



Compal confidential

ISRAA LA-3441P Schematics Document

Mobile Merom uFCPGA with Intel
Crestline_PM+ICH8-M core logic

2006-09-21

REV:0.1

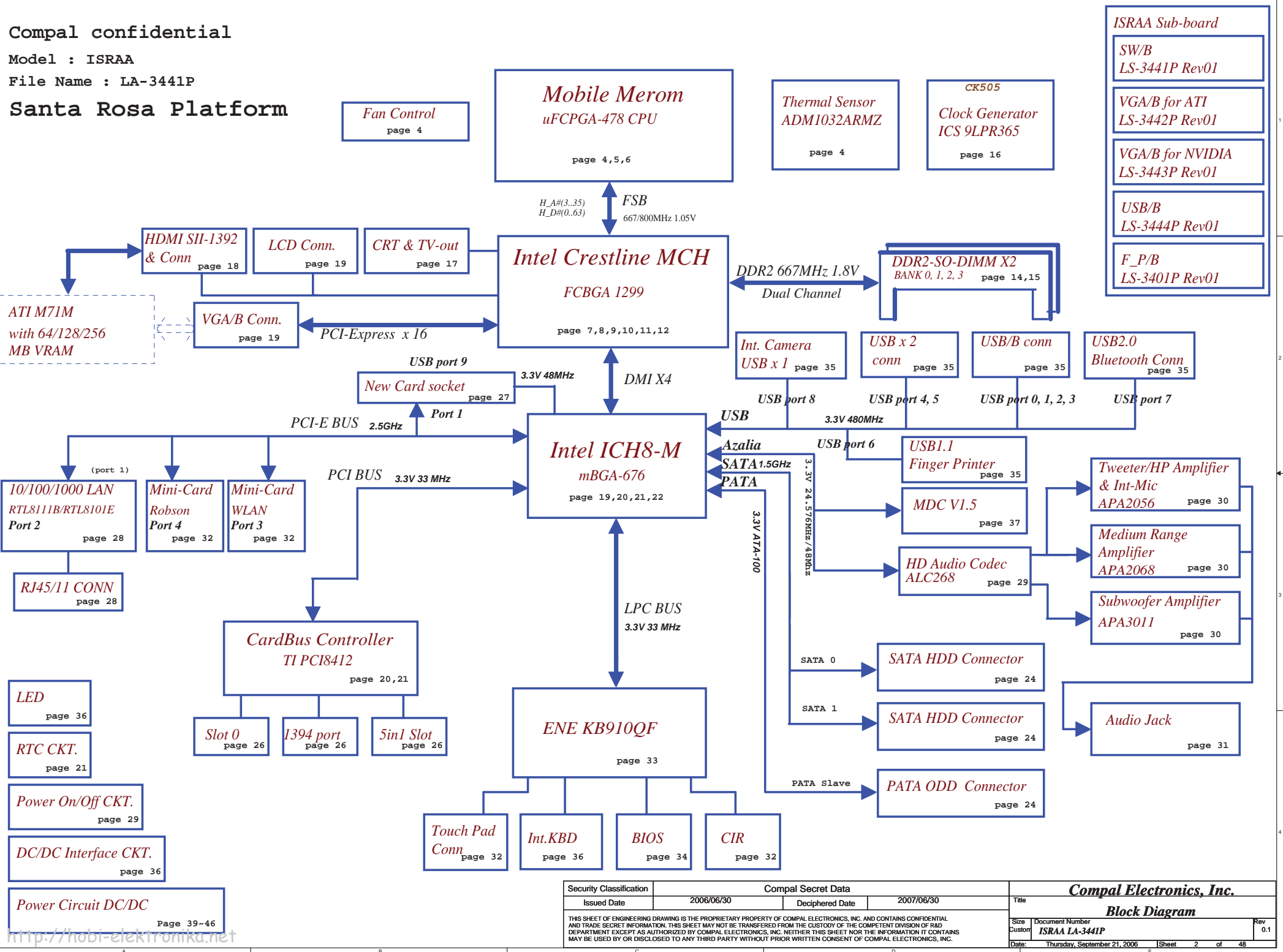
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Model : ISRAA

File Name : LA-3441P

Santa Rosa Platform



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Voltage Rails

Power Plane	Description	S0-S1	S3	S5
VIN	Adapter power supply (18.5V)	N/A	N/A	N/A
B+	AC or battery power rail for power circuit	N/A	N/A	N/A
+CPU_CORE	Core voltage for CPU	ON	OFF	OFF
+1.05Vs	1.05V power rail for Processor I/O and MCH/ICH core power	ON	OFF	OFF
+0.9VS	0.9V switched power rail for DDRII Vtt	ON	OFF	OFF
+1.5VS	1.5V switched power rail for PCI-E interface	ON	OFF	OFF
+1.8V	1.8V power rail for DDRII	ON	ON	OFF
+1.8VS	1.8V switched power rail	ON	OFF	OFF
+2.5VS	2.5V switched power rail for MCH video PLL	ON	OFF	OFF
+1.25Vs	1.25Vs power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	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
+RTC_VCC	RTC power	ON	ON	ON

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

External PCI Devices

DEVICE	PCI Device ID	IDSEL #	REQ/GNT #	PIRQ
1394	D0	AD20	2	A,B,C
CARD BUS	D4	AD20	2	A,B,C
SIN1	D4	AD20	2	A,B,C

KB910 I2C / SMBUS ADDRESSING

DEVICE	HEX	ADDRESS
SM1 24C16	A0H	1 0 1 0 0 0 0 X b
SM1 SMART BATTERY	16H	0 0 0 1 0 1 1 X b
SM2 ADM0132	98H	1 0 0 1 1 0 0 X b
CPU THERMAL MONITOR		

ICH8-M SM Bus address

DEVICE	HEX	ADDRESS
DDR SO-DIMM 0	A0	1 0 1 0 0 0 0 0
DDR SO-DIMM 1	A4	1 0 1 0 0 1 0 0
CLOCK GENERATOR (EXT.)	D2	1 1 0 1 0 0 1 0

Board ID / SKU ID Table for AD channel

Vcc	3.3V +/- 5%			
Ra/Rc/Re	100K +/- 1%			
Board ID	Rb / Rd / Rf	VAD_BID min	VAD_BID typ	VAD_BID max
0	0	0 V	0 V	0.100 V
1	8.2K +/- 1%	0.216 V	0.250 V	0.289 V
2	18K +/- 1%	0.436 V	0.503 V	0.538 V
3	33K +/- 1%	0.712 V	0.819 V	0.875 V
4	56K +/- 1%	1.036 V	1.185 V	1.264 V
5	100K +/- 1%	1.453 V	1.650 V	1.759 V
6	200K +/- 1%	1.935 V	2.200 V	2.341 V
7	NC	2.500 V	3.300 V	3.300 V

BOARD ID Table

Board ID	PCB Revision
0	
1	
2	
3	
4	
5	
6	
7	

SKU ID Table

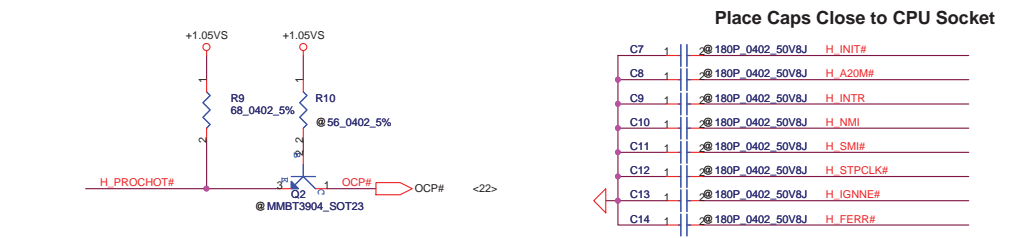
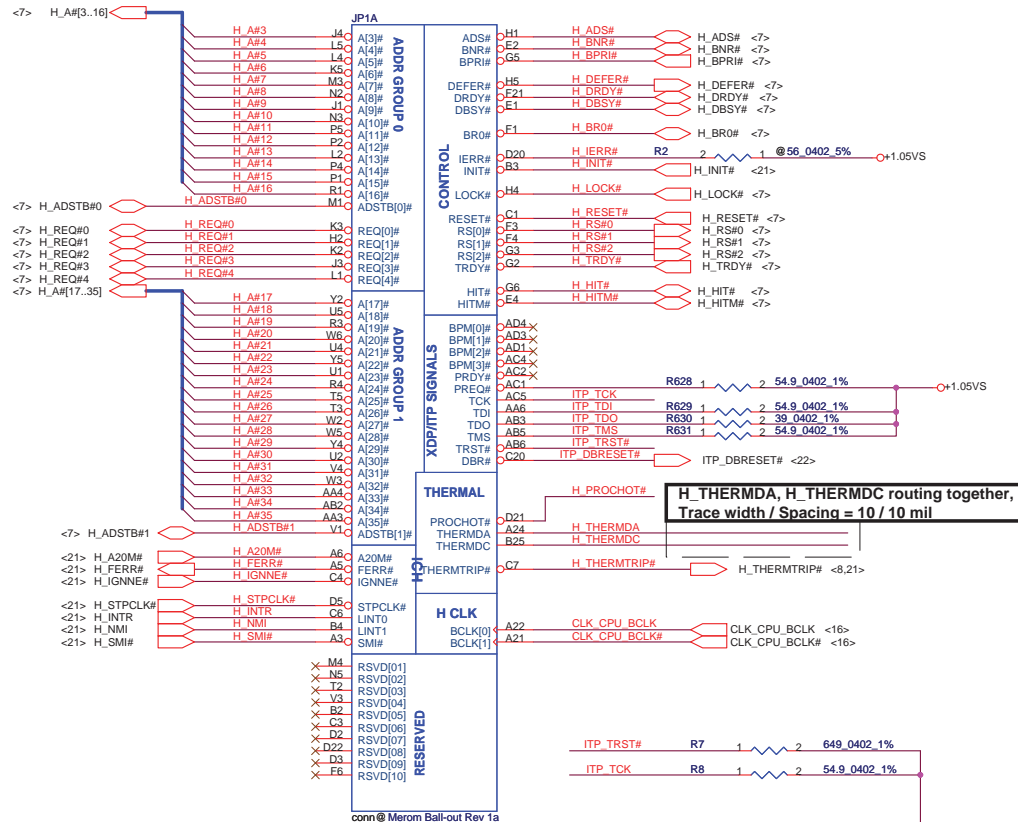
SKU ID	SKU
0	10
1	10G
2	10H
3	
4	
5	
6	
7	

BTO Option Table

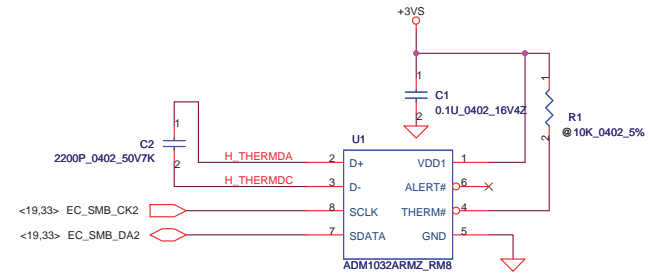
BTO Item	BOM Structure
2ND HDD	2HDD@
LAN	100M@ 1000M@
WLAN	WLAN@
NB	GM@ PM@
BT	BT@
MIC	MIC@
CIR	CIR@
FINGER PRINT	FP@
Express Card	NEWCARD@
PCMCIA Card	PCMCIA@
Camera	Camera@
Robson	Robson@
HDMI	1392@ 1932@ M72M@
SPEAKER	

USB PORT LIST

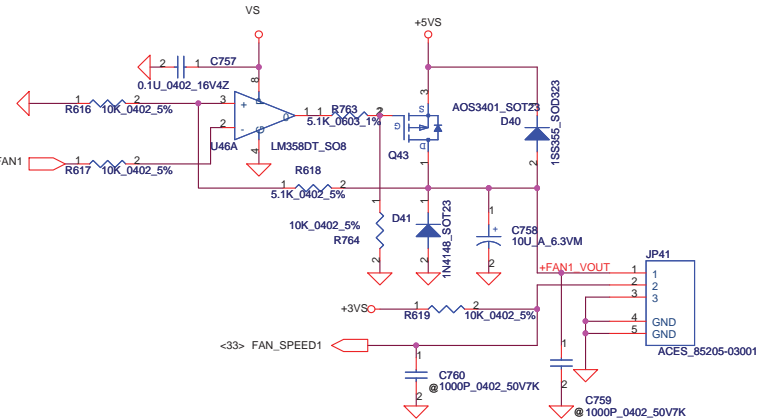
PORT	DEVICE
0	RIGHT USB Port (Samll Board)
1	RIGHT USB Port (Samll Board)
2	RIGHT USB Port (Samll Board)
3	RIGHT USB Port (Samll Board)
4	LEFT USB Port
5	LEFT USB Port
6	Fingerprint
7	Blue Tooth
8	Internal Camera
9	Express Card



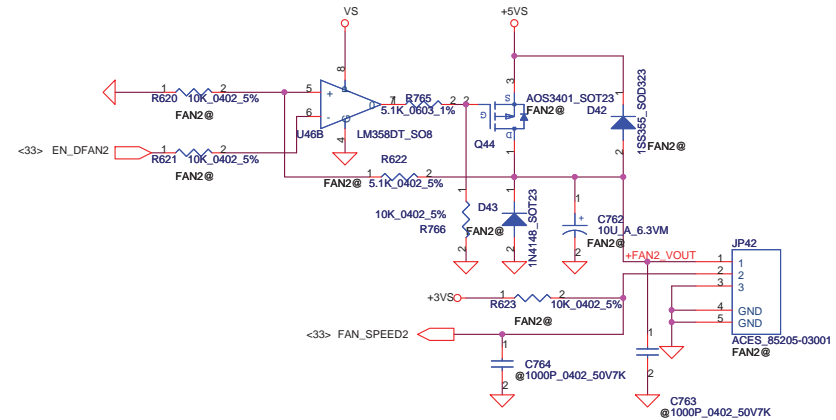
Thermal Sensor ADM1032ARM



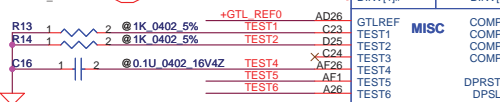
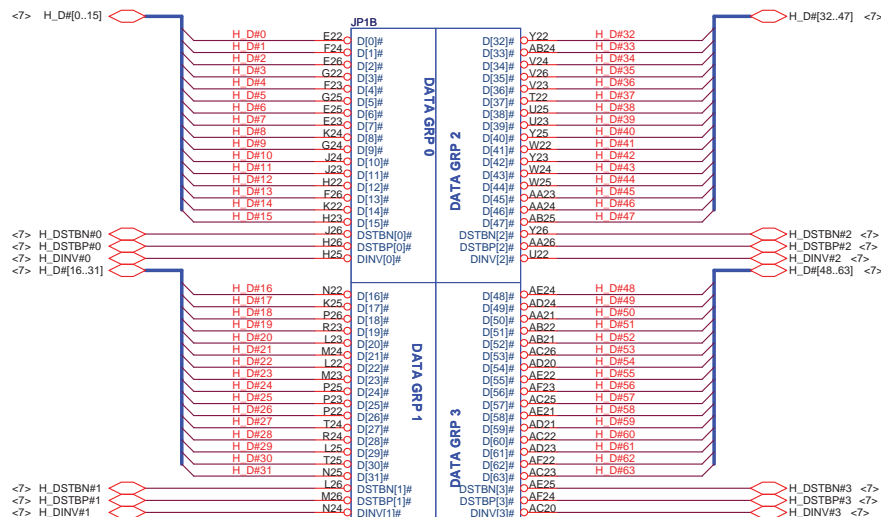
FAN 1



FAN 2

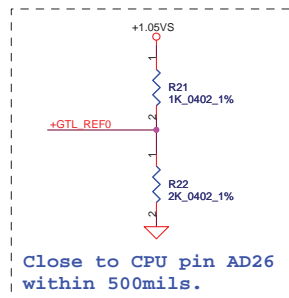


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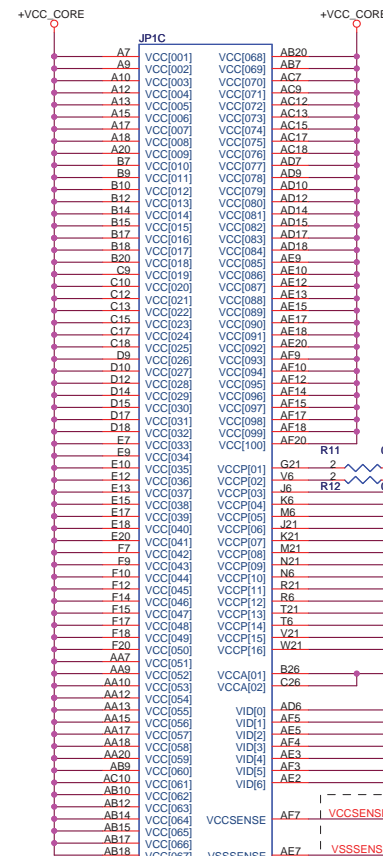
layout note: Route TEST3 & TEST5 traces on ground referenced layer to the TPs

CPU_BSEL	CPU_BSEL2	CPU_BSEL1	CPU_BSEL0
166	0	1	1
200	0	1	0

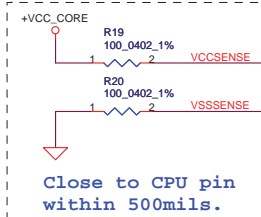


+GTL_REF0 Impedance control 55 Ohm

Resistor placed within 0.5" of CPU pin. Trace should be at least 25 mils away from any other toggling signal. COMP[0,2] trace width is 18 mils. COMP[1,3] trace width is 4 mils.



conn@ Merom Ball-out Rev 1a

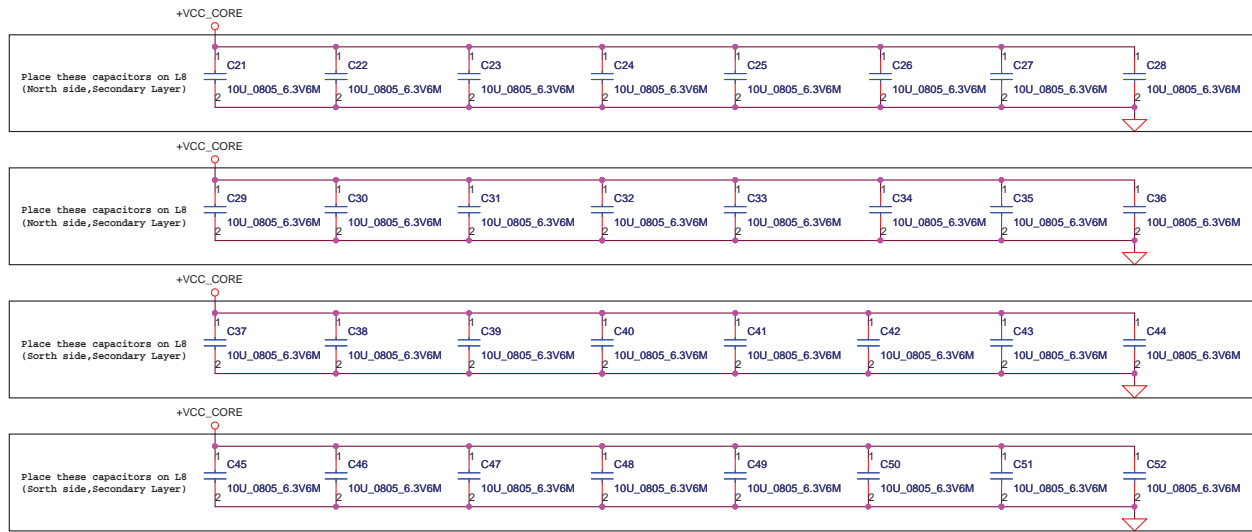


Length match within 25 mils. The trace width/space/other is 20/7/25.

