

# LISBON

CPU : Intel Merom-4M (800/667 MHz)  
Chip Set : Intel GM965/PM965 &  
Intel ICH8M/ICH8M-E  
Remarks : SantaRosa Platform

Model Name : Lisbon-P55  
PBA Name : MAIN  
PCB Code : BA41-#####A  
Dev. Step : MP  
Revision : 1.1  
T.R. Date : 2007.04.19

DRAW	CHECK	APPROVAL
Ma Xinzhi	Wang Peng	Han Joonho

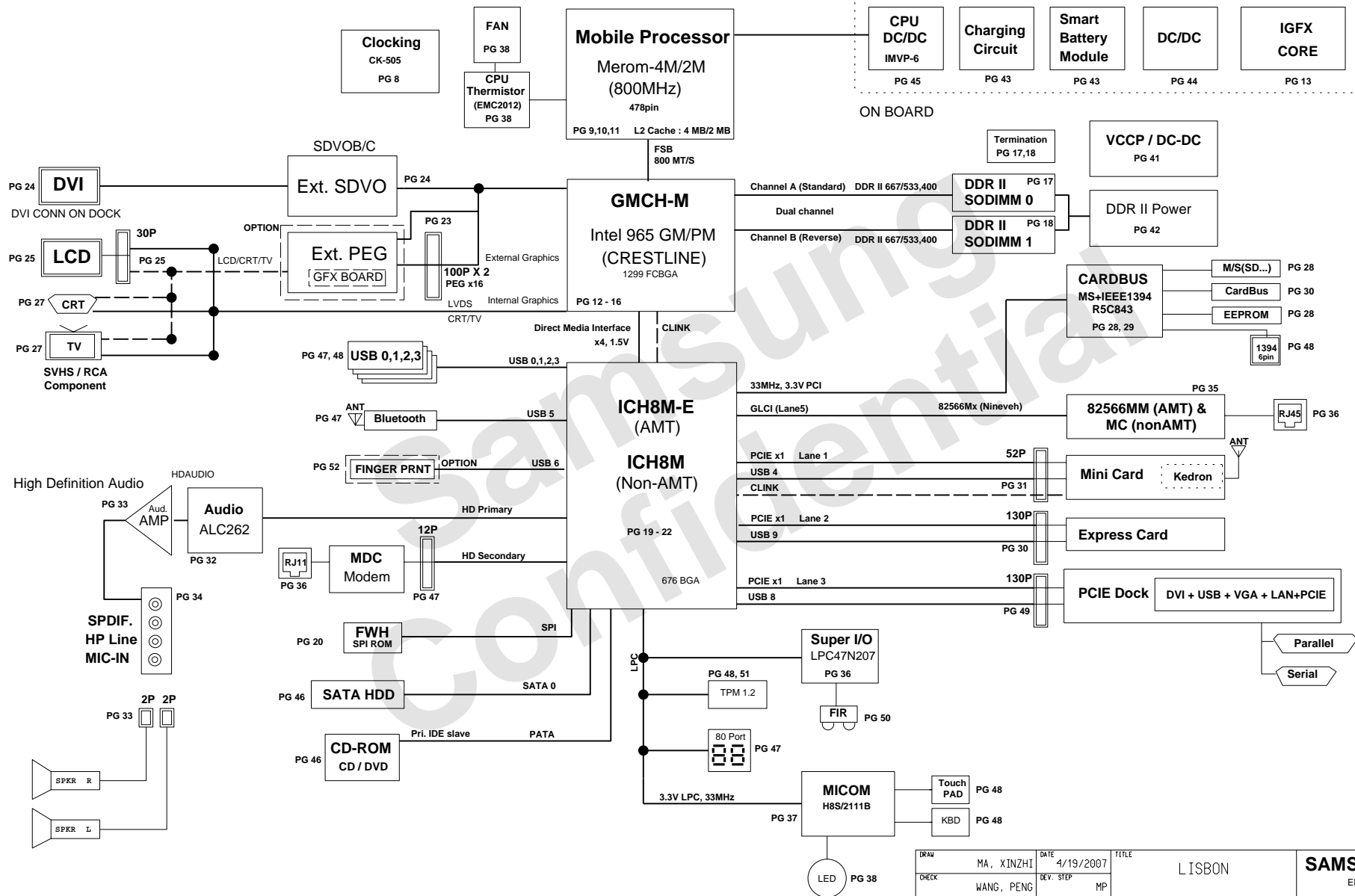
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APPROVAL	HAN, JH	REV	1.1	COVER		PART NO. BA41-#####A
MODULE CODE		LAST EDIT	April 9, 2007 8:42:14 PM	PAGE	1	OF 54

# BLOCK DIAGRAM

Rev. 0.5



DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-#####
CHECK	WANG, PENG	DEV. STEP	MP			
APPROVAL	HAN, JH	REV	1.1		BLOCK DIAGRAM	
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## BOARD INFORMATION

## SCHEMATIC ANNOTATIONS AND BOARD INFORMATION

## PCI Devices

Devices	IDSEL#	REQ/GNT#	Interrupts
Cardbus	AD25	3	A, B, C
USB	AD29(internal)	-	USB2.0 #0 USB2.0 #1 USB2.0 #2 USB2.0 #3 USB2.0 #4 USB2.0 #5
LPC bridge/IDE/AC97/SMBUS	AD31(internal)	-	B
Internal MAC	AD24(internal)	-	E
AC Link	-	-	B
GLAN	AD25 (internal)	-	F

## Crystal / Oscillator

TYPE	FREQUENCY	DEVICE	USAGE
Crystal	32.768KHz	ICH8-M	Real Time Clock
Crystal	10MHz	MICOM	HD64F2169/2160
Crystal	14.318MHz	CLOCK-Generator	CK-505
Crystal	24.576MHz	Cardbus Controller	1394
Crystal	25MHz	LAN	Intel LAN
Crystal	27MHz	VIDEO	PEG
Crystal	24.576MHz (TBD)	HD Audio	Audio

## LCD Pannel Detect (TBD)

Devices	Resolution	PANNEL_DETECT_0
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## Voltage Rails

VDC	Primary DC system power supply (7 to 21V)
CPU_CORE	Core Voltage for CPU
IGFX_CORE	Core Voltage for Internal Graphic
P1.05V	Core Voltage for Crestline & ICH8-M
P1.05V_M	1.05V switched power rail for ME (on in M0/M1)
P1.25V_M	1.25V switched power rail for ME (on in M0/M1)
P3.3V_M	3.3V switched power rail for ME (on in M0/M1)
P3.3V_ALW	3.3V always power rail (by KBC3_ALWS_ON)
P3.3V_MICOM	3.3V always power rail (for Micom)
P3.3V_LAN	3.3V always power rail (for LAN)
P1.8V_LAN	1.8V always power rail (for LAN)
P1.0V_LAN	1.0V always power rail (for LAN)
P1.5V	1.5V switched off power rail (off in S3-S5)
P1.5V_AUX	1.5V switched on power rail
P1.8V	1.8V switched off power rail (off in S3-S5)
P1.8V_AUX	1.8V power rail for DDR
P0.9V	0.9V power rail for DDR
P3.3V	3.3V switched off power rail (off in S3-S5)
P3.3V_AUX	3.3V switched on power rail
P5.0V	5.0V switched off power rail (off in S3-S5)
P5.0V_AUX	5.0V switched on power rail
P1.25V	1.25V switched off power rail (off in S3-S5)

I<sup>2</sup>C / SMB Address

Devices	Address	Hex	Bus
ICH8-m	Master		SMBUS Master
CK-505M (Clock Generator)	1101 001x	D2h	Clock, Unused Clock Output Disable
SODIMM0	1010 000x	A0h	
SODIMM1	1010 010x	A4h	
PCI Express Card	TBD	TBD	Express Card
TPM	TBD	TBD	TPM
Kedron	TBD	TBD	Minicard
USB Hub	00101101	2Dh	Docking USB Hub
MICOM	Master	-	SMBUS Master
Battery	0001011x	16h	Battery
Ext GFX THRM	10011000	98h	Ext GFX THRM
CPU Thermal Sensor	1111 010x	7Ah	Thermal Sensor
ICH8M	TBD	TBD	ME-EC

## USB PORT Assign

## PCI Express Assign

PORT #	ASSIGNED TO	PORT #	ASSIGNED TO
0	SYSTEM PORT 0	0	RSVD (TBD)
1	SYSTEM PORT 1	1	Mini PCI Express Card
2	SYSTEM PORT 2	2	Express Card
3	SYSTEM PORT 3	3	DOCKING PORT 0
4	Mini PCI Express	4	RSVD (TBD)
5	Bluetooth	5	GLAN
6	RSVD (TBD)		
7	FingerPrinter		
8	DOCKING PORT 0		
9	Express Card		

## REVISION HISTORY

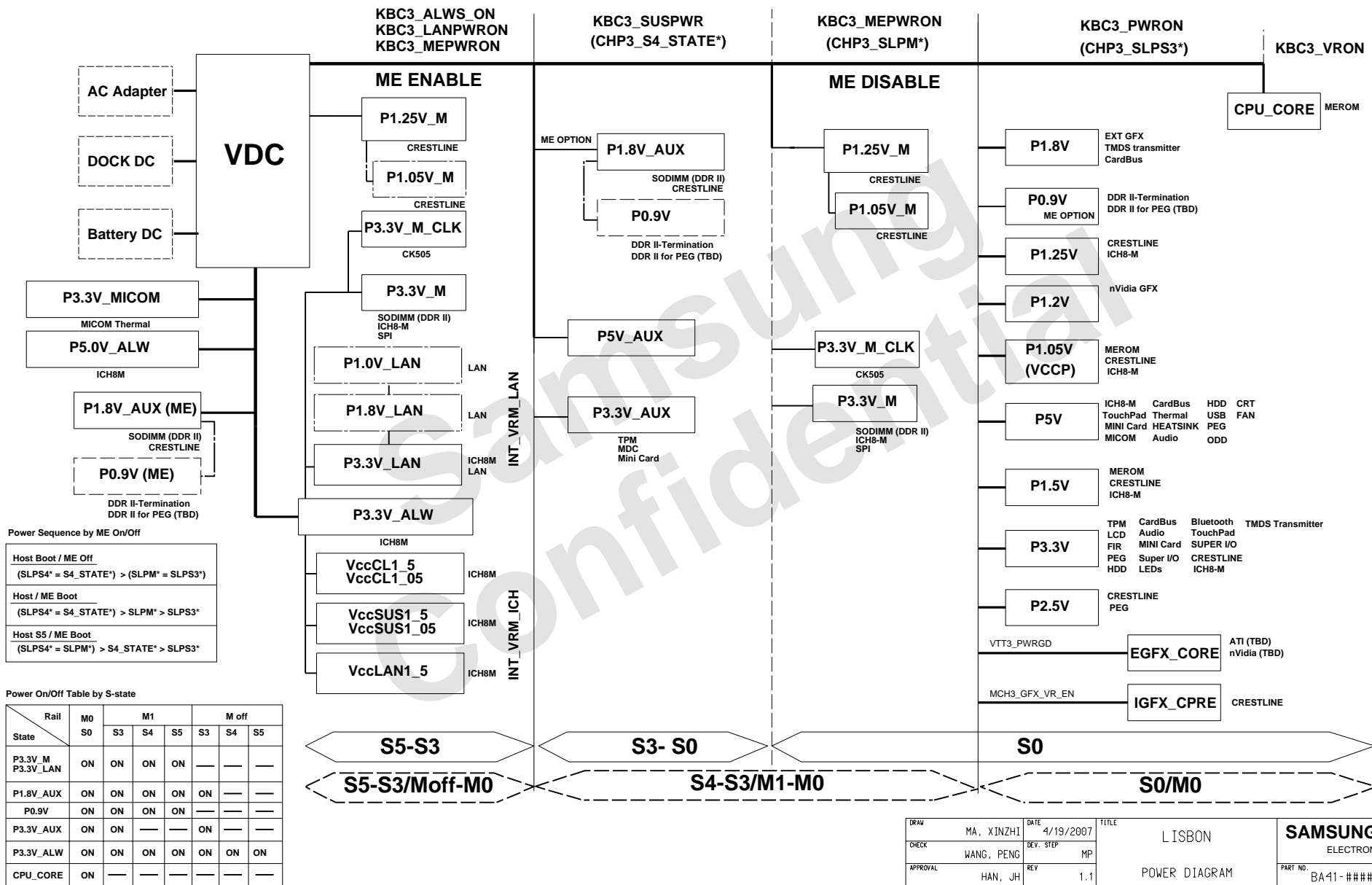
See rev notes for more information.

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APPROVAL	HAN, JH	REV	1.1	NOTES & ANNOTATIONS		PART NO.
MODULE CODE		LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	3 OF 54	BA41-#####

# POWER DIAGRAM

Rev. 0.5

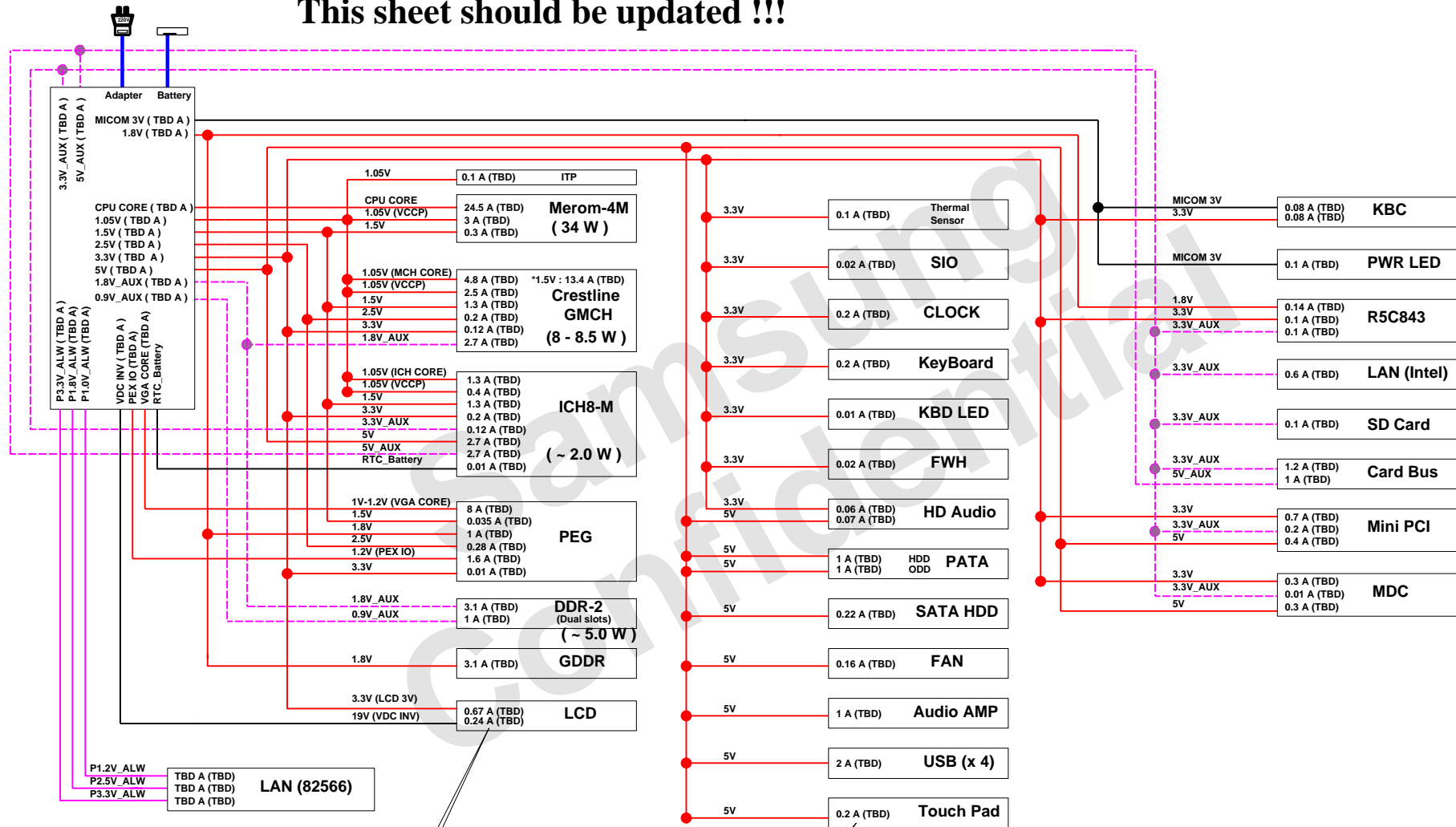
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# POWER RAILS ANALYSIS

Rev. 0.5

This sheet should be updated !!!



