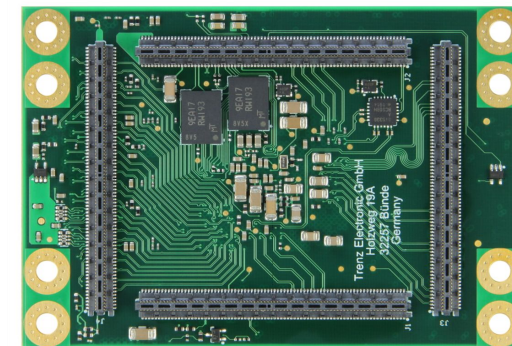
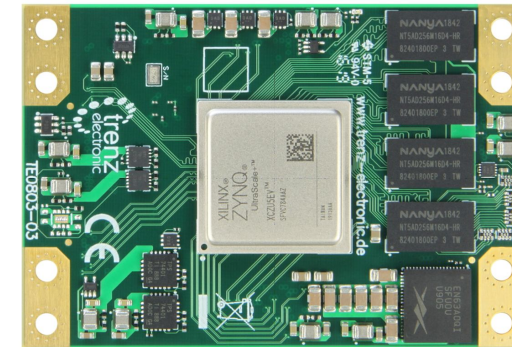


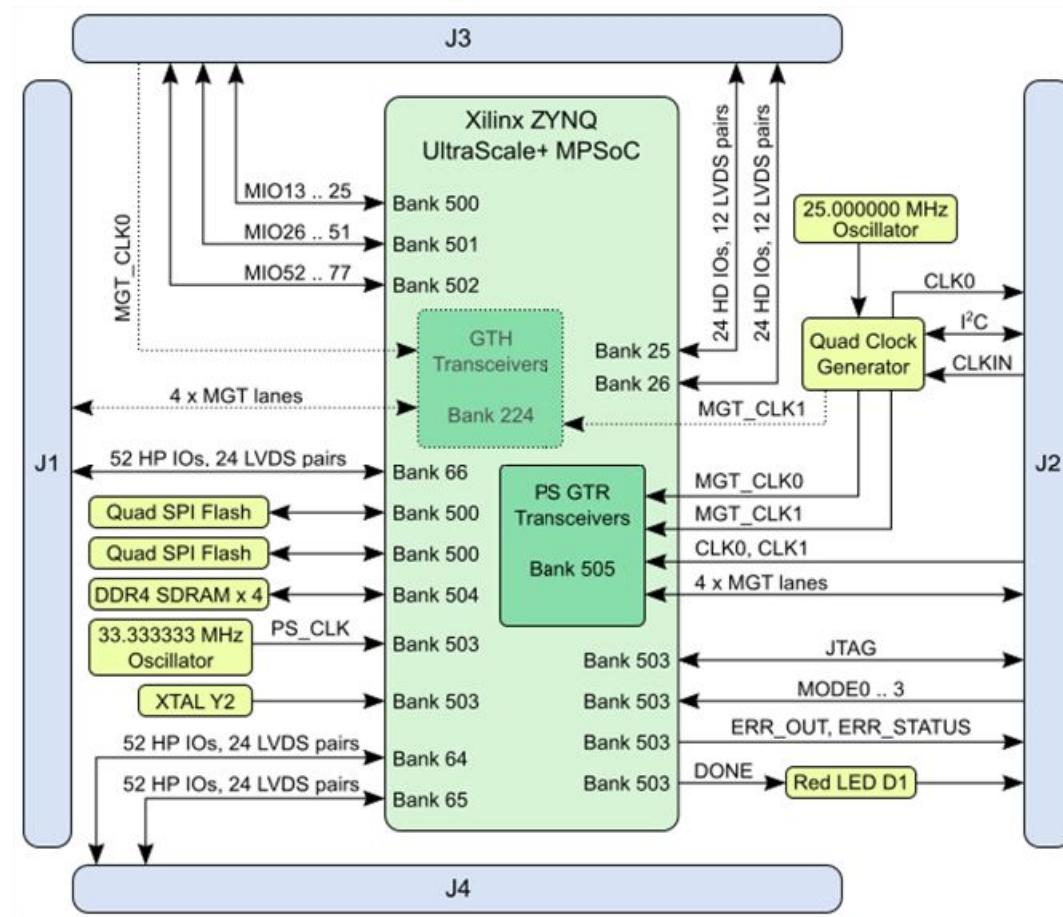


Regarding the usage of our schematics and alike documentation for Trenz module TE0803.

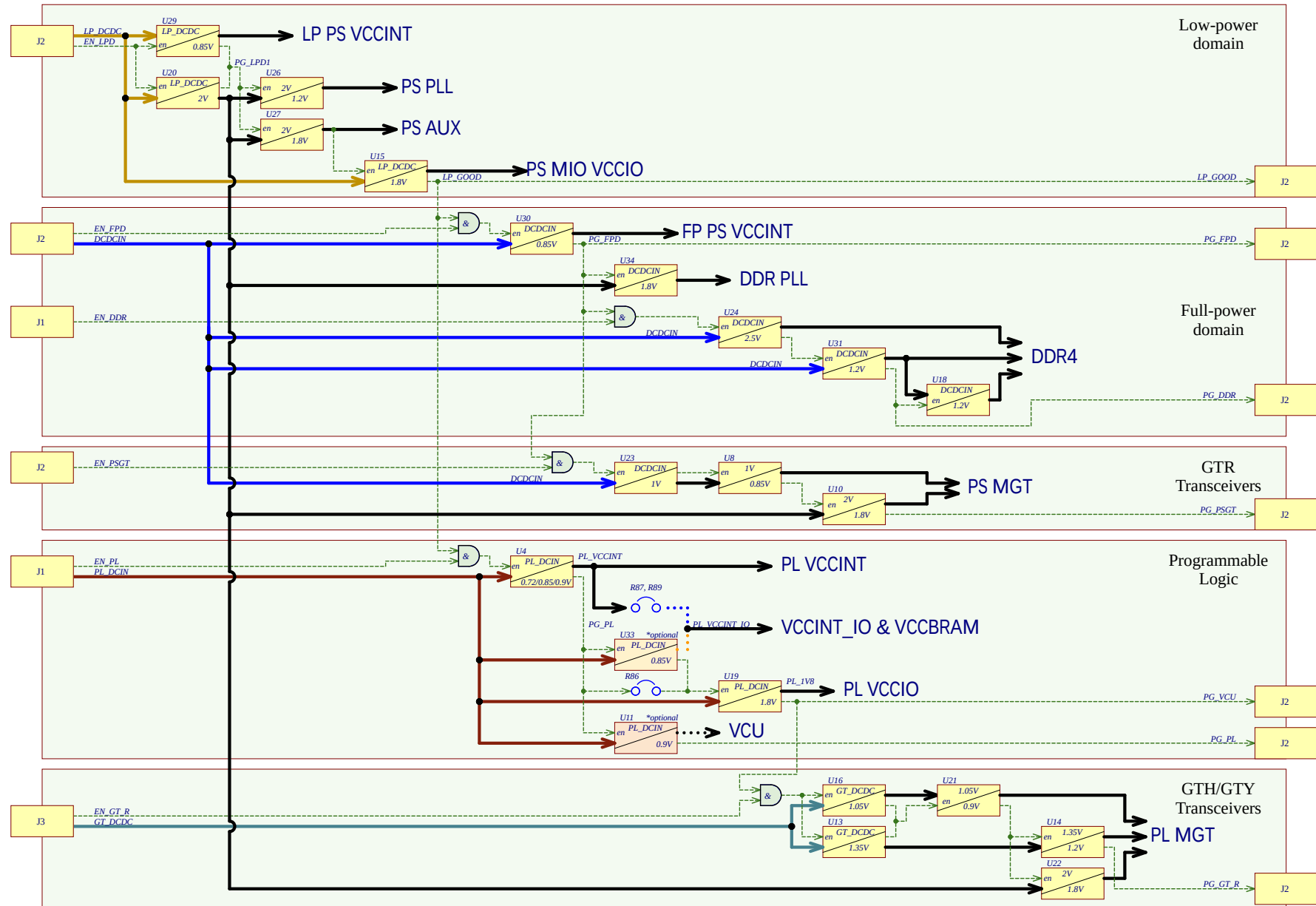
Project is protected under copyright and we strongly and strictly prohibit the reverse engineering or recreation, even if the design is just adapted or modified. TE0803 is protected under such right and in case of plagiarism we will have to do anything necessary in order to protect our assets.

Schematics and other handouts serve for informational purposes only!

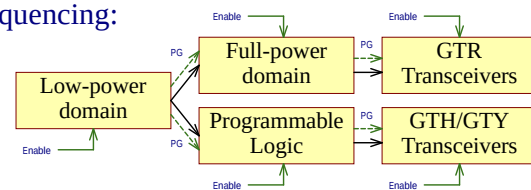
	Title: TE0803		
	A4	Number: TE0803 4GE21-L	Rev. 04
	Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page 1 of 30
	Filename: Legal Notices Modules.SchDoc		



	Title: TE0803 - System Overview		
	A4	Number: TE0803 4GE21-L	Rev. 04
	Date: 2021-01-19	Copyright: 2015 Trenz Electronic GmbH	Page 2 of 30
	Filename: TE0803-Overview.SchDoc		



Power-on sequencing:



Title: TE0803 - Power Diagram		
A3	Number: TE0803 4GE21-L	Rev. 04
Datum: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page 3 of 30
Filename: Power_Diagram.SchDoc		

1

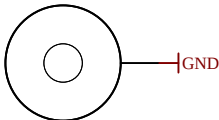
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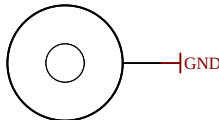
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U_J1 J1.SchDoc	U_B_PS_GT B_PS_GT.SchDoc	U_LN Legal Notices Modules.SchDoc
U_J2 J2.SchDoc	U_PS_DDR PS_DDR.SchDoc	U_ZU_POWER ZU_POWER.SchDoc
U_J3 J3.SchDoc	U_B_MIO B_MIO.SchDoc	U_ZU_PS_POWER ZU_PS_POWER.SchDoc
U_J4 J4.SchDoc	U_B_HD B_HD.SchDoc	U_POWER 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_4.SchDoc
U_B66 B66.SchDoc	U_DDR4-RAM_2 DDR4-RAM_2.SchDoc	U_REV_CH Revision Changes.SchDoc
U_B_GT B_GT.SchDoc	U_DDR4-RAM_3 DDR4-RAM_3.SchDoc	U_OVERVIEW TE0803-Overview.SchDoc
U_PD Power_Diagram.SchDoc	U_DDR4-RAM_4 DDR4-RAM_4.SchDoc	

