

COMPAL CONFIDENTIAL

X12 TGL UMA MB

MODEL NAME : GDC31/GDC41/GDC50
PCB NO : LA-K371P
BOM P/N : 431ANU31LXX

Tiger Lake U42 UP3
2020-10-28
REV : 1.0 (A00)

- @ : Nopop Component
- EMI@ : EMI Component
- @EMI@ : EMI Nopop Component
- ESD@ : ESDComponent
- @ESD@ : ESD Nopop Component
- RF@ : RF Component
- @RF@ : RF Nopop Component
- CONN@ : Connector Component
- MIPI60@ :MIPI Component
- NMIPI60@ :Non MIPI Pop Component
- VPRO@ : vPro Component
- NVPRO@ : Non-vPro Component
- WWAN@ : WWAN Component
- @WWAN@ : WWAN Nopop Component
- JUMP@ : Jump solder and short
- @JUMP@ : Jump no solder
- CPU@ : CPU
- 5107@ : MEC5200 Component
- 5200@ : MEC5200 Component
- 750@ : NUVOTON NPCT750 TPM Component
- ST33@ : ST ST33HTPH TPM Component
- 5107ES@ : MEC5107 ES Component
- 5107NES@ : MEC5107 Non-ES Component

Power CKT : MONTREUX_MB_TGL_PWR_20201013A
GPIO map : X12_TGL_U GPIO map Rev1.0_20200910

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Cover Sheet

LA-K371P

Rev
1.0

Date: Wednesday, October 28, 2020 Sheet 1 of 125

Part Number	Description
DA8001N200S	PCB 30K DB-2755P REV0 D/B S

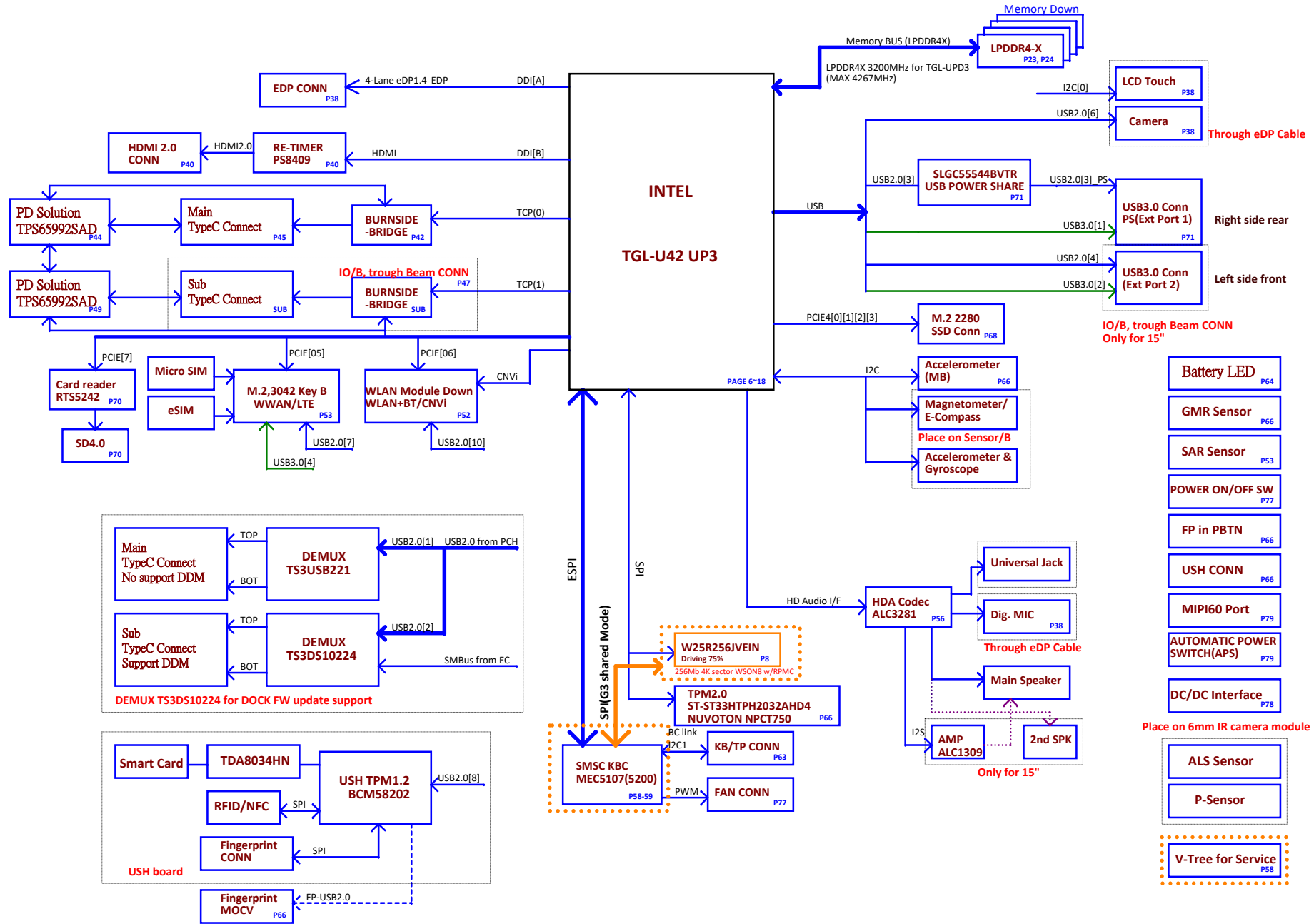
Layout Dell logo



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X12 7000 TGL Block Diagram



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Block Diagram

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POWER STATES

Signal State	SLP S3#	SLP S4#	SLP S5#	SLP A#	ALWAYS PLANE	PRIM PLANE	RUN PLANE	CLOCKS
S0 (Full ON) / M0	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	ON
S0ix/Moff	HIGH	HIGH	HIGH	HIGH	ON	ON	ON	OFF
S4 (Suspend to DISK) / M3	LOW	LOW	HIGH	HIGH	ON	ON	OFF	OFF
S5 (SOFT OFF) / M3	LOW	LOW	LOW	HIGH	ON	ON	OFF	OFF
S0ix (Suspend to RAM) / M-OFF	HIGH	HIGH	HIGH	LOW	ON	ON	ON	OFF
S4 (Suspend to DISK) / M-OFF	LOW	LOW	HIGH	LOW	ON	OFF	OFF	OFF
S5 (SOFT OFF) / M-OFF	LOW	LOW	LOW	LOW	ON	OFF	OFF	OFF

USB3.0	Gbe	PCIE	SATA	DESTINATION
USB3.0-1		PCIE-1		JUSB1
USB3.0-2		PCIE-2		JUSB2
USB3.0-3		PCIE-3		NA
USB3.0-4		PCIE-4		M.2 3042(WWAN)
		PCIE-5		M.2 3042(LTE)
	V	PCIE-6		WLAN
	V	PCIE-7		CARD READER
	V	PCIE-8		NA
		PCIE-9		NA
		PCIE-10		NA
		PCIE-11	SATA-0	NA
		PCIE-12	SATA-1	NA
PCIE4-1~4			M.2 2280 SSD	

USB PORT#	DESTINATION
1	Type-C Port 1
2	Type-C Port 2
3	JUSB1(RIGHT)
4	JUSB2(LEFT)
5	NA
6	Camera
7	M.2 3042(WWAN)
8	USH
9	NA
10	M.2 2230(BT)

PM TABLE

power plane State	+3.3V_RTC_LDO +5V_ALW +5V_ALW2 +3.3V_ALW2 +3.3V_PRIM +1.8V_PRIM +3.3V_ALW_DSW +VCC_VNNEXT_1P05 +VCC_V1P05EXT_1P05	+1.1V_MEM +1.8V_MEM +1.05V_VCCSTG	+1.05V_VCCSTG* +3.3V_RUN +5V_RUN +1.8V_RUN +1.2V_RUN +0.6V_DDR_VTT	+RTC_CELL
S0	ON	ON	ON	ON
S0ix	ON	ON	OFF	ON
S5 S4/AC	ON	OFF	OFF	ON
S5 S4/DC only	OFF	OFF	OFF	ON

*VCCSTG can be turned off when the processor is in C10

Figure 2. Flexible HSIO Lane Multiplexing in PCH-LP (UP3)

Flex HSIO Lane	0	1	2	3	4	5	6	7	8	9	10	11
HSIO Type and Lane	USB 3.2 Gen 1x1/2x1 #1	USB 3.2 Gen 1x1/2x1 #2	USB 3.2 Gen 1x1/2x1 #3	USB 3.2 Gen 1x1/2x1 #4	PCIe* #5	PCIe* #6	PCIe* #7	PCIe* #8	PCIe* #9	PCIe* #10	PCIe* #11	PCIe* #12
	PCIe* #1	PCIe* #2	PCIe* #3	PCIe* #4			GbE	GbE	GbE		SATA 0	SATA 1

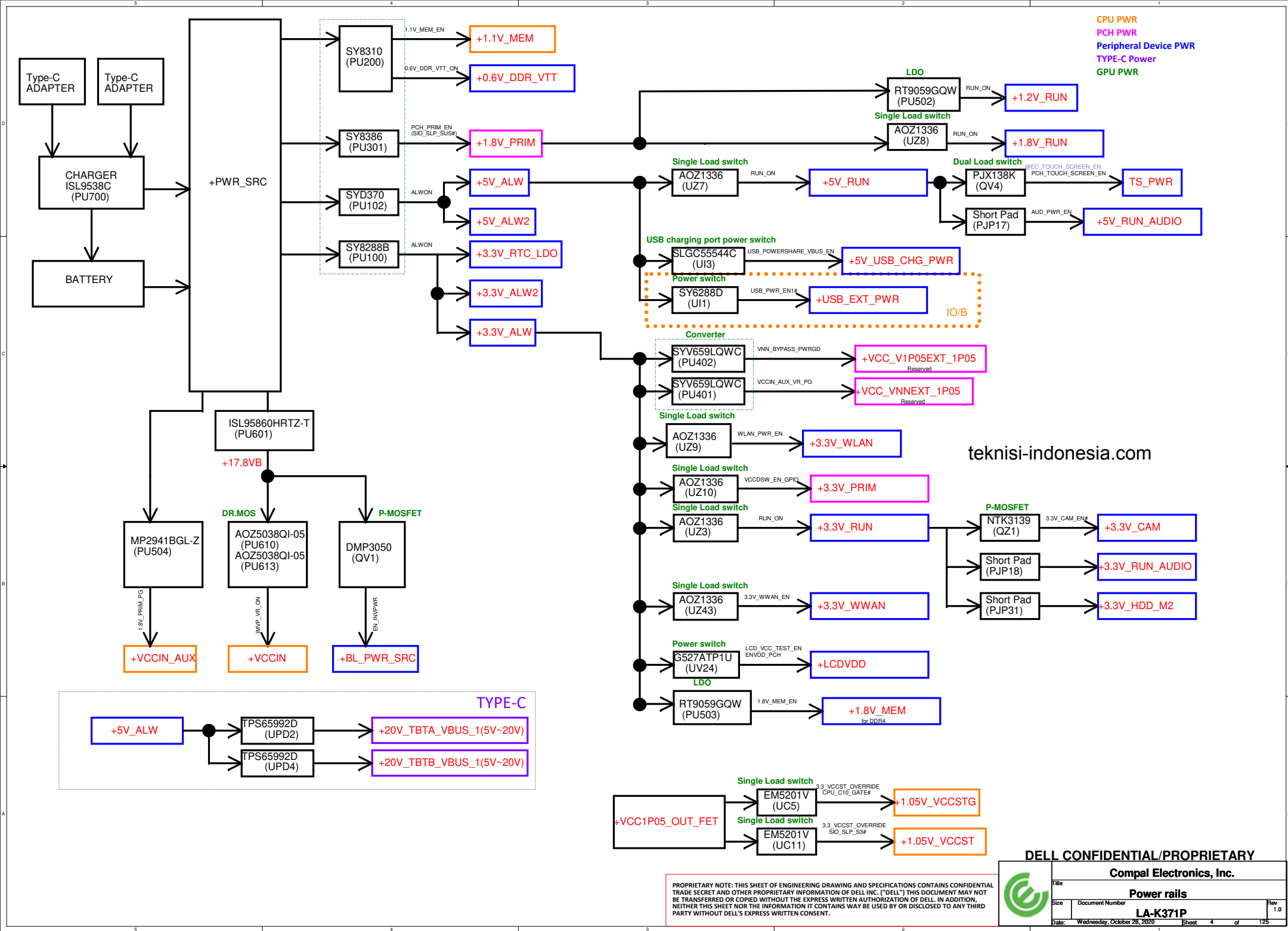
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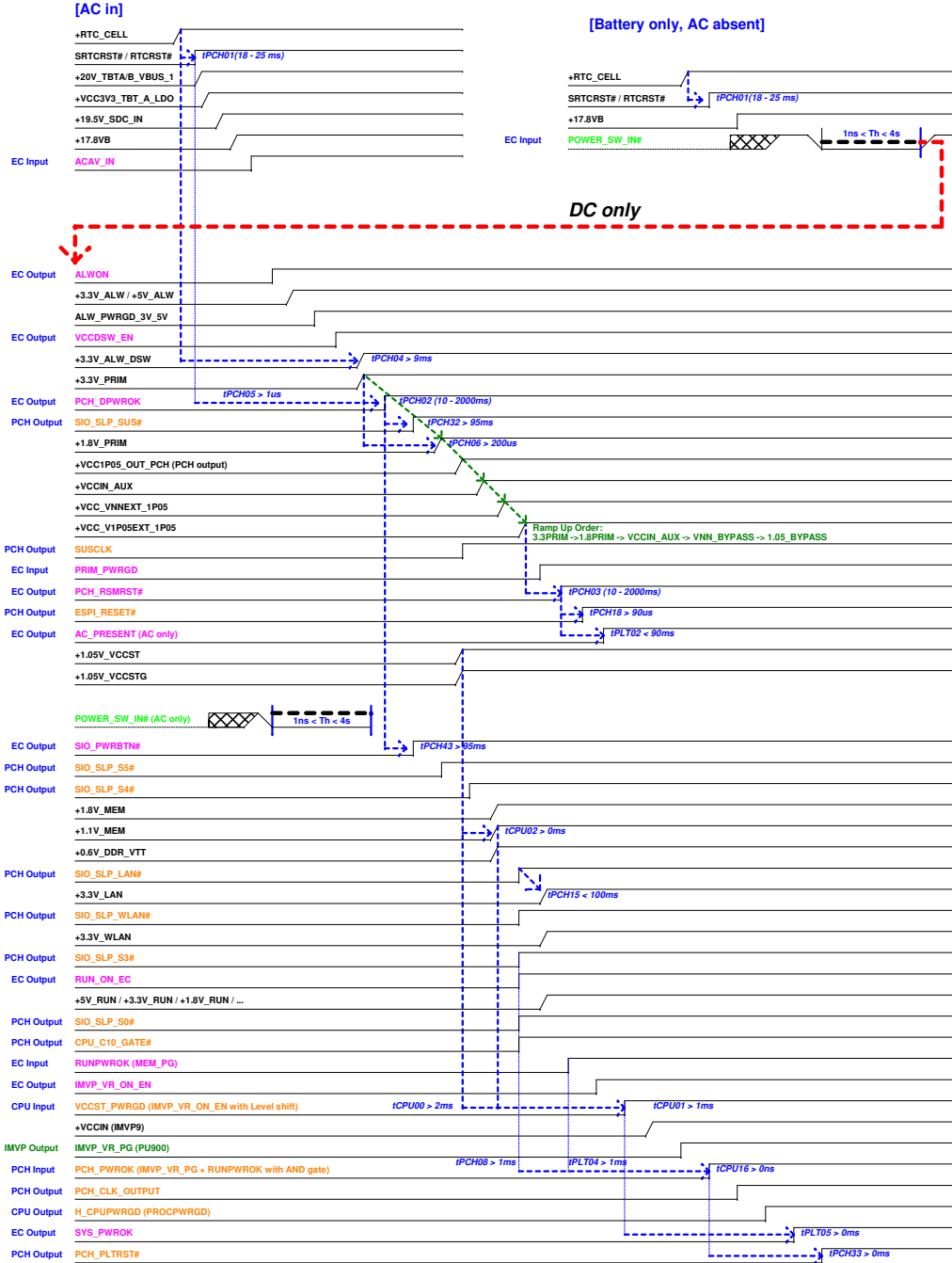
Title		Port assignment	
Size	Document Number	LA-K371P	
Date	Wednesday, October 28, 2020	Sheet	3 of 125

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Power Sequence

G3 -> S0 Non deep



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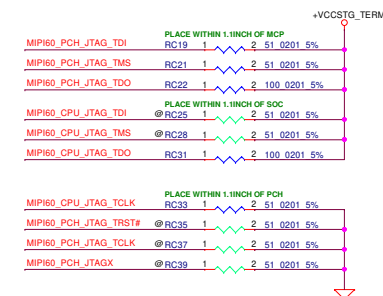
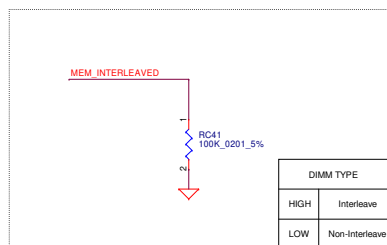
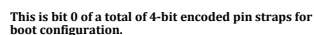
Part 2

Power Sequence

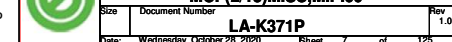
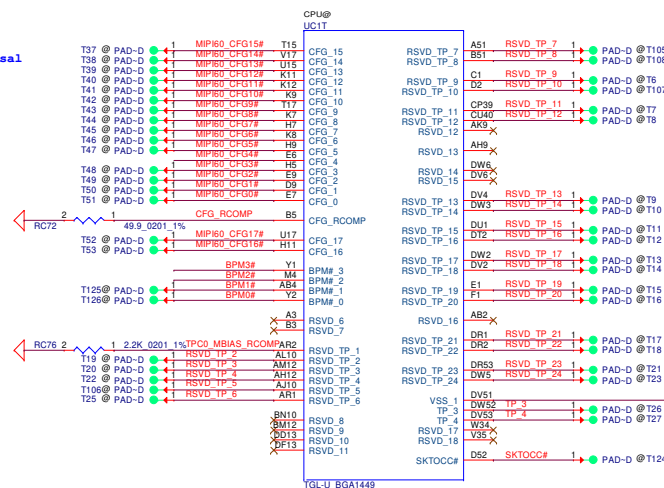
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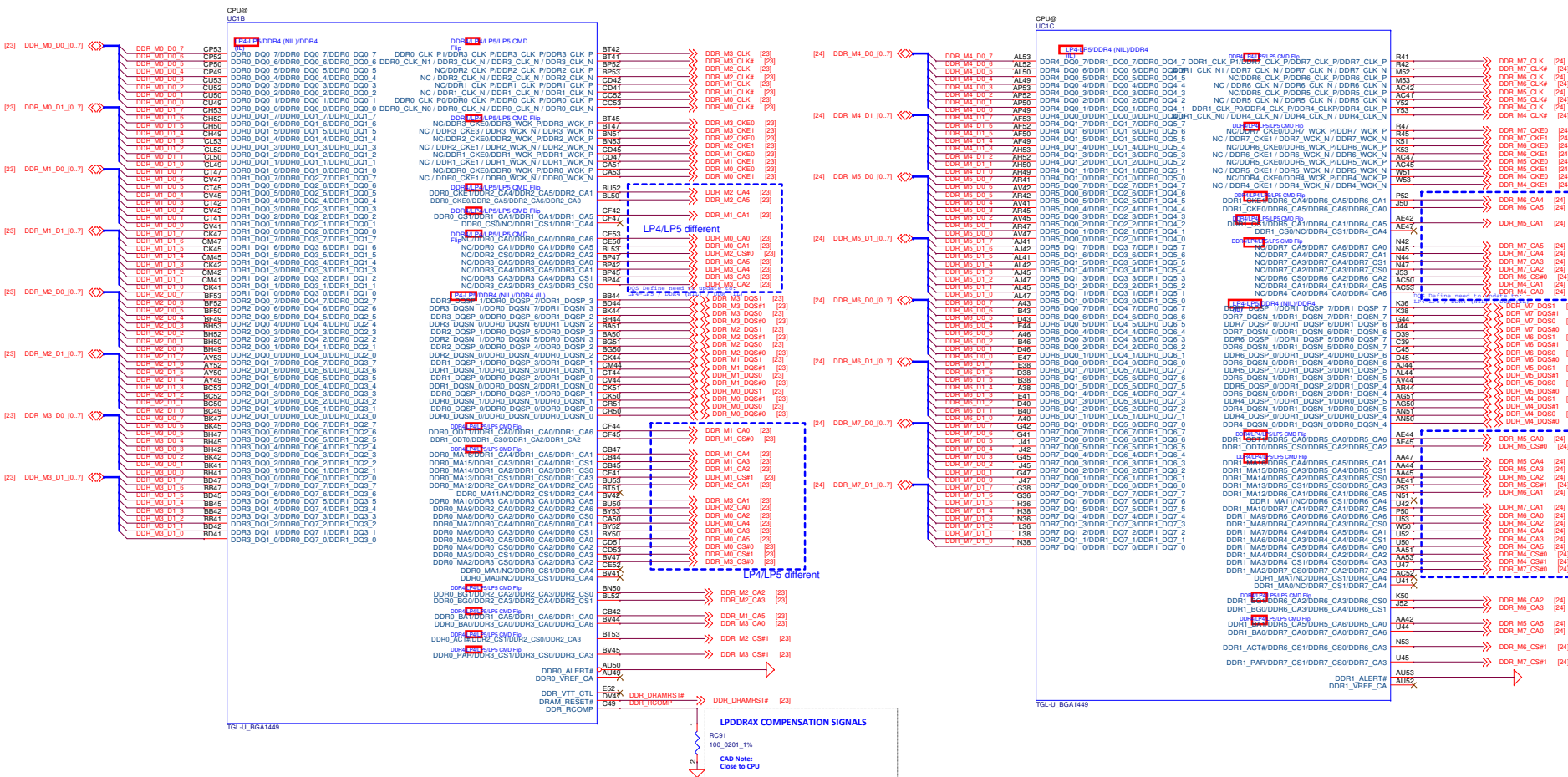
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BOOT STRAP 3	BOOT STRAP 2	BOOT STRAP 1	Reserved	Reserved	Reserved
GPP_H2 (Weak internal PD 20K) This is bit 3 of a total of 4-bit encoded pin straps for boot configuration.	GPP_H1 (Weak internal PD 20K) This is bit 2 of a total of 4-bit encoded pin straps for boot configuration.	GPP_H0 (Weak internal PD 20K) This is bit 1 of a total of 4-bit encoded pin straps for boot configuration.	GPP_F7 (Weak internal PD 20K)	GPP_F10 (Weak internal PD 20K)	DBG_PMODE (Internal 20 K Pull UP) Follow PDG 1K PU to PCH VCC1p05_OUT_FET @PPTC_T10n, UPR, UPRN, RN, Rn=1p0



