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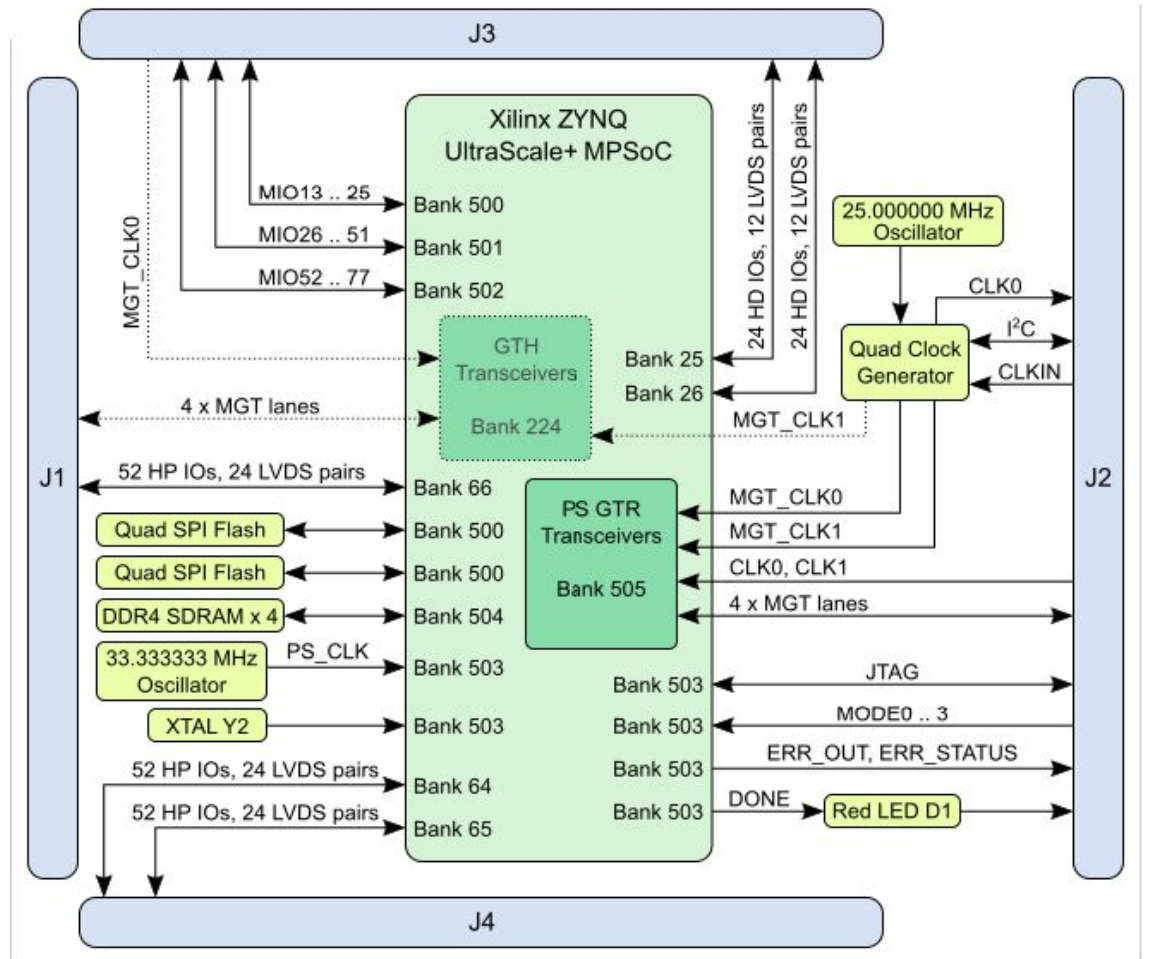
Schematics and other handouts serve for informational purposes only!

	Title: <b>TE0813</b>		
	A4	Number: <b>TE0813 4DE11-AZ</b>	Rev. <b>01</b>
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	Filename: <b>Legal Notices Modules.SchDoc</b>		

## Supported Voltage Ranges:

Power Rail	Direction	Range	Tolerance	Description	Note
3.3VIN	IN	3.3V	+/-5%	Micromodule Power	-
PL_DCIN	IN	3.3 - 5.0V	+/-5%	Micromodule Power	Programmable Logic, supplied by power rail
LP_DCDC	IN	3.3 - 5.0V	+/-5%	Micromodule Power	Low-Power Domain, supplied by power rail
GT_DCDC	IN	3.3 - 5.0V	+/-5%	Micromodule Power	GTH/GTY Transceiver, supplied by power rail
VCCO_64	IN	1.0 - 1.8V	+/-3%	HP IO Bank64	-
VCCO_65	IN	1.0 - 1.8V	+/-3%	HP IO Bank65	-
VCCO_66	IN	1.0 - 1.8V	+/-3%	HP IO Bank66	-
VCCO_25	IN	1.2 - 3.3V	+/-3%	HD IO Bank25	-
VCCO_26	IN	1.2 - 3.3V	+/-3%	HD IO Bank26	-
PSBATT	IN	1.2 - 1.5V	-	RTC / BBRAM	-
PL_1V8	OUT	1.8V	+/-5%	Power for Carrier	Micromodule: Programmable Logic
PS_1V8	OUT	1.8V	+/-5%	Power for Carrier	Micromodule: Processing System
DDR_1V2	OUT	1.2V	+/-5%	Power for Carrier	Micromodule: PS DDR I/O Supply

## TE0813-01



Title: <b>Module TE0813 - System Overview</b>			
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Date: <b>2022-03-01</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>2</b> of <b>30</b>	
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REV	DATE	Description	
-01	2021-05	Initial revision	VT
	2022-03	Added Table with Supported Voltage Ranges	
	2022-05	Changed DCDC U4 TPS548A28 to MPQ8633BGLE-Z Changed C92 100nF to 1nF	

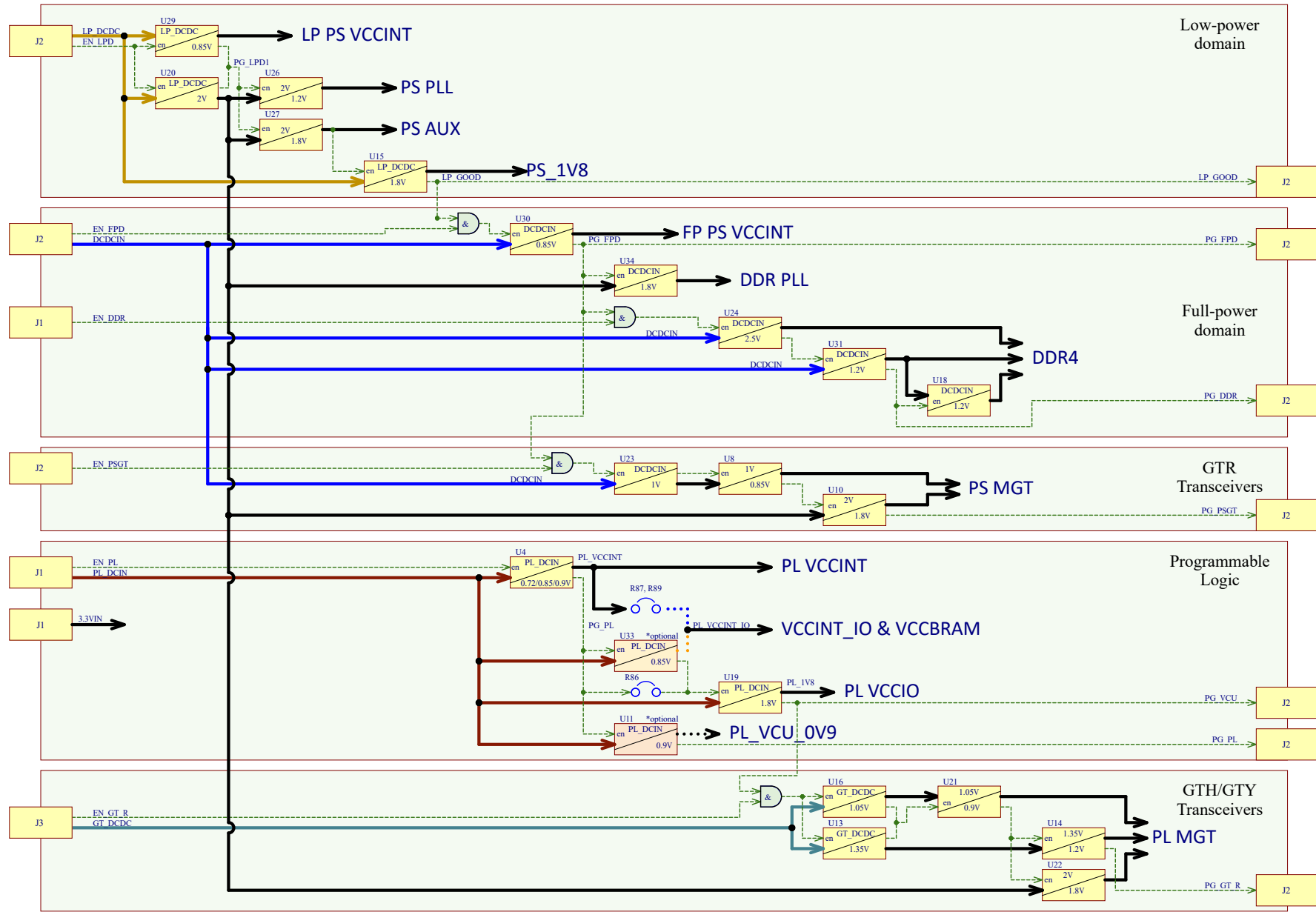
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	A4	Number: <b>TE0813 4DE11-AZ</b>	Rev. <b>01</b>
	Date: <b>2022-05-12</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>3</b> of <b>30</b>
	Filename: <b>Revision Changes.SchDoc</b>		

1

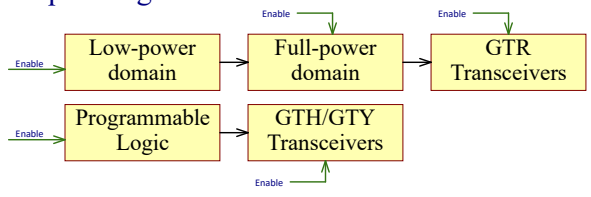
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**Power-on sequencing:**

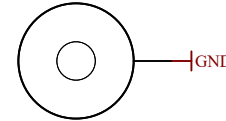


- EN\_GT\_R Net name
- Power bus
- Control signal
- Power bus in FPGA speedgrade -1/2/-3 assembly variants
- Power bus in FPGA speedgrade -1L/-2L assembly variants (low power)
- Optional power converter
- Logic AND gate

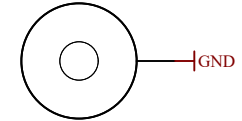
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A3	Number: TE0813 4DE11-AZ	Rev. 01
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Copyright: Trenz Electronic GmbH		
Filename: Power_Diagram.SchDoc		

U_J1 J1.SchDoc	U_B_PS_GT B_PS_GT.SchDoc	U_DDR4-RAM_4 DDR4-RAM_4.SchDoc
U_J2 J2.SchDoc	U_PS_DDR PS_DDR.SchDoc	U_ZU_POWER ZU_POWER.SchDoc
U_J3 J3.SchDoc	U_B_MIO B_MIO.SchDoc	U_ZU_PS_POWER ZU_PS_POWER.SchDoc
U_J4 J4.SchDoc	U_B_HD B_HD.SchDoc	U_POWER POWER.SchDoc
U_DDR4-TERM DDR4-TERM.SchDoc	U_Clock Clock.SchDoc	U_POWER_1 POWER_1.SchDoc
U_B64 B64.SchDoc	U_CONFIG CONFIG.SchDoc	U_POWER_2 POWER_2.SchDoc
U_B65 B65.SchDoc	U_DDR4-RAM DDR4-RAM.SchDoc	U_POWER_4 POWER_3.SchDoc
U_B66 B66.SchDoc	U_DDR4-RAM_2 DDR4-RAM_2.SchDoc	
U_B_GT B_GT.SchDoc	U_DDR4-RAM_3 DDR4-RAM_3.SchDoc	

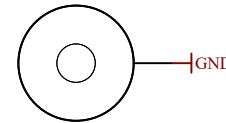
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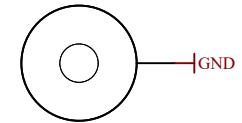
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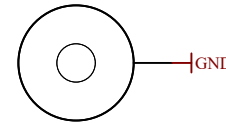
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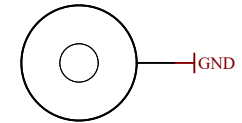
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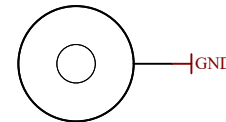
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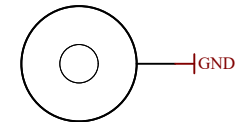
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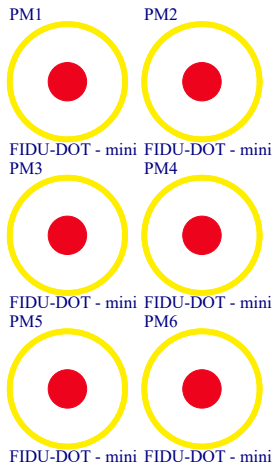
Mount.Hole 3.2mm für Unterlegscheibe



Mount.Hole 3.2mm für Unterlegscheibe



Mount.Hole 3.2mm für Unterlegscheibe



MECH1

TE Address Overlay

LOGO ADDRESS


LOGO1

TE Logo PRINT Layer

LOGO PRINT

Serial  
Serial  
Serialnumber 6,3 x 6.3mm

Assembly variant	4DE11-AZ
Created by	VT
Modified by	VT
Modified at	2022-07-20
SVN Revision	13096

