

Compal Confidential

IH50A(DDR5) MB Schematic Document

LA-L978P

Rev : 1.A

2023.03.24

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
Issued Date	2022/05/30	Deciphered Date	2023/12/31	Title	Cover Sheet
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Vcc	3.3V +/- 5%	EC Board ID Table for AD channel			
Ra	100K +/- 1%				
Board ID	Rb	Vmin	Vtyp	Vmax	EC AD
0	0		0.000 V	0.300 V	0x00 - 0x13
1	12K +/- 1%	0.347 V	0.345 V	0.360 V	0x14 - 0x1E
2	15K +/- 1%	0.423 V	0.430 V	0.438 V	0x1F - 0x25
3	20K +/- 1%	0.541 V	0.550 V	0.559 V	0x26 - 0x30
4	27K +/- 1%	0.691 V	0.702 V	0.713 V	0x31 - 0x3A
5	33K +/- 1%	0.807 V	0.819 V	0.831 V	0x3B - 0x45
6	43K +/- 1%	0.978 V	0.992 V	1.006 V	0x46 - 0x54
7	56K +/- 1%	1.169 V	1.185 V	1.200 V	0x55 - 0x64
8	75K +/- 1%	1.398 V	1.414 V	1.430 V	0x65 - 0x76
9	100K +/- 1%	1.634 V	1.650 V	1.667 V	0x77 - 0x87
10	130K +/- 1%	1.849 V	1.865 V	1.881 V	0x88 - 0x96
11	160K +/- 1%	2.015 V	2.031 V	2.046 V	0x97 - 0xA4
12	200K +/- 1%	2.185 V	2.200 V	2.215 V	0xA5 - 0xAF
13	240K +/- 1%	2.316 V	2.329 V	2.343 V	0xB0 - 0xB7
14	270K +/- 1%	2.395 V	2.408 V	2.421 V	0xB8 - 0xBF
15	330K +/- 1%	2.521 V	2.533 V	2.544 V	0xC0 - 0xC9
16	430K +/- 1%	2.667 V	2.677 V	2.687 V	0xCA - 0xD4
17	560K +/- 1%	2.791 V	2.800 V	2.808 V	0xD5 - 0xDD
18	750K +/- 1%	2.905 V	2.912 V	2.919 V	0xDE - 0xF0
19	NC	3.000 V	3.000 V		0xF1 - 0xFF

	*PCB Version	*Key board type
Board ID	PCB Revision	
0	Rev0.1+0.2	(LA
1		
2		
3	HH514/714	50 (L
4		
5		
6	HH514/714	50 (L
7	Rev0.1 +0.2 + R	
8	Rev0.1 +0.2 + R	
9	Rev 1A+ RGB	(LA
10	HH514/714	60 (L
11		
12		
13		
14	HH514/714	60 (L
15	IH51A	60 (LAL99
16		
17		
18		
19		

Shared EC with 2021 Nitro
Fixed LAL973/974/992 in Nitro used board ID

BUS	Device	Address(7 bit)	Address(8bit)	
			Write	Read
I2C_1_SDA	TM-P3393-003 (Touch Pad)			
SOC_SMBDATA	DIMM1	0xA0	0xA1	0xA0
	DIMM2	0xA3	0xA4	0xA3
SOC_SML1DATA	Realtek RTS5452H	0x38		
EC_SMB_DA0 (Port0) (+3VLP)	BQ24800 (Charger IC)	0x12	0001_0010	
	BATTERY PACK	0x16		
EC_SMB_DA1 (Port1) (+3VS)	VGA GN21	0x9E		
	eDP Mux(P58461E)	0x10-0x2F		
	LED Driver (59116F)	0xC0		
	LightBar	0x5B		
	Thermal Sensor (NCT7718W)	0x98	1001_1001b	1001_1000b
	Thermal Sensor (G781)	0x9A	1001_1011b	1001_1010b
EC_SMB_DA2 (Port2)	HID			
EC_I2C_3_SDA (Port3)	Realtek RTS5452H	0x62		0100_0110b
ESB_DAT (Port5)	KC3810	TBD		

V : Must V : Options

Item (X43 / X76)	BOM Structure	Item (X43 / X76)	BOM Structure
Unpop	@	USB Charger	CHG@ √
Connector	CONN@	XDP	CMC@ √
PCB	DAZ@ √	KC3810	KC3810@ √
ADL-P		Intel CNVi	CNVi@ √
		FOR UART debug	UART@
		EC debug	DEBUG@ √
FJ8071504786411 Q07K	i9SUPQS@ √	Finger Print	FP@ √
FJ8071504785804 SRLCY LD	i7MP@	KB LED driver	LED14P@ √
FJ8071504786106 SRLD1 LD	i5MP@ √	Thermal sensor	TMS@ √
GN20E GPU	GN20E@ √	GLITCH	GLITCH@ √
GN20-E3-A1	GN20E3@ √	CMC	CMC@ √
GN20-E5-A1	GN20E5@ √	Power PRIM Design	PREM@ √
	√	TypeC Port	TypeC@ √
GN20-E7-A1	GN20E7@ √	HDD	HDD@ √
dGPU circuit	VGA@ √	Lightbar	LB@ √
GPU OVRM	OVRM@ √	Acer Logo backlight	LOGOBL@ √
mDP	DP@ √	DDR4 strap	DDR4@ √
		DDR5 strap	DDR5@
		CW3046	CW3046@ √
		SLGC55544	SLGC55544@ √
		XTAL Package 2012	2012@ √
		XTAL Package 3215	3215@
		DDS Support	GSYNC@
		DDS Not Support	NGSYNC@ √
		12V FAN	12VFAN@ √

Item(X4E) un-pop	BOM Structure
EMI require reserve	XEMI@
EMC require reserve	XEMC@
ESD require reserve	XESD@
RF require reserve	@RF@

EC Board ID	BOM Structure
HH53A 0.1 without RGB	R01@ V
HH53A 0.1 with RGB	R01RGB@
HH53A 0.2 without RGB	R02@
HH53A 0.2 with RGB	R02RGB@

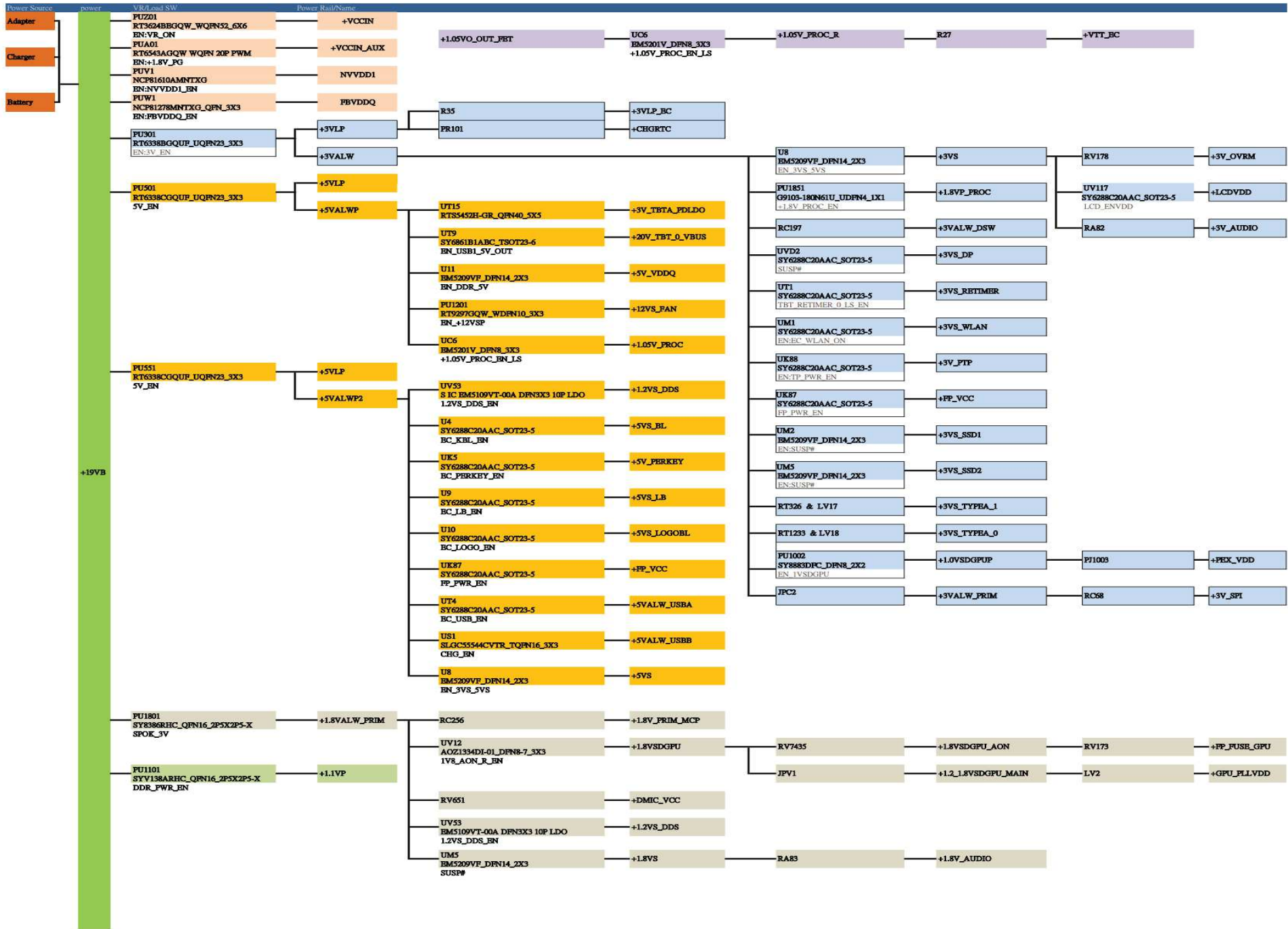
Item (X4E) pop	BOM Structure
EMI requirement	EMI@ V
EMC requirement	EMC@ V
ESD requirement	ESD@ V
RF require reserve	RF@ V
FP EMC requirement	FPEMC@ V
FP ESD requirement	FPESD@ V
TBT ESD requirement	BL_ESD@ V
TBT EMC requirement	BL_EMC@ V
X4EAUNBOL1	EMC M/ B 60 LA1992

[illegible]

Item (X76)	BOM Structure
OVRM-uPI Gen2	X76UPIGEN2@
OVRM-ON Gen2	X76ONGEN2@
OVRM-uPI Gen1	X76UPIGEN1@
OVRM-ON Gen1	X76ONGEN1@
VRAM-SAMSUNG 6G	X76SAM6G@
VRAM-HYNIX 6G	X76HYN6G@
VRAM-Mircon 6G	X76MIR6G@
VRAM-SAMSUNG 8G	X76SAM8G@
VRAM-HYNIX 8G	X76HYN8G@
VRAM-Mircon 8G	X76MIR8G@

X76952BOL05	-	UPI	Gen2	OVRM
X76952BOL06	-	ON	Gen2	OVRM
X76952BOL11	-	UPI	Gen1	OVRM
X76952BOL12	-	ON	Gen1	OVRM
X76952BOL01	-	SAMSUNG	6G	
X76952BOL02	-	HYNIX	6G	
X76952BOL13	-	Mircon	6G	
X76952BOL03	-	SAMSUNG	8G	
X76952BOL04	-	HYNIX	8G	
X76952BOL09	-	Mircon	8G	

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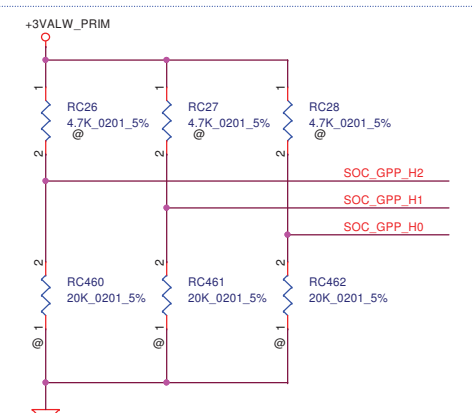
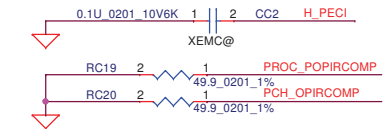
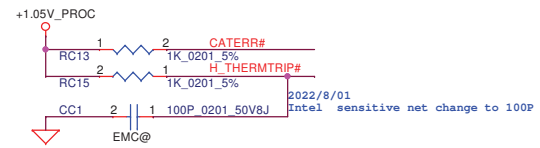
G3->S0

S0-> S0iX

S0iX ->S0

S0->S5





SOC_GPP_H0 GH4Ft For RTD3 SSD
GH52T Remove 20200817

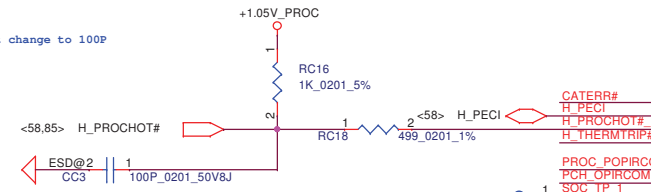
SOC_GPP_H2
BOOT STRAP3 - BIT3
This is bit 1 of a total of 4-bit encoded pin straps for boot configuration.
Refer to Boot Strap 0 (on GPP_C5) for the encoding.
INTERNAL PD 20K

SOC_GPP_H1
BOOT STRAP1 - BIT2
This is bit 1 of a total of 4-bit encoded pin straps for boot configuration.
Refer to Boot Strap 0 (on GPP_C5) for the encoding.
INTERNAL PD 20K

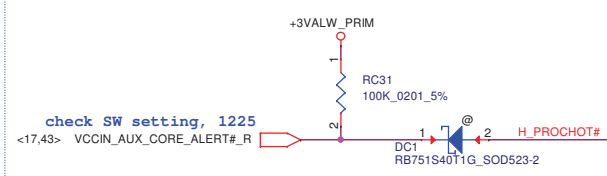
SOC_GPP_H0
BOOT STRAP1 - BIT1
This is bit 1 of a total of 4-bit encoded pin straps for boot configuration.
Refer to Boot Strap 0 (on GPP_C5) for the encoding.
INTERNAL PD 20K

SOC_WWAN_RST# (No used)
This strap should sample LOW. There should NOT be any on-board device driving it to opposite direction during strap sampling.
INTERNAL PD 20K

CHECK power net name, 05/17



check SW setting for leakage, 1225

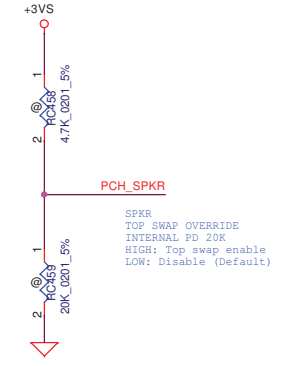


check SW setting, 1225

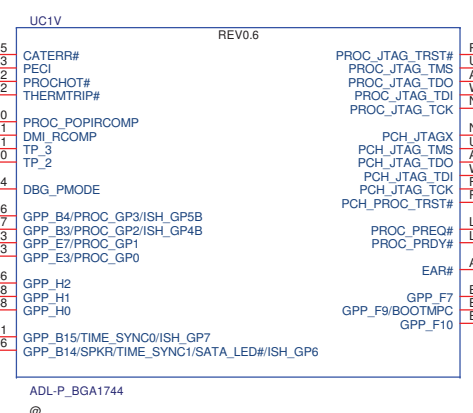


XDP_ITP_PMODE
DFX TEST MODE
INTERNAL PD 20K
This strap should sample high. There should NOT be any on-board device driving it to opposite direction during strap sampling.

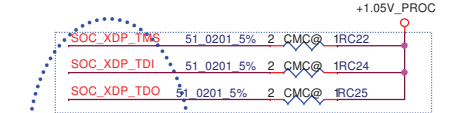
Strap Pin



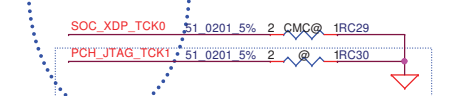
SPKR
TOP SWAP OVERRIDE
INTERNAL PD 20K
HIGH: Top swap enable
LOW: Disable (Default)



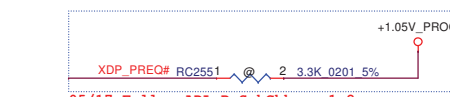
- R6 SOC_XDP_TRST#
- U8 SOC_XDP_TMS
- AA6 SOC_XDP_TDO
- W8 SOC_XDP_TDI
- N6 SOC_XDP_TCK0
- N8 SOC_XDP_TCK0
- U6 SOC_XDP_TMS
- AA8 SOC_XDP_TDO
- W6 SOC_XDP_TDI
- FB6 PCH_JTAG_TCK1
- R8 SOC_XDP_TRST#
- L6 XDP_PREQ#
- L8 XDP_PRDY#
- AF25 SOC_EAR
- EN28
- ET28
- EF28



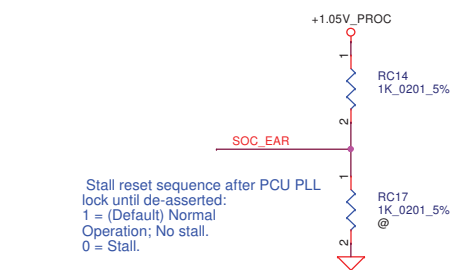
D5/13 RC93 change 100 follow ADL DDR4 RVP rev07
1207 RC25 change 51 for Intel recommend



EDS 12.12 internal PH/PD



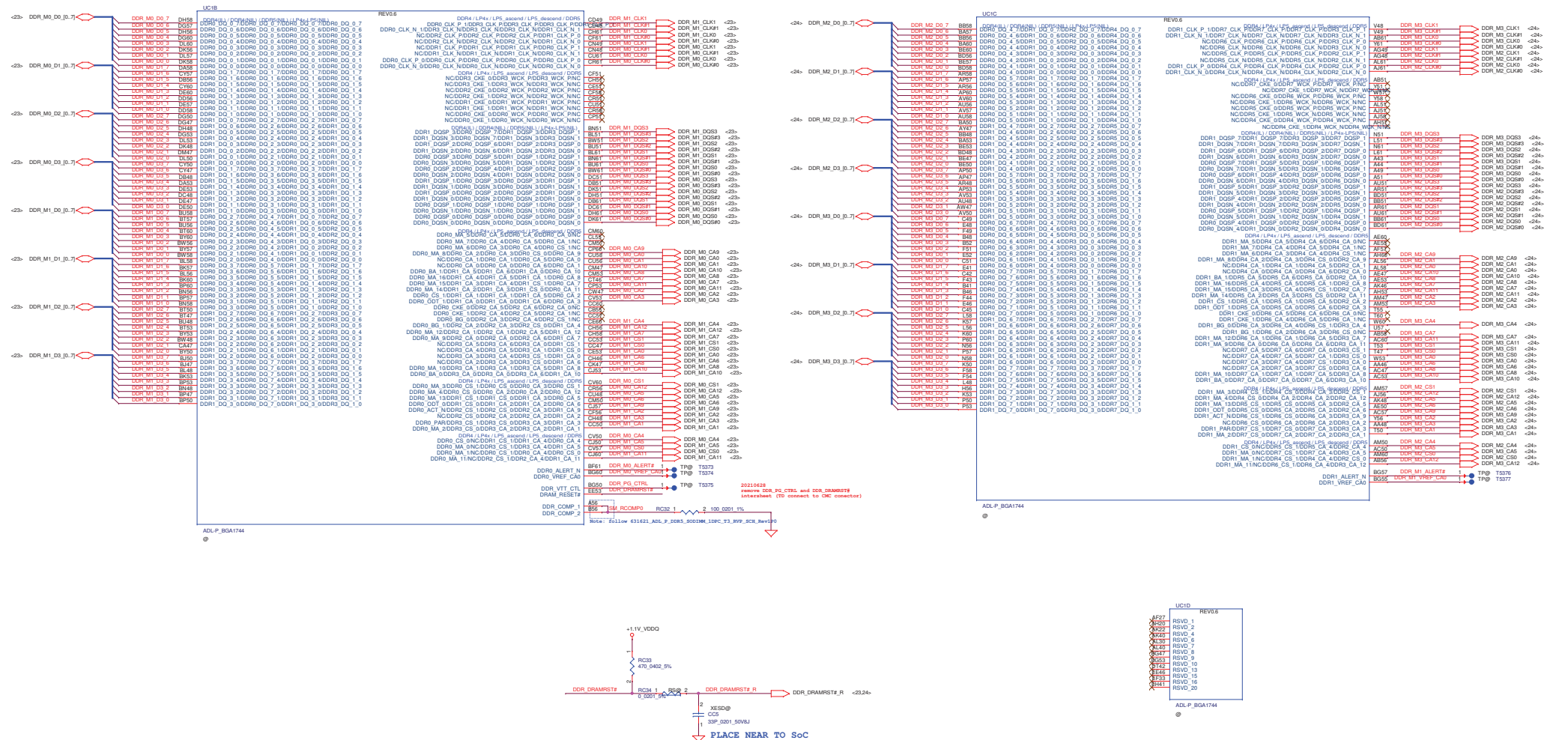
05/17 Follow ADL_P SchChk_rev1.2



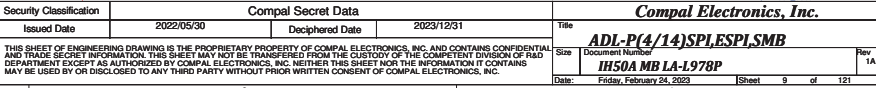
Stall reset sequence after PCU PLL
lock until de-asserted:
1 = (Default) Normal
Operation; No stall.
0 = Stall.

