

Compal Confidential

B5W1S MB Schematic Document

LA-D671P

Rev: 1.0

2016.01.18

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Issued Date	2016/07/18	Deciphered Date	2016/11/10	Title Cover Sheet	
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HDMI Conn.



page 22

eDP



page 21

eDP

DDI

DDI2
HDMI x 4 lanes

Intel Kabylake U

Kabylake U
Kabylake PCH-LP(MCP)
(KBL-U_2+2)

Processor

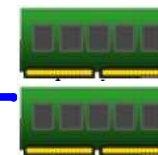
Dual Core + GT2

Memory BUS

Dual Channel

1.2V DDR4 1866/2133

Interleaved Memory



page 19

260pin DDR4-SO-DIMM X2

page 20

USB 3.0
conn x1
USB port 1



page 28

USB 2.0
conn x2
USB port2,3
Port3 on Sub/B



page 28

CMOS
Camera
USB port 7



page 21

Card Reader
RTS5170
SD only
USB port 8
on Sub/B



page 28

USBx8 48MHz

HD Audio

3.3V 24MHz

HDA Codec
ALC233

page 25

Touch
Screen

I2C (PORT1)
USB port 6

page 21

SPI

SPI ROM
64Mb

page 9

LPC/eSPI BUS

CLK=24MHz

ENE
KB9022

page 29

Int.KBD



page 30

Touch Pad
PS2 (from EC) / I2C (from SOC)



page 30

Int. Speaker

page 25

Int. AMIC

page 25

UAJ
on Sub/B

page 28



NGFF
WLAN
USB port 5

page 24

PCIe 1.0
2.5GT/s
port 6

LAN(GbE)

Flexible IO

PCIe 1.0
2.5GT/s
port 5

LAN(GbE)
Realtek 8111H

page 23

RJ45 conn.



page 23

SATA3.0
6.0 Gb/s
port 7
(SATA0)

SATA HDD
Conn.



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SATA3.0
6.0 Gb/s
port 8
(SATA1)

SATA CDROM
Conn.



page 26

RTC CKT.

page 15

Power On/Off CKT

page 30

DC/DC Interface CKT

page 32

Power Circuit DC/DC

page 33~43

Sub Board

LS-D671
IO/B

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Vcc	3.3V +/- 5%					
Ra	100K +/- 1%					
Board ID	Rb	V _{BID} min	V _{BID} typ	V _{BID} max	EC AD3	PCB Revision
0	0	0 V	0 V	0.300 V	0x00 - 0x13	0.1
1	12K +/- 1%	0.347 V	0.345 V	0.360 V	0x14 - 0x1E	0.1
2	15K +/- 1%	0.423 V	0.430 V	0.438 V	0x1F - 0x25	
3	20K +/- 1%	0.541 V	0.550 V	0.559 V	0x26 - 0x30	
4	27K +/- 1%	0.691 V	0.702 V	0.713 V	0x31 - 0x3A	
5	33K +/- 1%	0.807 V	0.819 V	0.831 V	0x3B - 0x45	
6	43K +/- 1%	0.978 V	0.992 V	1.006 V	0x46 - 0x54	
7	56K +/- 1%	1.169 V	1.185 V	1.200 V	0x55 - 0x64	

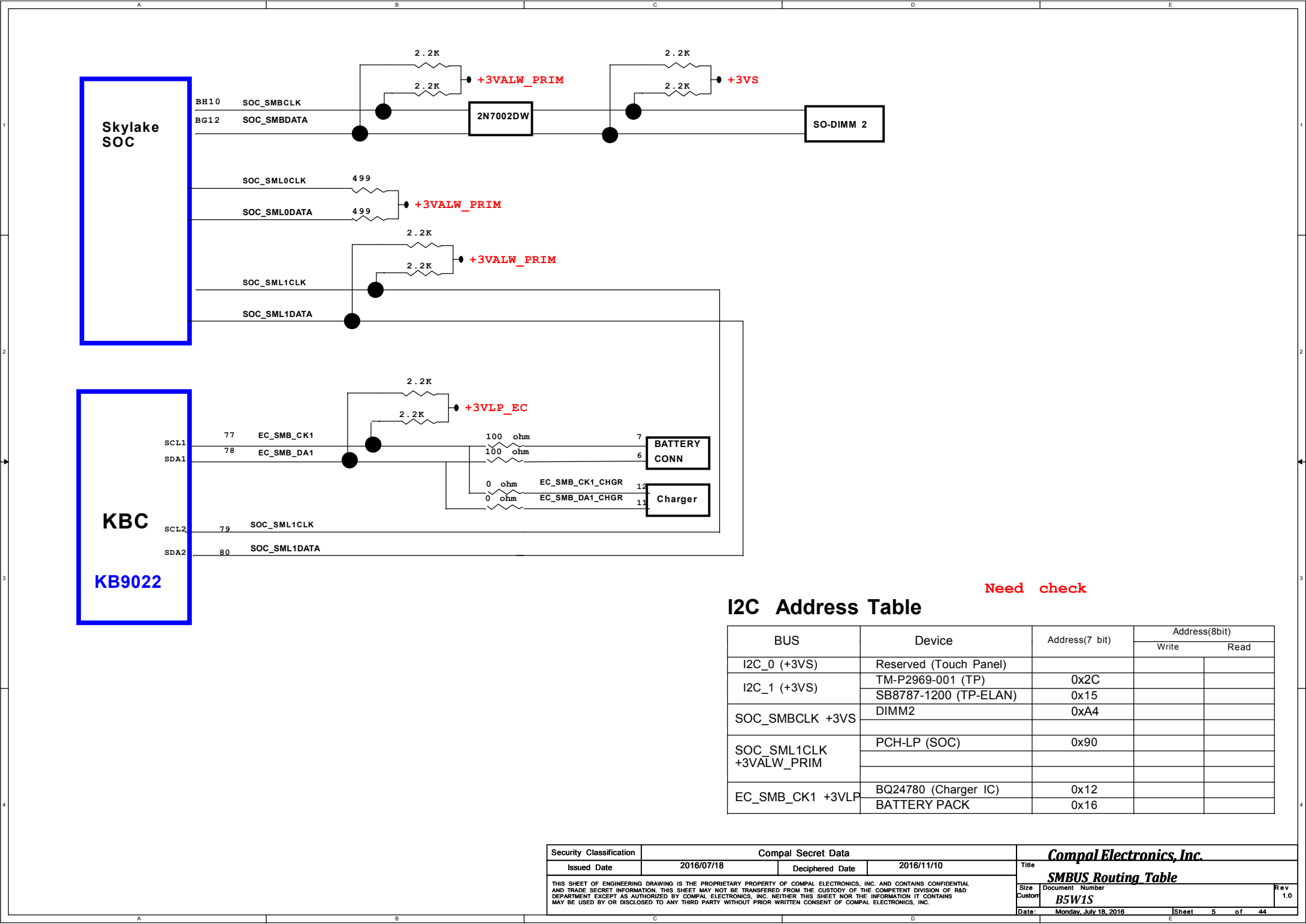
BOM Option Table		BOM Option Table	
Item	BOM Structure	Item	BOM Structure
Unpop	@		
Connector	CONN@		
For Acer BYOC	BYOC@	SkyLake plat f or m	SKL@
No Acer BYOC	NBYOC@	KabyLake plat f or m	KBL@
CODEC(ALC255)	255@		
CODEC(ALC233)	233@		
LPC MODE for EC	LPC@		
ESPI MODE for EC	ESPI@		
For Intel CMC	CMC@		
EMI requirement	EMI@		
EMI requirement depop	@EMI@		
ESD requirement	ESD@		
ESD requirement depop	@ESD@	CPU Code	QKJW@
LAN(8111GUS)	8111GUS@		
LAN(8111H)	8111H@		
RF requirement	RF@		

[illegible]

<i>SIGNAL</i>	<i>SLP_S3#</i>	<i>SLP_S4#</i>	<i>SLP_S5#</i>	<i>+VALW</i>	<i>+V</i>	<i>+VS</i>	<i>Clock</i>
<i>S0 (Full ON)</i>	<i>HIGH</i>	<i>HIGH</i>	<i>HIGH</i>	<i>ON</i>	<i>ON</i>	<i>ON</i>	<i>ON</i>
<i>S3 (Suspend to RAM)</i>	<i>LOW</i>	<i>HIGH</i>	<i>HIGH</i>	<i>ON</i>	<i>ON</i>	<i>OFF</i>	<i>OFF</i>
<i>S4 (Suspend to Disk)</i>	<i>LOW</i>	<i>LOW</i>	<i>HIGH</i>	<i>ON</i>	<i>OFF</i>	<i>OFF</i>	<i>OFF</i>
<i>S5 (Soft OFF)</i>	<i>LOW</i>	<i>LOW</i>	<i>LOW</i>	<i>ON</i>	<i>OFF</i>	<i>OFF</i>	<i>OFF</i>

[illegible]

Note : ON*1 means power plane is ON only when WOL enable and RTC wake at BIOS setting, otherwise it is OFF.

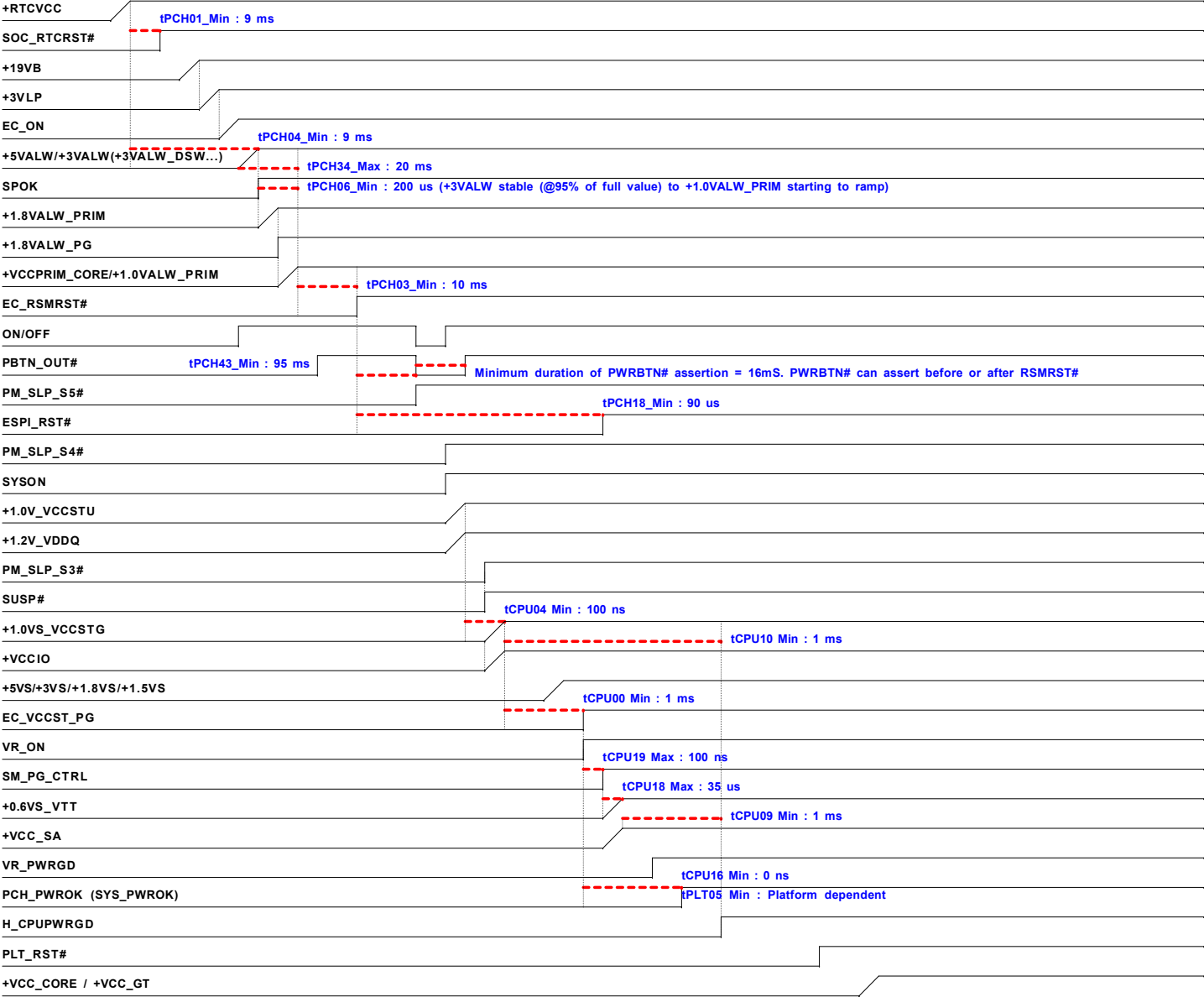


Need check

I2C Address Table

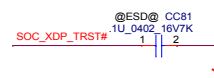
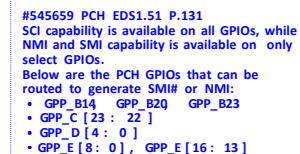
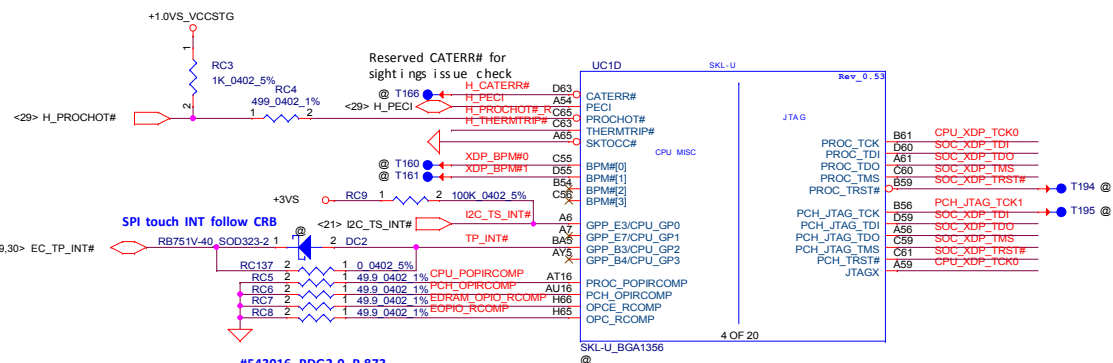
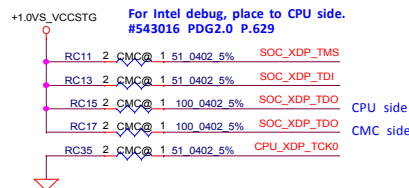
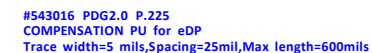
BUS	Device	Address(7 bit)	Address(8bit)	
			Write	Read
I2C_0 (+3VS)	Reserved (Touch Panel)			
I2C_1 (+3VS)	TM-P2969-001 (TP)	0x2C		
	SB8787-1200 (TP-ELAN)	0x15		
SOC_SMBCLK +3VS	DIMM2	0xA4		
SOC_SML1CLK +3VALW_PRIM	PCH-LP (SOC)	0x90		
EC_SMB_CK1 +3VLP	BQ24780 (Charger IC)	0x12		
	BATTERY PACK	0x16		

PWR Sequence_SKL-U2+2_DDR3L_Value_NON CS



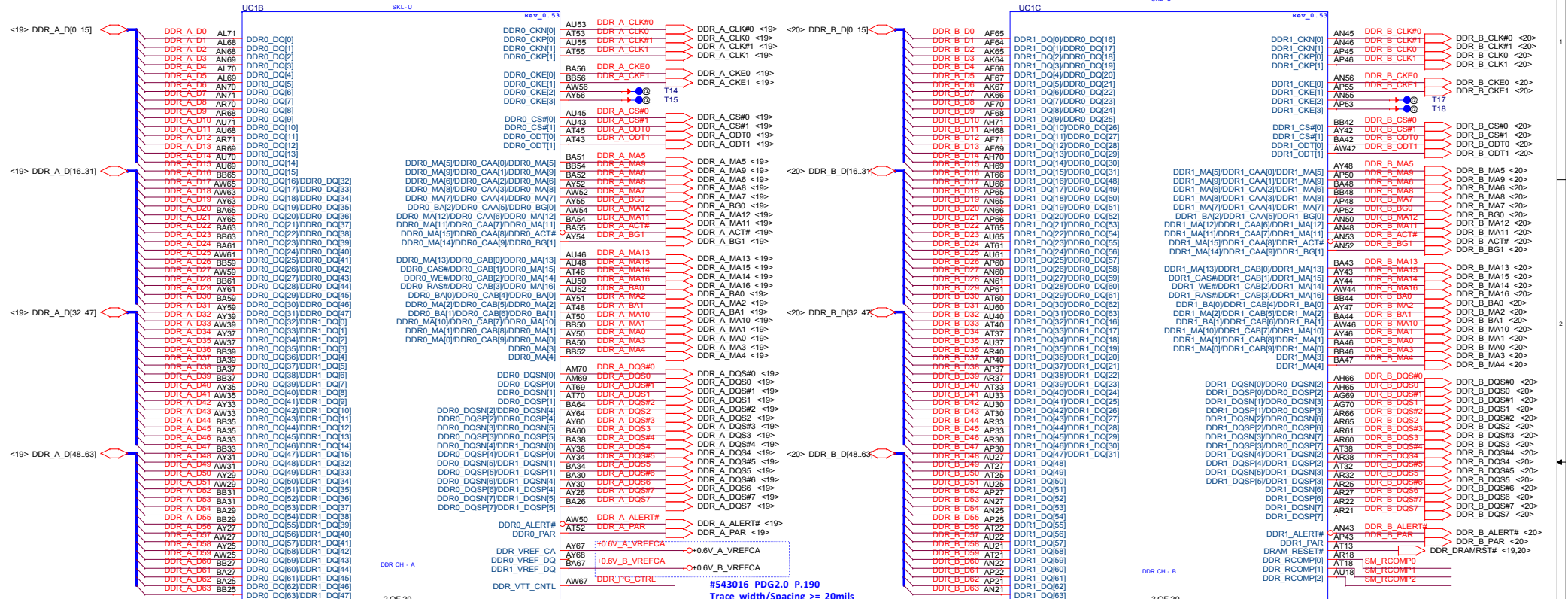
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PU =Port is detected.



