DBQ01 Rev0.1 Schematics Document

Intel Prescott uFCPGA-478 / P4 Northwood

with Springdale / ICH5 / nVIDIA NV34M/31M chipset

2003/07/01

Compal Electronics, Inc.		
Title: Cover Sheet		
Size: B	Document Number: LA-2041	Rev: 0.1
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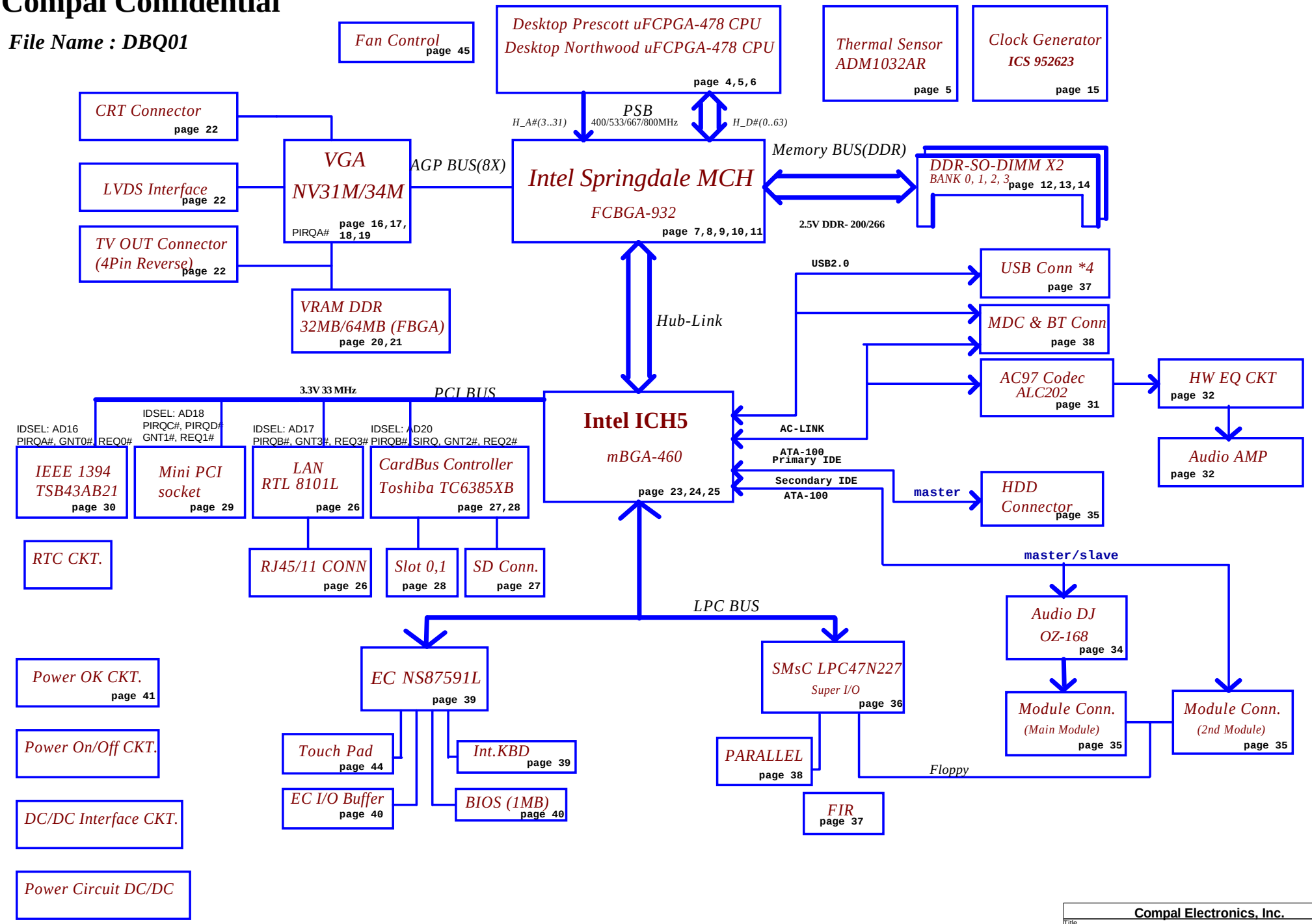
File Name : DBQ01



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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
+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	1.3V 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*
+RTCVCC	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			PIRQA
CardBus	AD20	2	PIRQA/PIRQB
LAN	AD17	3	PIRQB
Mini-PCI	AD18	1/4	PIRQC/PIRQD
1394	AD16	0	PIRQA
SD	AD22		

EC SM Bus1 address

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

EC SM Bus2 address

Device	Address
ADM1032	1001 110X b
OZ168	0011 0100 b

ICH5 SM Bus address

Device	Address
Clock Generator (ICS 952623)	1101 001Xb
DDR DIMM0	1001 000Xb
DDR DIMM2	1001 001Xb

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	V_{AD_BID} min	V_{AD_BID} typ	V_{AD_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	

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Title: Notes

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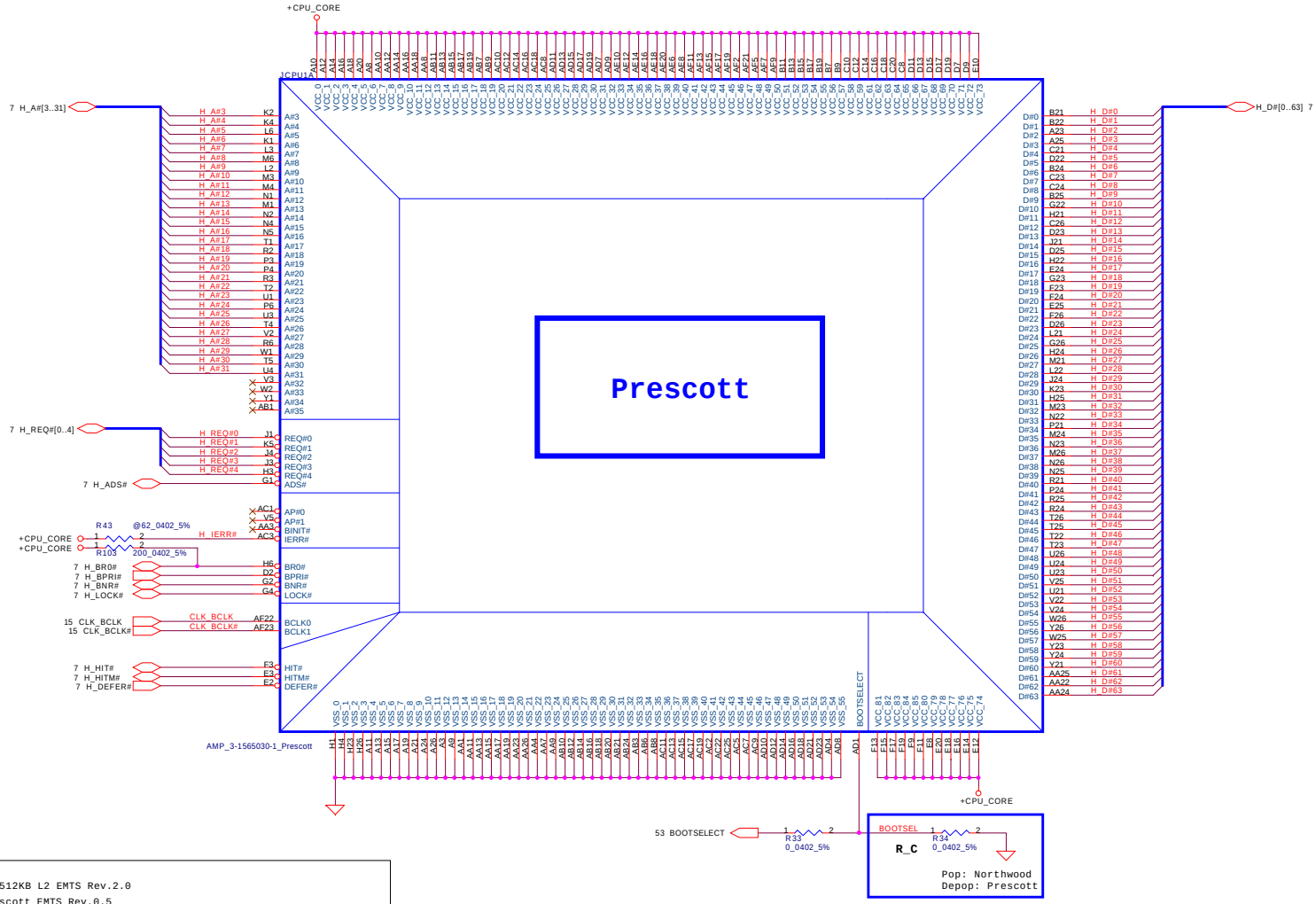

Reference Intel document
Desktop P4 Spec.: 10988 P4 0.13u 512KB L2 EMTS Rev.2.0
Desktop Prescott Spec.: 11910 Prescott EMTS Rev.0.5

Pin number	Northwood Pin name	Commend	Prescott Pin name	Commend	Northwood	Prescott
B6	FERR#	Pull-up 62ohm to +VCC_CORE	FERR#/PBE#	Pull-up 62ohm to +VCC_CORE	Pop	Pop
AA20	ITPCLKOUT0	Pull-up56ohm 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-up1Kohm 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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Title: Prescott Processor in uFCPGA478 (1/2)

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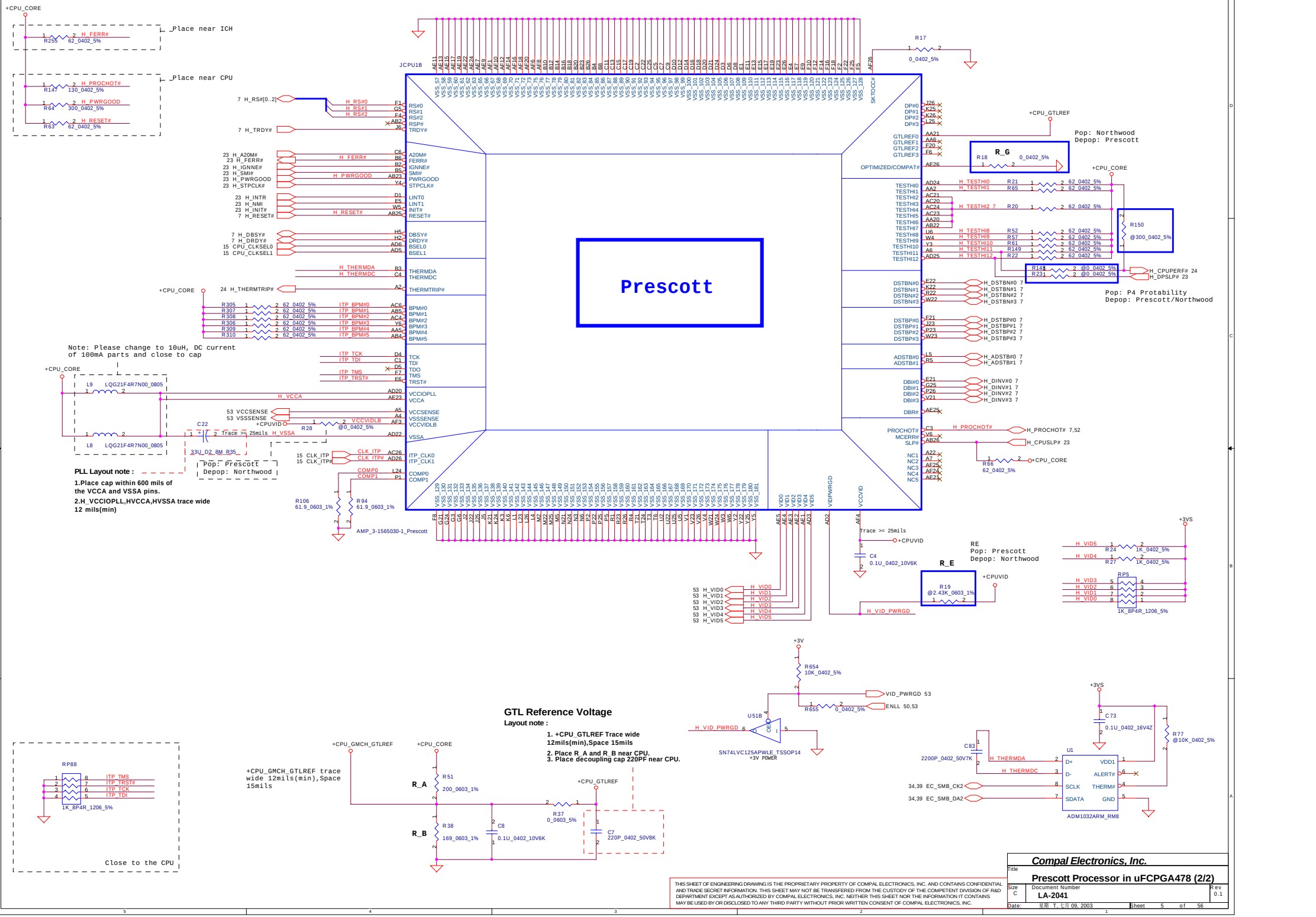

Compal Electronics, Inc.	
Title	Prescott Processor in uFCPGA478 (2/2)
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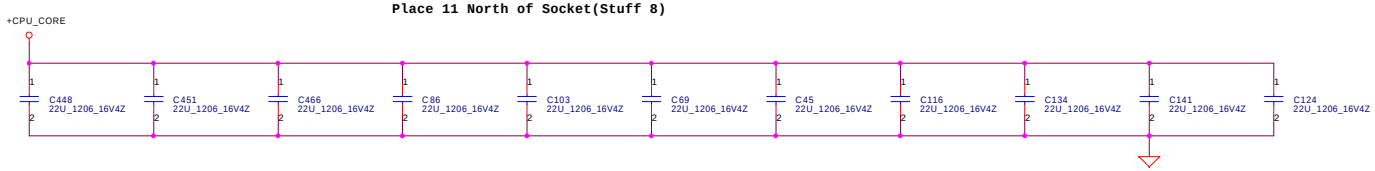
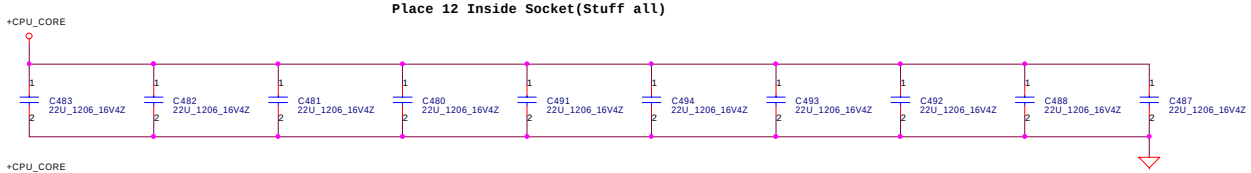
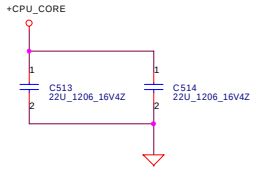
Place 11 North of Socket(Stuff 8)



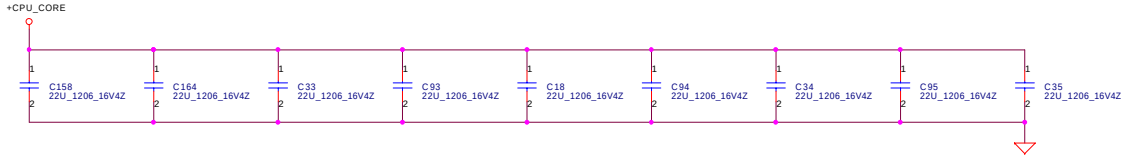
Place 12 Inside Socket(Stuff all)



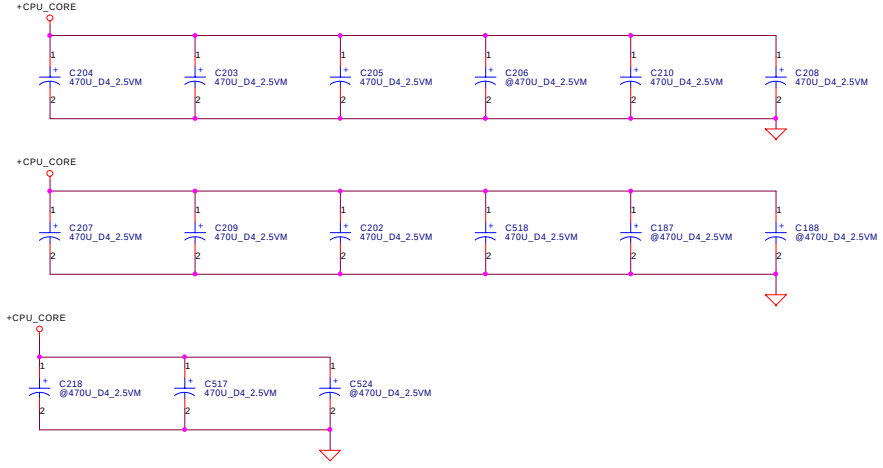


(H_1.78)
22uF depop reference
Springdale Customer Schematic R1.2 page82

Place 9 South of Socket(Unstuff all)



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

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Title: CPU Decoupling

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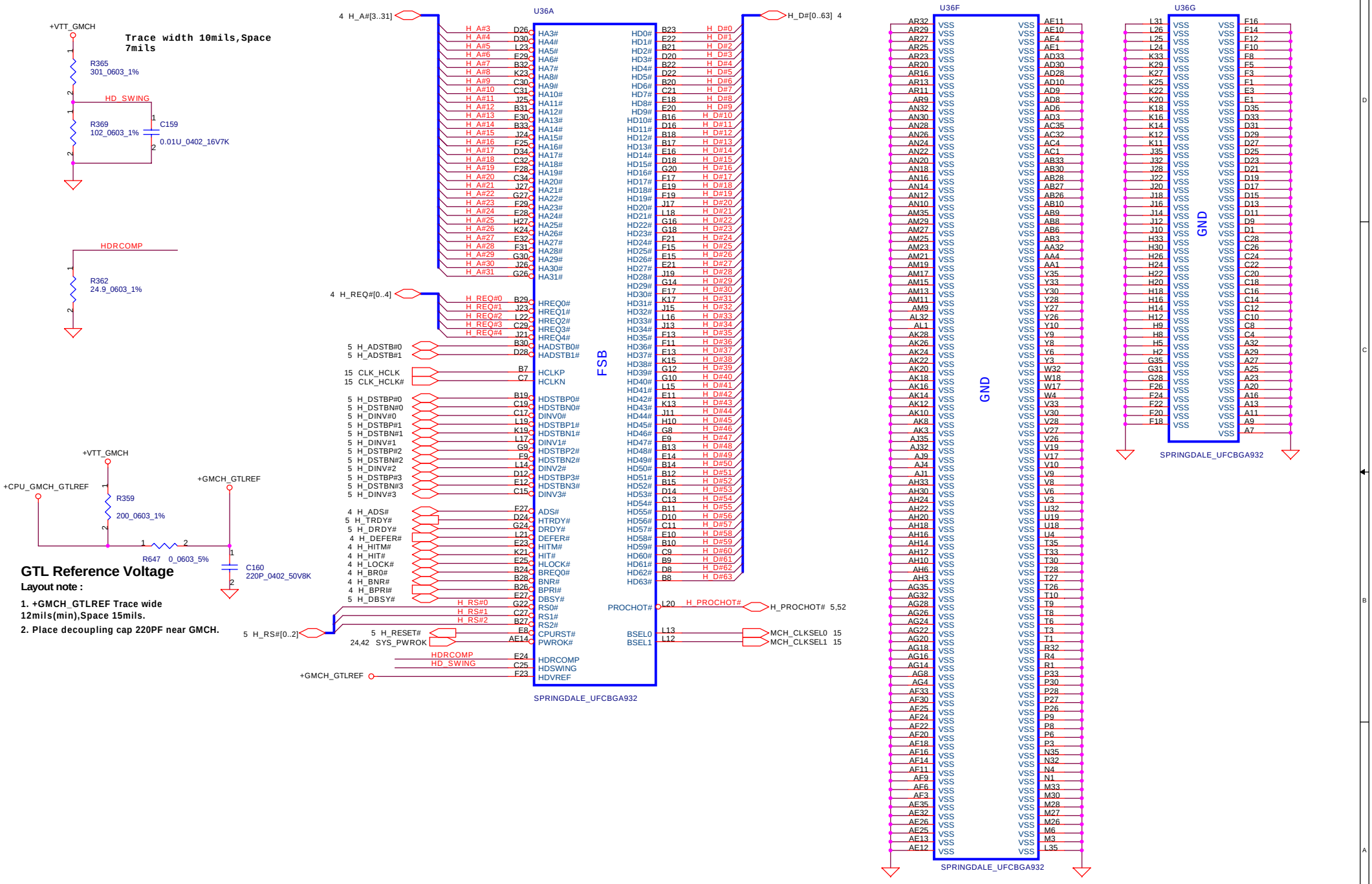

Compal Electronics, Inc.		
Title: Springdale-Host/GND (1/4)		
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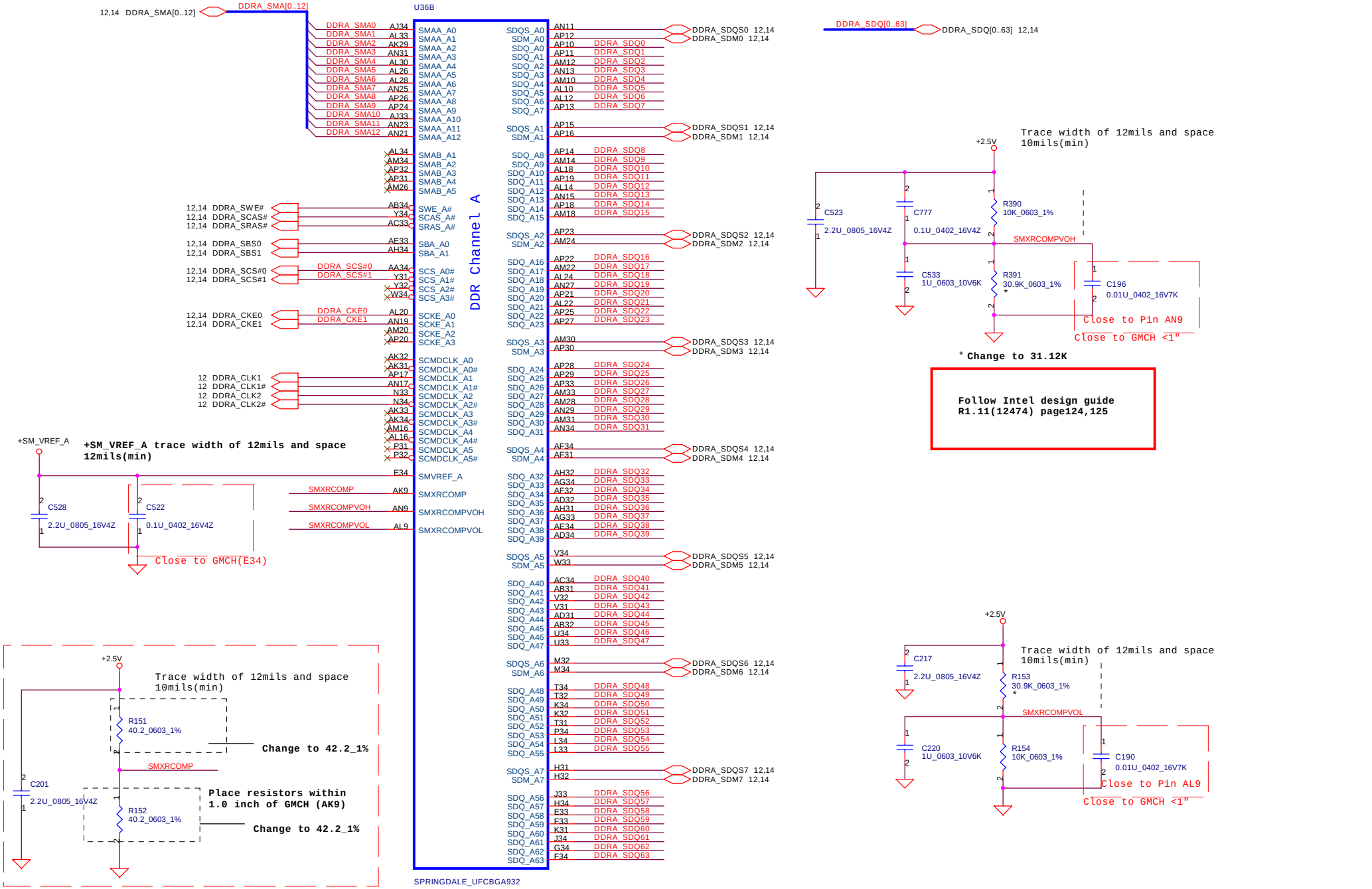

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Title: Springdale-DDR Interface-A(2/5)		
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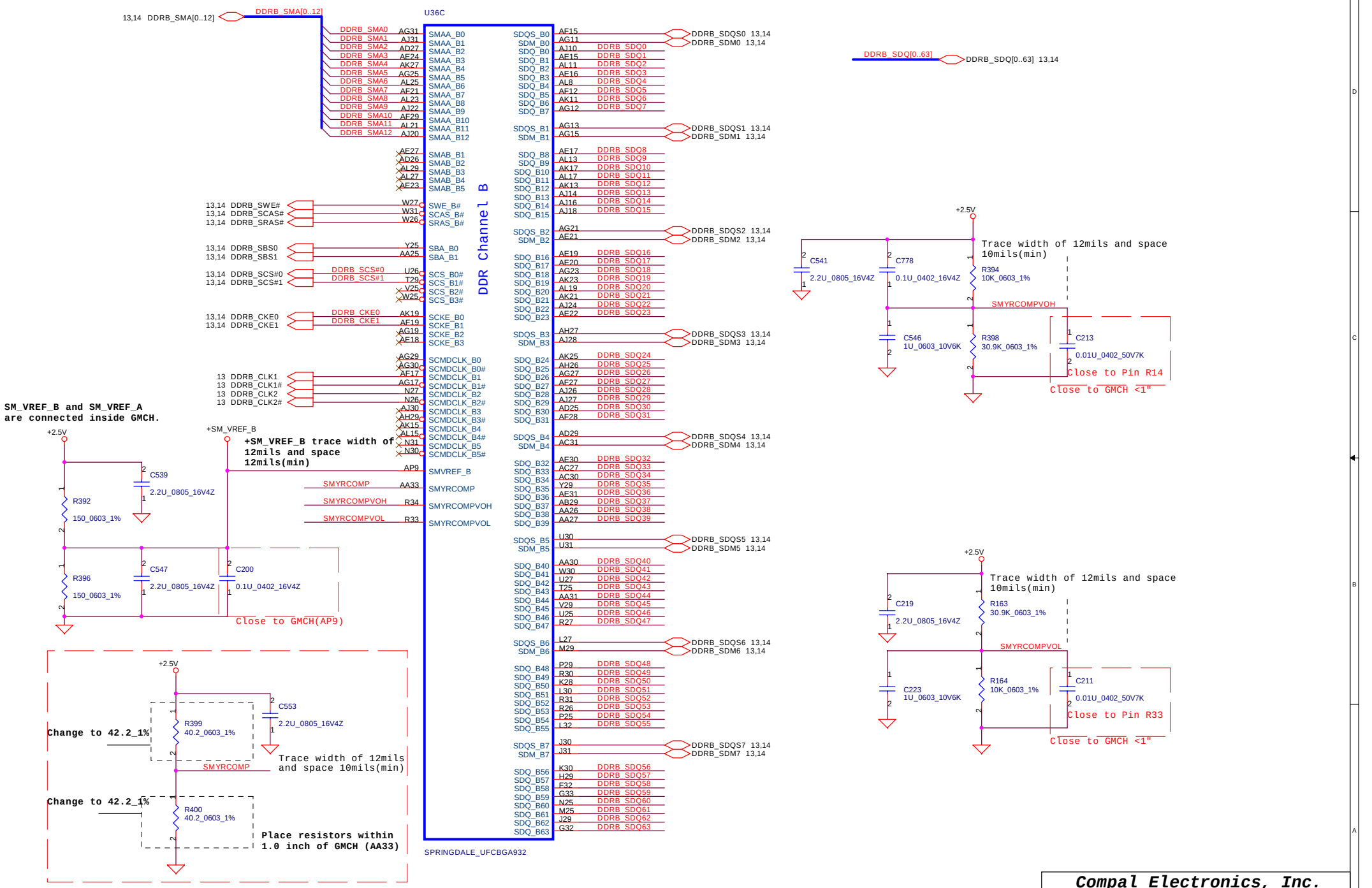

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Title: Springdale-DDR Interface-B(3/5)

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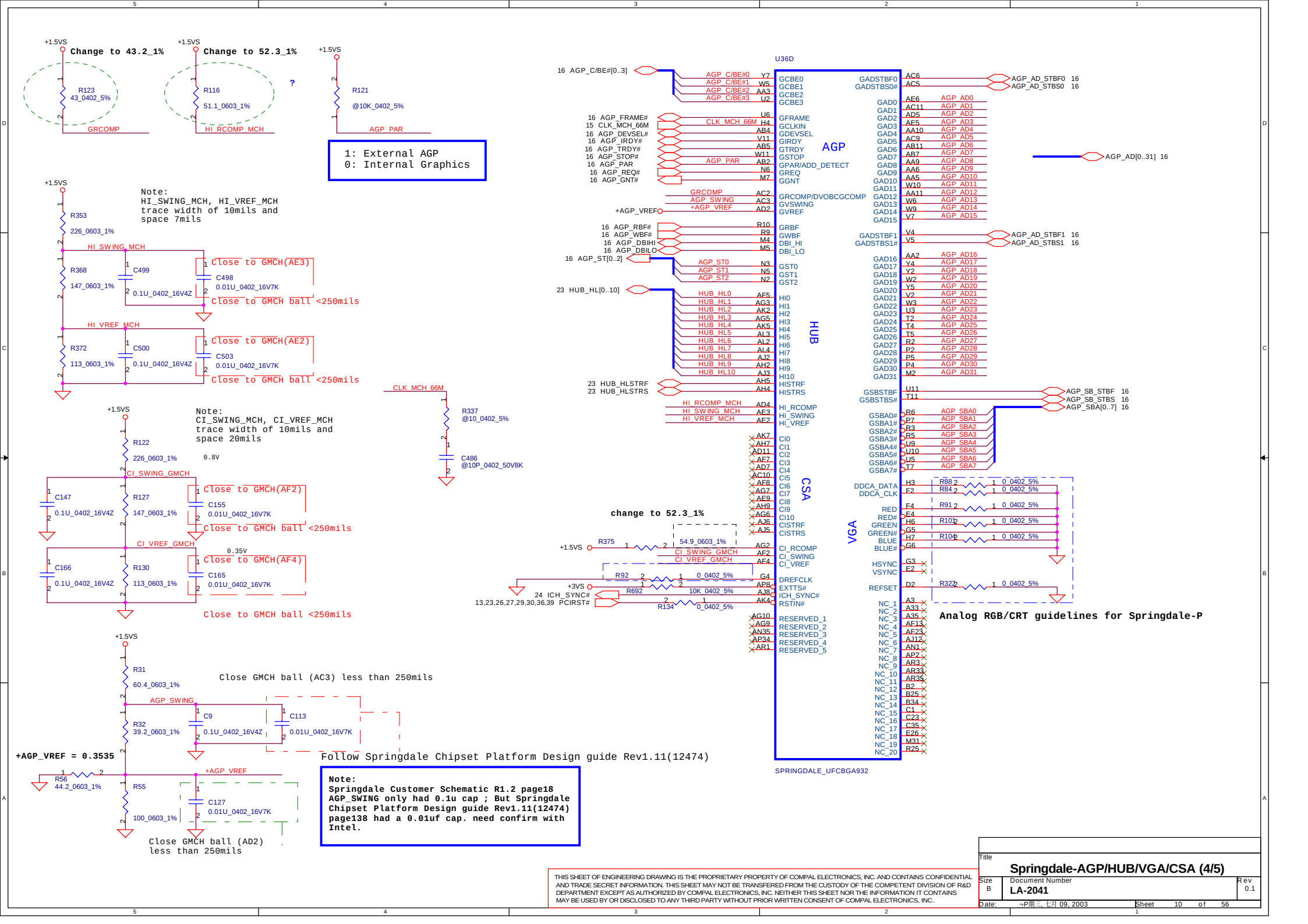