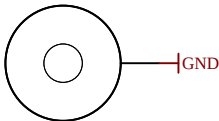
Special notes:



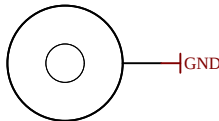
Mount.Hole 3.2mm für Unterlegscheibe



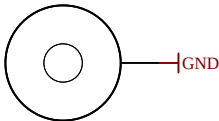
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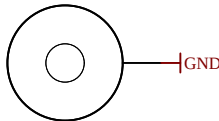
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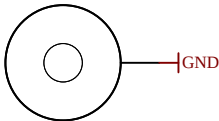
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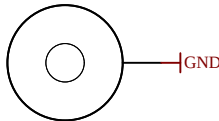
Mount.Hole 3.2mm für Unterlegscheibe



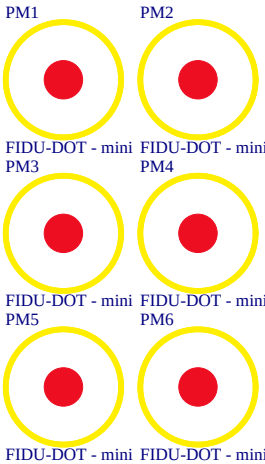
Mount.Hole 3.2mm für Unterlegscheibe



Mount.Hole 3.2mm für Unterlegscheibe



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



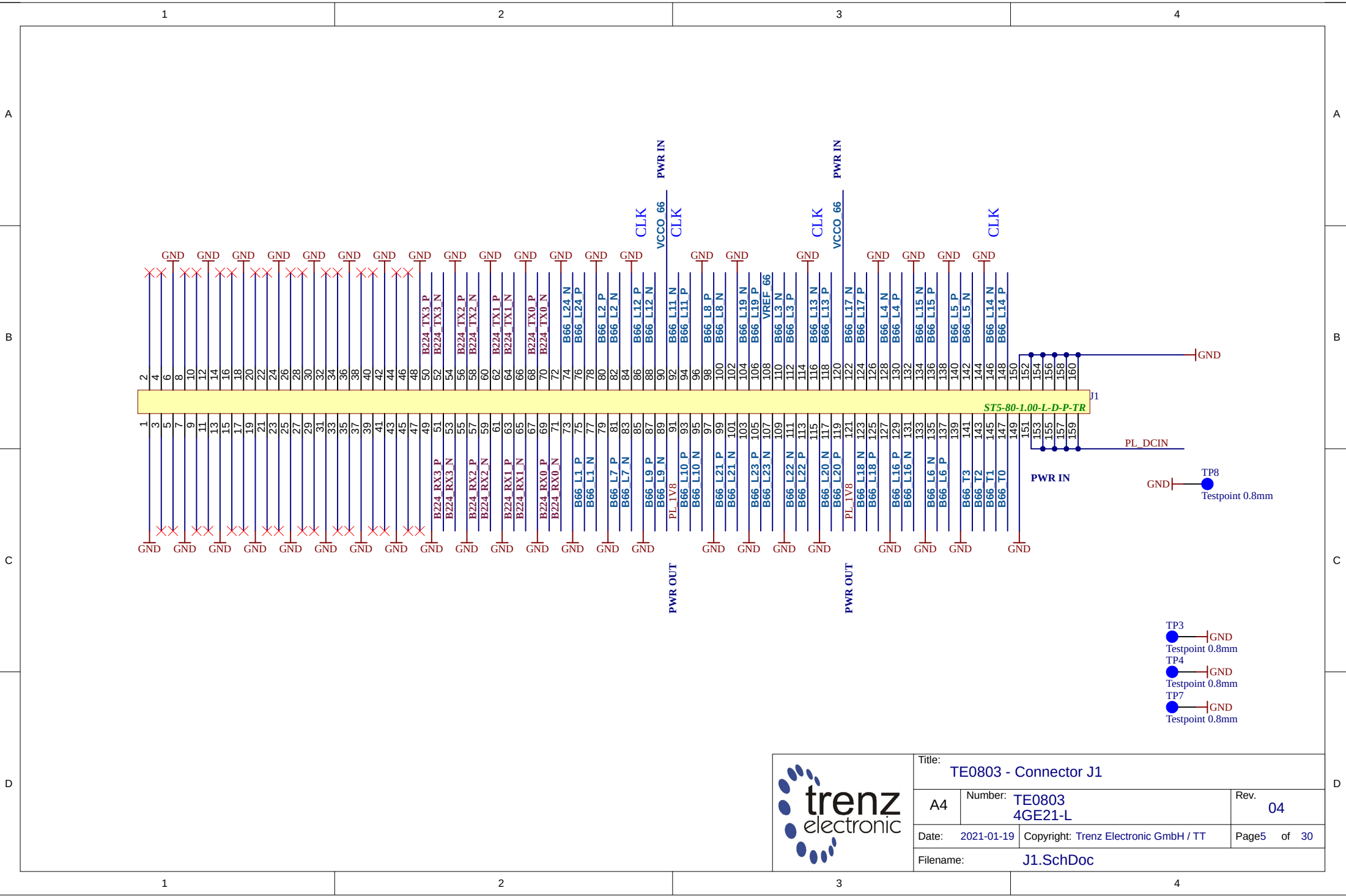
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A4	Number: TE0803 4GE21-L	Rev. 04
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page 4 of 30
Filename: TE0803.SchDoc		

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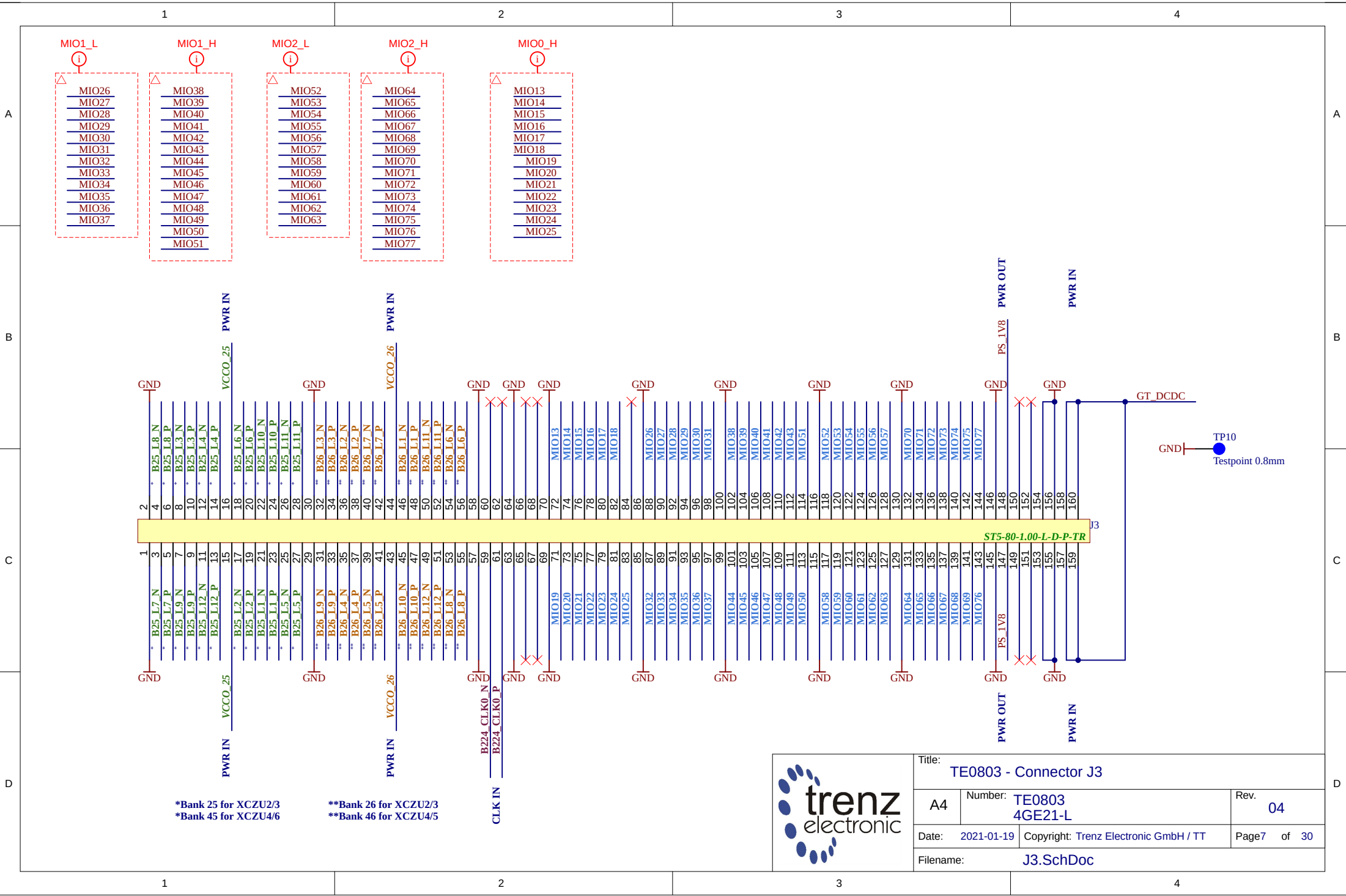
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Title: TE0803 - Connector J1			
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Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page5 of 30	
Filename: J1.SchDoc			



