COMPAL CONFIDENTIAL

MODEL NAME : ***DBL10 -- Sapporo X***

COMPAL P/N : ***DA8BL10L000***

PCB NO : ***LA-1931***

Revision : ***0.2***

DBL10 -- Sapporo X Schematics Document

uFCBGA/uFCPGA NorthWood MT

2003-06-09 0.2 Gerber Out Version

Compal Electronics, Inc.		
Title: Cover Sheet		
Size	Document Number: LA-1931	Rev: 0.2
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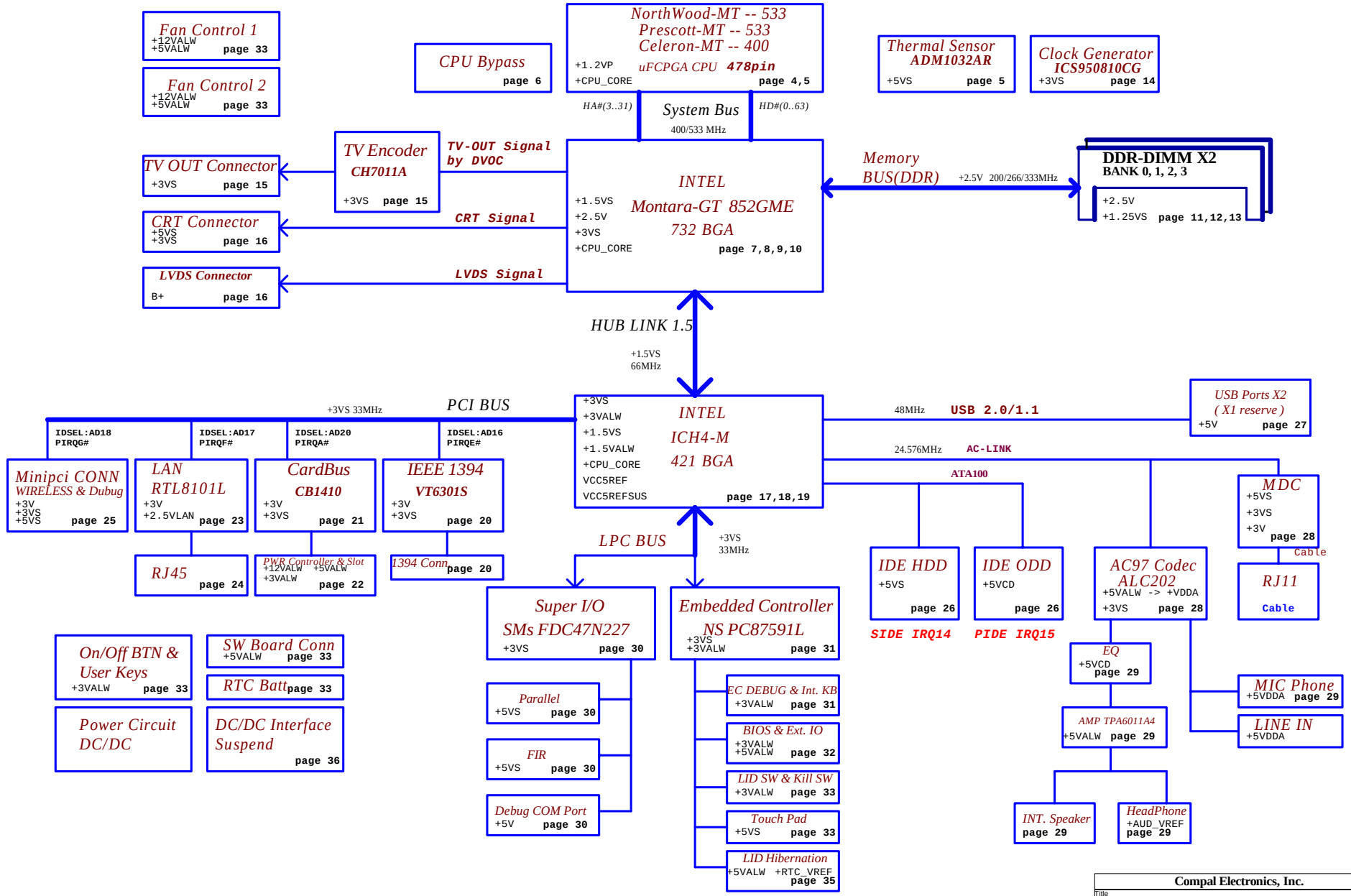
Compal confidential *Block Diagram*

Model : DBL10 -- Sapporo X



Compal Electronics, Inc.		
Title: Block Diagram		
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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	Core voltage for CPU	ON	OFF	OFF
+1.2V	1.2V switched power rail for CPU AGTL Bus	ON	ON	OFF
+1.25VS	1.25V switched power rail	ON	OFF	OFF
+1.5VALW	1.5V always on power rail	ON	ON	ON
+1.5V	1.5V power rail	ON	ON	OFF
+1.5VS	1.5V switched power rail	ON	OFF	OFF
+2.5V	2.5V power rail	ON	ON	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
+RTCBATT	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 (follow PCI IRQ routing plannig ver0.2.04)

Device	IDSEL#	REQ#/GNT#	Interrupts - (ICH4-M)
CardBus (ENE-CB1410)	AD20	2	PIRQA#
IEEE 1394 (VIA-VT6301S)	AD16	0	PIRQE#
LAN (Realtek-RTL8101L)	AD17	3	PIRQF#
Mini-PCI	AD18	1/1	PIRQG#

EC SM Bus1 address

Device	Address
Smart Battery	0001 011X b
EEPROM(24C16)	1010 000X b

EC SM Bus2 address

Device	Address
ADM1032	1001 100X b

ICH4 SM Bus address

Device	Address
CLK GEN (ICS-950810)	1101 001X

Power Managment table

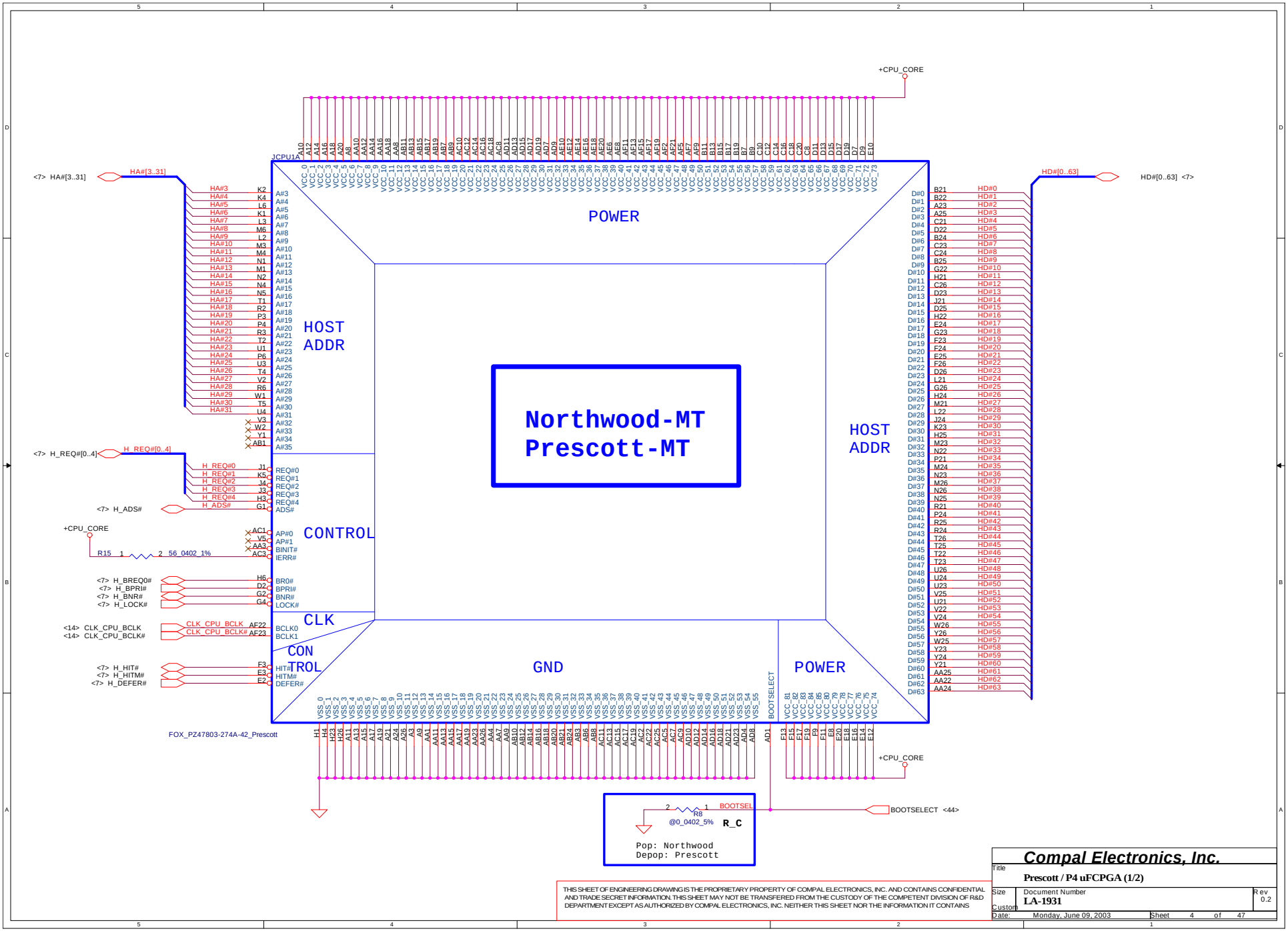
State \ Signal	+1.5VALW +3VALW +5VALW +12VALW	+5V +3V +2.5V +1.2V	+5VS +3VS +1.5VS +CPU_CORE +1.25VS
S0	ON	ON	ON
S1	ON	ON	ON
S3	ON	ON	OFF
S5 S4/AC	ON	OFF	OFF
S5 S4/AC don't exist	OFF	OFF	OFF

Board ID Table for AD channel

Vcc	3.3V +/- 5%
Ra	100K +/- 5%

Board ID	Rb	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_BID} max
0	0	0 V	0 V	0 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	PCB Revision
0	0.1
1	
2	
3	
4	
5	
6	
7	



Compal Electronics, Inc.

Title	Prescott / P4 uFCPGA (1/2)	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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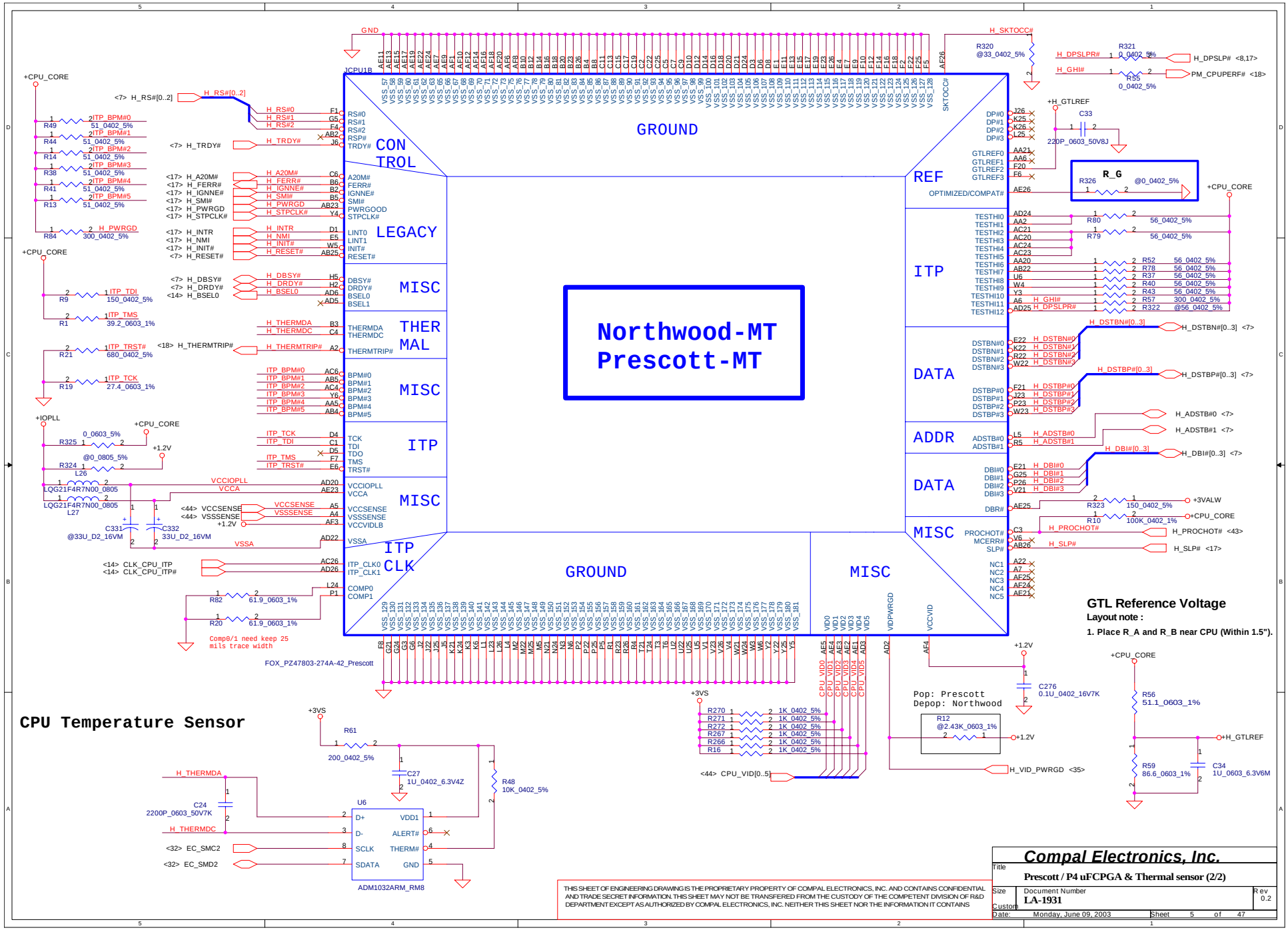

Compal Electronics, Inc.

Title	Prescott / P4 uFCPGA & Thermal sensor (2/2)	
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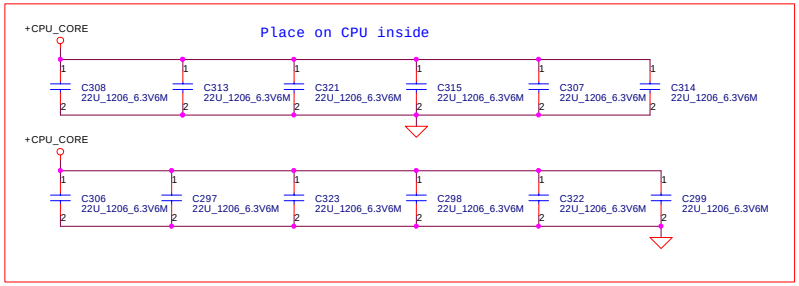
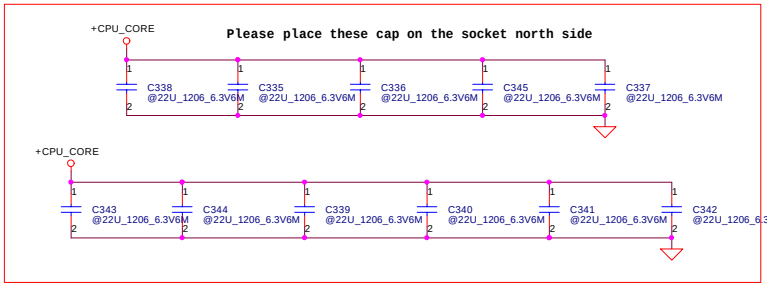
Layout note :

Place close to CPU, Use 2~3 vias per PAD.
Place 22uF caps x31 pcs, populated 14pcs.



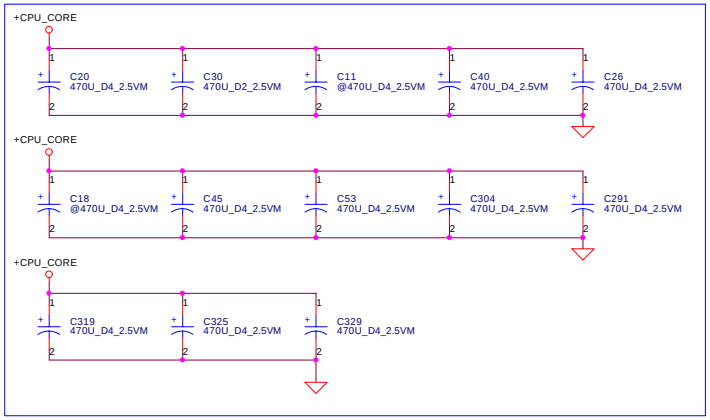


Layout note :

Place close to CPU power and ground pin as possible (<1inch)

For Desktop's CPU:

470uFx15/12mOhm H=1.8 each
Total 0.923m ohm



Compal Electronics, Inc.

Title: CPU Decoupling CAP.

Size: Custom | Document Number: LA-1931 | Rev: 0.2

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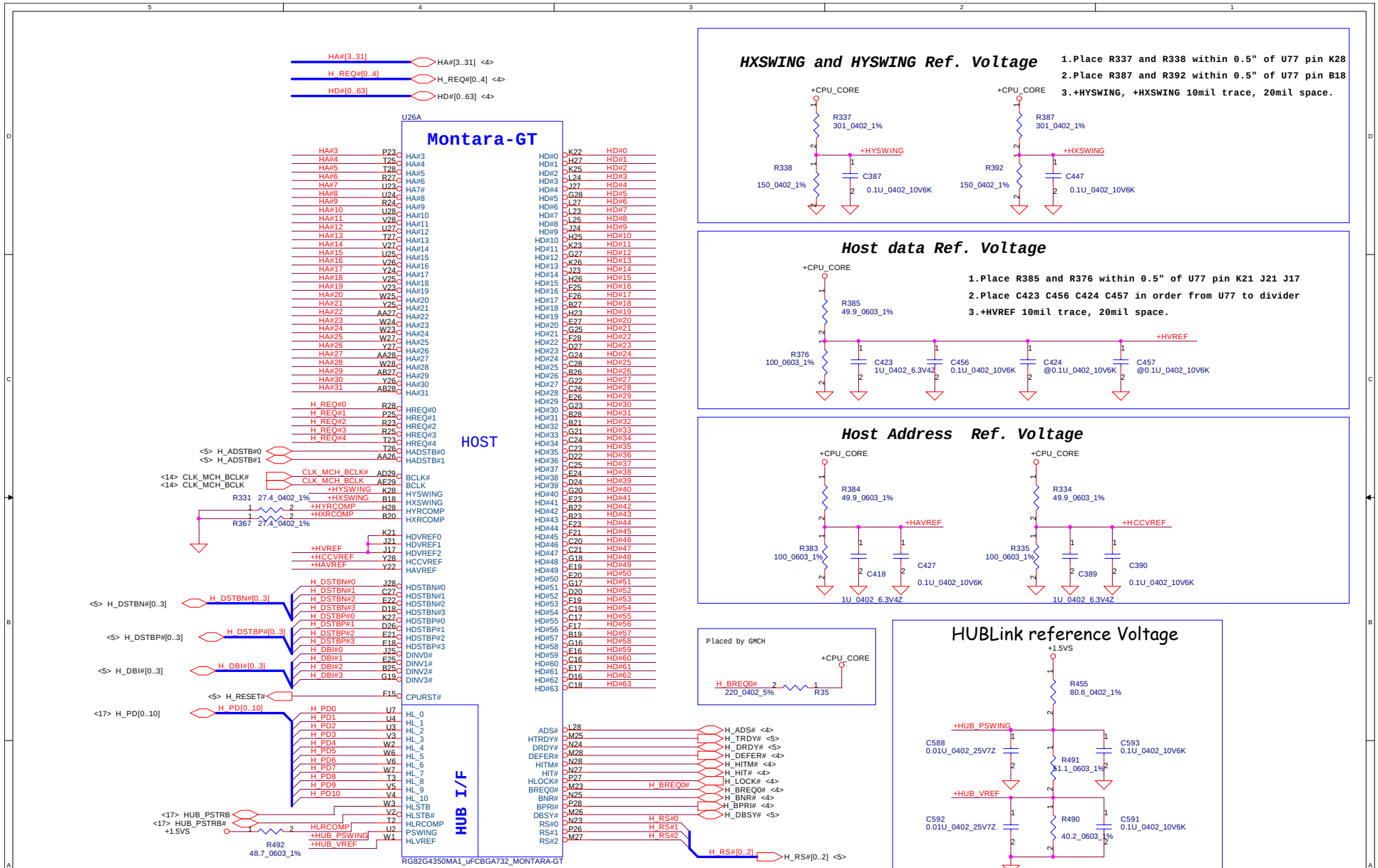