Value by Datasheet/Application notes (Value by measurement)

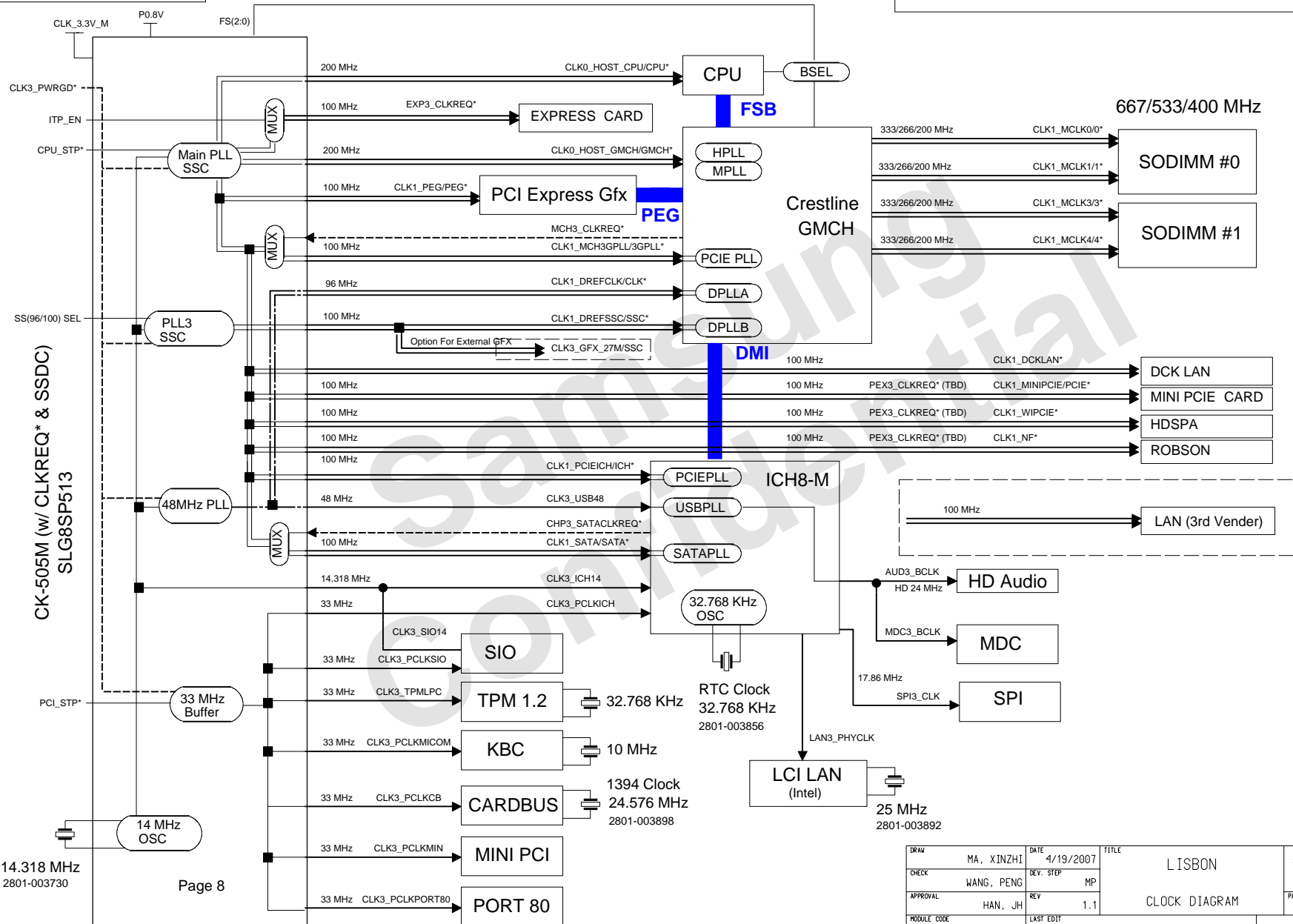
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TO BE UPDATED!!

# CLOCK DISTRIBUTION

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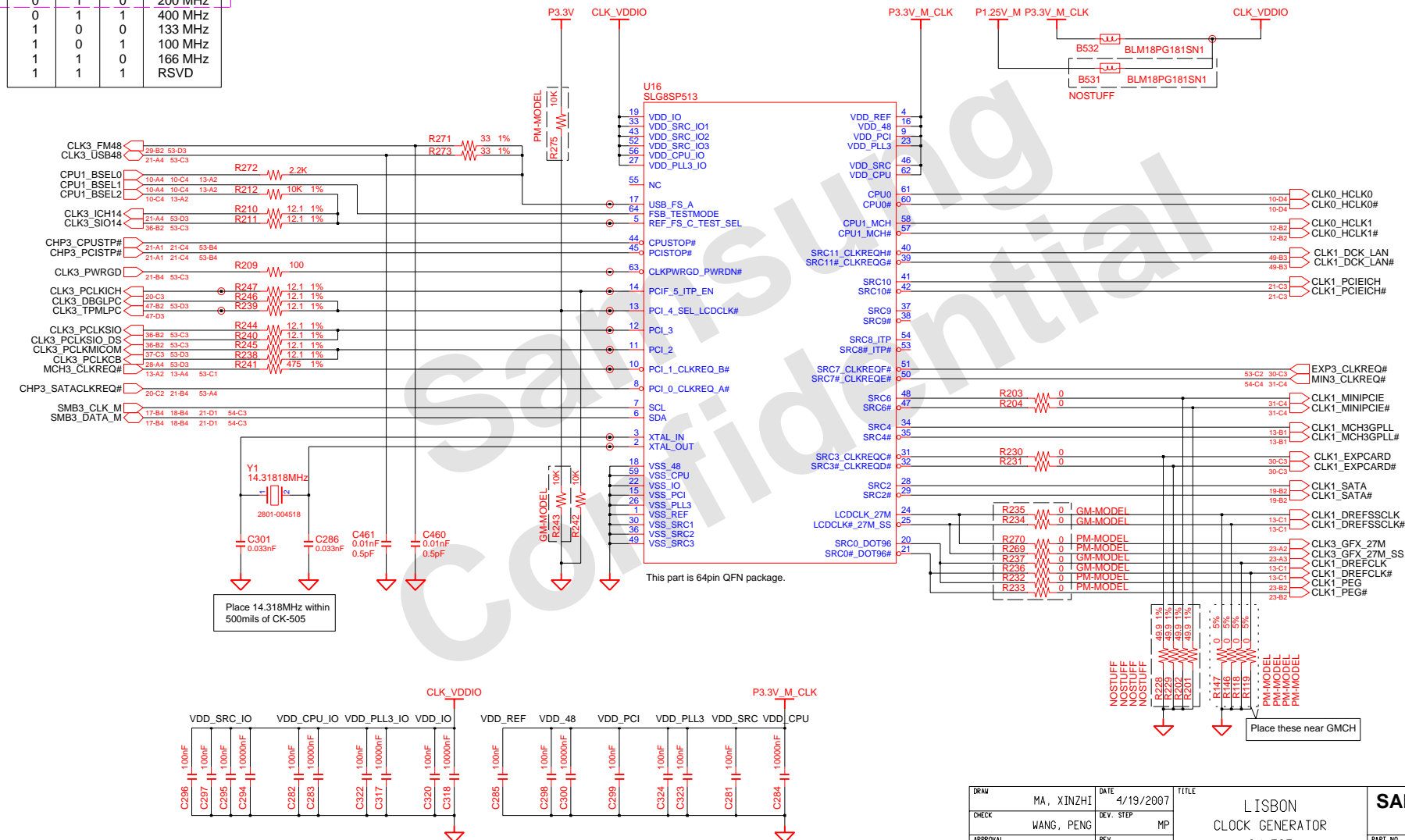
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SEL\_LCDCLK\*

HIGH	27M & 27M_SS
LOW	LCD CLK

FSA	FSB	FSC	HOST CLK
BSEL0	BSEL1	BSEL2	
0	0	0	266 MHz
0	0	1	333 MHz
0	1	0	200 MHz
0	1	1	400 MHz
1	0	0	133 MHz
1	0	1	100 MHz
1	1	0	166 MHz
1	1	1	RSVD

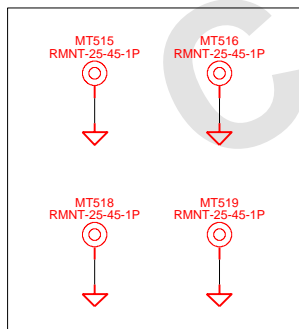
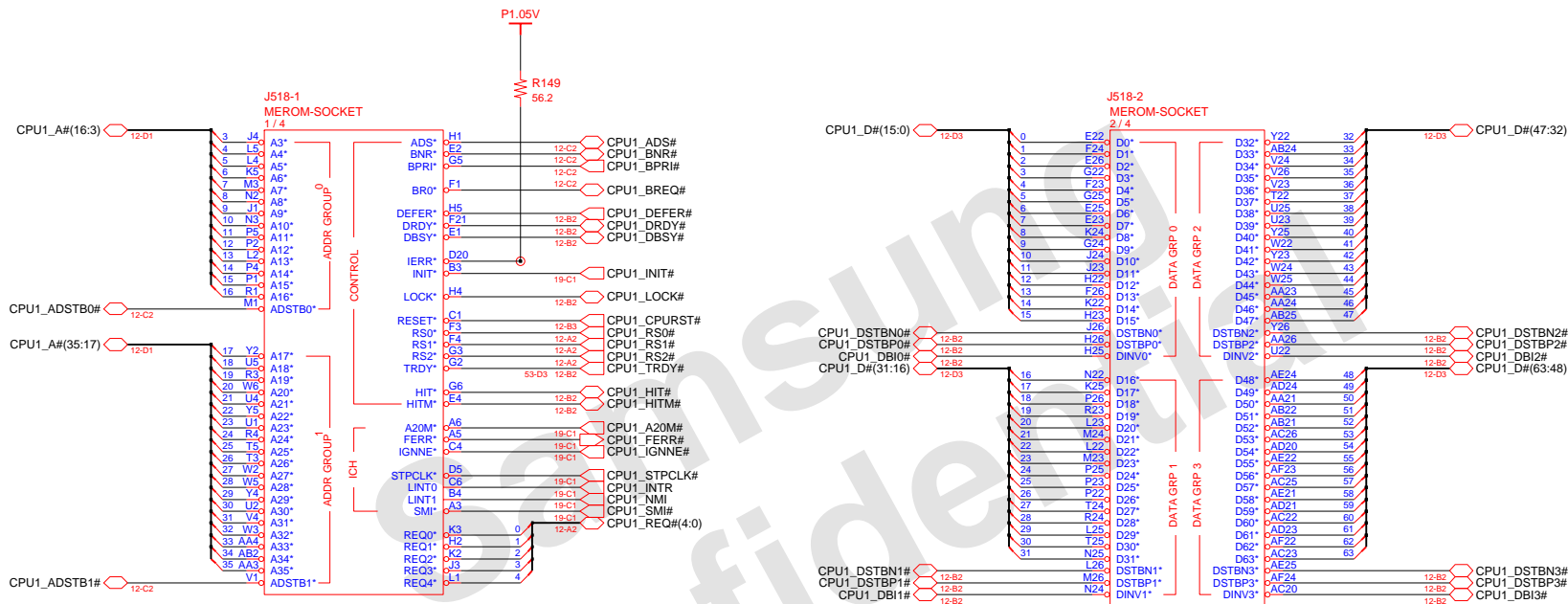
CLK REQ	DEVICE	SRC PORT
CLK REQ A	SATA	SRC2
CLK REQ B	GMCH	SRC4
CLK REQ E	MINI CARD	SRC6
CLK REQ F	EXPRESS CARD	SRC8



DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	L1800 CLOCK GENERATOR CK-505	SAMSUNG ELECTRONICS PART NO. BA41-#####
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MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	8 OF 54	

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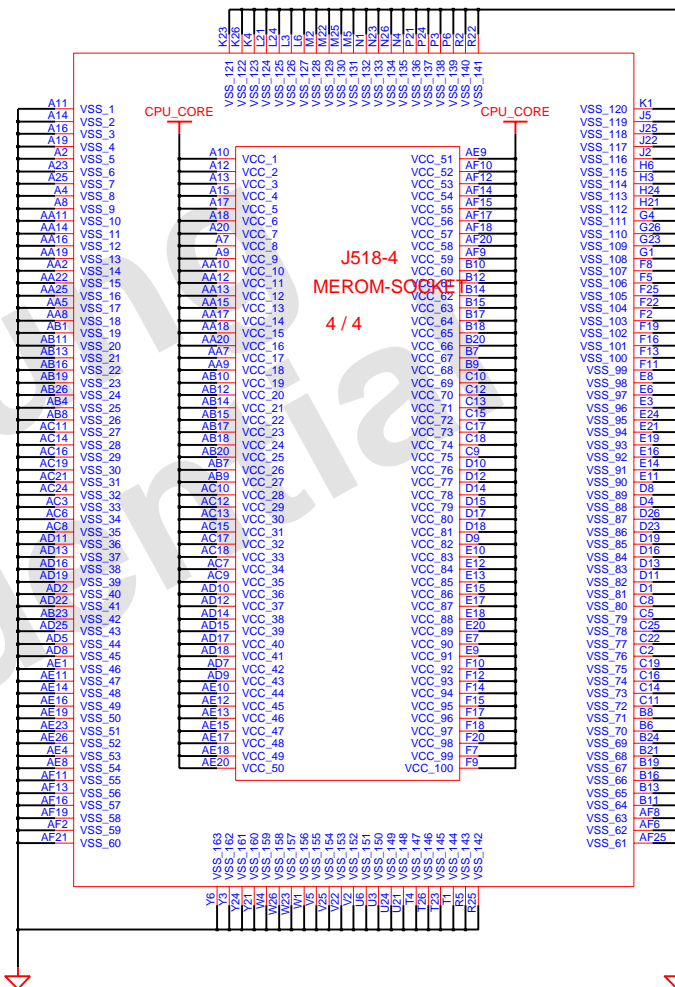
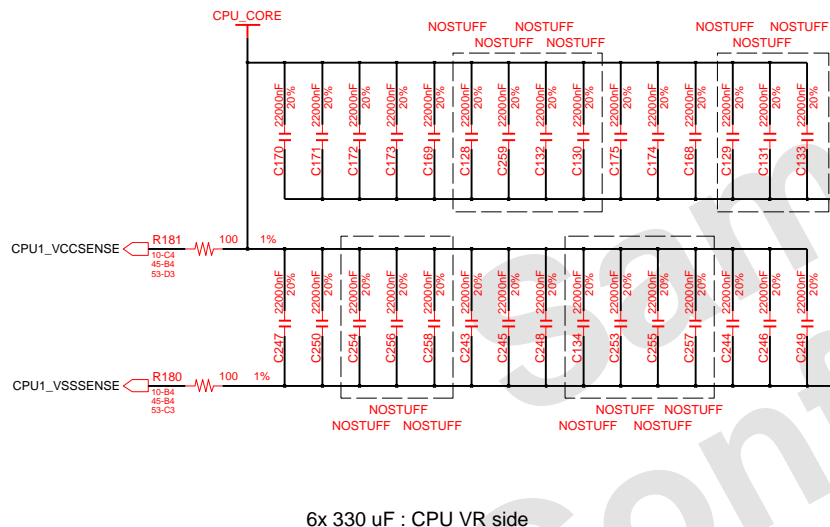