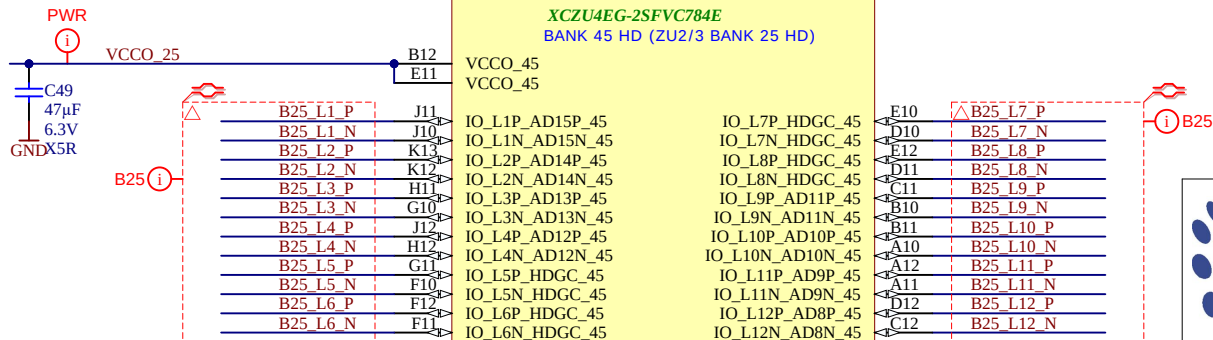
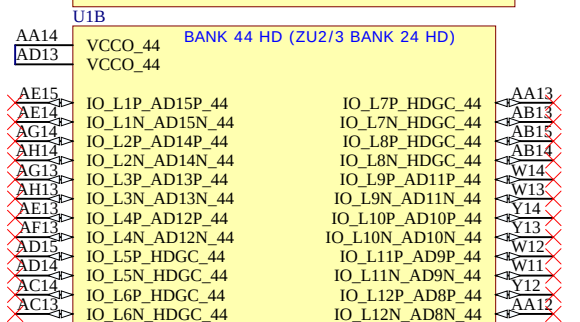
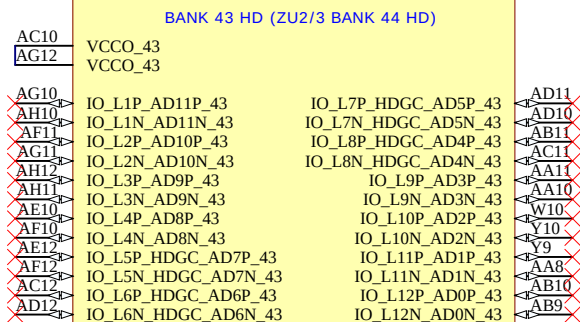
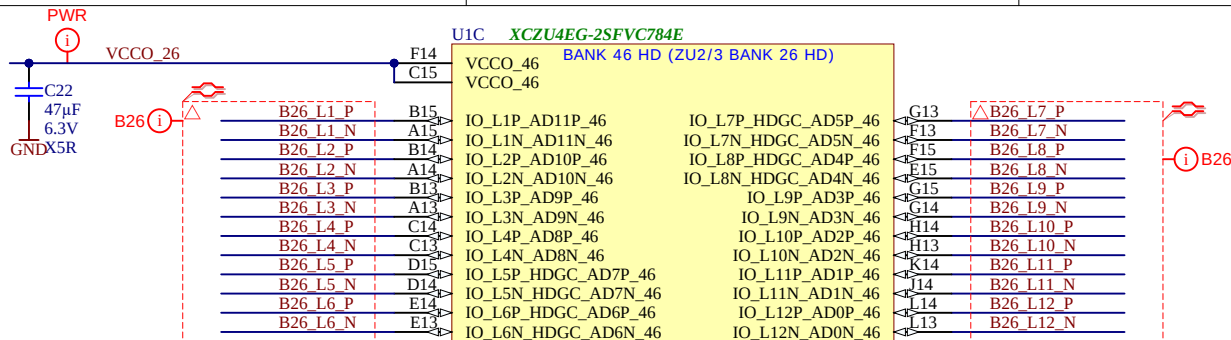
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A4	Number: TE0803 4GE21-L	Rev. 04
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	
Filename: J3.SchDoc		Page7 of 30

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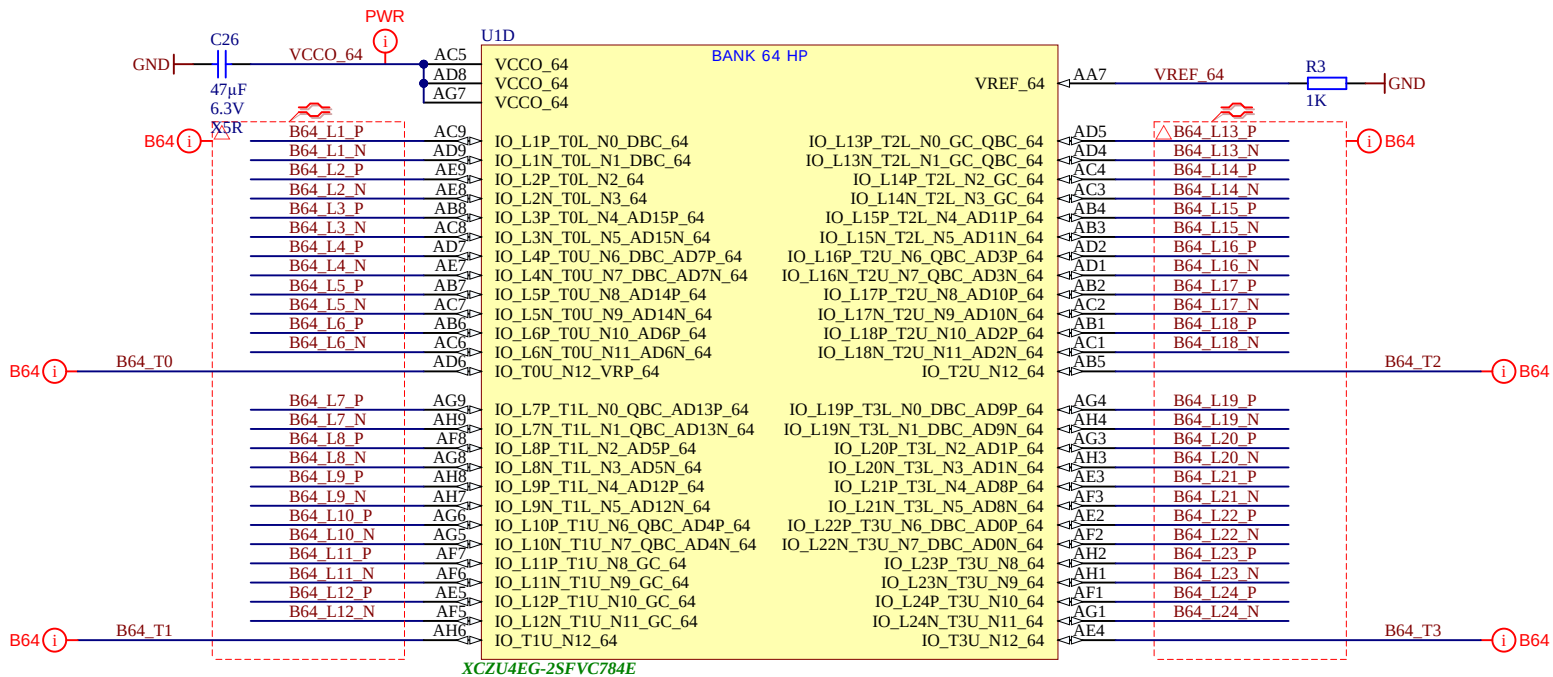
Title: TE0803 - HD Banks			
A4	Number: TE0803 4GE21-L	Rev. 04	
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT		Page9 of 30
Filename: B HD.SchDoc			

1

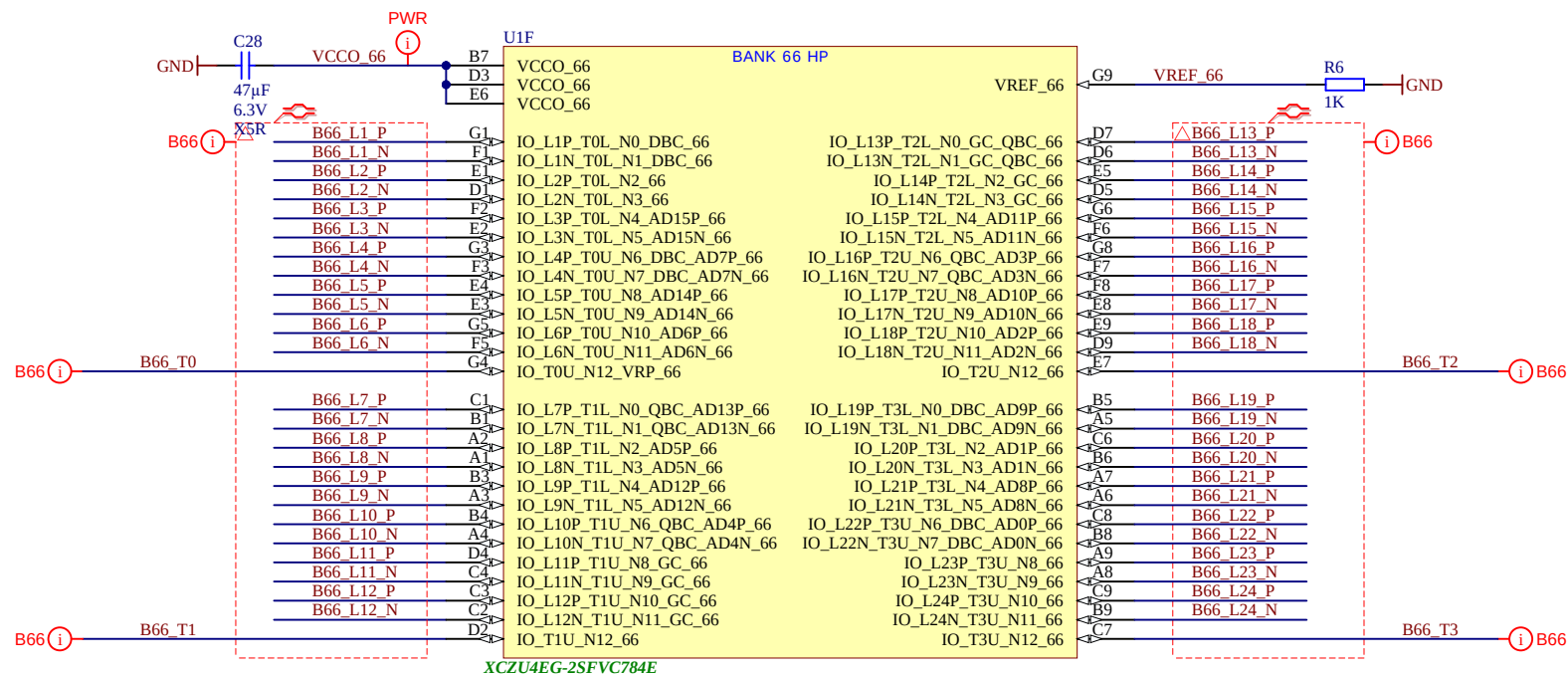
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	Title: TE0803 - B64		
	A4	Number: TE0803 4GE21-L	Rev. 04
	Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page11 of 30
	Filename: B64.SchDoc		