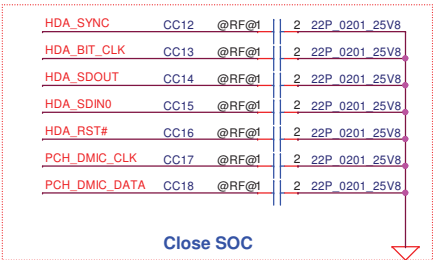
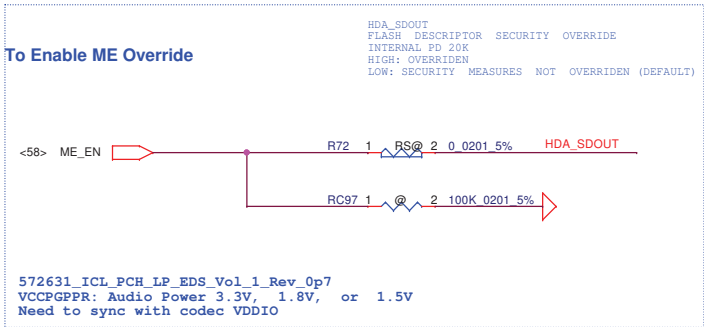
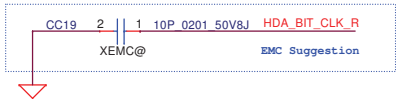
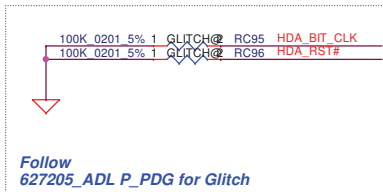
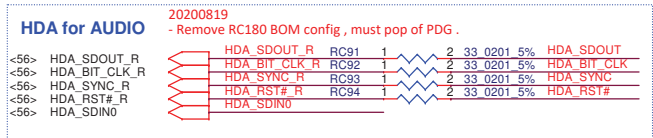
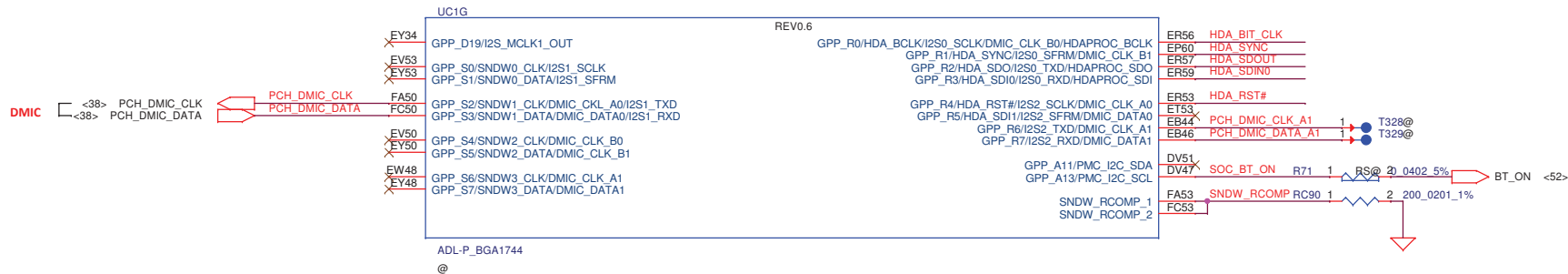
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Follow Intel DDR5 N1L

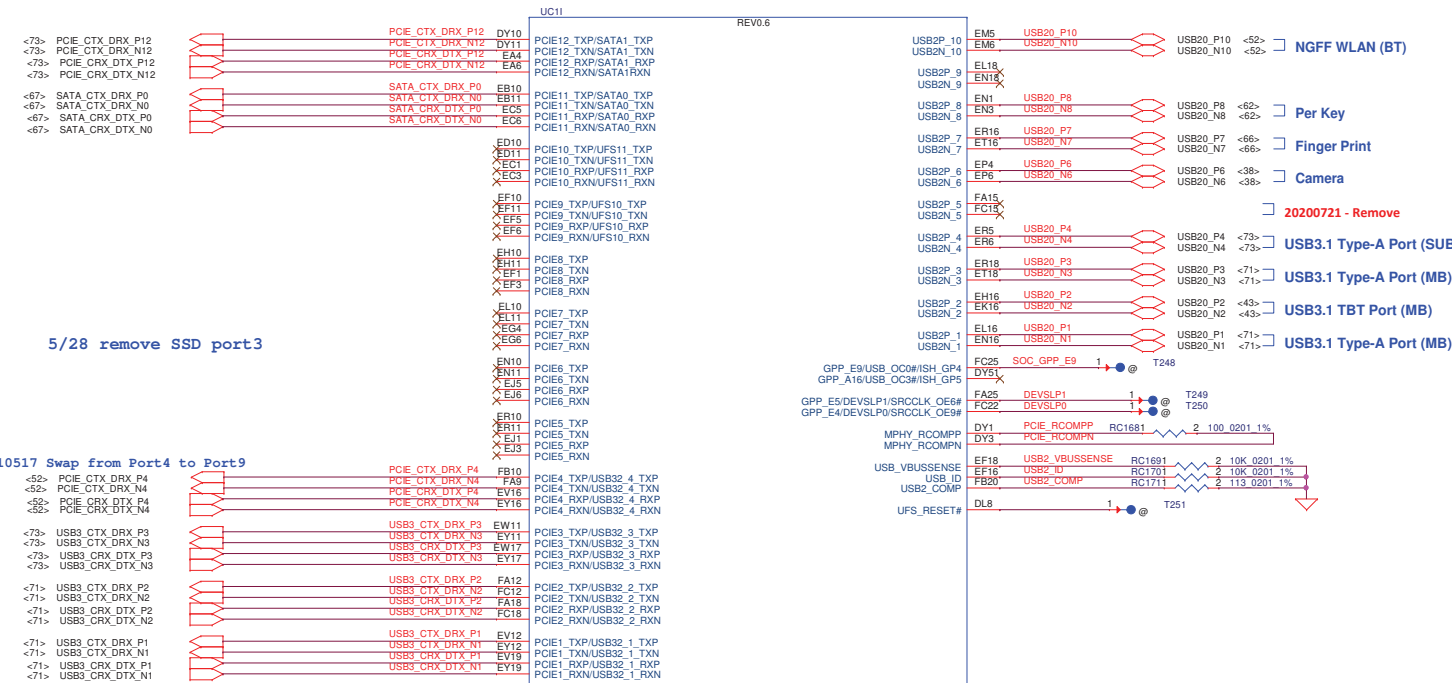


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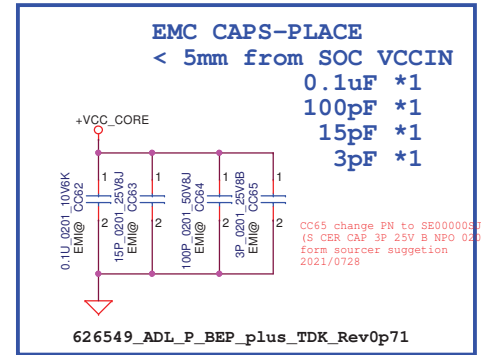
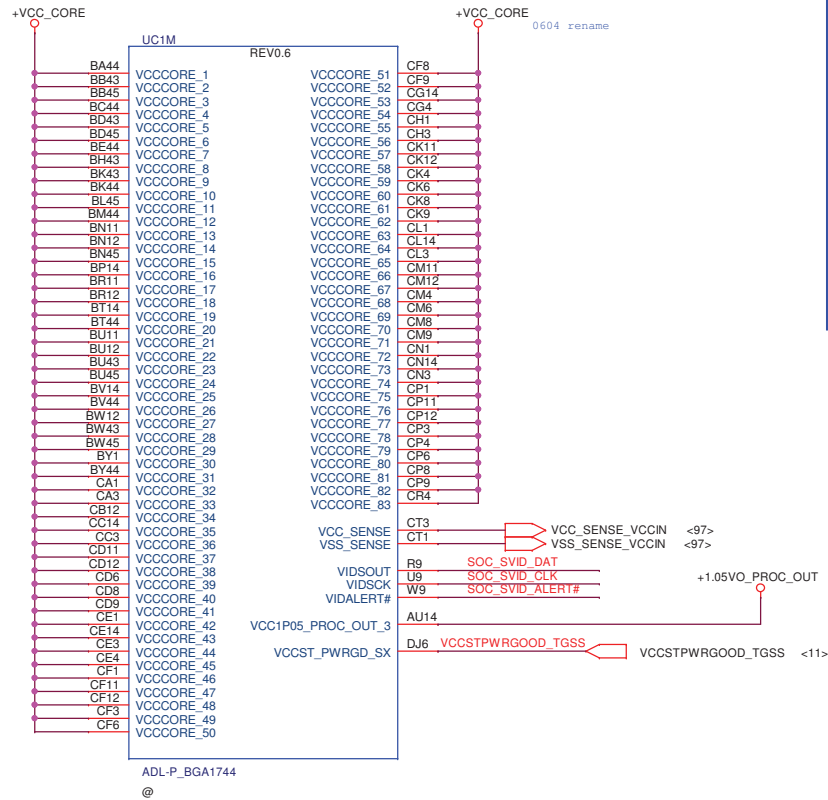




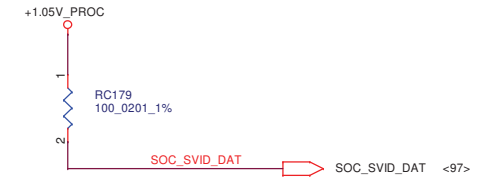
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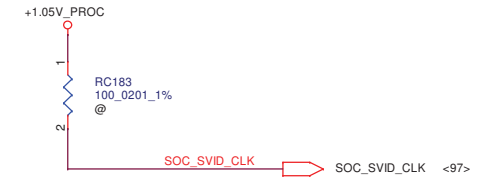
SVID DATA



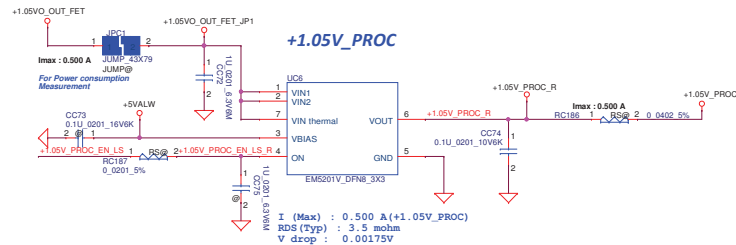
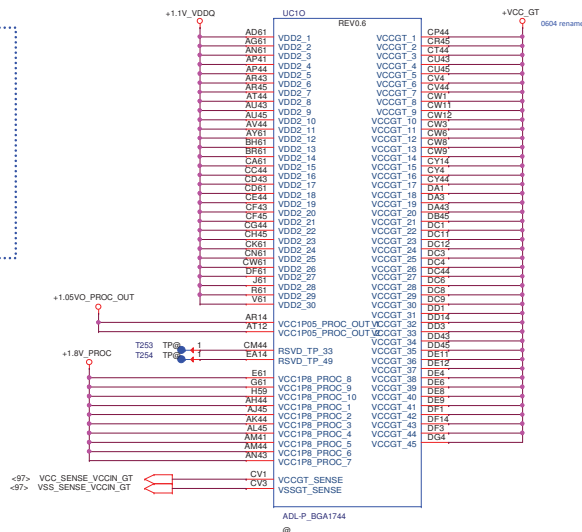
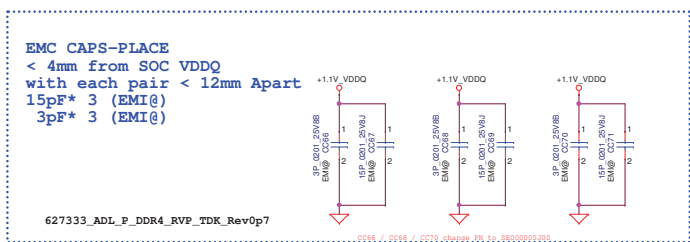
SVID ALERT



SVID CLOCK



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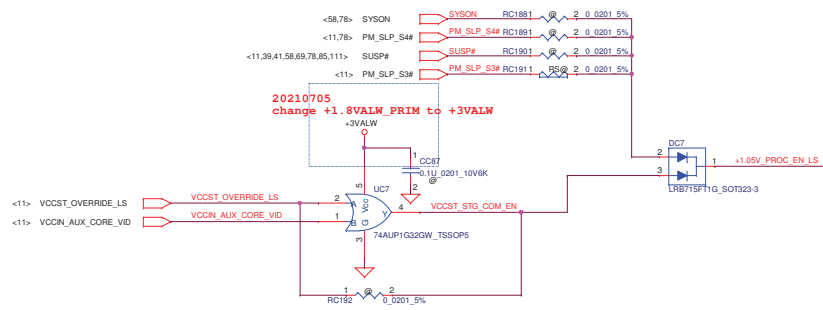
627205_ADL_P_PDG_Rev1.2



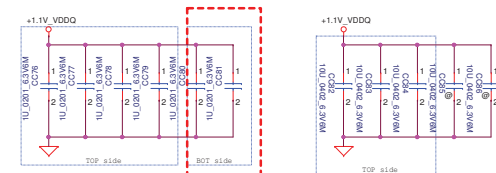
NOTE

Sideband signals(PECI,THERMTRIP,PROCHOT,VCCST_PWRGD,SVID) should be connected to **VCC1P05_PROC** rail when there is Power Gate or to **VCC1P05_OUT_FET** (which should be shorted to VCC1P05_OUT_FET) rail when there is no Power Gate.

+1.05V_PROC Enable



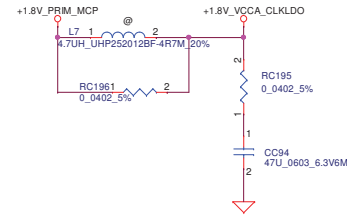
1uF* 6
10uF * 3
uF * 2
Layout Follow 627205_ADL_P_PDG_Rev0p7



TD team D085 circuit in 100, 0402 (8)

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The diagram shows a current measurement setup. A red wire carries a current of 1354mA from a terminal labeled +3VALW, through a component labeled JPC2 (JUMP_43X39), to a terminal labeled +3VALW_PRIM. A capacitor, labeled C095 with a value of 4.7uF, is connected between +3VALW_PRIM and a ground symbol.



EMC CAPS-PLACE

< 5mm from SOC VCCIN_AUX

+VCCIN_AUX

10pF D201_50V6J
EM10 CC96
2

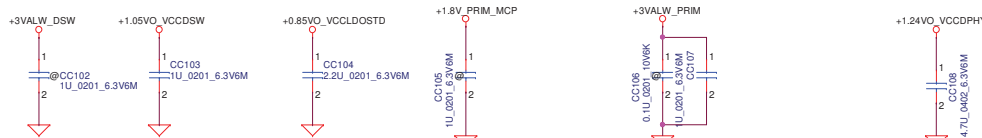
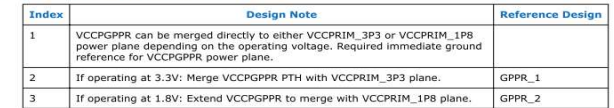
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EM@ CC97
2

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EM@ CC98
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EM10 CC99
2

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EM10 CC100
2

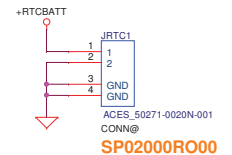
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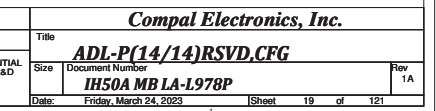
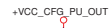
RTC Battery

MAX. 8000mI

The schematic diagram illustrates the RTC battery circuit. It features an input labeled **RTCBATT** with a width of **W=20mil**. This input is connected to a resistor network consisting of **RC203** and **TK_0402_5R**. The output of this network is connected to a diode **DC8** (LRB715F1TG_SOT323-3) with a width of **W=40mil**. The diode's output is connected to a capacitor **C0112** (1u0001 630VW) with a width of **W=20mil**. The capacitor is connected to the **RTCVCC** output, which is labeled **2mA**. The circuit is powered by a 0.1u0001 50VW capacitor connected to ground.



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				IH50A MB LA-L978P	

CHANNEL-M1



20210702
follow DDR4 project Add for ESD

Part Number:SP012010054
Part Value:LOTES ADR50011-P003A

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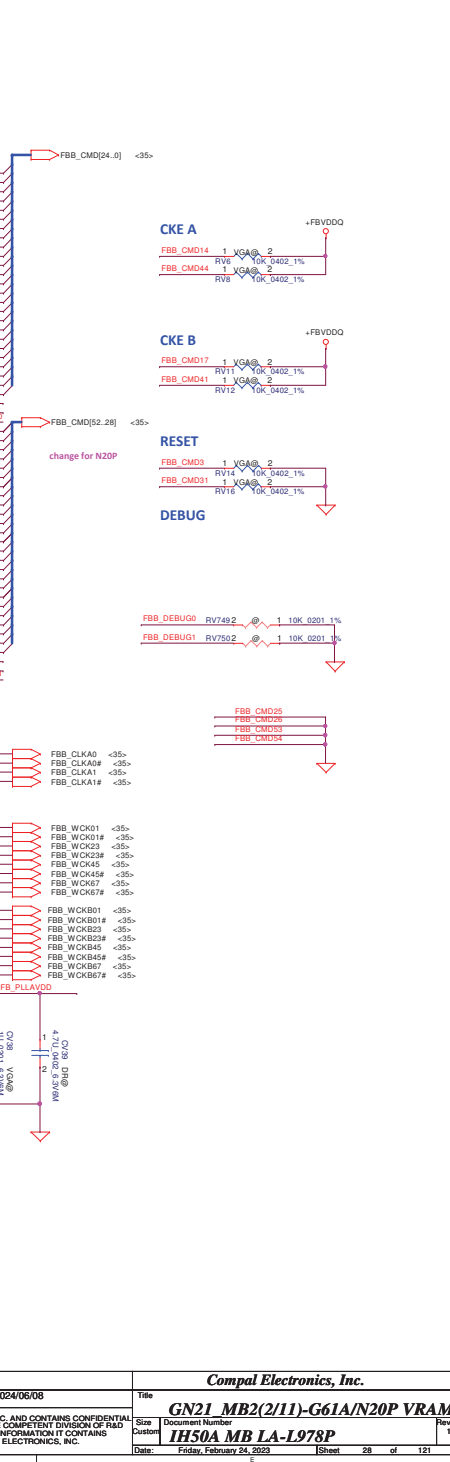
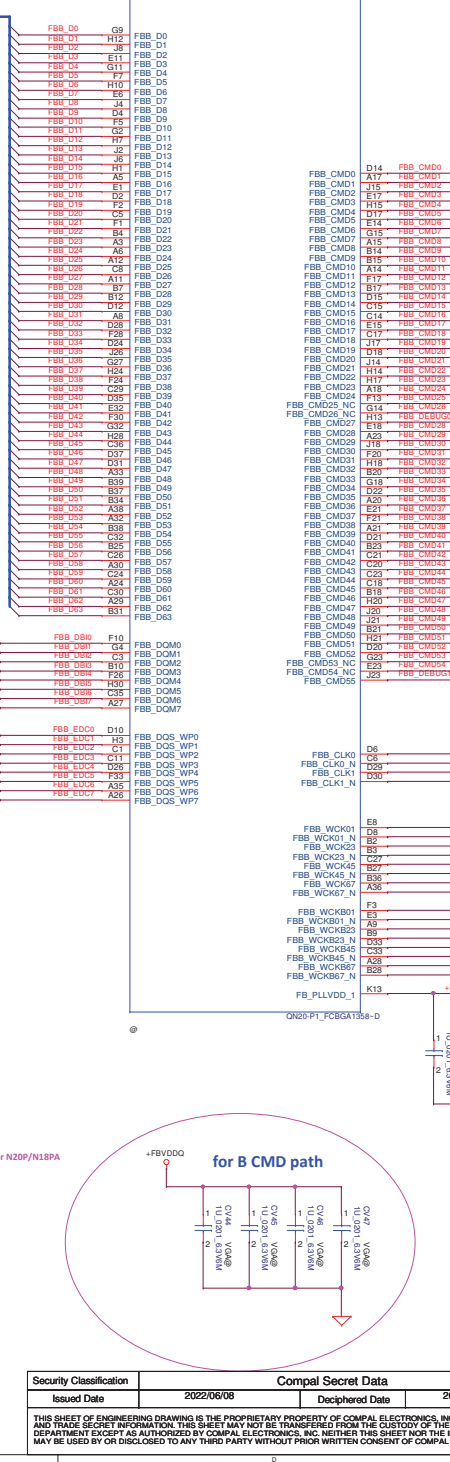
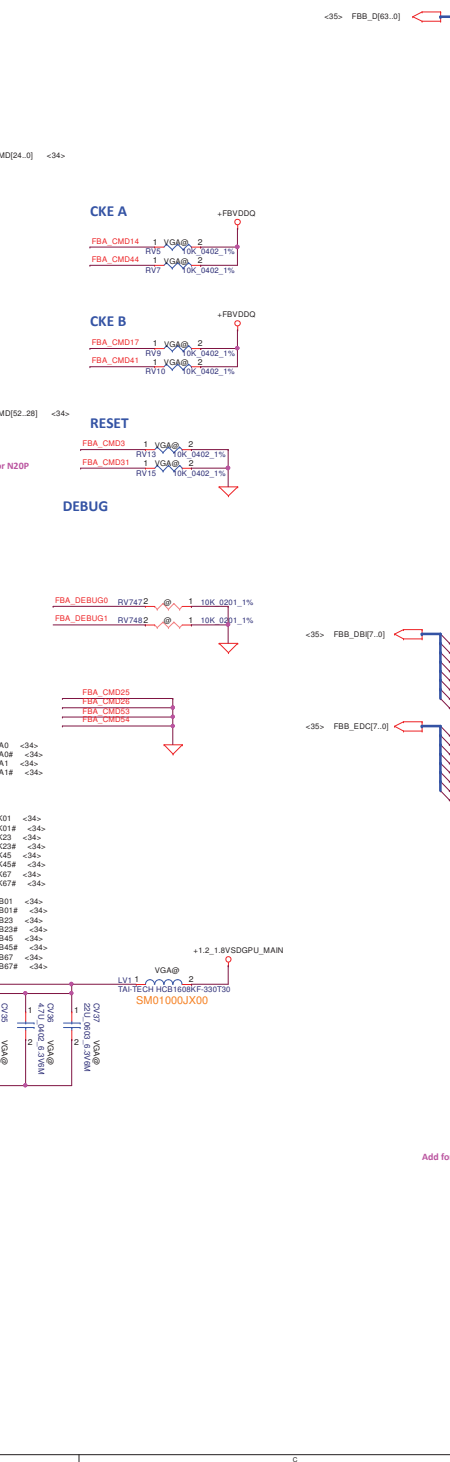
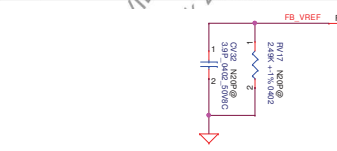
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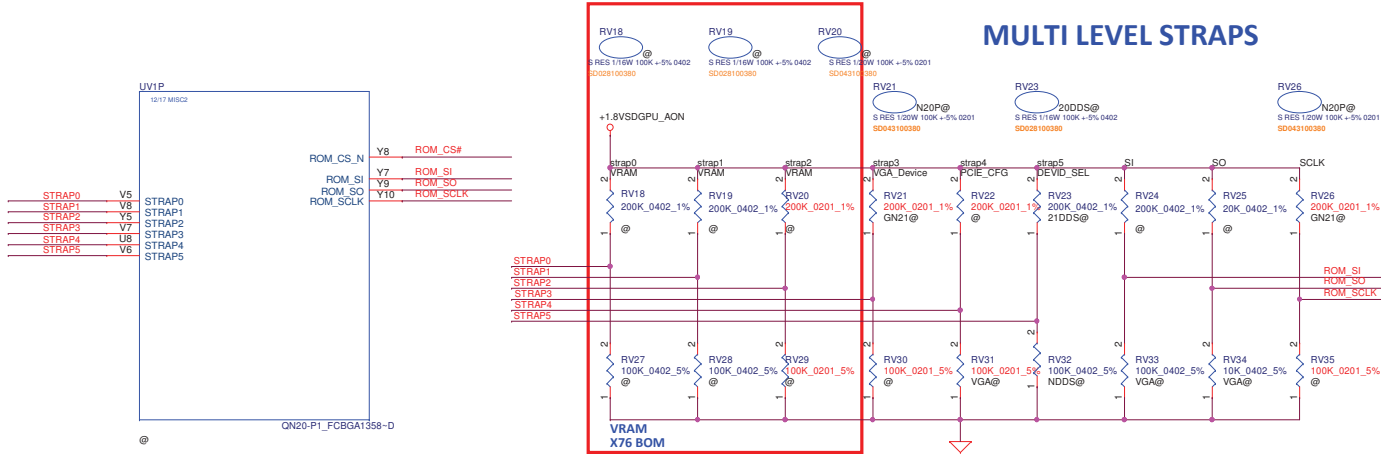
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Table 15. GB5C-128, GB5D-128, and GB5-128 VREF BOM Differences

FB Pin	What to do for GB5C-128	What to do for GB5D-128	What to do for GB5-128
FB_VREF	BOM option to pull down to 2.4V \pm 3% pF (default in no stub)	Pull down to 2.4V \pm 3% pF. Refer to N18P-G61-A GeForce GPU Platform Development Package (PDF-0990-001).	





