

ADLINK CONFIDENTIAL

MODEL NAME : I-Pi SMARC Plus

Part Number : 51-77A07-0A20-Ao

FILE NAME : 77A07-0A20-SCH

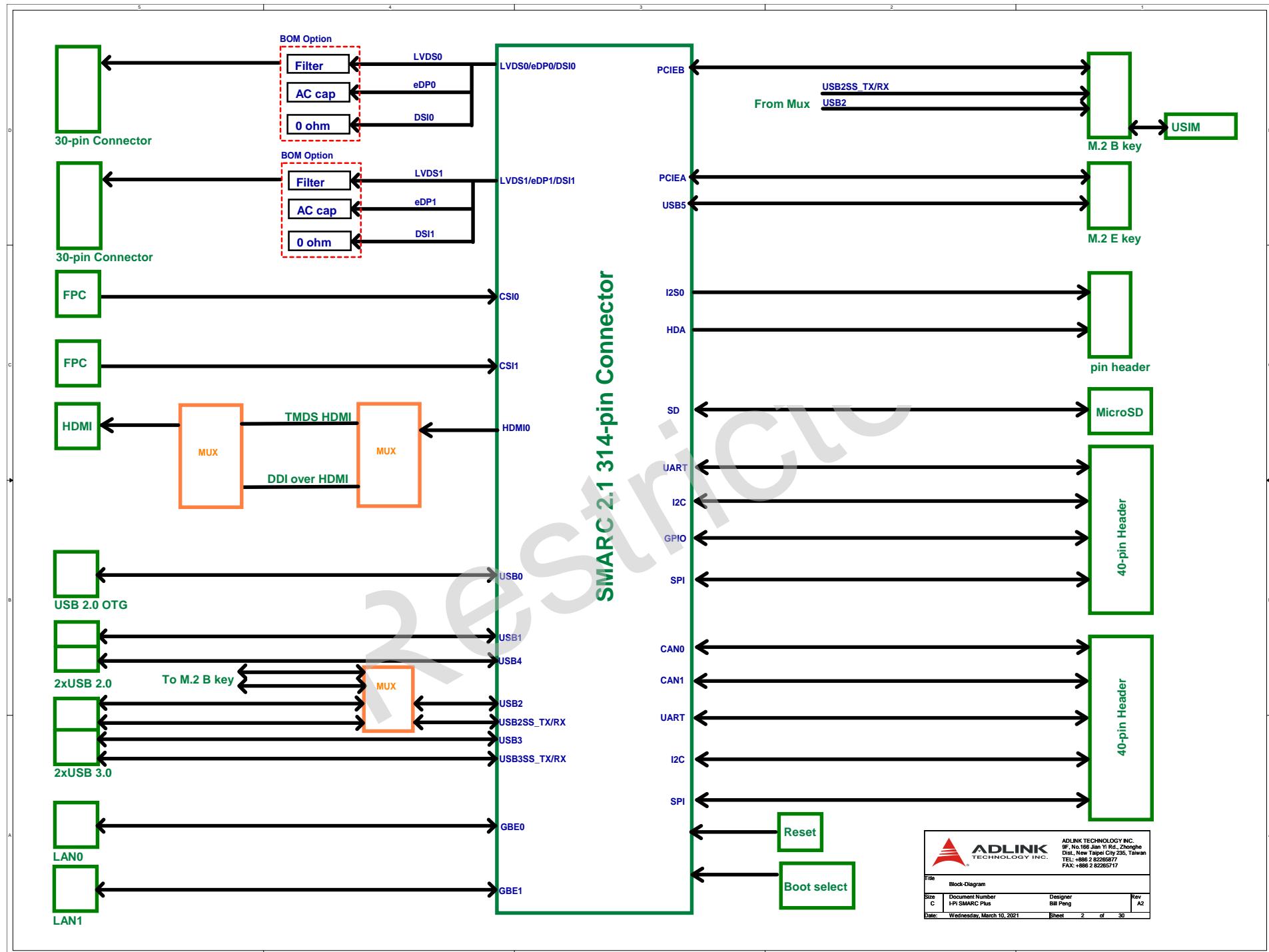
Revision History and Current Revision :

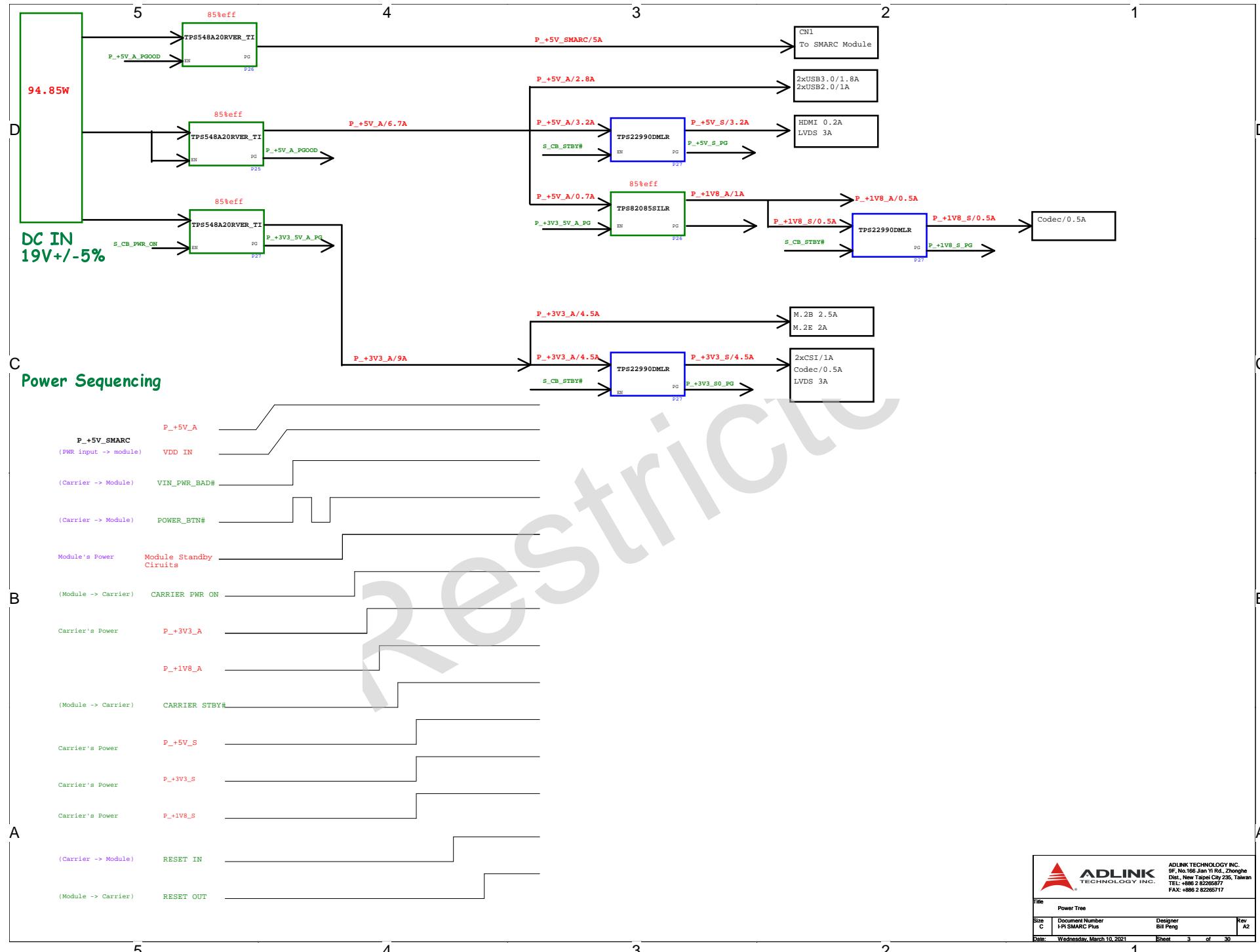
Revision	Description Of Changes	Date (M-D-Y)	Phase
A1	Initial schematic	04-30-2020	ES1
A2	Initial schematic	10-26-2020	ES2

Page Description

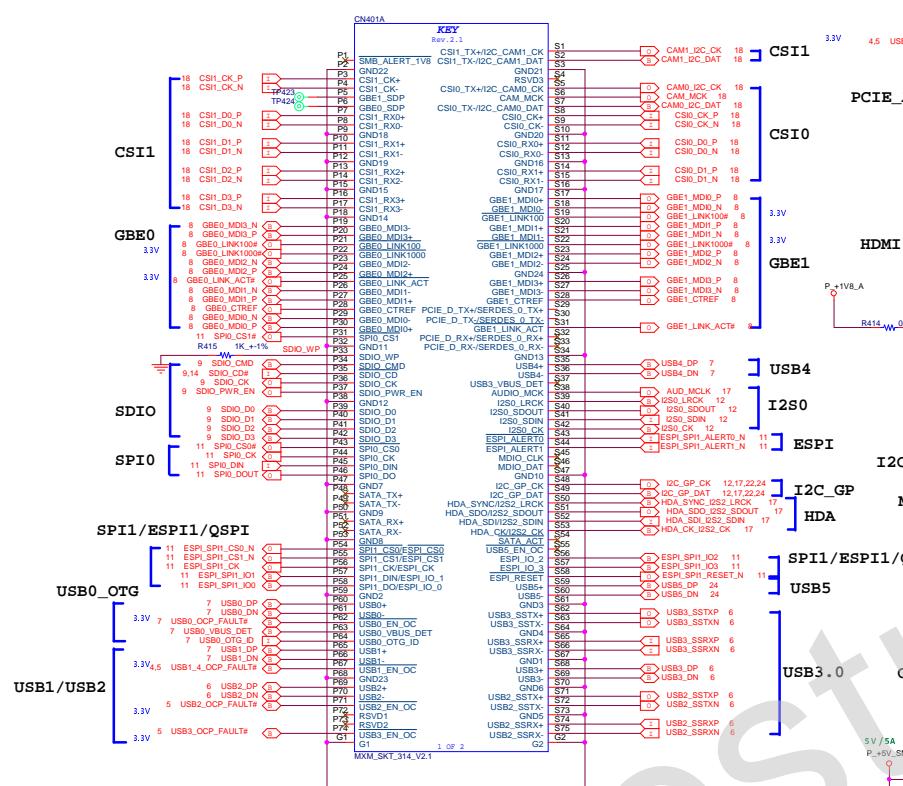
- | | |
|-------------------------|----------------------------------|
| 01_Overview | 17_CODEC |
| 02_Block_Diagram | 18_CSI |
| 03_Power Tree | 19_HDMI SWITCH |
| 04_SMARC CN | 20_HDMI CONN |
| 05_USB OCP | 21_LVDS CONN |
| 06_USB3 CON | 22_LVDS_LShift |
| 07_USB2 CON | 23_M.2_B Key |
| 08_GBE | 24_M.2_E Key |
| 09_Micro SD | 25_P_+5V_A(TPS548A20) |
| 10_GPIO Expander | 26_P_+5V_SMARC(TPS548A20) |
| 11_SPI | 27_P_+3V3_A(TPS548A20) |
| 12_Lshift | 28_P_+1V8_A (TPS82085) |
| 13_Hole/DC/Fan | 29_Load switch(TPS22990) |
| 14_MISC/LED/KEY | 30_CHANGE LIST |
| 15_CAN/P_5V_E | |
| 16_UART | |



