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

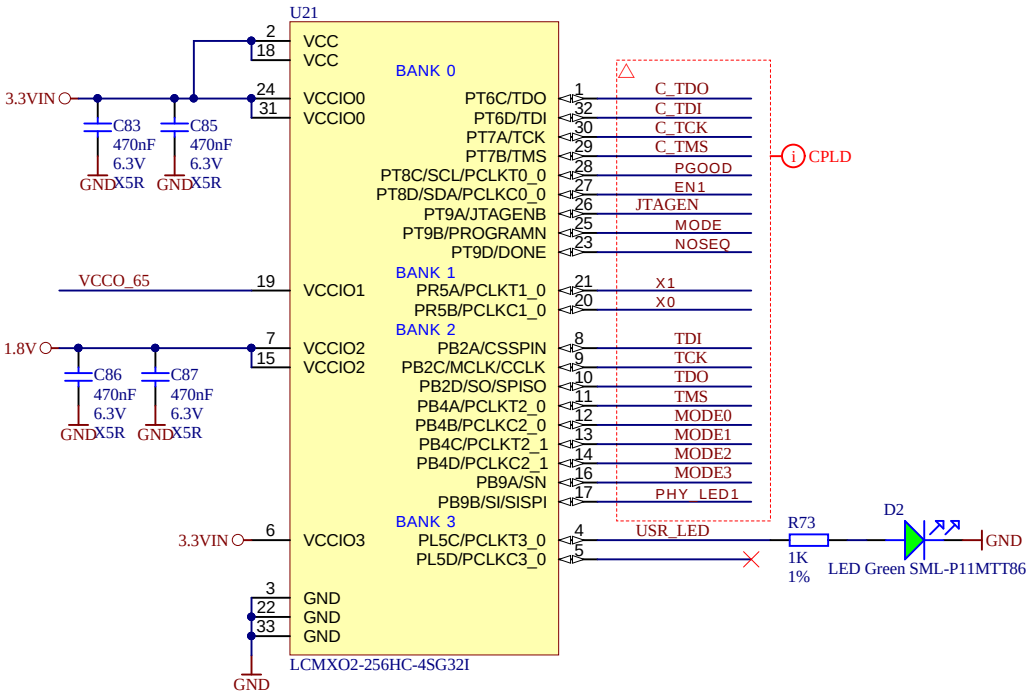
U_DDR4-RAM
DDR4-RAM.SchDoc

U_POWER
POWER.SchDoc

U_POWER_1
POWER_1.SchDoc

Serial
Serial
Serialnumber 6,3 x 6.3mm

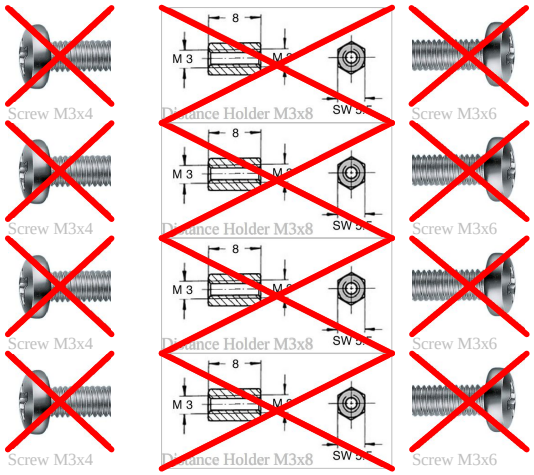
S/N
GND 1 0R 2 GND
Serialnumber



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

Mount.Hole 3.2mm Mount.Hole 3.2mm
GND GND

Mount.Hole 3.2mm Mount.Hole 3.2mm
GND GND



Assembly variant	4AI21FI
Created by	VY
Modified by	VY
Modified at	2020-01-09
SVN Revision	8646

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Title: TE0820		
A4	Number: TE0820 4AI21FI	Rev. 03
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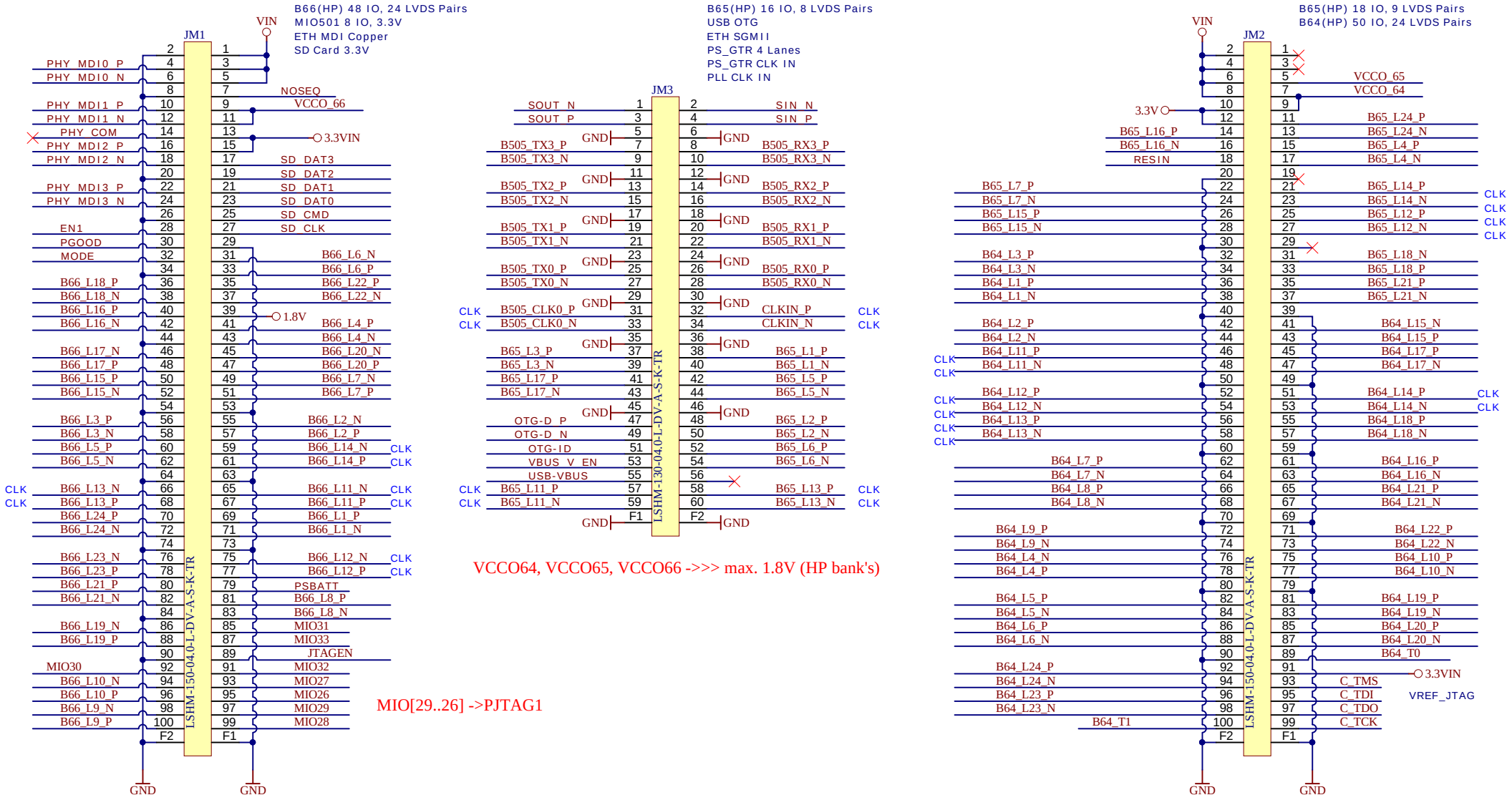
Filename: TE0820.SchDoc		


