COMPAL CONFIDENTIAL

MODEL NAME : CDP70

PCB NO : LA-E141P

BOM P/N :

GPIO MAP: Dell GPIO map EC16 062416 Compal Only

Breckenridge 14 UMA

Kabylake H

2016-07-01

REV : 0.2 (X01)

@ : Nopop Component

EMI@ : EMI Component

@EMI@ : EMI Nopop Component

ESD@ : ESD Component

@ESD@ : ESD Nopop Component

RF@ : RF Component

@RF@ : RF Nopop Component

XDP@ : XDP Component

CONN@ : Connector Component

MB PCB

Part Number	Description
DAB0001R000	PCB 1SC LA-E141P REV0 MB UMA 1

Layout Dell logo

REV: X01
PWB: K6NHT

DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

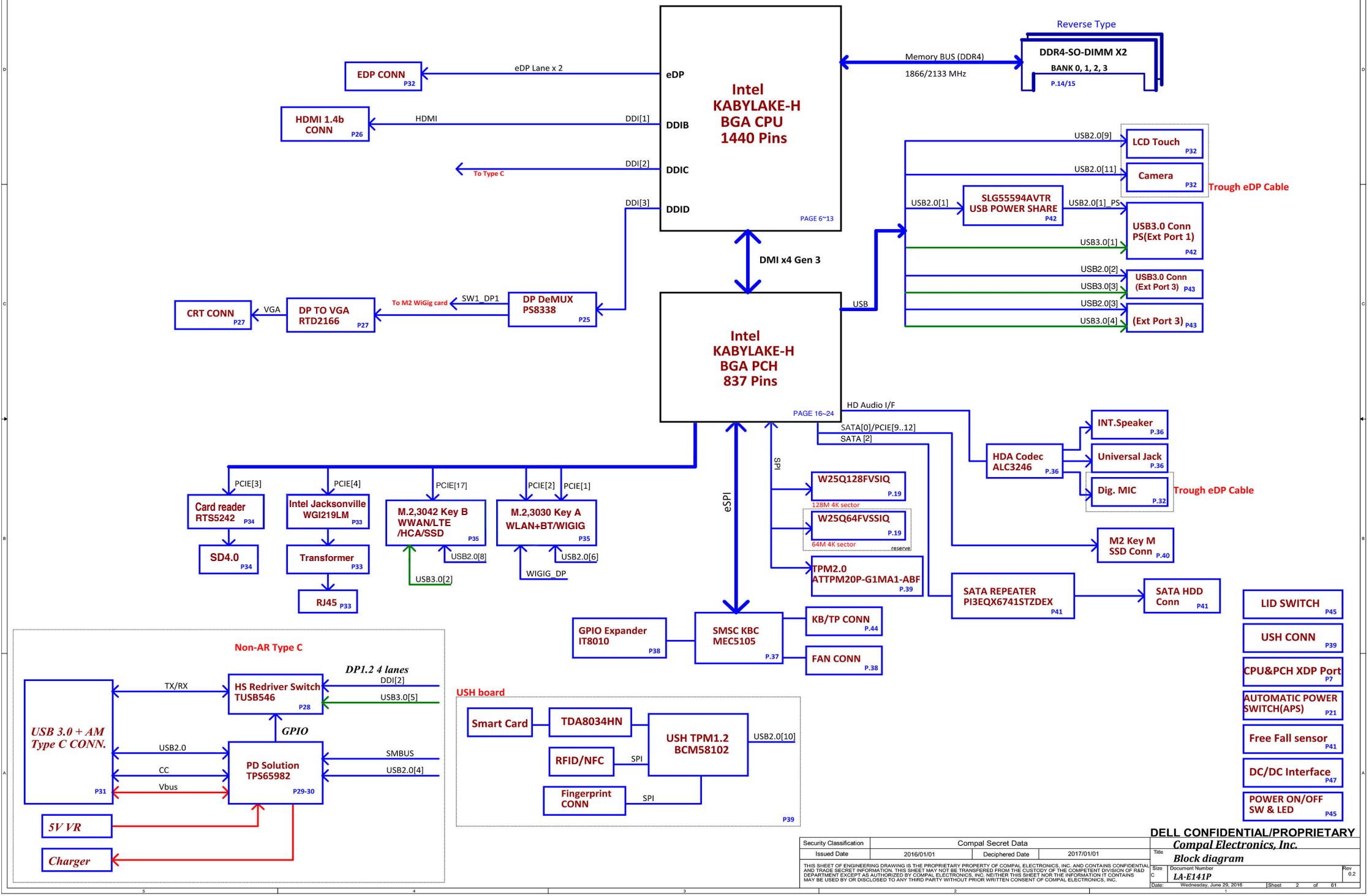
Compal Electronics, Inc.

Title: Cover Sheet

Size: A | Document Number: LA-E141P | Rev: 0.2

Date: Friday, July 01, 2016 | Sheet 1 of 61

Breckenridge 14 UMA non-TBT Block Diagram



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Title	Compal Electronics, Inc.		
	Block diagram		
Size C	Document Number LA-E141P		Rev 0.2
Date: Wednesday, June 29, 2016	Sheet 2 of 61		

POWER STATES

State \ Signal	SLP S3#	SLP S4#	SLP S5#	SLP A#	ALWAYS PLANE	M PLANE	SUS PLANE	RUN PLANE	CLOCKS
S0 (Full ON) / M0	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON	ON
S3 (Suspend to RAM) / M3	LOW	HIGH	HIGH	HIGH	ON	ON	ON	OFF	OFF
S4 (Suspend to DISK) / M3	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF	OFF
S5 (SOFT OFF) / M3	LOW	LOW	LOW	HIGH	ON	ON	OFF	OFF	OFF
S3 (Suspend to RAM) / M-OFF	LOW	HIGH	HIGH	LOW	ON	OFF	ON	OFF	OFF
S4 (Suspend to DISK) / M-OFF	LOW	LOW	HIGH	LOW	ON	OFF	OFF	OFF	OFF
S5 (SOFT OFF) / M-OFF	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF	OFF

PM TABLE

State \ power plane			
	+5V_ALW +3.3V_ALW +3.3V_ALW_DSW +3.3V_ALW_PCH +RTC_CELL +1.8V_PRIM +1.0V_PRIM +1.0V_PRIM_CORE +5V_ALW2 +3.3V_ALW2 +3.3V_RTC_LDO +1.0V_MPHYGT	+3.3V_SUS +1.2V_MEM +1.0V_VCCST +2.5V_MEM	+5V_RUN +3.3V_RUN +0.6V_DDR_VTT +1.2V_RUN +VCC_CORE +VCC_GT +1.0VS_VCCIO +VCC_SA +1.8V_RUN
S0	ON	ON	ON
S3	ON	ON	OFF
S5 S4/AC	ON	OFF	OFF
S5 S4/AC doesn't exist	OFF	OFF	OFF

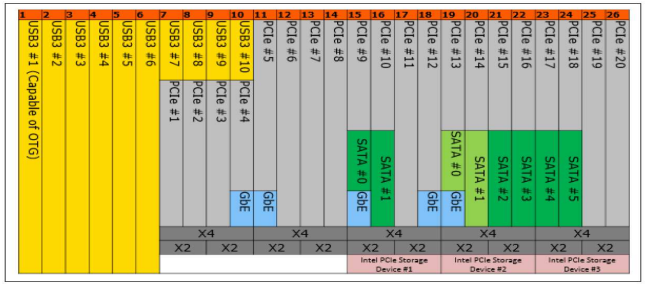
USB3.0	SSIC	PCIE	SATA	DESTINATION
USB3.0-1				JUSB3-->Rear
USB3.0-2	SSIC-1			JNGFF2-->M2 3042(LTE)
USB3.0-3	SSIC-2			JUSB1-->Right
USB3.0-4				JUSB2-->Left
USB3.0-5				NA
USB3.0-6				NA
USB3.0-7		PCIE-1		JNGFF1-->M.2 3030(WIGIG)
USB3.0-8		PCIE-2		JNGFF1-->M.2 3030(WLAN)
USB3.0-9		PCIE-3		Card Reader
USB3.0-10		PCIE-4		LOM
		PCIE-5		NA
		PCIE-6		
		PCIE-7		
		PCIE-8		
		PCIE-9	SATA-0A	M.2 Socket 3 (Key M) M.2 2280 SSD (PCIex4 or SATA)
		PCIE-10	SATA-1A	
		PCIE-11		
		PCIE-12		
		PCIE-13	SATA-0B	NA
		PCIE-14	SATA-1B	NA
		PCIE-15	SATA-2	JSATA1-->HDD SATA
		PCIE-16	SATA-3	NA
		PCIE-17	SATA-4	M.2 3042 (HCA or QCA LTE) SSD Cache
		PCIE-18	SATA-5	NA
		PCIE-19		NA
		PCIE-20		NA

USB PORT#	DESTINATION
1	JUSB3-->Rear
2	JUSB1-->Right
3	JUSB2 ->Left
4	Type C
5	NA
6	JNGFF1--> M.2 3030(BT)
7	NA
8	JNGFF2-->M2 3042(WWAN)
9	JEDP1-->Touch Screen
10	JUSH1-->USH
11	JEDP1-->Camera
12	NA

USH	H	BIO

VIDEO		DESTINATION
eDP		LCD
DDI-B		JHDMI1
DDI-C		Type-C
DDI-D	DeMux 1	M.2 3030 (WiGig)
		MB VGA

Layer No.	Name	Er	Material	Thickness (Material SPEC.) Unit : mil	Thickness (Actuality) Unit : mil
			SolderMask	Material: TU662	0.50
			Add Plating		
1	Top		Copper foil	0.5oz+plating	1.80
		3.7	Prepreg	1080	3.15
2	GND/VCC		Copper foil	0.5 oz	0.60
		3.7	Core	3mil	3.00
3	IN 1		Copper foil	0.5 oz	0.60
		3.7	Prepreg	2116	3.8
4	IN 2		Copper foil	0.5 oz	0.60
		3.7	core	3mil	3.00
5	GND/VCC		Copper foil	0.5 oz	0.60
		3.7	Prepreg	1080	2.70
6	IN 3		Copper foil	0.5 oz	0.60
		3.8	core	4mil	4
7	IN 4		Copper foil	0.5 oz	0.60
		3.7	Prepreg	1080	2.70
8	GND/VCC		Copper foil	0.5 oz	0.60
		3.7	core	3mil	3.00
9	IN 5		Copper foil	0.5 oz	0.60
		3.7	Prepreg	2116	3.8
10	IN 6		Copper foil	0.5 oz	0.60
		3.7	Core	3mil	3.00
11	GND/VCC		Copper foil	0.5 oz	0.60
		3.7	Prepreg	1080	3.15
12	Bottom		Copper foil	0.5oz+plating	1.80
			Add Plating		
			SolderMask		0.50
Overall Thickness (1.2mm ± 10%)					46.90
					1.19129



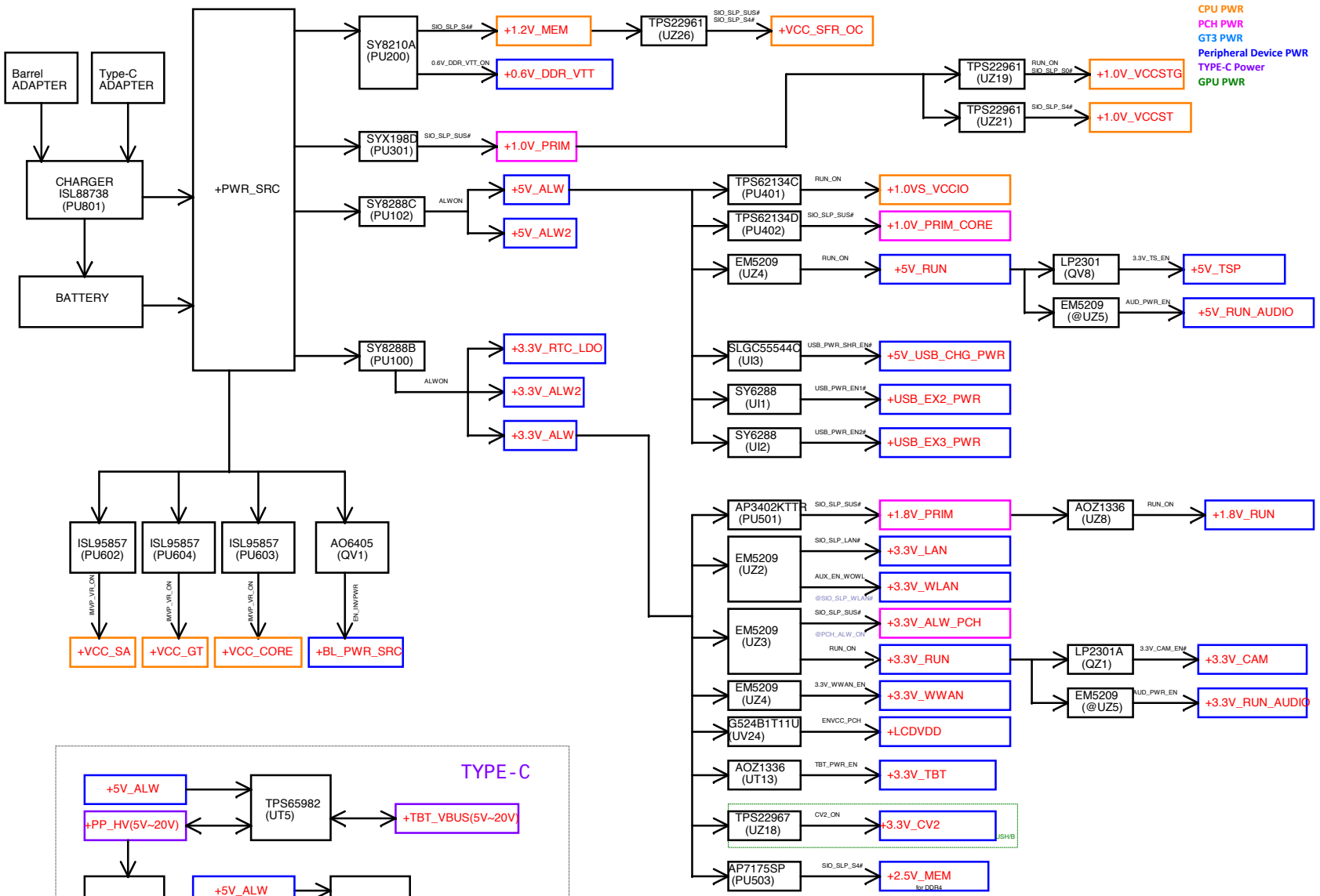
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: Port Assignment

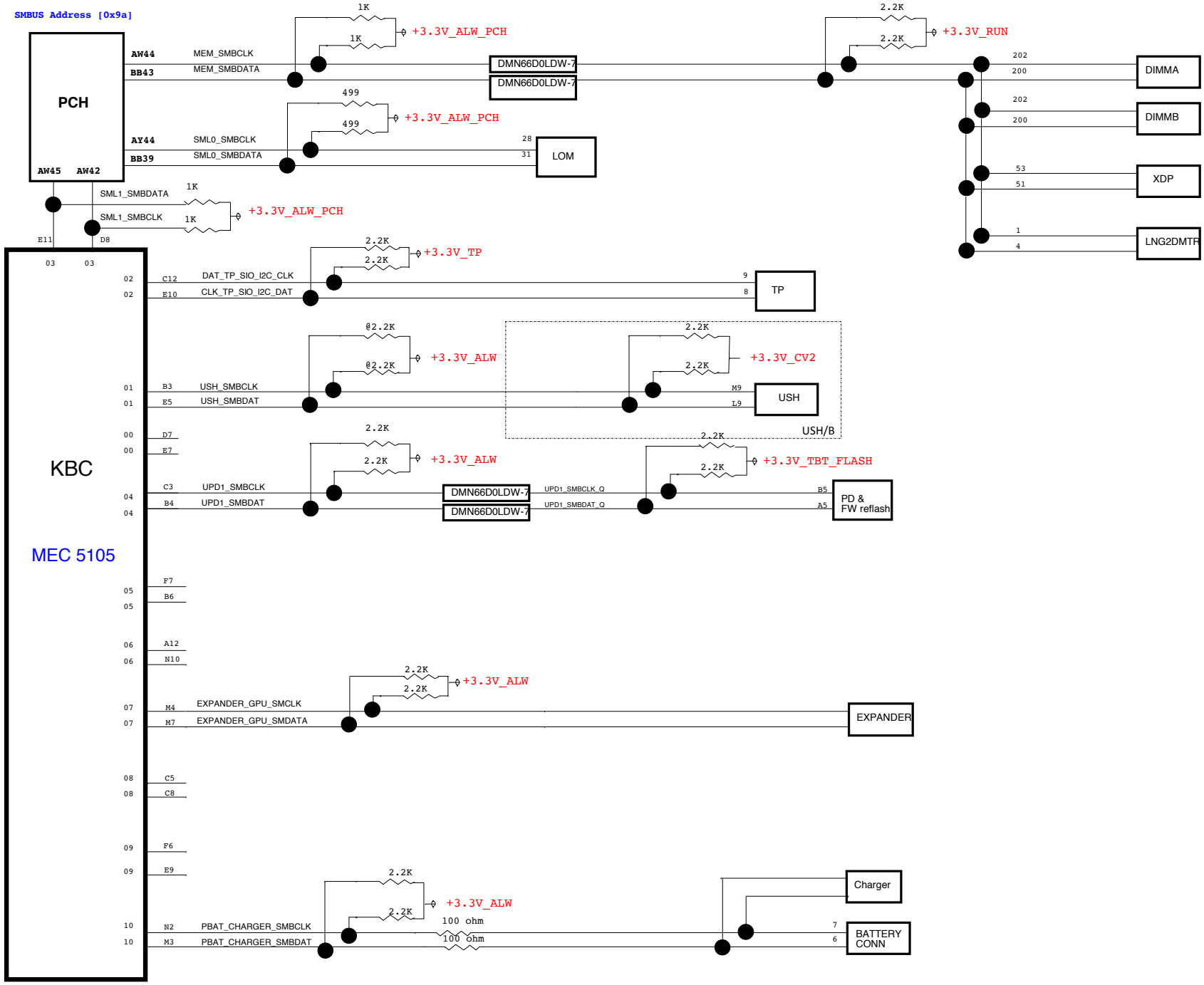
Size: A | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 3 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.			
Title: Power Rails			
Size: C	Document Number: LA-E141P		Rev: 0.2
Date: Wednesday, June 29, 2016	Sheet 4 of 61		



DELL CONFIDENTIAL/PROPRIETARY

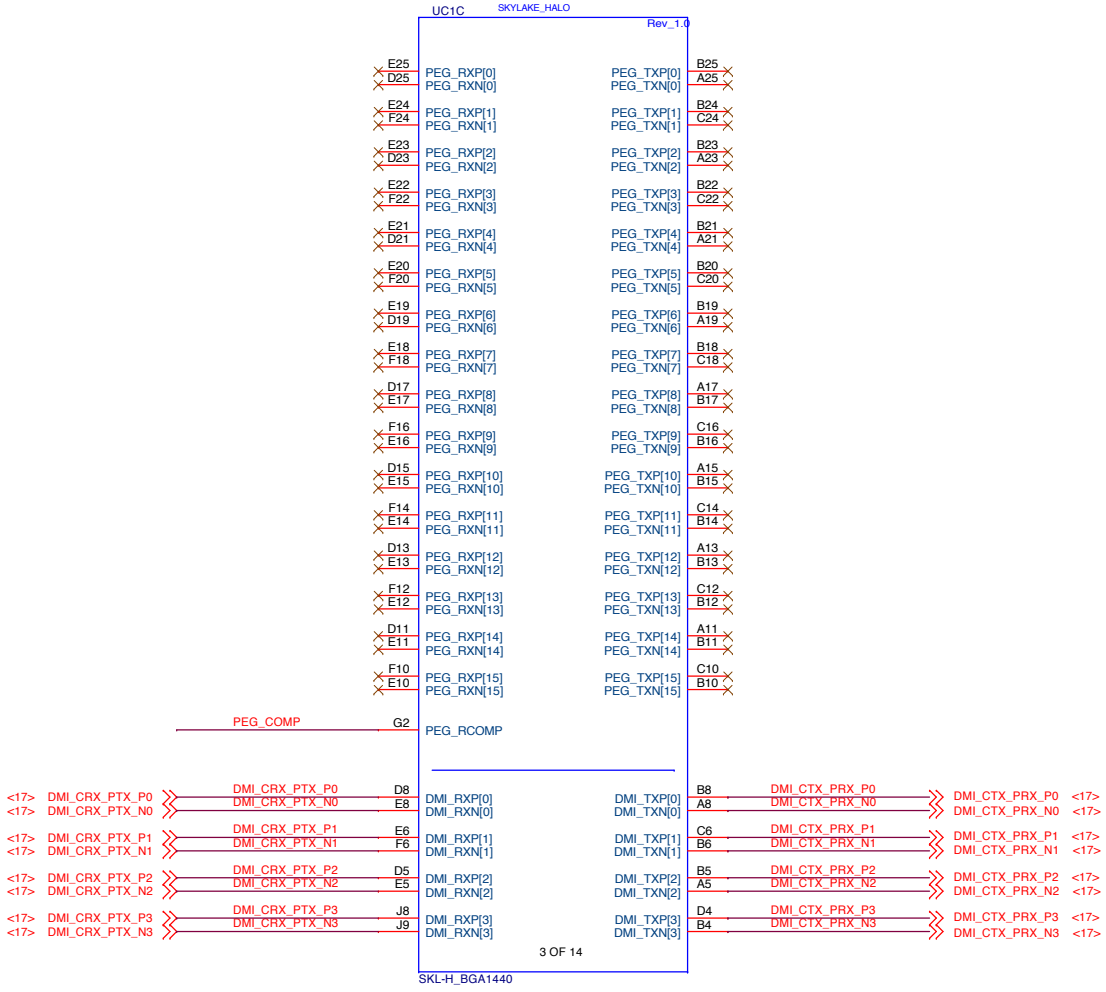
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

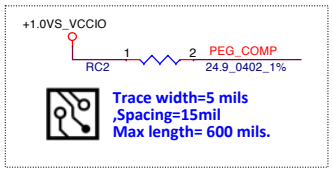
Compal Electronics, Inc.

Title: SMbus Block Diagram

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Wednesday, June 29, 2016 | Sheet 5 of 61





Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.			
Title: KBL-H (1/8)			
Size: A	Document Number: LA-E141P		Rev: 0.2
Date: Wednesday, June 29, 2016	Sheet 6 of 61		

CPU XDP

Place near JXDP1.47

Place near JXDP1

Place near JXDP1.41

ESD request,Place near JXDP1 side.

ESD Request,place near CPU side

RF Request

Place close CPU side

CFG0	
Stall reset sequence after PCU PLL lock until de-asserted	
No Stall	1
Stall	0

CFG2	
PEG LANE REVERSAL	
NORMAL	1
LANE REVERSED	0

CFG4	
eDP enable	
Disabled	1
Enabled	0

CFG5	
PCI Express* Bifurcation [6:5]	
1x8, 2x4	00
Reserved	01
2x8	10
1x16	11

CFG7	
PEG Training	
(default) PEG Train immediately following RESET# de-assertion	1
PEG Wait for BIOS for training	0

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

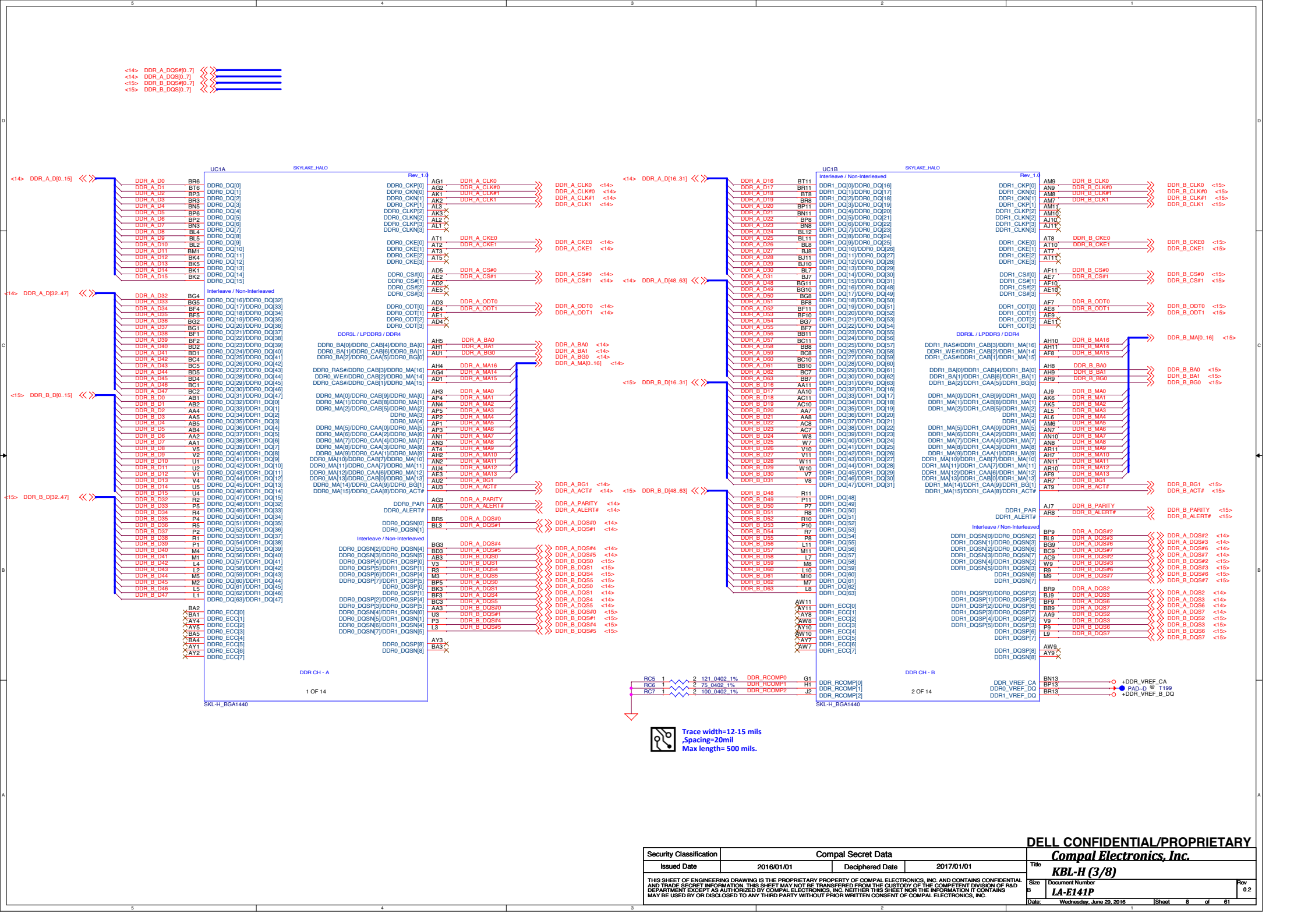
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: **KBL-H (2/8)**

Size: B | Document Number: **LA-E141P** | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 7 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

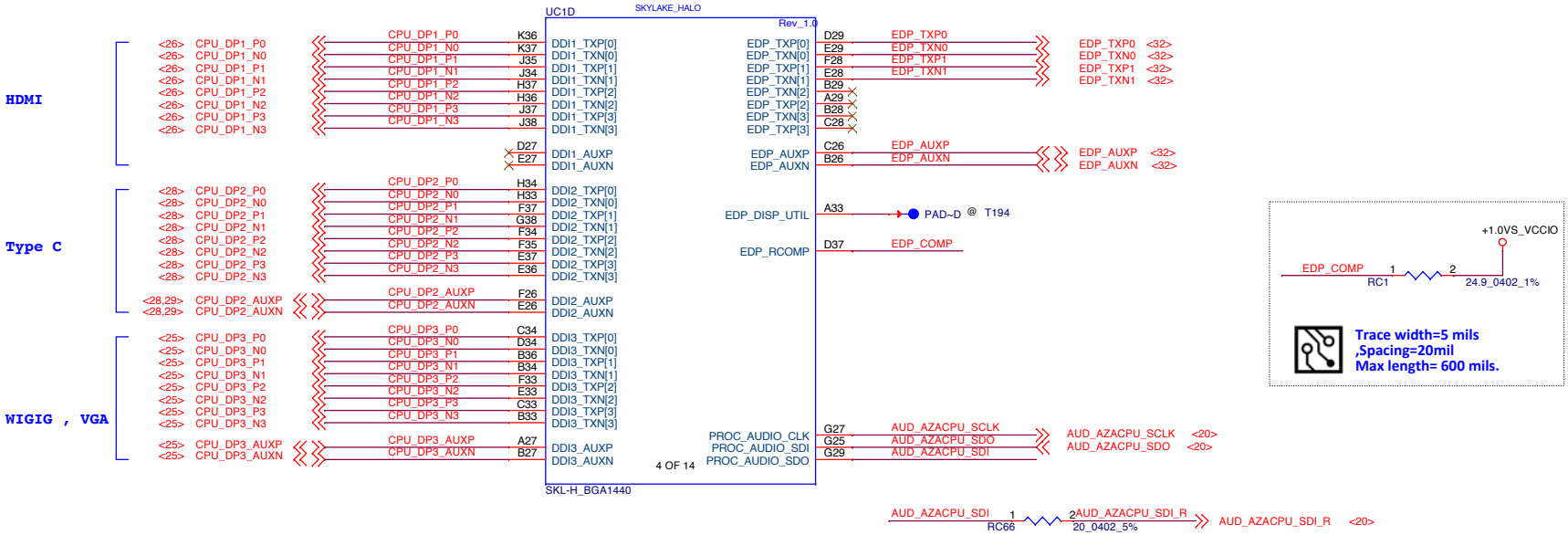
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: *KBL-H (3/8)*

Size	Document Number	Rev
B	*LA-E141P*	0.2

Date: Wednesday, June 29, 2016 | Sheet 8 of 61



DELL CONFIDENTIAL/PROPRIETARY

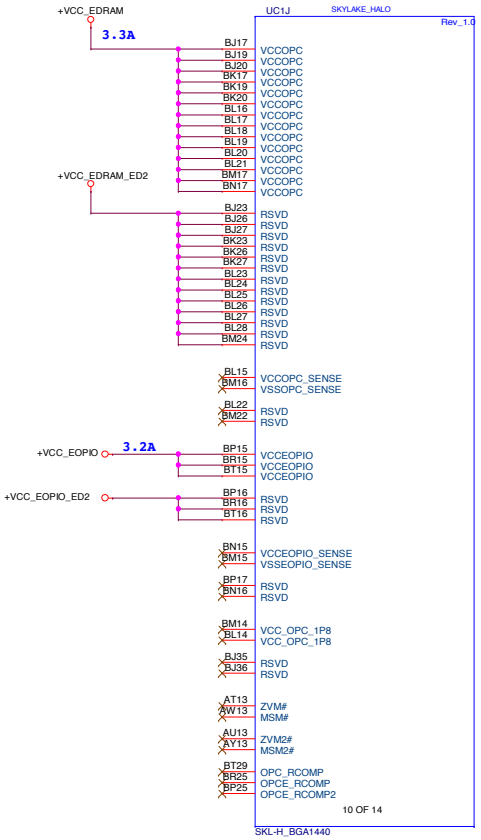
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

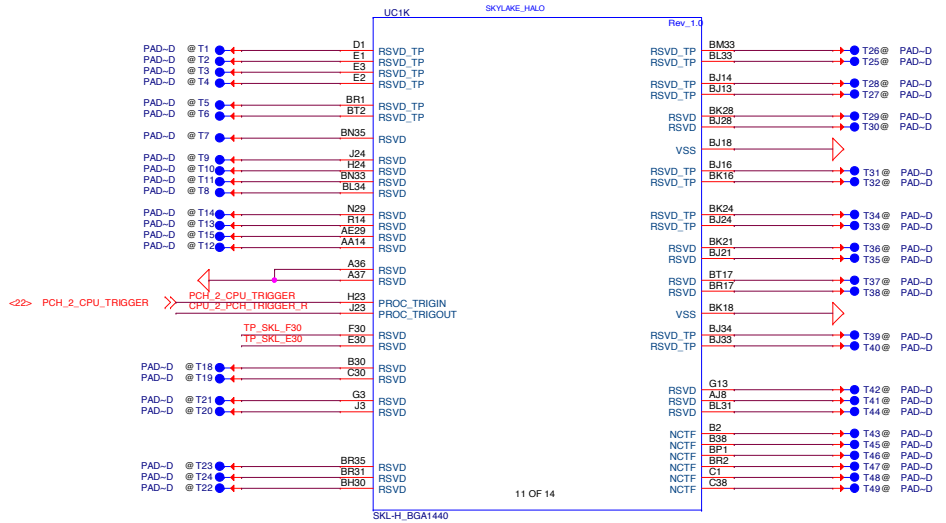
Compal Electronics, Inc.

