



Regarding the usage of our schematics and alike documentation for Trenz module TE0741.

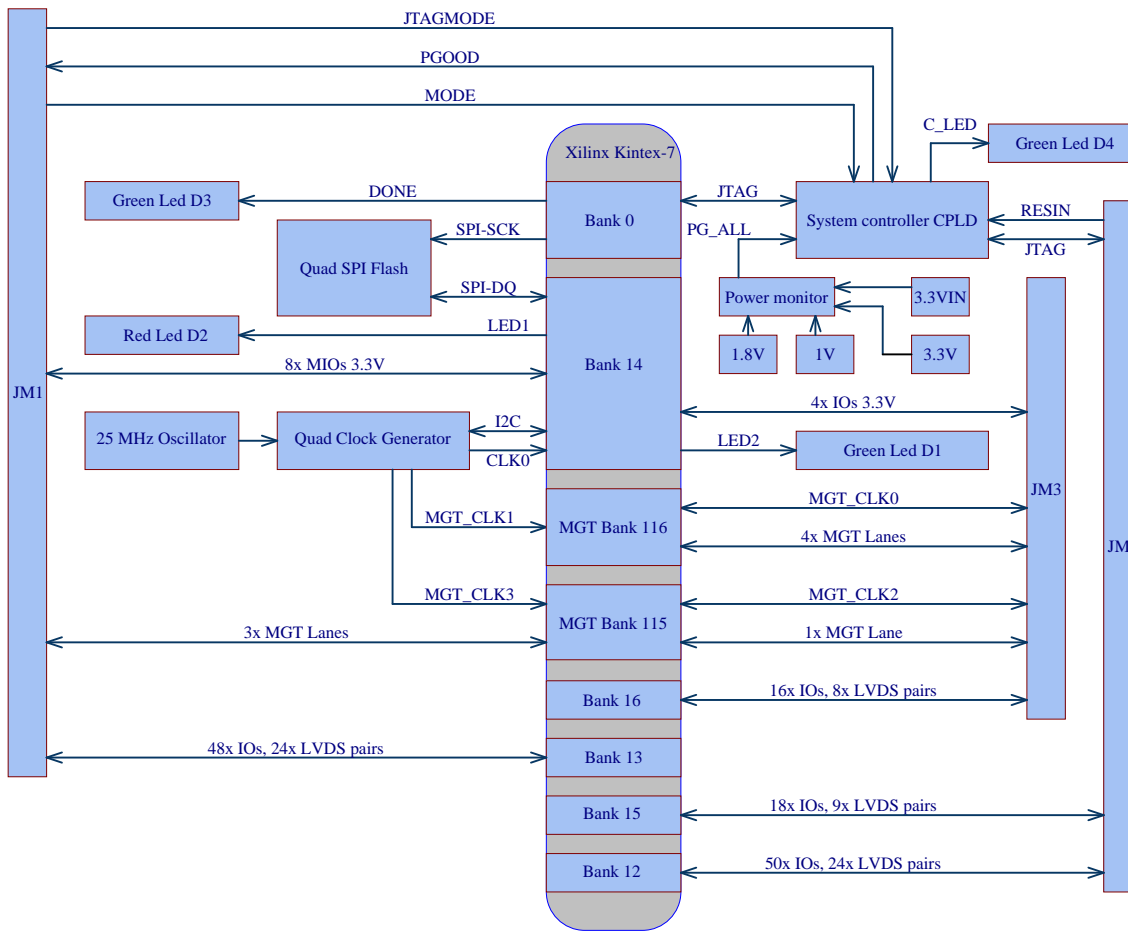
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Schematics and other handouts serve for informational purposes only!

	Title: <b>TE0741 - Legal Notices Modules</b>		
	A4	Number: <b>TE0741 G2C-1-A</b>	Rev. <b>05</b>
	Date: <b>2023-08-02</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>1</b> of <b>20</b>
	Filename: <b>Legal Notices Modules.SchDoc</b>		

REV	Description	
-01	Initial revision	
-02		
-03	<ul style="list-style-type: none"> <li>1) fixed connection DCDC for parallel operations</li> <li>2) update Razorbeam Connectors, full update lib</li> <li>3) added serial number (traceability pad)</li> <li>4) changed ferrite beads L1..L4 size 0402 on BKP0603HS121-T</li> <li>5) added thermal vias to mounting holes</li> </ul>	VT
-04	<ul style="list-style-type: none"> <li>1) replaced all DCDC (reason: not recommended use Enpirion DCDC)</li> <li>2) remove Traceability Pad (reason: EOL)</li> <li>3) added additional resistor for VBAT (reason: possibility using external VBAT from Carrier Board)</li> <li>4) full upd LIB components</li> <li>5) optimization PCB routing</li> </ul>	VT
-05	<ul style="list-style-type: none"> <li>1) Added PULLUP R34 for net EN1</li> <li>2) Added PULLUP R43 for net PROG_B</li> <li>3) Changed component Q1 (TPS27081ADDCR) to U17(MP5077GG-Z)</li> <li>4) Added external compensation for U14-U15 (2 LTM4638 in parallel mode)</li> <li>5) Added diode between nets INIT and PROG_B</li> <li>6) Removed power supervisor TPS3805H33DCKR. Added power sense monitor U11 STM6710LWB6F</li> <li>7) Updated Overview</li> <li>8) Updated Power diagram</li> <li>9) Some nets from banks 32, 33, 34 were connected to GND for increasing ESD protection</li> <li>10) Added PullUp resistor R49 for net CLK_EN on page 18</li> <li>11) Changed ID nets state on page 9 from '100' (rev4) to '101' (rev5)</li> <li>12) Added UKCA Logo</li> </ul>	MT

	Title: <b>TE0741 - Changes List</b>		
	A4	Number: <b>TE0741 G2C-1-A</b>	Rev. <b>05</b>
	Date: <b>2023-08-02</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>2</b> of <b>20</b>
	Filename: <b>Revision_Changes.SchDoc</b>		

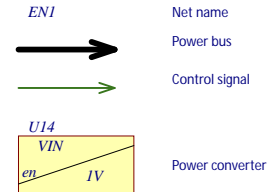
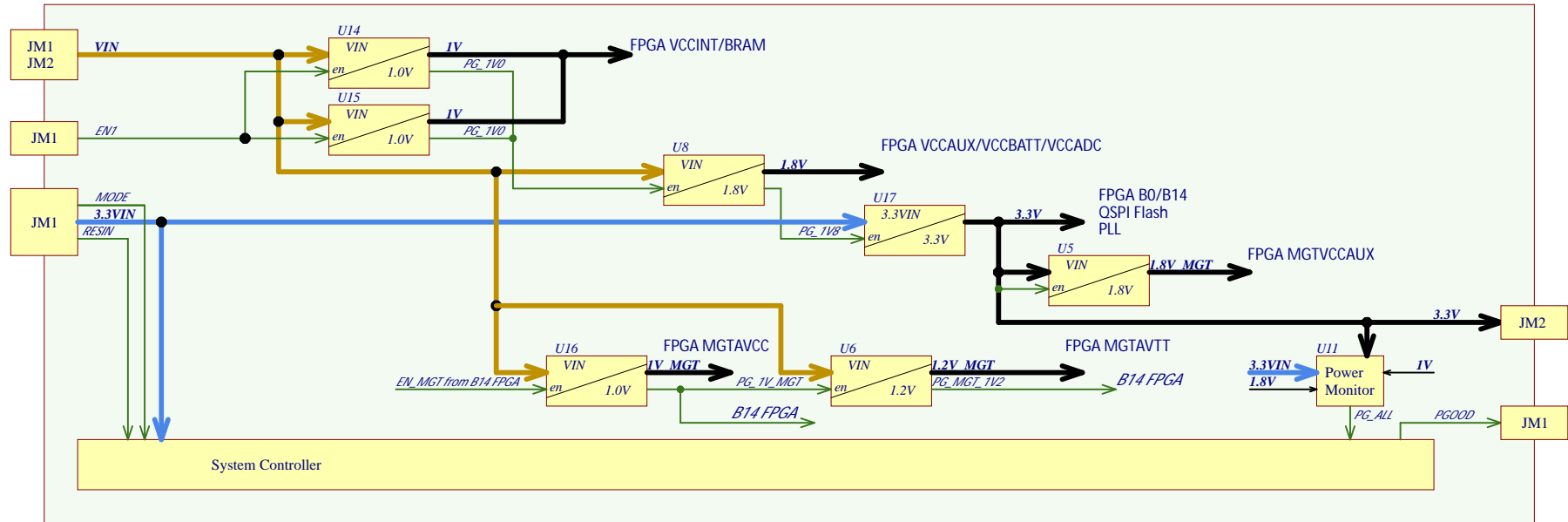