Title: TE0803 - B66			
A4	Number: TE0803 4GE21-L	Rev. 04	
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT		Page13 of 30
Filename: B66.SchDoc			

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A

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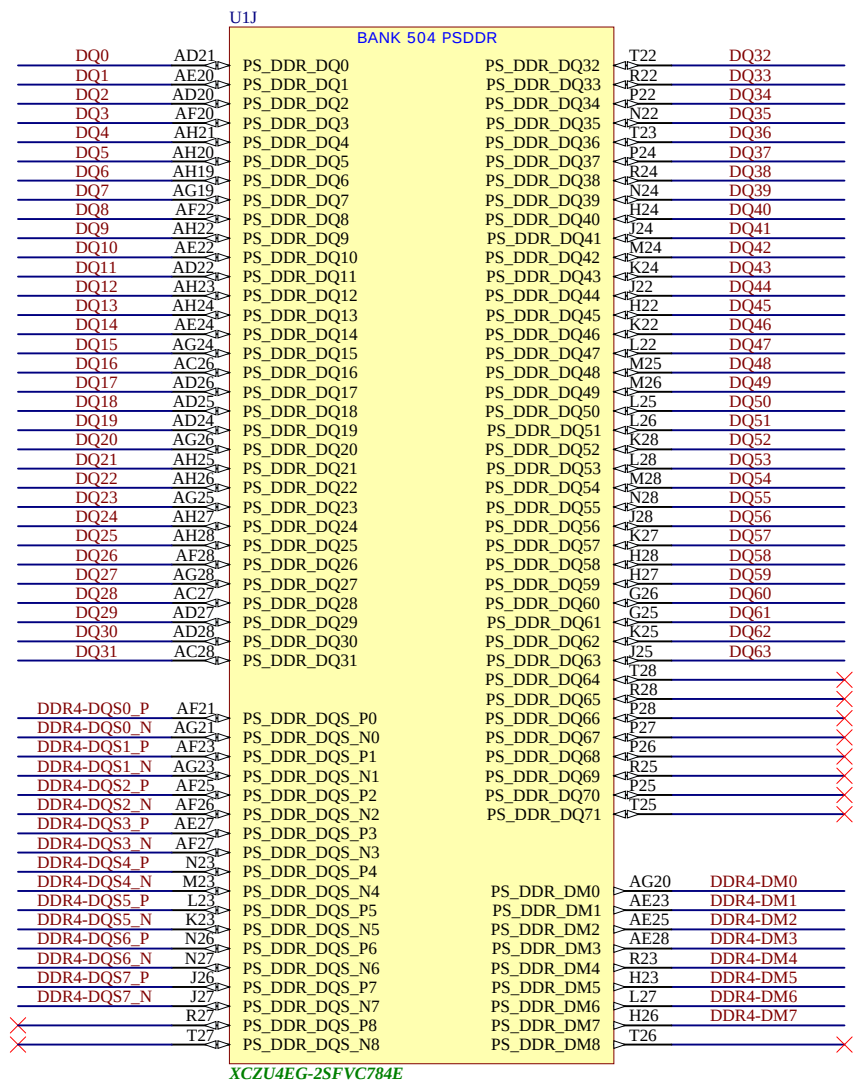
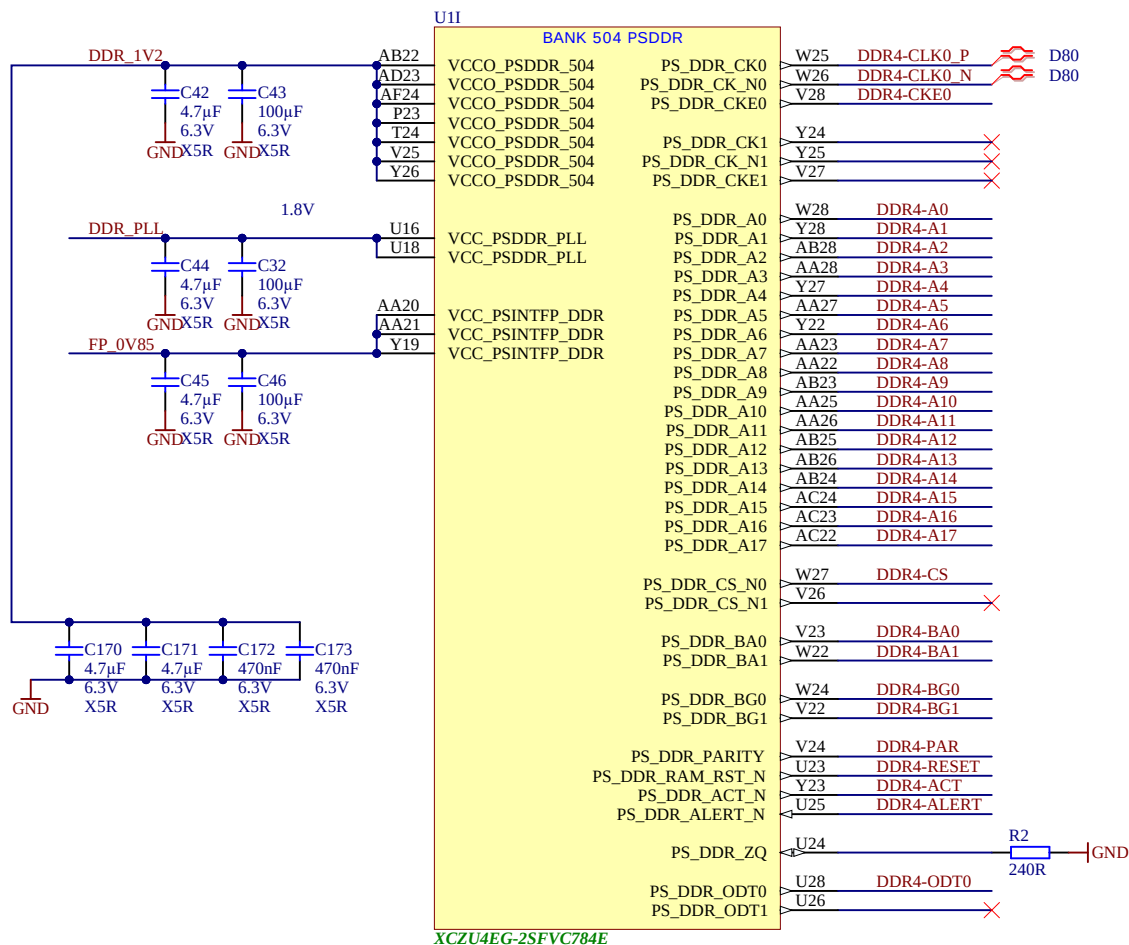
D

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D



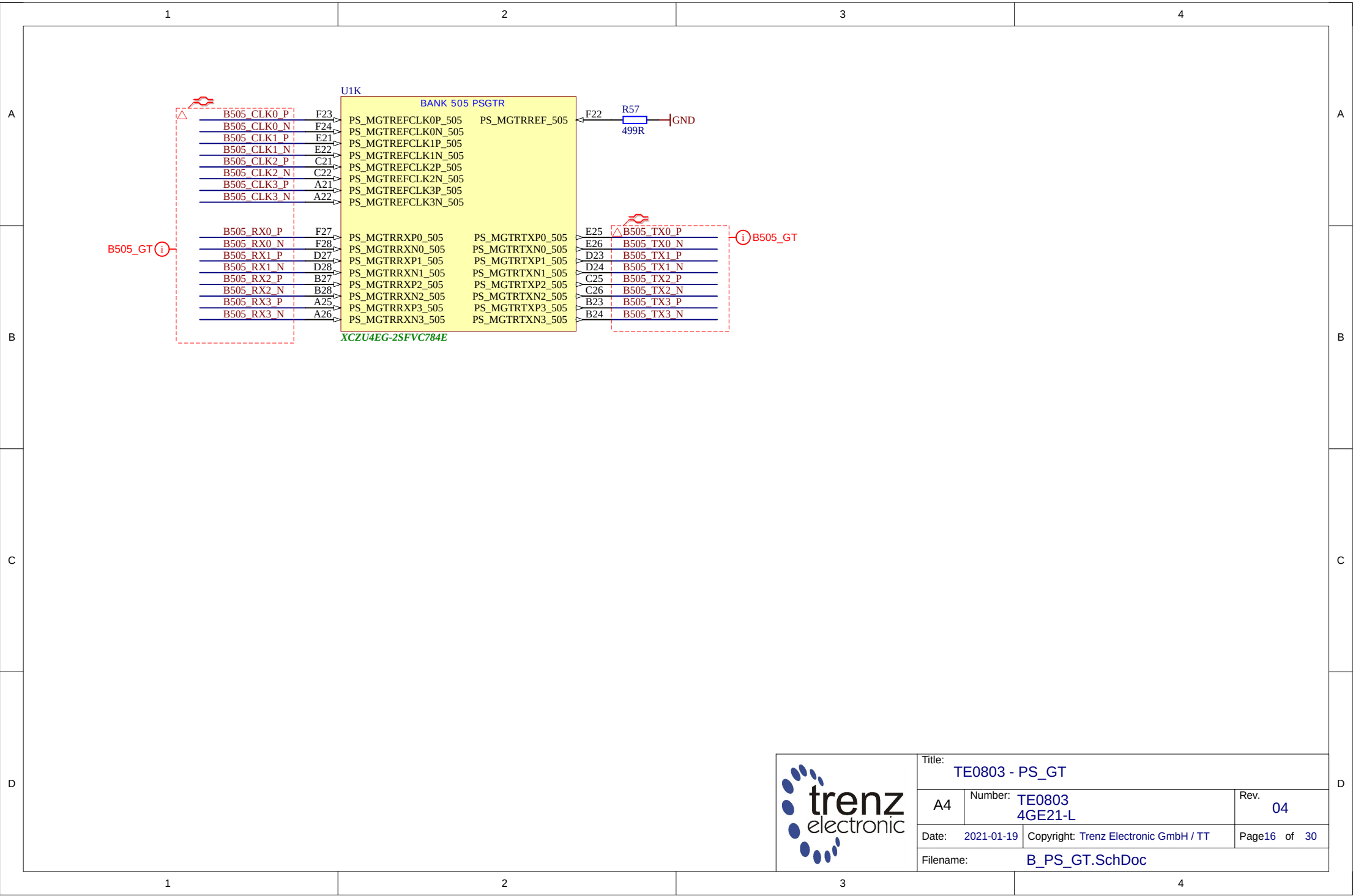
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Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT		Page15 of 30
Filename: PS_DDR.SchDoc			