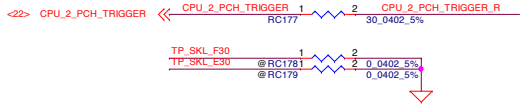
Title: KBL-H (4/8)

Size: A | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 9 of 61







DELL CONFIDENTIAL/PROPRIETARY

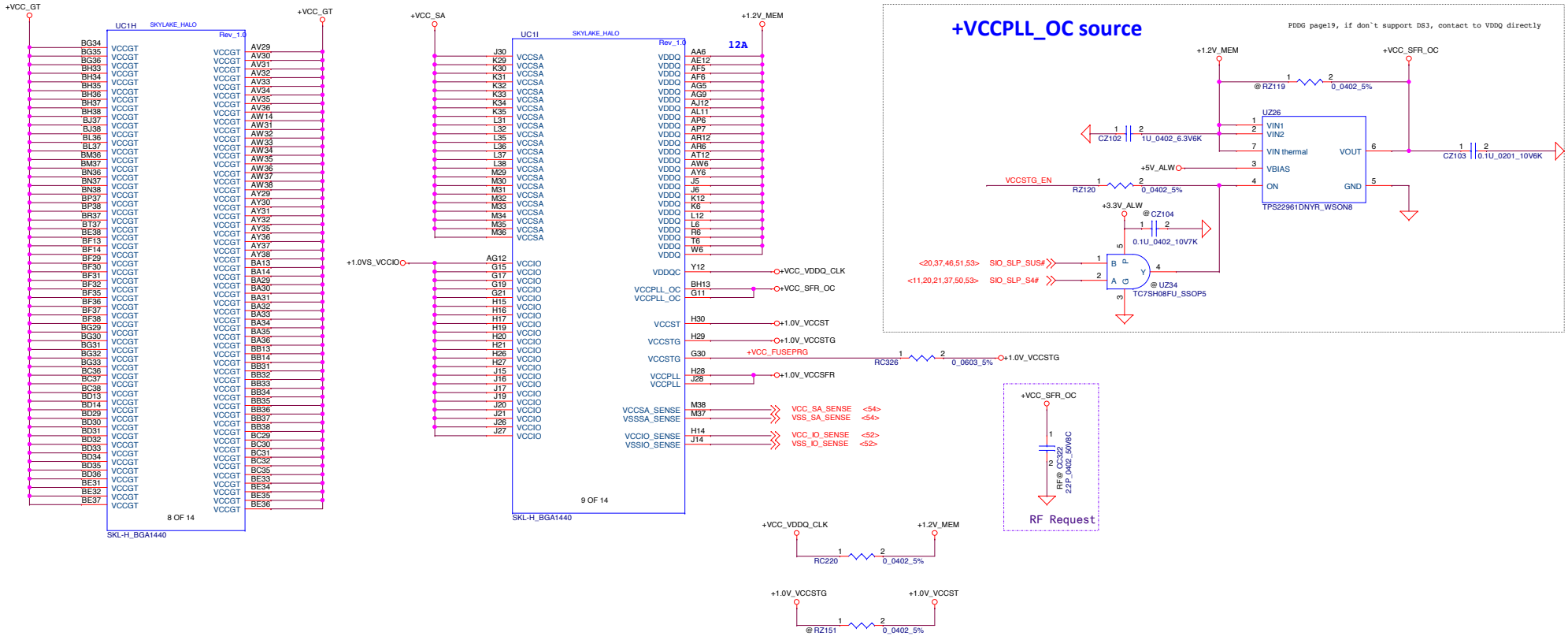
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: KBL-H (5/8)

Size: B | Document Number: LA-E141P | Rev: 0.2

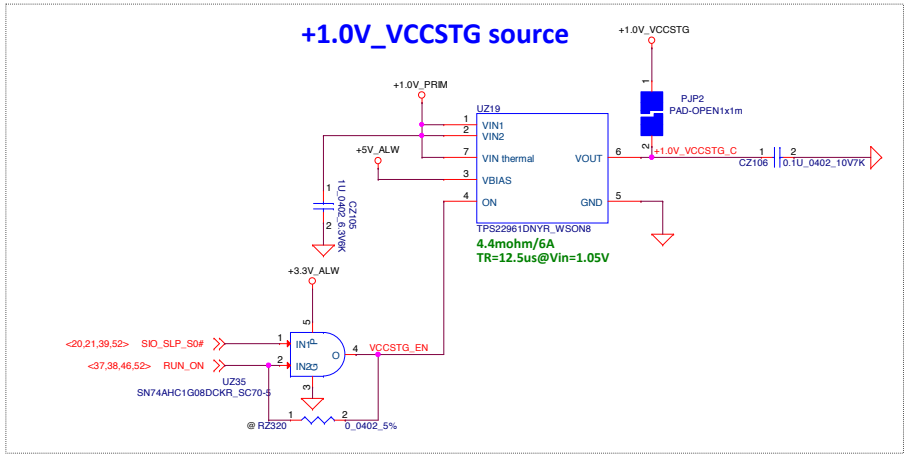
Date: Wednesday, June 29, 2016 | Sheet 10 of 61



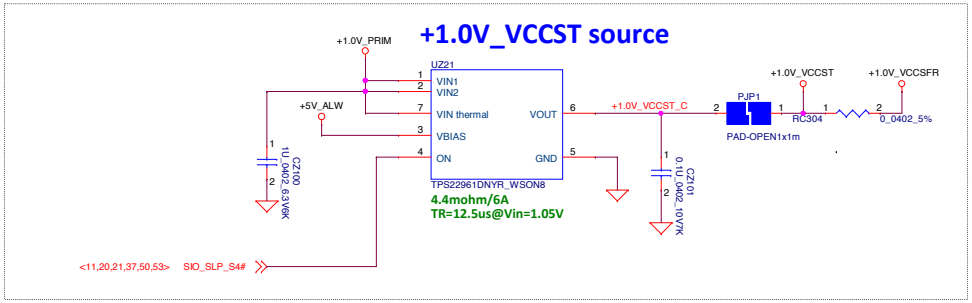
+VCCPLL_OC source

PDDG page19, if don`t support DS3, contact to VDDQ directly

+1.0V_VCCSTG source



+1.0V_VCCST source



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title	KBL-H (6/8)
Size	B
Document Number	LA-E141P
Rev	0.2
Date:	Wednesday, June 29, 2016
Sheet	11 of 61

For SKL-H 4+2
Remove VCCOPC/VCCEOPIO/
VCCOPC_1P8 Cap

PLACE CAP BACKSIDE

+VCC_VDDQ_CLK
10U_0603_6.3V6M-D CC185

+1.0V_VCCSTG
1U_0402_6.3V6K CC186
1U_0402_6.3V6K CC195

+1.0V_VCCSFR
1U_0402_6.3V6K CC192

+1.0V_VCCST
1U_0402_6.3V6K CC191

+VCC_SFR_OC
1U_0402_6.3V6K CC210
1U_0402_6.3V6K CC208

+1.0VS_VCCIO
PLACE CAP BACKSIDE
22U_0603_6.3V6M CC188
22U_0603_6.3V6M CC189
22U_0603_6.3V6M CC187
22U_0603_6.3V6M CC272

+1.0V_VCCST
1U_0402_6.3V6K CC193
1U_0402_6.3V6K CC194

Remove to Power (+VCC_SA cap)

+1.2V_MEM
+1.2V_MEM DECOUPLING
PLACE CAP BACKSIDE
10U_0603_6.3V6M-D CC161
10U_0603_6.3V6M-D CC170
10U_0603_6.3V6M-D CC164
10U_0603_6.3V6M-D CC168
10U_0603_6.3V6M-D CC163
10U_0603_6.3V6M-D CC169
10U_0603_6.3V6M-D CC171
10U_0603_6.3V6M-D CC165
10U_0603_6.3V6M-D CC172
10U_0603_6.3V6M-D CC167
22U_0603_6.3V6M CC281
22U_0603_6.3V6M CC282
22U_0603_6.3V6M CC283
22U_0603_6.3V6M CC284

+VCC_GT
UC1N SKYLAKE_HALO Rev_1.0
AJ29 AJ30 AJ31 AJ32 AJ33 AJ34 AJ35 AJ36 AK31 AK32 AK33 AK34 AK35 AK36 AK37 AK38 AL13 AL29 AL30 AL31 AL32 AL35 AL36 AL37 AL38 AM13 AM14 AM29 AM30 AM31 AM32 AM33 AM34 AM35 AM36 AN13 AN14 AN31 AN32 AN33 AN34 AN35 AN36 AN37 AN38 AP13 AP14 AP29 AP30 AP31 AP32 AP35 AP36 AP37 AP38 AR29 AR30 AR31 AR32 AR33 AR34 AR35 AR36 AT14 AT31 AT32 AT33 AT34 AT35 AT36 AT37 AT38 AU14 AU29 AU30 AU31 AU32 AU35 AU36 AU37 AU38
VCCGT
14 OF 14
SKL-H_BGA1440

+VCC_GTU
AF29 AF30 AF31 AF32 AF33 AF34 AG13 AG14 AG31 AG32 AG33 AG34 AG35 AG36 AH13 AH14 AH29 AH30 AH31 AH32 AJ13 AJ14
VCCGTX
Reserve for Soldering

VCCGT_SENSE
VSSGTX_SENSE
VSSGT_SENSE
VCCGTX_SENSE
AH38 AH35 AH37 AH36
VCC_GT_SENSE <54>
VSS_GT_SENSE <54>

+VCC_CORE
+VCC_CORE
UC1G SKYLAKE_HALO Rev_1.0
AA13 AA31 AA32 AA33 AA34 AA35 AA36 AA37 AA38 AB29 AB30 AB31 AB32 AB35 AB36 AB37 AB38 AC13 AC14 AC29 AC30 AC31 AC32 AC33 AC34 AC35 AC36 AD13 AD14 AD31 AD32 AD33 AD34 AD35 AD36 AD37 AD38 AE13 AE14 AE30 AE31 AE32 AE35 AE36 AE37 AE38 AF35 AF36 AF37 AF38 K13 K14 L13 N13 N14 N30 N31 N32 N35 N36 N37 N38 P13
VCC
V32 V33 V34 V35 V36 V37 V38 W13 W14 W29 W30 W31 W32 W35 W36 W37 W38 Y29 Y30 Y31 Y32 Y33 Y34 Y35 Y36 L14 P29 P30 P31 P32 P33 P34 P35 P36 R13 R31 R32 R33 R34 R35 R36 R37 R38 T29 T30 T31 T32 T35 T36 T37 T38 U29 U30 U31 U32 U33 U34 U35 U36 V13 V14 V31 P14
7 OF 14
SKL-H_BGA1440

VCC_SENSE
VSS_SENSE
AG37 AG38
VCC_SENSE <54>
VSS_SENSE <54>

+VCC_CORE
RC140 100_0402_1%
RC141 100_0402_1%

VSS_SENSE 1 @RC221 2 49.9_0402_1% VCC_SENSE

DELL CONFIDENTIAL/PROPRIETARY

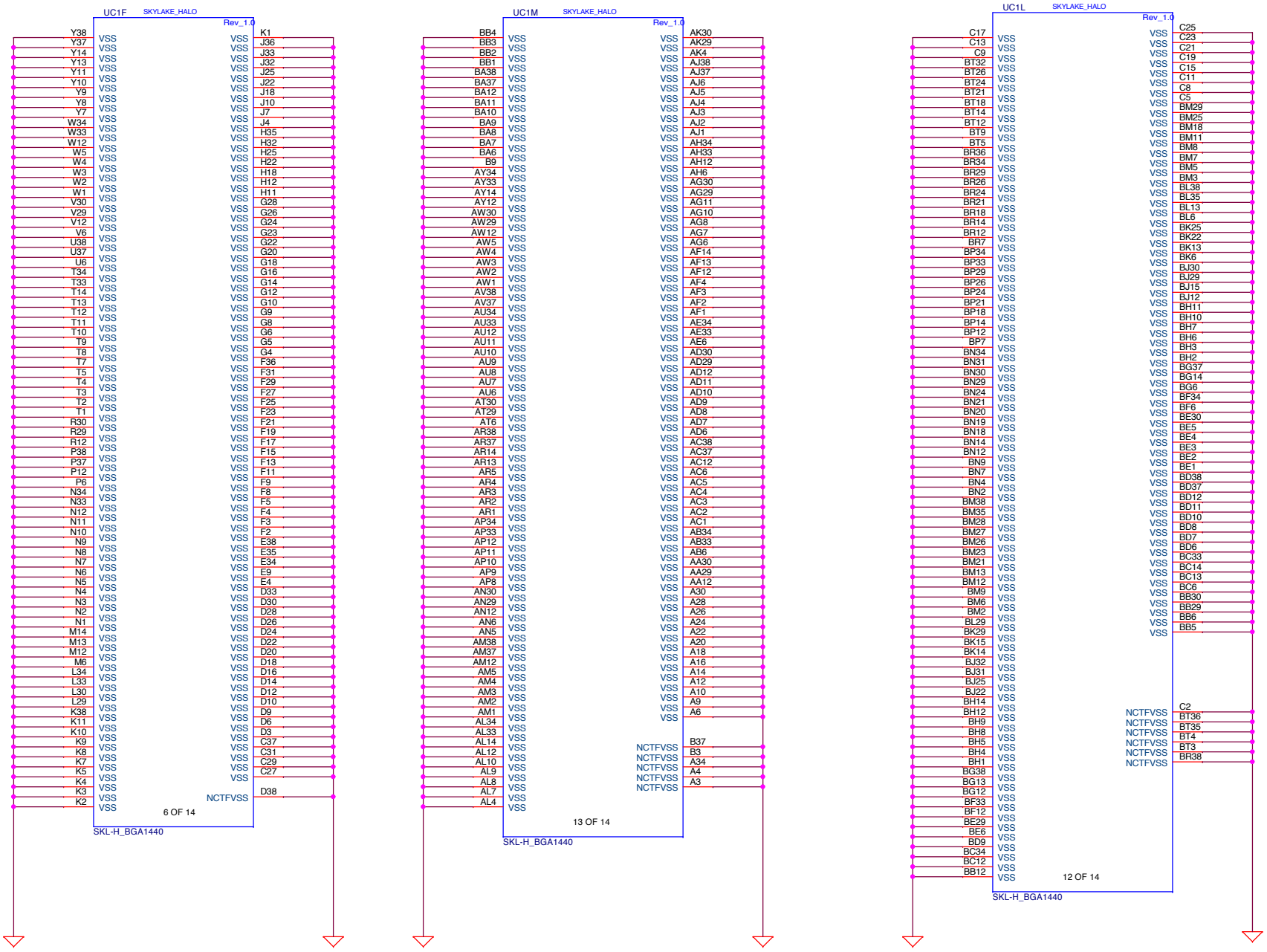
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: KBL-H (7/8)

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 12 of 61



DELL CONFIDENTIAL/PROPRIETARY

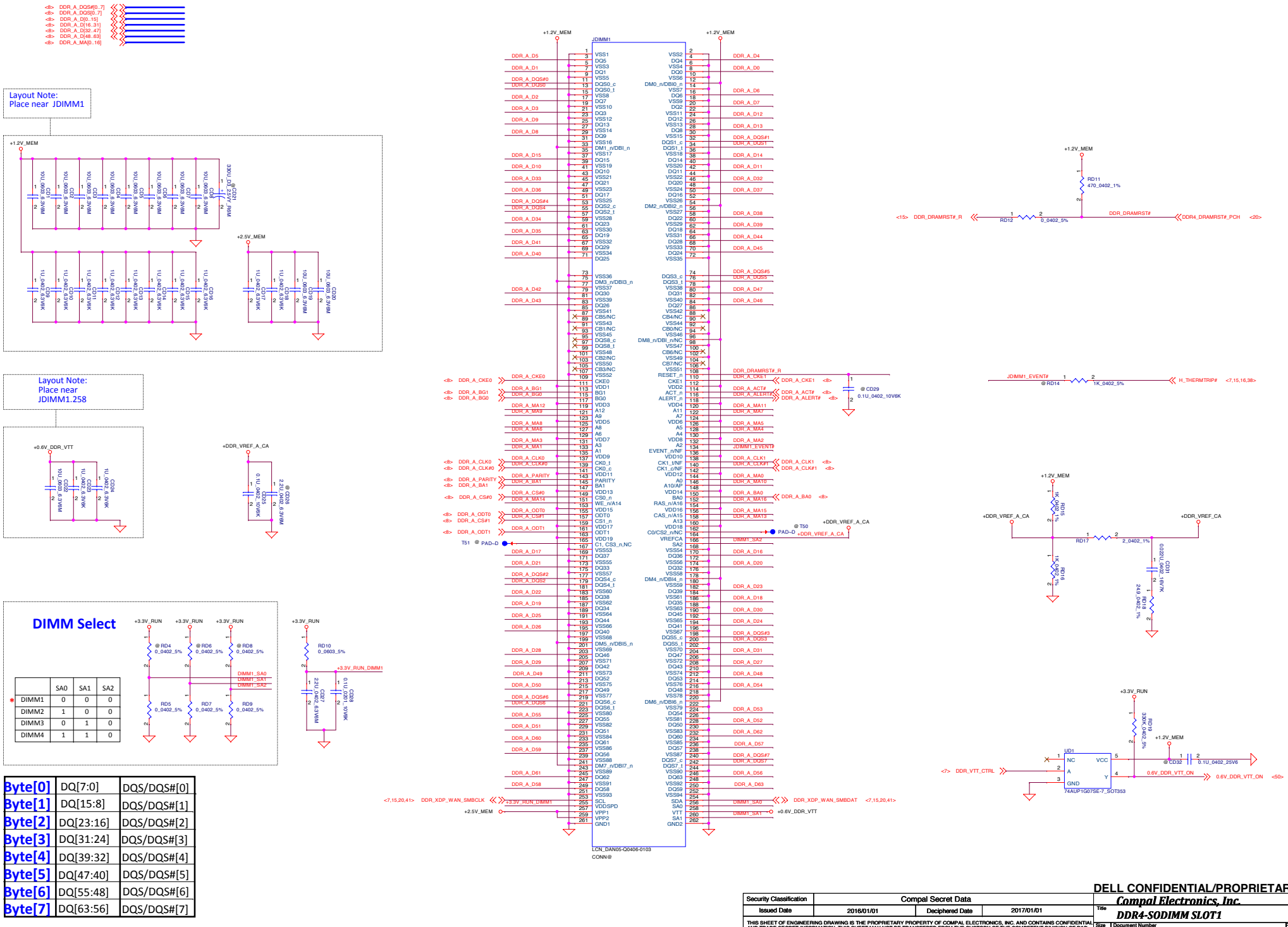
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: KBL-H (8/8)

Size: A | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 13 of 61

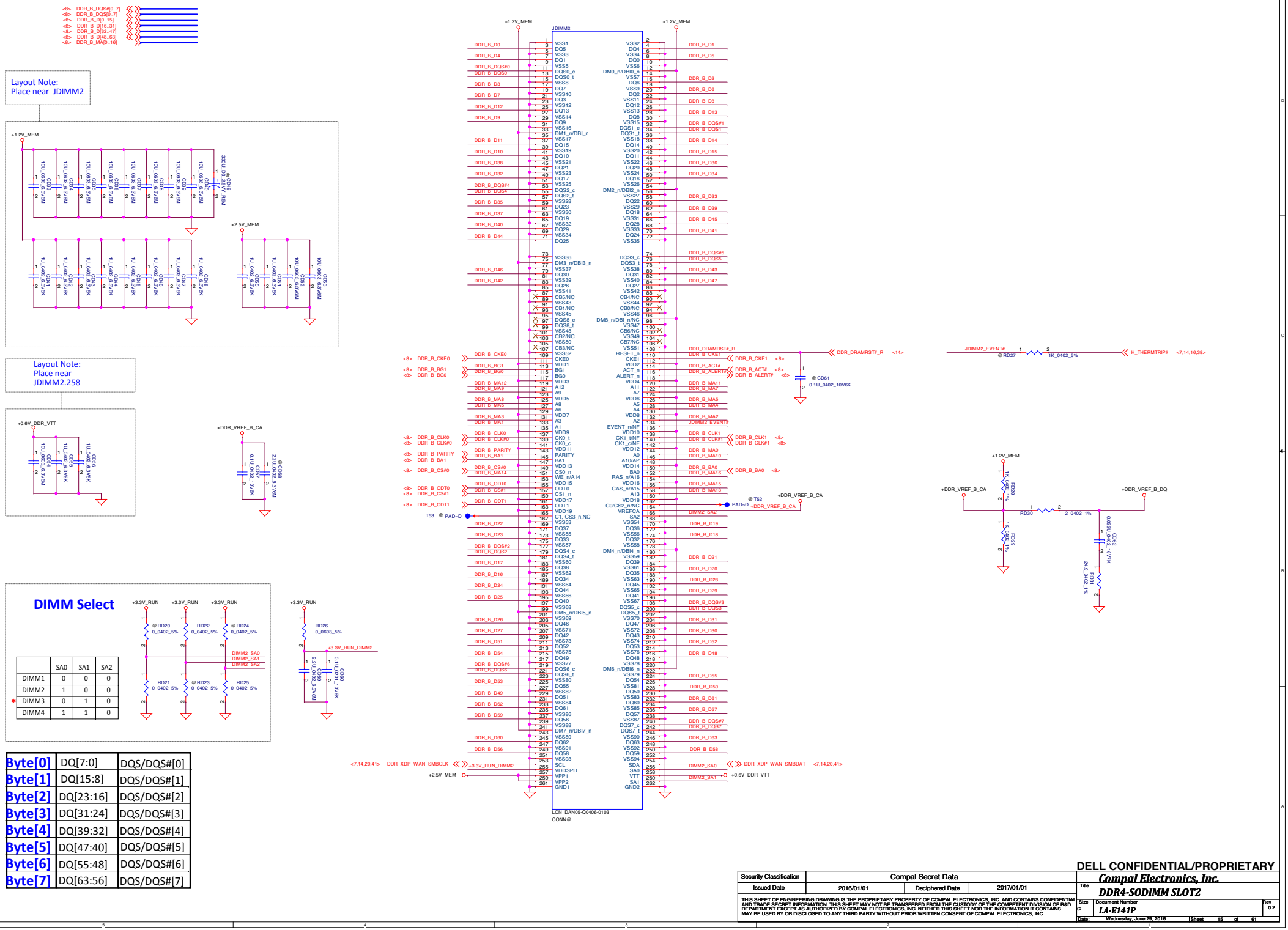


	SA0	SA1	SA2
* DIMM1	0	0	0
DIMM2	1	0	0
DIMM3	0	1	0
DIMM4	1	1	0

Byte[0]	DQ[7:0]	DQS/DQS#[0]
Byte[1]	DQ[15:8]	DQS/DQS#[1]
Byte[2]	DQ[23:16]	DQS/DQS#[2]
* Byte[3]	DQ[31:24]	DQS/DQS#[3]
Byte[4]	DQ[39:32]	DQS/DQS#[4]
* Byte[5]	DQ[47:40]	DQS/DQS#[5]
Byte[6]	DQ[55:48]	DQS/DQS#[6]
Byte[7]	DQ[63:56]	DQS/DQS#[7]

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

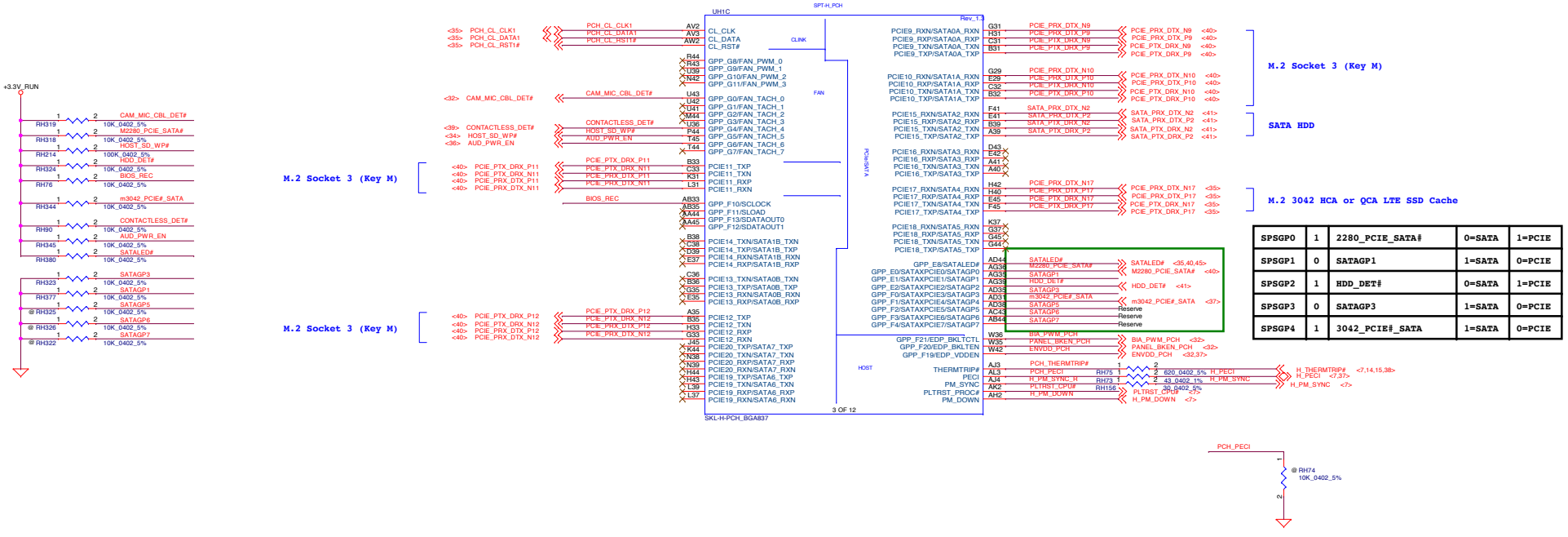
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: DDR4-SODIMM SLOT2