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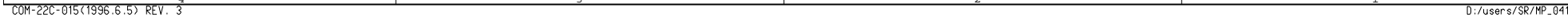
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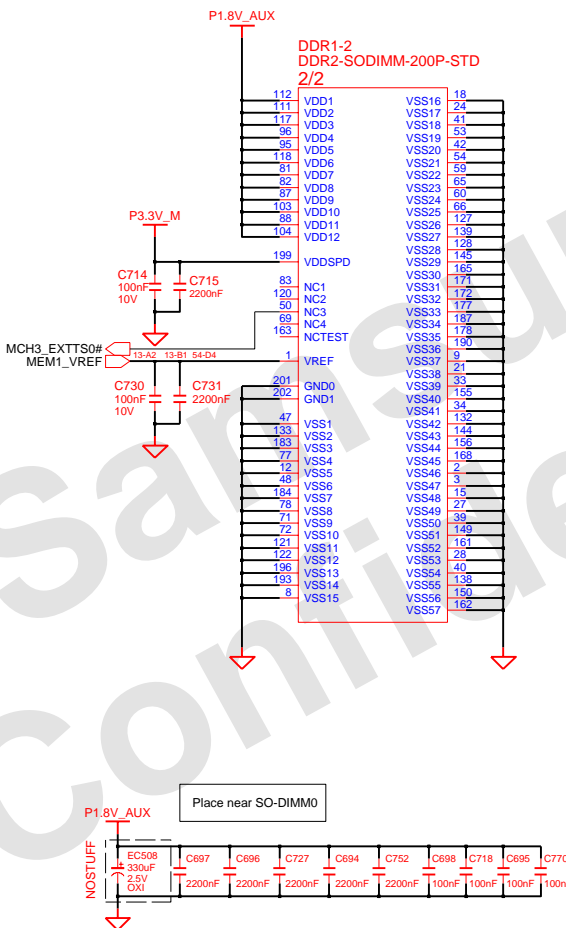
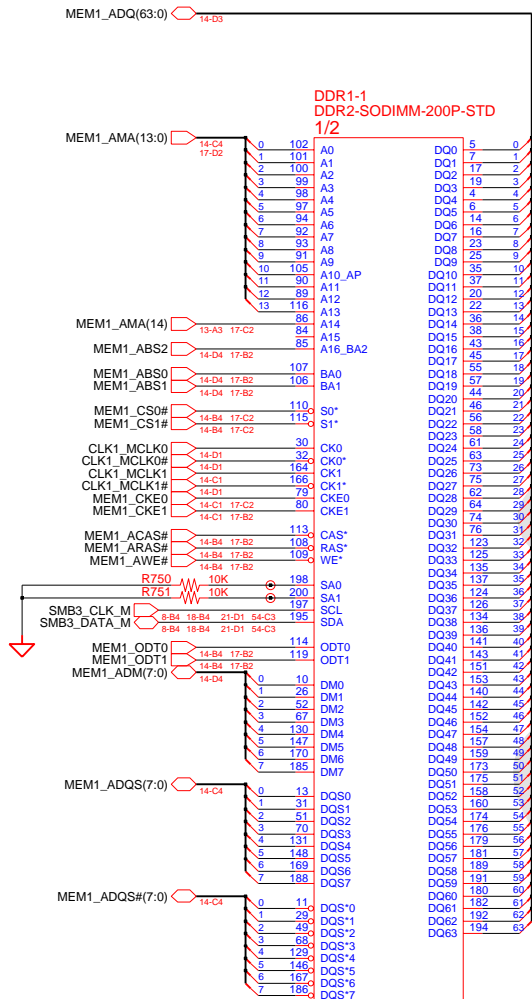
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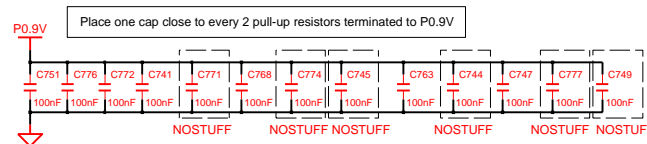
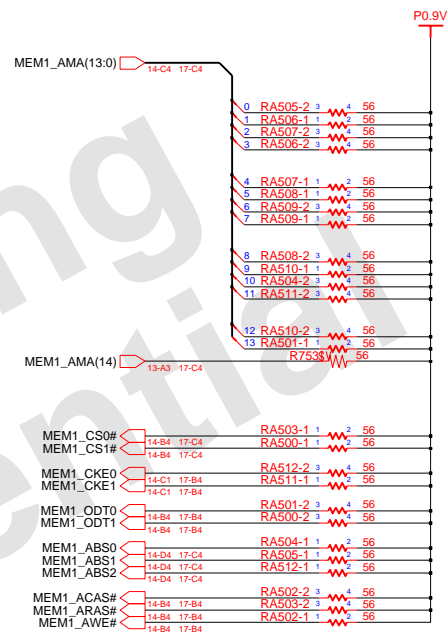
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2

1



Array resistors & Single resistors used to improve layout & routing.



3709-001325

DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON
CHECK	WANG, PENG	DEV. STEP	MP	DDR2 MEMORY	
APPROVAL	HAN, JH	REV	1.1	CHANNEL A	
MODULE CODE		LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	17 OF 54

SAMSUNG	PART NO.
ELECTRONICS	BA41-#####A

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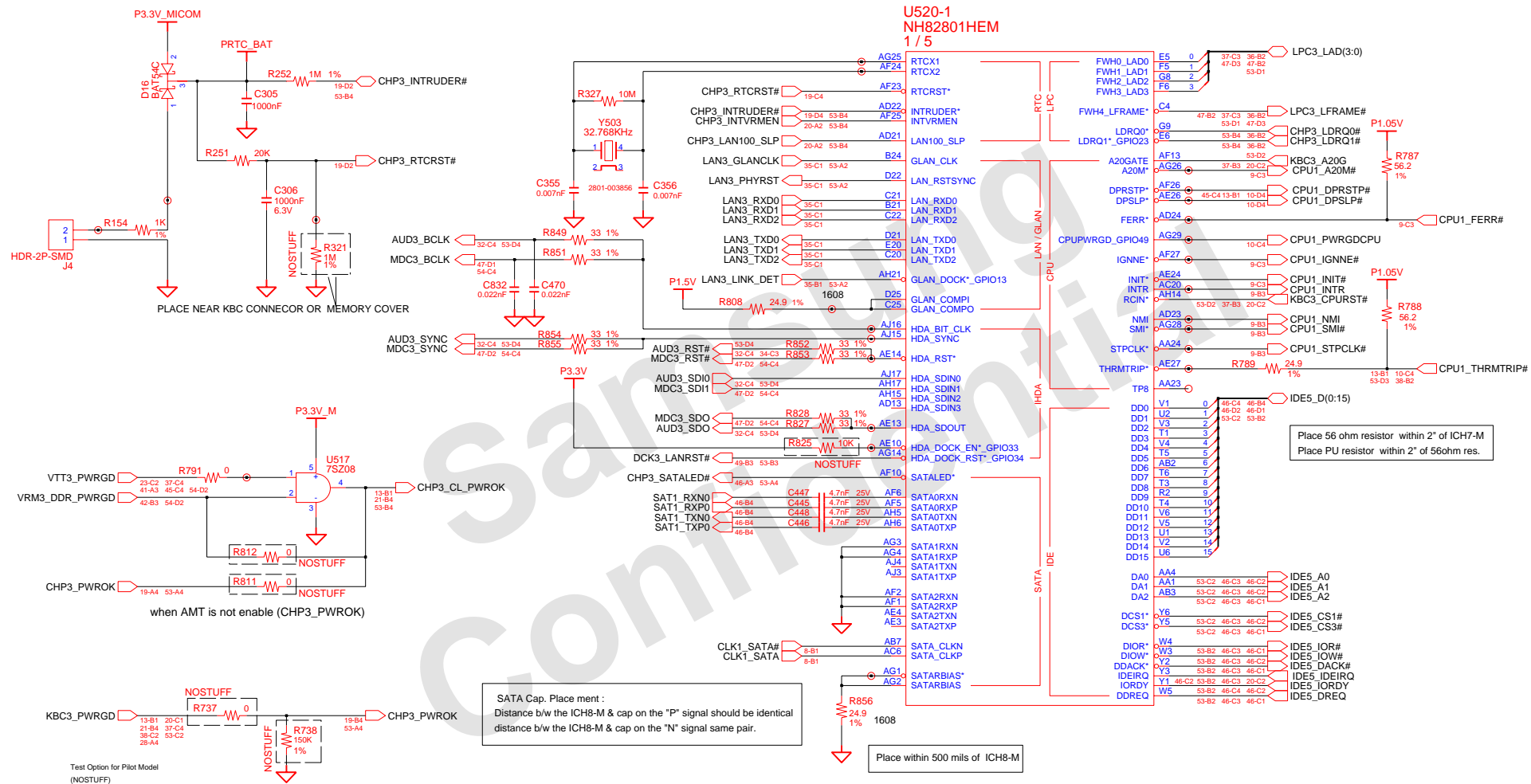
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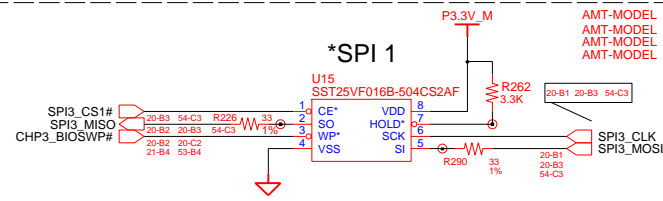
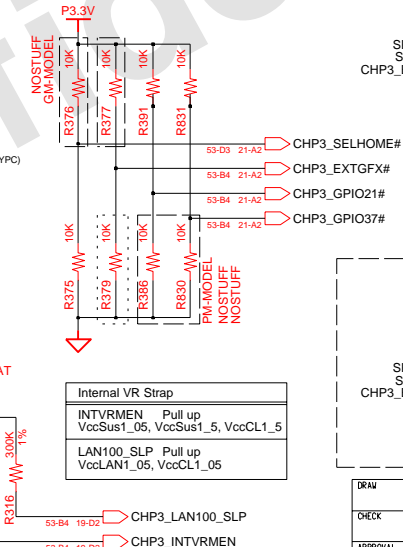
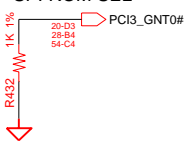
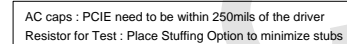


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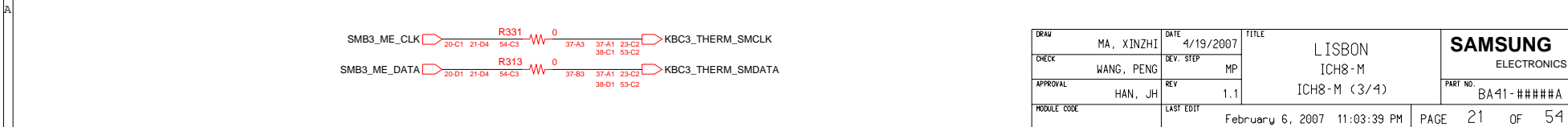
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APPROVAL	HAN, JH	REV	1.1			
MODULE CODE		LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	19 OF 54	



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APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	20	OF 5



DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON ICH8-M ICH8-M (3/4)	
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MODULE CODE	LAST EDIT			February 6, 2007 11:03:39 PM	PAGE	21 OF 54