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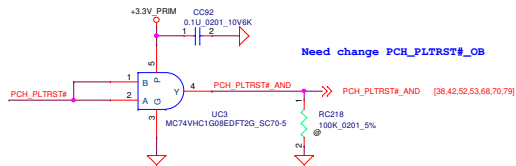
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MCP3(13)LPDDR4x

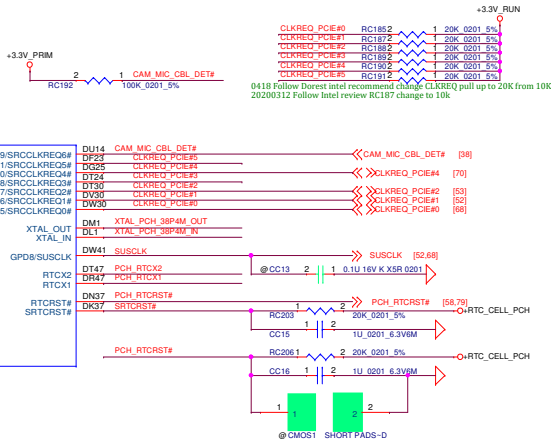
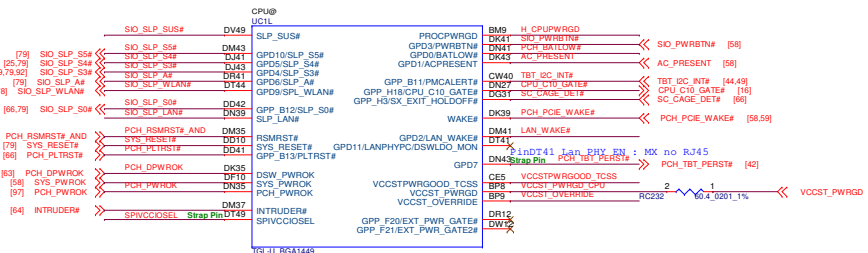
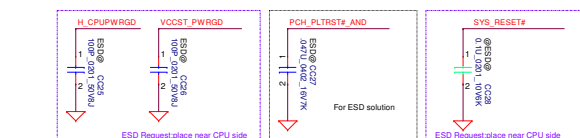
LA-K371P

Wednesday, October 28, 2020 8:00:00 AM

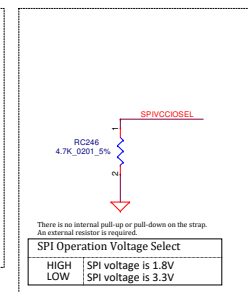
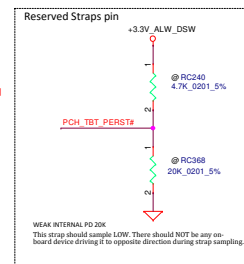
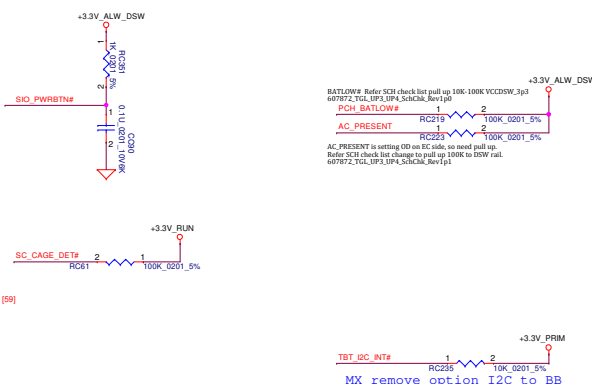
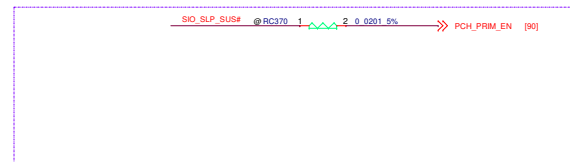
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Check!!
SIO_SLP_S0# RVP is PD 100K
SIO_SLP_S0# PDG is PU 100K



CMOS1 footprint change to SHORTPADS-NPM
CMOS1 must take care short & touch risk on layout placement



TGL CSLP UMA(follow Compal_TGL_PortMap_20190829)

MX support PCIe Gen4

MX no RJ45

Card Reader RTS5242 ----->

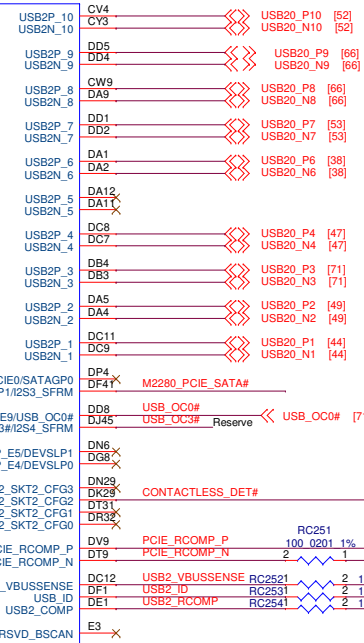
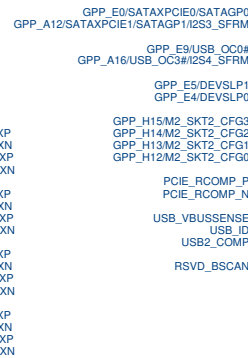
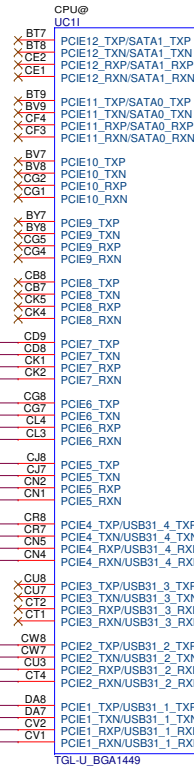
M.2 2230(WLAN) ---->

M.2 3042(WWAN) ---->

M.2 3042 (WWAN) ----->

Ext USB3 Port 2 ----->

Ext USB3 Port 1 Charge ----->



M.2 2230 (BT)

-----> Reserved FPR in PB

USB

M.2 3042 (WWAN)

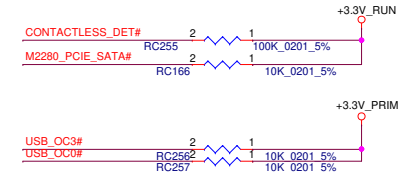
Camera

Ext USB Port 2

Ext USB Port 1 Charge

Type-C port 2

Type-C port 1



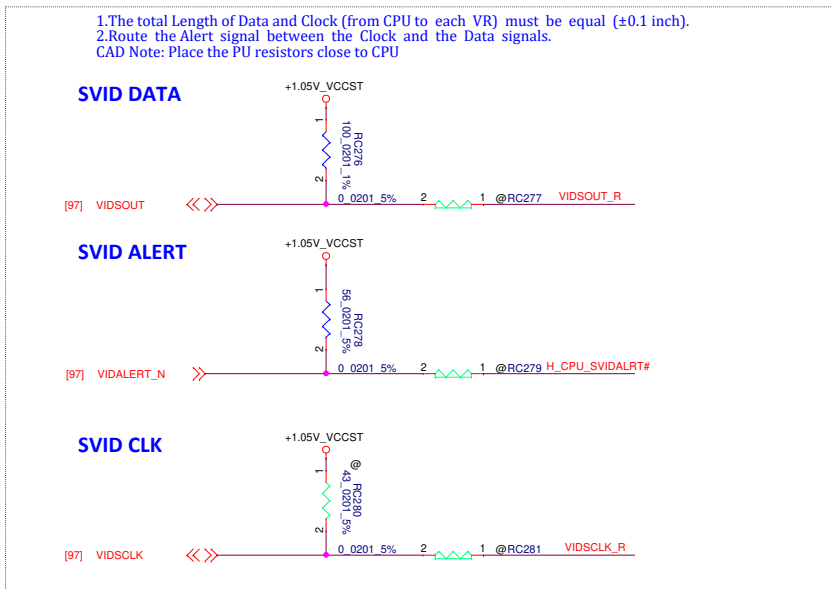
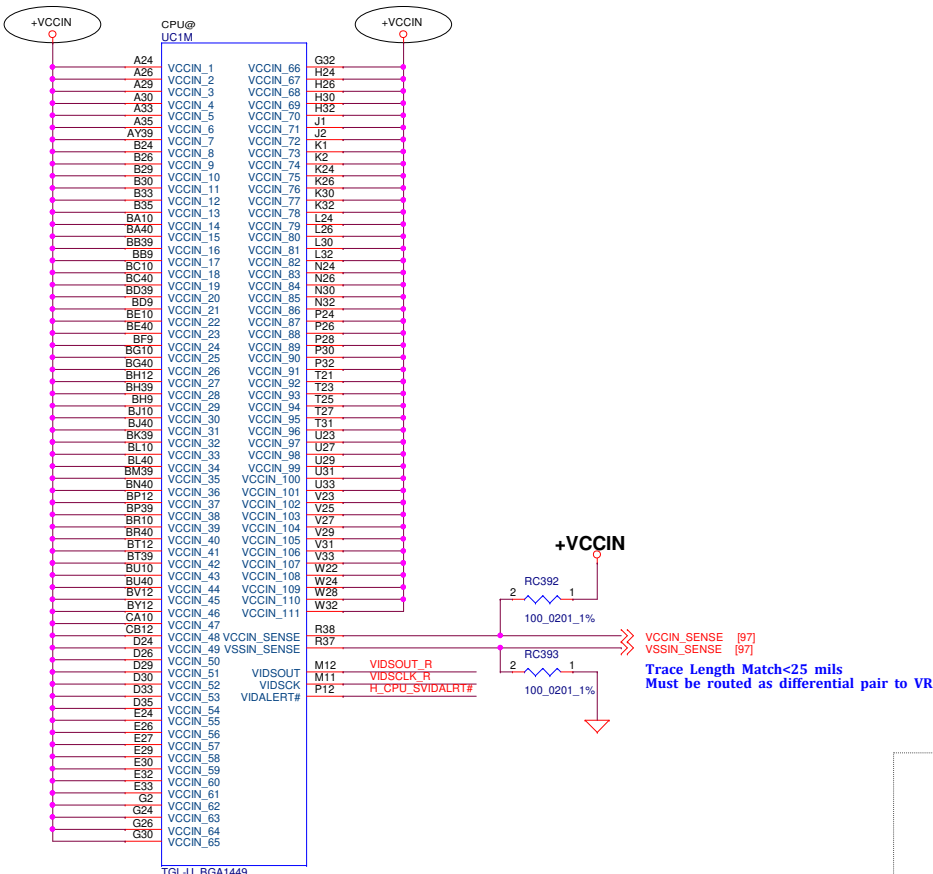
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Title			MCP(7/13)PCIE,USB,SATA		
Size	Document Number	Rev	1.0		
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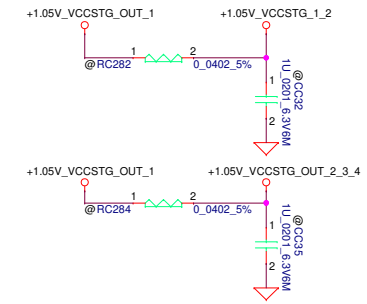
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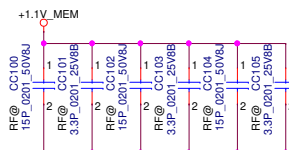
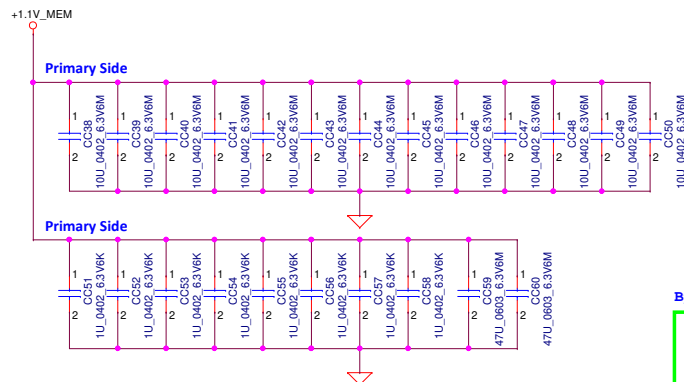
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Size: Document Number: **LA-K371P** Rev: 1.0

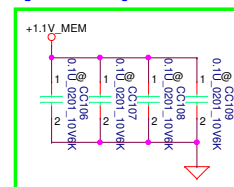
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RF CAPS - PLACE <4MM FROM SOC VDDQ,
WITH EACH PAIR <12MM APART : EMC DDR
RFI Mitigation



By Intel request



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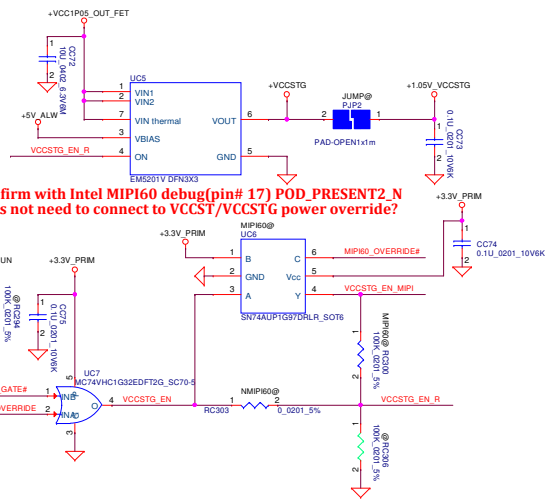
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+1.05V_VCCSTG source

SN74AUP1G97DRLR

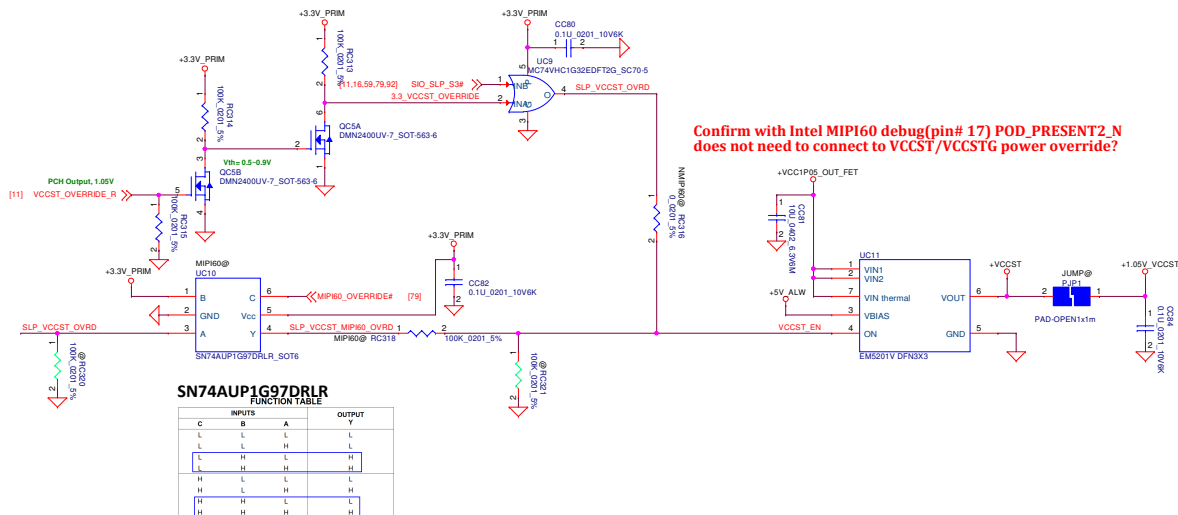
FUNCTION TABLE

INPUTS			OUTPUT
C	B	A	Y
L	L	L	L
L	L	H	L
L	H	L	H
L	H	H	H
H	L	L	L
H	L	H	H
H	H	L	L
H	H	H	H



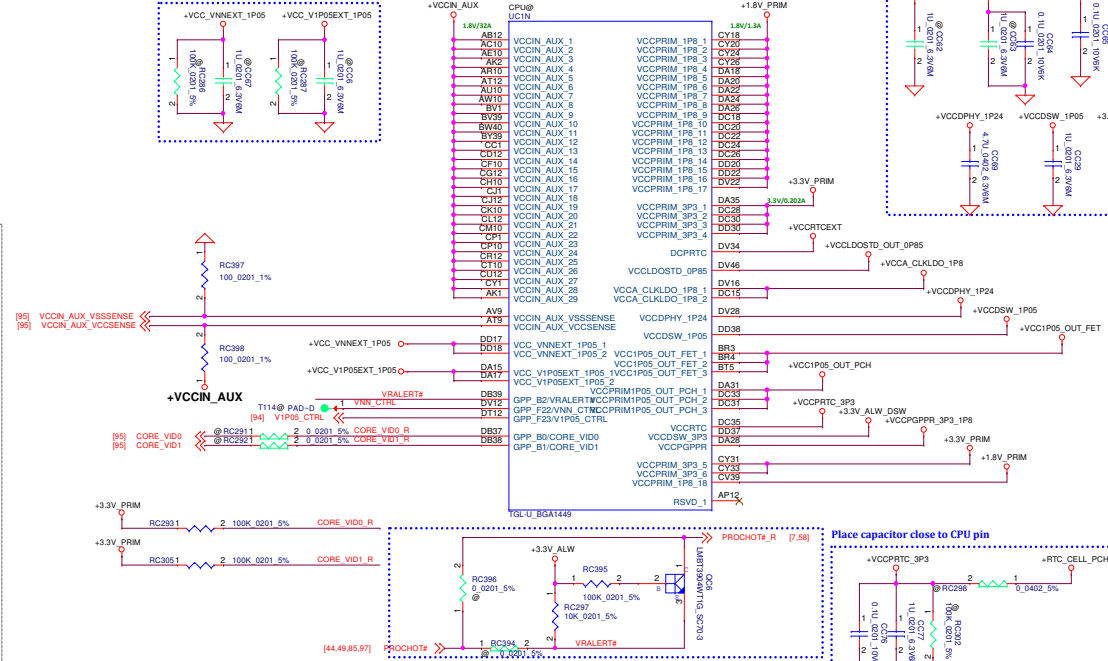
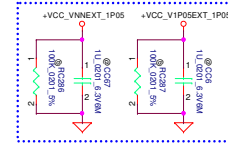
Confirm with Intel MIPI60 debug(pin# 17) POD_PRESENT2_N does not need to connect to VCCST/VCCSTG power override?

+1.05V_VCCST source

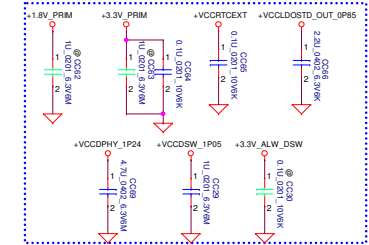


Confirm with Intel MIPI60 debug(pin# 17) POD_PRESENT2_N does not need to connect to VCCST/VCCSTG power override?