Size: C | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 15 of 61



SPSGP0	1	2280_PCIE_SATA#	0=SATA	1=PCIE
SPSGP1	0	SATAGP1	1=SATA	0=PCIE
SPSGP2	1	HDD_DET#	0=SATA	1=PCIE
SPSGP3	0	SATAGP3	1=SATA	0=PCIE
SPSGP4	1	3042_PCIE#_SATA	1=SATA	0=PCIE

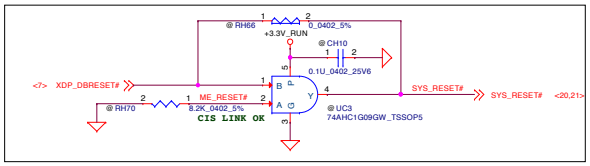
DELL CONFIDENTIAL/PROPRIETARY

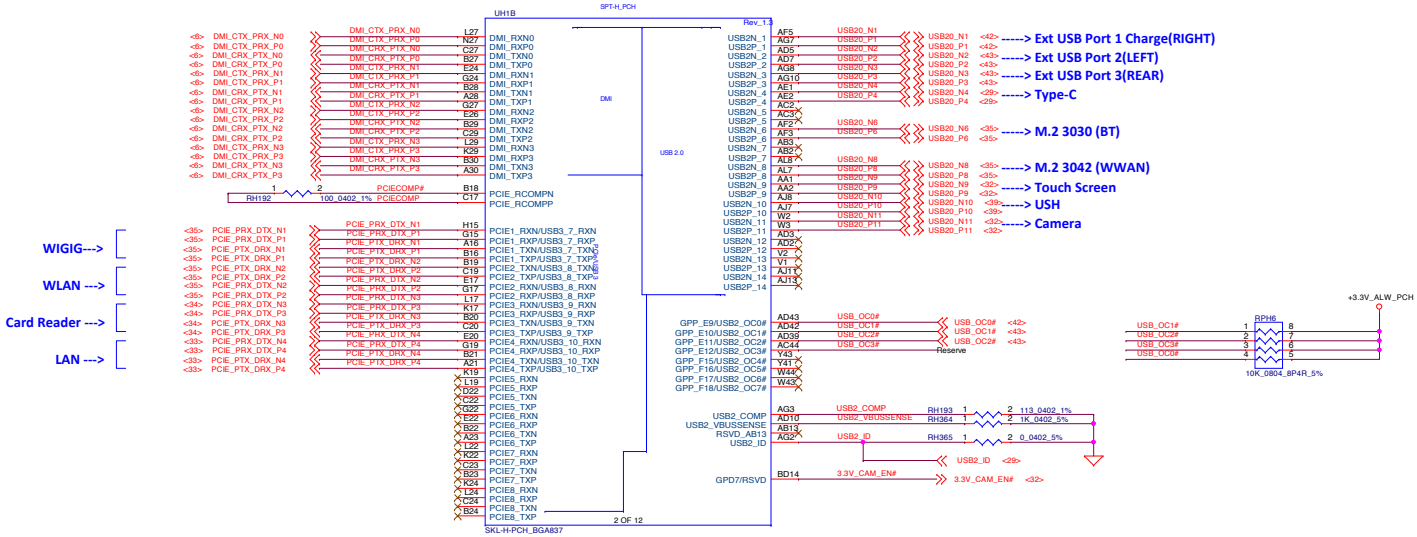
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: KABYLAKE PCH-H (1/9)

Size: C	Document Number: LA-E141P	Rev: 0.2
Date: Wednesday, June 29, 2016	Sheet 16 of 61	





Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

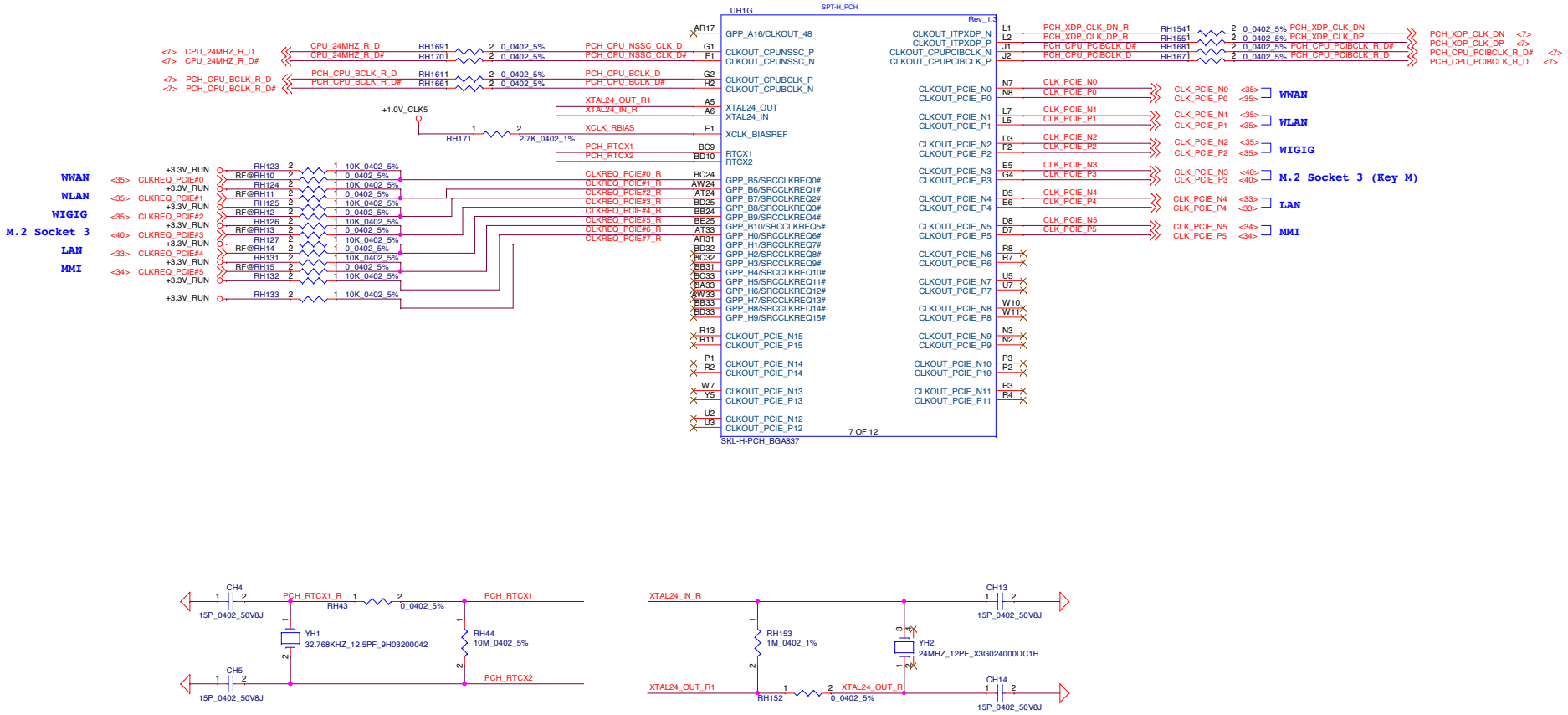
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: KABYLAKE PCH-H (2/9)

Size	Document Number	Rev
C	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 17 of 61



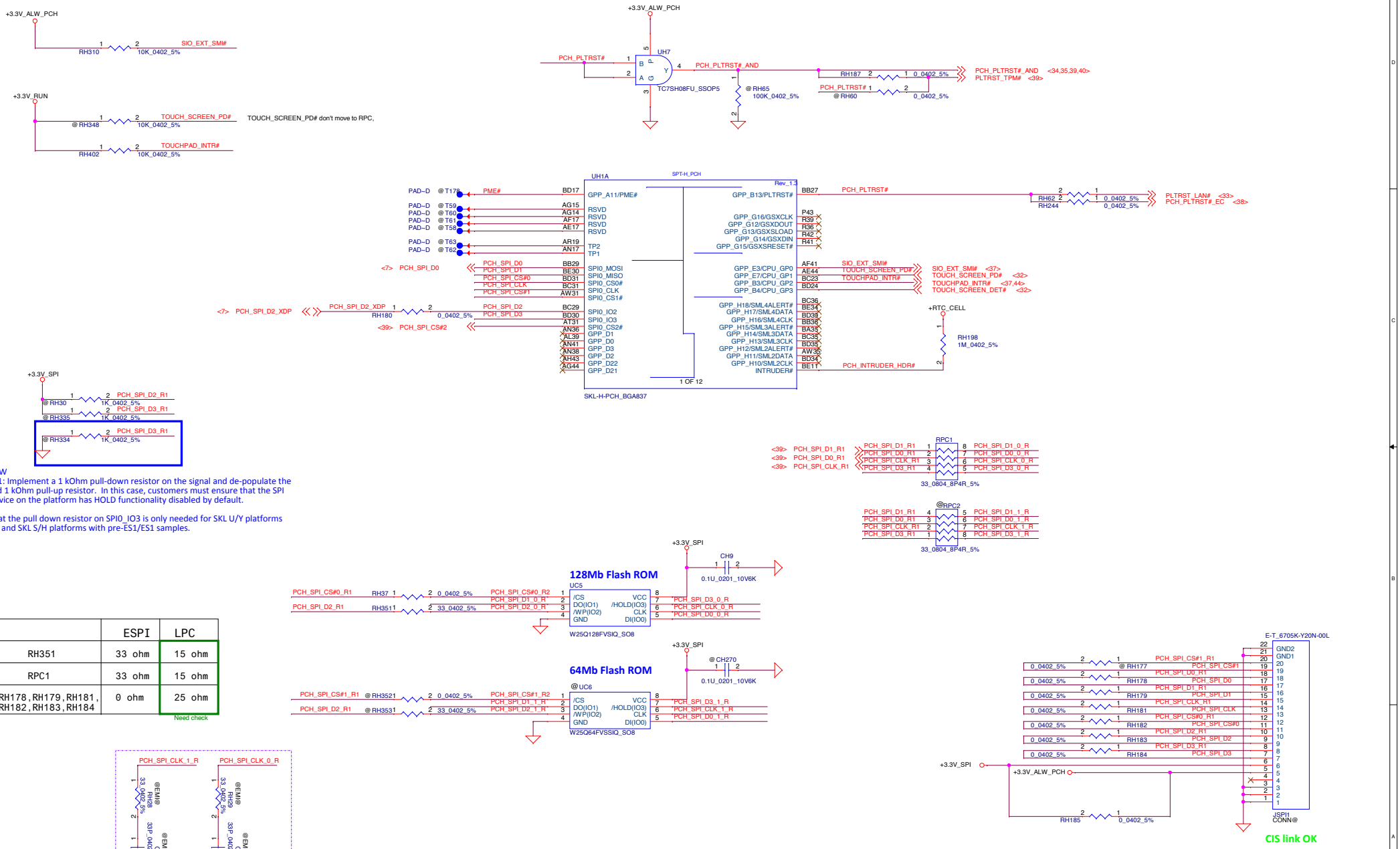
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: KABYLAKE PCH-H (3/9)

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Thursday, June 30, 2016 | Sheet 18 of 61



	ESPI	LPC
RH351	33 ohm	15 ohm
RPC1	33 ohm	15 ohm
RH178,RH179,RH181, RH182,RH183,RH184	0 ohm	25 ohm

Need check

Security Classification	Compal Secret Data	
Issued Date	2016/01/01	Deciphered Date 2017/01/01

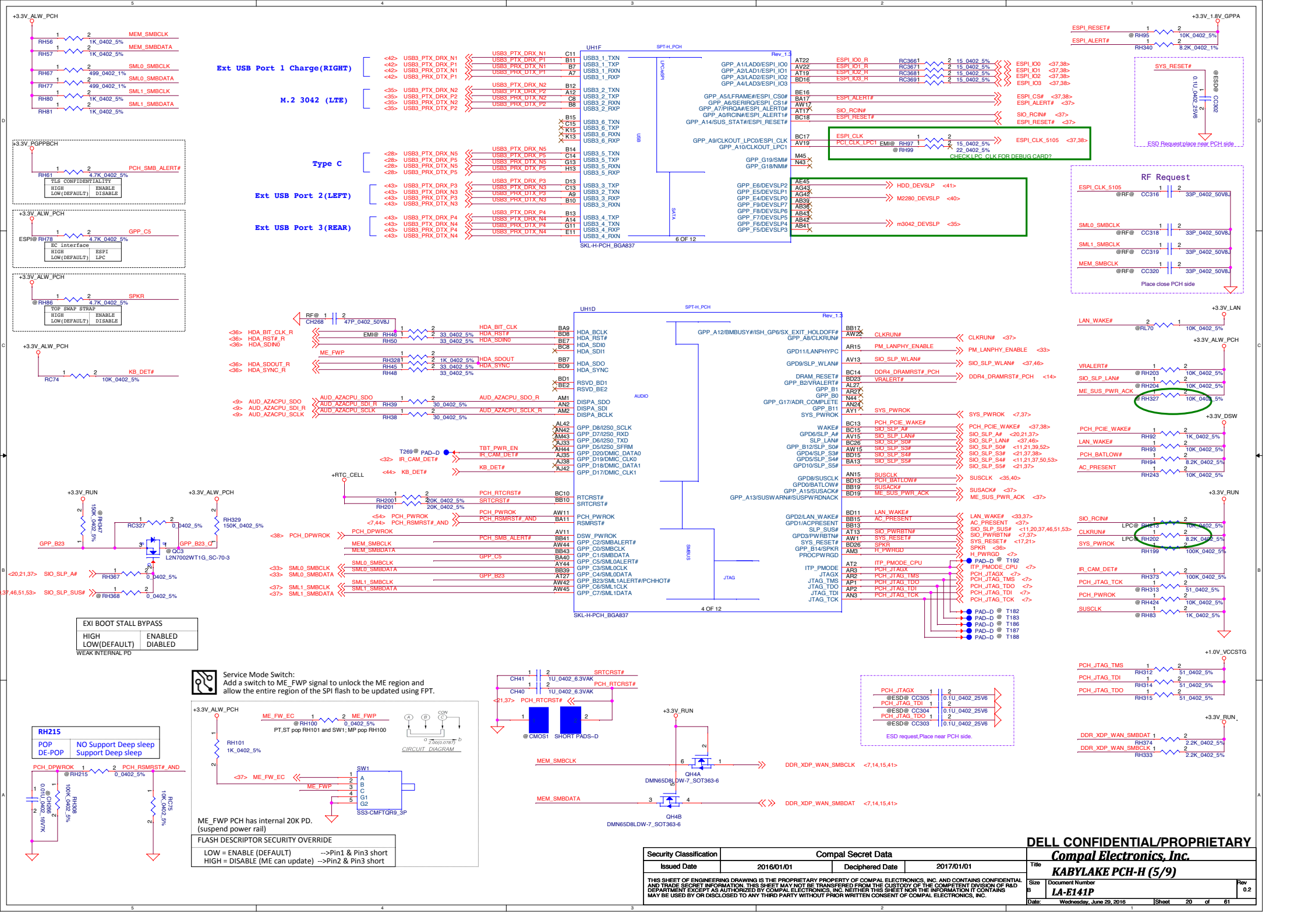
DELL CONFIDENTIAL/PROPRIETARY

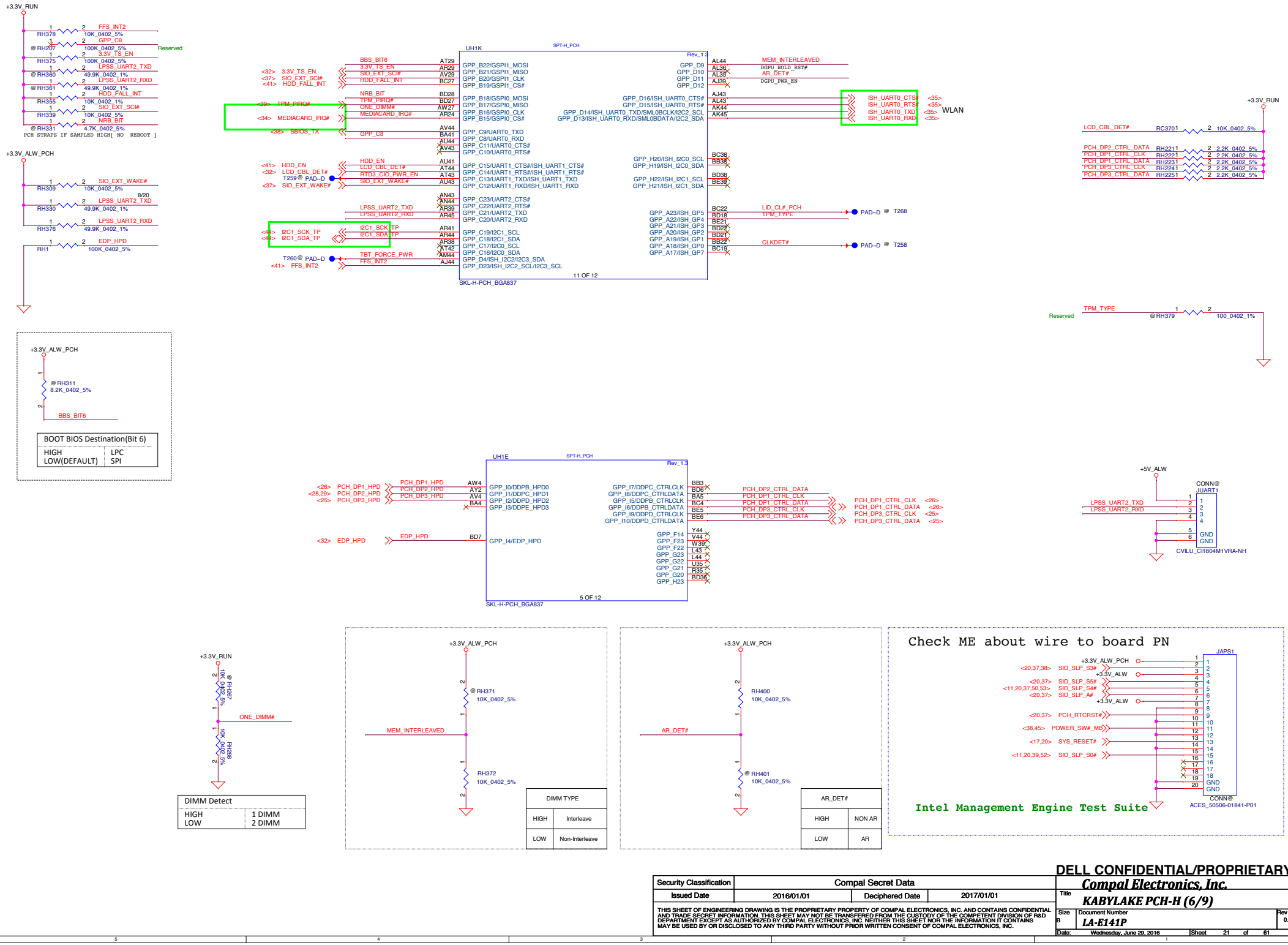
Compal Electronics, Inc.

Title: *KABYLAKE PCH-H (4/9)*

Size	Document Number	Rev
B	*LA-E141P*	0.2

Date: Wednesday, Jun 29, 2016 Sheet 19 of 61


Ext USB Port 1 Charge(RIGHT)
M.2 3042 (LTE)
Type C
Ext USB Port 2(LEFT)
Ext USB Port 3(REAR)
UH1F
SKL-H-PCH_BGA837
UH1D
SPT-H_PCH
RF Request
ESD Request,place near PCH side
Place close PCH side
EXI BOOT STALL BYPASS
HIGH ENABLED
LOW(DEFAULT) DIABLED
WEAK INTERNAL PD
Service Mode Switch:
Add a switch to ME_FWP signal to unlock the ME region and
allow the entire region of the SPI flash to be updated using FPT.
RH215
POP NO Support Deep sleep
DE-POP Support Deep sleep
ME_FWP PCH has internal 20K PD.
(suspend power rail)
FLASH DESCRIPTOR SECURITY OVERRIDE
LOW = ENABLE (DEFAULT) -->Pin1 & Pin3 short
HIGH = DISABLE (ME can update) -->Pin2 & Pin3 short
ESD request,Place near PCH side.
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
KABYLAKE PCH-H (5/9)
Security Classification Compal Secret Data
Issued Date 2016/01/01 Deciphered Date 2017/01/01
Size B Document Number LA-E141P Rev 0.2
Date: Wednesday, June 29, 2016 Sheet 20 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

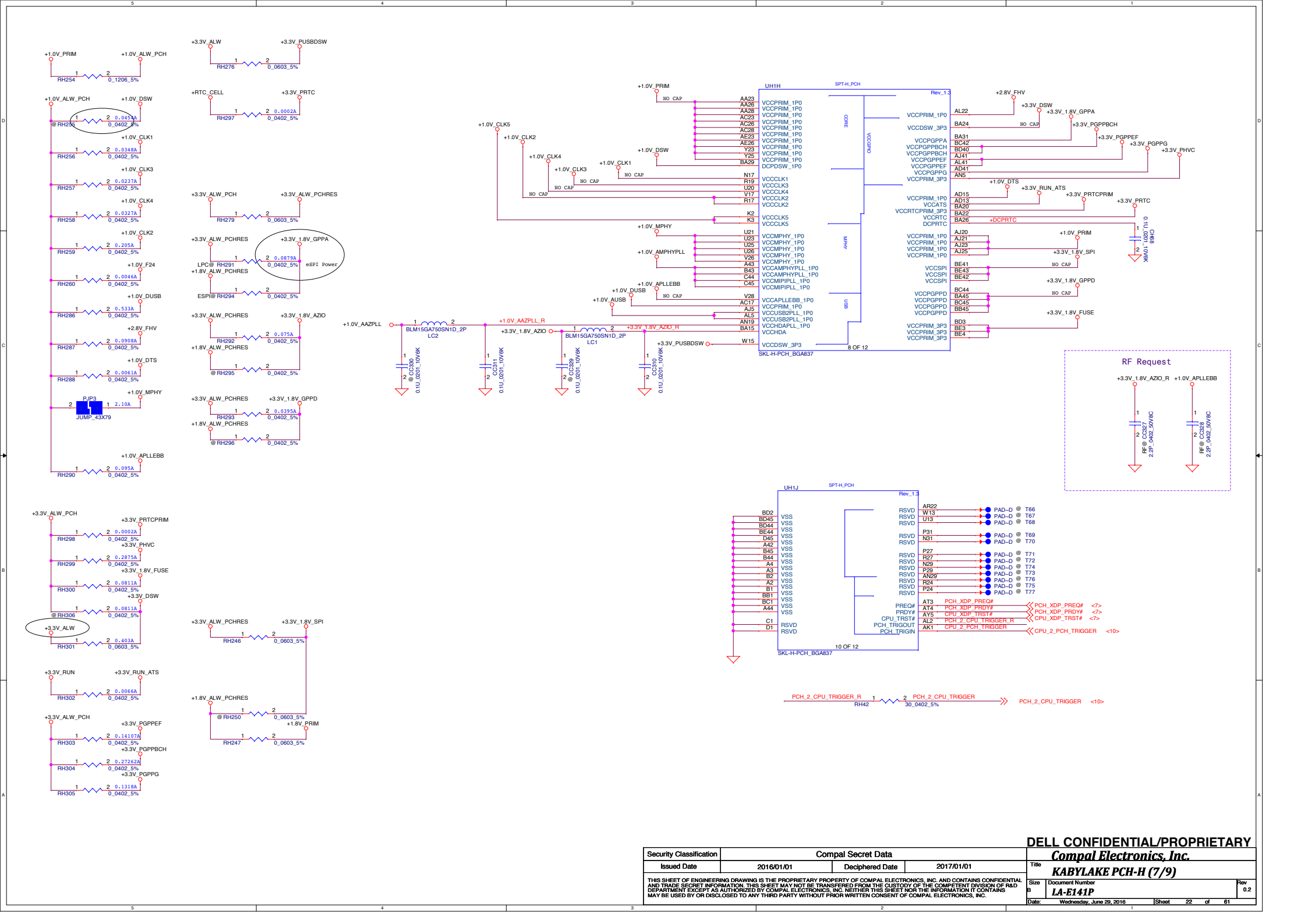
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: *KABYLAKE PCH-H (6/9)*

Size	Document Number	Rev
B	*LA-E141P*	0.2

Date: Wednesday, June 29, 2016 Sheet 21 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

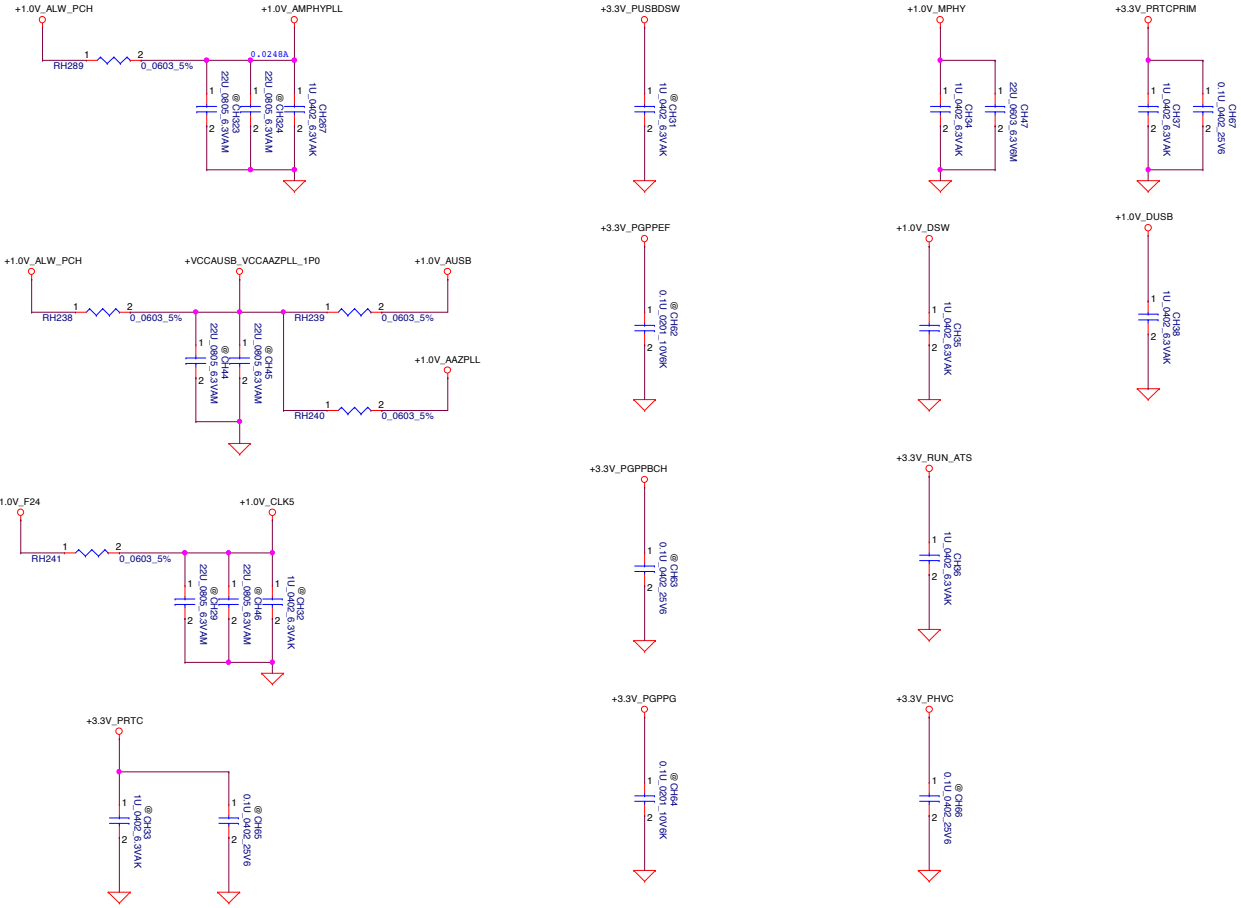
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: *KABYLAKE PCH-H (7/9)*

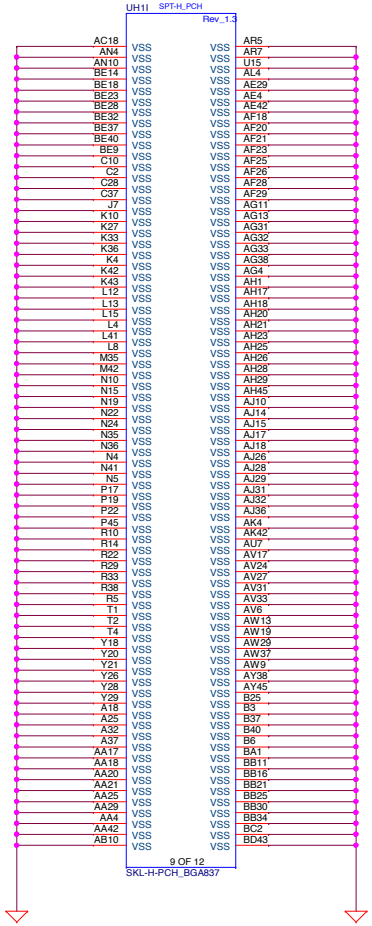
Size	Document Number	Rev
B	*LA-E141P*	0.2