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Interleaved Memory



PCB B5W11 LA-E061PLS-D671P
DAZ1P500100

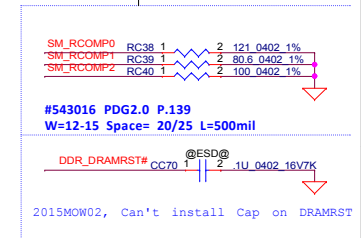
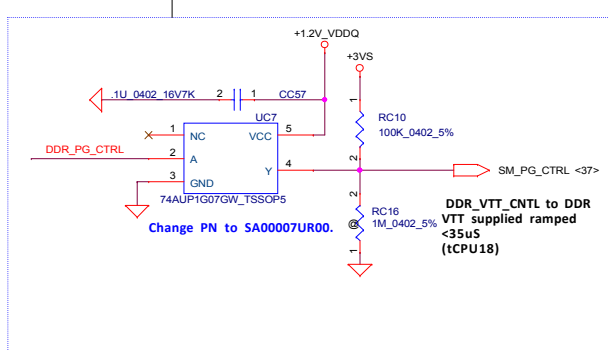
ES Sample

UC1

CPU_Q92.6G

OKJW@

SA00009UR10

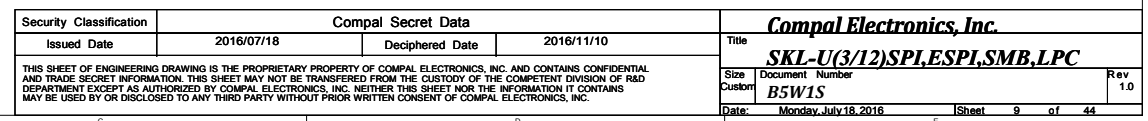
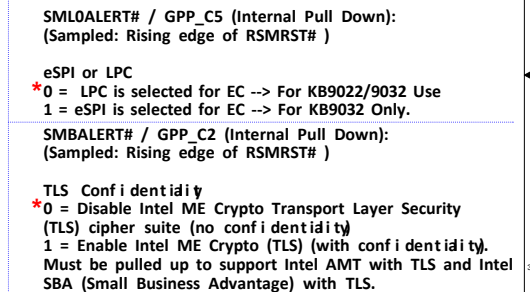
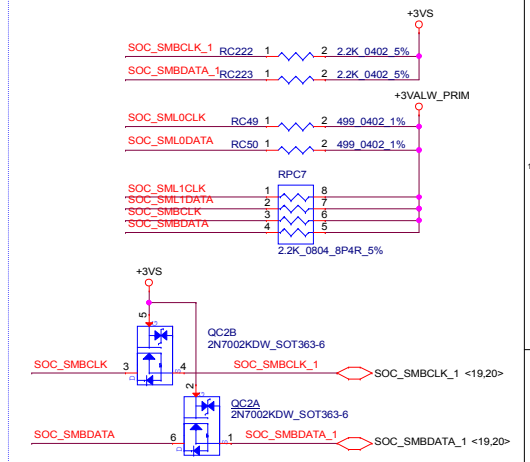


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SKL-U(2/12)DDR4

B5W1S

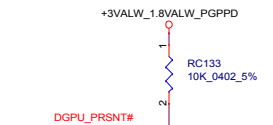
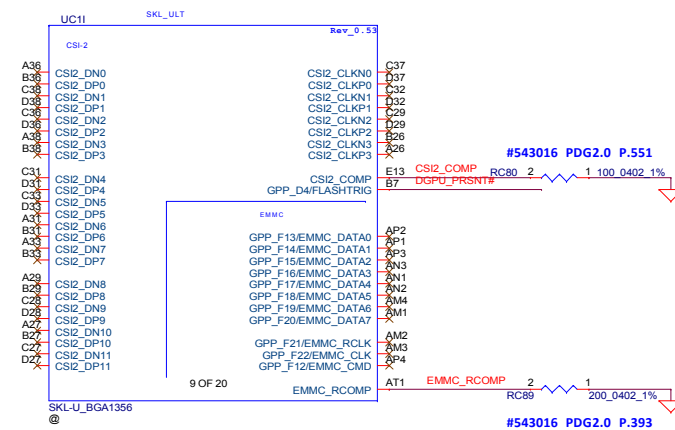
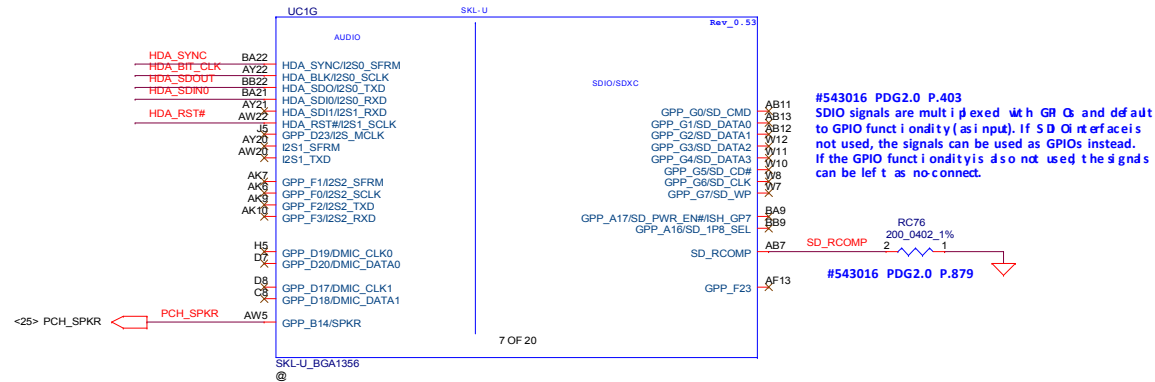


<25> HDA_SDI0 HDA_SDI0
 <25> HDA_SYNC_R 1 8 HDA_SYNC
 <25> HDA_SDOUT_R 2 7 HDA_SDOUT
 <25> HDA_BIT_CLK_R 3 6 HDA_BIT_CLK
 <25> HDA_RST#_R 4 5 HDA_RST#
 33_0804_8P4R_5%
 <29> ME_EN RC77 1 2 0.0402_5%

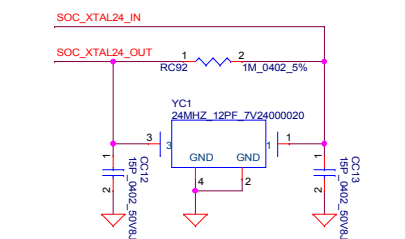
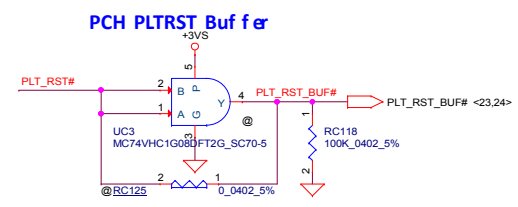
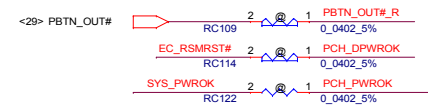
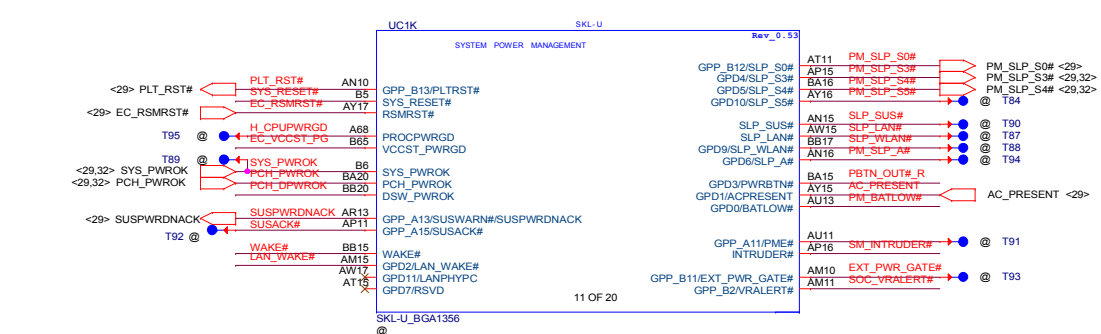
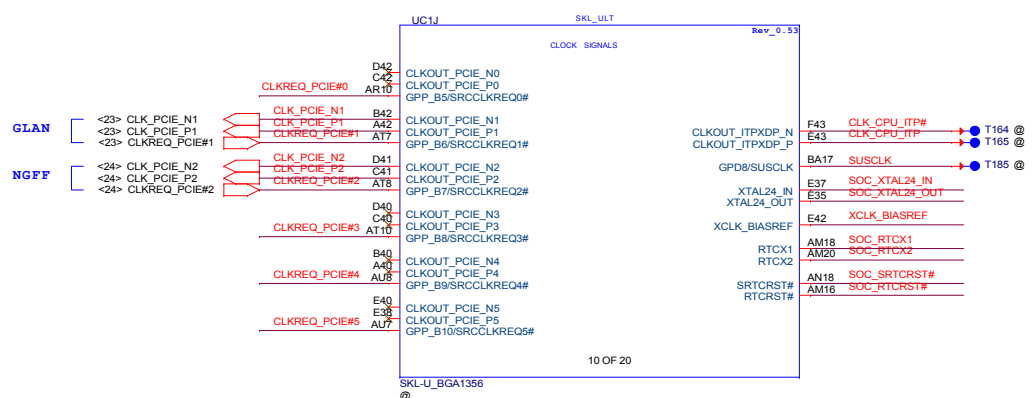
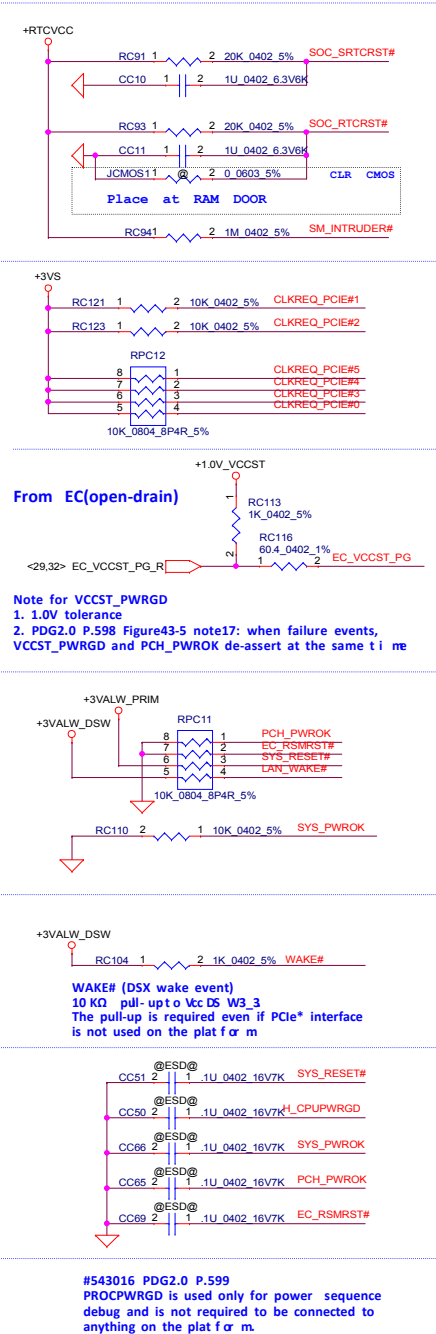
SPKR / GPP_B14 (Internal Pull Down):
(Sampled:Rising edge of PCH_PWROK)

TOP Swap Override
*** 0 = Disable TOP Swap mode.**
1 = Enable TOP Swap Mode.

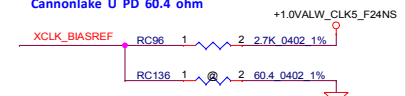
- > Two SDI signals to support two external codecs.
- > Drivers variable frequency (5MHz to 24MHz) BCLK to support:
 - SD0 double pumped up to 48 Mb/s
 - SD1's single pumped up to 24 Mb/s
- > Provides cadence for 44.1 kHz based sample rate output.
- > Support 1.5V, 1.8V, and 3.3V modes.