			Title: TE0813	
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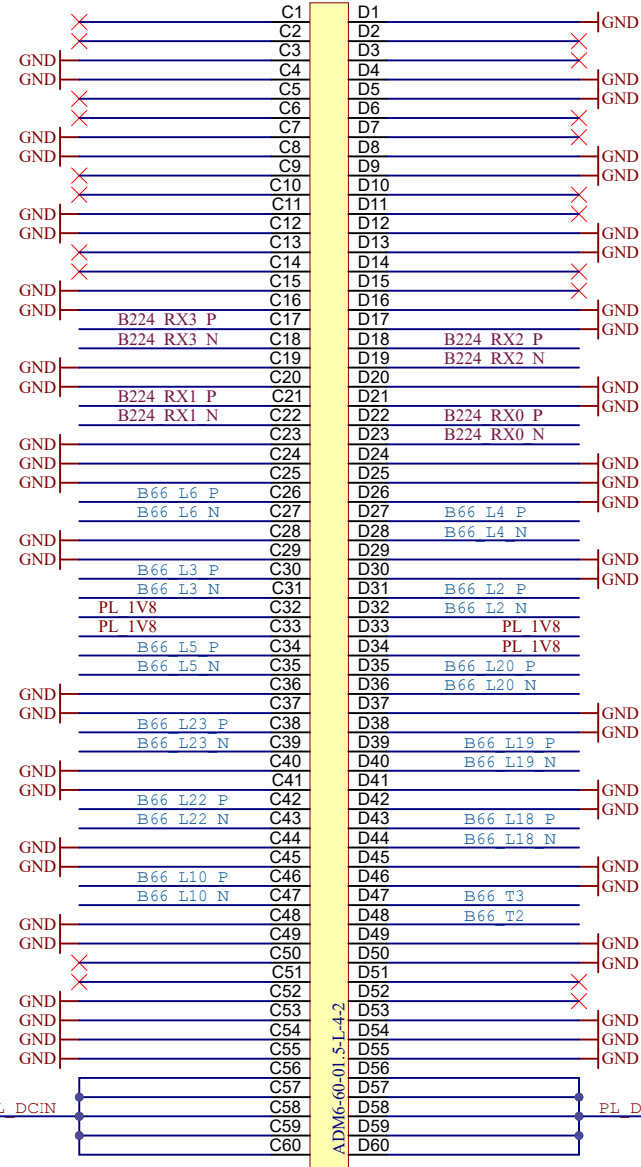
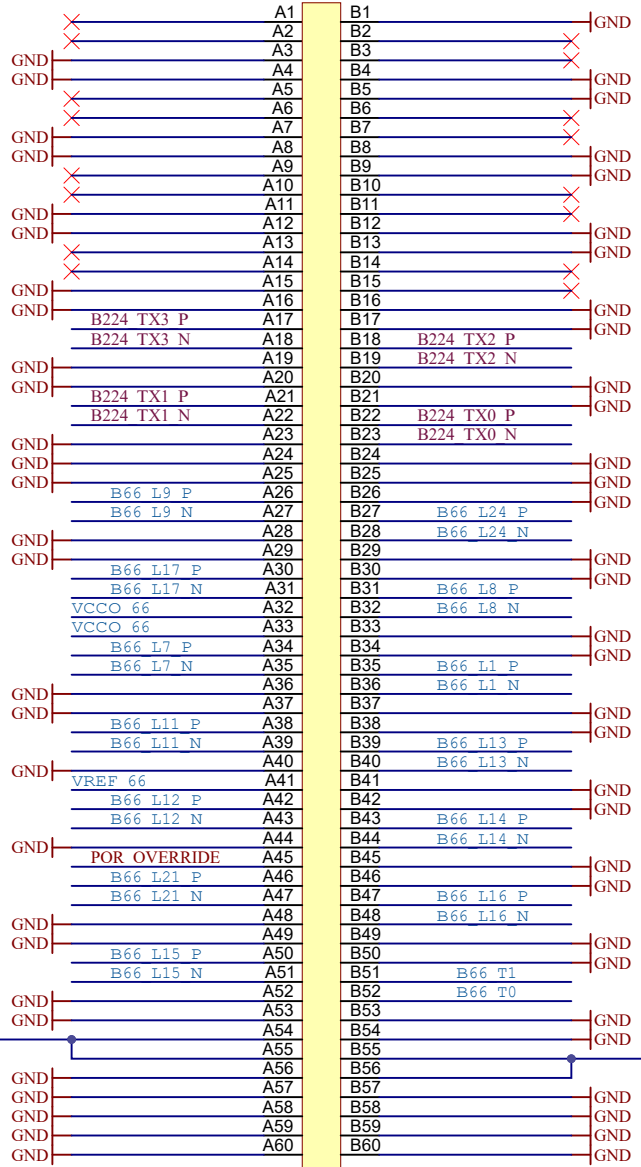
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D

D

JM1A

JM1B



3.3VIN

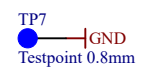
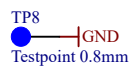
3.3VIN

PL\_DCIN

PL\_DCIN

ADM6-60-01.5-L-4-2

ADM6-60-01.5-L-4-2



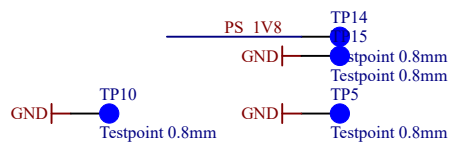
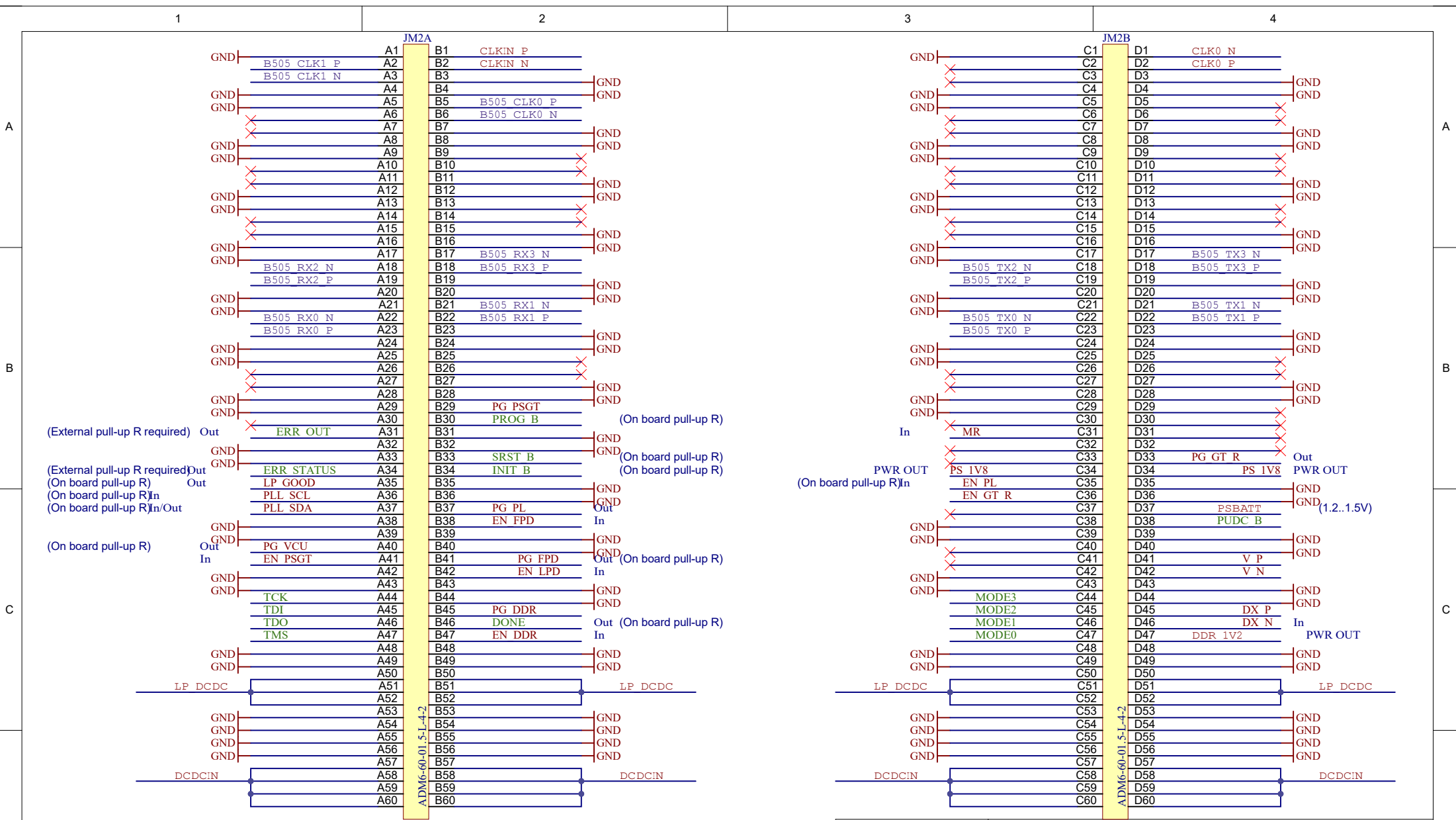
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Date: 2022-03-01	Copyright: Trenz Electronic GmbH	Page 6 of 30
Filename: J1.SchDoc		

1

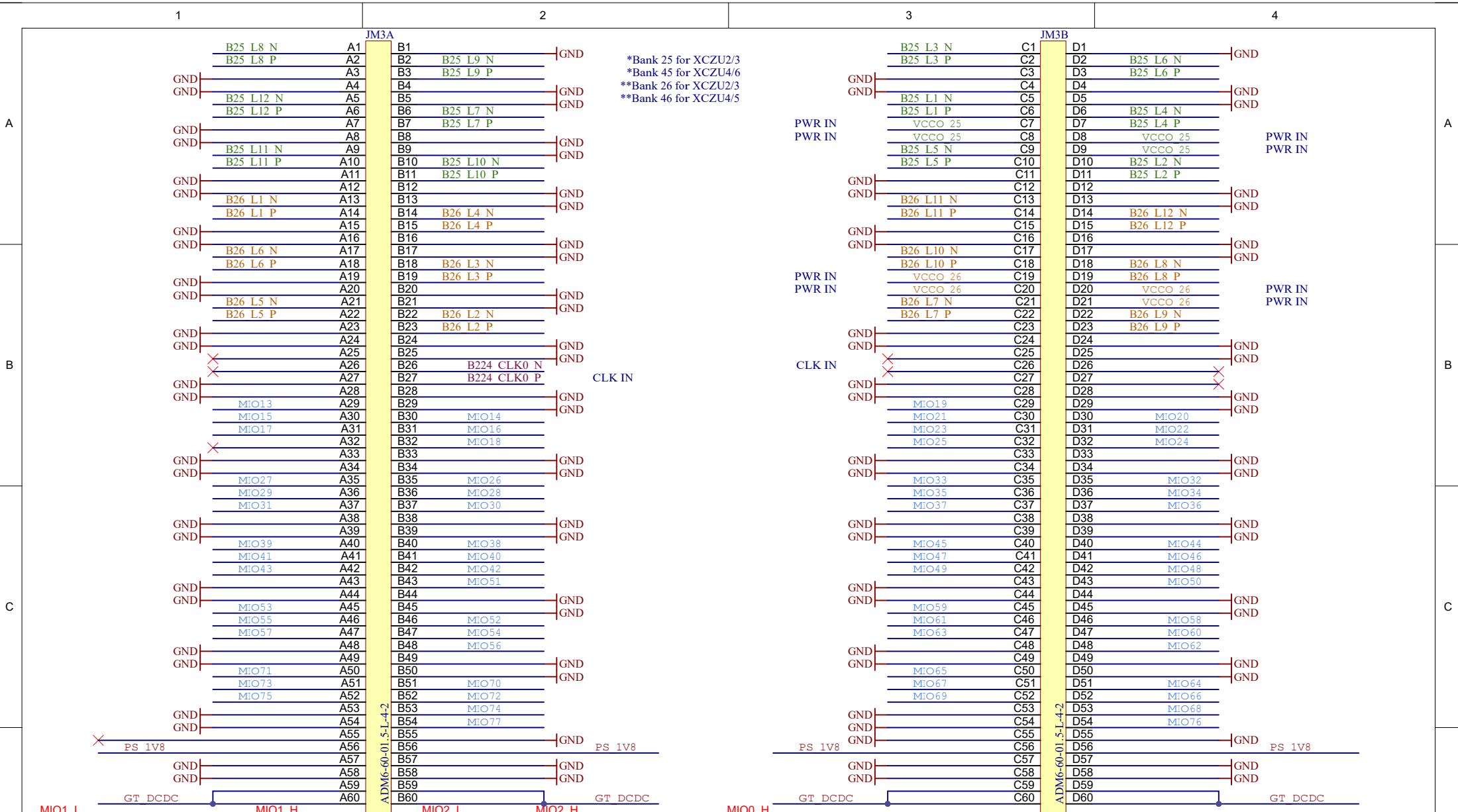
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Title: TE0813 - Connector J2		
A4	Number: TE0813 4DE11-AZ	Rev. 01
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Filename: J2.SchDoc		



MIO1_L	MIO1_H	MIO2_L	MIO2_H	MIO0_H
MIO26	MIO32	MIO38	MIO45	MIO13
MIO27	MIO33	MIO39	MIO46	MIO14
MIO28	MIO34	MIO40	MIO47	MIO15
MIO29	MIO35	MIO41	MIO48	MIO16
MIO30	MIO36	MIO42	MIO49	MIO17
MIO31	MIO37	MIO43	MIO50	MIO18
MIO52	MIO58	MIO64	MIO71	MIO19
MIO53	MIO59	MIO65	MIO72	MIO20
MIO54	MIO60	MIO66	MIO73	MIO21
MIO55	MIO61	MIO67	MIO74	MIO22
MIO56	MIO62	MIO68	MIO75	MIO23
MIO57	MIO63	MIO69	MIO76	MIO24
		MIO70	MIO77	MIO25



Title: TE0813 - Connector J3		
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Filename: J3.SchDoc		