B66(HP) 48 IO, 24 LVDS Pairs
MIO501 8 IO, 3.3V
ETH MDI Copper
SD Card 3.3V
JM1
VIN
PHY_MDI0_P
PHY_MDI0_N
NOSEQ
VCCO_66
PHY_MDI1_P
PHY_MDI1_N
PHY_COM
3.3VIN
PHY_MDI2_P
PHY_MDI2_N
SD_DAT3
SD_DAT2
PHY_MDI3_P
SD_DAT1
PHY_MDI3_N
SD_DAT0
SD_CMD
EN1
SD_CLK
PGOOD
MODE
B66_L6_N
B66_L6_P
B66_L18_P
B66_L22_P
B66_L18_N
B66_L22_N
B66_L16_P
1.8V
B66_L16_N
B66_L4_P
B66_L4_N
B66_L17_N
B66_L20_N
B66_L17_P
B66_L20_P
B66_L15_P
B66_L7_N
B66_L15_N
B66_L7_P
B66_L3_P
B66_L2_N
B66_L3_N
B66_L2_P
B66_L5_P
B66_L14_N
B66_L5_N
B66_L14_P
B66_L13_N
B66_L11_N
B66_L13_P
B66_L11_P
B66_L24_P
B66_L1_P
B66_L24_N
B66_L1_N
B66_L23_N
B66_L12_N
B66_L23_P
B66_L12_P
B66_L21_P
PSBATT
B66_L21_N
B66_L8_P
B66_L8_N
B66_L19_N
MIO31
B66_L19_P
MIO33
JTAGEN
MIO30
MIO32
B66_L10_N
MIO27
B66_L10_P
MIO26
B66_L9_N
MIO29
B66_L9_P
MIO28
LSHM-150-04.0-L-DV-A-S-K-TR
GND
B65(HP) 16 IO, 8 LVDS Pairs
USB OTG
ETH SGMII
PS_GTR 4 Lanes
PS_GTR CLK IN
PLL CLK IN
JM3
SOUT_N
SIN_N
SOUT_P
SIN_P
B505_TX3_P
B505_RX3_P
B505_TX3_N
B505_RX3_N
B505_TX2_P
B505_RX2_P
B505_TX2_N
B505_RX2_N
B505_TX1_P
B505_RX1_P
B505_TX1_N
B505_RX1_N
B505_TX0_P
B505_RX0_P
B505_TX0_N
B505_RX0_N
B505_CLK0_P
CLKIN_P
B505_CLK0_N
CLKIN_N
B65_L3_P
B65_L1_P
B65_L3_N
B65_L1_N
B65_L17_P
B65_L5_P
B65_L17_N
B65_L5_N
OTG-D_P
B65_L2_P
OTG-D_N
B65_L2_N
OTG-ID
B65_L6_P
VBUS_V_EN
B65_L6_N
USB-VBUS
B65_L11_P
B65_L13_P
B65_L11_N
B65_L13_N
LSHM-130-04.0-L-DV-A-S-K-TR
VCCO64, VCCO65, VCCO66 ->>> max. 1.8V (HP bank's)
MIO[29..26] ->PJTAG1
B65(HP) 18 IO, 9 LVDS Pairs
B64(HP) 50 IO, 24 LVDS Pairs
JM2
VIN
3.3V
VCCO_65
VCCO_64
B65_L16_P
B65_L24_P
B65_L16_N
B65_L24_N
RESIN
B65_L4_P
B65_L4_N
B65_L7_P
B65_L14_P
B65_L7_N
B65_L14_N
B65_L15_P
B65_L12_P
B65_L15_N
B65_L12_N
B64_L3_P
B65_L18_N
B64_L3_N
B65_L18_P
B64_L1_P
B65_L21_P
B64_L1_N
B65_L21_N
B64_L2_P
B64_L15_N
B64_L2_N
B64_L15_P
B64_L11_P
B64_L17_P
B64_L11_N
B64_L17_N
B64_L12_P
B64_L14_P
B64_L12_N
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B64_L19_P
B64_L5_N
B64_L19_N
B64_L6_P
B64_L20_P
B64_L6_N
B64_L20_N
B64_T0
B64_L24_P
3.3VIN
B64_L24_N
C_TMS
VREF_JTAG
B64_L23_P
C_TDI
B64_L23_N
C_TDO
B64_T1
C_TCK
LSHM-150-04.0-L-DV-A-S-K-TR
GND
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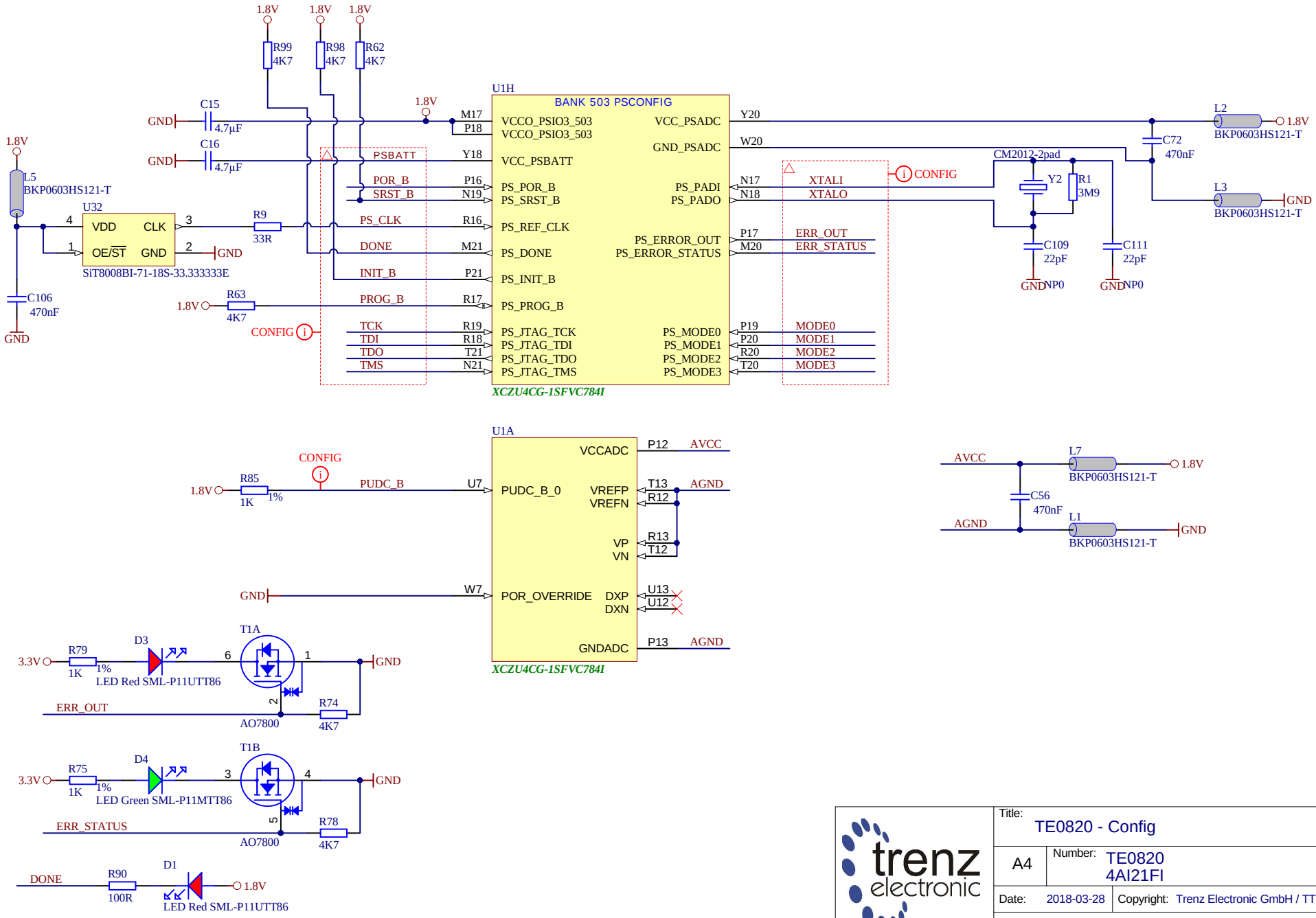
Title: TE0820 - B2B Connectors
A4
Number: TE0820 4AI21FI
Rev. 03
Date: 2018-03-28
Copyright: 2015 Trenz Electronic GmbH
Page 2 of 21
Filename: B2B-Connectors.SchDoc



