


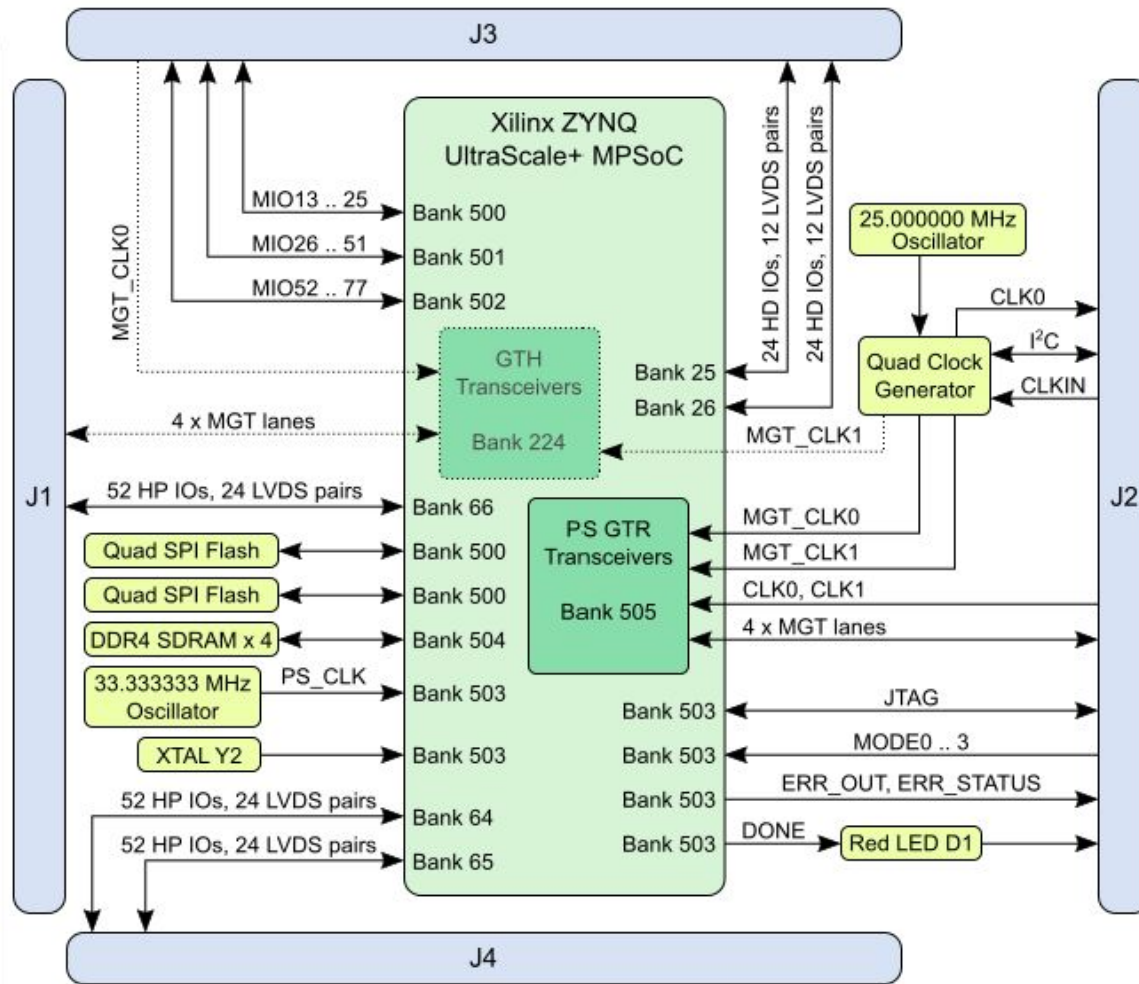
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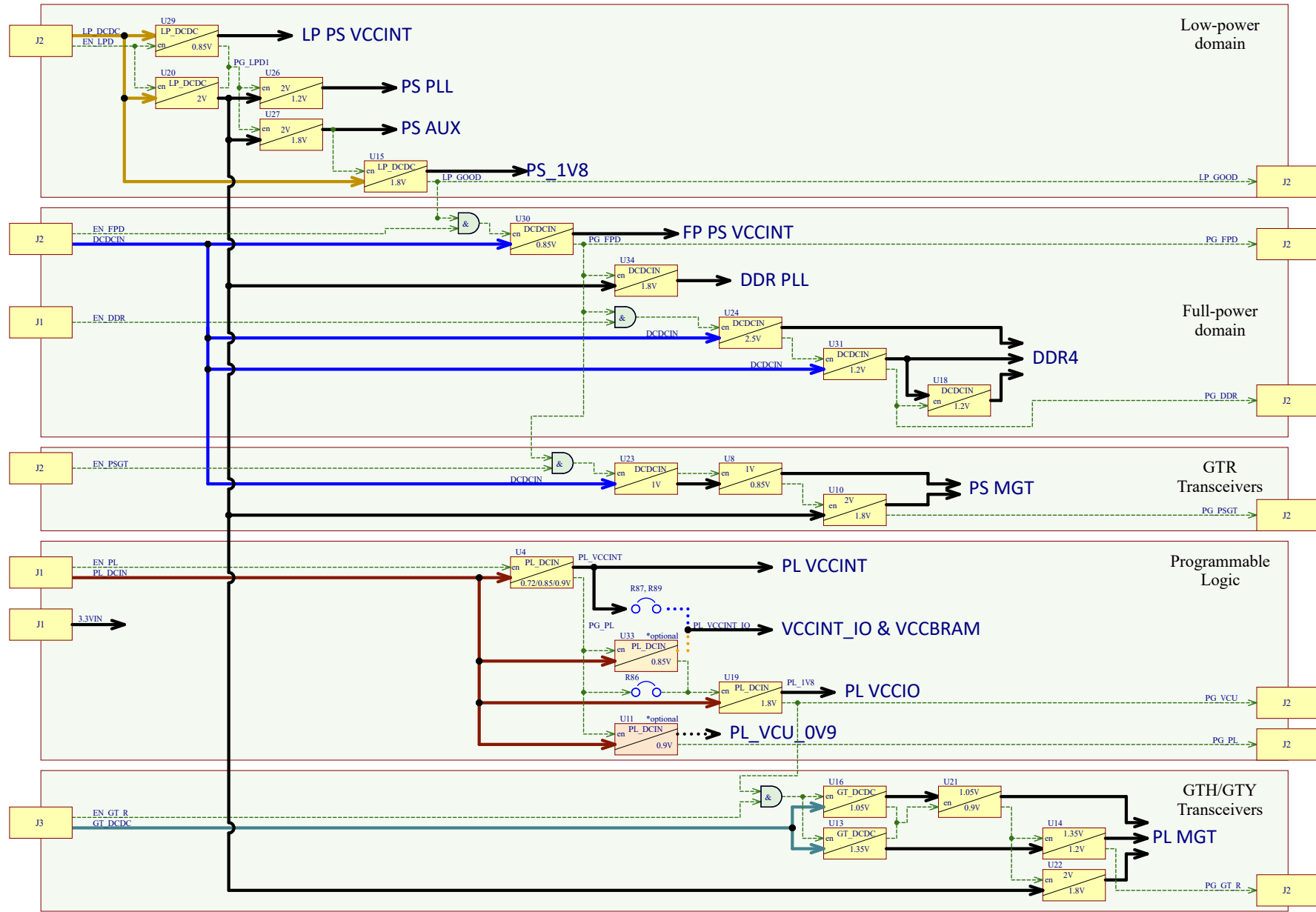
Schematics and other handouts serve for informational purposes only!

	Title: TE0813	
	A4	Number: TE0813 3RI21-A
	Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT
	Filename: Legal Notices Modules.SchDoc	
		Rev. 01
		Page 1 of 30

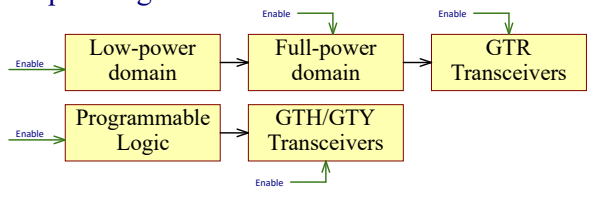
TE0813-01



		Title: Module TE0813 - System Overview	
		A4	Number: TE0813 3RI21-A Date: 2021-08-16 Filename: TE0813-Overview.SchDoc



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



Title: TE0813 - Power Diagram		
A3	Number: TE0813 3R121-A	Rev. 01
Datum: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page 3 of 30
Filename: Power_Diagram.SchDoc		

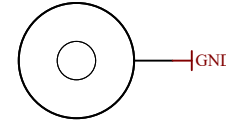
U_J1
J1.SchDoc
U_J2
J2.SchDoc
U_J3
J3.SchDoc
U_J4
J4.SchDoc
U_DDR4-TERM
DDR4-TERM.SchDoc
U_B64
B64.SchDoc
U_B65
B65.SchDoc
U_B66
B66.SchDoc
U_B_GT
B_GT.SchDoc
U_PD
Power_Diagram.SchDoc

U_B_PS_GT
B_PS_GT.SchDoc
U_PS_DDR
PS_DDR.SchDoc
U_B_MIO
B_MIO.SchDoc
U_B_HD
B_HD.SchDoc
U_Clock
Clock.SchDoc
U_CONFIG
CONFIG.SchDoc
U_DDR4-RAM
DDR4-RAM.SchDoc
U_DDR4-RAM_2
DDR4-RAM_2.SchDoc
U_DDR4-RAM_3
DDR4-RAM_3.SchDoc
U_DDR4-RAM_4
DDR4-RAM_4.SchDoc

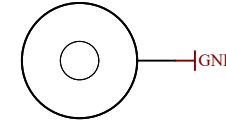
U_LN
Legal Notices Modules.SchDoc
U_ZU_POWER
ZU_POWER.SchDoc
U_ZU_PS_POWER
ZU_PS_POWER.SchDoc
U_POWER
POWER.SchDoc
U_POWER_1
POWER_1.SchDoc
U_POWER_2
POWER_2.SchDoc
U_POWER_4
POWER_3.SchDoc
U_REV_CH
Revision Changes.SchDoc
U_OVERVIEW
TE0813-Overview.SchDoc

Special notes:

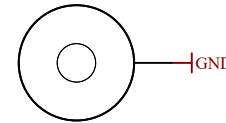
Low power FPGA
VCCINT= 0.72V



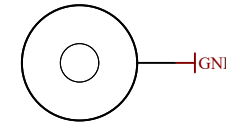
Mount.Hole 3.2mm für Unterlegscheibe



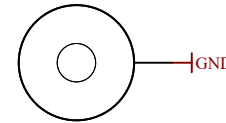
Mount.Hole 3.2mm für Unterlegscheibe



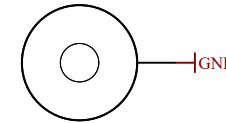
Mount.Hole 3.2mm für Unterlegscheibe



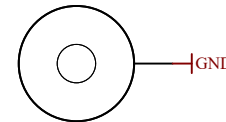
Mount.Hole 3.2mm für Unterlegscheibe



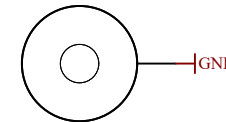
Mount.Hole 3.2mm für Unterlegscheibe



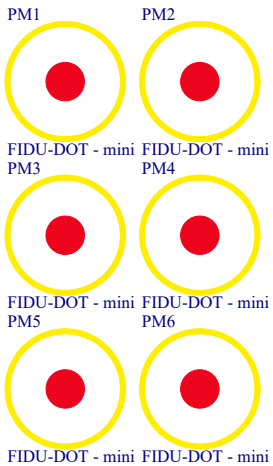
Mount.Hole 3.2mm für Unterlegscheibe



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	3RI21-A
Created by	ED
Modified by	ED
Modified at	2021-07-08
SVN Revision	12304 [Locally Modified]



Title: TE0813		
A4	Number: TE0813 3RI21-A	Rev. 01
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Filename: TE0813.SchDoc		

