


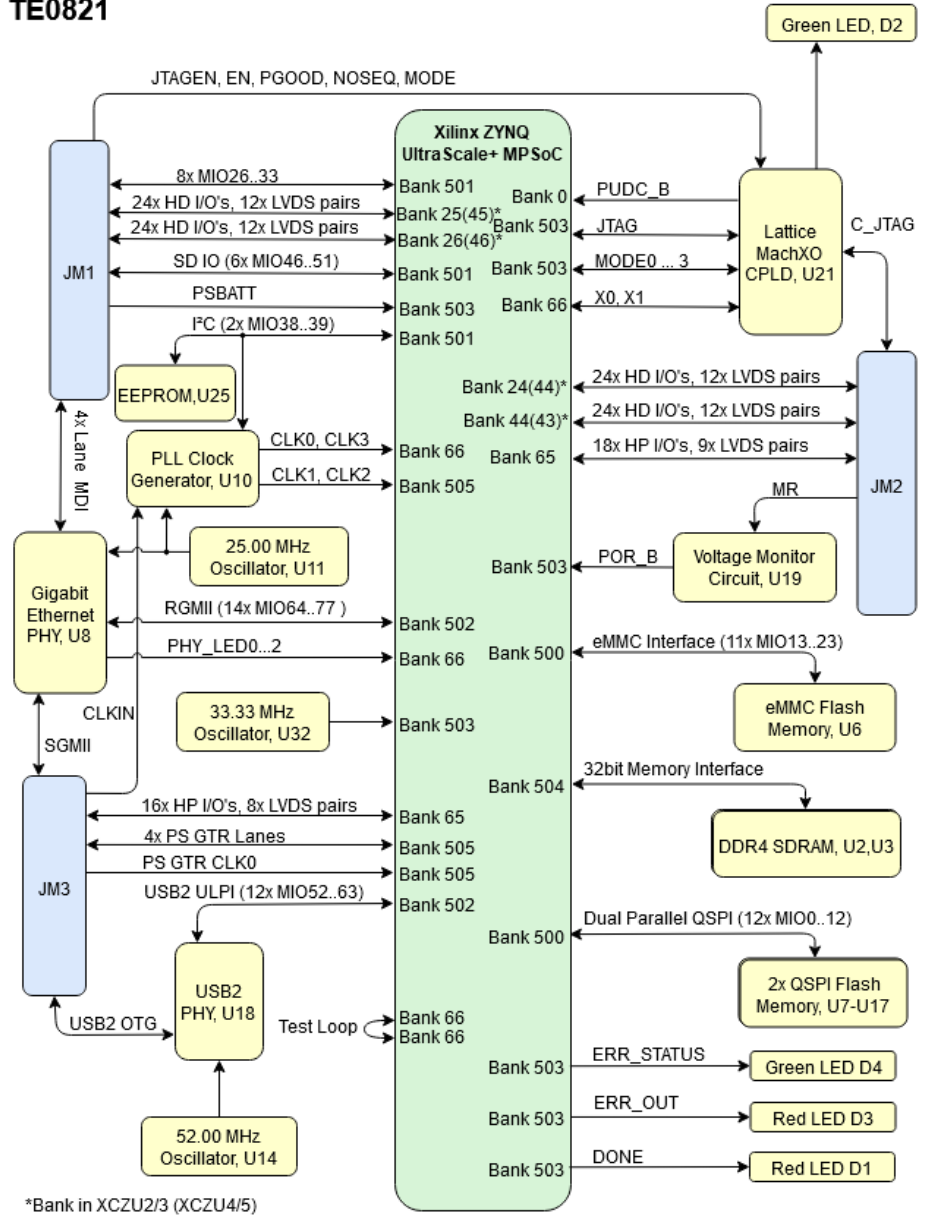
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Schematics and other handouts serve for informational purposes only!

	Title: Module TE0821		
	A4	Number: TE0821 3BI21MA	Rev. 01
	Date: 14.08.2020	Copyright: Trenz Electronic GmbH / TT	Page 1 of 24
	Filename: Legal Notices Modules.SchDoc		

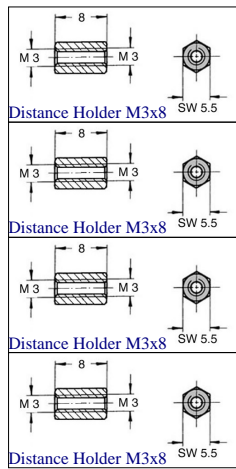
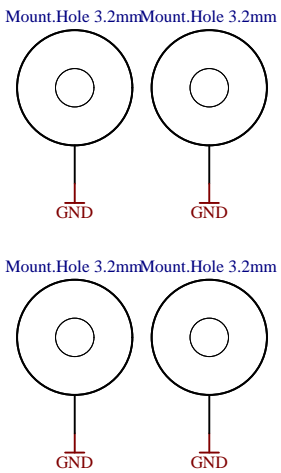
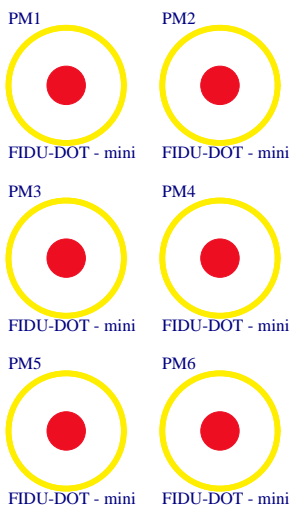
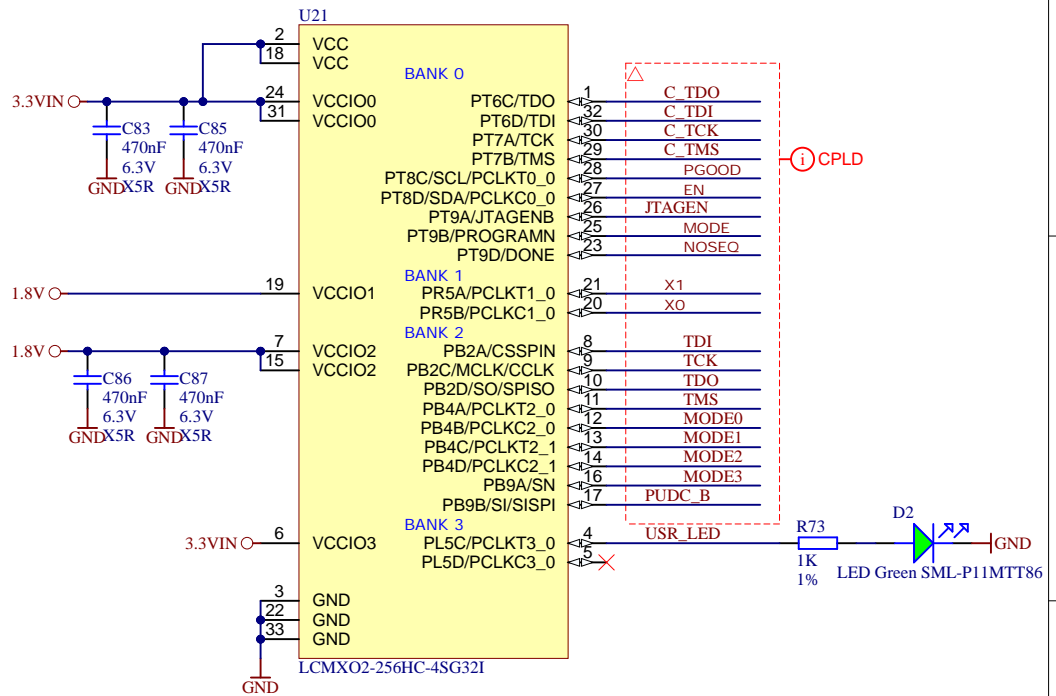
TE0821



	Title: Module TE0821 - System Overview		
	A4	Number: TE0821 3BI21MA	Rev. 01
	Date: 18.01.2022	Copyright: 2015 Trenz Electronic GmbH	Page 2 of 24
	Filename: TE0821-Overview.SchDoc		

U_USB-PHY USB-PHY.SchDoc
U_ETH-PHY ETH-PHY.SchDoc
U_B_HD B_HD.SchDoc
U_B64 B64.SchDoc
U_B65 B65.SchDoc
U_B66 B66.SchDoc
U_CONFIG CONFIG.SchDoc
U_B_MIO B_MIO.SchDoc
U_B_PS_GT B_PS_GT.SchDoc
U_CLK CLK.SchDoc
U_Overview TE0821-Overview.SchDoc
U_LN Legal Notices Modules.SchDoc

U_B2B-Connectors B2B-Connectors.SchDoc
U_B2B-Connectors_2 B2B-Connectors_2.SchDoc
U_eMMC eMMC.SchDoc
U_PS_DDR PS_DDR.SchDoc
U_ZU_POWER ZU_POWER.SchDoc
U_ZU_PS_POWER ZU_PS_POWER.SchDoc
U_DDR4-RAM_2 DDR4-RAM_2.SchDoc
U_DDR4-RAM DDR4-RAM.SchDoc
U_POWER POWER.SchDoc
U_POWER_1 POWER_1.SchDoc
U_Revision_changes Revision Changes.SchDoc

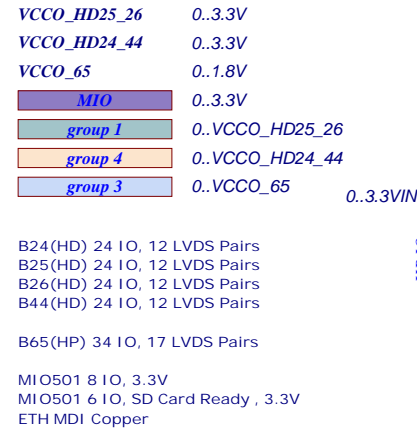
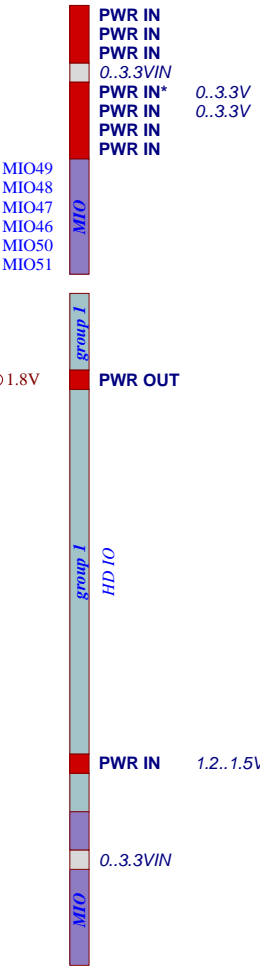
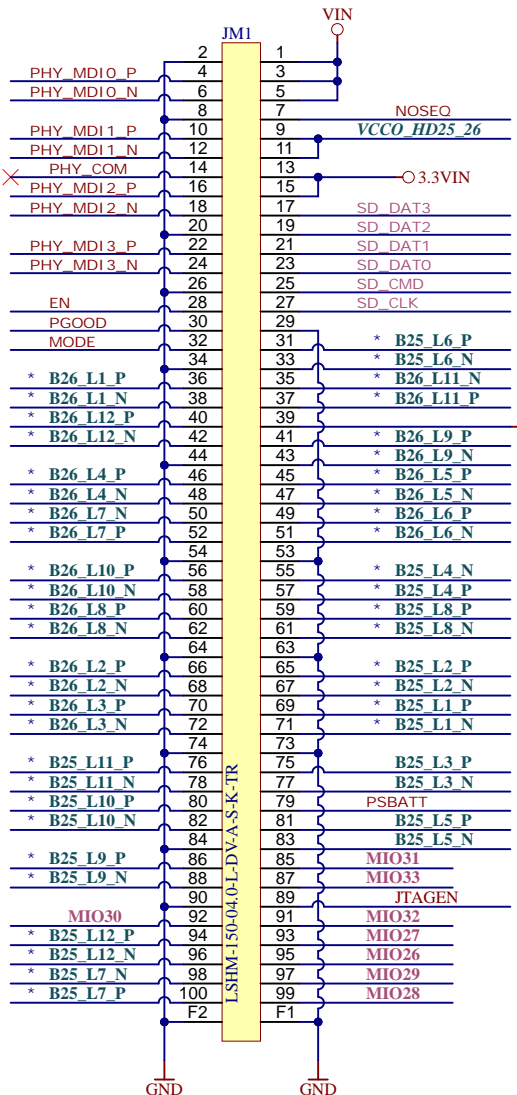


