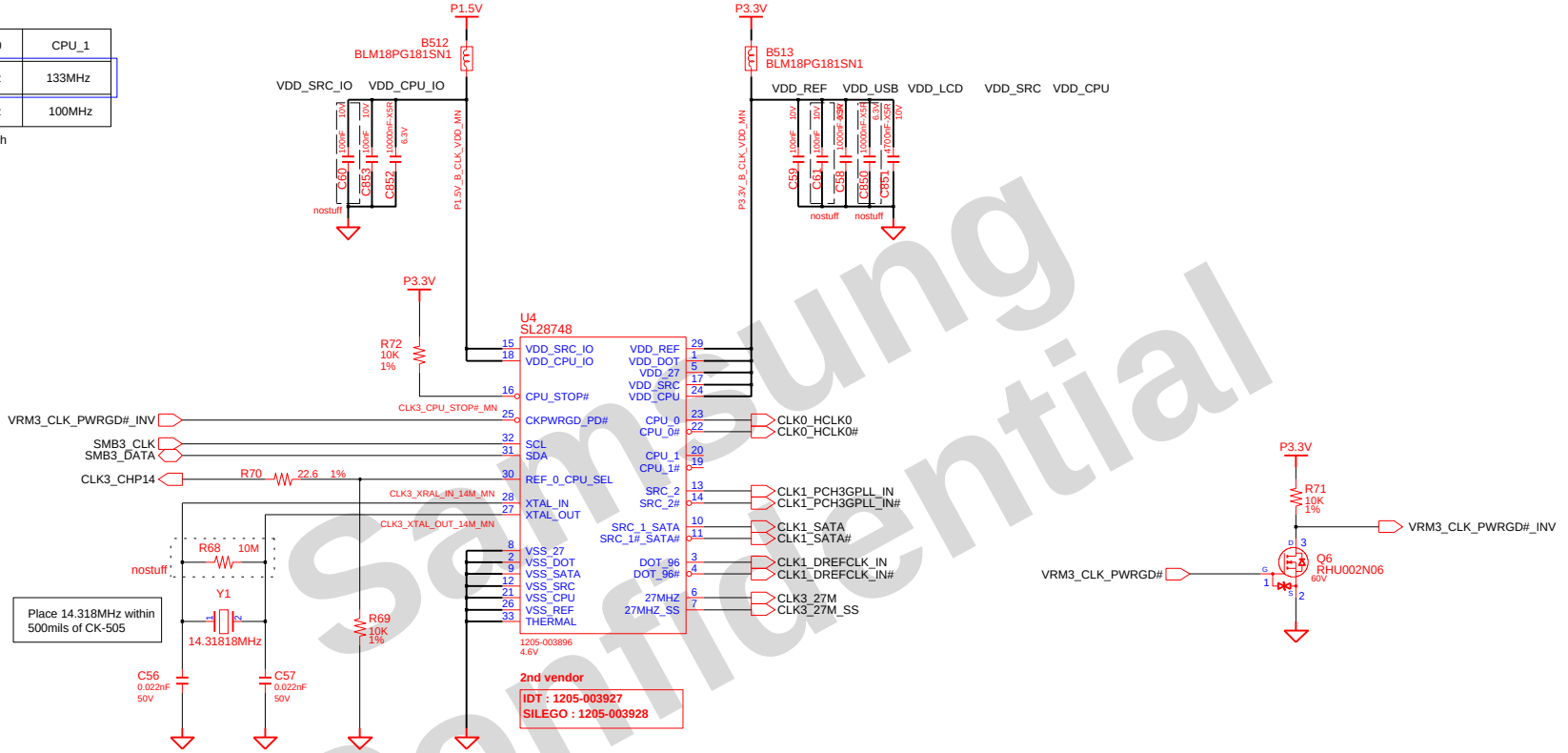
CK505M SHRINK VERSION

CPU_MODE SEL

Pin 30	CPU_0	CPU_1
CPU_SEL = 0	133MHz	133MHz
CPU_SEL = 1	100MHz	100MHz

*CPU_SEL During CK_PWRGD Latch



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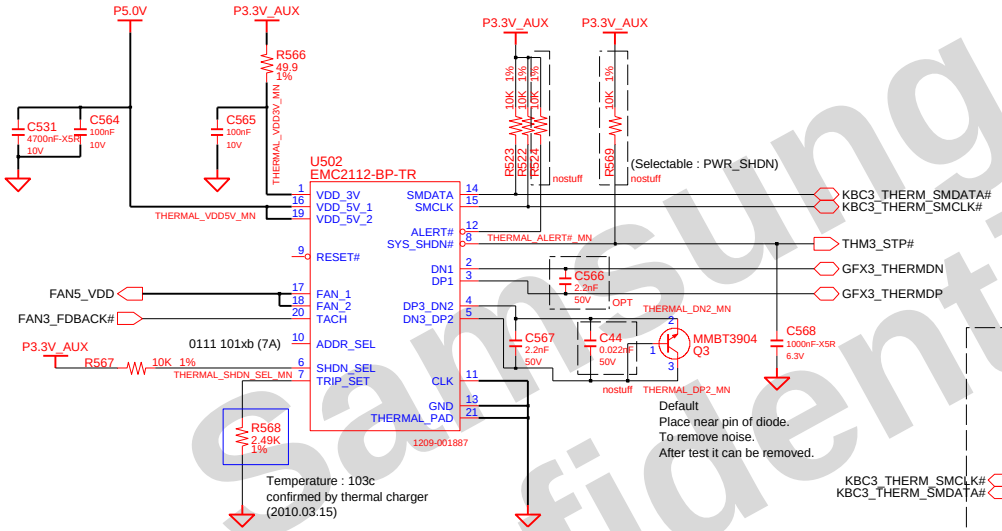
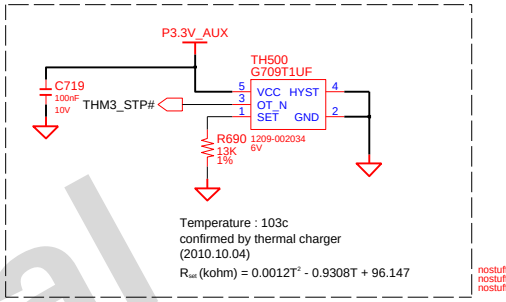
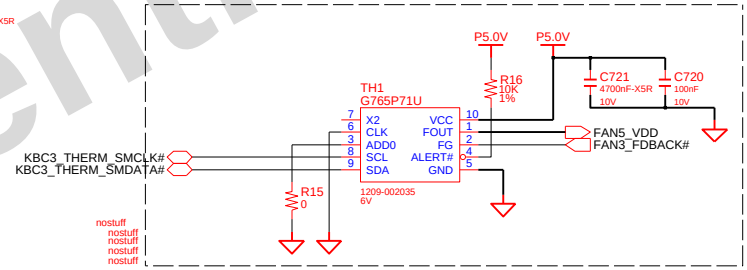
THERMAL SENSOR & FAN CONTROL

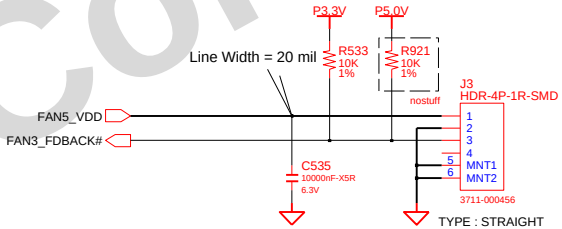
ADDRESSS_SEL MODE	
0	0101 111xb
✓ HIGH Z	0111 101xb (7A)
1	0101 110xb

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

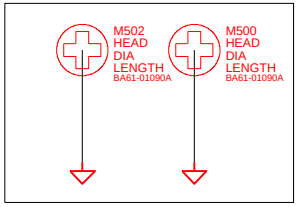








FAN



DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L THERMAL SENSOR THERMAL SENSOR EMC2112	SAMSUNG ELECTRONICS		
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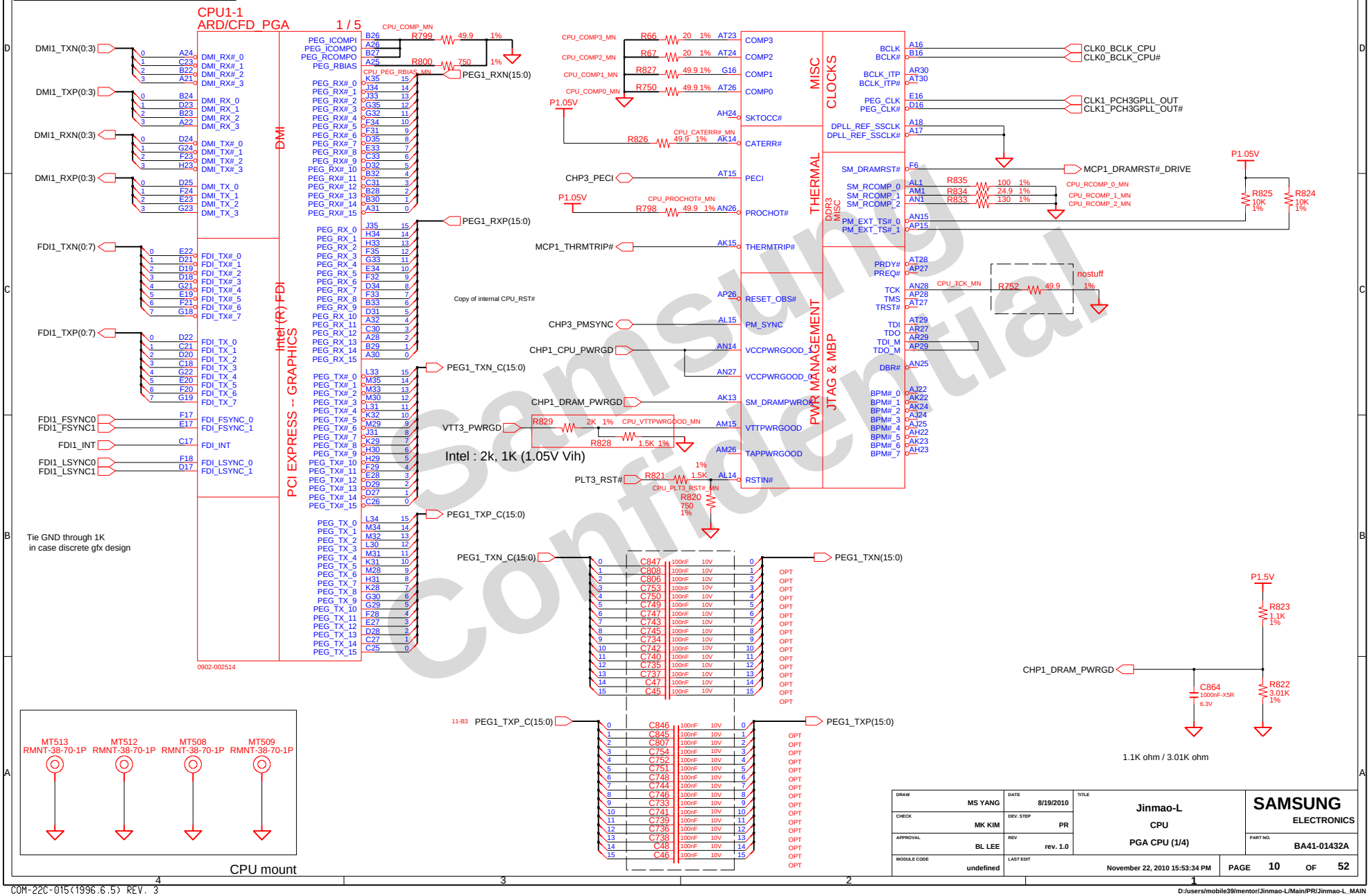
ARRANDALE PROCESSOR (DMI,PEG, FDI)



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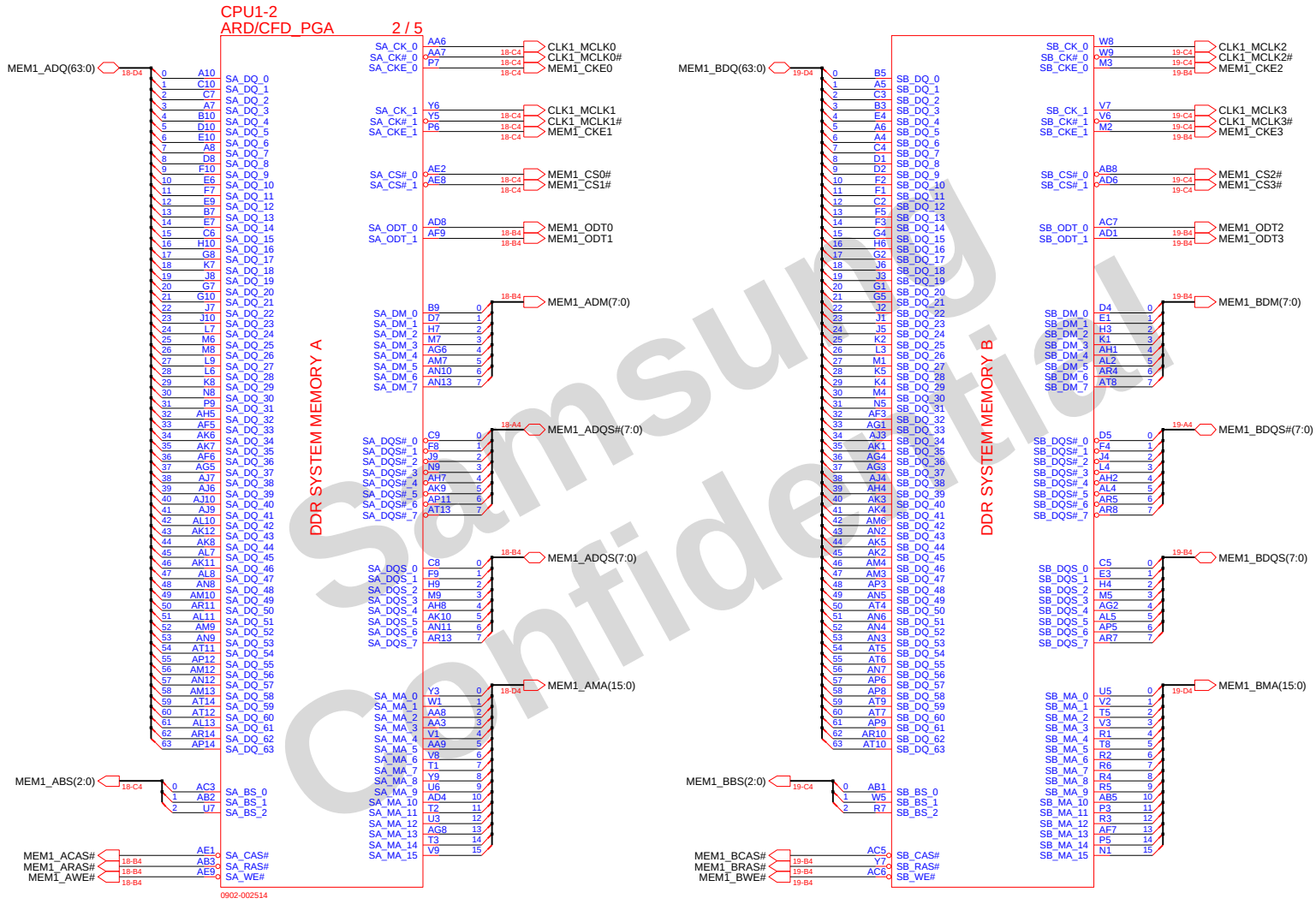

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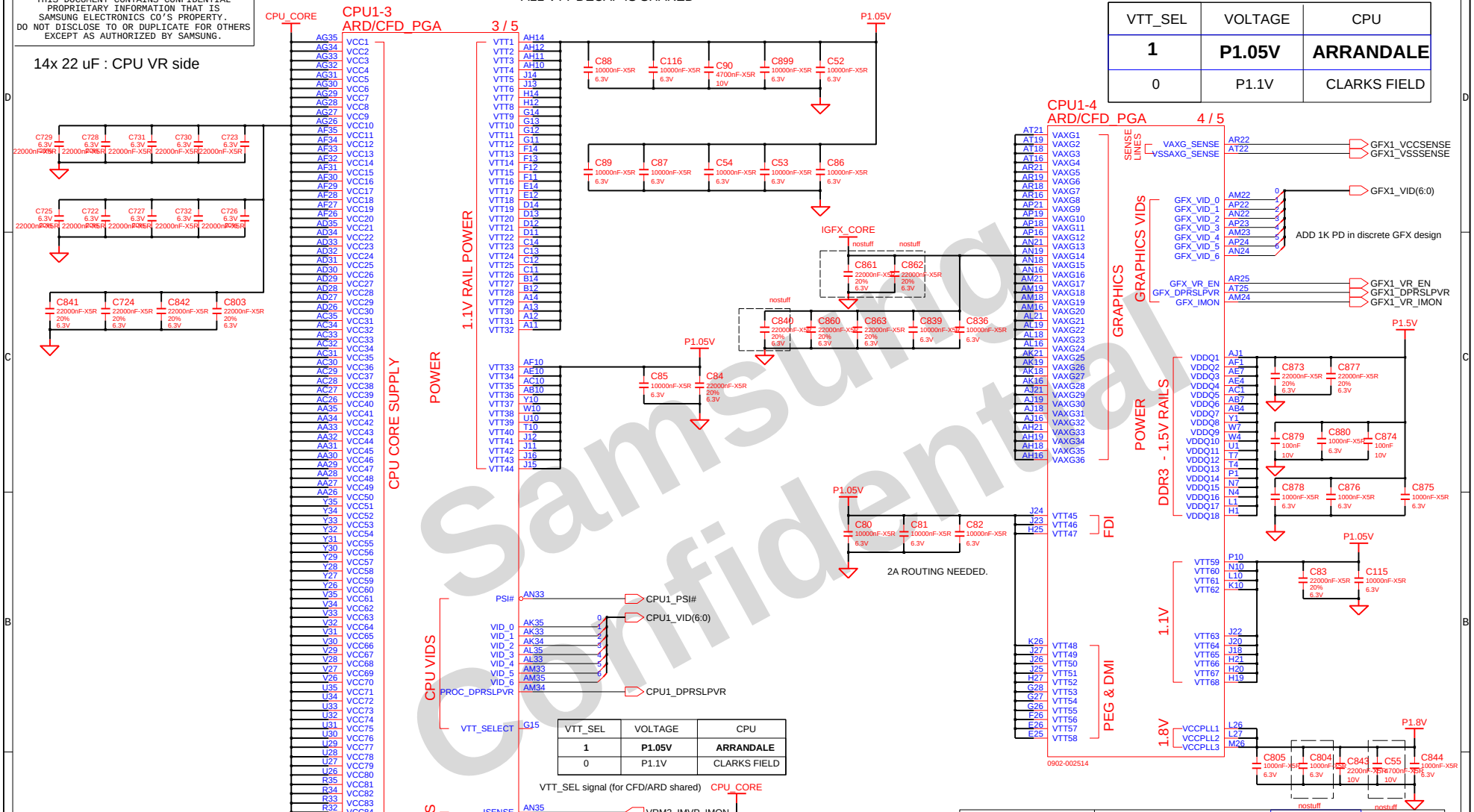
14x 22 uF : CPU VR side

ALL VTT DECAP IS SHARED



**VTT POWER SELECTION

VTT_SEL	VOLTAGE	CPU
1	**P1.05V**	**ARRANDALE**
0	P1.1V	CLARKS FIELD

VTT_SEL	VOLTAGE	CPU
1	**P1.05V**	**ARRANDALE**
0	P1.1V	CLARKS FIELD

	1uF	10uF	22uF	330uF
w Proddizer	**25 pcs**	**0 pcs**	**16 pcs**	**0 pcs**
w/o Proddizer	**25 pcs**	**16 pcs**	**12 pcs**	**4 pcs**

DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L CPU PGA CPU (3/4)	SAMSUNG ELECTRONICS
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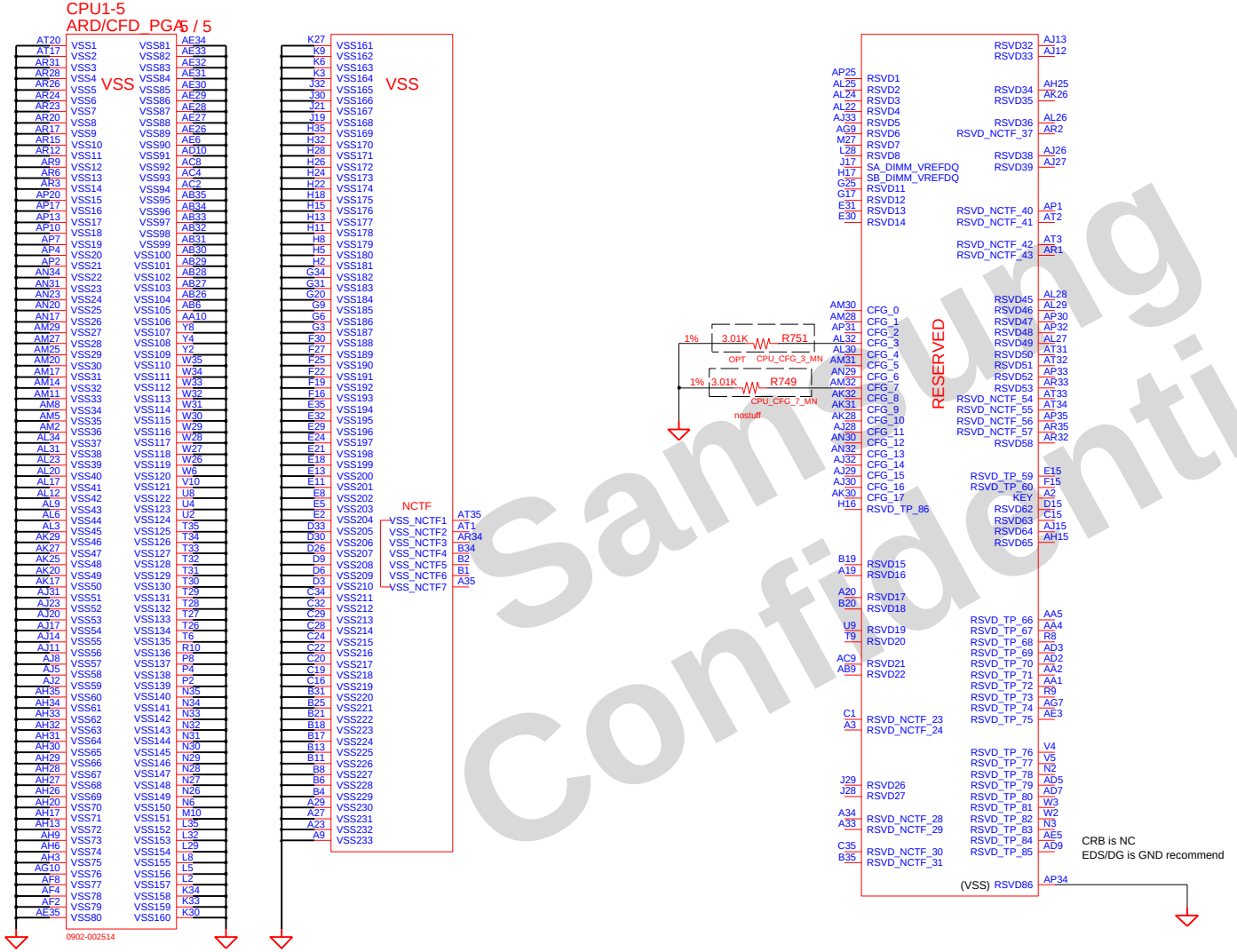

