COMPAL CONFIDENTIAL

MODEL NAME : *NAL60*

PCB NO : *LA-5691P (DAA00001K00)*

BOM P/N : *43178731L01/43178731L02*

M10 Lafite

BGA Arrandale (34 x 28 mm) +
SFF IBEXPEAK-M

2009-07-07

REV : 0.1(X00)

@ : Nopop Component

MB Type	BOM P/N	CPU	With BLT	Non BLT	TCM		TPM		BOM CONFIG
			1@	2@	W(3@)	W/O(4@)	W(5@)	W/O(6@)	
BLT EN,TPM EN	43178731L01	SV 2.4G	*			*	*		1@,4@,5@
BLT EN,TPM EN	43178731L02	SV 2.0G	*		*			*	1@,3@,6@
BLT DIS,TCM EN	43178731L03	LV 1.8G		*		*	*		2@,4@,5@

MB PCB

Part Number	Description
DAA00001K00	PCB 0AW LA-5691P REV0 M/B

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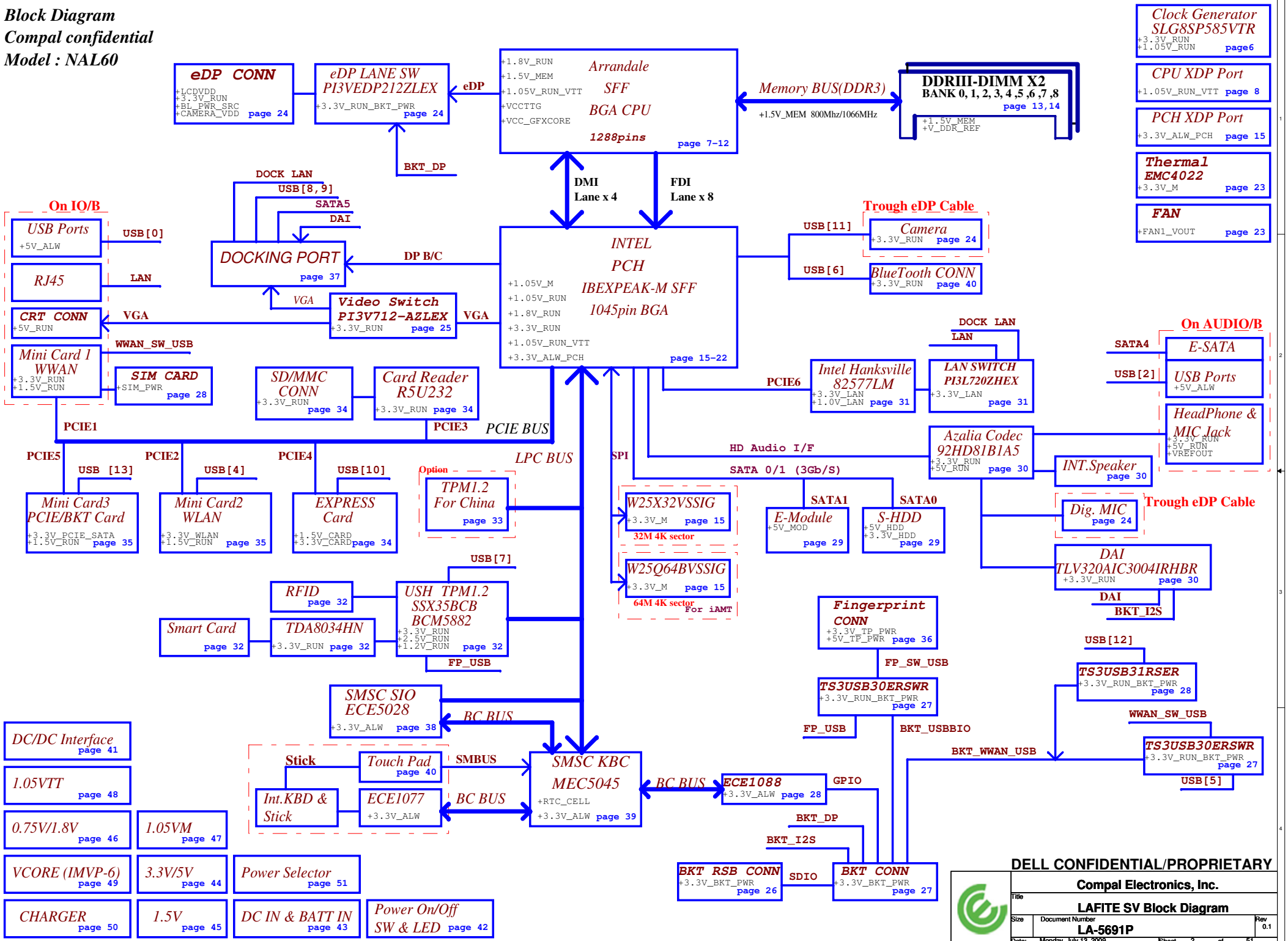
Title: Cover Sheet

Size | Document Number: LA-5691P | Rev: 0.1

Date: Monday, July 13, 2009 | Sheet 1 of 51

Block Diagram
Compal confidential
Model : NAL60



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Title	LAFITE SV Block Diagram	
Size	Document Number LA-5691P	Rev 0.1
Date: Monday, July 13, 2009	Sheet 2 of 51	

POWER STATES

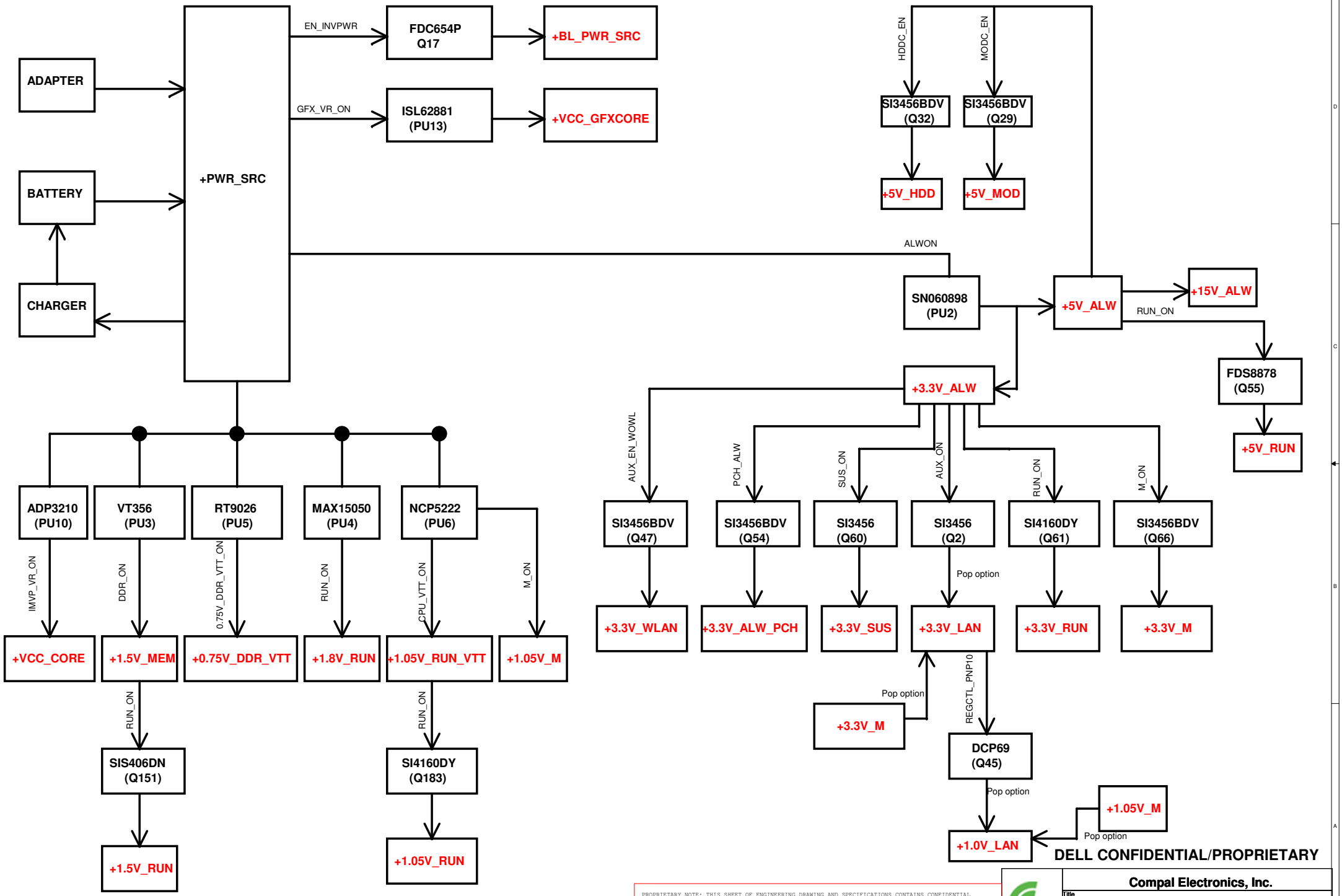
State \ Signal	SLP S3#	SLP S4#	SLP S5#	S4 STATE#	SLP M#	ALWAYS PLANE	M PLANE	SUS PLANE	RUN PLANE	CLOCKS
S0 (Full ON) / M0	HIGH	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON	ON
S3 (Suspend to RAM) / M1	LOW	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	OFF	ON
S4 (Suspend to DISK) / M1	LOW	LOW	HIGH	LOW	HIGH	ON	ON	OFF	OFF	ON
S5 (SOFT OFF) / M1	LOW	LOW	LOW	LOW	HIGH	ON	ON	OFF	OFF	ON
S3 (Suspend to RAM) / M-OFF	LOW	HIGH	HIGH	HIGH	LOW	ON	OFF	ON	OFF	OFF
S4 (Suspend to DISK) / M-OFF	LOW	LOW	HIGH	LOW	LOW	ON	OFF	OFF	OFF	OFF
S5 (SOFT OFF) / M-OFF	LOW	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF	OFF

PM TABLE

State \ power plane	+15V_ALW +5V_ALW +3.3V_ALW_PCH +3.3V_RTC_LDO	+3.3V_SUS +1.5V_MEM	+5V_RUN +3.3V_RUN +1.5V_RUN +0.75V_DDR_VTT +VCC_CORE +1.05V_RUN_VTT +1.05V_RUN	+3.3V_M +1.05V_M	+3.3V_M +1.05V_M (M-OFF)
S0	ON	ON	ON	ON	ON
S3	ON	ON	OFF	ON	OFF
S5 S4/AC	ON	OFF	OFF	ON	OFF
S5 S4/AC don't exist	OFF	OFF	OFF	OFF	OFF

	USB PORT#	DESTINATION
PCH	0	USB Port (Ext Right Side)
	1	NA
	2	USB Port (Ext Left Side)
	3	NA
	4	WLAN
	5	WWAN
	6	Bloetooth
	7	USB->BIO
	8	DOCKING
	9	DOCKING
	10	Express Card
	11	Camera
	12	BKT
	13	WPAN/NVMHCI

PCI EXPRESS	DESTINATION
Lane 1	MINI CARD-1 WWAN
Lane 2	MINI CARD-2 WLAN
Lane 3	Card Reader
Lane 4	EXPRESS CARD
Lane 5	MINI CARD-3 WPAN/NVMHCI
Lane 6	10/100/1G LAN
Lane 7	None
Lane 8	None



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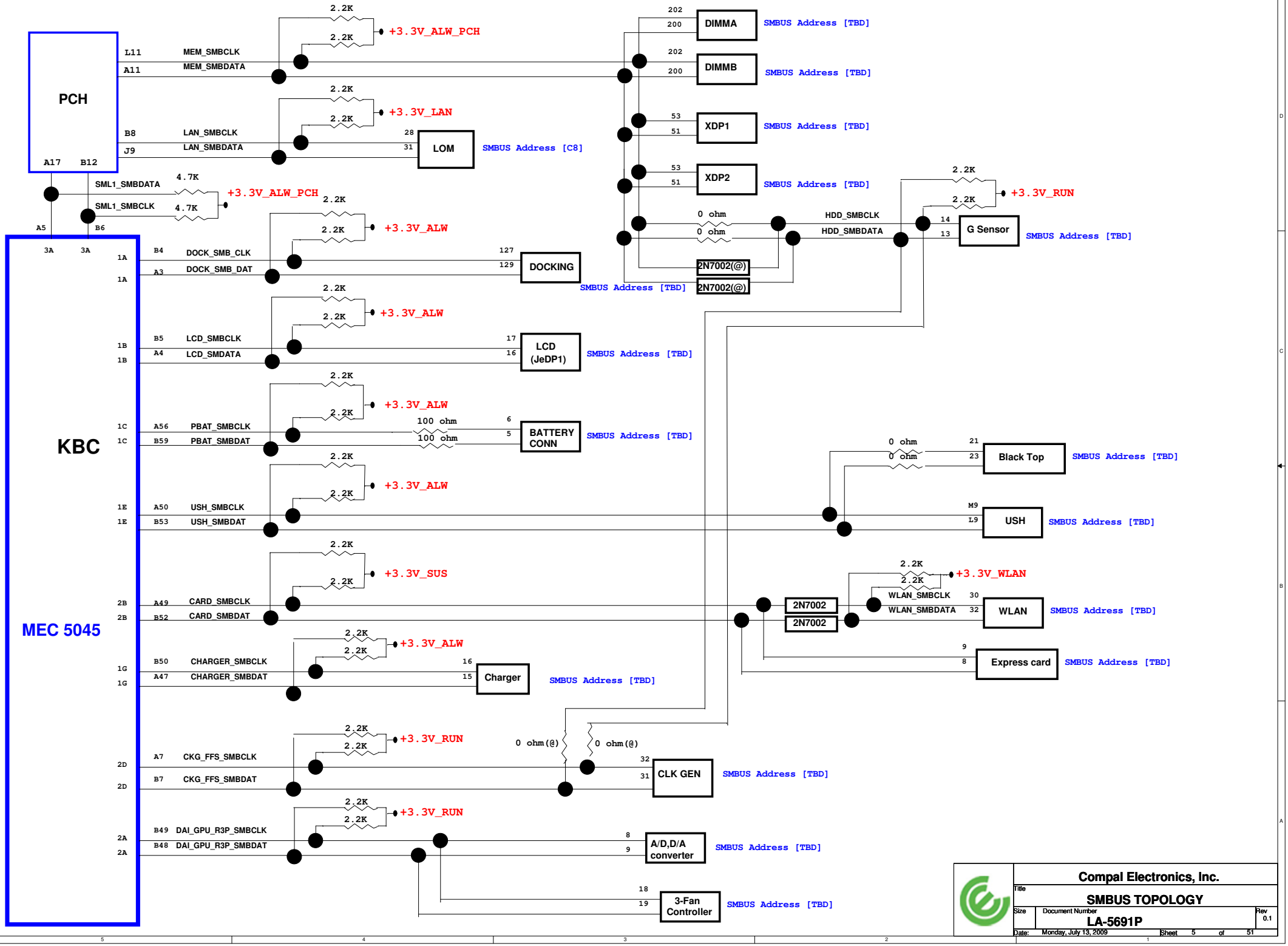
Title: Power Rail

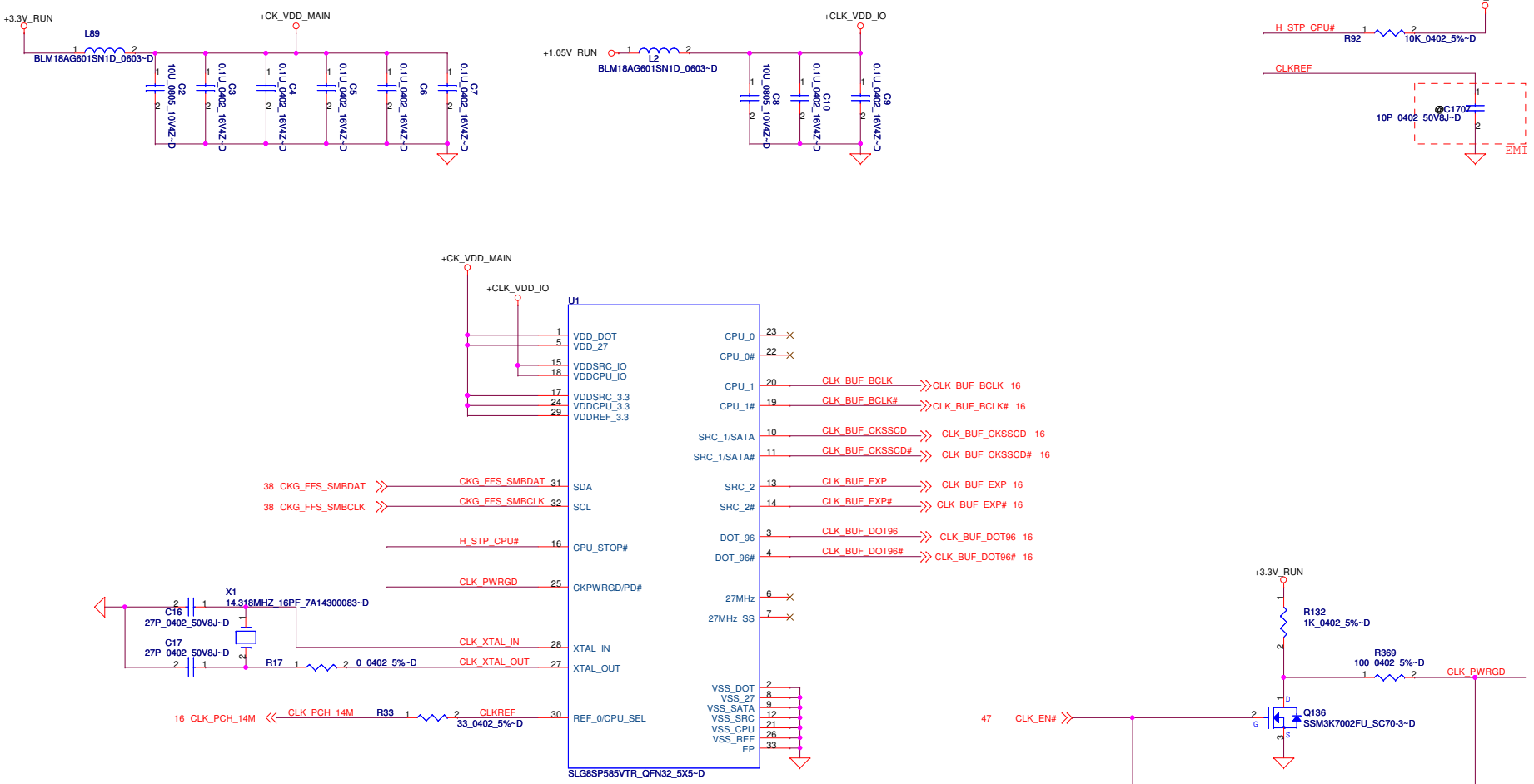
Size | Document Number: LA-5691P | Rev: 0.1

Date: Monday, July 13, 2009 | Sheet 4 of 51



Compal Electronics, Inc.	
Title	SMBUS TOPOLOGY
Size	Document Number: LA-5691P
Rev	0.1
Date:	Monday, July 13, 2009
Sheet	5 of 51

+CLK_VDD_IO CAN BE RANGE FROM 1.05V TO 3V



REF_O/CPU_SEL

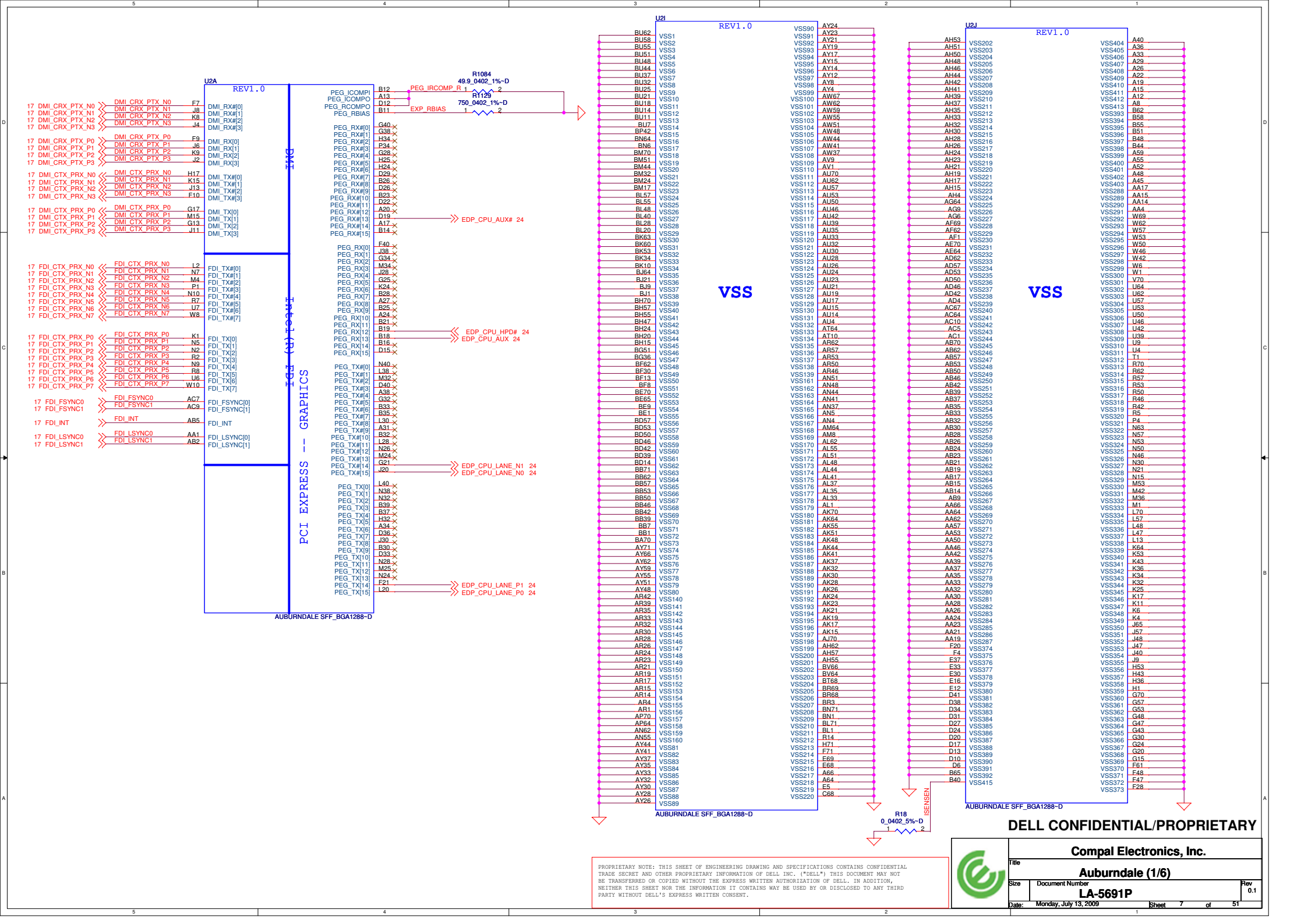
PIN 30	CPU0	CPU1
1(0.7~1.5v)	100MHz	100MHz
0 (DEFULT)	133MHz	133MHz

Compal Electronics, Inc.

Title: Clock Generator

Size: | Document Number: LA-5691P | Rev: 0.1

Date: Monday, July 13, 2009 | Sheet 6 of 51



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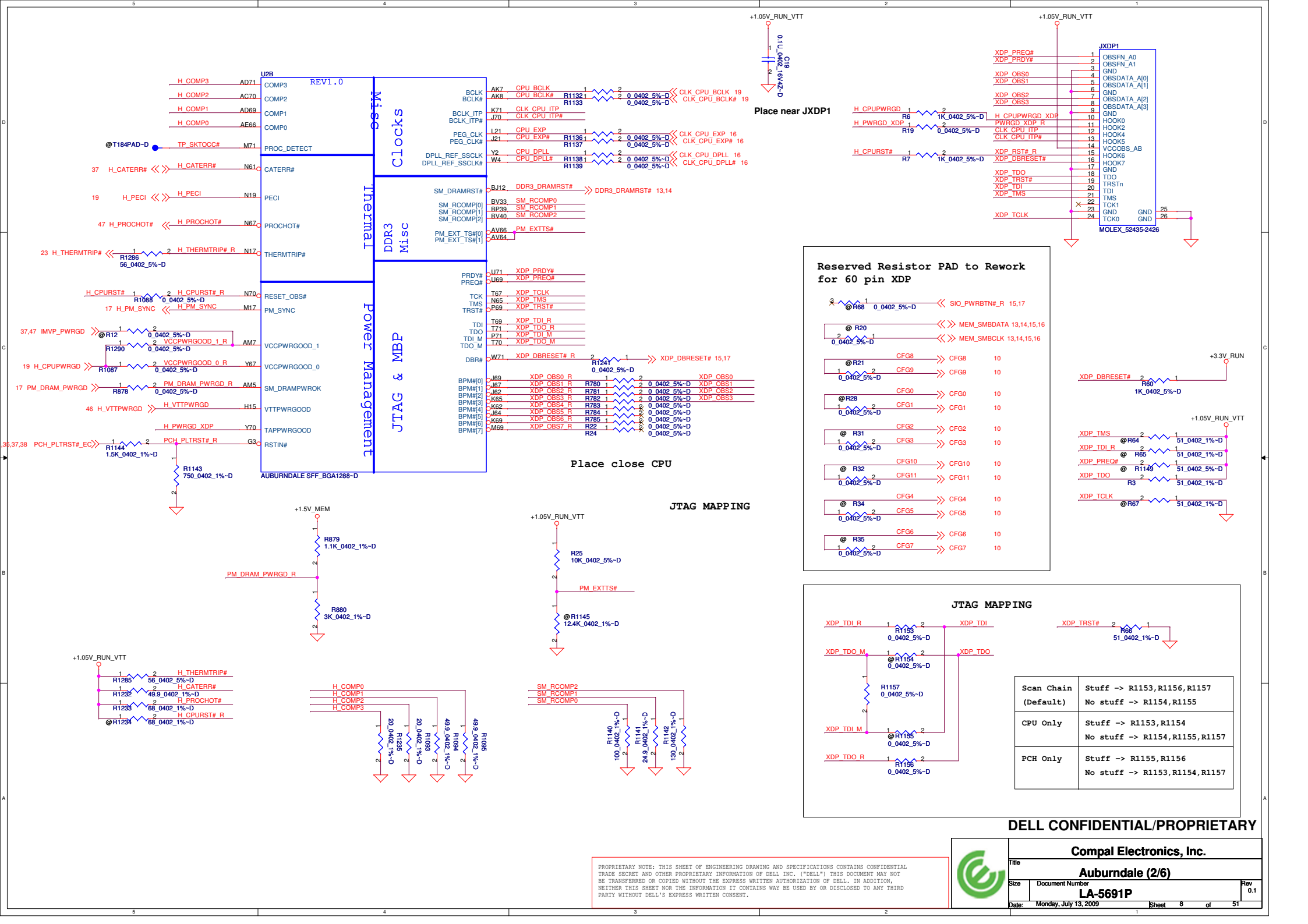
Compal Electronics, Inc.

