

Compal Confidential

Model Name : Charmander_UMA

Compal Project Name : C5V01 / D7W01

File Name : LA-E891P

Compal Confidential

C5V01 MB Schematic Document

LA-E891P

Rev: 1A

2017.06.12

Security Classification	Compal Secret Data			Compal Electronics, Inc.		
Issued Date	2016/11/04	Deciphered Date	2018/11/04	Cover Sheet		
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				Date: Monday, June 12, 2017	C5V01 M/B LA-E891P	
				Sheet 1 of 46		

HDMI Conn.



page 22

DDI1
HDMI x 4 lanes

eDP



page 21

eDP

DDI

eMMC

page 27



page 24

PCIe 3.0 x4
8GT/s
Port 9-12Flexible IO
Base-U PCIe2.0
Premium-U PCIe3.0

Intel Kabylake U

Kabylake U
Kabylake PCH-LP(MCP)
(KBL-U_2+2)
(KBL-RU_4+2)

Processor

Dual Core + GT2
Quad Core + GT2

15W

1356pin BGA
page 07~18

LPC/eSPI BUS

CLK=24MHz

SMBUS

Sensor
page 26ENE
KB9022
page 30TPM
page 31

Int.KBD



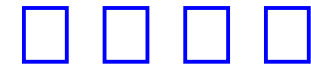
page 31

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

page 31

Interleaved Memory

DDR4-ON BOARD 4G 8Gbx16



page 19

260pin DDR4-SO-DIMM X1



page 20

Memory BUS
Dual Channel

1.2V DDR4 1866/2133

USB 3.0
conn x1
USB port 1

page 29

USB 2.0
conn x2
USB port3,4
on Sub/B

page 29

CMOS
Camera
USB port 7

page 21

USB TypeC
conn x1
USB (port 2,3)

page 28

Fingerprint

USB port8
page 31USBx8
48MHz

HD Audio

3.3V 24MHz

SPI

SPI ROM
64Mb
page 9HDA Codec
ALC255
page 25Touch
ScreenUSB port 6
page 21LAN(GbE)
Realtek 8411B
page 23

SD conn.

RJ45 conn.

SATA HDD
Conn.

page 26

SATA CDROM
Conn.

page 26

RTC CKT.

page 15

Fan Control

page 32

Power On/Off CKT.

page 31

DC/DC Interface CKT.

page 33

Power Circuit DC/DC

page 34~43

Sub Board

LS-E891
IO/B
page 29LS-E892
Hall Sensor/B
page 31

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
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				C5V01 M/B LA-E891P	
				Date: Monday, June 12, 2017	Sheet 2 of 46
				Rev 1A	

Vcc	3.3V +/- 5%					
Ra	100K +/- 1%					
Board ID	Rb	V _{BEID} min	V _{BEID} typ	V _{BEID} max	EC AD3	PCB Revision
0	0	0 V	0 V	0.300 V	0x00 - 0x13	0.1 (EVT)
1	12K +/- 1%	0.347 V	0.345 V	0.360 V	0x14 - 0x1E	1.0 (DVT)
2	15K +/- 1%	0.423 V	0.430 V	0.438 V	0x1F - 0x25	1A (PVT)
3	20K +/- 1%	0.541 V	0.550 V	0.559 V	0x26 - 0x30	1A (MP)
4	27K +/- 1%	0.691 V	0.702 V	0.713 V	0x31 - 0x3A	D7W01 (PVT)
5	33K +/- 1%	0.807 V	0.819 V	0.831 V	0x3B - 0x45	D7W01 (MP)
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	

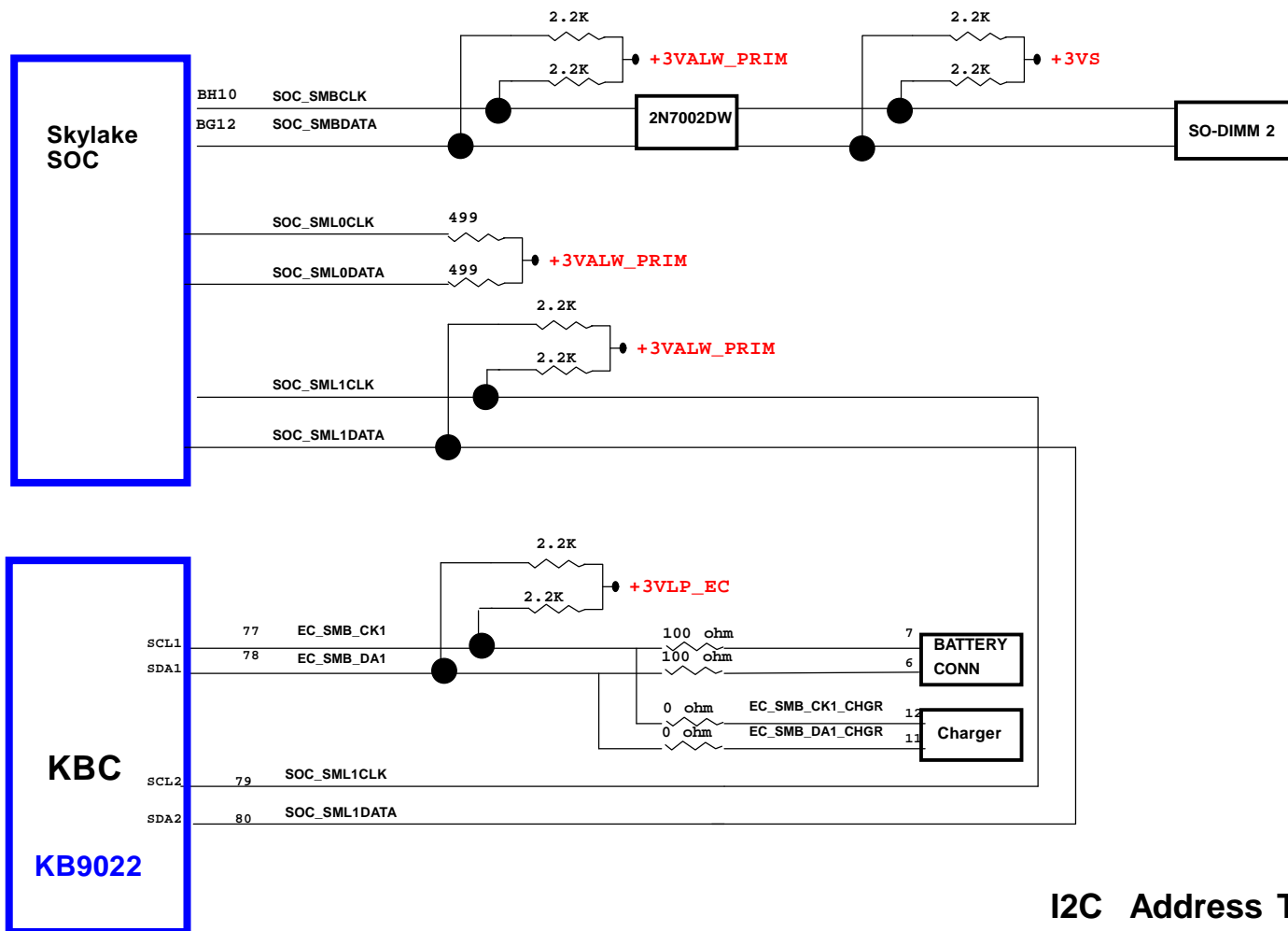
BOM Option Table		BOM Option Table	
Item	BOM Structure	Item	BOM Structure
Unpop	@	MB Stage	EVT@/DVT@/PVT@/MP@
Connector	CONN@	BOM Select	X76@
Acer BYOC	BYOC@ / NBYOC@	Memory Select	X76M01@ ~ X76M03@
CODEC(ALC255)	255@	Memory Mode	SDP@ / DDP@
EC Mode Select	LPC@ / ESPI@	SATA Redriver Select	X76TI@ / X76PAR@
For Intel CMC	CMC@	DAZ PN	DAZ@
LAN Mode Select	SWR@ / LDO@	PCB PN	PCB@
EMI requirement	EMI@ / @EMI@	HDMI LOGO	45@
ESD requirement	ESD@ / @ESD@		
RF requirement	@RF@		
CPU Selection	U42@/U22@		
TPM	TPM@		
Finger Print	FP@		
UMA or DGPU	UMA@/VGA@		
ODD Support	ODD@		
G Sensor	BA@	CPU Code	QKJW@
For over 3 cell battery	3S@		

43 Level	Description					BOM Structure
431A72BOL01	SMT	MB	AE891	C5V01	UMA I36006U HDMI	SR2UW@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL02	SMT	MB	AE891	C5V01	UMA I3 QLDPL1.4 HDMI	QLDPE/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL03	SMT	MB	AE891	C5V01	UMA I5 QLDML1.4 HDMI	QLDME/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL04	SMT	MB	AE891	C5V01	UMA I7 QLDN1.4 HDMI	QLDNE/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL05	SMT	MB	AE891	C5V01	UMA I3 QLYK2.2 HDMI	QLYKE/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL06	SMT	MB	AE891	C5V01	UMA I3-7100 1.4 HDMI	I37100@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL07	SMT	MB	AE891	C5V01	UMA I5 QLYJ2.2 HDMI	QLYJE/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL08	SMT	MB	AE891	C5V01	UMA I5-7200 1.4 HDMI	I57200@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL09	SMT	MB	AE891	C5V01	UMA I7 QLYH2.2 HDMI	QLYHE/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL10	SMT	MB	AE891	C5V01	UMA I7 QLYH2.2 HDMI	I77500@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL11	SMT	MB	AE891	C5V01	UMA I3-7100 2.2 HDMI	I3710022@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL12	SMT	MB	AE891	C5V01	UMA I5-7200 2.2 HDMI	I5720022@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL13	SMT	MB	AE891	C5V01	UMA I7-7500 2.2 HDMI	I7750022@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL14	SMT	MB	AE891	C5V01	UMA I3-7100 U42 HDMI	I3710022@/CMC@/LPC@/UMA@/U42@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL15	SMT	MB	AE891	C5V01	UMA I5 QN5D U42 HDMI	QN5DE/CMC@/LPC@/UMA@/U42@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL16	SMT	MB	AE891	C5V01	UMA I7 QN5C U42 HDMI	QN5CE/CMC@/LPC@/UMA@/U42@/3S@/LDO@/NBVOC@/255@/CHG@/MP@/X4E@/X76M@/DAZE/X76PAR@/C5V01@
431A72BOL51	SMT	MB	AE891	C5V01	UMA I7 QN5C U42 HDMI	SR2UW@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/EAL17PVT@/X4E@/X76M@/EAL17DAZE/X76PAR@/D7W01@/OD
431A72BOL52	SMT	MB	AE891	D7W01	UMA I3-6006 HDMI	I3710022@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/EAL17PVT@/X4E@/X76M@/EAL17DAZE/X76PAR@/D7W01@/OD
431A72BOL53	SMT	MB	AE891	D7W01	UMA I5-7200 HDMI	I5720022@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/EAL17PVT@/X4E@/X76M@/EAL17DAZE/X76PAR@/D7W01@/OD
431A72BOL54	SMT	MB	AE891	D7W01	UMA I7-7500 HDMI	I7750022@/CMC@/LPC@/UMA@/U22@/3S@/LDO@/NBVOC@/255@/CHG@/EAL17PVT@/X4E@/X76M@/EAL17DAZE/X76PAR@/D7W01@/OD
431A72BOL55	SMT	MB	AE891	D7W01	UMA QNBF HDMI	U42I5@/CMC@/LPC@/UMA@/U42@/3S@/LDO@/NBVOC@/255@/CHG@/EAL17PVT@/X4E@/X76M@/EAL17DAZE/X76PAR@/D7W01@/OD
431A72BOL56	SMT	MB	AE891	D7W01	UMA QNBF HDMI	U42I7@/CMC@/LPC@/UMA@/U42@/3S@/LDO@/NBVOC@/255@/CHG@/EAL17PVT@/X4E@/X76M@/EAL17DAZE/X76PAR@/D7W01@/OD

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

Power Plane	Description	S0	S3	S4/S5
+19V_VIN	Adapter power supply	N/A	N/A	N/A
+17.4V_BATT	Battery power supply	N/A	N/A	N/A
+19VB	AC or battery power rail for power circuit.	N/A	N/A	N/A
+VCC_CORE	Processor IA Cores Power Rail	ON	OFF	OFF
+VCC_GT	Processor Graphics Power Rails	ON	OFF	OFF
+VCC_SA	System Agent power rail	ON	OFF	OFF
+0.6VS_VTT	DDR +0.6VS power rail for DDR terminator .	ON	OFF	OFF
+1.0VALW_PRIM	+1.0V Always power rail	ON	ON	ON*1
+1.0V_VCCSTU	Sustain voltage for processor in Standby modes	ON	ON	OFF
+VCCIO	CPU IO power rail	ON	OFF	OFF
+1.0VS_VCCSTG	+1.0VALW_PRIM Gated version of VCCST	ON	OFF	OFF
+1.2V_VDDQ	DDR4 +1.2V Power Rail	ON	ON	OFF
+1.8VALW_PRIM	+1.8V Always power rail	ON	ON	ON*1
+1.8VS	System +1.8V power rail	ON	OFF	OFF
+3VLP	+19VB to +3VLP power rail for suspend power	ON	ON	ON
+3VALW	System +3VALW always on power rail	ON	ON	ON*1
+3VS	System +3V power rail	ON	OFF	OFF
+5VALW	+5V Always power rail	ON	ON	ON
+5VS	System +5V power rail	ON	OFF	OFF
+RTCVCC	RTC Battery Power	ON	ON	ON

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

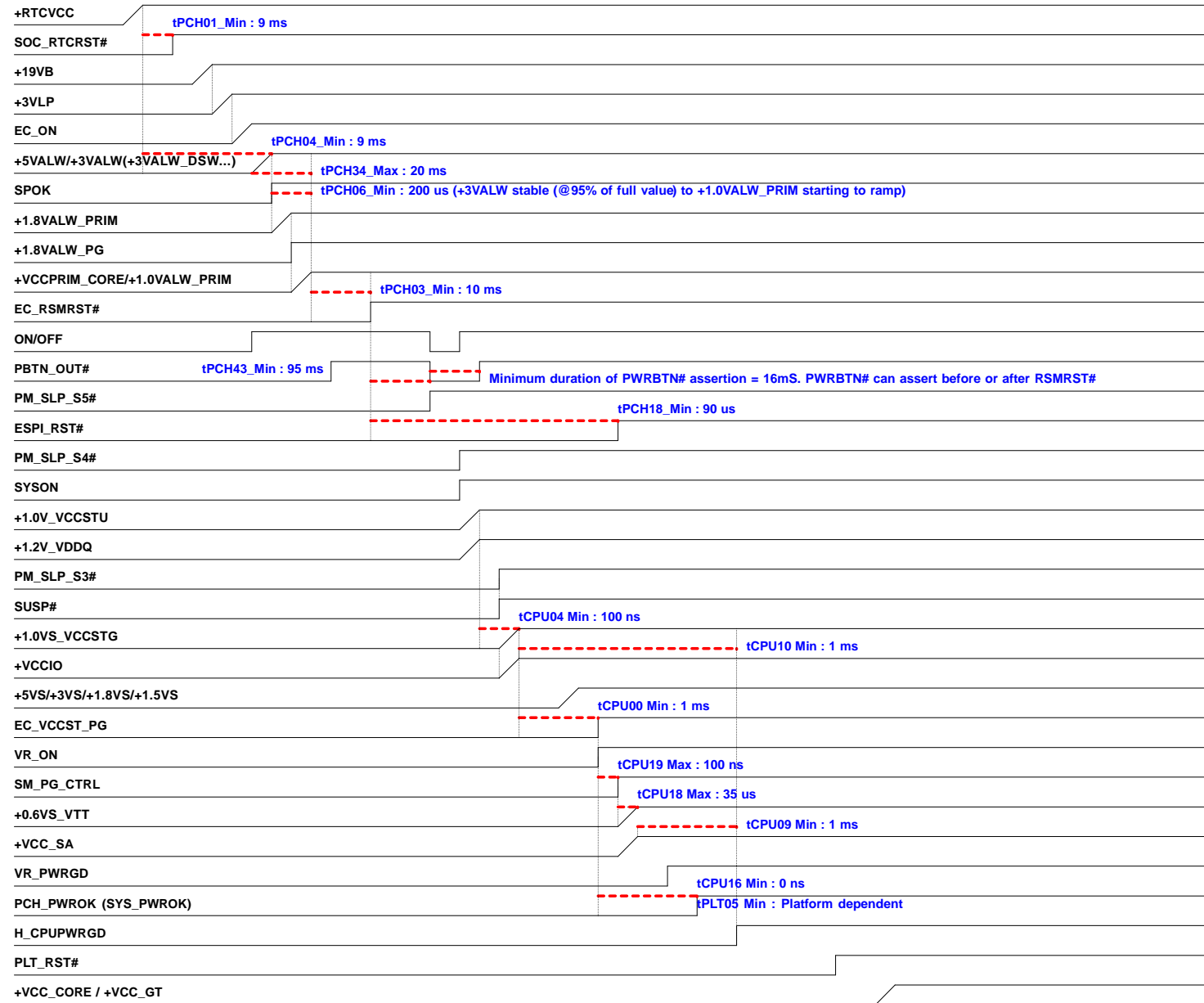


Need check

I2C Address Table

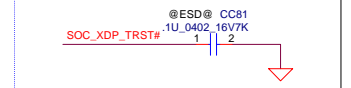
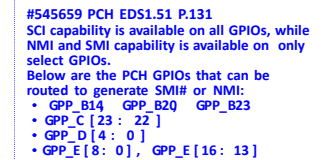
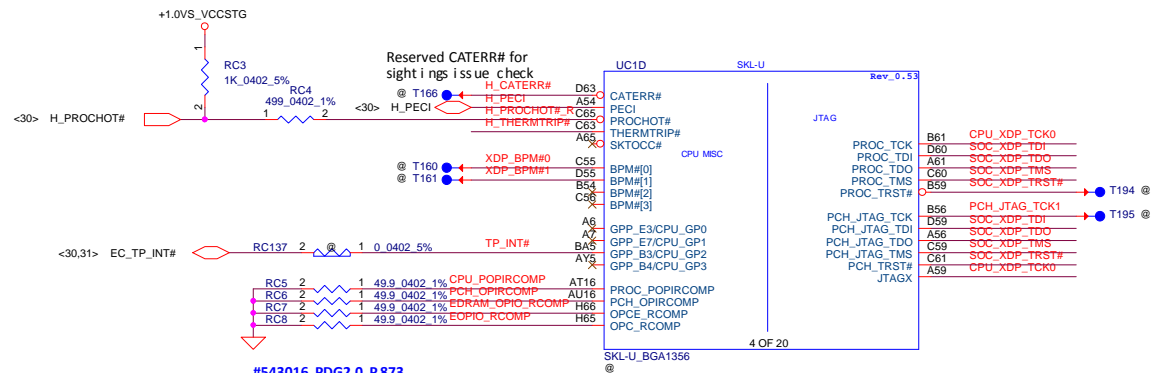
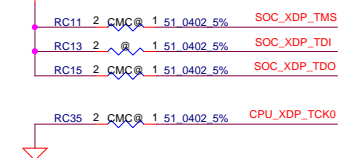
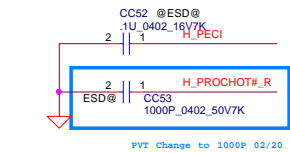
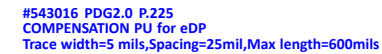
BUS	Device	Address(7 bit)	Address(8bit)	
			Write	Read
I2C_0 (+3VS)	Reserved (Touch Panel)			
I2C_1 (+3VS)	TM-P2969-001 (TP)	0x2C		
	SB8787-1200 (TP-ELAN)	0x15		
SOC_SMBCLK +3VS	DIMM2	0xA4		
SOC_SML1CLK +3VALW_PRIM	PCH-LP (SOC)	0x90		
EC_SMB_CK1 +3VLP	BQ24780 (Charger IC)	0x12		
	BATTERY PACK	0x16		

