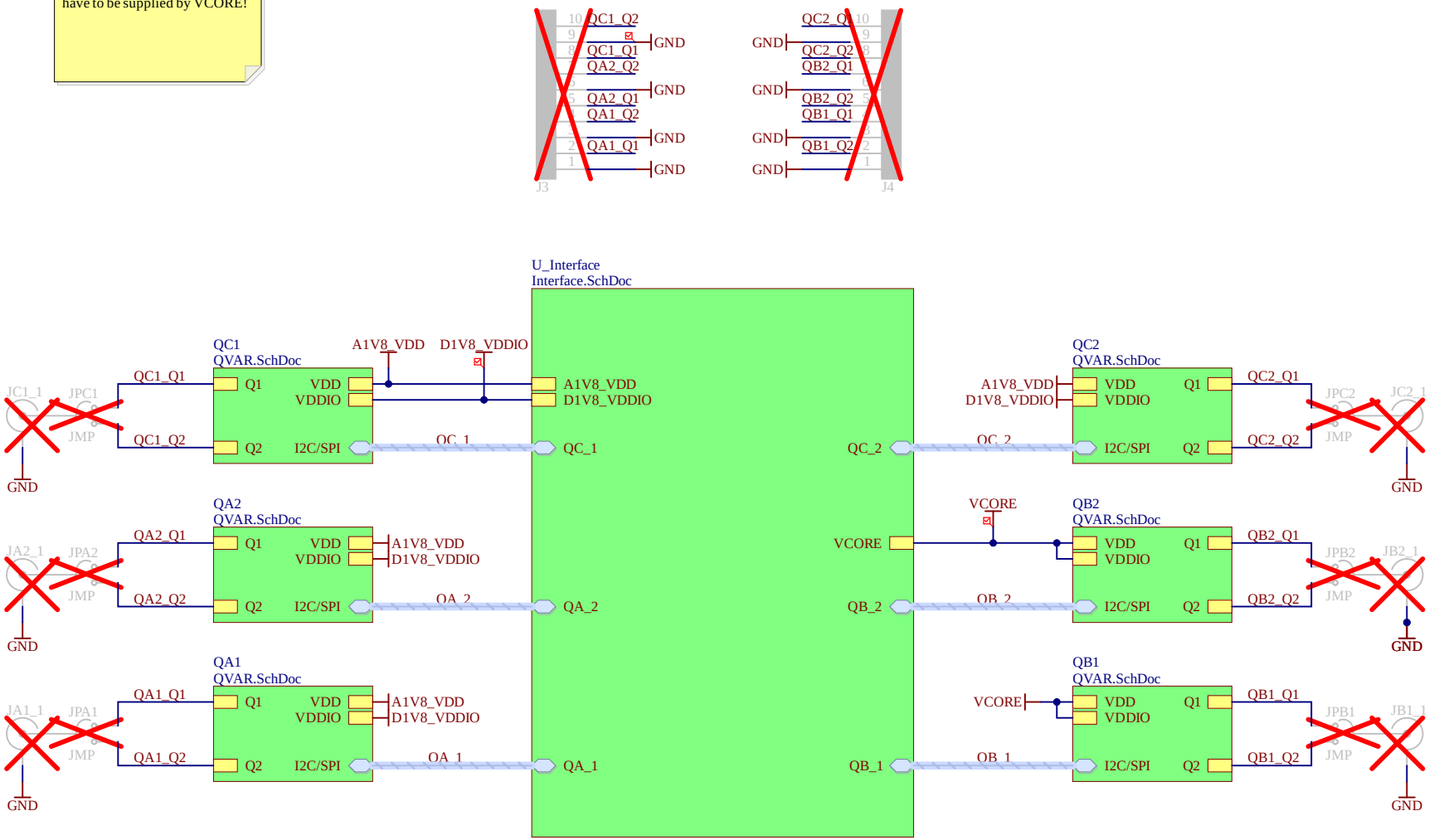
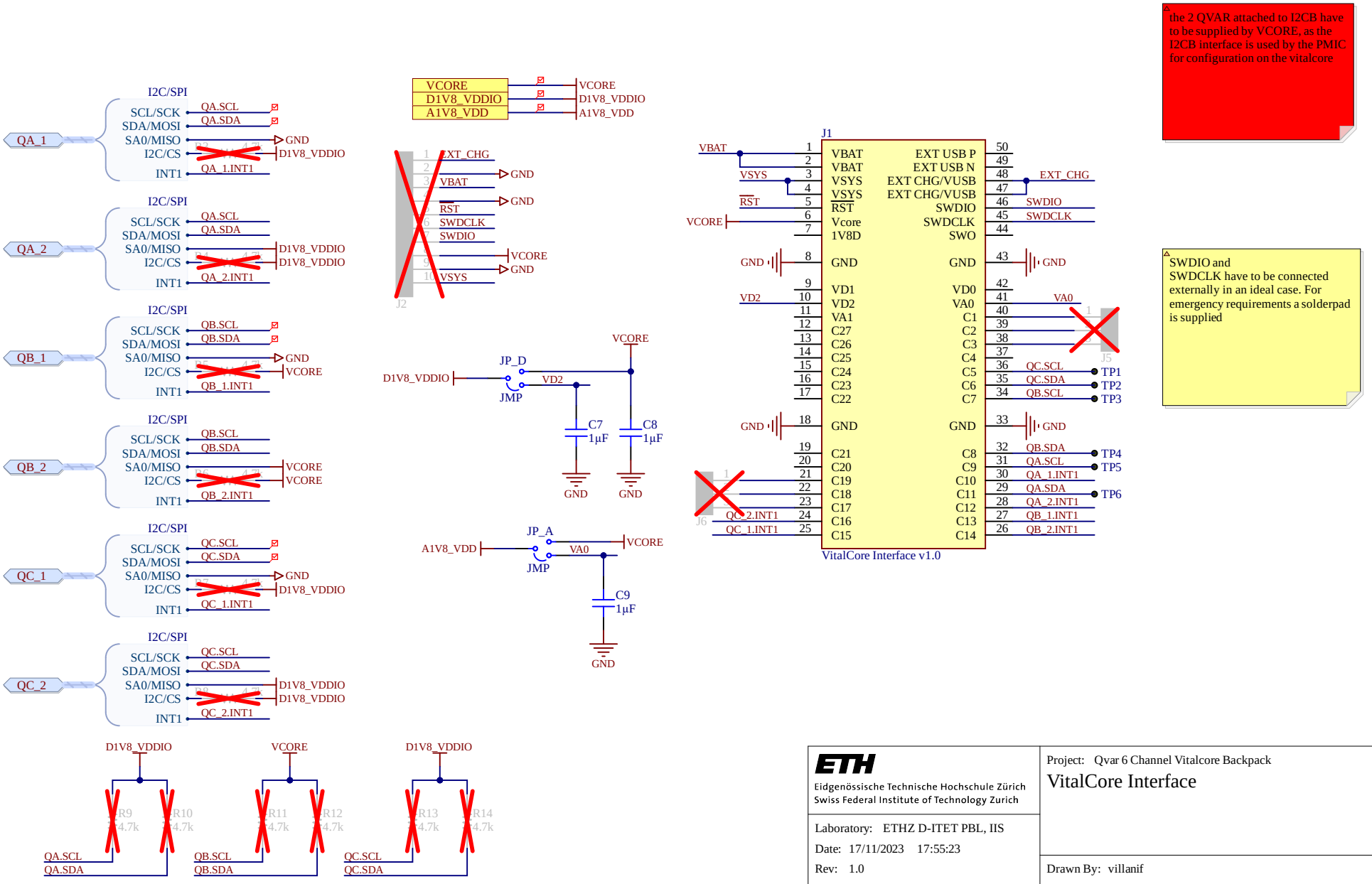
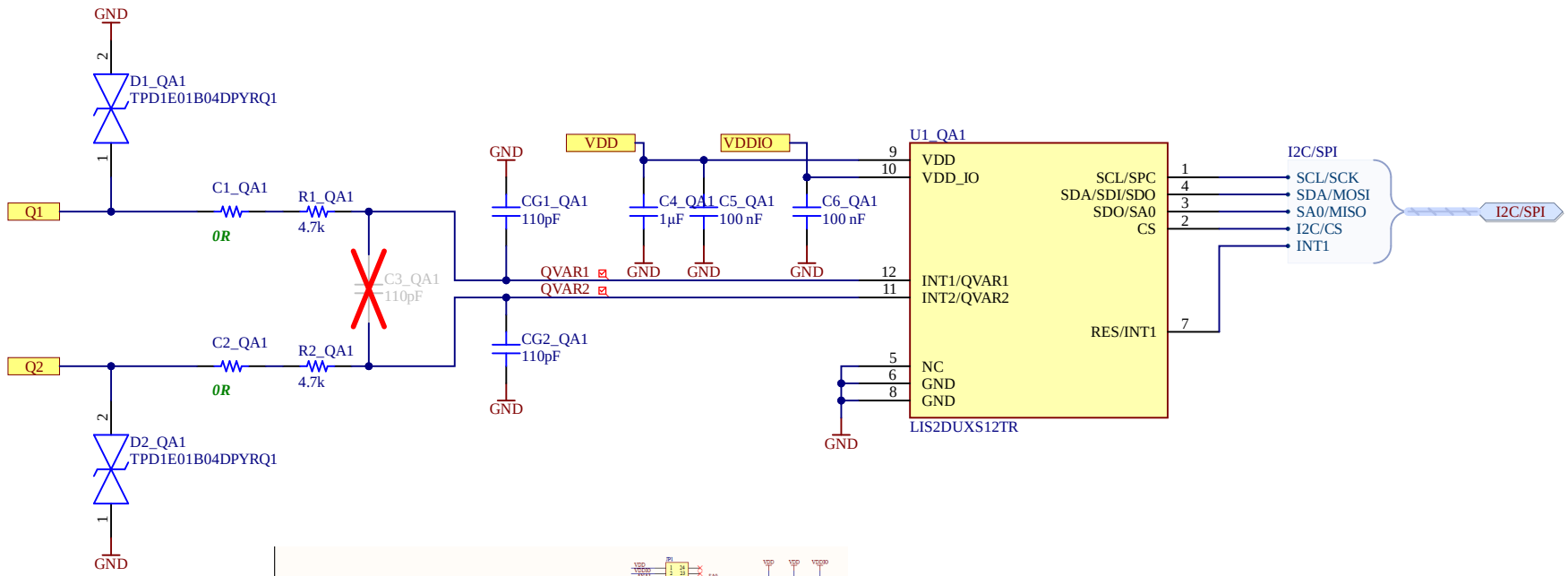
the 2 QVAR attached to I2CB
have to be supplied by VCORE!