Title: Auburndale (1/6)

Size | Document Number: LA-5691P | Rev: 0.1

Date: Monday, July 13, 2009 | Sheet 7 of 51


U2B
REV1.0
Miscs
Thermal
Clocks
DDR3 Misc
Power Management
JTAG & MBP
AUBURNDALE SFF_BGA1288~D
Place close CPU
JTAG MAPPING
Reserved Resistor PAD to Rework for 60 pin XDP
JXDP1
MOLEX_52435-2426
Place near JXDP1
+1.05V_RUN_VTT
+1.5V_MEM
+3.3V_RUN
H_COMP3
H_COMP2
H_COMP1
H_COMP0
TP_SKTOCC#
H_CATERR#
H_PECI
H_PROCHOT#
H_THERMTRIP#_R
H_CPURST#_R
H_PM_SYNC
VCCPWRGOOD_1_R
VCCPWRGOOD_0_R
PM_DRAM_PWRGD_R
H_VTTPWRGD
H_PWRGD_XDP
PCH_PLTRST#_R
CPU_BCLK
CPU_BCLK#
CPU_ITP
CPU_ITP#
CPU_EXP
CPU_EXP#
CPU_DPLL
CPU_DPLL#
DDR3_DRAMRST#
SM_RCOMP0
SM_RCOMP1
SM_RCOMP2
PM_EXTTS#
XDP_PRDY#
XDP_PREQ#
XDP_TCLK
XDP_TMS
XDP_TRST#
XDP_TDI_R
XDP_TDO_R
XDP_TDI_M
XDP_TDO_M
XDP_DBRESET#_R
XDP_OBS0_R
XDP_OBS1_R
XDP_OBS2_R
XDP_OBS3_R
XDP_OBS4_R
XDP_OBS5_R
XDP_OBS6_R
XDP_OBS7_R
SIO_PWRBTN#_R
MEM_SMBDATA
MEM_SMBCLK
CFG0
CFG1
CFG2
CFG3
CFG4
CFG5
CFG6
CFG7
CFG8
CFG9
CFG10
CFG11
XDP_TDI
XDP_TDO
XDP_TRST#
H_CPUPWRGD
H_PWRGD_XDP
H_CPURST#
XDP_OBS0
XDP_OBS1
XDP_OBS2
XDP_OBS3
XDP_DBRESET#
XDP_TMS
XDP_TDI_R
XDP_PREQ#
XDP_TDO
XDP_TCLK
Scan Chain (Default)
Stuff -> R1153,R1156,R1157
No stuff -> R1154,R1155
CPU Only
Stuff -> R1153,R1154
No stuff -> R1154,R1155,R1157
PCH Only
Stuff -> R1155,R1156
No stuff -> R1153,R1154,R1157
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Auburndale (2/6)
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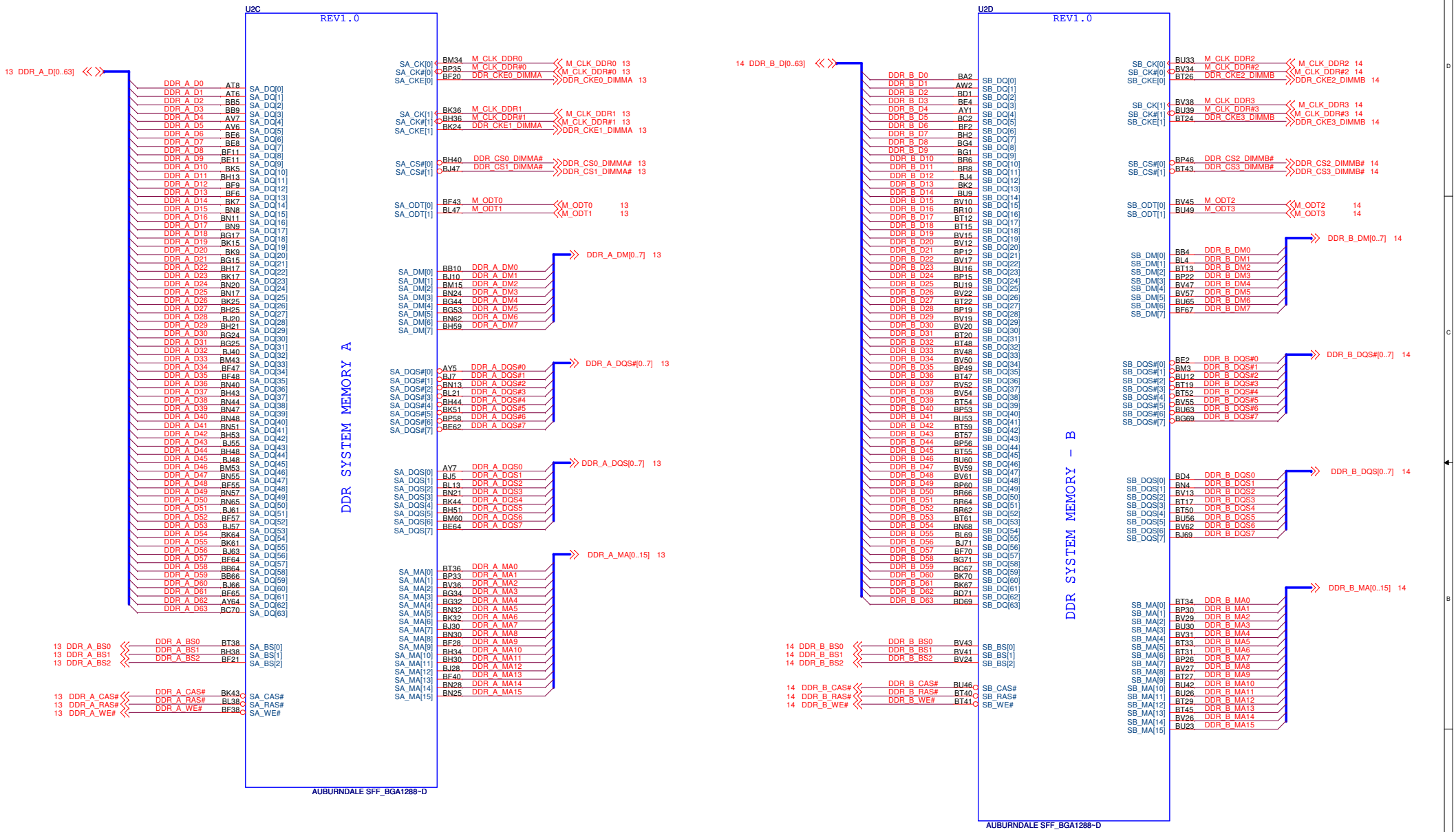
Monday, July 13, 2009
Sheet 8 of 51



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Title: Auburndale (3/6)

Size | Document Number: LA-5691P | Rev: 0.1

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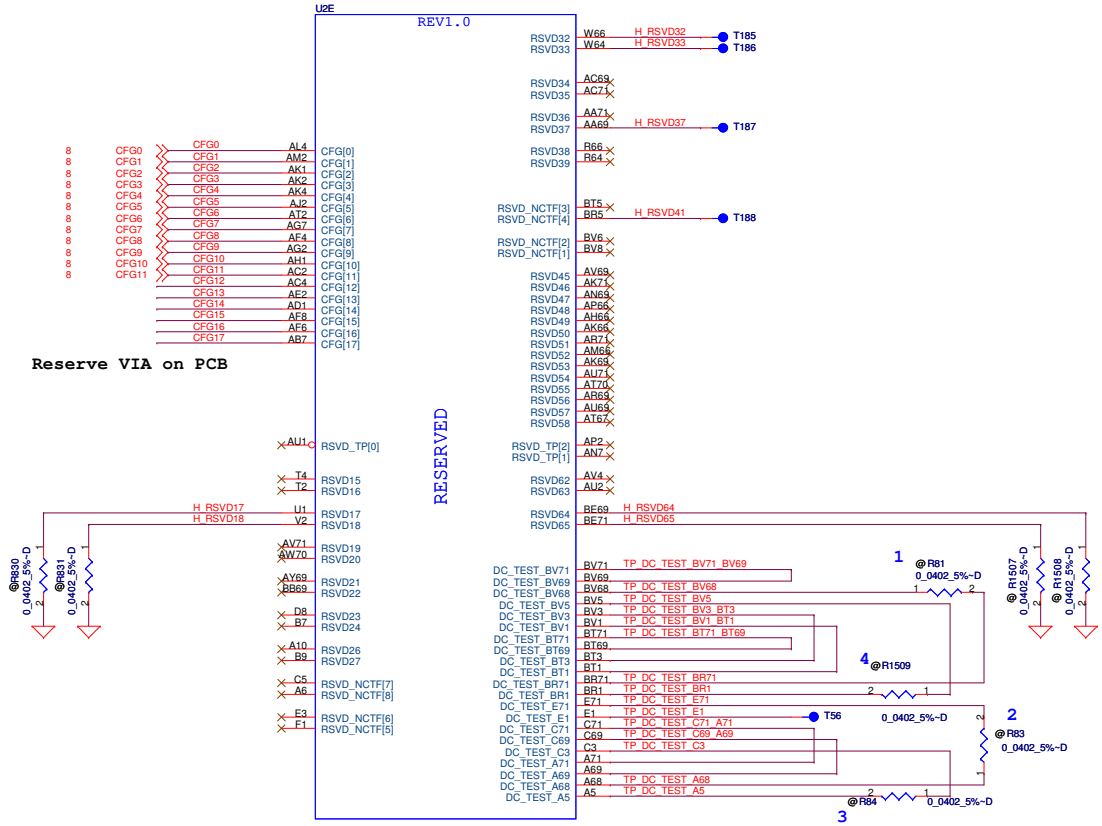
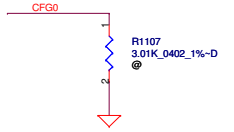
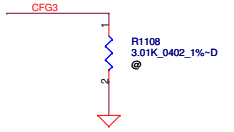
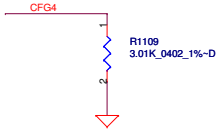




PCI-Express Configuration Select	
CFG0	1 : Single PEG 0 : Bifurcation enable



PCI-Express Static Lane Reversal	
CFG3	1 : Normal Operation 0 : Lane Number Reversed 15->0, 14->1 ...



Display Port Presence	
CFG4*	1 : Disabled; No Physical Display Port attached to Embedded Display Port 0 : Enabled; An external Display Port device is connected to the Embedded Display Port

Package Daisy Chain:

1: BR71 - pkg - BT71- board - BT69 - pkg - BV71 - board - BV69 - pkg - BV68

2: A68 - pkg - A69 - board - C69 - pkg - A71 - board - C71 - pkg - E71

3: A5 - pkg - C3

4: BR1 - pkg - BT1 - board - BV1 - pkg - BT3 - board - BV3 - pkg - BV5

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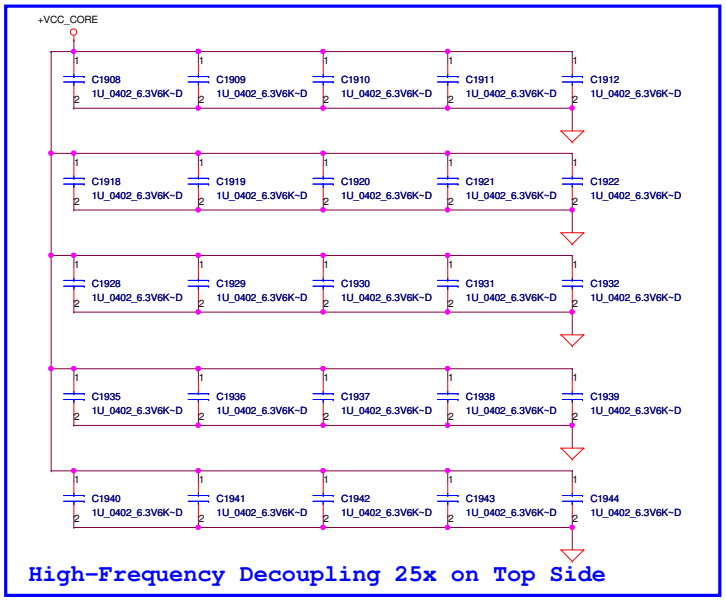
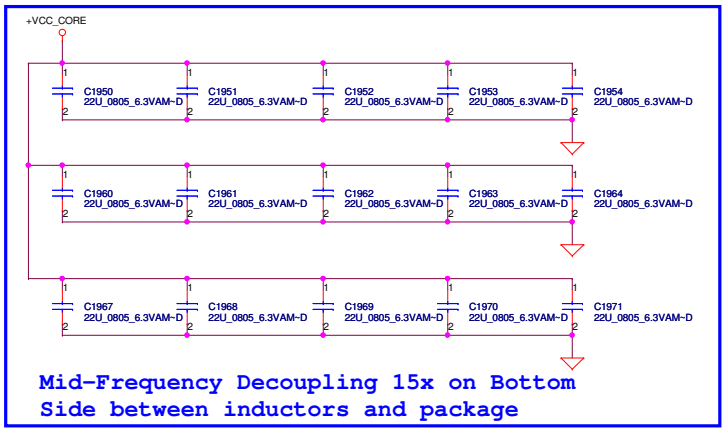
Title: Auburndale (4/6)

Size | Document Number: LA-5691P | Rev: 0.1

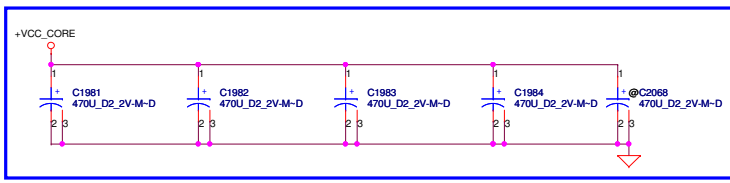
Date: Monday, July 13, 2009 | Sheet 10 of 51



High-Frequency Decoupling 25x on Top Side

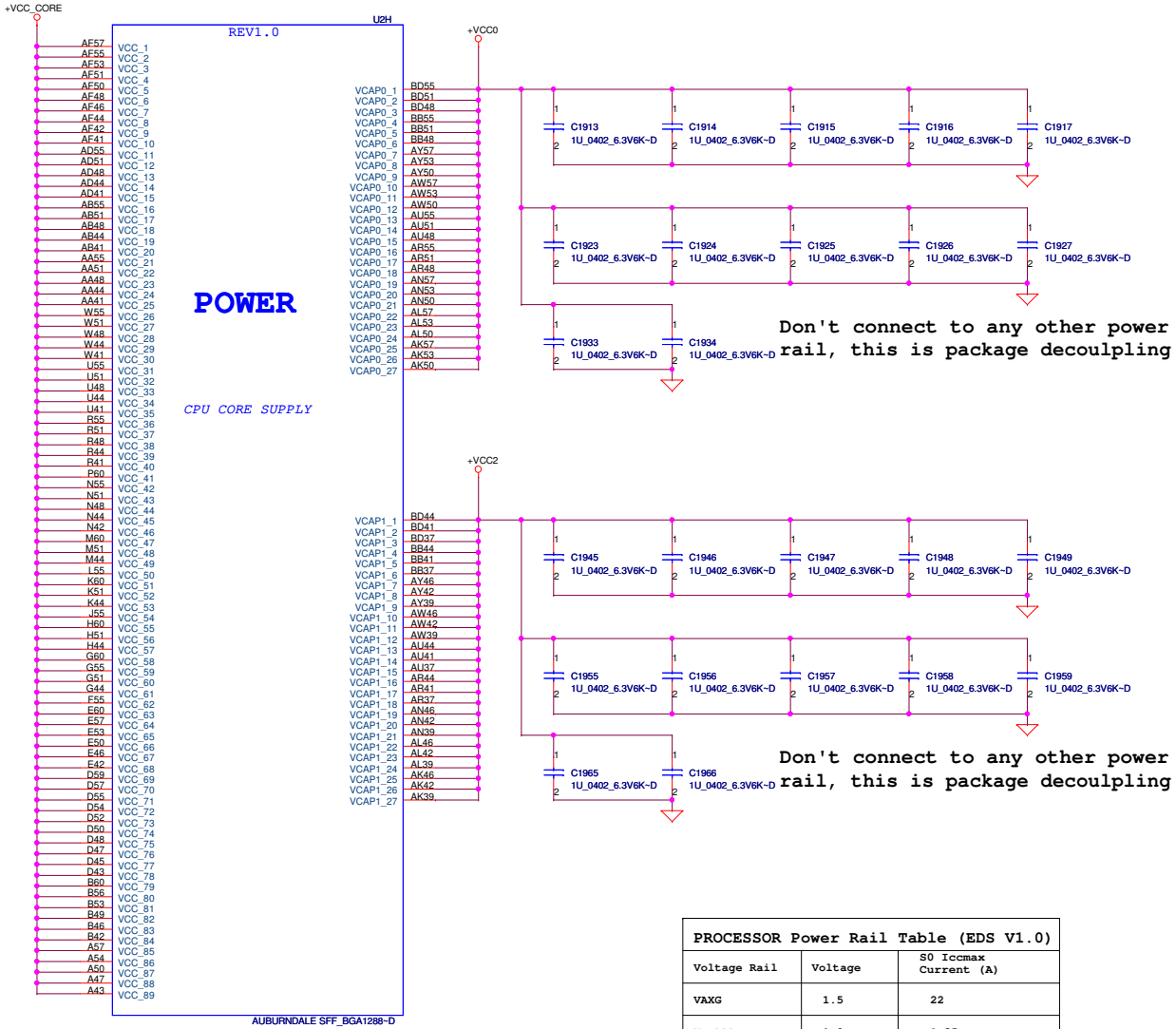


Mid-Frequency Decoupling 15x on Bottom Side between inductors and package



Low-Frequency Bulk 4x on Bottom Side, 1x on Top

Current =48A



Don't connect to any other power rail, this is package decoulpling

Don't connect to any other power rail, this is package decoulpling

PROCESSOR Power Rail Table (EDS V1.0)		
Voltage Rail	Voltage	S0 Iccmax Current (A)
VAXG	1.5	22
VccPLL	1.8	1.35
VCORE	0.75	48
VDDR	1.5	3
VTT	1.05	18

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Title: Auburndale (5/6)

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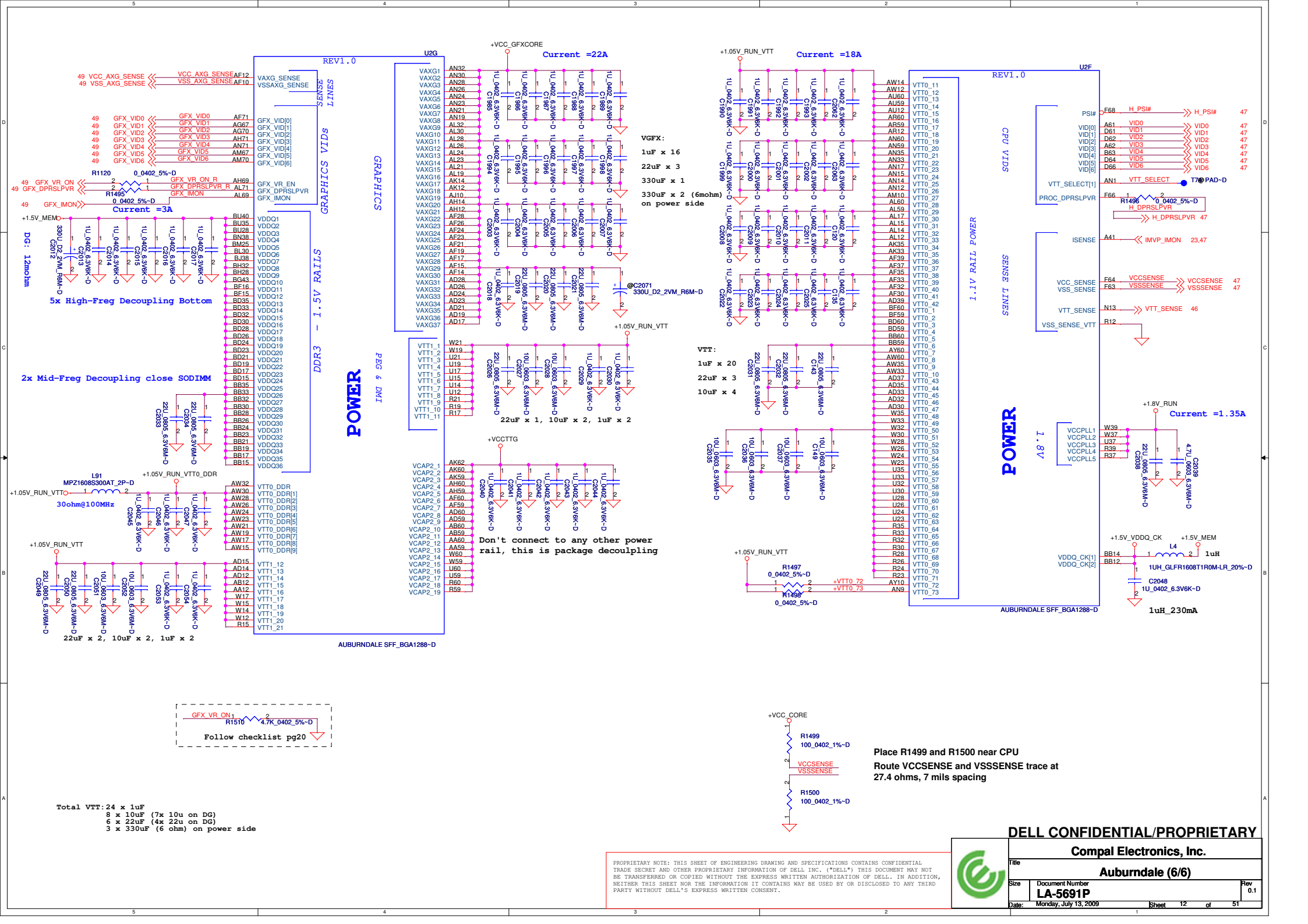

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Title: Auburndale (6/6)

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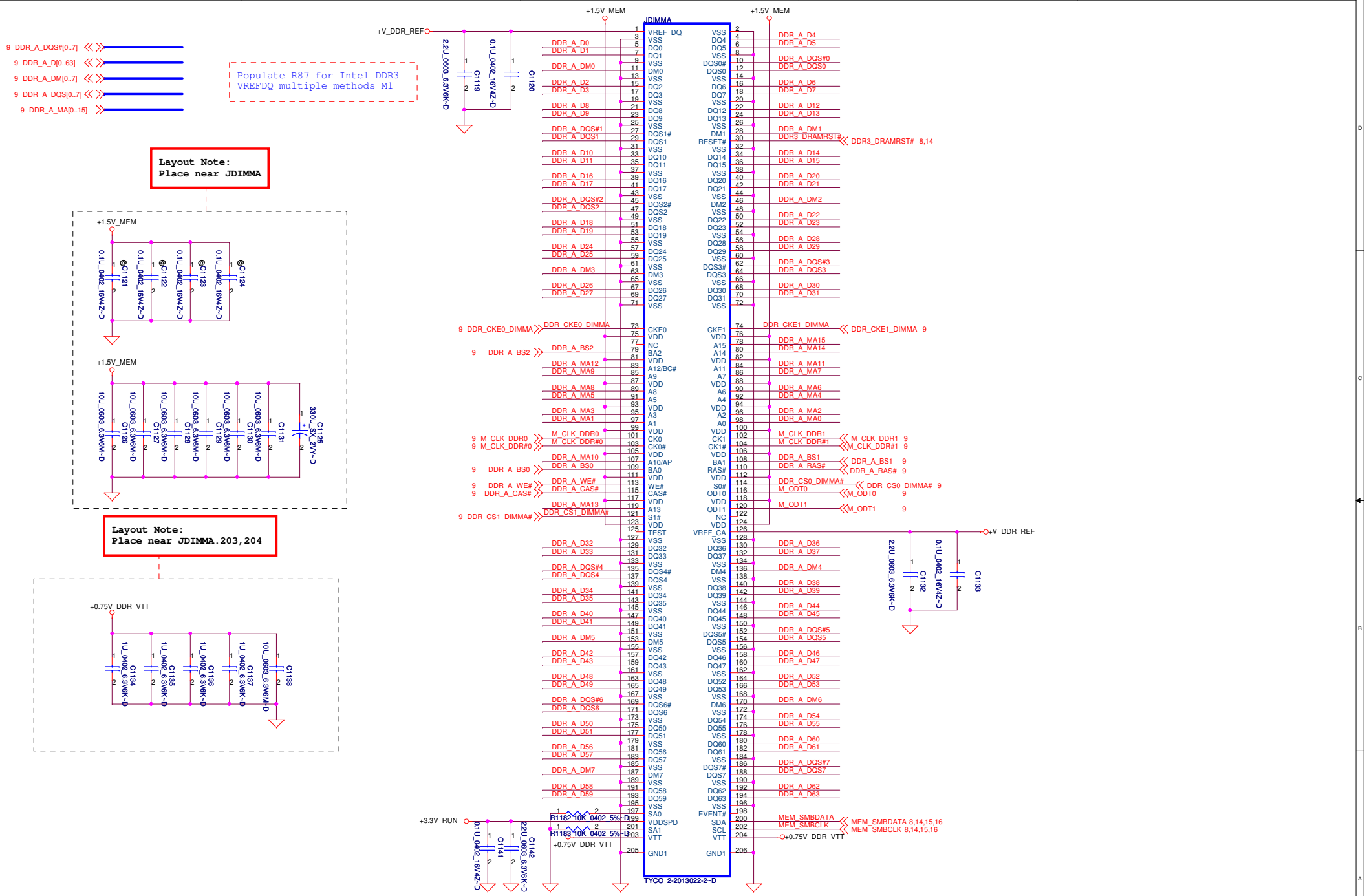

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Compal Electronics, Inc.

Title: DDRIII-SODIMM SLOT1

Size | Document Number: LA-5691P | Rev: 0.1

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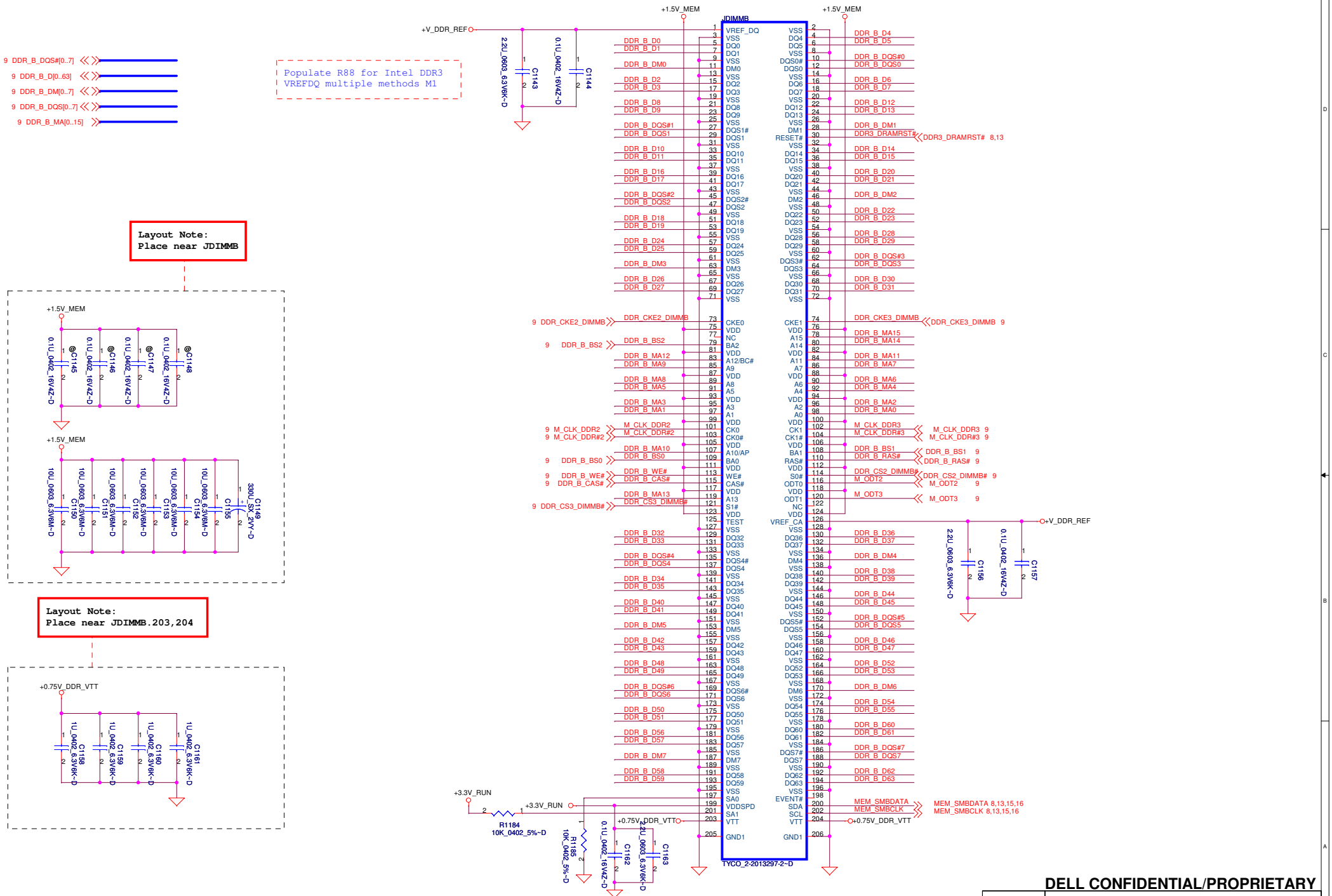
9 DDR_B_DQS#[0..7]
9 DDR_B_D[0..63]
9 DDR_B_DM[0..7]
9 DDR_B_DQS[0..7]
9 DDR_B_MA[0..15]
Populate R88 for Intel DDR3
VREFDQ multiple methods M1
Layout Note:
Place near JDIMMB
Layout Note:
Place near JDIMMB.203,204
+1.5V_MEM
+0.75V_DDR_VTT
+V_DDR_REF
+3.3V_RUN
JDIMMB
TYCO_2-2013297-2~D
DDR_B_D0
DDR_B_D1
DDR_B_DM0
DDR_B_D2
DDR_B_D3
DDR_B_D8
DDR_B_D9
DDR_B_DQS#1
DDR_B_DQS1
DDR_B_D10
DDR_B_D11
DDR_B_D16
DDR_B_D17
DDR_B_DQS#2
DDR_B_DQS2
DDR_B_D18
DDR_B_D19
DDR_B_D24
DDR_B_D25
DDR_B_DM3
DDR_B_D26
DDR_B_D27
DDR_CKE2_DIMMB
DDR_B_BS2
DDR_B_MA12
DDR_B_MA9
DDR_B_MA8
DDR_B_MA5
DDR_B_MA3
DDR_B_MA1
M_CLK_DDR2
M_CLK_DDR#2
DDR_B_MA10
DDR_B_BS0
DDR_B_WE#
DDR_B_CAS#
DDR_B_MA13
DDR_CS3_DIMMB#
DDR_B_D32
DDR_B_D33
DDR_B_DQS#4
DDR_B_DQS4
DDR_B_D34
DDR_B_D35
DDR_B_D40
DDR_B_D41
DDR_B_DM5
DDR_B_D42
DDR_B_D43
DDR_B_D48
DDR_B_D49
DDR_B_DQS#6
DDR_B_DQS6
DDR_B_D50
DDR_B_D51
DDR_B_D56
DDR_B_D57
DDR_B_DM7
DDR_B_D58
DDR_B_D59
DDR_B_D4
DDR_B_D5
DDR_B_DQS#0
DDR_B_DQS0
DDR_B_D6
DDR_B_D7
DDR_B_D12
DDR_B_D13
DDR_B_DM1
DDR3_DRAMRST#
DDR_B_D14
DDR_B_D15
DDR_B_D20
DDR_B_D21
DDR_B_DM2
DDR_B_D22
DDR_B_D23
DDR_B_D28
DDR_B_D29
DDR_B_DQS#3
DDR_B_DQS3
DDR_B_D30
DDR_B_D31
DDR_CKE3_DIMMB
DDR_B_MA15
DDR_B_MA14
DDR_B_MA11
DDR_B_MA7
DDR_B_MA6
DDR_B_MA4
DDR_B_MA2
DDR_B_MA0
M_CLK_DDR3
M_CLK_DDR#3
DDR_B_BS1
DDR_B_RAS#
DDR_CS2_DIMMB#
M_ODT2
M_ODT3
DDR_B_D36
DDR_B_D37
DDR_B_DM4
DDR_B_D38
DDR_B_D39
DDR_B_D44
DDR_B_D45
DDR_B_DQS#5
DDR_B_DQS5
DDR_B_D46
DDR_B_D47
DDR_B_D52
DDR_B_D53
DDR_B_DM6
DDR_B_D54
DDR_B_D55
DDR_B_D60
DDR_B_D61
DDR_B_DQS#7
DDR_B_DQS7
DDR_B_D62
DDR_B_D63
MEM_SMBDATA
MEM_SMBCLK
R1184
10K_0402_5%~D
R1185
10K_0402_5%~D
C1143
C1144
C1145
C1146
C1147
C1148
C1149
C1150
C1151
C1152
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C1163
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Compal Electronics, Inc.
Title
DDRIII-SODIMM SLOT2
Size
Document Number
LA-5691P
Rev
0.1
Date: Monday, July 13, 2009
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CMOS_CLR1	CMOS setting
Shunt	Clear CMOS
Open	Keep CMOS

ME_CLR1	TPM setting
Shunt	Clear ME RTC Registers
Open	Keep ME RTC Registers

INTVRMEN- Integrated SUS 1.1V VRM Enable
High - Enable Internal VRs

On Die PLL VR is supplied by 1.5V when sampled high, 1.8 V when sampled low

CMOS place near DIMM

TAA module Connector

200 MIL SO8
64Mb Flash ROM

200 MIL SO8
32Mb Flash ROM

		PCH JTAG Enable		PCH JTAG Disable		Production
PCH Pin	Ref.	ES1	ES2	ES1	ES2	All
TDO	R806	No Stuff	200 ohm	No Stuff	No Stuff	51 ohm
	R1315	No Stuff	100 ohm	No Stuff	No Stuff	No Stuff
TMS	R807	200 ohm	200 ohm	No Stuff	No Stuff	51 ohm
	R1281	100 ohm	100 ohm	No Stuff	No Stuff	No Stuff
TDI	R805	200 ohm	200 ohm	20K ohm	No Stuff	51 ohm
	R1282	100 ohm	100 ohm	10K ohm	No Stuff	No Stuff
TCK	R804	51 ohm	51 ohm	51 ohm	51 ohm	51 ohm
TRST#	R808	20K ohm	20K ohm	No Stuff	No Stuff	
	R1316	10K ohm	10K ohm	No Stuff	No Stuff	

No Reboot Strap	
SPKR	Low = Default
	High = No Reboot

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Compal Electronics, Inc.