PWR Sequence_SKL-U2+2_DDR3L_Value_NON CS



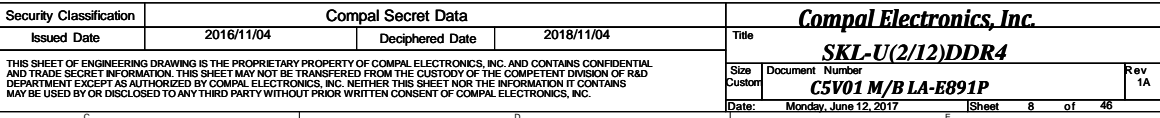
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				Custom	1A
				Document Number	
				C5V01 M/B LA-E891P	
				Date:	Monday, June 12, 2017
				Sheet	6 of 46

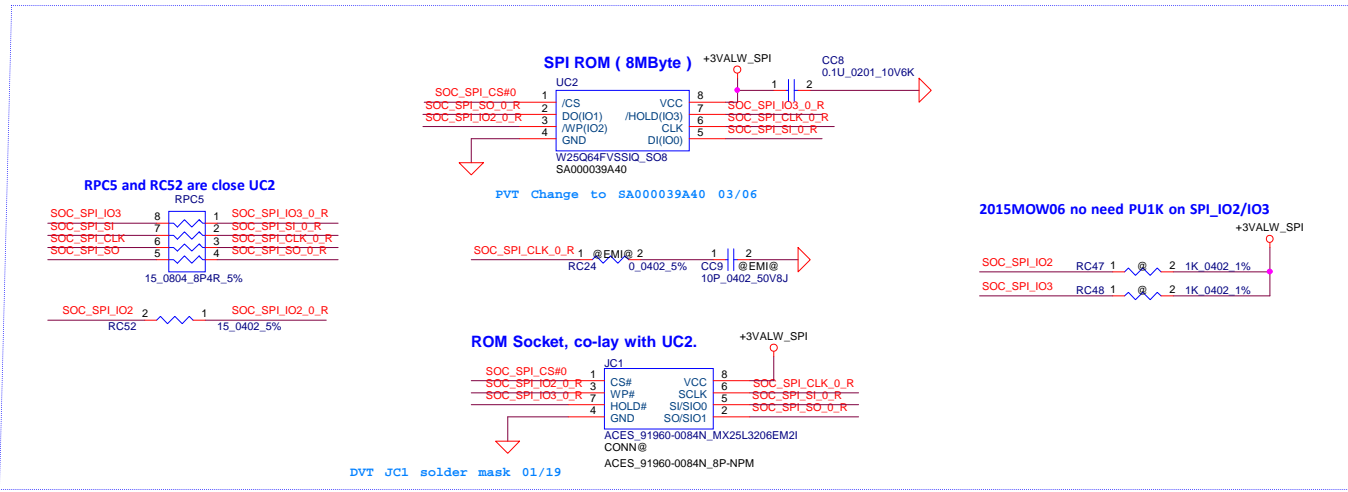
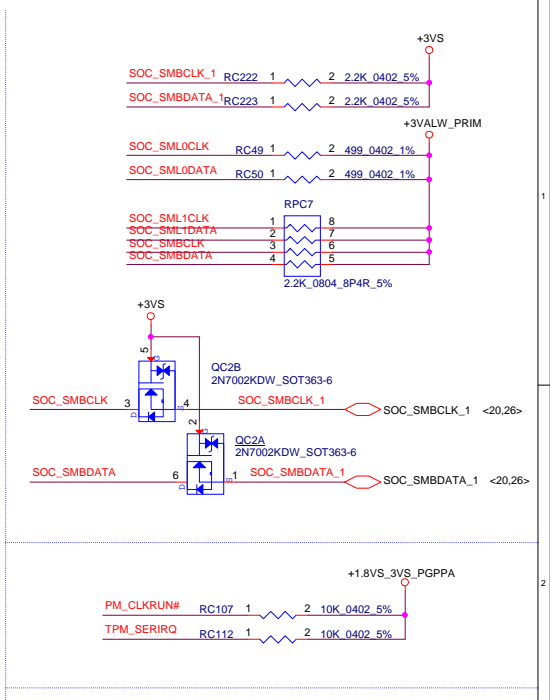
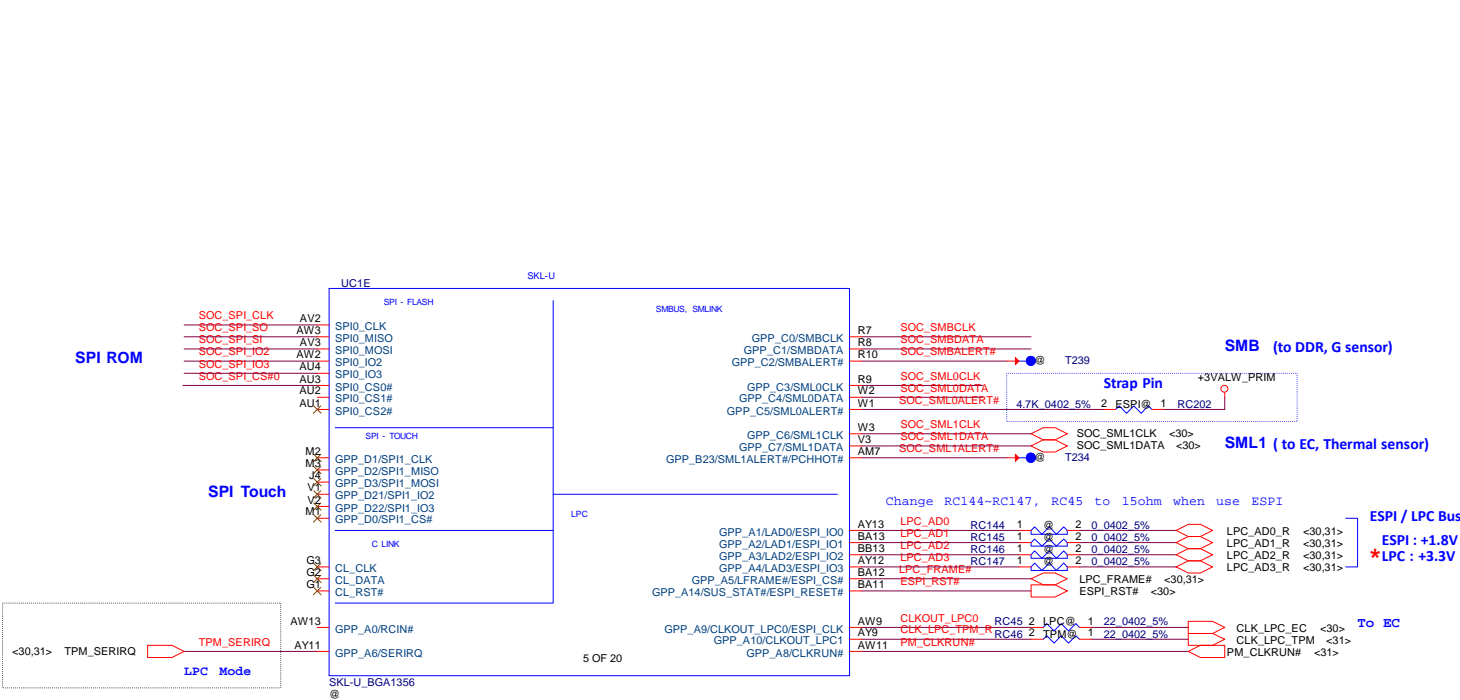
DDPB_CTRLDATA
DDPC_CTRLDATA
Display Port B/C Detected
NC =Port is not detected.
PU =Port is detected.



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				Document	1A
				Custom	
				C5V01 M/B LA-E891P Date: Monday, June 12, 2017	Sheet 7 of 46

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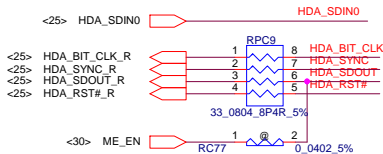
SMLOALERT# / GPP_C5 (Internal Pull Down):
(Sampled: Rising edge of RSMRST#)

eSPI or LPC
* 0 = LPC is selected for EC --> For KB9022/9032 Use
1 = eSPI is selected for EC --> For KB9032 Only.

SMBALERT# / GPP_C2 (Internal Pull Down):
(Sampled: Rising edge of RSMRST#)

TLS Confidentiality
* 0 = Disable Intel ME Crypto Transport Layer Security (TLS) cipher suite (no confidentiality)
1 = Enable Intel ME Crypto (TLS) (with confidentiality).
Must be pulled up to support Intel AMT with TLS and Intel SBA (Small Business Advantage) with TLS.

HDA for AUDIO

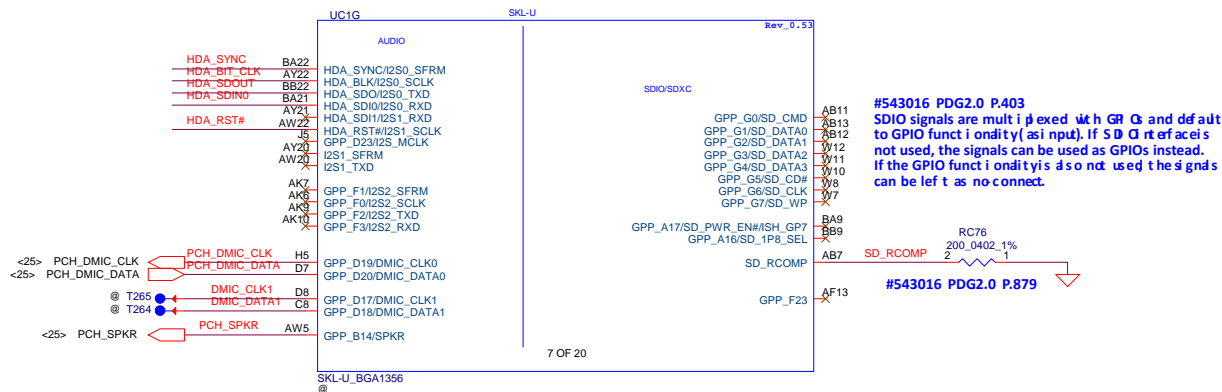


HDA_SDO / I2S_TXD0 (Internal Pull Down):
(Sampled: Rising edge of PCH_PWROK)
Flash Descriptor Security Override
0 = Enable security measures defined in the Flash Descriptor.
1 = Disable Flash Descriptor Security (override). This strap should only be asserted high using external pull-up in manufacturing/debug environments ONLY.

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

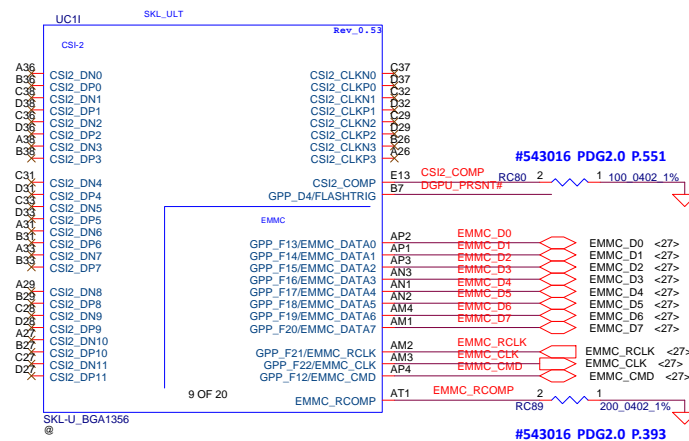
TOP Swap Override
0 = Disable TOP Swap mode.
1 = Enable TOP Swap Mode.

Intel HD Audio link capabilities
> Two SDI signals to support two external codecs.
> Drivers variable frequency (5MHz to 24MHz) BCLK to support:
-- SDO double pumped up to 48 Mb/s
-- SDI'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.



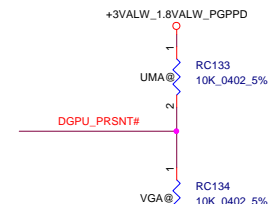
#543016 PDG2.0 P.403
SDIO signals are multiplexed with GPIOs and default to GPIO functionality (as input). If SDIO interfaces are not used, the signals can be used as GPIOs instead. If the GPIO functionality is also not used the signals can be left as no connect.

#543016 PDG2.0 P.879



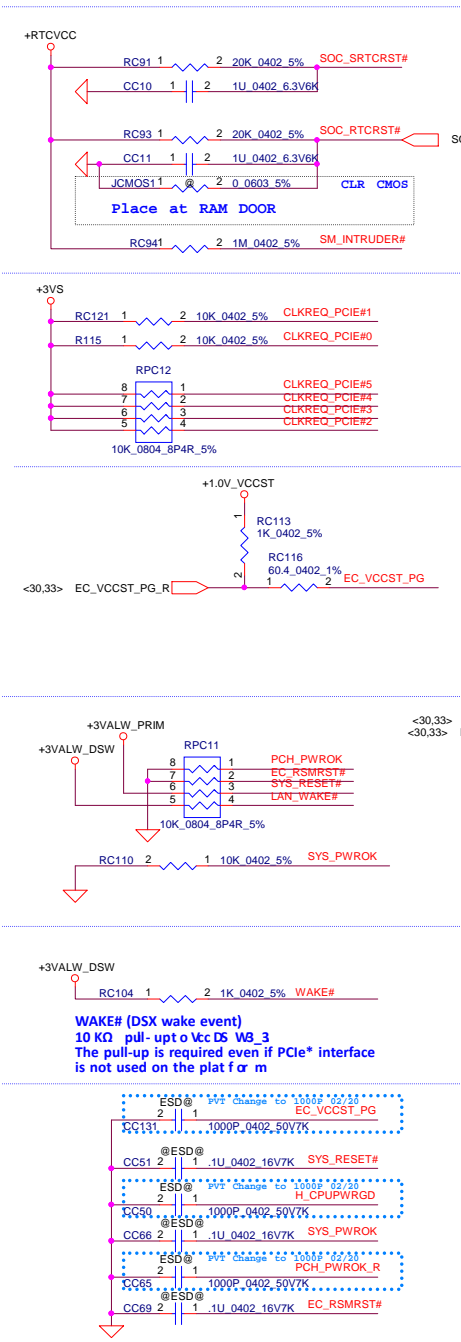
#543016 PDG2.0 P.551

#543016 PDG2.0 P.393



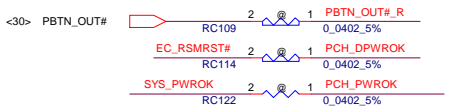
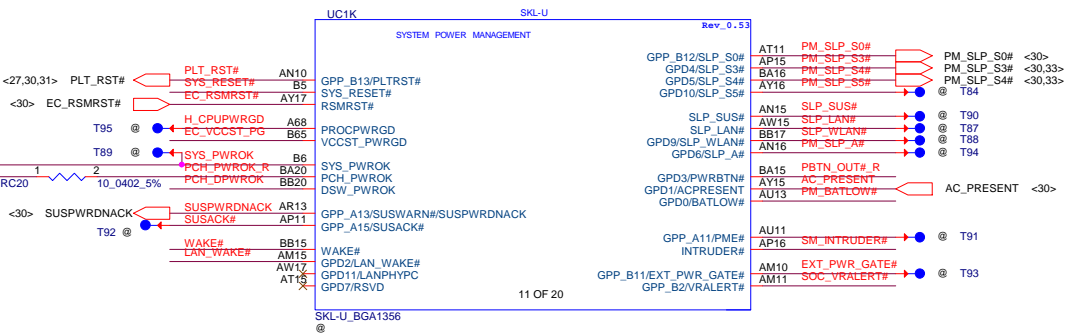
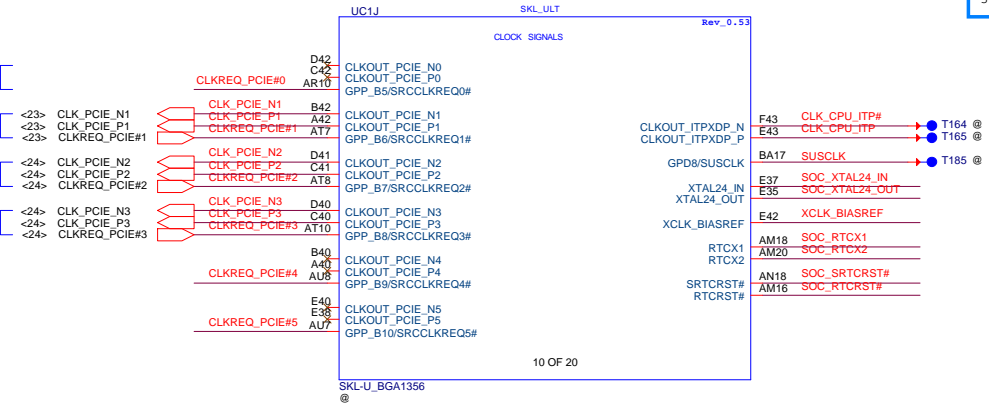
	GPIO67 DGPU_PRNT#
DIS,Optimus	0
UMA	1