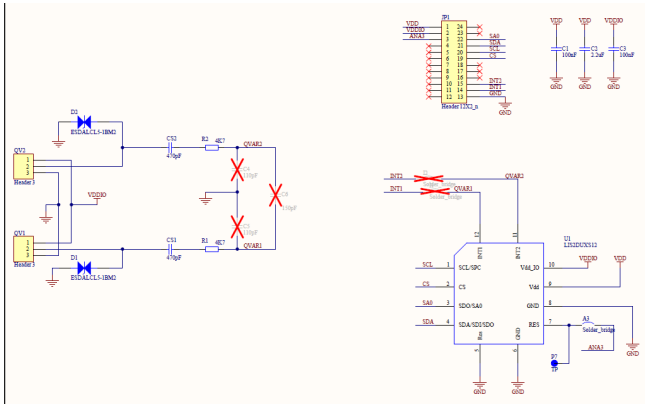


ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack Main
Laboratory: ETHZ D-ITET PBL Date: 17/11/2023 17:55:23 Rev: 1.0 Variation: Fabrication	Drawn By: villanif Checked By: topolonelli, nschae, peterste
File: main.SchDoc	Sheet: 1 / 3

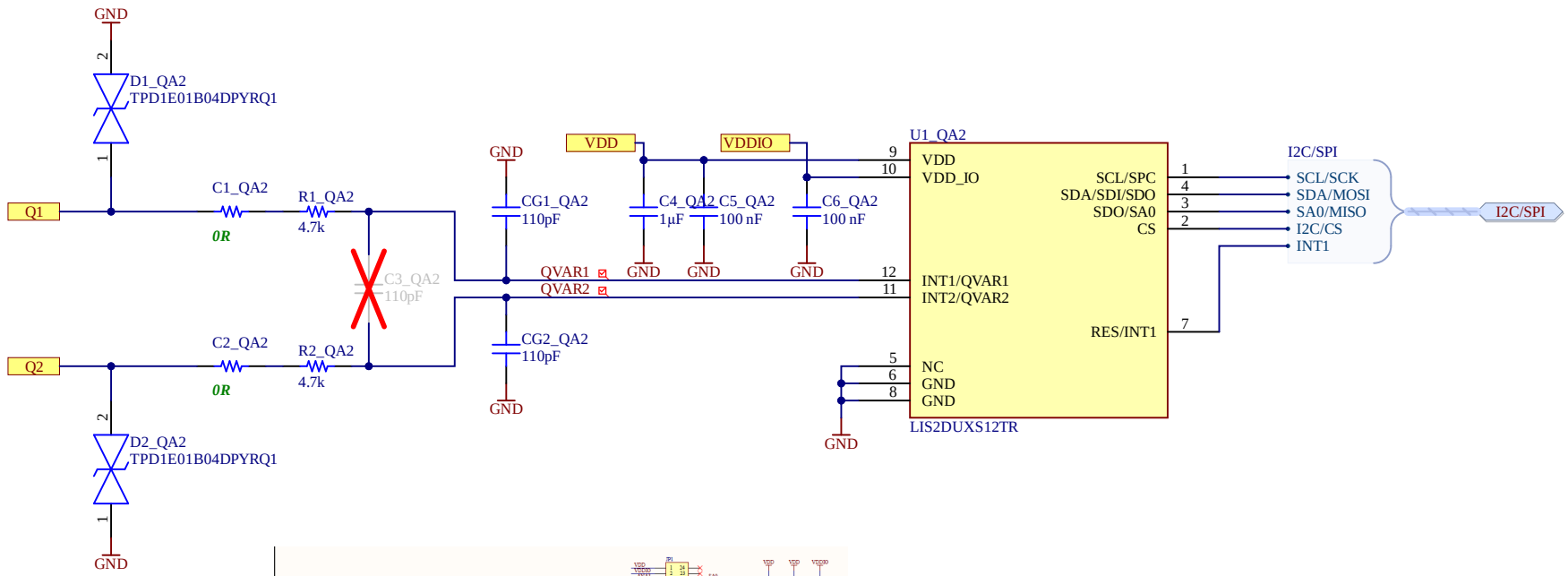


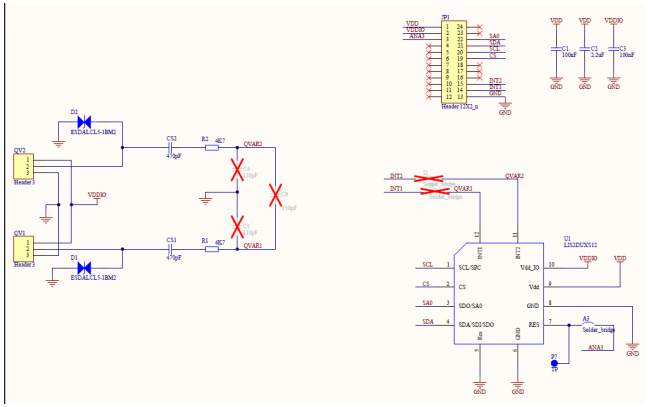
ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack
	VitalCore Interface
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 17/11/2023 17:55:23	Drawn By: villanif
Rev: 1.0	Checked By: topolonelli, nschae, peterste
Variation: Fabrication	
File: Interface.SchDoc	Sheet: 2 / 3



