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

U_DDR4-RAM_2
DDR4-RAM_2.SchDoc

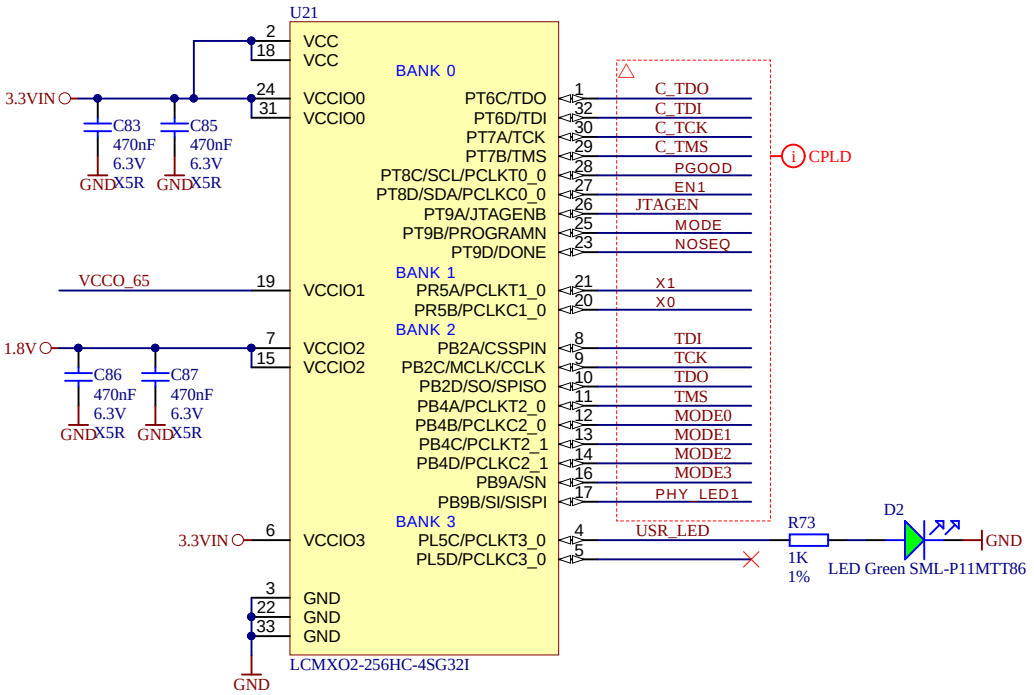
U_DDR4-RAM
DDR4-RAM.SchDoc

U_POWER
POWER.SchDoc

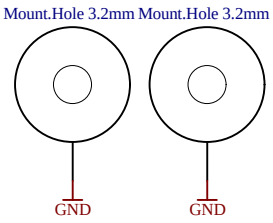
U_POWER_1
POWER_1.SchDoc

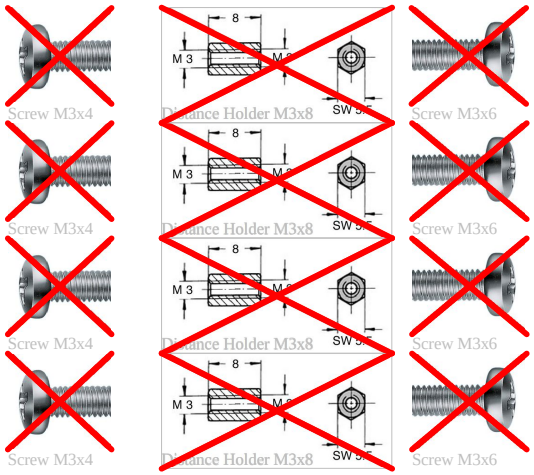
Serial
Serial
Serialnumber 6,3 x 6.3mm

S/N
GND 1 0R 2 GND
Serialnumber



PM1 FIDU-DOT - mini
PM2 FIDU-DOT - mini
PM3 FIDU-DOT - mini
PM4 FIDU-DOT - mini
PM5 FIDU-DOT - mini
PM6 FIDU-DOT - mini





Assembly variant	2BI21FL
Created by	VY
Modified by	VY
Modified at	2020-05-04
SVN Revision	8646

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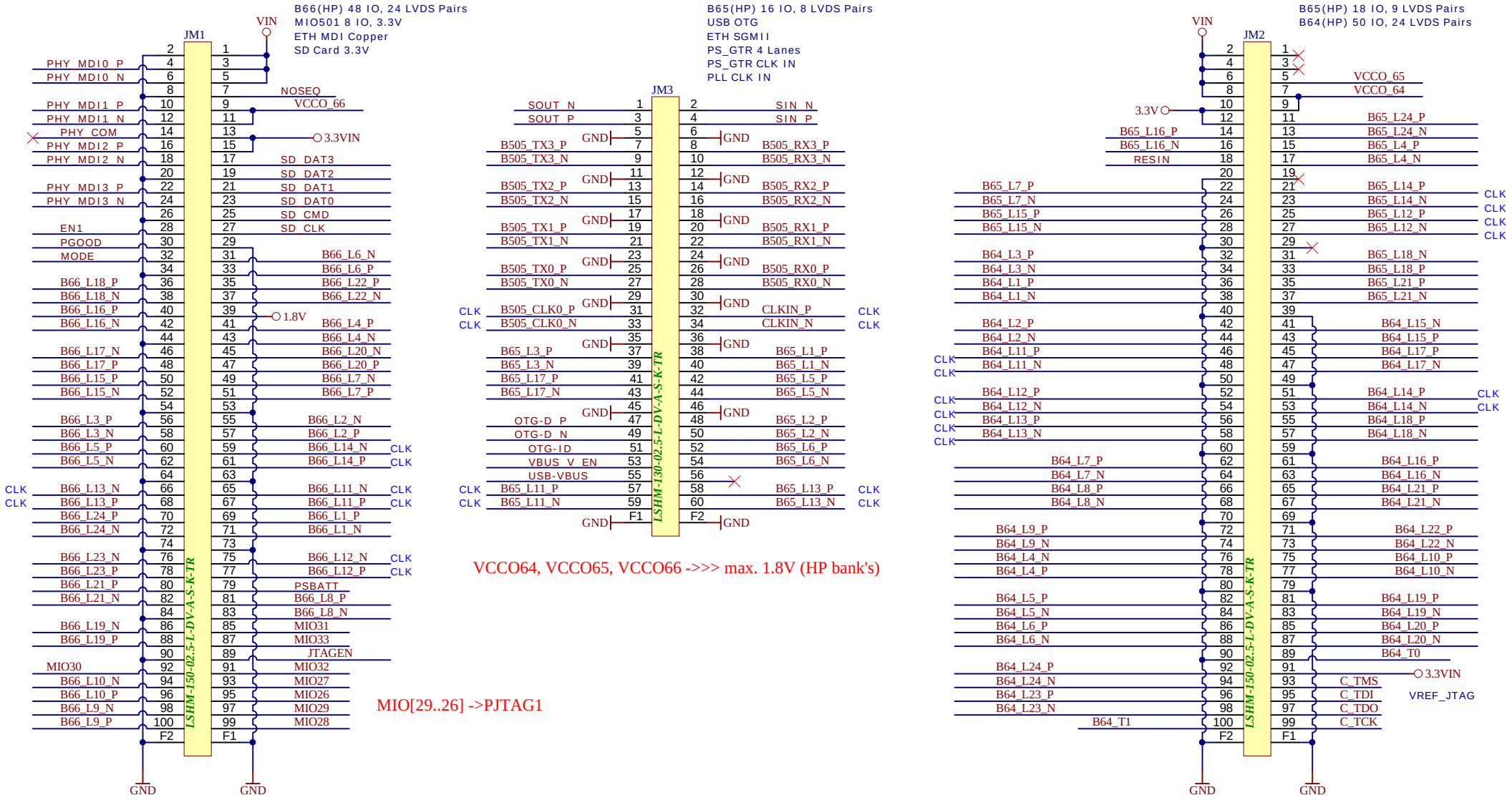
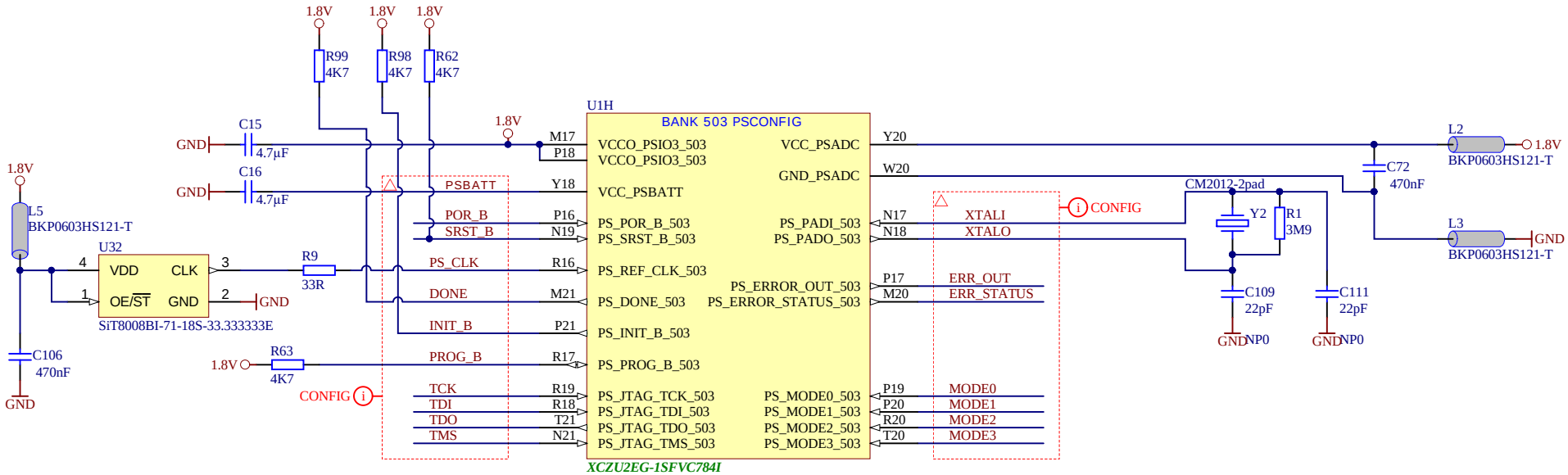
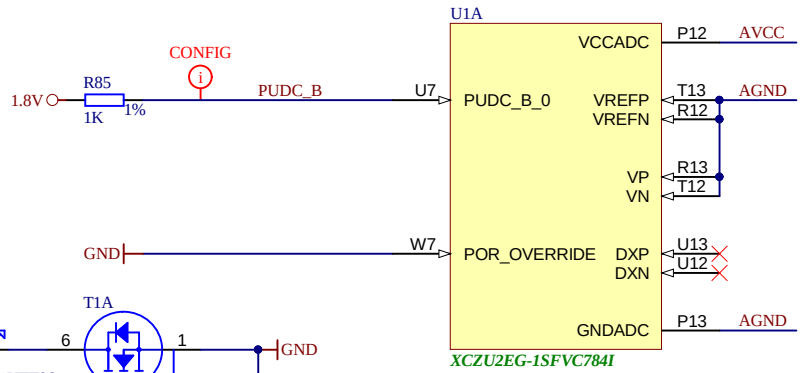
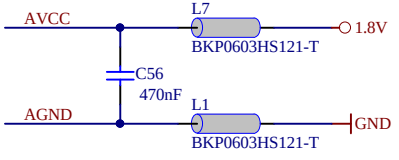
Title: TE0820		
A4	Number: TE0820 2BI21FL	Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH	Page 1 of 21
Filename: TE0820.SchDoc		