U_Legal Notices Modules	U_B34
U_Revision Changes	U_FPGA_PWR
U_Power_Diagram	U_TE0741
U_B32_B33	U_PWR1



Title: TE0741 - System Overview		
A4	Number: TE0741 G2C-1-A	Rev. 05
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Filename: Overview.SchDoc		

## Power-on sequencing:



## Supported Voltage Ranges:

Power Rail	Direction	Range	Tolerance	Description	Note
VIN	IN	3.3 - 5.5V	+/-5%	Micromodule Power	-
3.3VIN	IN	3.3V	+/-5%	Micromodule Power	-
VCCIO12	IN	1.2 - 3.3V	+/-3%	HR IO Bank12	-
VCCIO13	IN	1.2 - 3.3V	+/-3%	HR IO Bank13	-
3.3V	IN	3.3V	+/-3%	HR IO Bank14	-
VCCIO15	IN	1.2 - 3.3V	+/-3%	HR IO Bank15	-
VCCIO16	IN	1.2 - 3.3V	+/-3%	HR IO Bank16	-
VBAT_IN	IN	1.1 - 1.8V	+/-3%	Battery Voltage	-
3.3V	OUT	3.3V	+/-3%	Power for Carrier	-

Title: <b>TE0741 - Power Diagram</b>		
A4	Number: <b>TE0741 G2C-1-A</b>	Rev. <b>05</b>
Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 4 of 20
Filename: <b>Power_Diagram.SchDoc</b>		

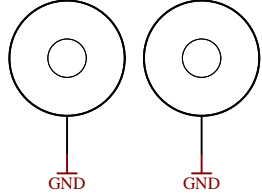
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2

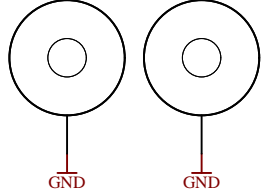
3

4

Mount.Hole 3.2mm Mount.Hole 3.2mm



Mount.Hole 3.2mm Mount.Hole 3.2mm



UKCA

UKCA Logo on Top Overlay

UKCA-TOPOVERLAY

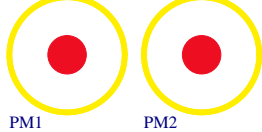
Serial

Serial

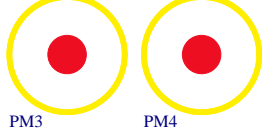
Serialnumber 6,3 x 6.3mm

Special notes:

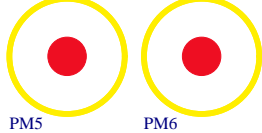
FIDU-DOT - mini FIDU-DOT - mini



FIDU-DOT - mini FIDU-DOT - mini



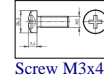
FIDU-DOT - mini FIDU-DOT - mini



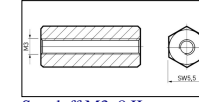
AC coupling on carrier card for nets MGT\_CLK0 is REQUIRED!!!!!!

AC coupling on carrier card for nets MGT\_CLK2 is REQUIRED!!!!!!

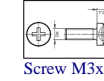
Top of Board



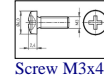
Screw M3x4



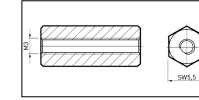
Standoff M3x8 II



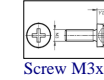
Screw M3x6



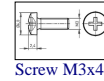
Screw M3x4



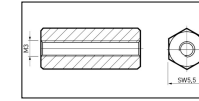
Standoff M3x8 II



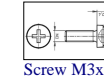
Screw M3x6



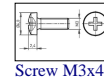
Screw M3x4



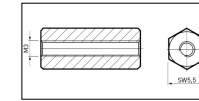
Standoff M3x8 II



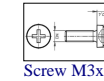
Screw M3x6



Screw M3x4



Standoff M3x8 II



Screw M3x6

Revision PCB Board:

	"0"	"1"	"2"	"3"	"4"	"5"
REV_ID0	0	1	0	1	0	1
REV_ID1	0	0	1	1	0	0
REV_ID2	0	0	0	0	1	1

Search REV\_ID pins on page 9

Assembly variant	G2C-1-A
Created by	VT
Modified by	MT
Modified at	2023-04-16



Title: TE0741		
A4	Number: TE0741 G2C-1-A	Rev. 05
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Filename: TE0741.SchDoc		

1

2

3

4

A

A

B

B

C

C

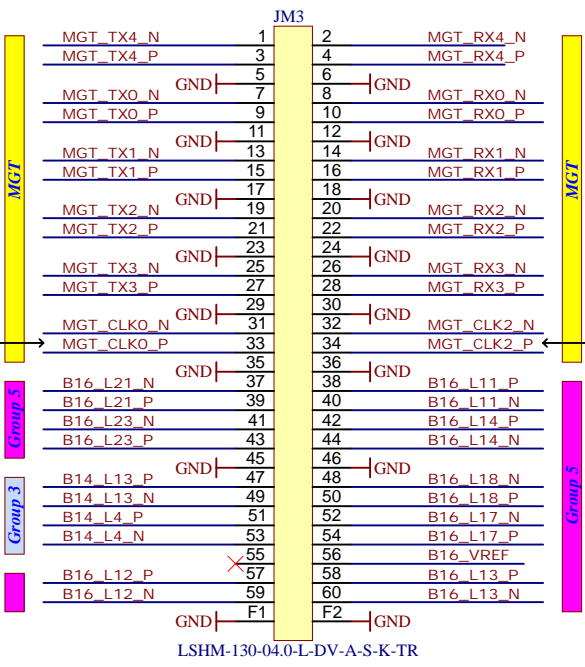
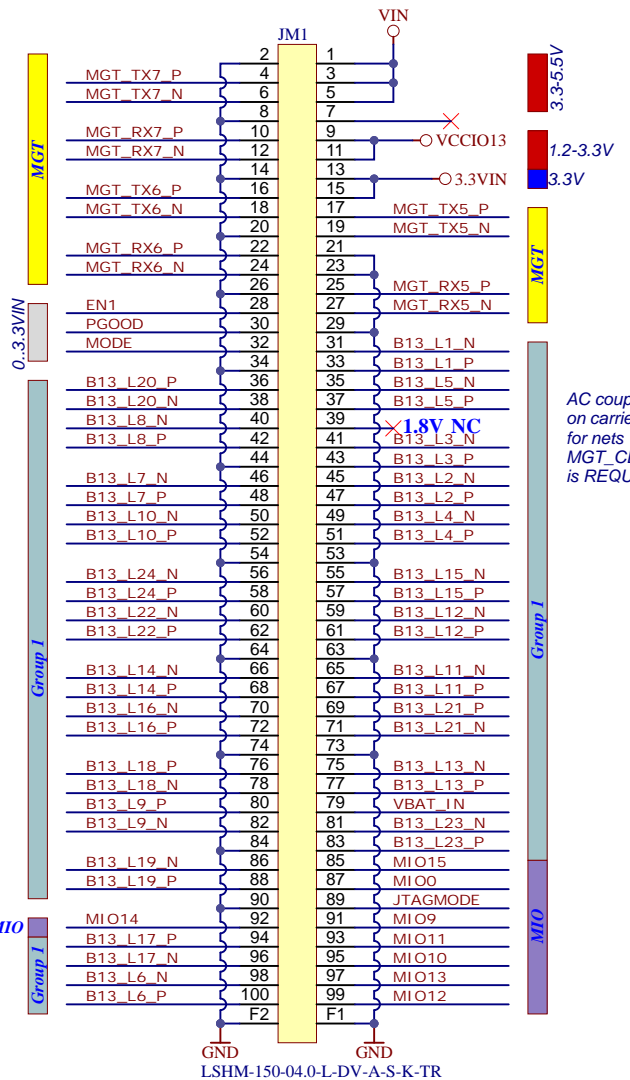
D

