reComputer J601 Carrier Board

SHEET	SHEET NAME
01	Table of Contents
02	Block Diagram
03	Power Tree
04	CVM Connector 1/3
05	CVM Connector 2/3
06	CVM Connector 3/3
07	Power In, 5V_AO, 3V3_AO
08	Power VDD_VIN_HV, 1V8
09	Power 12V, 3V3
10	Power 1V15, 0V7, 1V, 1V8, 2V
11	Button MCU For Power Up
12	10GbE 1/4
13	10GbE 2/4
14	10GbE 3/4
15	10GbE 4/4
16	Type-C, Debug UART
17	USB 3.2 HUB
18	USB 3.2 Type-A x2 (A)
19	USB 3.2 Type-A x2 (B)
20	Display
21	M.2 Key M (NVMe)
22	M.2 Key E (WiFi/BT)
23	M.2 Key B (4G/5G)
24	SPI to CAN x2
25	CAN0, CAN1
26	CAN2, CAN3
27	RS485
28	RS232/422/485
29	Audio
30	Ref CLK, IIC to GPIO, LED
31	Fan, EEPROM, Debug, Button
32	I2S, I2C
33	GPI, GPO
34	Camera Expansion

Revision History

VER	DATE	REVISION	DESCRIPTION OF CHANGES
V1.0	06/12/2026	reComputer J601_V1.0_SCH_260612	Initial Version.
V1.0	08/27/2026	reComputer J601_V1.0_SCH_260827	Updated BOM only. Page 04:Changed R573 from DNP to 0R, Q51 from 2SK3018 to DNP. Page 08:Changed R227 from DNP to 0R. Page 09:Changed C155 from VZH331M1ETR-0810 to HV1E337M0810PZ. Changed R572, R569 from DNP to 120R. Changed R238, R248 from DNP to 10R. Changed R565, R566 from 100K to DNP. Changed R568 from DNP to 0R. Page 11:Changed C171 from DNP to 10nF. Page 31:Changed R266,R779 from 0R to 10mR.

<Variant Name>

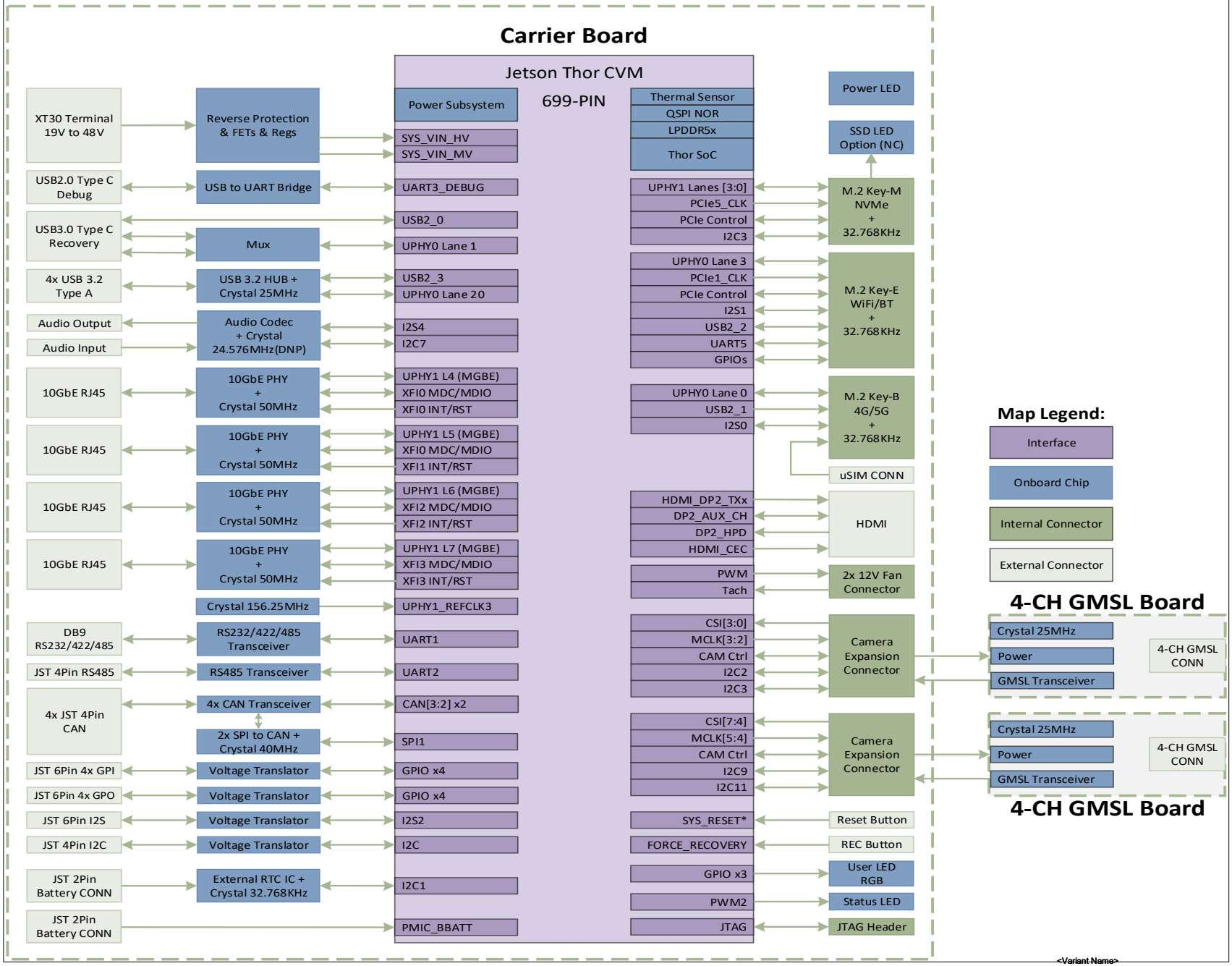
seeed studio | https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

Size:	Document Number:	Rev:
A3	01 Table of Contents	V1.0

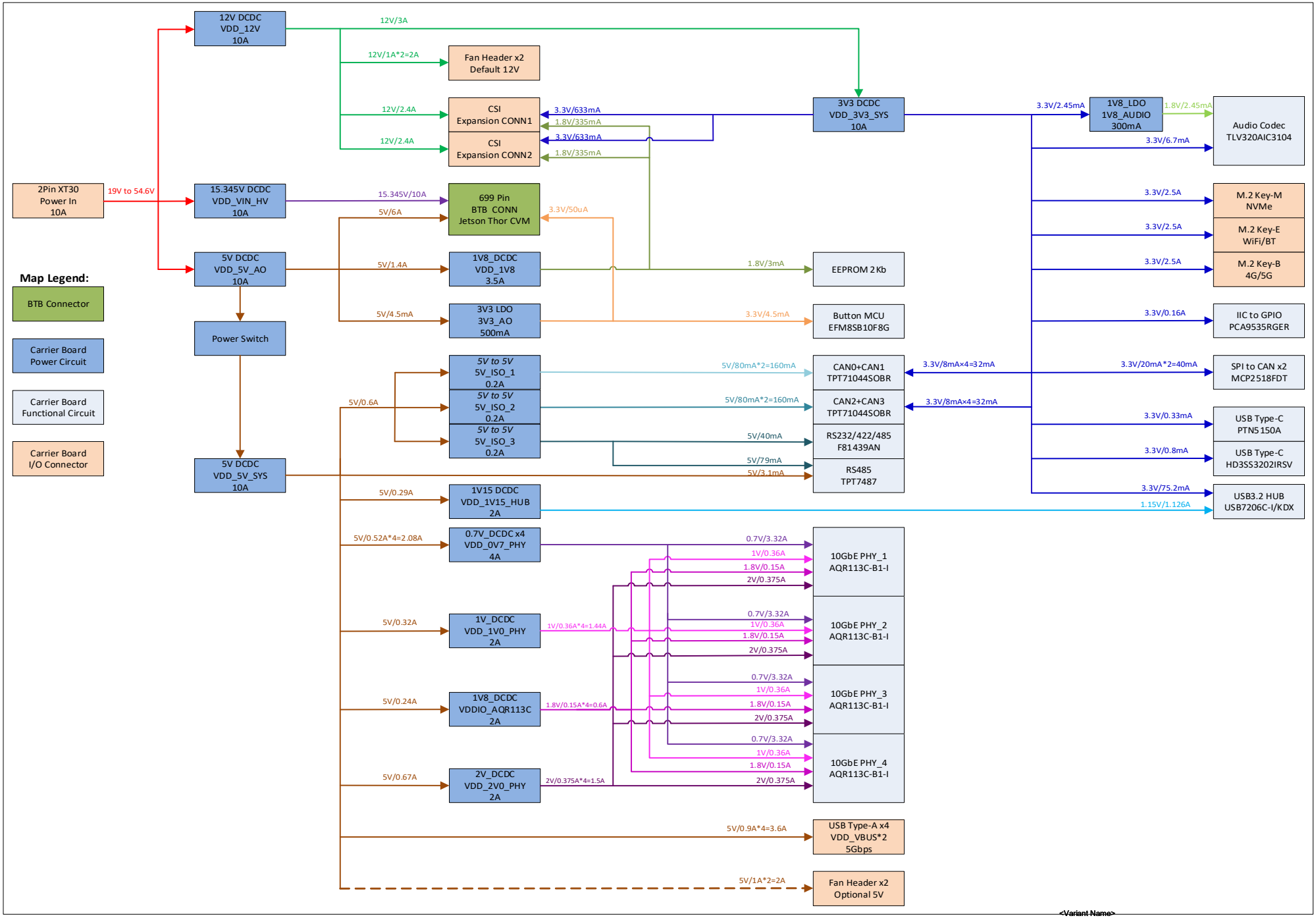
Draw By:	Date:	Sheet:
Seeed	Thursday, August 27, 2026	1 of 34

reComputer J601 Carrier Board Block Diagram



<Variant Name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 02 Block Diagram	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 2 of 34



<Variant Name>

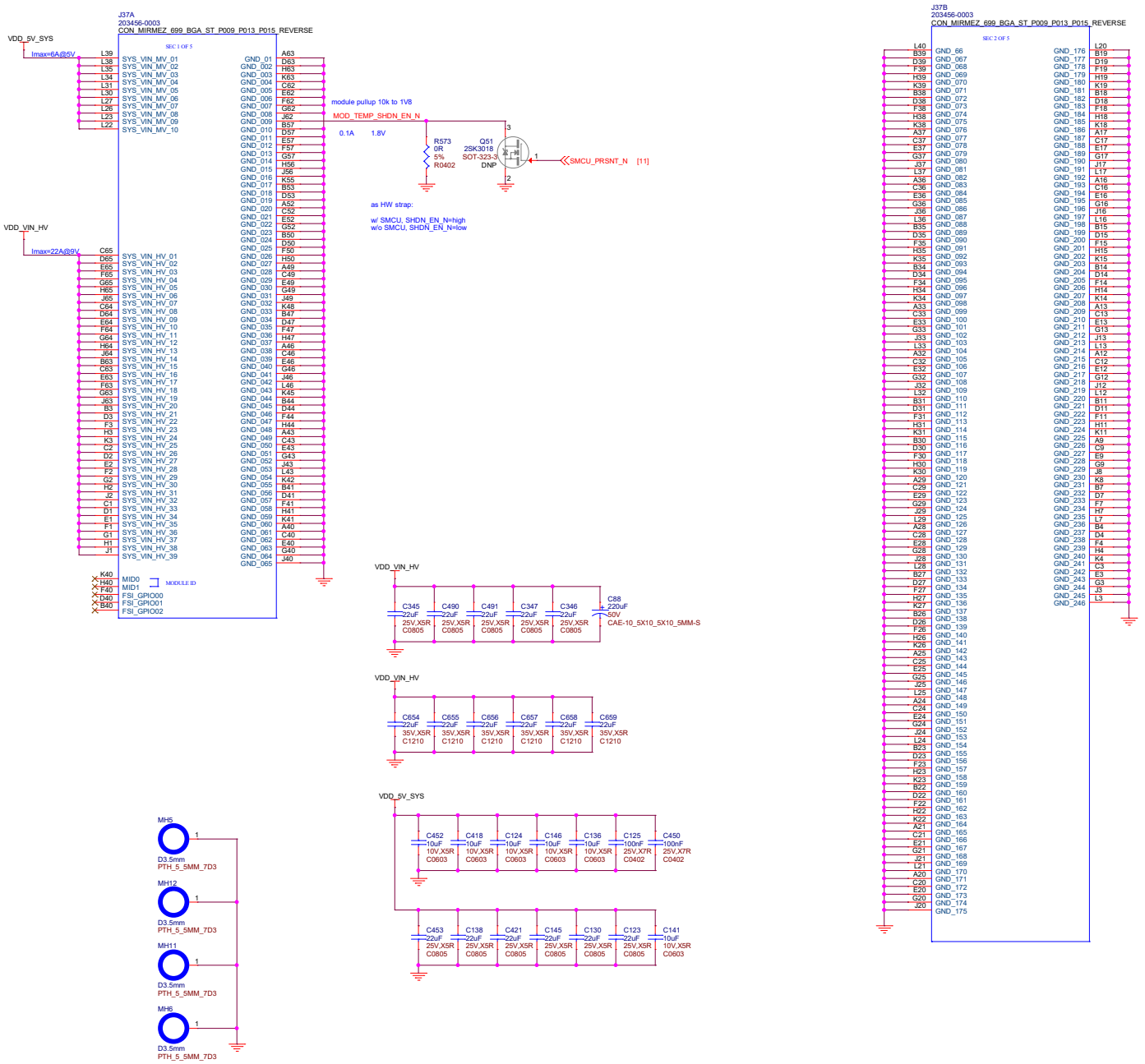
seeed studio

https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

Size: A3	Document Number: 03 Power Tree	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 3 of 34

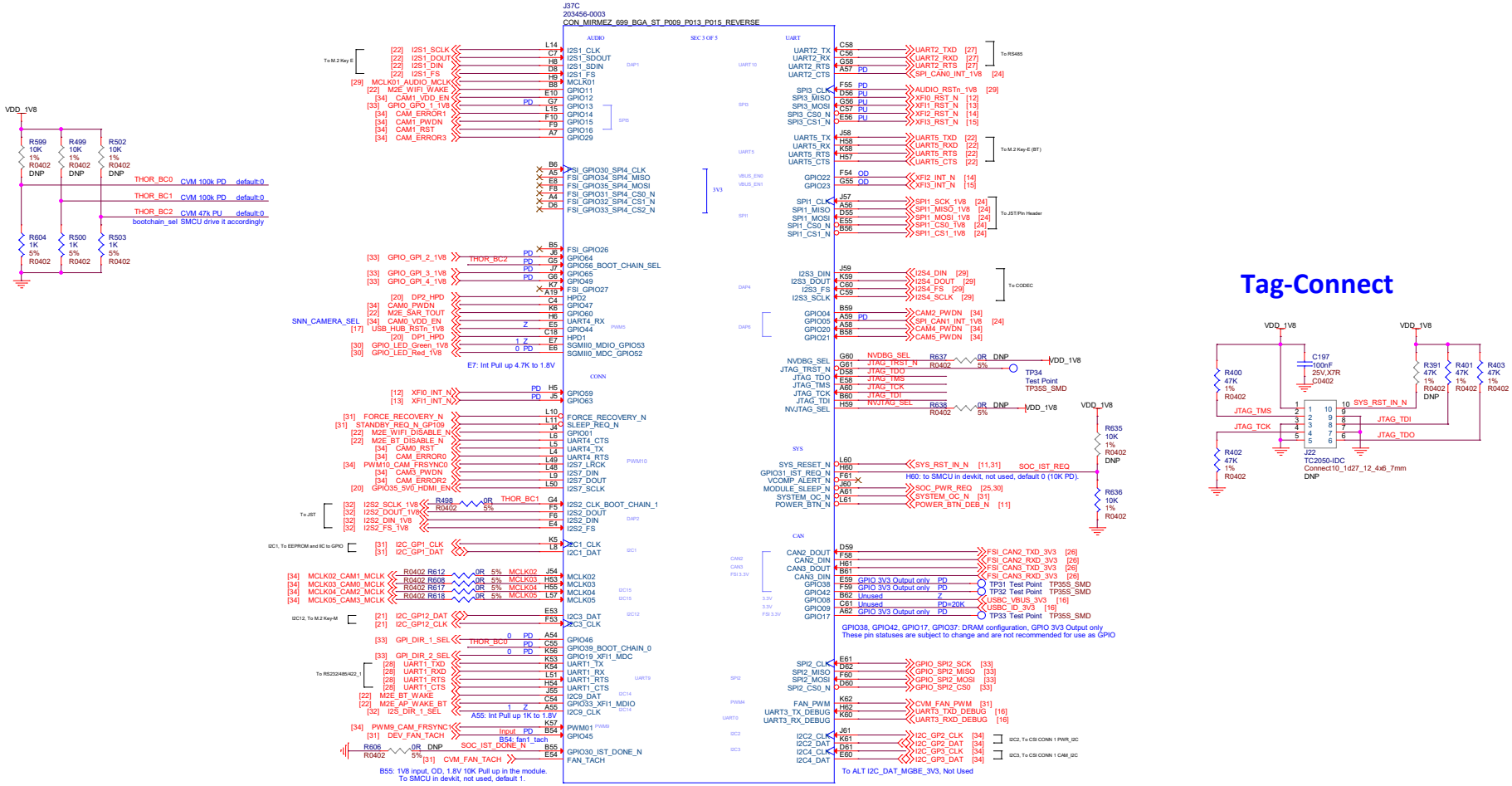
CVM Connector 1/3



<Variant Name>

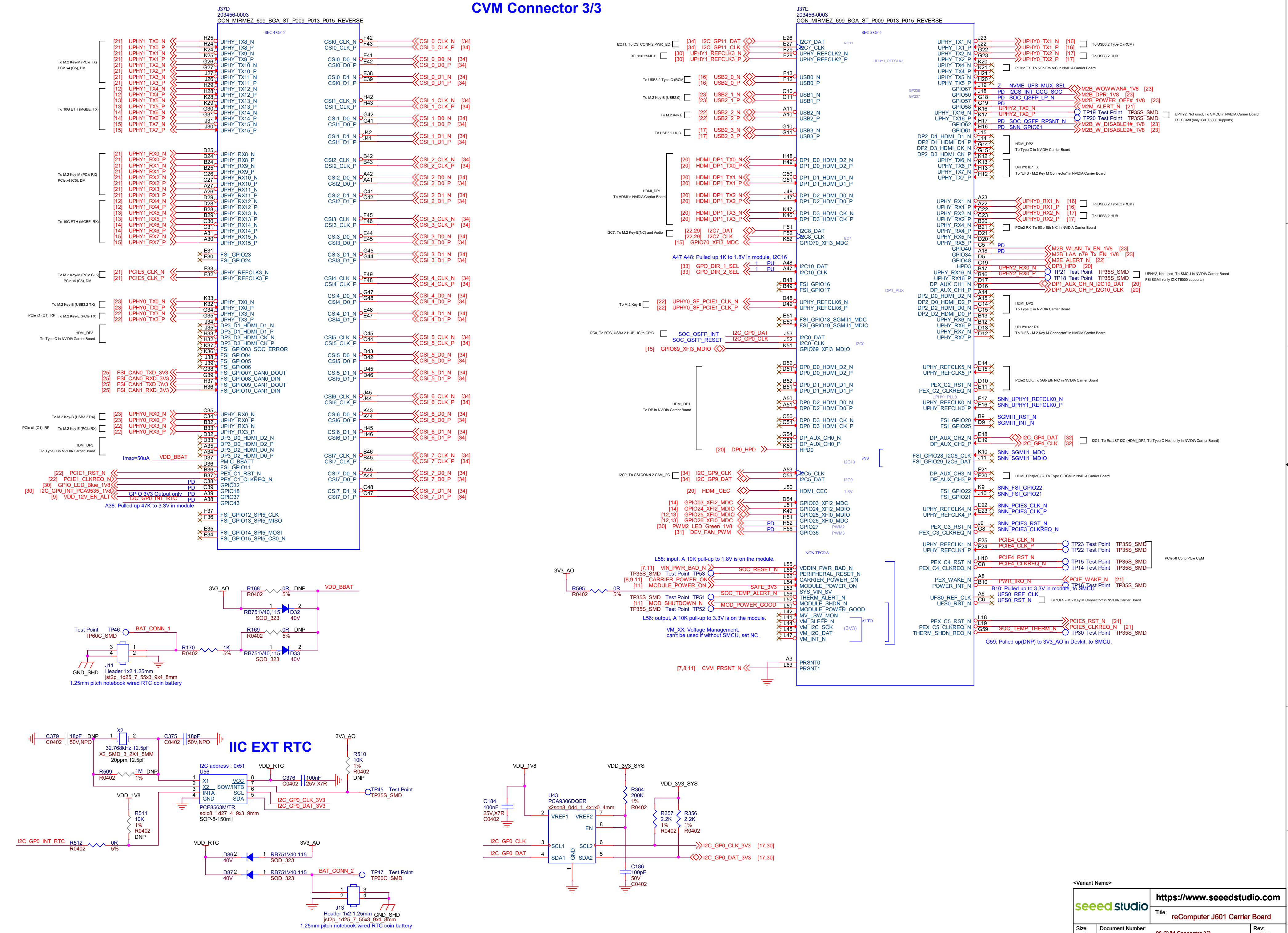
seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A2	Document Number: 04 CVM Connector 1/3	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 4 of 34