Compal Electronics, Inc.	
Title	Montara-GT (1/4)
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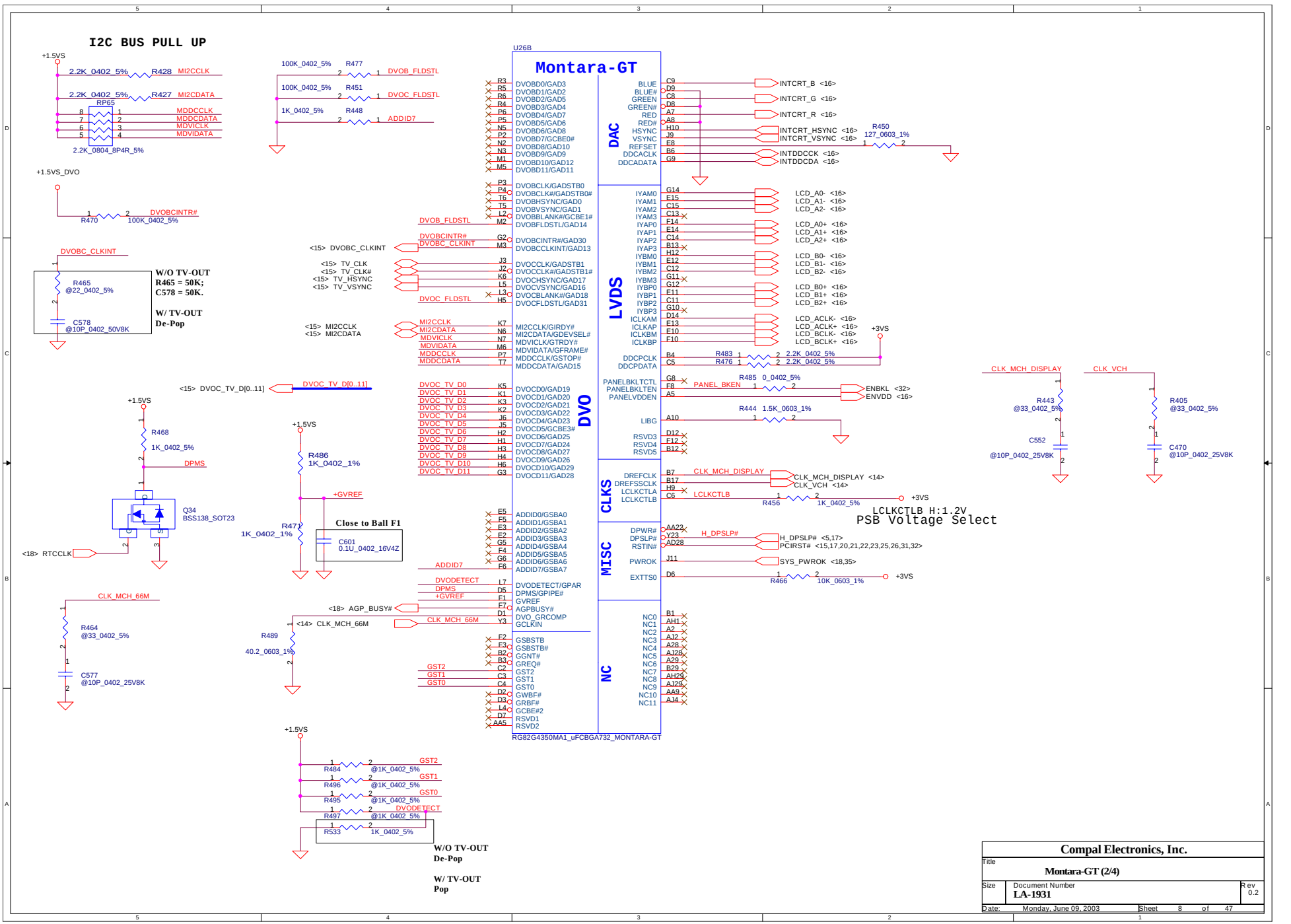
I2C BUS PULL UP
+1.5VS
2.2K_0402_5%
R428
MI2CCLK
2.2K_0402_5%
R427
MI2CDATA
RP65
MDDCCLK
MDDCDATA
MDVICLK
MDVIDATA
2.2K_0804_8P4R_5%
+1.5VS_DVO
R470
100K_0402_5%
DVOBCINTR#
DVOBC_CLKINT
R465
@22_0402_5%
C578
@10P_0402_50V8K
W/O TV-OUT
R465 = 50K;
C578 = 50K.
W/ TV-OUT
De-Pop
100K_0402_5%
R477
DVOB_FLDSTL
100K_0402_5%
R451
DVOC_FLDSTL
1K_0402_5%
R448
ADDID7
U26B
Montara-GT
DVOBD0/GAD3
DVOBD1/GAD2
DVOBD2/GAD5
DVOBD3/GAD4
DVOBD4/GAD7
DVOBD5/GAD6
DVOBD6/GAD8
DVOBD7/GCBE0#
DVOBD8/GAD10
DVOBD9/GAD9
DVOBD10/GAD12
DVOBD11/GAD11
DVOBCLK/GADSTB0
DVOBCLK#/GADSTB0#
DVOBHSYNC/GAD0
DVOBVSYNC/GAD1
DVOBBLANK#/GCBE1#
DVOBFLDSTL/GAD14
DVOBCINTR#/GAD30
DVOBCCLKINT/GAD13
DVOCCLK/GADSTB1
DVOCCLK#/GADSTB1#
DVOCHSYNC/GAD17
DVOCVSYNC/GAD16
DVOCBLANK#/GAD18
DVOCFLDSTL/GAD31
MI2CCLK/GIRDY#
MI2CDATA/GDEVSEL#
MDVICLK/GTRDY#
MDVIDATA/GFRAME#
MDDCCLK/GSTOP#
MDDCDATA/GAD15
DVOCD0/GAD19
DVOCD1/GAD20
DVOCD2/GAD21
DVOCD3/GAD22
DVOCD4/GAD23
DVOCD5/GCBE3#
DVOCD6/GAD25
DVOCD7/GAD24
DVOCD8/GAD27
DVOCD9/GAD26
DVOCD10/GAD29
DVOCD11/GAD28
ADDID0/GSBA0
ADDID1/GSBA1
ADDID2/GSBA2
ADDID3/GSBA3
ADDID4/GSBA4
ADDID5/GSBA5
ADDID6/GSBA6
ADDID7/GSBA7
DVODETECT/GPAR
DPMS/GPIPE#
GVREF
AGPBUSY#
DVO_GRCOMP
GCLKIN
GSBSTB
GSBSTB#
GGNT#
GREQ#
GST2
GST1
GST0
GWBF#
GRBF#
GCBE#2
RSVD1
RSVD2
DVO
DAC
BLUE
BLUE#
GREEN
GREEN#
RED
RED#
HSYNC
VSYNC
REFSET
DDCACLK
DDCADATA
LVDS
IYAM0
IYAM1
IYAM2
IYAM3
IYAP0
IYAP1
IYAP2
IYAP3
IYBM0
IYBM1
IYBM2
IYBM3
IYBP0
IYBP1
IYBP2
IYBP3
ICLKAM
ICLKAP
ICLKBM
ICLKBP
DDCPCLK
DDCPDATA
PANELBKLTCTL
PANELBKLTEN
PANELVDDEN
LIBG
RSVD3
RSVD4
RSVD5
CLKS
DREFCLK
DREFSSCLK
LCLKCTLA
LCLKCTLB
MISC
DPWR#
DPSLP#
RSTIN#
PWROK
EXTTS0
NC
NC0
NC1
NC2
NC3
NC4
NC5
NC6
NC7
NC8
NC9
NC10
NC11
RG82G4350MA1_uFCBGA732_MONTARA-GT
INTCRT_B <16>
INTCRT_G <16>
INTCRT_R <16>
INTCRT_HSYNC <16>
INTCRT_VSYNC <16>
R450
127_0603_1%
INTDDCCK <16>
INTDDCDA <16>
LCD_A0- <16>
LCD_A1- <16>
LCD_A2- <16>
LCD_A0+ <16>
LCD_A1+ <16>
LCD_A2+ <16>
LCD_B0- <16>
LCD_B1- <16>
LCD_B2- <16>
LCD_B0+ <16>
LCD_B1+ <16>
LCD_B2+ <16>
LCD_ACLK- <16>
LCD_ACLK+ <16>
LCD_BCLK- <16>
LCD_BCLK+ <16>
+3VS
R483 2.2K_0402_5%
R476 2.2K_0402_5%
R485 0_0402_5%
PANEL_BKEN
ENBKL <32>
ENVDD <16>
R444 1.5K_0603_1%
CLK_MCH_DISPLAY
CLK_MCH_DISPLAY <14>
CLK_VCH <14>
LCLKCTLB
R456 1K_0402_5%
+3VS
LCLKCTLB H:1.2V
PSB Voltage Select
H_DPSLP#
H_DPSLP# <5,17>
PCIRST# <15,17,20,21,22,23,25,26,31,32>
SYS_PWROK <18,35>
R466 10K_0603_1%
+3VS
CLK_MCH_DISPLAY
R443
@33_0402_5%
C552
@10P_0402_25V8K
CLK_VCH
R405
@33_0402_5%
C470
@10P_0402_25V8K
<15> DVOC_TV_D[0..11]
DVOC_TV_D[0..11]
DVOC_TV_D0
DVOC_TV_D1
DVOC_TV_D2
DVOC_TV_D3
DVOC_TV_D4
DVOC_TV_D5
DVOC_TV_D6
DVOC_TV_D7
DVOC_TV_D8
DVOC_TV_D9
DVOC_TV_D10
DVOC_TV_D11
+1.5VS
R468
1K_0402_5%
DPMS
Q34
BSS138_SOT23
<18> RTCCLK
+1.5VS
R486
1K_0402_1%
+GVREF
R472
1K_0402_1%
Close to Ball F1
C601
0.1U_0402_16V4Z
ADDID7
DVODETECT
DPMS
+GVREF
<18> AGP_BUSY#
<14> CLK_MCH_66M
CLK_MCH_66M
R489
40.2_0603_1%
GST2
GST1
GST0
CLK_MCH_66M
R464
@33_0402_5%
C577
@10P_0402_25V8K
+1.5VS
R484 @1K_0402_5%
R496 @1K_0402_5%
R495 @1K_0402_5%
R497 @1K_0402_5%
R533 1K_0402_5%
GST2
GST1
GST0
DVODETECT
W/O TV-OUT
De-Pop
W/ TV-OUT
Pop
<15> DVOBC_CLKINT
<15> TV_CLK
<15> TV_CLK#
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<15> TV_VSYNC
<15> MI2CCLK
<15> MI2CDATA
Compal Electronics, Inc.
Title
Montara-GT (2/4)
Size
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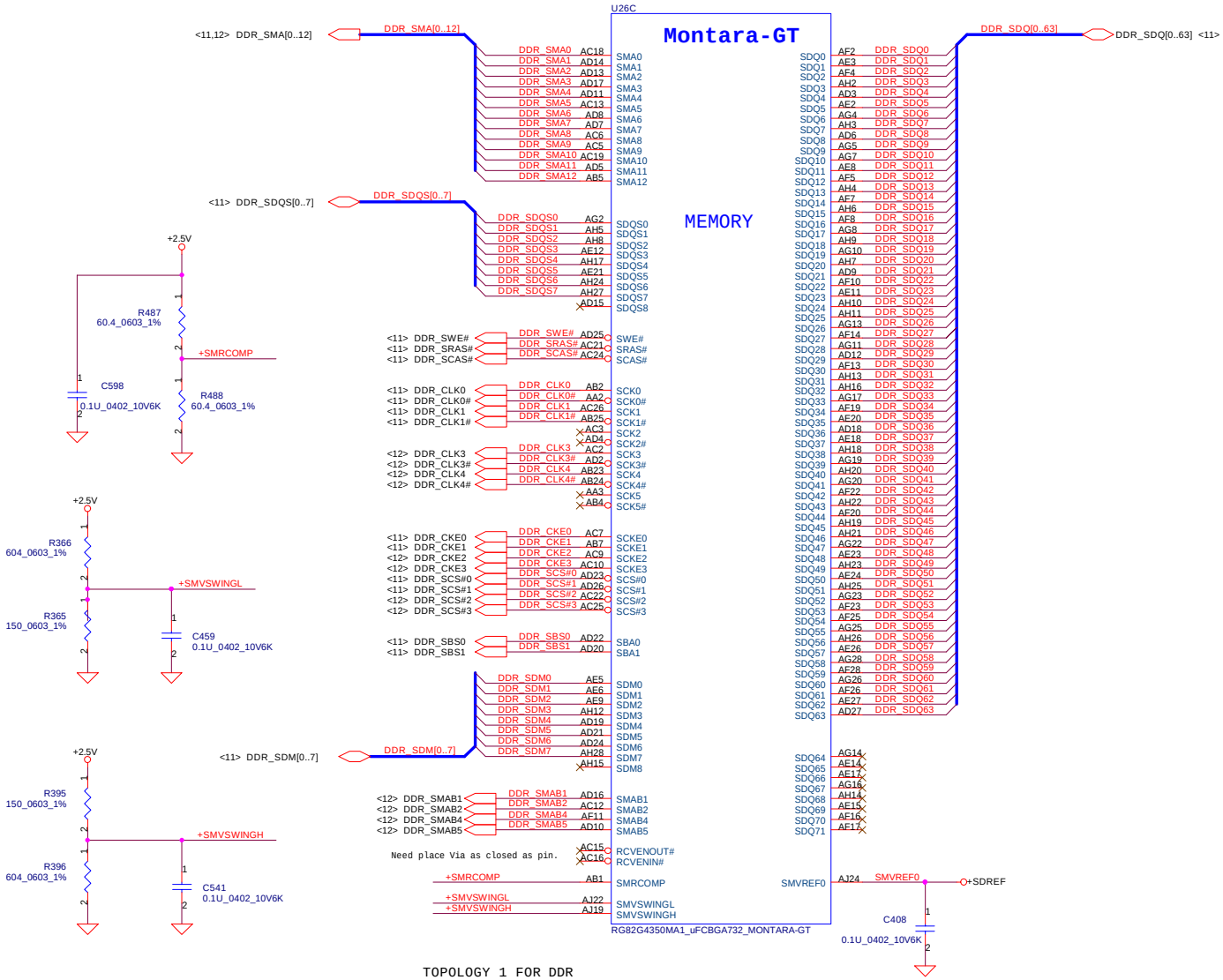

TOPOLOGY 1 FOR DDR

SMAA[12:6,3,0], SBA[1:0], SRAS#, SCAS#, SWE#

Compal Electronics, Inc.

Title: **Montara-GT (3/4)**

Size | Document Number: **LA-1931** | Rev: 0.2

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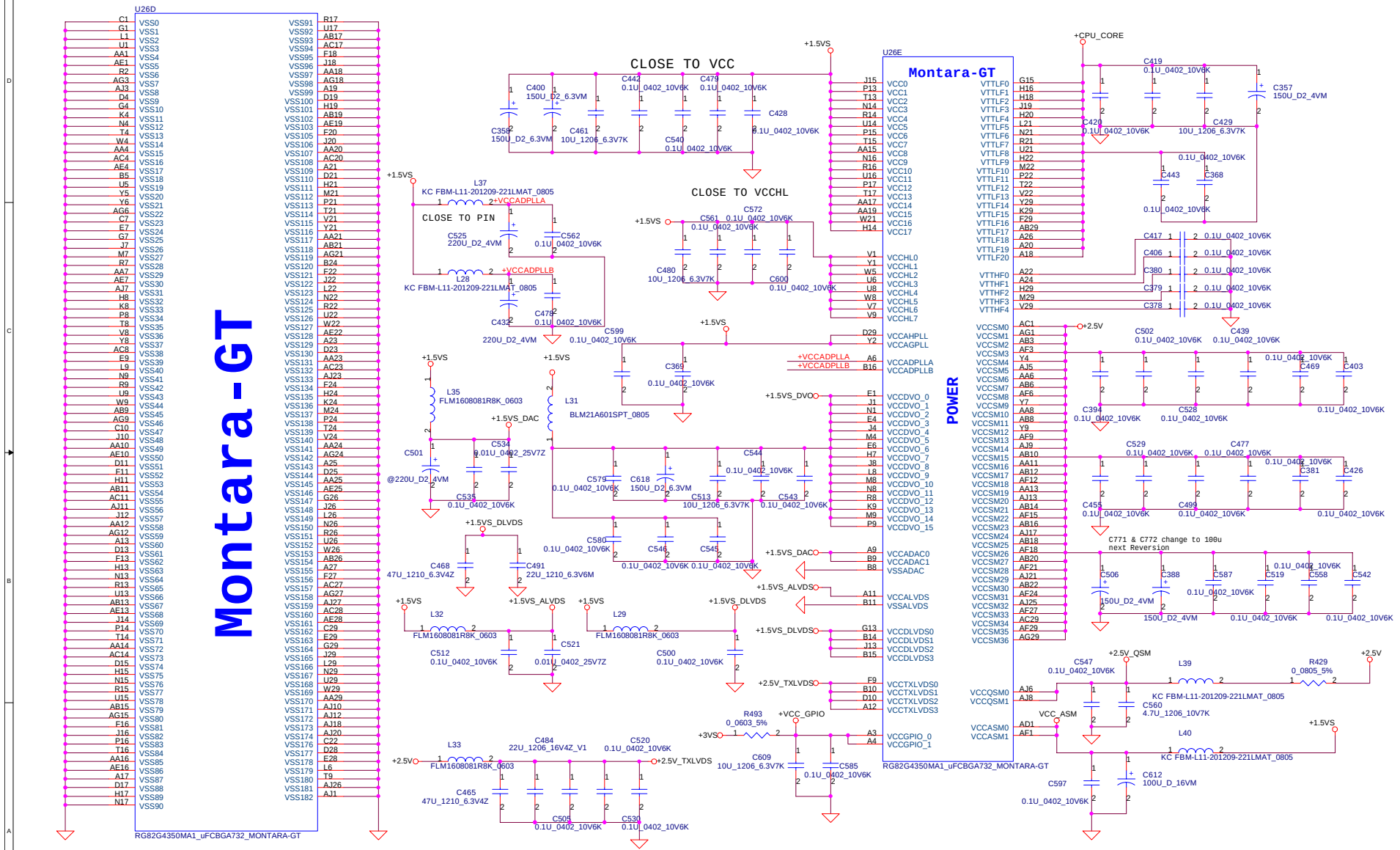

Compal Electronics, Inc.	
Title	Montara-GT(4/4)
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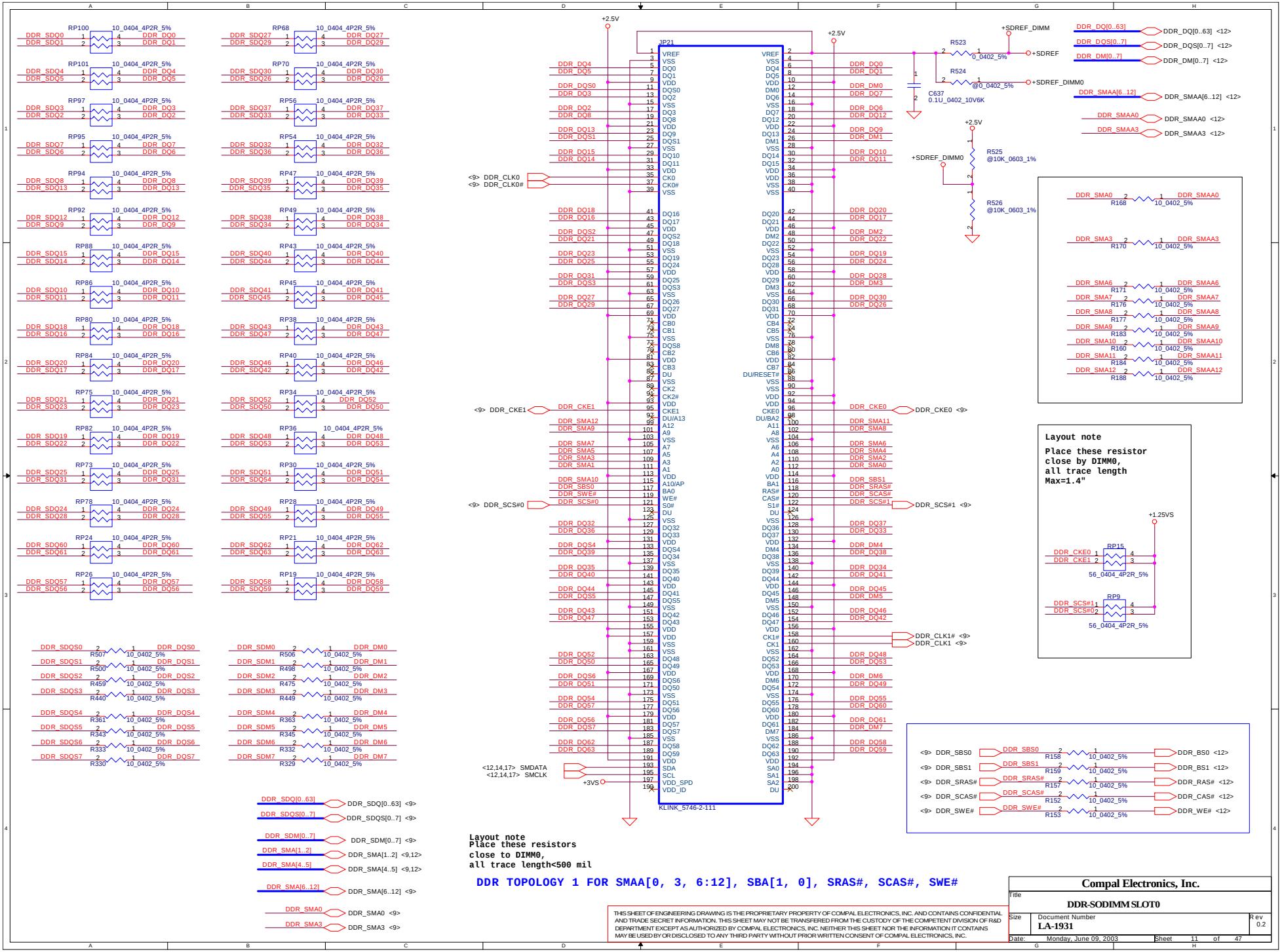

Compal Electronics, Inc.