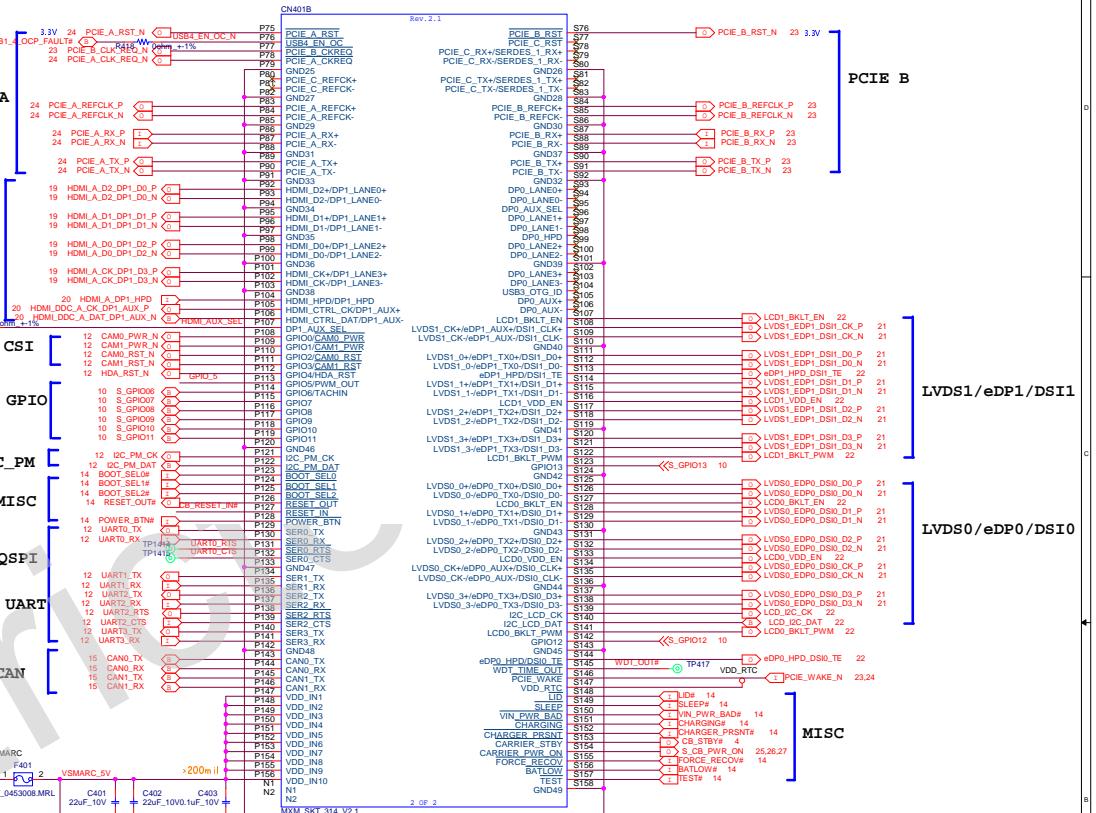




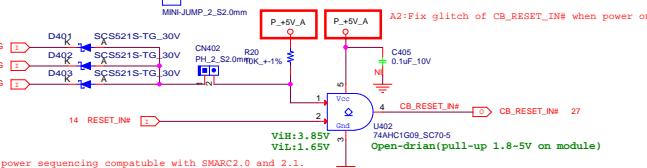
SMARC CN R2.1 1-75



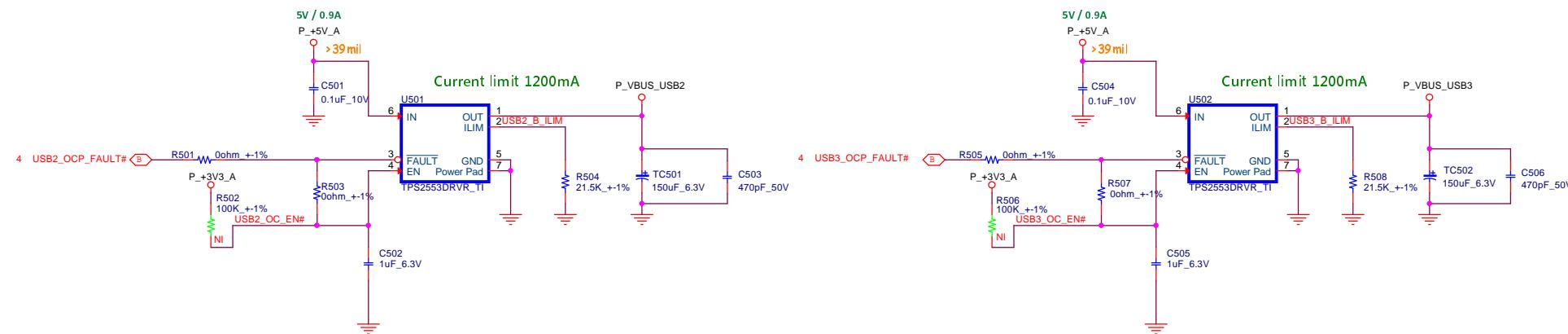
SMARC CN R2.1 76-158



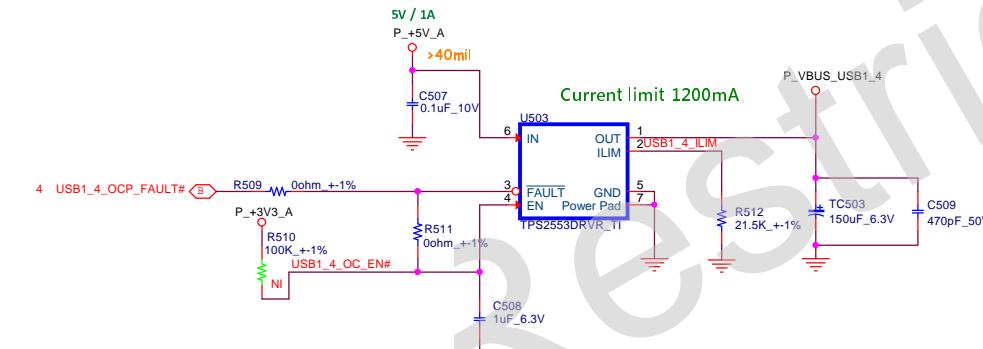
A2: Add CN402 support power sequencing compatible with SMARC2.0 and 2.1.



USB 3.0 OCP



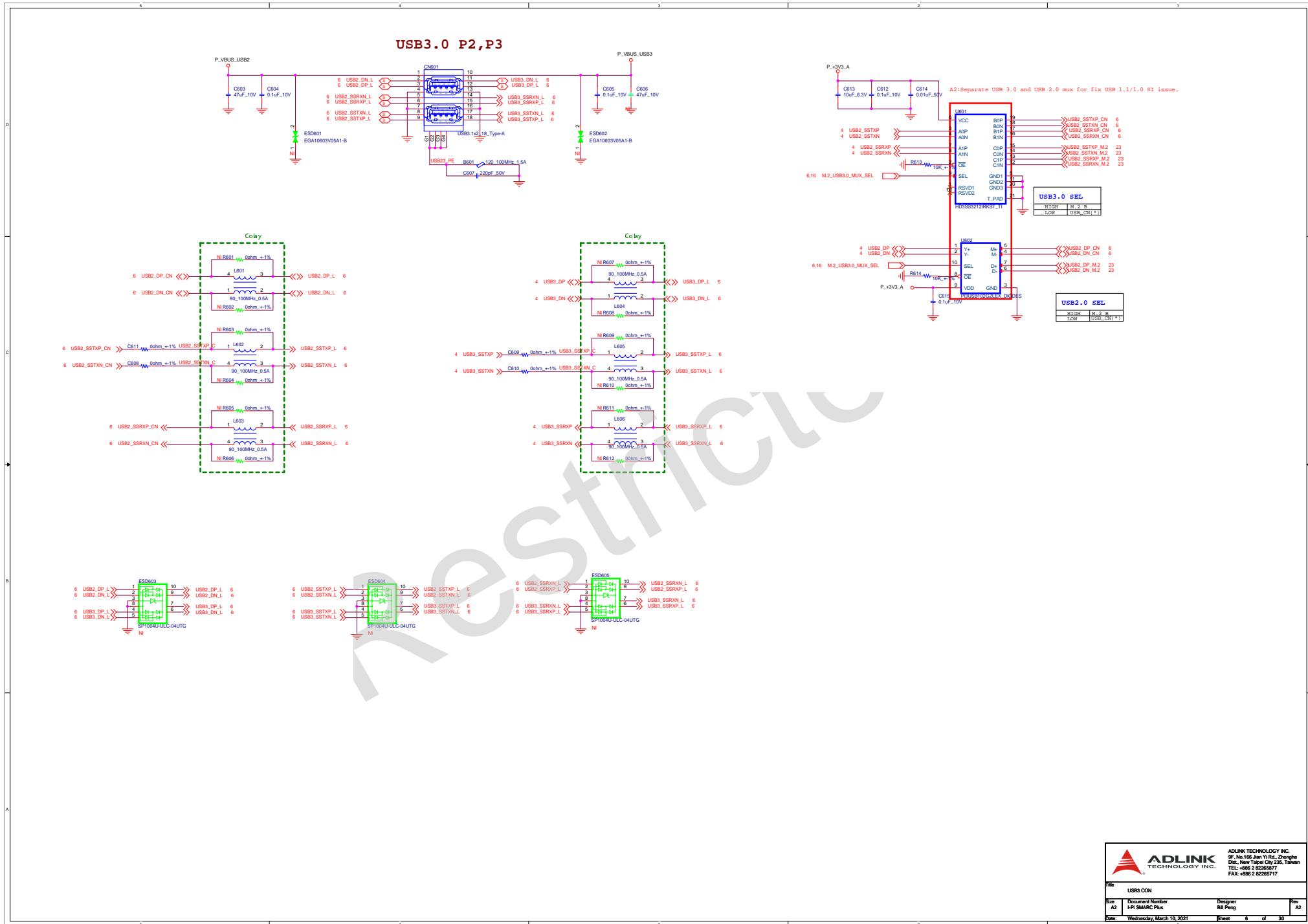
USB 2.0 OCP

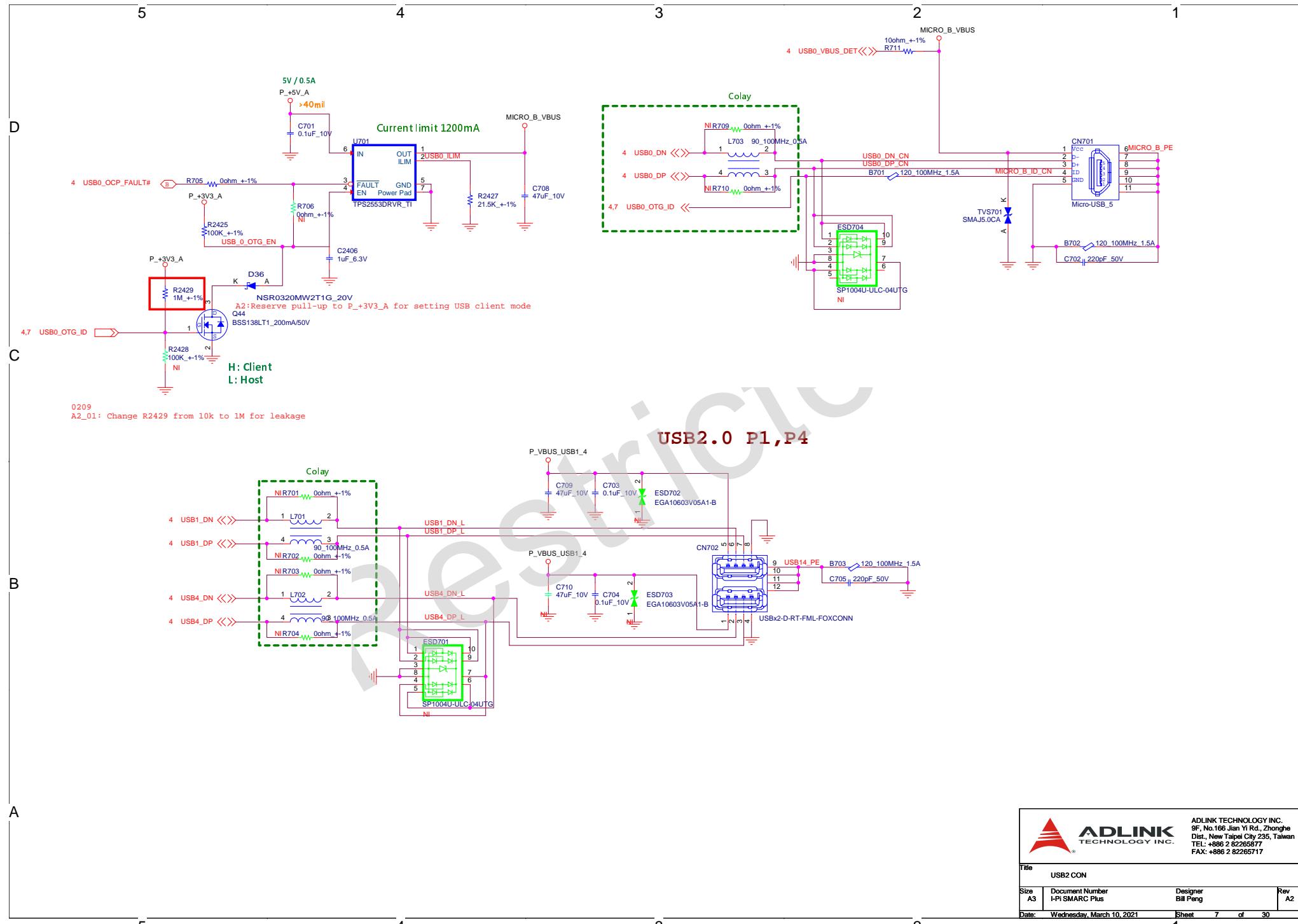


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Title		USB OCP	
Size	Document Number	Designer	Rev
B	I-PI SMARC Plus	Bill Peng	A2