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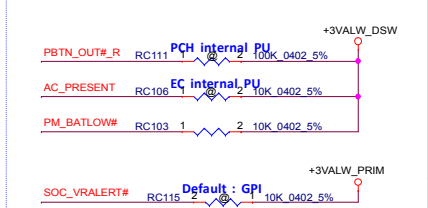
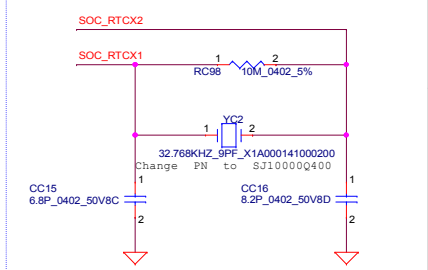


Follow 2014MOW48
Skylake U PU 2.7k ohm to 1V
Cannonlake U PD 60.4 ohm

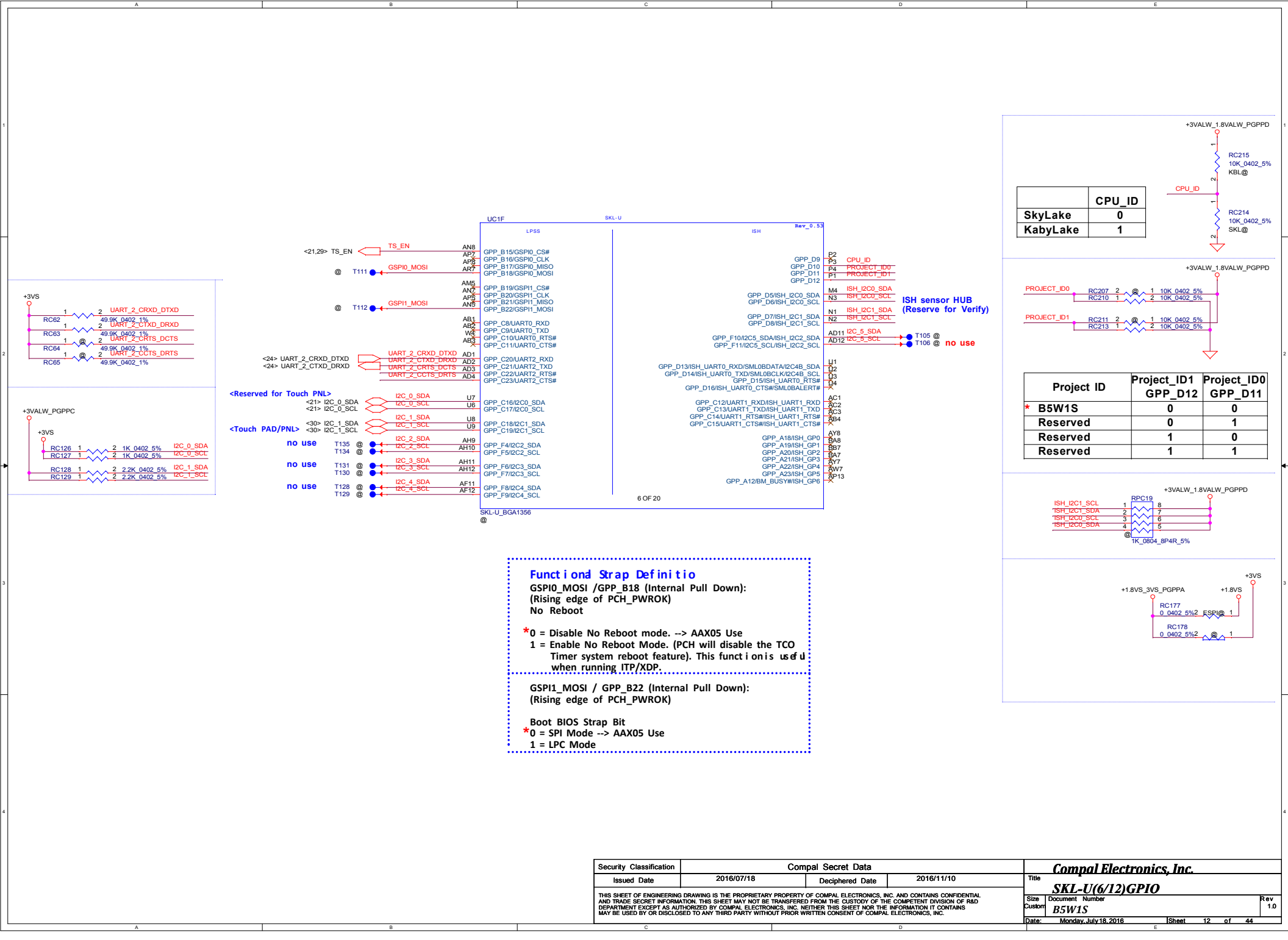


XCLK_BIASREF
T:50ohm S:12/15 L:1000 Via:2

2014MOW48:
Skylake-U use 24M 50 ohm ESR
Cannonlake U use 38.4M 30 ohm ESR



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Function Strap Definition

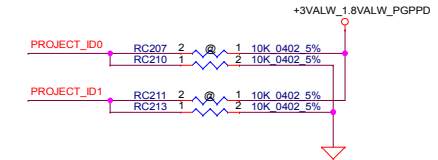
GSPi0_MOSI / GPP_B18 (Internal Pull Down):
(Rising edge of PCH_PWROK)
No Reboot

- * 0 = Disable No Reboot mode. --> AAX05 Use
- 1 = Enable No Reboot Mode. (PCH will disable the TCO Timer system reboot feature). This function is used when running ITP/XDP.

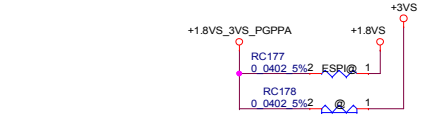
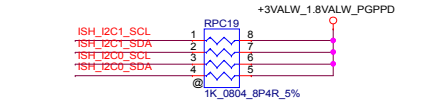
GSPi1_MOSI / GPP_B22 (Internal Pull Down):
(Rising edge of PCH_PWROK)

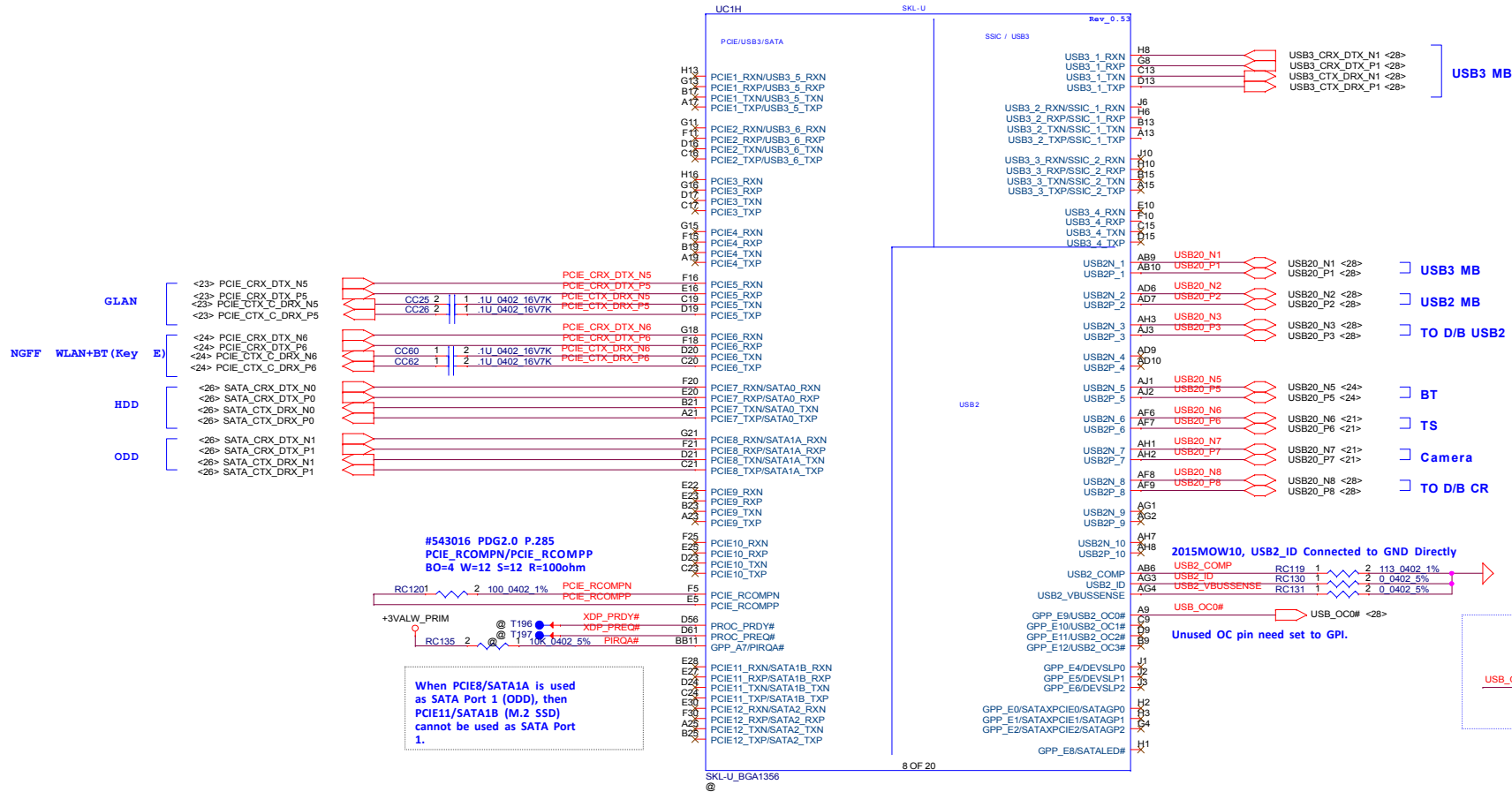
- Boot BIOS Strap Bit
- * 0 = SPI Mode --> AAX05 Use
- 1 = LPC Mode

	CPU_ID
SkyLake	0
KabyLake	1



Project ID	Project_ID1 GPP_D12	Project_ID0 GPP_D11
* B5W1S	0	0
Reserved	0	1
Reserved	1	0
Reserved	1	1





When PCIe8/SATA1A is used as SATA Port 1 (ODD), then PCIe11/SATA1B (M.2 SSD) cannot be used as SATA Port 1.

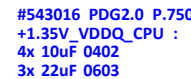
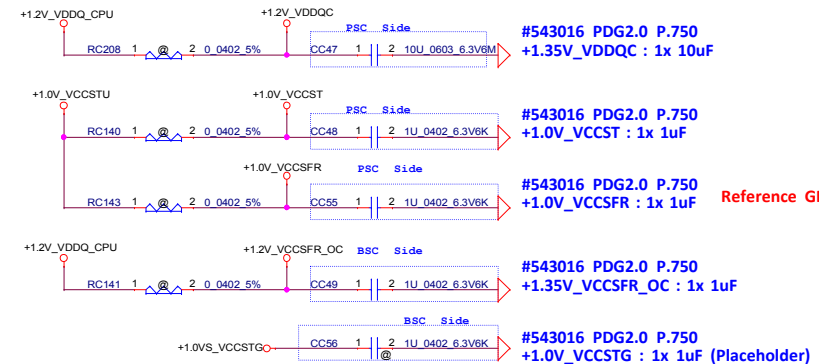
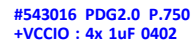
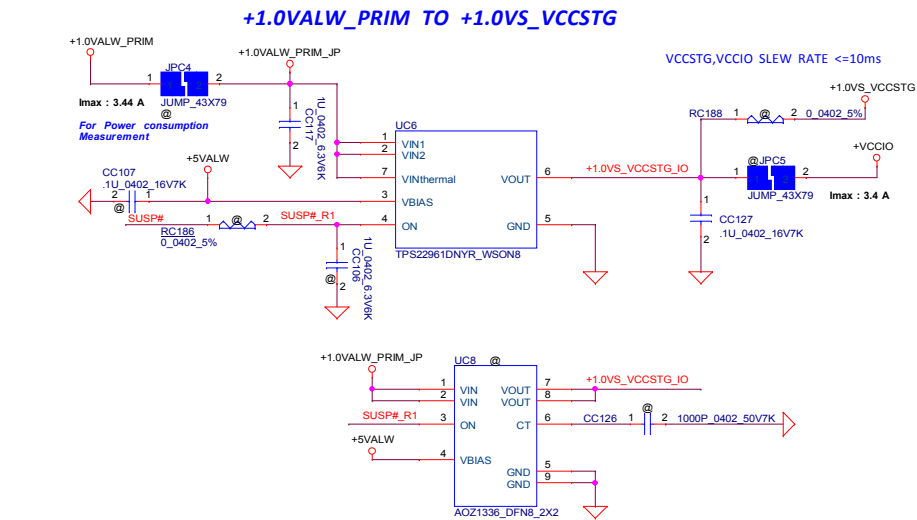
GPIO	DEVICE CONTROL
USB_OC0#	USB2 Port 1
USB_OC1#	NA
USB_OC2#	NA
USB_OC3#	NA
DEVSLP0	NA
DEVSLP1	NA
DEVSLP2	NA
SATA_GP0	NA
SATA_GP1	NA
SATA_GP2	NA

DEVSLP[2:0] Implementation
DEVSLP is a host-controlled hardware signal which enables a SATA host and device to enter an ultra-low interface power state, including the possibility to completely power down host and device PHYs.
The processor provides three SATA DEVSLP signals, DEVSLP[2:0] for SKL U.
• When High DEVSLP requests the SATA device to enter into the DEVSLP power state
• When Low DEVSLP requests the SATA device to exit from the DEVSLP power state and transition to active state

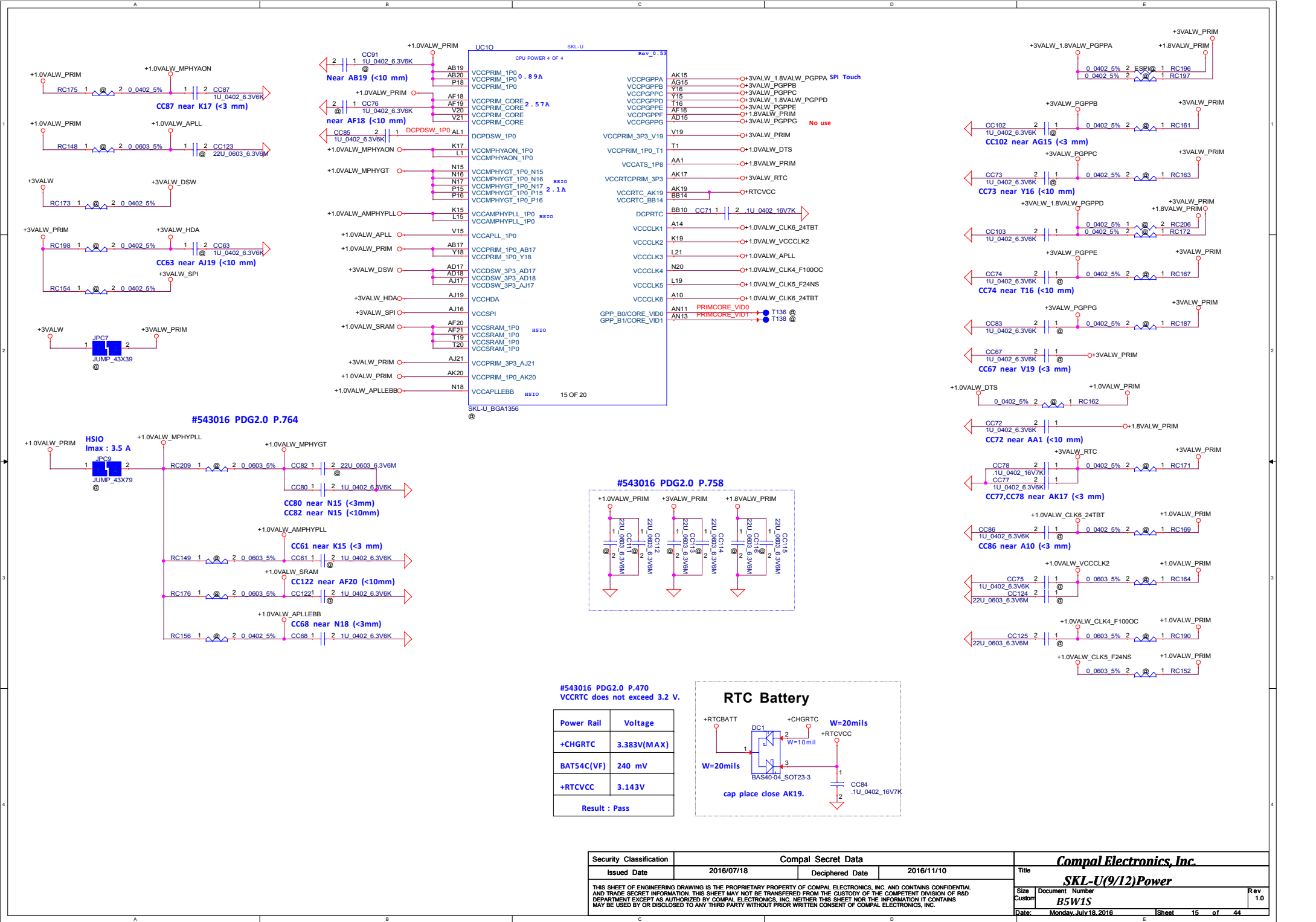
SATA General Purpose (SATAGP[2:0]) Signals
The processor provides three SATA general purpose input signals, SATAGP[2:0] for SKL U. These signals can be configured as interlocks which inputs correspond to a given SATA Port.
• When used as an interlocks which status indication, this signal should be driven to 0 to indicate that the switch is closed and to a 1 to indicate that the switch is open.
If mechanical presence switches will not be used on the platform SATAGP[2:0] signals can be configured as GPP_E[2:0] GPIO signals.