Title: Springdale-AGP/HUB/VGA/CSA (4/5)

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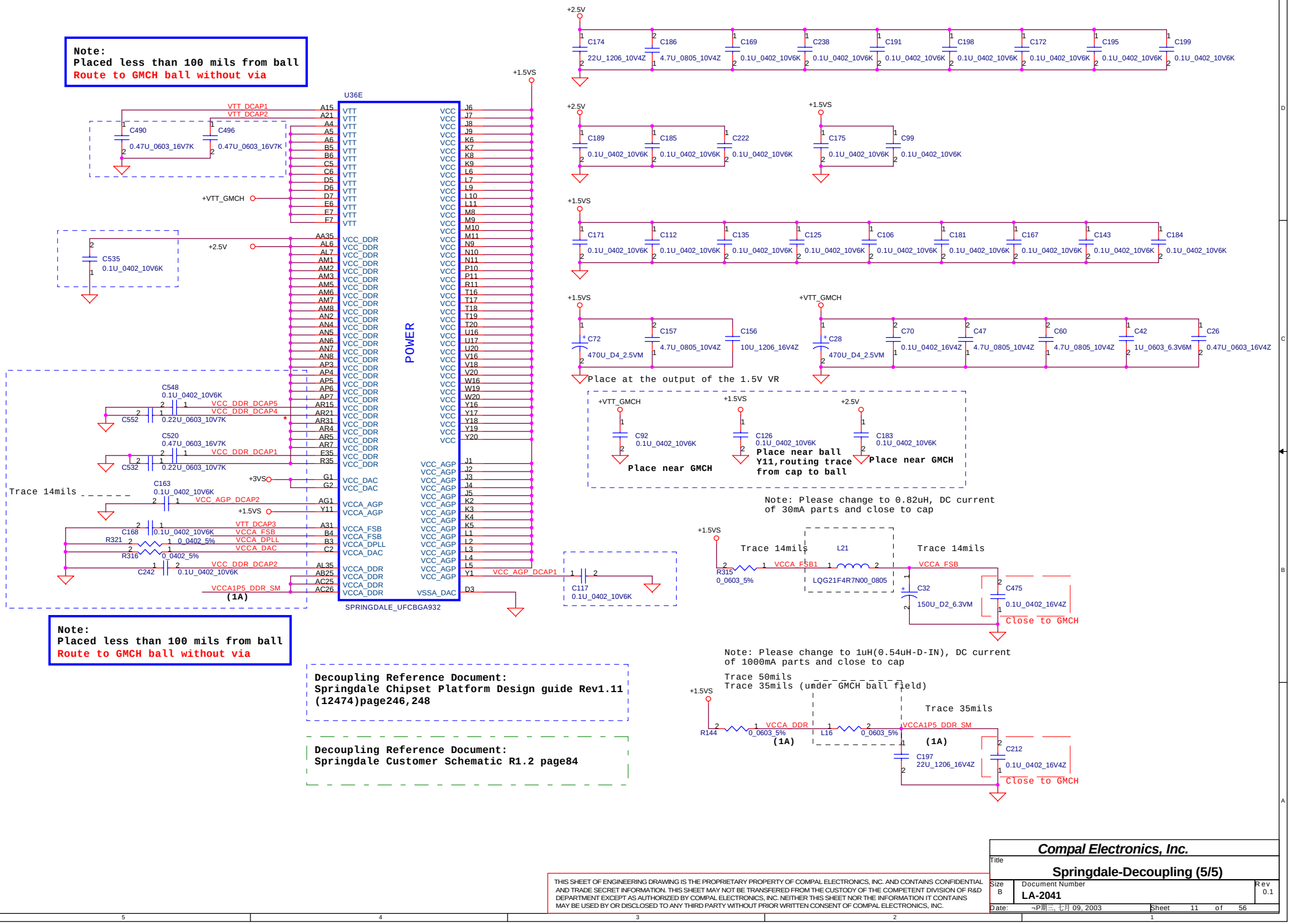

Compal Electronics, Inc.		
Title: Springdale-Decoupling (5/5)		
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DDRA_VREF trace width of
12mils and space 12mils(min)

JP26

KEYLINK_5762-3-111

H = 5.2mm

Close to SO-DIMM

C305 0.1U_0402_16V4Z

R204 75_0603_1%

R203 75_0603_1%

8,14 DDRA_SDQ[0..63]
8,14 DDRA_SDQS[0..7]
8,14 DDRA_SMA[0..12]
8,14 DDRA_SDM[0..7]

System Memory Decoupling caps

C331 22U_1206_10V4Z
C314 C339 C312 C337 C311 C336 0.1U_0402_10V6K
C310 C335 C334 C308 C333 C307 C332 C306 0.1U_0402_10V6K

Decoupling Reference Document:
Springdale Customer Schematic R1.2 page22
each Channel(two DIMMs) requirement 22uF*1 ; 0.1uF*14

Decoupling Reference Document:
Springdale Chipset Platform Design guide Rev1.11
(12474)pag 271 each DIMM(two) requirement 0.1uF*42

SO-DIMM 0
REVERSE

Compal Electronics, Inc.		
Title: DDR-SODIMM SLOT1		
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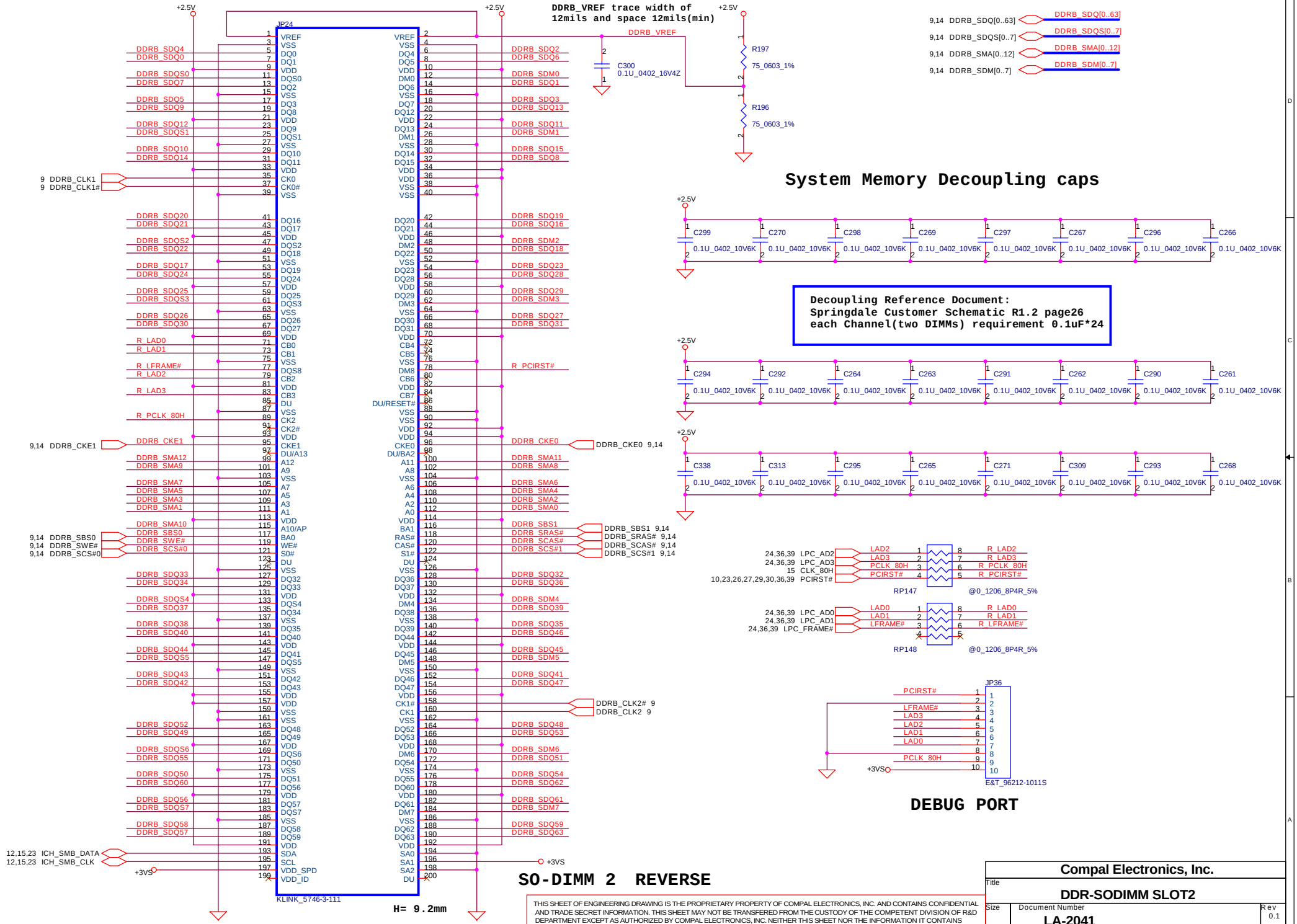

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Title: DDR-SODIMM SLOT2

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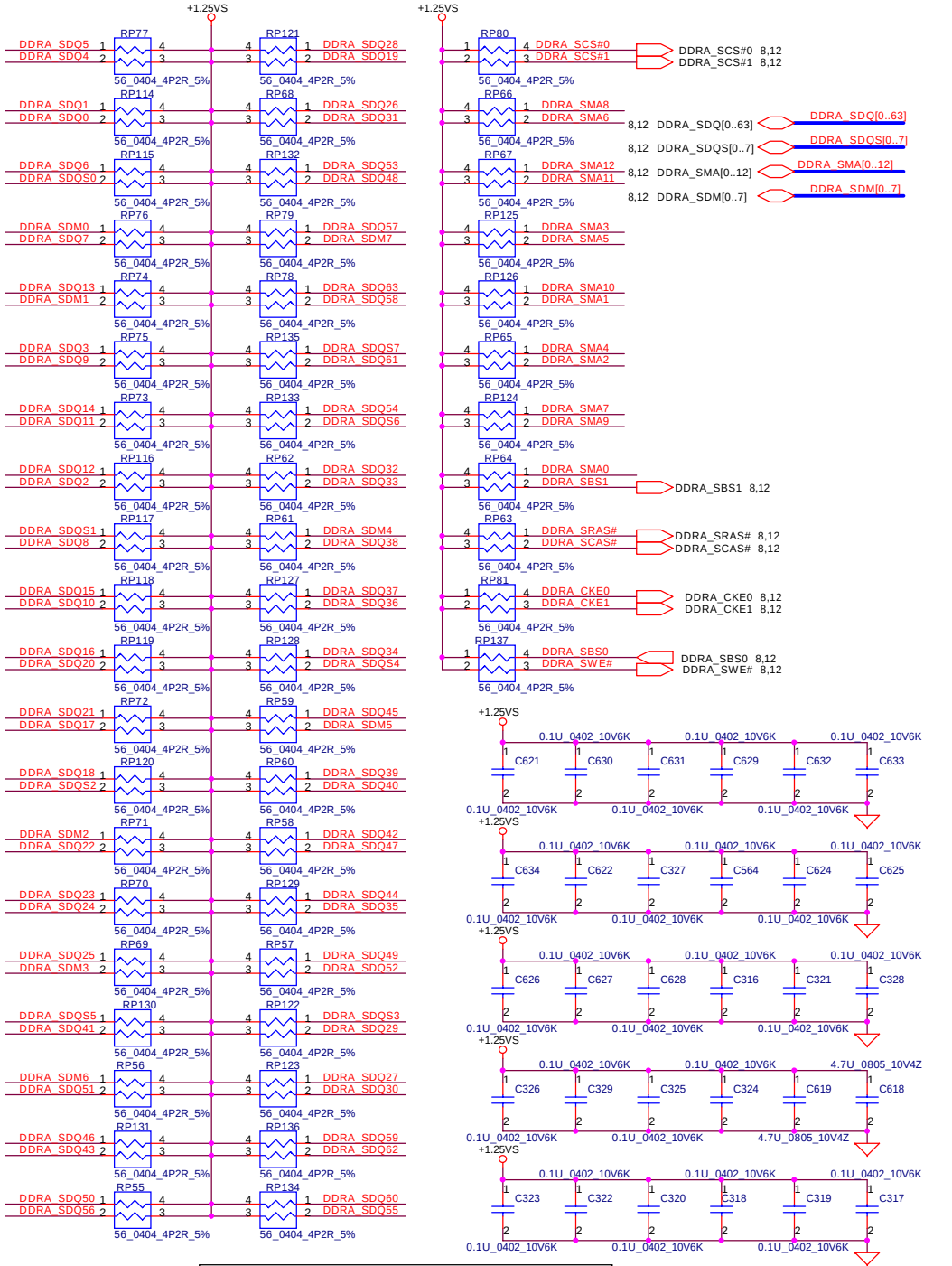
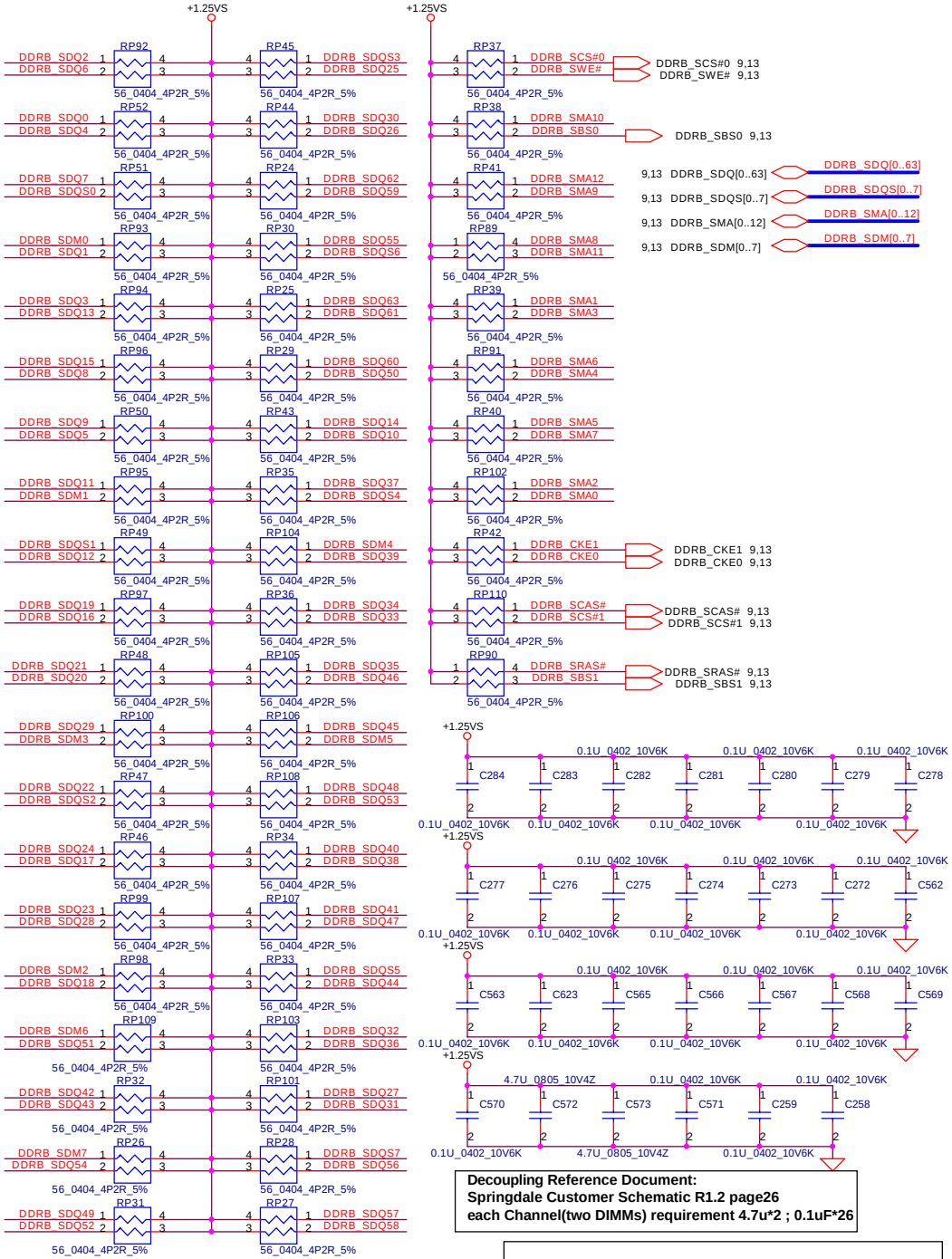
Channel A(DIMM0) Termination resistors & Decoupling caps



Decoupling Reference Document:
Springdale Customer Schematic R1.2 page22
each Channel(two DIMMs) requirement 4.7u*2 ; 0.1uF*28

Channel B(DIMM1) Termination resistors & Decoupling caps



Decoupling Reference Document:
Springdale Customer Schematic R1.2 page26
each Channel(two DIMMs) requirement 4.7u*2 ; 0.1uF*26

Title: **DDR Termination Resistors**

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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

Place near each pin
W>40 mil

Trace wide=40 mils

+3VS
+3VS_CLK
L29 BLM21A601SPT_0805
L28 BLM21A601SPT_0805
C591 10U_1206_6.3V7K
C583 0.1U_0402_10V6K
C582 0.1U_0402_10V6K
C597 0.1U_0402_10V6K
C596 0.1U_0402_10V6K
C595 0.1U_0402_10V6K
C594 0.1U_0402_10V6K
C580 0.1U_0402_10V6K
C581 0.1U_0402_10V6K
C592 4.7U_0805_10V4Z

U42
CK409
ICS952623BG_TSSOP56

24 CLK_ICH_14M — R450 33_0402_5%
36 CLK_14M_SIO — R451 33_0402_5%
CLKREF1
CLKREF0
REF_0
REF_1
C602 @10P_0402_50V8K
CLK_XTAL_IN
XTAL_IN
X3
14.31818MHz_20P_1BX14318CC1A~L
C603 @10P_0402_50V8K
CLK_XTAL_OUT
XTAL_OUT
Place crystal within 500 mils of CK409

VDD_REF VDD_PCI VDD_PCI VDD_3V66 VDD_48 VDD_SRC VDD_CPU VDD_CPU
VSS_REF VSS_PCI VSS_PCI VSS_3V66 VSS_48 VSS_SRC VSS_IREF

24 PM_SLP_S1# — R462 @0_0402_5% SLP_S1#
24 STP_PCI# — R425 @0_0402_5% STPPCI#
24,53 STP_CPU# — R424 @0_0402_5% STPCPU#
CLKSEL0
CLKSEL1
SEL0
SEL1

+3VS — R463 1K_0402_5% SLP_S1#
R412 1K_0402_5% STPPCI#
R411 1K_0402_5% STPCPU#
PWRDWN#
PCI_STP#
CPU_STP#

52 CK409_PWRGD# — CLK_VTT_PG#
VTT_PWRGD#

12,13,23 ICH_SMB_CLK — CK_SCLK
12,13,23 ICH_SMB_DATA — CK_SDATA
SCLK
SDATA

SRCLKN_100MHZ
SRCLKP_100MHZ

24 CLK_ICH_48M — R438 33_0402_5% CLK48M_OUT0
USB_48MHZ
DOT_48MHZ

Check SPEC (250mA,300 ohm)
R437 475_0603_1%
IREF

+3VS — L27 BLM11A601S_0603 — CLK_VDD_PLL
C578 10U_1206_6.3V7K
C579 0.1U_0402_16V4Z
VDD_PLL
VSS_PLL

+3VS
R421 1K_0603_1%
R444 1K_0603_1%
R420 2K_0603_1%
R443 2K_0603_1%
R185 2.49K_0603_1%
R190 2.49K_0603_1%
R187 @0_0402_5%
R186 0_0402_5% — CPU_CLKSEL0 5
R188 0_0402_5% — CPU_CLKSEL1 5
R189 @0_0402_5%
MCH_CLKSEL0 7
MCH_CLKSEL1 7

VSS_CPU
CPUCLKT2 — CLK_CPU2 — R428 33_0402_5% — R413 49.9_0603_1% — CLK_HCLK — CLK_HCLK 7
CPU_CLKC2 — CLK_CPU2# — R429 33_0402_5% — R414 49.9_0603_1% — CLK_HCLK# — CLK_HCLK# 7
CPUCLKT1 — CLK_CPU1 — R430 33_0402_5% — R415 49.9_0603_1% — CLK_ITP — CLK_ITP 5
CPUCLKC1 — CLK_CPU1# — R431 33_0402_5% — R416 49.9_0603_1% — CLK_ITP# — CLK_ITP# 5
CPUCLKT0 — CLK_CPU0 — R432 33_0402_5% — R417 49.9_0603_1% — CLK_BCLK — CLK_BCLK 4
CPUCLKC0 — CLK_CPU0# — R433 33_0402_5% — R418 49.9_0603_1% — CLK_BCLK# — CLK_BCLK# 4
Place near CK409

48/66MHZ_OUT/3V66_4
66MHZ_OUT3/3V66_3 — CLK66M_OUT3 — R457 33_0402_5% — CLK_AGP_66M 16
66MHZ_OUT2/3V66_2
66MHZ_OUT1/3V66_1 — CLK66M_OUT1 — R456 33_0402_5% — CLK_MCH_66M 10
66MHZ_OUT0/3V66_0 — CLK66M_OUT0 — R455 33_0402_5% — CLK_ICH_66M 23
PCICLK_F2 — PCICLK_F2 — R452 33_0402_5% — CLK_PCI_ICH 23
PCICLK_F1
PCICLK_F0

PCICLK6 — PCICLK6 — R461 33_0402_5% — CLK_PCI_MINI 29
PCICLK5 — PCICLK5 — R460 33_0402_5% — CLK_PCI_PCM 27
PCICLK4 — PCICLK4 — R454 33_0402_5% — CLK_PCI_LPC 39
PCICLK3 — PCICLK3 — R459 33_0402_5% — CLK_PCI_1394 30
PCICLK2 — PCICLK2 — R458 33_0402_5% — CLK_PCI_LAN 26
PCICLK1 — PCICLK1 — R453 33_0402_5% — CLK_PCI_SIO 36
PCICLK0 — PCICLK0 — R708 33_0402_5% — CLK_80H 13

Compal Electronics, Inc.

Title: Clock Generator

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nVIDIA NV31/34

U35A

PCI/AGP

AGP4X/8X

ZV PORT / EXT TMDS / GPIO / ROM

LVDS

DAC1

DAC2

TMDS

SSC CLK

NV34M_EPBGA701

Place close to pin H2 & H3

@2200P_0402_50V7K

C145

U33

NV_THERMDA

NV_THERMDC

I2CC_SCL

I2CC_SDA

D+ VDD1 D- ALERT# SCLK THERM# SDATA GND

@ADM1032ARM_RM8

NV_THERCTL#

R128 2.2K_0402_5%

R124 @2.2K_0402_5%

C148

@0.1U_0402_16V4Z

+3VS

10 AGP_AD[0..31] AGP_AD[0..31]

10 AGP_SBA[0..7] AGP_SBA[0..7]

10 AGP_C/BE#[0..3] AGP_C/BE#[0..3]

10 AGP_ST[0..2] AGP_ST[0..2]

AGP_AD0 AJ28 … AGP_AD31 AE18

AGP_C/BE#0 AJ24 … AGP_C/BE#3 AG22

C16 @10P_0402_50V8K R68 @10_0402_5%

15 CLK_AGP_66M

23,35 B_PCIRST#

10 AGP_REQ#

10 AGP_GNT#

10 AGP_PAR

10 AGP_STOP#

10 AGP_DEVSEL#

10 AGP_TRDY#

10 AGP_IRDY#

10 AGP_FRAME#

23,27,30 PCI_PIRQA#

CLK_AGP_66M AG12

B_PCIRST# AE15

AGP_REQ# AE13

AGP_GNT# AE15

AGP_PAR AK18

AGP_STOP# AH17

AGP_DEVSEL# AJ16

AGP_TRDY# AJ17

AGP_IRDY# AG16

AGP_FRAME# AK16

PCI_PIRQA# AG15

NC AE10

PCICLK PCIRST# PCIREQ# PCIGNT# PCIPAR PCISTOP# PCIDEVSEL# PCITRDY# PCIIRDY# PCIFRAME# PCIINTA#

C/BE#0 C/BE#1 C/BE#2 C/BE#3

AD0 … AD31

+3VS

R35 10K_0402_5% STP_AGP#

AGP_BUSY# R36 10K_0402_5%

+SVDD L10 FCM2012C-800_0805

0.1U_0402_10V6K 4.7U_0805_10V4Z

C479 C30 C31 C478 0.1U_0402_10V6K 4.7U_0805_10V4Z

10 AGP_WBF# AGP_WBF# AG17

10 AGP_RBF# AGP_RBF# AG14

10 AGP_DBIHI AH18

10 AGP_DBILO AJ19

AGPWBF# AGPRBF# AGPPIPE/ DBI_HI NC/ DBI_LO

10 AGP_SB_STBF AGP_SB_STBF AK13

10 AGP_SB_STBS AGP_SB_STBS AJ13

10 AGP_AD_STBF0 AGP_AD_STBF0 AK24

10 AGP_AD_STBS0 AGP_AD_STBS0 AJ25

10 AGP_AD_STBF1 AGP_AD_STBF1 AG21

10 AGP_AD_STBS1 AGP_AD_STBS1 AF21

AGPSB_STB/ ADSTBF AGPSB_STB#/ ADSTBS AGPADSTB0/ ADSTBF0 AGPADSTB0#/ADSTBS0 AGPADSTB1/ ADSTBF1 AGPADSTB1#/ADSTBS1

R67 220K_0402_5% AGP_AD_STBS0

R69 220K_0402_5% AGP_AD_STBS1

AGP_SBA0 AJ11 … AGP_SBA7 AH15

AGP_ST0 AG13

AGP_ST1 AE16

AGP_ST2 AE13

AGPSBA0 AGPSBA1 AGPSBA2 AGPSBA3 AGPSBA4 AGPSBA5 AGPSBA6 AGPSBA7 AGPST0 AGPST1 AGPST2

Selection Table For W180

Modulation Setting	SST Ratio
SS%	
0	1.25%
1	3.75%

Close VGA ball (AK29) less than 250mils

+AGP_VREF

C13 0.1U_0402_10V6K

+AGP_REF AK29

R42 10K_0402_5%

AGP_BUSY# AF16

STP_AGP# AG12

AGPVREF NC/AGPMBDET# AGP_BUSY# STP_AGP#

22 CRMA CRMA AE2

22 LUMA LUMA AD2

22 COMPS COMPS AD1

DACB_HSYNC AF3

DACB_VSYNC AE3

DACB_RSET AD3

R70 63.4_0603_1%

DACB_RED/CHROMA DACB_GREEN/LUMA DACB_BLUE/COMPOSITE DACB_HSYNC DACB_VSYNC DACB_RSET I2CB_SCL I2CB_SDA SWAPRDY_B STEREO DACB_IDUMP

+SVDD

PLACE COLSE TO VGA Pin AJ5, AJ7,

U31

XTALOUTBUFF R318 1K_0402_5%

X1/CLK CLKOUT R323 22_0402_5%

XTALSSIN

FS1 X2

FS2 SS% SPREAD_RATE

R317 1K_0402_5%

GND W180-01GT_SO8

R341 @1K_0402_5% +SVDD

R345 10K_0402_5%

+3VS R343 10K_0402_5%

SWAPRDY_B NV31,NV34 use. NV18 not use.

XTALIN AJ6

XTALOUT AH6

XTALSSIN AJ7

XTALOUTBUFF AJ5

NV_THERMDA H2

NV_THERMDC H3

XTALSSIN XTALOUTBUFF THERMDA THERMDC JTAG[0] JTAG[1] JTAG[2] JTAG[3] JTAG[4]

GPIO0 G5 … GPIO9 K6

VGA_GPIO0 R132 0_0402_5%

ENBKL

ENVDD

VGA_GPIO5 R374 @0_0402_5%

VAG_GPIO6 R129 10K_0402_5%

POWER_SEL R701 0_0402_5%

NV_THERCTL#

SPREAD_RATE

(SUS_STAT#)

+3VS

POWER_SEL 51

R133 @10K_0402_5% +3VS

Only for NV34MU, NV31 Power Mizer

ENBKL 22,39

ENVDD 22

DVODE R691 @10K_0402_5% ONLY FOR NV18M

ENBKL R682 10K_0402_5%

POWER_SEL R683 @10K_0402_5%

FPBCLKOUT# M2

FPBCLKOUT M3

ROMA14 R2

ROMA15 R1

ROMCS# AF2

VIPPCLK L4

VIPHCTL M4

VIPHCLK M5

VIPHAD0 P3

VIPHAD1 P2

VIPD0 J3 … VIPD7 N1

VIPHCTL

DVOD0 AG2 … DVOD11 AJ4

DVOHSYNC AD5

DVOVSYNC AD6

DVODE AE4

DVOCLKOUT AJ2

DVOCLKOUT# AK2

I2CC_SCL AG6

I2CC_SDA AG7

BUFRST# B1

DVOCLKIN AG1

R693 2.2K_0402_5%

R694 2.2K_0402_5%

STRAP0 G1 … STRAP3 F3

IFPATXDO# T4 … IFPBTXC# AA2

TXOUT0- … TXOUT3+

TXCLK- TXCLK+

TZOUT0- … TZOUT3+

TZCLK- TZCLK+

AK10 R … AJ8 DACA_VSYNC

DACA_RSET AG8

R39 130_0603_1%

I2CA_SCL AG5

I2CA_SDA AF7

SWAPRDY_A AF9

DACA_IDUMP AG10

DDC_CLK

DDC_DATA

R41 10K_0402_5% +3VS

SWAPRDY_A NV31,NV34 use. NV18 not use.