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A

A

B

B

C

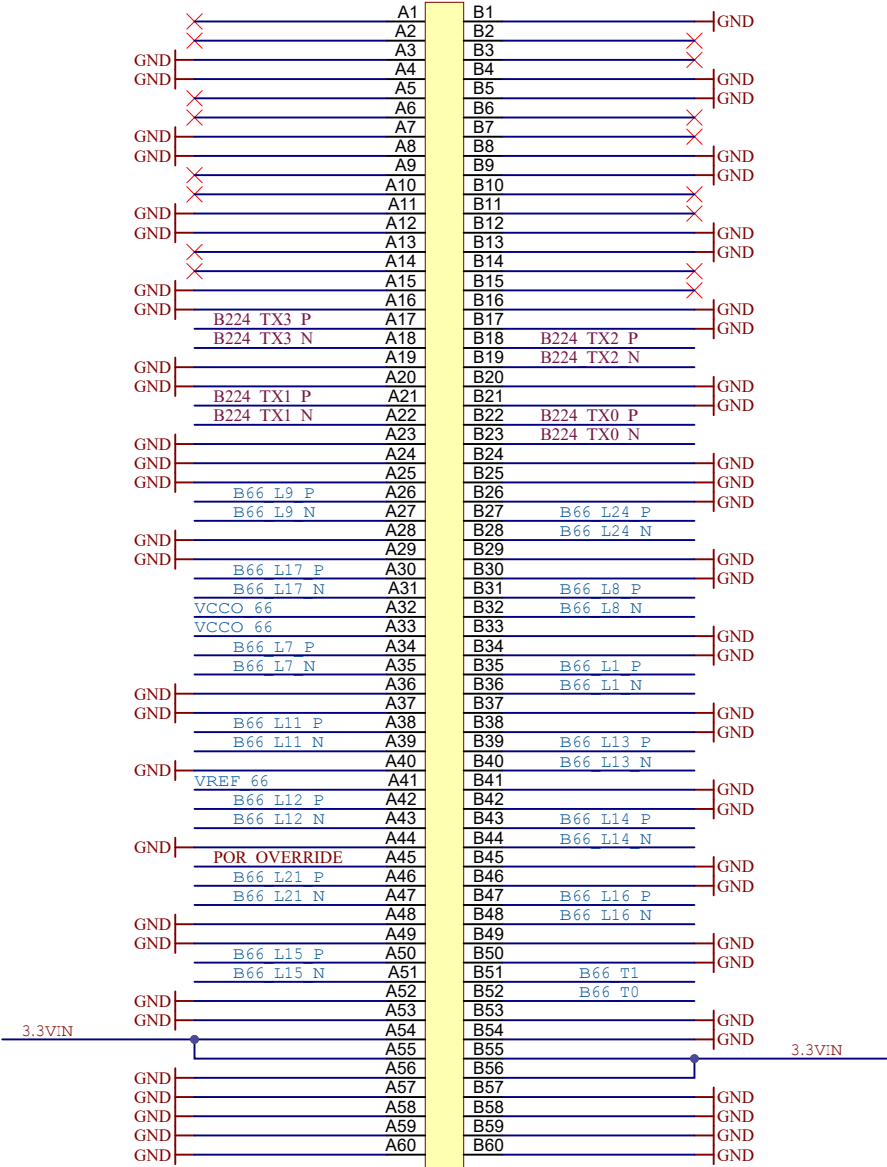
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D

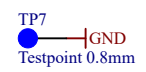
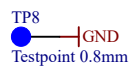
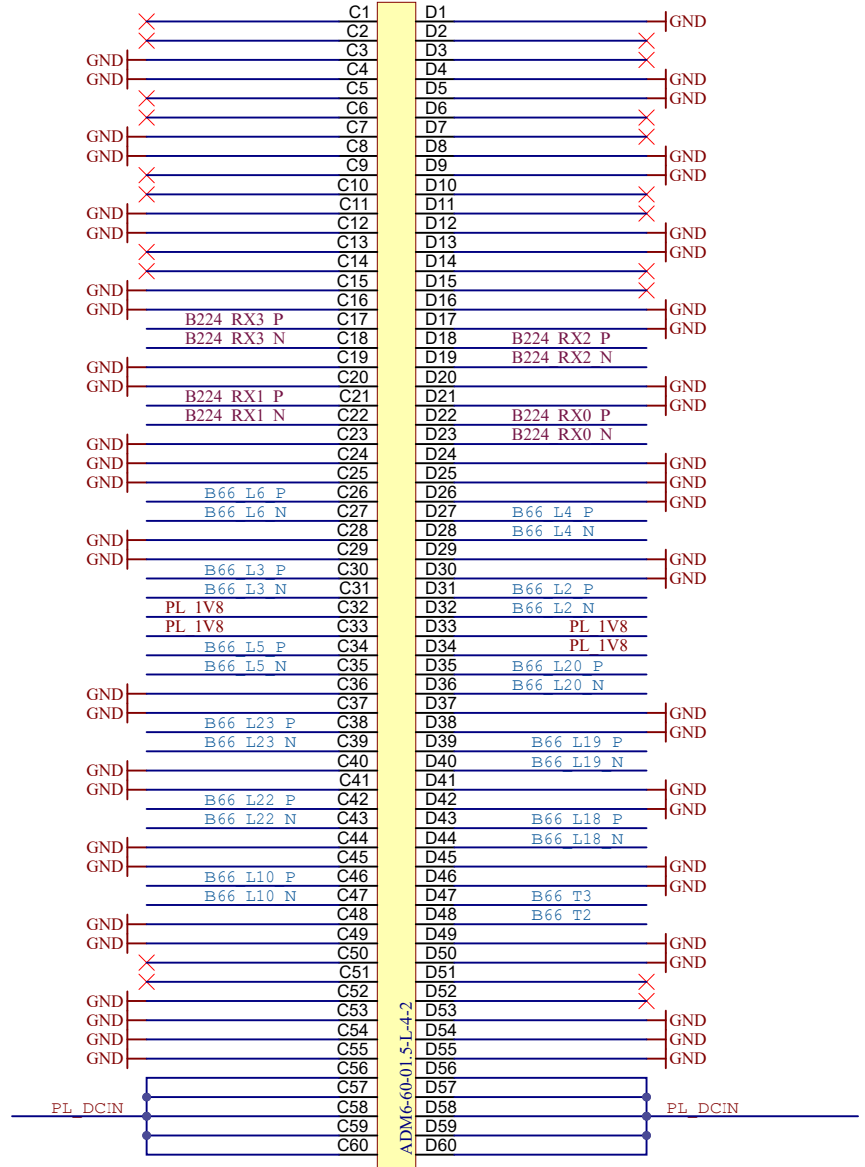
D

JM1A

JM1B



ADM6-60-01.5-L-4-2



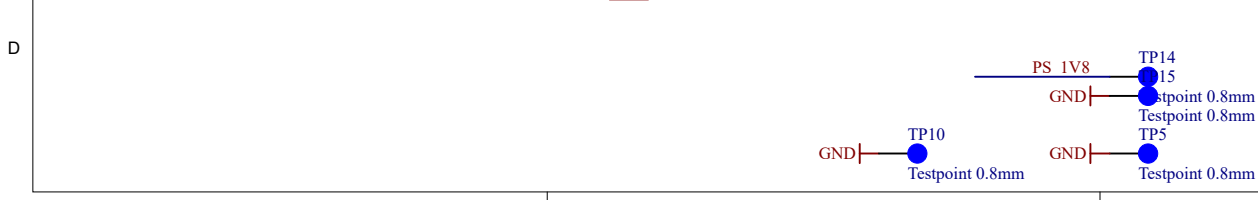
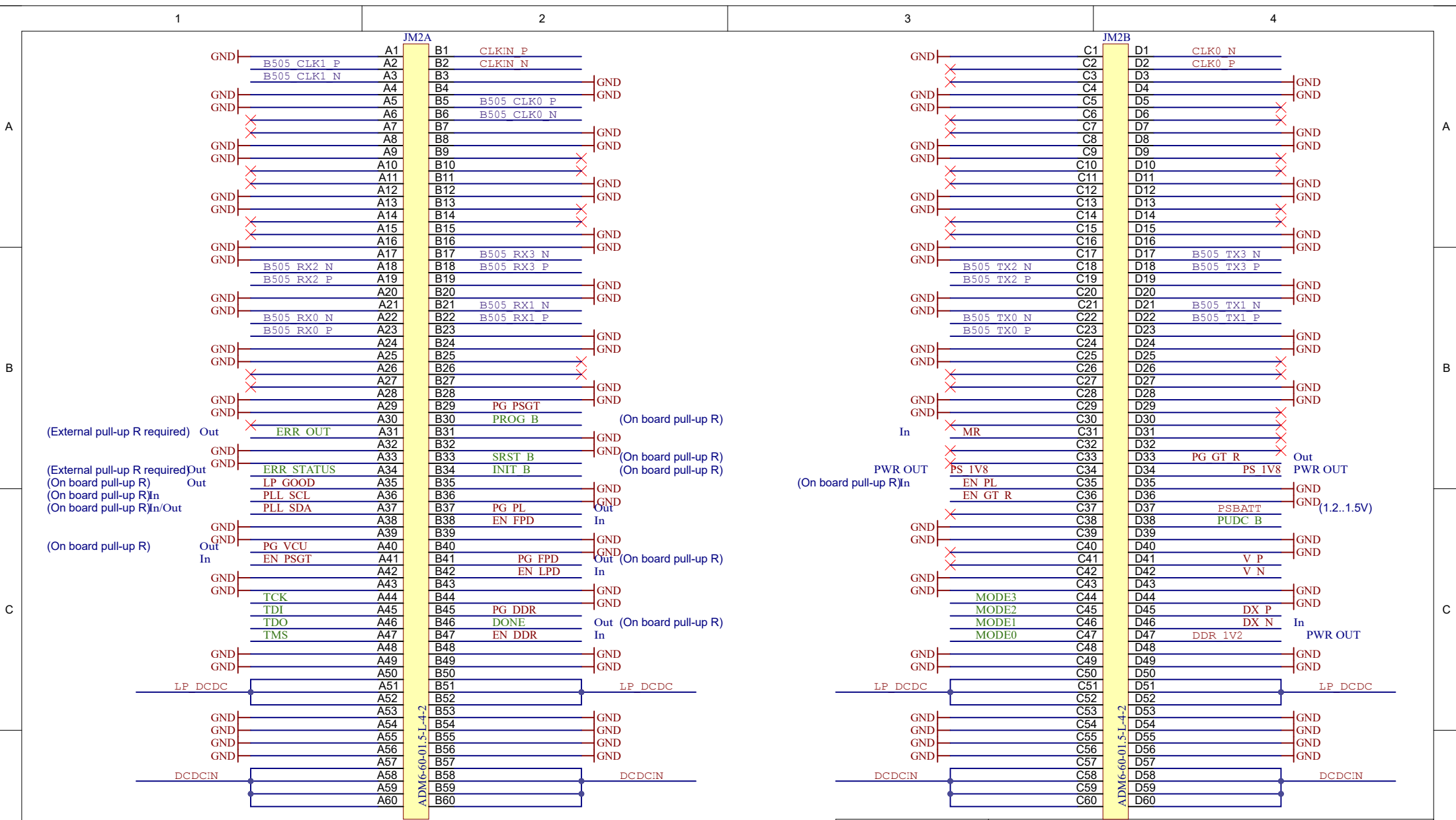
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A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 5 of 30
Filename: J1.SchDoc		

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Title: TE0813 - Connector J2

A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 6 of 30
Filename: J2.SchDoc		

1

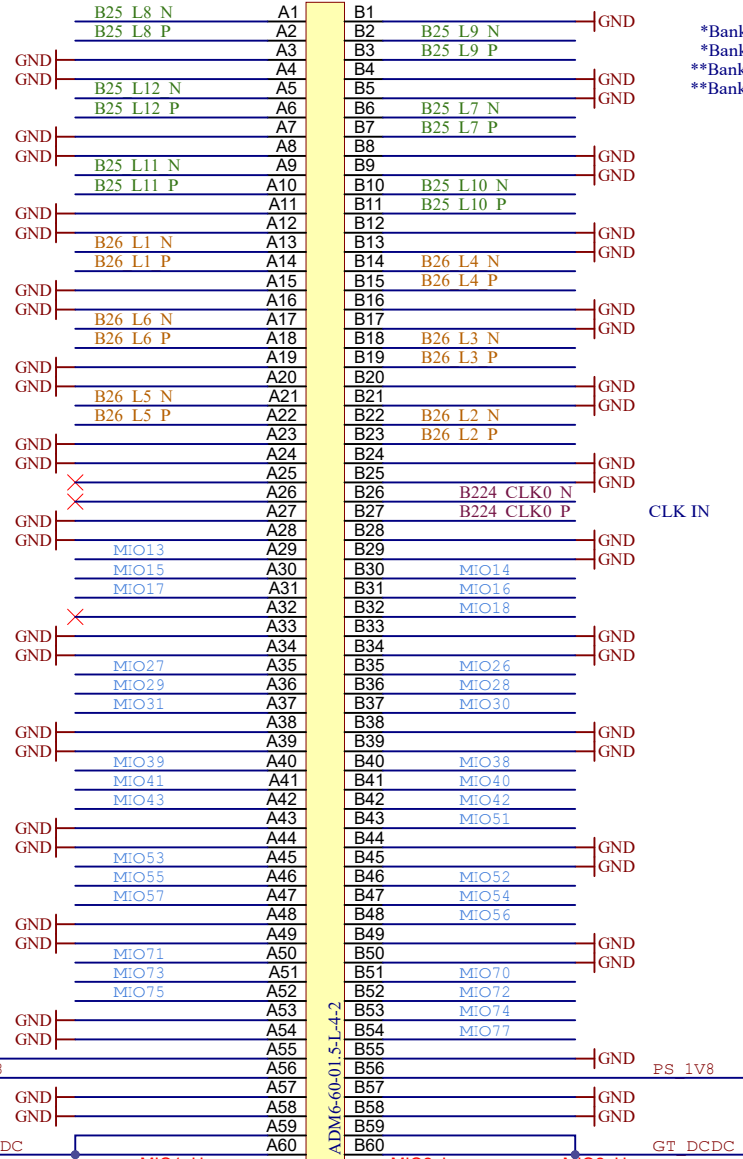
2

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JM3A

JM3B



*Bank 25 for XCZU2/3
 *Bank 45 for XCZU4/6
 **Bank 26 for XCZU2/3
 **Bank 46 for XCZU4/5