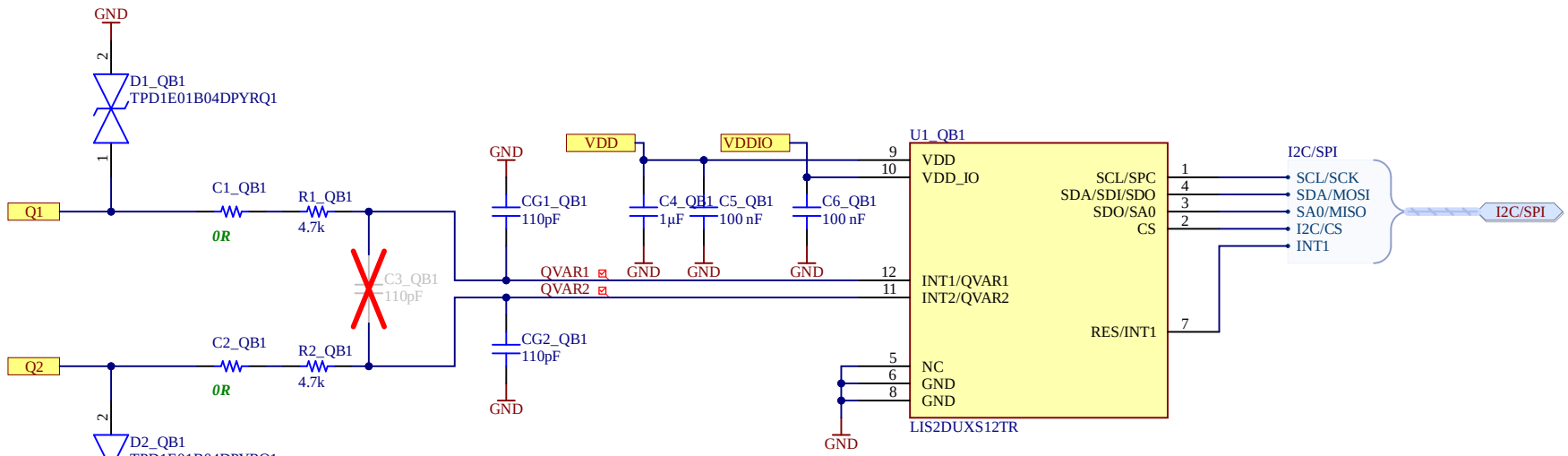


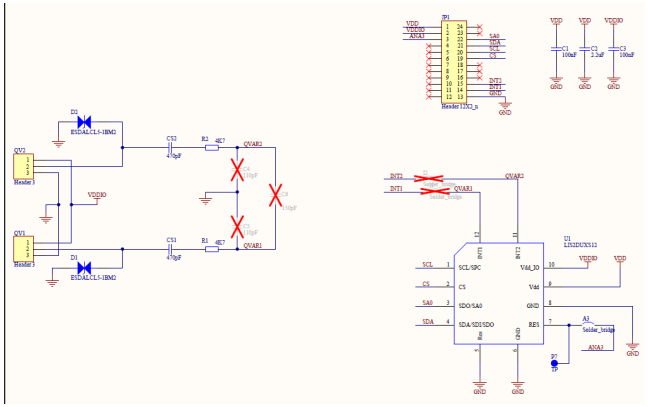
ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS Date: 17/11/2023 17:55:23 Rev: 1.0 Variation: Fabrication	Drawn By: villanif Checked By: topolonelli, nschae, peterste
File: QVAR.SchDoc	Sheet: 3 / 3



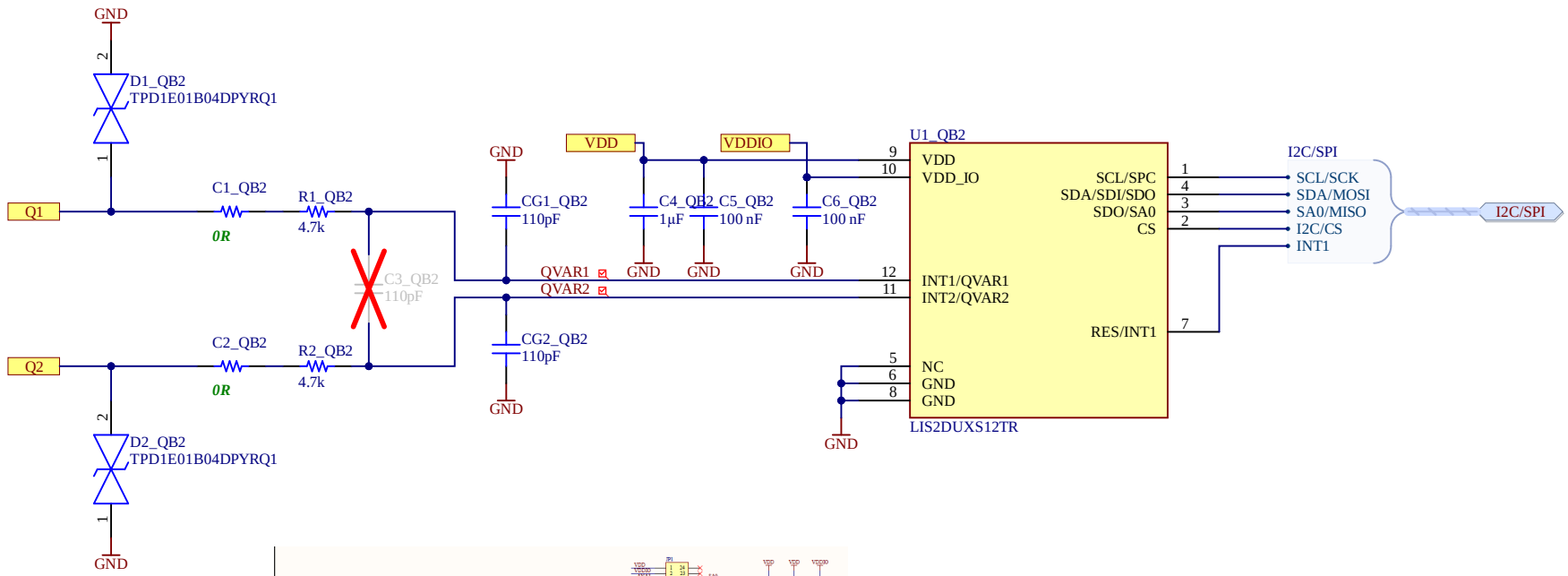


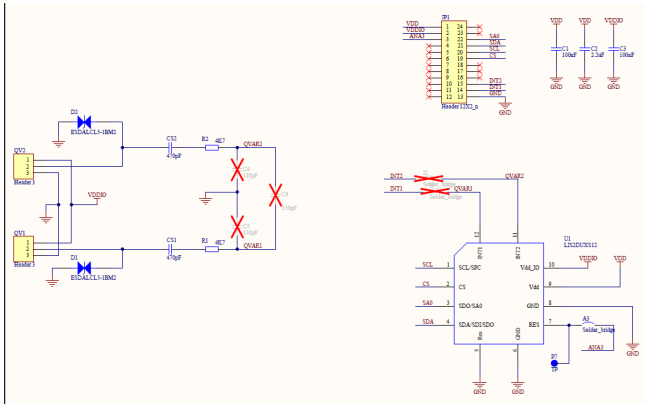
ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack
	QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 17/11/2023 17:55:23	Drawn By: villanif
Rev: 1.0	Checked By: topolonelli, nschae, peterste
Variation: Fabrication	
File: QVAR.SchDoc	Sheet: 3 / 3