Clarksfield : SA_DIMM_VRREFDQ, 100K PD
SB_DIMM_VRREFDQ, 100K PD

Arrandale : SA_DIMM_VRREFDQ, NC
SB_DIMM_VRREFDQ, NC

CFG Straps for Processor

PCI Express Configuration Select	
CFG0	1 : Single PEG 0 : Bifunction enabled

PCI Express Static Lane Reversal	
CFG3	1 : Normal operation 0 : Lane Reversed

Display Port Presence	
CFG4	1 : Disabled - No DP device is connected to eDP 0 : Enabled - (DP device is connected to eDP

PCIE 2.0 SUPPORT	
CFG7	1 : Normal operation 0 : PCIE2.0 Jitter support

DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L CPU PGA CPU (4/4)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
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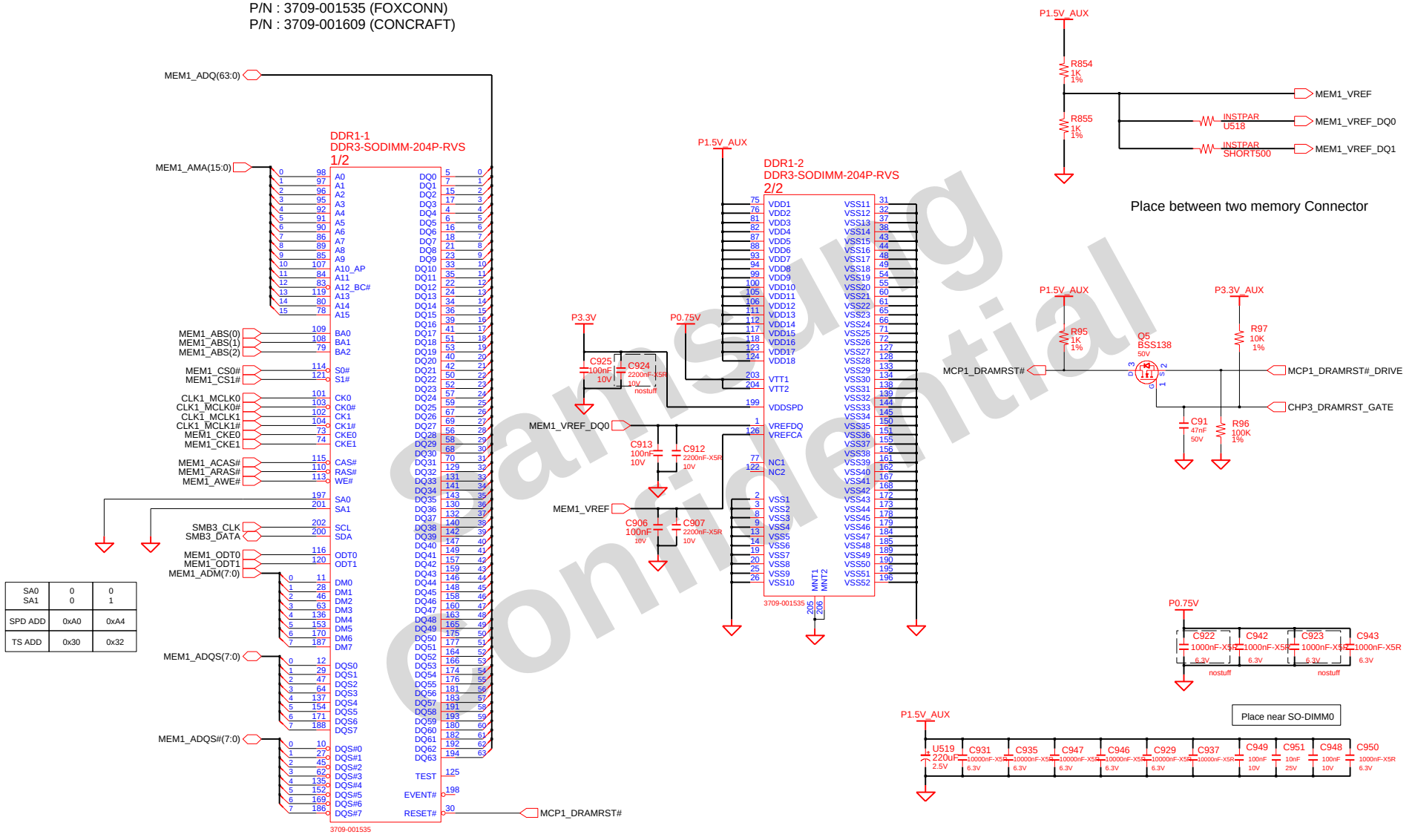
DDR SO-DIMM #0

Height : 9.2 mm (REVERSE)

P/N : 3709-001535 (FOXCONN)
P/N : 3709-001609 (CONCRAFT)



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APPROVAL	BL LEE	
MODULE CODE		
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REV	rev. 1.0	
LAST EDIT	November 22, 2010 15:53:34 PM	
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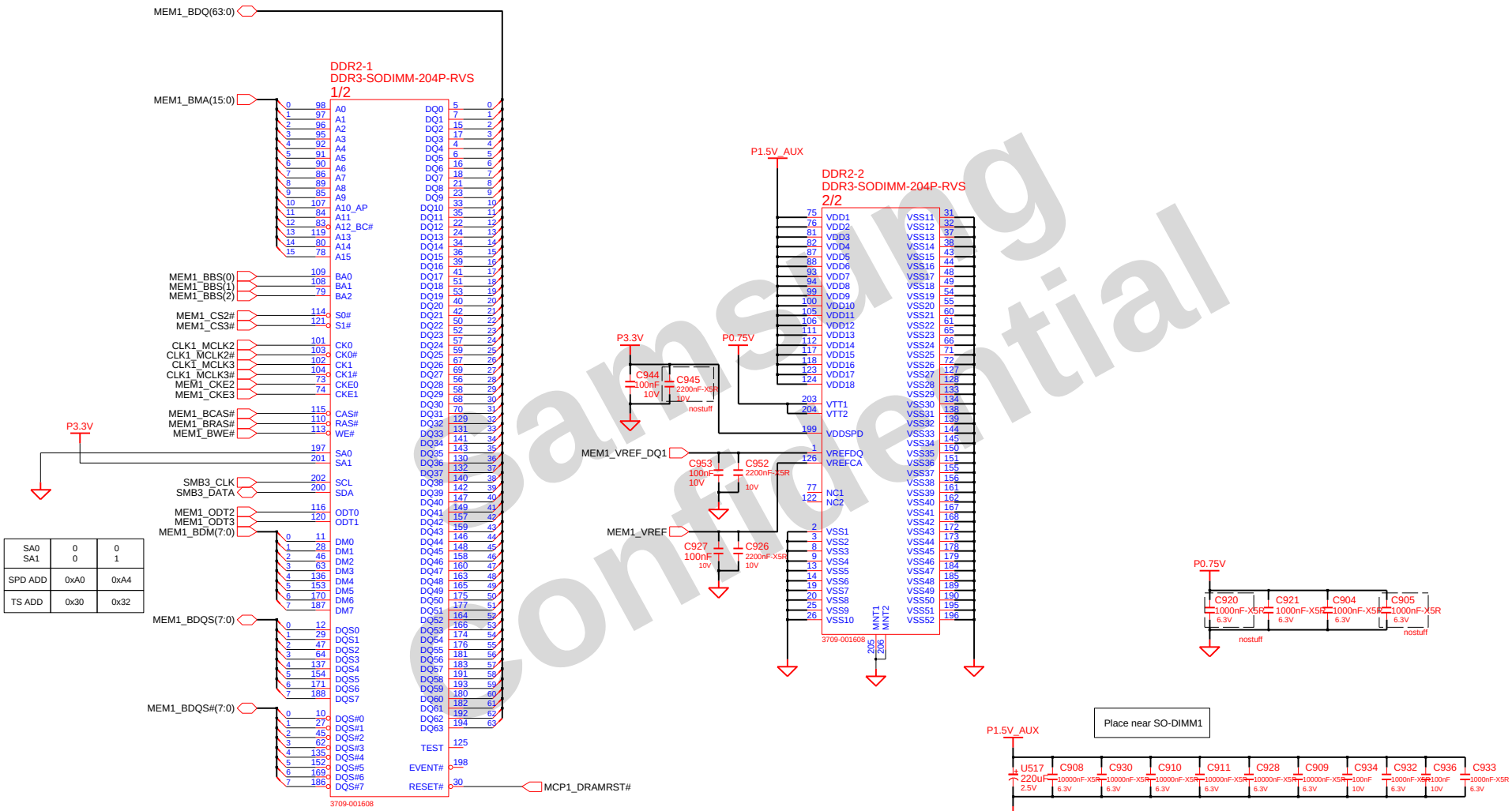
DDR SO-DIMM #1

Height : 4 mm (REVERSE)

P/N : 3709-001608 (CONCRAFT)



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APPROVAL	BL LEE	
MODULE CODE		
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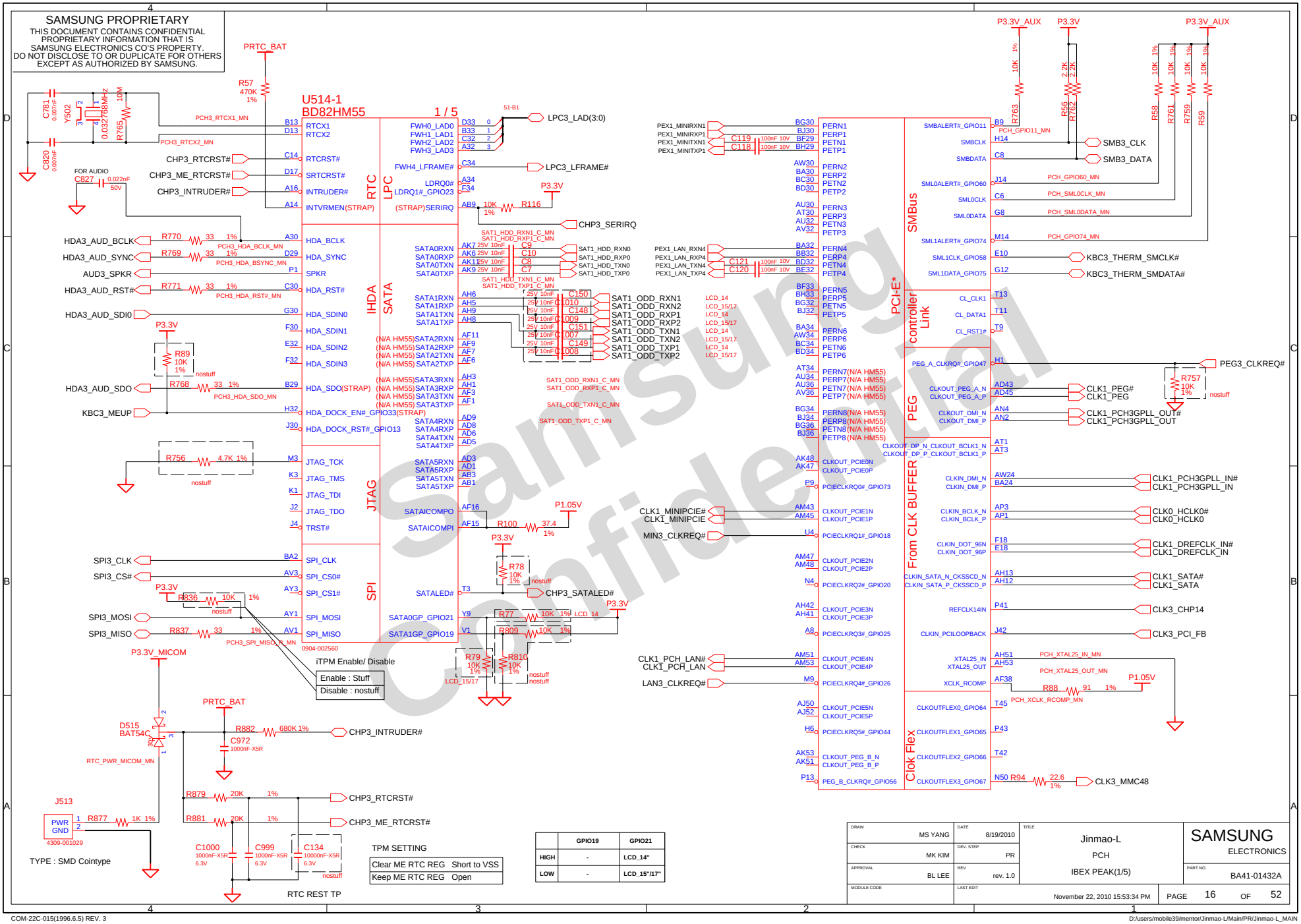

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DRAW	DATE	TITLE	SAMSUNG ELECTRONICS
MS YANG	8/19/2010	Jinmao-L PCH IBEX PEAK(1/5)	
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 16 OF 52	

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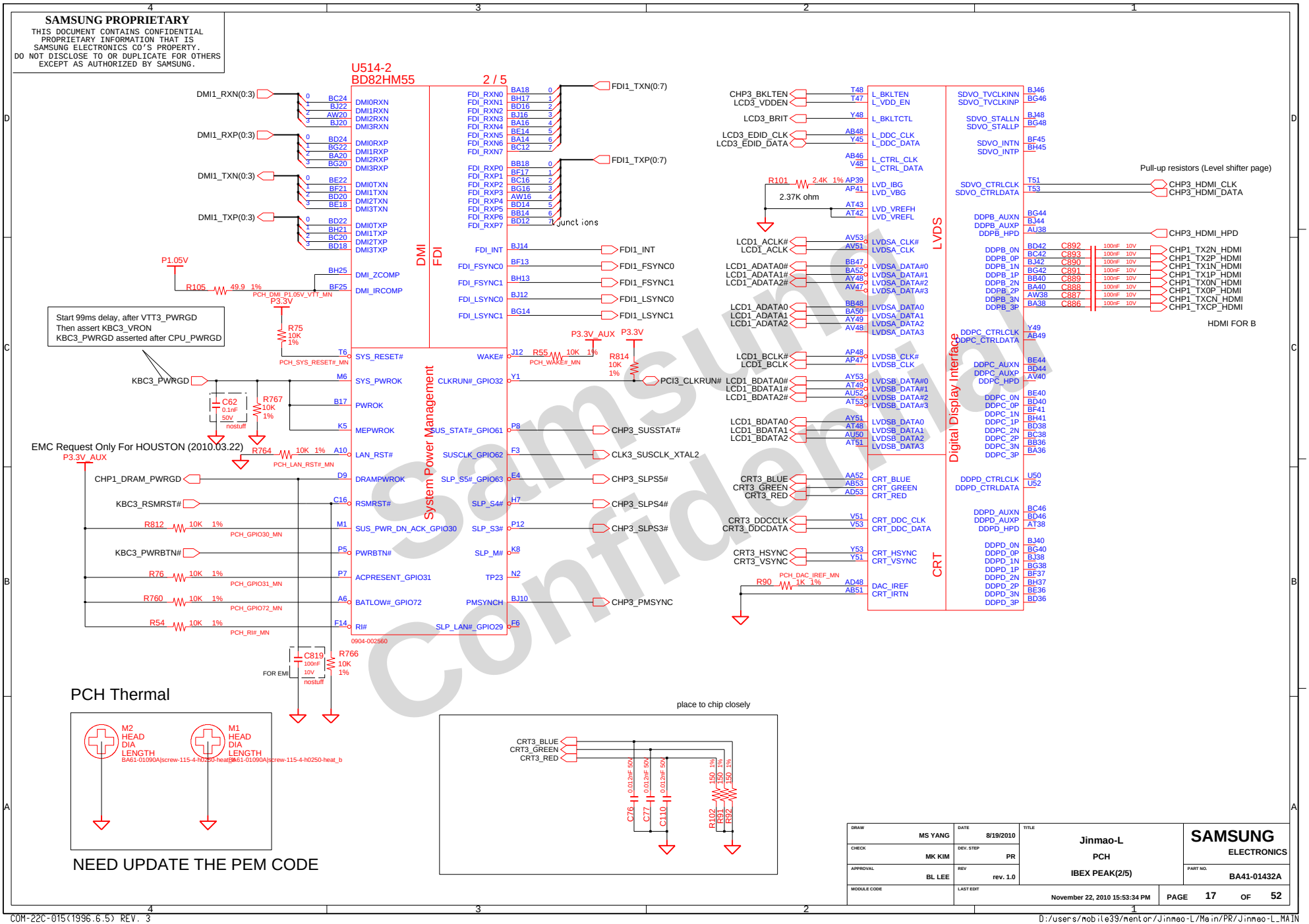

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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PCH IBEX PEAK(2/5)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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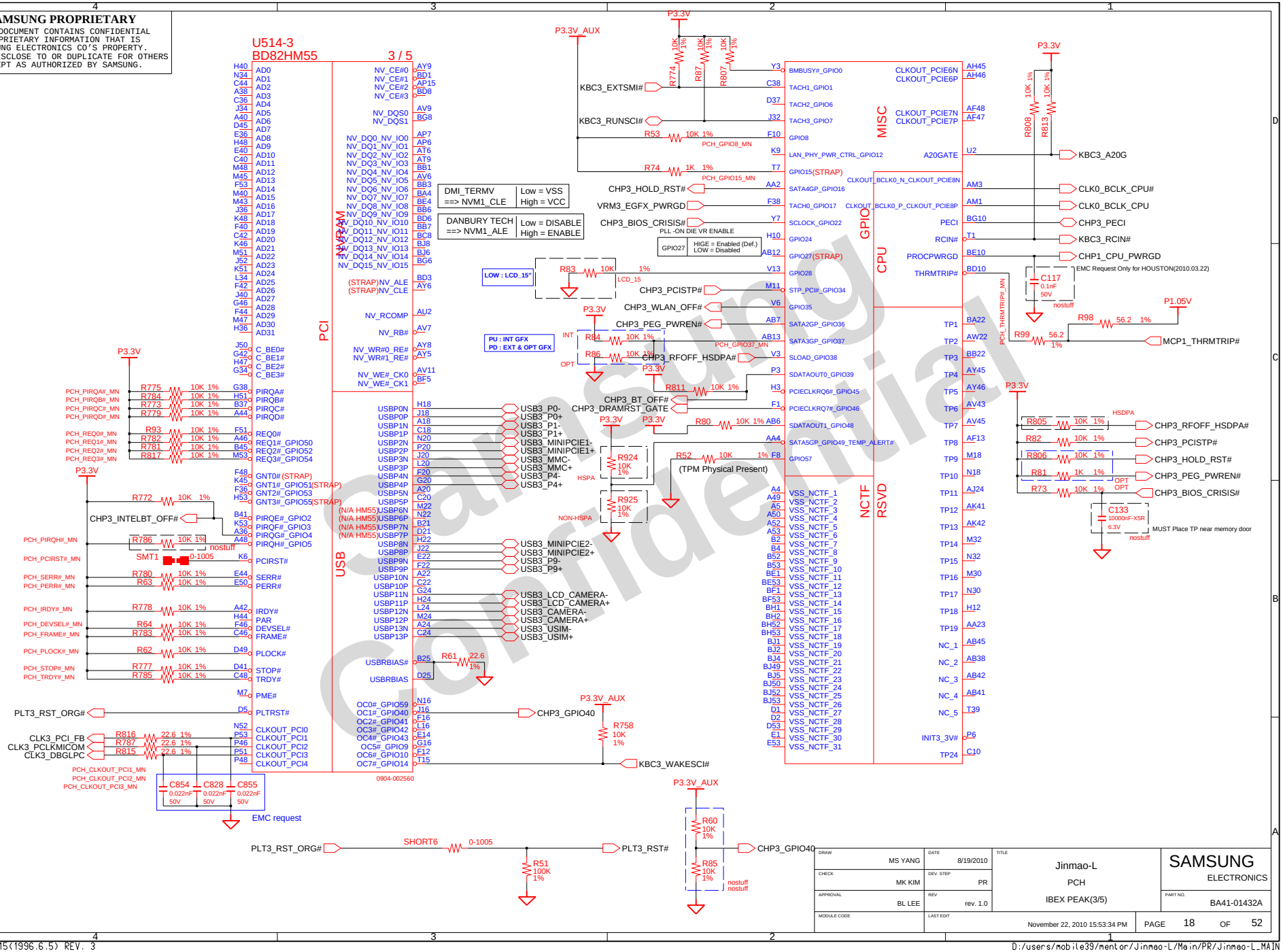