Security Classification				Compal Secret Data				Compal Electronics, Inc.			
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				Custom				CSV01 M/B LA-E891P			
				Date:				Monday, June 12, 2017			
								Sheet 10 of 46			
								Rev 1A			

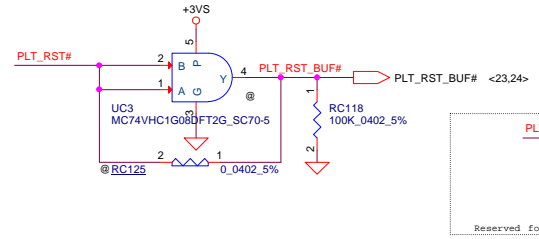


#543016 PDG2.0 P.599
PROCWPRGD is used only for power sequence debug and is not required to be connected to anything on the plat f or m

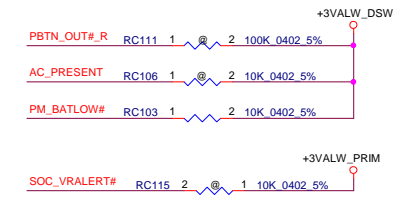
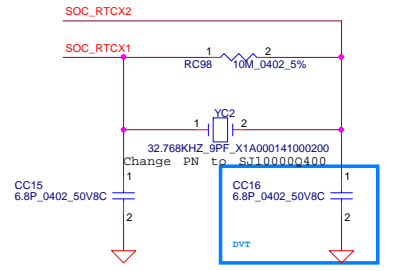
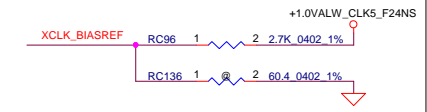
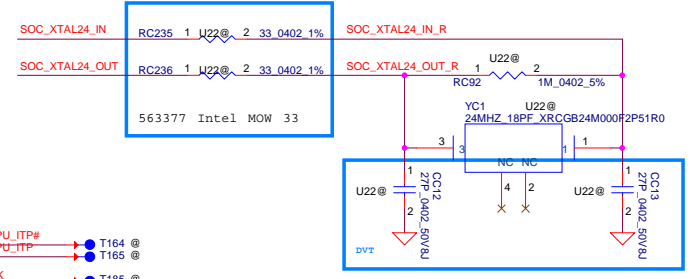
GLAN
WLAN



PCH PLTRST Buffer



Pre-MP change to 33 ohm 03/28



Security Classification		Compal Secret Data		Title	
Issued Date	2016/11/04	Deciphered Date	2018/11/04	Document Number	SKL-U(S/12)CLK,GPIO
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				Date: Monday, June 12, 2017	Rev 1A
				Sheet 11 of 46	

Functional Strap Definitions

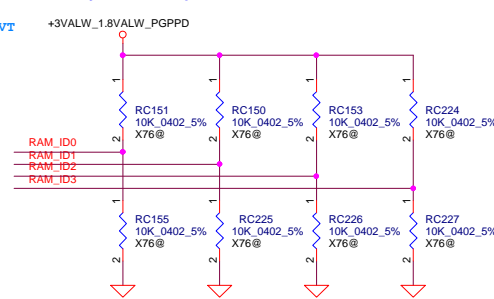
GSPI0_MOSI /GPP_B18 (Internal Pull Down):
(Rising edge of PCH_PWROK)
No Reboot

- *0 = Disable No Reboot mode. --> AAX05 Use
1 = Enable No Reboot mode. (PCH will disable the TCO
Timer system reboot feature). This function is useful
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

Memory Down Strap



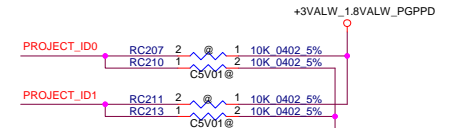
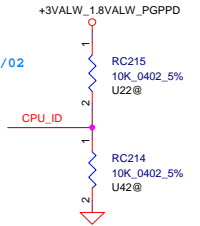
ZZZ	Hynix4GB
X76M01@	X76731BOL01
ZZZ	Samsung4GB
X76M02@	X76731BOL02
ZZZ	Micron4GB
X76M03@	X76731BOL03

	RAM_ID3	RAM_ID2	*RAM_ID1	*RAM_ID0	PartNumber - Description
Hynix 4Gb	0	0	0	0	SA0000A1H20 (\$ IC D4 512M16 H5AN8G6NAFR-UHC FBGA ABOI)
Micron 4Gb	0	0	0	1	SA00009V220 (\$ IC D4 512M16 MT40A512M16Y-083E-B ABOI)
Samsung 4Gb	0	0	1	0	SA00009U420 (\$ IC D4 512M16 K4A8G165WB-BCRC FBGA 96P ABO I)
No on board memory	1	1	1	1	

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						Size		Document Number		Rev 1A	
						Custom		C5V01 M/B LA-E891P			
Date:						Monday, June 12, 2017		Sheet 12 of 46			

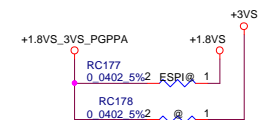
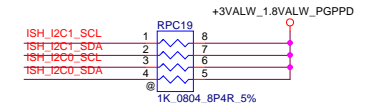
PVT identify U22 , U42 CPU 03/02

	CPU_ID
U22	1
U42	0



D7W01@ RC207 10K_0402_5% SD028100280
D7W01@ RC213 10K_0402_5% SD028100280
Add D7W01 Project ID setting

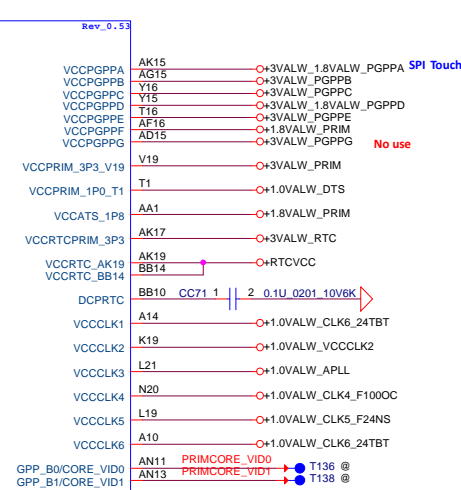
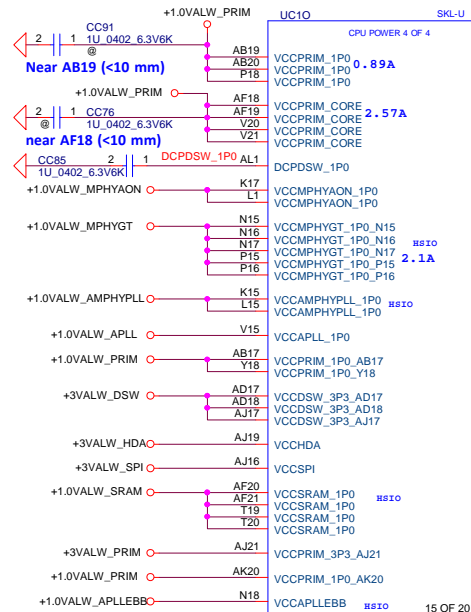
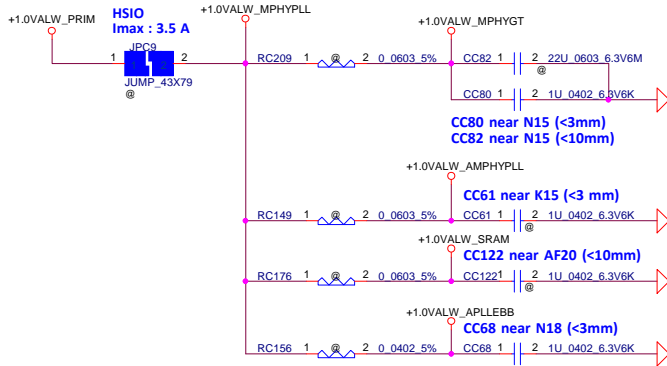
Project ID	Project_ID1 GPP_D12	Project_ID0 GPP_D11
* C5V01	0	0
D7W01	0	1
Reserved	1	0
Reserved	1	1



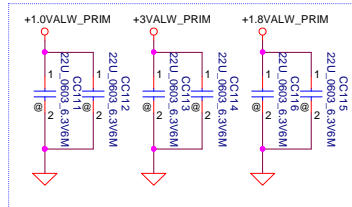


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#543016 PDG2.0 P.764



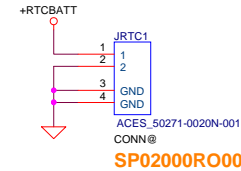
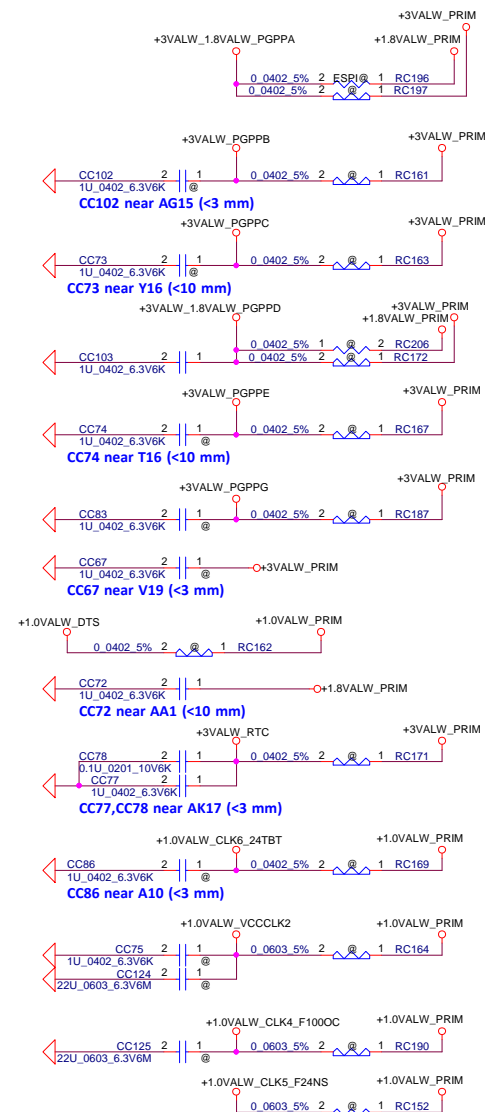
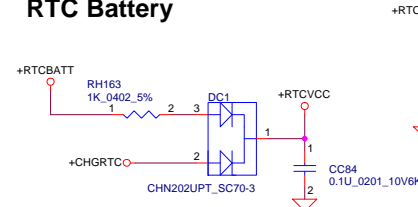
#543016 PDG2.0 P.758



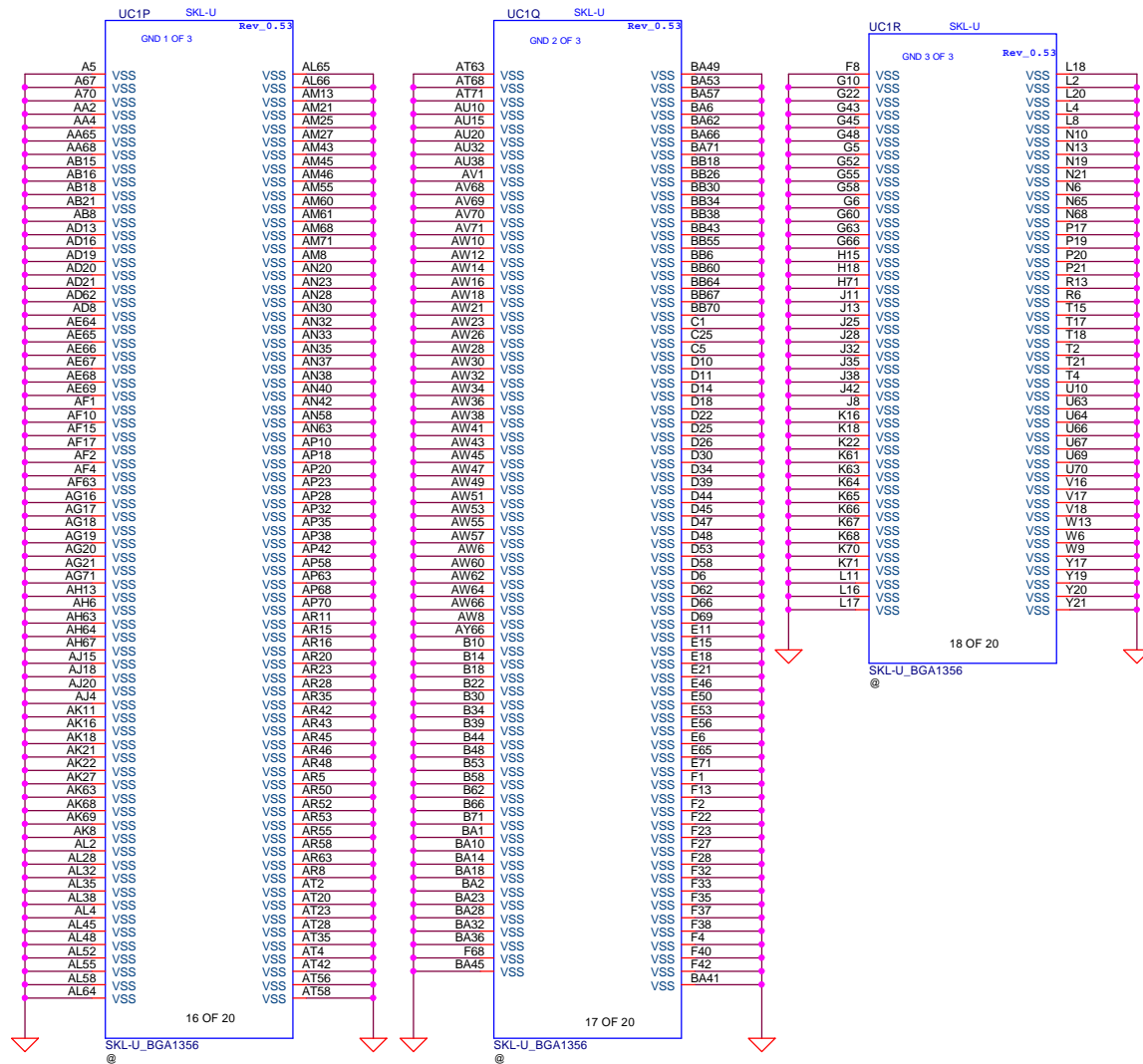
#543016 PDG2.0 P.470
VCCRTC does not exceed 3.2 V.

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

RTC Battery

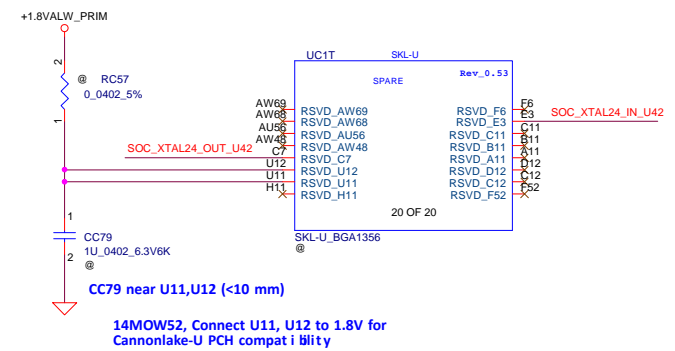
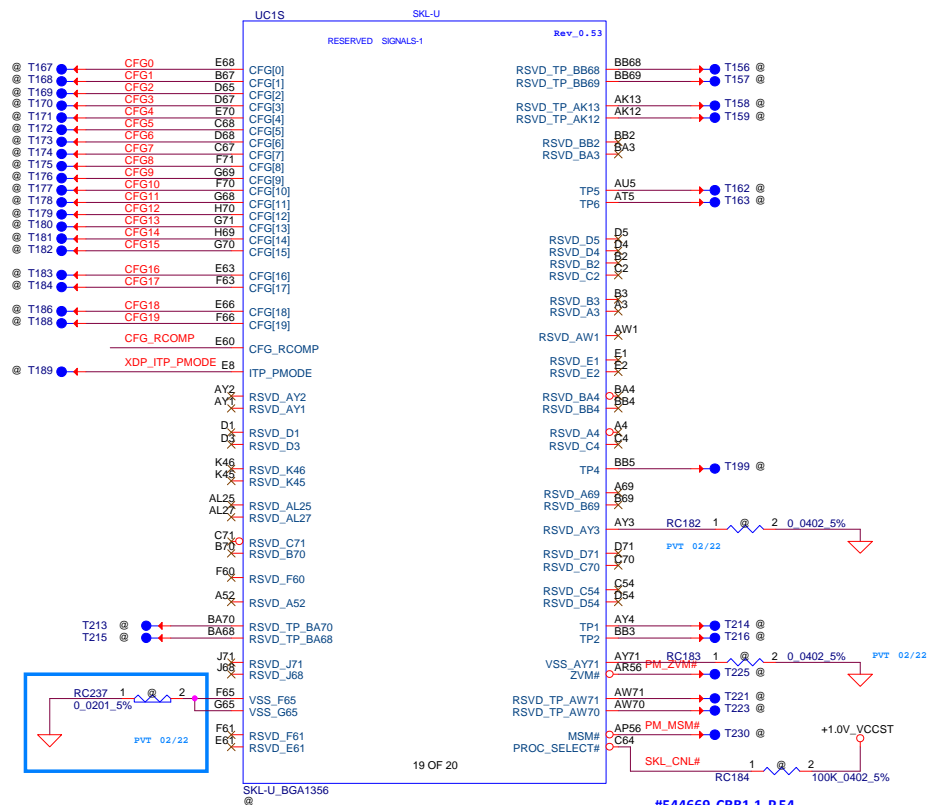


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				C5V01 M/B LA-E891P		
				Date: Monday, June 12, 2017		



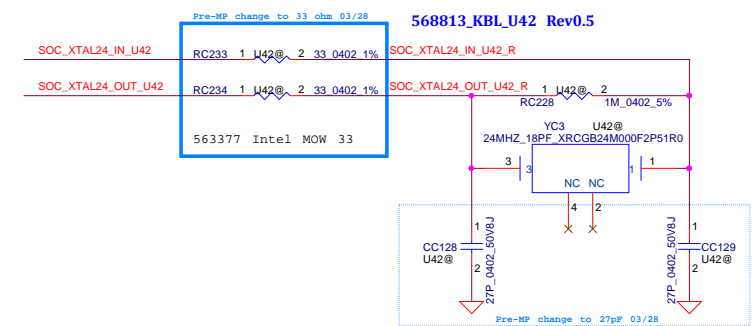
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Issued Date		2016/11/04		Deciphered Date		2018/11/04		Title			
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						Size		Document Number		Rev	
						Custom		C5V01 M/B LA-E891P		1A	
Date:						Monday, June 12, 2017		Sheet 17 of 46			

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

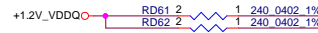
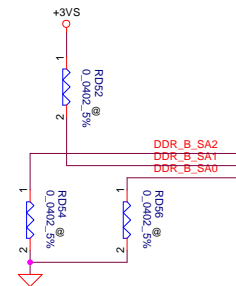


For 2+3e Solution
PM_ZVM#
Zero Voltage Mode: Control Signal to OPC VR, when low OPC VR output is 0V.
PM_MSM#
Minimum Speed Mode: Control signal to VccOPIO VR (connected only in 2 VR solution for OPC).

