

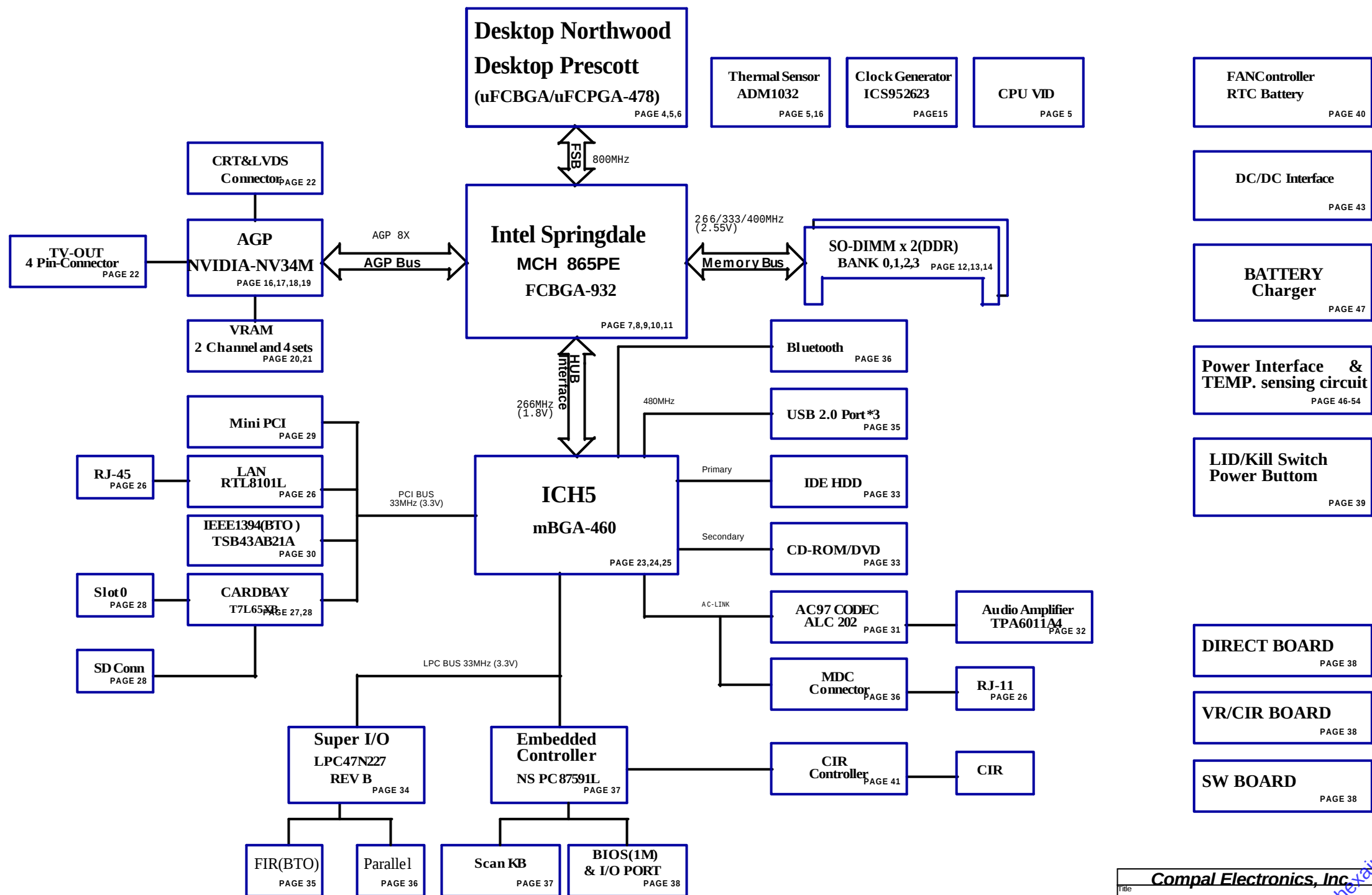
SAPPORO 150 (DAL00)

LA-1911 REV1.0 Schematic

Desktop Prescott/Northwood uFCPGA-478 CPU
Springdale(865PE)+ICH5+nVIDIA NV34M(64MB VRAM)
2003-08-06

Compal Electronics, Inc.			
Title			
Cover Page			
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DAL00 LA-1911 BLOCK DIAGRAM



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	Core voltage for CPU	ON	OFF	OFF
+CPU_VID	1.2V switched power rail for CPU AGTL Bus	ON	OFF	OFF
+VTT_GMCH	+1.225V (Prescott) / +1.45V (Northwood)	ON	OFF	OFF
+VGA_CORE	1.2V/1.5V switched power rail for VGA chip	ON	OFF	OFF
+1.25VS	1.25V switched power rail	ON	OFF	OFF
+1.5VS	AGP 4X/8X	ON	OFF	OFF
+2.5V	2.5V power rail	ON	ON	OFF
+2.5VS	2.5V switched power rail	ON	OFF	OFF
+3VALW	3.3V always on power rail	ON	ON	ON*
+3V	3.3V power rail	ON	ON	OFF
+3VS	3.3V switched power rail	ON	OFF	OFF
+5VALW	5V always on power rail	ON	ON	ON*
+5V	5V power rail	ON	ON	OFF
+5VS	5V switched power rail	ON	OFF	OFF
+12VALW	12V always on power rail	ON	ON	ON*
+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	IDSEL#	REQ#/GNT#	Interrupts
VGA	AD16		PIRQA
CardBus	AD20	2	PIRQA/PIRQB/PIRQC/PIRQD
LAN	AD17	3	PIRQF
Mini-PCI	AD18	1/4	PIRQG/PIRQH
1394	AD16	0	PIRQE
SD	AD22		PIRQA/PIRQB/PIRQC/PIRQD

EC SM Bus1 address

Device	Address	Device	Address
Smart Battery	0001 011X b	ADM1032	1001 110X b
EEPROM(24C16/02)	1010 000X b		
(24C04)	1011 000Xb		

EC SM Bus2 address

ICH5 SM Bus address

Device	Address
Clock Generator (ICS 952623)	1101 001Xb
DDR DIMM0	1010 000Xb
DDR DIMM2	1010 010Xb

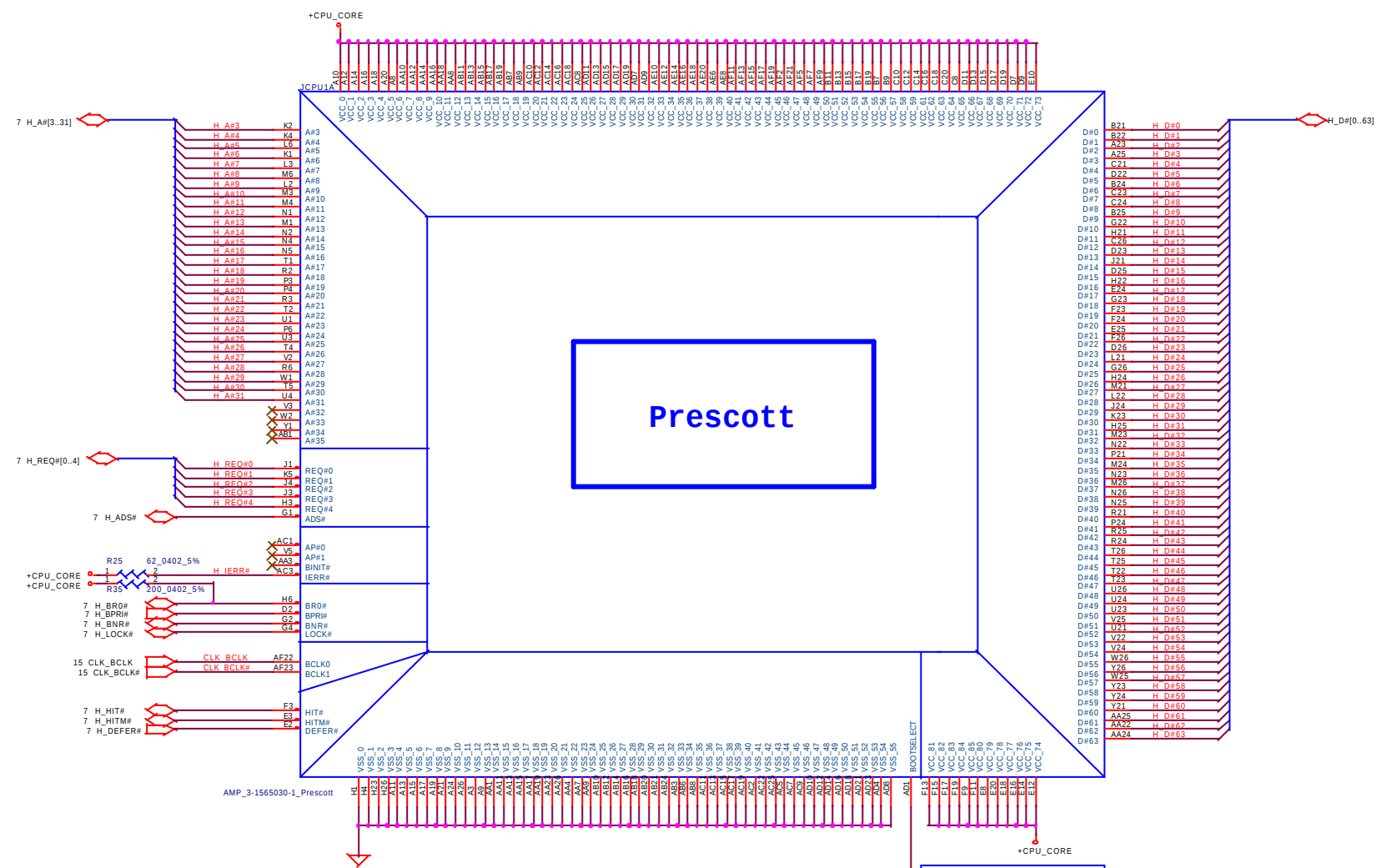
STATE \ SIGNAL	SLP_S1#	SLP_S3#	SLP_S4#	SLP_S5#	+VALW	+V	+VS	Clock
Full ON	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S1(Power On Suspend)	LOW	HIGH	HIGH	HIGH	ON	ON	ON	LOW
S3 (Suspend to RAM)	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S4 (Suspend to Disk)	LOW	LOW	LOW	HIGH	ON	OFF	OFF	OFF
S5 (Soft OFF)	LOW	LOW	LOW	LOW	ON	OFF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

Board ID Table for AD channel

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

Board ID	PCB Revision
0	0.1
1	
2	
3	
4	
5	
6	
7	

Compal Electronics, Inc.			
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Notes			
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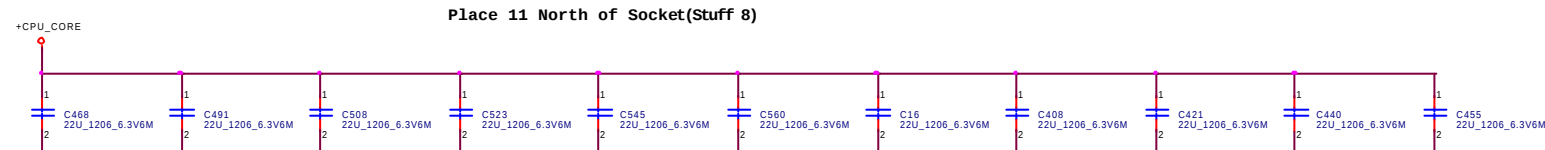
Reference Intel document
Desktop P4 Spec.: 10988 P4 0.13u 512KB L2 EMTS Rev.2.0
Desktop Prescott Spec.: 11910 Prescott EMTS Rev.0.5

Pin number	Northwood Pin name	Comment	Prescott Pin name	Comment	Northwood	Prescott
B6	FERR#	Pull-up 62ohm to +VCC_CORE	FERR#/PBE#	Pull-up 62ohm to +VCC_CORE	Pop	Pop
AA20	ITPCLKOUT0	Pull-up 56ohm to +VCC_CORE	TESTHI6	Pull-up 62ohm to +VCC_CORE	Pop	Pop
AB22	ITPCLKOUT1	Pull-up 56ohm to +VCC_CORE	TESTHI7	Pull-up 62ohm to +VCC_CORE	Pop	Pop
AD2	NC	float	VIDPWRGD	Pull-up 8.2Kohm to +VCCVID	Depop	Pop
AD3	NC	float	VID5	Pull-up 1Kohm to +3VRUN & connect to PWRIC	Depop	Pop
AF3	NC	float	VCCVIDLB	Connect to +VCCVID	Depop	Pop
AD20	VCCA	Connect to CPU Filter	VCCIOPLL	Connect to CPU Filter		
AF23	VCCIOPLL	Connect to CPU Filter	VCCA	Connect to CPU Filter		
AD1	VSS	Connect to GND	BOOTSELECT	CPU determine	Pop	Depop
AE26	VSS	Connect to GND	OPTIMIZED/COMPAT#	float	Pop	Depop

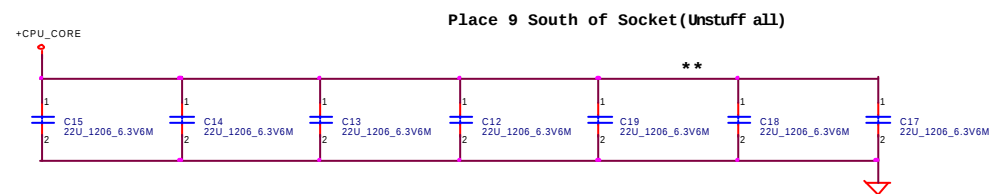
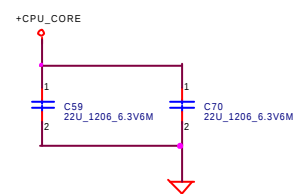
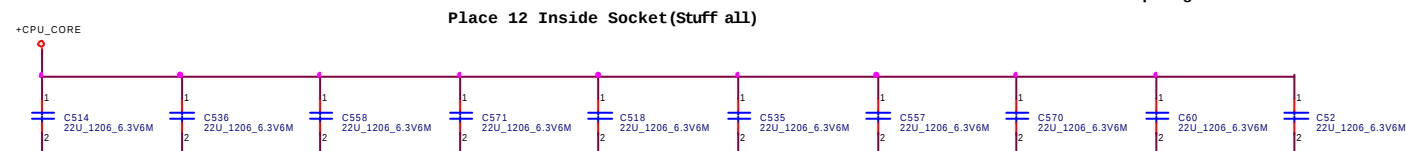
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Compal Electronics, Inc. Prescott Processor in uFCPGA478 (1/2)	
Title LA-1911	Document Number LA-1911
Date Friday, August 08, 2003	Rev 0.2

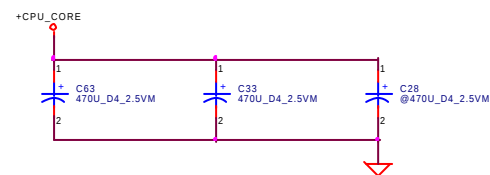
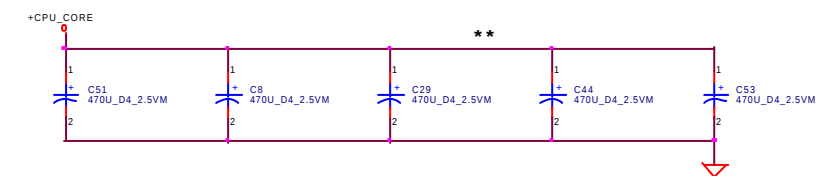
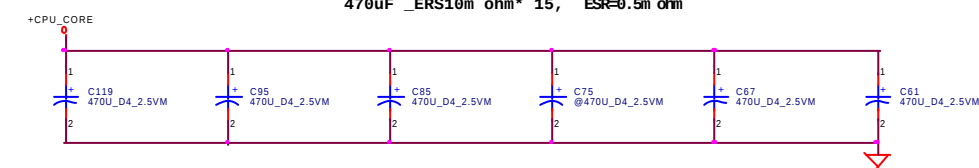
mailto:alexainf@hotmail.com



22uF deppop reference
Springdale Customer Schematic R1.2 page82



470uF _ERS10m ohm* 15, ESR=0.5m ohm

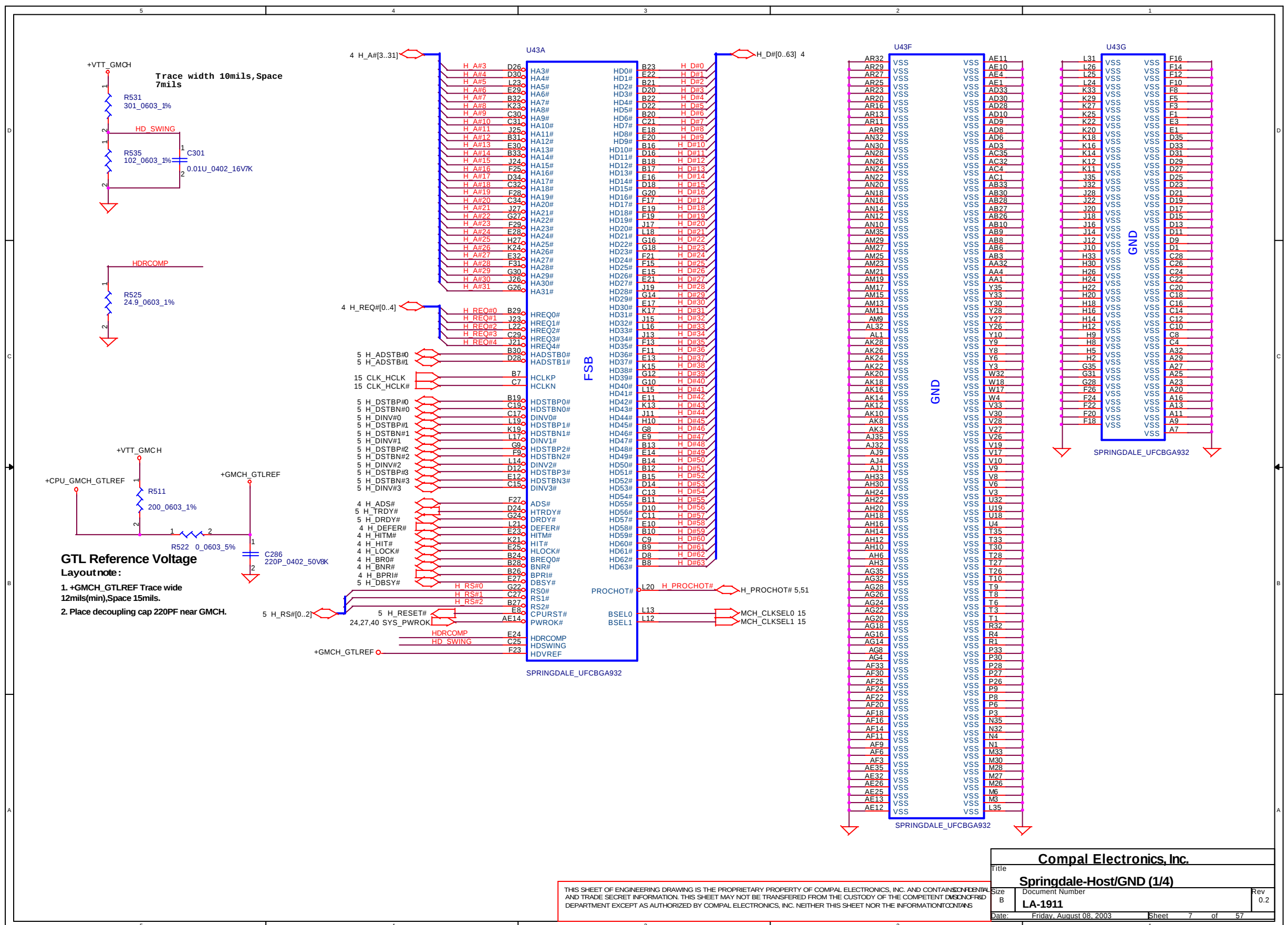


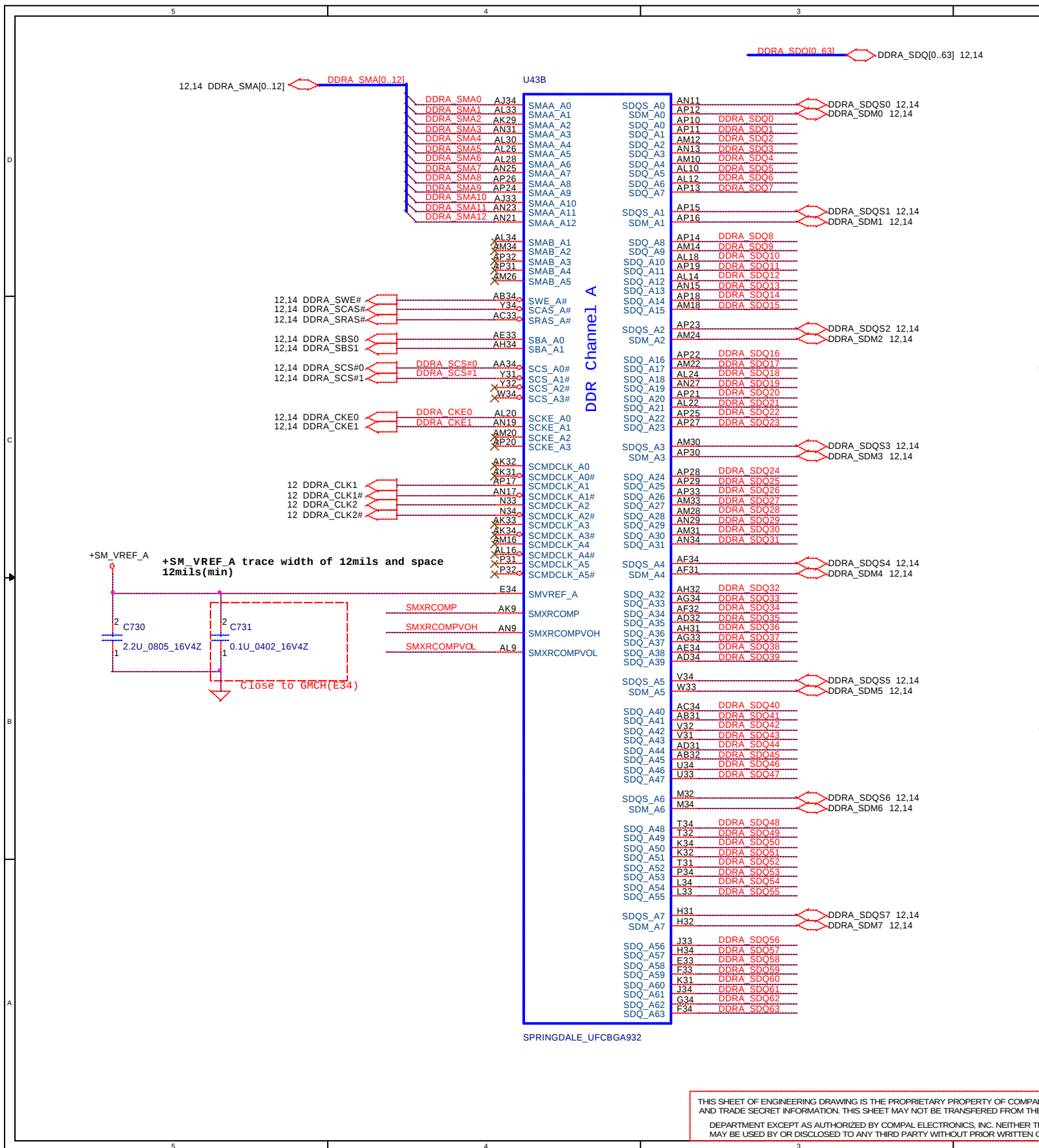
Decoupling Reference Document:
Springdale Chipset Platform Design guide Rev1.11
(12474)page239

Decoupling Reference Requirement:
560uF Polymer, ESR:5m ohm(each) * 10
22uF X5R * 32

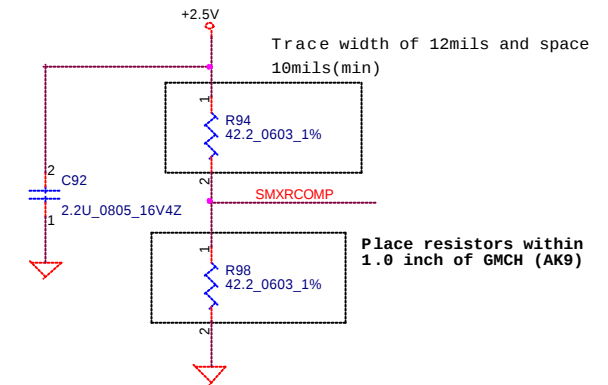
Compal Electronics, Inc.			
CPU Decoupling			
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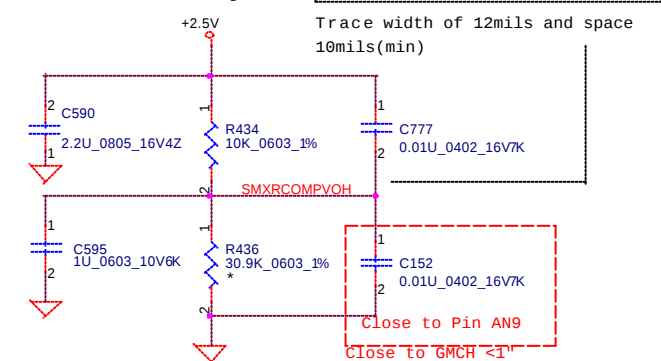




DDR Resistive Compensation

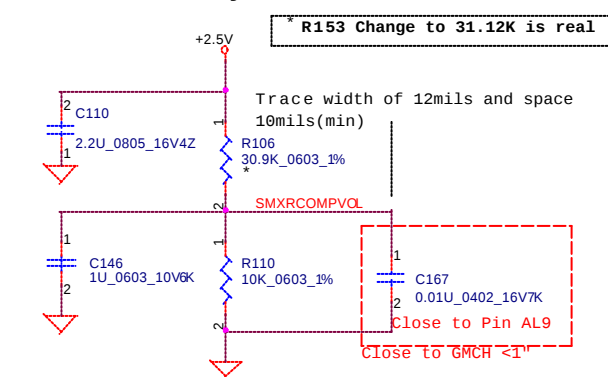


DDR RCOMP VOH Circuitry



Follow Intel design guide R1.11(12474) page124,125

DDR RCOMP VOL Circuitry

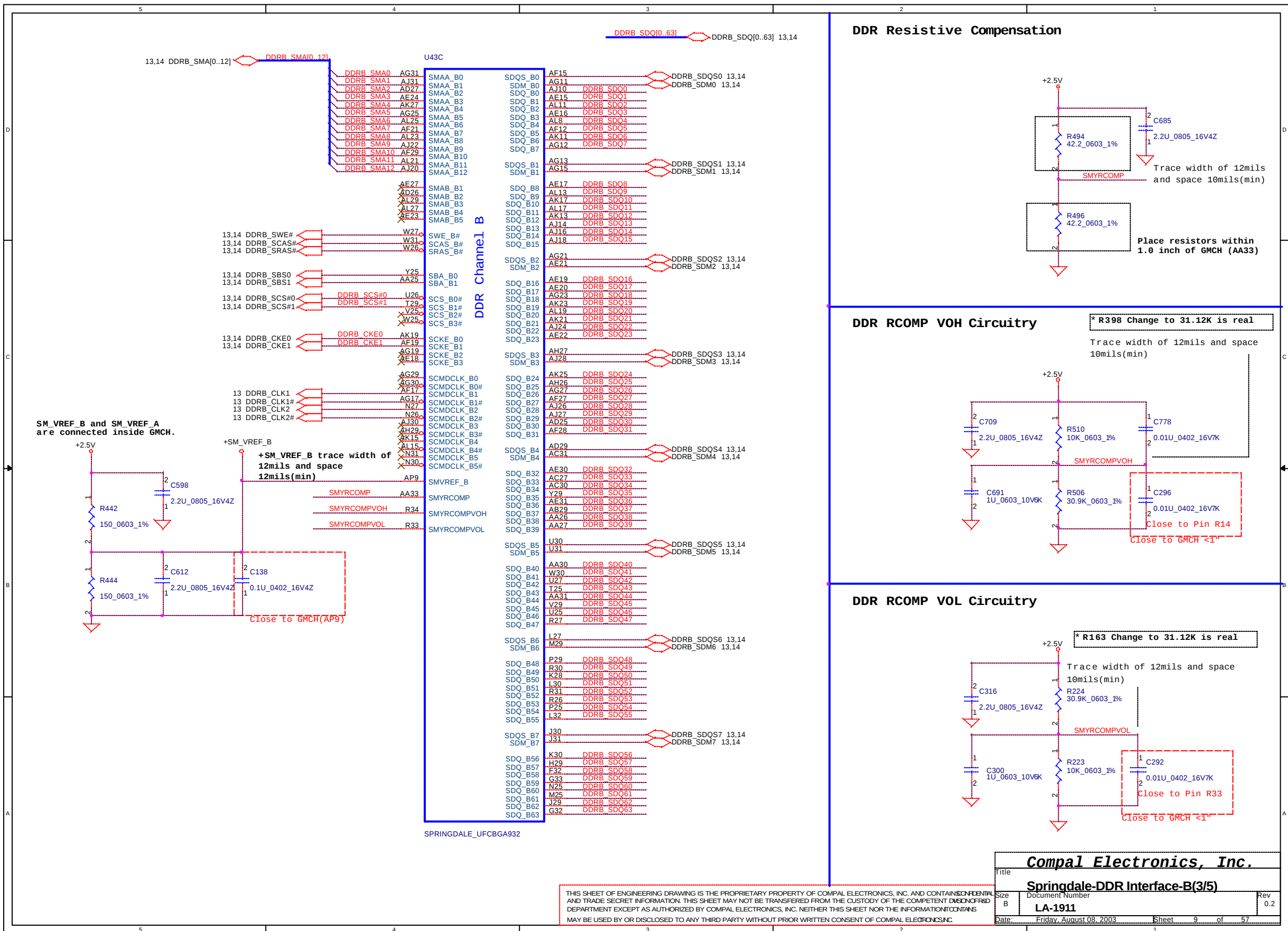


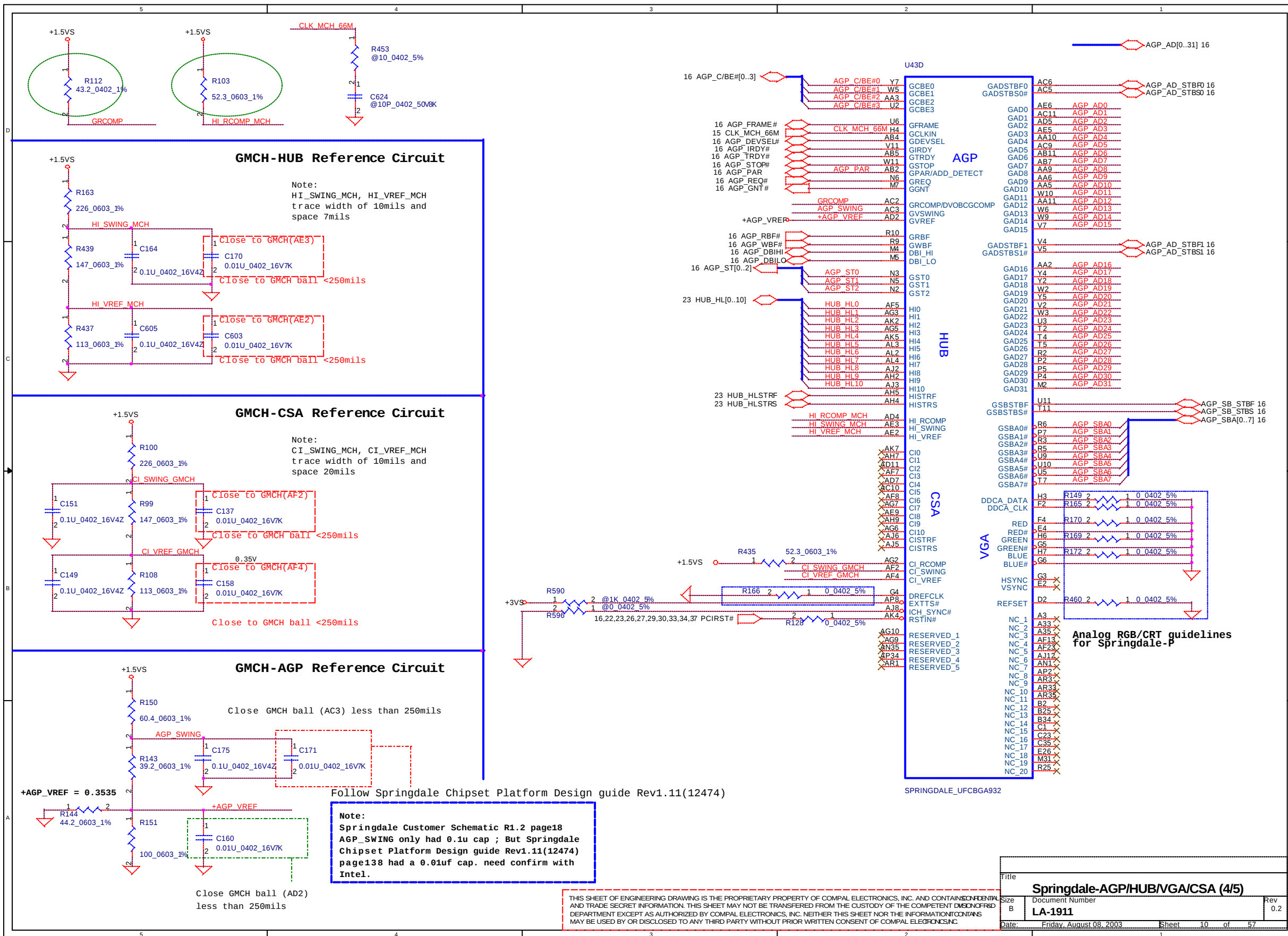
Compal Electronics, Inc.