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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PCH IBEX PEAK(3/5)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
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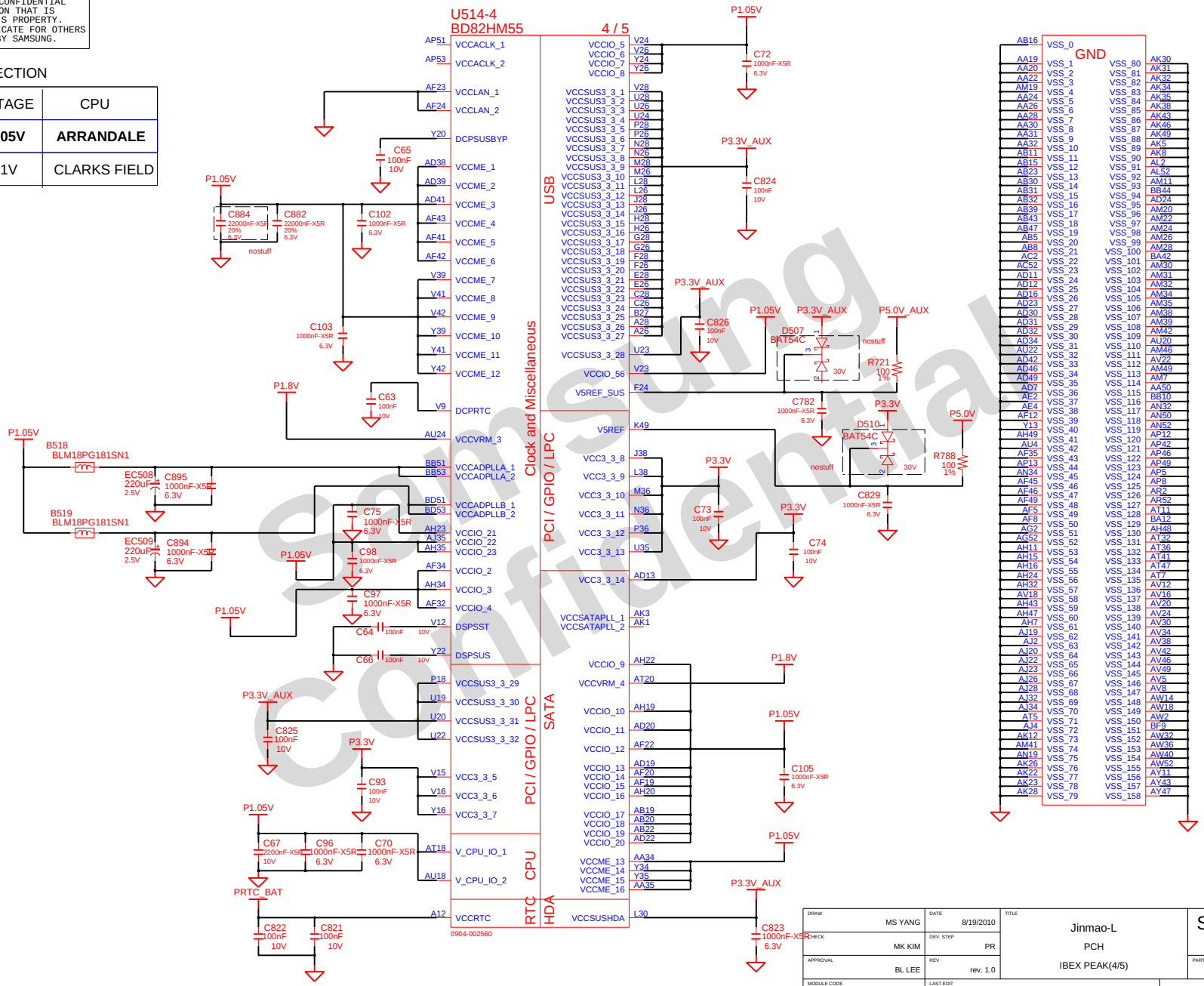
**VTT POWER SELECTION

VTT_SEL	VOLTAGE	CPU
1	**P1.05V**	**ARRANDALE**
0	P1.1V	CLARKS FIELD



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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PCH IBEX PEAK(4/5)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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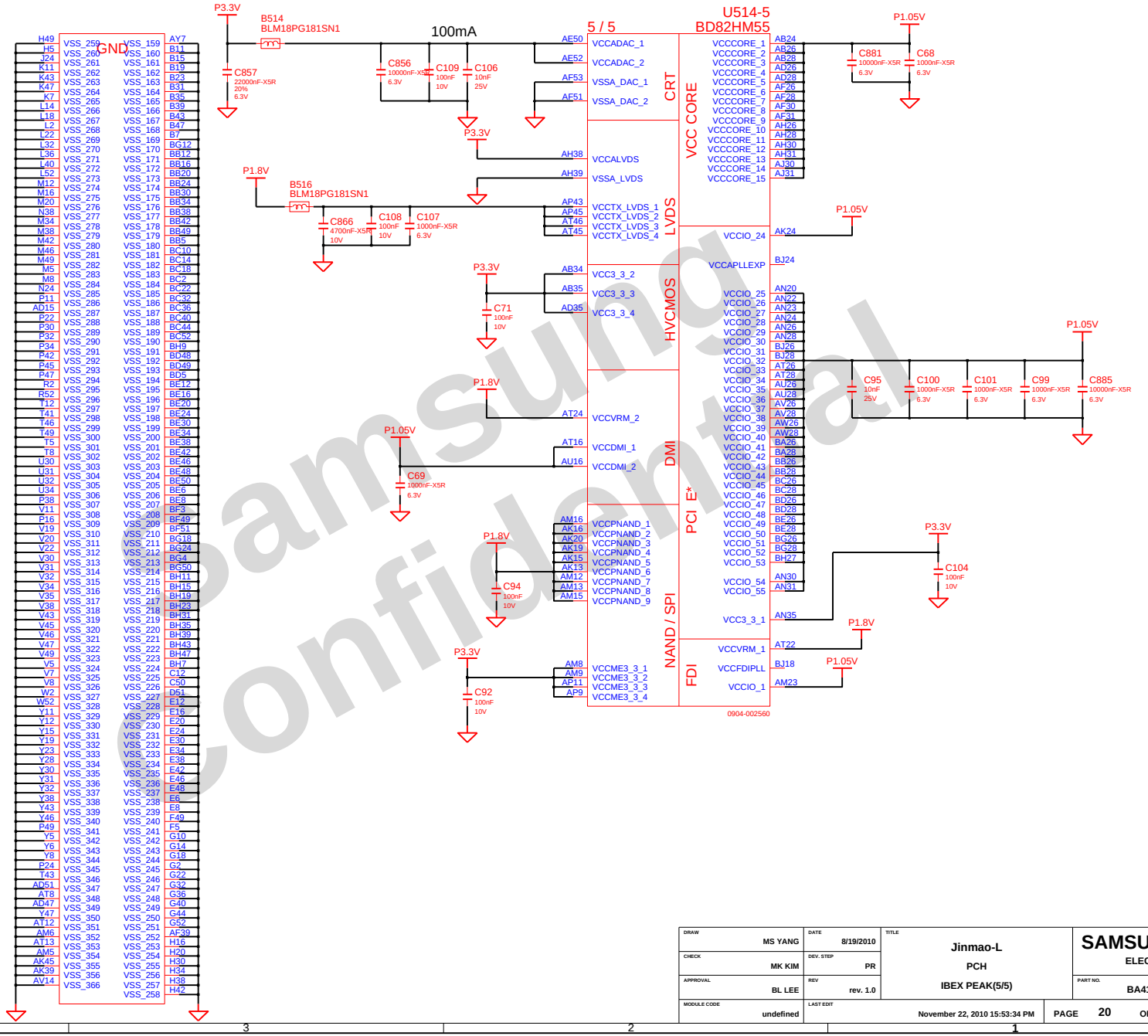

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CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
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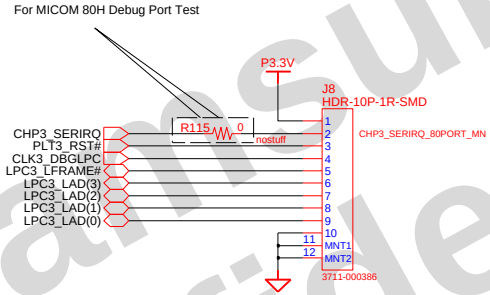
80H PORT DEBUG



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L / DEBUG PORT / 80H DECODER	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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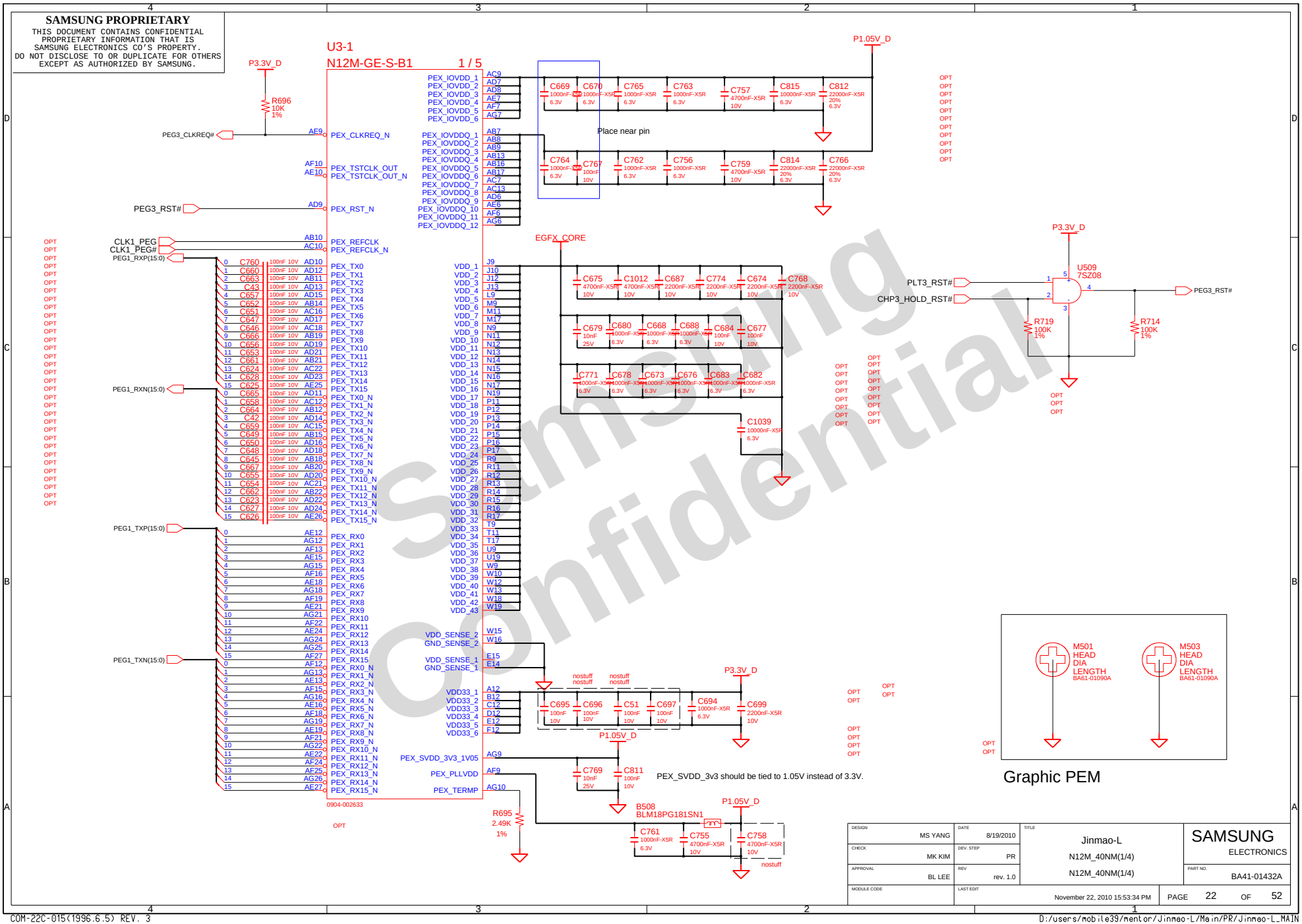

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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L N12M_40NM(1/4) N12M_40NM(1/4)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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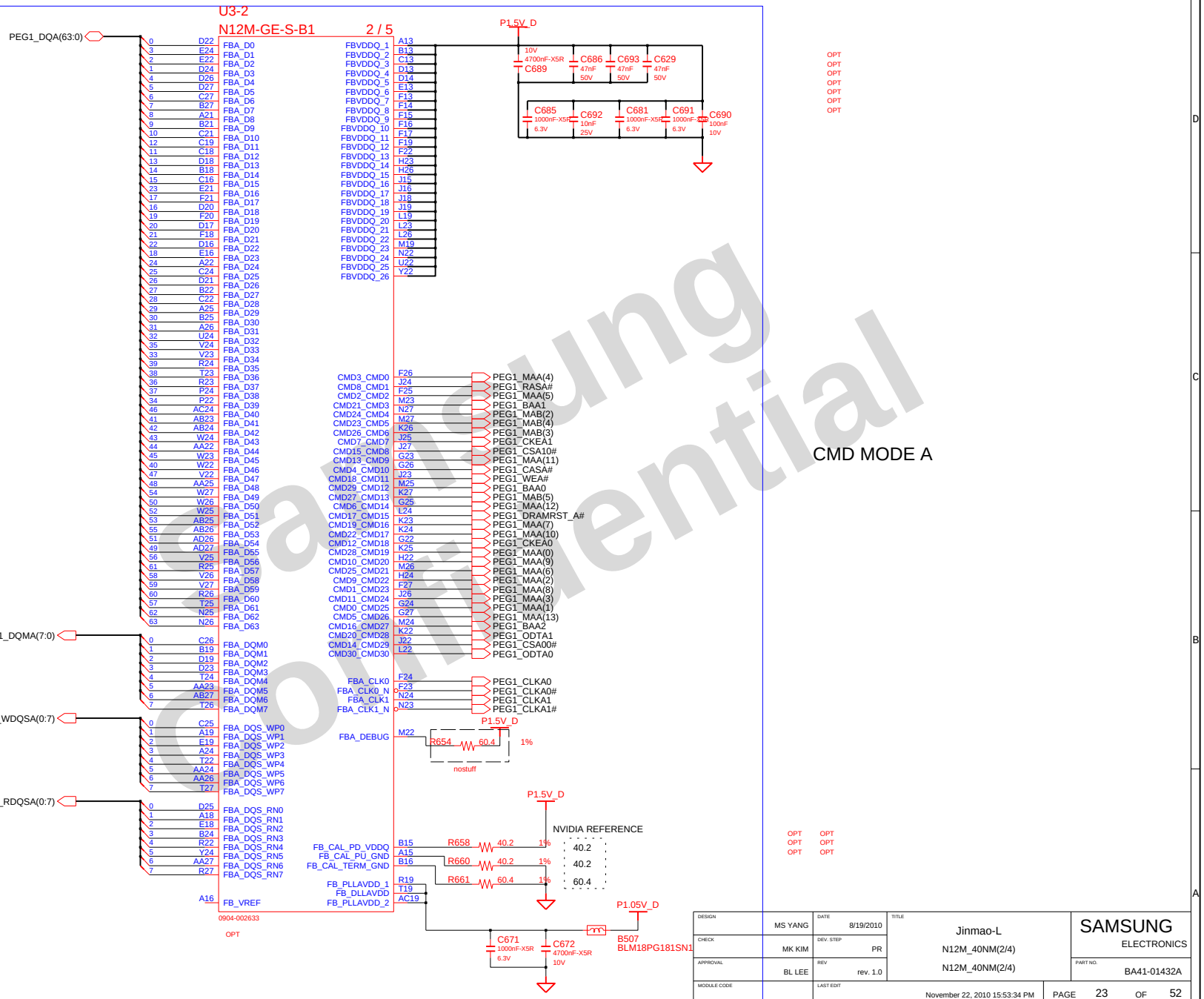

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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L N12M_40NM(2/4) N12M_40NM(2/4)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 23 OF 52	

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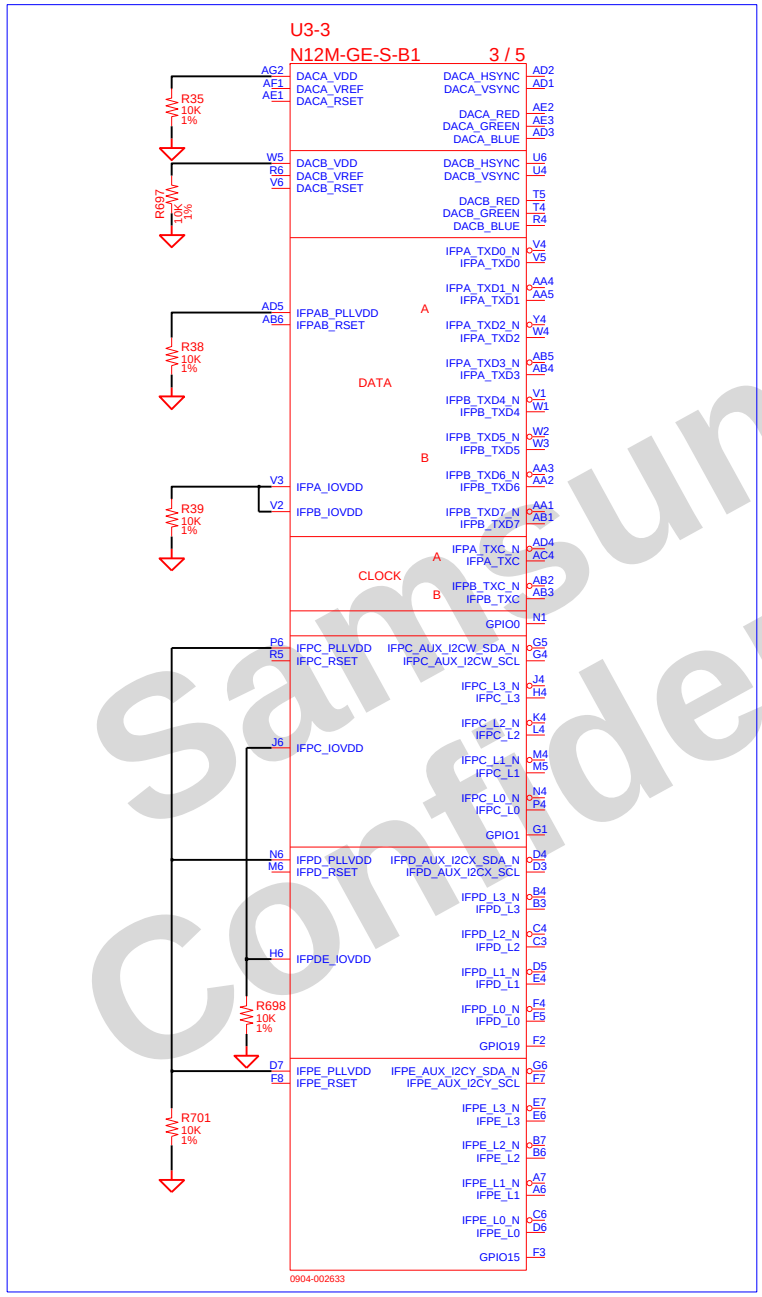

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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L N12M_40NM(3/4) N12M_40NM(3/4)	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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Pin	Description	Activate
GPIO(0)	General Purpose	NC
GPIO(1)	HPD-C	NC
GPIO(2)	LCD0_BL_PWM	High
GPIO(3)	LCD0_VDD	High
GPIO(4)	LCD0_BL_EN	High
GPIO(5)	GPU VID0	00 0.8V 10 0.95V
GPIO(6)	GPU VID1	01 0.85V 11 1.03V
GPIO(7)	GPU VID2	NC
GPIO(8)	OVERT	LOW
GPIO(9)	ALERT	NC
GPIO(10)	MEM_VREF	NC
GPIO(11)	SLI_SYNC	NC
GPIO(12)	PWR_LEVEL	NC
GPIO(13)	MEM_VID	NC
GPIO(14)	PWR_CTRL1	NC
GPIO(15)	HPD-E	High
GPIO(16)	FAN_PWM	NC
GPIO(17)	Reserved	NC
GPIO(18)	Reserved	NC
GPIO(19)	HPD-D	NC

Strap option	Bit 3	Bit 2	Bit 1	Bit 0
ROM_SO	XCLK_417	FB_0_BAR_SIZE	SMB_ALT_ADDR	VGA_DEVICE
ROM_SCLK	DEVID[4]	VENID	CLK_CFG	PLL_TERM
ROM_SI	RAMCFG[3]	RAMCFG[2]	RAMCFG[1]	RAMCFG[0]
STRAP2	DEVID[3]	DEVID[2]	DEVID[1]	DEVID[0]
STRAP1	PADCFG[3]	PADCFG[2]	PADCFG[1]	PADCFG[0]
STRAP0	USER[3]	USER[2]	USER[1]	USER[0]
Resistor value	PU to VDD	PD to GND	XCLK417 = 0 27MHz	
5K ohm	**1000**	**0000**	RAM CFG (SEC)	
10 Kohm	**1001**	**0001**	0011 gDDR3 1Gb	
15K ohm	**1010**	**0010**	USER[3:0]=1111 for EDID	
20K ohm	**1011**	**0011**	PADCFG[3:0]=0110 for NB	
25K ohm	**1100**	**0100**		
30K ohm	**1101**	**0101**		
35K ohm	**1110**	**0110**		
45K ohm	**1111**	**0111**		