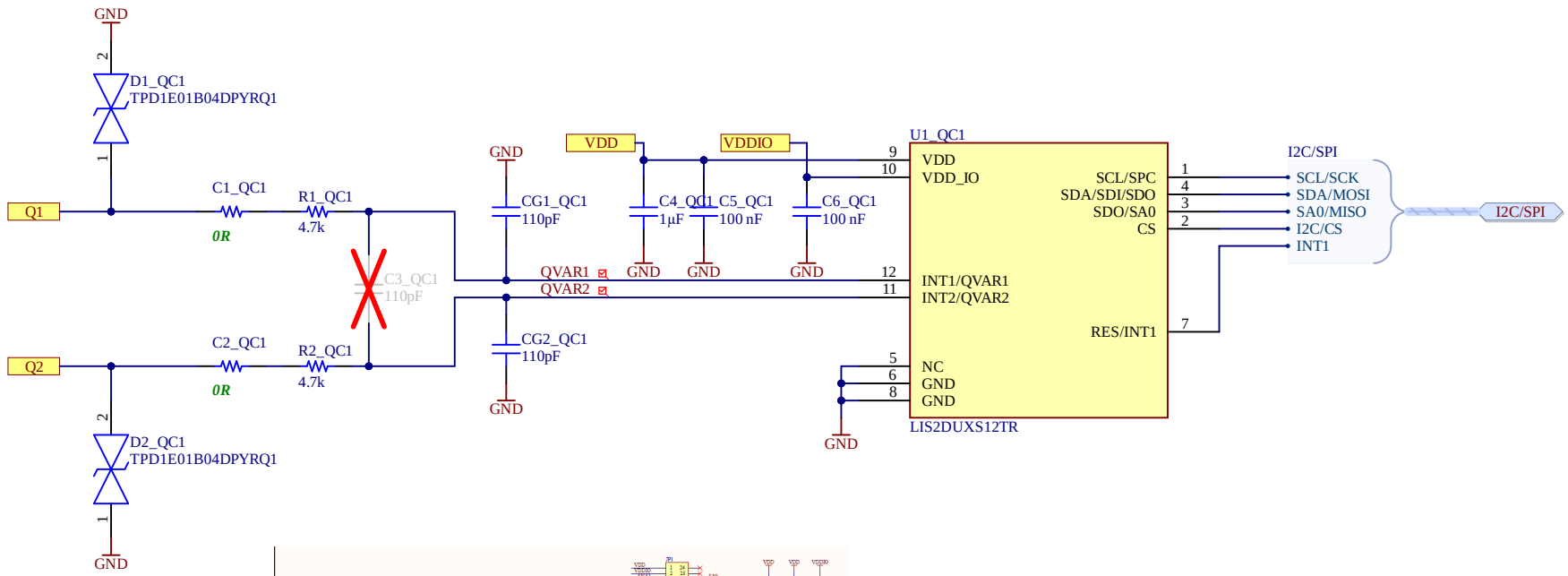


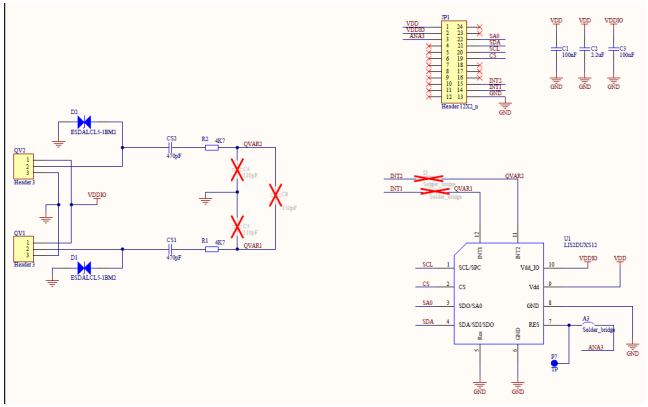
ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack
	QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 17/11/2023 17:55:24	Drawn By: villanif
Rev: 1.0	Checked By: topolonelli, nschae, peterste
Variation: Fabrication	
File: QVAR.SchDoc	Sheet: 3 / 3



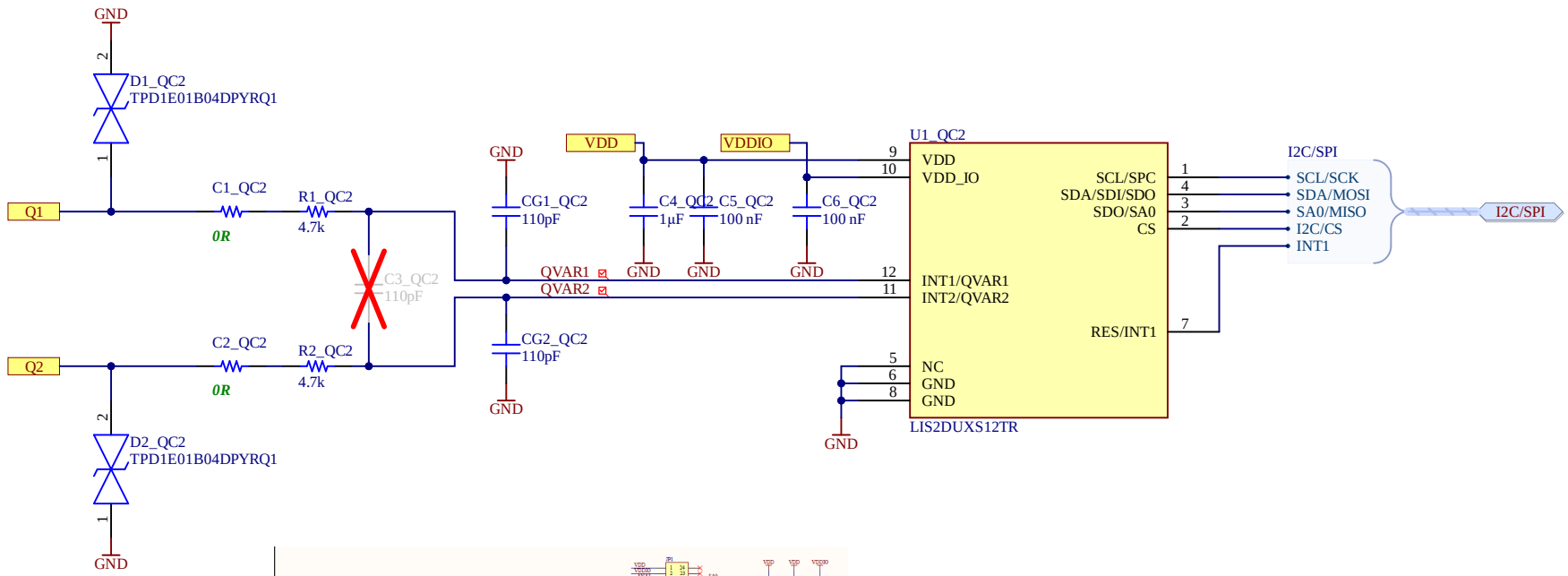


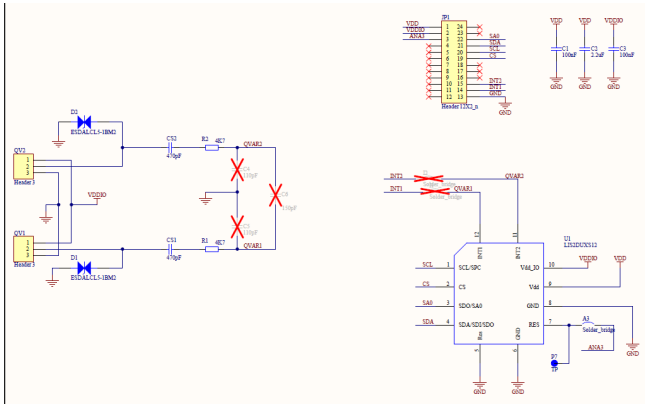
ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack
	QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 17/11/2023 17:55:24	Drawn By: villanif
Rev: 1.0	Checked By: topolonelli, nschae, peterste
Variation: Fabrication	
File: QVAR.SchDoc	Sheet: 3 / 3