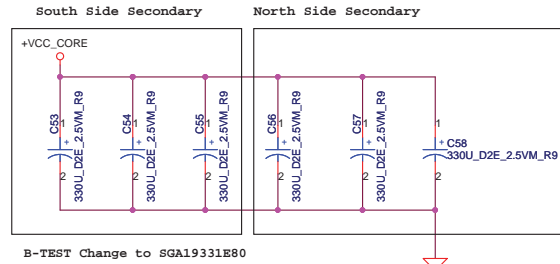
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A4	VSS[001]	P6
A8	VSS[002]	P21
A11	VSS[003]	P24
A14	VSS[004]	R2
A16	VSS[005]	R5
A19	VSS[006]	R22
A23	VSS[007]	R25
AF2	VSS[008]	T1
B6	VSS[009]	T4
B8	VSS[010]	T23
B11	VSS[011]	T26
B13	VSS[012]	U3
B16	VSS[013]	U6
B19	VSS[014]	U21
B21	VSS[015]	U24
B24	VSS[016]	V2
C5	VSS[017]	V5
C8	VSS[018]	V22
C11	VSS[019]	V25
C14	VSS[020]	W1
C16	VSS[021]	W4
C19	VSS[022]	W23
C2	VSS[023]	W26
C22	VSS[024]	Y3
C25	VSS[025]	Y6
D1	VSS[026]	Y21
D4	VSS[027]	Y24
D8	VSS[028]	AA2
D11	VSS[029]	AA5
D13	VSS[030]	AA8
D16	VSS[031]	AA11
D19	VSS[032]	AA14
D23	VSS[033]	AA16
D26	VSS[034]	AA19
E3	VSS[035]	AA22
E6	VSS[036]	AA25
E8	VSS[037]	AB1
E11	VSS[038]	AB4
E14	VSS[039]	AB8
E16	VSS[040]	AB11
E19	VSS[041]	AB13
E21	VSS[042]	AB16
E24	VSS[043]	AB19
F5	VSS[044]	AB23
F8	VSS[045]	AB26
F11	VSS[046]	AC3
F13	VSS[047]	AC6
F16	VSS[048]	AC8
F19	VSS[049]	AC11
F2	VSS[050]	AC14
F22	VSS[051]	AC16
F25	VSS[052]	AC19
G4	VSS[053]	AC21
G1	VSS[054]	AC24
G26	VSS[055]	AD2
H3	VSS[056]	AD5
H6	VSS[057]	AD8
H21	VSS[058]	AD11
H24	VSS[059]	AD13
J2	VSS[060]	AD16
J5	VSS[061]	AD19
J22	VSS[062]	AD22
J25	VSS[063]	AD25
K1	VSS[064]	AE1
K23	VSS[065]	AE4
K4	VSS[066]	AE8
K26	VSS[067]	AE11
L3	VSS[068]	AE14
L6	VSS[069]	AE16
L21	VSS[070]	AE19
L24	VSS[071]	AE23
M2	VSS[072]	AE26
M5	VSS[073]	A2
M22	VSS[074]	AF6
M25	VSS[075]	AF8
N1	VSS[076]	AF11
N4	VSS[077]	AF13
N23	VSS[078]	AF16
N26	VSS[079]	AF19
P3	VSS[080]	AF21
	VSS[081]	A25
		AF25

conn@ Merom Ball-out Rev 1a

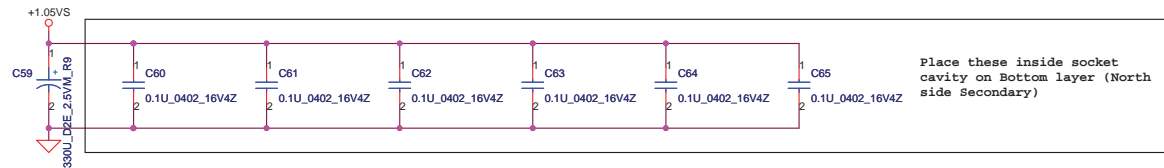


Mid Frequency Decoupling

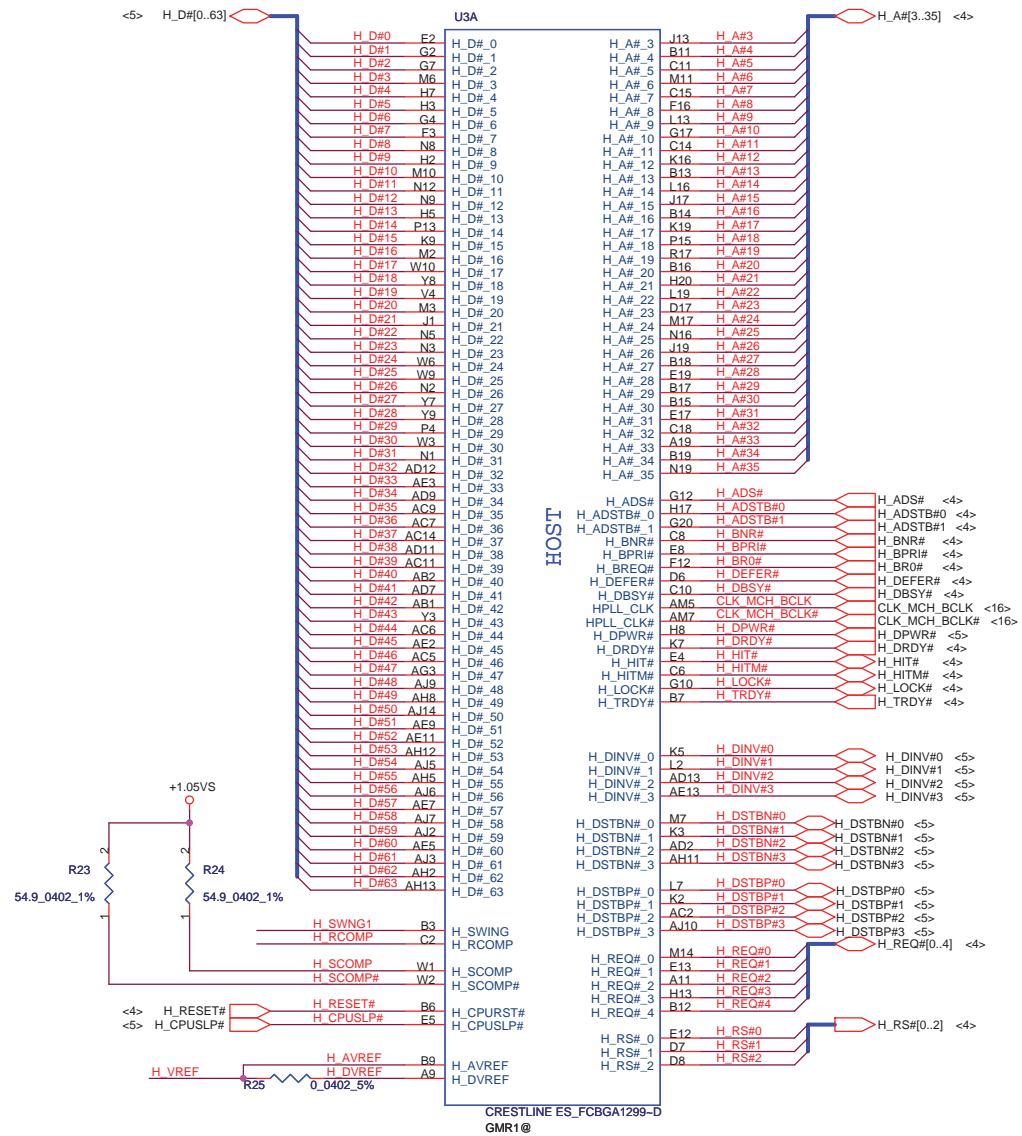
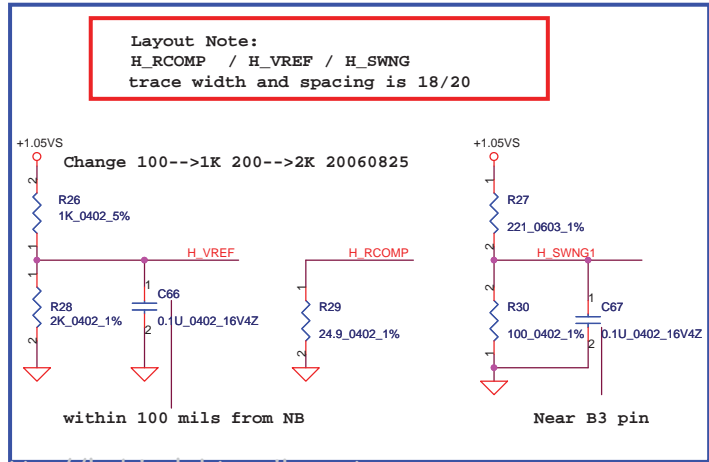


ESR <= 1.5m ohm
Capacitor > 1980uF

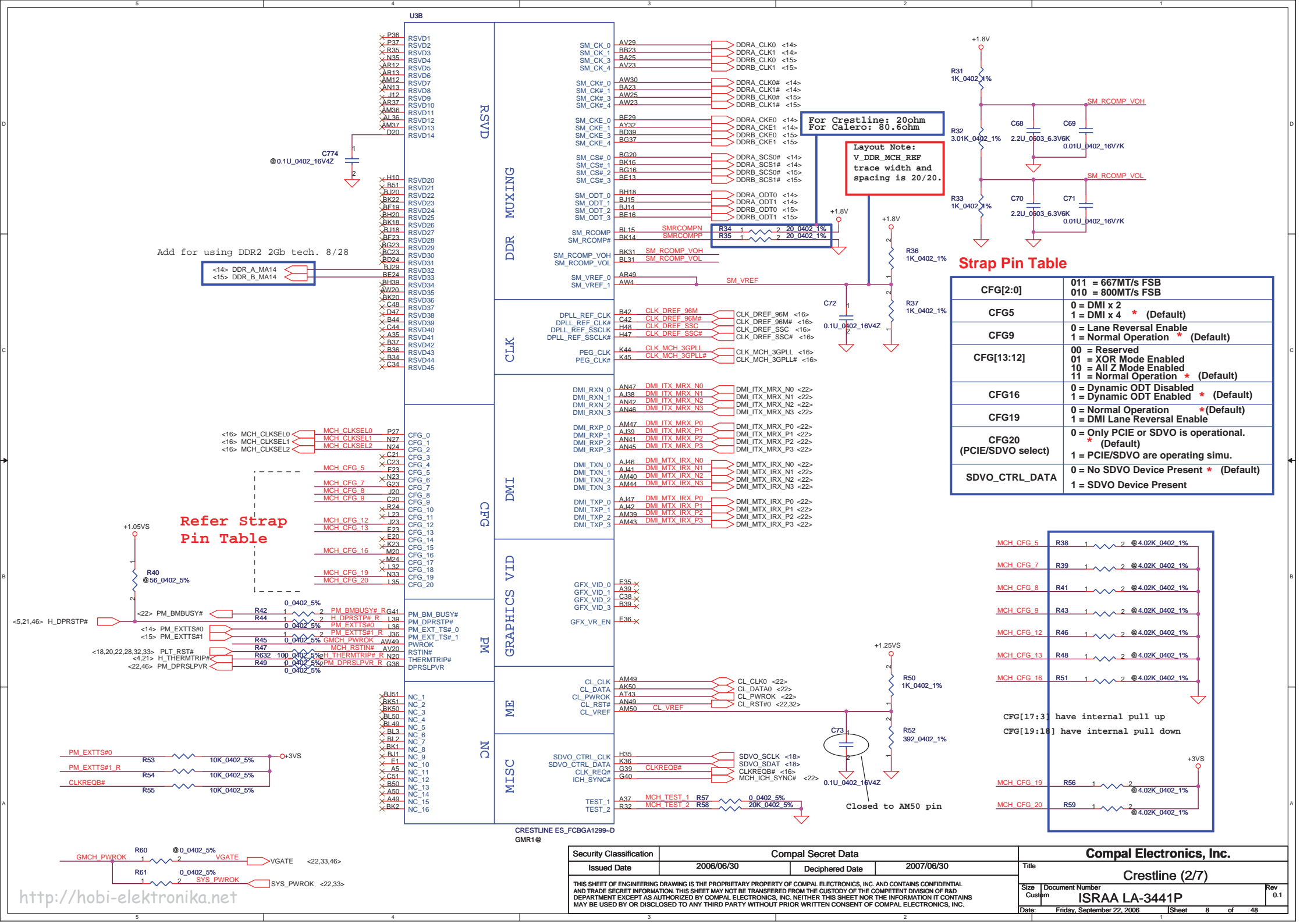
330uF ESR 7m ohm X 6 PCS



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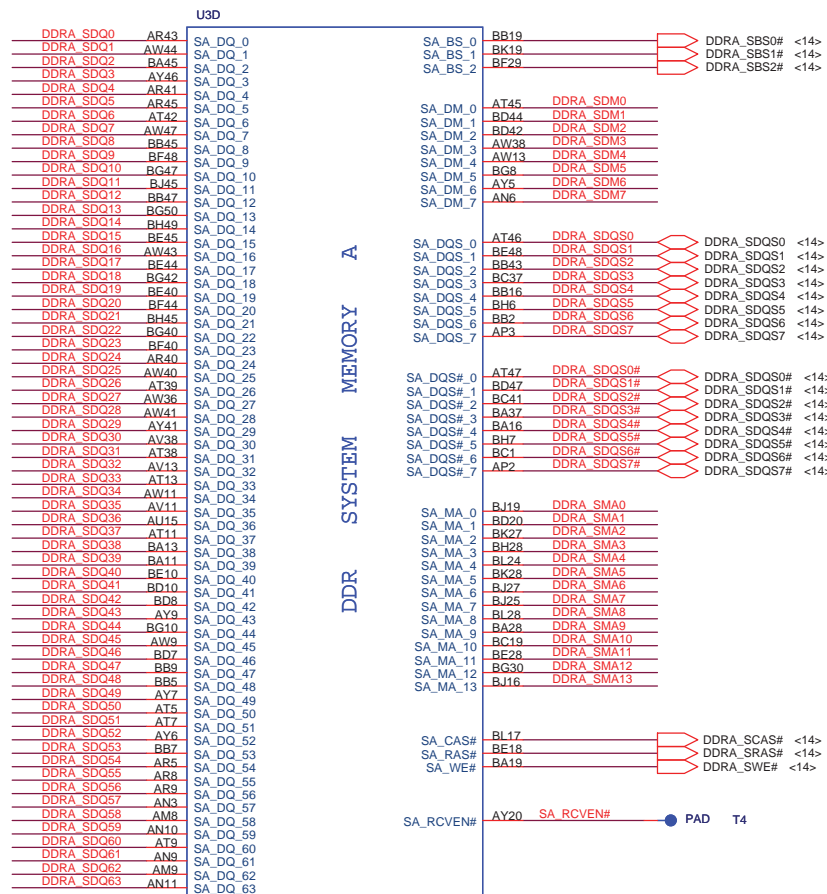


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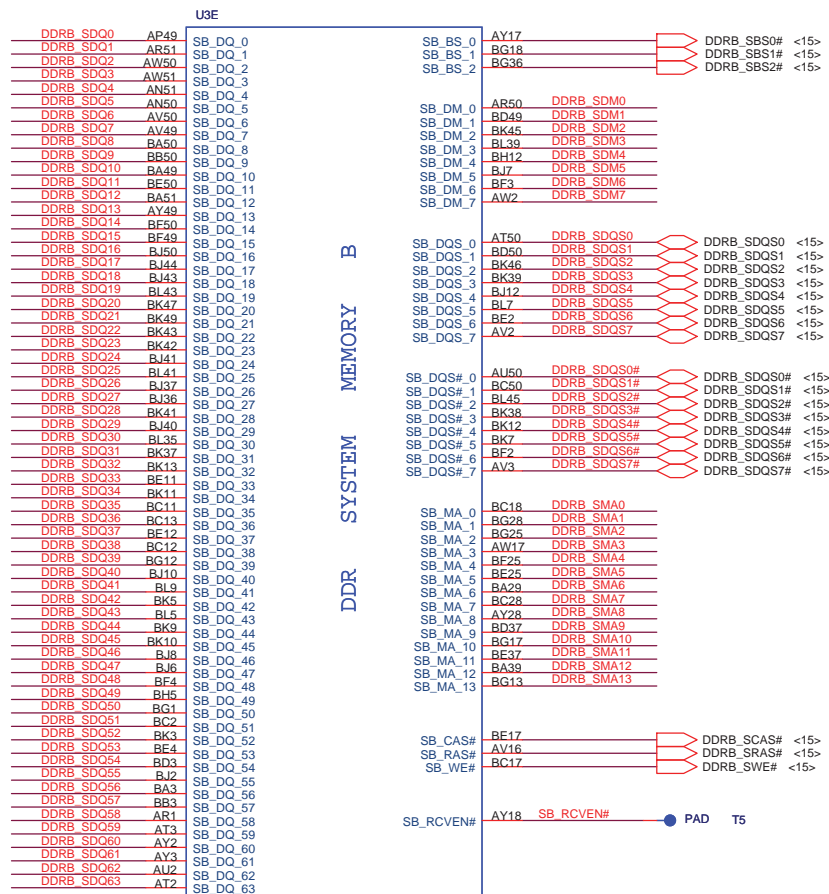


<14> DDRA_SDQ[0..63] DDRA_SDQ[0..63]
<14> DDRA_SDM[0..7] DDRA_SDM[0..7]
<14> DDRA_SMA[0..13] DDRA_SMA[0..13]

<15> DDRB_SDQ[0..63] DDRB_SDQ[0..63]
<15> DDRB_SDM[0..7] DDRB_SDM[0..7]
<15> DDRB_SMA[0..13] DDRB_SMA[0..13]

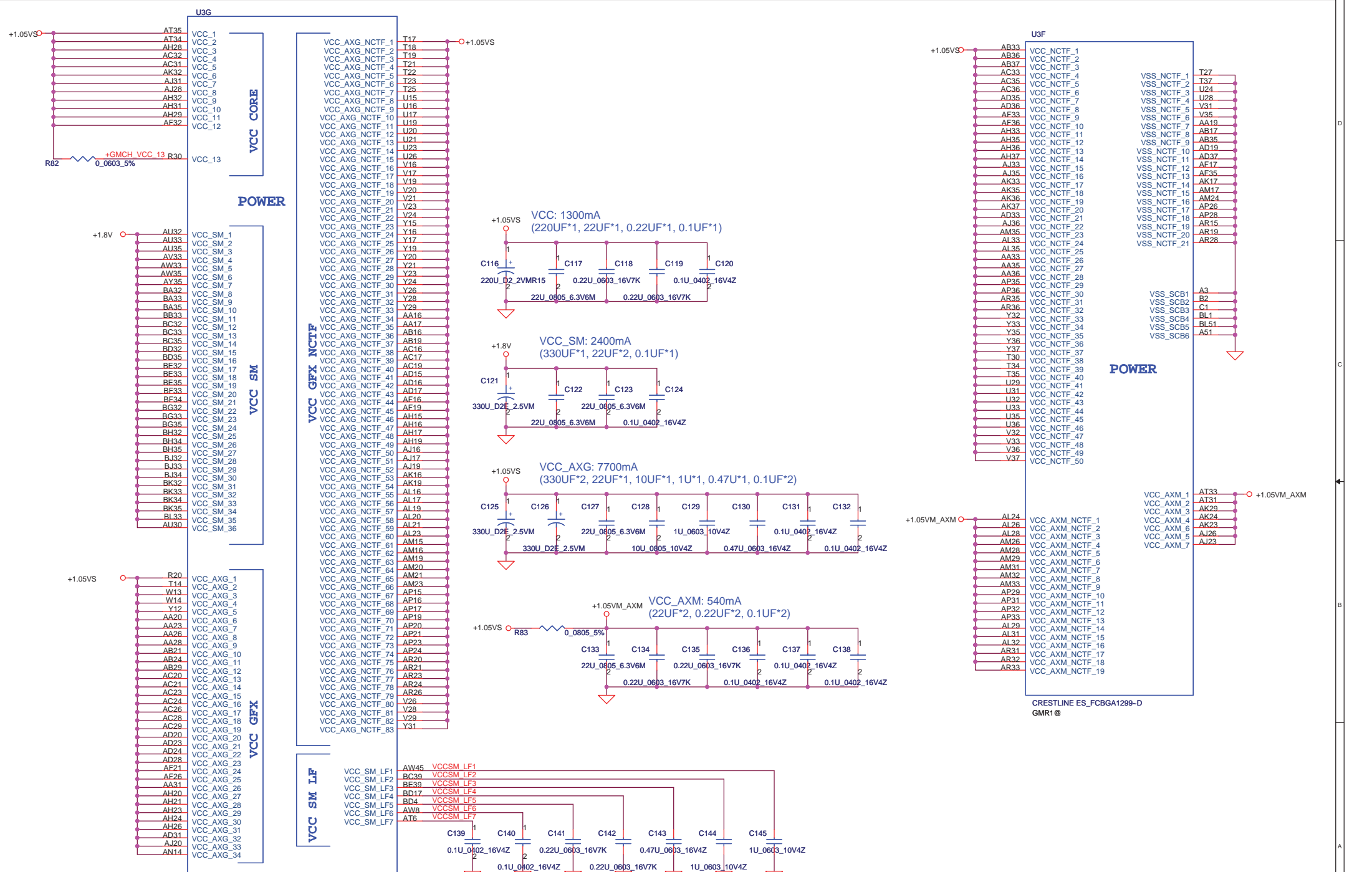


CRESTLINE ES_FCBGA1299-D
GMR1@



CRESTLINE ES_FCBGA1299-D
GMR1@

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CRESTLINE ES_FCBGA1299-D
GMR1@