	Bit3	Bit2	Bit1	Bit0	
ROMSO	0	0	0	0	27M
SCLK	1	0	1	0	N11M-GE GFX TPYE
	0	0	1	0	N11M-LP1
SI	0	0	1	1	gDDR3 1Gb
SI	0	1	1	1	gDDR3 2Gb
Strap2	0	0	0	0	N11M-GE2
Strap2	0	1	0	1	N11M-GE1 DEVICE ID
Strap1	1	1	1	0	PEG PCIE swing level
Strap0	1	1	1	1	EDID_EN

U3-4
N12M-GE-S-B1 4 / 5

U3-5
N12M-GE-S-B1
5 / 5

Function Straps

STRAP0	User Strap	
	EDID is used	**1111**
	Customer defined	1000 - 1100
	1024 x 768	0000 - 0001
	1280 x 1024	0010
STRAP1	GPU PCIe Interface Strap	
	GB1	**1110**
	GB2	0110
	DeskTop	0000
ROM_SO	Int PCIe Clock - 277MHz(default)	
	Aperture Size - 256MB(default)	
	I2C Address of GPU - 0x9E(default)	
	Device Type - 3D Device(Optimus)	
ROM_SI	Memory Configuration :	
	Samsung 64M x 16 gDDR3	**0011**
	Samsung 128M x 16 gDDR3	**0111**

Chip Select Straps (N12M-GB1)

GFX3_ROM_SCLK	N12M-GE	15K PU
GFX3_STRAP2	N12M-GE	15K PU

N12M-GE : 0x0A**7A** (1010 / 1010)

Chip Select Straps (N11M-GB1)

GFX3_ROM_SCLK	N11M-GE2	15K PU
GFX3_STRAP2	N11M-GE2	5K PD

N11M-GE2 : 0x0A**70** (1010 / 0000)

nVidia Request
(About Thermal)

Place near chip

DESIGN	MS YANG	DATE	8/19/2010	TITLE: Jinmao-L N12M_40NM(4/4) N12M_40NM(4/4)
CHECK	MK KIM	DEV. STEP	PR	SAMSUNG ELECTRONICS
APPROVAL	BL LEE	REV	rev. 1.0	PART NO. BA41-01432A
MODULE CODE		LAST EDIT	November 22, 2010 15:53:34 PM	PAGE 25 OF 52

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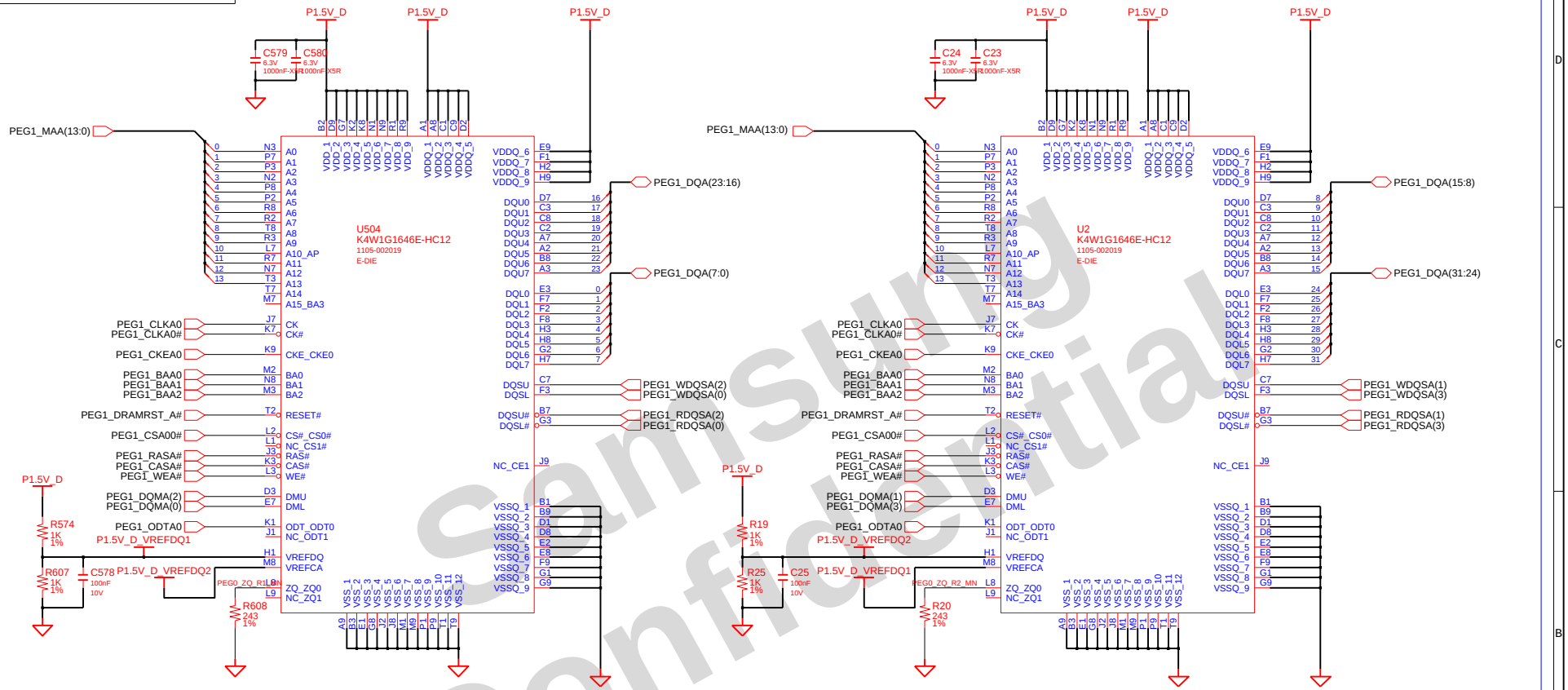
A-Channel #0



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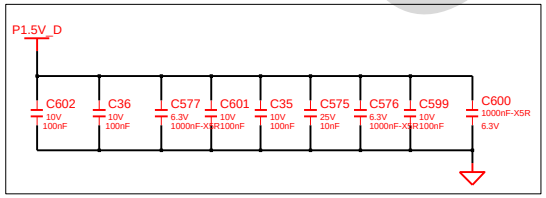
Place near to VDDQ



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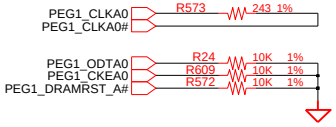
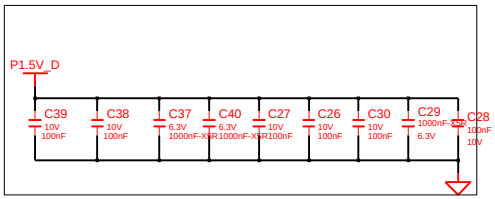


Place near to VDDQ



OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT OPT

DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L GRAPHIC_MEM A#0 GRAPHIC_MEM A#0	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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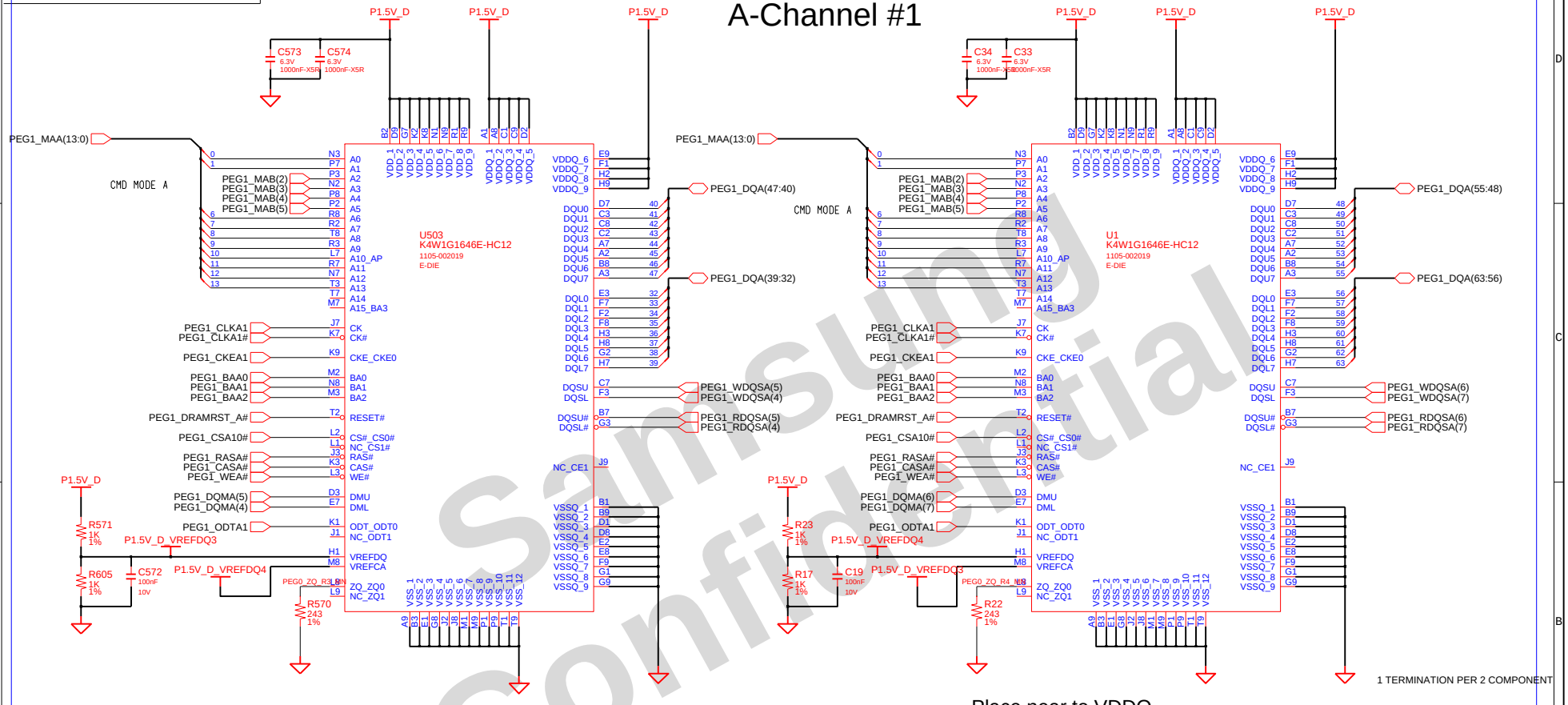
A-Channel #1



DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L GRAPHIC_MEM A#1 GRAPHIC_MEM A#1	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
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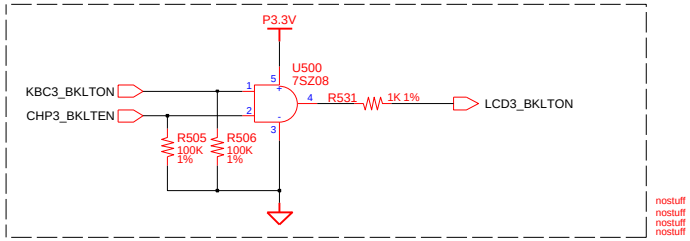
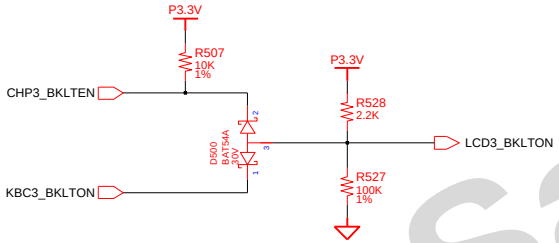
LVDS LOGIC

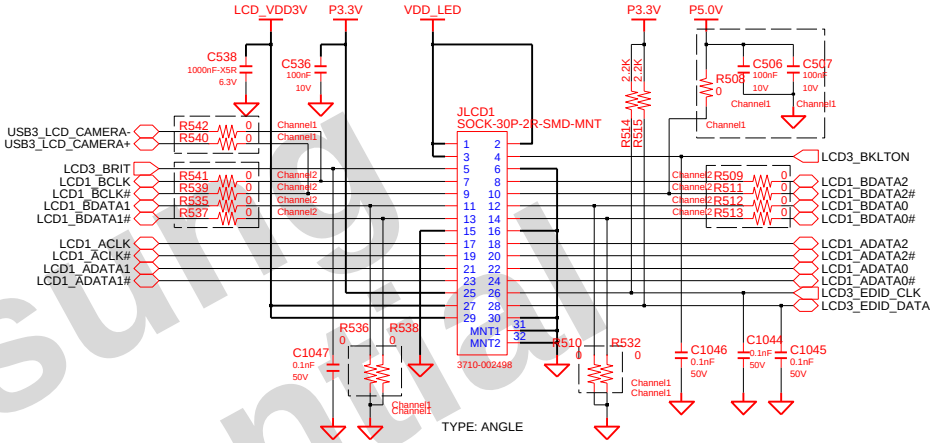
Backlight On



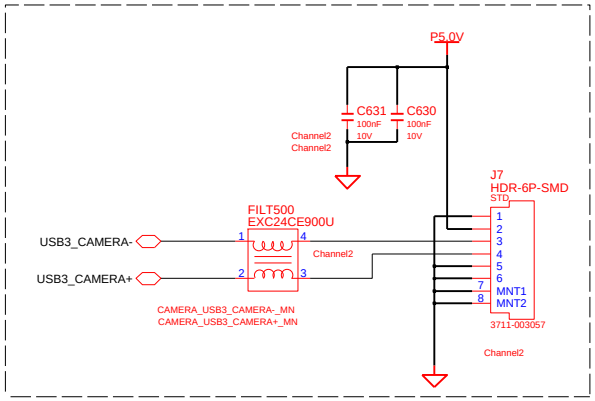


1Ch. LCD Connector + CAMERA

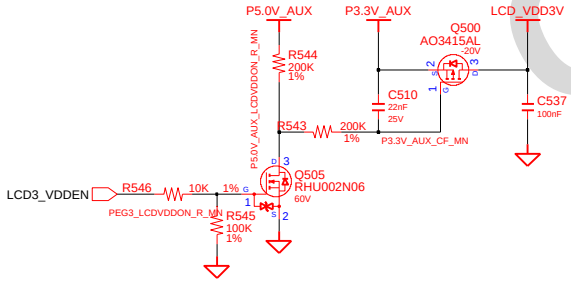
NOTE : Place R20 close to connector to minimize stub



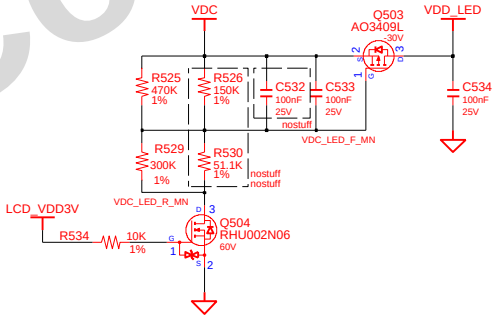
CAMERA CONN FOR 2ch LVDS



LCD Power



LED Power



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L GRAPHICS_IF LVDS	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
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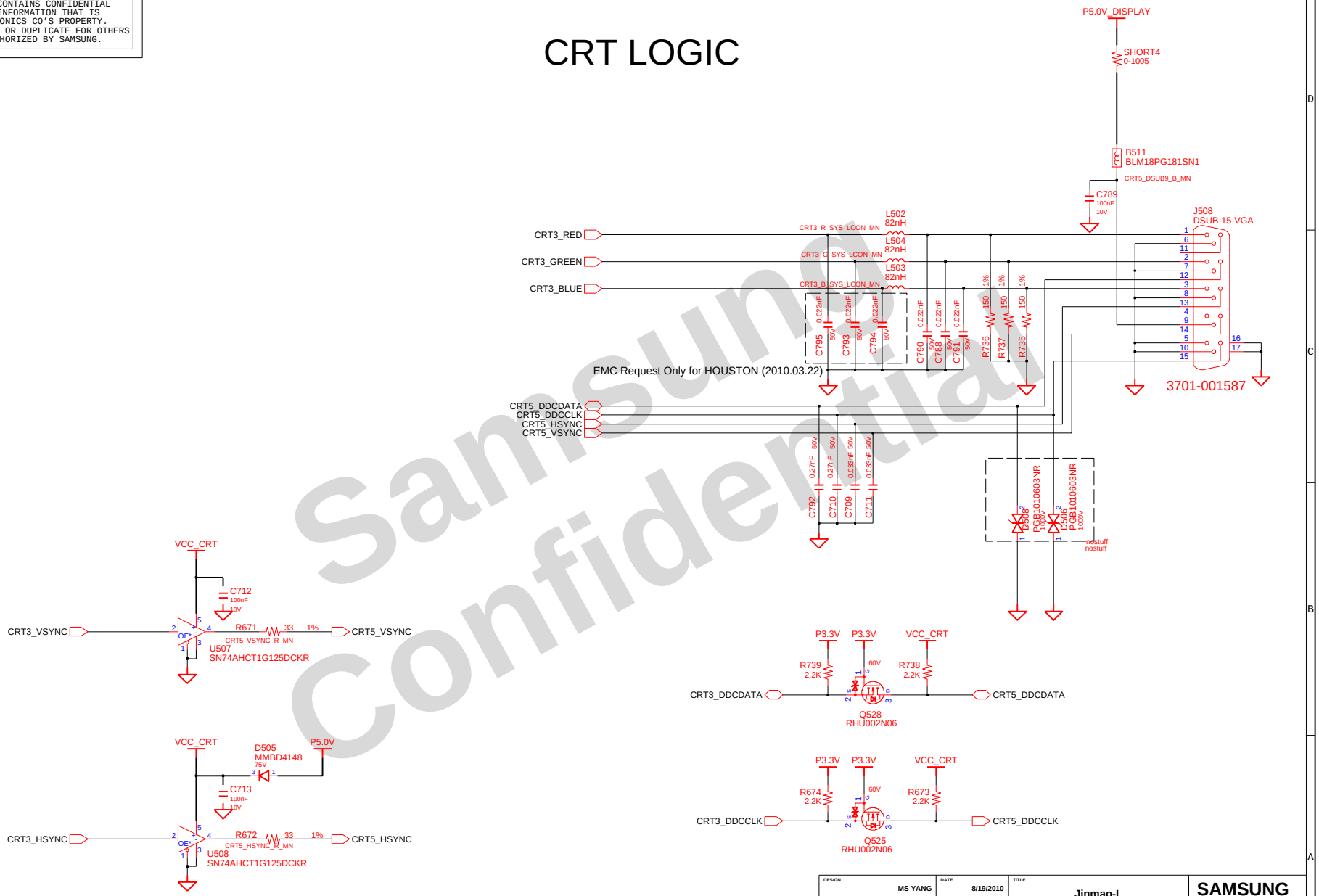
CRT LOGIC



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L GRAPHICS_IF CRT	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
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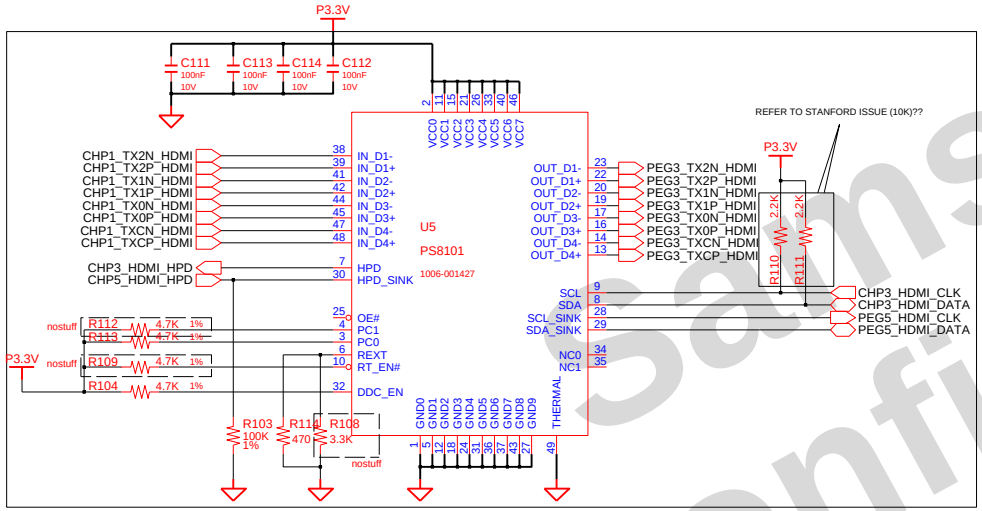
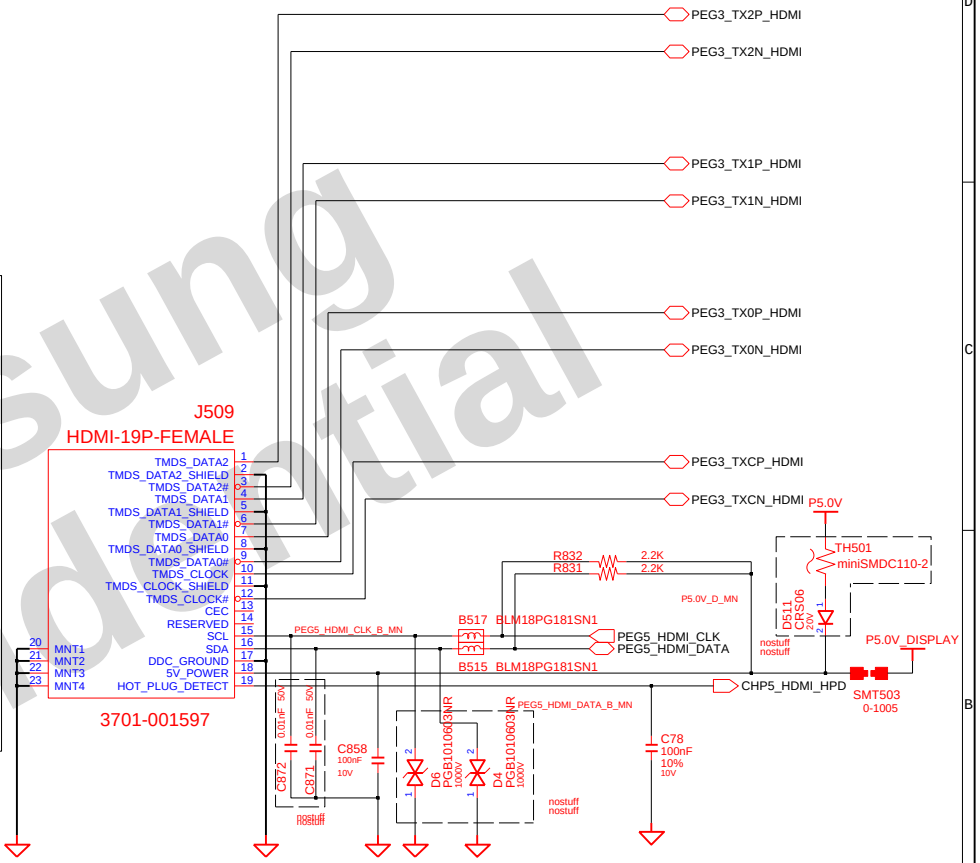
After checking, Houston need to use CMC for each signal.