Title: PCH (1/8)

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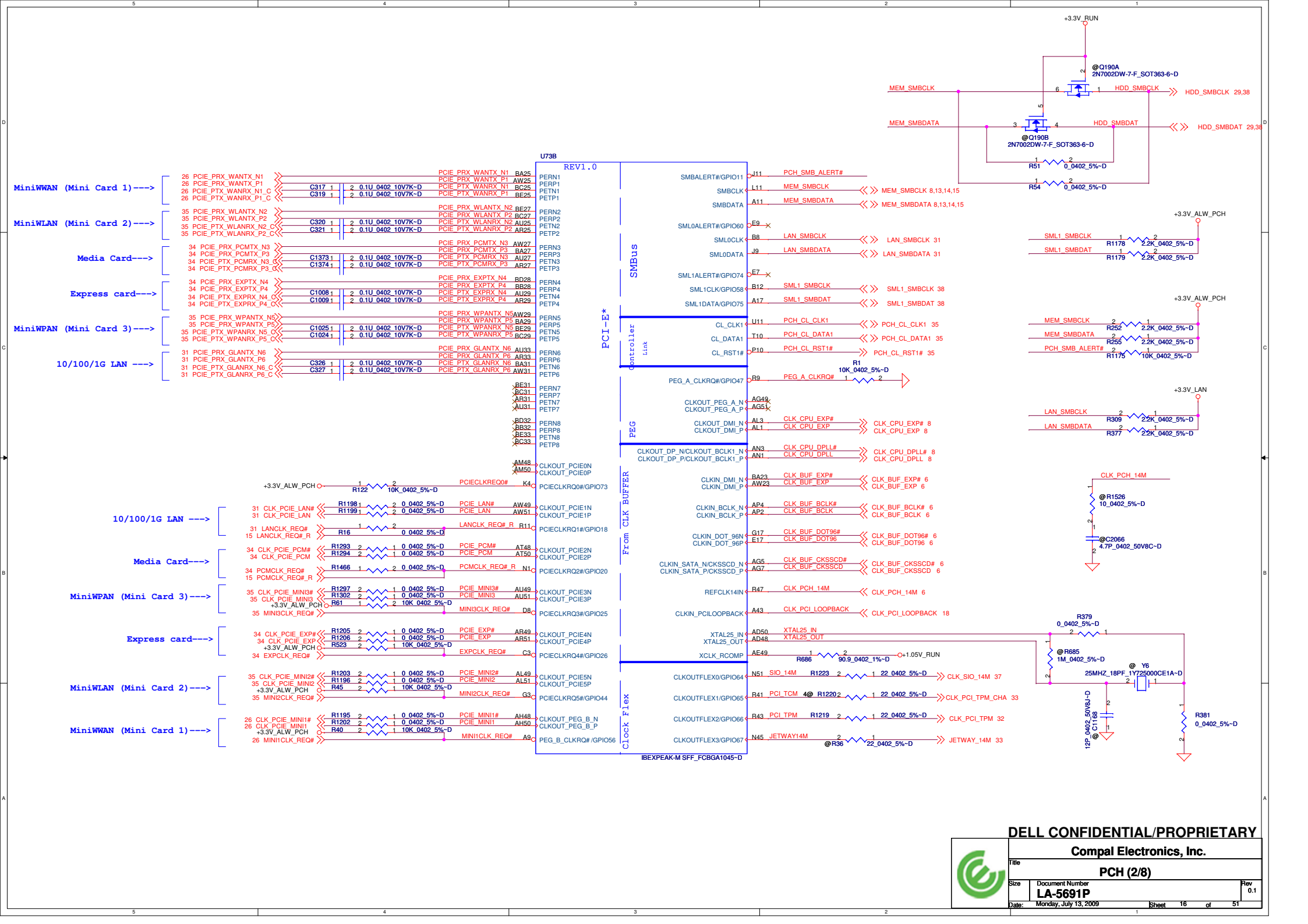
MiniWWAN (Mini Card 1)--->
MiniWLAN (Mini Card 2)--->
Media Card--->
Express card--->
MiniWPAN (Mini Card 3)--->
10/100/1G LAN --->
U73B
REV1.0
PCI-E*
SMBus
Controller Link
PEG
CLK BUFFER
From Clock Flex
IBEXPEAK-M SFF_FCBGA1045~D
+3.3V_RUN
@Q190A
2N7002DW-7-F_SOT363-6~D
@Q190B
2N7002DW-7-F_SOT363-6~D
MEM_SMBCLK
MEM_SMBDATA
HDD_SMBCLK
HDD_SMBDAT
+3.3V_ALW_PCH
+3.3V_LAN
CLK_PCH_14M
XTAL25_IN
XTAL25_OUT
@Y6
25MHZ_18PF_1Y725000CE1A~D
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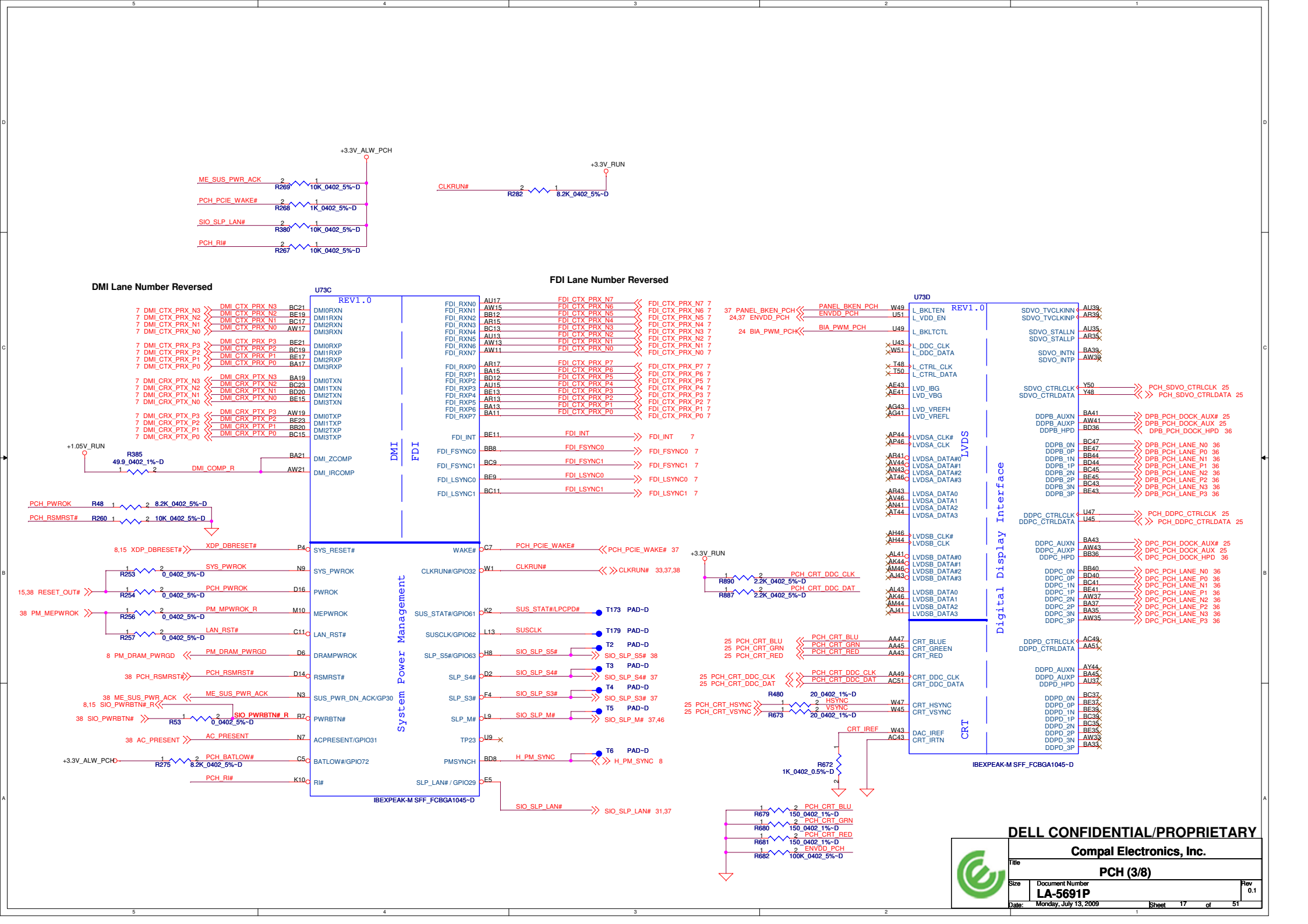
+3.3V_ALW_PCH
ME_SUS_PWR_ACK
R269 10K_0402_5%~D
PCH_PCIE_WAKE#
R268 1K_0402_5%~D
SIO_SLP_LAN#
R380 10K_0402_5%~D
PCH_RI#
R267 10K_0402_5%~D
+3.3V_RUN
CLKRUN#
R282 8.2K_0402_5%~D
DMI Lane Number Reversed
FDI Lane Number Reversed
U73C
REV1.0
DMI
FDI
System Power Management
IBEXPEAK-M SFF_FCBGA1045~D
U73D
LVDS
CRT
Digital Display Interface
IBEXPEAK-M SFF_FCBGA1045~D
+1.05V_RUN
R385 49.9_0402_1%~D
DMI_COMP_R
PCH_PWROK
R48 8.2K_0402_5%~D
PCH_RSMRST#
R260 10K_0402_5%~D
XDP_DBRESET#
SYS_PWROK
PCH_PWROK
PM_MEPWROK_R
LAN_RST#
PM_DRAM_PWRGD
PCH_RSMRST#
ME_SUS_PWR_ACK
SIO_PWRBTN# R
AC_PRESENT
PCH_BATLOW#
PCH_RI#
+3.3V_RUN
PCH_CRT_DDC_CLK
PCH_CRT_DDC_DAT
PCH_CRT_HSYNC
PCH_CRT_VSYNC
CRT_IREF
R672 1K_0402_0.5%~D
R679 150_0402_1%~D
R680 150_0402_1%~D
R681 150_0402_1%~D
R682 100K_0402_5%~D
PCH_CRT_BLU
PCH_CRT_GRN
PCH_CRT_RED
ENVDD_PCH
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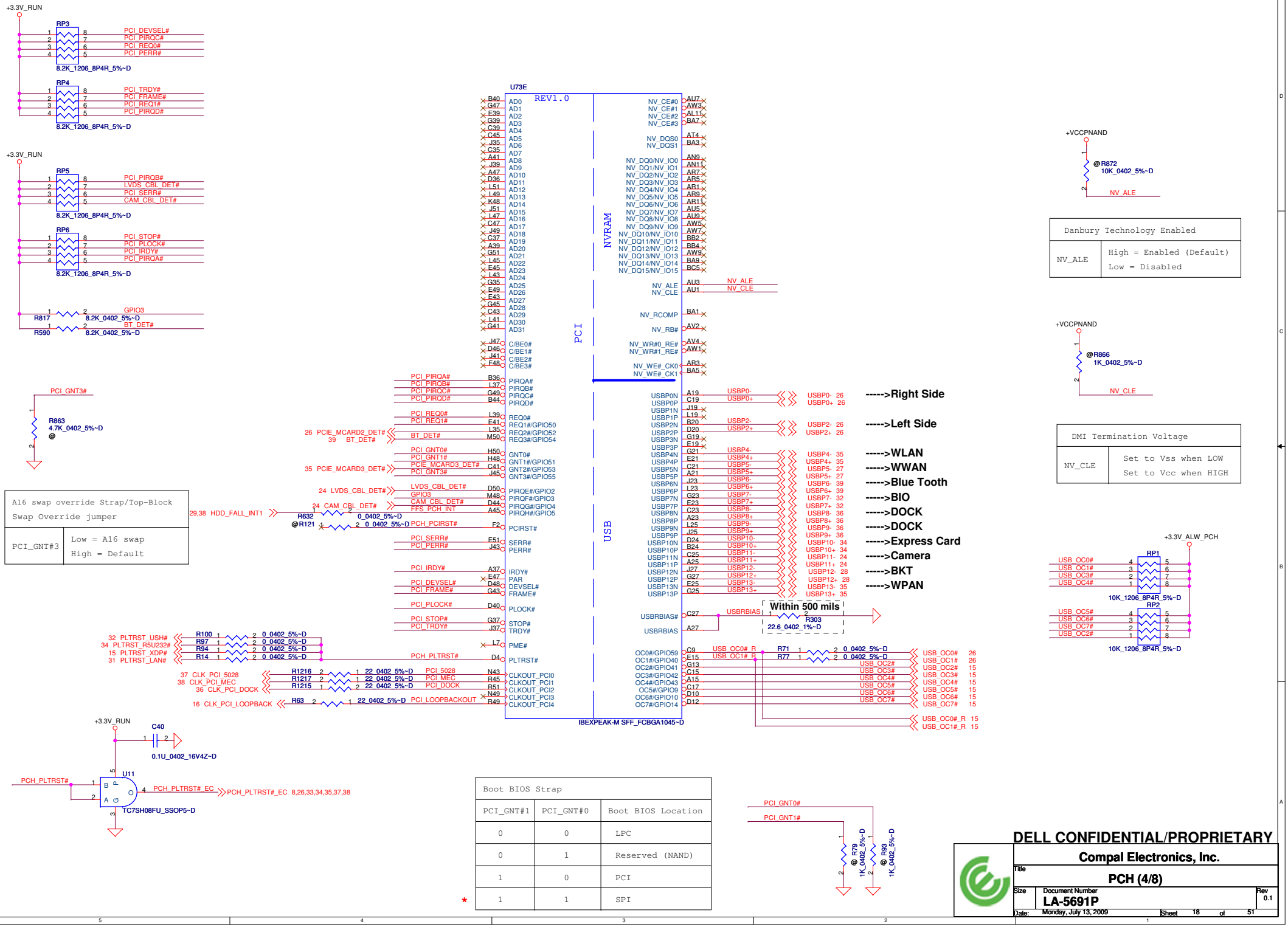

A16 swap override Strap/Top-Block	
Swap Override jumper	
PCI_GNT#3	Low = A16 swap High = Default

Danbury Technology Enabled	
NV_ALE	High = Enabled (Default) Low = Disabled

DMI Termination Voltage	
NV_CLE	Set to Vss when LOW Set to Vcc when HIGH

Boot BIOS Strap		
PCI_GNT#1	PCI_GNT#0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

★

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Compal Electronics, Inc.		
Title: PCH (4/8)		
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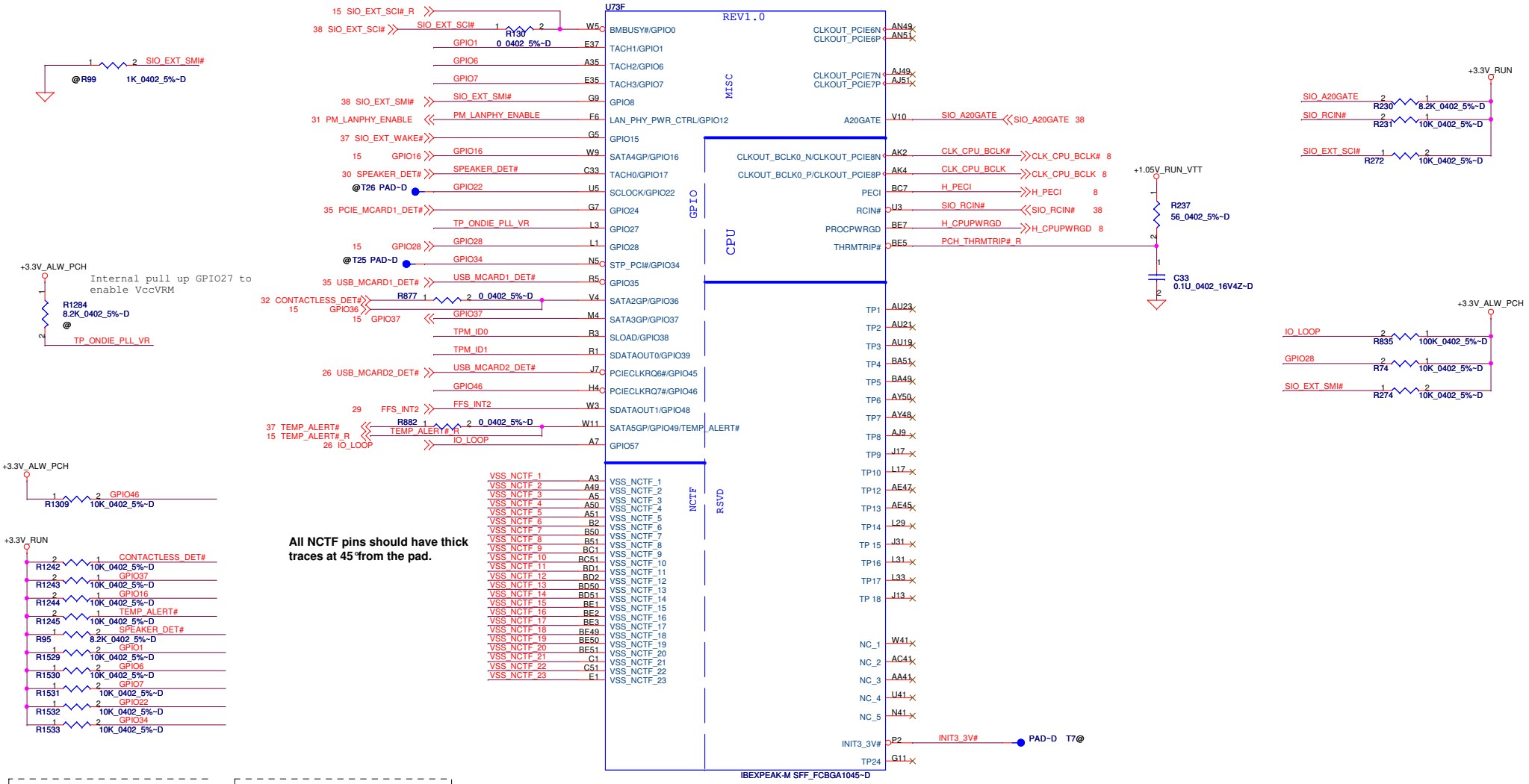

	TPM_ID0	TPM_ID1
China TPM	0	0
No TPM, No China TPM	0	1
USH1.0 (For SSI)	1	0
USH2.0	1	1

-----> will use MEMO control pop R339 & de-pop R787 when USH1.0 enable for SSI build only

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Compal Electronics, Inc.

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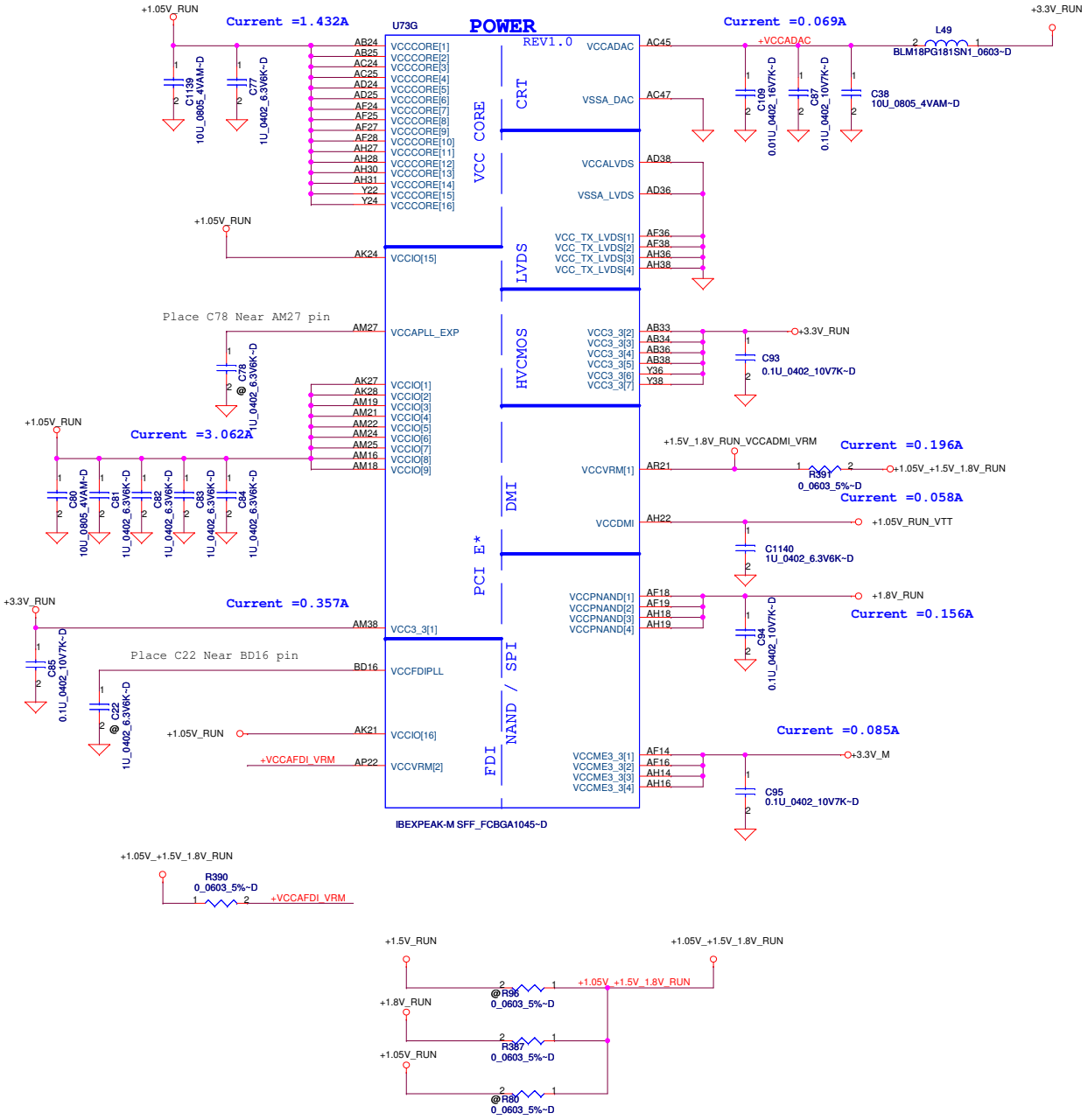

PCH Power Rail Table

Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.1/1.05	< 1 (mA)
V5REF	5	< 1 (mA)
V5REF_Sus	5	< 1 (mA)
Vcc3_3	3.3	0.357
VccAClk	1.1	0.052
VccADAC	3.3	0.069
VccADPLLA	1.1	0.068
VccADPLLB	1.1	0.069
VccapllEXP	1.1	0.04
VccCore	1.1	1.432
VccDMI	1.1	0.058
VccDMI	1.1	0.061
VccFDIPLL	1.1	0.037
VccIO	1.1	3.062
VccLAN	1.1	0.32
VccME	1.1	1.849
VccME3_3	3.3	0.085
VccpNAND	1.8	0.156
VccRTC	3.3	2 (mA)
VccSATAPLL	1.1	0.031
VccSus3_3	3.3	0.163
VccSusHDA	3.3	0.006
VccVRM	1.8 / 1.5	0.196
VccVRM	11	< 1 (mA)
VccALVDS	3.3	< 1 (mA)
VccTX_LVDS	1.8	0.059

Compal Electronics, Inc.