CVM Connector 2/3



Tag-Connect

CVM Connector 3/3



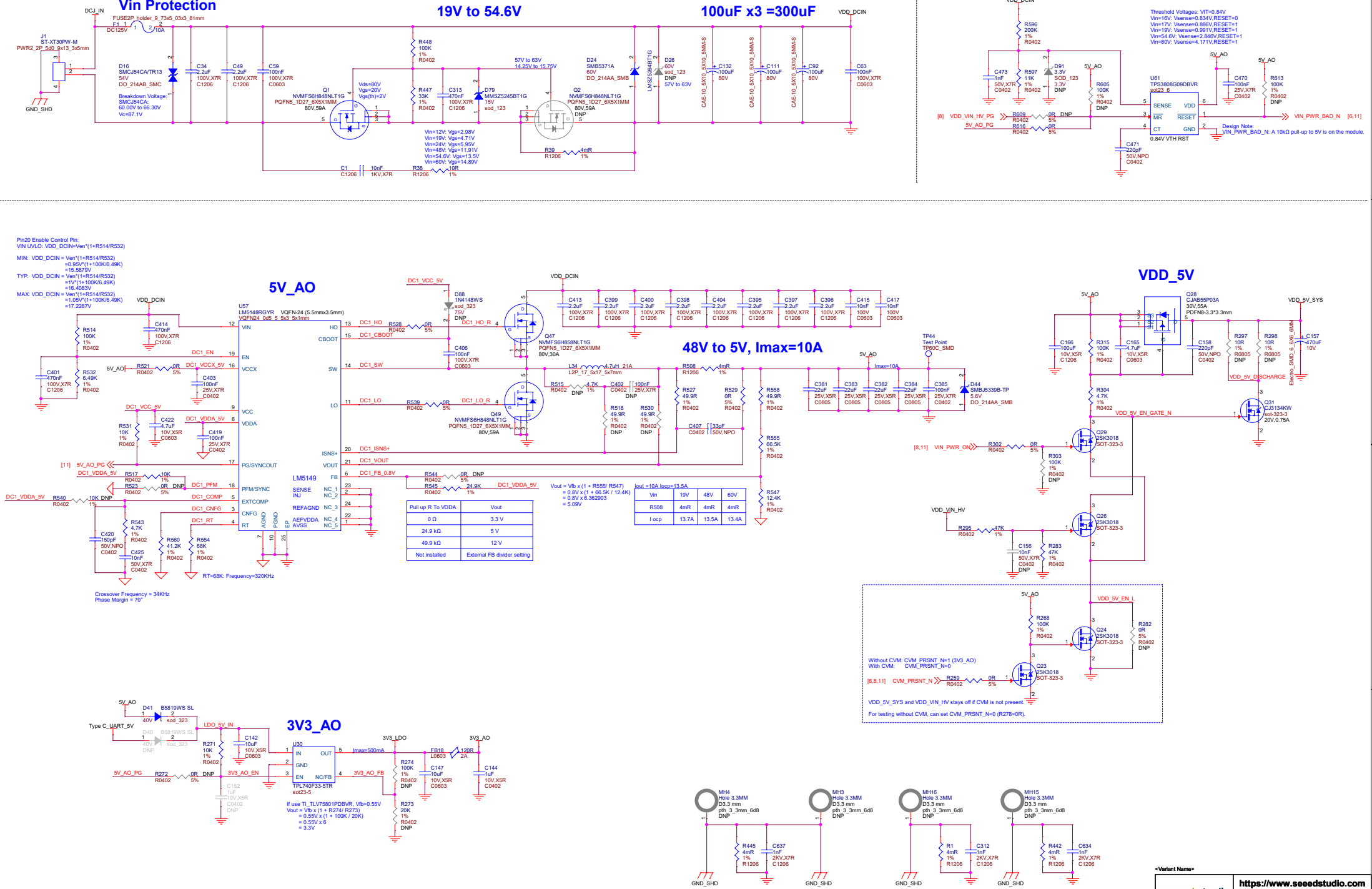
<Variant Name>

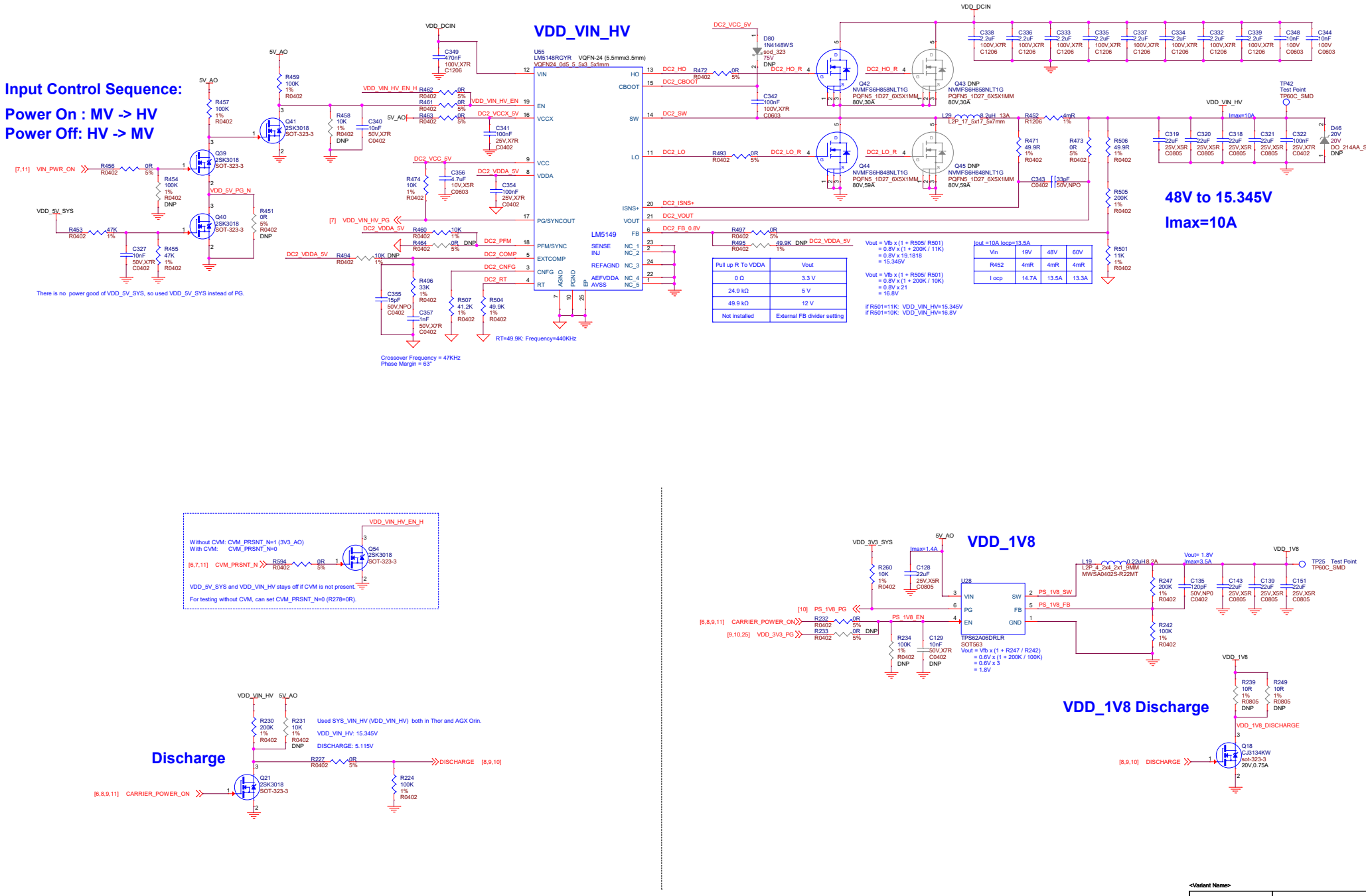
seeed studio | https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

Size: A2 | Document Number: 06 CVM Connector 3/3 | Rev: V1.0

Draw By: Seeed | Date: Tuesday, August 18, 2026 | Sheet: 6 of 34

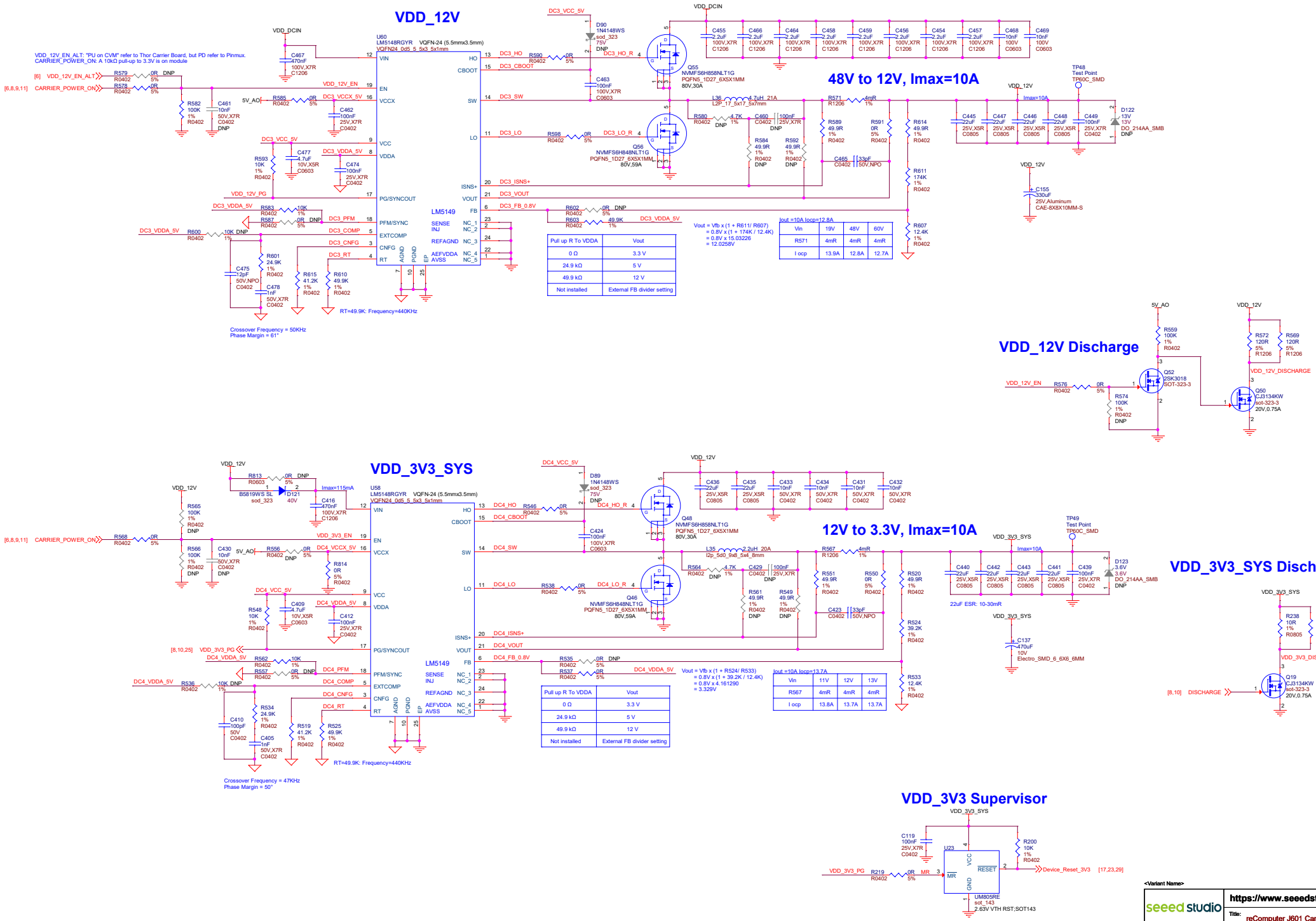

Vin Protection
19V to 54.6V
100uF x3 =300uF
VIN Loss Detection
5V_AO
48V to 5V, Imax=10A
VDD_5V
3V3_AO
Pin20 Enable Control Pin:
VIN UVLO: VDD_DCIN=Ven*(1+R514/R532)
MIN: VDD_DCIN = Ven*(1+R514/R532) =0.95V*(1+100K/6.49K) =15.587SV
TYP: VDD_DCIN = Ven*(1+R514/R532) =1V*(1+100K/6.49K) =16.4083V
MAX: VDD_DCIN = Ven*(1+R514/R532) =1.05V*(1+100K/6.49K) =17.2287V
LM5149
Crossover Frequency = 34KHz
Phase Margin = 70°
RT=68K: Frequency=320KHz
Vout = Vfb x (1 + R555/ R547) = 0.8V x (1 + 66.5K / 12.4K) = 0.8V x 6.362903 = 5.09V
Pull up R To VDDA
0 Ω
24.9 kΩ
49.9 kΩ
Not installed
3.3 V
5 V
12 V
External FB divider setting
Without CVM: CVM_PRSNT_N=1 (3V3_AO)
With CVM: CVM_PRSNT_N=0
VDD_5V_SYS and VDD_VIN_HV stays off if CVM is not present.
For testing without CVM, can set CVM_PRSNT_N=0 (R278=0R).
If use TI_TLV75801PDBVR, Vfb=0.55V
Vout = Vfb x (1 + R274/ R273)
= 0.55V x (1 + 100K / 20K)
= 0.55V x 6
= 3.3V
Threshold Voltages: VIT=0.84V
Vin=16V: Vsense=0.834V,RESET=0
Vin=17V: Vsense=0.886V,RESET=1
Vin=19V: Vsense=0.991V,RESET=1
Vin=54.6V: Vsense=2.846V,RESET=1
Vin=80V: Vsense=4.171V,RESET=1
Design Note:
VIN_PWR_BAD_N: A 10kΩ pull-up to 5V is on the module.
0.84V VTH RST
seeed studio
https://www.seeedstudio.com
Title: reComputer J601 Carrier Board
Size: A2
Document Number: 07 Power In, 5V_AO, 3V3_AO
Rev: V1.0
Draw By: Seeed
Date: Tuesday, August 18, 2026
Sheet: 7 of 34



Pull up R To VDDA	Vout
0 Ω	3.3 V
24.9 kΩ	5 V
49.9 kΩ	12 V
Not installed	External FB divider setting

Iout =10A Iocp=13.5A

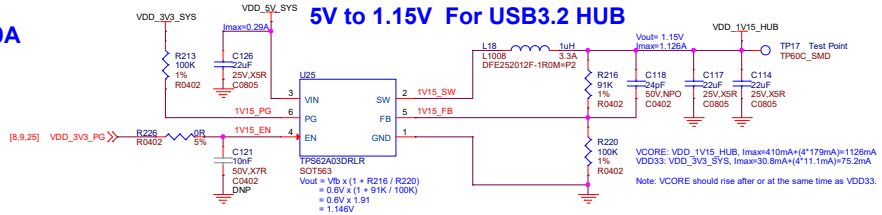
Vin	19V	48V	60V
R452	4mR	4mR	4mR
I ocp	14.7A	13.5A	13.3A


VDD_12V
48V to 12V, Imax=10A
VDD_12V Discharge
VDD_3V3_SYS
12V to 3.3V, Imax=10A
VDD_3V3_SYS Discharge
VDD_3V3 Supervisor
LM5149
LM5148RGYR VQFN-24 (5.5mmx3.5mm)
VQFN24_0d5_5_5x3_5x1mm
VDD_12V_EN_ALT: "PU on CVM" refer to Thor Carrier Board, but PD refer to Pinmux.
CARRIER_POWER_ON: A 10kΩ pull-up to 3.3V is on module
RT=49.9K: Frequency=440KHz
Crossover Frequency = 50KHz
Phase Margin = 61°
Vout = Vfb x (1 + R611/ R607)
= 0.8V x (1 + 174K / 12.4K)
= 0.8V x 15.03226
= 12.0258V
Iout =10A Iocp=12.8A
Pull up R To VDDA
0 Ω 3.3 V
24.9 kΩ 5 V
49.9 kΩ 12 V
Not installed External FB divider setting
RT=49.9K: Frequency=440KHz
Crossover Frequency = 47KHz
Phase Margin = 50°
Vout = Vfb x (1 + R524/ R533)
= 0.8V x (1 + 39.2K / 12.4K)
= 0.8V x 4.161290
= 3.329V
Iout =10A Iocp=13.7A
seeed studio
https://www.seeedstudio.com
Title: reComputer J601 Carrier Board
Size: A2
Document Number: 09 Power 12V, 3V3
Rev: V1.0
Draw By: Seeed
Date: Wednesday, August 19, 2026
Sheet: 9 of 34

