

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_B2B-Connectors
B2B-Connectors.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

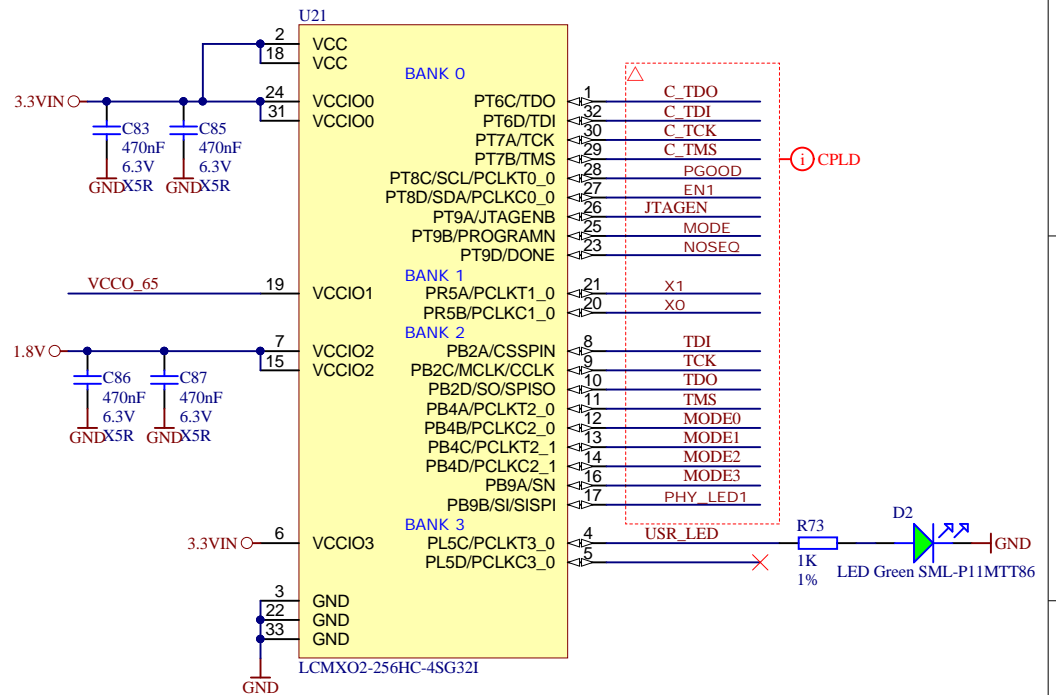
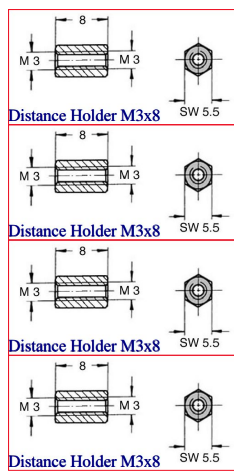
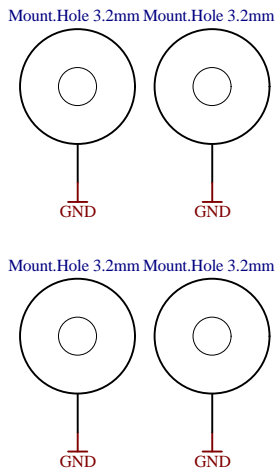
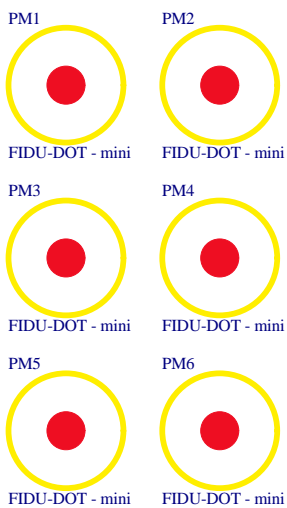
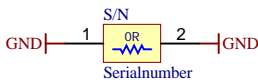
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DDR4-RAM_2.SchDoc

U_DDR4-RAM
DDR4-RAM.SchDoc

U_POWER
POWER.SchDoc

U_POWER_1
POWER_1.SchDoc

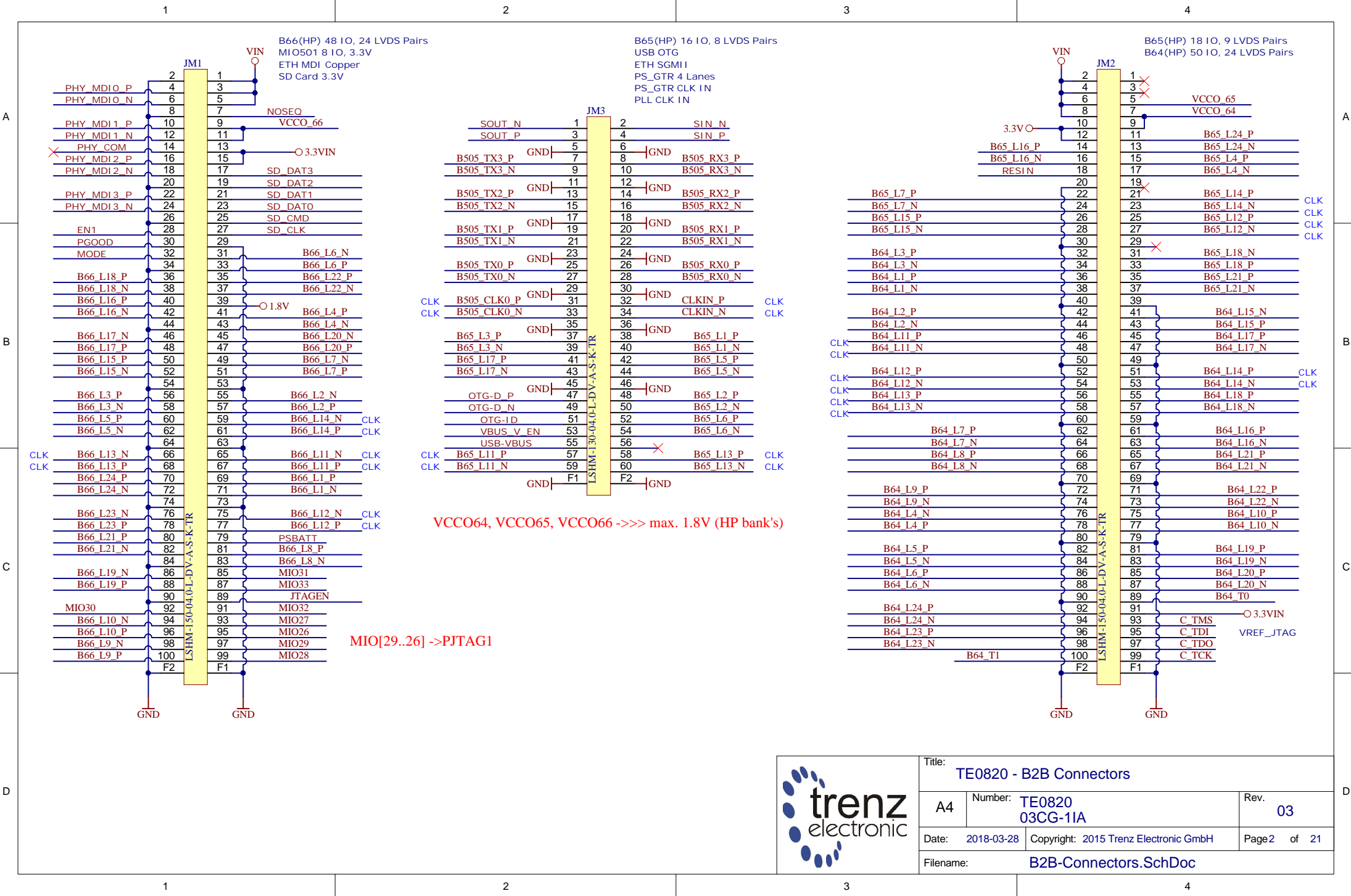
Serial
Serialnumber 6,3 x 6.3mm



Assembly variant	03CG-11A
Created by	VariantCreatedBy
Modified by	VariantModifiedBy
Modified at	VariantDateModification
SVN Revision	8646



Title: TE0820		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH	Page 1 of 21
Filename: TE0820.SchDoc		



VCCO64, VCCO65, VCCO66 ->>> max. 1.8V (HP bank's)

MIO[29..26] -> PJTAG1



Title: TE0820 - B2B Connectors		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH	Page 2 of 21
Filename: B2B-Connectors.SchDoc		