IFPCTXD0# T2 … IFPCTXC# P5

XTALIN XTALOUT

Y2 27MHZ_16PF

R311 @2M_0402_5%

C468 22P_0402_50V8J

C469 22P_0402_50V8J

1 PCI_AD_SWAP: 0-RVSERSED 1-NORMAL

STRAP0 R377 10K_0402_5%

2 SUB_VENDOR: 0-SYSTEM BIOS 1-ADAPTER BIOS

R376 10K_0402_5% STRAP1

3 RAM_CFG[3:0]

(1101 = 4Mx32 DDR,0000 =8Mx32 DDR Samsung, 0001 =8Mx32 DDR Hynix, DQS per byte)

Low 0 NV18M: R378 @10K_0402_5% STRAP2, R379 @10K_0402_5%; NV31M:NV34M: R334 @10K_0402_5% DVOD2, R335 10K_0402_5%

4 1 NV18M: R380 @10K_0402_5% STRAP3, R381 @10K_0402_5%; NV31M:NV34M: R329 10K_0402_5% DVOD3, R330 @10K_0402_5%

5 2 R49 @10K_0402_5% DACA_VSYNC, R29 10K_0402_5%

3 R50 @10K_0402_5% DACA_HSYNC, R30 10K_0402_5%

High

6 CRYSTAL: (10)-27MHz

Low 0 R373 10K_0402_5% VIPD2

High 1 VIPD6 R357 10K_0402_5%

7 TVMODE: (01)-NTSC

Low 0 DACB_VSYNC R340 10K_0402_5%

High 1 R339 10K_0402_5% DACB_HSYNC

8 AGP8X/4X: (0)-8X / (1)-4X

R48 10K_0402_5% DVOD9

9 AGP_SIDEBAND: (0)-ENABLE

R360 10K_0402_5% VIPD7 R361 @10K_0402_5%

10 AGP_FASTWRITE: (0)-ENABLE

R319 10K_0402_5% DVOD8 R320 @10K_0402_5%

11 PCI_DEVID[3:0] (0100 NV34M 0101 NV34MU 1010 NV31M)

Low 0 R366 @10K_0402_5% VIPD4, R367 10K_0402_5%

1 R363 10K_0402_5% VIPD5, R364 @10K_0402_5%

2 R370 @10K_0402_5% VIPD3, R371 10K_0402_5%

High 3 R346 @10K_0402_5% DVO_HSYNC, R347 @10K_0402_5%

12 BUS_TYPE: (1)-AGP

VIPHCTL R126 10K_0402_5%

ROM TYPE: (00)-PARALLEL

Low 0 R354 10K_0402_5% ROMA14, R355 @10K_0402_5%

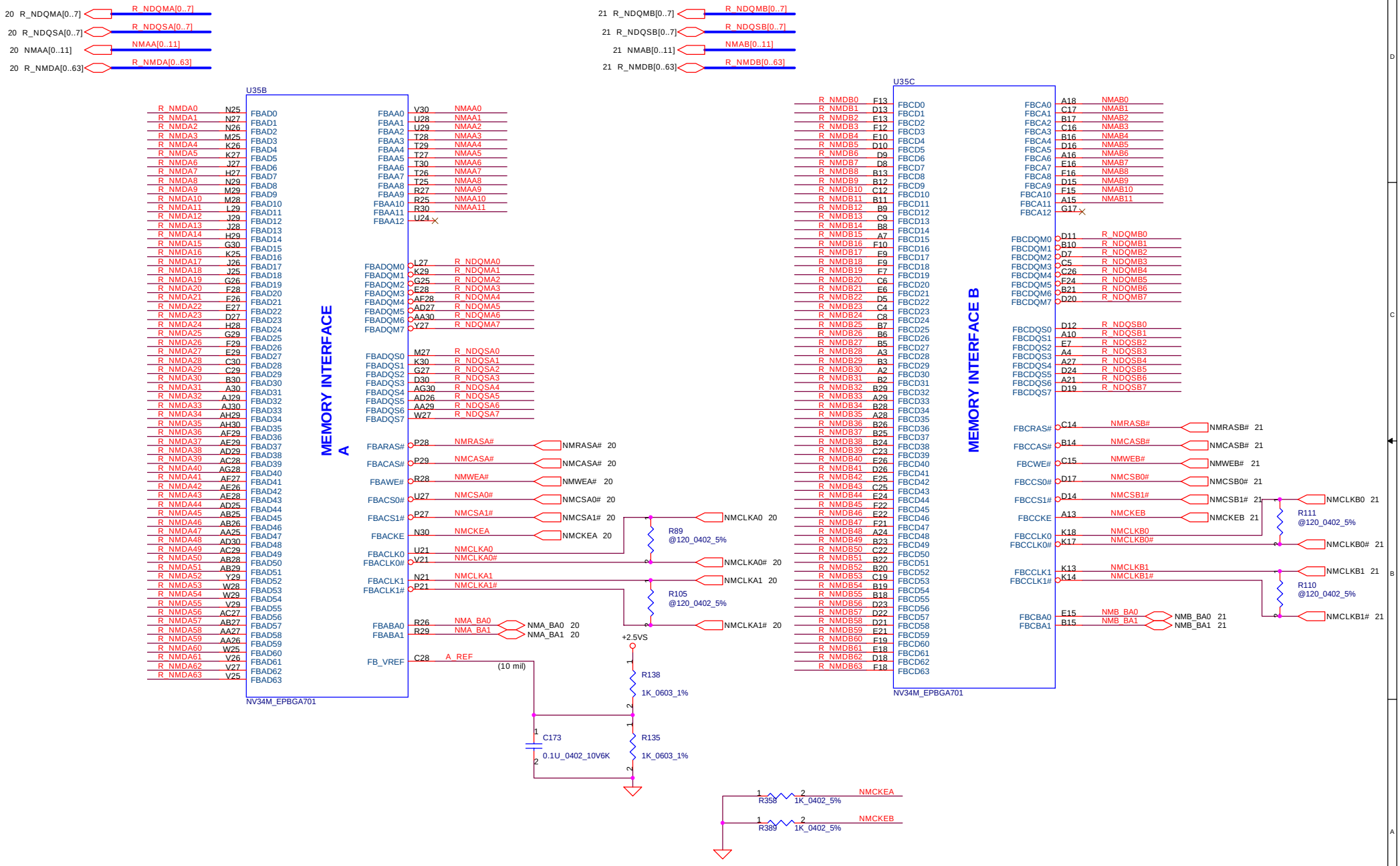
High 1 R351 10K_0402_5% ROMA15, R352 @10K_0402_5%

Compal Electronics, Inc.

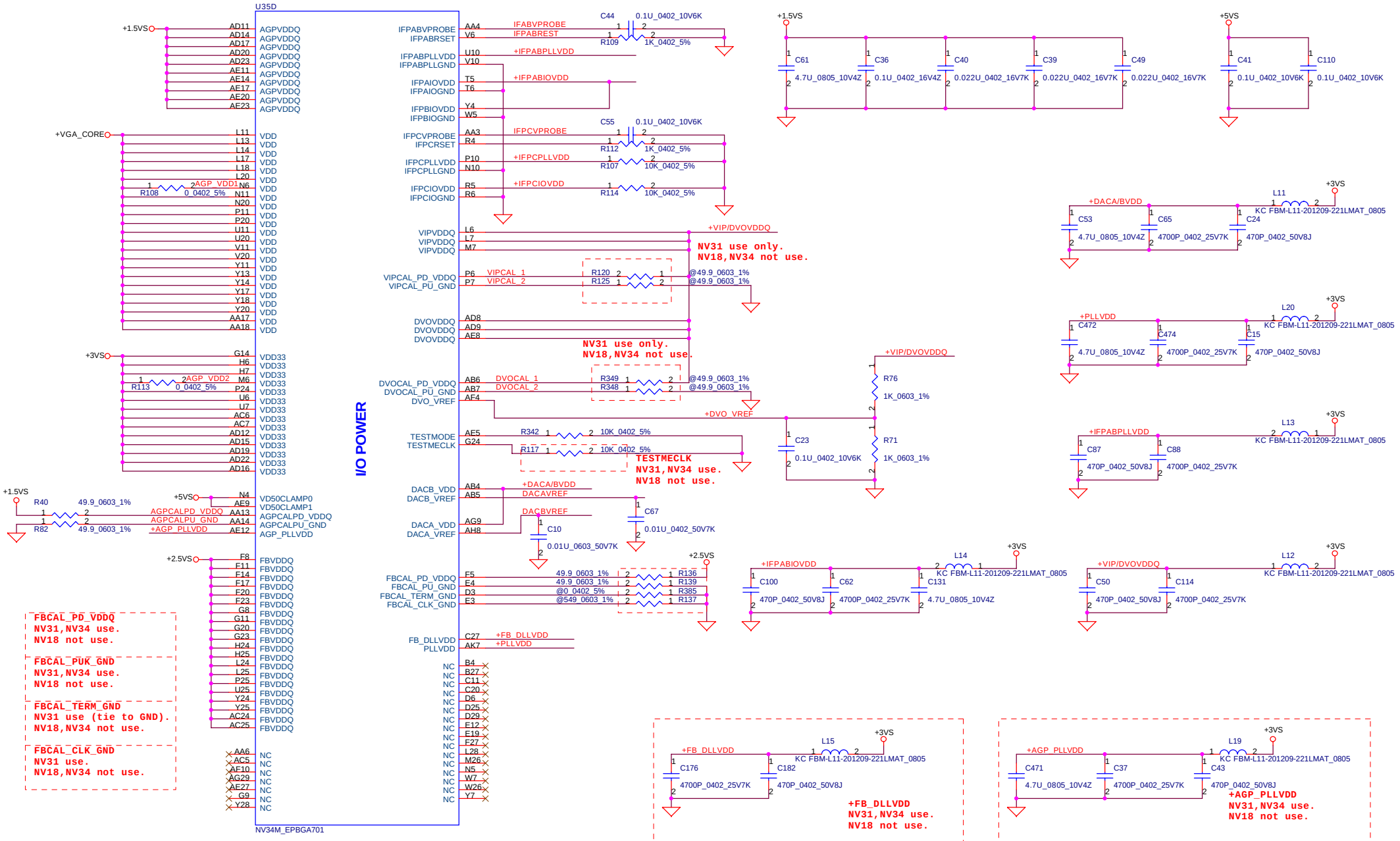
Title: nVIDIA NV31M (AGP BUS)

Size: Document Number: LA-2041 Rev: 0.1

Date: 一月 10, 2003 Sheet 16 of 56



Compal Electronics, Inc.	
Title	nVIDIA NV31M (DDR)
Size	Document Number: LA-2041
Rev	0.1
Date: ¬P期三, 七月 09, 2003	Sheet 17 of 56



Compal Electronics, Inc.	
Title	nVIDIA NV31M POWER)
Size	Document Number: LA-2041
Rev	0.1
Date:	¬P期三, 七月 09, 2003
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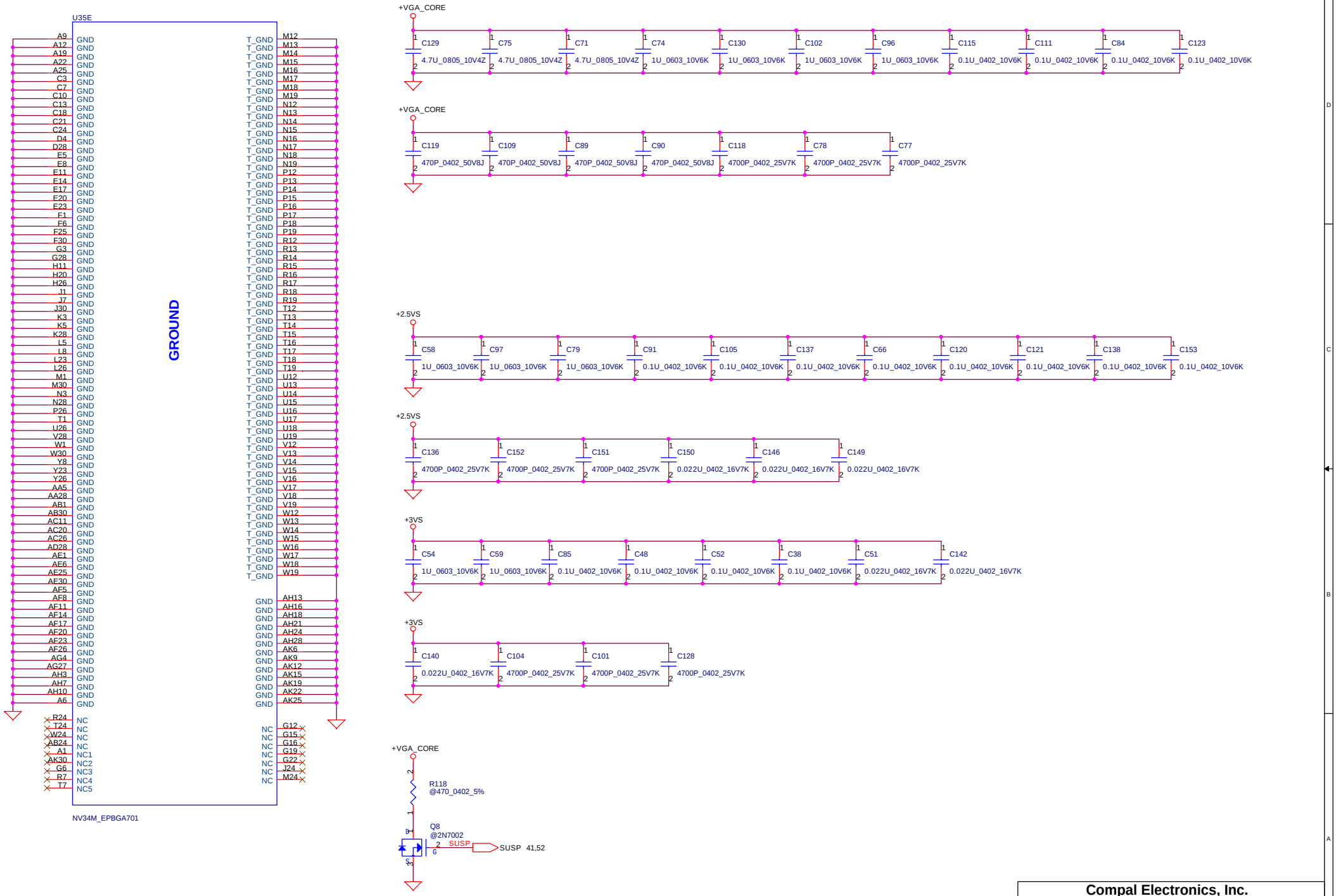

Compal Electronics, Inc.

Title: nVIDIA NV31M (DECOUPLING CAP)

Size | Document Number: LA-2041 | Rev: 0.1

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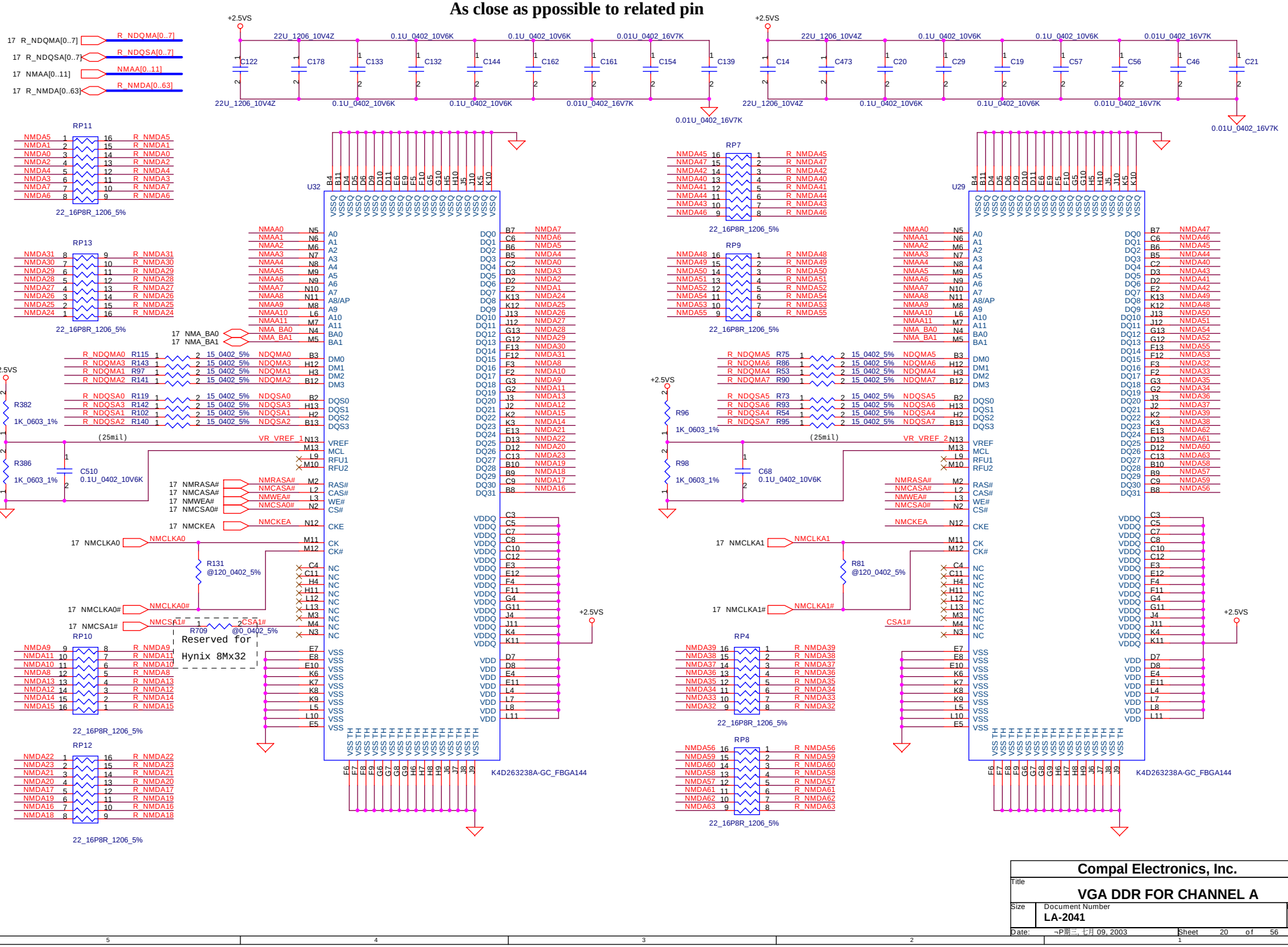
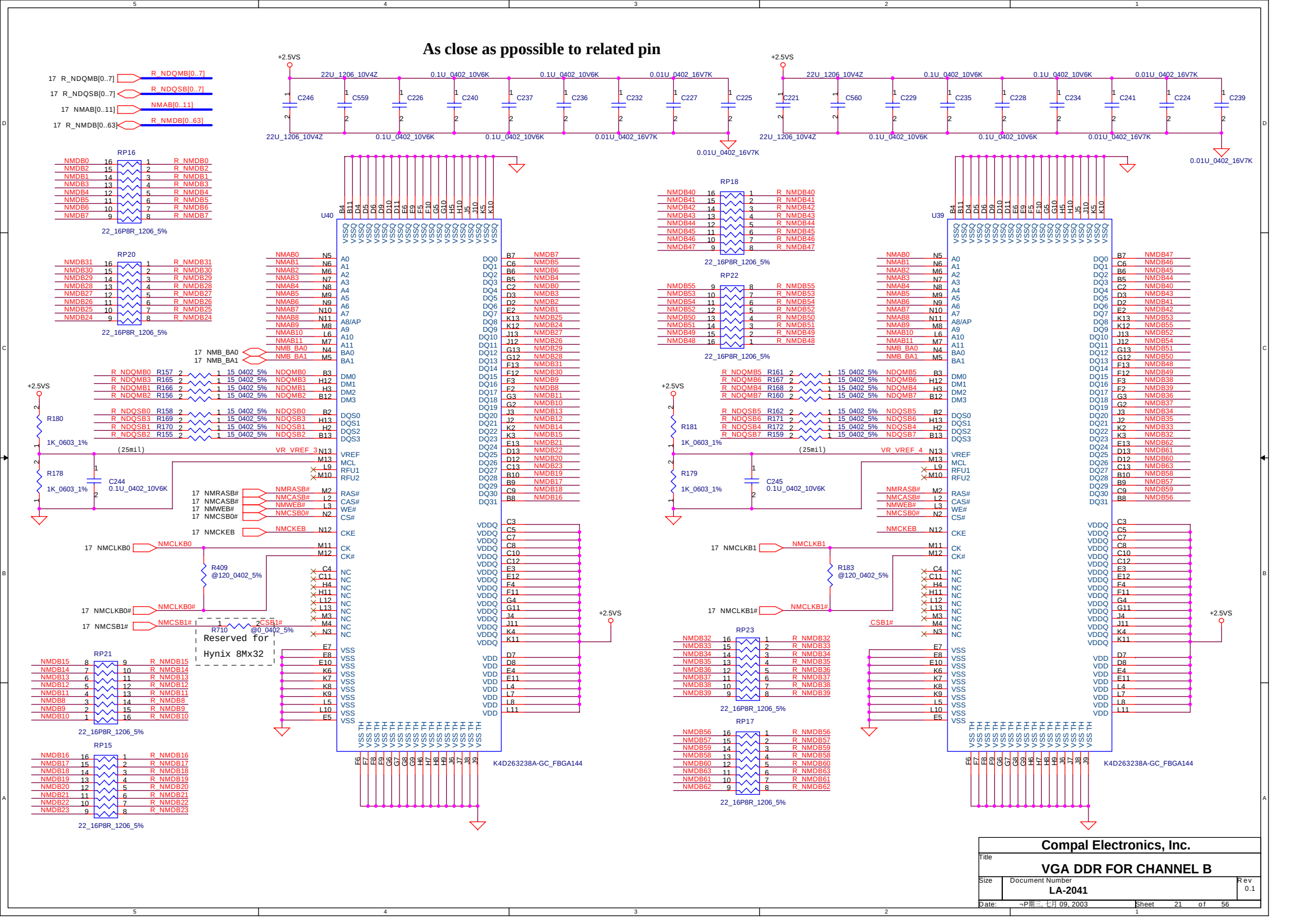
As close as ppossible to related pin



Compal Electronics, Inc.			
Title: VGA DDR FOR CHANNEL A			
Size	Document Number: LA-2041		Rev: 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 20 of 56		


As close as ppossible to related pin
17 R_NDQMB[0..7]
17 R_NDQSB[0..7]
17 NMAB[0..11]
17 R_NMDB[0..63]
R_NDQMB[0..7]
R_NDQSB[0..7]
NMAB[0..11]
R_NMDB[0..63]
+2.5VS
22U_1206_10V4Z
0.1U_0402_10V6K
0.01U_0402_16V7K
C246
C559
C226
C240
C237
C236
C232
C227
C225
C221
C560
C229
C235
C228
C234
C241
C224
C239
RP16
RP18
RP20
RP22
RP21
RP23
RP15
RP17
22_16P8R_1206_5%
U40
U39
K4D263238A-GC_FBGA144
17 NMB_BA0
17 NMB_BA1
17 NMRASB#
17 NMCASB#
17 NMWEB#
17 NMCSB0#
17 NMCKEB
17 NMCLKB0
17 NMCLKB0#
17 NMCSB1#
17 NMCLKB1
17 NMCLKB1#
R_NDQMB0 R157
R_NDQMB3 R165
R_NDQMB1 R166
R_NDQMB2 R156
R_NDQSB0 R158
R_NDQSB3 R169
R_NDQSB1 R170
R_NDQSB2 R155
R_NDQMB5 R161
R_NDQMB6 R167
R_NDQMB4 R168
R_NDQMB7 R160
R_NDQSB5 R162
R_NDQSB6 R171
R_NDQSB4 R172
R_NDQSB7 R159
15_0402_5%
R180
R178
R181
R179
1K_0603_1%
(25mil)
VR_VREF_3
VR_VREF_4
C244
C245
0.1U_0402_10V6K
R409
R183
@120_0402_5%
R710
@0_0402_5%
Reserved for
Hynix 8Mx32
CSB1#
Compal Electronics, Inc.
Title
VGA DDR FOR CHANNEL B
Size
Document Number
LA-2041
Rev
0.1
Date:
¬P期三, 七月 09, 2003
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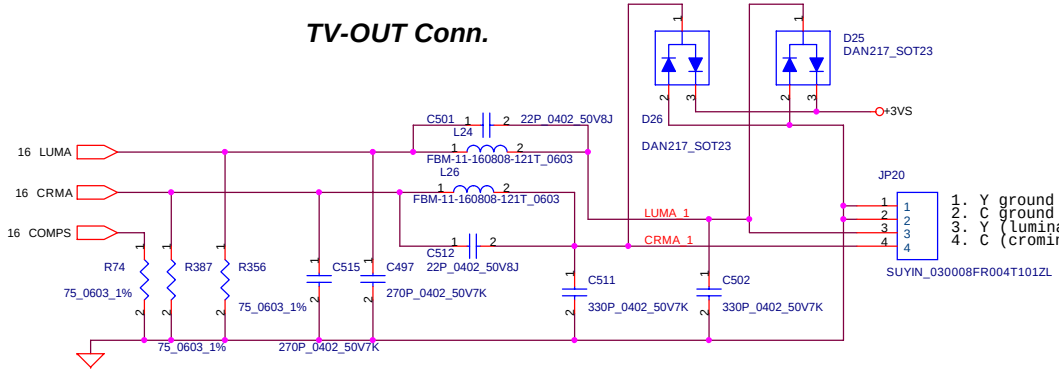
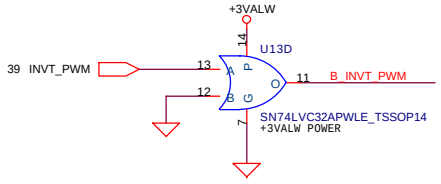
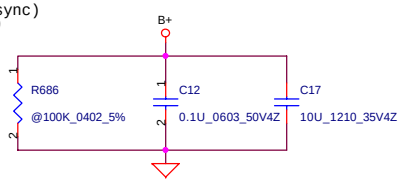
56

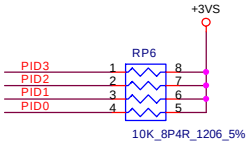
CRT, TV-OUT & LVDS CONNECTOR

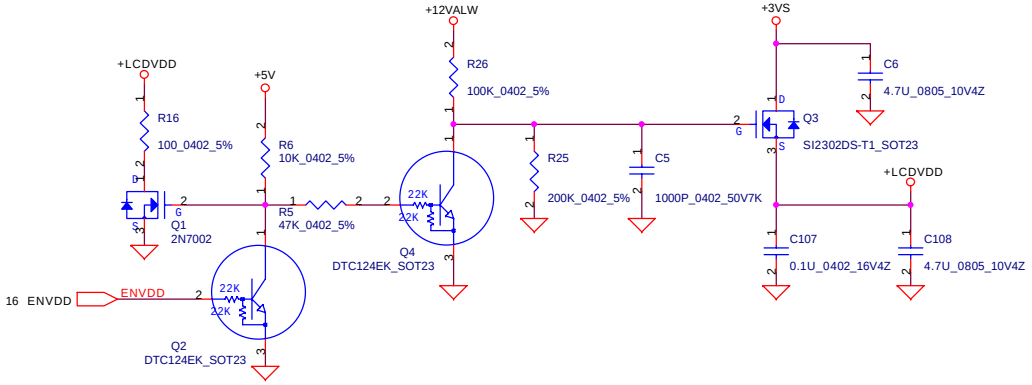
TV-OUT Conn.



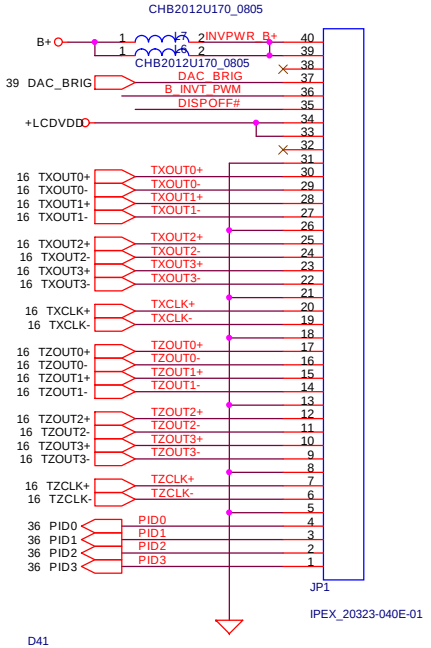


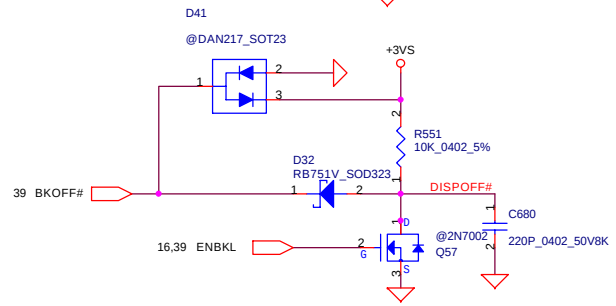




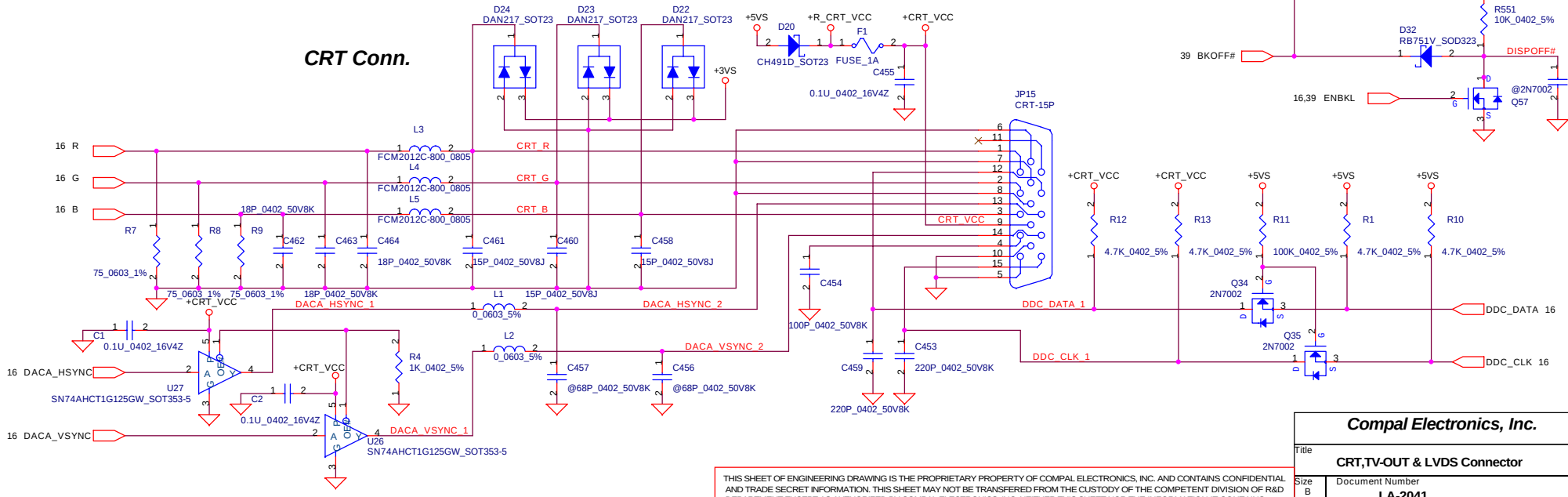


LVDS Conn.