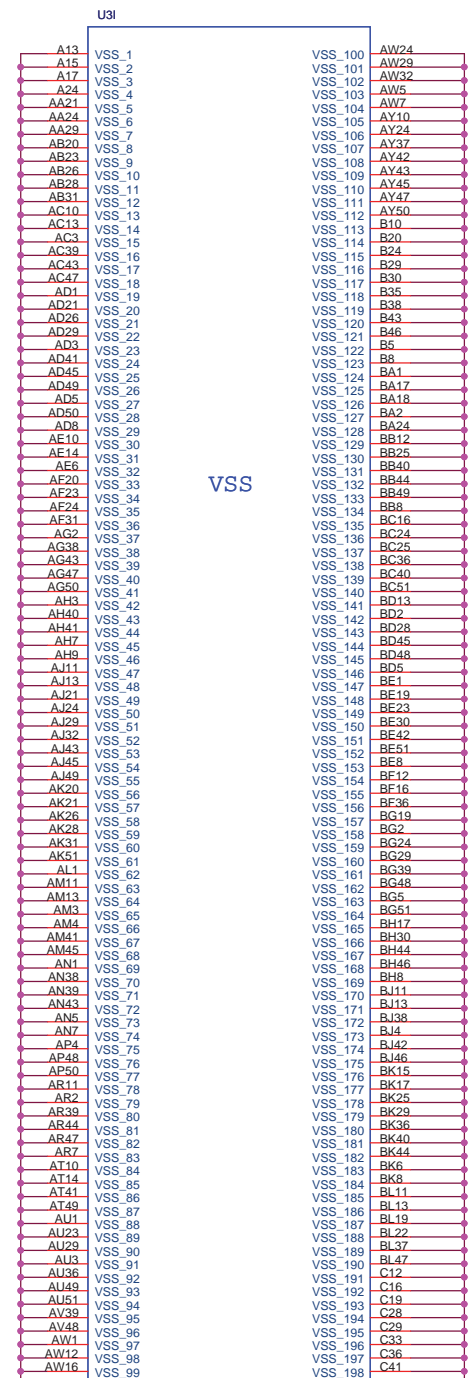
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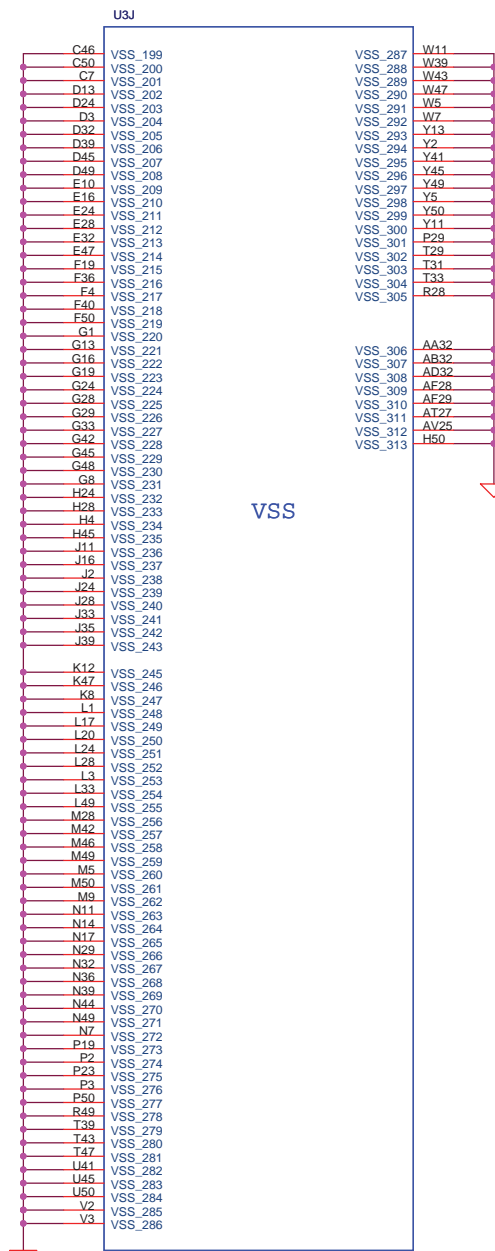
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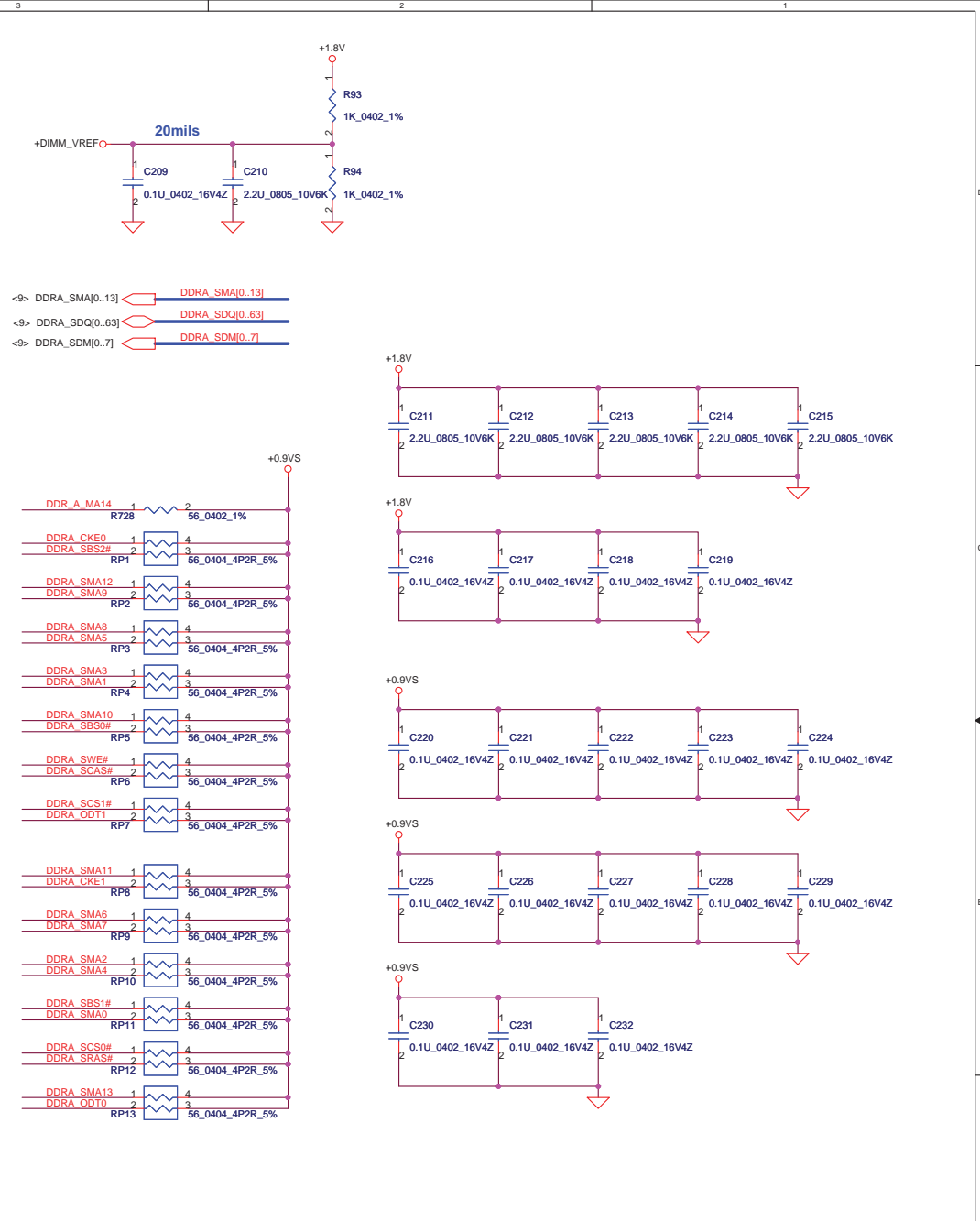


CRESTLINE ES_FCBGA1299-D
GMR1@



CRESTLINE ES_FCBGA1299-D
GMR1@

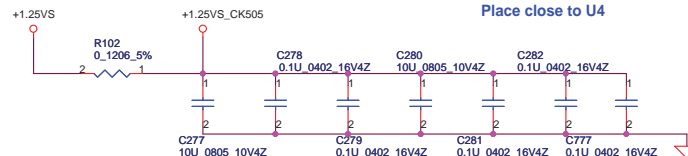
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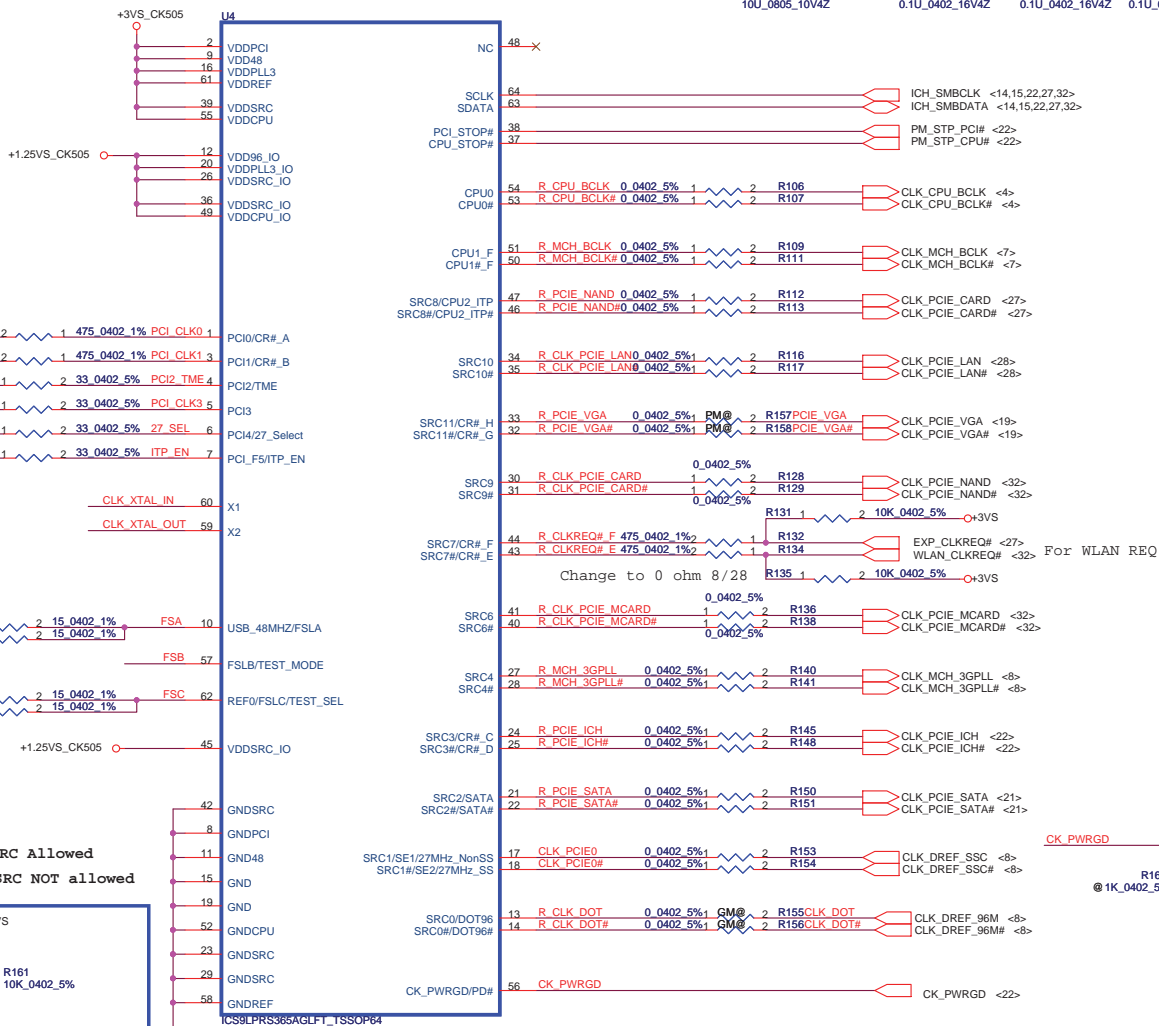
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FSB Frequency Selet:

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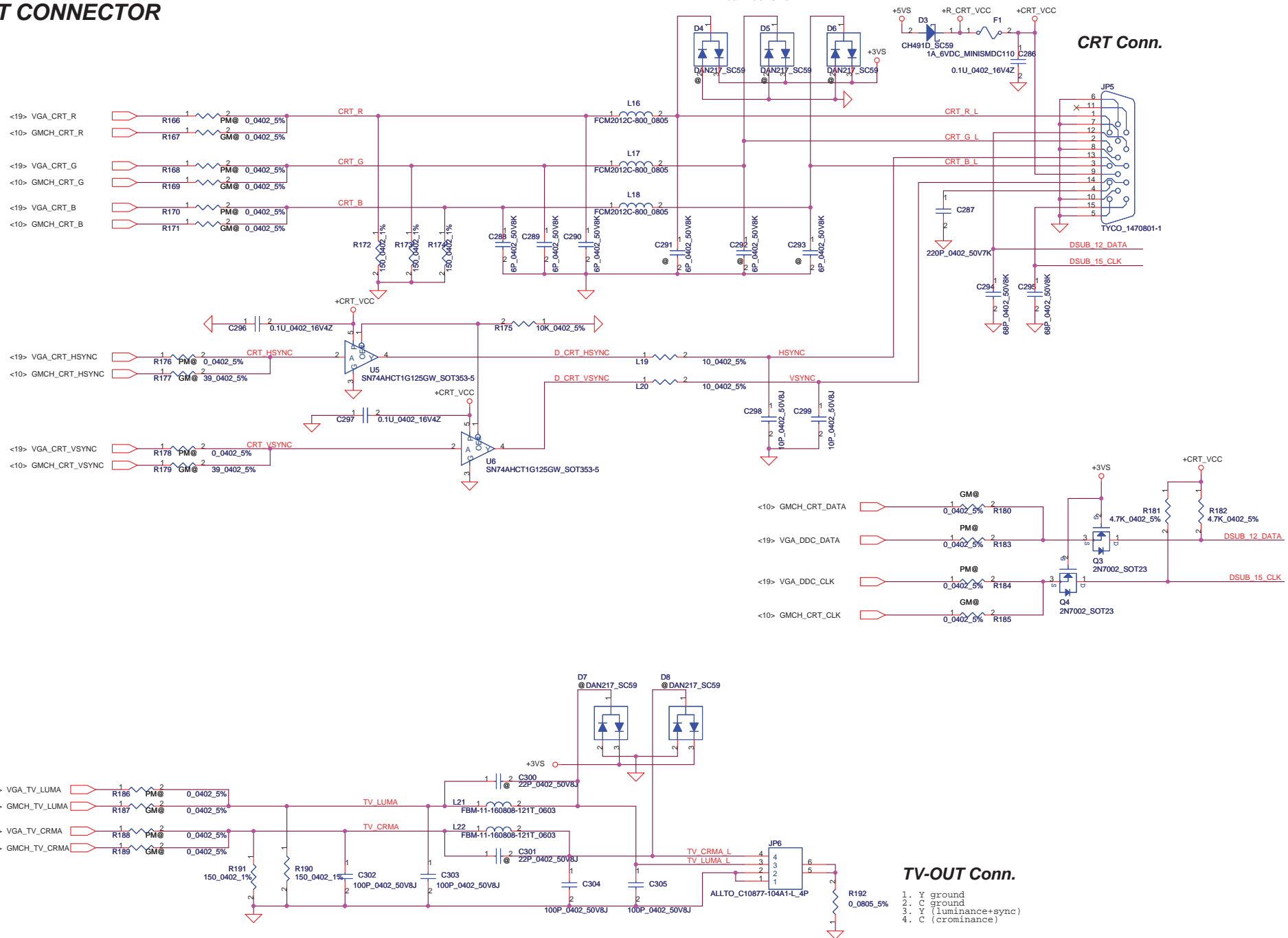
Place close to U4



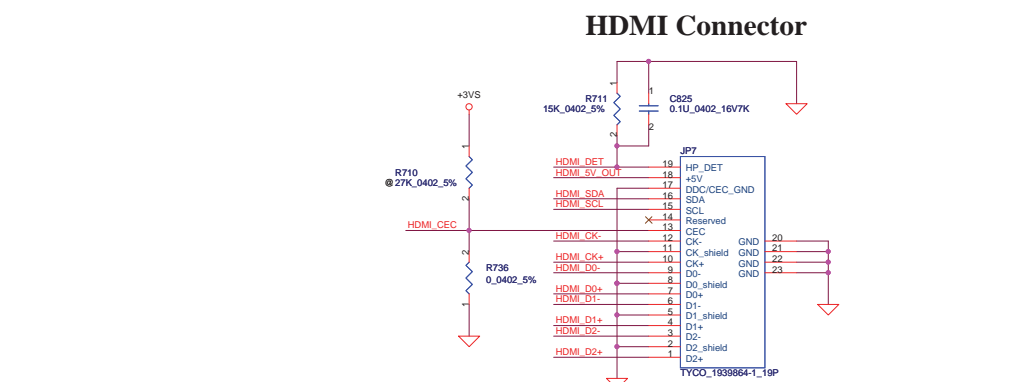
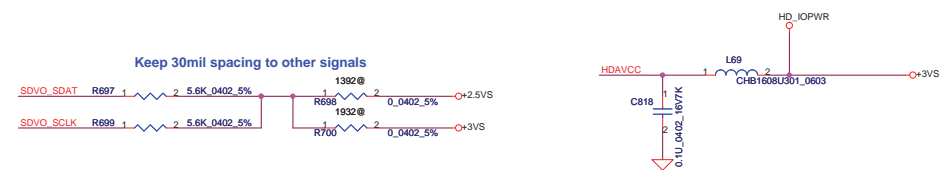
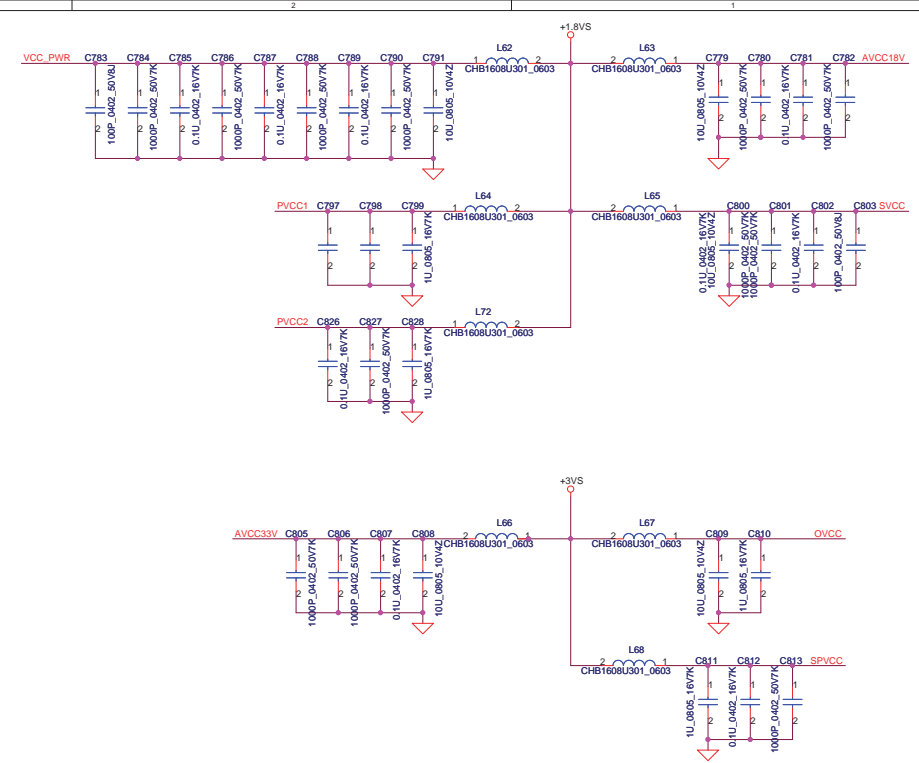
<i>Compal Electronics, Inc.</i>			
Title			
<i>CLOCK GENERATOR</i>			
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CRT CONNECTOR

Near to JP5

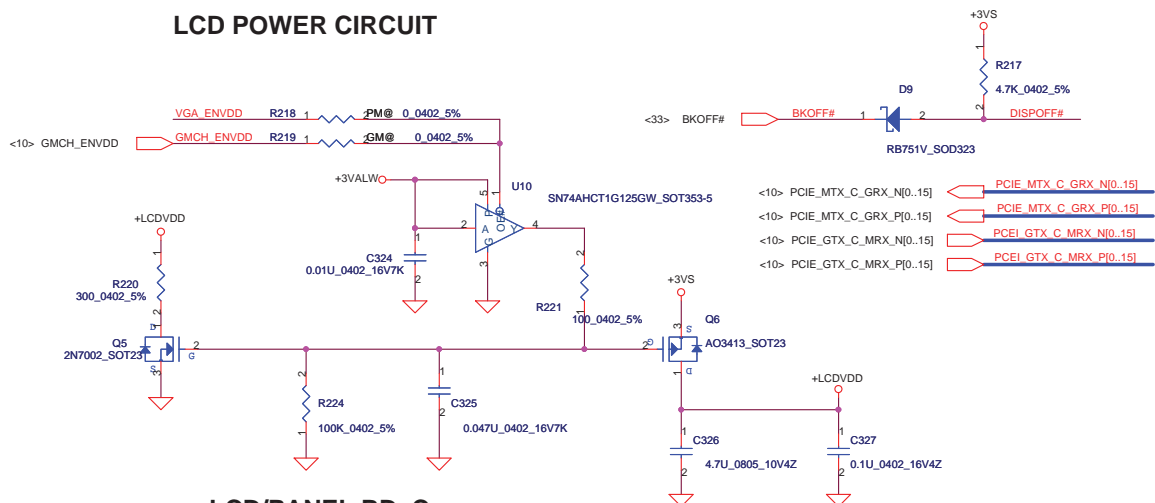


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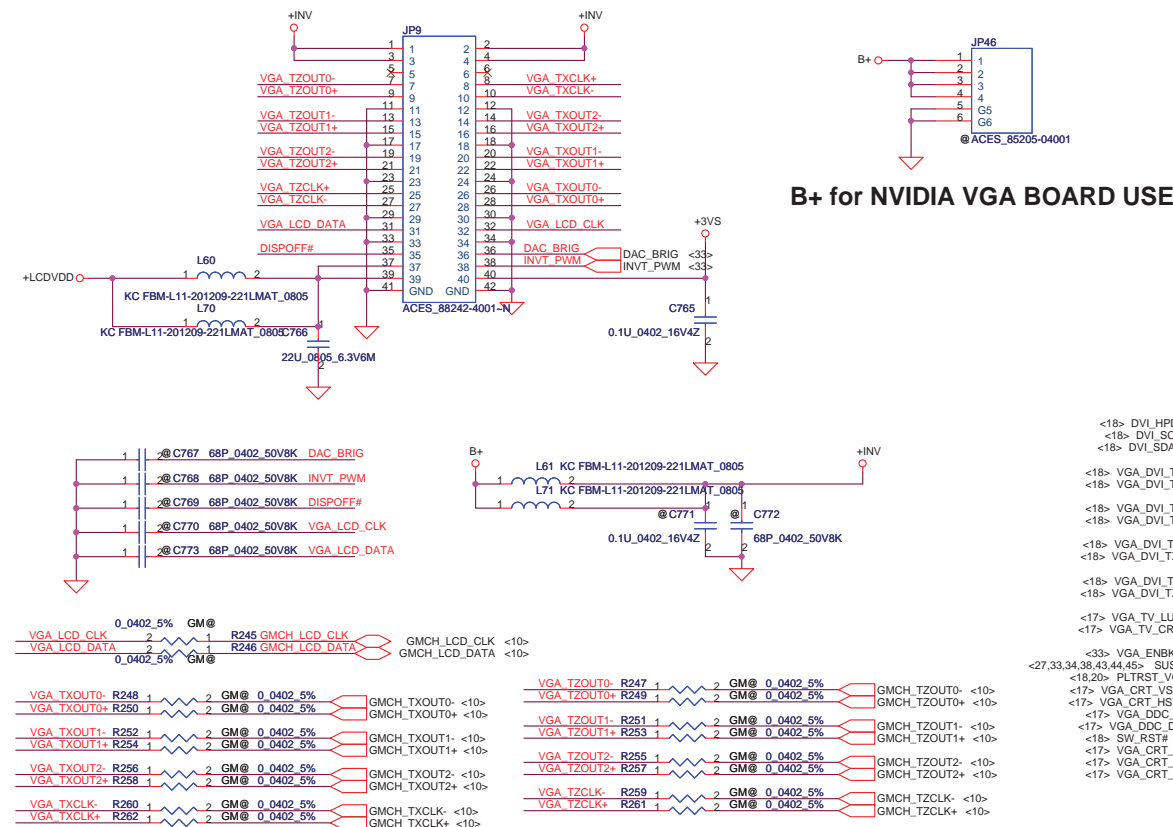


Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2006/06/30	Deciphered Date	2007/06/30	Title	Sii1392/1932 & HDMI Connector	
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				Custom	ISRAA LA-3441P	0.1
				Date:	Friday, September 22, 2006	Sheet 18 of 48

LCD POWER CIRCUIT



LCD/PANEL BD. Conn.