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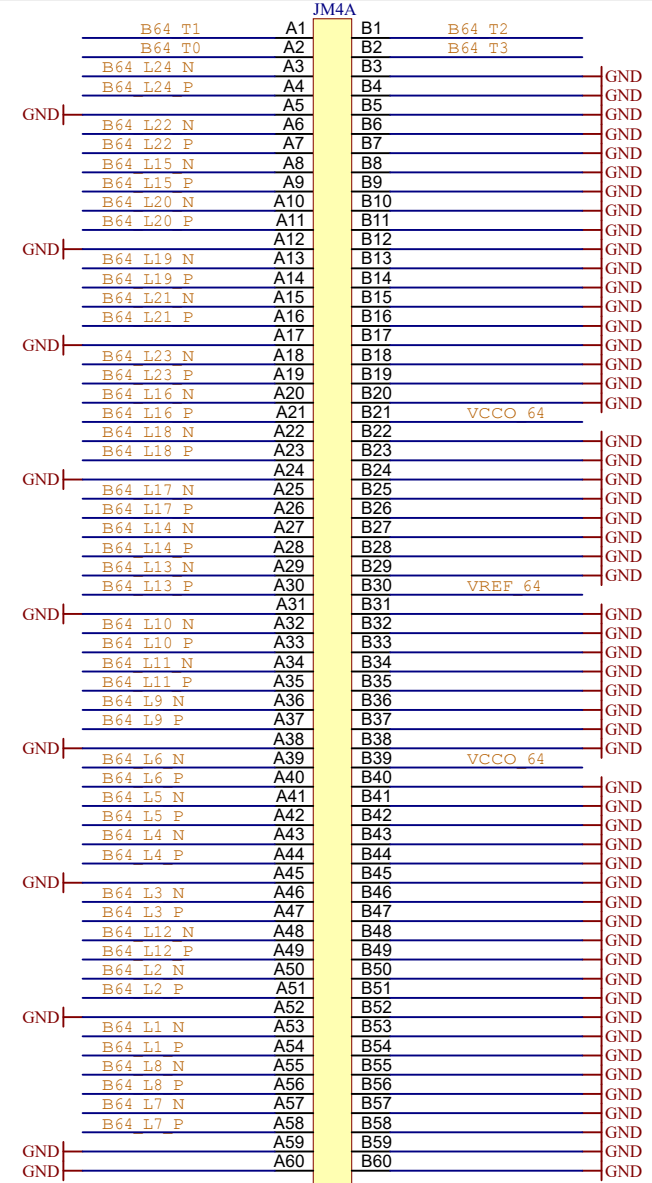
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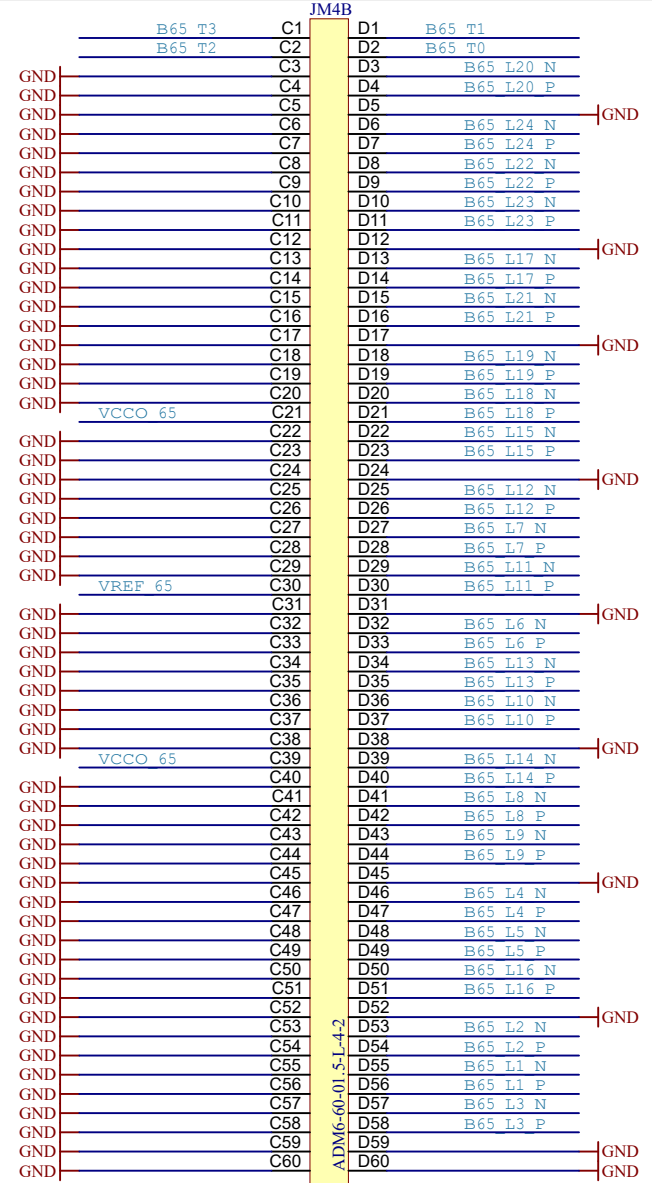
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D