Title: PCH (6/8)

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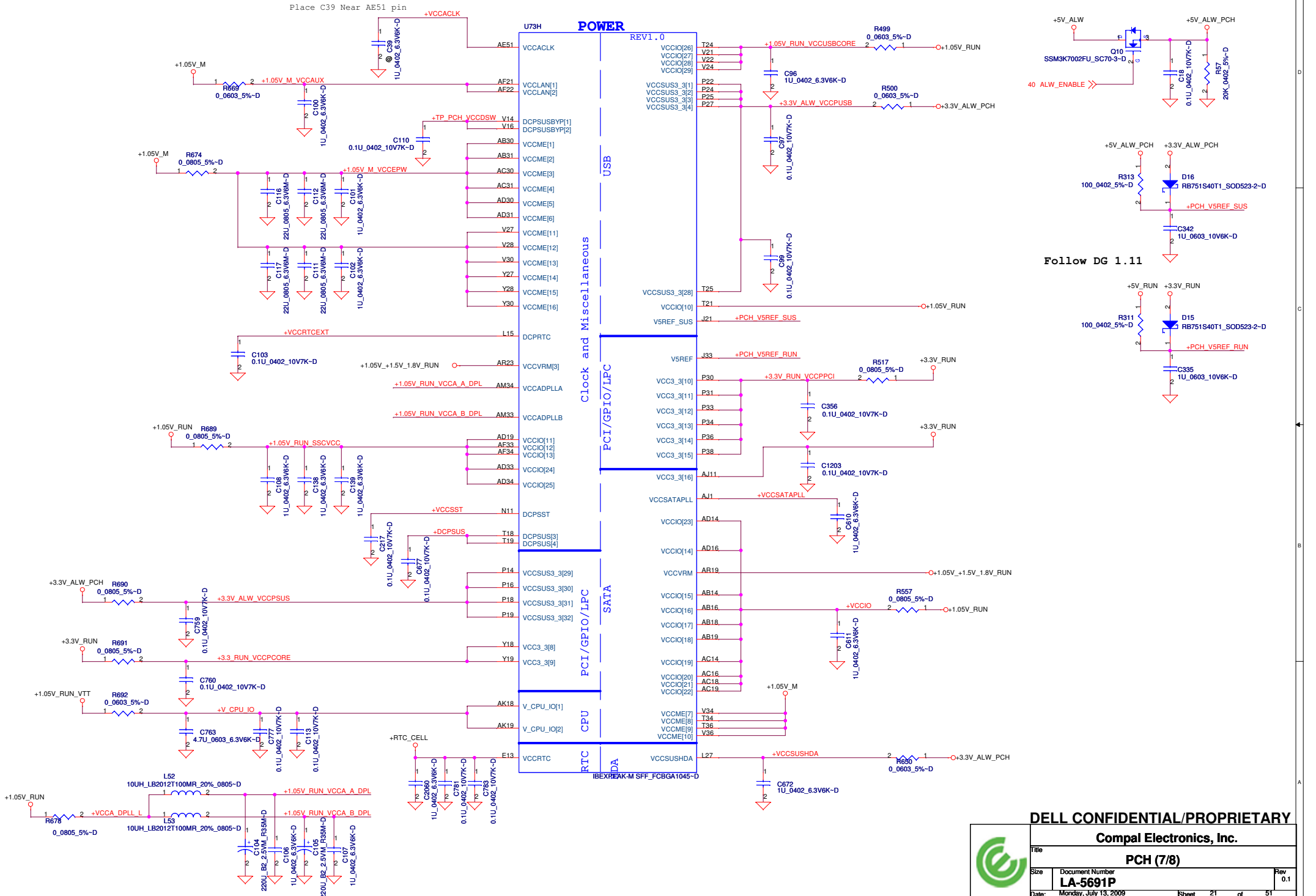
Place C39 Near AE51 pin
U73H
POWER
REV1.0
IBEXPEAK-M SFF_FCBGA1045~D
Clock and Miscellaneous
USB
PCI/GPIO/LPC
SATA
CPU
RTC
SMBUS
Follow DG 1.11
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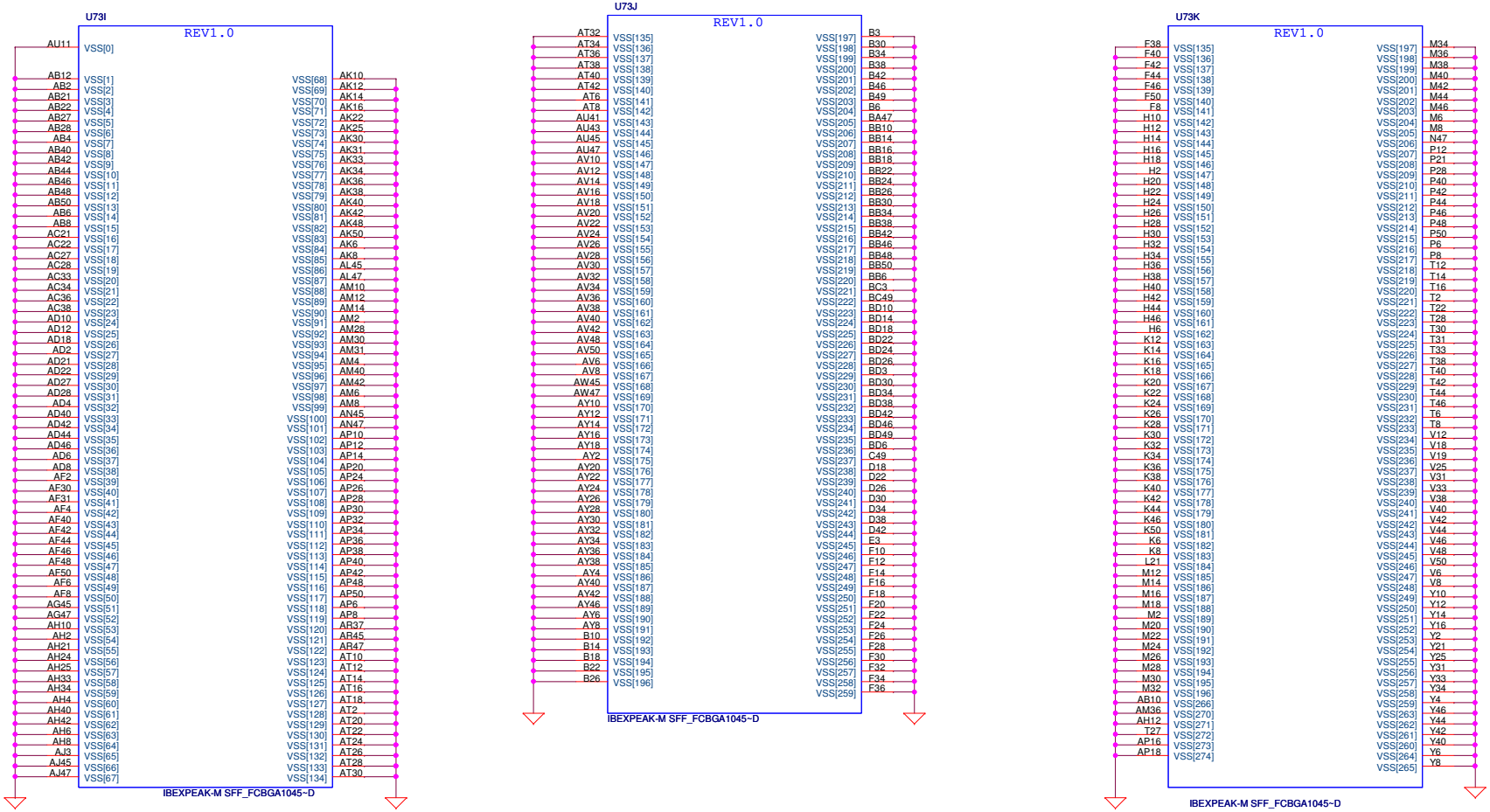

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Title: PCH (8/8)

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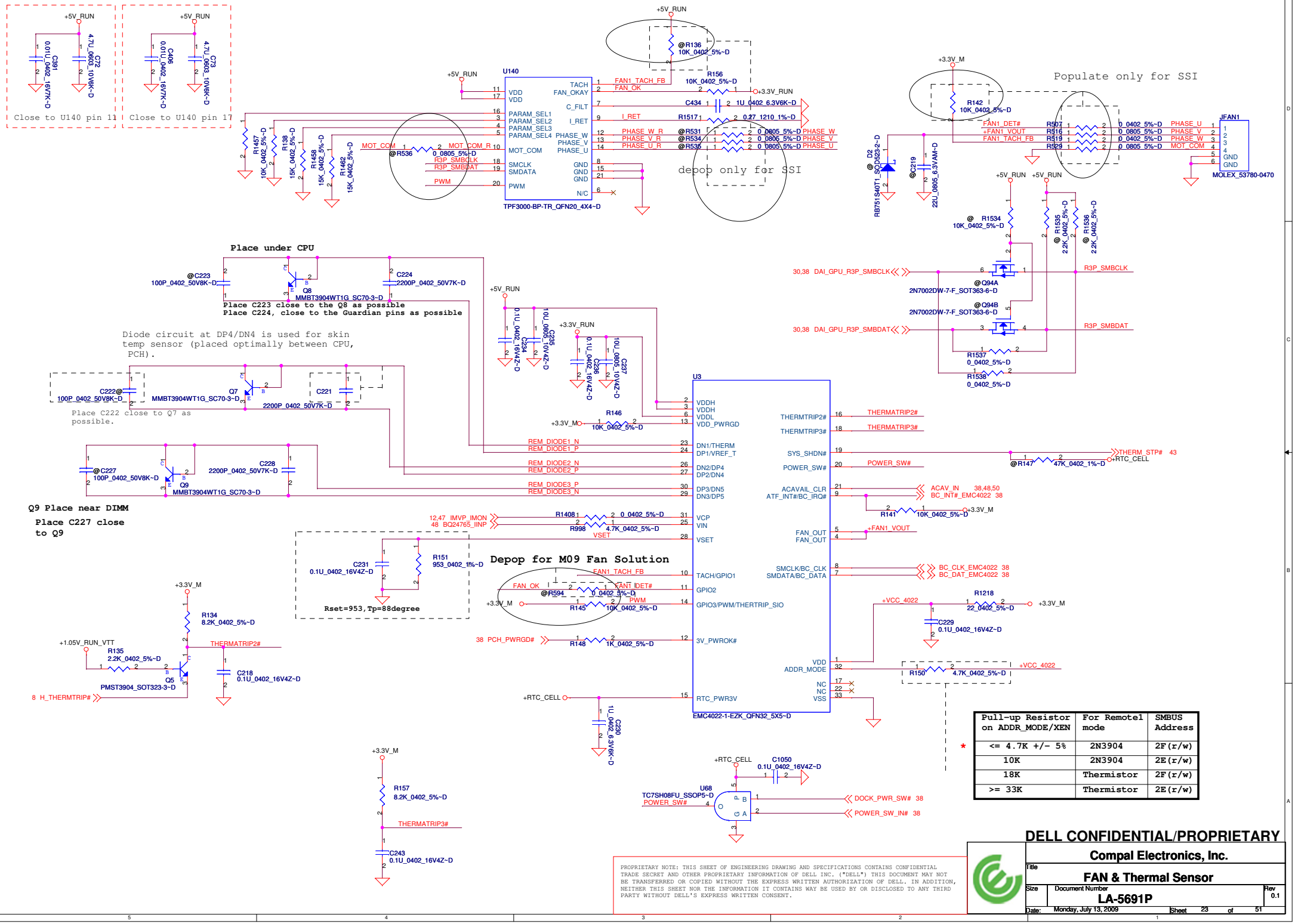
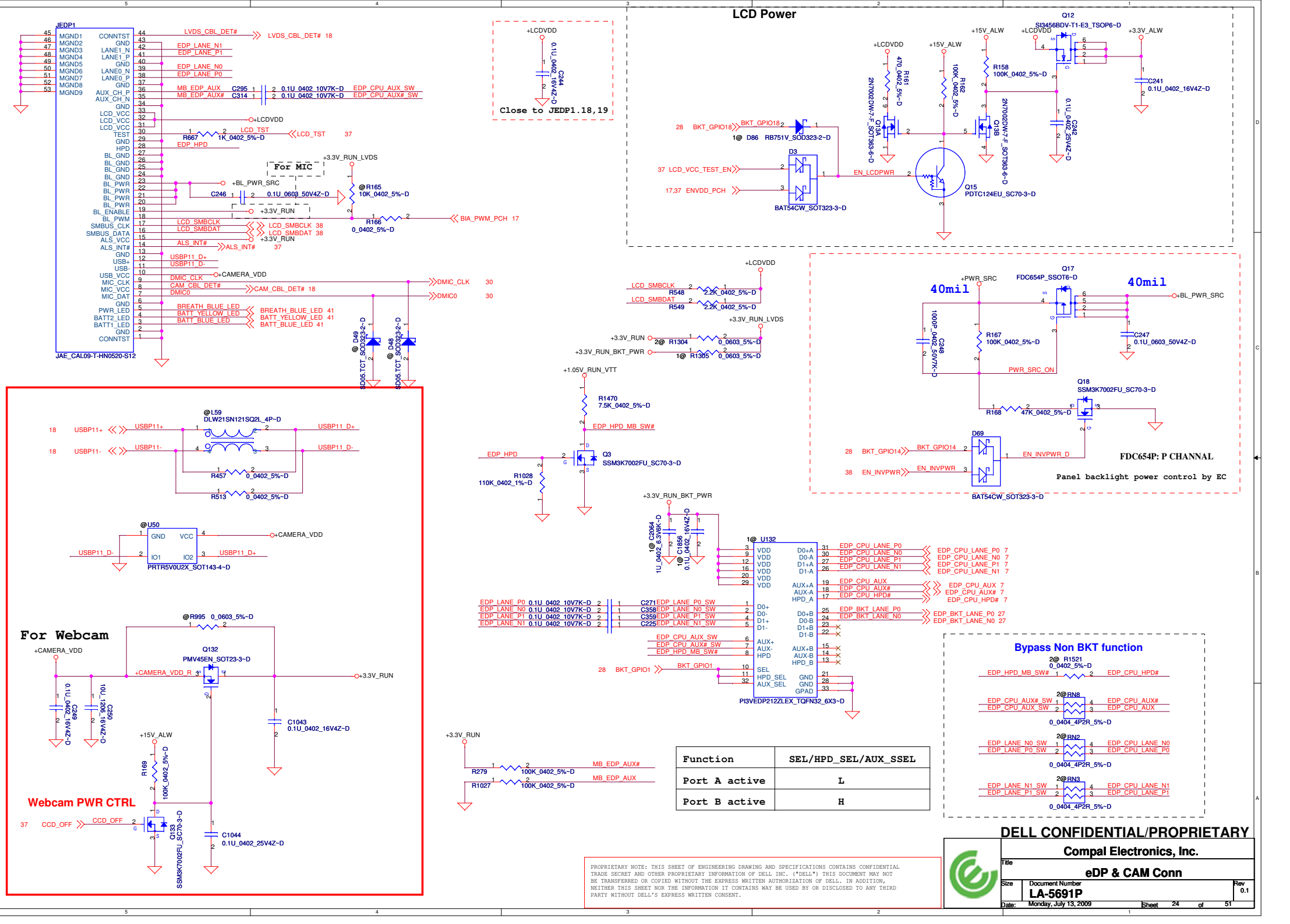


Pull-up Resistor on ADDR_MODE/XEN	For Remote1 mode	SMBUS Address
<= 4.7K +/- 5%	2N3904	2F(r/w)
10K	2N3904	2E(r/w)
18K	Thermistor	2F(r/w)
>= 33K	Thermistor	2E(r/w)


LCD Power
JEDP1
JAE_CAL09-T-HN0520-S12
Close to JEDP1.18,19
For MIC
For Webcam
Webcam PWR CTRL
Q12
SI3456BDV-T1-E3_TSOP6~D
Q15
PDTC124EU_SC70-3~D
Q17
FDC654P_SSOT6~D
Q18
SSM3K7002FU_SC70-3~D
Q3
SSM3K7002FU_SC70-3~D
Q132
PMV45EN_SOT23-3~D
Q133
SSM3K7002FU_SC70-3~D
D3
BAT54CW_SOT323-3~D
D69
BAT54CW_SOT323-3~D
D49
SD05.TCT_SOD323-2~D
D48
SD05.TCT_SOD323-2~D
@L59
DLW21SN121SQ2L_4P~D
@U50
PRTR5V0U2X_SOT143-4~D
1@ U132
PI3VEDP212ZLEX_TQFN32_6X3~D
FDC654P: P CHANNAL
Panel backlight power control by EC
40mil
40mil
Bypass Non BKT function
Function
SEL/HPD_SEL/AUX_SSEL
Port A active
L
Port B active
H
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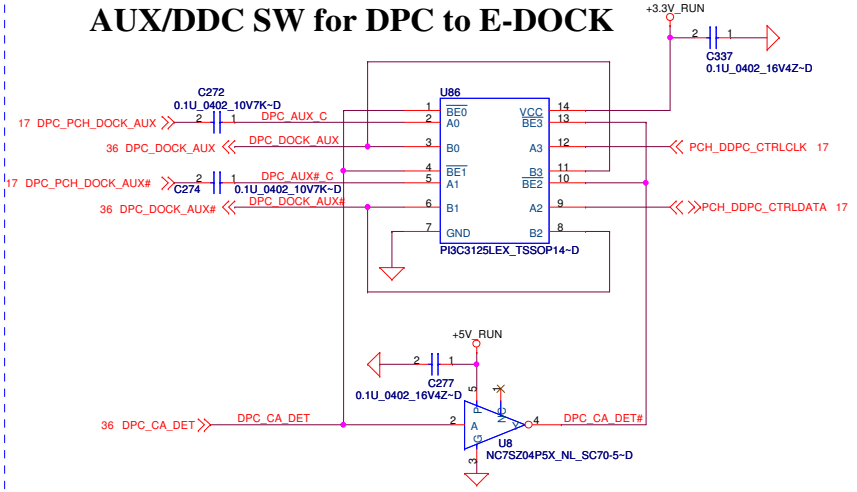
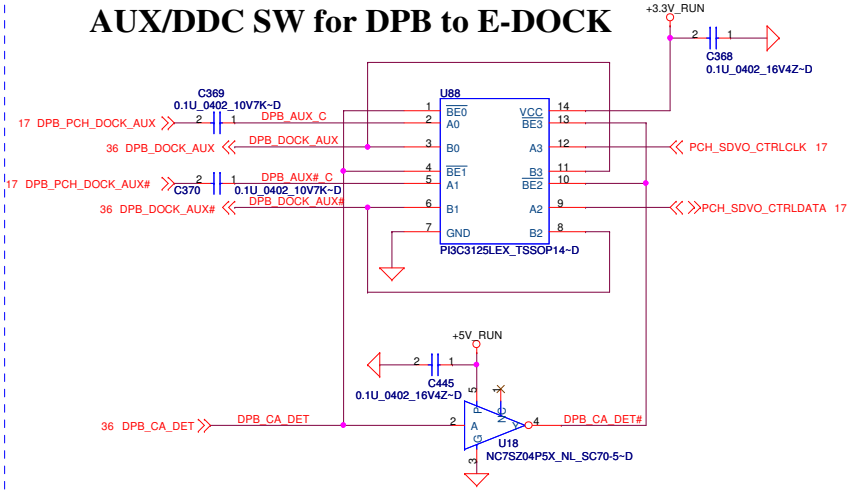
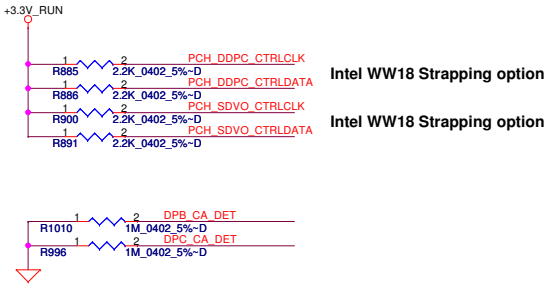
AUX/DDC SW for DPC to E-DOCK

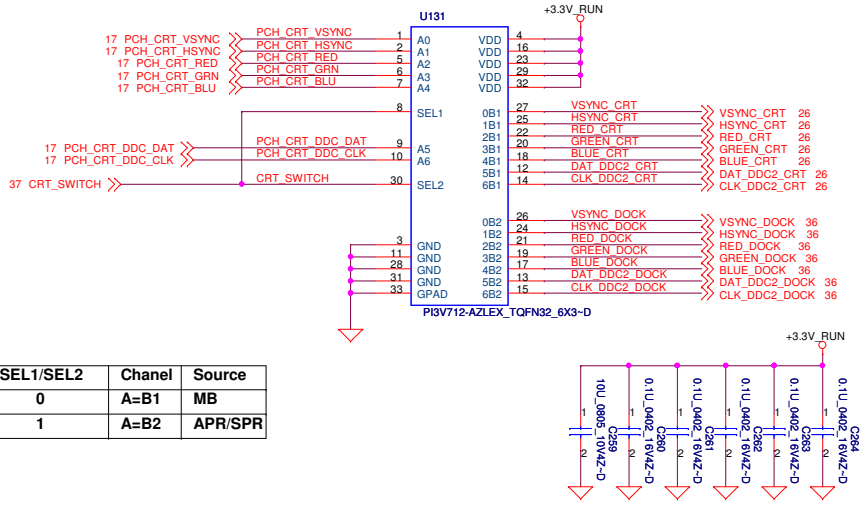


AUX/DDC SW for DPB to E-DOCK



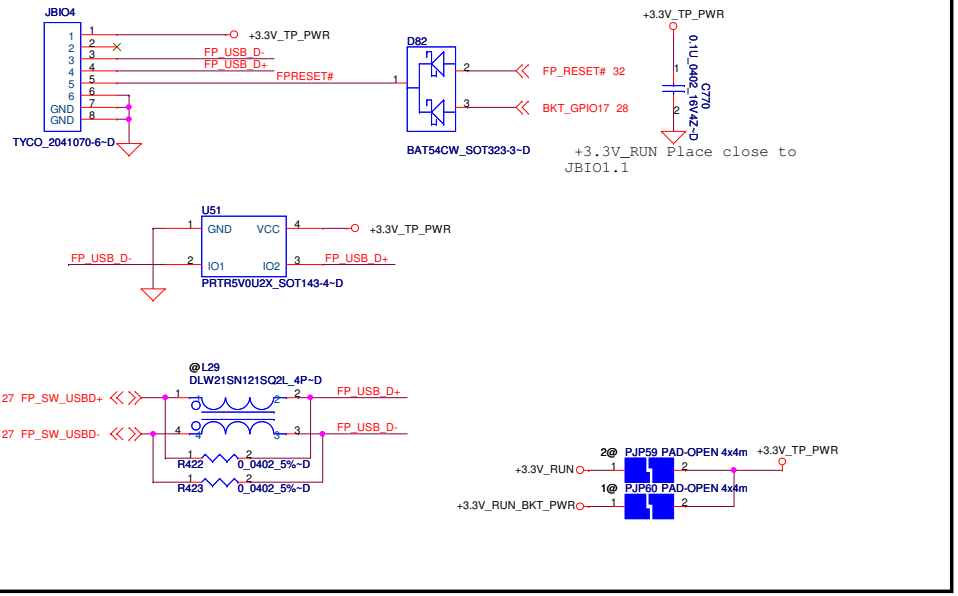


VGA SW for MB/DOCK



SEL1/SEL2	Chanel	Source
0	A=B1	MB
1	A=B2	APR/SPR

Fingerprint CONN.



Compal Electronics, Inc.

Title: DPC DPD SW for DOCK

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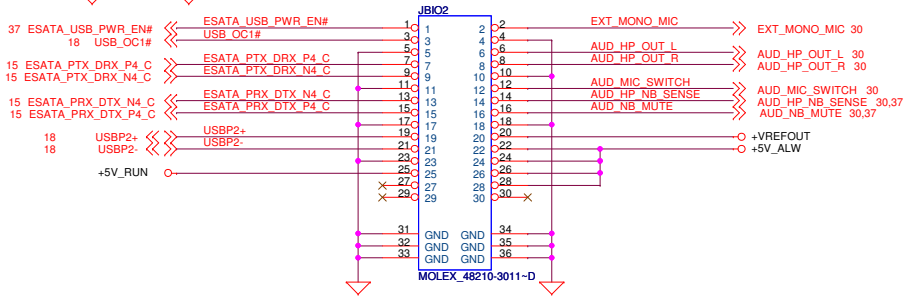
Close to JP1

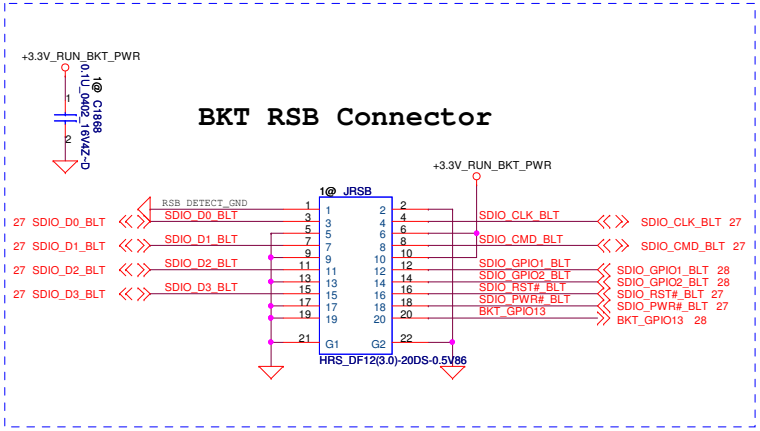
+VREFOUT +5V_RUN +5V_ALW

0.1U_0402_16V4Z~D C2055 C2056 C1859

E-SATA/Jack Connector

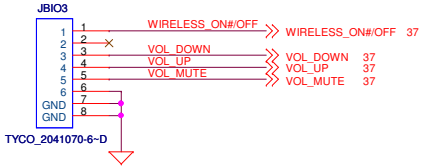


BKT RSB Connector

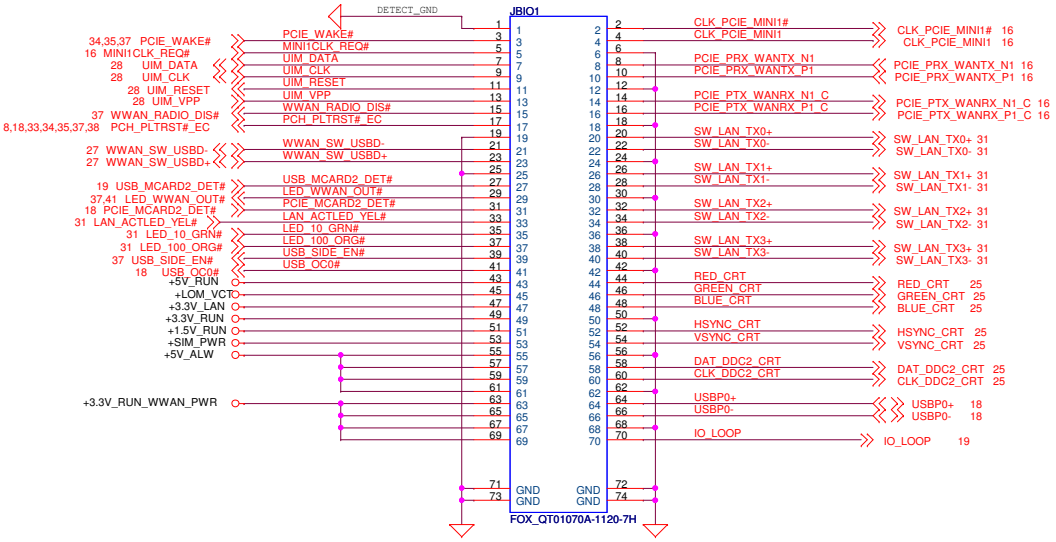


Volume + Sniffer

Change to 6 pins connector



BTB Connector



+3.3V_RUN_WWAN_PWR +3.3V_LAN +5V_ALW +5V_RUN +3.3V_RUN +1.5V_RUN +SIM_PWR +LOM_VCT

0.1U_0402_16V4Z~D C1860 C1861 C1862 C1863 C1864 C1865 C1866 C1867

Compal Electronics, Inc.

Title: Display port

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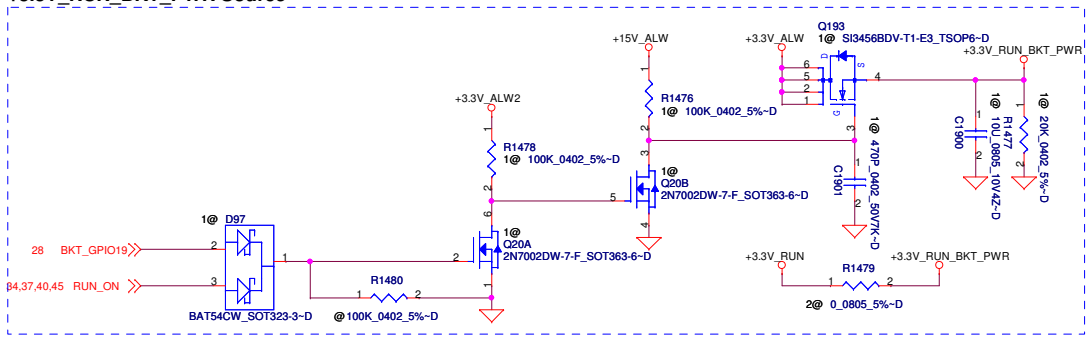
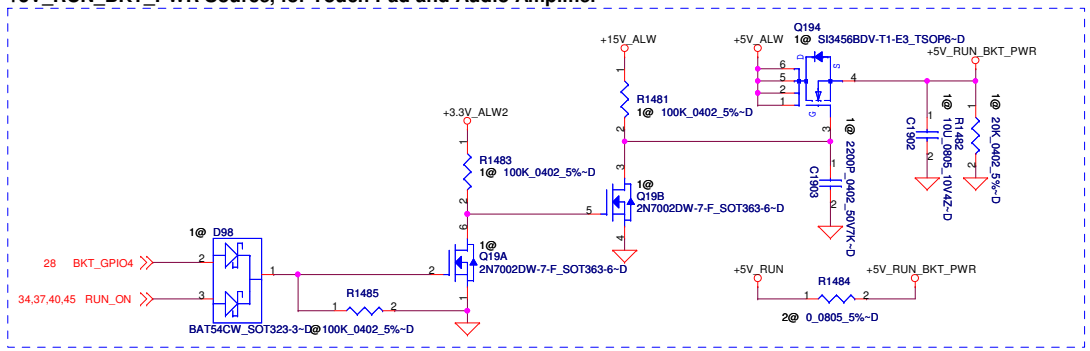
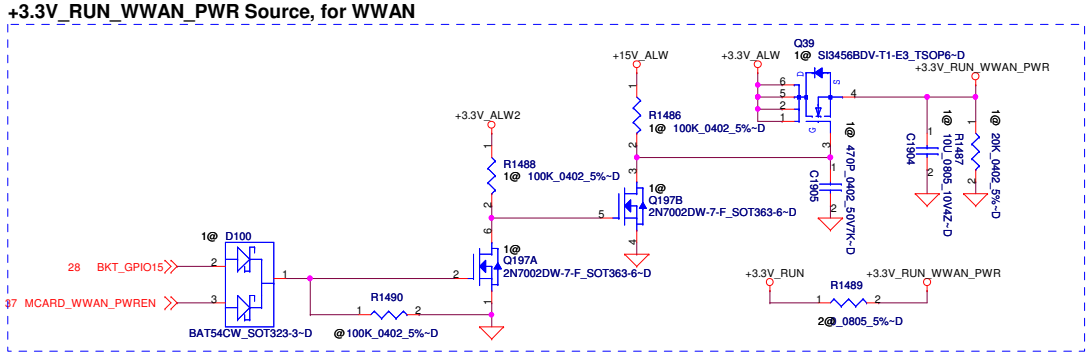
+3.3V_RUN_BKT_PWR Source

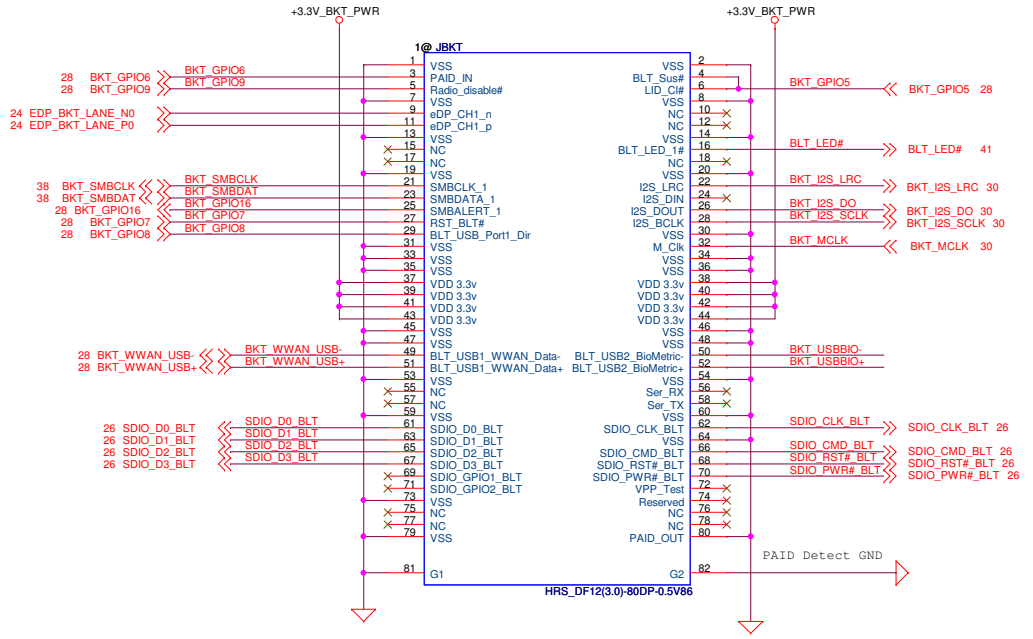


+5V_RUN_BKT_PWR Source, for Touch Pad and Audio Amplifier

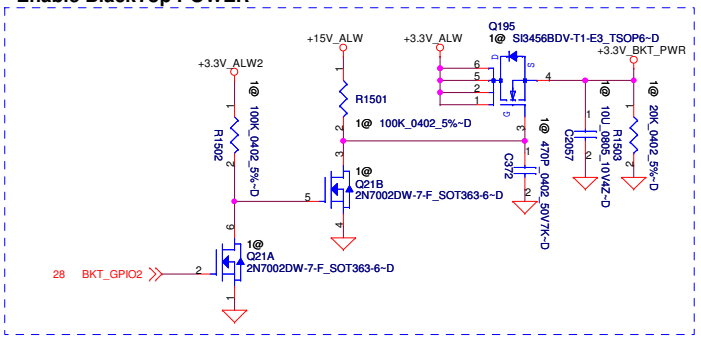


+3.3V_RUN_WWAN_PWR Source, for WWAN

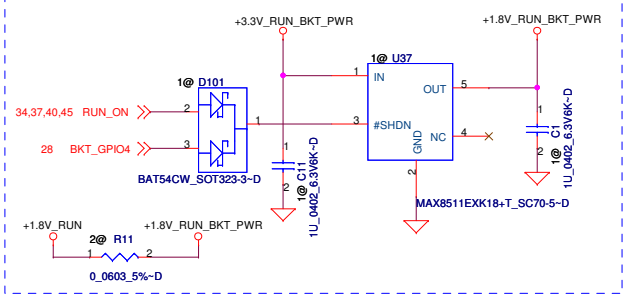




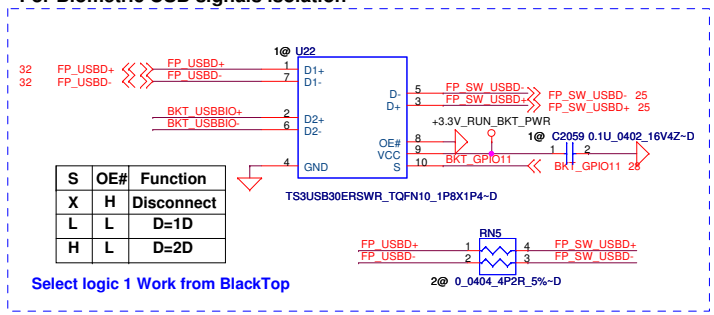
Enable BlackTop POWER



For Audio I2S



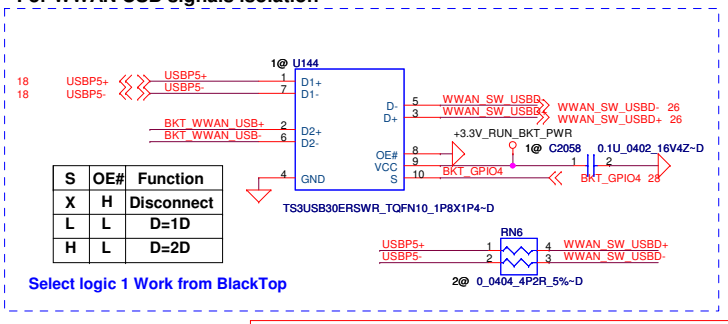
For Biometric USB signals isolation



S	OE#	Function
X	H	Disconnect
L	L	D=1D
H	L	D=2D

Select logic 1 Work from BlackTop

For WWAN USB signals isolation



S	OE#	Function
X	H	Disconnect
L	L	D=1D
H	L	D=2D

Select logic 1 Work from BlackTop

Compal Electronics, Inc.