Special notes:

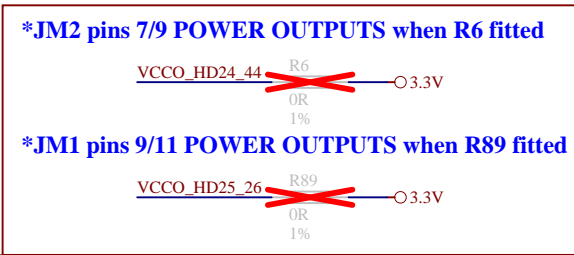
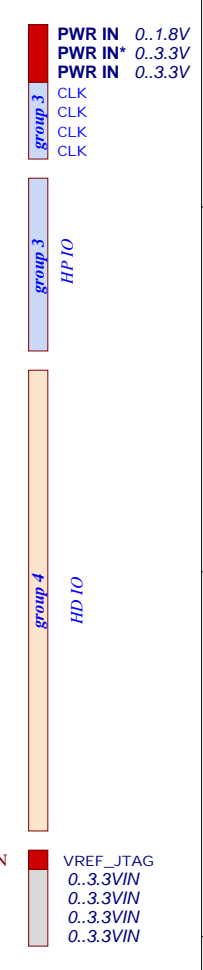
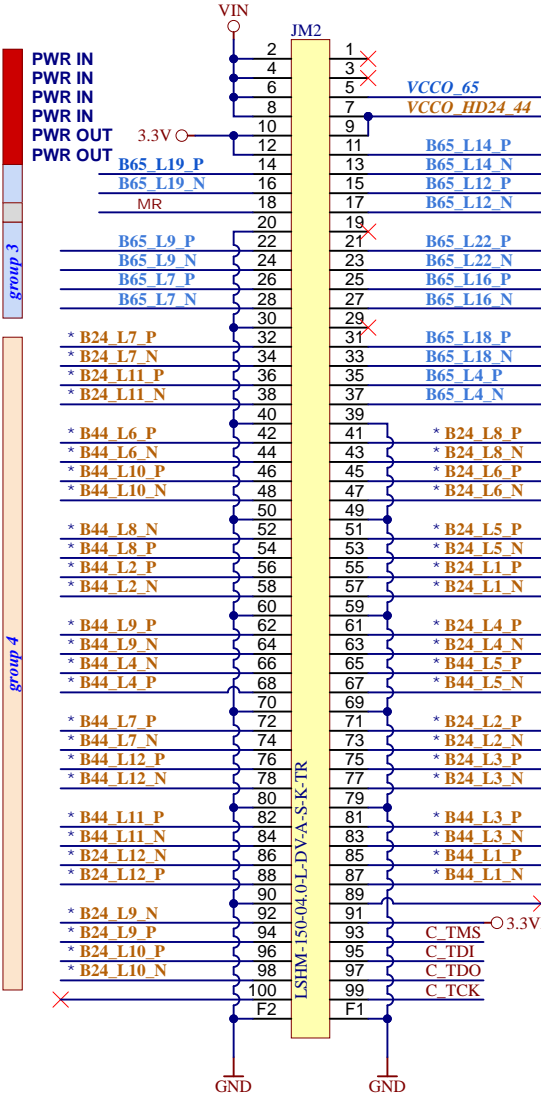
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Title: Module TE0821		
A4	Number: TE0821 3BI21MA	Rev. 01
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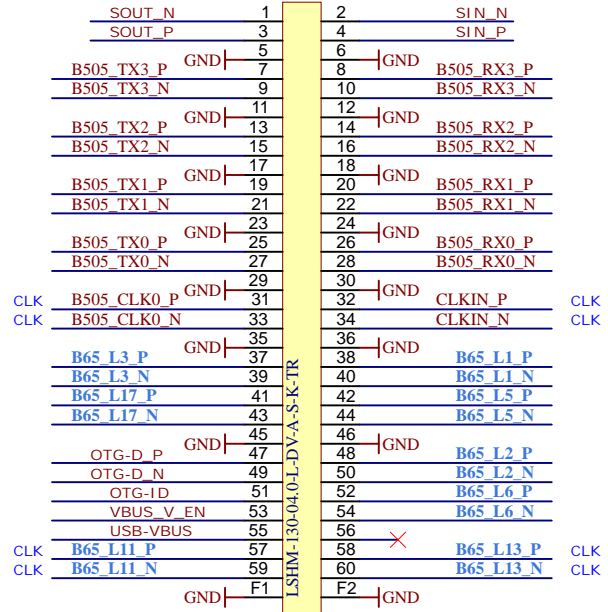
Net names are given for XCZU2/3 FPGA
 * Bank 44 is Bank 43 in XCZU4/5
 * Bank 24 is Bank 44 in XCZU4/5
 * Bank 25 is Bank 45 in XCZU4/5
 * Bank 26 is Bank 46 in XCZU4/5



Title: Module TE0821 - B2B Connectors		
A4	Number: TE0821 3BI21MA	Rev. 01
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Filename: B2B-Connectors.SchDoc		