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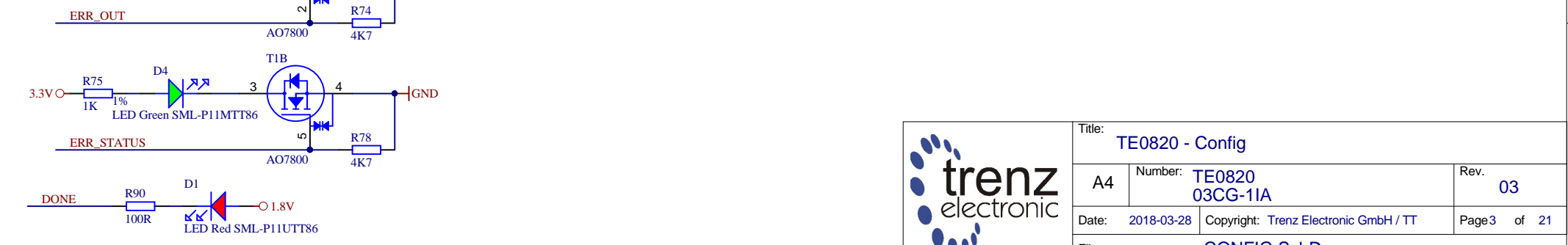
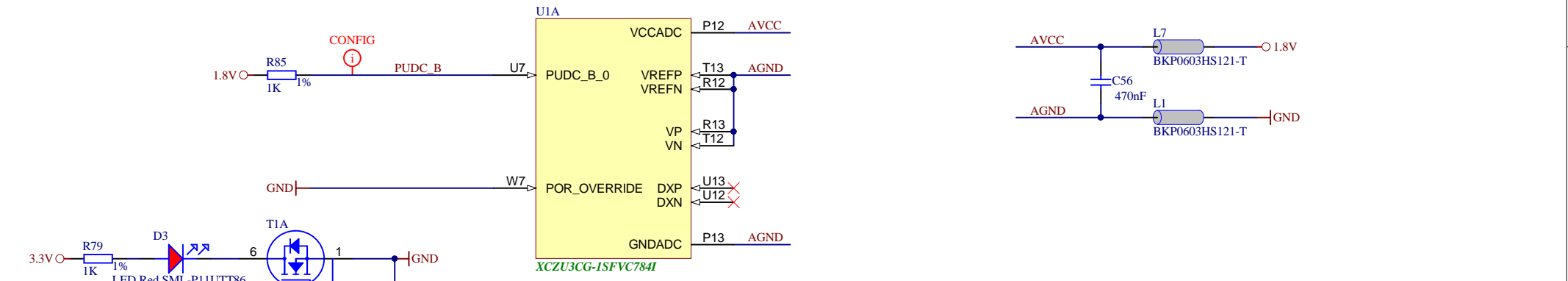
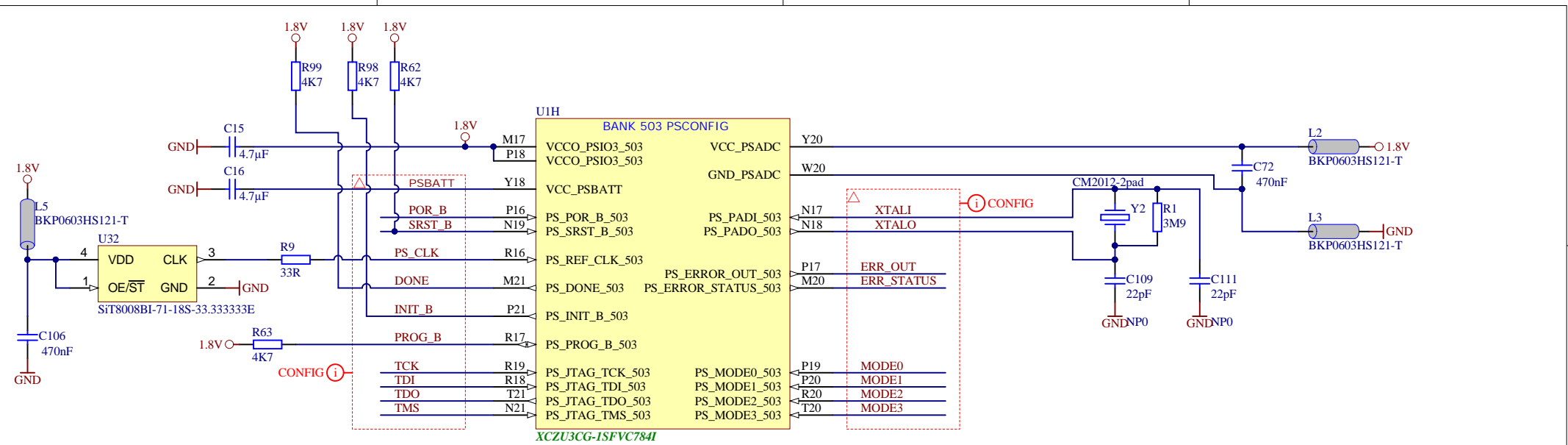
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Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 3 of 21
Filename: CONFIG.SchDoc		

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UIC

BANK 26 HD (ZU4/5 BANK 46 HD)

F14	VCCO_26
C15	VCCO_26
B15	IO_L1P_AD11P_26
A15	IO_L1N_AD11N_26
B14	IO_L2P_AD10P_26
A14	IO_L2N_AD10N_26
B13	IO_L3P_AD9P_26
A13	IO_L3N_AD9N_26
C14	IO_L4P_AD8P_26
C13	IO_L4N_AD8N_26
D15	IO_L5P_HDGC_AD7P_26
D14	IO_L5N_HDGC_AD7N_26
E14	IO_L6P_HDGC_AD6P_26
E13	IO_L6N_HDGC_AD6N_26
G13	IO_L7P_HDGC_AD5P_26
F13	IO_L7N_HDGC_AD5N_26
F15	IO_L8P_HDGC_AD4P_26
E15	IO_L8N_HDGC_AD4N_26
G15	IO_L9P_AD3P_26
G14	IO_L9N_AD3N_26
H14	IO_L10P_AD2P_26
H13	IO_L10N_AD2N_26
K14	IO_L11P_AD1P_26
J14	IO_L11N_AD1N_26
L14	IO_L12P_AD0P_26
L13	IO_L12N_AD0N_26

BANK 44 HD (ZU4/5 BANK 43 HD)

AC10	VCCO_44
AG12	VCCO_44
AG10	IO_L1P_AD11P_44
AH10	IO_L1N_AD11N_44
AF11	IO_L2P_AD10P_44
AG11	IO_L2N_AD10N_44
AH12	IO_L3P_AD9P_44
AH11	IO_L3N_AD9N_44
AE13	IO_L4P_AD8P_44
AF10	IO_L4N_AD8N_44
AE12	IO_L5P_HDGC_AD7P_44
AF12	IO_L5N_HDGC_AD7N_44
AC13	IO_L6P_HDGC_AD6P_44
AD13	IO_L6N_HDGC_AD6N_44
AD11	IO_L7P_HDGC_AD5P_44
AD10	IO_L7N_HDGC_AD5N_44
AB11	IO_L8P_HDGC_AD4P_44
AC11	IO_L8N_HDGC_AD4N_44
AA11	IO_L9P_AD3P_44
AA10	IO_L9N_AD3N_44
W10	IO_L10P_AD2P_44
Y10	IO_L10N_AD2N_44
Y9	IO_L11P_AD1P_44
AA8	IO_L11N_AD1N_44
AB10	IO_L12P_AD0P_44
AB9	IO_L12N_AD0N_44

UIB

XCZU3CG-1SFVC784I

BANK 24 HD (ZU4/5 BANK 44 HD)

AA14	VCCO_24
AD13	VCCO_24
AE15	IO_L1P_AD15P_24
AE14	IO_L1N_AD15N_24
AG14	IO_L2P_AD14P_24
AH14	IO_L2N_AD14N_24
AG13	IO_L3P_AD13P_24
AH13	IO_L3N_AD13N_24
AF13	IO_L4P_AD12P_24
AF12	IO_L4N_AD12N_24
AD13	IO_L5P_HDGC_24
AD14	IO_L5N_HDGC_24
AC14	IO_L6P_HDGC_24
AC13	IO_L6N_HDGC_24
AA13	IO_L7P_HDGC_24
AB13	IO_L7N_HDGC_24
AB15	IO_L8P_HDGC_24
AB14	IO_L8N_HDGC_24
W14	IO_L9P_AD11P_24
W13	IO_L9N_AD11N_24
Y14	IO_L10P_AD10P_24
Y13	IO_L10N_AD10N_24
W12	IO_L11P_AD9P_24
W11	IO_L11N_AD9N_24
Y12	IO_L12P_AD8P_24
AA12	IO_L12N_AD8N_24

BANK 25 HD (ZU4/5 BANK 45 HD)

B12	VCCO_25
E11	VCCO_25
J11	IO_L1P_AD15P_25
J10	IO_L1N_AD15N_25
K13	IO_L2P_AD14P_25
K12	IO_L2N_AD14N_25
H13	IO_L3P_AD13P_25
G10	IO_L3N_AD13N_25
J12	IO_L4P_AD12P_25
H12	IO_L4N_AD12N_25
G13	IO_L5P_HDGC_25
G12	IO_L5N_HDGC_25
F13	IO_L6P_HDGC_25
F12	IO_L6N_HDGC_25
F11	IO_L7P_HDGC_25
F10	IO_L7N_HDGC_25
K11	IO_L8P_HDGC_25
D11	IO_L8N_HDGC_25
C11	IO_L9P_AD11P_25
B10	IO_L9N_AD11N_25
B11	IO_L10P_AD10P_25
A10	IO_L10N_AD10N_25
A12	IO_L11P_AD9P_25
A11	IO_L11N_AD9N_25
D12	IO_L12P_AD8P_25
C12	IO_L12N_AD8N_25