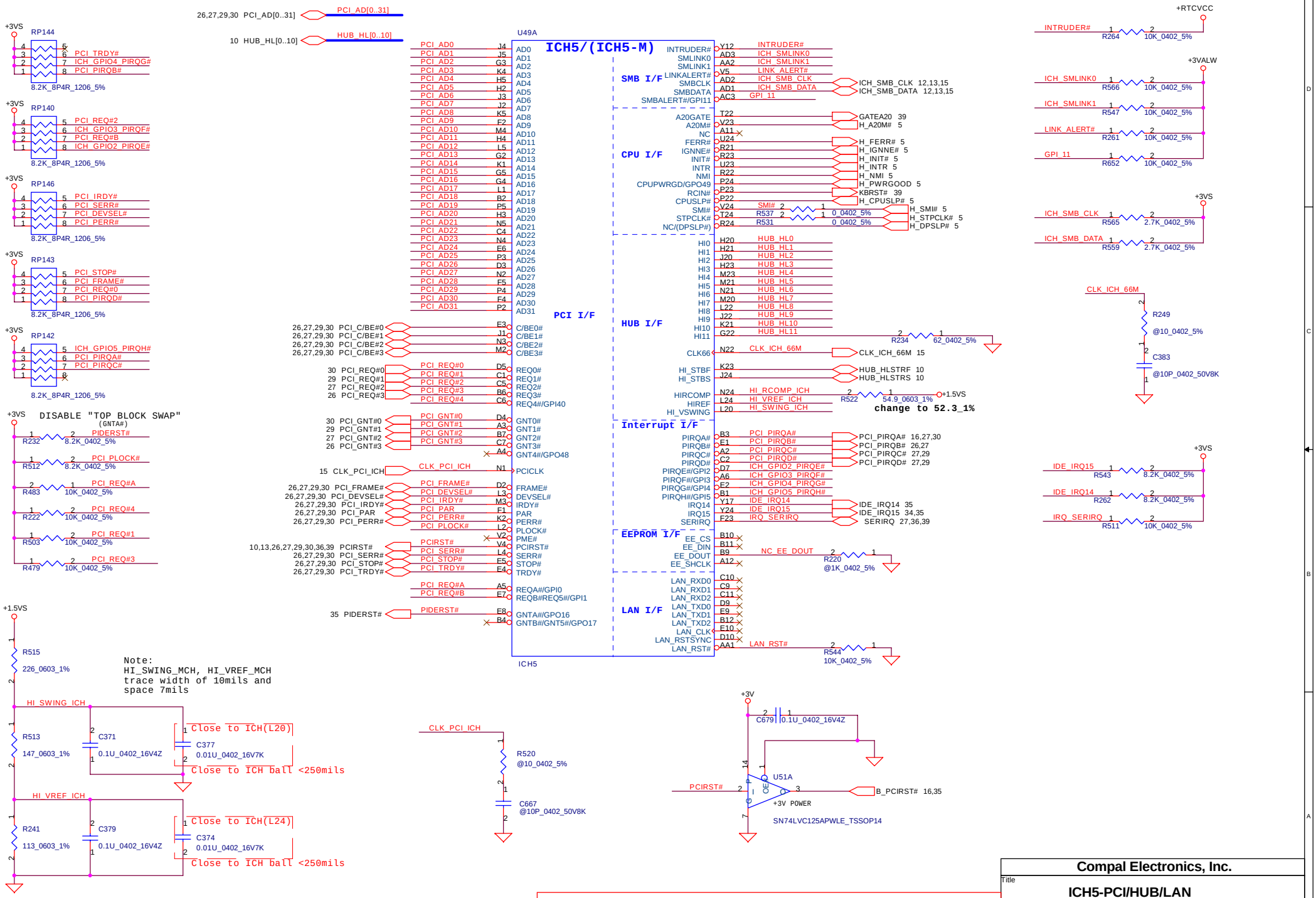




CRT Conn.



Compal Electronics, Inc.		
Title: CRT,TV-OUT & LVDS Connector		
Size: B	Document Number: LA-2041	Rev: 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 22 of 56	



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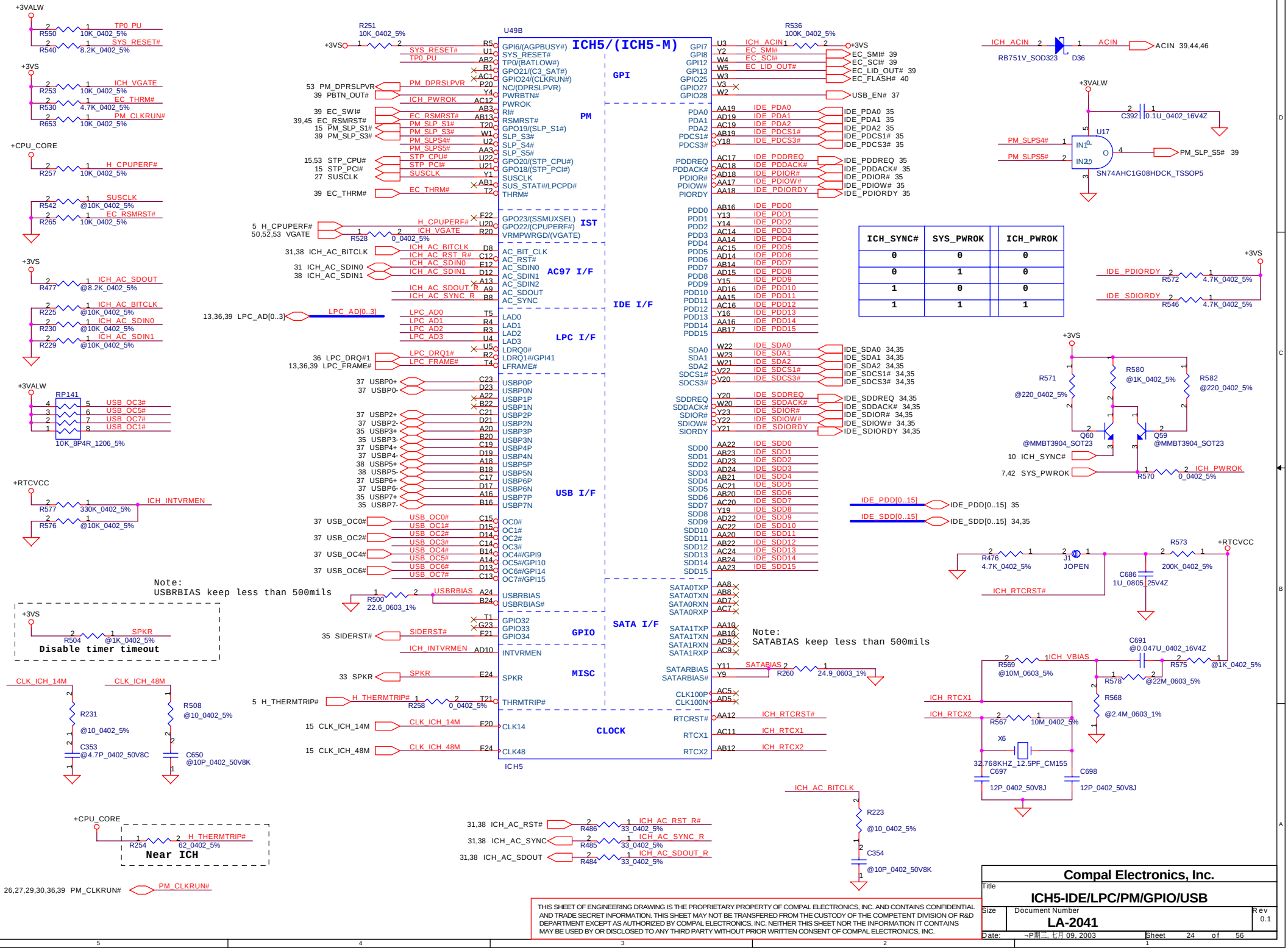
Compal Electronics, Inc.		
Title: ICH5-PCI/HUB/LAN		
Size	Document Number: LA-2041	Rev: 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 23 of 56	


ICH5/(ICH5-M)
U49B
GPI
PM
IST
AC97 I/F
IDE I/F
LPC I/F
USB I/F
GPIO
SATA I/F
MISC
CLOCK
ICH5
Note:
USBRBIAS keep less than 500mils
Disable timer timeout
Note:
SATABIAS keep less than 500mils
Near ICH
SN74AHC1G08HDCK_TSSOP5
RB751V_SOD323
JOPEN
32.768KHZ_12.5PF_CM155
ICH_SYNC# | SYS_PWROK | ICH_PWROK
0 | 0 | 0
0 | 1 | 0
1 | 0 | 0
1 | 1 | 1
Compal Electronics, Inc.
ICH5-IDE/LPC/PM/GPIO/USB
LA-2041
Rev 0.1
Sheet 24 of 56
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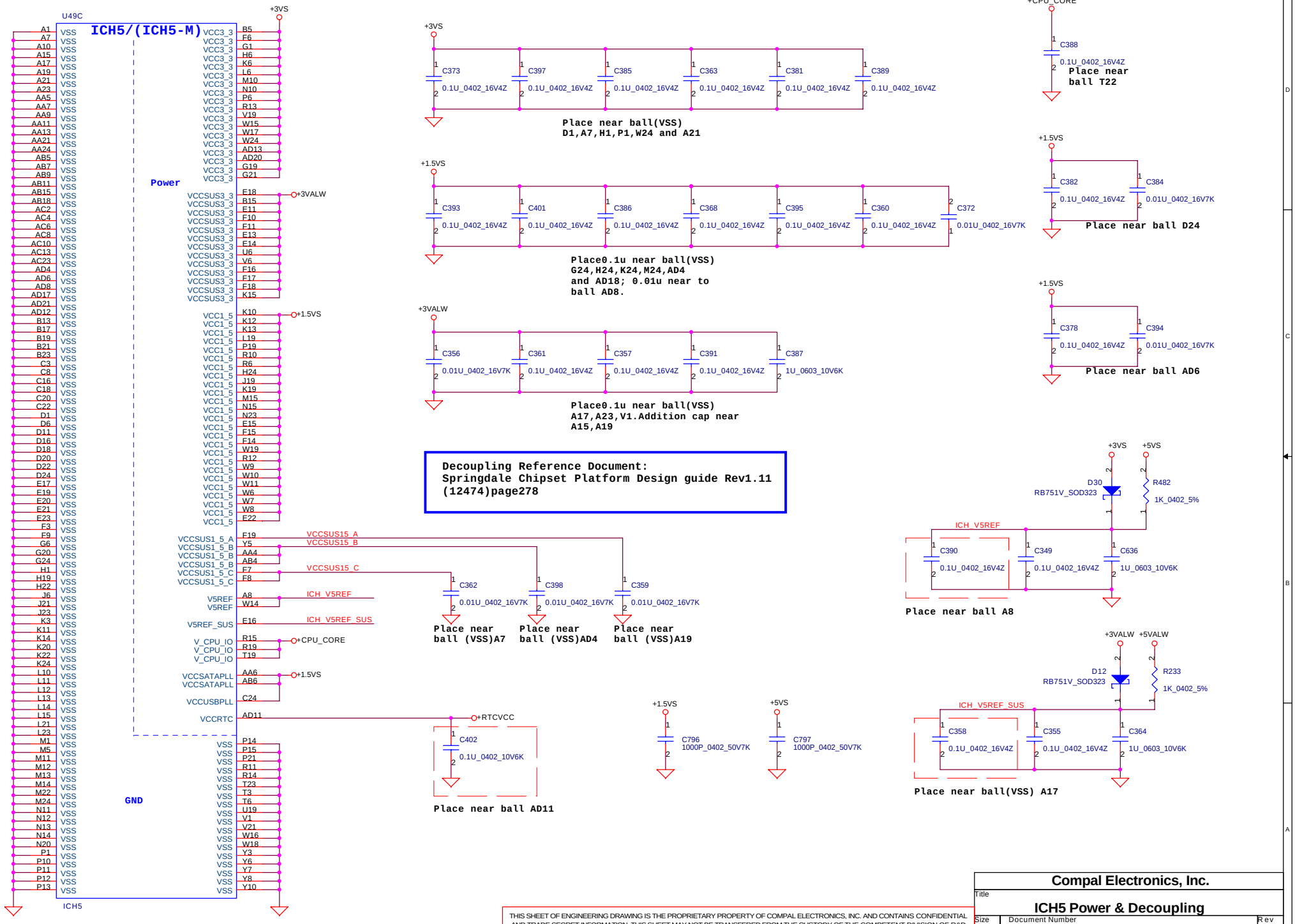

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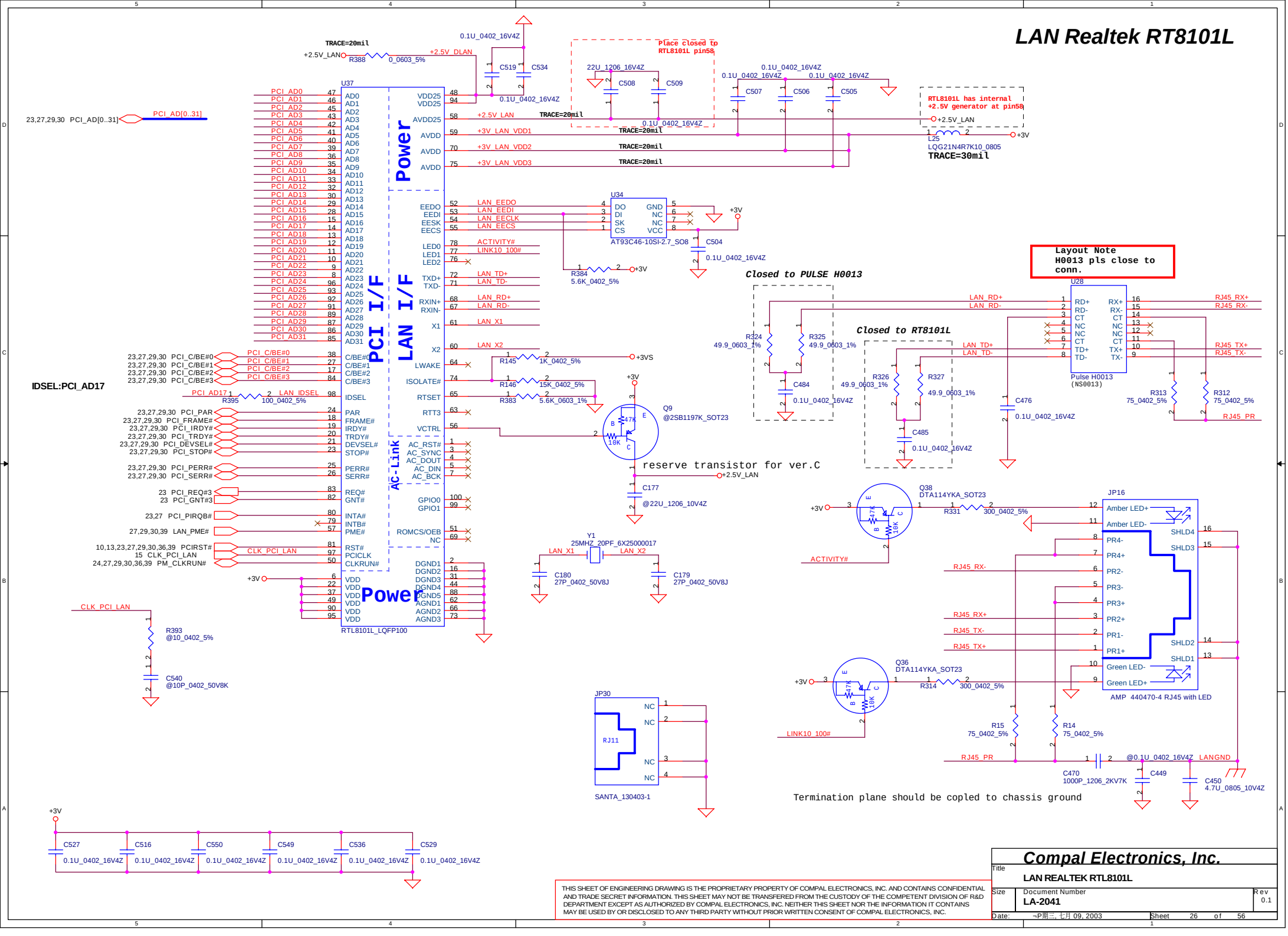
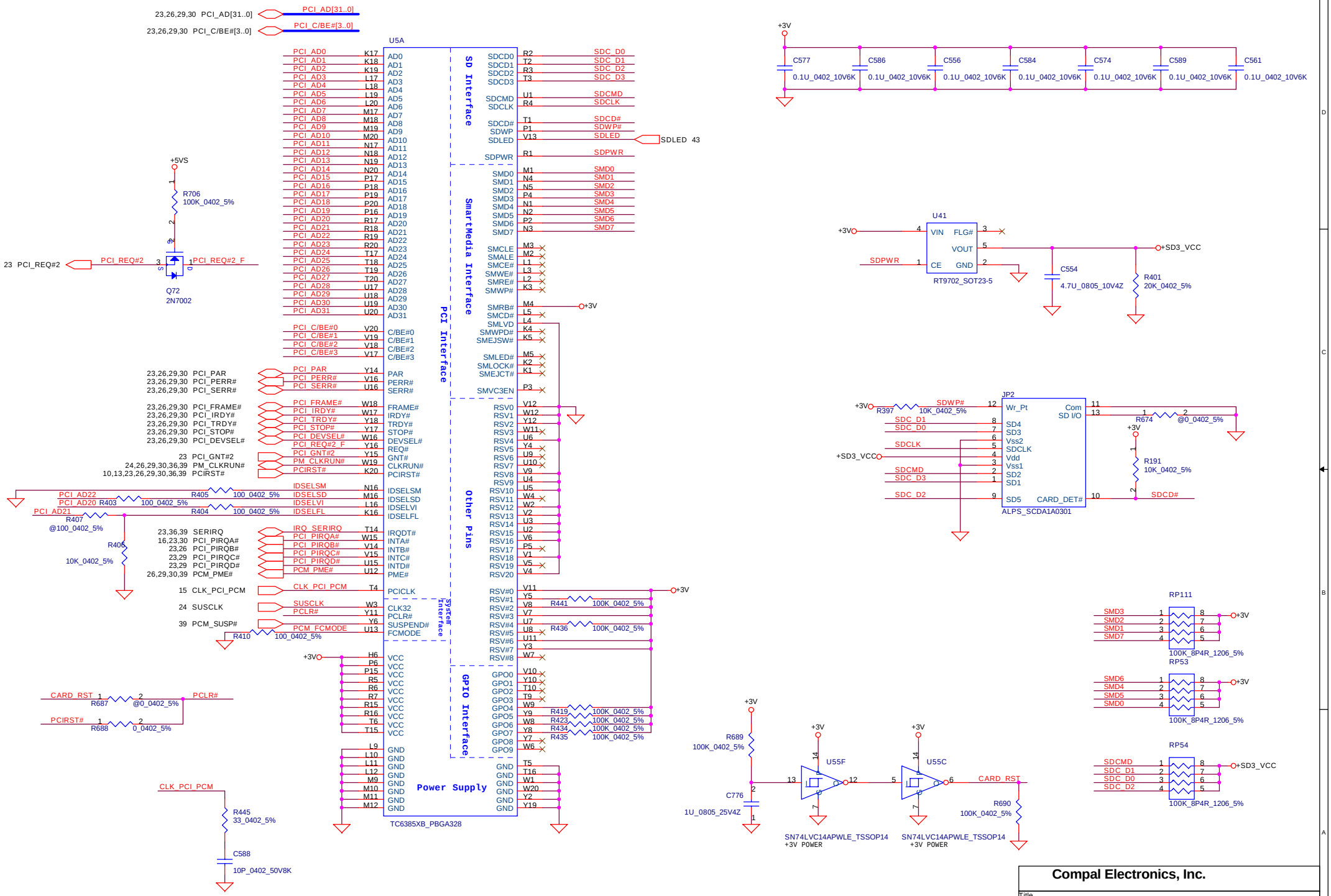
Compal Electronics, Inc.		
Title: ICH5 Power & Decoupling		
Size	Document Number: LA-2041	Rev: 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 25 of 56	

LAN Realtek RT8101L



Compal Electronics, Inc.

Title	LAN REALTEK RTL8101L	
Size	Document Number LA-2041	Rev 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 26 of 56	



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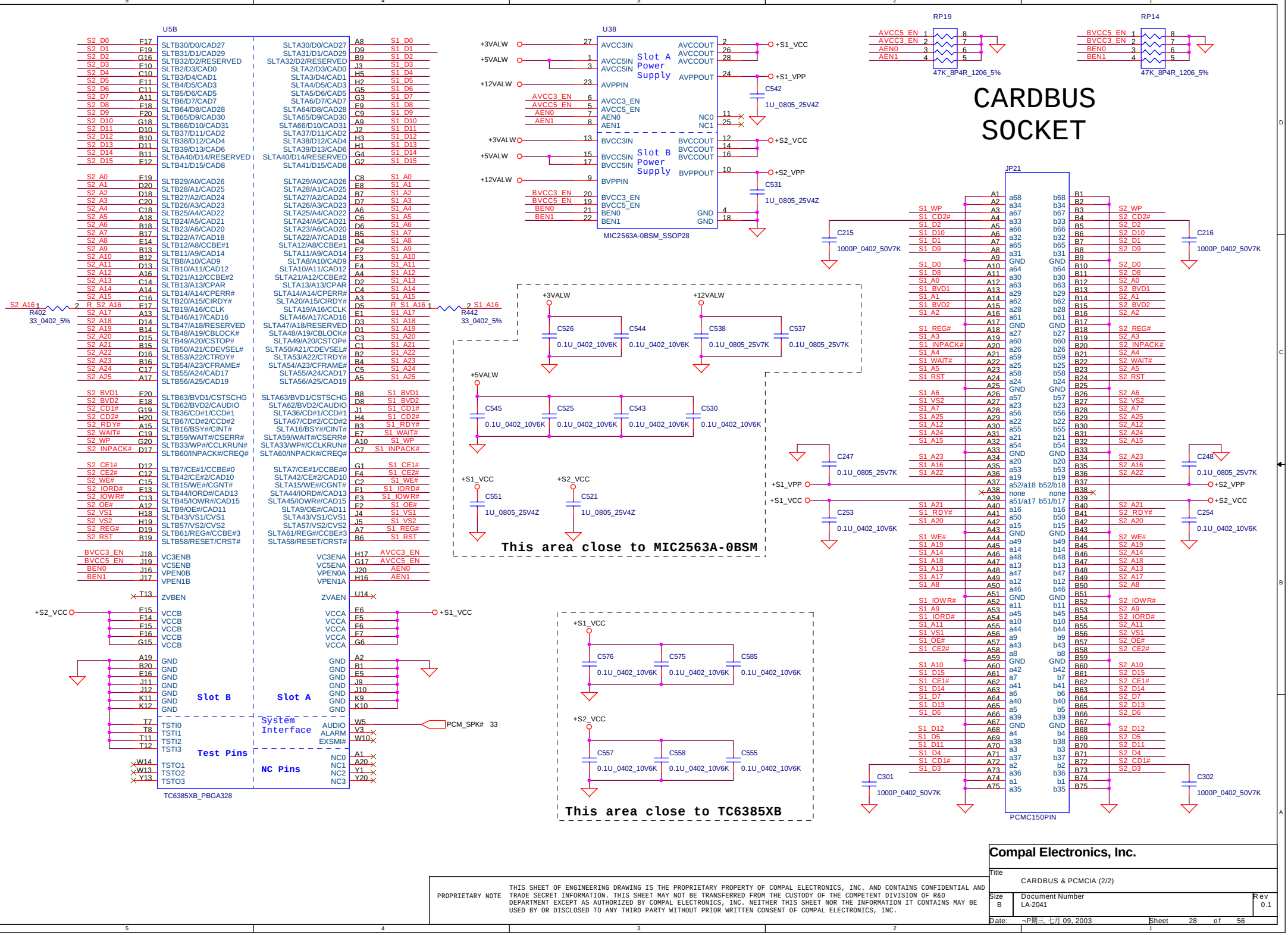

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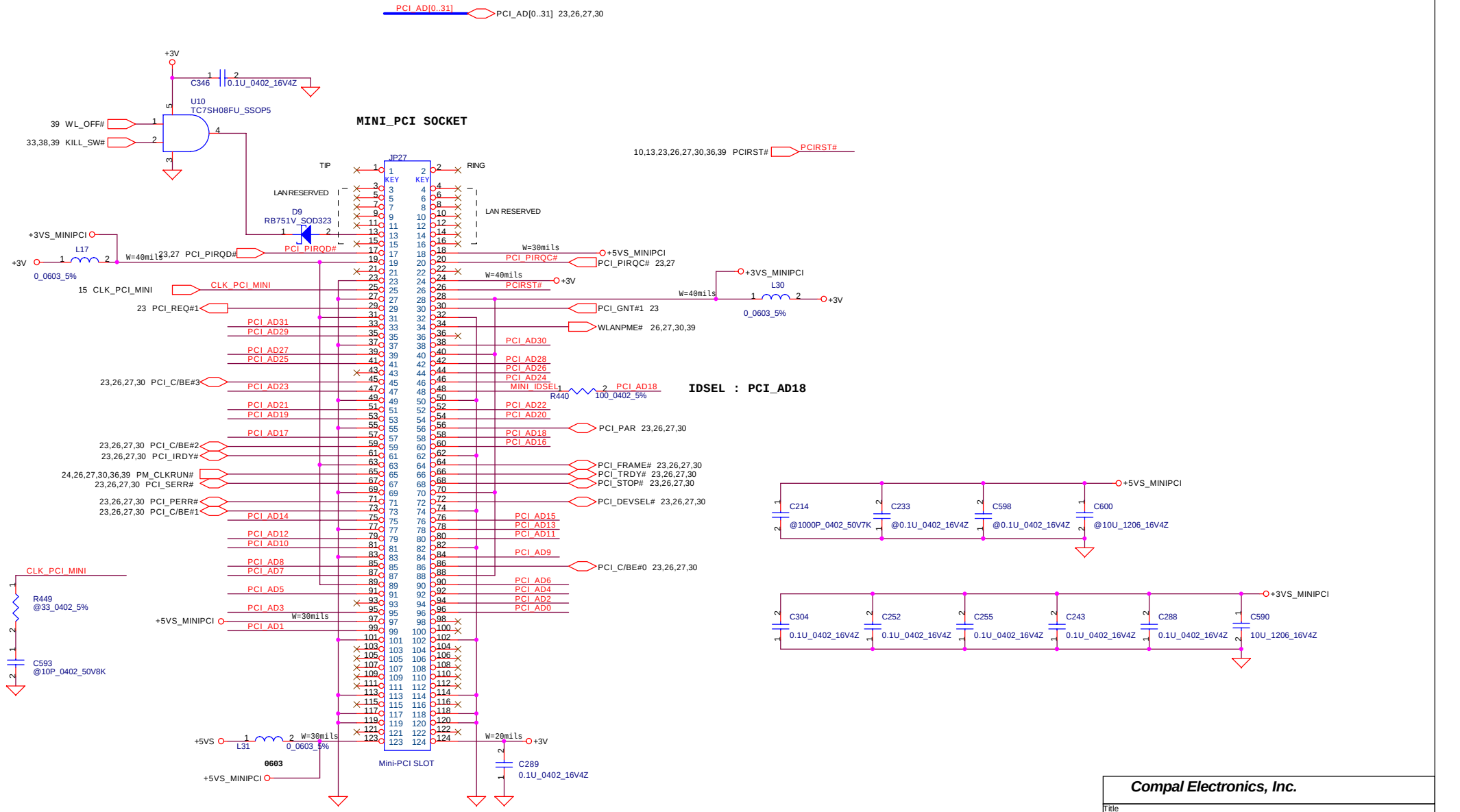
Compal Electronics, Inc.