D

B13 48 IO, 24 LVDS Pairs  
 B14 8 IO, 3.3V  
 MGT 3 Lanes

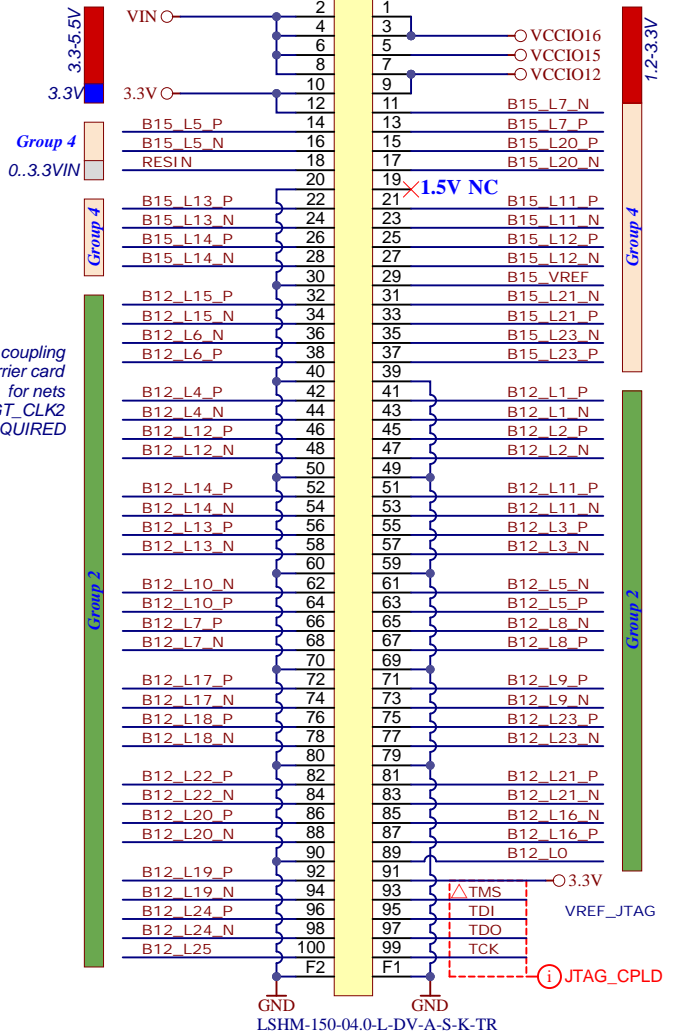
B16 16 IO, 8 LVDS Pairs  
 MGT 4 + 1 Lanes  
 B14 4 IO, 3.3V

B15 18 IO, 9 LVDS Pairs  
 B12 48 IO, 24 LVDS Pairs  
 B12 2 IO



LSHM-130-04.0-L-DV-A-S-K-TR

- VCCIO12 1.2..3.3V
- VCCIO13 1.2..3.3V
- VCCIO14 3.3V
- VCCIO15 1.2..3.3V
- VCCIO16 1.2..3.3V
- MIO 0..3.3VIN
- Group 1 0..VCCIO13
- Group 2 0..VCCIO12
- Group 3 0..VCCIO14
- Group 4 0..VCCIO15
- Group 5 0..VCCIO16
- MGT



LSHM-150-04.0-L-DV-A-S-K-TR

Some information about Trenz modules compatibility and differences [here](#)

Clock Capable I/O  
 All pins named Bxx\_11\_X  
 Bxx\_12\_X  
 Bxx\_13\_X  
 Bxx\_14\_X  
 Are Clock Capable I/O's

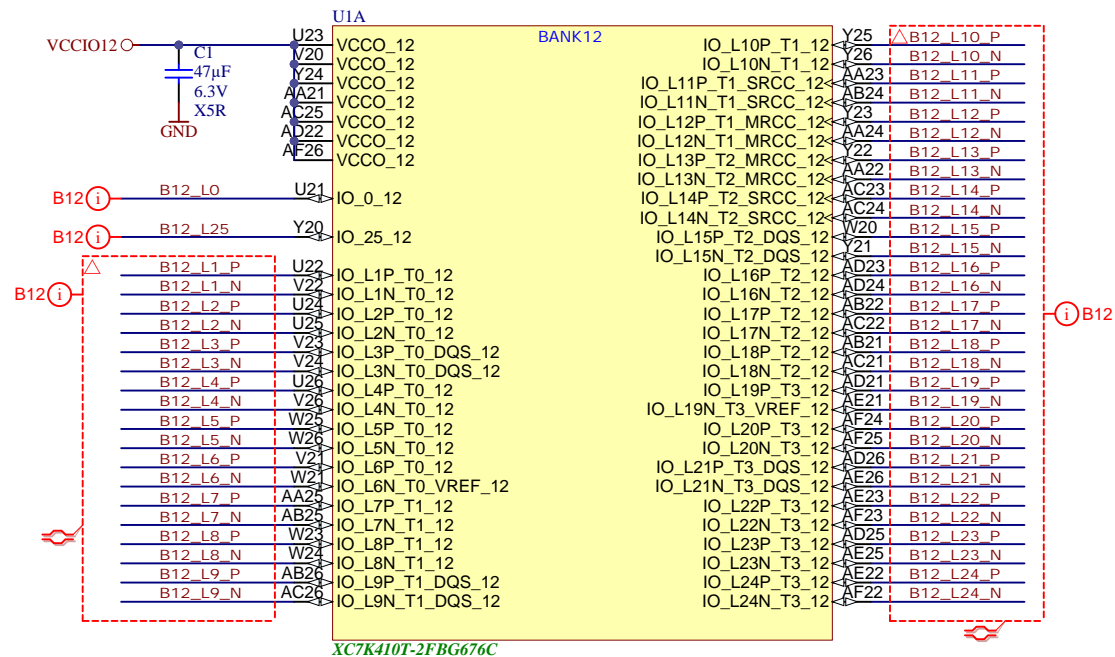



Title: TE0741 - B2B Connectors		
A4	Number: TE0741 G2C-1-A	Rev. 05
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Filename: B2B-Connectors.SchDoc		