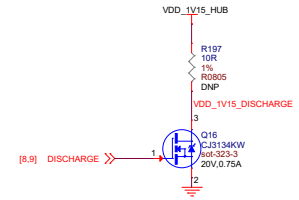
USB3.2 HUB Power

USB Total: 5V 5.09A

5V to 1.15V For USB3.2 HUB



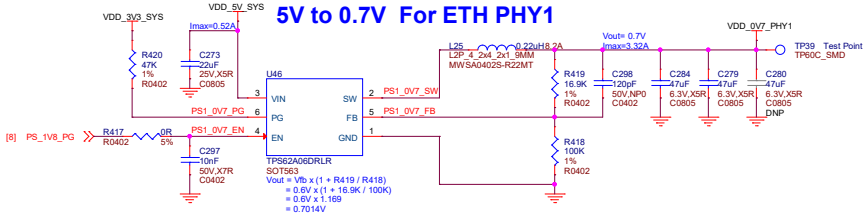
VDD_1V15_HUB Discharge



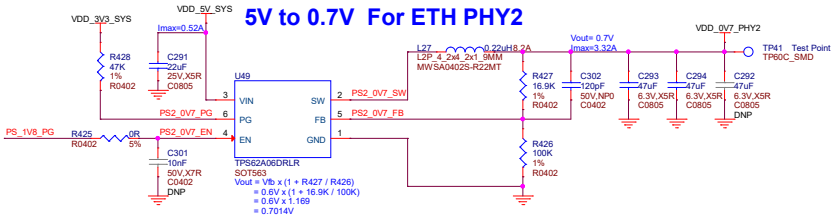
Ethernet Total: 5V 3.31A

10G Ethernet PHY Power

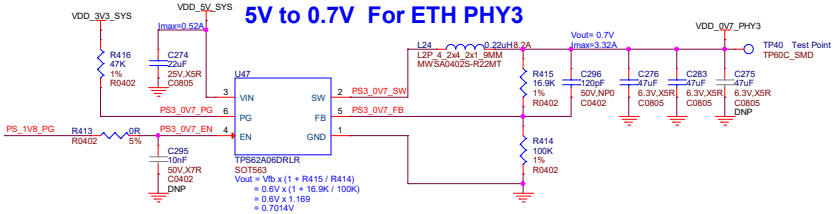
5V to 0.7V For ETH PHY1



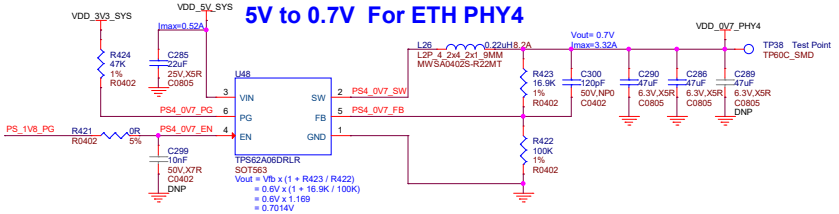
5V to 0.7V For ETH PHY2



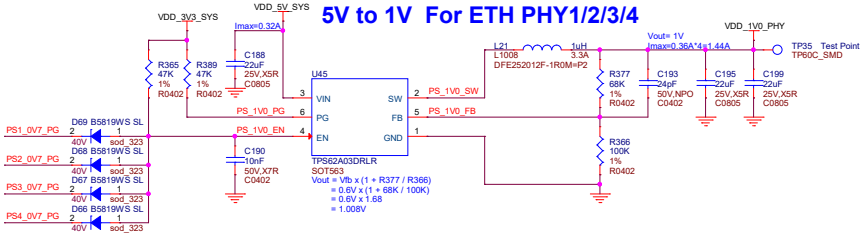
5V to 0.7V For ETH PHY3



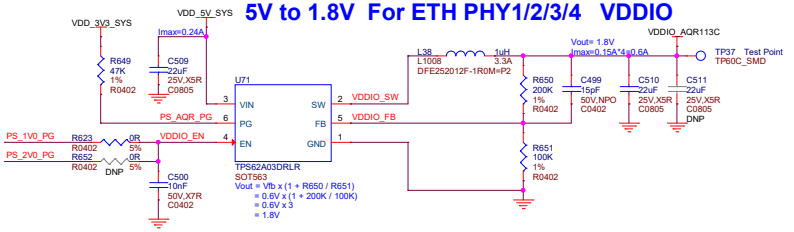
5V to 0.7V For ETH PHY4



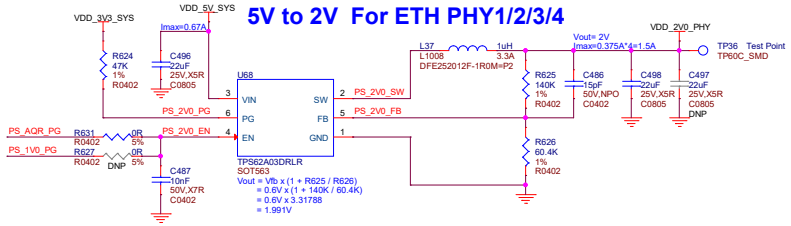
5V to 1V For ETH PHY1/2/3/4



5V to 1.8V For ETH PHY1/2/3/4 VDDIO



5V to 2V For ETH PHY1/2/3/4



PHY AQR113C Power-Up Sequence Requires:

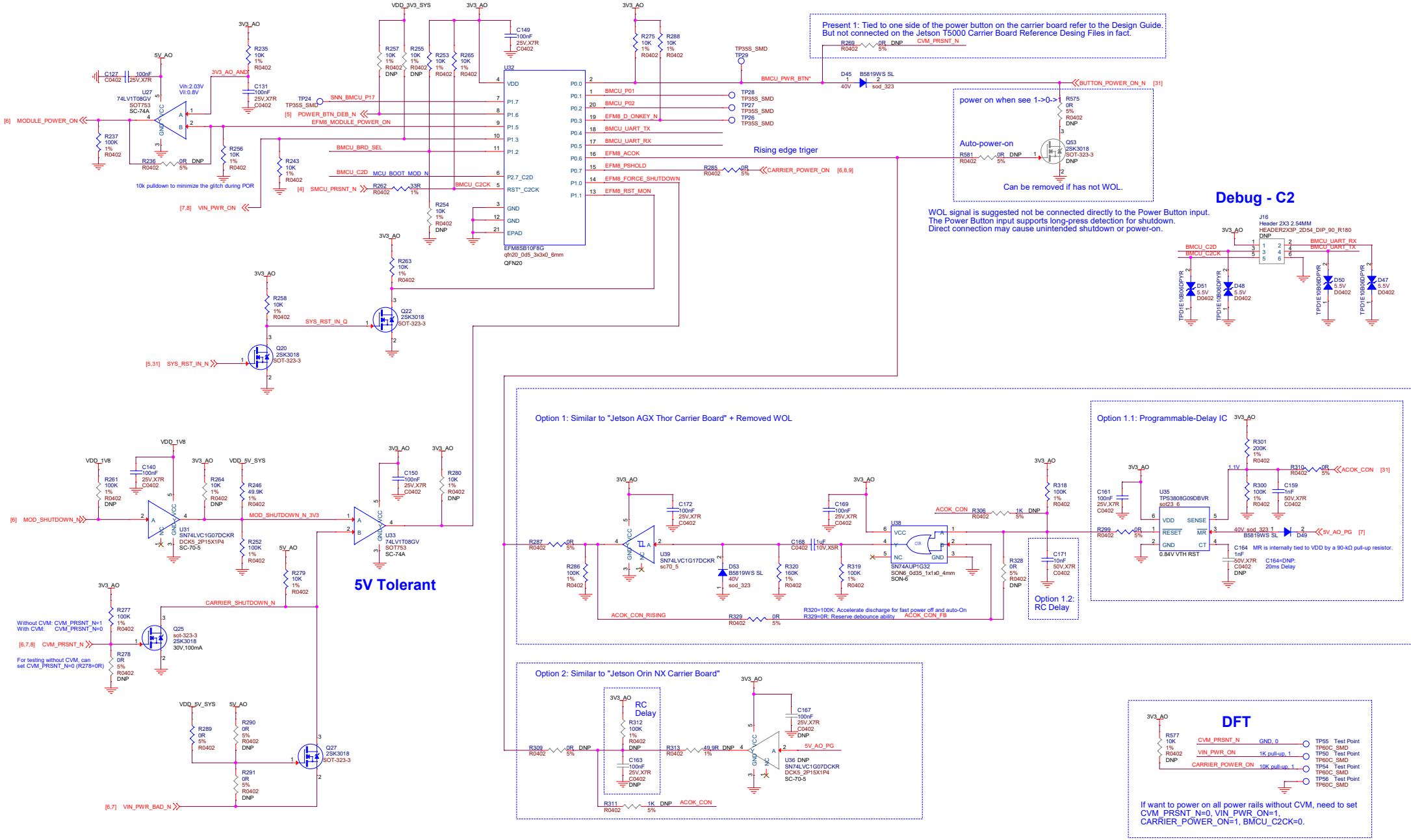
If VDD_IO is 1.8V: VDD -> 1.0V -> VDD_IO -> 2.0V, Default.

If VDD_IO is 3.3V: VDD -> 1.0V -> 2.0V -> VDD_IO.

<Variant Name>

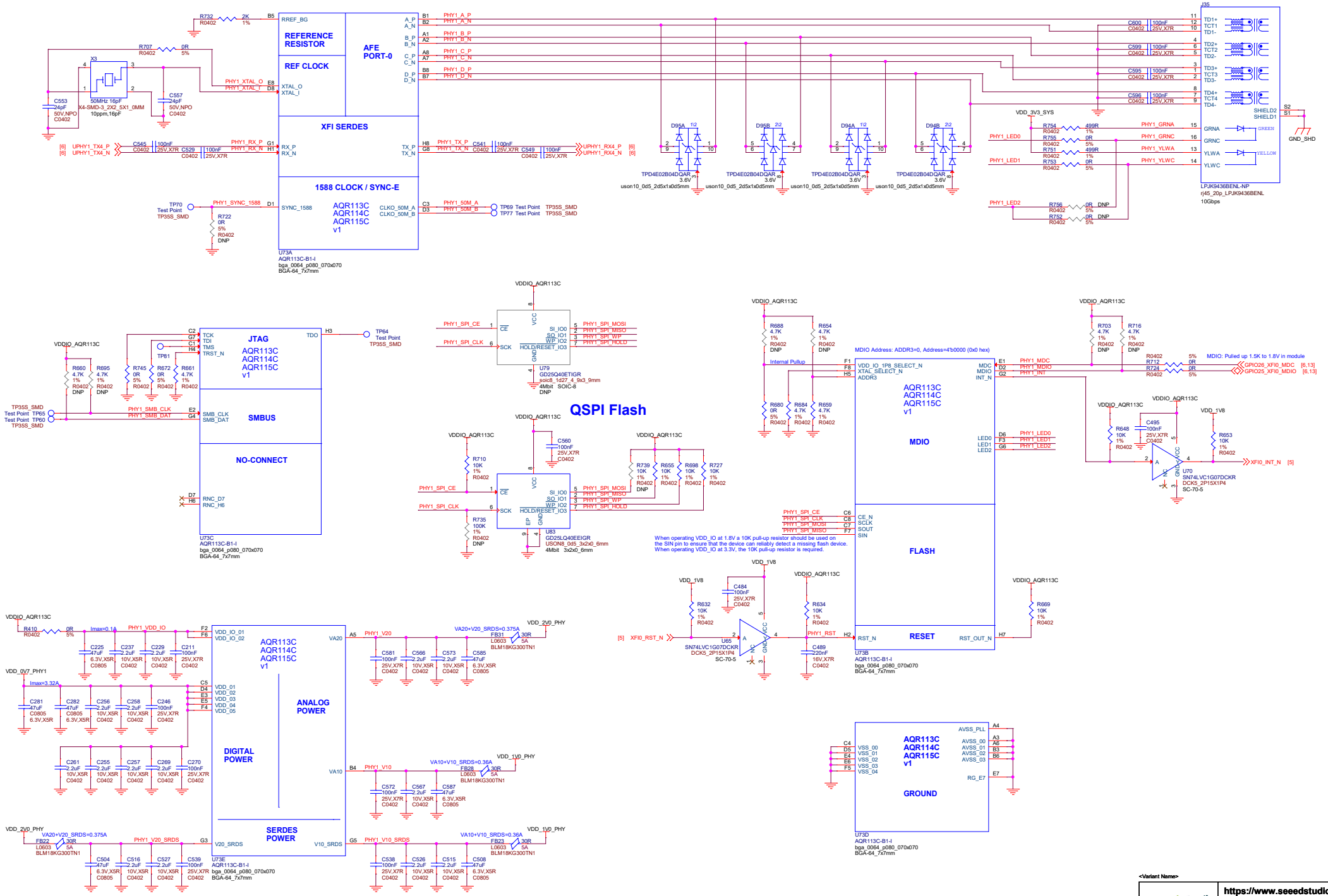
seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A2	Document Number: 10 Power 1V15, 0V7, 1V, 1V8, 2V	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 10 of 34

Button MCU For Power Up

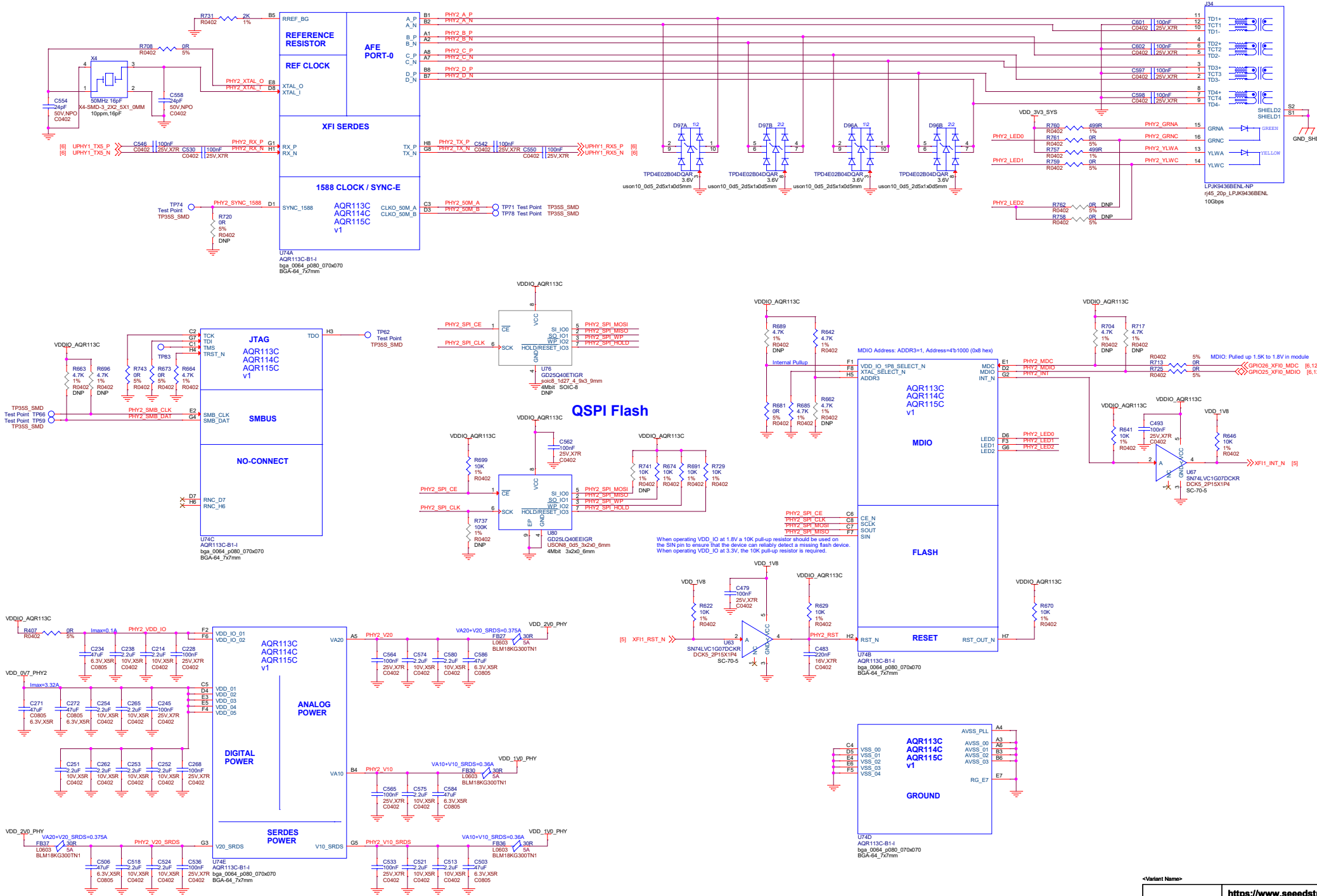


<Variant Name>			
seeed studio		https://www.seeedstudio.com	
		Title: reComputer J601 Carrier Board	
Size: A2	Document Number: 11 Button MCU For Power Up		Rev: V1.0
Draw By: Seeed	Date: Wednesday, August 26, 2026		Sheet: 11 of 34

10 Gigabit Ethernet 1/4



10 Gigabit Ethernet 2/4



<Variant Name>

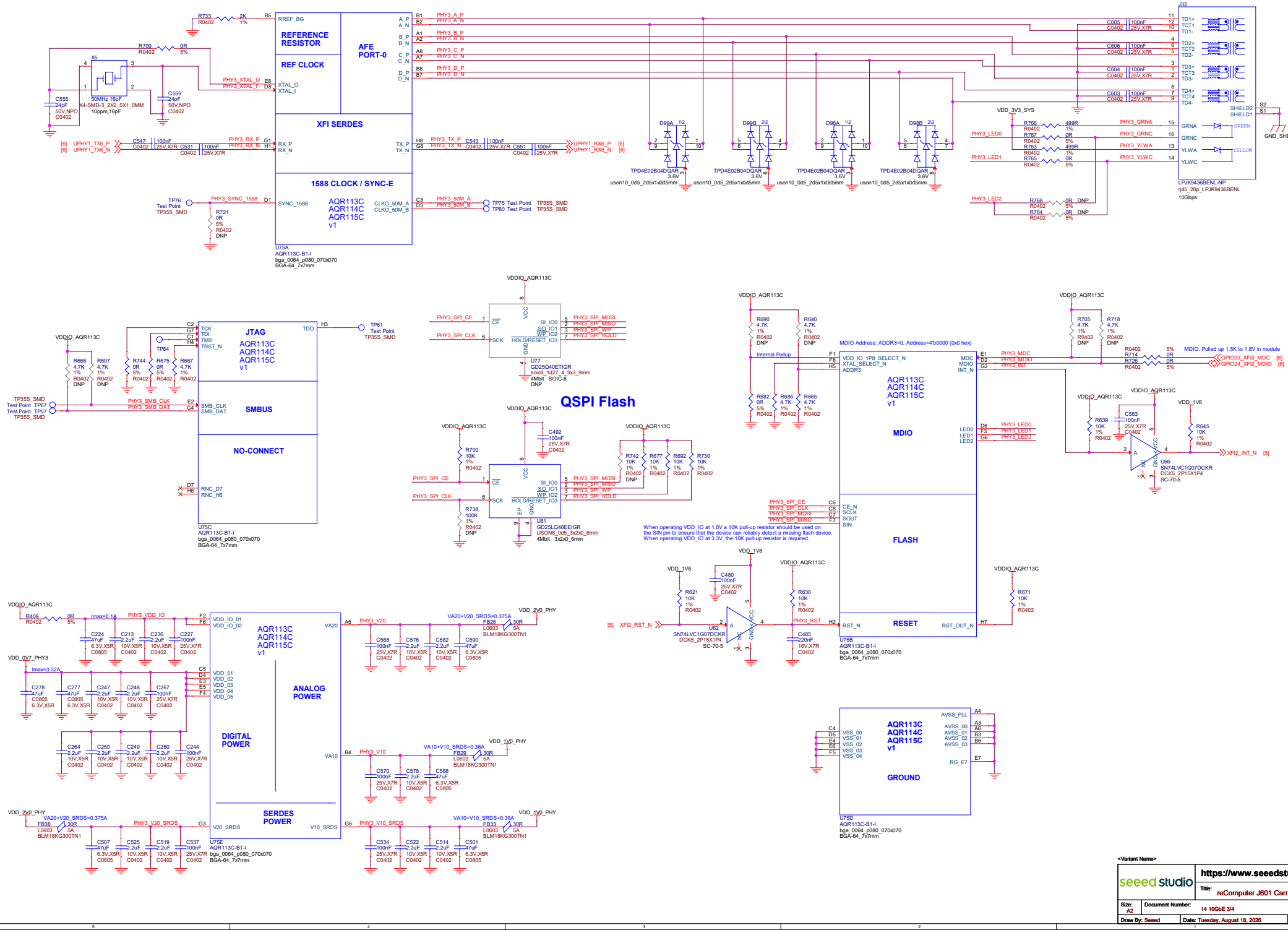
seeed studio https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

