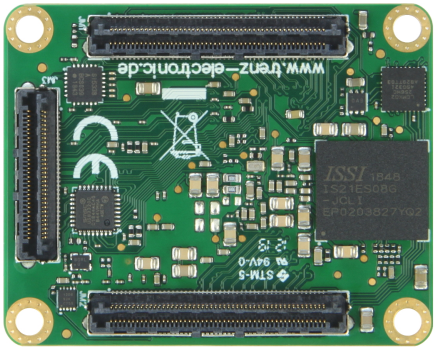

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Project is protected under copyright and we strongly and strictly prohibit the reverse engineering or recreation, even if the design is just adapted or modified. TE0821is protected under such right and in case of plagiarism we will have to do anything necessary in order to protect our assets.

Schematics and other handouts serve for informational purposes only!

trenz electronic	Title: TE0821 - Legal Notices		
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH		Page 1 of 25
Filename: Legal Notices Modules.SchDoc			

REV	Description	
-01	Initial revision	
-01A	1) R38 value was changed to 20K (was: 40K2) to set VCU 0.9V	VY
-01B	1) Updated Block diagram	VY
-02	1) Q1 was changed from TPS27081ADDCR to MP5077GG-Z 2) R82 was removed 3) C143 and C144 were added 4) Signal trace lengths were changed. PCB routing was improved 5) D5 was added 6) Pins N9 (TEN) of U2A and U3A were connected together 7) R100 was added 8) U5 was changed from EN6363QI to MPM3860GQW-Z 9) U28 was added 10) Net "PG_ALL" was connected to pin 5 of CPLD U21 11) T2A and R113 - R115 were added (R113 DNP by default) 12) Net "RST_EN" was connected to pin 27 of CPLD U21 13) Net EN was connected to pin 16 of U5 and pin 1 of U12 14) R116 and R117 were added (R116 DNP by default) 15) All unconnected pins for Bank64 U1D were connected together 16) TP17 , TP18 , TP21 , TP22 were added. Some testpoints were moved 17) C178 was added 18) R118 - R121 were added 19) C179 - C185 were added 20) C136 , C140 were changed from 22u to 47u 21) C186 , C187, C188, C189 were added 22) C15 , C16 were changed from 4.7u to 10u 23) C48 was changed from 16V to 10V, C45 was changed from 4.7u to 10u 24) C49 , C52 , C53 , C57 were changed from 4.7u to 10u 25) C2 was changed from 16V to 10V 26) C37 , C41 , C89 , C94 , C107 , C130 , C134 were changed from 16V 0603 to 10V 0402 27) FPGA speedgrade table was changed on page "POWER.SchDoc" 28) C24 , C25 , C96 , C110 were changed from 0805 to 0603 29) C19 , C21 , C23 , C67 , C84 , C93 , C129 , C133 , C135 were changed from 6.3V to 10V 30) C61 was changed from 16V 0402 to 6.3V 0201 31) Power Diagram page was added, System Overview was updated 32) Nets were renamed: "PS_AVCC" -> PS_MGTRAVCC , "PG_AVCC" -> PG_MGTRAVCC "OTG-RCLK" -> OTG-REFCLK , "PS_AVTT" -> PS_MGTRAVTT , "PG_DDR" -> PG_DDR1V2 33) Connection for pin "SENSE" of U19 was changed from net PS_LP0V85 to net PS_FP0V85 34) Net PG_0V85 was connected to pin 1 (EN) of U27 35) Net "PG_PS_LP" was renamed to PG_PSLP_INTIO and connected with pin 2 (PG) of U27 , pin 1 (EN) of U20 (instead net PG_0V85) 36) Net PG_FP0V85 was created and connected to pin 2 (PG) of U26 , pin 3 (EN) of U23 (instead net "PG_PS_LP") and pin 1 (EN) of U4 (instead net "PG_PS_LP") 37) Net PG_DDR2V5 was created, pin 2 (PG) of U4 was connected to pin 1 (EN) of U9 (instead net "PG_PS_LP") 38) R70 was unconnected from pin 1 of U9 and connected to pin 1 of U26 39) R122 was added 40) U11 was changed from SiT8008BI-73-XXS-25.000000E to SIT8008BI-73-18S-25.000000E 41) VDD for U10 and U11 was changed from 3.3V to 1.8V	MT

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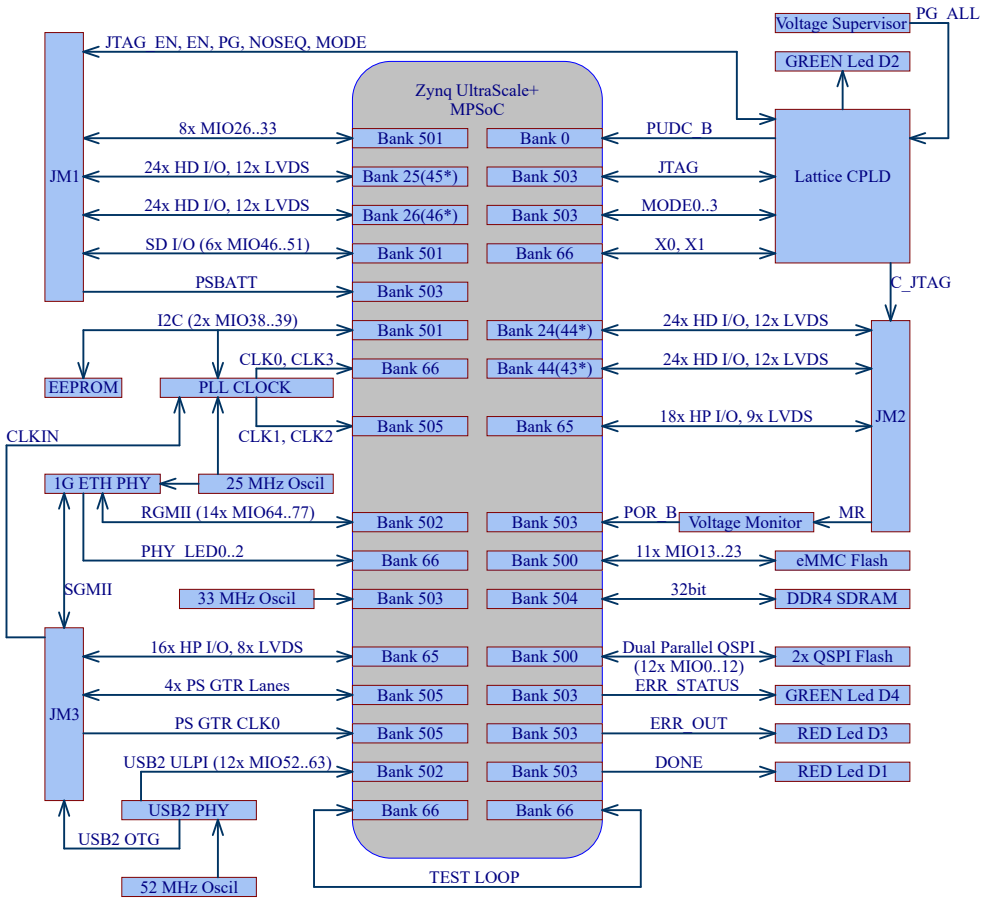
Title: TE0821 - Revision Changes		
A4	Number: TE0821 2AI51NA	Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH	Page 2 of 25
Filename: Revision Changes.SchDoc		



*Bank in XCZU2/3 (XCZU4/5)

U_B64
B64.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_DDR4-RAM_2
DDR4-RAM_2.SchDoc

Table of I2C devices and addresses

Designator	I2C Address	Description
U25	0x50	I2C MAC EEPROM
U10	0x70	QUAD CLOCK GEN

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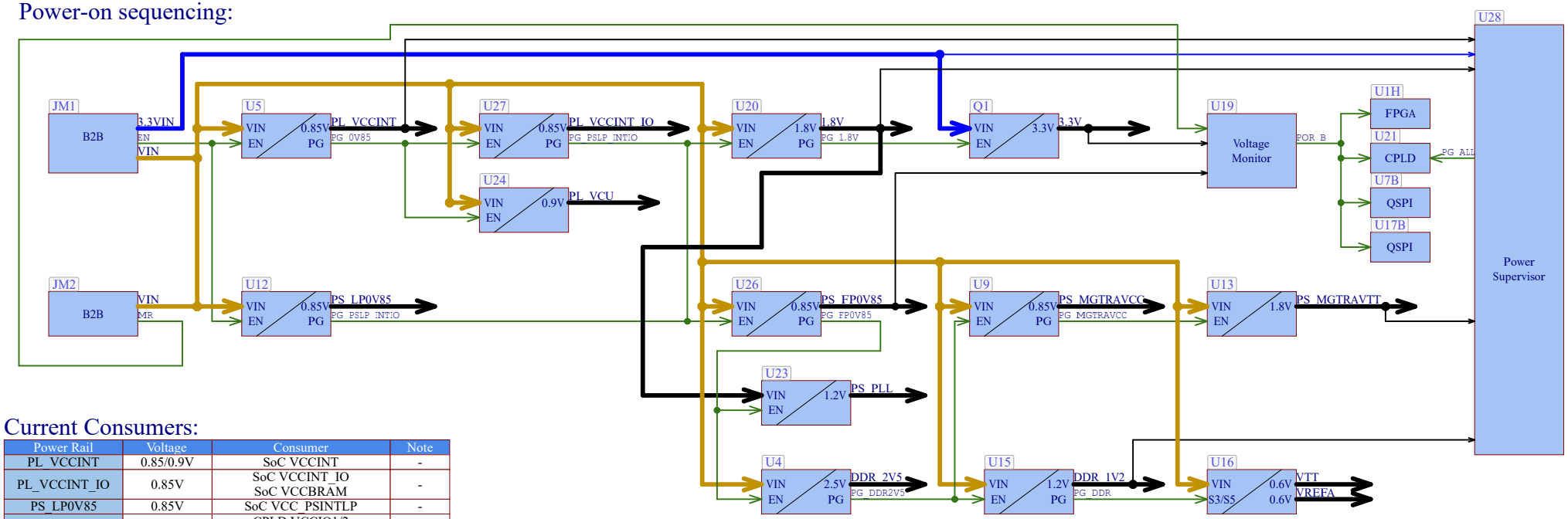
Title: TE0821 - System Overview		
A4	Number: TE0821 2AI51NA	Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH	Page 3 of 25
Filename: TE0821-Overview.SchDoc		

Power-on sequencing:



Current Consumers:

Power Rail	Voltage	Consumer	Note
PL_VCCINT	0.85/0.9V	SoC VCCINT	-
PL_VCCINT_IO	0.85V	SoC VCCINT_IO SoC VCCBRAM	-
PS_LP0V85	0.85V	SoC VCC_PSINTLP	-
1.8V	1.8V	CPLD VCCIO1/2 B2B JM1 SoC VCCO_66 QSPI FLASH QUAD CLK VDDO SoC VCCO_PS_503 eMMC VCCQ ETH PHY VDDO SoC VCCPSDDR_PLL USB PHY VDD18 SoC VCC_AUX SoC VCC_AUX_IO SoC VCC_PS_AUX	-
PL_VCU	0.9V	SoC VCCINT_VCU	-
PS_AVCC	0.85V	SoC PS_MGTRAVCC	-
PS_FP0V85	0.85V	SoC VCC_PS_INTFP_DDR SoC VCC_PS_INTFP	-
PS_PLL	1.2V	SoC VCC_PSPLL	-
DDR_2V5	2.5V	DDR VPP	-
3.3V	3.3V	B2B JM2 SoC VCCO_PSIO1_501 QUAD CLK VDD eMMC VCC EEPROM VCC CLK GEN 25M VDD USB PHY VDD33/VBAT CLK GEN 52M VDD	-
PS_AVTT	1.8V	SoC PS_MGTRAVTT	-
DDR_1V2	1.2V	DDR VDD/VDDQ SoC VCCO_PSDDR_504	-
VREFA	0.6V	DDR VREFCA	-

Supported Voltage Ranges:

Power Rail	Direction	Range	Tolerance	Description	Note
VIN	IN	3.3V-5.7V	+/-5%	Micromodule Power	-
3.3VIN	IN	3.3V	+/-5%	Micromodule Power	-
	OUT			Power for JTAG	
PSBATT	IN	1.2 - 1.5V	+/-3%	SoC Vbatt	-
VCCO_65	IN	1.0 - 1.8V	+/-3%	IO Bank65	-
VCCO_HD25_26	IN	1.2 - 3.3V	+/-3%	IO Banks 25/26	-
VCCO_HD24_44	IN	1.2 - 3.3V	+/-3%	IO Banks 24/44	
1.8V	OUT	1.8V	+/-3%	Power for Carrier	-

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Title: TE0821 - Power Diagram

A4	Number: TE0821 2AI51NA	Rev. 02
Date: 24.10.2025	Copyright: Trenz Electronic GmbH	Page 4 of 25
Filename: Power_Diagram.SchDoc		