B12\_FIXED ⓘ ▲

B12_L11_P
B12_L11_N
B12_L12_P
B12_L12_N
B12_L13_P
B12_L13_N
B12_L14_P
B12_L14_N
B12_L19_P
B12_L19_N
B12_L6_P
B12_L6_N

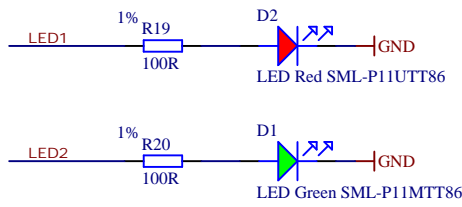
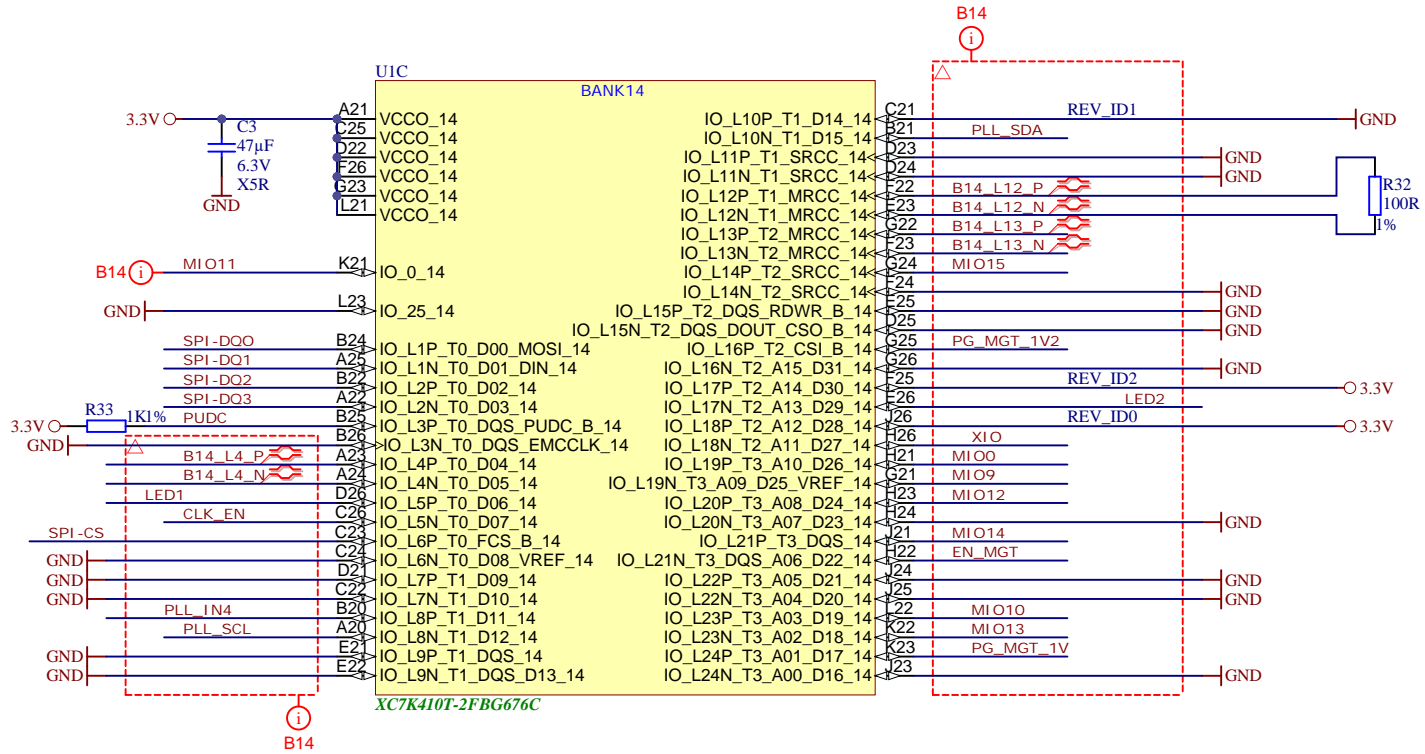
**K70T version does not have this bank!**



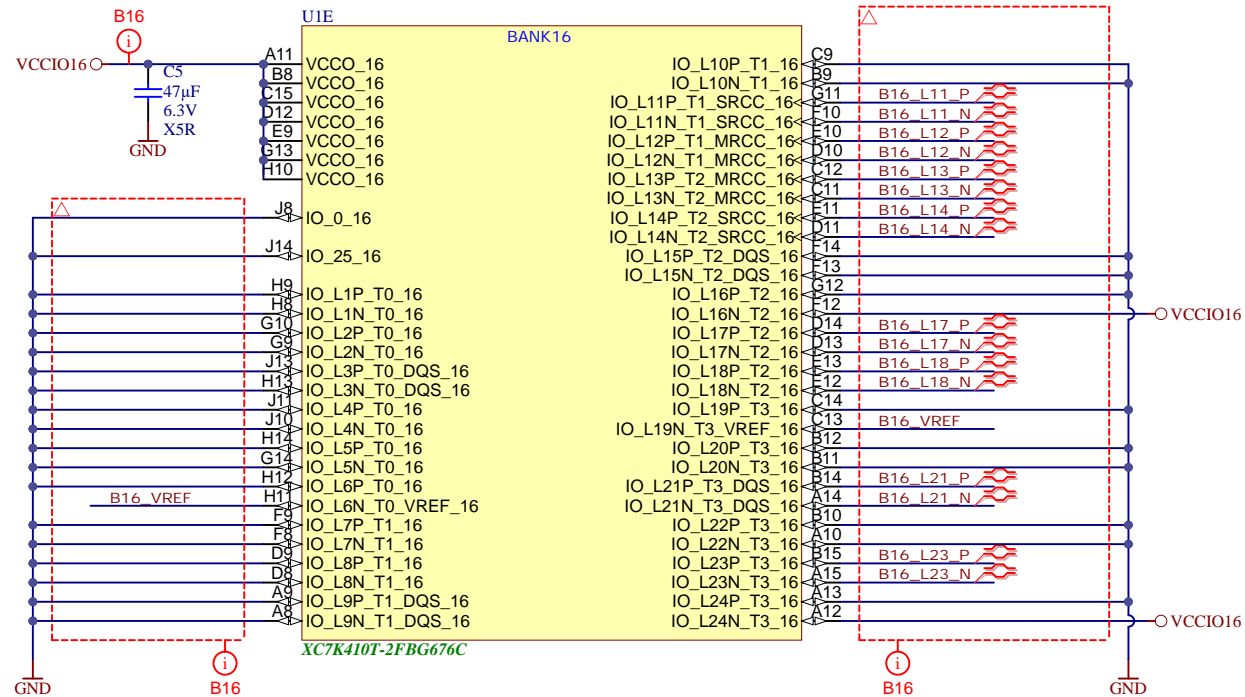
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	Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 7 of 20
	Filename: B12.SchDoc		