#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 to the processor.



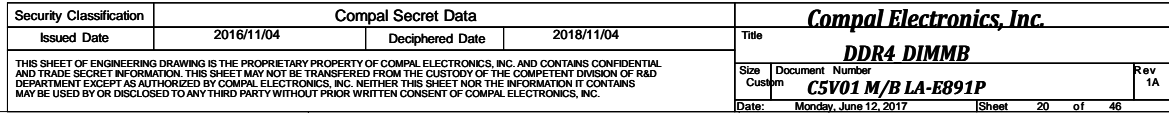
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				Date: Monday, June 12, 2017	Rev 1A



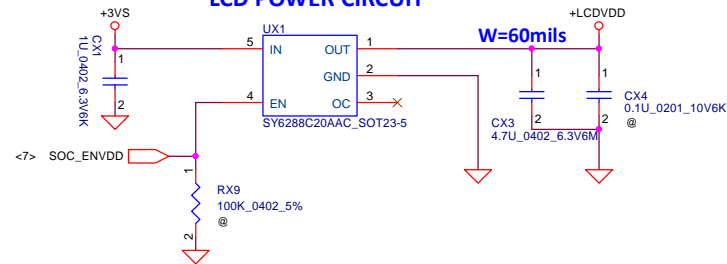
Layout Note:
Place near JDIMM2.255



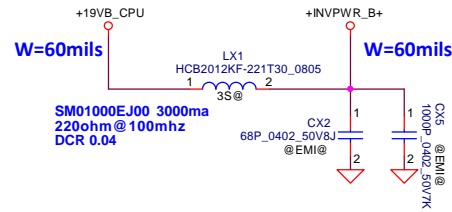
Layout Note:
Place near JDIMM1.258



LCD POWER CIRCUIT

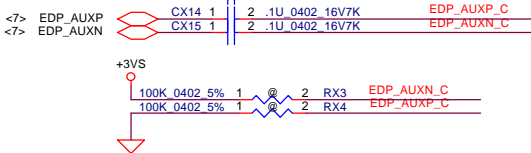
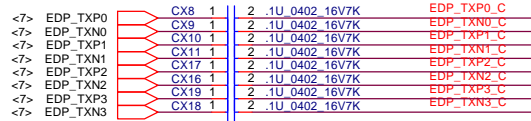
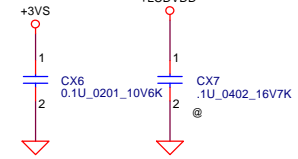


LX1.1 change to +19VB_CPU for layout routing request

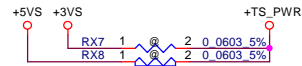


Note: Unmount LX1 when panel boost circuit was use. (2S battery cell)

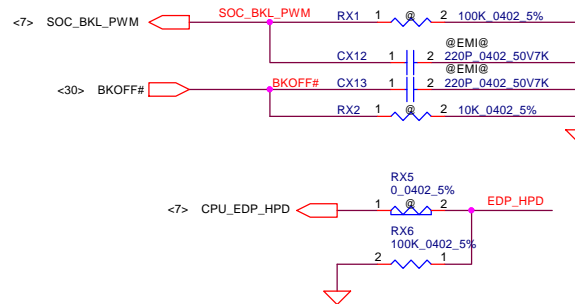
Place closed to JEDP1



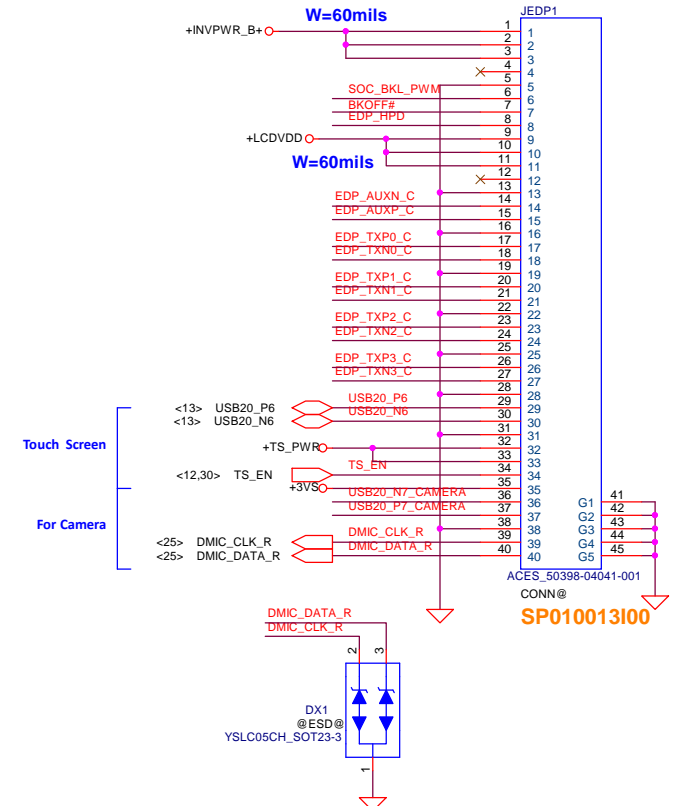
Touch Screen



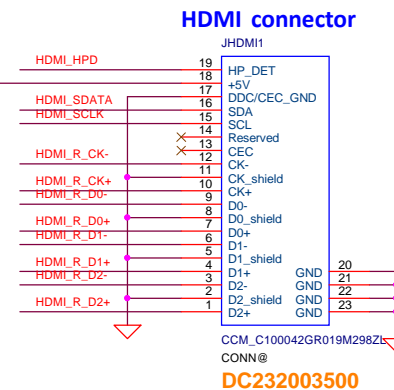
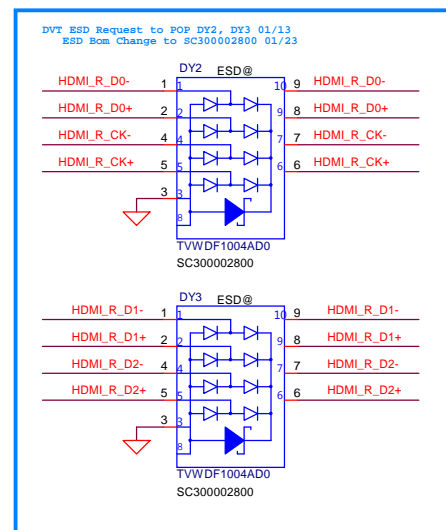
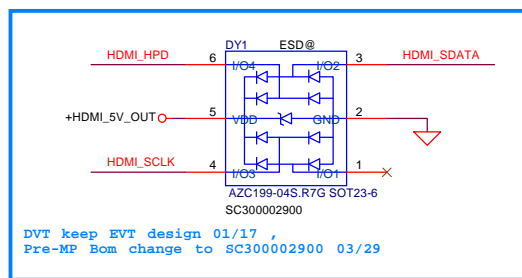
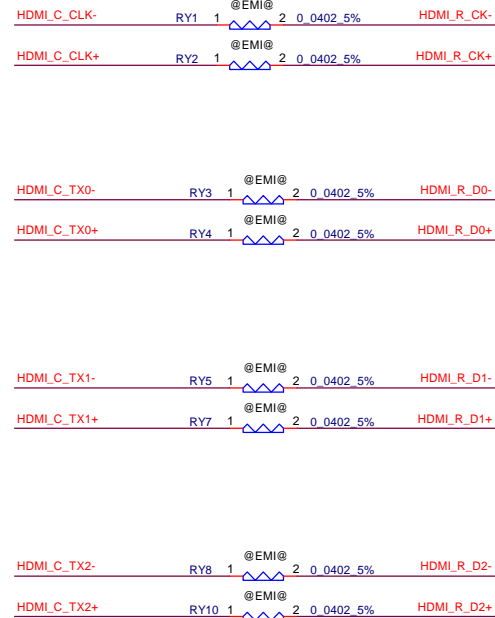
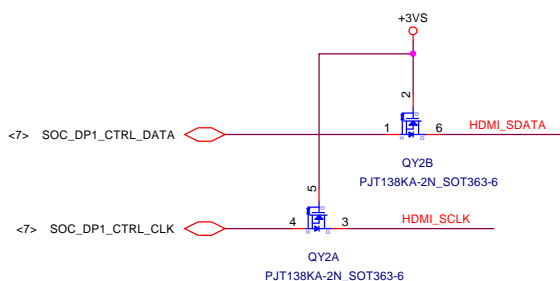
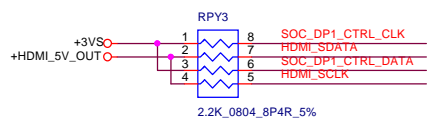
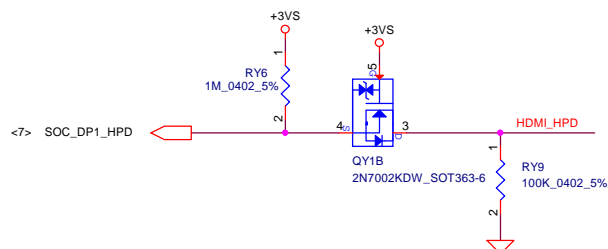
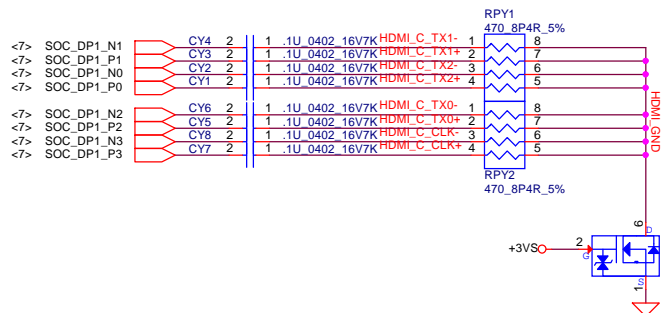
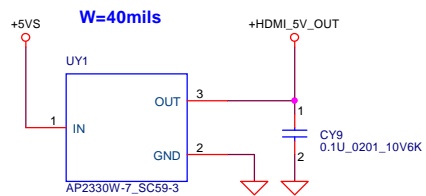
Camera



LED PANEL Conn.



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				Size Custom	Document Number	Rev 1A
				C5V01 M/B LA-E891P		
				Date: Monday, June 12, 2017	Sheet 21 of 46	

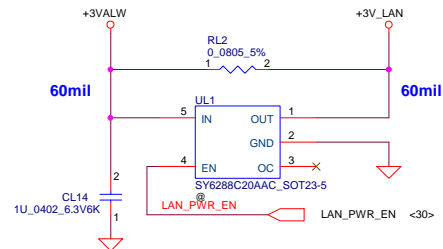


Intel spec Ron/Cout : 3ohm/10pF.
SB000016K00, S TR PJT138KA 2N SOT363-6

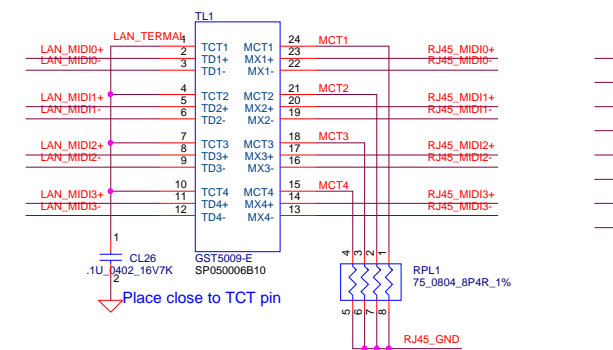
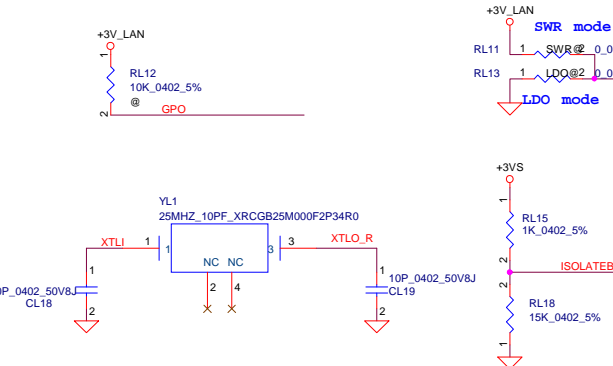
Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date				2016/11/04				Deciphered Date			
2016/11/04				2018/11/04				Title			
2018/11/04				HDMI CONN.				Size			
Document Number				C5V01 M/B LA-E891P				Rev			
1A				Date: Monday, June 12, 2017				Sheet 22 of 46			

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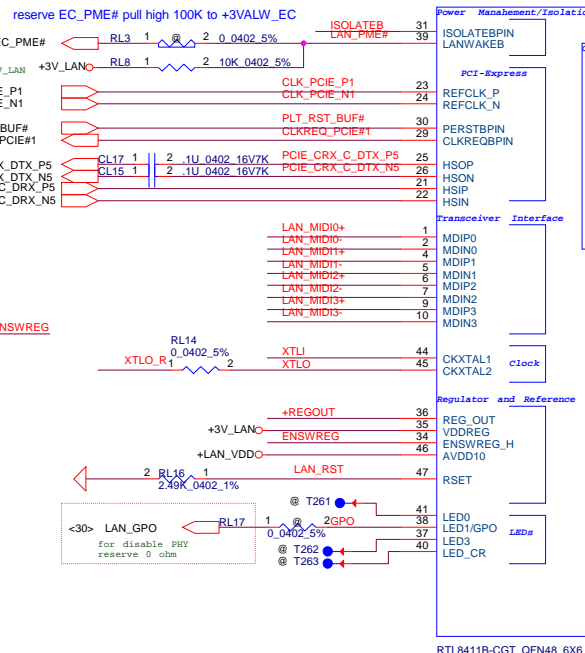
LAN-RTL8411B



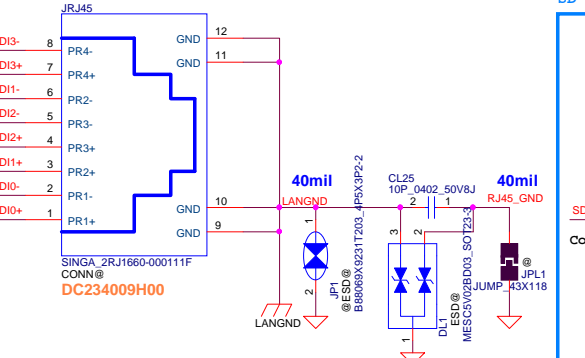
From EC
High active.
EN threshold voltage min:1.2V
typ:1.6V max:2.0V
Current limit threshold 1.5-2.8A
+3V_LAN Rising time must >0.5ms and <100ms



