

ZZZ1  
LA5971P LS5971P

ZZZ3  
LA5971P  
DAZ@

ZZZ4  
LS5971P  
DAZ@

# Compal Confidential

## NAWA1 Schematics Document

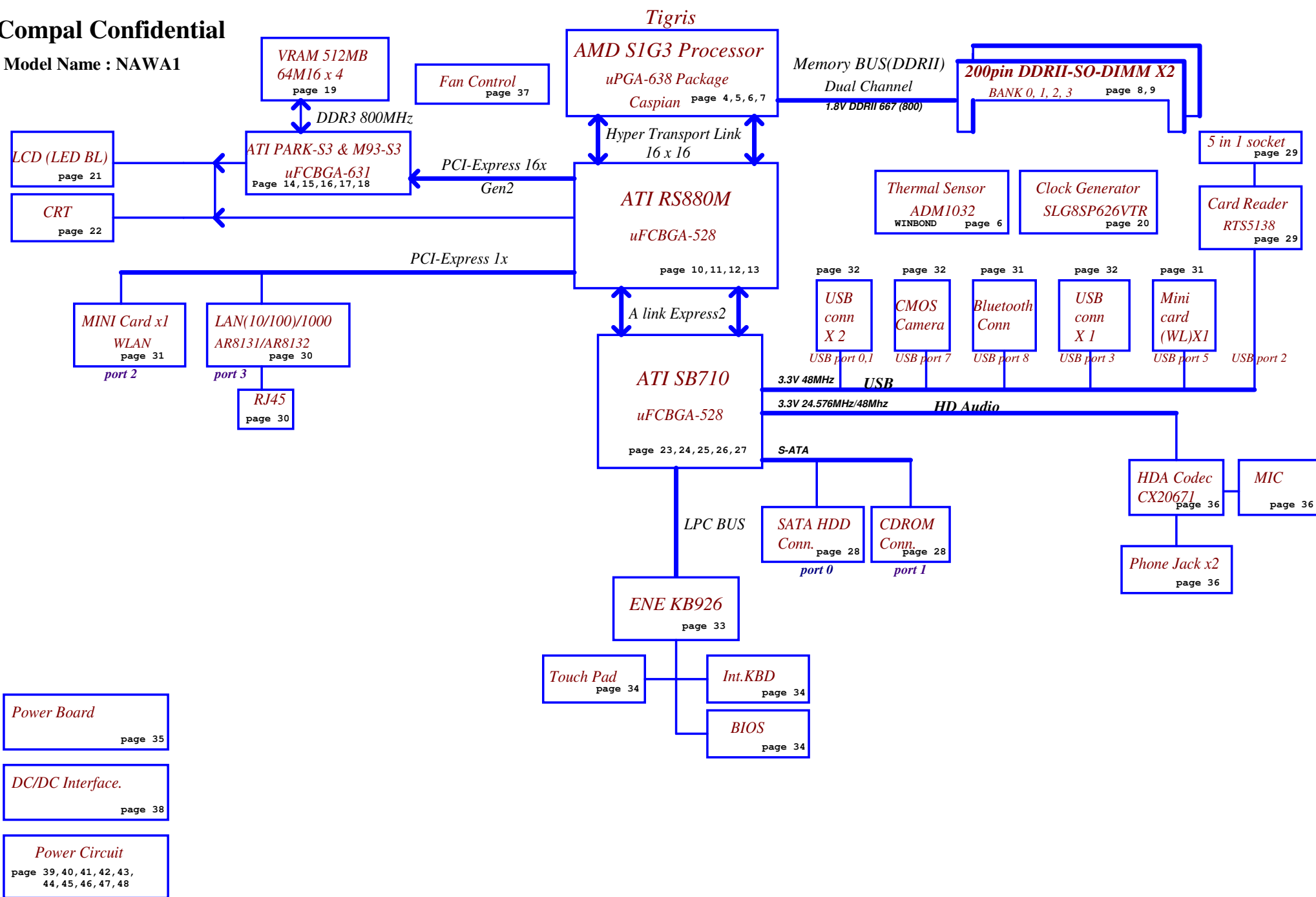
AMD Tigris: Caspian Processor with RS880M/SB710/Park-S3 & M93-S3

2009-11-26

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Model Name : NAWA1



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Voltage Rails

Power Plane	Description	S1	S3	S5
VIN	Adapter power supply (19V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit.	N/A	N/A	N/A
+CPU_CORE_0	Core voltage for CPU (0.7-1.2V)	ON	OFF	OFF
+CPU_CORE_1	Core voltage for CPU (0.7-1.2V)	ON	OFF	OFF
+CPU_CORE_NB	Voltage for On-die Northbridge of CPU(0.8-1.1V)	ON	OFF	OFF
+0.9V	0.9V switched power rail for DDR terminator	ON	ON	OFF
+1.1VS	1.1V switched power rail for NB VDDC & VGA	ON	OFF	OFF
+1.2V_HT	1.2V switched power rail	ON	OFF	OFF
+VGA_CORE	0.95-1.2V switched power rail	ON	OFF	OFF
+1.5VS	1.5V power rail for PCIE Card	ON	OFF	OFF
+1.8V	1.8V power rail for CPU VDDIO and DDR	ON	ON	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5VS	2.5V for CPU_VDDA	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V_LAN	3.3V power rail for LAN	ON	ON	ON
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5VS	5V switched power rail	ON	OFF	OFF
+VSB	VSB always on power rail	ON	ON	ON*
+RTCVCC	RTC power	ON	ON	ON

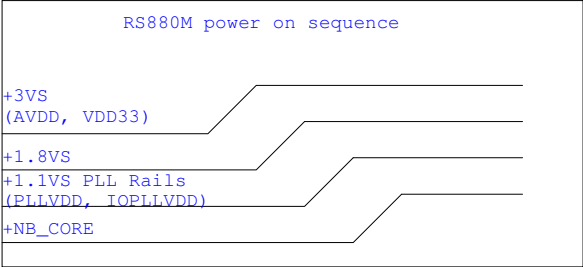
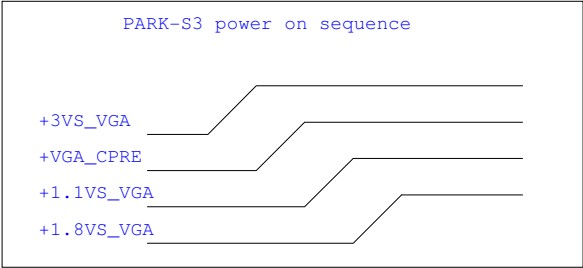
Note : ON\* means that this power plane is ON only with AC power available, otherwise it is OFF.

BTO Option Table

BTO Item	BOM Structure
Discrete	VGA@
PARK	PARK@
M93	M93@
HDT debug	HDT@
UMA	UMA@
Wireless LAN	WLAN@
Blue Tooth	BT@
Camera	CMOS@
New Card	New Card@
VRAM	X76@
UNPON	@

STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1 (Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

NAWA1\_UMA : UMA@/WLAN@/BT@/CMOS@/NEW\_CARD@  
NAWA1\_DIS : VGA@/M93@/WLAN@/BT@/NEW\_CARD@/CMOS@/X76@



External PCI Devices

Device	IDSEL#	REQ#/GNT#	Interrupts
--------	--------	-----------	------------

EC SM Bus1 address

Device	Address	HEX	Device	Address	HEX
Smart Battery	0001 011X b	16H	ADI ADM1032 (CPU)	1001 100X b	98H
			GMT G781-1 (GPU)	1001 101X b	9AH
			SB-Temp Sensor		9CH

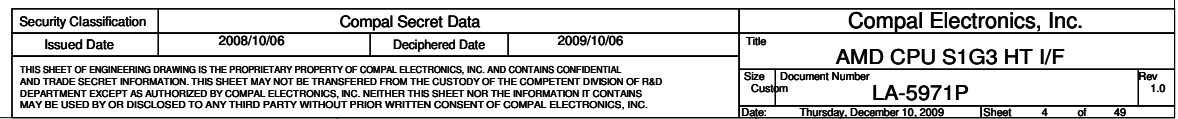
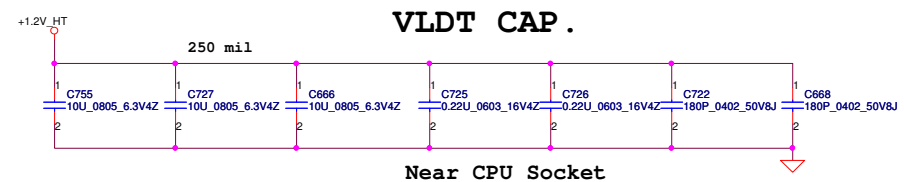
EC SM Bus2 address

SB710  
SM Bus 0 address

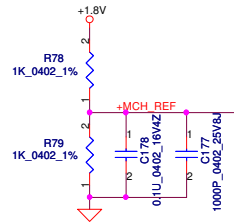
Device	Address	HEX	Device	Address
Clock Generator (SILEGO SLG8SP626)	1101 001Xb	D2	New card	
DDR DIMM1	1001 000Xb	90		
DDR DIMM2	1001 010Xb	94		
Mini card				

SB710  
SM Bus 1 address

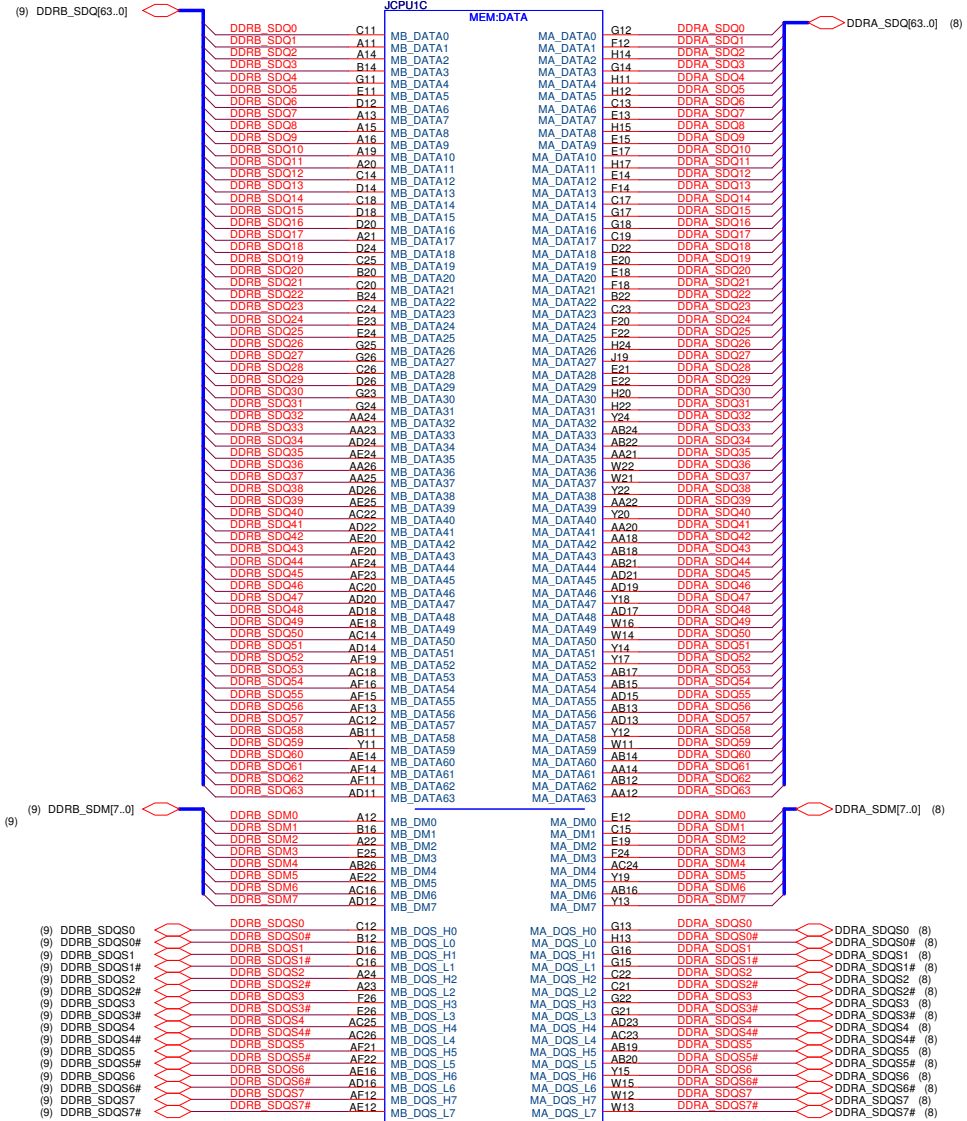
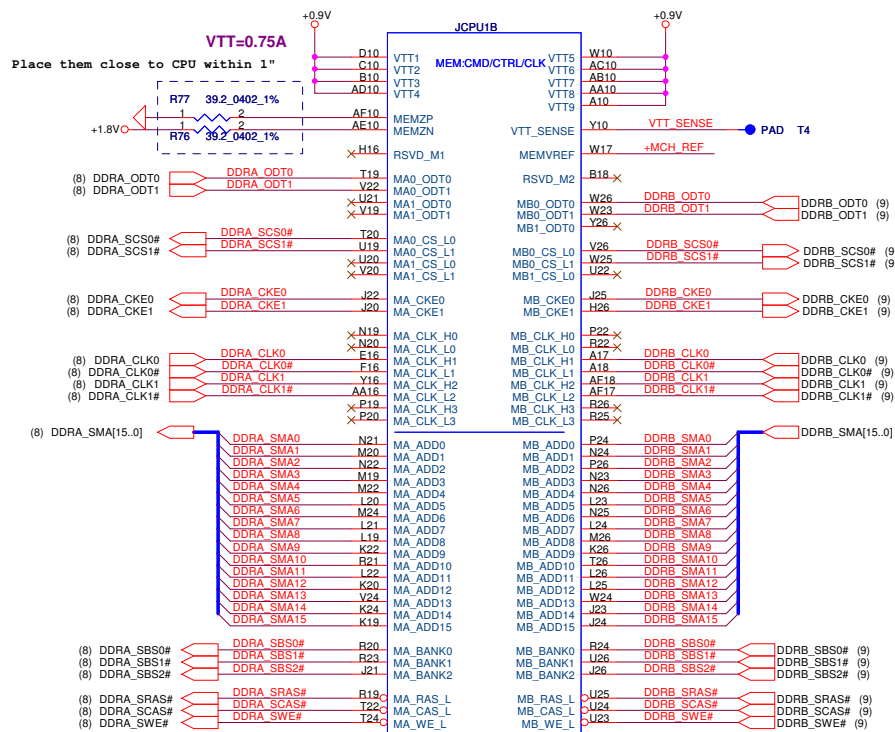
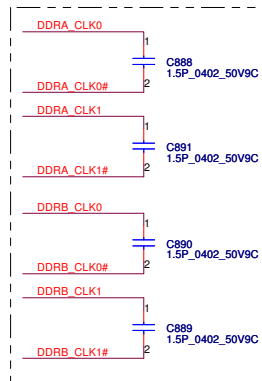
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# Processor DDR2 Memory Interface



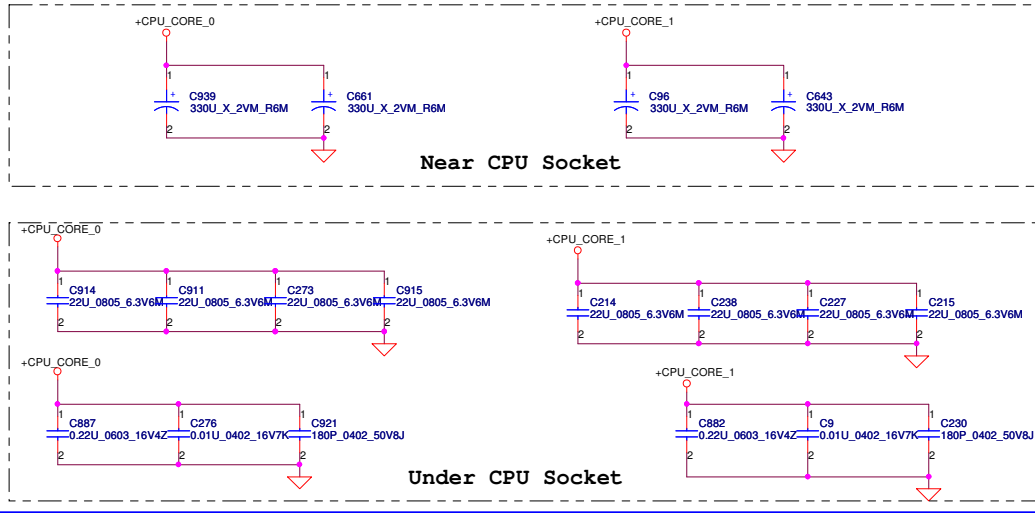
PLACE CLOSE TO PROCESSOR  
WITHIN 1.2 INCH