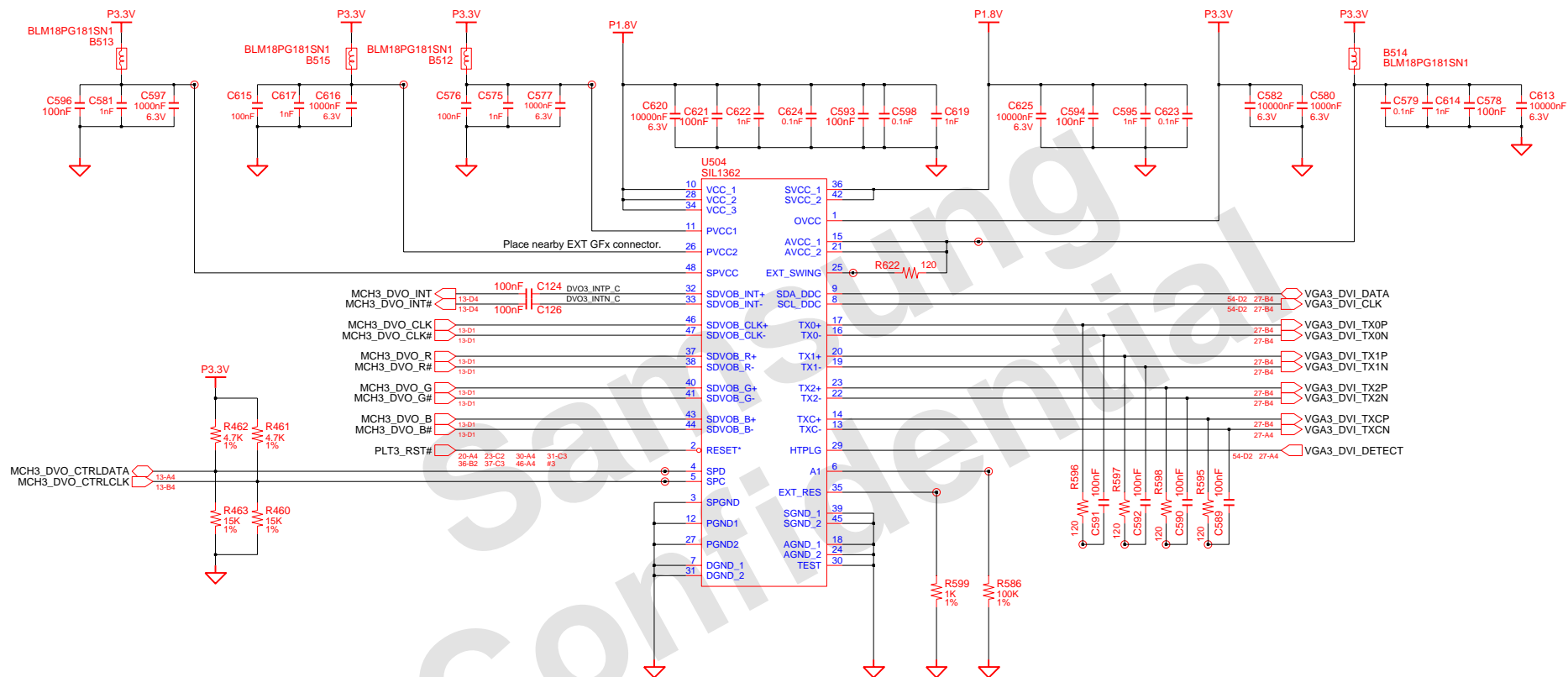




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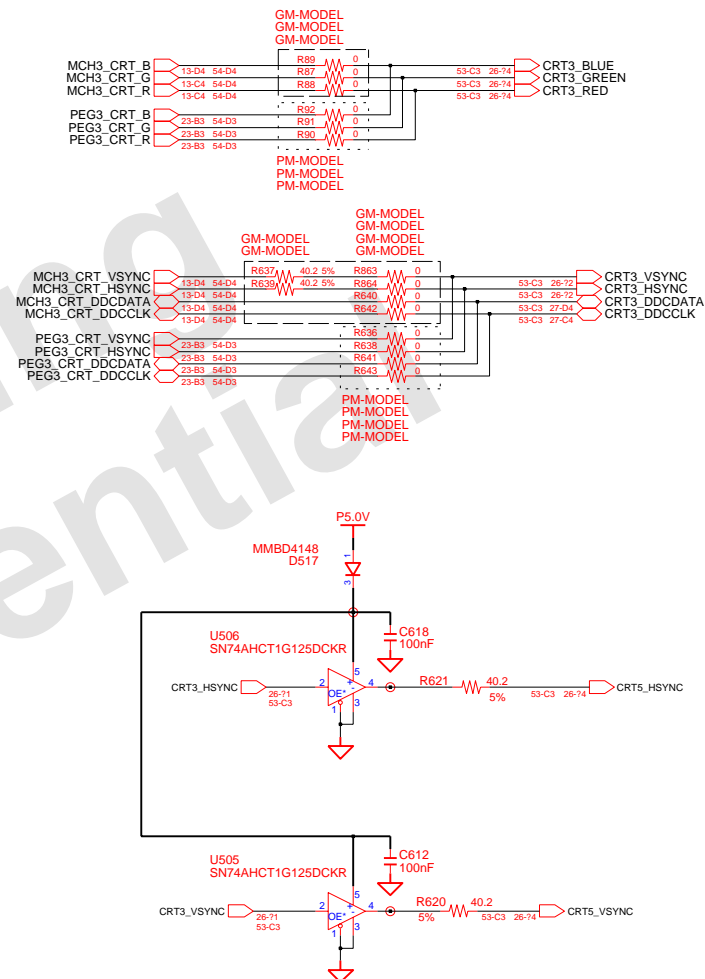
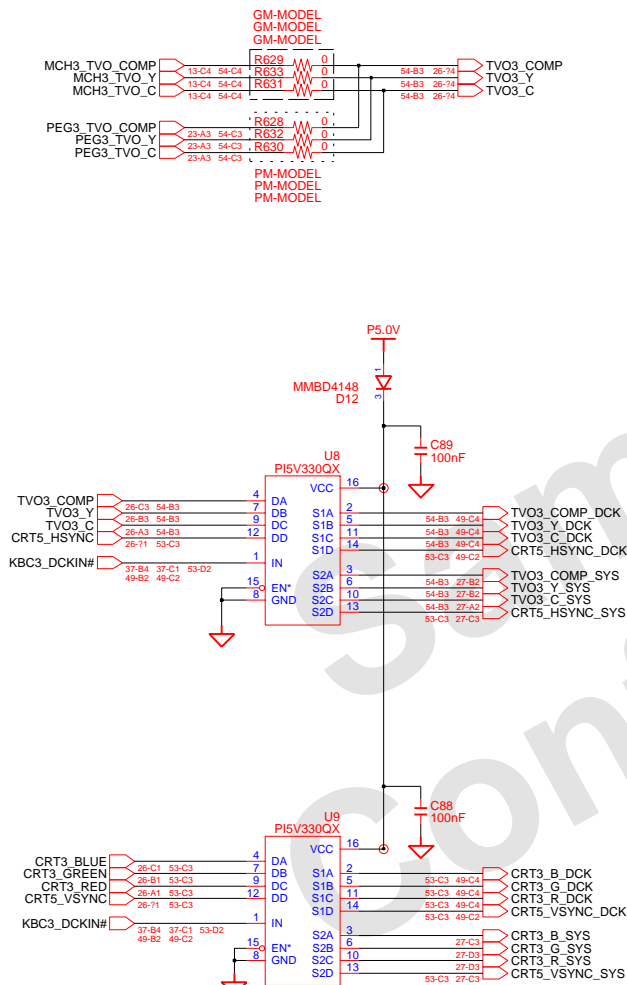


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CHECK	WANG, PENG	DEV. STEP	MP			
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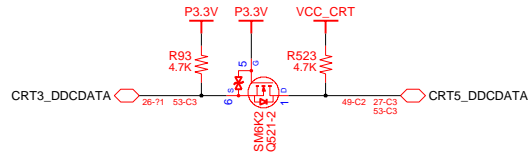
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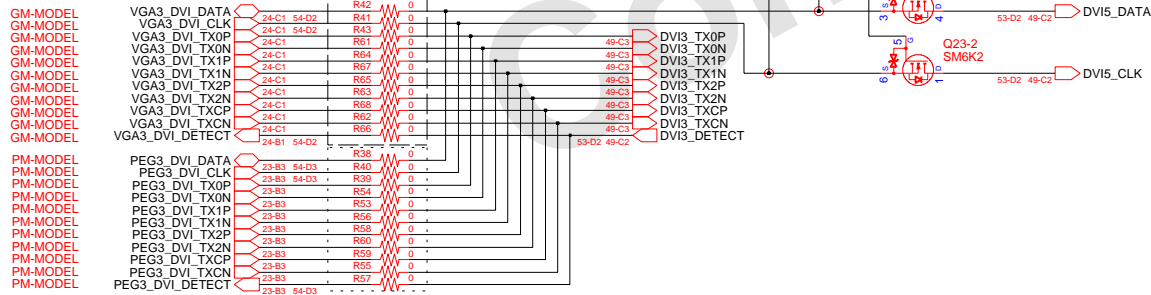
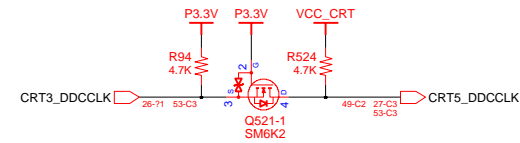
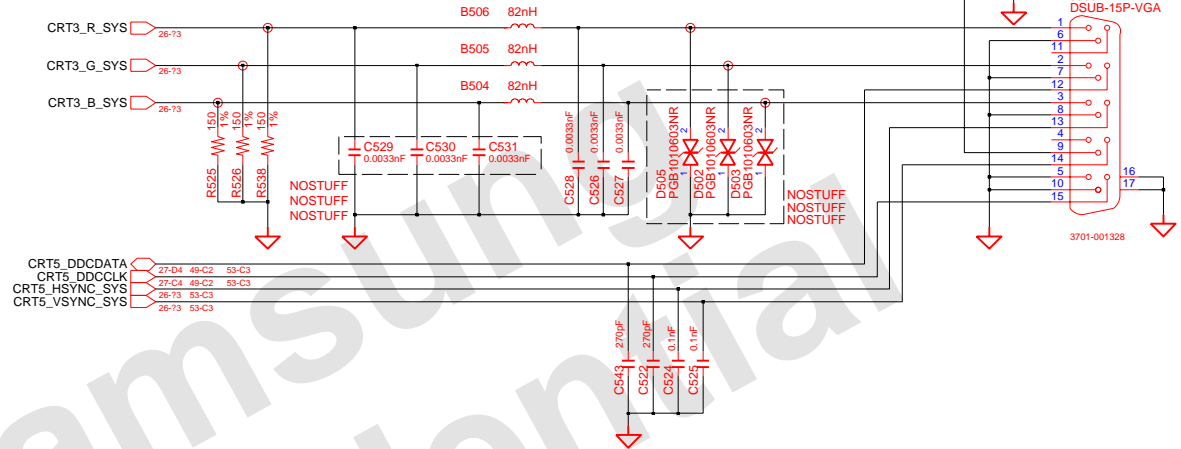
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APPROVAL	HAN, JH	REV	1.1			
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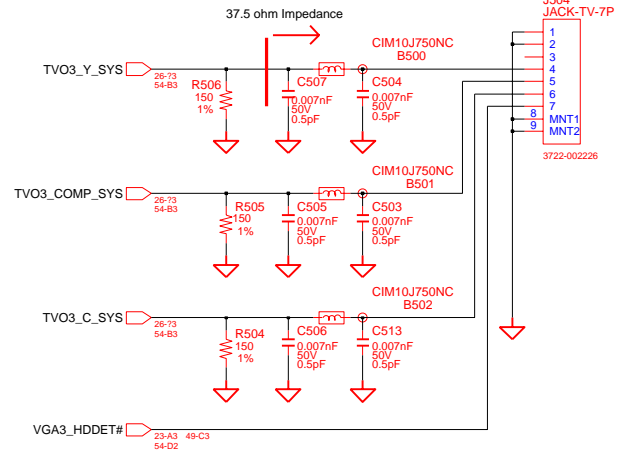
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## CRT CONNECTOR



## TV-OUT(S-VHS,COMPONENT)



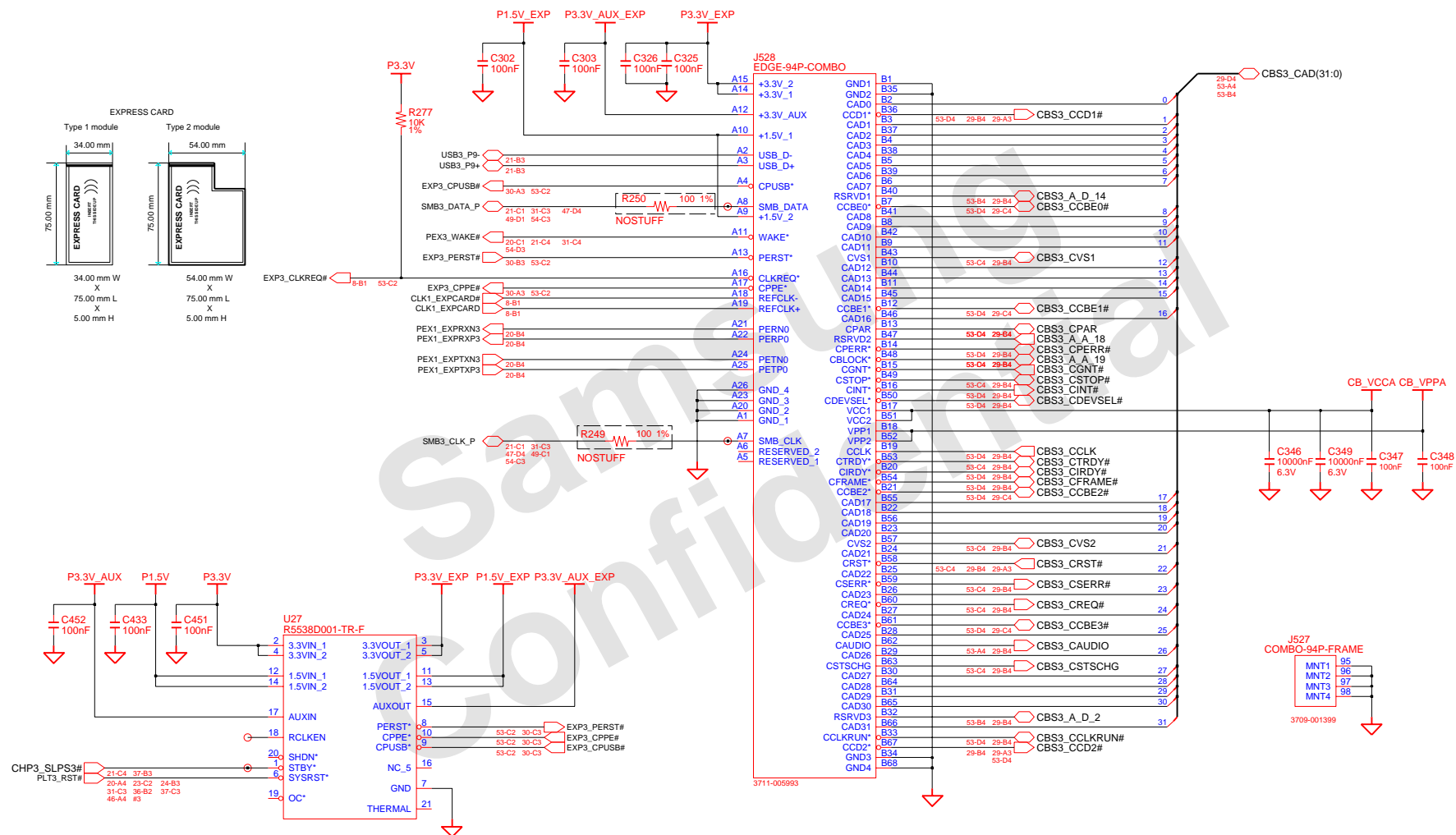
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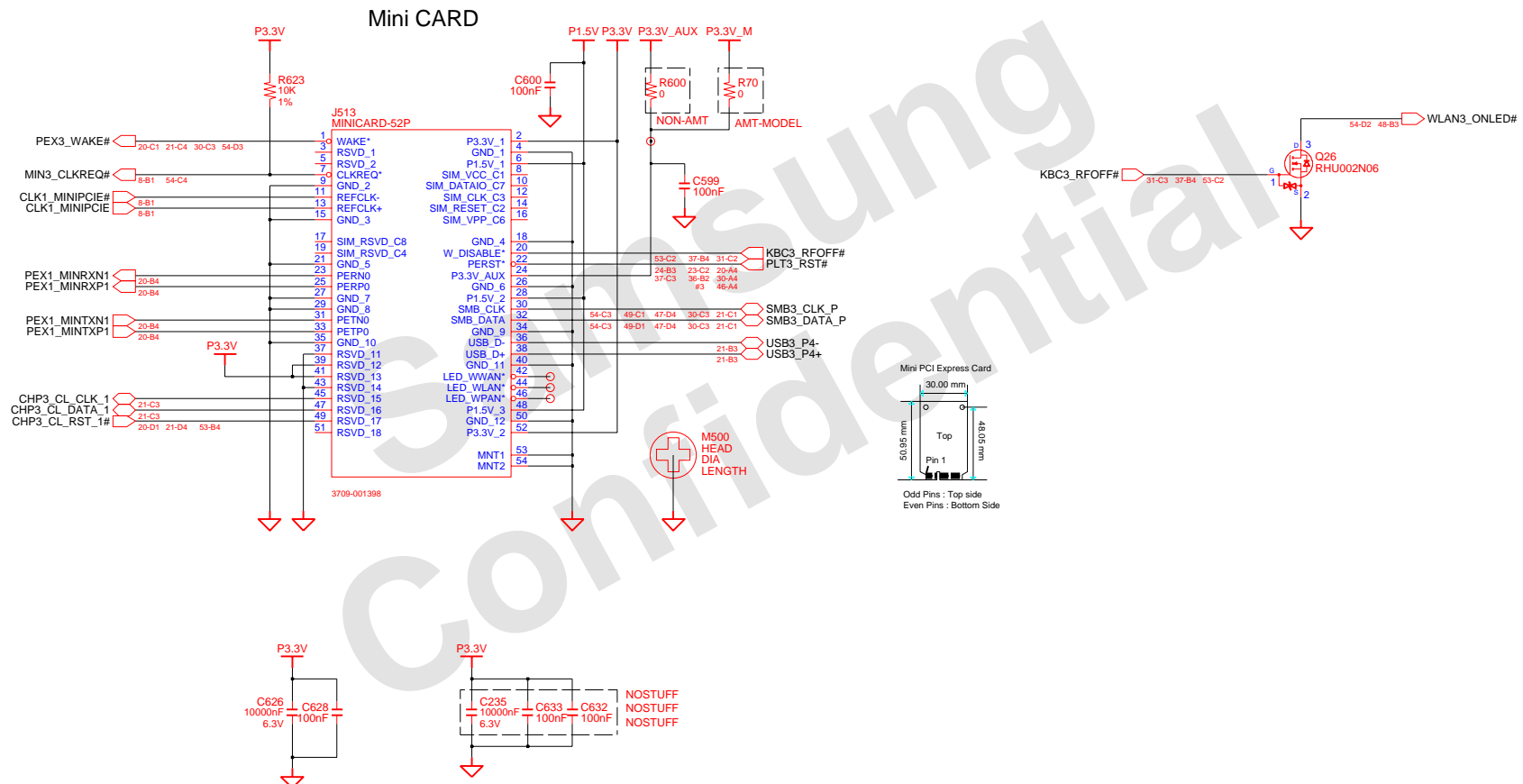