Springdale-DDR Interface-A(2/5)

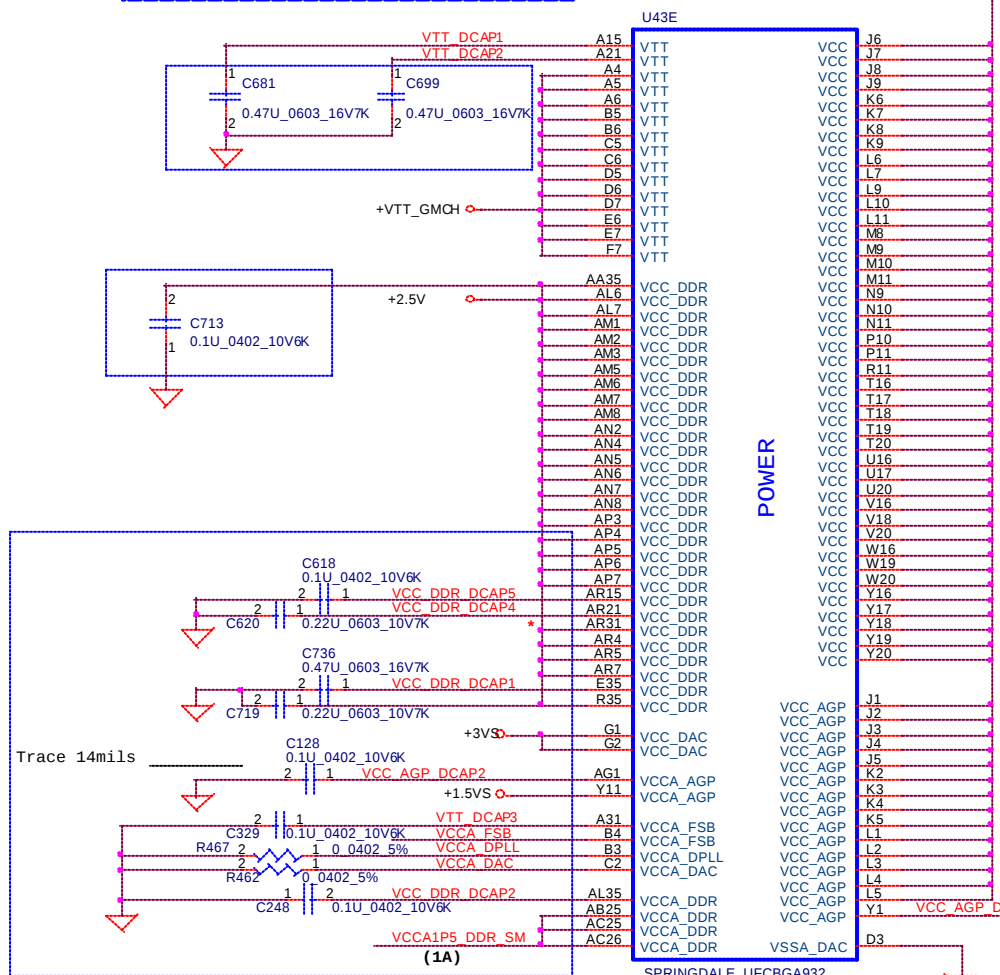
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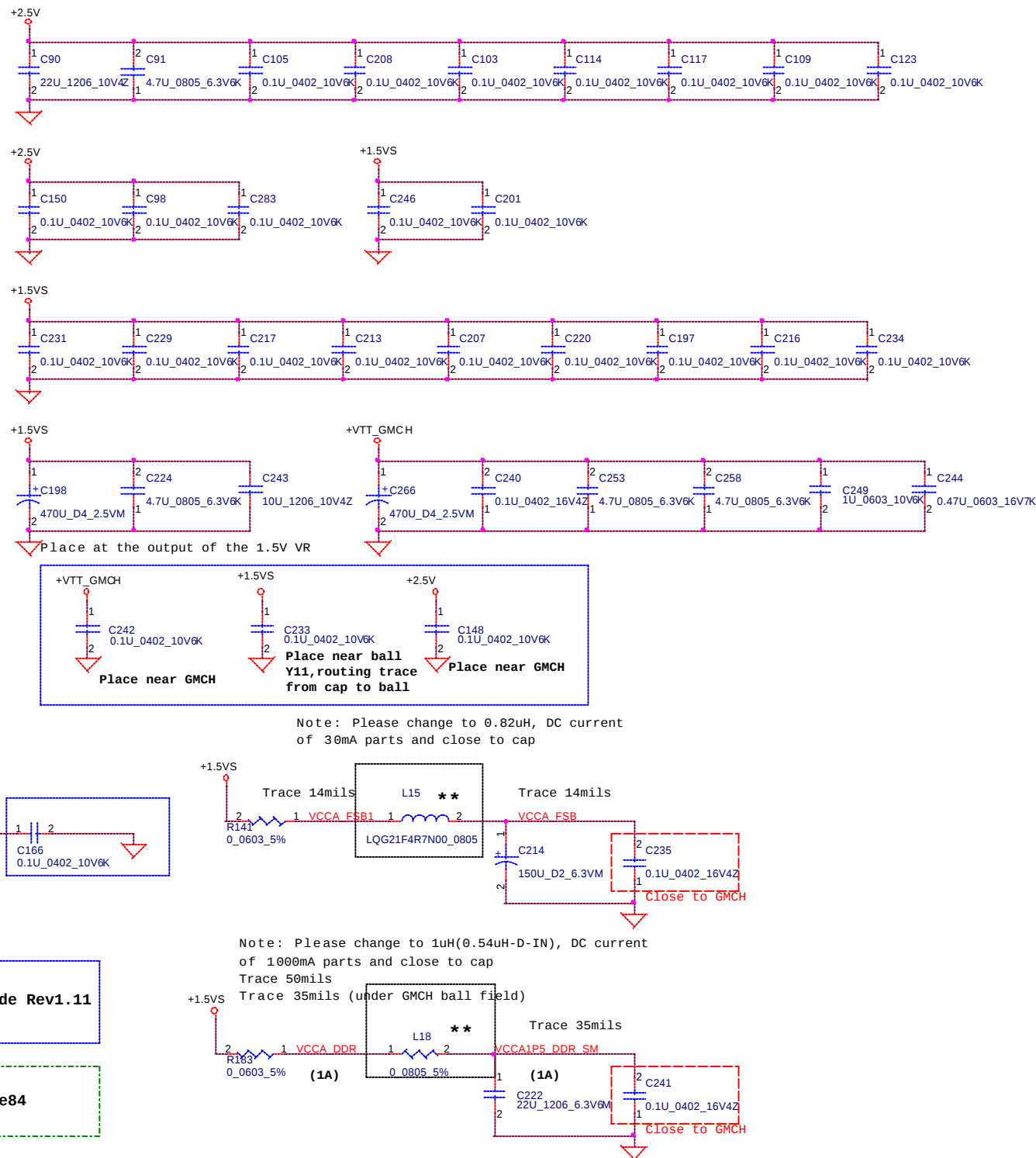
Note:
Placed less than 100 mils from ball
Route to GMCH ball without via



Note:
Placed less than 100 mils from ball
Route to GMCH ball without via

Decoupling Reference Document:
Springdale Chipset Platform Design guide Rev1.11
(12474)page246,248

Decoupling Reference Document:
Springdale Customer Schematic R1.2 page84

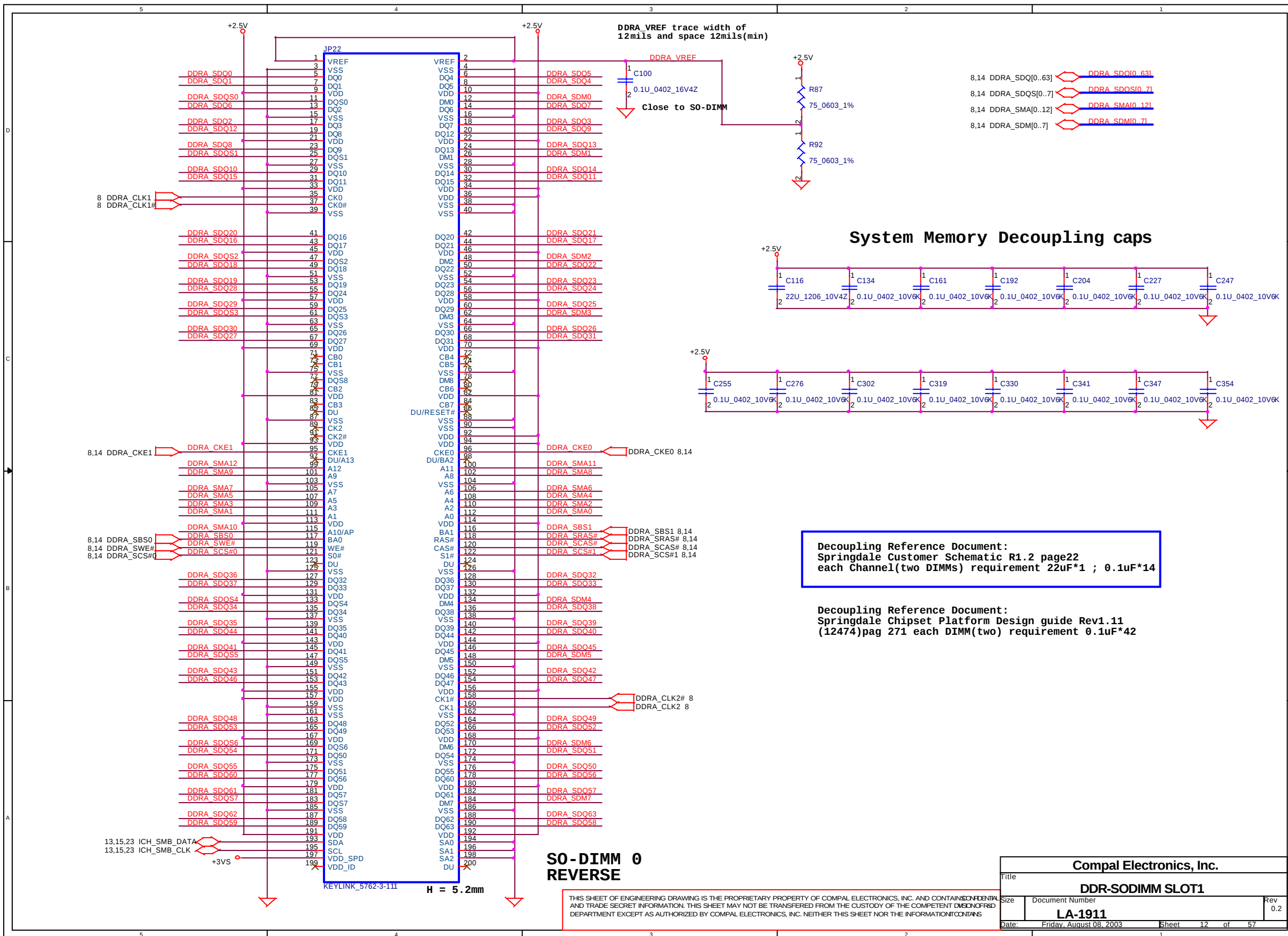


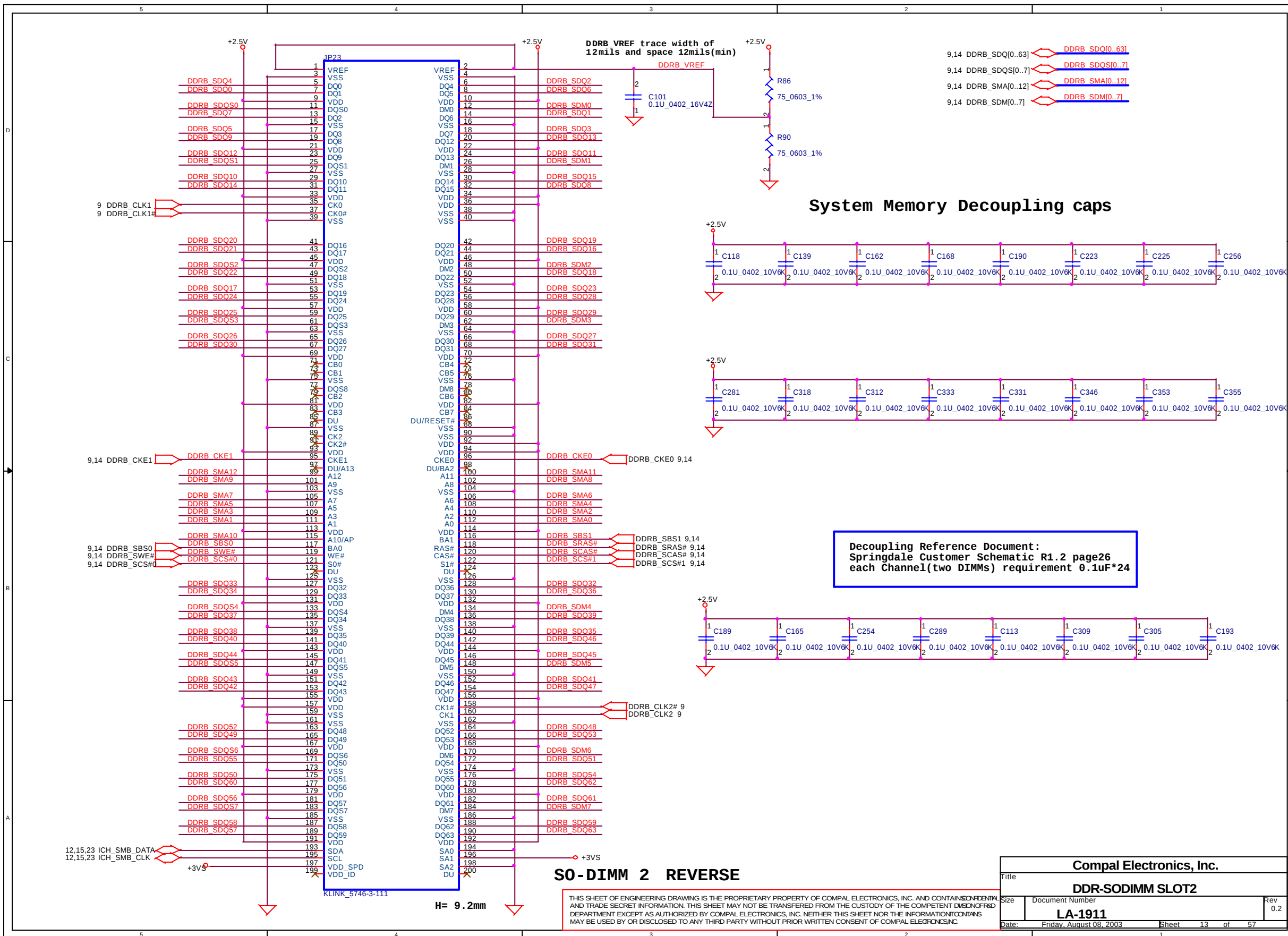
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Springdale-Decoupling (5/5)

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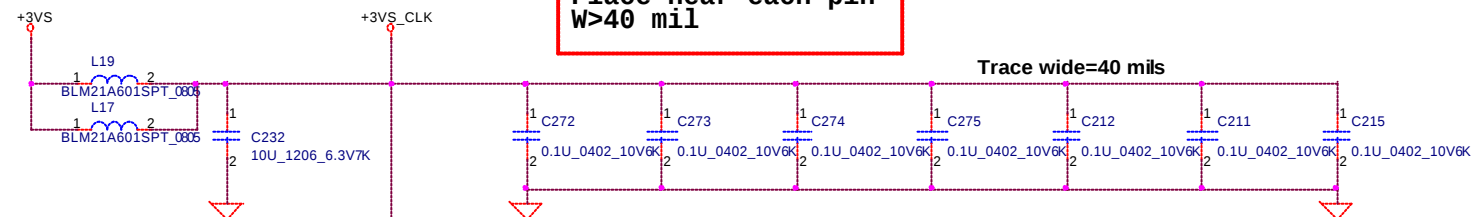


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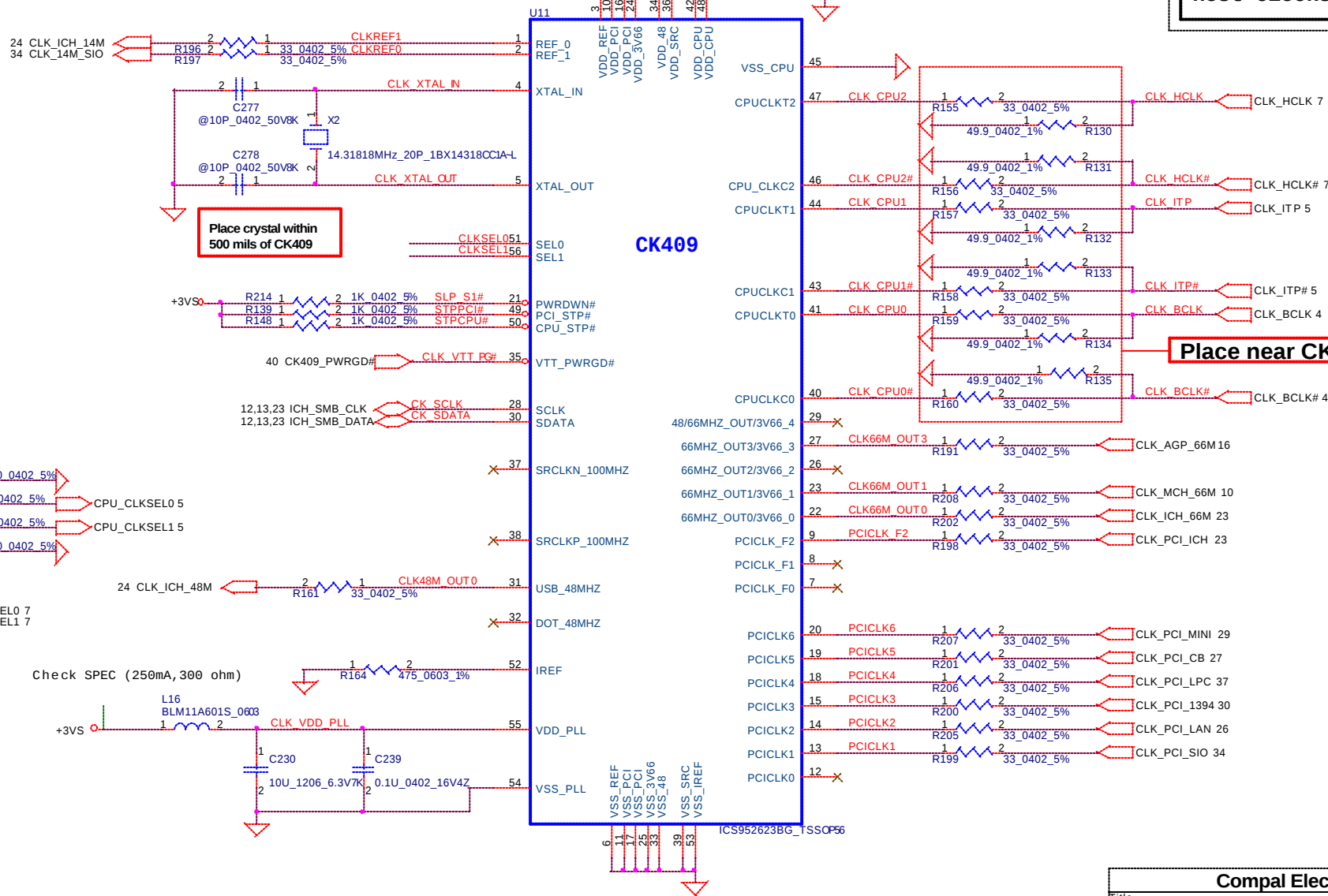
Decoupling Reference Document:
Springdale Customer Schematic R1.2 page26
each Channel(two DIMMs) requirement $4.7\mu^2$; $0.1\mu F^{*26}$

Title				
DDR Termination Resistors				
Size	Document Number			Rev
Custom	LA-1911			0
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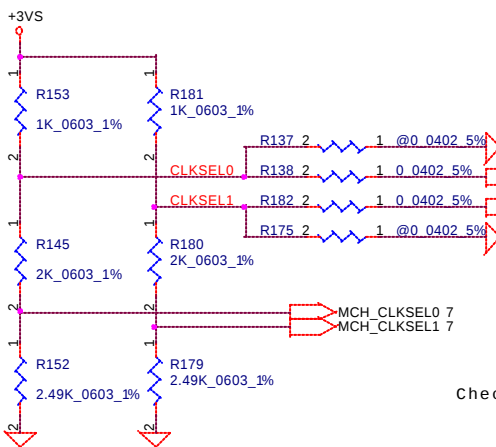
SEL0	SEL1	CPU	3V66[0..3]	REF0	REF1	SRC	USB/Dot
0	0	100	66	14.3	14.3	100/200	48
0	MID	REF	REF	REF	REF	REF	REF
0	1	200	66	14.3	14.3	100/200	48
1	0	133	66	14.3	14.3	100/200	48
1	1	166	66	14.3	14.3	100/200	48
1	MID	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z



The host clocks to the Processor must be 165 mil longer than the host clocks to the GMCH



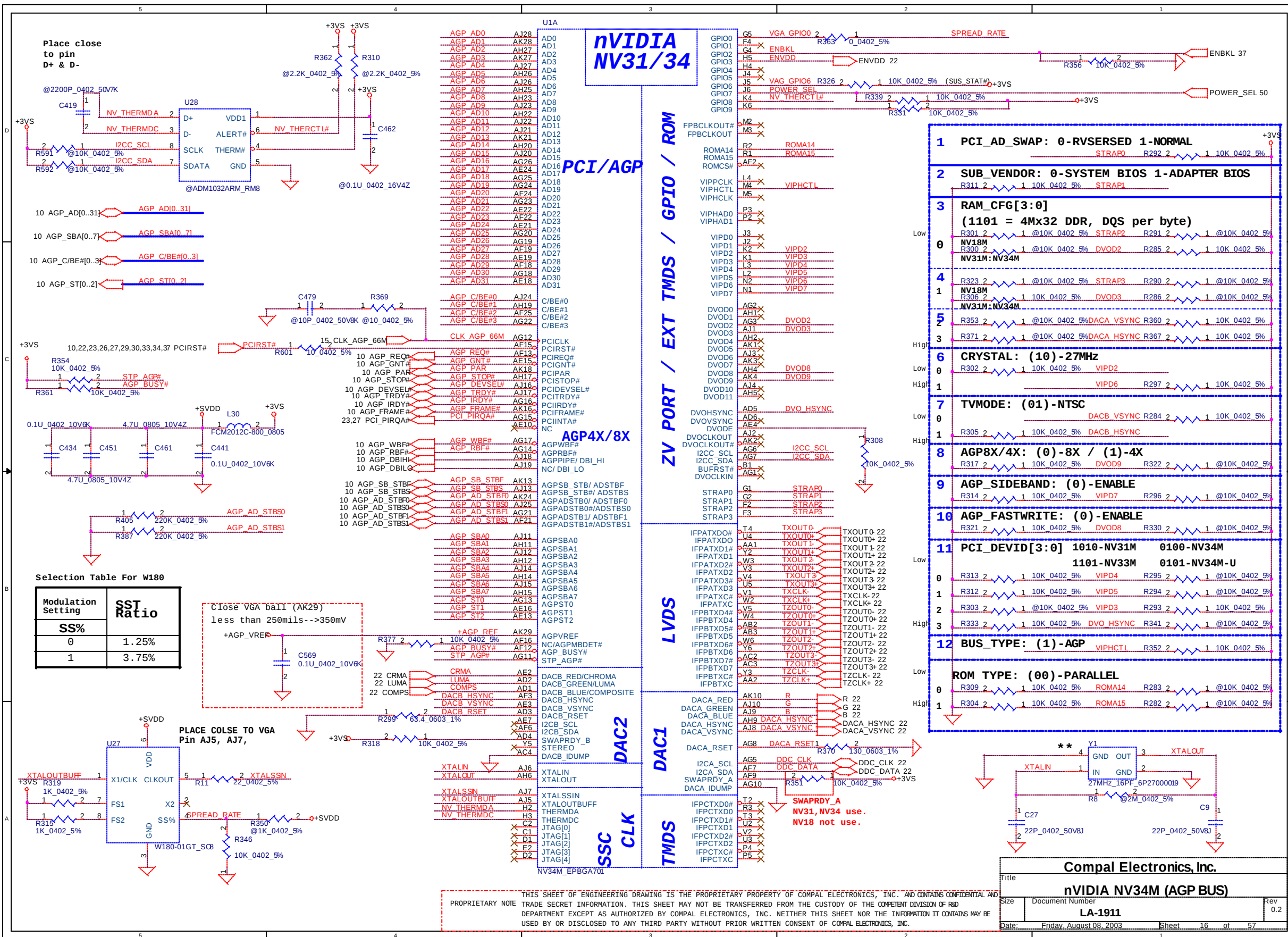
Place near CK409



Check SPEC (250mA, 300 ohm)

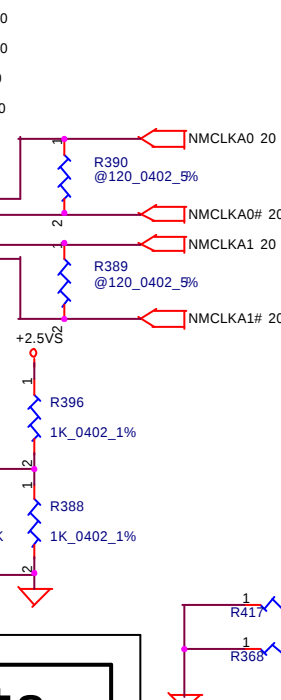
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Compal Electronics, Inc.			
Clock Generator			
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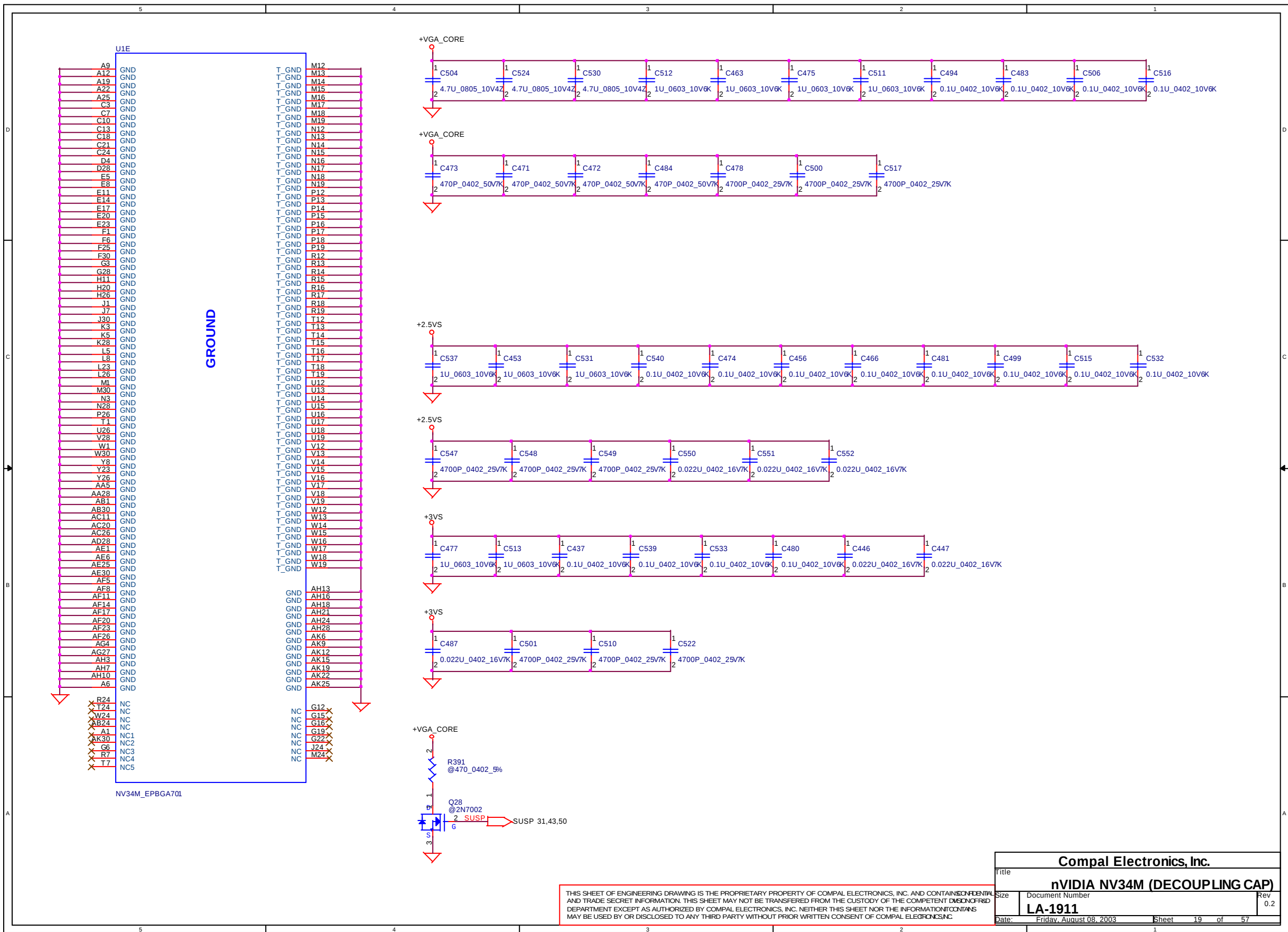