Serial

Serial

Serialnumber 6,3 x 6.3mm

CE

CE Logo on Top Overlay

CE-TOPOVERLAY

UKCA

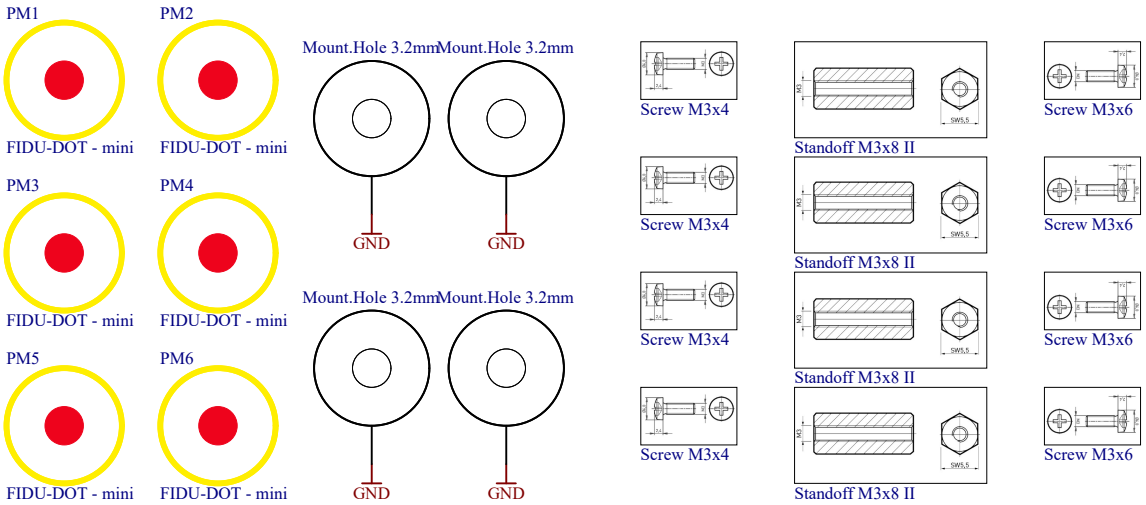
UKCA Logo on Top Overlay

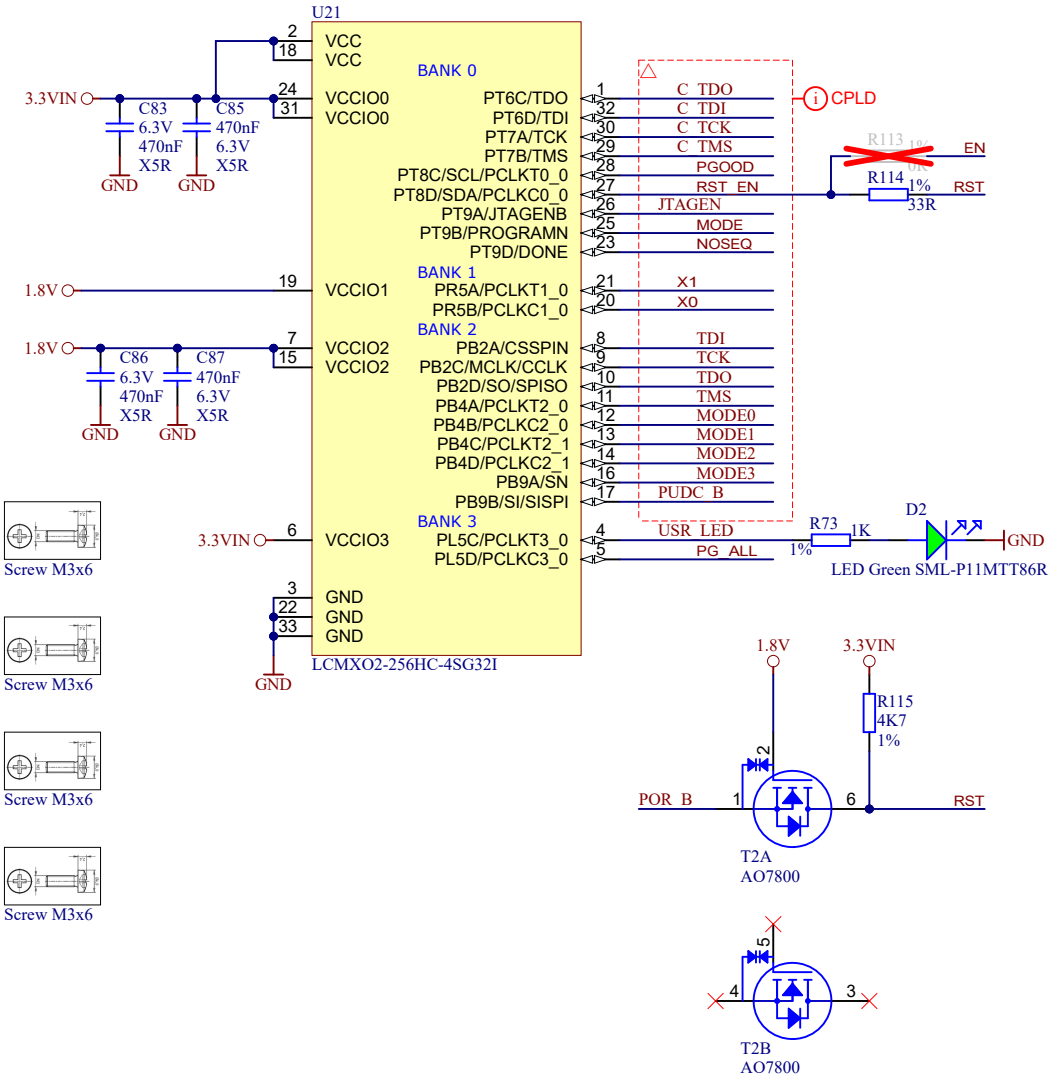
UKCA-TOPOVERLAY

RoHS

RoHS Logo on Top Overlay

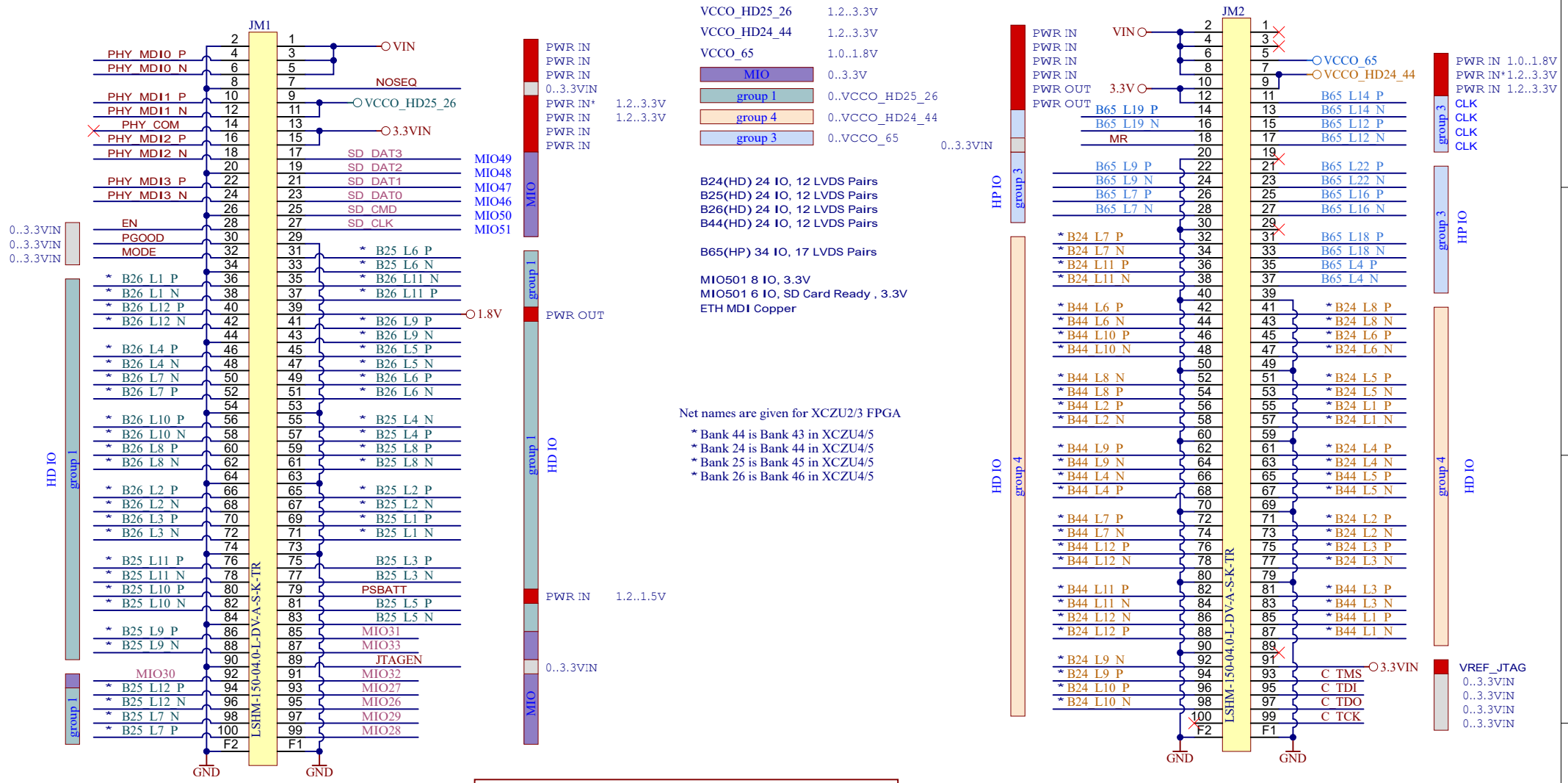
RoHS-TOPOVERLAY



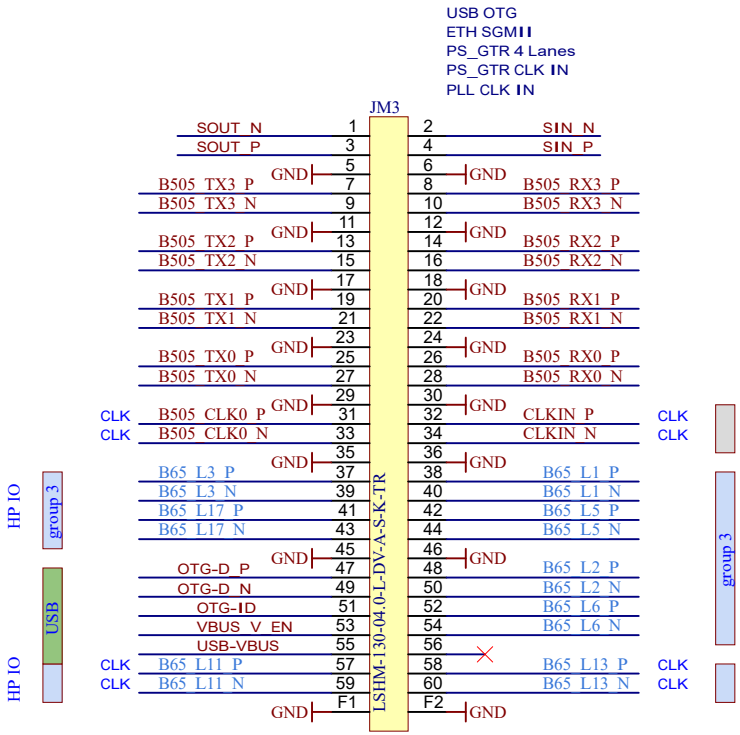


Special notes:

trenz electronic	Title: TE0821		
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH		Page 5 of 25
Filename: TE0821.SchDoc			



Title: TE0821 - B2B Connectors			
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: 2015 Trenz Electronic GmbH		Page 6 of 25
Filename: B2B-Connectors.SchDoc			



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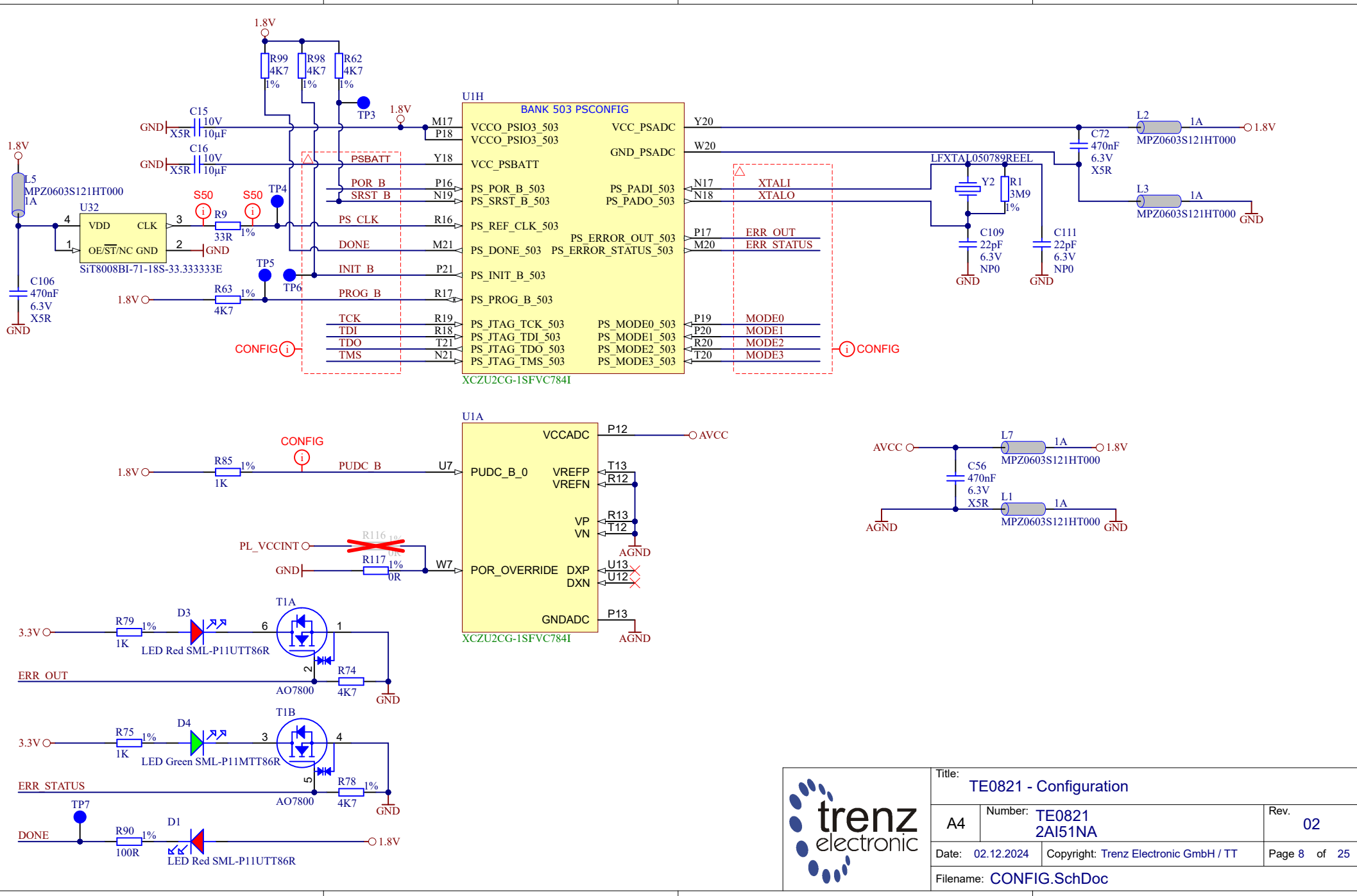
Date: 02.12.2024	Copyright: 2015 Trenz Electronic GmbH		Page 7 of 25
Filename: B2B-Connectors_2.SchDoc			