ADM6-60-01.5-L-4-2



ADM6-60-01.5-L-4-2



Title: TE0813 - Connector J4		
A4	Number: TE0813 4DE11-AZ	Rev. 01
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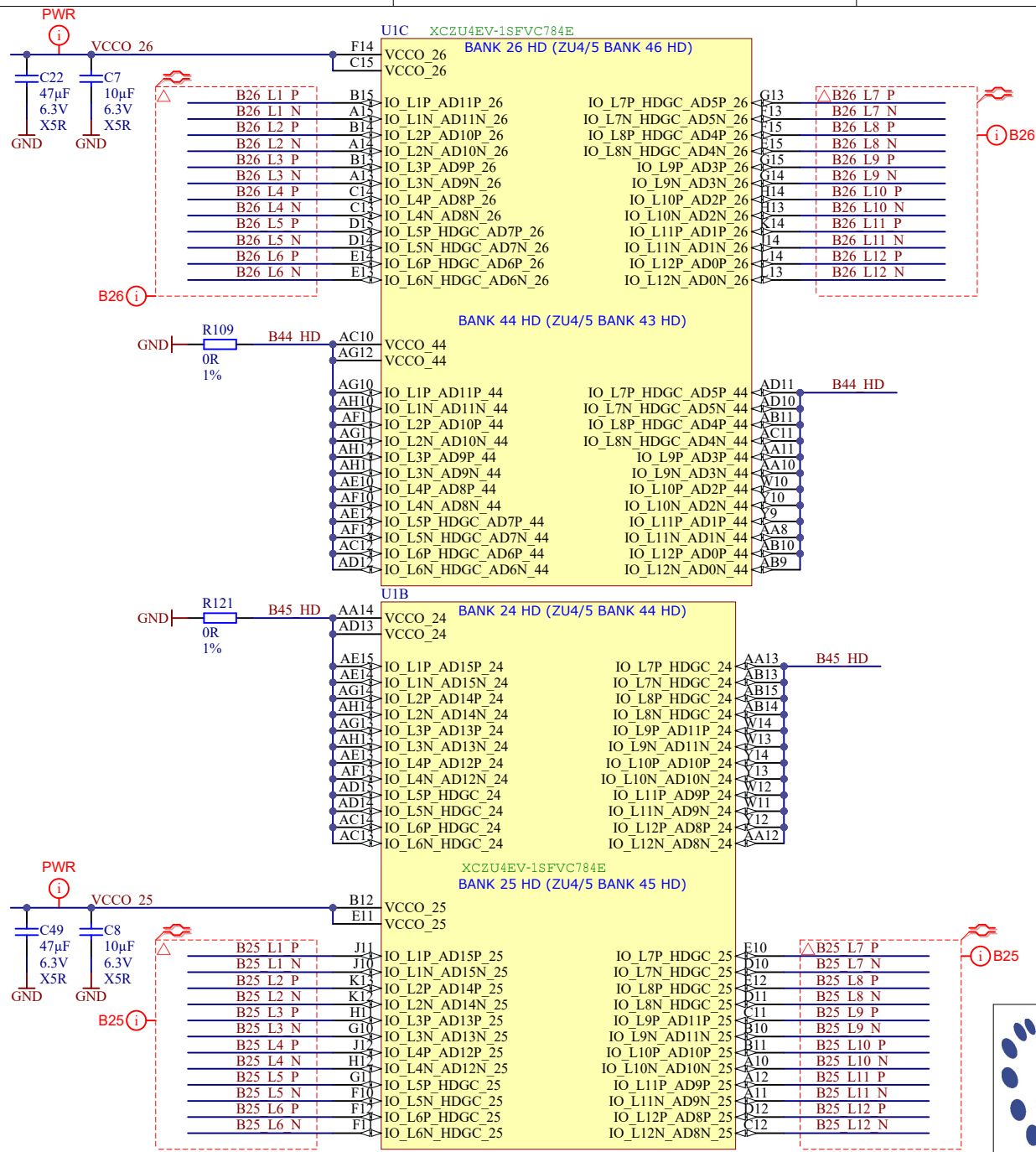
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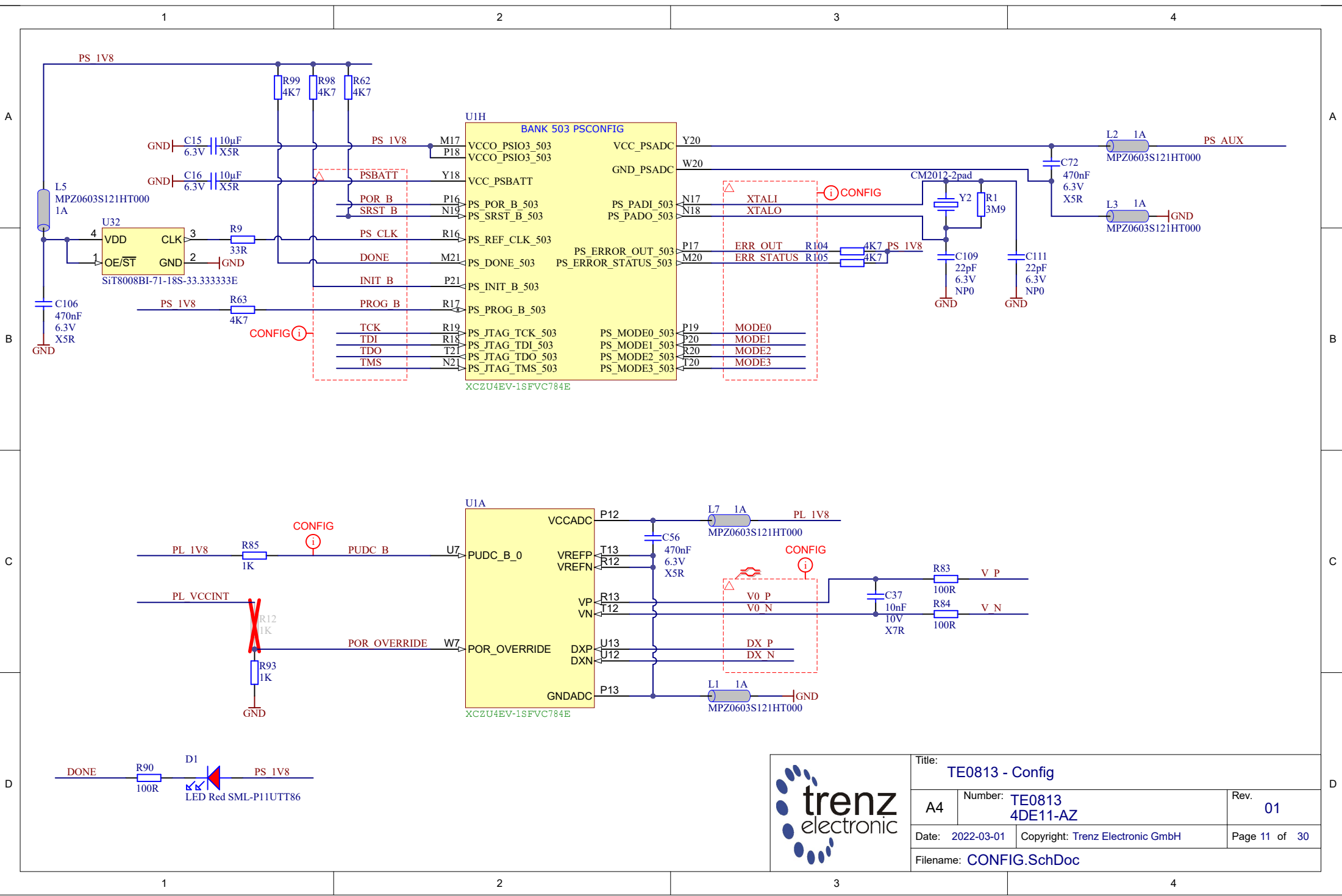
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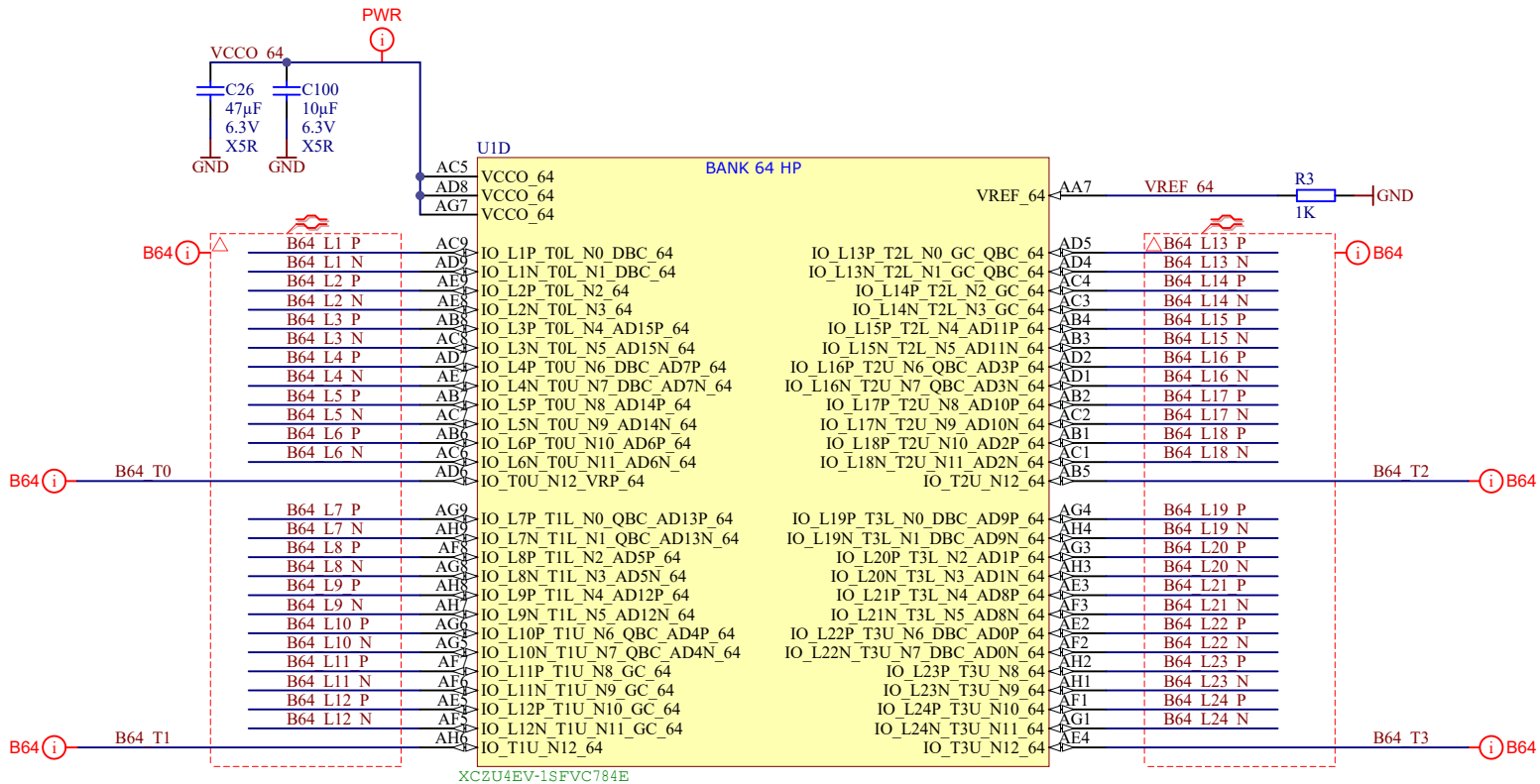
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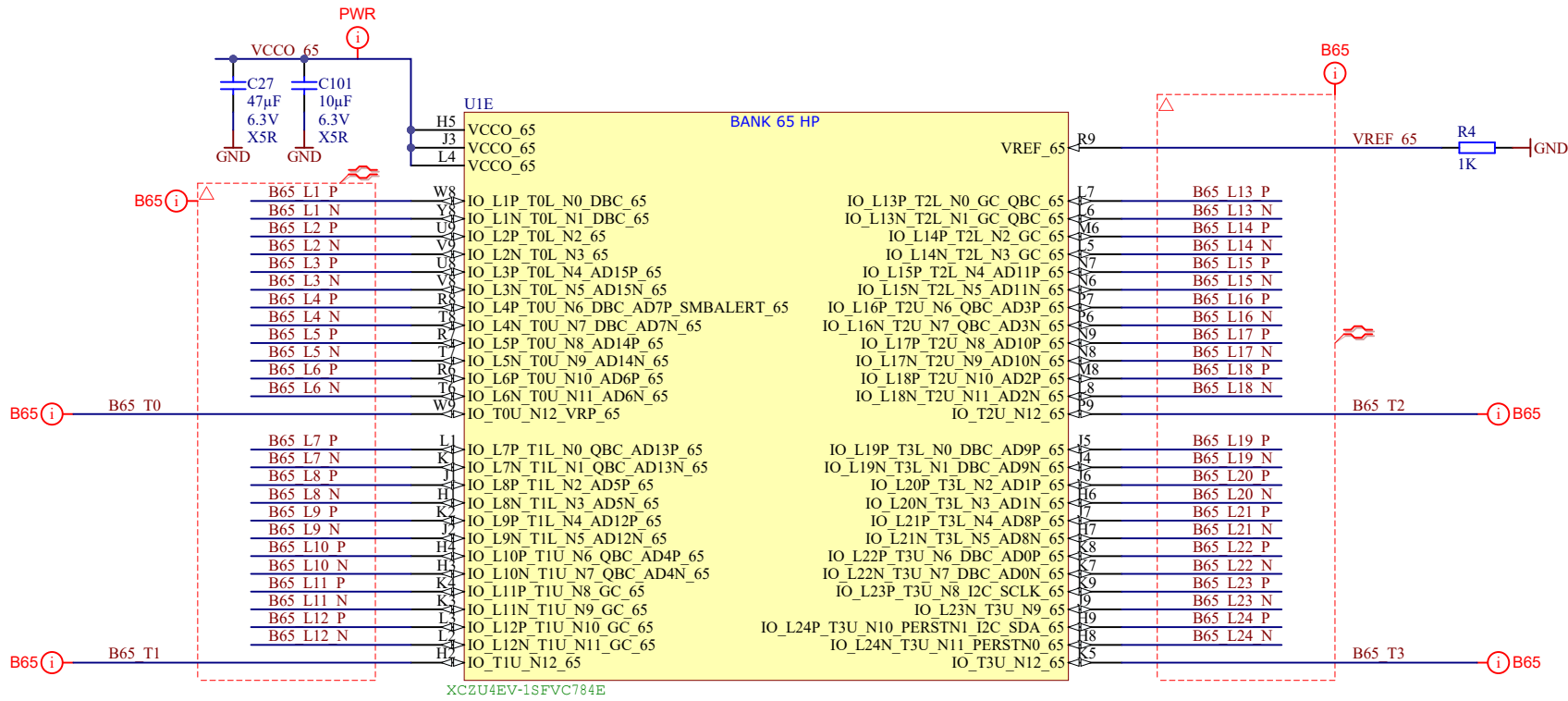
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Date: <b>2022-03-01</b>	Copyright: <b>Trenz Electronic GmbH</b>	
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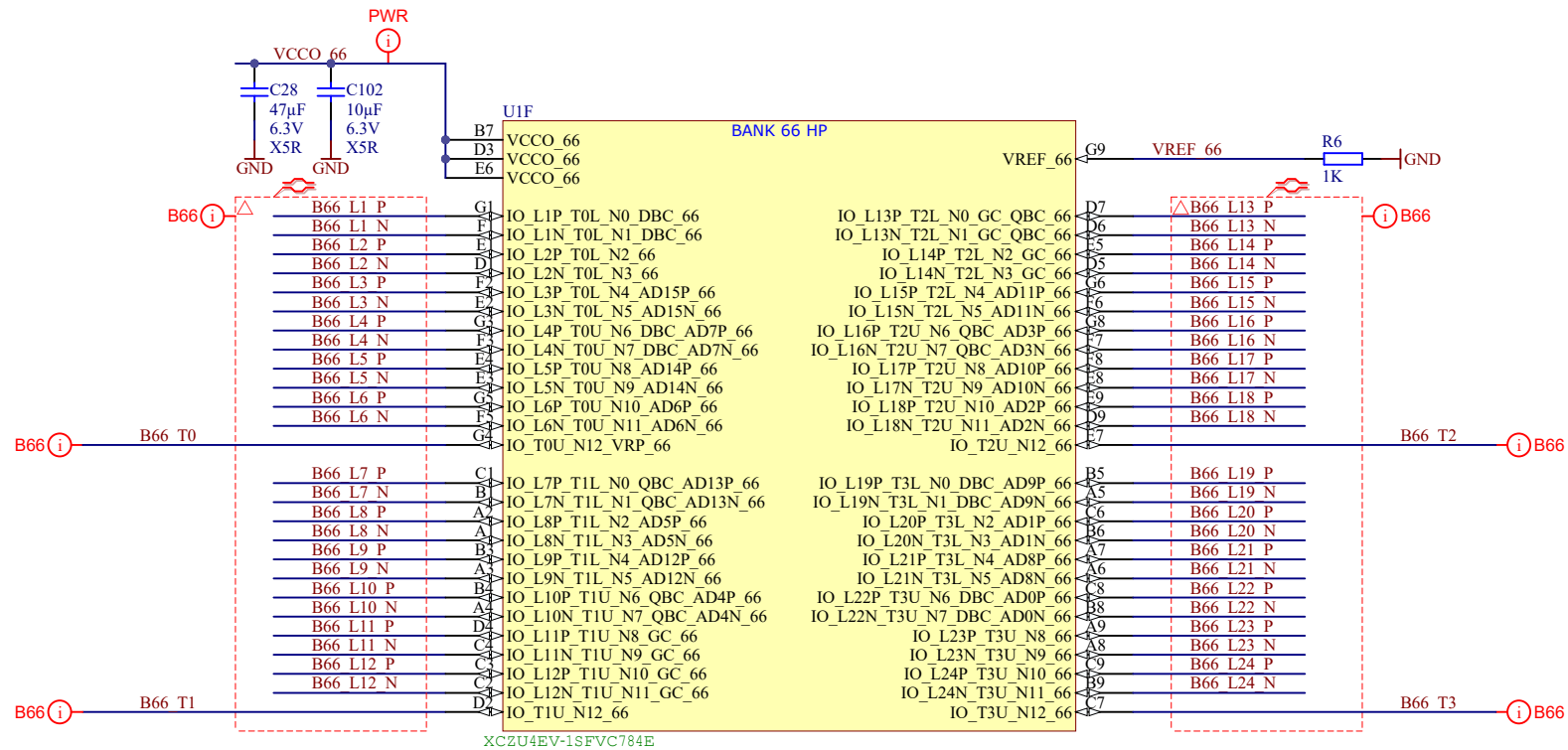

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Date: 2022-03-01	Copyright: Trenz Electronic GmbH	Page 11 of 30
Filename: CONFIG.SchDoc		



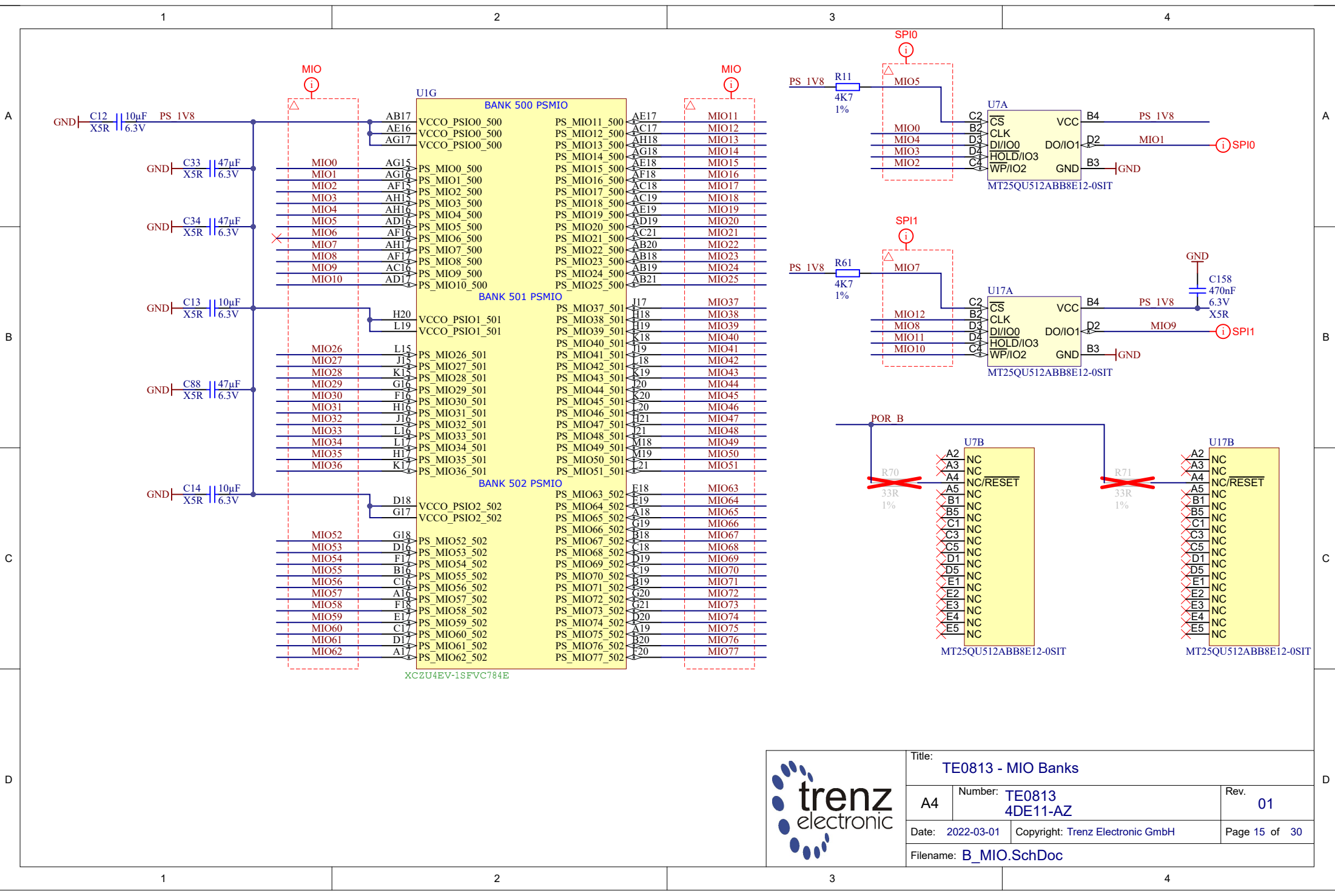
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Filename: <b>B64.SchDoc</b>		



	Title: <b>TE0813 - B65</b>	
	A4	Number: <b>TE0813 4DE11-AZ</b>
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Title: TE0813 - B66		
A4	Number: TE0813 4DE11-AZ	Rev. 01
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		Title: TE0813 - MIO Banks	
		A4	Number: TE0813 4DE11-AZ
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Filename: B_MIO.SchDoc		Page 15 of 30	