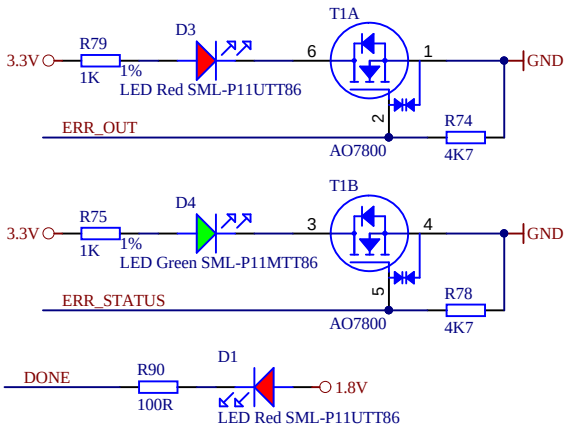


trenz electronic	Title: TE0820 - B2B Connectors		
A4	Number: TE0820 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH		Page 2 of 21
Filename: B2B-Connectors.SchDoc			









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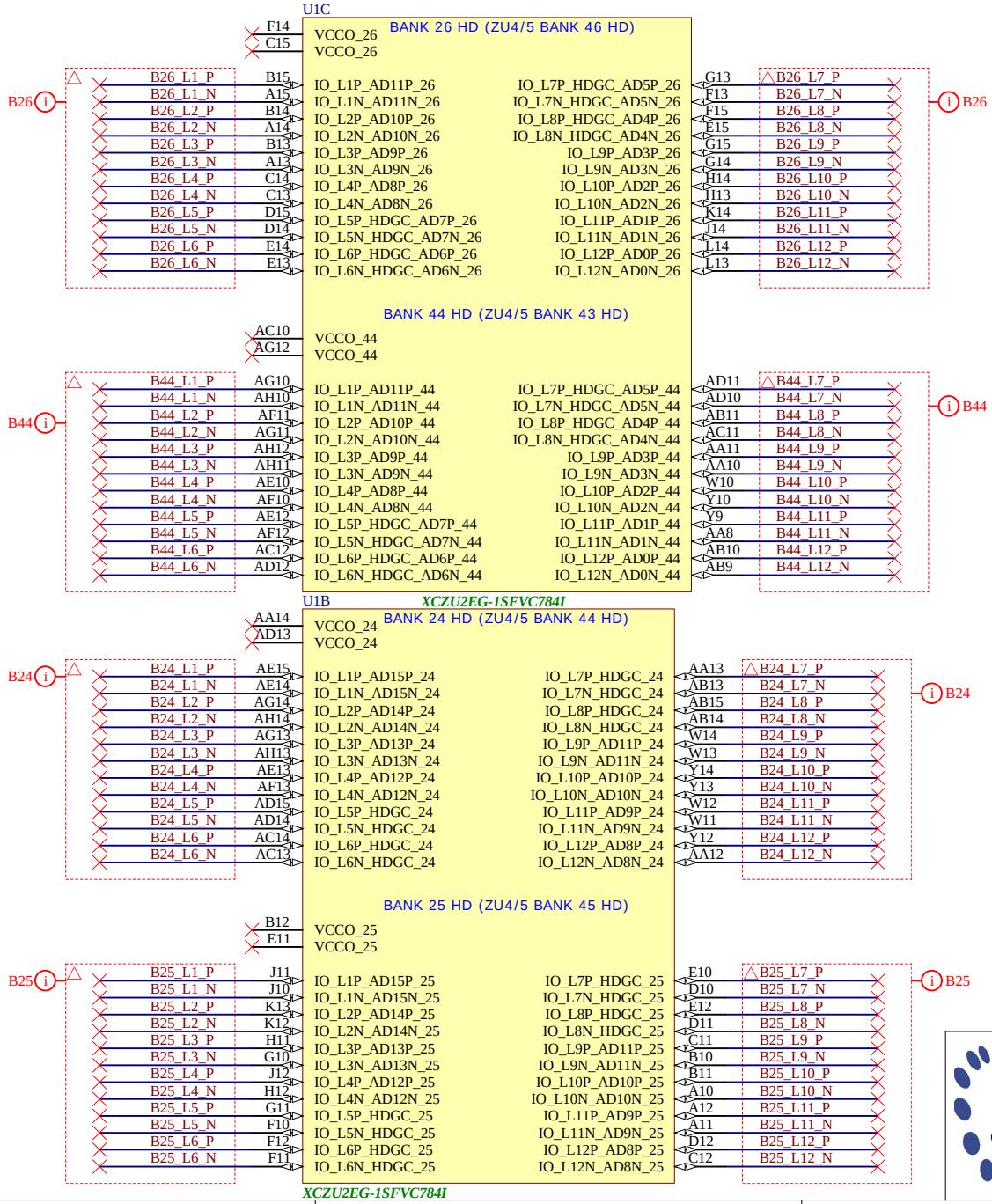
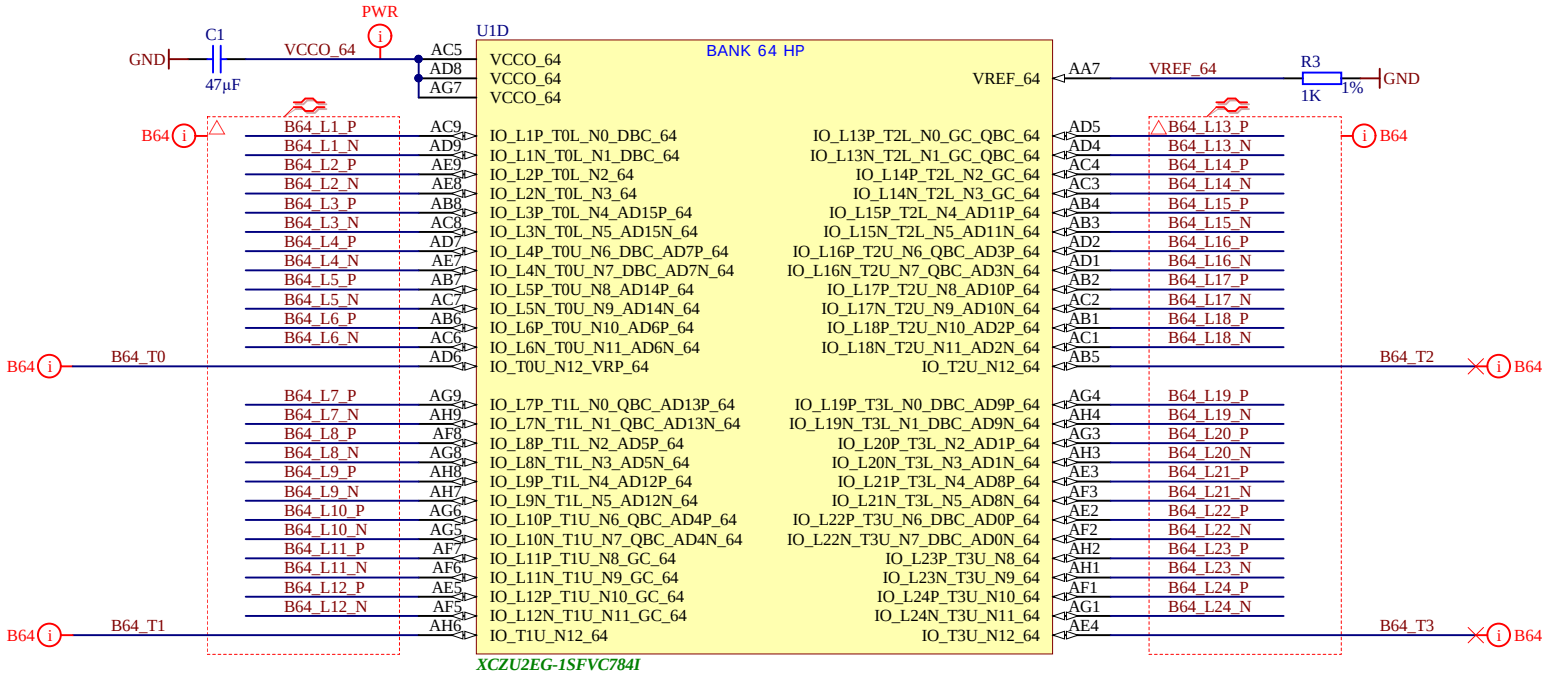
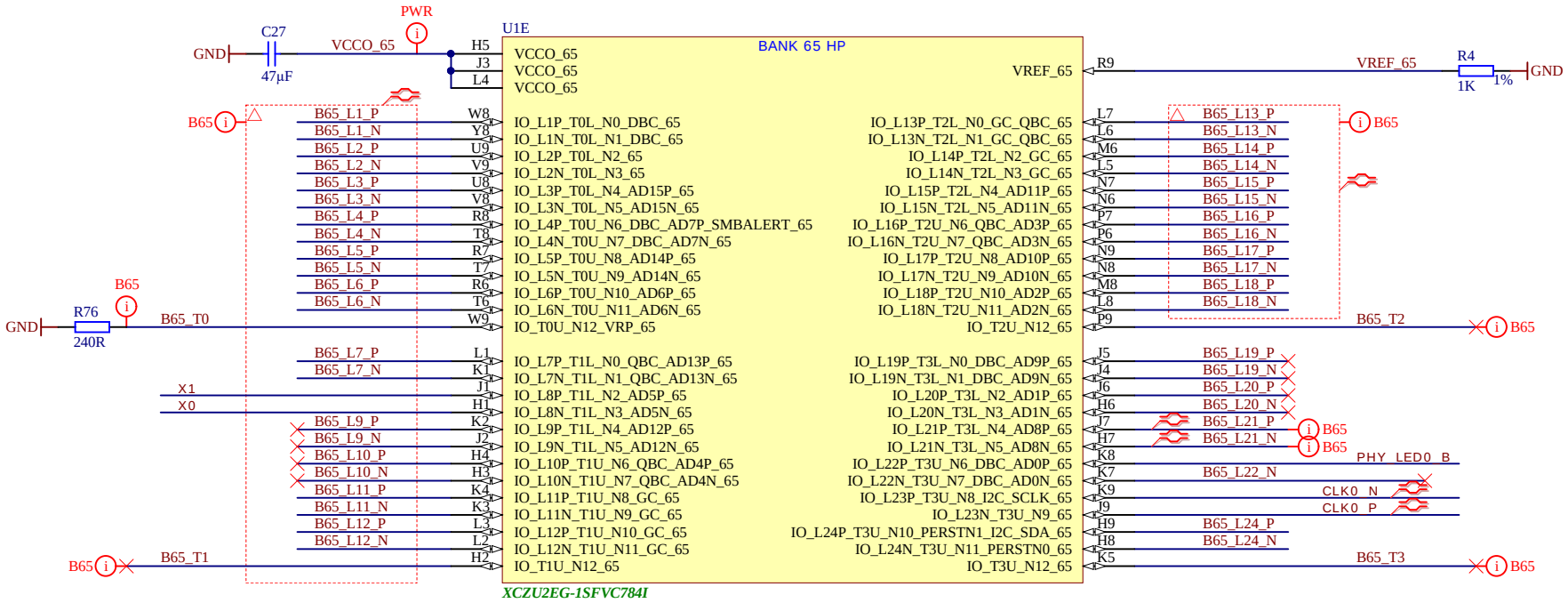
Title: TE0820 - Config			
A4	Number: TE0820 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 3 of 21
Filename: CONFIG.SchDoc			