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+5VALW +1.0VALW_PRIM +1.0V_VCCSTU

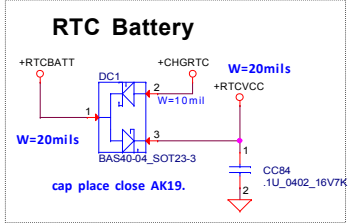


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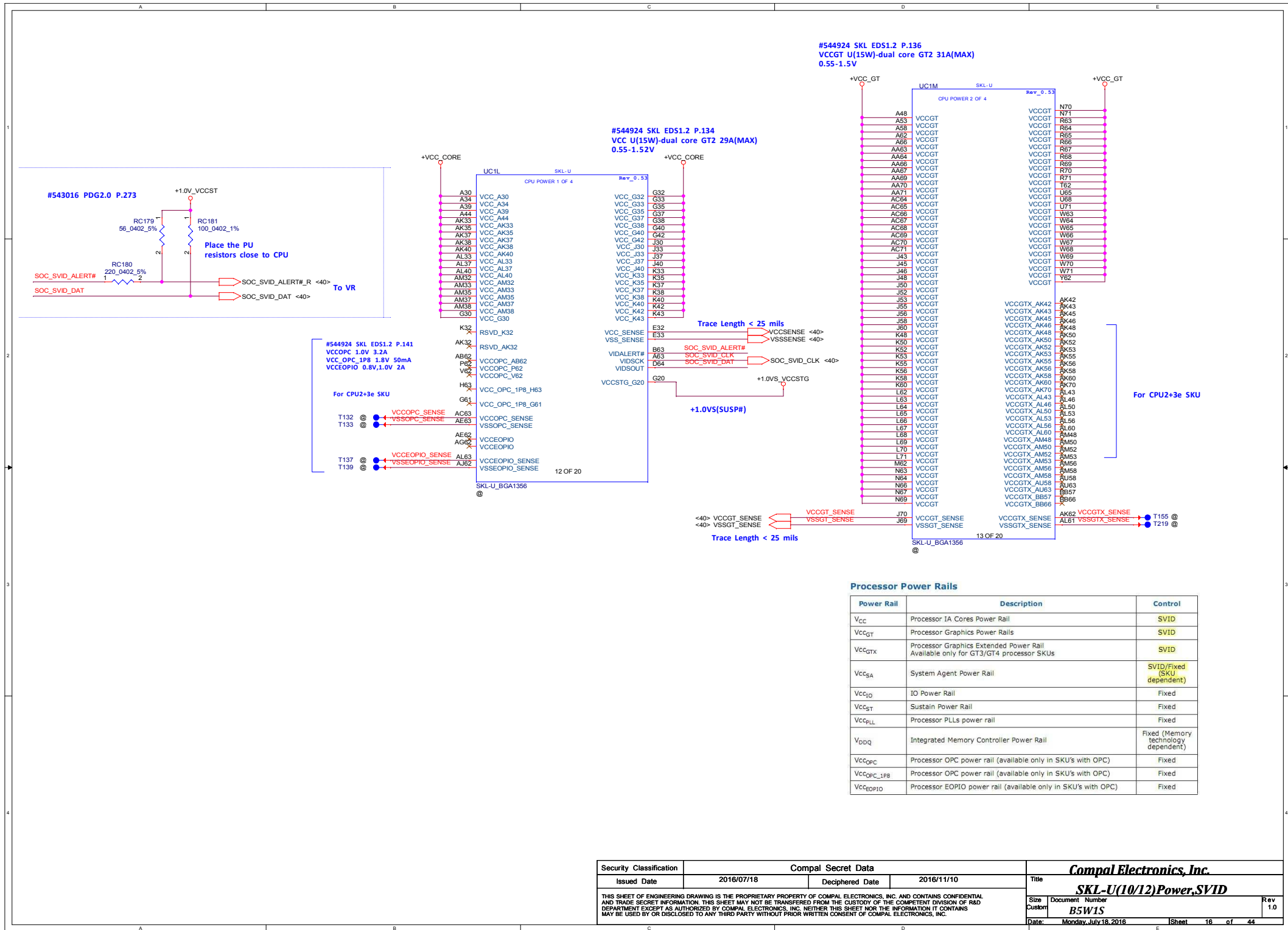


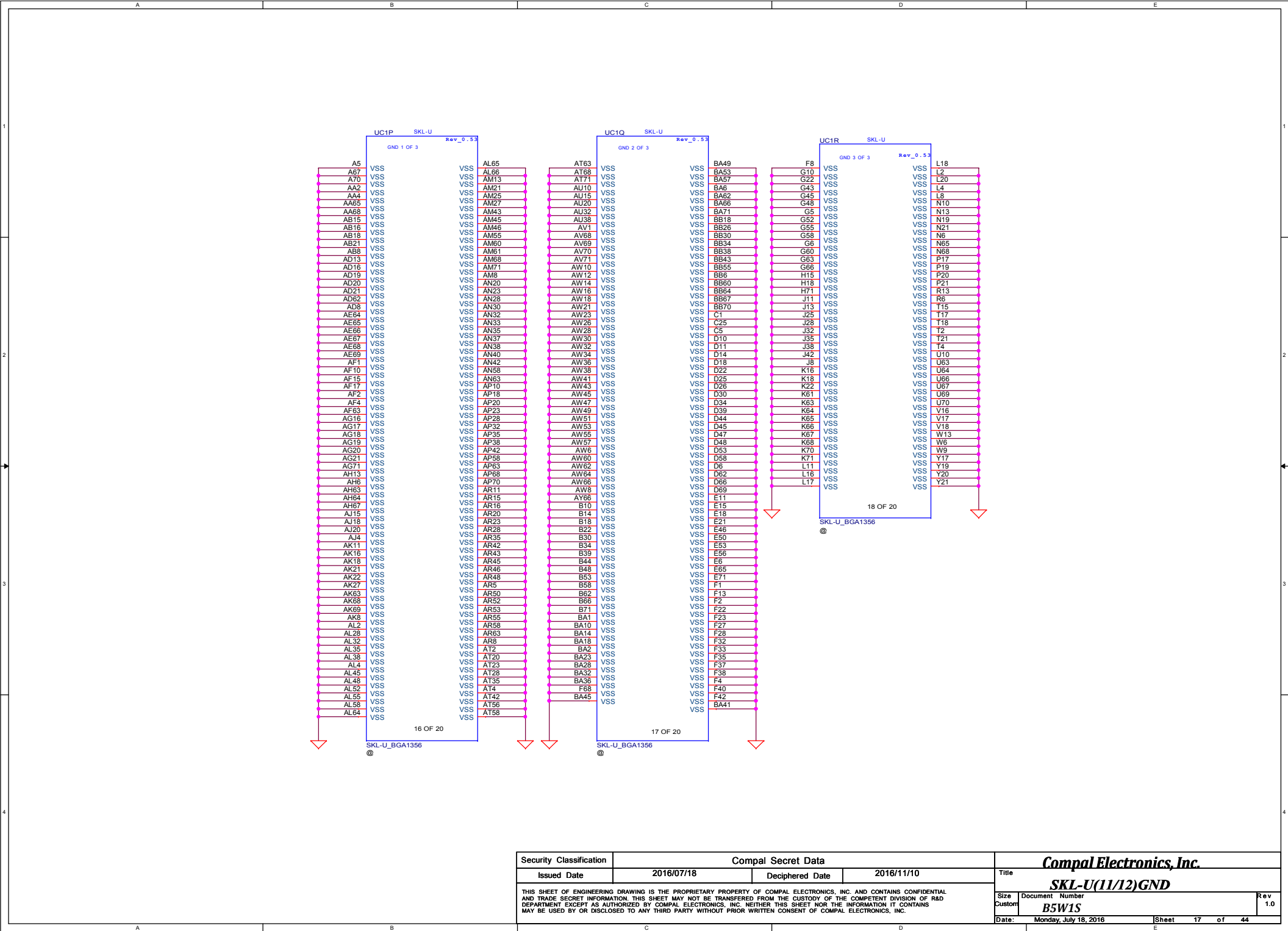
#543016 PDG2.0 P.470
VCCRTC does not exceed 3.2 V.

Power Rail	Voltage
+CHGRTC	3.383V(MAX)
BAT54C(VF)	240 mV
+RTCVCC	3.143V
Result : Pass	

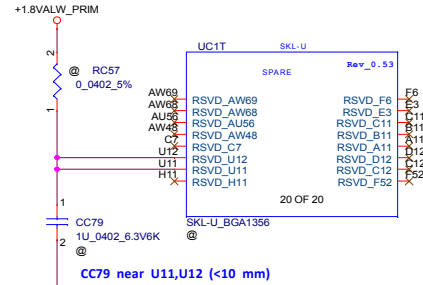
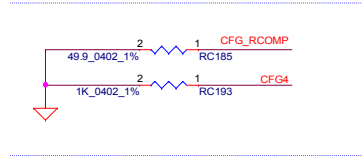
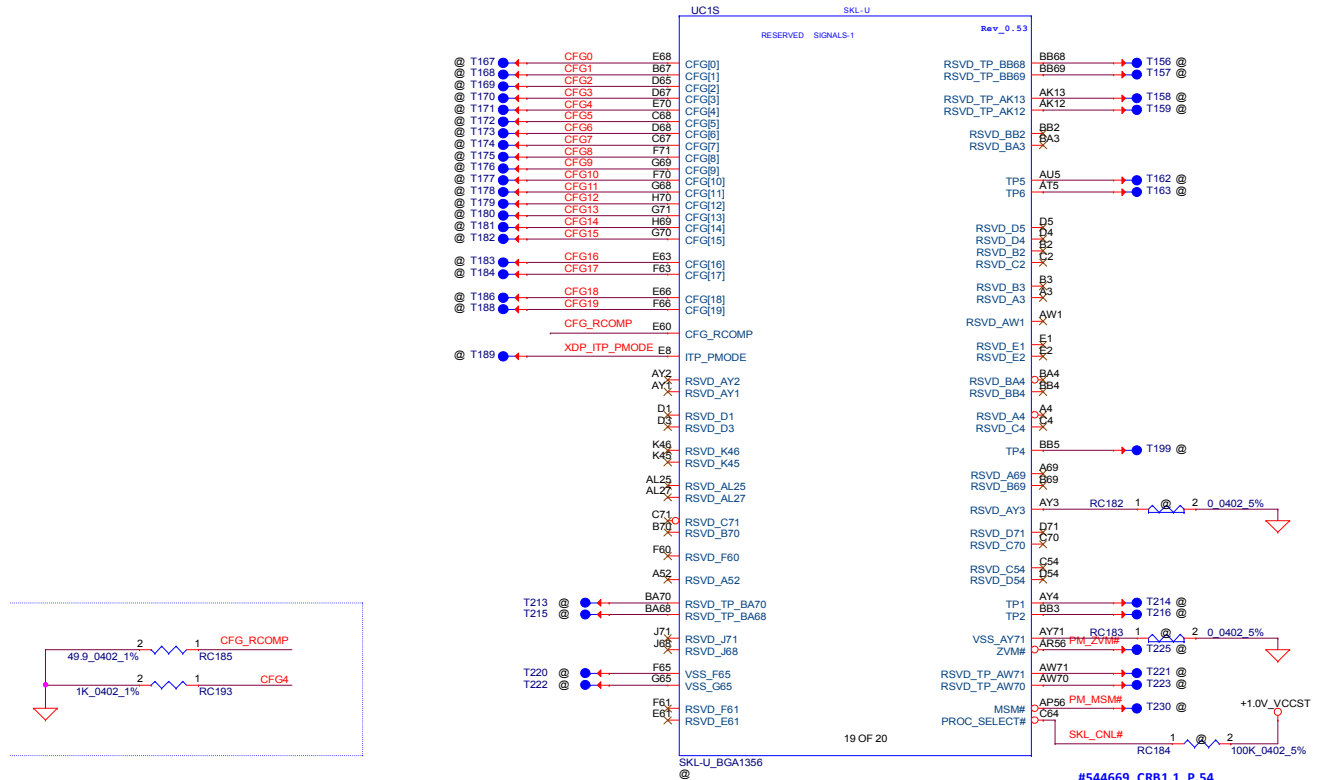


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				Size	Document Number	Rev
				Custom	B5W1S	1.0
Date: Monday, July 18, 2016		E		Sheet	15	of 44





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Size	Document	Number	Rev	Date: Monday, July 18, 2016	
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14MOW52, Connect U11, U12 to 1.8V for Cannonlake-U PCH compatibility

For 2+3e Solution

PM_ZVM#
Zero Voltage Mode: Control Signal to OPC VR, when low OPC VR output is 0V.

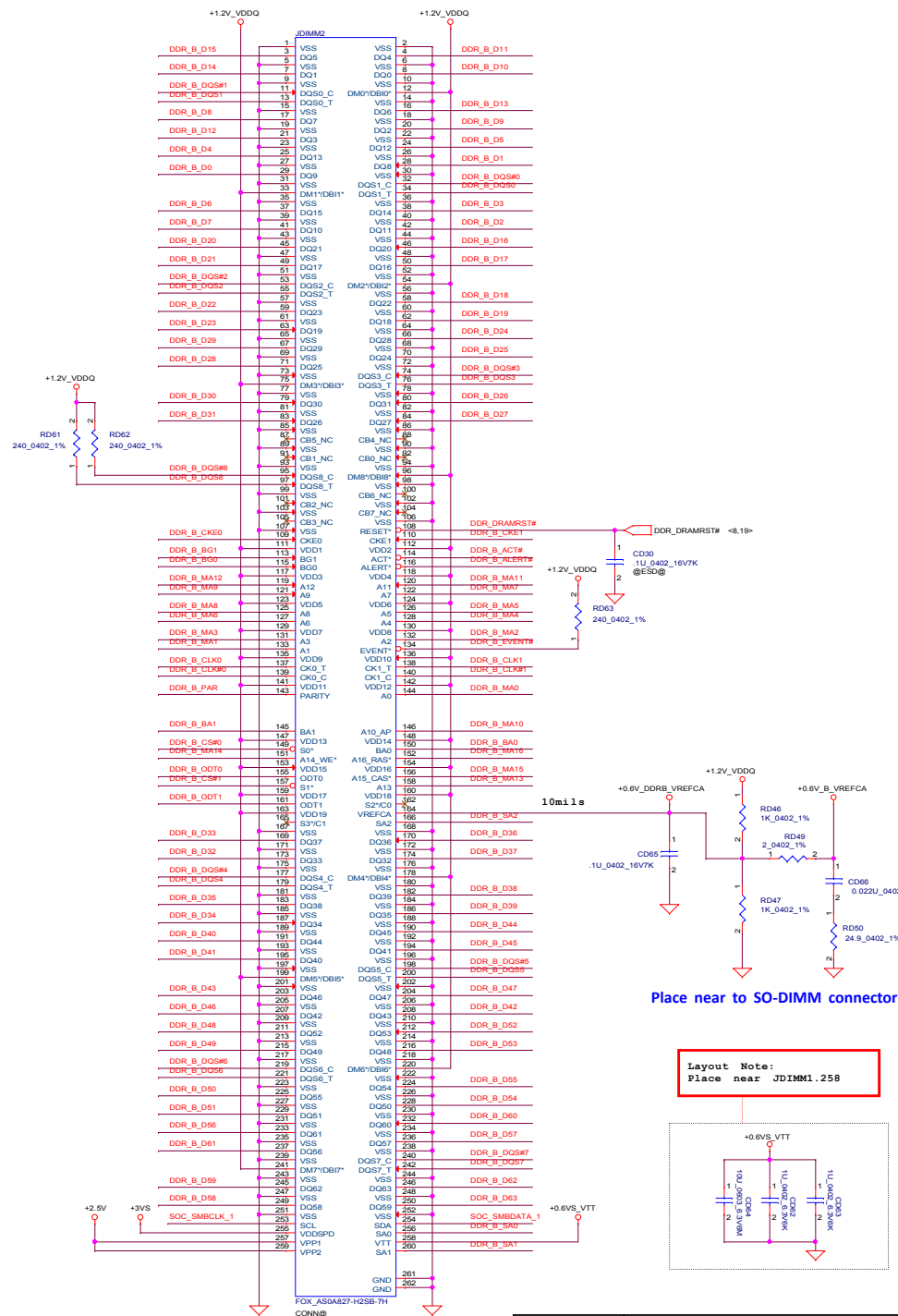
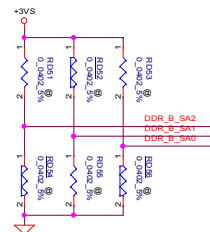
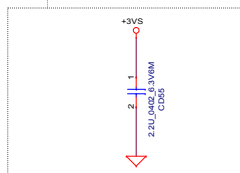
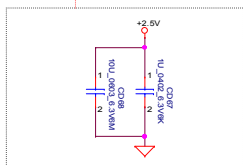
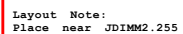
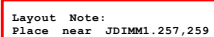
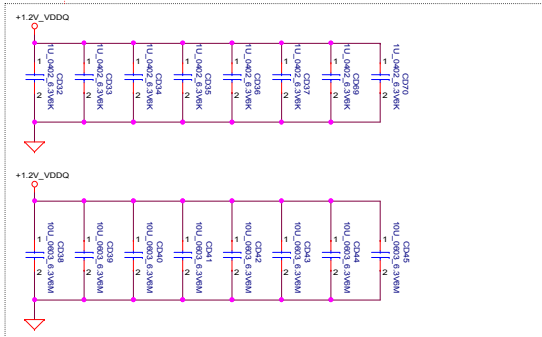
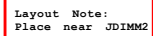
PM_MSM#
Minimum Speed Mode: Control signal to VccEOP10 VR (connected only in 2 VR solution for OPC).