CLK IN

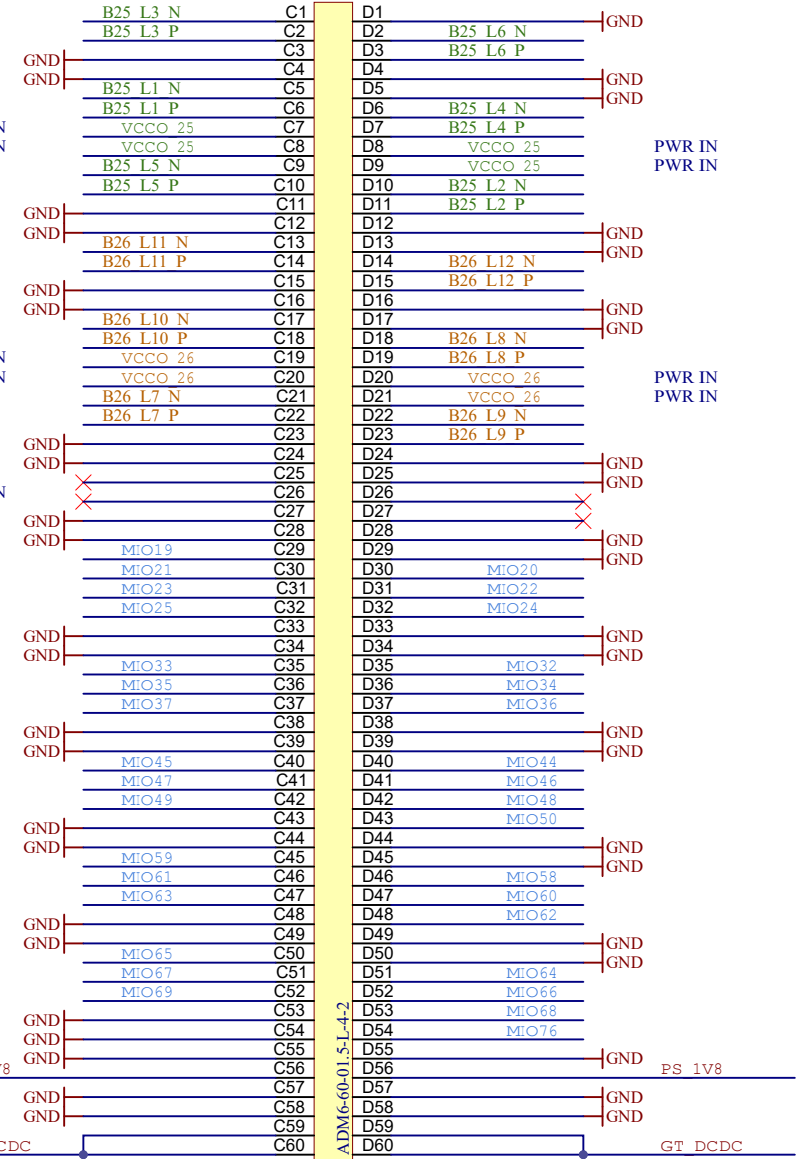
PWR IN
PWR IN

PWR IN
PWR IN

CLK IN

PS 1V8

GT DCDC



PWR IN
PWR IN

PWR IN
PWR IN

CLK IN

PS 1V8

GT DCDC

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		
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 7 of 30
Filename: J3.SchDoc		

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2

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A

A

B

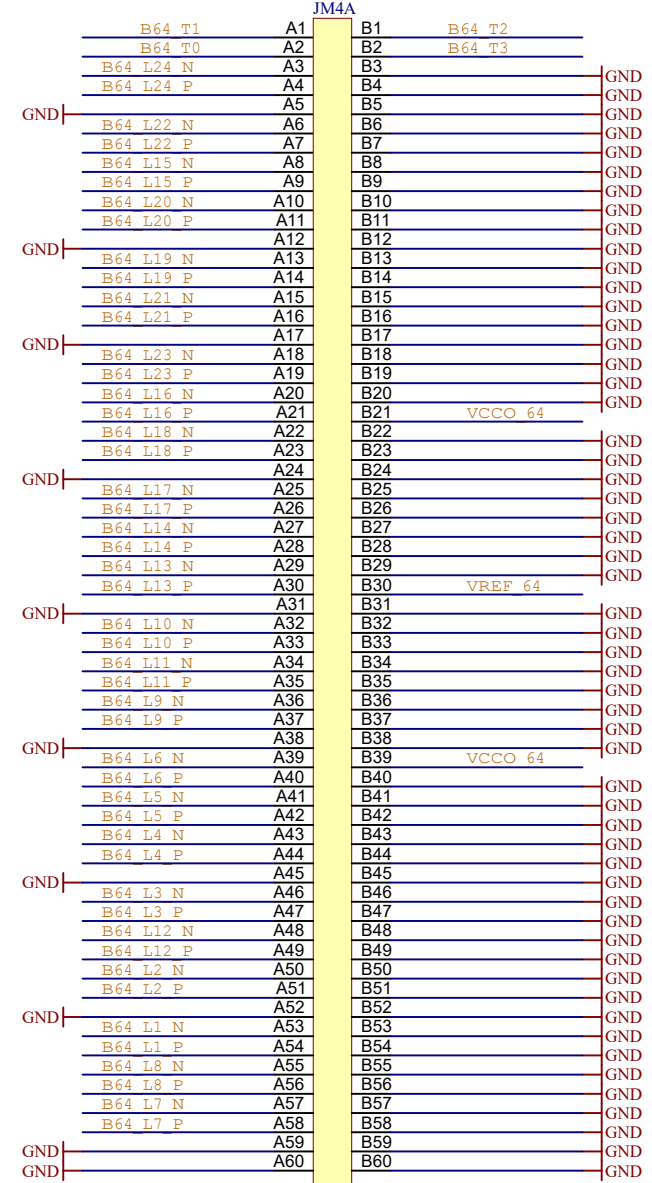
B

C

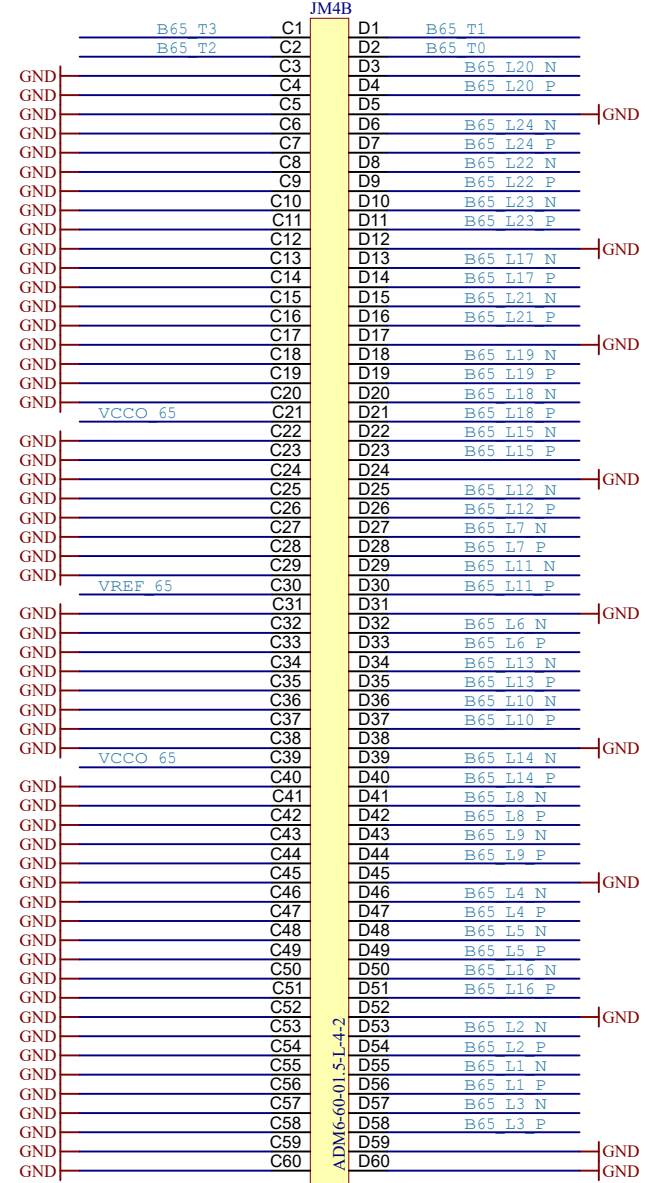
C

D

D



ADM6-60-01.5-L-4-2



ADM6-60-01.5-L-4-2



Title: TE0813 - Connector J4		
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 8 of 30
Filename: J4.SchDoc		

1

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3

4

A

A

B

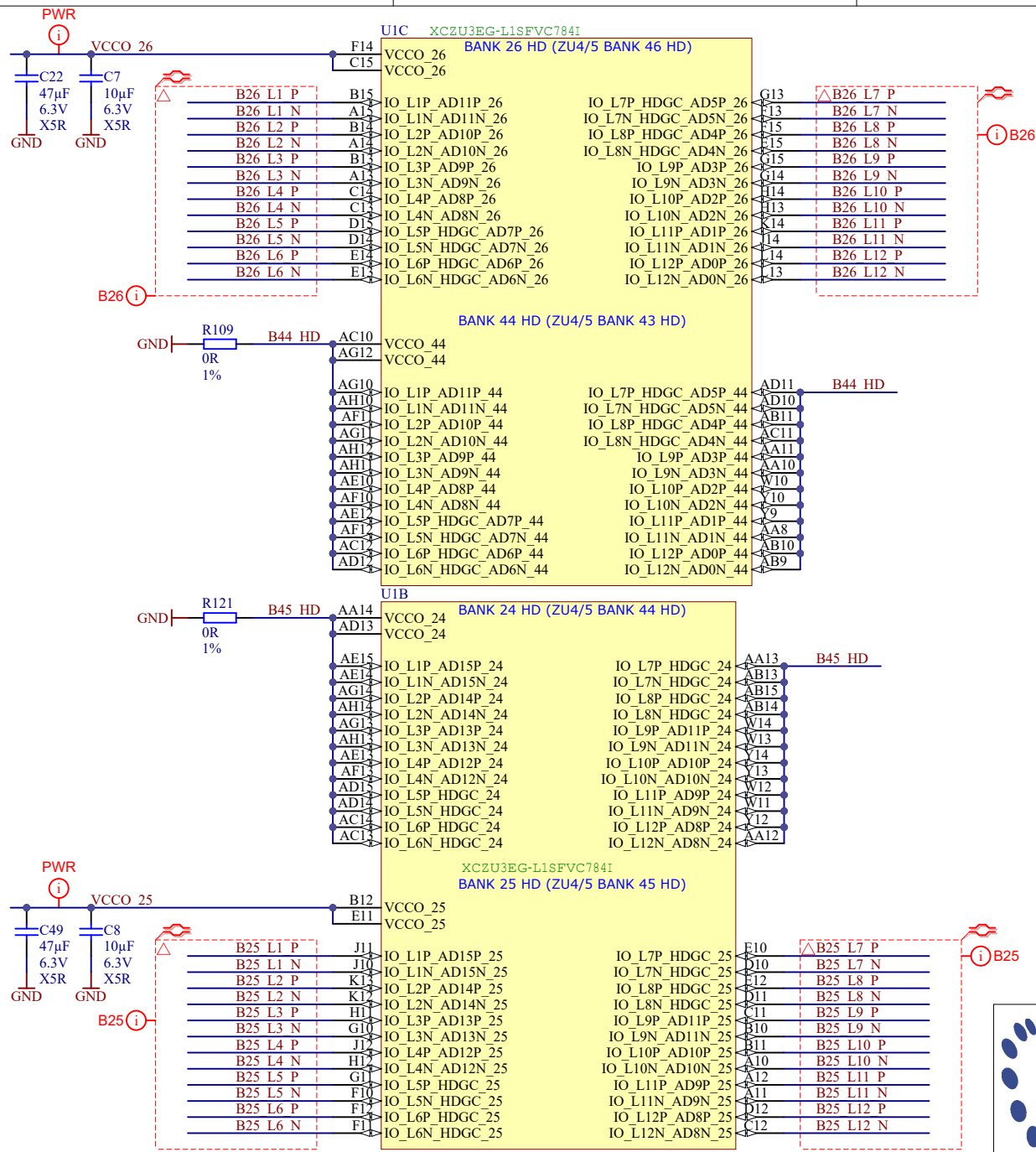
B

C

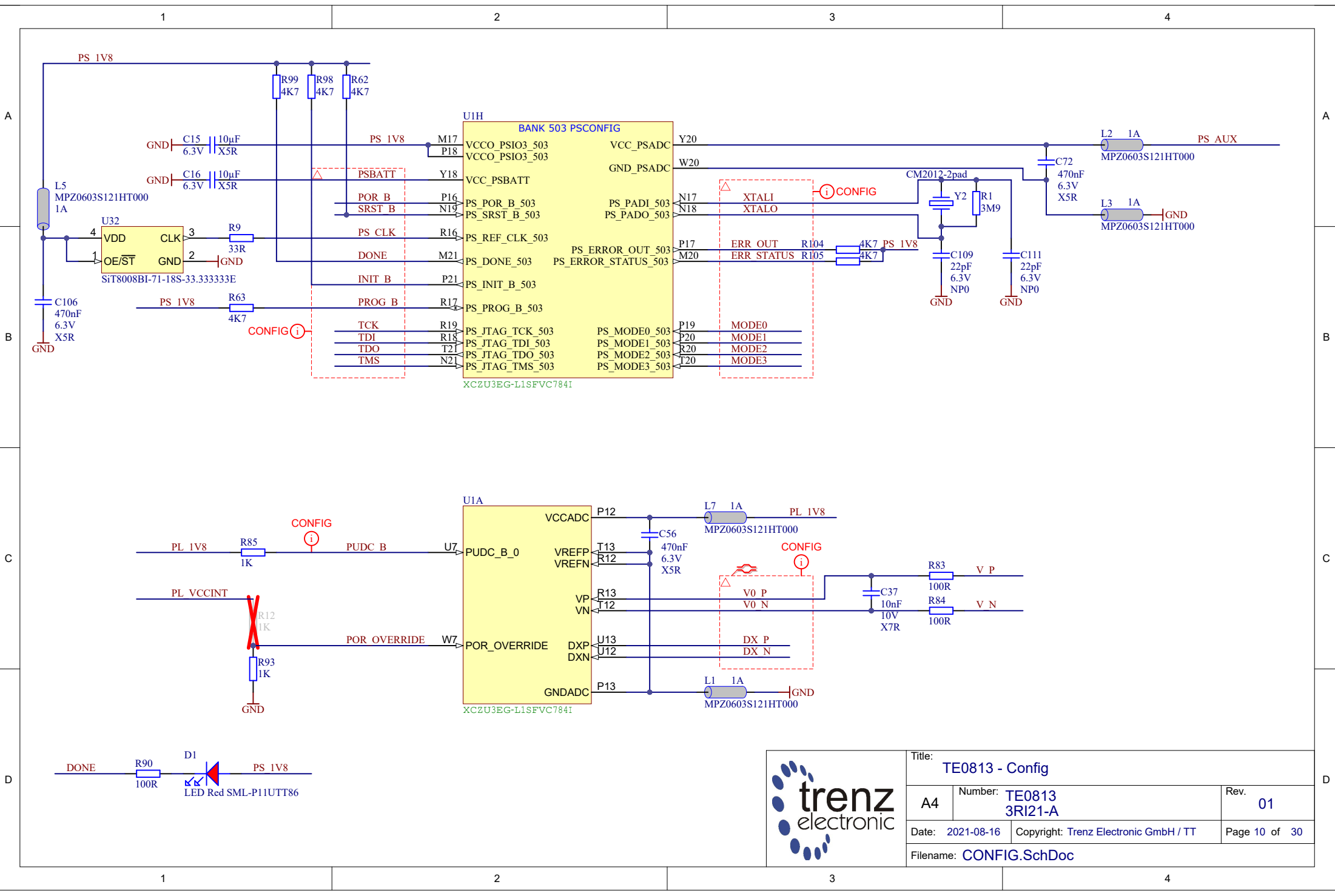
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D