Title: BlackTop POWER and CONN

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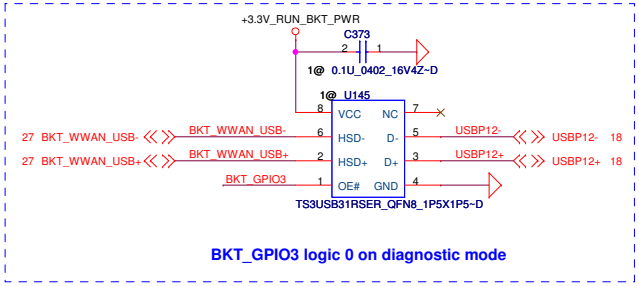
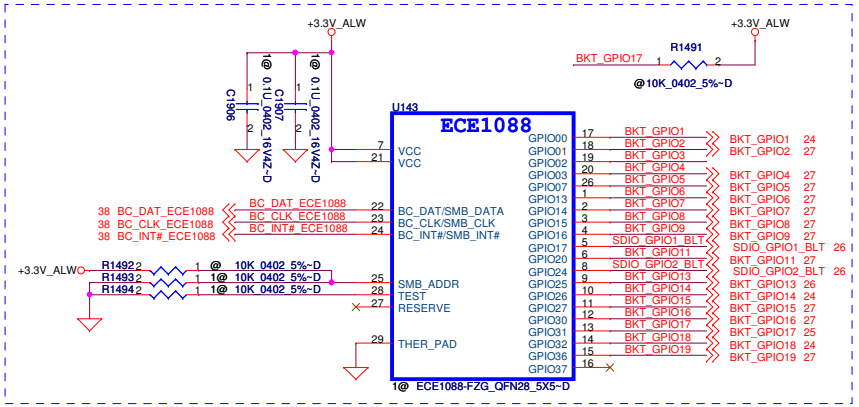
Add BlackTop to PCH interface by USB signal when diagnostic mode



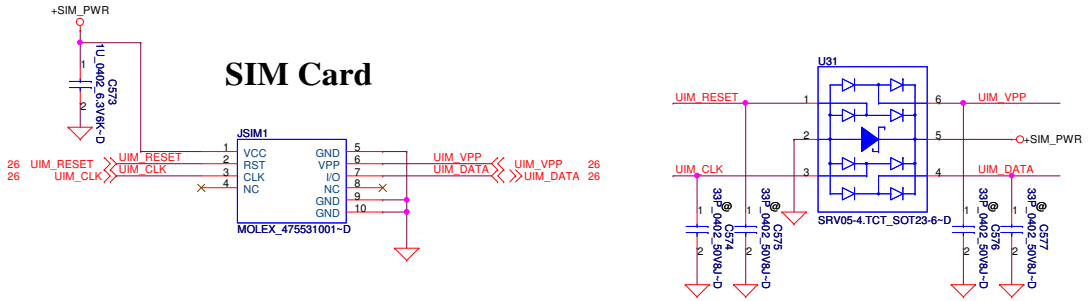
BKT_GPIO3 logic 0 on diagnostic mode

BKT_GPIO1	For eDP signals switch
BKT_GPIO2	For BKT power switch
BKT_GPIO3	For TP power swich&USB signal switch
BKT_GPIO4	For AMP/TP power source&USB signal switch
BKT_GPIO5	For LID_Closed
BKT_GPIO6	For PAD_Out
BKT_GPIO7	For BKT Reset
BKT_GPIO8	For USB_SEL_BLK
BKT_GPIO9	For Radio_OFF
BKT_GPIO11	Biometric mux switch
BKT_GPIO12	For WLAN antenna mux control
BKT_GPIO13	RSB_DET#
BKT_GPIO14	For Inverter Power
BKT_GPIO15	For WWAN Power
BKT_GPIO16	For SMBALERT
BKT_GPIO17	For Biometic reset signal
BKT_GPIO18	For LVDS Power switch
BKT_GPIO19	For TP Power

GPIO Expander for BlackTop



SIM Card



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Compal Electronics, Inc.

Title: Braidwood/ SATA repeater & PCIE SATA SW

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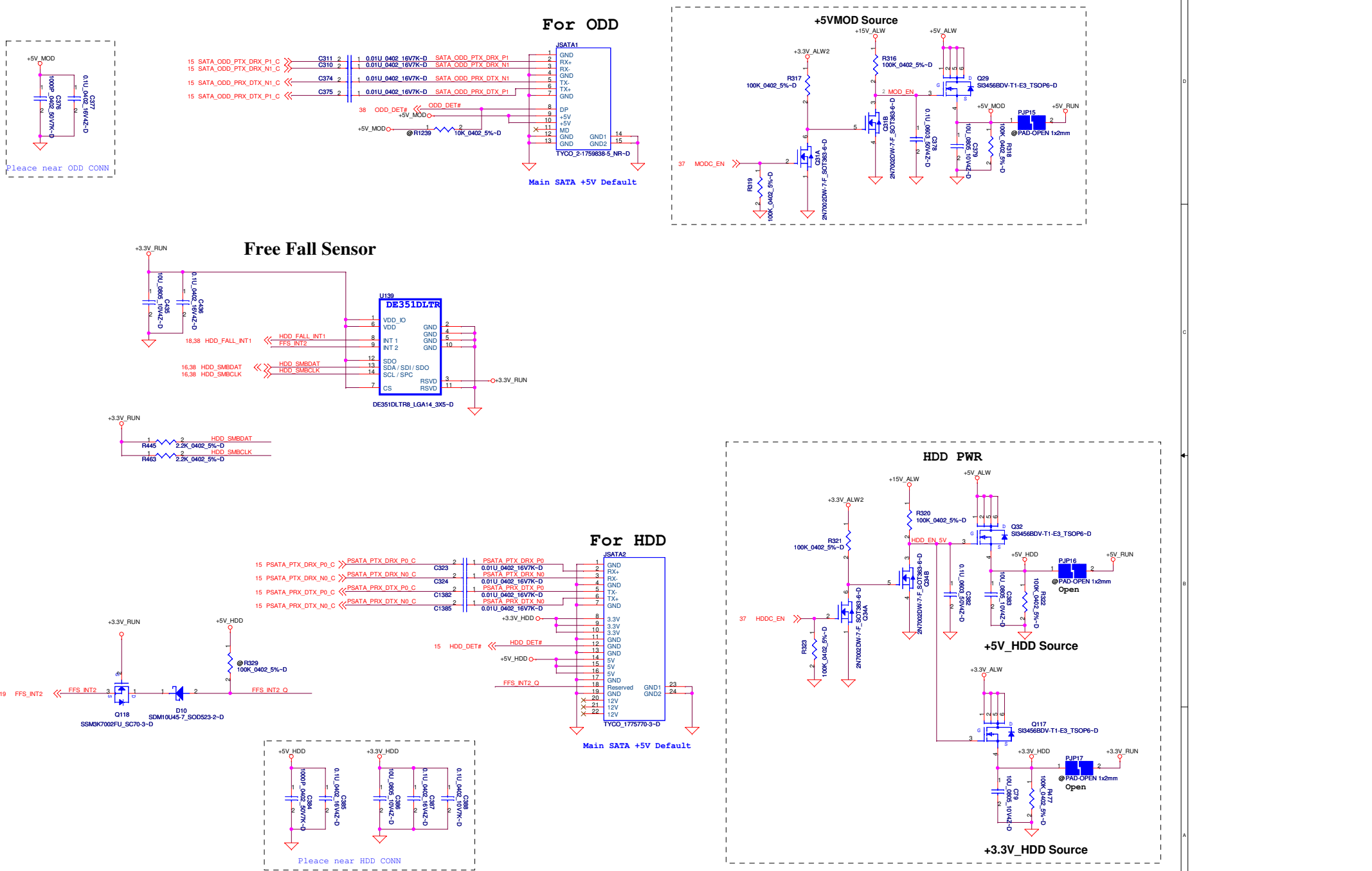

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Compal Electronics, Inc.

Title	ODD/HDD CONNECTOR	
Size	Document Number LA-5691P	Rev 0.1
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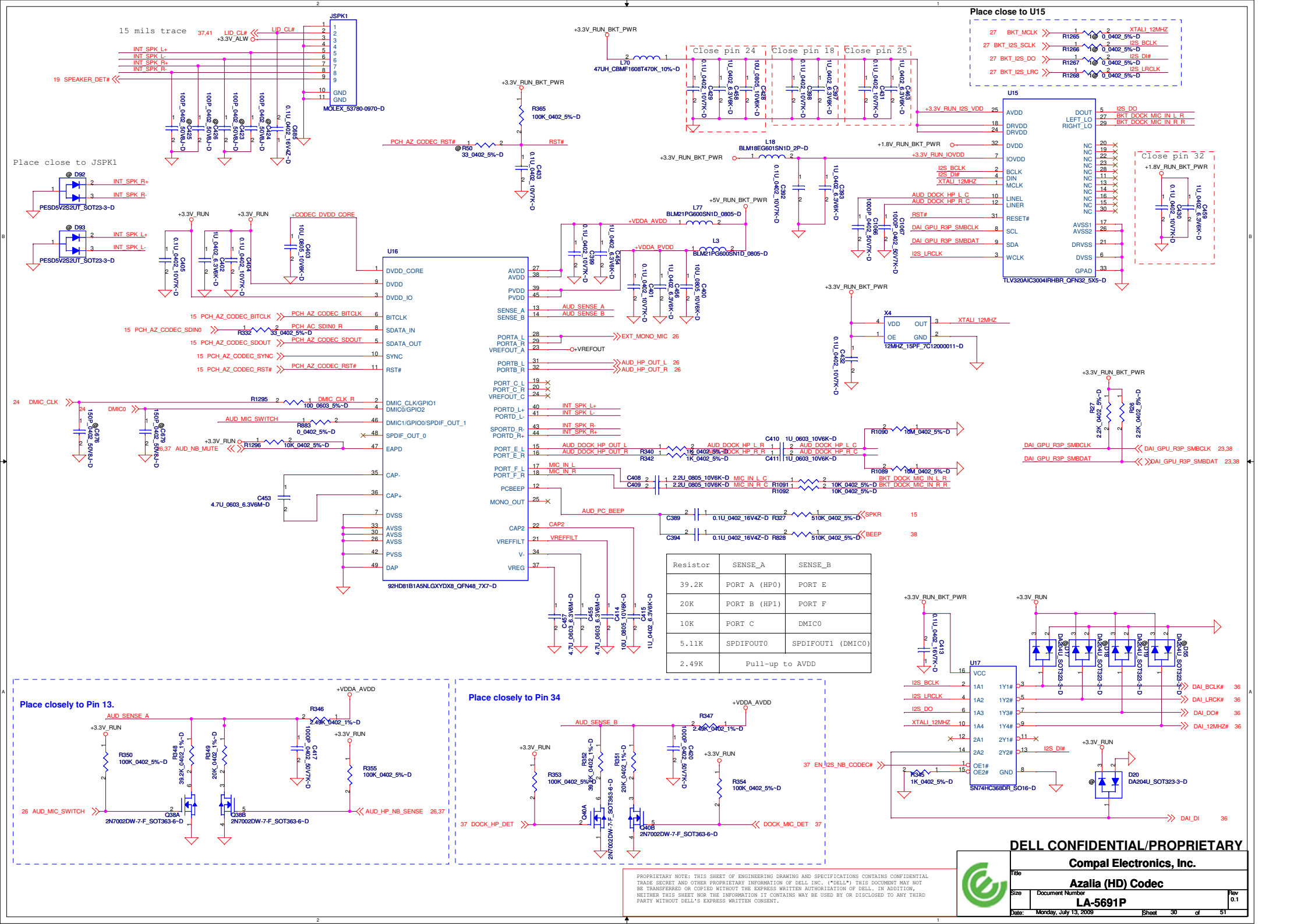

Resistor	SENSE_A	SENSE_B
39.2K	PORT A (HP0)	PORT E
20K	PORT B (HP1)	PORT F
10K	PORT C	DMIC0
5.11K	SPDIFOUT0	SPDIFOUT1 (DMIC0)
2.49K	Pull-up to AVDD	

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: Azalia (HD) Codec

Size: | Document Number: LA-5691P | Rev: 0.1

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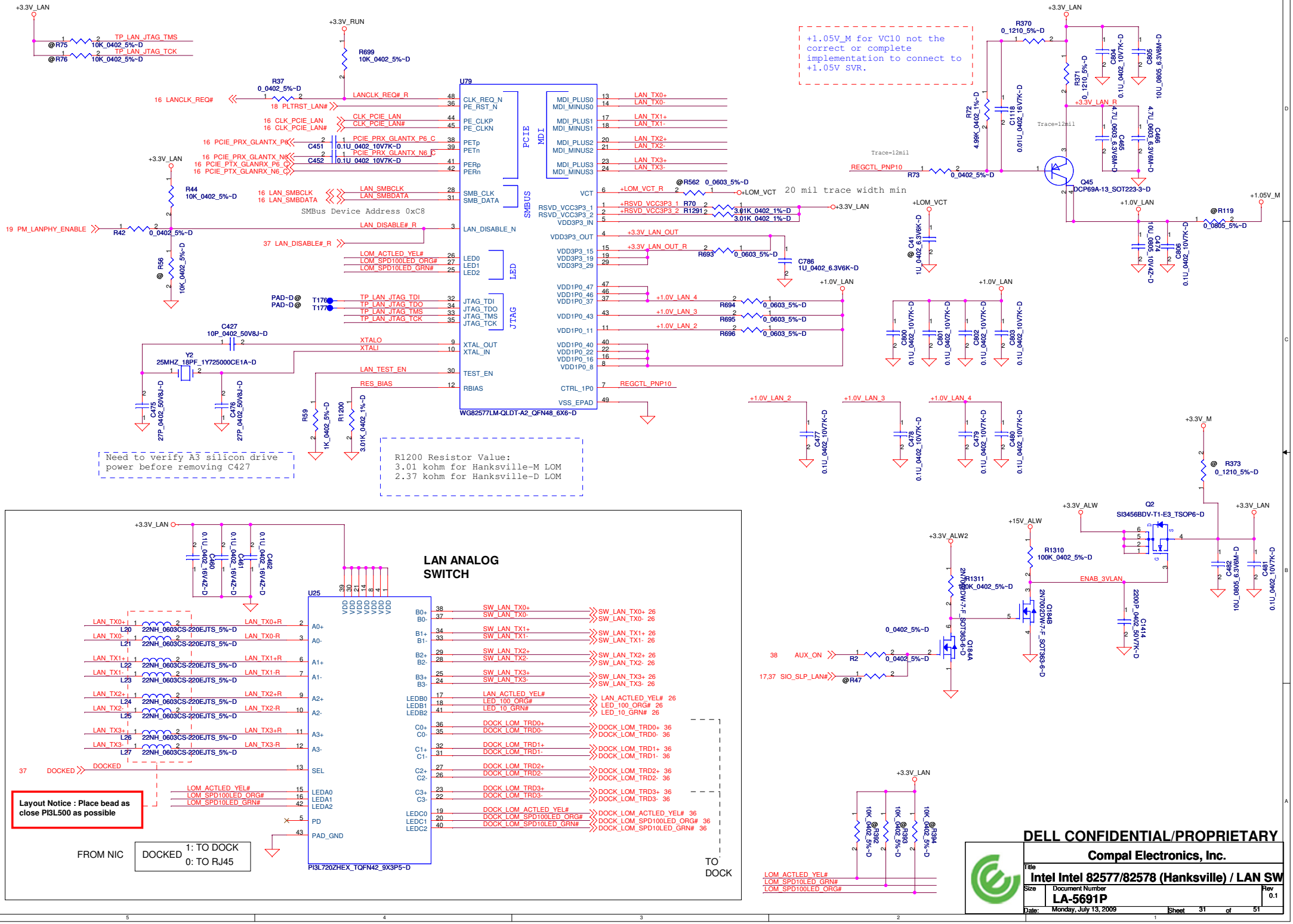
+1.05V_M for VC10 not the correct or complete implementation to connect to +1.05V SVR.
20 mil trace width min
SMBus Device Address 0xC8
Need to verify A3 silicon drive power before removing C427
R1200 Resistor Value:
3.01 kohm for Hanksville-M LOM
2.37 kohm for Hanksville-D LOM
WG82577LM-QLDT-A2_QFN48_6X6~D
LAN ANALOG SWITCH
PI3L720ZHEX_TQFN42_9X3P5~D
Layout Notice : Place bead as close PI3L500 as possible
FROM NIC
DOCKED 1: TO DOCK 0: TO RJ45
TO DOCK
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
Intel Intel 82577/82578 (Hanksville) / LAN SW
LA-5691P
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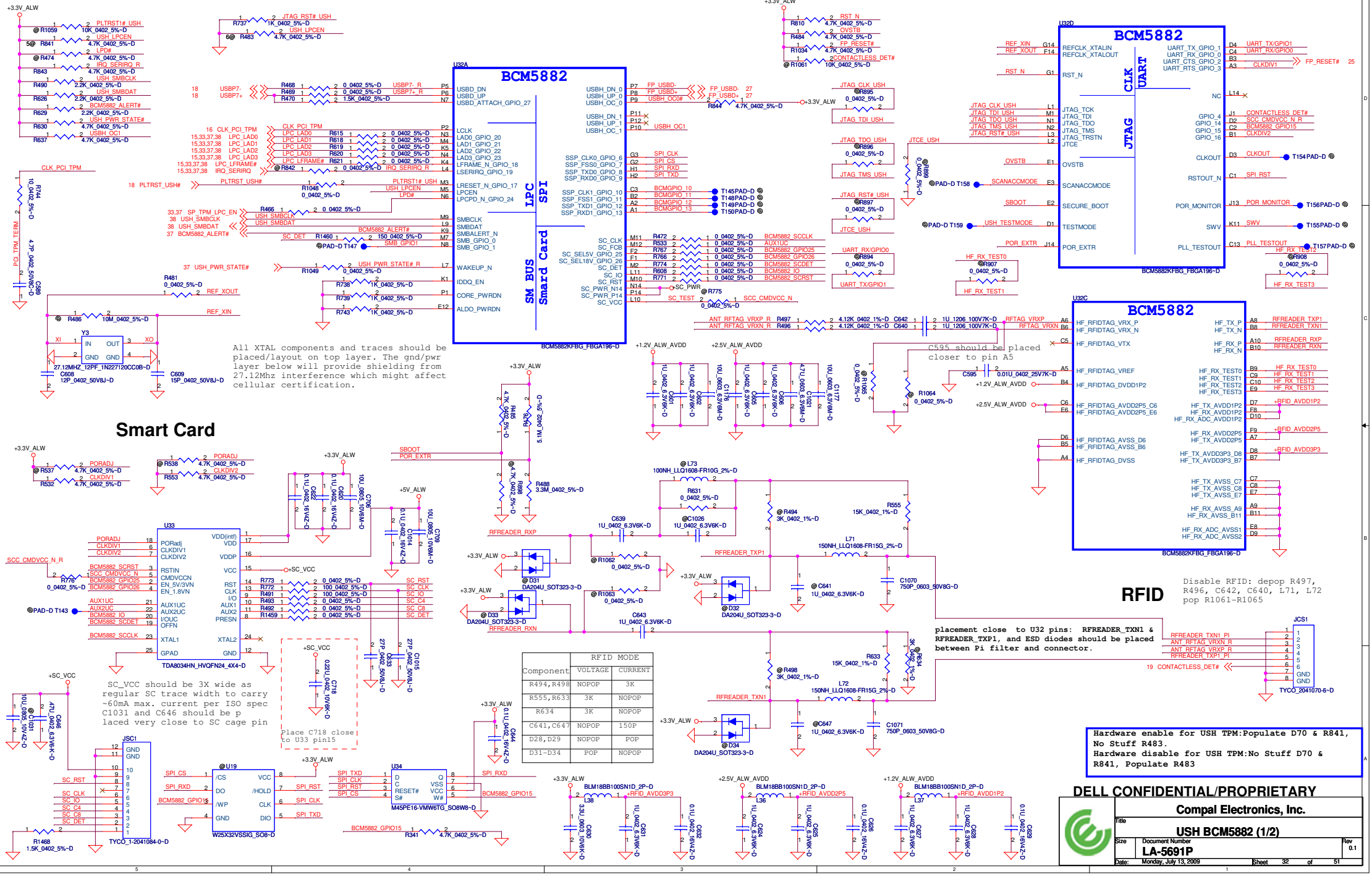
BCM5882
U32A
BCM5882KFBG_FBGA196~D
U32D
BCM5882KFBG_FBGA196~D
U32C
BCM5882KFBG_FBGA196~D
Smart Card
All XTAL components and traces should be placed/layout on top layer. The gnd/pwr layer below will provide shielding from 27.12Mhz interference which might affect cellular certification.
C595 should be placed closer to pin A5
RFID
Disable RFID: depop R497, R496, C642, C640, L71, L72 pop R1061~R1065
placement close to U32 pins: RFREADER_TXN1 & RFREADER_TXP1, and ESD diodes should be placed between Pi filter and connector.
SC_VCC should be 3X wide as regular SC trace width to carry ~60mA max. current per ISO spec C1031 and C646 should be p laced very close to SC cage pin
Place C718 close to U33 pin15
Component | RFID MODE | VOLTAGE | CURRENT
R494,R498 | NOPOP | 3K
R555,R633 | 3K | NOPOP
R634 | 3K | NOPOP
C641,C647 | NOPOP | 150P
D28,D29 | NOPOP | POP
D31~D34 | POP | NOPOP
Hardware enable for USH TPM:Populate D70 & R841, No Stuff R483.
Hardware disable for USH TPM:No Stuff D70 & R841, Populate R483
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
USH BCM5882 (1/2)
LA-5691P
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Monday, July 13, 2009
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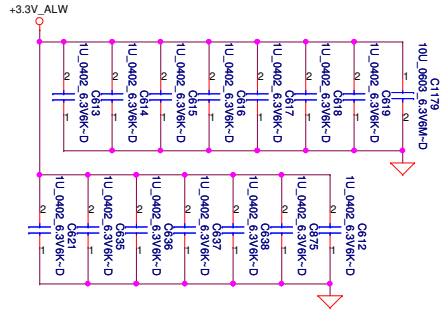
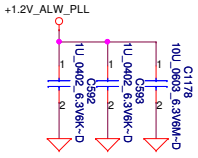
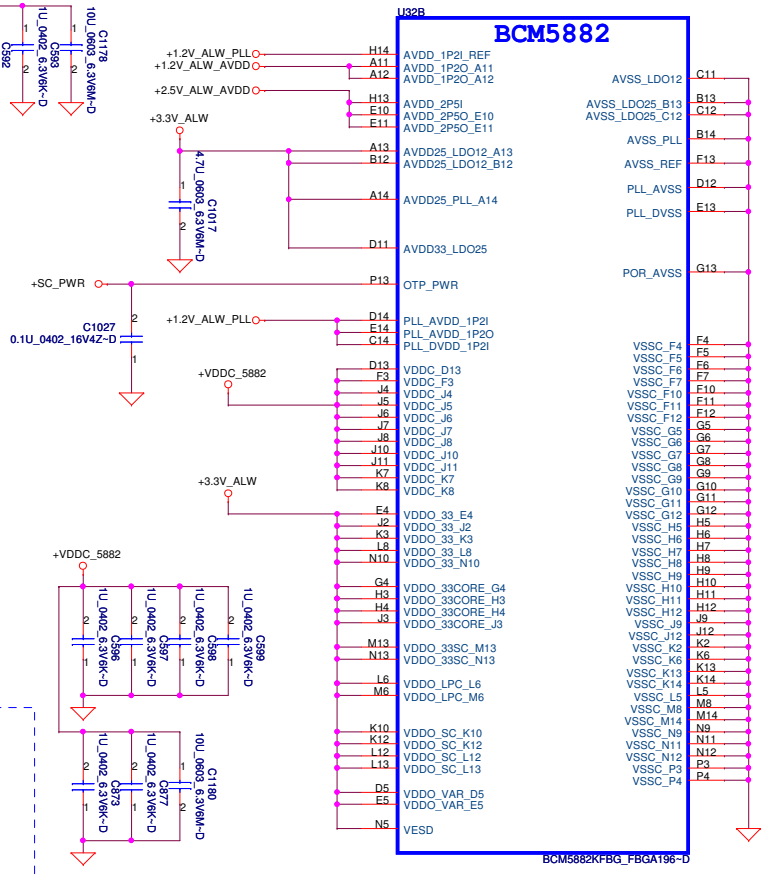


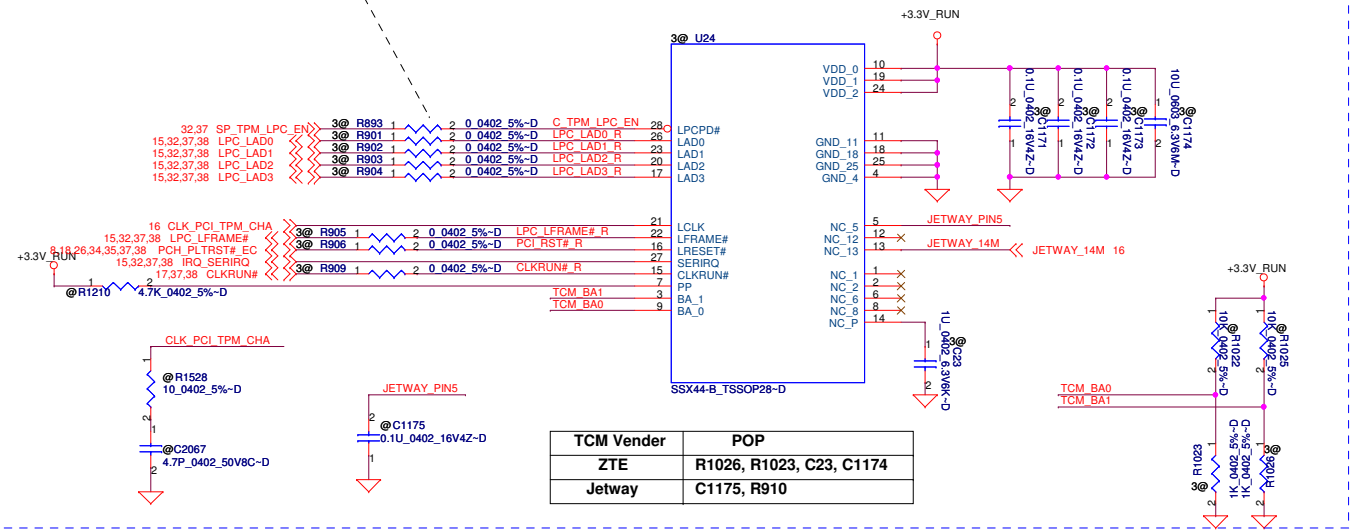




USH BCM5882 and China TPM Z8H172T Option				
PART/PIN	Ref Des	TCM Enable	TPM Enable	ALL TPM/TCM Disable
TCM circuit	All 3@	POP	@	@
SIO 5028 ->SP_TPM_LPC_EN	PU R841	@	POP	@
	PD R483	POP	@	@
	PU R788	@	@	@
PCH GPIO39 ->TPM_ID1	PU R787	@	@	POP
	PD R339	POP	POP	@
PCH GPIO38 ->TPM_ID0	PU R273	POP	POP	@
	PD R922	@	@	POP

LOW:Power Down Mode
High:Working Mode

China TPM



TCM Vender	POP
ZTE	R1026, R1023, C23, C1174
Jetway	C1175, R910

Compal Electronics, Inc.