U1C
BANK 26 HD (ZU4/5 BANK 46 HD)
F14 VCCO_26
C15 VCCO_26
B26_L1_P B15 IO_L1P_AD11P_26
B26_L1_N A15 IO_L1N_AD11N_26
B26_L2_P B14 IO_L2P_AD10P_26
B26_L2_N A14 IO_L2N_AD10N_26
B26_L3_P B13 IO_L3P_AD9P_26
B26_L3_N A13 IO_L3N_AD9N_26
B26_L4_P C14 IO_L4P_AD8P_26
B26_L4_N C13 IO_L4N_AD8N_26
B26_L5_P D15 IO_L5P_HDGC_AD7P_26
B26_L5_N D14 IO_L5N_HDGC_AD7N_26
B26_L6_P E14 IO_L6P_HDGC_AD6P_26
B26_L6_N E13 IO_L6N_HDGC_AD6N_26
IO_L7P_HDGC_AD5P_26 G13 B26_L7_P
IO_L7N_HDGC_AD5N_26 F13 B26_L7_N
IO_L8P_HDGC_AD4P_26 F15 B26_L8_P
IO_L8N_HDGC_AD4N_26 E15 B26_L8_N
IO_L9P_AD3P_26 G15 B26_L9_P
IO_L9N_AD3N_26 G14 B26_L9_N
IO_L10P_AD2P_26 H14 B26_L10_P
IO_L10N_AD2N_26 H13 B26_L10_N
IO_L11P_AD1P_26 K14 B26_L11_P
IO_L11N_AD1N_26 J14 B26_L11_N
IO_L12P_AD0P_26 L14 B26_L12_P
IO_L12N_AD0N_26 L13 B26_L12_N
B26
B26
BANK 44 HD (ZU4/5 BANK 43 HD)
AC10 VCCO_44
AG12 VCCO_44
B44_L1_P AG10 IO_L1P_AD11P_44
B44_L1_N AH10 IO_L1N_AD11N_44
B44_L2_P AF11 IO_L2P_AD10P_44
B44_L2_N AG11 IO_L2N_AD10N_44
B44_L3_P AH12 IO_L3P_AD9P_44
B44_L3_N AH11 IO_L3N_AD9N_44
B44_L4_P AE10 IO_L4P_AD8P_44
B44_L4_N AF10 IO_L4N_AD8N_44
B44_L5_P AE12 IO_L5P_HDGC_AD7P_44
B44_L5_N AF12 IO_L5N_HDGC_AD7N_44
B44_L6_P AC12 IO_L6P_HDGC_AD6P_44
B44_L6_N AD12 IO_L6N_HDGC_AD6N_44
IO_L7P_HDGC_AD5P_44 AD11 B44_L7_P
IO_L7N_HDGC_AD5N_44 AD10 B44_L7_N
IO_L8P_HDGC_AD4P_44 AB11 B44_L8_P
IO_L8N_HDGC_AD4N_44 AC11 B44_L8_N
IO_L9P_AD3P_44 AA11 B44_L9_P
IO_L9N_AD3N_44 AA10 B44_L9_N
IO_L10P_AD2P_44 W10 B44_L10_P
IO_L10N_AD2N_44 Y10 B44_L10_N
IO_L11P_AD1P_44 Y9 B44_L11_P
IO_L11N_AD1N_44 AA8 B44_L11_N
IO_L12P_AD0P_44 AB10 B44_L12_P
IO_L12N_AD0N_44 AB9 B44_L12_N
B44
B44
U1B
XCZU2EG-1SFVC784I
BANK 24 HD (ZU4/5 BANK 44 HD)
AA14 VCCO_24
AD13 VCCO_24
B24_L1_P AE15 IO_L1P_AD15P_24
B24_L1_N AE14 IO_L1N_AD15N_24
B24_L2_P AG14 IO_L2P_AD14P_24
B24_L2_N AH14 IO_L2N_AD14N_24
B24_L3_P AG13 IO_L3P_AD13P_24
B24_L3_N AH13 IO_L3N_AD13N_24
B24_L4_P AE13 IO_L4P_AD12P_24
B24_L4_N AF13 IO_L4N_AD12N_24
B24_L5_P AD15 IO_L5P_HDGC_24
B24_L5_N AD14 IO_L5N_HDGC_24
B24_L6_P AC14 IO_L6P_HDGC_24
B24_L6_N AC13 IO_L6N_HDGC_24
IO_L7P_HDGC_24 AA13 B24_L7_P
IO_L7N_HDGC_24 AB13 B24_L7_N
IO_L8P_HDGC_24 AB15 B24_L8_P
IO_L8N_HDGC_24 AB14 B24_L8_N
IO_L9P_AD11P_24 W14 B24_L9_P
IO_L9N_AD11N_24 W13 B24_L9_N
IO_L10P_AD10P_24 Y14 B24_L10_P
IO_L10N_AD10N_24 Y13 B24_L10_N
IO_L11P_AD9P_24 W12 B24_L11_P
IO_L11N_AD9N_24 W11 B24_L11_N
IO_L12P_AD8P_24 Y12 B24_L12_P
IO_L12N_AD8N_24 AA12 B24_L12_N
B24
B24
BANK 25 HD (ZU4/5 BANK 45 HD)
B12 VCCO_25
E11 VCCO_25
B25_L1_P J11 IO_L1P_AD15P_25
B25_L1_N J10 IO_L1N_AD15N_25
B25_L2_P K13 IO_L2P_AD14P_25
B25_L2_N K12 IO_L2N_AD14N_25
B25_L3_P H11 IO_L3P_AD13P_25
B25_L3_N G10 IO_L3N_AD13N_25
B25_L4_P J12 IO_L4P_AD12P_25
B25_L4_N H12 IO_L4N_AD12N_25
B25_L5_P G11 IO_L5P_HDGC_25
B25_L5_N F10 IO_L5N_HDGC_25
B25_L6_P F12 IO_L6P_HDGC_25
B25_L6_N F11 IO_L6N_HDGC_25
IO_L7P_HDGC_25 E10 B25_L7_P
IO_L7N_HDGC_25 D10 B25_L7_N
IO_L8P_HDGC_25 E12 B25_L8_P
IO_L8N_HDGC_25 D11 B25_L8_N
IO_L9P_AD11P_25 C11 B25_L9_P
IO_L9N_AD11N_25 B10 B25_L9_N
IO_L10P_AD10P_25 B11 B25_L10_P
IO_L10N_AD10N_25 A10 B25_L10_N
IO_L11P_AD9P_25 A12 B25_L11_P
IO_L11N_AD9N_25 A11 B25_L11_N
IO_L12P_AD8P_25 D12 B25_L12_P
IO_L12N_AD8N_25 C12 B25_L12_N
B25
B25
XCZU2EG-1SFVC784I
trenz electronic
Title: TE0820 - HD Banks
A4
Number: TE0820 2BI21FL
Rev. 03
Date: 2018-03-28
Copyright: Trenz Electronic GmbH / TT
Page 4 of 21
Filename: B_HD.SchDoc



Title: TE0820 - B64			
A4	Number: TE0820 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 5 of 21
Filename: B64.SchDoc			



trenz electronic	Title: TE0820 - B65		
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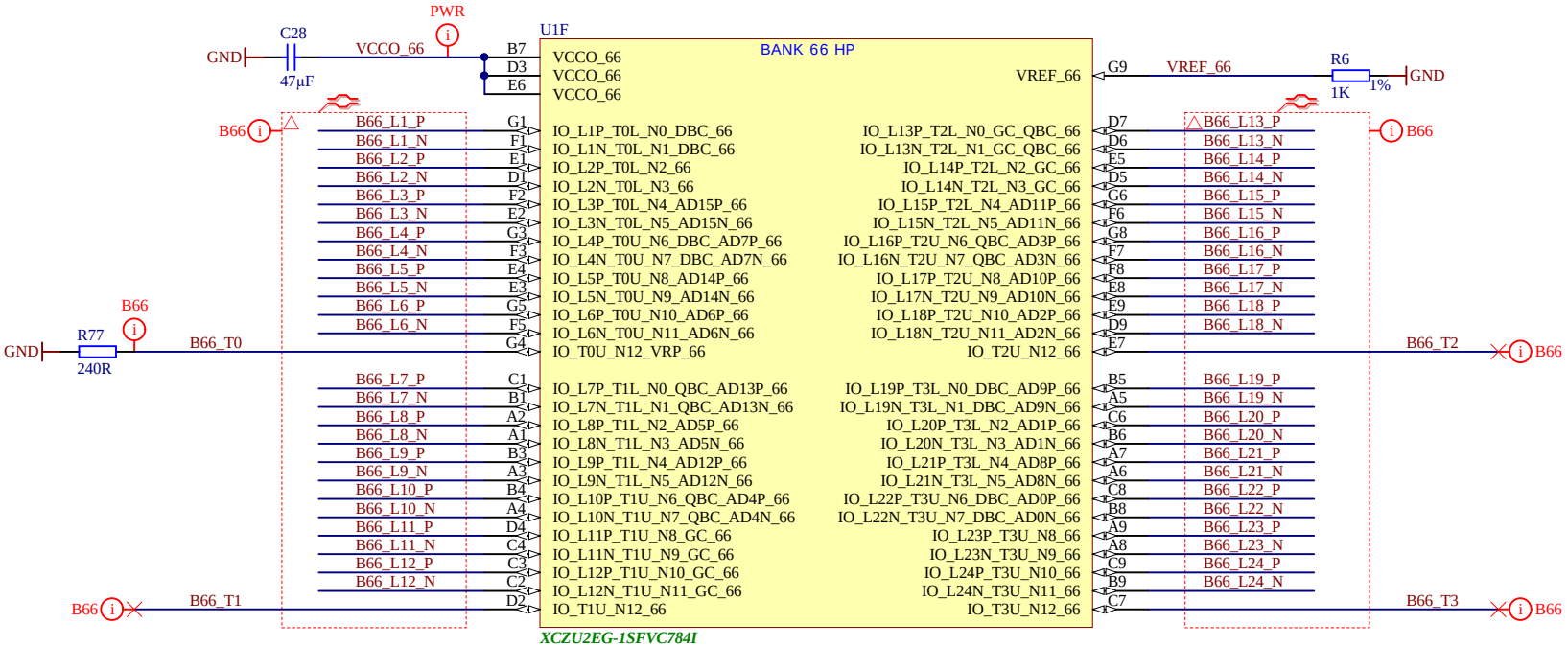
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 6 of 21
Filename: B65.SchDoc			