(EMC request at 2010.04.15)

HDMI Graphic





FOR PS8101

PC1	PC0	
00	8dB	
01	4dB	
10	12dB	←
11	0dB	

FOR ASM1442

CG_2	CG_1	CG_0	Swing	Pre-amp	Slew rate	
0	0	0	450mV	0dB	0dB	
0	0	1	490mV	0dB	-3dB	
0	1	0	450mV	0dB	-3dB	←
0	1	1	460mV	0dB	-4dB	
1	0	0	340mV	0dB	0dB	
1	0	1	400mV	2dB	0dB	
1	1	0	400mV	2dB	0dB	
1	1	1	420mV	0dB	0dB	

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

HDMI Level Shifter	REXT(Pin6)	PC1_CG0(Pin3)	PC1_CG1(Pin4)	RT_EN#_CG2(Pin10)	NC_EQ_0(Pin34)	NC_EQ_1(Pin35)	Note	4-6 CODE
PS8101	499 phm	stuff	nostuff	nostuff	NC	NC		1006-001427
ASM1442	3.4K(3.24~3.3K)	nostuff	nostuff	nostuff	nostuff	nostuff	Internal PU/PD exist CGs nostuff is 450mV swing	1006-001471

FOR ASM1442

EQ_1	EQ_0	Equalization	
0	0	12dB	
0	1	9dB	
1	0	6dB	
1	1	3dB	← Internal Default Value

DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L GRAPHICS_IF HDMI	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
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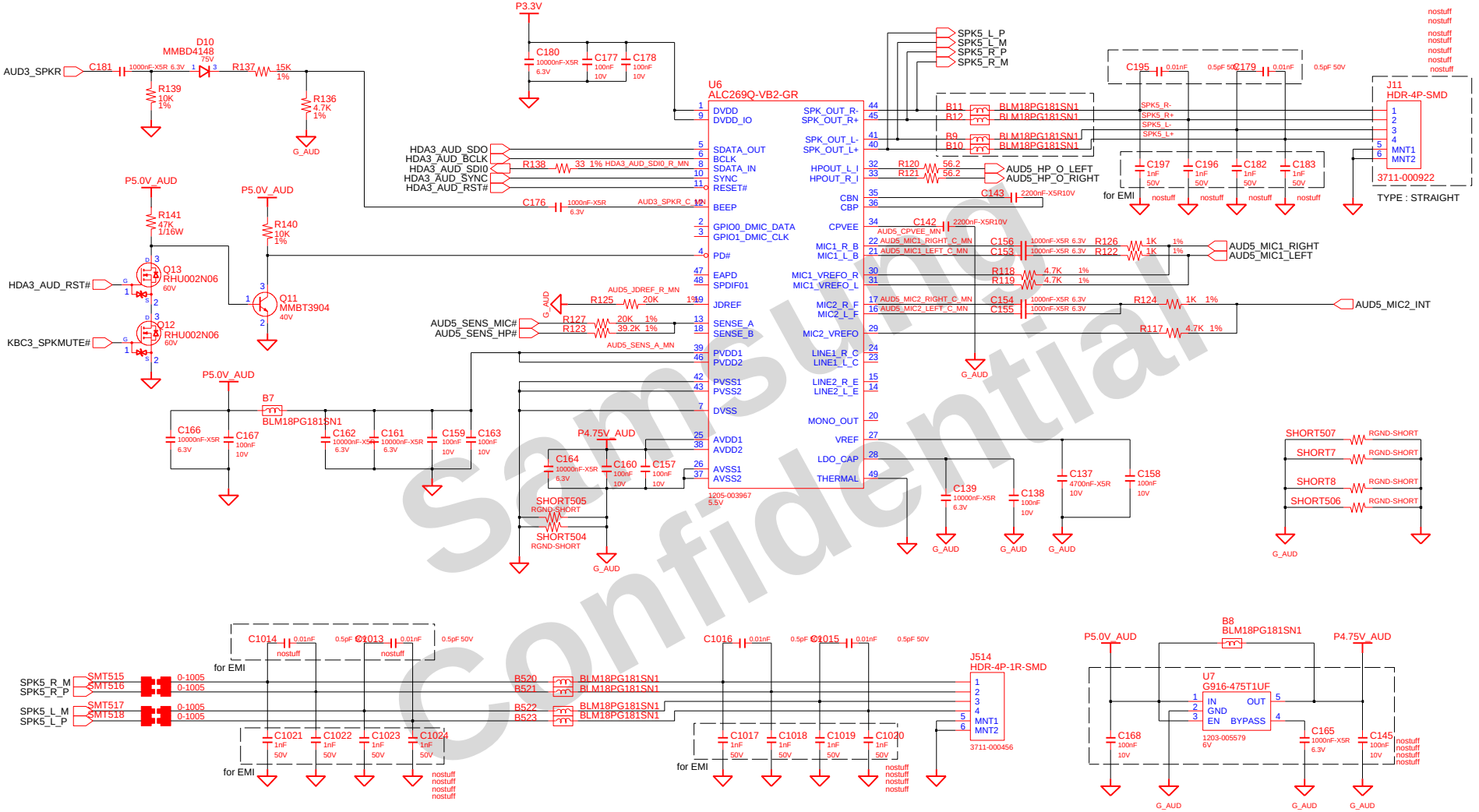
HD AUDIO



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L HDA_CODEC SUB AUDIO CODEC ALC269 SUB	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 31 OF 52	

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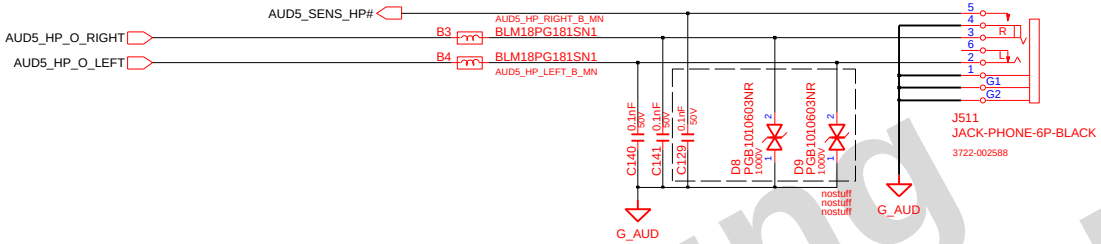
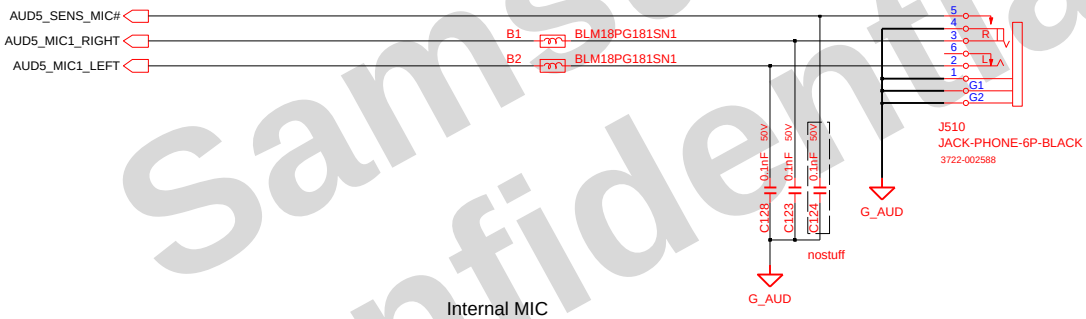
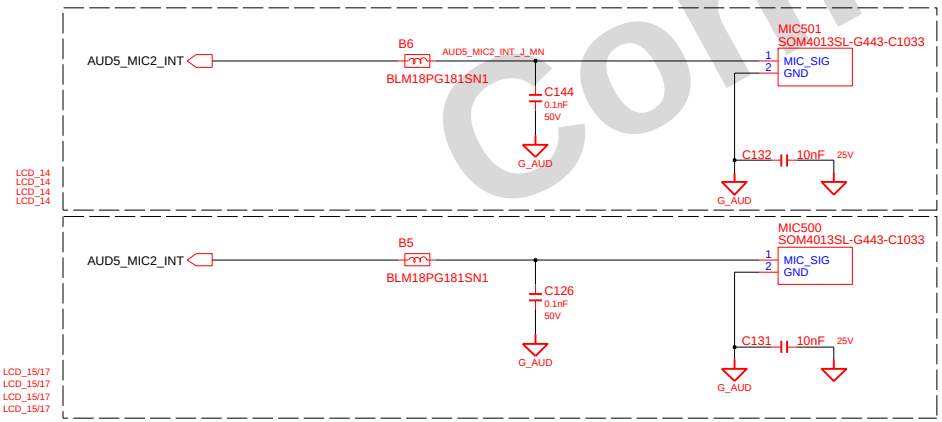
HEADPHONE

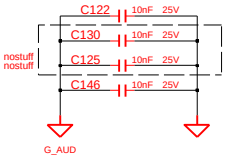


MIC JACK



Internal MIC





DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L HDA_CODEC & LED SUB AUDIO JACK & LED SUB	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 32 OF 52	

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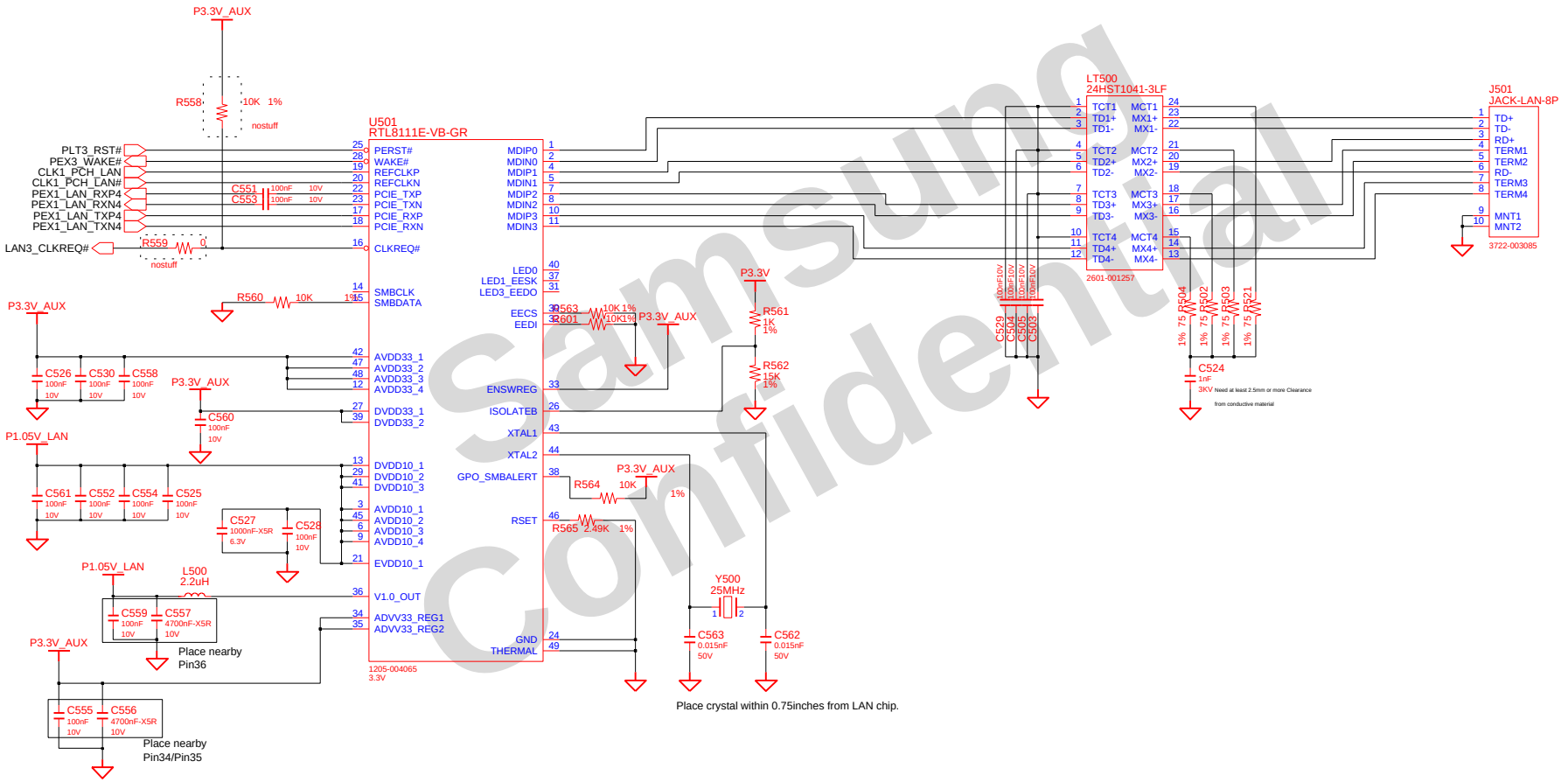
Reatek RTL8111E



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L / LAN / LAN_Realtek_RTL8111	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 33 OF 52	

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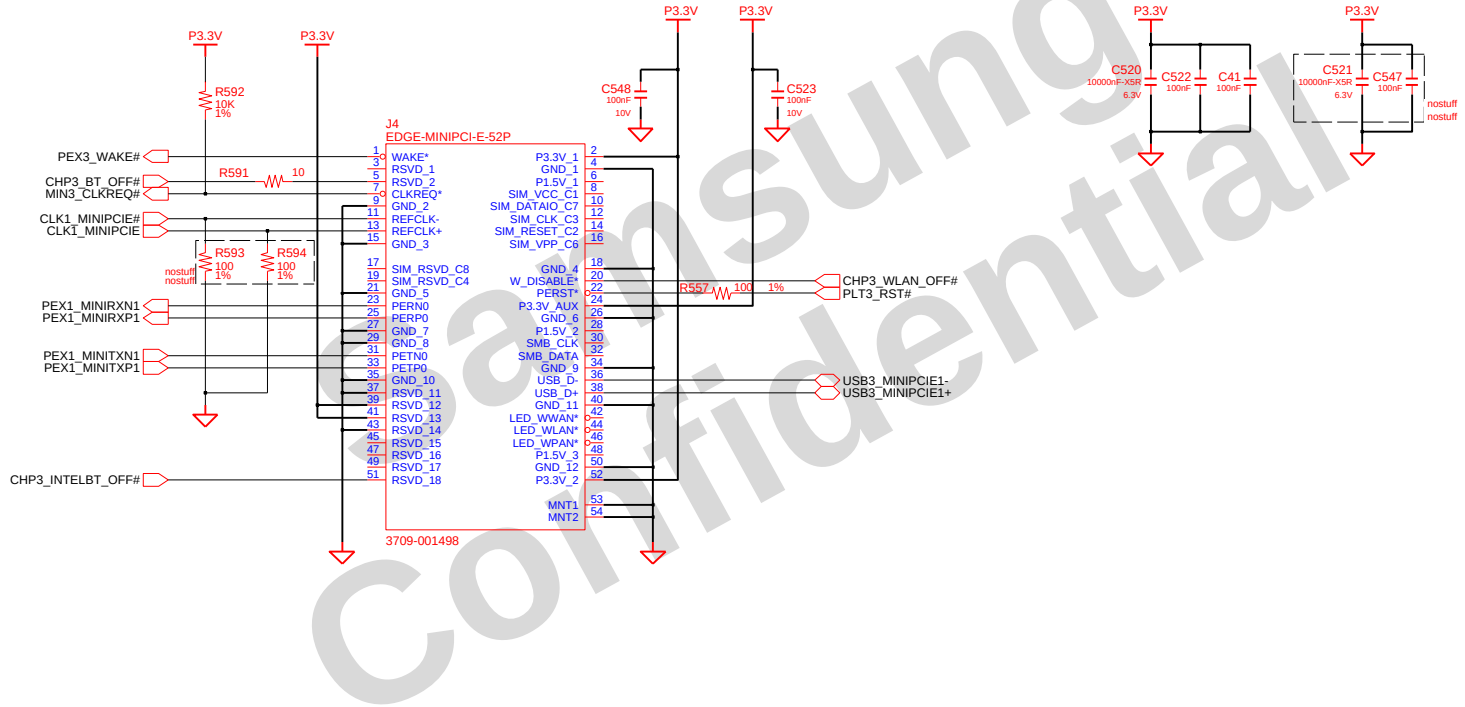
WLAN
Height : 4.0mm



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L WLAN WLAN	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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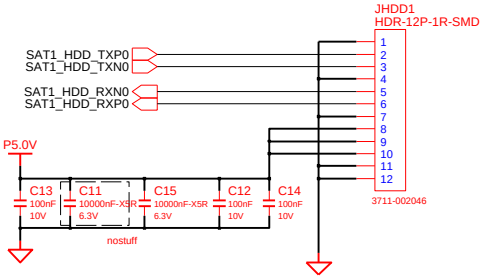
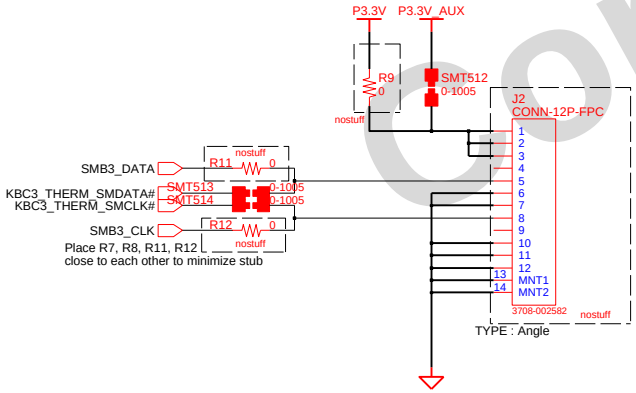
SATA HDD CONN

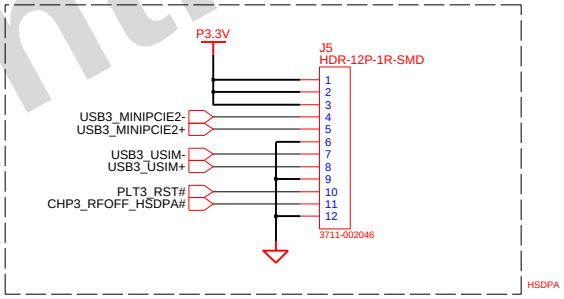
Cable Connector Type



FOR IR



MAIN to HSDPA SUB



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L SATA HDD & IR SATA HDD & IR	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 35 OF 52	

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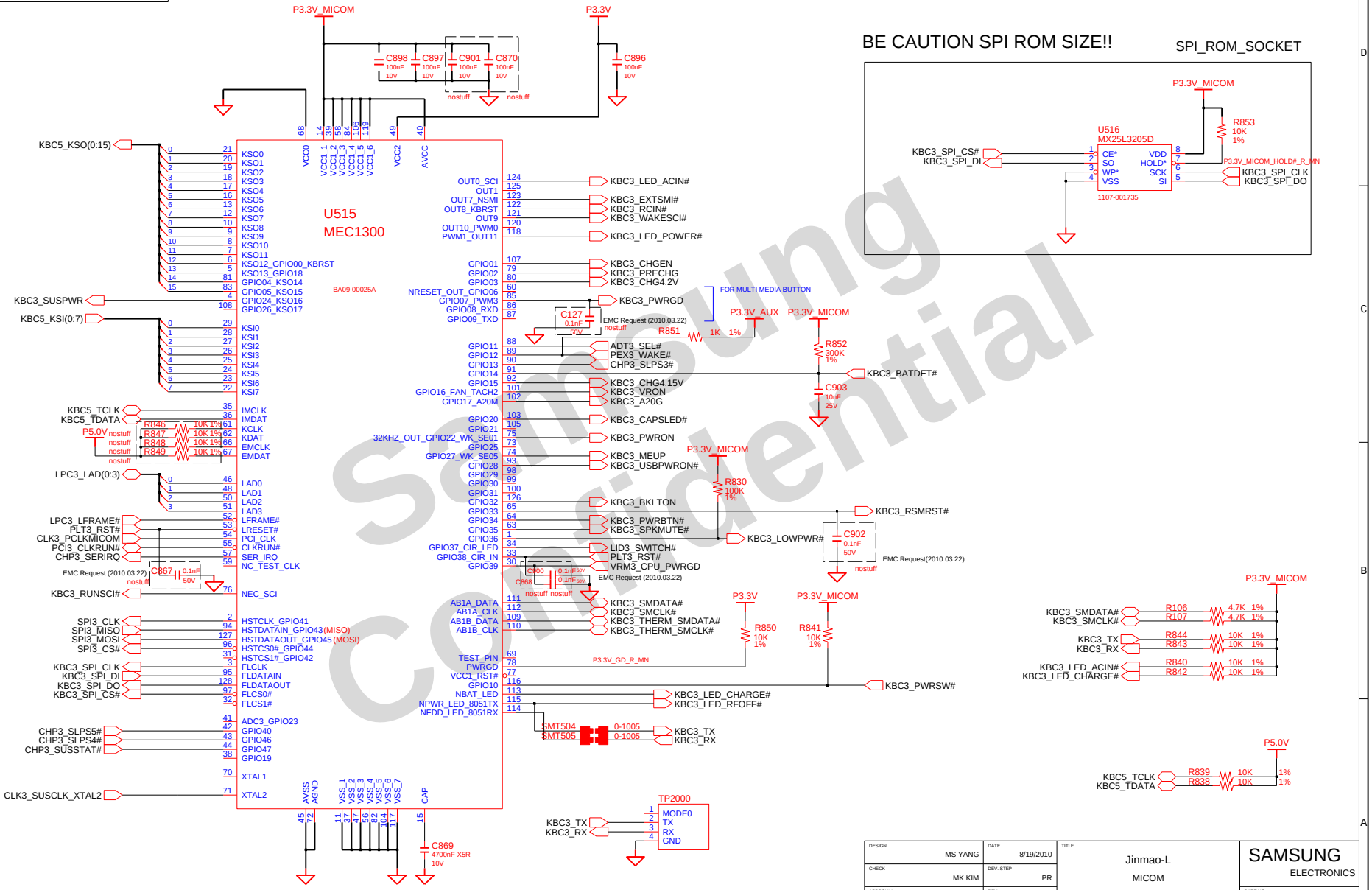
MAIN BOARD (MICOM)



BE CAUTION SPI ROM SIZE!!