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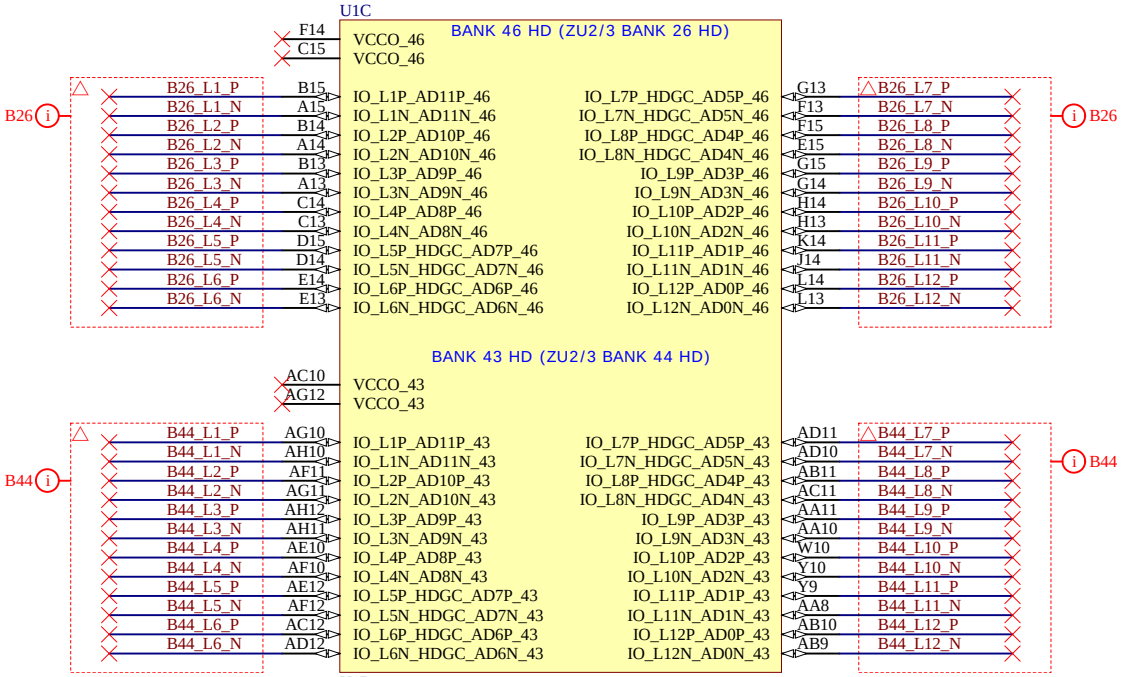
Title: TE0820 - Config			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 3 of 21
Filename: CONFIG.SchDoc			