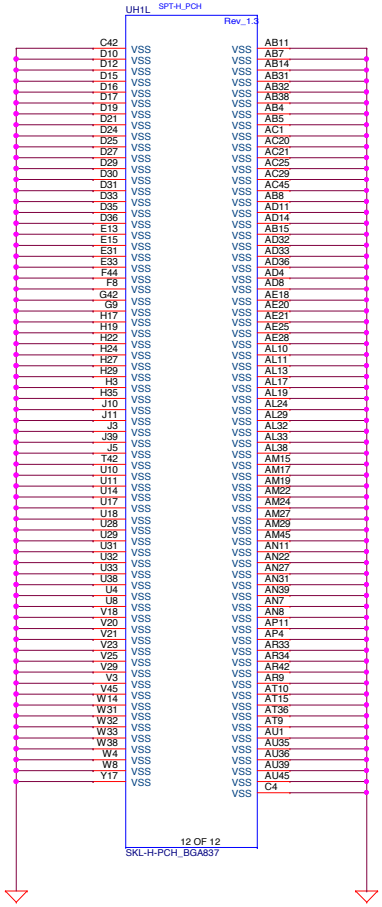
Date: Wednesday, June 29, 2016 | Sheet 22 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.		
Title: KABYLAKE PCH-H (8/9)		
Size: B	Document Number: LA-E141P	Rev: 0.2
Date: Wednesday, June 29, 2016	Sheet 23 of 61	





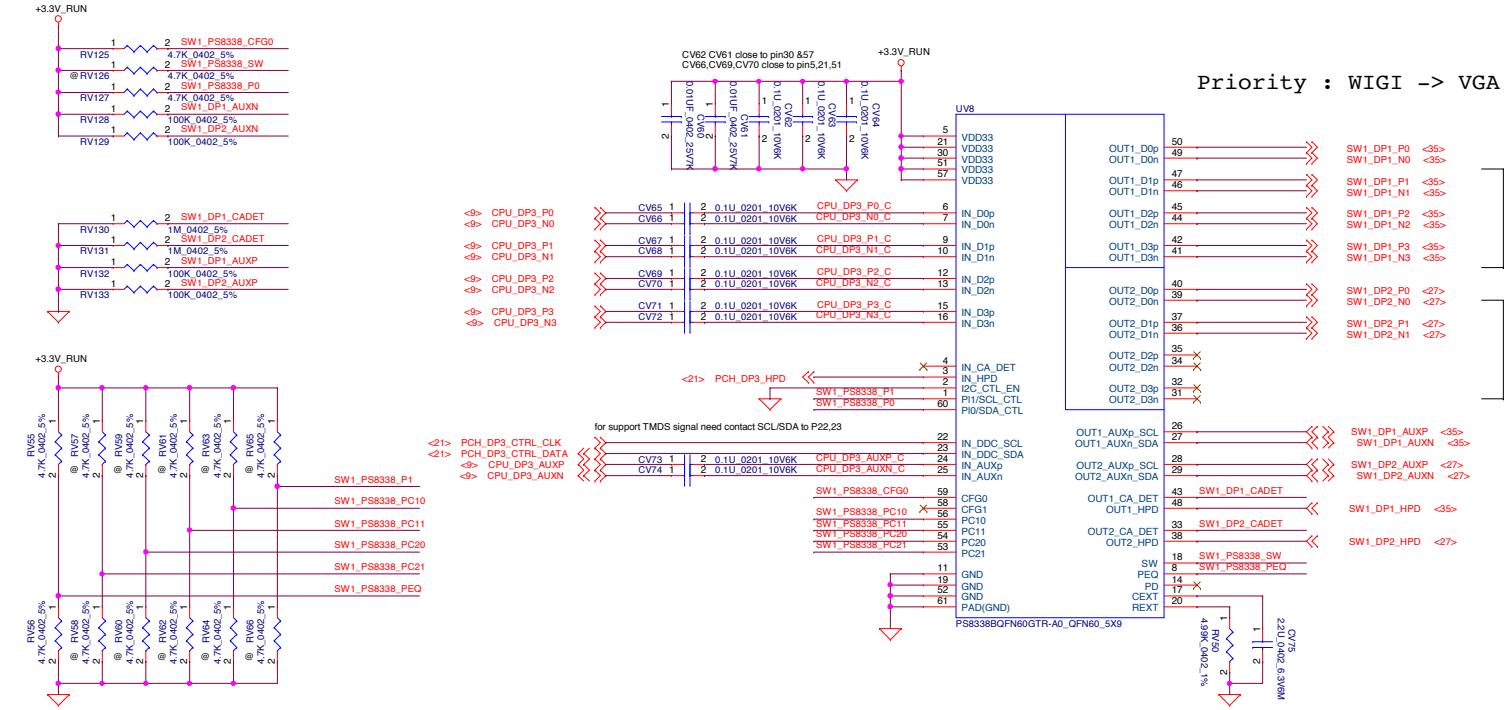
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: KABYLAKE PCH-H (9/9)

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 24 of 61



Port switching control or priority configuration. Internal pull down ~150KΩ, 3.3V I/O
For Control Switching Mode (CFG0 = L):
SW = L: Port1 is selected (default)
SW = H: Port2 is selected
For Automatic Switching Mode (CFG0 = H):
SW = L: Port1 has higher priority when both ports are plugged (default)
SW = H: Port2 has higher priority when both ports are plugged

vender suggguest MUX use LLEQ PEQ=M and PI0=H !!

Programmable input equalization levels, Internal pull down at ~150Kohm,3.3V I/O
PEQ =
L: default,LEQ, compensate channel loss up to 11.5dB @HBR2
H: HEQ, compensate channel loss up to 14.5dB @HBR2
M:LLEQ, compensate channel loss up to 8.5dB @HBR2

PI0:Automatic EQ disable, Internal pull down ~150K ohm, 3.3V I/O
PI0 = L: Automatic EQ enable(default)
H: Automatic EQ disable

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

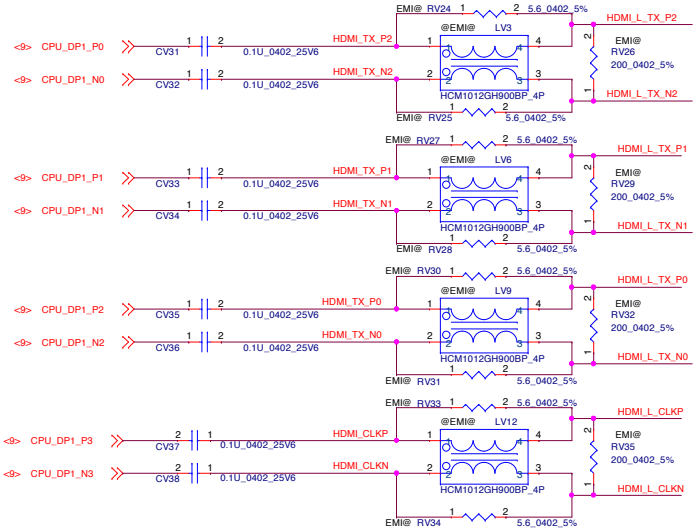
Compal Electronics, Inc.

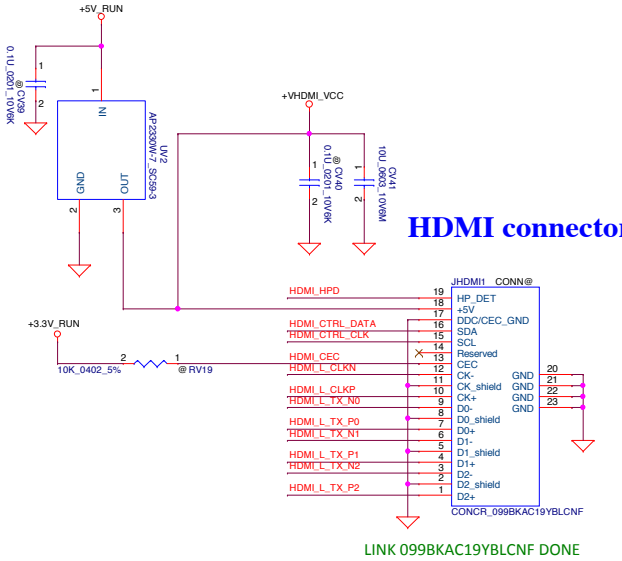
Title: *DP SW2 PS8338*

Size: B | Document Number: *LA-E141P* | Rev: 0.2

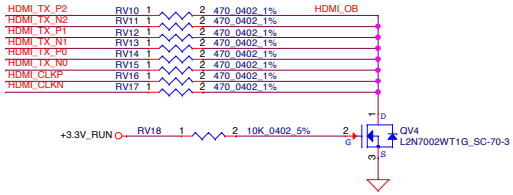
Date: Wednesday, June 29, 2016 | Sheet 25 of 61

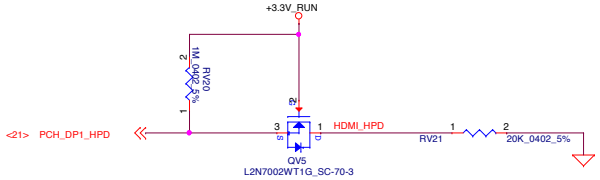
For Breckenridge 14

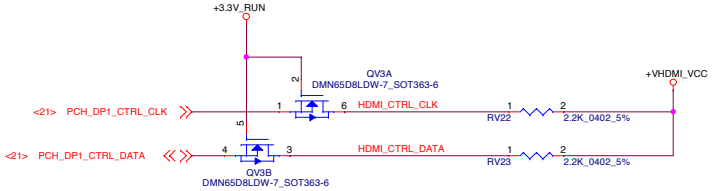




LINK 099BKAC19YBLCNF DONE







Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

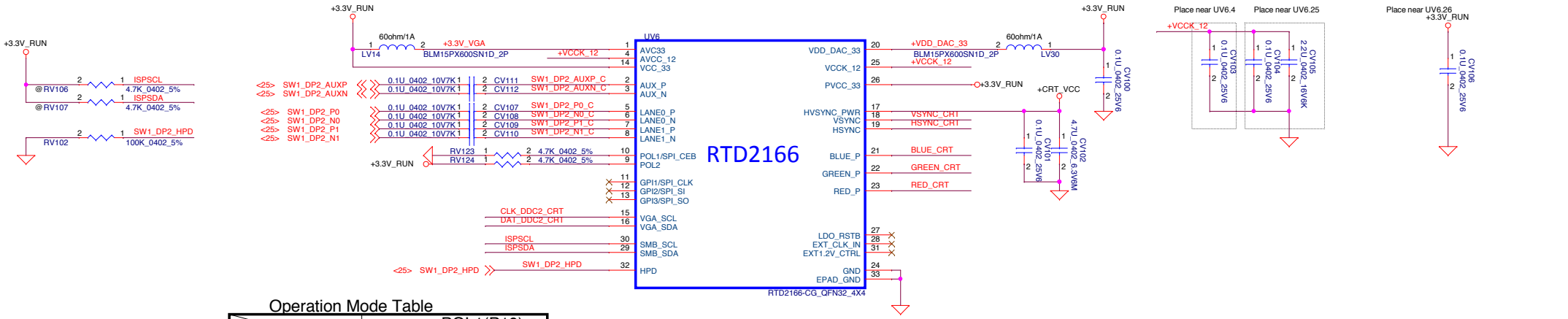
Title: HDMI CONN

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 26 of 61

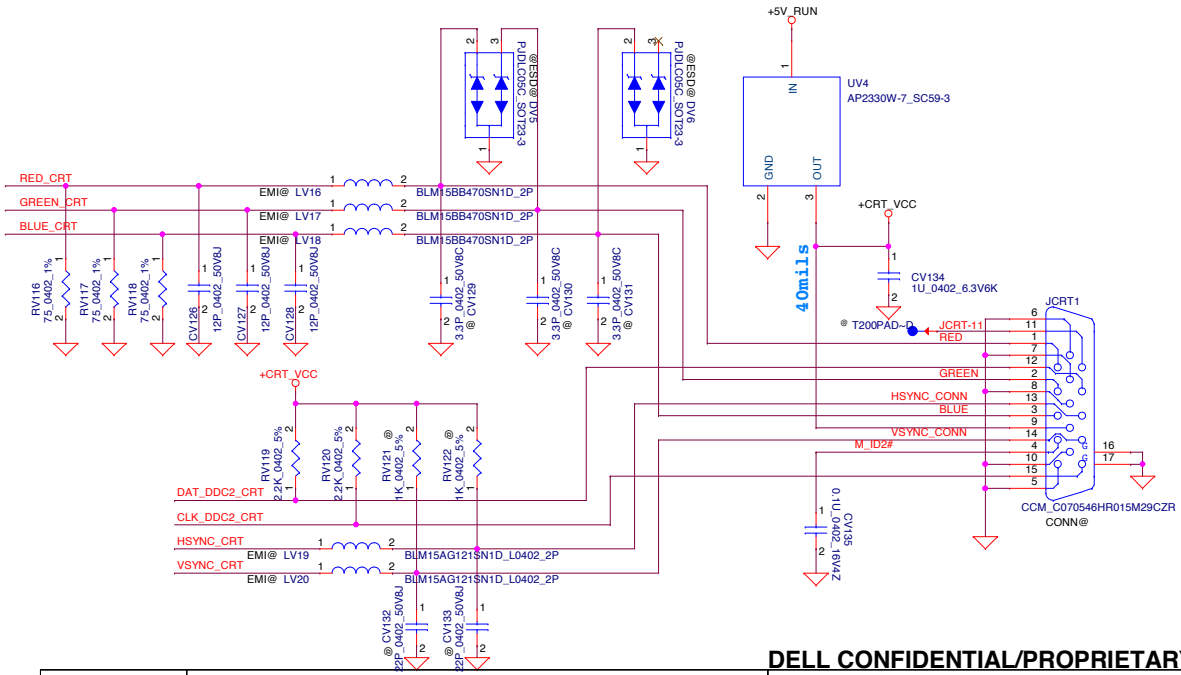
For TBT SW2_DP2
For non-TBT SW1_DP2

For Realtek Solution



Operation Mode Table

		POL1(P10)	
		0	1
POL2 (P9)	0	X	X
	1	ROM	EEPROM



DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: DP to VGA & VGA Conn

Size: Custom | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 27 of 61

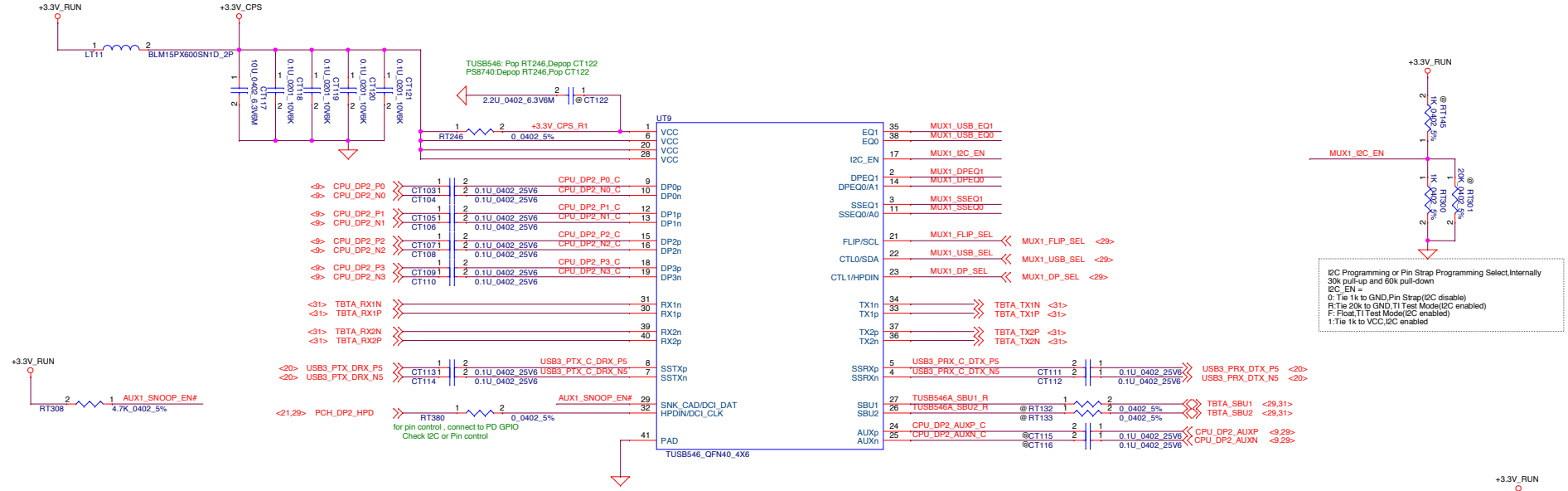


Table 8-7 TUSB546 Receiver Equalization GPIO Control

USB3.1 Downstream Facing Ports			USB 3.1 Upstream Facing Port			All DisplayPort Lanes		
EQ1 pin Level	EQ0 pin Level	EQ GAIN @5GHz (dB)	SSEQ1 pin Level	SSEQ0 pin Level	EQ GAIN @5GHz (dB)	DPEQ1 pin Level	DPEQ0 pin Level	EQ GAIN @5GHz (dB)
0	0	0	0	0	0	0	0	0
0	R	1	0	R	1	0	R	1
0	F	2	0	F	2	0	F	2
0	1	3	0	1	3	0	1	3
R	0	4	R	0	4	R	0	4
R	R	5	R	R	5	R	R	5
R	F	6	R	F	6	R	F	6
R	1	7	R	1	7	R	1	7
F	0	8	F	0	8	F	0	8
F	R	9	F	R	9	F	R	9
F	F	10	F	F	10	F	F	10
F	1	11	F	1	11	F	1	11
1	0	12	1	0	12	1	0	12
1	R	13	1	R	13	1	R	13
1	F	14	1	F	14	1	F	14
1	1	15	1	1	15	1	1	15

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.			
Title	DP/USB3 Repeater SW2 TUSB546		
Size B	Document Number LA-E141P		Rev 0.2
Date: Wednesday, June 29, 2016		Sheet 28 of 61	

For Non-AR config

DIV = R2/(R1+R2)		Factory Device Configuration	Description
DIV_min	DIV_max		
0.00	0.08	0	UFP only 5V @0.9A Sink capability with "Ask for Max" for anything from 0.9 -3.0A TBT Alternate Modes not supported DisplayPort Alternate Modes not supported TI VID supported
0.10	0.18	1	UFP only 5V @0.9A Sink capability with "Ask for Max" for anything from 0.9 -3.0A TBT Alternate Modes not supported DisplayPort Alternate Modes -Sink, C and D pin configuration TI VID supported
0.20	0.28	2	UFP only 5V @3.0A Source capability TBT Alternate Modes not supported DisplayPort Alternate Modes not supported TI VID supported
0.30	0.38	3	UFP only 5V @3.0A Source capability TBT Alternate Modes not supported DisplayPort Alternate Modes -Sink, C and D pin configuration TI VID supported
0.40	0.48	4	DRP 5V @0.9-3.0A Sink capability 5V @3.0A Source capability TBT Alternate Modes not supported DisplayPort Alternate Modes not supported TI VID supported Accepts data and power role swaps, but does not initiate.
0.50	0.58	5	DRP 5V @0.9-3.0A Sink capability 5V @3.0A Source capability TBT Alternate Modes not supported DisplayPort Alternate Modes - Source, C, D, and E pin configurations. TI VID supported Accepts power role swaps but will not initiate. Accepts data role swap to UFP and can initiate.
0.60	0.68	6	DRP 5V @0.9-3.0A Sink capability 5V @3.0A Source capability TBT Alternate Modes not supported DisplayPort Alternate Modes - Source, C, D, and E pin configurations. TI VID supported Accepts power role swaps but will not initiate. Accepts data role swap to DFP and can initiate.
0.70	1.00	7	Infinite boot retry from Flash to Host I/F cycles.

Route in pass through manner so AUX can be snooped by 546

Need Link TPS65982D

DELL CONFIDENTIAL/PROPRIETARY

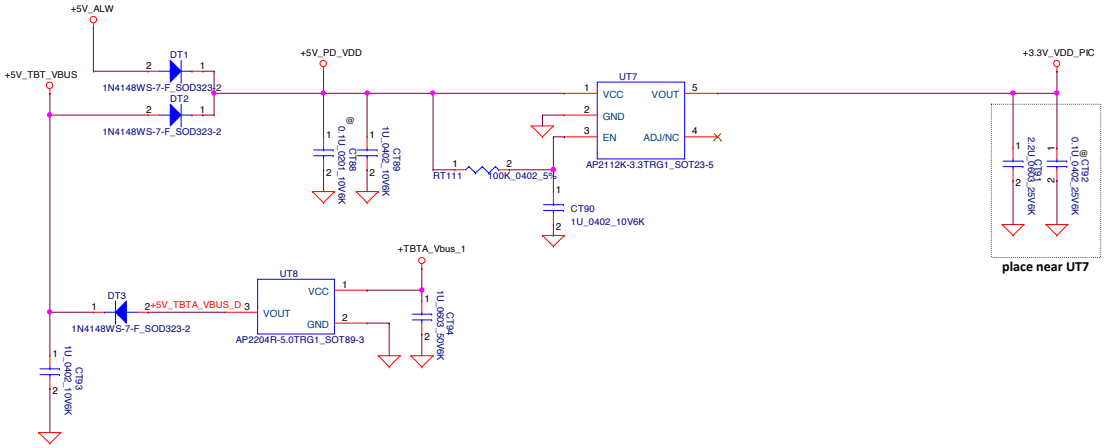
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: [Type C]PD Controller TI

Size: C | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 29 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

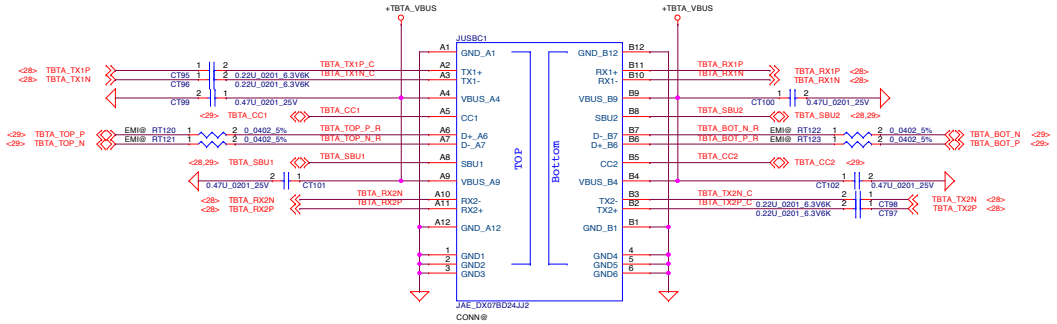
Compal Electronics, Inc.

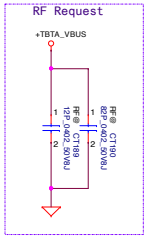
Title: [Type C]PD Power

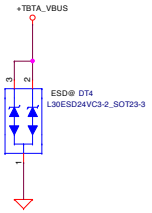
Size	Document Number	Rev
B	LA-E141P	0.2

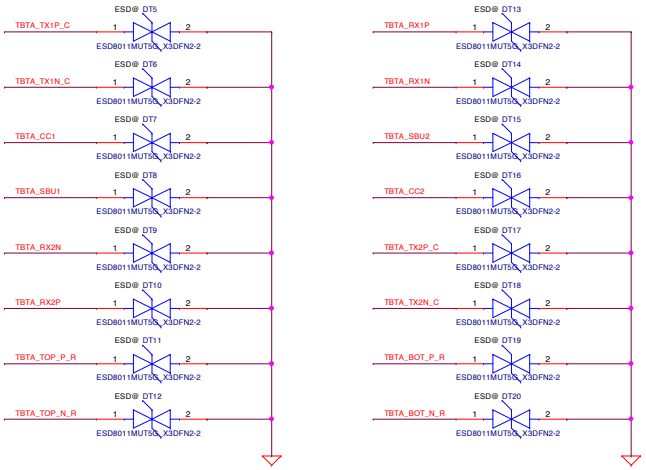
Date: Wednesday, June 29, 2016 Sheet 30 of 61

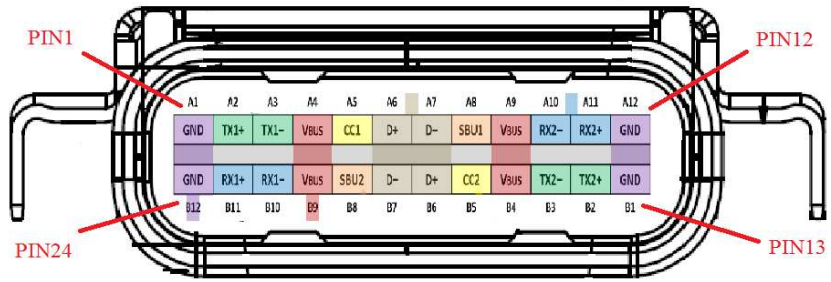
For NON AR Config











DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

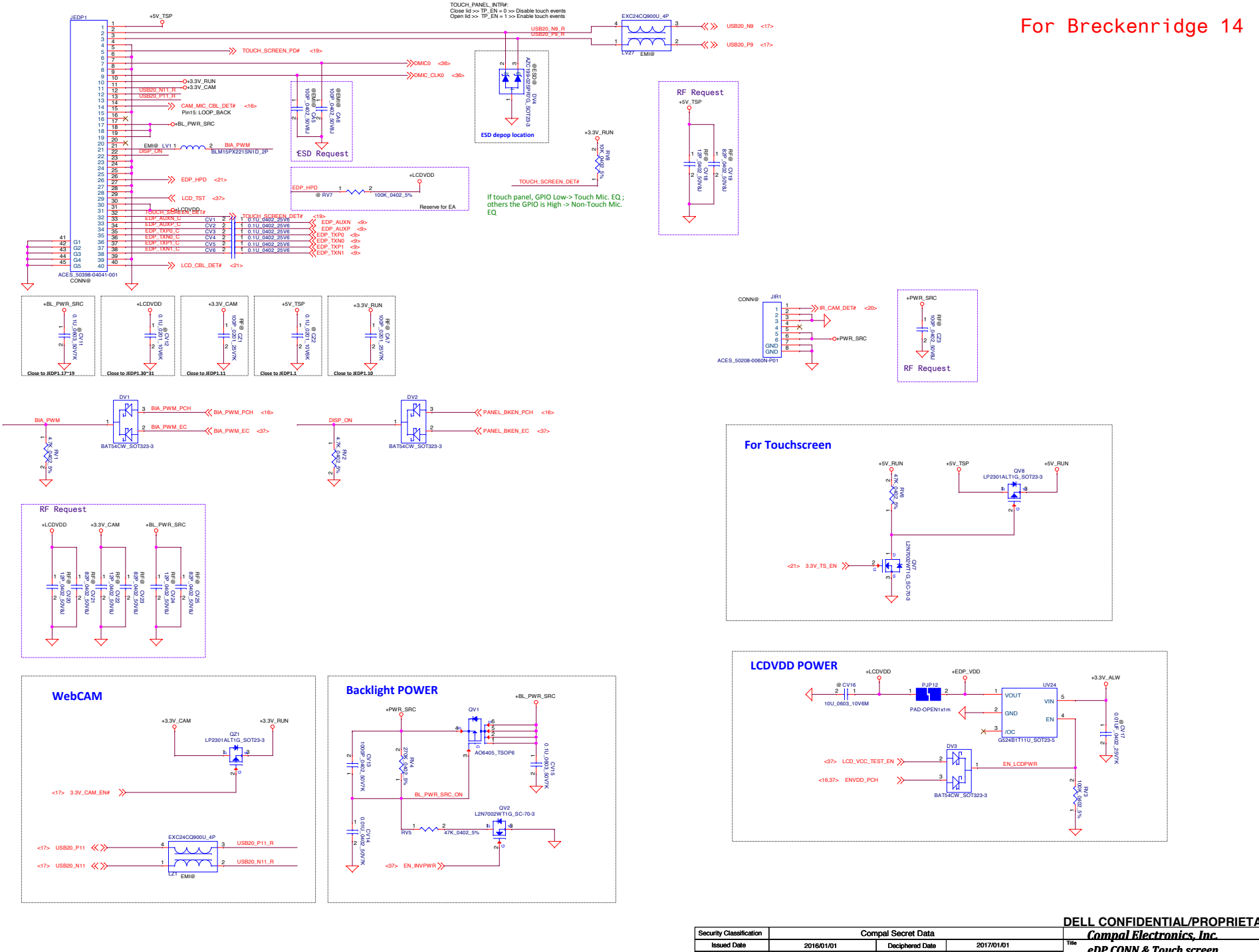
Compal Electronics, Inc.