20 NDQMA[0..7] $\longleftrightarrow$ NDQMA[0..7]
 20 NDQSA[0..7] $\longleftrightarrow$ NDQSA[0..7]
 20 NMAA[0..11] $\longleftrightarrow$ NMAA[0..11]
 20 NMDA[0..63] $\longleftrightarrow$ NMDA[0..63]

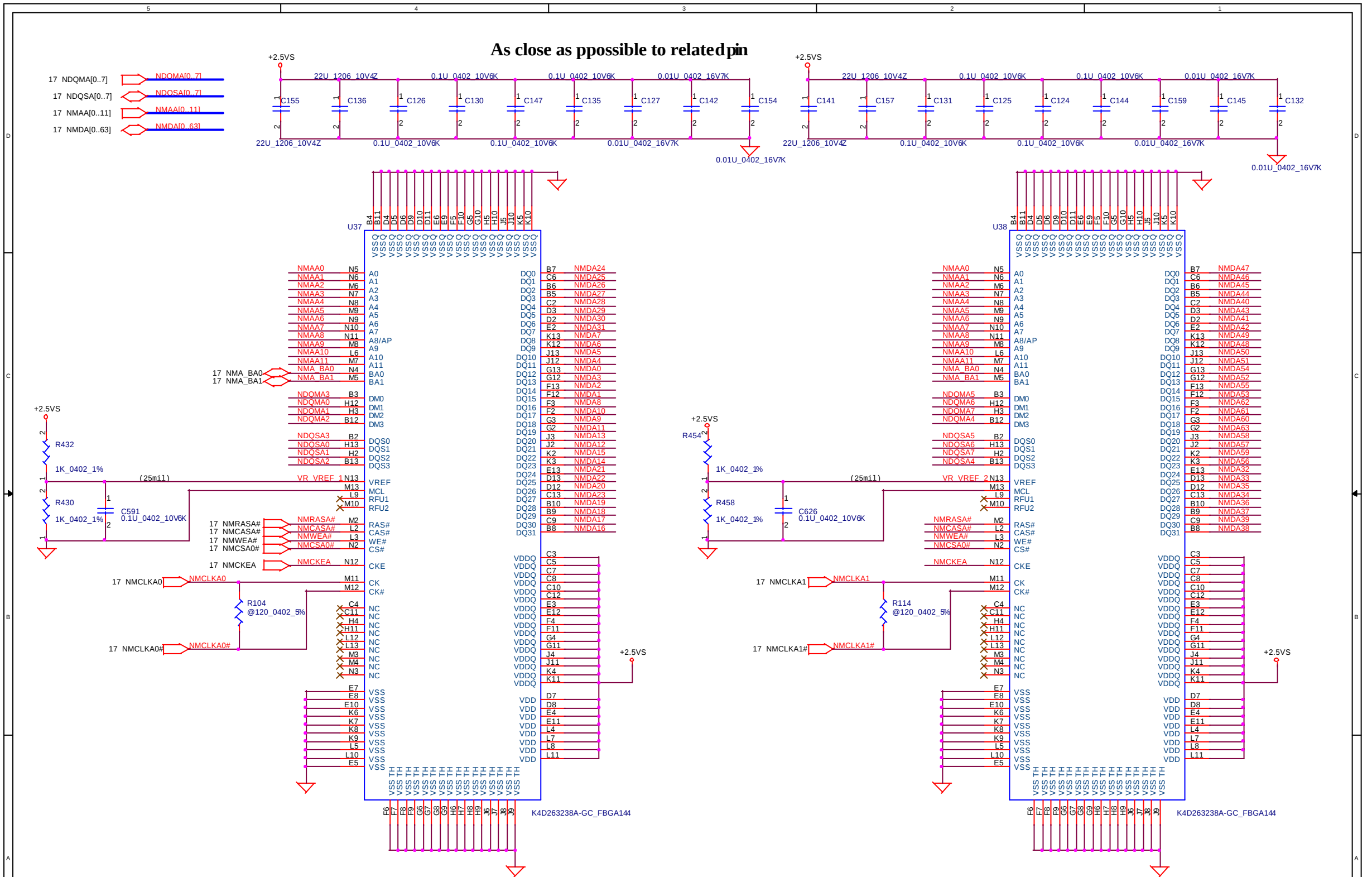
21 NDQMB[0..7] $\longleftrightarrow$ NDQMB[0..7]
 21 NDQSB[0..7] $\longleftrightarrow$ NDQSB[0..7]
 21 NMAB[0..11] $\longleftrightarrow$ NMAB[0..11]
 21 NMDB[0..63] $\longleftrightarrow$ NMDB[0..63]



32M VRAM-->Channel A only-->2 sets
 64M VRAM-->Channel A and B-->4 sets



As close as possible to related pin



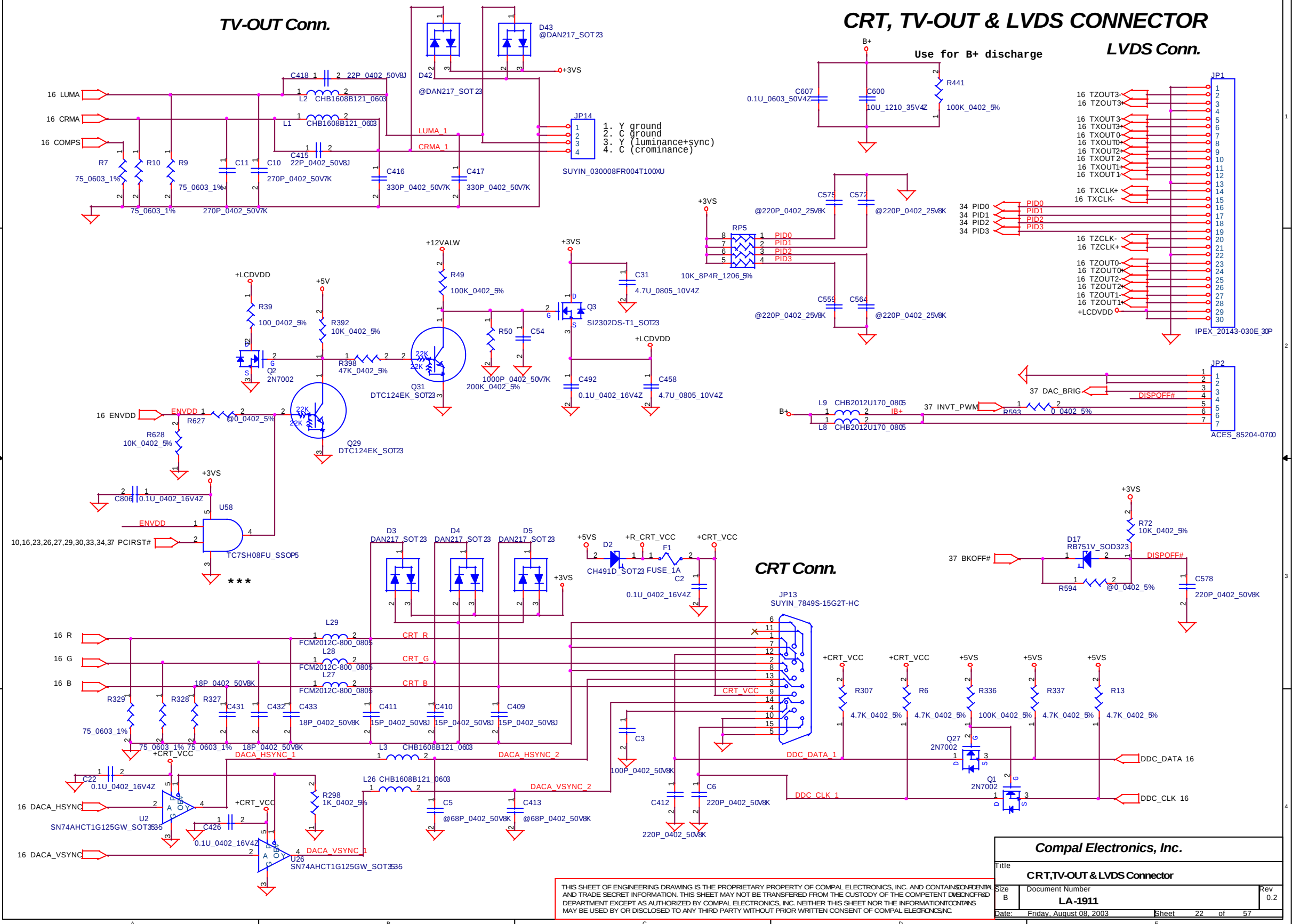
The image displays two side-by-side PCB layout diagrams for the VGA DDR channel B. Each diagram represents a different memory module, U30 and U34, both using the K4D263238A-GC_FBGA144 chip. The layouts show the placement of various components, including capacitors (C30, C34, C37, C38, C35, C36, C64, C76, C73, C74, C72, C69, C66, C65, C71), resistors (R376, R382, R402, R410, R40, R55), and the memory chips themselves. The diagrams also show the routing of signals and power planes. The top of each diagram shows the connection to a +2.5VS power source. The bottom of each diagram shows the connection to a +2.5VS power source. The diagrams are labeled with component values and pin numbers. The title 'As close as possible to related pin' is centered at the top. The bottom right corner contains a title block for Compal Electronics, Inc., with the document title 'VGA DDR FOR CHANNEL B', part number 'LA-1911', and revision '0.2'. The date is 'Friday, August 08, 2003', and the sheet is '21 of 57'.

As close as possible to related pin

Compal Electronics, Inc.
Title
VGA DDR FOR CHANNEL B
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Date: Friday, August 08, 2003 Sheet 21 of 57 Rev 0.2

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		1			

CRT, TV-OUT & LVDS CONNECTOR



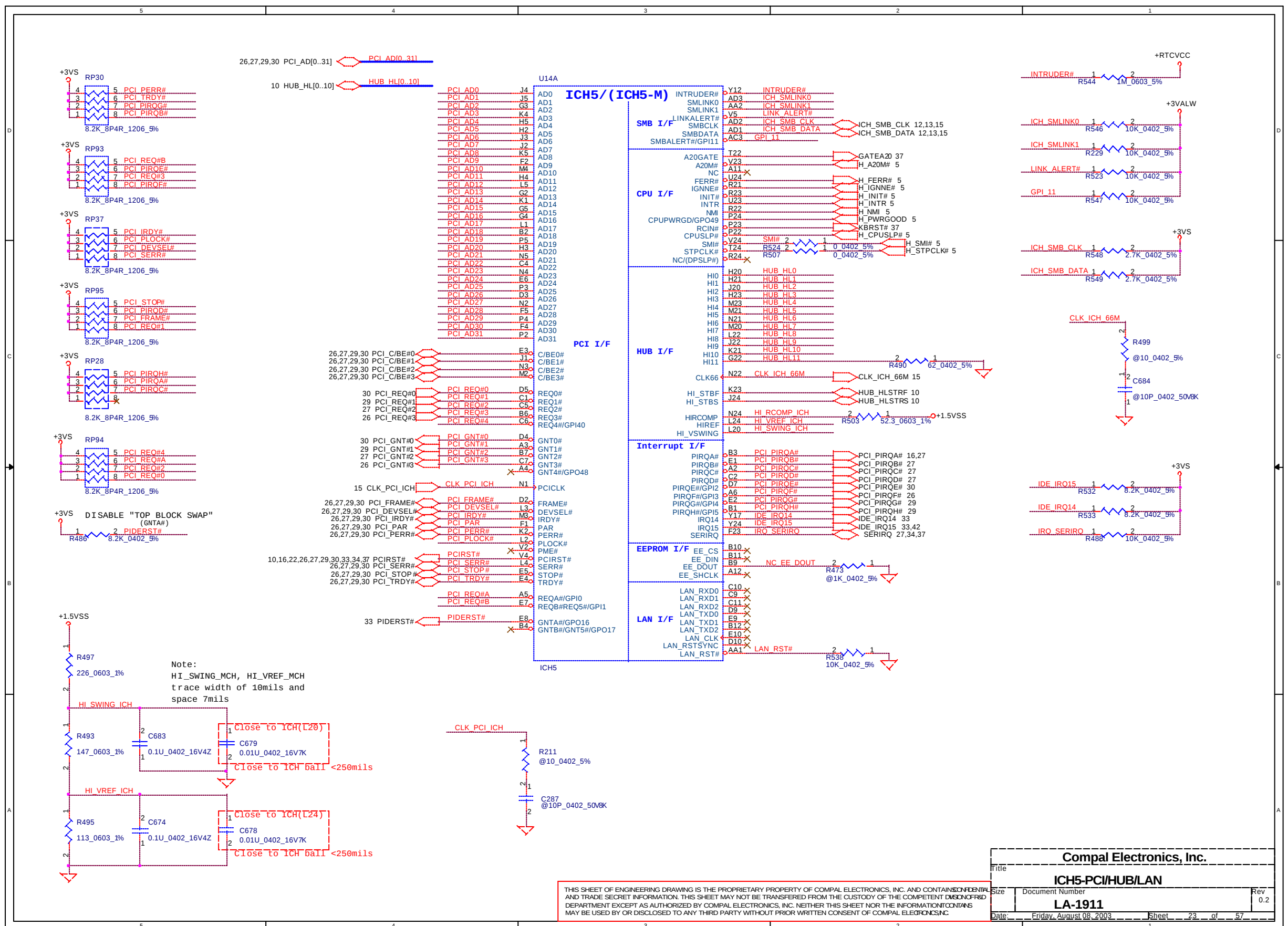
Compal Electronics, Inc.

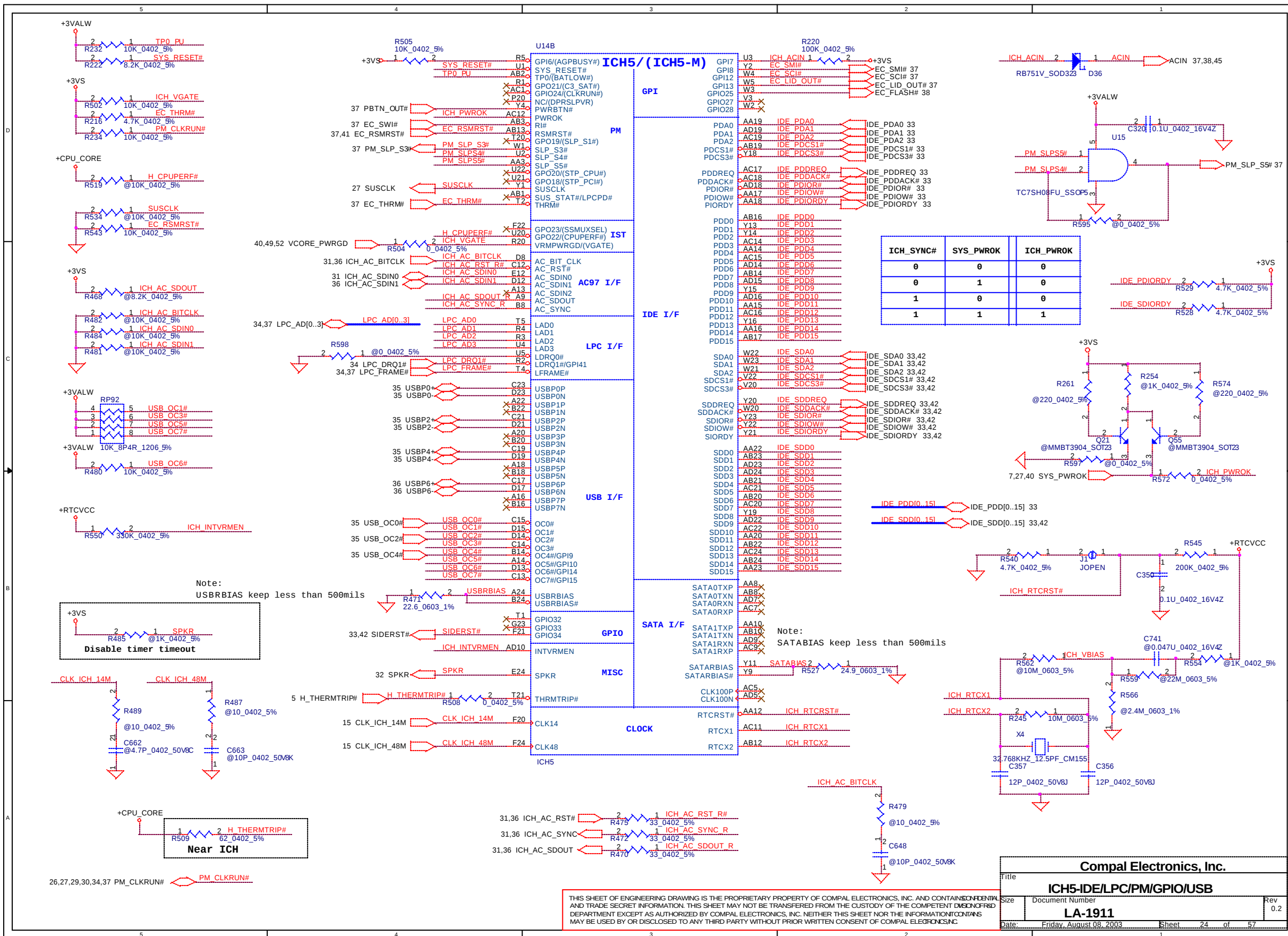
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Size B	Document Number LA-1911
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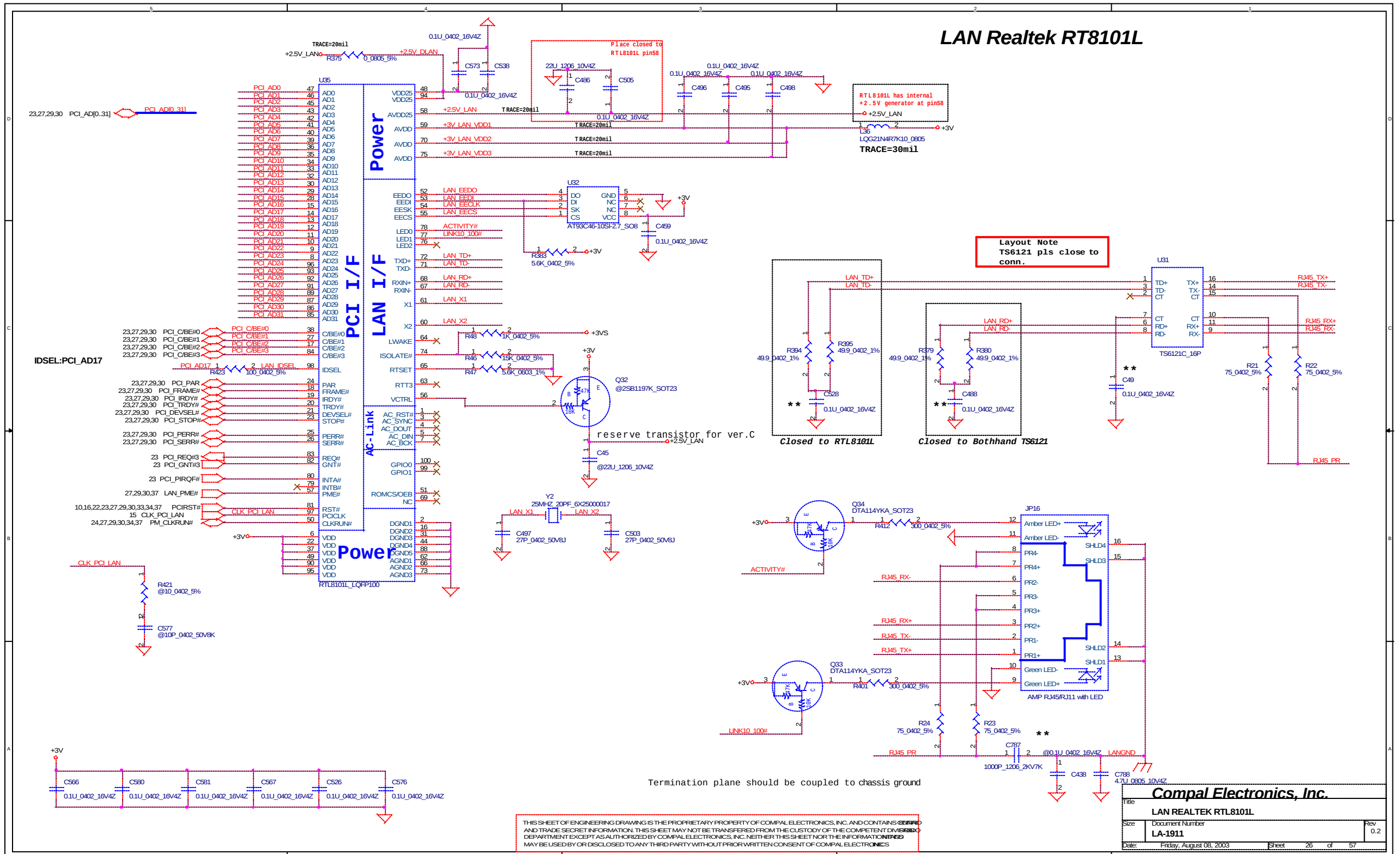
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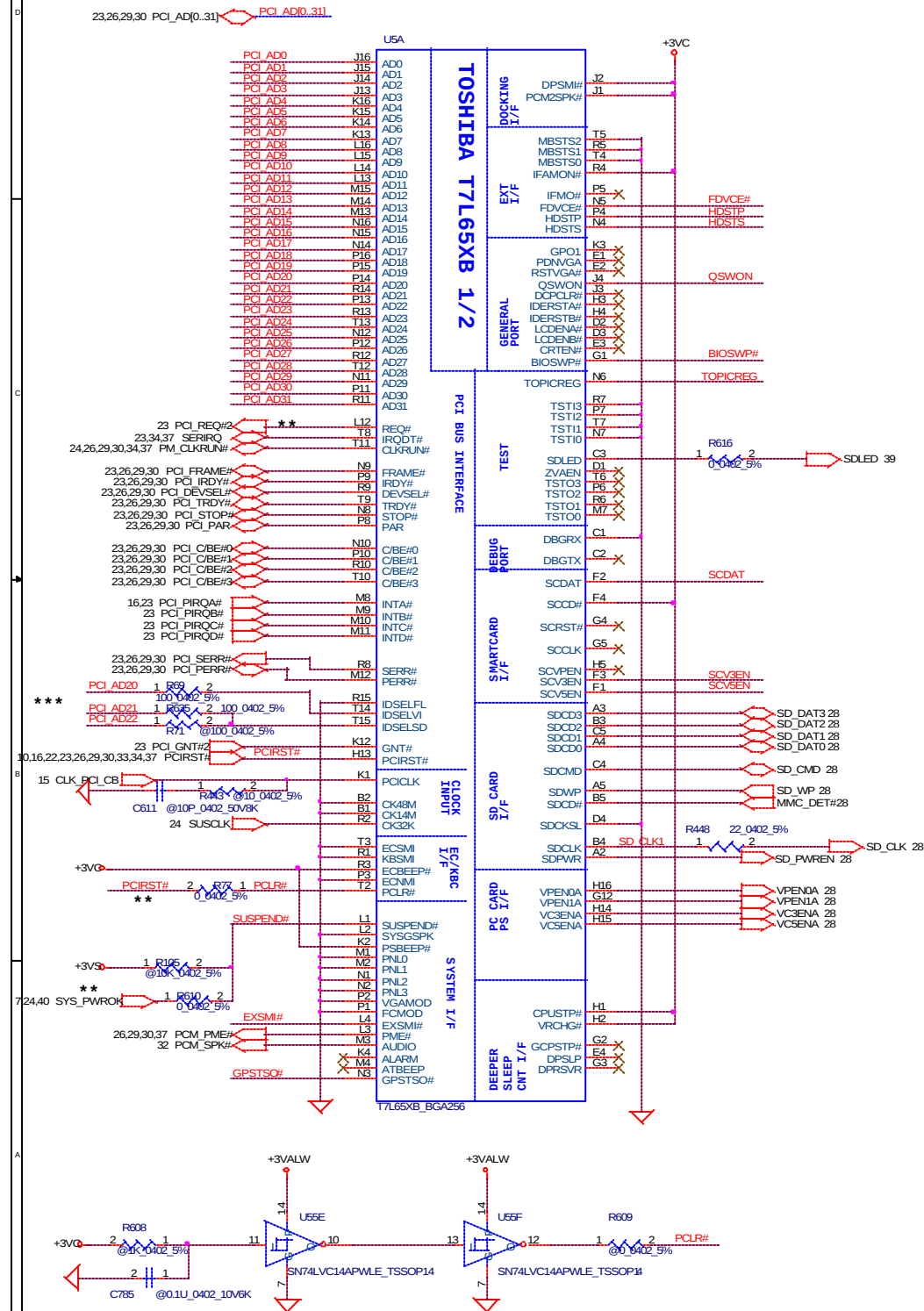
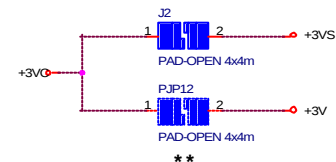


LAN Realtek RT8101L

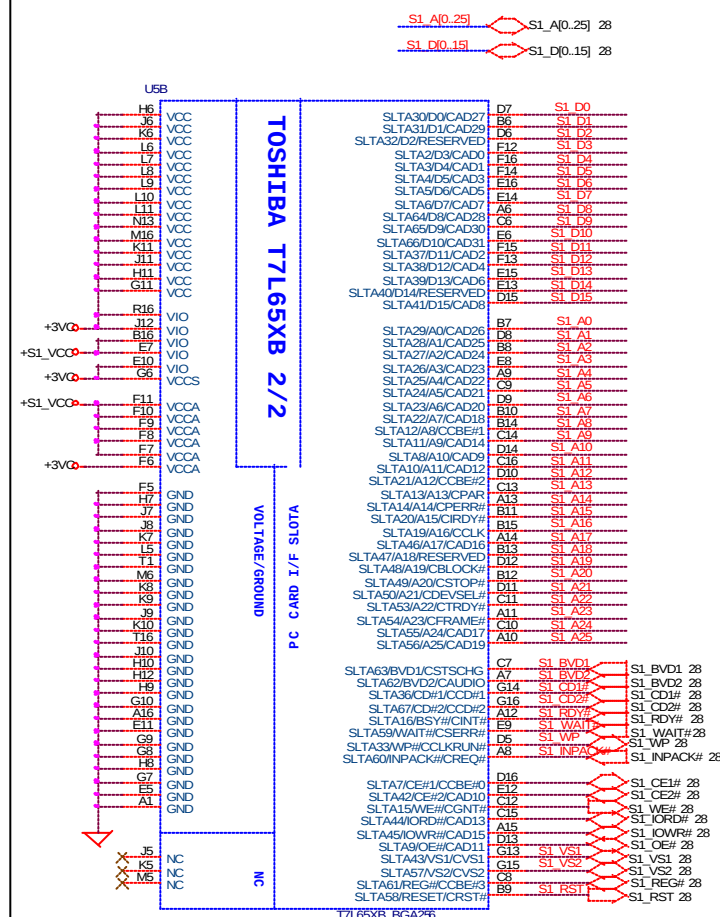


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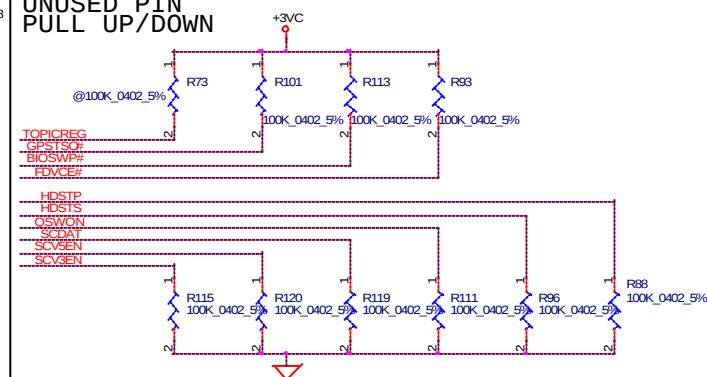
**CardBus Controller
T7L65XB (BGA)
PCI/SD INTERFACE**



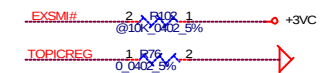
**CardBus Controller
T7L65XB (BGA)
CARDBUS INTERACE**



UNUSED PIN
PULL UP/DOWN



FUZZY SIGNAL
RESERVED
PULL UP/DOWN



PC CARD PULL-UP
REQUIREMENT
BASE ON
16-BIT PC-CARD
STANDARD R7
ELECTRICAL SPECIFICATION

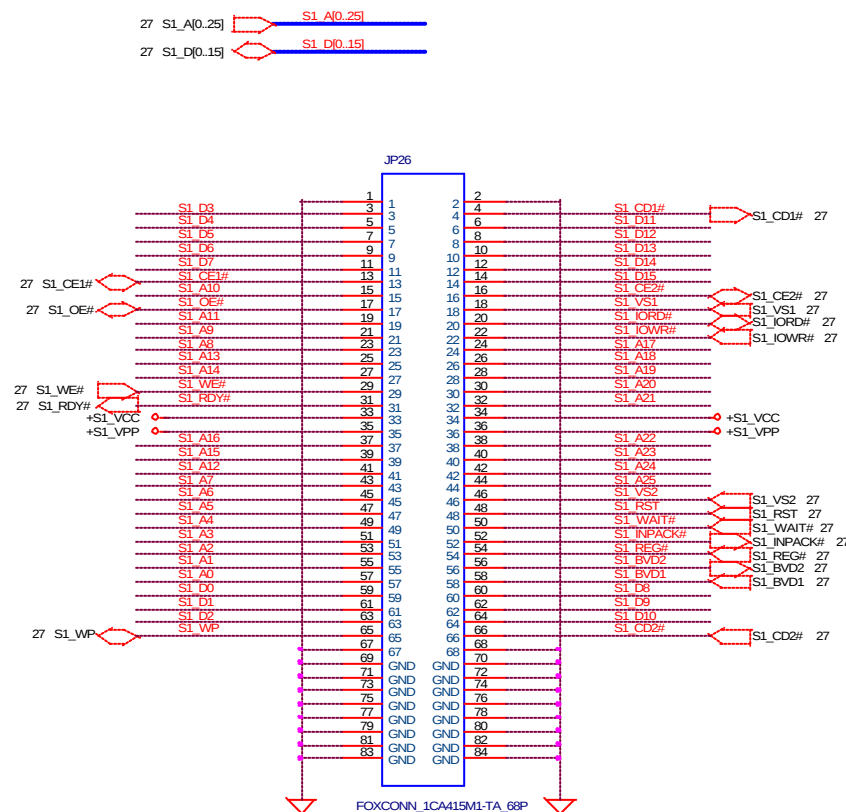
Compal Electronics, Inc.