XCZU3CG-1SFVC784I

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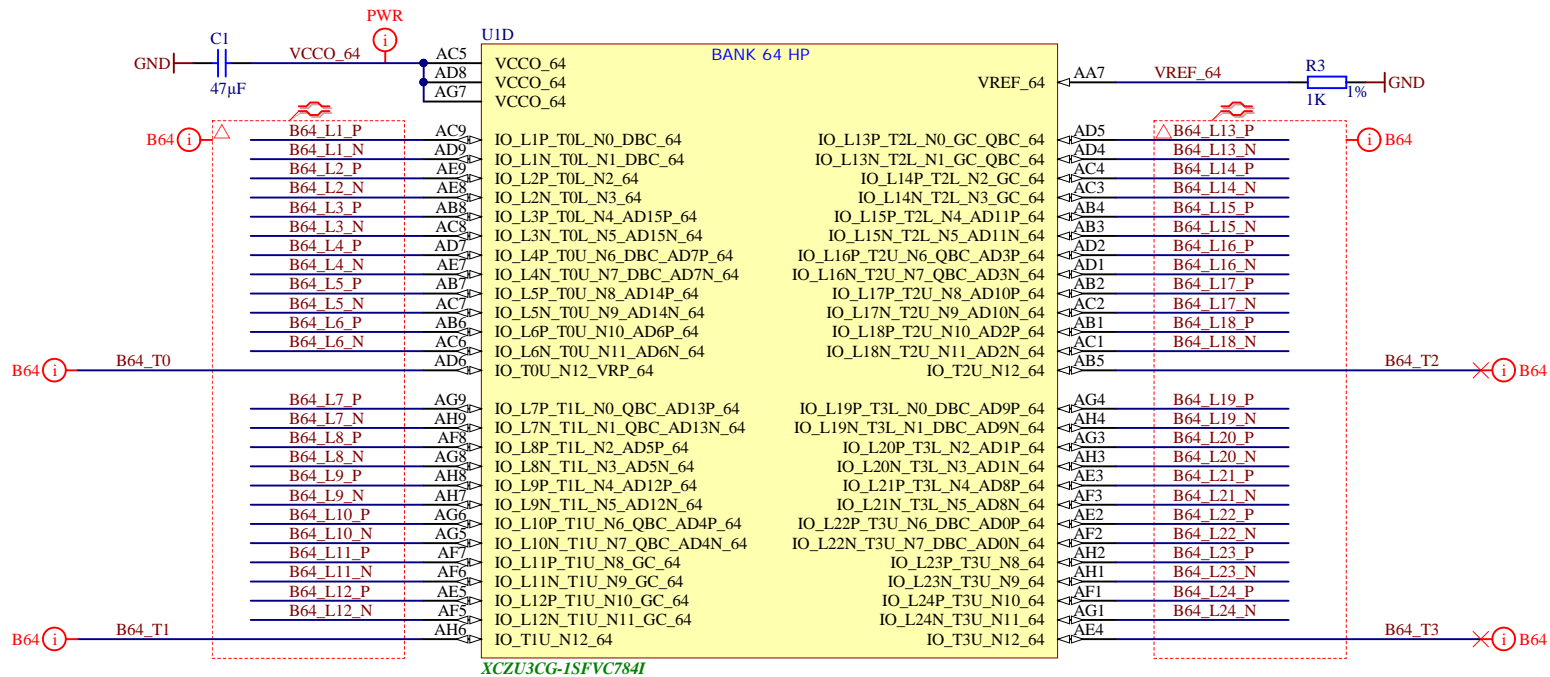
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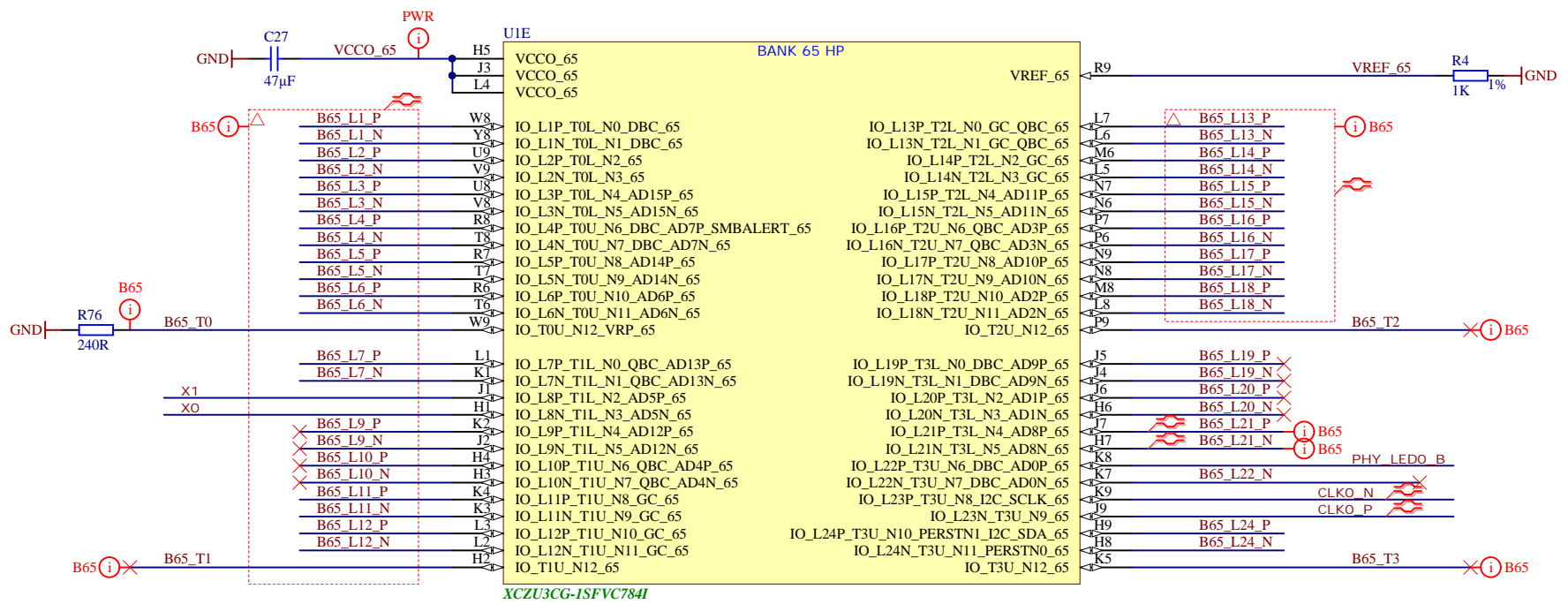
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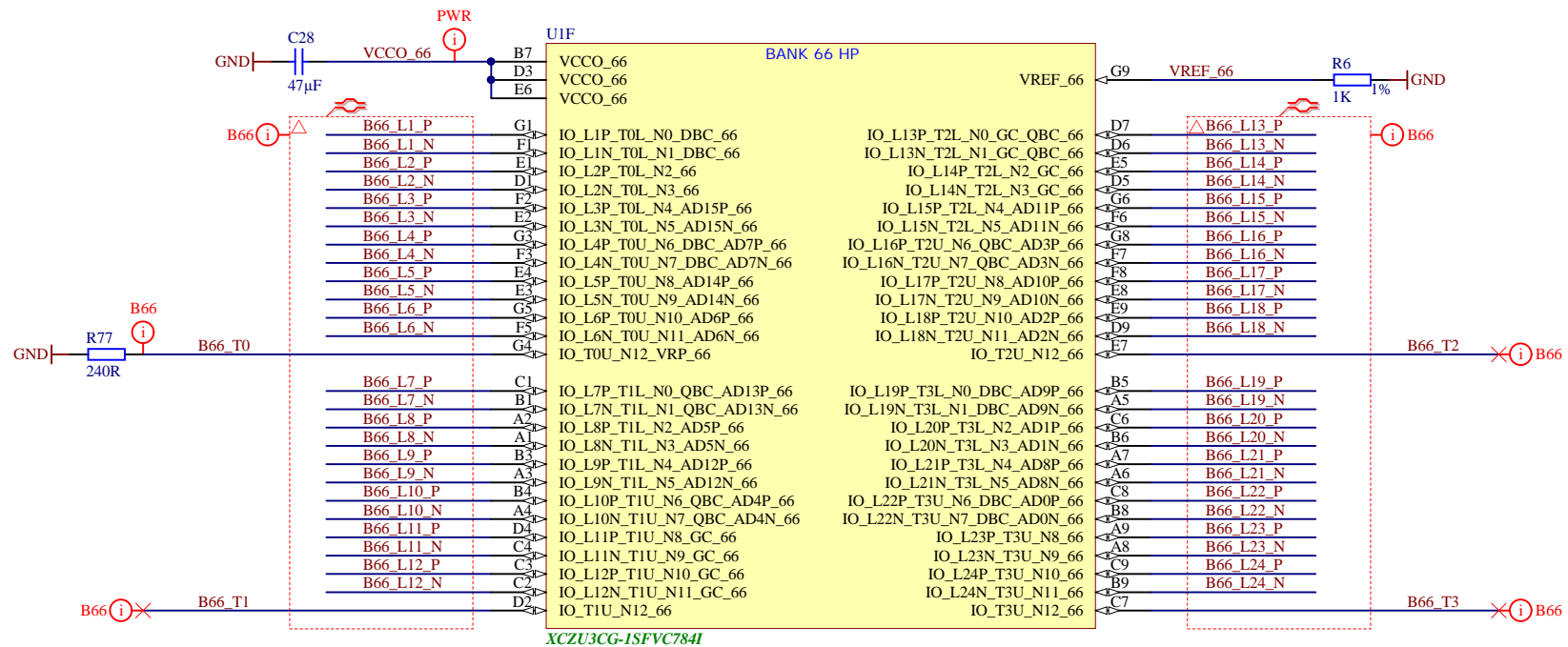
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Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 4 of 21
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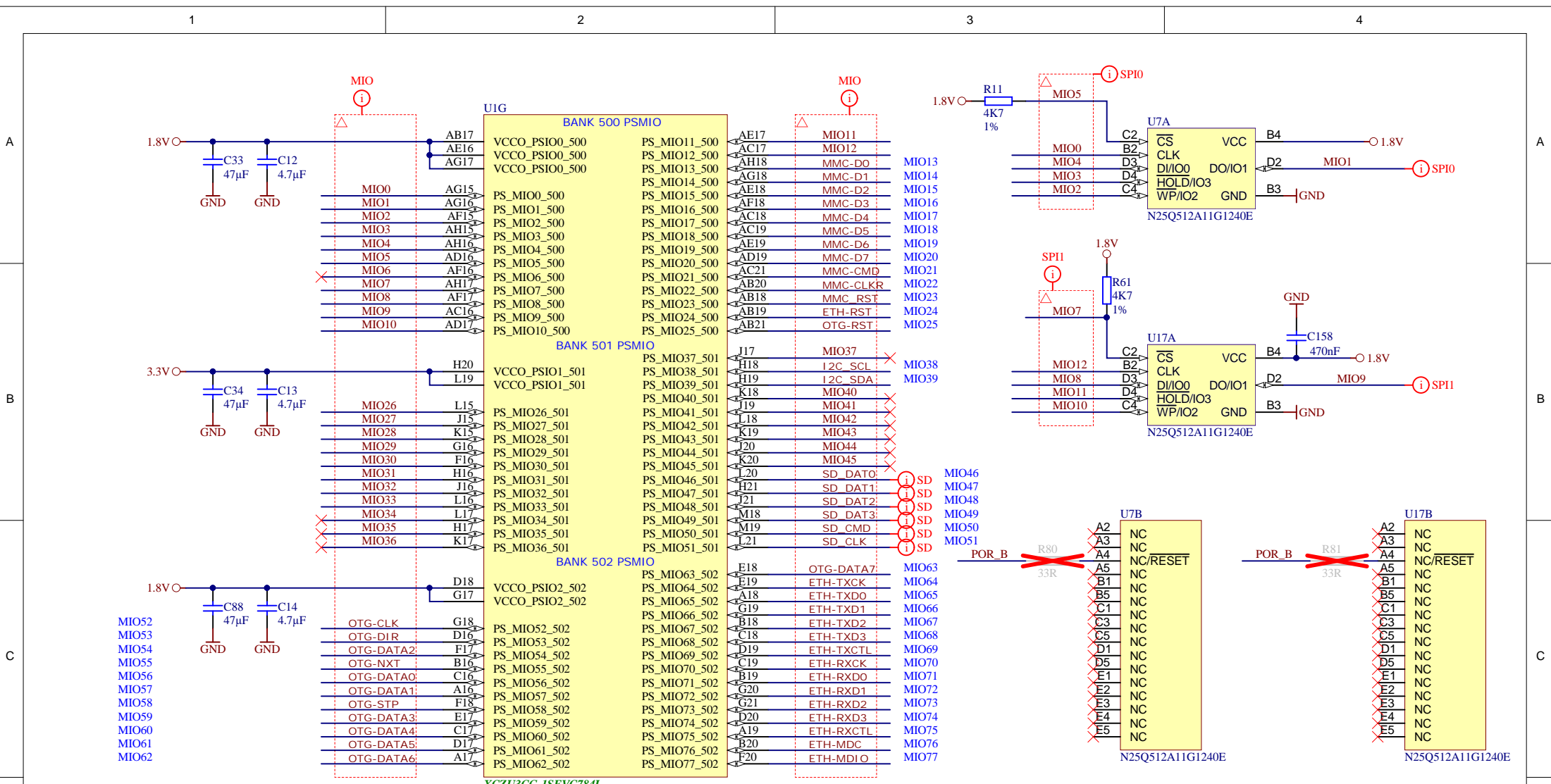
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Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 5 of 21
Filename: B64.SchDoc		