USB OTG
 ETH SGMII
 PS_GTR 4 Lanes
 PS_GTR CLK IN
 PLL CLK IN

JM3



HP IO
 group 3
 USB
 HP IO

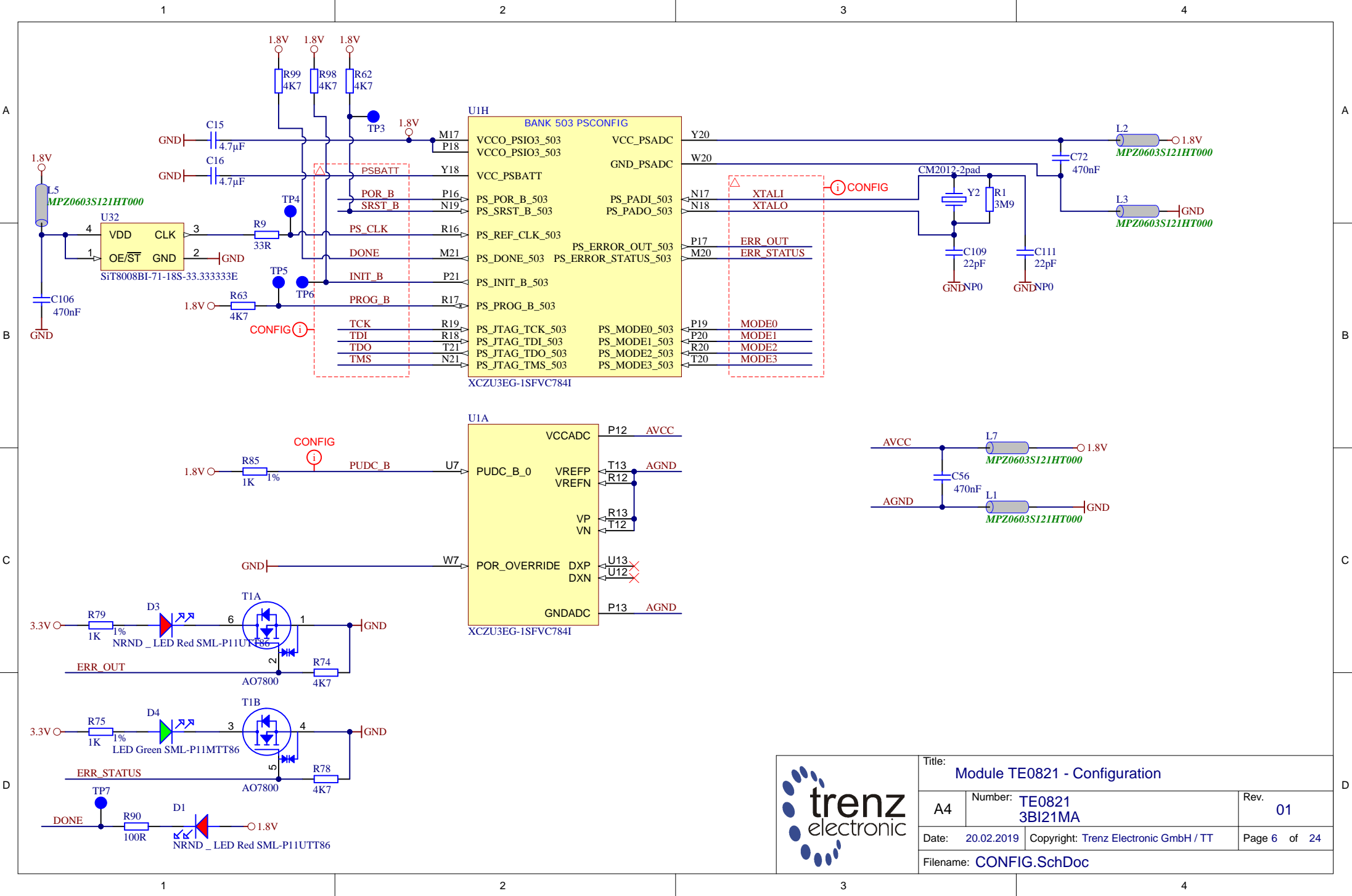
group 3
 group 3
 group 3

X

X

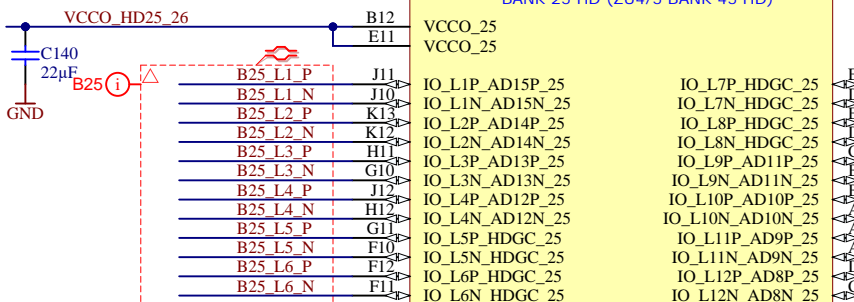
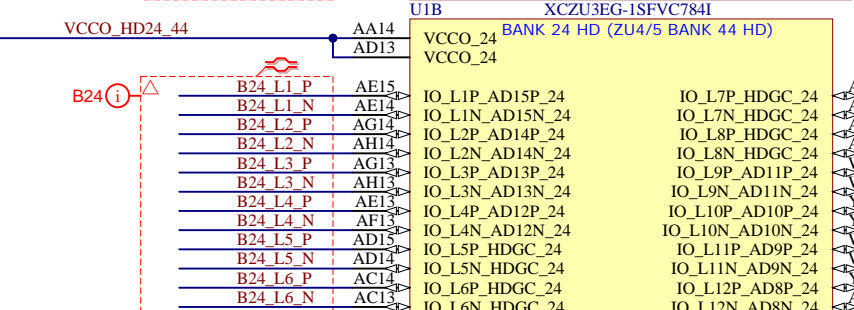
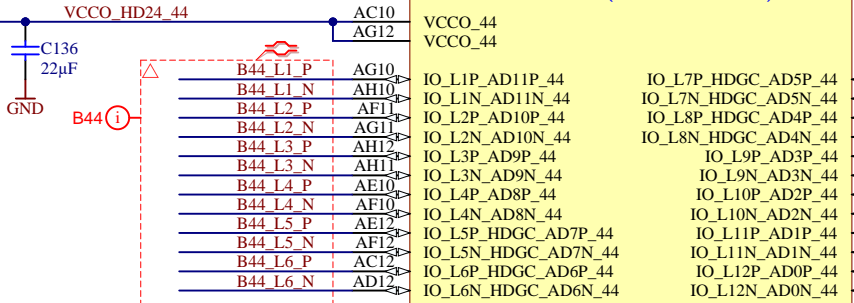
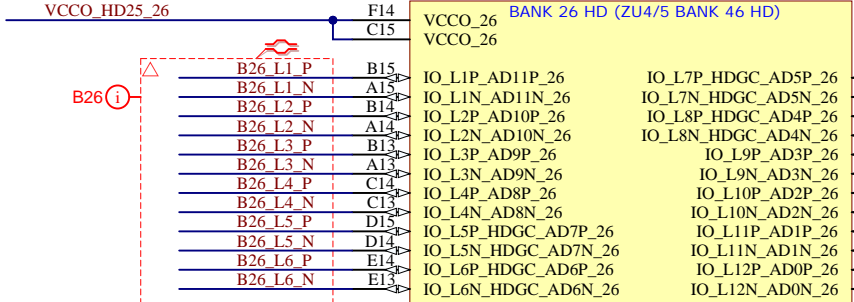


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Date: 20.02.2019	Copyright: 2015 Trenz Electronic GmbH	Page 5 of 24
Filename: B2B-Connectors_2.SchDoc		

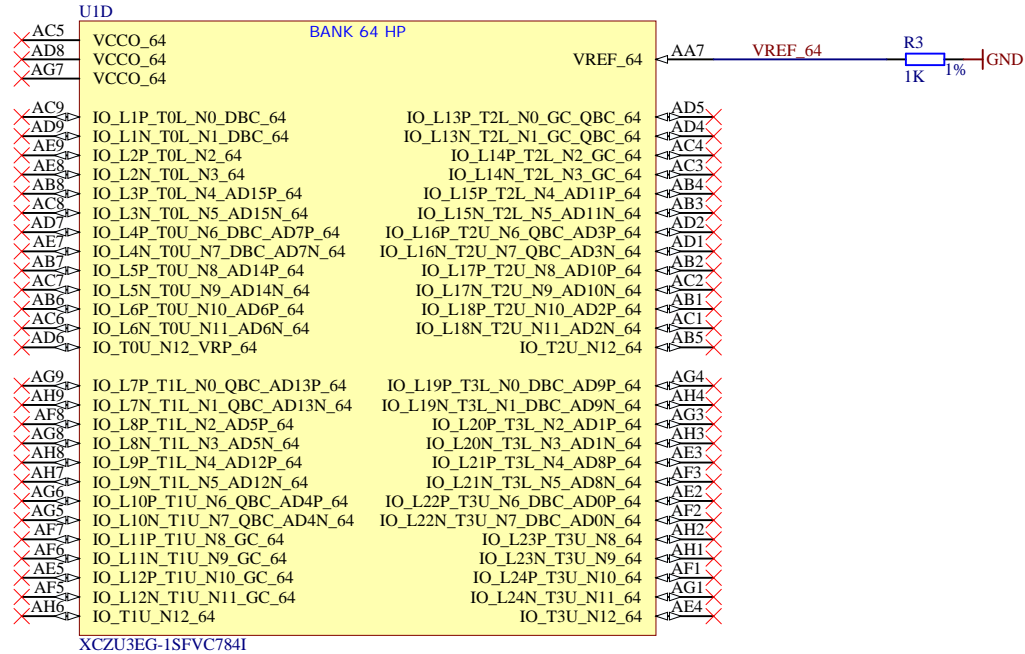


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Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 6 of 24
Filename: CONFIG.SchDoc		

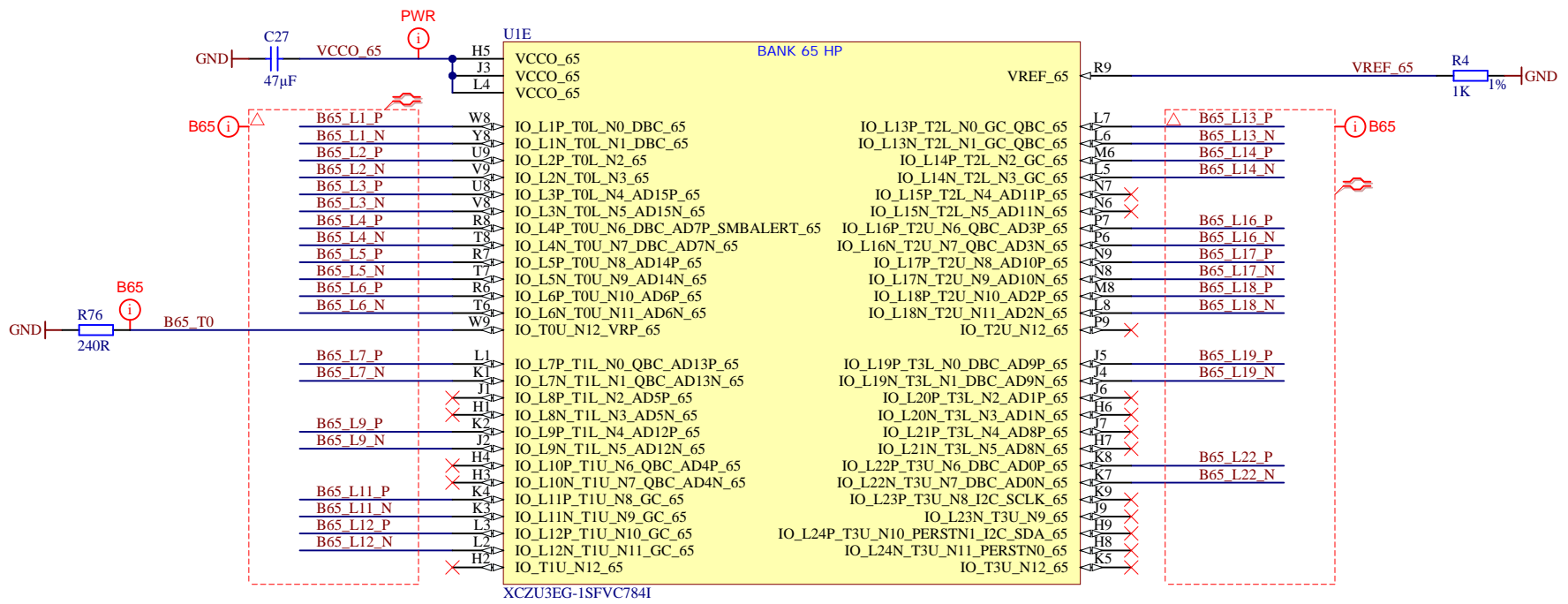
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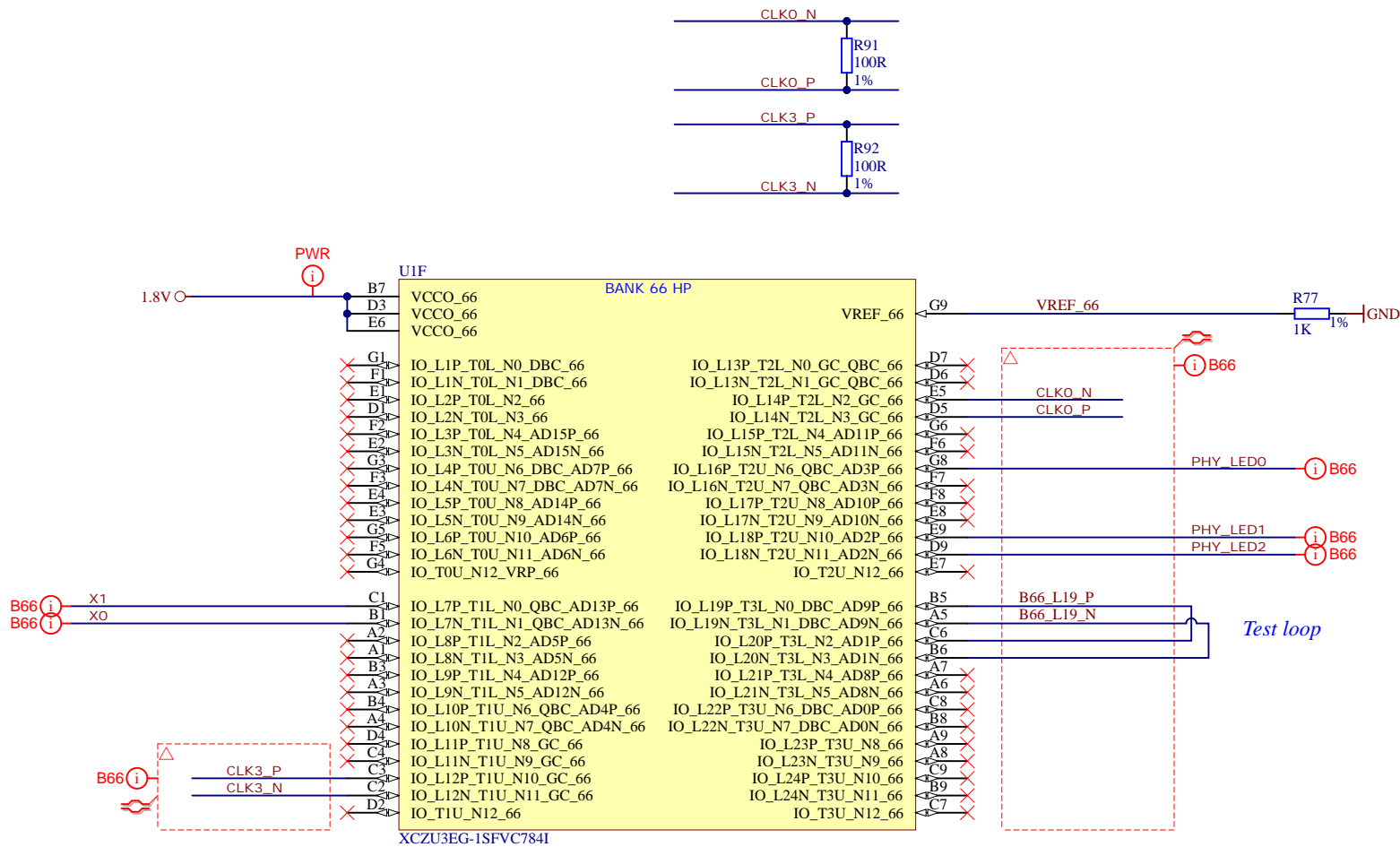
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A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 7 of 24
Filename: B_HD.SchDoc		