Title: DDR-SODIMM SLOT0

Size: | Document Number: LA-1931 | Rev: 0.2

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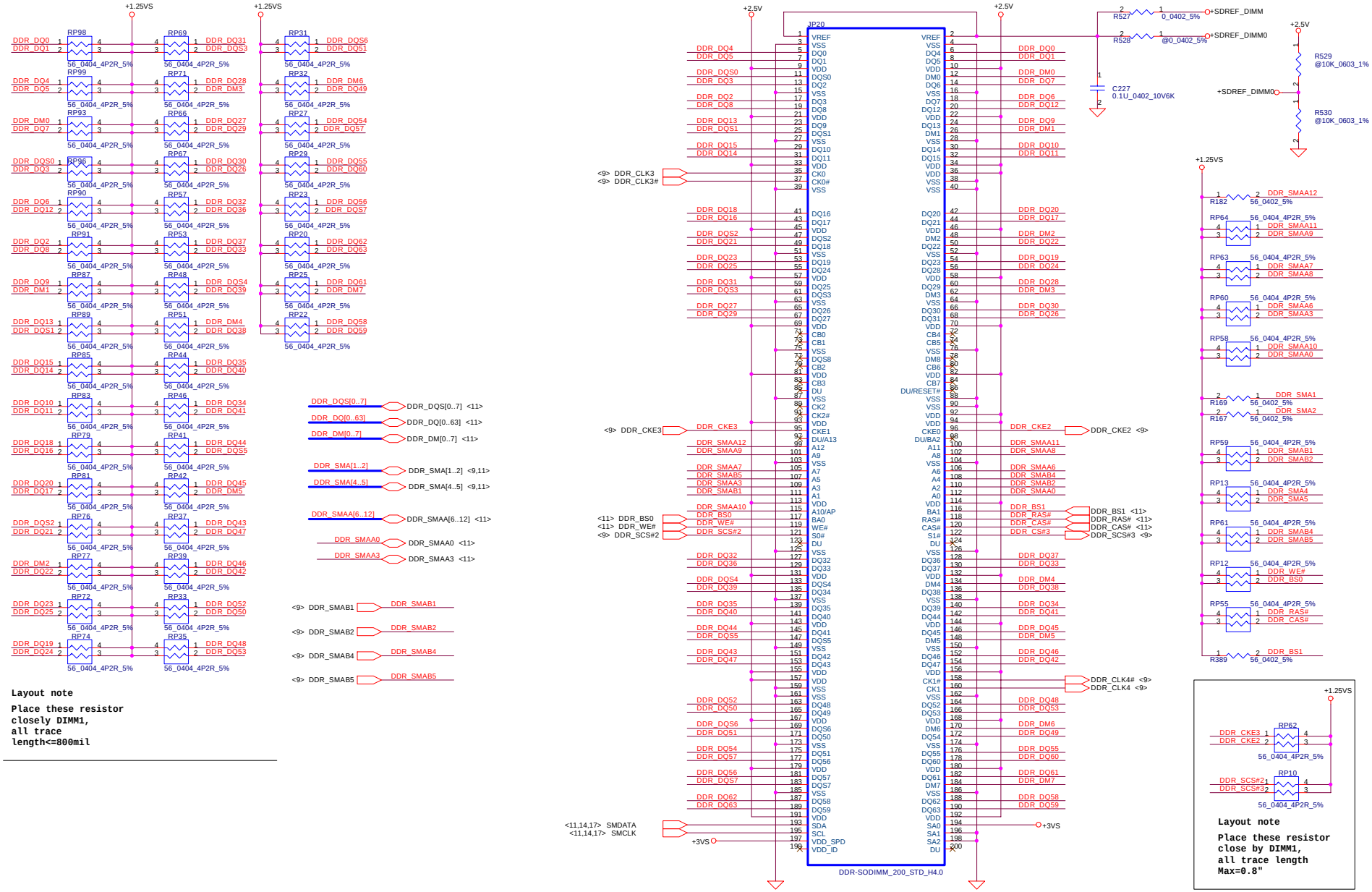
+1.25VS
+2.5V
RP98
RP69
RP31
RP99
RP71
RP32
RP93
RP66
RP27
RP96
RP67
RP29
RP90
RP57
RP23
RP91
RP53
RP20
RP87
RP48
RP25
RP89
RP51
RP22
RP85
RP44
RP83
RP46
RP79
RP41
RP81
RP42
RP76
RP37
RP77
RP39
RP72
RP33
RP74
RP35
56_0404_4P2R_5%
DDR_DQ0
DDR_DQ1
DDR_DQ31
DDR_DQS3
DDR_DQS6
DDR_DQ51
DDR_DQ4
DDR_DQ5
DDR_DQ28
DDR_DM3
DDR_DM6
DDR_DQ49
DDR_DM0
DDR_DQ7
DDR_DQ27
DDR_DQ29
DDR_DQ54
DDR_DQS7
DDR_DQS0
DDR_DQ3
DDR_DQ30
DDR_DQ26
DDR_DQ55
DDR_DQ60
DDR_DQ6
DDR_DQ12
DDR_DQ32
DDR_DQ36
DDR_DQ56
DDR_DQ62
DDR_DQ2
DDR_DQ8
DDR_DQ37
DDR_DQ33
DDR_DQ62
DDR_DQ63
DDR_DQ9
DDR_DM1
DDR_DQS4
DDR_DQ39
DDR_DQ61
DDR_DM7
DDR_DQ13
DDR_DQS1
DDR_DM4
DDR_DQ38
DDR_DQ58
DDR_DQ59
DDR_DQ15
DDR_DQ14
DDR_DQ35
DDR_DQ40
DDR_DQ10
DDR_DQ11
DDR_DQ10
DDR_DQ34
DDR_DQ41
DDR_DQ18
DDR_DQ16
DDR_DQ44
DDR_DQS5
DDR_DQ20
DDR_DQ17
DDR_DQ45
DDR_DM5
DDR_DQS2
DDR_DQ21
DDR_DQ43
DDR_DQ47
DDR_DM2
DDR_DQ22
DDR_DQ46
DDR_DQ42
DDR_DQ23
DDR_DQ25
DDR_DQ52
DDR_DQ50
DDR_DQ19
DDR_DQ24
DDR_DQ48
DDR_DQ53
DDR_DQS[0..7]
DDR_DQ[0..63]
DDR_DM[0..7]
DDR_SMA[1..2]
DDR_SMA[4..5]
DDR_SMAA[6..12]
DDR_SMAA0
DDR_SMAA3
DDR_SMAB1
DDR_SMAB2
DDR_SMAB4
DDR_SMAB5
DDR_DQS[0..7] <11>
DDR_DQ[0..63] <11>
DDR_DM[0..7] <11>
DDR_SMA[1..2] <9,11>
DDR_SMA[4..5] <9,11>
DDR_SMAA[6..12] <11>
DDR_SMAA0 <11>
DDR_SMAA3 <11>
<9> DDR_SMAB1
<9> DDR_SMAB2
<9> DDR_SMAB4
<9> DDR_SMAB5
Layout note
Place these resistor
closely DIMM1,
all trace
length<=800mil
JP20
VREF
VSS
DQ0
DQ1
DQS0
DQ2
DQ3
DQ8
VDD
DQ9
DQS1
DQ10
DQ11
CK0
CK0#
DQ16
DQ17
DQS2
DQ18
DQ24
DQS3
DQ26
DQ27
CB0
CB1
DQS8
CB2
CB3
DU
CK2
CK2#
CKE1
DU/A13
A12
A9
A7
A5
A3
A1
A10/AP
BA0
WE#
S0#
DQ32
DQ33
DQS4
DQ34
DQ35
DQ40
DQ41
DQS5
DQ42
DQ43
CK1
CK1#
DQ48
DQ49
DQS6
DQ50
DQ51
DQ56
DQ57
DQS7
DQ58
DQ59
SDA
SCL
VDD_SPD
VDD_ID
DQ20
DQ21
DQ28
DQ29
DM3
DQ30
DQ31
CB4
CB5
DM8
CB6
CB7
DU/RESET#
CKE0
DU/BA2
A11
A8
A6
A4
A2
A0
BA1
RAS#
CAS#
S1#
DQ36
DQ37
DQ44
DQ45
DM5
DQ46
DQ47
DQ52
DQ53
DM6
DQ54
DQ55
DQ60
DQ61
DM7
DQ62
DQ63
SA0
SA1
SA2
DDR-SODIMM_200_STD_H4.0
<9> DDR_CLK3
<9> DDR_CLK3#
<9> DDR_CKE3
<11> DDR_BS0
<11> DDR_WE#
<9> DDR_SCS#2
<11,14,17> SMDATA
<11,14,17> SMCLK
+3VS
DDR_CKE3
DDR_CKE2
DDR_SMAA12
DDR_SMAA9
DDR_SMAA7
DDR_SMAA5
DDR_SMAA3
DDR_SMAB1
DDR_SMAA10
DDR_BS0
DDR_WE#
DDR_SCS#2
DDR_SMAA11
DDR_SMAA8
DDR_SMAA6
DDR_SMAA4
DDR_SMAB2
DDR_SMAA0
DDR_BS1
DDR_RAS#
DDR_CAS#
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DDR_CLK4 <9>
+SDREF_DIMM
+SDREF_DIMM0
R527
R528
0_0402_5%
@0_0402_5%
C227
0.1U_0402_10V6K
R529
R530
@10K_0603_1%
R182
R64
R63
R60
R58
R169
R167
R59
R13
R61
R12
R55
R389
56_0402_5%
DDR_SMAA12
DDR_SMAA11
DDR_SMAA9
DDR_SMAA7
DDR_SMAA8
DDR_SMAA6
DDR_SMAA3
DDR_SMAA10
DDR_SMAA0
DDR_SMA1
DDR_SMA2
DDR_SMAB1
DDR_SMAB2
DDR_SMA4
DDR_SMA5
DDR_SMAB4
DDR_SMAB5
DDR_WE#
DDR_BS0
DDR_RAS#
DDR_CAS#
DDR_BS1
RP62
RP10
DDR_CKE3
DDR_CKE2
DDR_SCS#2
DDR_SCS#3
Layout note
Place these resistor
close by DIMM1,
all trace length
Max=0.8"
DDR TOPOLOGY 1 FOR SMAA[0, 3, 6:12], SBA[1, 0], SRAS#, SCAS#, SWE#
Compal Electronics, Inc.
Title
DDR-SODIMM SLOT1
Size
Document Number
LA-1931
Rev
0.2
Date: Monday, June 09, 2003
Sheet 12 of 47
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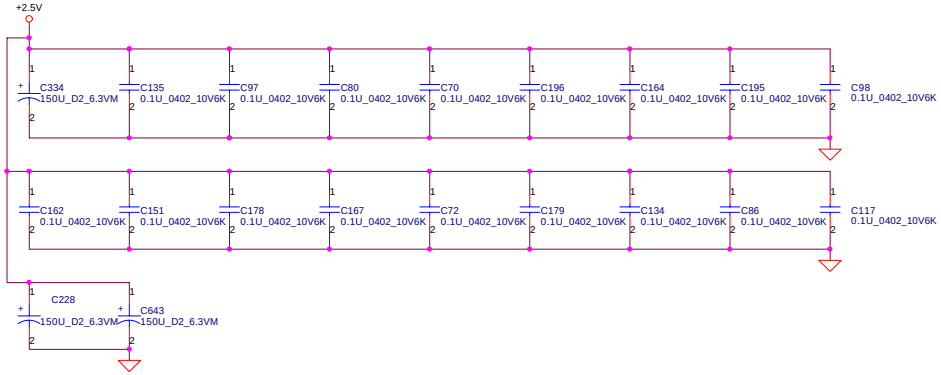
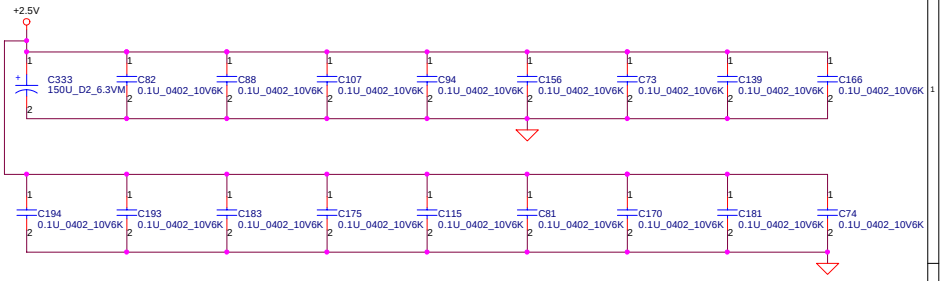
Layout note :

Distribute as close as possible to DDR-SODIMM0.



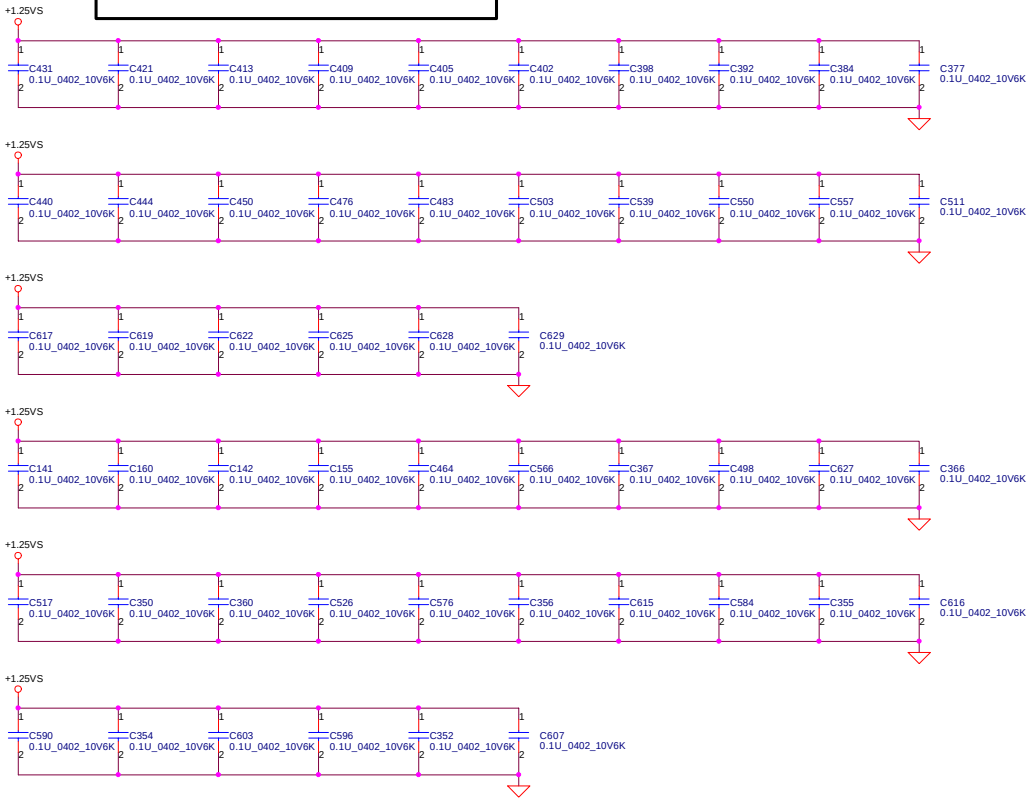
Layout note :

Distribute as close as possible to DDR-SODIMM1.



Layout note :

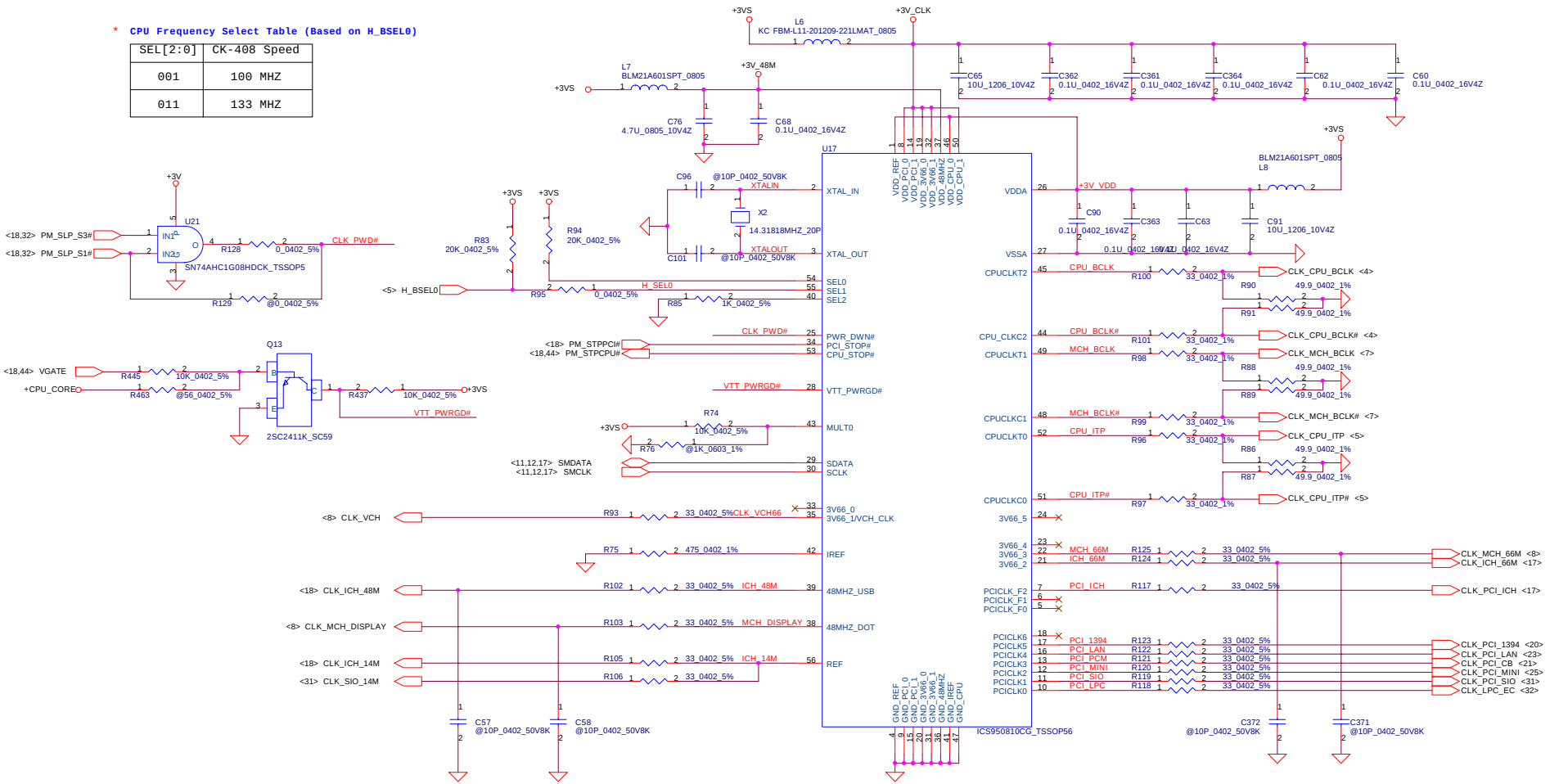
Place one cap close to every 2 pull up resistors termination to +1.25VS



Compal Electronics, Inc.	
Title	DDR SODIMM Decoupling
Size	Document Number: LA-1931
Rev	0.2
Date: Monday, June 09, 2003	Sheet 13 of 47

* **CPU Frequency Select Table (Based on H_BSEL0)**

SEL[2:0]	CK-408 Speed
001	100 MHZ
011	133 MHZ



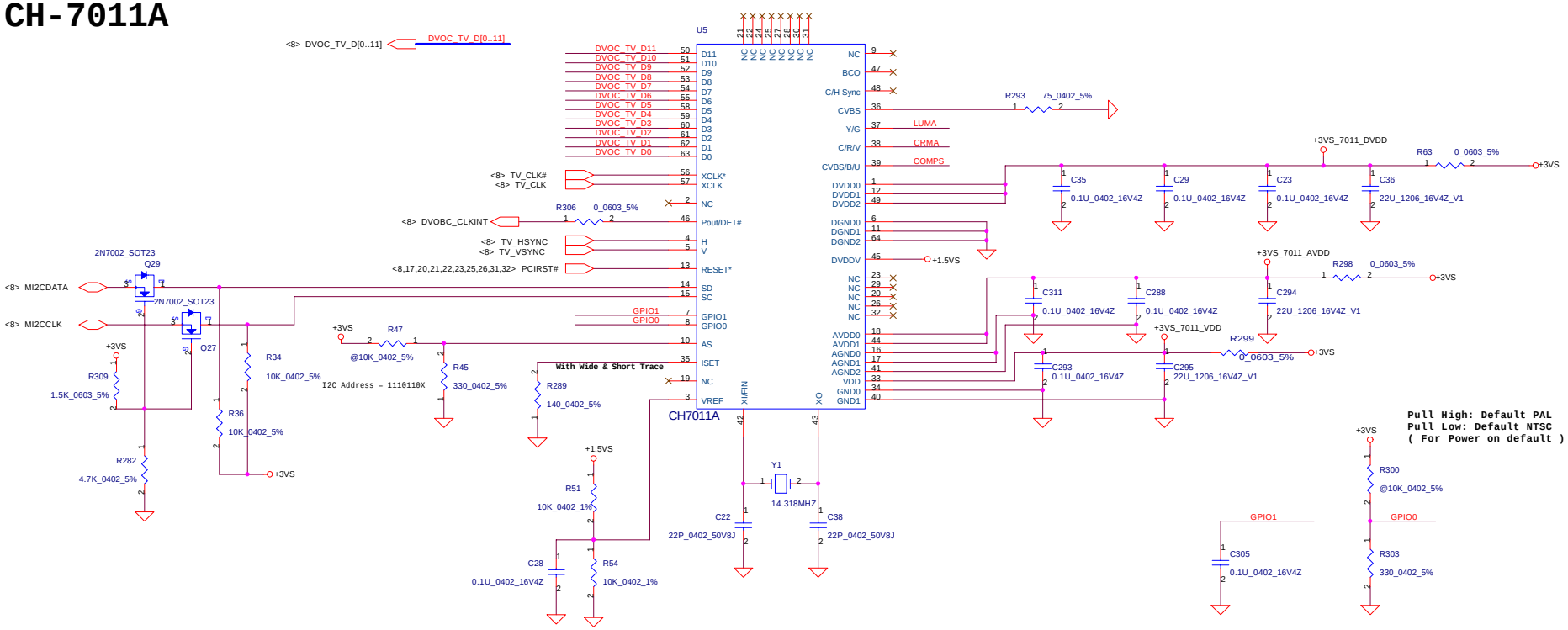
Compal Electronics, Inc.

Title: **Clock Generator**

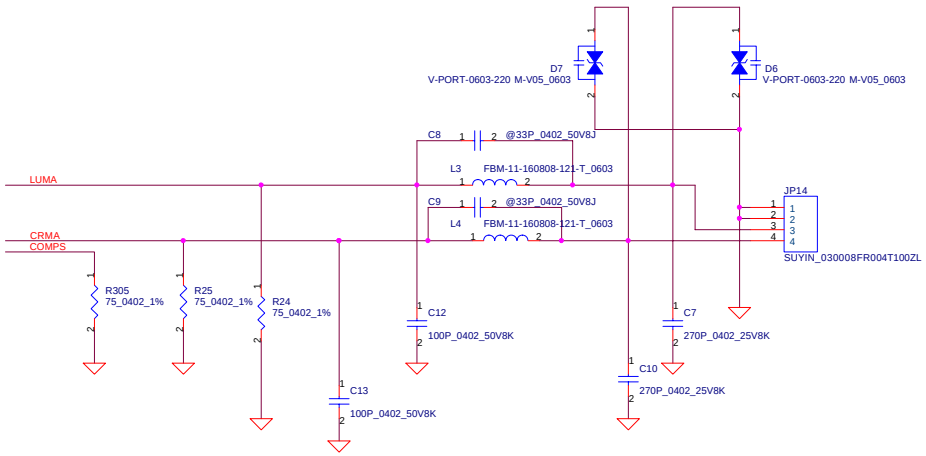
Size: Document Number: **LA-1931** Rev: 0.2

Date: Monday, June 09, 2003 Sheet 14 of 47

CH-7011A



TV-OUT CONN.



Compal Electronics, Ltd.

Title	CH-7011& TV-CONN.	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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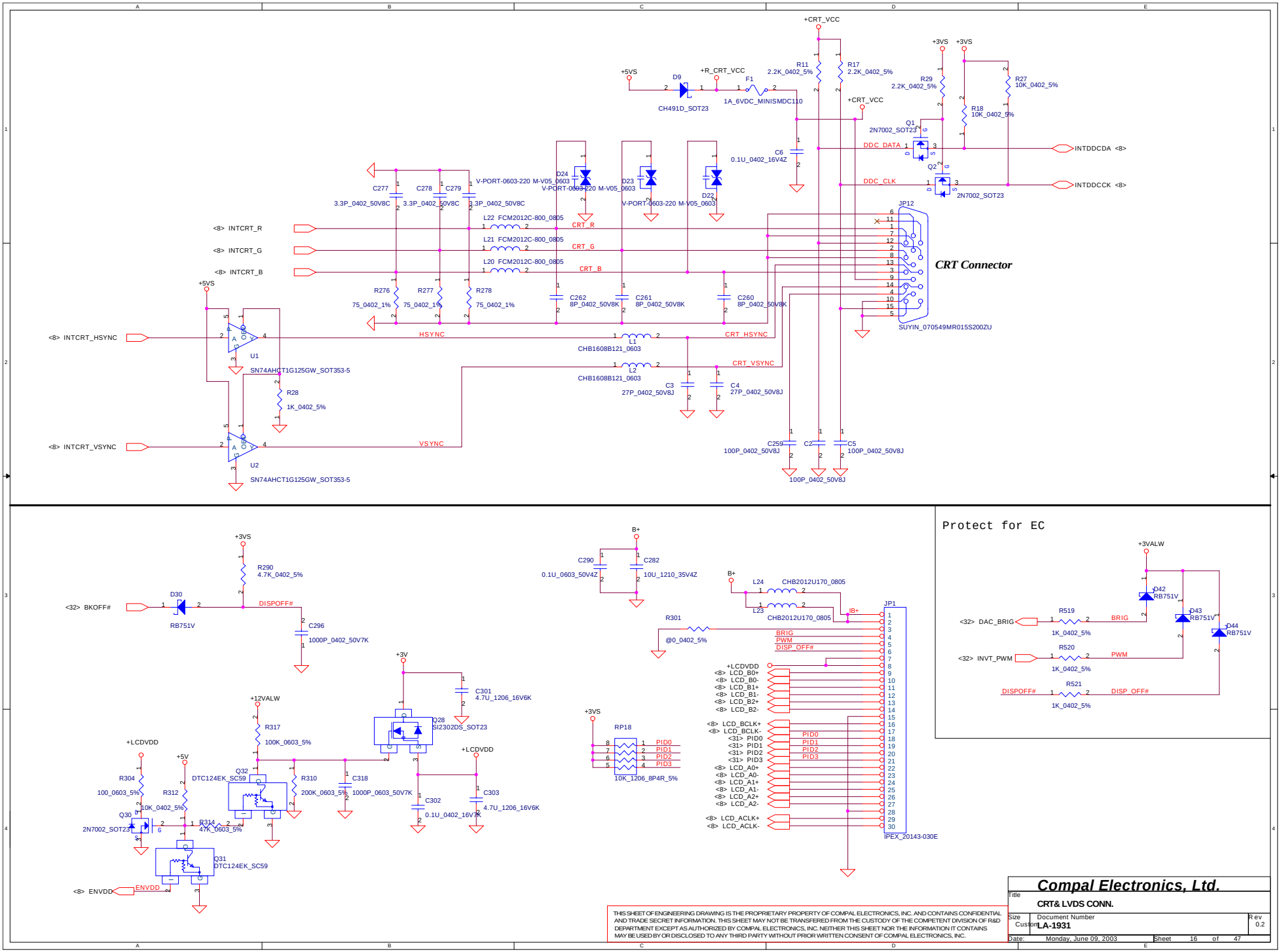
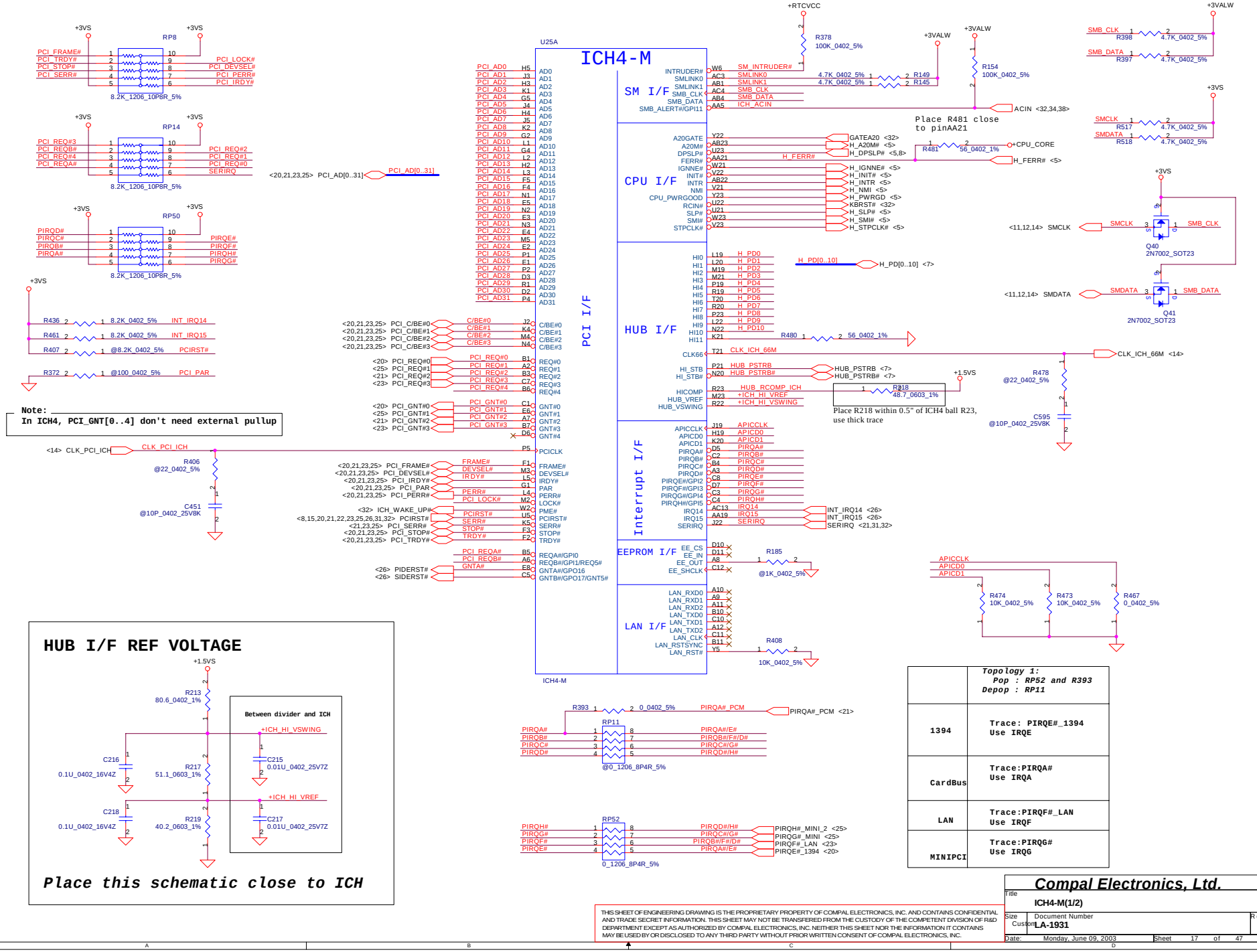


Compal Electronics, Ltd.