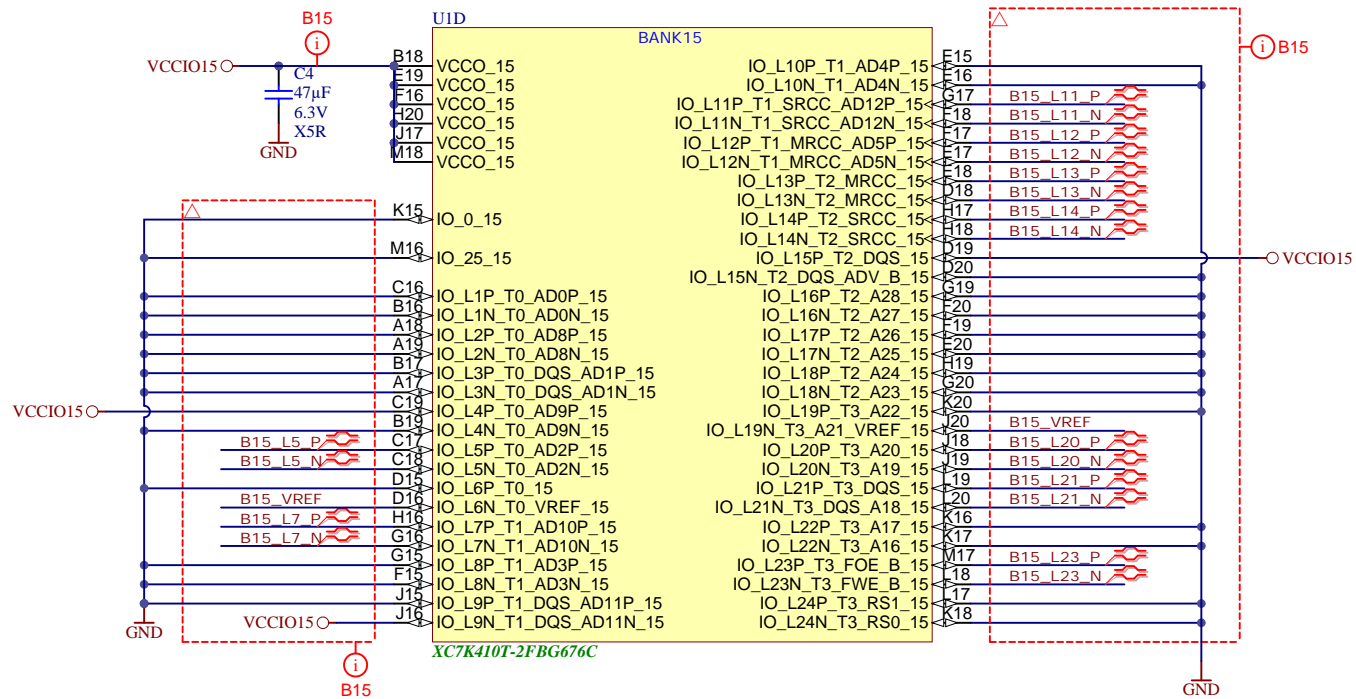





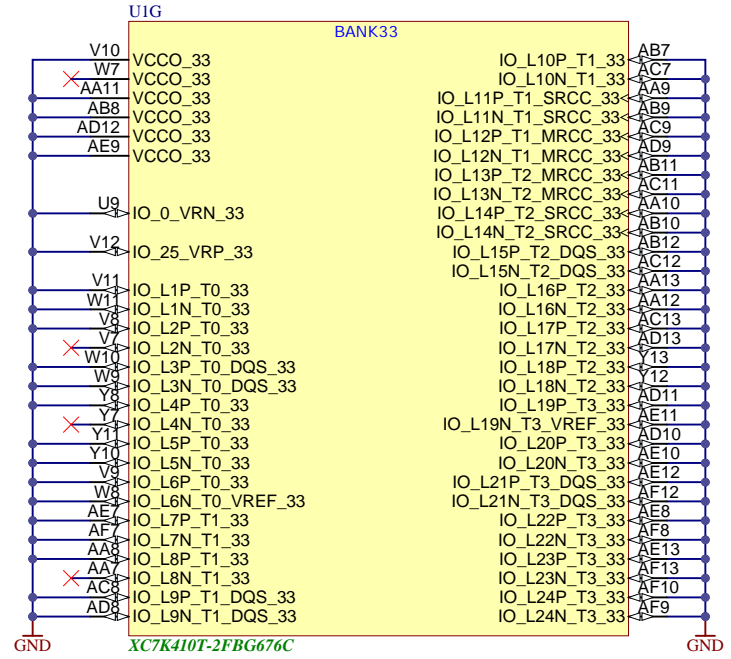
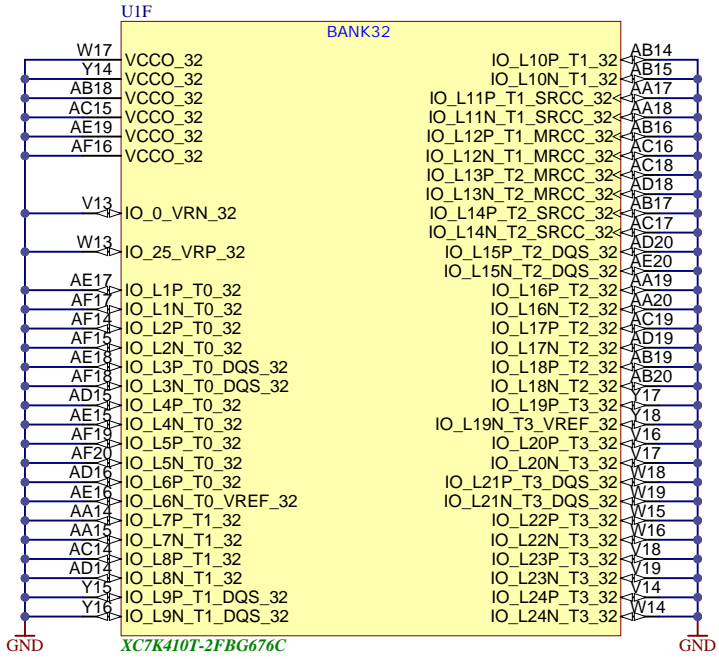

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Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 9 of 20
Filename: B14.SchDoc		



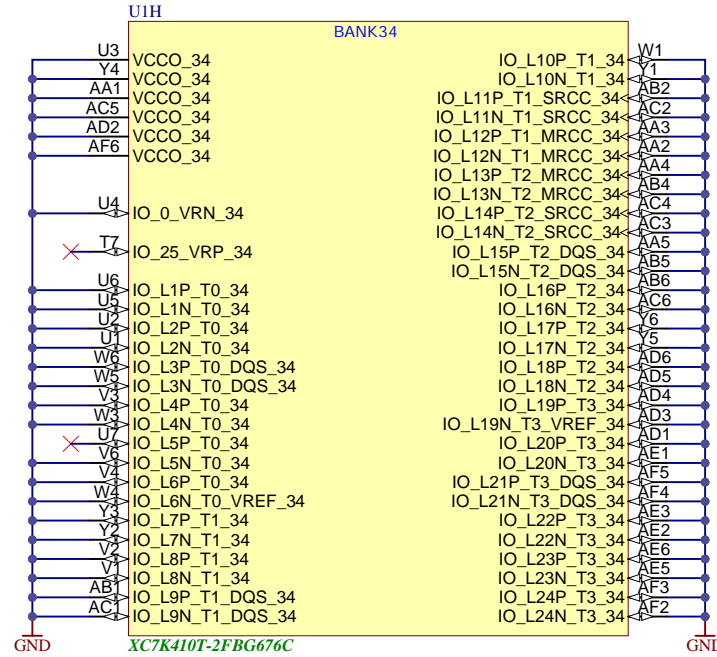
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	Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 10 of 20
	Filename: B16.SchDoc		