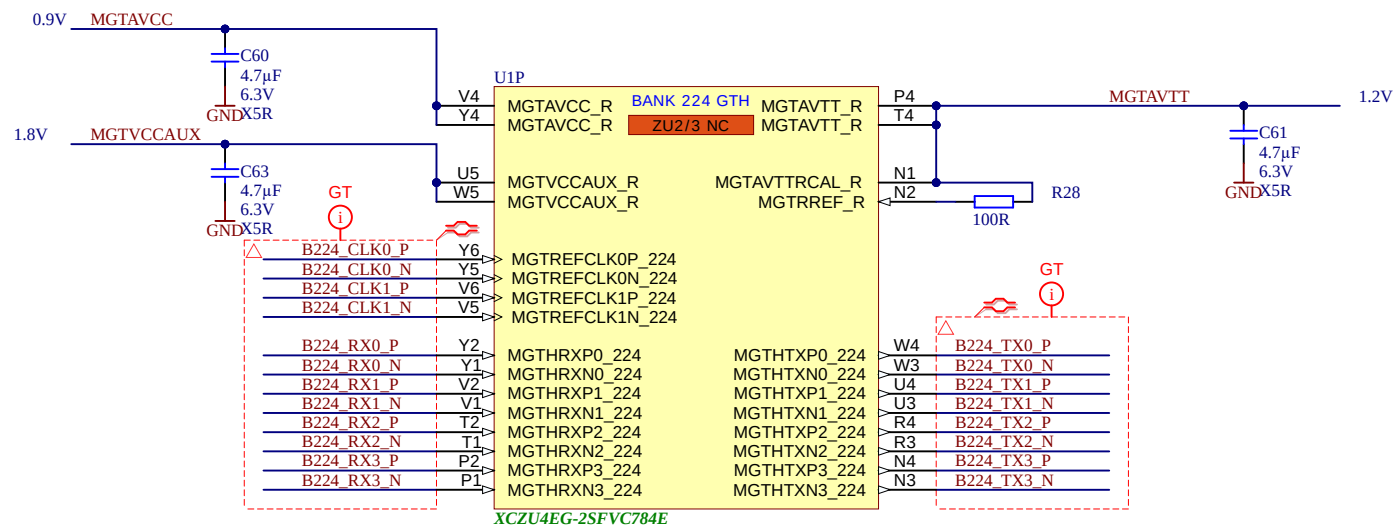
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			Title: TE0803 - B224GTH	
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			Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT Page 17 of 30
			Filename: B_GT.SchDoc	
			Rev. 04	

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A

A

B

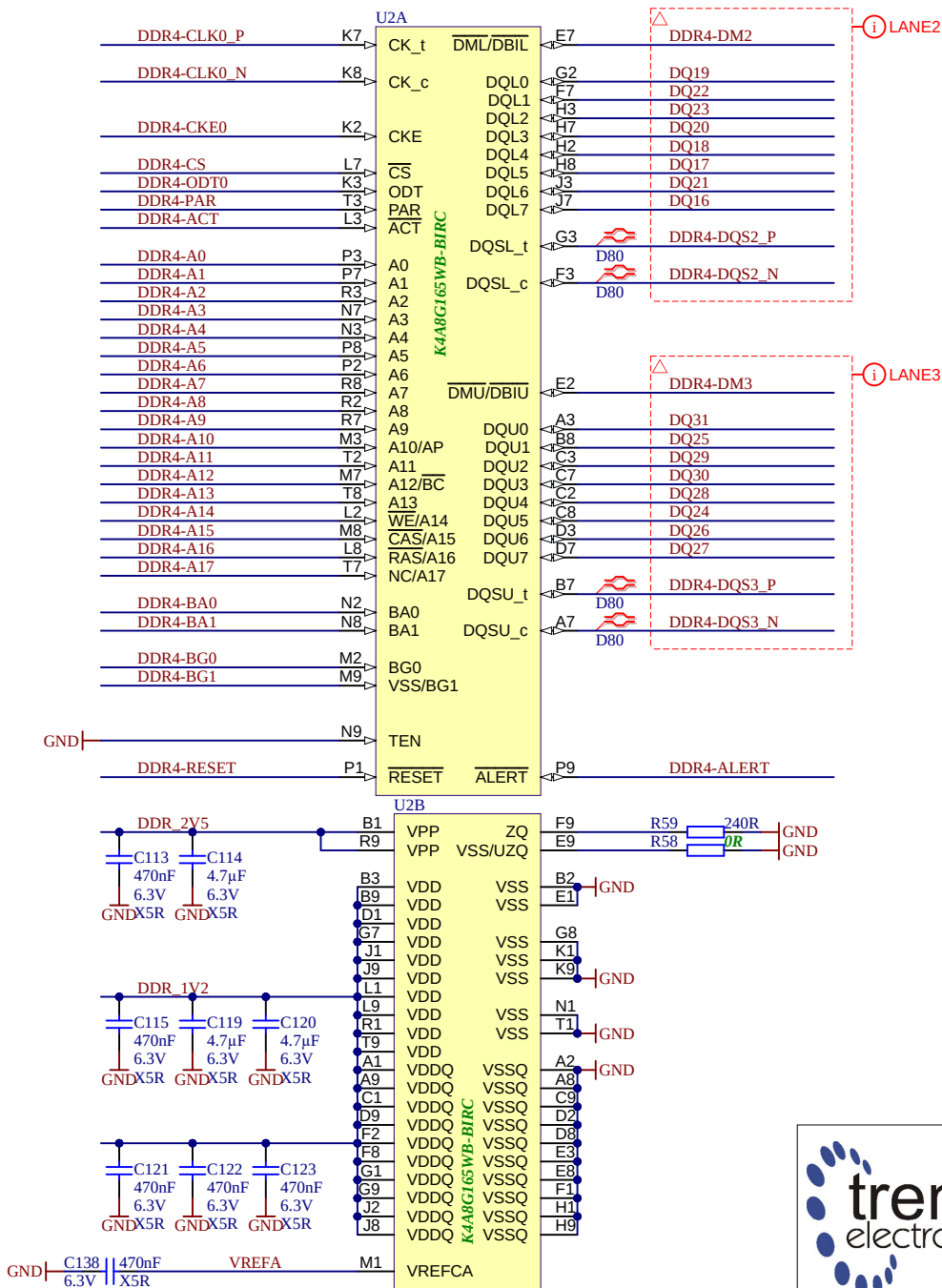
B

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C

D

D



Title: TE0803 - DDR4_1_RAM		
A4	Number: TE0803 4GE21-L	Rev. 04
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page20 of 30
Filename: DDR4-RAM.SchDoc		