Size: A2 | Document Number: 13 10GbE 2/4 | Rev: V1.0

Draw By: Seeed | Date: Tuesday, August 18, 2026 | Sheet: 13 of 34

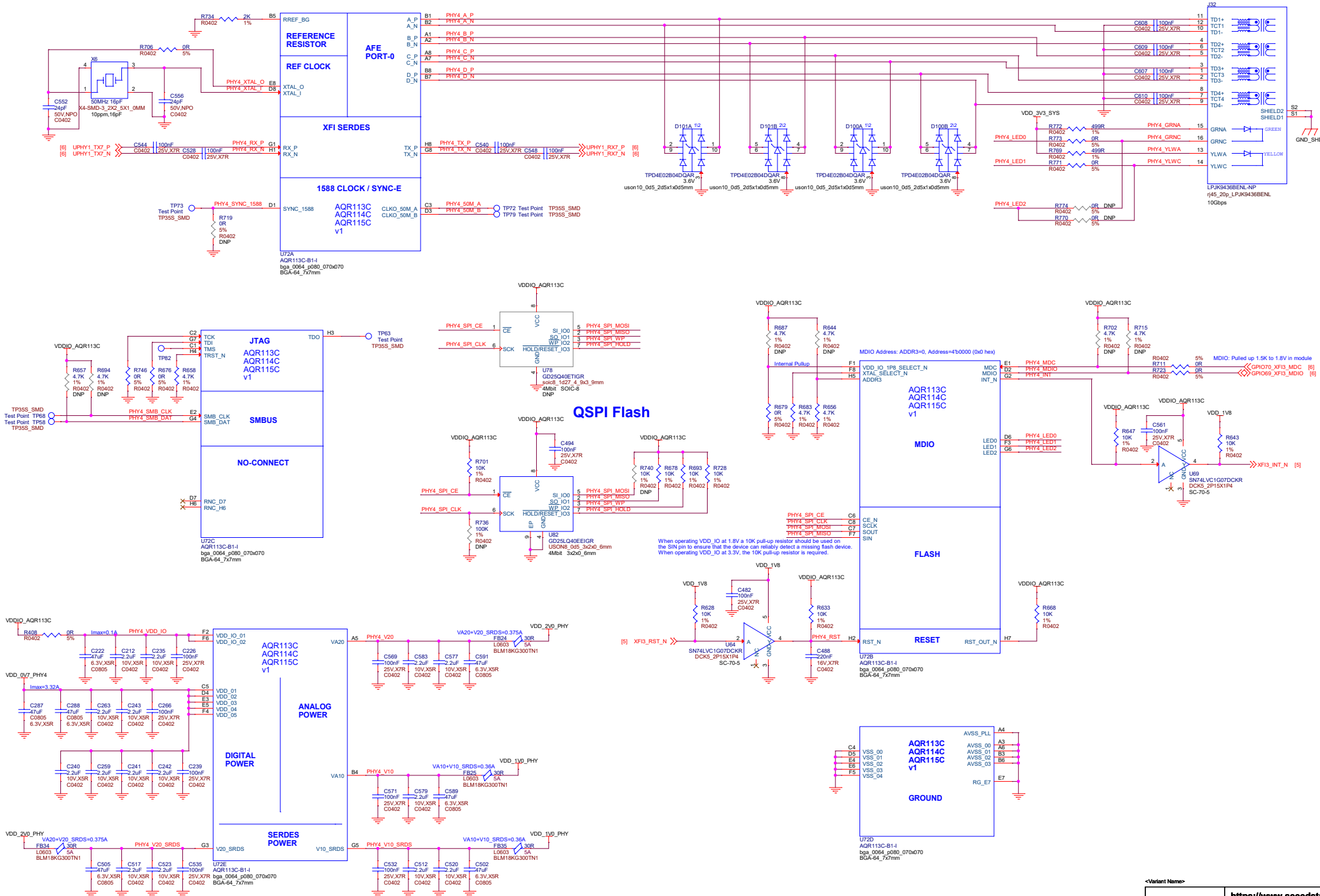
10 Gigabit Ethernet 3/4



<variant_name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A2	Document Number: 14 10GbE 3/4	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 14 of 34

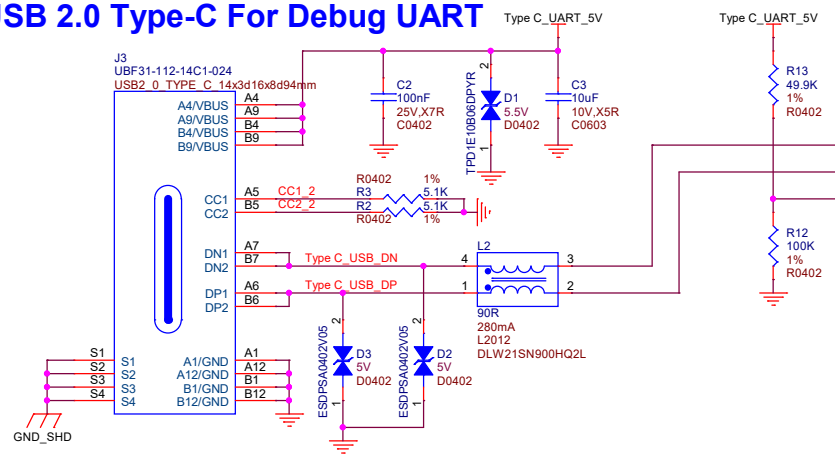
10 Gigabit Ethernet 4/4



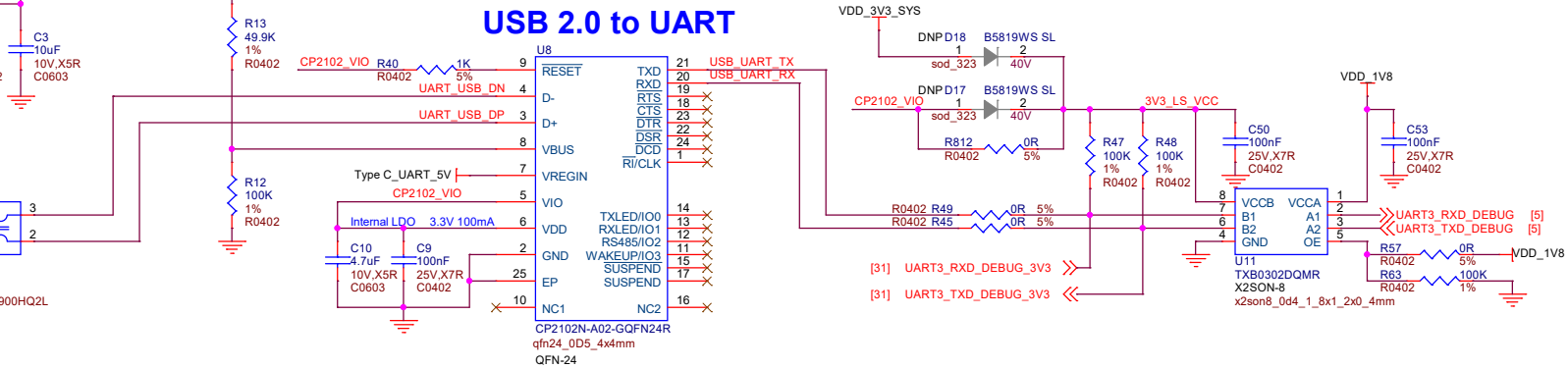
<variant_name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A2	Document Number: 15 10GbE 4/4	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 15 of 34

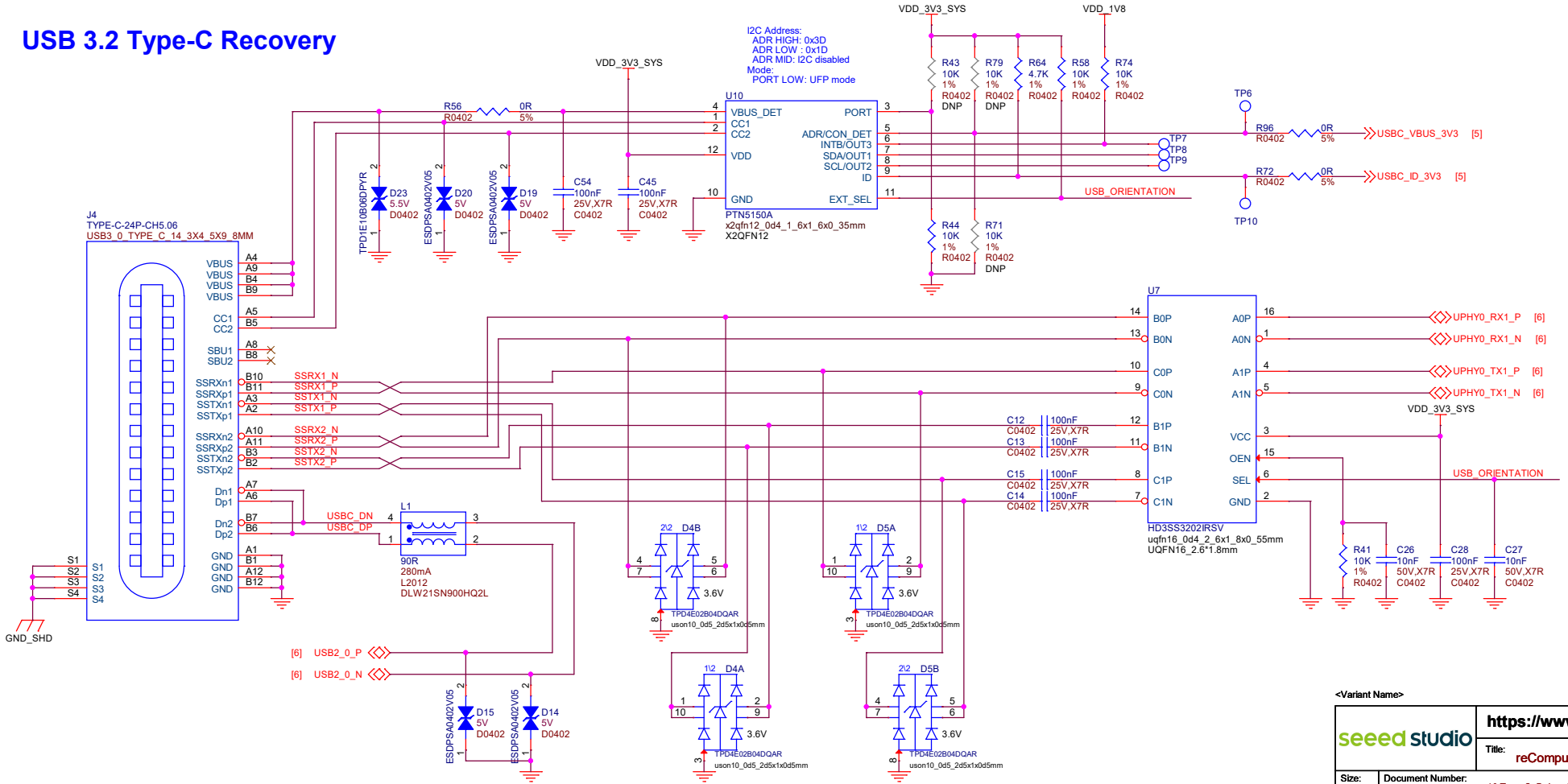
USB 2.0 Type-C For Debug UART



USB 2.0 to UART



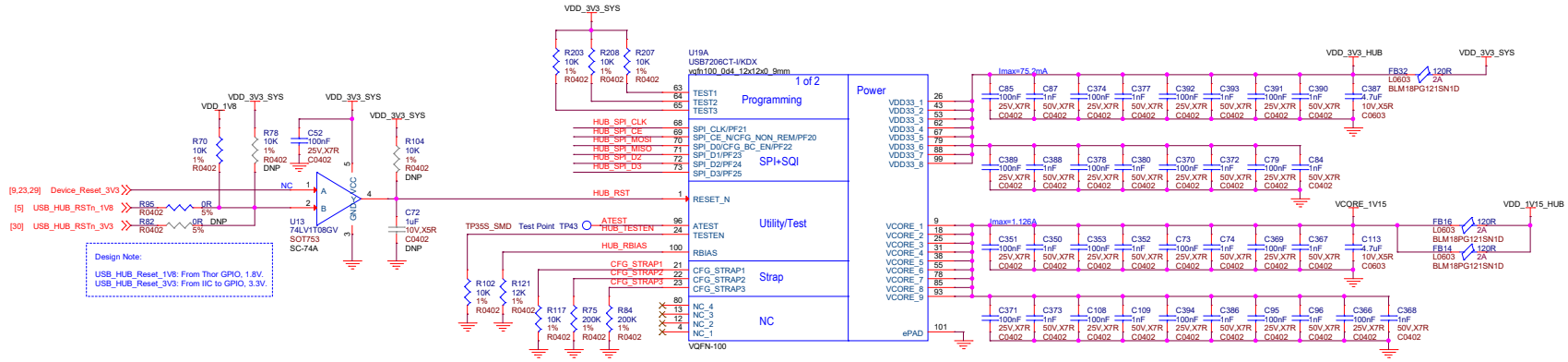
USB 3.2 Type-C Recovery

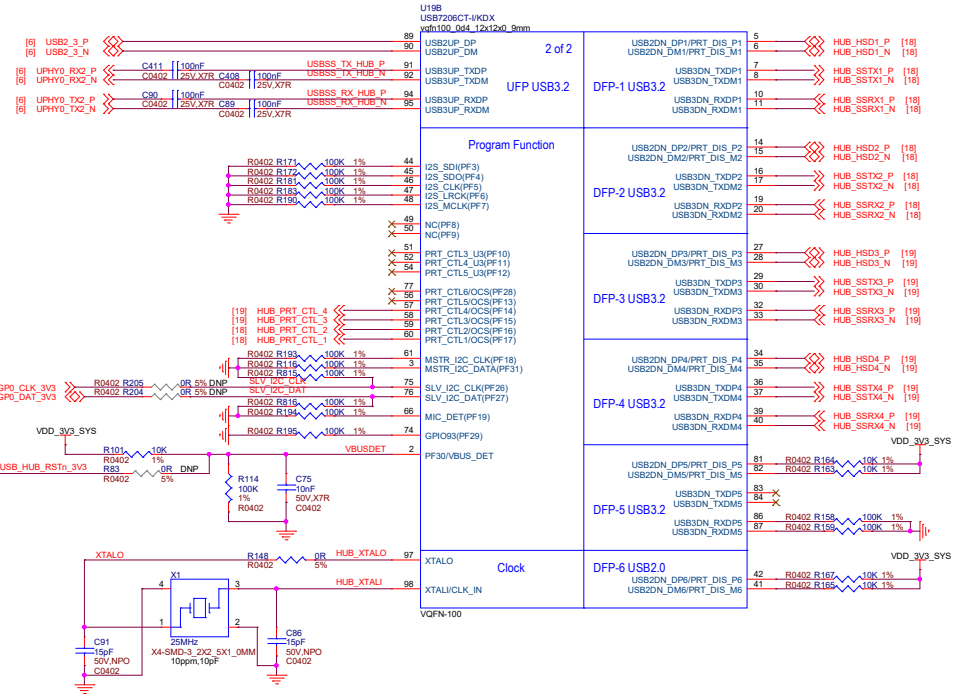


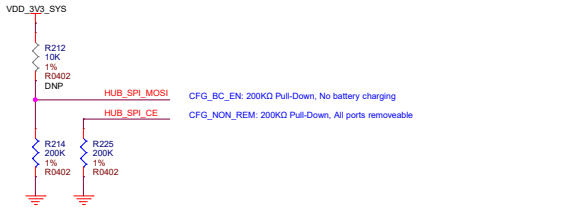
<Variant Name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 16 Type-C, Debug UART	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 16 of 34

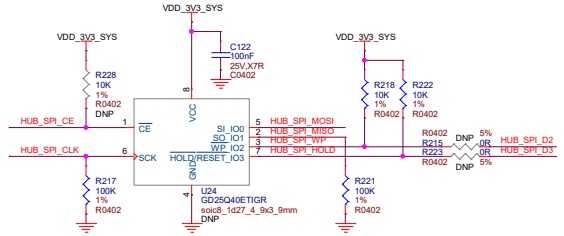
USB 3.2 GEN2 10Gbps HUB x6 Ports







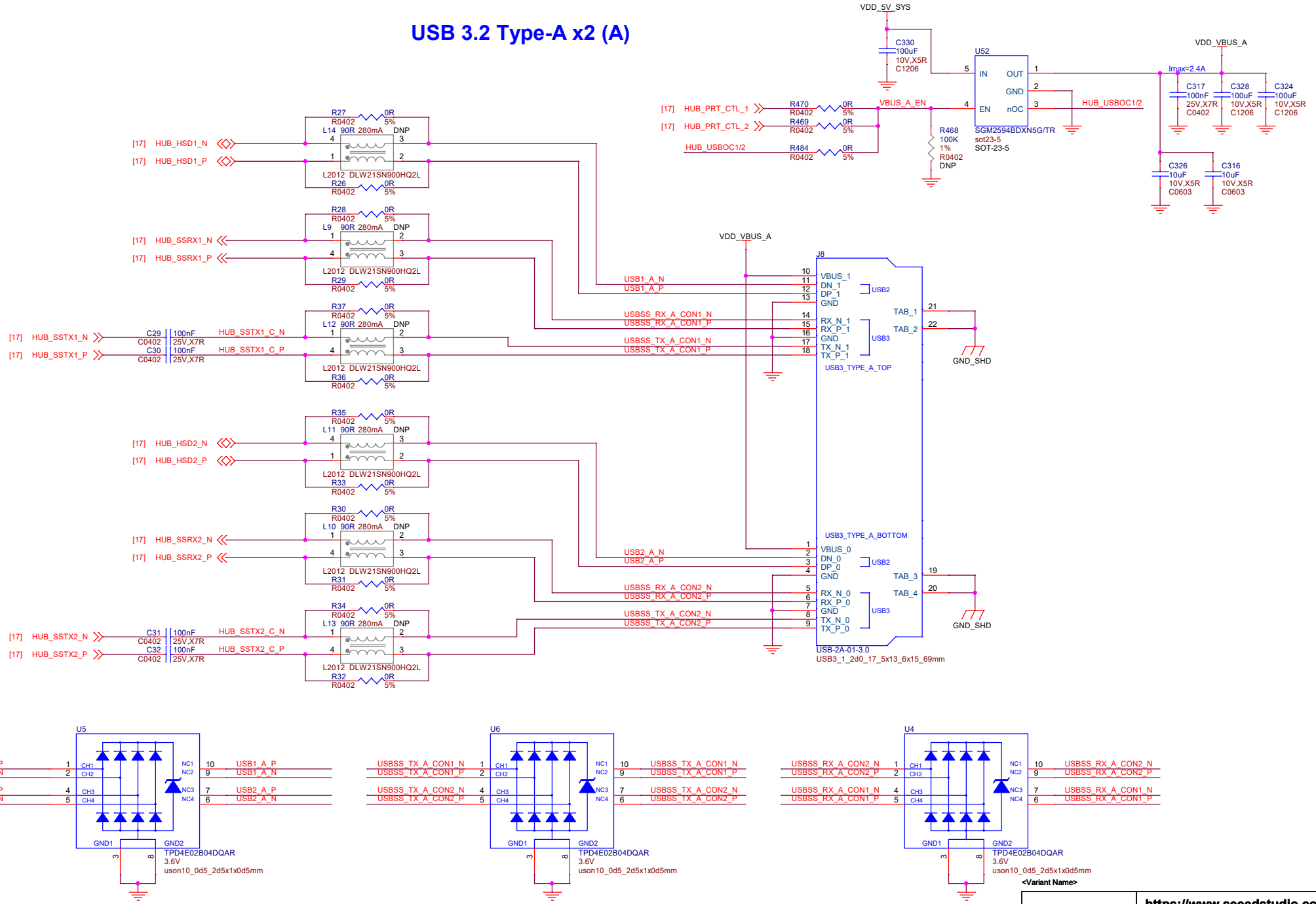
QSPI Flash



<variant_name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A2	Document Number: 17 USB 3.2 HUB	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 17 of 34