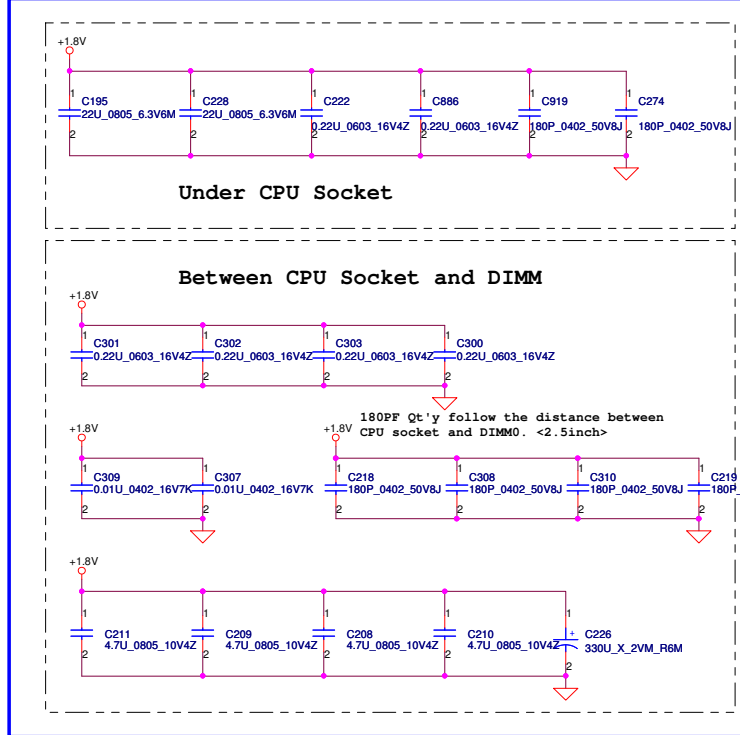
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Deciphered Date				2009/10/06				AMD CPU S1G3 DDRII I/F			
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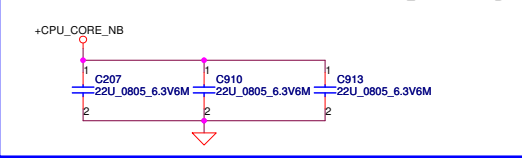
## VDD (+CPU\_CORE) decoupling.



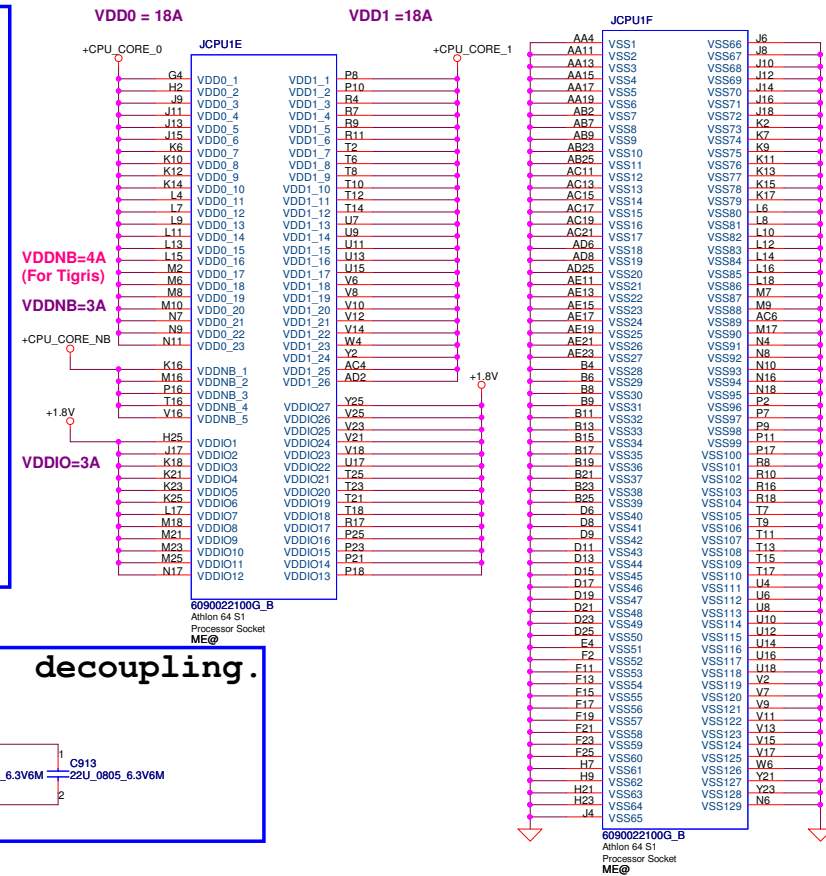
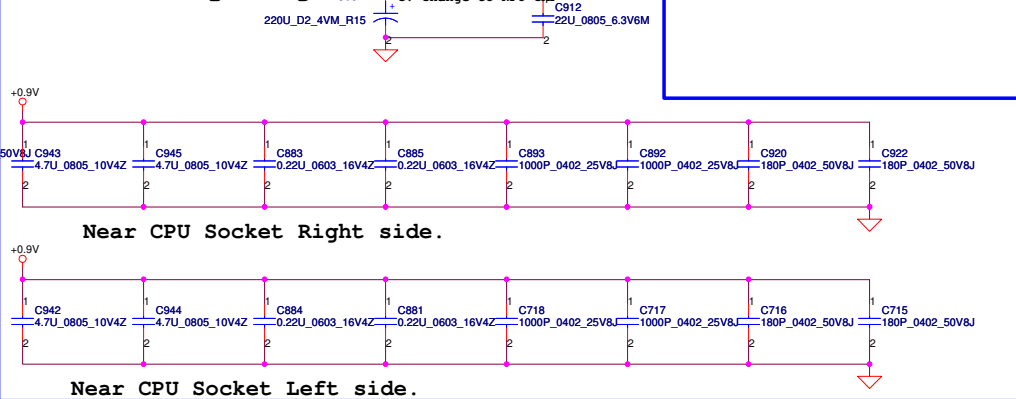
## VDDIO decoupling.



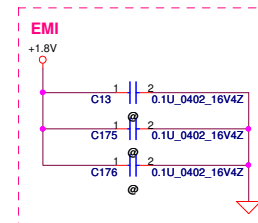
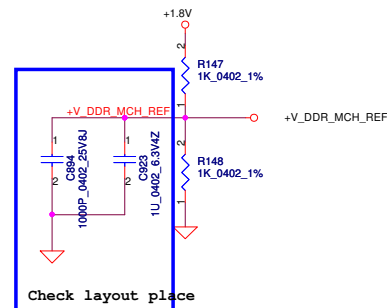
## +CPU\_CORE\_NB decoupling.



## VTT decoupling.

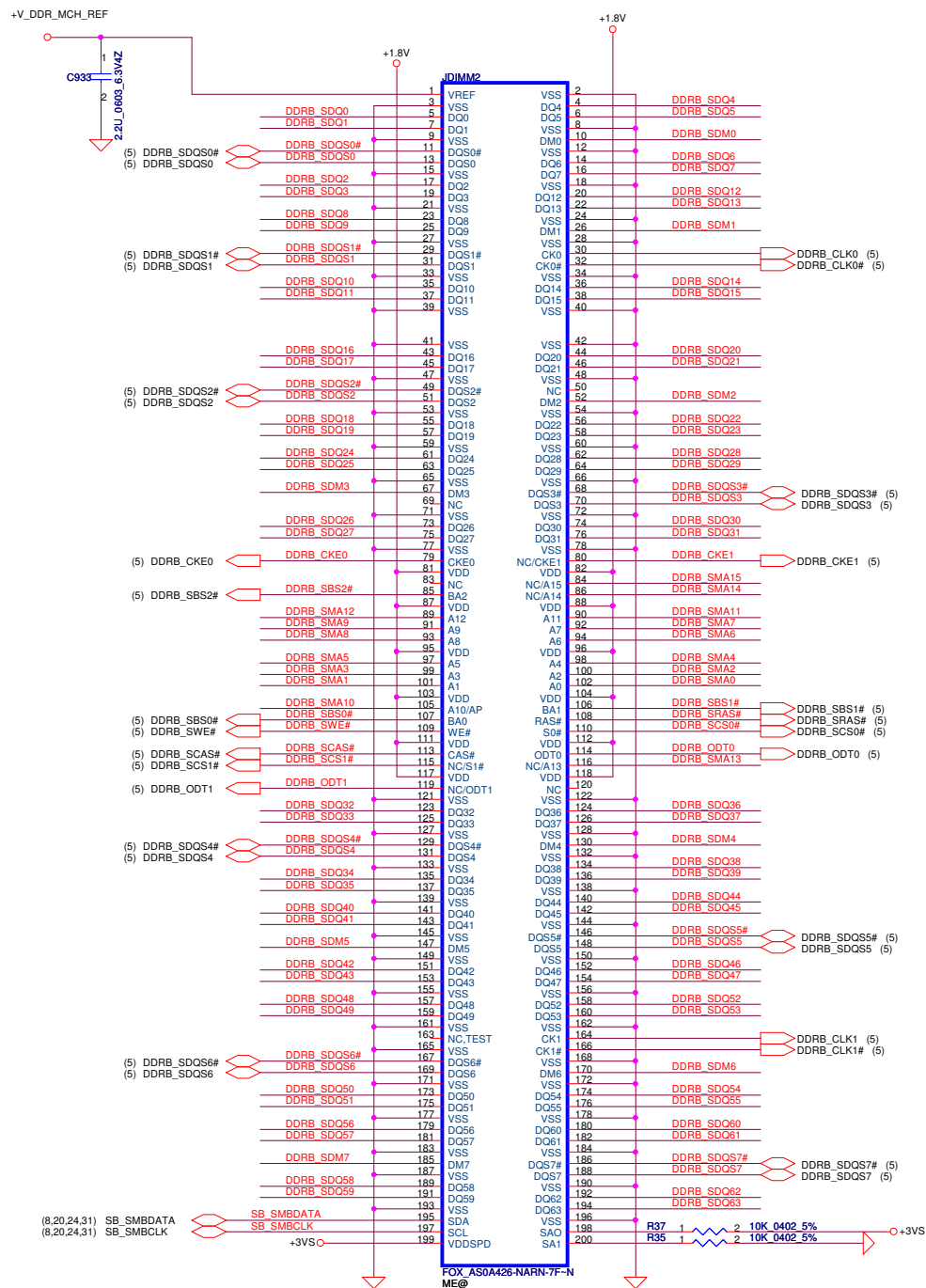


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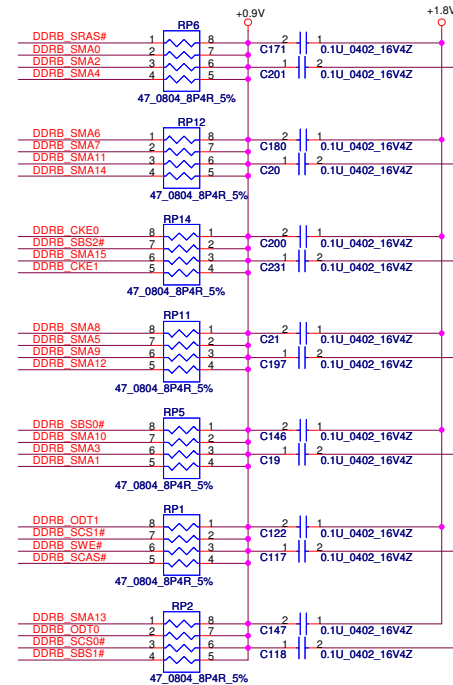
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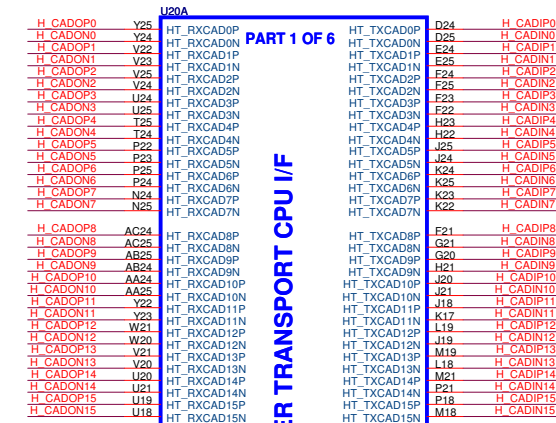
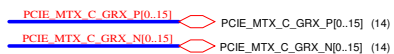


DIMM2 REV H:9.2mm (BOT)

DDR\_B\_SDO[0..63] (5)  
DDR\_B\_SDM[0..7] (5)  
DDR\_B\_SMA[0..15] (5)

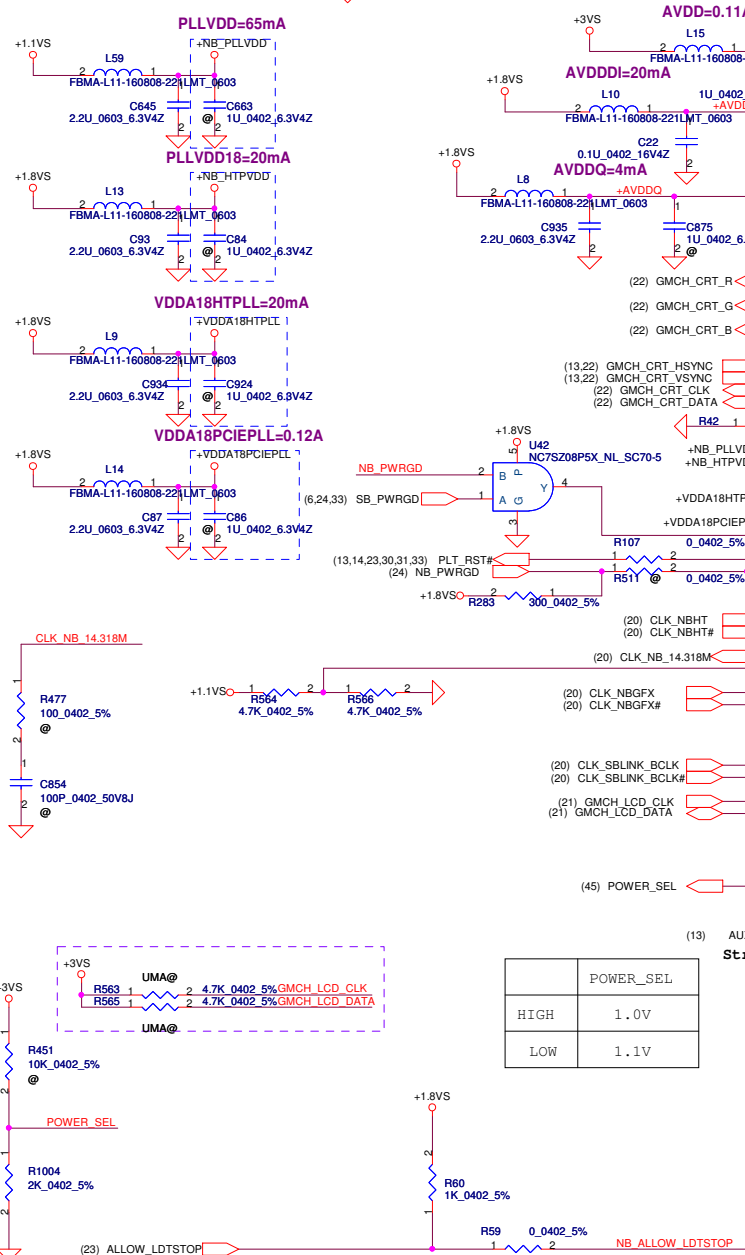
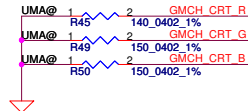


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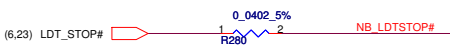


**WWW.AliSaler.Com**

For RS780M A13  
RED: Connected to GND through two separate 140ohm 1% resistor



	POWER_SEL
HIGH	1.0V
LOW	1.1V

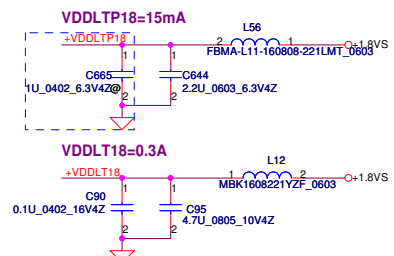
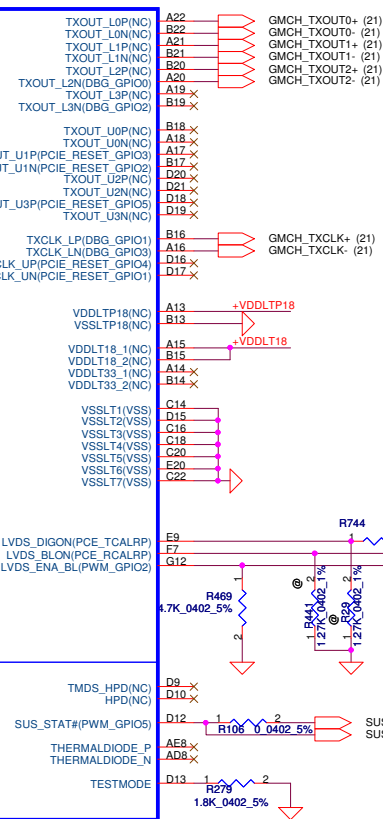


PART 3 OF 6

CRT/TVOUT  
PM  
PUL PWR  
LVTM  
CLOCKS

MIS.