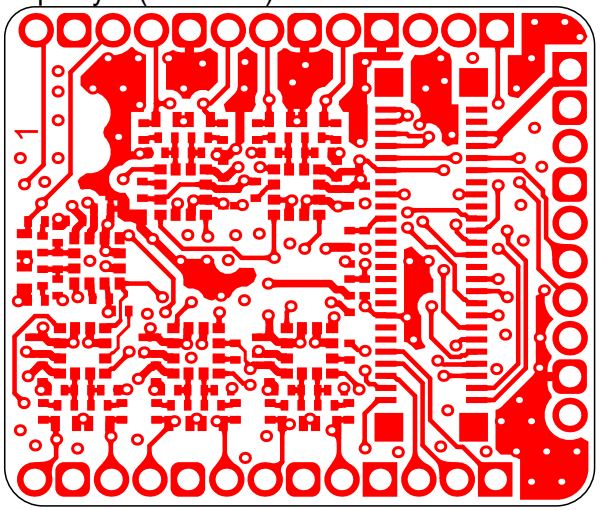
ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack
	QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 17/11/2023 17:55:24	Drawn By: villanif
Rev: 1.0	Checked By: topolonelli, nschae, peterste
Variation: Fabrication	
File: QVAR.SchDoc	Sheet: 3 / 3



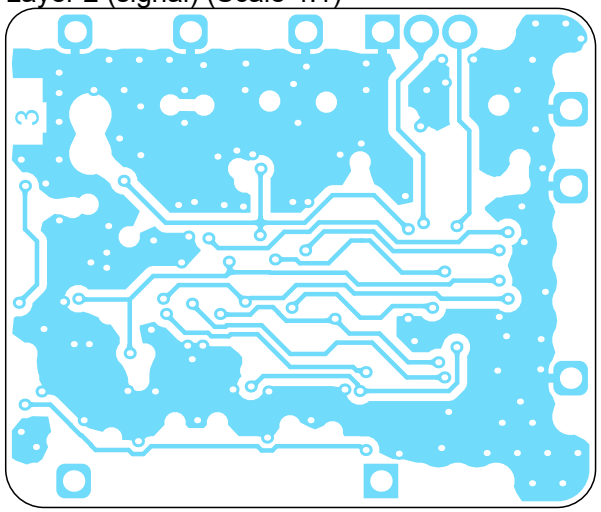


ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack
	QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 17/11/2023 17:55:24	Drawn By: villanif
Rev: 1.0	Checked By: topolonelli, nschae, peterste
Variation: Fabrication	
File: QVAR.SchDoc	Sheet: 3 / 3

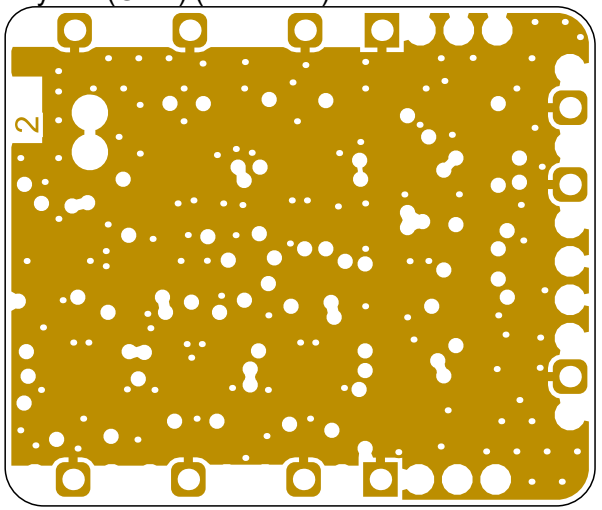
Top Layer (Scale 4:1)



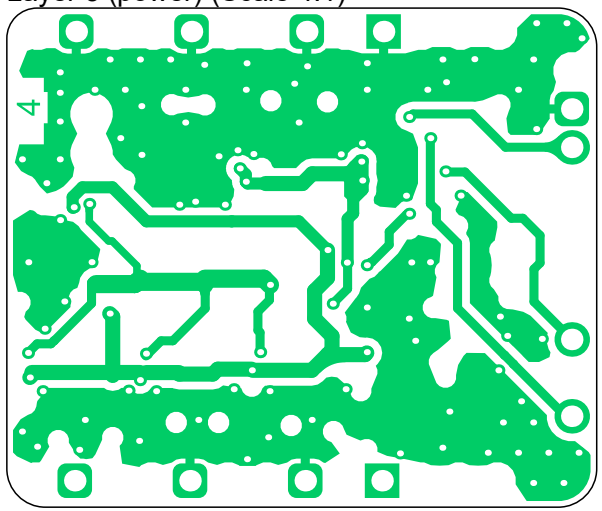
Layer 2 (signal) (Scale 4:1)



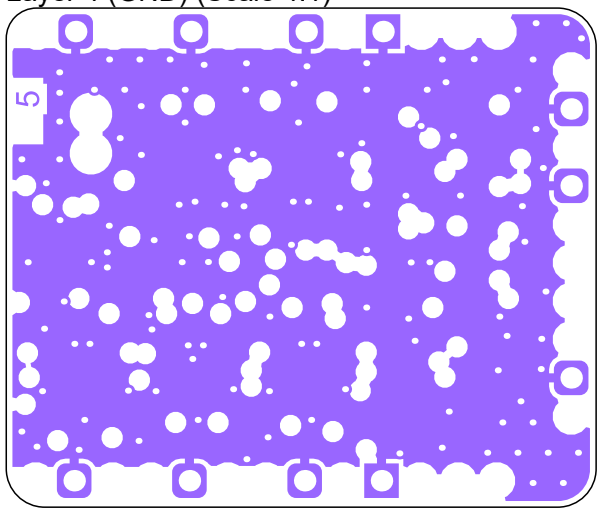
Layer 1 (GND) (Scale 4:1)



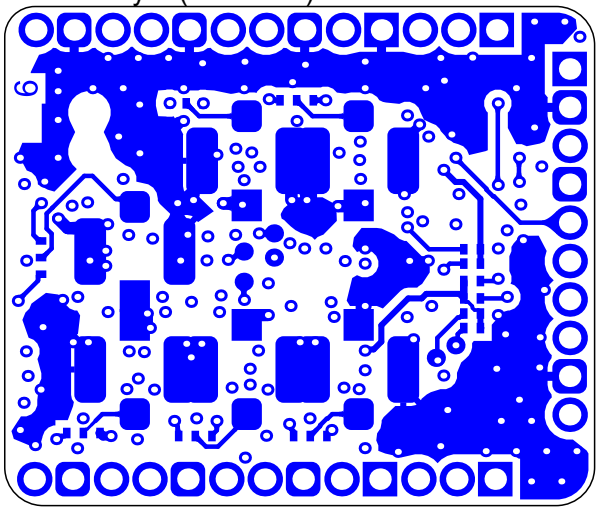
Layer 3 (power) (Scale 4:1)



Layer 4 (GND) (Scale 4:1)



Bottom Layer (Scale 4:1)