GN21

Strap Pins see Note			RAMCFG Setting Number	
STRAP2	STRAP1	STRAP0	(see Memory RVL for memory configs corresponding to these numbers)	
H	H	H	7 [0x0007]	
L	L	M	8 [0x0008]	
L	M	L	9 [0x0009]	
L	M	H	10 [0x000A]	

Table 7-5. SMB_ALT_ADDR, DEVID_SEL, PCIE_CFG, VGA_DEVICE

Strap Pins ¹			Functions Selected by This Strapping			
Strap5	Strap4	Strap3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
L	L	L	0	0	0	0
L	L	H	0	0	0	1
L	H	L	0	0	0	0
L	H	H	0	0	0	1
H	L	L	0	1	0	0
H	L	H	0	1	0	1
H	H	L	0	1	1	0
H	H	H	0	1	1	1

Table 7-4. Down Design: FS_OVERT* Strap Enablement

Strap Pins ¹			FS_OVERT* Function	
ROM_SO ²	ROM_SI	ROM_SCLK	FS_OVERT* Function	
L	L	L	FS_OVERT* function DISABLED	
L	L	H	FS_OVERT* function ENABLED (default)	

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<input type="checkbox"/> SD028100380	<input type="checkbox"/> SD043100380	<input type="checkbox"/> SD028100380	<input type="checkbox"/> SD043100380	<input type="checkbox"/> SD028100380	<input type="checkbox"/> SD043100380
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<input type="checkbox"/> SD028100380	<input type="checkbox"/> SD043100380	<input type="checkbox"/> SD028100380	<input type="checkbox"/> SD043100380	<input type="checkbox"/> SD028100380	<input type="checkbox"/> SD043100380

N20P

Table 9.3 RAMCFG

Strap Pins see Note			RAMCFG Setting Number	
STRAP2	STRAP1	STRAP0	(see Memory RVL for memory configs corresponding to these numbers)	
L	L	L	0 [0x0000]	
L	L	H	1 [0x0001]	
L	H	L	2 [0x0002]	
L	H	H	3 [0x0003]	

Table 9.5 SMB_ALT_ADDR, DEVID_SEL, PCIE_CFG, VGA_DEVICE

Strap Pins See Note			Functions Selected by This Strapping			
STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
L	L	L	0	0	0	0
L	L	H	0	0	0	1
L	H	L	0	0	1	0
L	H	H	0	0	1	1
H	L	L	0	1	0	0
H	L	H	0	1	0	1
H	H	L	0	1	1	0
H	H	H	0	1	1	1

ROM_SO ¹	ROM_SI ¹	ROM_SCLK ¹	Strap5 ¹	Strap4 ¹	Strap3 ¹	Strap2 ¹	Strap1 ¹	Strap0 ¹
L	L	H	L	L	H	RVL	RVL	RVL

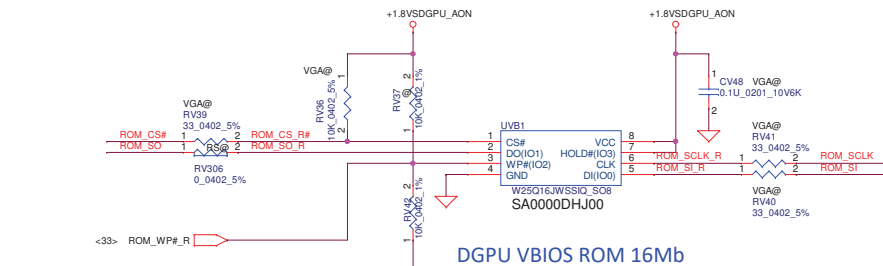
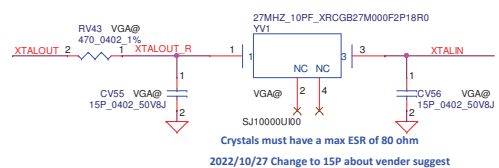
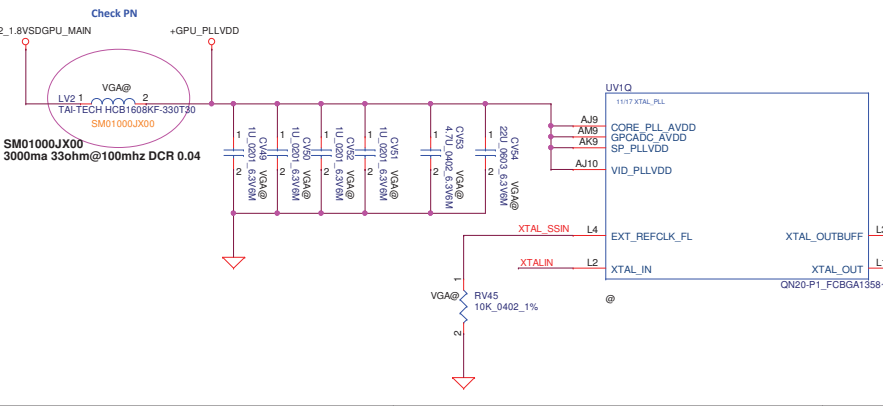


Table 2. GN21-X6/X4/X2 GDDR6 Recommended Memories

Memory Density	Allowed Memory Configuration	FBVDD/Q	Vendor	Manufacturer Part Number	Die Revision	Strap	Memory Speed Grade	Date Code Alert	Qual Plan	Status	Supports GPU Migration
16 Gb	2Chx512Mx16	1.35V 1.25V 1.11V ^{1,2}	Samsung	K4ZAF325BC-SC16	C-die	0xA	16 Gbps	2216	Full	Production ready	PS or later
			Hynix	H56G42A54DX01A	A-die	0x8	16 Gbps	N/A	Full	Production ready	Q5 or later
			Micron	MT61K512M32KPA-16-C	C-die	0x9	16 Gbps	N/A	Full	Production ready	PS or later

Table 8. GN20-S7-B-MP-KB and GN20-S7-R GDDR6 Recommended Memories

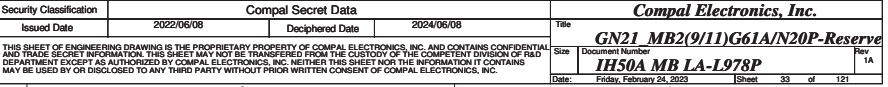
Memory Density	Allowed Memory Configuration	FBVDD/Q	Vendor	Manufacturer Part Number	Die Revision	Strap	Memory Speed Grade	Date Code Alert	Qual Plan	Status	Supports GPU Migration
16 Gb	2Chx512Mx16	1.25V 1.2V ¹	Samsung	K4ZAF325BC-SC16	C-die	0xA	16 Gbps	2216	Full	Production ready	PS or later
			Hynix	H56G42A54DX01A	A-die	0x8	16 Gbps	N/A	Full	Production ready	Q5 or later
			Micron	MT61K512M32KPA-16-C	C-die	0x9	16 Gbps	2266	Full	Production ready	February 2023

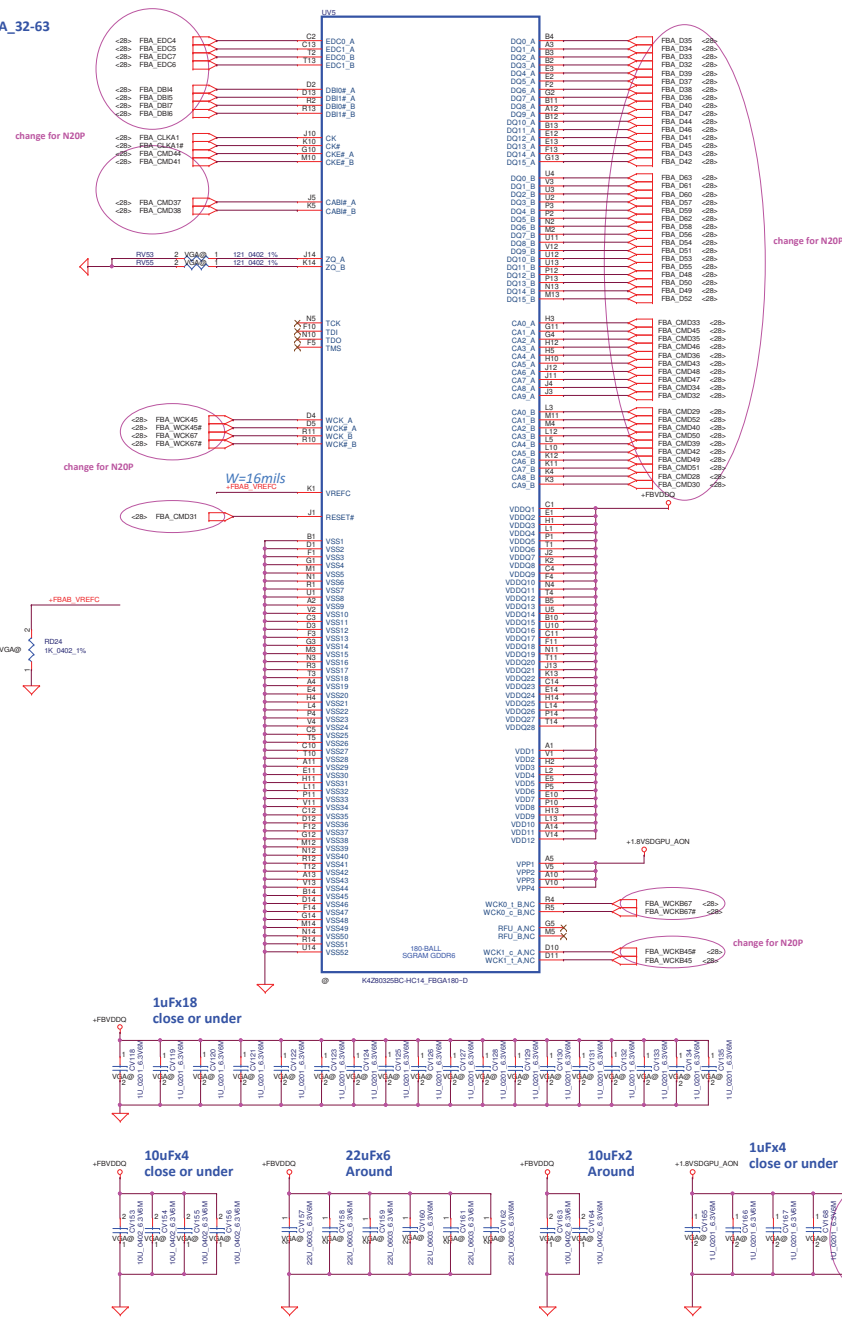
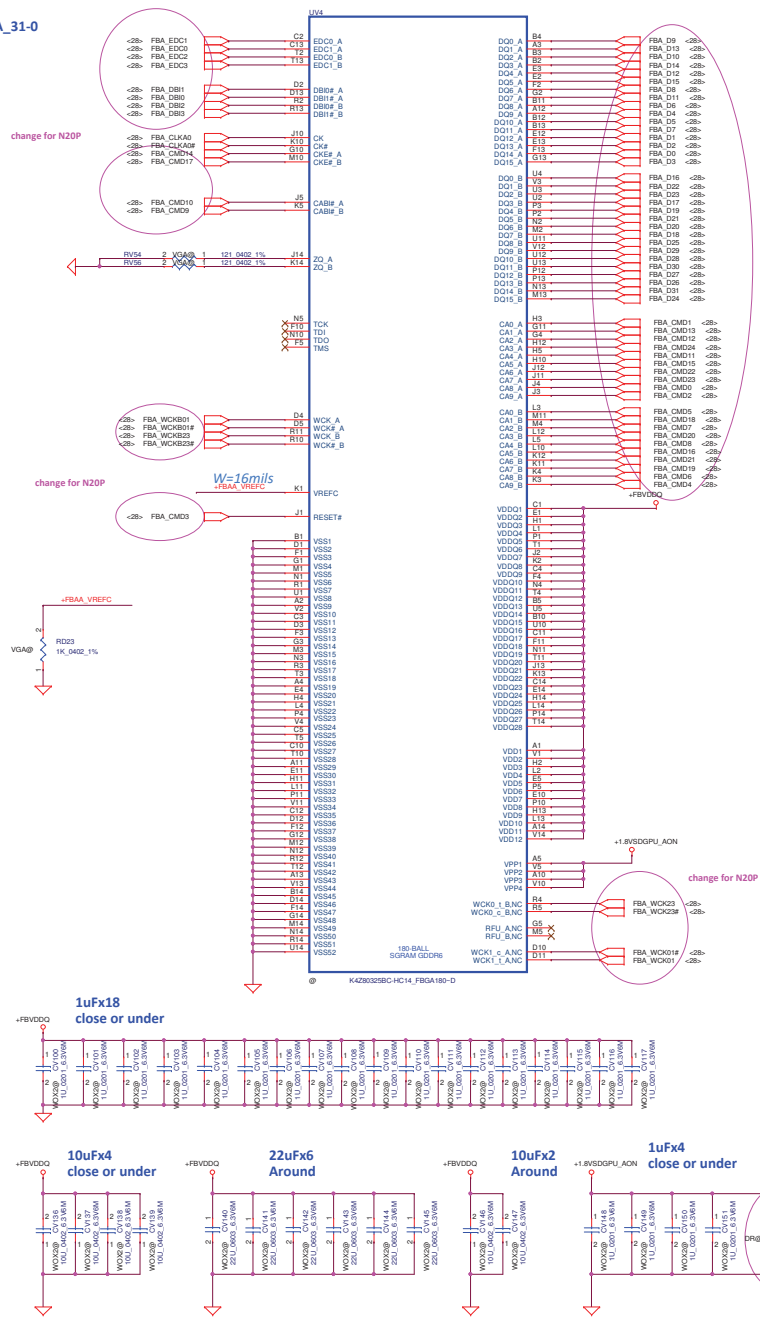


Crystals must have a max ESR of 80 ohm

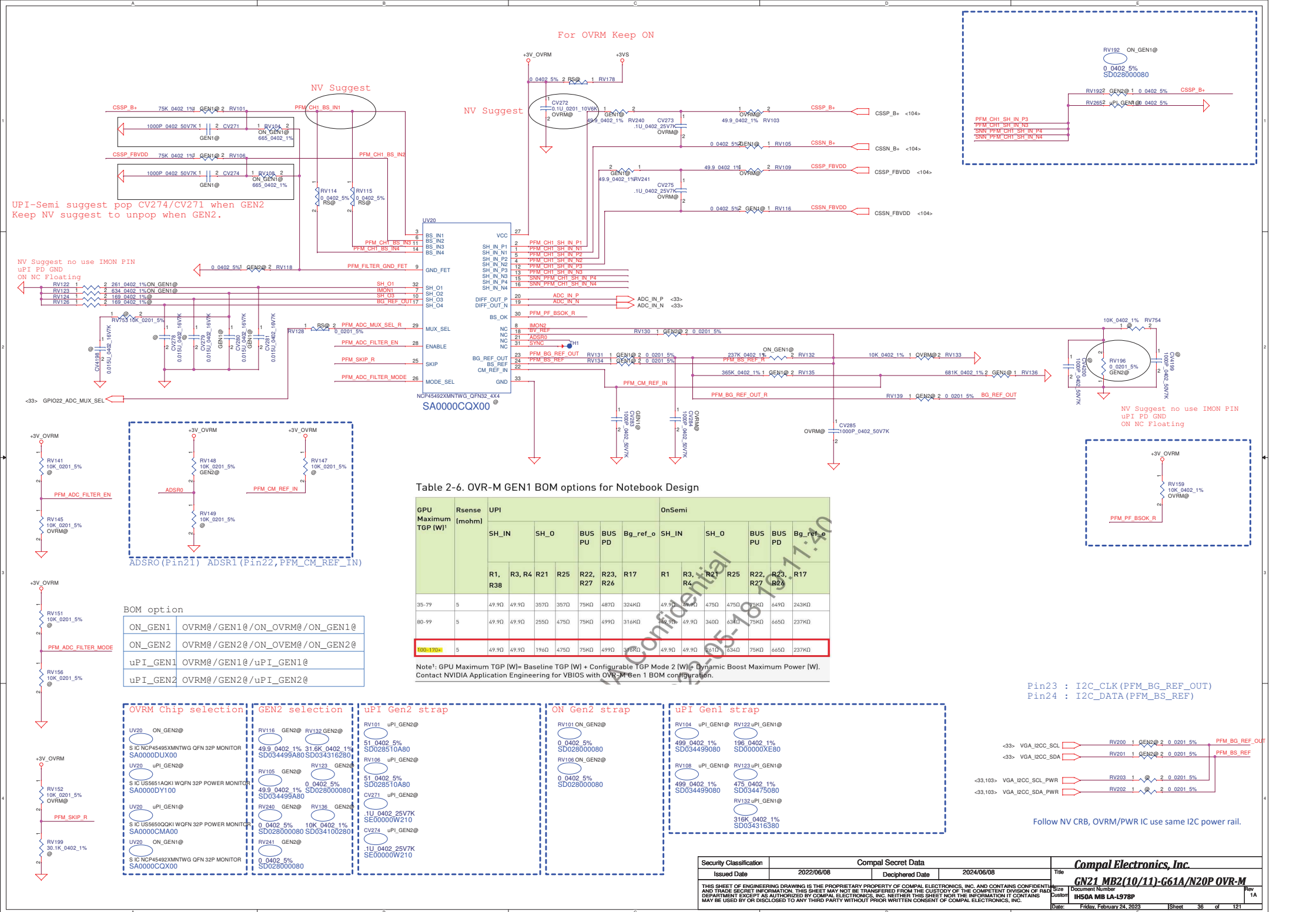
2022/10/27 Change to 15P about vender suggest

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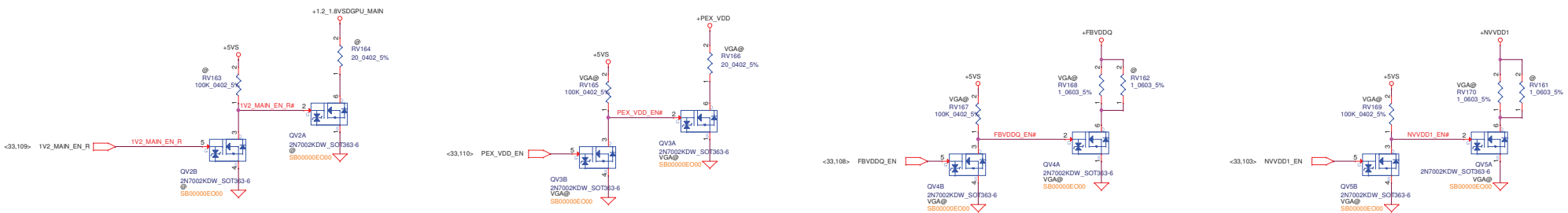
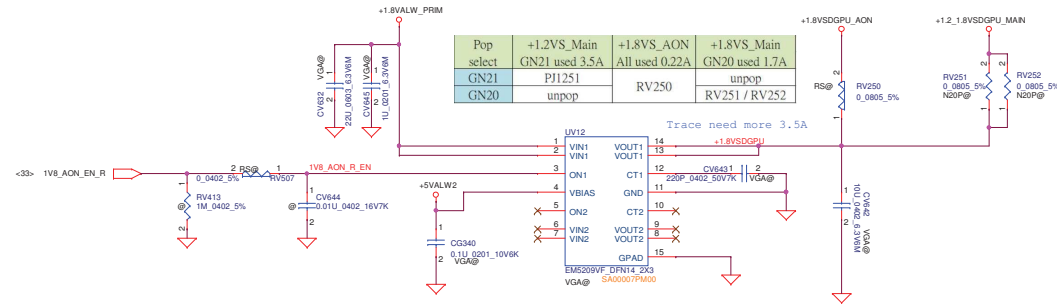


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			Doc Number	Rev
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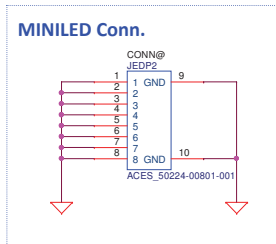
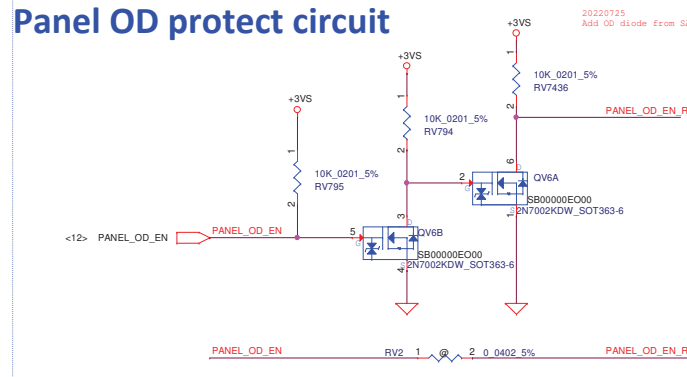
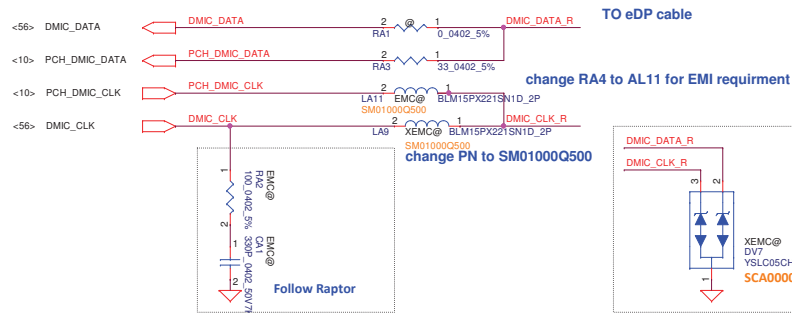
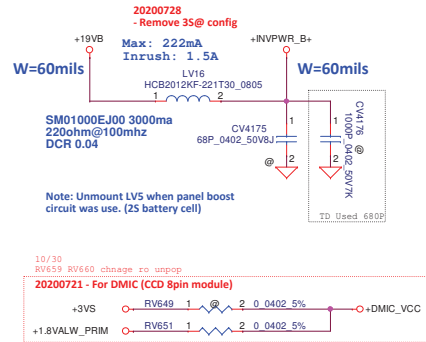
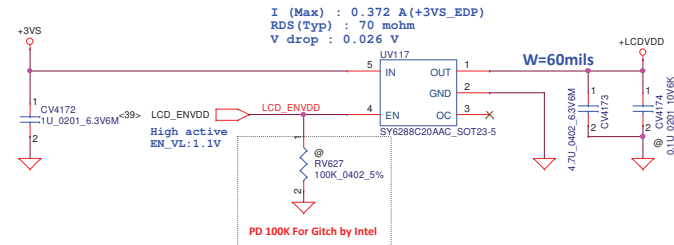