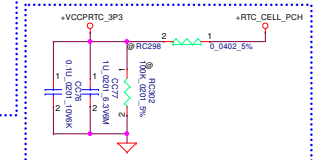
Place capacitor close to CPU pin



Place capacitor close to CPU pin

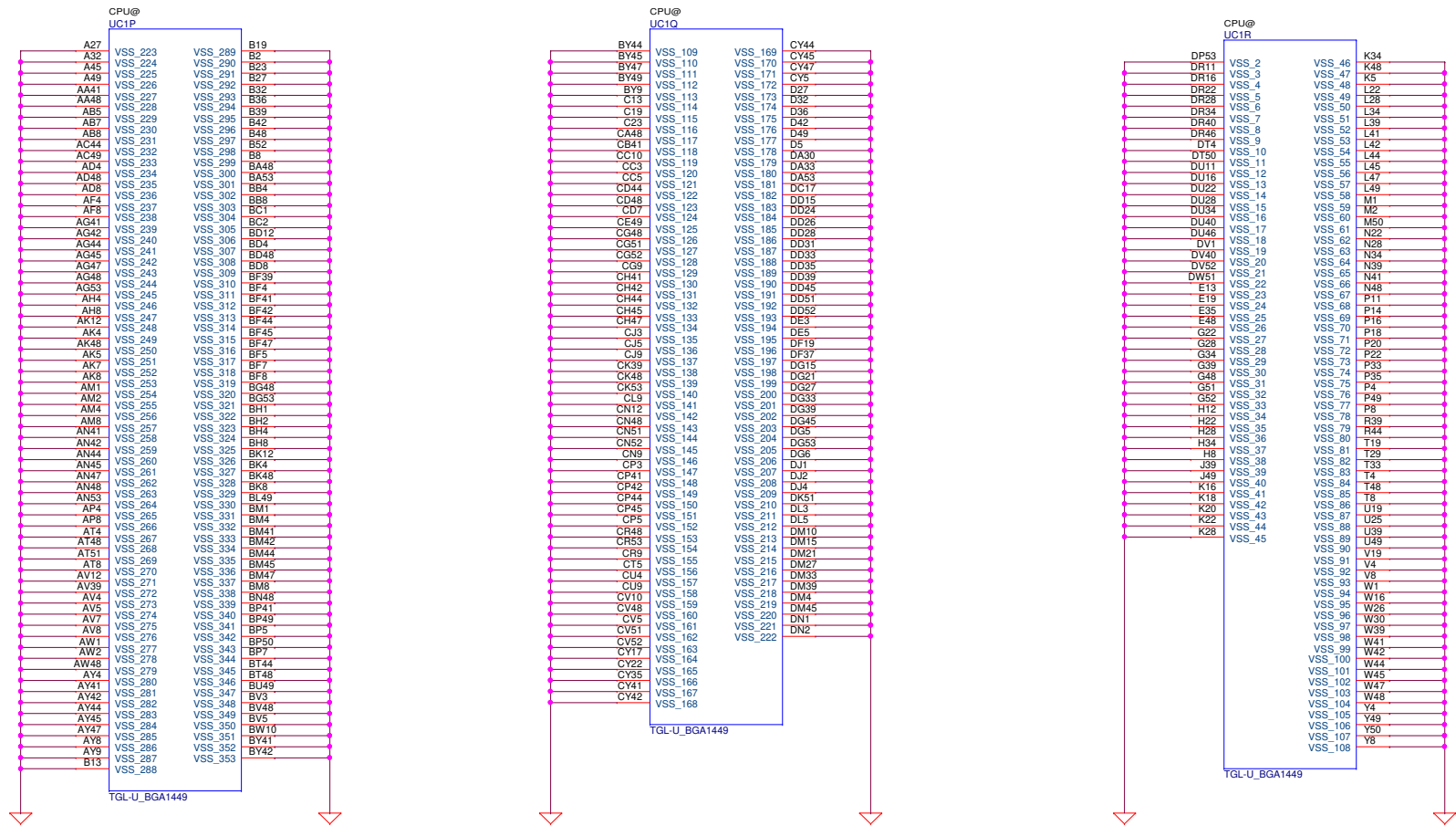


Place capacitor close to CPU pin



Cancel reservation for 1.8V
cause of Codec is 3.3V

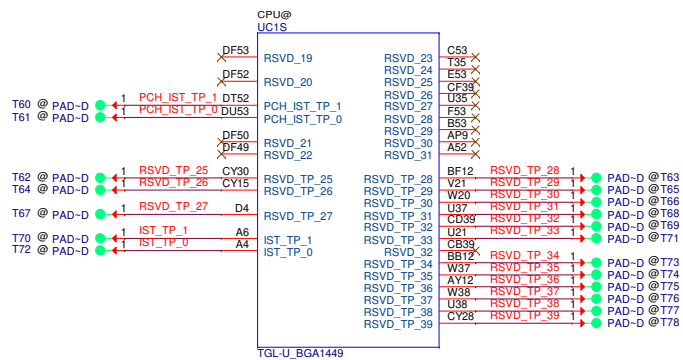




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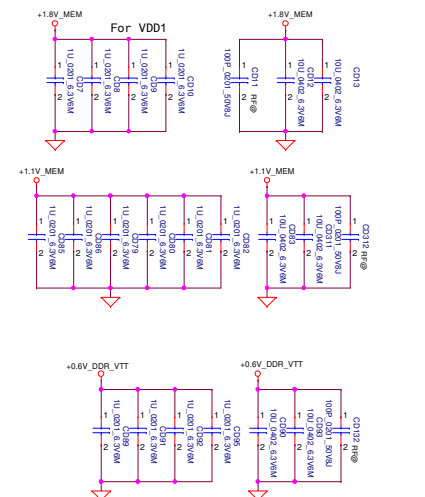
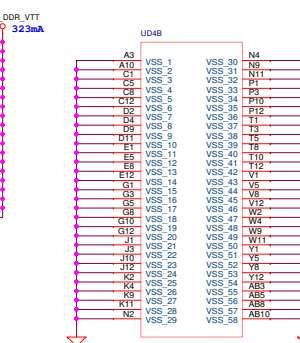
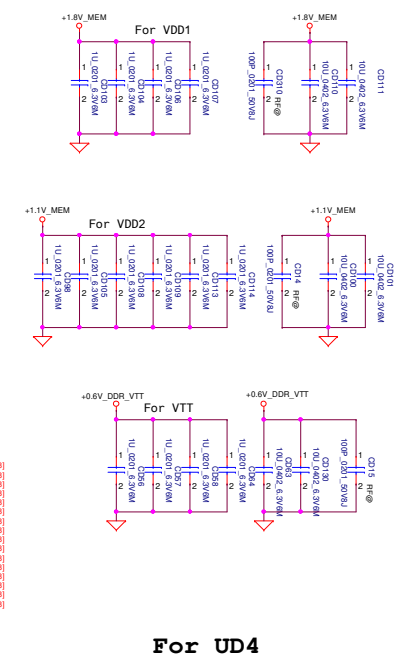
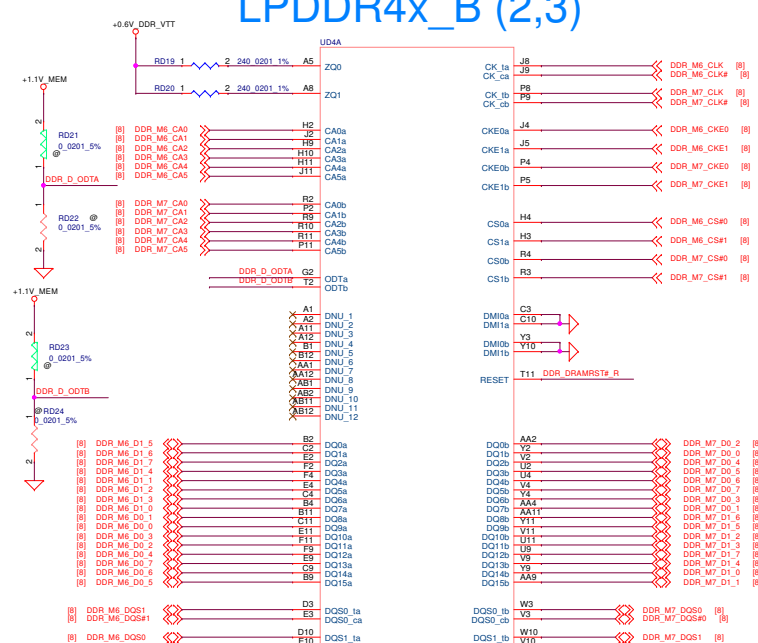
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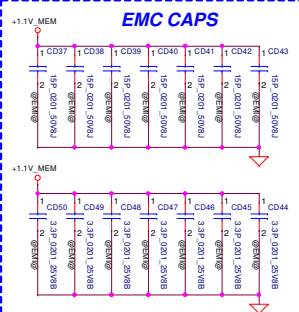
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LPDDR4x_B (2,3)



EMC CAPS



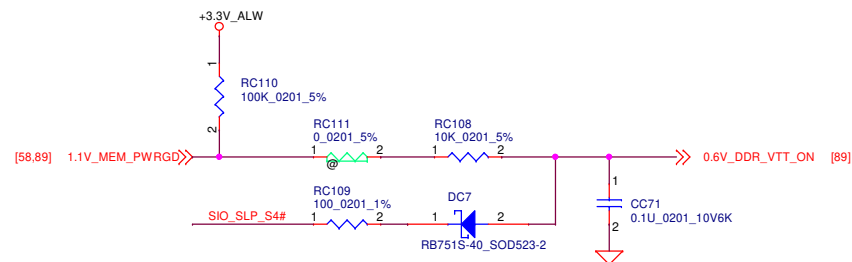
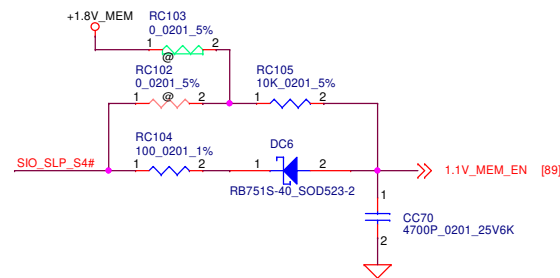
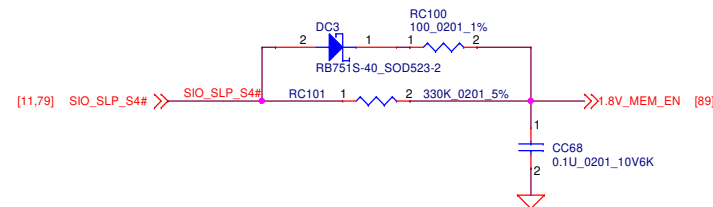
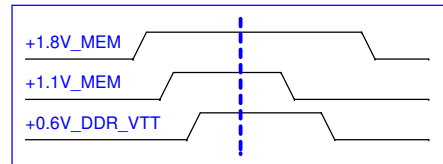
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Follow Intel RVP for LP4x sequence



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LPDDR4x Timing

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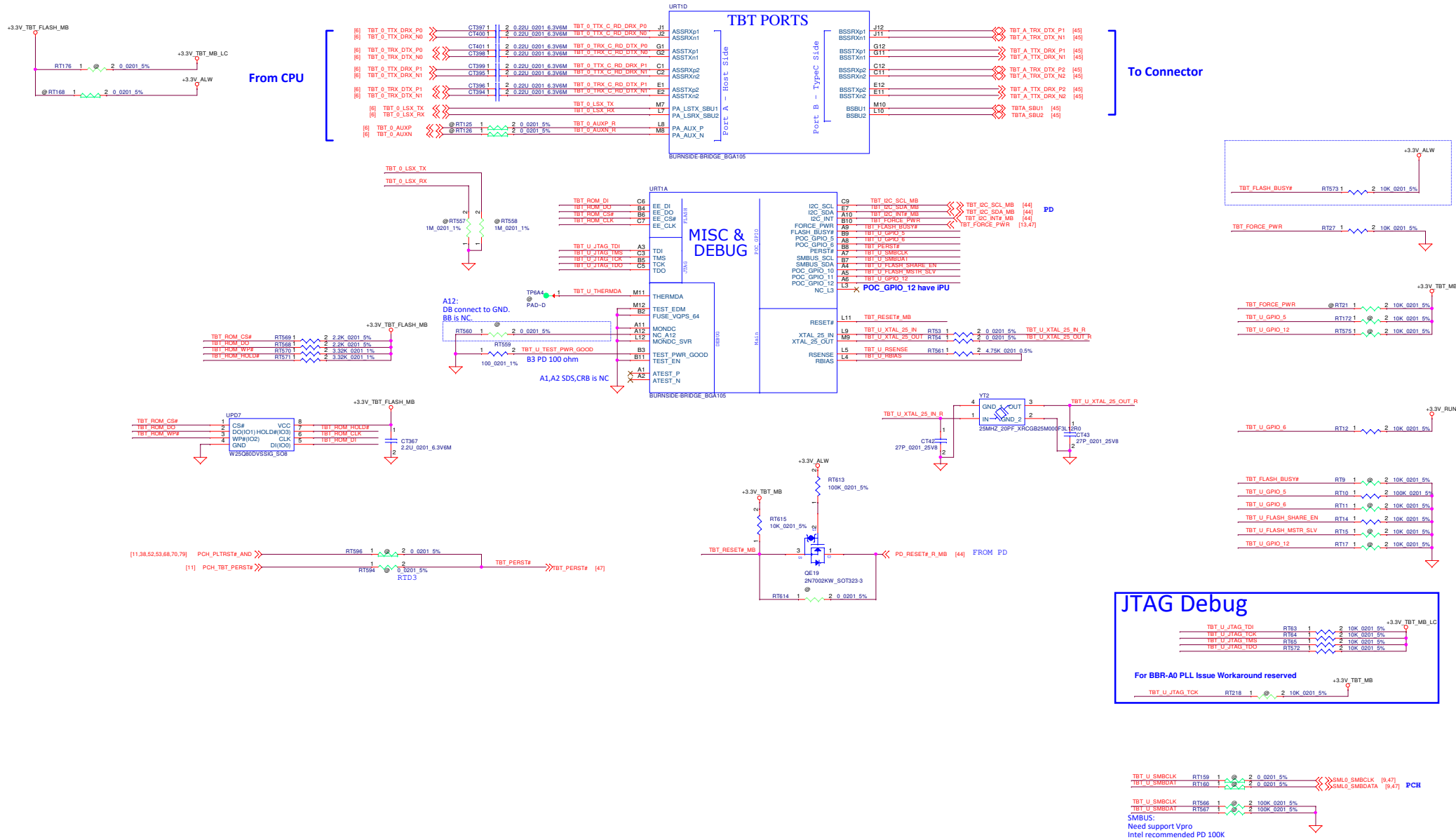
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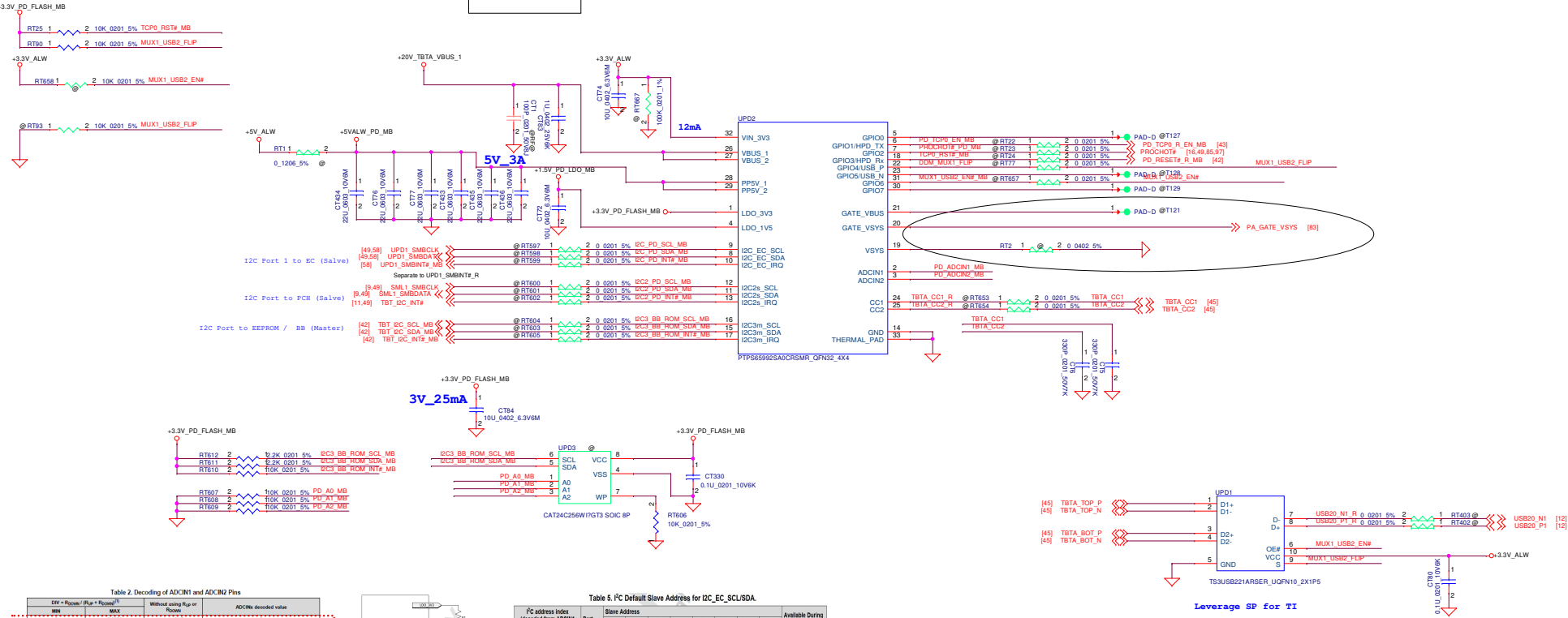
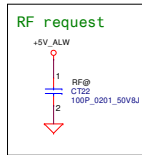


Table 2. Decoding of ADCIN1 and ADCIN2 Pins

MIN	MAX	Without using R1 or R2	ADCIN1 decoded value
0.000	0.000	N/A	0
0.000	0.000	N/A	1
0.000	0.000	N/A	2
0.000	0.000	N/A	3
0.000	0.000	N/A	4
0.000	0.000	N/A	5
0.000	0.000	N/A	6
0.000	0.000	N/A	7

(1) External resistor tolerance of 1% is recommended. Resistor values must be chosen to yield a DIV value centered normally between 0.000 and 0.000 values.

$ADCIN1_PD:100K/10K = 0.09$

$ADCIN2_PD:NC/100K = 0$

$DIV = R2/(R1+R2)$
 $ADCIN1 = 2 (0.09)$
 $ADCIN2 = 0$
 $Address: 0x22$

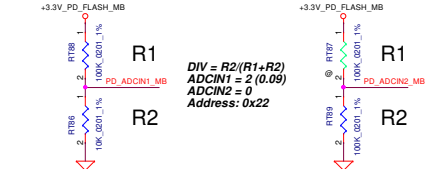


Table 5. PC Default Slave Address for I2C_ECL_SCL/SDA

PC address index (decoded from ADCIN1 and ADCIN2)	Port	Slave Address	Available During BOOT
#1	A	0 1 0 0 0 0 0 0	Yes
#2	A	0 1 0 0 0 0 0 1	Yes
#3	A	0 1 0 0 0 0 1 0	Yes
#4	A	0 1 0 0 0 0 1 1	Yes

Table 6. Device Configuration using ADCIN1 and ADCIN2

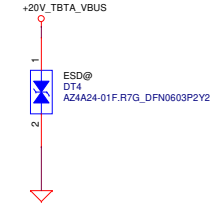
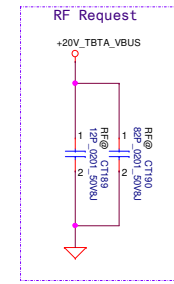
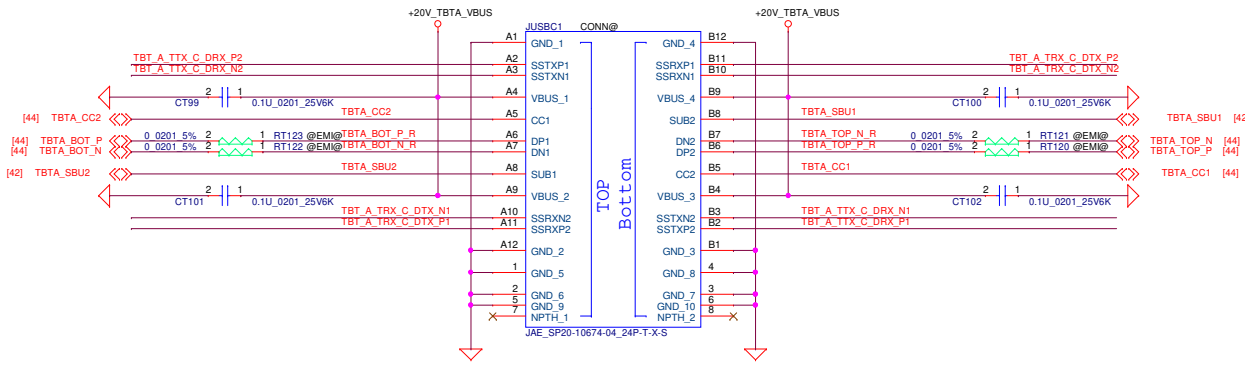
ADCIN1 decoded value [1]	ADCIN2 decoded value [1]	PC address index [2]	Dead Battery Configuration
7	5	#1	AlwaysEnableSink: The device always enables the sink path regardless of the amount of current the attached source is offering. JUSB AB is disabled until configuration is loaded.
5	5	#2	SinkRequires_3.0A: The device only enables the sink path if the attached source is offering at least 3.0A. USB PD is disabled until configuration is loaded.
1	7	#4	SinkRequires_1.5A: The device only enables the sink path if the attached source is offering at least 1.5A. USB PD is disabled until configuration is loaded.
7	4	#1	NegotiateHighVoltage: The device always enables the sink path during the initial implicit contract regardless of the amount of current the attached source is offering. The PD controller will enter the XFP mode, enable USB PD PHY and negotiate a contract for the highest power contract that is offered up to 20 V.
7	3	#2	SafeMode: The device does not enable the sink path. USB PD is disabled until configuration is loaded. Note that the configuration could put the device into a source-only mode.
3	3	#3	
4	0	#3	
3	7	#4	
7	0	#1	
0	0	#2	
0	0	#3	
5	7	#4	

Table 4. Function table [1]

Input	OE	Channel
S	L	D+ = 1D+, D- = 1D-
L	L	D+ = 2D+, D- = 2D-
H	L	switches off
X	H	switches off

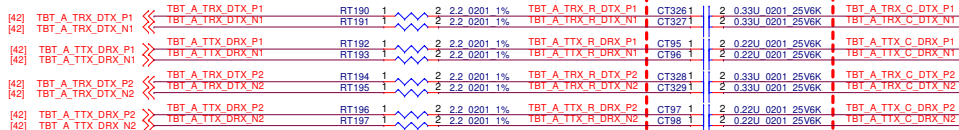
[1] H = HIGH voltage level, L = LOW voltage level, X = don't care.