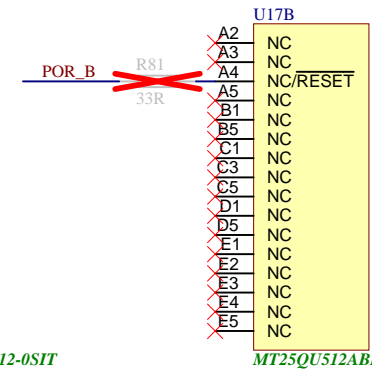
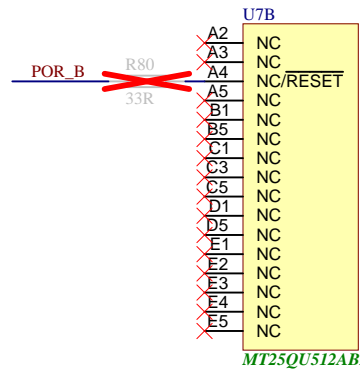
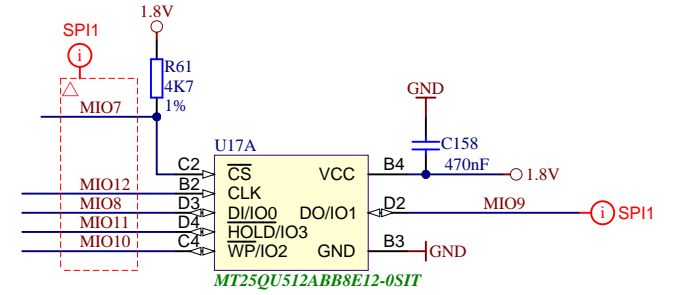
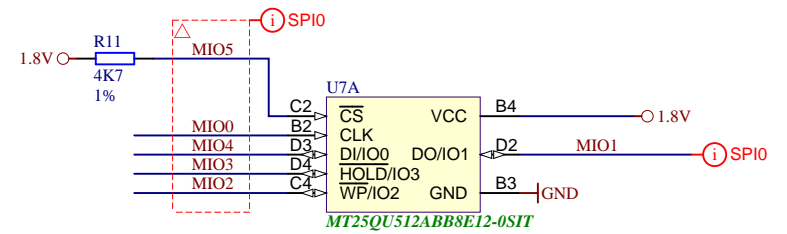
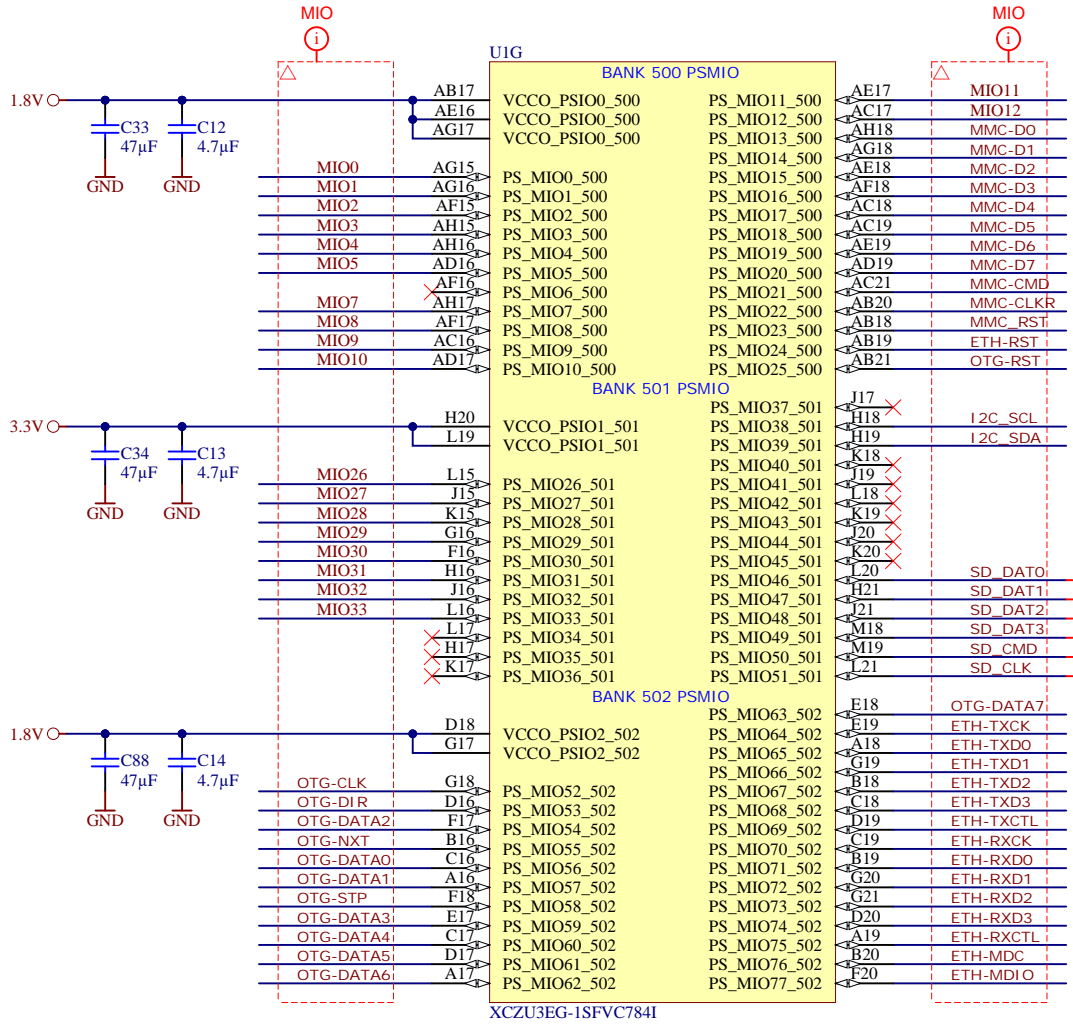
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A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 8 of 24
Filename: B64.SchDoc		



Title: Module TE0821 - B65		
A4	Number: TE0821 3BI21MA	Rev. 01
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Filename: B65.SchDoc		



			Title: Module TE0821 - B66	
			A4	Number: TE0821 3BI21MA
Date: 20.02.2019		Copyright: Trenz Electronic GmbH / TT		Page 10 of 24
Filename: B66.SchDoc				



		Title: Module TE0821 - MIO Banks	
		A4	Number: TE0821 3BI21MA Date: 20.02.2019 Filename: B_MIO.SchDoc

A

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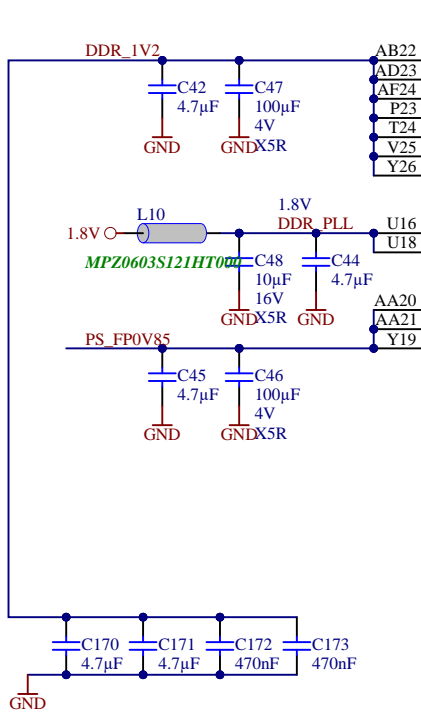
D

A

B

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D



U11

BANK 504 PSDDR

VCCO_PSDDR_504	PS_DDR_CK0_504	W25	DDR4-CLK0 P	
VCCO_PSDDR_504	PS_DDR_CK_N0_504	W26	DDR4-CLK0 N	
VCCO_PSDDR_504	PS_DDR_CKE0_504	V28	DDR4-CKE0	
VCCO_PSDDR_504	PS_DDR_CK1_504	Y24		X
VCCO_PSDDR_504	PS_DDR_CK_N1_504	Y25		X
VCCO_PSDDR_504	PS_DDR_CKE1_504	V27		X
VCC_PSDDR_PLL	PS_DDR_A0_504	W28	DDR4-A0	
VCC_PSDDR_PLL	PS_DDR_A1_504	Y28	DDR4-A1	
VCC_PSDDR_PLL	PS_DDR_A2_504	AB28	DDR4-A2	
VCC_PSDDR_PLL	PS_DDR_A3_504	AA28	DDR4-A3	
VCC_PSDDR_PLL	PS_DDR_A4_504	Y27	DDR4-A4	
VCC_PSINTFP_DDR	PS_DDR_A5_504	AA27	DDR4-A5	
VCC_PSINTFP_DDR	PS_DDR_A6_504	Y22	DDR4-A6	
VCC_PSINTFP_DDR	PS_DDR_A7_504	AA23	DDR4-A7	
VCC_PSINTFP_DDR	PS_DDR_A8_504	AA22	DDR4-A8	
PS_DDR_A9_504	PS_DDR_A9_504	AB23	DDR4-A9	
PS_DDR_A10_504	PS_DDR_A10_504	AA25	DDR4-A10	
PS_DDR_A11_504	PS_DDR_A11_504	AA26	DDR4-A11	
PS_DDR_A12_504	PS_DDR_A12_504	AB25	DDR4-A12	
PS_DDR_A13_504	PS_DDR_A13_504	AB26	DDR4-A13	
PS_DDR_A14_504	PS_DDR_A14_504	AB24	DDR4-A14	
PS_DDR_A15_504	PS_DDR_A15_504	AC24	DDR4-A15	
PS_DDR_A16_504	PS_DDR_A16_504	AC23	DDR4-A16	
PS_DDR_A17_504	PS_DDR_A17_504	AC22	DDR4-A17	
PS_DDR_CS_N0_504	PS_DDR_CS_N0_504	W27	DDR4-CS	
PS_DDR_CS_N1_504	PS_DDR_CS_N1_504	V26		X
PS_DDR_BA0_504	PS_DDR_BA0_504	V23	DDR4-BA0	
PS_DDR_BA1_504	PS_DDR_BA1_504	W22	DDR4-BA1	
PS_DDR_BG0_504	PS_DDR_BG0_504	W24	DDR4-BG0	
PS_DDR_BG1_504	PS_DDR_BG1_504	V22	DDR4-BG1	
PS_DDR_PARITY_504	PS_DDR_PARITY_504	V24	DDR4-PAR	
PS_DDR_RAM_RST_N_504	PS_DDR_RAM_RST_N_504	U23	DDR4-RESET	
PS_DDR_ACT_N_504	PS_DDR_ACT_N_504	Y23	DDR4-ACT	
PS_DDR_ALERT_N_504	PS_DDR_ALERT_N_504	U25	DDR4-ALERT	
PS_DDR_ZQ_504	PS_DDR_ZQ_504	U24		X
PS_DDR_ODT0_504	PS_DDR_ODT0_504	U28	DDR4-ODT0	
PS_DDR_ODT1_504	PS_DDR_ODT1_504	U26		X