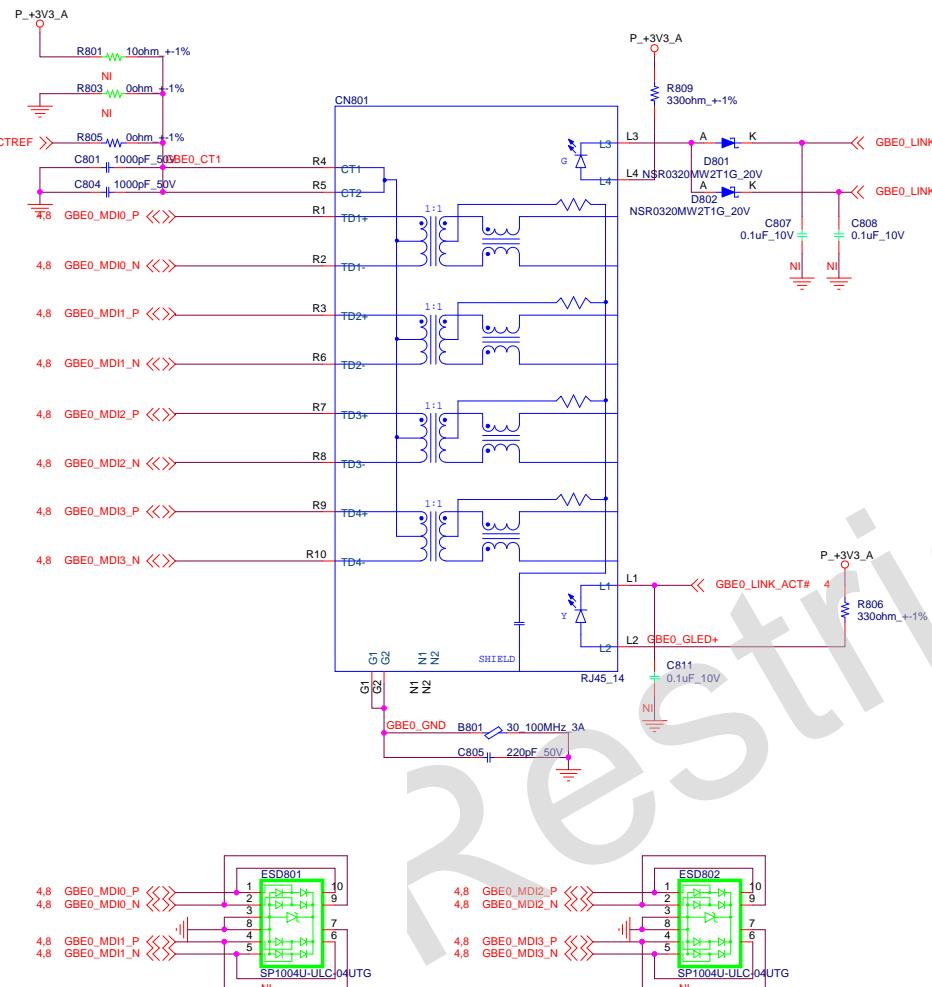
Date: Wednesday, March 10, 2021

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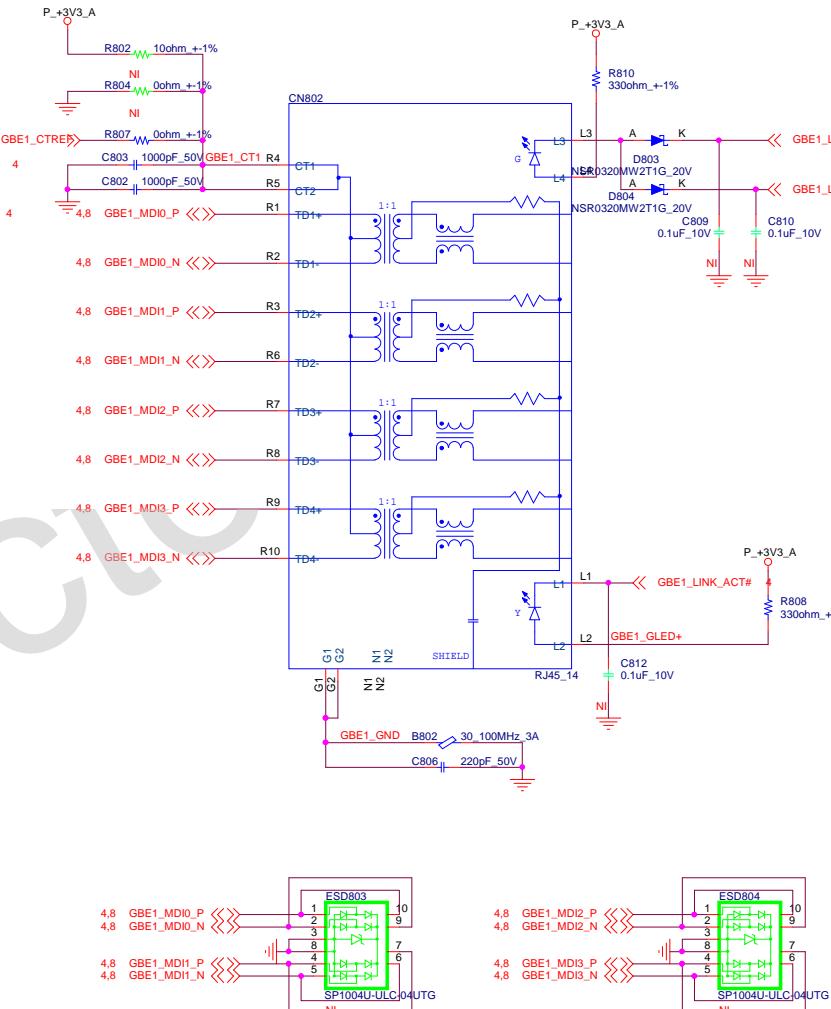




GBE0 with Magnetics

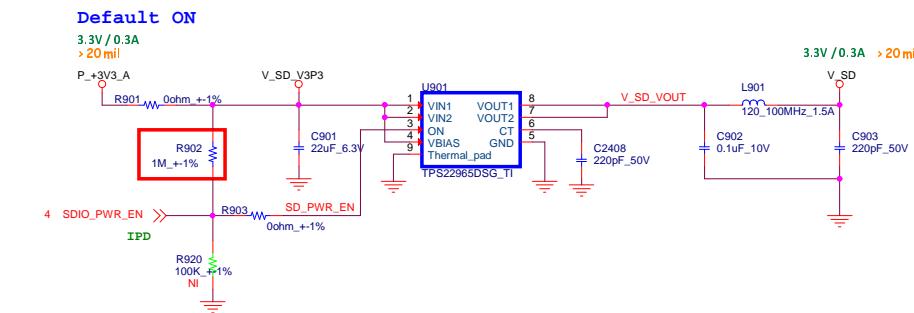


GBE1 with Magnetics

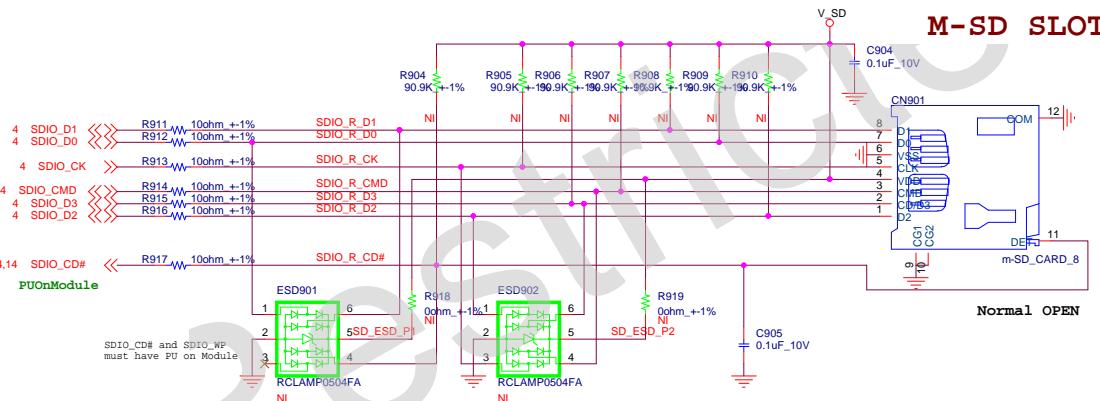


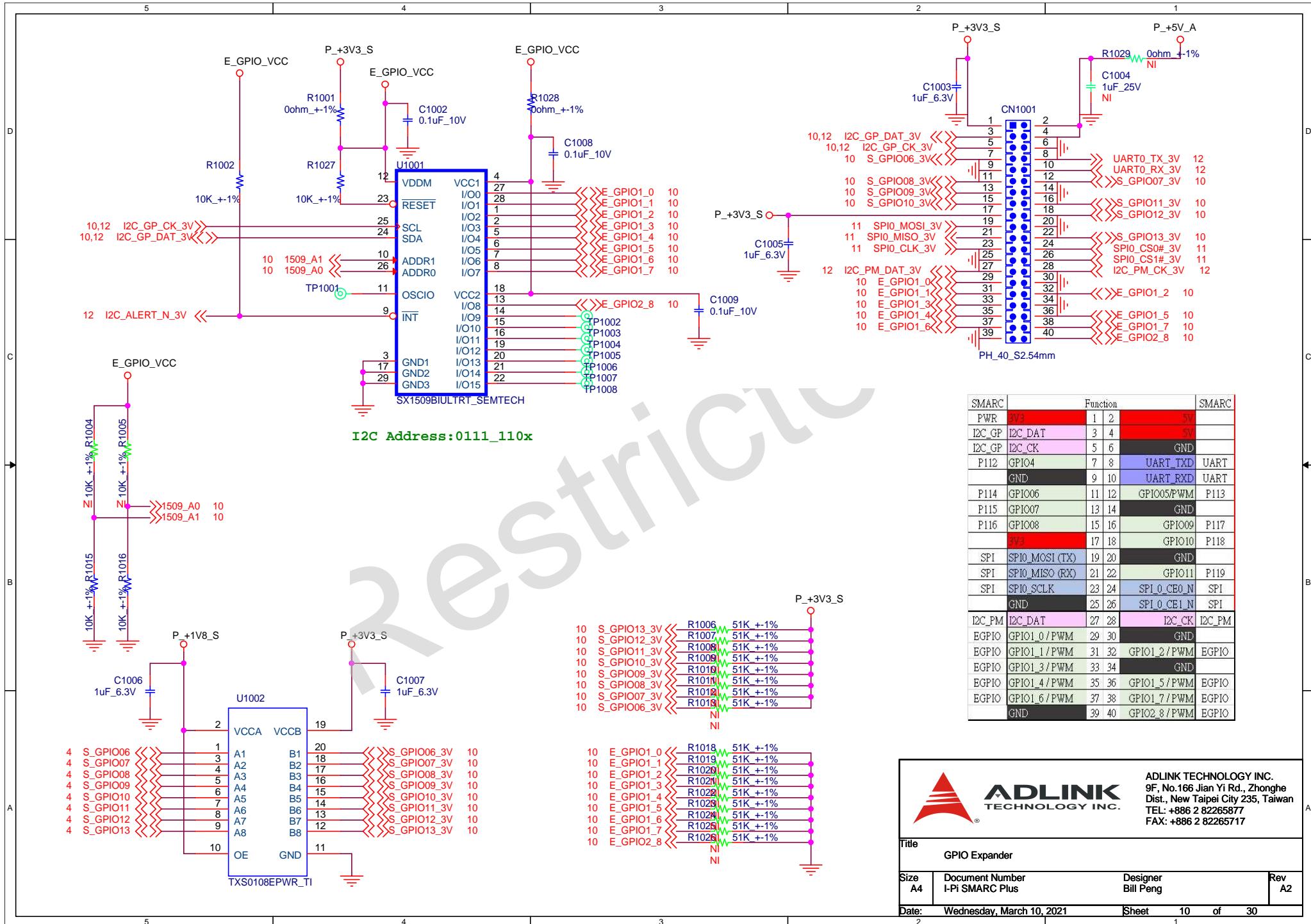
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Title GBE			
Size A3	Document Number I-PI SMARC Plus	Designer Bill Peng	Rev A2
Date: Wednesday, March 10, 2021			Sheet 8 of 30