Title	CRT& LVDS CONN.	
Size: Custom	Document Number: LA-1931	Rev: 0.2
Date: Monday, June 09, 2003	Sheet 16 of 47	

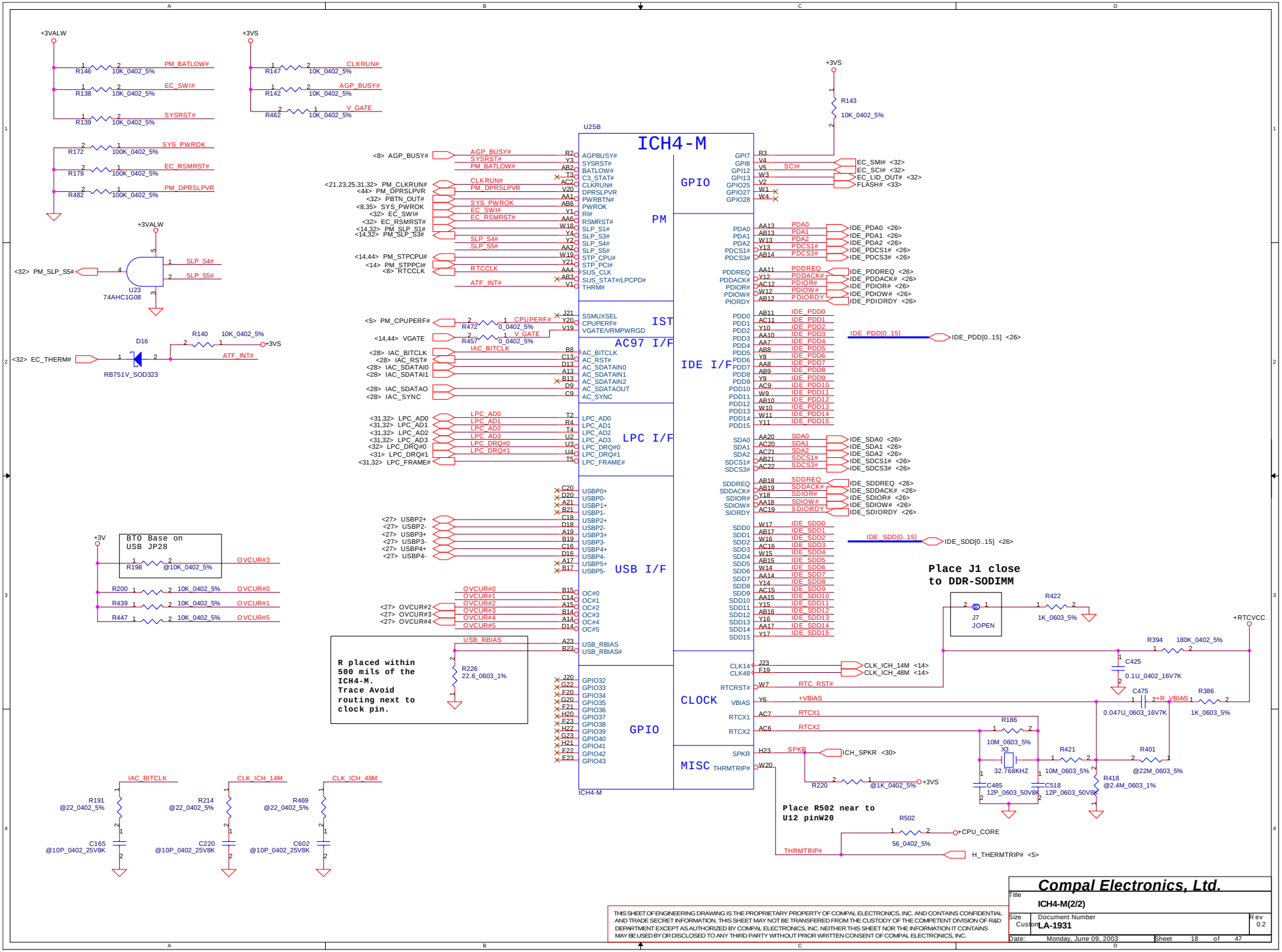


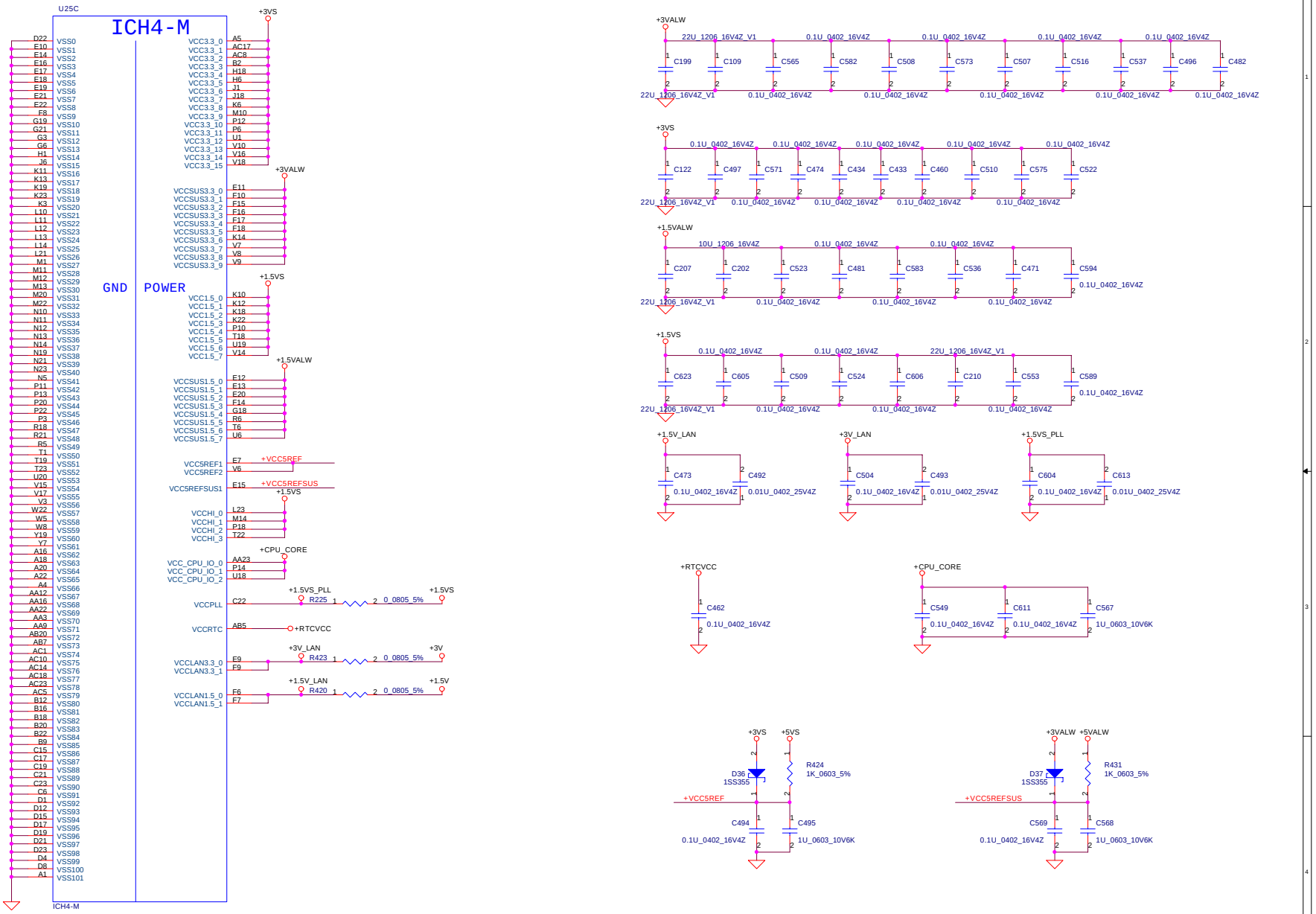
Compal Electronics, Ltd.

Title: ICH4-M(1/2)

Size: Custom | Document Number: LA-1931 | Rev: 0.2

Date: Monday, June 09, 2003 | Sheet 17 of 47


ICH4-M
U25B
GPIO
PM
IST
AC97 I/F
IDE I/F
LPC I/F
USB I/F
CLOCK
MISC
GPIO
ICH4-M
Place J1 close
to DDR-SODIMM
Place R502 near to
U12 pinW20
R placed within
500 mils of the
ICH4-M.
Trace Avoid
routing next to
clock pin.
BTO Base on
USB JP28
Compal Electronics, Ltd.
ICH4-M(2/2)
LA-1931
Monday, June 09, 2003



Compal Electronics, Ltd.

Title: **ICH4-M Pullups & Decoupling**

Size: Custom | Document Number: **LA-1931** | Rev: 0.2

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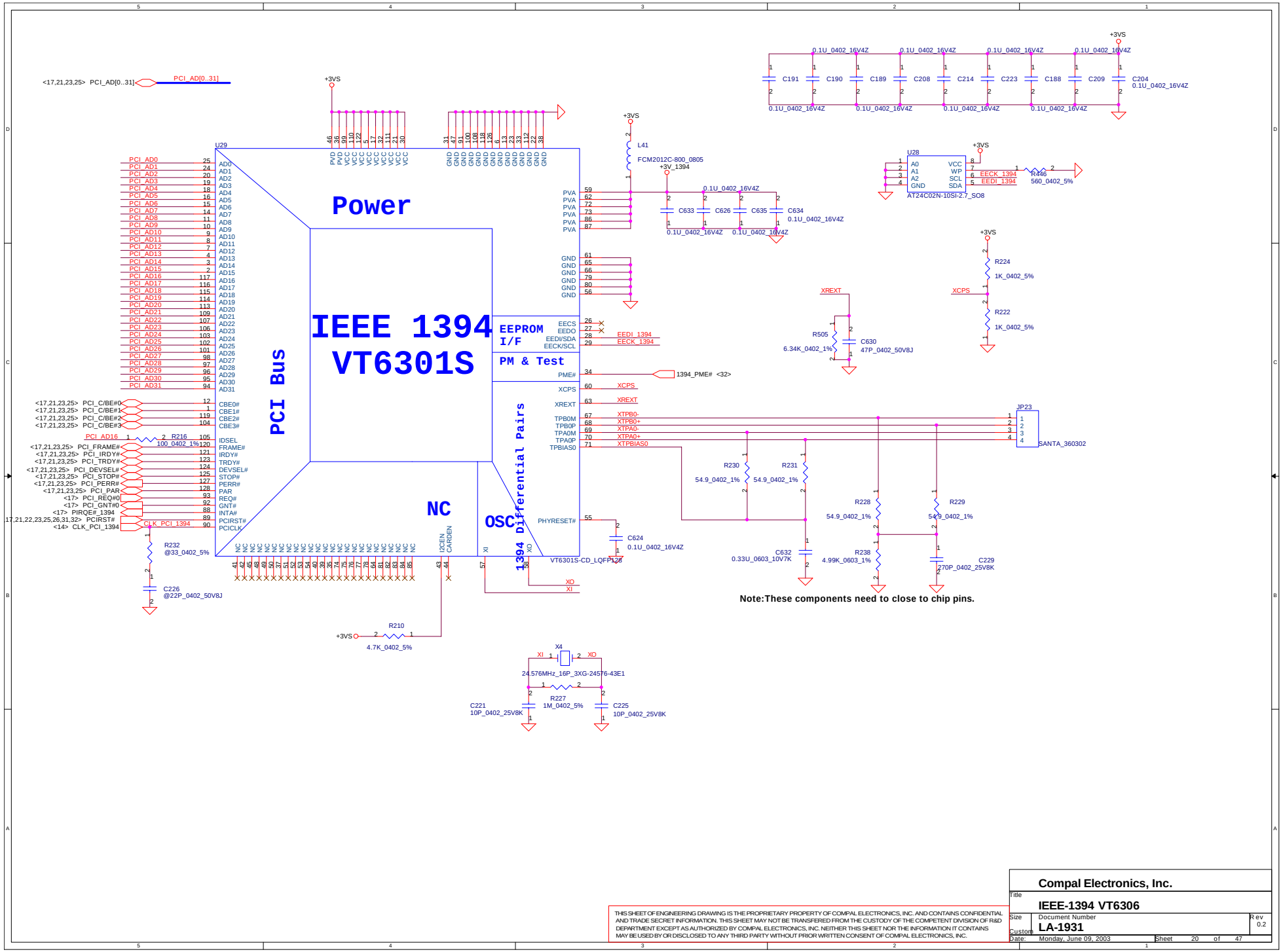

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Compal Electronics, Inc.		
Title: IEEE-1394 VT6306		
Size: Custom	Document Number: LA-1931	Rev: 0.2
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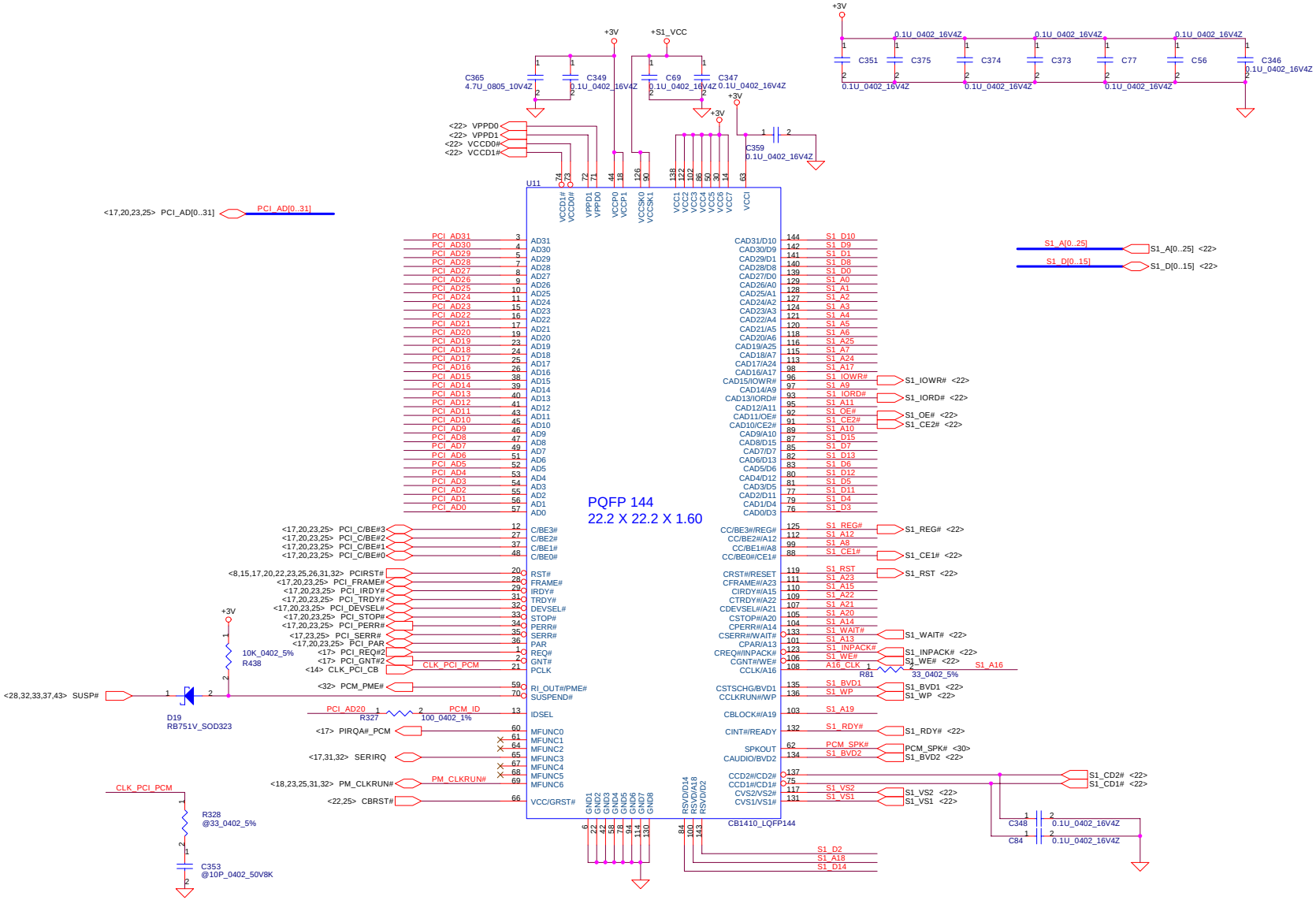

Compal Electronics, Ltd.

Title	CardBus Controller<ENECB1410>	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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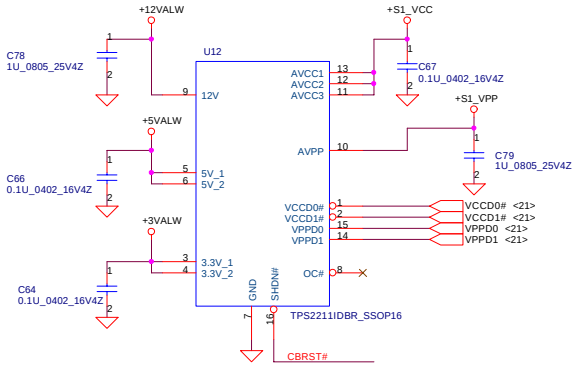
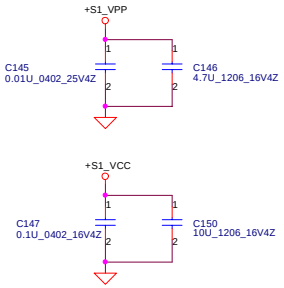
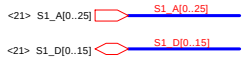
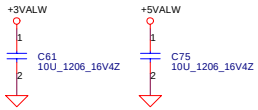
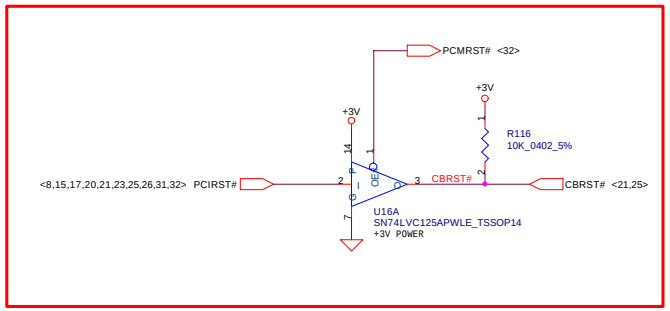
PCMCIA Power Controller



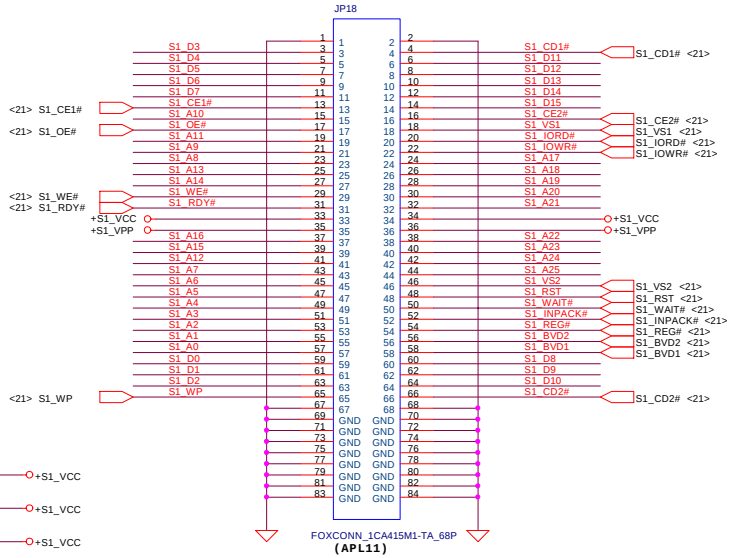


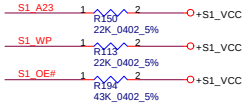


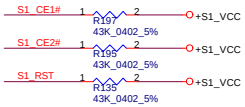




CardBus Socket







Compal Electronics, Ltd.

Title: PCMCIA SOCKET

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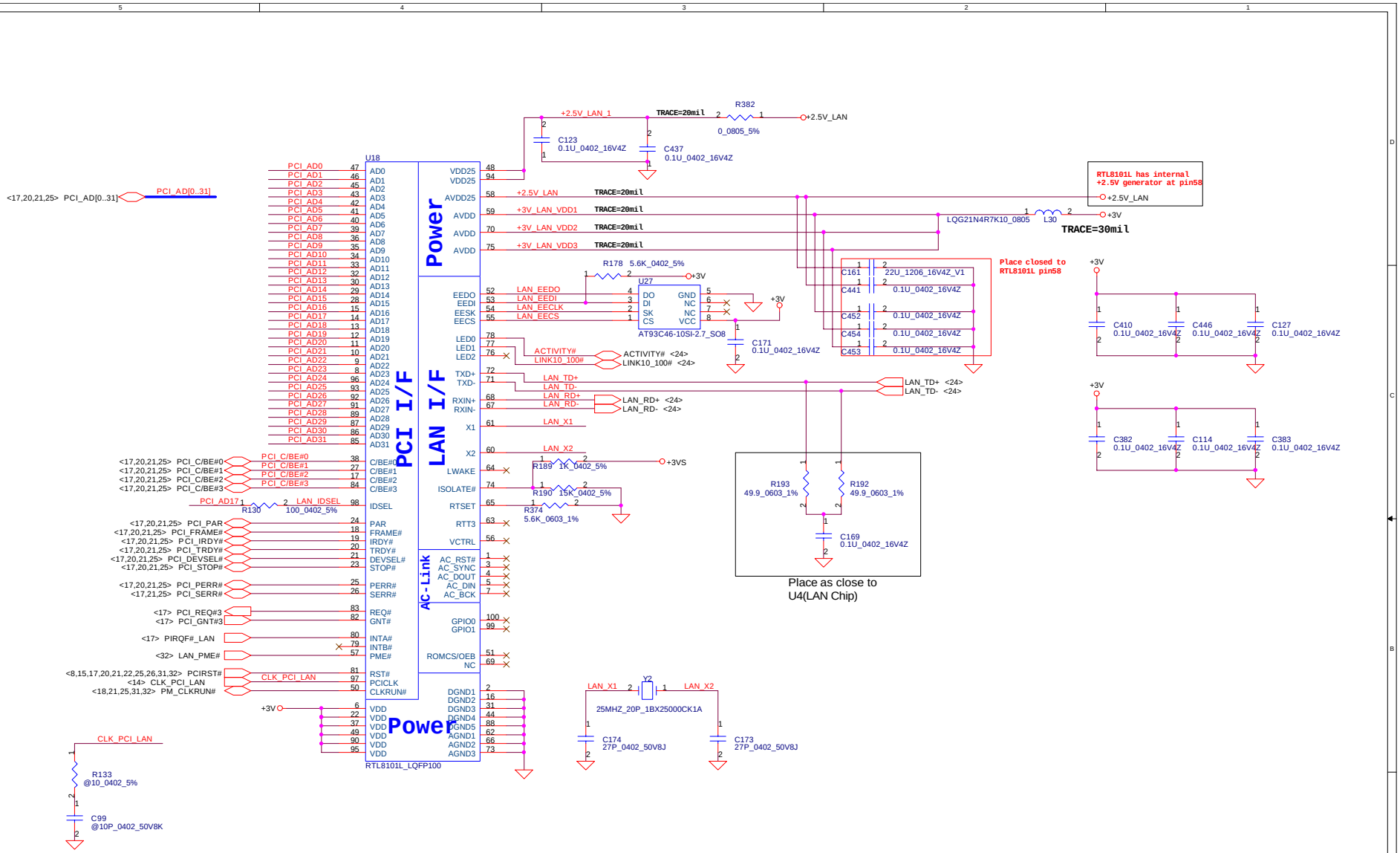

Compal Electronics, Inc.