Title: TE0820 - B66			
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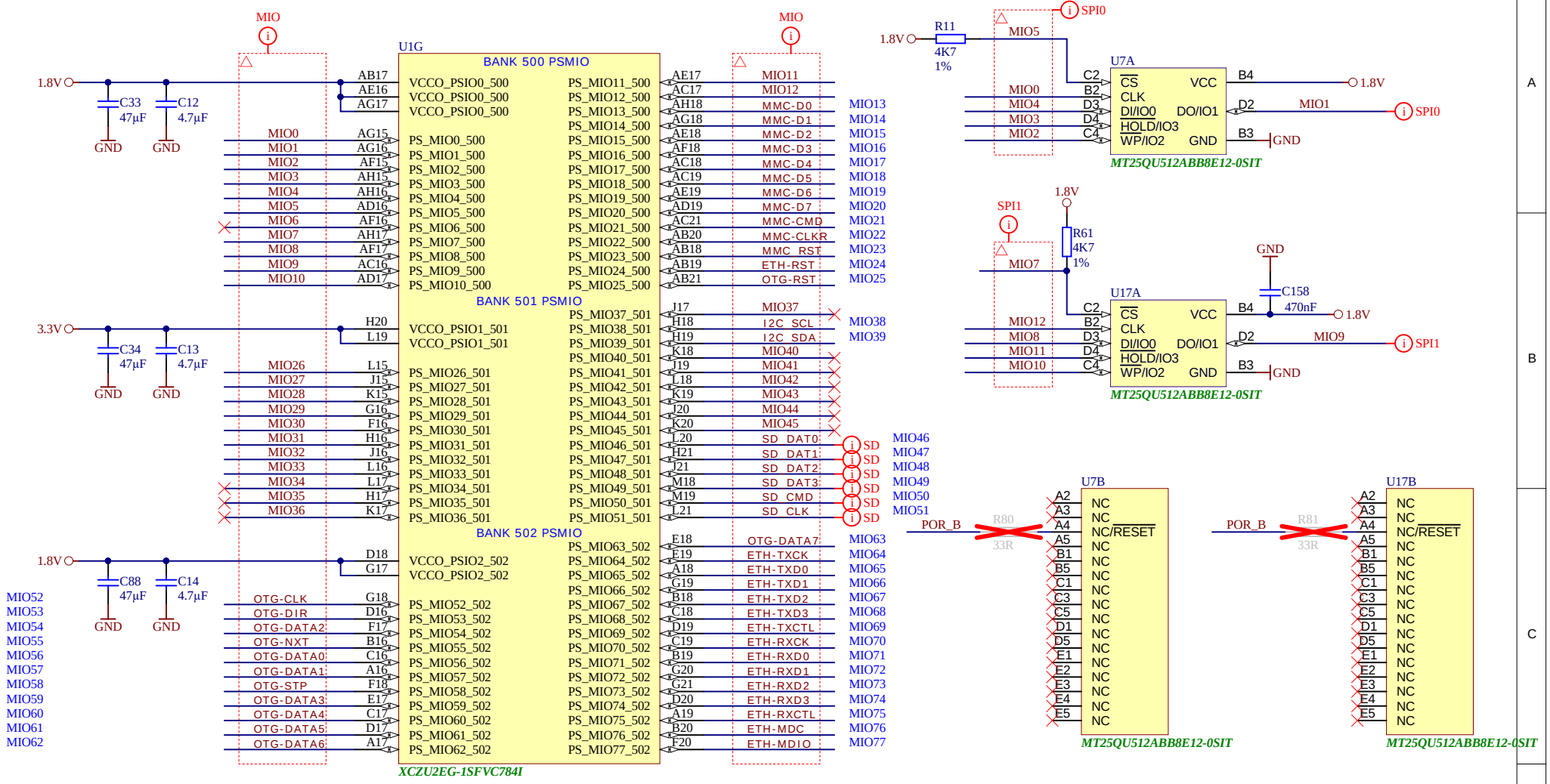
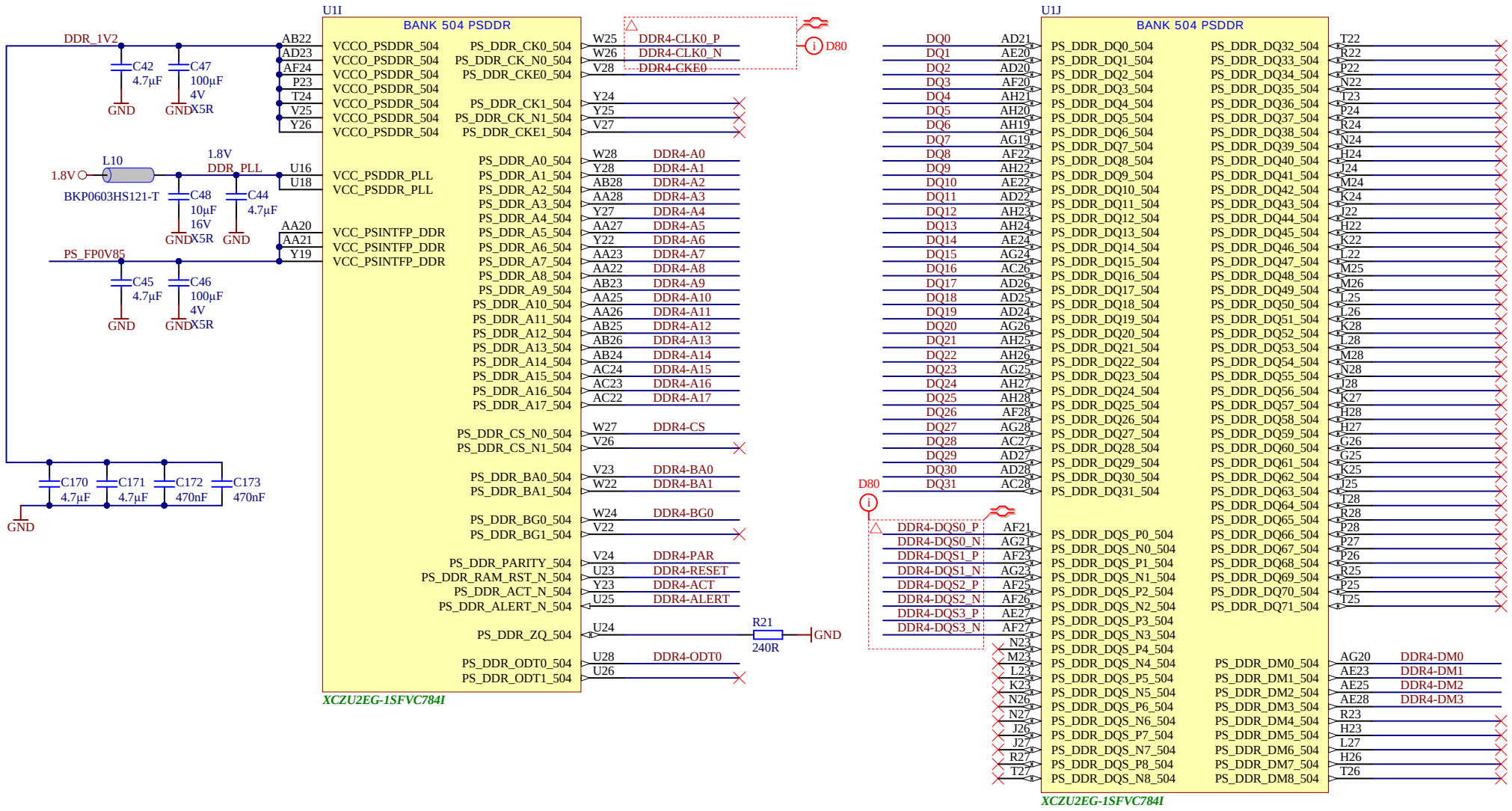
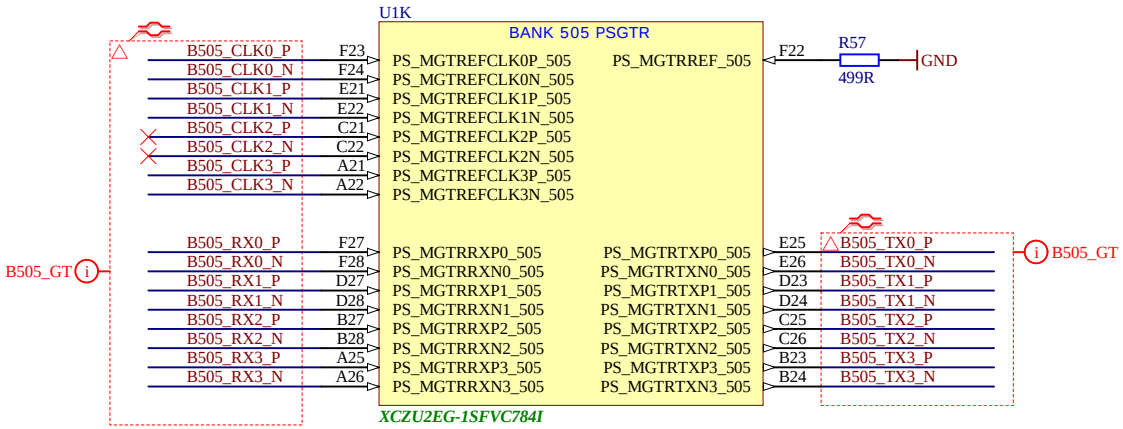
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 7 of 21
Filename: B66.SchDoc			