0209
A2_01: Change R902 from 10k to 1M for leakage



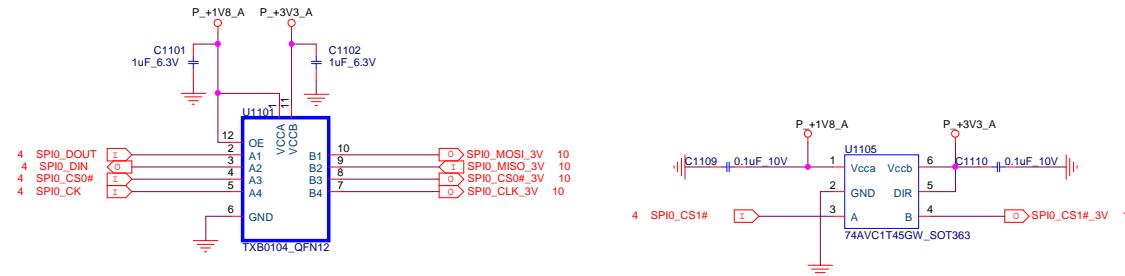


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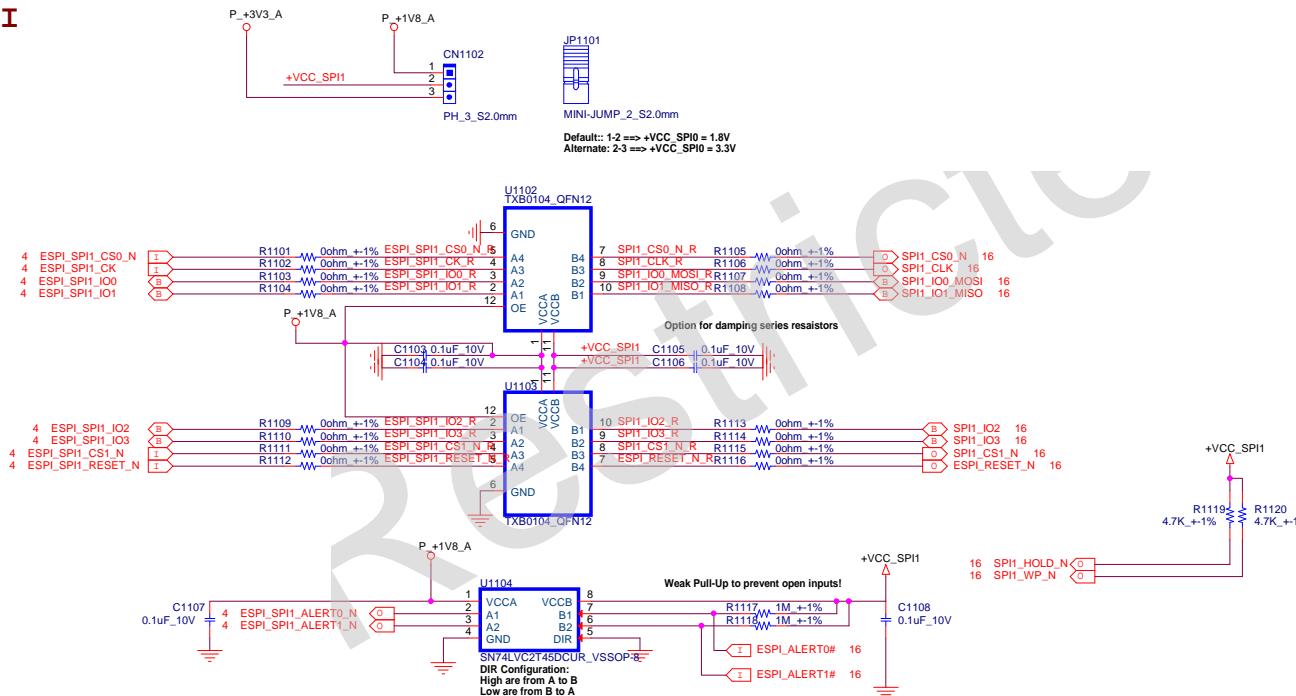
Title
GPIO Expander

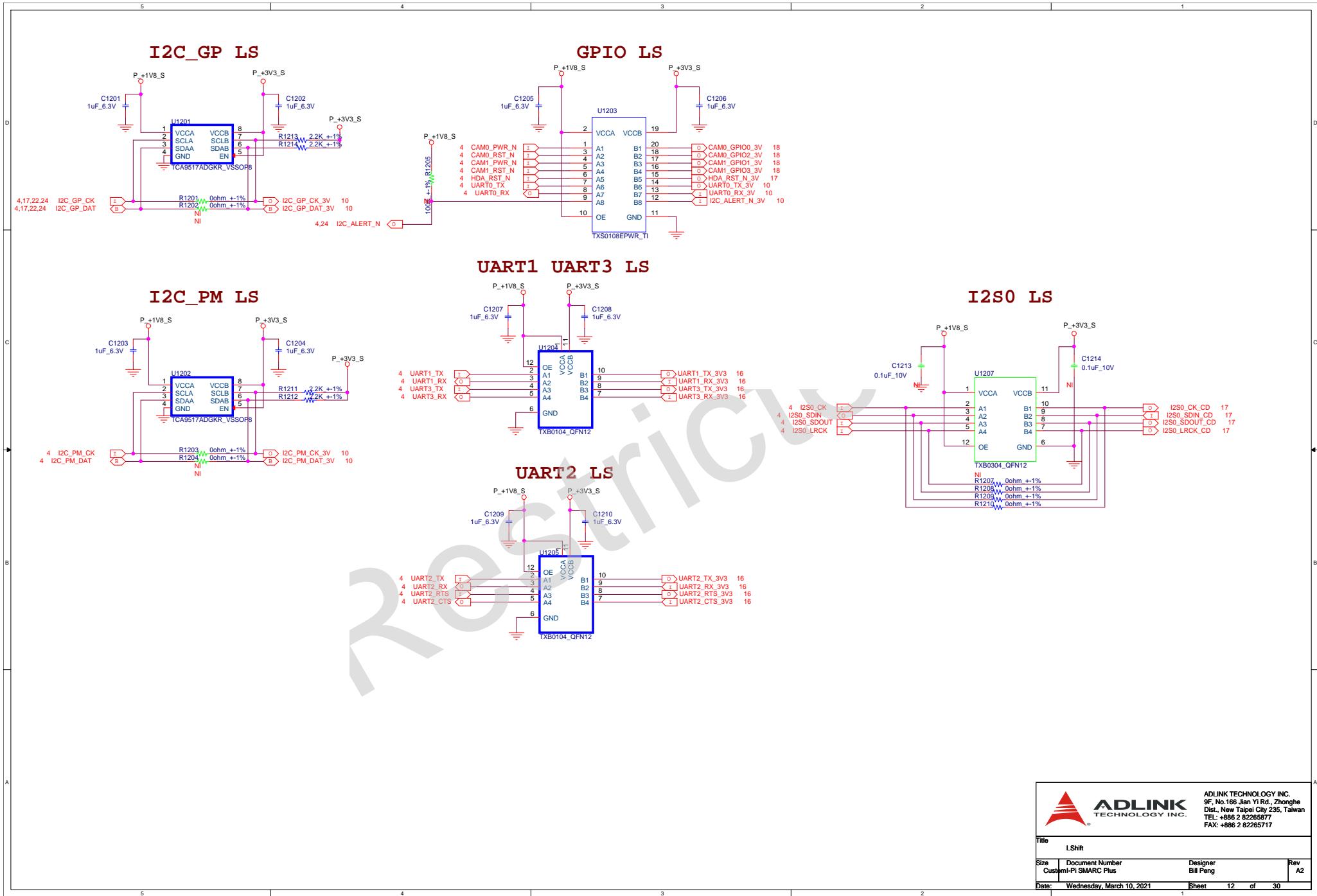
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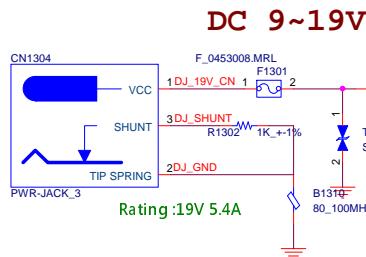
SPI0 LS



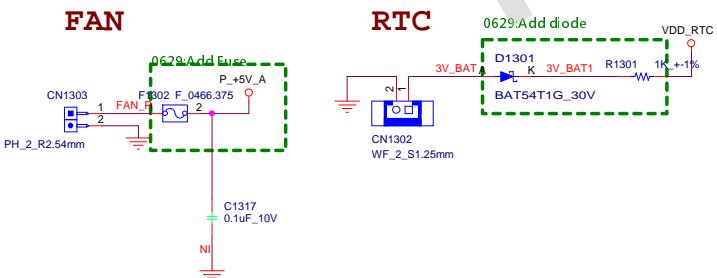
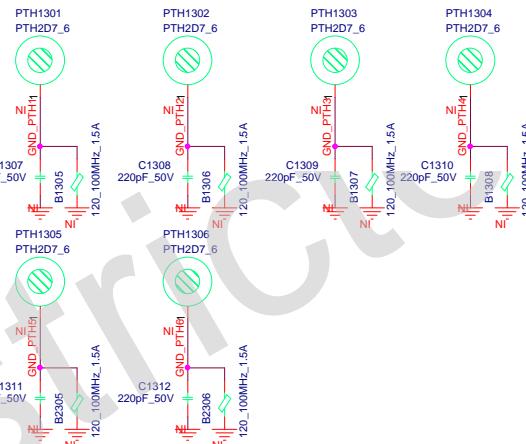
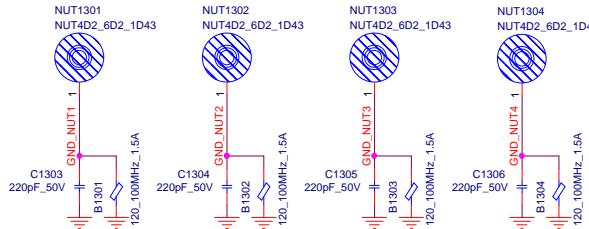
SPI1/eSPI