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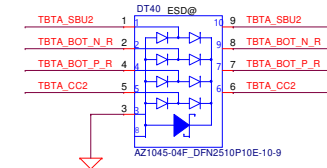
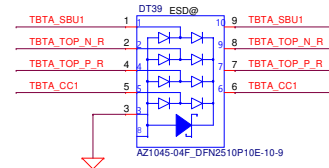
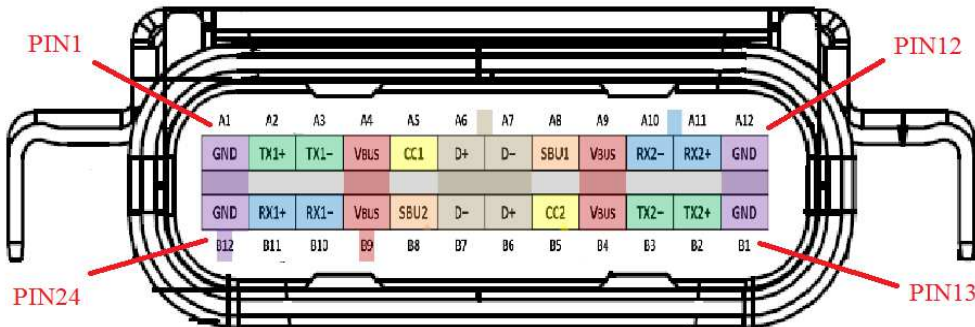
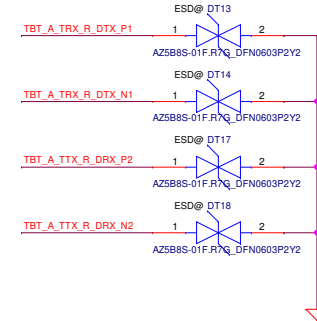
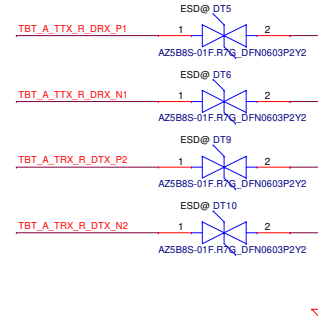
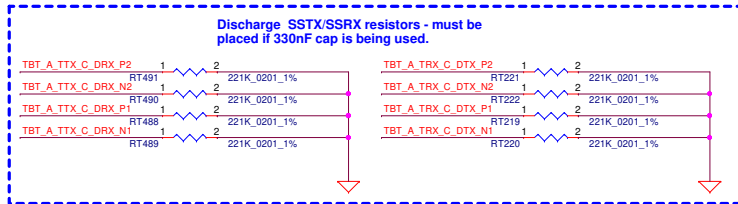


Place holder for future VBUS-short fix (reduce current surge)

AC coupling is recommended for VBUS-short protection on SSRX lines. If not needed, place 0 Ohm resistor instead.



Discharge SSTX/SSRX resistors - must be placed if 330nF cap is being used.

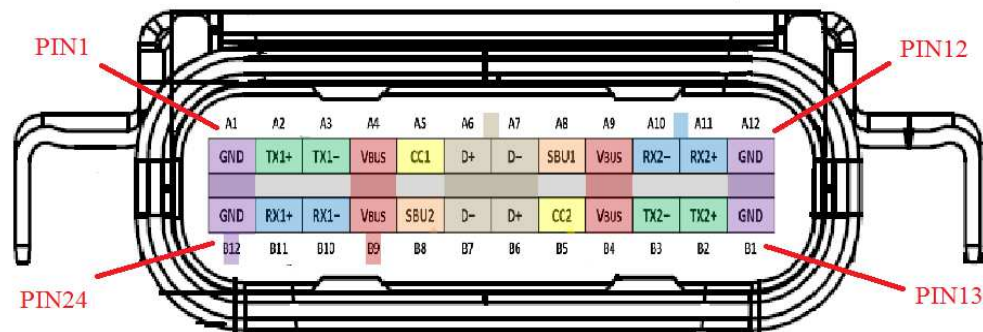


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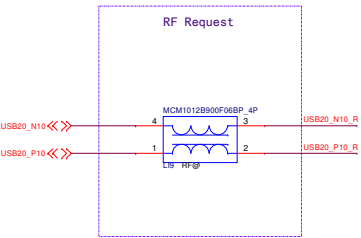
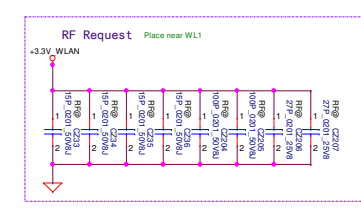
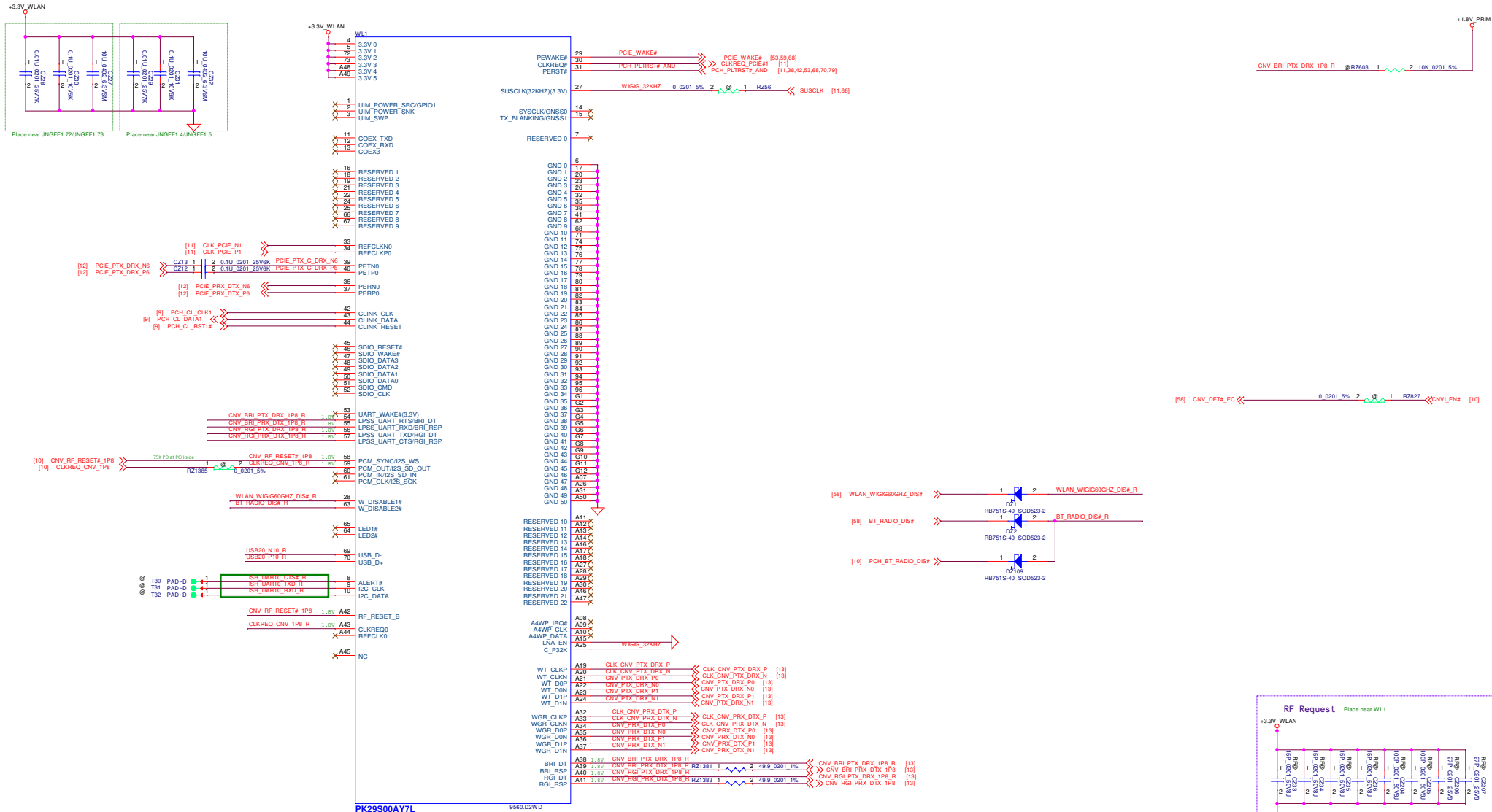
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Title		PCIE device	
Size	Document Number		Rev
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Link ACES 50278-00801-001 DONE 0809

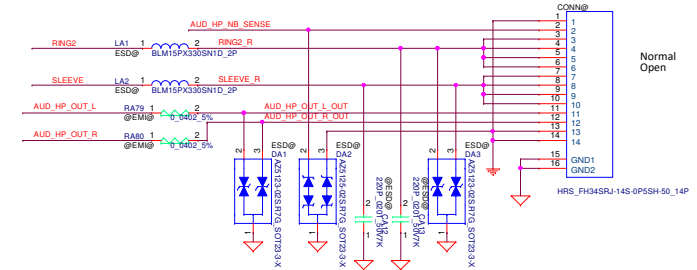
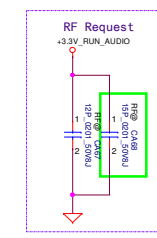


Figure 10 shows a schematic diagram of a three-channel differential signal input circuit. It consists of three identical horizontal signal paths. Each path has two input terminals labeled '1' and '2'. Between these terminals, there is a network of resistors: RA35 and RA36 are in series on the top line, and RA37 and RA38 are in series on the bottom line. The bottom line of each path is connected to a common ground. To the right of each path, there is a 5V supply and a 0.0402 ohm resistor connected to ground. The entire circuit is labeled 'place at AGND and DGND plane'.

Rev	1
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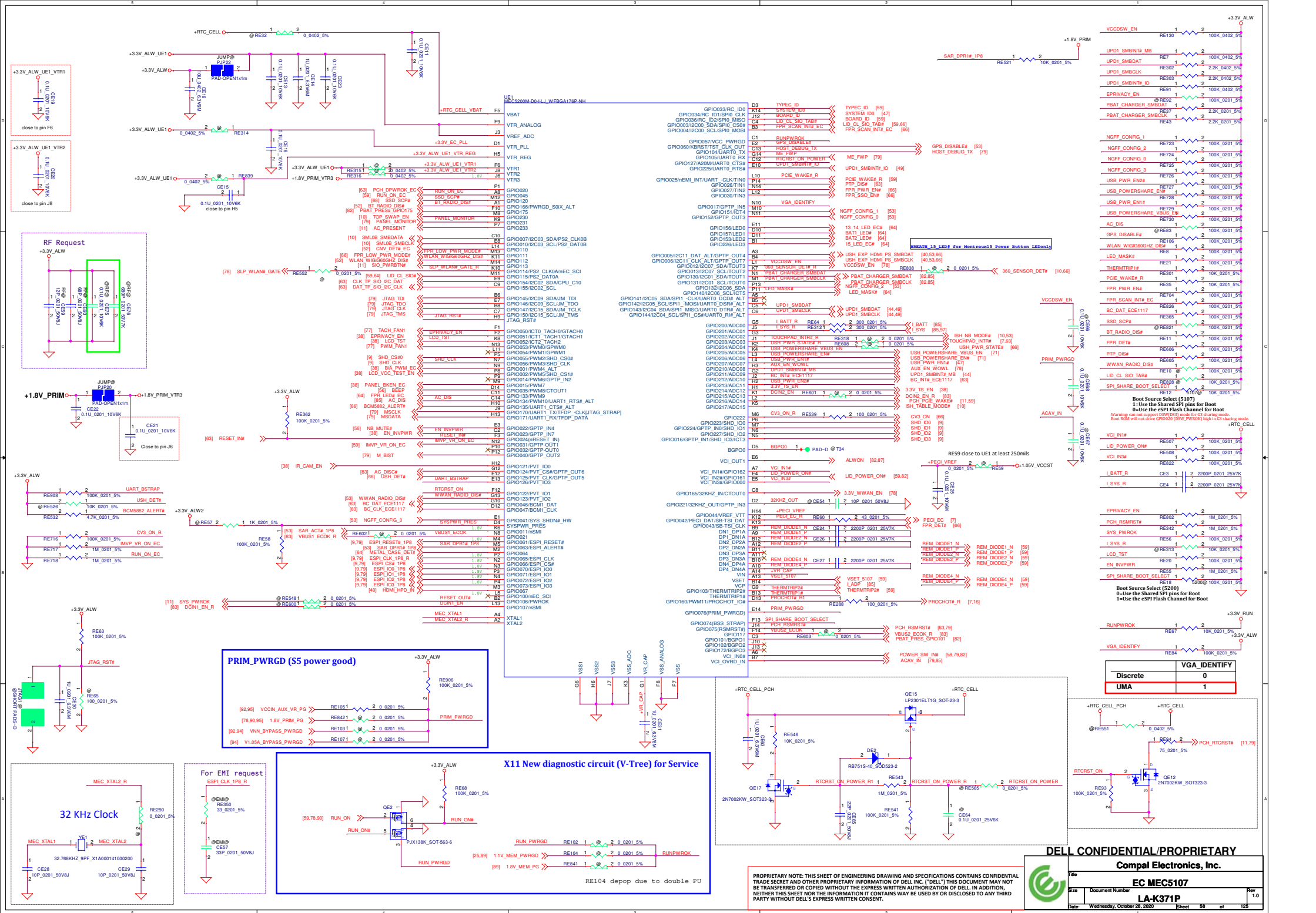


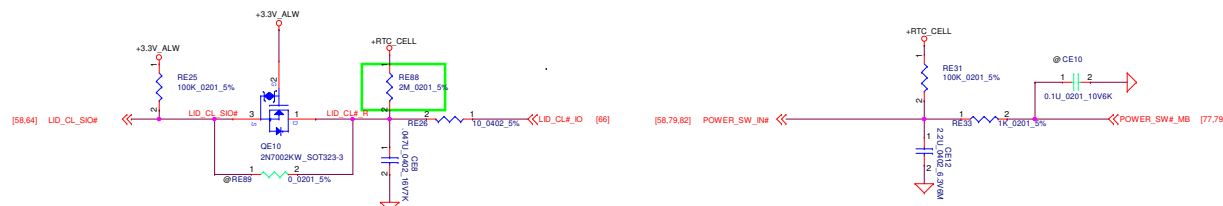
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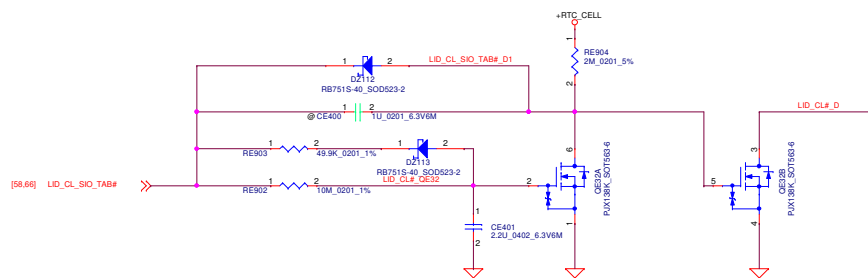


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Title		Audio Amplifier	
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Date:	Wednesday, October 28, 2020		Sheet 57 of 125

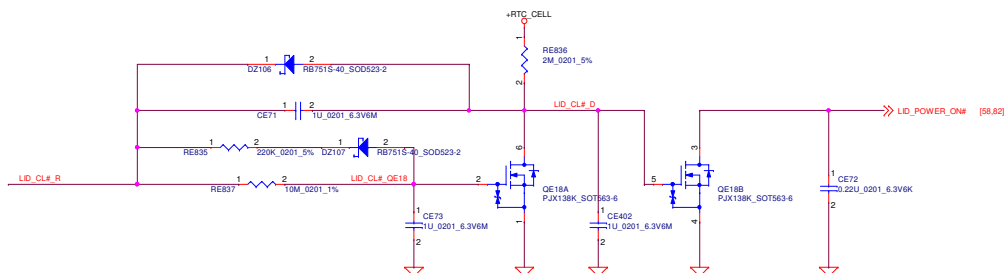




Fixed 360 auto power on



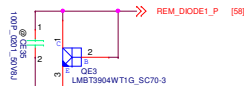
S5 LID OPEN POWER ON(Other Solution)



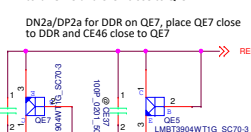
Thermal diode mapping

5107 Channel	Location
DP1/DN1	CPU (QE3)
DP2/DN2	Ambient (QE5)
DN2a/DP2a	DDR (QE7)
DP3/DN3	NA
DP4/DN4	CPU VR (QE6)

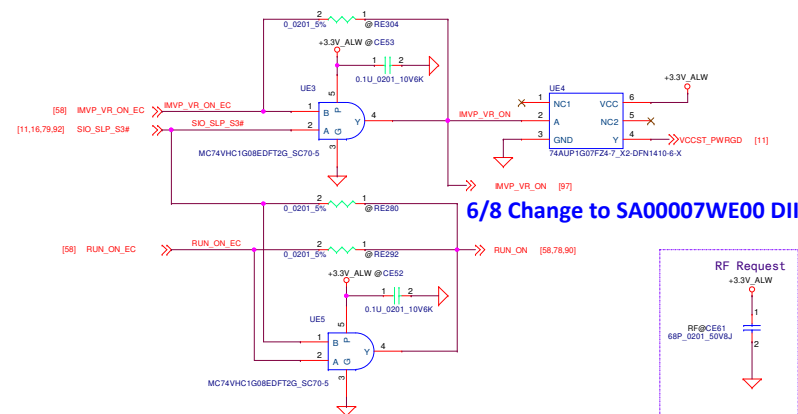
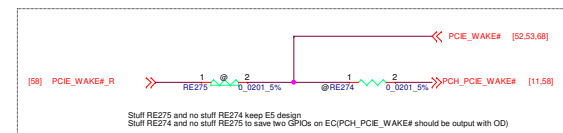
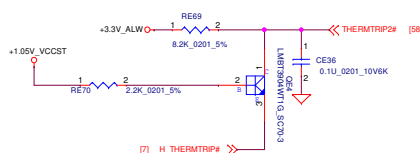
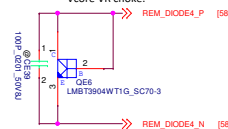
Place under CPU
Place CE35 close to the QE3 as possible



DP2/DN2 for M2 2280 on QE5, place QE5 close to INGFF3 and CE37 close to QE5



DP4/DN4 for Skin on QE6, place QE6 close to Vcore VR choke.

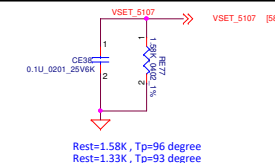


RE343	CE62	REV
240K	4700p	Single Port ACE w/o TR
130K	4700p	Single Port ACE w/TR
62K	4700p	Dual Port ACE w/o TR
* 33K	4700p	Dual Port ACE w/TR
8.2K	4700p	Dual Port ACE (w/TR +w/o TR)
4.3K	4700p	.
2K	4700p	.
1K	4700p	.

RE79	CE40	REV
240K	4700p	X00
130K	4700p	X01
62K	4700p	X02
33K	4700p	X03
8.2K	4700p	reserved
* 4.3K	4700p	A00
2K	4700p	.
1K	4700p	.

TYPEC ID rise time is measured from 0%~63.2%.

BOARD ID rise time is measured from 0%~63.2%.