Title: TE0820 - B65		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 6 of 21
Filename: B65.SchDoc		



Title: TE0820 - B66		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 7 of 21
Filename: B66.SchDoc		



		Title: TE0820 - MIO Banks	
		A4	Number: TE0820 03CG-11A
Date: 2018-03-28		Copyright: Trenz Electronic GmbH / TT	
Page 8		of 21	
Filename: B_MIO.SchDoc			

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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	
VCCO_PSDDR_504	PS_DDR_CK_N1_504	Y25	
VCCO_PSDDR_504	PS_DDR_CKE1_504	V27	
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_PSINTFP_DDR	PS_DDR_A3_504	AA28	DDR4-A3
VCC_PSINTFP_DDR	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
VCC_PSINTFP_DDR	PS_DDR_A9_504	AB23	DDR4-A9
VCC_PSINTFP_DDR	PS_DDR_A10_504	AA25	DDR4-A10
VCC_PSINTFP_DDR	PS_DDR_A11_504	AA26	DDR4-A11
VCC_PSINTFP_DDR	PS_DDR_A12_504	AB25	DDR4-A12
VCC_PSINTFP_DDR	PS_DDR_A13_504	AB26	DDR4-A13
VCC_PSINTFP_DDR	PS_DDR_A14_504	AB24	DDR4-A14
VCC_PSINTFP_DDR	PS_DDR_A15_504	AC24	DDR4-A15
VCC_PSINTFP_DDR	PS_DDR_A16_504	AC23	DDR4-A16
VCC_PSINTFP_DDR	PS_DDR_A17_504	AC22	DDR4-A17
PS_DDR_CS_N0_504	PS_DDR_CS_N1_504	W27	DDR4-CS
PS_DDR_CS_N0_504	PS_DDR_CS_N1_504	V26	
PS_DDR_BA0_504	PS_DDR_BA1_504	V23	DDR4-BA0
PS_DDR_BA0_504	PS_DDR_BA1_504	W22	DDR4-BA1
PS_DDR_BG0_504	PS_DDR_BG1_504	W24	DDR4-BG0
PS_DDR_BG0_504	PS_DDR_BG1_504	V22	
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	
PS_DDR_ODT0_504	PS_DDR_ODT0_504	U28	DDR4-ODT0
PS_DDR_ODT1_504	PS_DDR_ODT1_504	U26	

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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
DQ2	AD20	PS_DDR_DQ2_504	PS_DDR_DQ34_504	P22
DQ3	AF20	PS_DDR_DQ3_504	PS_DDR_DQ35_504	N22
DQ4	AH21	PS_DDR_DQ4_504	PS_DDR_DQ36_504	T23
DQ5	AH20	PS_DDR_DQ5_504	PS_DDR_DQ37_504	P24
DQ6	AH19	PS_DDR_DQ6_504	PS_DDR_DQ38_504	R24
DQ7	AG19	PS_DDR_DQ7_504	PS_DDR_DQ39_504	N24
DQ8	AF22	PS_DDR_DQ8_504	PS_DDR_DQ40_504	H24
DQ9	AH22	PS_DDR_DQ9_504	PS_DDR_DQ41_504	J24
DQ10	AE22	PS_DDR_DQ10_504	PS_DDR_DQ42_504	M24
DQ11	AD22	PS_DDR_DQ11_504	PS_DDR_DQ43_504	K24
DQ12	AH23	PS_DDR_DQ12_504	PS_DDR_DQ44_504	J22
DQ13	AH24	PS_DDR_DQ13_504	PS_DDR_DQ45_504	H22
DQ14	AE24	PS_DDR_DQ14_504	PS_DDR_DQ46_504	K22
DQ15	AG24	PS_DDR_DQ15_504	PS_DDR_DQ47_504	L22
DQ16	AC26	PS_DDR_DQ16_504	PS_DDR_DQ48_504	M25
DQ17	AD26	PS_DDR_DQ17_504	PS_DDR_DQ49_504	M26
DQ18	AD25	PS_DDR_DQ18_504	PS_DDR_DQ50_504	L25
DQ19	AD24	PS_DDR_DQ19_504	PS_DDR_DQ51_504	L26
DQ20	AG26	PS_DDR_DQ20_504	PS_DDR_DQ52_504	K28
DQ21	AH25	PS_DDR_DQ21_504	PS_DDR_DQ53_504	L28
DQ22	AH26	PS_DDR_DQ22_504	PS_DDR_DQ54_504	M28
DQ23	AG25	PS_DDR_DQ23_504	PS_DDR_DQ55_504	N28
DQ24	AH27	PS_DDR_DQ24_504	PS_DDR_DQ56_504	J28
DQ25	AH28	PS_DDR_DQ25_504	PS_DDR_DQ57_504	K27
DQ26	AF28	PS_DDR_DQ26_504	PS_DDR_DQ58_504	H28
DQ27	AG28	PS_DDR_DQ27_504	PS_DDR_DQ59_504	H27
DQ28	AC27	PS_DDR_DQ28_504	PS_DDR_DQ60_504	G26
DQ29	AD27	PS_DDR_DQ29_504	PS_DDR_DQ61_504	G25
DQ30	AD28	PS_DDR_DQ30_504	PS_DDR_DQ62_504	K25
DQ31	AC28	PS_DDR_DQ31_504	PS_DDR_DQ63_504	J25
DDR4-DQS0_P	AF21	PS_DDR_DQS_P0_504	PS_DDR_DQ64_504	T28
DDR4-DQS0_N	AG21	PS_DDR_DQS_N0_504	PS_DDR_DQ65_504	R28
DDR4-DQS1_P	AF23	PS_DDR_DQS_P1_504	PS_DDR_DQ66_504	P28
DDR4-DQS1_N	AG23	PS_DDR_DQS_N1_504	PS_DDR_DQ67_504	P27
DDR4-DQS2_P	AF25	PS_DDR_DQS_P2_504	PS_DDR_DQ68_504	P26
DDR4-DQS2_N	AF26	PS_DDR_DQS_N2_504	PS_DDR_DQ69_504	R25
DDR4-DQS3_P	AE27	PS_DDR_DQS_P3_504	PS_DDR_DQ70_504	P25
DDR4-DQS3_N	AE27	PS_DDR_DQS_N3_504	PS_DDR_DQ71_504	T25
PS_DDR_DQS_P4_504	N23	PS_DDR_DQS_P4_504	PS_DDR_DM0_504	AG20
PS_DDR_DQS_N4_504	M23	PS_DDR_DQS_N4_504	PS_DDR_DM1_504	AE23
PS_DDR_DQS_P5_504	L23	PS_DDR_DQS_P5_504	PS_DDR_DM2_504	AE25
PS_DDR_DQS_N5_504	K23	PS_DDR_DQS_N5_504	PS_DDR_DM3_504	AE28
PS_DDR_DQS_P6_504	N26	PS_DDR_DQS_P6_504	PS_DDR_DM4_504	R23
PS_DDR_DQS_N6_504	N27	PS_DDR_DQS_N6_504	PS_DDR_DM5_504	H23
PS_DDR_DQS_P7_504	J26	PS_DDR_DQS_P7_504	PS_DDR_DM6_504	L27
PS_DDR_DQS_N7_504	J27	PS_DDR_DQS_N7_504	PS_DDR_DM7_504	H26
PS_DDR_DQS_P8_504	R27	PS_DDR_DQS_P8_504	PS_DDR_DM8_504	T26
PS_DDR_DQS_N8_504	T27	PS_DDR_DQS_N8_504		