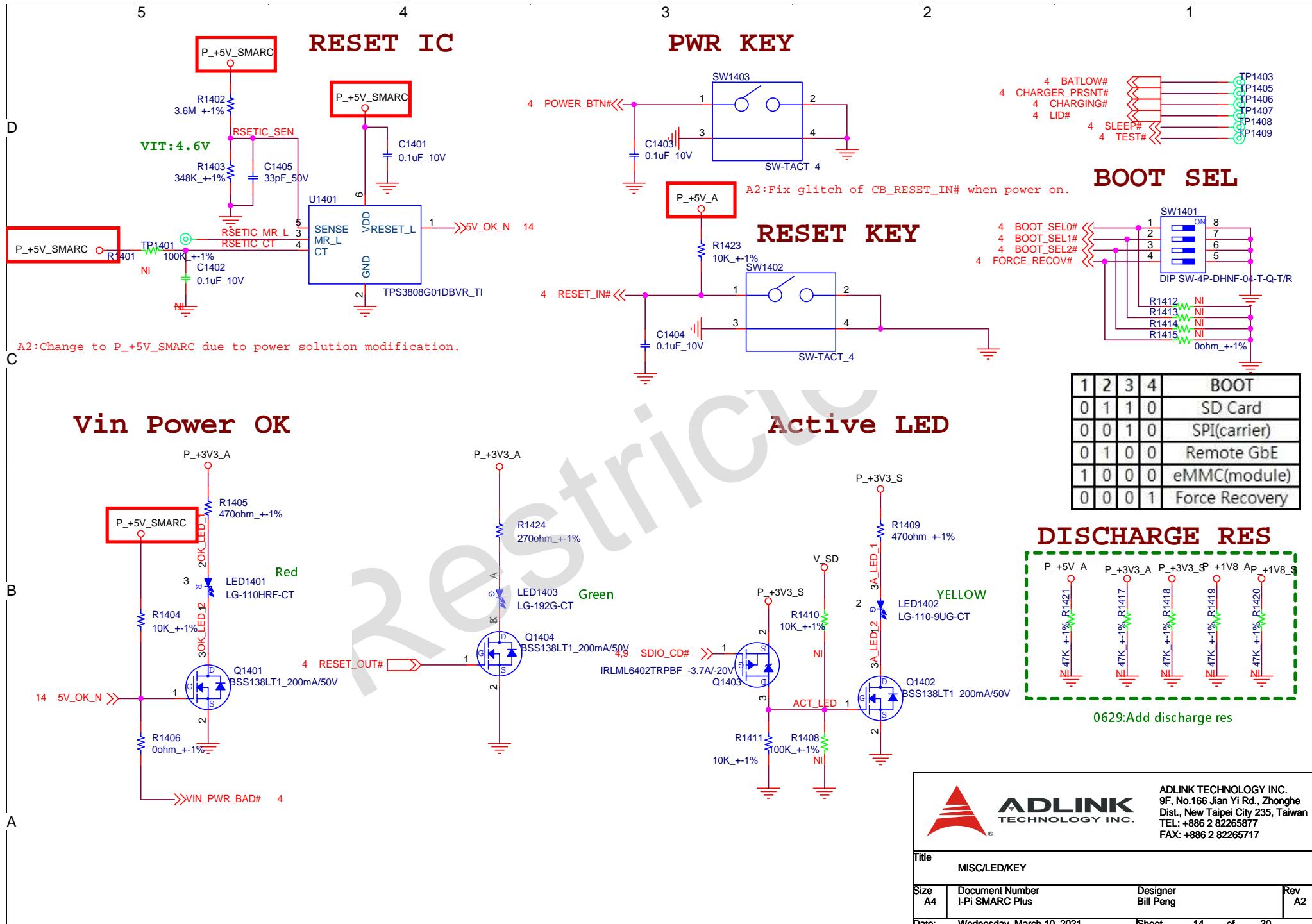


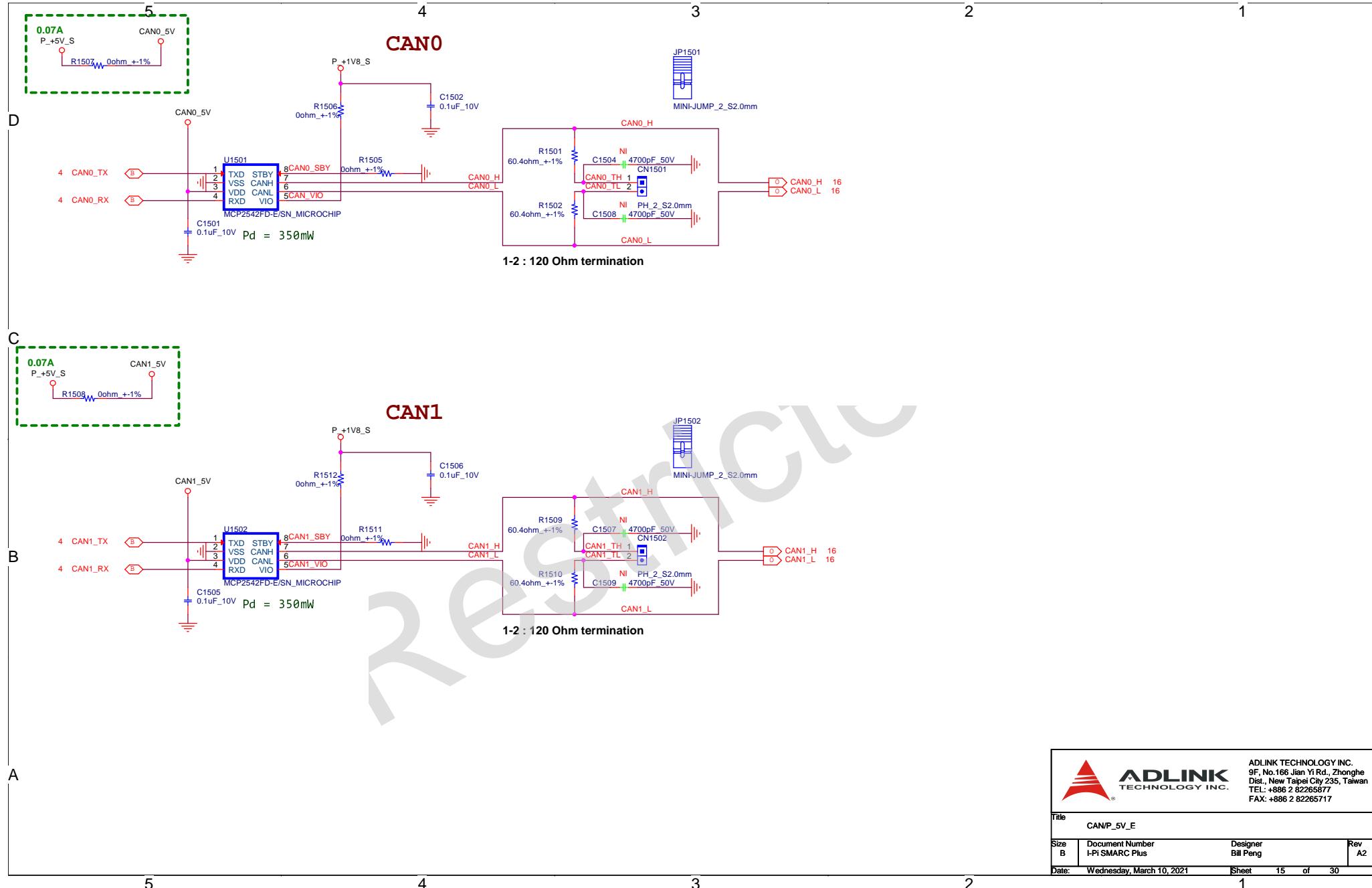


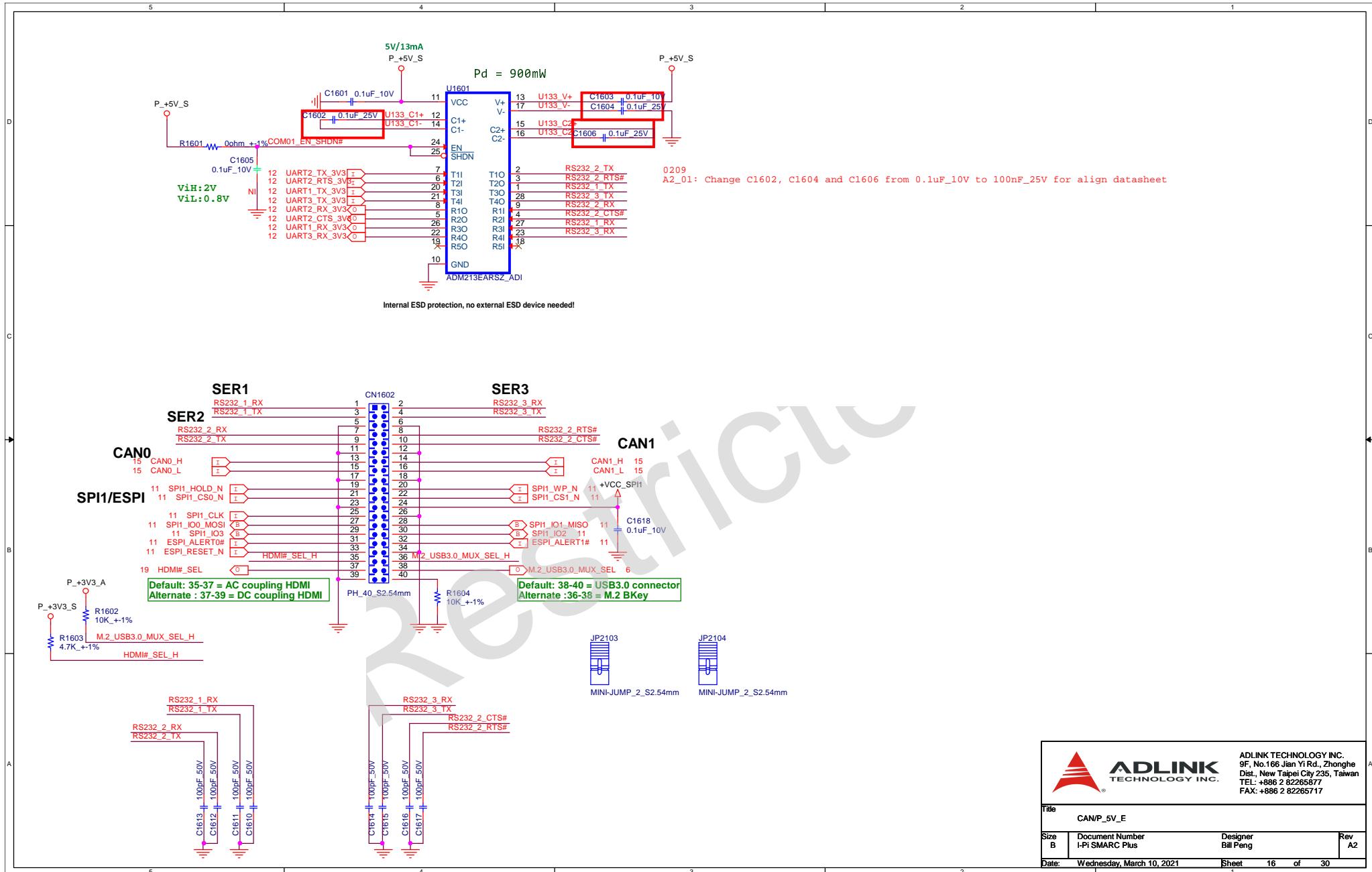


SMARC-Module Mounting Support

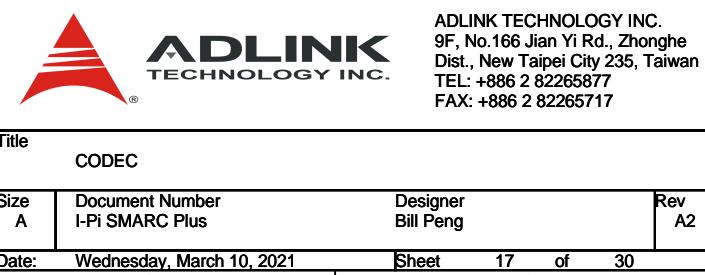
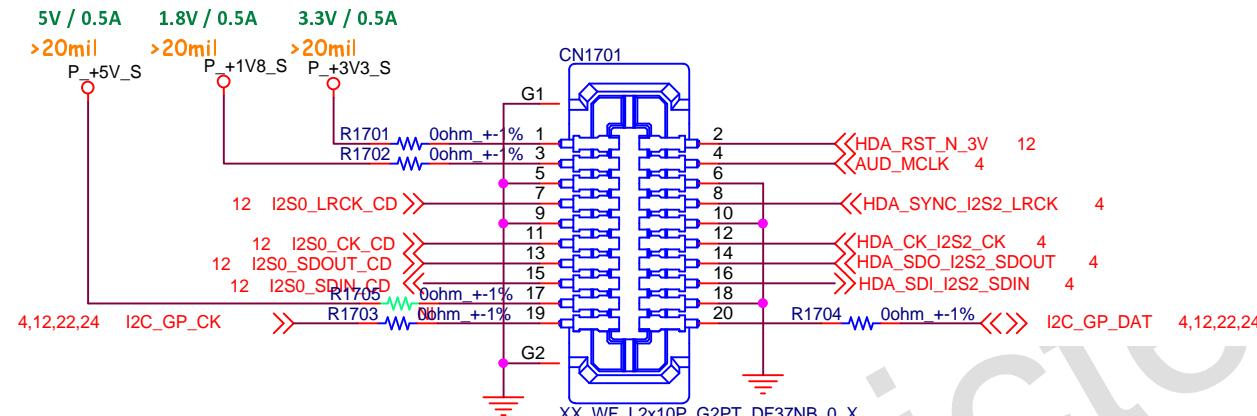