Title **CardBus Controller<T7L65XB>**

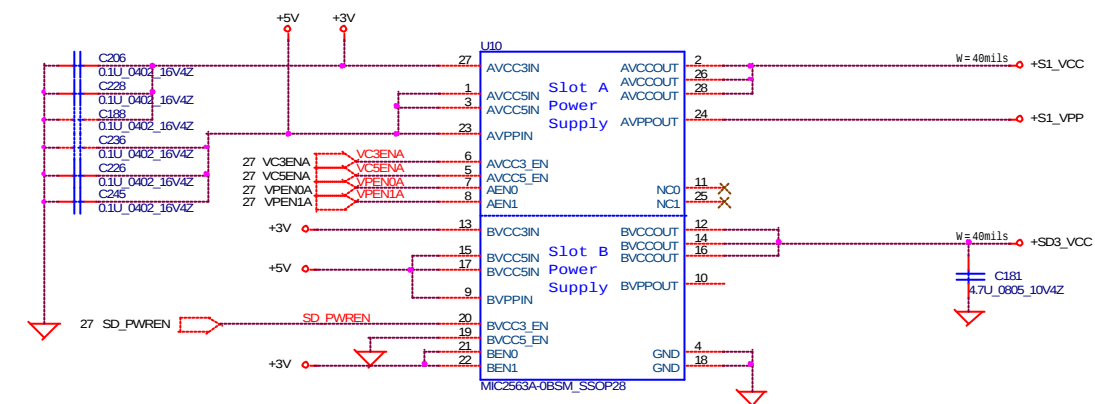
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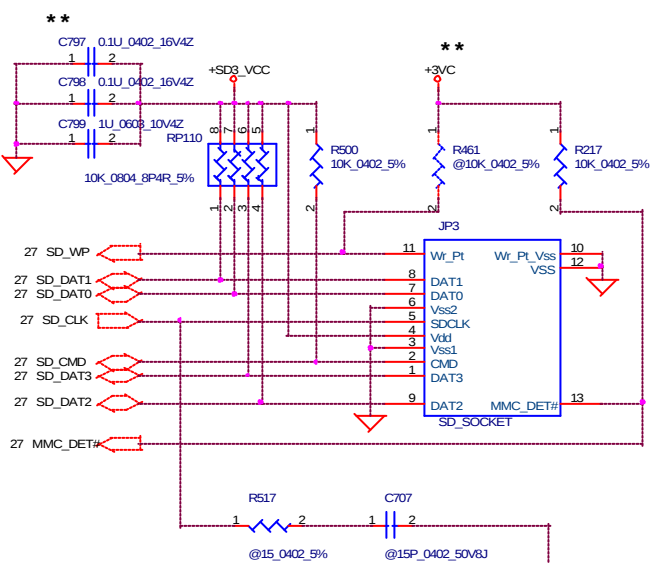
CARDBUS SOCKET



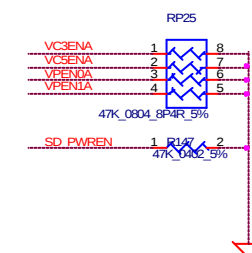
PCMCIA POWER CTRL.



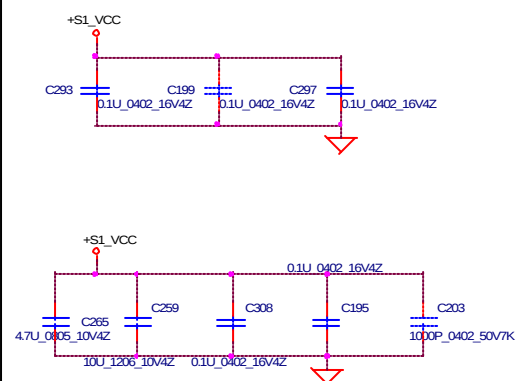
SD SOCKET



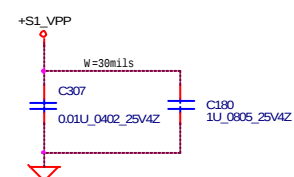
**POWER SWITCH
PIN PULL DOWN**



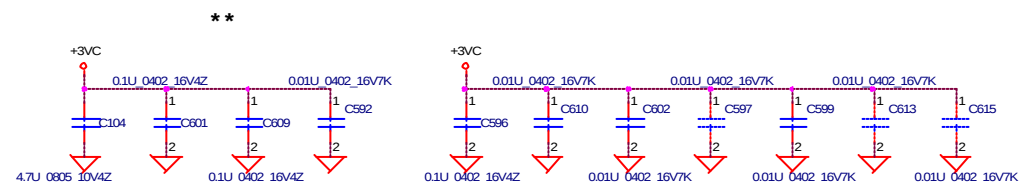
SLOT 1 VCC DECOUPLING

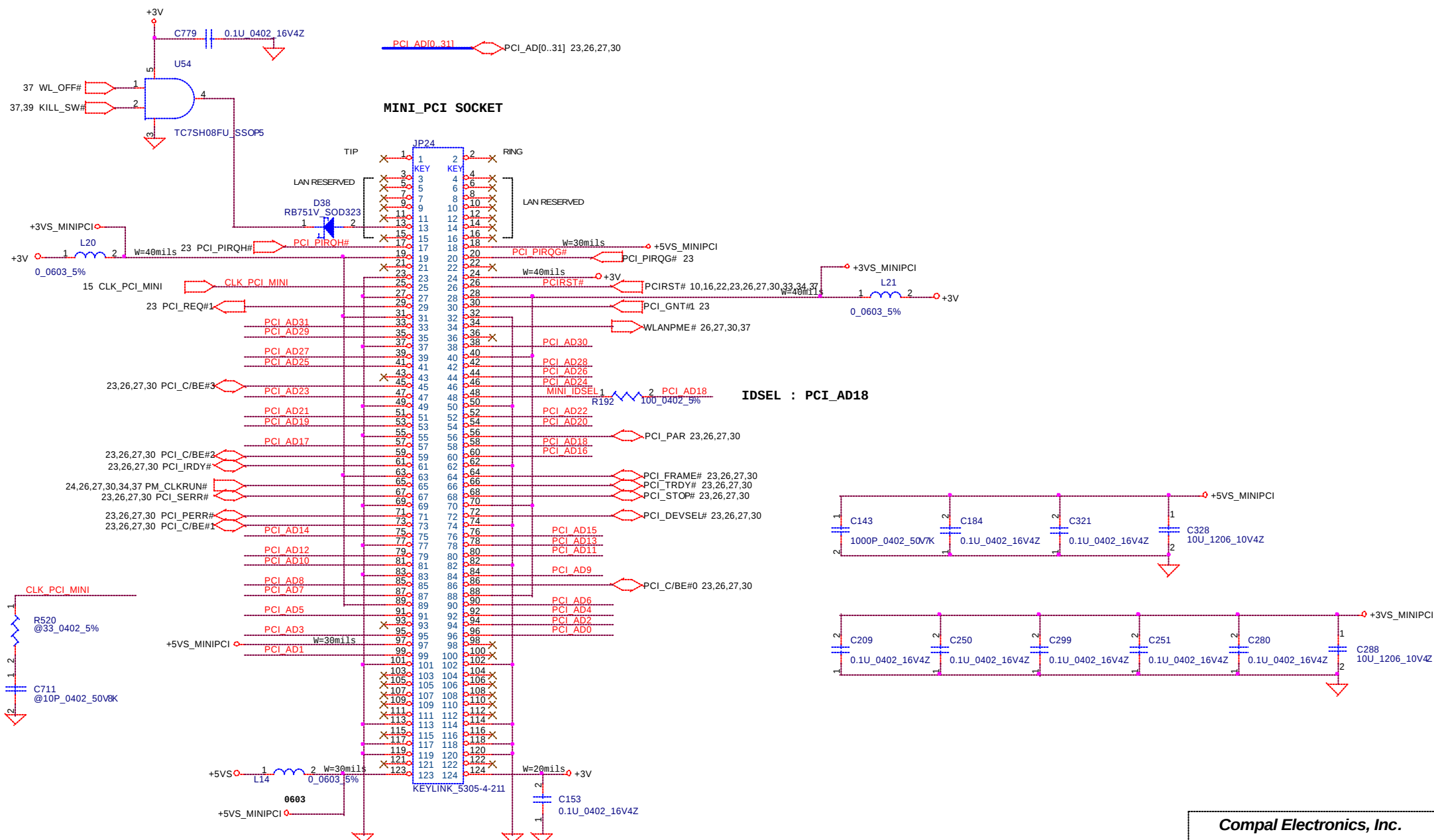


SLOT 1 VPP DECOUPLING



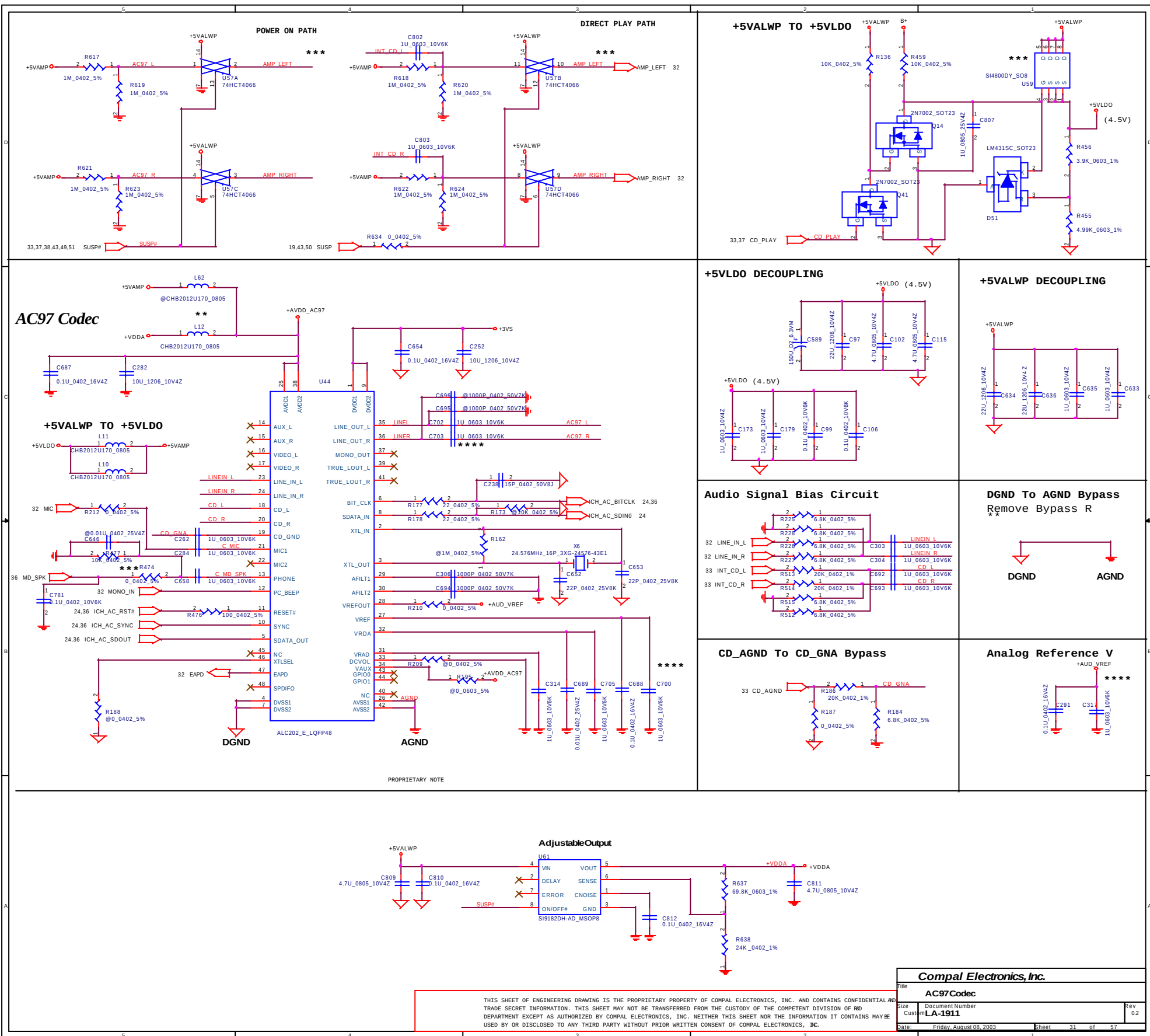
+3V DECOUPLING





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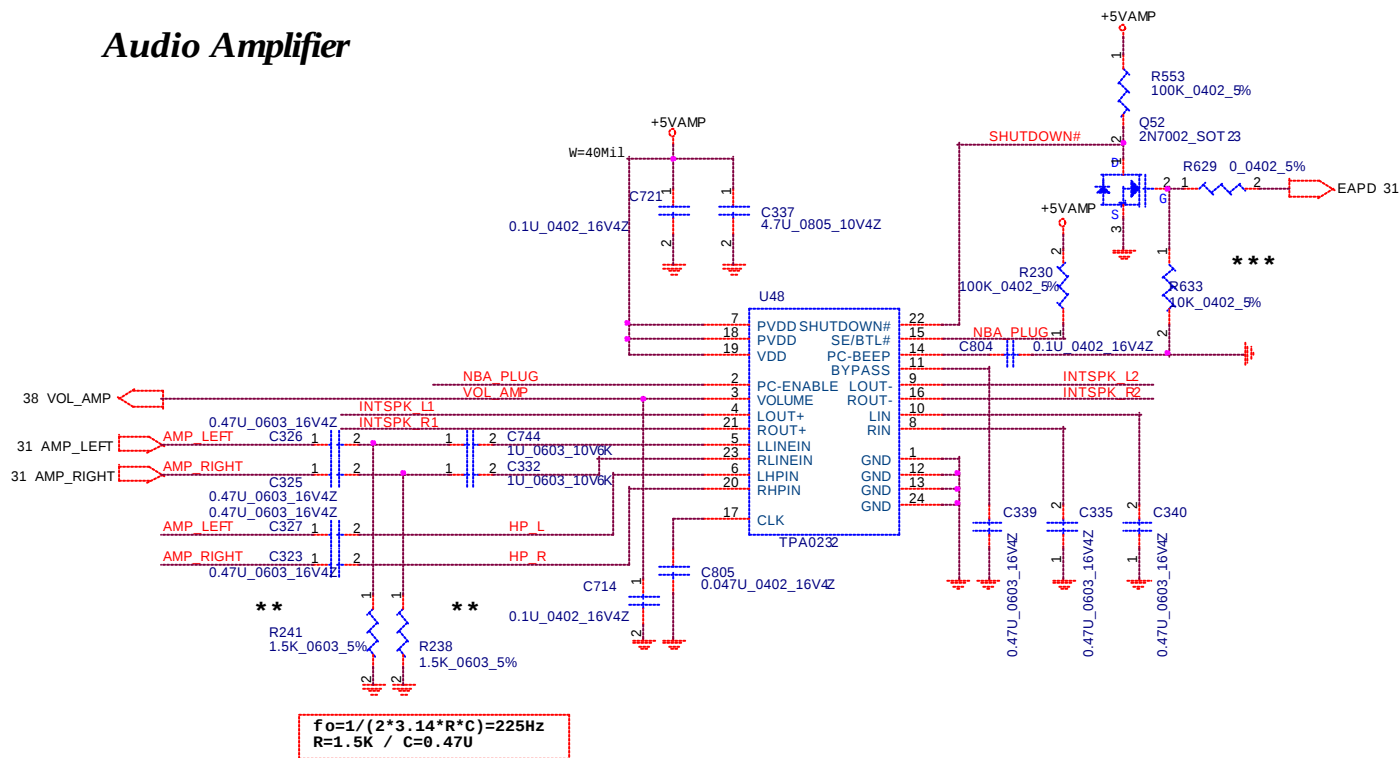
Compal Electronics, Inc.		
Title		
MINI_PCI		
Size	Document Number	Rev
B	LA-1911	0.2
Date:	Friday, August 08, 2003	Sheet 29 of 57



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Compal Electronics, Inc.			
File	AC97Codec		
Size	Document Number	Rev	
Custom	LA-1911	02	
Date	Friday, August 08, 2003	Sheet	31 of 57

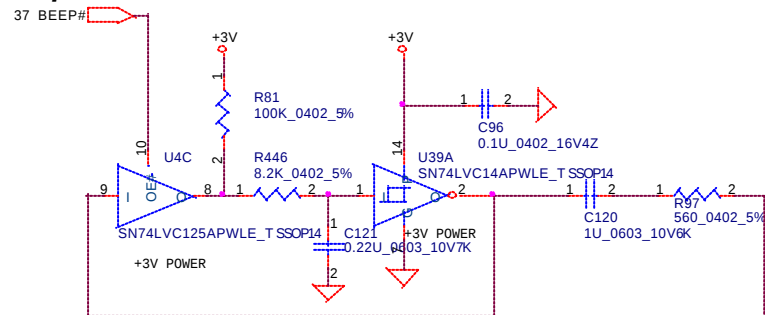
Audio Amplifier



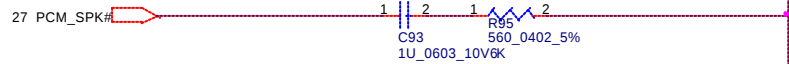
$$f_0 = 1 / (2 * \pi * R * C) = 225\text{Hz}$$

R=1.5K / C=0.47U

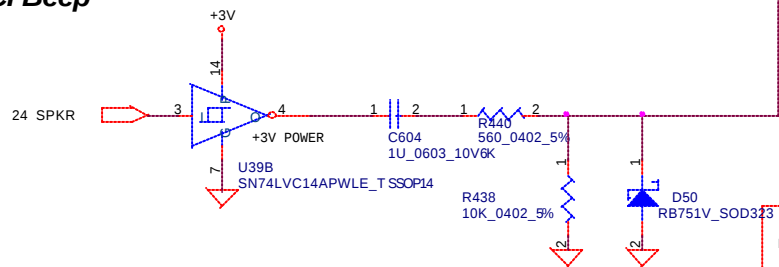
EC Beep



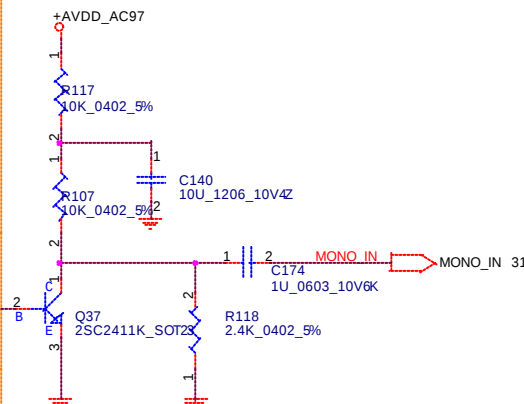
CardBus Beep



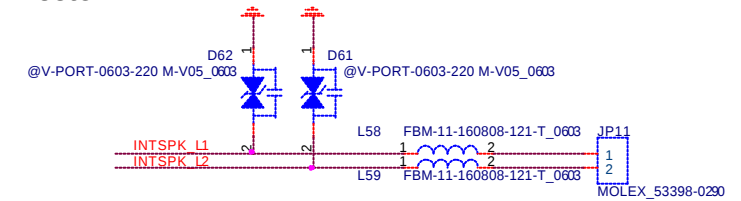
PCI Beep



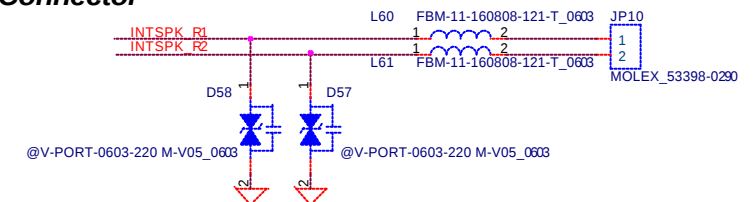
System Beep To AC97' Codec



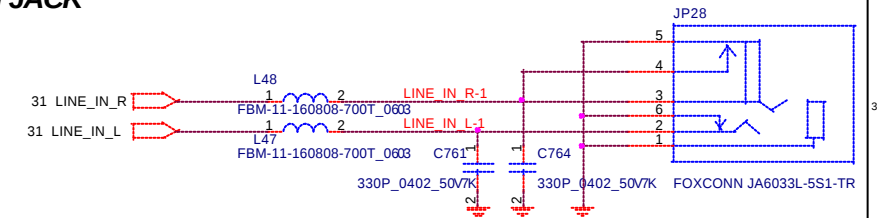
Left Speaker Connector



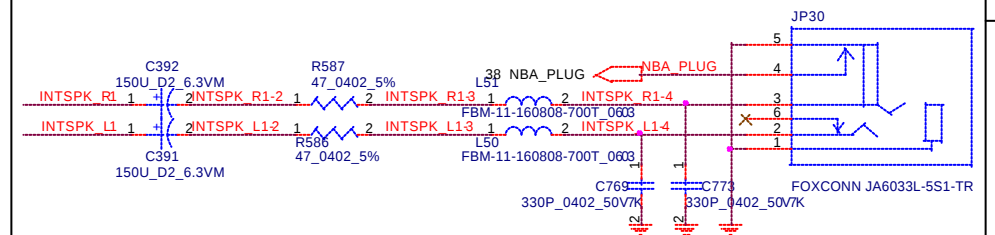
Right Speaker Connector



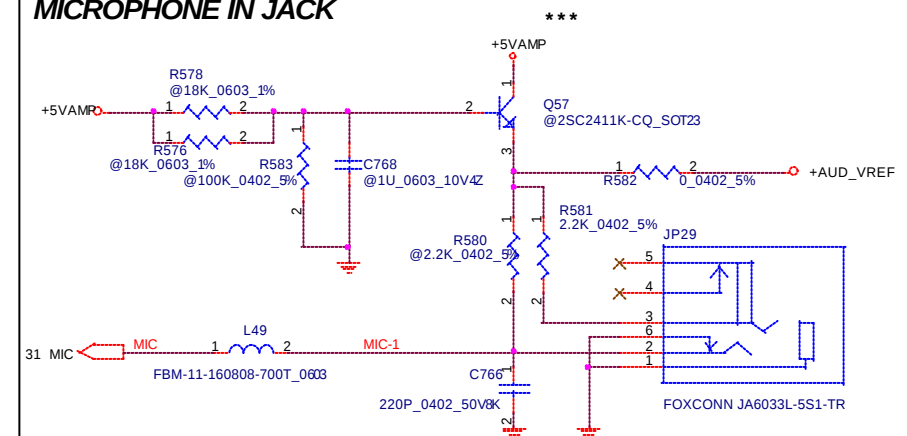
LINE IN JACK



HEADPHONE OUT JACK



MICROPHONE IN JACK

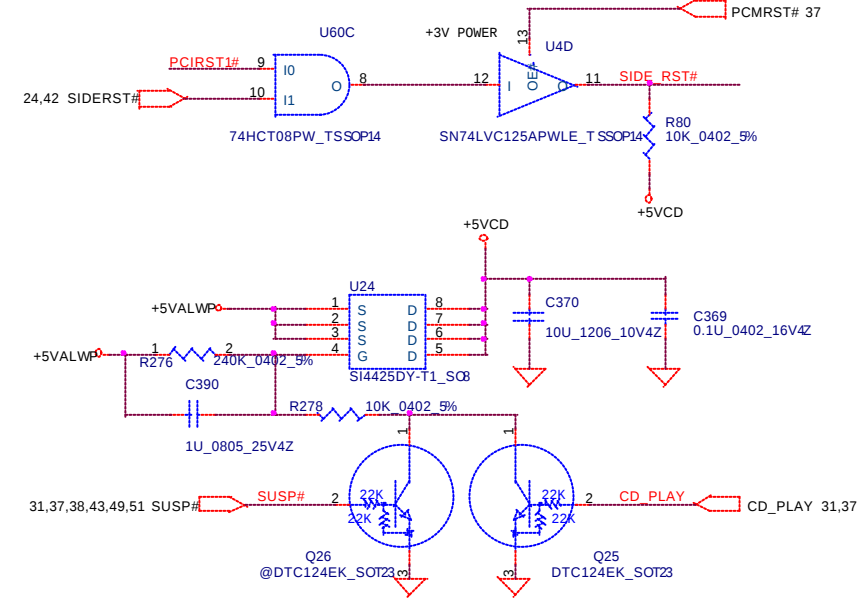
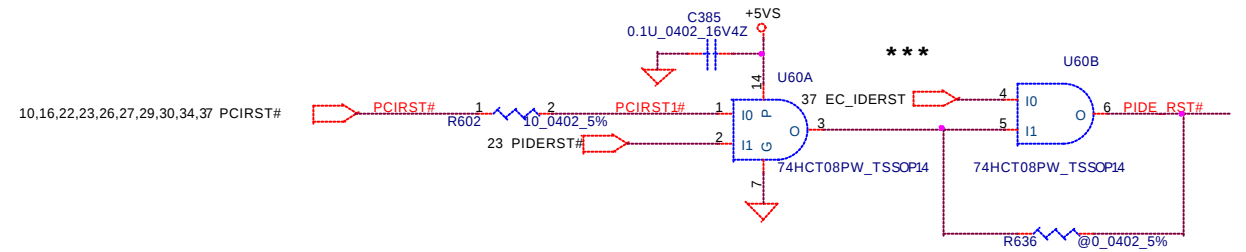
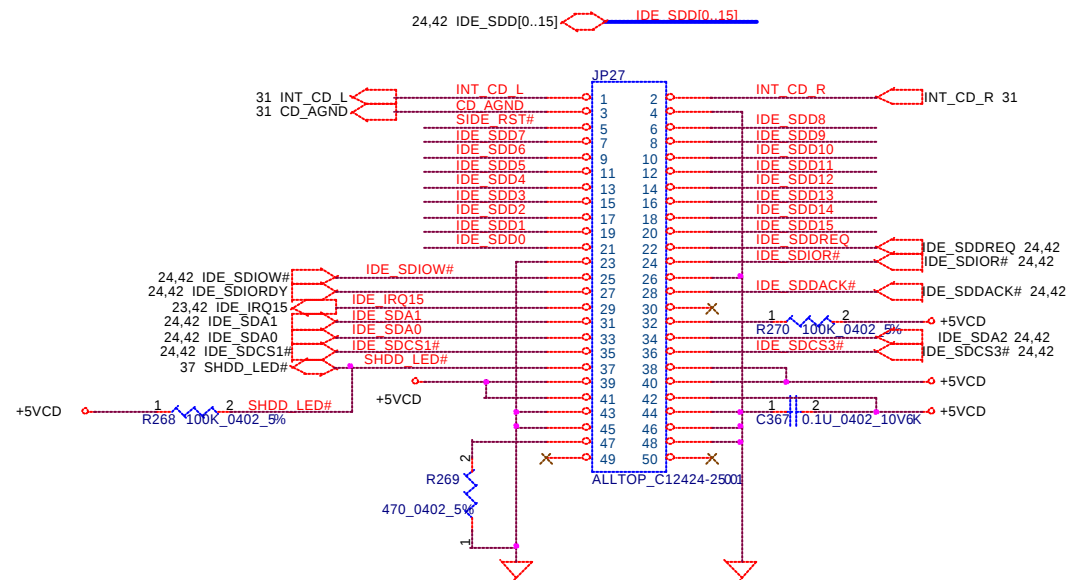
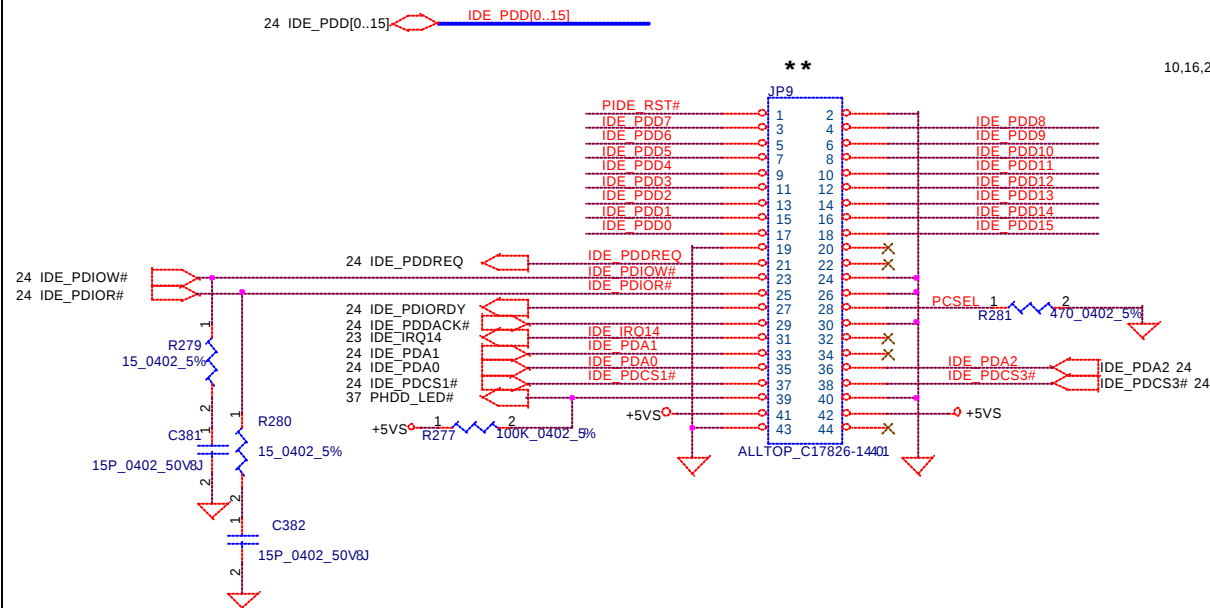


Compal Electronics, Inc.

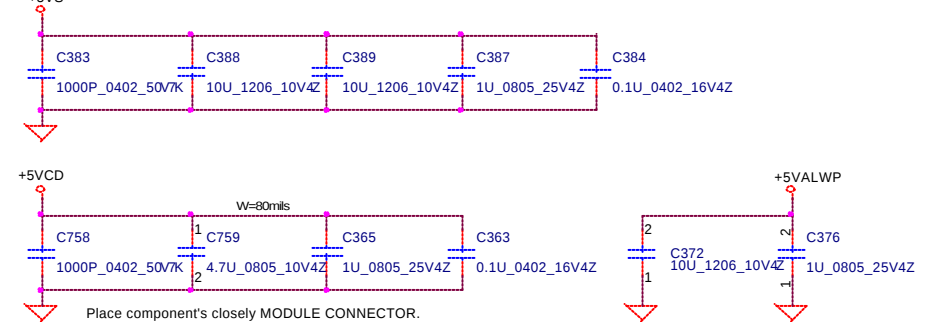
Title	AMP & Audio Jack	Rev	0.2
Size	Document Number		
Custom	LA-1911		
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HDD CONNECTOR



Placea caps. near HDD
CONN.