SPI_ROM_SOCKET

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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L MICOM SMSC MEC1300	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 36 OF 52	

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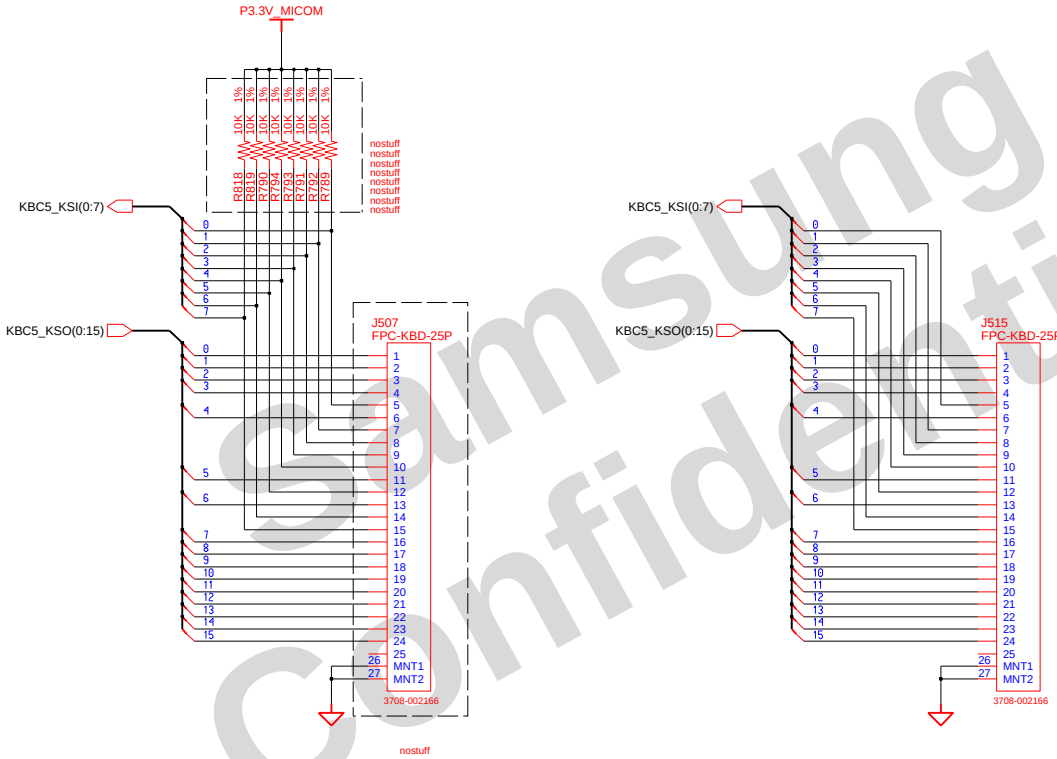
Micom Glue Logic

KEYBOARD



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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR	MICOM GLUE LOGIC	
APPROVAL: BL LEE	REV: rev. 1.0	MICOM GLUE LOGIC	PART NO.: BA41-01432A
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 37 OF 52	

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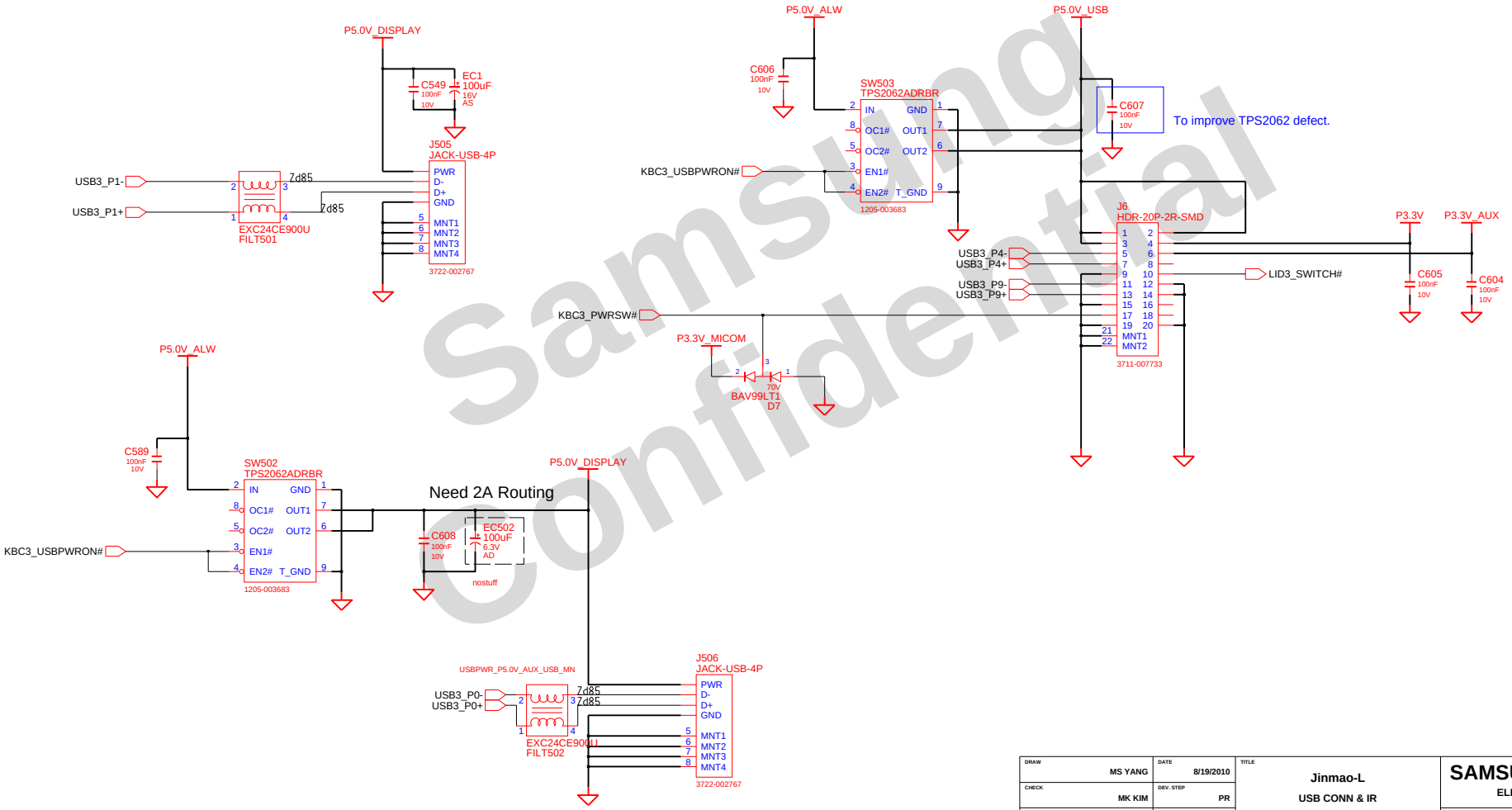
POWER S/W SUB B'D CONNECTOR

MAIN to SUB



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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L USB CONN & IR USB & IR	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 38 OF 52	

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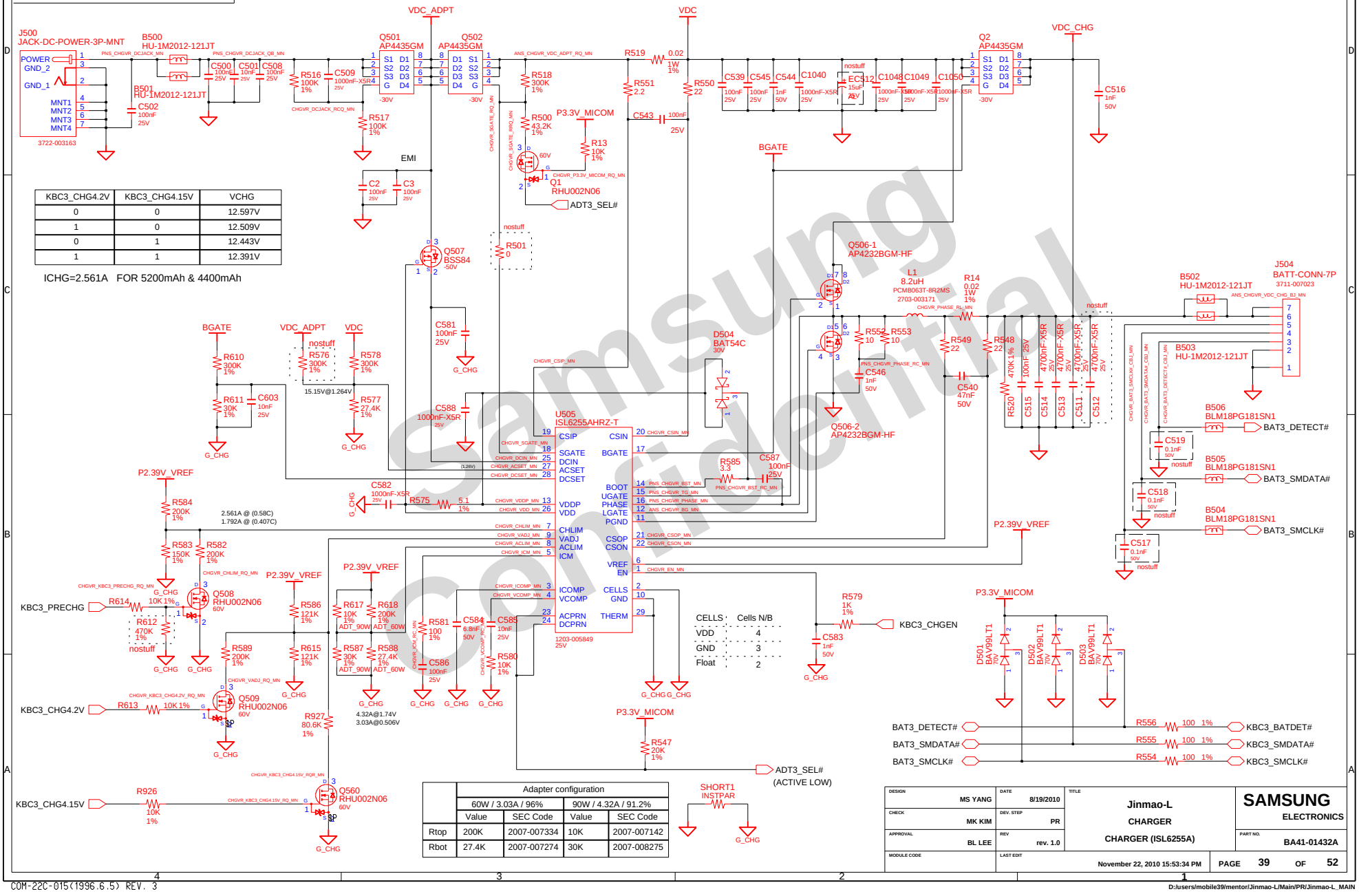
CHARGER & POWER MANAGEMENT



KBC3_CHG4.2V	KBC3_CHG4.15V	VCHG
0	0	12.597V
1	0	12.509V
0	1	12.443V
1	1	12.391V

ICHG=2.561A FOR 5200mAh & 4400mAh

CELLS	Cells N/B
VDD	4
GND	3
Float	2

	Adapter configuration			
	60W / 3.03A / 96%		90W / 4.32A / 91.2%	
	Value	SEC Code	Value	SEC Code
Rtop	200K	2007-007334	10K	2007-007142
Rbot	27.4K	2007-007274	30K	2007-008275

DESIGN	MS YANG	DATE	8/19/2010
CHECK	MK KIM	DEV. STEP	PR
APPROVAL	BL LEE	REV	rev. 1.0
MODULE CODE		LAST EDIT	November 22, 2010 15:53:34 PM

TITLE: Jinmao-L CHARGER CHARGER (ISL6255A)

SAMSUNG ELECTRONICS

PART NO. BA41-01432A

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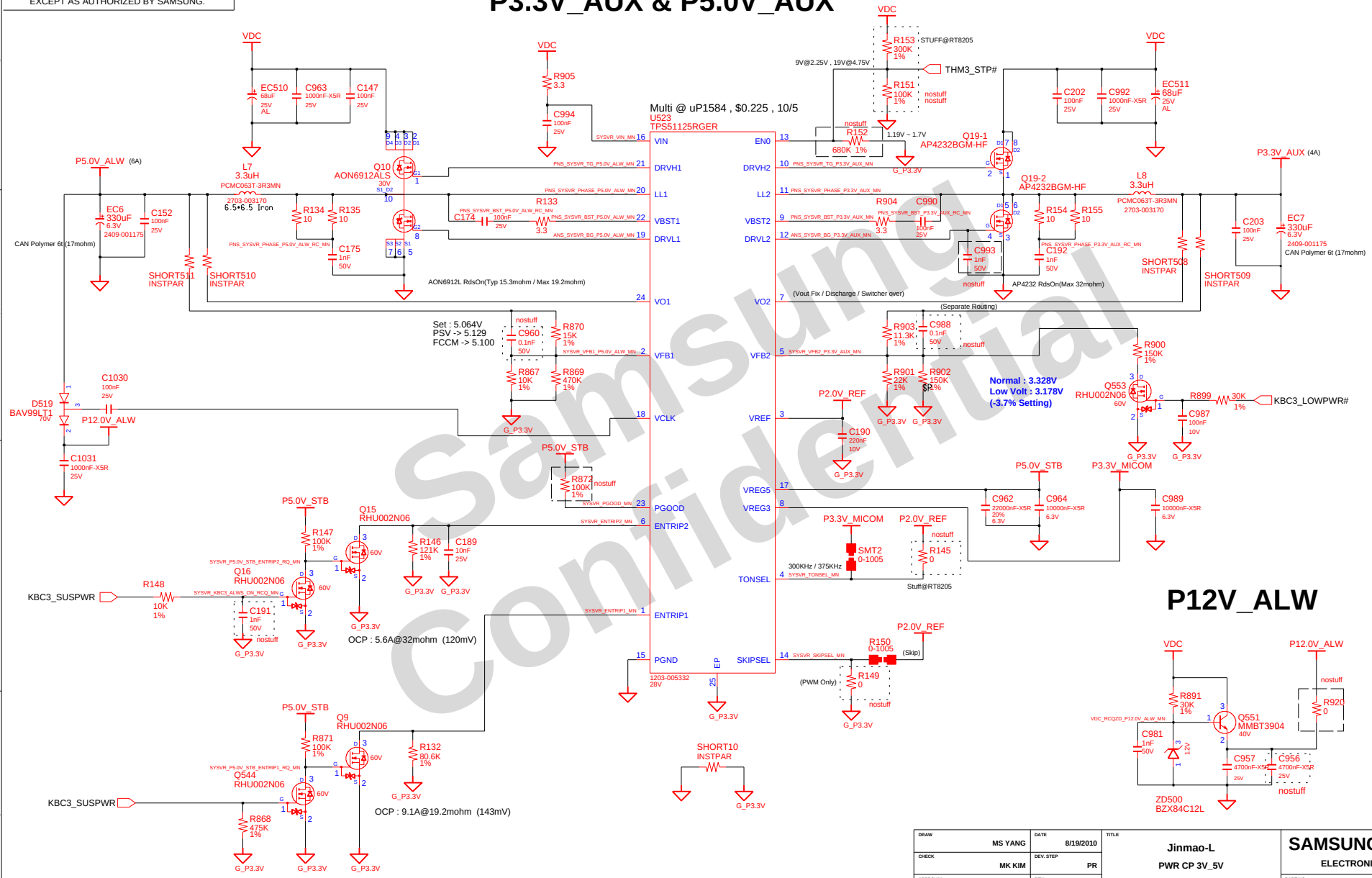
P3.3V_AUX & P5.0V_AUX



P12V_ALW

DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PWR CP 3V_5V P3.3V_AUX / P5.0V_AUX	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE: undefined	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 40 OF 52	

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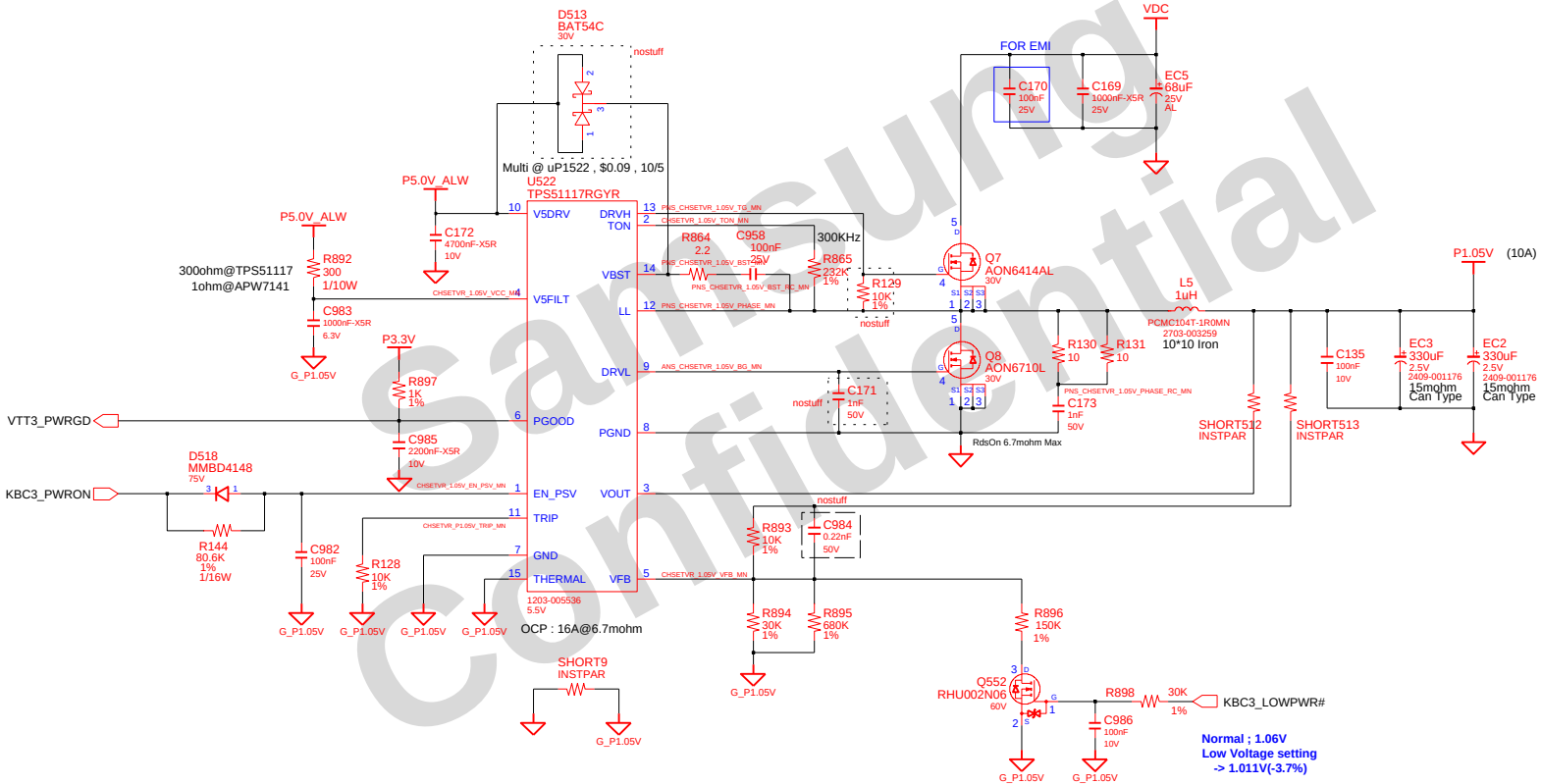
CHIPSET POWER(P1.05V)



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L / P1.05V / TI TPS51117R	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 41 OF 52	