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

Art

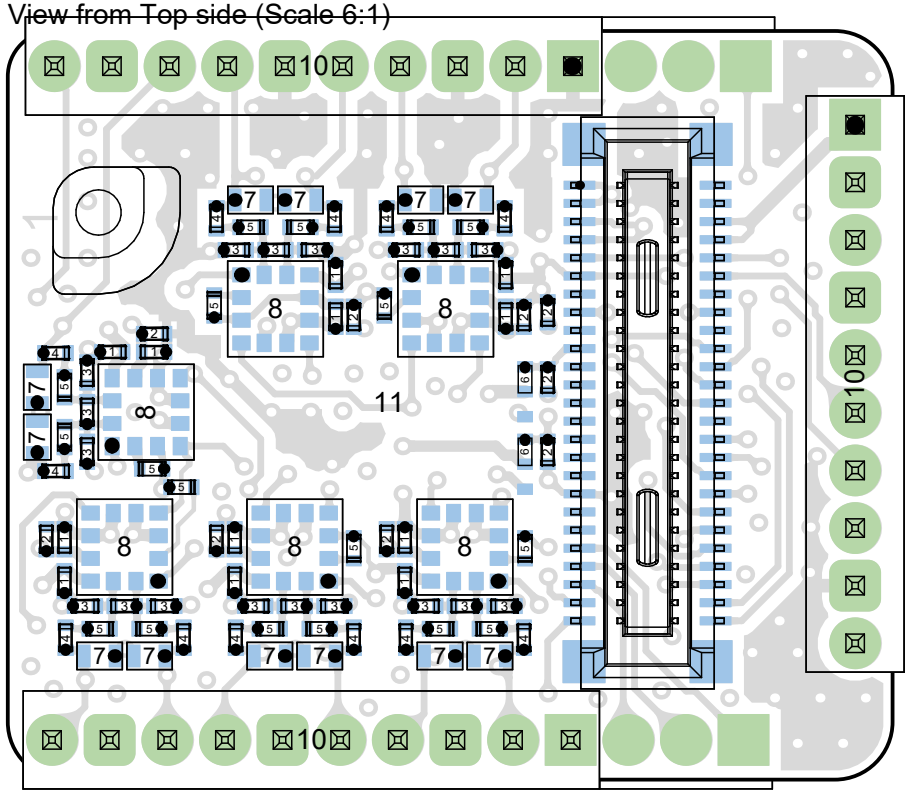
Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:55
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_ART.PCBDwf

Sheet: 1/1

View from Top side (Scale 6:1)



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

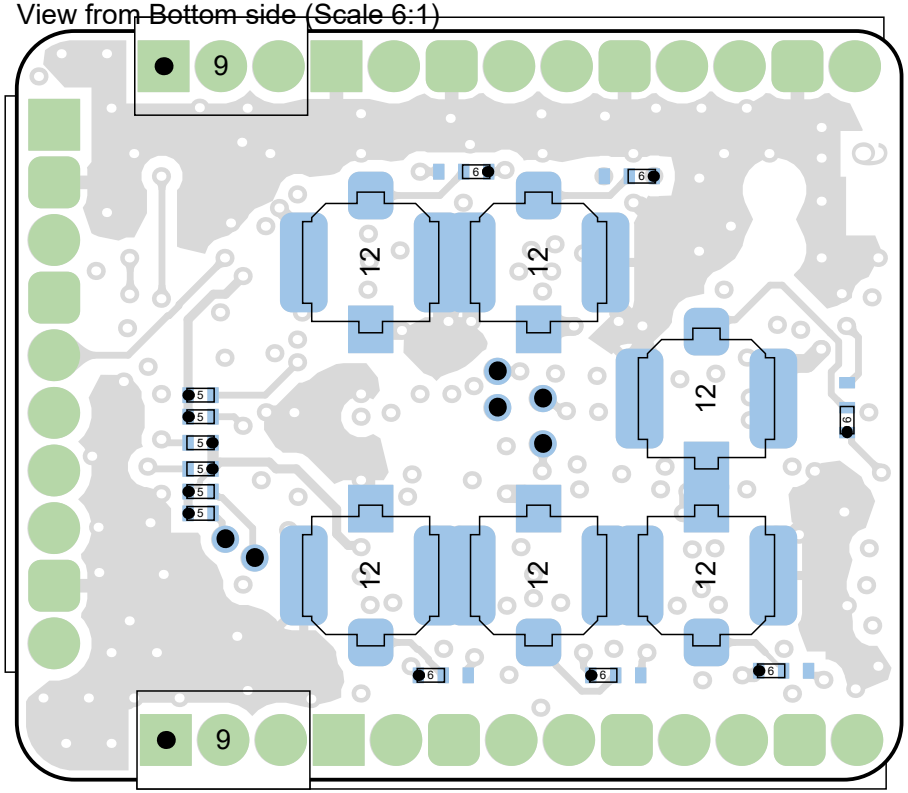
Assembly

Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_ASSEMBLY.PCBDwf

View from Bottom side (Scale 6:1)



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

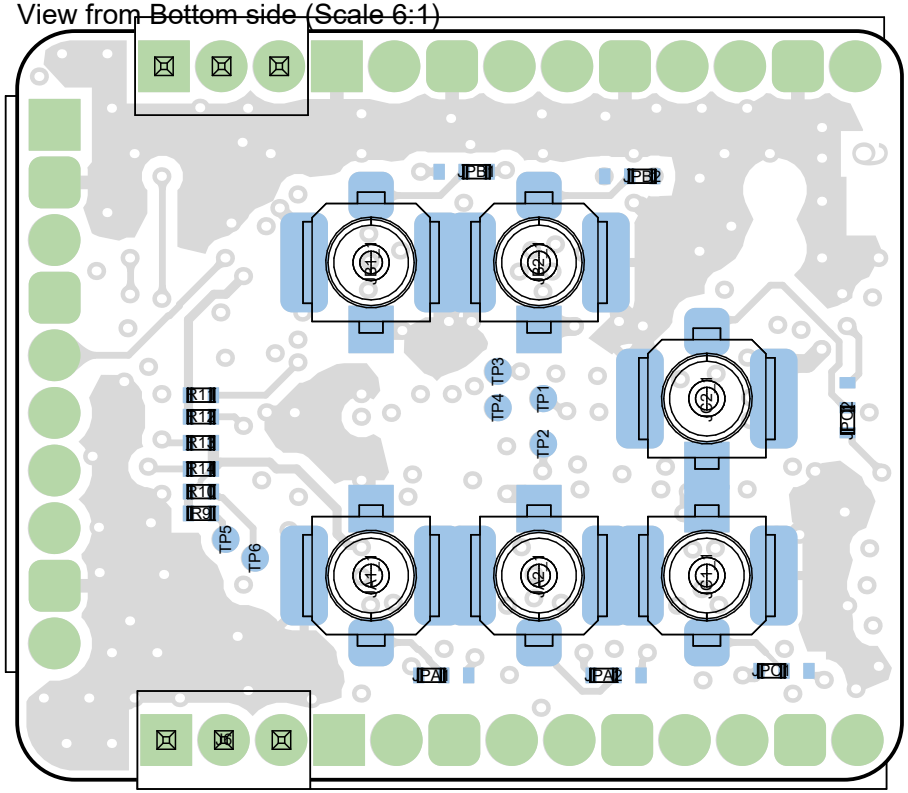
Assembly

Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_ASSEMBLY.PCBDwf

View from ~~Bottom side~~ (Scale 6:1)



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

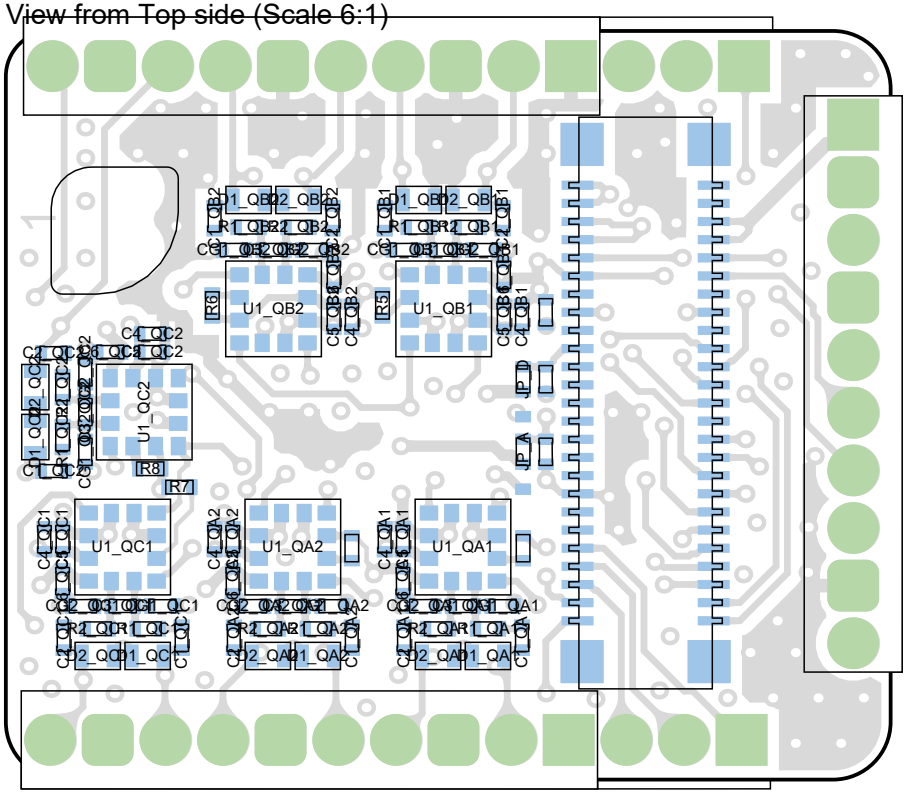
Connectors

Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_CONN.PCBDwf

View from Top side (Scale 6:1)