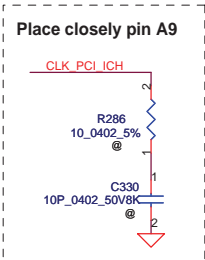
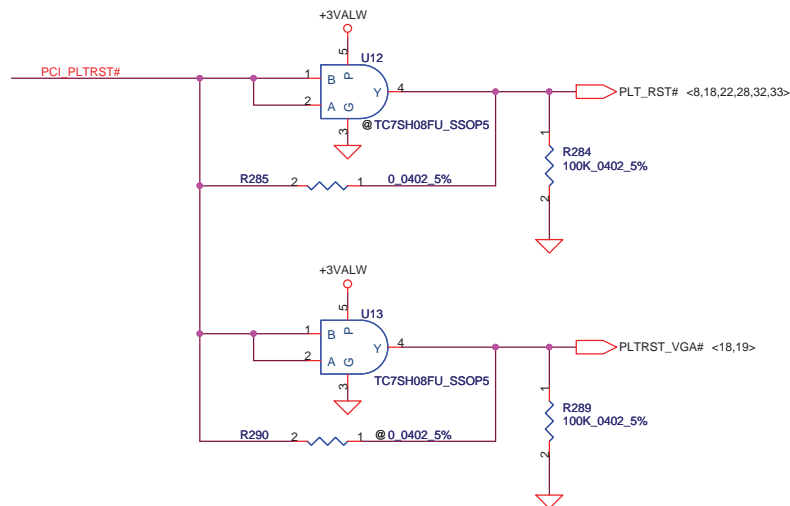
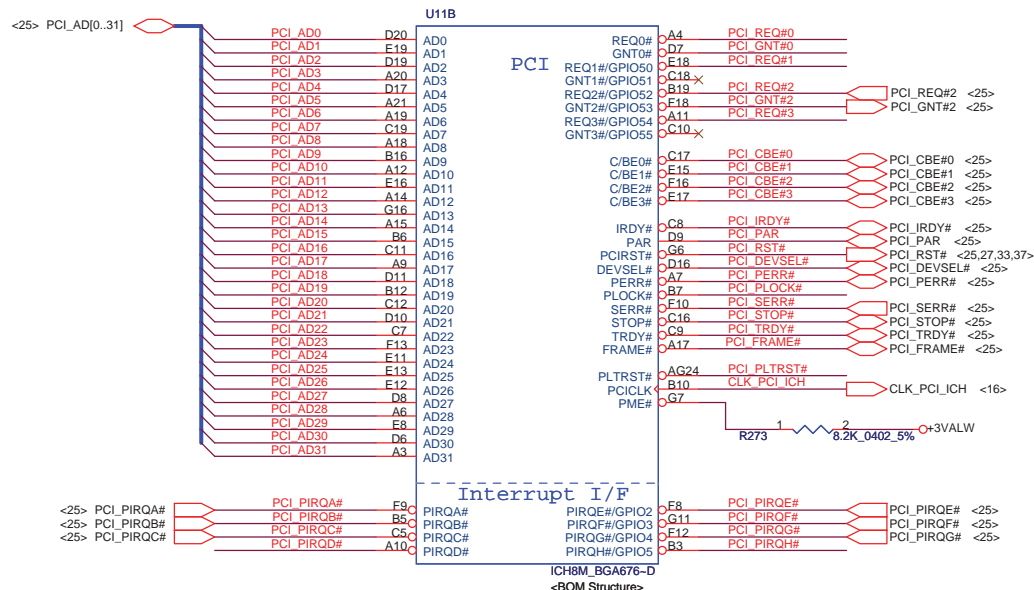
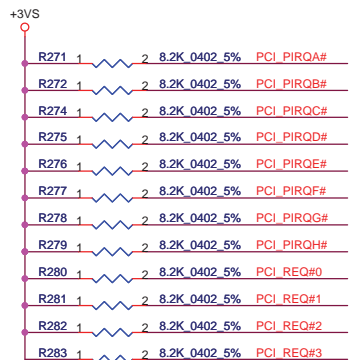
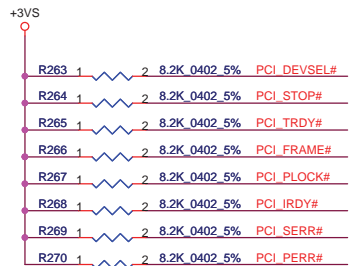


ALL R CLOSE TO LVDS CONNECTOR

VGA BOARD Conn.



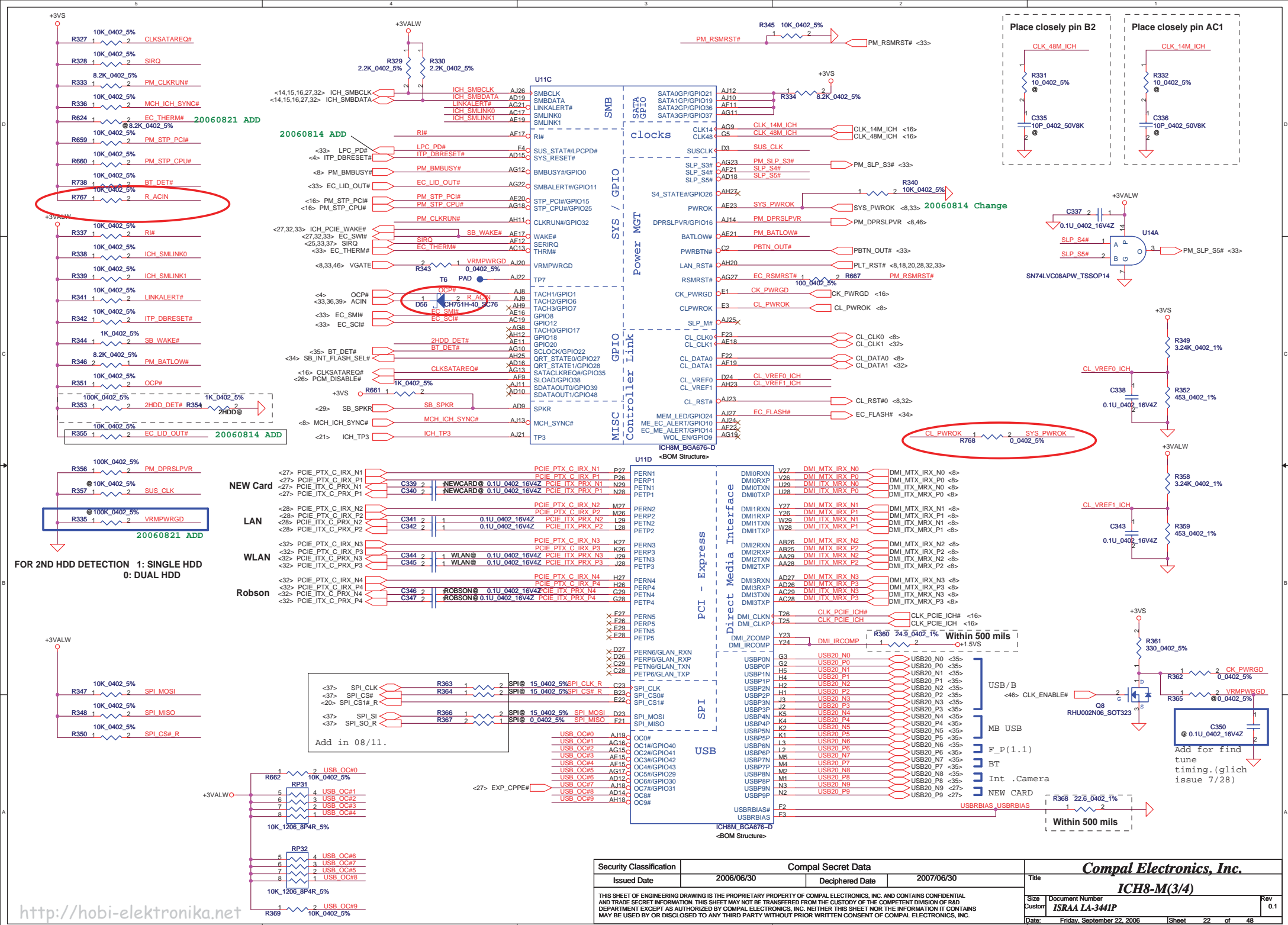
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Issued Date	2006/06/30	Deciphered Date	2007/06/30	Compal Electronics, Inc.	
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Size		Document Number		Rev	
Date:		Friday, September 22, 2006		19 of 48	



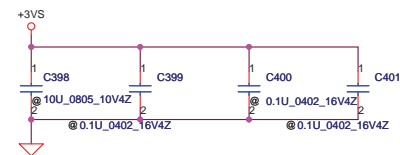
Boot BIOS Strap		
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1	0	PCI
1	1	LPC *



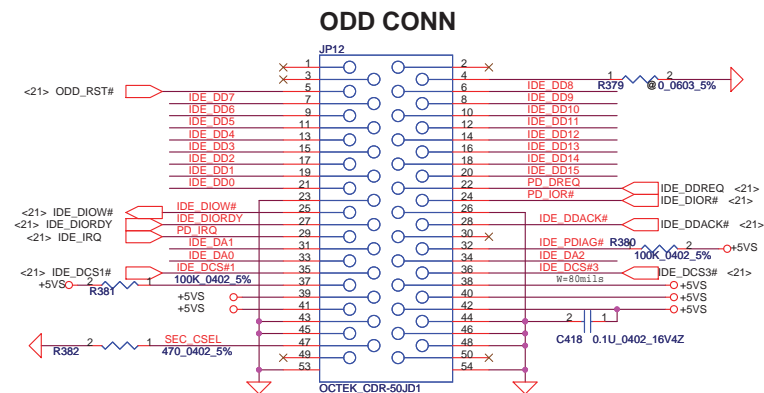
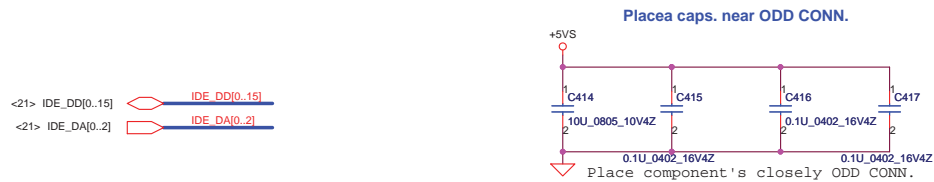
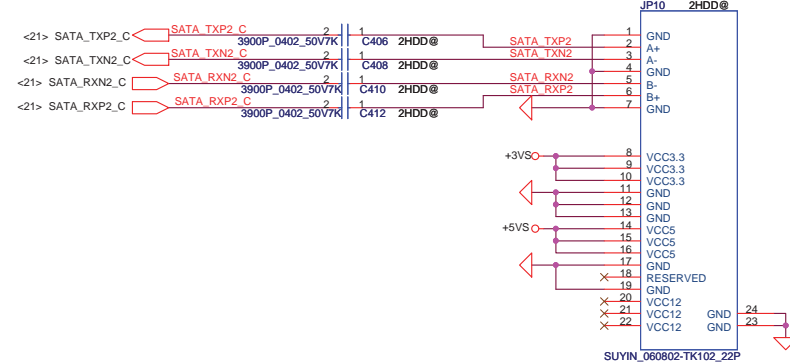
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Issued Date		2006/06/30		Deciphered Date		2007/06/30		Title	
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								Document Number	
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								Rev	
								0.1	
						Date:		Friday, September 22, 2006	
						Sheet		20 of 48	



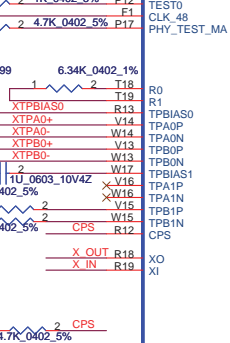
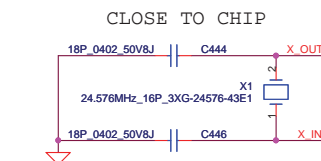
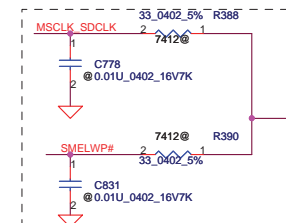




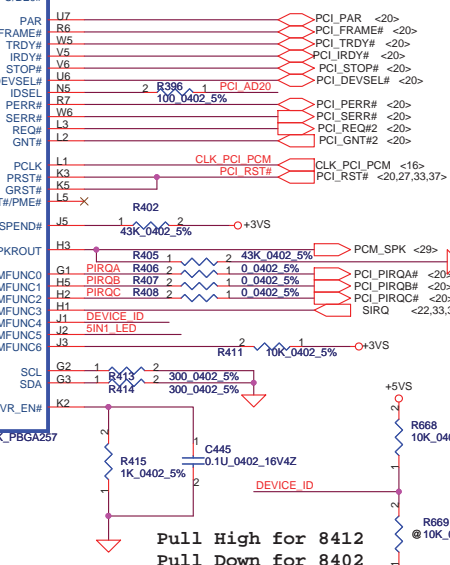
SATA HDD-2 Conn.(11.8mm)



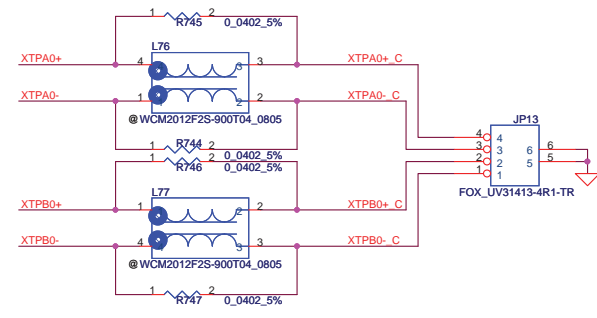
Security Classification		Compal Secret Data		Compal Electronics, Inc.		
Issued Date	2006/06/30	Deciphered Date	2007/06/30	Title SATA & ODD Conn		
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				ISRAA LA-3441P		
				Date	Friday, September 22, 2006	Sheet 24 of 48



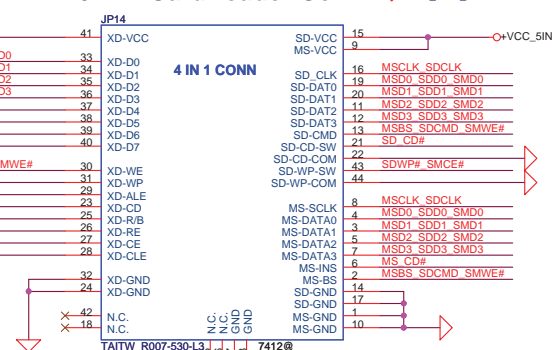
+VCC_5IN1



PIRQA	R417	2	1	0 0402 5%	PCI_PIRQE#	<20>
PIRQB	R418	2	1	0 0402 5%	PCI_PIRQF#	<20>
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+3VS 6 In 1 Card Power Switch

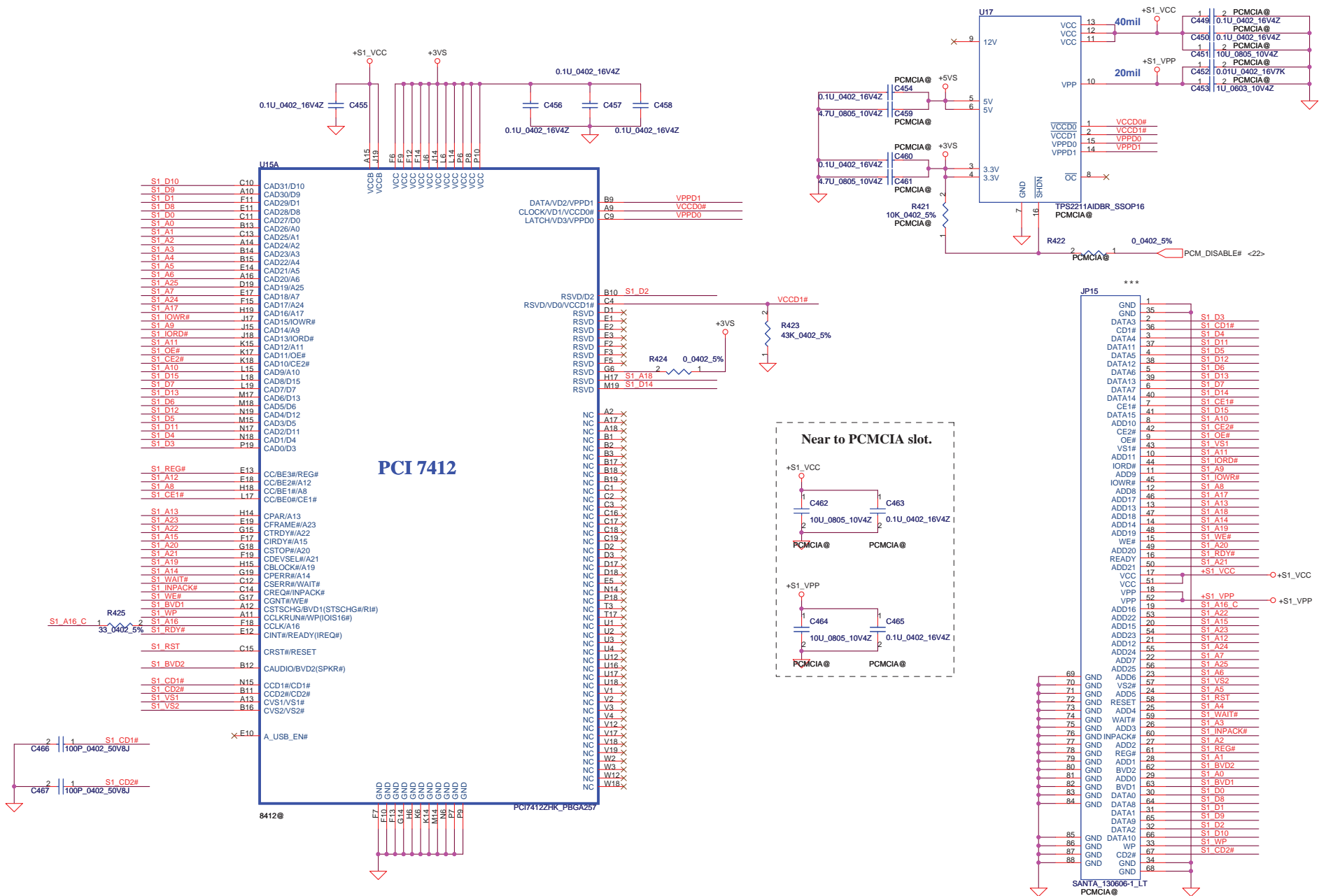


Normal Insertion
For EMI



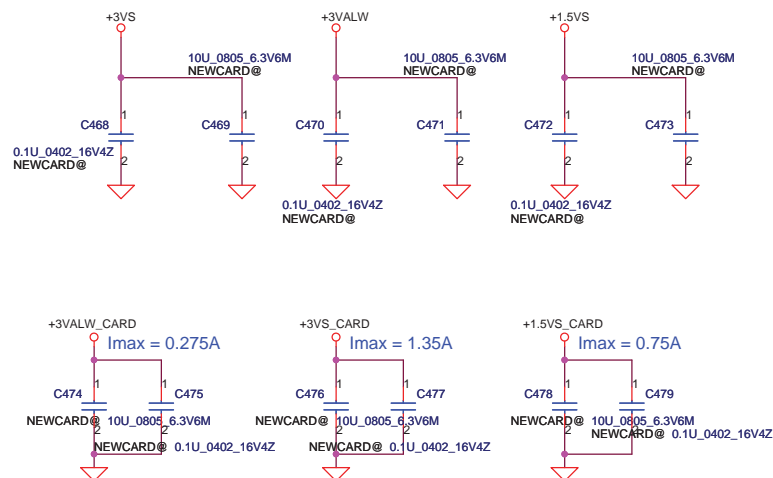
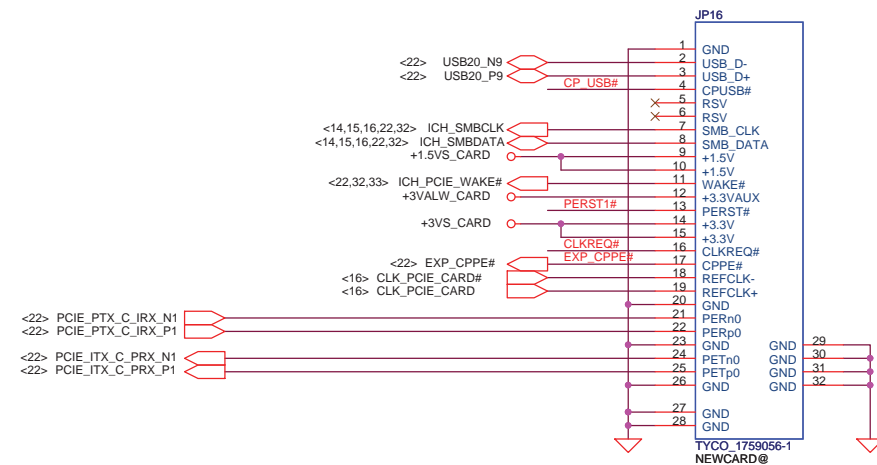
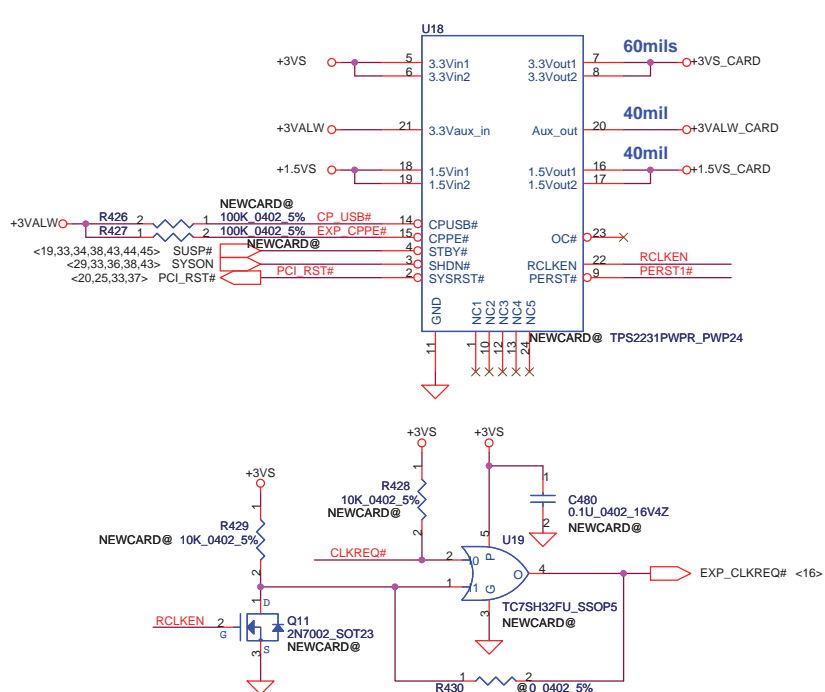
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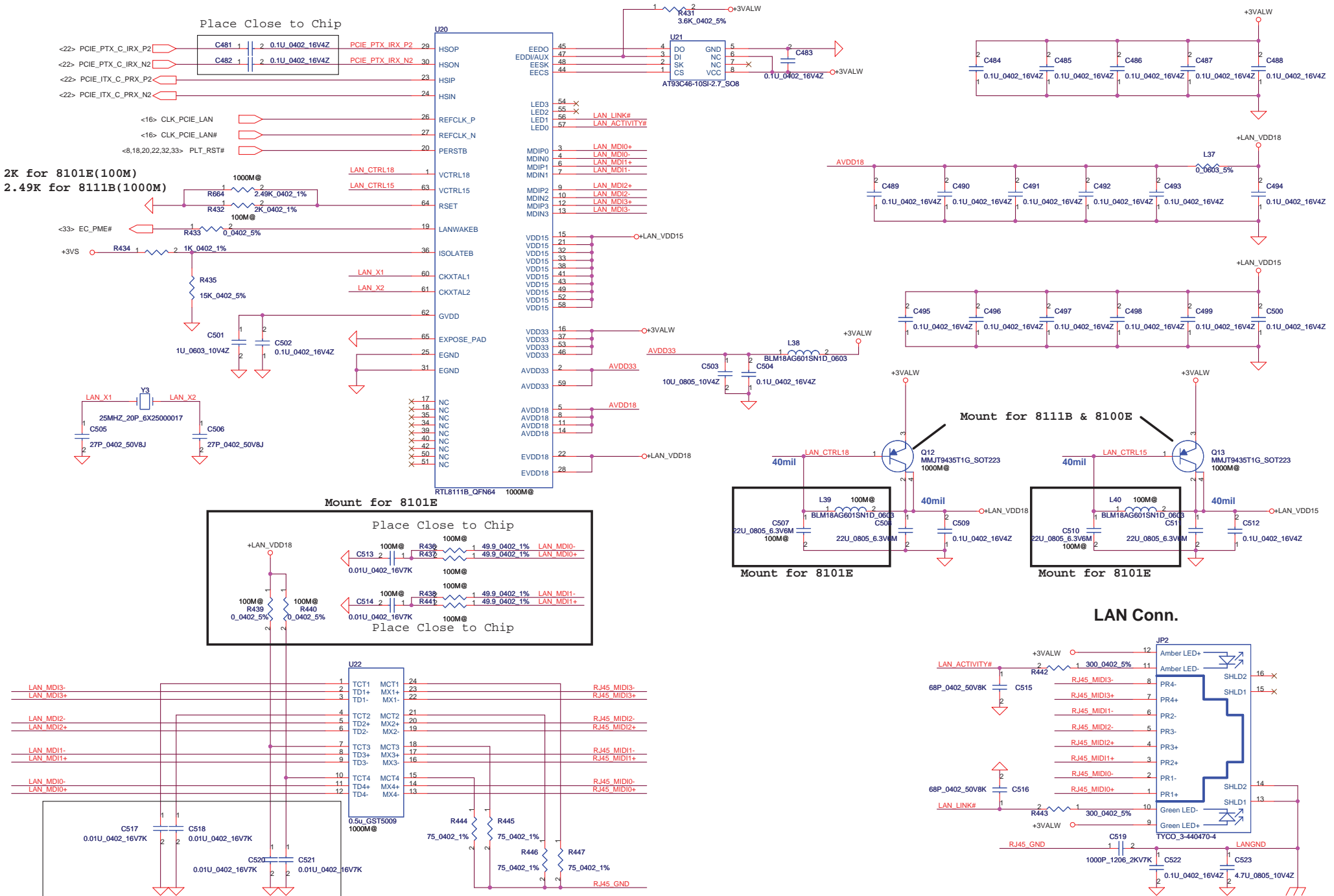
CardBus Power Switch