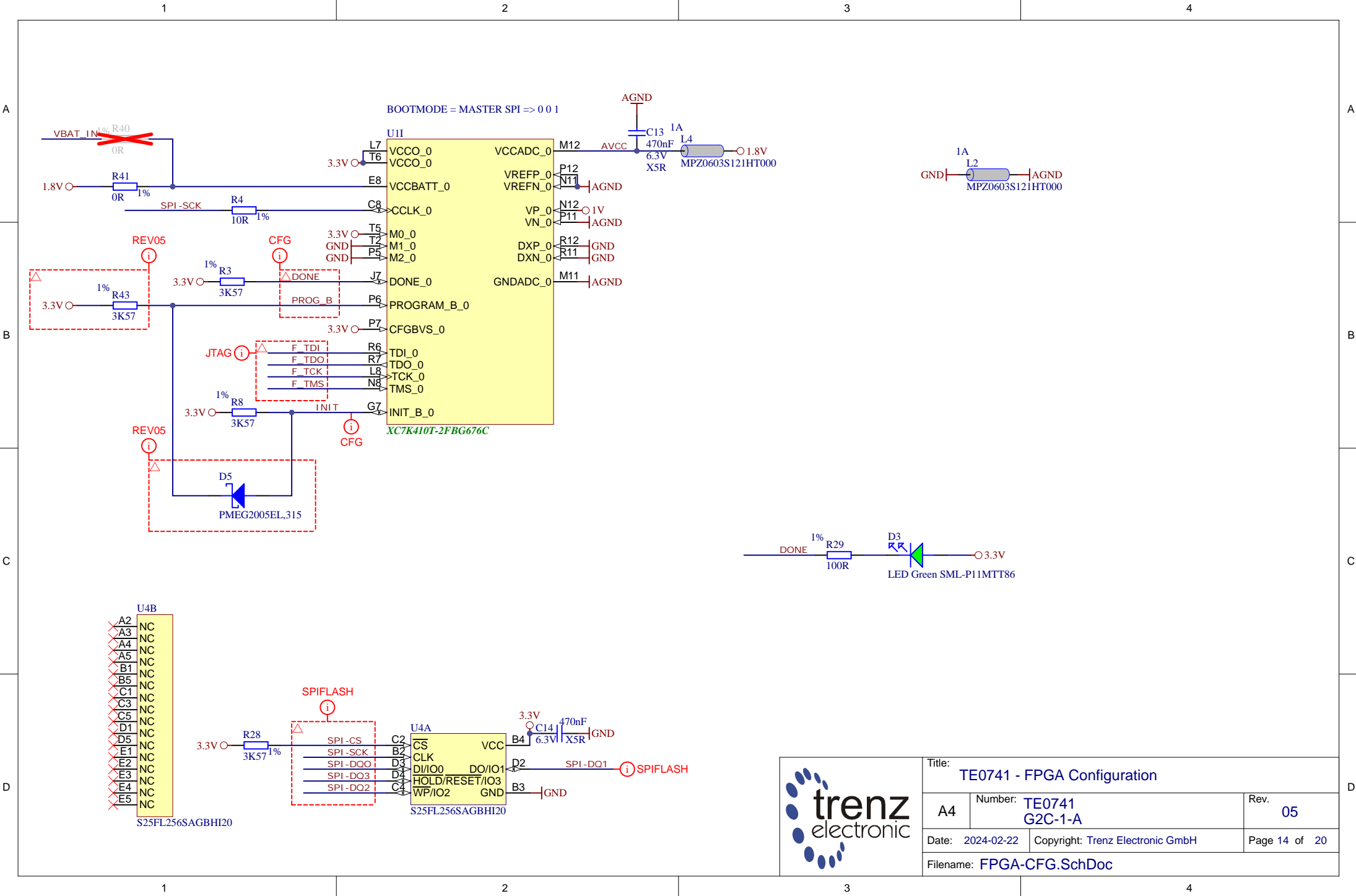
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	Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 11 of 20
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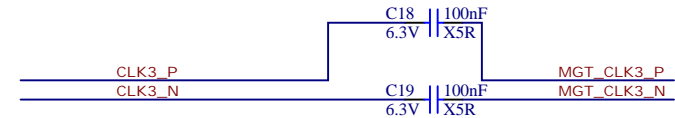
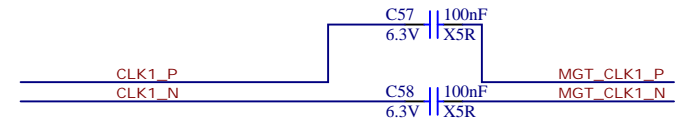
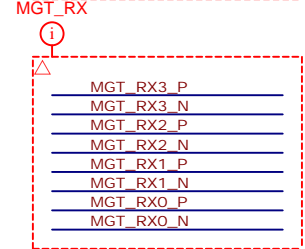
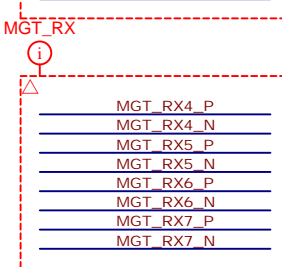
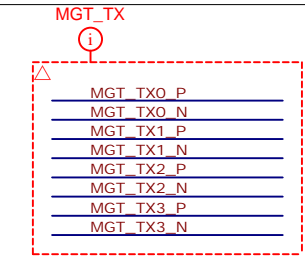
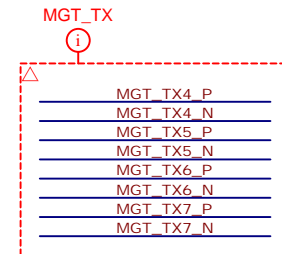
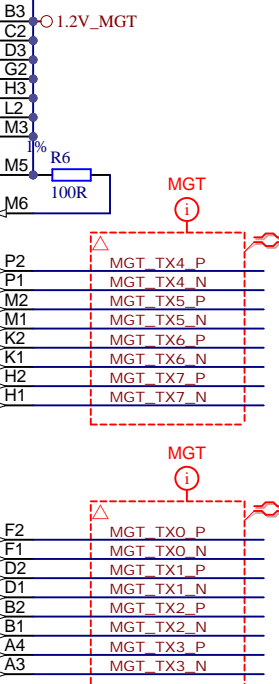
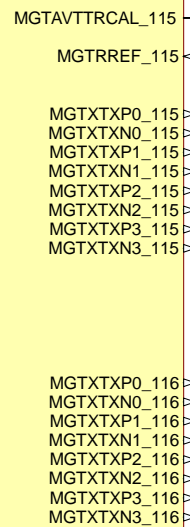
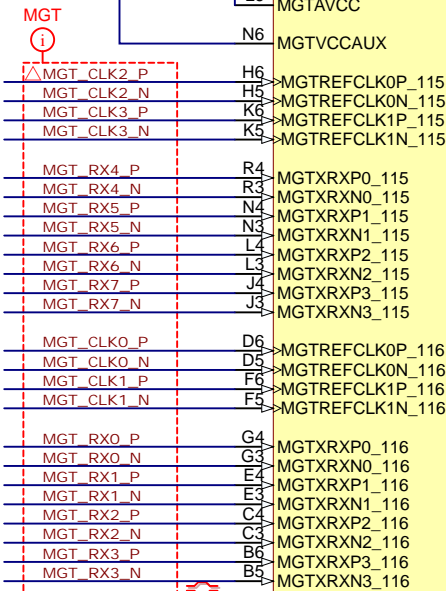
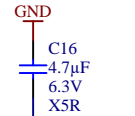
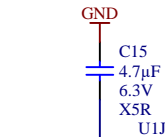
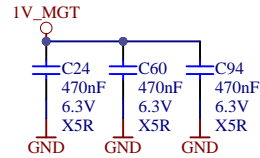
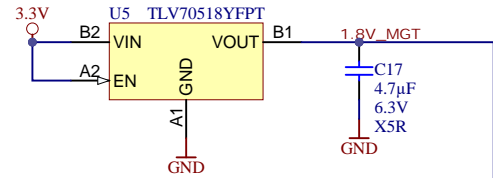
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A4	Number: TE0741 G2C-1-A	Rev. 05
Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 12 of 20
Filename: B32_B33.SchDoc		



Title: TE0741 - FPGA Bank 34		
A4	Number: TE0741 G2C-1-A	Rev. 05
Date: 2023-08-02	Copyright: Trenz Electronic GmbH	Page 13 of 20
Filename: B34.SchDoc		



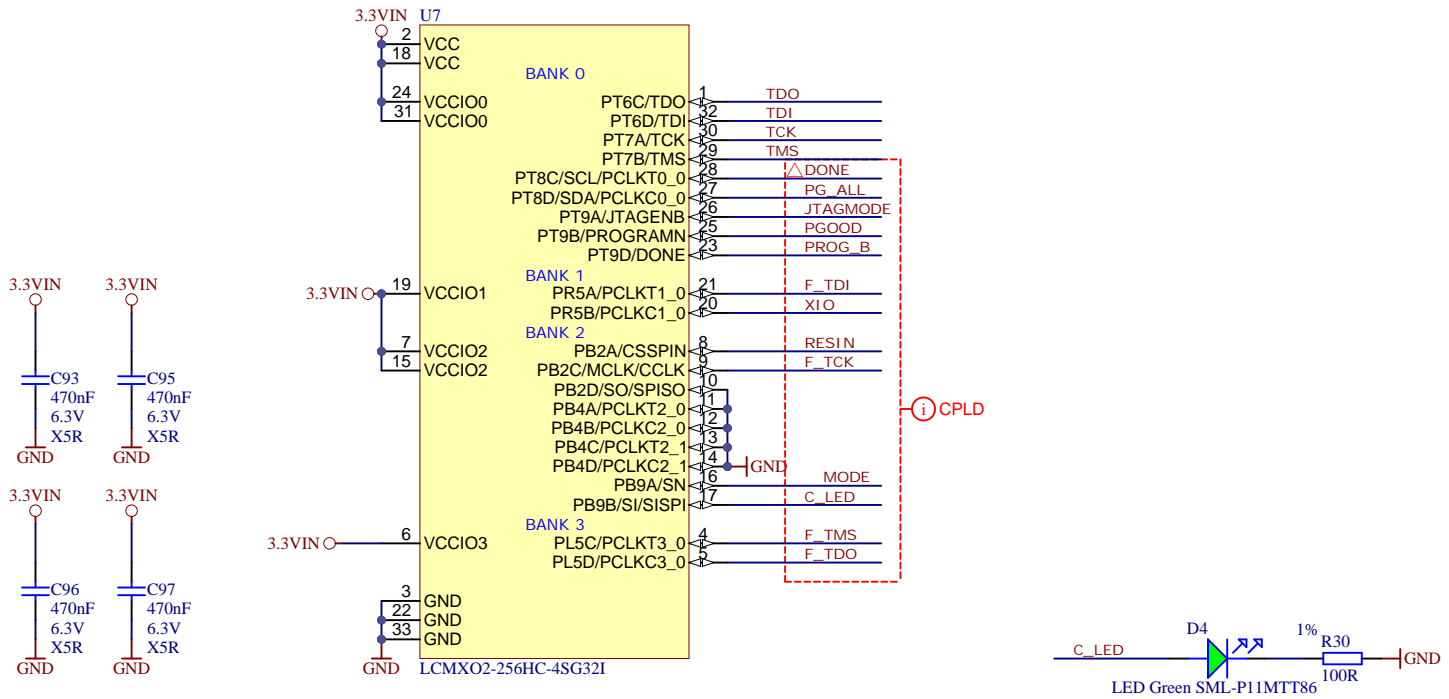
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A4	Number: TE0741 G2C-1-A	Rev. 05
Date: 2024-02-22	Copyright: Trenz Electronic GmbH	Page 14 of 20
Filename: FPGA-CFG.SchDoc		