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

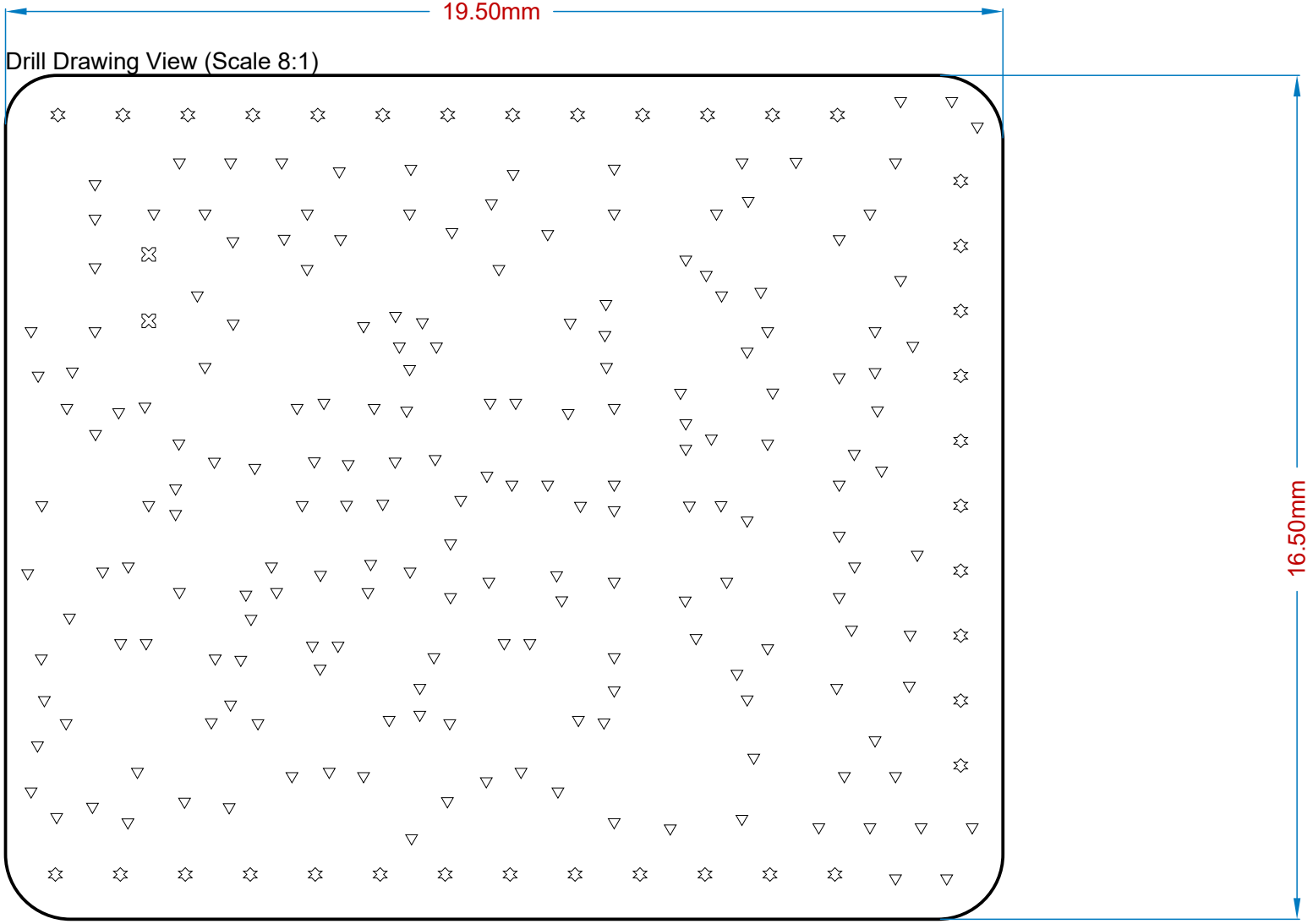
Connectors

Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_CONN.PCBDwf

Sheet: 2/2



Drill Drawing View (Scale 8:1)

Drill Table

Symbol	Count	Hole Size	Plated	Drill Layer Pair
▽	193	0.20mm	Plated	Top Layer - Bottom Layer
✡	36	0.71mm	Plated	Top Layer - Bottom Layer
⊠	2	0.90mm	Non-Plated	Top Layer - Bottom Layer
	231 Total			

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

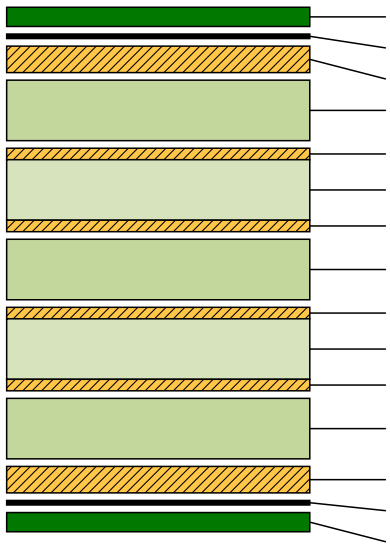
Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Project: Qvar 6 Channel Vitalcore Backpack
Manufacturing

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_MANUFACTURE.PCBDwf
Sheet: 1/2

Layer Stack Legend



Layer	Type	Gerber	Thickness
Board Layer Stack Top Solder	Solder Mask	GTS	0.025mm
Top Surface Finish	Surface Finish		0.004mm
Top Layer	**Signal**	**GTL**	**0.035mm**
Dielectric			*0.099mm*
Layer 1 (GND)	**Signal**	**G1**	**0.015mm**
Dielectric			*0.350mm*
Layer 2 (signal)	**Signal**	**G2**	**0.015mm**
Dielectric			*0.109mm*
Layer 3 (power)	**Signal**	**G3**	**0.015mm**
Dielectric			*0.350mm*
Layer 4 (GND)	**Signal**	**G4**	**0.015mm**
Dielectric			*0.099mm*
Bottom Layer	**Signal**	**GBL**	**0.035mm**
Bottom Surface Finish	Surface Finish		0.004mm
Board Layer Stack Bottom Solder	Solder Mask	GBS	0.025mm

NOTES:

- Via in pad
 - 0.8mm Board: Use JLCPCB standard stackup
 - ENIG finish.