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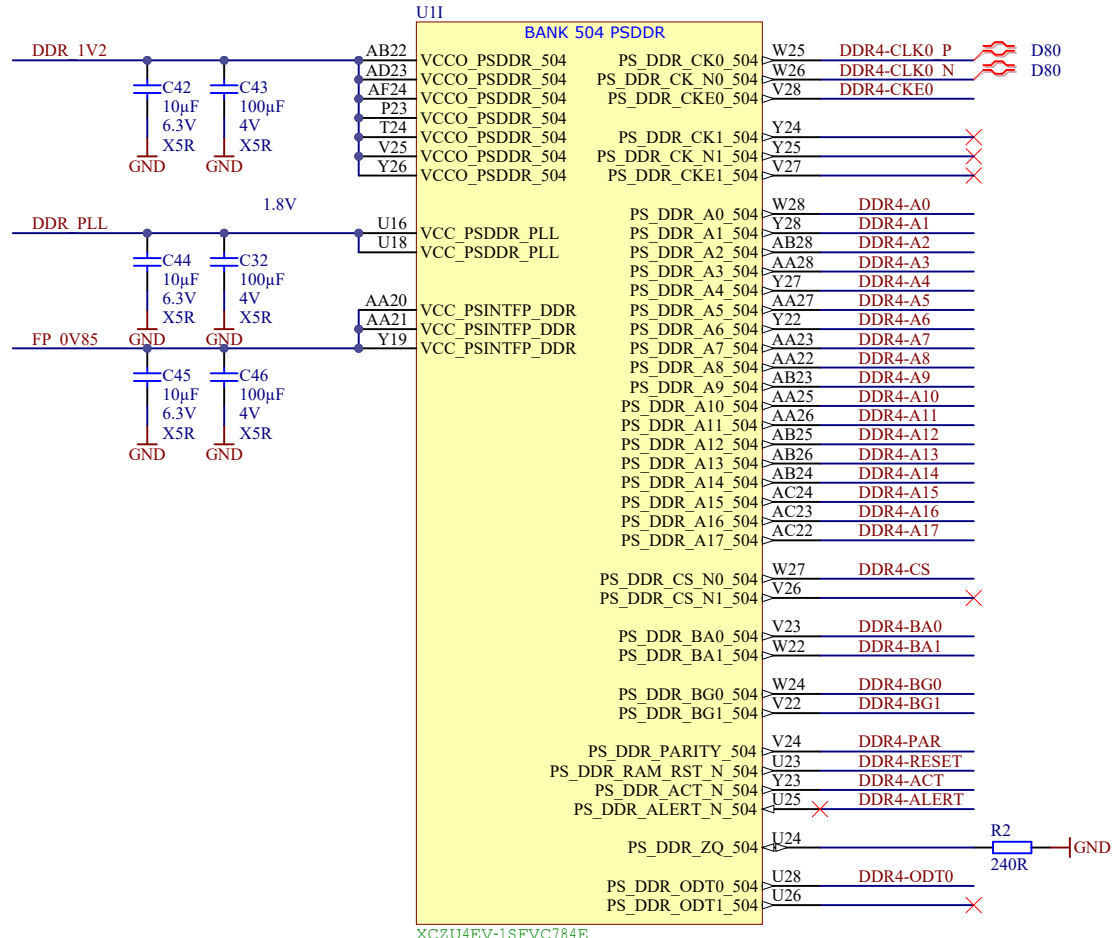
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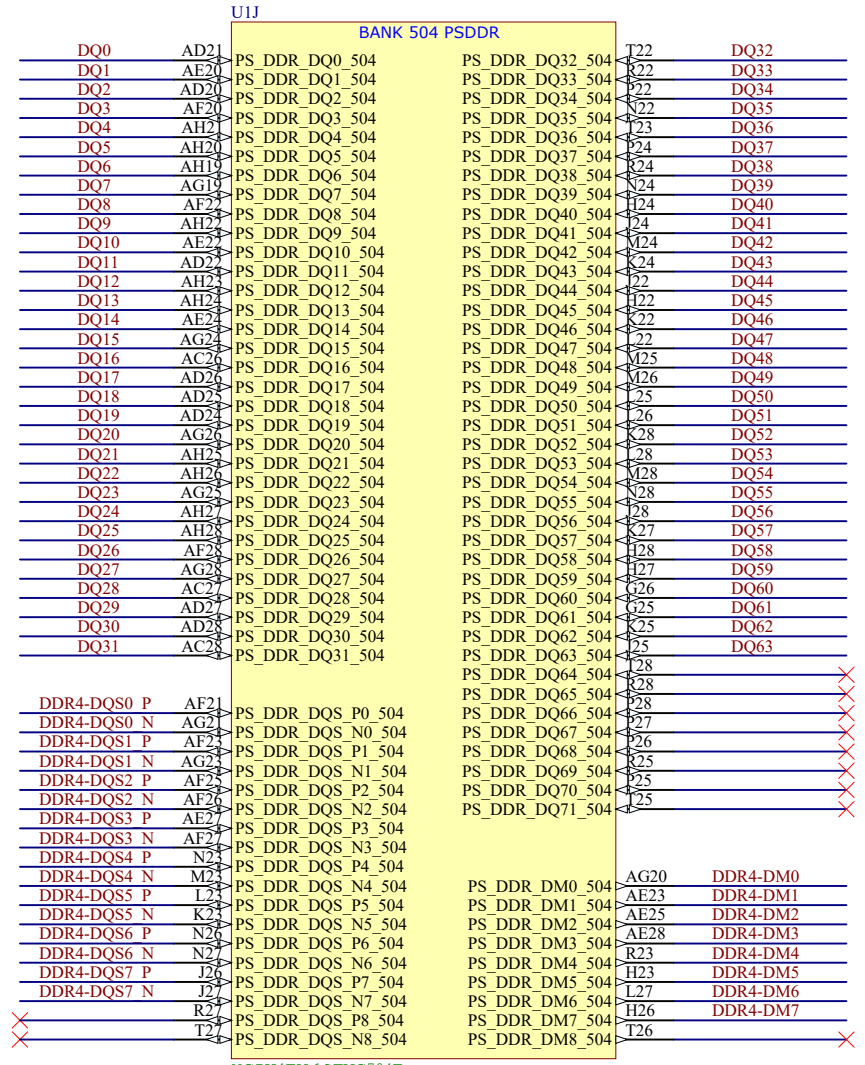
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XC2U4EV-1SFVC784E



XC2U4EV-1SFVC784E



Title: TE0813 - PS_DDR		
A4	Number: TE0813 4DE11-AZ	Rev. 01
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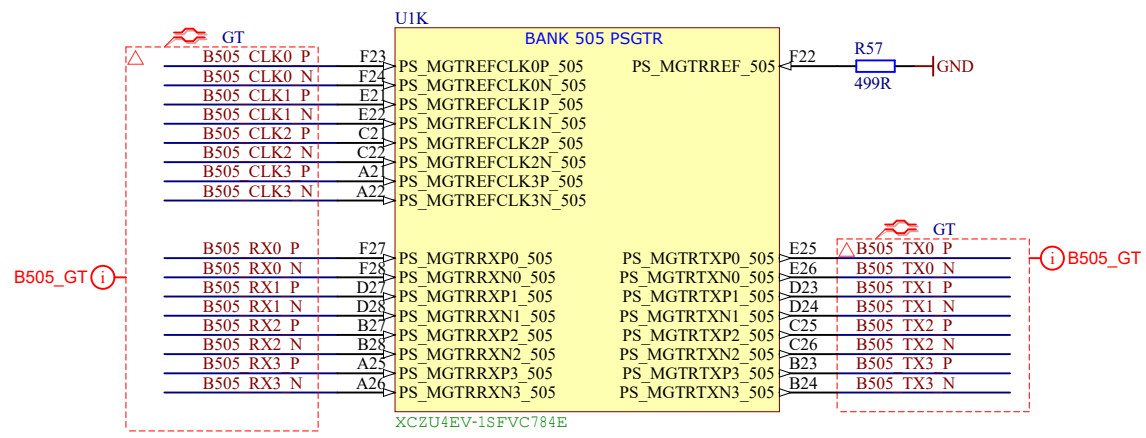
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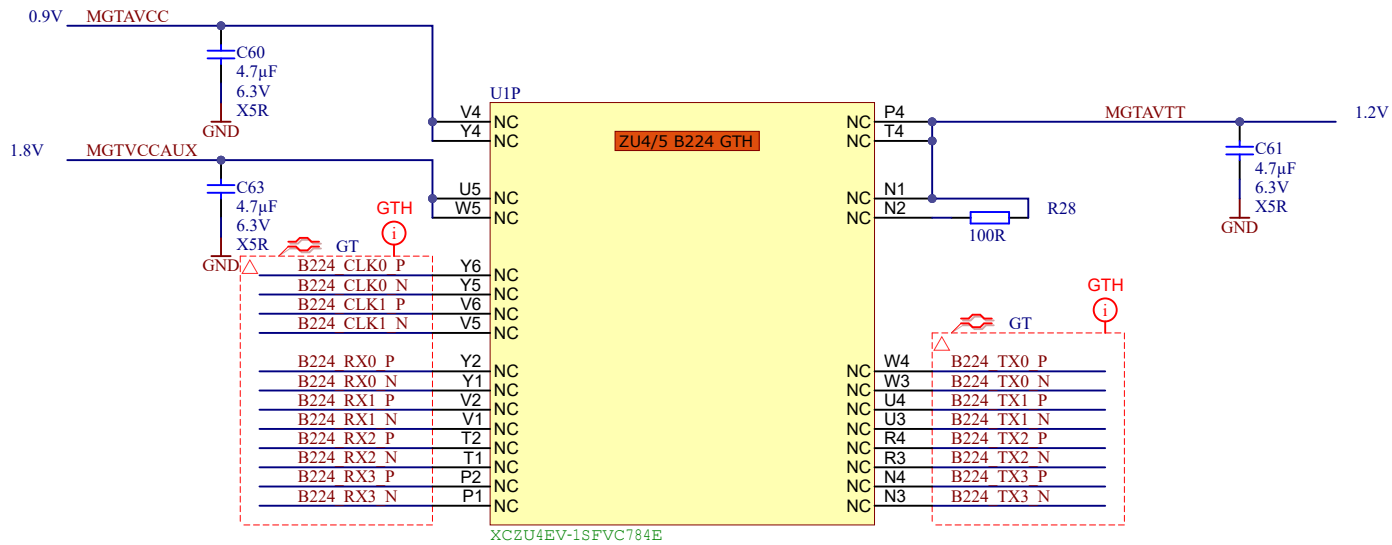