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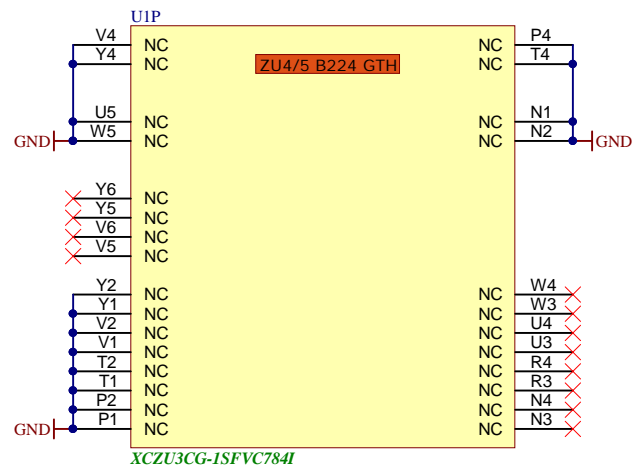
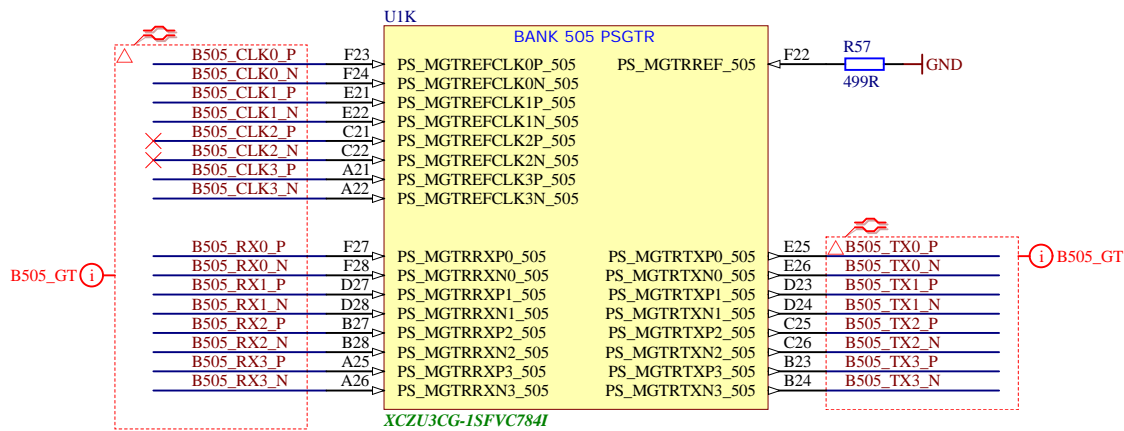
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Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 9 of 21
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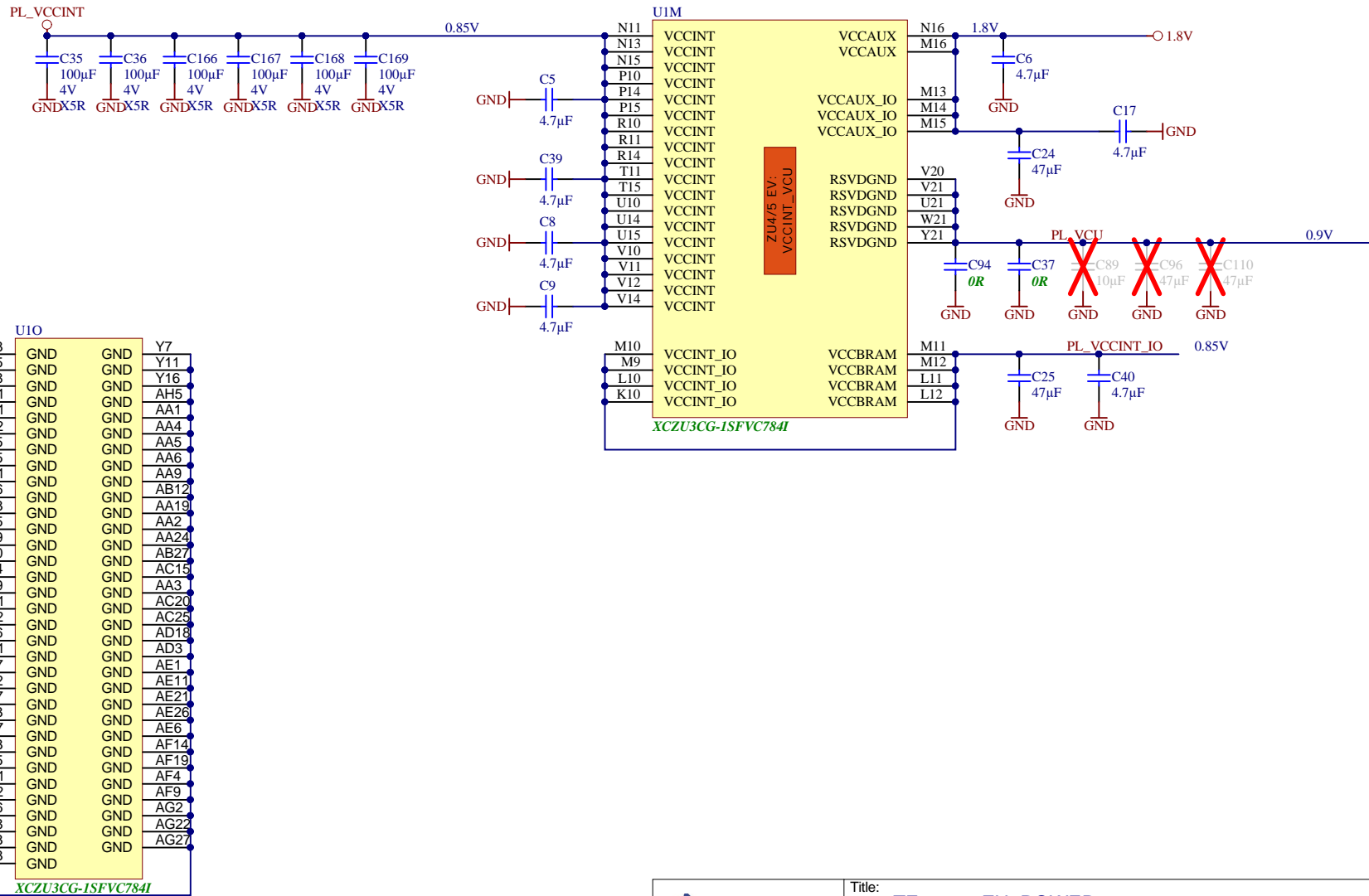
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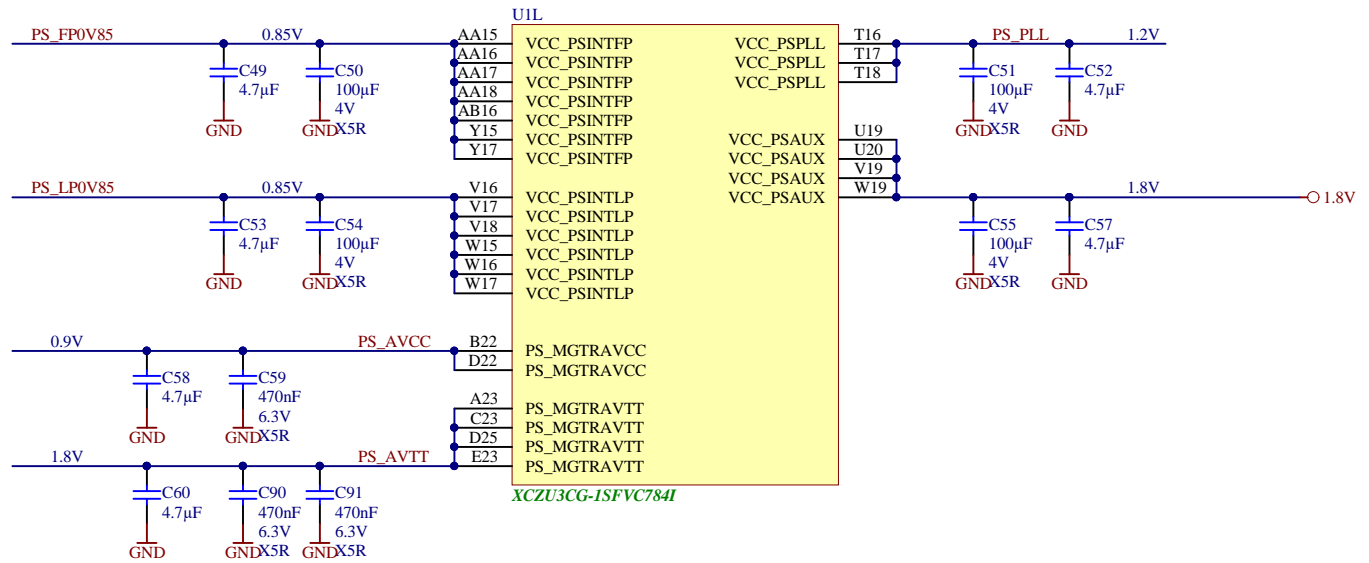
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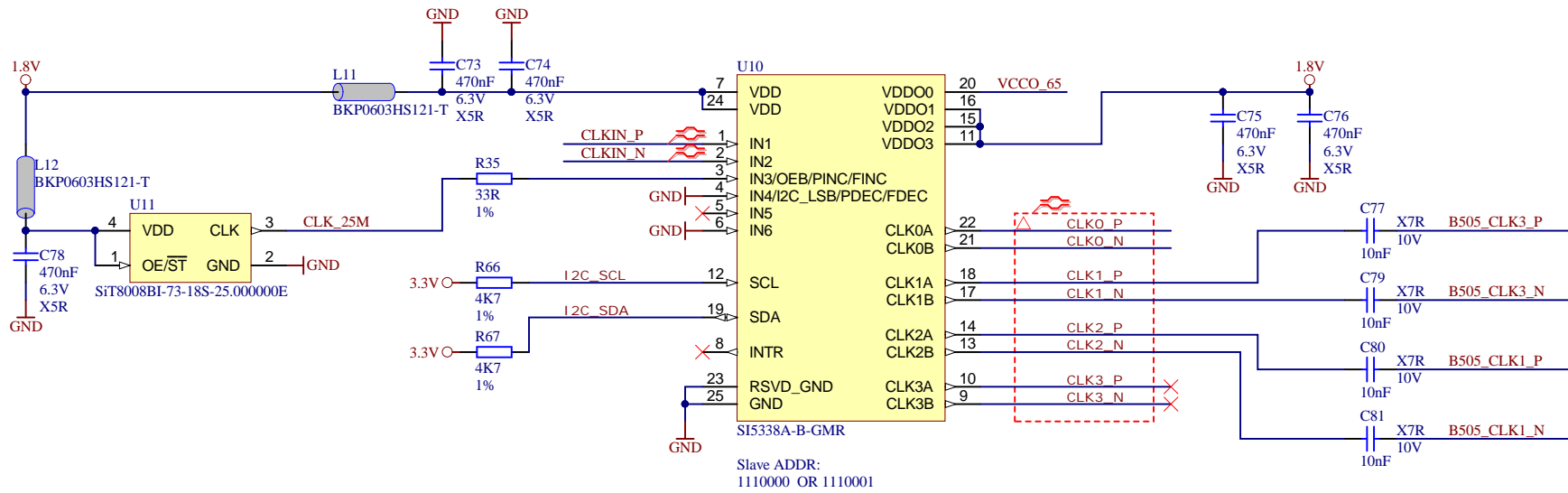
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Page 10 of 21		Filename: B_PS_GT.SchDoc	