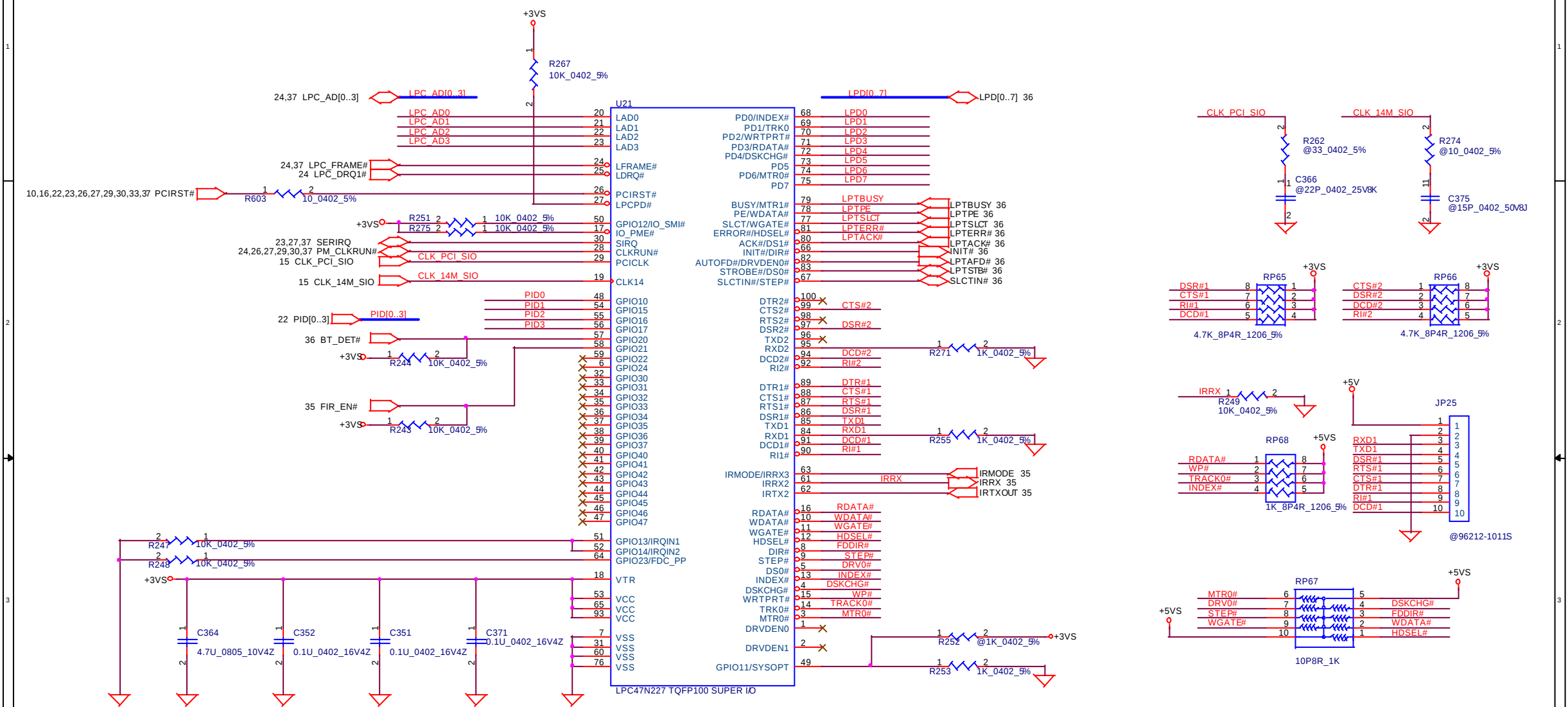
Compal Electronics, Inc.

Title **IDE/ FDD MODULECONN**

NTAL &D	Size B	Document Number LA-1911	Rev 0.2
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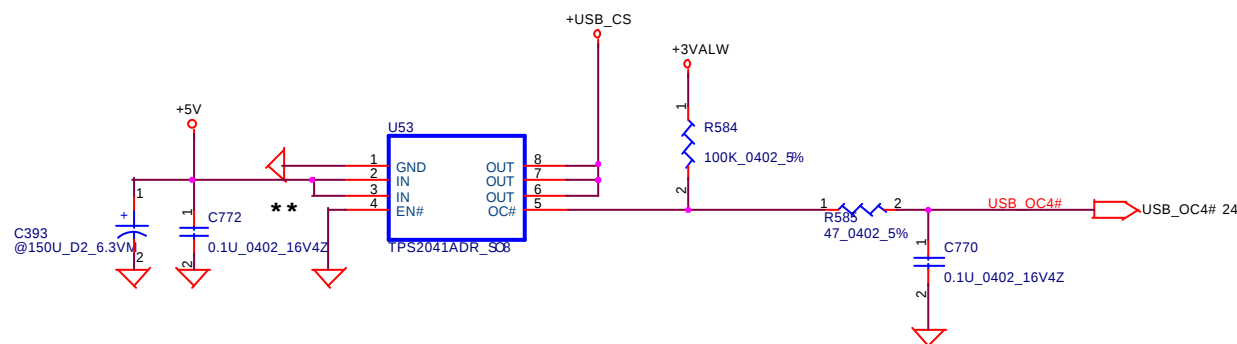
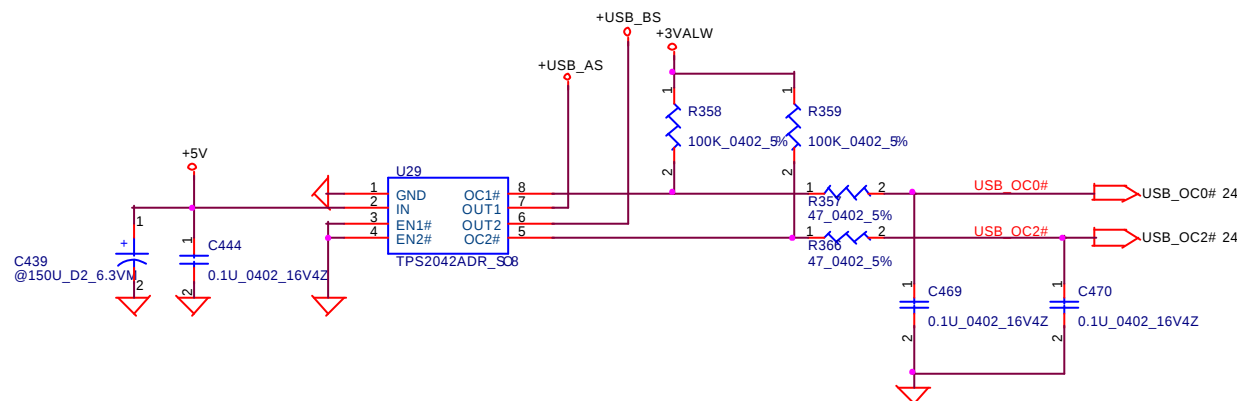
SUPER I/O SMC FDC47N227



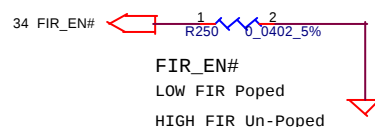
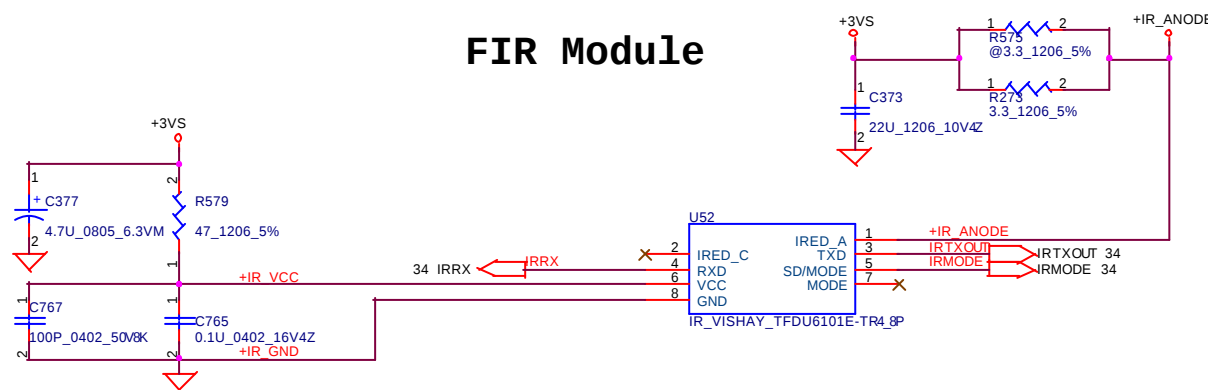
Base I/O Address
* 0 = 02Eh
1 = 04Eh

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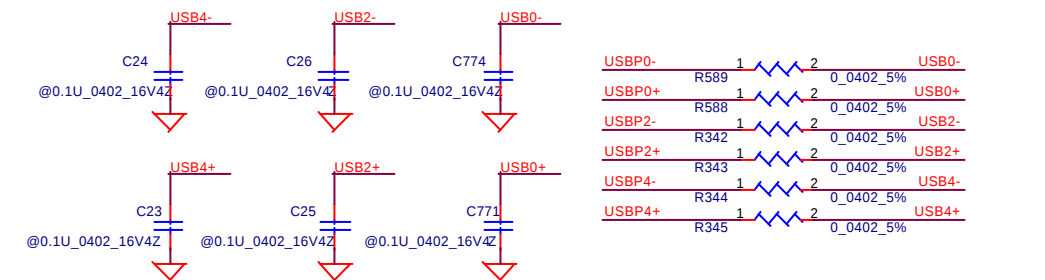
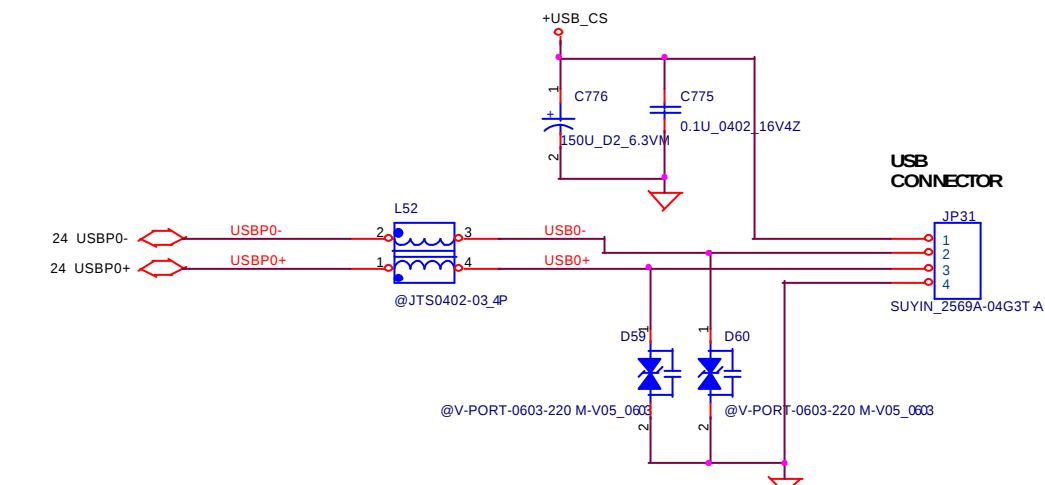
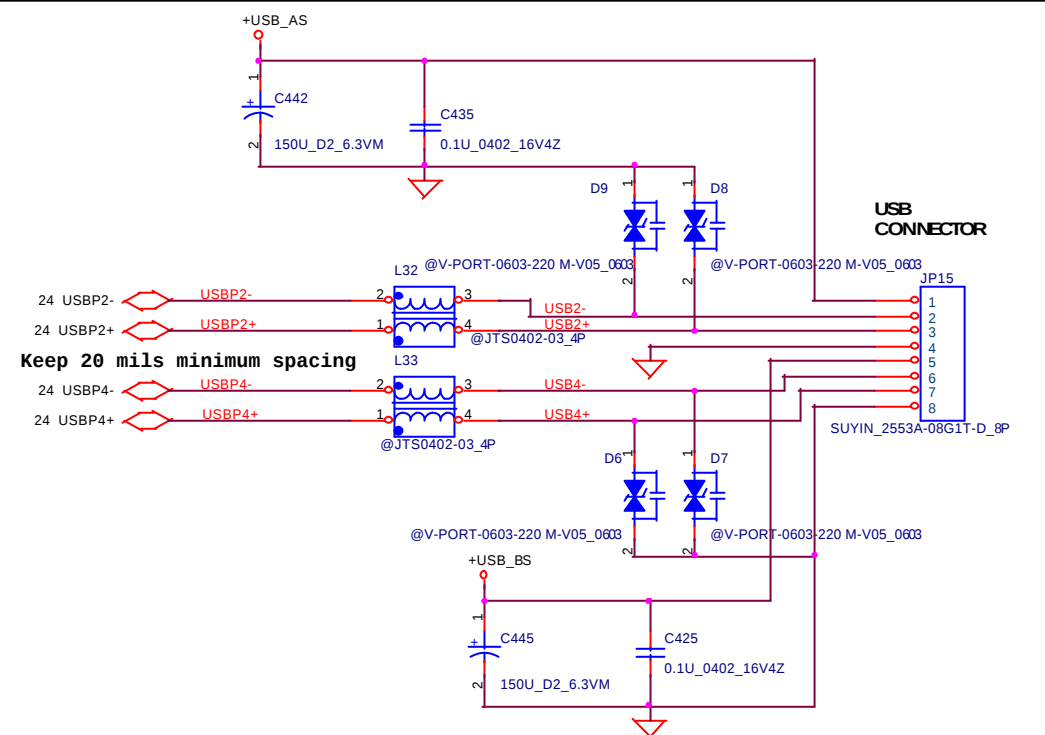
Compal Electronics, Inc.			
Title			
SUPER IO			
Size	Document Number	Rev	
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FIR Module



The component's most place
closely IRDA MODULE.

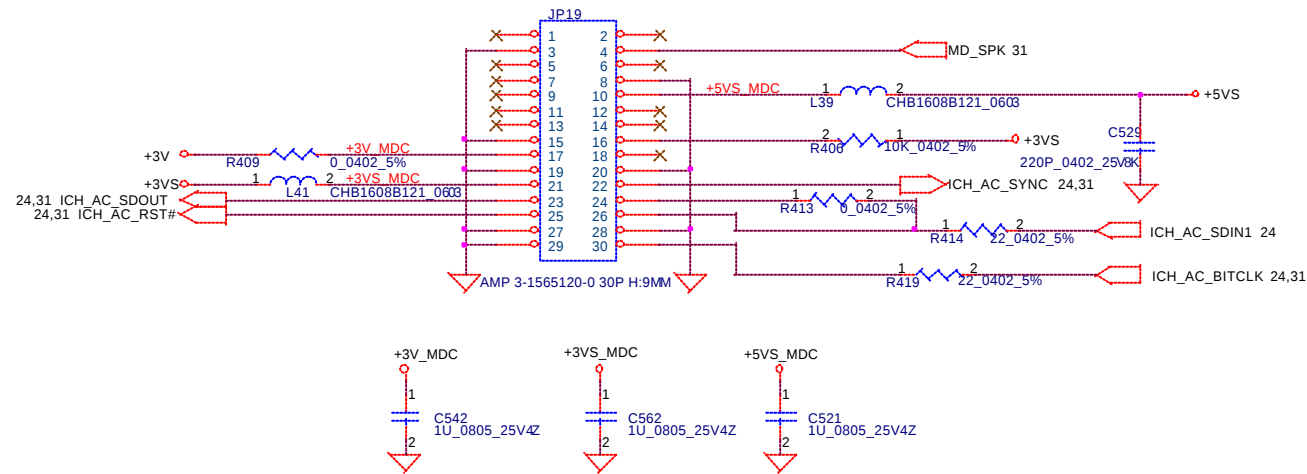


Compal Electronics, Inc.

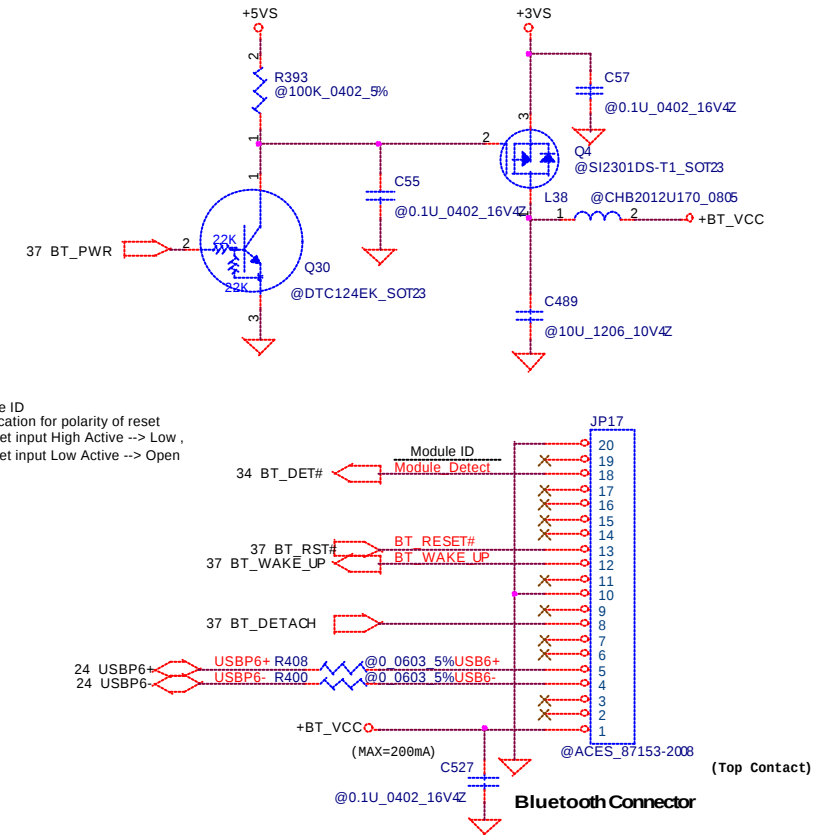
Title		
USB Conn		
Size B	Document Number	Rev 0.2
LA-1911		
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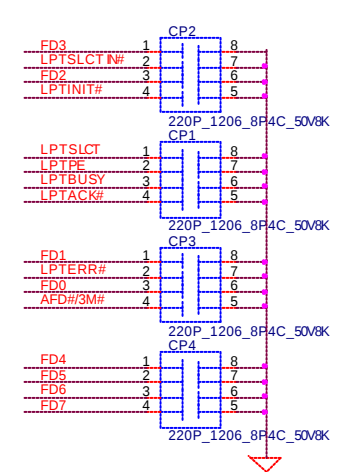
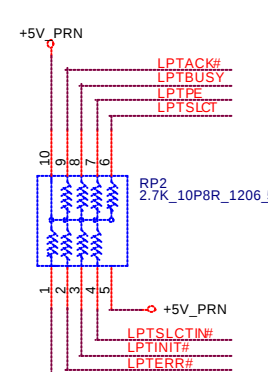
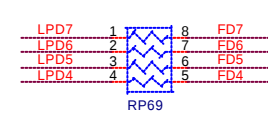
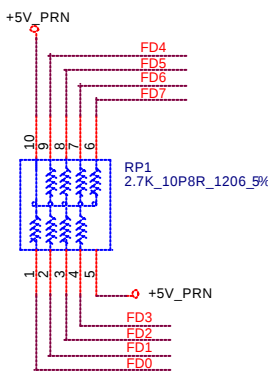
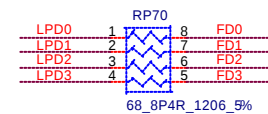
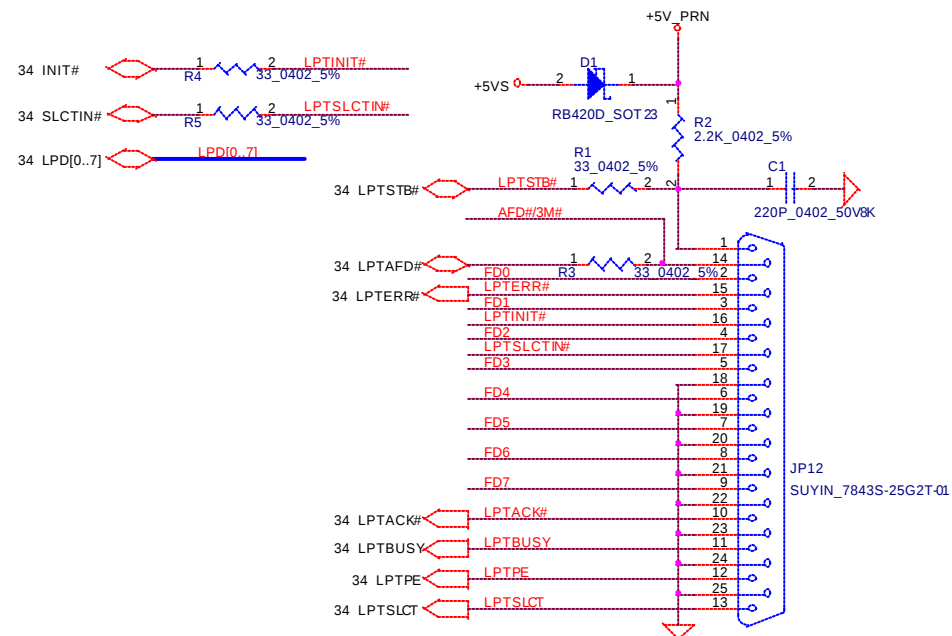
MDC CONN.



BlueTooth Interface

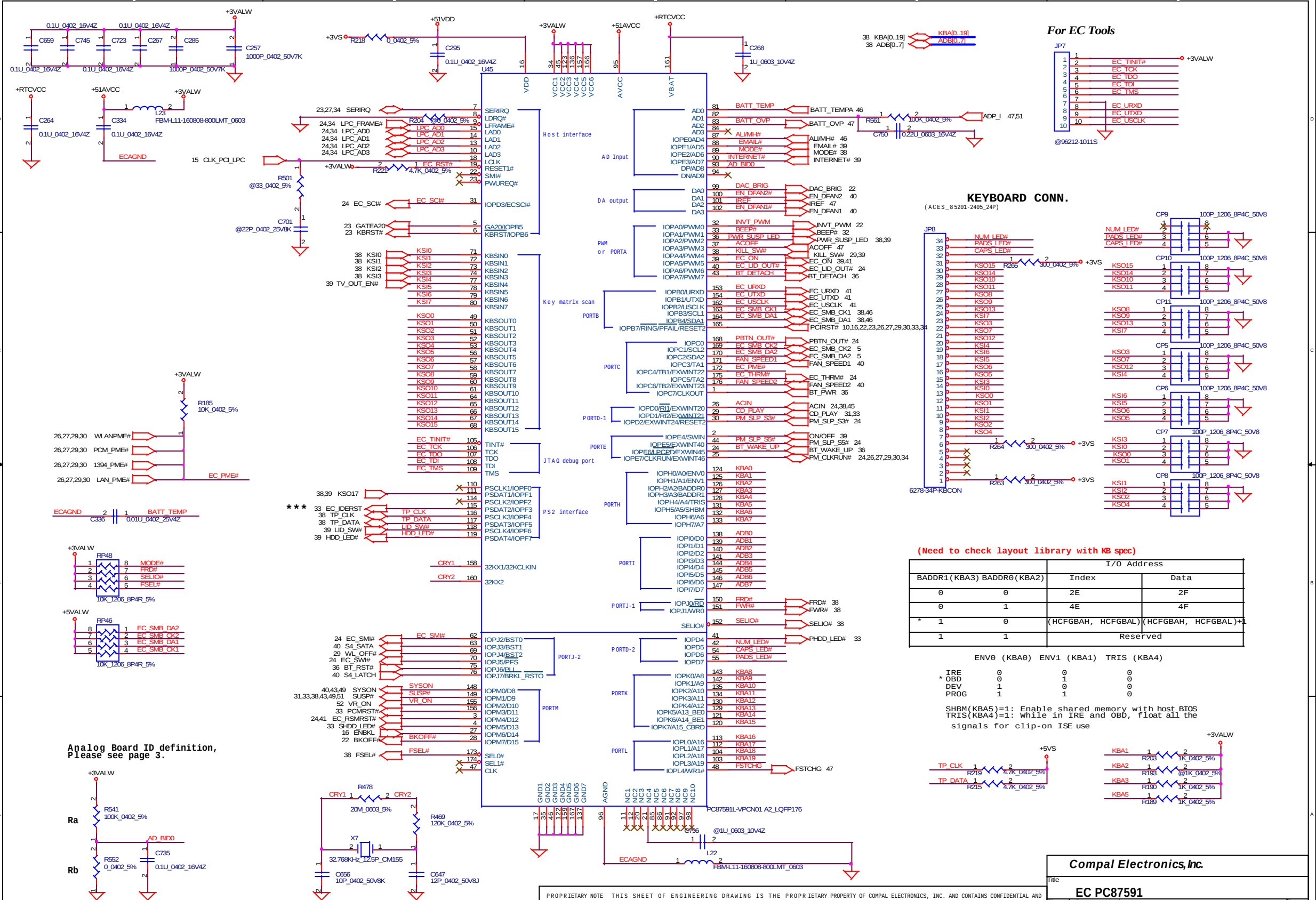


PARALLEL PORT

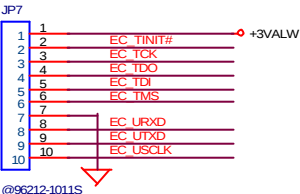


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Compal Electronics, Inc.		
Title	PARALLEL/MDCPORT	
Size	Document Number	Rev
	LA-1911	0.2
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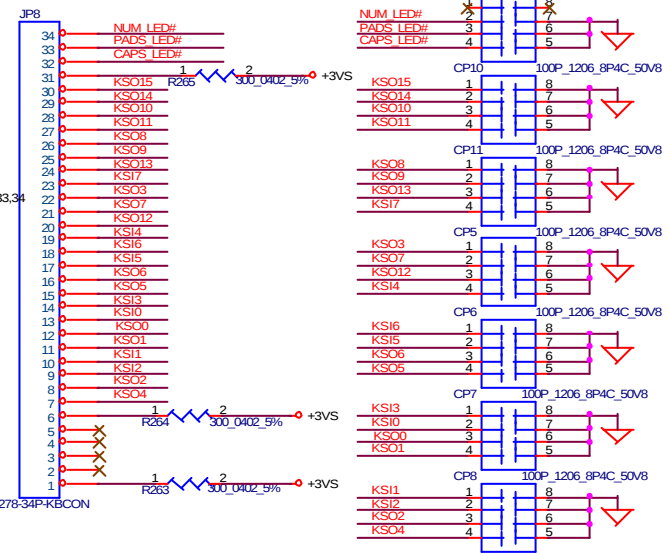


For EC Tools



KEYBOARD CONN.

(ACES_85201-2405_24P)



(Need to check layout library with KB spec)

I/O Address		
BADDR1(KBA3) BADDR0(KBA2)	Index	Data
0 0	2E	2F
0 1	4E	4F
* 1 0	(HCF6BAH, HCF6BAL)	(HCF6BAH, HCF6BAL)+1
1 1	Reserved	

ENV0 (KBA0) ENV1 (KBA1) TRIS (KBA4)

IRE	0	0	0
* OBD	0	1	0
DEV	1	0	0
PROG	1	1	0

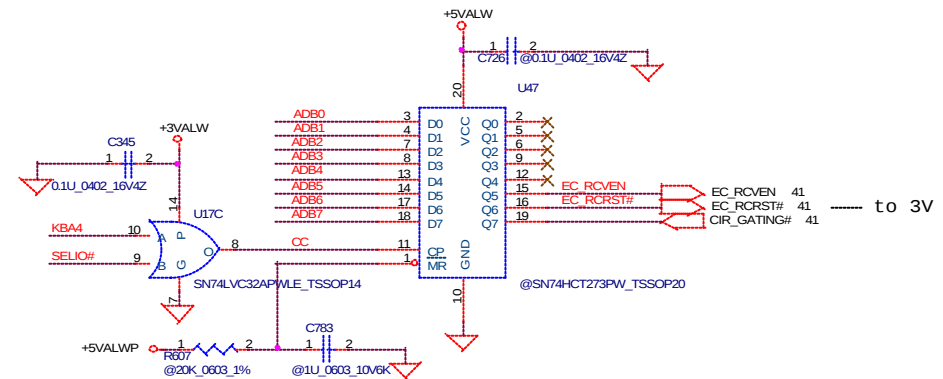
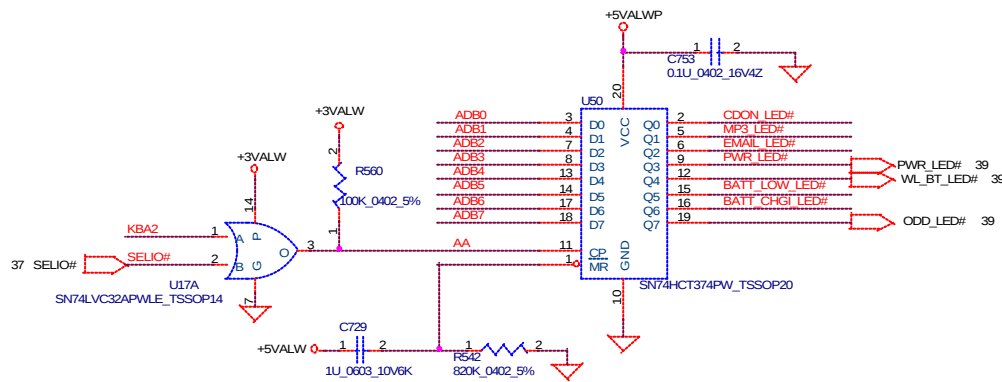
SHBM(KBA5)=1: Enable shared memory with host BIOS
TRIS(KBA4)=1: While in IRE and OBD, float all the signals for clip-on ISE use

Compal Electronics, Inc.