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A

A

B

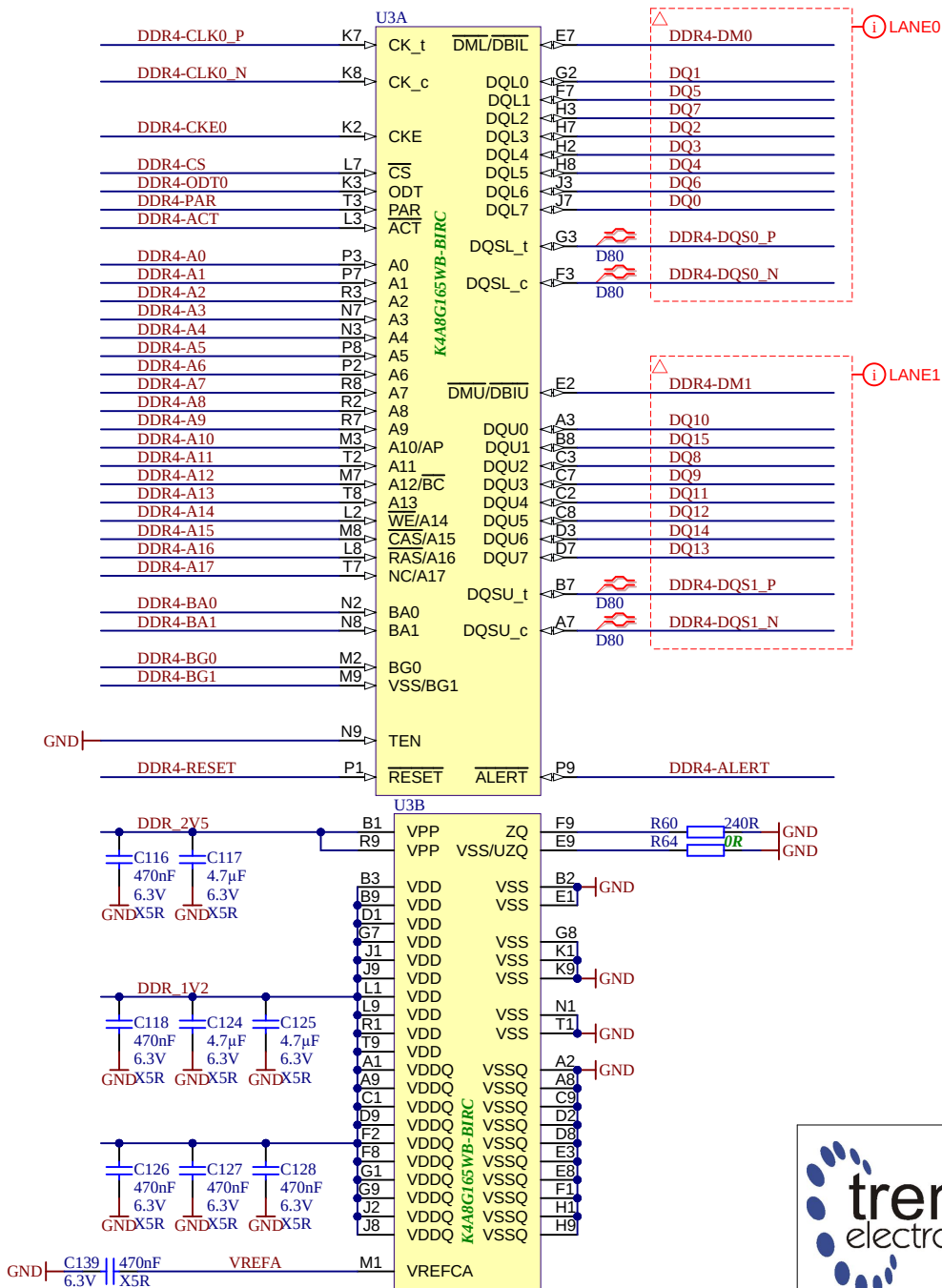
B

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C

D

D



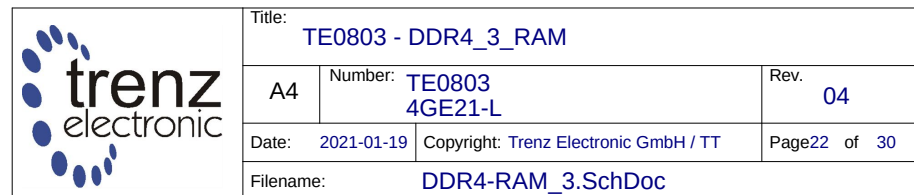
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A4	Number: TE0803 4GE21-L	Rev. 04
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page21 of 30
Filename: DDR4-RAM_2.SchDoc		

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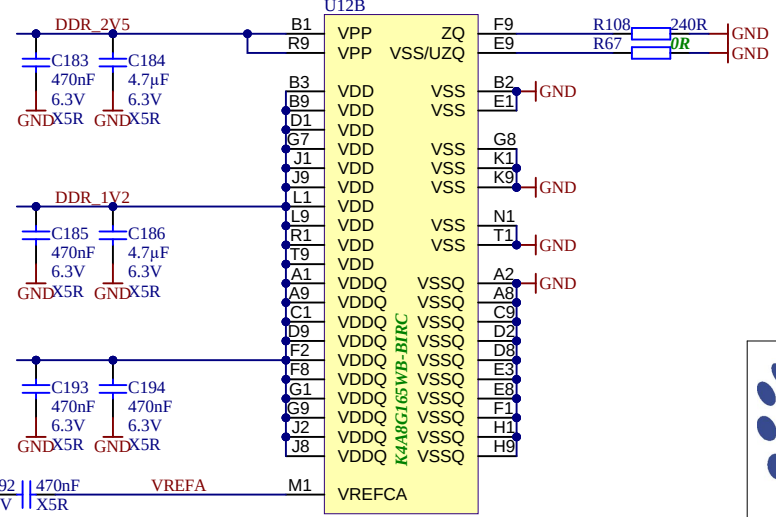
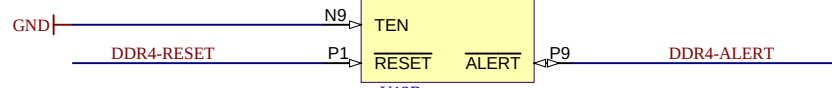
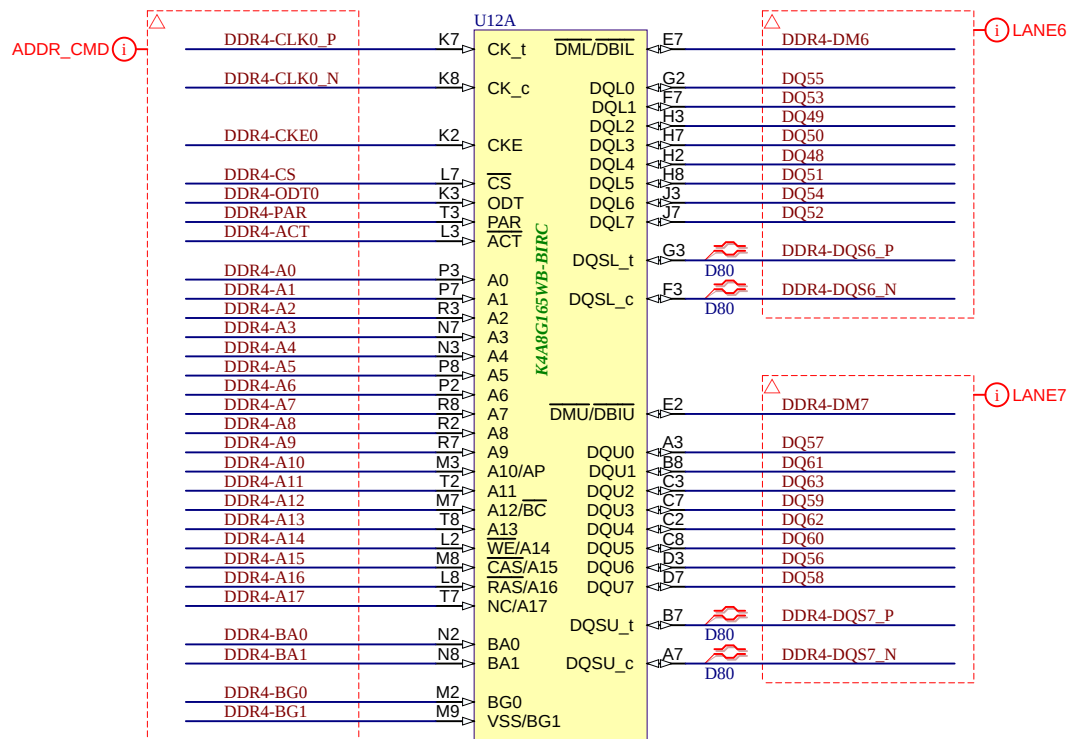


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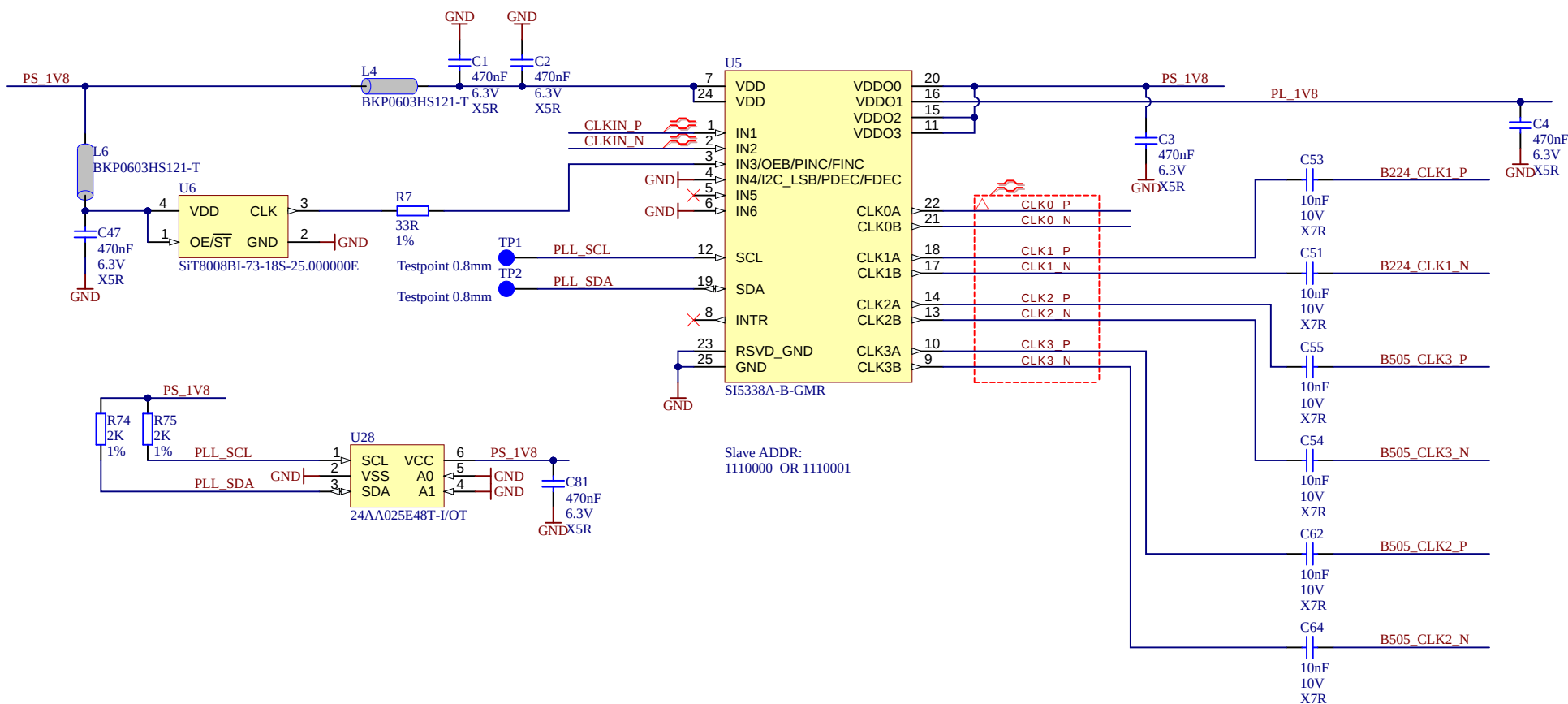
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Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page23 of 30
Filename: DDR4-RAM_4.SchDoc		