trenz electronic	Title: TE0821 - Configuration		
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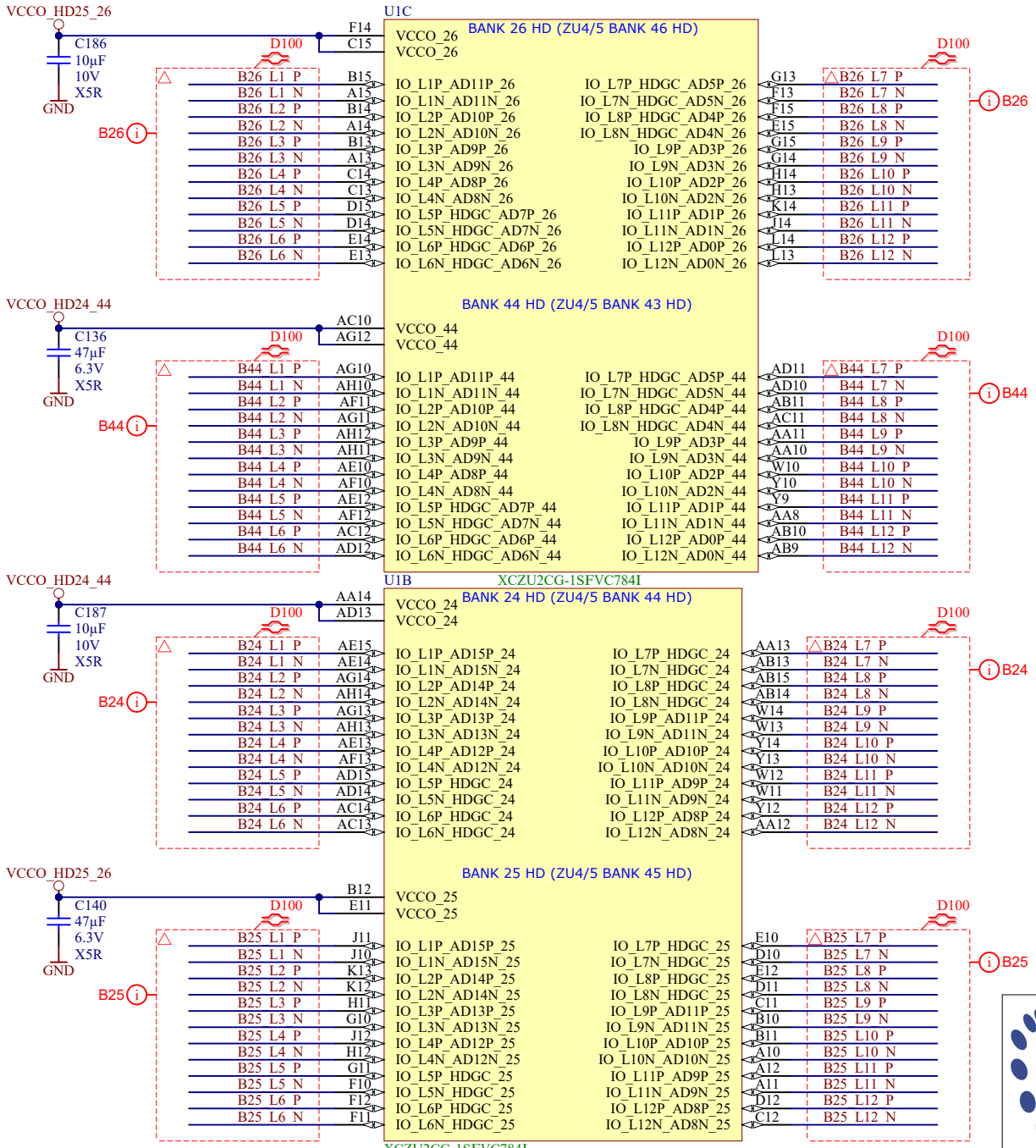
	Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 8 of 25
	Filename: CONFIG.SchDoc		


U1C
BANK 26 HD (ZU4/5 BANK 46 HD)
VCCO_HD25_26
C186
10µF
10V
X5R
GND
D100
B26
VCCO_26
F14
C15
IO_L1P_AD11P_26
IO_L1N_AD11N_26
IO_L2P_AD10P_26
IO_L2N_AD10N_26
IO_L3P_AD9P_26
IO_L3N_AD9N_26
IO_L4P_AD8P_26
IO_L4N_AD8N_26
IO_L5P_HDGC_AD7P_26
IO_L5N_HDGC_AD7N_26
IO_L6P_HDGC_AD6P_26
IO_L6N_HDGC_AD6N_26
IO_L7P_HDGC_AD5P_26
IO_L7N_HDGC_AD5N_26
IO_L8P_HDGC_AD4P_26
IO_L8N_HDGC_AD4N_26
IO_L9P_AD3P_26
IO_L9N_AD3N_26
IO_L10P_AD2P_26
IO_L10N_AD2N_26
IO_L11P_AD1P_26
IO_L11N_AD1N_26
IO_L12P_AD0P_26
IO_L12N_AD0N_26
B26_L1_P
B26_L1_N
B26_L2_P
B26_L2_N
B26_L3_P
B26_L3_N
B26_L4_P
B26_L4_N
B26_L5_P
B26_L5_N
B26_L6_P
B26_L6_N
B26_L7_P
B26_L7_N
B26_L8_P
B26_L8_N
B26_L9_P
B26_L9_N
B26_L10_P
B26_L10_N
B26_L11_P
B26_L11_N
B26_L12_P
B26_L12_N
BANK 44 HD (ZU4/5 BANK 43 HD)
VCCO_HD24_44
C136
47µF
6.3V
X5R
GND
B44
VCCO_44
AC10
AG12
B44_L1_P
B44_L1_N
B44_L2_P
B44_L2_N
B44_L3_P
B44_L3_N
B44_L4_P
B44_L4_N
B44_L5_P
B44_L5_N
B44_L6_P
B44_L6_N
B44_L7_P
B44_L7_N
B44_L8_P
B44_L8_N
B44_L9_P
B44_L9_N
B44_L10_P
B44_L10_N
B44_L11_P
B44_L11_N
B44_L12_P
B44_L12_N
U1B
XCZU2CG-1SFVC784I
BANK 24 HD (ZU4/5 BANK 44 HD)
VCCO_HD24_44
C187
10µF
10V
X5R
GND
B24
VCCO_24
AA14
AD13
B24_L1_P
B24_L1_N
B24_L2_P
B24_L2_N
B24_L3_P
B24_L3_N
B24_L4_P
B24_L4_N
B24_L5_P
B24_L5_N
B24_L6_P
B24_L6_N
B24_L7_P
B24_L7_N
B24_L8_P
B24_L8_N
B24_L9_P
B24_L9_N
B24_L10_P
B24_L10_N
B24_L11_P
B24_L11_N
B24_L12_P
B24_L12_N
BANK 25 HD (ZU4/5 BANK 45 HD)
VCCO_HD25_26
C140
47µF
6.3V
X5R
GND
B25
VCCO_25
B12
E11
B25_L1_P
B25_L1_N
B25_L2_P
B25_L2_N
B25_L3_P
B25_L3_N
B25_L4_P
B25_L4_N
B25_L5_P
B25_L5_N
B25_L6_P
B25_L6_N
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B25_L12_P
B25_L12_N
XCZU2CG-1SFVC784I
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Title: TE0821 - HD Banks
A4
Number: TE0821 2AI51NA
Rev. 02
Date: 02.12.2024
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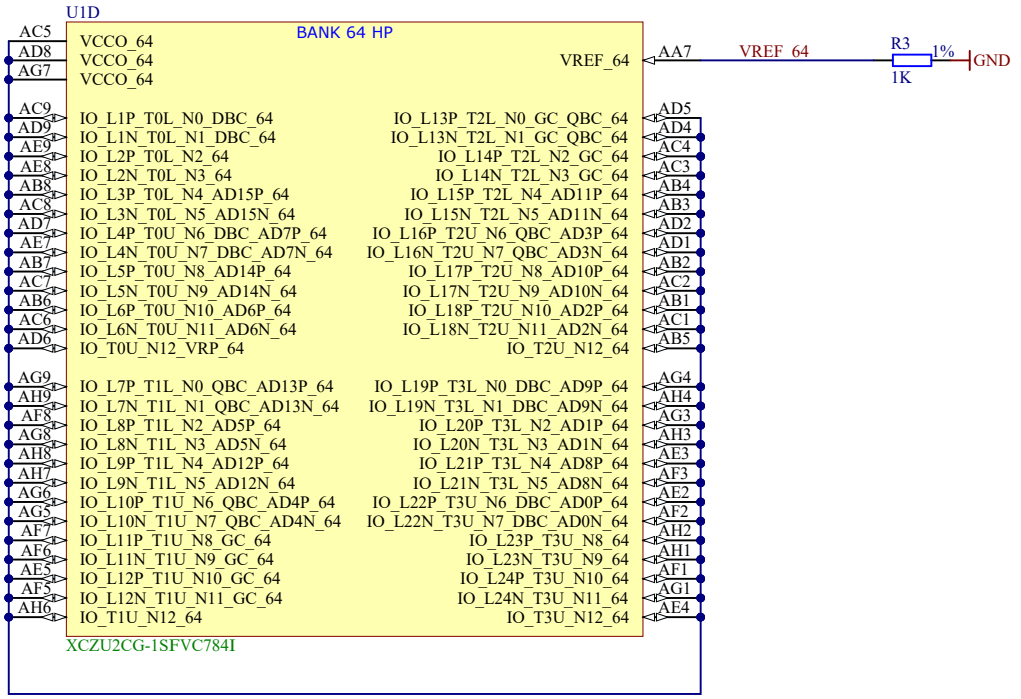
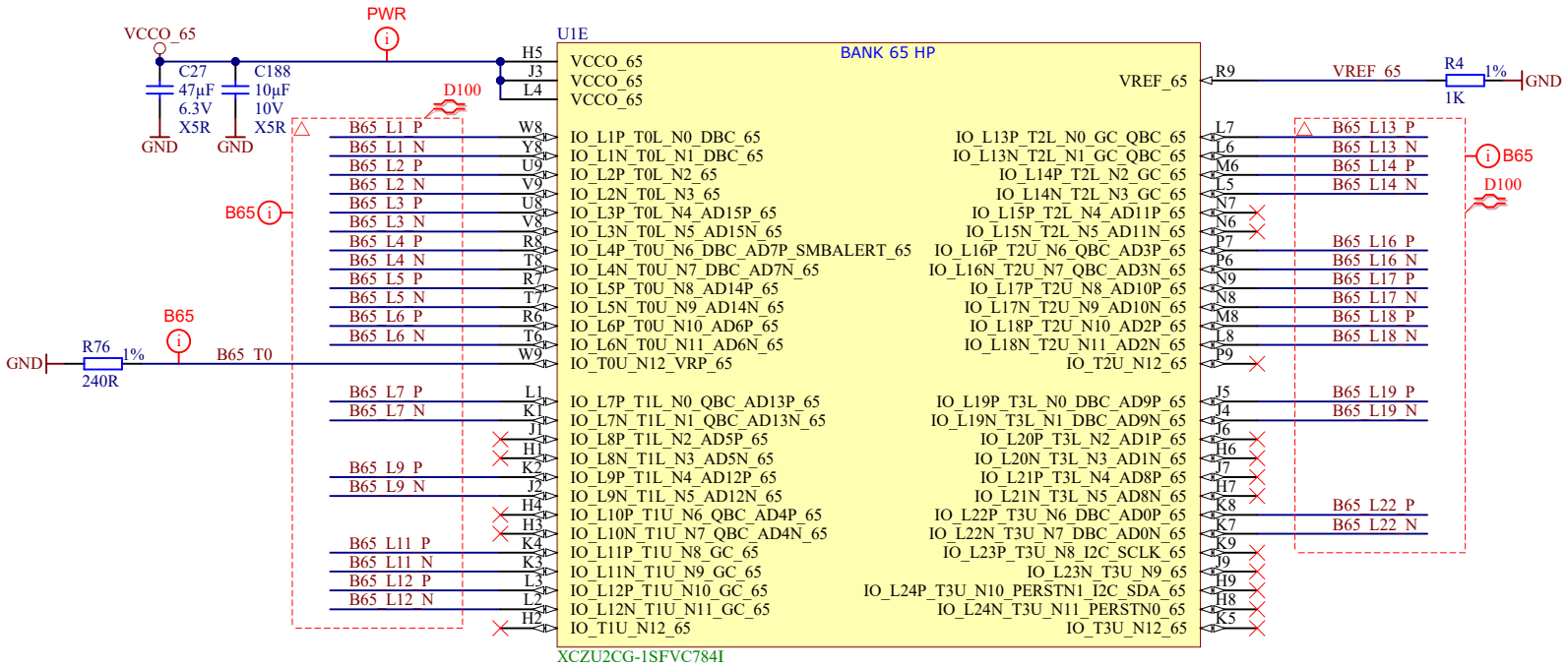
Page 9 of 25
Filename: B_HD.SchDoc



trenz electronic	Title: TE0821 - B64		
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT		Page 10 of 25
Filename: B64.SchDoc			