XC7K410T-2FBG676C



Title: TE0741 - FPGA MGT Lanes		
A4	Number: TE0741 G2C-1-A	Rev. 05
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Filename: FPGA-MGT.SchDoc		



	Title: <b>TE0741 - System Controller</b>		
	A4	Number: <b>TE0741 G2C-1-A</b>	Rev. <b>05</b>
	Date: 2023-08-02	Copyright: Trenz Electronic GmbH	
	Page 16 of 20		
Filename: <b>FPGA-MISC.SchDoc</b>			



1

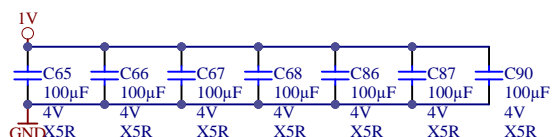
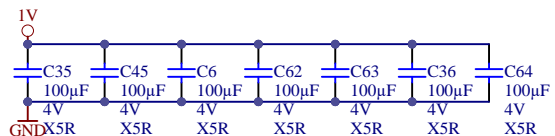
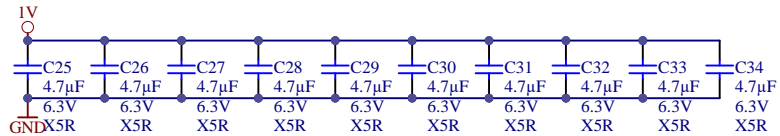
2

3

4

A

A



B

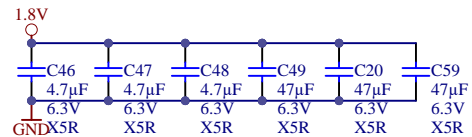
B

C

C

D

D

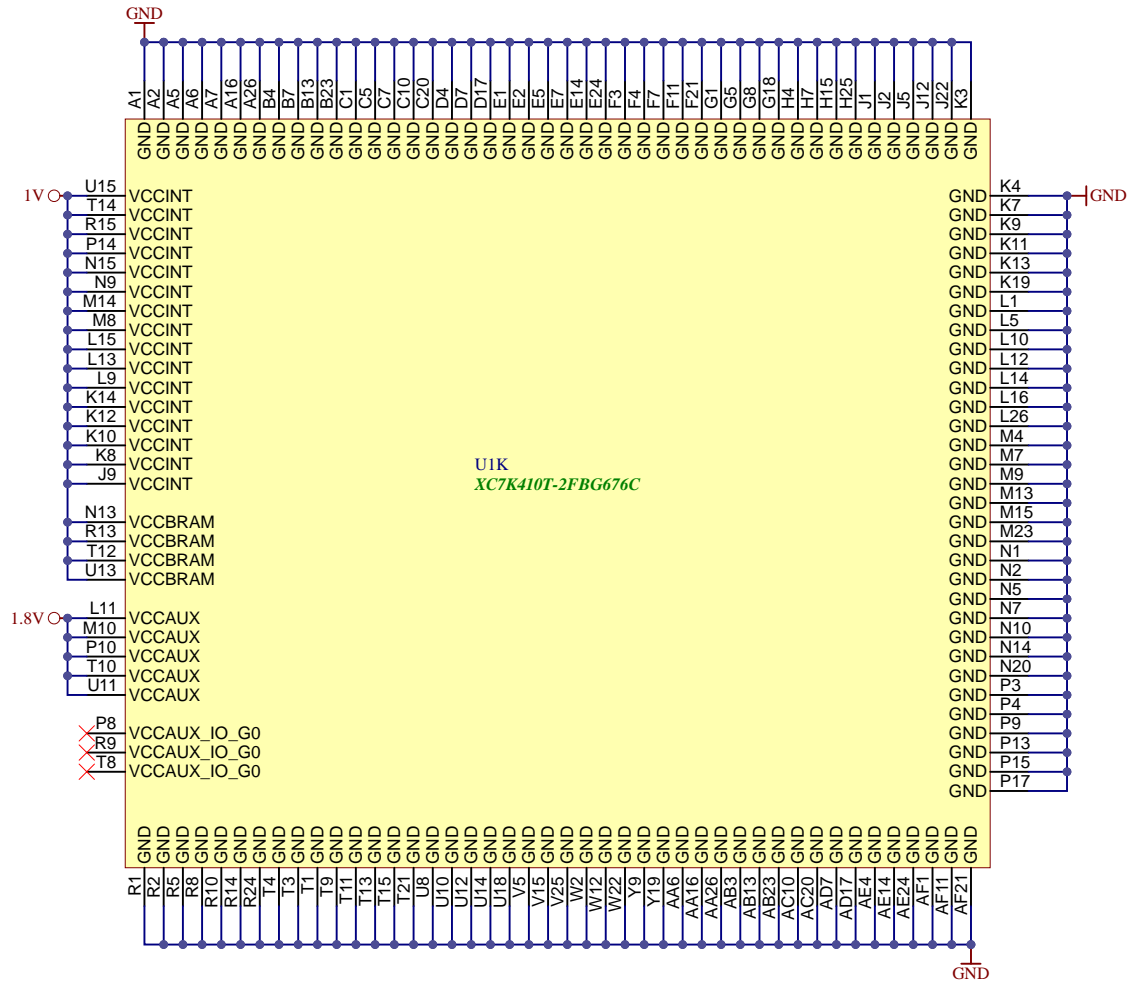


1

2

3

4



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Date: <b>2023-08-02</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>17</b> of <b>20</b>
Filename: <b>FPGA-PWR.SchDoc</b>		