Title: USH BCM5882 (2/2)

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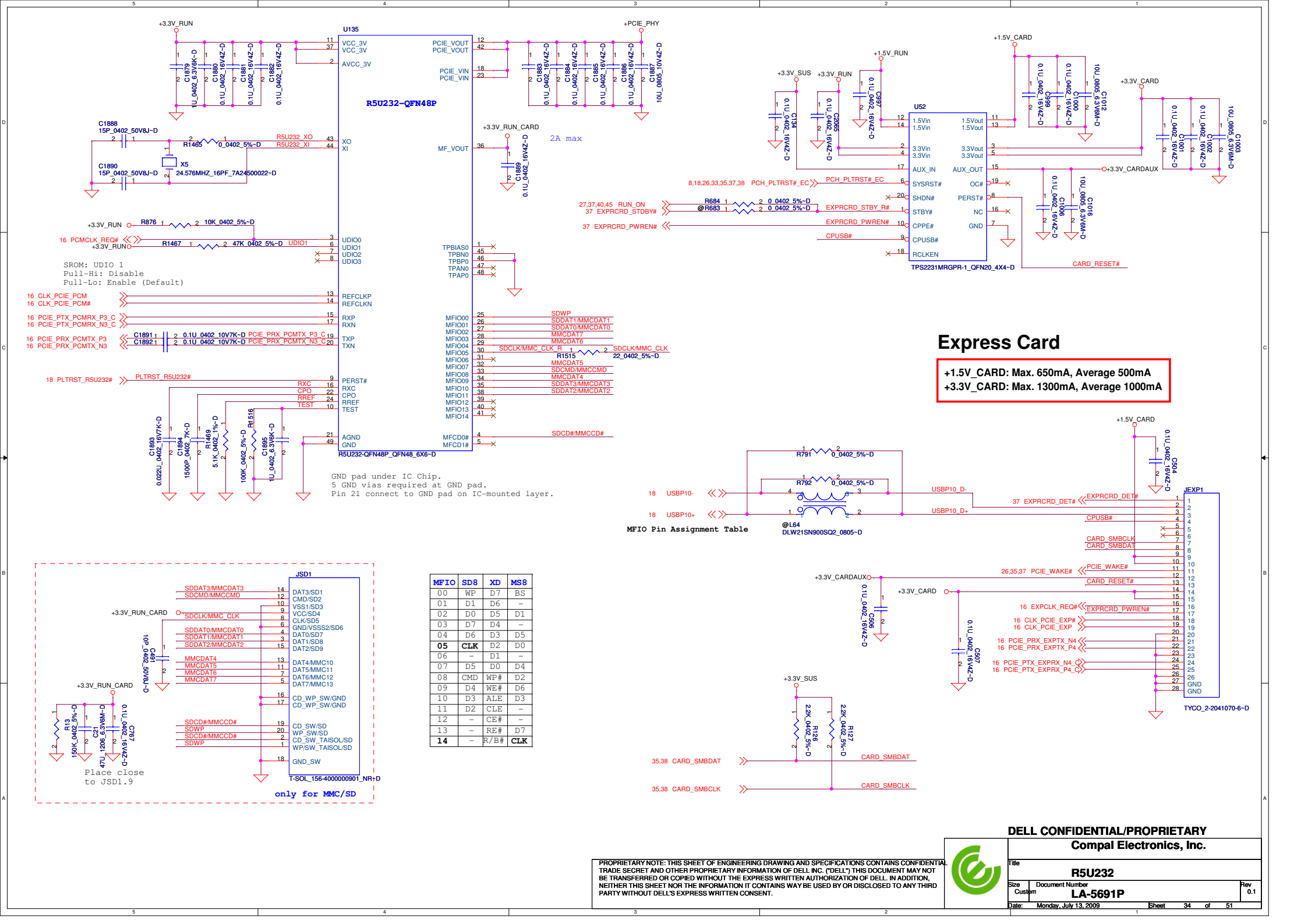

MFIO	SD8	XD	MS8
00	WP	D7	BS
01	D1	D6	–
02	D0	D5	D1
03	D7	D4	–
04	D6	D3	D5
05	**CLK**	D2	D0
06	–	D1	–
07	D5	D0	D4
08	CMD	WP#	D2
09	D4	WE#	D6
10	D3	ALE	D3
11	D2	CLE	–
12	–	CE#	–
13	–	RE#	D7
14	–	R/B#	**CLK**

Compal Electronics, Inc.

Title: R5U232

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Stiching caps for MDI

C2072 0.1U_0402_10V7K~D: +3.3V_RUN — +3.3V_ALW
C2073 0.1U_0402_10V7K~D: +3.3V_LAN — +3.3V_RUN
C2074 0.1U_0402_10V7K~D: +5V_ALW — +3.3V_RUN
C2075 0.1U_0402_10V7K~D: +5V_ALW — +3.3V_RUN
C2076 0.1U_0402_10V7K~D: +3.3V_RUN — +3.3V_ALW
C2077 0.1U_0402_10V7K~D: +5V_ALW — +3.3V_RUN

Stiching caps for PCIE6

C2080 0.1U_0402_10V7K~D: +5V_ALW — +3.3V_ALW
C2082 0.1U_0402_10V7K~D: +5V_ALW — +PWR_SRC
C2084 0.1U_0402_10V7K~D: +5V_ALW — +3.3V_RUN

Mini WLAN

+15V_ALW, +3.3V_ALW, +3.3V_WLAN
R431 100K_0402_5%~D
R432 100K_0402_5%~D
Q47 SI3456BDV-T1-E3_TSOP6~D
Q53B 2N7002DW-7-F_SOT363-6~D
Q53A 2N7002DW-7-F_SOT363-6~D
C551 4700P_0402_25V7K~D
37 AUX_EN_WOWL
R437 100K_0402_5%~D
39 COEX2_WLAN_ACTIVE
39 COEX1_BT_ACTIVE
+3.3V_WLAN, +3.3V_ALW_PCH
R433 2.2K_0402_5%~D
R434 2.2K_0402_5%~D
PCIE_MCARD1_DET# — R443 100K_0402_5%~D
USB_MCARD1_DET# — R438 100K_0402_5%~D
WLAN_SMBCLK — CARD_SMBCLK 34,38
WLAN_SMBDATA — CARD_SMBDAT 34,38
Q49A 2N7002DW-7-F_SOT363-6~D
Q49B 2N7002DW-7-F_SOT363-6~D
USB_MCARD1_DET# — @R741 0_0402_5%~D — PCIE_MCARD1_DET#
+3.3V_RUN
PCIE_MCARD1_DET# — @R439 100K_0402_5%~D
+1.5V_RUN
JMINI2
COEX2_WLAN_ACTIVE R440 0_0402_5%~D
COEX1_BT_ACTIVE R441 0_0402_5%~D
PCIE_WAKE#
16 MINI2CLK_REQ#
16 CLK_PCIE_MINI2#
16 CLK_PCIE_MINI2
38 HOST_DEBUG_RX
38 MSCLK
C1705 4700P_0402_25V7K~D — HOST_DEBUG_TX 38
16 PCIE_PRX_WLANTX_N2
16 PCIE_PRX_WLANTX_P2
WLAN_RADIO_DIS# R — R444 0_0402_5%~D — PCH_PLTRST# EC
16 PCIE_PTX_WLANRX_N2_C
16 PCIE_PTX_WLANRX_P2_C
19 PCIE_MCARD1_DET#
WLAN_SMBCLK
WLAN_SMBDATA
USBP4-
USBP4+
USB_MCARD1_DET#
WIMAX_LED#
LED_WLAN_OUT#
R1409 0_0402_5%~D — MSDATA 38
16 PCH_CL_CLK1
16 PCH_CL_DATA1
16 PCH_CL_RST1# — R448 0_0402_5%~D
MOLEX_48338-0088
@C552 33P_0402_50V8J~D
+1.5V_RUN, +3.3V_WLAN
C555 0.047U_0402_16V4Z~D
C556 0.047U_0402_16V4Z~D
C557 0.1U_0402_16V4Z~D
C558 0.047U_0402_16V4Z~D
C559 0.047U_0402_16V4Z~D
C560 0.1U_0402_16V4Z~D
C561 0.1U_0402_16V4Z~D
C562 4.7U_0603_6.3V6M~D
@C554 330U_D2E_6.3VM_R25~D
@R428 0_0402_5%~D
37 WLAN_RADIO_DIS# — WLAN_RADIO_DIS# R
D21 RB751S40T1_SOD523-2~D

PCIE/BKT Card

USB_MCARD3_DET# — @R742 0_0402_5%~D — PCIE_MCARD3_DET#
WPAN Noise: USB_MCARD3_DET# — C572 4700P_0402_25V7K~D
+3.3V_PCIE_BKT, +3.3V_PCIE_BKT
JMINI3
26,34,37 PCIE_WAKE#
COEX2_WLAN_ACTIVE R454 0_0402_5%~D
+1.5V_RUN
Confirm with DELL about UWB
16 MINI3CLK_REQ#
16 CLK_PCIE_MINI3#
16 CLK_PCIE_MINI3
UWB_RADIO_DIS# — R456 0_0402_5%~D — PCH_PLTRST# EC
UWB_RADIO_DIS# 37
PCH_PLTRST# EC 8,18,26,33,34,37,38
16 PCIE_PRX_WPANTX_N5
16 PCIE_PRX_WPANTX_P5
16 PCIE_PTX_WPANRX_N5_C
16 PCIE_PTX_WPANRX_P5_C
18 PCIE_MCARD3_DET#
+3.3V_ALW_PCH
R1506 100K_0402_5%~D
R266 100K_0402_5%~D
USBP13-
USBP13+
USB_MCARD3_DET#
USBP13- 18
USBP13+ 18
USB_MCARD3_DET# 15
FOX_AS0B241-S47R-7H
+1.5V_RUN, +3.3V_PCIE_BKT
C578 0.047U_0402_16V4Z~D
C579 0.047U_0402_16V4Z~D
C580 0.1U_0402_16V4Z~D
C581 0.047U_0402_16V4Z~D
C582 0.047U_0402_16V4Z~D
C583 0.1U_0402_16V4Z~D
C584 0.1U_0402_16V4Z~D
C585 4.7U_0603_6.3V6M~D

+15V_ALW, +3.3V_ALW, +3.3V_PCIE_BKT
R435 100K_0402_5%~D
R436 100K_0402_5%~D
Q50 SI3456BDV-T1-E3_TSOP6~D
Q192B 2N7002DW-7-F_SOT363-6~D
Q192A 2N7002DW-7-F_SOT363-6~D
C553 4700P_0402_25V7K~D
37 MCARD_PCIE_BKT_PWREN
R450 100K_0402_5%~D

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Compal Electronics, Inc.	
Title	Mini Card
Size	Document Number: LA-5691P — Rev: 0.1
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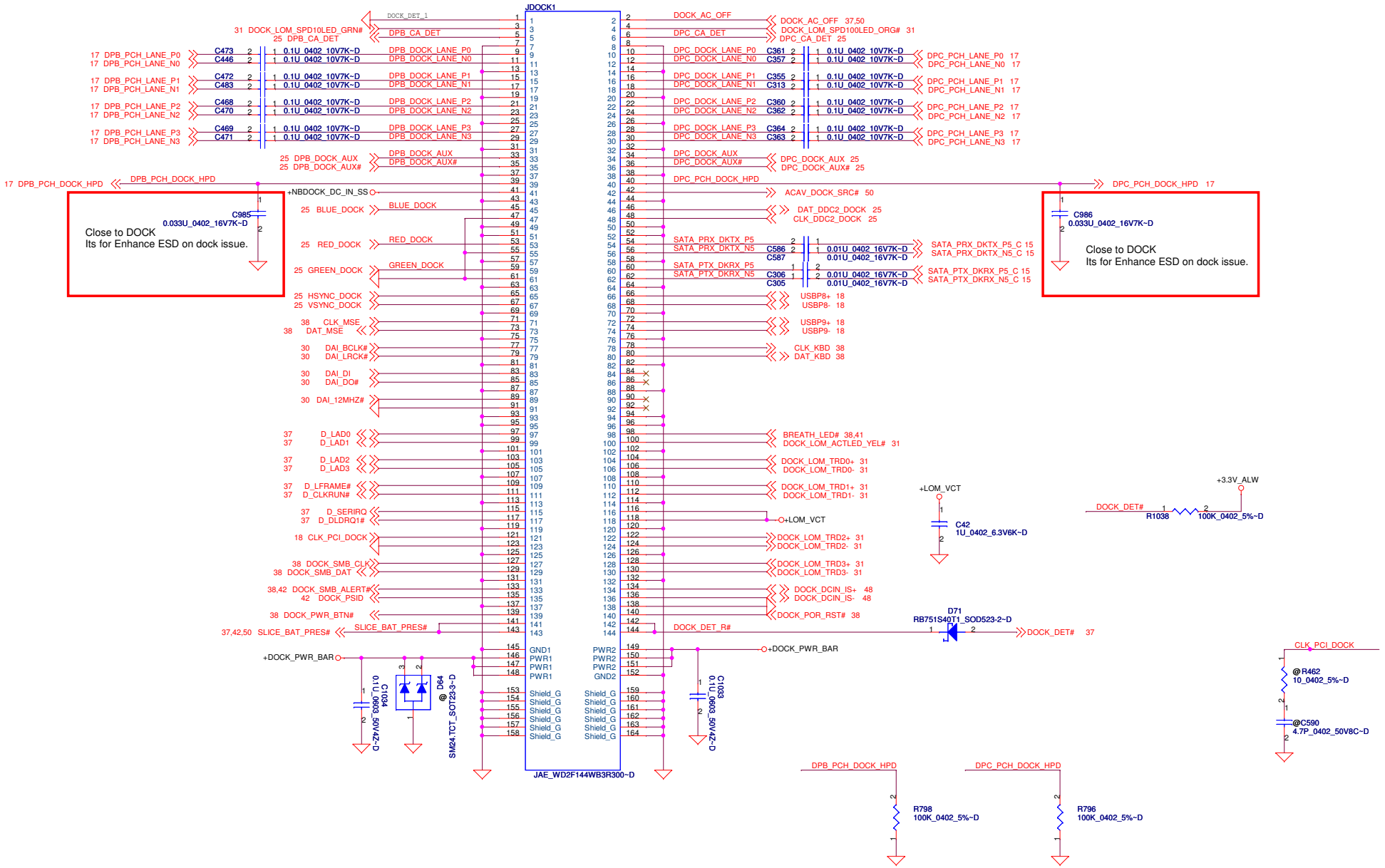

Compal Electronics, Inc.

Title: DOCKING CONN

Size | Document Number: LA-5691P | Rev: 0.1

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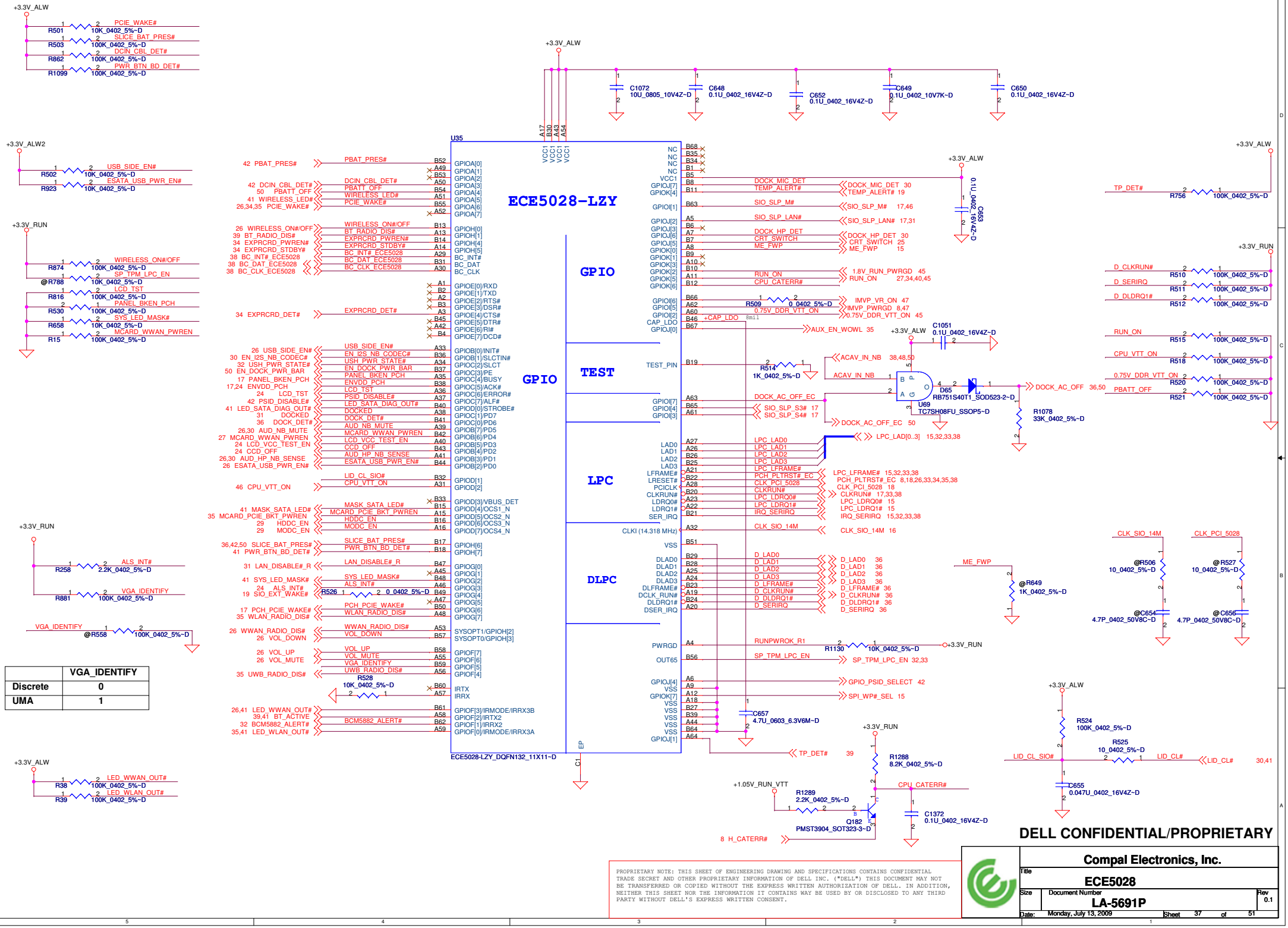
ECE5028-LZY
U35
GPIO
TEST
LPC
DLPC
ECE5028-LZY_DQFN132_11X11~D
+3.3V_ALW
+3.3V_ALW2
+3.3V_RUN
+1.05V_RUN_VTT
PCIE_WAKE#
SLICE_BAT_PRES#
DCIN_CBL_DET#
PWR_BTN_BD_DET#
USB_SIDE_EN#
ESATA_USB_PWR_EN#
LCD_TST
PANEL_BKEN_PCH
SYS_LED_MASK#
MCARD_WWAN_PWREN
WIRELESS_ON#/OFF
SP_TPM_LPC_EN
ALS_INT#
VGA_IDENTIFY
LED_WWAN_OUT#
LED_WLAN_OUT#
PBAT_PRES#
DCIN_CBL_DET#
PBATT_OFF
WIRELESS_LED#
PCIE_WAKE#
BT_RADIO_DIS#
EXPRCRD_PWREN#
EXPRCRD_STDBY#
BC_INT#_ECE5028
BC_DAT_ECE5028
BC_CLK_ECE5028
EXPRCRD_DET#
EN_I2S_NB_CODEC#
USH_PWR_STATE#
EN_DOCK_PWR_BAR
PANEL_BKEN_PCH
ENVDD_PCH
LCD_TST
PSID_DISABLE#
LED_SATA_DIAG_OUT#
DOCKED
DOCK_DET#
AUD_NB_MUTE
MCARD_WWAN_PWREN
LCD_VCC_TEST_EN
CCD_OFF
AUD_HP_NB_SENSE
ESATA_USB_PWR_EN#
LID_CL_SIO#
CPU_VTT_ON
MASK_SATA_LED#
MCARD_PCIE_BKT_PWREN
HDDC_EN
MODC_EN
SLICE_BAT_PRES#
PWR_BTN_BD_DET#
LAN_DISABLE#_R
SYS_LED_MASK#
ALS_INT#
SIO_EXT_WAKE#
PCH_PCIE_WAKE#
WLAN_RADIO_DIS#
WWAN_RADIO_DIS#
VOL_DOWN
VOL_UP
VOL_MUTE
VGA_IDENTIFY
UWB_RADIO_DIS#
IRTX
IRRX
LED_WWAN_OUT#
LED_WLAN_OUT#
BCM5882_ALERT#
DOCK_MIC_DET
TEMP_ALERT#
SIO_SLP_M#
SIO_SLP_LAN#
DOCK_HP_DET
CRT_SWITCH
ME_FWP
RUN_ON
CPU_CATERR#
IMVP_VR_ON
IMVP_PWRGD
0.75V_DDR_VTT_ON
+CAP_LDO
AUX_EN_WOWL
ACAV_IN_NB
DOCK_AC_OFF_EC
SIO_SLP_S3#
SIO_SLP_S4#
LPC_LAD0
LPC_LAD1
LPC_LAD2
LPC_LAD3
LPC_LFRAME#
PCH_PLTRST#_EC
CLK_PCI_5028
CLKRUN#
LPC_LDRQ0#
LPC_LDRQ1#
IRQ_SERIRQ
CLK_SIO_14M
D_LAD0
D_LAD1
D_LAD2
D_LAD3
D_LFRAME#
D_CLKRUN#
D_DLDRQ1#
D_SERIRQ
RUNPWROK_R1
SP_TPM_LPC_EN
GPIO_PSID_SELECT
SPI_WP#_SEL
TP_DET#
H_CATERR#
D_CLKRUN#
D_SERIRQ
D_DLDRQ1#
RUN_ON
CPU_VTT_ON
0.75V_DDR_VTT_ON
PBATT_OFF
TP_DET#
LID_CL#
C1072 10U_0805_10V4Z~D
C648 0.1U_0402_16V4Z~D
C652 0.1U_0402_16V4Z~D
C649 0.1U_0402_10V7K~D
C650 0.1U_0402_16V4Z~D
C653 0.1U_0402_16V4Z~D
C1051 0.1U_0402_16V4Z~D
C657 4.7U_0603_6.3V6M~D
C1372 0.1U_0402_16V4Z~D
C655 0.047U_0402_16V4Z~D
C654 4.7P_0402_50V8C~D
C656 4.7P_0402_50V8C~D
D65 RB751S40T1_SOD523-2~D
U69 TC7SH08FU_SSOP5~D
Q182 PMST3904_SOT323-3~D
R1078 33K_0402_5%~D
R1288 8.2K_0402_5%~D
R1289 2.2K_0402_5%~D
R1130 10K_0402_5%~D
R514 1K_0402_5%~D
R509 0_0402_5%~D
R526 0_0402_5%~D
R528 10K_0402_5%~D
R649 1K_0402_5%~D
R524 100K_0402_5%~D
R525 10_0402_5%~D
R756 100K_0402_5%~D
R510 100K_0402_5%~D
R511 100K_0402_5%~D
R512 100K_0402_5%~D
R515 100K_0402_5%~D
R518 100K_0402_5%~D
R520 100K_0402_5%~D
R521 100K_0402_5%~D
@R506 10_0402_5%~D
@R527 10_0402_5%~D
@R558 100K_0402_5%~D
VGA_IDENTIFY
Discrete 0
UMA 1
DELL CONFIDENTIAL/PROPRIETARY
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Compal Electronics, Inc.
Title
ECE5028
Size
Document Number
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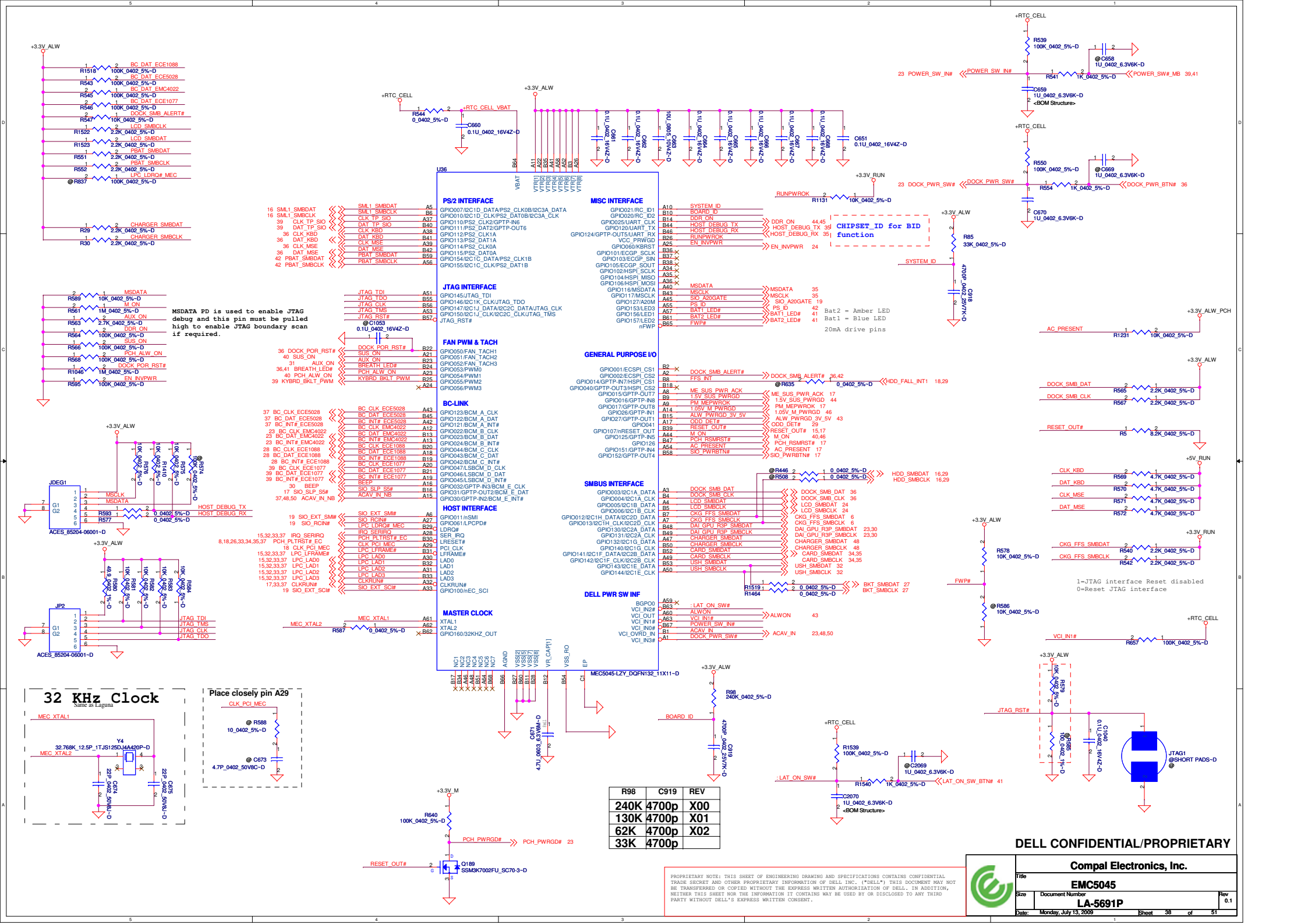
MSDATA PD is used to enable JTAG debug and this pin must be pulled high to enable JTAG boundary scan if required.
Bat2 = Amber LED
Bat1 = Blue LED
20mA drive pins
CHIPSET_ID for BID function
1=JTAG interface Reset disabled
0=Reset JTAG interface
32 KHz Clock
Same as Laguna
Place closely pin A29
R98 C919 REV
240K 4700p X00
130K 4700p X01
62K 4700p X02
33K 4700p
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
EMC5045
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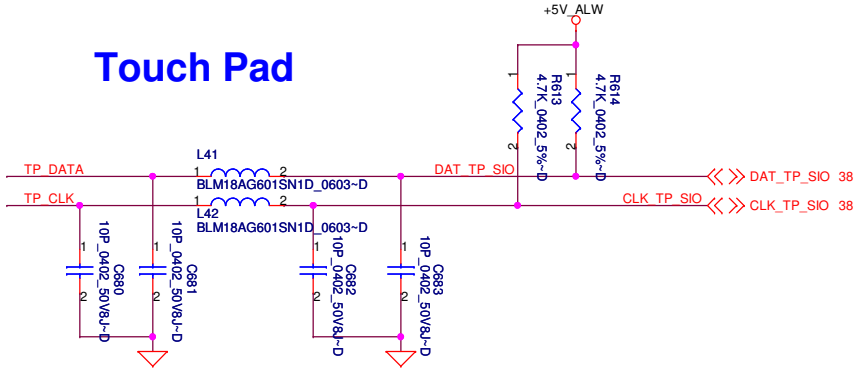
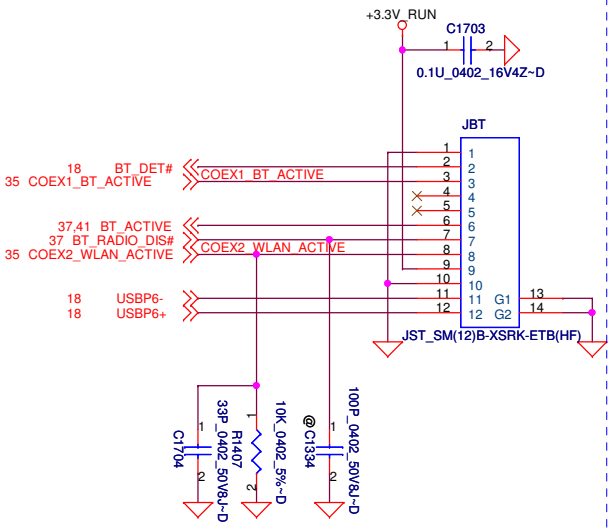
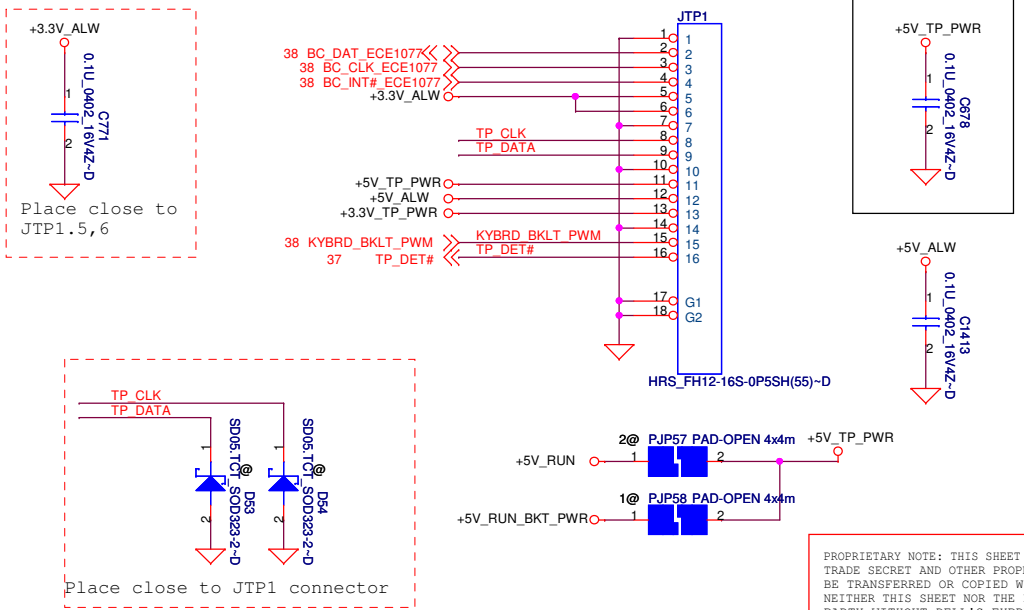
Touch Pad