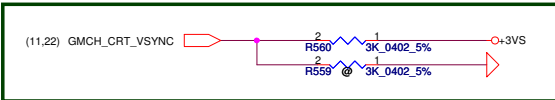
RS880M\_FCBGA528



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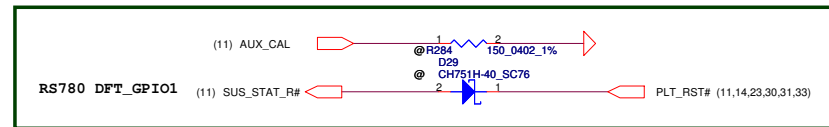


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				RS880 PWR/GND	
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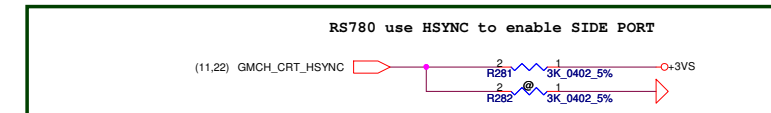
#### DFT\_GPIO5:STRAP\_DEBUG\_BUS\_GPIO\_ENABLEb

Enables the Test Debug Bus using GPIO. (VSYNC)  
1 : Disable (RS880M)  
0 : Enable (RS880M)



#### DFT\_GPIO1: LOAD\_EEPROM\_STRAPS

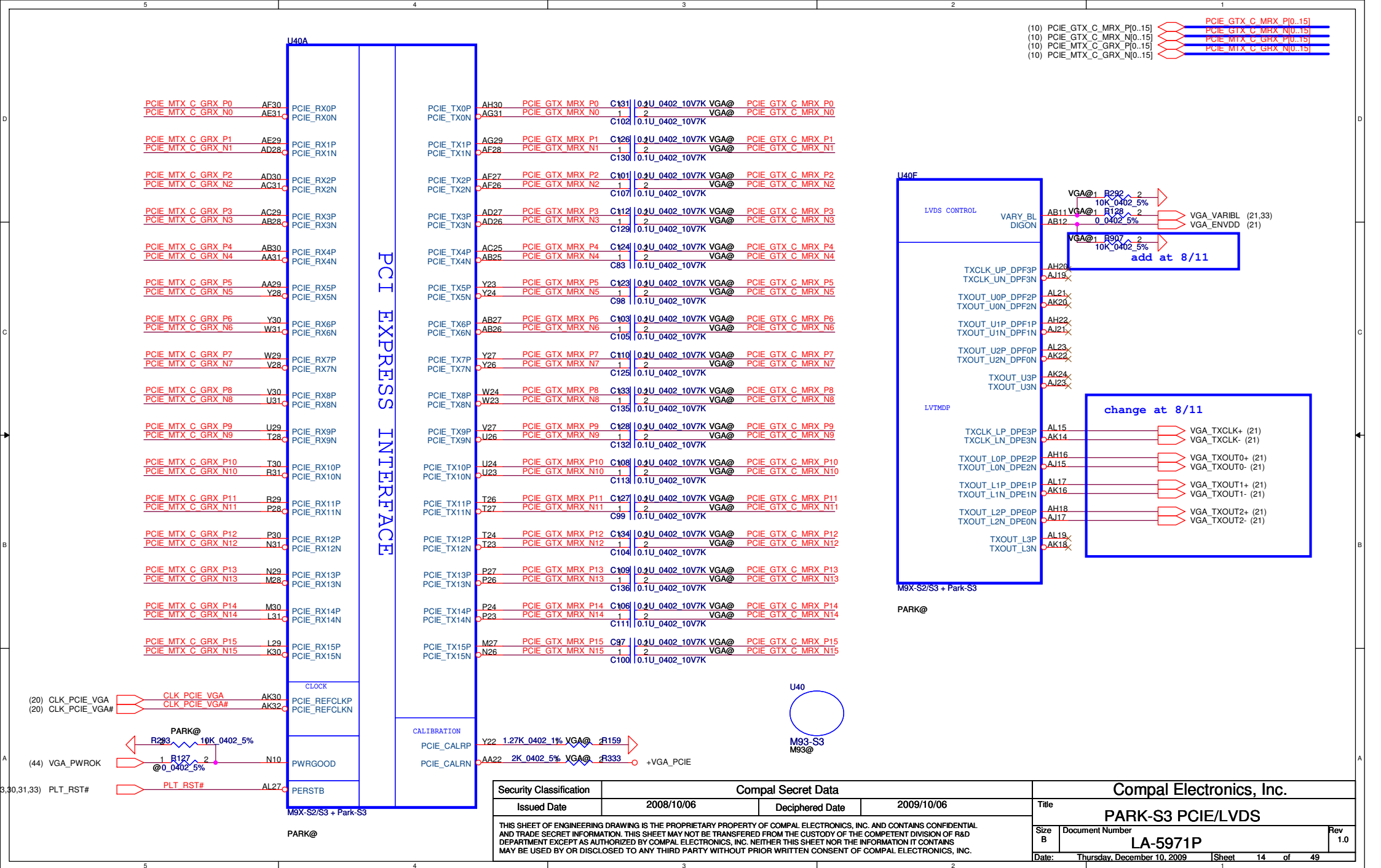
Selects Loading of STRAPS from EPROM  
1 : Bypass the loading of EEPROM straps and use Hardware Default Values  
0 : I2C Master can load strap values from EEPROM if connected, or use default values if not connected  
RS740/RX780: DFT\_GPIO1 RS780:SUS\_STAT



#### RS780 use HSYNC to enable SIDE PORT

RS740/RS780: Enables Side port memory ( RS780 use HSYNC#)  
0 : Enable (RS880M)  
1 : Disable(RS880M)

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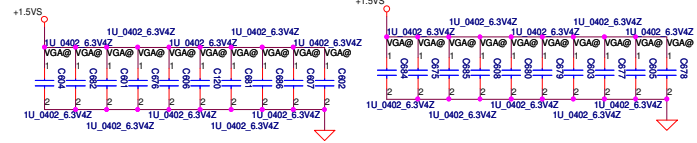
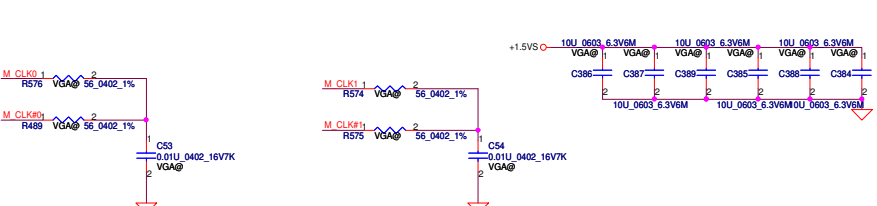
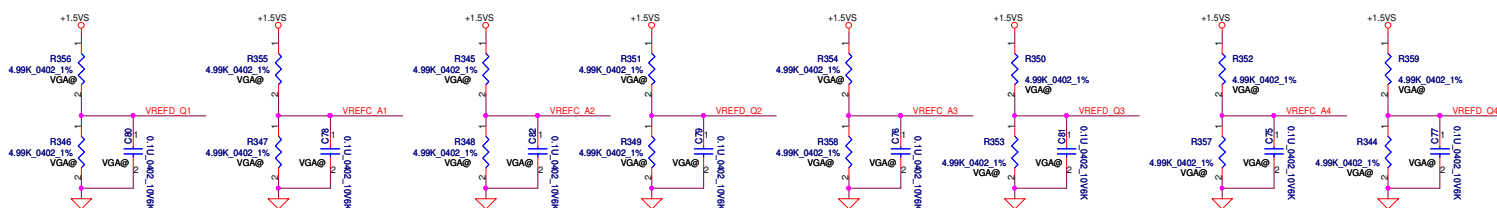
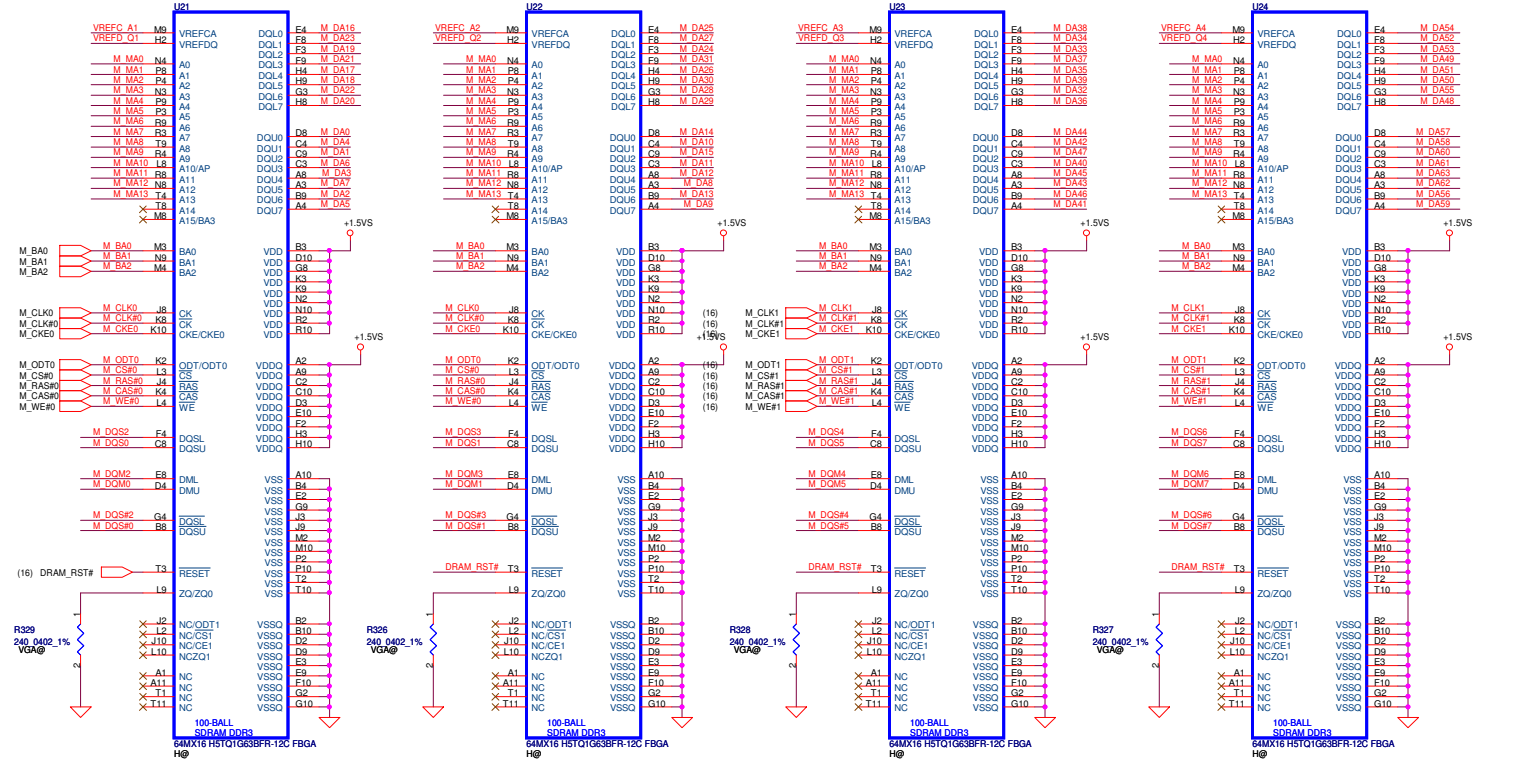
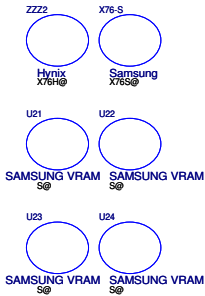








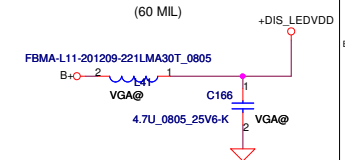
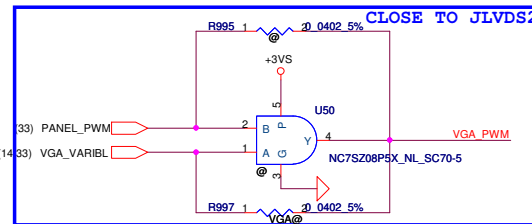
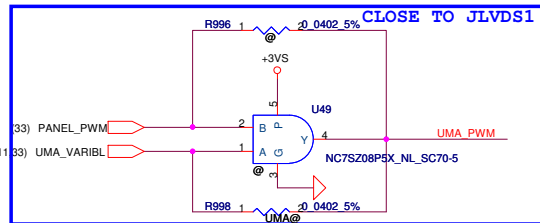
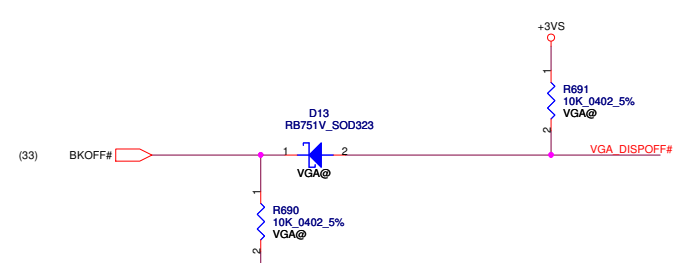
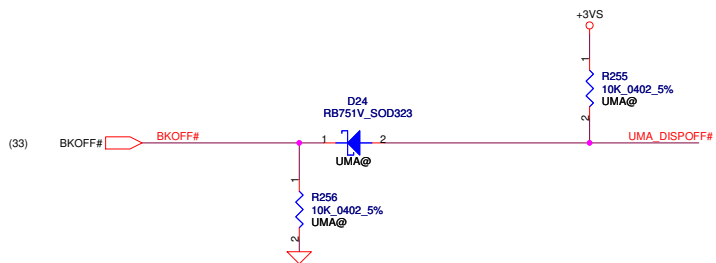
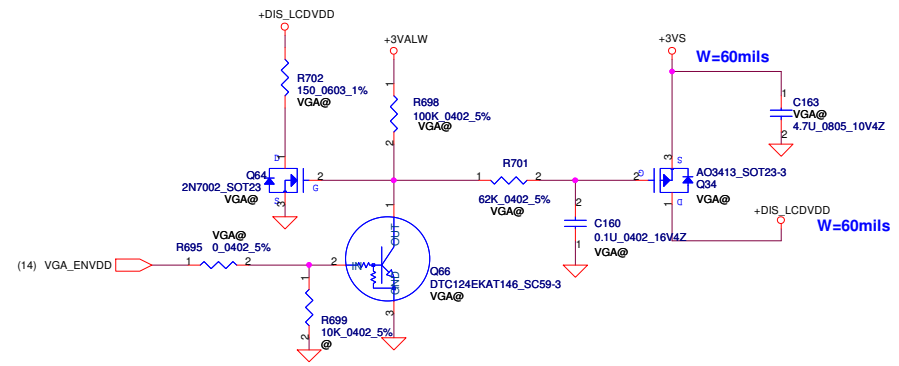
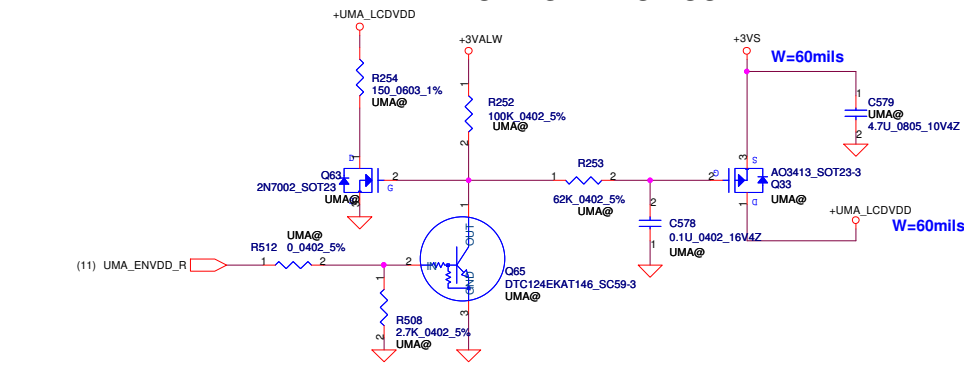
- (16) M\_DA[63..0]  M\_DA[63..0]
- (16) M\_MA[13..0]  M\_MA[13..0]
- (16) M\_DQM[7..0]  M\_DQM[7..0]
- (16) M\_DQS[7..0]  M\_DQS[7..0]
- (16) M\_DQS[7..0]  M\_DQS[7..0]