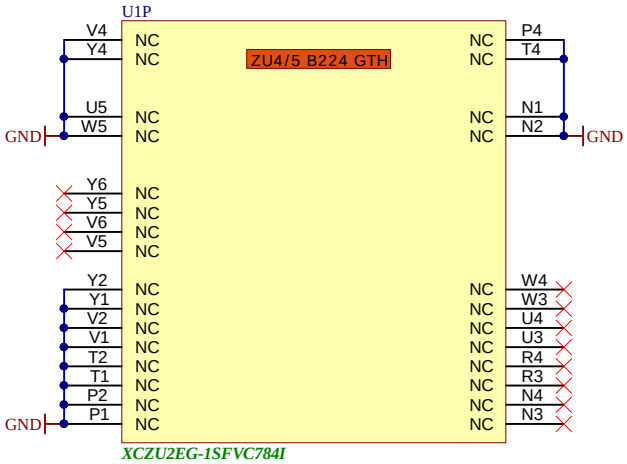


Title: TE0820 - MIO Banks			
A4	Number: TE0820 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 8 of 21
Filename: B_MIO.SchDoc			



Title:	TE0820 - PS_DDR
A4	Number: TE0820 2BI21FL
	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT
	Page 9 of 21
Filename:	PS_DDR.SchDoc





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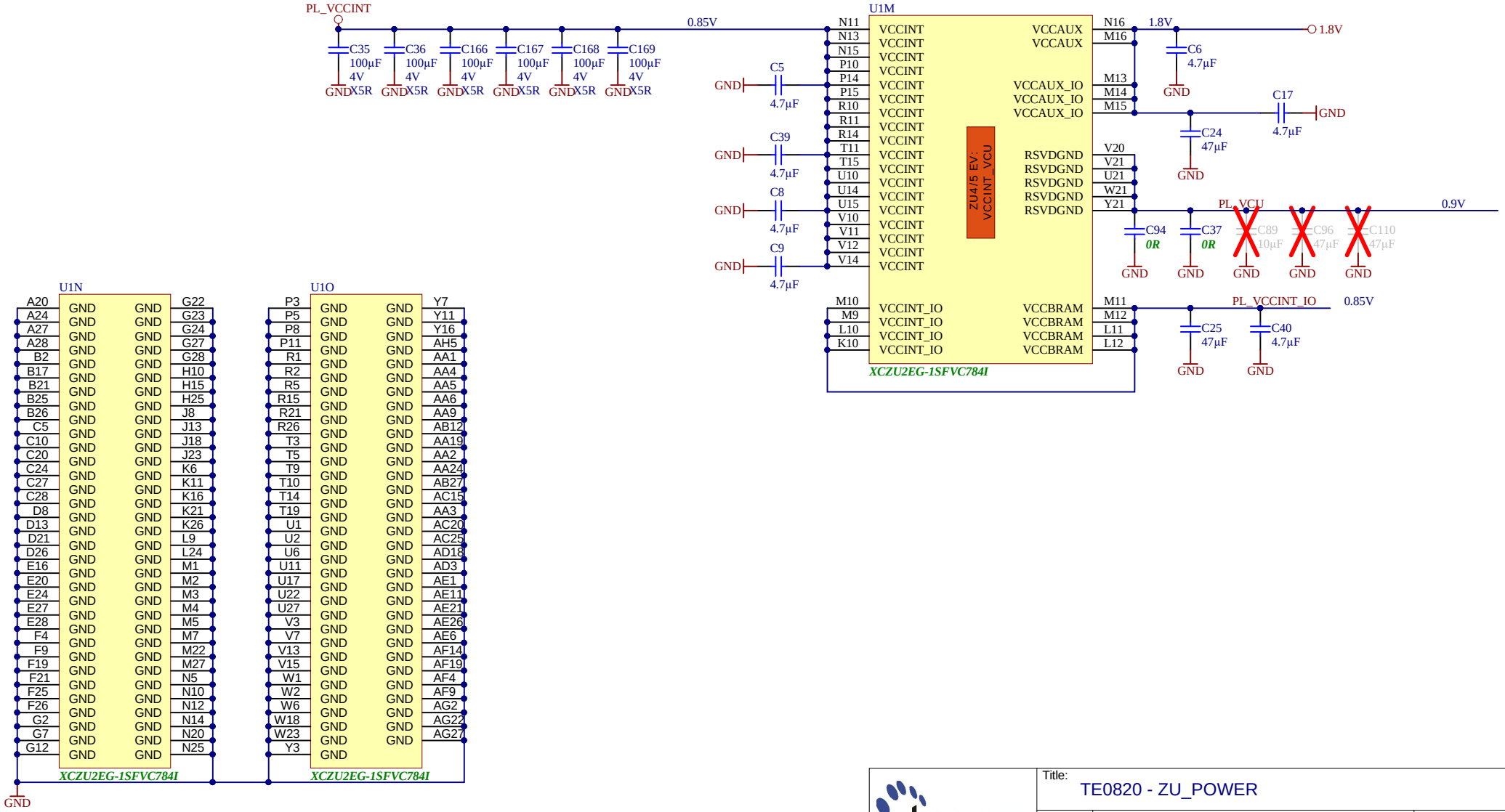
Title: TE0820 - PS_GT			
A4	Number: TE0820 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 10 of 21
Filename: B_PS_GT.SchDoc			



Title: TE0820 - ZU_POWER		
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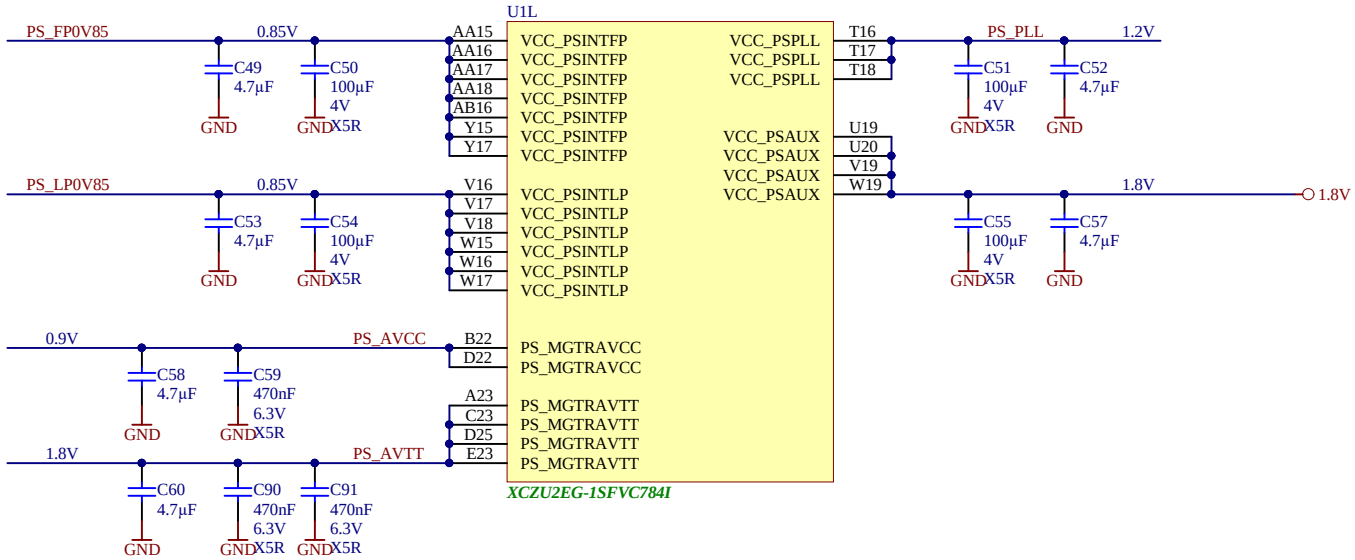
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 11 of 21
Filename: ZU_POWER.SchDoc		



trenz electronic	Title: TE0820 - ZU_PS_POWER		
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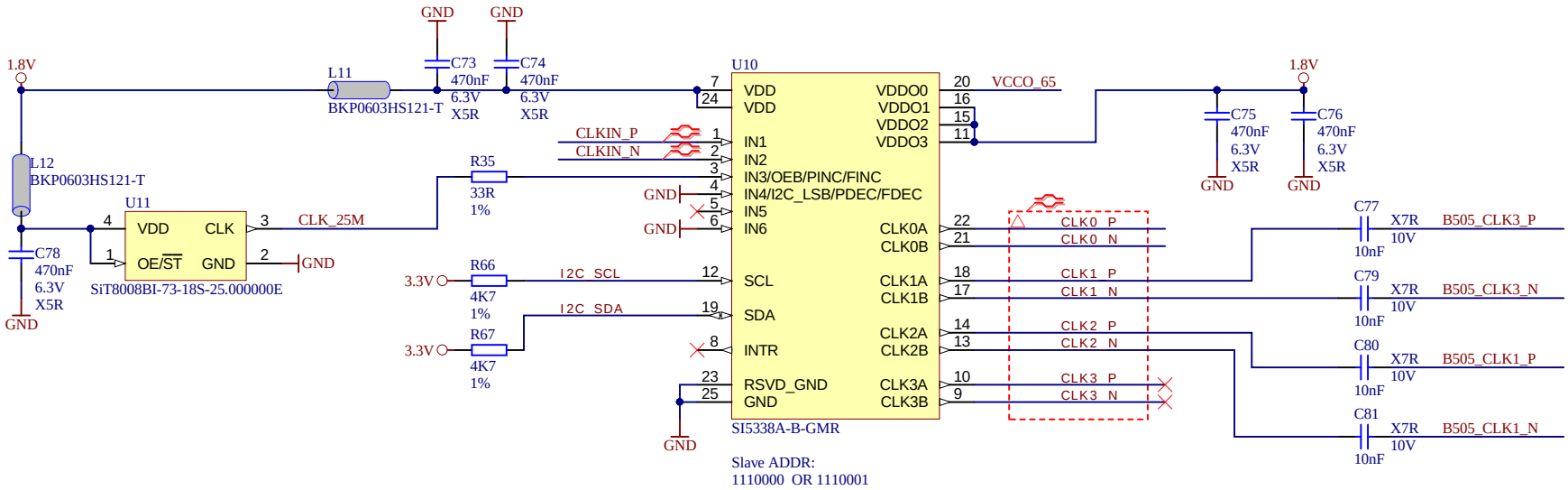
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 12 of 21
Filename: ZU_PS_POWER.SchDoc			