Display Port Presence Strap

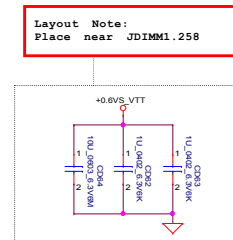
CFG4
1 : Disabled; No Physical Display Port attached to Embedded Display Port
0 : Enabled; An external Display Port device is connected to the Embedded Display Port

#544669 CRB1.1 P.54
#544924 SKL EDS1.2 P.125
PROC_SELECT#
This pin is for compatibility with future platform. It should be unconnected for the processor.

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Size		Document Number		Rev	
Custom		BSW1S		1.0	
Date		Monday, July 18, 2016		Sheet 18 of 44	



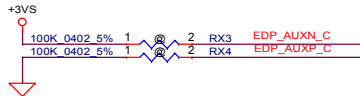
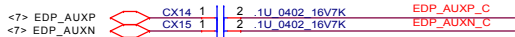
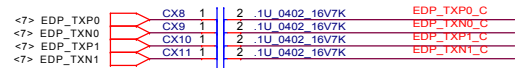
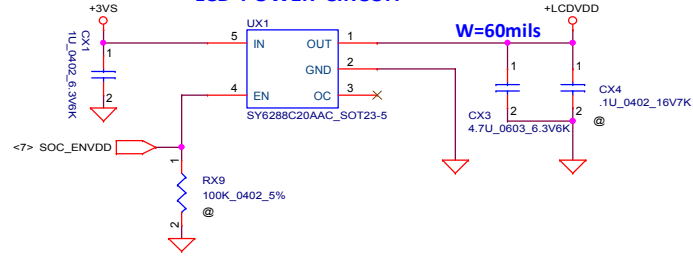
Place near to SO-DIMM connector.



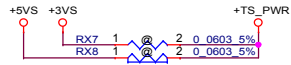
Interleaved Memory

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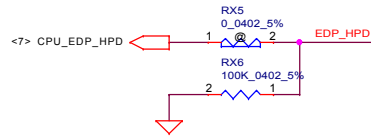
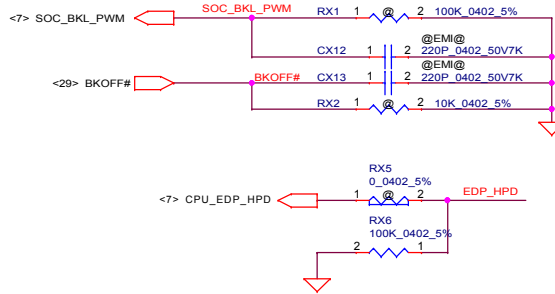
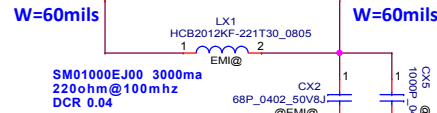
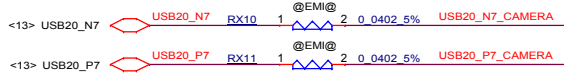
LCD POWER CIRCUIT



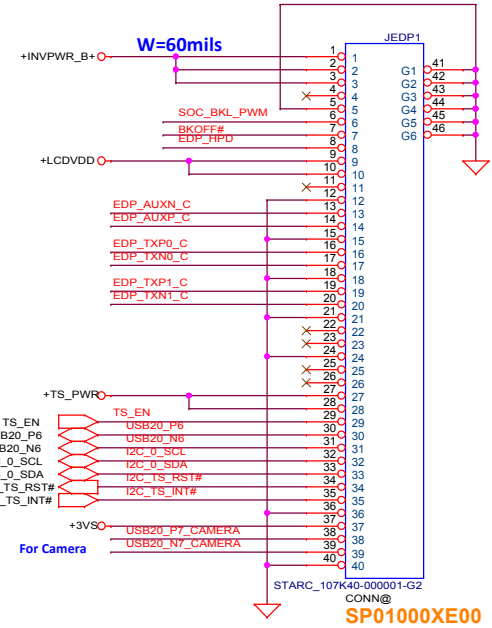
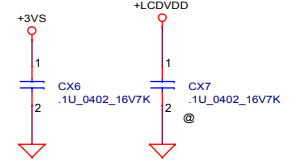
Touch Screen



Camera



Place closed to JEDP1

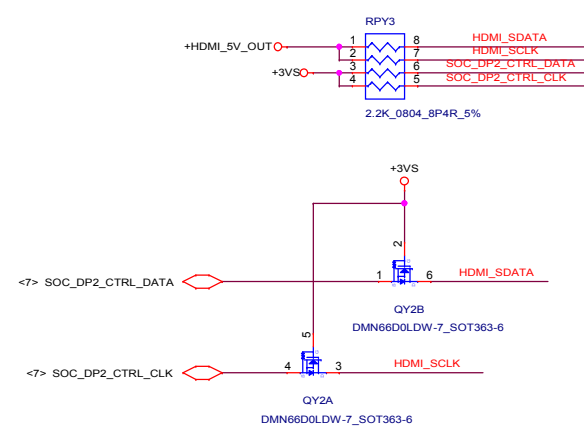
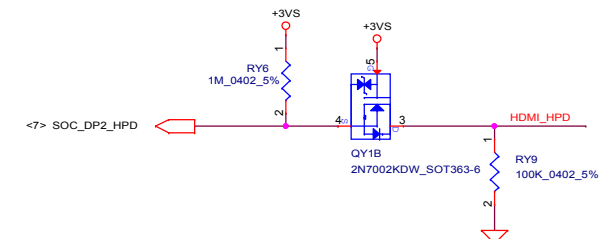
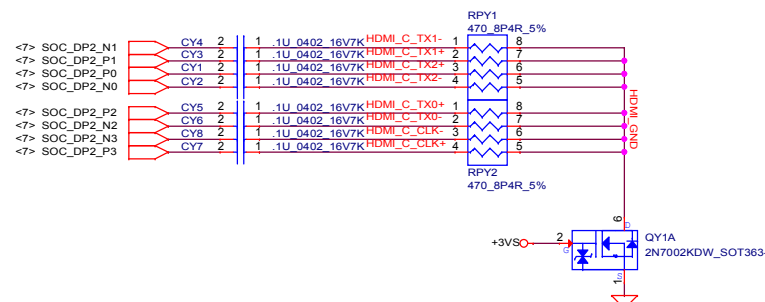
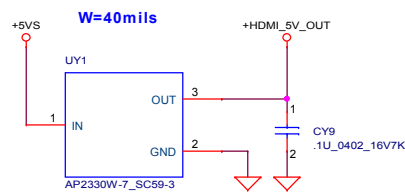


Touch Screen

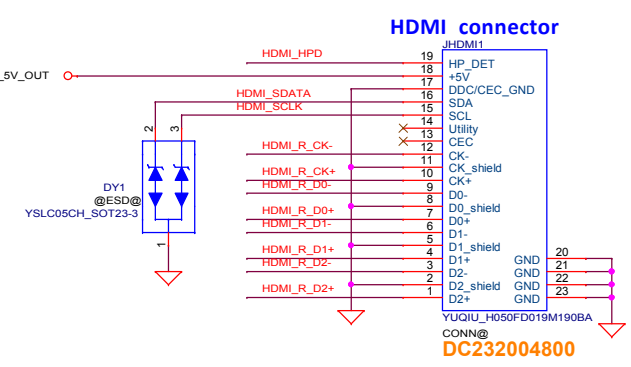
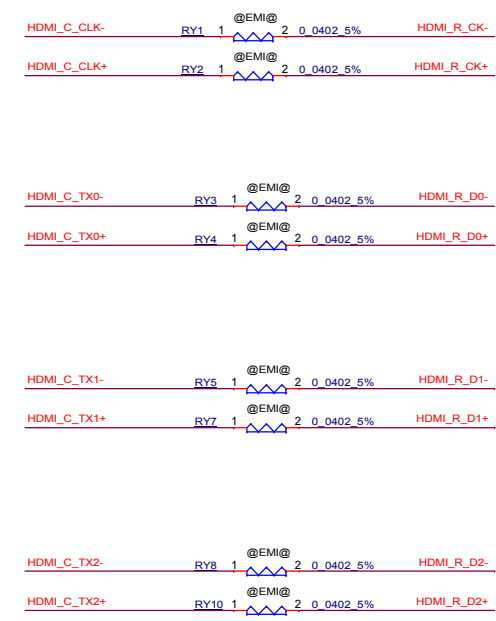
For Camera

SP01000XE00

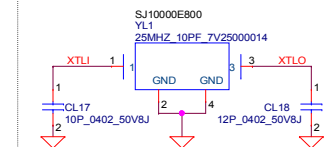
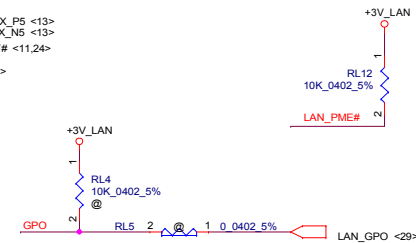
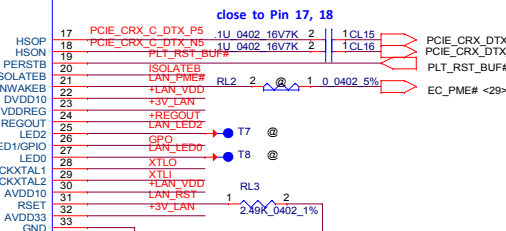
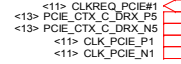
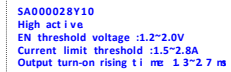
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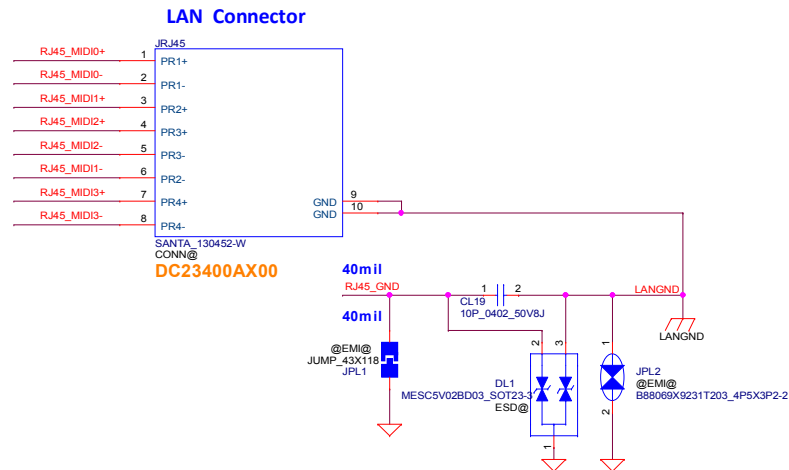
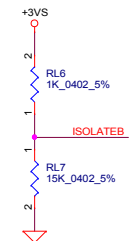
Intel spec Ron/Cout : 3ohm/10pF.
SB000016K00, S TR PJT138KA 2N SOT363-6



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Consider VCC33 may be connected to Main Power or chipset/bios's GPO, the pull-low resistor RL7 can be NC only when Main Power or chipset/bios's GPO can ensure to drive the ISOLATEB pin to a voltage level $< 0.8V$ at the system state S3~S5.



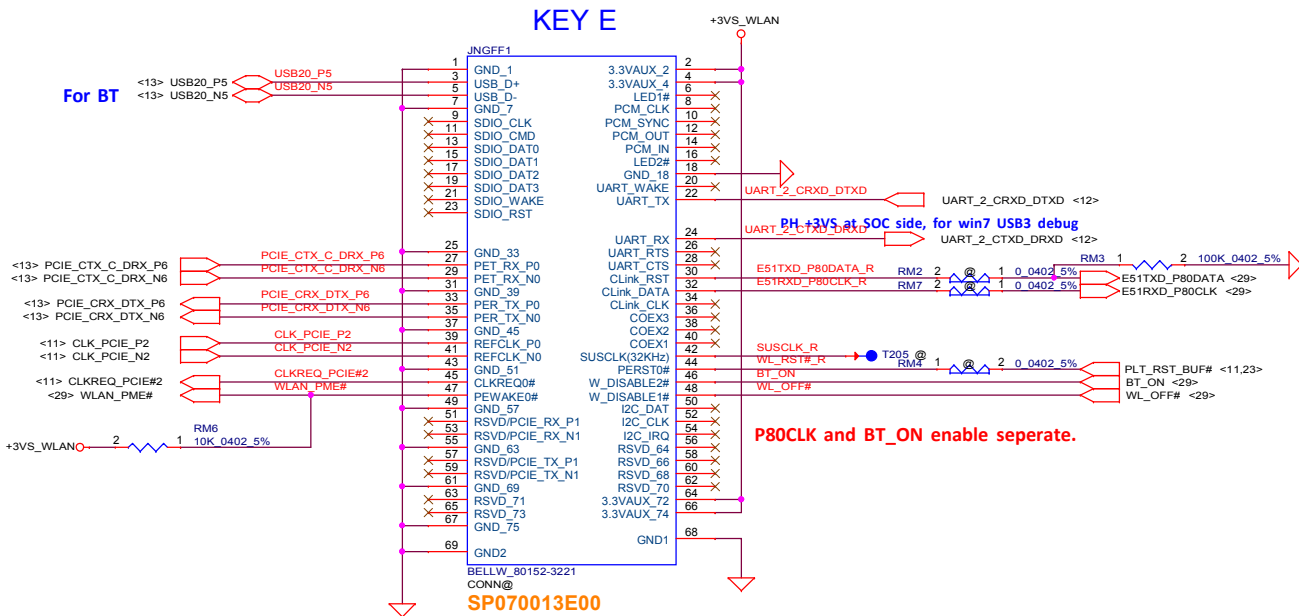
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Wireless LAN



NGFF WL+BT (KEY E)

74	3.3V	GND	75
72	3.3V	RESERVED/REFCLKN1	73
70	UM1_Power_SRC/GPIO1/PEWake1#	RESERVED/REFCLKP1	71
68	UM1_Power_SRC/CLKREQ1#	GND	69
66	UM1_SWP/PERST1#	Reserved/PERn1	67
64	RESERVED	Reserved/PERp1	65
62	ALERT# (I/O/3.3)	GND	63
60	IQC_CLK (O/I/O/3.3)	Reserved/PETn1	61
58	IQC_DATA (I/O/3.3)	Reserved/PETp1	59
56	WL_DISABLE# (O/I/O/3.3V)	GND	57
54	Reserved/W_DISABLE2 (O/I/O/3.3V)	PEWakeDr (I/O/3.3V)	55
52	PERST0# (O/I/O/3.3V)	CLKREQDr (I/O/3.3V)	53
50	SUSCLK(32KHz) (O/I/O/3.3V)	GND	51
48	COEX1 (I/O/1.8V)	REFCLKND	49
46	COEX2 (I/O/1.8V)	REFCLKPD	47
44	COEX3 (I/O/1.8V)	GND	45
42	VENDOR_DEFINED	PERn0	43
40	VENDOR_DEFINED	PERp0	41
38	VENDOR_DEFINED	GND	39
36	UART_RTS (O/I/O/1.8V)	PETn0	37
34	UART_CTS (I/O/1.8V)	PETp0	35
32	UART_TX (O/I/O/1.8V)	GND	33
22	UART_Rx (I/O/2.8V)	SDIO_Reset# (O/I/O/2.8V)	23
20	UART_Wake# (I/O/3.3V)	SDIO_Wake# (I/O/3.3V)	21
18	GND	SDIO_DAT3 (O/I/O/1.8V)	19
16	LED#2 (I/O/OD)	SDIO_DAT2 (O/I/O/1.8V)	17
14	PCM_OUT/US_SD_OUT (O/I/O/1.8V)	SDIO_DAT1 (O/I/O/1.8V)	15
12	PCM_IN/US_SD_IN (I/O/1.8V)	SDIO_DAT0 (O/I/O/1.8V)	13
10	PCM_SYNC/US_VS (O/I/O/1.8V)	SDIO_CMD (O/I/O/1.8V)	11
8	PCM_CLK/US_SCK (O/I/O/1.8V)	SDIO_CLK (O/I/O/1.8V)	9
6	LED#1 (I/O/OD)	GND	7
4	3.3V	USB_D+	5
2	3.3V	USB_D-	3
		GND	1



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				Size	Document Number
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				Rev	1.0

SM01000EJ00 3000mA 220ohm@100mhz DCR 0.04



Int. Speaker Conn.