Title	LAN REALTEK RTL8101L
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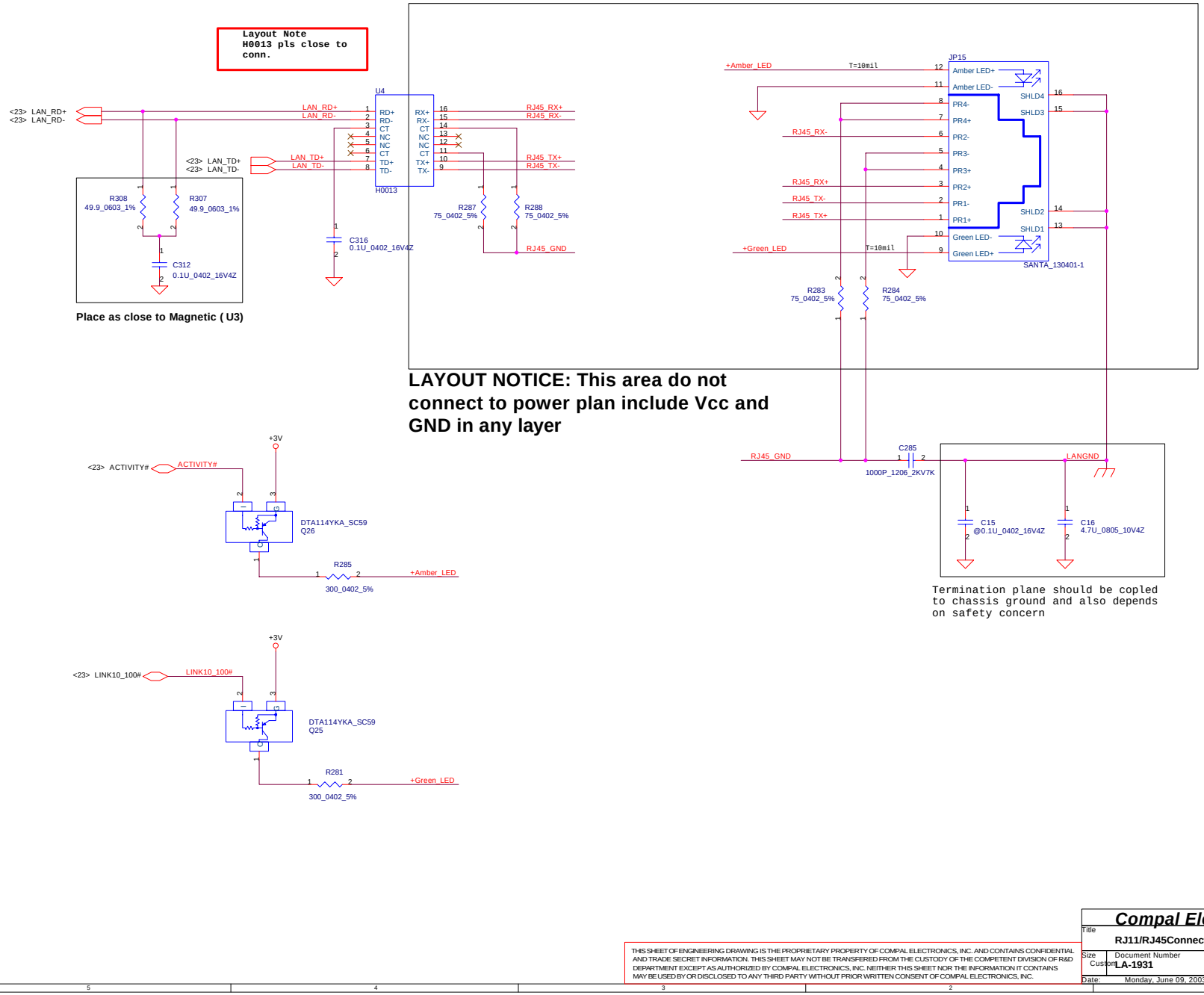
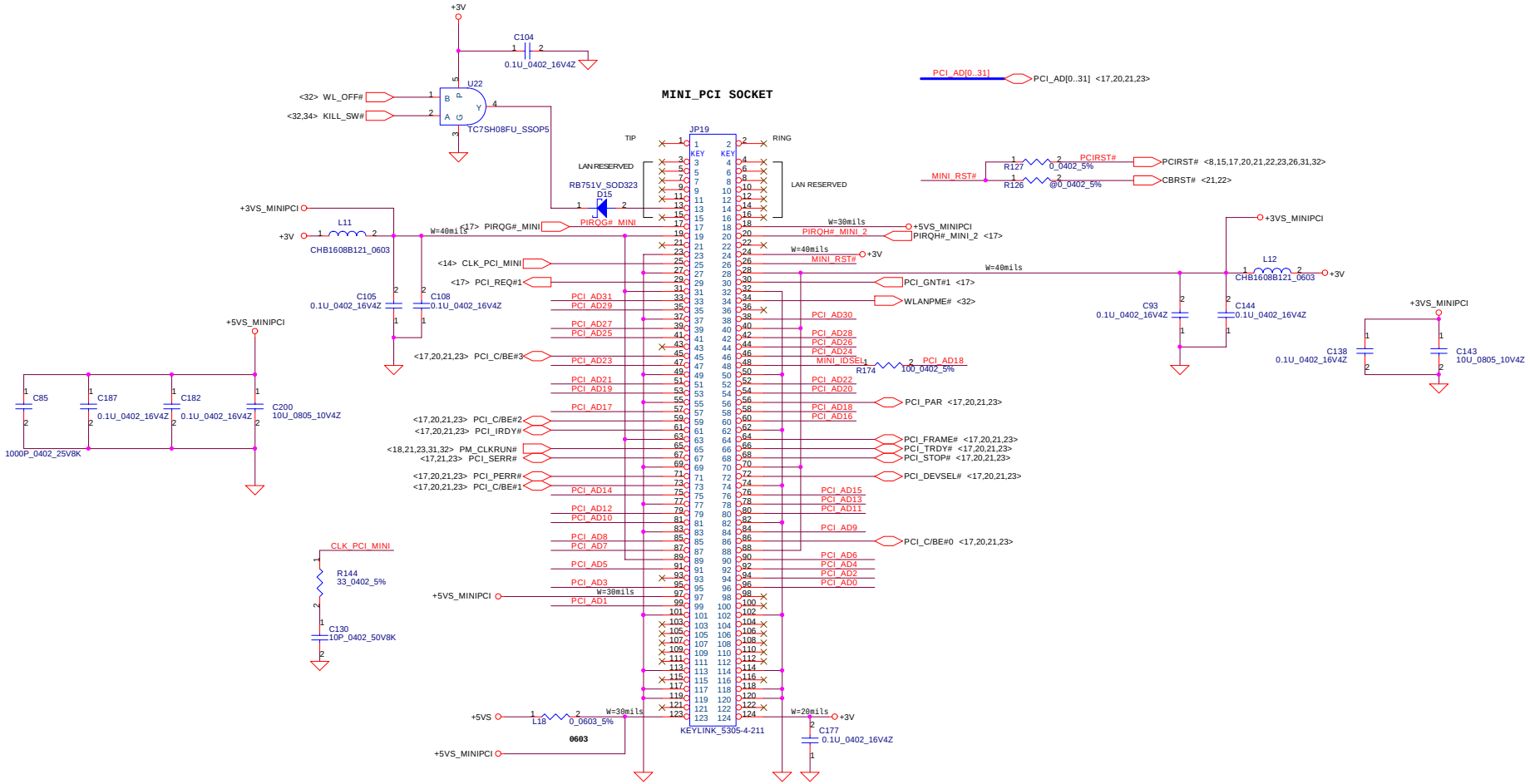
Keep Out 40mil



Compal Electronics, Ltd.

Title	RJ11/RJ45Connector	
Size: Custom	Document Number: LA-1931	Rev: 0.2
Date: Monday, June 09, 2003	Sheet 24 of 47	



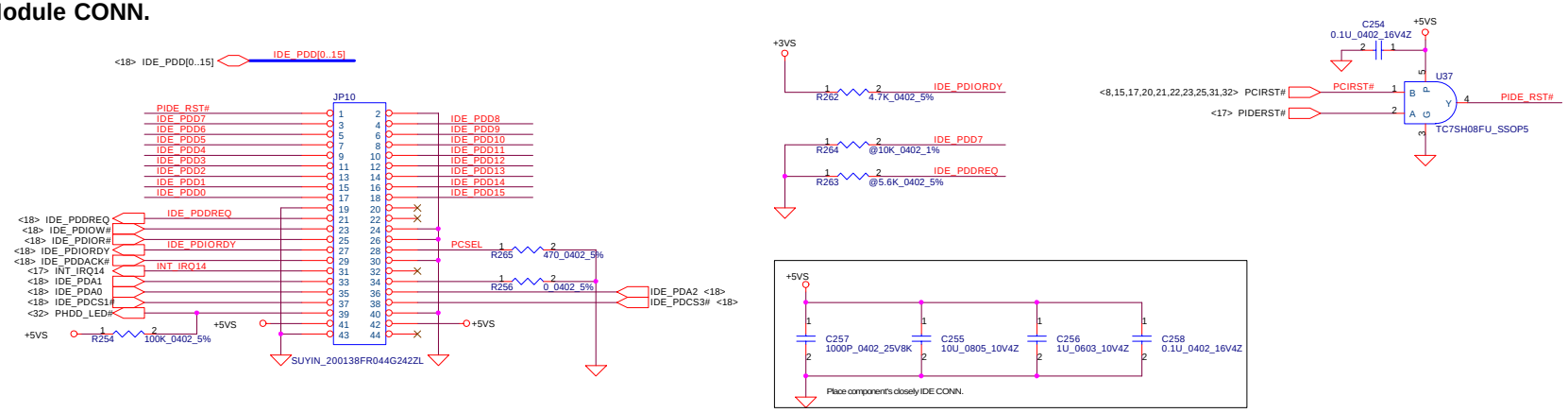
Compal Electronics, Ltd.

Title: Mini PCI Slot

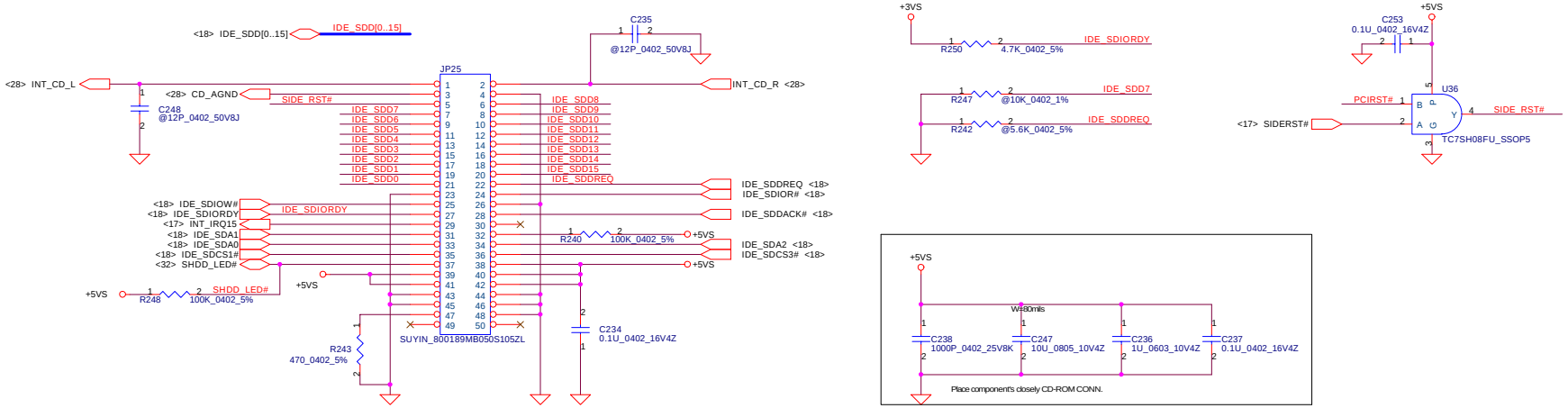
Size: Custom | Document Number: LA-1931 | Rev: 0.2

Date: Monday, June 09, 2003 | Sheet 25 of 47

IDE Module CONN.



CD-ROM Module CONN.



Compal Electronics, Ltd.

Title: **IDE & CD-ROM Connector**

Size	Document Number	Rev
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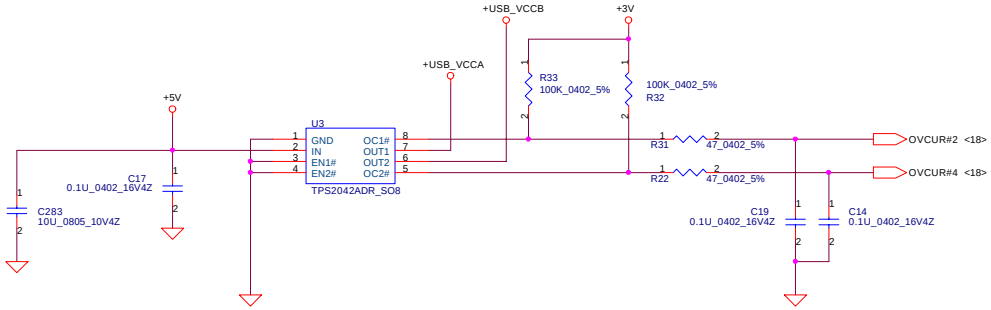

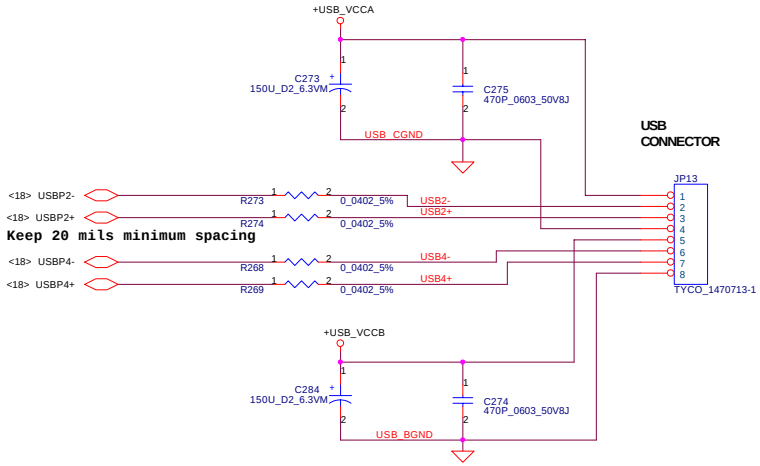

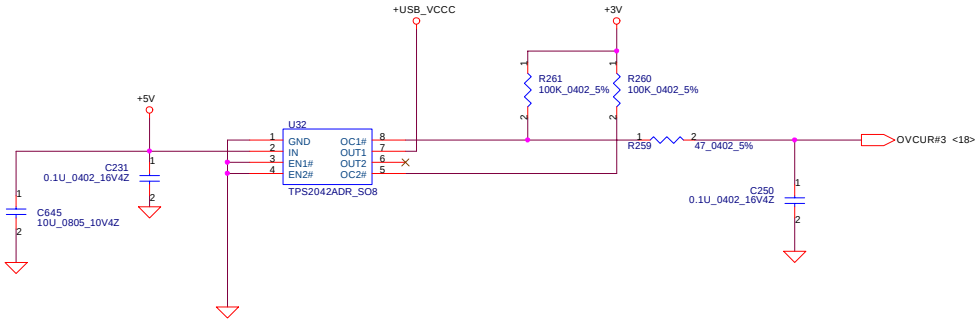

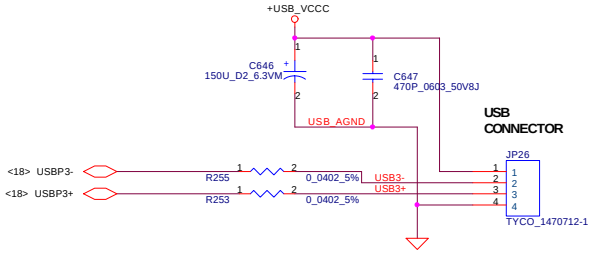

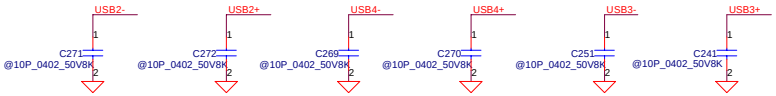

Compal Electronics, Ltd.

Title: **USB & Bluetooth**

Size	Document Number	Rev
Custom	LA-1931	0.2

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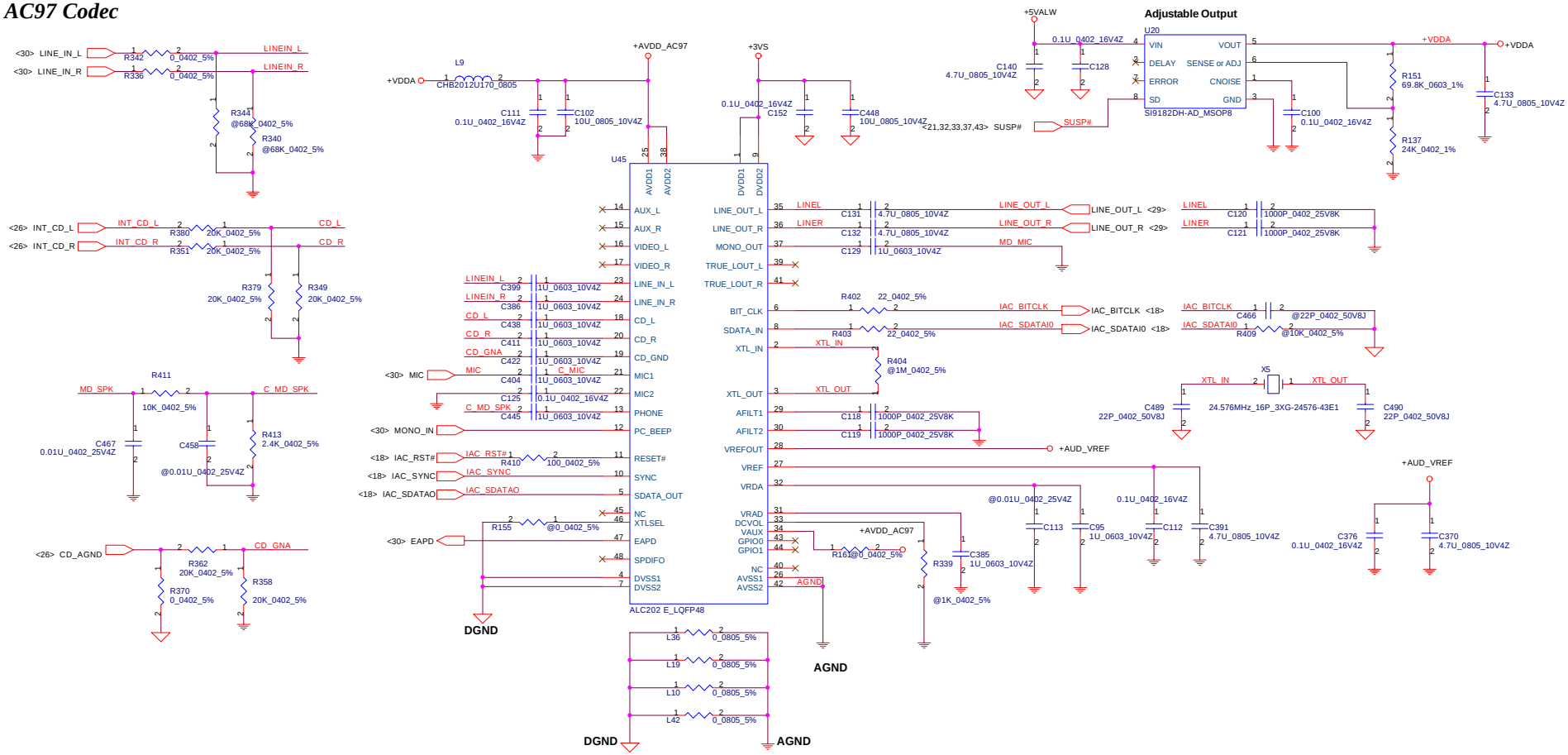
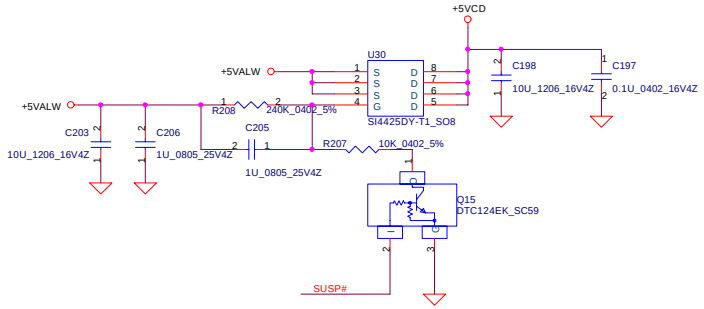
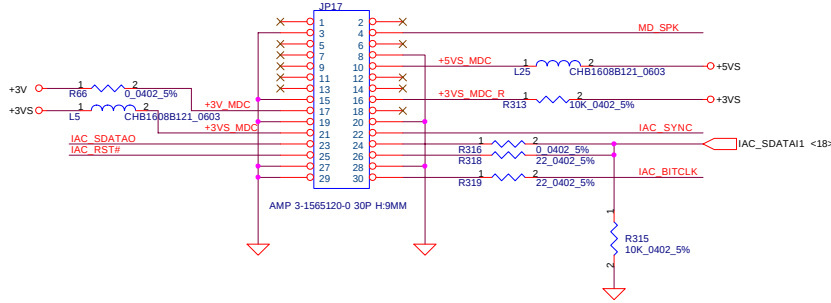
AC97 Codec



+5VALW TO +5VCD



MDC Connector



Compal Electronics, Ltd.

Title	AC97 Codec ALC202	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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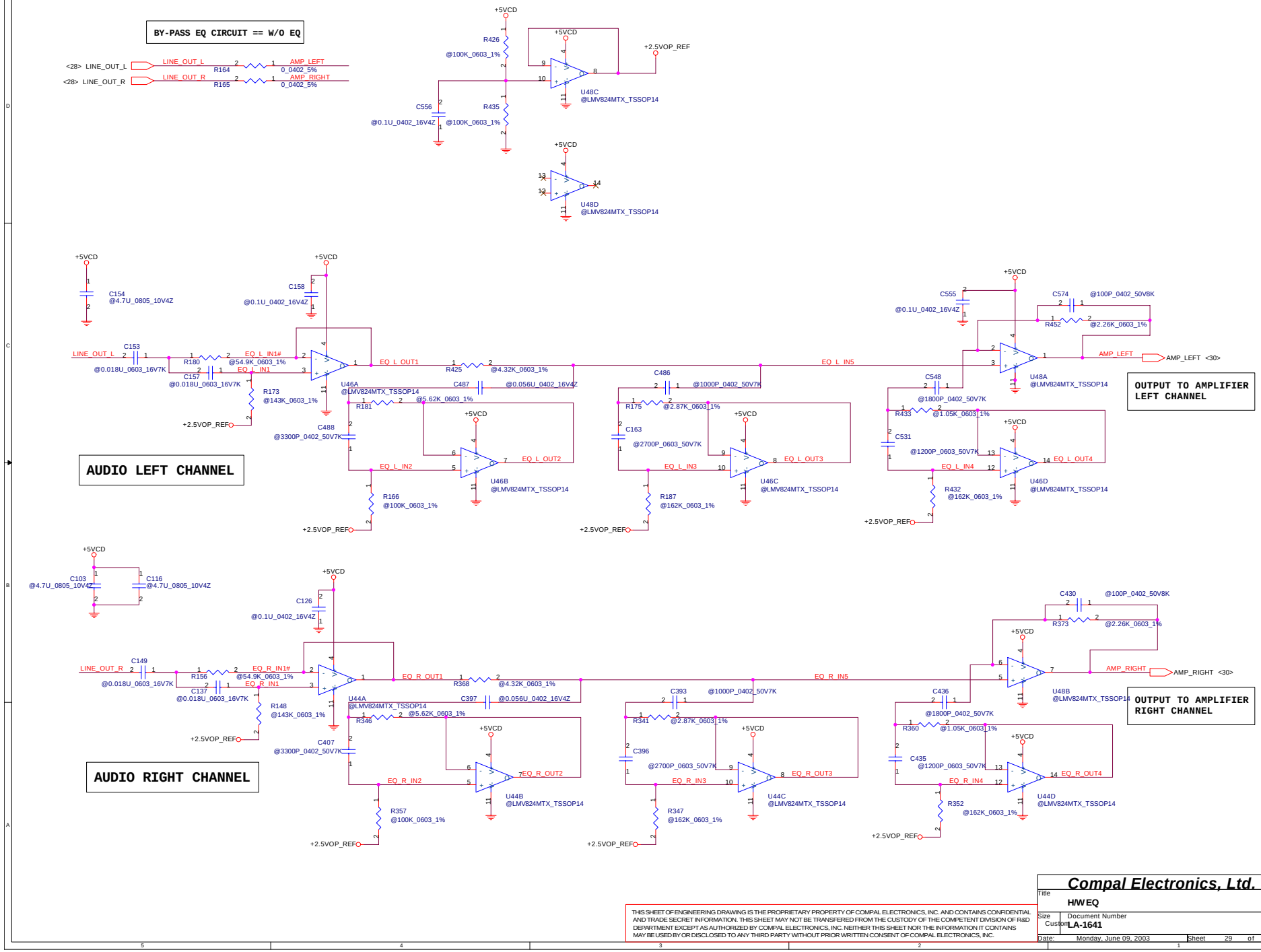

Compal Electronics, Ltd.