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Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 11 of 21
Filename: ZU_POWER.SchDoc		



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Date: 2018-03-28		Copyright: Trenz Electronic GmbH / TT	
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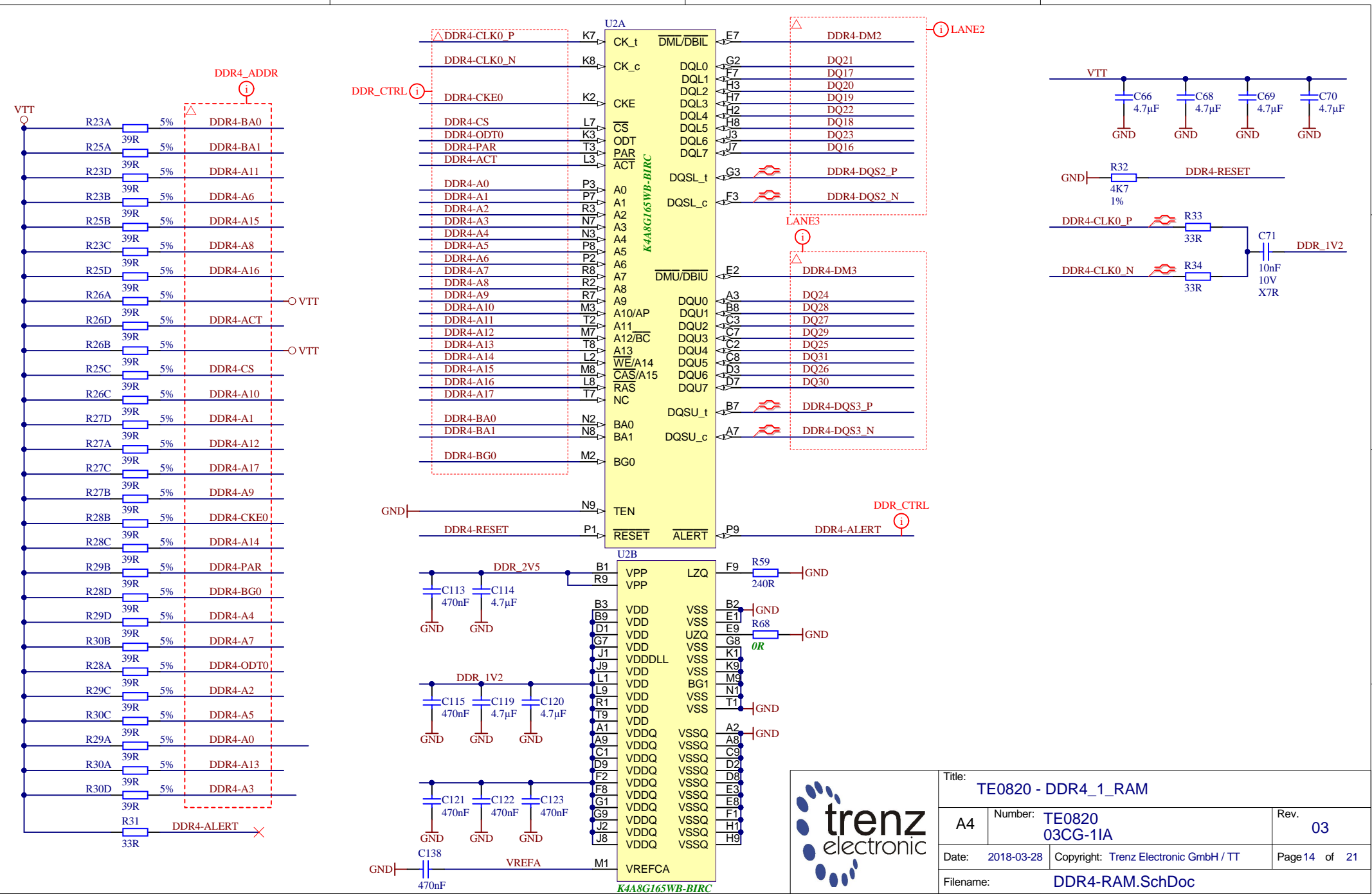
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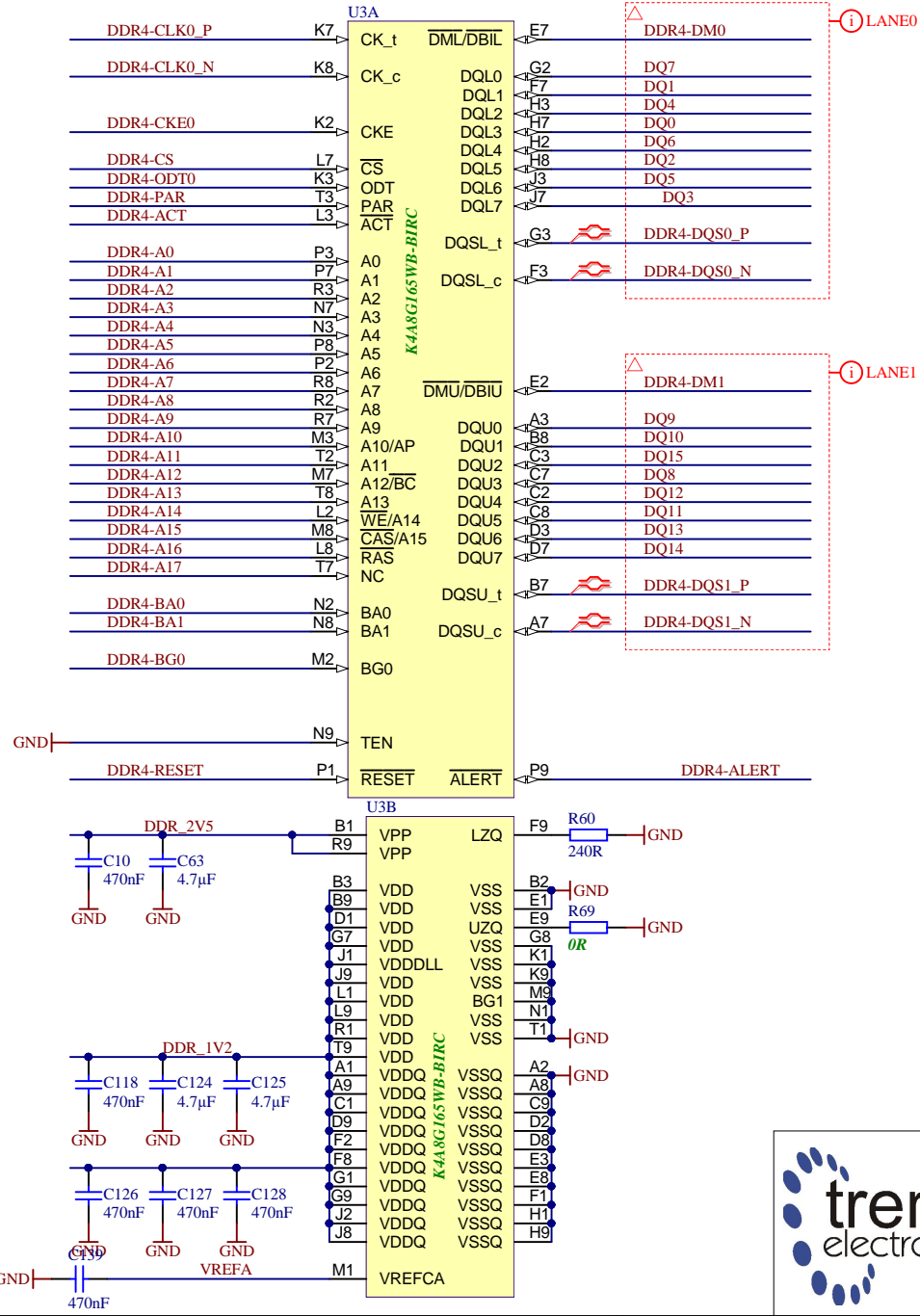

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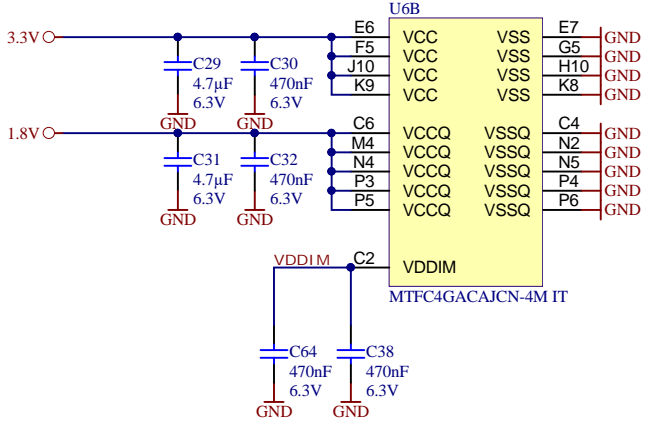
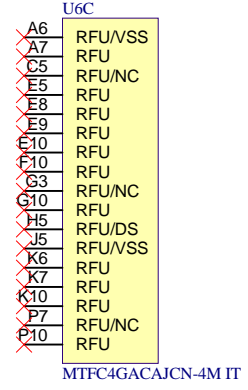
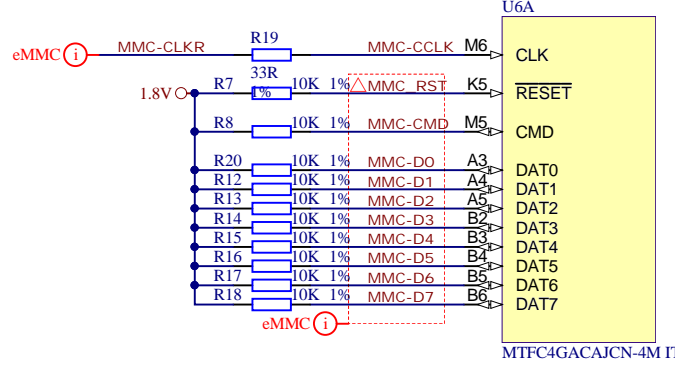
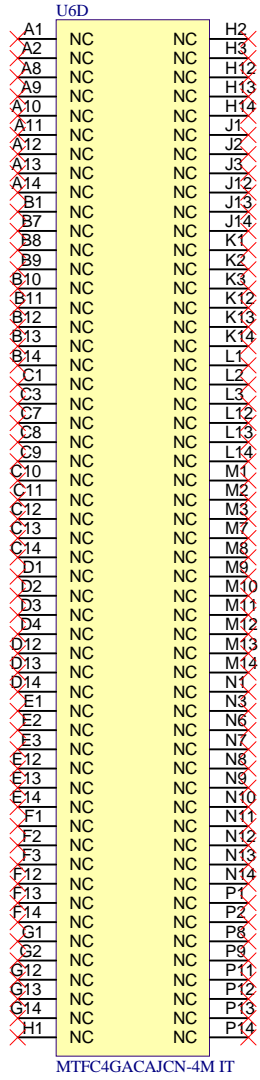
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Title: TE0820 - DDR4_1_RAM		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 14 of 21
Filename: DDR4-RAM.SchDoc		