trenz electronic	Title: TE0820 - CLK		
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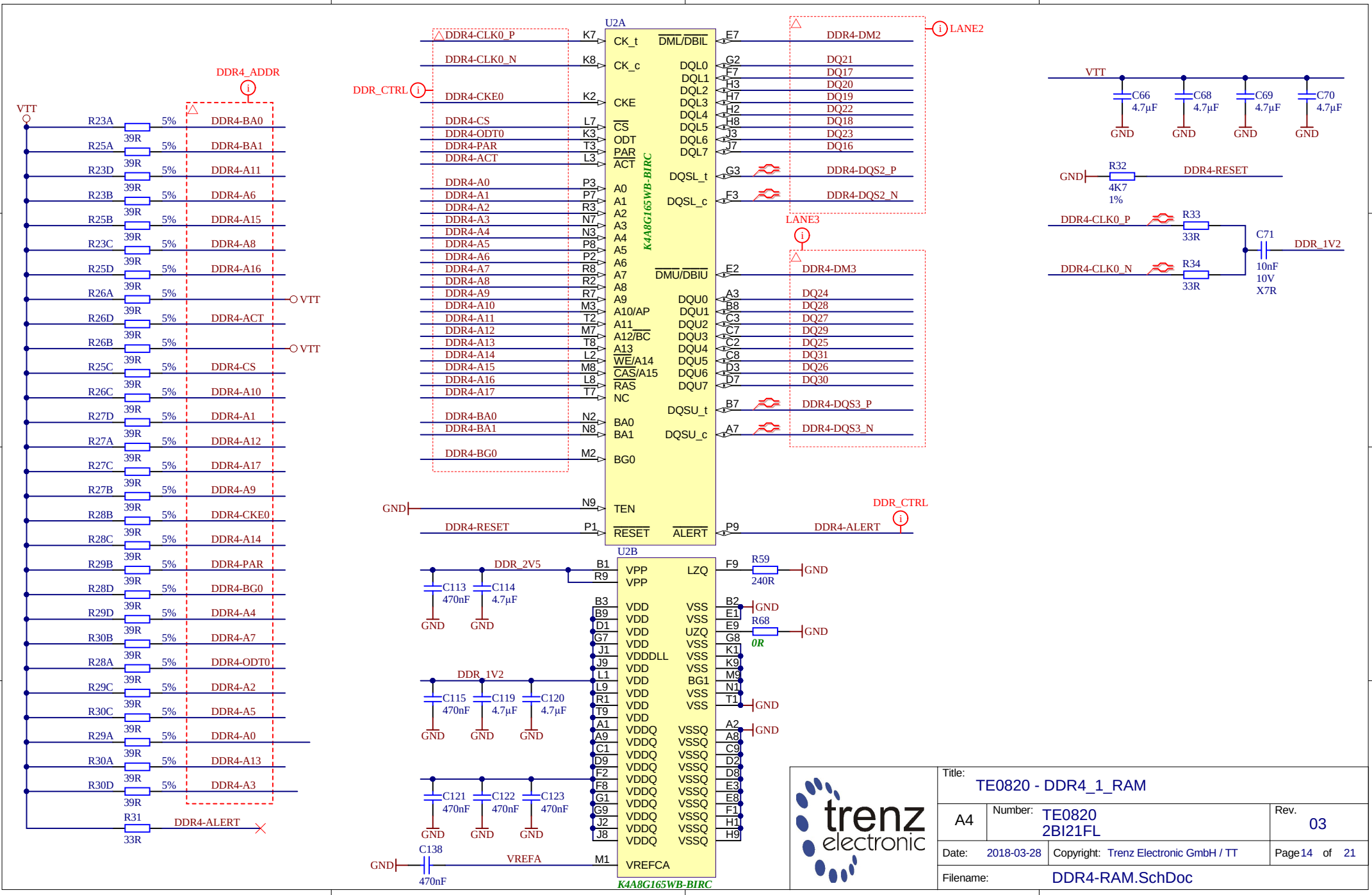
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH		Page 13 of 21
Filename: CLK.SchDoc			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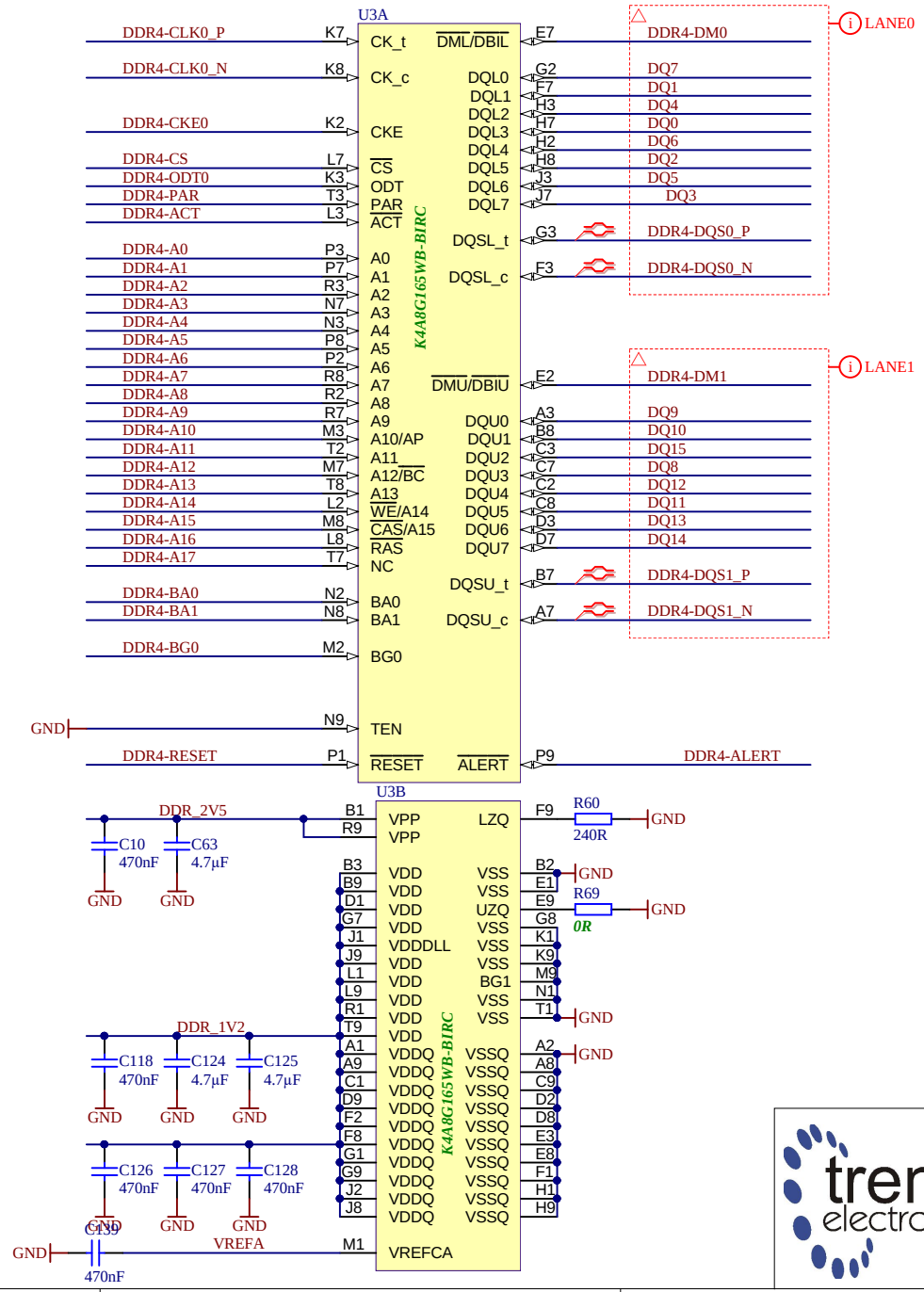
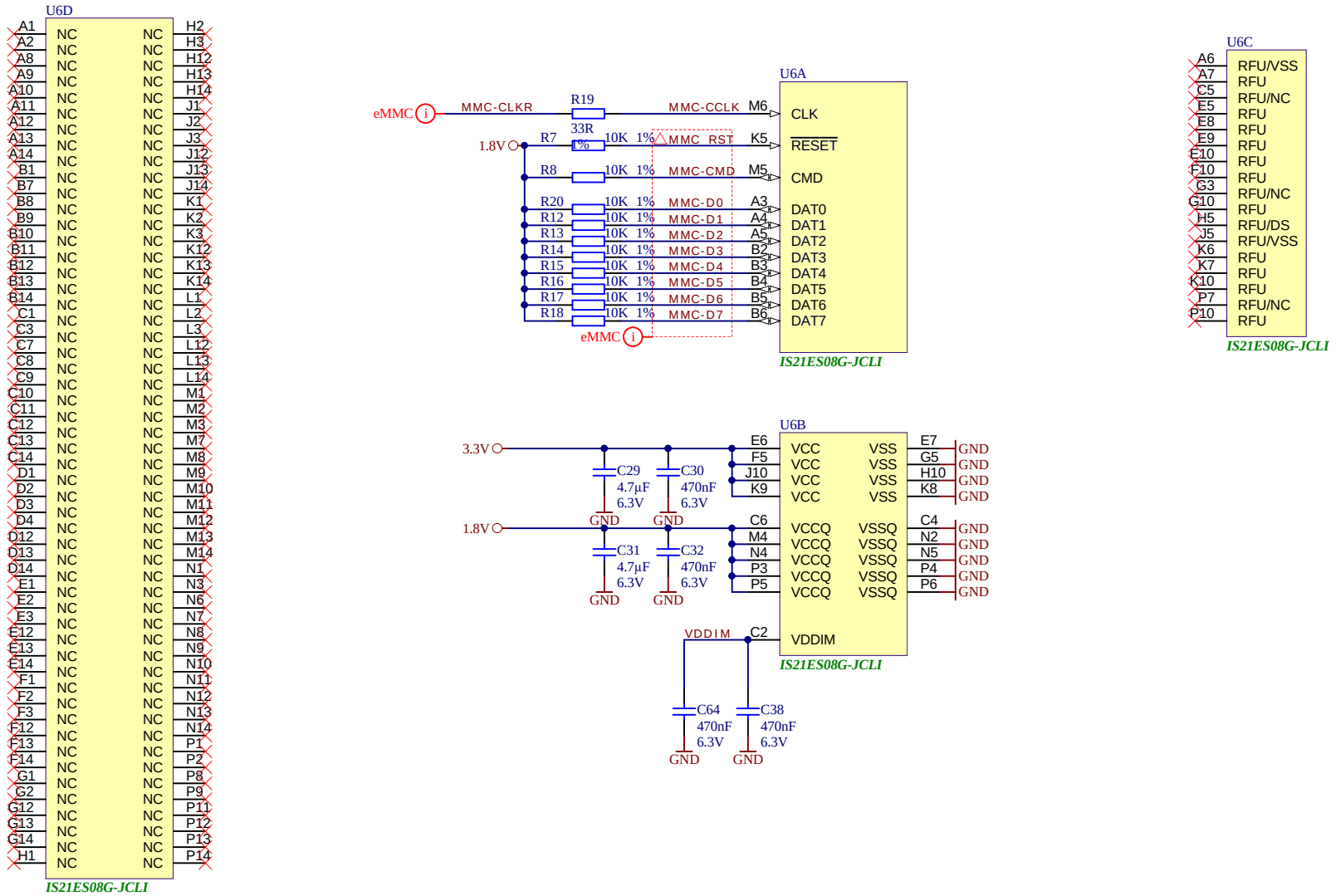
VTT
R23A 39R 5% DDR4-BA0
R25A 39R 5% DDR4-BA1
R23D 39R 5% DDR4-A11
R23B 39R 5% DDR4-A6
R25B 39R 5% DDR4-A15
R23C 39R 5% DDR4-A8
R25D 39R 5% DDR4-A16
R26A 39R 5% VTT
R26D 39R 5% DDR4-ACT
R26B 39R 5% VTT
R25C 39R 5% DDR4-CS
R26C 39R 5% DDR4-A10
R27D 39R 5% DDR4-A1
R27A 39R 5% DDR4-A12
R27C 39R 5% DDR4-A17
R27B 39R 5% DDR4-A9
R28B 39R 5% DDR4-CKE0
R28C 39R 5% DDR4-A14
R29B 39R 5% DDR4-PAR
R28D 39R 5% DDR4-BG0
R29D 39R 5% DDR4-A4
R30B 39R 5% DDR4-A7
R28A 39R 5% DDR4-ODT0
R29C 39R 5% DDR4-A2
R30C 39R 5% DDR4-A5
R29A 39R 5% DDR4-A0
R30A 39R 5% DDR4-A13
R30D 39R 5% DDR4-A3
R31 33R 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
DDR4-A17 T7 NC
DDR4-BA0 N2 BA0
DDR4-BA1 N8 BA1
DDR4-BG0 M2 BG0
K4A8G165WB-BIRC
DML/DBIL E7 DDR4-DM2
DQL0 G2 DQ21
DQL1 E7 DQ17
DQL2 H3 DQ20
DQL3 H7 DQ19
DQL4 H2 DQ22
DQL5 H8 DQ18
DQL6 J3 DQ23
DQL7 J7 DQ16
DQSL_t G3 DDR4-DQS2_P
DQSL_c F3 DDR4-DQS2_N
LANE2
LANE3
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 DDR4-DQS3_P
DQSU_c A7 DDR4-DQS3_N
GND N9 TEN
DDR4-RESET P1 RESET
ALERT P9 DDR4-ALERT
DDR_CTRL
U2B
DDR_2V5
B1 VPP
R9 VPP
C113 470nF
C114 4.7µF
LZQ F9 R59 240R GND
VDD B3 VSS B2 GND
VDD B9 VSS E1 GND
VDD D1 VSS E9
VDD G7 UZQ G8 R68 0R GND
VDD J1 VSS K1
VDDDLL J9 VSS K9
VDD L1 VSS M9
VDD L9 BG1 N1
VDD R1 VSS T1 GND
VDD T9
VDD A1
VDDQ A9 VSSQ A2 GND
VDDQ C1 VSSQ A8
VDDQ D9 VSSQ C9
VDDQ F2 VSSQ D2
VDDQ F8 VSSQ D8
VDDQ G1 VSSQ E3
VDDQ G9 VSSQ E8
VDDQ J2 VSSQ F1
VDDQ J8 VSSQ H1
VDDQ VSSQ H9
DDR_1V2
C115 470nF
C119 4.7µF
C120 4.7µF
C121 470nF
C122 470nF
C123 470nF
C138 470nF
VREFA M1 VREFCA
K4A8G165WB-BIRC
VTT
C66 4.7µF
C68 4.7µF
C69 4.7µF
C70 4.7µF
R32 4K7 1%
DDR4-RESET
DDR4-CLK0_P R33 33R
DDR4-CLK0_N R34 33R
C71 10nF 10V X7R
DDR_1V2
trenz electronic
Title: TE0820 - DDR4_1_RAM
A4
Number: TE0820 2BI21FL
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 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 15 of 21
Filename:	DDR4-RAM_2.SchDoc		