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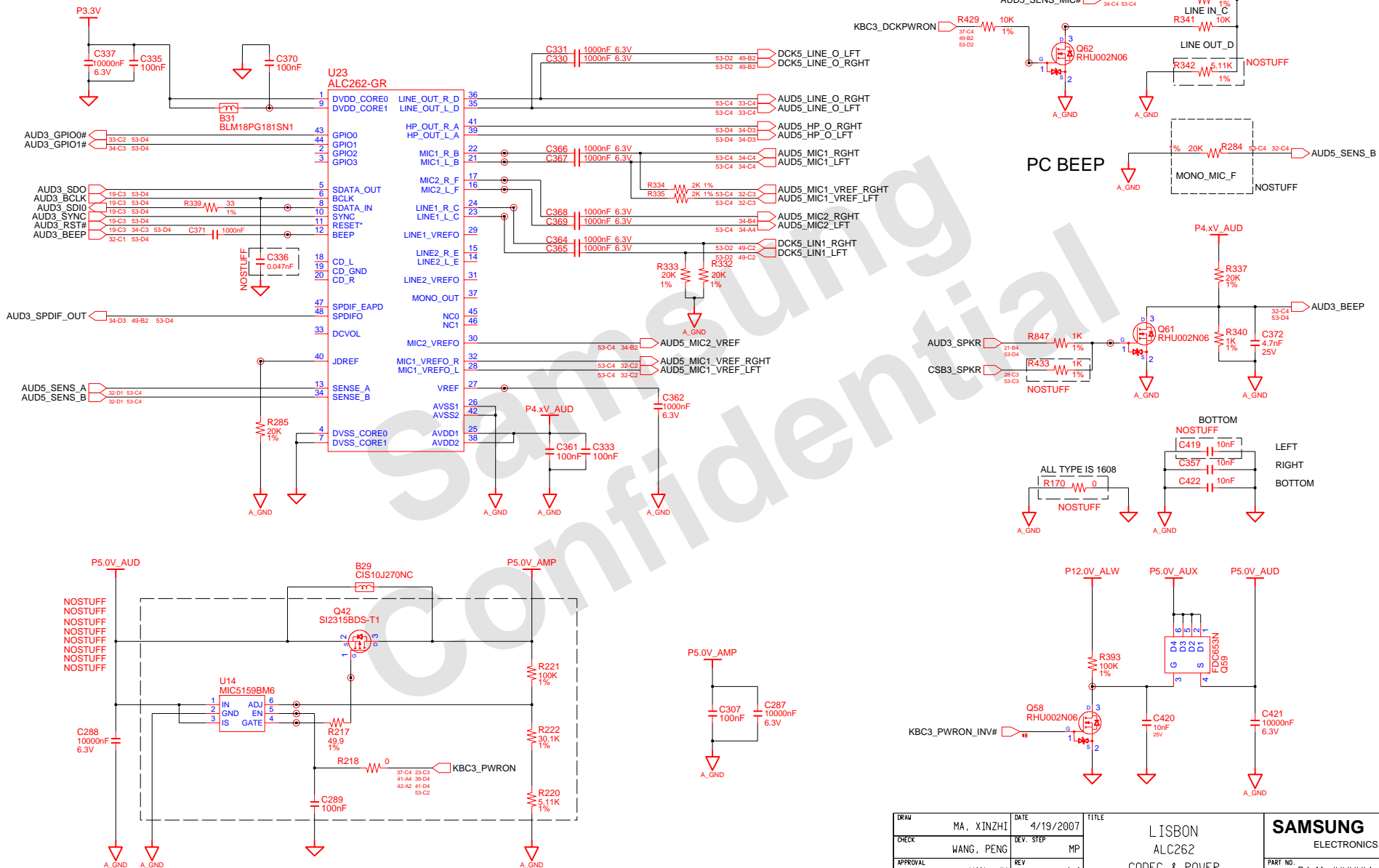
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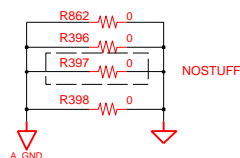
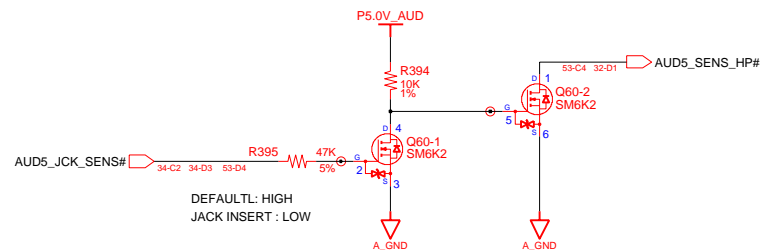
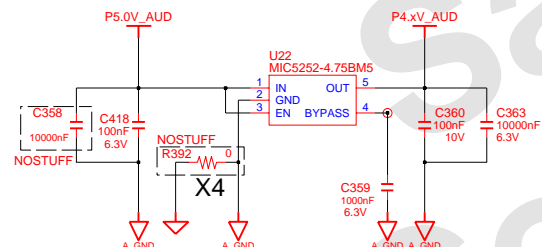
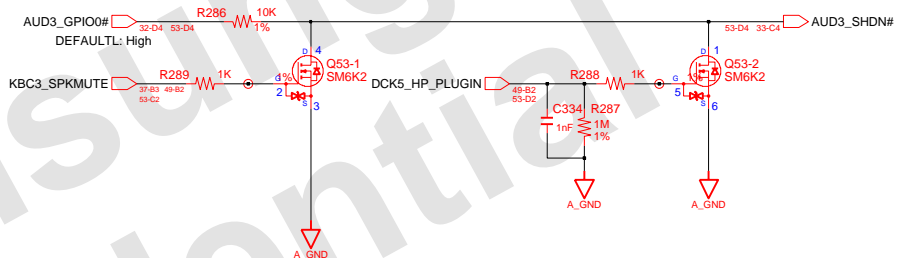
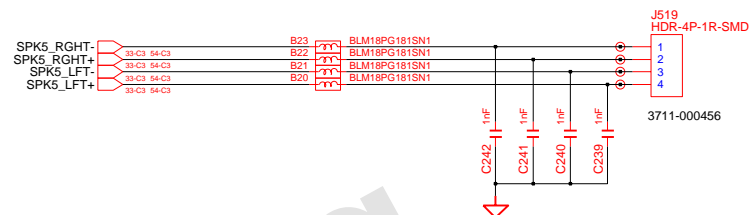
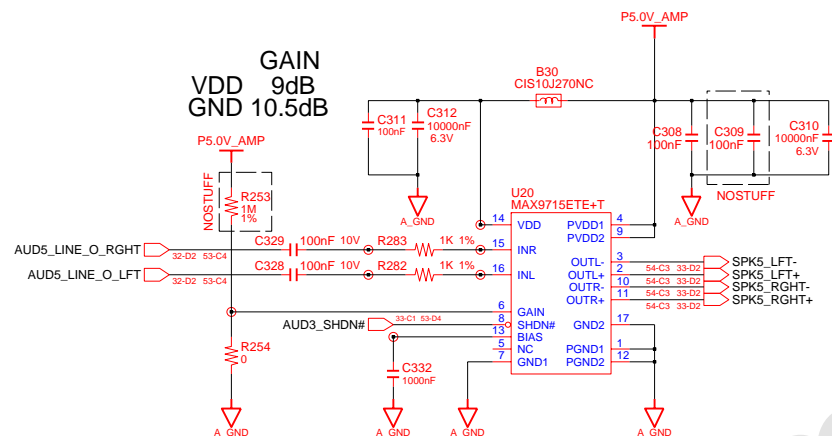


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APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	32 OF 54	

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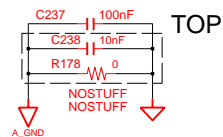
## INTERNAL STEREO SPEAKERS SPK ASS'y:BA96-02990A(HABANA)



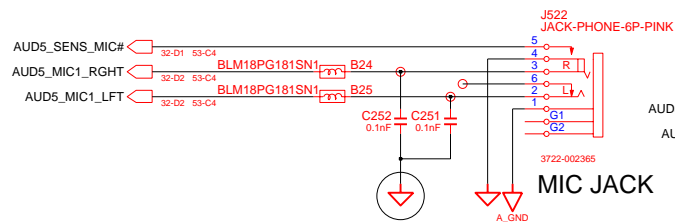
DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	DEV. STEP	MP		ALC262	
APPROVAL	HAN, JH	REV	1.1		AMP	
MODULE CODE		LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	33 OF 54	

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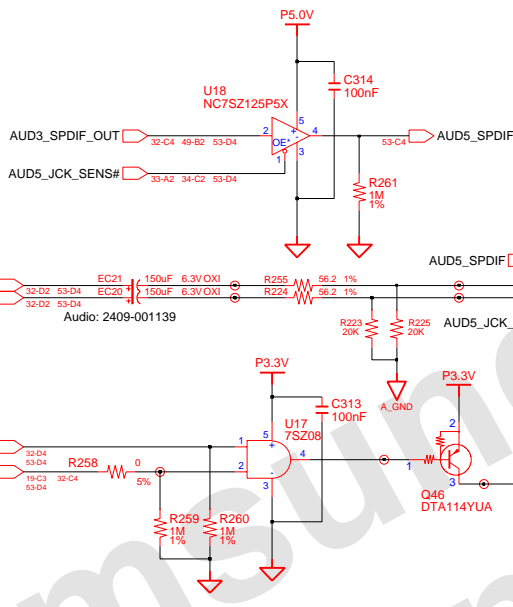


TOP

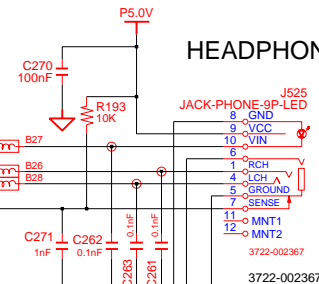


MIC JACK

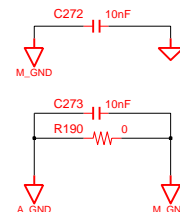
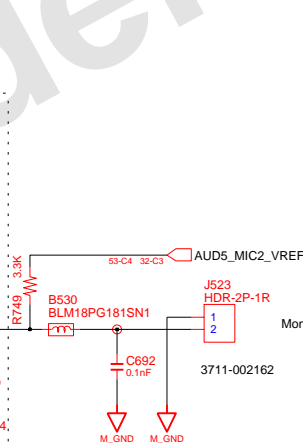
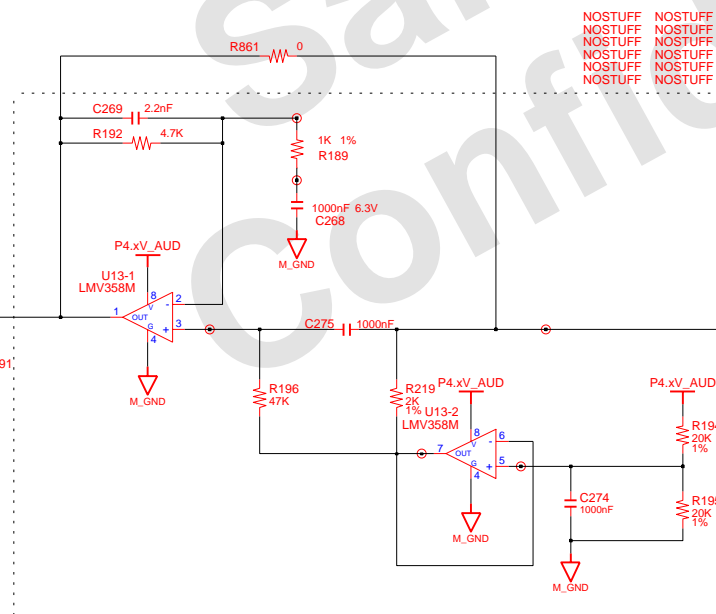
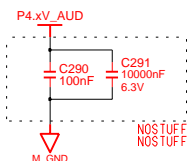
The traces led to Audio Jacks have the width over 10mil



HEADPHONE



Connect to Mount-hole.



DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON ALC262 JACK & MIC	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	DEV. STEP	MP			PART NO. BA41-#####
APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	34	OF 54



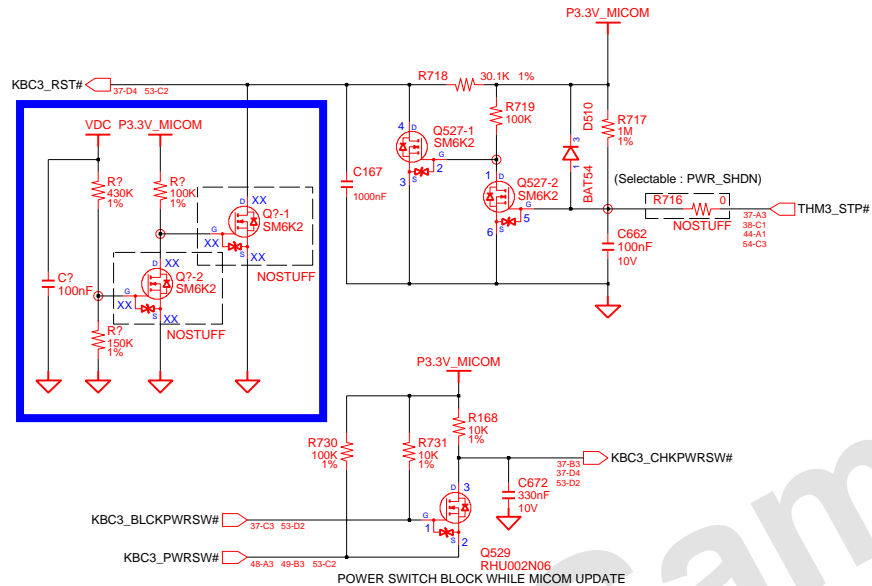




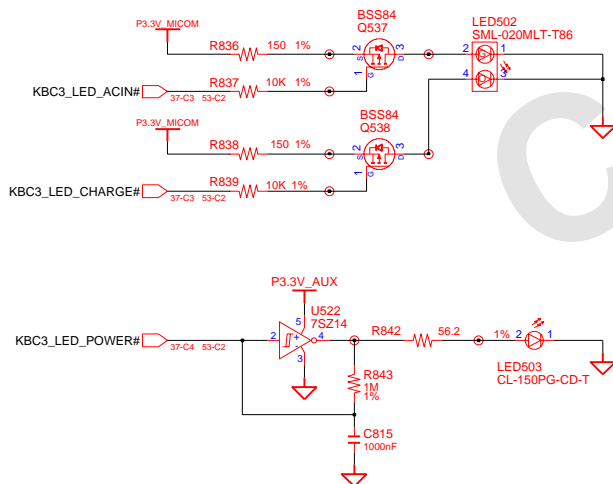
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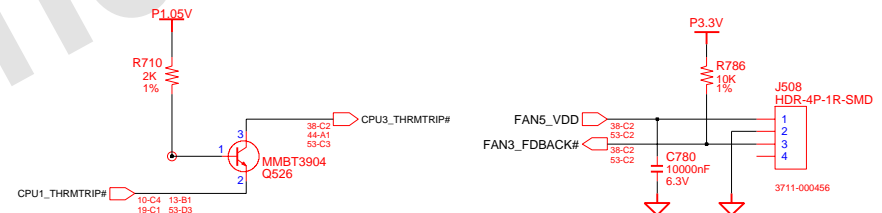
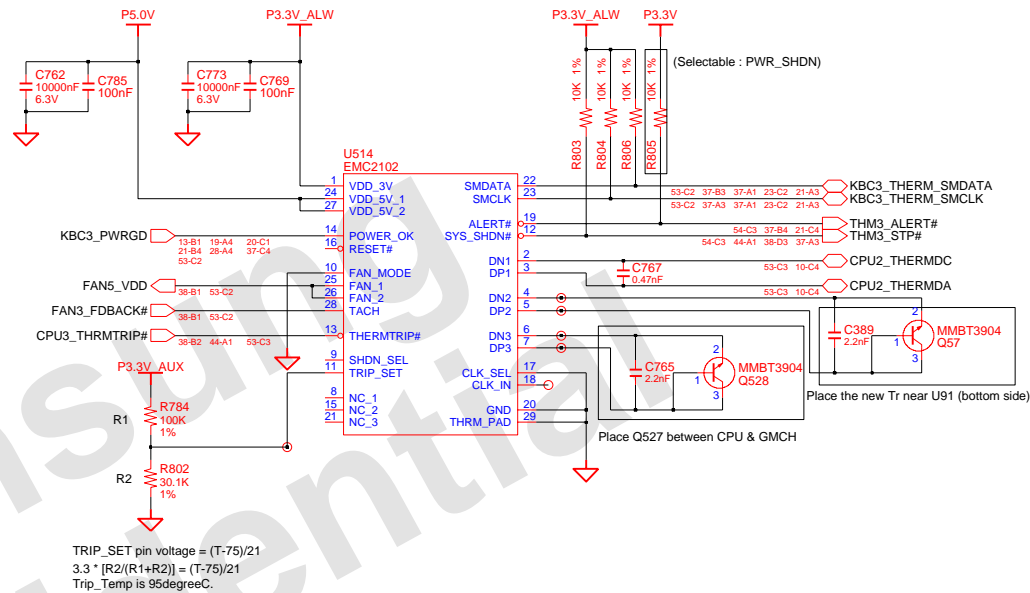
## MICOM RESET