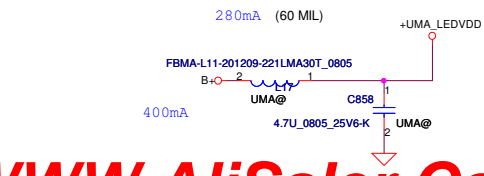
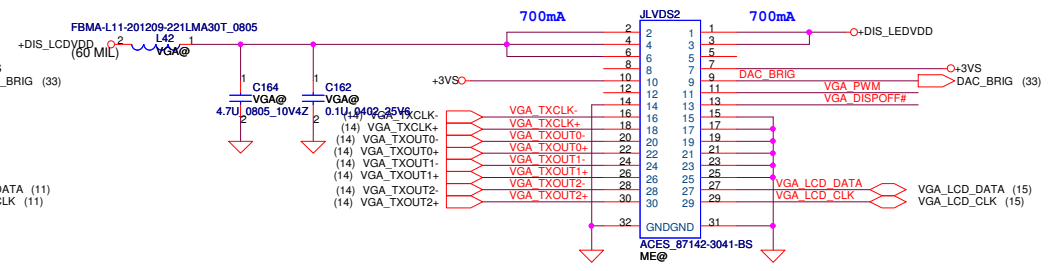
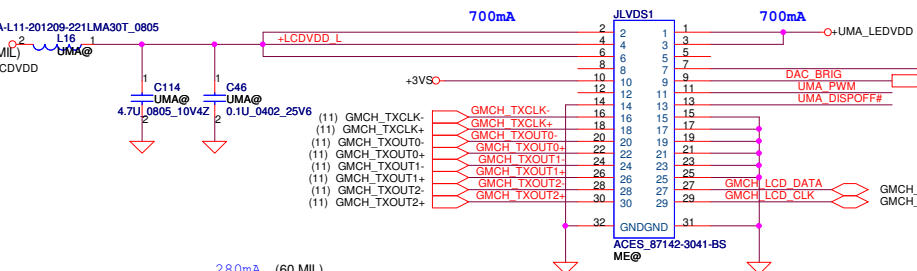
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# LCD POWER CIRCUIT

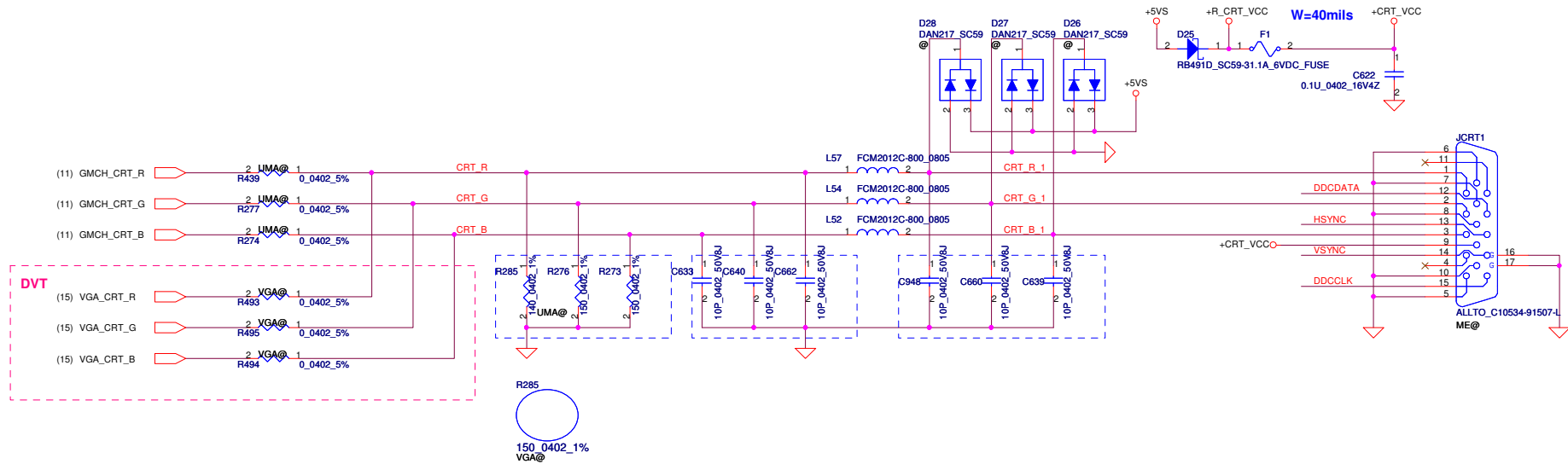


LCD/PANEL BD. Conn.

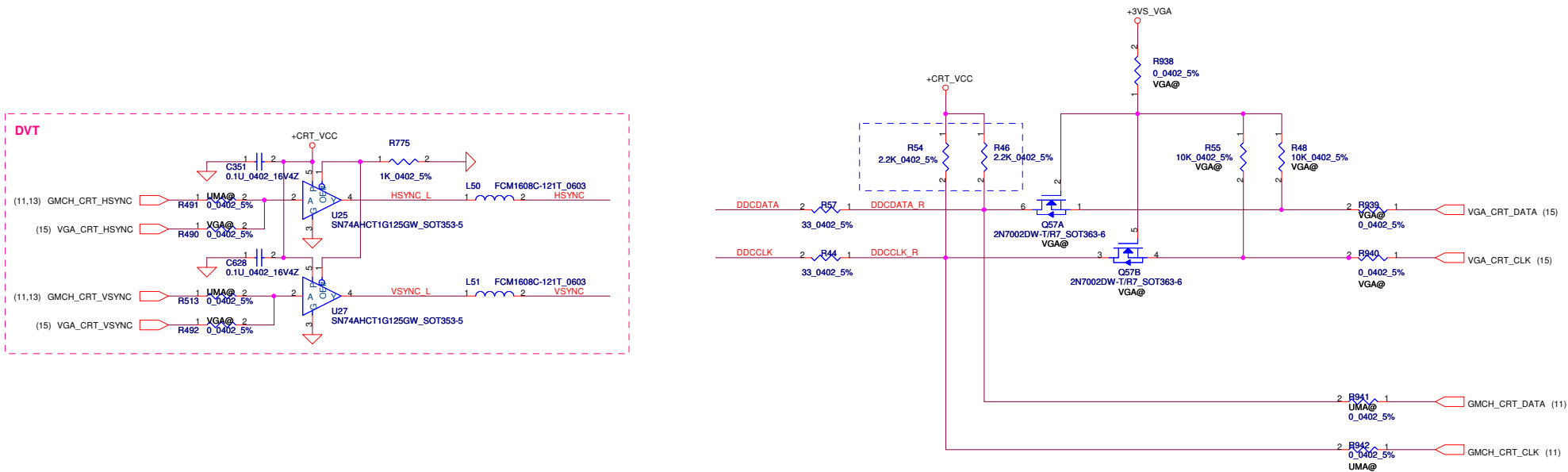


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Deciphered Date				2009/10/06				LVDS Connector			
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Date				Thursday, December 10, 2009				Rev 1.0			
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# CRT CONNECTOR



Place closed to chipset



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				Size B	Document Number
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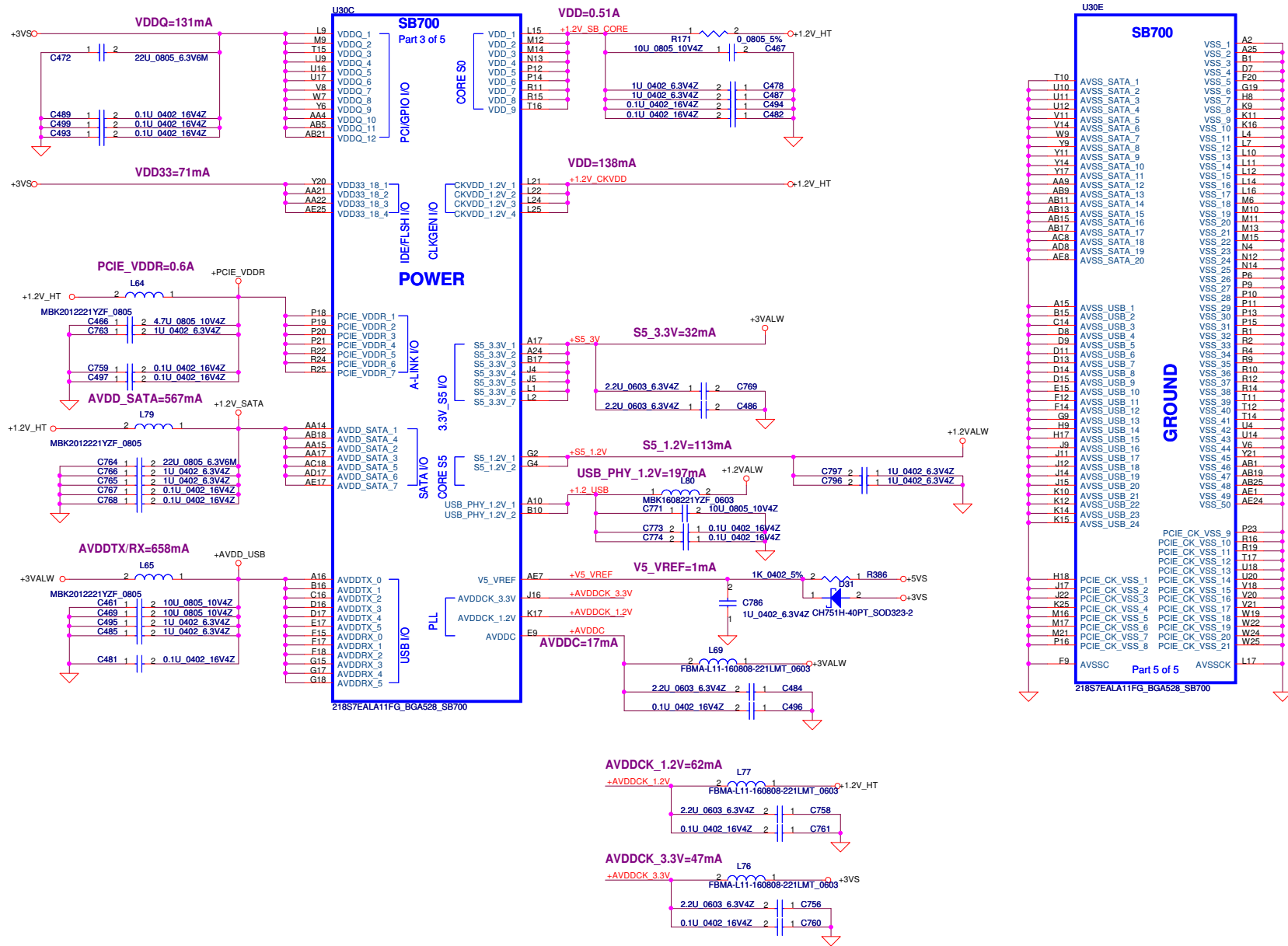










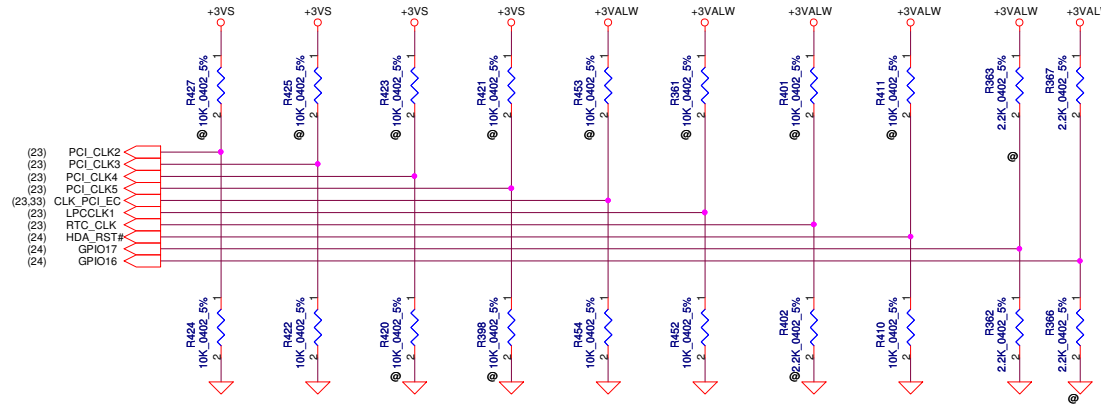


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				Size	Rev
				Custom	1.0
				LA-5971P	
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## REQUIRED STRAPS

NOTE: SB700 HAS INTERNAL 15K PULL UP RESISTOR FOR RTC\_CLK

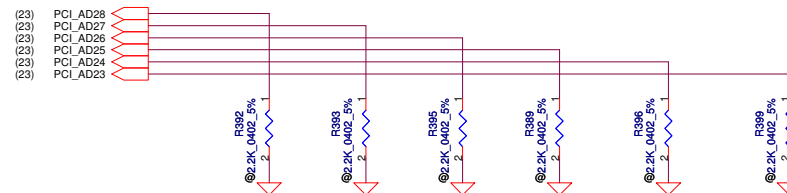
	PCI_CLK2	PCI_CLK3	PCI_CLK4	PCI_CLK5	LPC_CLK0 CLK_PCI_EC	LPC_CLK1	RTC_CLK	AZ_RST_CD#	GP17	GP16
<b>PULL HIGH</b>	BOOTFAIL TIMER ENABLED	USE DEBUG STRAPS	RESERVED	RESERVED	ENABLE PCI MEM BOOT	CLKGEN ENABLED	<b>INTERNAL RTC</b>  DEFAULT	EC ENABLED	Internal pull up H,H = Reserved H,L = SPI ROM	
<b>PULL LOW</b>	BOOTFAIL TIMER DISABLED DEFAULT	IGNORE DEBUG STRAPS DEFAULT			DISABLE PCI MEM BOOT DEFAULT	CLKGEN DISABLED DEFAULT	EXT. RTC (PD on X1, apply 32KHz to RTC_CLK)	EC DISABLED DEFAULT		L,H = LPC ROM (Default L,NC) L,L = FWH ROM



## DEBUG STRAPS

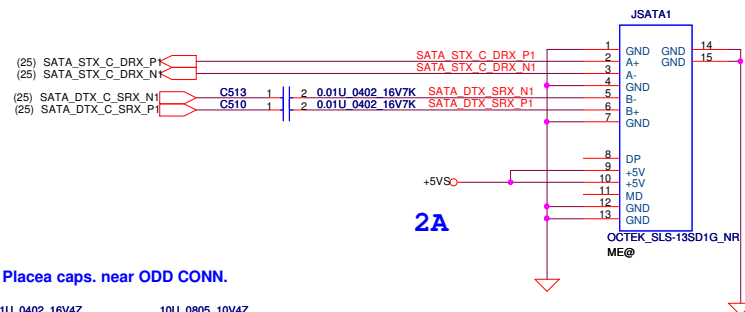
SB700 HAS 15K INTERNAL PU FOR PCI\_AD[28:23]

	PCI_AD28	PCI_AD27	PCI_AD26	PCI_AD25	PCI_AD24	PCI_AD23
<b>PULL HIGH</b>	USE LONG RESET DEFAULT	USE PCI PLL DEFAULT	USE ACPI BCLK DEFAULT	USE IDE PLL DEFAULT	USE DEFAULT PCIE STRAPS DEFAULT	RESERVED
<b>PULL LOW</b>	USE SHORT RESET	BYPASS PCI PLL	BYPASS ACPI BCLK	BYPASS IDE PLL	USE EEPROM PCIE STRAPS	



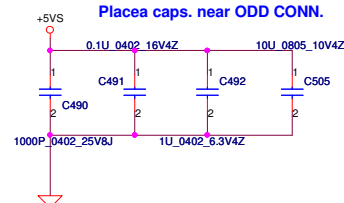
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Issued Date	2008/10/06	Deciphered Date	2009/10/06	Title	
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Size	Custom	Document Number	LA-5971P	Rev	1.0
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## SATA ODD Conn.