Analog MIC(SMD)



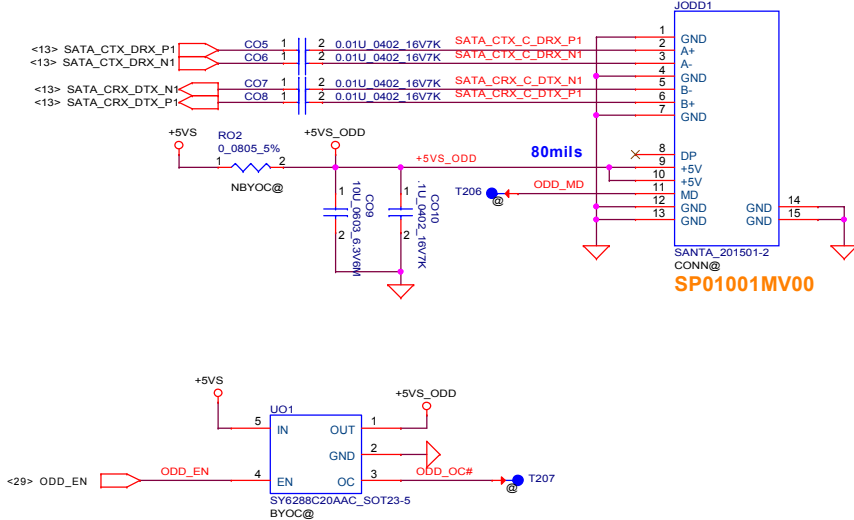
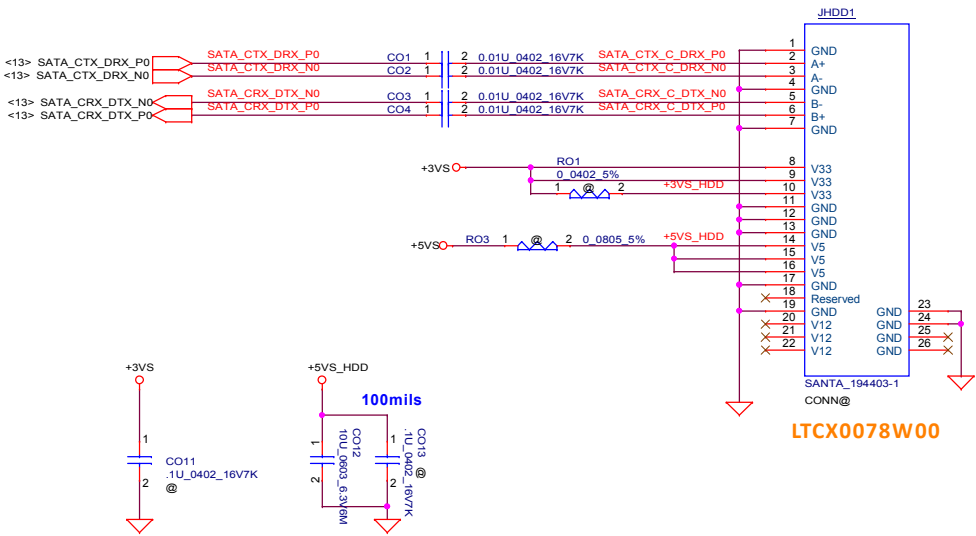
Headphone Out



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SATA HDD Conn.

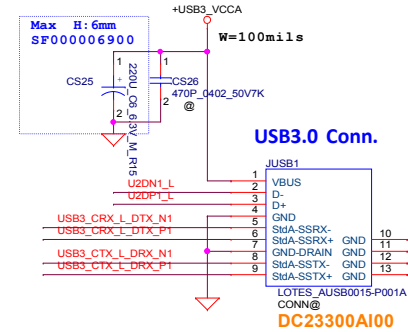
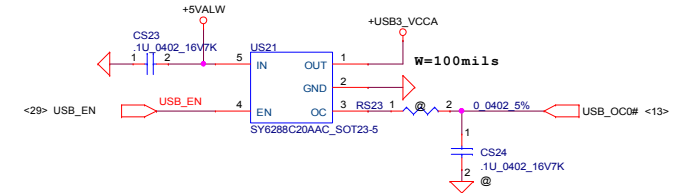
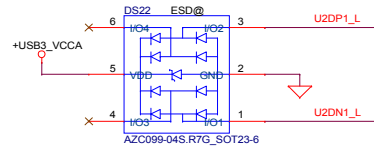
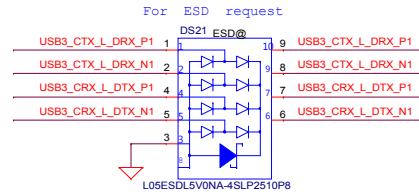
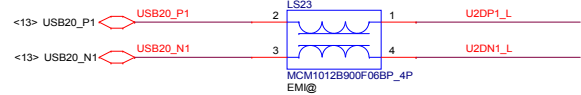
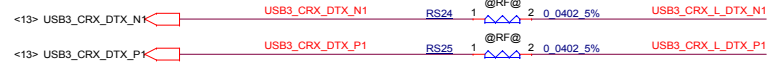
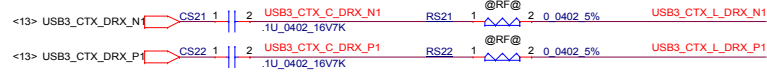
SATA ODD Conn.



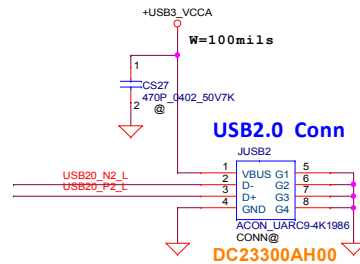
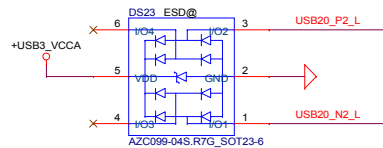
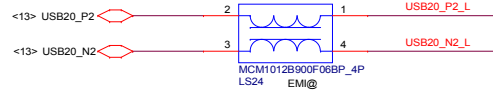
SPACE

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				Date: Monday, July 18, 2016	Rev 1.0
		Sheet 27 of 44			

USB3.0 (Port 1)

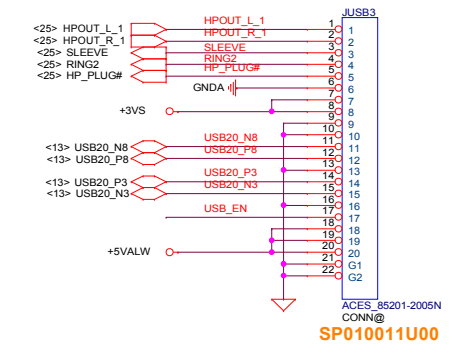


USB2.0 (Port 2)

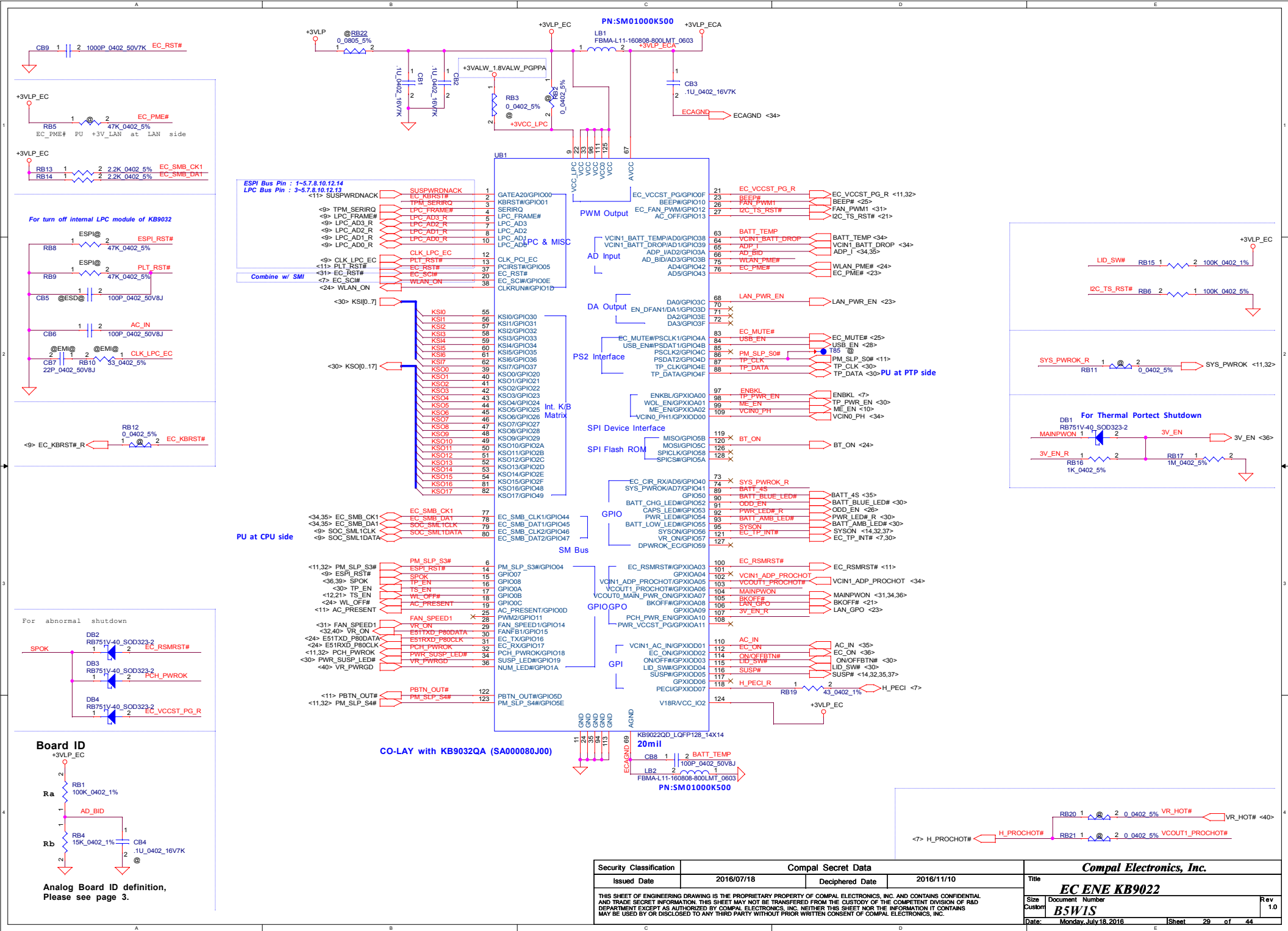


Need check pin defini t i o

IO/B (USB, AUDIO, CR)

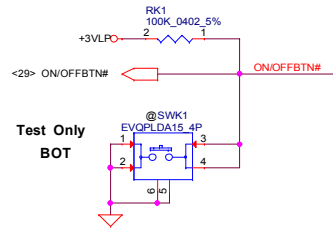


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				Custom	BSWIS
				Date	Monday, July 18, 2016
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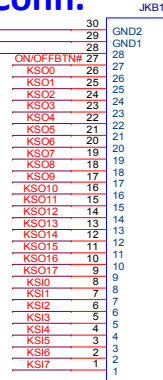
ON/OFF BTN



Test Only
BOT

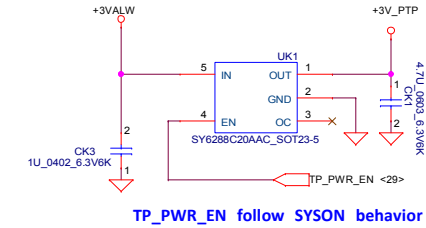
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KSO[0..17] <29>

KB Conn.

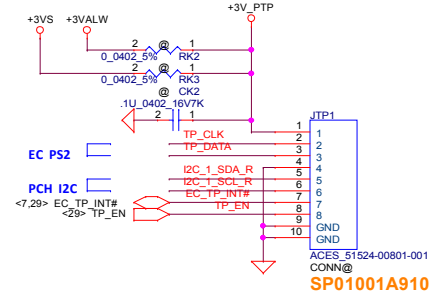
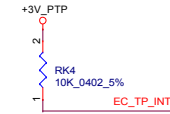
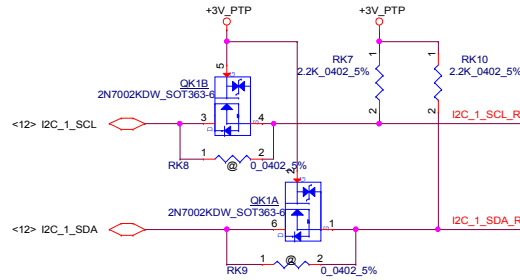


ACES_85201-2805
CONN@
SP01000GO00

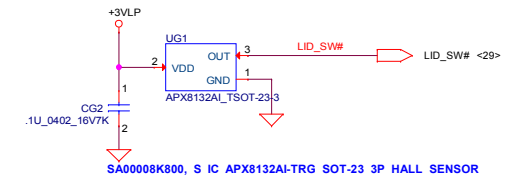
TP/B Conn.



TP_PWR_EN follow SYSON behavior

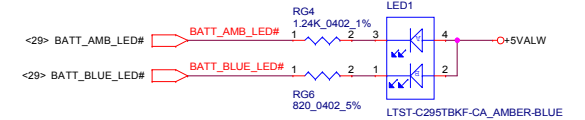


Lid Switch (Hall Effect Switch) Follow 2015



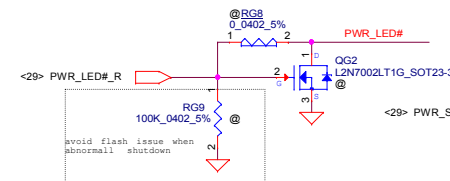
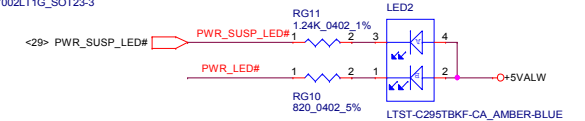
SA00008K800, S IC APX8132AI-TRG SOT-23 3P HALL SENSOR

Battery LED



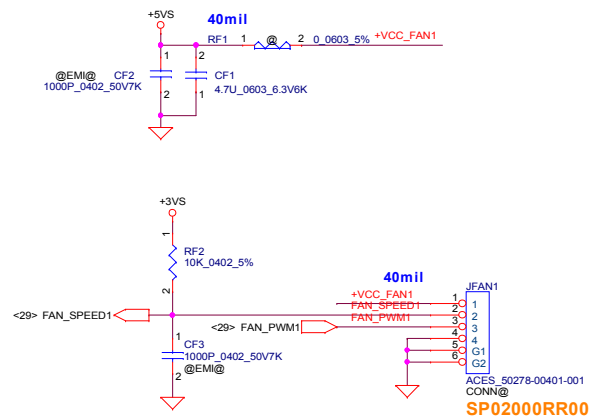
Follow Z5W1M LED.