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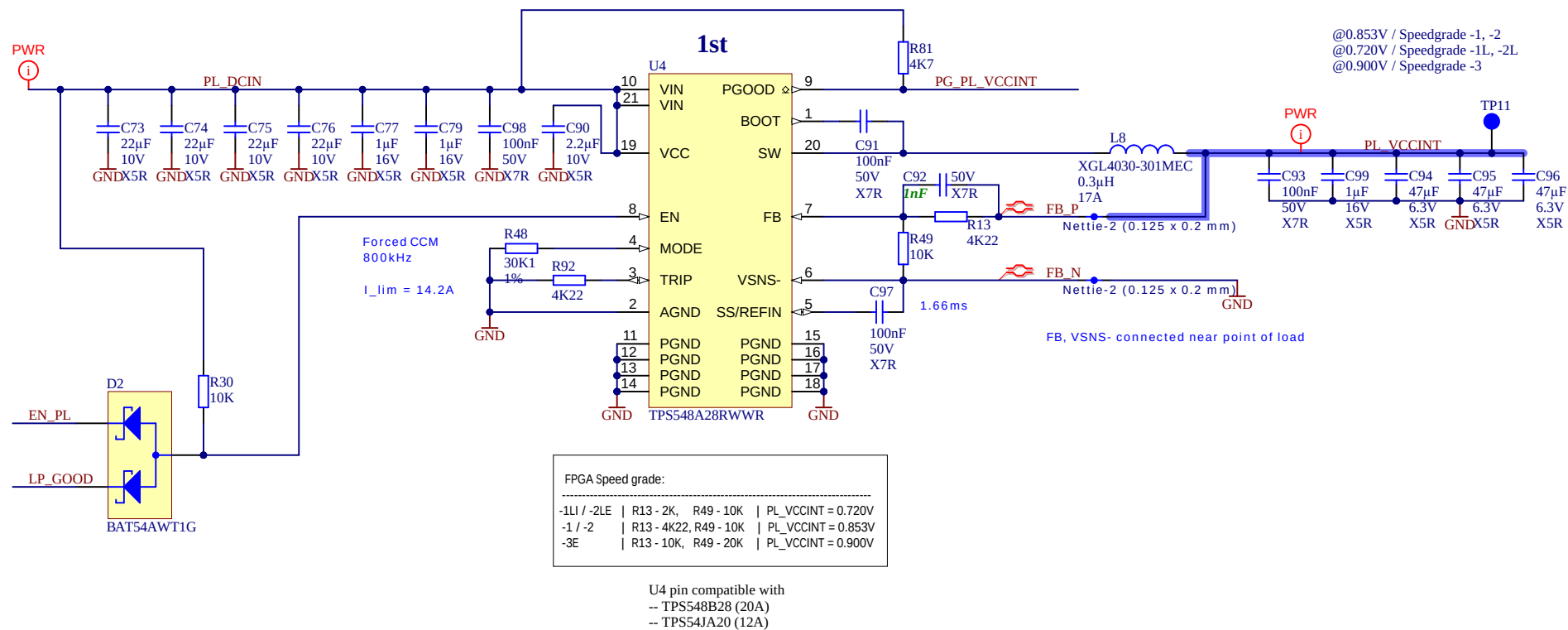
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		Title: TE0803 - CLOCK	
A4	Number: TE0803 4GE21-L	Rev. 04	
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page25 of 30	
Filename: Clock.SchDoc			



	Title: TE0803 - POWER		
	A4	Number: TE0803 4GE21-L	Rev. 04
	Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page 26 of 30
	Filename: POWER.SchDoc		

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A

A

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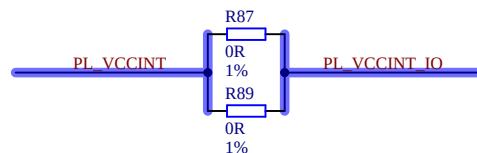
C

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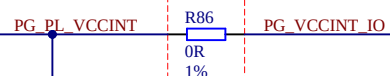
D

D

Remove R87/89 when -1LI/2LE FPGA is used

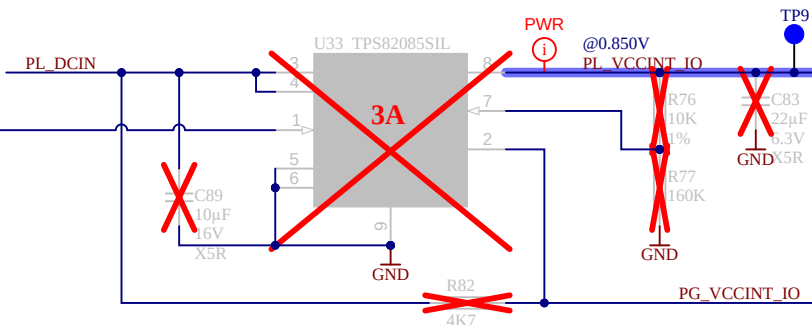


Remove R86 when -1LI/2LE FPGA is used

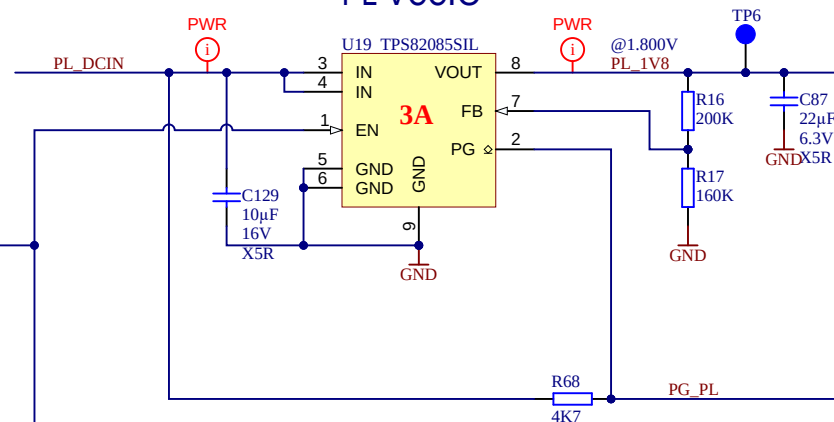


VCCINT_IO & VCCBRAM

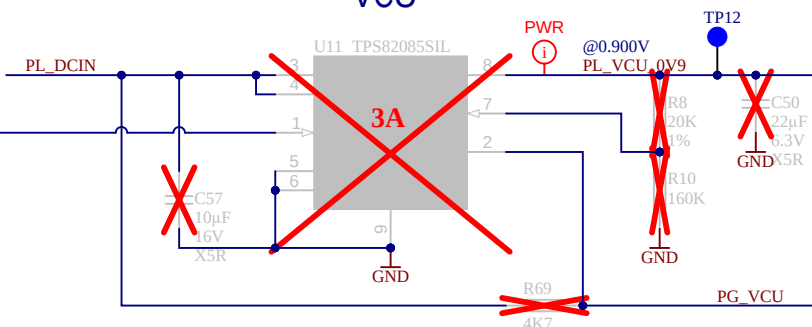
Add U33 when -1LI/2LE FPGA is used



PL VCCIO



VCU



Title: TE0803 - POWER		
A4	Number: TE0803 4GE21-L	Rev. 04
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page 27 of 30
Filename: POWER_1.SchDoc		