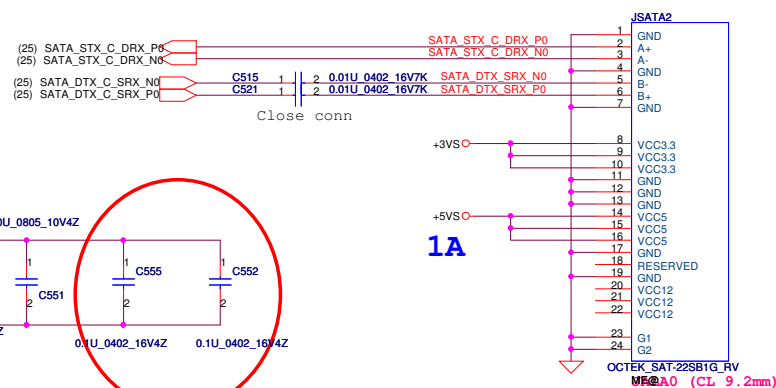


2A

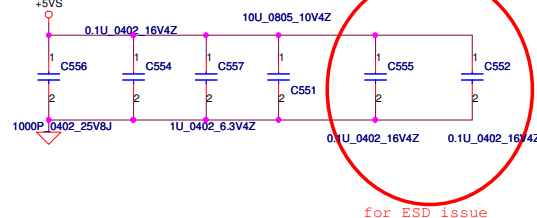
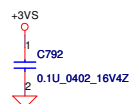
Placea caps. near ODD CONN.



## SATA HDD Conn.

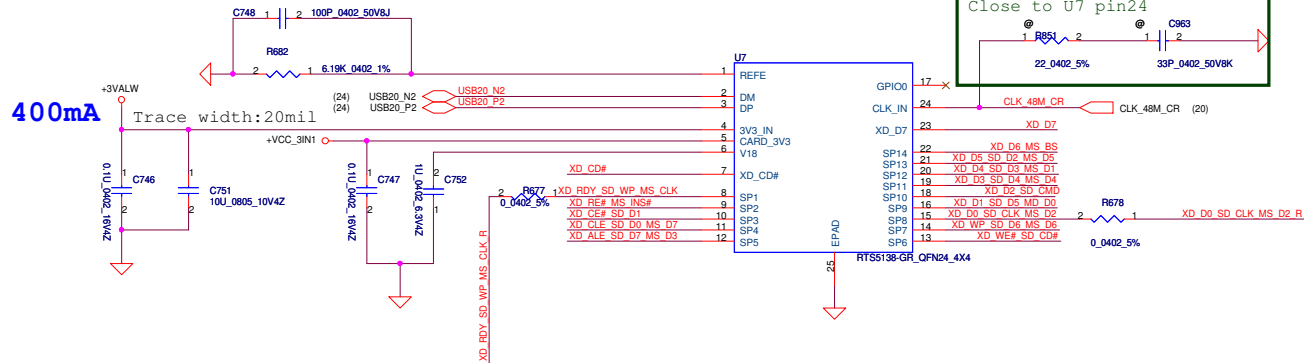


1A



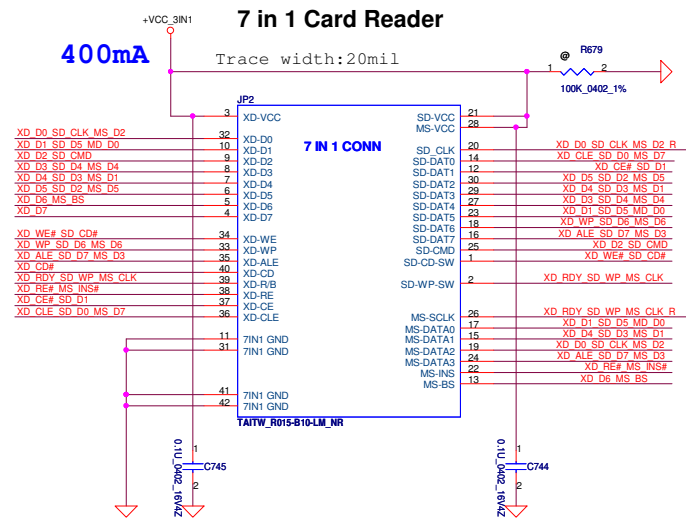
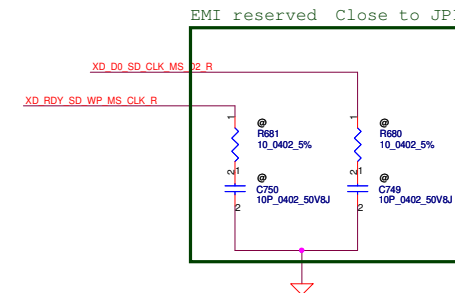
for ESD issue

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add at 8/11  
EMI reserved  
Close to U7 pin24

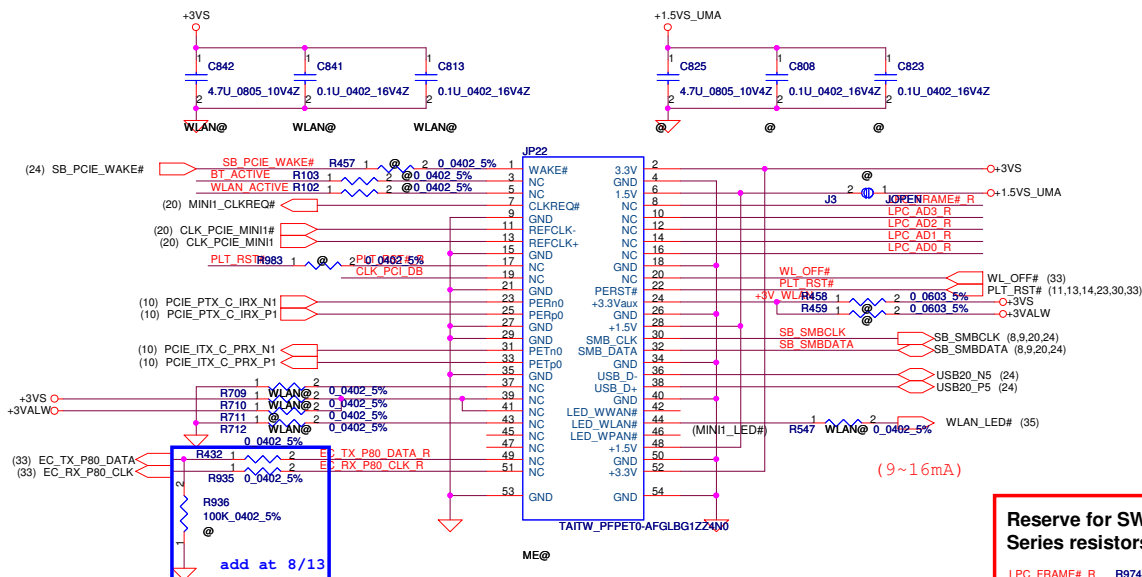
## Card reader(XD/SD/MMC/MS/MS-Pro HD SD)



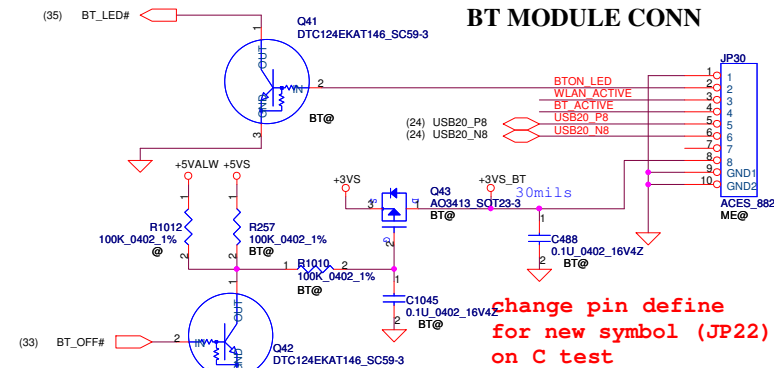
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Issued Date	2008/10/06	Deciphered Date	2009/10/06	Title	RTS5138 Card Reader
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## For Wireless LAN



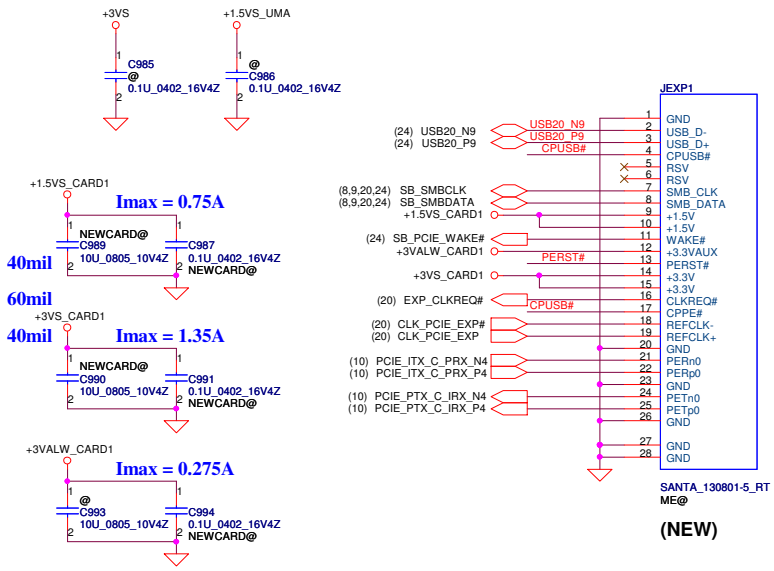
Mini Card Power Rating			
Power	Primary Power (mA)		Auxiliary Power (mA)
	Peak	Normal	Normal
+3VS	1000	750	
+3V	330	250	250 (wake enable)
+1.5VS	500	375	5 (Not wake enable)



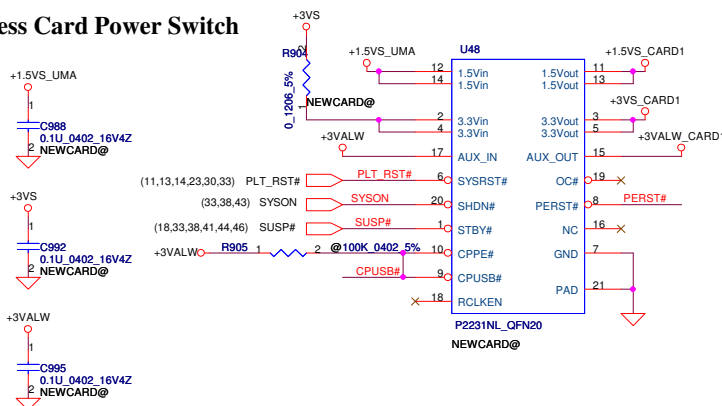
Reserve for SW mini-pcie debug card.  
Series resistors closed to KBC side.

LPC_FRAME#_R	R974	1	2	0.0402_5%	LPC_FRAME#	(23,33)
LPC_AD3_R	R975	1	2	0.0402_5%	LPC_AD3	(23,33)
LPC_AD2_R	R976	1	2	0.0402_5%	LPC_AD2	(23,33)
LPC_AD1_R	R977	1	2	0.0402_5%	LPC_AD1	(23,33)
LPC_AD0_R	R978	1	2	0.0402_5%	LPC_AD0	(23,33)
CLK_PCI_DB					CLK_PCI_DB	(23)

add at 8/11

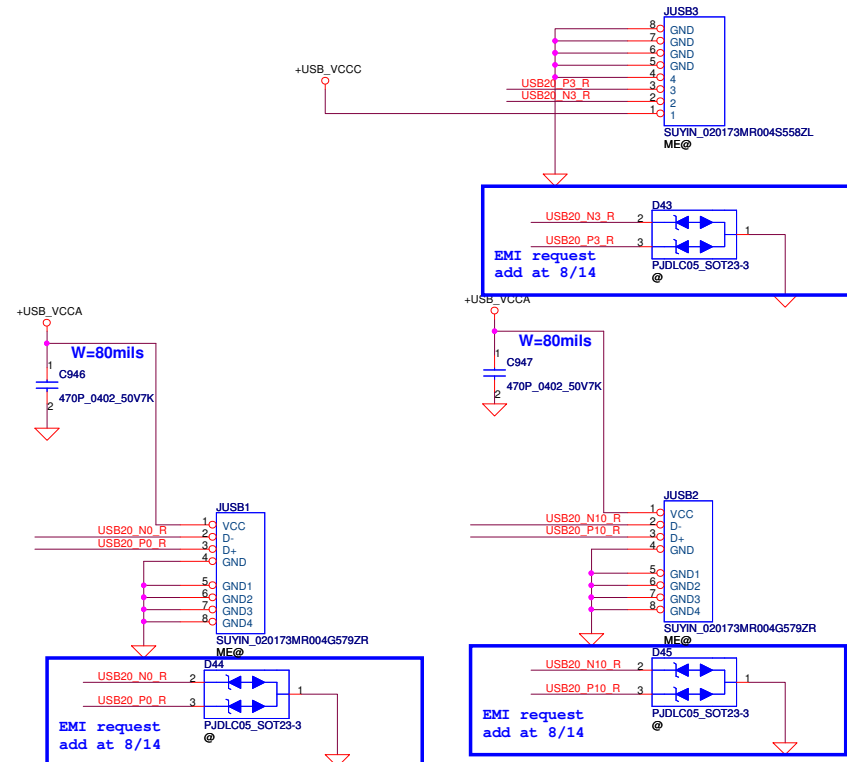
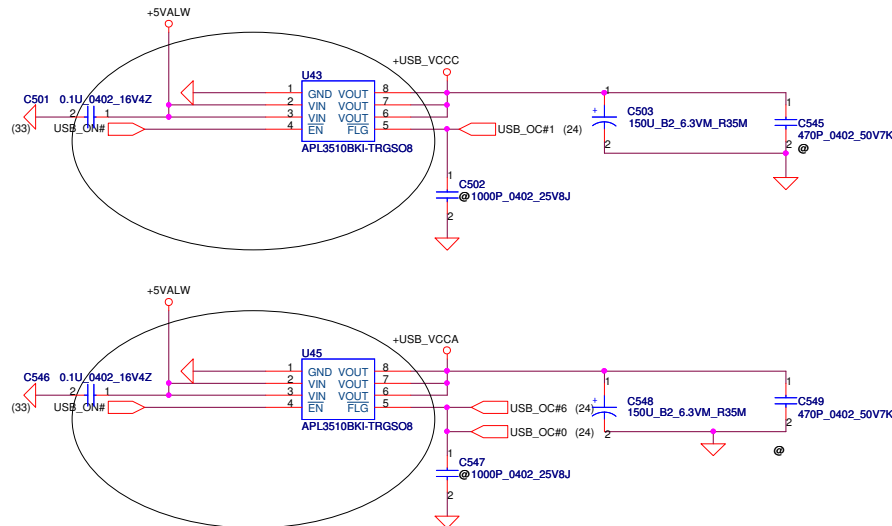
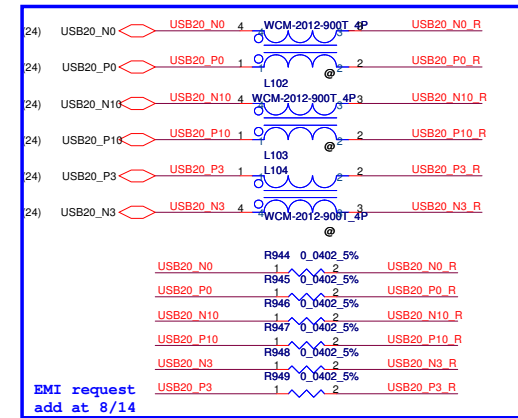
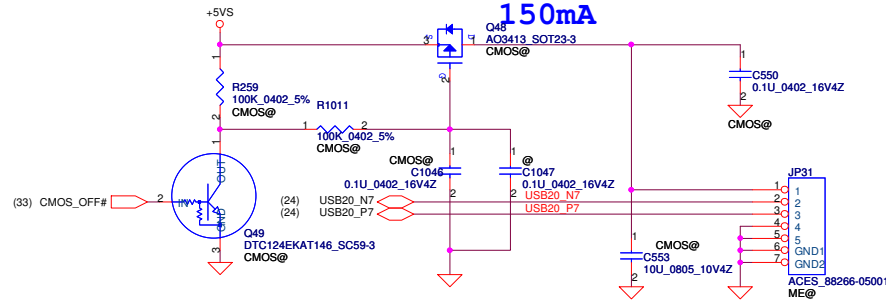