Power LED

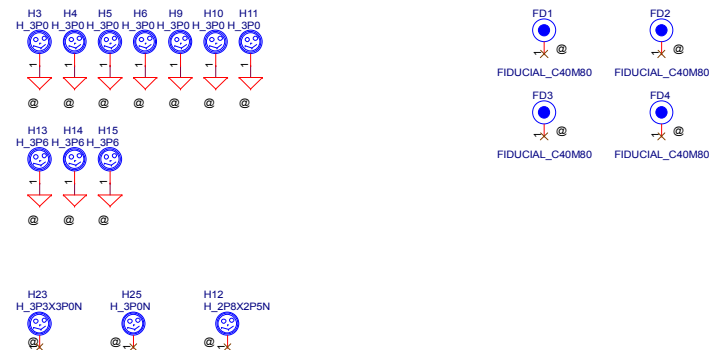


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Size	Document	Number	Rev	1.0
Custom	BSWIS		Date	Monday, July 18, 2016
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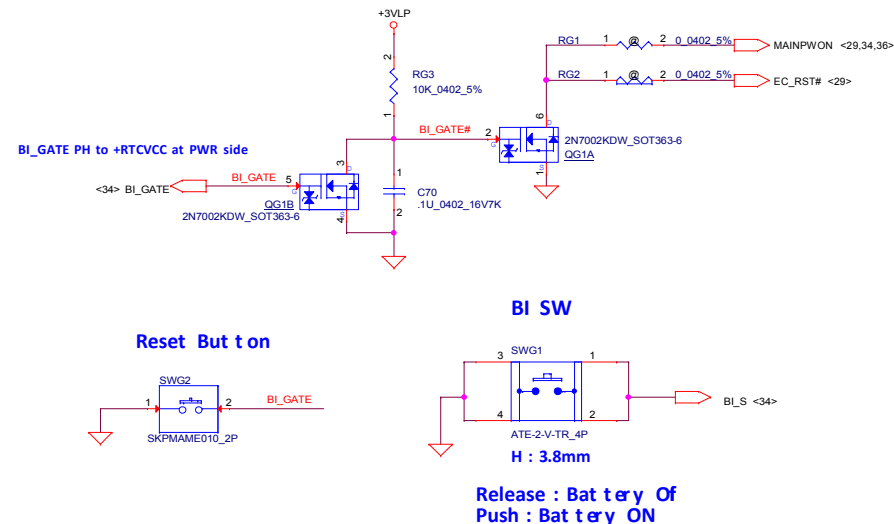
FAN1 Conn



Screw Hole

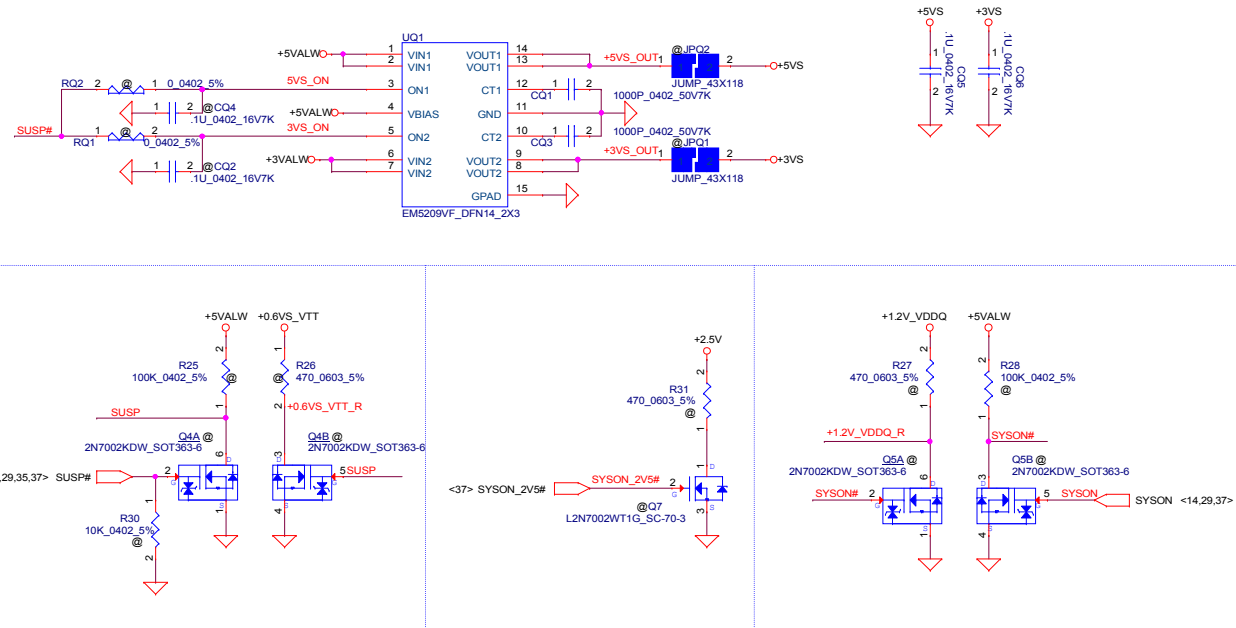


Reset Circuit

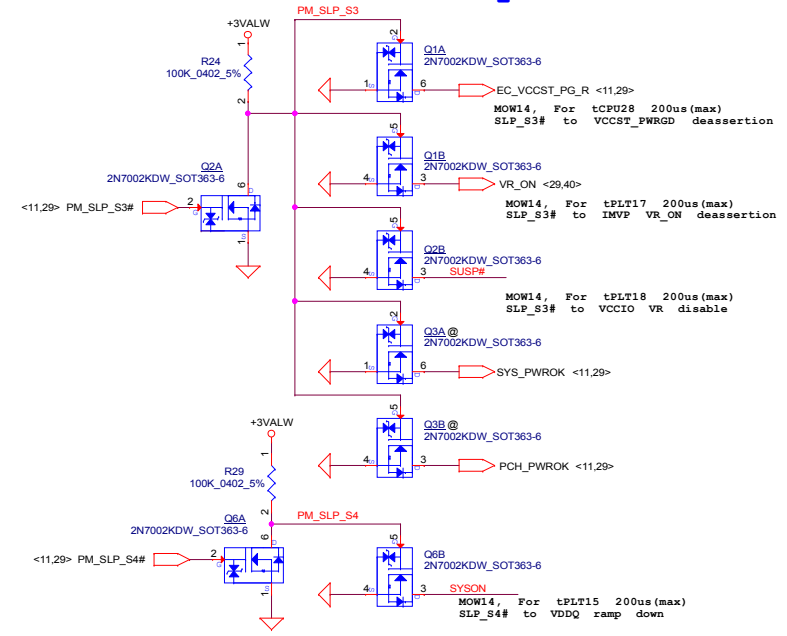


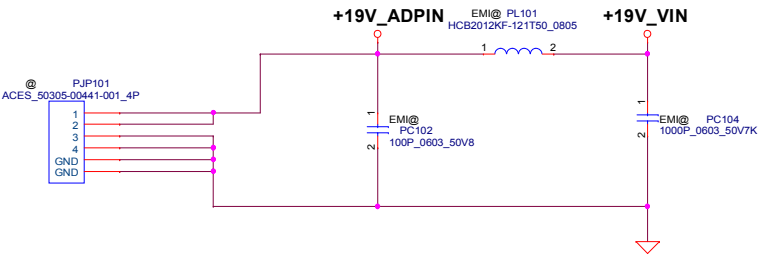
Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2016/07/18	Deciphered Date	2016/11/10	Title	FAN & Screw Hole & Reset
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				Custom	BSWIS
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DC Interface



For Power ON/Off Sequence

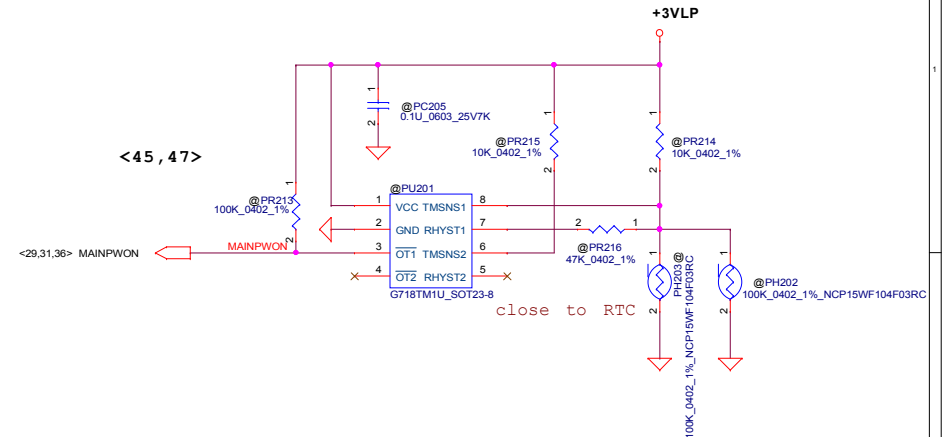
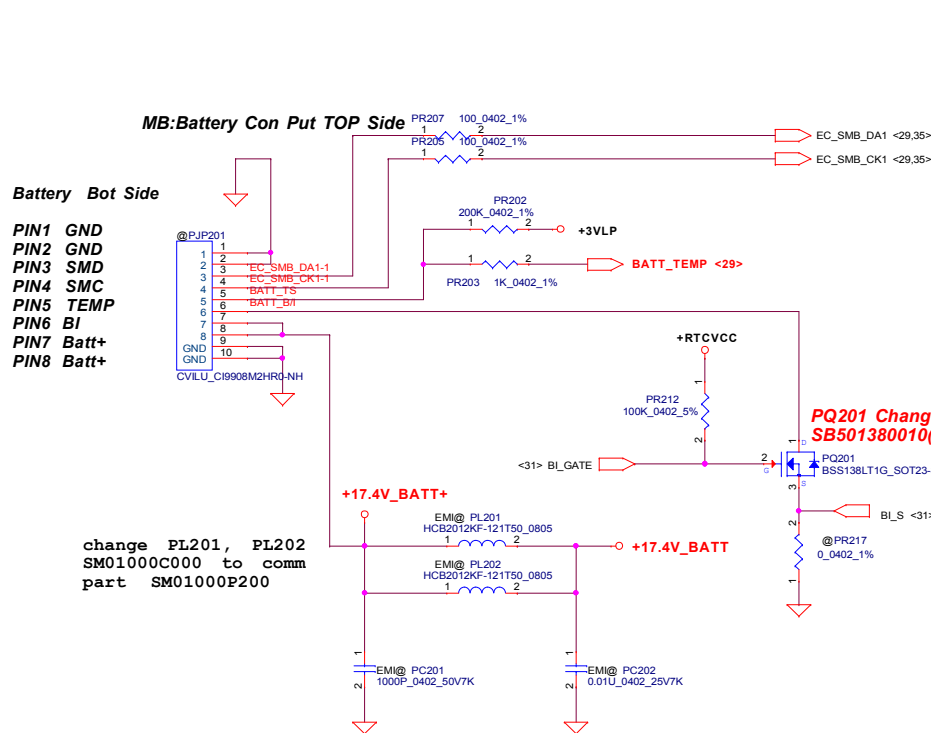




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				PWR DCIN / Pre-charge	
				Size	Document Number
				Custom	Rev
				B5W1S	
				Date: Monday, July 18, 2016	
				Sheet	33 of 44
				C	D
				E	

2013/07/23
change PC5 and PC6 function field from 37.1 to 47.1

schematic from A4WAS



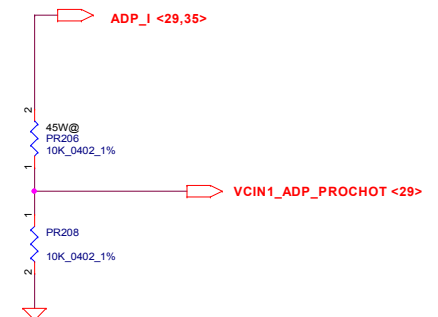
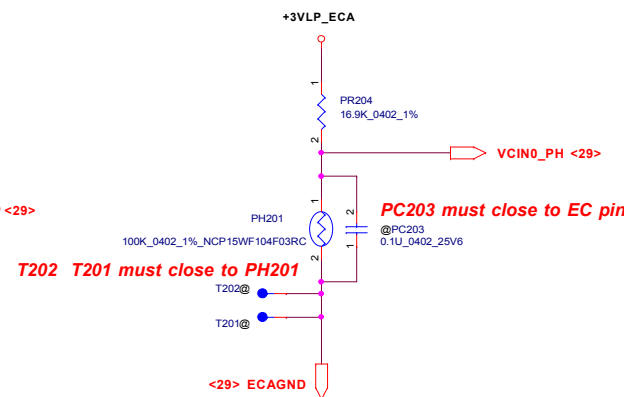
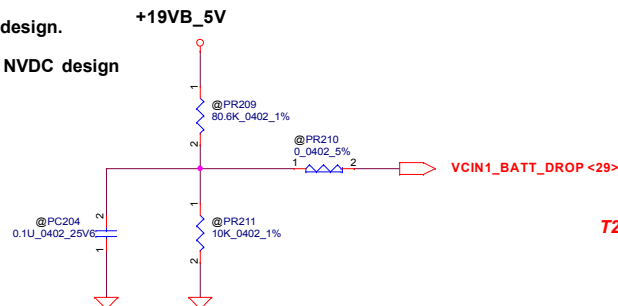
2014/09/25 update

For KB9022 sense 20mA	Active	Recovery
45W PR206 10K ohm SD034100280	58.5W, 0.61V	45W, 0.47V
PH1	2V	1V

PH1 under CPU botten side :
CPU thermal protection at 89 +/-3 degree C
Recovery at 56 +/-3 degree C

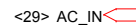
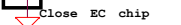
2013/06/07
Add for ENE9022 Battery Voltage drop detection.
Connect to ENE9022 pin64 AD1.