## ADAPTERIN/CHARGING LED



## Thermal and Fan control

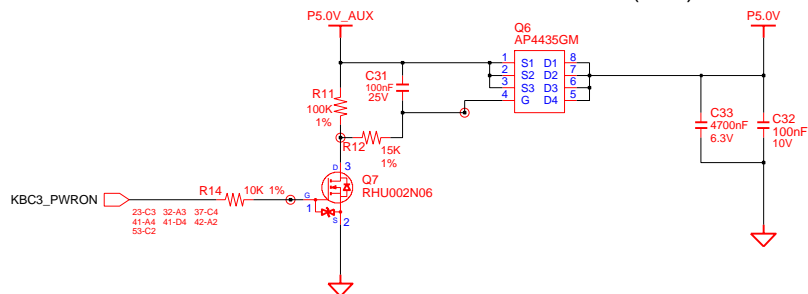


DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON MICOM & THERMAL	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK	WANG, PENG	DEV. STEP	MP	REV	1.1	
APPROVAL	HAN, JH	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	38 OF 54	
MODULE CODE						

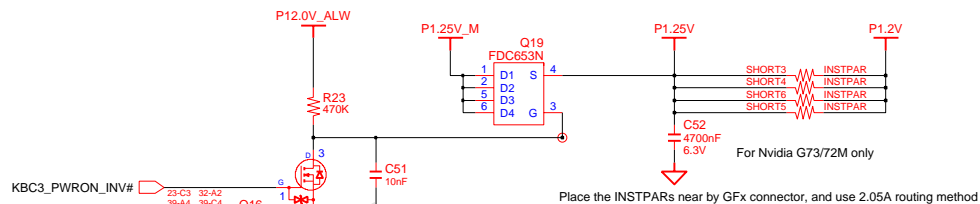
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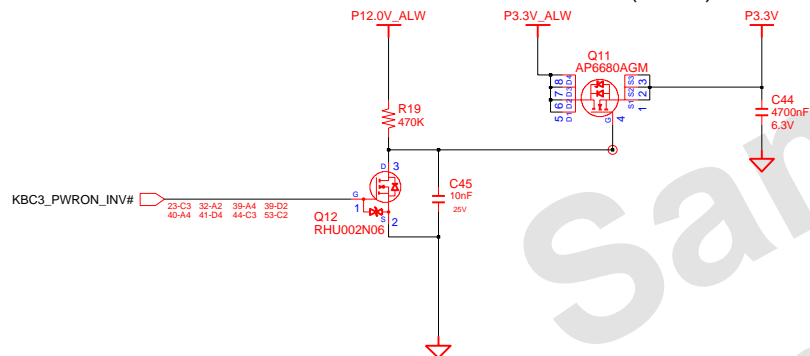
## Switched Power On (P5V)



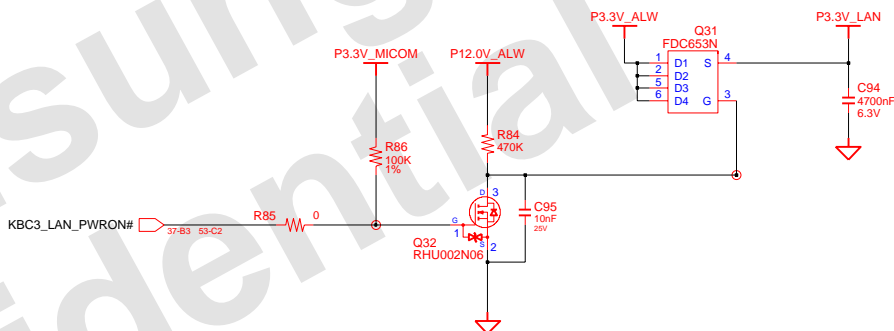
## Switched Power On (P1.25V and P1.2V)



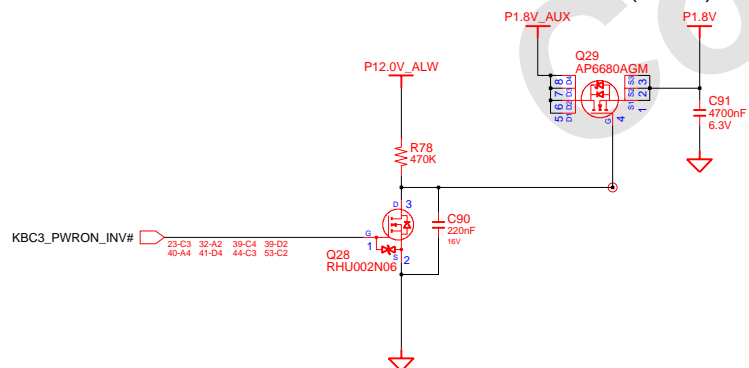
## Switched Power On (P3.3V)



## Switched Power On (P3.3V\_LAN)



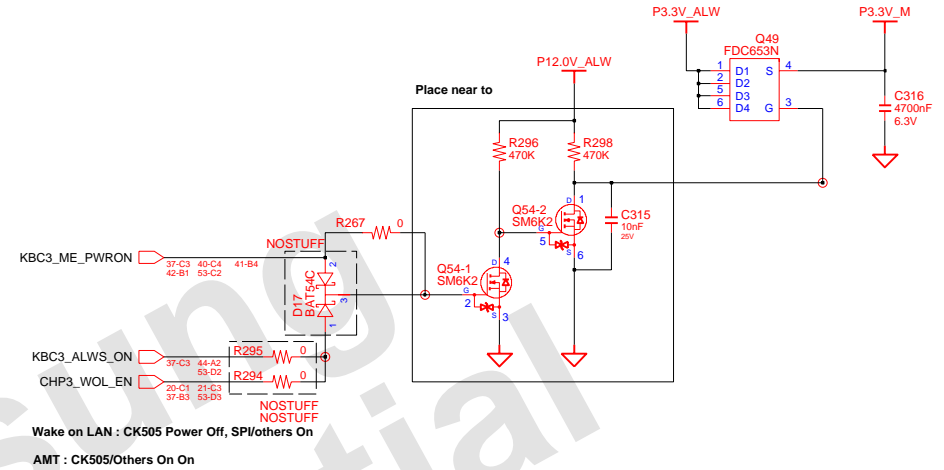
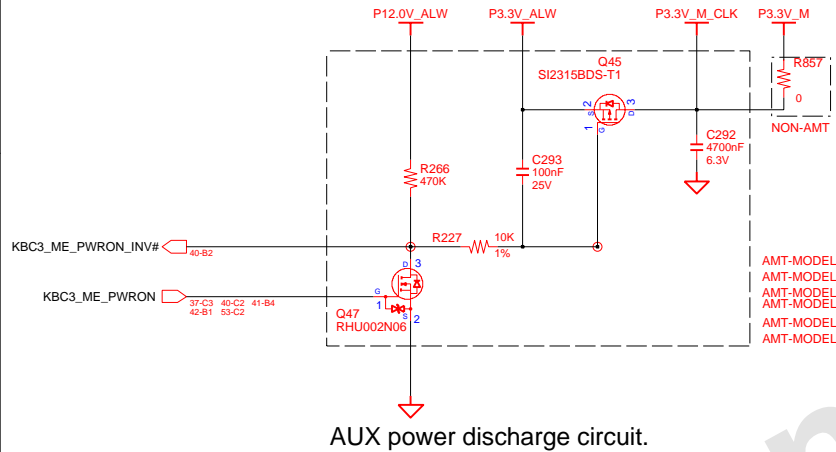
## Switched Power On (P1.8V)



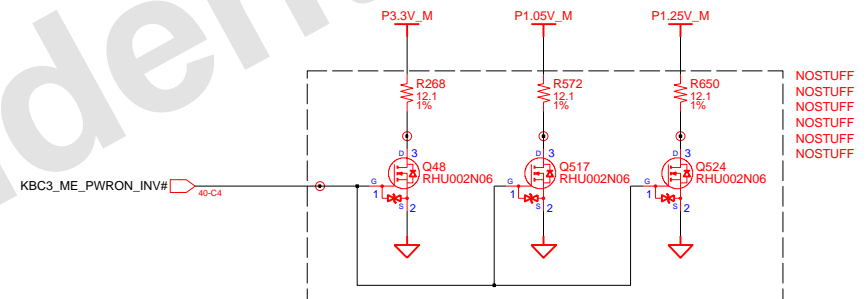
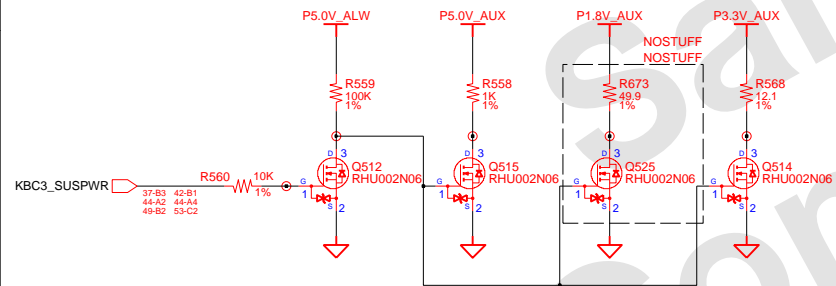
DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON POWER POWER ON LOGIC	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-#####A
CHECK	WANG, PENG	DEV. STEP	MP			
APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	39 OF 54	

## Switched ME Power On (P3.3V\_M)

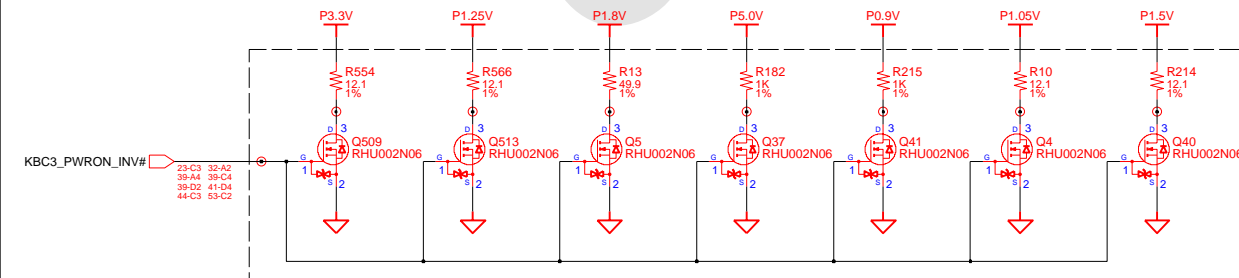
### Switched ME Power On (P3.3V\_CLK)



### ME power discharge circuit



### Switched power discharge circuit

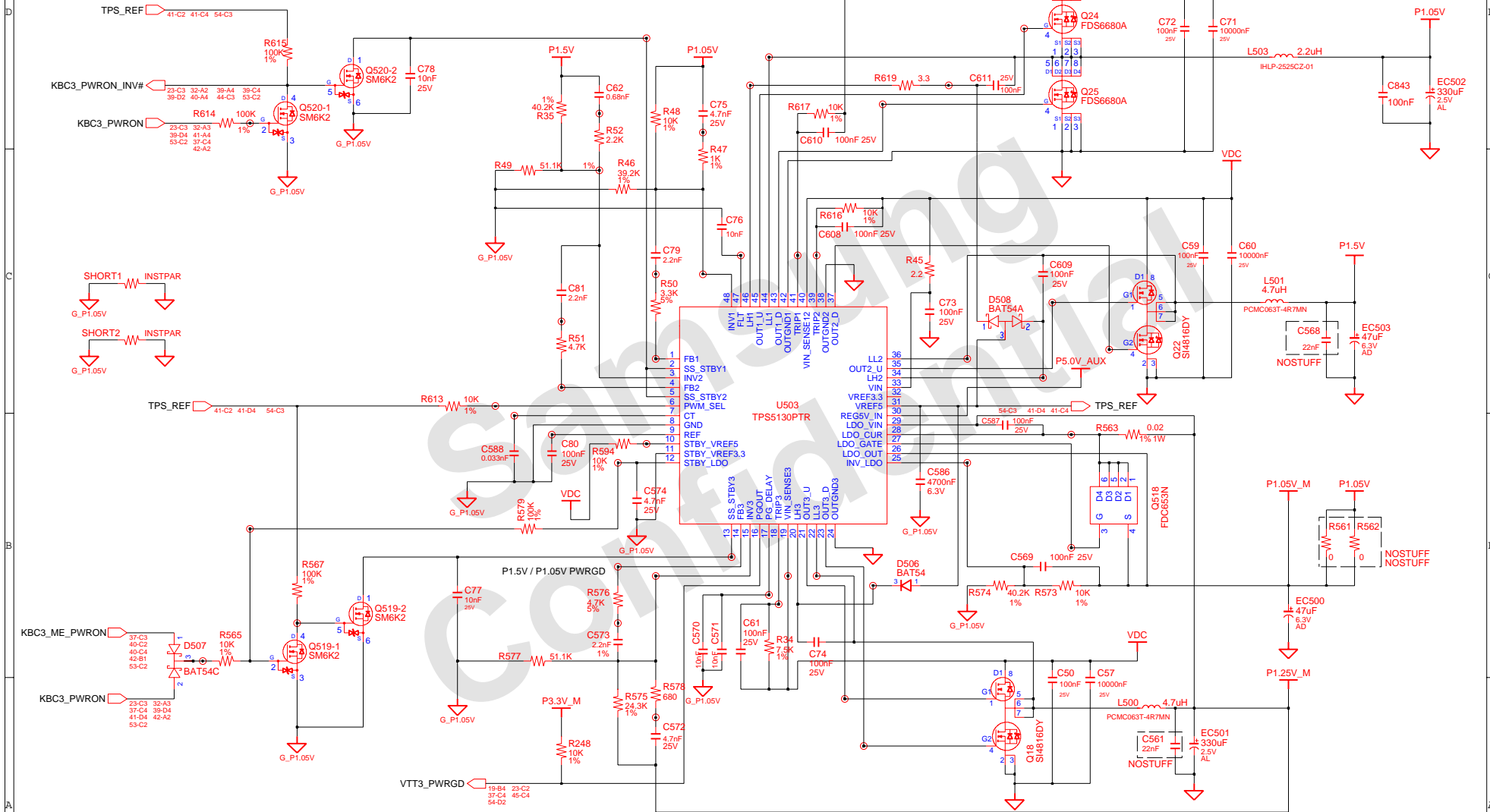


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DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON POWER POWER ON LOGIC (2/2)	PART NO. BA41-#####	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	REV. STEP	MP	REV	1.1		
APPROVAL	HAN, JH	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	40	OF	54