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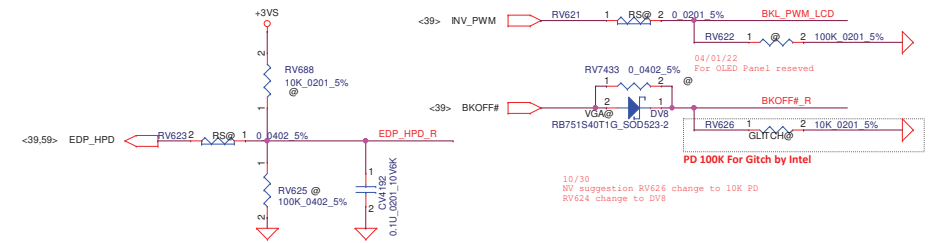
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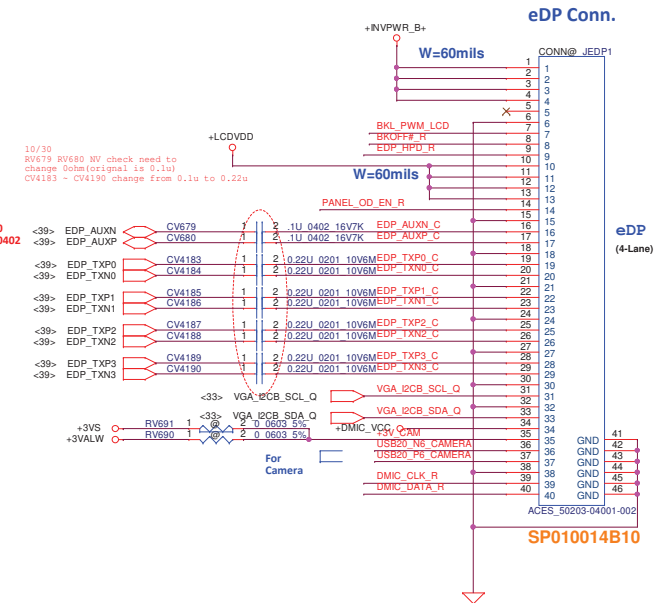
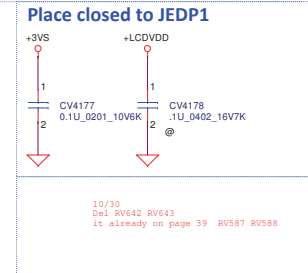
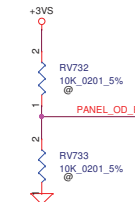
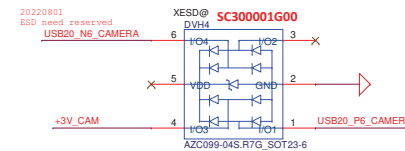
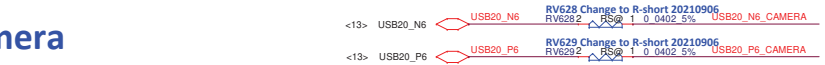
LCD POWER CIRCUIT



LCD enable signal



Camera

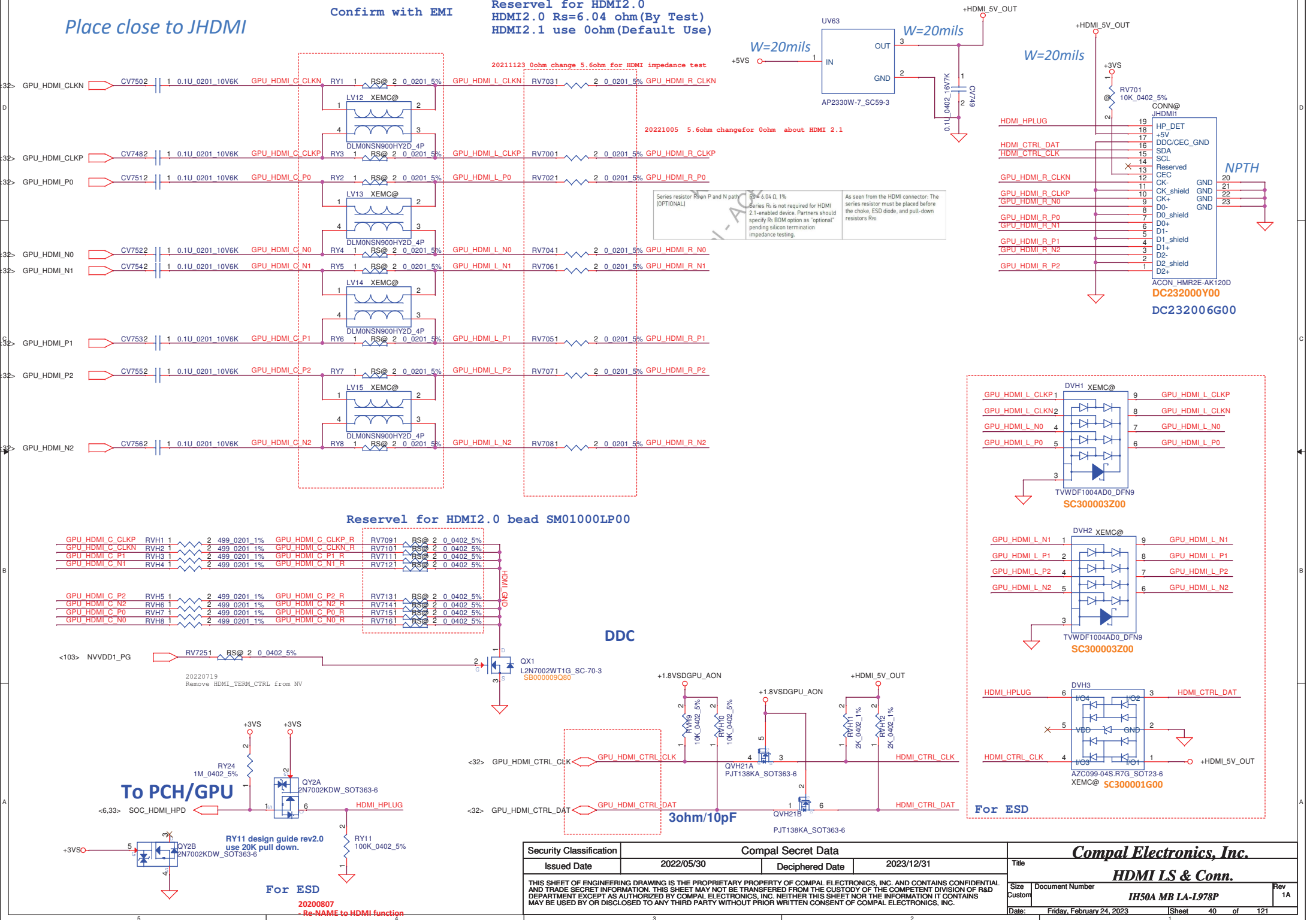


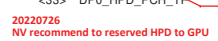
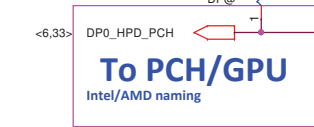
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Place close to JHDMI

Confirm with EMI

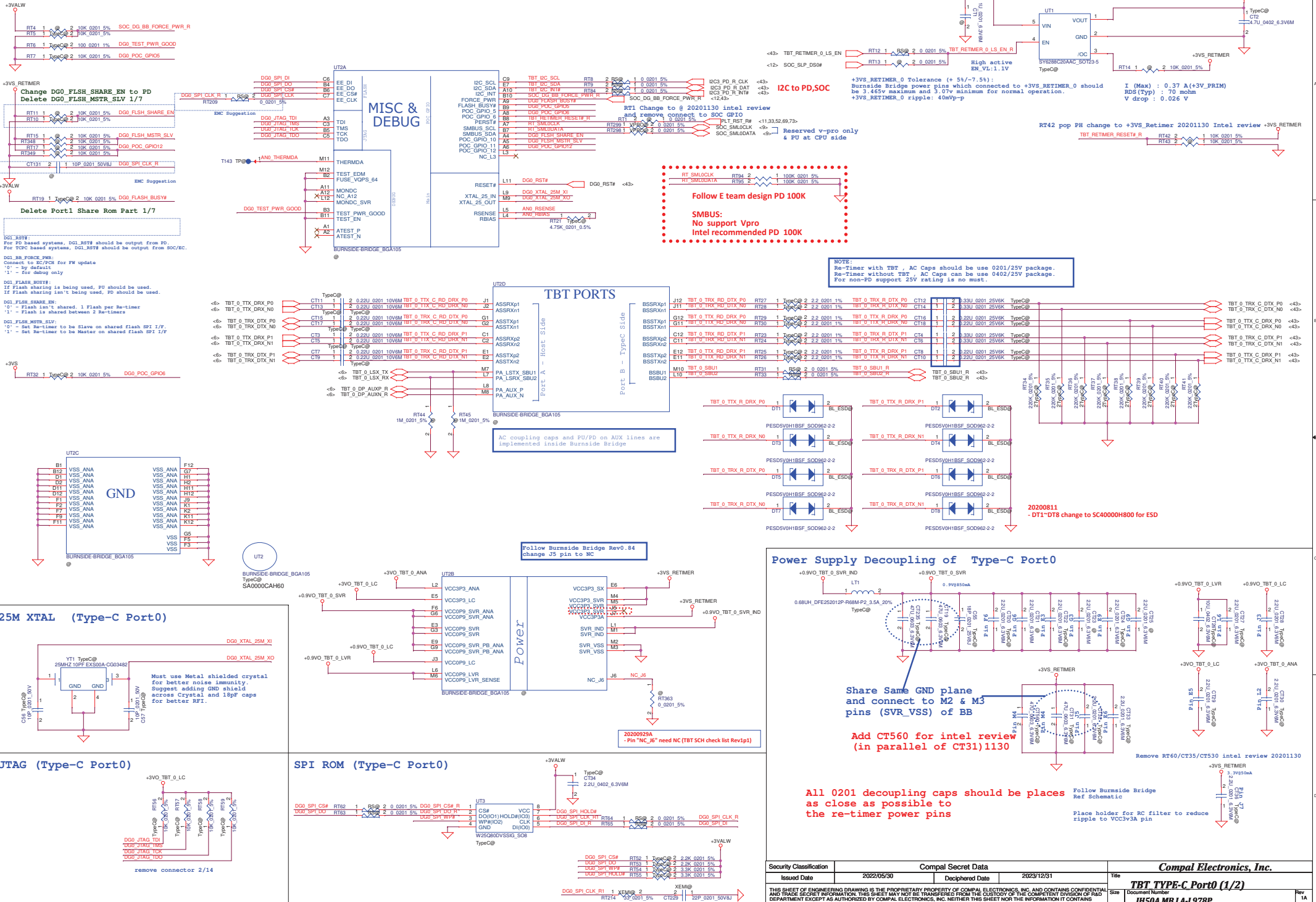
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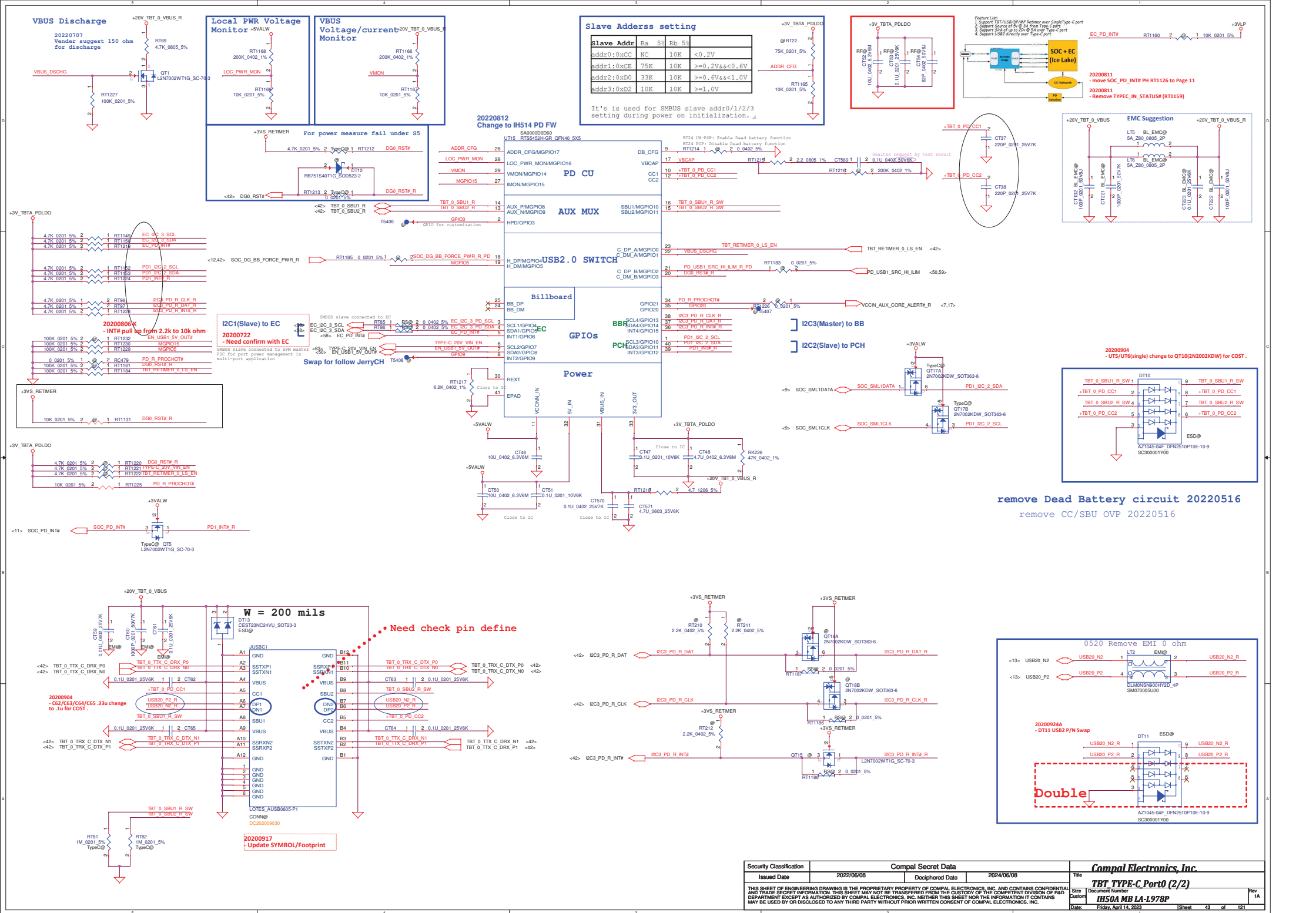


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MB_USB3.1 TypeC Conn. (Port 0/ Re-Timer Master)





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				Date:	Friday, February 24, 2023
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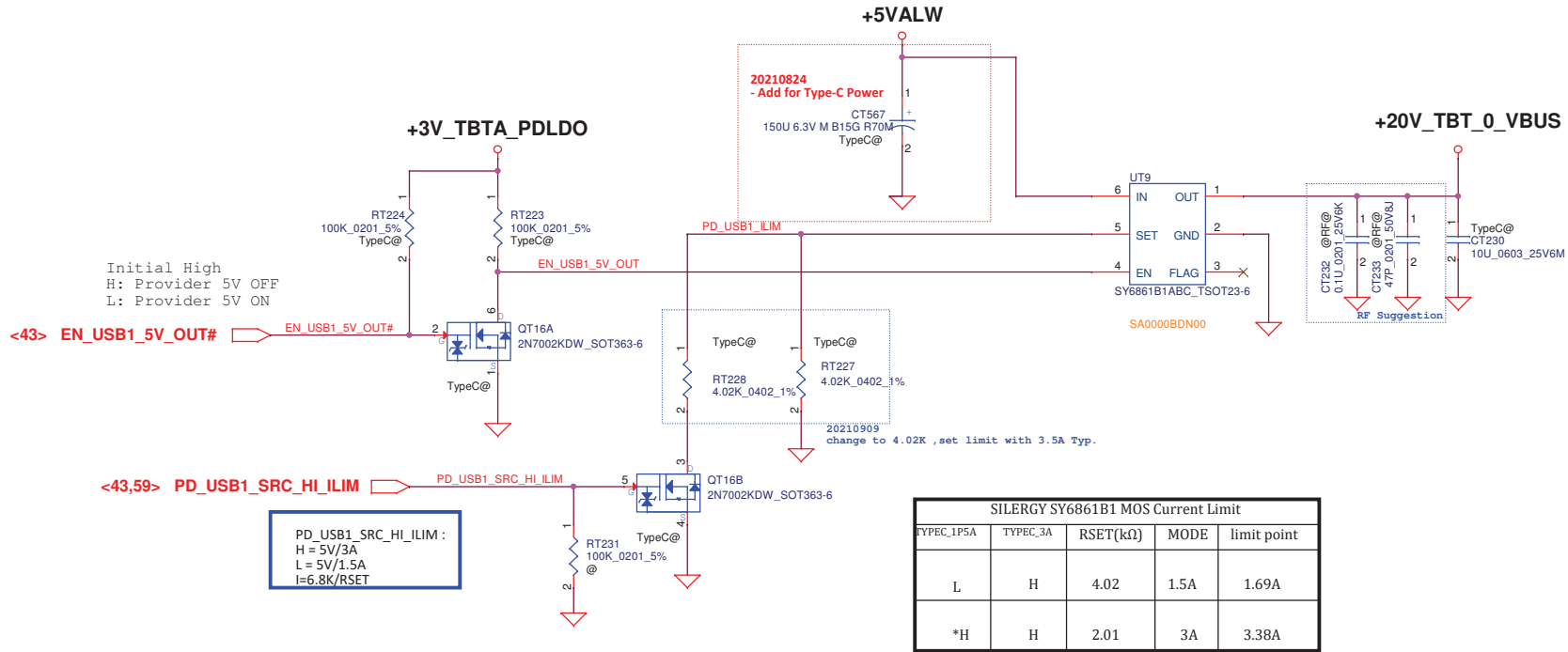
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				Date:	Friday, February 24, 2023
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				Rev	1A
				IH50A MB LA-L978P	

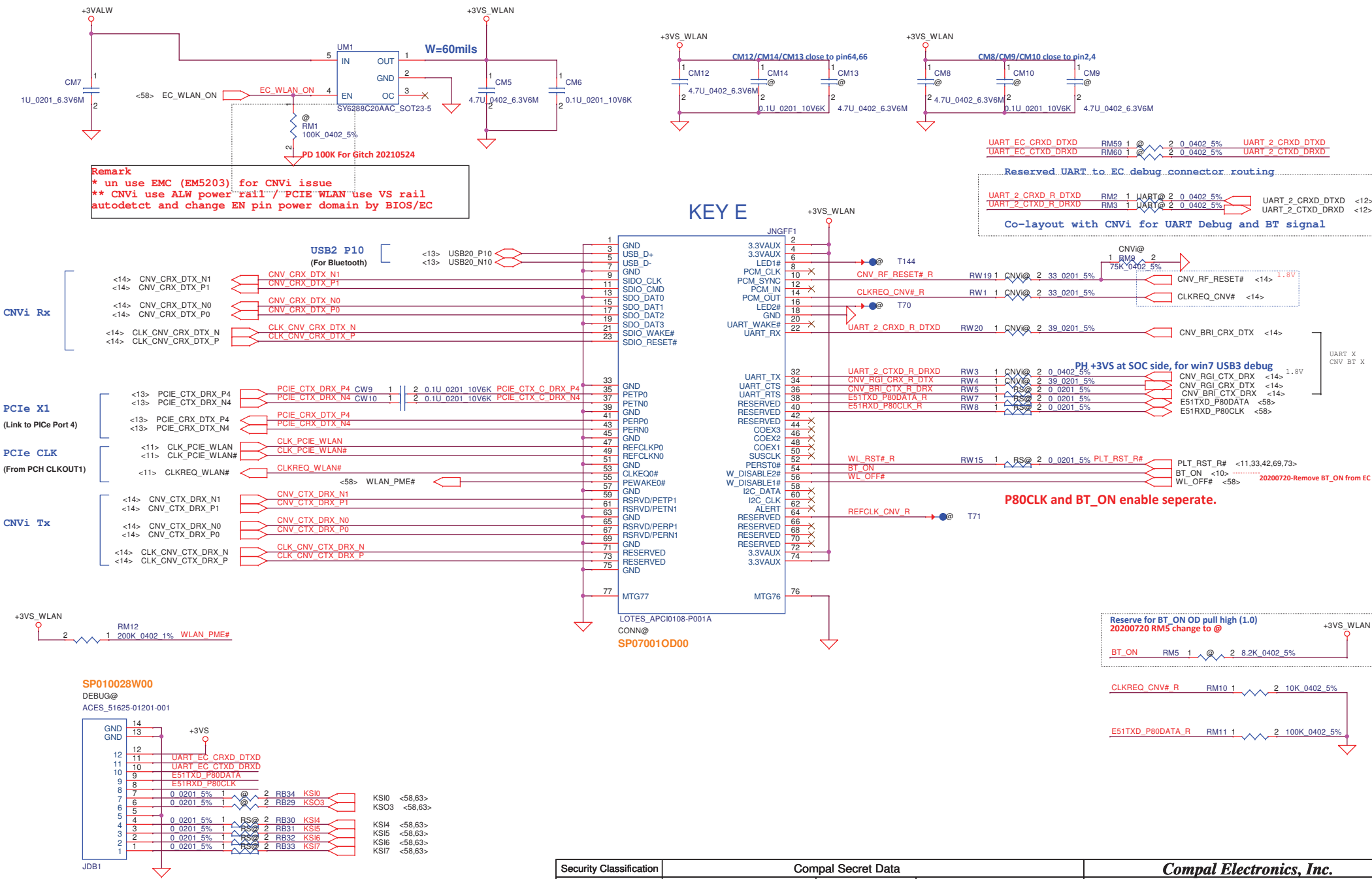
MB_USB3.1 TypeC Conn. (Power Path)
- For Realtek 5452E



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NGFF Wireless LAN / BT (Key E) [PCIE+USB/CNVi]



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				Date:	Friday, February 24, 2023
				Sheet	53 of 121
				Rev	1A
				IH50A MB LA-L978P	