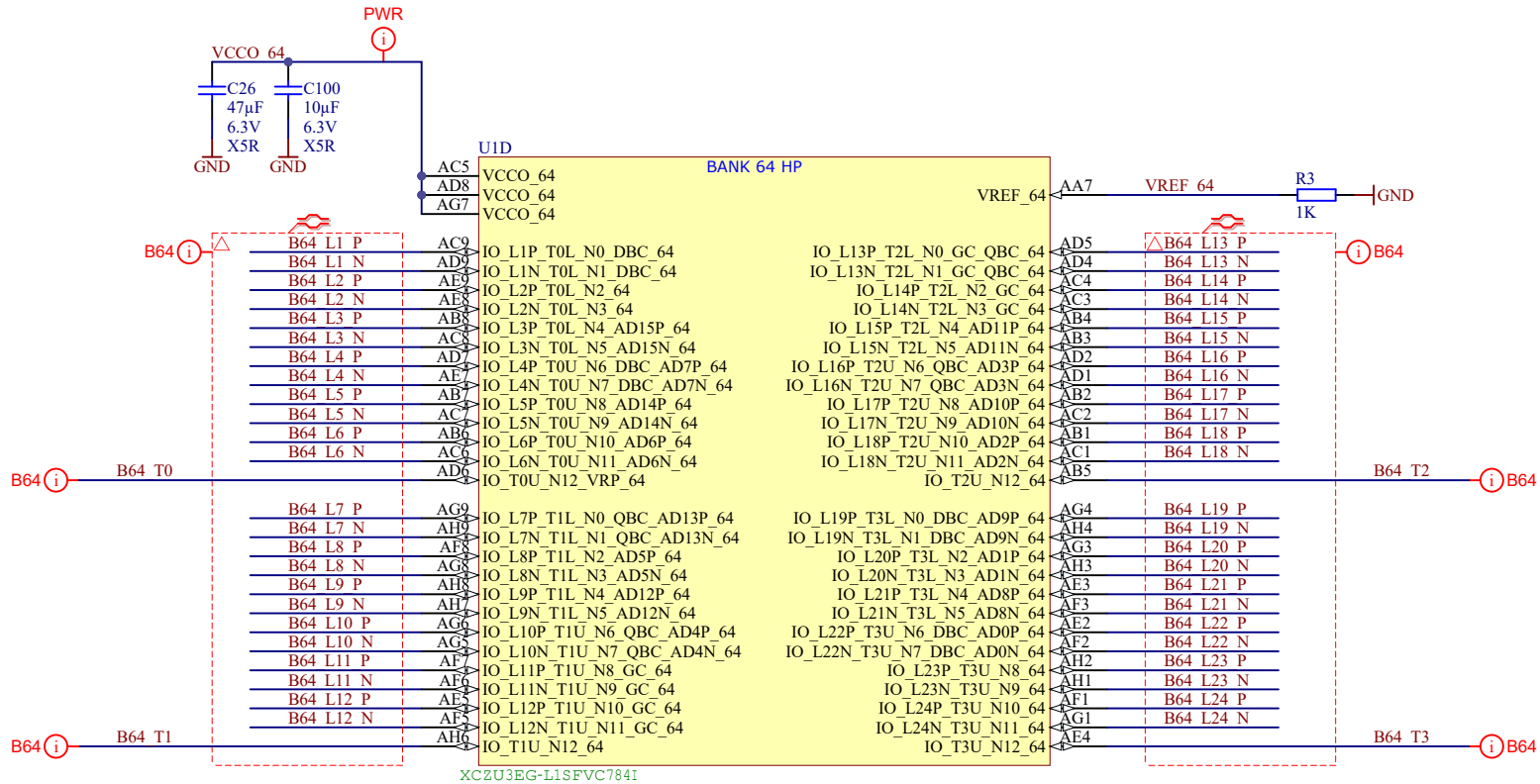
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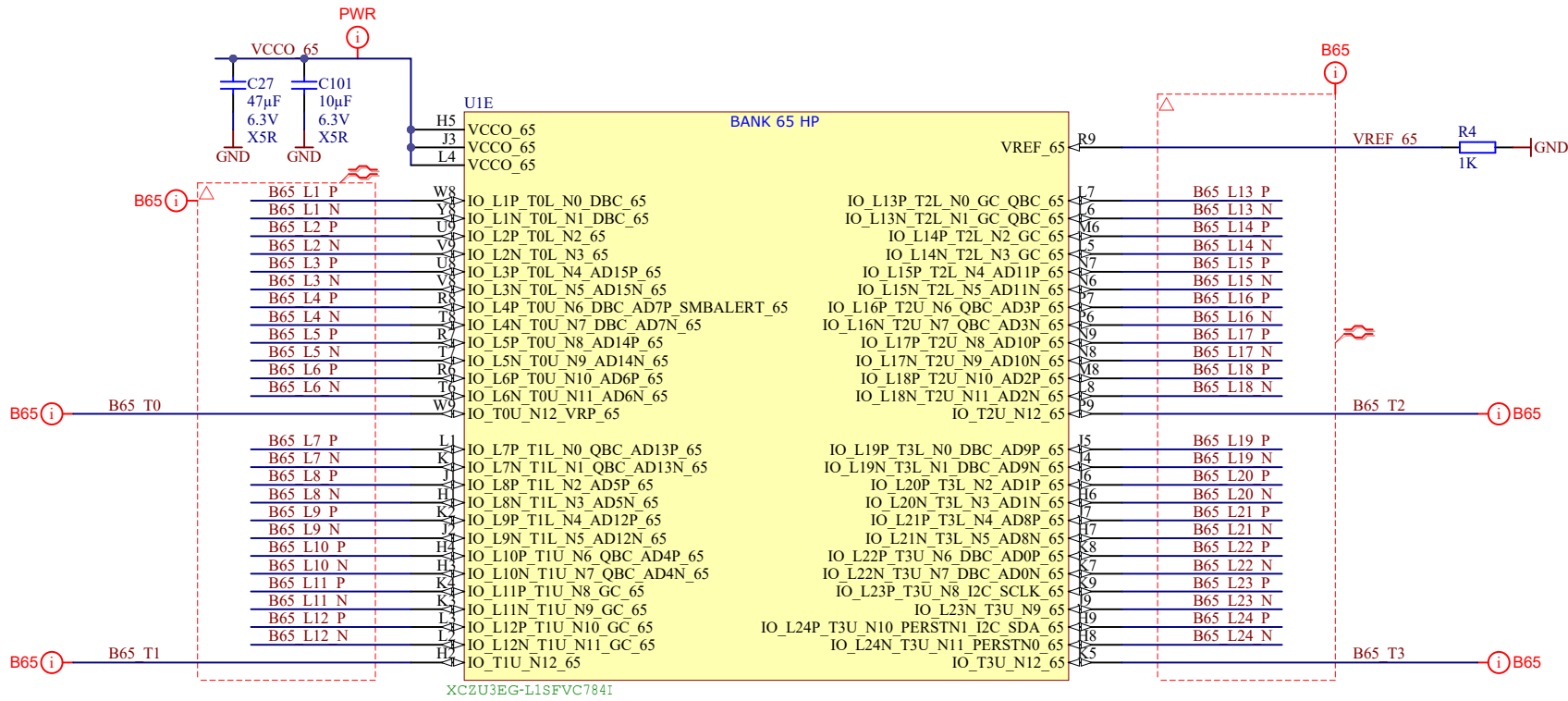
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Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 9 of 30
Filename: B_HD.SchDoc		



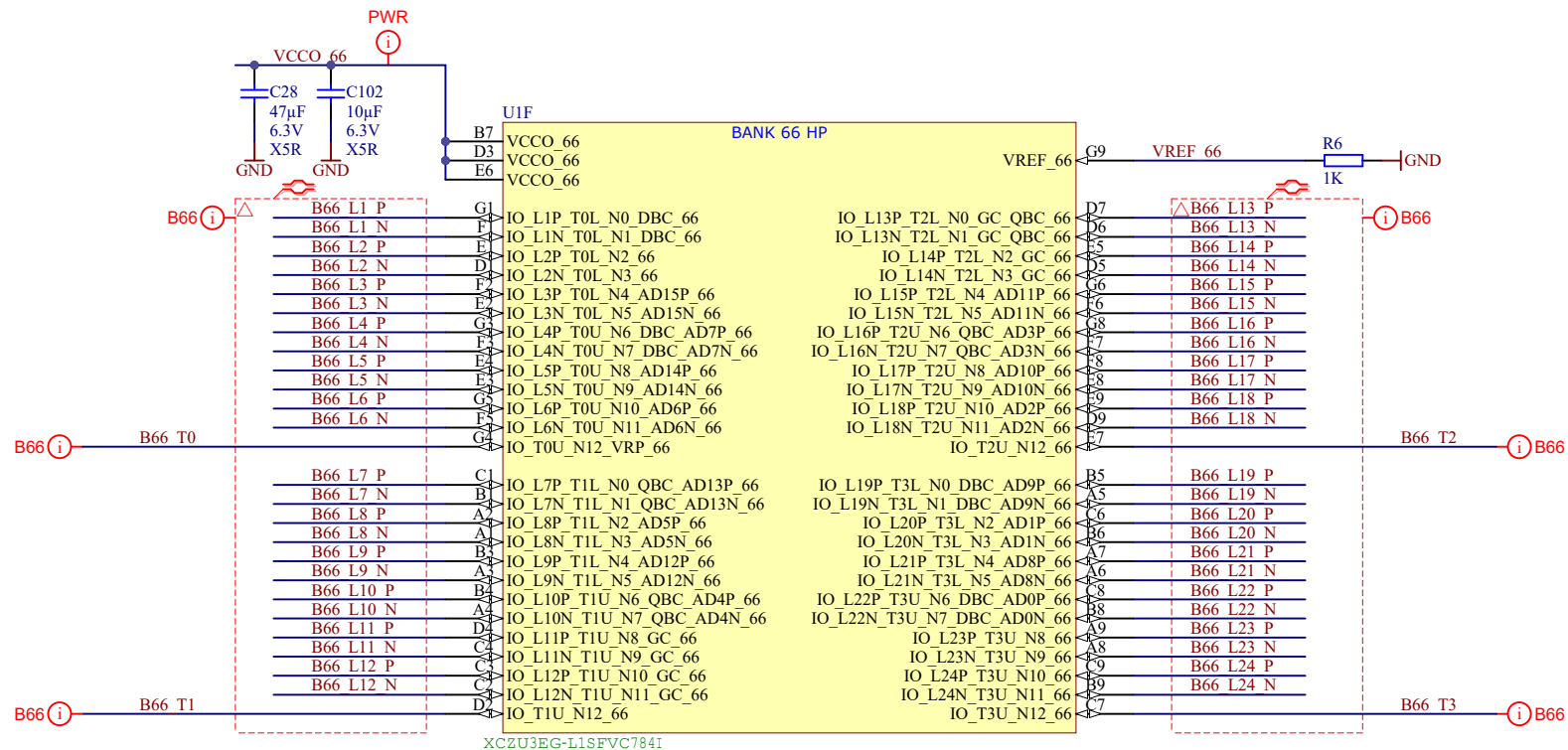
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Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 10 of 30
Filename: CONFIG.SchDoc		