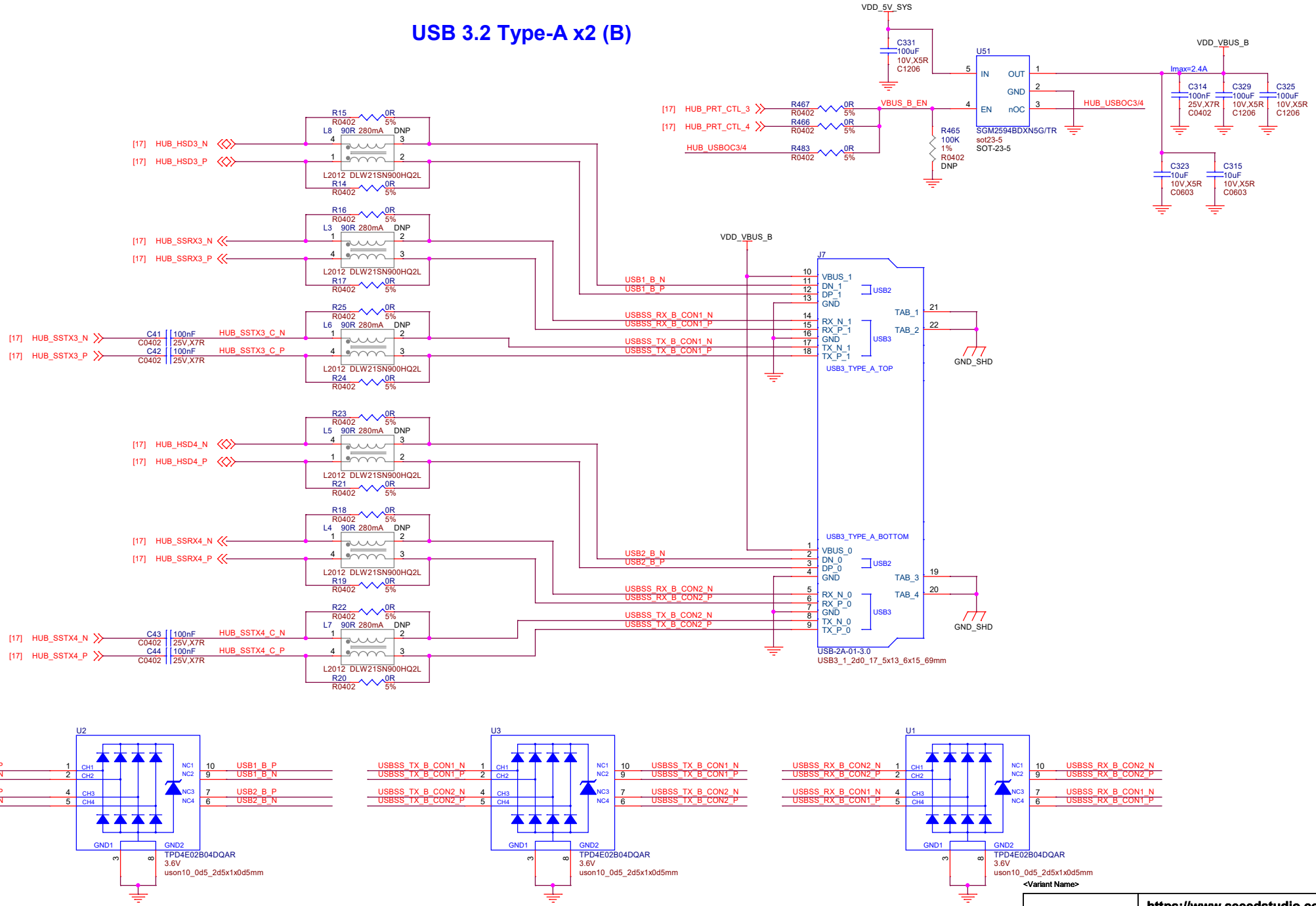
USB 3.2 Type-A x2 (A)



<Variant Name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 18 USB 3.2 Type-A x2 (A)	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 18 of 34

USB 3.2 Type-A x2 (B)



<Variant Name>

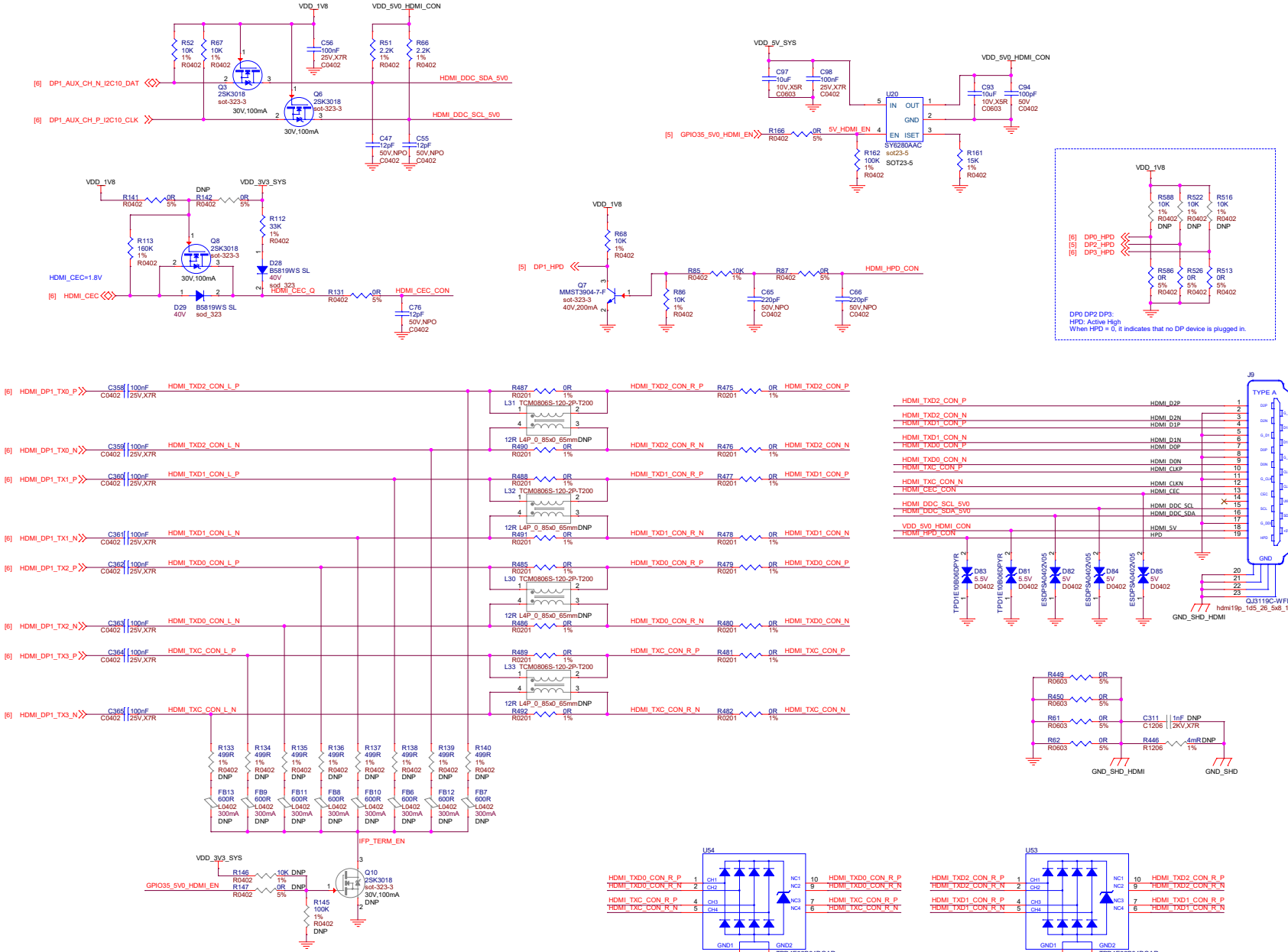
seeed studio

https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

Size: A3	Document Number: 19 USB 3.2 Type-A x2 (B)	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 19 of 34

HDMI Connector



<Variant Name>

seeed studio | https://www.seeedstudio.com

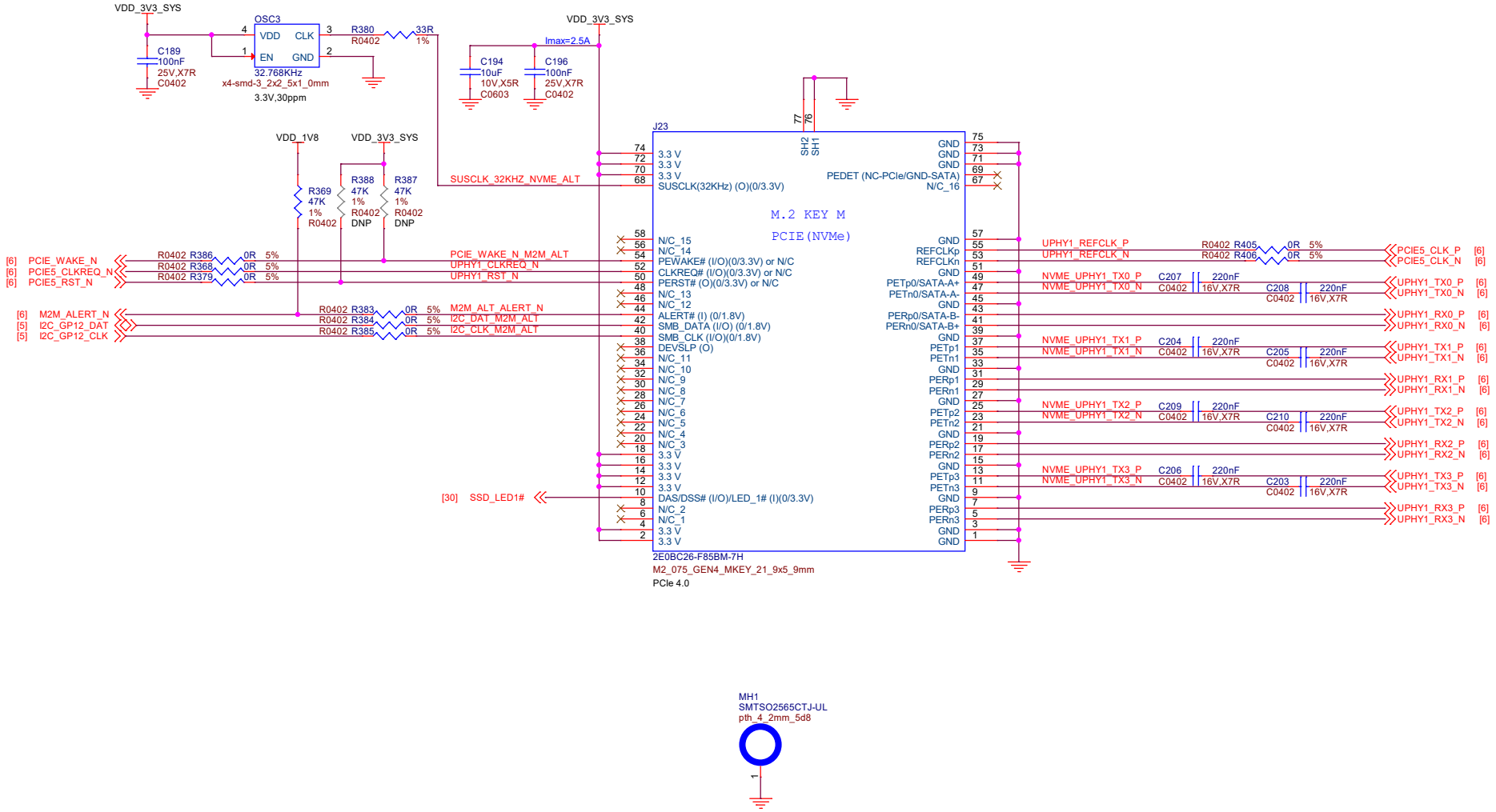
Title: reComputer J601 Carrier Board

Size: A2 | Document Number: 20 Display | Rev: V1.0

Draw By: Seeed | Date: Tuesday, August 18, 2026 | Sheet: 20 of 34

M.2 Key M (NVMe)

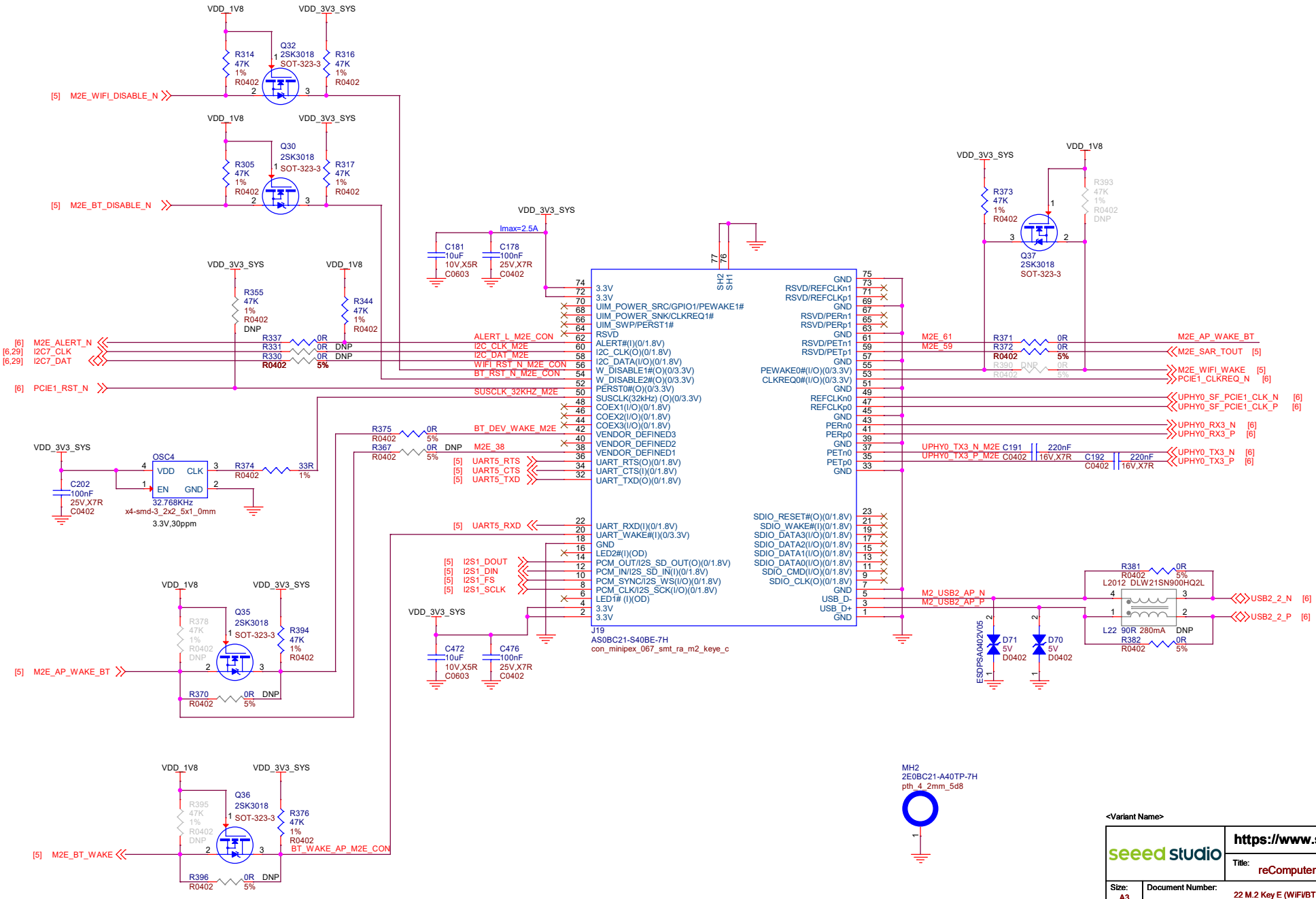
Size:2280,H=8.5MM



<Variant Name>

seeed studio	https://www.seeedstudio.com
Title:	reComputer J601 Carrier Board
Size: A3	Document Number: 21 M.2 Key M (NVMe) Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026 Sheet: 21 of 34

M.2 Key E (WiFi/BT)



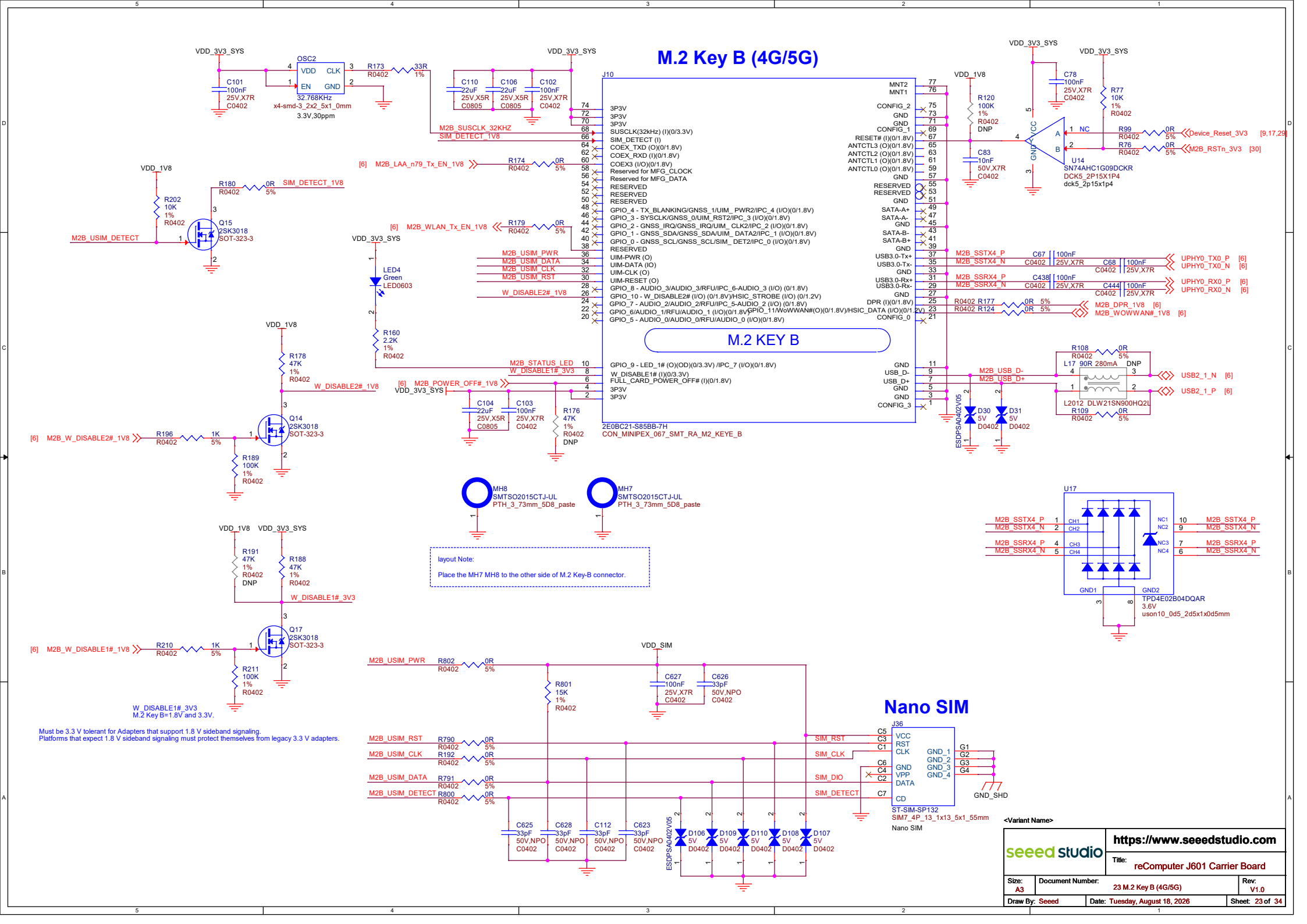
<Variant Name>

seeed studio https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

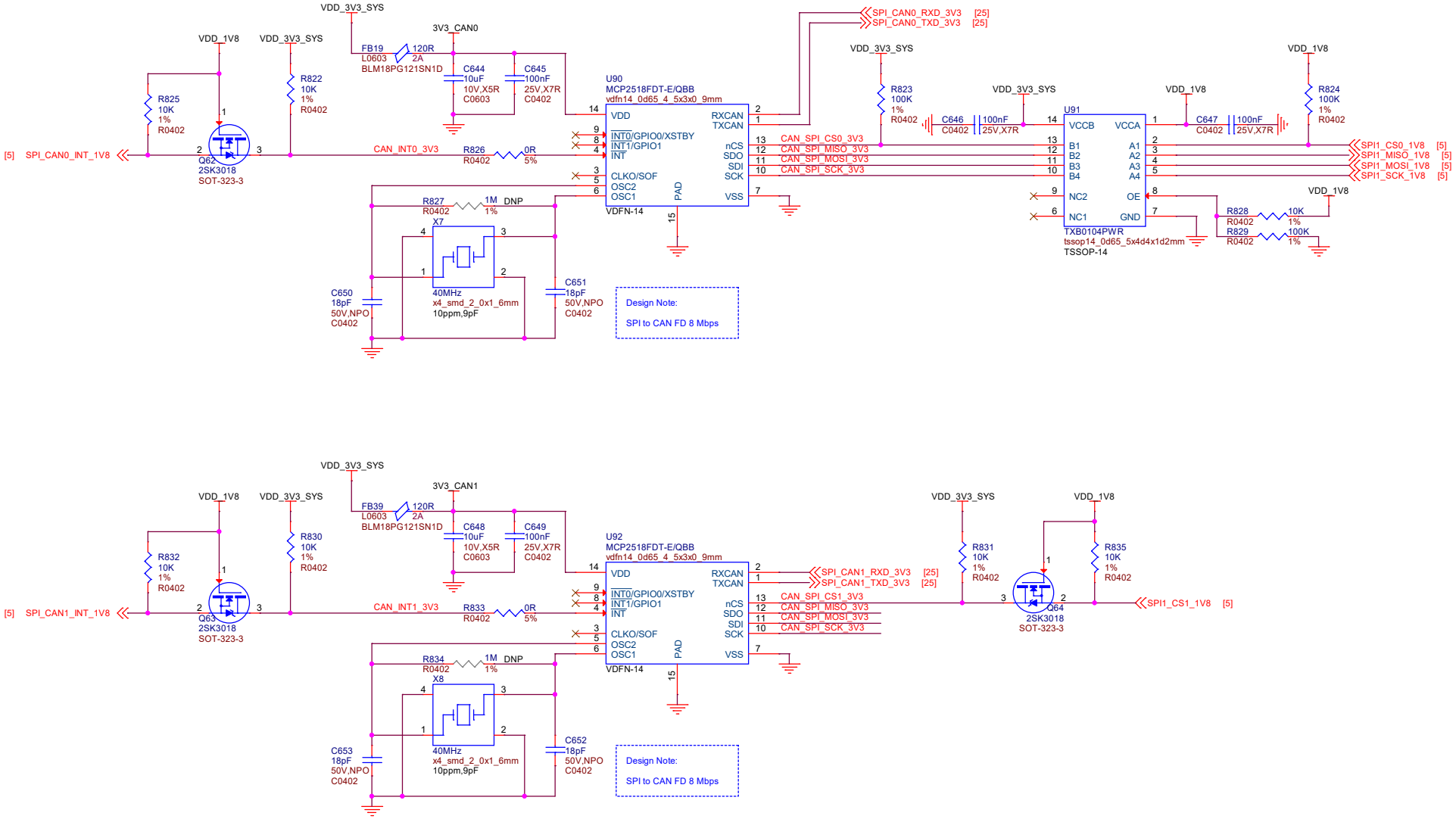
Size: A3	Document Number: 22 M.2 Key E (WiFi/BT)	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 22 of 34