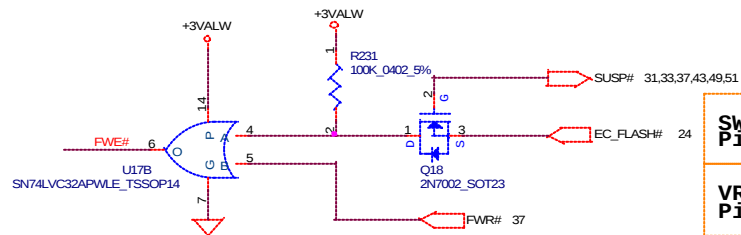
EC PC87591

Title	EC PC87591	Rev	0.2
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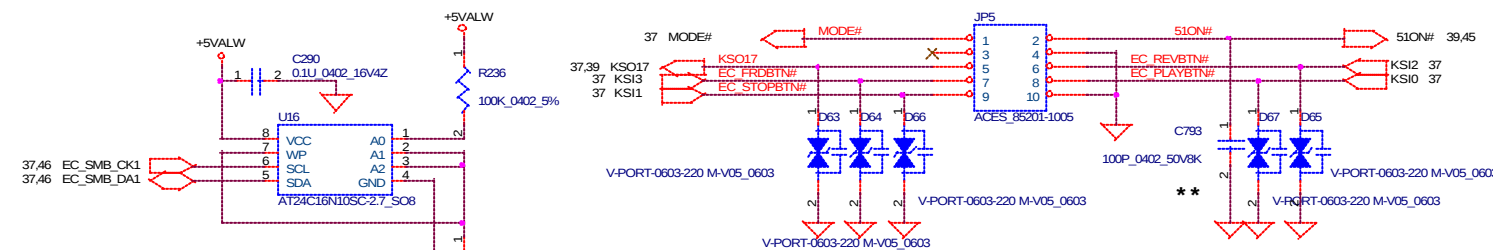
SW Board Connector



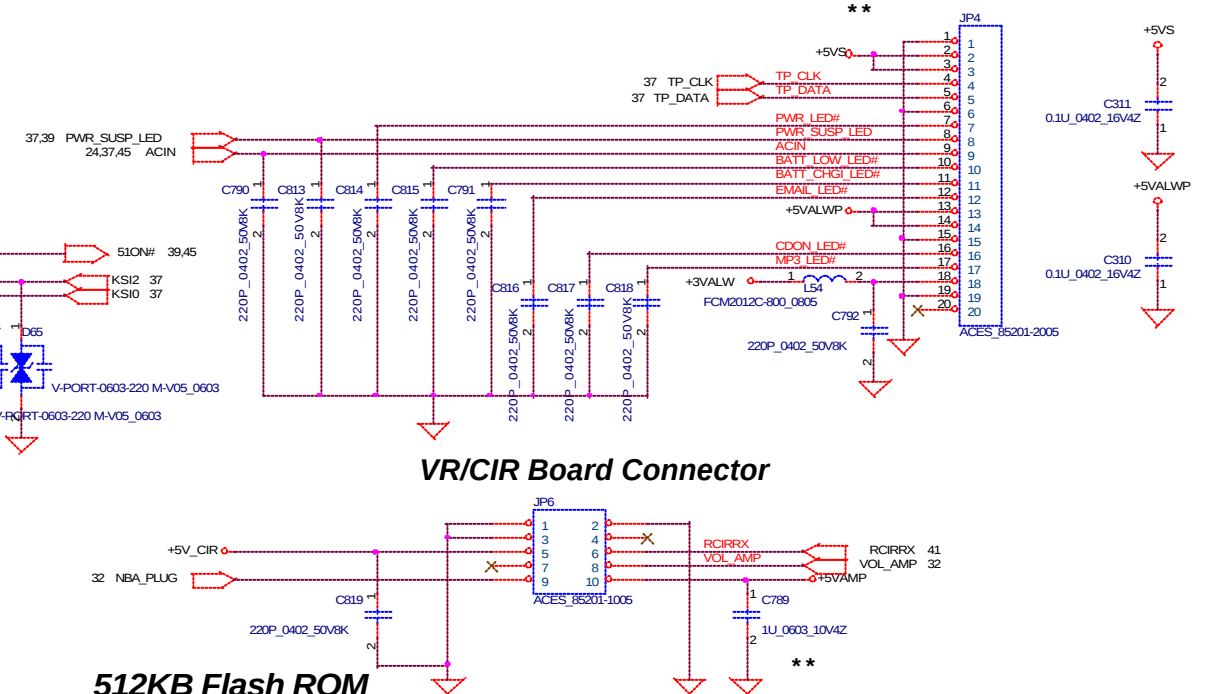
SW/B and TP/B FFC Connector
Pin 1 Definition Same As SW/B and TP/B

VR/B FFC Connector
Pin 1 Definition Swap with VR/B

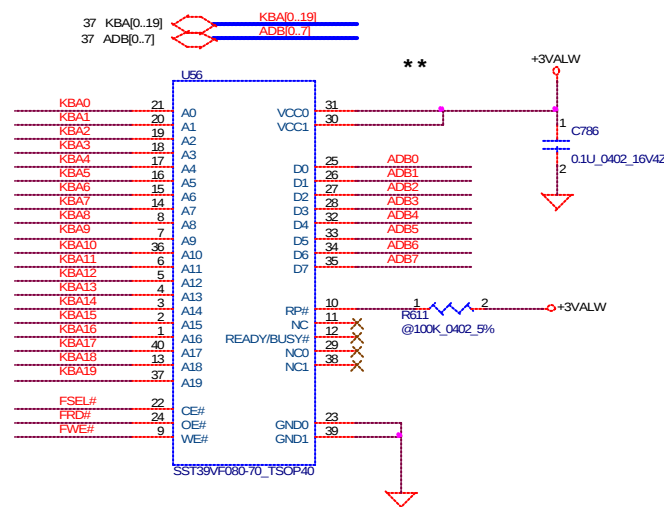
Direct CD button board



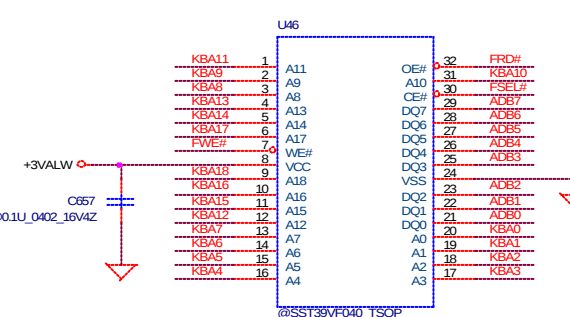
VR/CIR Board Connector



1MB Flash ROM



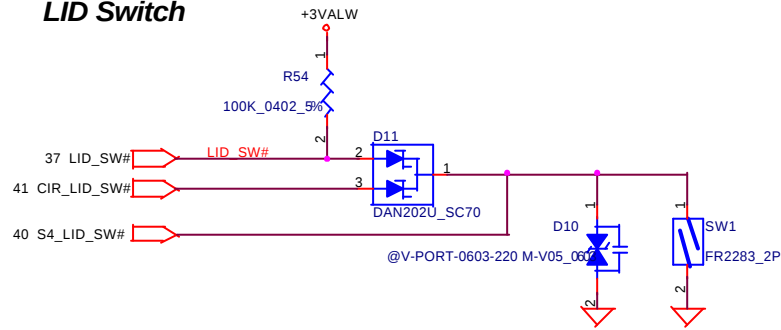
512KB Flash ROM



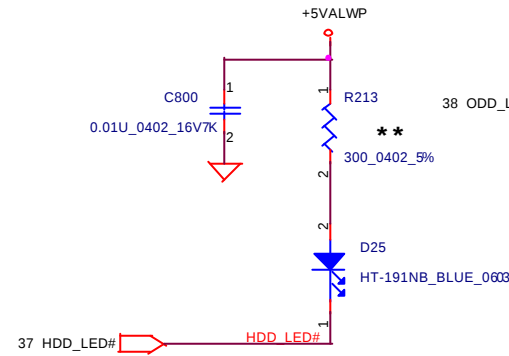
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Compal Electronics, Inc.			
Title			
BIOS & EXT. I/O PORT			
Size	Document Number	Rev	
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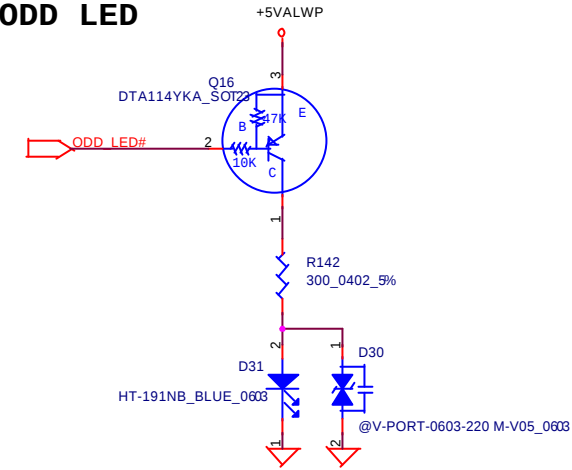
LID Switch



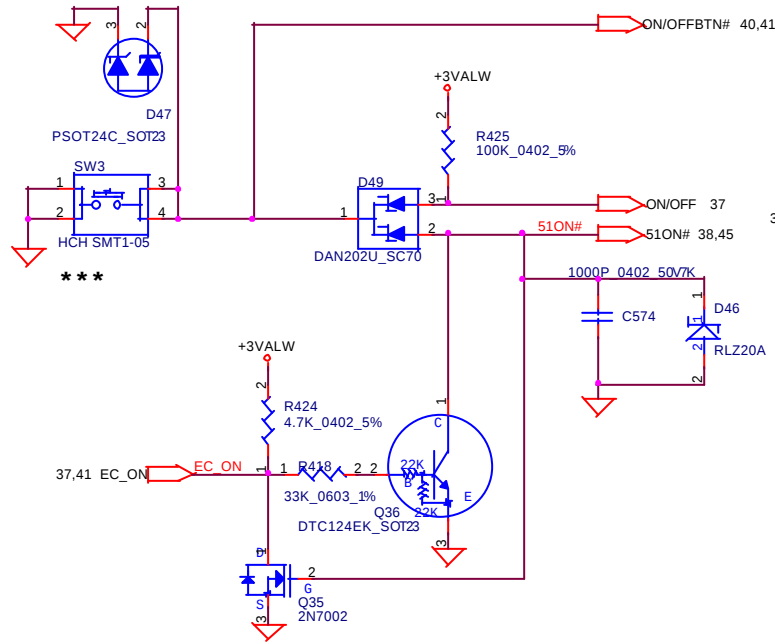
HDD LED



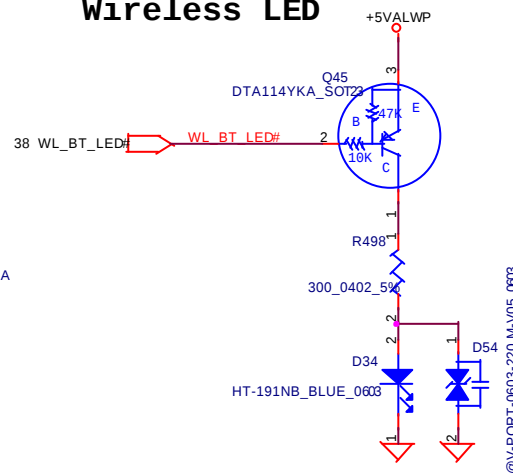
ODD LED



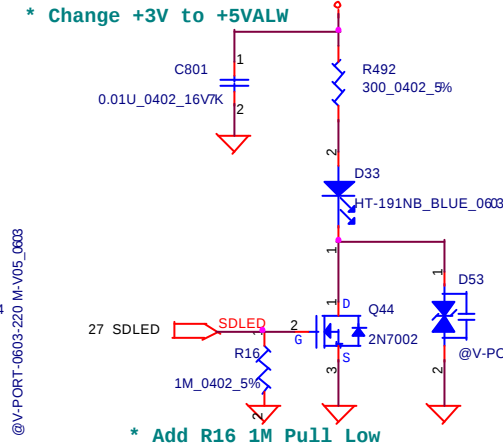
Power Button



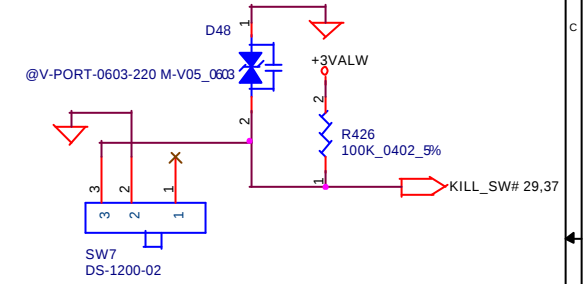
Wireless LED



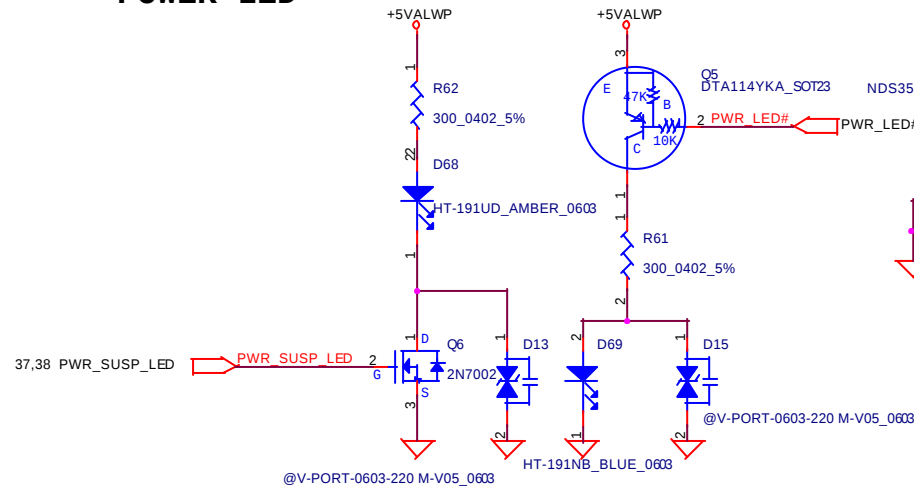
SD LED



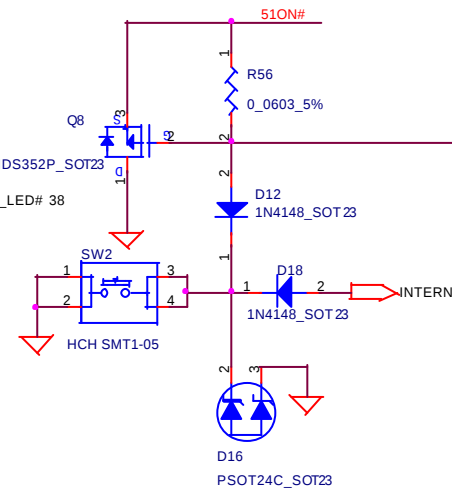
Kill SWITCH



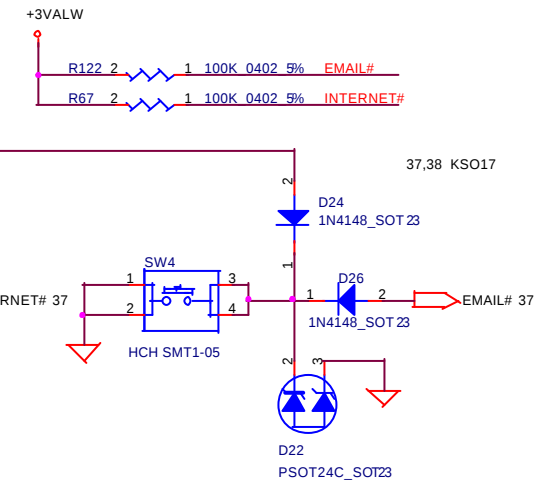
POWER LED



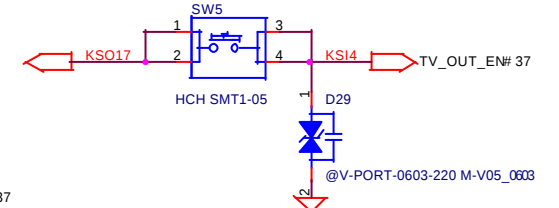
Internet Button



Console/E-MAIL Button



TV OUT Button

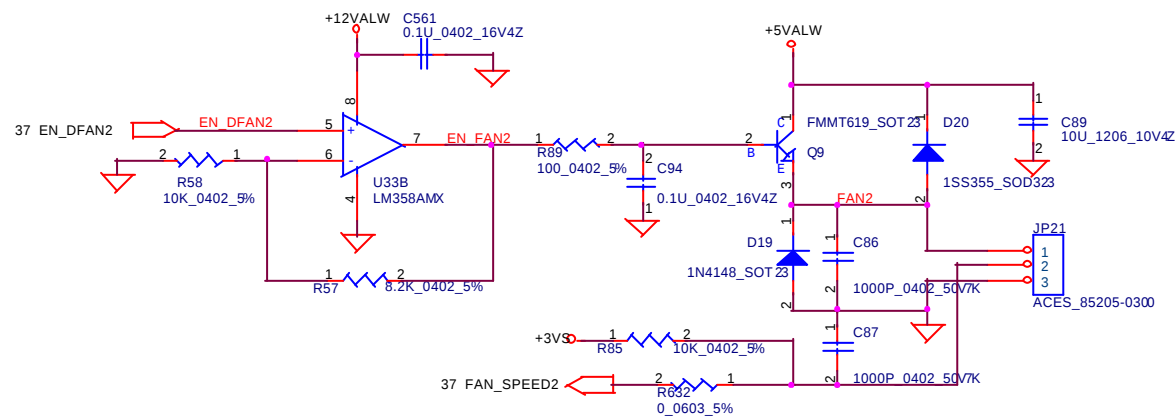
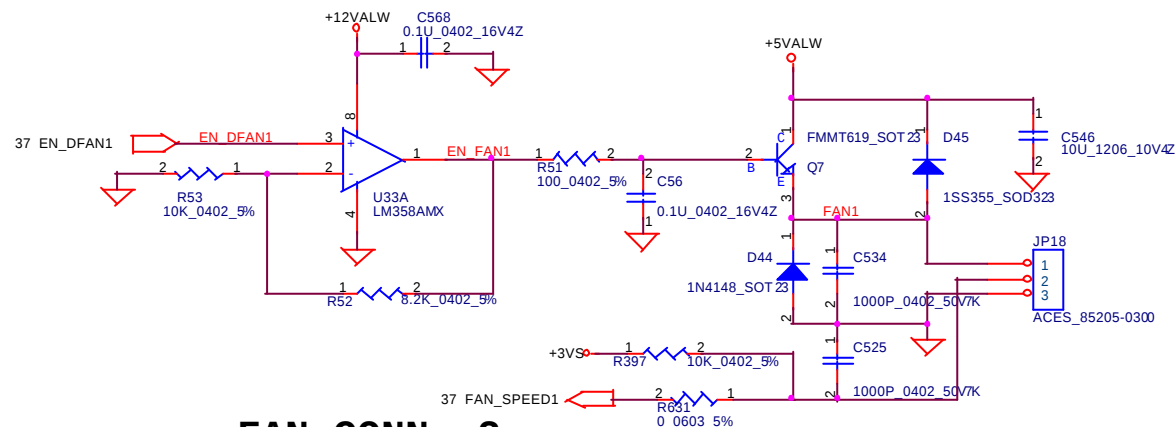


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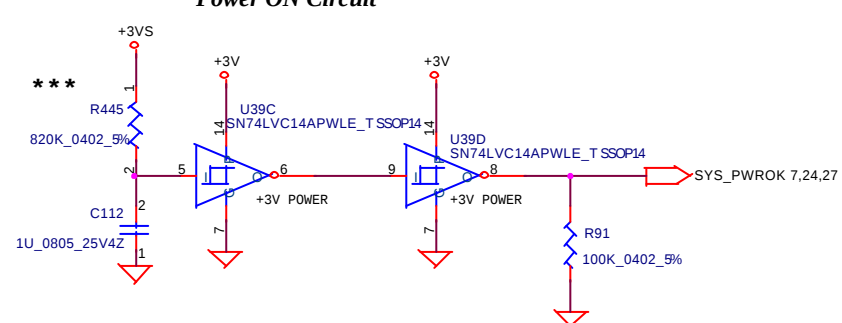
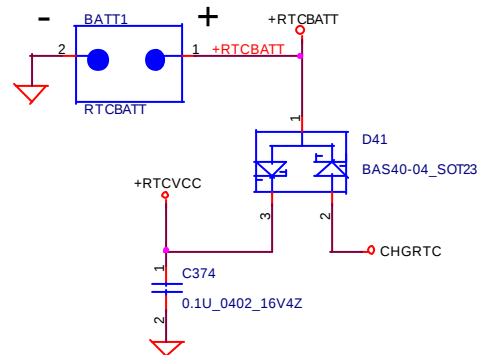
Compal Electronics, Inc.

Title		
Switches & Connectors		
Size	Document Number	Rev
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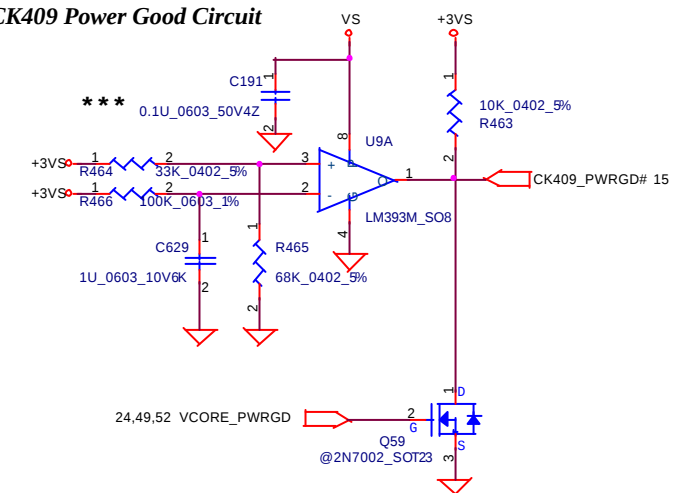
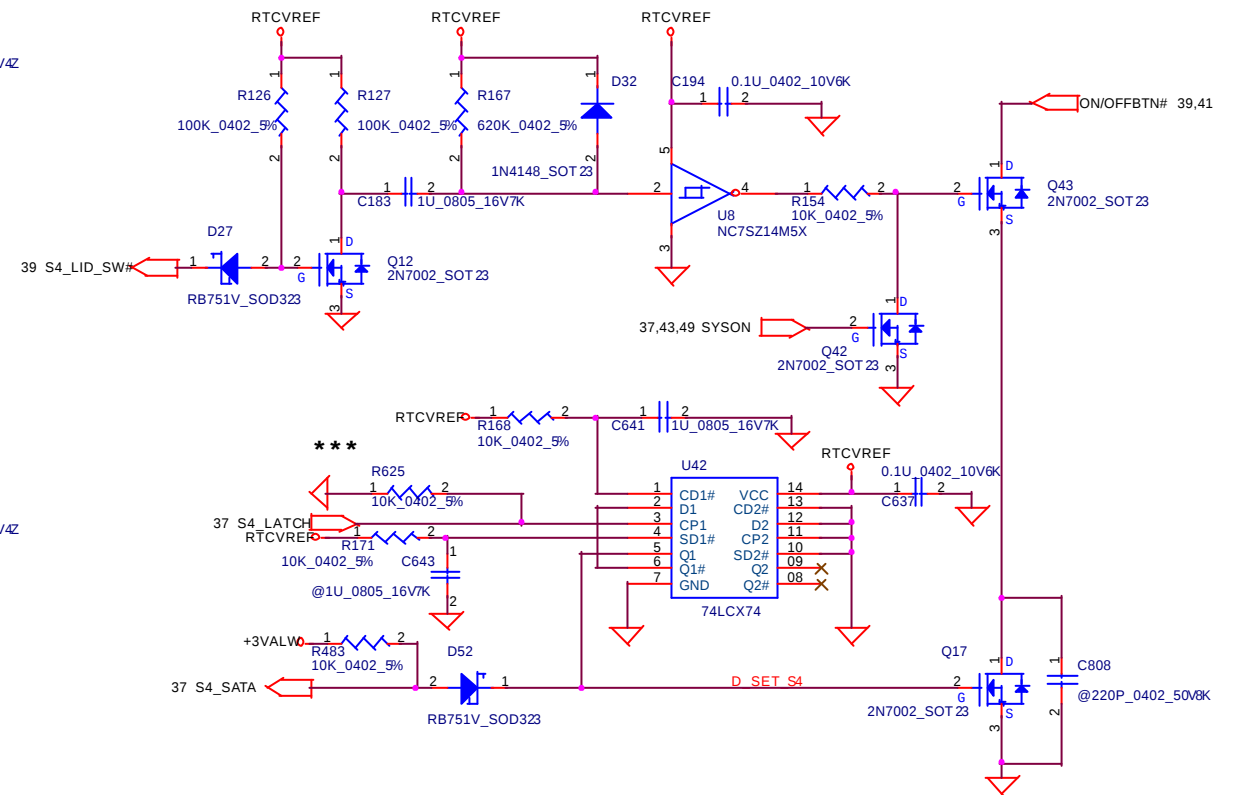
FAN CONN. 2



Power ON Circuit



CK409 Power Good Circuit

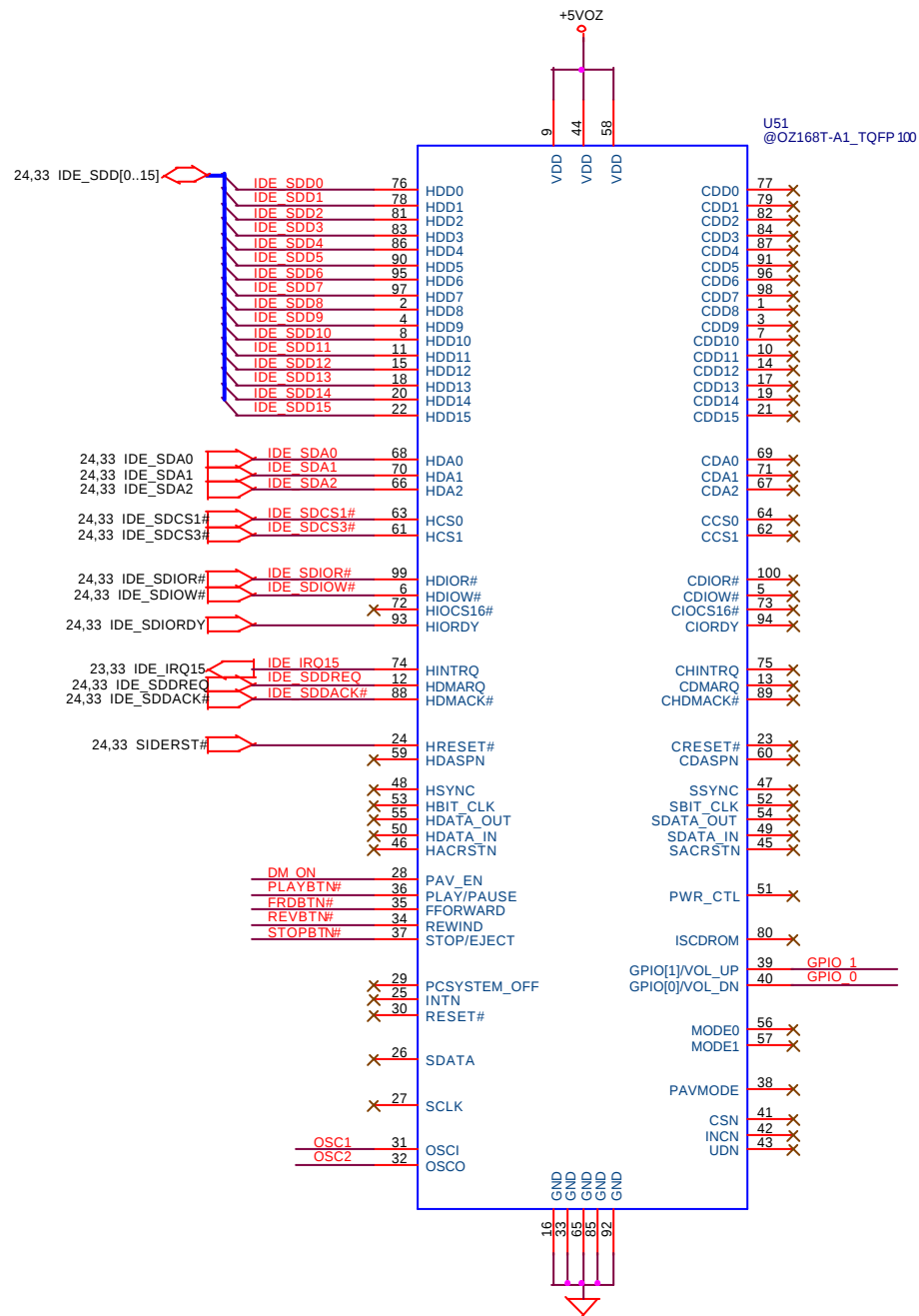




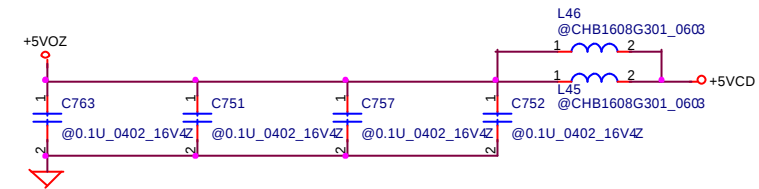
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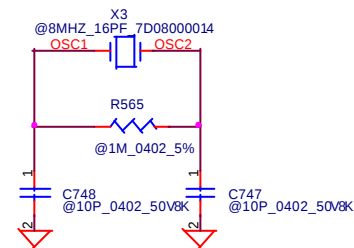
OZ168 DIRECT CD CONTROLLER



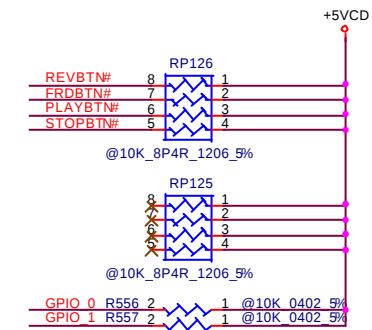
+5VOZ TO +5VCD



OZ168 8MHz CRYSTAL



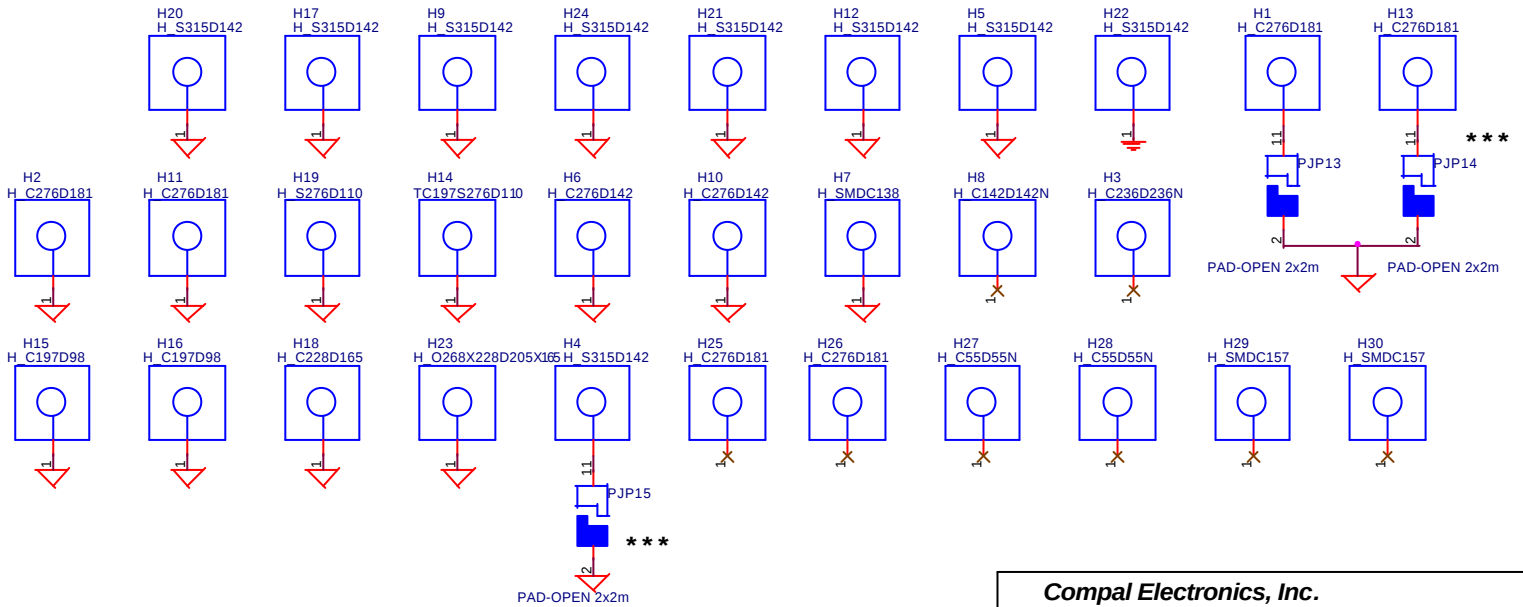
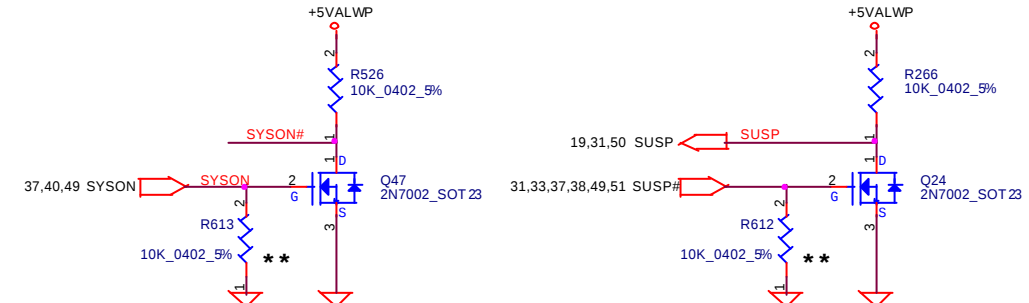
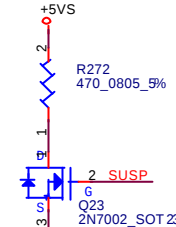
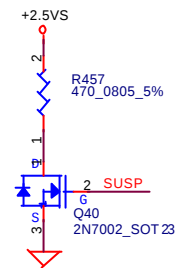
OZ168 UNUSED PIN PULL UP