Title: USB 3.0 CONN TYPE C

Size: C | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 31 of 61

For Breckenridge 14



DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

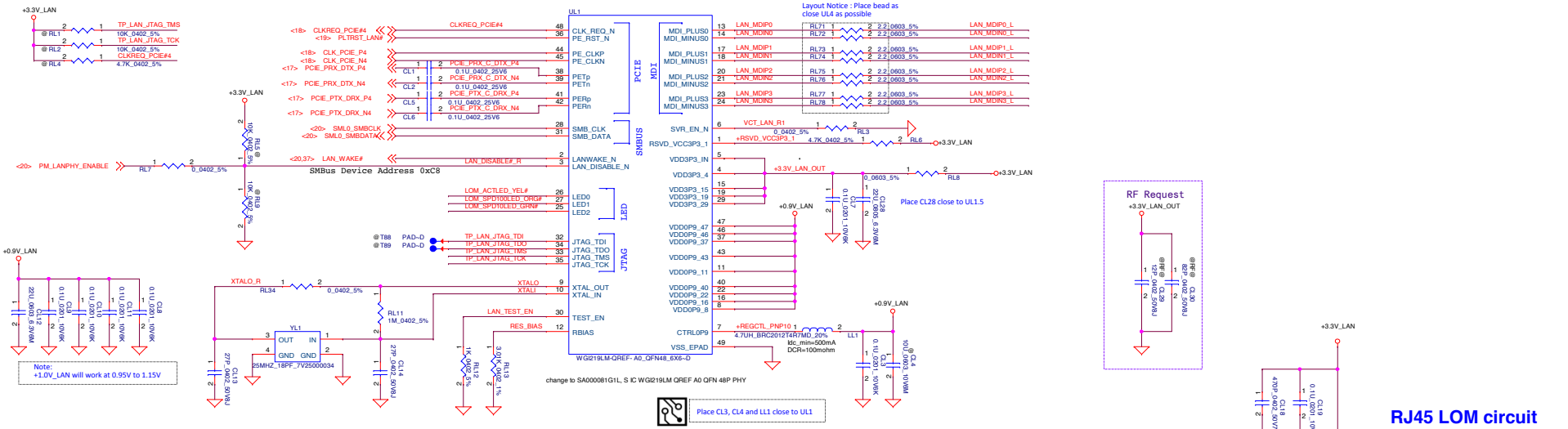
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

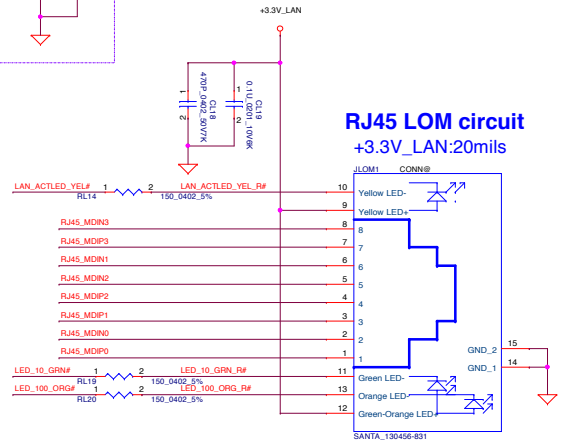
Compal Electronics, Inc.

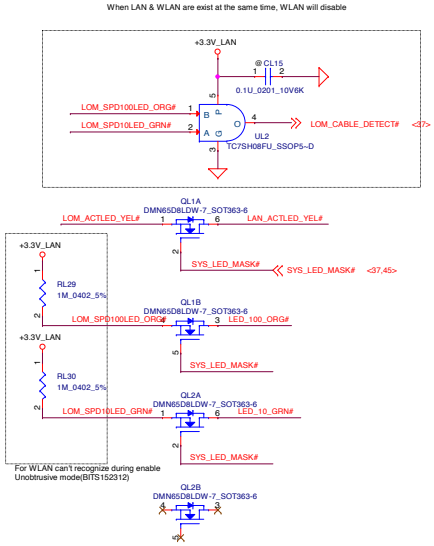
Title: eDP CONN & Touch screen

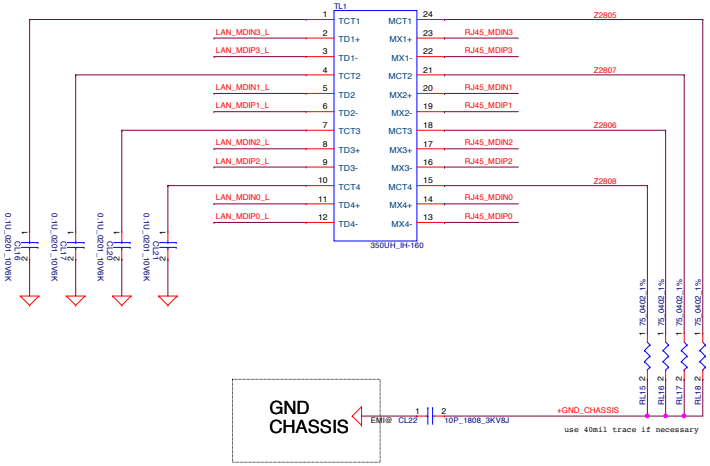
Size	Document Number	Rev
C	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 32 of 61









Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

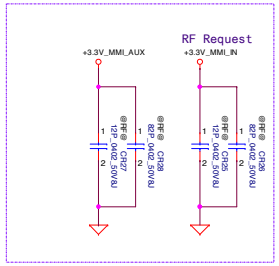
Compal Electronics, Inc.

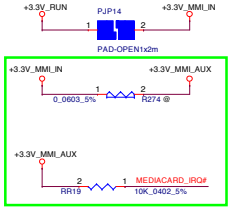
Title: LAN Clarkvillie & RJ45

Size: C | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 33 of 61

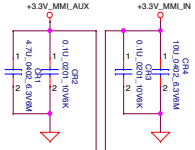
For PCIE Interface

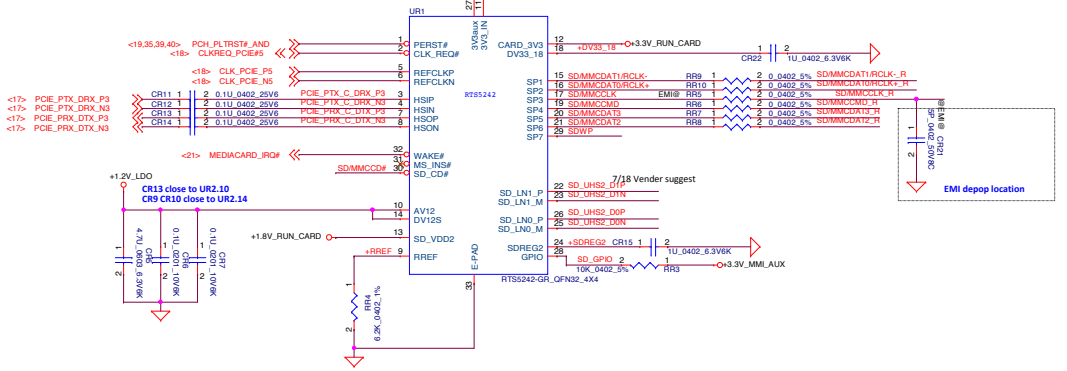




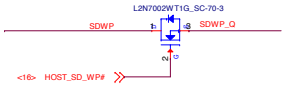
support D3 Hot(if D3 cold PIN11,PIN27 need Add MOS on/off 3V3AUX)

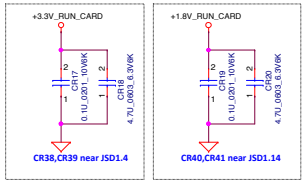
7/18 Vender suggest.

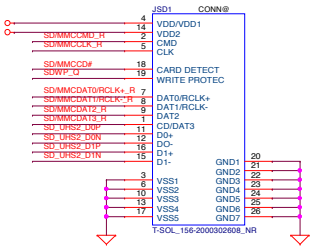




HOST_SD_WP#	SDWP_Q	SDWP	STATUS
High	High	High	Write Protect(SD LOCK)
	Low	Low	Write Enable
Low	High	High	Write Protect(SD& FW LOCK)
	Low	High	Write Protect(FW LOCK)







LINK SP070011U00 DONE

DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

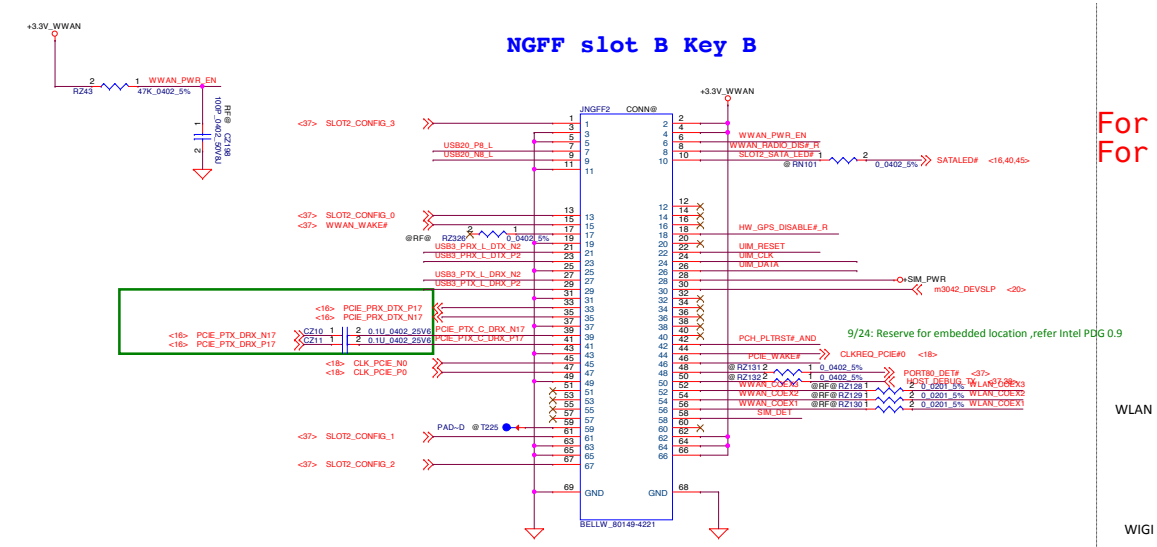
Title: Card Reader

Size: C | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 34 of 61

for Brekenridge 12/14/15 UMA

NGFF slot B Key B

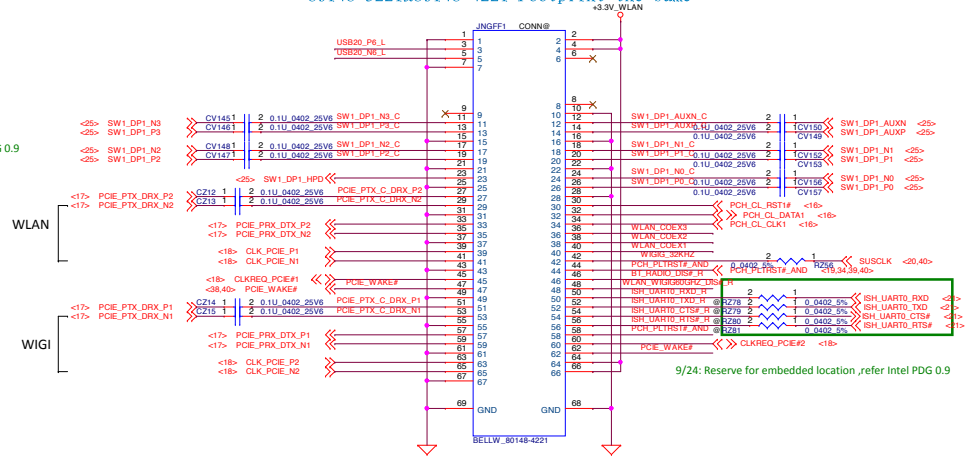


9/24: Reserve for embedded location ,refer Intel PDG 0.9

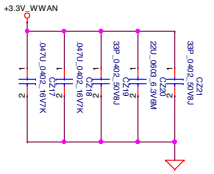
For TBT SW2_DP1
For non-TBT SW1_DP1

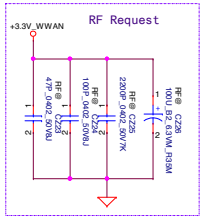
NGFF slot A Key A

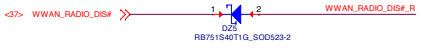
80148-3221&80148-4221 Footprint the same

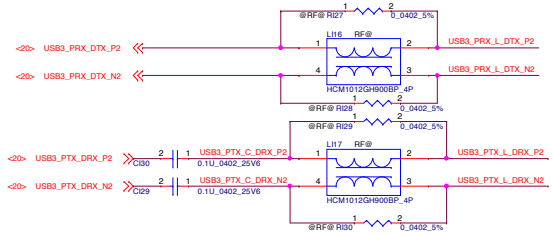


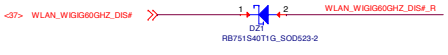
9/24: Reserve for embedded location ,refer Intel PDG 0.9

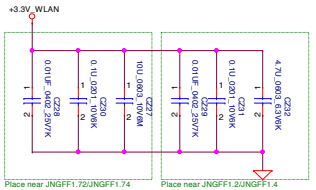




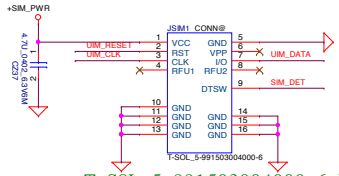




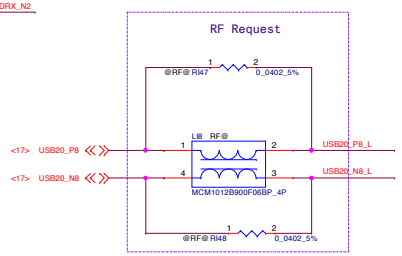


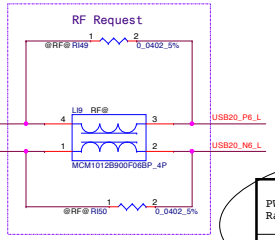


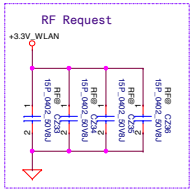
SIM Card Push-Push

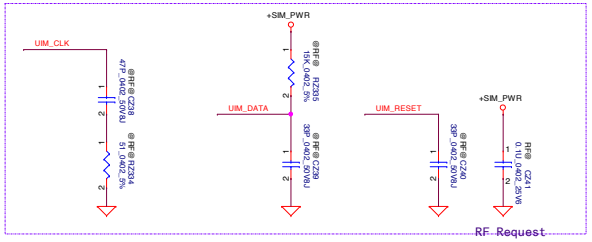


T-SOL_5-991503004000-6 LINK DONE









STATE #	CONFIG_0	CONFIG_1	CONFIG_2	CONFIG_3	Module Type	m3042_PCIE#_SATA
0	GND	GND	GND	GND	SSD-SATA	High
1	GND	HIGH	GND	GND	SSD-PCIE(2 lane)	Low
8	HIGH	GND	GND	GND	WWAN	Low
14	HIGH	GND	HIGH	HIGH	HCA-PCIE(1 lane)	Low
15	HIGH	HIGH	HIGH	HIGH	NA	Low

Power Rating TBD

PWR Rail	Voltage Tolerance	Primary Power		Aux Power
		Peak	Normal	Normal
+3.3V				

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.	
Title	NGFF Card
Size	Document Number: LA-E141P
Custom	Rev: 0.2
Date:	Wednesday, June 29, 2016
Sheet	35 of 61

1W x 1ch, 4ohm (Transducer spec is 8Ohm/0.5Watt per unit, there are two transducer units in one speaker box.)

Internal Speakers Header

40 mils trace keep 20 mil spacing

CONN@ JSPK1

ACES_50278-00401-001

Close to UA1

Close to UA1 pin6

HDA_BIT_CLK_R

DMIC_CLK0

place close to UA1 pin3

Place closely to Pin 13.

Add for solve pop noise and detect issue

place at AGND and DGND plane

PJP19 PAD-OPEN1x1m

CLASS-D POWER DOWN CONTROL CIRCUIT

HDA_Link is 3.3V,no need level shift circuit

RE313@one control line if DVDD is 3.3V
DE2@two control lines1

Power sequence +5V_RUN_AUDIO(501us) > +3.3V_RUN_AUDIO(1204 us) > +1.5V_RUN

Reserve for support D3 cold

2.5A

500mA

EM5209VF_SON14_2X3

UA1 ALC3246-CG_MQFN48_6X6

Place CA29 close to Codec

SLEEVE/RING2 please keep 40 mils trace width

AUD_HP_OUT_L/ AUD_HP_OUT_Rplease keep 15 mils trace width

Only BR15U UMA use LA2,LA3,because 6L

Add this Filter to avoid other components/chips be influenced

HP-Out-Right

HP-Out-Left

Nokia-MIC

iPhone-MIC

Global Headset

Universal Jack

SINGA_2SJ3095-136111F

Normal

Open

RF Request

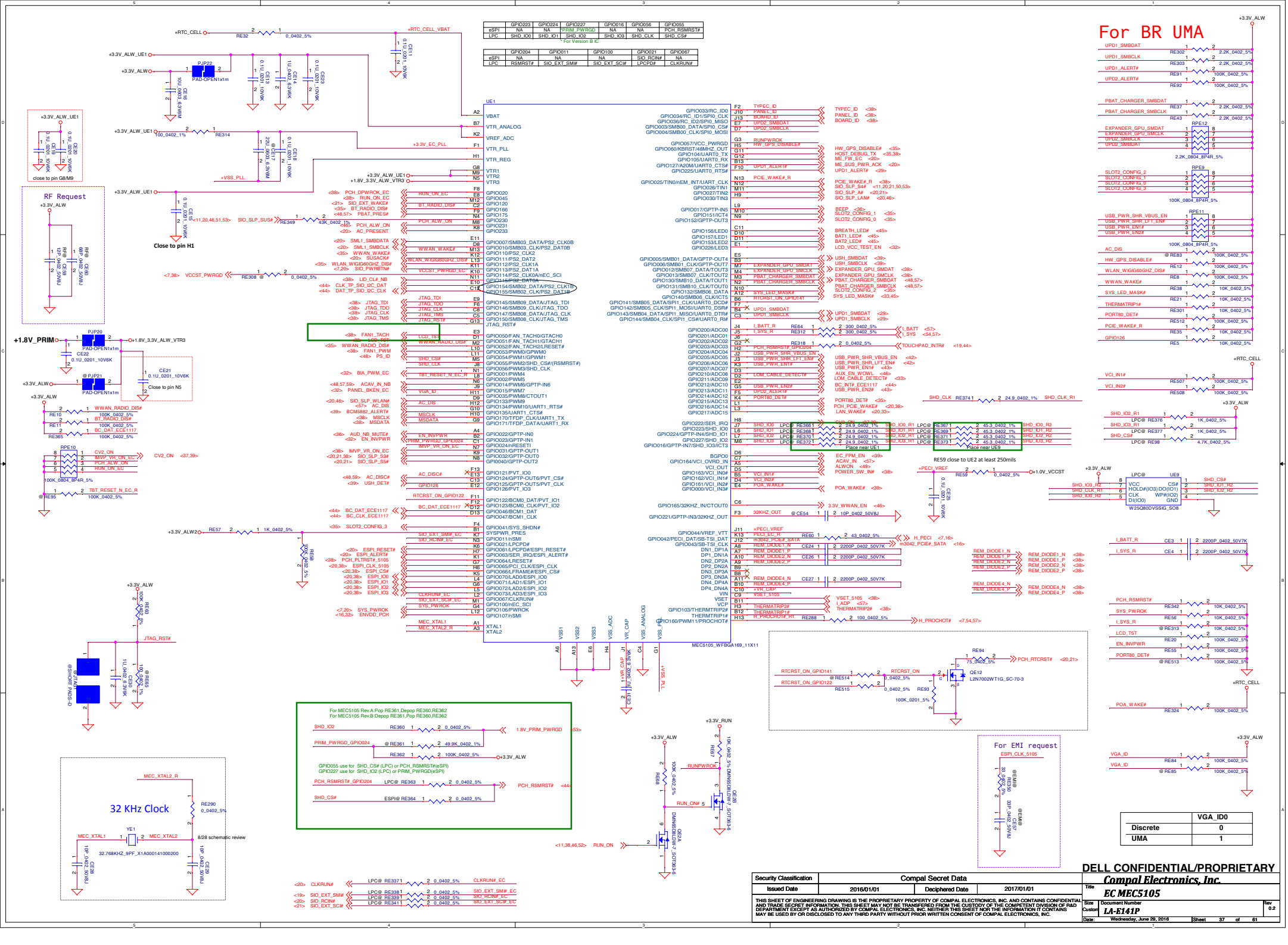
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

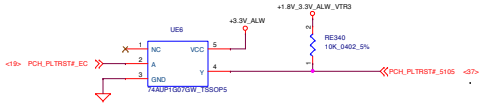
Codec ALC3246

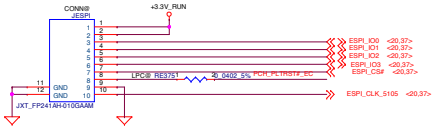
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Size	Document Number	Rev
C	LA-E141P	0.2
Date:	Wednesday, June 29, 2016	Sheet 36 of 61


For BR UMA
RF Request
Close to pin H1
Close to pin N5
32 KHz Clock
For EMI request
DELL CONFIDENTIAL/PROPRIETARY
Compal Electronics, Inc.
EC MEC5105
Compal Secret Data
2016/01/01
Deciphered Date
2017/01/01
LA-E141P
Wednesday, June 29, 2016
Sheet 37 of 61

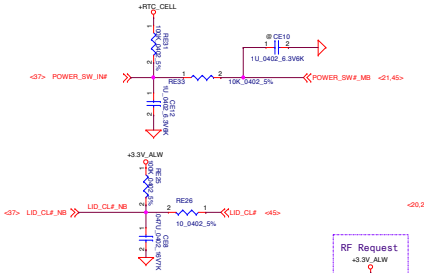
For BR UMA

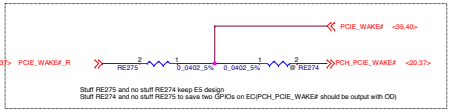


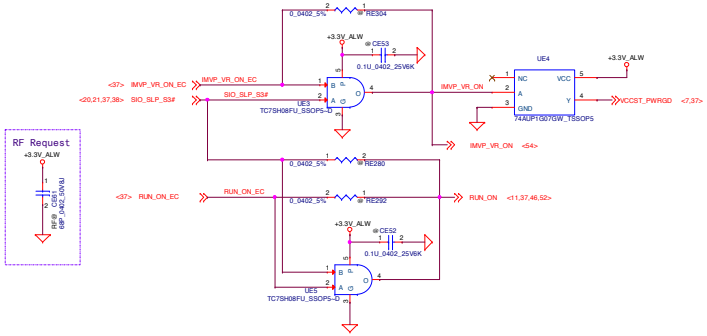


PAGE	ESPI	LPC
8	RC25_10K	RC8_15ohm RC13/RC27_8.2K
18	RC212_0ohm 0603	RC211_0ohm 0603
31		RE337,RE338 RE339,RE340, RE341 0_ohm
32	RE2 / RE3 0_ohm	

LPC 80Port Debug	LPC	ESPI
1	+3.3V_RUN	+3.3V_RUN
2	+3.3V_RUN	+3.3V_RUN
3	LPC_LAD0	ESPI_IO0
4	LPC_LAD1	ESPI_IO1
5	LPC_LAD2	ESPI_IO2
6	LPC_LAD3	ESPI_IO3
7	LPC_FRAME#	ESPI_CS#
8	PCH_PLTRST#	NA
9	GND	GND
10	LPC_CLOCK	ESPI_CLK







*	RE343	CE62	REV
	240K	4700p	Single Port ACE w/o AR
	130K	4700p	Single Port ACE w/AR
	62K	4700p	Dual Port ACE w/o AR
	33K	4700p	Dual Port ACE w/AR
	8.2K	4700p	Dual Port ACE (w/AR +w/o AR)
	4.3K	4700p	.
	2K	4700p	
	1K	4700p	

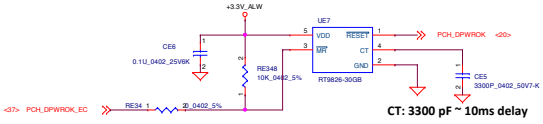
*	RE79	CE40	REV
	240K	4700p	X00
	130K	4700p	
	62K	4700p	
	33K	4700p	
	8.2K	4700p	
	4.3K	4700p	
	2K	4700p	
	1K	4700p	

*	RE300	CE47	PANEL SIZE
	240K	4700p	12"
	130K	4700p	14"
	33K	4700p	BR15 H
	4.3K	4700p	BR15 P

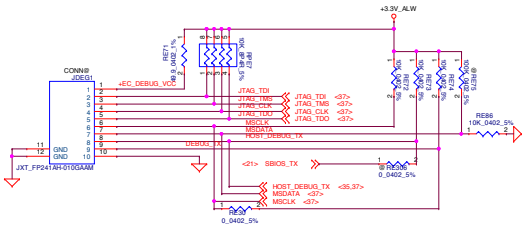
PD_ACE_DET# rise time is measured from 5%~68%.

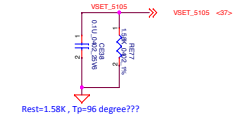
BOARD_ID rise time is measured from 5%~68%.

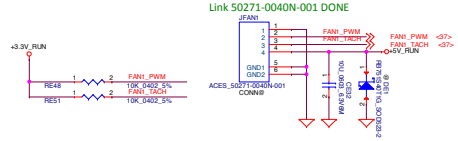
PANEL_ID rise time is measured from 5%~68%.



Reset Threshold Level 3.0V





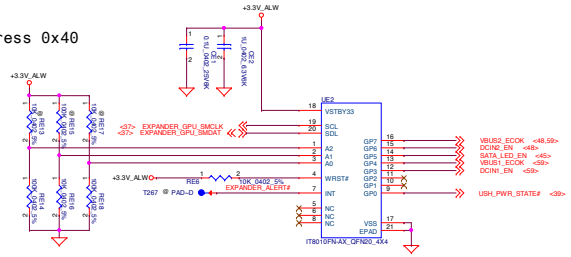


Control Byte

0	1	0	0	A2	A1	A0	R/W

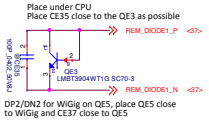
R/W = 0 = Wire
R/W = 1 = Read

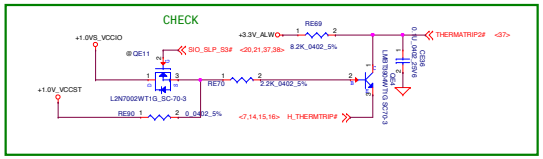
SMBus address 0x40

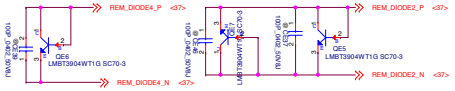


Thermal diode mapping

5105 Channel	Location
DP1/DN1	CPU (QE3)
DP2/DN2	WiGig (QE5)
DP2a/DP2a	DDR (QE7)
DP3/DN3	NA
DP4/DN4	CPU VR (QE6)







Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

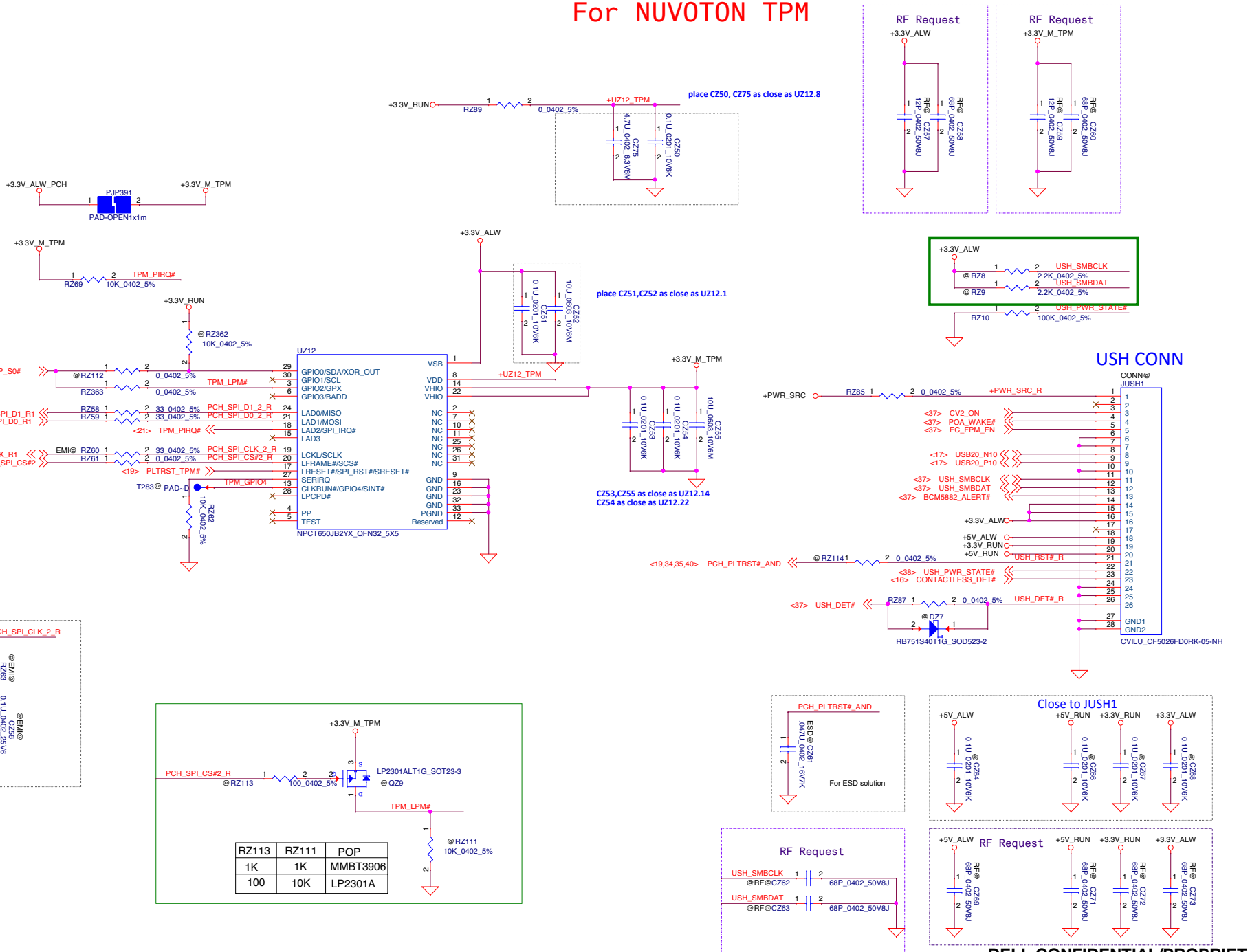
Compal Electronics, Inc.