M.2 Key B (4G/5G)



<variant_name>

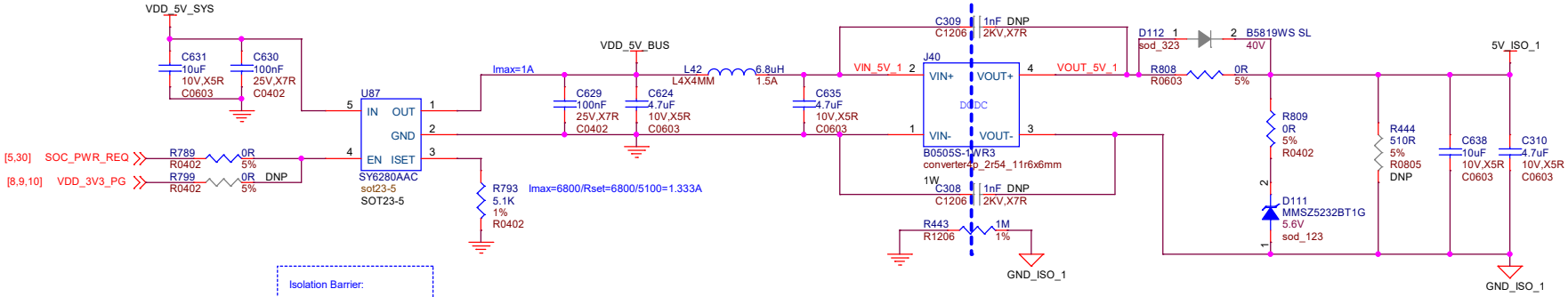
seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 23 M.2 Key B (4G/5G)	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 23 of 34



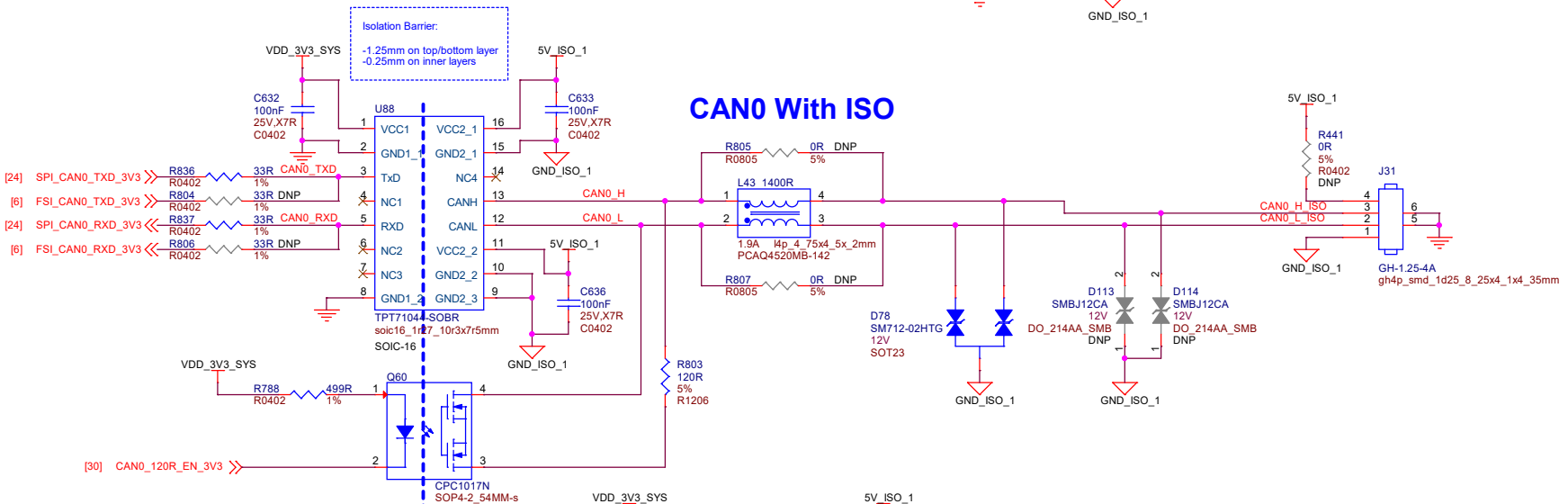
<Variant Name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 24 SPI to CAN x2	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 24 of 34

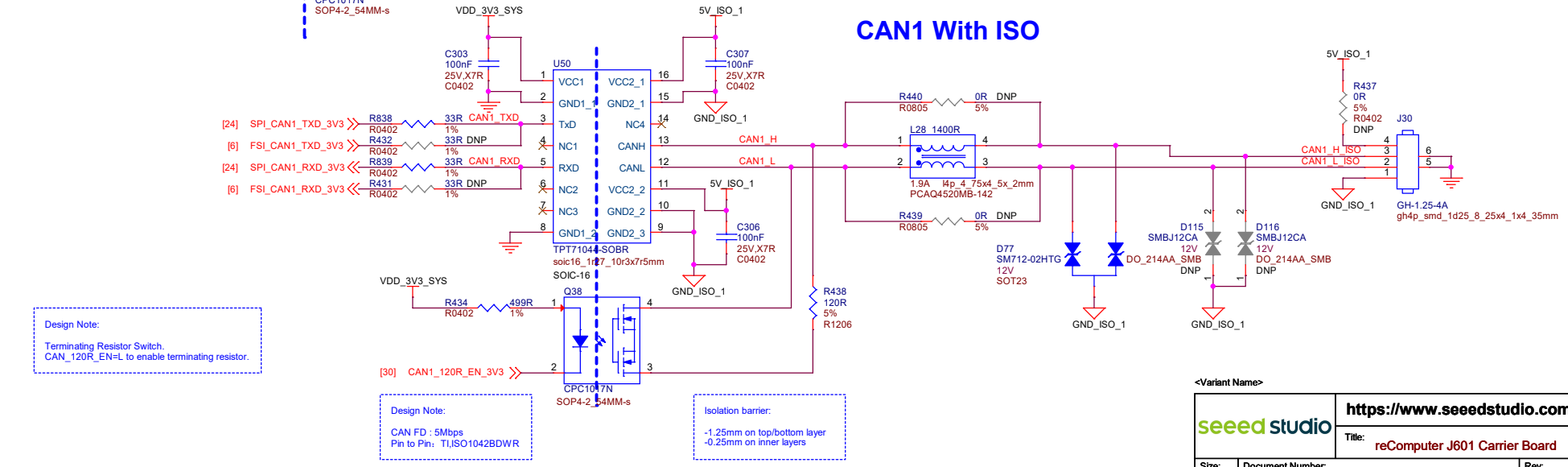
Isolated DCDC 5V to 5V/200mA



CAN0 With ISO



CAN1 With ISO

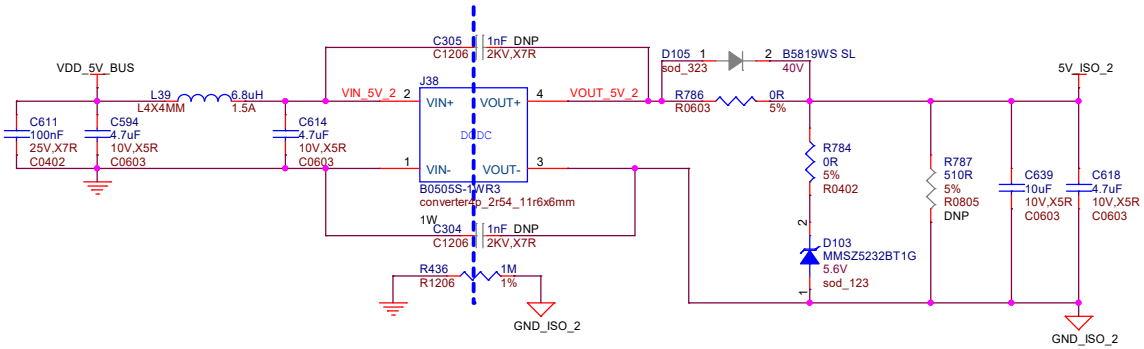


<Variant Name>

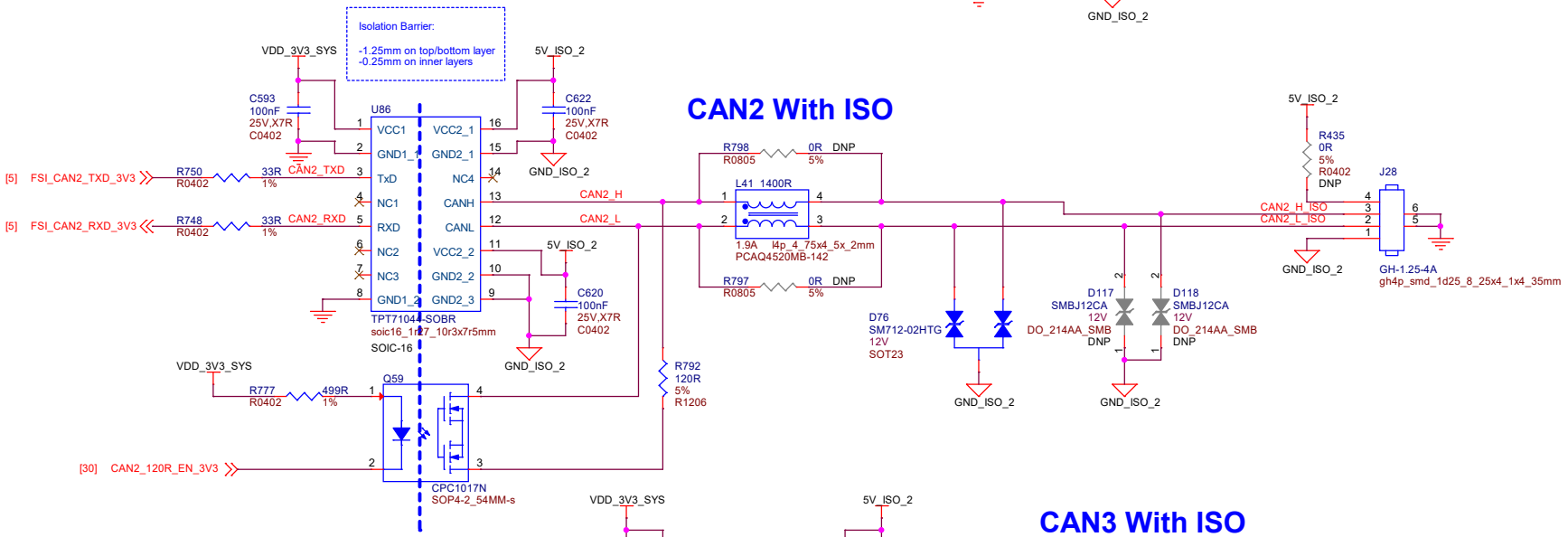
seeed studio https://www.seeedstudio.com

Title: reComputer J601 Carrier Board		
Size: A3	Document Number: 25 CAN0, CAN1	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 25 of 34

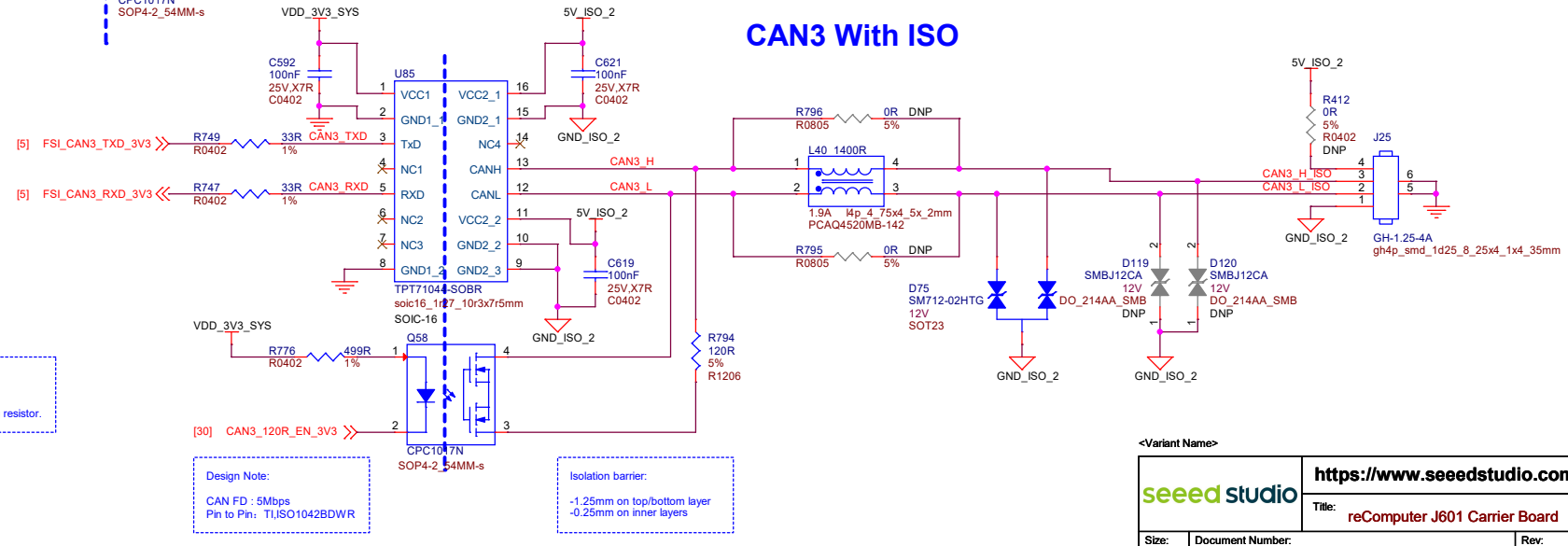
Isolated DCDC 5V to 5V/200mA



CAN2 With ISO



CAN3 With ISO



<Variant Name>

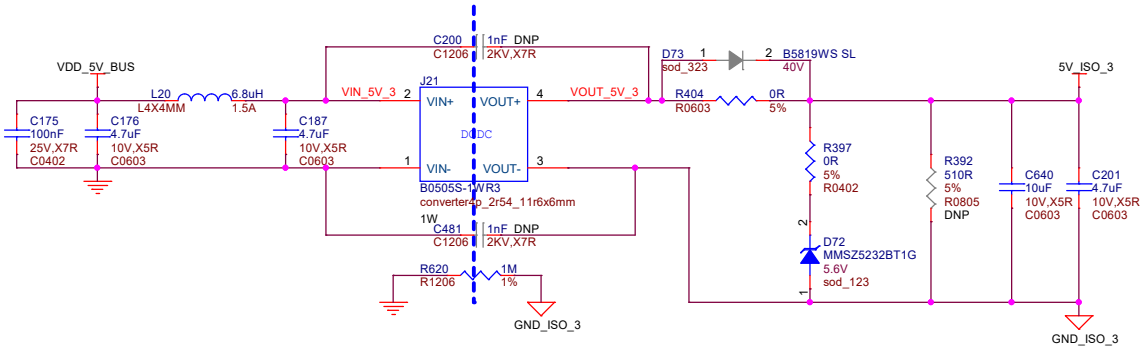
seeed studio

https://www.seeedstudio.com

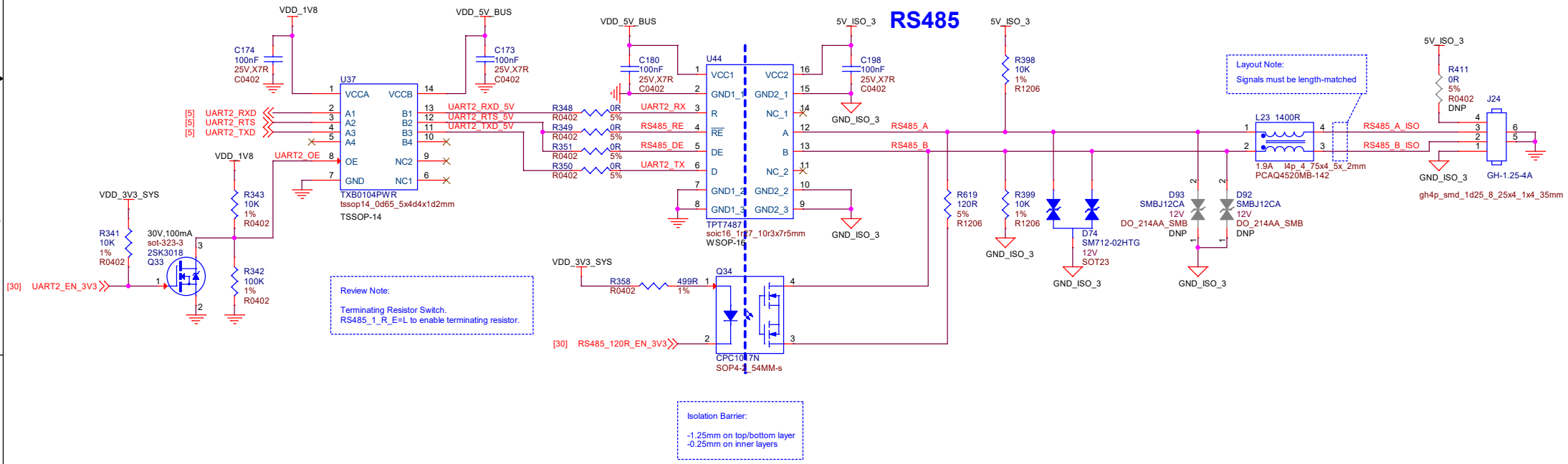
Title: reComputer J601 Carrier Board

Size: A3	Document Number: 26 CAN2, CAN3	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 26 of 34