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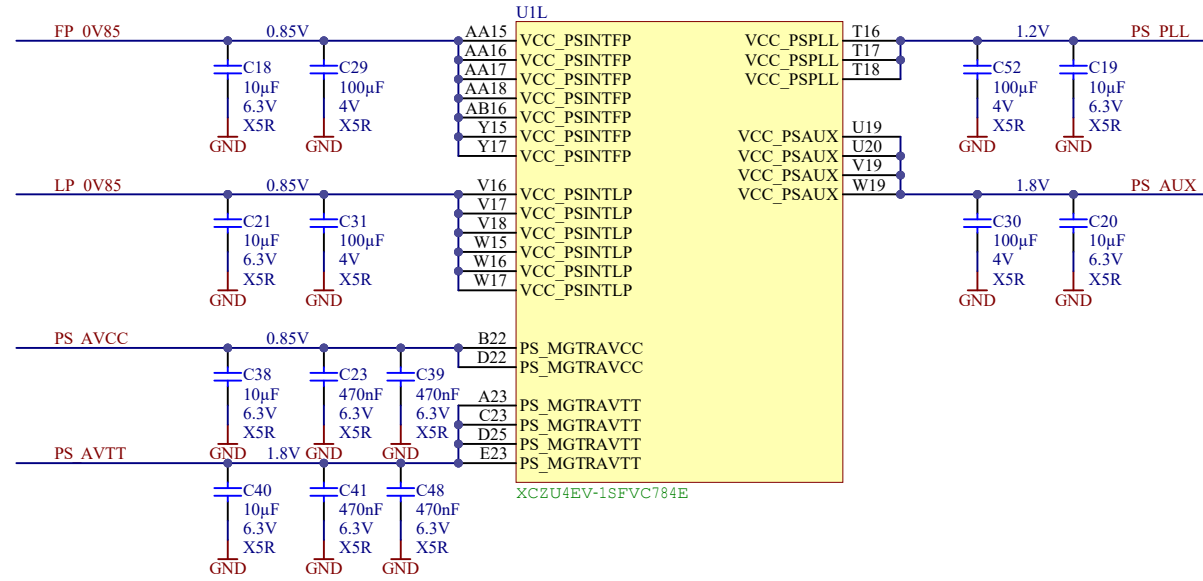
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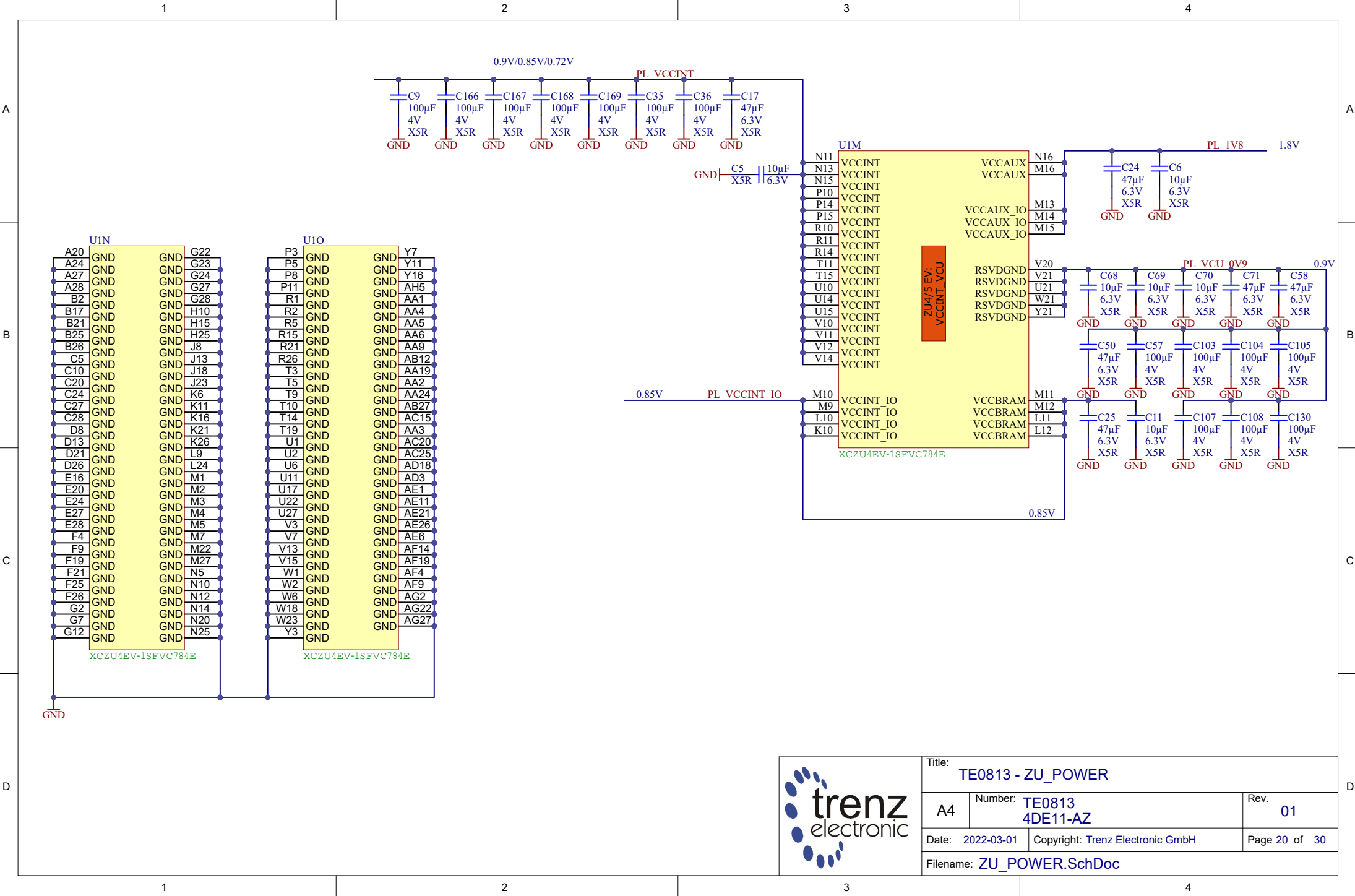
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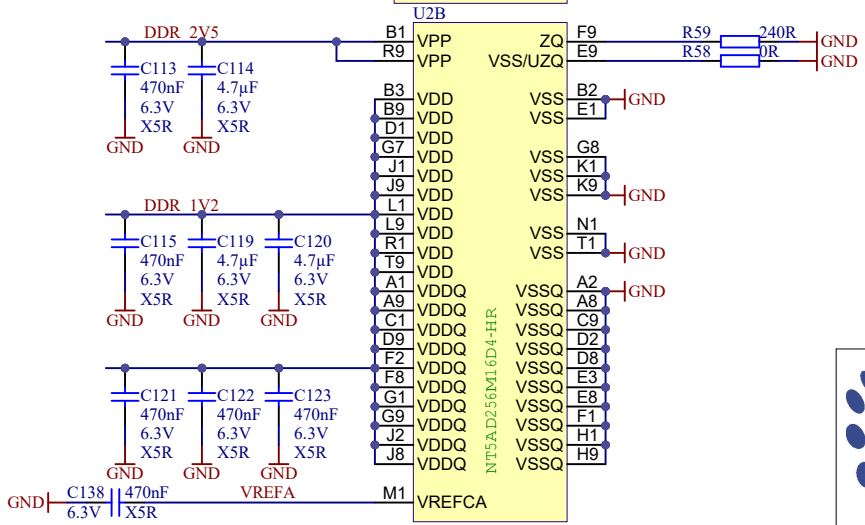
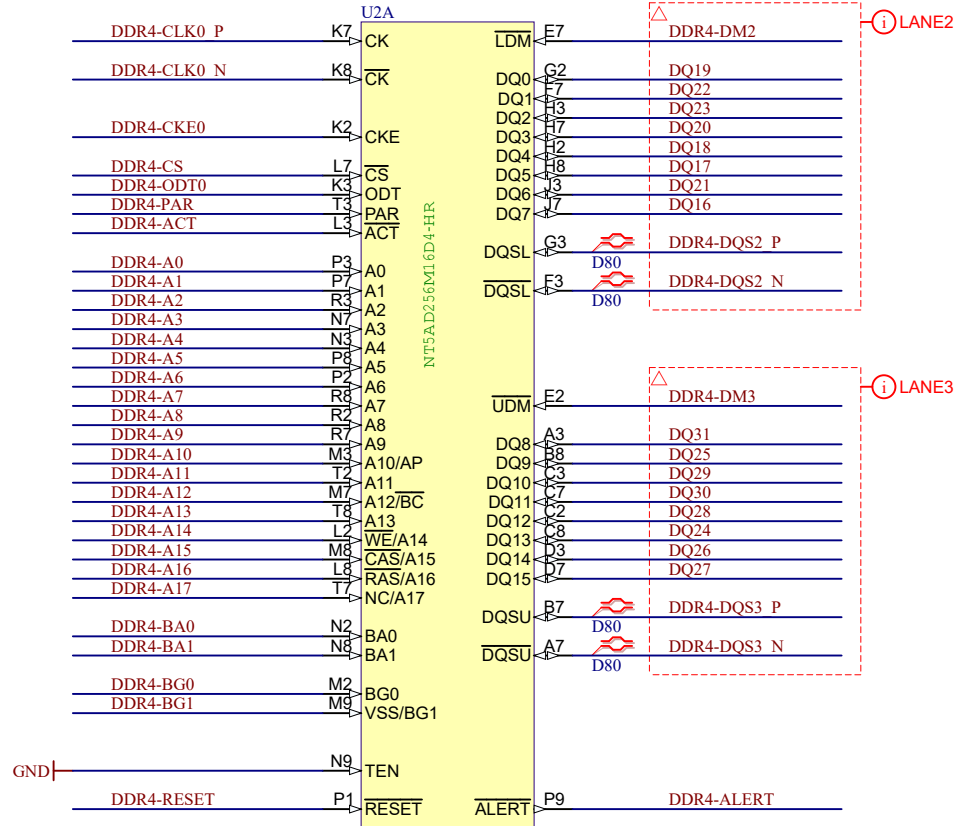
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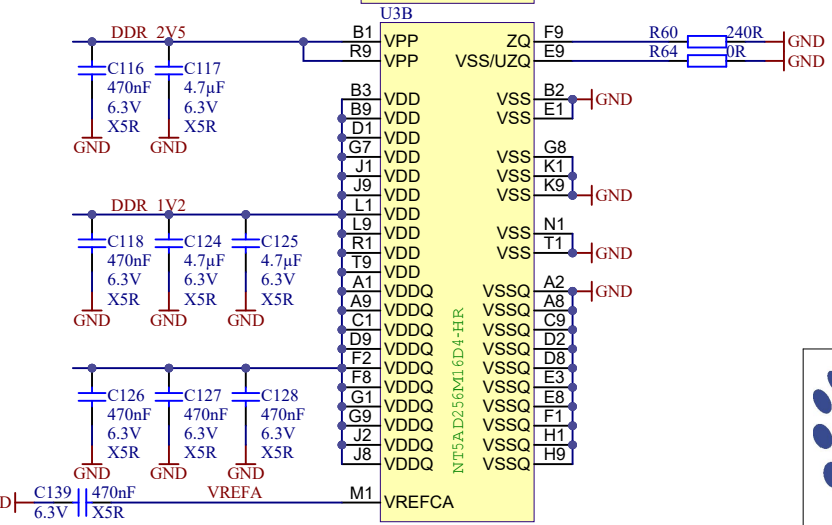
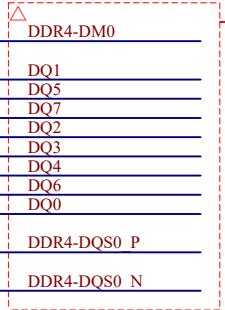
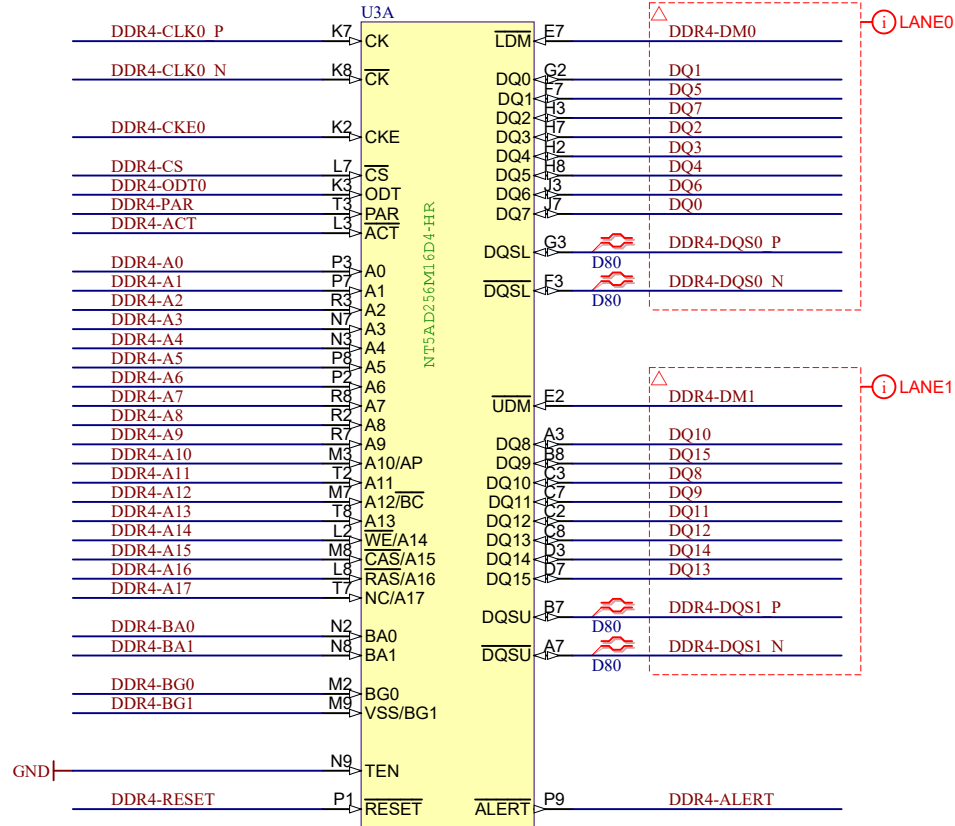
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A4	Number: TE0813 4DE11-AZ	Rev. 01
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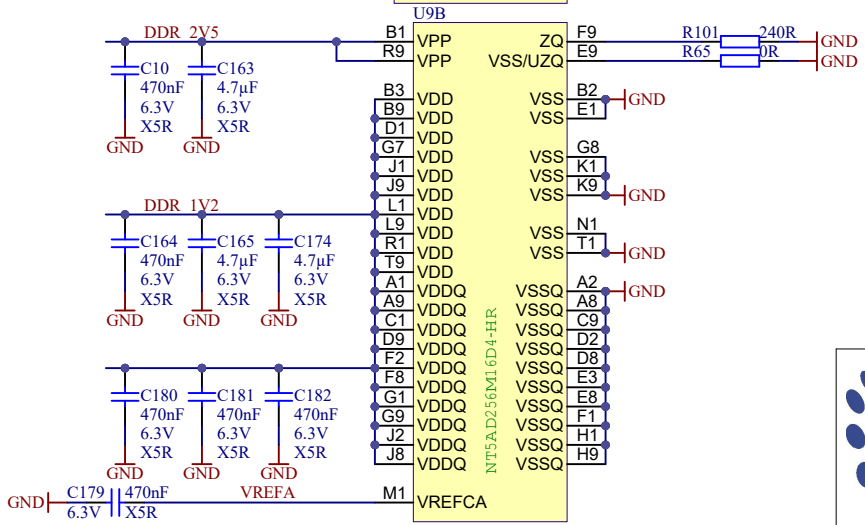
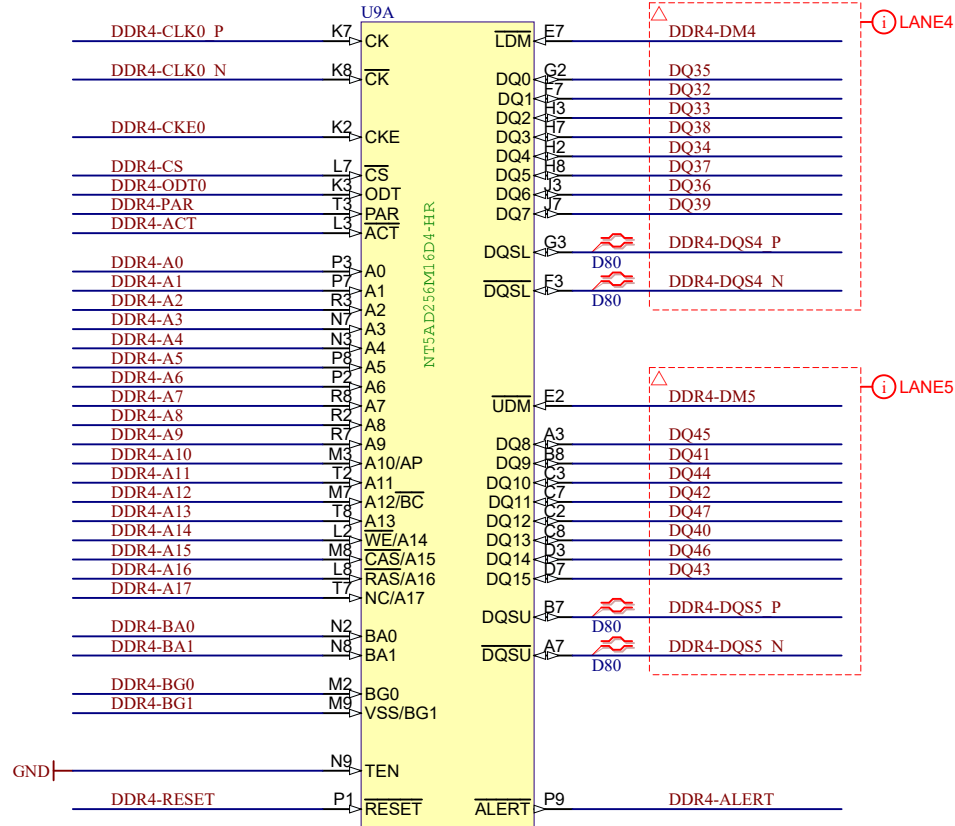
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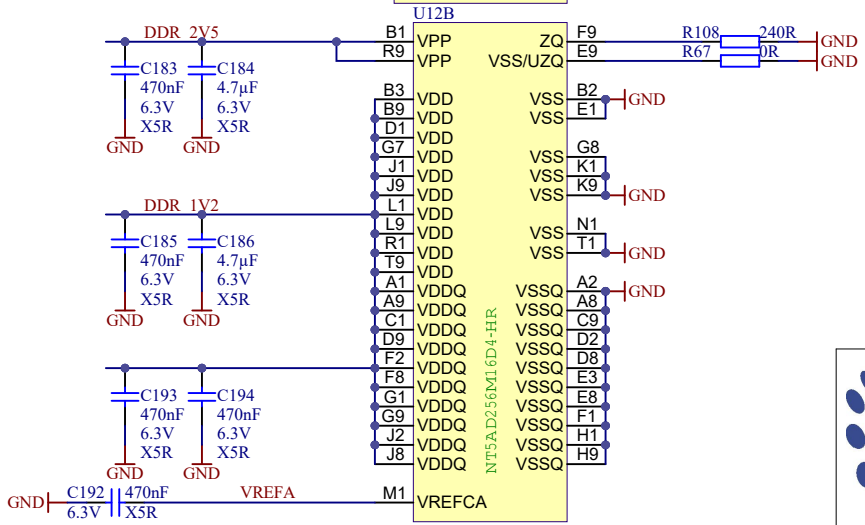
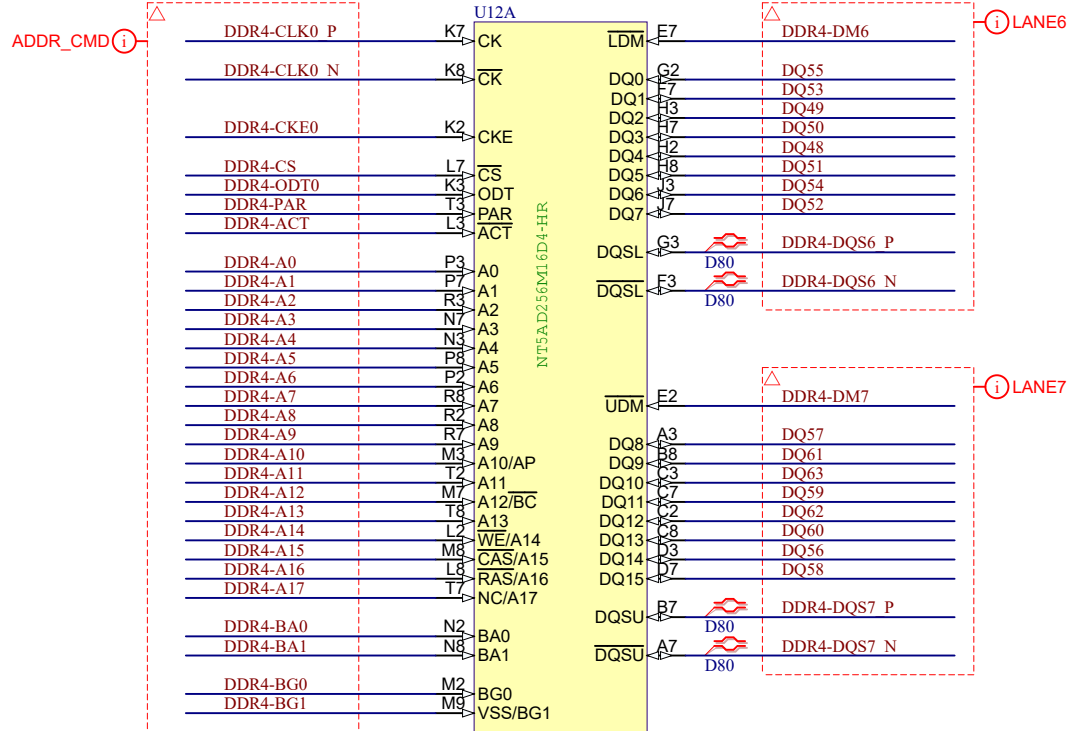
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A4	Number: TE0813 4DE11-AZ	Rev. 01
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A4	Number: TE0813 4DE11-AZ	Rev. 01
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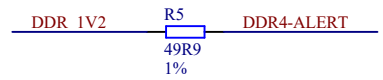
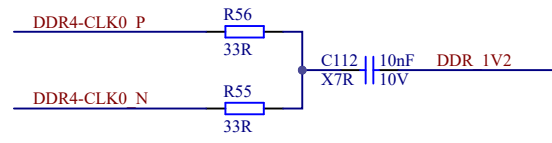
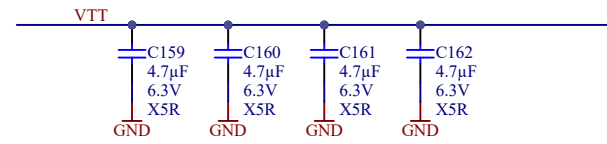
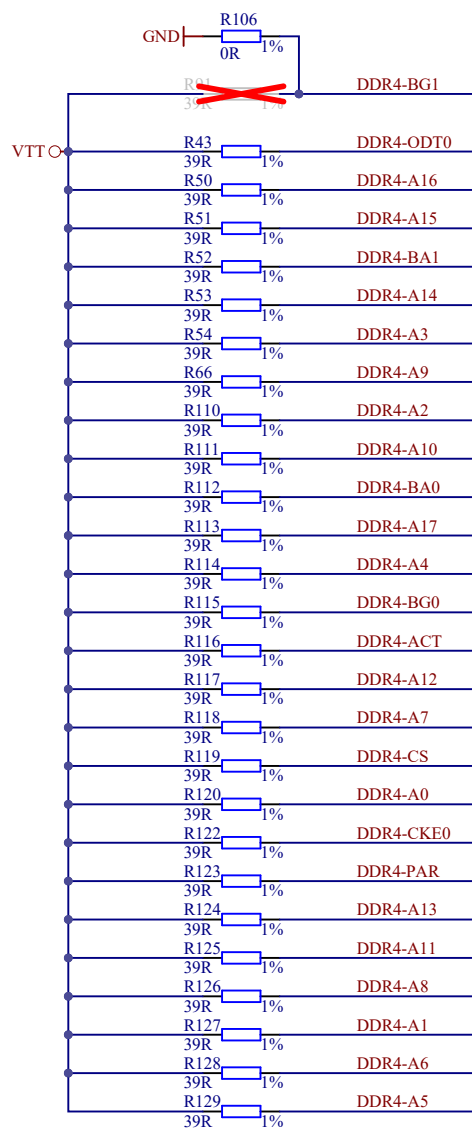