Title: TE0820 - DDR4_2_RAM		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 15 of 21
Filename: DDR4-RAM_2.SchDoc		



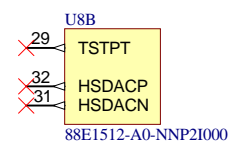
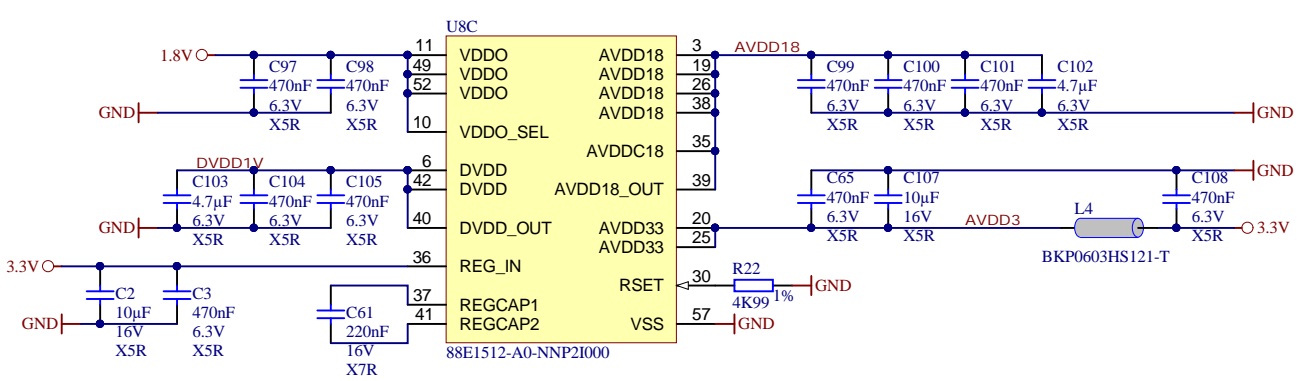
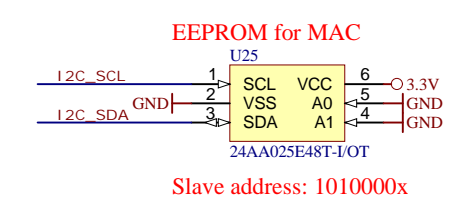
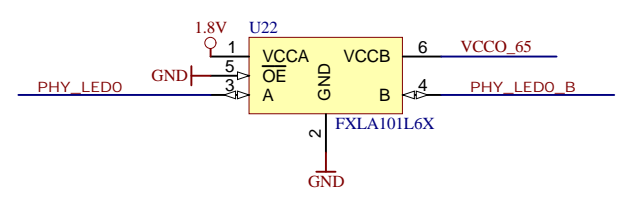
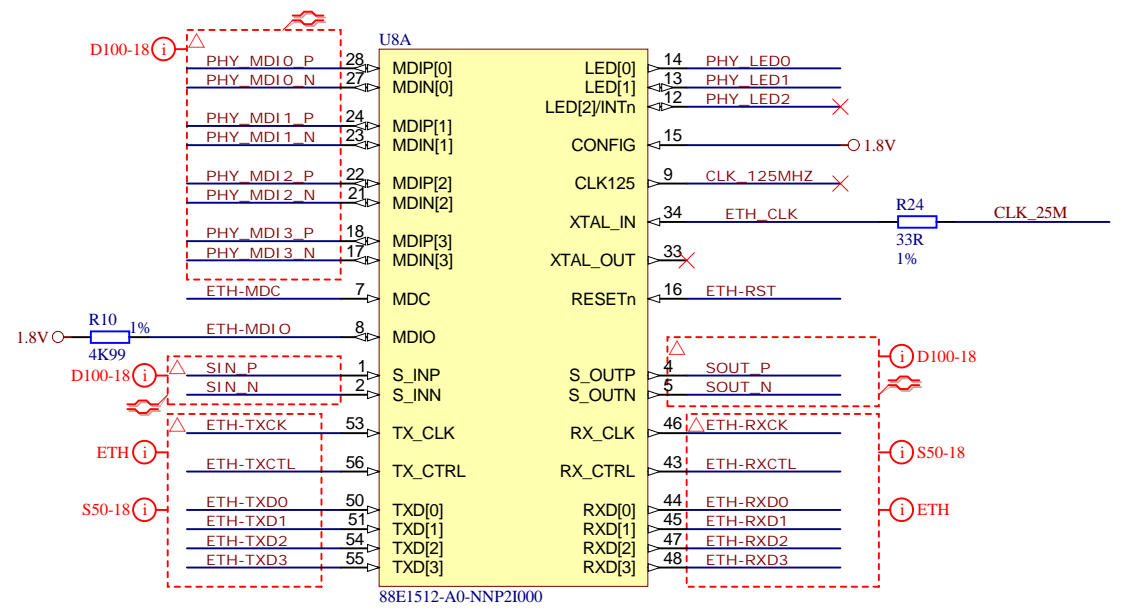
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A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 16 of 21
Filename: eMMC.SchDoc		

A

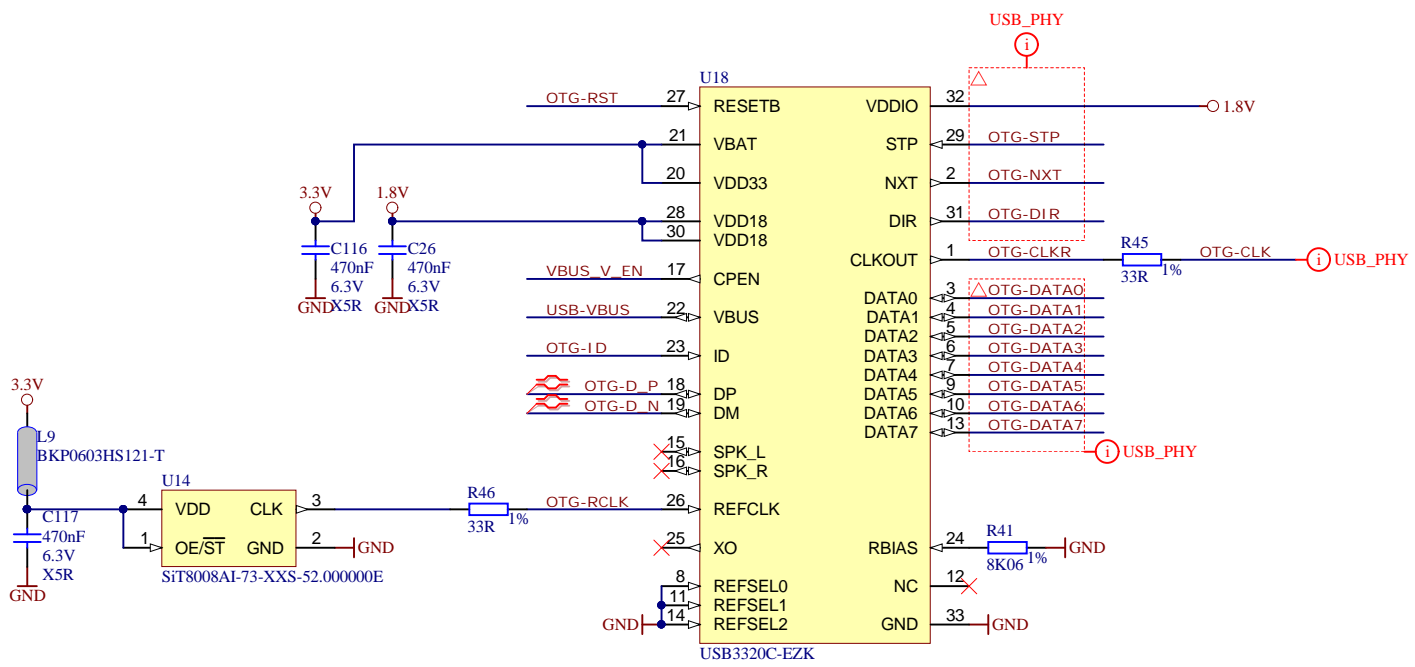
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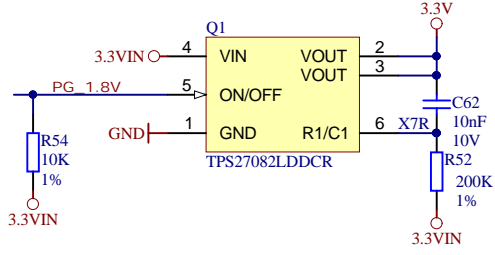
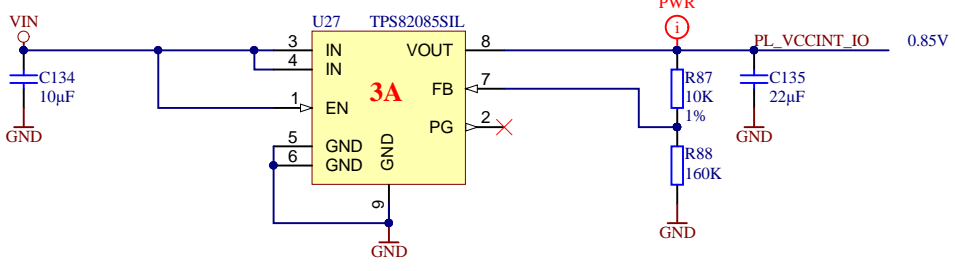
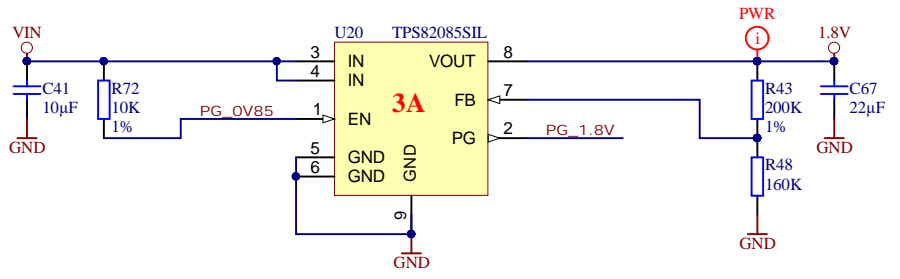
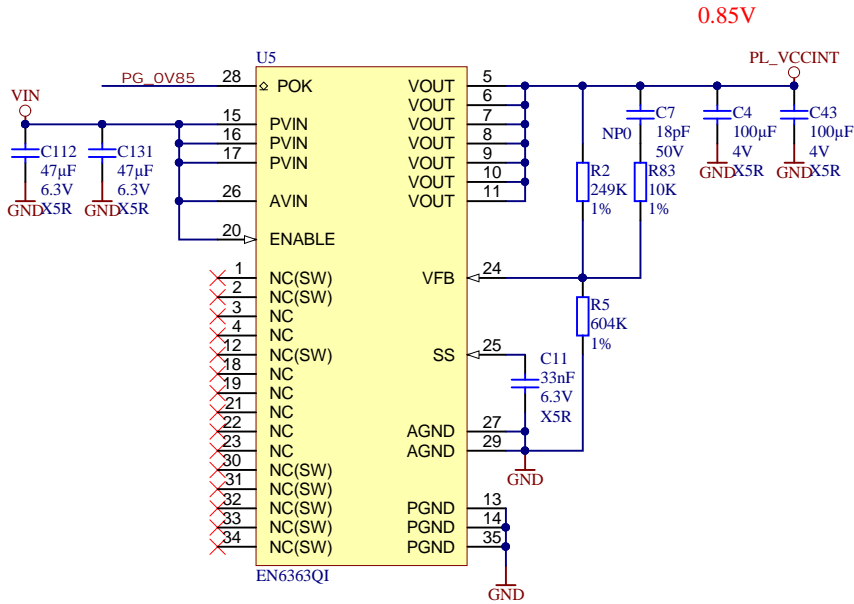
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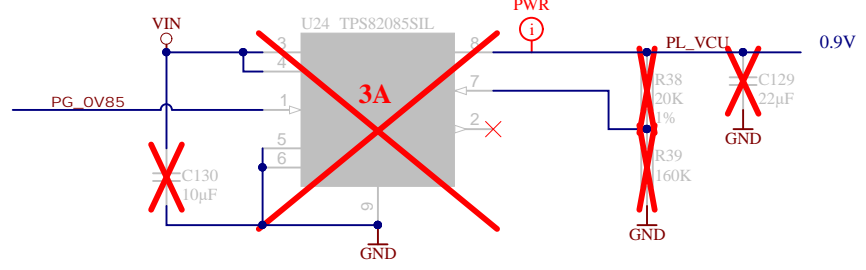
Title: TE0820 - Eth_PHY		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH	Page 17 of 21
Filename: ETH-PHY.SchDoc		