A

A

B

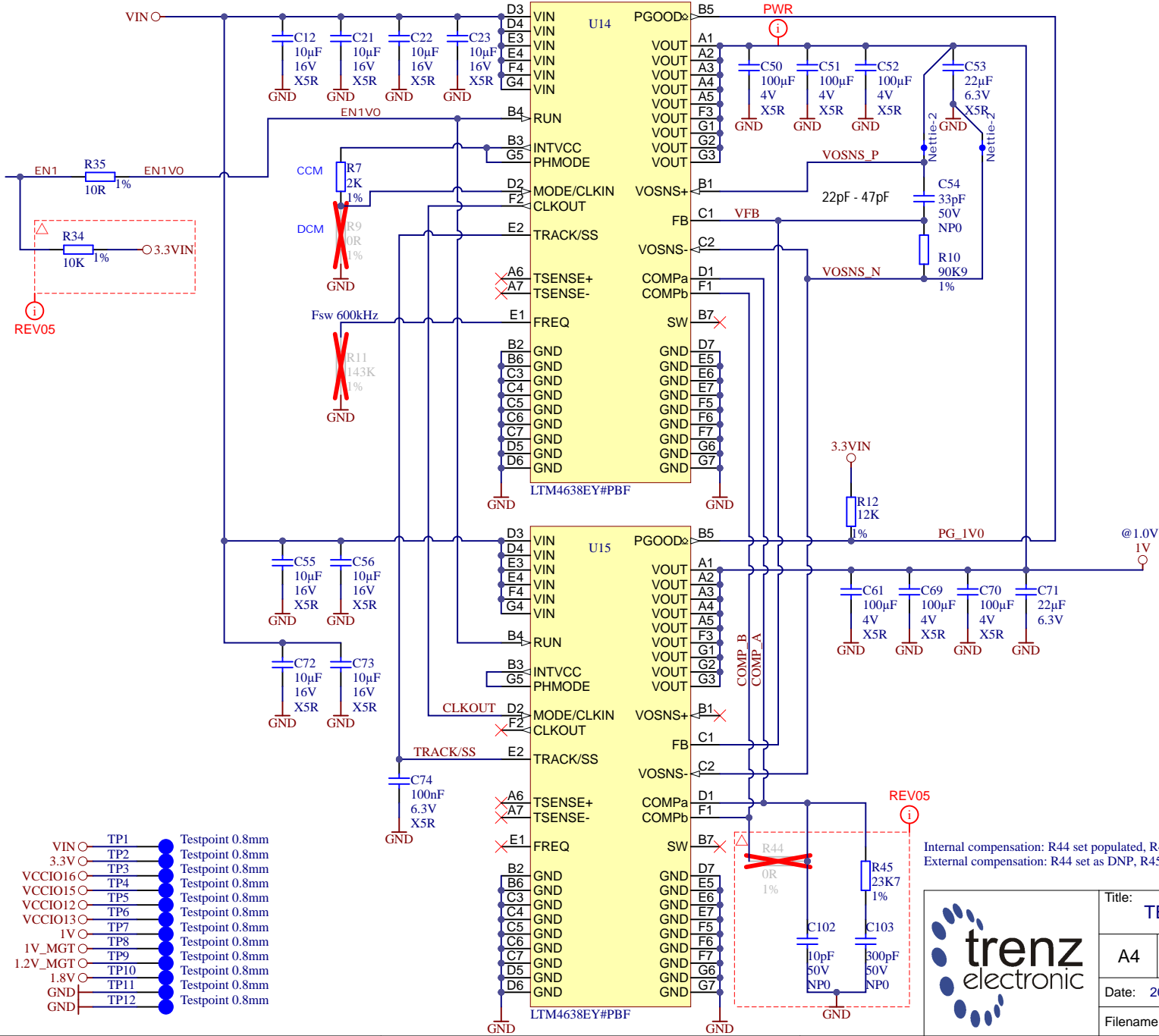
B

C

C

D

D

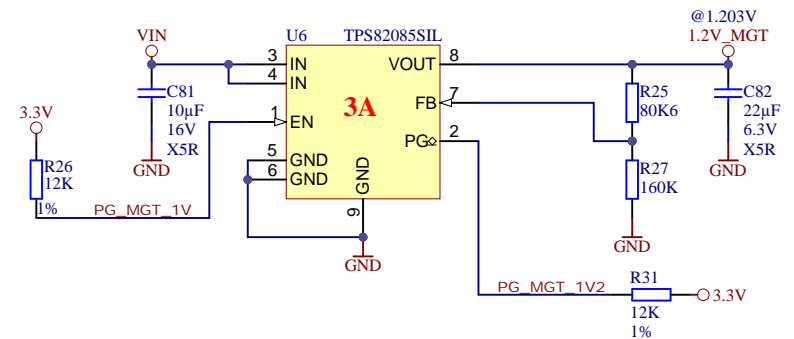
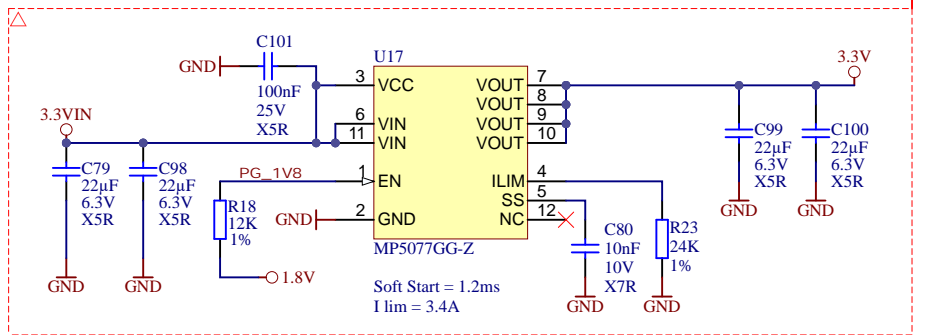
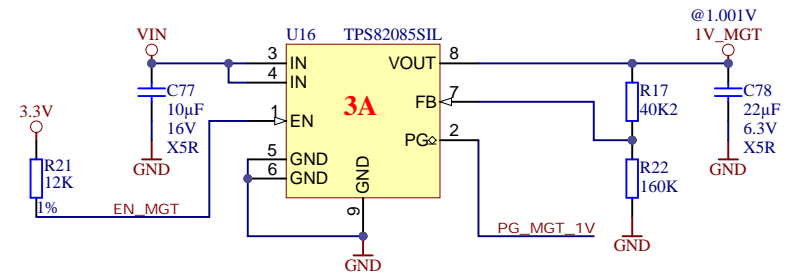
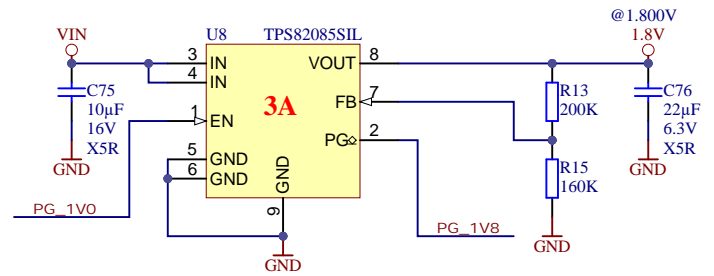
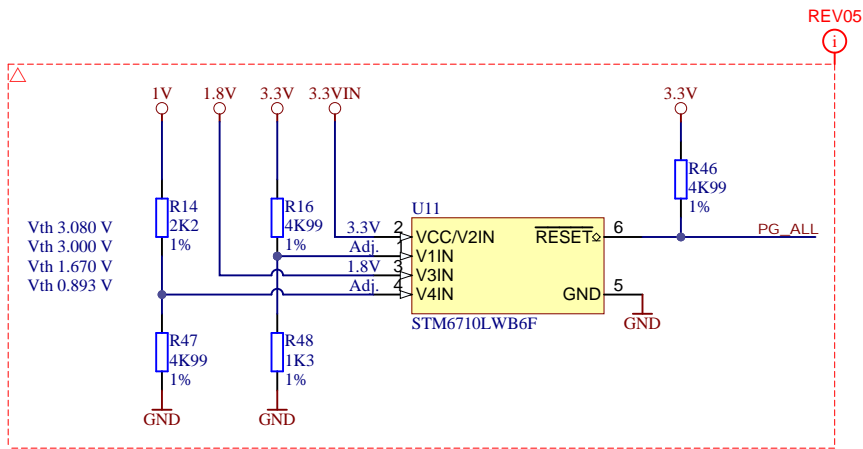


- VIN ○ TP1 ● Testpoint 0.8mm
- 3.3V ○ TP2 ● Testpoint 0.8mm
- VCCIO16 ○ TP3 ● Testpoint 0.8mm
- VCCIO15 ○ TP4 ● Testpoint 0.8mm
- VCCIO12 ○ TP5 ● Testpoint 0.8mm
- VCCIO13 ○ TP6 ● Testpoint 0.8mm
- 1V ○ TP7 ● Testpoint 0.8mm
- 1V\_MGT ○ TP8 ● Testpoint 0.8mm
- 1.2V\_MGT ○ TP9 ● Testpoint 0.8mm
- 1.8V ○ TP10 ● Testpoint 0.8mm
- GND ○ TP11 ● Testpoint 0.8mm
- GND ○ TP12 ● Testpoint 0.8mm

Internal compensation: R44 set populated, R45, C102,C103 set as DNP  
 External compensation: R44 set as DNP, R45, C102,C103 set populated



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		A4	Number: TE0741 G2C-1-A
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