XCZU3EG-1SFVC784I

U1J

BANK 504 PSDDR

DQ0	AD21	PS_DDR_DQ0_504	PS_DDR_DQ32_504	T22	
DQ1	AE20	PS_DDR_DQ1_504	PS_DDR_DQ33_504	R22	X
DQ2	AD20	PS_DDR_DQ2_504	PS_DDR_DQ34_504	P22	X
DQ3	AF20	PS_DDR_DQ3_504	PS_DDR_DQ35_504	N22	X
DQ4	AH21	PS_DDR_DQ4_504	PS_DDR_DQ36_504	T23	X
DQ5	AH20	PS_DDR_DQ5_504	PS_DDR_DQ37_504	P24	X
DQ6	AH19	PS_DDR_DQ6_504	PS_DDR_DQ38_504	R24	X
DQ7	AG19	PS_DDR_DQ7_504	PS_DDR_DQ39_504	N24	X
DQ8	AF22	PS_DDR_DQ8_504	PS_DDR_DQ40_504	H24	X
DQ9	AH22	PS_DDR_DQ9_504	PS_DDR_DQ41_504	J24	X
DQ10	AE22	PS_DDR_DQ10_504	PS_DDR_DQ42_504	M24	X
DQ11	AD23	PS_DDR_DQ11_504	PS_DDR_DQ43_504	K24	X
DQ12	AH23	PS_DDR_DQ12_504	PS_DDR_DQ44_504	J22	X
DQ13	AH24	PS_DDR_DQ13_504	PS_DDR_DQ45_504	H22	X
DQ14	AE24	PS_DDR_DQ14_504	PS_DDR_DQ46_504	K22	X
DQ15	AG24	PS_DDR_DQ15_504	PS_DDR_DQ47_504	J22	X
DQ16	AC26	PS_DDR_DQ16_504	PS_DDR_DQ48_504	M25	X
DQ17	AD26	PS_DDR_DQ17_504	PS_DDR_DQ49_504	M26	X
DQ18	AD25	PS_DDR_DQ18_504	PS_DDR_DQ50_504	L25	X
DQ19	AD24	PS_DDR_DQ19_504	PS_DDR_DQ51_504	L26	X
DQ20	AG26	PS_DDR_DQ20_504	PS_DDR_DQ52_504	K28	X
DQ21	AH25	PS_DDR_DQ21_504	PS_DDR_DQ53_504	L28	X
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DQ25	AH28	PS_DDR_DQ25_504	PS_DDR_DQ57_504	K27	X
DQ26	AF28	PS_DDR_DQ26_504	PS_DDR_DQ58_504	H28	X
DQ27	AG28	PS_DDR_DQ27_504	PS_DDR_DQ59_504	H27	X
DQ28	AC27	PS_DDR_DQ28_504	PS_DDR_DQ60_504	G26	X
DQ29	AD27	PS_DDR_DQ29_504	PS_DDR_DQ61_504	G25	X
DQ30	AD28	PS_DDR_DQ30_504	PS_DDR_DQ62_504	K25	X
DQ31	AC28	PS_DDR_DQ31_504	PS_DDR_DQ63_504	J25	X
		PS_DDR_DQ64_504	PS_DDR_DQ64_504	T28	X
		PS_DDR_DQ65_504	PS_DDR_DQ65_504	R28	X
DDR4-DQS0 P	AF21	PS_DDR_DQS_P0_504	PS_DDR_DQ66_504	P28	X
DDR4-DQS0 N	AG21	PS_DDR_DQS_N0_504	PS_DDR_DQ67_504	P27	X
DDR4-DQS1 P	AF23	PS_DDR_DQS_P1_504	PS_DDR_DQ68_504	P26	X
DDR4-DQS1 N	AG23	PS_DDR_DQS_N1_504	PS_DDR_DQ69_504	R25	X
DDR4-DQS2 P	AF25	PS_DDR_DQS_P2_504	PS_DDR_DQ70_504	P25	X
DDR4-DQS2 N	AF26	PS_DDR_DQS_N2_504	PS_DDR_DQ71_504	T25	X
DDR4-DQS3 P	AE27	PS_DDR_DQS_P3_504			
DDR4-DQS3 N	AE27	PS_DDR_DQS_N3_504			
	N23	PS_DDR_DQS_P4_504			
	M23	PS_DDR_DQS_N4_504	PS_DDR_DM0_504	AG20	DDR4-DM0
	L23	PS_DDR_DQS_P5_504	PS_DDR_DM1_504	AE23	DDR4-DM1
	K23	PS_DDR_DQS_N5_504	PS_DDR_DM2_504	AE25	DDR4-DM2
	N26	PS_DDR_DQS_P6_504	PS_DDR_DM3_504	AE28	DDR4-DM3
	N27	PS_DDR_DQS_N6_504	PS_DDR_DM4_504	R23	
	J26	PS_DDR_DQS_P7_504	PS_DDR_DM5_504	H23	
	J27	PS_DDR_DQS_N7_504	PS_DDR_DM6_504	L27	
	R27	PS_DDR_DQS_P8_504	PS_DDR_DM7_504	H26	
	T27	PS_DDR_DQS_N8_504	PS_DDR_DM8_504	T26	

XCZU3EG-1SFVC784I

D80



Title: Module TE0821 - PS DDR		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 12 of 24
Filename: PS_DDR.SchDoc		

1

2

3

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A

A

B

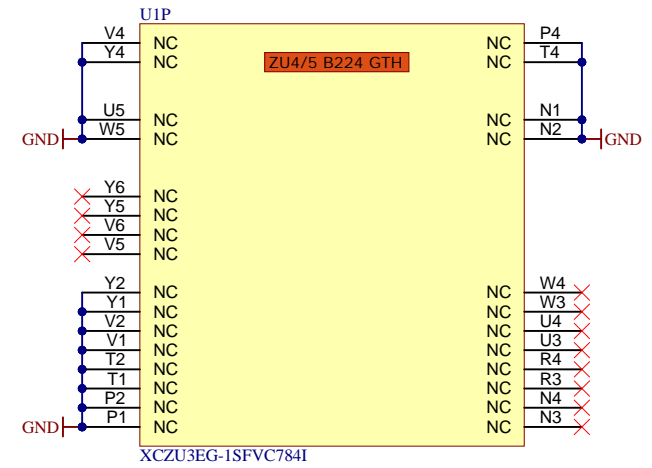
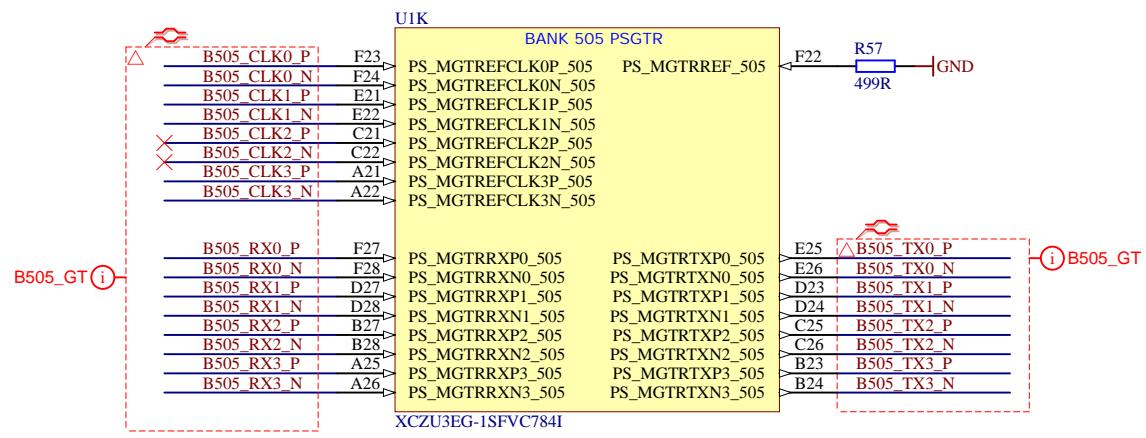
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C

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D

D



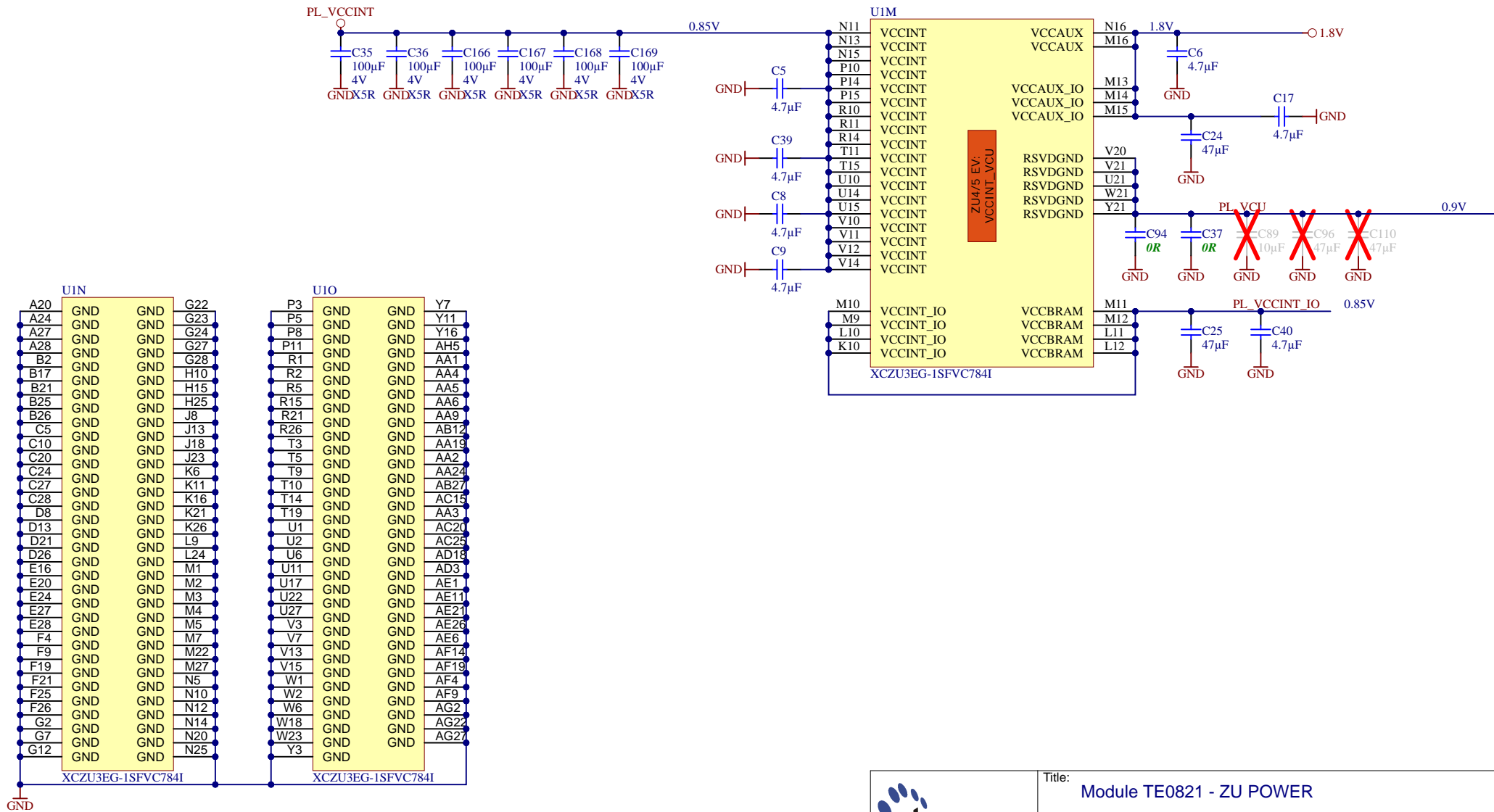
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A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 13 of 24
Filename: B_PS_GT.SchDoc		