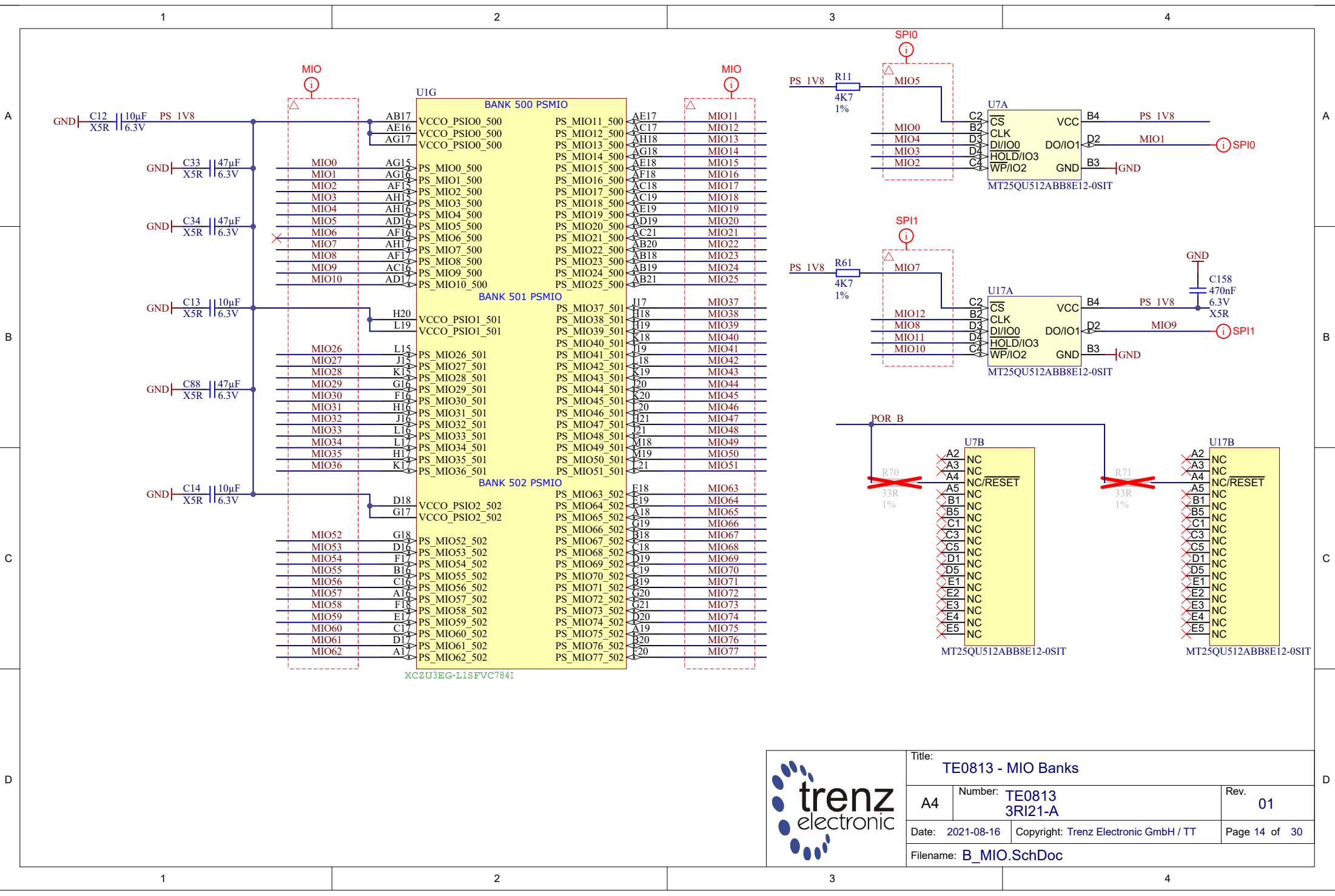
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A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 11 of 30
Filename: B64.SchDoc		




Title: TE0813 - B65		
A4	Number: TE0813 3RI21-A	Rev. 01
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Filename: B65.SchDoc		



Title: TE0813 - B66		
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 13 of 30
Filename: B66.SchDoc		



		Title: TE0813 - MIO Banks	
		A4	Number: TE0813 3RI21-A
Date: 2021-08-16		Copyright: Trenz Electronic GmbH / TT	
Date: 2021-08-16		Page 14 of 30	
Filename: B_MIO.SchDoc			

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A

A

B

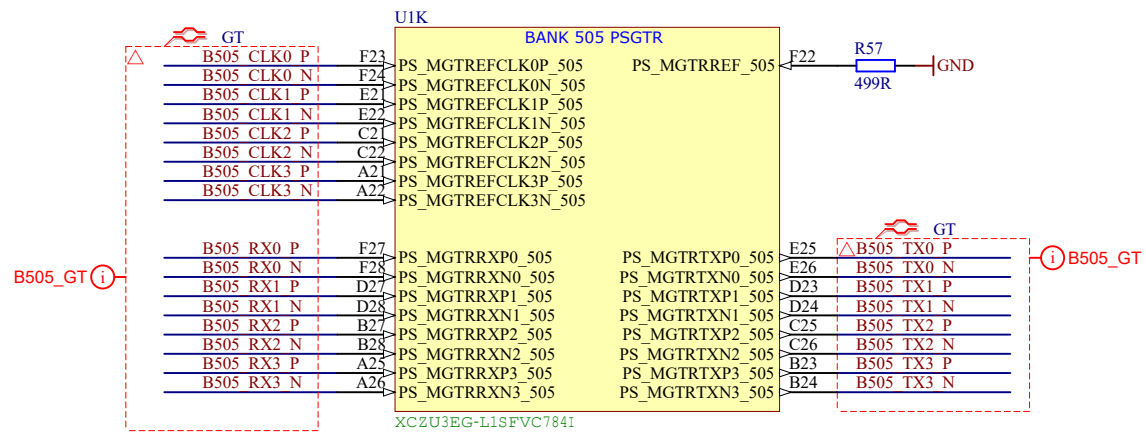
B


C

C

D

D



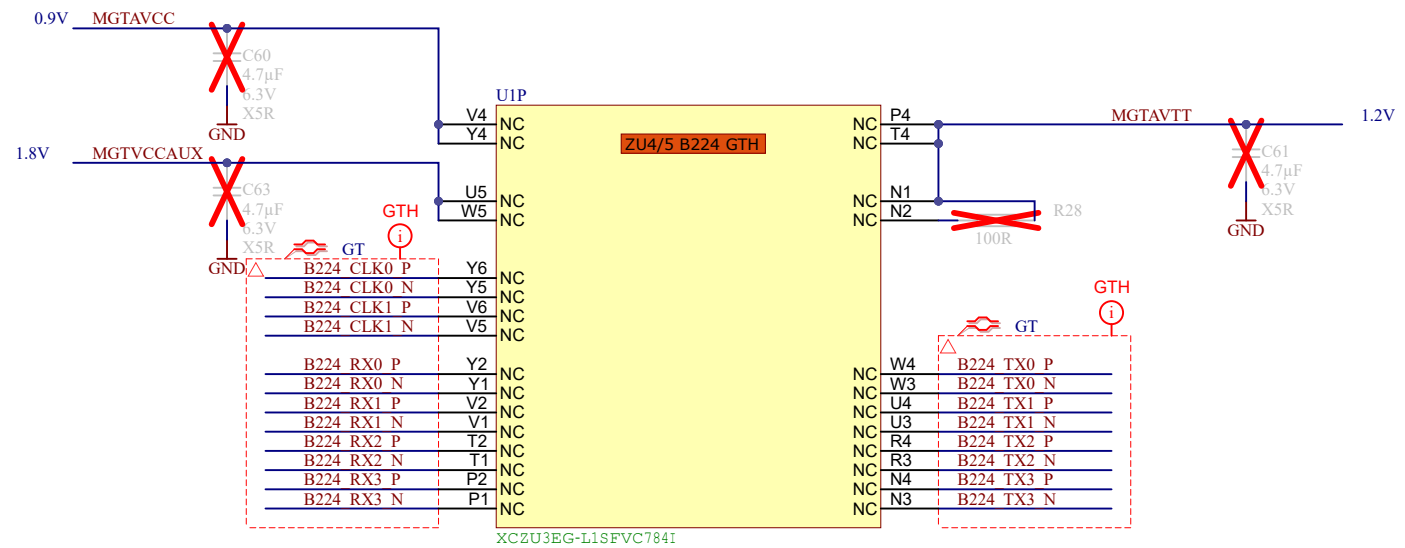
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	A4	Number: TE0813 3RI21-A	Rev. 01
	Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 16 of 30
	Filename: B_PS_GT.SchDoc		

1

2

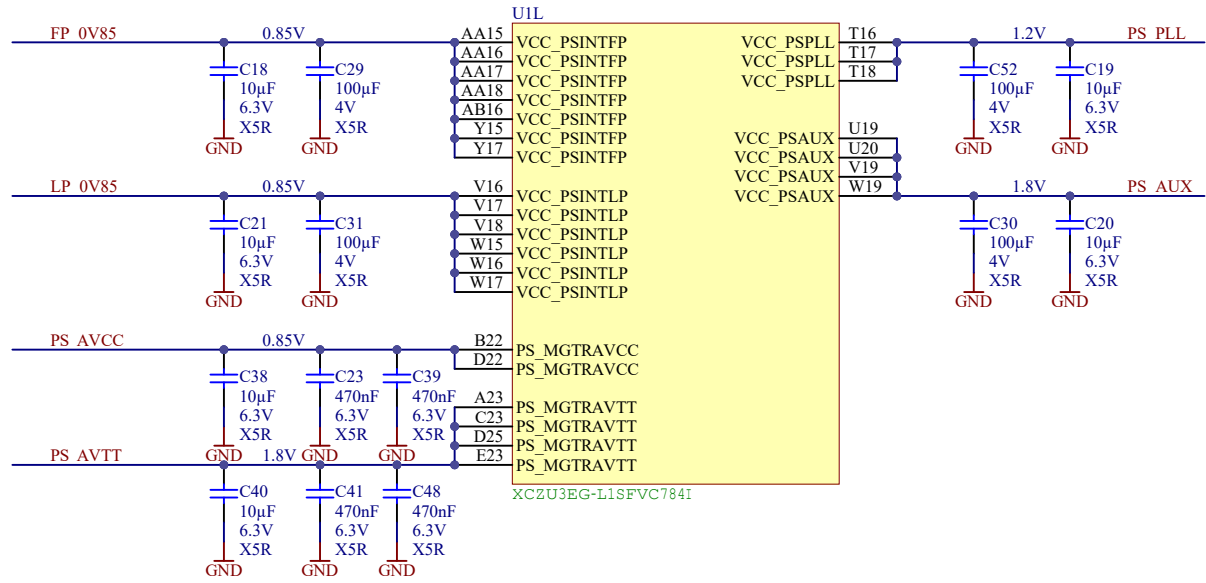
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4



XCZU3EG-L1SFVC784I

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	Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 17 of 30
	Filename: B_GT.SchDoc		



		Title: TE0813 - ZU_PS_POWER	
		A4	Number: TE0813 3RI21-A
Date: 2021-08-16		Copyright: Trenz Electronic GmbH / TT	
Filename: ZU_PS_POWER.SchDoc			

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A

A

B

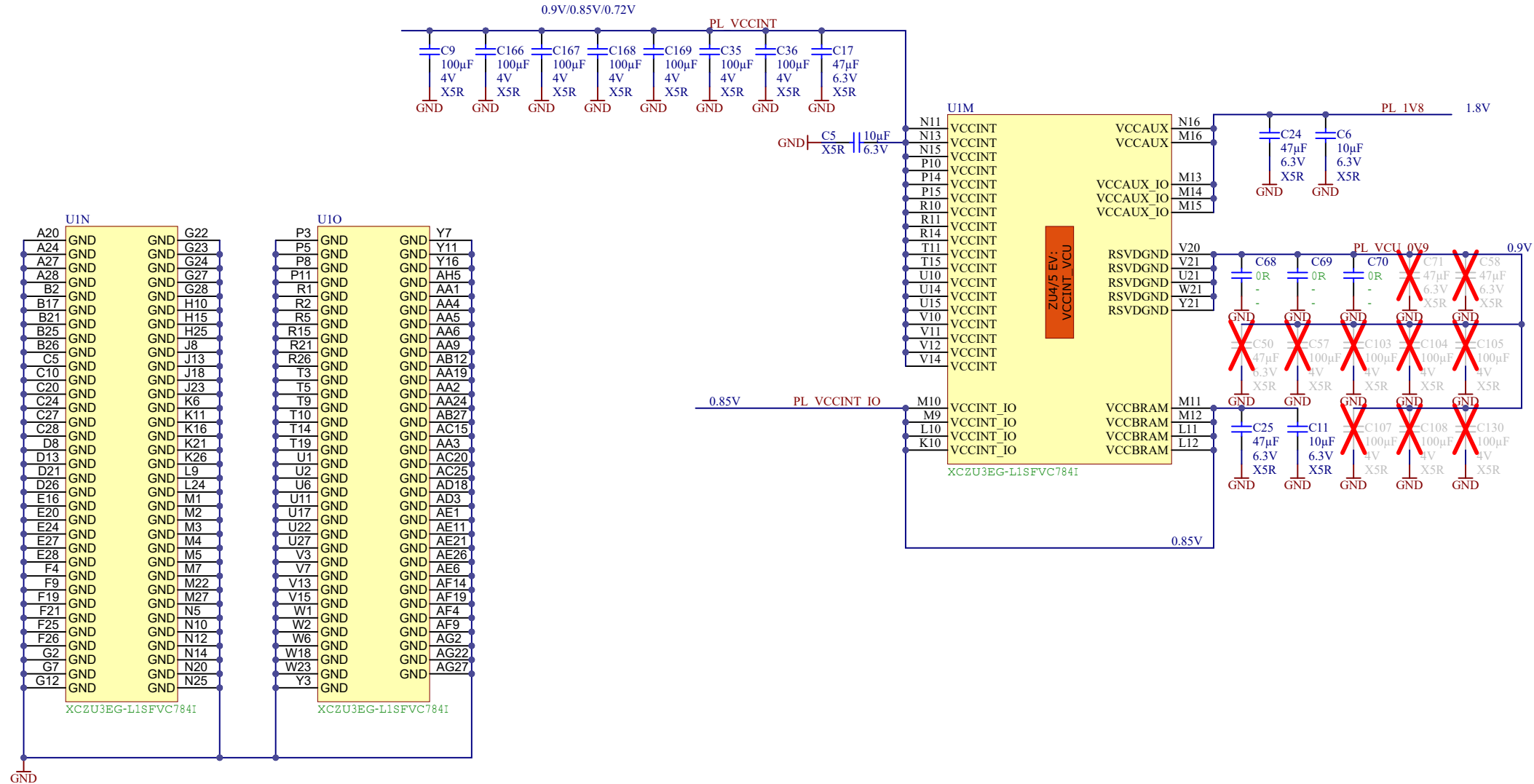
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C