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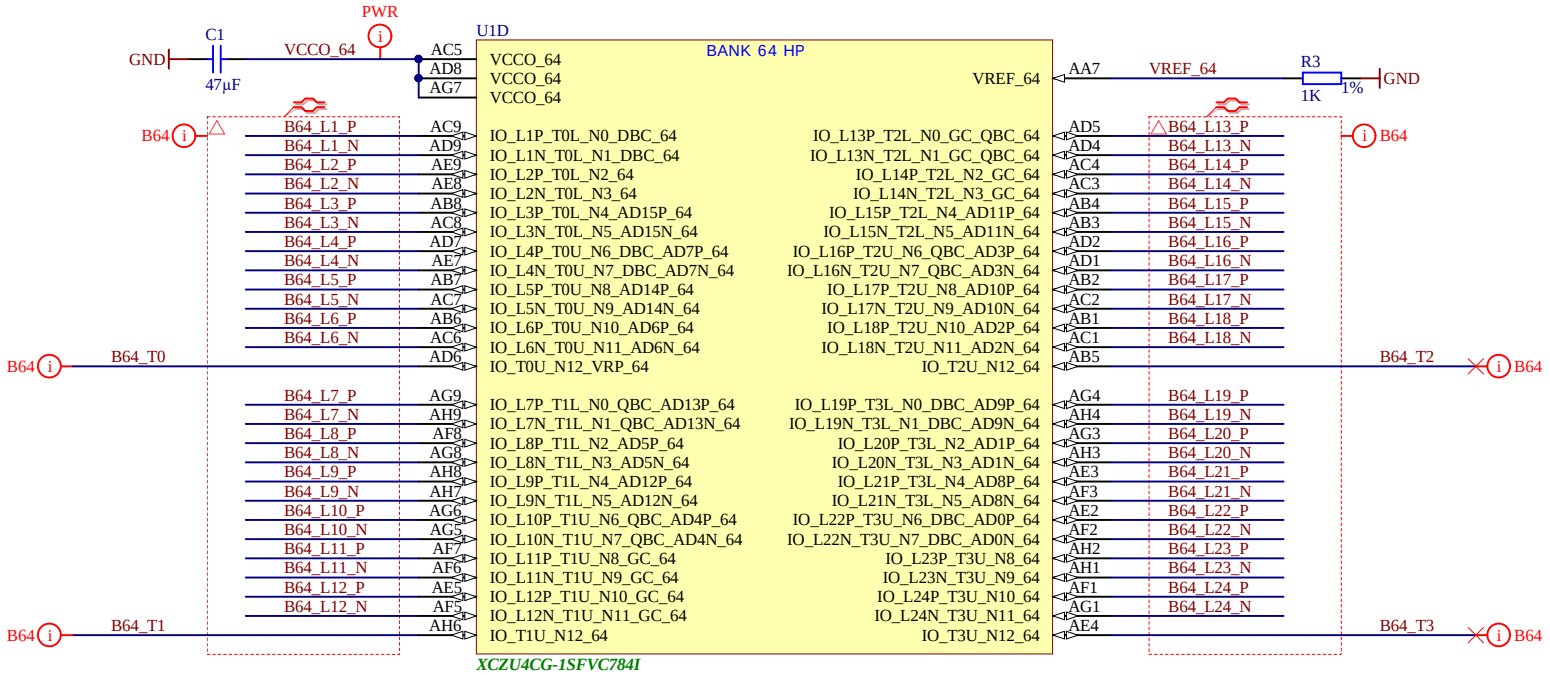
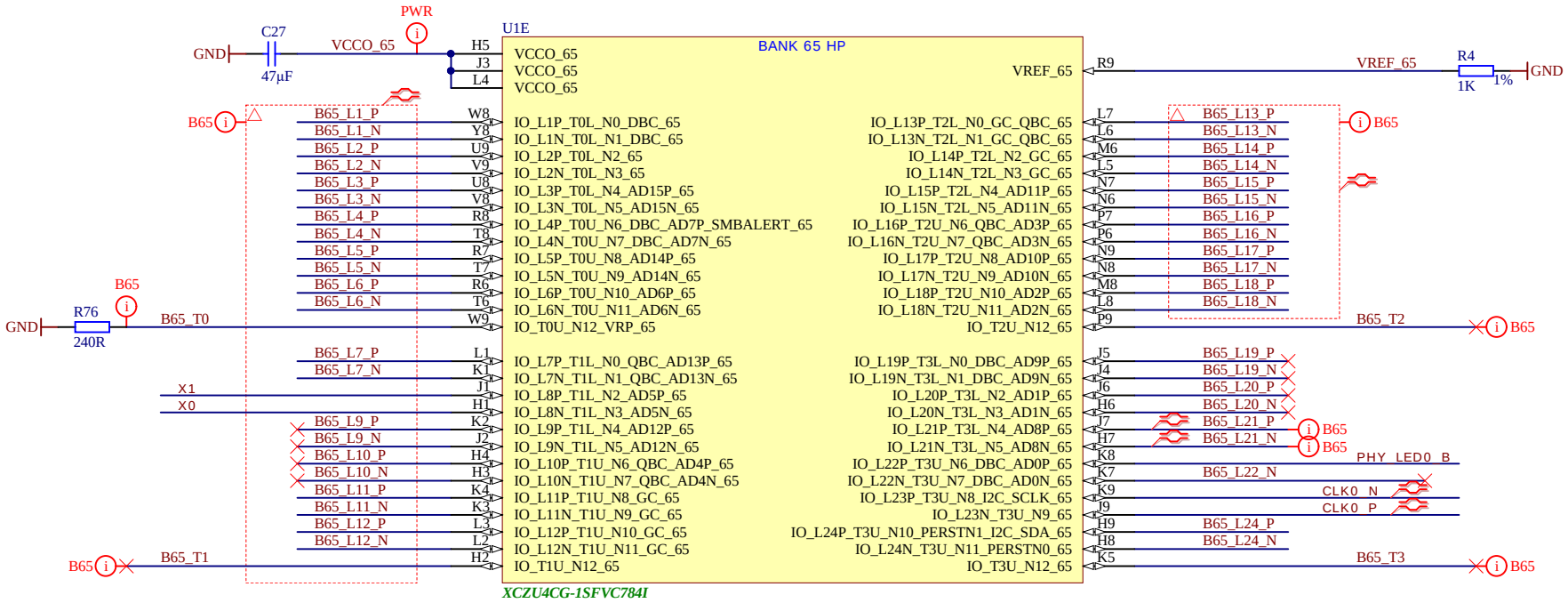
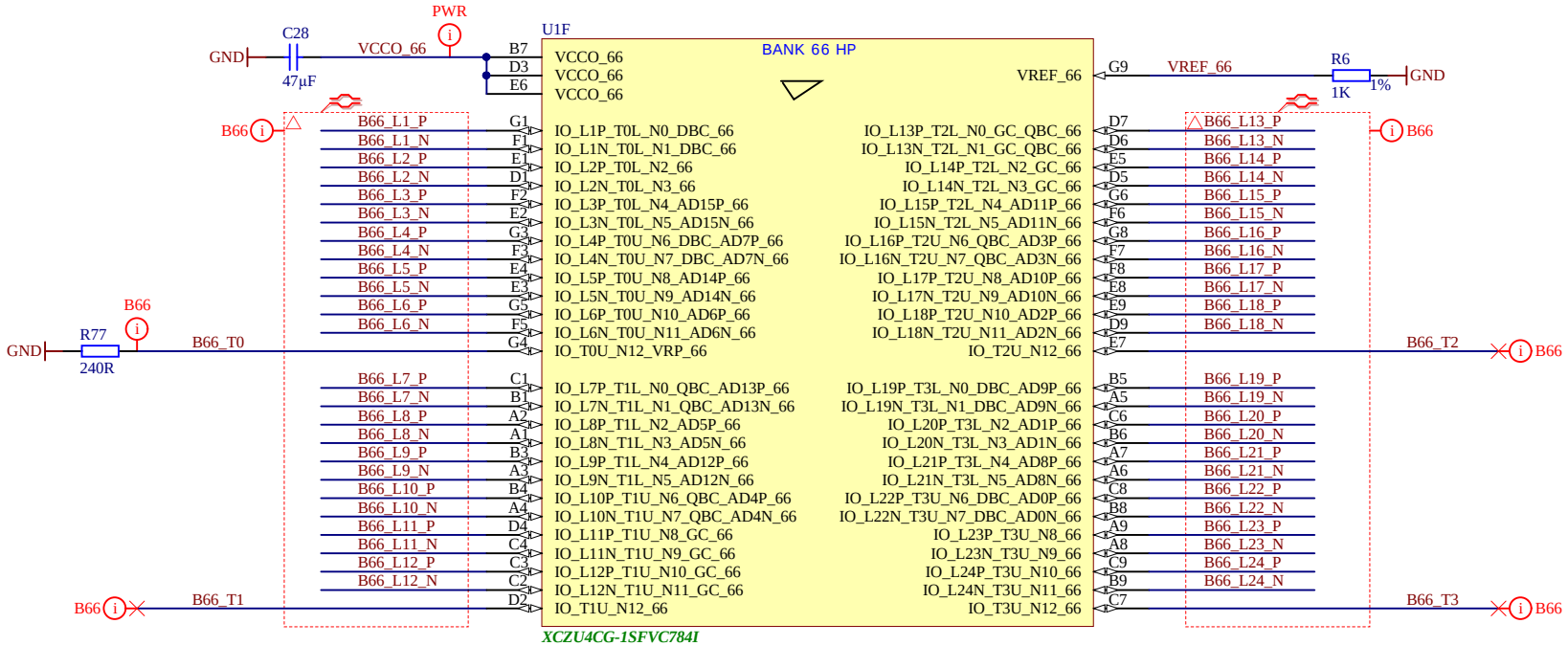
Title: TE0820 - HD Banks			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 4 of 21
Filename: B_HD.SchDoc			