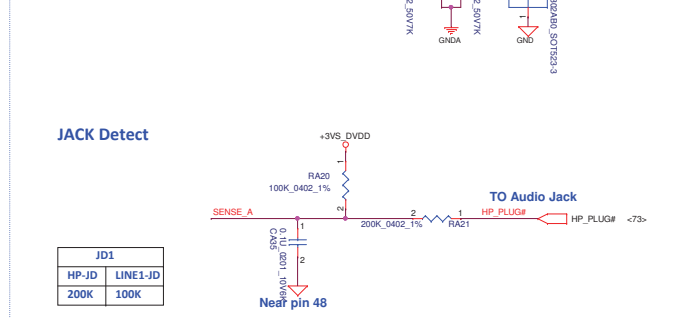
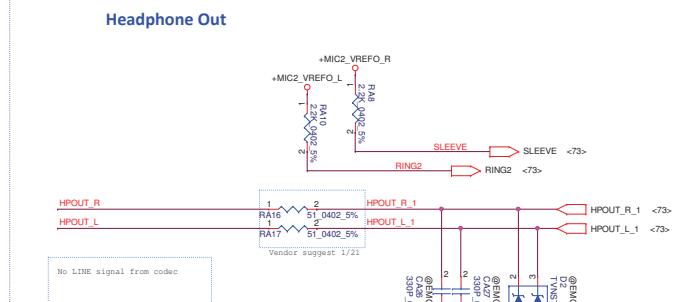
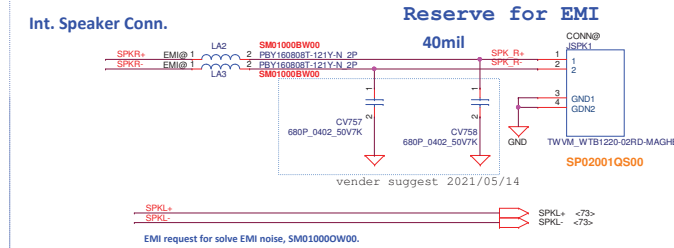
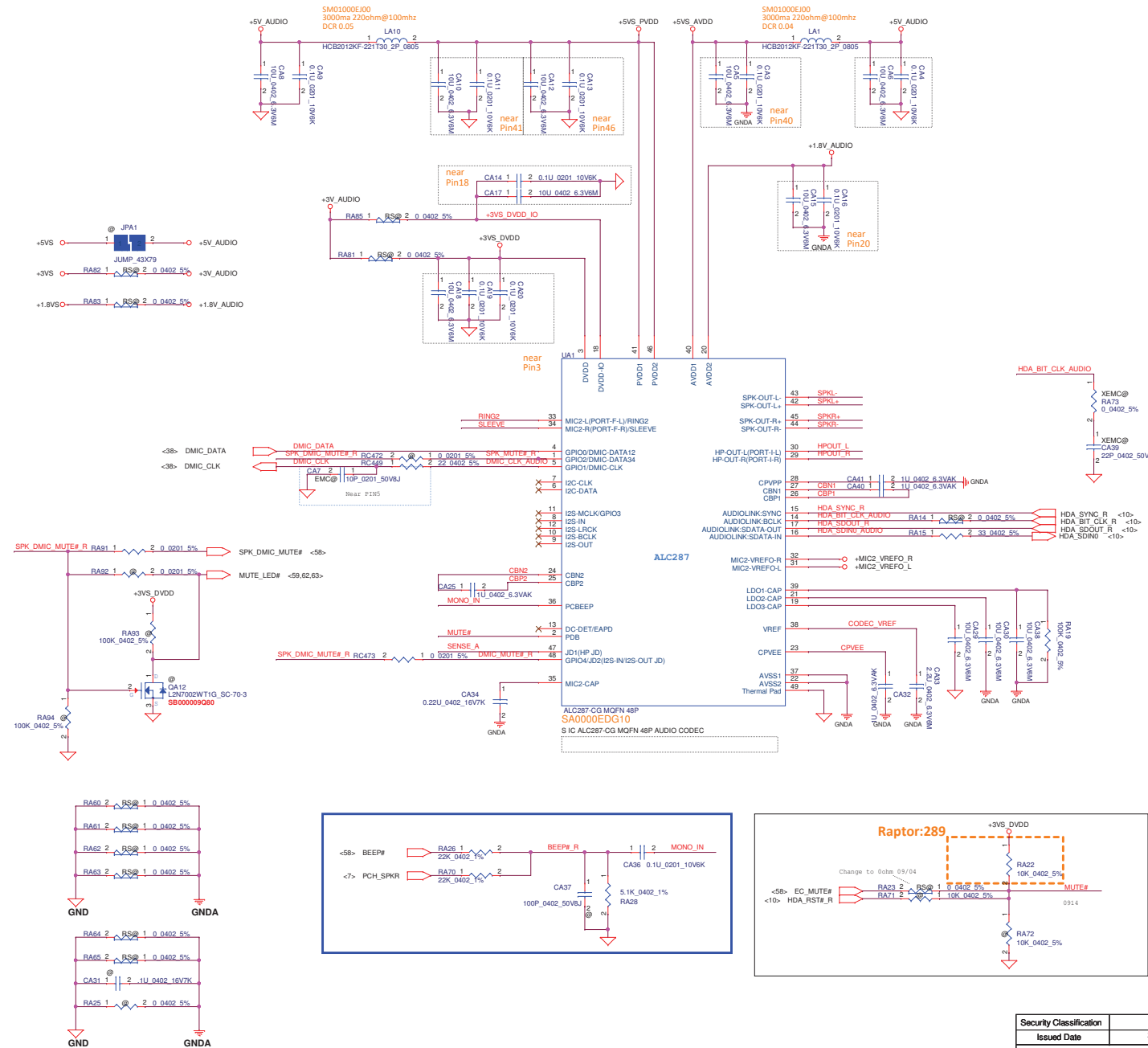
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HD Audio Codec



JD1	
HP-JD	LINE1-JD
200K	100K

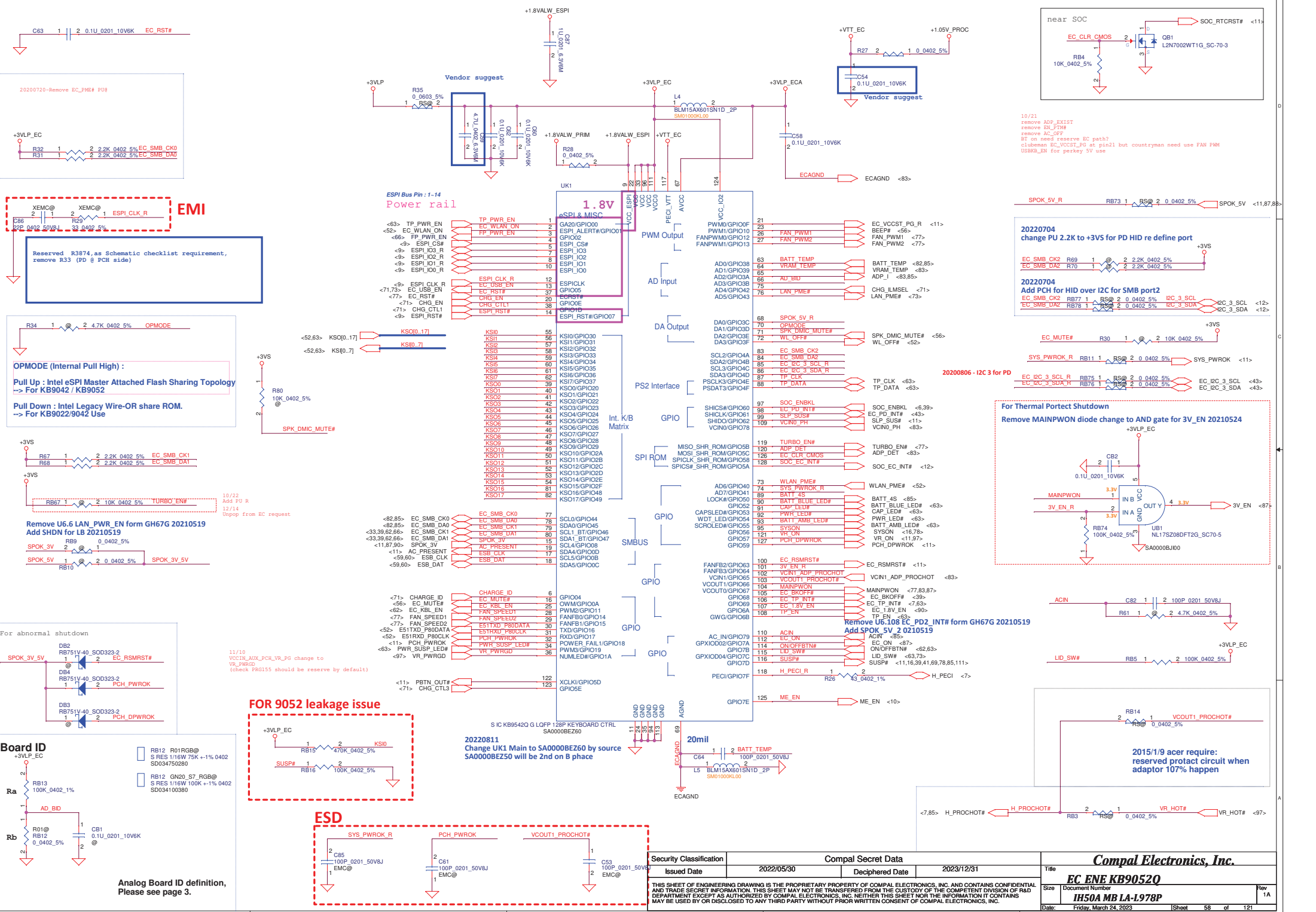
Change to 0ohm 09/04

RA22 10K 0.402 5%
RA21 10K 0.402 5%
RA20 10K 0.402 5%
RA19 10K 0.402 5%
RA18 10K 0.402 5%
RA17 10K 0.402 5%
RA16 10K 0.402 5%
RA15 10K 0.402 5%
RA14 10K 0.402 5%
RA13 10K 0.402 5%
RA12 10K 0.402 5%
RA11 10K 0.402 5%
RA10 10K 0.402 5%
RA09 10K 0.402 5%
RA08 10K 0.402 5%
RA07 10K 0.402 5%
RA06 10K 0.402 5%
RA05 10K 0.402 5%
RA04 10K 0.402 5%
RA03 10K 0.402 5%
RA02 10K 0.402 5%
RA01 10K 0.402 5%
RA00 10K 0.402 5%

Security Classification		Compal Secret Data		Compal Electronics, Inc.	
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Date	Friday, February 24, 2023	Sheet	56	of	121

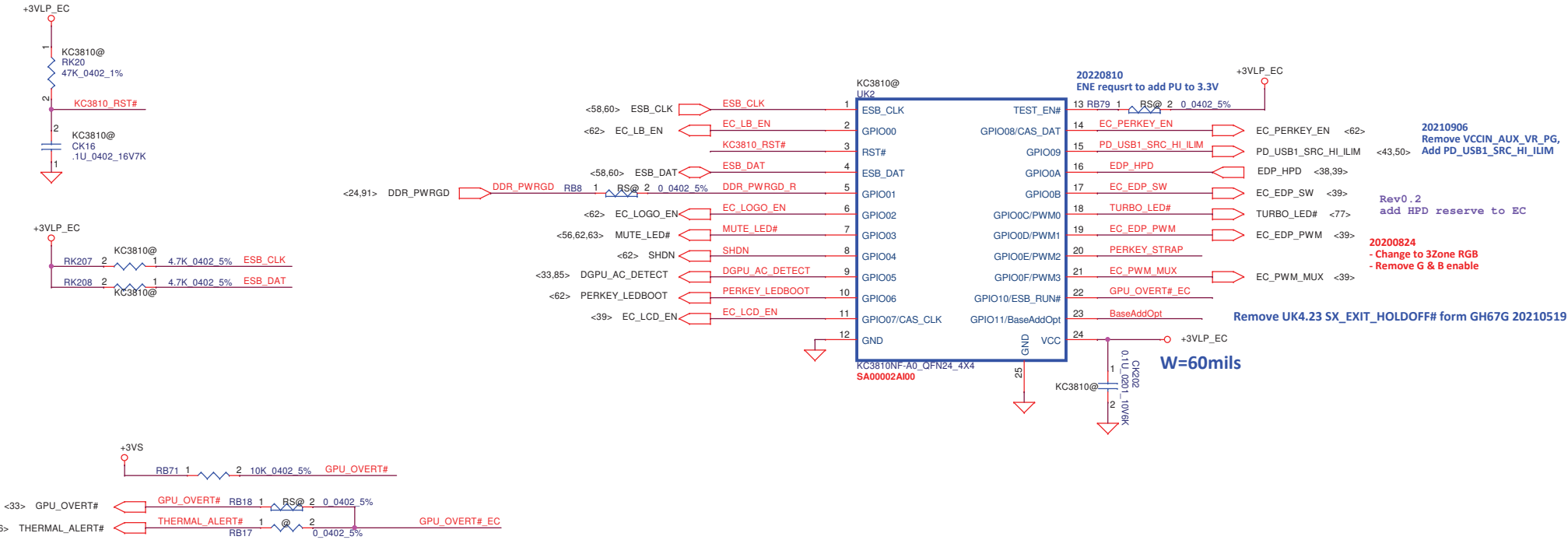
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				Date: Friday, February 24, 2023	Sheet 57 of 121

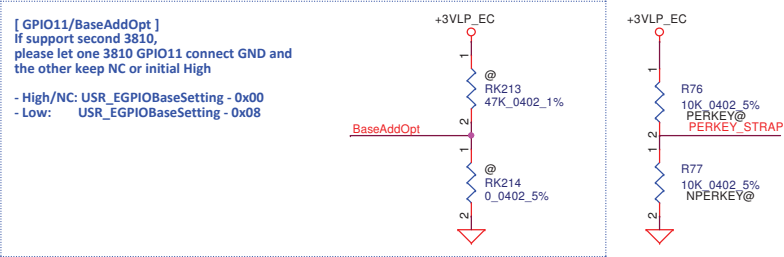


OMEN New ESB CLK&DAT for Extend I/O

*NML_DBG#: is a debug pin for EC to
infrom BIOS after press hot key.



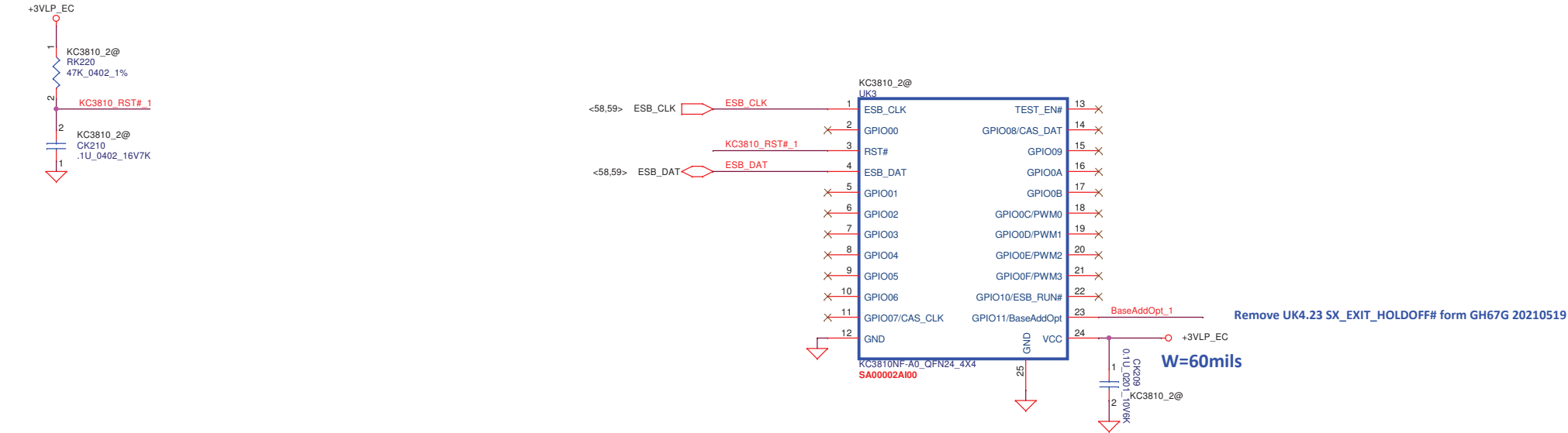
Need EC confirm



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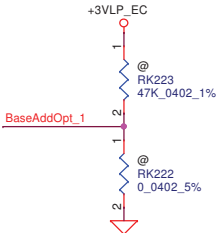
OMEN New ESB CLK&DAT for Extend I/O

*NMI_DBG#: is a debug pin for EC to
infrom BIOS after press hot key.



Need EC confirm

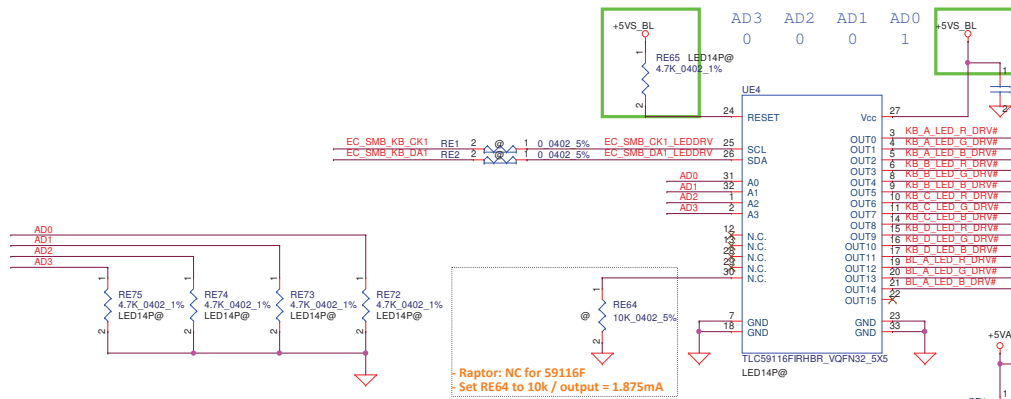
[GPIO11/BaseAddOpt]
If support second 3810,
please let one 3810 GPIO11 connect GND and
the other keep NC or initial High
- High/NC: USR_EGPIOBaseSetting - 0x00
- Low: USR_EGPIOBaseSetting - 0x08



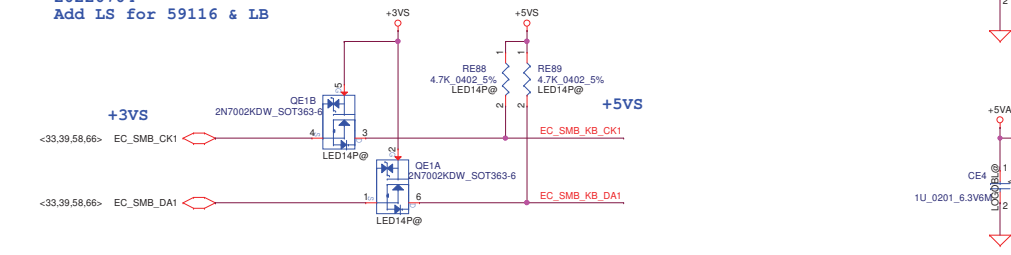
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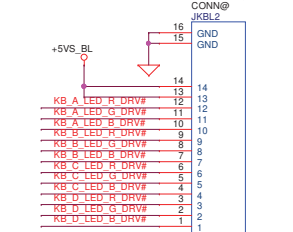
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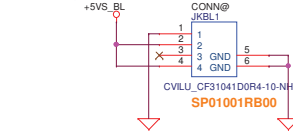
20220704
Add LS for 59116 & LB



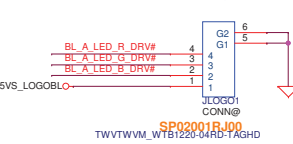
RGB KB Backlight Conn



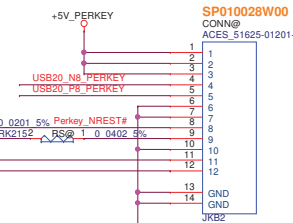
Single BackLight Conn



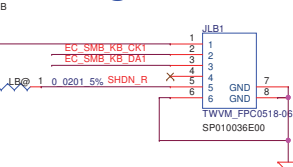
LOGO BackLight Conn



Per Key Conn.



LightBar Conn



*detect by EC Perkey exist strap pin

SHDN/Perkey_NREST multi-pin <Reserve>	
LightBar.pin5	Perkey KB.pin8
SHDN	Perkey_NREST
	<Reserve>

ON/OFF BTN



UG1
YB8251PST23
PSOT23 3P

VDD
OUT
GND

+3VLP

1 2

1 2

CG2
1U_0201_6.3V6M

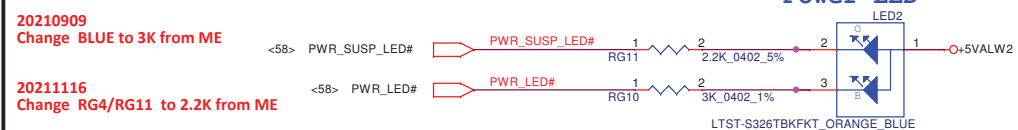
CG1
1U_0201_10V6M

LID_SW#

LID_SW# <58,73>

[illegible]

20210705
SC50000RZ00 no symbol use
SC50000JH00...PIN2 is Orange PIN3 is BLUE



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				KB/TP/LED/LID			
				Size Custom	Document Number		Rev 1.
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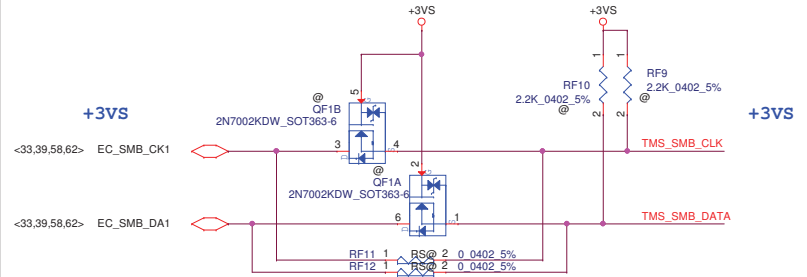
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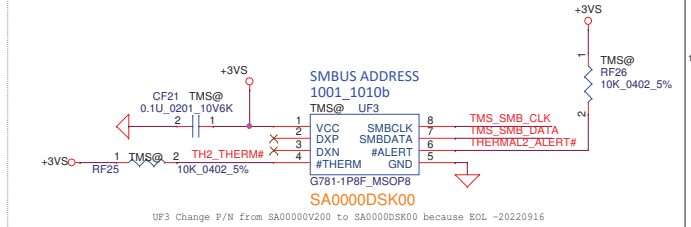
20200717
- Remove G-Sensor

THERMAL SENSOR

20200810
- Check address

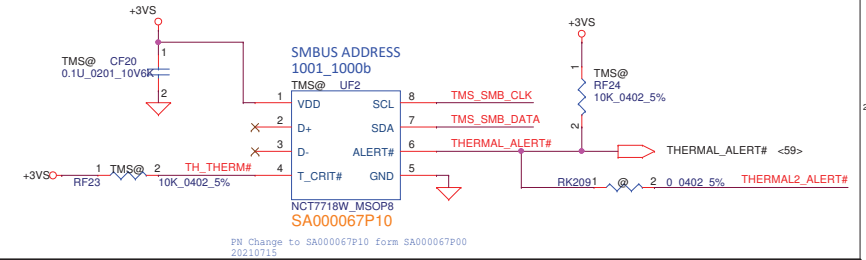


Close to Thermal SKIN



20200928
- Remove 3rd thermal sensor

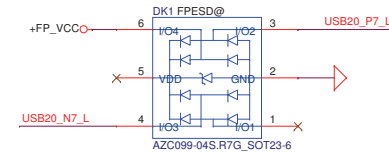
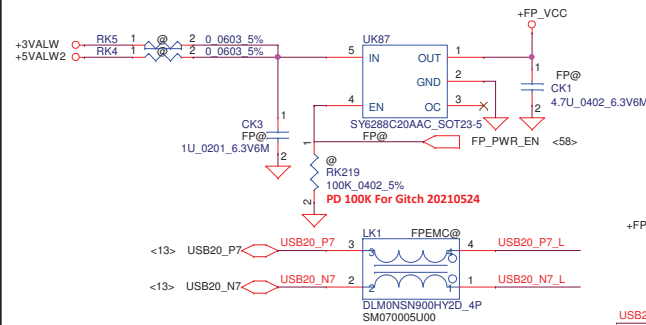
Close to SO-DIMM