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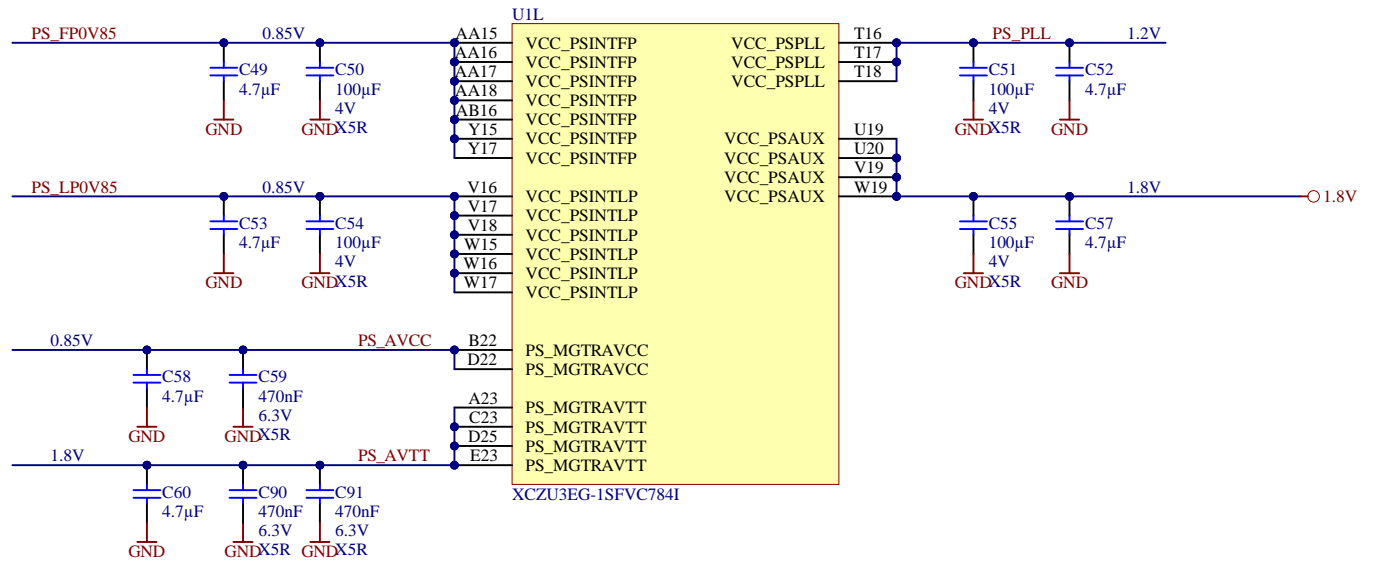
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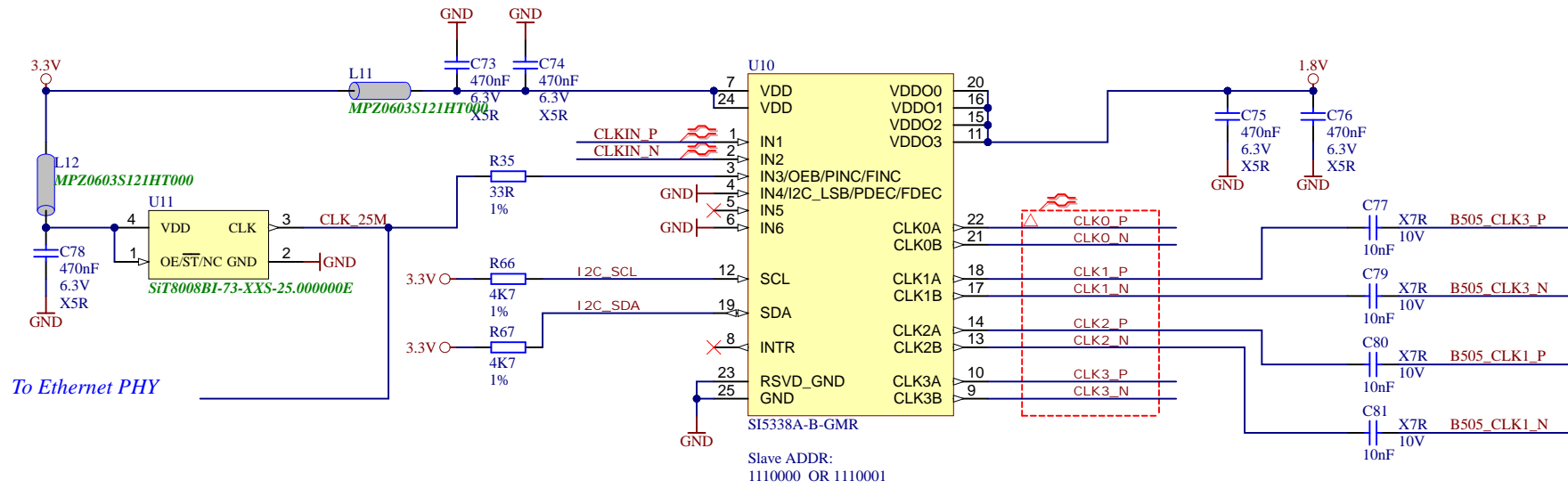
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Title: Module TE0821 - ZU POWER		
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Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	
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Filename: ZU_POWER.SchDoc		




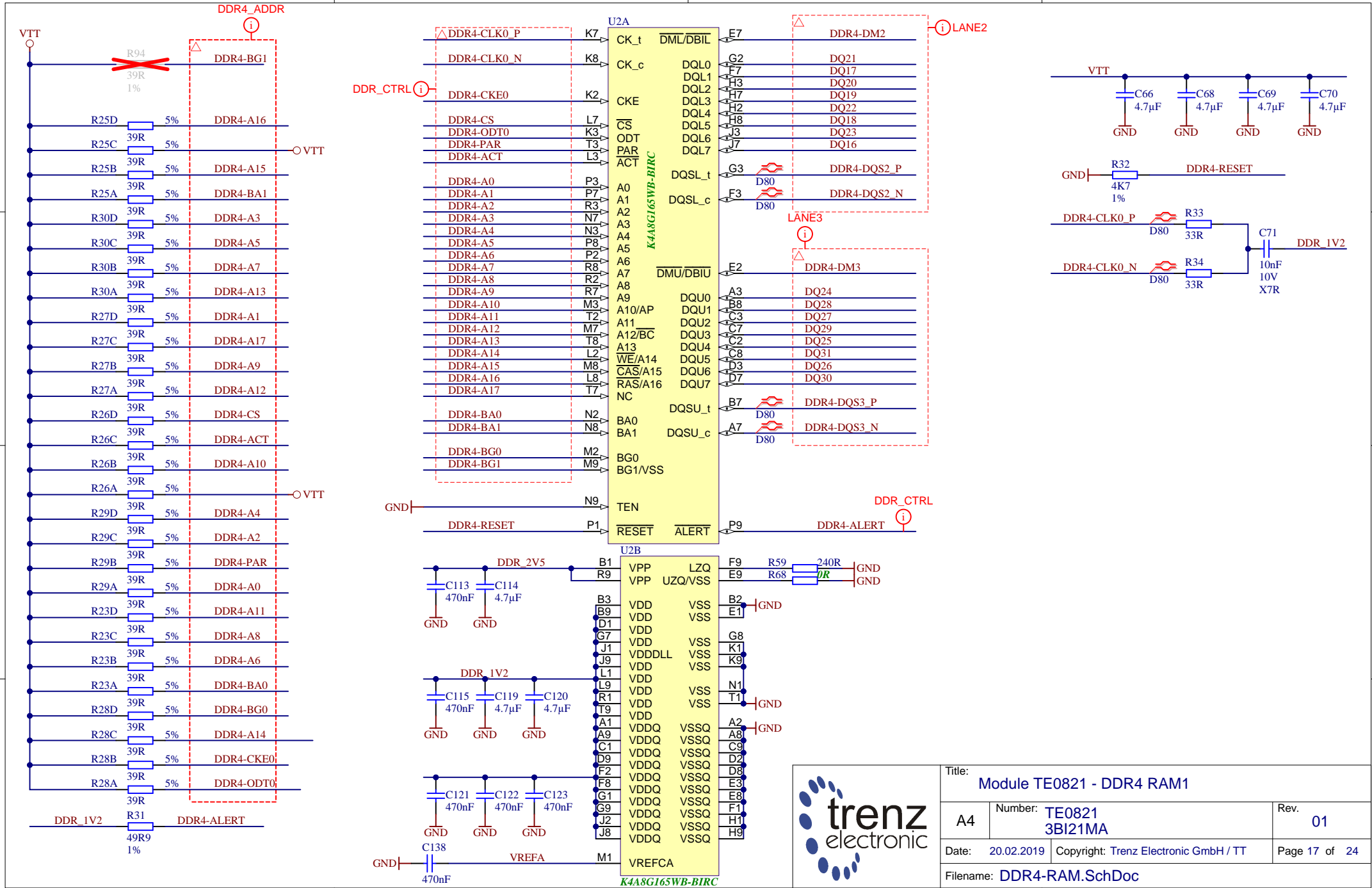
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	A4	Number: TE0821 3BI21MA	Rev. 01
	Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 15 of 24
	Filename: ZU_PS_POWER.SchDoc		