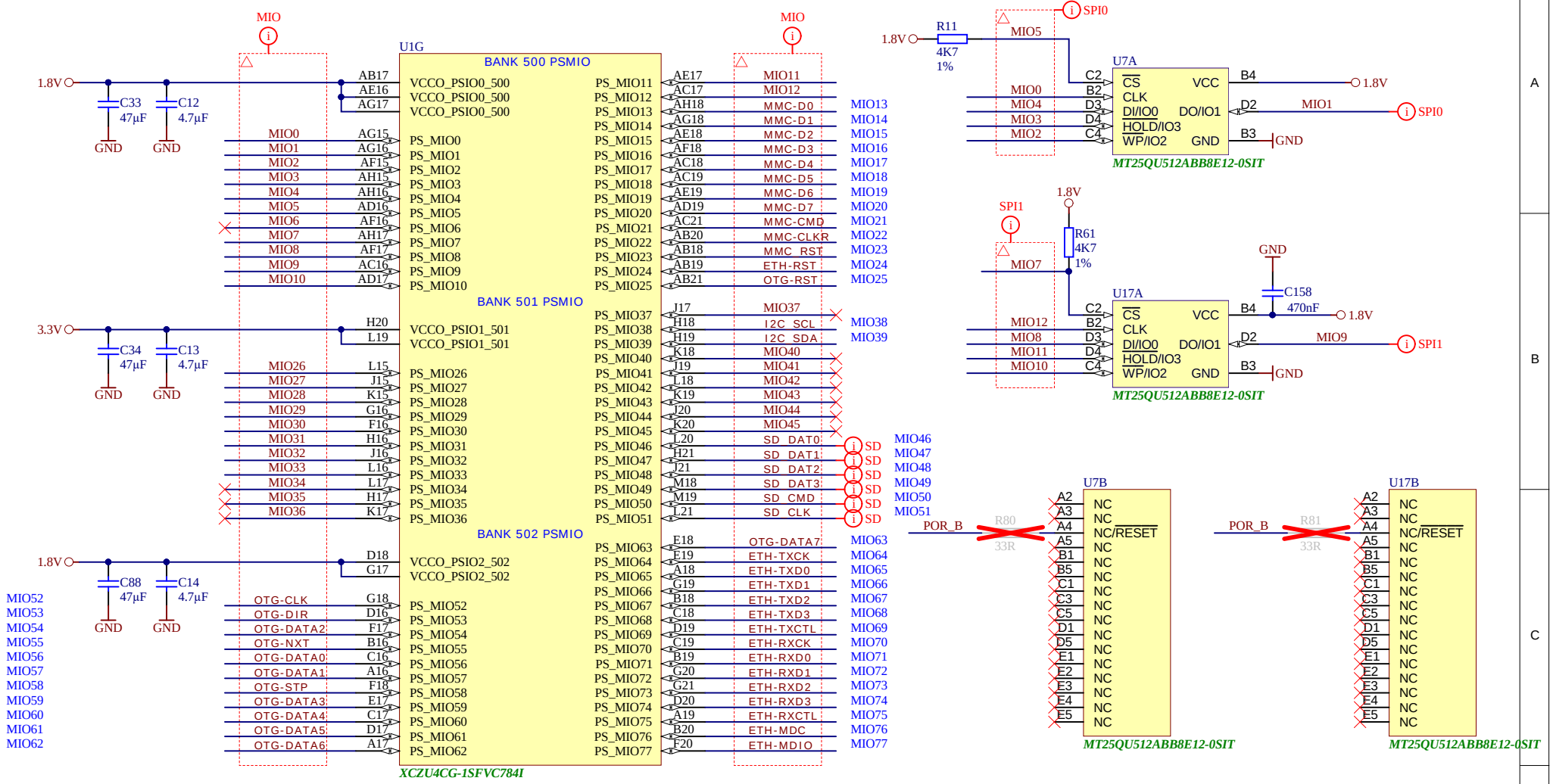
trenz electronic	Title: TE0820 - B64		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 5 of 21
Filename: B64.SchDoc			