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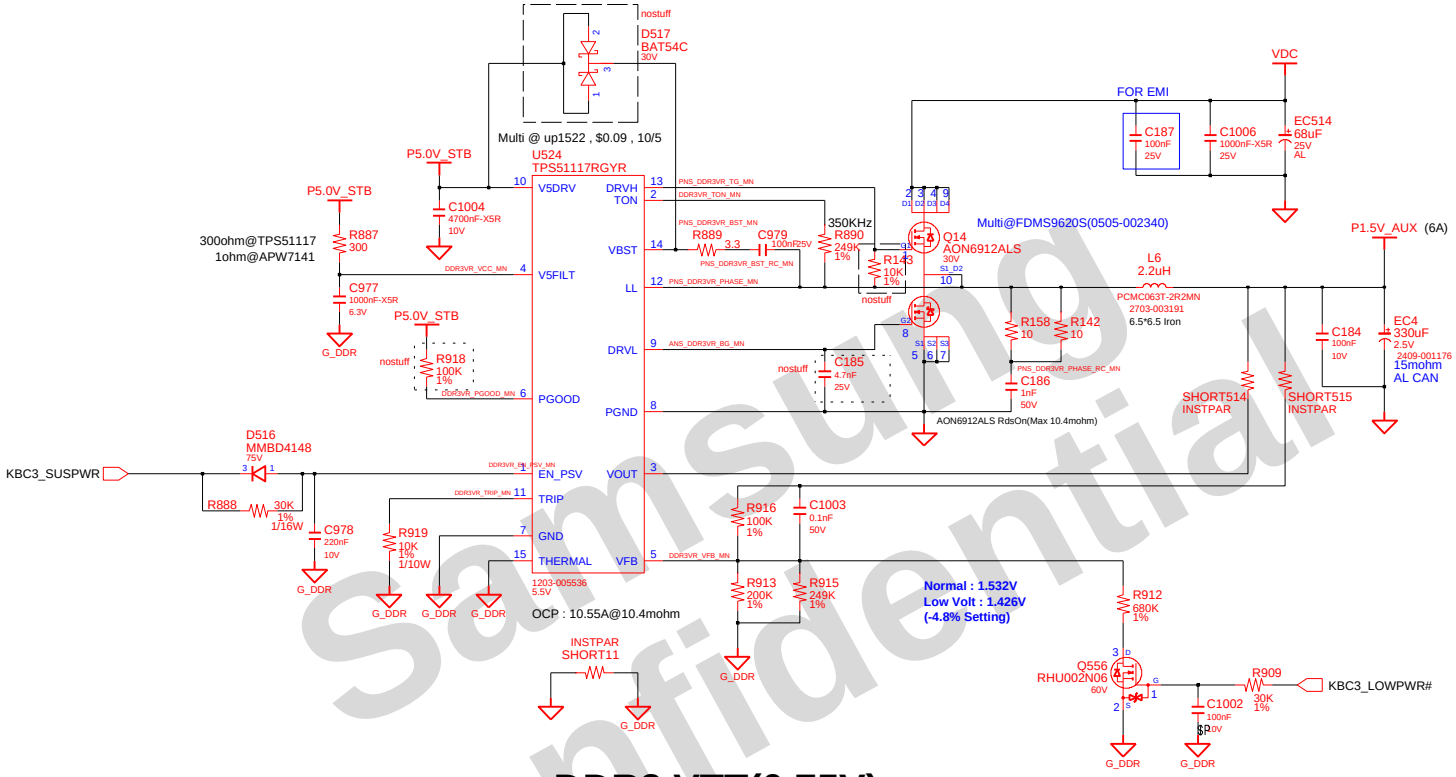
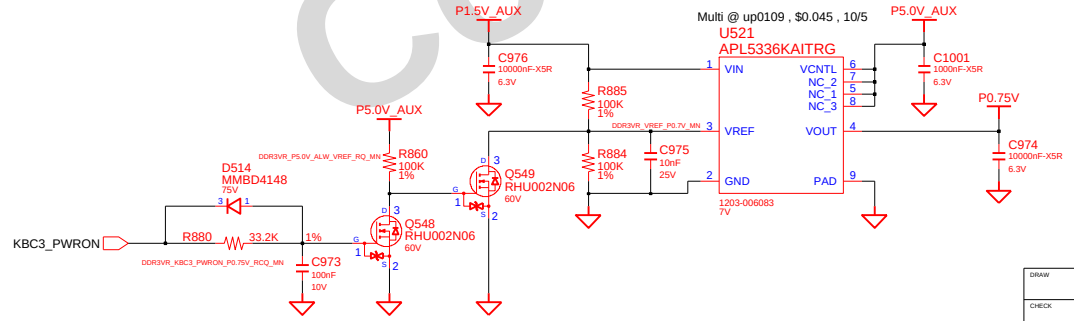
DDR3 Power



DDR3 VTT(0.75V)



DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PWR MEMORY RT8207	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE: undefined	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 42 OF 52	

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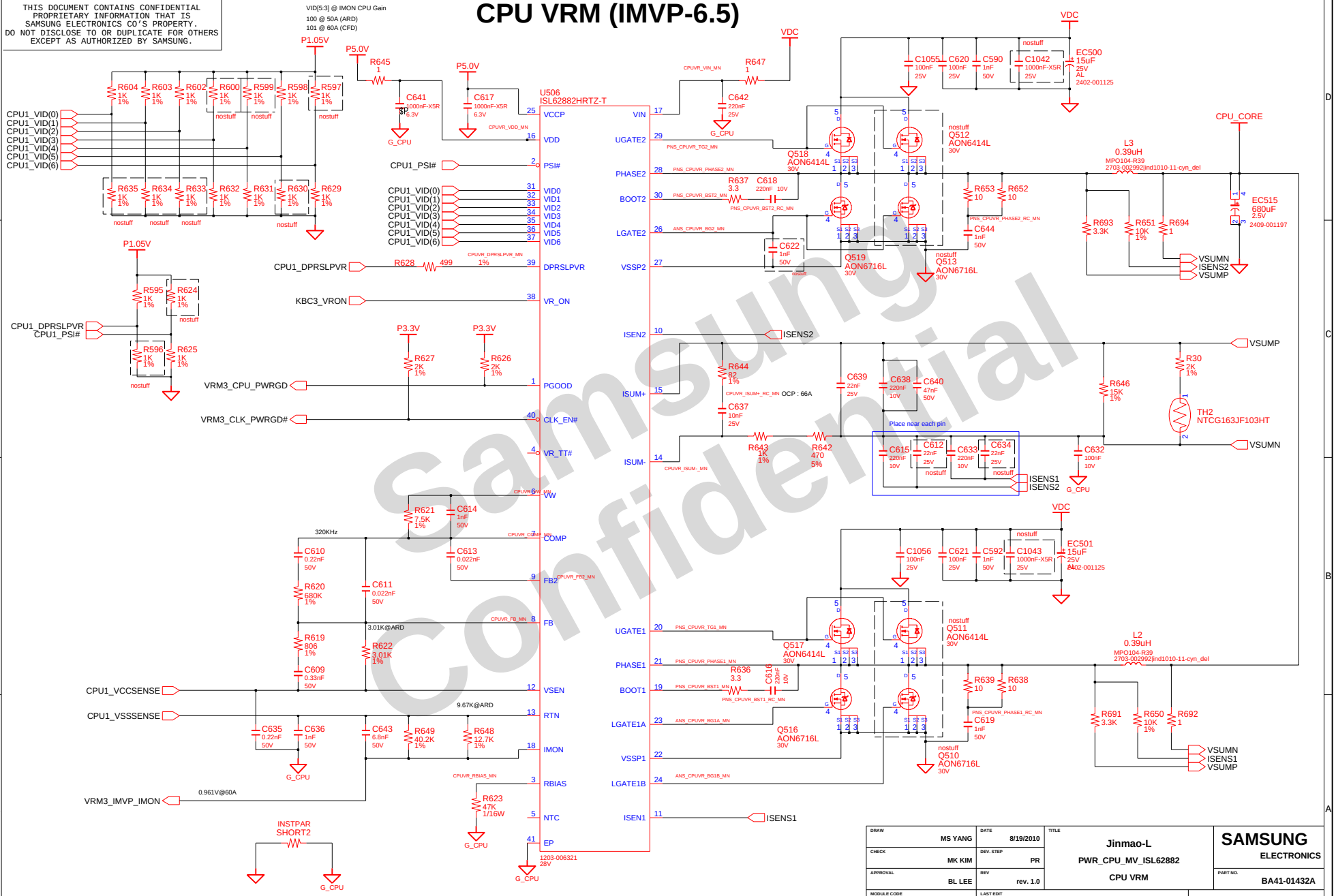
CPU VRM (IMVP-6.5)



DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PWR_CPU_MV_ISL62882 CPU VRM	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE: undefined	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 43 OF 52	

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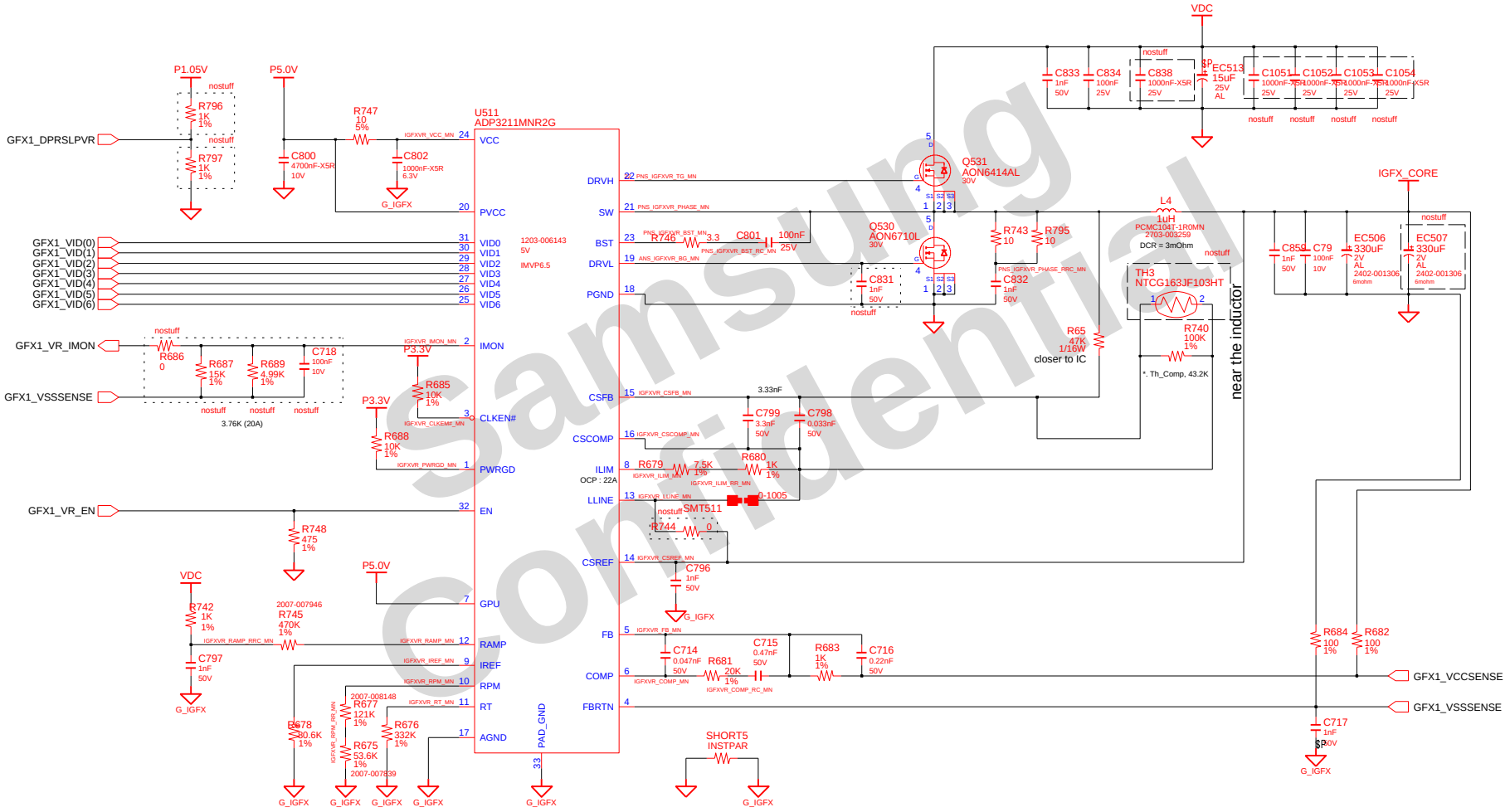
Internal GFX Core Power



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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PWR_GFX_INT_ Internal Graphic Power	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
MODULE CODE: undefined	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 44 OF 52	

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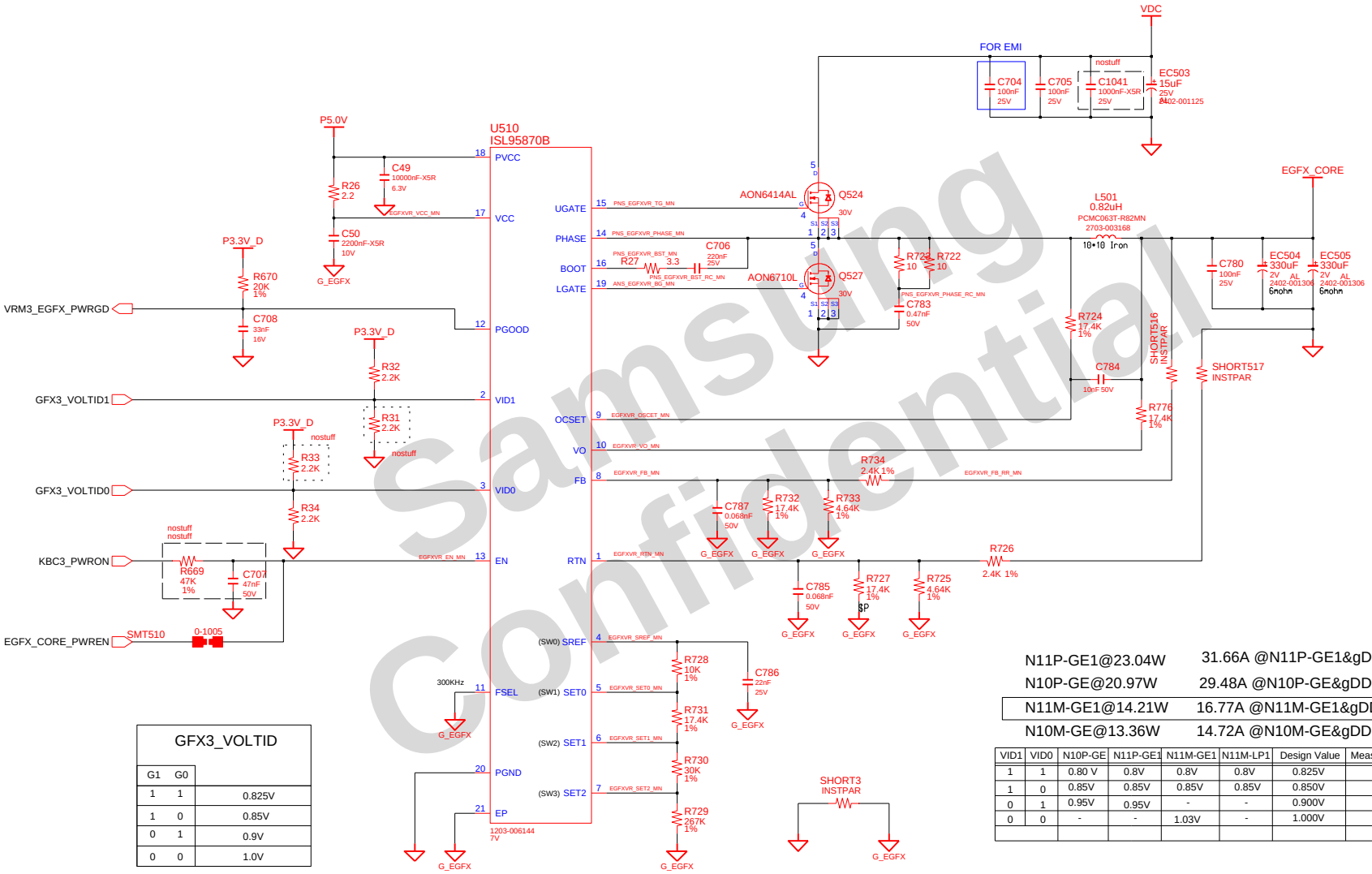
External GFX Core Power



GFX3_VOLTID		
G1	G0	
1	1	0.825V
1	0	0.85V
0	1	0.9V
0	0	1.0V

N11P-GE1@23.04W	31.66A @N11P-GE1&gDDR3
N10P-GE@20.97W	29.48A @N10P-GE&gDDR3
N11M-GE1@14.21W	16.77A @N11M-GE1&gDDR3
N10M-GE@13.36W	14.72A @N10M-GE&gDDR3

VID1	VID0	N10P-GE	N11P-GE1	N11M-GE1	N11M-LP1	Design Value	Measured Value
1	1	0.80 V	0.8V	0.8V	0.8V	0.825V	
1	0	0.85V	0.85V	0.85V	0.85V	0.850V	
0	1	0.95V	0.95V	-	-	0.900V	
0	0	-	-	1.03V	-	1.000V	

OPT OPT OPT OPT **OPT**
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OPT

DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR	PWR_GFX_MV_EXT	
APPROVAL: BL LEE	REV: rev. 1.0	External Graphic Power	PART NO.: BA41-01432A
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 45 OF 52	

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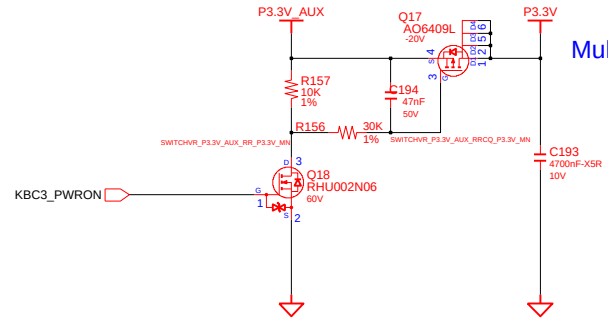
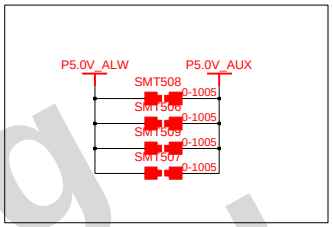
Switched Power

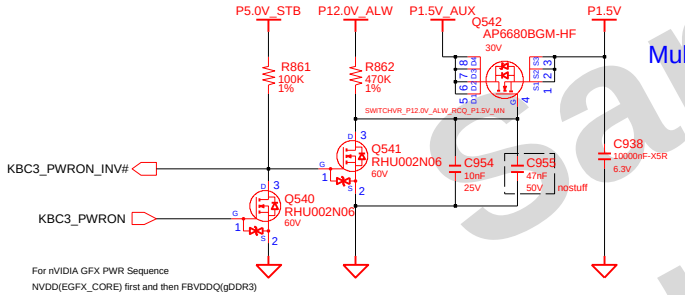
Switched Power On (P3.3V)



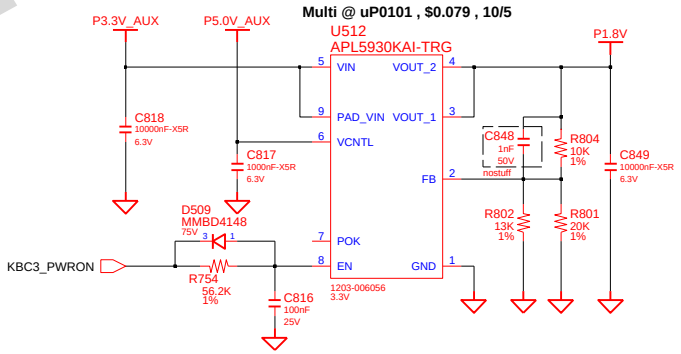
P5.0V_AUX



Switched Power On (P1.5V)

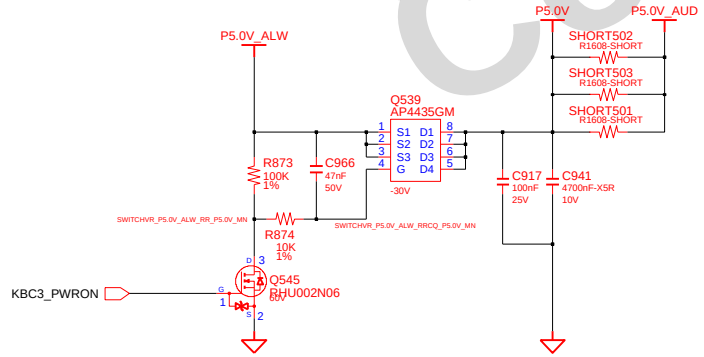


P1.8V(LDO)



Switched Power On (P5.0V)

Multi@Si4435DDY



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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR	PWR_MV_SWITCHED	
APPROVAL: BL LEE	REV: rev. 1.0	SWITCHED POWER	PART NO.: BA41-01432A
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 46 OF 52	