TPM 2.0

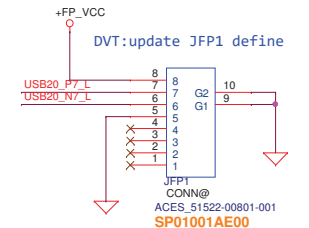
20210528 remove TPM

Finger print

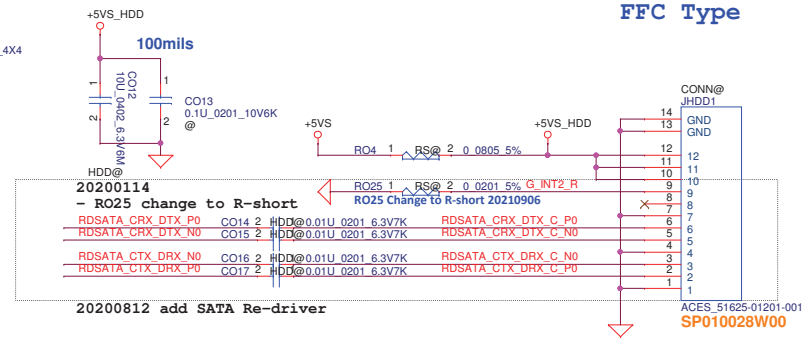
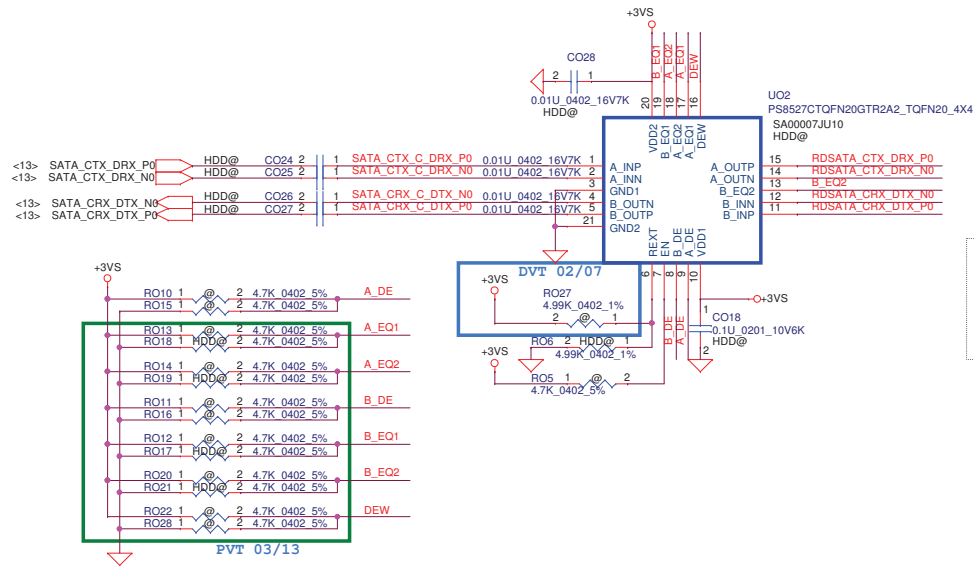


PIN	ETU801	FA577E-1200
1	+FP_VCC (5V)	+FP_VCC (3V)
2	USBP	D+
3	USBN	D-
4	GND	GND
5	NC	NC
6	NC	NC
7	NC	NC
8	NC	NC

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



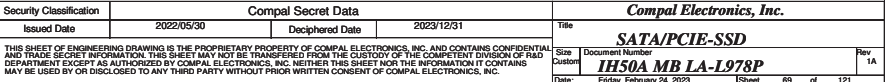
Security Classification				Compal Secret Data				Compal Electronics, Inc.			
Issued Date		2022/05/30		Deciphered Date		2023/12/31		Title		TPM/FP/Sensor	
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				Date	Friday, February 24, 2023
				Sheet	67 of 121
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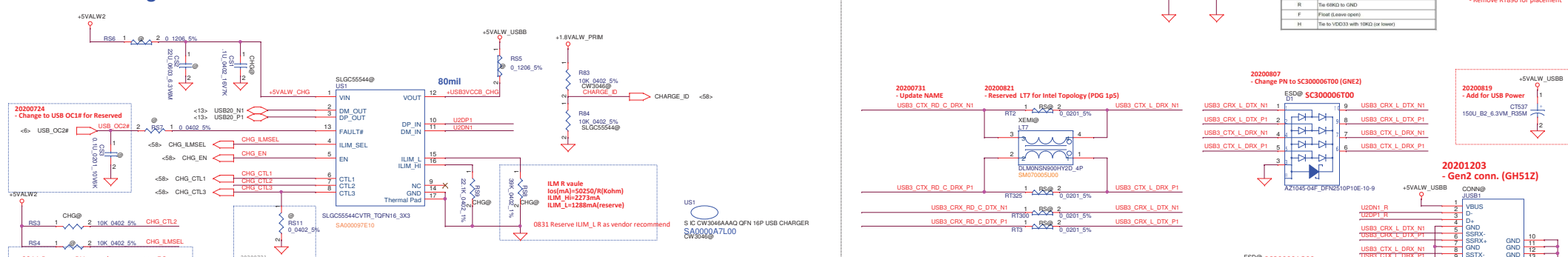
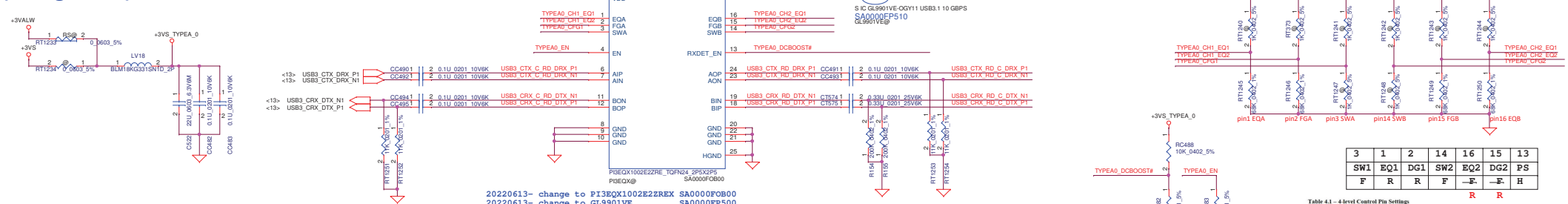
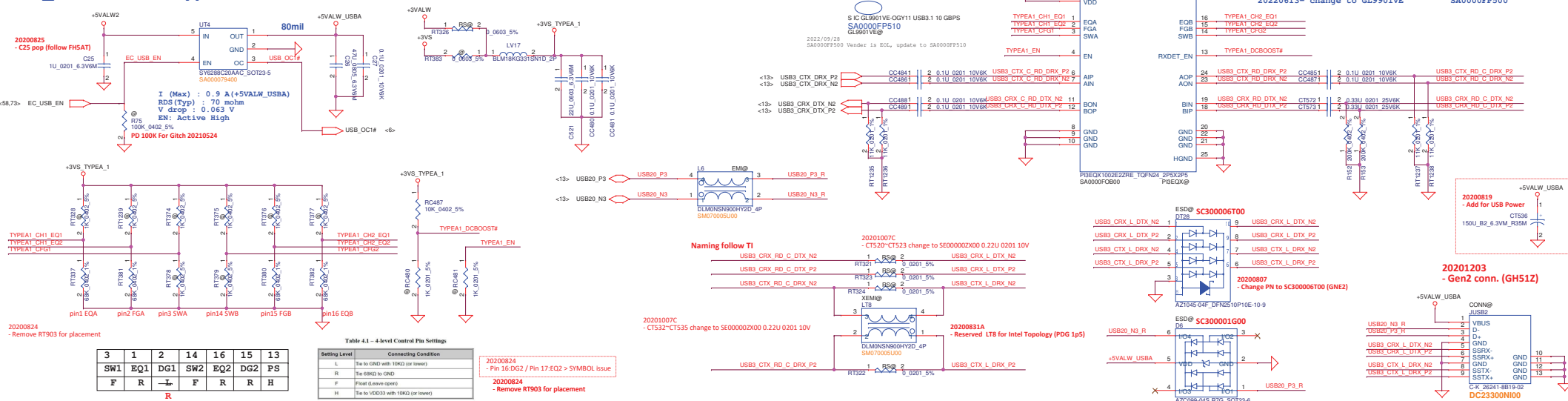
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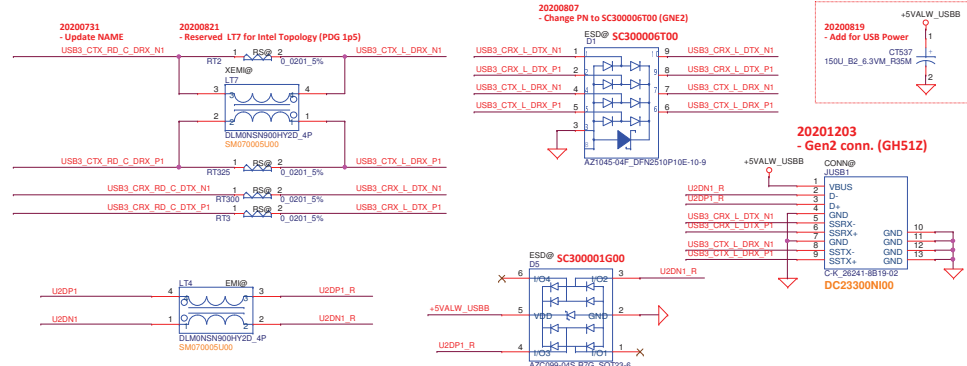


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CHG_EN	CTL1	CTL2	CTL3	ILIM_SEL	MODE	Current Limit Setting	Note	System Power states	
0	0	1	0	1	SDP-OFF	ILIM_H	Port Power off	S4/S5 Port off	
1	0	1	0	1	SDP1	ILIM_H	Data Lines Connected	S3/S4 Charger OFF	SLGC55544
1	1	1	1	0	SDP Seamless	ILIM_L	Data Lines Connected		CW3046
1	0	1	1	1	DCP Auto	ILIM_H	Data Lines Disconnected	S3/S4/S5 Charger ON	
1	1	1	1	1	CDP	ILIM_H	Data Lines Connected	S0	



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			Size	Document Number
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				Date:	Friday, February 24, 2023
				Sheet	72 of 121
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				IH50A MB LA-L978P	

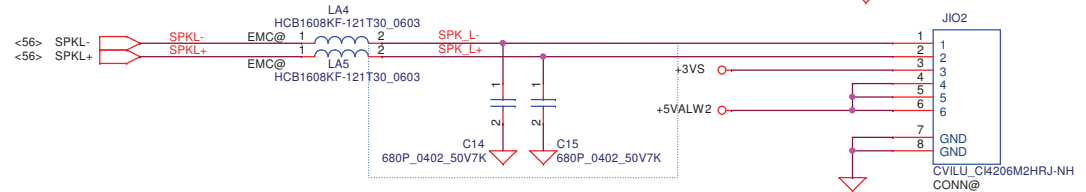
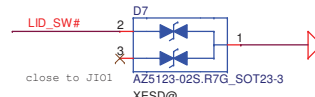
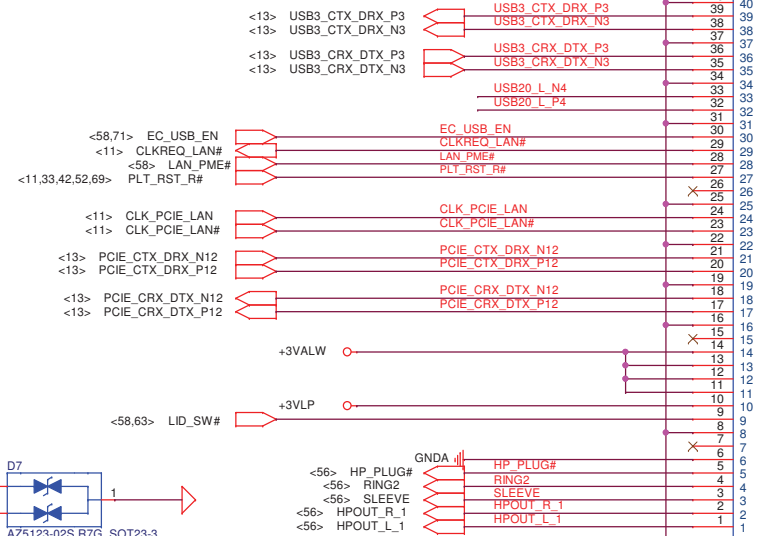
IO/B CONN



0702
- IO_B change pin define

Check IO FFC double pin location

SDAN_606044-040041



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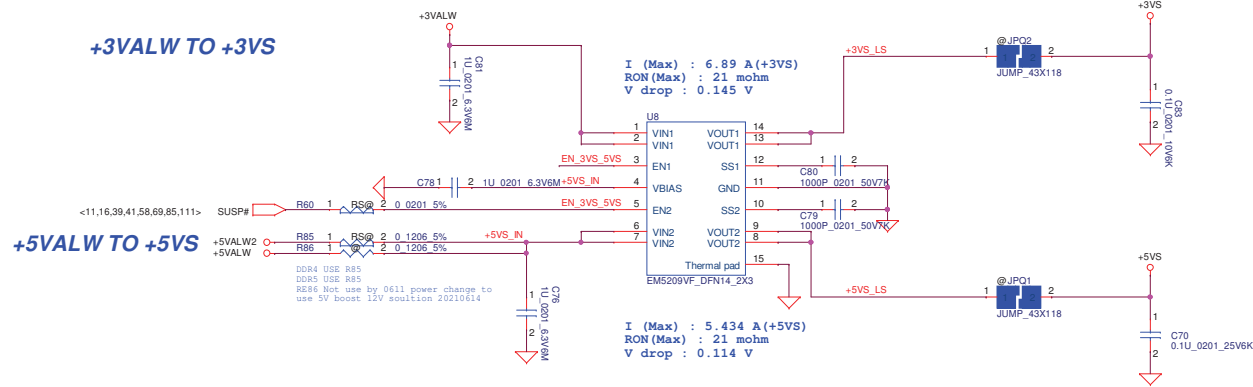
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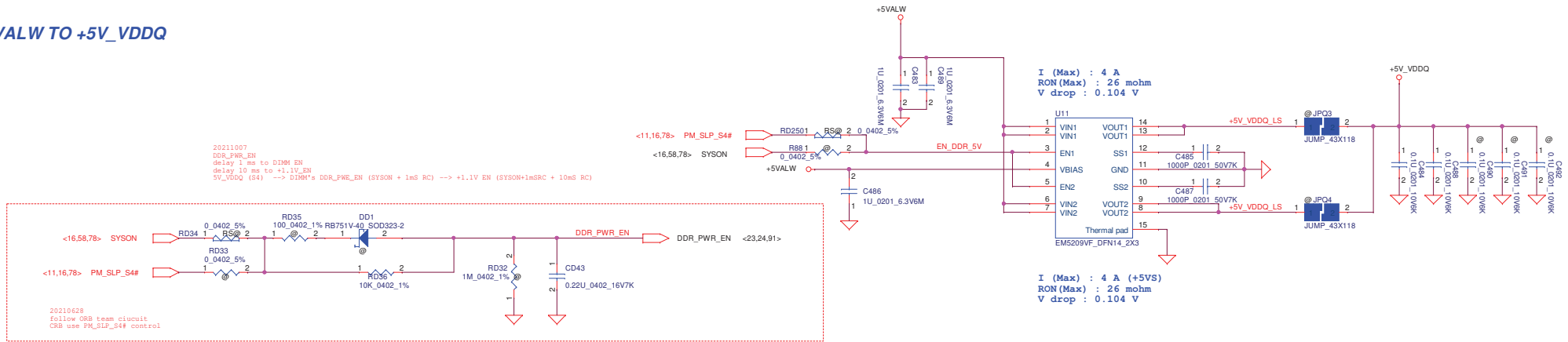
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				Size	Document Number	Rev
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+5VALW TO +5V_VDDQ



20210604
- Move +1.8VALW to +1.8VS to page 69

20200717
- Remove VGA Power sequence

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Date: Friday, February 24, 2023				Rev 1A
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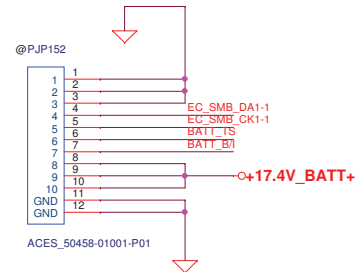
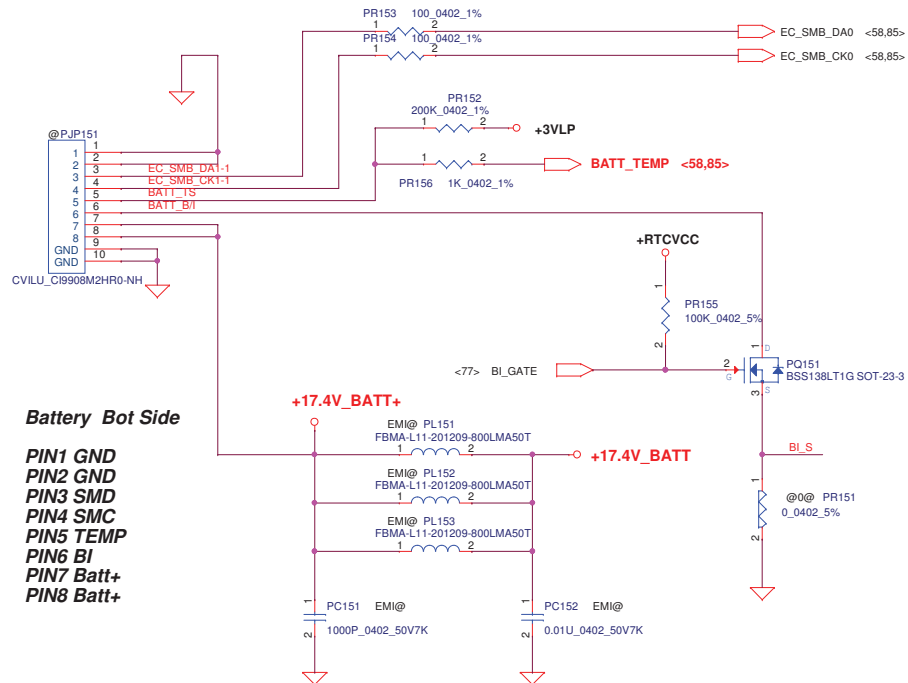
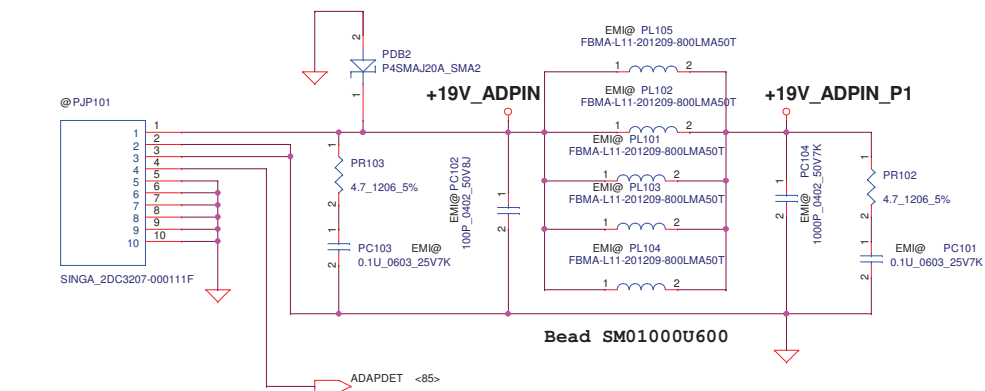
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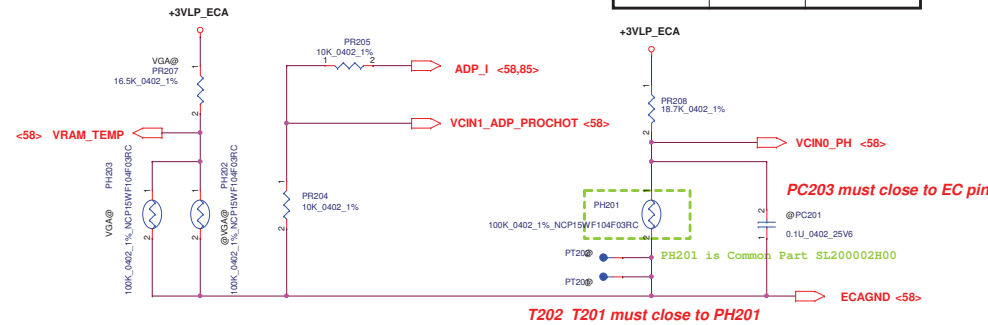
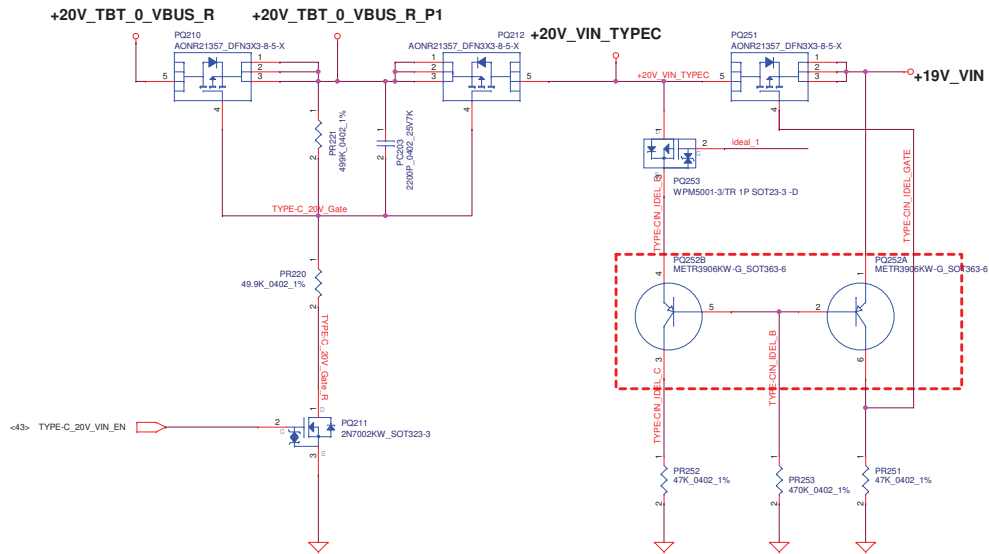
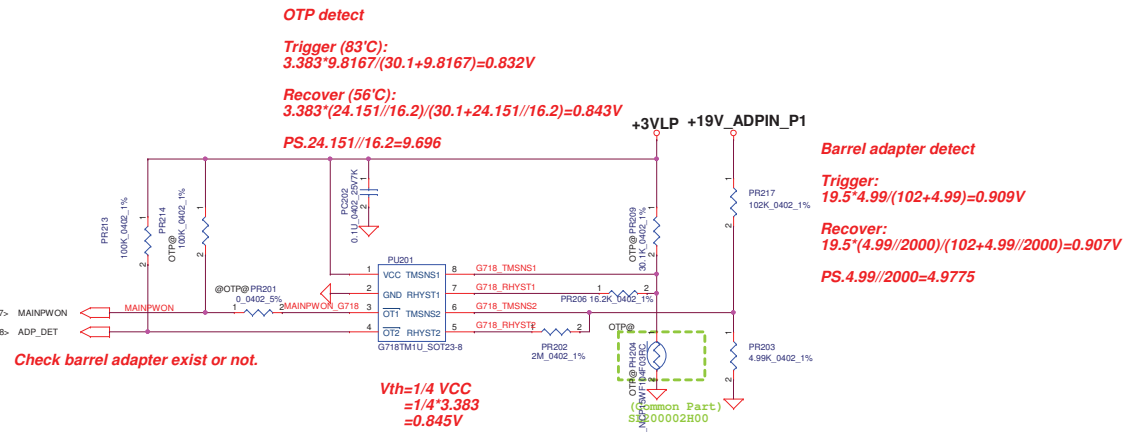
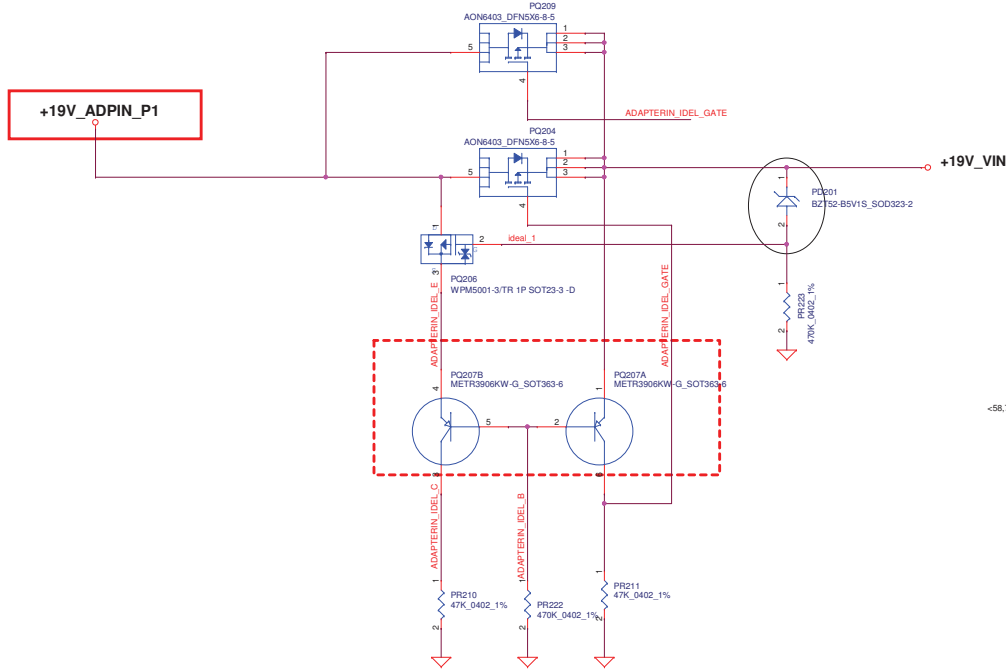
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Battery Bot Side