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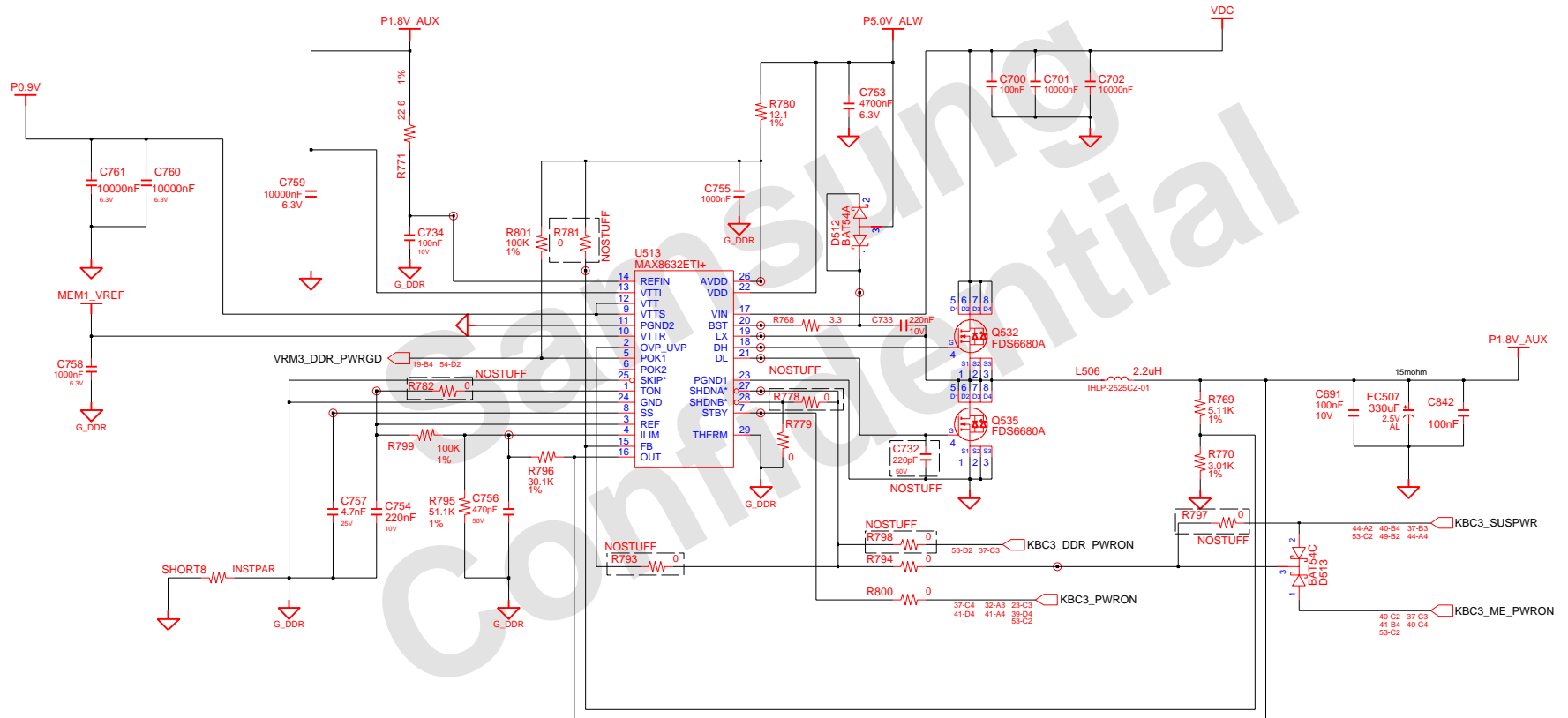


DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON POWER	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK	WANG, PENG	DEV. STEP	MP	REV	TPS5130	
APPROVAL	HAN, JH	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	41 OF 54	
MODULE CODE						

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## DDR2 Power



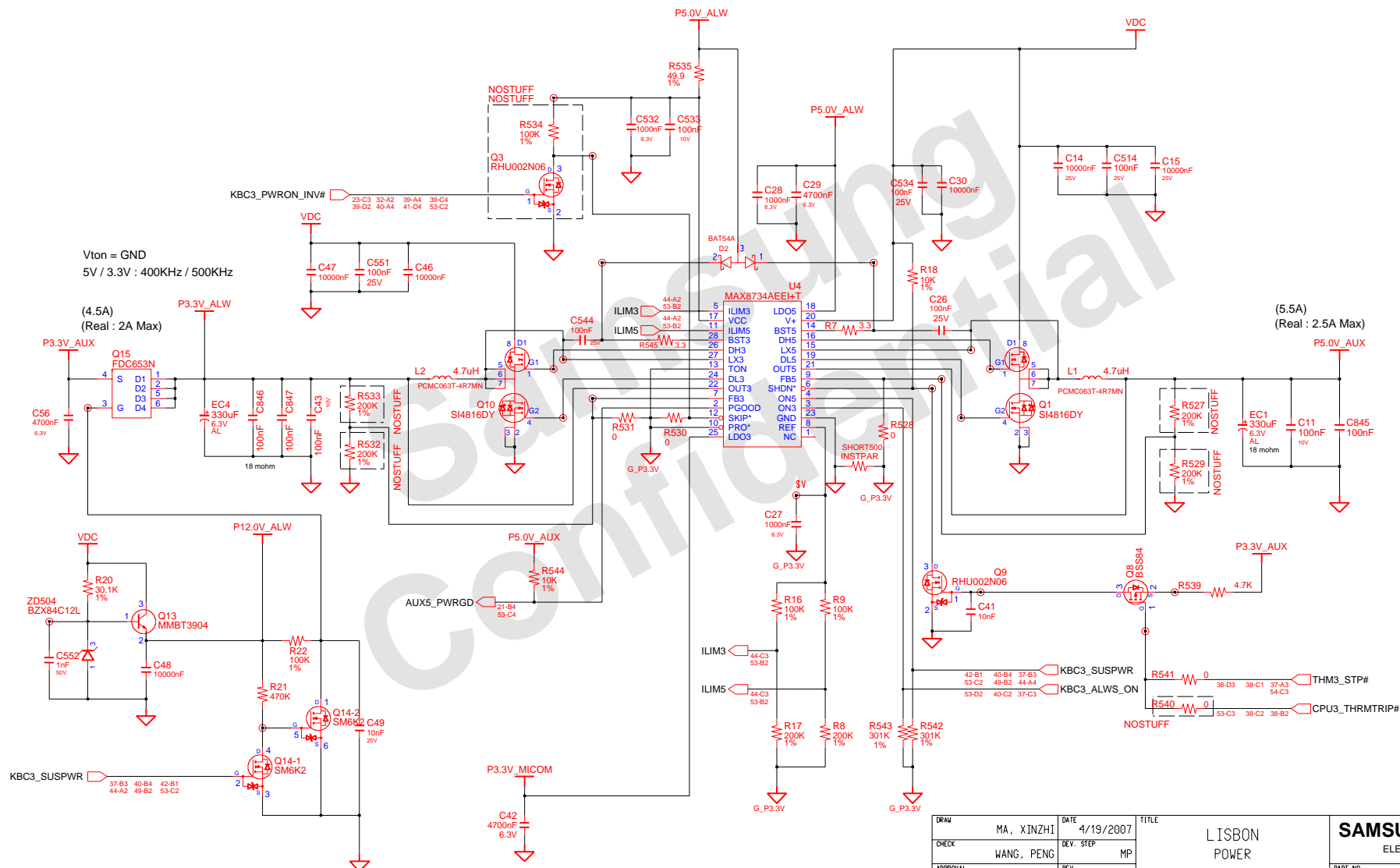
DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON POWER DDR2 POWER	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-#####
CHECK	WANG, PENG	REV. STEP	MP			
APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	42 OF 54	



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## P3.3V\_ALW/AUX & P5V\_AUX



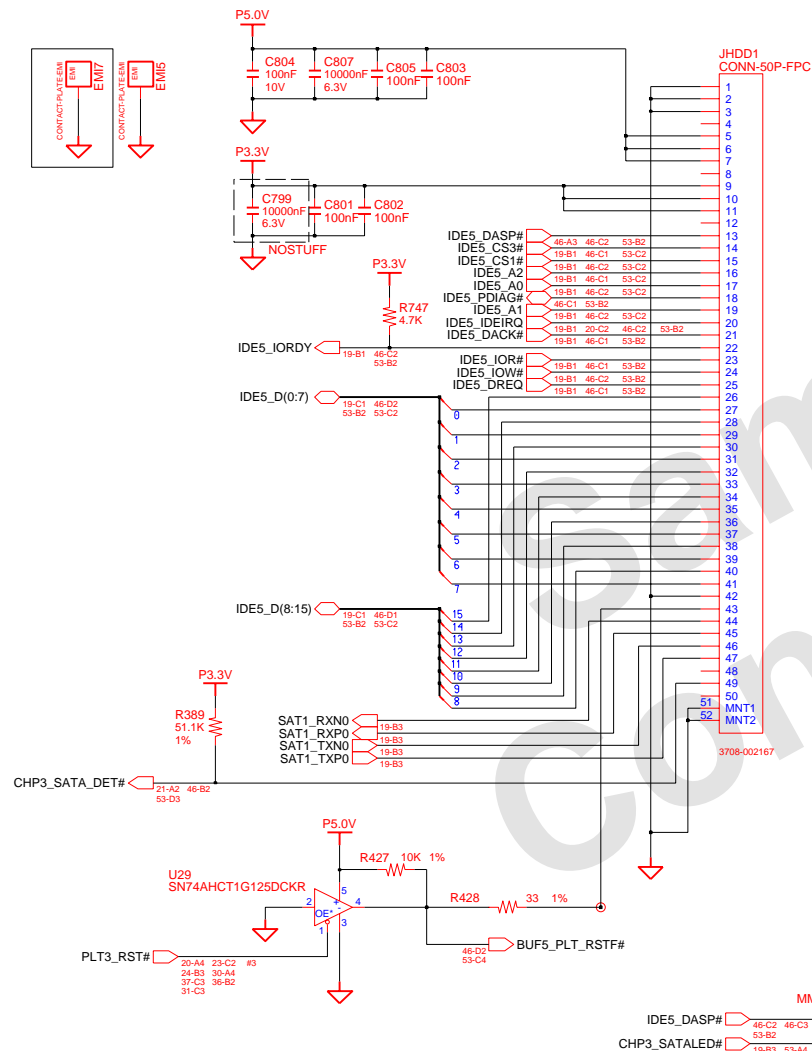
DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON POWER	<b>SAMSUNG</b> ELECTRONICS PART NO. BA41-##### CPU3_THRMTRIP#
CHECK	WANG, PENG	DEV. STEP	MP			
APPROVAL	HAN, JH	REV	1.1	P3.3V_ALW/AUX & P5.0V_ALW		
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	44 OF 54	



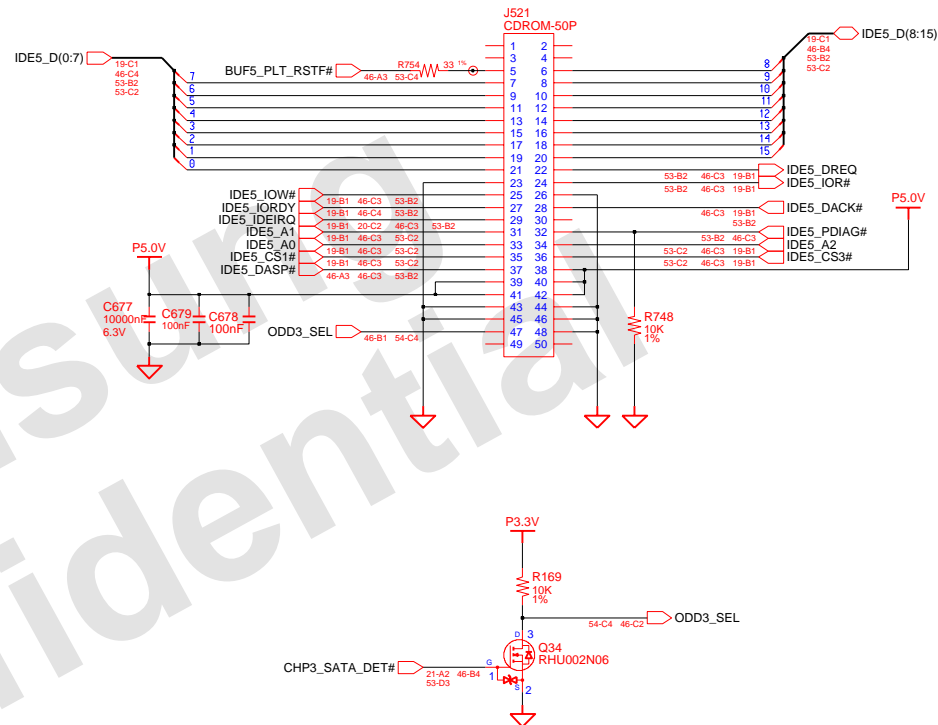
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## Main to HDD



## Main to Swap B'd

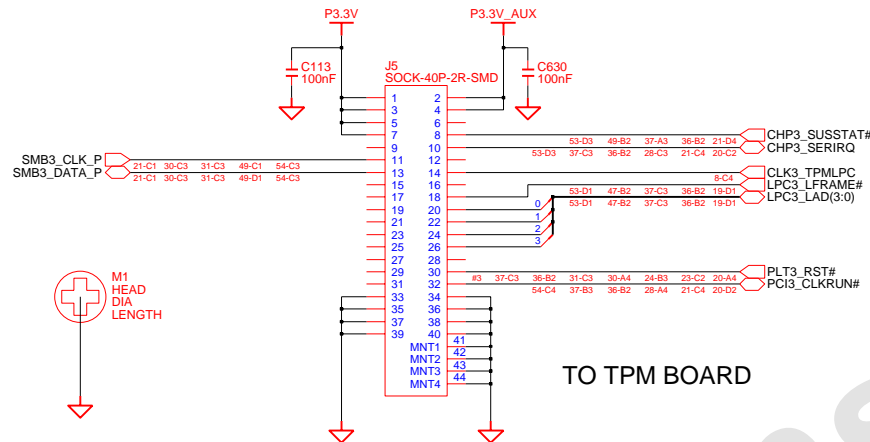


	SATA_DET*	ODD (IDE)	2nd HDD (IDE)
If SATA Detected	0	CSEL(#47) : Open (Master)	CSEL(#28) : GND (Master)
If SATA not Detected	1	CSEL(#47) : GND (Slave)	CSEL(#28) : Open (Slave)