Title: CARDBUS & PCMCIA (2/2)

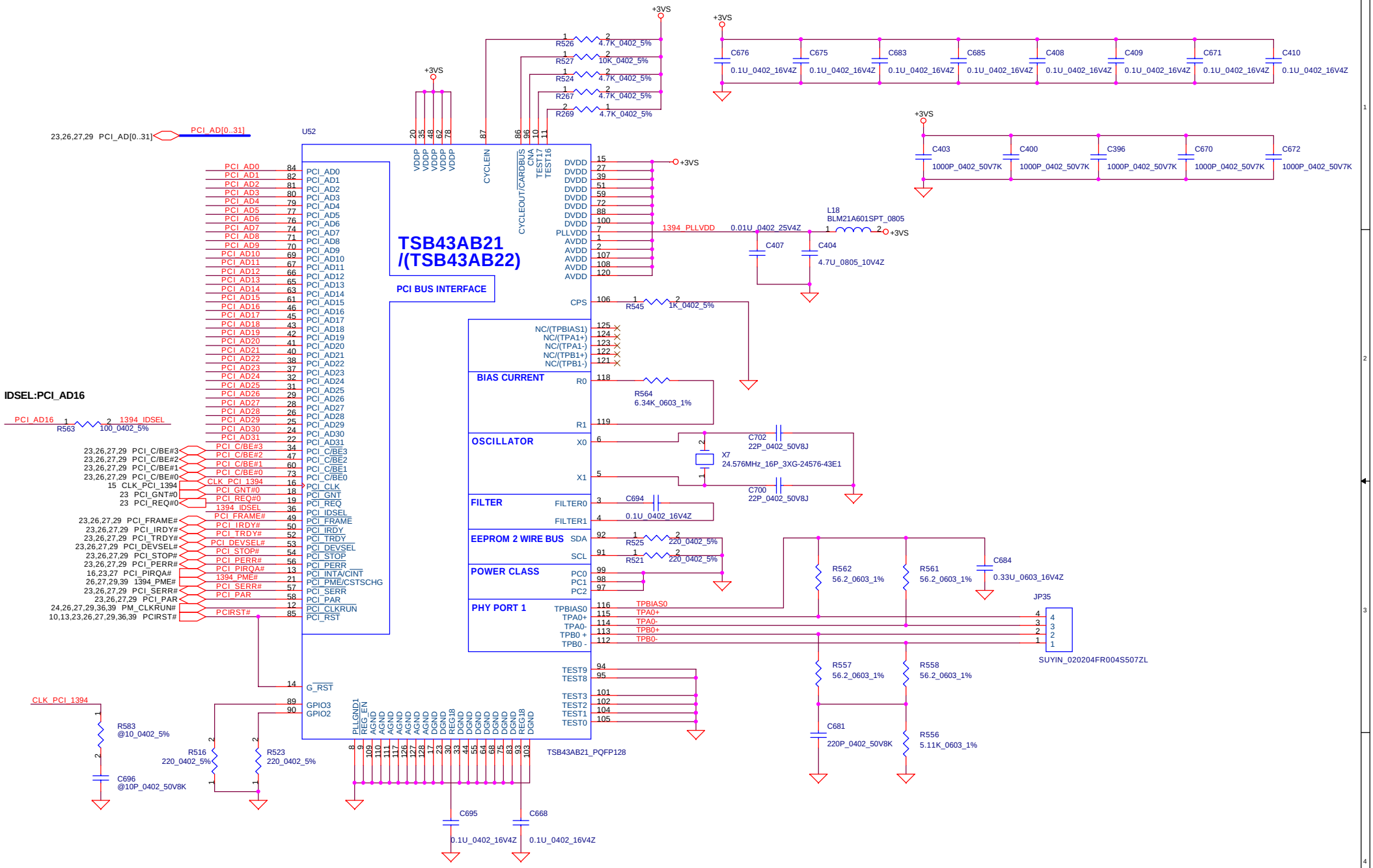
Size: B | Document Number: LA-2041 | Rev: 0.1

Date: ¬P期三, 七月 09, 2003 | Sheet 28 of 56



Compal Electronics, Inc.

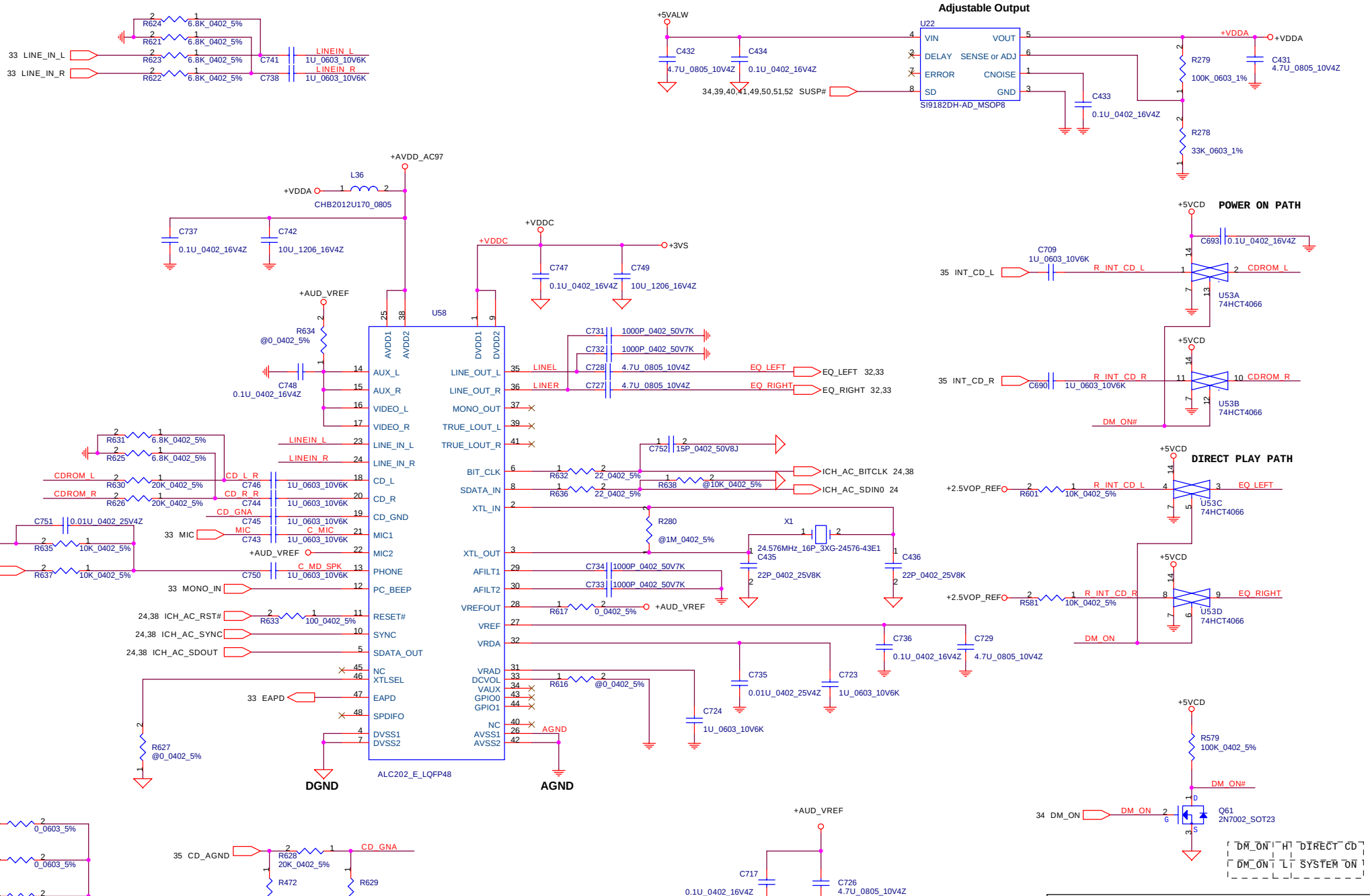
Title	MINI_PCI	
Size: B	Document Number: LA-2041	Rev: 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 29 of 56	



Compal Electronics, Inc.

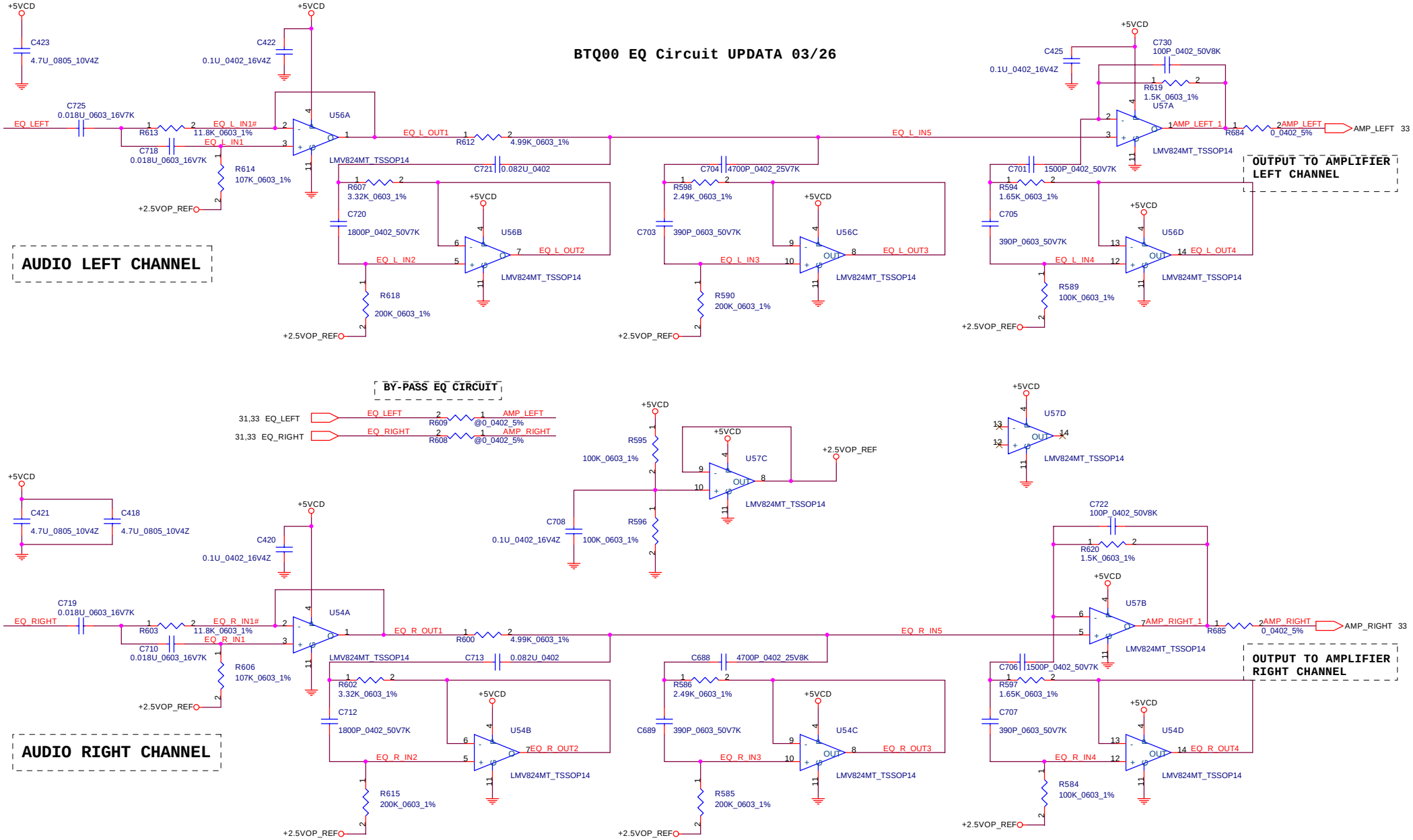
Title	1394 Interface	
Size B	Document Number LA-2041	Rev 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 30 of 56	

AC97 Codec



Compal Electronics, Inc.			
Title: AC97 Codec			
Size: B	Document Number: LA-2041		Rev: 0.1
Date: ¬P期三, 七月 09, 2003		Sheet 31 of 56	

BTQ00 EQ Circuit UPDATA 03/26



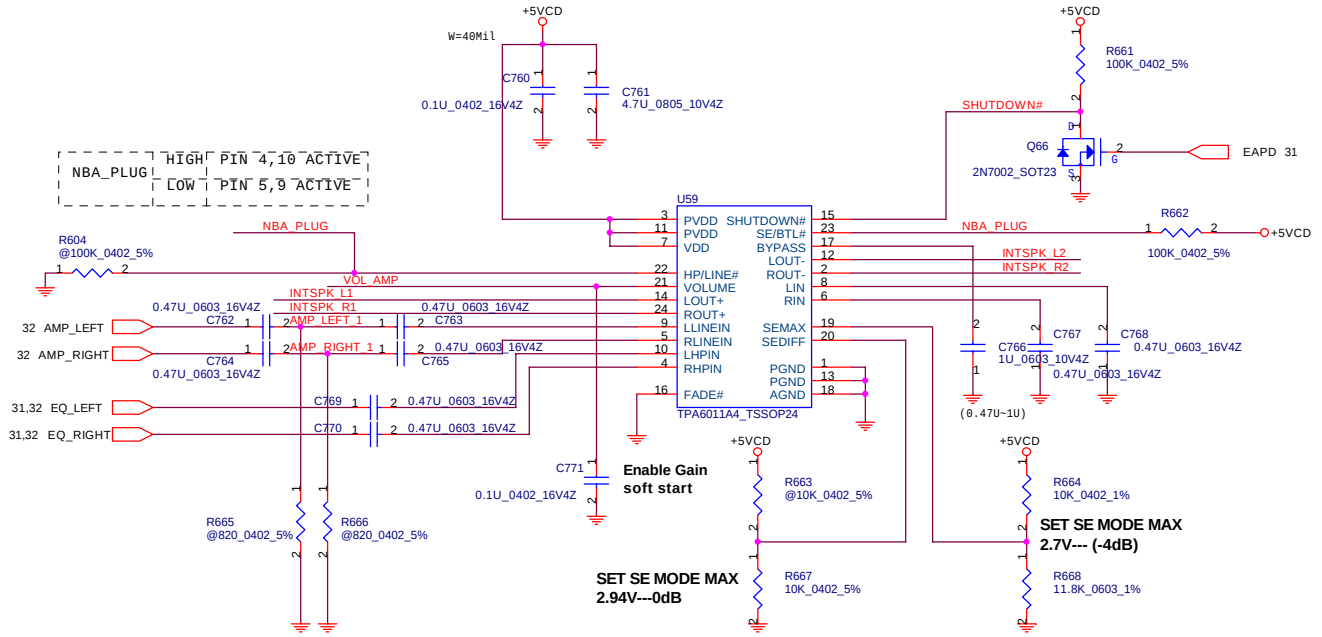
Compal Electronics, Inc.

Title: HAREWARE EQ

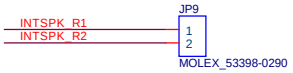
Size: B | Document Number: LA-2041 | Rev: 0.1

Date: ¬P期三, 七月 09, 2003 | Sheet 32 of 56

Audio AMP

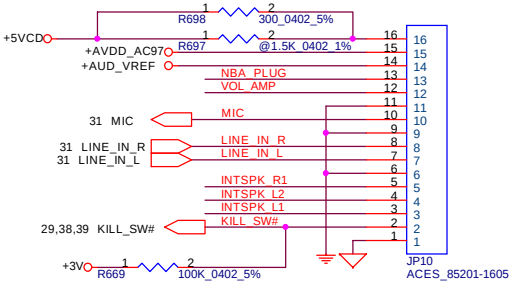


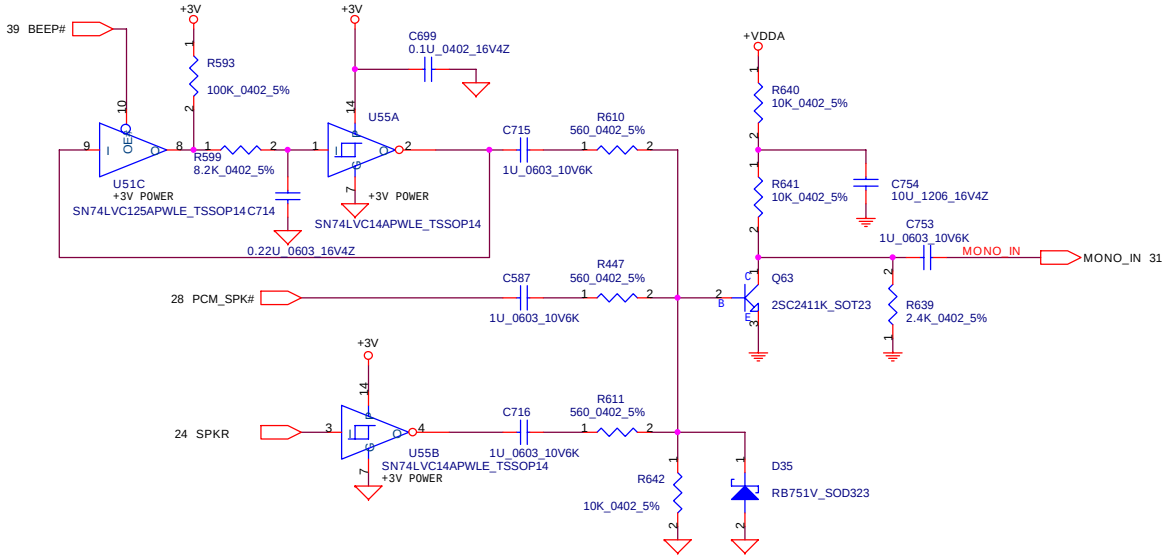
fo=1/(2*3.14*R*C)=412Hz
R=820 / C=0.47U



AUDIO Board Conn.

R697(1.5K)----------10dB
R698(300)----------14dB





Compal Electronics, Inc.

Title: **AMP & Audio Jack**

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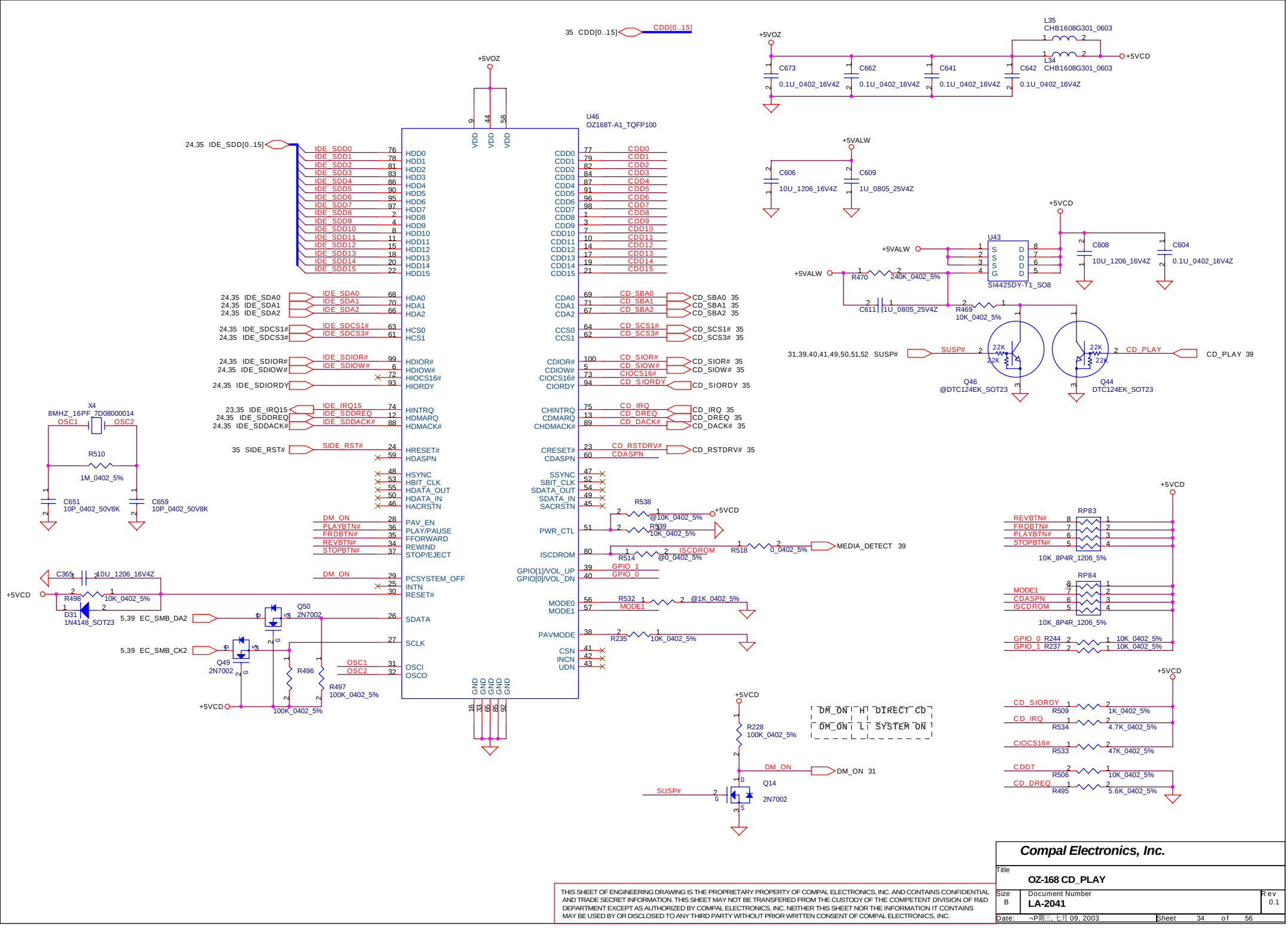

Compal Electronics, Inc.

Title	OZ-168 CD_PLAY	
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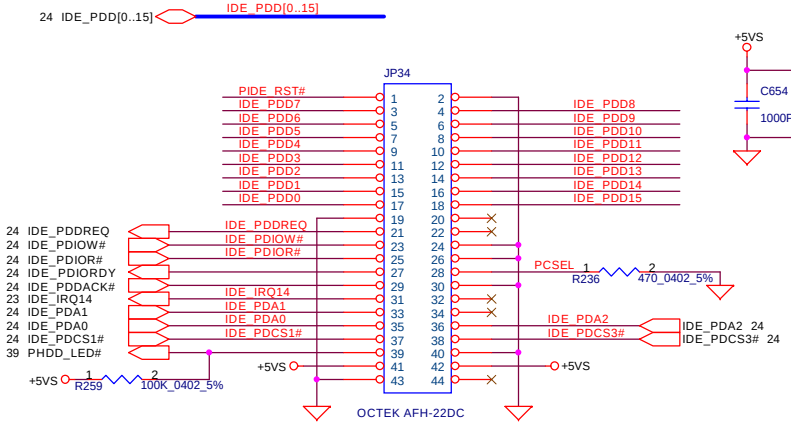
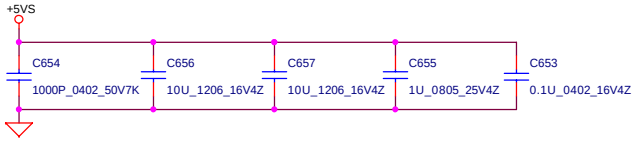
IDE,CD-ROM Module CONN.

HDD CONNECTOR

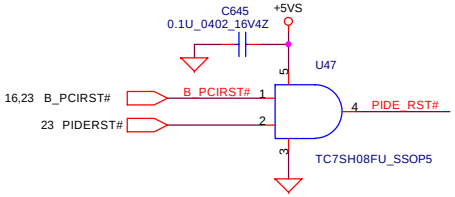


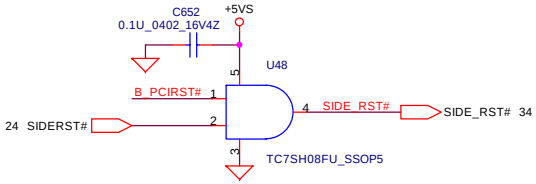
Placea caps. near HDD CONN.



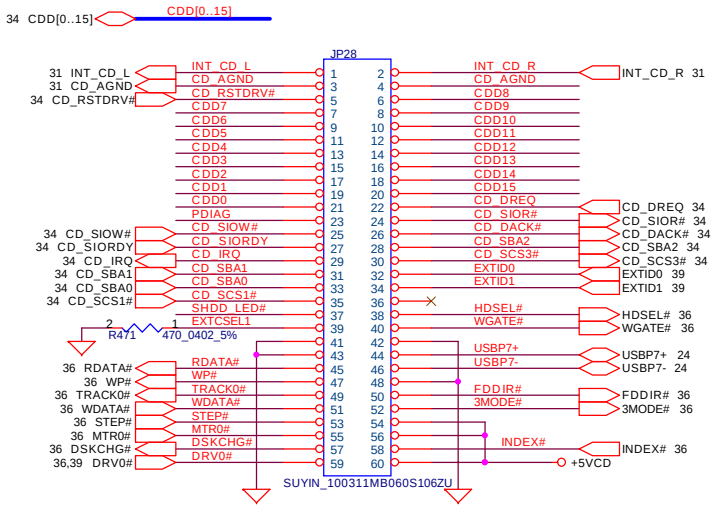
EXTID1	EXTID0	Module
0	0	CDROM
0	1	FDD
1	0	HDD
1	1	TV Tuner/No Module

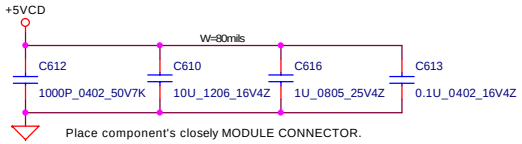
EXTID3	EXTID2	Module
0	0	CDROM
0	1	FDD
1	0	HDD
1	1	TV Tuner/No Module

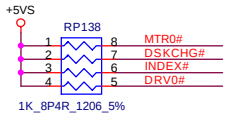


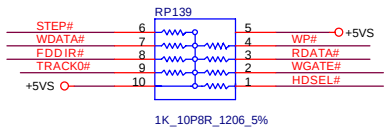


Main Module Conn. (Master)

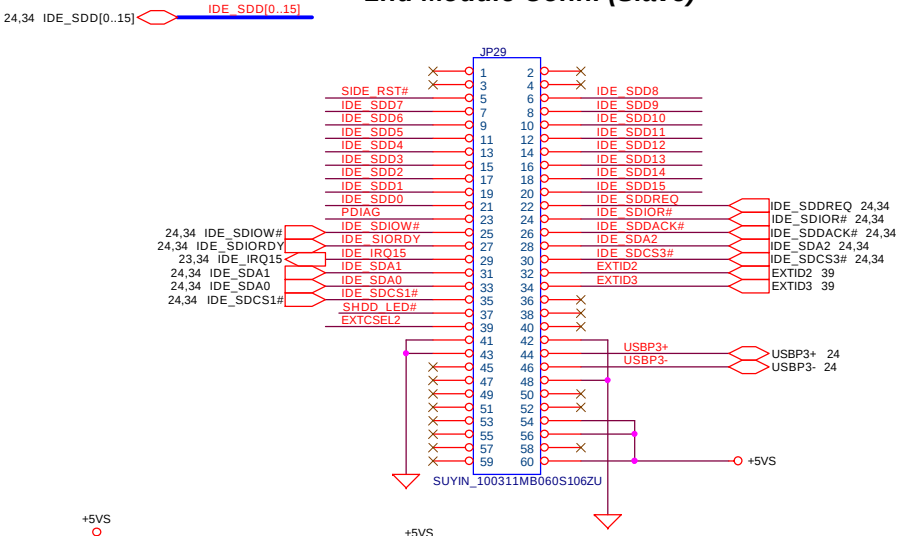


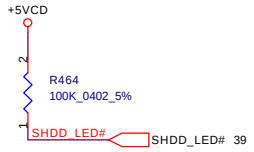


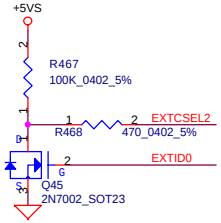


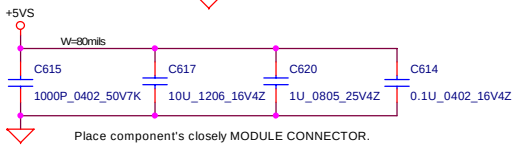


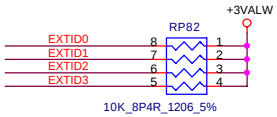
2nd Module Conn. (Slave)











Compal Electronics, Inc.

Title: **IDE/ FDD MODULE CONN.**

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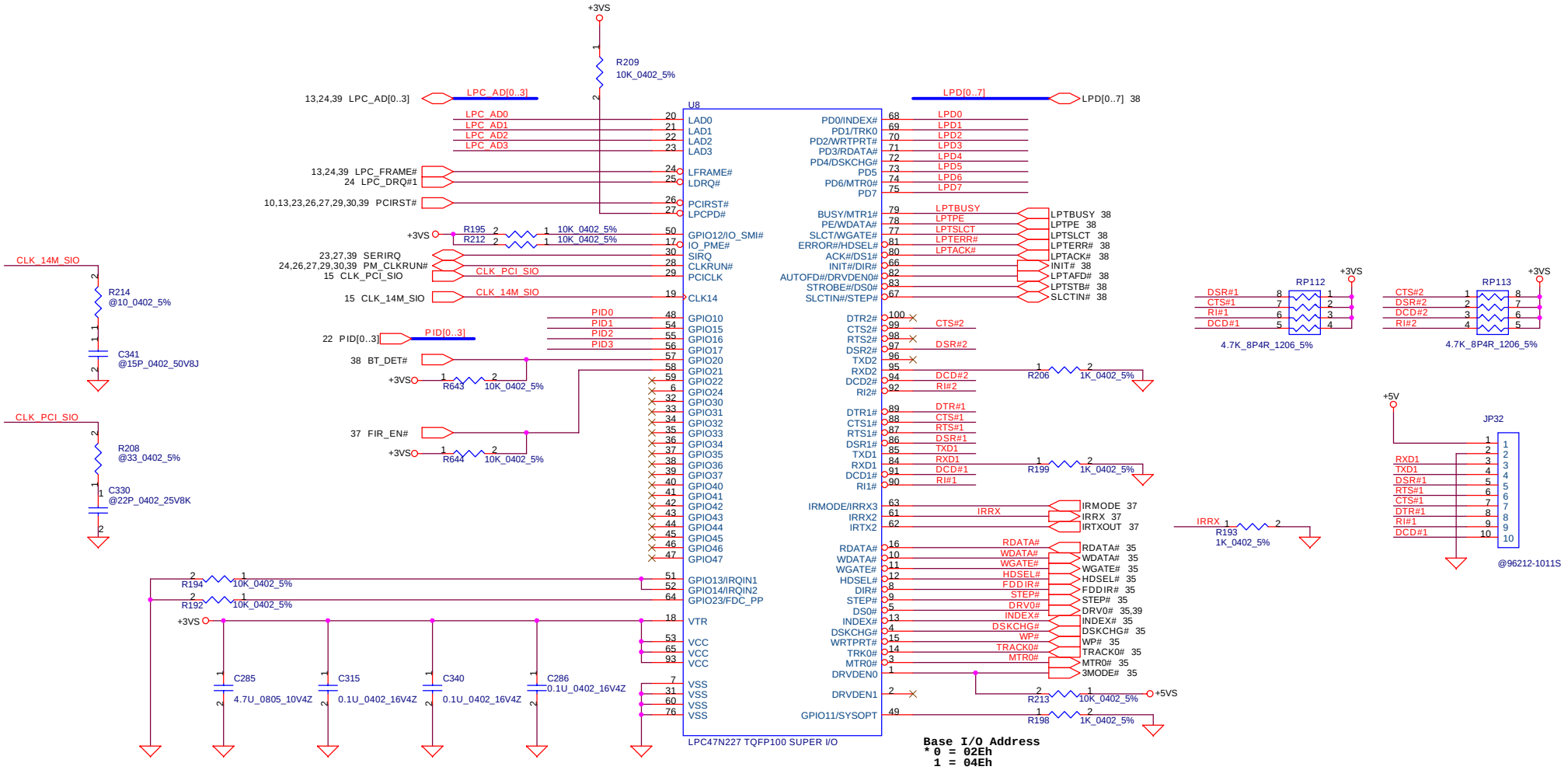
SUPER I/O SMsC FDC47N227



Compal Electronics, Inc.