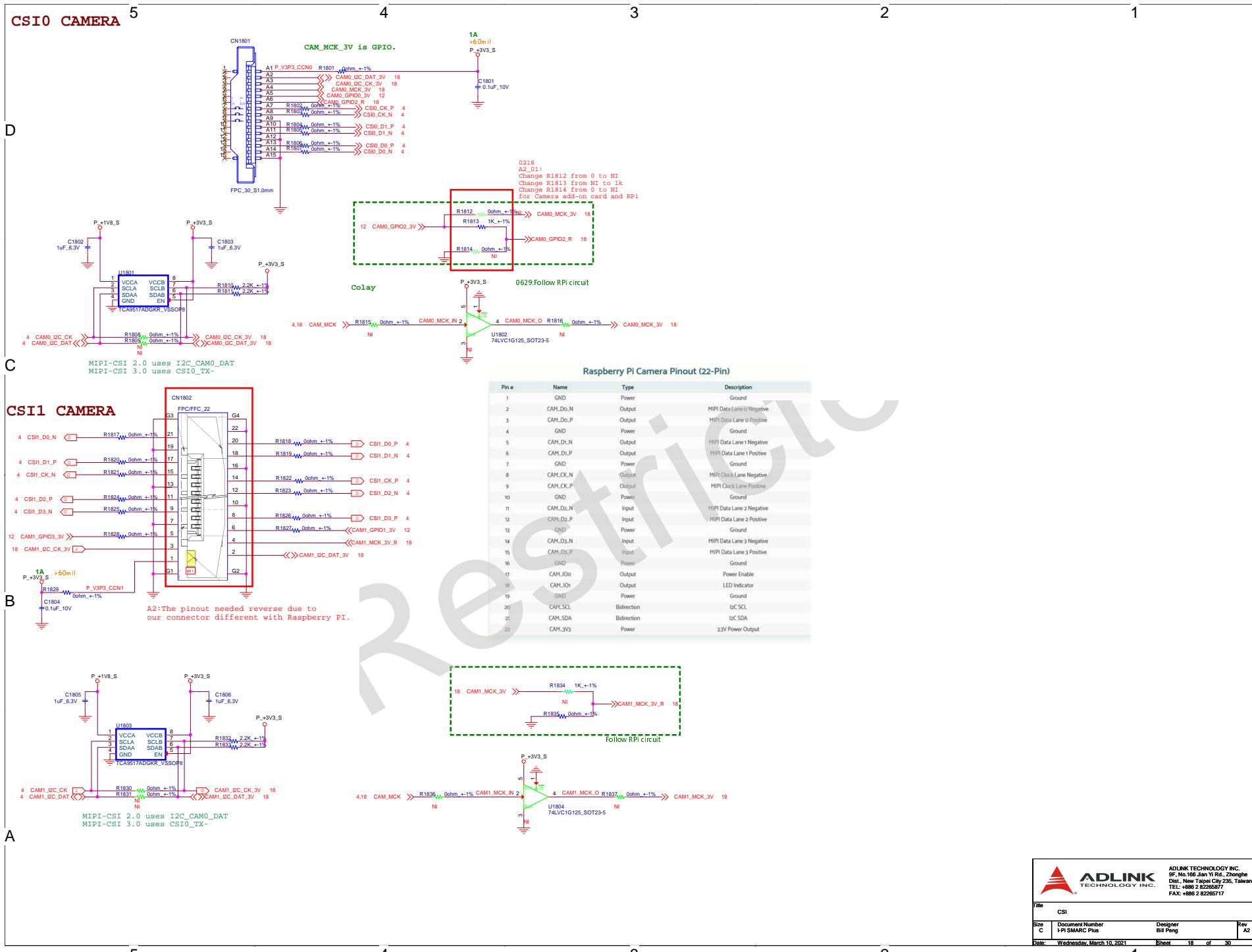


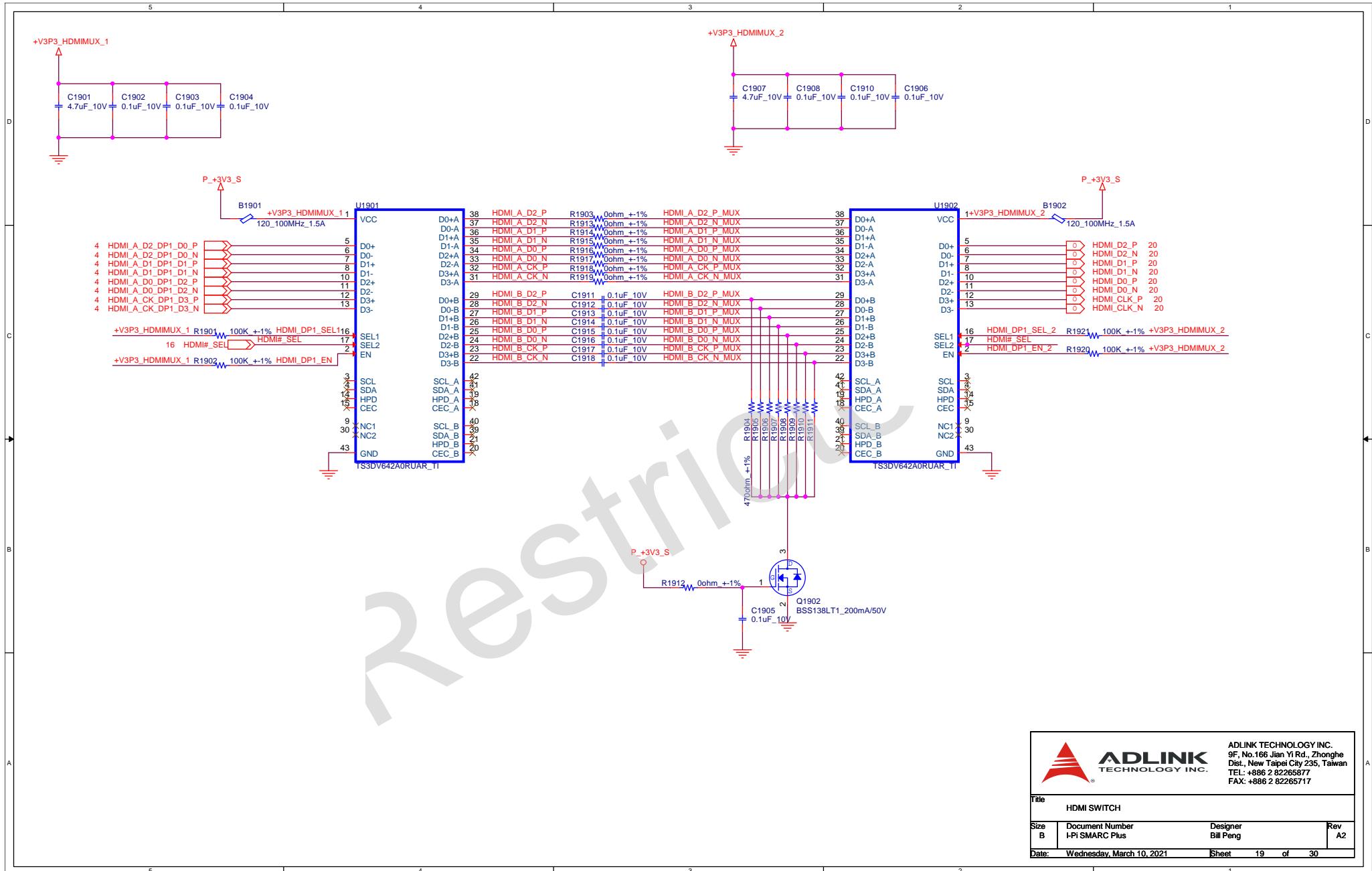




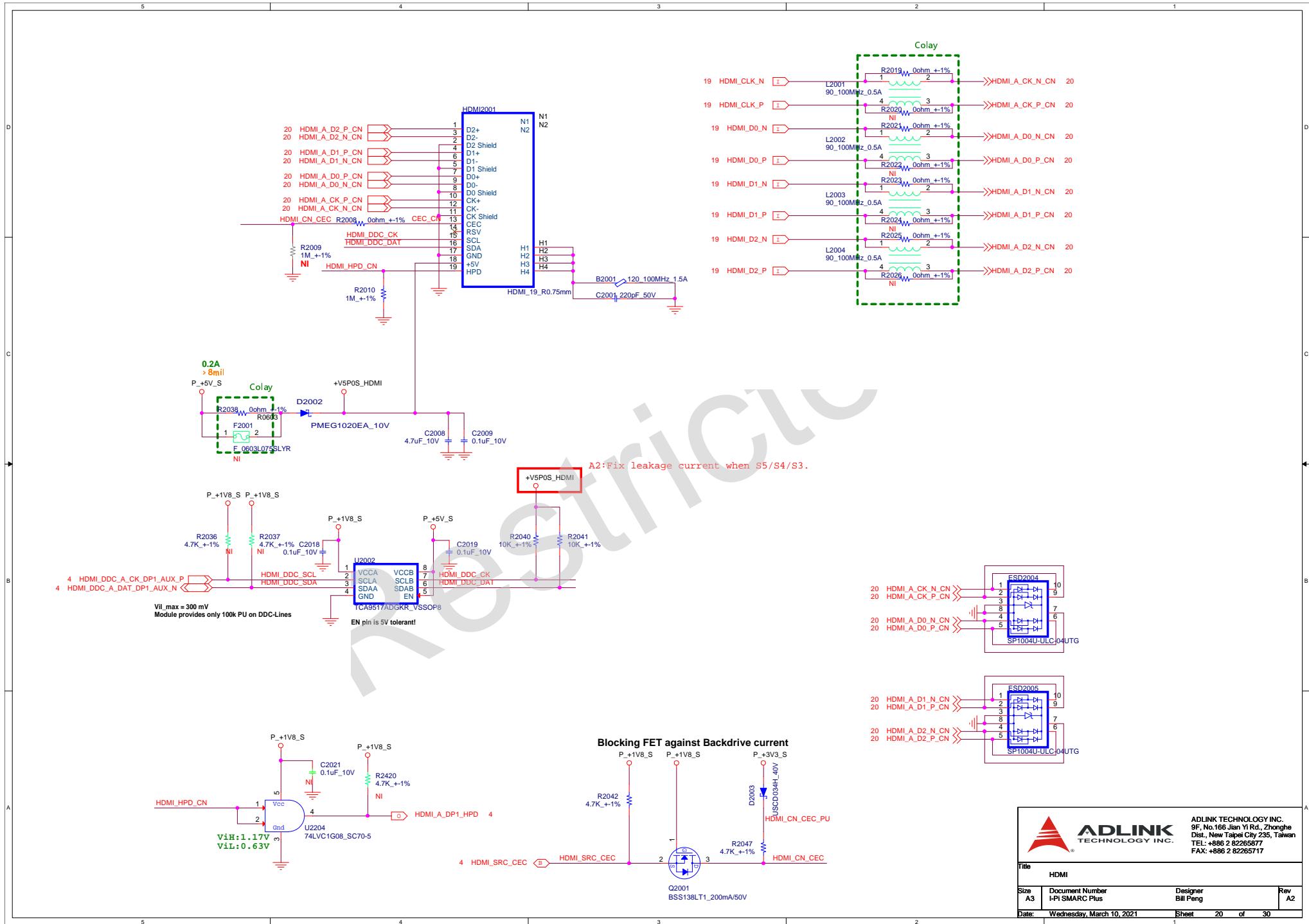
Audio Codec

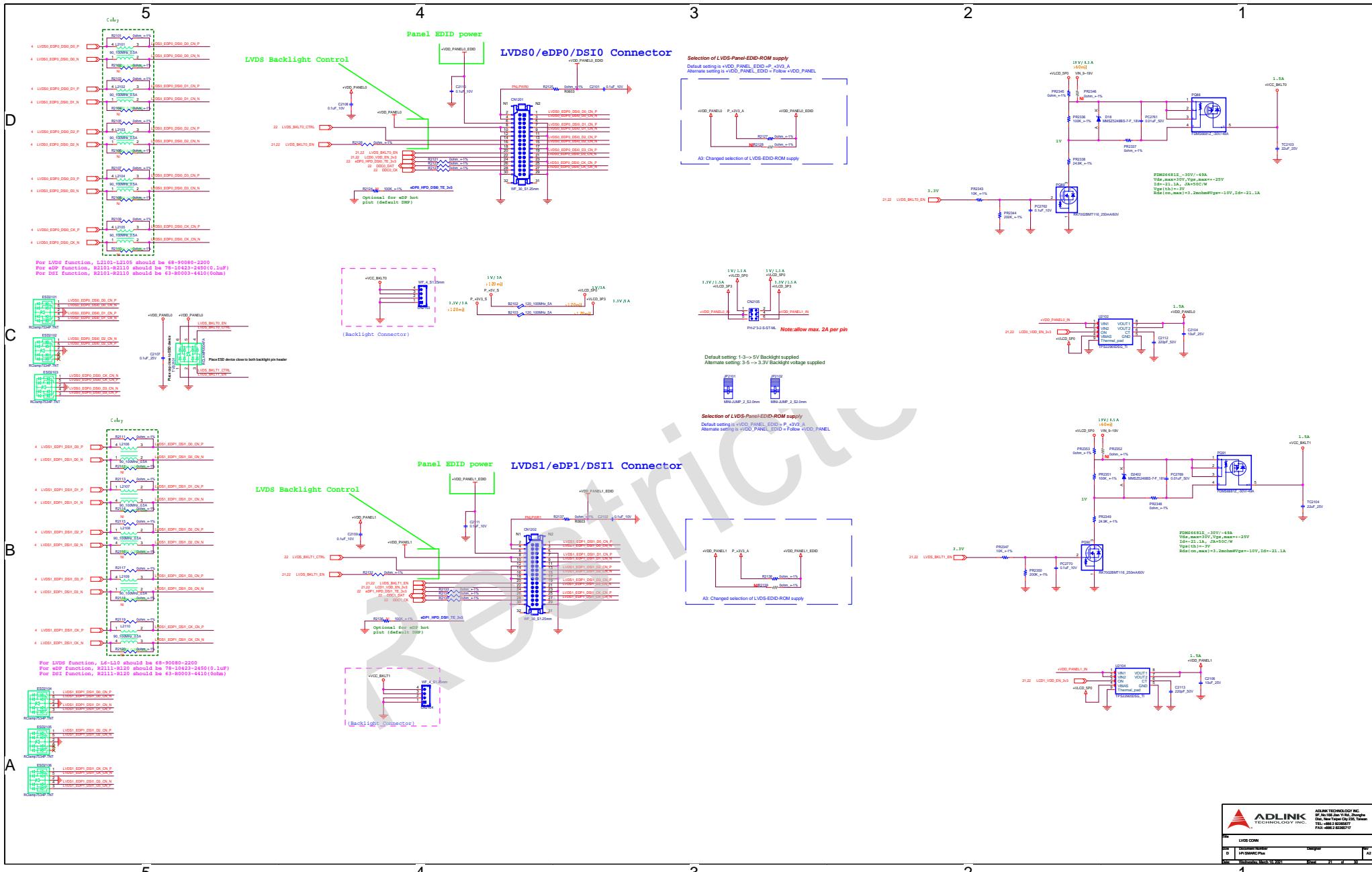


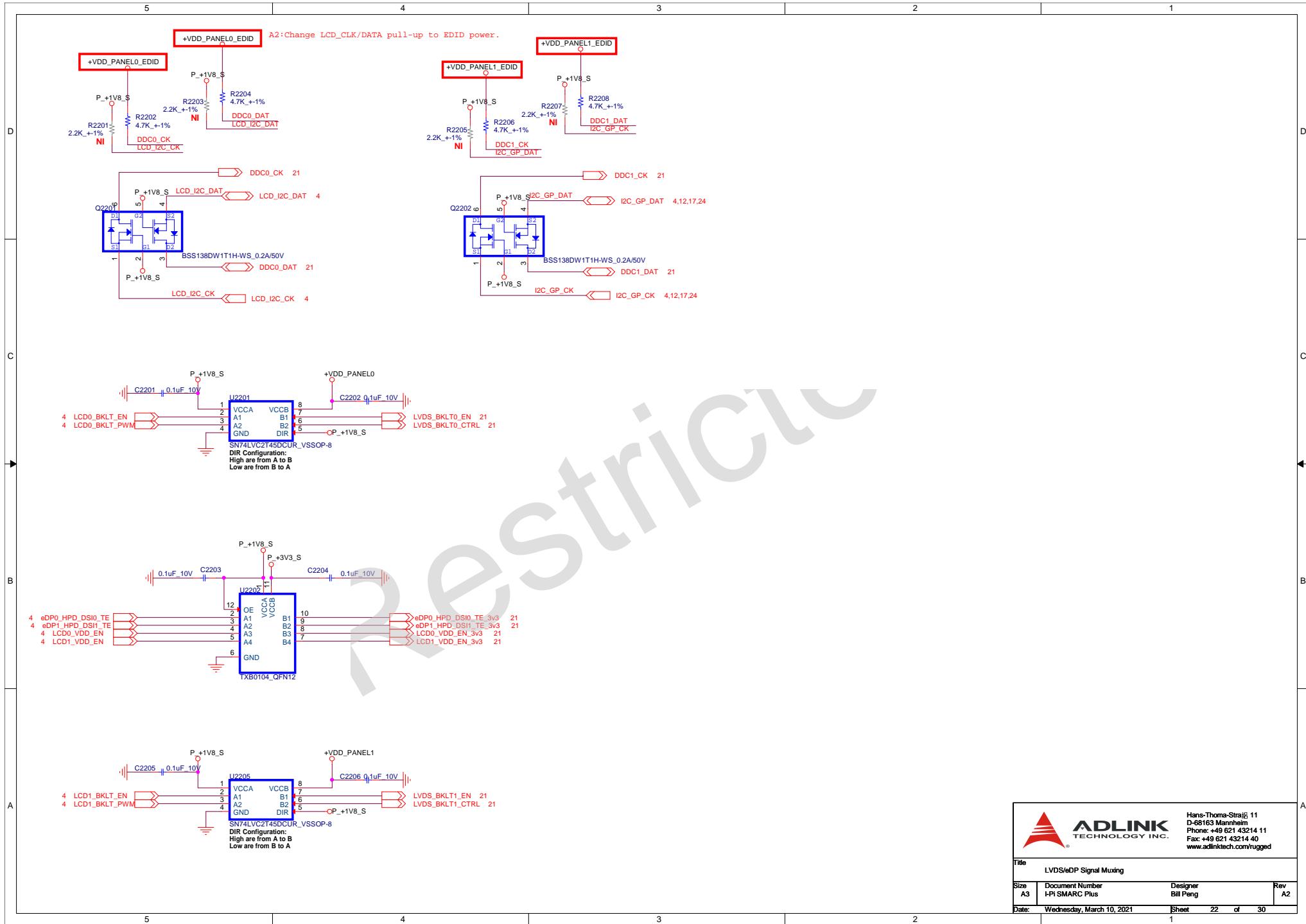




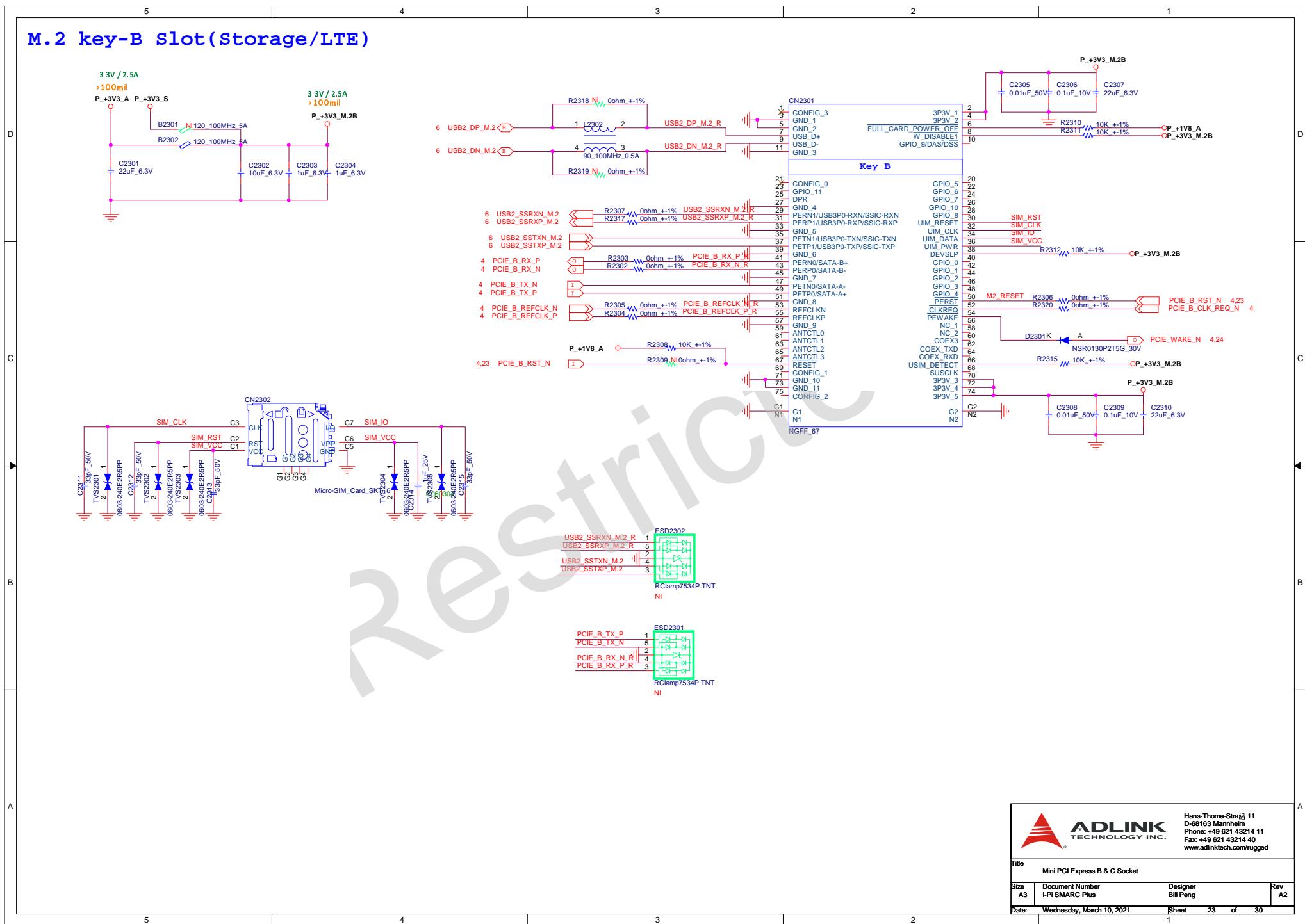
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Title: HDMI SWITCH			