Title	H/W EQ	
Size: Custom	Document Number: LA-1641	Rev: 0.2
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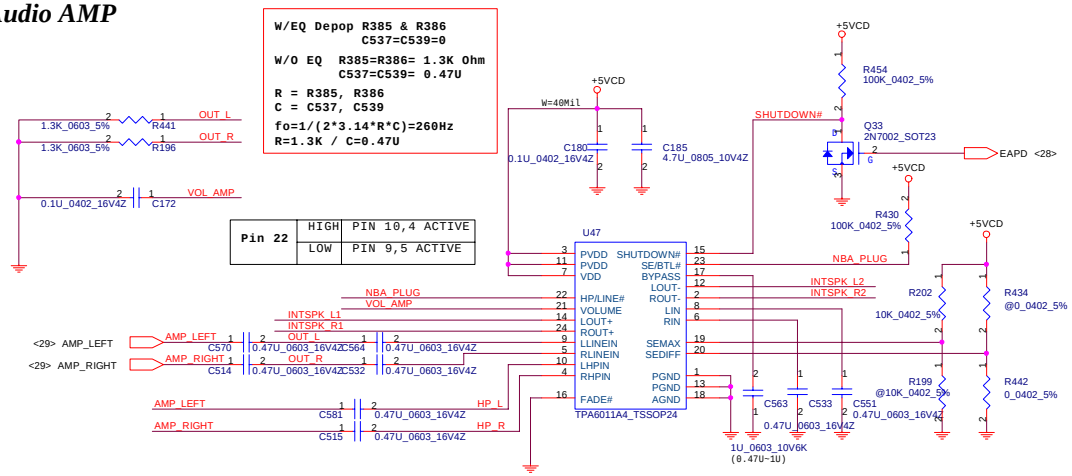
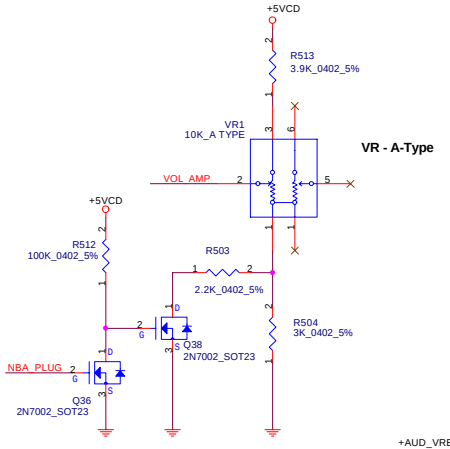
Audio AMP

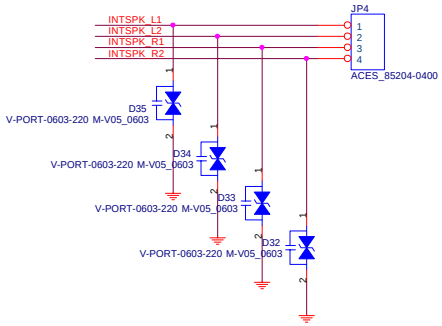
W/EQ Depop R385 & R386
C537=C539=0
W/O EQ R385=R386= 1.3K Ohm
C537=C539= 0.47U
R = R385, R386
C = C537, C539
fo=1/(2*3.14*R*C)=260Hz
R=1.3K / C=0.47U

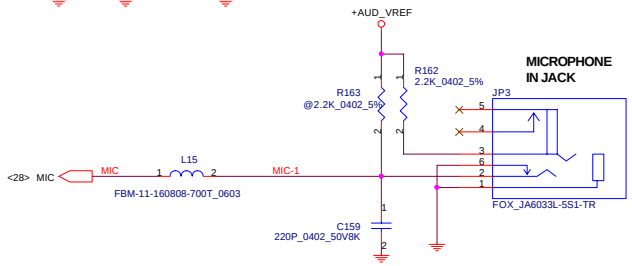
Pin 22	HIGH	PIN 10,4 ACTIVE
	LOW	PIN 9,5 ACTIVE



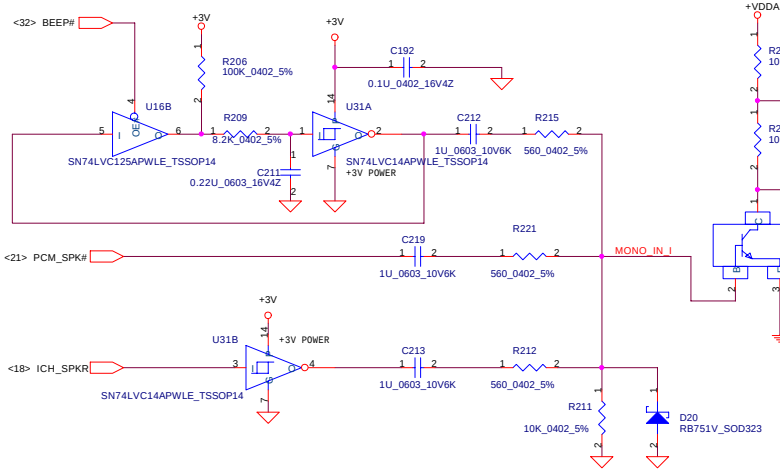


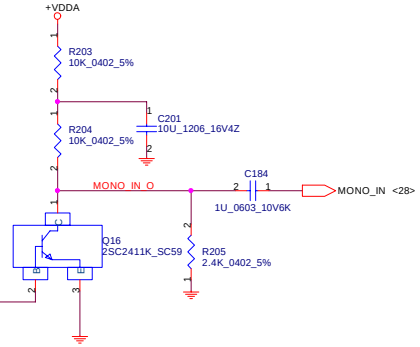
Speaker Connector

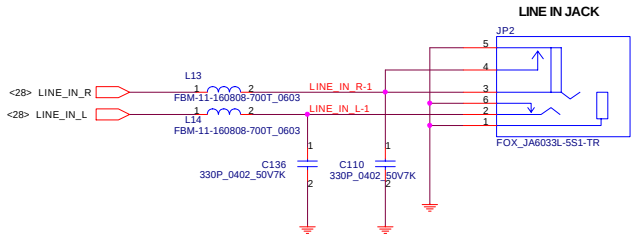


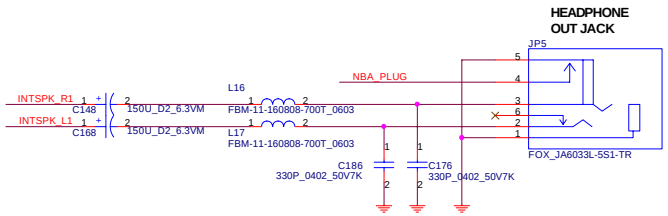


System Sound









Compal Electronics, Ltd.

Title	Audio AMP & JACK	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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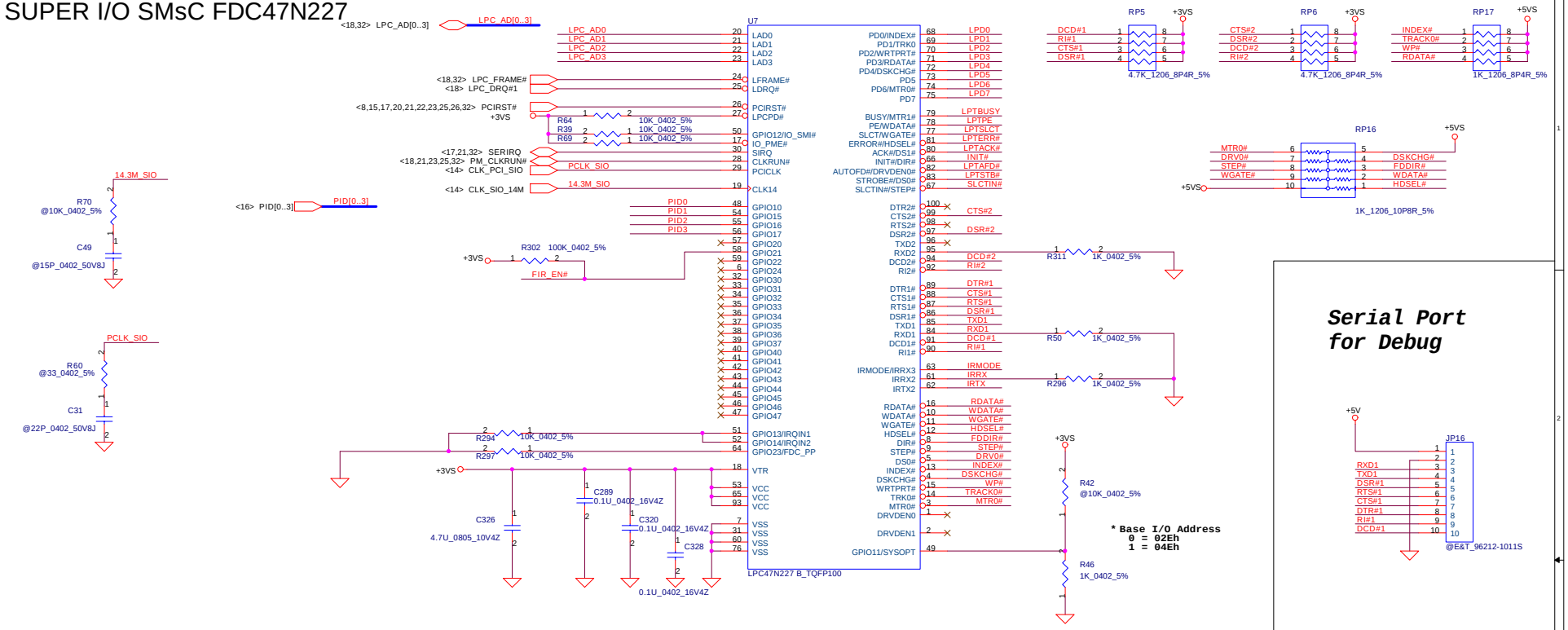
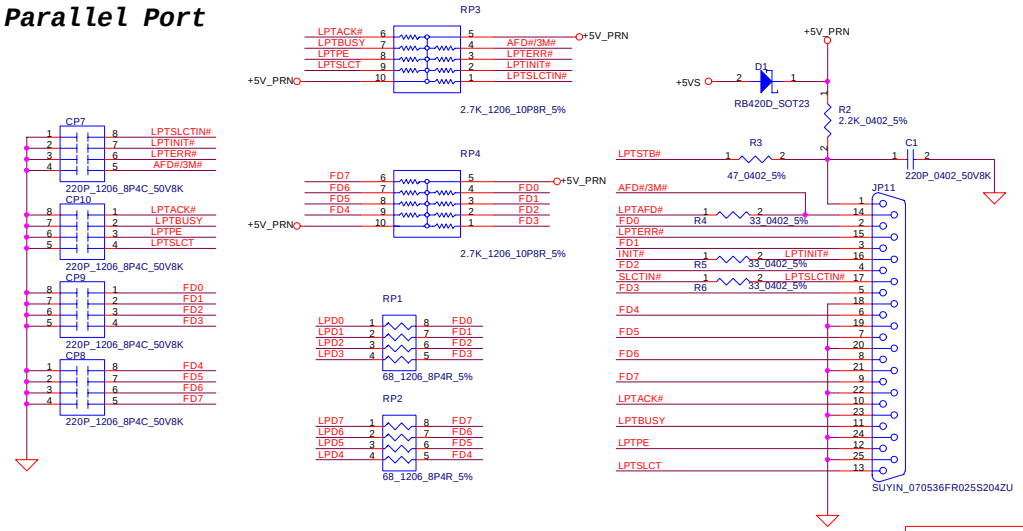
SUPER I/O SMsC FDC47N227



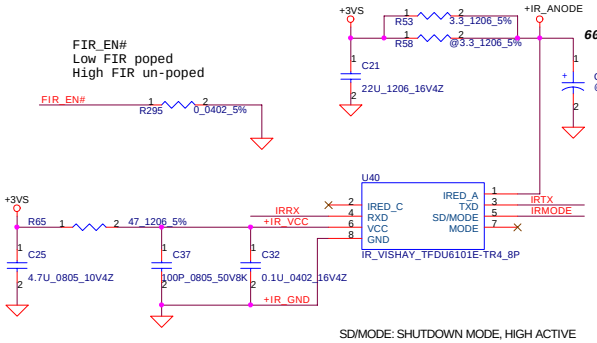
Serial Port for Debug

Parallel Port



FIR Module

FIR_EN#
Low FIR poped
High FIR un-poped



Compal Electronics, Ltd.

Title	LPC-Super I/O	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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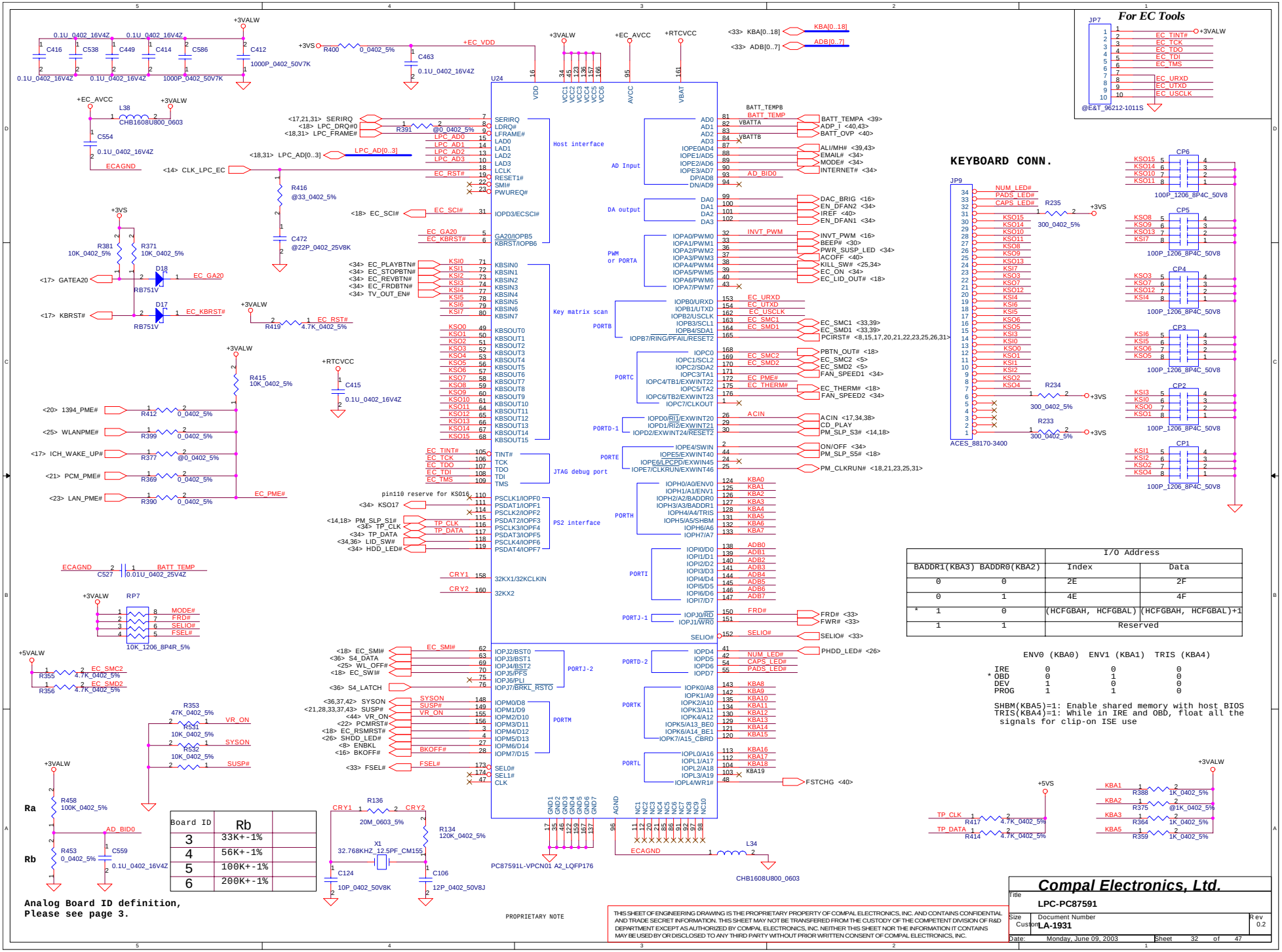
For EC Tools
JP7
EC_TINT#
EC_TCK
EC_TDO
EC_TDI
EC_TMS
EC_URXD
EC_UTXD
EC_USCLK
@E&T_96212-1011S
KEYBOARD CONN.
JP9
ACES_88170-3400
U24
PC87591L-VPCN01 A2_LQFP176
Host interface
AD Input
DA output
PWM or PORTA
Key matrix scan
PORTB
PORTC
PORTD-1
PORTE
PORTH
PORTI
PORTJ-1
JTAG debug port
PS2 interface
PORTJ-2
PORTD-2
PORTK
PORTM
PORTL
Board ID
Rb
3
33K+-1%
4
56K+-1%
5
100K+-1%
6
200K+-1%
Analog Board ID definition,
Please see page 3.
I/O Address
BADDR1(KBA3)
BADDR0(KBA2)
Index
Data
ENV0 (KBA0)
ENV1 (KBA1)
TRIS (KBA4)
IRE
OBD
DEV
PROG
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
PROPRIETARY NOTE
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Compal Electronics, Ltd.
Title
LPC-PC87591
Size
Custom
Document Number
LA-1931
Rev
0.2
Date:
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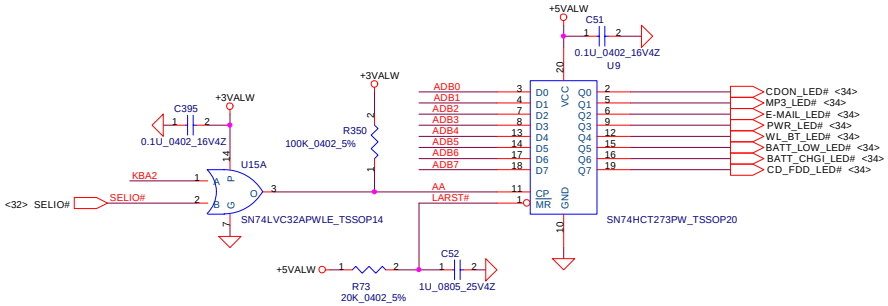
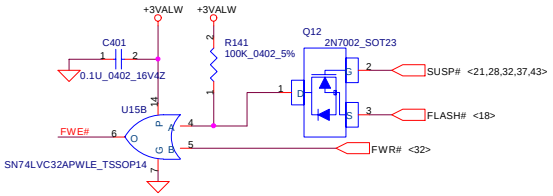
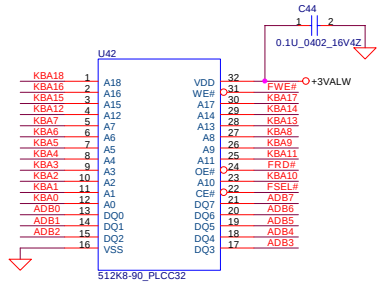
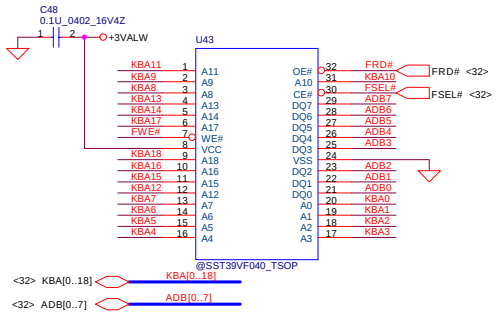
32
of
47

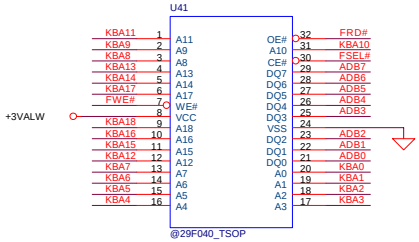


System BIOS

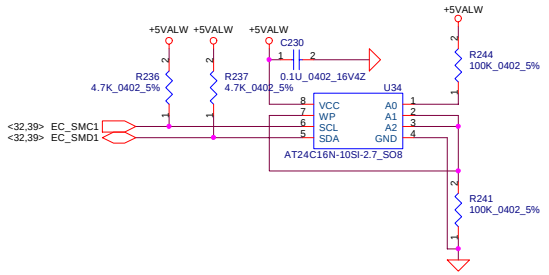








SMBus EEPROM



Compal Electronics, Ltd.