B65_L1_P	W8	IO_L1P_T0L_N0_DBC_65	VCCO_65	H5	
B65_L1_N	Y8	IO_L1N_T0L_N1_DBC_65	VCCO_65	J3	
B65_L2_P	U9	IO_L2P_T0L_N2_65	VCCO_65	L4	
B65_L2_N	V9	IO_L2N_T0L_N3_65			
B65_L3_P	U8	IO_L3P_T0L_N4_AD15P_65	IO_L13P_T2L_N0_GC_QBC_65	L7	B65_L13_P
B65_L3_N	V8	IO_L3N_T0L_N5_AD15N_65	IO_L13N_T2L_N1_GC_QBC_65	L6	B65_L13_N
B65_L4_P	R8	IO_L4P_T0U_N6_DBC_AD7P_SMBALERT_65	IO_L14P_T2L_N2_GC_65	M6	B65_L14_P
B65_L4_N	T8	IO_L4N_T0U_N7_DBC_AD7N_65	IO_L14N_T2L_N3_GC_65	L5	B65_L14_N
B65_L5_P	R7	IO_L5P_T0U_N8_AD14P_65	IO_L15P_T2L_N4_AD11P_65	N7	
B65_L5_N	T7	IO_L5N_T0U_N9_AD14N_65	IO_L15N_T2L_N5_AD11N_65	N6	
B65_L6_P	R6	IO_L6P_T0U_N10_AD6P_65	IO_L16P_T2U_N6_QBC_AD3P_65	P7	B65_L16_P
B65_L6_N	T6	IO_L6N_T0U_N11_AD6N_65	IO_L16N_T2U_N7_QBC_AD3N_65	P6	B65_L16_N
	W9	IO_T0U_N12_VRP_65	IO_L17P_T2U_N8_AD10P_65	N9	B65_L17_P
			IO_L17N_T2U_N9_AD10N_65	N8	B65_L17_N
			IO_L18P_T2U_N10_AD2P_65	M8	B65_L18_P
			IO_L18N_T2U_N11_AD2N_65	L8	B65_L18_N
			IO_T2U_N12_65	P9	
B65_L7_P	L1	IO_L7P_T1L_N0_QBC_AD13P_65	IO_L19P_T3L_N0_DBC_AD9P_65	J5	B65_L19_P
B65_L7_N	K1	IO_L7N_T1L_N1_QBC_AD13N_65	IO_L19N_T3L_N1_DBC_AD9N_65	J4	B65_L19_N
	J1	IO_L8P_T1L_N2_AD5P_65	IO_L20P_T3L_N2_AD1P_65	J6	
	H1	IO_L8N_T1L_N3_AD5N_65	IO_L20N_T3L_N3_AD1N_65	H6	
B65_L9_P	K2	IO_L9P_T1L_N4_AD12P_65	IO_L21P_T3L_N4_AD8P_65	J7	
B65_L9_N	J2	IO_L9N_T1L_N5_AD12N_65	IO_L21N_T3L_N5_AD8N_65	H7	
	H4	IO_L10P_T1U_N6_QBC_AD4P_65	IO_L22P_T3U_N6_DBC_AD0P_65	K8	B65_L22_P
	H3	IO_L10N_T1U_N7_QBC_AD4N_65	IO_L22N_T3U_N7_DBC_AD0N_65	K7	B65_L22_N
B65_L11_P	K4	IO_L11P_T1U_N8_GC_65	IO_L23P_T3U_N8_I2C_SCLK_65	K9	
B65_L11_N	K3	IO_L11N_T1U_N9_GC_65	IO_L23N_T3U_N9_65	J9	
B65_L12_P	L3	IO_L12P_T1U_N10_GC_65	IO_L24P_T3U_N10_PERSTN1_I2C_SDA_65	H9	
B65_L12_N	L2	IO_L12N_T1U_N11_GC_65	IO_L24N_T3U_N11_PERSTN0_65	H8	
	H2	IO_T1U_N12_65	IO_T3U_N12_65	K5	

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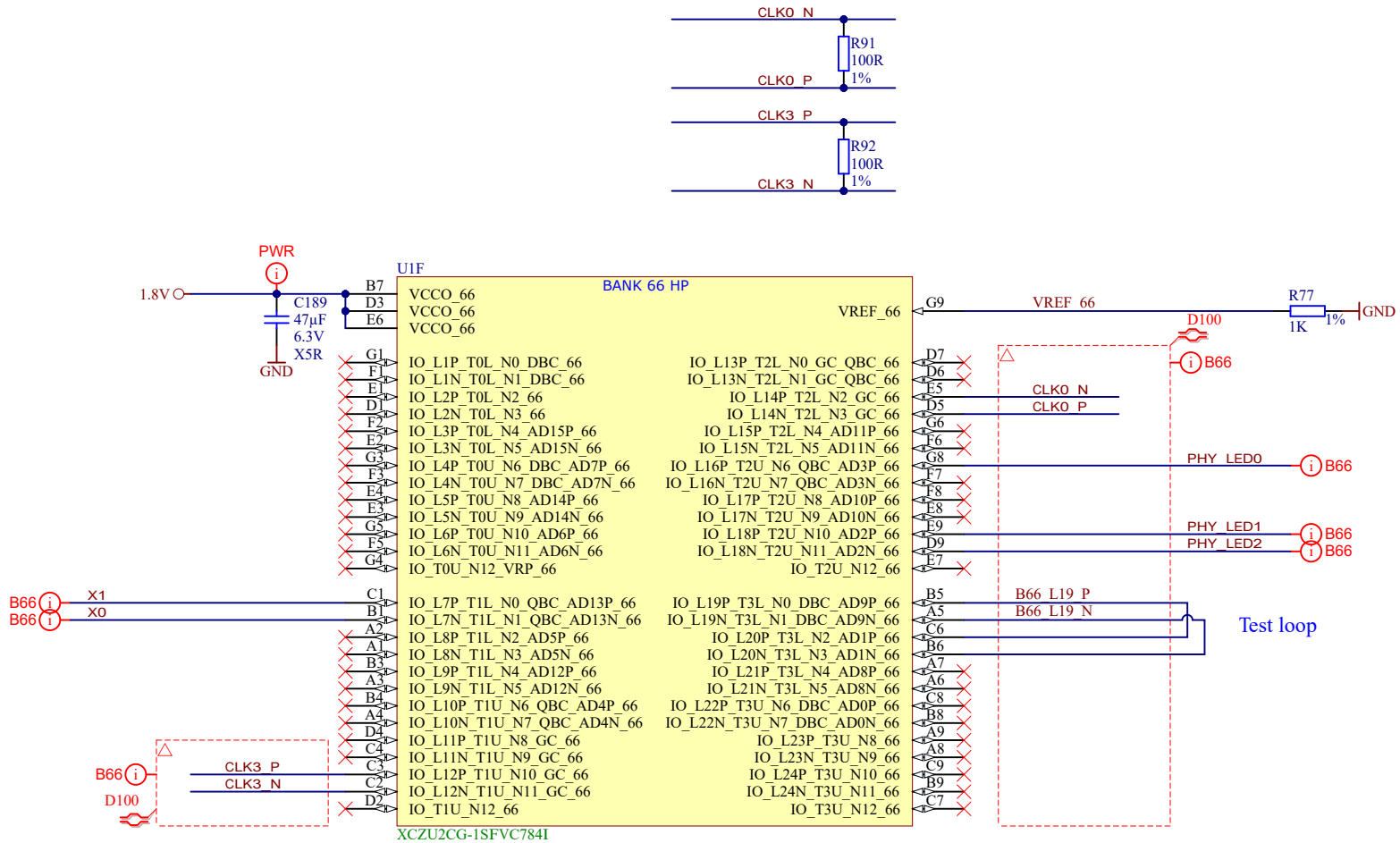
Title: TE0821 - B65		
A4	Number: TE0821 2AI51NA	Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 11 of 25
Filename: B65.SchDoc		



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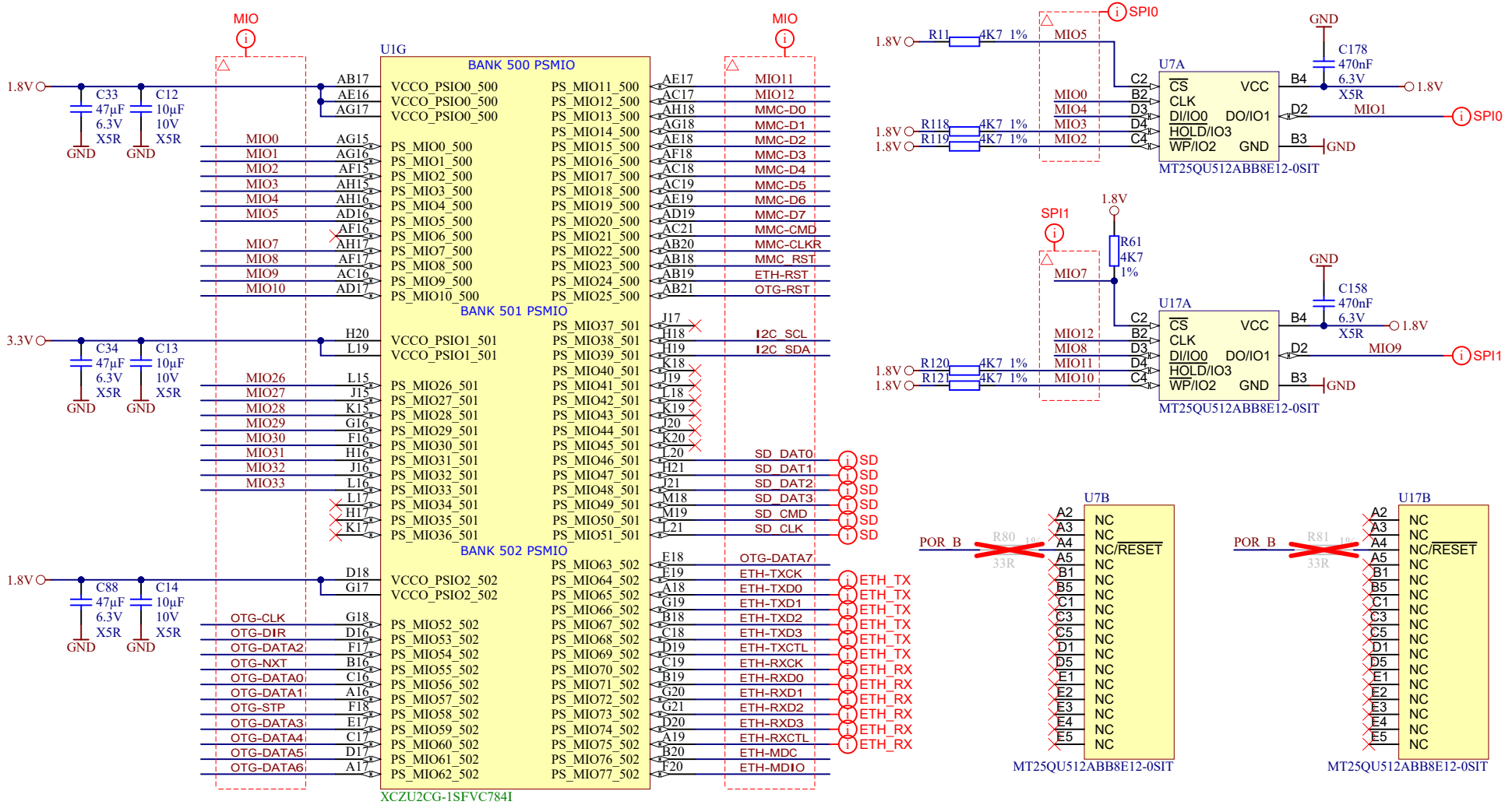
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT		Page 12 of 25
Filename: B66.SchDoc			