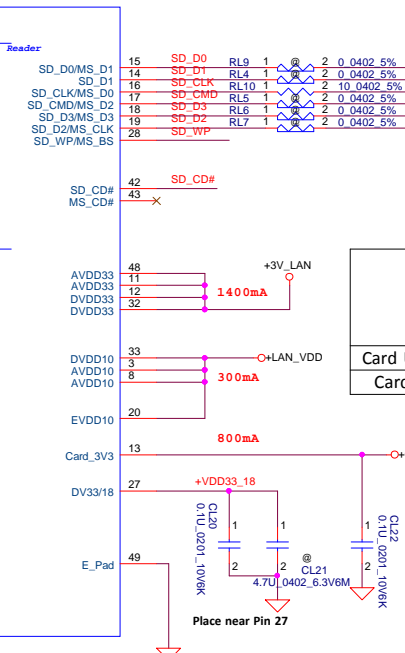
Place close to TCT pin



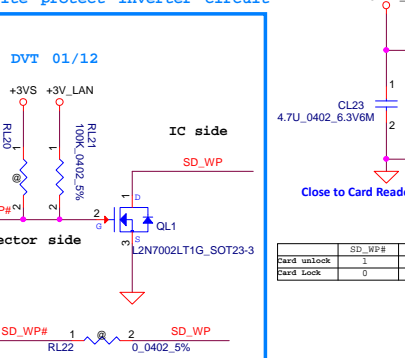
LAN Connector



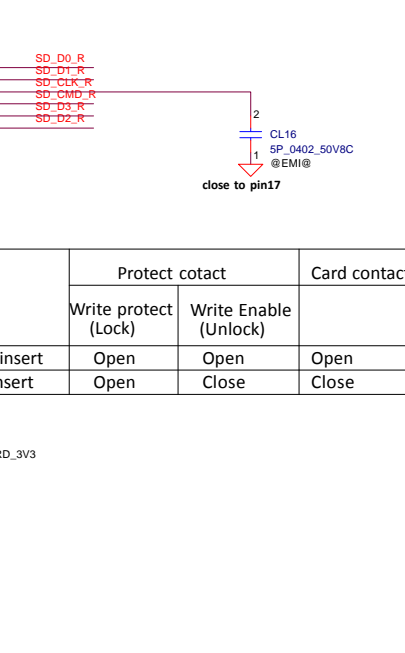
DC234009H00



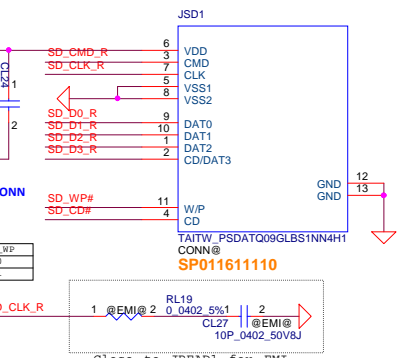
SD Write protect inverter circuit



Close to Card Reader CONN



Card Reader Connector



Close to JREAD1 for EMI

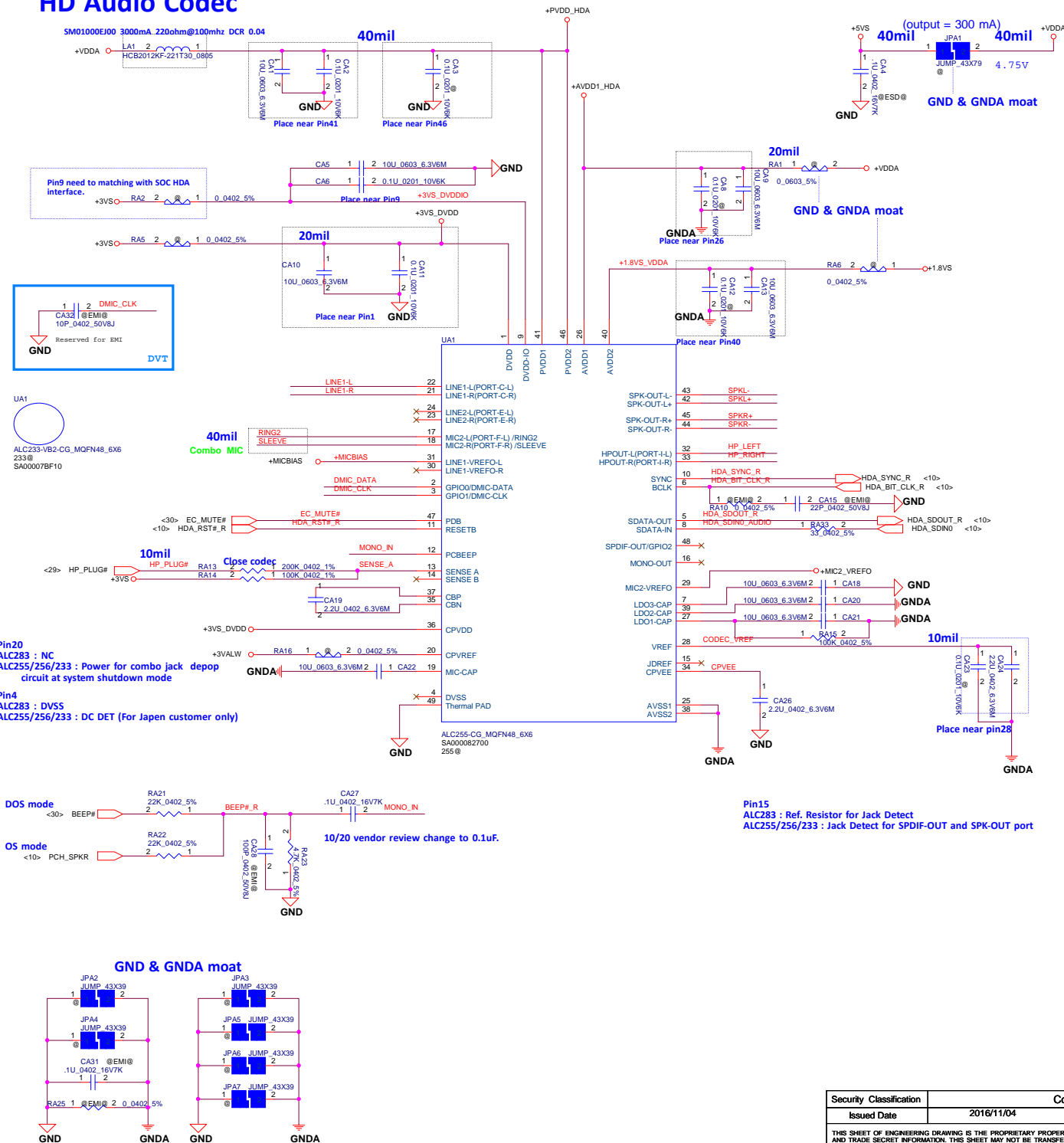
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Issued Date				2016/11/04				Title			
Deciphered Date				2018/11/04				LAN RTL8411B			
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Date: Monday, June 12, 2017				Sheet				23 of 46			

Wireless LAN

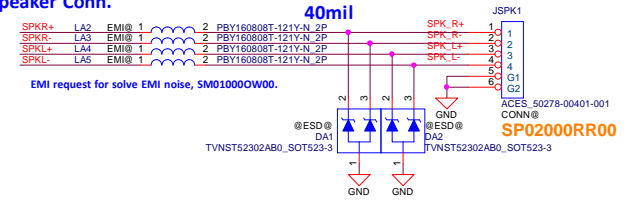
NGFF WL+BT (KEY E)

74	U1A	U1A	75
76	U1B	U1B	77
78	U1C	U1C	79
80	U1D	U1D	81
82	U1E	U1E	83
84	U1F	U1F	85
86	U1G	U1G	87
88	U1H	U1H	89
90	U1I	U1I	91
92	U1J	U1J	93
94	U1K	U1K	95
96	U1L	U1L	97
98	U1M	U1M	99
100	U1N	U1N	101
102	U1O	U1O	103
104	U1P	U1P	105
106	U1Q	U1Q	107
108	U1R	U1R	109
110	U1S	U1S	111
112	U1T	U1T	113
114	U1U	U1U	115
116	U1V	U1V	117
118	U1W	U1W	119
120	U1X	U1X	121
122	U1Y	U1Y	123
124	U1Z	U1Z	125
126	U2A	U2A	127
128	U2B	U2B	129
130	U2C	U2C	131
132	U2D	U2D	133
134	U2E	U2E	135
136	U2F	U2F	137
138	U2G	U2G	139
140	U2H	U2H	141
142	U2I	U2I	143
144	U2J	U2J	145
146	U2K	U2K	147
148	U2L	U2L	149
150	U2M	U2M	151
152	U2N	U2N	153
154	U2O	U2O	155
156	U2P	U2P	157
158	U2Q	U2Q	159
160	U2R	U2R	161
162	U2S	U2S	163
164	U2T	U2T	165
166	U2U	U2U	167
168	U2V	U2V	169
170	U2W	U2W	171
172	U2X	U2X	173
174	U2Y	U2Y	175
176	U2Z	U2Z	177
178	U3A	U3A	179
180	U3B	U3B	181
182	U3C	U3C	183
184	U3D	U3D	185
186	U3E	U3E	187
188	U3F	U3F	189
190	U3G	U3G	191
192	U3H	U3H	193
194	U3I	U3I	195
196	U3J	U3J	197
198	U3K	U3K	199
200	U3L	U3L	201
202	U3M	U3M	203
204	U3N	U3N	205
206	U3O	U3O	207
208	U3P	U3P	209
210	U3Q	U3Q	211
212	U3R	U3R	213
214	U3S	U3S	215
216	U3T	U3T	217
218	U3U	U3U	219
220	U3V	U3V	221
222	U3W	U3W	223
224	U3X	U3X	225
226	U3Y	U3Y	227
228	U3Z	U3Z	229
230	U4A	U4A	231
232	U4B	U4B	233
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236	U4D	U4D	237
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250	U4K	U4K	251
252	U4L	U4L	253
254	U4M	U4M	255
256	U4N	U4N	257
258	U4O	U4O	259
260	U4P	U4P	261
262	U4Q	U4Q	263
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274	U4W	U4W	275
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746	U3Y	U3Y	747
748	U3Z	U3Z	749
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756	U4D	U4D	7

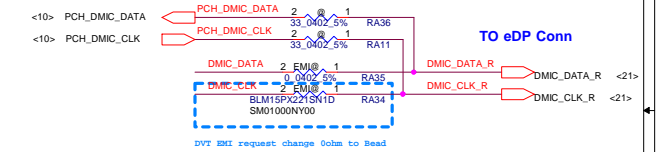
HD Audio Codec



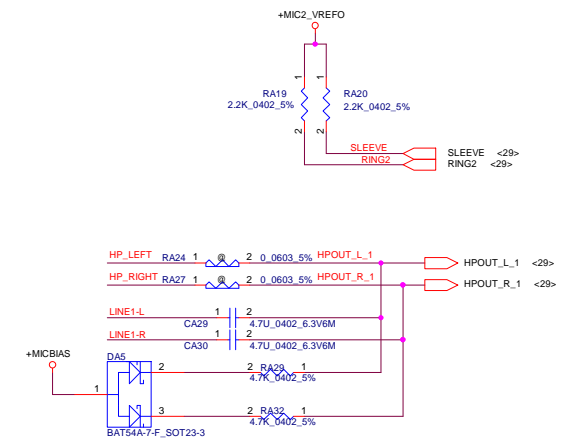
Int. Speaker Conn.



Digital MIC



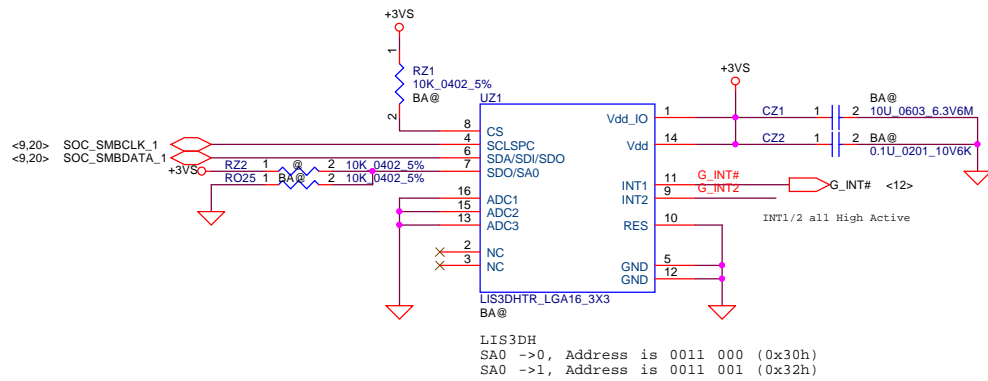
Headphone Out



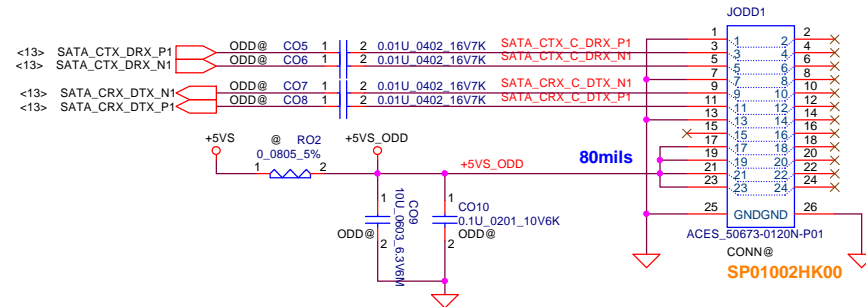
Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date		2016/11/04		Deciphered Date		2018/11/04		Title		HD Audio Codec ALC255/ALC233 Colay	
Size		Document Number		Customer		CSV01 M/B LA-E891P		Rev		1A	
Date:		Monday, June 12, 2017		Sheet		25		of		46	

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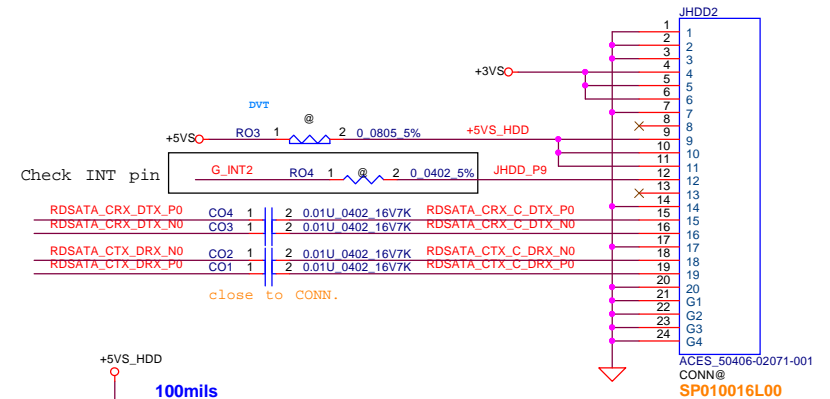
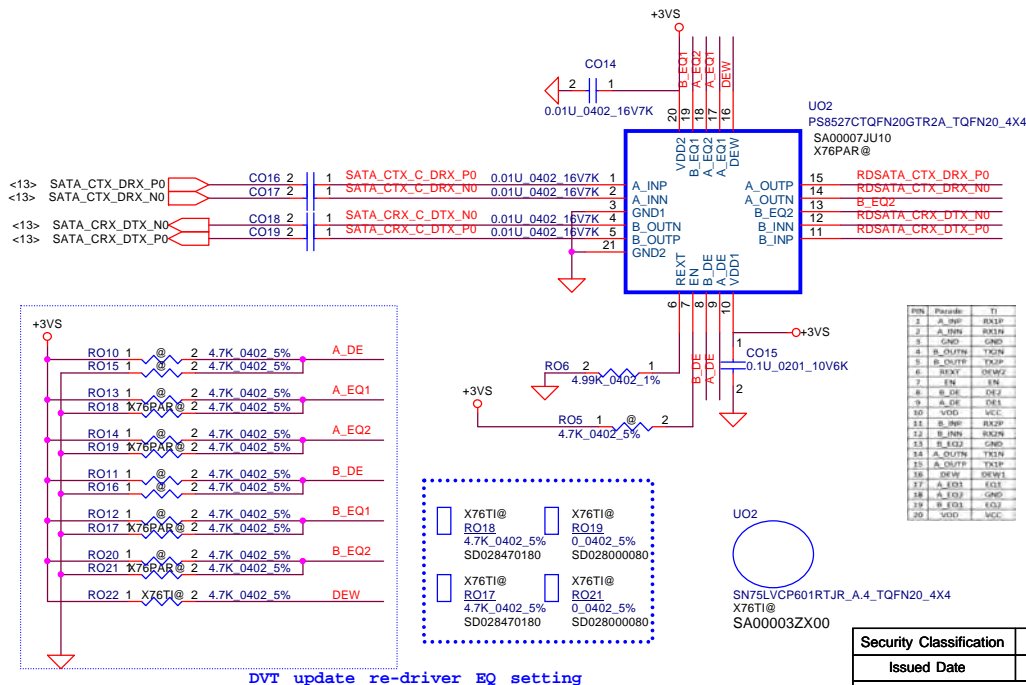
G-Sensor reserved for BA serial



SATA ODD Conn. (Reserved)

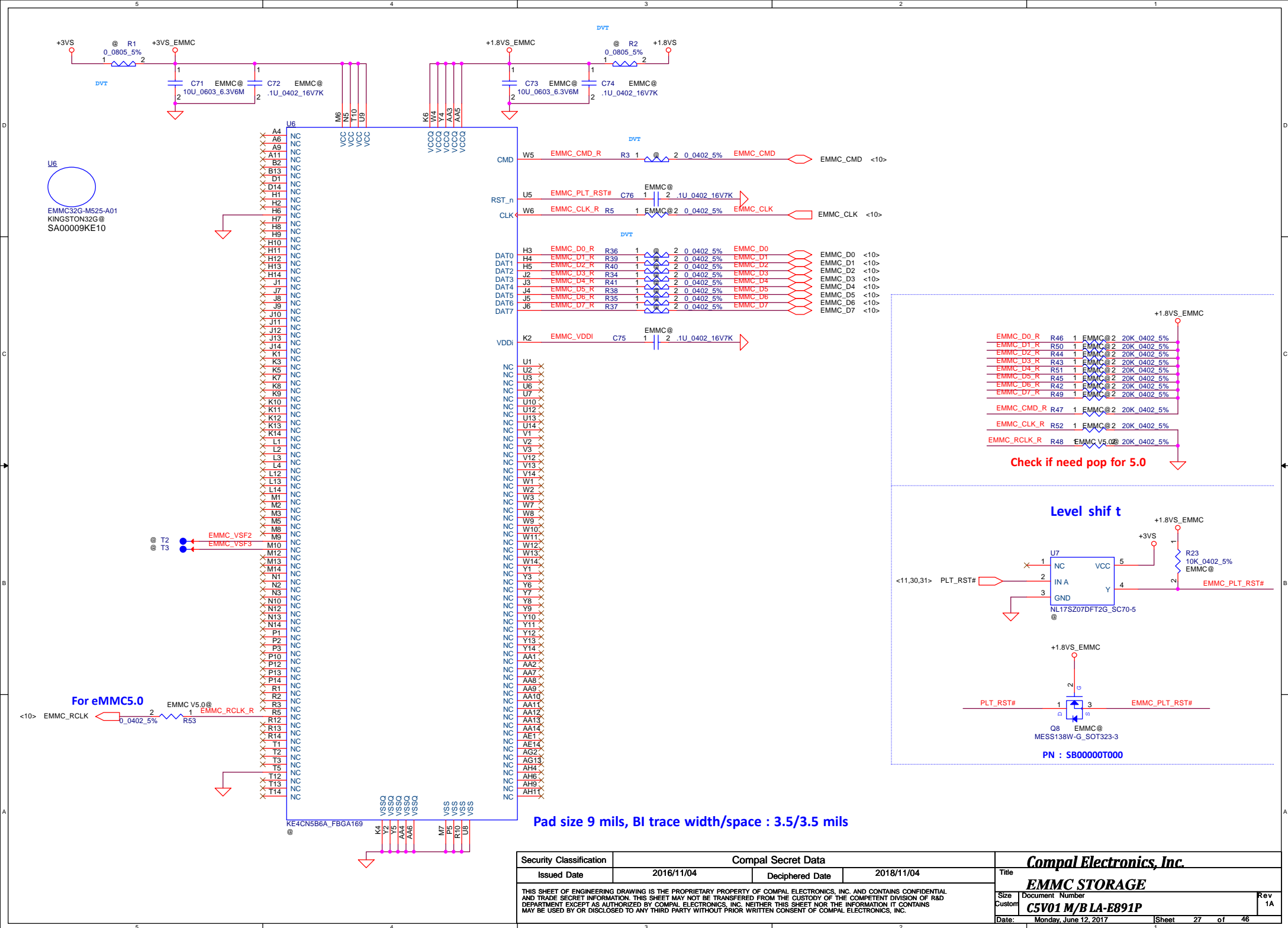


SATA Re-Driver and cable HDD Conn.