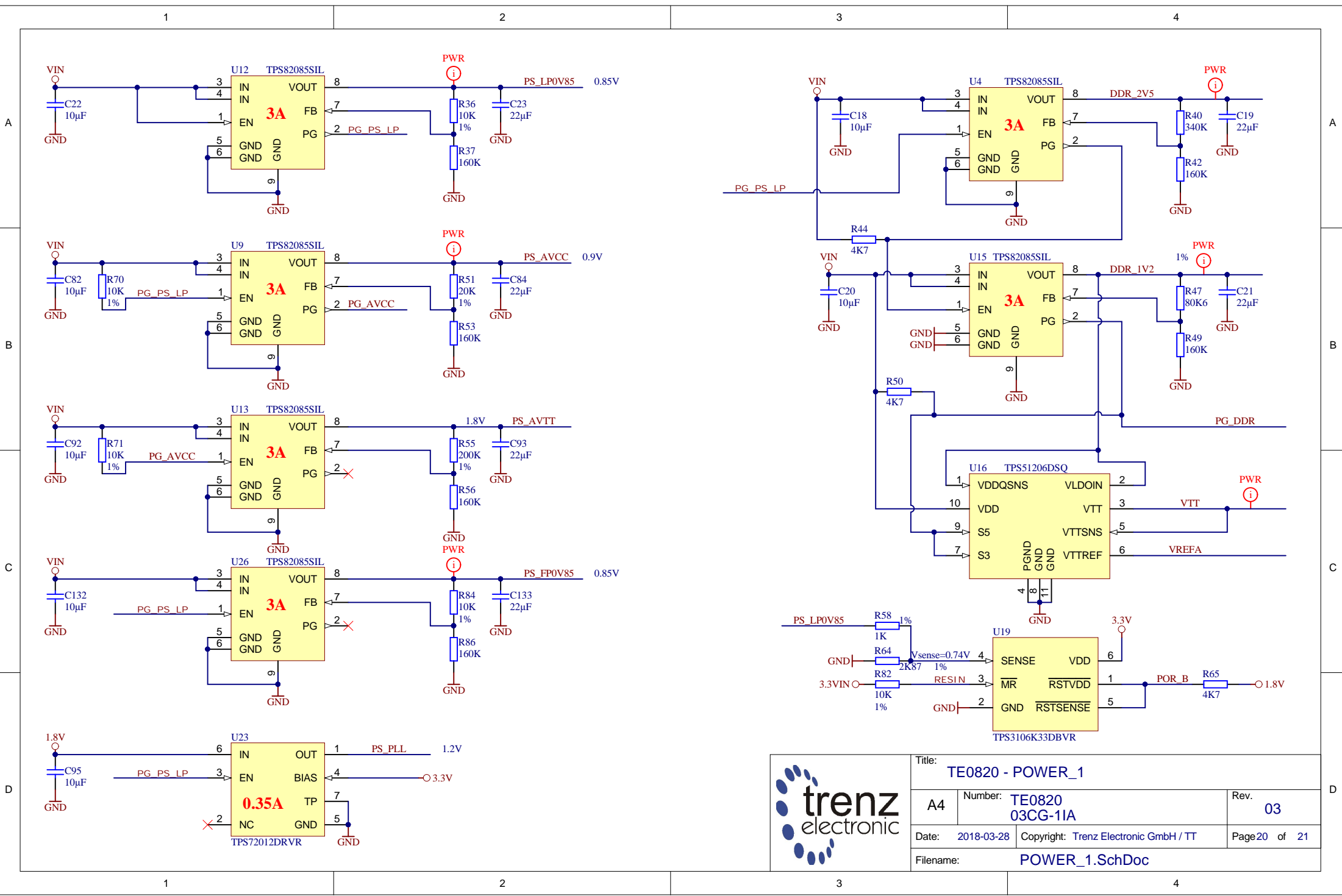
	Title: TE0820 - USB_PHY		
	A4	Number: TE0820 03CG-11A	Rev. 03
	Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH	Page 18 of 21
	Filename: USB-PHY.SchDoc		




NOTE: in variants with VCU R38 was 40.2K, this has been corrected to 20K (Xilinx documentation DS925) for further details just see Design Note Number: DN-20200904
<https://wiki.trenz-electronic.de/display/PD/Design+Note+TE0820-03+with+Video+Codec+++EV>



Title: TE0820 - POWER		
A4	Number: TE0820 03CG-11A	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 19 of 21
Filename: POWER.SchDoc		



			Title: TE0820 - POWER_1	
			A4	Number: TE0820 03CG-11A
Date: 2018-03-28		Copyright: Trenz Electronic GmbH / TT		Page 20 of 21
Filename: POWER_1.SchDoc				


CHANGES REV01 to REV02

- 1) Added MAC EEPROM (slave address:)
- 2) LIB components update
- 3) Fixed SD Card connection
- 4) Fixed sense connection from DCDC
- 5) Made correct power connection for VCU (removed DCDC, added resistors and caps like as Xilinx recommended)
- 6) Added resistors for variants (ZU+ with/without VCU)
- 7) Added termination resistors (240R) to VRP pins fro all HP-banks

CHANGES REV02 to REV03

- 1) Fixed VCU connection: add additional DCDC (0.9V)
- 2) LIB components update
- 3) Change package 1K resistors (0402 -> 0201)
- 4) Added LEDs (1x user LED, 1x LED for ERR_STATUS, 1xLED for ERR_OUT)
- 5) Change obsolete 2xSPI Flash (256MBit) -> 2xSPI Flash (512MBit)
- 6) Added additional DCDCs (PL_VCCINT_IO, PS_FP0V85)
- 7) Changed DCDC (U5) 6A (optional 4A)

Design Note Number: DN-20200904 (<https://wiki.trenz-electronic.de/display/PD/Design+Note+TE0820-03+with+Video+Codec+++EV>)
 The internal supply voltage for the video codec unit (VCU) is set via Resistors R38 and R39. For the above mentioned affected SoMs R38 is set to 40.2 kOhm resulting in a PL_VCU voltage of 1.0V. This is above the recommended operation specification.
 Up to the issue date of this design note no adverse effects have been reported. For all serial numbers not mentioned under affected products R38 is 20 kOhm resulting in xilinx recommended 0.9V internal VCU voltage.
 If your product is affected and revision is required please contact sales@trenz-electronic.de (subject = DN-20200904) for further instructions.

		Title: TE0820 - Revision Changes		
		A4	Number: TE0820 03CG-11A	Rev. 03
		Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 21 of 21
		Filename: Revision Changes.SchDoc		