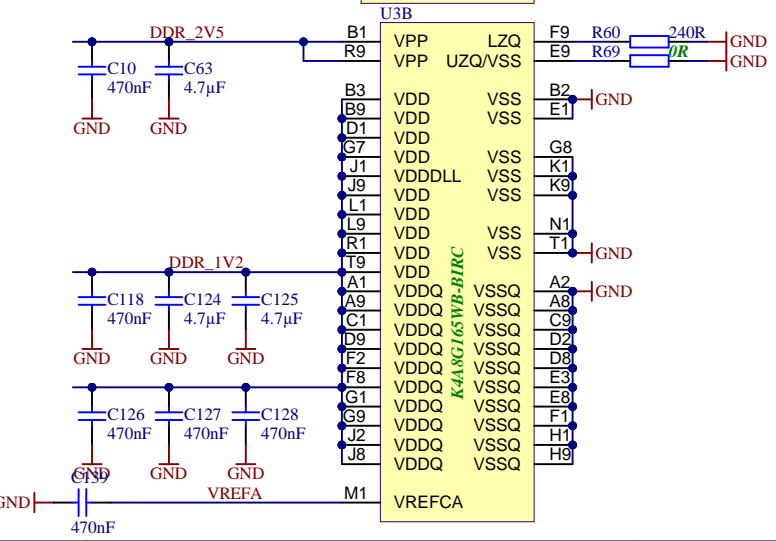
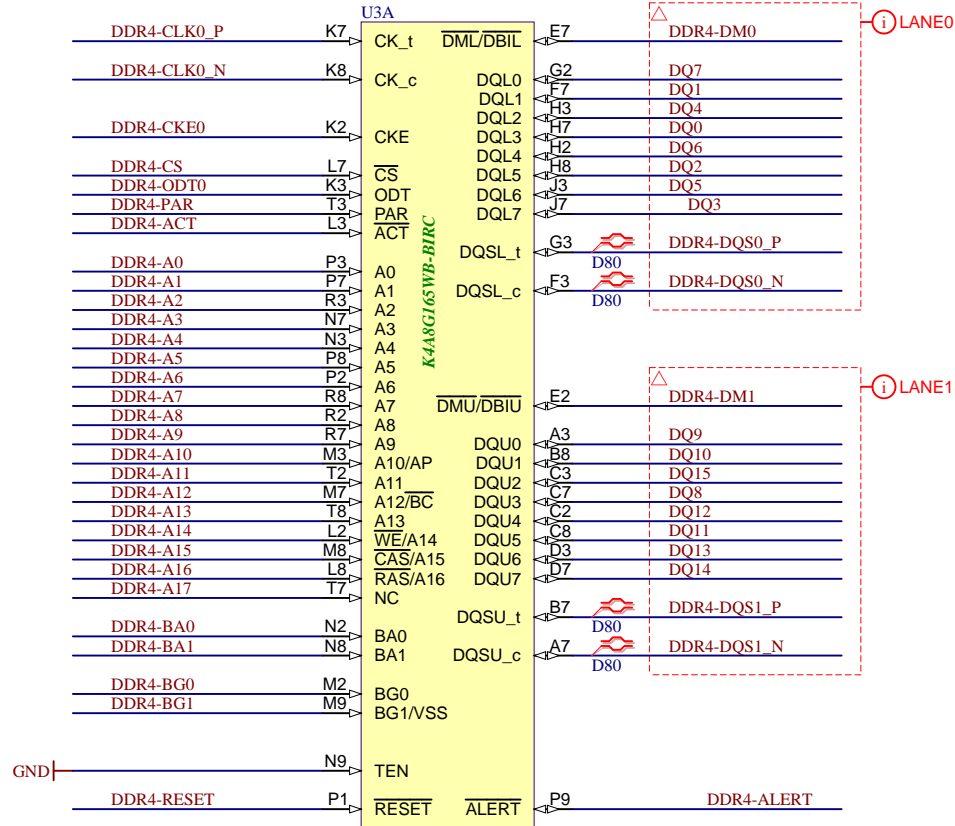
To Ethernet PHY

Slave ADDR:
1110000 OR 1110001

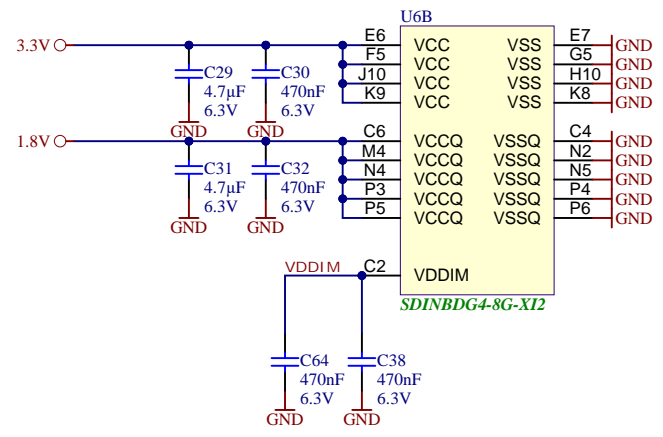
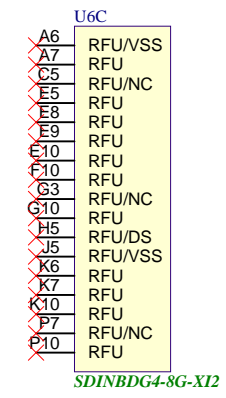
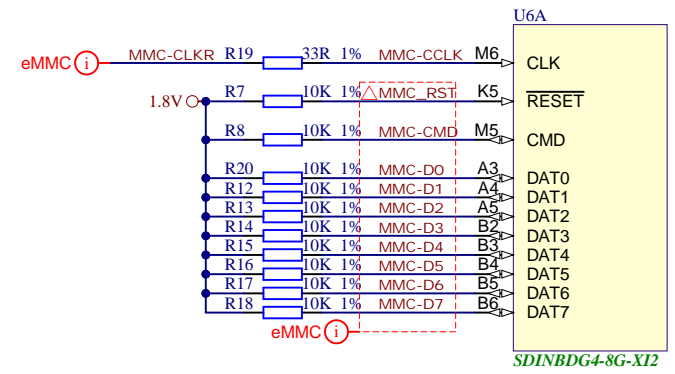
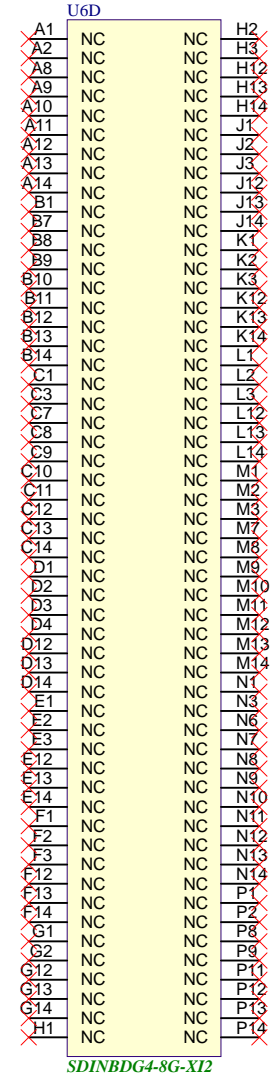

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		A4	Number: TE0821 3BI21MA
Date: 20.02.2019		Copyright: 2015 Trenz Electronic GmbH	
Filename: CLK.SchDoc		Page 16 of 24	



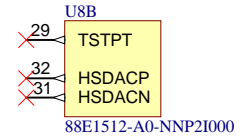
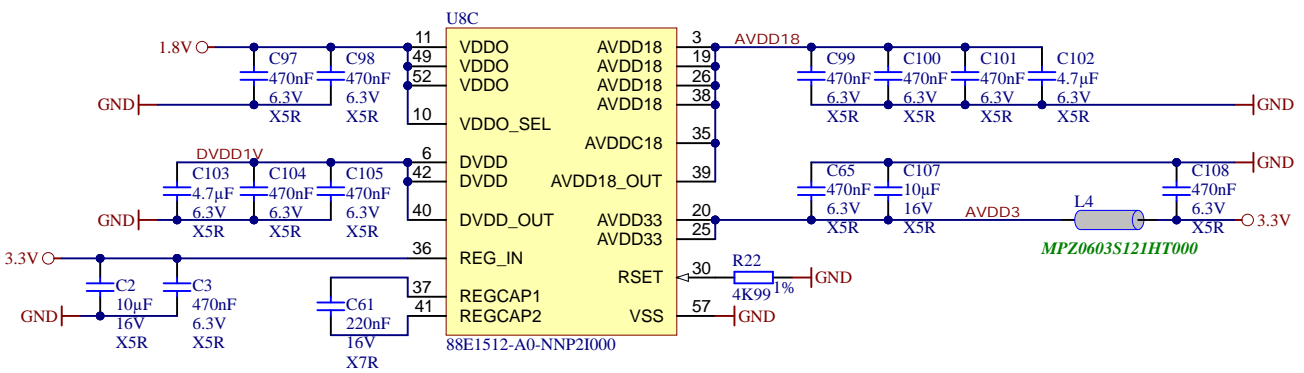
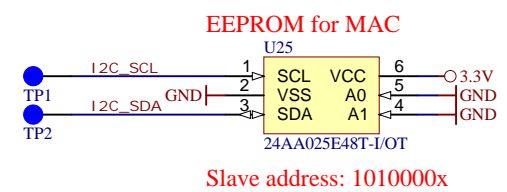
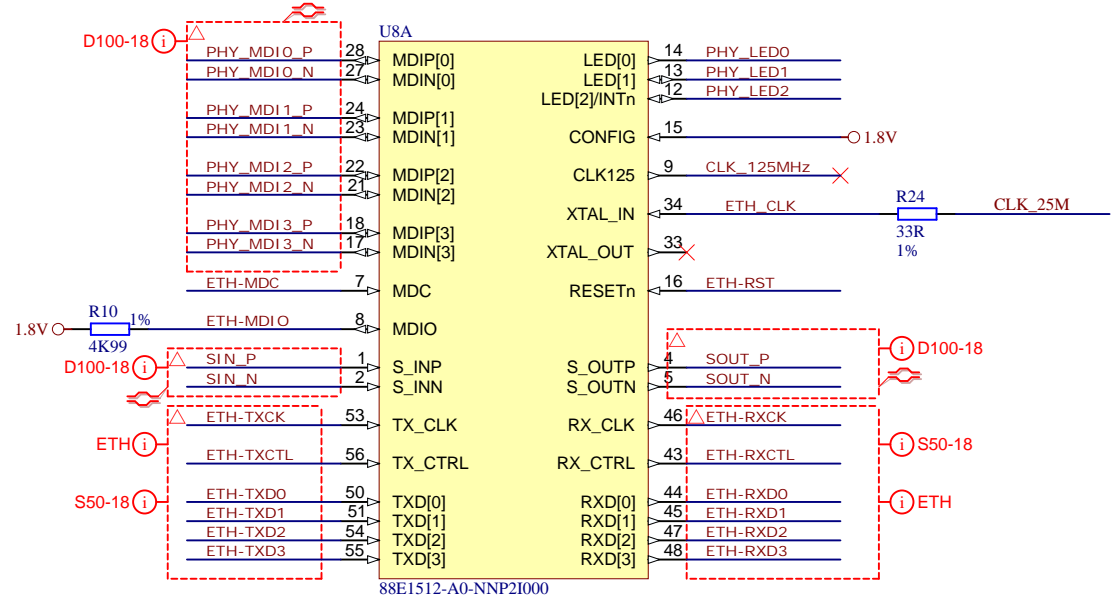
Title: Module TE0821 - DDR4 RAM1		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 17 of 24
Filename: DDR4-RAM.SchDoc		