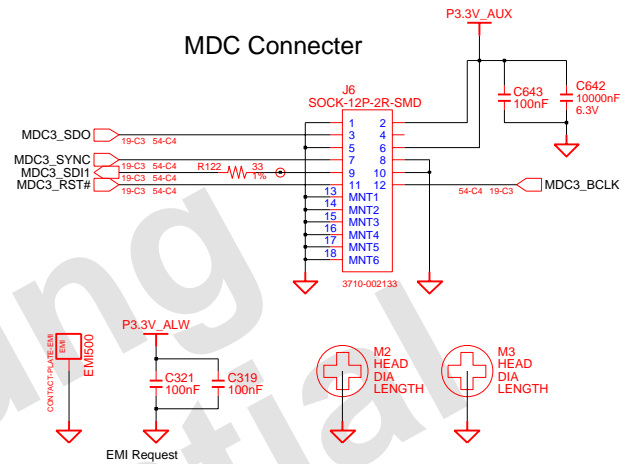
DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	DEV. STEP	MP		HDD & ODD CONNECTOR	
APPROVAL	HAN, JH	REV	1.1			PART NO.
MODULE CODE		LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	46	BA41-#####
					OF	54

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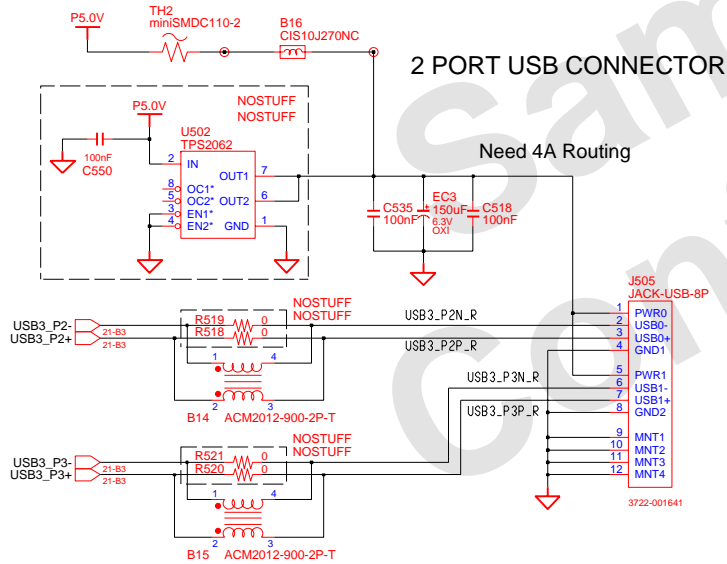
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TO TPM BOARD

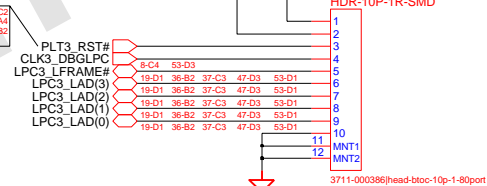


MDC Connector

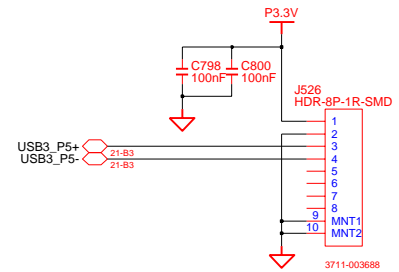


2 PORT USB CONNECTOR

Need 4A Routing



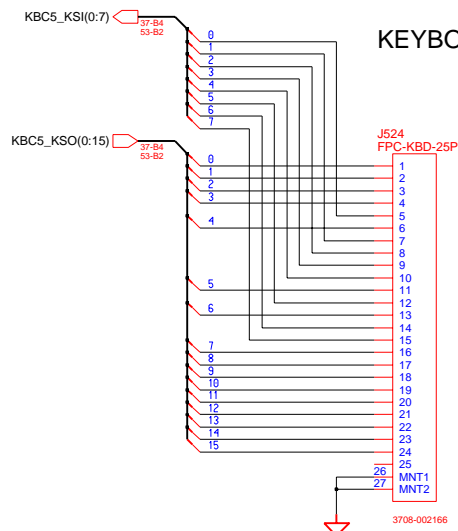
Bluetooth Interface



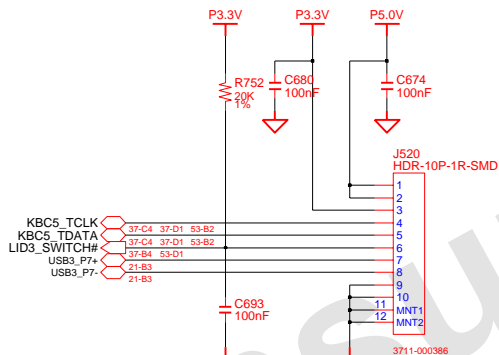
DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	DEV. STEP	MP	SUB B'D CONNECTOR		
APPROVAL	HAN, JH	REV	1.1	TPM & MDC & USB & DEBUG	PART NO.	BA41-#####
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	47	OF 54

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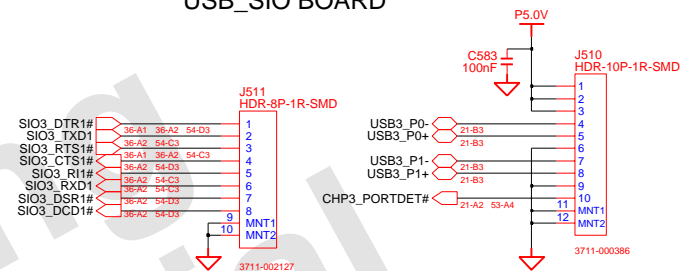
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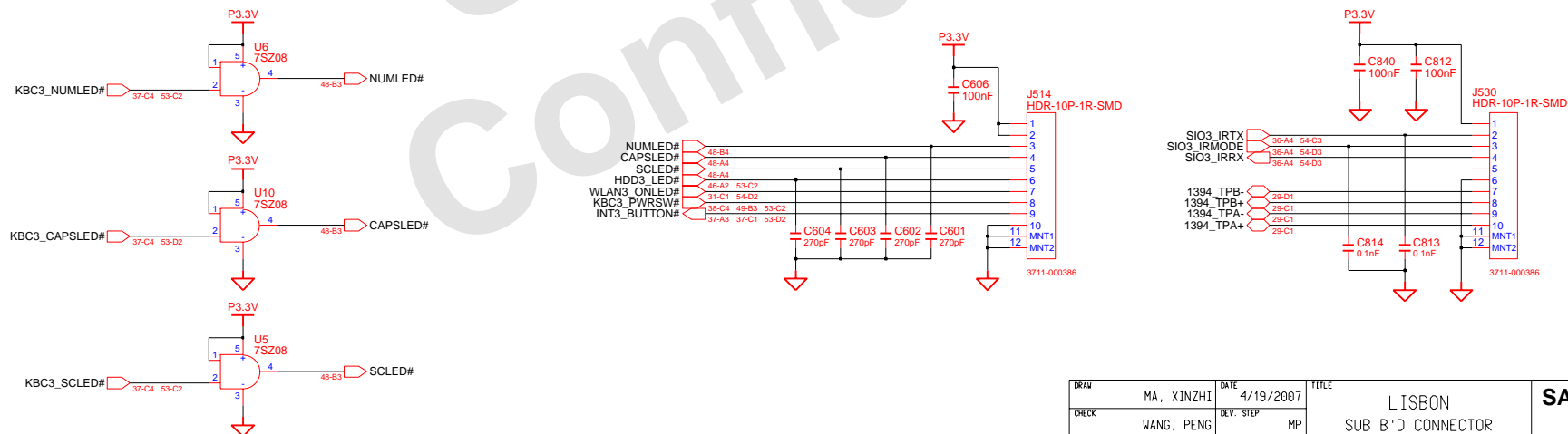
## TOUCHPAD



## USB\_SIO BOARD



## 1394\_IR BOARD



DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON SUB B'D CONNECTOR KBD & TOUCHPAD & IR & SIO	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	DEV. STEP	MP			
APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	48	OF 54

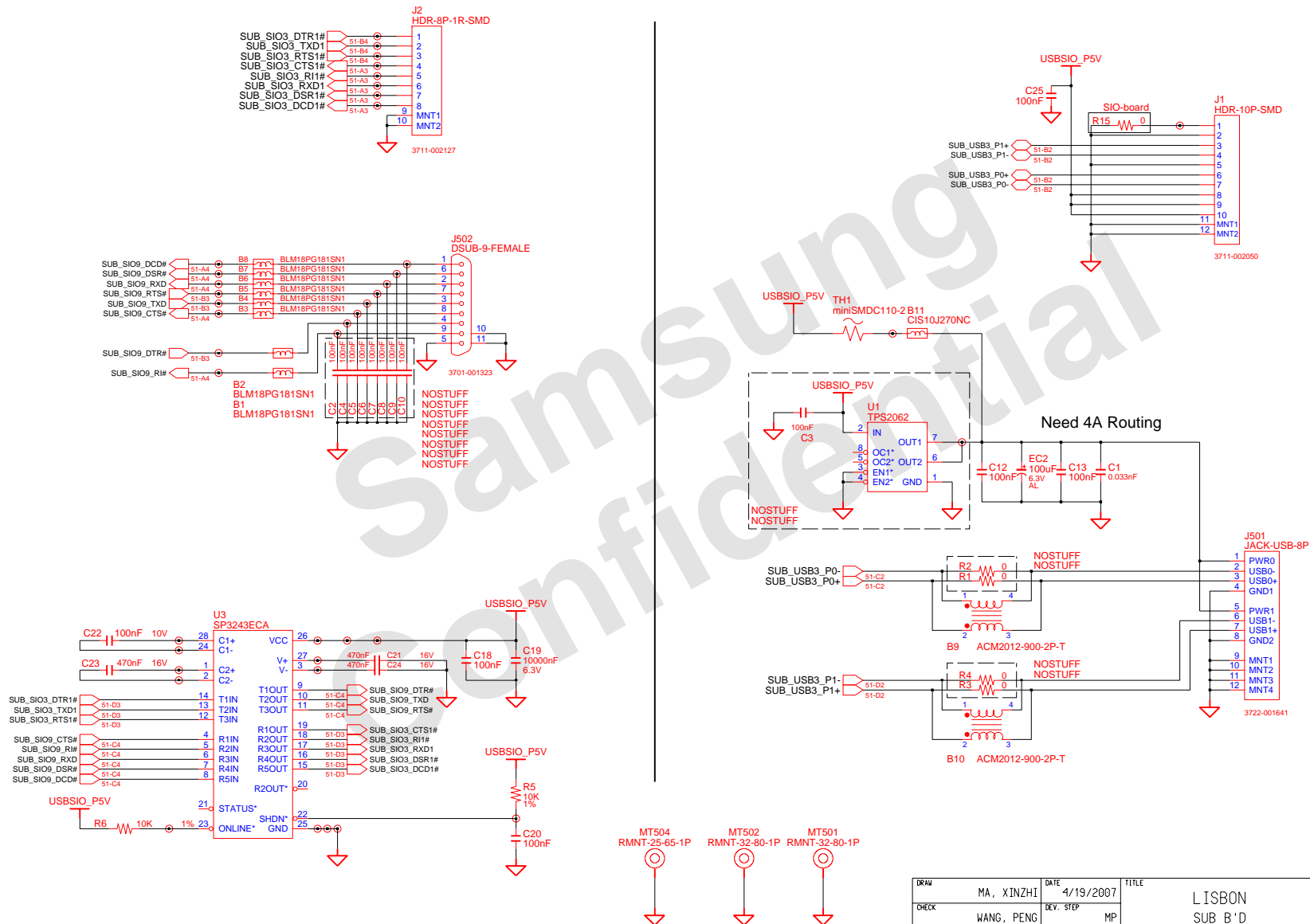




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## USB\_SIO BOARD

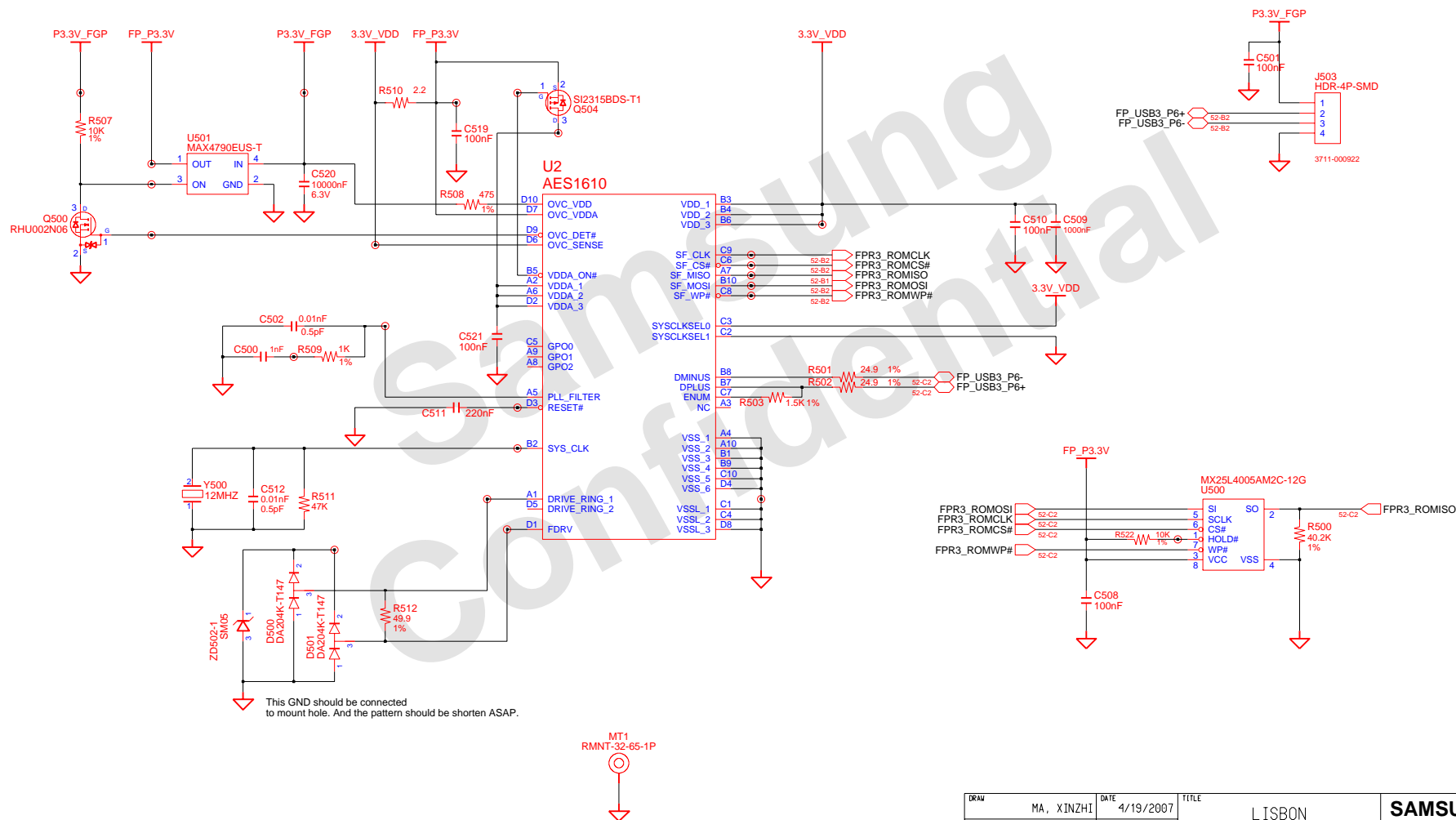


DRAW	MA, XINZHI	DATE	4/19/2007	TITLE	LISBON SUB B'D USB_SIO B'D	SAMSUNG ELECTRONICS PART NO. BA41-#####
CHECK	WANG, PENG	DEV. STEP	MP			
APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	51 OF 54	

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## Finger Printer board



DRAW	MA, XINZH1	DATE	4/19/2007	TITLE	LISBON SUB B'D FINGER PRINT	SAMSUNG ELECTRONICS
CHECK	WANG, PENG	DEV. STEP	MP			PART NO. BA41-#####
APPROVAL	HAN, JH	REV	1.1			
MODULE CODE	undefined	LAST EDIT	February 6, 2007 11:03:39 PM	PAGE	52 OF 54	