Rest=1.58K, Tp=96 degree
Rest=1.33K, Tp=93 degree

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Title	MEC5107 support	Rev	1.0
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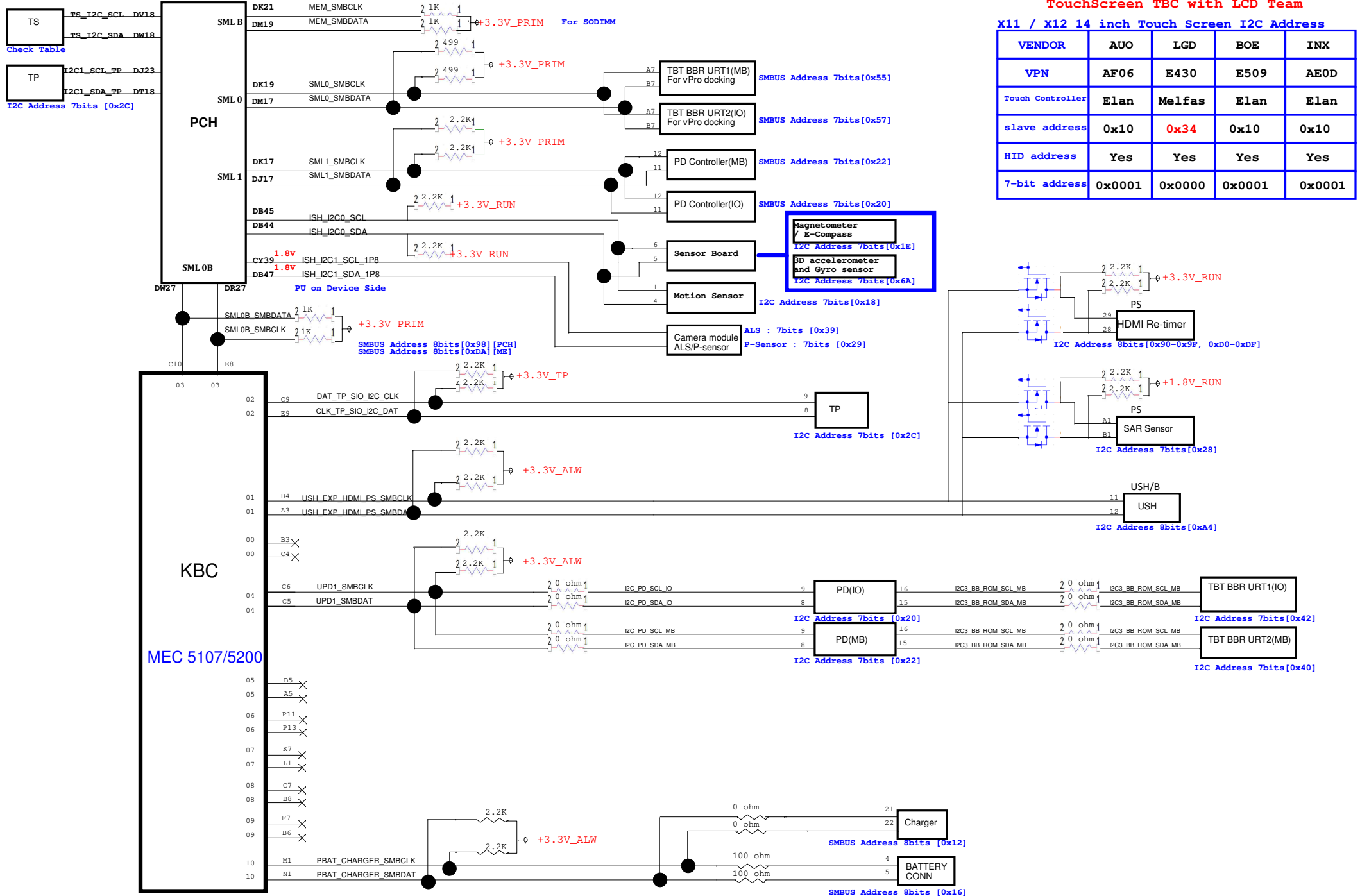


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Title		Secure & Reset IC	
Size	Document Number		Rev
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TouchScreen TBC with LCD Team

X11 / X12 14 inch Touch Screen I2C Address

VENDOR	AUO	LGD	BOE	INX
VPN	AF06	E430	E509	AE0D
Touch Controller	Elan	Melfas	Elan	Elan
slave address	0x10	0x34	0x10	0x10
HID address	Yes	Yes	Yes	Yes
7-bit address	0x0001	0x0000	0x0001	0x0001



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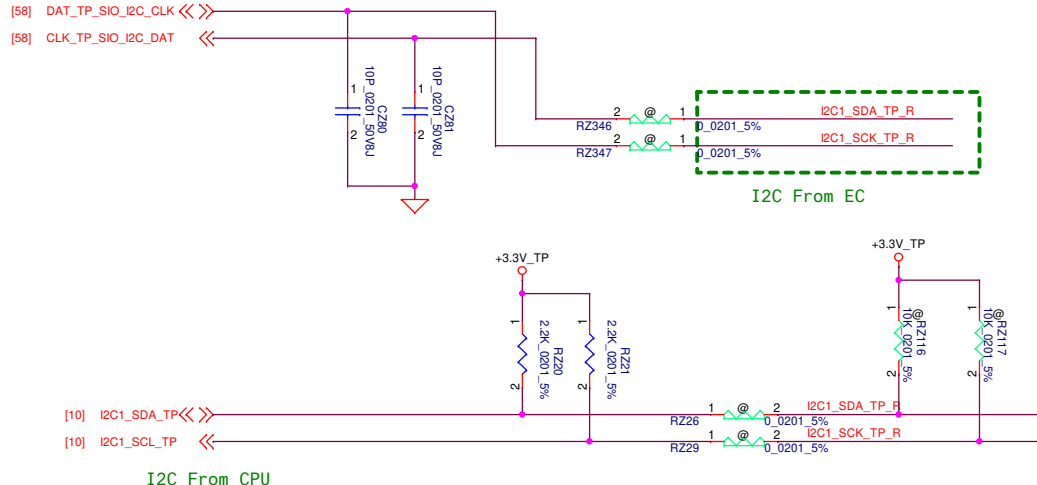
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Compal Electronics, Inc.			
Title	LED (Controller)		
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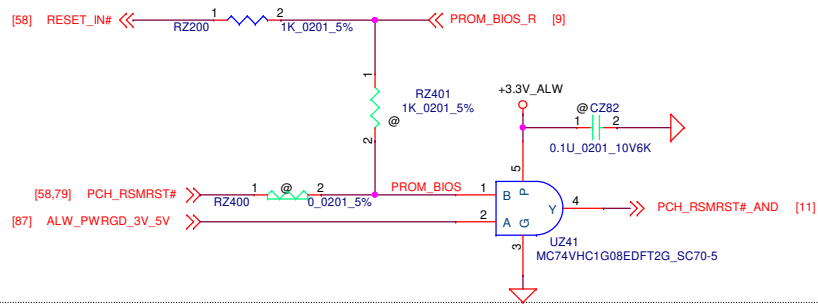
Touch Pad



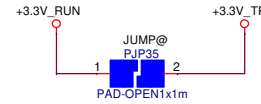
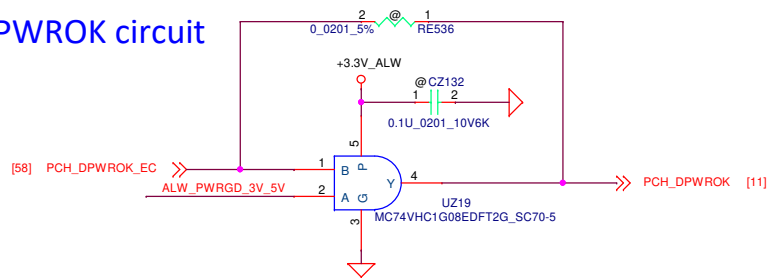
I2C From CPU

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

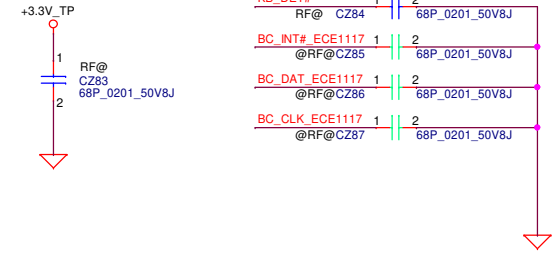
RSMRST circuit



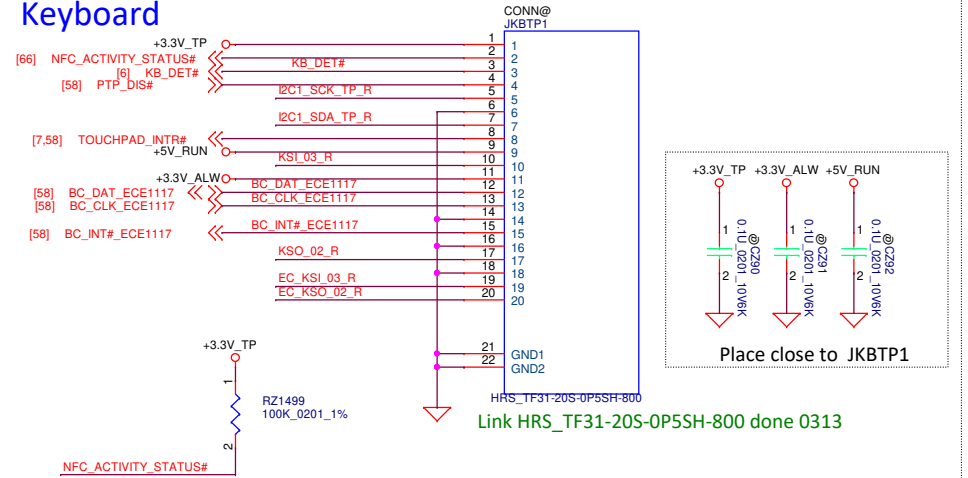
DSW_PWROK circuit



RF Request



Keyboard



Place close to JKBTP1

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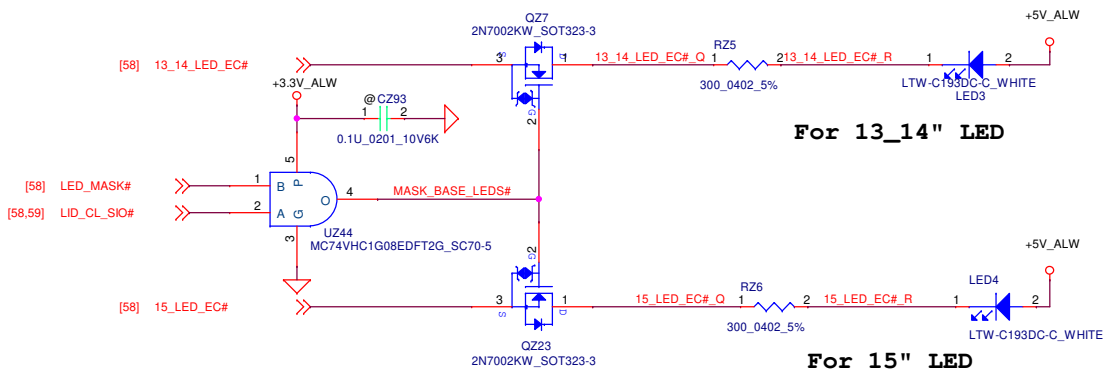
Keyboard

LA-K371P

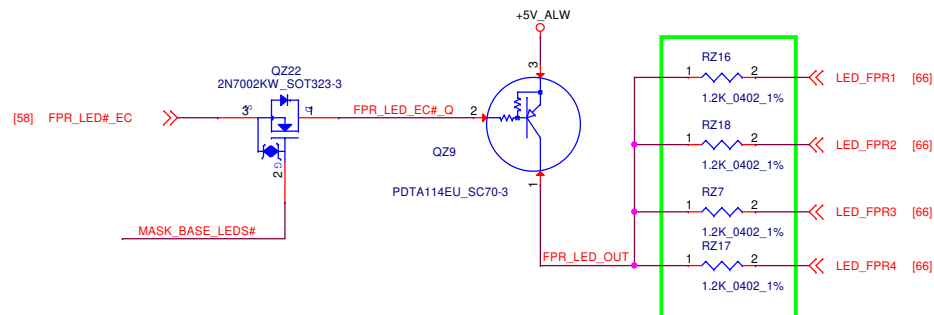
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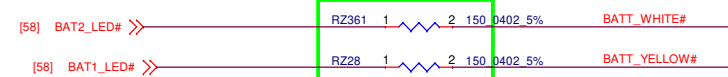
Breath LED



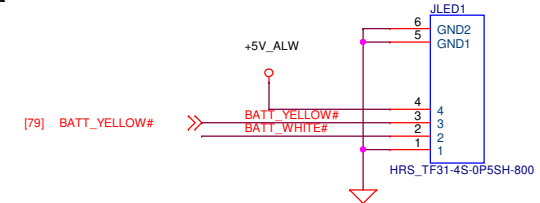
02/20 got the message update for LED * 4pcs inside FPR



Battery LED



Could combine to Audio Board

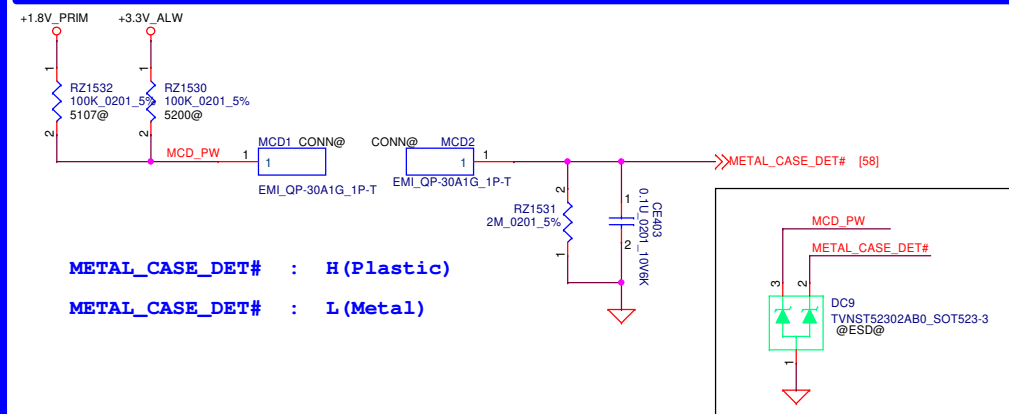
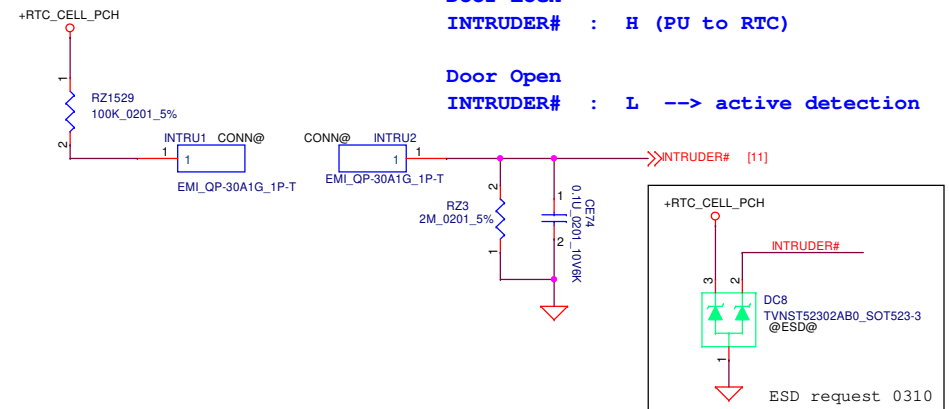


Door Lock

INTRUDER# : H (PU to RTC)

Door Open

INTRUDER# : L --> active detection



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Title		
LED & LID		
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Title

Reserve for KB/TP/LED/LID

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Title

HDD/ODD/FFS Connector

Size

Document Number

LA-K371P

Rev

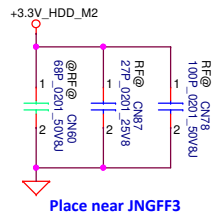
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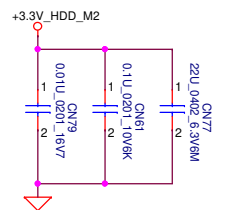
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Add Power Decoupling for support Intel Teton Glacier

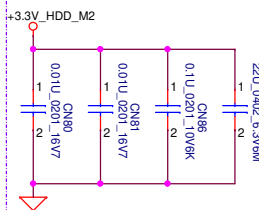
RF Request



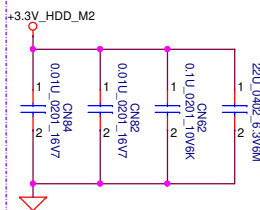
Place close JNGFF3 pin 12,14,16,18



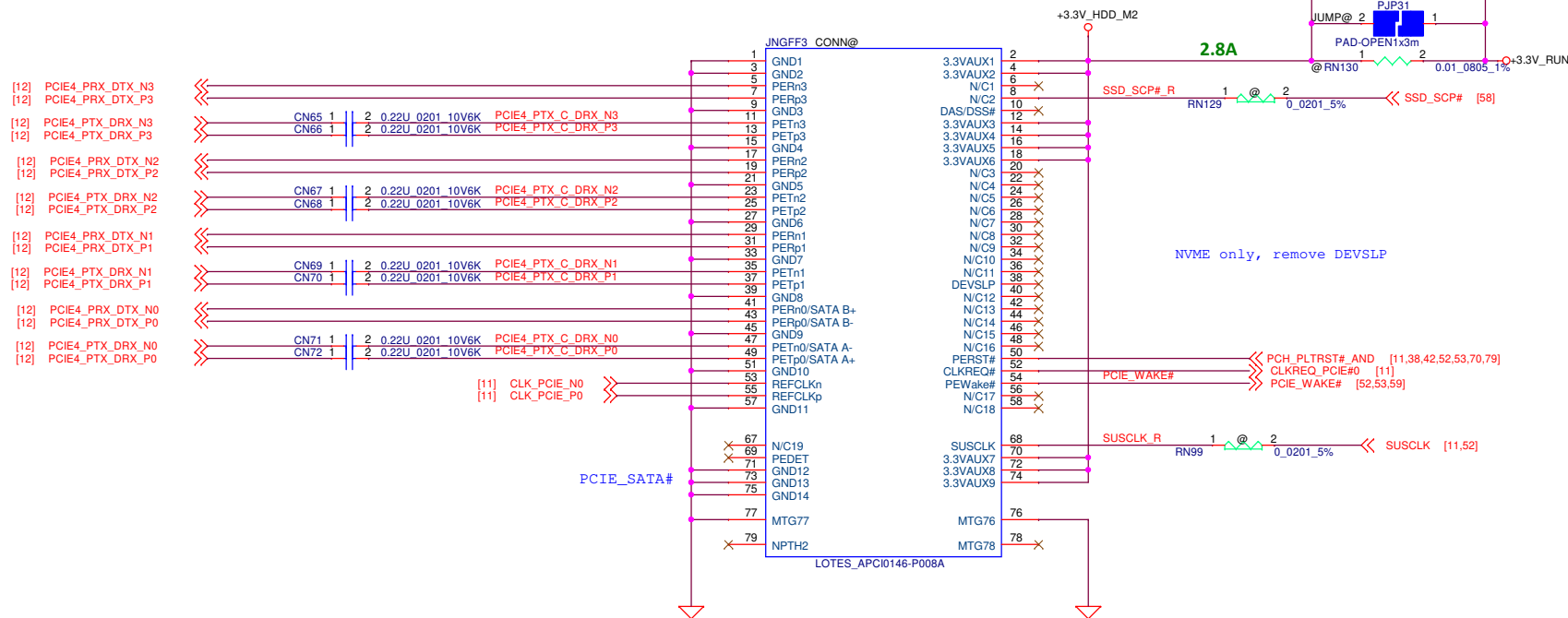
Place close JNGFF3 pin 2,4



Place close JNGFF3 pin 70,72,74



2280 SSD NGFF slot C Key M



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M2 2280 Socket

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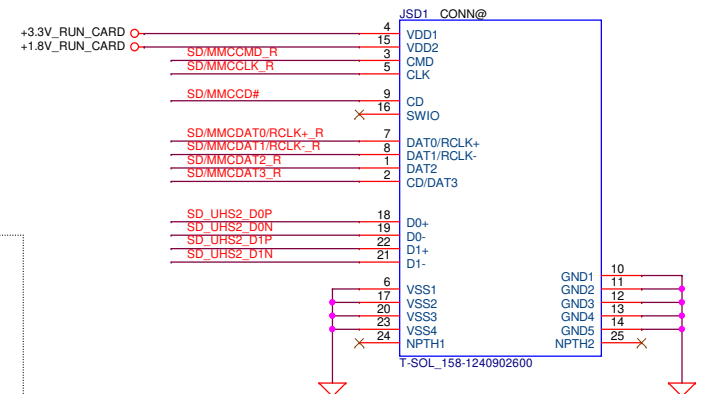
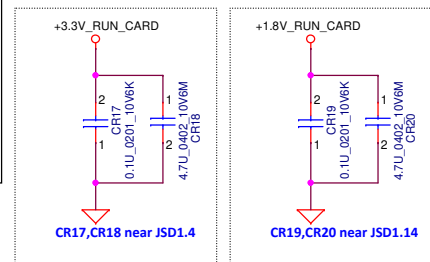
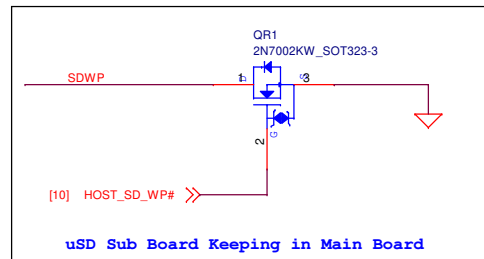
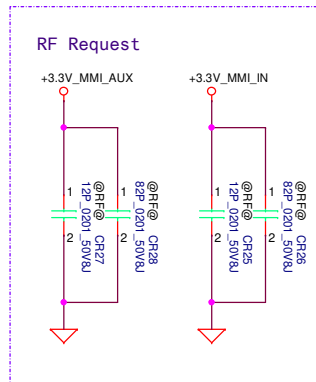
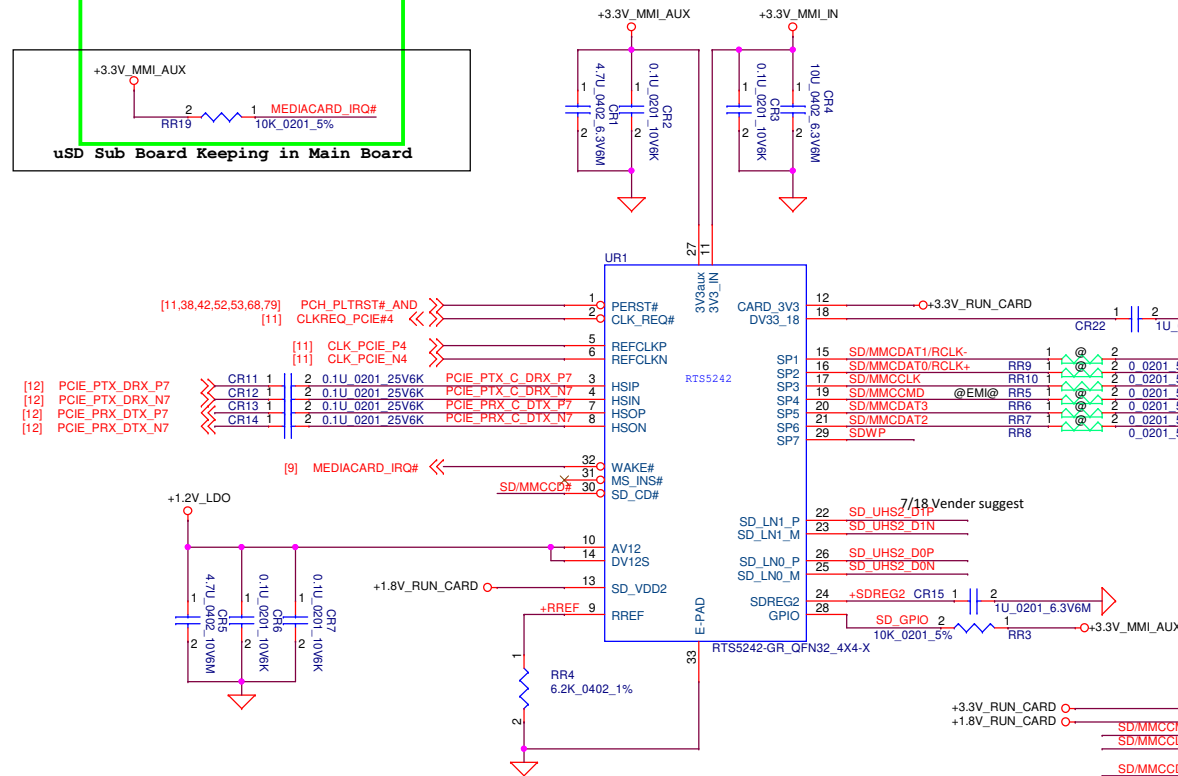
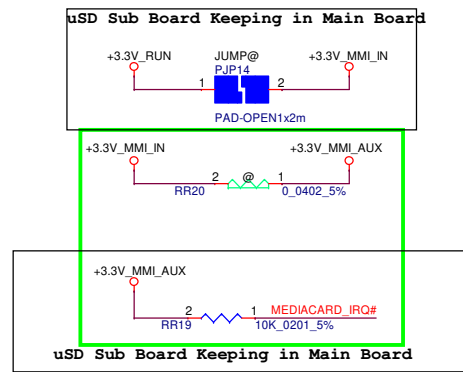
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For PCIE Interface