D

D



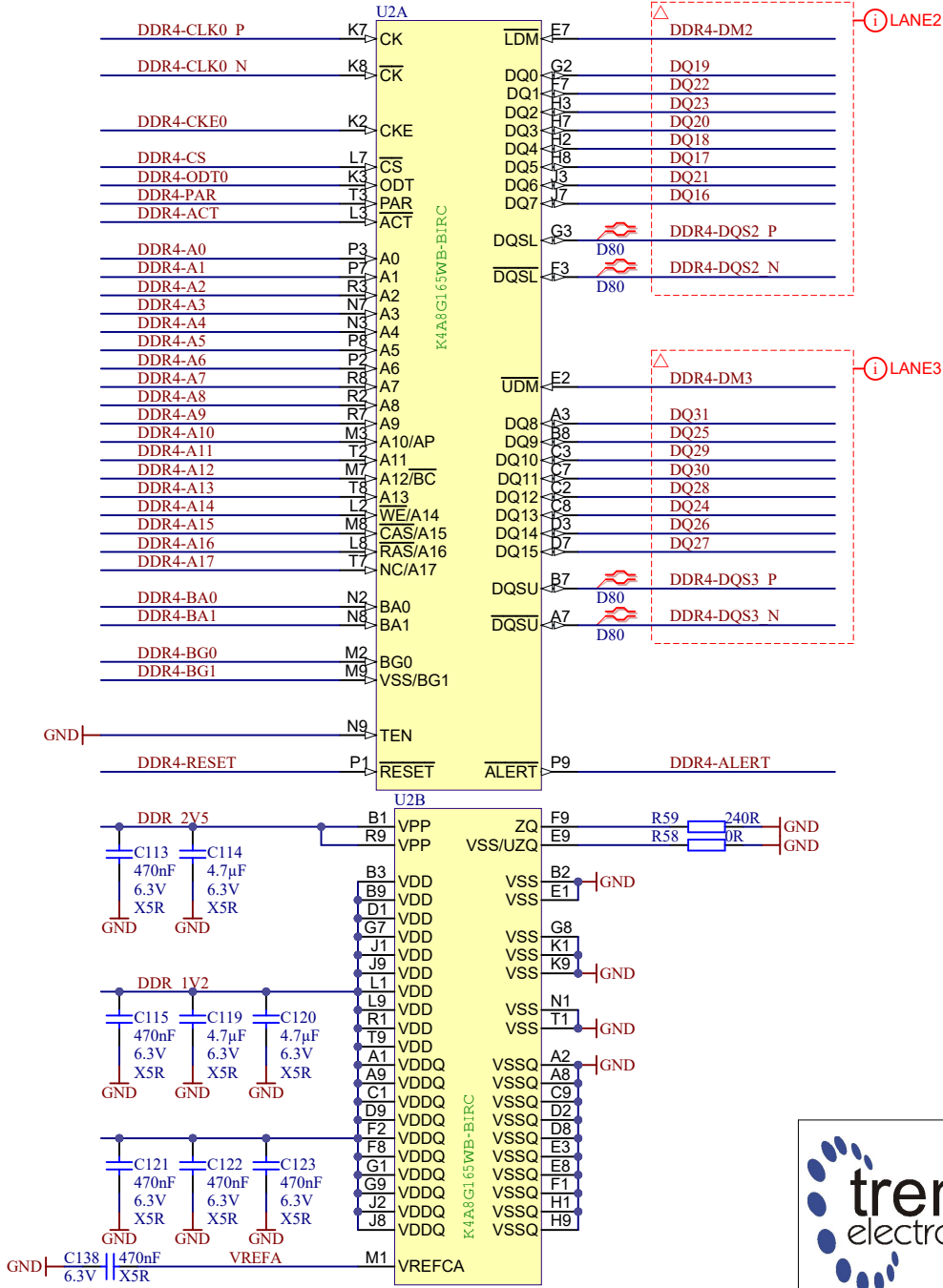
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Date: 2021-08-16		Copyright: Trenz Electronic GmbH / TT	
Filename: ZU_POWER.SchDoc		Page 19 of 30	

1

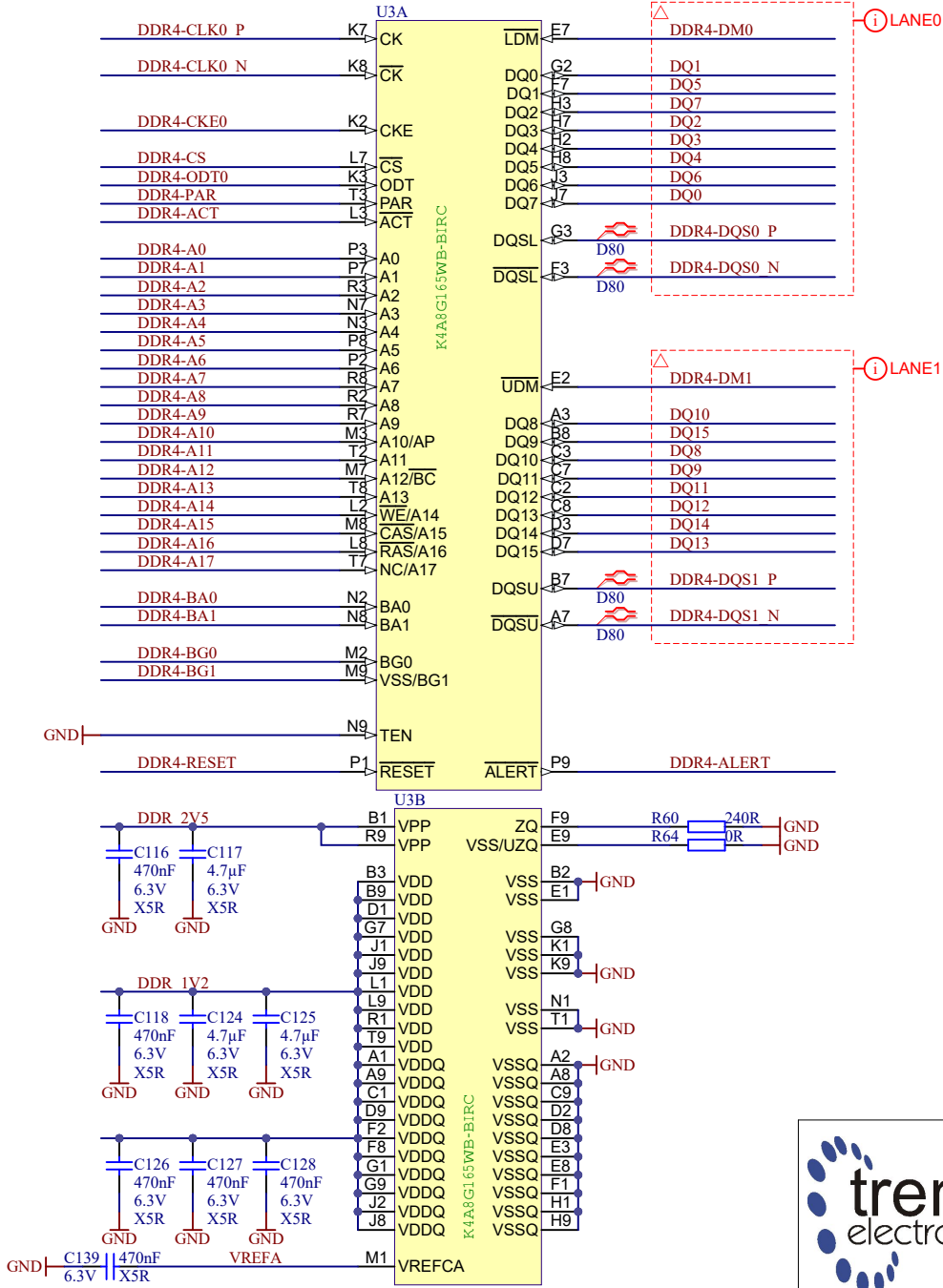
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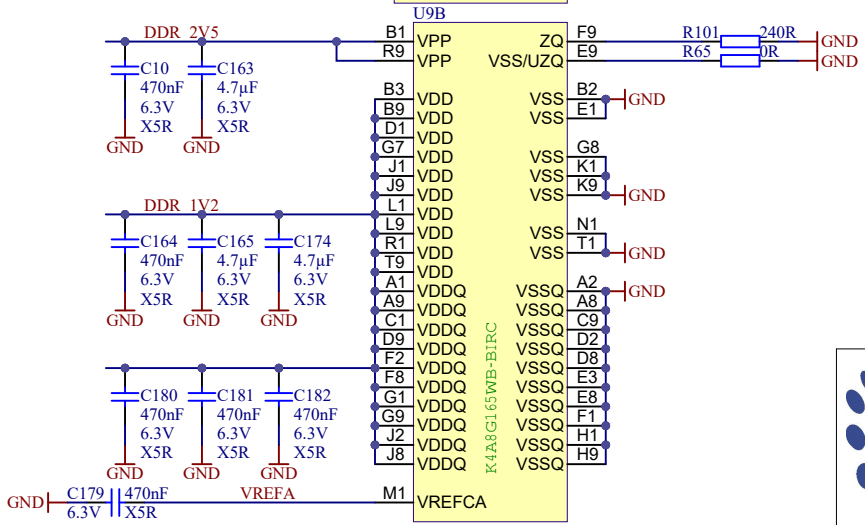
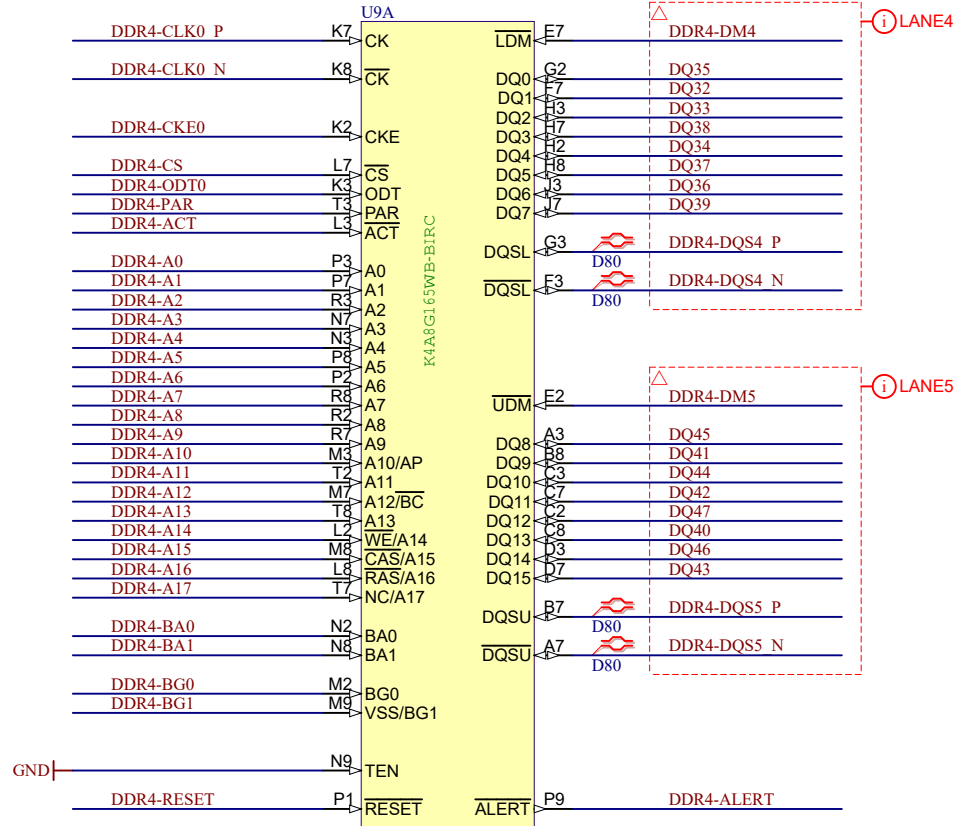

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Title: TE0813 - DDR4_1_RAM		
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 20 of 30
Filename: DDR4-RAM.SchDoc		