Isolated DCDC 5V to 5V/200mA

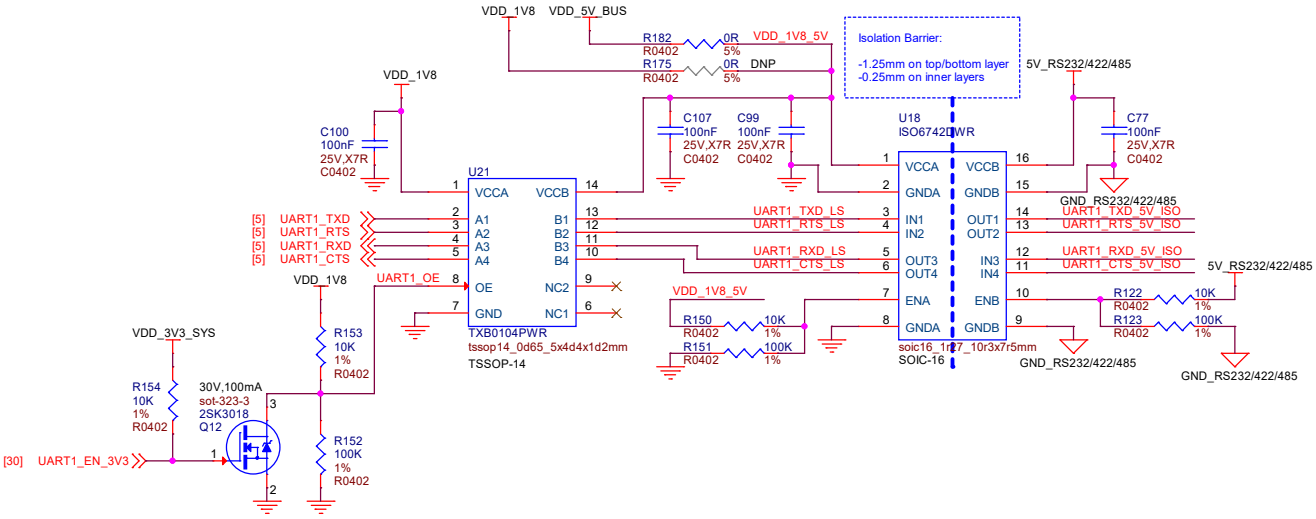


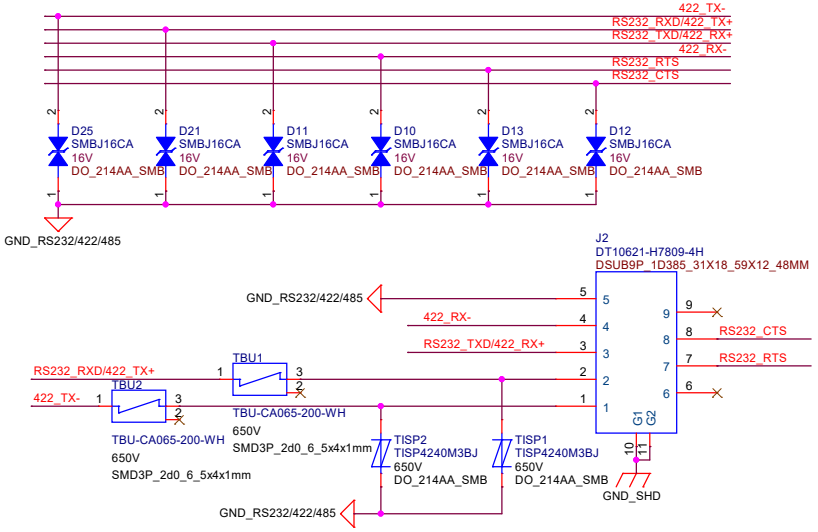
RS485



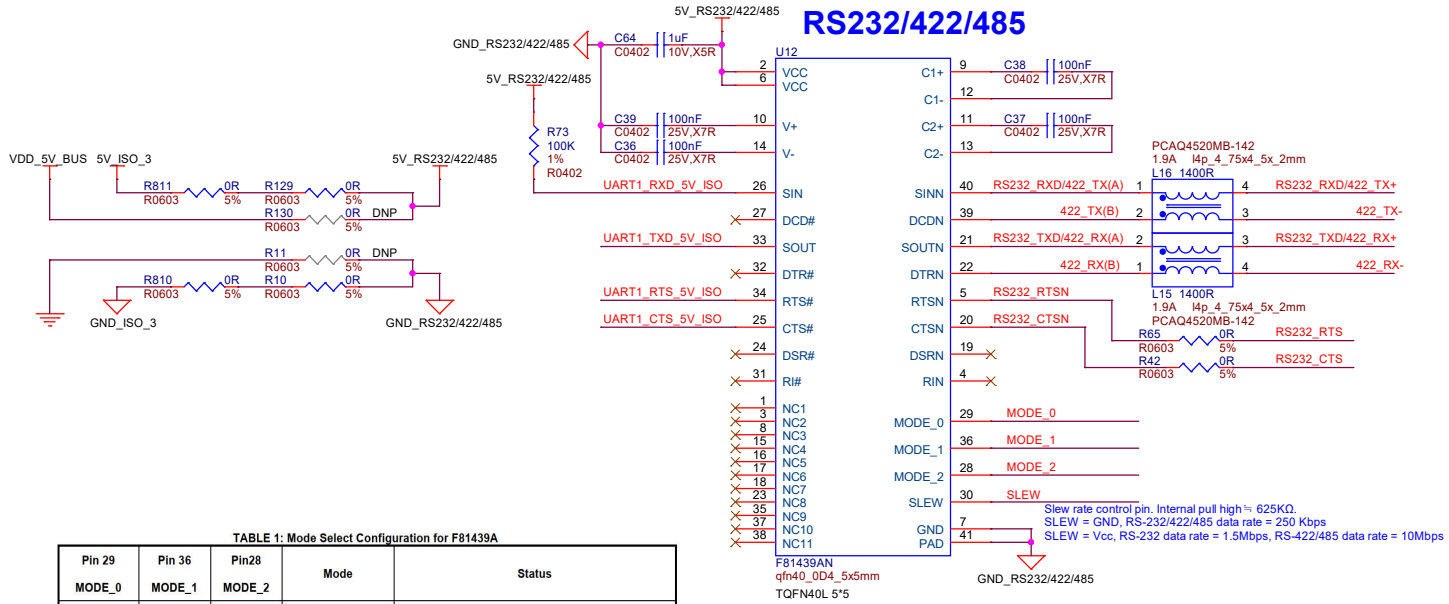
<Variant Name>

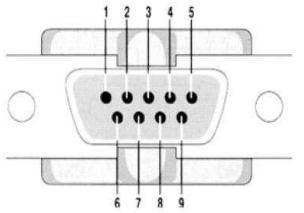
seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 27 RS485	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 27 of 34





RS232/422/485

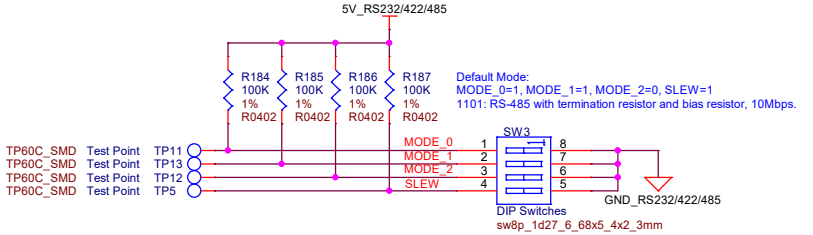




MODE 0 1 2	001	000/100	010/110
PIN	RS232	RS422	RS485
1		TXD- (B)	Data- (B)
2	RXD	TXD+ (A)	Data+ (A)
3	TXD	RXD+ (A)	
4		RXD- (B)	
5	GND	GND	GND
6			
7	RTS		
8	CTS		
9			

TABLE 1: Mode Select Configuration for F81439A

Pin 29 MODE_0	Pin 36 MODE_1	Pin28 MODE_2	Mode	Status
0	0	0	RS-422 Full Duplex	1T/1R RS-422
0	0	1	Pure RS-232	3T/5R RS-232.
0	1	0	RS-485 Half Duplex	1T/1R RS-485, TX ENABLE Low Active
0	1	1	RS-485 Half Duplex	1T/1R RS-485, TX ENABLE High Active
1	0	0	RS-422 Full Duplex	1T/1R RS-422 with termination resistor and bias resistor.
1	0	1	Reserved	Reserved
1	1	0	RS-485 Half Duplex	1T/1R RS-485 with termination resistor and bias resistor. TX ENABLE Low Active
1	1	1	Low Power Shutdown	All I/O pins are High Impedance

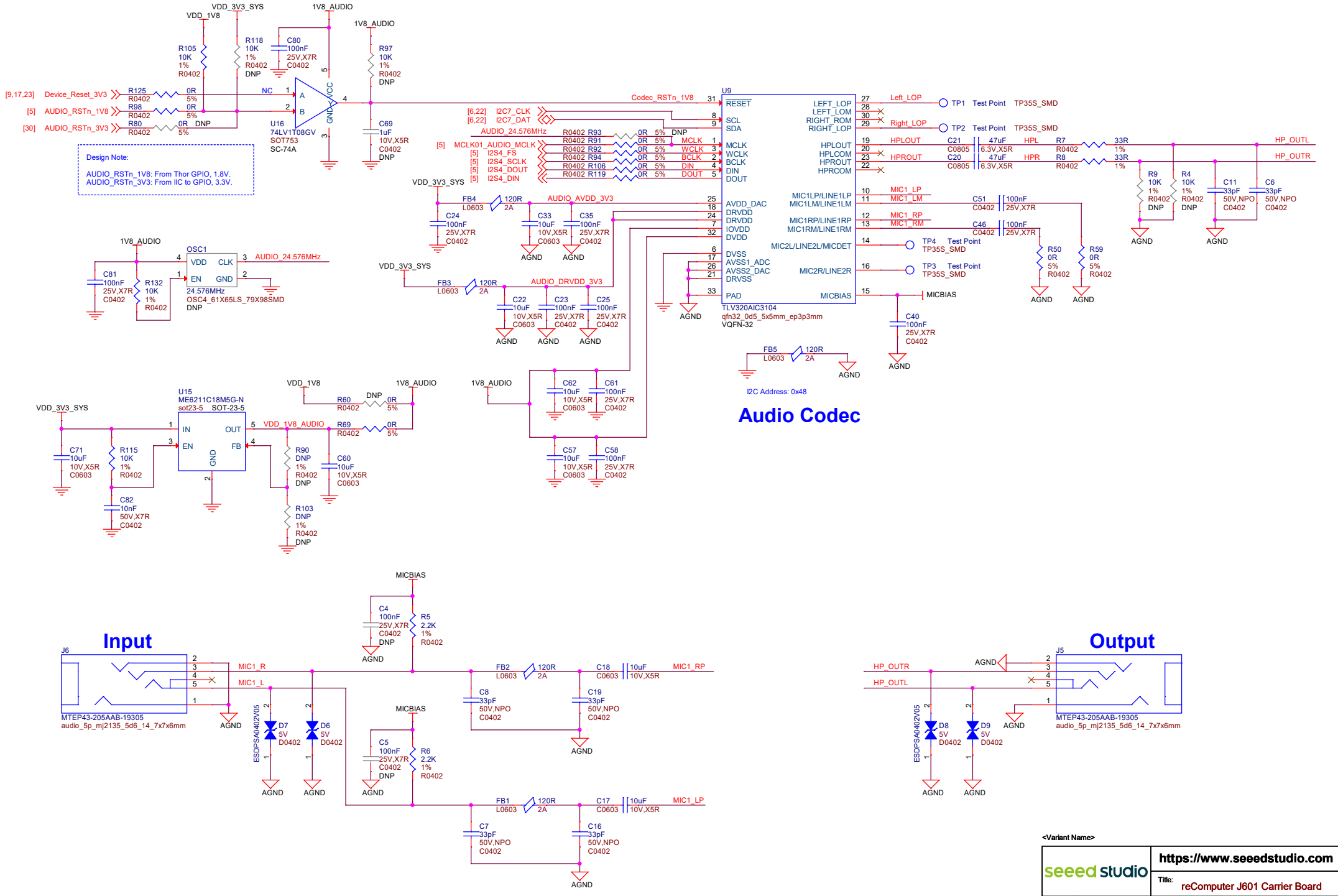


<Variant Name>

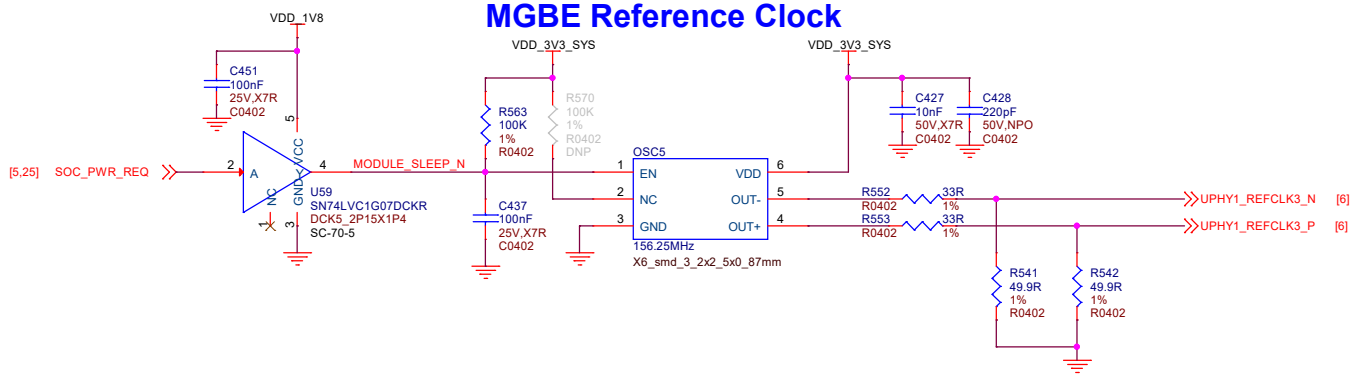
seeed studio https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

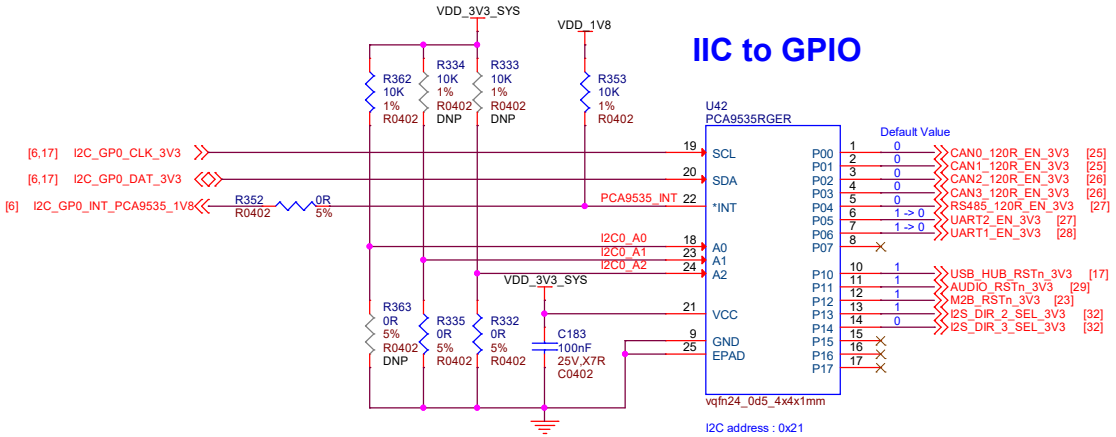
Size: A3	Document Number: 28 RS232/422/485	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 28 of 34


Audio Codec
Input
Output
U9
TLV320AIC3104
qfn32_0d5_5x5mm_ep3p3mm
VQFN-32
I2C Address: 0x48
U15
ME6211C18M5G-N
sot23-5 SOT-23-5
U16
74LV1T08GV
SOT753
SC-74A
OSC1
24.576MHz
OSC4_61X65LS_79X98SMD
J6
MTEP43-205AAB-19305
audio_5p_mj2135_5d6_14_7x7x6mm
J5
ESDPSA0402V05
Design Note:
AUDIO_RSTn_1V8: From Thor GPIO, 1.8V.
AUDIO_RSTn_3V3: From IIC to GPIO, 3.3V.
Codec_RSTn_1V8
AUDIO_24.576MHz
MICBIAS
HP_OUTL
HP_OUTR
MIC1_R
MIC1_L
MIC1_RP
MIC1_LP
VDD_3V3_SYS
VDD_1V8
1V8_AUDIO
AUDIO_AVDD_3V3
AUDIO_DRVDD_3V3
VDD_1V8_AUDIO
AGND
<Variant Name>
seeed studio
https://www.seeedstudio.com
Title: reComputer J601 Carrier Board
Size: A3
Document Number: 29 Audio
Rev: V1.0
Draw By: Seeed
Date: Tuesday, August 18, 2026
Sheet: 29 of 34