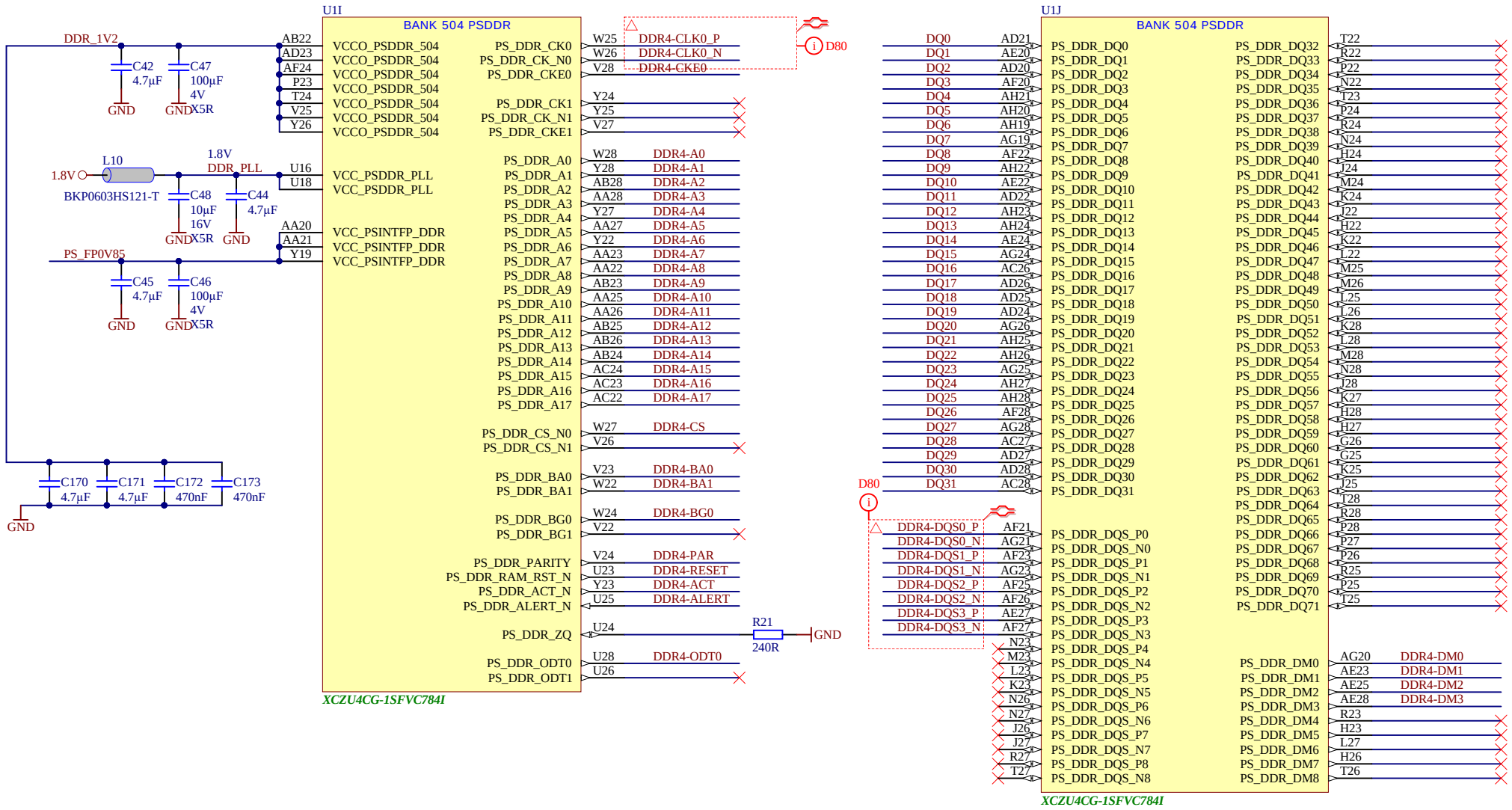
Title: TE0820 - B65			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 6 of 21
Filename: B65.SchDoc			