Title	SUPER I/O	
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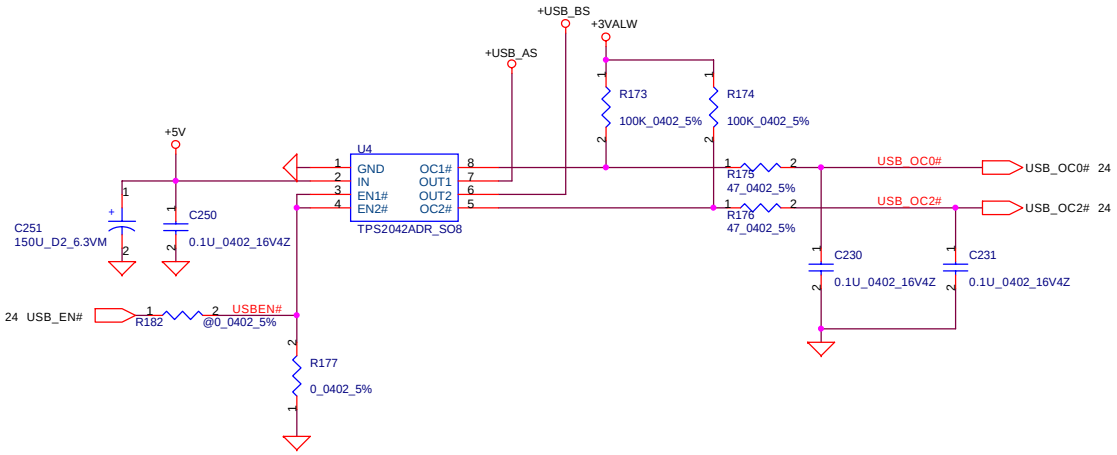
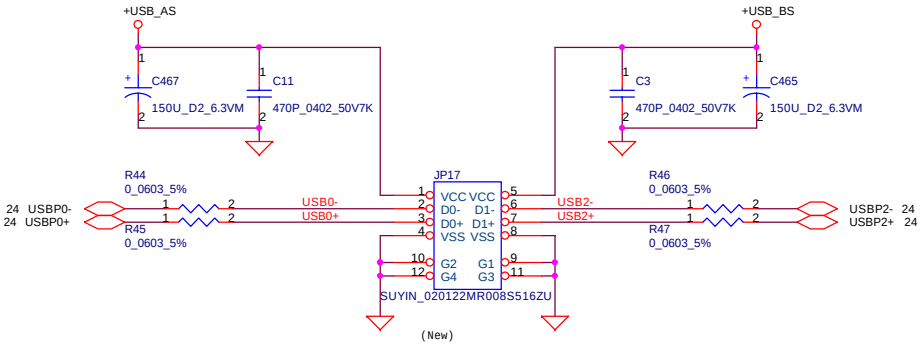
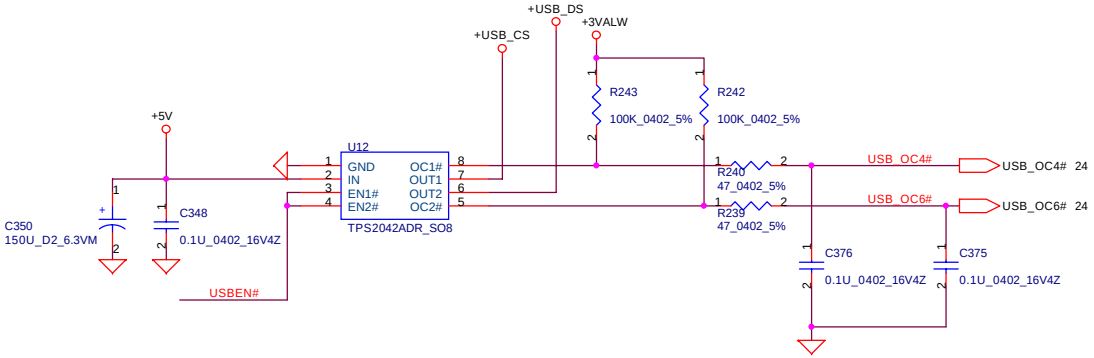
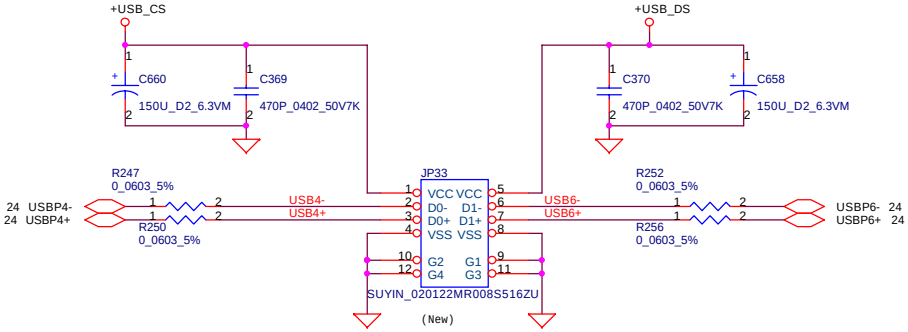
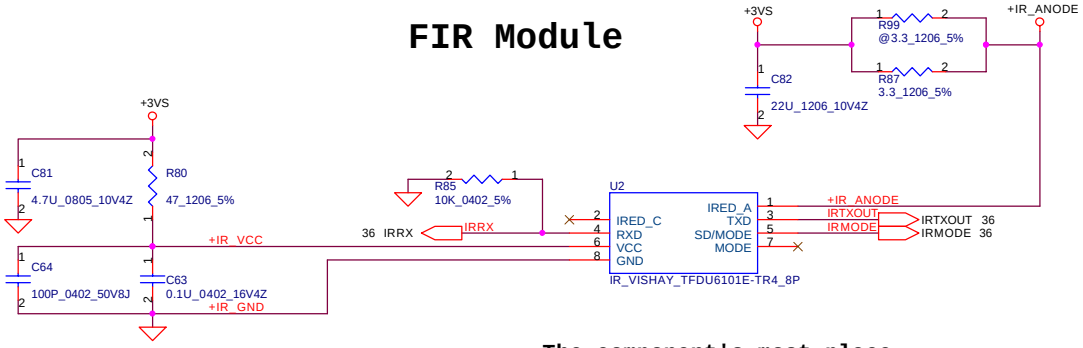


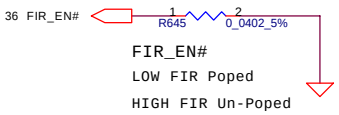






FIR Module





FIR_EN#
LOW FIR Poped
HIGH FIR Un-Poped

The component's most place cloely IRDA MODULE.

Compal Electronics, Inc.

Title: **USB Conn.**

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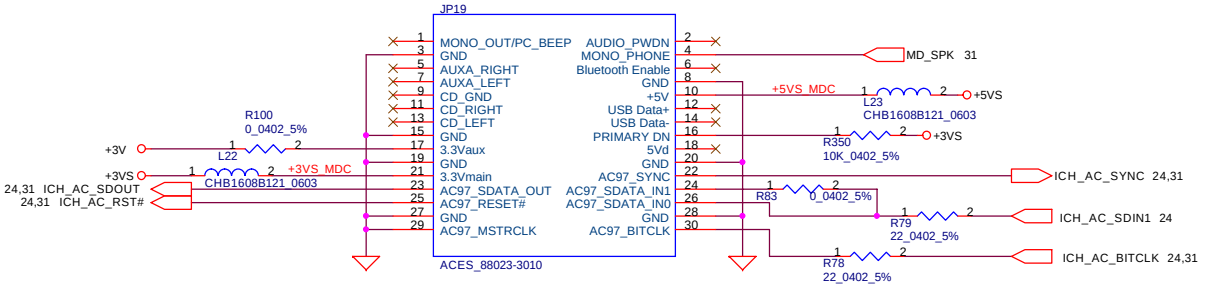
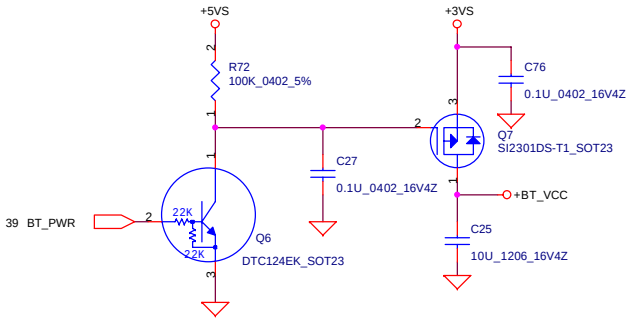
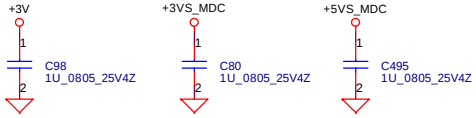
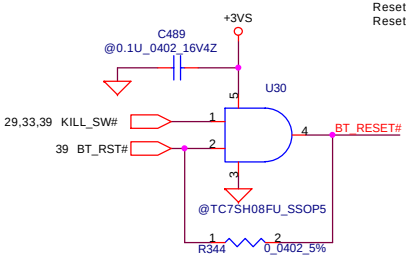
MDC CONN.



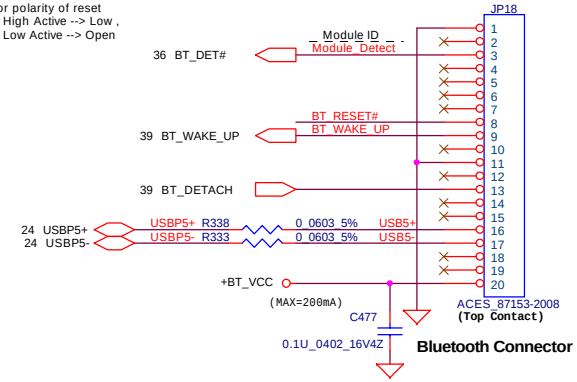
BlueTooth Interface

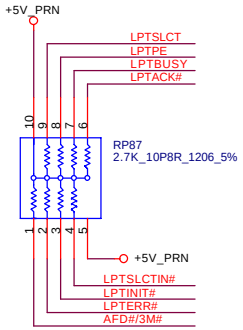


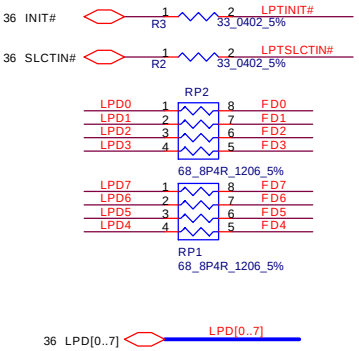


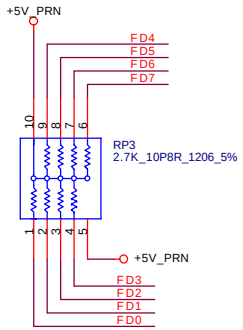


Module ID
Indication for polarity of reset
Reset input High Active --> Low ,
Reset input Low Active --> Open

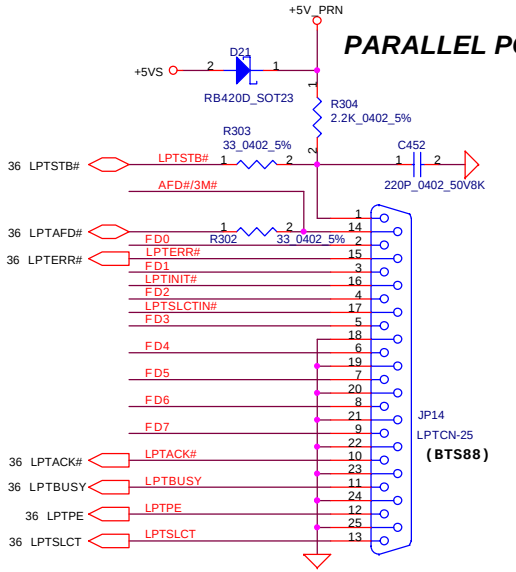


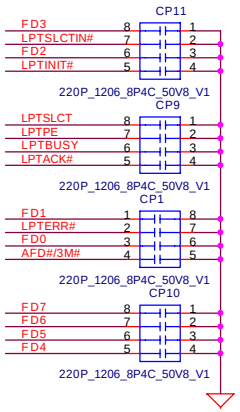






PARALLEL PORT





Compal Electronics, Inc.

Title: **PARALLEL/MDC PORT**

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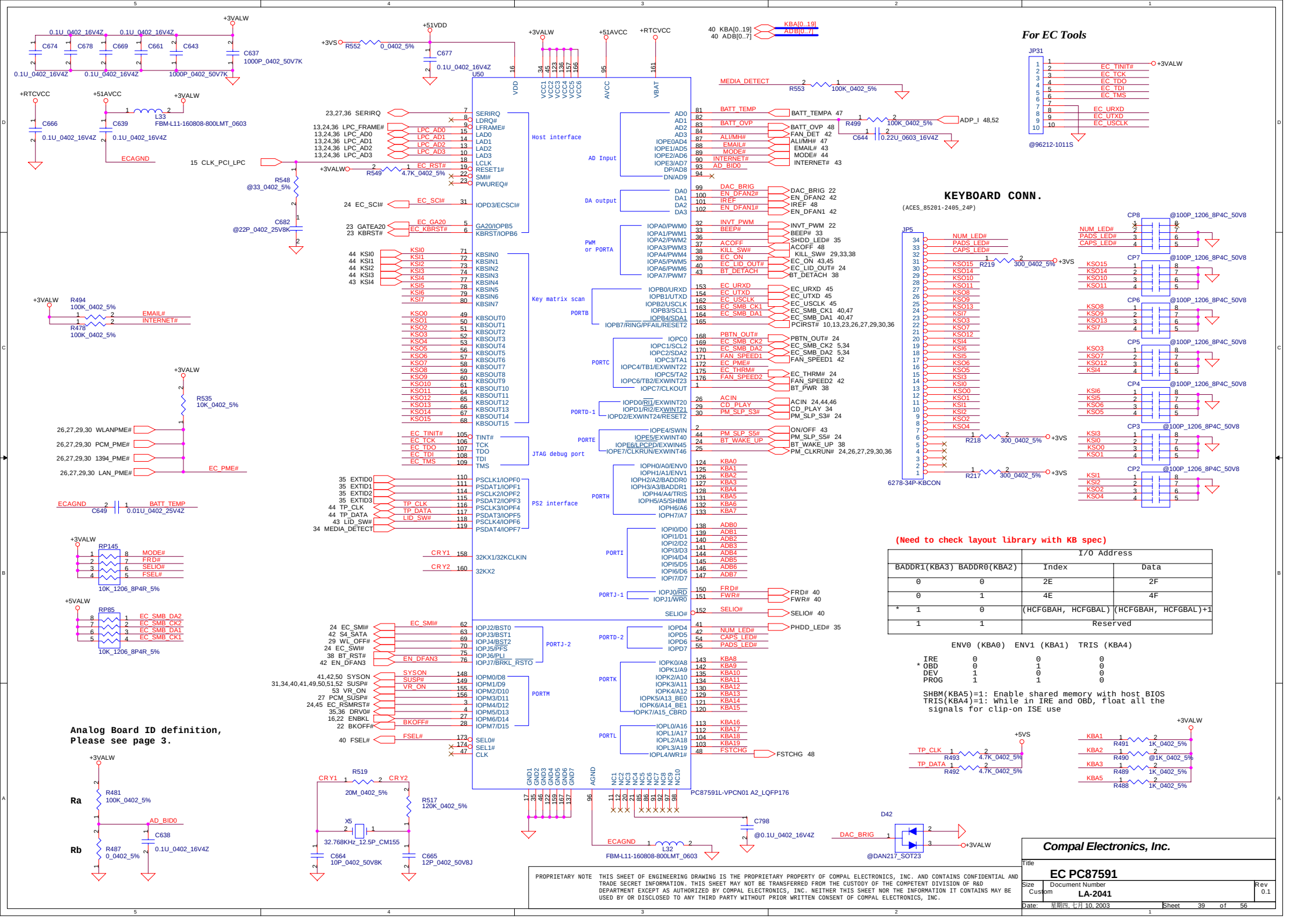
For EC Tools
JP31
EC_TINIT#
EC_TCK
EC_TDO
EC_TDI
EC_TMS
EC_URXD
EC_UTXD
EC_USCLK
@96212-1011S
KEYBOARD CONN.
(ACES_85201-2405_24P)
JP5
6278-34P-KBCON
CP8
CP7
CP6
CP5
CP4
CP3
CP2
@100P_1206_8P4C_50V8
(Need to check layout library with KB spec)
I/O Address
BADDR1(KBA3) BADDR0(KBA2)
Index
Data
0 0 2E 2F
0 1 4E 4F
* 1 0 (HCFGBAH, HCFGBAL) (HCFGBAH, HCFGBAL)+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
Analog Board ID definition,
Please see page 3.
Ra
Rb
U50
PC87591L-VPCN01 A2_LQFP176
Host interface
Key matrix scan
JTAG debug port
PS2 interface
AD Input
DA output
PWM or PORTA
PORTB
PORTC
PORTD-1
PORTE
PORTH
PORTI
PORTJ-1
PORTJ-2
PORTD-2
PORTK
PORTM
PORTL
Compal Electronics, Inc.
EC PC87591
LA-2041
Custom
Rev 0.1
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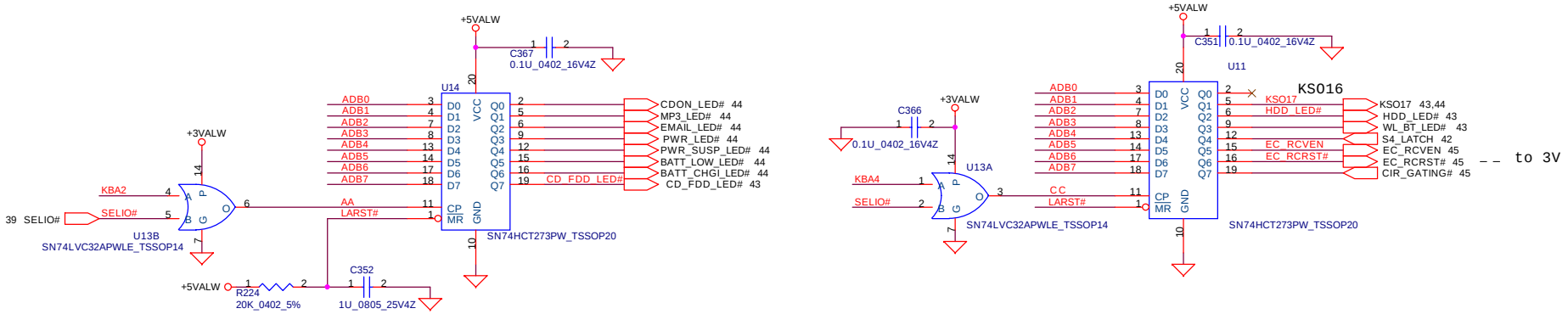
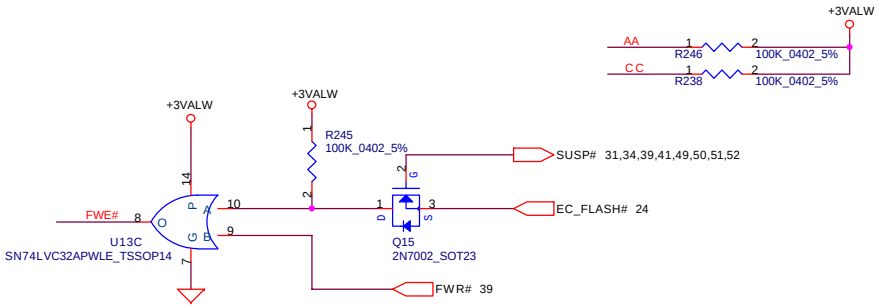
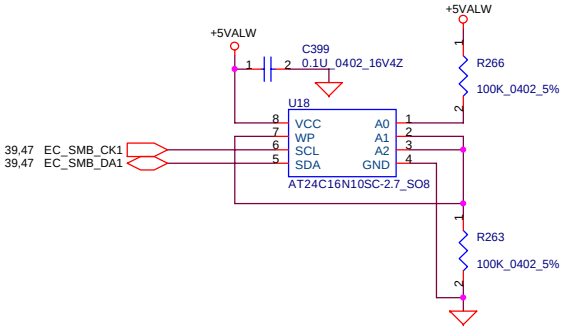
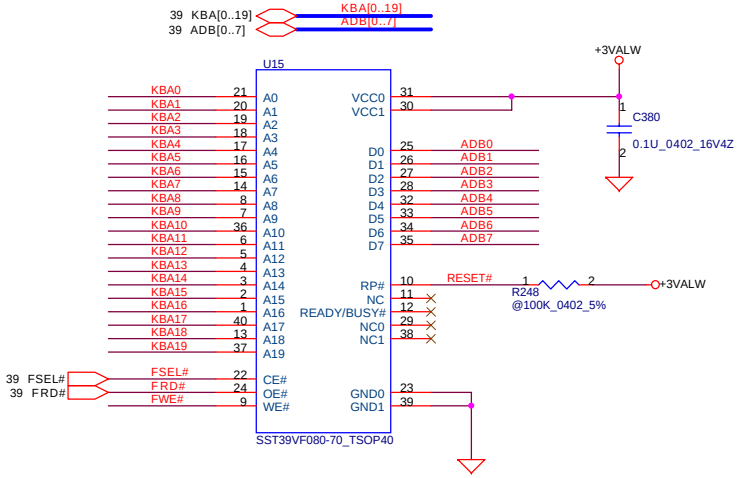


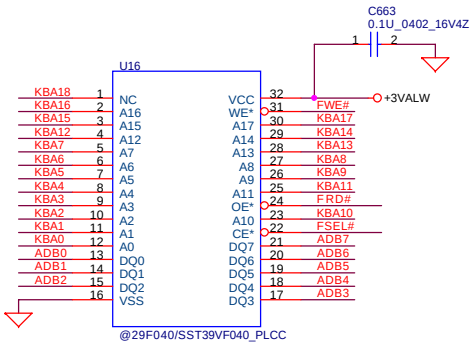




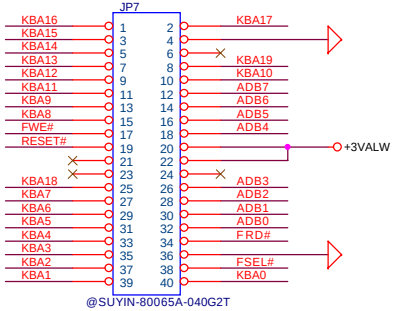
1MB Flash ROM



512KB Flash ROM



Flash ROM Socket Conn.



Compal Electronics, Inc.

Title: **BIOS & EXT. I/O PORT**

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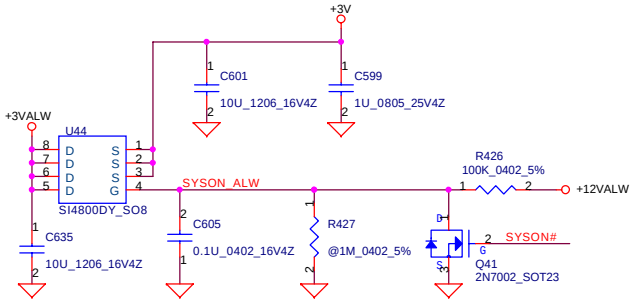
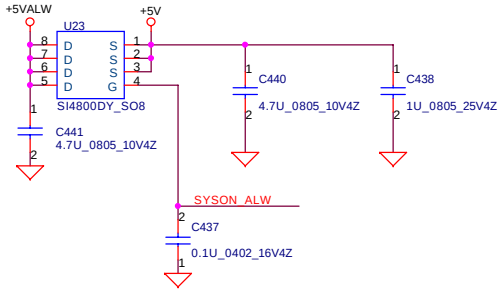
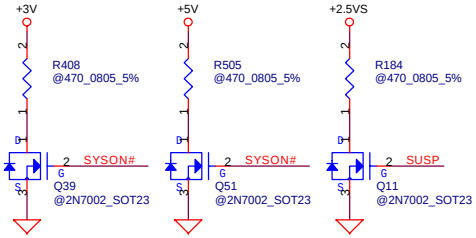
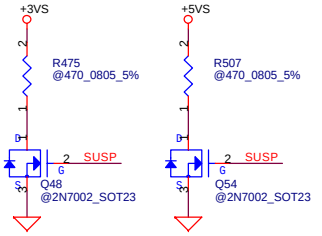
+3VALW TO +3V



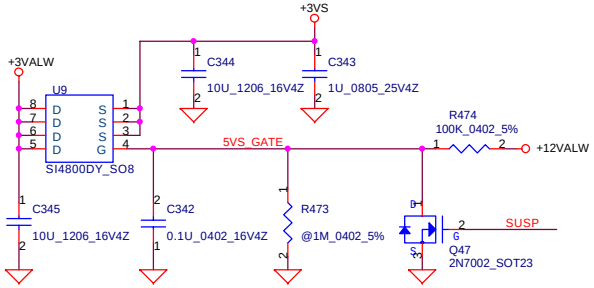
+5VALW TO +5V



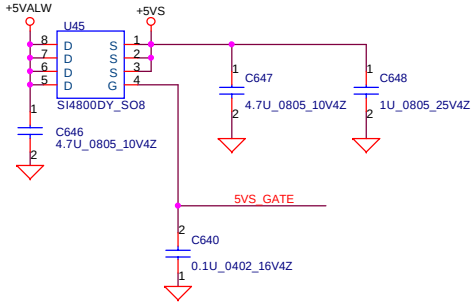


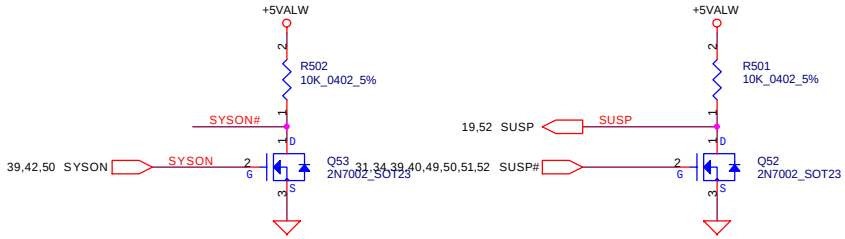


+3VALW TO +3VS

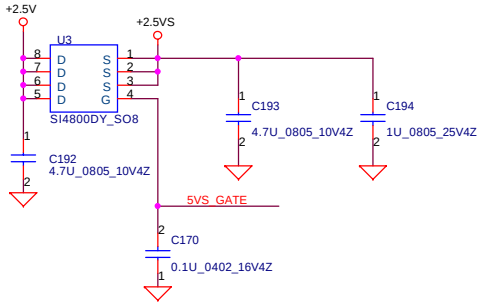


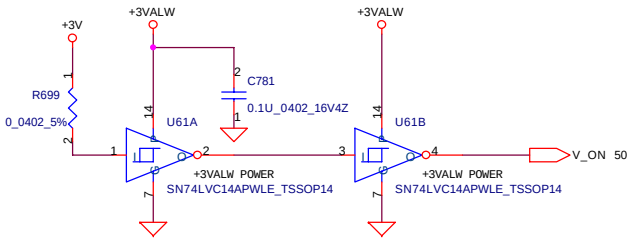
+5VALW TO +5VS

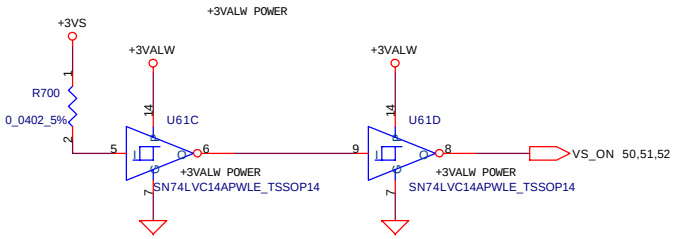




+2.5V TO +2.5VS







Compal Electronics, Inc.