## Express Card Power Switch



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# CMOS Camera Conn



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2008/10/06				2009/10/06				BlueTooth / Int USB x2 /eSATA			
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								LA-5971P			
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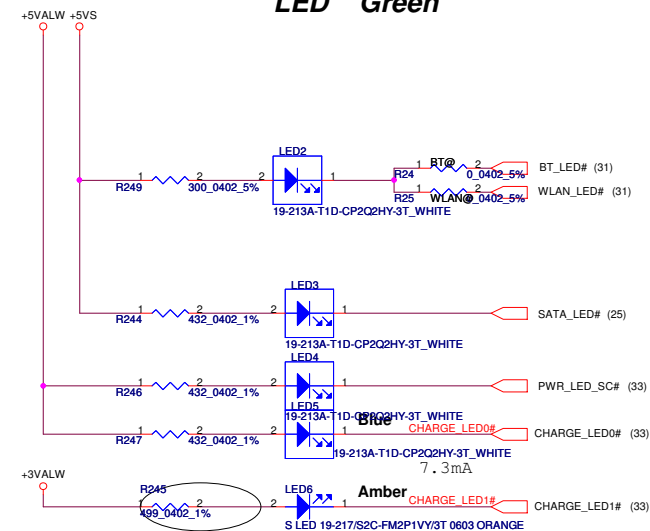
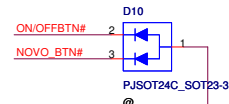
U52

Pin	Signal	Pin	Signal
1	FSEL#SPICS#	8	SPI_HOLD#
2	FRD#SPI_SO	7	SPI_CLK_R
3	SPI_WP#	6	FWR#SPI_SI
4		5	

CS# VCC  
DO HOLD#  
WP# CLK  
GND DIO

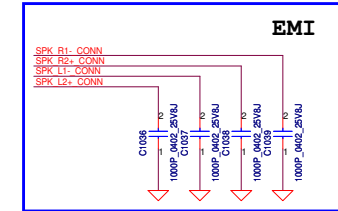
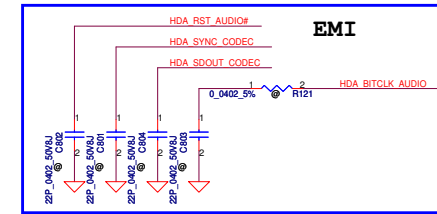
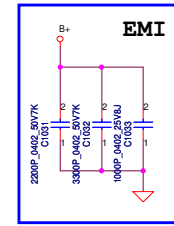
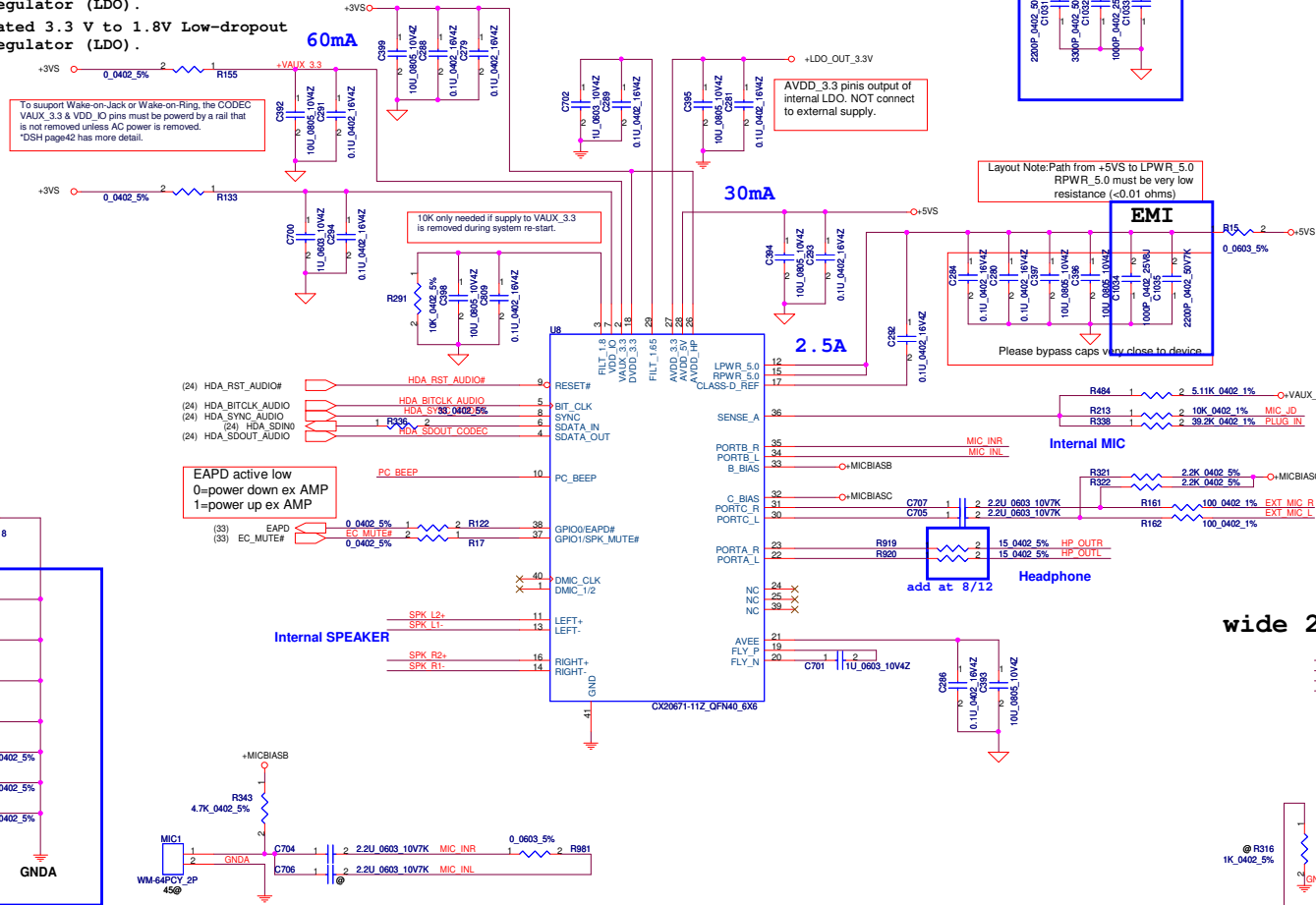
MX25L2005CMI-12G SOP

ON/OFF switch



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				Size B	Document Number	Rev 1.0
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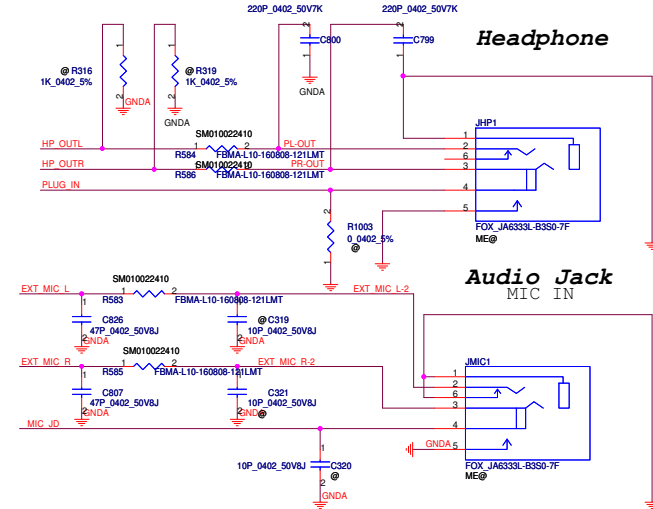
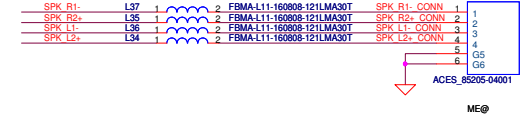
CX20671  
High Definition Audio Codec SoC  
With Integrated Class-D Stereo  
Amplifier.  
An integrated 5 V to 3.3 V Low-dropout  
voltage regulator (LDO) .  
An integrated 3.3 V to 1.8V Low-dropout  
voltage regulator (LDO) .



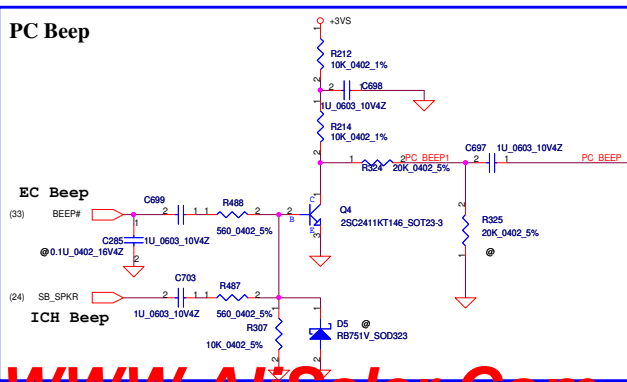
Sense resistors must be connected same power that is used for VAUX\_3.3

External MIC

wide 20MIL



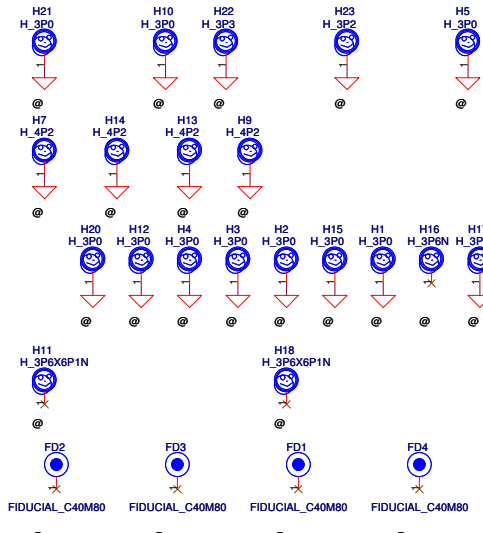
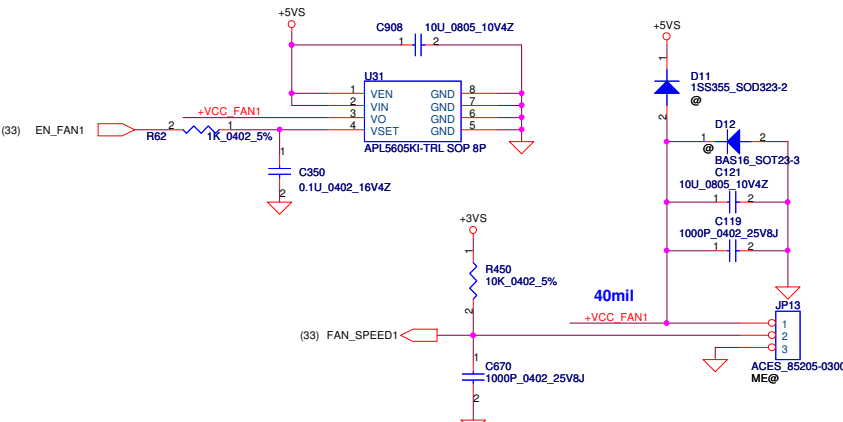
Audio Jack



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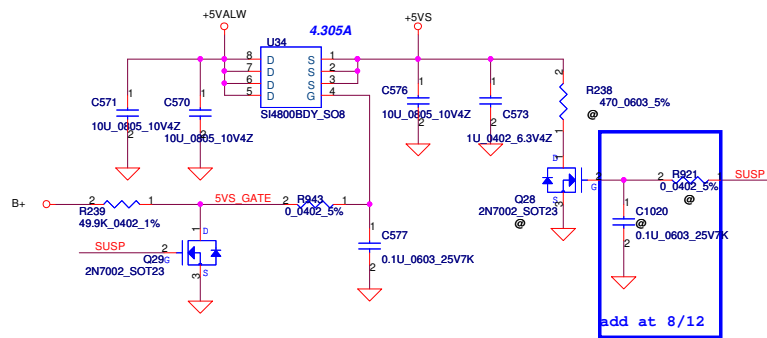
WWW.AliSaler.Com

## FAN1 Conn

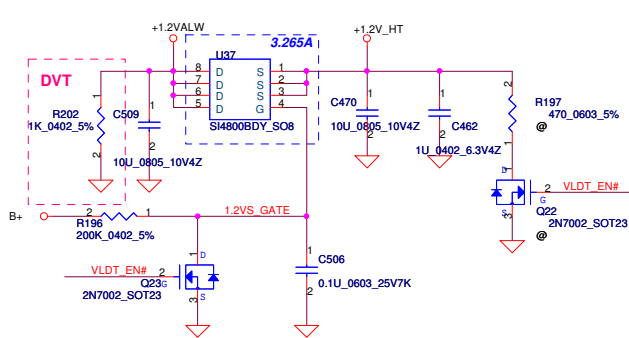


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				Size B	Document Number	Rev 1.0
				LA-5971P		

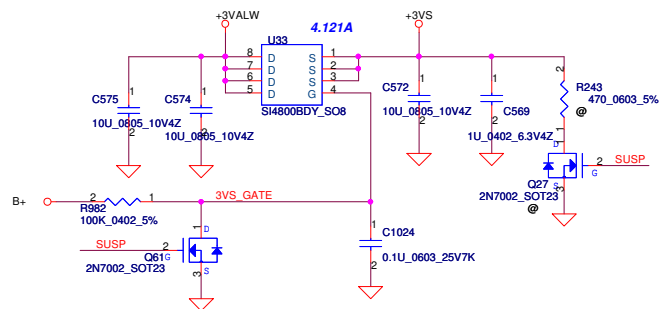
### +5VALW TO +5VS



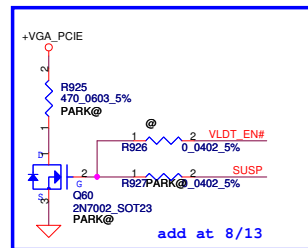
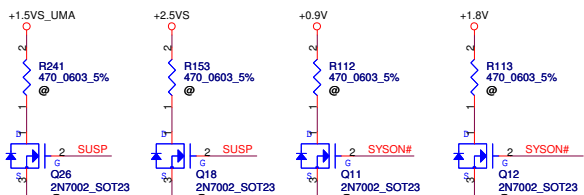
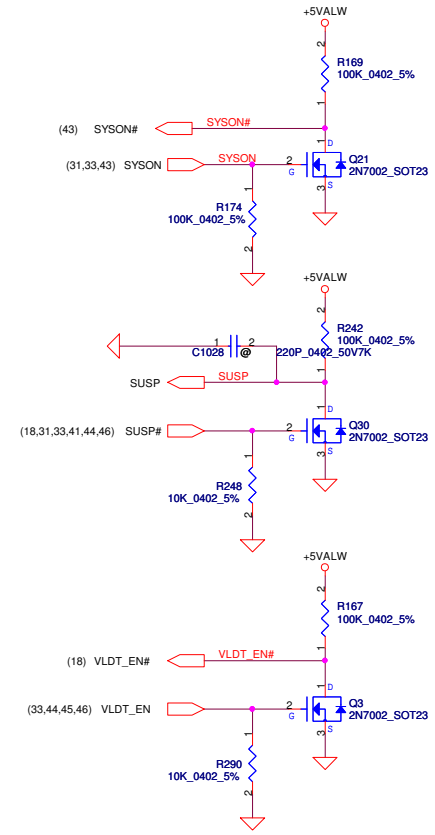
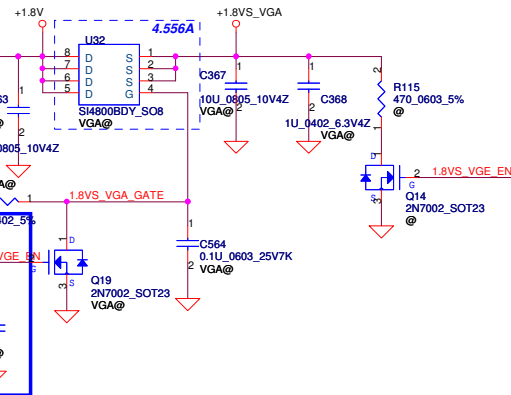
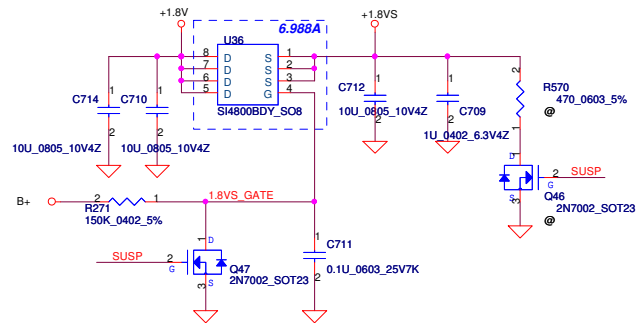
### +1.2VALW TO +1.2V\_HT