U6D
A1 NC NC H2
A2 NC NC H3
A8 NC NC H12
A9 NC NC H13
A10 NC NC H14
A11 NC NC J1
A12 NC NC J2
A13 NC NC J3
A14 NC NC J12
B1 NC NC J13
B7 NC NC J14
B8 NC NC K1
B9 NC NC K2
B10 NC NC K3
B11 NC NC K12
B12 NC NC K13
B13 NC NC K14
B14 NC NC L1
C1 NC NC L2
C3 NC NC L3
C7 NC NC L12
C8 NC NC L13
C9 NC NC L14
C10 NC NC M1
C11 NC NC M2
C12 NC NC M3
C13 NC NC M7
C14 NC NC M8
D1 NC NC M9
D2 NC NC M10
D3 NC NC M11
D4 NC NC M12
D12 NC NC M13
D13 NC NC M14
D14 NC NC N1
E1 NC NC N3
E2 NC NC N6
E3 NC NC N7
E12 NC NC N8
E13 NC NC N9
E14 NC NC N10
F1 NC NC N11
F2 NC NC N12
F3 NC NC N13
F12 NC NC N14
F13 NC NC P1
F14 NC NC P2
G1 NC NC P8
G2 NC NC P9
G12 NC NC P11
G13 NC NC P12
G14 NC NC P13
H1 NC NC P14
IS21ES08G-JCLI
eMMC
MMC-CLKR
R19
33R
1%
MMC-CCLK
M6
1.8V
R7
10K 1%
MMC_RST
K5
R8
MMC-CMD
M5
R20
R12
R13
R14
R15
R16
R17
R18
MMC-D0
MMC-D1
MMC-D2
MMC-D3
MMC-D4
MMC-D5
MMC-D6
MMC-D7
A3
A4
A5
B2
B3
B4
B5
B6
U6A
CLK
RESET
CMD
DAT0
DAT1
DAT2
DAT3
DAT4
DAT5
DAT6
DAT7
IS21ES08G-JCLI
U6C
A6 RFU/VSS
A7 RFU
C5 RFU/NC
E5 RFU
E8 RFU
E9 RFU
E10 RFU
F10 RFU
G3 RFU/NC
G10 RFU
H5 RFU/DS
J5 RFU/VSS
K6 RFU
K7 RFU
K10 RFU
P7 RFU/NC
P10 RFU
IS21ES08G-JCLI
U6B
3.3V
C29
4.7µF
6.3V
C30
470nF
6.3V
GND
1.8V
C31
4.7µF
6.3V
C32
470nF
6.3V
E6
F5
J10
K9
VCC
C6
M4
N4
P3
P5
VCCQ
E7
G5
H10
K8
VSS
C4
N2
N5
P4
P6
VSSQ
VDDIM
C2
C64
470nF
6.3V
C38
470nF
6.3V
IS21ES08G-JCLI
trenz electronic
Title: TE0820 - eMMC
A4
Number: TE0820 2BI21FL
Rev. 03
Date: 2018-03-28
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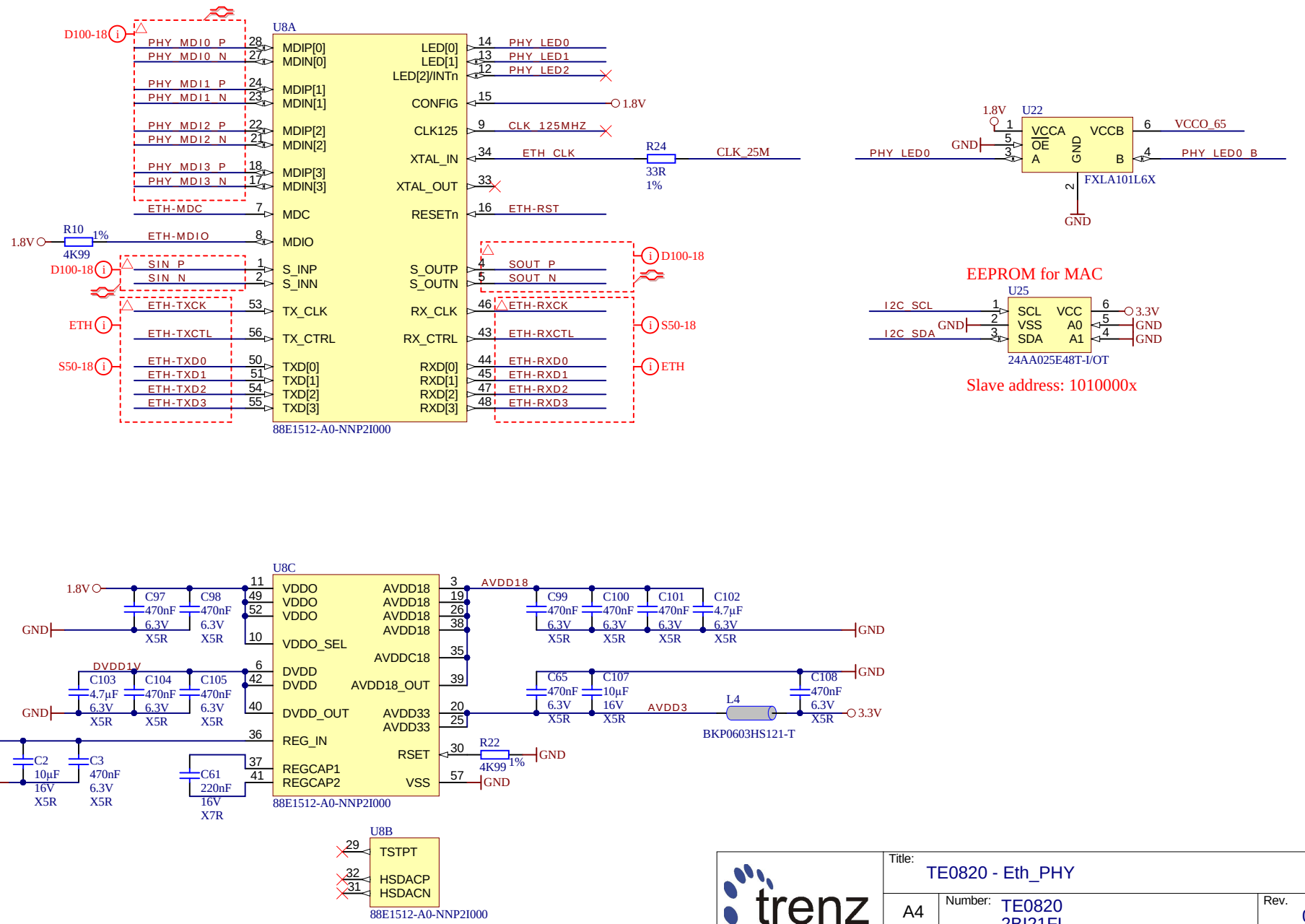
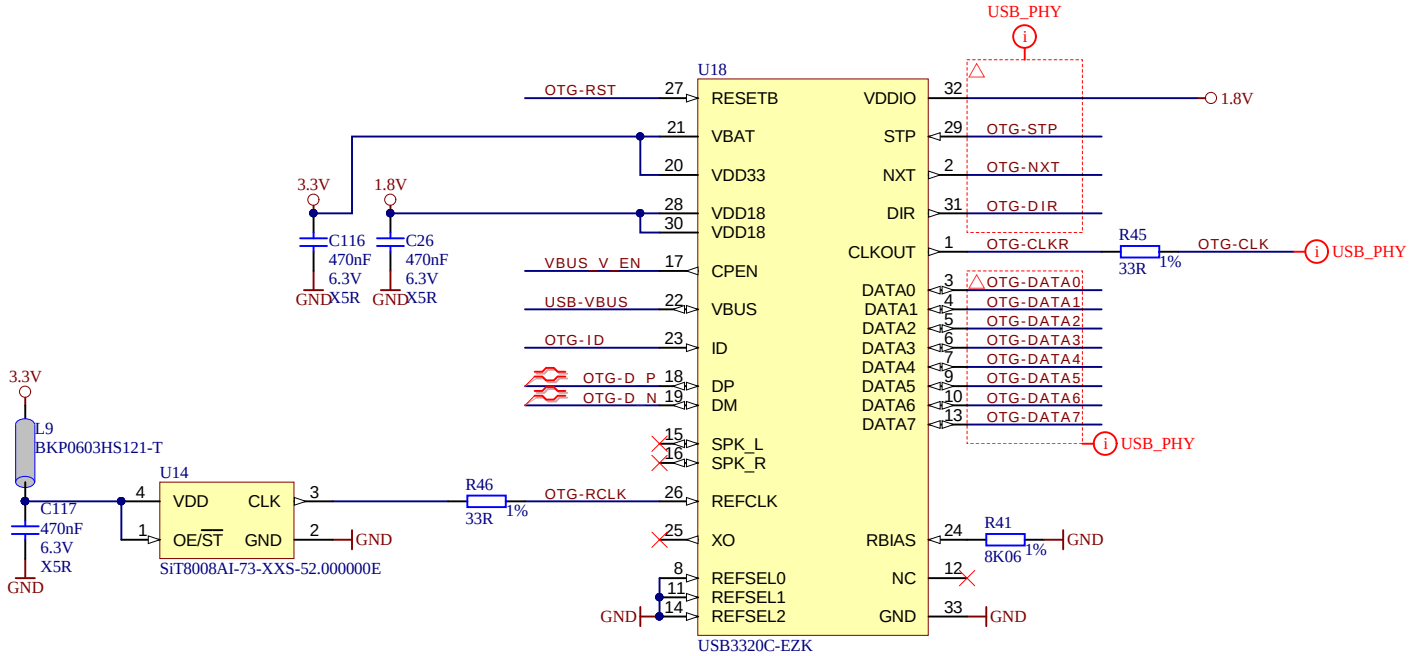
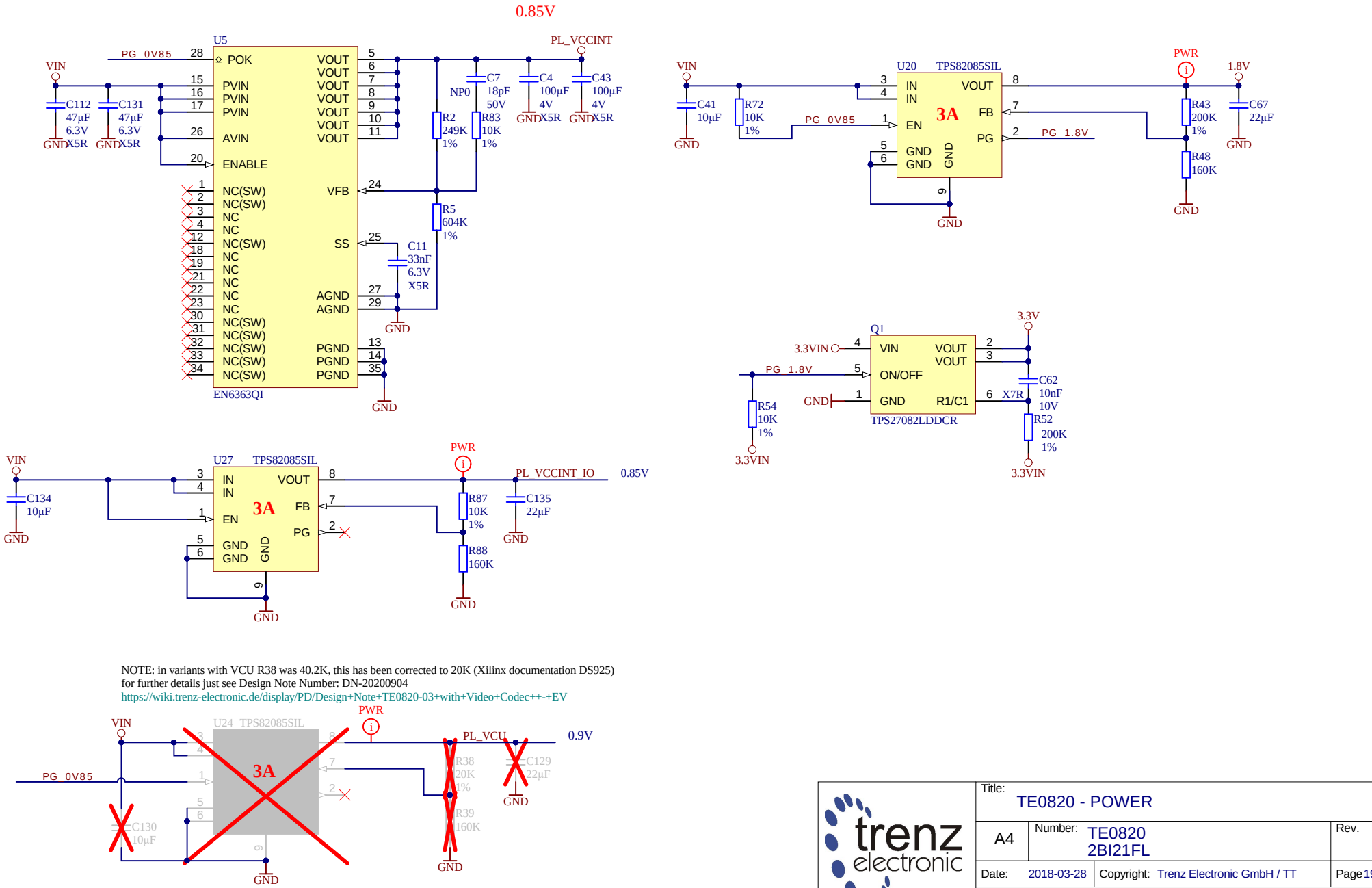
Page 16 of 21
Filename: eMMC.SchDoc