Title: TE0821 - MIO Banks		
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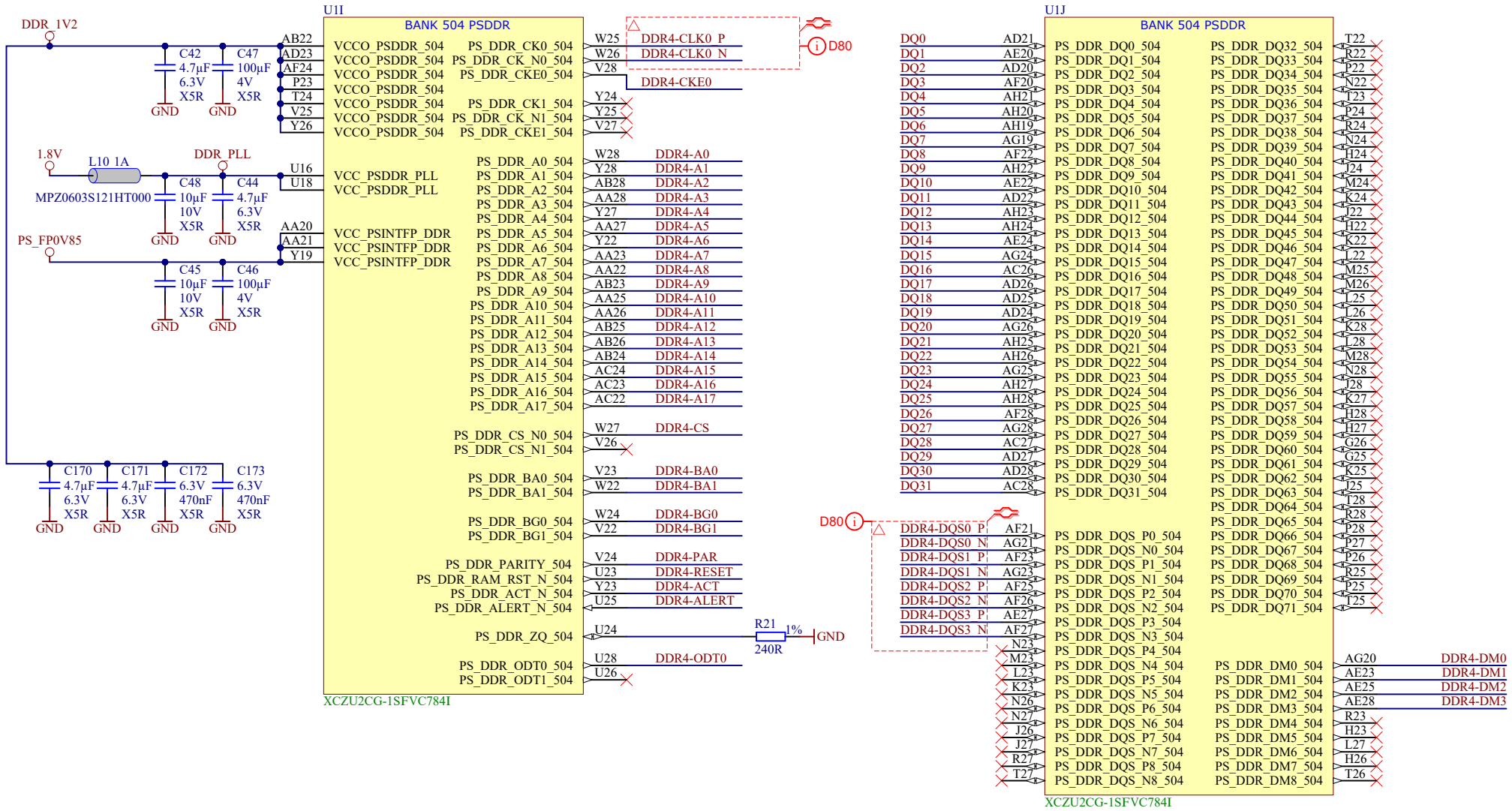
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 13 of 25
Filename: B_MIO.SchDoc		


DDR_1V2
C42 4.7µF 6.3V X5R
C47 100µF 4V X5R
GND
AB22
AD23
AF24
P23
T24
V25
Y26
1.8V
L10 1A
MPZ0603S121HT000
DDR_PLL
C48 10µF 10V X5R
C44 4.7µF 6.3V X5R
U16
U18
PS_FP0V85
AA20
AA21
Y19
C45 10µF 10V X5R
C46 100µF 4V X5R
C170 4.7µF 6.3V X5R
C171 4.7µF 6.3V X5R
C172 6.3V 470nF X5R
C173 6.3V 470nF X5R
U1I
BANK 504 PSDDR
VCCO_PSDDR_504
VCC_PSDDR_PLL
VCC_PSINTFP_DDR
PS_DDR_CK0_504
PS_DDR_CK_N0_504
PS_DDR_CKE0_504
PS_DDR_CK1_504
PS_DDR_CK_N1_504
PS_DDR_CKE1_504
PS_DDR_A0_504
PS_DDR_A1_504
PS_DDR_A2_504
PS_DDR_A3_504
PS_DDR_A4_504
PS_DDR_A5_504
PS_DDR_A6_504
PS_DDR_A7_504
PS_DDR_A8_504
PS_DDR_A9_504
PS_DDR_A10_504
PS_DDR_A11_504
PS_DDR_A12_504
PS_DDR_A13_504
PS_DDR_A14_504
PS_DDR_A15_504
PS_DDR_A16_504
PS_DDR_A17_504
PS_DDR_CS_N0_504
PS_DDR_CS_N1_504
PS_DDR_BA0_504
PS_DDR_BA1_504
PS_DDR_BG0_504
PS_DDR_BG1_504
PS_DDR_PARITY_504
PS_DDR_RAM_RST_N_504
PS_DDR_ACT_N_504
PS_DDR_ALERT_N_504
PS_DDR_ZQ_504
PS_DDR_ODT0_504
PS_DDR_ODT1_504
W25 DDR4-CLK0_P
W26 DDR4-CLK0_N
V28 DDR4-CKE0
Y24
Y25
V27
W28 DDR4-A0
Y28 DDR4-A1
AB28 DDR4-A2
AA28 DDR4-A3
Y27 DDR4-A4
AA27 DDR4-A5
Y22 DDR4-A6
AA23 DDR4-A7
AA22 DDR4-A8
AB23 DDR4-A9
AA25 DDR4-A10
AA26 DDR4-A11
AB25 DDR4-A12
AB26 DDR4-A13
AB24 DDR4-A14
AC24 DDR4-A15
AC23 DDR4-A16
AC22 DDR4-A17
W27 DDR4-CS
V26
V23 DDR4-BA0
W22 DDR4-BA1
W24 DDR4-BG0
V22 DDR4-BG1
V24 DDR4-PAR
U23 DDR4-RESET
Y23 DDR4-ACT
U25 DDR4-ALERT
U24
R21 240R 1%
GND
U28 DDR4-ODT0
U26
XCZU2CG-1SFVC784I
D80
U1J
BANK 504 PSDDR
DQ0 AD21
DQ1 AE20
DQ2 AD20
DQ3 AF20
DQ4 AH21
DQ5 AH20
DQ6 AH19
DQ7 AG19
DQ8 AF22
DQ9 AH22
DQ10 AE22
DQ11 AD22
DQ12 AH23
DQ13 AH24
DQ14 AE24
DQ15 AG24
DQ16 AC26
DQ17 AD26
DQ18 AD25
DQ19 AD24
DQ20 AG26
DQ21 AH25
DQ22 AH26
DQ23 AG25
DQ24 AH27
DQ25 AH28
DQ26 AF28
DQ27 AG28
DQ28 AC27
DQ29 AD27
DQ30 AD28
DQ31 AC28
DDR4-DQS0_P AF21
DDR4-DQS0_N AG21
DDR4-DQS1_P AF23
DDR4-DQS1_N AG23
DDR4-DQS2_P AF25
DDR4-DQS2_N AF26
DDR4-DQS3_P AE27
DDR4-DQS3_N AF27
N23
M23
L23
K23
N26
N27
J26
J27
R27
T27
PS_DDR_DQ0_504 T22
PS_DDR_DQ1_504 R22
PS_DDR_DQ2_504 P22
PS_DDR_DQ3_504 N22
PS_DDR_DQ4_504 T23
PS_DDR_DQ5_504 P24
PS_DDR_DQ6_504 R24
PS_DDR_DQ7_504 N24
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PS_DDR_DQ9_504 J24
PS_DDR_DQ10_504 M24
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PS_DDR_DQ31_504 J25
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PS_DDR_DQ33_504 R28
PS_DDR_DQ34_504 P27
PS_DDR_DQ35_504 P26
PS_DDR_DQ36_504 R25
PS_DDR_DQ37_504 P25
PS_DDR_DQ38_504 T25
PS_DDR_DQ39_504
PS_DDR_DQ40_504
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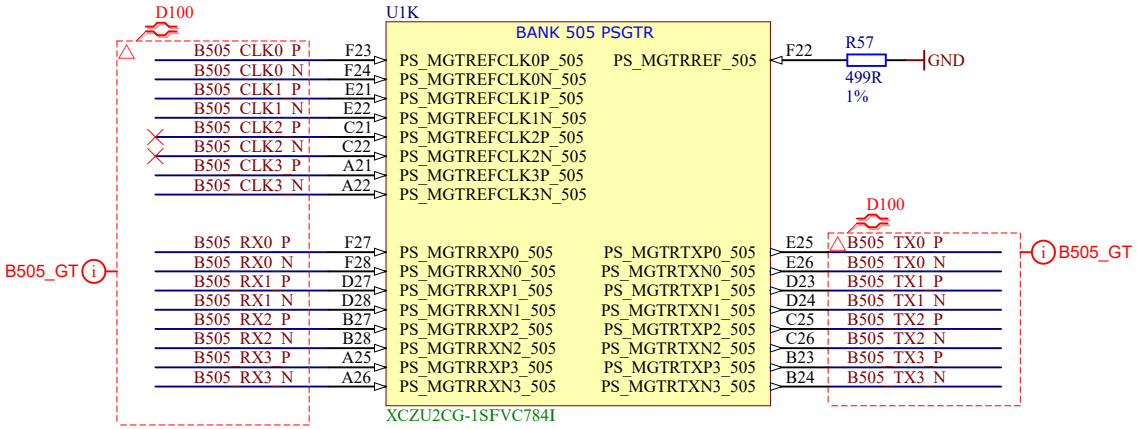
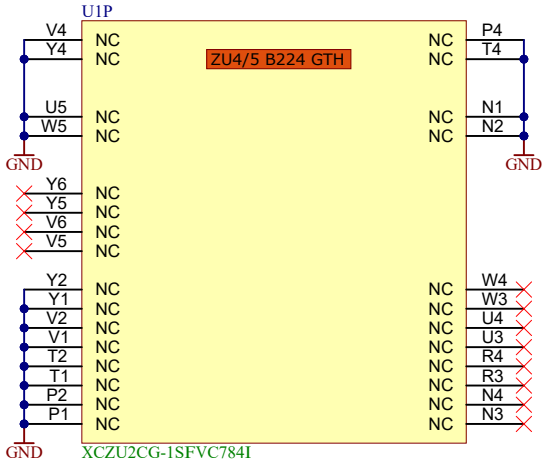
PS_DDR_DQ68_504
PS_DDR_DQ69_504
PS_DDR_DQ70_504
PS_DDR_DQ71_504
PS_DDR_DM0_504 AG20 DDR4-DM0
PS_DDR_DM1_504 AE23 DDR4-DM1
PS_DDR_DM2_504 AE25 DDR4-DM2
PS_DDR_DM3_504 AE28 DDR4-DM3
PS_DDR_DM4_504 R23
PS_DDR_DM5_504 H23
PS_DDR_DM6_504 L27
PS_DDR_DM7_504 H26
PS_DDR_DM8_504 T26
XCZU2CG-1SFVC784I
trenz electronic
Title: TE0821 - PS DDR
A4
Number: TE0821 2AI51NA
Rev. 02
Date: 02.12.2024
Copyright: Trenz Electronic GmbH / TT
Page 14 of 25
Filename: PS_DDR.SchDoc