PIN1 GND
PIN2 GND
PIN3 SMD
PIN4 SMC
PIN5 TEMP
PIN6 BI
PIN7 Batt+
PIN8 Batt+

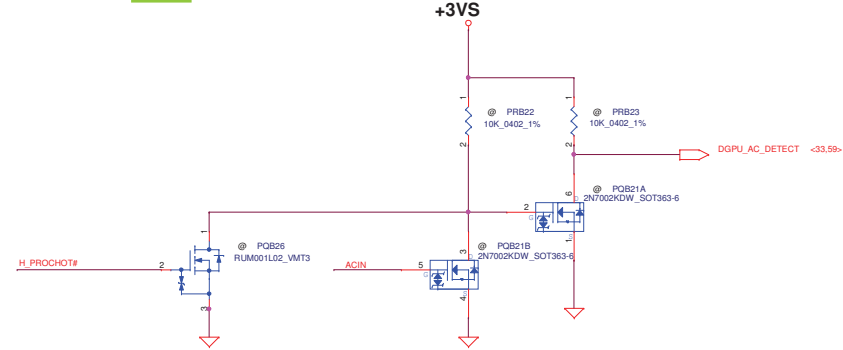
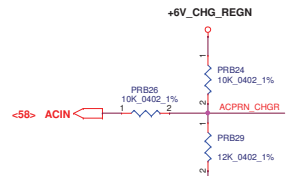
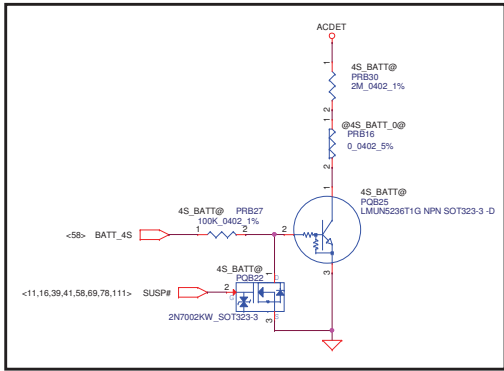
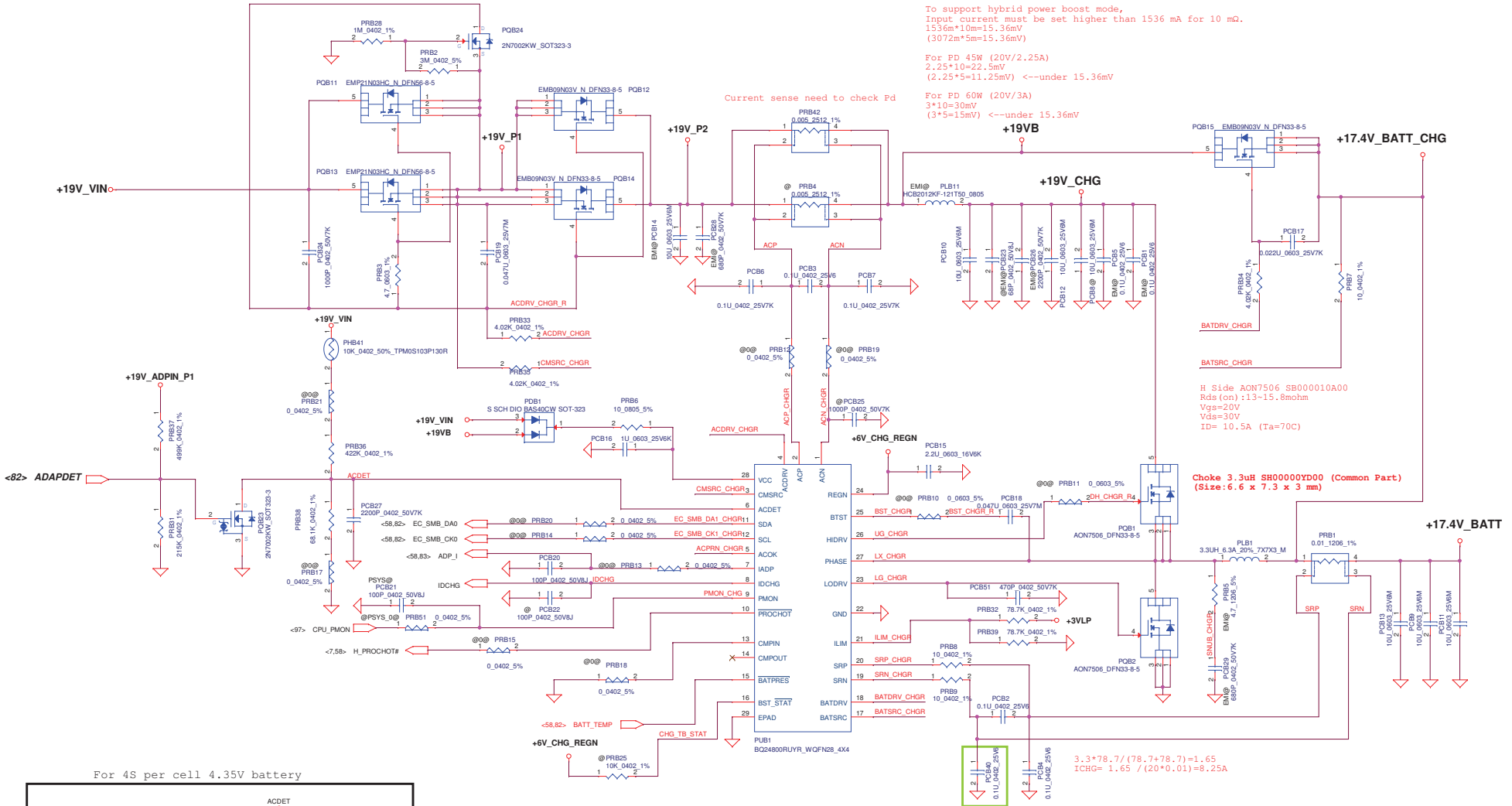
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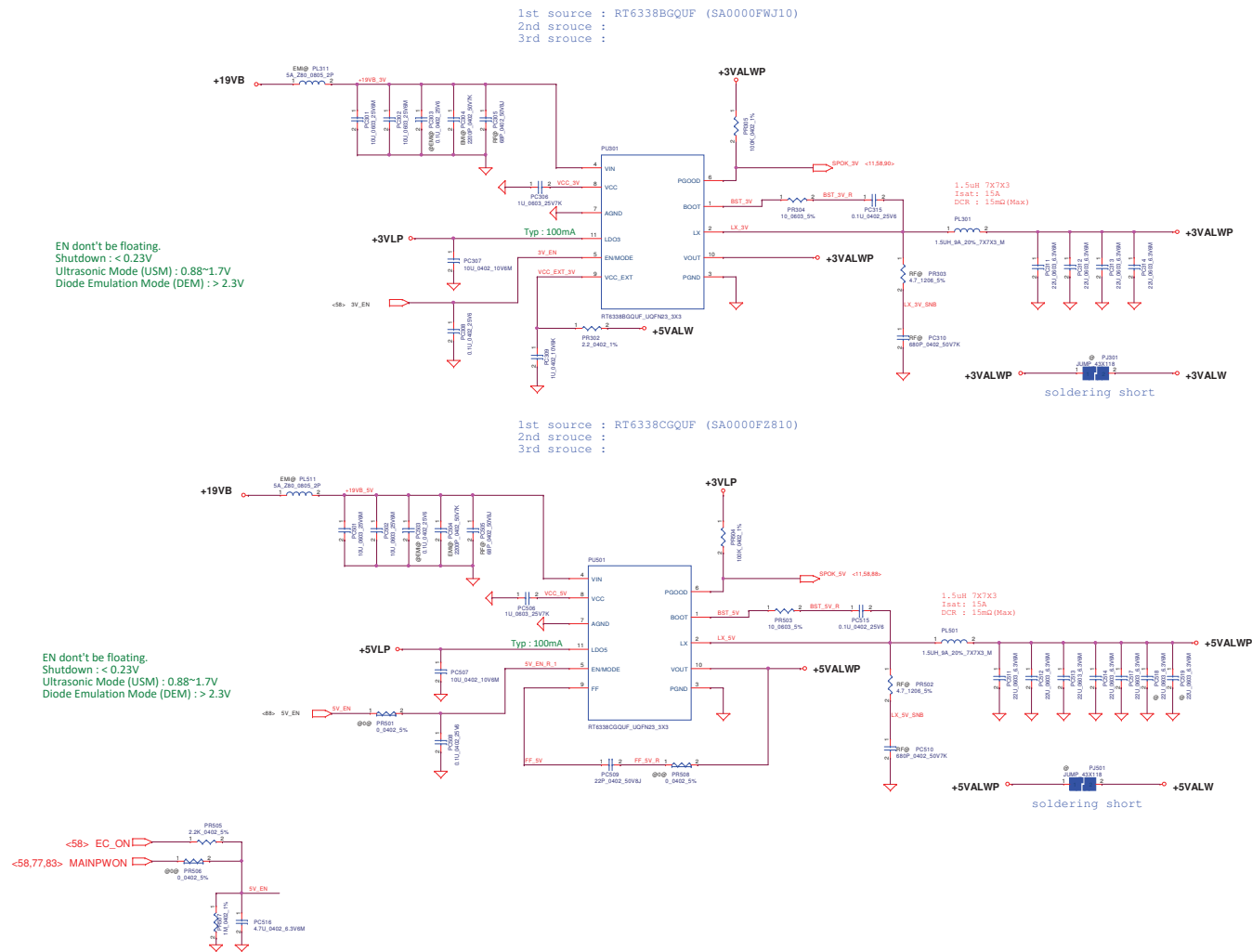
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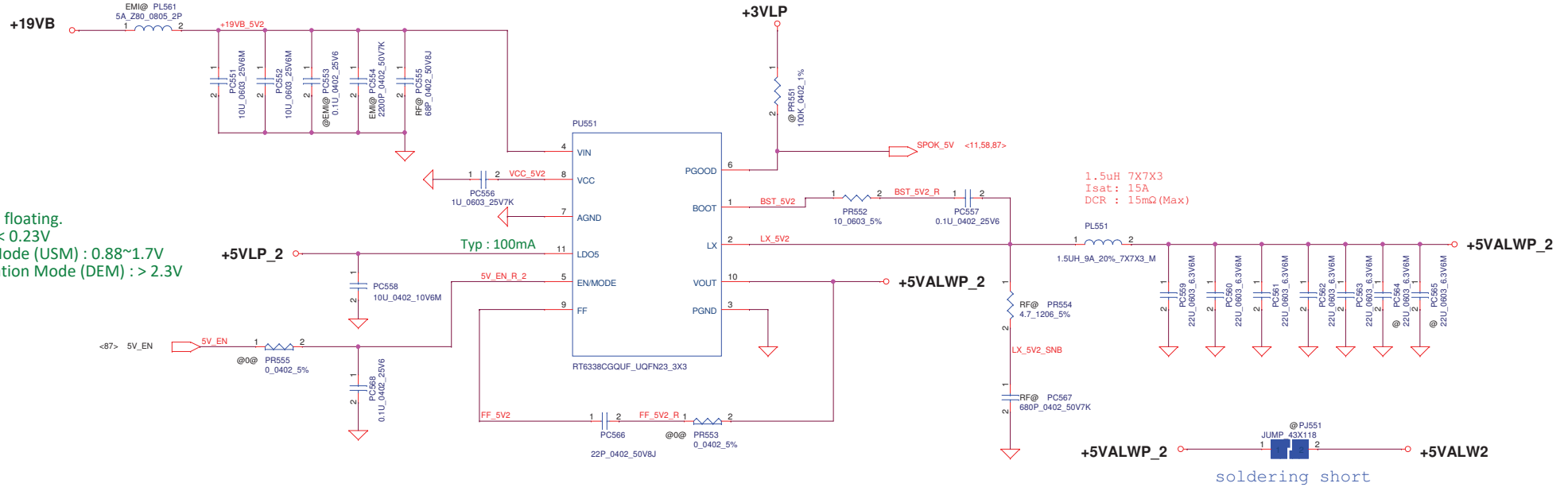
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2nd source :
3rd source :

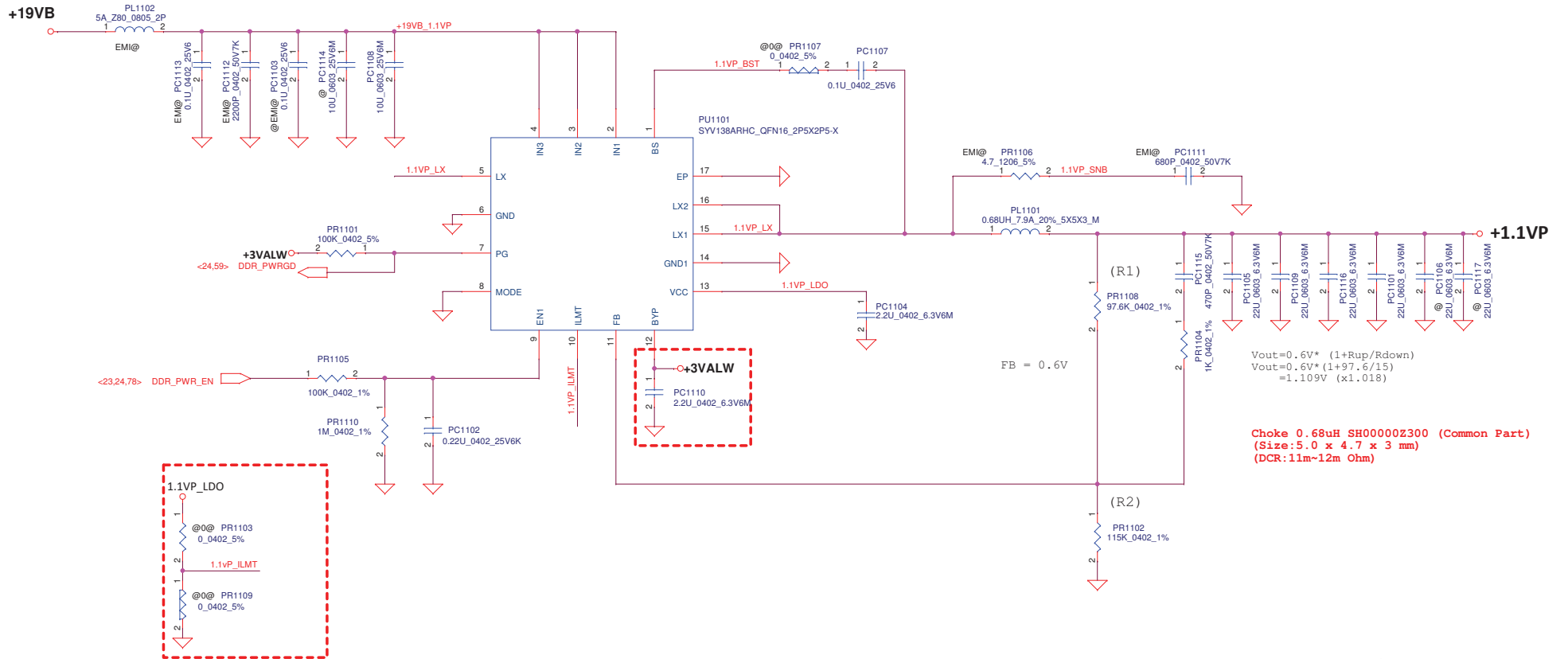
EN don't be floating.
Shutdown : < 0.23V
Ultrasonic Mode (USM) : 0.88~1.7V
Diode Emulation Mode (DEM) : > 2.3V



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				Cust	IH50A MB LA-L978P	1A
				Date	Friday, February 24, 2023	Sheet 88 of 121

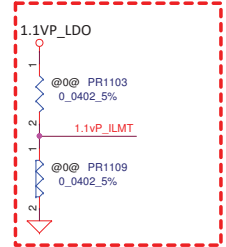
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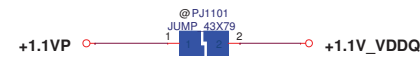


<24.59> DDR_PWRGD

<23.24,78> DDR_PWR_EN



SYV138A	Min	Typ	Max
ILMT='0'	6.5A	7.5A	8.5A
ILMT=Floating	9.5A	10.5A	11.5A
ILMT='1'	12.5A	13.5A	14.5A



Choke 0.68uH SH00000Z300 (Common Part)
(Size:5.0 x 4.7 x 3 mm)
(DCR:11m~12m Ohm)

Vout=0.6V* (1+Rup/Rdown)
Vout=0.6V* (1+97.6/15)
=1.109V (x1.018)

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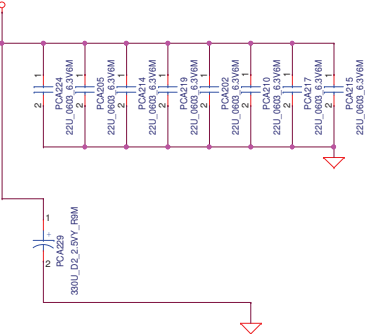
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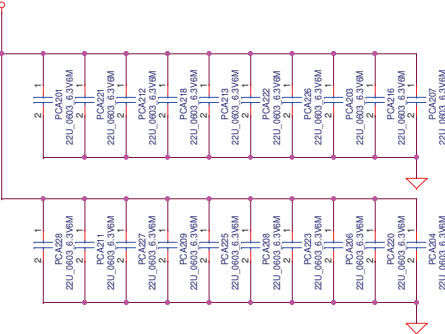
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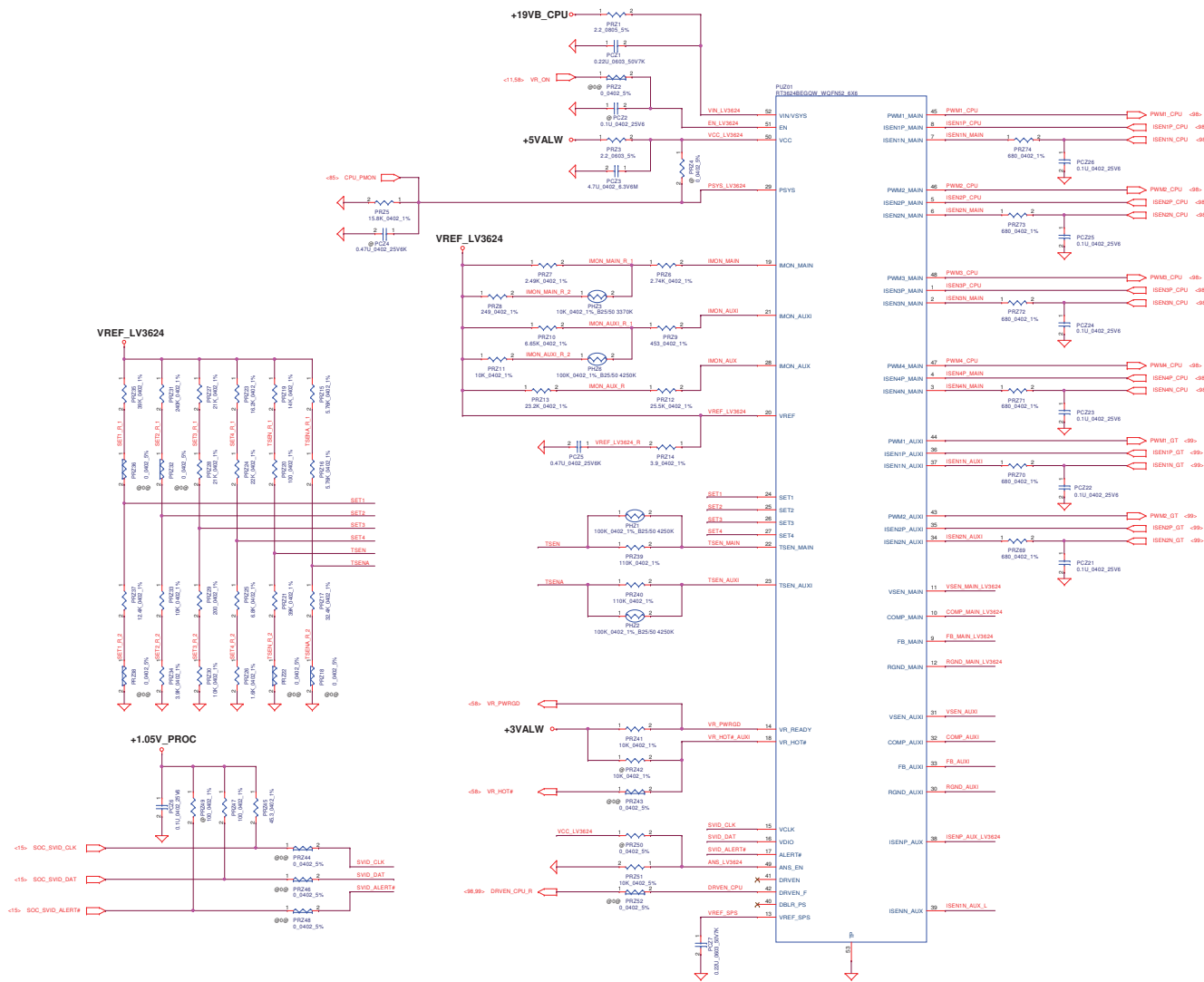
+VCCIN_AUX Output CAP :
330uF_2.5V*1
22uF_0603*28