Security Classification		Compal Secret Data		Compal Electronics, Inc. PCI7412/CB/CB SLOT	
Issued Date	2006/06/30	Deciphered Date	2007/06/30	Title	
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Date:	Friday, September 22, 2006	Sheet	26	of	48

New Card Power Switch





+AVDD_AC97 +3VS_DVDD



Security Classification

Compal Secret Data

Issued Date

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Compal Electronics, Inc.

Title	<Title> HD Audio Codec ALC861D
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Size	Document Number
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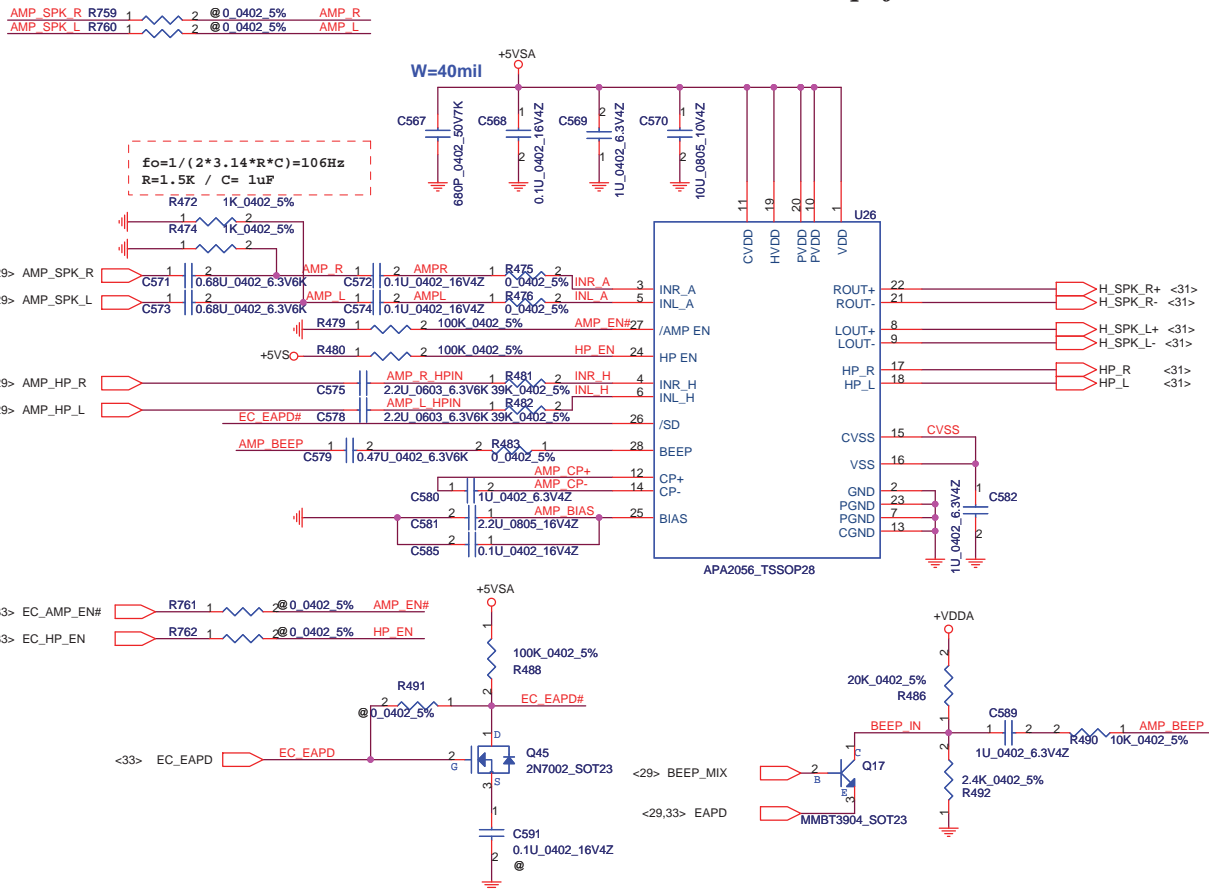
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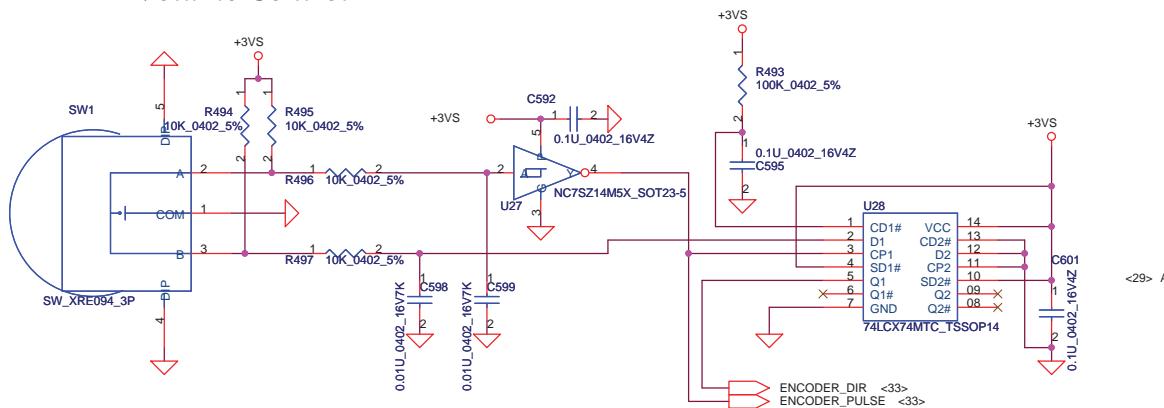
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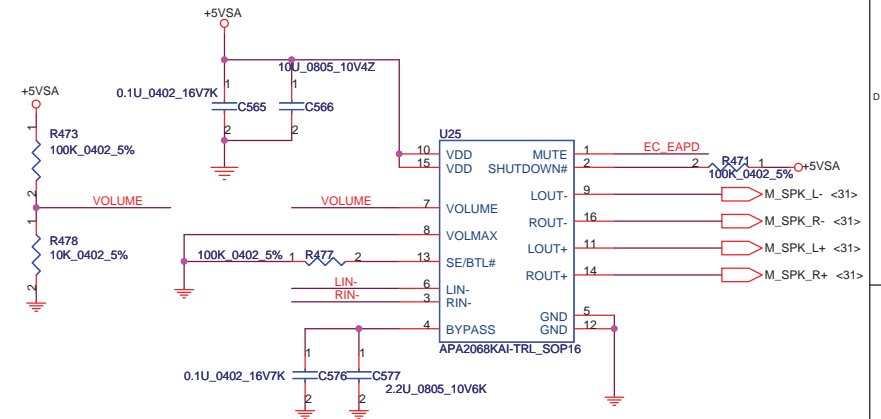
APA2056 Tweeter/HP Amplifier



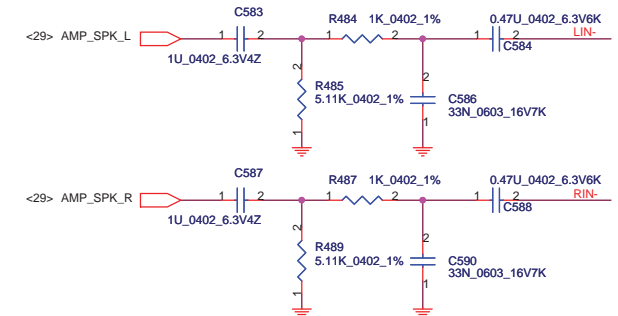
Volume Control



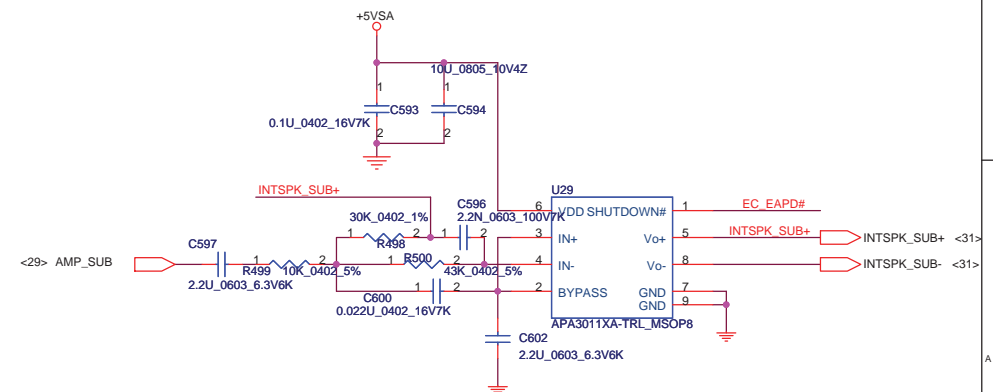
APA2068 Medium Range Amplifier



Pin2 /SD should be tied to 5V always and mute pin controlled by EC_EAPD

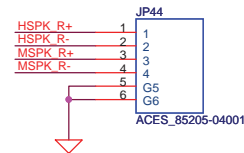
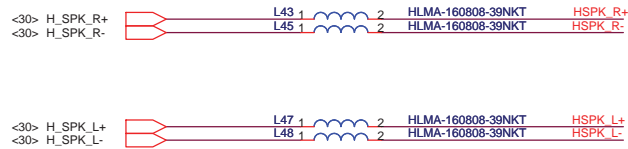


APA3011 Subwoofer Amplifier

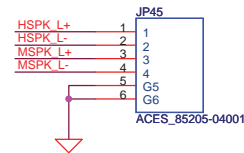
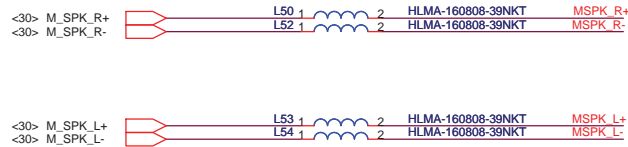


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Issued Date	2006/06/30	Deciphered Date	2007/06/30	Title	<Title> AMP/Volume Control
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				Date	Friday, September 22, 2006
				Sheet	30 of 48
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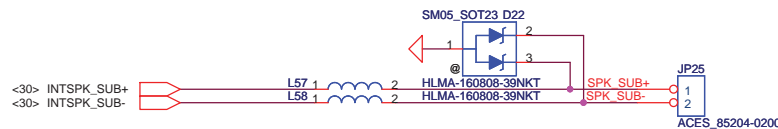
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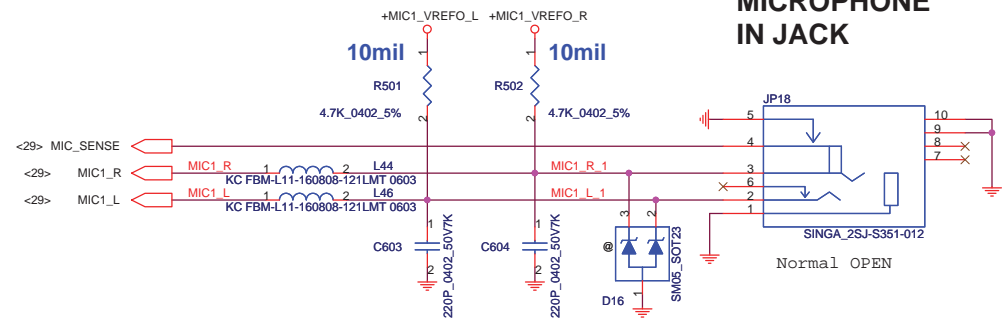
Medium SPK Conn.



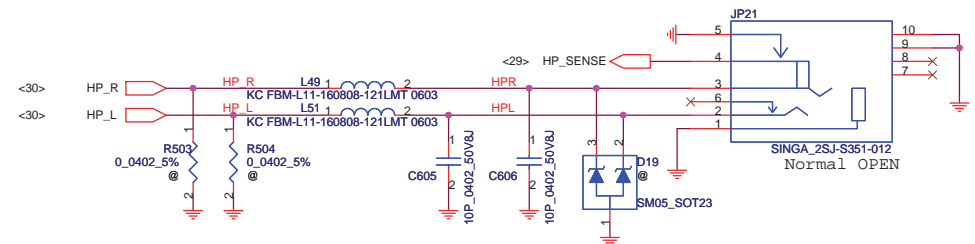
Sub-woofer Conn.



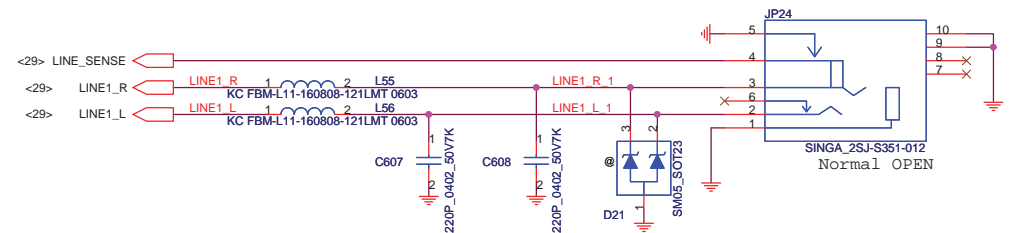
MICROPHONE IN JACK



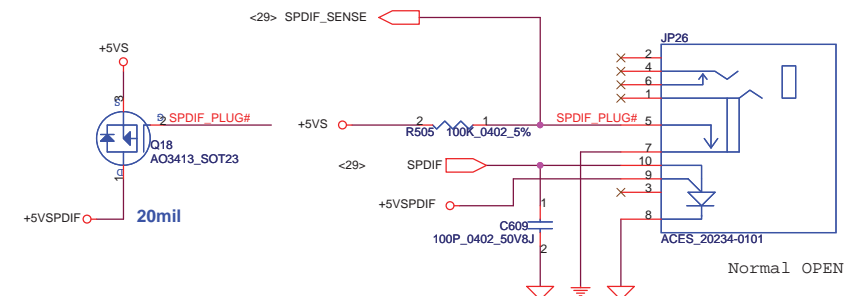
HEADPHONE OUT JACK



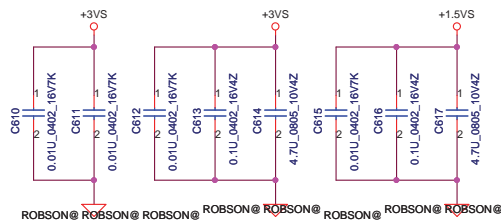
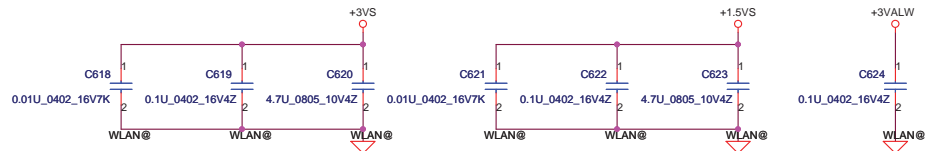
LINE IN JACK



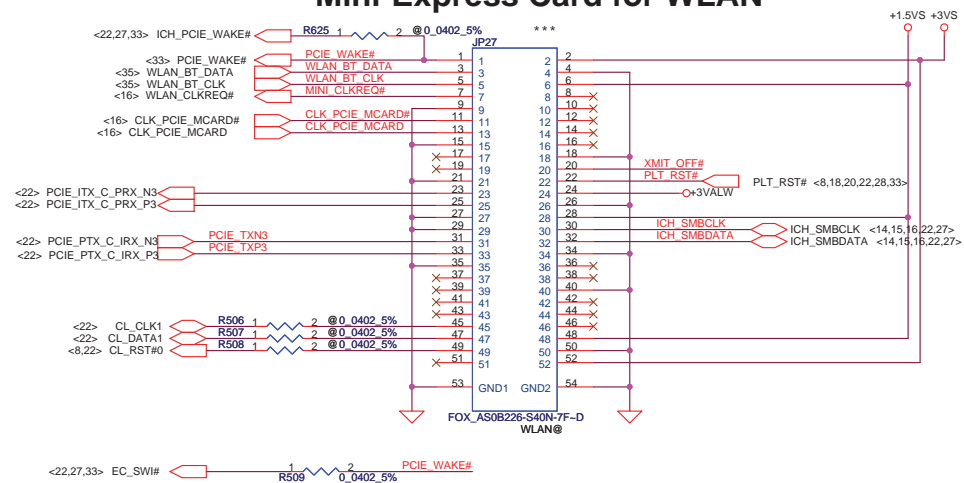
S/PDIF OUT JACK



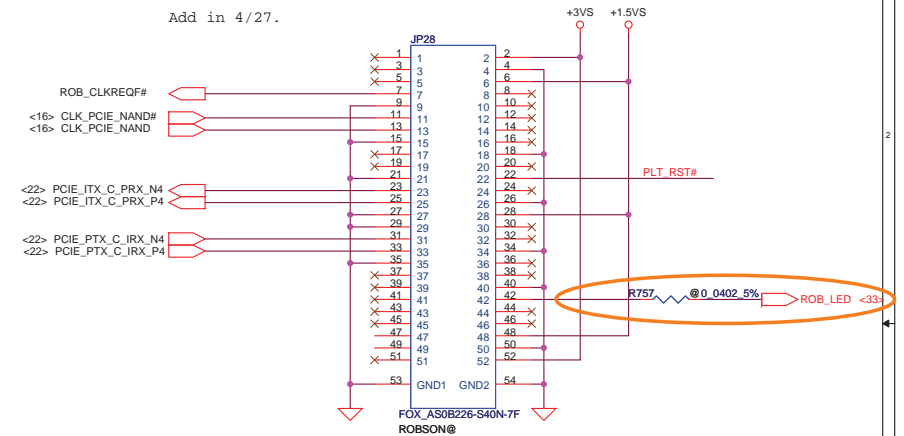
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Issued Date	2006/06/30	Deciphered Date	2007/06/30	Title	<Title> Audio Jack/MIC/SPDIF
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				Date:	Friday, September 22, 2006
				Sheet	31 of 48
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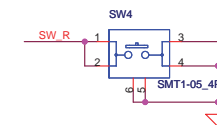
Mini-Express Card for WLAN



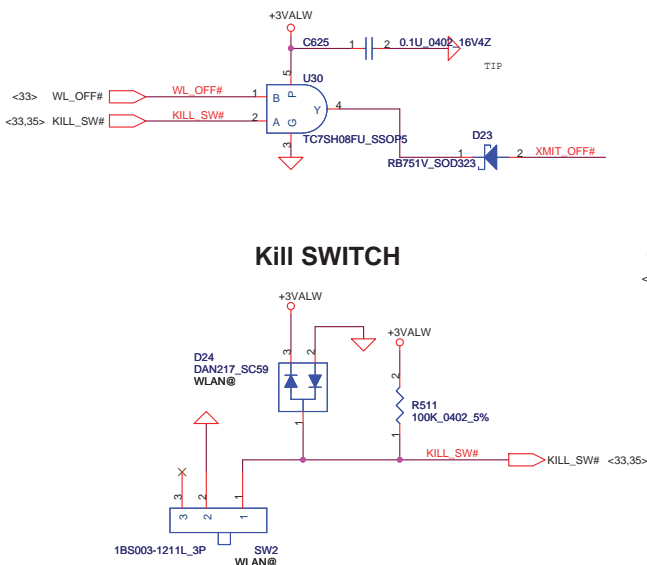
NAND mini Card(Robson support)