### +3VALW TO +3VS

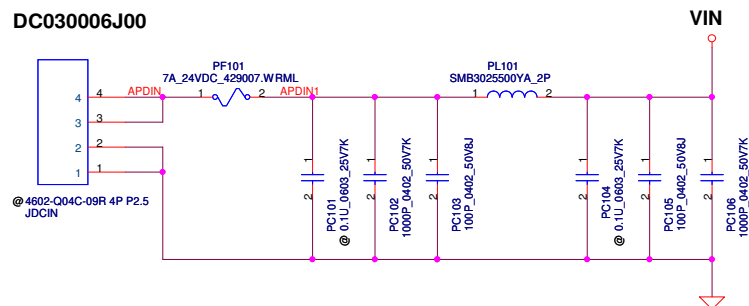


### +1.8V to +1.8VS



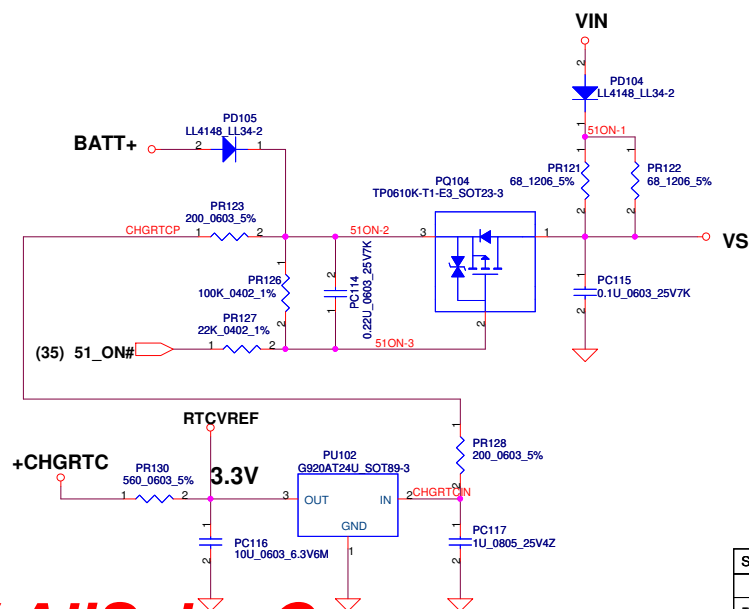
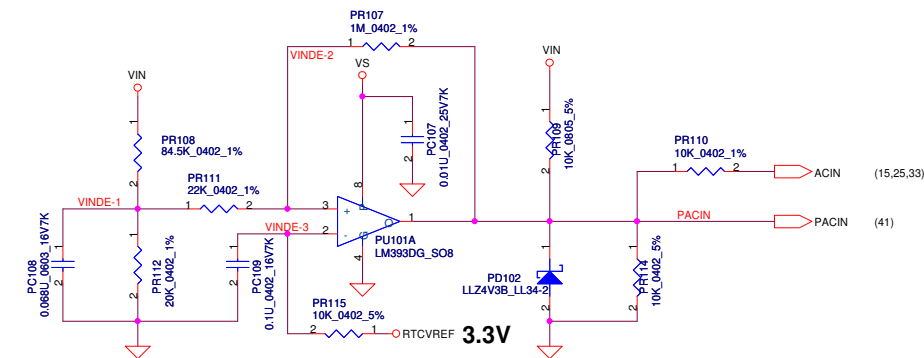
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2008/10/06	Deciphered Date	2009/10/06	Title	
				DC Interface	
				Size B	Document Number
				LA-5971P	
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DC030006J00



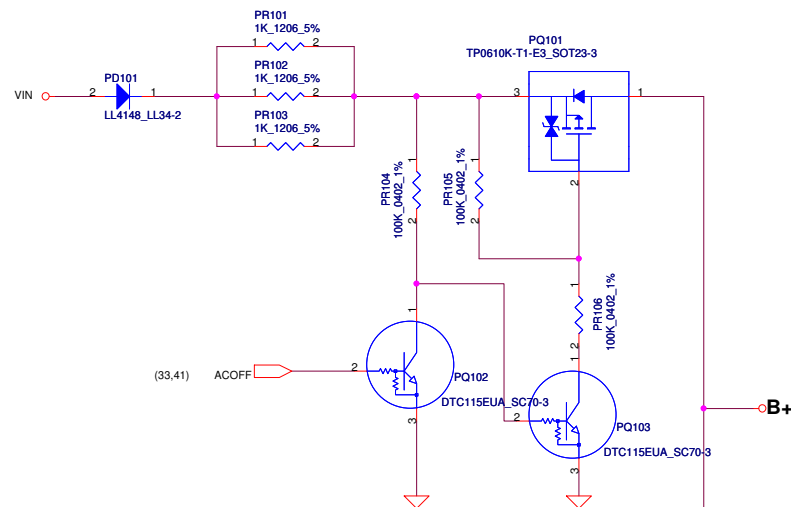
## Vin Detector

	Min.	typ.	Max.
L-->H	17.430V	17.901V	18.384V
H-->L	16.976V	17.262V	17.728V



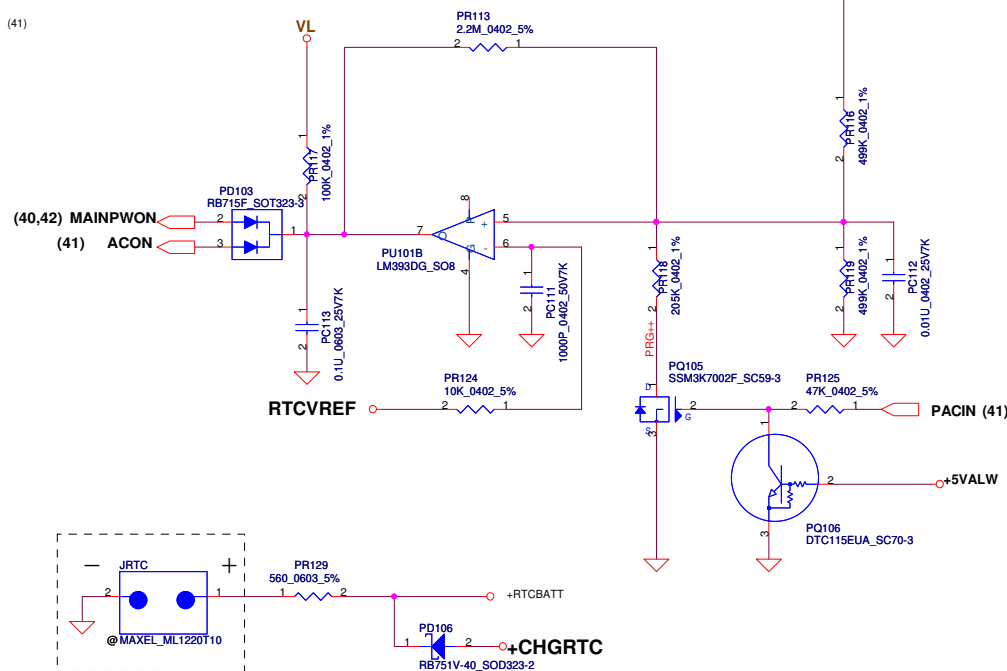
## ACIN

	Min.	typ.	Max.
L-->H	14.991V	15.381V	15.782V
H-->L	13.860V	14.247V	14.621V



## BATT ONLY

	Min.	typ.	Max.
L-->H	7.196V	7.349V	7.505V
H-->L	6.138V	6.214V	6.056V

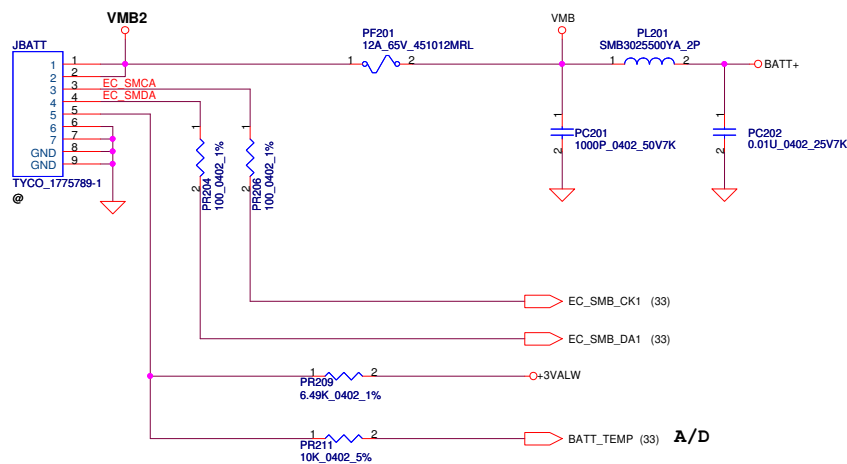


## RTC Battery

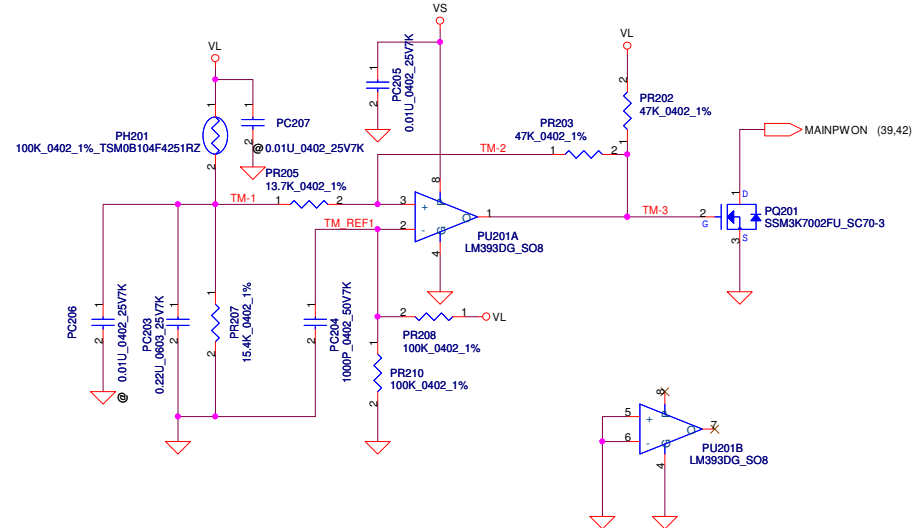
Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2009/01/06				Title			
Deciphered Date				2010/01/06				DCIN & DETECTOR			
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PH1 under CPU bottom side :  
CPU thermal protection at 92 degree C  
Recovery at 56 degree C