CPU Primary Side
+VCCIN_AUX



CPU Secondary side
+VCCIN_AUX

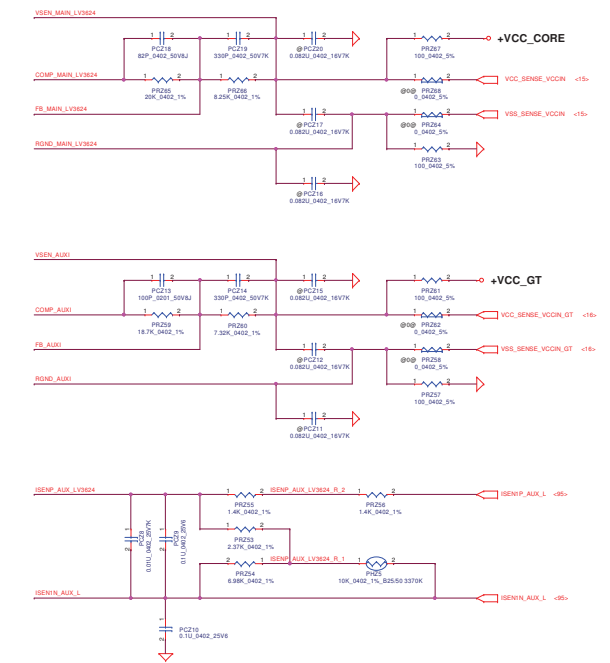




VCC_CORE
 IPU2 (TDC) = 93A (~>BIOS set up x8)
 Peak Current = 160A (ICMax) (~>BIOS set up x4)
 DC Load line: 2.3mohm (~>BIOS set up x100)
 AC Load line: 2.3mohm (~>BIOS set up x100)
 Current limit = 208A (OCP)
 OVP: VID+0.35V
 PSW= 600K Hz
 Vboot: 0V

VCC_OT
 IPU2 (TDC) = 30A (~>BIOS set up x8)
 Peak Current = 55A (ICMax) (~>BIOS set up x4)
 DC Load line: 3.2mohm (~>BIOS set up x100)
 AC Load line: 3.2mohm (~>BIOS set up x100)
 Current limit = 71A (OCP)
 OVP: VID+0.35V
 PSW= 540K Hz
 Vboot: 0V

VRHot : 110

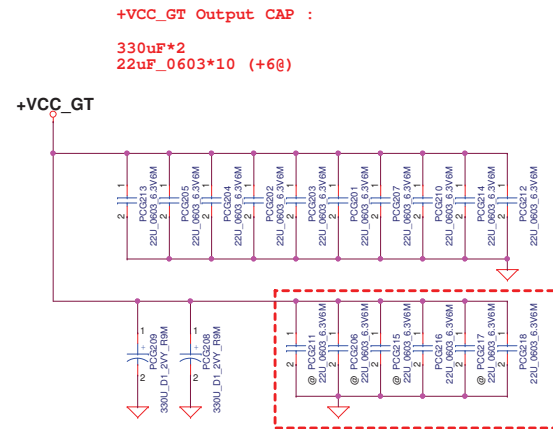
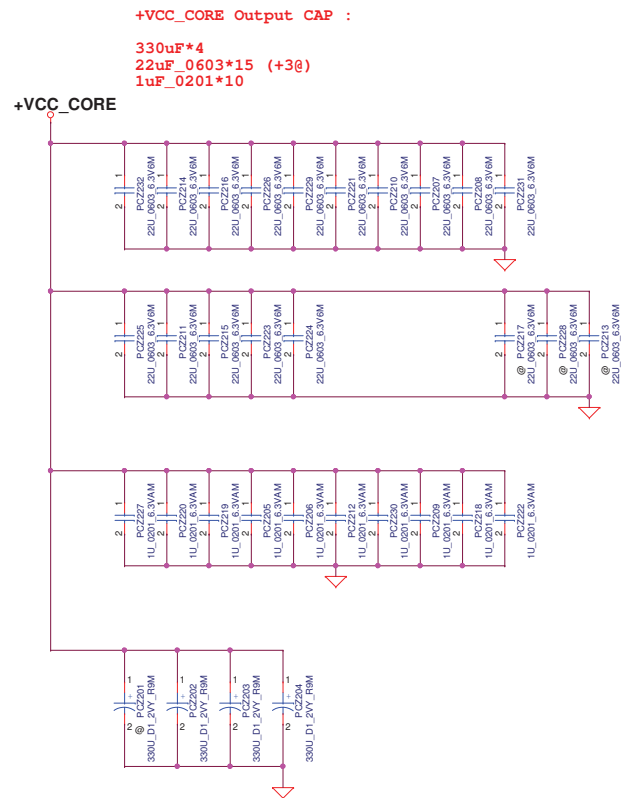


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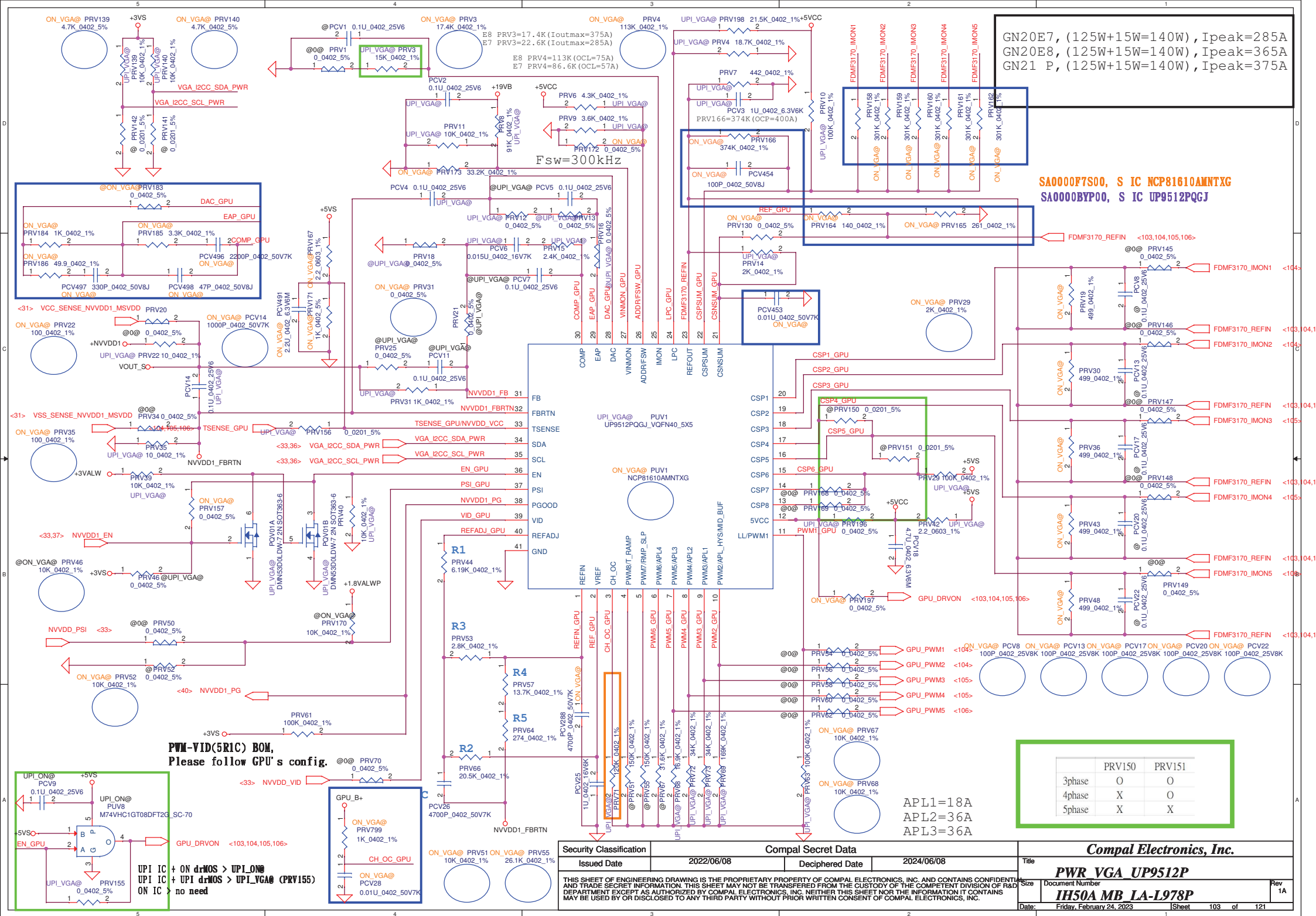
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Main Func = +VCCIN DECOUPLING



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GN20E7, (125W+15W=140W), Ipeak=285A
GN20E8, (125W+15W=140W), Ipeak=365A
GN21 P, (125W+15W=140W), Ipeak=375A

SA0000F7S00, S IC NCP81610AMNTXG
SA0000BYP00, S IC UP9512PQJ

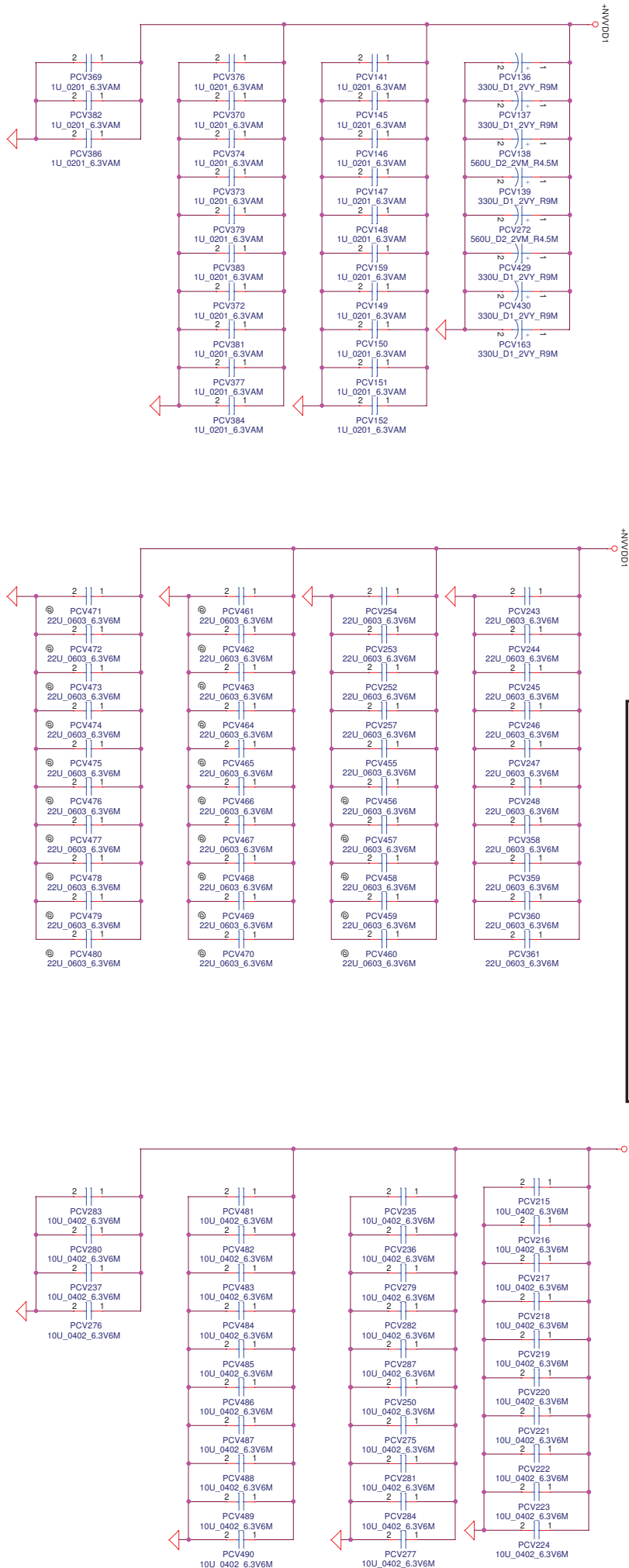
PWM-VID(5R1C) BOM,
Please follow GPU's config.

APL1=18A
APL2=36A
APL3=36A

	PRV150	PRV151
3phase	O	O
4phase	X	O
5phase	X	X

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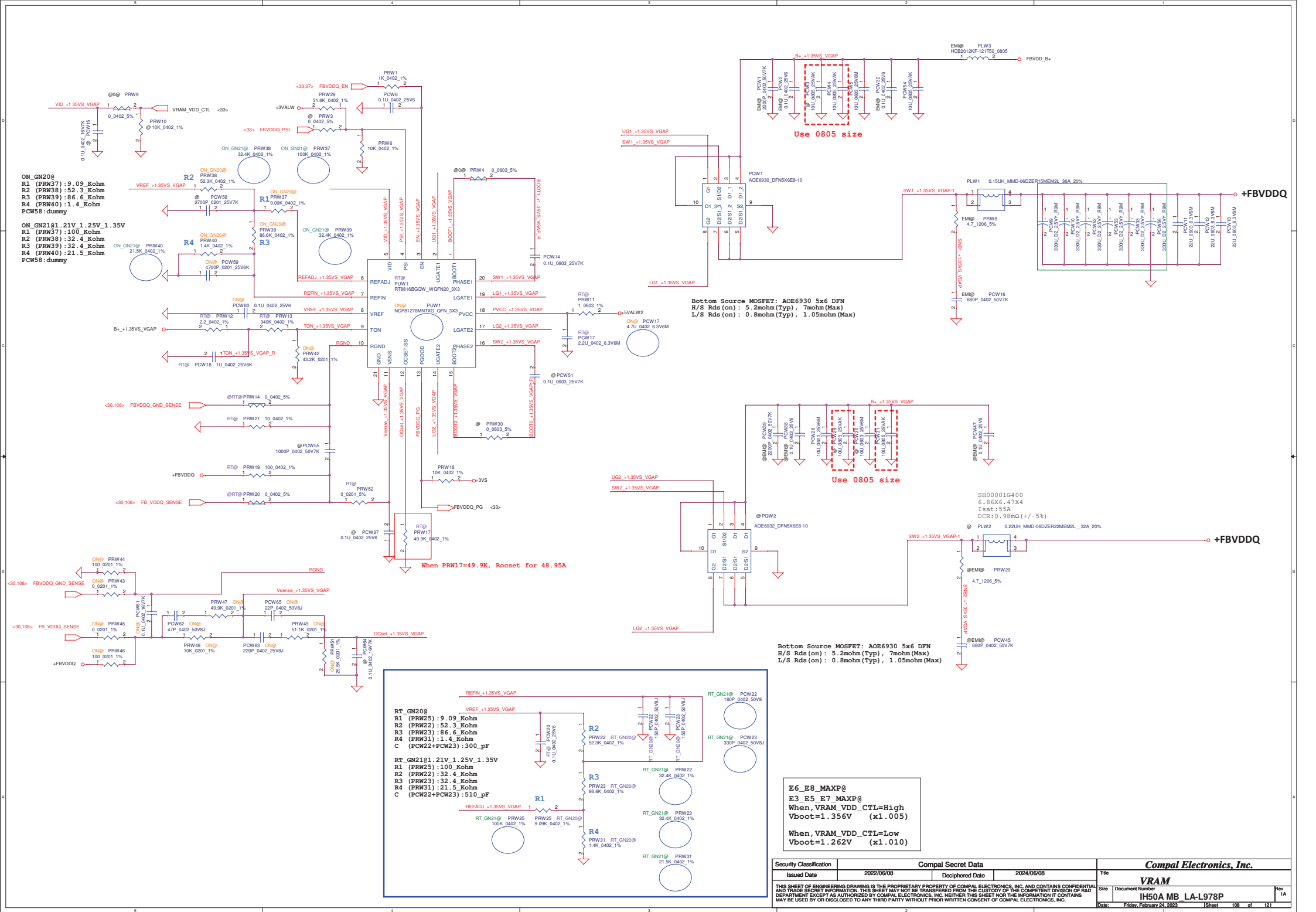
GB5C-128
+NVVDD1
560uF X 8
330uF X 0
220uF X0
22uF_0603X 15 (40)
10uF_0402X 34 (34)
1uF_0201 X 23 (23)



Security Classification			Compal Secret Data			Title	
Issued Date			Deciphered Date			PWR_VGA DECOUPLING	
2022/06/08			2024/06/08			Document Number	
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						Rev	
						1/A	

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ON_GN20@
R1 (PRW37): 9.09_Kohm
R2 (PRW38): 52.3_Kohm
R3 (PRW39): 86.6_Kohm
R4 (PRW40): 1.4_Kohm
PCW58: dummy
ON_GN21@1.21V_1.25V_1.35V
R1 (PRW37): 100_Kohm
R2 (PRW38): 32.4_Kohm
R3 (PRW39): 32.4_Kohm
R4 (PRW40): 21.5_Kohm
PCW58: dummy

Bottom Source MOSFET: AOE6930 5x6 DFN
H/S Rds (on): 5.2mohm (Typ), 7mohm (Max)
L/S Rds (on): 0.8mohm (Typ), 1.05mohm (Max)

E6_E8_MAXP@
E3_E5_E7_MAXP@
When, VRAM_VDD_CTL=High
Vboot=1.356V (x1.005)
When, VRAM_VDD_CTL=Low
Vboot=1.262V (x1.010)

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Item	Reason for change	PG#	Modify List	Date	Phase																								
01	Update BOM Structure	P.103 P.103 P.108 P.103 P.87 88	UPI_VGA@ --> @UPI_VGA@ --> prv16 、 prv13 、 prv18 ON_VGA@--> @ON_VGA@ --> prv183 RT@--> @RT@ --> prw14 、 prw20 NON_UPI_ON@ --> UPI_VGA@ --> PRV155 JUMP@ --> @ --> PJ301 、 PJ501 、 PJ551	0810	EVT																								
02	Update Part number Update location name	P.109 P.103	PC1252 --> SE000008800 --> SE000008880 PCV2777--> PCV288	0829	EVT																								
03	Vram modify 2 Phase to 1Phase	P.108	Update BOM Structure PCW55 、 PCW27 、 PCW51 、 PRW30 、 PQW2 、 PLW2 、 PRW29 、 PCW45 、 PCW30 、 PCW47 、 PCW38 、 PCW39 、 PCW29 、 PCW3 change from pop to unpop PRW6 change from unpop to pop PRW13--> 499k (SD034499380) change to 340k (SD034340380) PRW17--> 36k (SD00000RT00) change to 49.9K (SD034499280) PQW1--> AOE6932 (SB00001J200) change to AOE6930 (SB00001AZ00) PLW1--> 0.22U (SH000016400) change to 0.15U (SH00001TX00) PRW52--> S RES 1/20W 0 +-1% 0201 (SD041000080) change to S RES 1/20W 0 +-5% 0201 (SD043000080)	0928	EVT																								
04	VGA modify	P.104 P.105 P.106 P.107	PCV365 、 PCV366 --> 560uF (SGA00006J00) change to 330uF(SGA00009S00) PCV363 、 PCV364 --> 560uF (SGA00006J00) change to 330uF(SGA00009S00) PCV362--> 560uF (SGA00006J00) change to 330uF(SGA00009S00) PCV136, PCV137, PCV139, PCV163, PCV429, PCV430--> 560uF (SGA00006J00) change to 330uF(SGA00009S00)	0928	EVT																								
05	CPU modify	P.97 P.101 P.95	PCZ14 、 PCZ19--> 390pF (SE074391K80) change to 330pF(SE074331K80) PRZ13--> 25.5K (SD034255280)change to 23.2KΩ (SD034232280) PRZ18 、 PRZ22 、 PRZ32 、 PRZ36 、 PRZ38 --> S RES 1/16W 0 +-1% 0402 (SD034000080) change to S RES 1/16W 0 +-5% 0402 (SD028000080) PCG218 、 PCG216 --> change from unpop to pop PRG28--> 1.24K(SD034124180) change to 1.43KΩ(SD034143180) PRG29--> 1.5K (SD034150180) change to 1.87KΩ (SD034187180) PRG26 、 PRG27-->8.87 KΩ (SD014887180) change to 4.32KΩ (SD014432180)	0928	EVT																								
06	Vram modify ram voltage	P.108	RT_6N21@ PCW22_SE071181J80_180P_0402_50V8J PCW23_SE000006I80_330P_0402_50V8J PRW22_SD034324280_32.4K_0402_1% PRW23_SD034324280_32.4K_0402_1% PRW25_SD034100380_100K_0402_1% PRW31_SD034215280_21.5K_0402_1% ON_6N21@ PRW37_SD034100380_100K_0402_1% PRW38_SD034324280_32.4K_0402_1% PRW39_SD034324280_32.4K_0402_1% PRW40_SD034215280_21.5K_0402_1%	0928	EVT																								
07	VGA modify for ON slew rate	P.103	ON_VGA@ PRV51_21.5K_SD034261280 change to 10K_SD034100280	1020	PVT																								
08	Change to R-Short		PRZ18 、 PRZ22 、 PRZ32 、 PRZ36 、 PRZ38 PR501 、 PR506 、 PR508 、 PR553 、 PR555 PR1253 、 PR617 、 PRV20 、 PRV34 、 PRZ44 PRZ46 、 PRZ48 、 PRB10 、 PRB11 、 PRW4	1031	PVT																								
09	VGA modify for S5-->S0 1phase open	P.103	add UPI_VGA@ PRV4_18.7K_SD034187280	1031	PVT																								
10	VGA reserved 3phase	P.103	add @ PRV150_O_SD043000080 add @ PRV151_O_SD043000080	1116	PVT																								
<table><tr><td>Security Classification</td><td colspan="3">Compal Secret Data</td><td colspan="2">Title</td></tr><tr><td>Issued Date</td><td>2022/06/08</td><td>Deciphered Date</td><td>2024/06/08</td><td colspan="2">PIR</td></tr><tr><td colspan="4">THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.</td><td>Size Custom</td><td>Rev 1A</td></tr><tr><td colspan="4"></td><td>Date: Friday, February 24, 2023</td><td>Sheet 119 of 121</td></tr></table>						Security Classification	Compal Secret Data			Title		Issued Date	2022/06/08	Deciphered Date	2024/06/08	PIR		THIS SHEET OF ENGINEERING DRAWING IS THE PROPRIETARY PROPERTY OF COMPAL ELECTRONICS, INC. AND CONTAINS CONFIDENTIAL AND TRADE SECRET INFORMATION. THIS SHEET MAY NOT BE TRANSFERRED FROM THE CUSTODY OF THE COMPETENT DIVISION OF R&D DEPARTMENT EXCEPT AS AUTHORIZED BY COMPAL ELECTRONICS, INC. NEITHER THIS SHEET NOR THE INFORMATION IT CONTAINS MAY BE USED BY OR DISCLOSED TO ANY THIRD PARTY WITHOUT PRIOR WRITTEN CONSENT OF COMPAL ELECTRONICS, INC.				Size Custom	Rev 1A					Date: Friday, February 24, 2023	Sheet 119 of 121
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