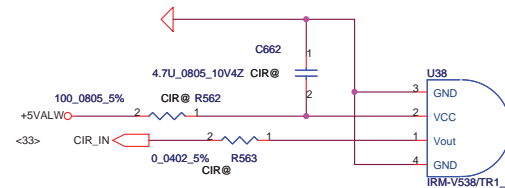
TP Button



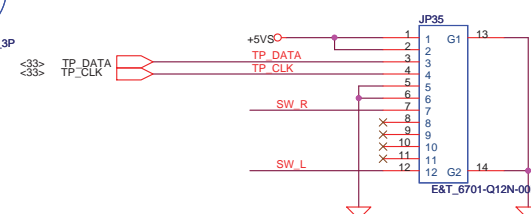
Kill Switch



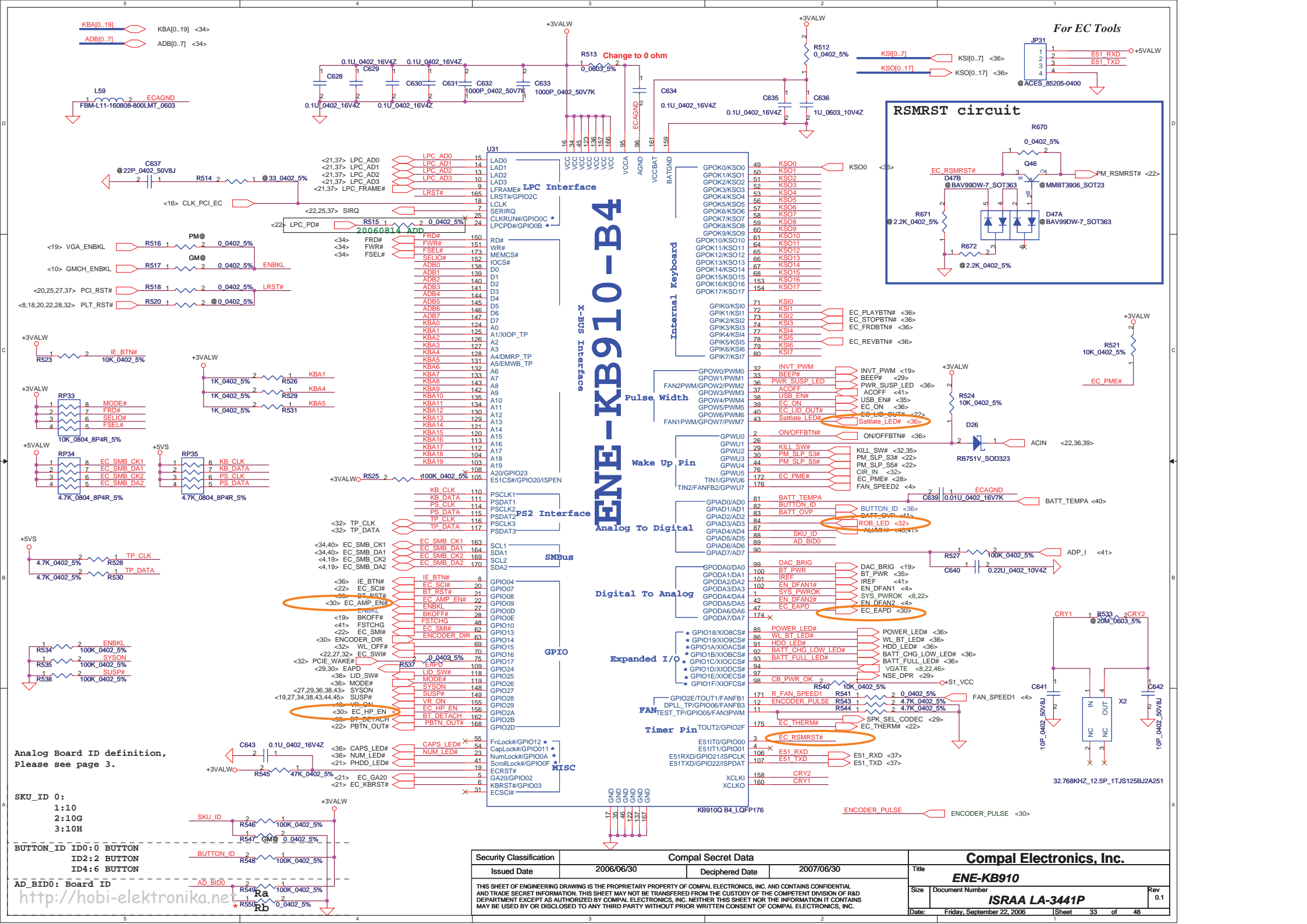
CIR

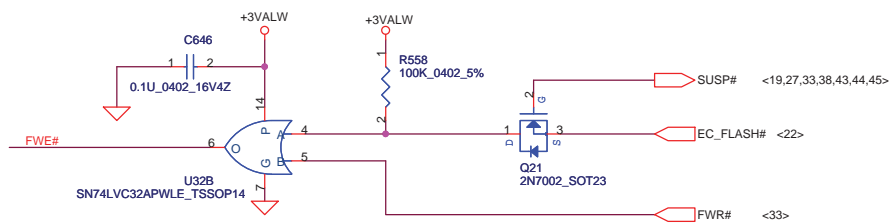
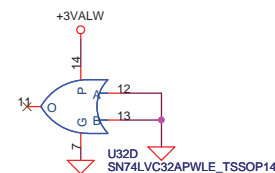
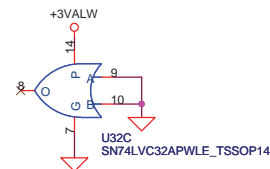
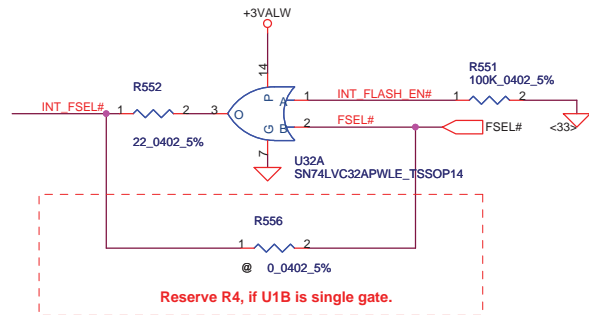


TP CONN.



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Deciphered Date				2007/06/30				ISRAA LA-344IP			
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Date:				Friday, September 22, 2006				Sheet 32 of 48			

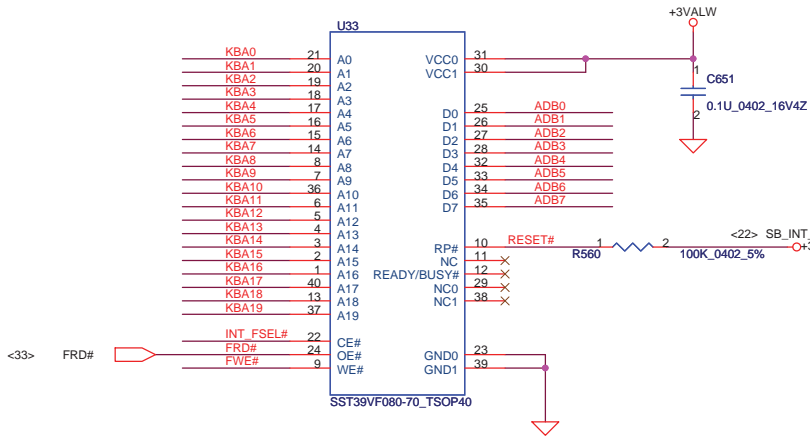




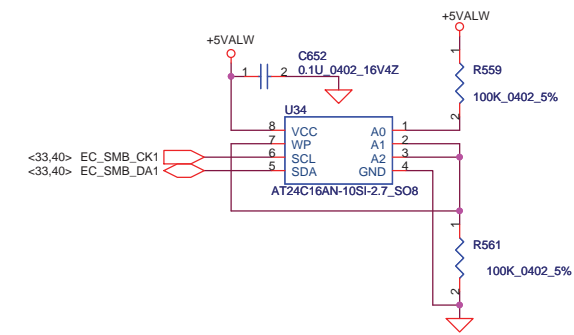
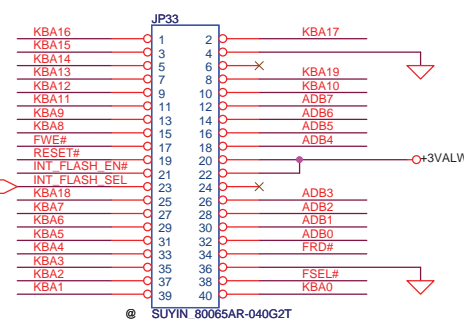
Module ID
Indication for polarity of reset
Reset input High Active --> Low ,
Reset input Low Active --> Open

<33> KBA[0..19] KBA[0..19]
<33> ADB[0..7] ADB[0..7]

1MB Flash ROM

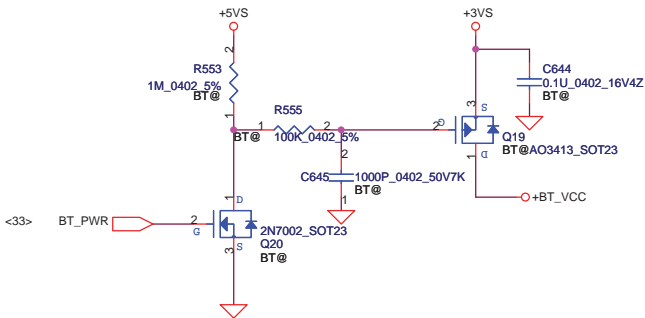


1MB ROM Socket

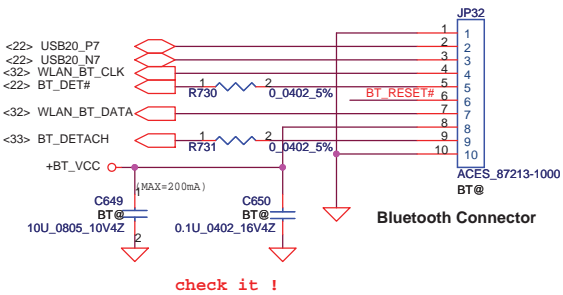
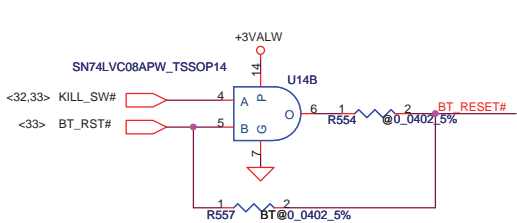


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BlueTooth Interface



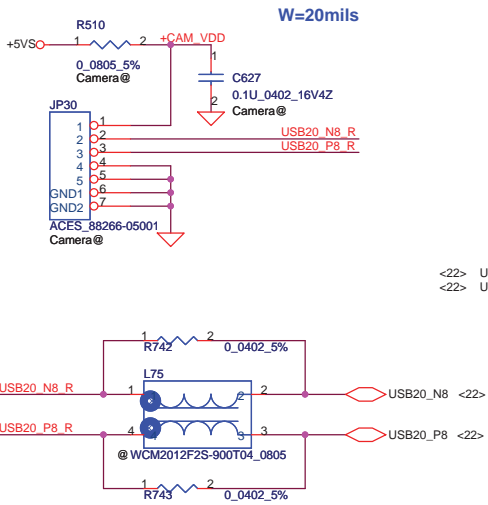
Change at 8/30



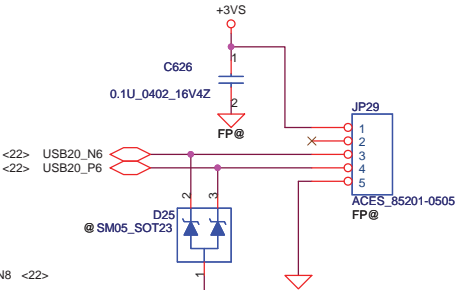
check it !

Bluetooth Connector

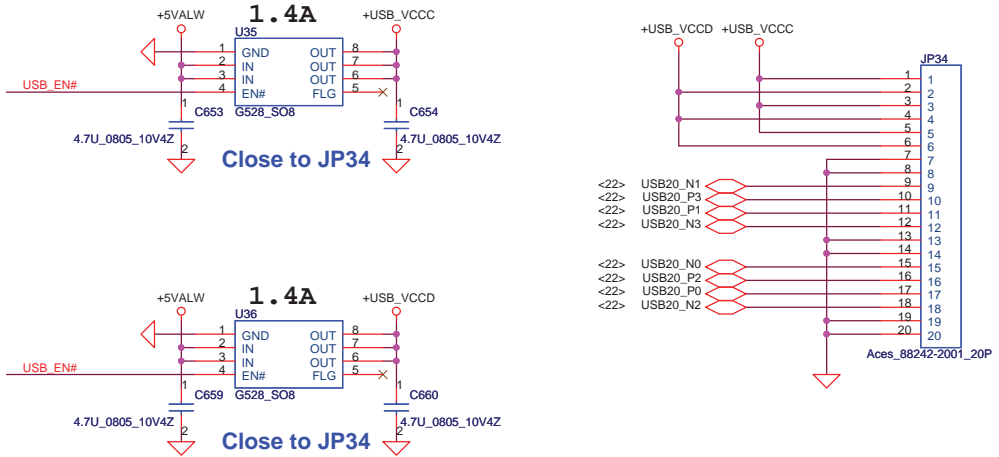
Int. Camera Conn



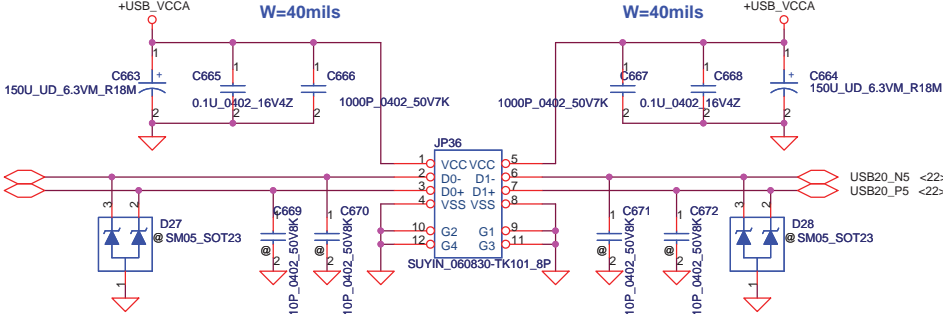
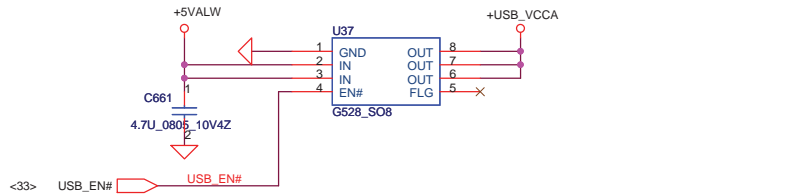
Finger printer Conn



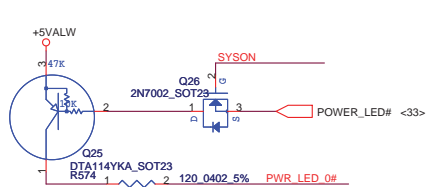
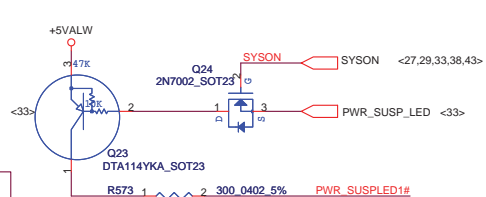
USB Board Right side 2x2 Port



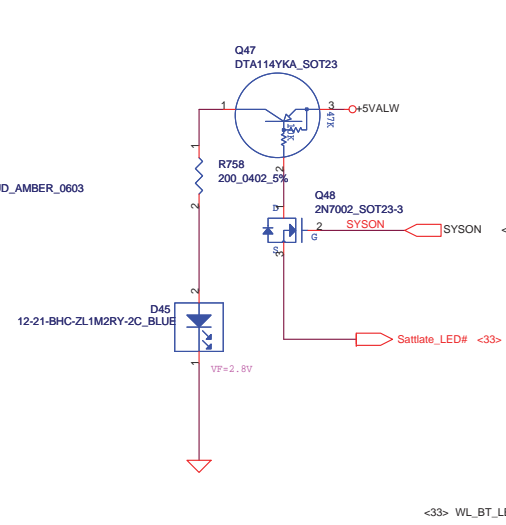
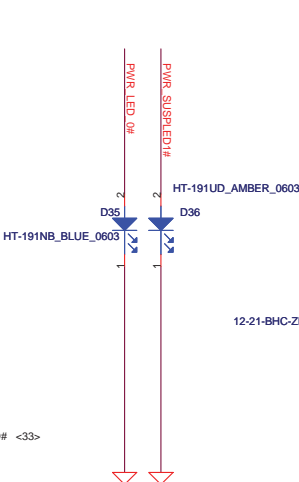
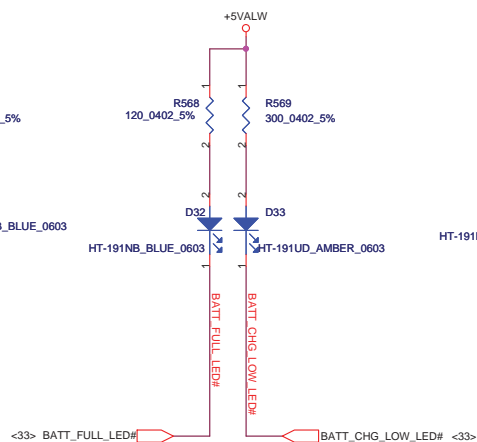
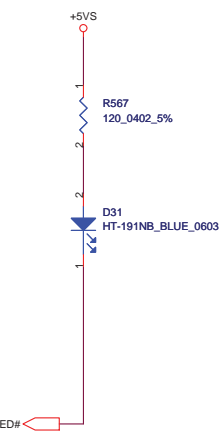
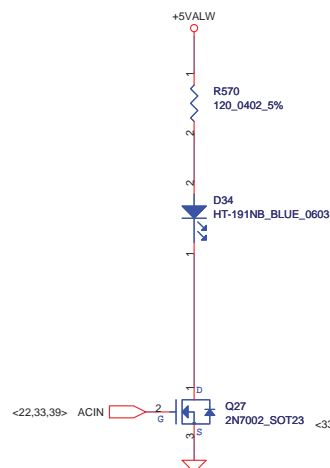
USB Conn Left side 1x2 Port



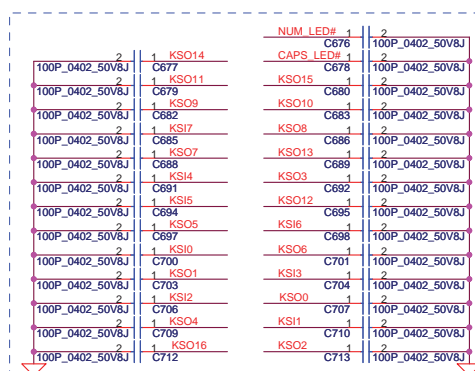
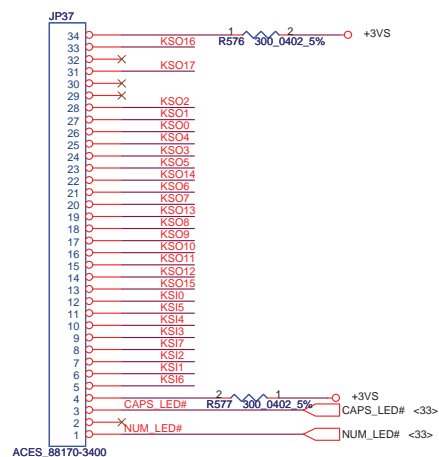
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Satellite logo LED

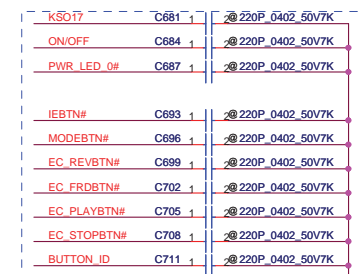
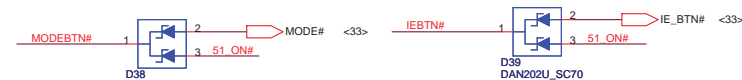


The schematic diagram illustrates the electrical connection between the SYSON pin and the WL_BT_LED# pin. A 5V supply (+5VALW) is connected to the anode of a diode (D37, HT-191UD_AMBER_0603) through a resistor (R571, 300 Ohms, 0402 5% tolerance). The cathode of the diode is connected to the WL_BT_LED# pin. The diode is labeled WLAN@.



Pin configuration diagram for the ACES_65201-1005N package. The package is shown with pins 1 through 12. Pin 1 is ON/OFF, pin 2 is KS00, pin 3 is MODEBTN#, pin 4 is KS11, pin 5 is KS12, pin 6 is KS13, pin 7 is KS15, pin 8 is BUTTON_ID, pin 9 is GND, pin 10 is GND, pin 11 is GND, and pin 12 is GND. The diagram also shows the internal connections for the KS00, KS11, KS12, KS13, KS15, and BUTTON_ID pins to the ACES_65201-1005N package.