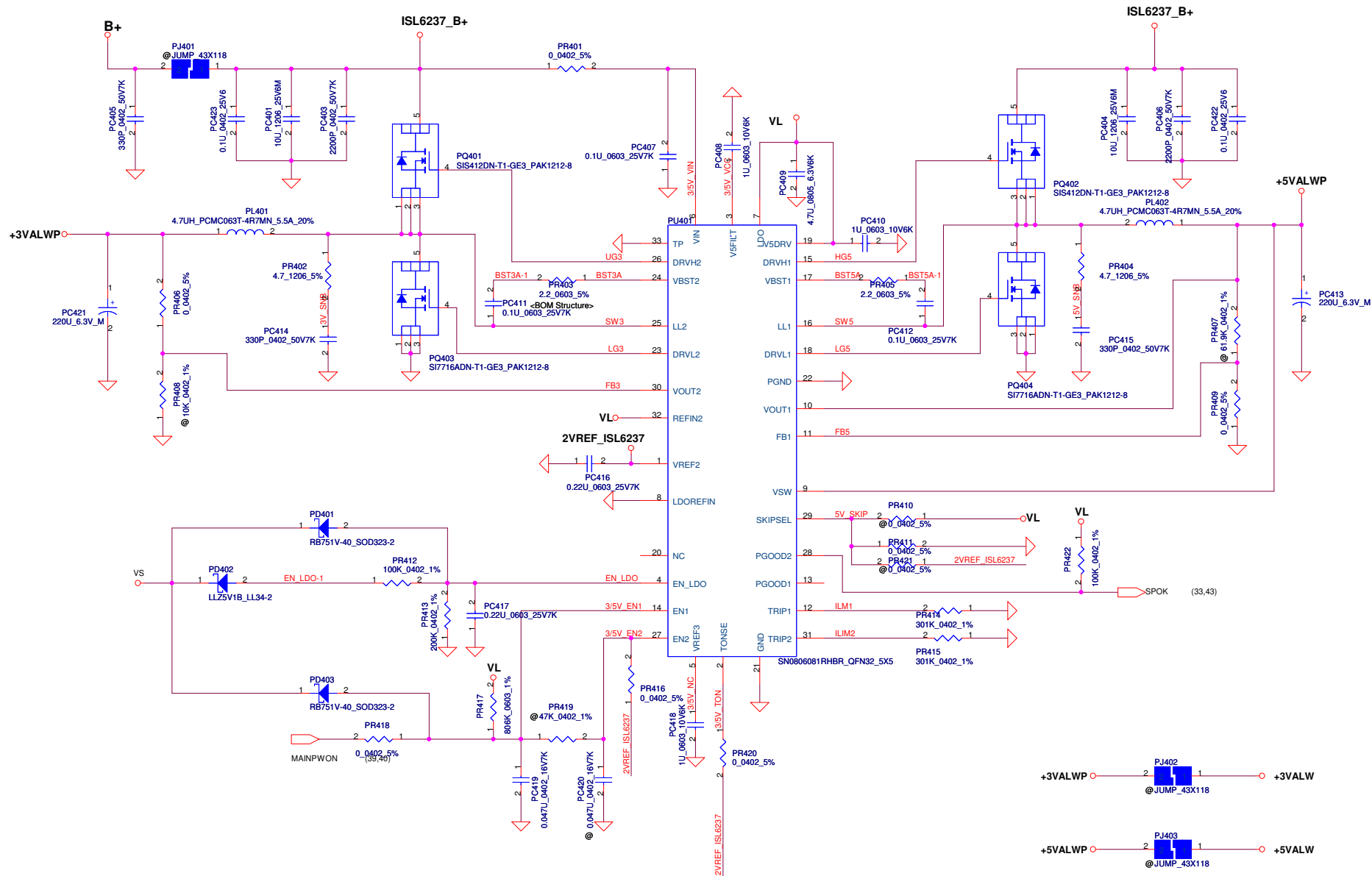


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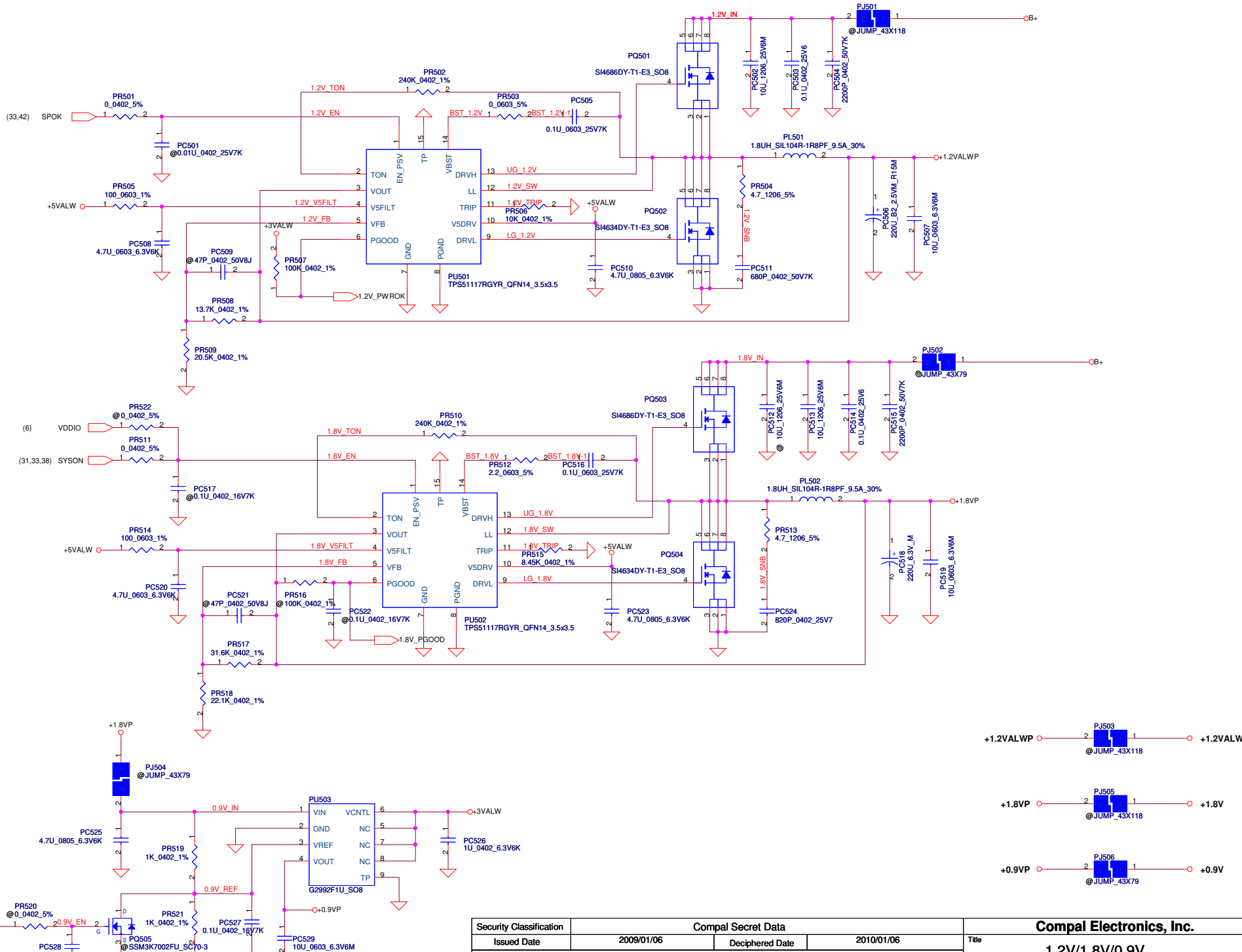




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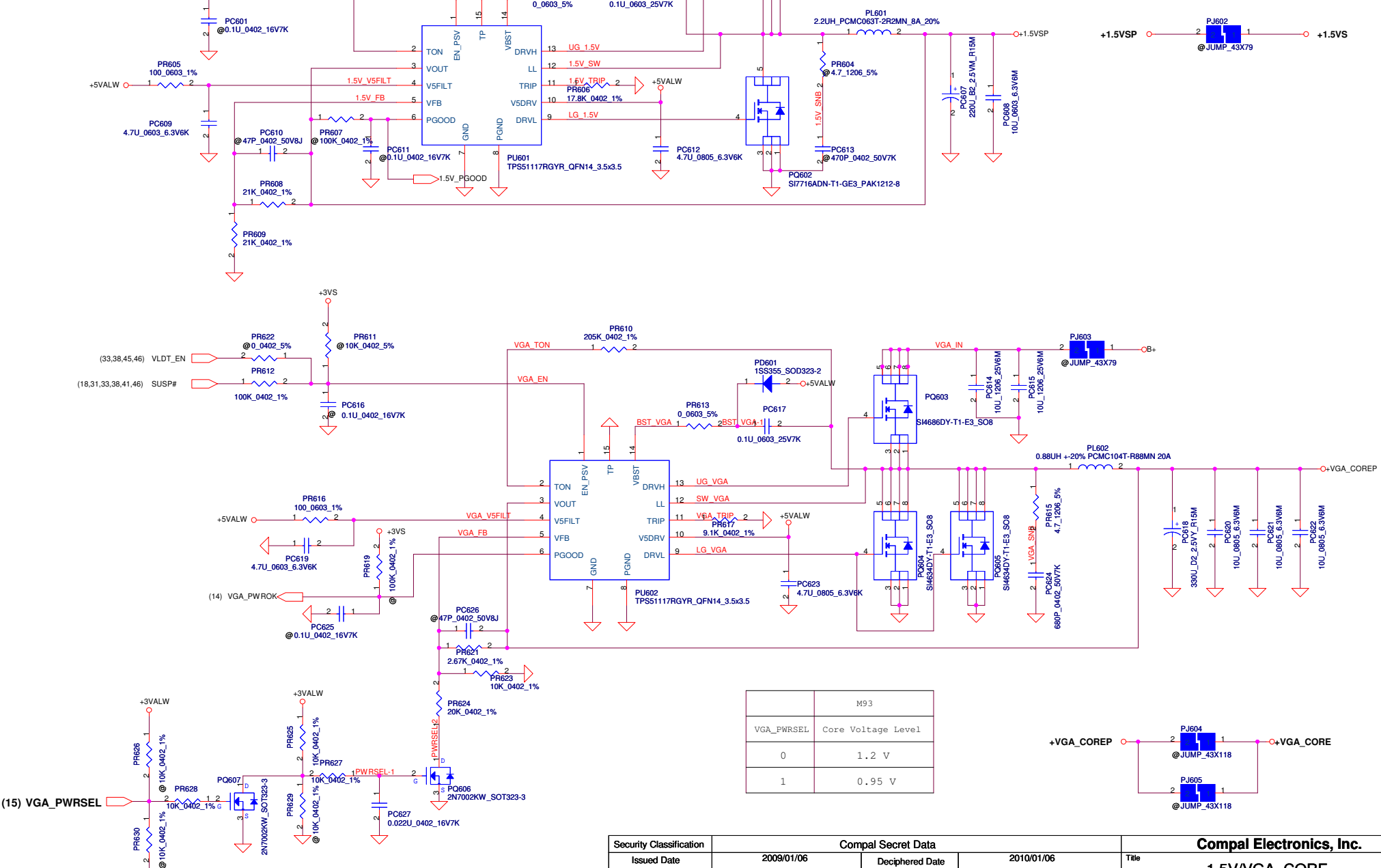
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Issued Date	2009/01/06	Deciphered Date	2010/01/06	Title 3VALW/5VALW	
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						Size		Document Number		Rev	
										1.0	
						Date: Thursday, December 10, 2009		Sheet 43 of 49			

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(18,31,33,38,41,46) SUSP#



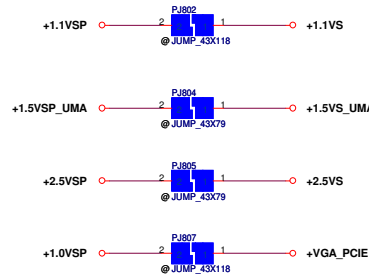
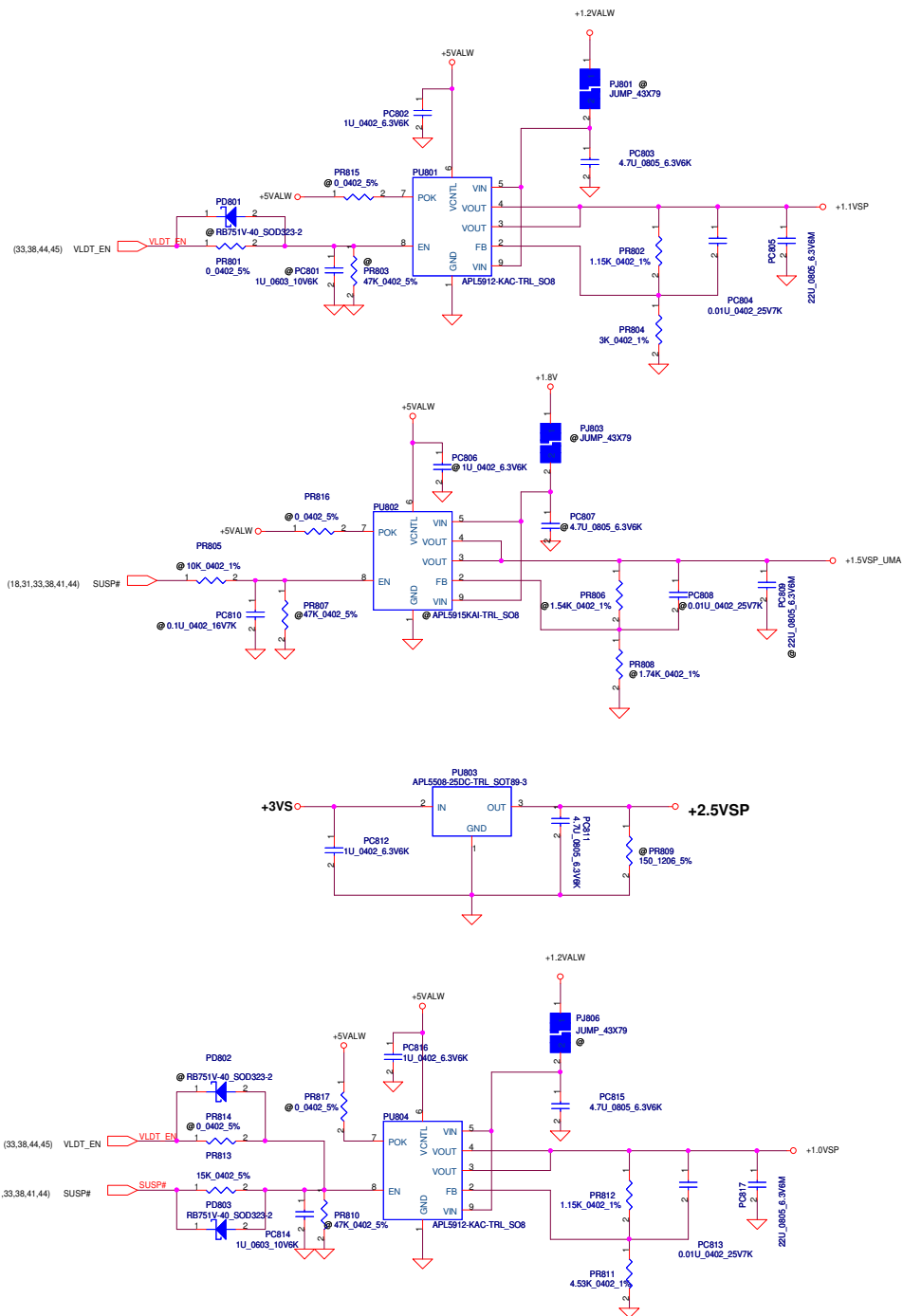
(15) VGA\_PWRSEL

	M93
VGA_PWRSEL	Core Voltage Level
0	1.2 V
1	0.95 V

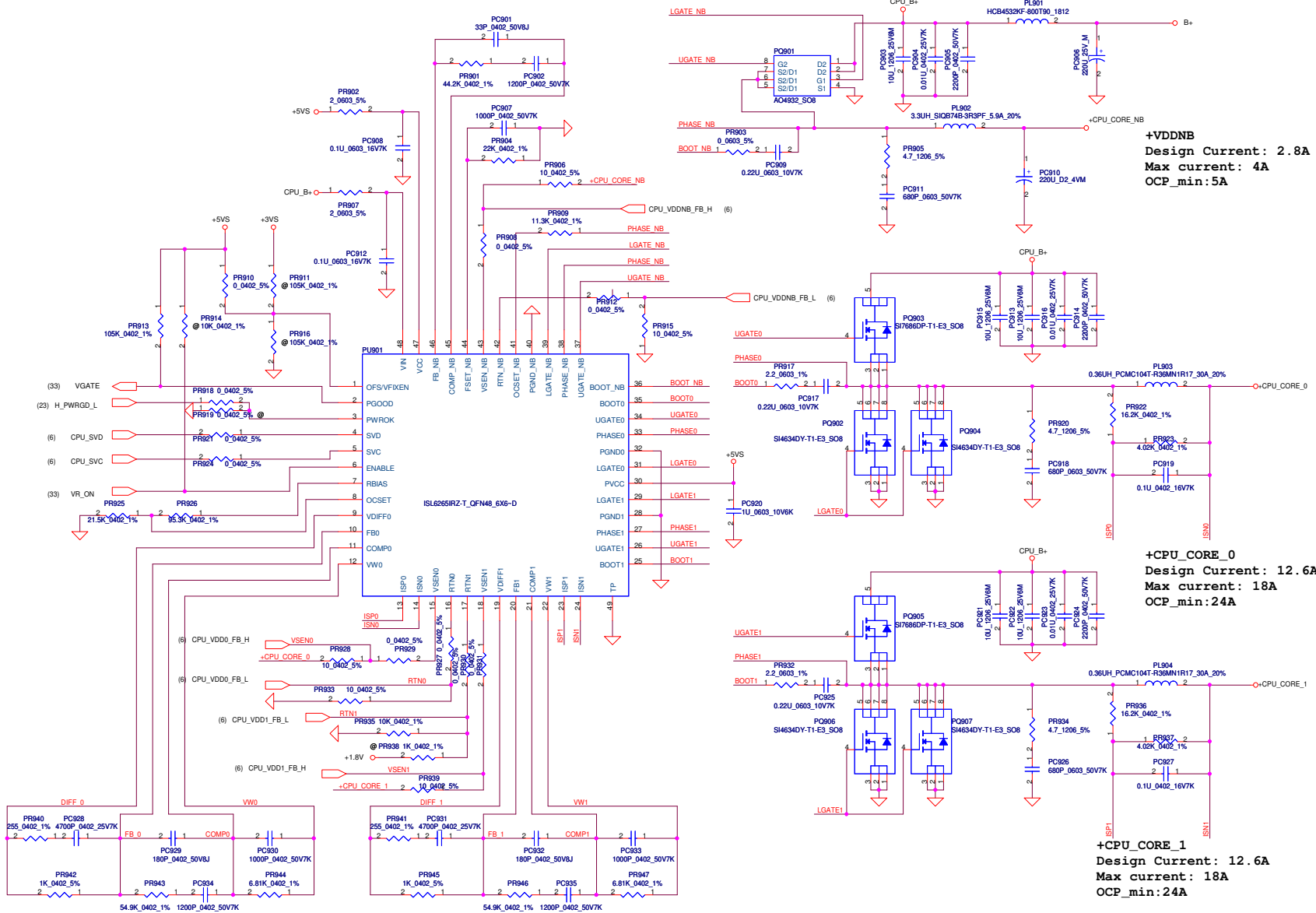
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Issued Date	2009/01/06	Deciphered Date	2010/01/06	Title	1.5V/VGA_CORE	
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	Park	M93
VGA_PCIE	1.0V	1.1 V
PR811	4.53K	3K



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Size	Document Number	Sheet	47	Rev 1.0
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Version change list (P.I.R. List)

Item	Reason for change	PG#	Modify List	Date	Phase
1	Adjust power sequence for VGA_PCIE by HW request	P46	PR831=15K	2009.10.27	EVT
2	Change PC108 from 1000pF to 0.068uF for issue solution	P39	PC108=0.068uF	2009.11.17	PVT
3	Add snubber R & C and modify boost resistor for 1.8VP	P43	PR512=2.2 ohm;PR513=4.7 ohm;PC524=820pF	2009.11.17	PVT
4	Adjust power sequence	P45	PR701=34.8K,PC701=0.1uF Un-pop PR520,PQ505	2009.12.03	PVT
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

- 54321
- D
- C
- B
- A
- 54321
1. change component AP2301GN to AO3413
2. remove R521, R517, R520 and R518, and reserve U49 , U50, R995, R996, R997 and R998 for experiment Vari-bright function.
3. U6.18 add a pull up resistor R1001 and pull down resistor R1002 for check ENE KB926 version.
4. reserve R999 and R1000 for Vari-bright test.
5. add J8, C1031, C1032, C1033, C1034, C1035, C1036, C1037, C1038 and C1039 for EMI request.
6. Change R583, R584, R585 and R586 Bead from SM010018110 to SM010022410.
7. reserve R1003 for EMI request.
8. Change C633, C640, C662, C948, C660 and C639 to 10pF for EMI rquest.

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				Size B	Rev 1.0
		Document Number		LA-5971P	
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