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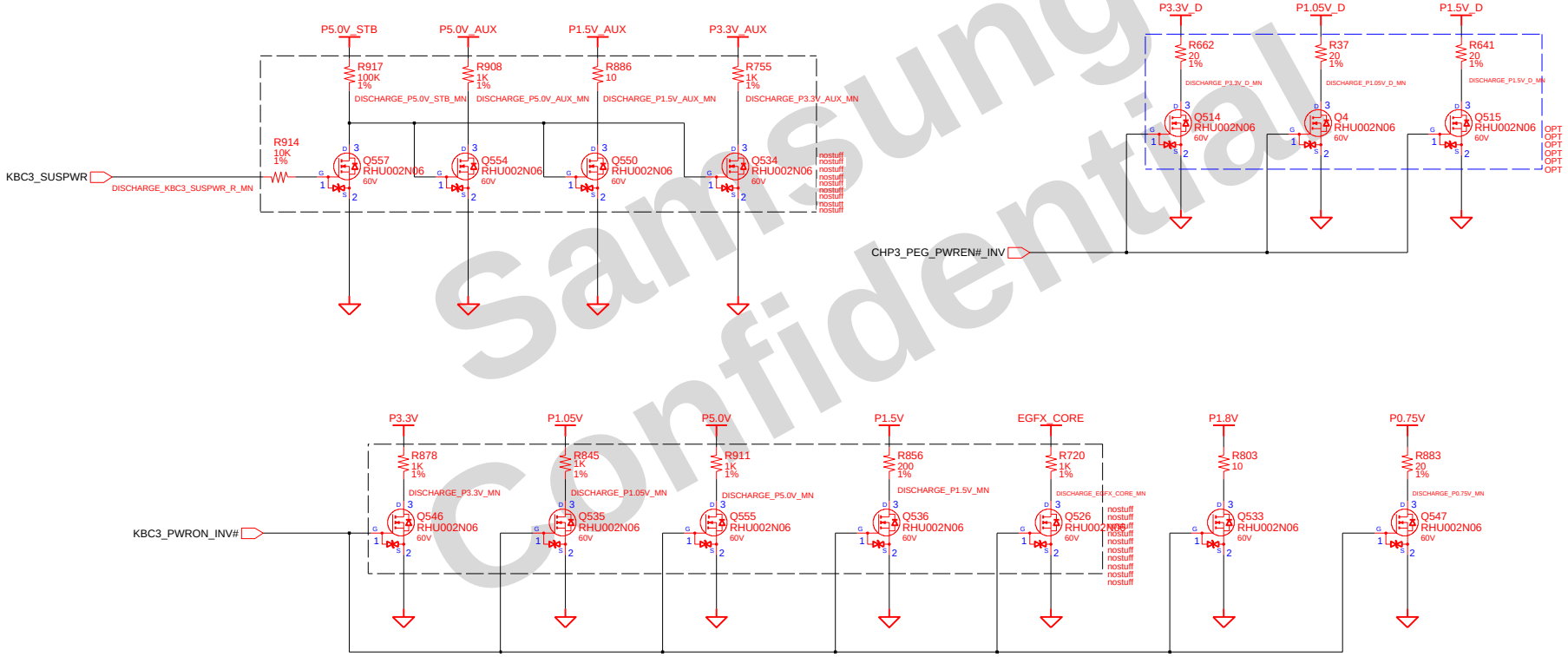
POWER DISCHARGER



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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L PWR_MV_DISCHARGER DISCHARGING LOGIC	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE: undefined	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 47 OF 52	

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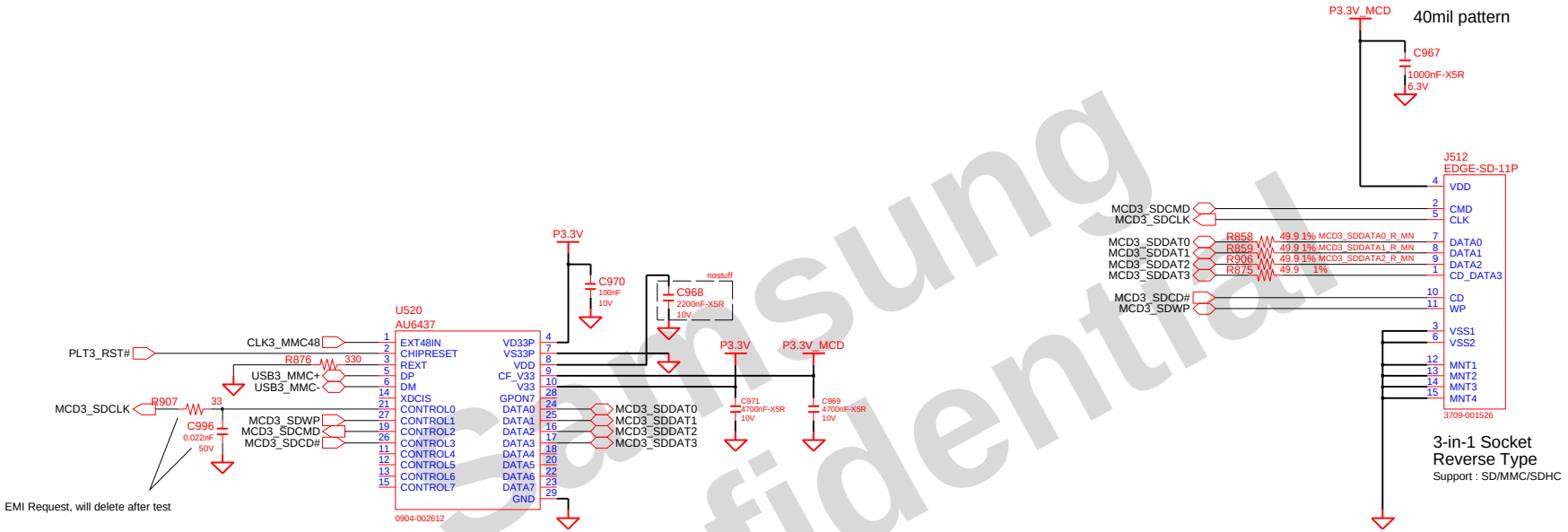
AU6437 (4-in-1)



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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L AU 6437 AU 6437	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
MODULE CODE	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 48 OF 52	

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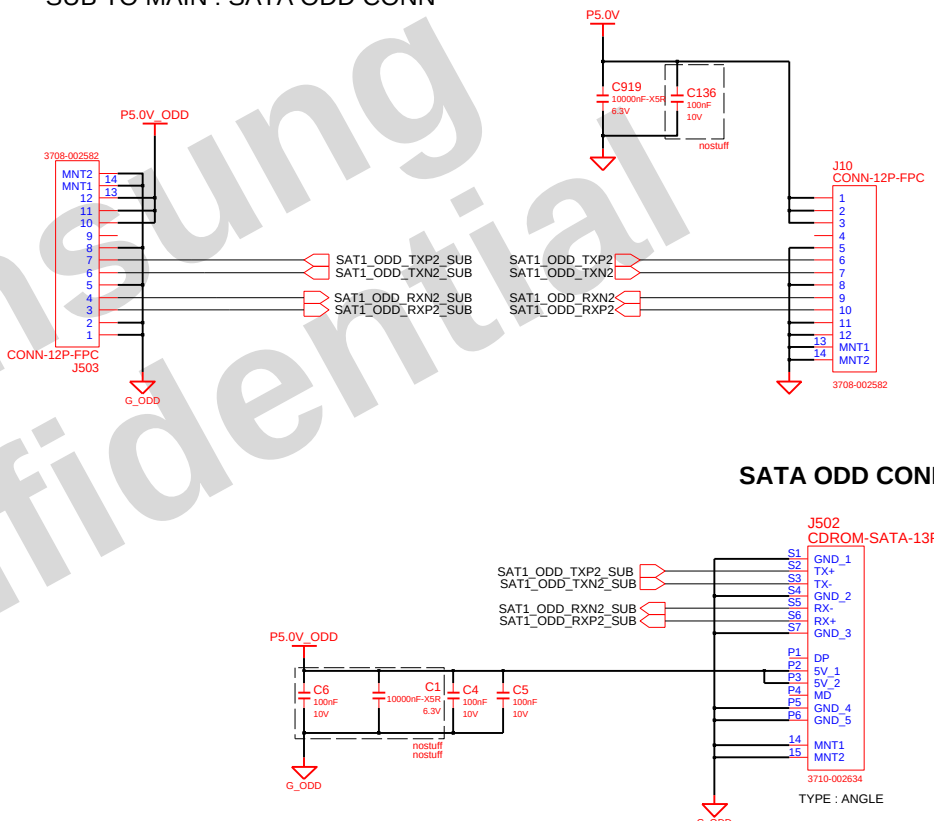
SATA ODD SUB BOARD

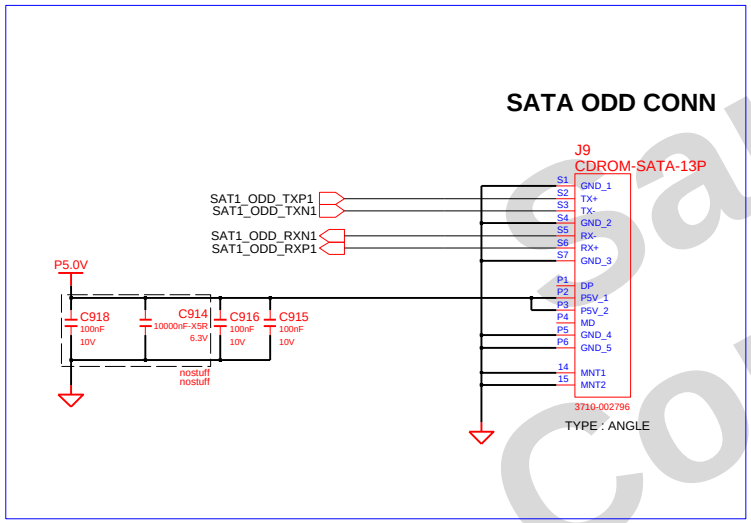
15.6" & 17.3"

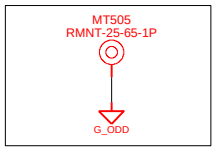
MAIN TO SUB : SATA ODD CONN

SUB TO MAIN : SATA ODD CONN



14"





ODD sub board mount hole

DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L SATA ODD SATA ODD	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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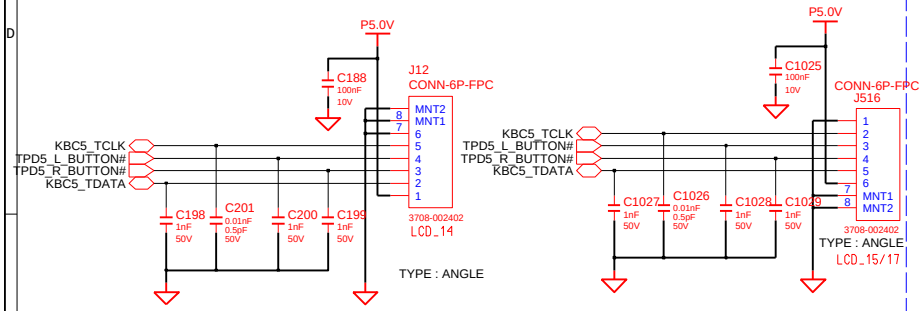
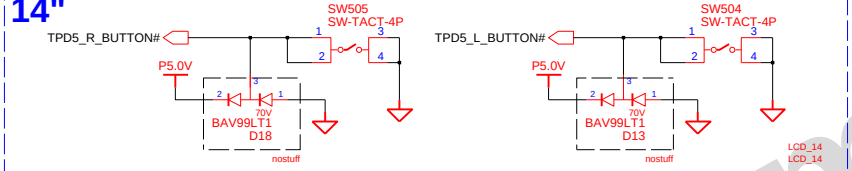
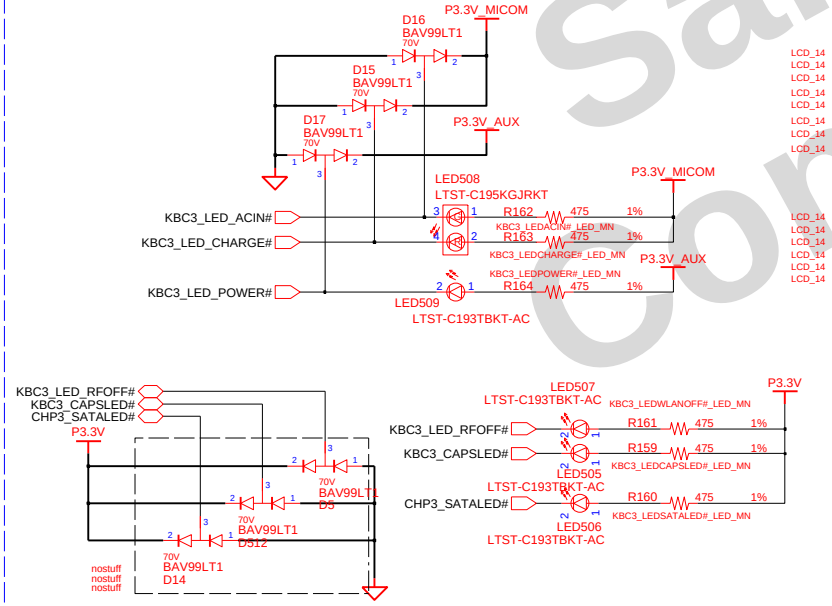
TOUCHPAD



14"

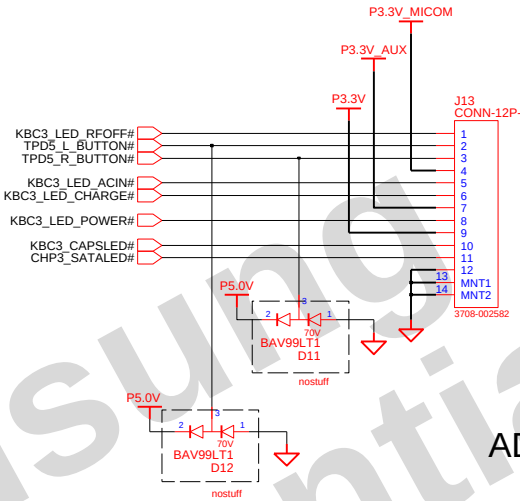


ADAPTERIN/CHARGING LED

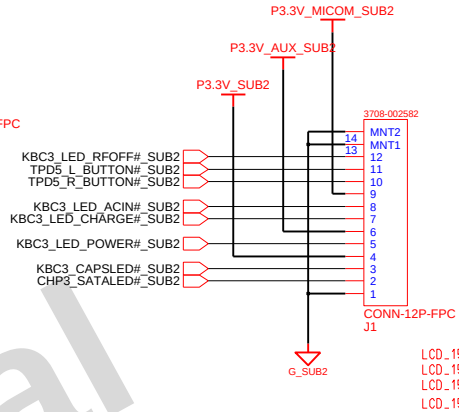


15.6" & 17.3"

TOUCHPAD MAIN TO SUB



TOUCHPAD SUB TO MAIN



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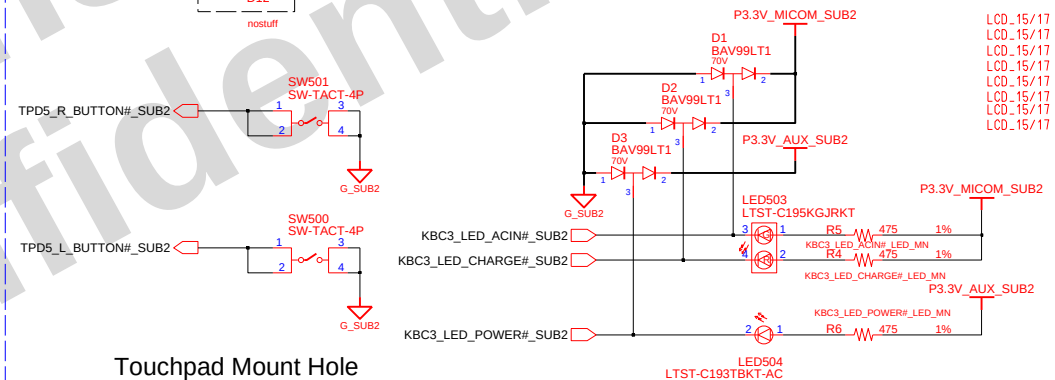
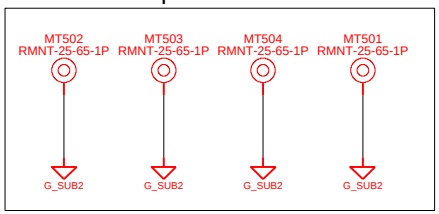
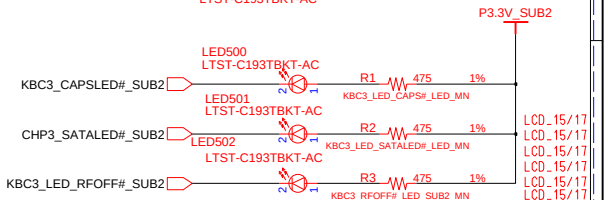


Touchpad Mount Hole





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DRAW: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L Touchpad Touchpad	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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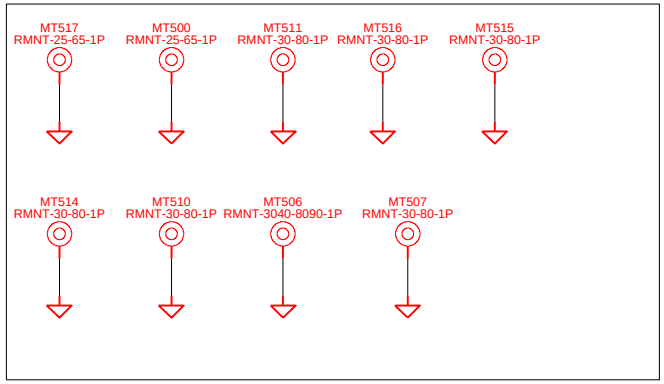
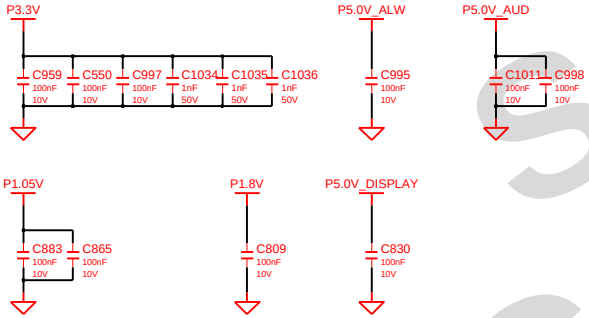
Mainboard Mount ((25-65)X2EA, (30-80)X7EA)





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DESIGN: MS YANG	DATE: 8/19/2010	TITLE: Jinmao-L MNT hole MNT hole	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		
APPROVAL: BL LEE	REV: rev. 1.0		PART NO.: BA41-01432A
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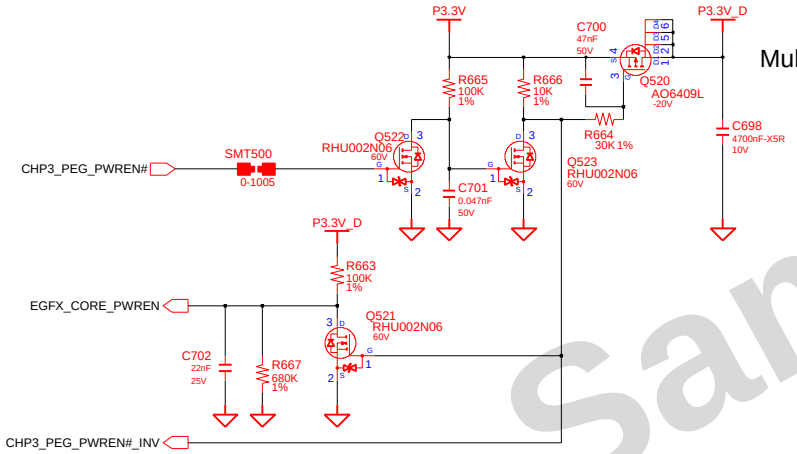
Switched Power 2 (For nVidia GFX Power Sequence)

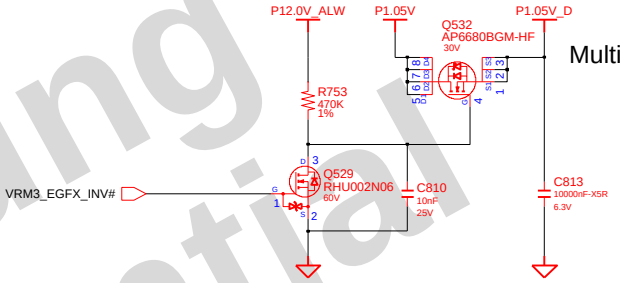
Sequence (D3.3V -> GFX Core -> D1.8V -> D1.5V -> D1.05V)

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



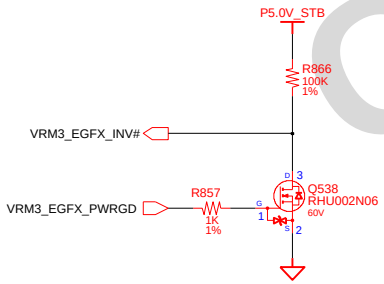
Multi@AP2607GY

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

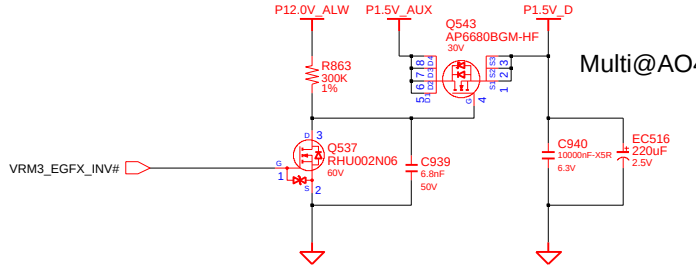


Multi@AO4476L

Discrete Switched Power (D1.8V : Max 0.5A)



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



Multi@AO4476L

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DRAW: MS YANG	DATE: 5/10/2010	TITLE: Jinmao-L Switched PWR 2 FOR OPTIMUS PWR	SAMSUNG ELECTRONICS
CHECK: MK KIM	DEV. STEP: PR		PART NO.: BA41-01432A
APPROVAL: BL LEE	REV: rev. 1.0		
MODULE CODE:	LAST EDIT: November 22, 2010 15:53:34 PM	PAGE 52 OF 52	

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