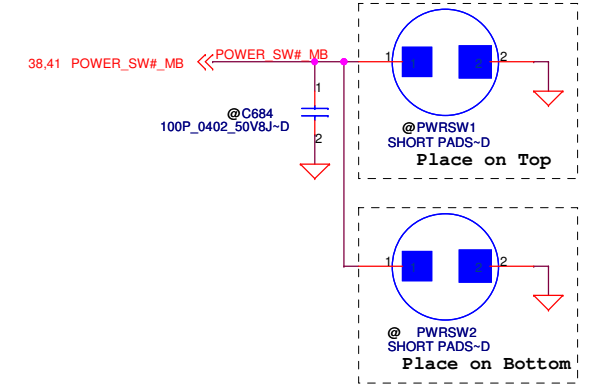
BlueTooth



New Keyboard connector assignment



Power Switch for debug



@FAN

Part Number	Description
DC28A000800	FAN SET DAQ20 DC5V AB7405HB-HB3 ADDA

@Speak

Part Number	Description
PK230003Q0L	SPK PACK ZJX 2.0W 4 OHM FG

@SM CARD BODY

Part Number	Description
SP070007V0L	S SOCKET TYCO 1770551-1 10P H5.9 SMART

@PCMCIA BODY

Part Number	Description
DC000001Q0L	PCMCIA TYCO 1759096-1

@MDC wire set cable

Part Number	Description
DC02000CS0L	H-CONN SET ZGX MB-MDC

@T/P wire set cable

Part Number	Description
DC02000840L	H-CONN SET ZJX MB-B/T-TP-FP

@LVDS cable

Part Number	Description
DC020003Y0L	H-CONN SET ZJX MB-LCD 14 WXGA+(-1ch)

@LVDS cable

Part Number	Description
DC02000870L	H-CONN SET ZJX MB-LCD 14 WXGA+(-2ch)

@RTC BATT

Part Number	Description
GC20323MX00	BATT CR2032 3V 220MAH MAXELL

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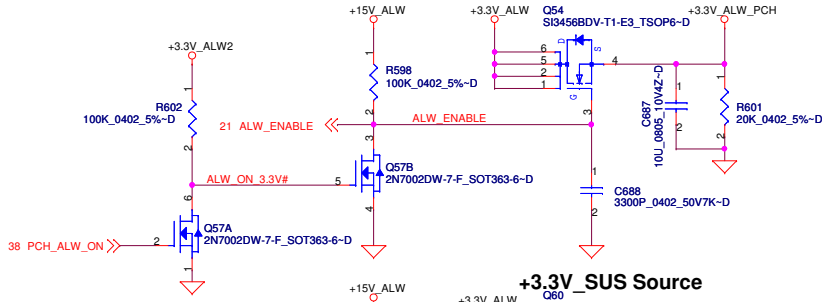
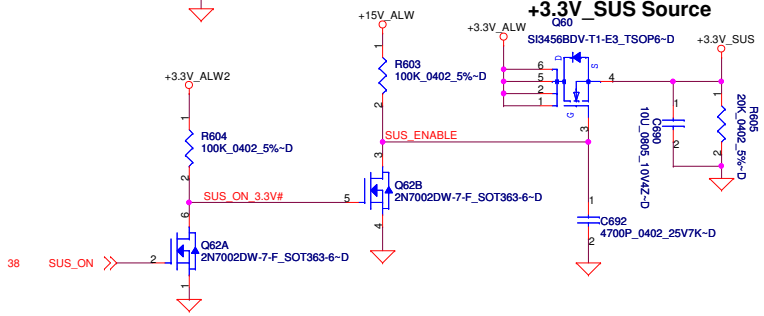
DC/DC Interface

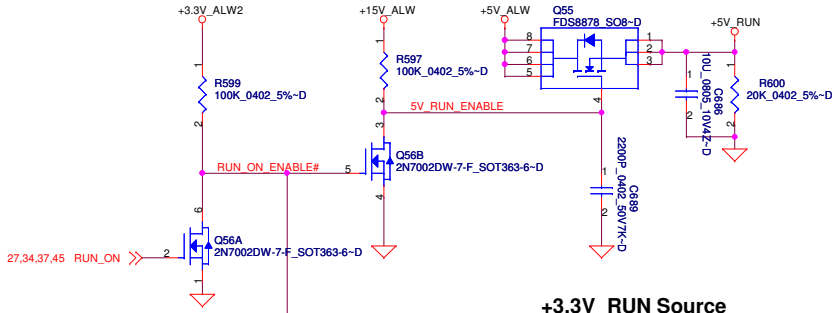
+3.3V_ALW_PCH Source



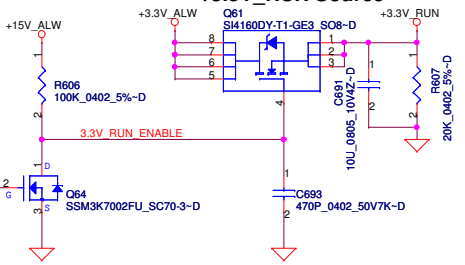
+3.3V_SUS Source



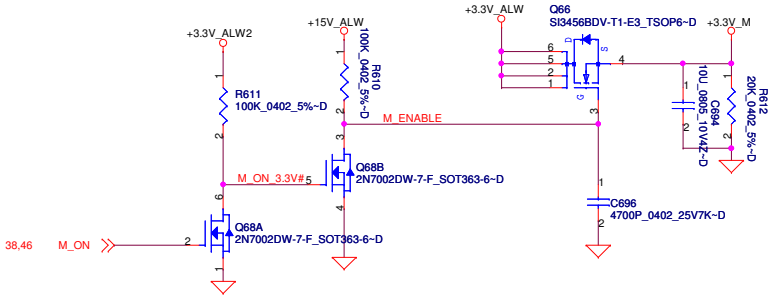
+5VRUN Source



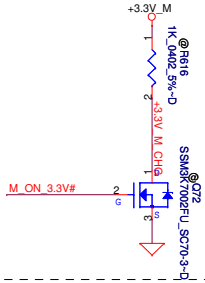
+3.3V_RUN Source



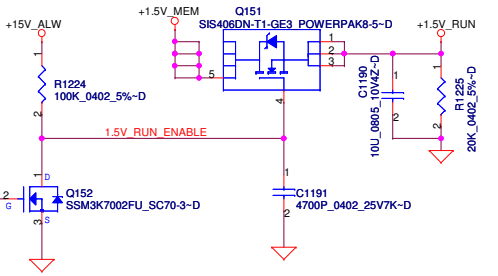
+3.3VM Source



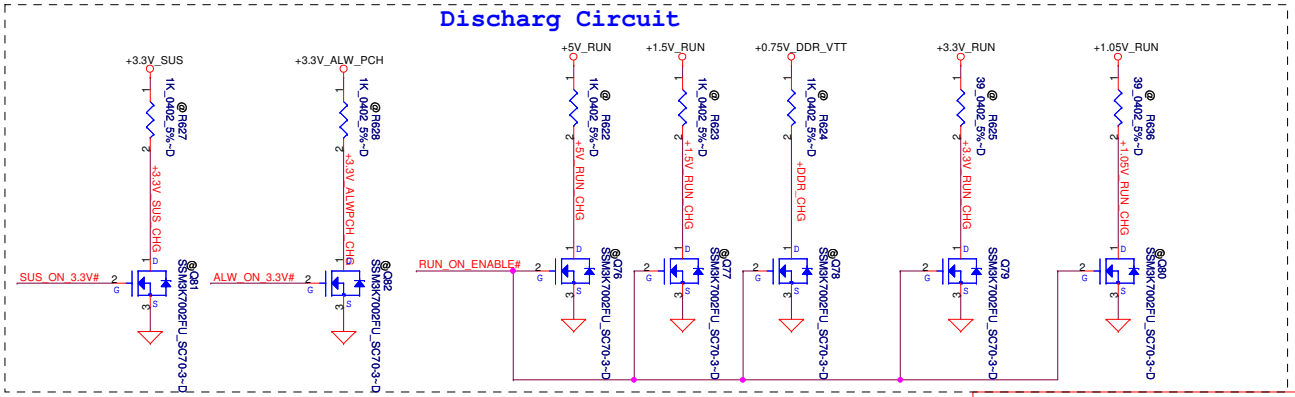
Discharg Circuit



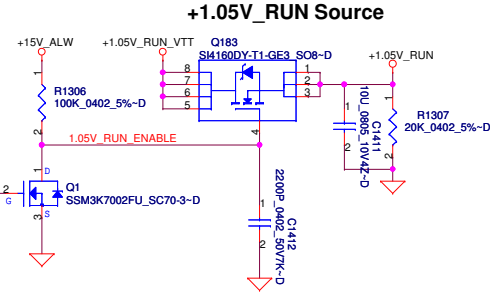
+1.5V_RUN Source



Discharg Circuit



+1.05V_RUN Source



Compal Electronics, Inc.	
Title	POWER CONTROL
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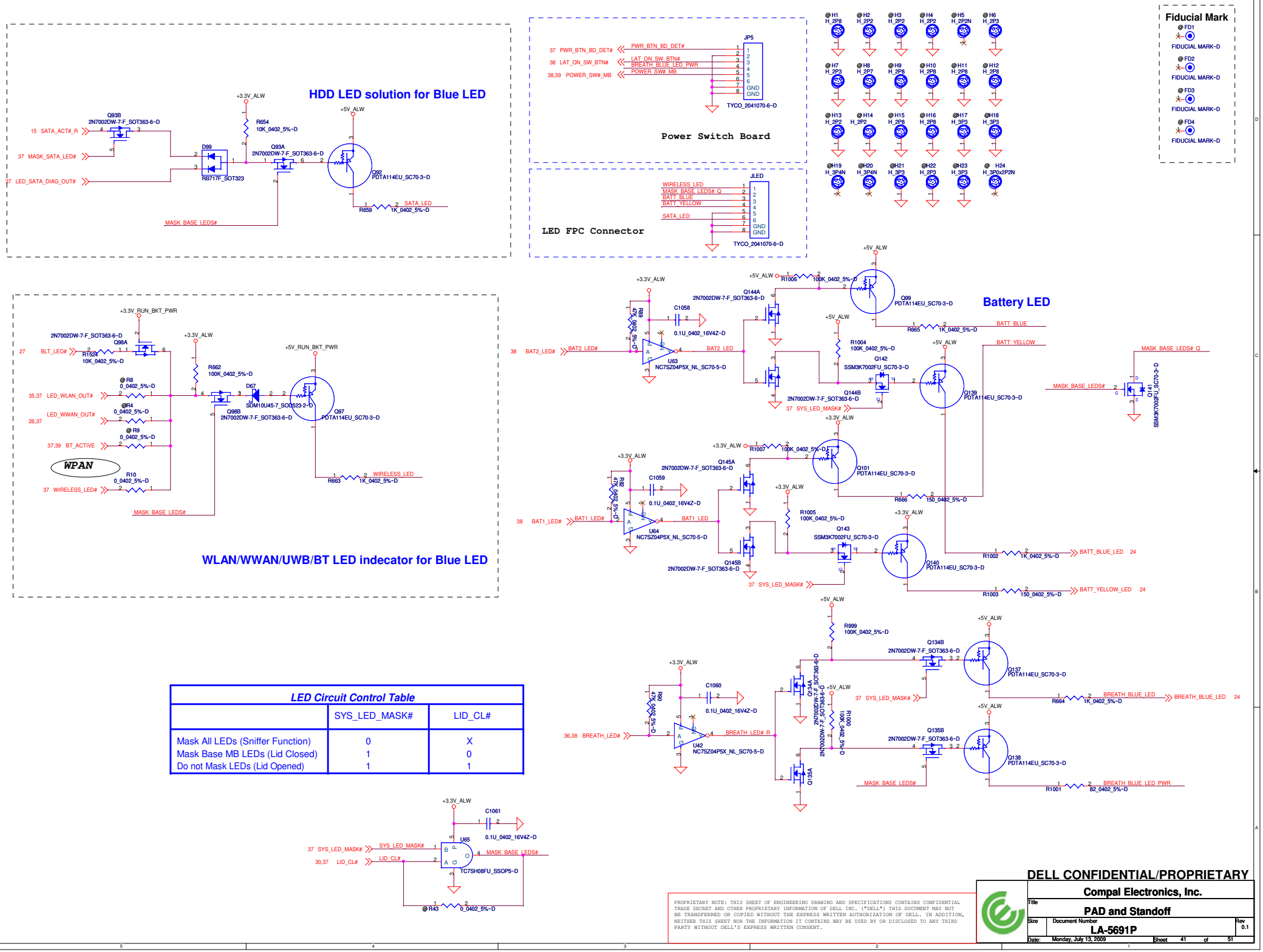
HDD LED solution for Blue LED
Power Switch Board
LED FPC Connector
Fiducial Mark
FIDUCIAL MARK-D
Battery LED
WLAN/WWAN/UWB/BT LED indecator for Blue LED
WPAN
LED Circuit Control Table
SYS_LED_MASK#
LID_CL#
Mask All LEDs (Sniffer Function) 0 X
Mask Base MB LEDs (Lid Closed) 1 0
Do not Mask LEDs (Lid Opened) 1 1
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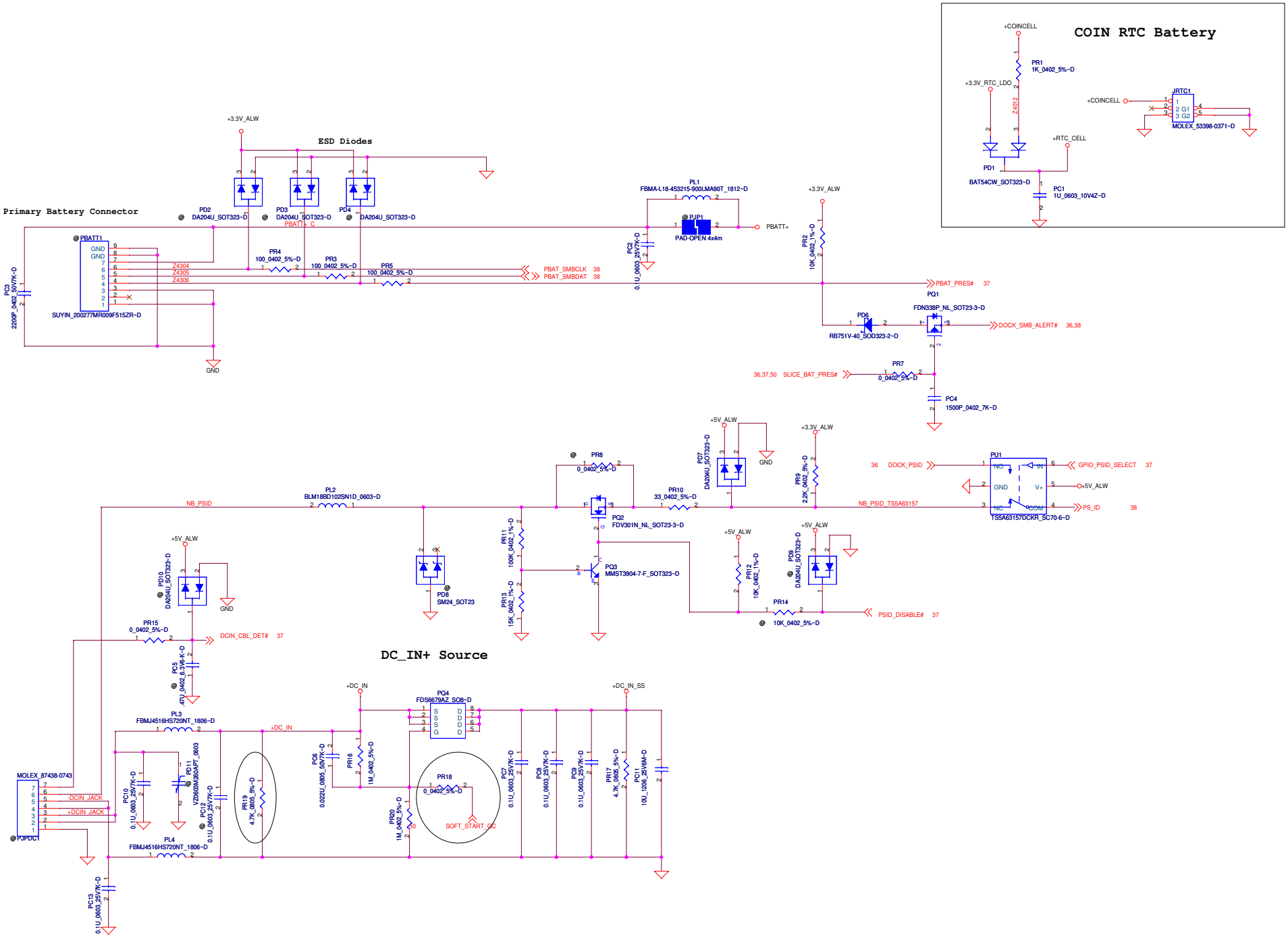

Compal Electronics, Inc.

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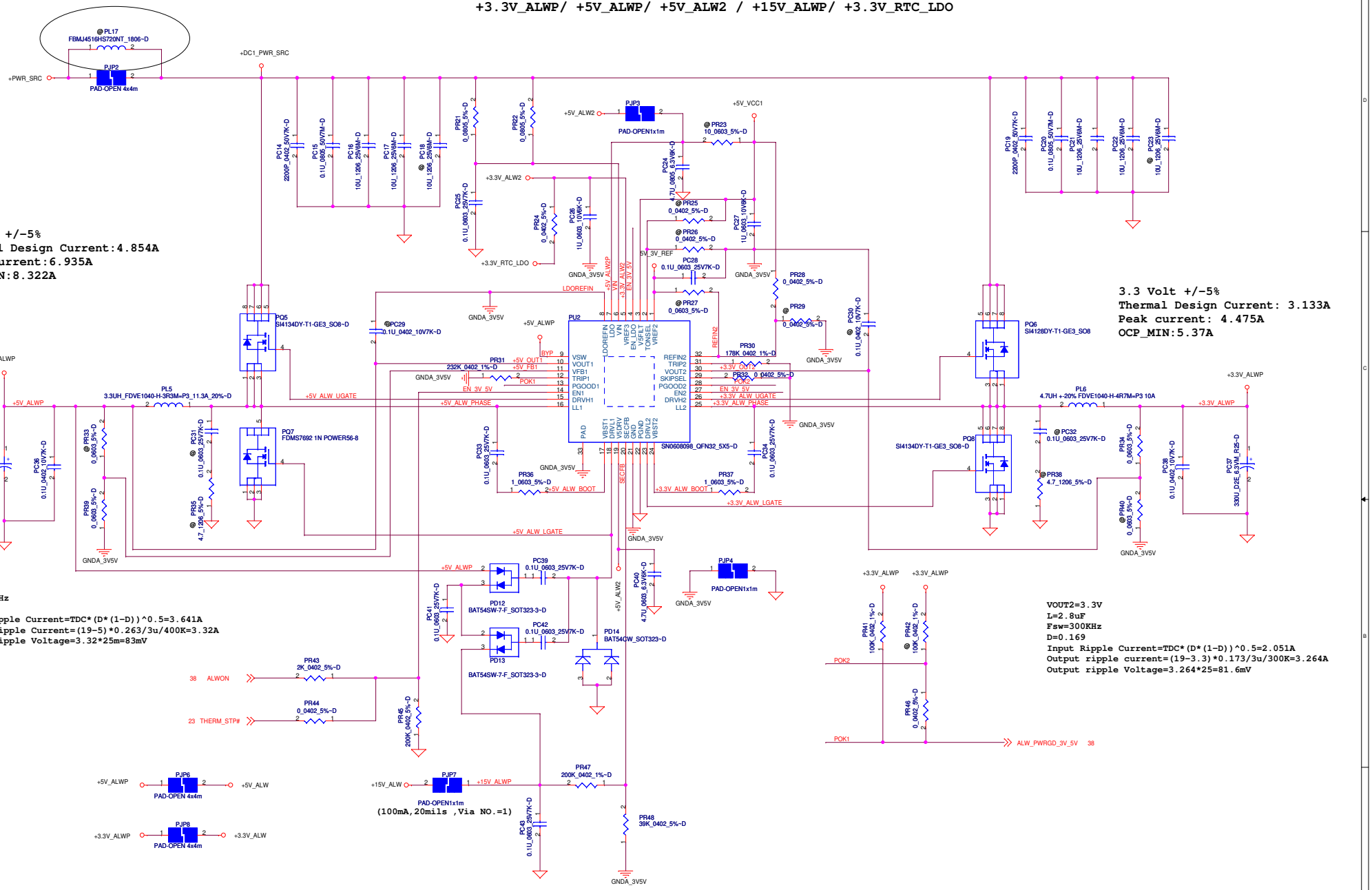
+3.3V_ALWP/ +5V_ALWP/ +5V_ALW2 / +15V_ALWP/ +3.3V_RTC_LDO



Compal Electronics, Inc.		
Title: DC/DC +3V/ +5V		
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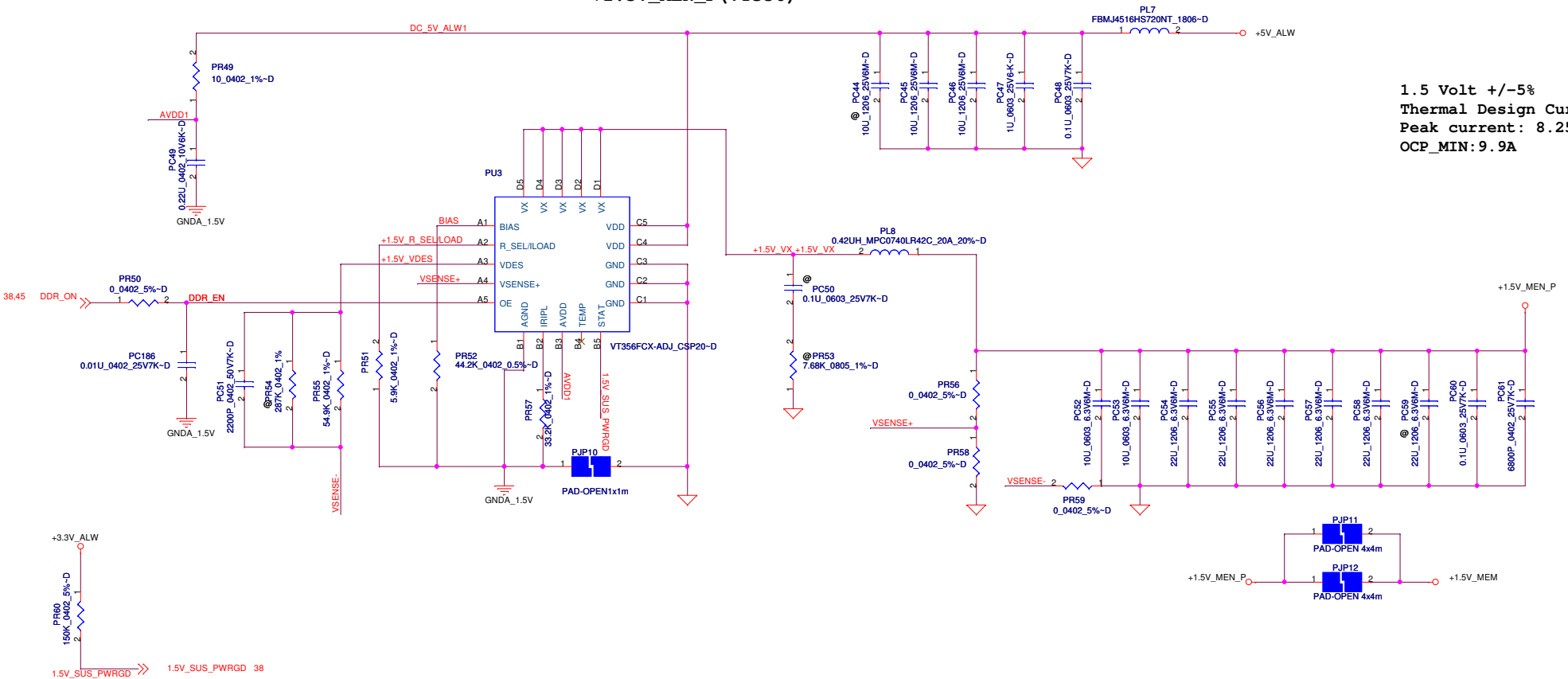
+1.5V_MEN_P (VT356)



Compal Electronics, Inc.