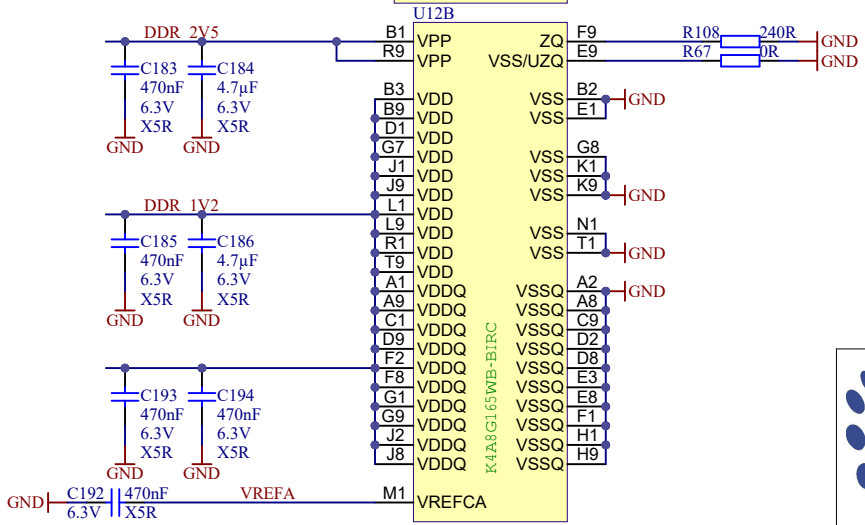
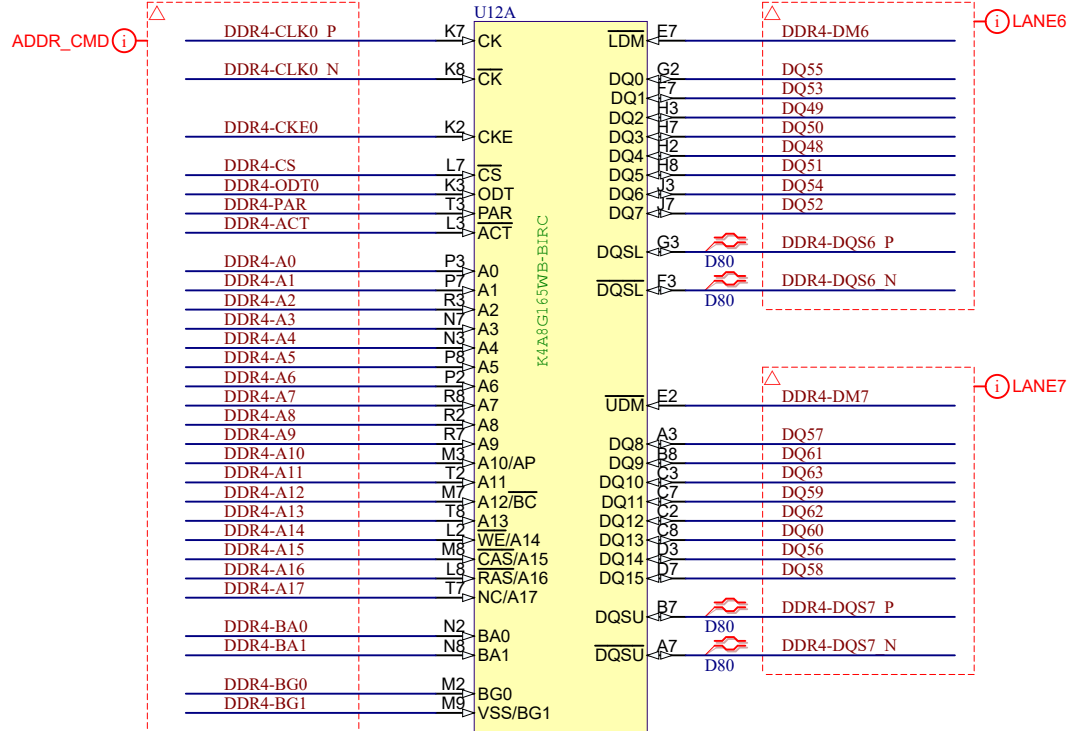


Title: TE0813 - DDR4_2_RAM		
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 21 of 30
Filename: DDR4-RAM_2.SchDoc		

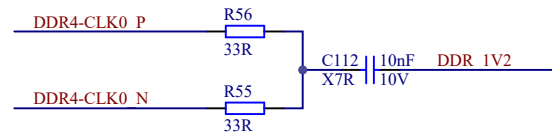
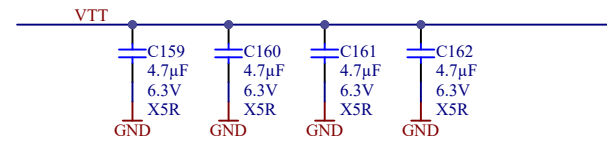
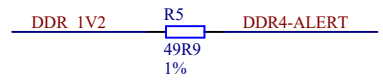
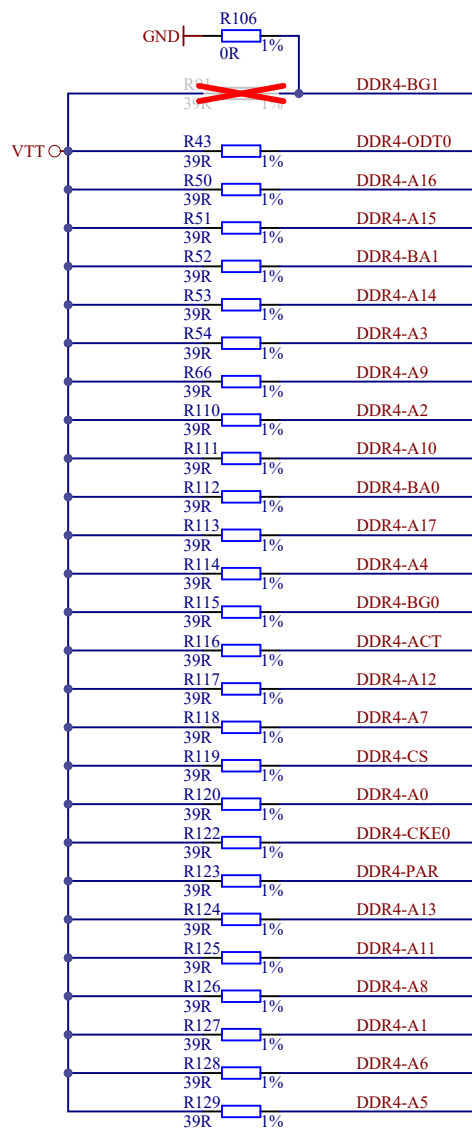
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A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 22 of 30
Filename: DDR4-RAM_3.SchDoc		

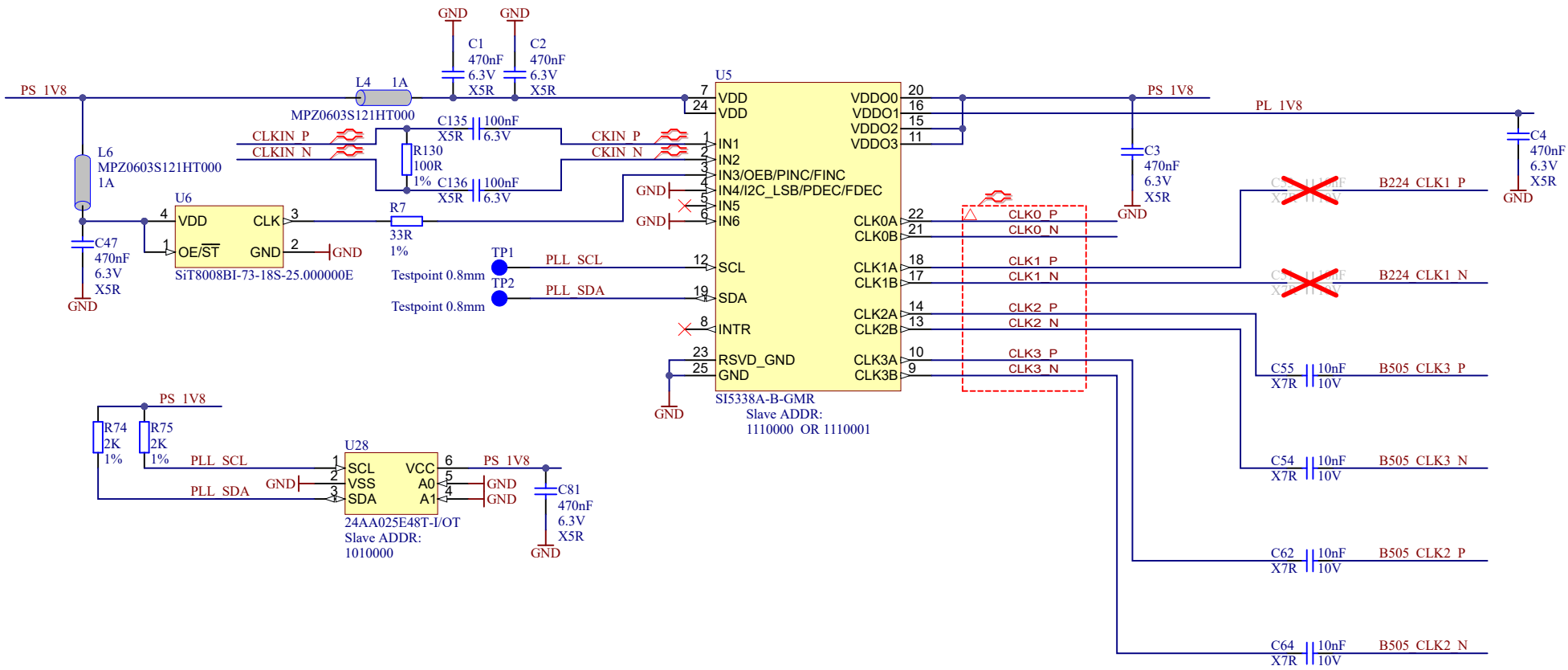



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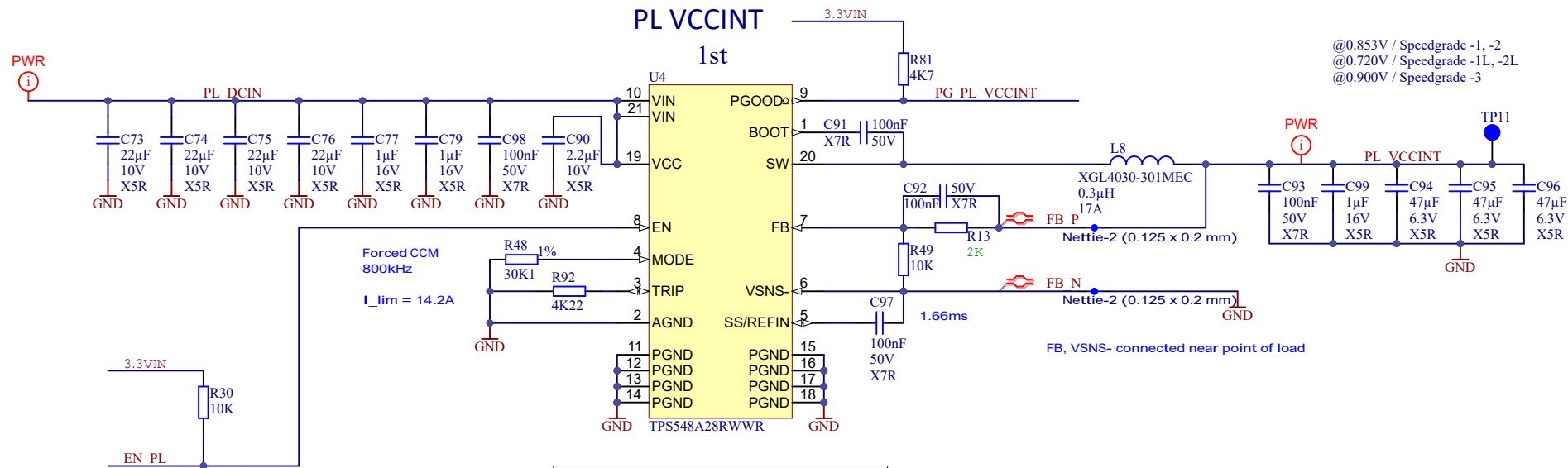
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 23 of 30
Filename: DDR4-RAM_4.SchDoc		



Title: TE0813 - DDR4_TERM		
A4	Number: TE0813 3RI21-A	Rev. 01
Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT	Page 24 of 30
Filename: DDR4-TERM.SchDoc		



		Title: TE0813 - CLOCK	
		A4	Number: TE0813 3RI21-A
Date: 2021-08-16		Copyright: Trenz Electronic GmbH / TT	
Filename: Clock.SchDoc		Page 25 of 30	



@0.853V / Speedgrade -1, -2
 @0.720V / Speedgrade -1L, -2L
 @0.900V / Speedgrade -3