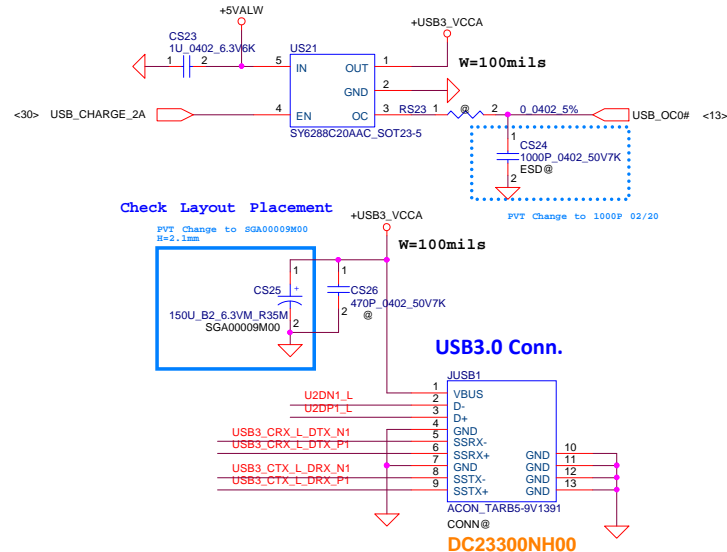
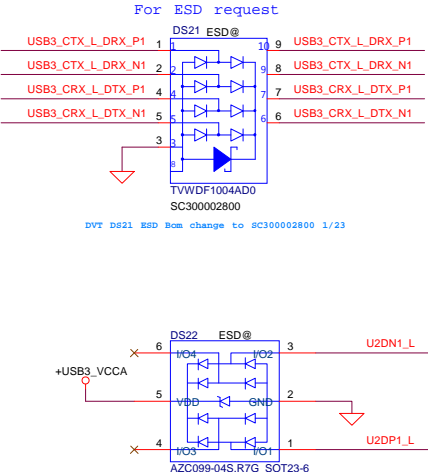
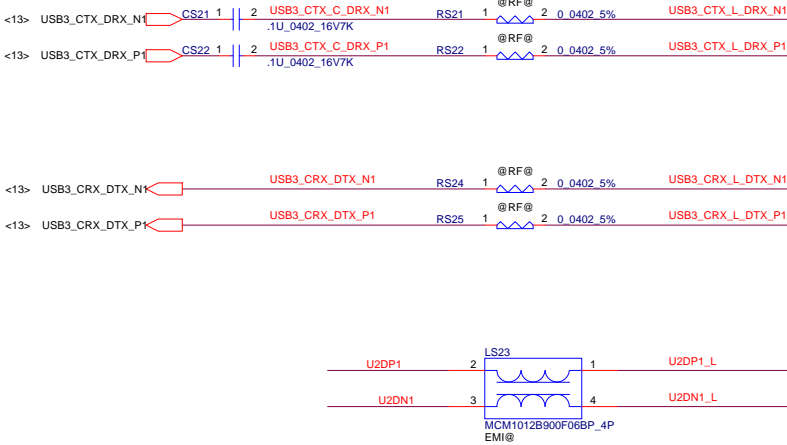


Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date		2016/11/04		Deciphered Date		2018/11/04		Title		HDD/ODD/ HDD Re-Driver	
Size		Document Number		Date		Monday, June 12, 2017		Sheet		26 of 46	
Custom		C5V01 M/B LA-E891P		Rev		1A					

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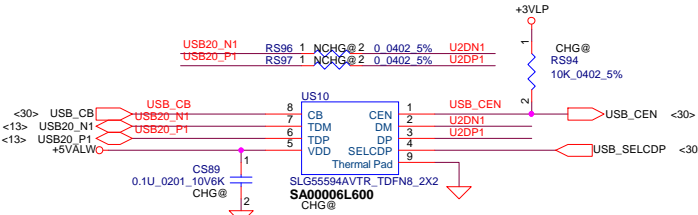


USB3.0 (Port 1)

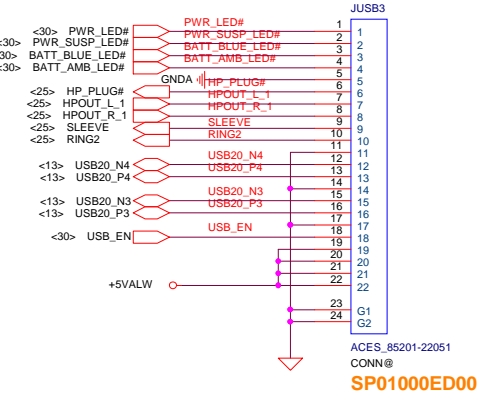


USB Host Charger

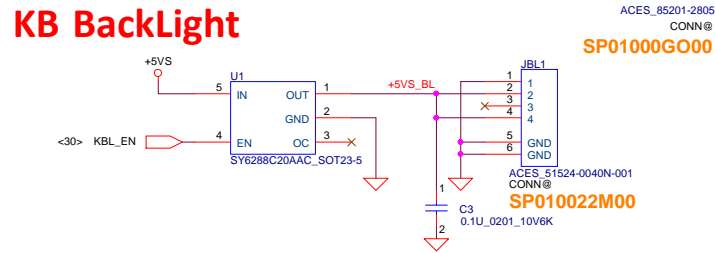
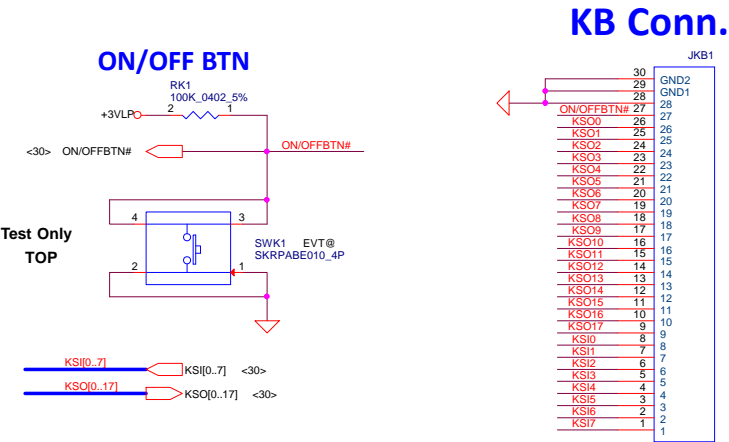
CB	SELCDP	
0	X	DCP(Dedicated Charging Port) autotetect with mouse/keyboard wakeup
1	0	S0 charging with SDP(Standard Downstream Port) only
1	1	S0 charging with CDP(Charging Downstream Port) or SDP only



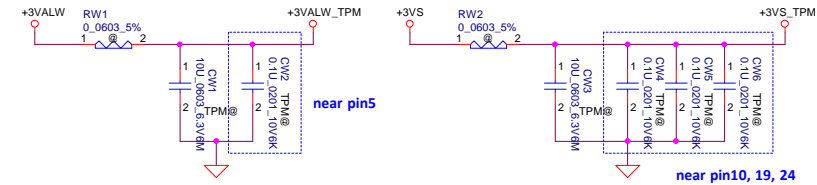
USB/B (USBx2, AUDIO, LEDx2)



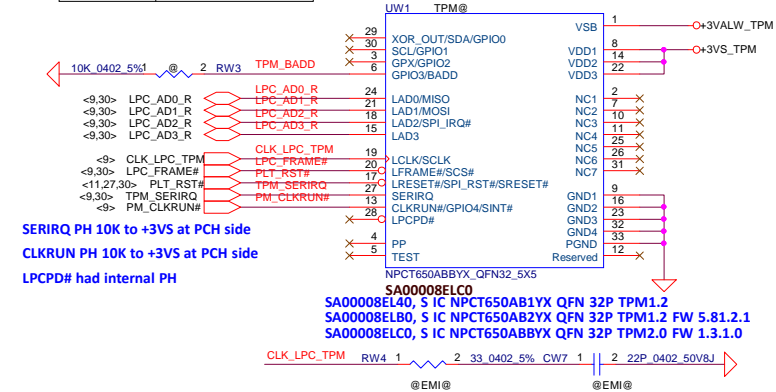




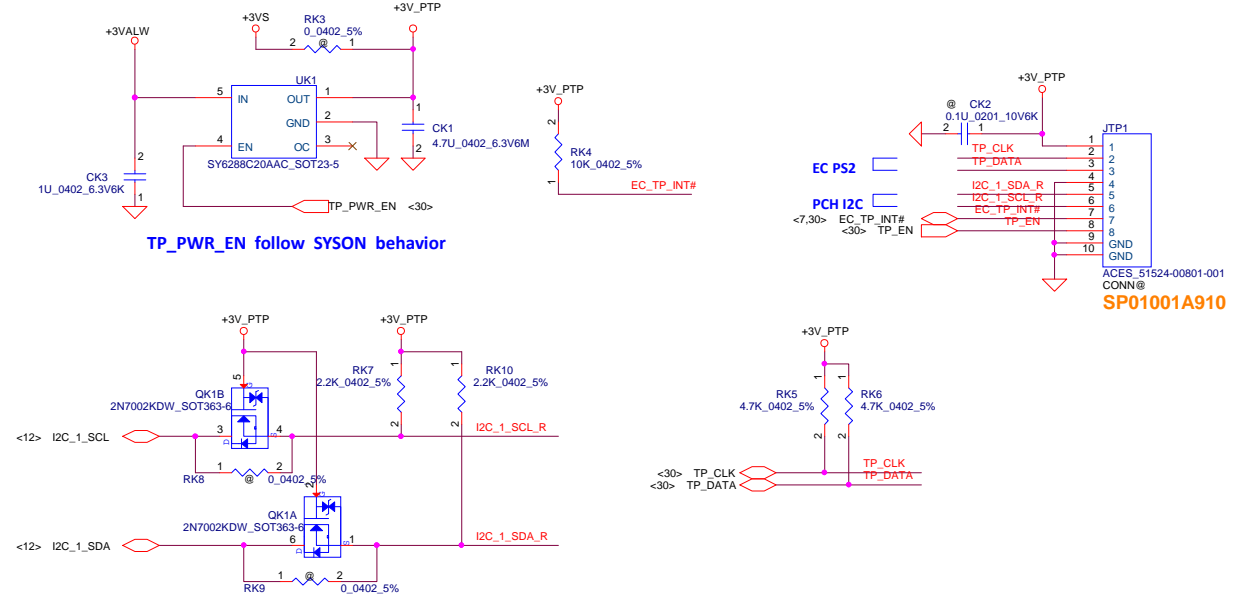
TPM



BADD	SELECTION
* 1	AEh(write), AFh(read)

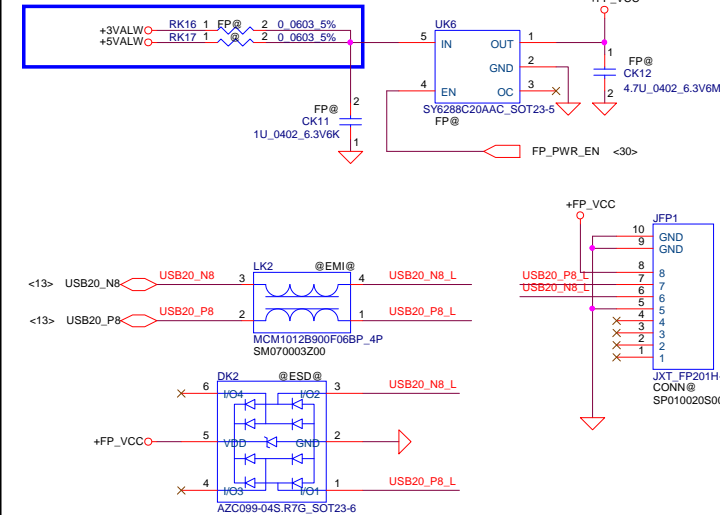


TP/B Conn.



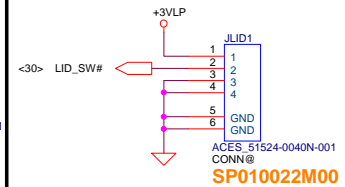
Finger Print

Power Souce Check
EGIS ETU801 +FP_VCC=5V
ELAN SA464K-2200 +FP_VCC=3.3V



Lid Switch

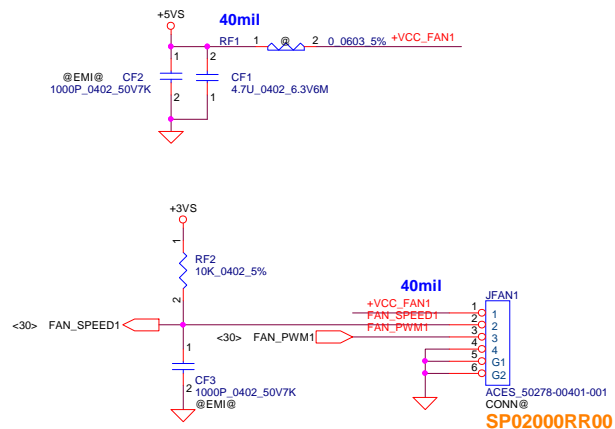
(Hall Effect Switch)



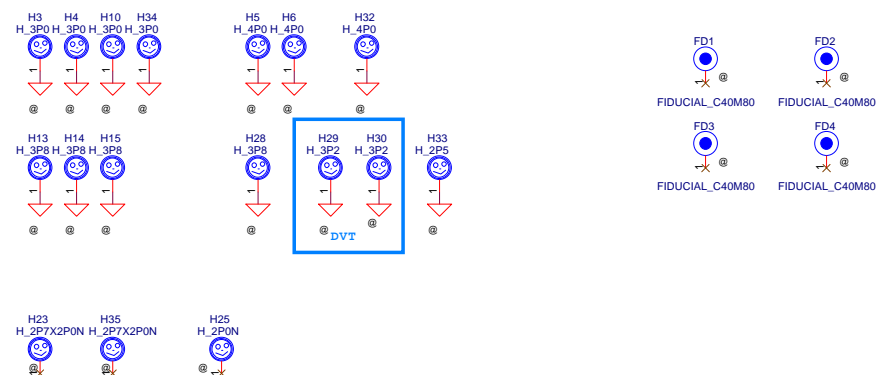
PIN	ETU801	SA464K-2200
1	+FP_VCC (5V)	+FP_VCC (3V)
2	USBP	D+
3	USBN	D-
4	GND	GND
5	NC	NC
6	NC	NC
7	NC	NC
8	NC	NC

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								Size		Document Number		Rev	
								C5V01 M/B LA-E891P		1A			
								Date:		Monday, June 12, 2017		Sheet 31 of 46	