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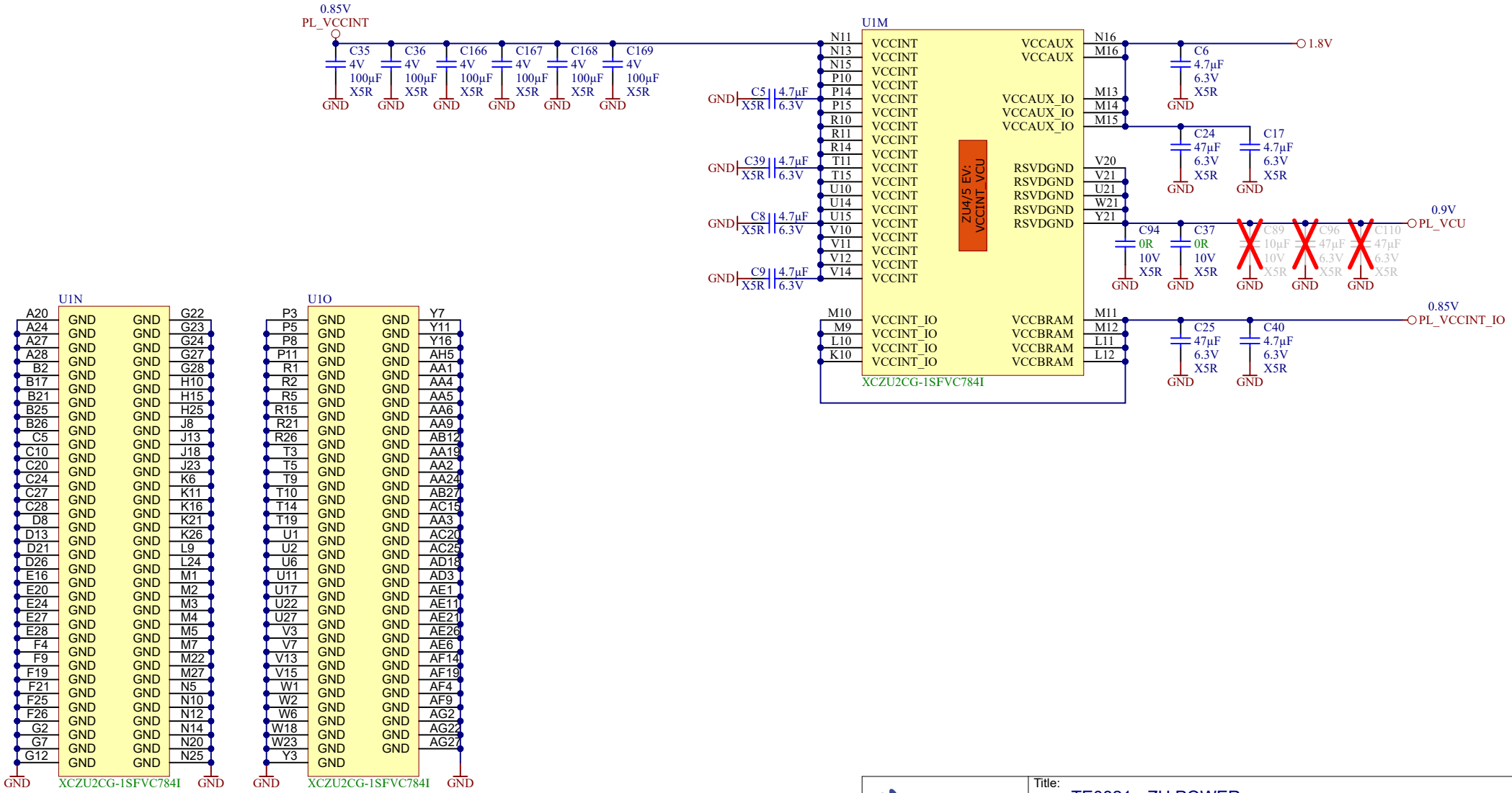
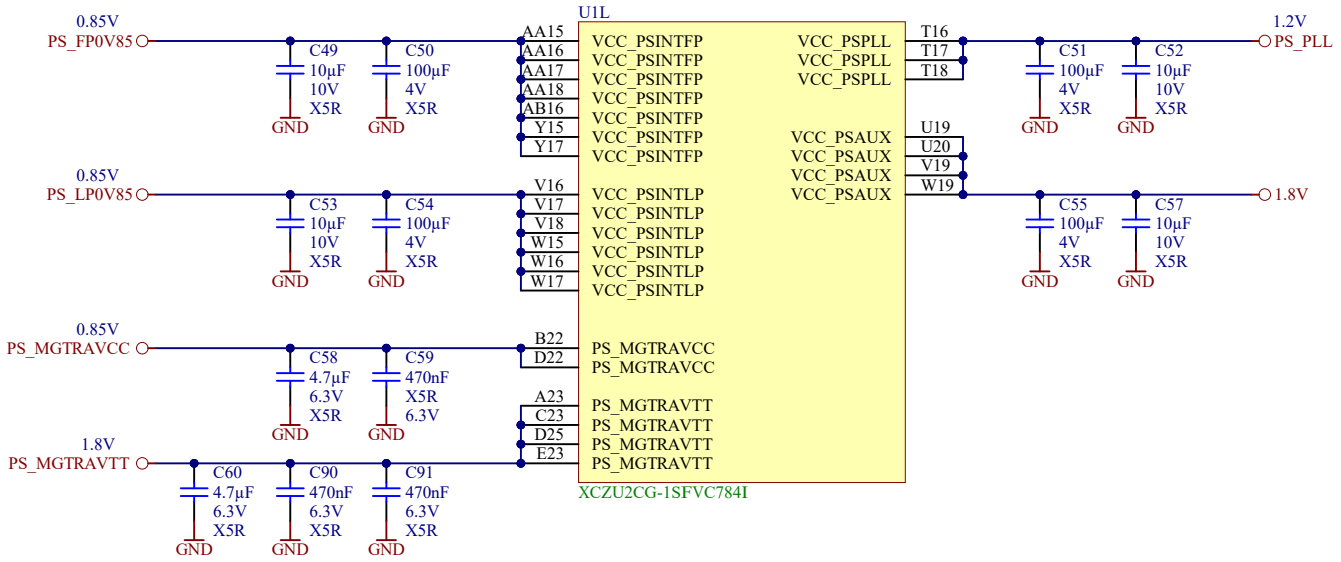
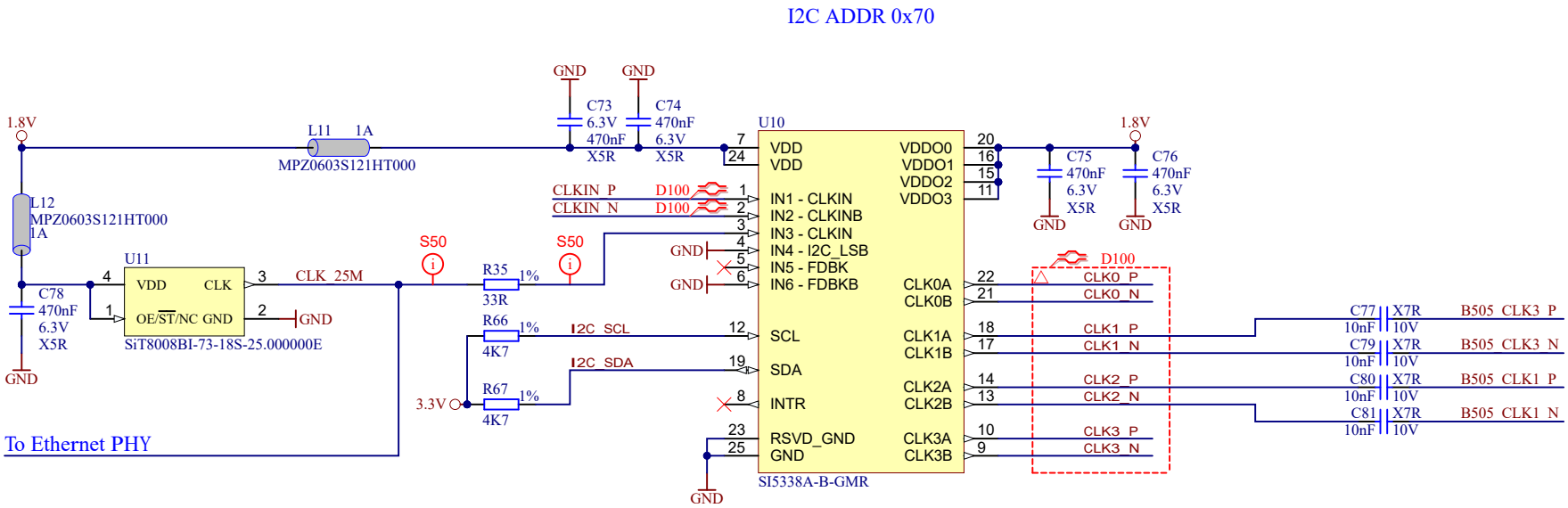
Title: TE0821 - PS MGT		
A4	Number: TE0821 2AI51NA	Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 15 of 25
Filename: B_PS_GT.SchDoc		



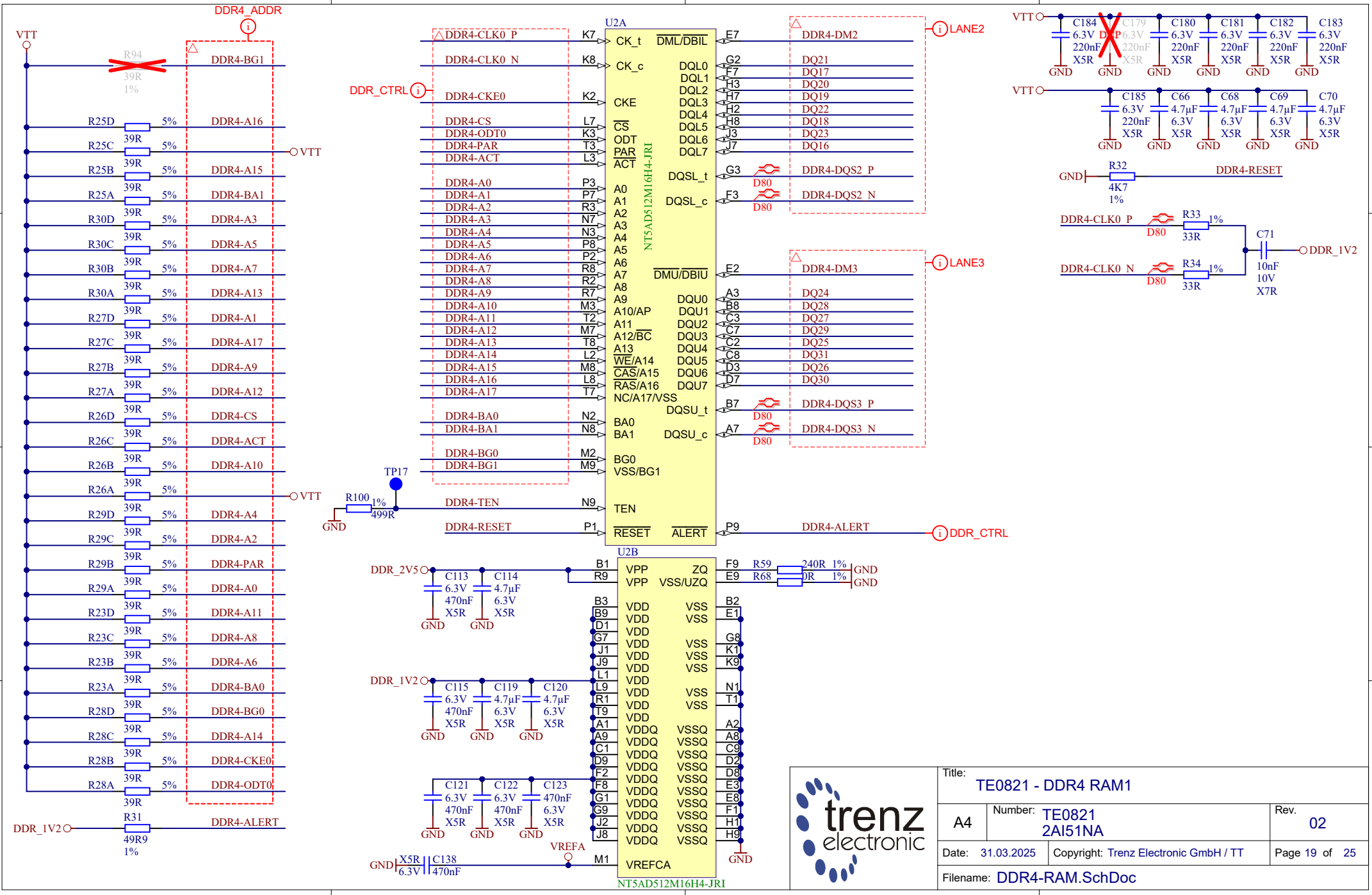
trenz electronic	Title: TE0821 - ZU POWER		
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT		Page 16 of 25
Filename: ZU_POWER.SchDoc			



trenz electronic	Title: TE0821 - ZU PS POWER		
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT		Page 17 of 25
Filename: ZU_PS_POWER.SchDoc			