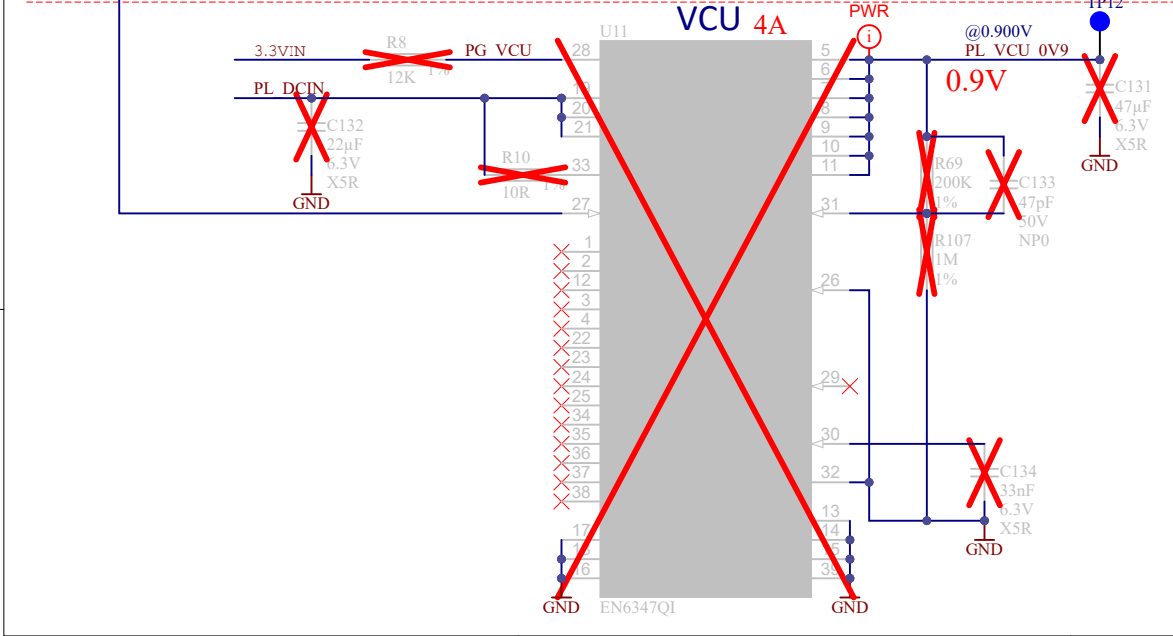
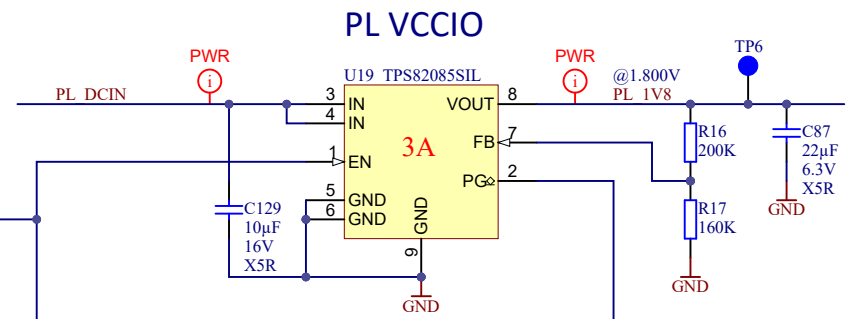
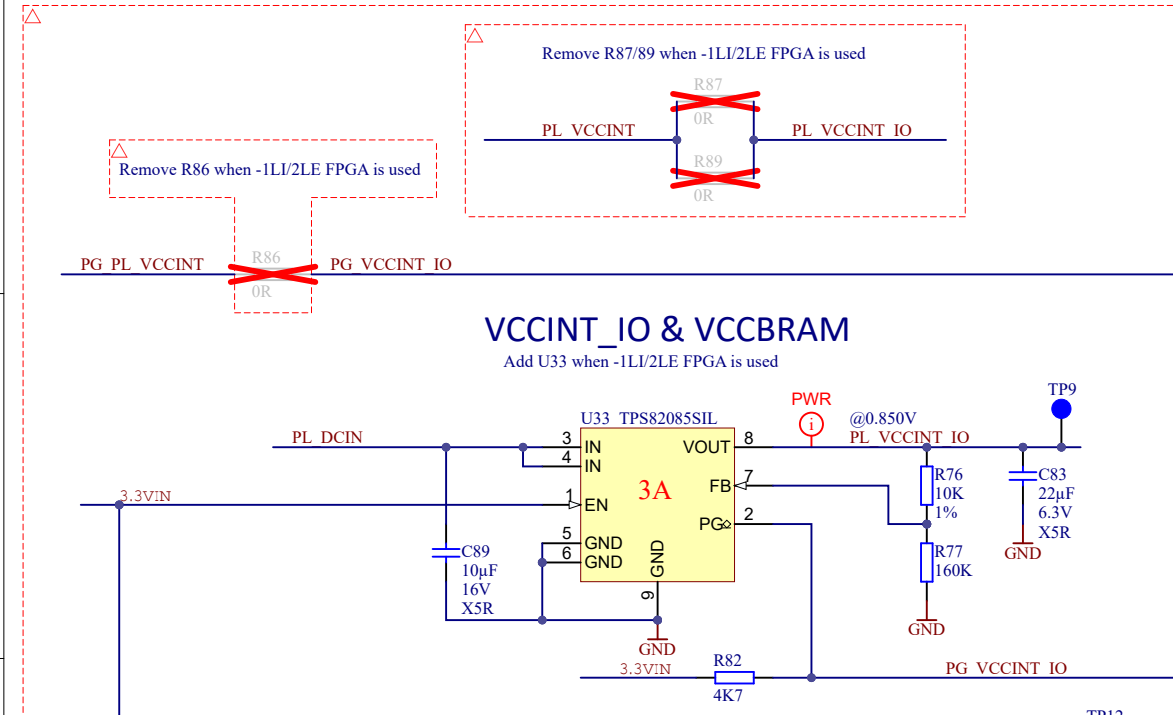
Forced CCM
 800kHz
 I_lim = 14.2A


FB, VSNS- connected near point of load

FPGA Speed grade:		
-1L / -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)
 -- TPS54JA20 (12A)

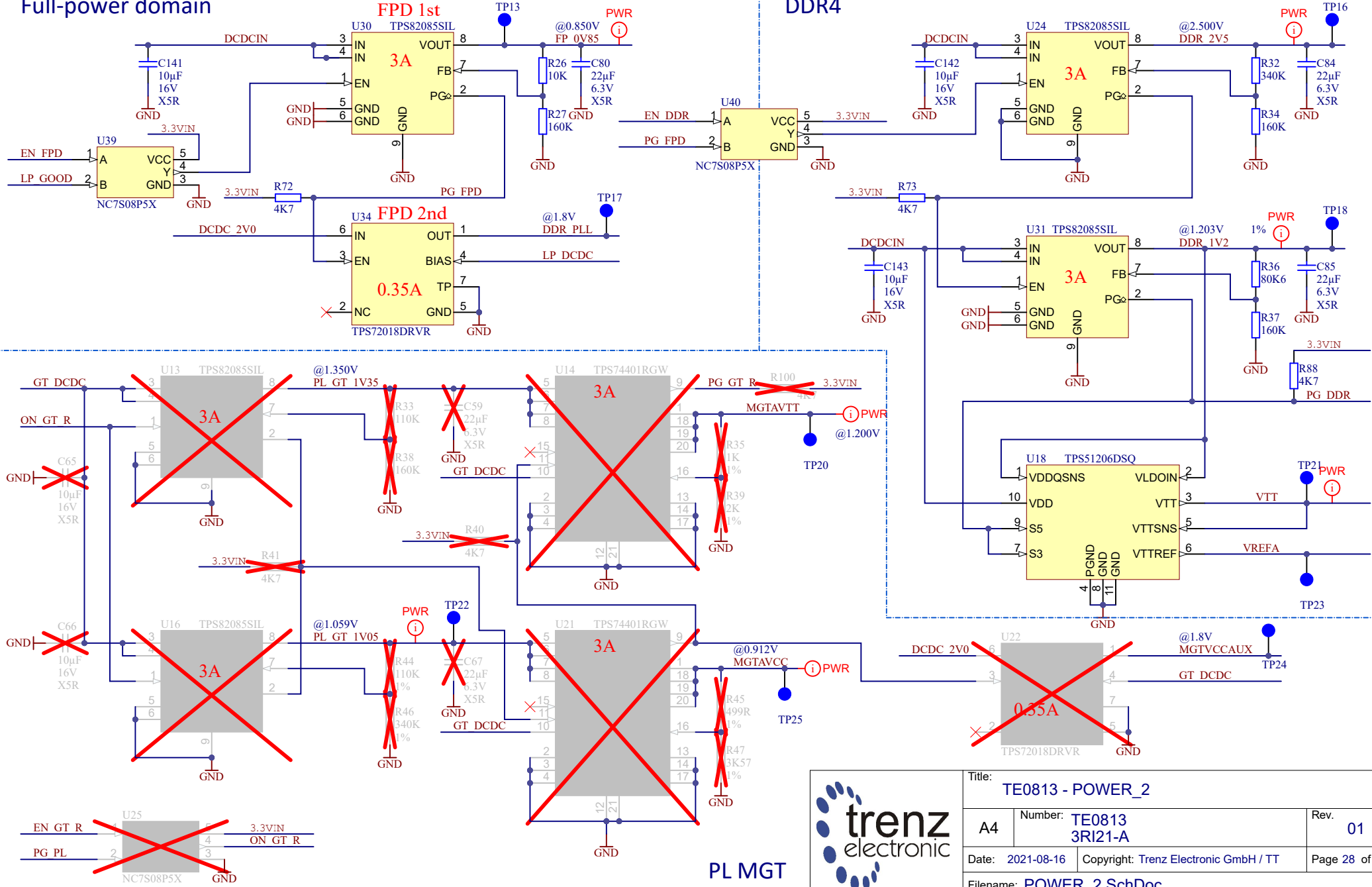
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	Date: 2021-08-16	Copyright: Trenz Electronic GmbH / TT
	Filename: POWER.SchDoc	
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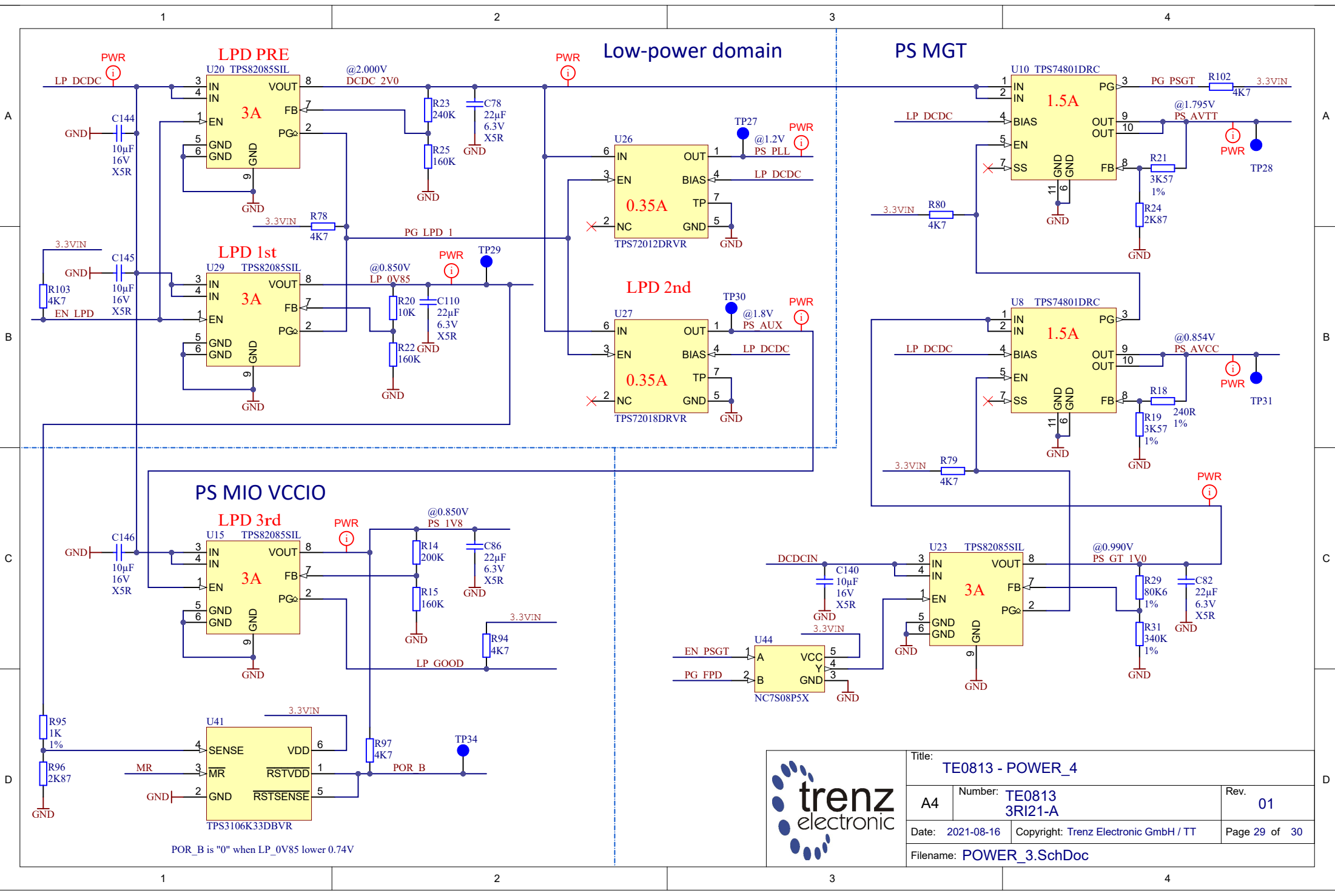
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		A4	Number: TE0813 3RI21-A
Date: 2021-08-16		Copyright: Trenz Electronic GmbH / TT	
Filename: POWER_1.SchDoc		Page 27 of 30	

Full-power domain

DDR4



Title: TE0813 - POWER_2		
A4	Number: TE0813 3RI21-A	Rev. 01
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Filename: POWER_2.SchDoc		



POR_B is "0" when LP_0V85 lower 0.74V



Title: TE0813 - POWER_4		
A4	Number: TE0813 3RI21-A	Rev. 01
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Filename: POWER_3.SchDoc		

1

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A

A

B

B


C

C

D

D

REV	DATE	Description	
-01	2021-05	Initial revision	VT

	Title: TE0813 - Revision History		
	A4	Number: TE0813 3RI21-A	Rev. 01
	Date: 2021-07-26	Copyright: Trenz Electronic GmbH	Page 30 of 30
	Filename: Revision Changes.SchDoc		

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