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

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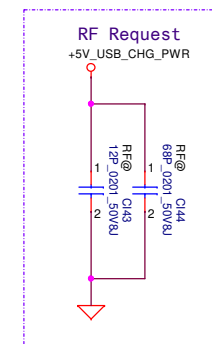
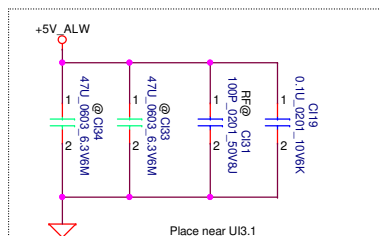
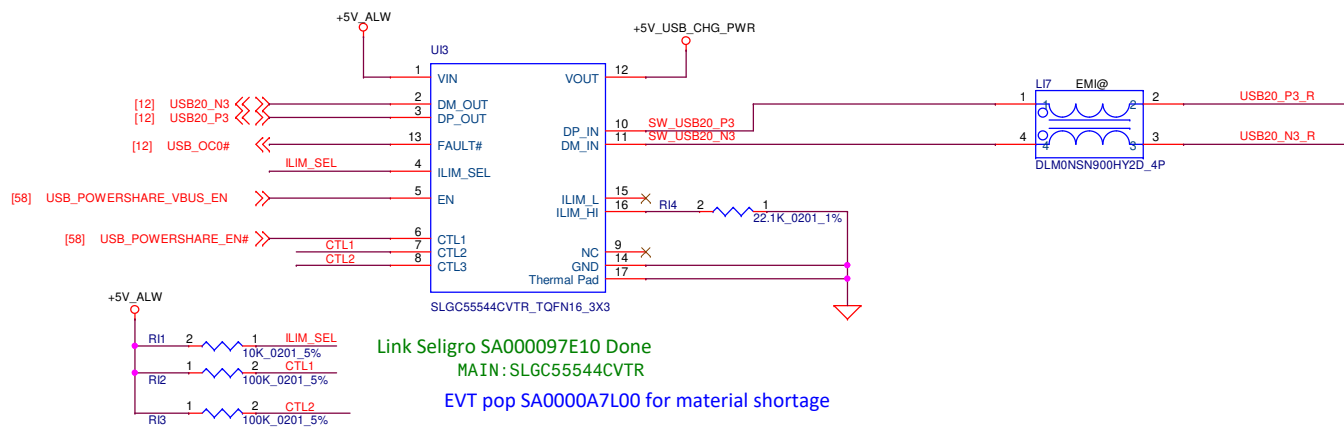
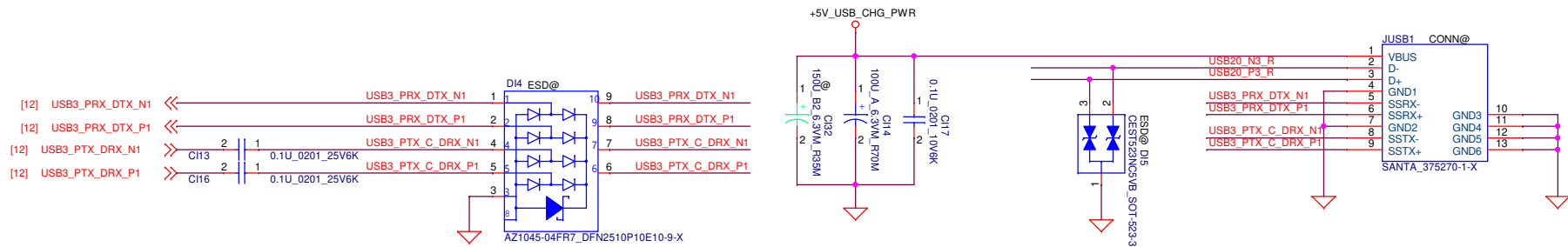
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Card Reader RTS5242

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Title		JUSB1+PS
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Title		JUSB2	
Size	Document Number		Rev
	LA-K371P		1.0
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Title		USB2/USB3 DB	
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	LA-K371P		1.0
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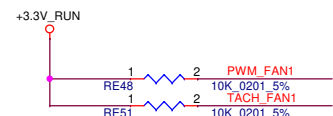
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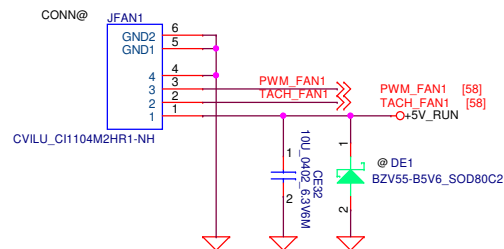
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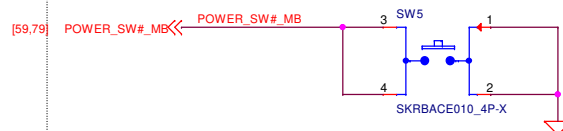


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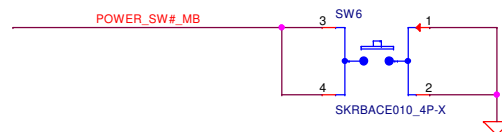
Fan

POWER & INSTANT ON SWITCH TOP



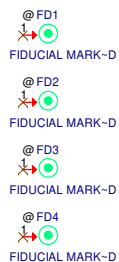
FOR 13/14 PWR BUTTON

POWER & INSTANT ON SWITCH TOP

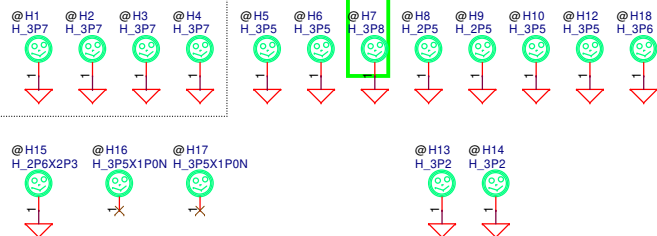


FOR 15 PWR BUTTON

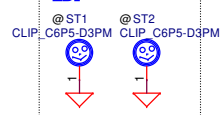
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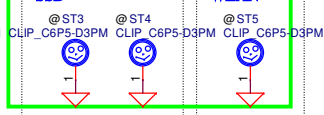
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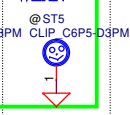
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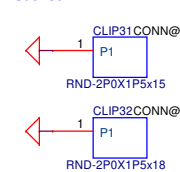
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WLAN

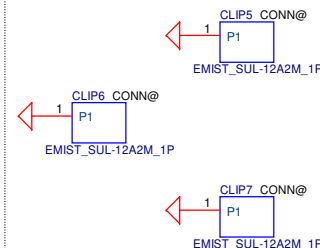


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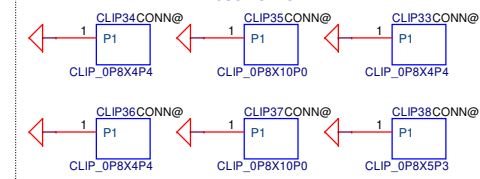


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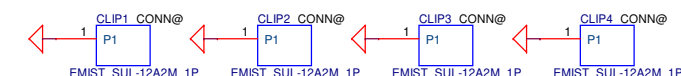
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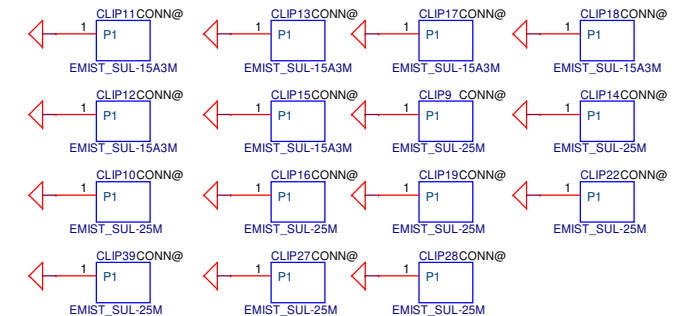
JUSB CLIPS



WWAN



BOT CLIPS



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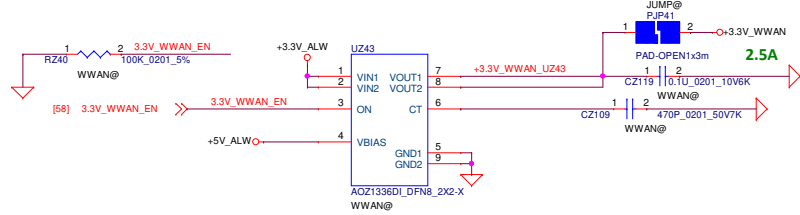
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PWRBTN, PAD, ME, FAN

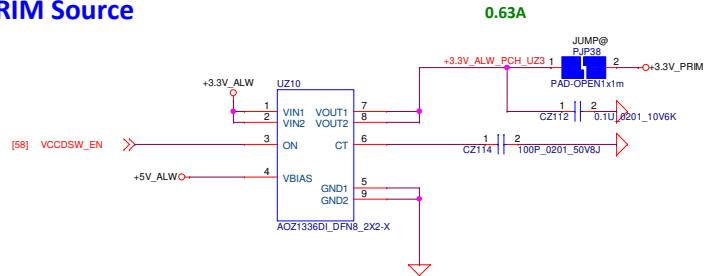
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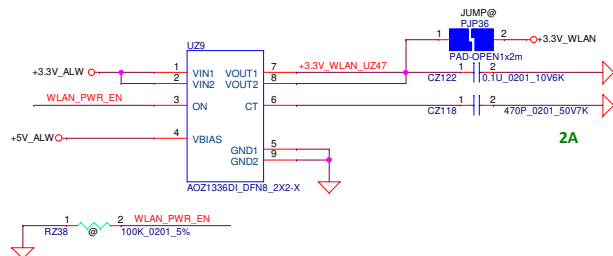
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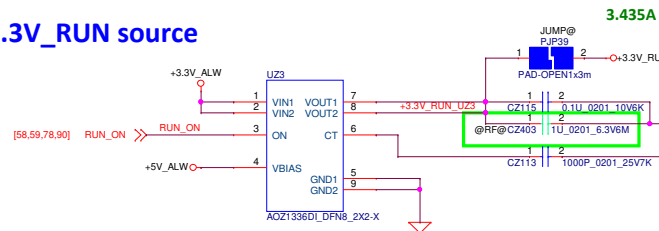
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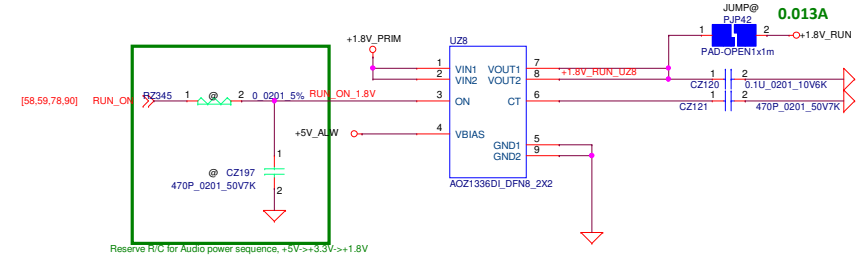
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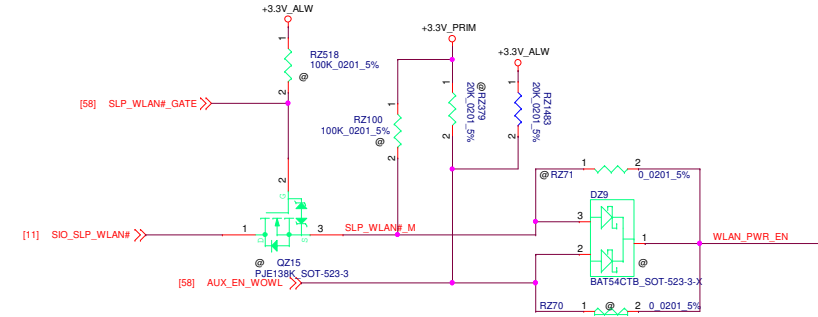
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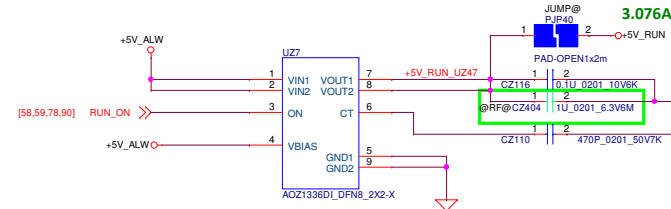
+1.8V_RUN source



EC request to reserve OR gate for WLAN power enable

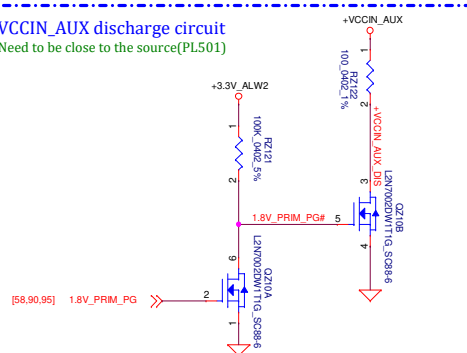


+5V_RUN source



+VCCIN_AUX discharge circuit

Need to be close to the source(PL501)



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LA-K371P

Wednesday, October 26, 2017 10:41 AM

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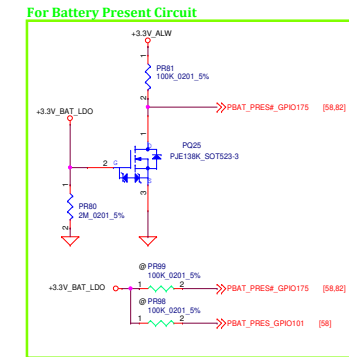
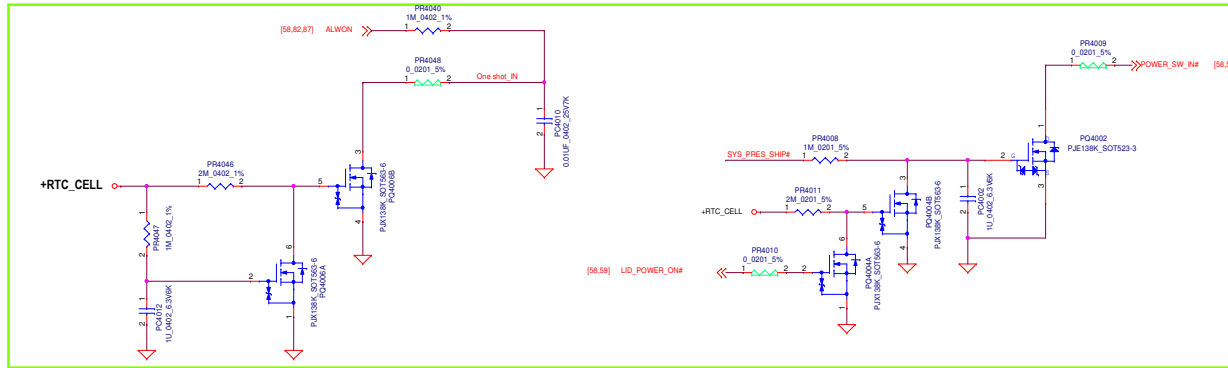
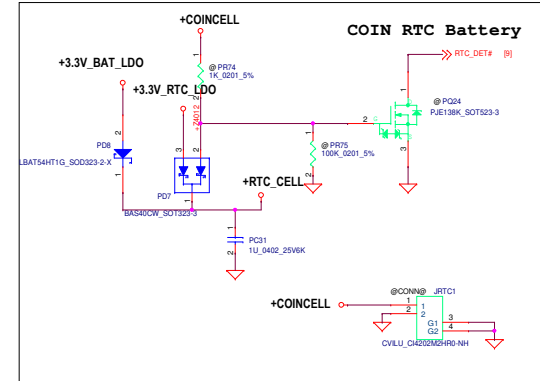
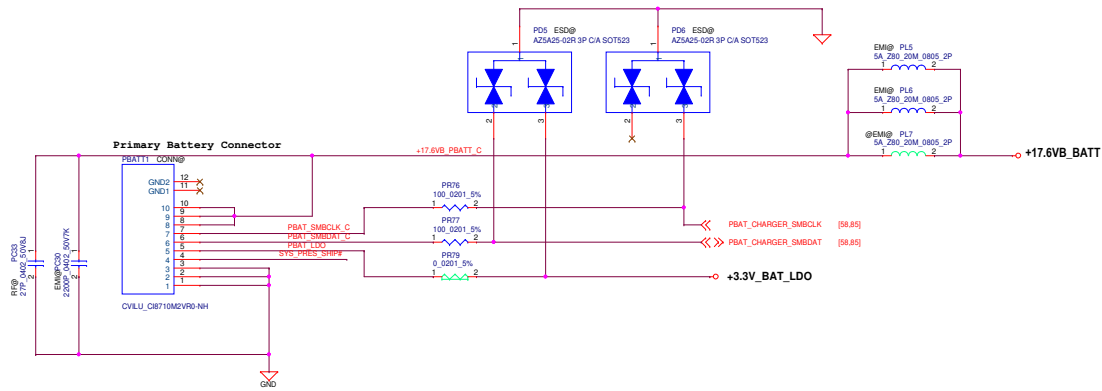


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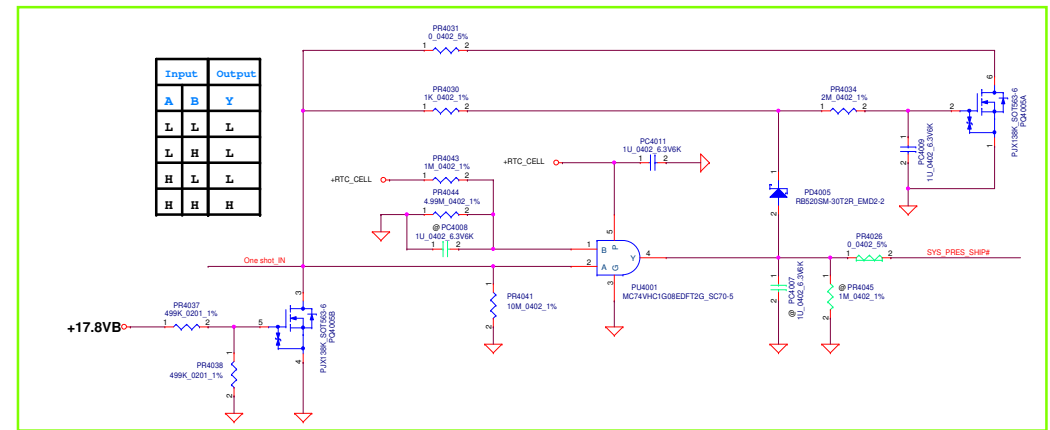
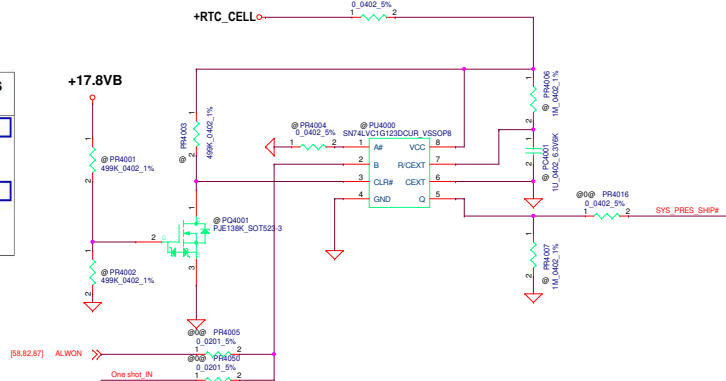