PROGRAMMING CLOCK GENERATOR

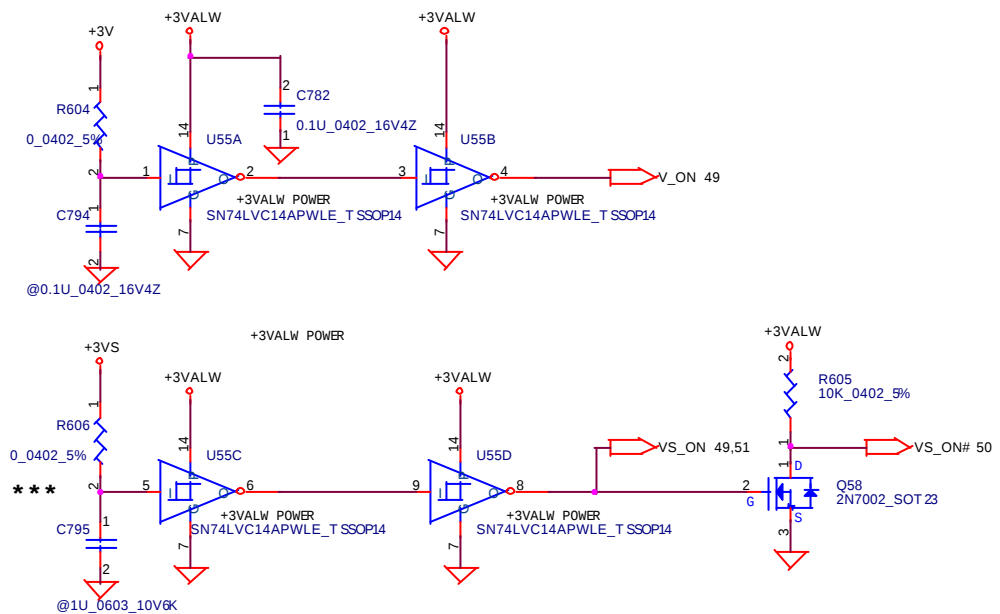
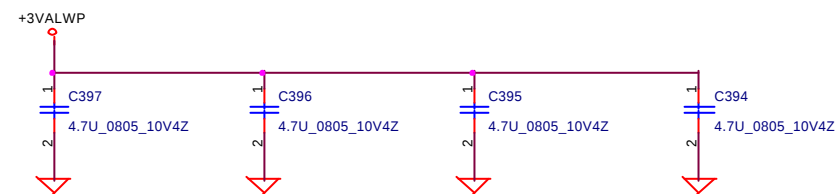
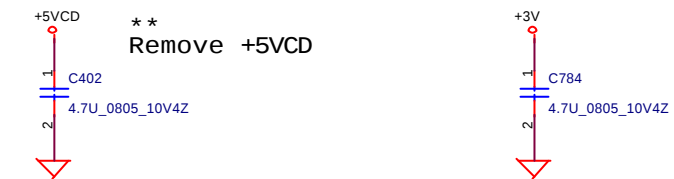
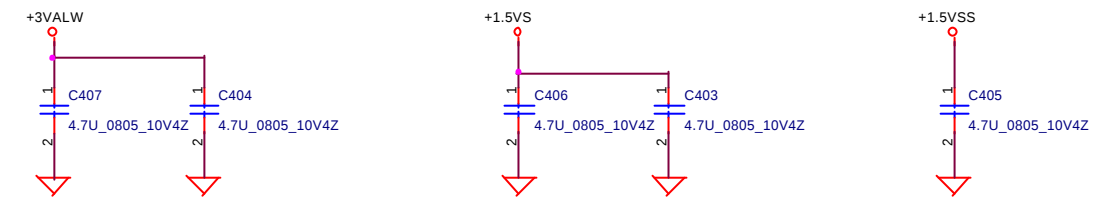
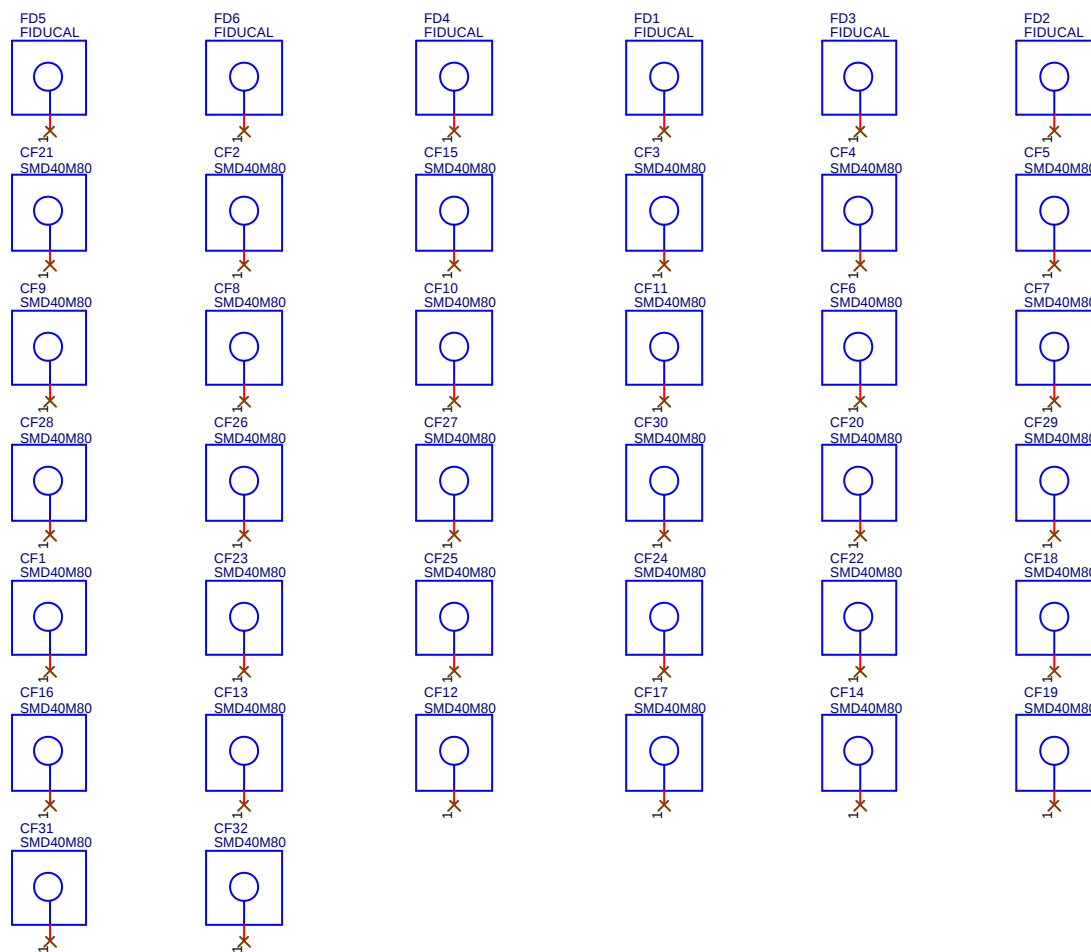
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Compal Electronics, Inc.			
Title			
OZ-168 CD_PLAY & Programming Clock			
Size B	Document Number LA-1911		Rev 0.2
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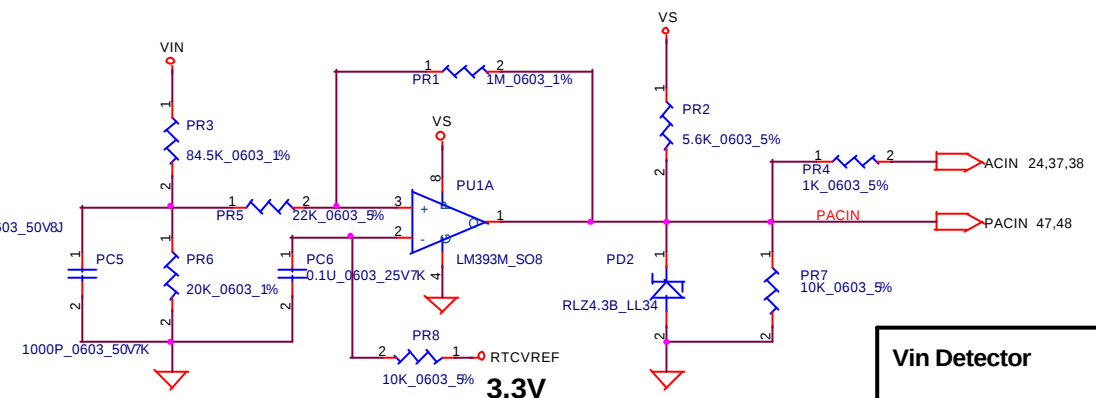
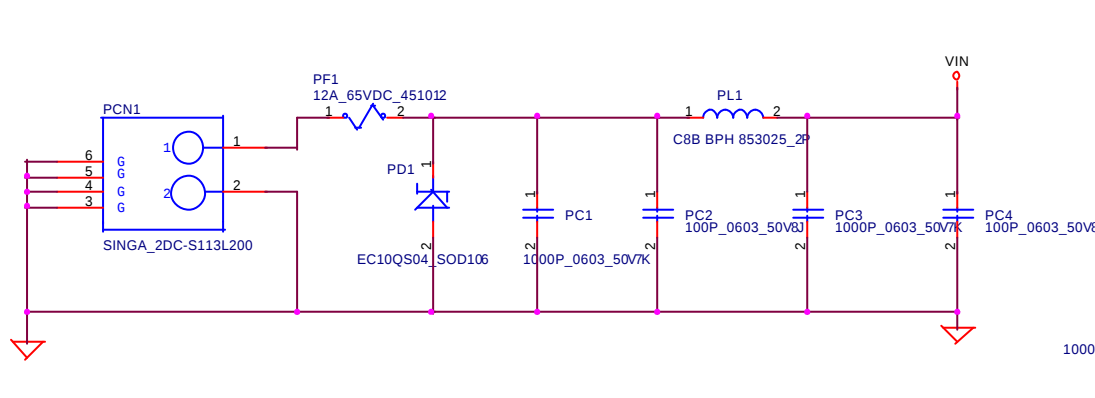
Title		POWER CONTROL CKT	
Size B	Document Number LA-1911	Rev 0.2	
Date:	Friday, August 08, 2003	Sheet	43 of 57

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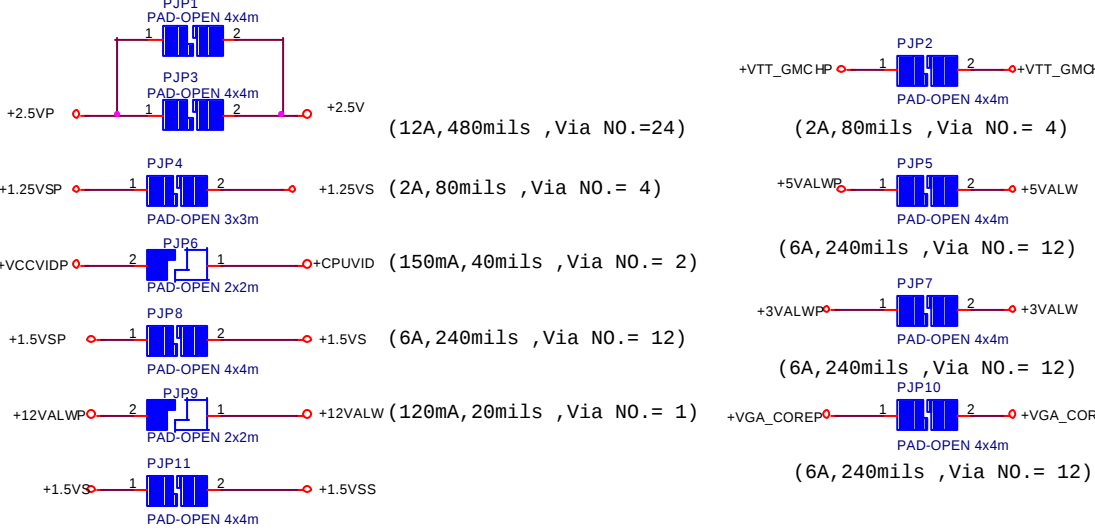
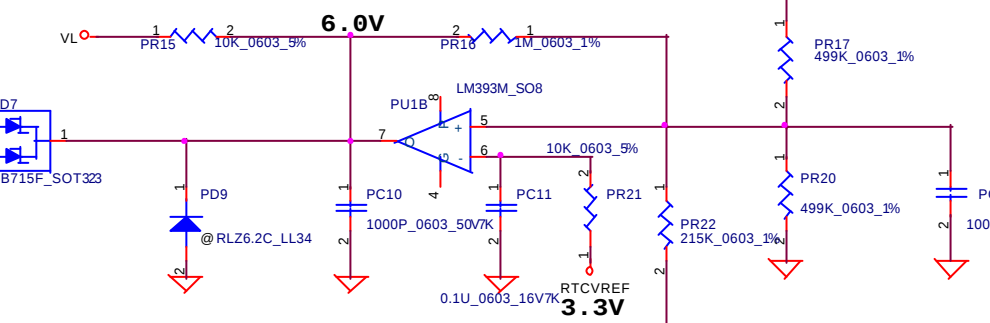
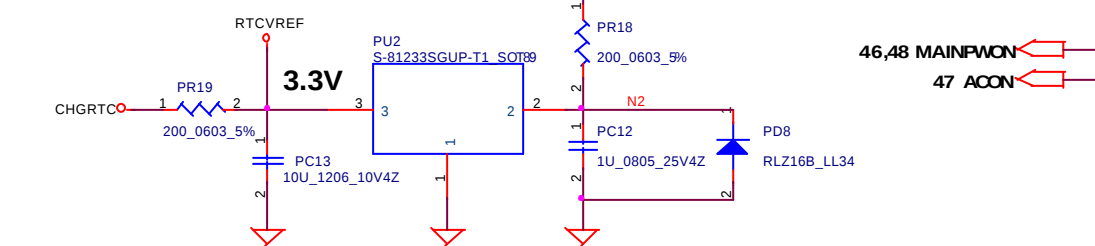
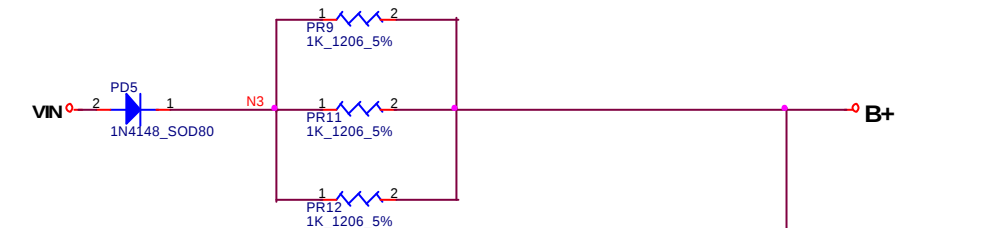
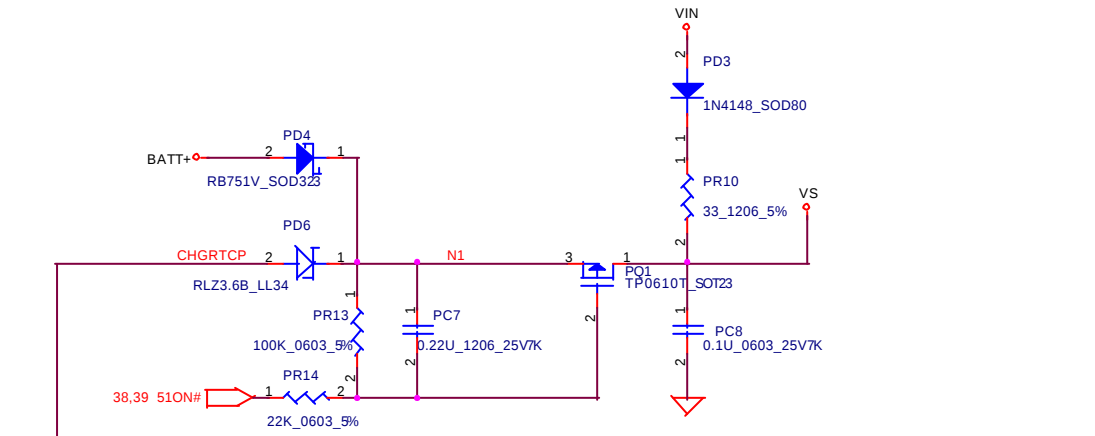
Compal Electronics, Inc.			
Title		Point and Capacitance	
Size	Document Number	Rev	
B	LA-1911	0.2	
Date:	Friday, August 08, 2003	Sheet	44 of 57

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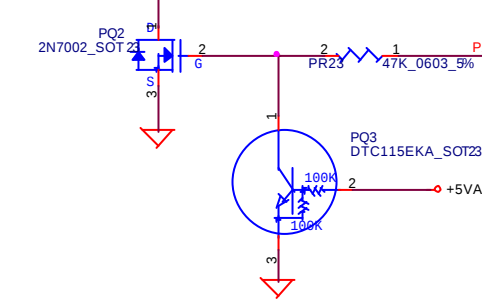
Vin Detector

High	18.764	17.901	17.063
Low	17.745	16.903	16.038



Precharge detector

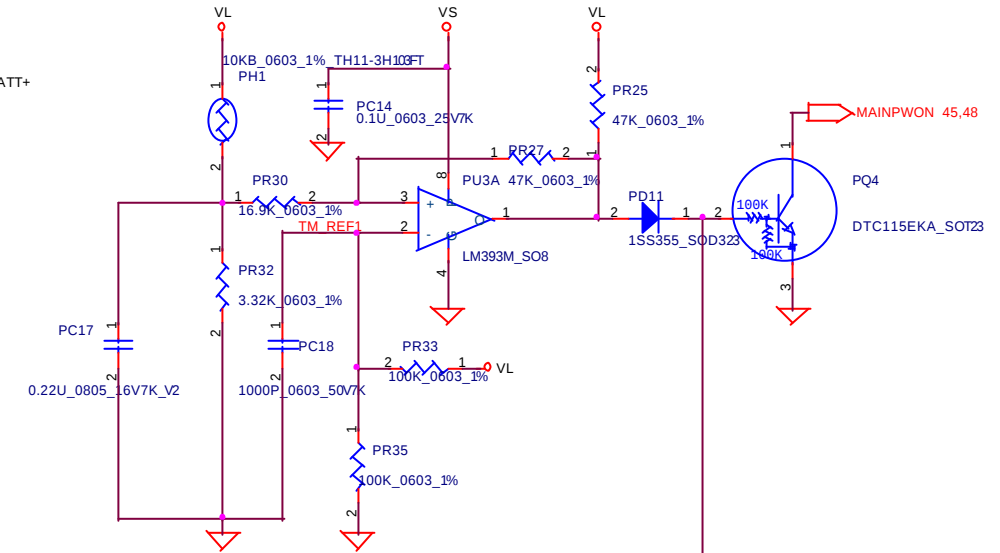
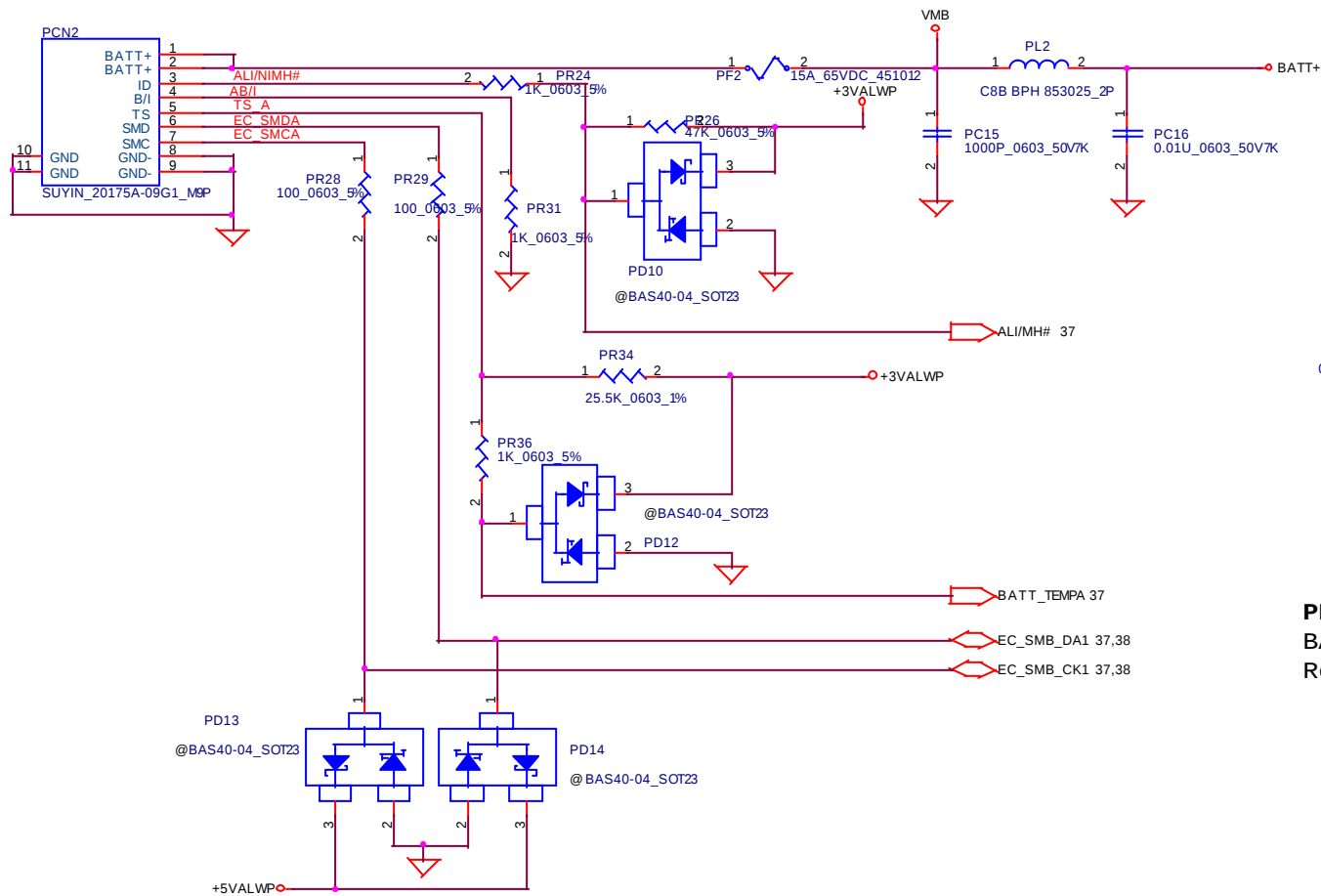
15.34	15.90	16.48
13.13	13.71	14.20



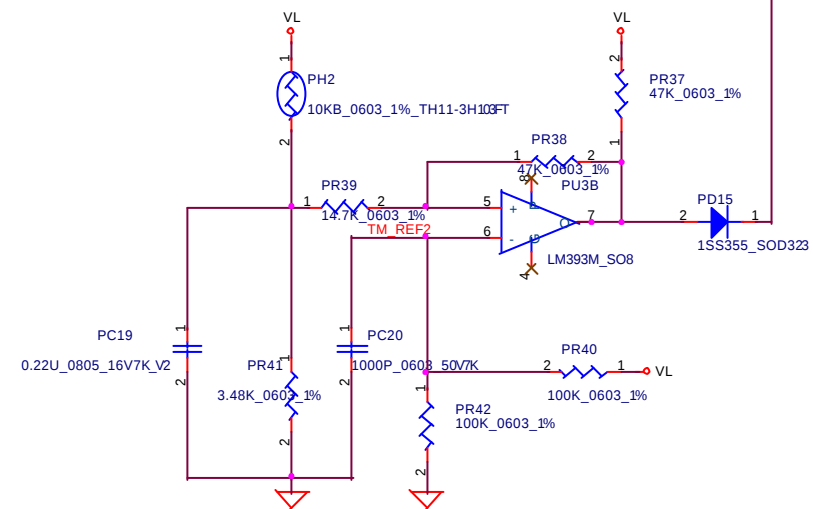
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Compal Electronics, Inc.			
Title			
DCIN & DETECTOR			
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PH1 under CPU botten side :
CPU thermal protection at 84 degree C
Recovery at 44 degree C



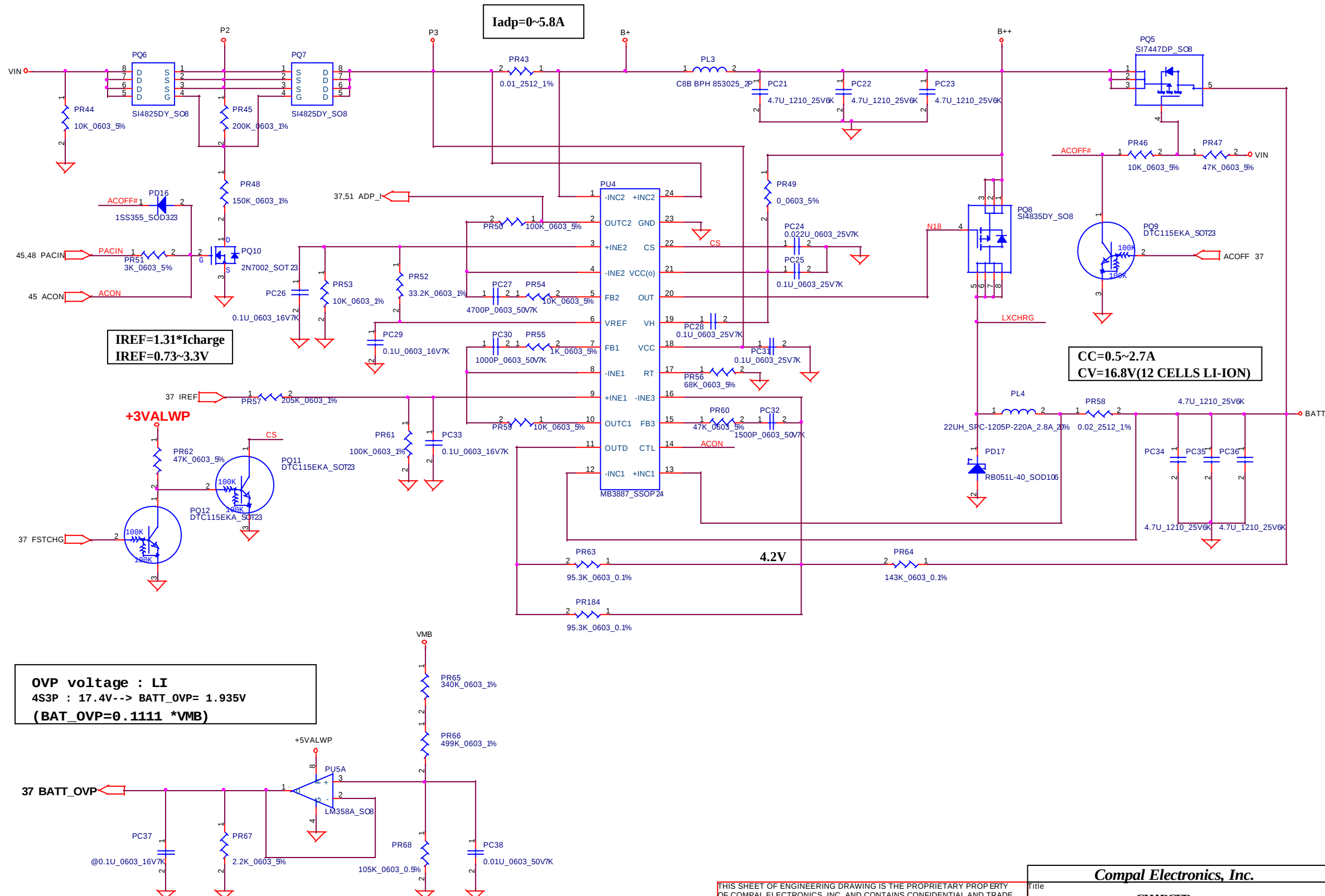
PH2 near main Battery CONN :
BAT. thermal protection at 78 degree C
Recovery at 44 degree C



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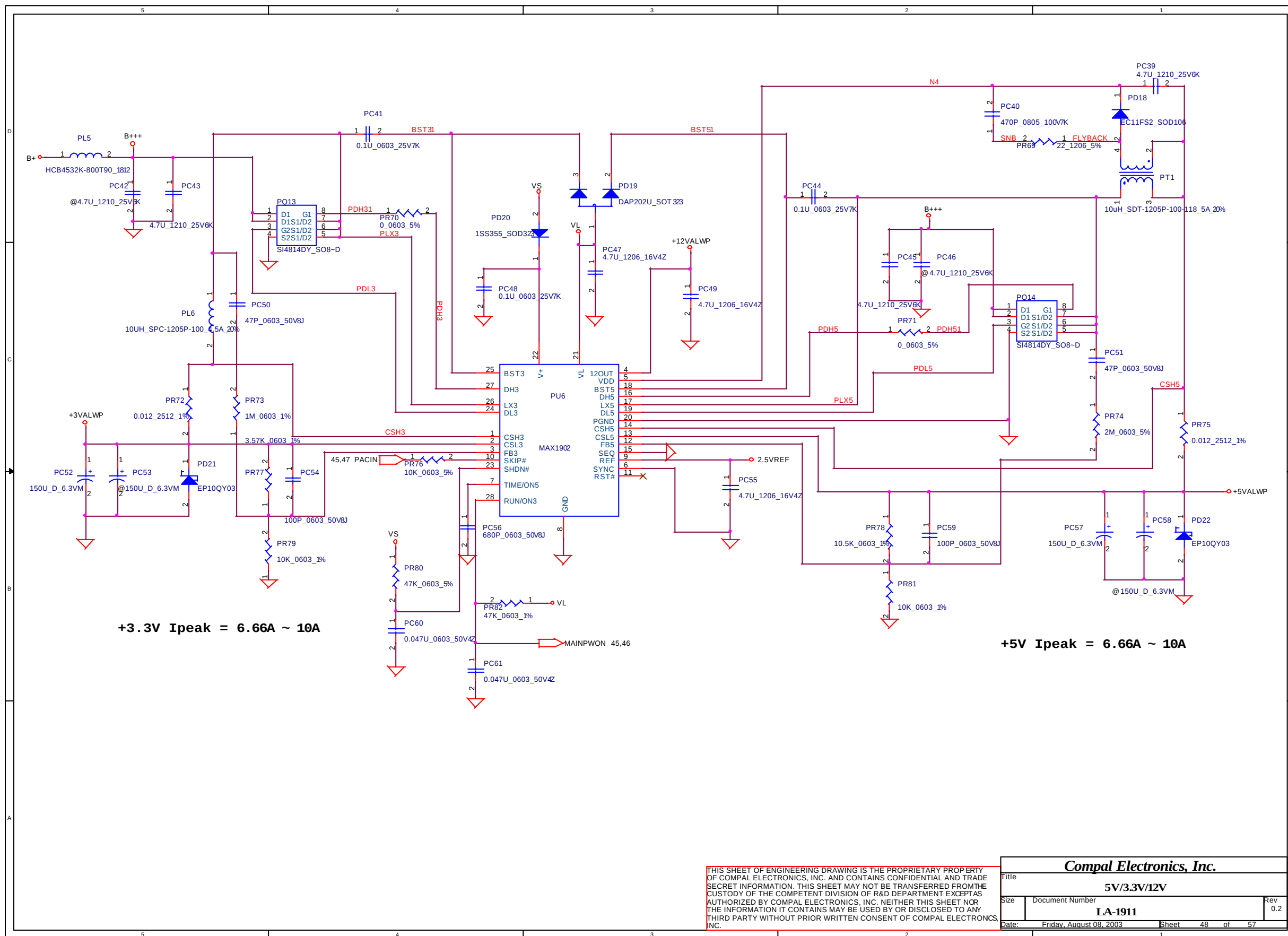
Compal Electronics, Inc.