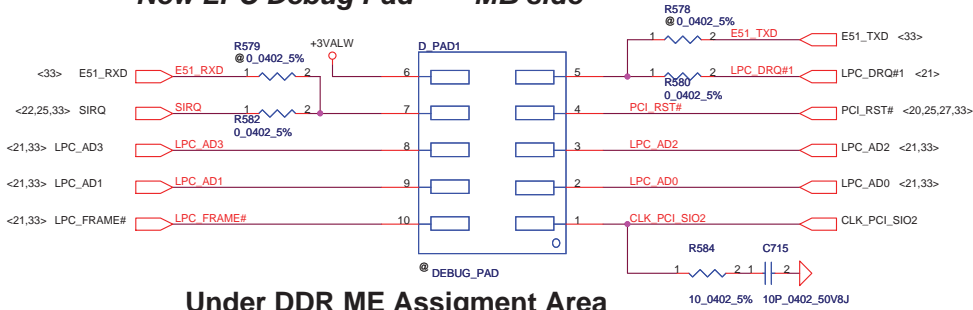
Pin	Signal	Internal Connection
1	ON/OFF	
2	KS00	KS00 <33>
3	MODEBTN#	
4	KS11	EC_PLAYBTN# <33>
5	KS12	EC_STOPBTN# <33>
6	KS13	EC_FRDBTN# <33>
7	KS15	EC_REVBTN# <33>
8	BUTTON_ID	BUTTON_ID <33>
9	GND	
10	GND	
11	GND	
12	GND	



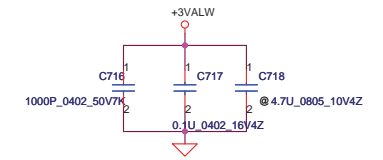
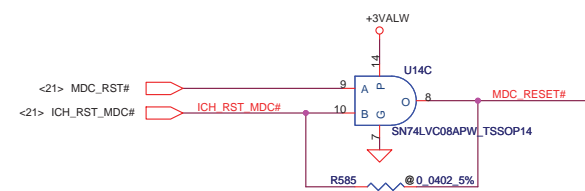
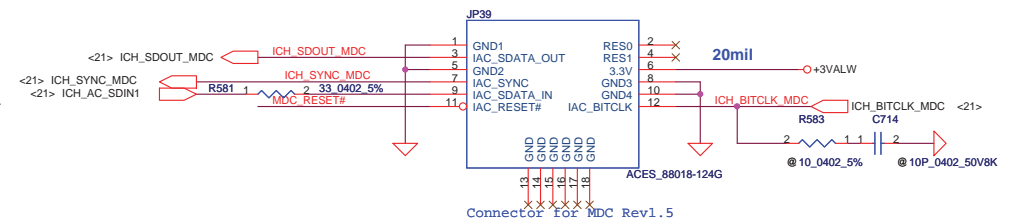
For EMI Request

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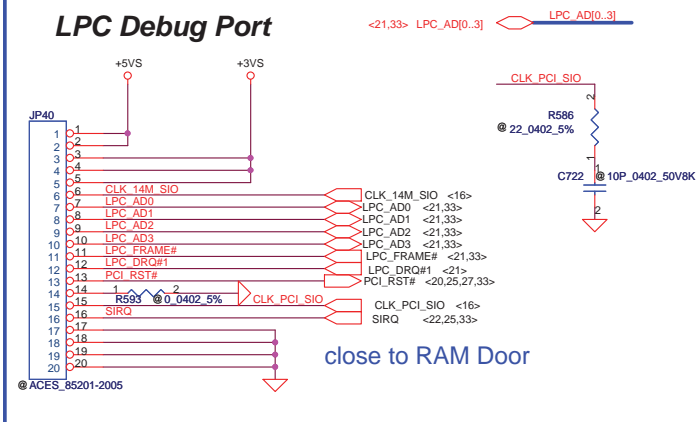
New LPC Debug Pad ---- MB side



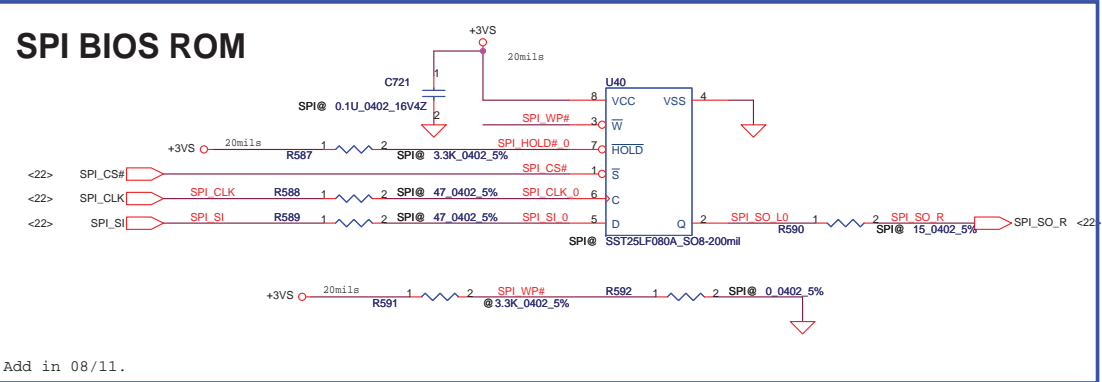
MDC Conn.



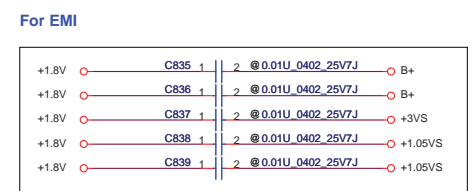
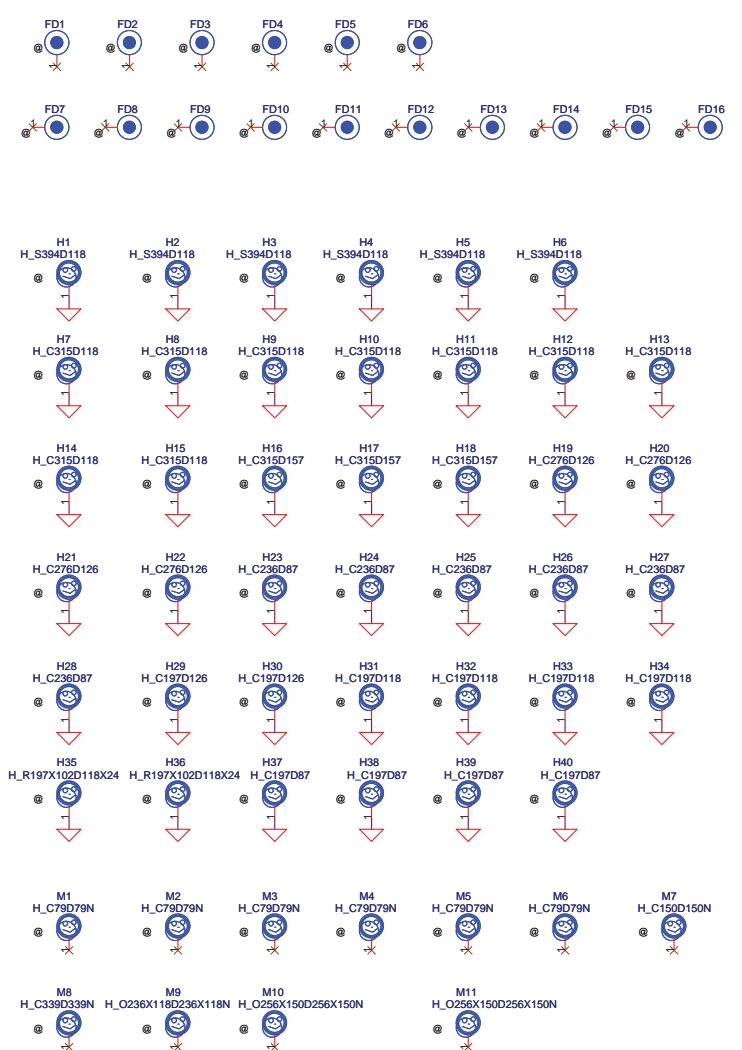
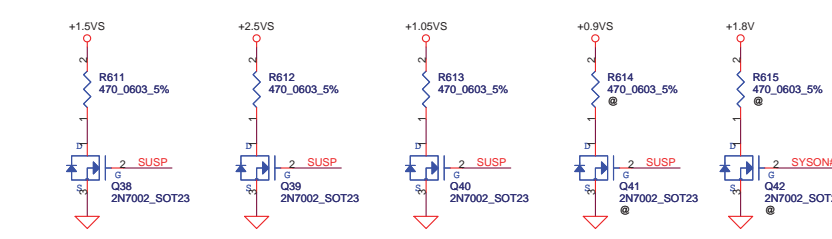
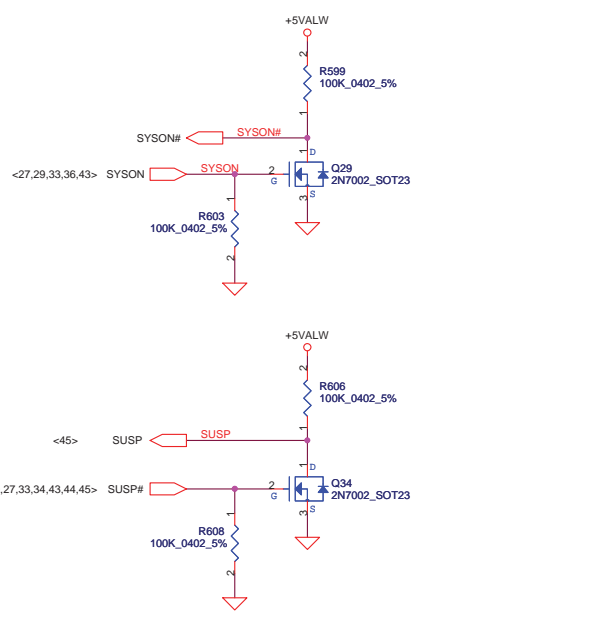
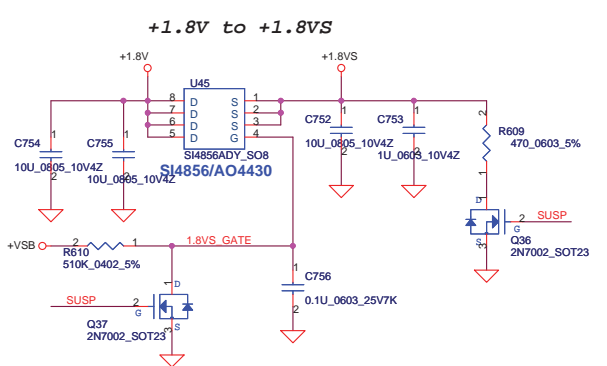
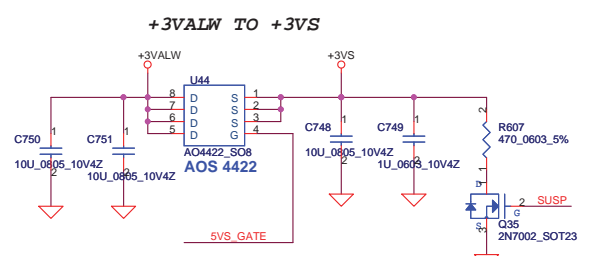
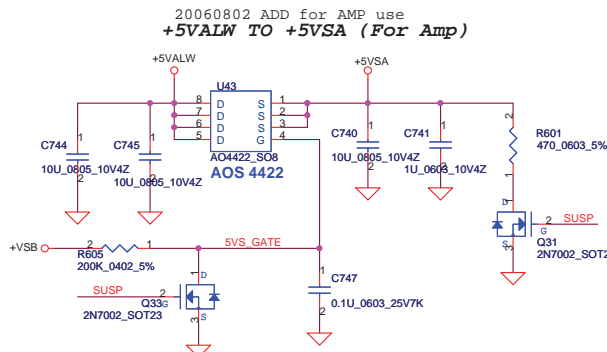
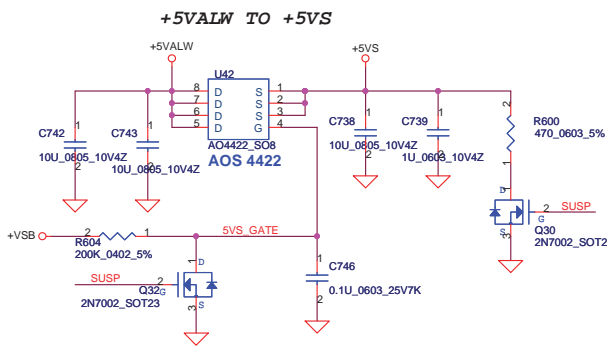
LPC Debug Port



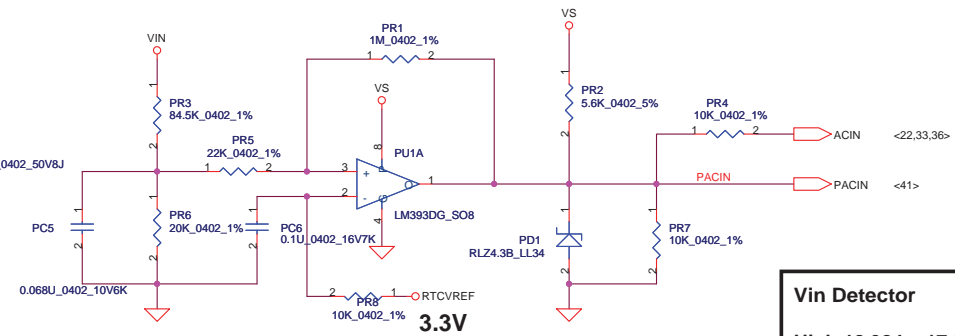
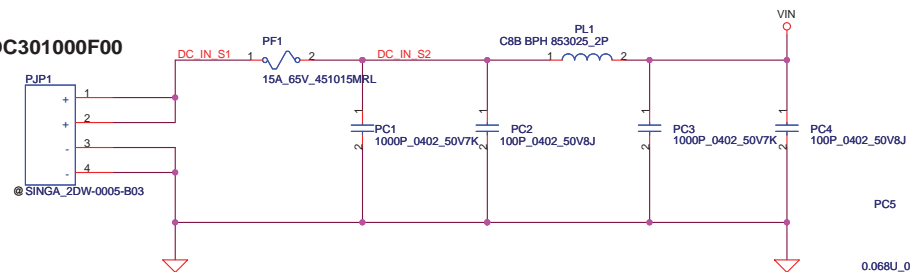
SPI BIOS ROM



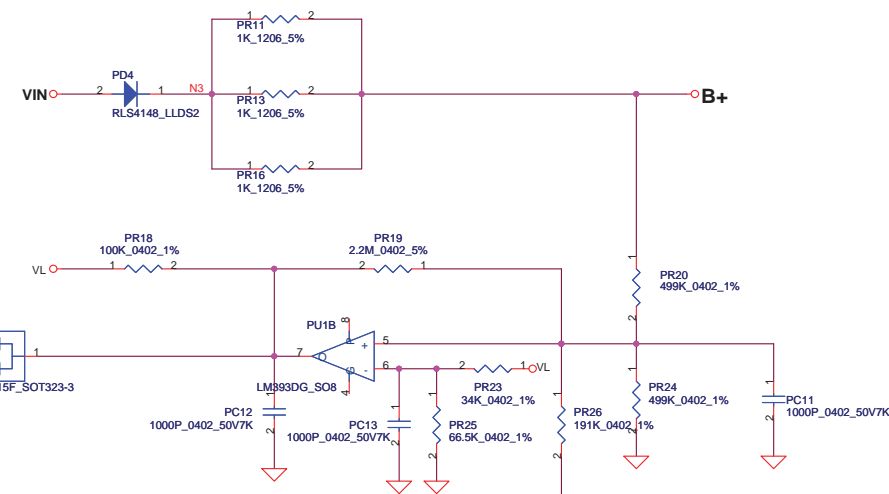
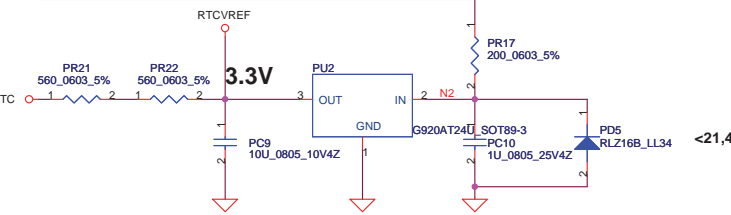
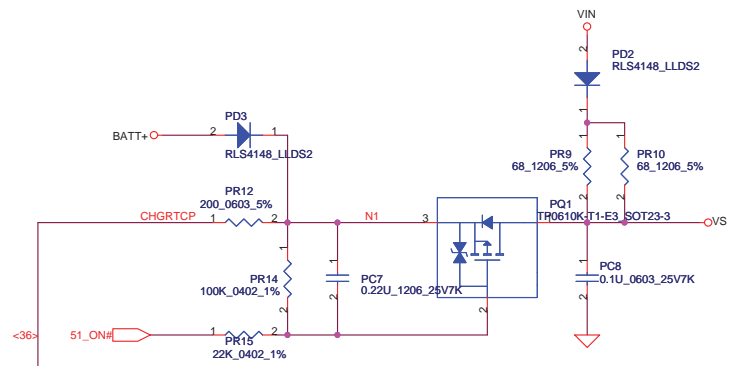
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DC301000F00

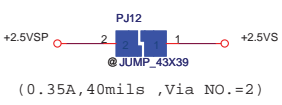
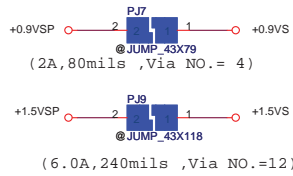
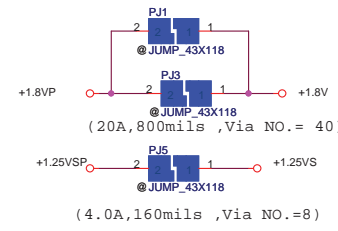
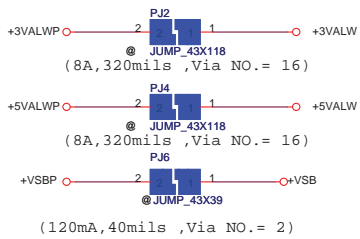


Vin Detector			
High	18.384	17.901	17.430
Low	17.728	17.257	16.976



<21,40,42> MAINPWON
<41> ACON

Precharge detector
15.97V/14.84V FOR
ADAPTOR

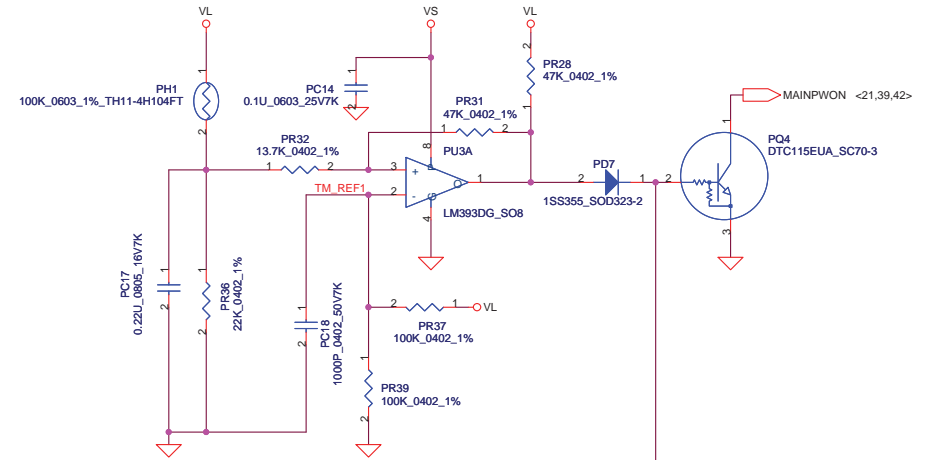


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								0.1			

PH1 under CPU botten side :

CPU thermal protection at 84 degree C

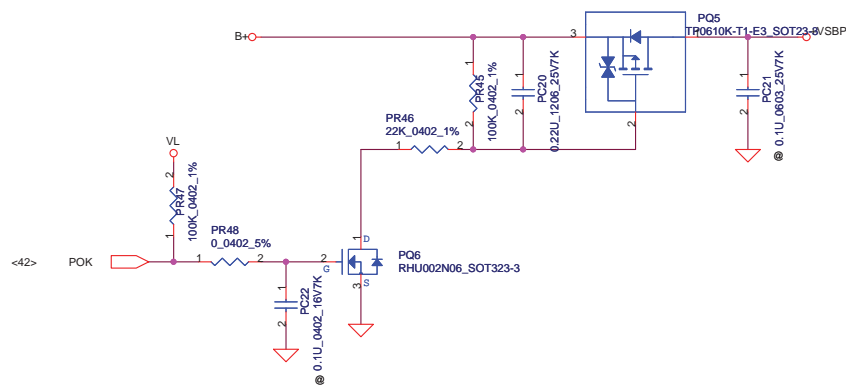
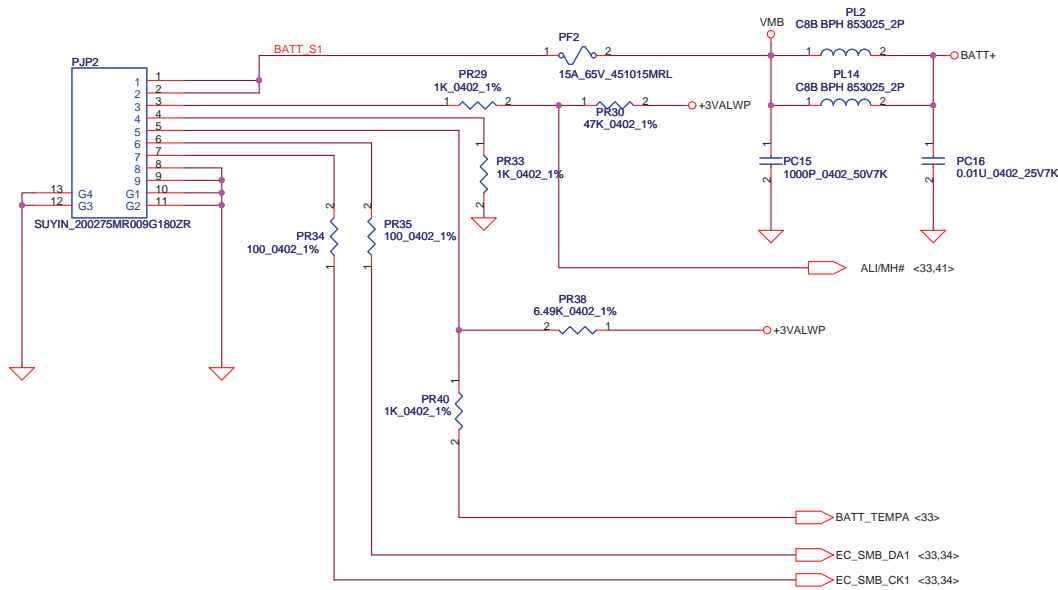
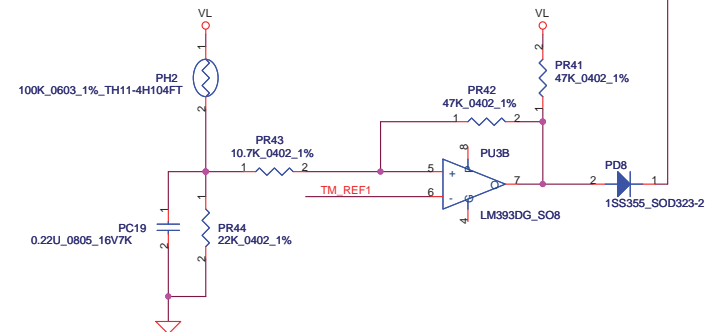
Recovery at 45 degree C



PH2 near main Battery CONN :