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PWR-Block Diagram		
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FUNCTION TABLE

INPUTS			OUTPUTS
CLR	A	B	Q
L	X	X	L
X	H	X	L ⁽¹⁾
X	X	L	L ⁽¹⁾
H	L	↑	↑
H	↓	H	↓
↑	L	H	↓



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Battery Connector/ RTC		LA-K371P	
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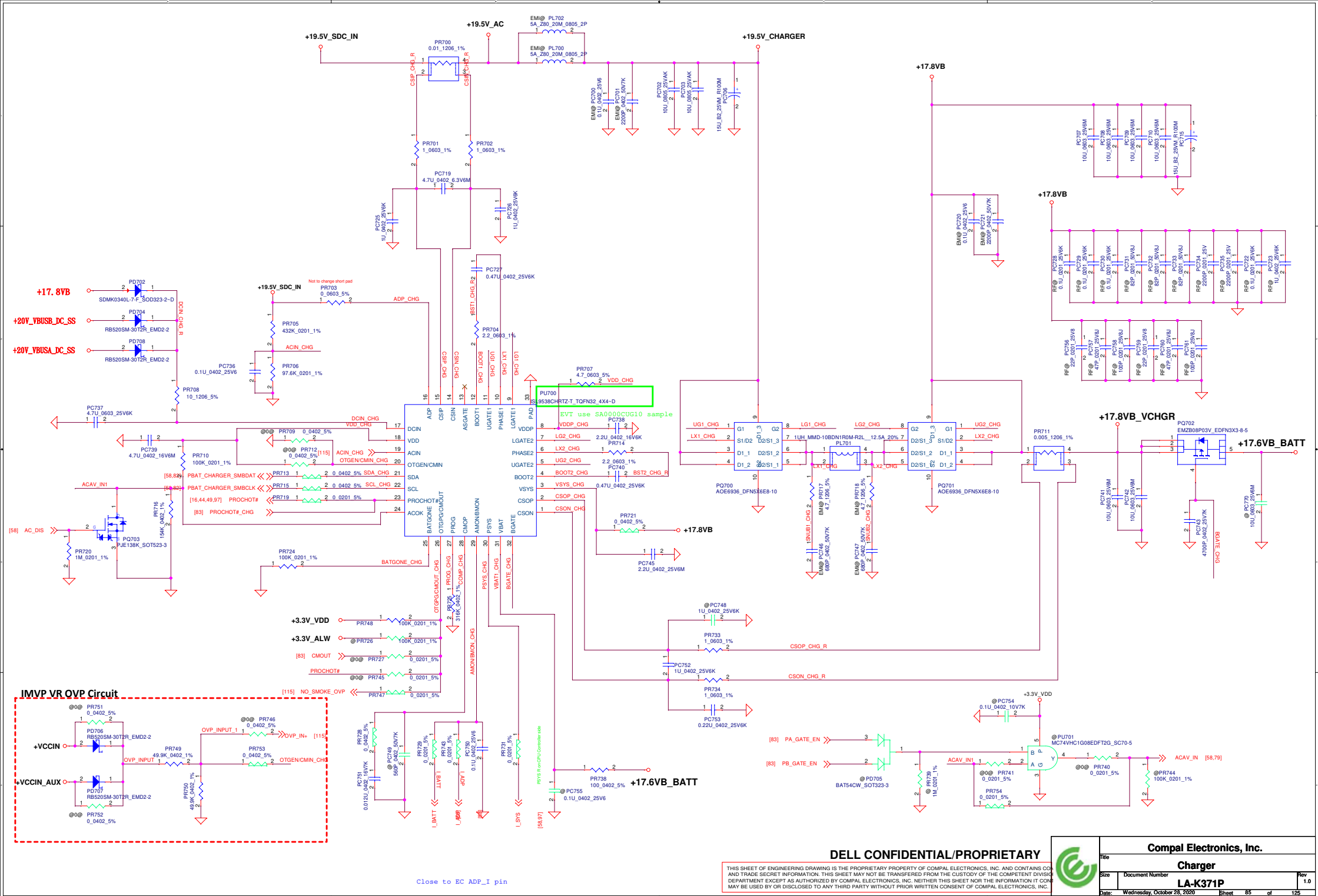
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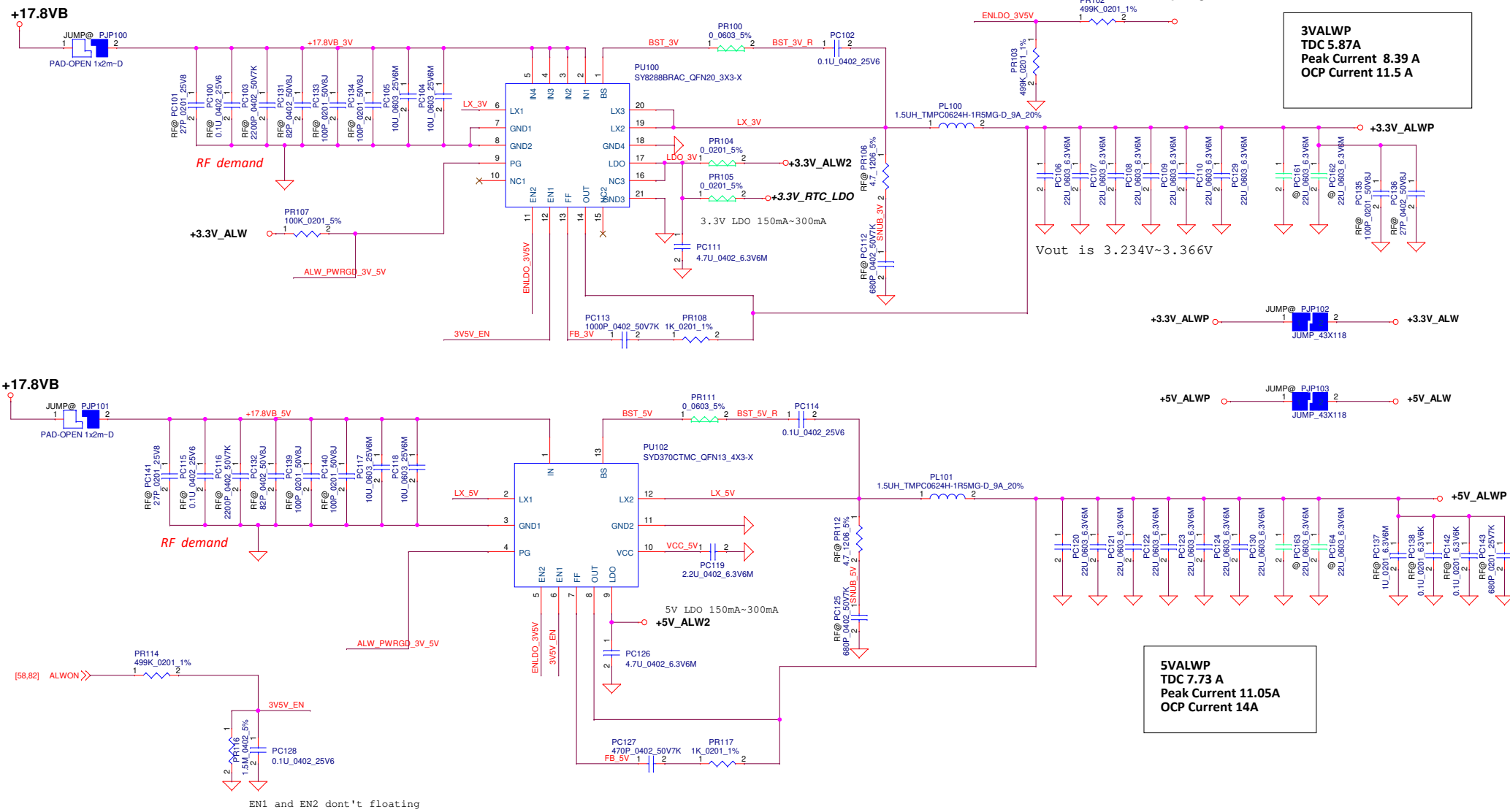
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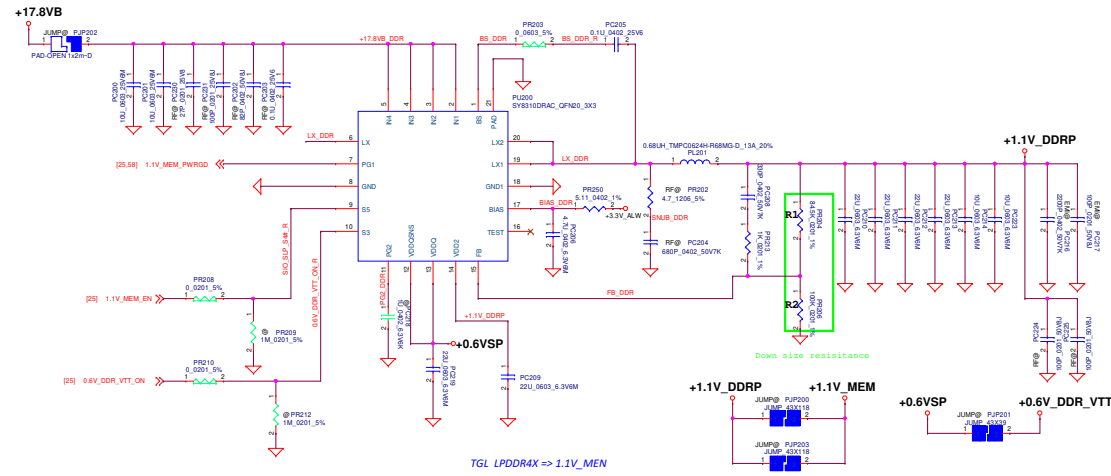
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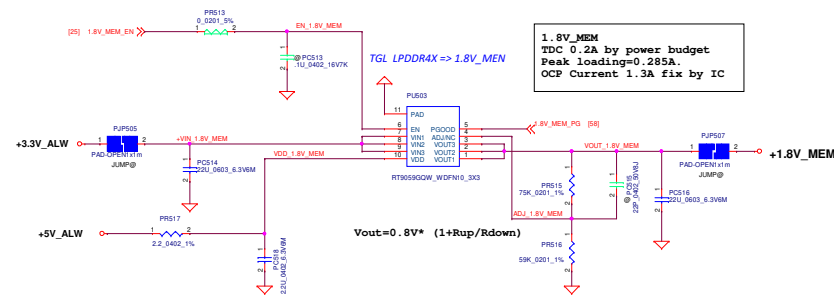
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TGL LPDDR4X => 1.1V_MEN

+1.1V_MEM
TDC 1.67A
Peak Current 2.39A
OCP Current 12A Fix by IC

0.6Vout +/- 5%
TDC 0.678A
Peak Current 0.969A
OCP Current 2A (fix)



TGL LPDDR4X => 1.8V_MEN

1.8V_MEM
TDC 0.2A by power budget
Peak loading=0.285A
OCP Current 1.3A fix by IC

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+1.1V_MEN/+0.6V_DDR_VTT	
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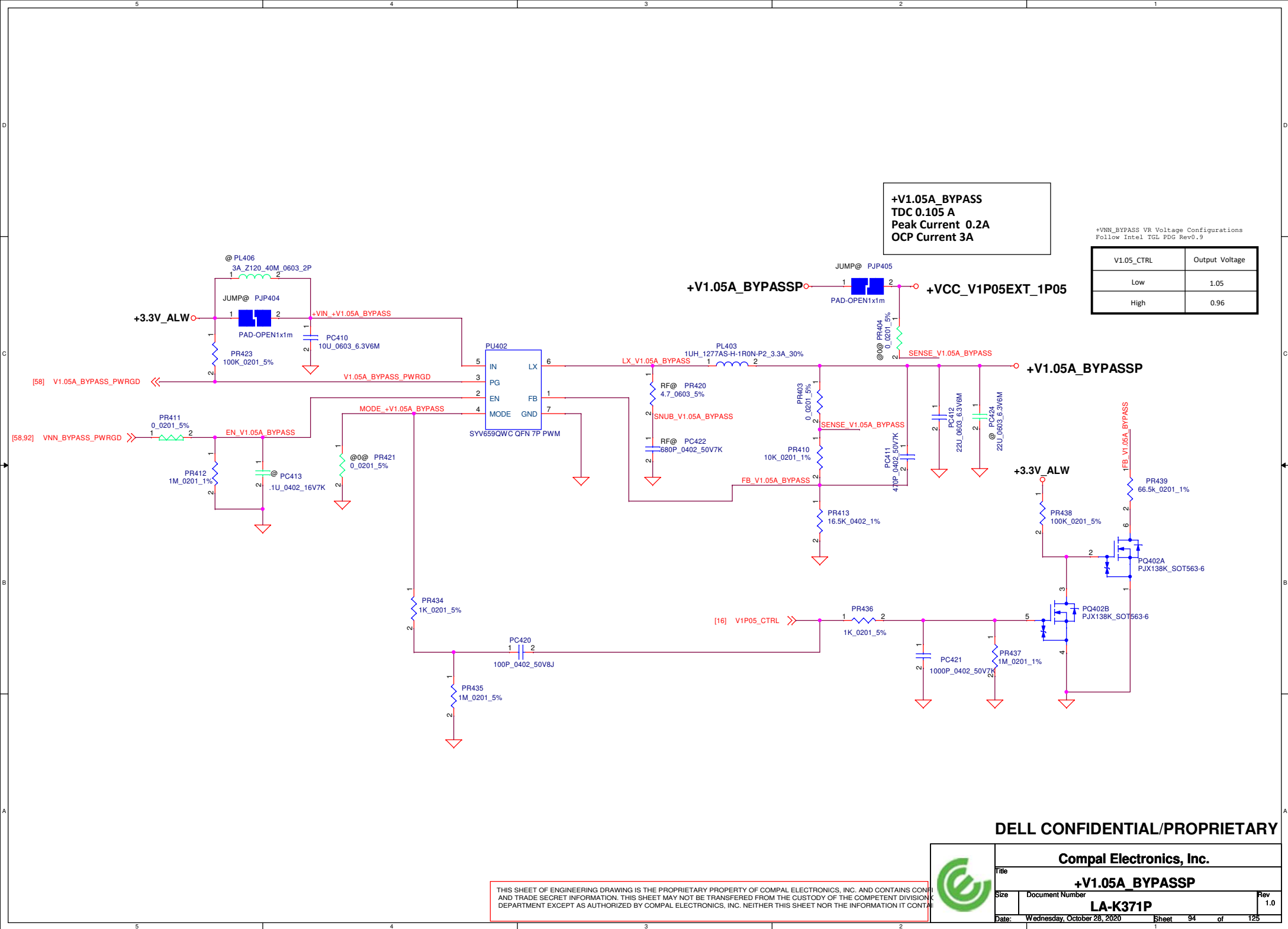
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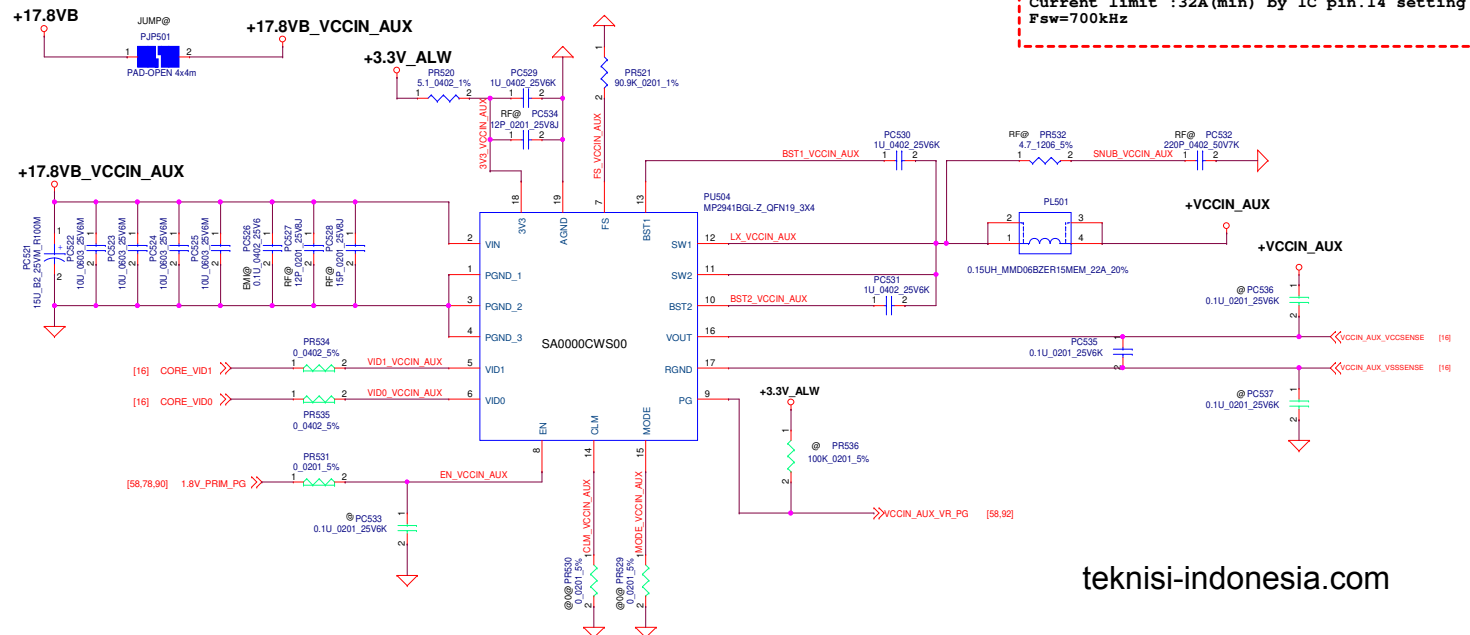
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Table---1:VID control Bit logics

VID1	VID0	VOUT (V)
0	0	0
0	1	1.1
1	0	1.65
1	1	1.8

Table---2:CLM Select

State	CLM	Resistor to GND
M1	7A	0
M2	10A	90k
M3	13A	150k
M4	16A	>230k or float

Table---3:MODE Select

State	Interleaving	VID Down option	Resistor to GND
M1	N	Slew down	0
M2	Y	Slew down	90k
M3	Y	Decay	150k
M4	N	Decay	>230k or float

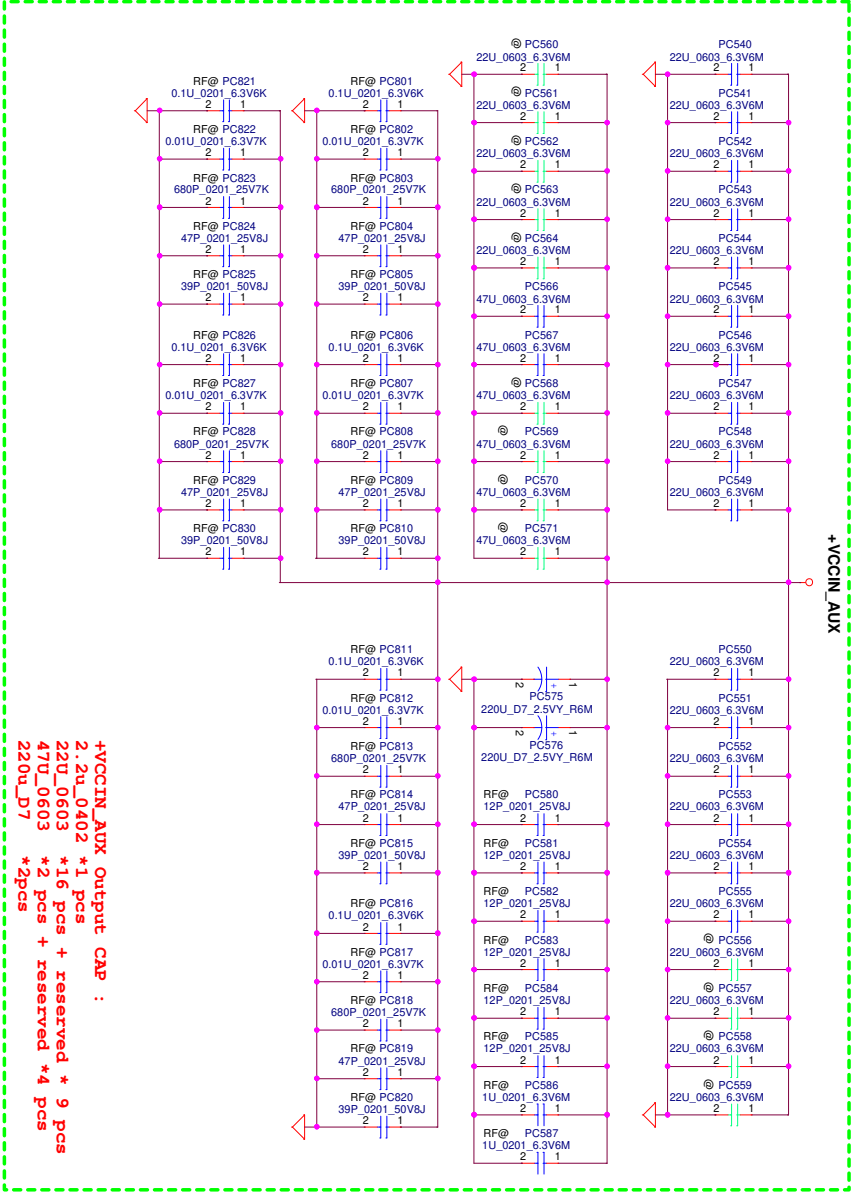
Table---4:FS Select

State	Fs (kHz)	Resistor to GND
M1	500	0
M2	700	90k
M3	1000	150k
M4	1200	>230k or float