Title		BATTERY CONNOIP	
Size	Document Number	LA-1911	Rev 0.2
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Compal Electronics, Inc.			
Title			
CHARGER			
Size	Document Number		Rev
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Date:	Friday, August 08, 2003	Sheet	47 of 57

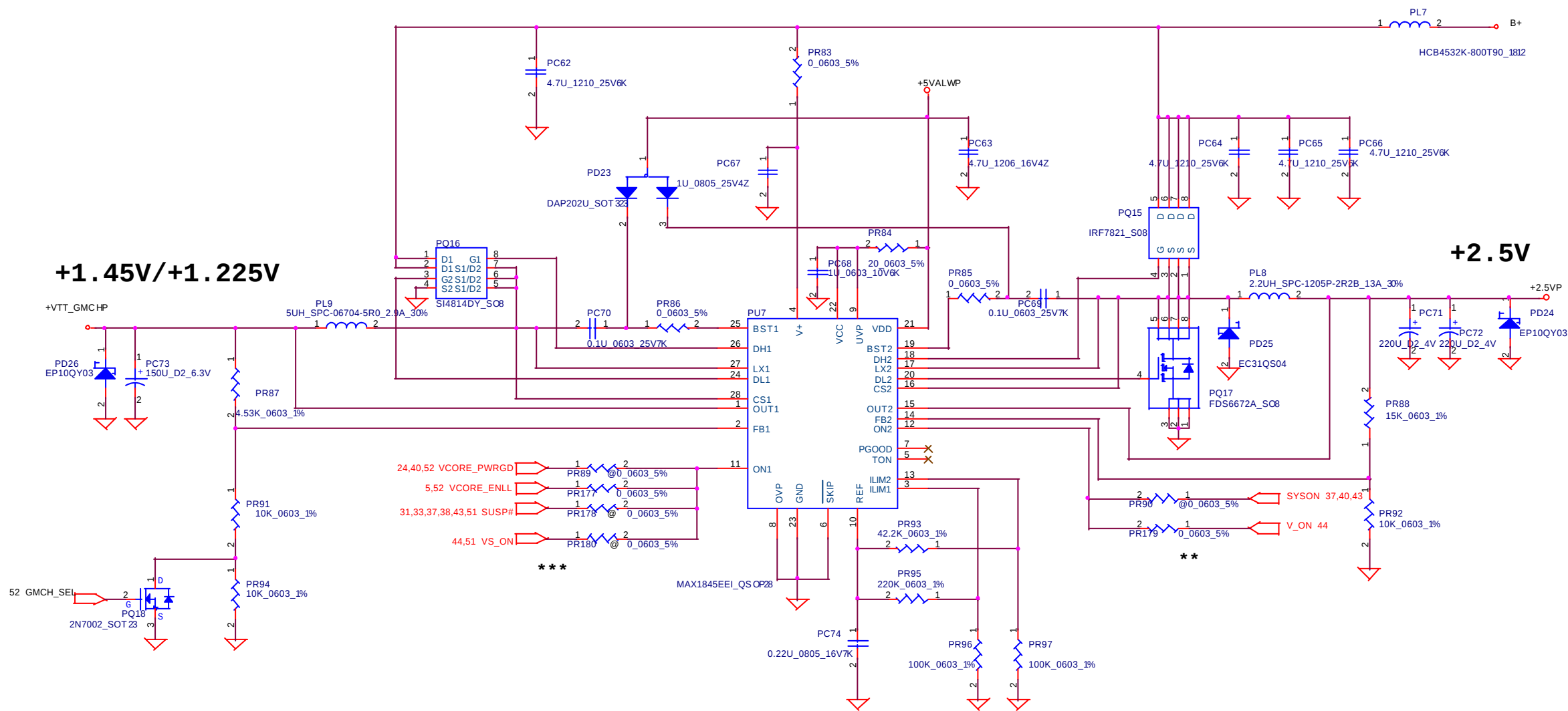


+3.3V Ipeak = 6.66A ~ 10A

+5V Ipeak = 6.66A ~ 10A

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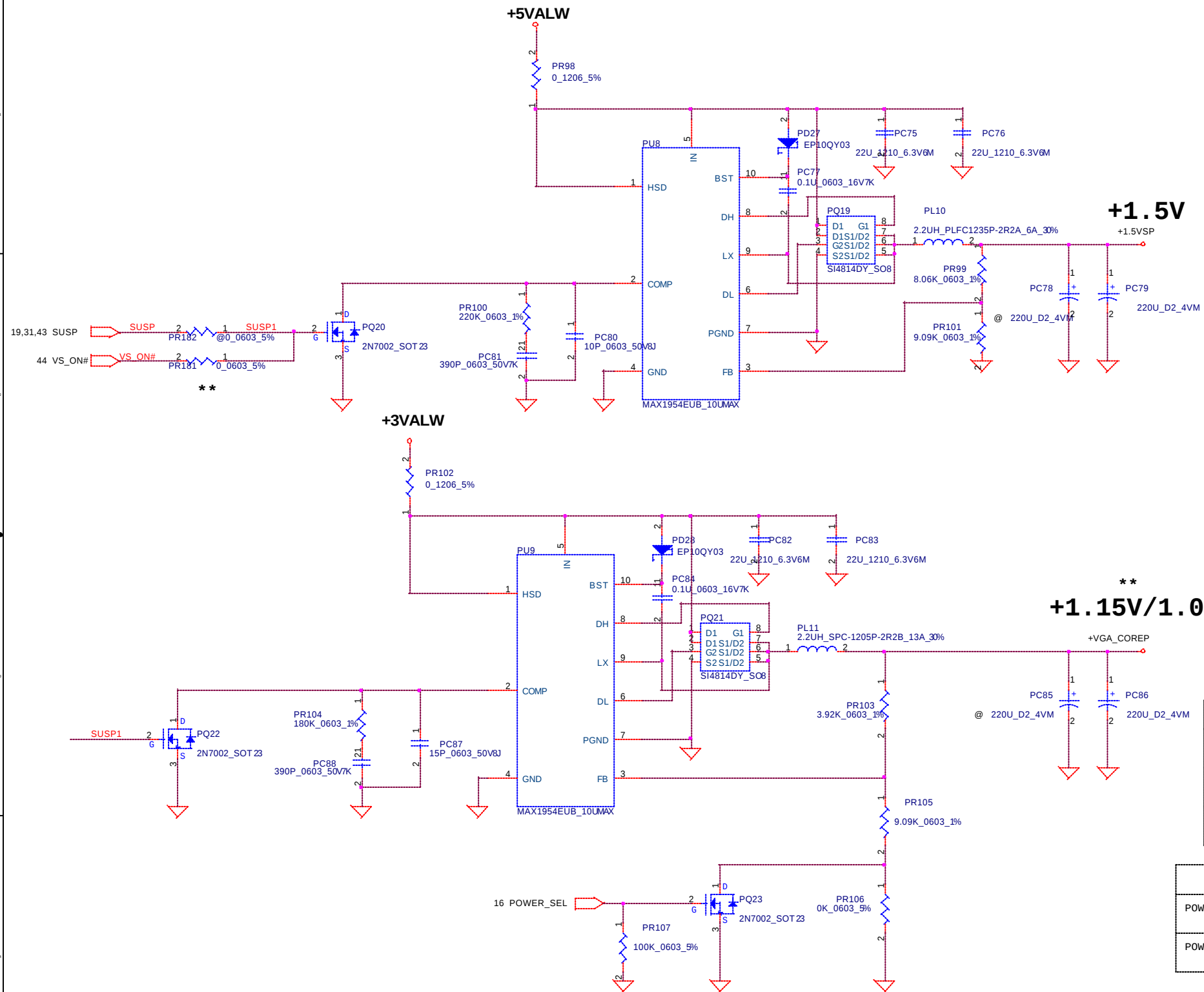
Compal Electronics, Inc.			
Title			
5V/3.3V/12V			
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GMCH_SEL=0 PRESCOTT	VTT_GMCH=1.225V
GMCH_SEL=1 NORTHWOOD	VTT_GMCH=1.45V

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Compal Electronics, Inc.			
Title			
DDR_25V/VTT_GMCH			
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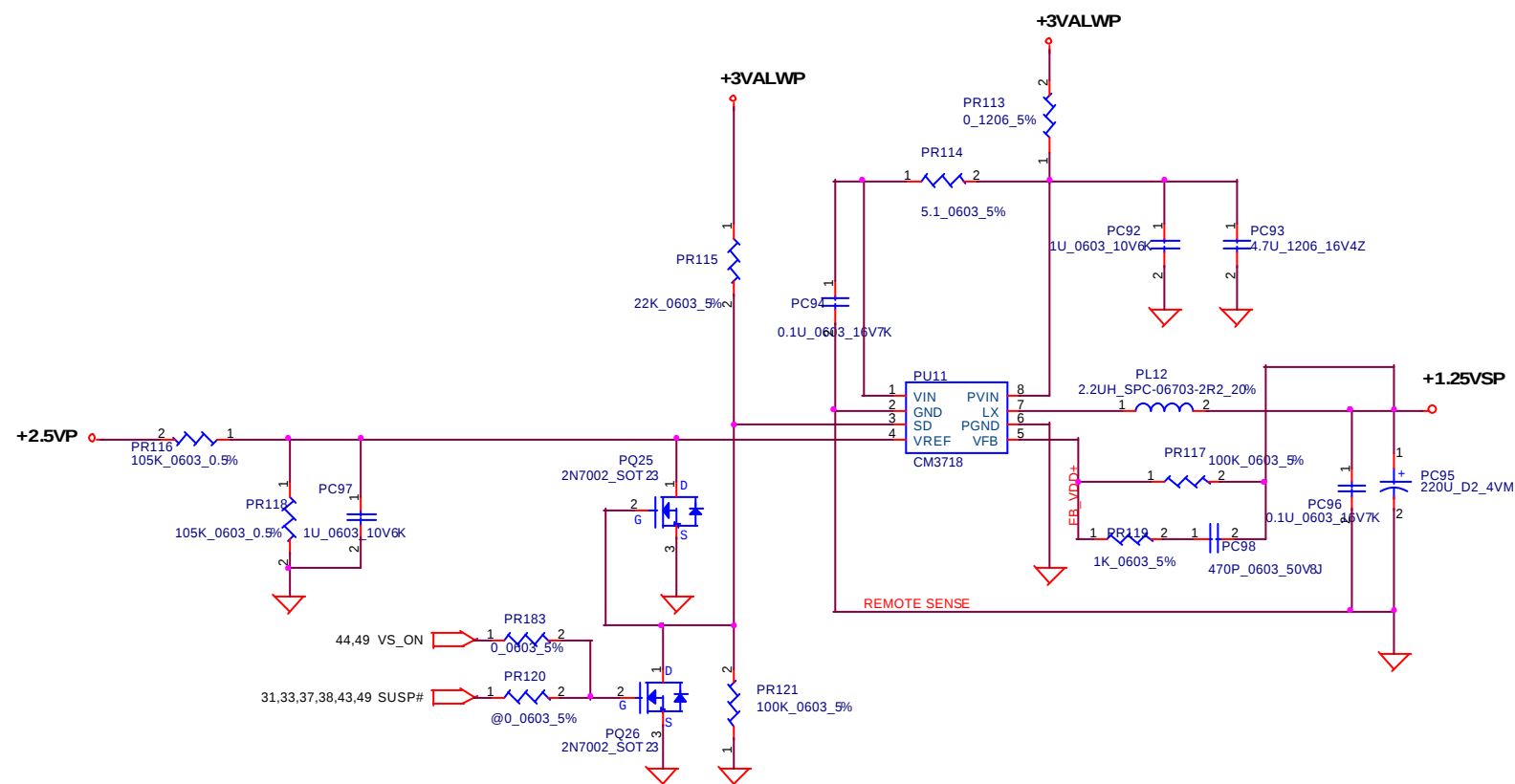
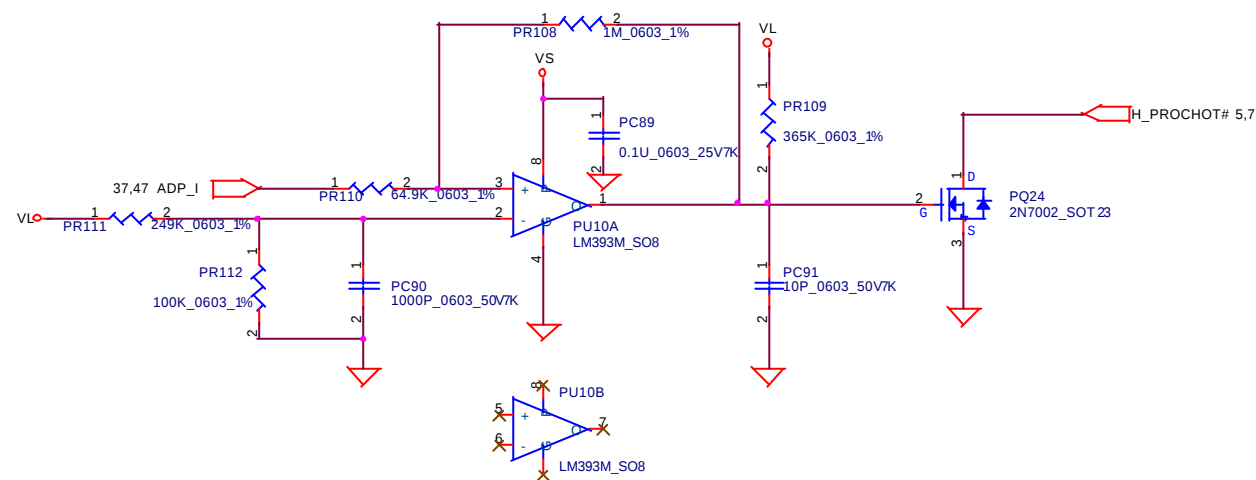


	PR103	PR106
NV31M	4.53K	9.09K
NV33M	3.92K	0K
NV34M	3.92K	0K

	NV31M	NV33M/NV34M
POWER_SEL=1	VOUT=1.2V	VOUT=1.15V
POWER_SEL=0	VOUT=1.0V	VOUT=1.15V

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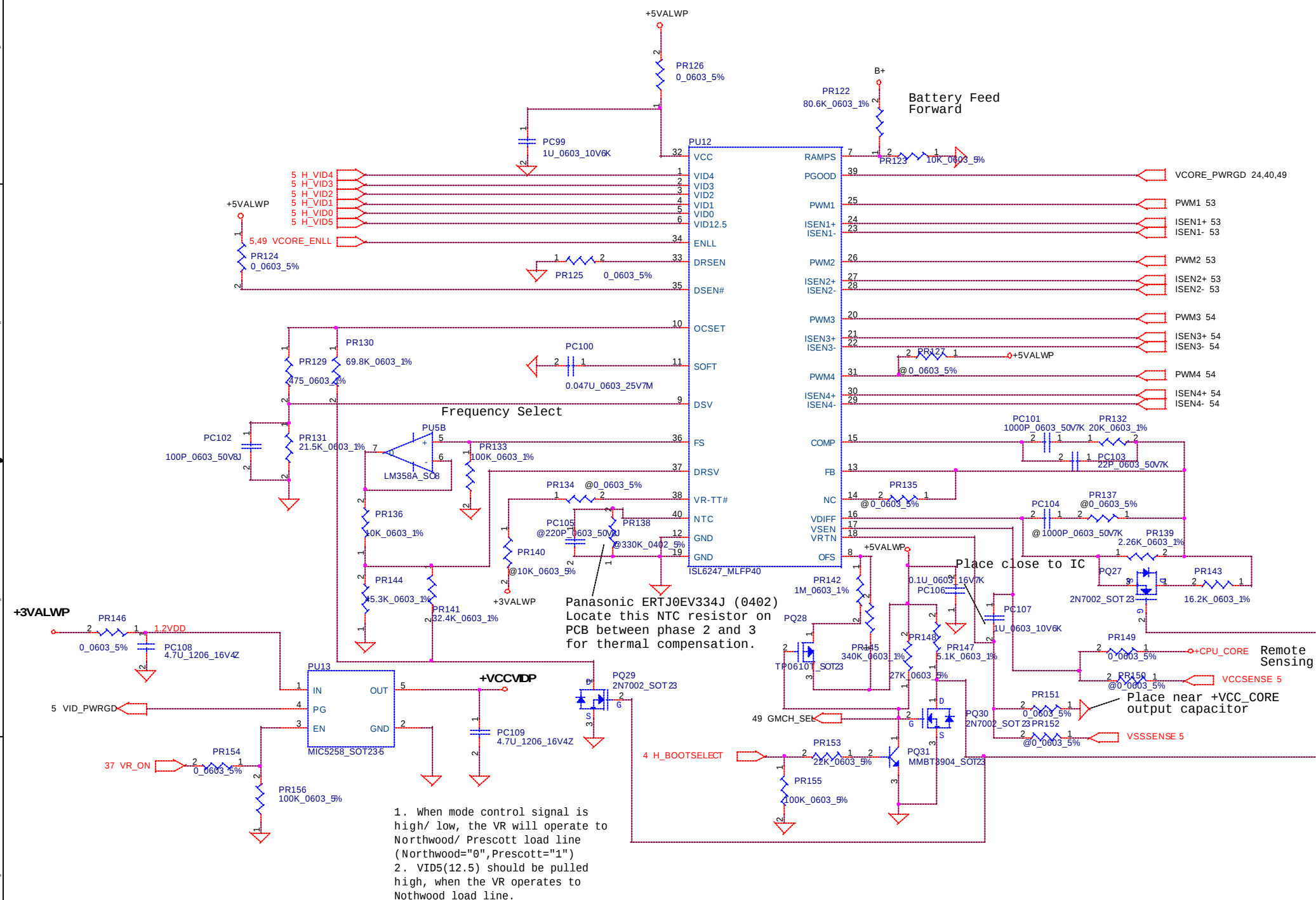
Compal Electronics, Inc.			
Title			
1.5V/VGA_CORE			
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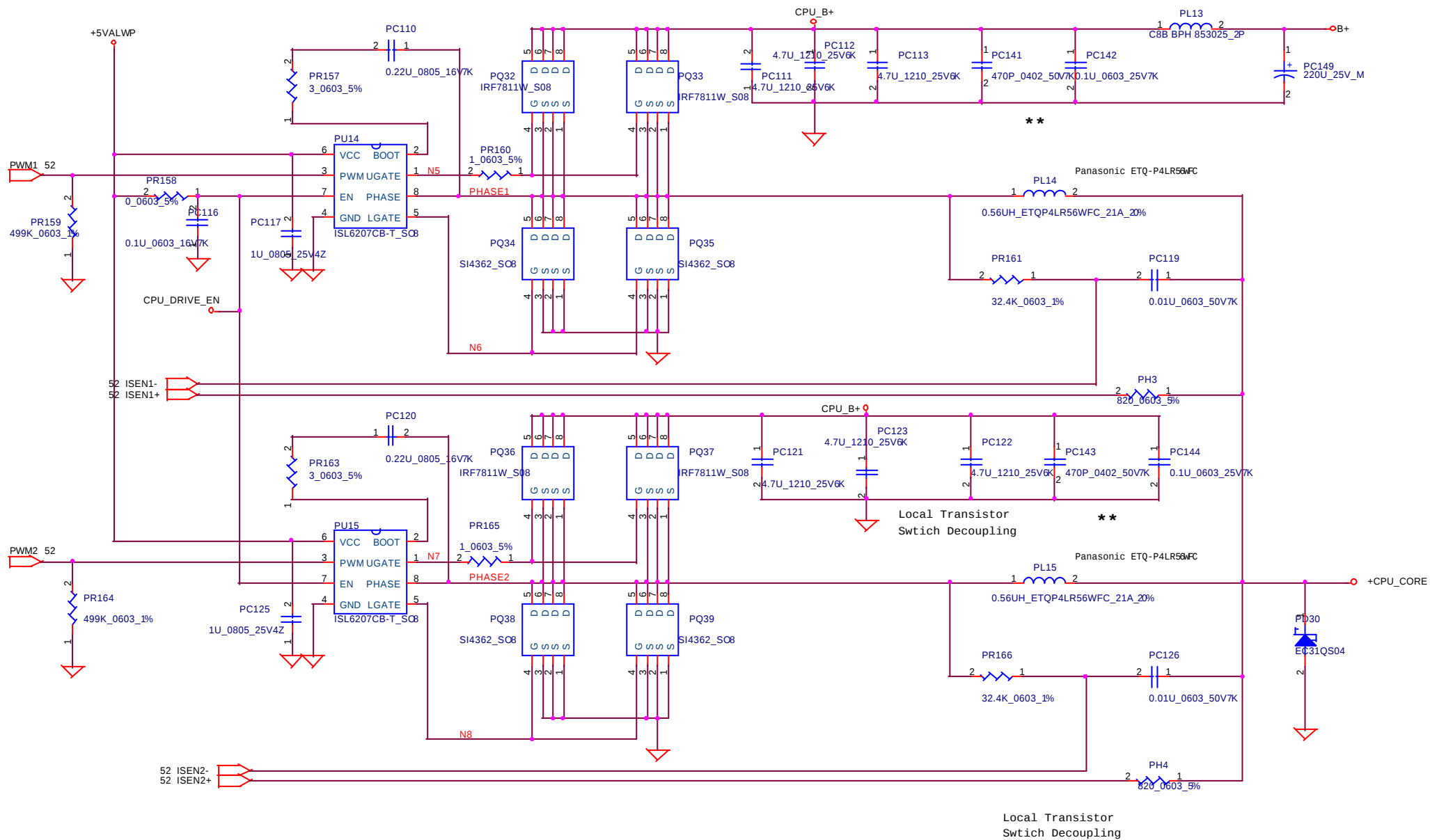
Compal Electronics, Inc.

Title		
DDR_1.25V/THROTTLING		
Size	Document Number	Rev
	LA-1911	0.2
Date:	Friday, August 08, 2003	Sheet 51 of 57



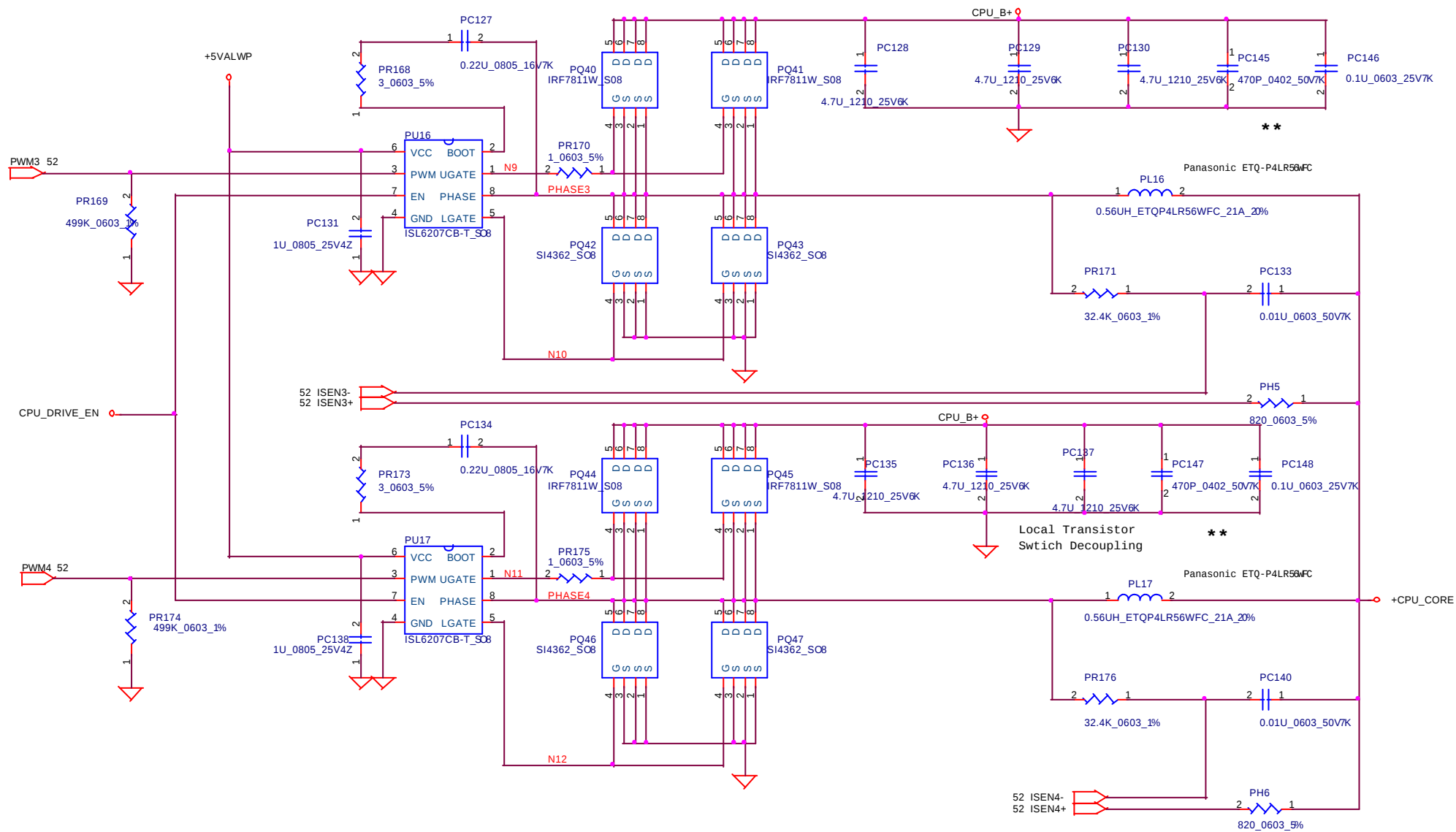
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Compal Electronics, Inc.			
Title			
CPU CORE Controller			
Size	Document Number		Rev
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Compal Electronics, Inc.			
Title			
CPU_CORE Power stage 1			
Size	Document Number		Rev
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Compal Electronics, Inc.			
Title			
CPU_CORE Power stage2			
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DAL00 PIR LIST

***** Rev0.1 PIR List *****

04/01/03 Written by Po

P52:Add Oz168 for reservation

04/09/13 Written by Jei
P36:Swap RP142 Pin 10 <-> 6; Pin7 <-> 8
P36:Swap CP4 Pin 4 <-> 1; Pin2 <-> 3

POWER PIR LIST

EVT2	page	Reason for change	Modify list
EVT2	49,50,51	Modify power sequence for H/W request	Delete PR89,PR90,PR120 and add PR179,PR180,PR181,PR183
	49	Design change VTT_GMCH OCP point	Change PR95 from 75K to 220K
	47	Design change charger voltage	Change PR63 from 47.5K to 95.3K and add PR184
	51	Increase throttling speed	Change PC91 from 1000P to 10P
	50	Change VGA_CORE voltage for H/W request	Change PR106 from 13.3K to 6.49K;PR103 from 5.62K to 3.92K
	53,54	Solve CPU_CORE noise for EMI request	Add 470P at location PC141,PC143,PC145,PC147
			Add 0.1U at location PC142,PC144,PC146,PC148
	53,54	Update BOM	Change PQ34,PQ35,PQ38,PQ39,PQ42,PQ43,PQ46,PQ47 from IRF7832 to SI4362
	52		Change PC100 from 0.033U to 0.056U; delete PR138
	47		Delete PC37; change PR43 from SD021100D00 to SD036100D00
PVT	48		Change PC60,PC61 from SE026473K06 to SE023473NT1
	53,54	To prevent shortage	Change PC142,PC144,PC146,PC148 from SE072104K00 to SE042104K01
	53,54	Change high side MOSFET and add gate/boot resistor for EMI request	Change PQ32,PQ33,PQ36,PQ37,PQ40,PQ41,PQ44,PQ45 from IRF7821 to IRF7811W, change PR157,PR163,PR168,PR173 from 0ohm to 3ohm, change PR160,PR165,PR170,PR175 from 0ohm to 1ohm
	49	Solve power sequency problem for H/W request	Delete PR180 and add PR177(0ohm)
	50	Change VGA_CORE voltage for H/W request	Change PR106 from 6.49K to 0ohm (for X6326251001_NV33M/34M)
	46	Change CPU/Battery's OTP point for Thermal team request	Change PR39 from 16.9K to 14.7K, PR32 from 2.8K to 3.32K
	53	Solve LAN transmission has high frequency noise issue	PR41 from 3.24K to 3.48K
			Add PC149
	47,52	Update BOM	Change PD17 from SC1B051L000 to SC11QS04000, delete PR150,PR152 and add PR149,PR151(0ohm),delete PC105,change PC100 from 0.056U to 0.047U
PVT(memo)	50	Change VGA_CORE voltage for H/W request	Change PR103 from 3.4K to 4.53K, PR106 from 4.53K to 9.09K (for X6326251002_NV31M)
	52	Change CPU_CORE OCP point for QAD request	Change PR131 from 27.4K to 21.5K
PVT(memo)	50	Modify CPU_CORE load line	Change PR139 from 1.87K to 2.26K
	52	Solved CPU_CORE shutdown issue	Add PC103

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Compal Electronics, Inc.		
Title	DAL00 PIR LIST	
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Rev 0.2

Page	Location	From	To	Page	Location	From	To
5	Modify L5,L6	10U	4.7U	38	ADD L54	X	FCM2012C-800
6	DEL C20,C21	22U	X	38	ADD C789	X	1U
6	DEL 470U	470U	X	38	ADD U56	X	SST39VF080-70
11	Modify L15	0.82U	4.7U	38	DEL U13	29F040	X
26	MODIFY C49,C488 C528	0.01U	0.1U	39	MODIFY Q6	DTA114YKA	2N7002
26	DEL C50	0.01U	X	40	ADD R625	X	10K
26	ADD C787	X	1000P	40	MODIFY R464	20K	33K
26	ADD C788	X	4.7U	40	MODIFY C629	0.33U	1U
27	ADD D21	X	RB751V	40	MODIFY R465	100K	68K
27	ADD C83	X	0.1U	40	ADD L55,L56	X	CHB1608U301
28	ADD C797,C798 C799	X	0.1U	43	ADD Q23,Q38 Q39,Q40 Q46	X	2N7002
31	DEL L42,L43 L44	CHB2012U170	X	43	ADD R450,R516 R457,R452 R272	X	470 Ohm
31	ADD L10,L11 L12	X	CHB2012U170	43	ADD R612,R613	X	10K
31	ADD U57	X	74HCT4066	43	ADD L55,L56 L57	X	BLM11A601S
31	ADD R617,R618 R619,R620 R621,R622 R623,R624	X	1M	44	ADD C794,C795	X	1U
31	MODIFY C781	0.01U	0.1U				
32	MODIFY R238,R241	1.3K	1.5K				
38	CHANGE U50	SN74HCT273PW	SN74HCT374PW				
38	CHANGE	C729	R542				
38	CHANGE	R542	C729				
38	ADD C793	X	100P				
38	ADD C790,C791 C792	X	220P				

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