Title: MEC5105 SUPPORT

Size: Custom | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 08, 2016 | Sheet 58 of 61

For NUVOTON TPM



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

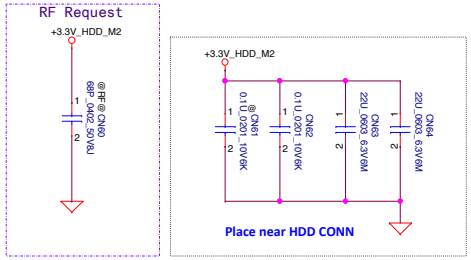
Compal Electronics, Inc.

Title: *USH & TPM*

Size: Custom | Document Number: *LA-E141P* | Rev: 0.2

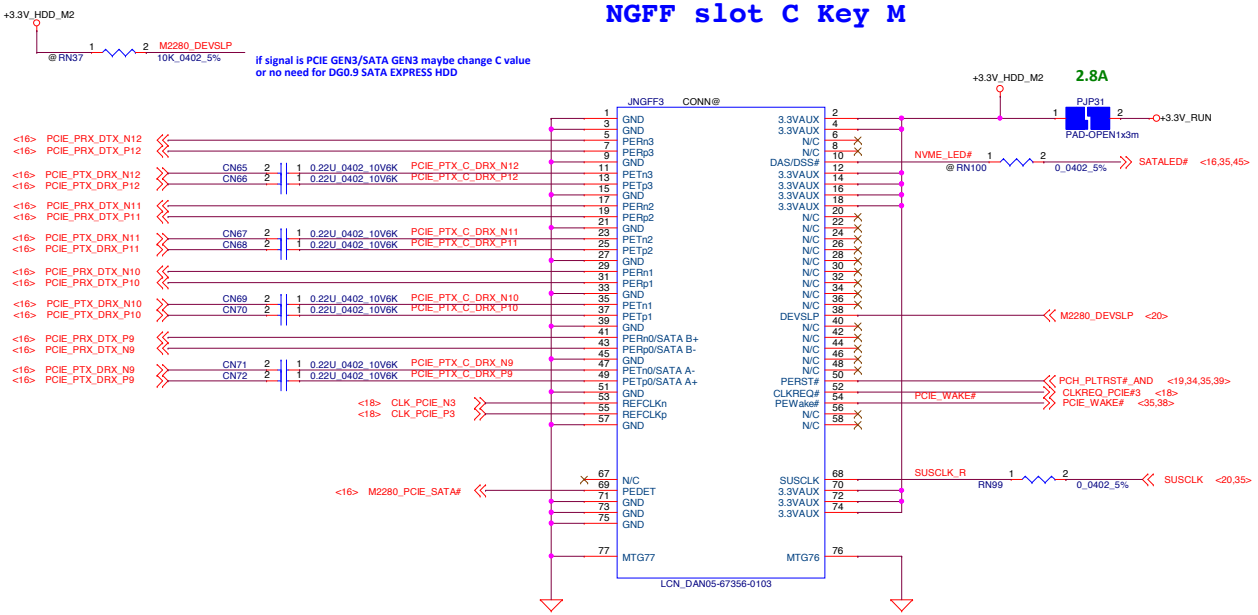
Date: Wednesday, June 29, 2016 | Sheet 39 of 61

For Breckenridge 15



2280 SSD

NGFF slot C Key M



Compal Electronics, Inc.

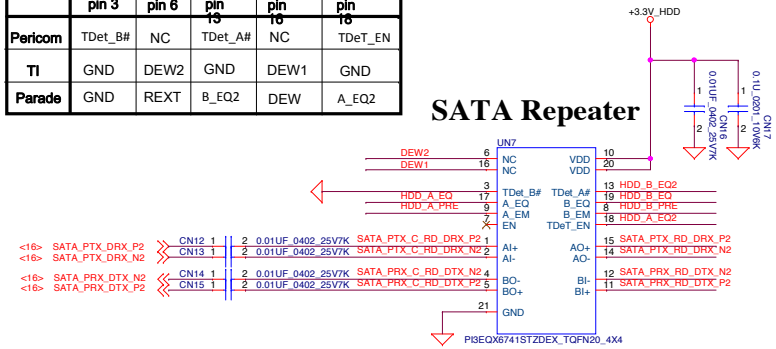
Title: M2 2280 Socket

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 40 of 61

	pin 3	pin 6	pin 15	pin 16	pin 18
Pericom	TDet_B#	NC	TDet_A#	NC	TDeT_EN
TI	GND	DEW2	GND	DEW1	GND
Parade	GND	REXT	B_EQ2	DEW	A_EQ2

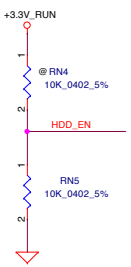
SATA Repeater



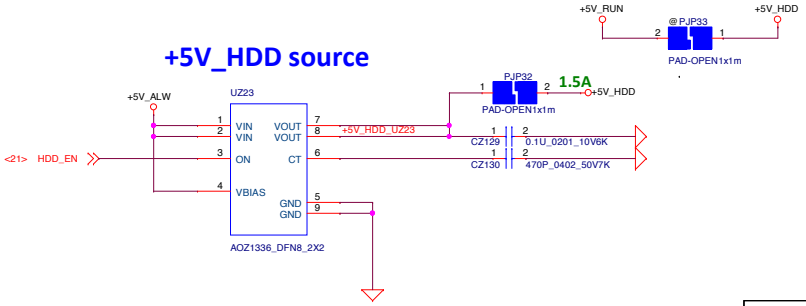
	HDD_A_EQ PIN17	HDD_B_EQ PIN19	HDD_A_EQ2 PIN18	HDD_B_EQ2 PIN13	DEW1 PIN16	DEW2 PIN6	HDD_A_PRE PIN9	HDD_B_PRE PIN8
Pericom PI3EQX6741ST	PD (RN13)	PD (RN16)	PD (RN83)	PD (RN23)	NC	NC	PD (RN9)	PD (RN11)
TI SN75LVCP601	PD (RN13)	NC	PD (RN83)	PD (RN23)	NC (IPU)	NC (IPU)	PH (RN8)	PH (RN10)
Parade PS8527C	PD (RN13)	PD (RN16)	PD (RN83)	PD (RN23)	NC (1/2 VDD)	PD (RN19)	NC (1/2 VDD)	NC (1/2 VDD)

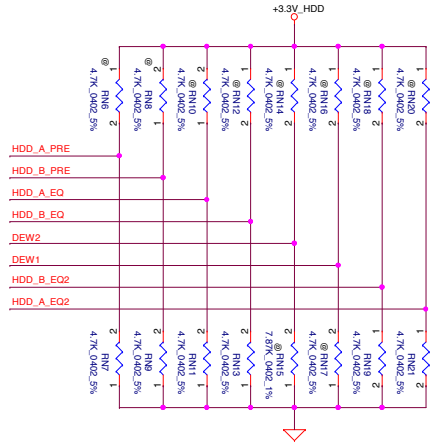
			A_EQ	B_EQ		A_EM	B_EM
Main	Pericom	0	3dB	3dB	0	0dB	0dB
		NC	6dB	6dB	NC		
		1	9dB	9dB	1	1.5dB	1.5dB
2nd	TI	0	7dB	7dB	0	0dB	0dB
		NC	0dB	0dB	NC	-4dB	-4dB
		1	14dB	14dB	1	-2dB	-2dB
3rd	Parade	EQ2 EQ1	A_EQ	B_EQ		A_EM	B_EM
		(M = VDD/2)					
		0 M	2.4dB	2.4dB			
		0 0	7.4dB	7.4dB			
		0 1	14.4dB	14.4dB	0	0dB	0dB
		M M	12.2dB	12.2dB	M	-3.5dB	-3.5dB
		M 0	9.4dB	9.4dB	1	-1.5dB	-1.5dB
		M 1	13.3dB	13.3dB			
		1 M	6.2dB	6.2dB			
		1 0	11.2dB	11.2dB			
		1 1	5dB	5dB			

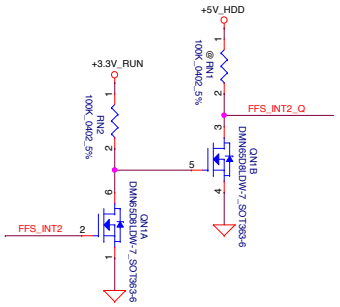
* red color is current setting



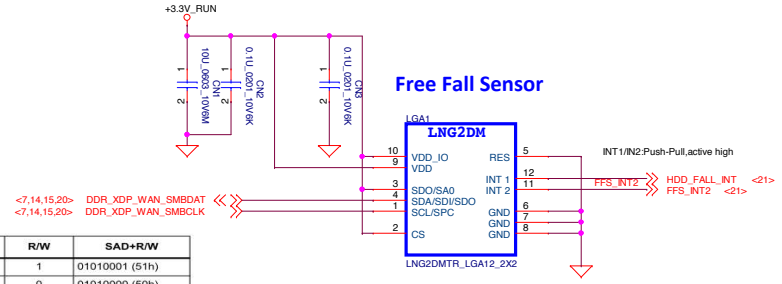
+5V_HDD source



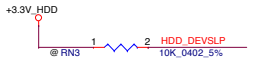


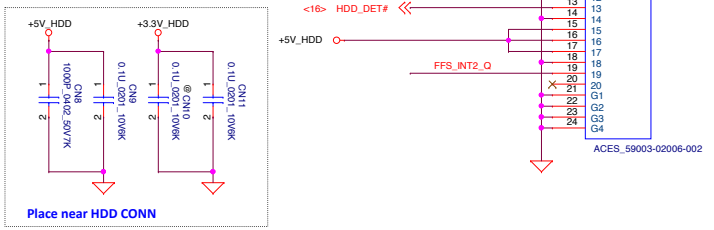


Free Fall Sensor



Command	SAD[6:1]	SAD[0] = SA0	R/W	SAD+R/W
Read	010100	0	1	01010001 (51h)
Write	010100	0	0	01010000 (50h)
Read	010100	1	1	01010011 (53h)
Write	010100	1	0	01010010 (52h)





Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

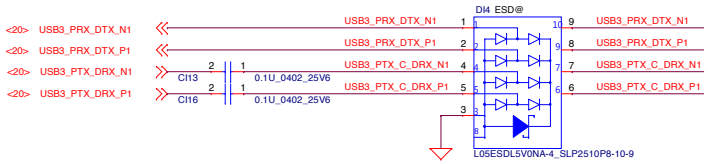
Compal Electronics, Inc.

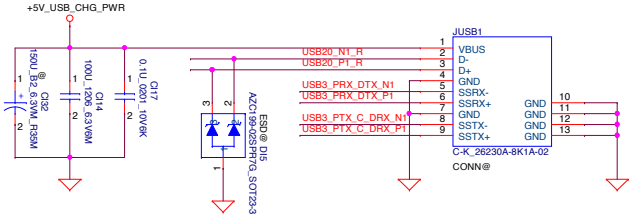
Title: HDD CONN

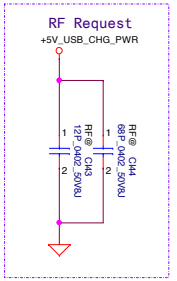
Size	Document Number	Rev
B	LA-E141P	0.2

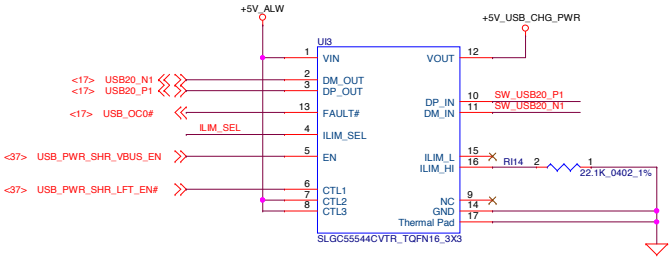
Date: Wednesday, June 29, 2016 Sheet 41 of 61

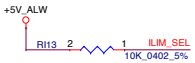
For PWR SW + Charger combine IC

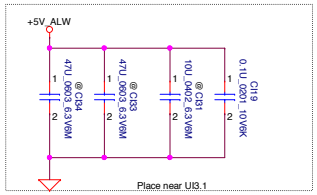












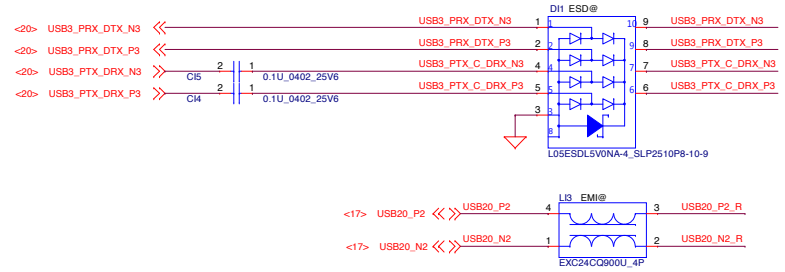
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

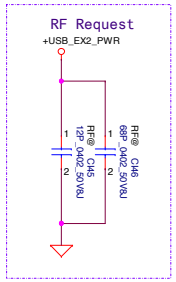
DELL CONFIDENTIAL/PROPRIETARY

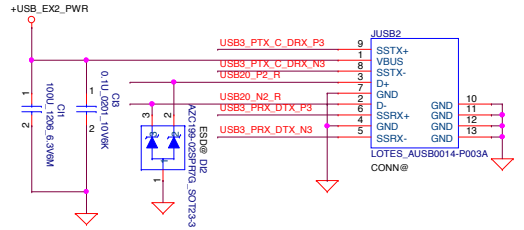
Compal Electronics, Inc.

Title	*USB SW*		
Size B	Document Number *LA-E141P*		Rev 0.2
Date: Wednesday, June 29, 2016	Sheet 42 of 61		

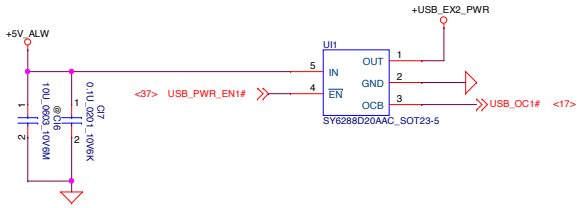
For Breckenridge 14&15/Steamboat 14

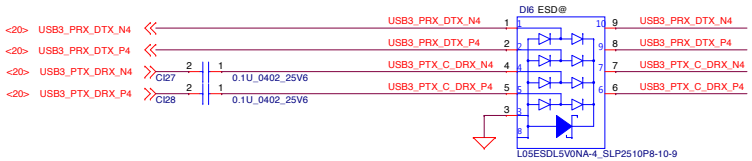


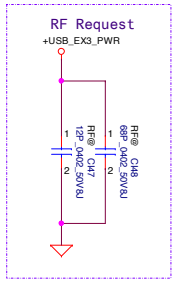


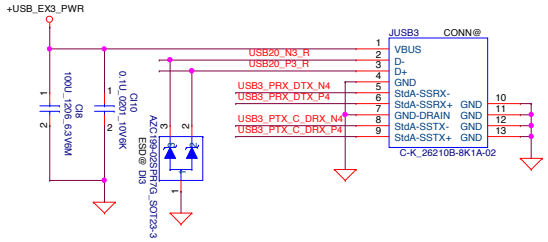


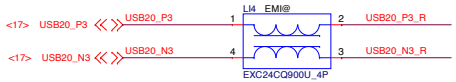
DFB request:
main SM070003Z00 (INPAQ_MCM1012B900F06BP_4P)
Footprint use 2nd source SM070004400 (PANAS_EXC24CQ900U_4P)
Pitch change from 0.5mm to 0.55mm

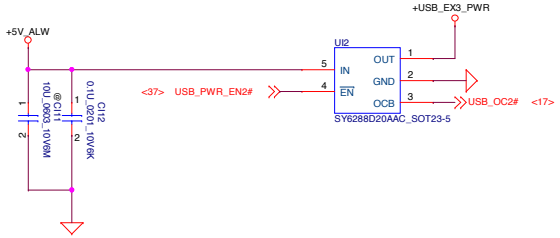












DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

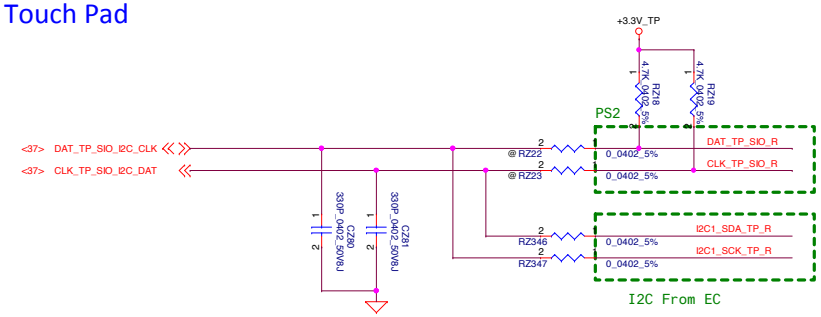
Compal Electronics, Inc.

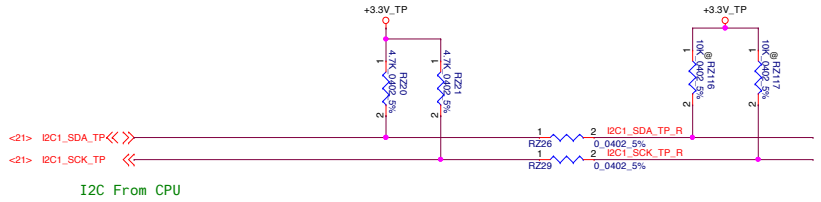
Title: JUSB2&JUSB3

Size	Document Number	Rev
B	LA-E141P	0.2

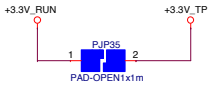
Date: Wednesday, June 29, 2016 Sheet 43 of 61

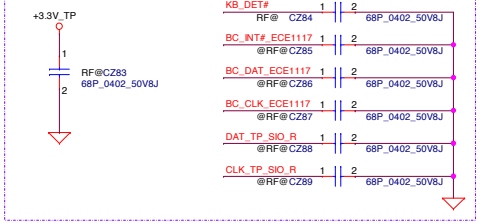
Touch Pad



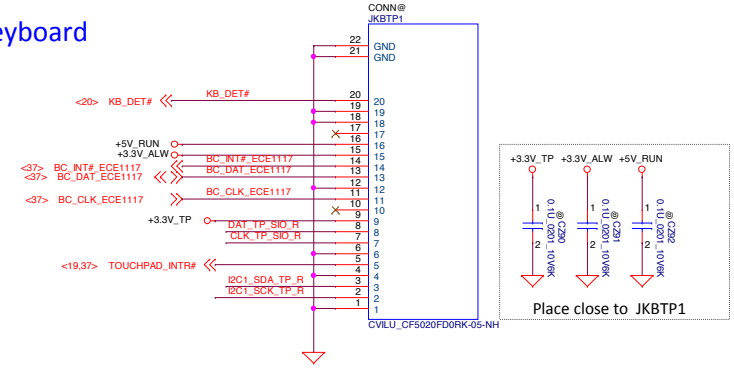


Plan is for I2C to be driven by the EC for Win7 and Pre-OS (will utilize Intel I2C drivers for Win7)
For Win8.1 and 10 the EC will control TP over I2C Pre-OS and then the PCH will drive I2C when in Windows
Route PS2 from EC to the touch pad also for contingency plan if I2C has issues

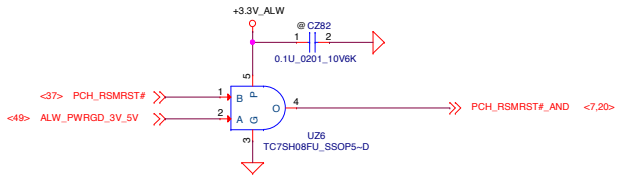




Keyboard



RSMRST circuit



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

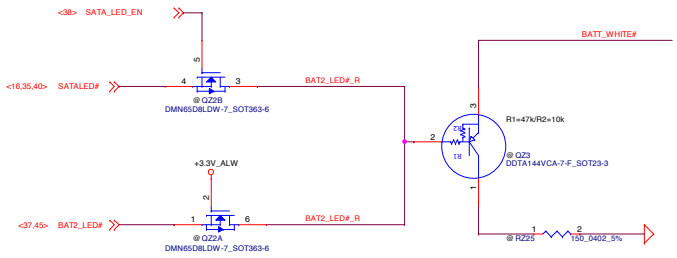
Title: *Keyboard*

Size	Document Number	Rev
B	*LA-E141P*	0.2

Date: Wednesday, June 29, 2016 | Sheet 44 of 61

HDD LED MUX

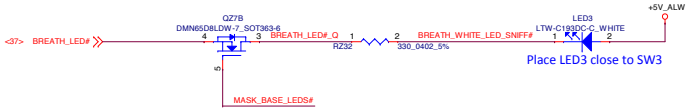
means EC can switch battery white led and HDD LED by hot key "Fn+H"

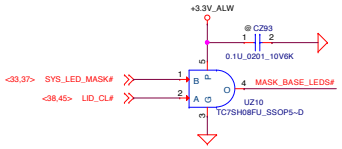


Battery LED

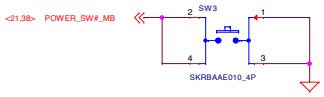
Breath LED

LED P/N change to SC50000FL00 from SC50000BA00

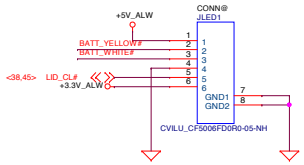




POWER & INSTANT ON SWITCH



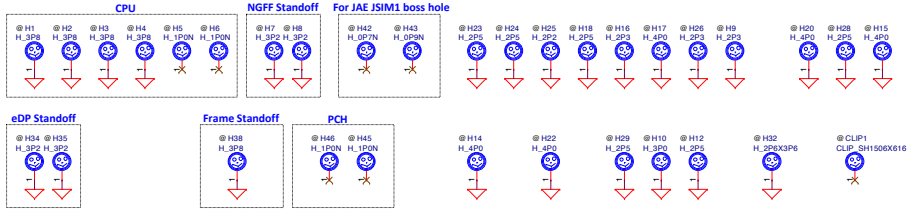
LED board CONN



Fiducial Mark

@ FD1 FIDUCIAL MARK~D
@ FD2 FIDUCIAL MARK~D
@ FD3 FIDUCIAL MARK~D
@ FD4 FIDUCIAL MARK~D

LED Circuit Control Table		
	SYS_LED_MASK#	LID_CL#
Mask All LEDs (Unobtrusive mode)	0	X
Mask Base MB LEDs (Lid Closed)	1	0
Do not Mask LEDs (Lid Opened)	1	1



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

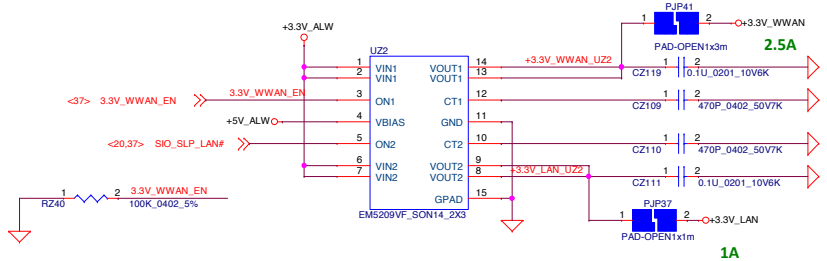
Compal Electronics, Inc.

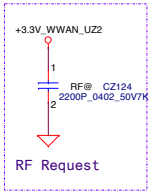
Title: PAD, LED

Size: C | Document Number: LA-E141P | Rev: 0.2

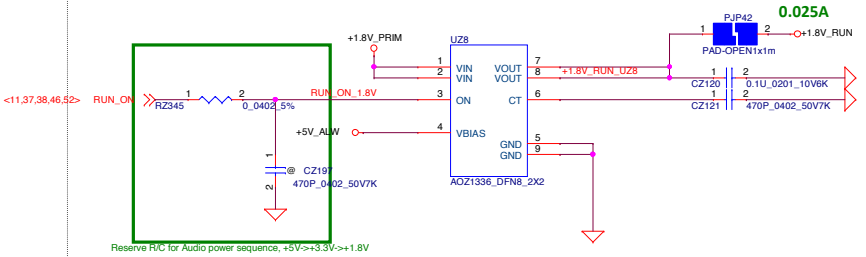
Date: Wednesday, June 29, 2016 | Sheet 45 of 61

+3.3V_WWAN/+3.3V_LAN source

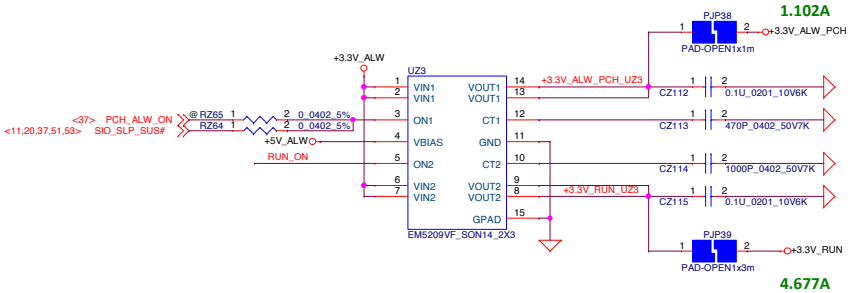




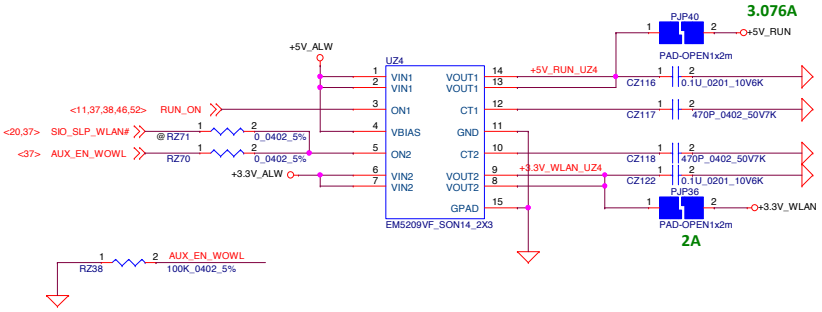
+1.8V_RUN source



+3.3V_ALW_PCH/+3.3V_RUN source



+5V_RUN/+3.3V_WLAN source



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

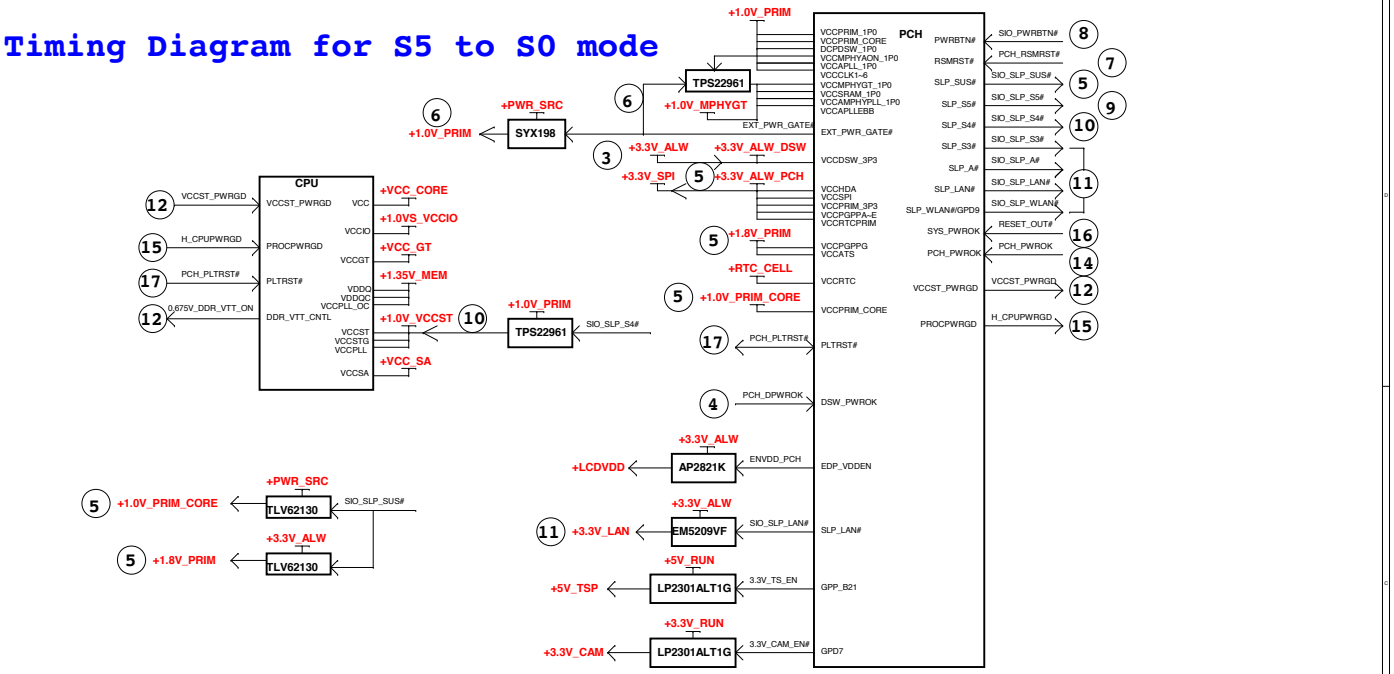
Compal Electronics, Inc.