VAL50/ZAL20 Battery is 3-cell NVDC design.
B+=9V
Change PR12=50k if Battery is 2-cell NVDC design
B+=6V

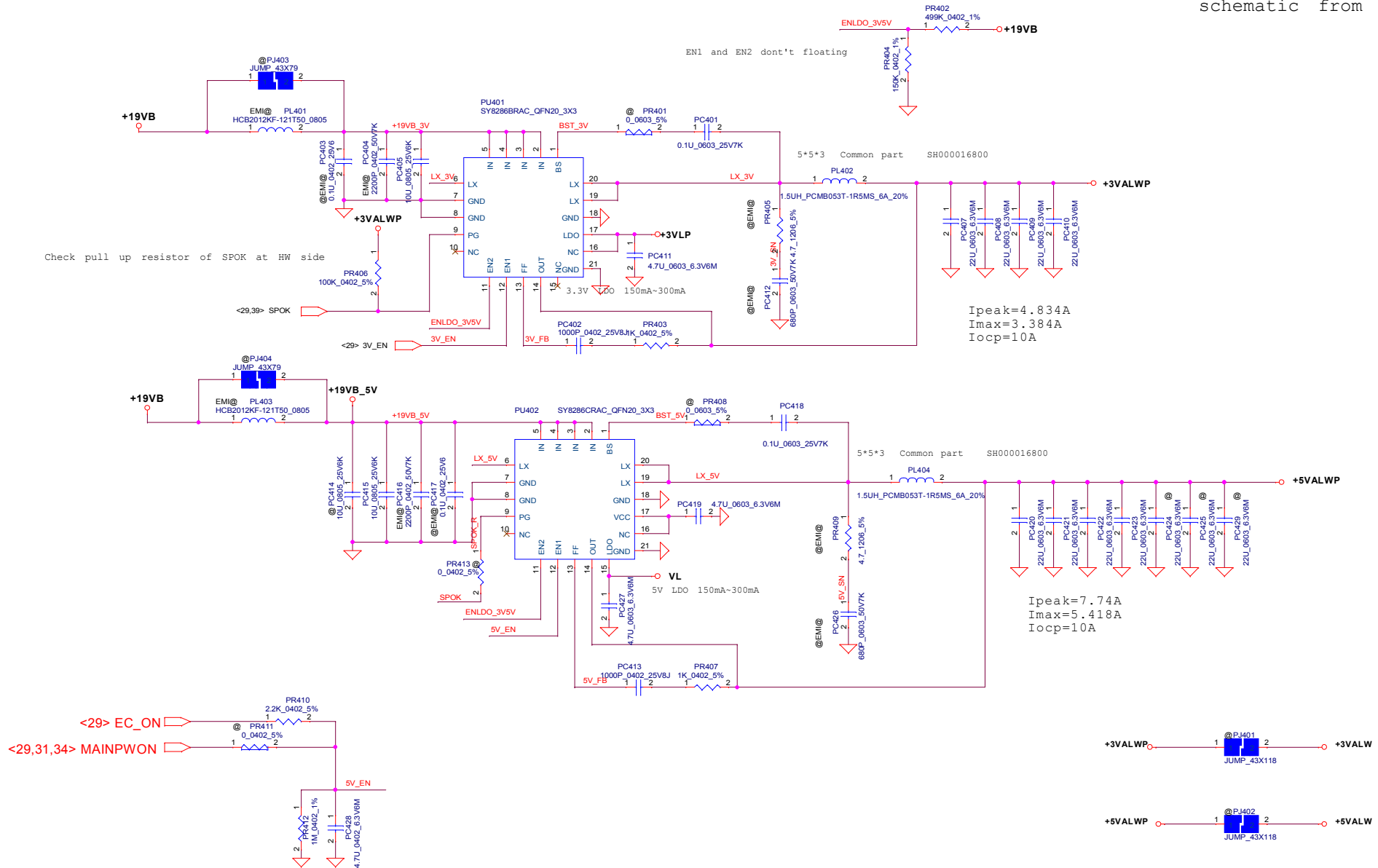


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				Rev	0.2

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schematic from module
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[illegible]

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				Common Circuit		
Date: Monday, July 18, 2016				Sheet 35 of 44		

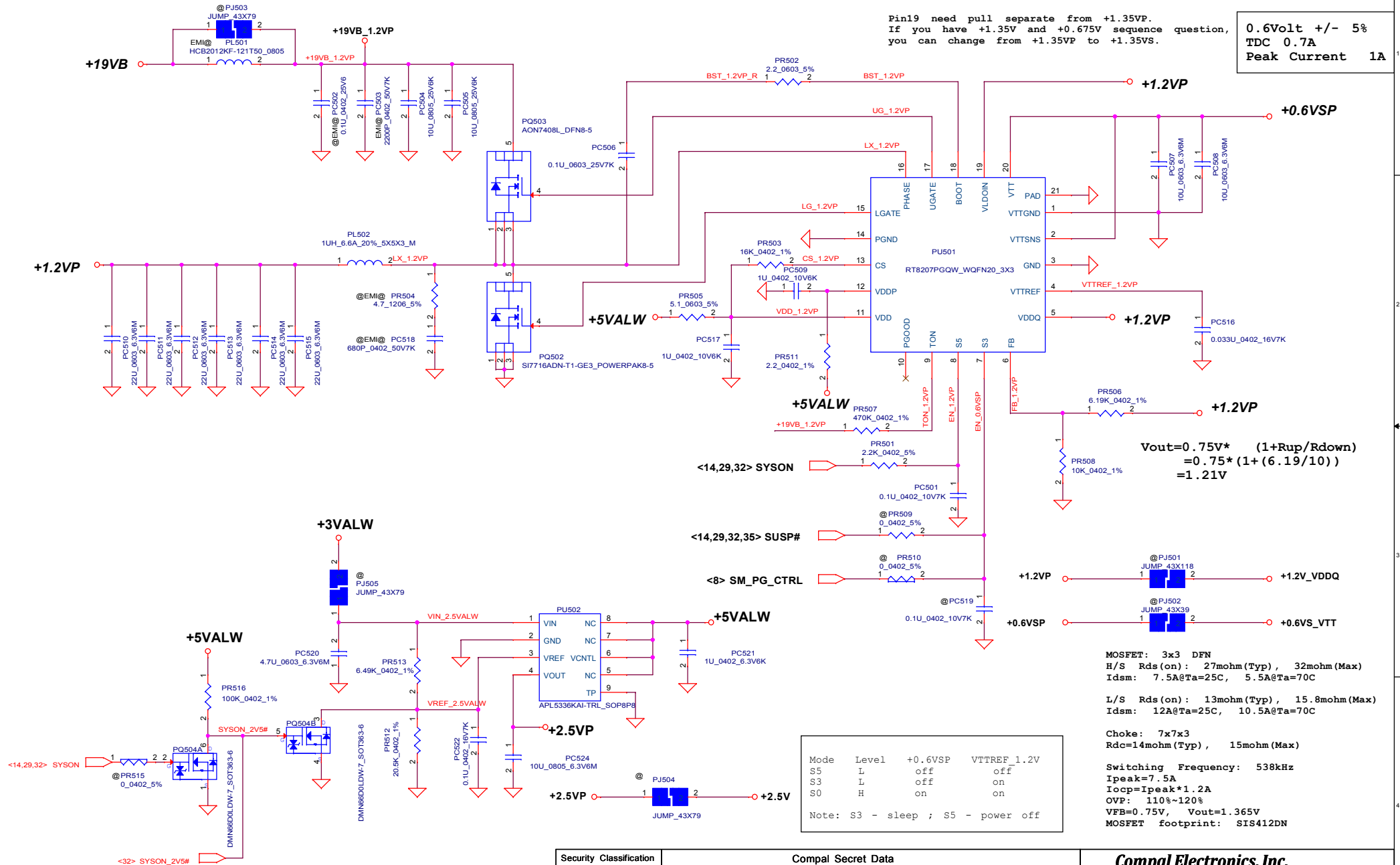


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schematic from A4WAS
IC change RT8207K

Pin19 need pull separate from +1.35VP.
If you have +1.35V and +0.675V sequence question,
you can change from +1.35VP to +1.35VS.

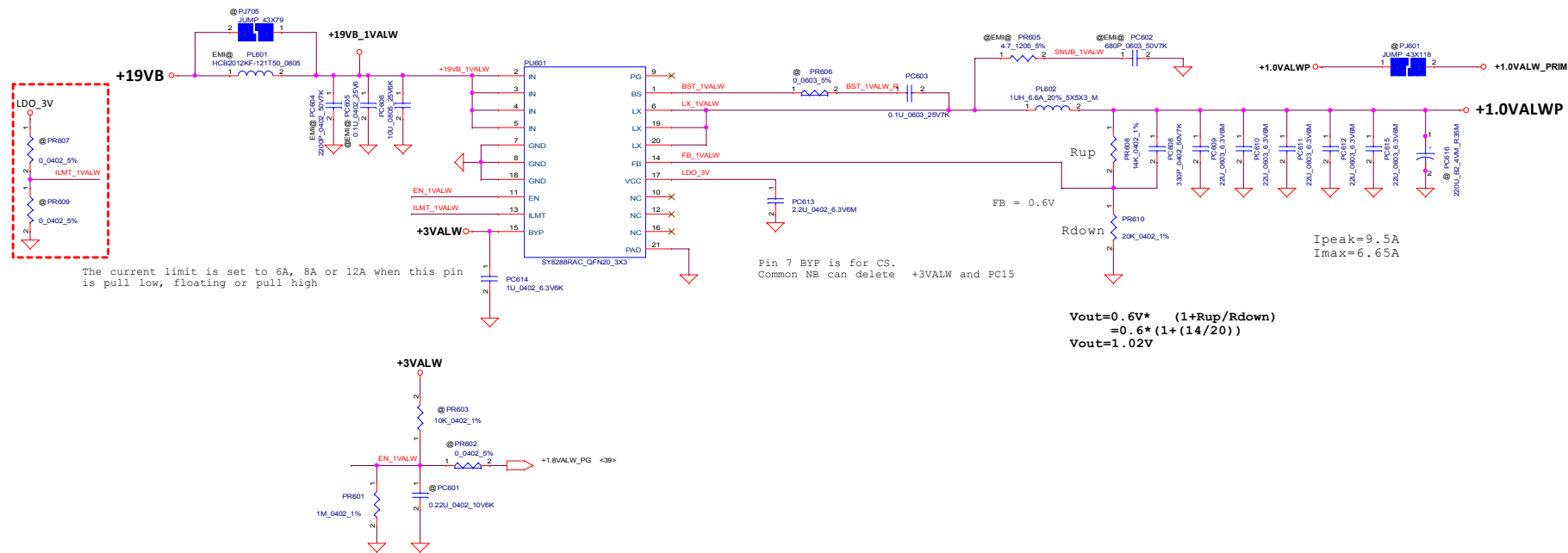
0.6Volt +/- 5%
TDC 0.7A
Peak Current 1A



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				Size	Document Number	Rev
				Custom	B5W1S	
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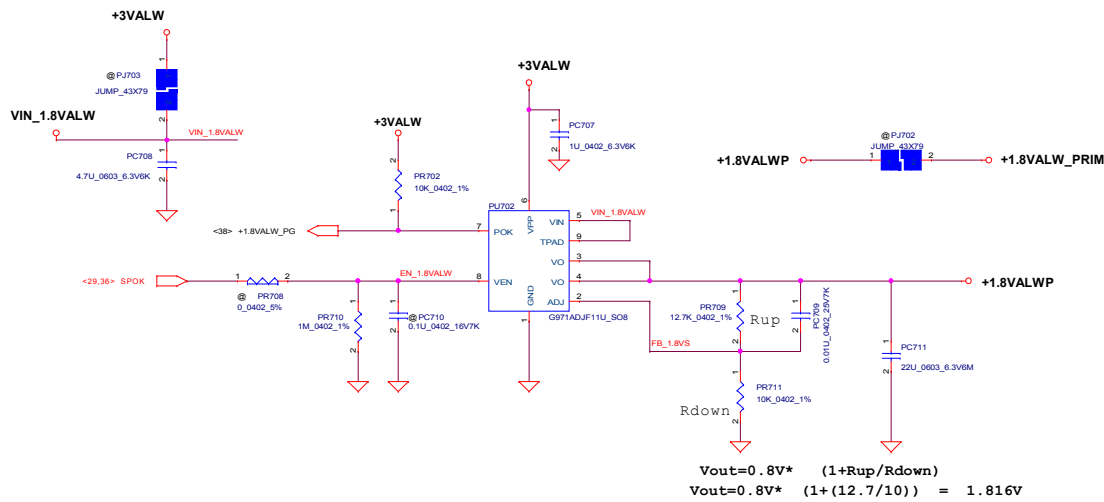
schematic from A4WAS

EN pin don't floating
If have pull down resistor at HW side, pls delete PR702

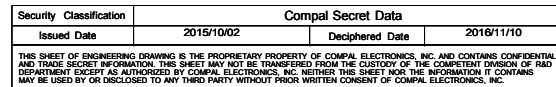


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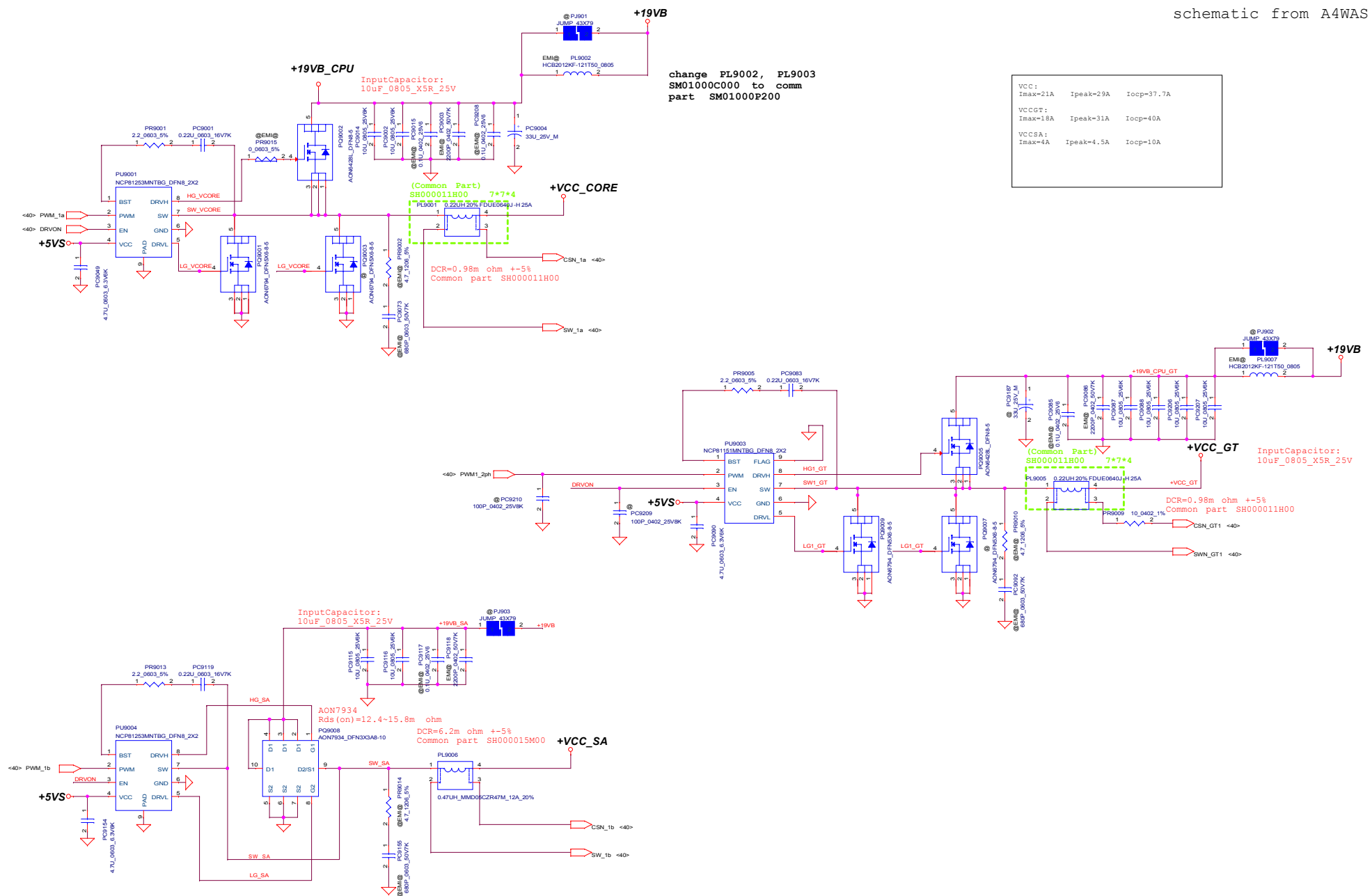
schematic from A4WAS
IC change to G971



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schematic from A4WAS



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						Size	Document Number				Rev
						C	B5W1S M/B LA-D671P				0.2
Date:		Monday, July 18, 2016			Sheet	41 of 44					



SA
pop:
22uF_0603*9
1uF_0201*7
unpop:
22uF_0603*3

330uF*1
22uF_0603*30
1uF_0201*9
0.47uF_0201*4
unpop:
220_D2*2
22uF_0603*6
1uF_0201*1

543016_543016_SKL_PDG_UY_1_0_pub
VCORE Output Capacitor:

22uF_0603*25
1uF_0201*35
220uF_*1

UNPOP
22_0603_8PCS
330uF_R9_1PCS

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				Document Number	1.0
				B5W11 M/B LA-E061P	
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