Title: **POWER CONTROL CKT**

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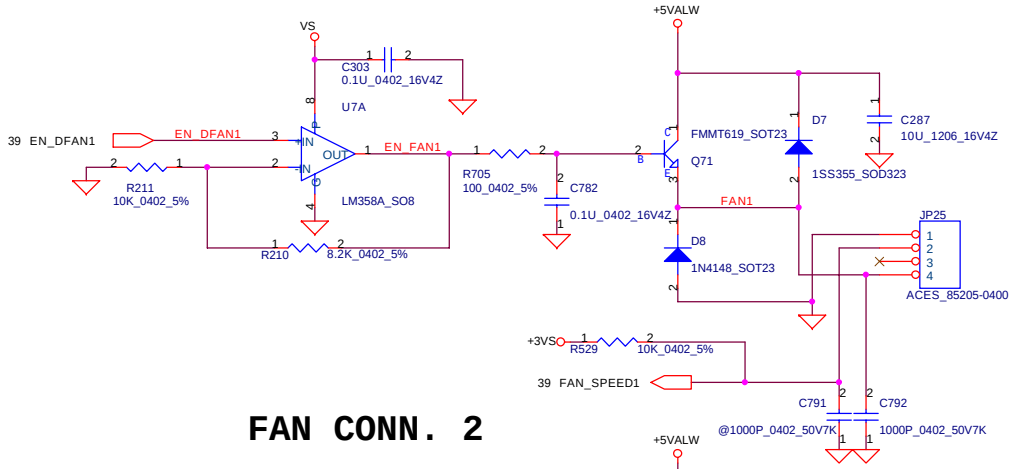
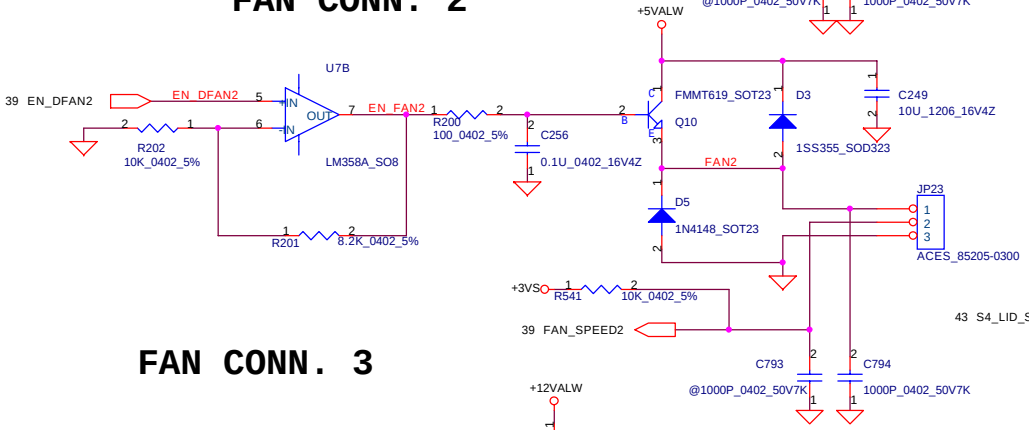
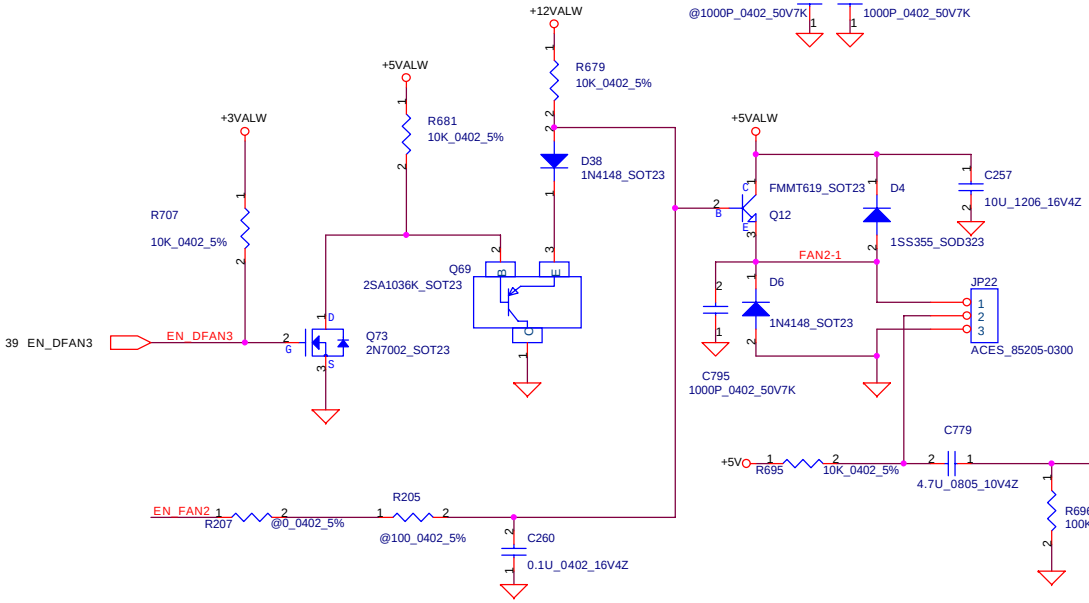
FAN CONN. 1



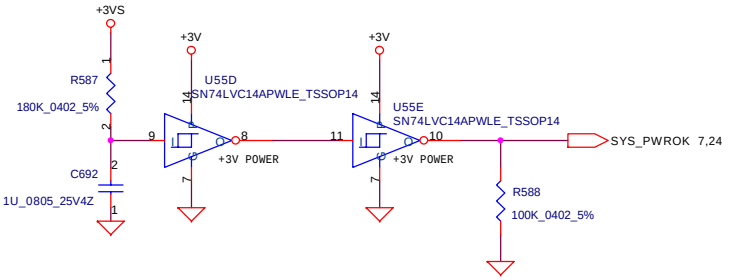
FAN CONN. 2



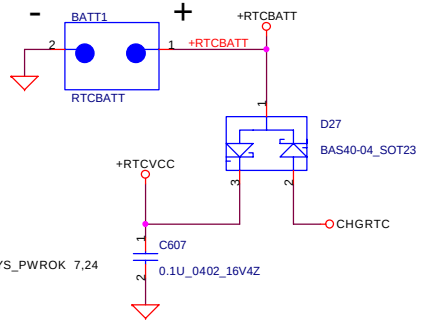
FAN CONN. 3

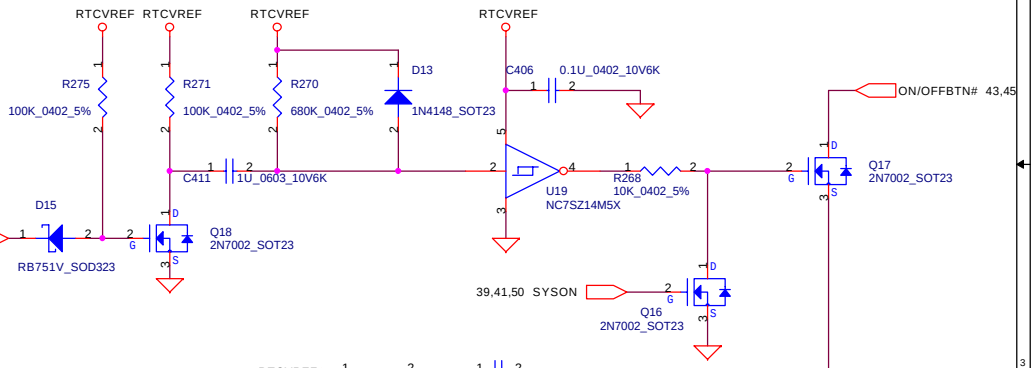


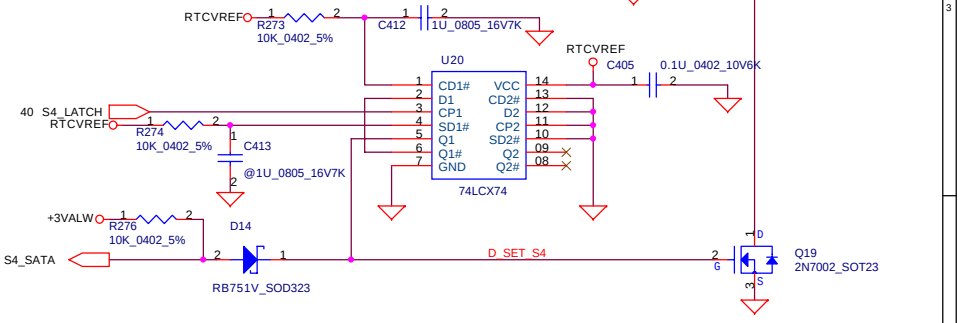
Power ON Circuit



RTC Battery







Compal Electronics, Inc.		
Title: Power OK/Reset/RTC battery/Lid Switch/Int. KB		
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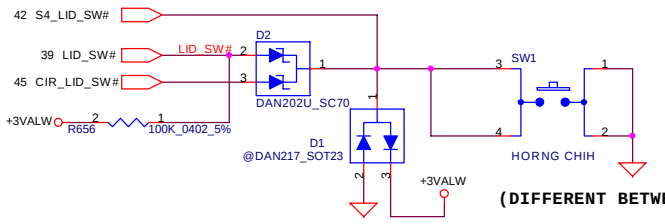
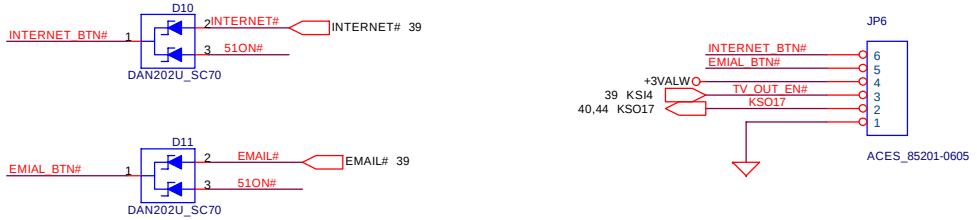
LID Switch

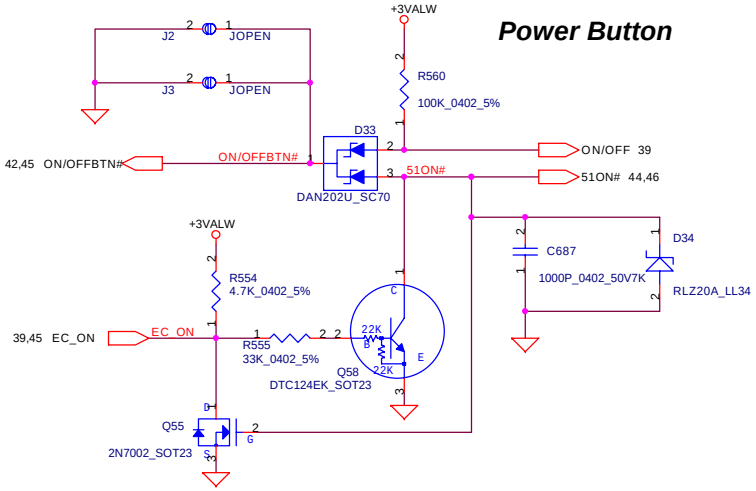


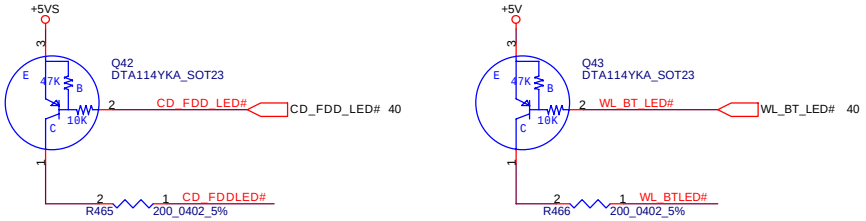
(DIFFERENT BETWEEN MPU-101-81A)

Button FPC Conn.

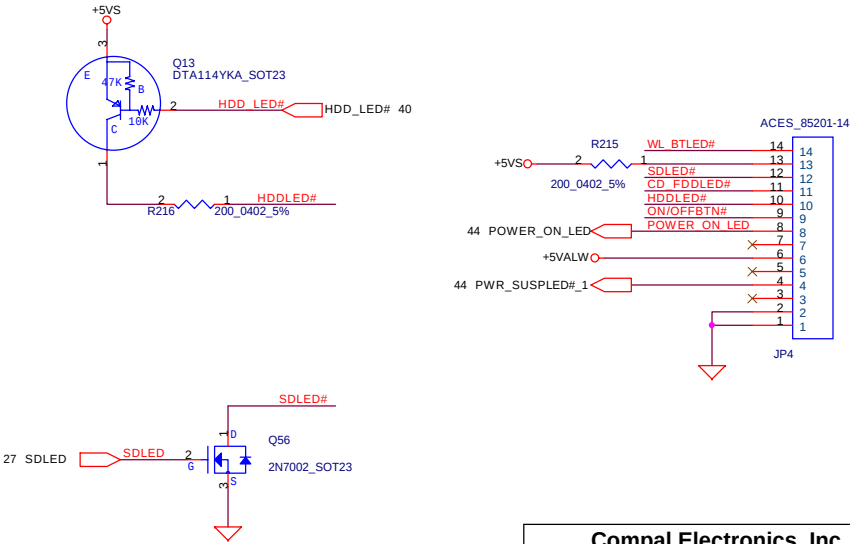


Power Button





Power FPC Conn.



Compal Electronics, Inc.

Title	**Switchs & Connectors**	
Size B	Document Number **LA-2041**	Rev 0.1
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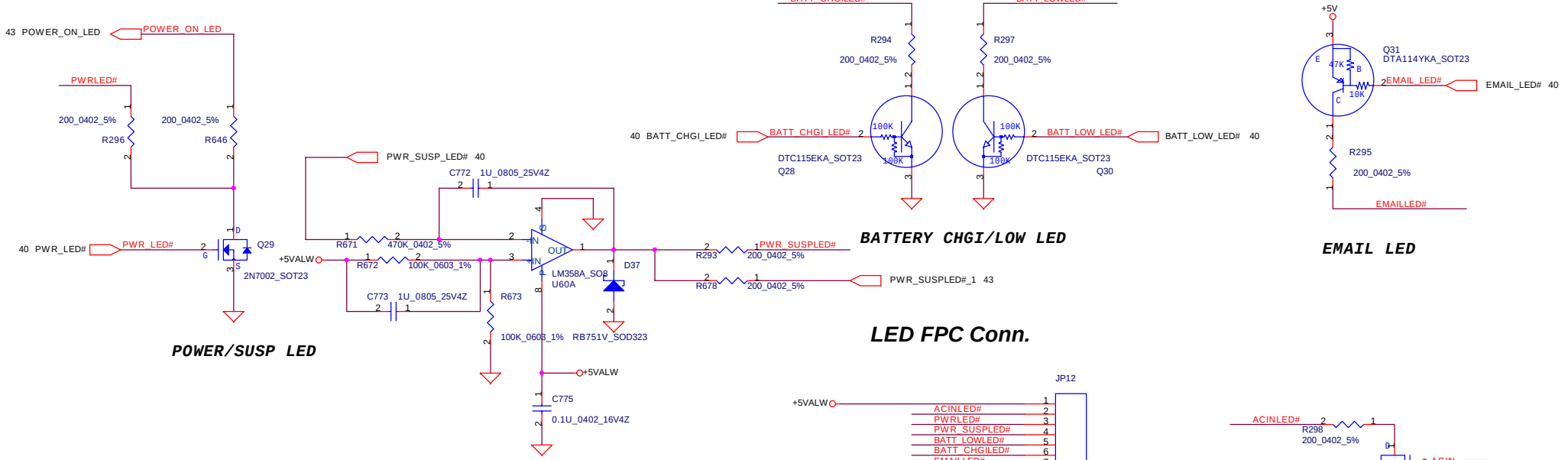
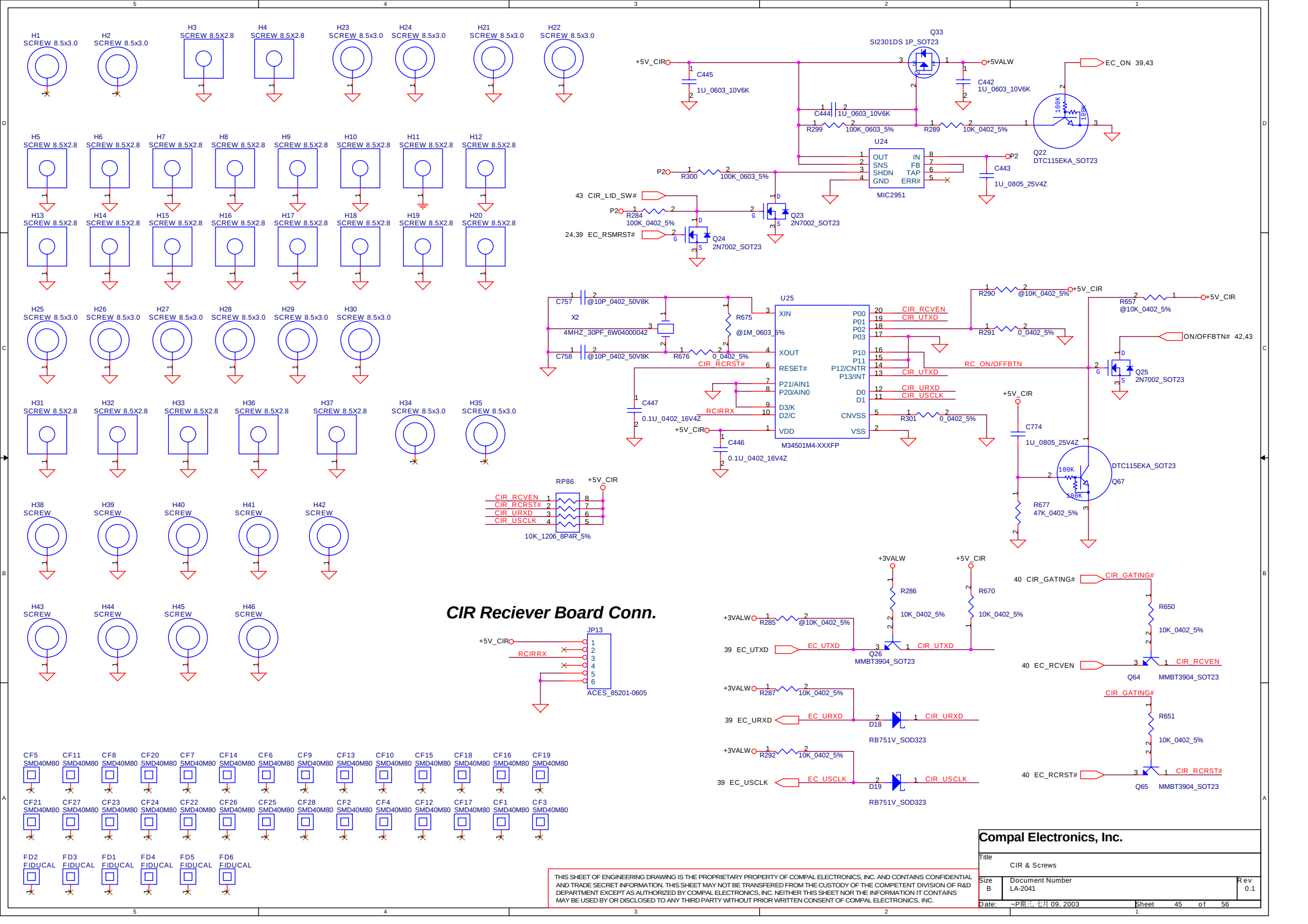


Compal Electronics, Inc.		
Title: Switchs & Connectors		
Size: B	Document Number: LA-2041	Rev: 0.1
Date: ¬P期三, 七月 09, 2003	Sheet 44 of 56	



Compal Electronics, Inc.

Title	CIR & Screws	
Size B	Document Number LA-2041	Rev 0.1
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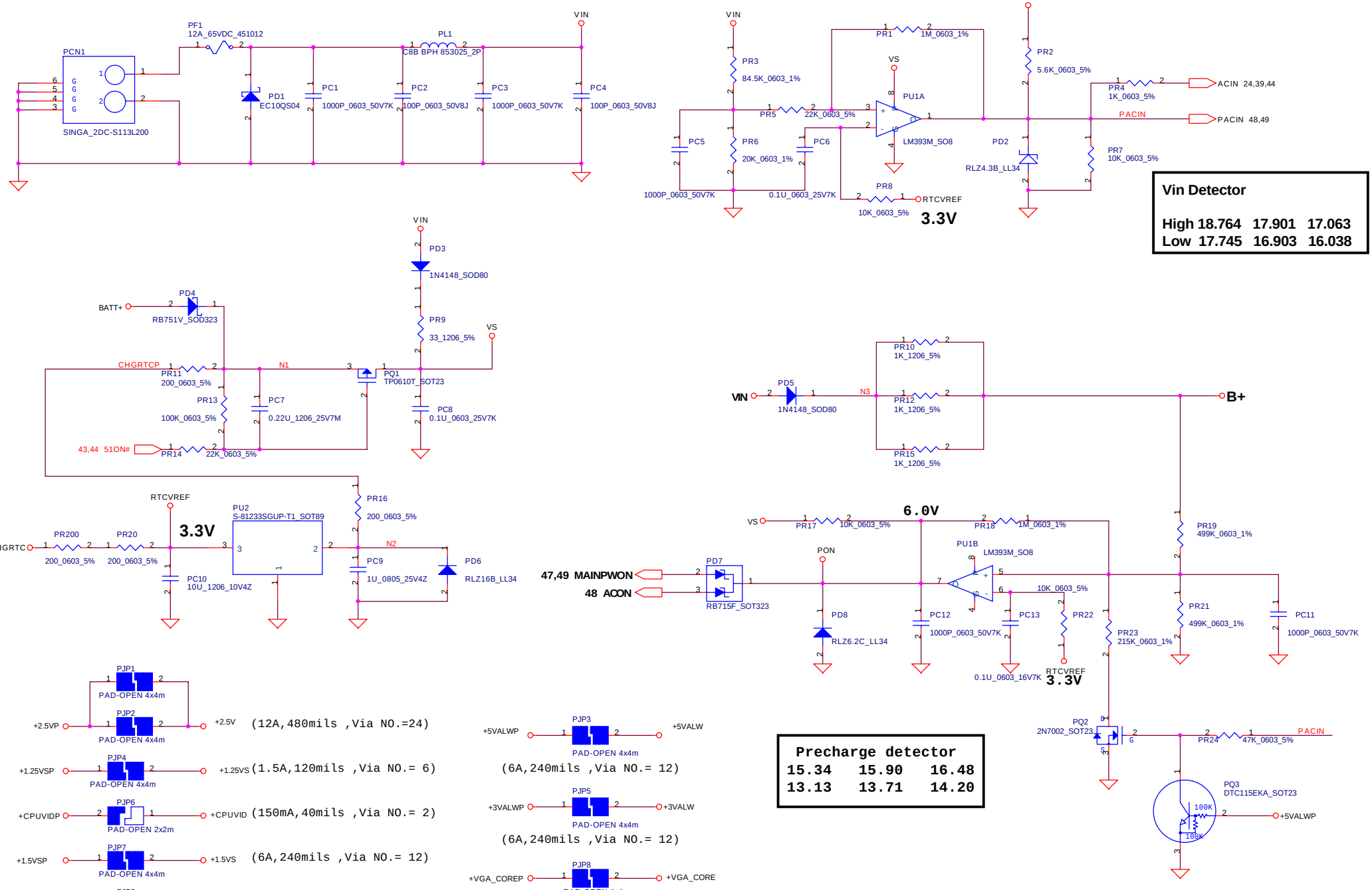

Compal Electronics, Inc.	
Title	DCIN & DETECTOR
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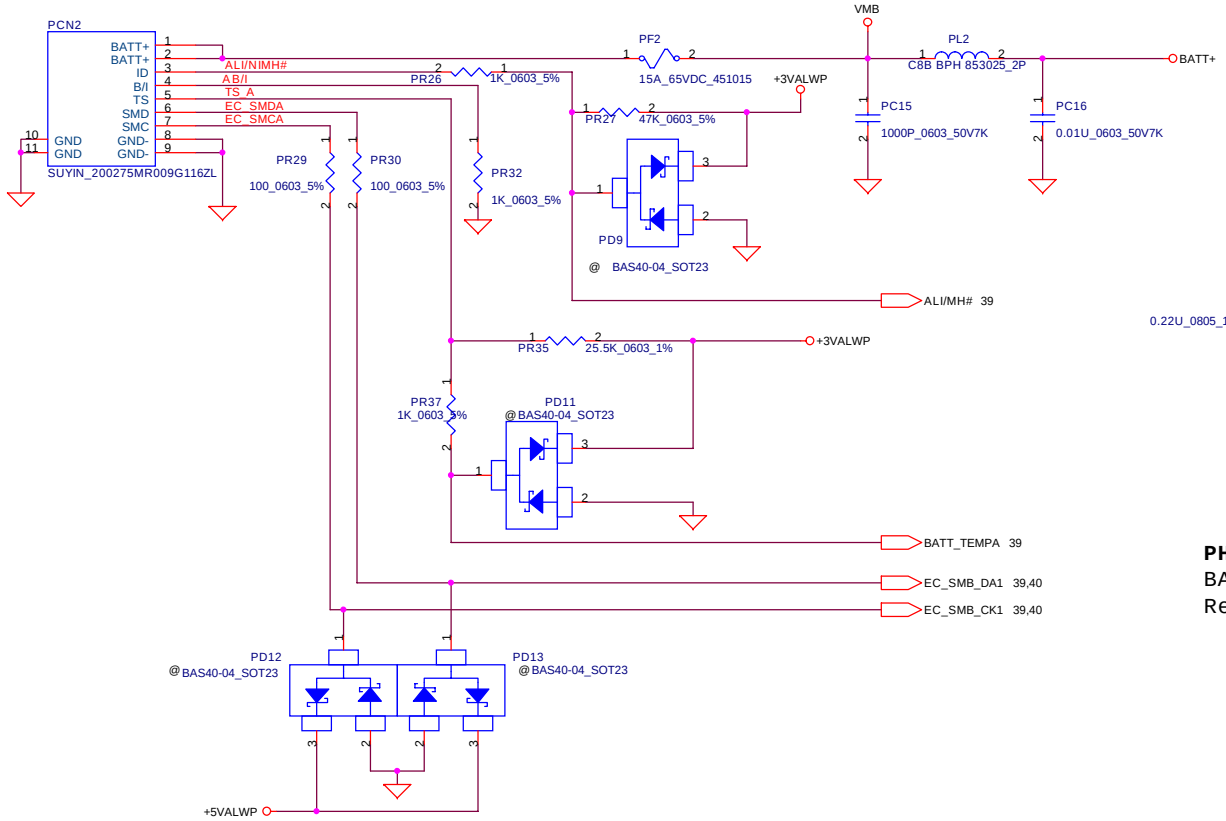
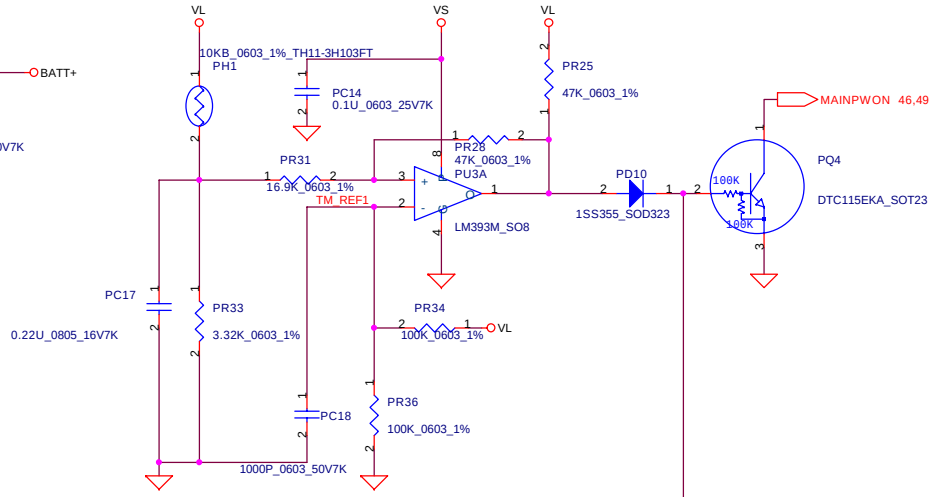
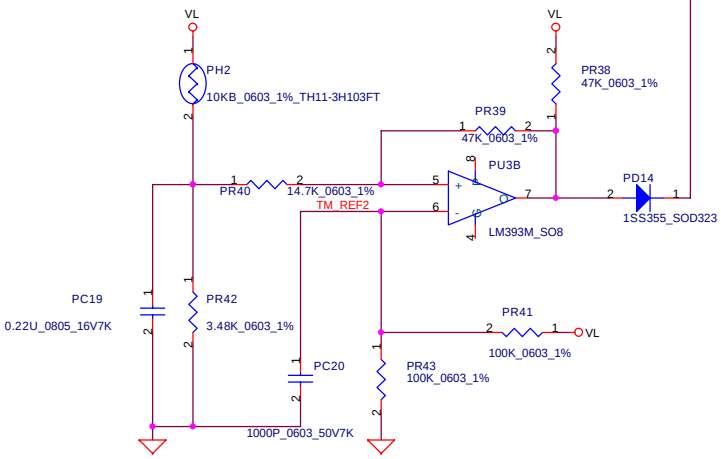
PH1 under CPU botten side :
CPU thermal protection at 84 degree C
Recovery at 45 degree C





PH2 near main Battery CONN :
BAT. thermal protection at 79 degree C
Recovery at 45 degree C



Compal Electronics, Inc.		
Title: BATTERY CONN / OTP		
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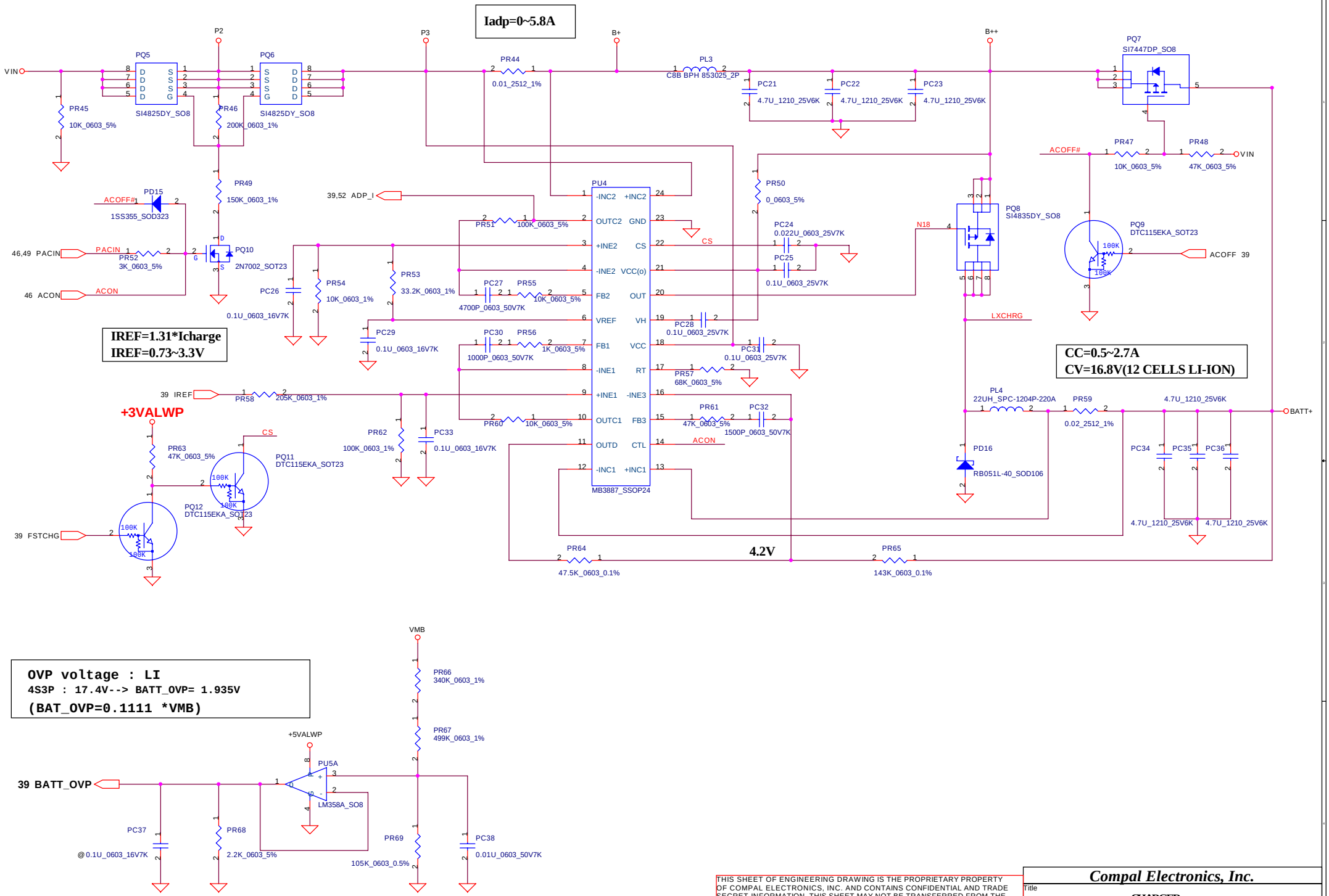

Compal Electronics, Inc.