Title: TE0821 - CLK			
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: 2015 Trenz Electronic GmbH		Page 18 of 25
Filename: CLK.SchDoc			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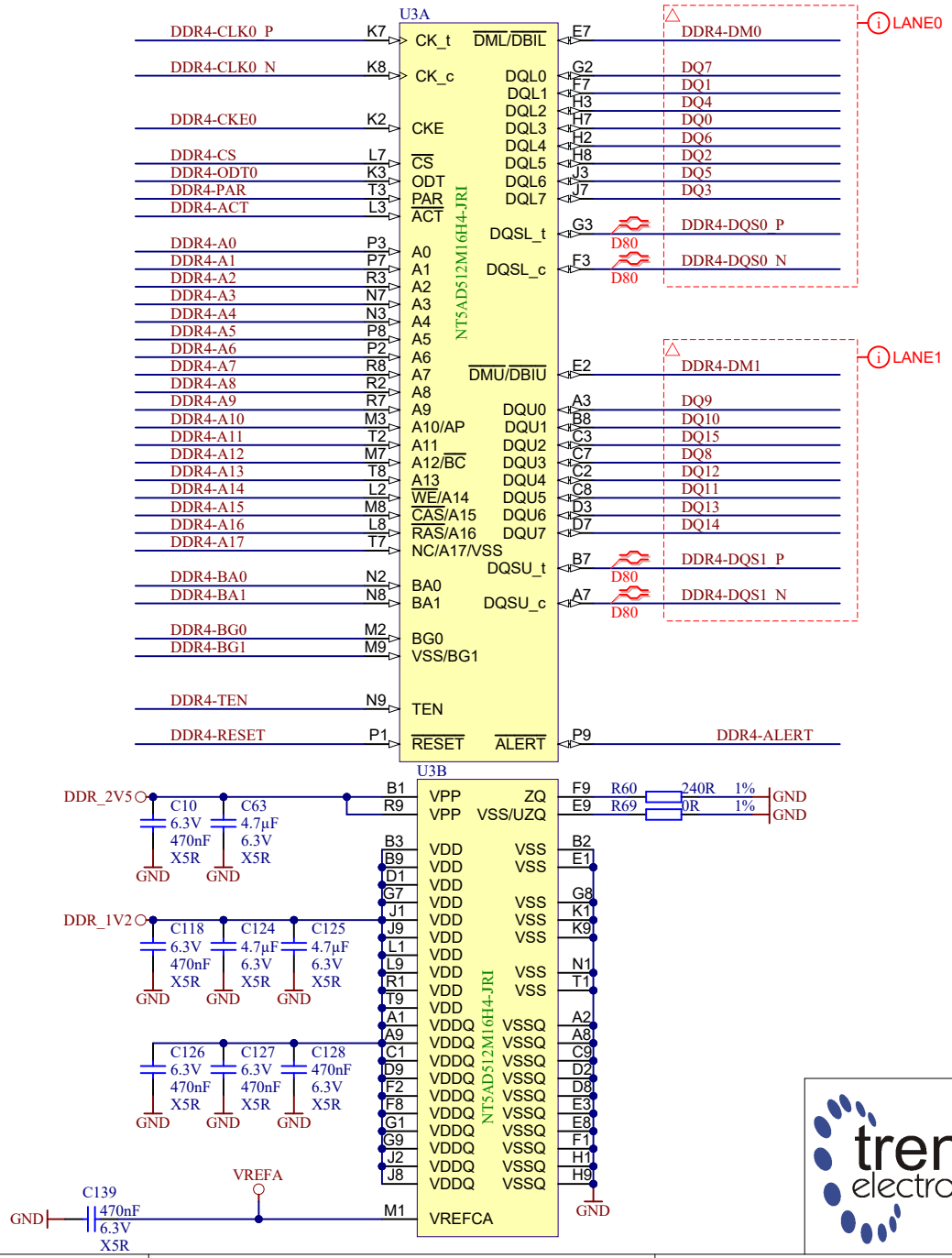
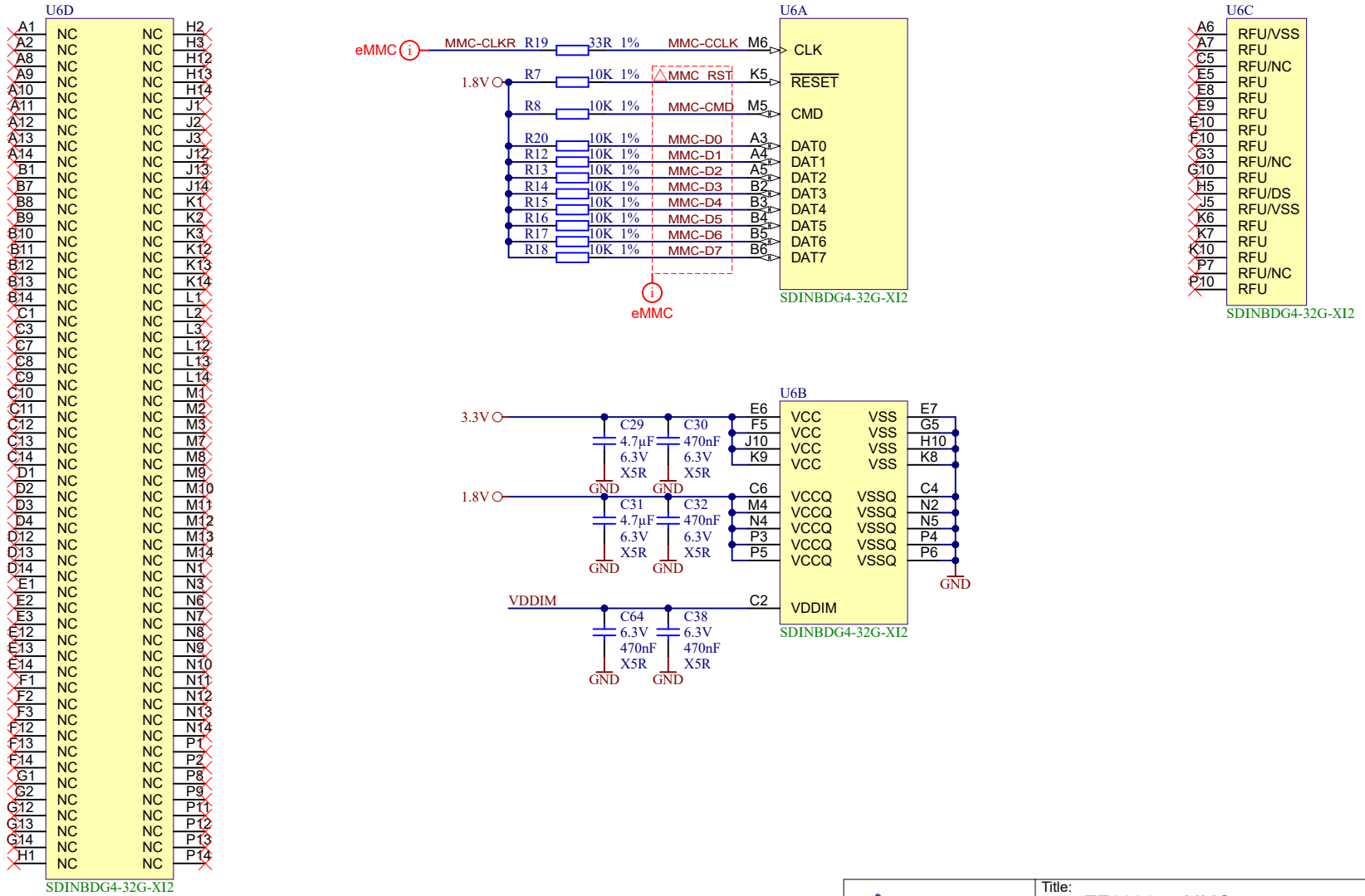
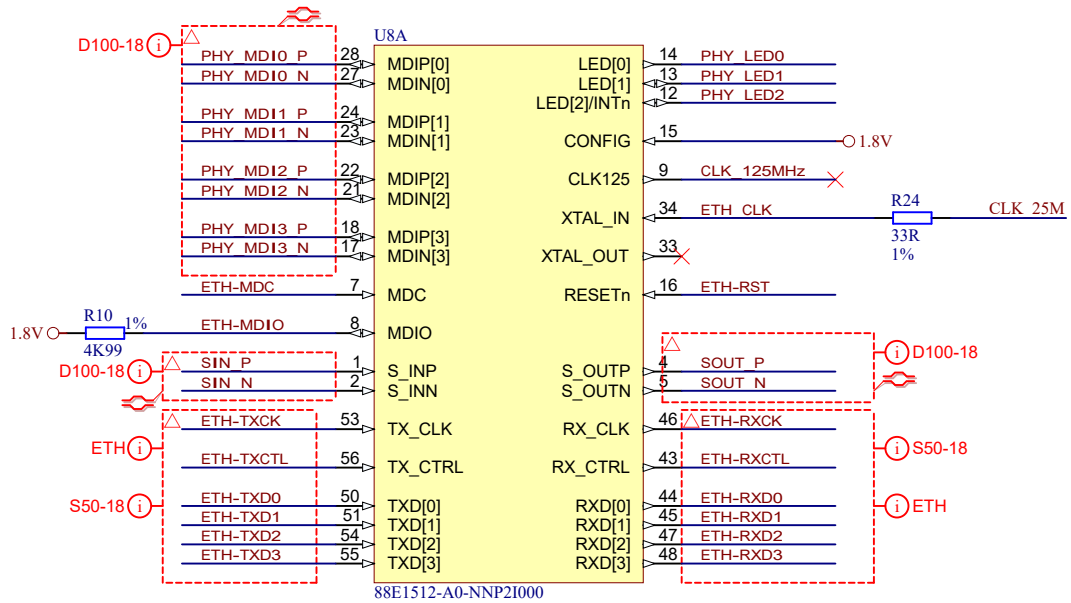
VTT
R94 39R 1%
DDR4-BG1
R25D 39R 5% DDR4-A16
R25C 39R 5% VTT
R25B 39R 5% DDR4-A15
R25A 39R 5% DDR4-BA1
R30D 39R 5% DDR4-A3
R30C 39R 5% DDR4-A5
R30B 39R 5% DDR4-A7
R30A 39R 5% DDR4-A13
R27D 39R 5% DDR4-A1
R27C 39R 5% DDR4-A17
R27B 39R 5% DDR4-A9
R27A 39R 5% DDR4-A12
R26D 39R 5% DDR4-CS
R26C 39R 5% DDR4-ACT
R26B 39R 5% DDR4-A10
R26A 39R 5% VTT
R29D 39R 5% DDR4-A4
R29C 39R 5% DDR4-A2
R29B 39R 5% DDR4-PAR
R29A 39R 5% DDR4-A0
R23D 39R 5% DDR4-A11
R23C 39R 5% DDR4-A8
R23B 39R 5% DDR4-A6
R23A 39R 5% DDR4-BA0
R28D 39R 5% DDR4-BG0
R28C 39R 5% DDR4-A14
R28B 39R 5% DDR4-CKE0
R28A 39R 5% DDR4-ODT0
DDR_1V2 R31 49R9 1% DDR4-ALERT
U2A
DDR4-CLK0_P K7 CK_t
DDR4-CLK0_N K8 CK_c
DDR_CTRL DDR4-CKE0 K2 CKE
DDR4-CS L7 CS
DDR4-ODT0 K3 ODT
DDR4-PAR T3 PAR
DDR4-ACT L3 ACT
DDR4-A0 P3 A0
DDR4-A1 P7 A1
DDR4-A2 R3 A2
DDR4-A3 N7 A3
DDR4-A4 N3 A4
DDR4-A5 P8 A5
DDR4-A6 P2 A6
DDR4-A7 R8 A7
DDR4-A8 R2 A8
DDR4-A9 R7 A9
DDR4-A10 M3 A10/AP
DDR4-A11 T2 A11
DDR4-A12 M7 A12/BC
DDR4-A13 T8 A13
DDR4-A14 L2 WE/A14
DDR4-A15 M8 CAS/A15
DDR4-A16 L8 RAS/A16
DDR4-A17 T7 NC/A17/VSS
DDR4-BA0 N2 BA0
DDR4-BA1 N8 BA1
DDR4-BG0 M2 BG0
DDR4-BG1 M9 VSS/BG1
TP17
R100 1% 499R GND
DDR4-TEN N9 TEN
DDR4-RESET P1 RESET
NT5AD512M16H4-JRI
DML/DBIL E7 DDR4-DM2
DQL0 G2 DQ21
DQL1 F7 DQ17
DQL2 H3 DQ20
DQL3 H7 DQ19
DQL4 H2 DQ22
DQL5 H8 DQ18
DQL6 J3 DQ23
DQL7 J7 DQ16
DQSL_t G3 D80 DDR4-DQS2_P
DQSL_c F3 D80 DDR4-DQS2_N
LANE2
DMU/DBIU E2 DDR4-DM3
DQU0 A3 DQ24
DQU1 B8 DQ28
DQU2 C3 DQ27
DQU3 C7 DQ29
DQU4 C2 DQ25
DQU5 C8 DQ31
DQU6 D3 DQ26
DQU7 D7 DQ30
DQSU_t B7 D80 DDR4-DQS3_P
DQSU_c A7 D80 DDR4-DQS3_N
LANE3
ALERT P9 DDR4-ALERT
DDR_CTRL
U2B
DDR_2V5 B1 R9 VPP
C113 6.3V 470nF X5R GND
C114 4.7µF 6.3V X5R GND
ZQ F9 R59 240R 1%
VSS/UZQ E9 R68 0R 1%
GND GND
VDD B3 B9 D1 G7 J1 J9 L1
VSS B2 E1 G8 K1 K9
DDR_1V2
C115 6.3V 470nF X5R GND
C119 4.7µF 6.3V X5R GND
C120 4.7µF 6.3V X5R GND
VDD L9 R1 T9
VSS N1 T1
VDDQ A1 A9 C1 D9 F2 F8 G1 G9 J2 J8
VSSQ A2 A8 C9 D2 D8 E3 E8 F1 H1 H9
C121 6.3V 470nF X5R GND
C122 6.3V 470nF X5R GND
C123 470nF 6.3V X5R GND
VREFA
GND X5R 6.3V C138 470nF
VREFCA M1
GND
NT5AD512M16H4-JRI
VTT
C184 6.3V 220nF X5R GND
C179 6.3V 220nF X5R GND
C180 6.3V 220nF X5R GND
C181 6.3V 220nF X5R GND
C182 6.3V 220nF X5R GND
C183 6.3V 220nF X5R GND
C185 6.3V 220nF X5R GND
C66 4.7µF 6.3V X5R GND
C68 4.7µF 6.3V X5R GND
C69 4.7µF 6.3V X5R GND
C70 4.7µF 6.3V X5R GND
R32 4K7 1% GND DDR4-RESET
DDR4-CLK0_P D80 R33 33R 1%
DDR4-CLK0_N D80 R34 33R 1%
C71 10nF 10V X7R DDR_1V2
trenz electronic
Title: TE0821 - DDR4 RAM1
A4
Number: TE0821 2AI51NA
Rev. 02
Date: 31.03.2025
Copyright: Trenz Electronic GmbH / TT
Page 19 of 25
Filename: DDR4-RAM.SchDoc



trenz electronic	Title: TE0821 - DDR4 RAM2		
	A4	Number: TE0821 2AI51NA	Rev. 02
	Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 20 of 25
	Filename: DDR4-RAM_2.SchDoc		