Size: B	Document Number: I-Pi SMARC Plus	Designer: Bill Peng	Rev: A2
Date: Wednesday, March 10, 2021	Sheet: 19	of: 30	







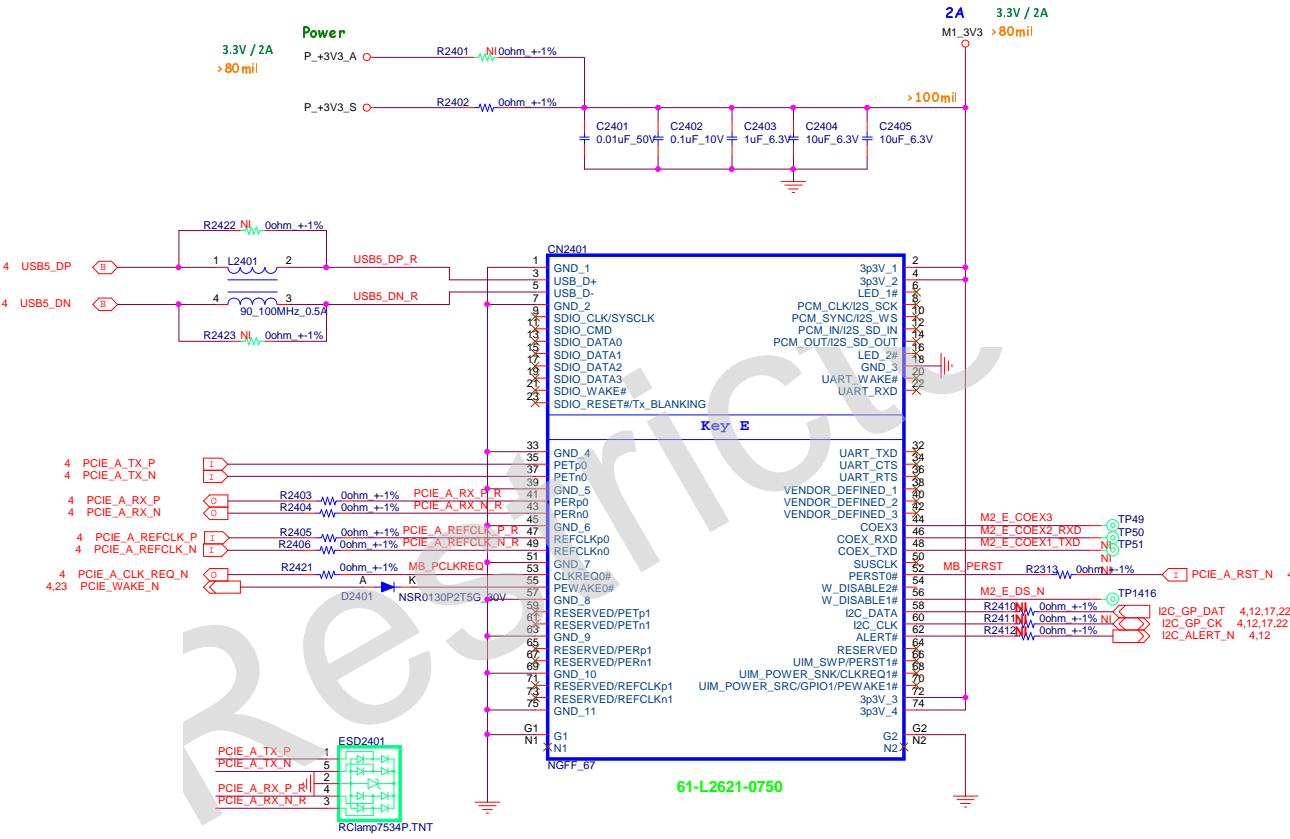
M.2 key-B Slot (Storage/LTE)



D

D

M.2 key-E Slot(Bluetooth/Wifi)



1

C

B

B

8

8



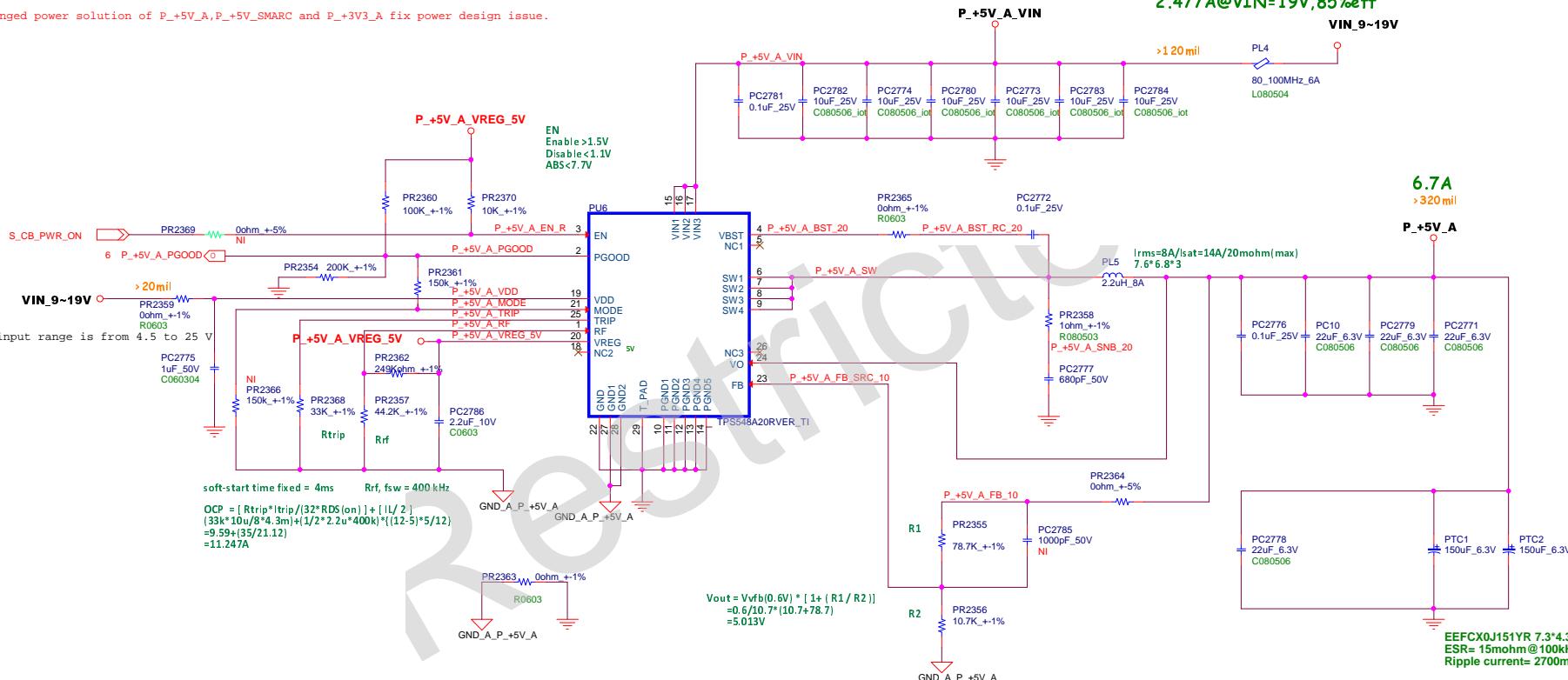
P+5V_A(TPS548A20)