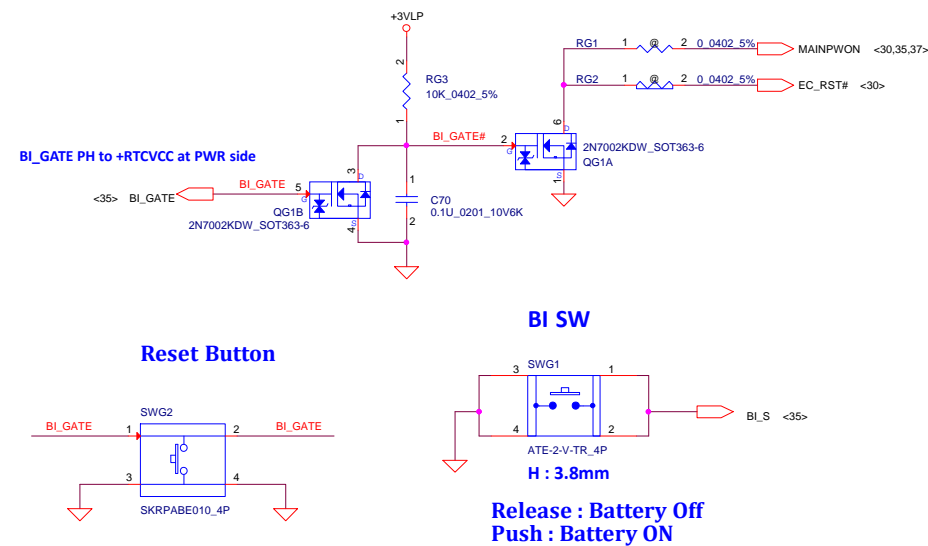
FAN1 Conn



Screw Hole

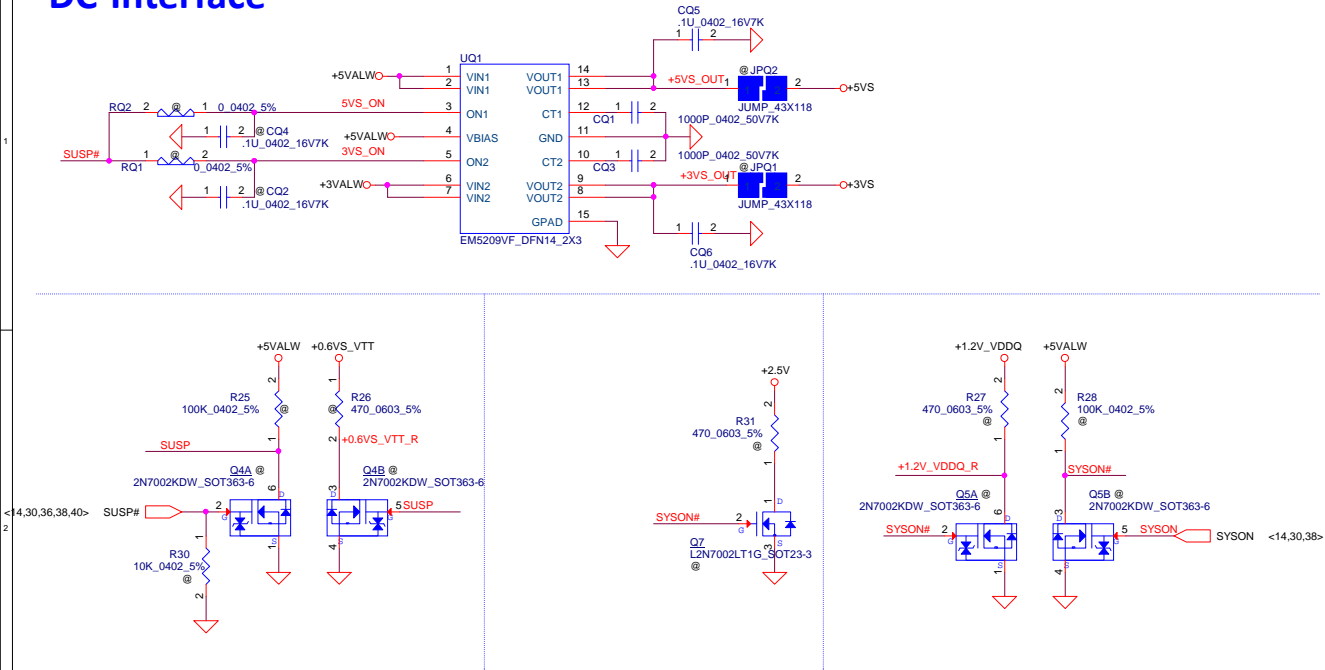


Reset Circuit

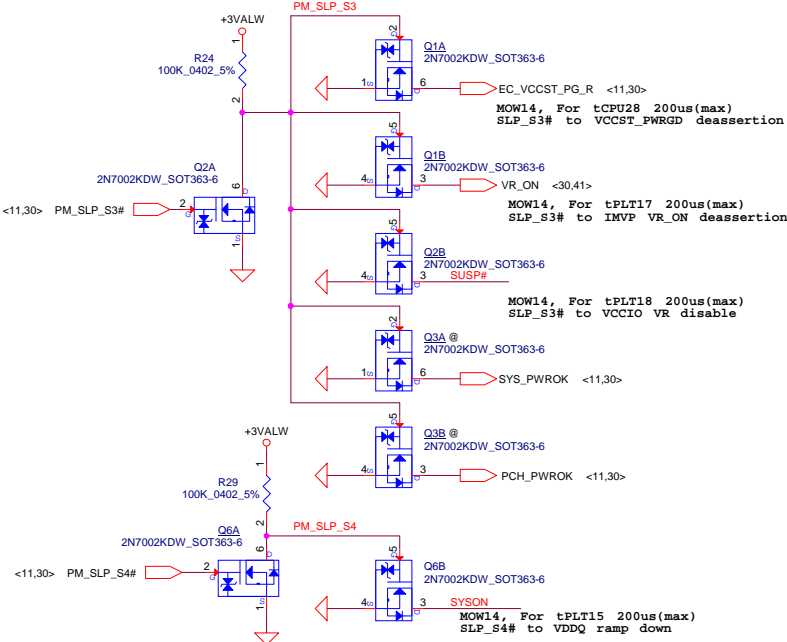


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						Custom	CSV01 M/B LA-E891P	
Date:		Monday, June 12, 2017		Sheet	32	of	46	

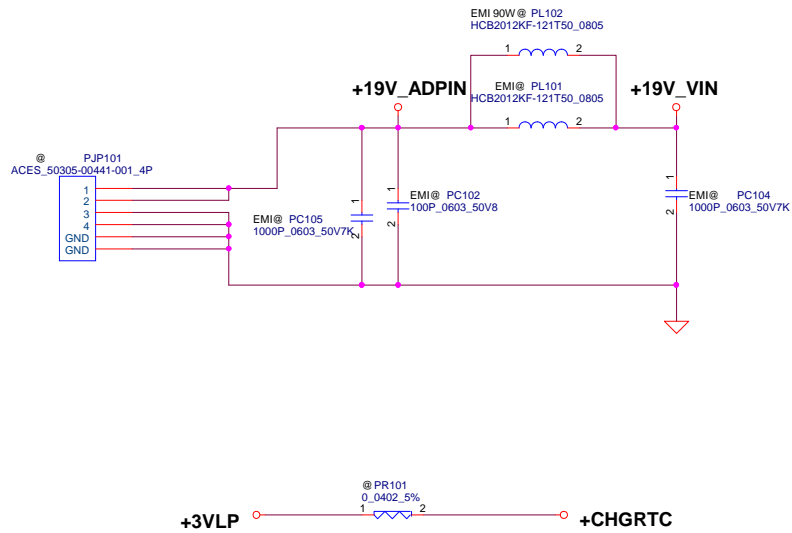
DC Interface



For Power ON/Off Sequence



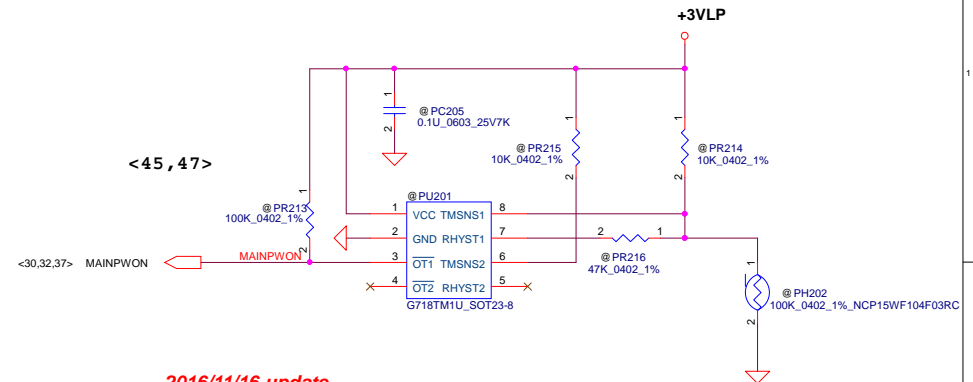
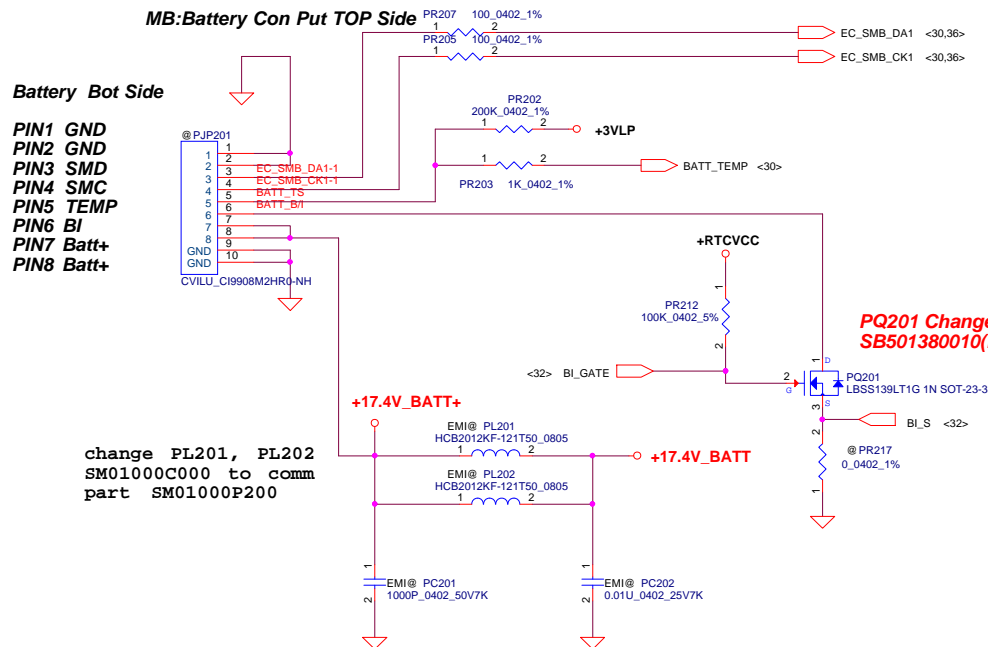
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Issued Date	2016/11/04		Deciphered Date	2018/11/04		Title		
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				Size	Document Number		Rev	
				Custom	C5V01 M/B LA-E891P		1A	
				Date:	Monday, June 12, 2017		Sheet	
						33	of	46



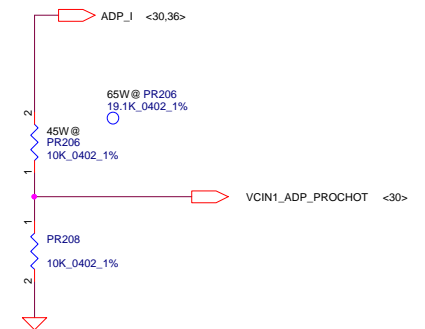
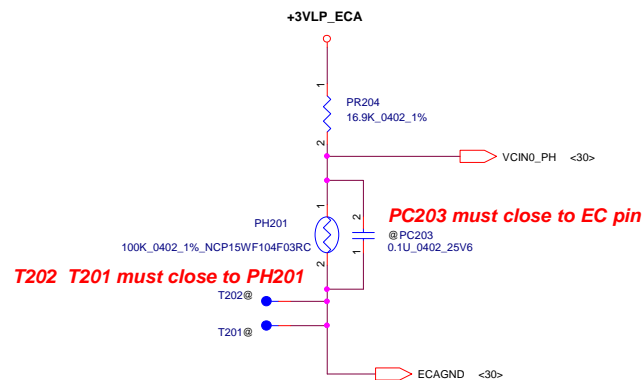
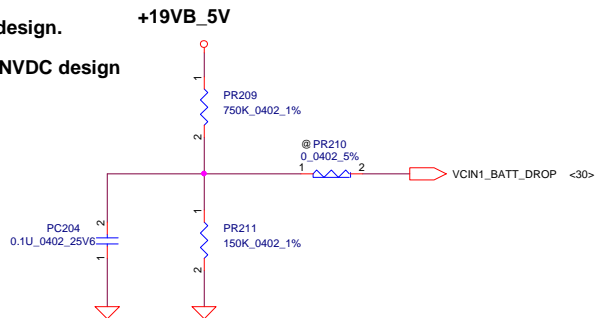
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				Date:	Monday, June 12, 2017
				Sheet	34 of 46
				Rev	1A

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

schematic from A4WAS



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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Size	Document	Number	Rev	1A	
Custom	B5W1S M/B LA-D671P			Date: Monday, June 12, 2017	
Date:		Sheet		35 of 46	

Module model information

RT6575D_DMOS_single_V1.mdd
RT6575D_DMOS_dual_V1.mdd

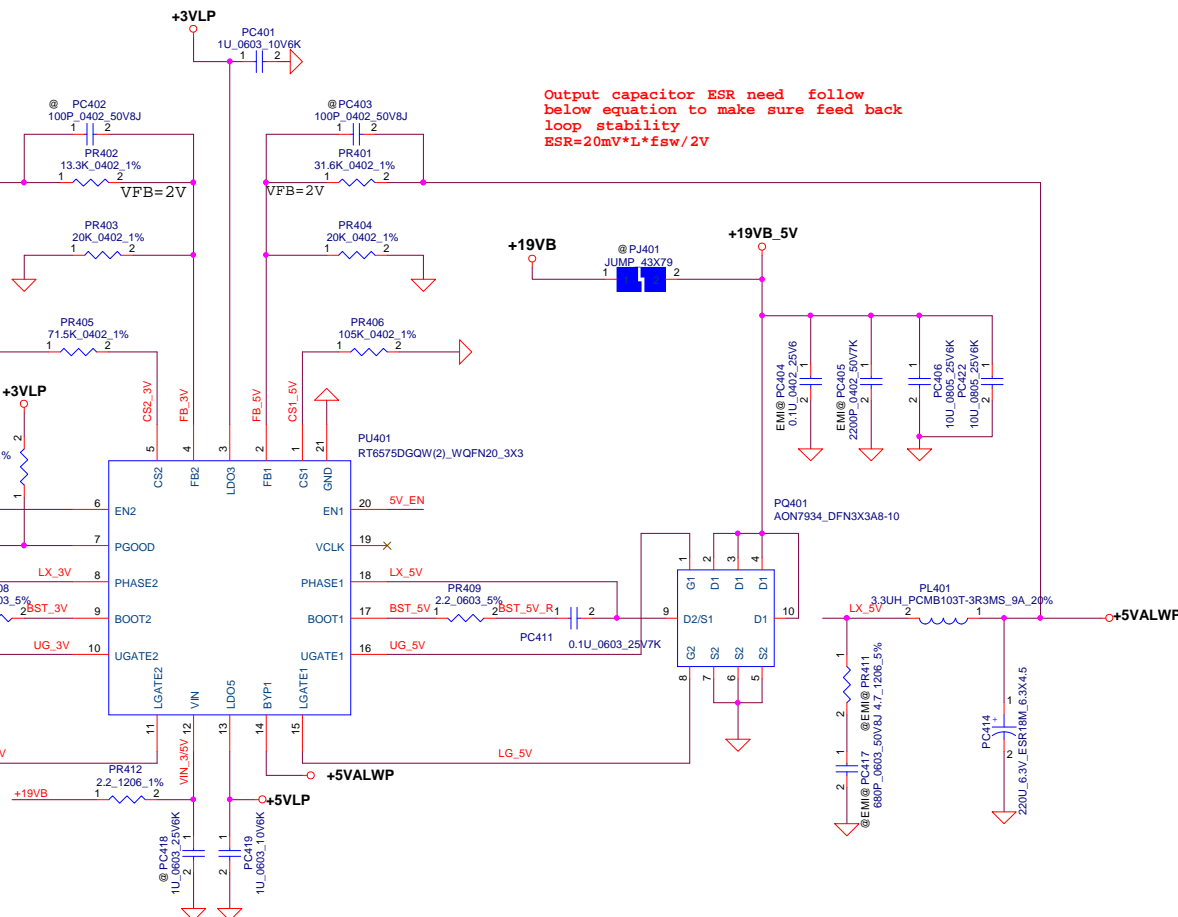
H/S Rds(on):typ:12.4mOhm, max:15.8mOhm
Idsm(TA=25)=13A, Idsm(TA=70)=7.8A
Ploss=0.42W

L/S Rds(on):typ:9.1mOhm, max:11.6mOhm
Idsm(TA=25)=15A, Idsm(TA=70)=9A
Ploss=0.14W

CHOKE:4.7uH, DCR 35mOhm
Ploss=1.77W

Output capacitor ESR need follow
below equation to make sure feed back
loop stability
 $ESR=20mV \cdot L \cdot f_{sw} / 2V$

POK need pull high, it
will pull high on Vs
transfer circuit



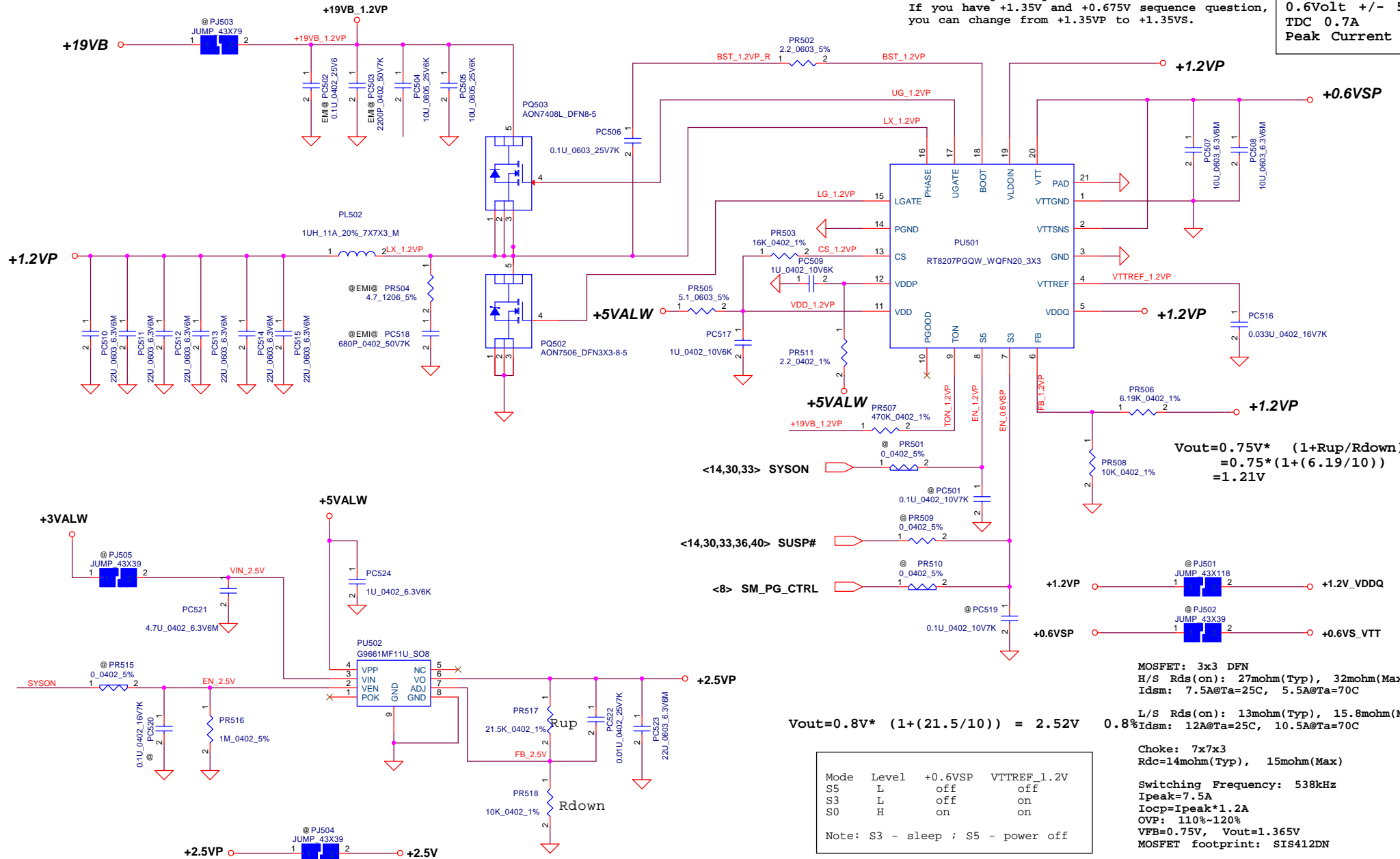
5V-OCP=13.5A
3V-OCP=8.9A

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				Cust	CSV01 M/B LA-E891P
				Date	Monday, June 12, 2017
				Sheet	37 of 46

schematic from A4WAS IC change RT8207K

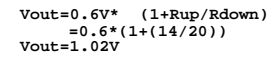
Pin19 need pull separate from +1.35VP.
If you have +1.35V and +0.675V sequence question,
you can change from +1.35VP to +1.35VS.