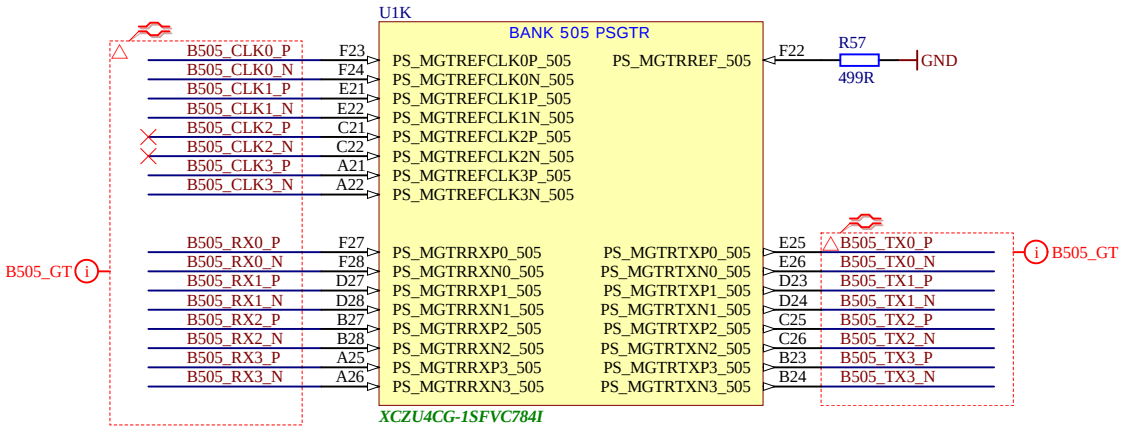
Title: TE0820 - B66			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 7 of 21
Filename: B66.SchDoc			

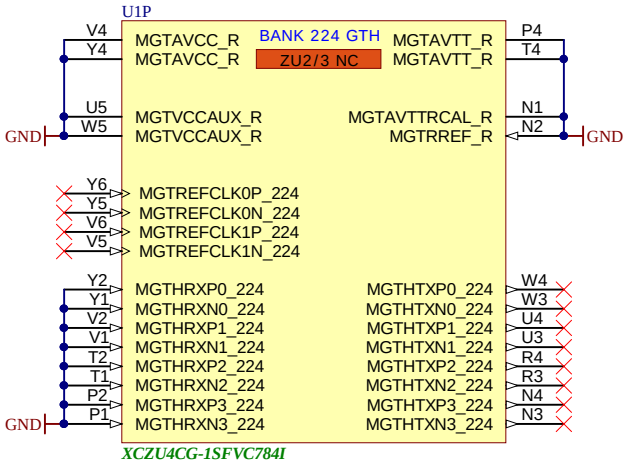


Title:	TE0820 - MIO Banks		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 8 of 21
Filename:	B_MIO.SchDoc		



trenz electronic	Title: TE0820 - PS_DDR		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 9 of 21
Filename: PS_DDR.SchDoc			