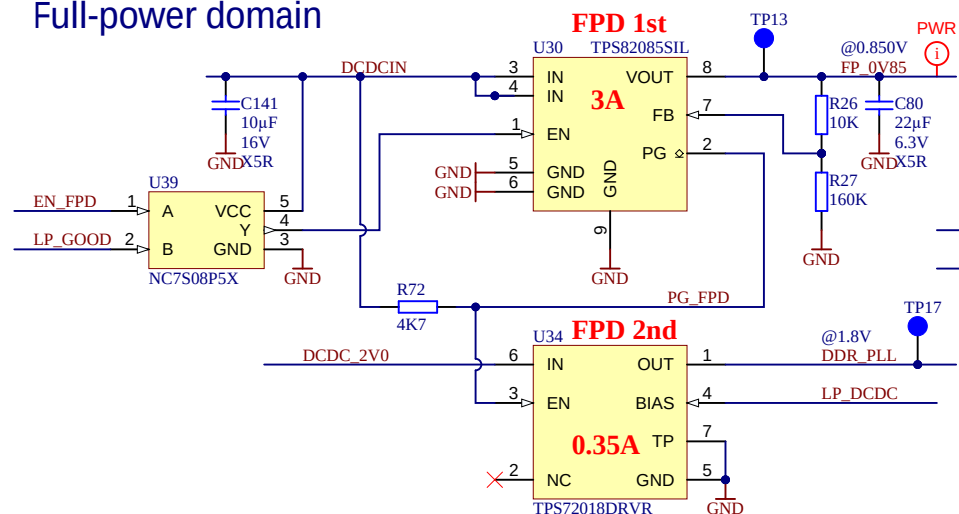
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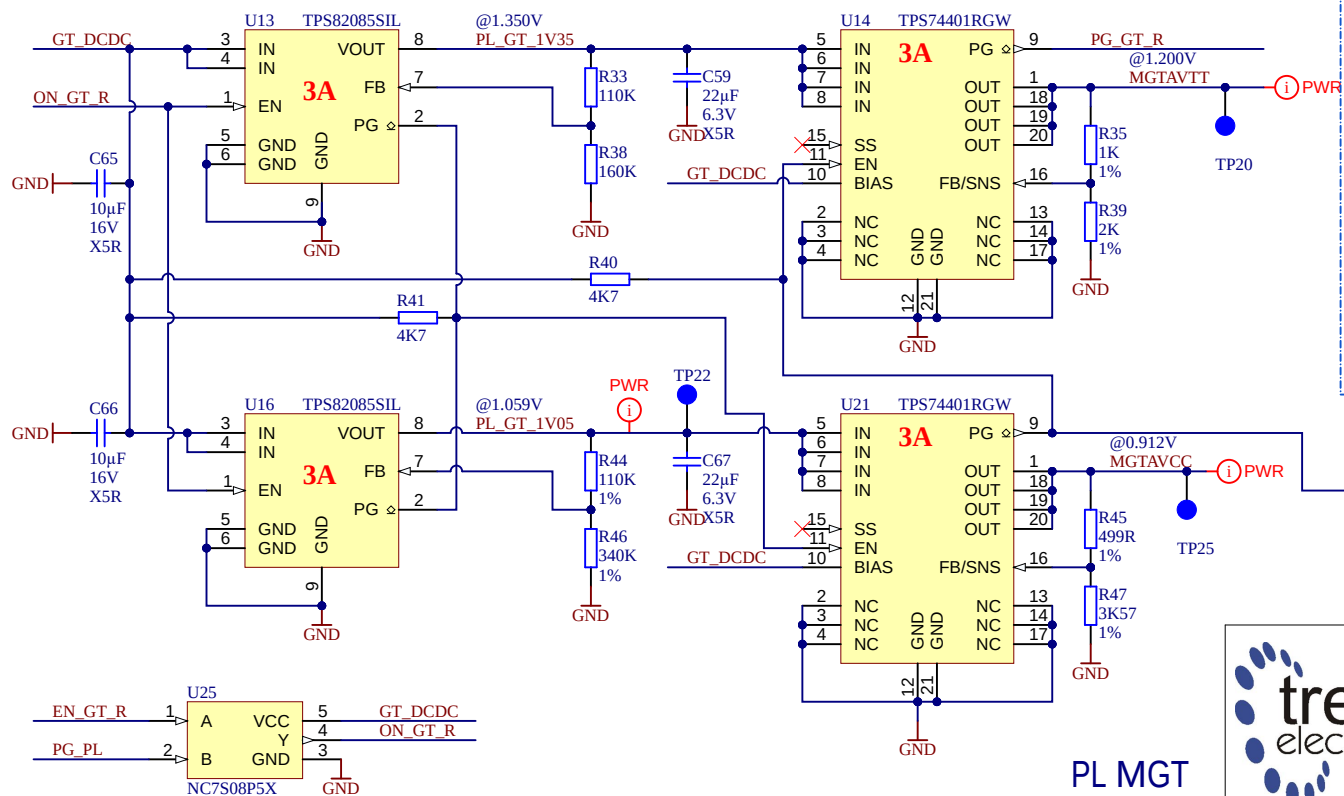
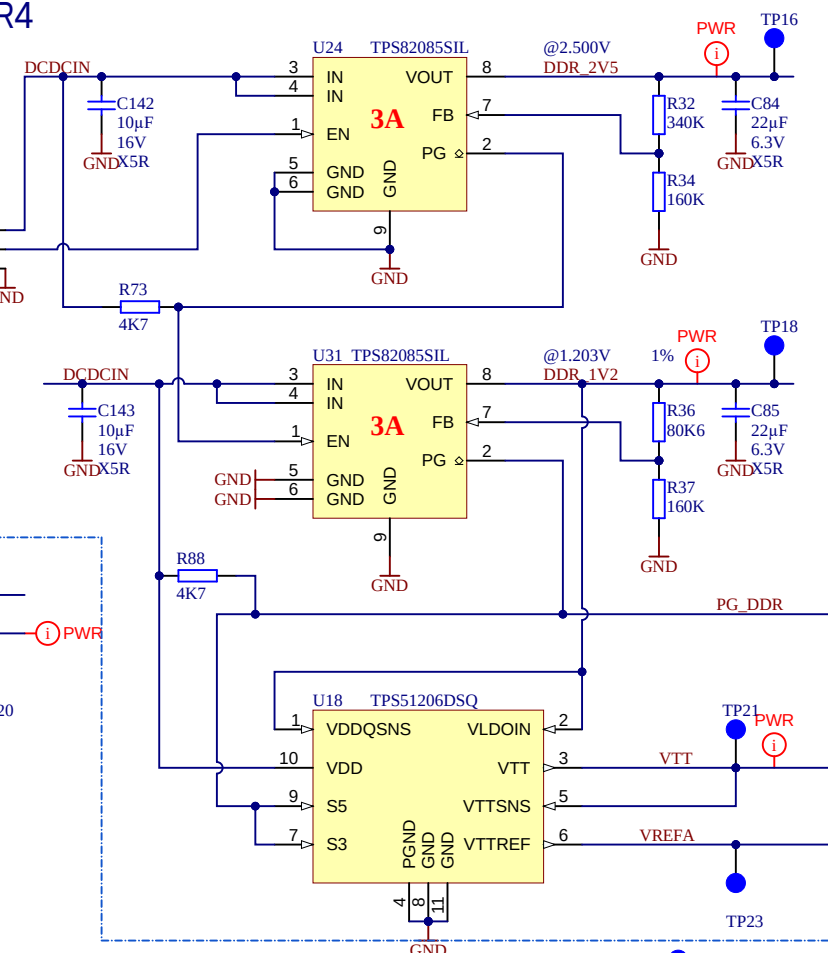
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Full-power domain



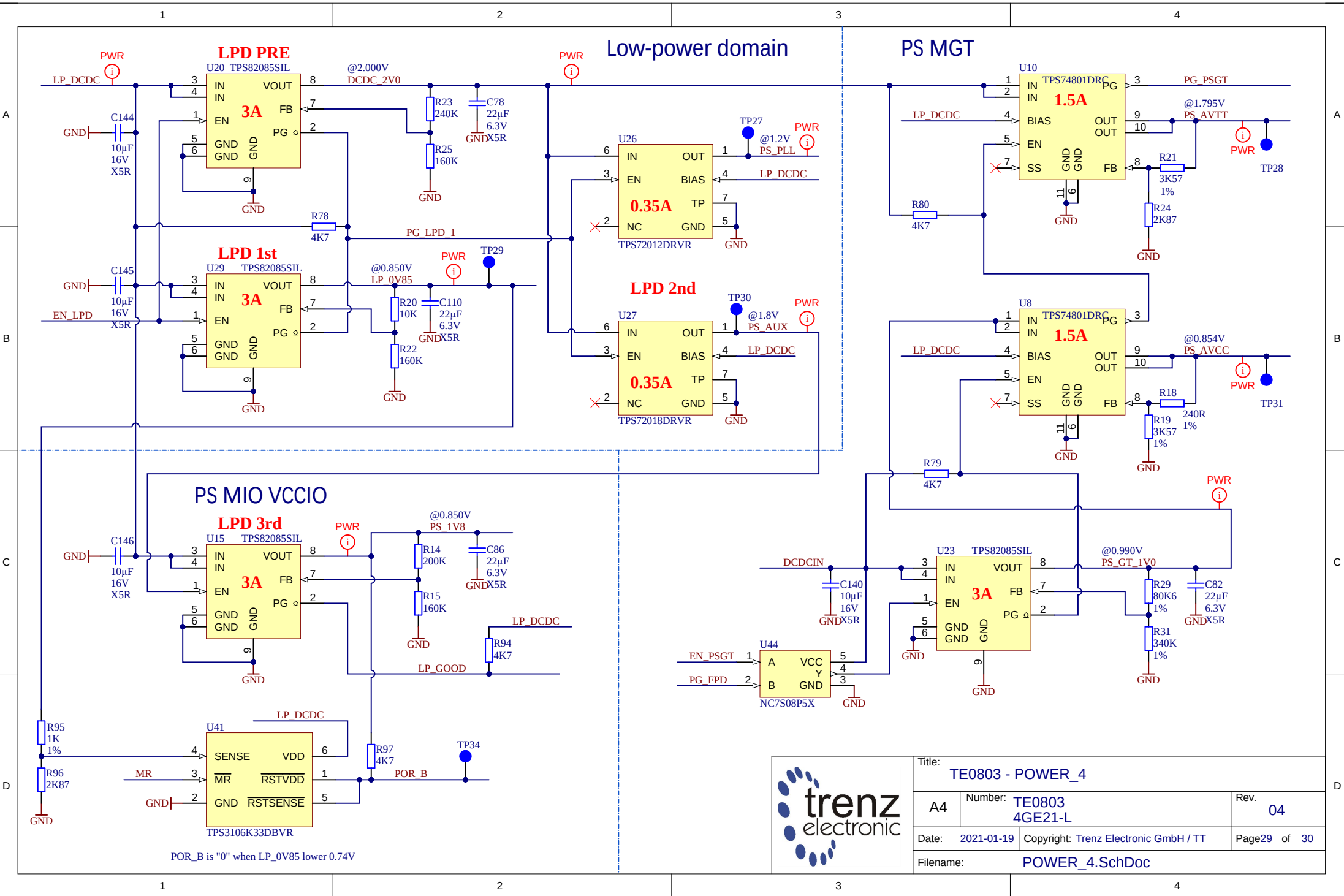
DDR4



PL MGT



Title: TE0803 - POWER_2		
A4	Number: TE0803 4GE21-L	Rev. 04
Date: 2021-01-19	Copyright: Trenz Electronic GmbH / TT	Page28 of 30
Filename: POWER_2.SchDoc		



1		2		3		4		
A							A	
	REV	DATE	Description					
	-01		Initial revision		VT			
	-01a	20.11.2017	1. VCU voltage set to 0.9V, R20 changed to 40K , PL_VCU_1V0 renamed to PL_VCU_0V9.		VT			
	-02	20.06.2018	1. Added LDO to DDR_PLL 2. All differential pairs wath length matched with tollerance 0.1mm (excluding package delays) 3. Added MAC EEPROM U28 4. VPS_MGTRAVCC set to 0.85V 5. Added pull-up resistors R68,R69		VT			
B	-03	21.02.2019	1. Added support of DDP DDR4 2. Added support of Low power FPGA (-L1/L2). 3. Revised testpoints 4. Revised J1-J4 connectors net label style		VY		B	
	-04	15.12.2020	1. Revised PL_VCCINT power supply. EN63A0QI replaced by TPS548A28RWR. PCB: revised routing and components placement; 2. Added support of wide SDRAM DDR4 packages. PCB: revised routing and components placement; 3. Added option to select POR_OVERRIDE level (R12 and R93) 4. VCCO pins if unused Bank 44 connected together. Same for unused Bank 24 (UG583 recomendation) 5. PCB: updated signal trace lengths. 6. PCB: updated silckscreen. Added company address, CE and WEEE symbols; 7. PCB: added module orientation rectangle painer 8. Changed resistors value of R29, R31, R35, R39, R44-R47 (BOM optimization) 9. Removed traceability part (Obsolete component)		VY			
	-04	23.02.2022	10. Changed capacitor C92 for all variants from 100 nF to 1 nF.		ED			
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