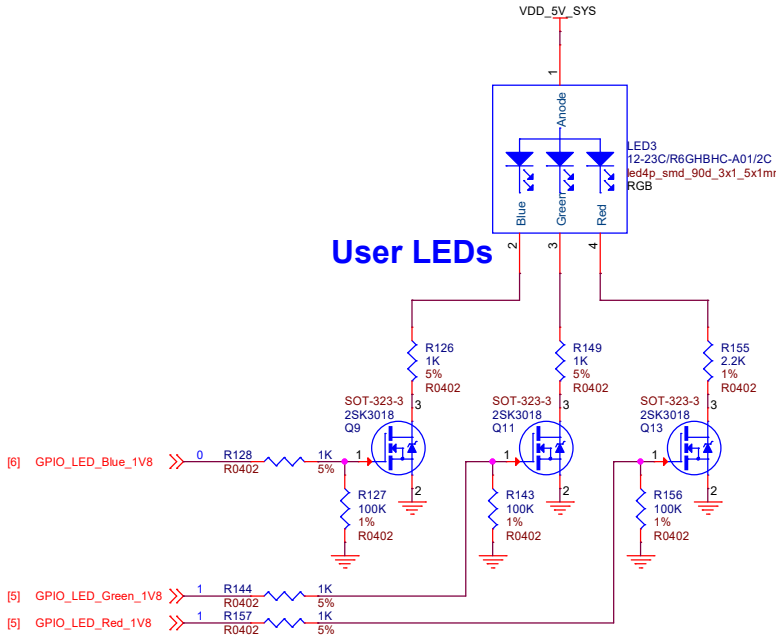
MGBE Reference Clock



IIC to GPIO

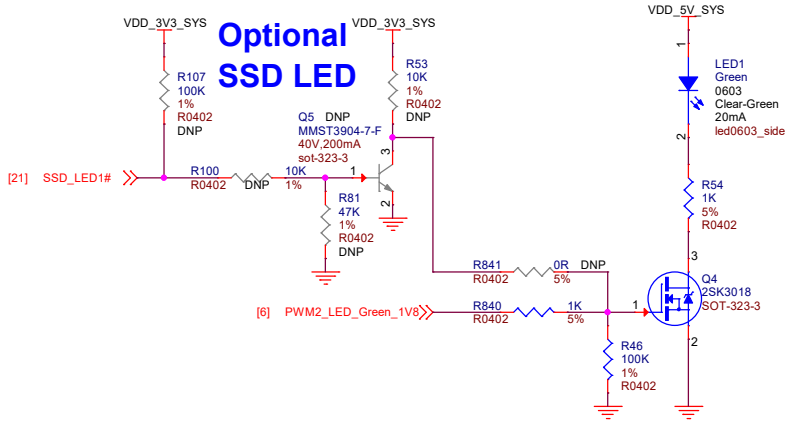


User LEDs

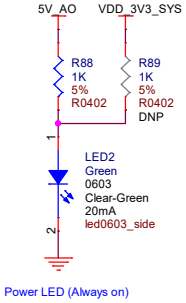


Status LED

Optional SSD LED



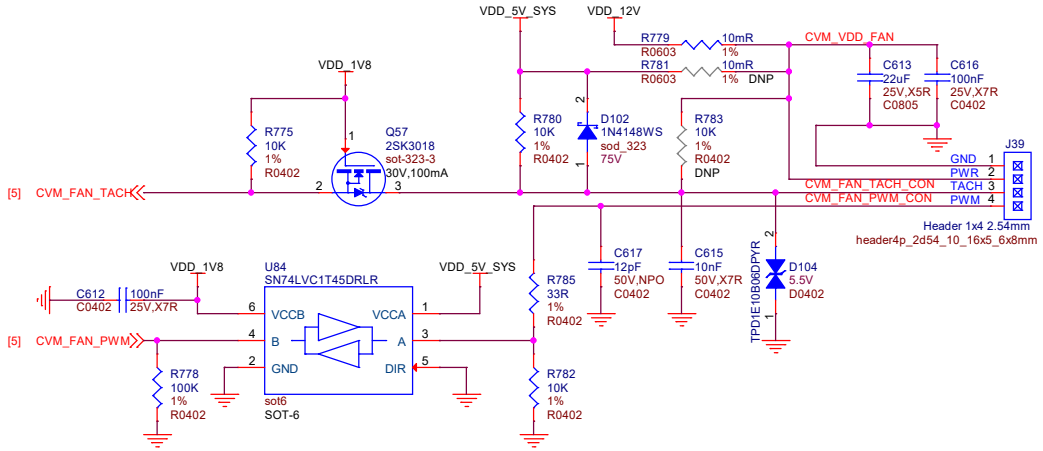
Power LED



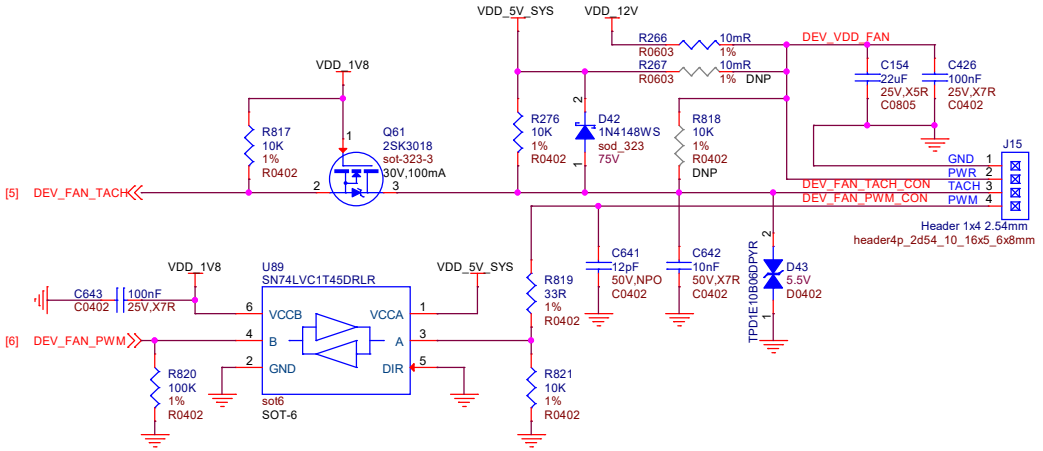
<Variant Name>

seeed studio	https://www.seeedstudio.com
Title:	reComputer J601 Carrier Board
Size: A3	Document Number: 30 Ref CLK, IIC to GPIO, LED
Rev: V1.0	
Draw By: Seeed	Date: Tuesday, August 18, 2026
Sheet: 30 of 34	

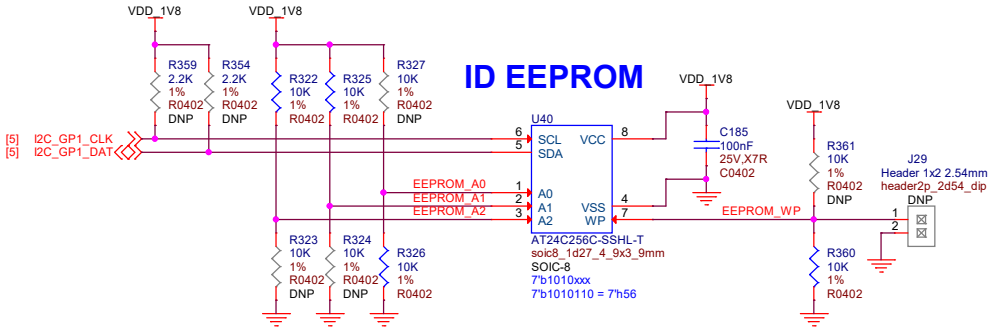
SoC Fan Header 4pin



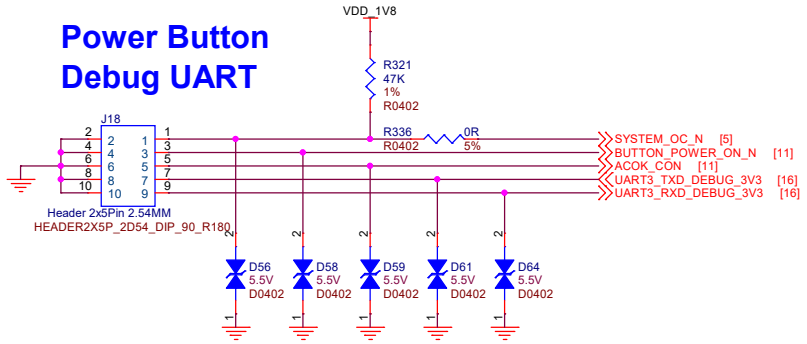
Device Fan Header 4pin



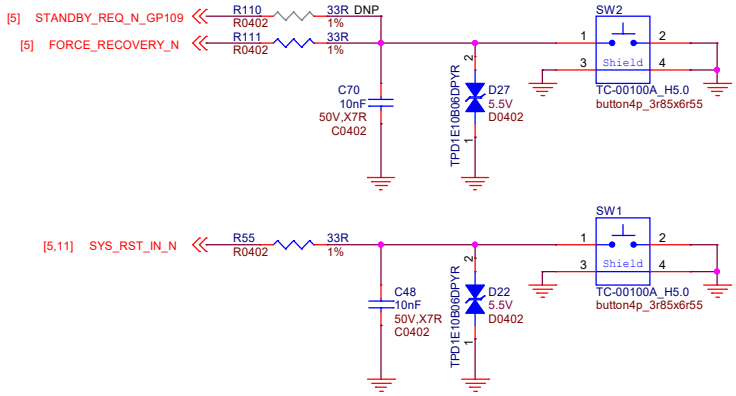
ID EEPROM



Power Button
Debug UART

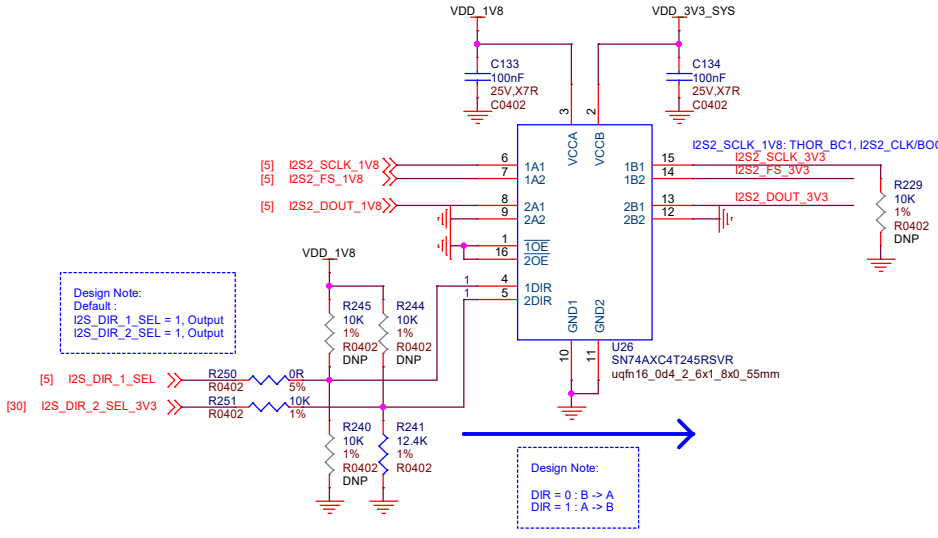


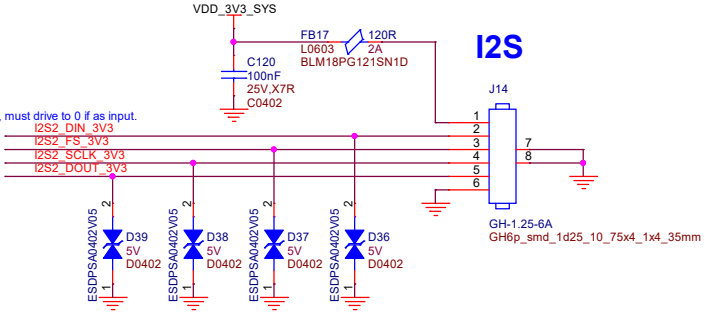
Button

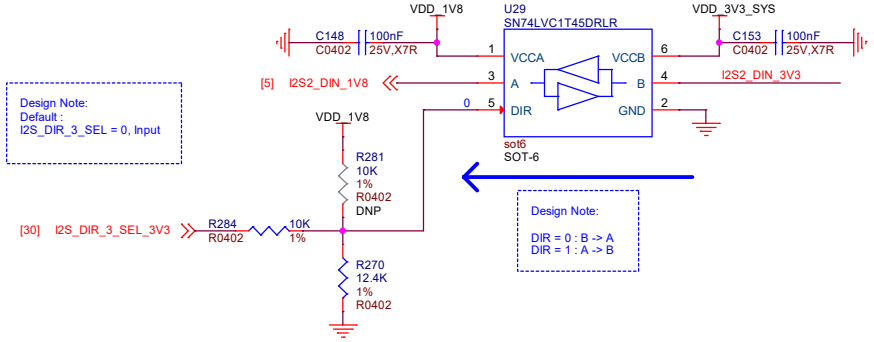


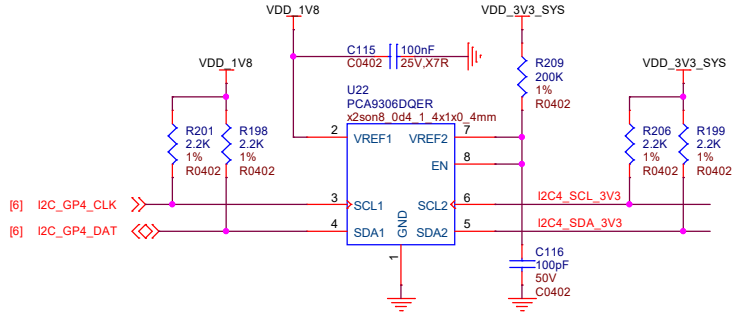
<Variant Name>

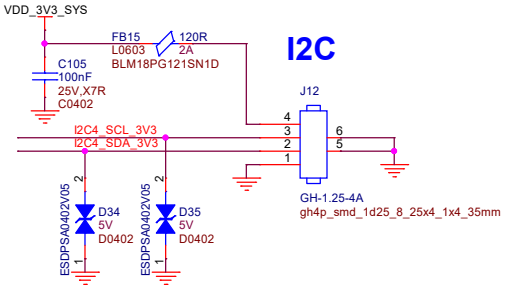
seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 31 Fan, EEPROM, Debug, Button	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 31 of 34





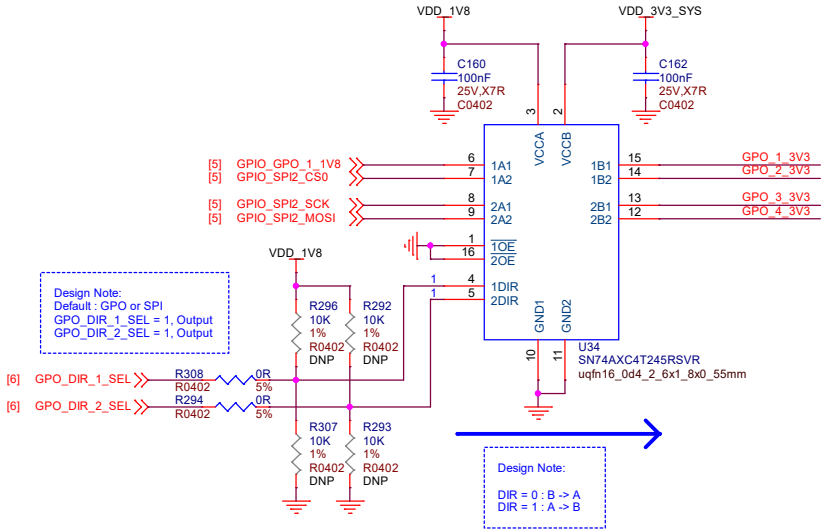


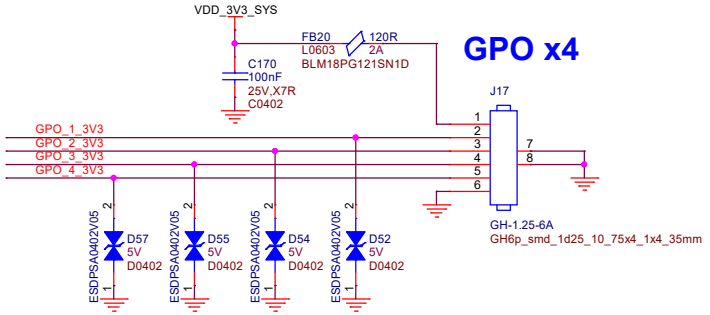


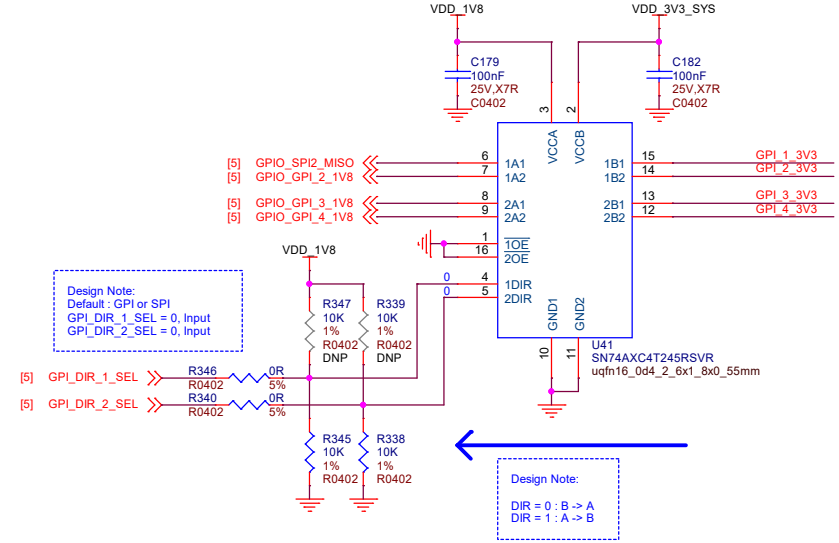


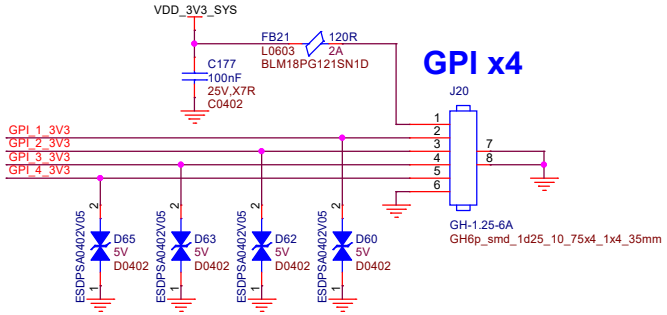
<Variant Name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 32 I2S, I2C	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 32 of 34





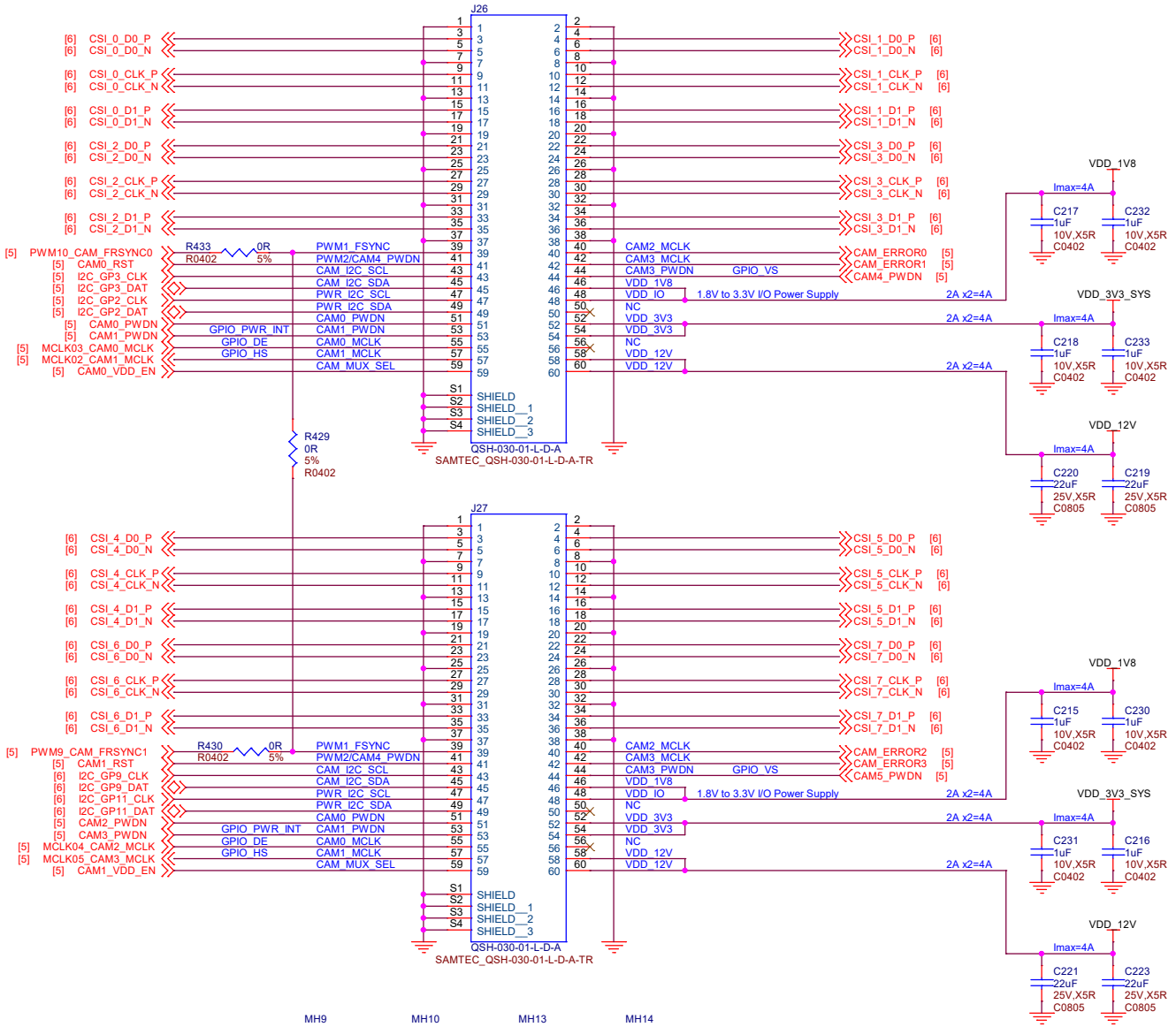




<variant_name>

seeed studio	https://www.seeedstudio.com	
	Title: reComputer J601 Carrier Board	
Size: A3	Document Number: 33 GPI, GPO	Rev: V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 33 of 34

CSI Expansion Connector



MH9 SMTSO3003CTJ pth_4_2mm_5d8

MH10 SMTSO3003CTJ pth_4_2mm_5d8

MH13 SMTSO3003CTJ pth_4_2mm_5d8

MH14 SMTSO3003CTJ pth_4_2mm_5d8

Design Note:

Place the MH9 MH10 MH13 MH14 to the other side of camera connector.

PCB1

reComputer J601 Carrier Board PCB

Label1

SN Label

<Variant Name>

seeed studio

https://www.seeedstudio.com

Title: reComputer J601 Carrier Board

Size:	Document Number:	Rev:
A3	34 Camera Expansion	V1.0
Draw By: Seeed	Date: Tuesday, August 18, 2026	Sheet: 34 of 34