Title: TE0813 - DDR4_3_RAM		
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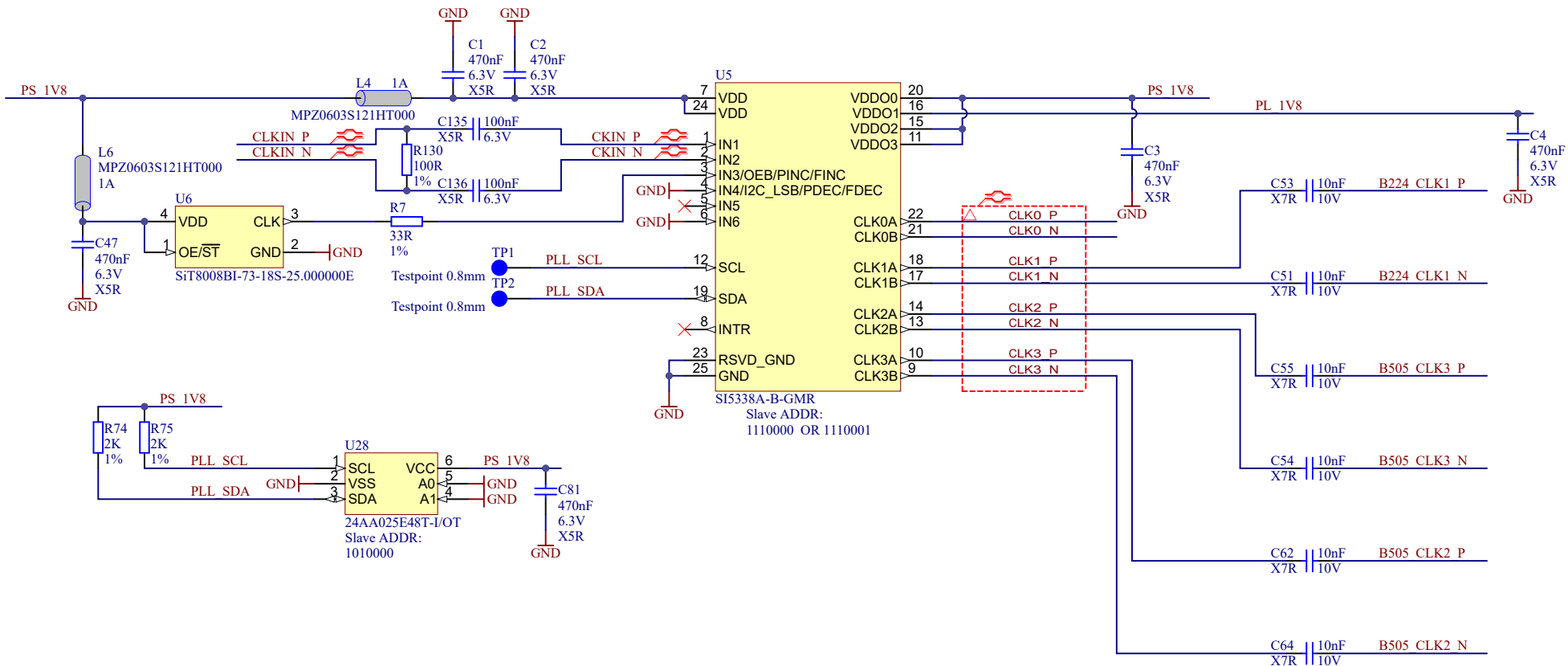



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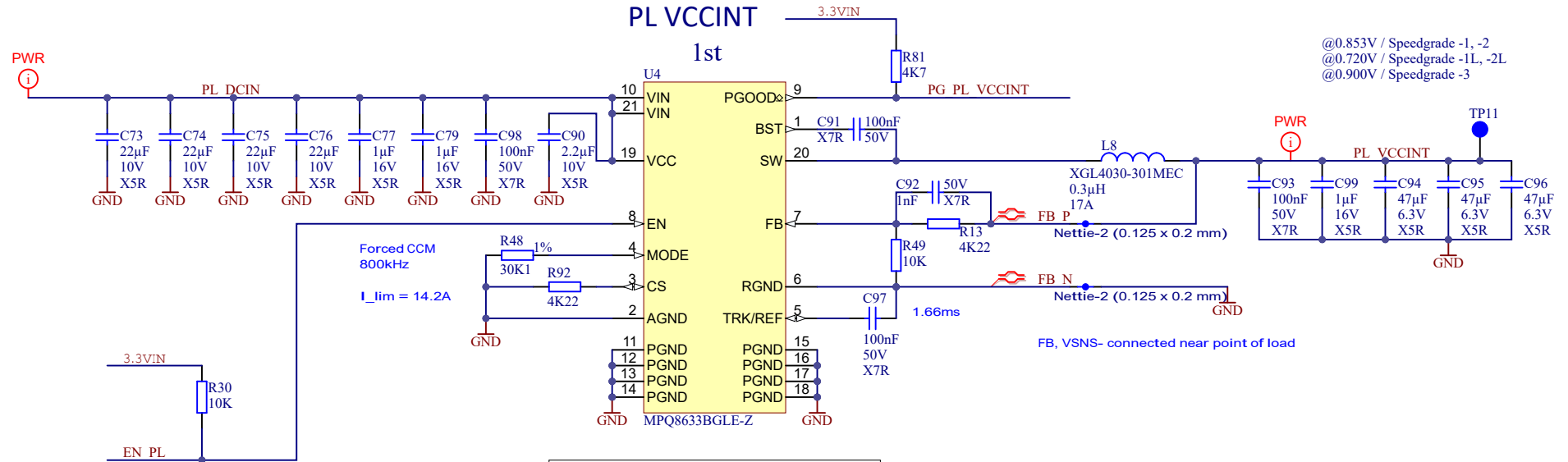


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		Title: TE0813 - CLOCK	
		A4	Number: TE0813 4DE11-AZ
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Filename: Clock.SchDoc		Page 26 of 30	

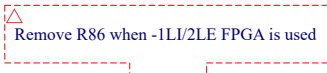
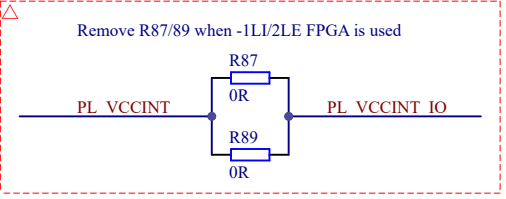
U4 can be TPS548A28RWR or MPQ8633BGLE-Z which is up to Trenz Electronic GmbH.