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+VCCIN_AUX			
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+VCCIN_AUX Output CAP :
2.2u 0402 *1 pcs
22u 0603 *16 pcs + reserved *9 pcs
47u 0603 *2 pcs + reserved *4 pcs
220u D7 *2 pcs

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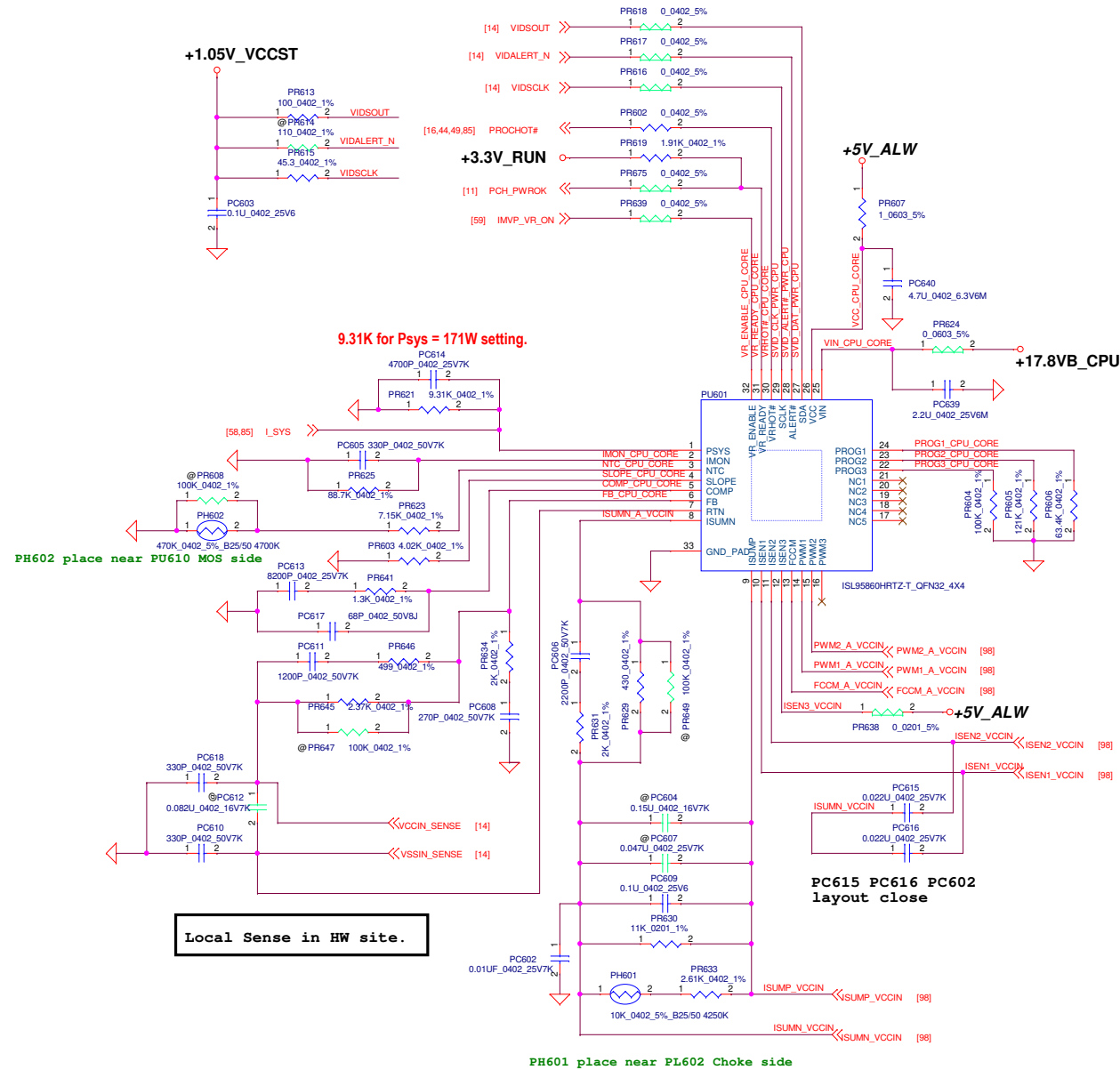


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+VCCIN_AUX Decoupling CAP

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CPU CORE

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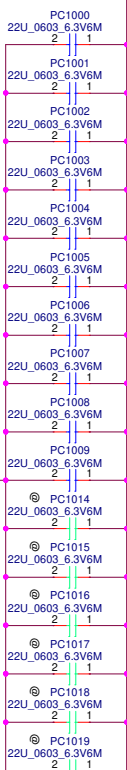
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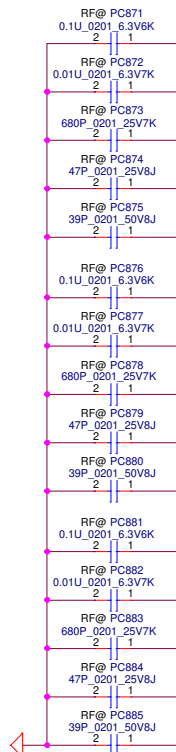
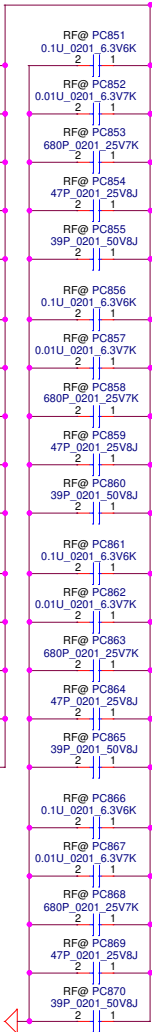
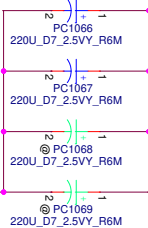
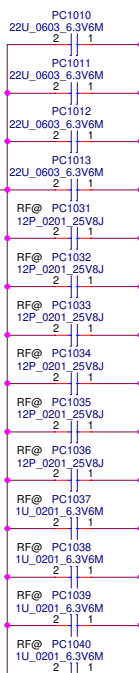
			
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+VCCIN



+VCCIN Output CAP :
220U_0603 *14 pcs + reserved *6pcs
220u_D7 *2pcs + reserved *2pcs



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CPU Decoupling CAP

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1. +3.3V_VDD output accuracy $\pm 2\%$
2. R tolerance $\pm 2\%$



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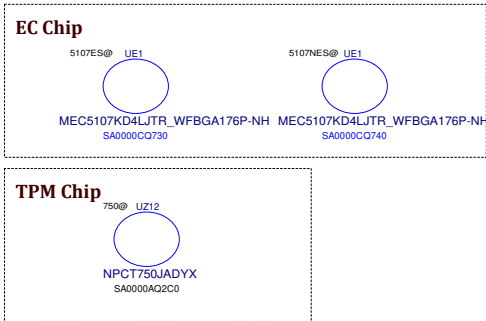
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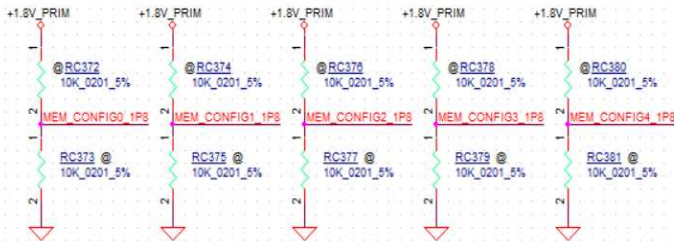
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DRAM Option Detail at Page 122



X76	DRAM Option	DRAM Config Option (Resistor pop location)				
		MEM_CONFIG0	MEM_CONFIG1	MEM_CONFIG2	MEM_CONFIG3	MEM_CONFIG4
Samsung 4GB/4266(Channel A only)	UD1 S4G@ SA0000D970L	UD2 S4G@ SA0000D970L	RC373 S4G@ SD043100280	RC374 S4G@ SD043100280	RC376 S4G@ SD043100280	RC379 S4G@ SD043100280
	UD3 S8G@ SA0000D970L	UD4 S8G@ SA0000D970L	RC373 S8G@ SD043100280	RC374 S8G@ SD043100280	RC376 S8G@ SD043100280	RC379 S8G@ SD043100280
	UD1 S16G@ SA0000D980L	UD2 S16G@ SA0000D980L	RC372 S16G@ SD043100280	RC375 S16G@ SD043100280	RC377 S16G@ SD043100280	RC378 S16G@ SD043100280
	UD3 S32G@ SA0000D980L	UD4 S32G@ SA0000D980L	RC372 S32G@ SD043100280	RC375 S32G@ SD043100280	RC377 S32G@ SD043100280	RC378 S32G@ SD043100280
Samsung 8GB/4266	UD1 S8G@ SA0000D970L	UD2 S8G@ SA0000D970L	UD3 S8G@ SA0000D970L	UD4 S8G@ SA0000D970L	RC373 S8G@ SD043100280	RC374 S8G@ SD043100280
	UD1 S16G@ SA0000D980L	UD2 S16G@ SA0000D980L	UD3 S16G@ SA0000D980L	UD4 S16G@ SA0000D980L	RC372 S16G@ SD043100280	RC375 S16G@ SD043100280
	UD1 S32G@ SA0000D9A0L	UD2 S32G@ SA0000D9A0L	UD3 S32G@ SA0000D9A0L	UD4 S32G@ SA0000D9A0L	RC373 S32G@ SD043100280	RC375 S32G@ SD043100280
	UD1 M4G@ SA0000BX51L	UD2 M4G@ SA0000BX51L	UD3 M4G@ SA0000BX51L	UD4 M4G@ SA0000BX51L	RC373 M4G@ SD043100280	RC375 M4G@ SD043100280
Samsung 16GB/4266	UD1 M8G@ SA0000BX51L	UD2 M8G@ SA0000BX51L	UD3 M8G@ SA0000BX51L	UD4 M8G@ SA0000BX51L	RC373 M8G@ SD043100280	RC375 M8G@ SD043100280
	UD1 M16G@ SA0000D4H0L	UD2 M16G@ SA0000D4H0L	UD3 M16G@ SA0000D4H0L	UD4 M16G@ SA0000D4H0L	RC372 M16G@ SD043100280	RC375 M16G@ SD043100280
	UD1 M32G@ SA0000D4I0L	UD2 M32G@ SA0000D4I0L	UD3 M32G@ SA0000D4I0L	UD4 M32G@ SA0000D4I0L	RC373 M32G@ SD043100280	RC375 M32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Samsung 32GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Micron 4GB/4266(Channel A only)	UD1 M8G@ SA0000BX51L	UD2 M8G@ SA0000BX51L	UD3 M8G@ SA0000BX51L	UD4 M8G@ SA0000BX51L	RC373 M8G@ SD043100280	RC375 M8G@ SD043100280
	UD1 M16G@ SA0000D4H0L	UD2 M16G@ SA0000D4H0L	UD3 M16G@ SA0000D4H0L	UD4 M16G@ SA0000D4H0L	RC372 M16G@ SD043100280	RC375 M16G@ SD043100280
	UD1 M32G@ SA0000D4I0L	UD2 M32G@ SA0000D4I0L	UD3 M32G@ SA0000D4I0L	UD4 M32G@ SA0000D4I0L	RC373 M32G@ SD043100280	RC375 M32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Micron 8GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Micron 16GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Micron 32GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Hynix 4GB/4266(Channel A only)	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Hynix 8GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Hynix 16GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
	UD1 H16G@ SA0000DGP0L	UD2 H16G@ SA0000DGP0L	UD3 H16G@ SA0000DGP0L	UD4 H16G@ SA0000DGP0L	RC372 H16G@ SD043100280	RC375 H16G@ SD043100280
	UD1 H32G@ SA0000DGR0L	UD2 H32G@ SA0000DGR0L	UD3 H32G@ SA0000DGR0L	UD4 H32G@ SA0000DGR0L	RC372 H32G@ SD043100280	RC375 H32G@ SD043100280
	UD1 H4G@ SA0000DGP0L	UD2 H4G@ SA0000DGP0L	UD3 H4G@ SA0000DGP0L	UD4 H4G@ SA0000DGP0L	RC372 H4G@ SD043100280	RC375 H4G@ SD043100280
Hynix 32GB/4266	UD1 H8G@ SA0000DGP0L	UD2 H8G@ SA0000DGP0L	UD3 H8G@ SA0000DGP0L	UD4 H8G@ SA0000DGP0L	RC372 H8G@ SD043100280	RC375 H8G@ SD043100280
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supplier	LPDDR4x											
	Samsung				Micron				Hynix			
Density	16Gb	16Gb	32Gb	64Gb	16Gb	16Gb	32Gb	64Gb	16Gb	16Gb	32Gb	64Gb
Total MEM size	4GB	8GB	16GB	32GB	4GB	8GB	16GB	32GB	4GB	8GB	16GB	32GB
CPN	SA0000D970L	SA0000D970L	SA0000D980L	SA0000D9A0L	SA0000BX50L	SA0000BX50L	SA0000D4H0L	SA0000D4I0L	SA0000DGP0L	SA0000DGP0L	SA0000DGP0L	SA0000DGR0L
DPN	15NY1	15NY1	K7HT2	8K7KY	2FG92	2FG92	K7HT2	8K7KY	NCKGR	NCKGR	XG0KR	R45KJ
MPN	K4U6E3S4AA-MGCR	K4U6E3S4AA-MGCR	K4U6E3D4AA-MGCR	K4UC3Q4AA-MGCR	MT53E512M32D2NP-046WT E	MT53E512M32D2NP-046WT E	MT53E1G32D2NP-046WT A	MT53E2G32D4NQ-046WT A	H9HCNNNBKMLXR-NEE	H9HCNNNBKMLXR-NEE	H9HCNNNBKMLXR-NEE	H9HCNNNBKMLXR-NEE
structure	SDP	SDP	DDP	QDP	DDP	DDP	DDP	QDP	DDP	DDP	QDP	QDP
MEM_Config0	0	0	1	0	0	0	1	0	1	1	1	1
MEM_Config1	1	1	0	0	0	0	0	1	1	1	1	0
MEM_Config2	1	1	0	0	0	0	0	0	0	0	0	1
MEM_Config3	0	0	1	1	0	0	0	0	0	0	1	0
MEM_Config4	1	0	0	0	1	0	0	0	1	0	0	0
RC372	De-POP	De-POP	POP	De-POP	De-POP	De-POP	POP	De-POP	POP	POP	De-POP	POP
RC373	POP	POP	De-POP	POP	POP	POP	De-POP	POP	De-POP	De-POP	POP	De-POP
RC374	POP	POP	De-POP	De-POP	De-POP	De-POP	De-POP	POP	POP	POP	POP	De-POP
RC375	De-POP	De-POP	POP	POP	POP	POP	De-POP	De-POP	De-POP	De-POP	De-POP	POP
RC376	POP	POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	POP
RC377	De-POP	De-POP	POP	POP	POP	POP	POP	POP	POP	POP	POP	De-POP
RC378	De-POP	De-POP	POP	POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	POP	De-POP
RC379	POP	POP	De-POP	De-POP	POP	POP	POP	POP	POP	POP	De-POP	POP
RC380	POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	De-POP	POP	De-POP	De-POP	De-POP
RC381	De-POP	POP	POP	POP	De-POP	De-POP	POP	POP	De-POP	POP	POP	POP

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Item	Page#	Date	Issue Description
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Rev.

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Version Change List (P. I. R. List)					Solution		Rev.
Item	Page#	Date	Issue Description	Description			
23	PWR	2020/05/27	Update PWR circuit0527A	Add PC801 ~ PC825, PC851 ~ PC885 by RF request VCCIN_AUX, VCCIN snubber change to stuff by RF request		0.2 (X01)	
24	56	2020/05/27	EMI request	CA19,CA22,CA23,CA24 change to pop 680pF (SE00000XA80)		0.2 (X01)	
25	77	2020/05/28	Hole size change by ME request	H6,H7 change to H_3P5 from H_4P0		0.2 (X01)	
26	6,40	2020/05/28	Change component size to 0201	RV77,RV78,RV81,RV82,RC1,RC2 change to 0201		0.2 (X01)	
27	58 PWR	2020/05/28	Update PWR circuit0528B	Add PR98 reserve for EC study PBAT_PRES PBAT_PRES# net name change to PBAT_PRES#_GPIO175 Add new net name PBAT_PRES_GPIO101 Add RF request part		0.2 (X01)	
28	PWR	2020/05/29	Update PWR circuit0529A	1. One-time power on from storage mode circuit modify 2. BOM change		0.2 (X01)	
29	77	2020/06/01	Update Screw Hole	H15 change to PTH(connect to GND)		0.2 (X01)	
30	53	2020/06/01	Modify RF requirement	Reserve DT41 for RF request		0.2 (X01)	
31	PWR	2020/06/01	Update PWR circuit0601A	BOM change (RF)		0.2 (X01)	
32	PWR	2020/06/02	Update PWR circuit0602A	1. Add PC321、PC322 for RF request 2. BOM change		0.2 (X01)	
33	13	2020/06/08	Update CNVI checklist	RC265 change to 100K(SD043100380) from 47K		0.2 (X01)	
34	16	2020/06/08	Update +VCCLDOSTD_OUT_0P85 Cap following PDG	CC66 change to SE00000W100 for 10% tolerance		0.2 (X01)	
35	44,49	2020/06/08	PD ROM change to unpop for combine to BIOS ROM	UPD3,UPD5(SA000088F00) change to unpop		0.2 (X01)	
36	122	2020/06/10	Change Nuvoton TPM CPN	UZ12 change to SA0000AQ2C0 from SA0000AQ220		0.2 (X01)	
37	9,11	2020/06/10	Change BOM to follow SP	RC132 change to 4.7K from 100K RC187 change to 20K from 10K		0.2 (X01)	
38	64	2020/06/10	Change LED Current limit RES	RZ361,RZ28 change to 300ohm from 1.5Kohm		0.2 (X01)	
39	66	2020/06/12	Change ACC Sensor LIS2DW12 Pin3 PD RES for under VIL	RZ155 change to 1K(SD043100180) from 10K(SD043100280)		0.2 (X01)	
1	66	2020/08/11	Correct DZ11 footprint	DZ11 footprint change to CEST523NC5VB_SOT-523-3		0.3 (X02)	
2	66	2020/08/11	Correct CZ55 BOM Structure	CZ55 BOM Structure change to NA		0.3 (X02)	
3	59	2020/08/11	Update Board ID	RE79 change to 62K ohm		0.3 (X02)	
4	9	2020/08/11	Change BIOS ROM to 75% DRIVING part	UC2 change to SA0000DUA00		0.3 (X02)	
5	59	2020/08/11	Modify for RTC power consumption	RE88 change to 2M ohm from 100k ohm		0.3 (X02)	
6	44,49, 58	2020/08/11	Correct net name for reasonable	UPD1_SMBINT#_R change to UPD1_SMBINT#_MB UPD1_SMBINT# change to UPD1_SMBINT#_IO		0.3 (X02)	
7	53	2020/08/11	WWAN_FULL_PWR_EN reserve Rpd to align with SP	Reserve RZ172(100K)		0.3 (X02)	
8	40, PWR	2020/08/14	HDMI reserve POWERSW pin Update PWR circuit 0814A	Reserve HDMI_1.2V_EN pin to enable +1.2V_RUN		0.3 (X02)	
9	64	2020/08/17	Adjust LED limit Res	RZ28, RZ361 change to 150 ohm from 300 ohm		0.3 (X02)	
10	79	2020/08/17	Adjust M_BIST Res for align with SP	RZ1482 change to 330K ohm from 1M ohm		0.3 (X02)	
11	9	2020/08/17	Modify for DXF request	DC1 Footprint change to SCS00007I00's footprint		0.3 (X02)	
12	77	2020/08/17	Modify Screw hole for ME request	ST3,ST4,ST5 change to CLIP_C6P5-D3PM; H7 change to H3P8 from H3P5		0.3 (X02)	
13	16	2020/08/17	Modify VCCSTG reserved control according to PDG	Change RC299.1 net to SIO_SLP_S3# from SIO_SLP_S0#		0.3 (X02)	
14	64	2020/08/24	Adjust FPR Current Limit Resistor	Change RZ7,RZ16,RZ17,RZ18 to 1.2k from 4.99k ohm		0.3 (X02)	
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