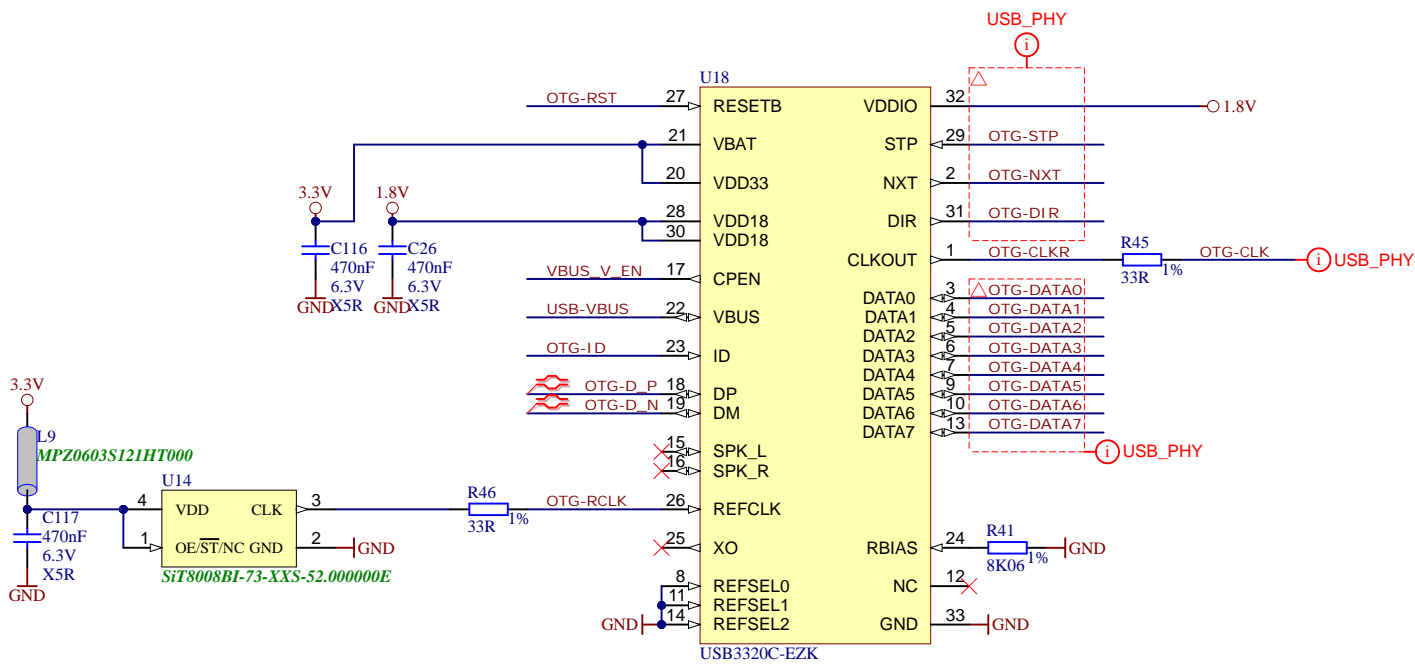
Title: Module TE0821 - DDR4 RAM2		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 18 of 24
Filename: DDR4-RAM_2.SchDoc		

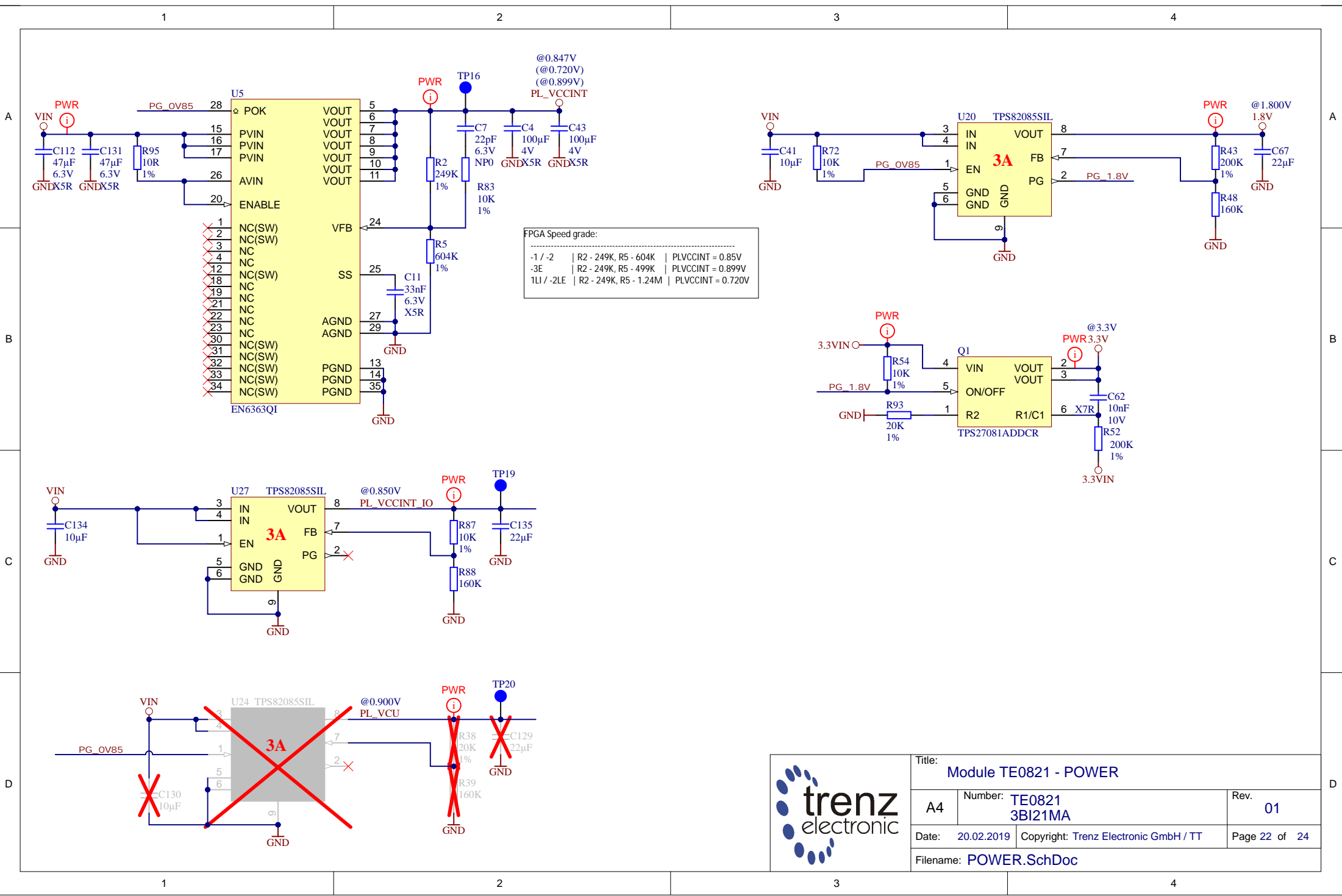

Title: Module TE0821 - eMMC		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 19 of 24
Filename: eMMC.SchDoc		



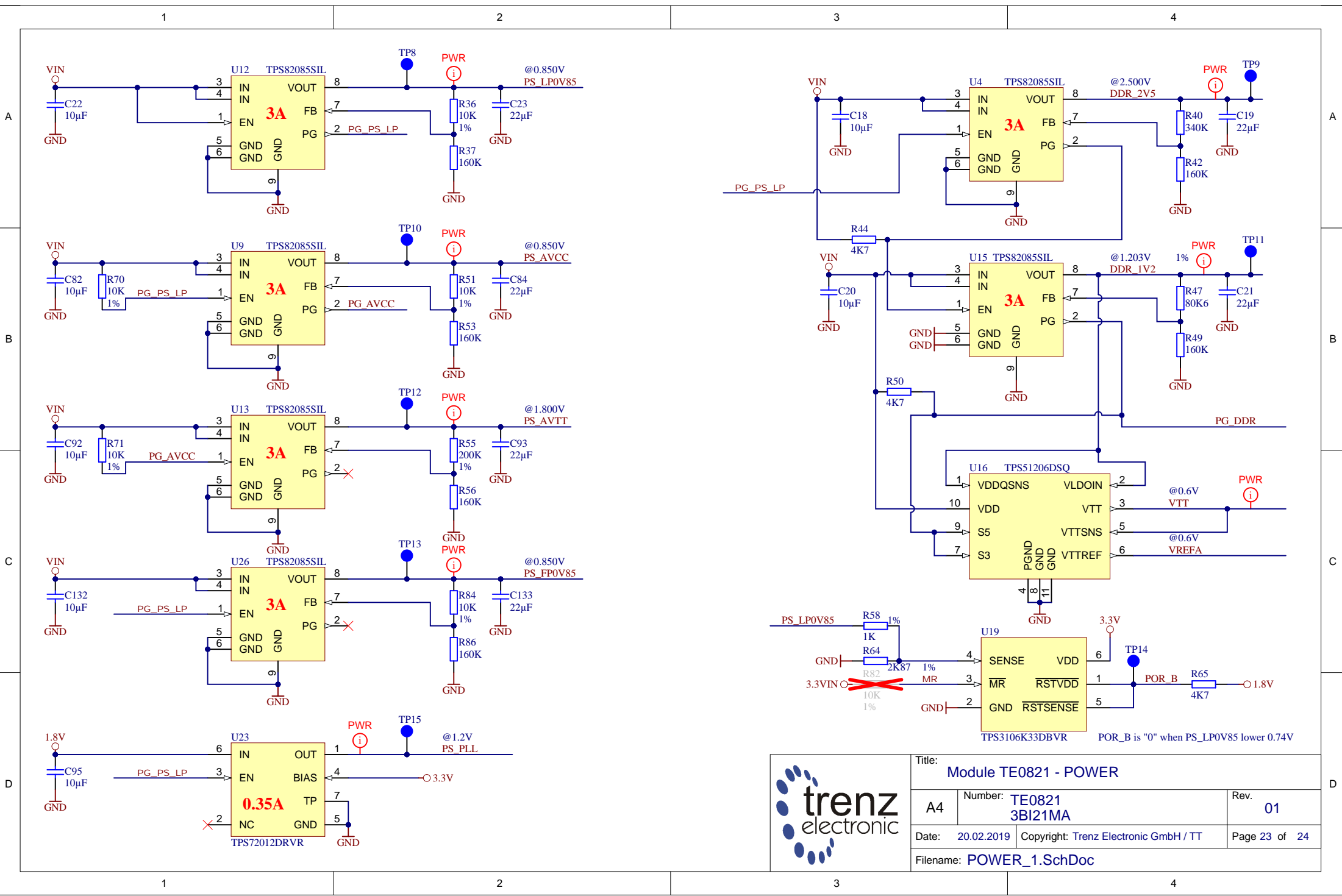
Title: Module TE0821 - Ethernet PHY		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: 2015 Trenz Electronic GmbH	Page 20 of 24
Filename: ETH-PHY.SchDoc		



	Title: Module TE0821 - USB PHY		
	A4	Number: TE0821 3BI21MA	Rev. 01
	Date: 20.02.2019	Copyright: 2015 Trenz Electronic GmbH	
	Page 21 of 24		Filename: USB-PHY.SchDoc

Title: Module TE0821 - POWER		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 22 of 24
Filename: POWER.SchDoc		



Title: Module TE0821 - POWER		
A4	Number: TE0821 3BI21MA	Rev. 01
Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 23 of 24
Filename: POWER_1.SchDoc		

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Revision 01a (01.07.2020):

1. VY: R38 value was changed to 20K (was: 40K2) to set VCU 0.9V

Revision 01b (29.10.2020):

1. VY: Updated Block diagram

(07.02.2024):
2. OT: R82 set to not fitted

A

A

B


B

C

C

D

D

	Title: Module TE0821 - Revision Changes		
	A4	Number: TE0821 3BI21MA	Rev. 01
	Date: 20.02.2019	Copyright: Trenz Electronic GmbH / TT	Page 24 of 24
	Filename: Revision Changes.SchDoc		

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