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

Manufacturing

Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

File: DOC_MANUFACTURE.PCBDwf

Bill Of Materials

Line #	Designator	Name	Quantity	Design Item Id	Manufacturer	Manufacturer Part Number
1	C5_QA1, C5_QA2, C5_QB1, C5_QB2, C5_QC1, C5_QC2, C6_QA1, C6_QA2, C6_QB1, C6_QB2, C6_QC1, C6_QC2	100 nF	12	CAP_0201_100n_10V	Murata	GRM033R6YA104ME14D
2	C4_QA1, C4_QA2, C4_QB1, C4_QB2, C4_QC1, C4_QC2, C7, C8, C9	1µF	9	CAP_0201_1u_10V	Murata	GRM033C81A105ME05D
3	C3_QA1, C3_QA2, C3_QB1, C3_QB2, C3_QC1, C3_QC2, CG1_QA1, CG1_QA2, CG1_QB1, CG1_QB2, CG1_QC1, CG1_QC2, CG2_QA1, CG2_QA2, CG2_QB1, CG2_QB2, CG2_QC1, CG2_QC2	110pF	18	CAP_0201_110p_50V	Murata	GRM0335C1H111JA01D
4	C1_QA1, C1_QA2, C1_QB1, C1_QB2, C1_QC1, C1_QC2, C2_QA1, C2_QA2, C2_QB1, C2_QB2, C2_QC1, C2_QC2	470pF	12	CAP_0201_470p_25V	Murata	GRM0335C1E471JA01D
5	R1_QA1, R1_QA2, R1_QB1, R1_QB2, R1_QC1, R1_QC2, R2_QA1, R2_QA2, R2_QB1, R2_QB2, R2_QC1, R2_QC2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14	4.7k	24	R_0201_4.7K	Panasonic	ERJ-1GNF4701C
6	JP_A, JP_D, JPA1, JPA2, JPB1, JPB2, JPC1, JPC2	JMP	8	JMP_0201_3w	Panasonic	ERJ-1GN0R00C
7	D1_QA1, D1_QA2, D1_QB1, D1_QB2, D1_QC1, D1_QC2, D2_QA1, D2_QA2, D2_QB1, D2_QB2, D2_QC1, D2_QC2	TPD1E01B04DPYRQ1	12	TPD1E01B04DPYRQ1	Texas Instruments	TPD1E01B04DPYRQ1
8	U1_QA1, U1_QA2, U1_QB1, U1_QB2, U1_QC1, U1_QC2	LIS2DUXS12TR	6	LIS2DUXS12TR	STMicroelectronics	LIS2DUXS12TR
9	J5, J6	FTS-103-01-L-S	2	FTS-103-01-L-S	Samtec	FTS-103-01-L-S
10	J2, J3, J4	FTS-110-01-L-S	3	FTS-110-01-L-S	Samtec	FTS-110-01-L-S
11	J1	VitalCore Interface v1.0	1	BACKPACK_INTERFACE_V1.0	Hirose	DF40C(2.0)-50DS-0.4V(51)
12	JA1_1, JA2_1, JB1_1, JB2_1, JC1_1, JC2_1	CONMHF1-SMD-G-T	6	CONMHF1-SMD-G-T	TE Connectivity	CONMHF1-SMD-G-T

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: Qvar 6 Channel Vitalcore Backpack

BOM

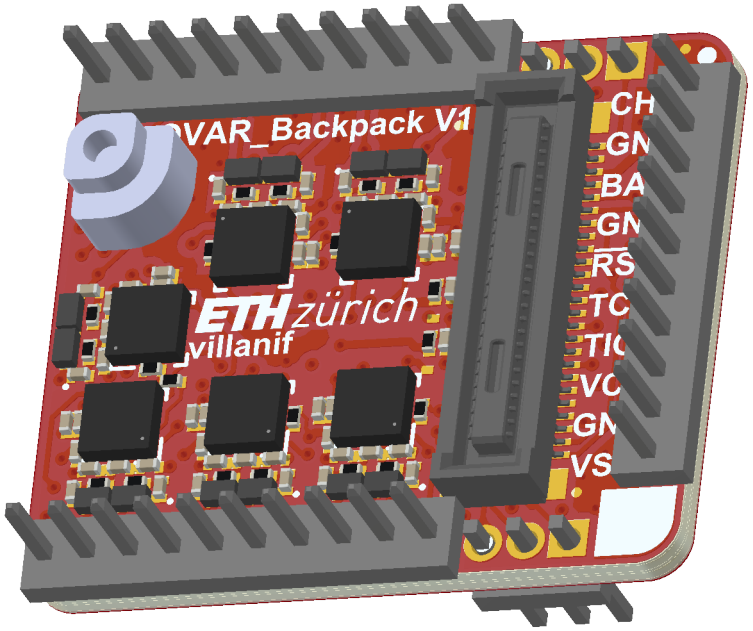
Laboratory: ETHZ D-ITET PBL
Date: 17/11/2023 17:56
Revision: 1.0
Variant: [No Variations]

Drawn By: villanif
Checked By: topolonelli, nschae, peterste

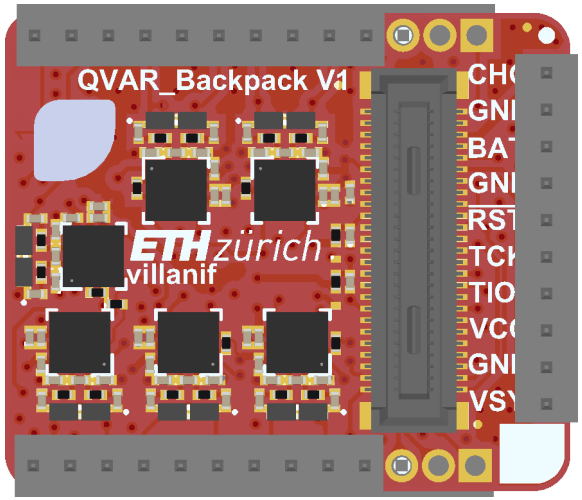
File: DOC_BOM.PCBDwf

Sheet: 1/1

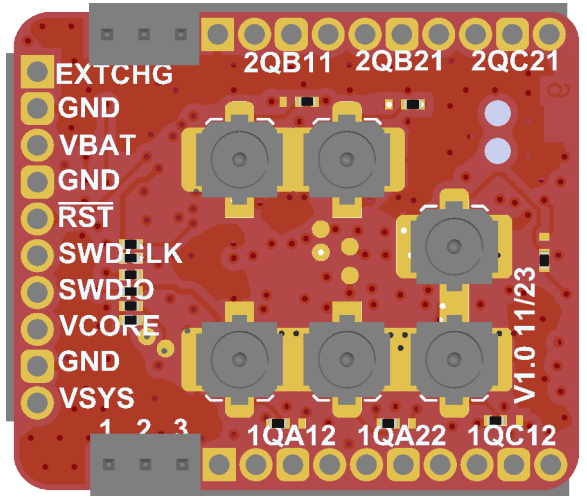
Realistic View



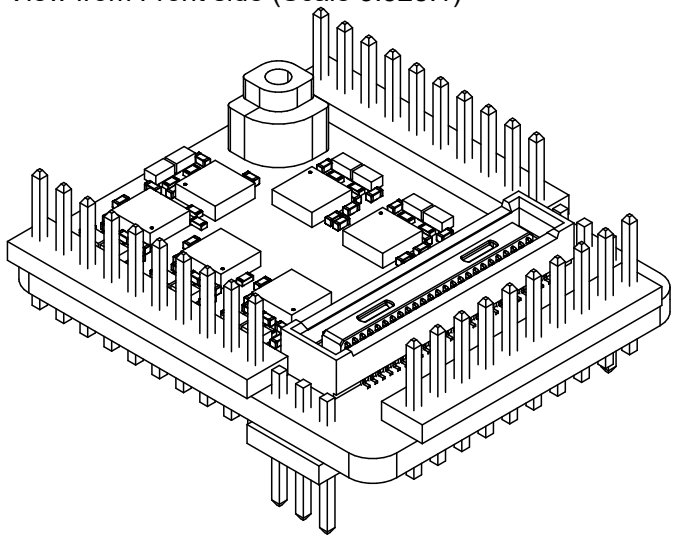
Realistic View



Realistic View



View from Front side (Scale 3.528:1)



ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack 3D Render
Laboratory: ETHZ D-ITET PBL Date: 17/11/2023 17:57 Revision: 1.0 Variant: [No Variations]	Drawn By: villanif Checked By: topolonelli, nschae, peterste
File: DOC_3D.PCBDwf	Sheet: 1/1