Title	BIOS & Ext.I/O	
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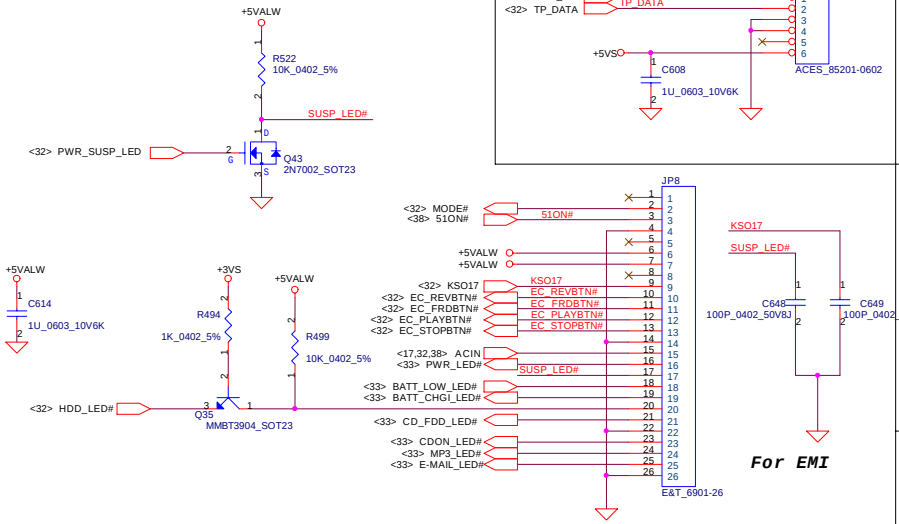
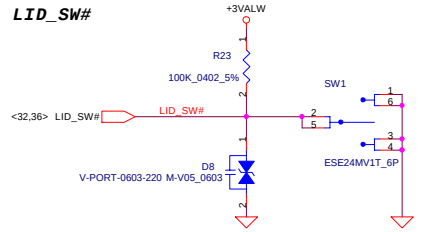
SW BOARD Connector
(Top contact)

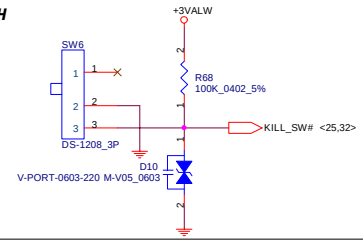


Touch Pad Connector

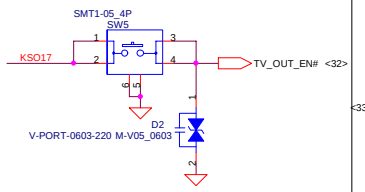
LID_SW#



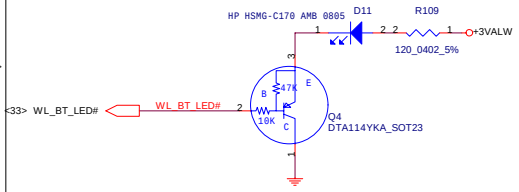
Kill SWITCH



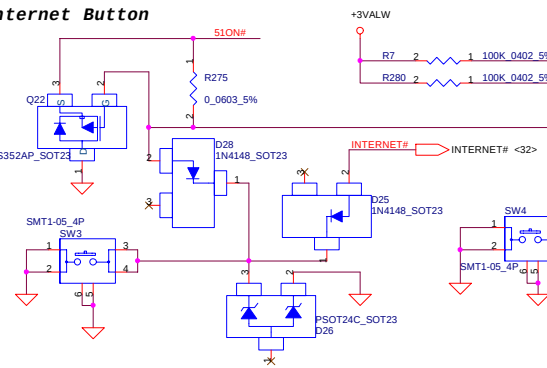
TV-OUT BUTTON



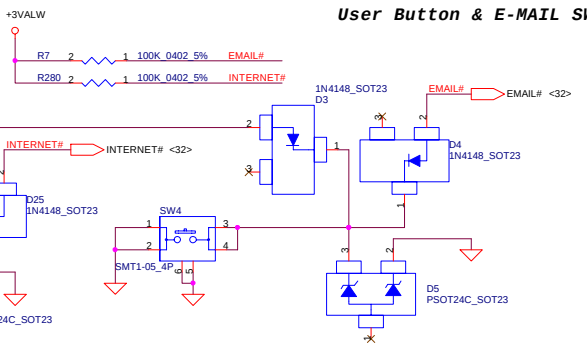
WIRELESS ACTIVE AMB LED



Internet Button

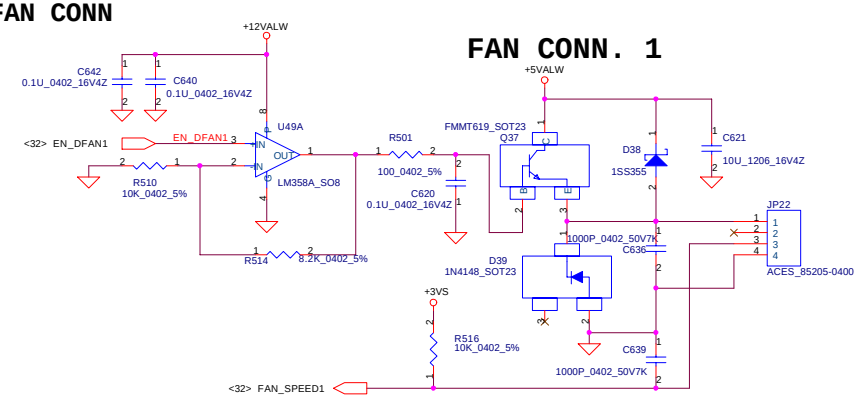


User Button & E-MAIL SW

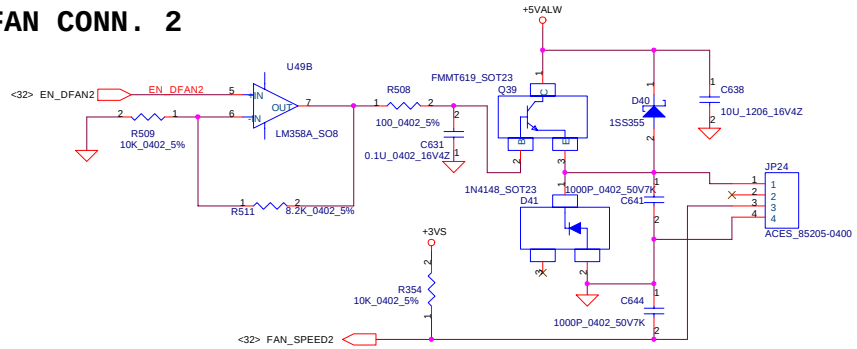


FAN CONN

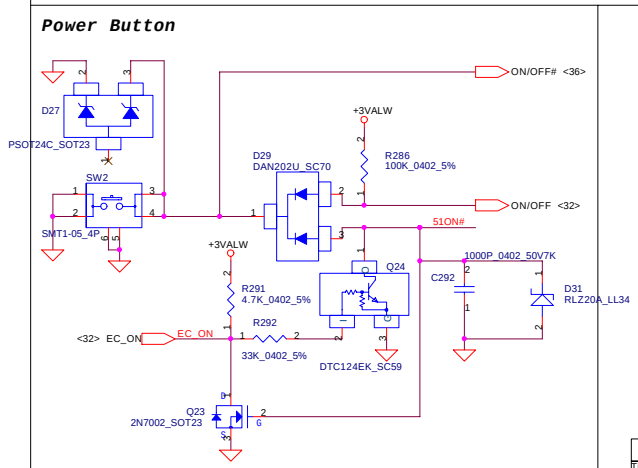
FAN CONN. 1



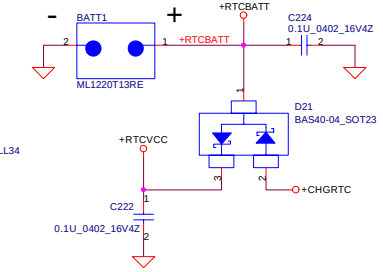
FAN CONN. 2



Power Button



RTC BATT



Compal Electronics, Ltd.

Title	SystemConnectors	
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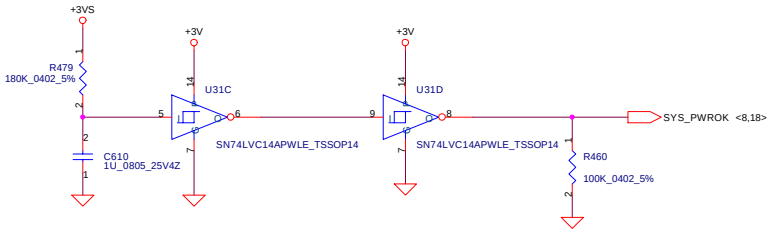
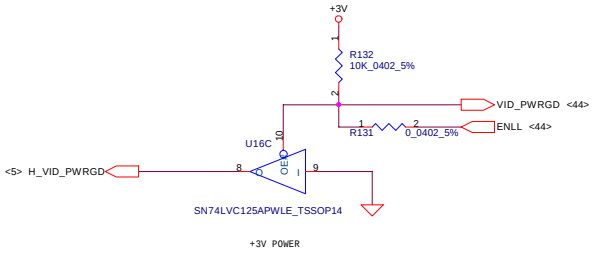
Power Good Circuit



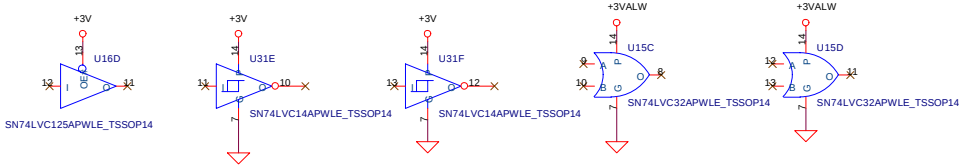
FD2 FIDUCAL
FD1 FIDUCAL
FD3 FIDUCAL
FD4 FIDUCAL
FD5 FIDUCAL
FD6 FIDUCAL

CF1 SMD40M80
CF2 SMD40M80
CF14 SMD40M80
CF17 SMD40M80
CF18 SMD40M80
CF20 SMD40M80
CF12 SMD40M80
CF16 SMD40M80
CF8 SMD40M80
CF21 SMD40M80
CF7 SMD40M80
CF11 SMD40M80
CF9 SMD40M80
CF4 SMD40M80
CF6 SMD40M80
CF5 SMD40M80

VID_PWRGD



H1 H_S315D110
H2 H_S315D110
H3 H_S315D110
H10 H_S315D110
H14 H_S315D110
H29 H_S315D110
H30 H_S315D110
H33 H_S315D110
H34 H_S315D110
H35 H_S315D110
H4 H_C315D142
H9 H_C315D142
H5 H_C315D142
H8 H_C315D142
H41 H_C118D118N
H6 H_S315D181
H23 H_S315D181
H7 H_C276D142
H12 H_C276D142
H11 H_C197D91
H26 H_C197D91
H13 H_C121D98
H27 H_C121D98
H15 H_S315D118
H17 H_C276D91
H22 H_C276D91
H18 H_C335D91
H25 H_C335D91
H19 H_C335D142
H31 H_C181D161



H16 H_O85X118D85X118N
H21 H_C63D63N
H20 H_O63X102D63X102N
H24 H_C85D85N
H28 H_O201X162D201X162N
H32 H_O315X236D315X236N

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Title	PowerGood	
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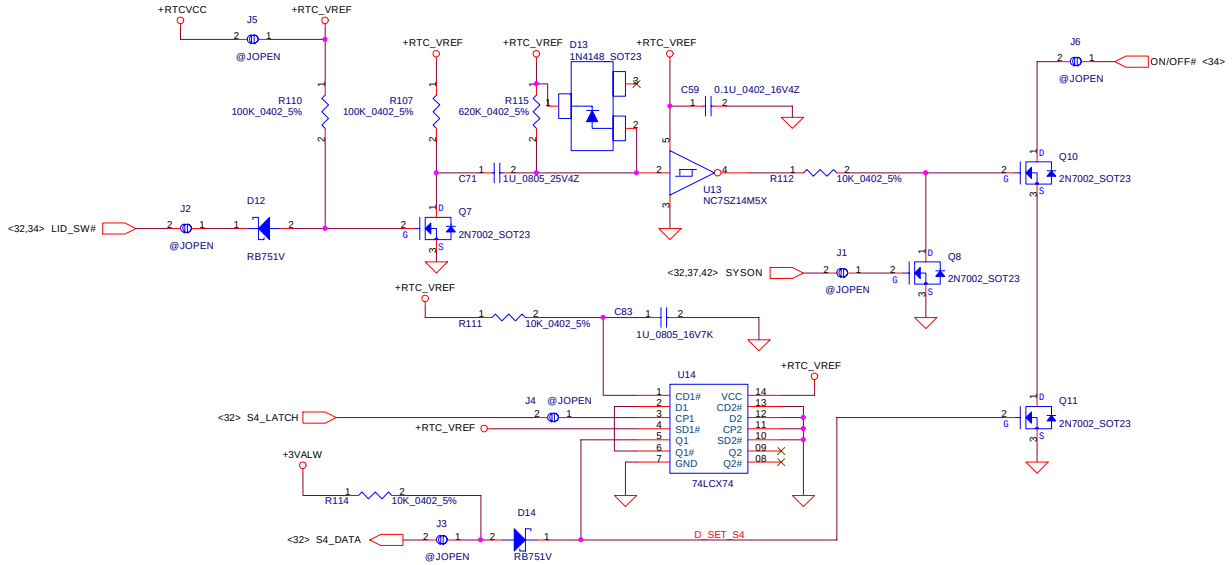

Compal Electronics, Ltd.

Title	AC-IN-Mode-Hibernation	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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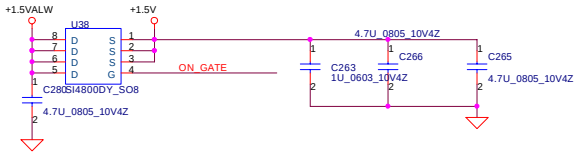
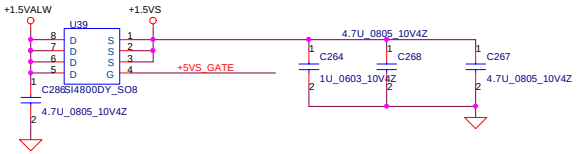
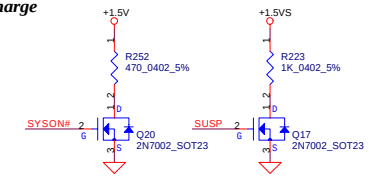
+1.5VALW To +1.5V Transfer



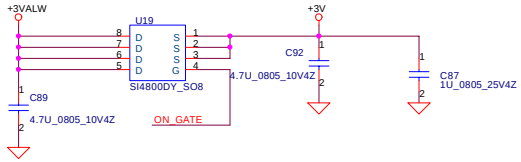
+1.5VALW To +1.5VS Transfer



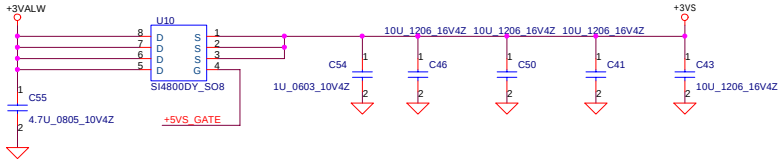
+1.5V & +1.5VS Discharge



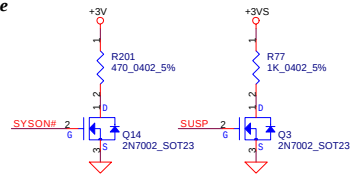
+3VALW To +3V Transfer



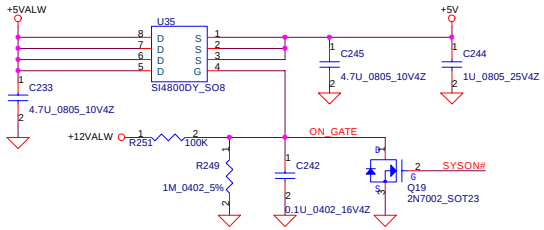
+3VALW To +3VS Transfer



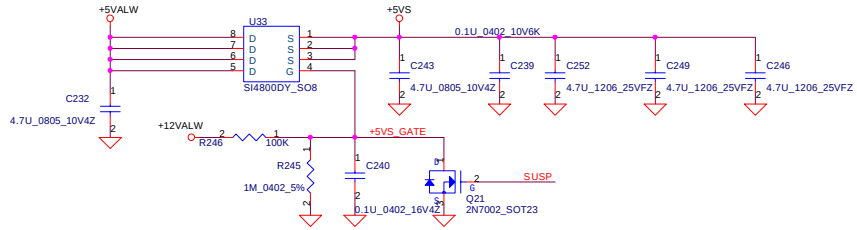
+3V & +3VS Discharge



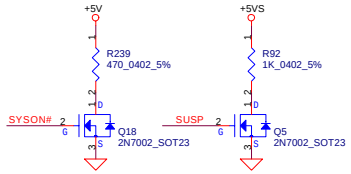
+5VALW To +5V Transfer

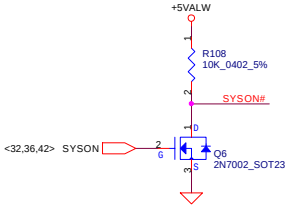


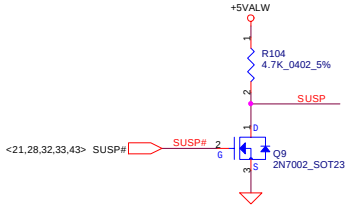
+5VALW To +5VS Transfer



+5V & +5VS Discharge







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Title	DC/DC Interface	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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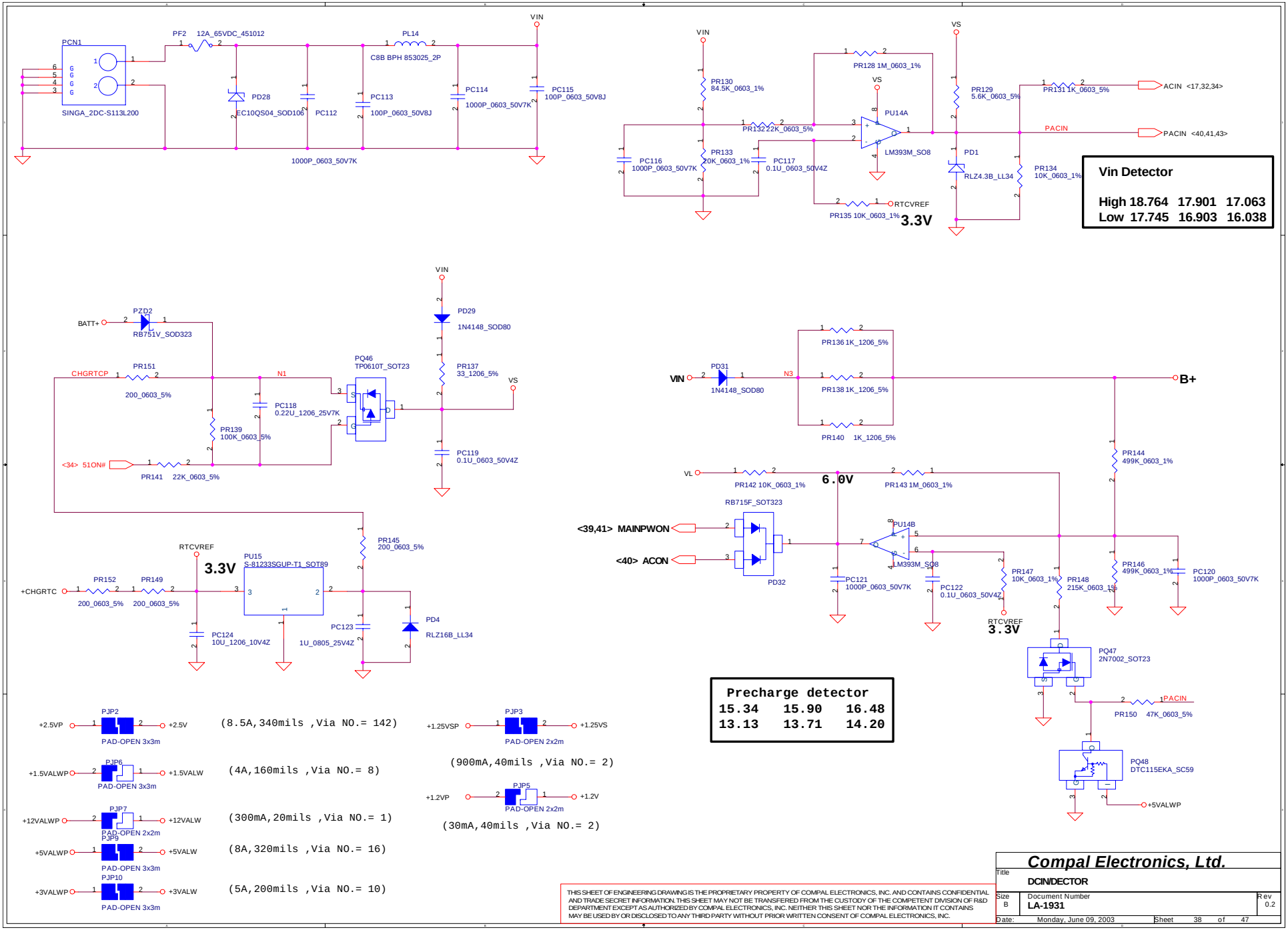

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Title	DCIN/DECTOR	
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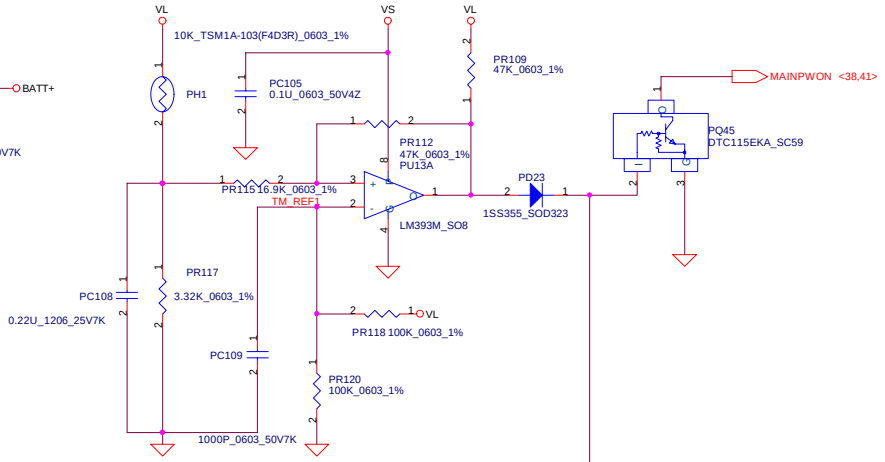
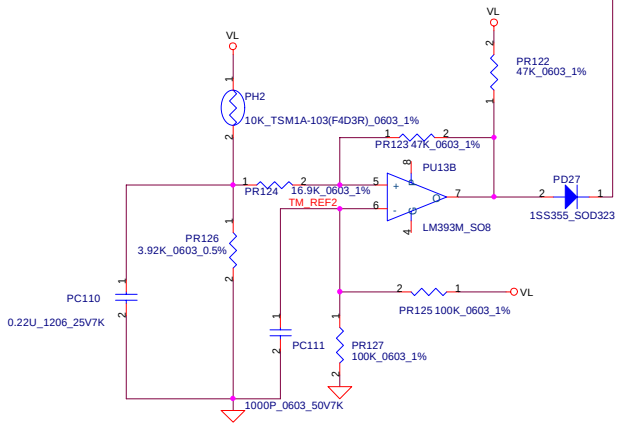
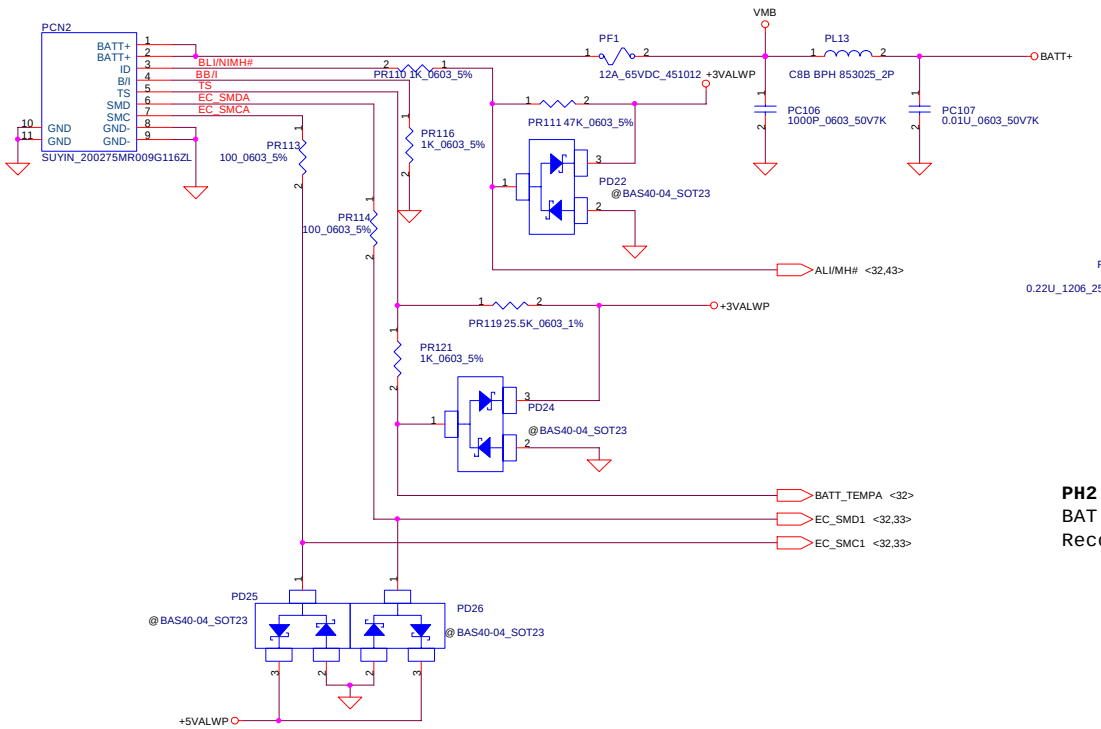
PH1 under CPU botten side :
CPU thermal protection at 84 degree C
Recovery at 44(45) degree C



PH2 near main Battery CONN :
BAT. thermal protection at 78 degree C
Recovery at 39(40) degree C





Compal Electronics, Ltd.