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

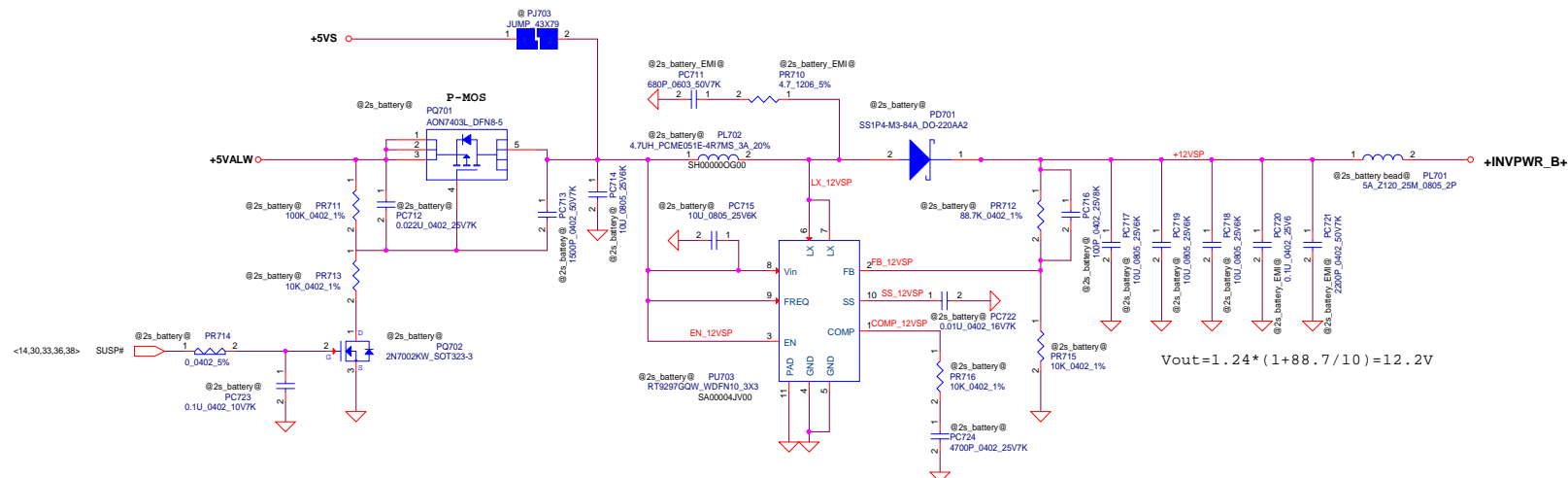
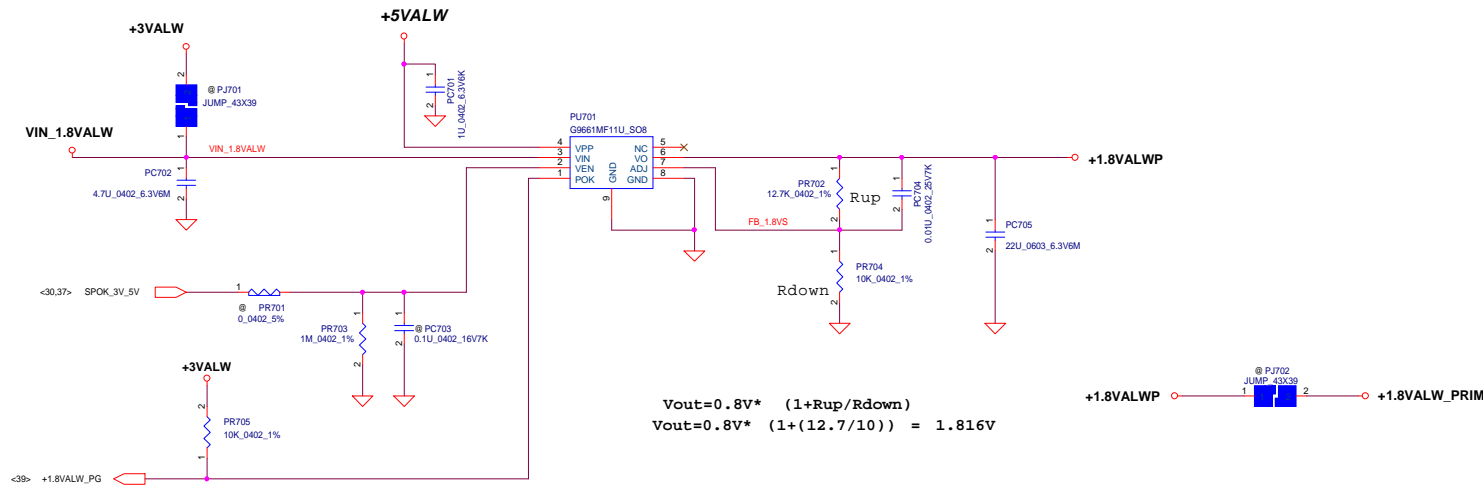


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				Date	Monday, June 12, 2017
				Sheet	38 of 46
				Rev	1A

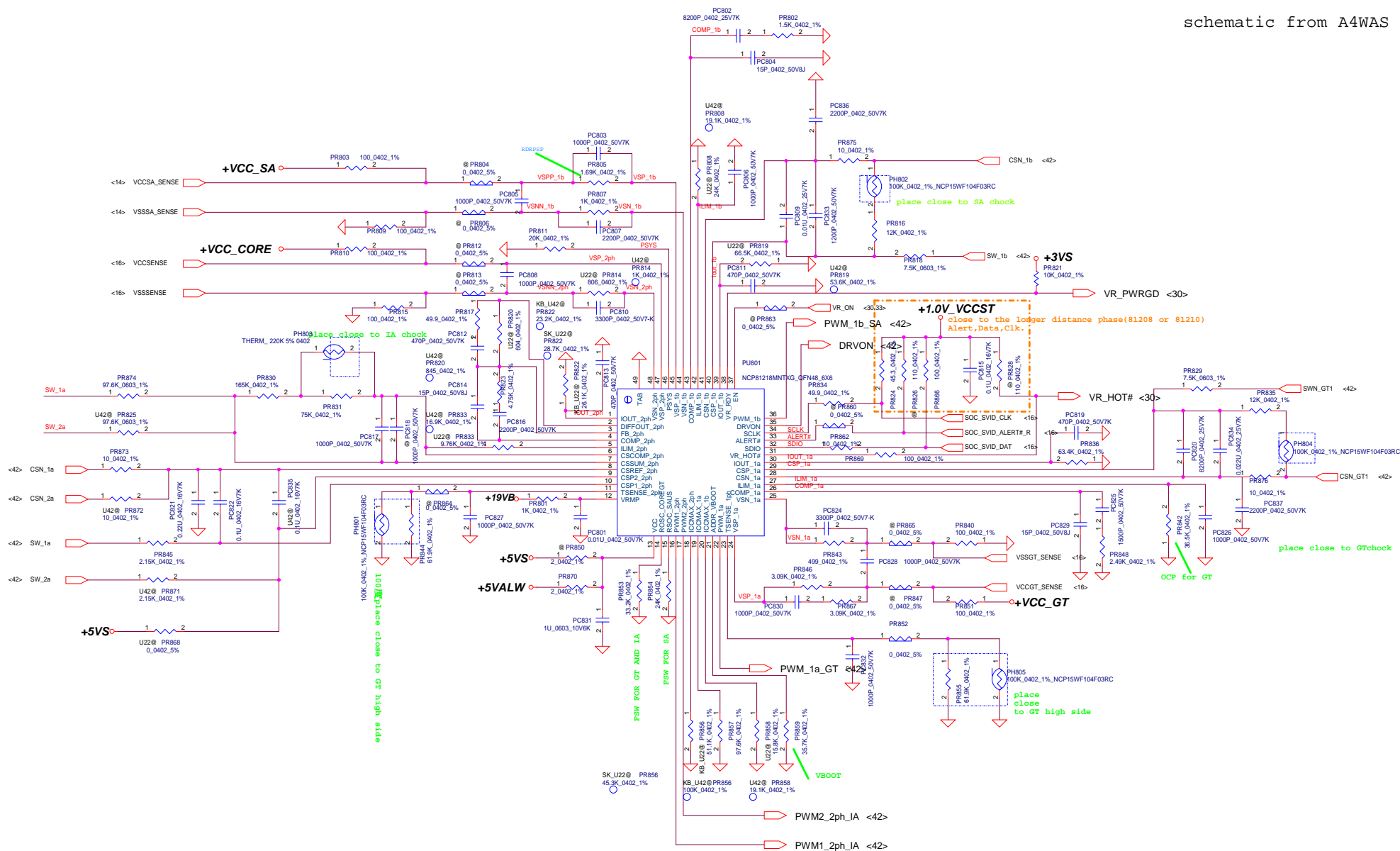
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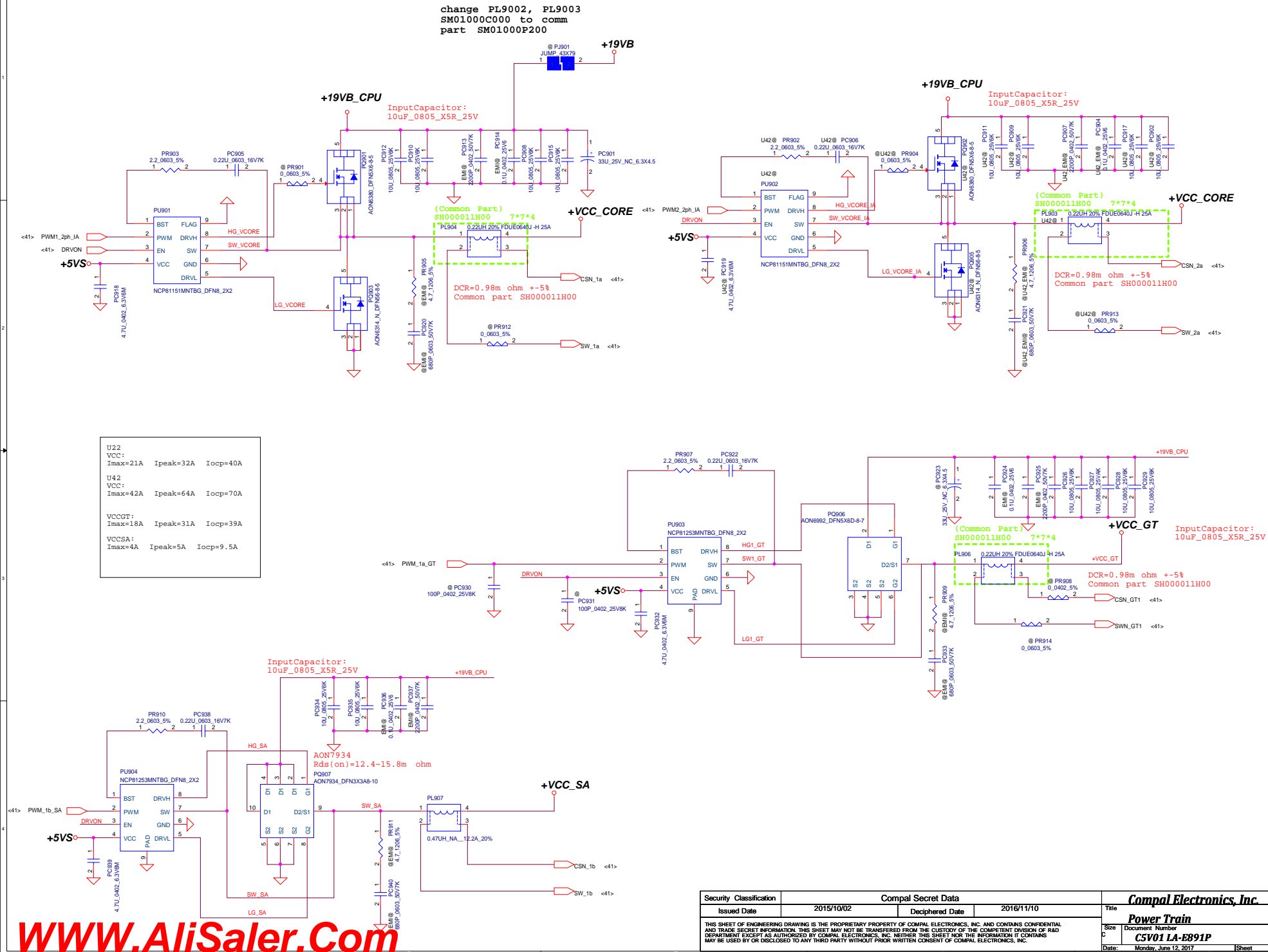


schematic from A4WAS
IC change to G971

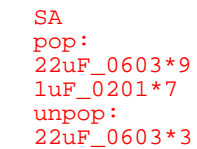


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				Date	Rev 1A
				C	CSV01 LA-E891P
				Date	Monday, June 12 2017
				Sheet	40 of 46





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Date:	Monday, June 12, 2017	Sheet	42 of 46	



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220uF*1
22uF*36
1uF*9
0.47uF*4
unpop:
22uF *8
1uF*1
```

2016/10/26	2016/10/26
VCORE Output Capacitor:	VCORE Output Capacitor:
U42	U22
22uF_0603*39	22uF_0603*33
1uF_0201*35	1uF_0201*35
220uF *3	UNPOP
UNPOP	22_0603*9
22_0603*3	220uF *3

Security Classification	Compal Secret Data			Compal Electronics, Inc. Power Train	
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				CSV01 LA-E891P	
				Date:	Monday, June 12, 2017
				Sheet	43 of 46

Version change list (P.I.R. List)

Page 1 of 1
for PWR

Item	Fixed Issue	Reason for change	Rev.	PG#	Modify List	Date	Phase
01	prevent part damage				PC410 and PC411 change to 0603 size	1/3	DVT
02	reduce part count				PR515, PR804, PR806, PR812, PR813, PR865, PR847, PR860, PR876, PR863, PR875, PR901, PR912, PR904, PR913, PR914 change to R-short	1/3	DVT
03	voltage level too high	3.37V change to 3.33V			PR402 change to 13.3K from 13.7K	1/3	DVT
04	voltage level too high	1.02V change to 1.011V			PR608 change to 13.7K from 14K	1/3	DVT
05	SMT	close SMT stencil problem			PJ9001, PJ9002, PJ9003 change to 0.2m ohm	1/3	DVT
06	CPU transient	meet CPU spec			PR805 change to 1.69K from 1.78K PR814 change to 806ohm from 1K PR874 change to 97.6K from 93.1K PC821 change to 0.22u from 0.1uF PC820 change to 8200P from 0.01uF PR836 change to 63.4K from 69.8K PR846 and PR867 change to 3.09K from 3.32K PC9002, PC9003, PC9099, PC9098, PC9014, PC9091, PC9048 change to dummy	1/14	DVT
07	DC S5 power consumption	meet DC S5 2.5mA spec			PR209 change to 750K from 10K PR211 change to 150K from 2K	1/14	DVT
08	prevent shortage				PL907 change to common part SH00001ED00 PQ502 change to AON7506	1/14	DVT
09	meet panel spec voltage	remove boost circuit			PQ701, PQ702, PR711, PR712, PR713, PR715, PR716, PC712, PC713, PC714, PC715, PC722, PC724, PL702, PD701, PU703, PC717, PC718, PC719, PC721, PL701 change to un-pop	1/14	DVT
10	reduce part count				PR852 and PR864 change to R-short	1/14	DVT
11	spok voltage level				PR407 change to 20K ohm from 100K	1/24	DVT
12	Change to 5V OCP setting				PR406 change to 105K ohm from 107K	3/1	PVT
13	for CPU transient				PU901 and PU902 change to NCP81151MNTB6_DFN8_2X2 PU903 change to NCP81253MNTB6_DFN8_2X2 PR908 change to R-short from 10 ohm PR876, PR875 change to 10ohm from R-short PC837, PC836 change to pop to 2200P	3/1	PVT
14	from soucer suggest for USB 5V Level				PC901 change part number SF000007700 from SF000007200 PR401 change to 31.6K from 30.9K	3/4	
15	for U42 modify				PR808 change to 19.1K PR814 change to 1K PR820 change to 845 ohm PR857 fix to 97.6k PR858 Change to 19.1K PR836 fix to 63.4K PR819 Change to 53.6K PR320 Change to 499ohm PC323 Change to 2.2uF PC9100 change to unpop		

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				Date:	Monday, June 12, 2017
				Sheet	44 of 46

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HW Schematic chang list (P.I.R)

Item	Page	Date	Rev.	Reason for change	Modify Item
42	11	3/28	1A	Crystal damping resistor adjust	RC235 , RC236 change to 33ohm 1%
43	18	3/28	1A	Crystal damping resistor adjust (U42)	RC233 , RC234 change to 33ohm 1% , CC128 ,CC129 Change to 27pF
44	8	3/28	1A	RCOMP [0] 121 ohm for Mixed MD and SO-DIMM	RC38 Change to 121 ohm
45	8	3/28	1A	Update DAZ PN & Add U42 PN	DAZ change to DAZ20X00102 ,Add U42 QN5D@ / Q15C@
46	8	3/28	1A	Change ESD Main source	DYI Change to SC300002900
47	8	4/17	1A	Add D7W01 Project ID setting	RC207 / RC213 BOM structure D7W01@
48	30	4/17	1A	Add D7W01 Board ID setting	RB4 27K ohm for EA17PVT@ , RB4 33K ohm for EA17MP@