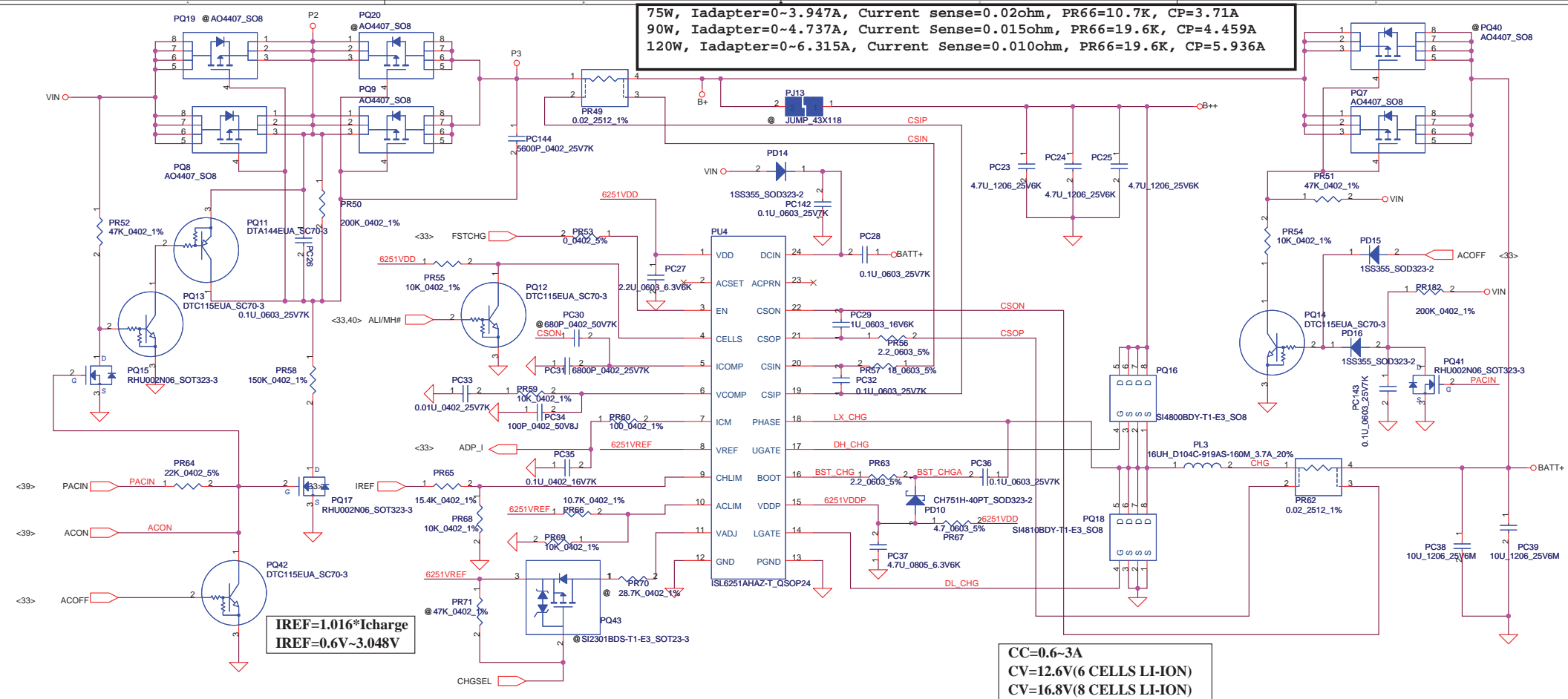
BAT. thermal protection at 79 degree C

Recovery at 45 degree C

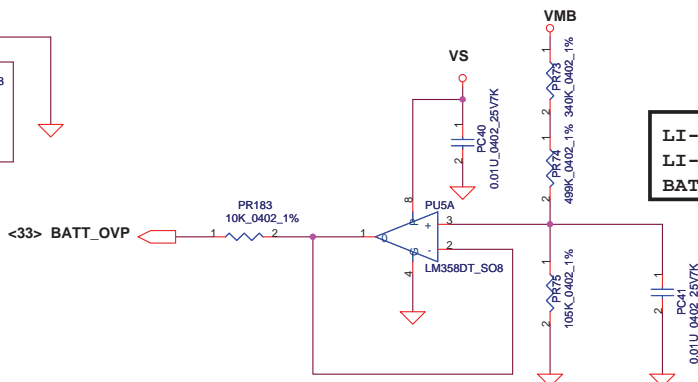
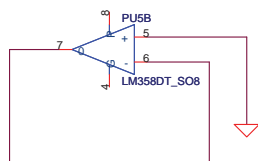


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75W, Iadapter=0~3.947A, Current sense=0.02ohm, PR66=10.7K, CP=3.71A
 90W, Iadapter=0~4.737A, Current Sense=0.015ohm, PR66=19.6K, CP=4.459A
 120W, Iadapter=0~6.315A, Current Sense=0.010ohm, PR66=19.6K, CP=5.936A

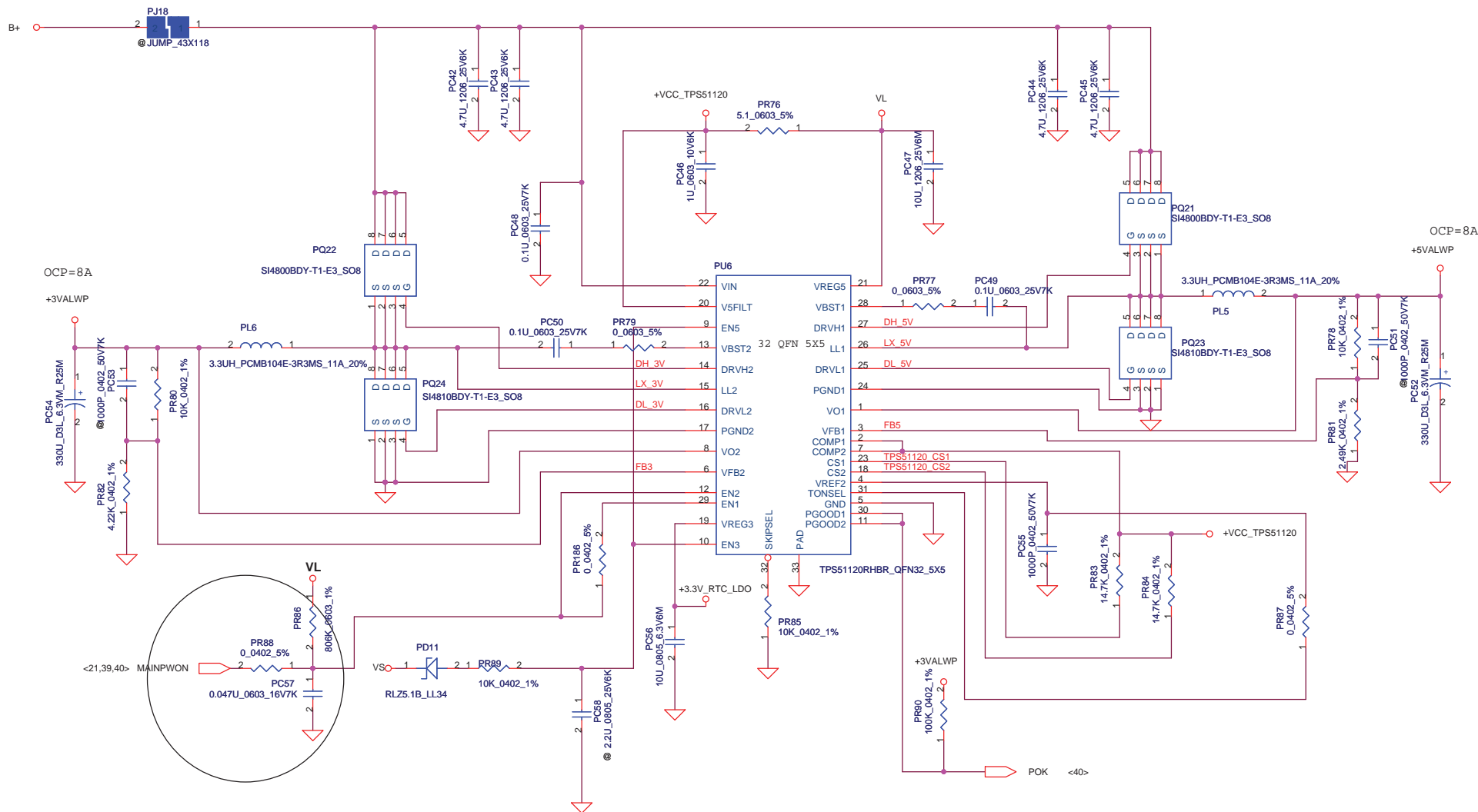


BATT Type	ALI/MH#	CELLS	Charge Current	IREF
4S2P	0V	HIGH	3A	3.048V
3S2P	2.5V	LOW	3A	3.048V
4S1P	0V	HIGH	1.5A	1.524V
Trickle Charge = 600mA				0.61V

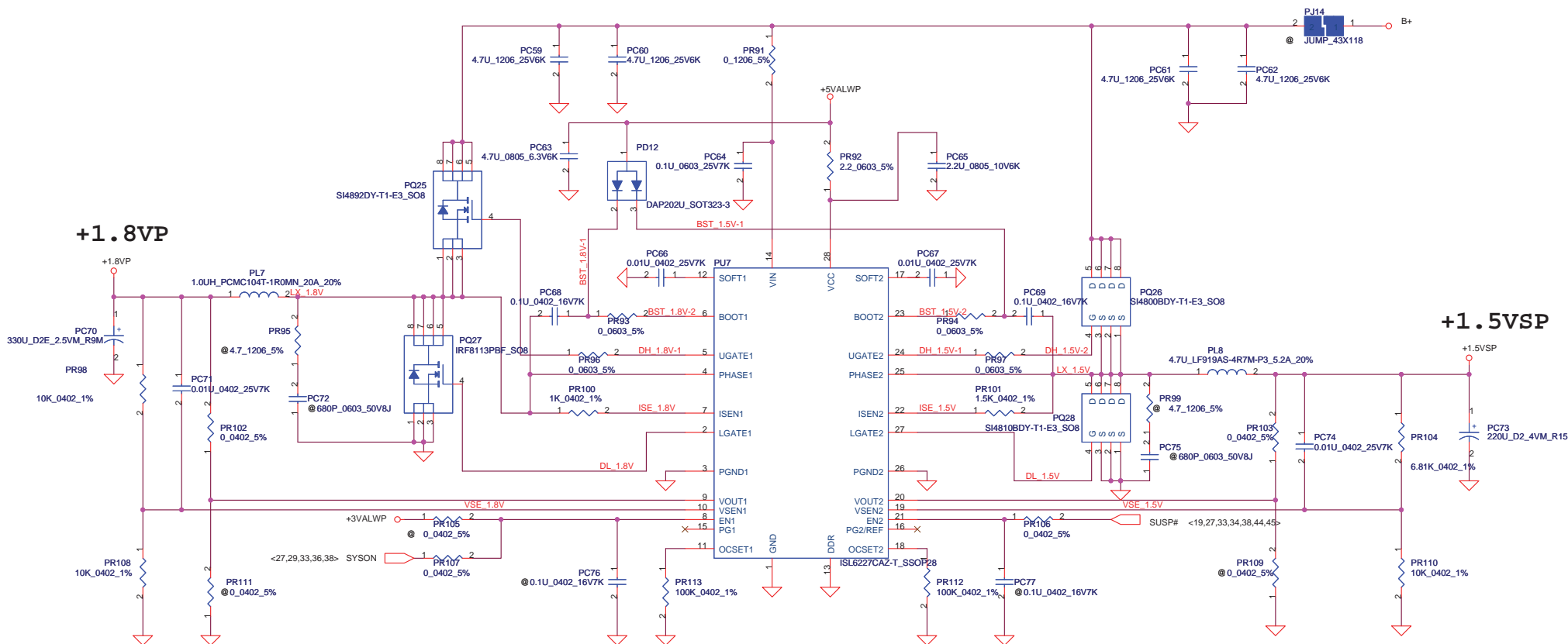


LI-3S :13.5V----BATT-OVP=1.5V
 LI-4S :18V----BATT-OVP=2V
 BATT-OVP=0.111*BATT+

BATT Type	Charging Voltage (0x15)	ALI/MH#	CHGSEL	CV mode
2800mAH 4S pack	17400mV	LOW	LOW	17.20V
2800mAH 3S pack	13050mV	HIGH	LOW	12.90V
Normal 4S LI-ON Cells	16800mV	LOW	HIGH	16.80V
Normal 3S LI-ON Cells	12600mV	HIGH	HIGH	12.60V
Wake up charge while no communication		HIGH	HIGH	12.60V

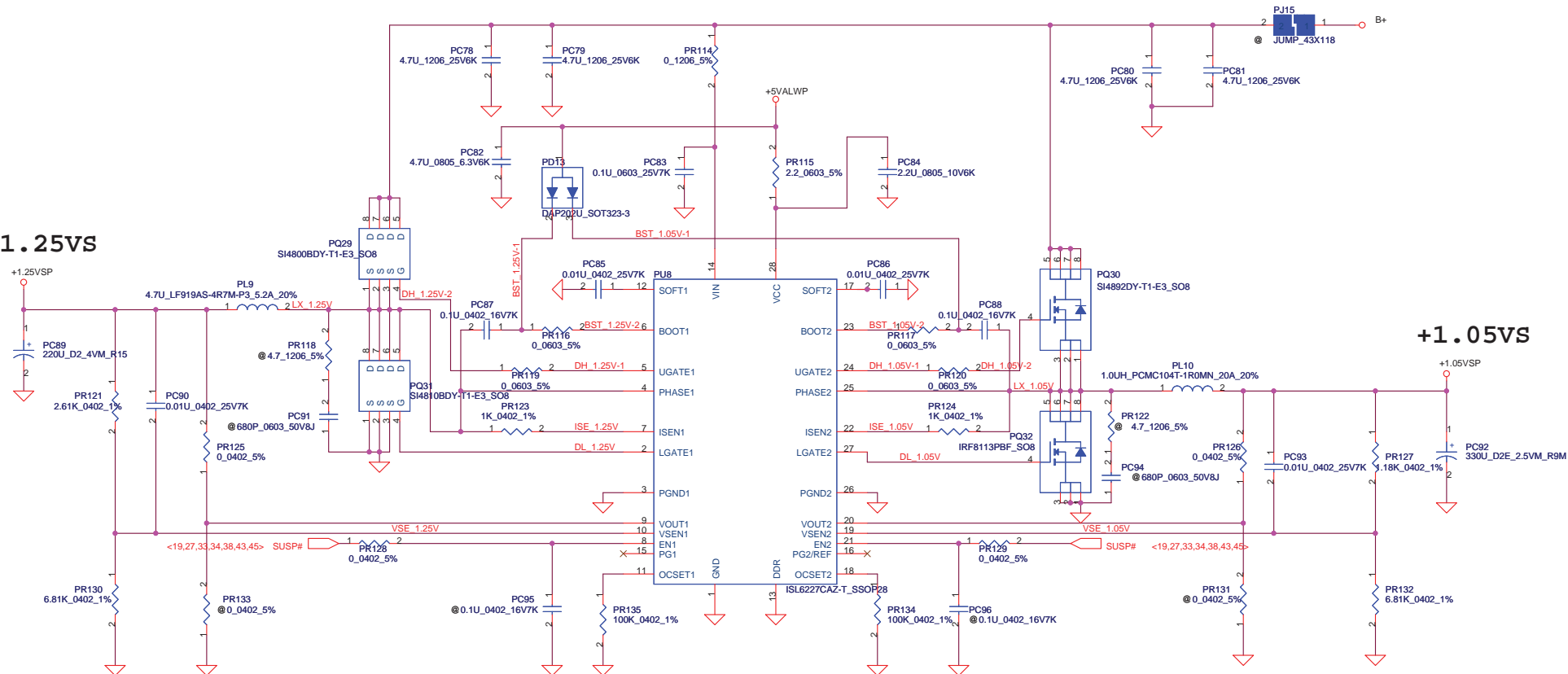


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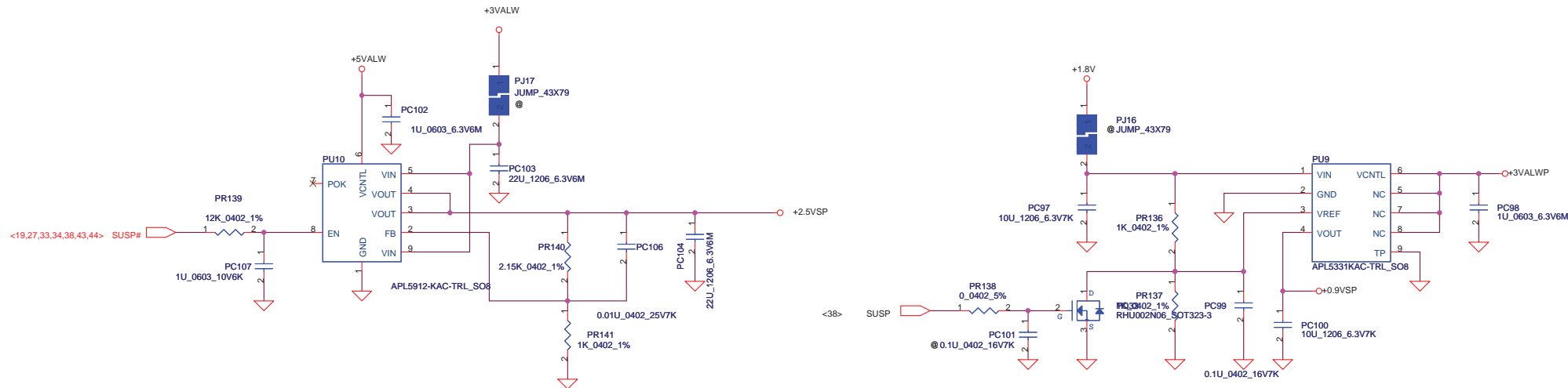


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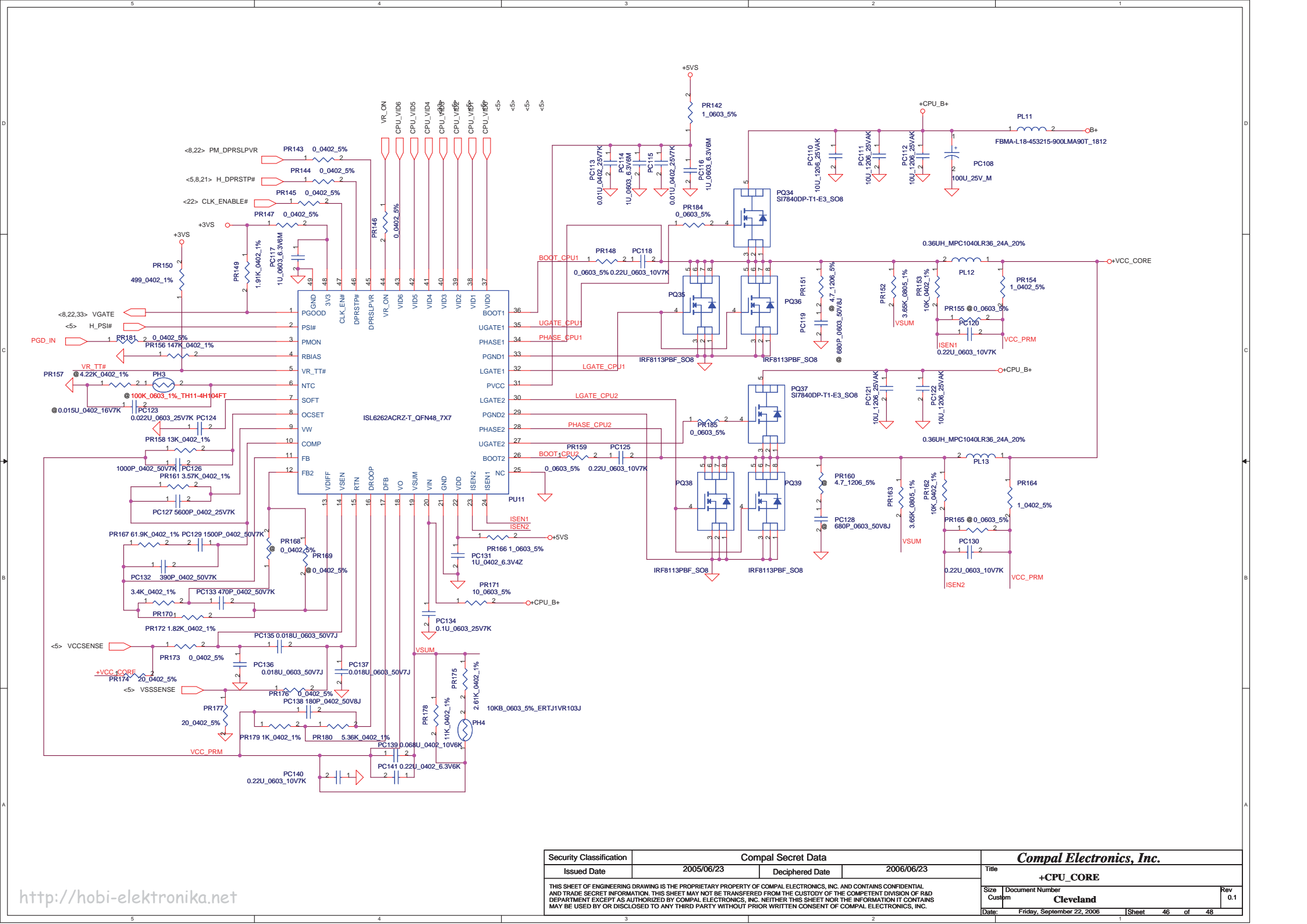
+1.25VS



+1.05VS



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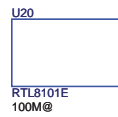


HW4 Product Improvement Record (P.I.R.)

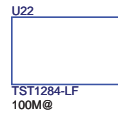
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Page #	Action Plan (add; del; change)	Location or Net_List	Before value (Attached file)	After value (Attached file)	Detail Discretion and Root Cause	Rev.	DL/DM Check

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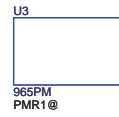
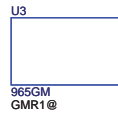
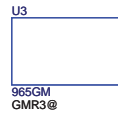
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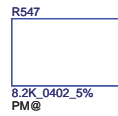
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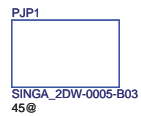
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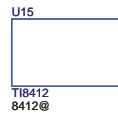
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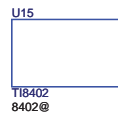
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