Title	CHARGER	
Size	Document Number LA-2041	Rev 0.1
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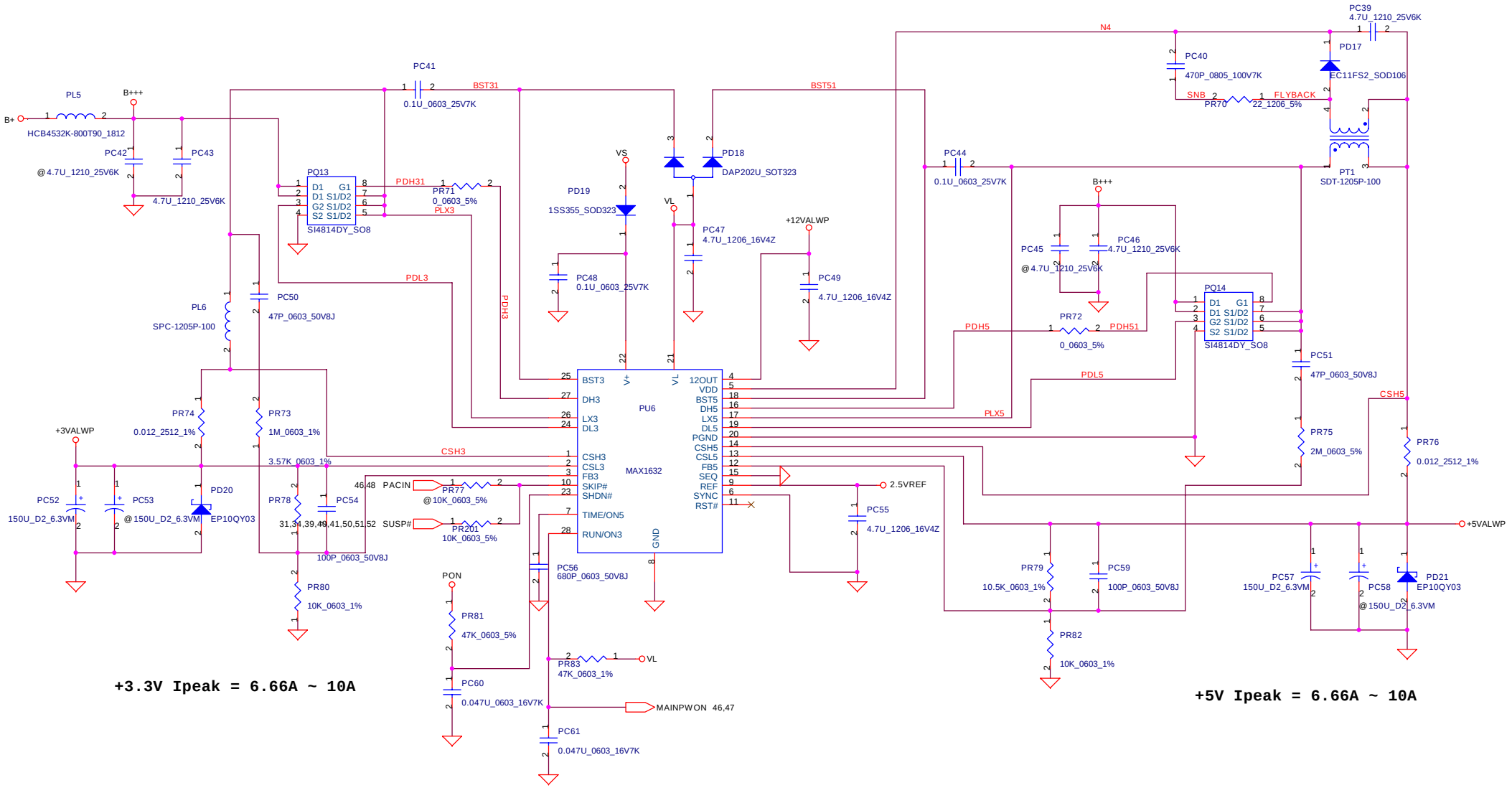

Compal Electronics, Inc.

Title	5V/3.3V/12V	
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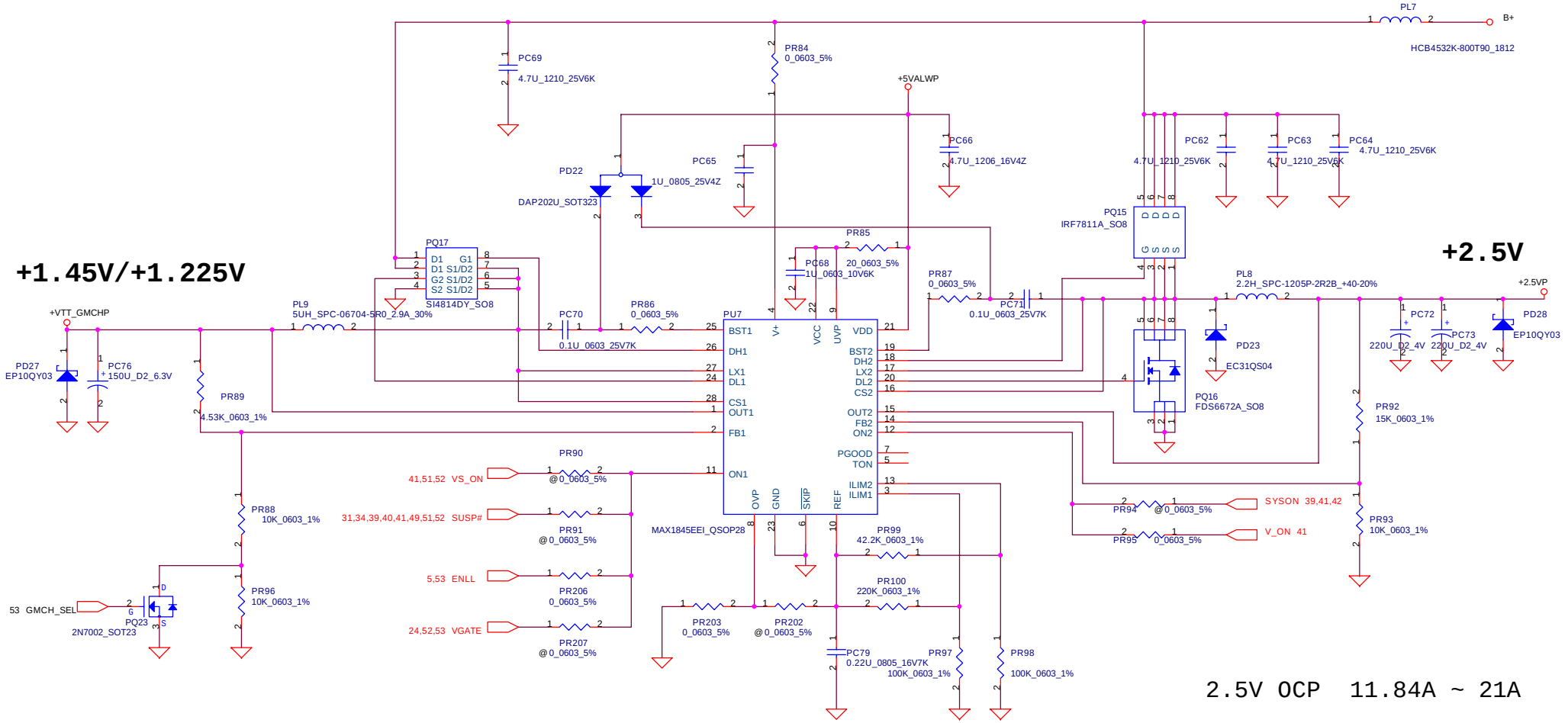
+2.5V/+VTT_GMCHP



GMCH_SEL=0 PRESCOTT	VTT_GMCH=1.225V	OCP 1.92A ~ 3.71A
GMCH_SEL=1 NORTHWOOD	VTT_GMCH=1.45V	OCP 1.98A ~ 3.78A

Compal Electronics, Inc.
Title: DDR_2.5V/VTT_GMCH
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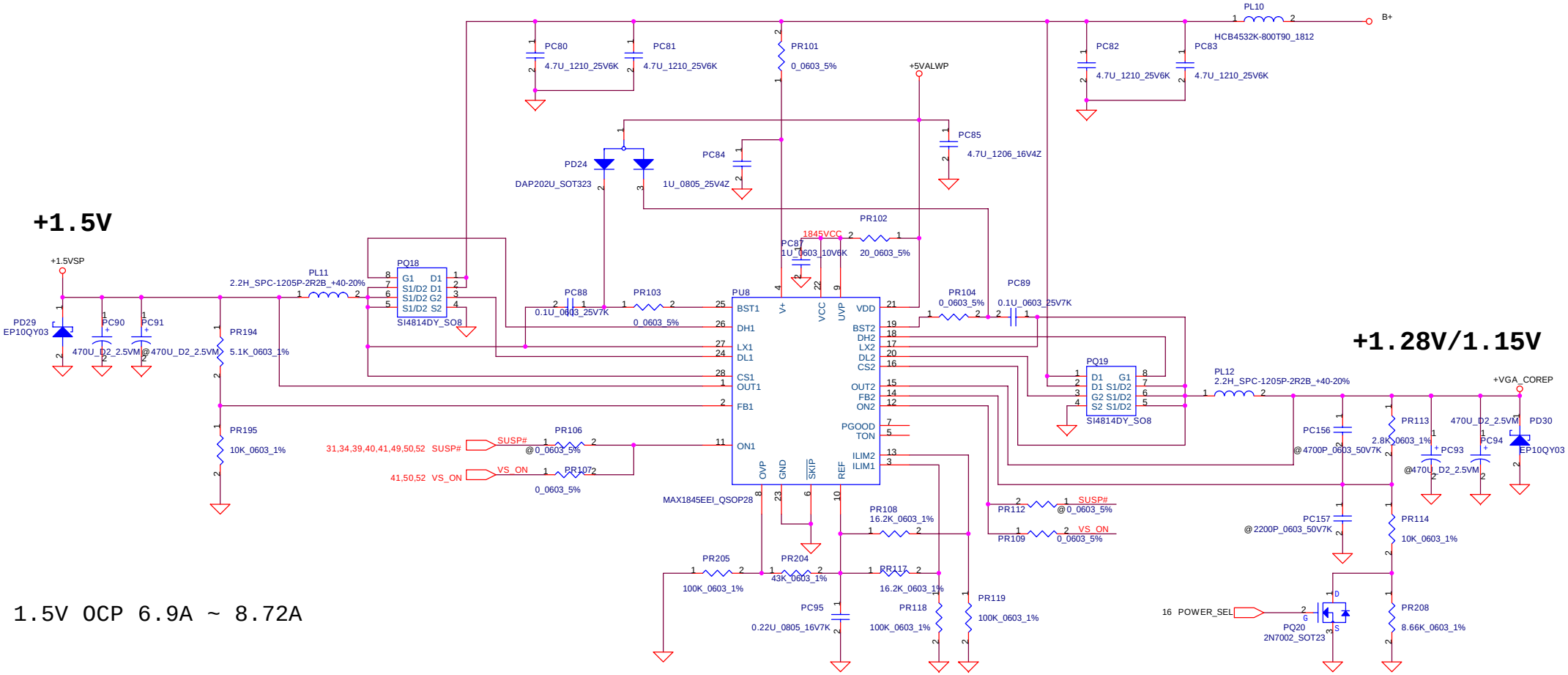

NV34M Ultra	
POWER_SEL=1 VOUT=1.28V OCP 7.1A ~ 9.8A	PR113=2.8K_0603_1% PR208=8.66K_0603_1%
POWER_SEL=0 VOUT=1.15V OCP 6.85A ~ 8.7A	

NV31	
POWER_SEL=1 VOUT=1.27V OCP 7.1A ~ 9.8A	PR113=2.7K_0603_1%
POWER_SEL=0 VOUT=1V OCP 6.85A ~ 8.7A	Unpop PR208

Compal Electronics, Inc.

Title	VGA_CORE/1.5V	
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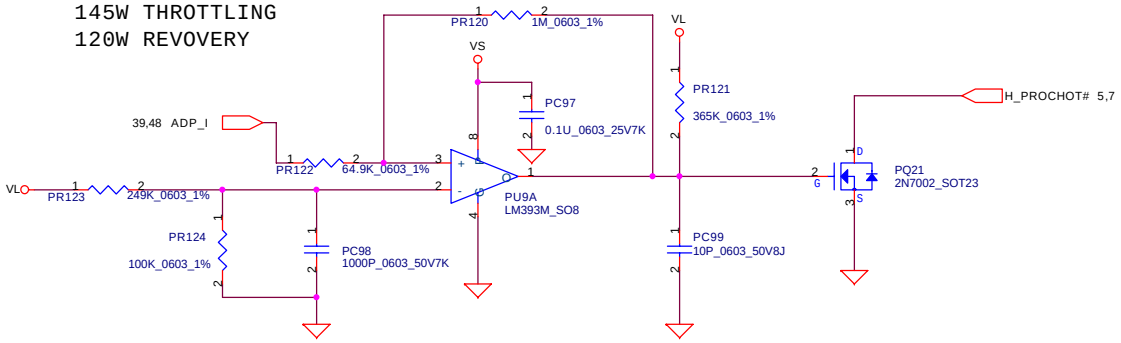
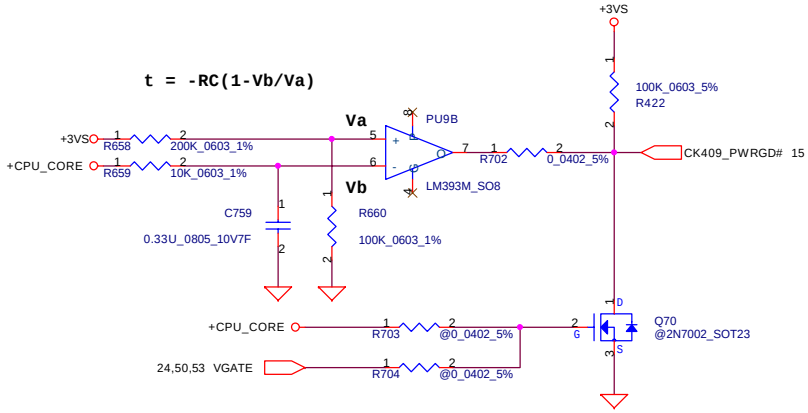
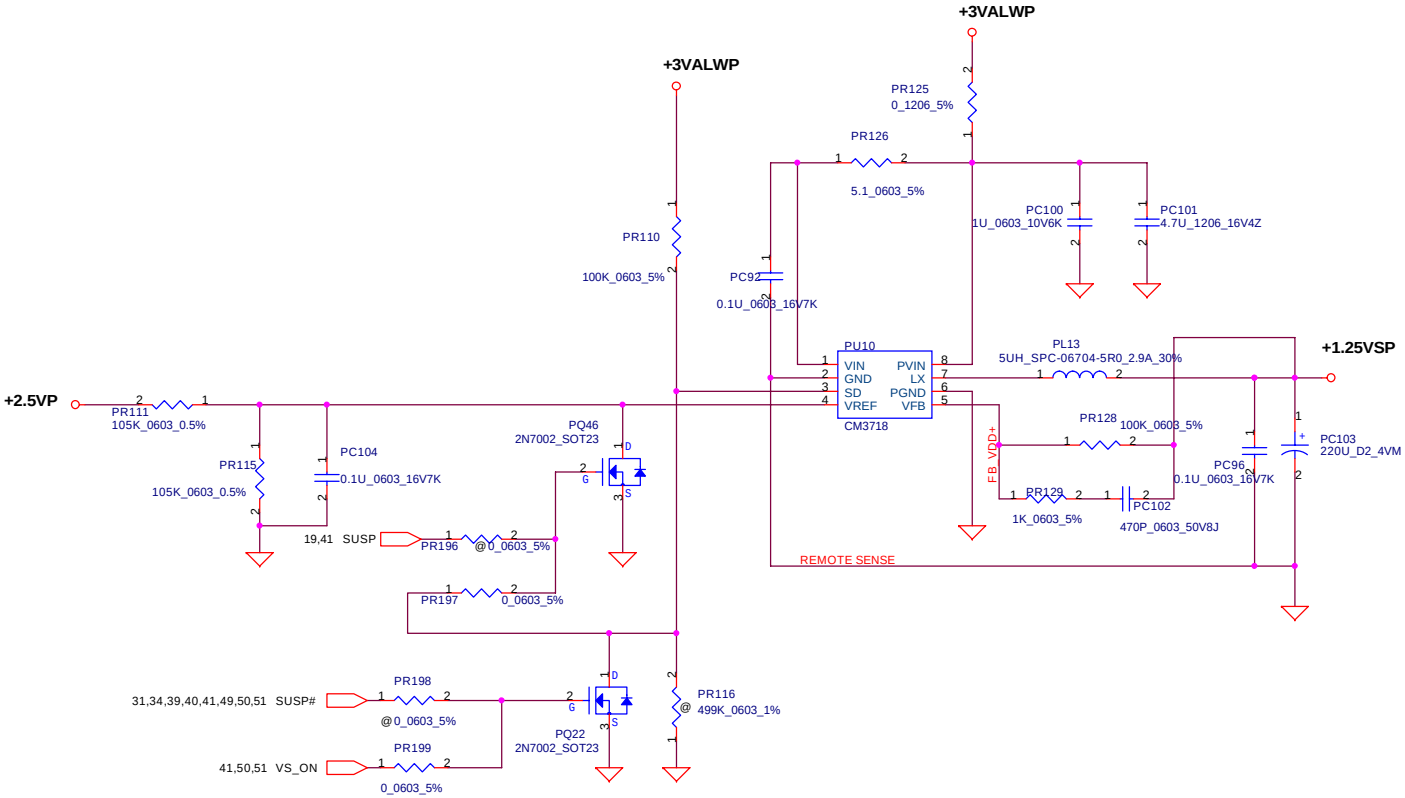
145W THROTTLING
120W REVOVERY







Compal Electronics, Inc.

Title: DDR_1.25V/CLOCK THROTTLING

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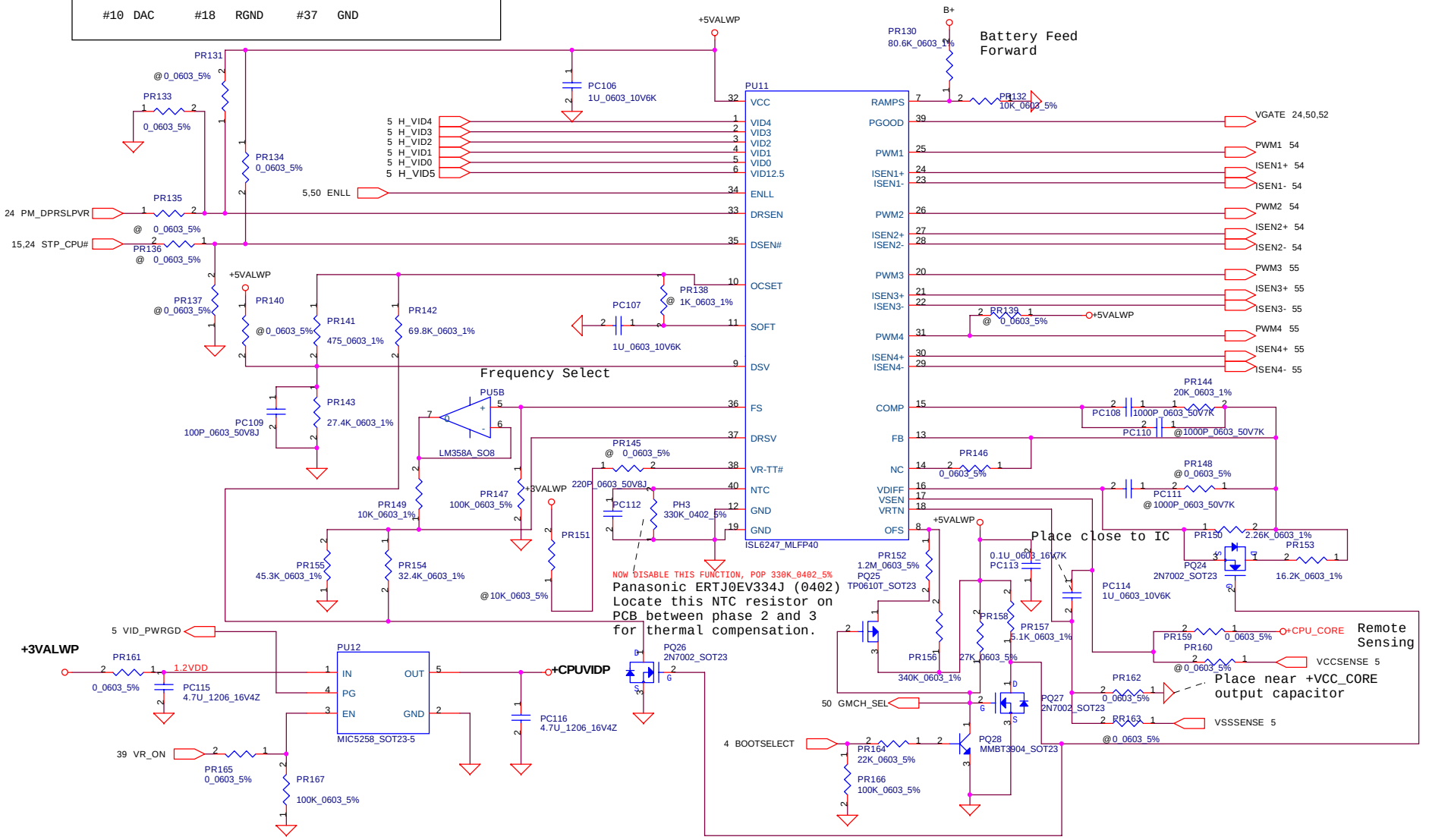
Different Pin Definition for ISL6561 in PU9

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



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, Inc.
Title: CPU_CORE_Controller
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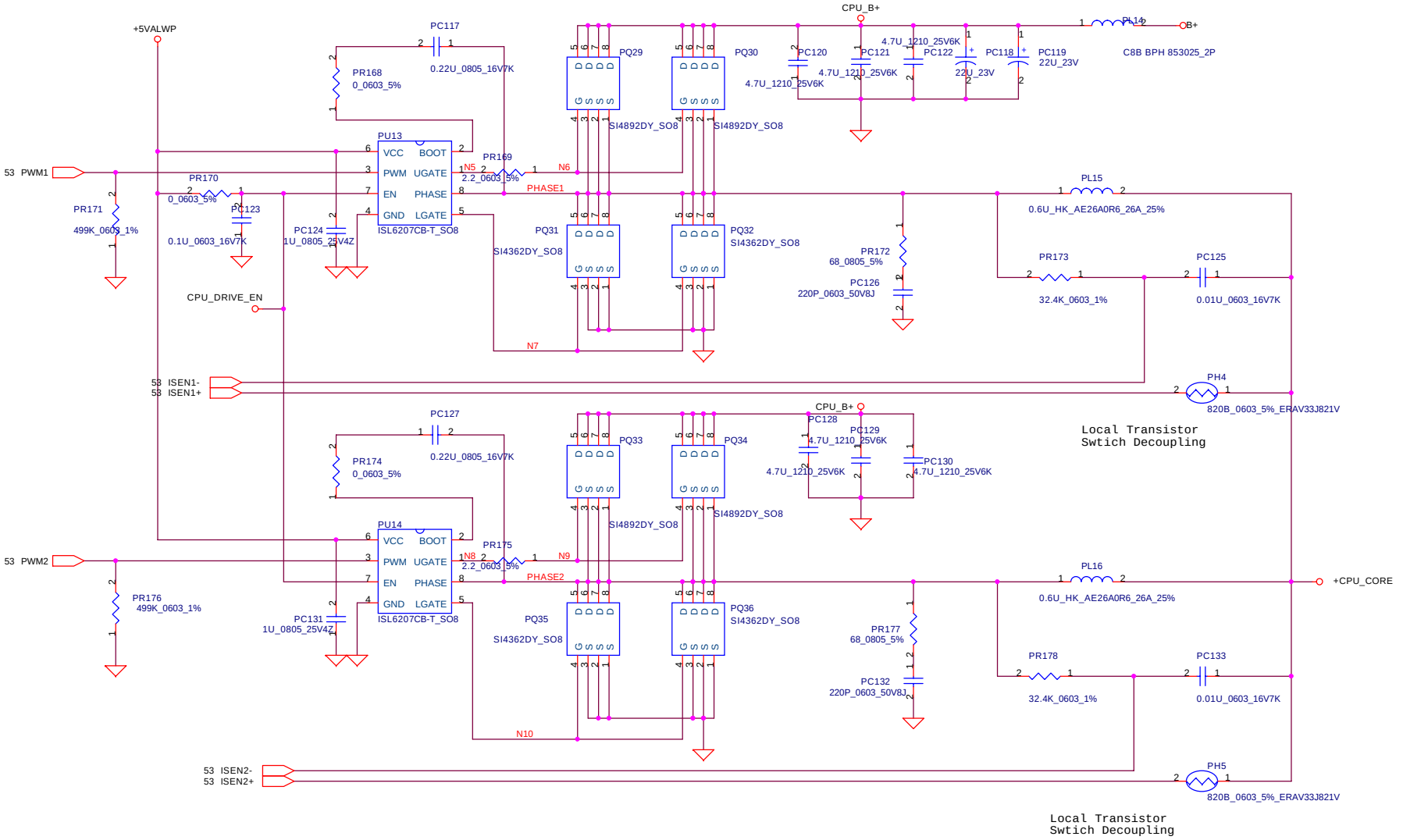

Compal Electronics, Inc.

Title	CPU_CORE_Power stage 1	
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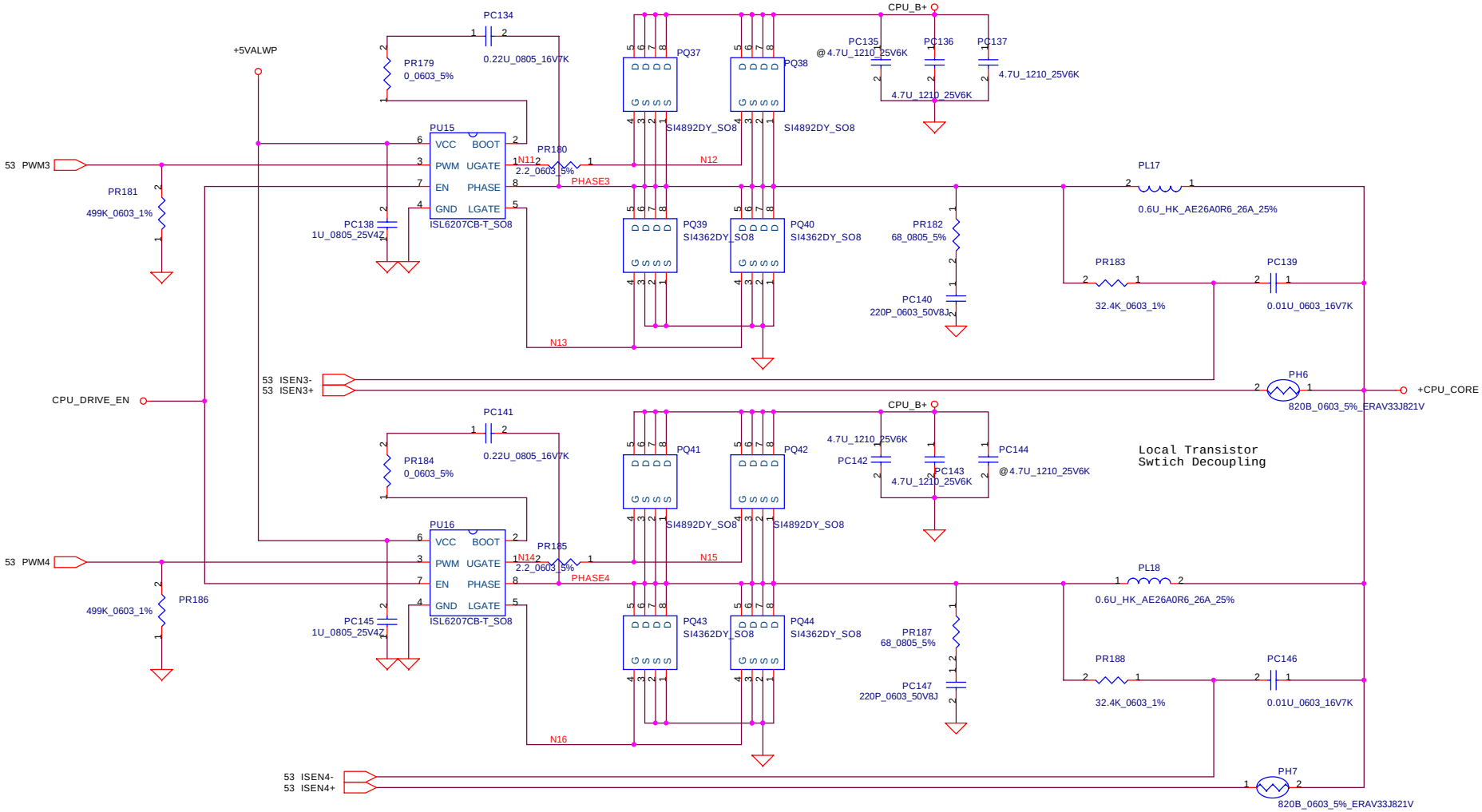

Compal Electronics, Inc.

Title	CPU_CORE_Power stage 2	
Size	Document Number: LA-2041	Rev: 0.1
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DBQ01 PIR LIST

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

Compal Electronics, Inc.

Title: DBQ01 PIR LIST

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