P_+5V_A Specification:
Vout: 5V
Imax: 6.7A
Istep: 4A
Slew Rate: 1A/uS
TOB: + - 5.0%
Switching Frequency per Phase: 400kHz

TPS548A20 power sequence

1. PIN19 VDD & VIN
 2. PIN20 VREG (internal LDO)
 3. EN
 4. Output
 5. PG

A2:Changed power solution of P_+5V_A,P_+5V_SMARC and P_+3V3_A fix power design issue



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Title

P_+5V_A(TPS548A20)
 Size A3 Document Number I-Pi SMARC Plus Designer Bill Pang Rev A2
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P_+5V_SMARC(TPS548A20)

P_+5V_B Specification:

V_{out}: 5V

Imax: 6A

Istep: 3A

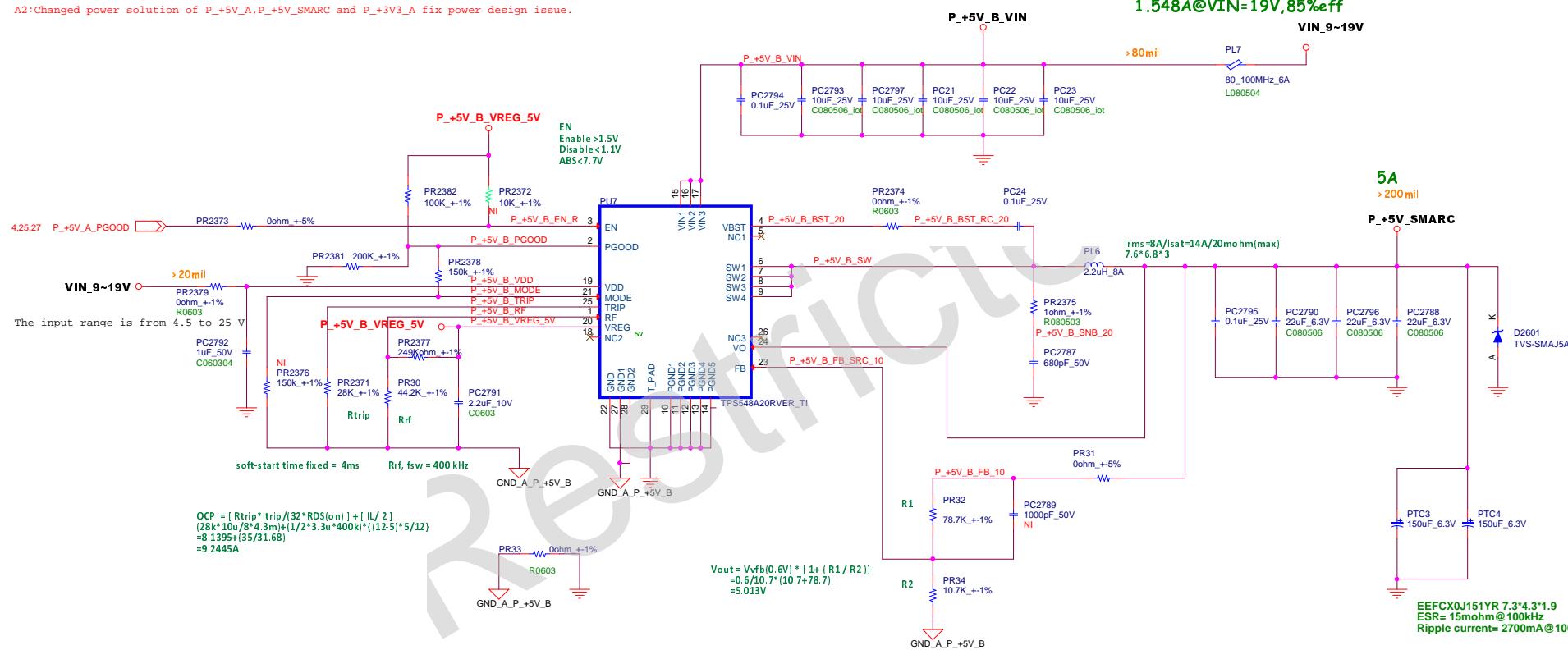
Slew Rate: 1A/uS

TOB: + - 5.0%
Switching Frequency per Phase: 400kHz

TPS548A20 power sequence

1. PIN19 VDD & VIN
 2. PIN20 VREG (internal LDO)
 3. EN
 4. Output
 5. PG

A2:Changed power solution of P_+5V_A, P_+5V_SMARC and P_+3V3_A fix power design issue



P_+1V8_A (TPS82085)

P_+1V8_A Specification:

Vout: 1.80V

Imax: 1.00A

Istep: 0.50A

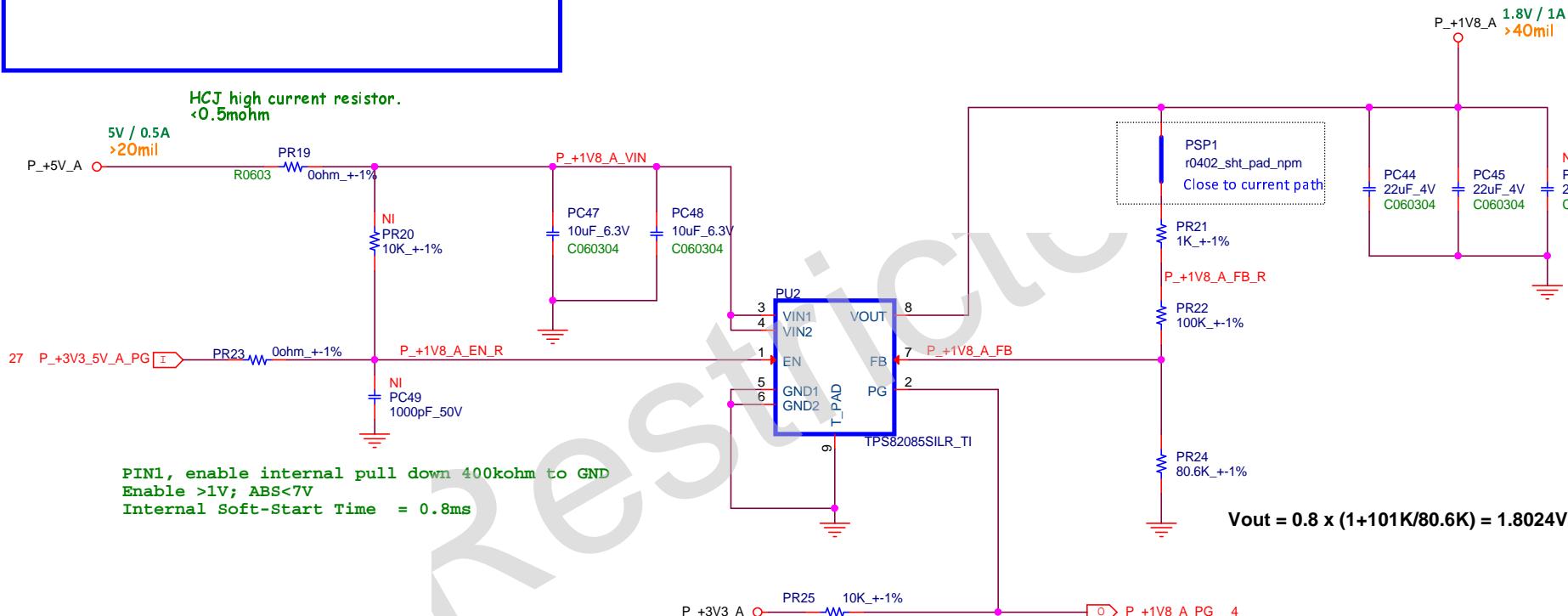
Slew Rate: 1A

TOB: + - 5.0%

Switching Frequency per Phase: 2.4MHz

TPS82085 power sequence

1. VIN
 2. EN
 3. Output



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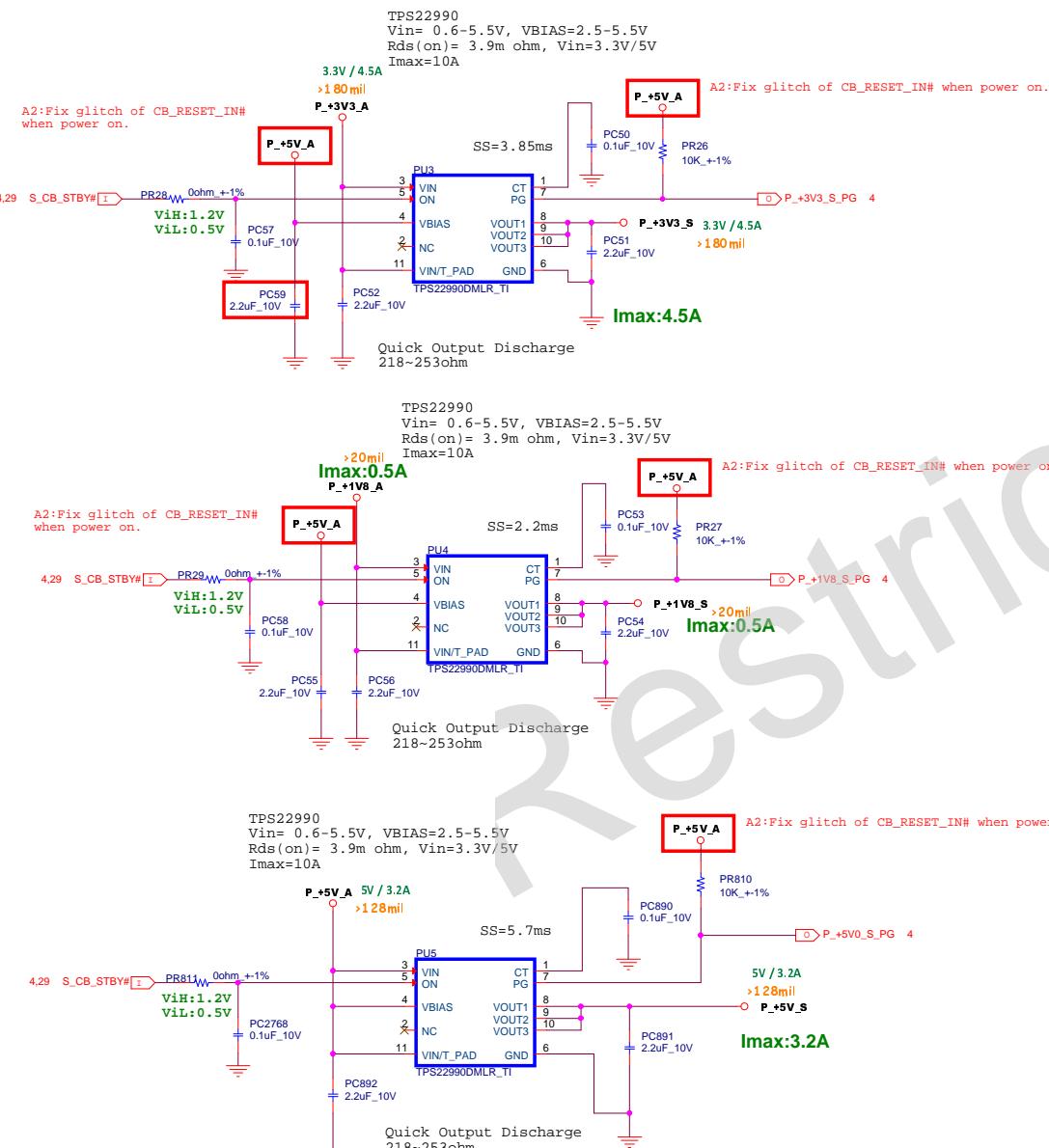
Title

P_+1V8_A(1H)

Date: Wednesday, March 10, 2021

1

P_+3V3_S/P_+1V8_S/P_+5V_S (TPS22990) Load switch



I-Pi SMARC Plus A1 to A2 change list

Date	Page	Change Description	Jira Number
2020/11/04	4,14,28	Fix glitch of CB_RESET_IN# when power on.	
	4,27	Add CN402 support power sequencing compatible with SMARC2.0 and 2.1.	
	6	Separate USB 3.0 and USB 2.0 mux for fix USB 1.1/1.0 SI issue.	
	7	Reserve pull-up to P_+3V3_A for setting USB client mode	
	18	The pinout needed reverse due to our connector different with Raspberry PI.	
	20	Fix leakage current when S5/S4/S3.	
	22	Change LCD_CLK/DATA pull-up to EDID power.	
	25,26,27	Changed power solution of P_+5V_A,P_+5V_SMARC and P_+3V3_A fix power design issue.	

Restrictive