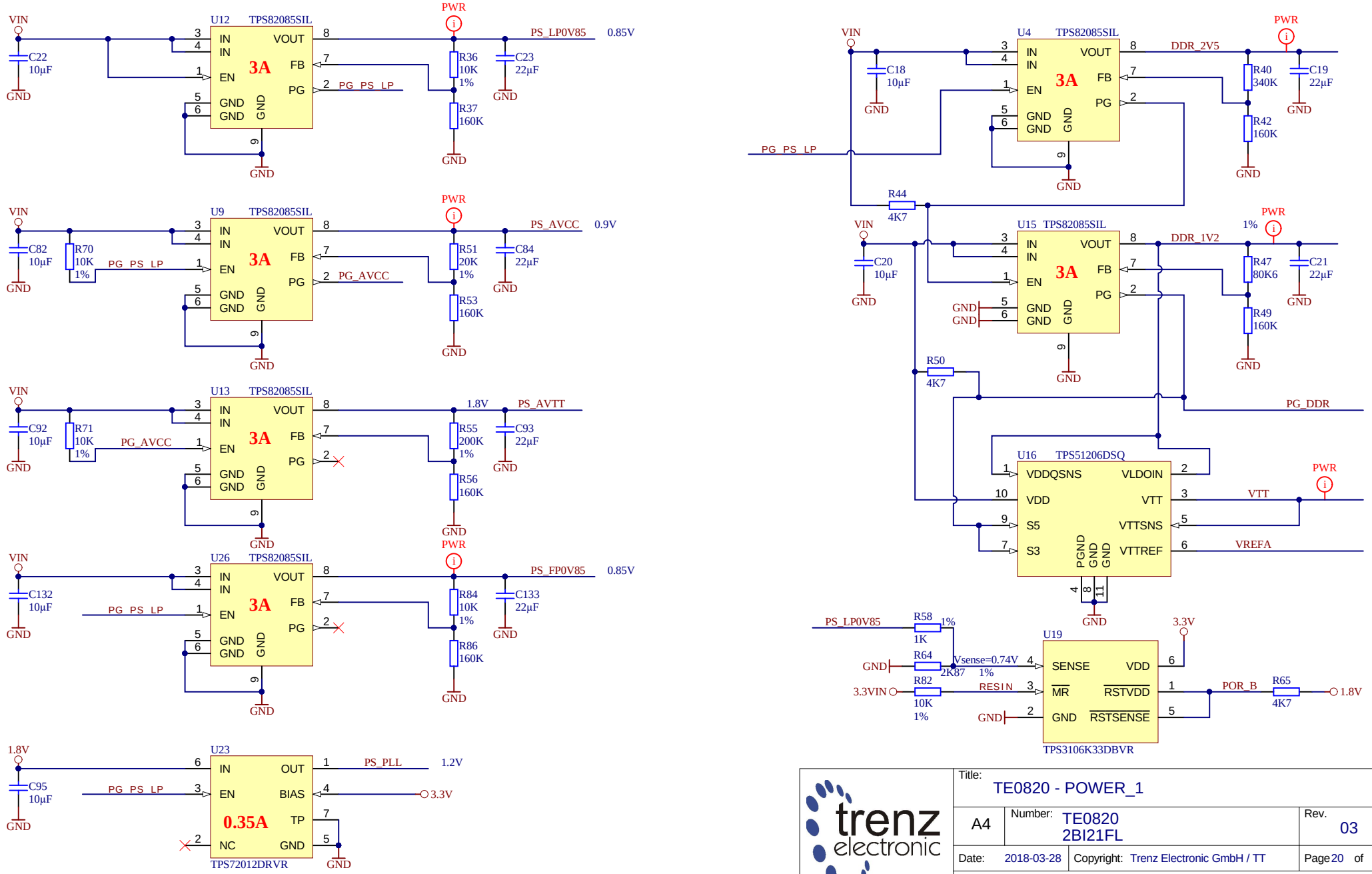
Title: TE0820 - Eth_PHY			
A4	Number: TE0820 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH		Page 17 of 21
Filename: ETH-PHY.SchDoc			



trenz electronic	Title: TE0820 - USB_PHY		
	A4	Number: TE0820 2BI21FL	Rev. 03
	Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH	Page 18 of 21
	Filename: USB-PHY.SchDoc		



trenz electronic	Title: TE0820 - POWER		
	A4	Number: TE0820 2BI21FL	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 2BI21FL		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 20 of 21
Filename: POWER_1.SchDoc			

CHANGES REV01 to REV02
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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.

trenz electronic	Title: TE0820 - Revision Changes		
	A4	Number: TE0820 2BI21FL	Rev. 03
	Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 21 of 21
	Filename: Revision Changes.SchDoc		