FPGA Speed grade:		
-1L1 / -2LE	R13 - 2K, R49 - 10K	PL_VCCINT = 0.720V
-1 / -2	R13 - 4K22, R49 - 10K	PL_VCCINT = 0.853V
-3E	R13 - 10K, R49 - 20K	PL_VCCINT = 0.900V

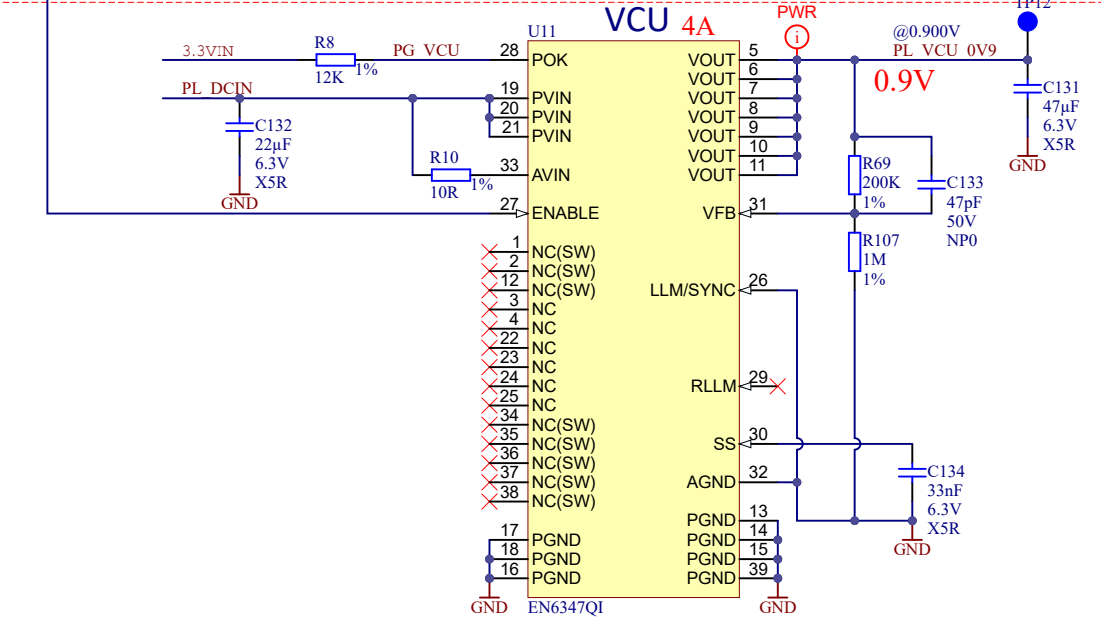
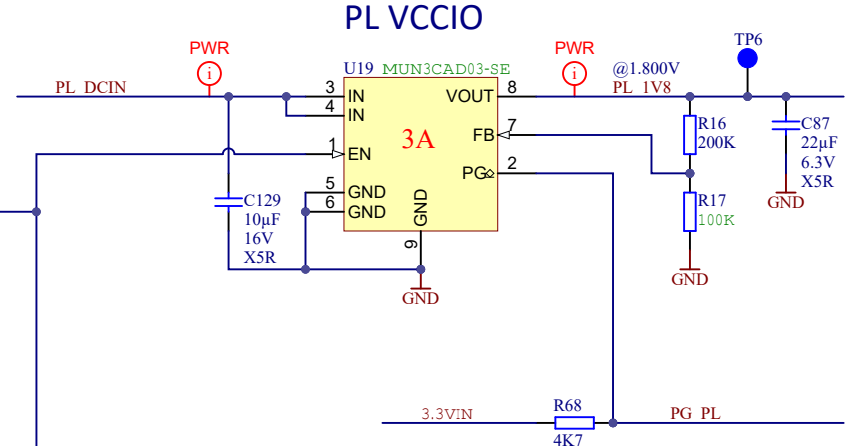
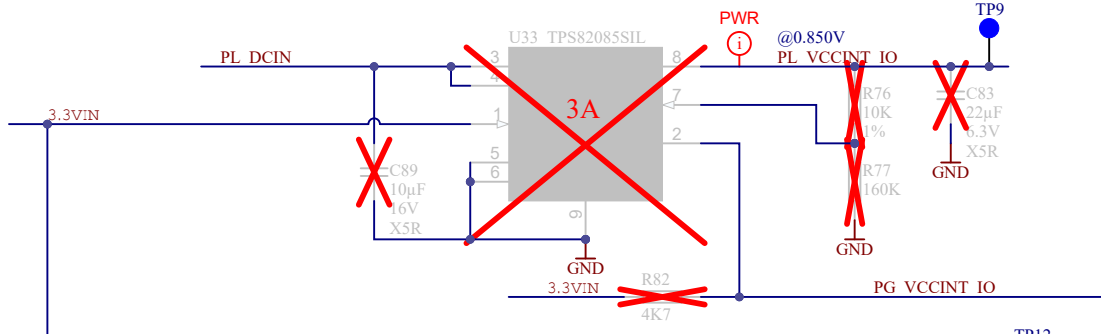
U4 pin compatible with  
 -- TPS548B28 (20A)  
 -- TPS548A28 (15A)  
 -- TPS54JA20 (12A)

	Title: <b>TE0813 - POWER</b>	
	A4	Number: <b>TE0813 4DE11-AZ</b>
	Date: <b>2022-06-08</b>	Copyright: <b>Trenz Electronic GmbH</b>
	Filename: <b>POWER.SchDoc</b>	
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### VCCINT\_IO & VCCBRAM

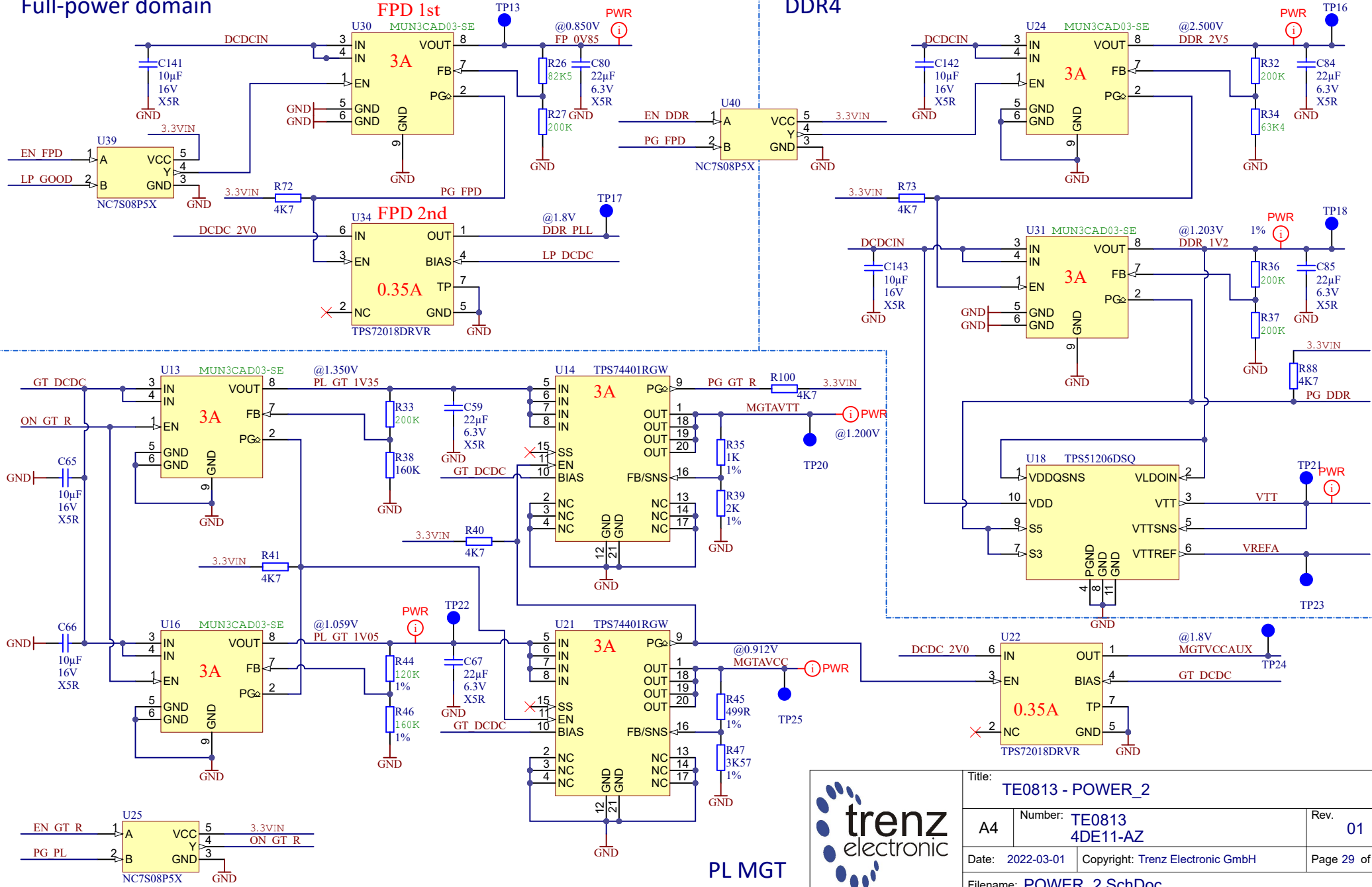
Add U33 when -1L1/2LE FPGA is used



Title: TE0813 - POWER		
A4	Number: TE0813 4DE11-AZ	Rev. 01
Date: 2022-03-01	Copyright: Trenz Electronic GmbH	Page 28 of 30
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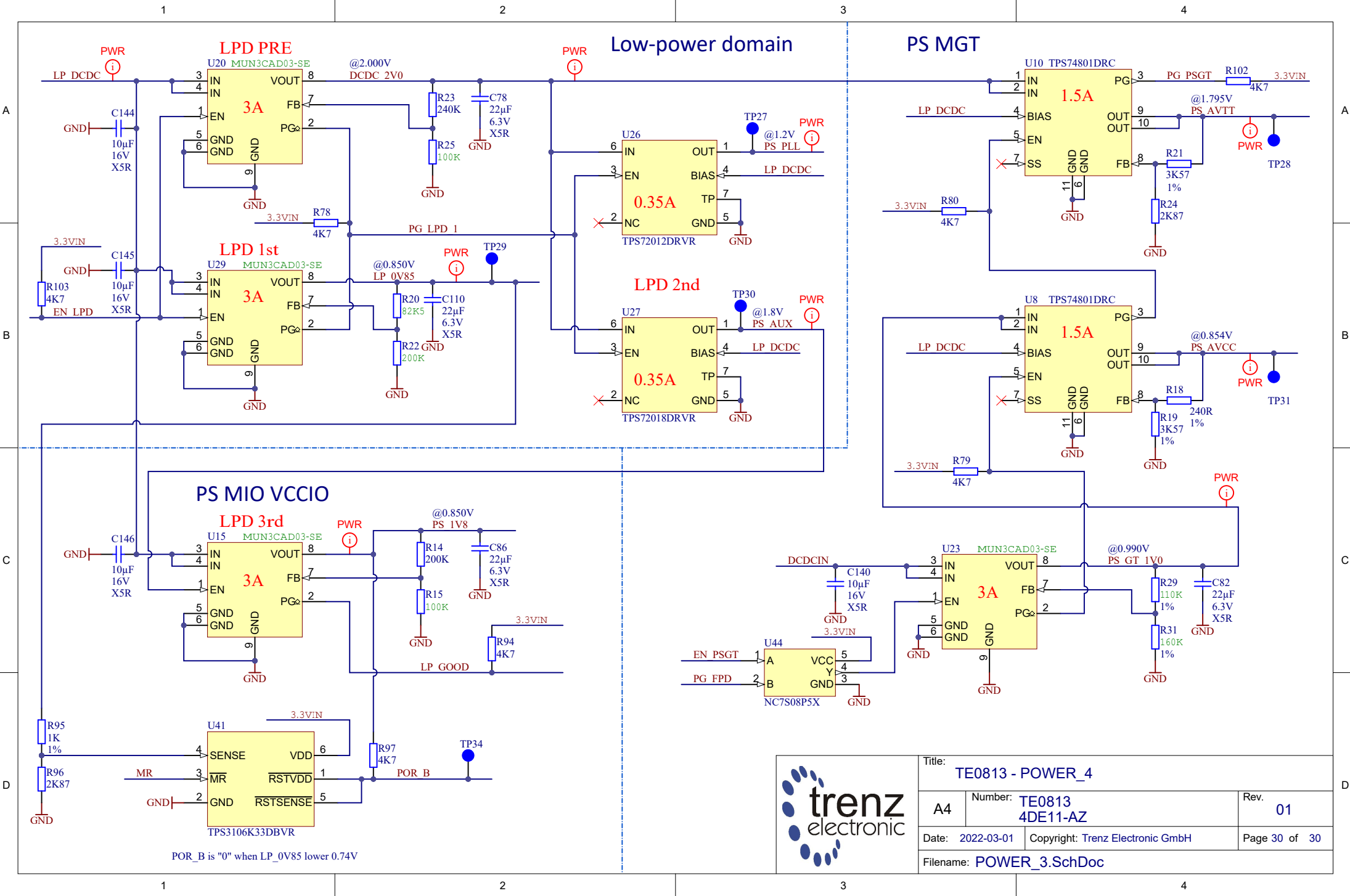
# Full-power domain

# DDR4



Title: <b>TE0813 - POWER_2</b>		
A4	Number: <b>TE0813 4DE11-AZ</b>	Rev. <b>01</b>
Date: 2022-03-01	Copyright: Trenz Electronic GmbH	Page 29 of 30
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PL MGT



POR\_B is "0" when LP\_0V85 lower 0.74V



Title: TE0813 - POWER_4		
A4	Number: TE0813 4DE11-AZ	Rev. 01
Date: 2022-03-01	Copyright: Trenz Electronic GmbH	Page 30 of 30
Filename: POWER_3.SchDoc		