Title	+1.5V_MEM	
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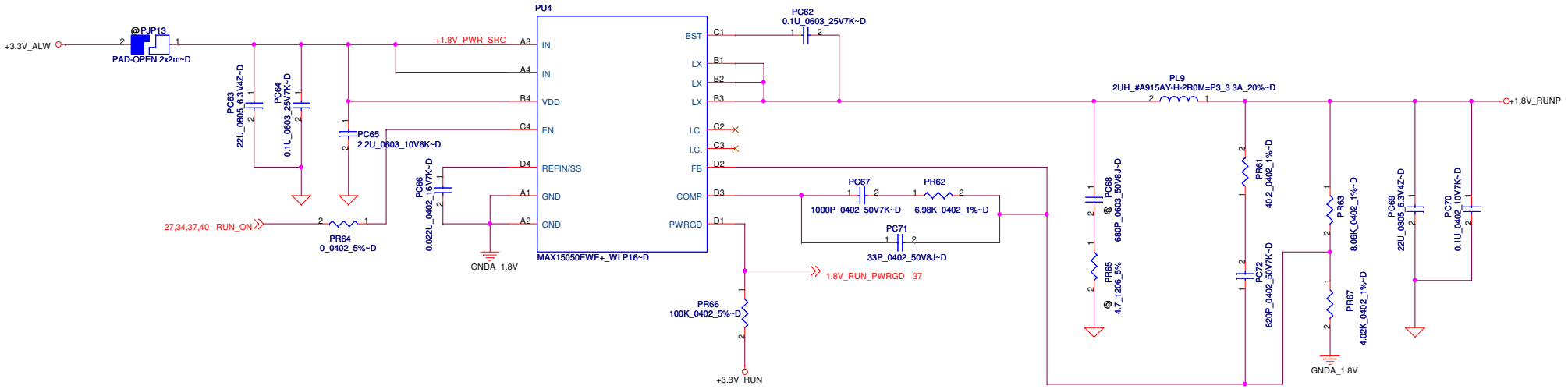
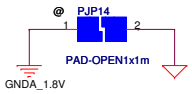
+1.8V_RUN

1.8 Volt +/-5%
Thermal Design Current: 0.894A
Peak current: 1.277A
OCP_min:1.532A

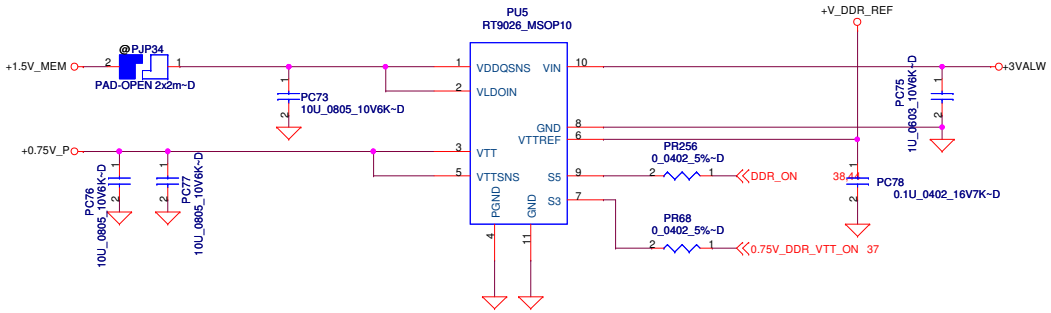


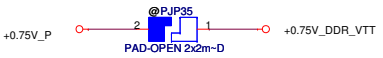


+0.75V_DDR_VTT

DDR3 Termination

0.75Volt +/-5%
Thermal Design Current: 0.525A
Peak current: 0.75A
OCP mini: 0.9A





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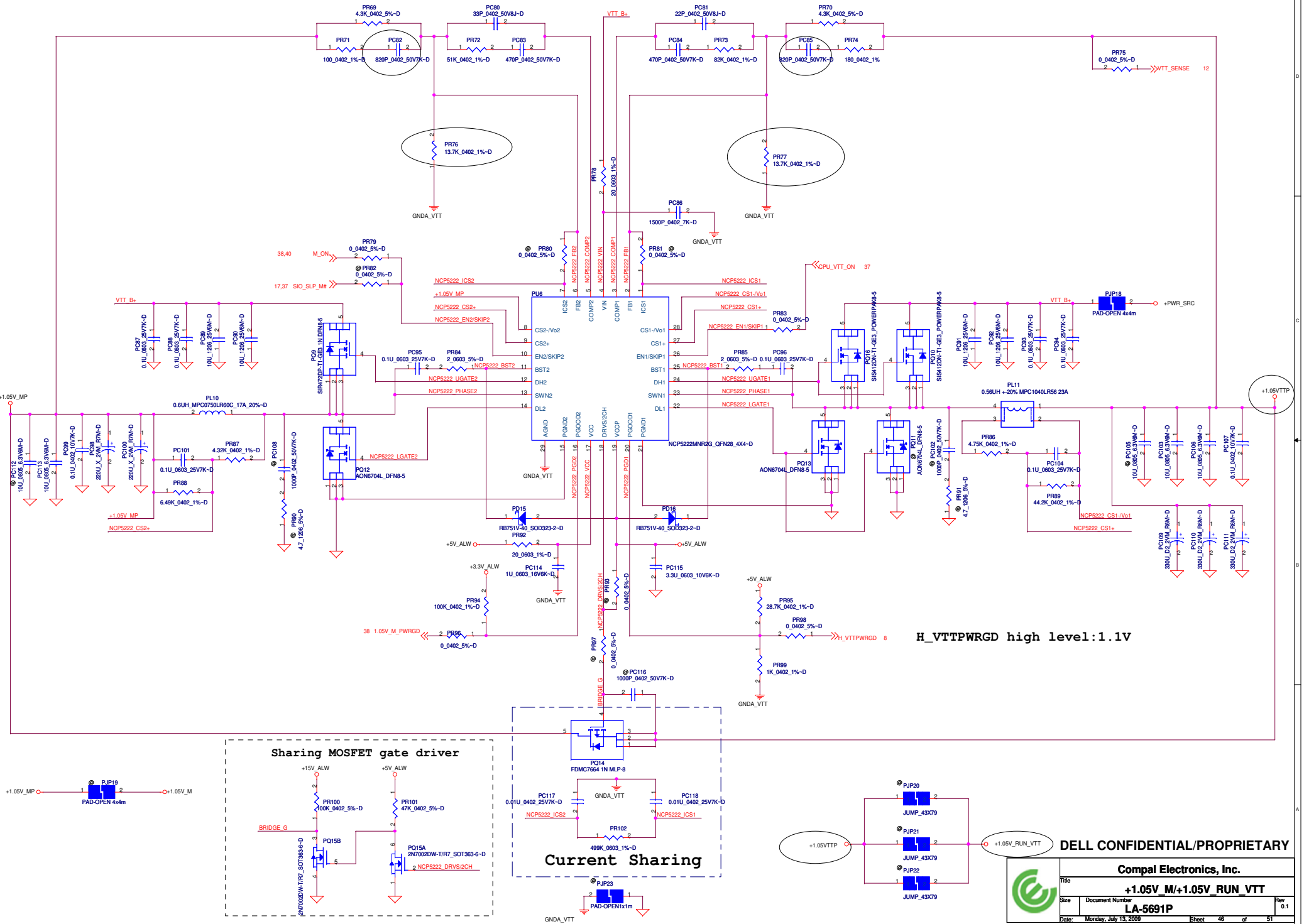
1.05 Volt +/-5%
Thermal Design Current: 1.51A
Peack current: 2.17A

+1.05V_M/+1.05VTT_RUN

1.05 Volt +/-5%
Thermal Design Current: 15.9A
Peack current: 22.7A



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Compal Electronics, Inc.		
Title: +1.05V_M/+1.05V_RUN_VTT		
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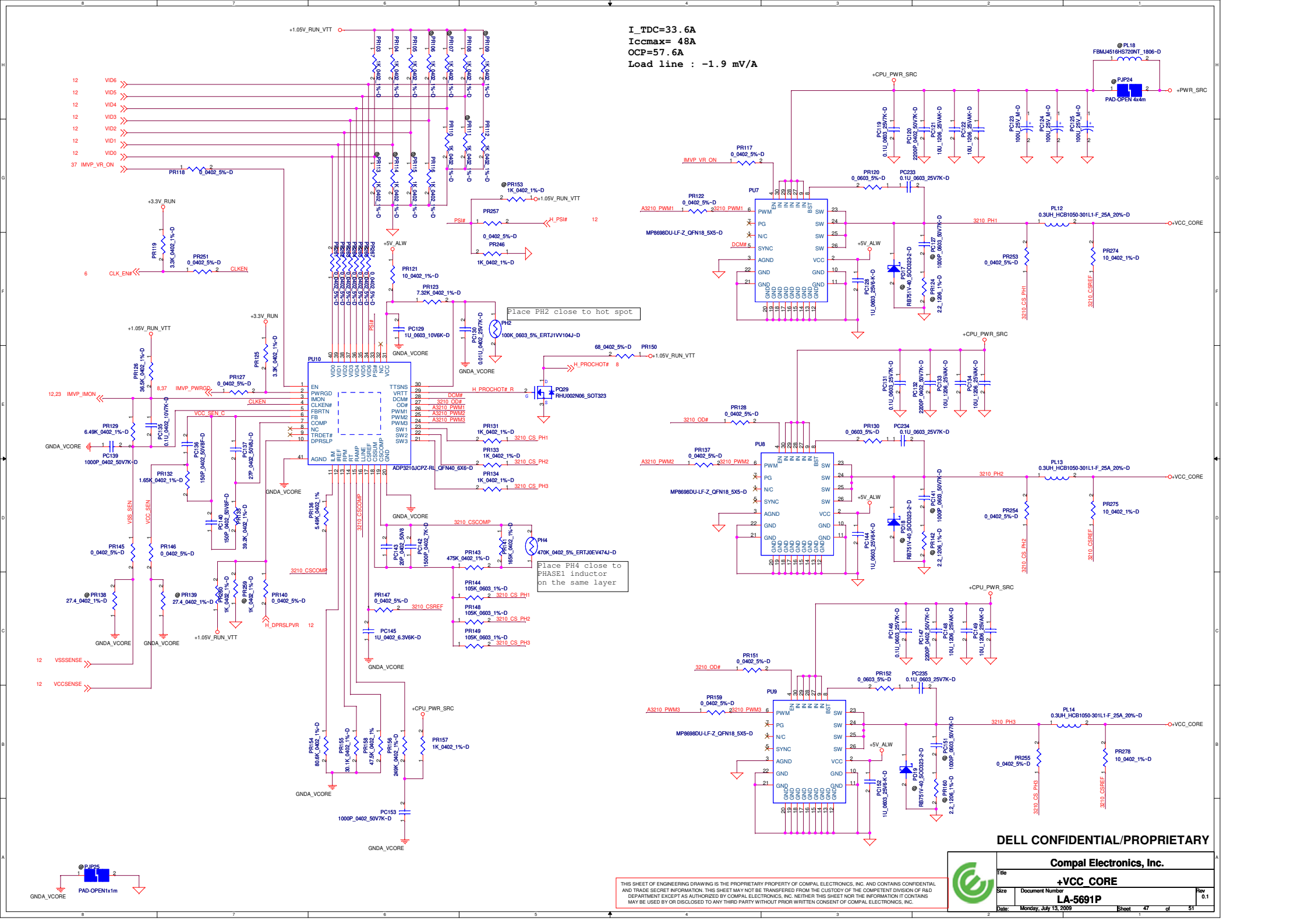

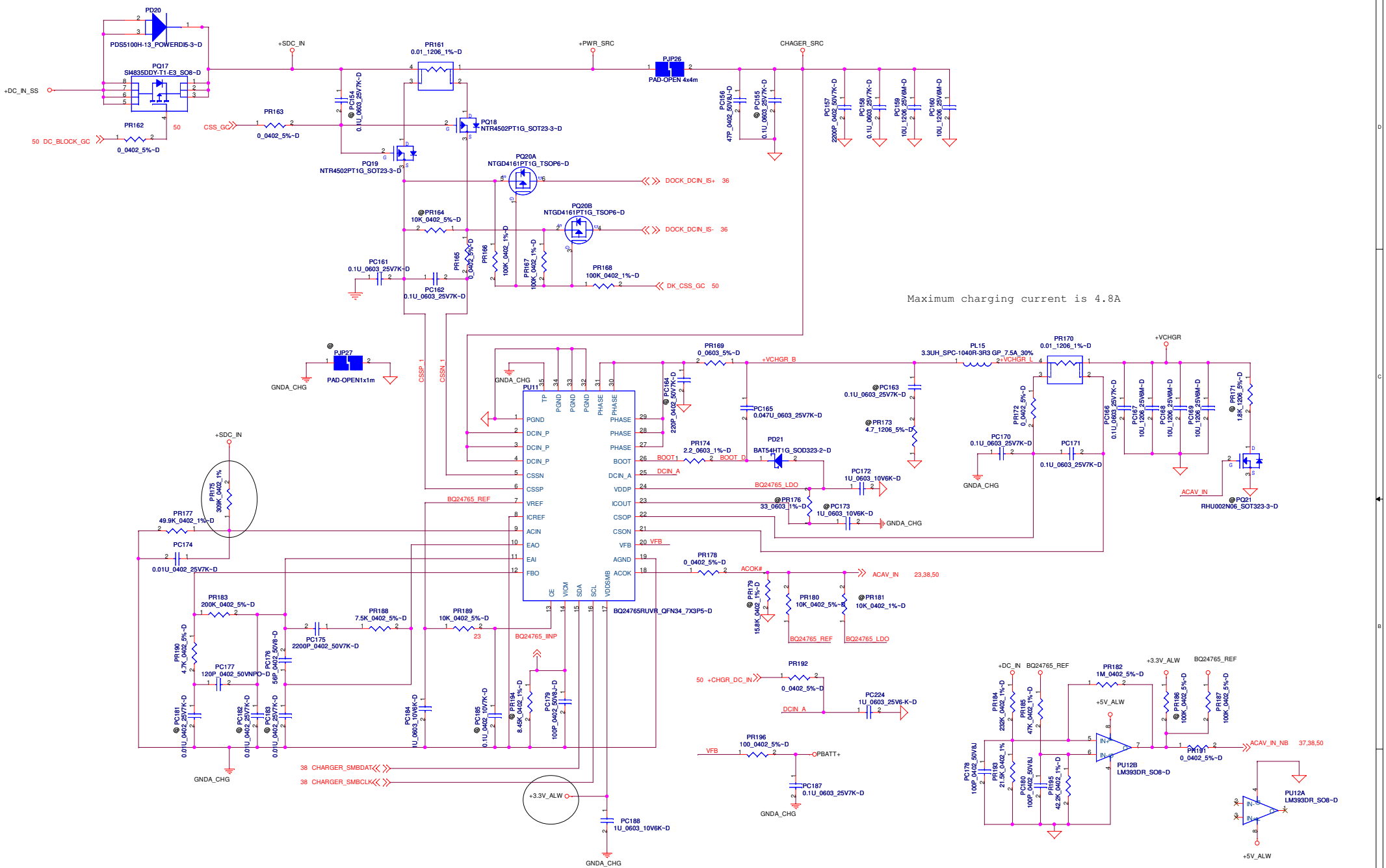

Compal Electronics, Inc.

Title: Charger

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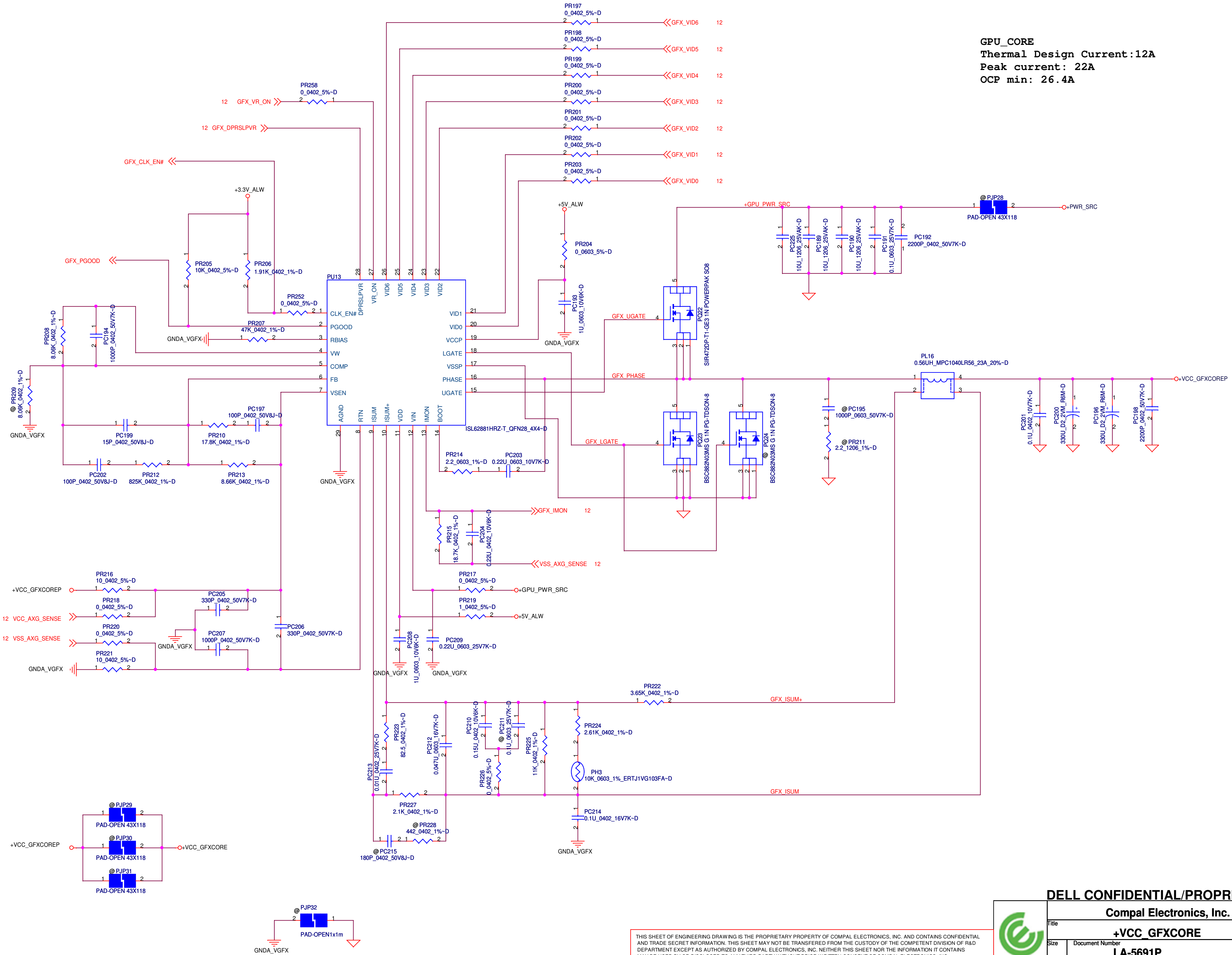

GPU_CORE
Thermal Design Current:12A
Peak current: 22A
OCP min: 26.4A
PU13
ISL62881HRZ-T_QFN28_4X4~D
CLK_EN#
PGOOD
RBIAS
VW
COMP
FB
VSEN
DPRSLPVR
VR_ON
VID6
VID5
VID4
VID3
VID2
VID1
VID0
VCCP
LGATE
VSSP
PHASE
UGATE
AGND
RTN
ISUM
ISUM+
VDD
VIN
IMON
BOOT
GFX_VID6
GFX_VID5
GFX_VID4
GFX_VID3
GFX_VID2
GFX_VID1
GFX_VID0
GFX_VR_ON
GFX_DPRSLPVR
GFX_CLK_EN#
GFX_PGOOD
+3.3V_ALW
+5V_ALW
GNDA_VGFX
+GPU_PWR_SRC
+PWR_SRC
GFX_UGATE
GFX_PHASE
GFX_LGATE
GFX_IMON
VSS_AXG_SENSE
VCC_AXG_SENSE
+VCC_GFXCOREP
+VCC_GFXCORE
GFX_ISUM+
GFX_ISUM
PR197 0_0402_5%~D
PR198 0_0402_5%~D
PR199 0_0402_5%~D
PR200 0_0402_5%~D
PR201 0_0402_5%~D
PR202 0_0402_5%~D
PR203 0_0402_5%~D
PR258 0_0402_5%~D
PR204 0_0603_5%~D
PR205 10K_0402_5%~D
PR206 1.91K_0402_1%~D
PR252 0_0402_5%~D
PR207 47K_0402_1%~D
PR208 8.06K_0402_1%~D
PR209 8.06K_0402_1%~D
PC194 1000P_0402_50V7K~D
PC193 1U_0603_10V6K~D
PC197 100P_0402_50V8J~D
PC199 15P_0402_50V8J~D
PR210 17.8K_0402_1%~D
PC202 100P_0402_50V8J~D
PR212 825K_0402_1%~D
PR213 8.66K_0402_1%~D
PR214 2.2_0603_1%~D
PC203 0.22U_0603_10V7K~D
PR215 18.7K_0402_1%~D
PC204 0.22U_0402_10V6K~D
PR216 10_0402_5%~D
PR218 0_0402_5%~D
PR220 0_0402_5%~D
PR221 10_0402_5%~D
PC205 330P_0402_50V7K~D
PC207 1000P_0402_50V7K~D
PC206 330P_0402_50V7K~D
PR217 0_0402_5%~D
PR219 1_0402_5%~D
PC208 1U_0603_10V6K~D
PC209 0.22U_0603_25V7K~D
PQ22 SIR472DP-T1-GE3 1N POWERPAK SO8
PQ23 BSC882N03MS G 1N PG-TDSON-8
PQ24 BSC882N03MS G 1N PG-TDSON-8
PC225 10U_1206_25VAK~D
PC189 10U_1206_25VAK~D
PC190 10U_1206_25VAK~D
PC191 0.1U_0603_25V7K~D
PC192 2200P_0402_50V7K~D
PJP28 PAD-OPEN 43X118
PL16 0.56UH_MPC1040LR56_23A_20%~D
PC195 1000P_0603_50V7K~D
PR211 2.2_1206_1%~D
PC201 0.1U_0402_10V7K~D
PC200 330U_D2_2VM_R6M~D
PC196 330U_D2_2VM_R6M~D
PC198 2200P_0402_50V7K~D
PR222 3.65K_0402_1%~D
PR223 82.5_0402_1%~D
PC213 0.01U_0402_25V7K~D
PC212 0.047U_0603_16V7K~D
PC210 0.15U_0402_10V6K~D
PC211 0.1U_0603_25V7K~D
PR226 0_0402_5%~D
PR225 11K_0402_1%~D
PR224 2.61K_0402_1%~D
PH3 10K_0603_1%_ERTJ1VG103FA~D
PC214 0.1U_0402_16V7K~D
PR227 2.1K_0402_1%~D
PR228 442_0402_1%~D
PC215 180P_0402_50V8J~D
PJP29 PAD-OPEN 43X118
PJP30 PAD-OPEN 43X118
PJP31 PAD-OPEN 43X118
PJP32 PAD-OPEN1x1m

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Title: +VCC_GFXCORE

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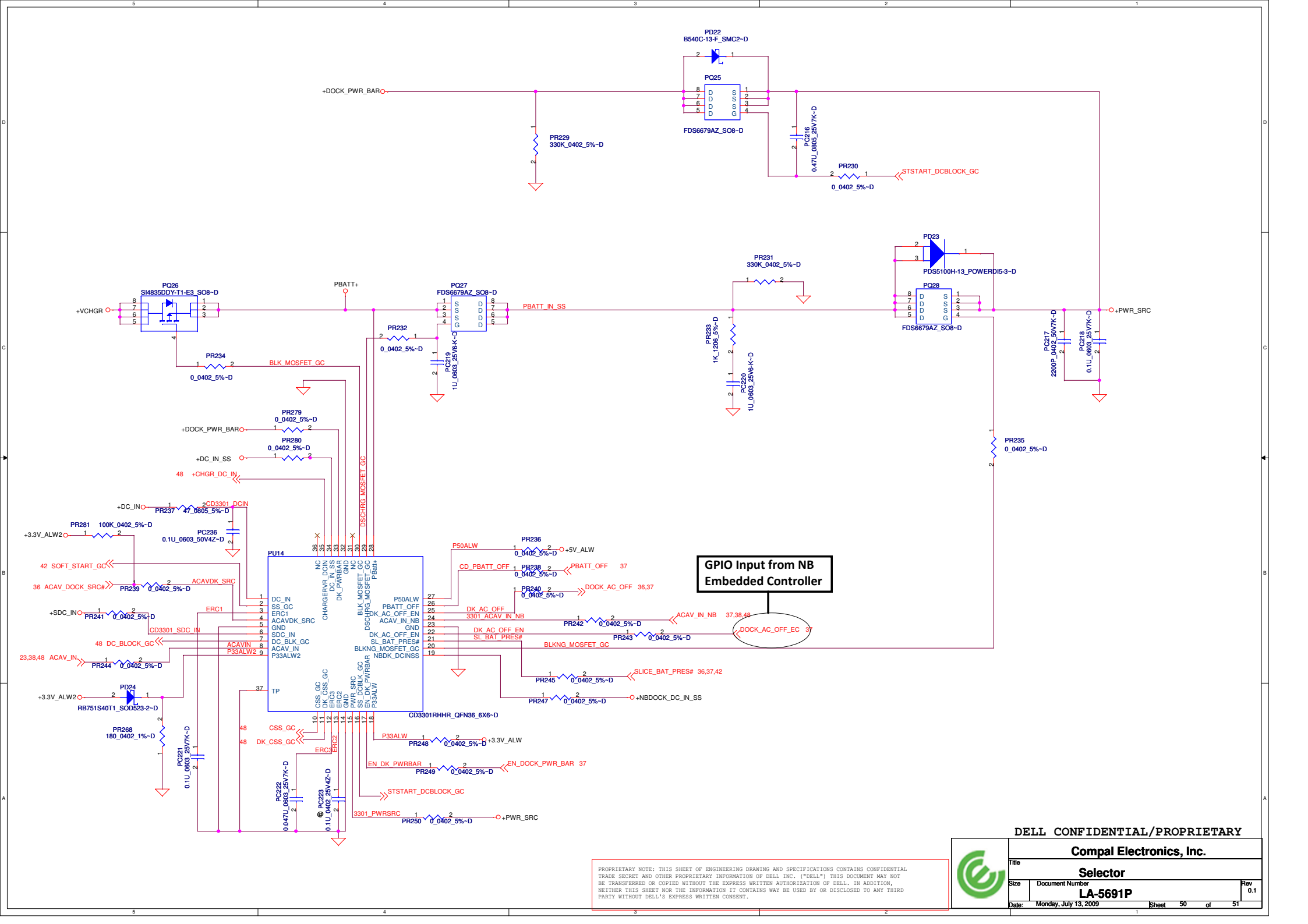

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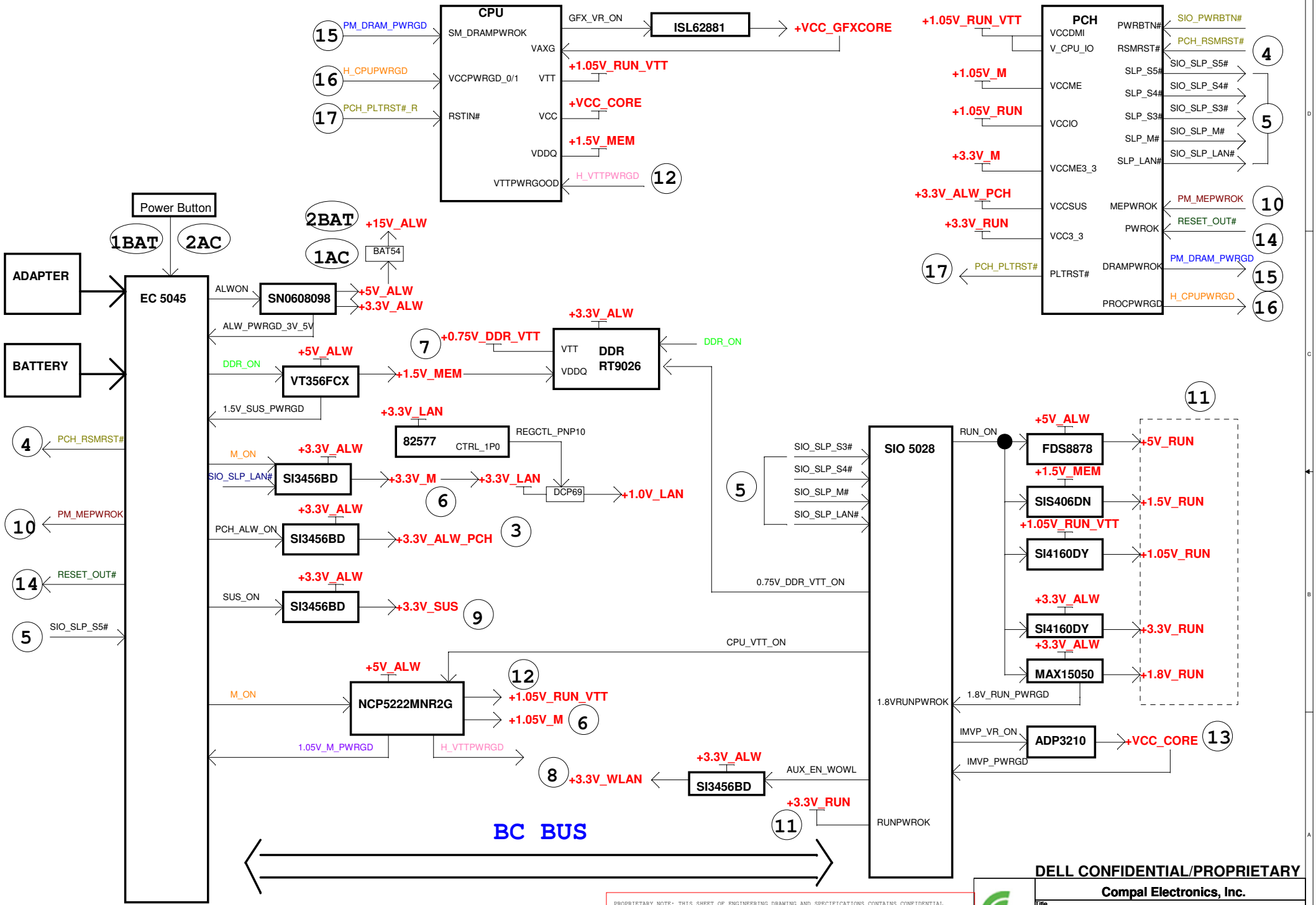

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