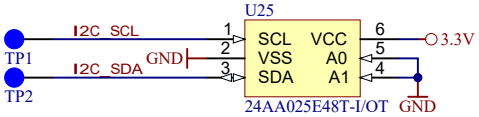


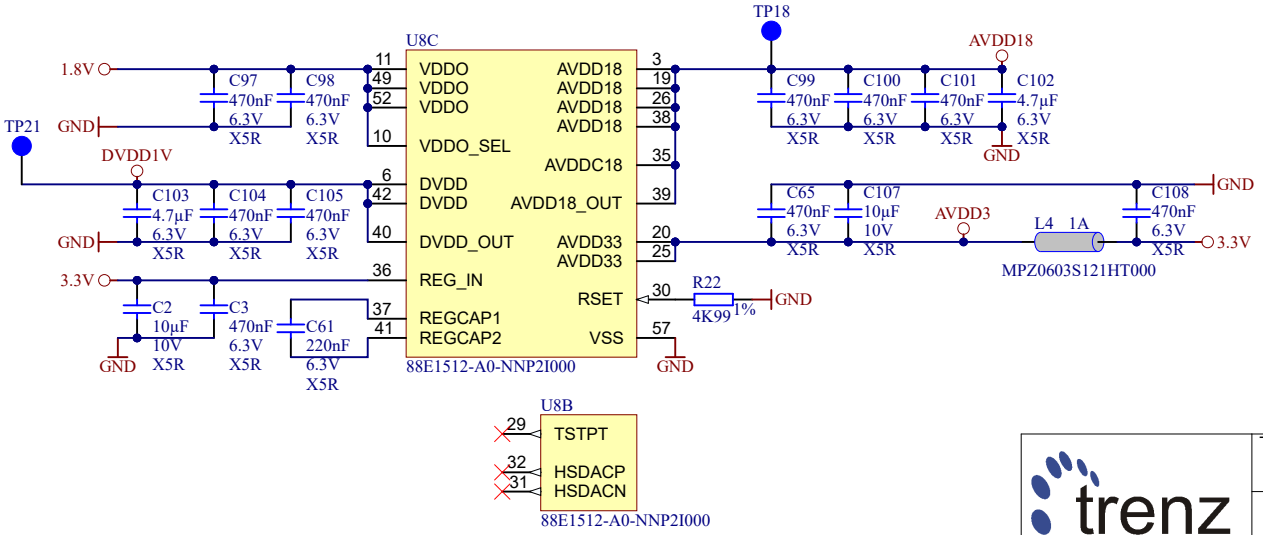
Title: TE0821 - eMMC		
A4	Number: TE0821 2AI51NA	Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 21 of 25
Filename: eMMC.SchDoc		



I2C ADDR 0x50

EEPROM for MAC





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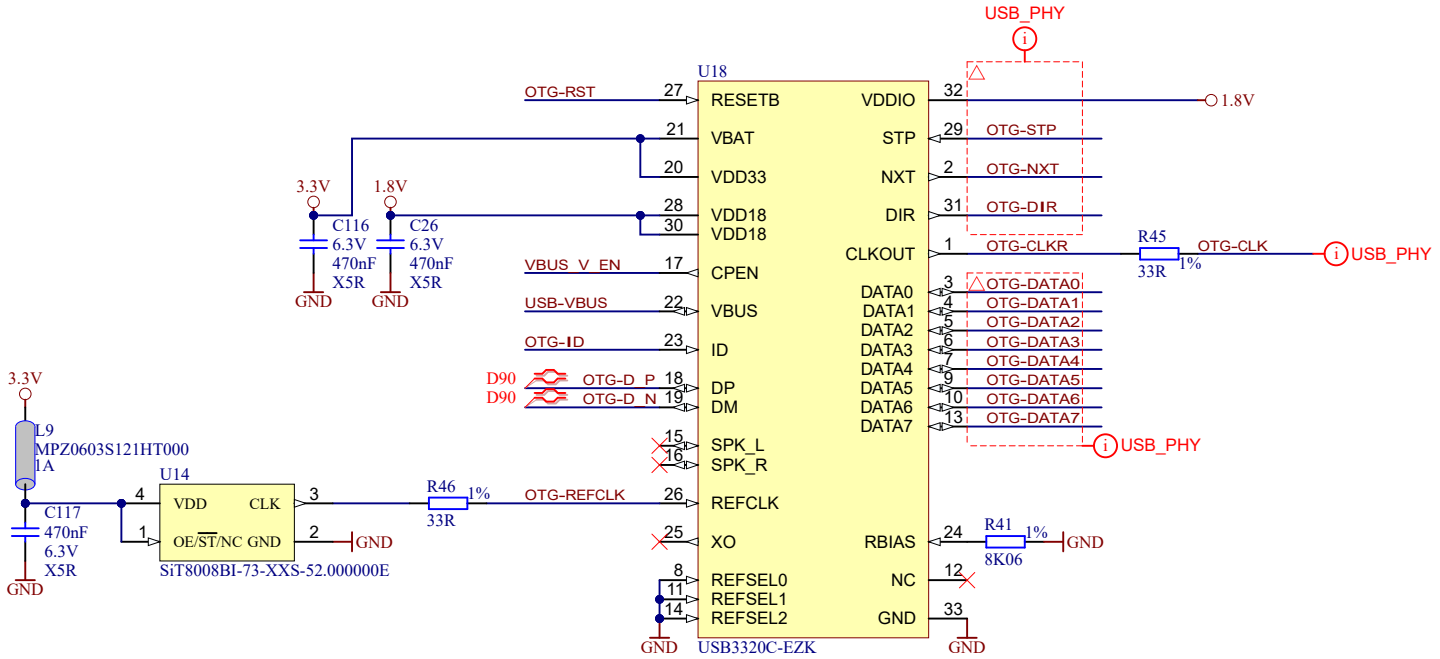
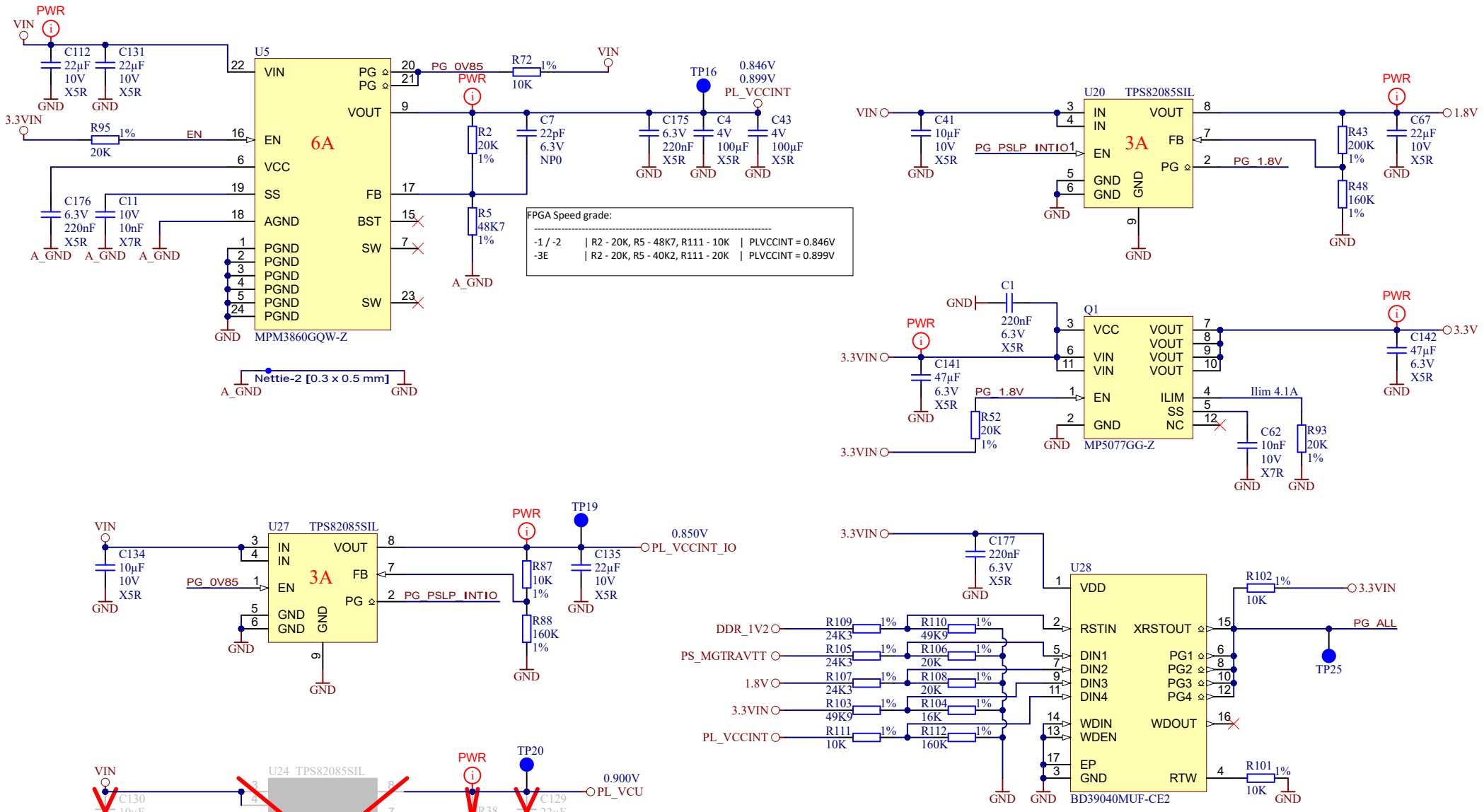
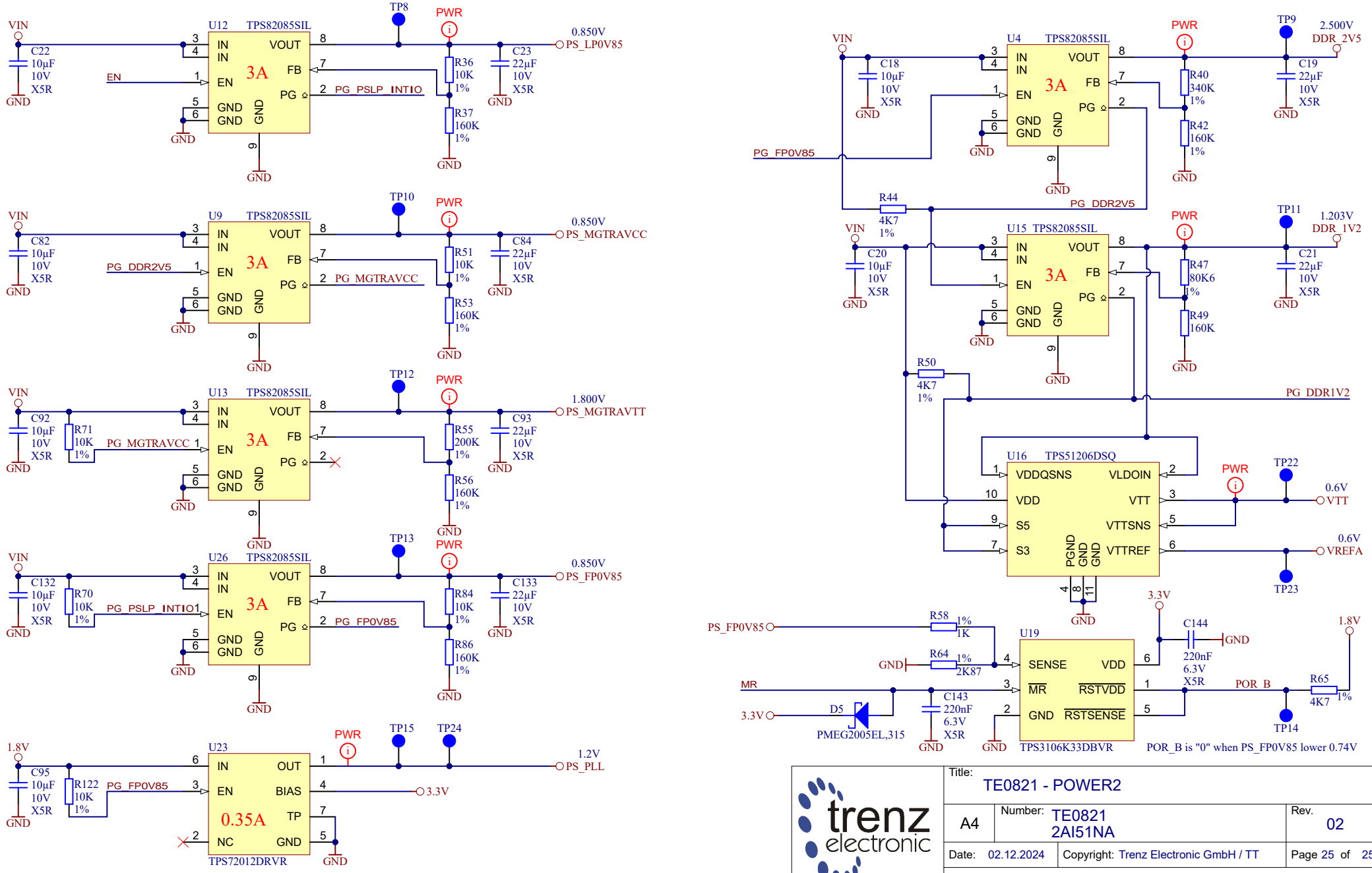
Title: TE0821 - Ethernet PHY			
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: 2015 Trenz Electronic GmbH		Page 22 of 25
Filename: ETH-PHY.SchDoc			



trenz electronic	Title: TE0821 - USB PHY		
	A4	Number: TE0821 2AI51NA	Rev. 02
	Date: 02.12.2024	Copyright: 2015 Trenz Electronic GmbH	Page 23 of 25
	Filename: USB-PHY.SchDoc		



trenz electronic	Title: TE0821 - POWER		
	A4	Number: TE0821 2AI51NA	Rev. 02
	Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT	Page 24 of 25
	Filename: POWER.SchDoc		



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Title: TE0821 - POWER2			
A4	Number: TE0821 2AI51NA		Rev. 02
Date: 02.12.2024	Copyright: Trenz Electronic GmbH / TT		Page 25 of 25
Filename: POWER_1.SchDoc			