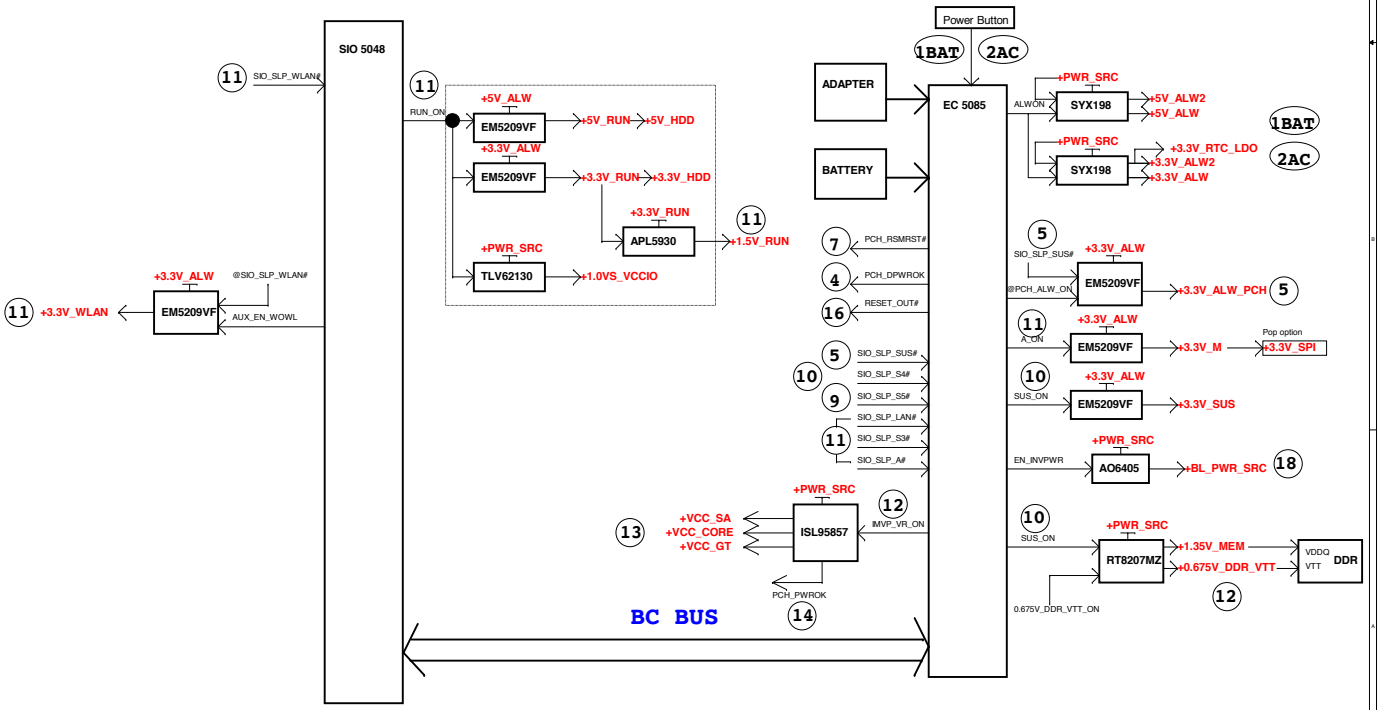
Title: Power control

Size	Document Number	Rev
B	LA-E141P	0.2

Date: Wednesday, June 29, 2016 Sheet 46 of 61

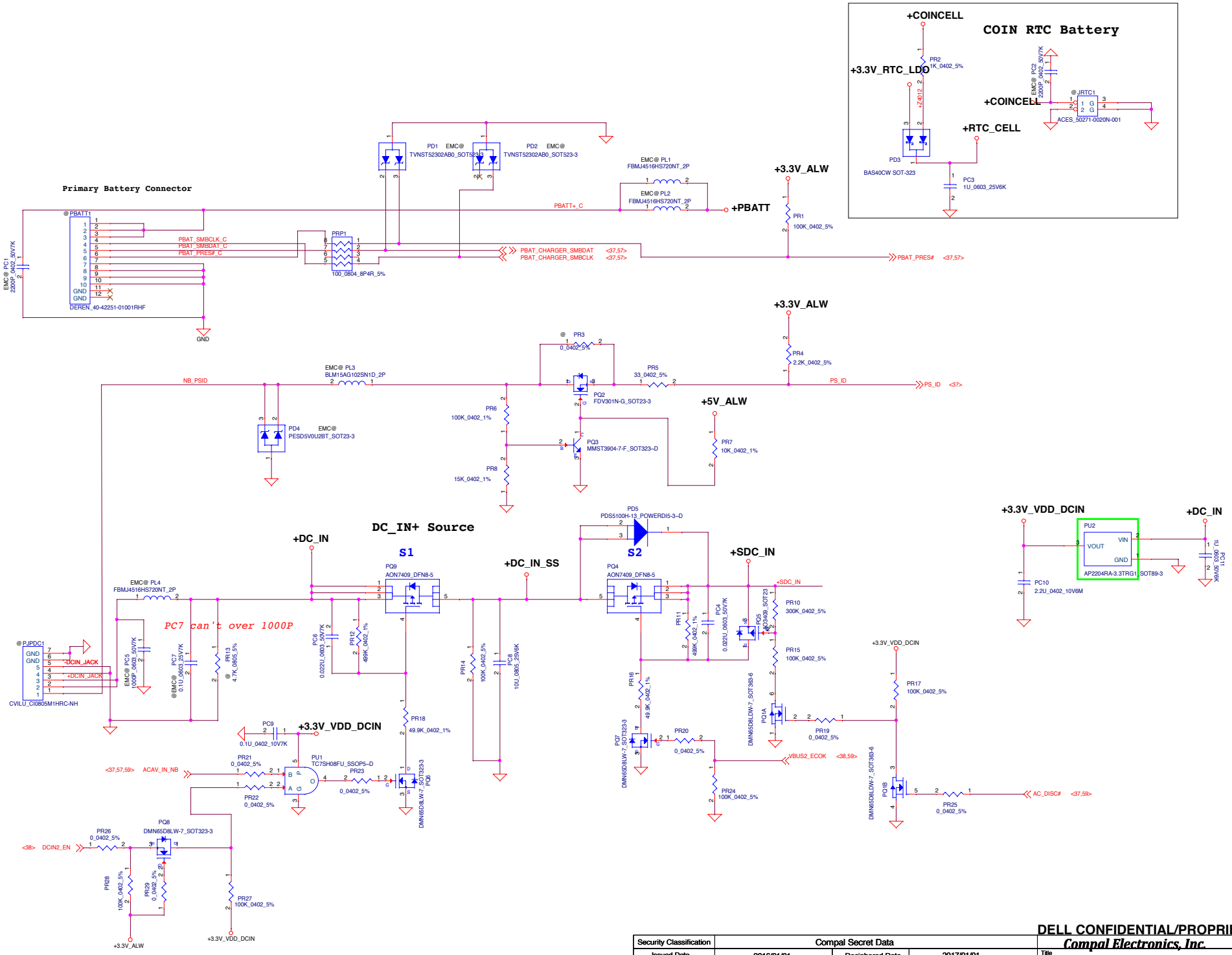
Timing Diagram for S5 to S0 mode





Security Classification	Compal Secret Data
Issued Date	2016/01/01
Deciphered Date	2017/01/01

Title	Power Sequence		
Size	Document Number		Rev
Custom	LA-E141P		0.2
Date:	Wednesday, June 28, 2016	Sheet 47 of 61	

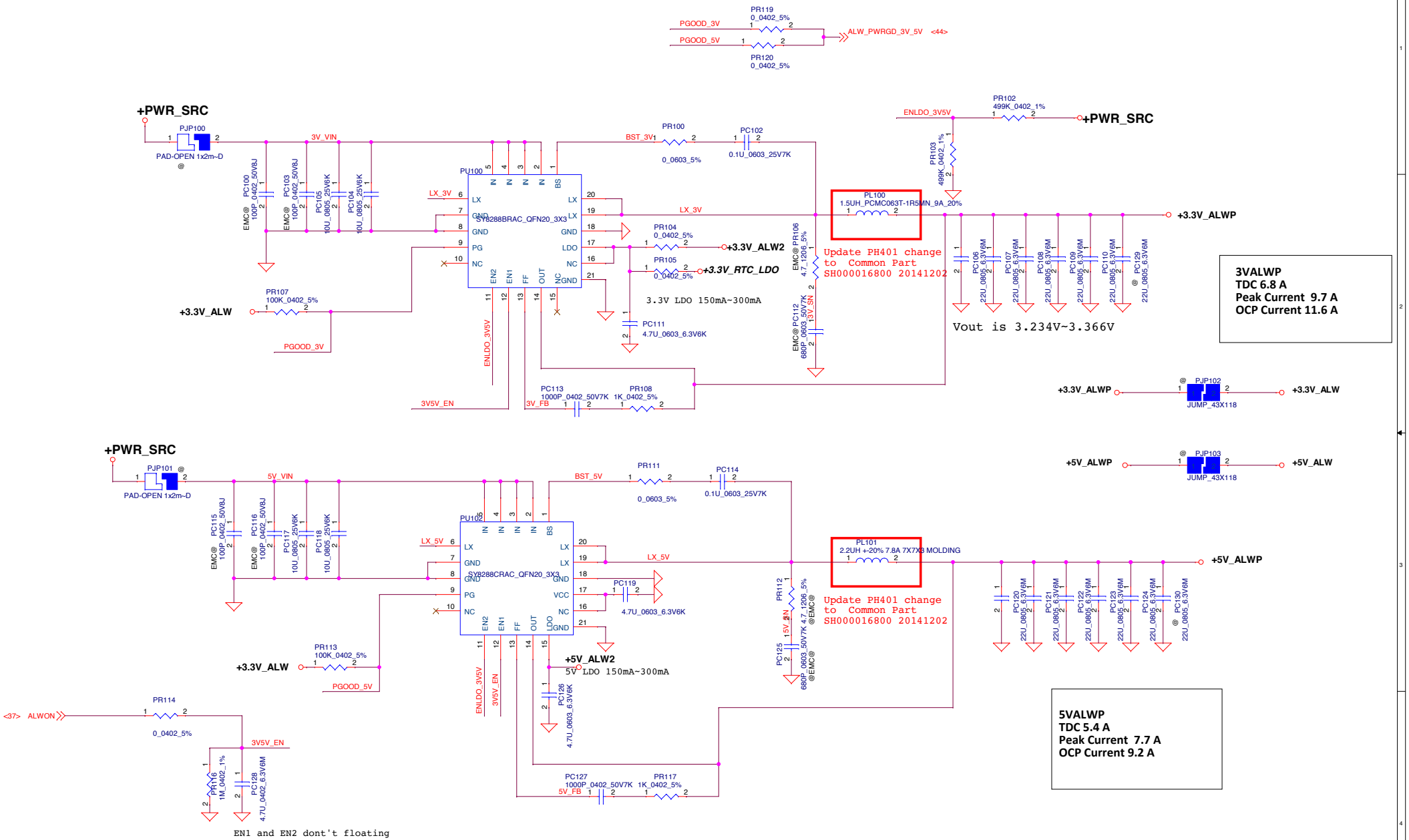


Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title	+DCIN	
Size C	Document Number LA-E141P	Rev 0.2
Date: Wednesday, June 29, 2016	Sheet 48 of 61	



DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

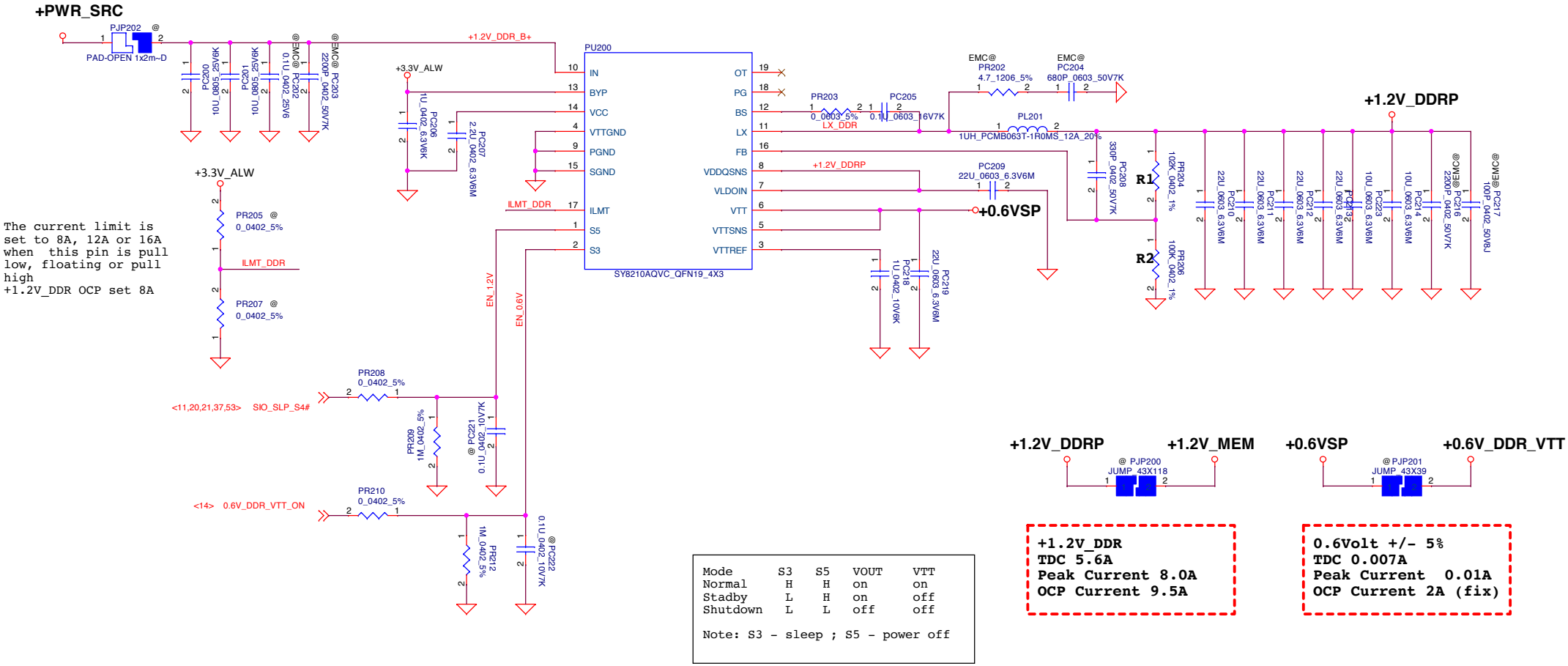
THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

Compal Electronics, Inc.

Title: +5V_ALW/3.3V_ALW

Size: Custom | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 49 of 61



The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high
+1.2V_DDR OCP set 8A

Mode	S3	S5	VOUT	VTT
Normal	H	H	on	on
Stadby	L	H	on	off
Shutdown	L	L	off	off

Note: S3 - sleep ; S5 - power off

+1.2V_DDR
TDC 5.6A
Peak Current 8.0A
OCP Current 9.5A

0.6Volt +/- 5%
TDC 0.007A
Peak Current 0.01A
OCP Current 2A (fix)

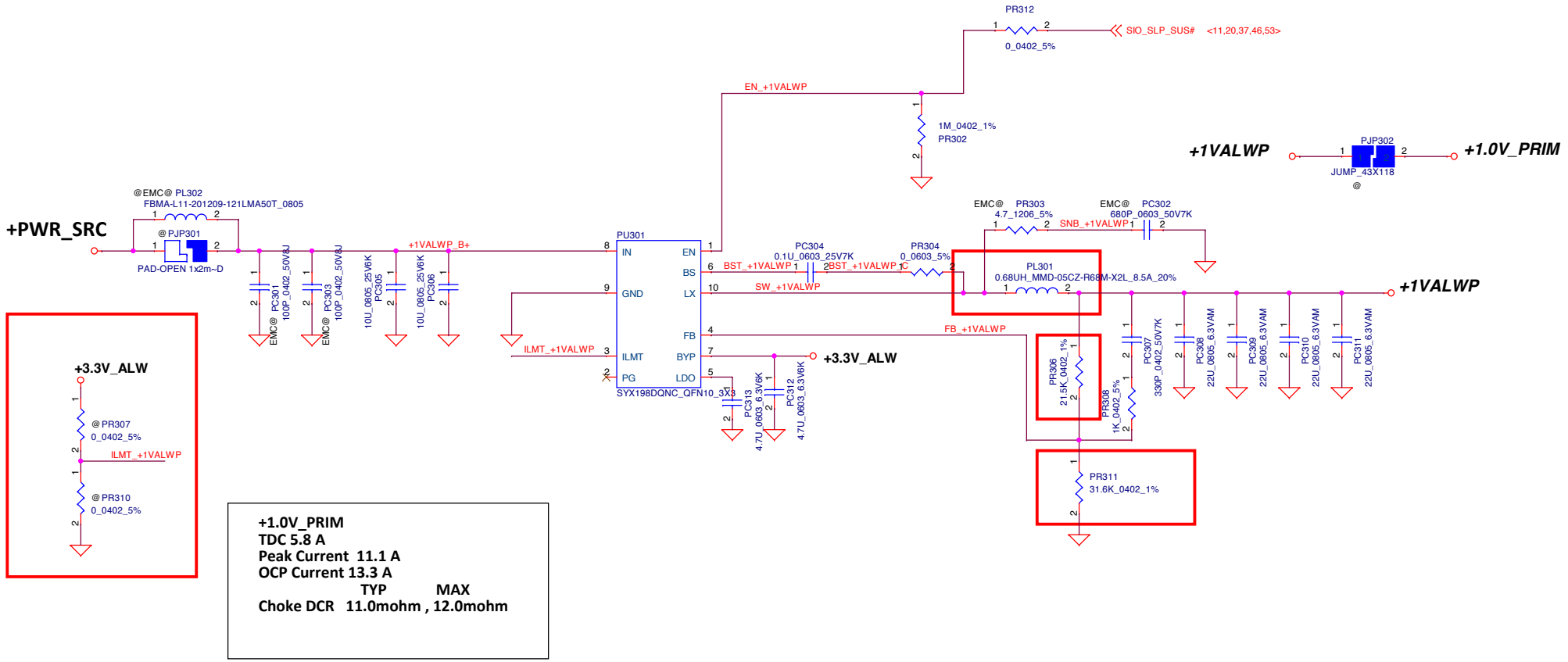
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: +1.2V_MEN/+0.6V_DDR_VTT

Size: Custom | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 50 of 61



+1.0V_PRIM
TDC 5.8 A
Peak Current 11.1 A
OCP Current 13.3 A

	TYP	MAX
Choke DCR	11.0mohm ,	12.0mohm

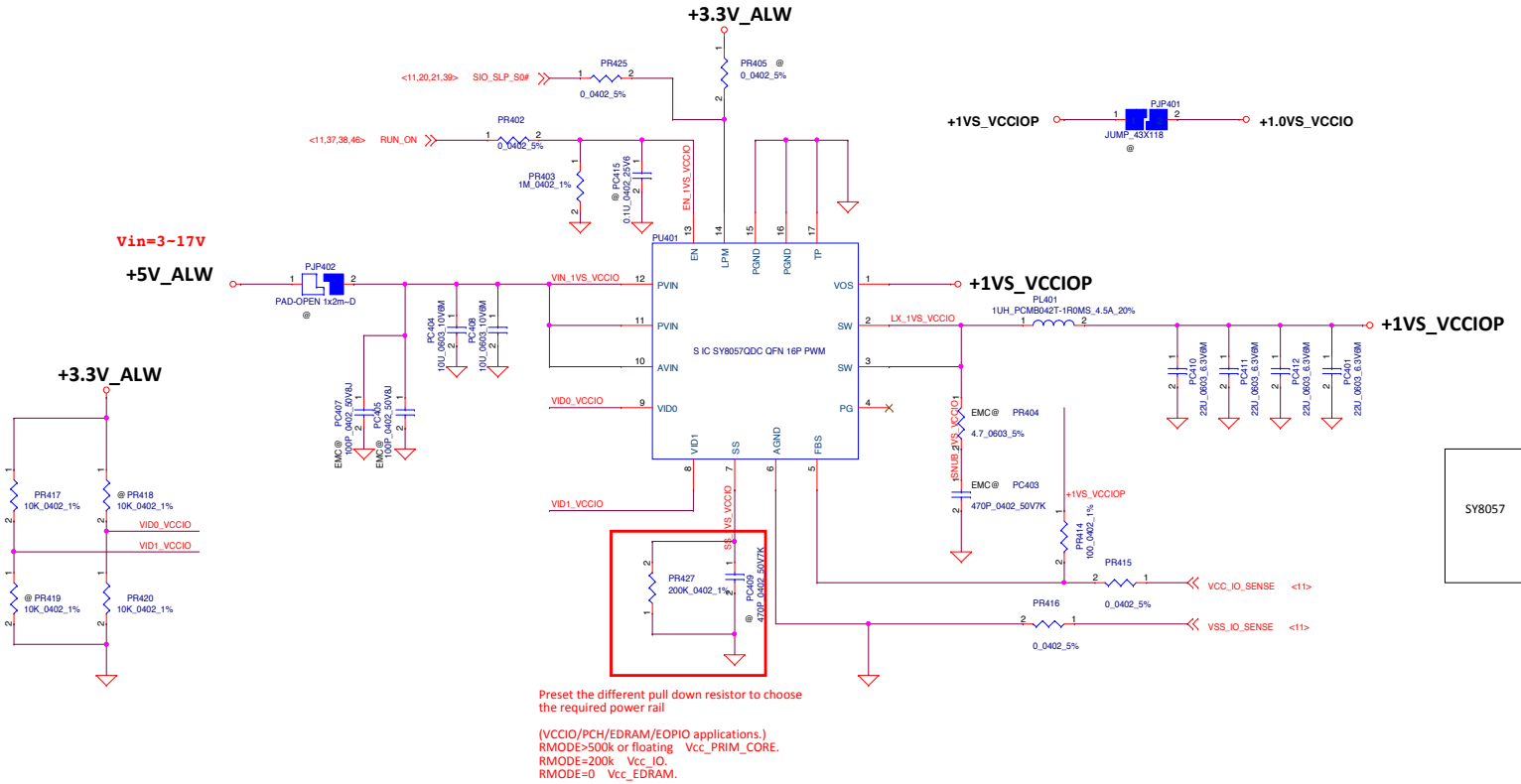
The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high

Compal Electronics, Inc.

Title: +1VALWP

Size: Custom | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 51 of 61



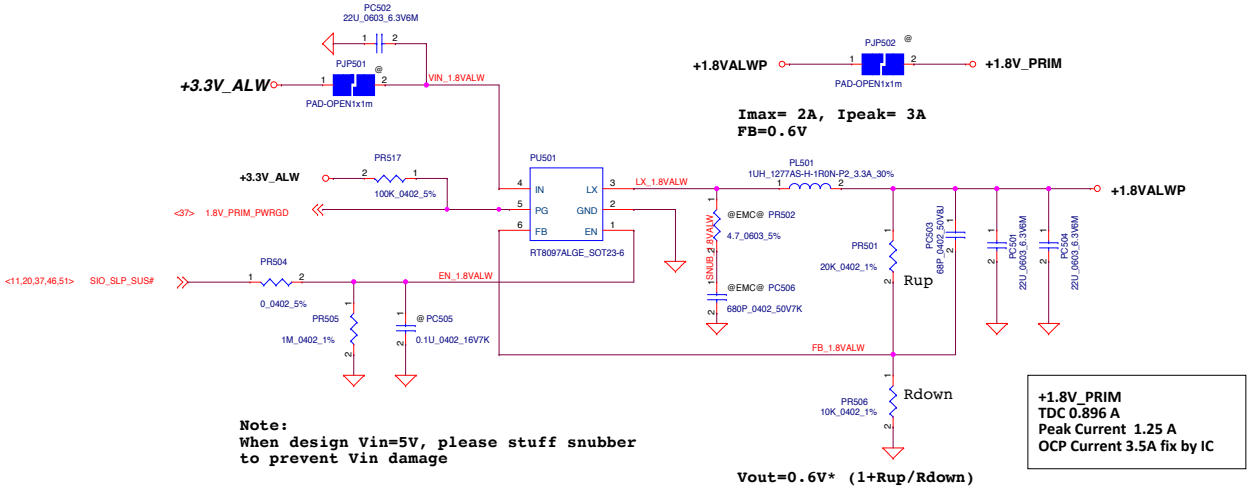
+1.0VS_VCCIO
TDC 3.9A
Peak Current 5.5 A
OCP Current 6.6 A Fix by IC

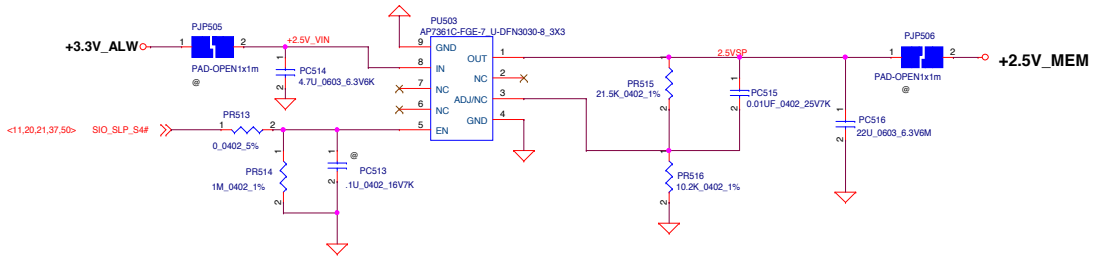
	TYP	MAX

	LPM LOGIC	VID1 LOGIC	VID0 LOGIC	OUTPUT VOLTAGE
SY8057	0	X	X	0(LPM)
	1	0	0	0.85
	1	0	1	0.875
	1	1	0	0.95
	1	1	1	0.975

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

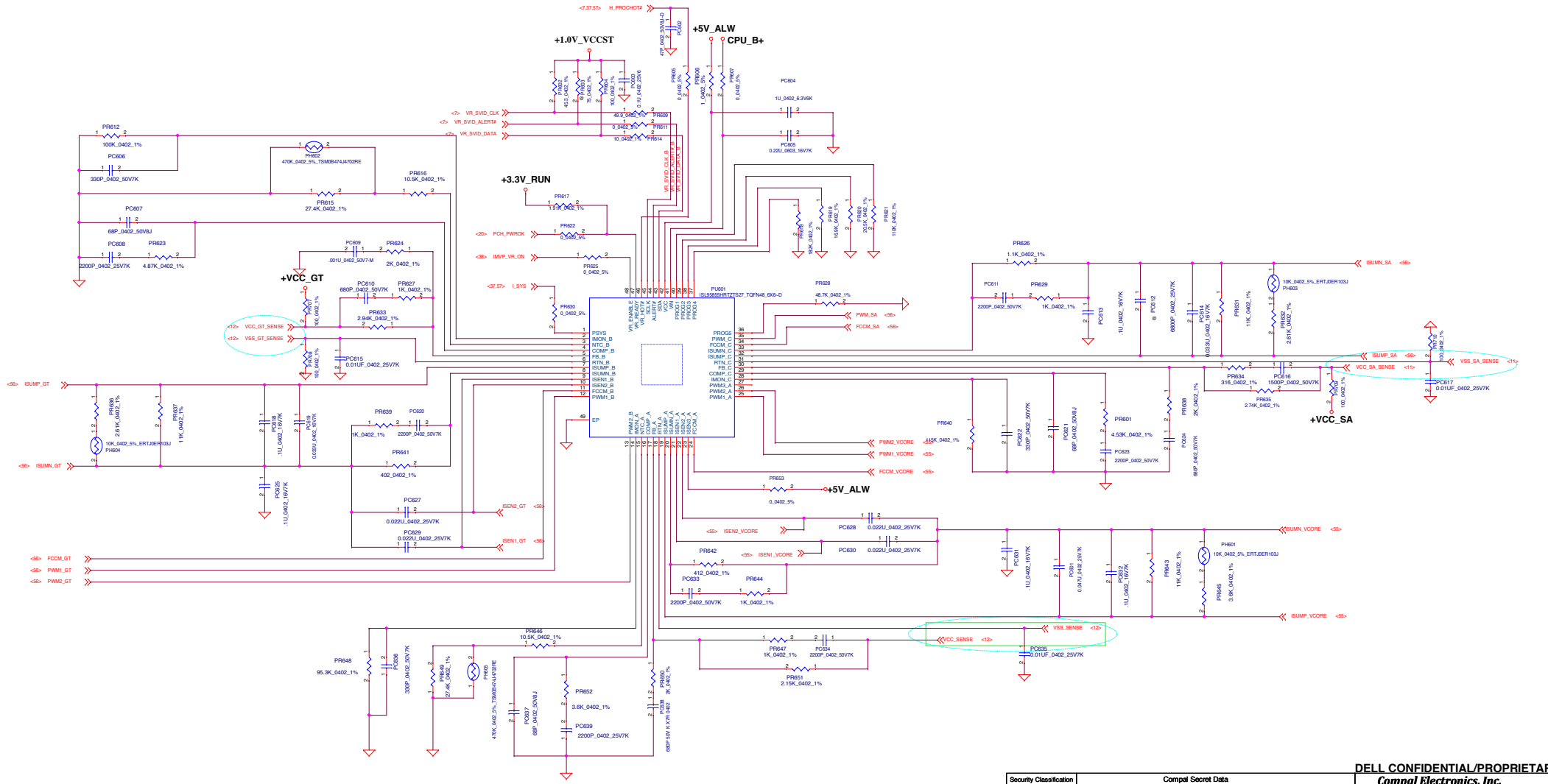
Title	+1VS_VCCIO		
Size C	Document Number LA-E141P		Rev 0.2
Date: Wednesday, June 29, 2016		Sheet 52 of 61	





Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Title	+1.8VALWP/+1.5VSP/2.5V_MEN		
Size C	Document Number LA-E141P		Rev 0.2
Date: Wednesday, June 29, 2016		Sheet 53 of 61	



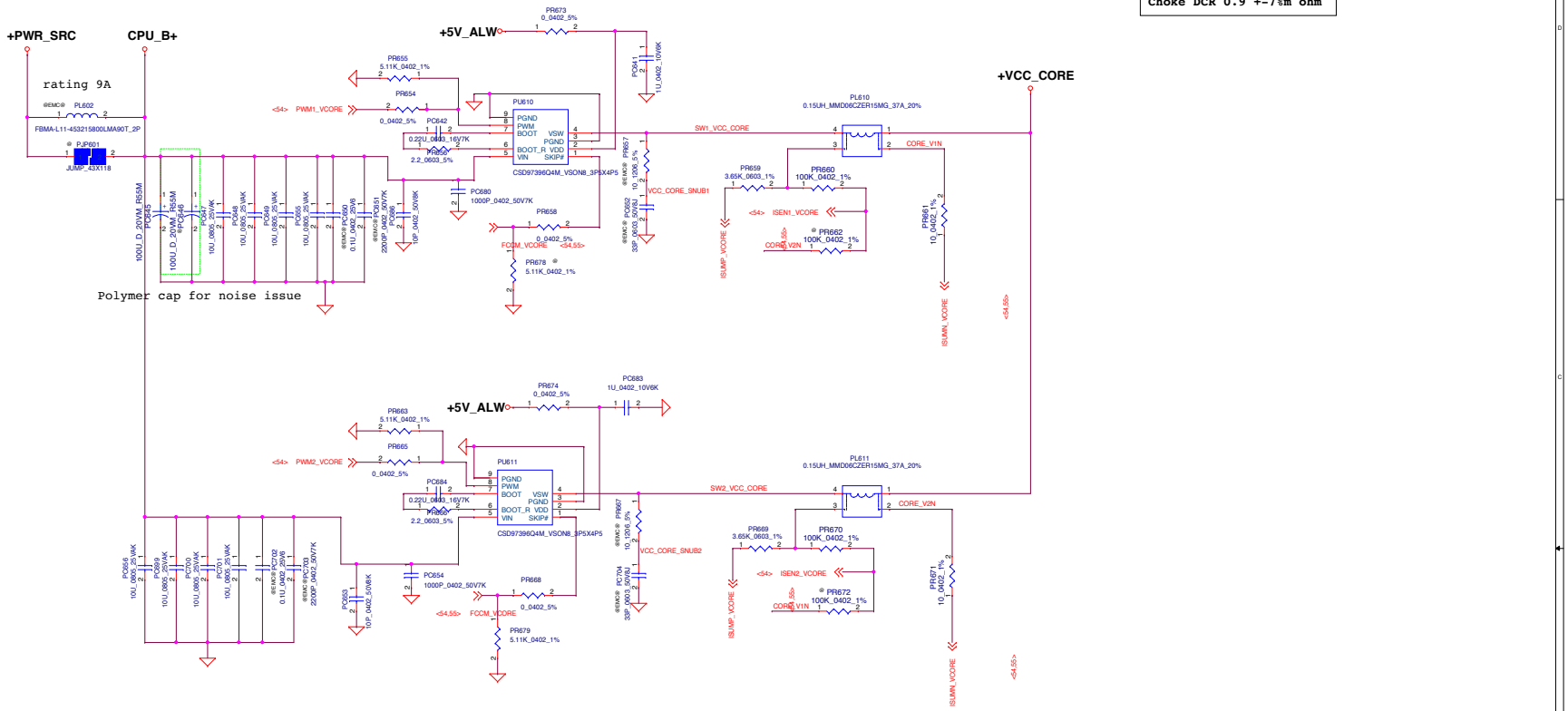
Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.

DELL CONFIDENTIAL/PROPRIETARY

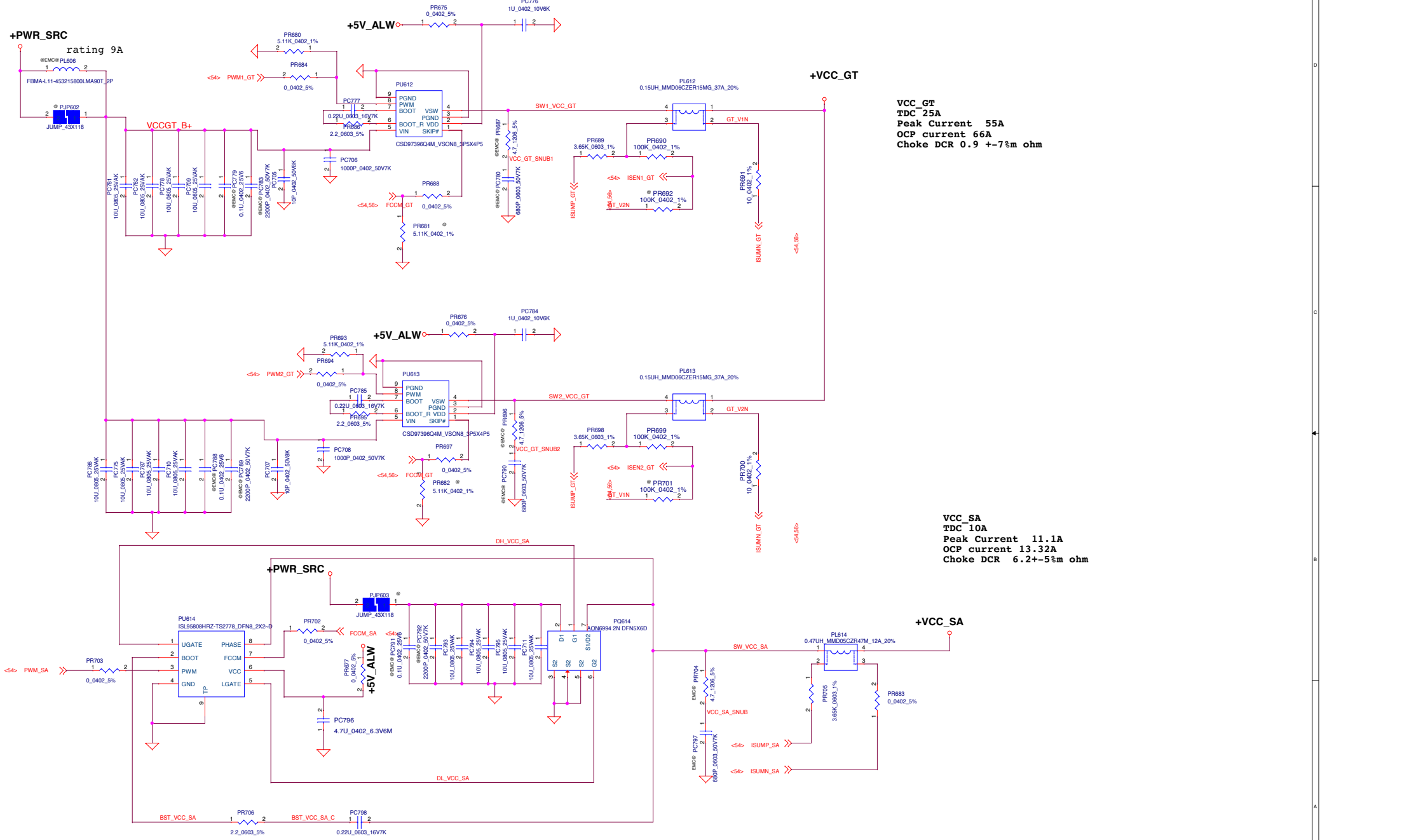
Compal Electronics, Inc.

Title	*VCORE_ISL95855*	
Size	Document Number	Rev
Custom	*LA-E141P*	0.2
Date: Wednesday, June 29, 2016	Sheet 54 of 61	



Compal Electronics, Inc.

Title	VCORE		
Size	Document Number		Rev
Custom	LA-E141P		0.2
Date:	Wednesday, June 29, 2016	Sheet	55 of 61

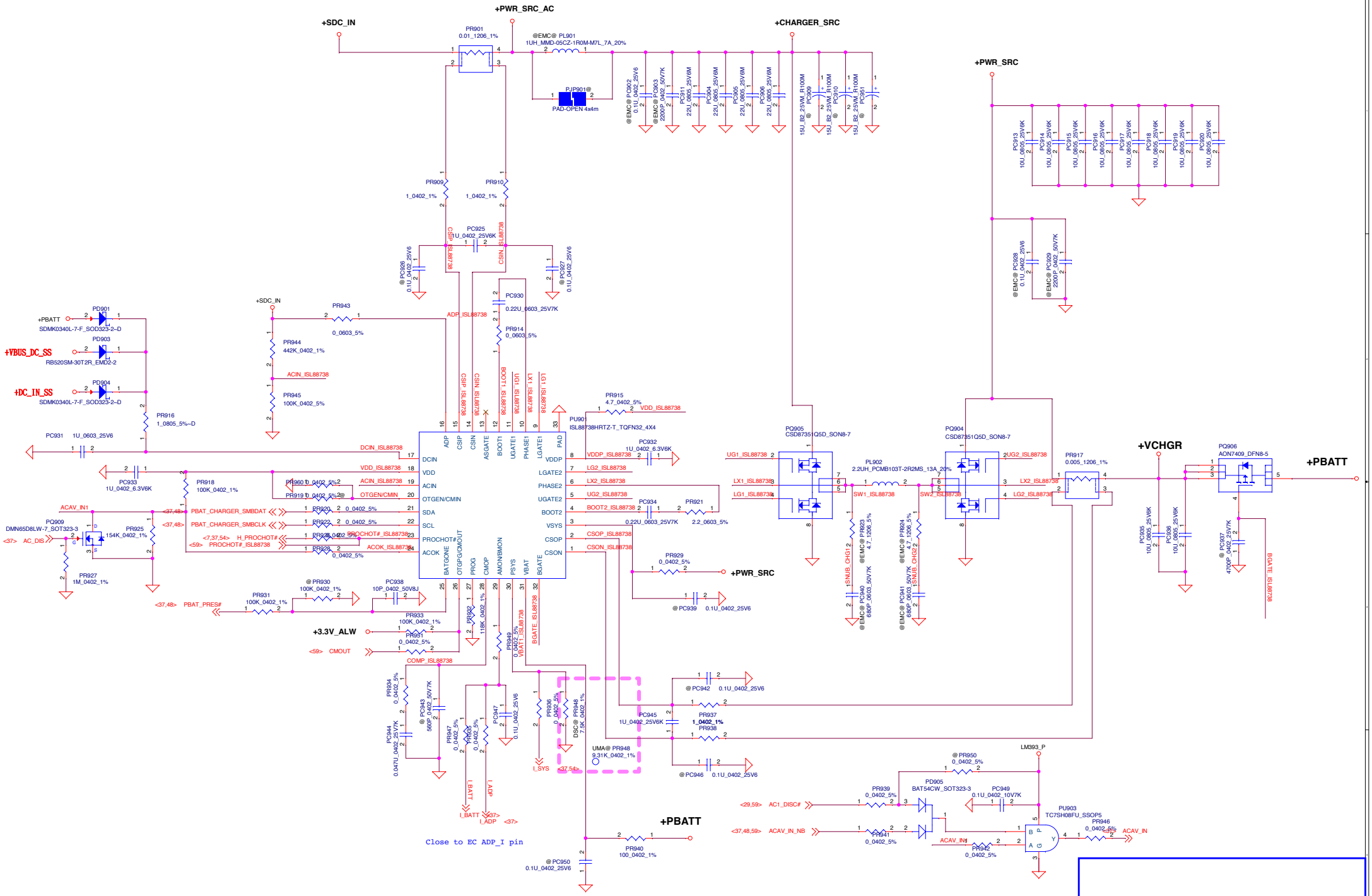


Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title	VGT_VSA		
Size	Document Number		Rev
C	LA-E141P		0.2
Date:	Wednesday, June 29, 2016	Sheet	56 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

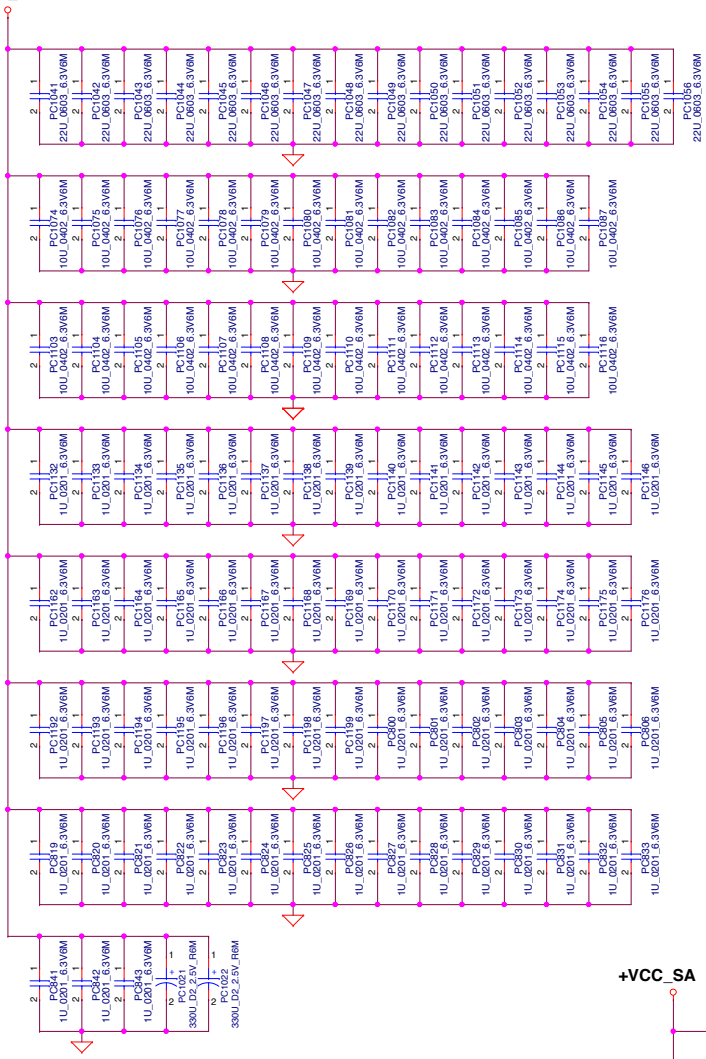
Title: *PWR_CHARGER_ISL9237 (Colay)*

Size	Document Number	Rev
Custom	*LA-E141P*	0.2

Date: Wednesday, June 29, 2016 | Sheet 57 of 61

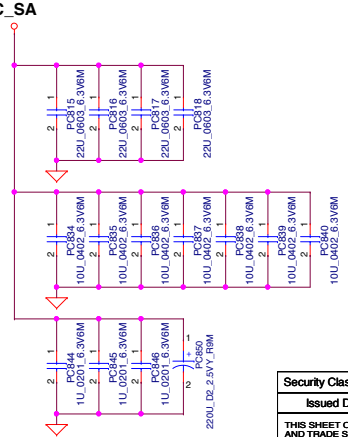
VCC_CORE Place on CPU
Back Side.
22U_0603 * 8 pcs + 10U_0402*28 pcs + 1U_0201*35 pcs
Primary Side.
22U_0603 * 8 pcs+330u_D2*2 pcs

+VCC_CORE



VCC_SA Place on CPU
Back Side.
22U_0603 * 2 pcs + 10U_0402*7 pcs + 1U_0201*3 pcs
Primary Side.
22U_0603 * 2 pcs + 220u_D2*1 pcs

+VCC_SA



VCC_GT Place on CPU
Back Side.
22U_0603 * 8 pcs +10U_0402*35 pcs +1U_0201*68 pcs
Primary Side.
22U_0603 * 12 pcs +470u_D2*2 pcs

+VCC_GT

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

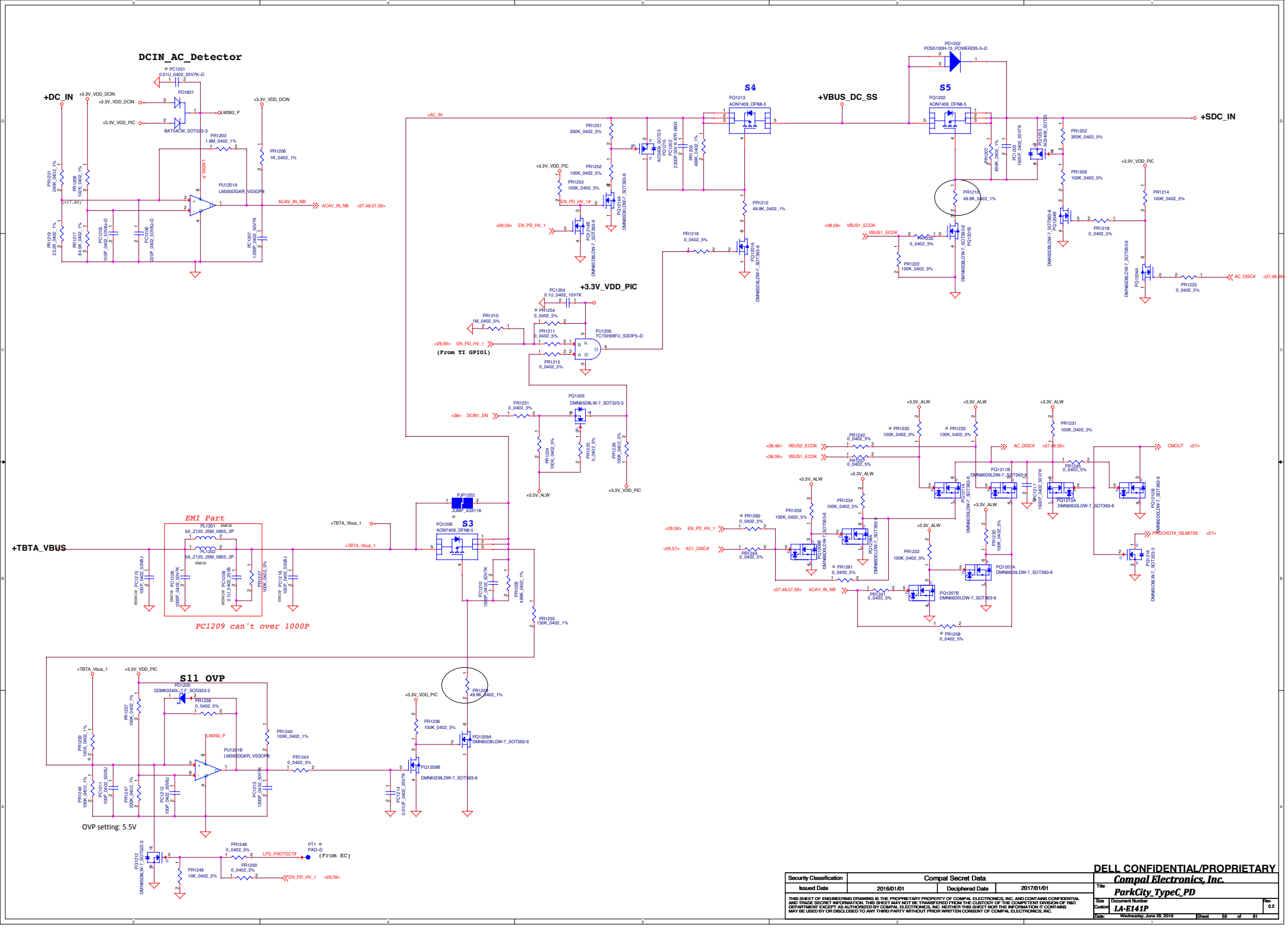
DELL CONFIDENTIAL/PROPRIETARY

Compal Electronics, Inc.

Title: PROCESSOR DECOUPLING

Size	Document Number	Rev
Custom	LA-E141P	0.2

Date: Wednesday, June 29, 2016 | Sheet 58 of 61



Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.			
Title	ParkCity_TypeC_PD		
Size	Document Number		Rev
Custom	LA-E141P		0.2
Date:	Wednesday, June 29, 2016	Sheet	59 of 61

Version Change List (P. I. R. List)

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	65	PWR_VCORE_ ISL95855	2016 05/23	POWER	change solution version to fix PS4 funciton issue	change solution from ISL95855 to ISL95855A	DVT
2	70	PWR_1Type-C PD Selector	2016 06/14	POWER	Modify PD schematic	PR1219 change from 22.6K to 23.2K(SD034232280) PR1212, PR1213 change from 1M(SD034100480) to 634K(SD034634380)	DVT DVT
3	66	PWR_VCORE _VCORE	2016 06/14	POWER	location alignment	Change location PU602 to PU610, PL603 to PL610, PU603 to PU611, PL604 to PL611	DVT
4	67	PWR_VCORE _VGT,VSA	2016 06/14	POWER	location alignment	Change location PU606 to PU612, PL607 to PL612, PU605 to PU613, PL608 to PL613, PU607 to PU614, PQ601 to PQ614, PL609 to PL614	DVT
5	68	PWR_CHARGER	2016 06/14	POWER	Change footprint	PD903 change from SDMK0340L-7-F_SOD323-2-D (SCS0340L010) to RB520SM-30T2R_EMD2-2 (SCS00006C00)	DVT
6	61,72	PWR_+DCIN PWR_1Type-C PD Selector	2016 06/22	POWER	Modify DC IN schematic	PR12, PR11, PR1205, PR1207 and PR1228 change to 499K from 1M ohm PR16, PR18, PR1212, PR1213 and PR1229 change to 49.9K from 1M ohm PR1251 and PR1202 change to 300K from 100K ohm.	DVT
7			2016 06/22	POWER	Trail run 2nd source	PU1,PU903,PU1200 change the main source part to SA007080180(S IC SN74AHC1G08DCKR SC-70 5P AND) from SA007080120 (S IC TC7SH08FU SSOP 5P AND) BOM change no need link the new footprint.	DVT
8			2016 06/22	POWER	Trail run 2nd source	PQ1210,PQ1207,PQ1208,PQ1211,PQ1,PQ1201,PQ1204,PQ1209,PQ1214 change the main source part to SB00000ZU00 (S TR DMN65D8LDW-7 2N SOT363-6) from SB00000DH00 (S TR DMN66D0LDW-7 2N SOT363-6) BOM change no need link the new footprint.	DVT
9			2016 06/22	POWER	Trail run 2nd source	PQ5,PQ1215,PQ1203 change the main source part to SB934090000 (S TR AO3409 P-CHANNEL SOT-23) from SB00000IU10 (S TR SI2303CDS-T1-GE3 1P SOT23-3) BOM change no need link the new footprint.	DVT
10			2016 06/22	POWER	Trail run 2nd source	PL100 change the main source part to SH000016700 (S COIL 1.5UH +-20% 9A 7X7X3 MOLDING) from SH000008800 (S COIL 1.5UH +-20% 9A) PL201 change the main source part to SH00000YE00 (S COIL 1UH +-20% 11A 7X7X3 MOLDING) from SH00000PJ00 (S COIL 1UH +-20% 1R0MS 12A) PL1301, PL1302(DSC only) 2nd source trial run the SH00000UF00 (S COIL 0.22UH +-20% ETQP4LR22AGM 24A) PL1400(14H DSC only) change the main source part to SH00000Z200 (S COIL 1UH +-20% 6.6A 5X5X3 MOLDING) from SH00000PA00 (S COIL 1UH +-20% 1R0M-M7L 7A)	DVT
11	65	PWR_VCORE_ ISL95855	2016 06/22	POWER	CPU transient	PC601 change from 33nF to 47nF PC609 change from 680pFto 1000pF PC624 change from 330pFto 680pF PC634 change from 680pF to 2200pF PR640 change from 110k to 115k	DVT
12			2016 06/27	POWER	Add RF request part	Pop PC403、PC204、PC797、PC302、PC112 4.7R(1206) Pop PC403、PC204、PC797、PC302、PC112 680pF(0603) Pop PC100、PC405、PC407、PC115、PC116、PC301、PC303、PC103 100pF(0402)	DVT

Compal Electronics, Inc.

Title: PWR P.I.R

LA-E141P

Version Change List (P. I. R. List)

Item	Page#	Title	Date	Request Owner	Issue Description	Solution Description	Rev.
1	11	HW	2016/5/27	COMPAL	S0ix(modern standy) support for VCCPLL_OC	Pop RZ120 and Depop UZ34 Add net name VCCSTG_EN(UZ19.4) and connect to RZ120.1	0.2(X01)
2	37	HW	2016/5/27	COMPAL	Reserve PORT80_DET# PD resistance	Reserve RE513 100k (SD028100380) to GND	0.2(X01)
3	35	HW	2016/6/1	COMPAL	Intel schematics reivew modify item	CZ28,CZ29 change from 0.047uF to 0.01uF CZ27 change from 0.1uF(@)_0201 to 10uF_0603	0.2(X01)
4	39	HW	2016/6/1	COMPAL	TPM change to NUVOTON	Change TPM from Atmel to NUVOTON.	0.2(X01)
5	35	HW	2016/6/1	COMPAL	Intel reviwe result (WWAN Coex feature support)	Add RZ128 0 ohm connect WWAN_COEX3 and WLAN_COEX3 Add RZ129 0 ohm connect WWAN_COEX2 and WLAN_COEX2 Add RZ130 0 ohm connect WWAN_COEX1 and WLAN_COEX1	0.2(X01)
6	35	HW	2016/6/7	COMPAL	Debug card reserve	Add RZ131, RZ132 for PORT80_DET# and HOST_DEBUG_TX	0.2(X01)
7	37	HW	2016/6/7	COMPAL	For MEC5105K-D1-TN setting	1. Change UE1 to SA00009GL00 2. POP RE360,RE362 3. De-POP RE361	0.2(X01)
8	35,32	HW	2016/6/16	COMPAL	For EMC request	De-pop RZ131, RZ132. CL22 change to 10pf , POP CA7,CZ1 (100P),CH268 modify from 22p to 47p and POP,Change LV1 to SM01000NY00	0.2(X01)
9	41	HW	2016/6/16	COMPAL	BITS284924-HDD is still working after press power button into S5 during POST.	POP RN5	0.2(X01)
10	39	ME	2016/6/17	COMPAL	Connector change	1. JKBTP1 change to CVILU_CF5020FD0RK-05-NH 2. JUSH1 change to CVILU_CF5026FD0RK-05-NH 3. JIR1 change to ACES_50208-0060N-P01	0.2(X01)
11	36	HW	2016/6/20	COMPAL	Vender suggest	RA7,RA8 change to 16.2ohm	0.2(X01)
12	37	HW	2016/6/22	COMPAL	The posibility of GPIO map update	Add RE514,RE515 for RTCRST_ON	0.2(X01)
13	41	HW	2016/6/22	COMPAL	BITS283552 - [BR_CSLP] FFS AP no function when execute FF generator or shake SU	FFS VDD_IO change to +3.3V_RUN	0.2(X01)

DELL CONFIDENTIAL/PROPRIETARY

Security Classification	Compal Secret Data		
Issued Date	2016/01/01	Deciphered Date	2017/01/01

Compal Electronics, Inc.

Title: EE P.I.R (1/6)

Size: Custom | Document Number: LA-E141P | Rev: 0.2

Date: Wednesday, June 29, 2016 | Sheet 61 of 61