Title	BATTERY CONN / OTP	
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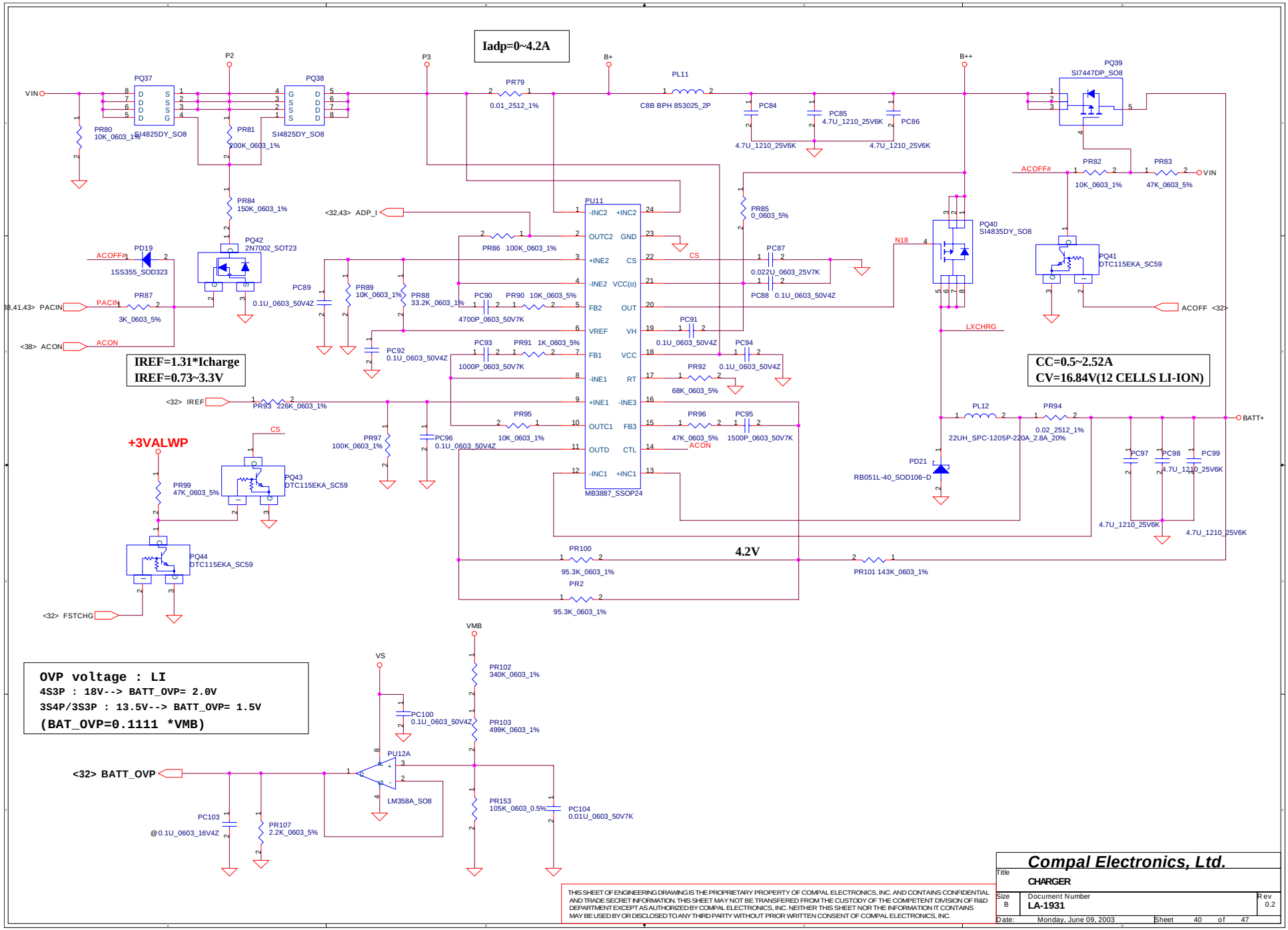
Iadp=0~4.2A
IREF=1.31*Icharge
IREF=0.73~3.3V
CC=0.5~2.52A
CV=16.84V(12 CELLS LI-ION)
4.2V
+3VALWP
OVP voltage : LI
4S3P : 18V--> BATT_OVP= 2.0V
3S4P/3S3P : 13.5V--> BATT_OVP= 1.5V
(BAT_OVP=0.1111 *VMB)
MB3887_SSOP24
LM358A_SO8
SI4825DY_SO8
SI7447DP_SO8
DTC115EKA_SC59
2N7002_SOT23
1SS355_SOD323
RB051L-40_SOD106-D
22UH_SPC-1205P-220A_2.8A_20%
C8B BPH 853025_2P
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Compal Electronics, Ltd.
Title
CHARGER
Size B
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Rev 0.2
Date: Monday, June 09, 2003
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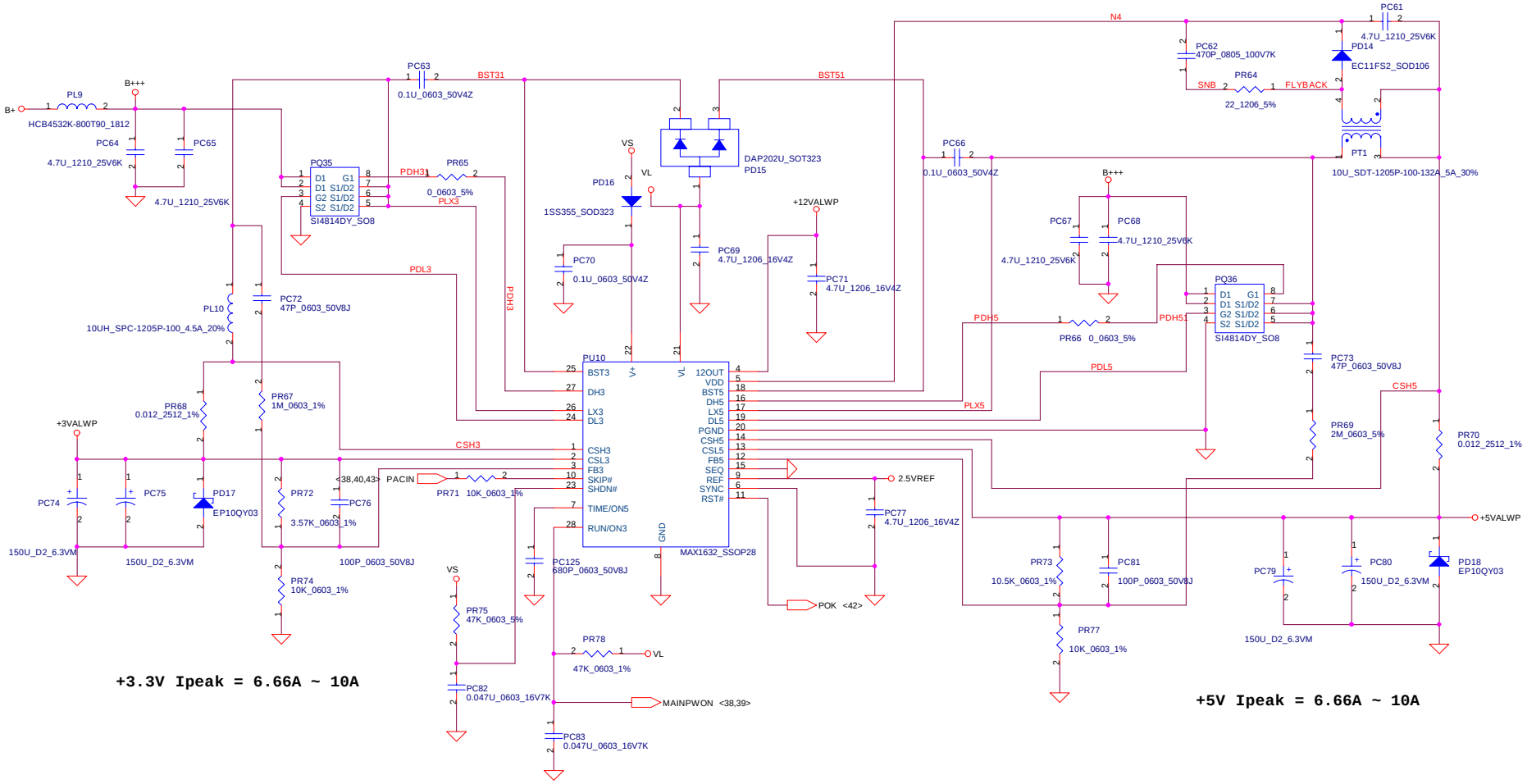

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Compal Electronics, Ltd.

Title	5V/3V/12V	
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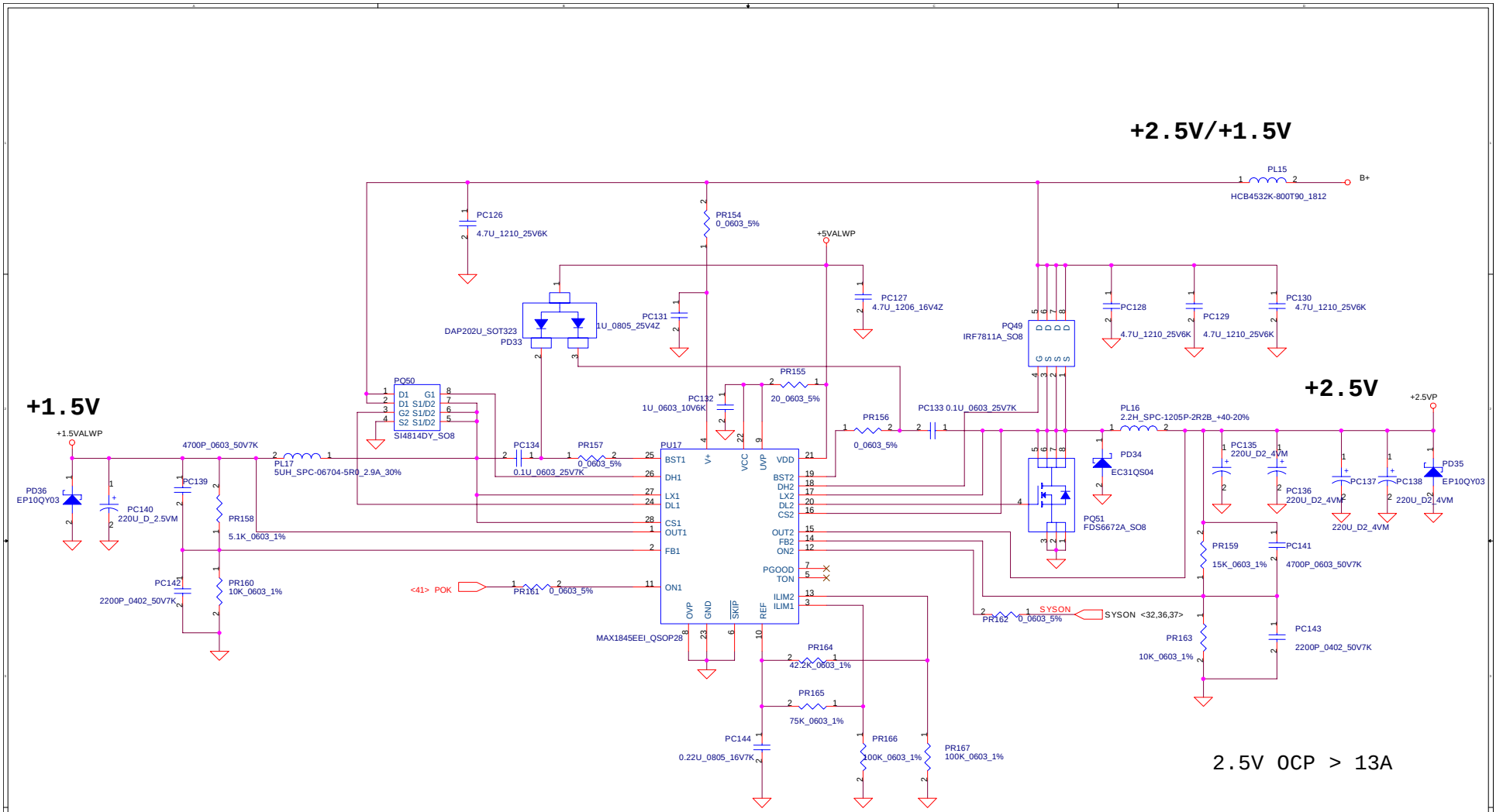

Compal Electronics, Ltd.

Title	+2.5VP/1.5VALWP	
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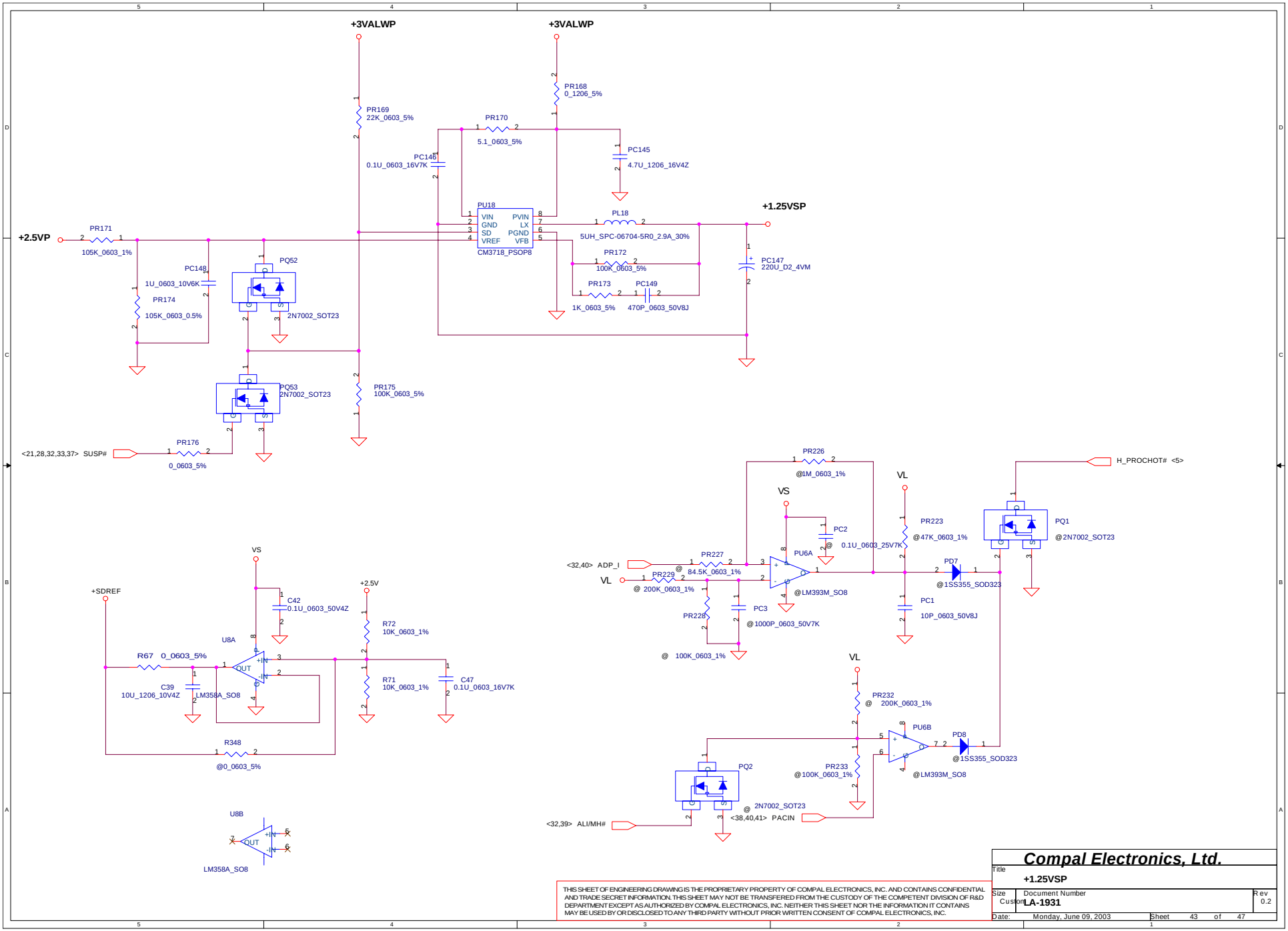

Compal Electronics, Ltd.

Title	+1.25VSP	
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Different Pin Definition for ISL6561 in PU9

#7	GND	#11	REF	#33	EN	#38	OVP
#9	TCOMP	#14	IDROOP	#35	GND	#40	GND
#10	DAC	#18	RGND	#37	GND		

Battery Feed Forward

Frequency Select

Panasonic ERTJ0EV334J (0402) Locate this NTC resistor on PCB between phase 2 and 3 for thermal compensation.

Place close to IC

Remote Sensing

Place near +VCC_CORE output capacitor

1. When mode control signal is high/ low, the VR will operate to Northwood/ Prescott load line.
2. VID5(12.5) should be pulled high, when the VR operates to Nothwood load line.

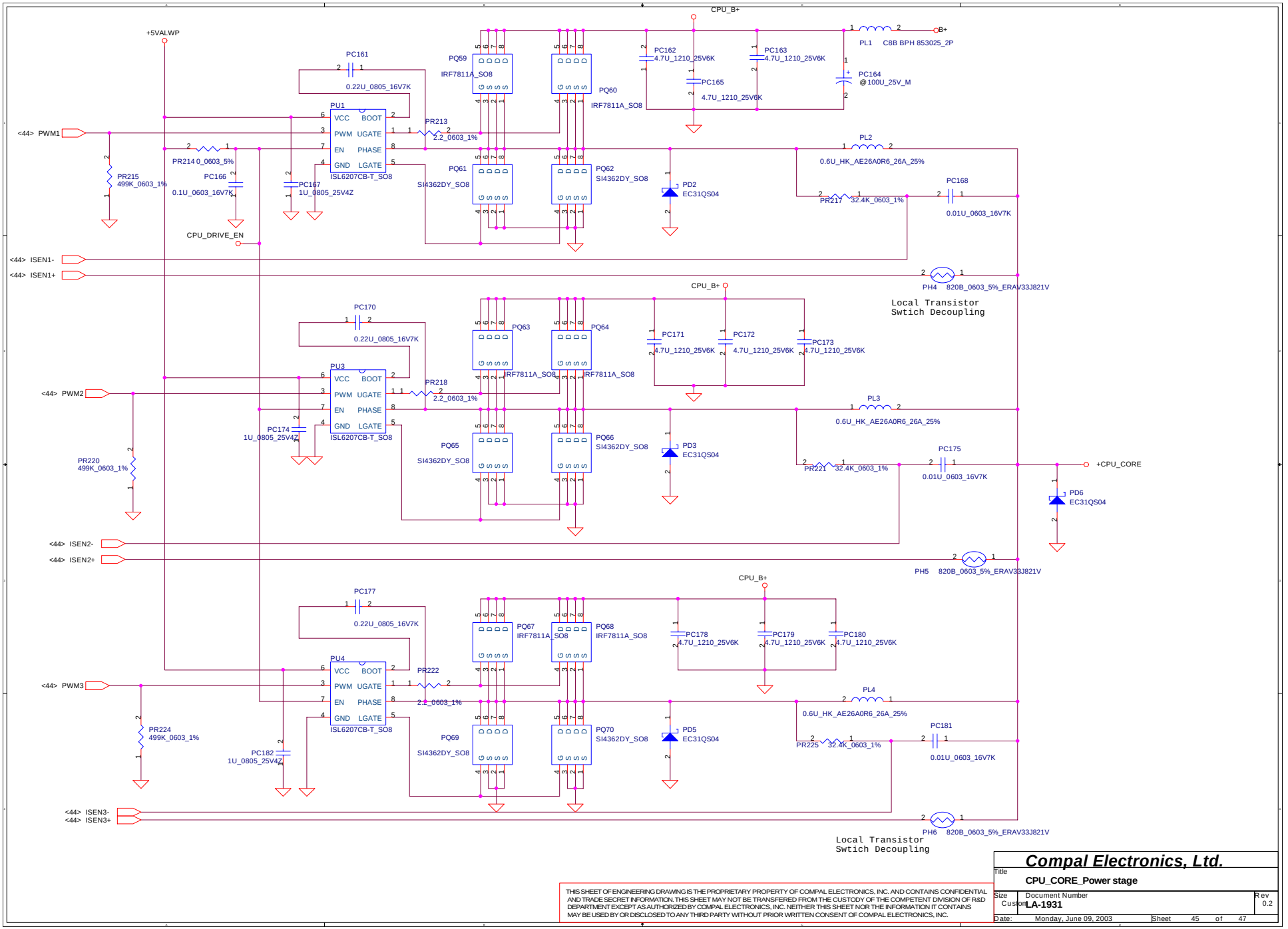
BOOTSELECT=1 PRESCOTT
BOOTSELECT=0 NORTHWOOD

Compal Electronics, Ltd.

Title: CPU_CORE_Controller

Size: B | Document Number: LA-1931 | Rev: 0.2

Date: Monday, June 09, 2003 | Sheet 44 of 47



Compal Electronics, Ltd.

Title	CPU_CORE_Power stage	
Size: Custom	Document Number: LA-1931	Rev: 0.2
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REV 0.1

Date	Page	Description
04/10	21	Delete Power interface short line.
04/13	21, 22	Change Card Bus controller as one slote CB1410
	11, 12	Swap RAM data signals.
04/16	29	Add EQ circuit
	43	Add throutoling circuit.
	26, 31	Add FIR and Remove SW DJ cicuit
04/24	17	Add R569 and R570 for Layout Request. Move Signal IRQE#~H# from RP92 to RP91 and del RP92.
	14	CLK-GEN. pin 1(VDD_REF) and pin 46(VDD_CPU_0) change power plan as +3V_VDD. Suggestion from ICS
		C249 and C251 change power plane as +3VDD
04/25	45	PL4 swap pin1 and pin2.
	6	Change CPU Decoupling CAP. from 22U_1210_6.3V6M to 22U_1206_6.3V6M (H=1.6)
	32	1. EC GPIO signal HDD_LED# move from pin114 to pin119.
		2. Add signal PM_SLP_S1# on EC GPIO pin115.
	28	Q44 for +5VCD change part name as U55
04/28	8	Del R73, cause it duplicate pull high.
	27	Change C478 and C488 from 150U to 10U
	36	Change R480 from 560K to 620K Ohm
	4	Add R571 for BOOTSELECT
	5	Add R573 for OPTIMIZED/COMPAT#
	18	Add R572 for signal PM_DPRSLPVR
04/29		Rename from Layout
04/30	33	R73 0402 -> 0603 and C52 0805 -> 0603
	16	C2, C5, C259, C3, C4, C6, C260, C261 and C262 Link CIS.
	5	Thermal Sensor : Del R62, R61 8.2K-->200Ohm and power +5VS -> +3VS, C27 value 0.1U -> 1U, Sensor power rout direction : +3VS -> R61 -> C27.1 -> U6.1
	17	Add Q40 and Q41, R517 and R518 for SMBus isolate solution.
05/01	8	Change CRT_HSYNC -> INTCRT_HSYNC and CRT_VSYNC -> INTCRT_VSYNC on MGCH terminal.
05/02	33	Remove dummy net on SUSP#.
	16	R28, C277, C278 and C279 modify P/N for CIS link
	17	C215 and C217 modify P/N for CIS link
	22	C145 modify P/N for CIS link
	20	Remove dummy net on XI
	14	R83 and R94 modify P/N for CIS link
05/03	32	CP4 pin2 add connected to GND
05/05	42	PR151 pin1 SYSON signal --> MAINPWON
	8	Swap U26.B6 (INTDDCDA) and U26.G9 (INTDDCCK) --> U26.B6 (INTDDCCK) and U26.G9 (INTDDCDA)
	9	+SDREF circuit move to page 44
	6	Modify Cap.s location same with Layout
	14	Change R129 net from PM_SLP_S3# to PM_SLP_S1#
	16	Add R519 and R520 for EC protect
05/06	20	EEDI_LAN --> EEDI_1394; EECK_LAN --> EECK_1394
	27	Remove R26. Delete USBEN# and U3.3, U3.4, U32.3 and U32.4 connect to GND.
		Delete R30, R279, R258 and R257.
		Change C273, C284 and C646 220U -->150U.
	42	PR151 pin1 SYSON signal --> POK; PU10 pin 11 output POK.
	5	R324 size 0603 -> 0805
	32	U24.175 ATF_INT# --> EC_THERM#
05/07	28	Add L42 between GND and AGND by EMI request.
	17	R408, remove @ for Intel comment.
	5	R56 60.4_0603_1% --> 51.1_0603_1%; R59 102_0603_1% -> 86.6_0603_1%
05/08	35	H19 GNDA -> GND; H31 GND -> GNDA
	37	C242 0.01U -> 0.1U.
	11	JP21 DDR-SO-DIMM link with CIS.
	29	De-pop EQ components, add @ symbol on components.

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Date	Page	Description
05/12	35	Change H31 GND --> AGND and H19 AGND --> GND
	37	R104 and R108 power plane changed, +3VALW --> +5VALW
05/29	40	Change PR100 47.5K-->95.3K
		PR100 47.5K-->95.3K;PQ37,PQ38,PQ39 SI4835DY-->SI4825DY
		PR79 0.015-->0.01; PR86 10K-->100K ;PR90 4.7K-->10K; PR88 29.4K-->33.2K
		Add PR2 95.3K
	38	Change PCN1 90W-->120W
	20	U29 Pin 37 pull up with 4.7K Ohm --> U29 Pin 43
		change X4 footprint same as X2
	16	Add Protect circuit for EC (Add D42, D43 ,D44 and R521)
	32	PWR_SUSP_LED# --> PWR_SUSP_LED
	34	Add reverse circuit for PWR_SUSP_LED (Add Q43 and R522).
	23	change Y2 footprint same as X2
	36	change J1 ~ J6 footprint from JUMP_2MM to 2MM
05/30	35	Add H41 and change H13 H27 size.
06/02	38	Change PL14 value
	39	Change PL13 value
	45	Change PL1 value
	40	Change PQ39 and PL11 value
	11	Add R523, R524, R525 and R526, Del R515
	12	Add R527, R528, R529 and R530
06/03	6	Delete C281, C287, C300, C309, C317, C324, C327 and C330.
06/05	34	Add C648 and C649 for EMI request
	32	Add R531 and R532 for EC floating issue
	8	Add R533 for DVO device detect