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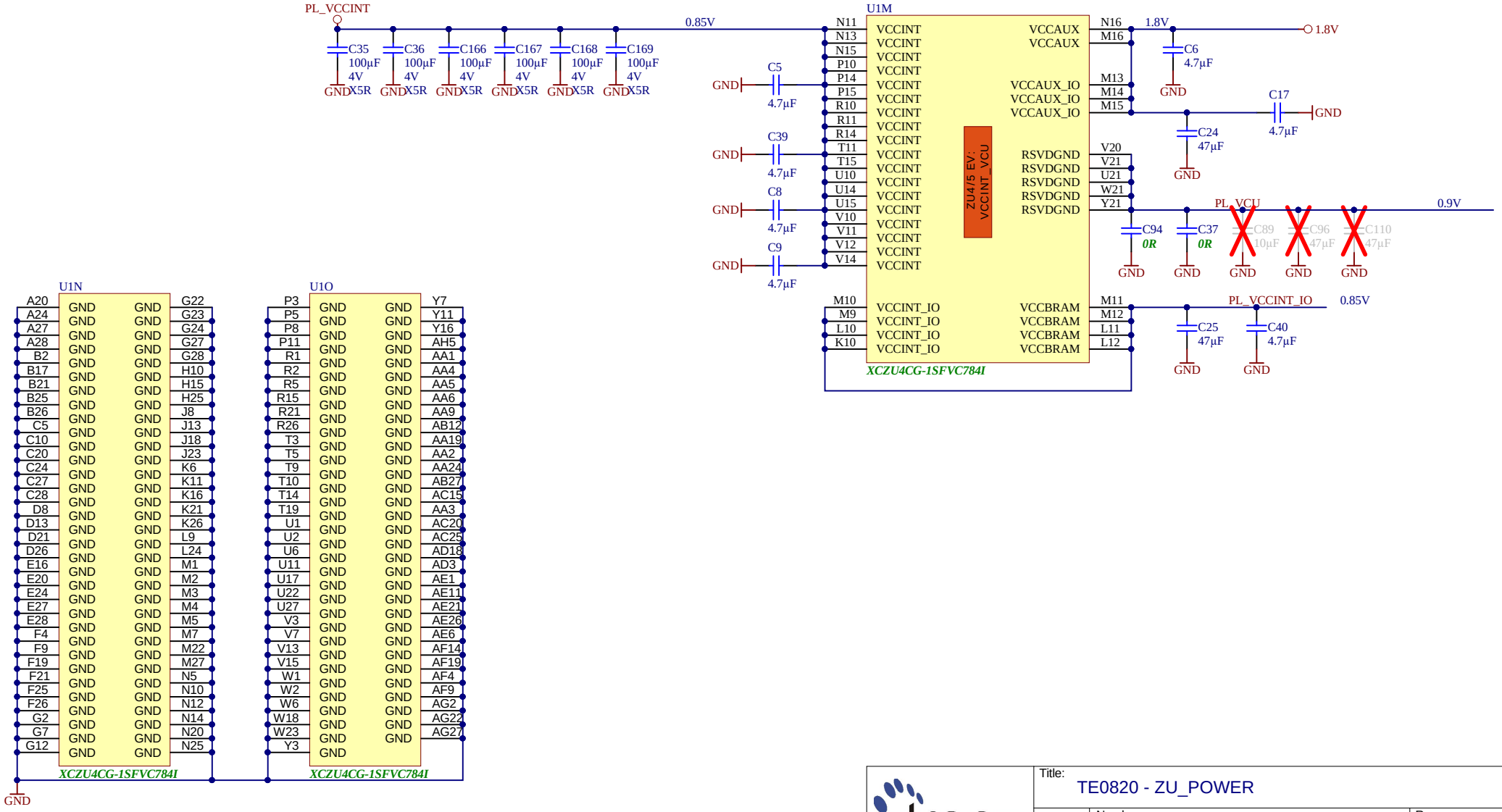
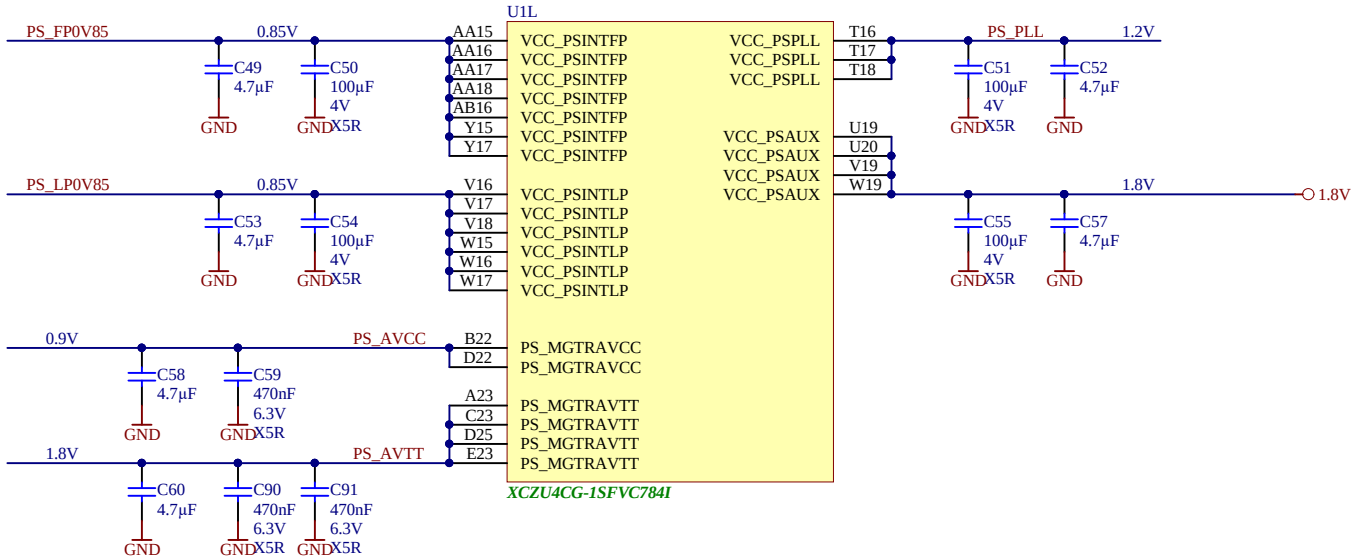
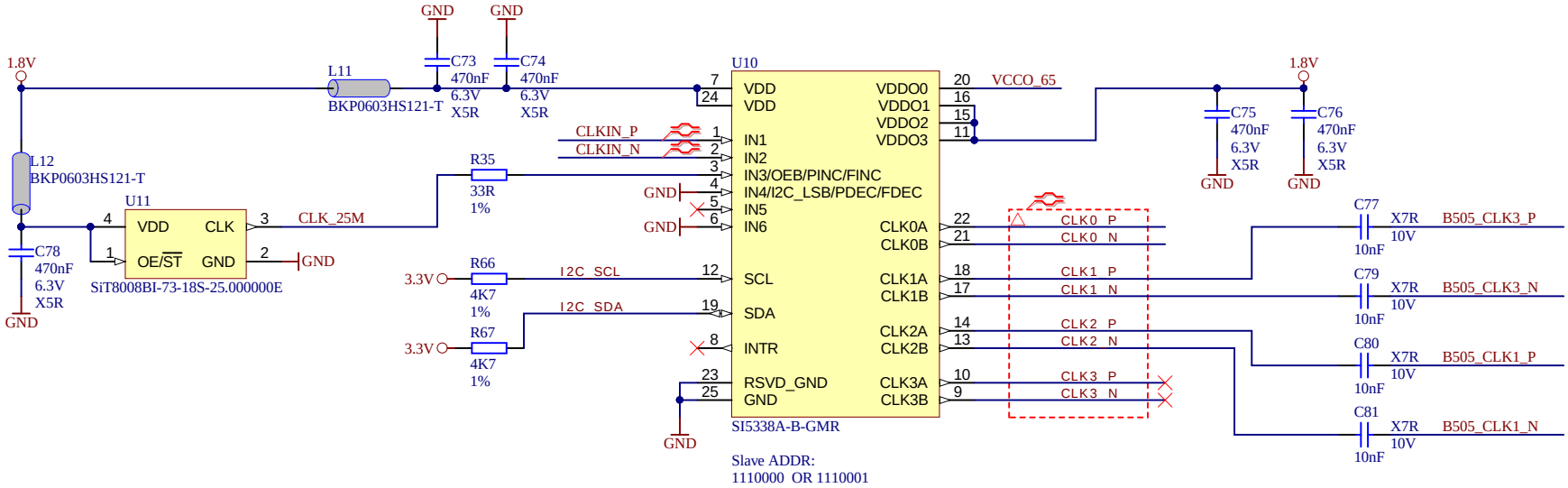
Title: TE0820 - PS_GT		
A4	Number: TE0820 4AI21FI	Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 10 of 21
Filename: B_PS_GT.SchDoc		



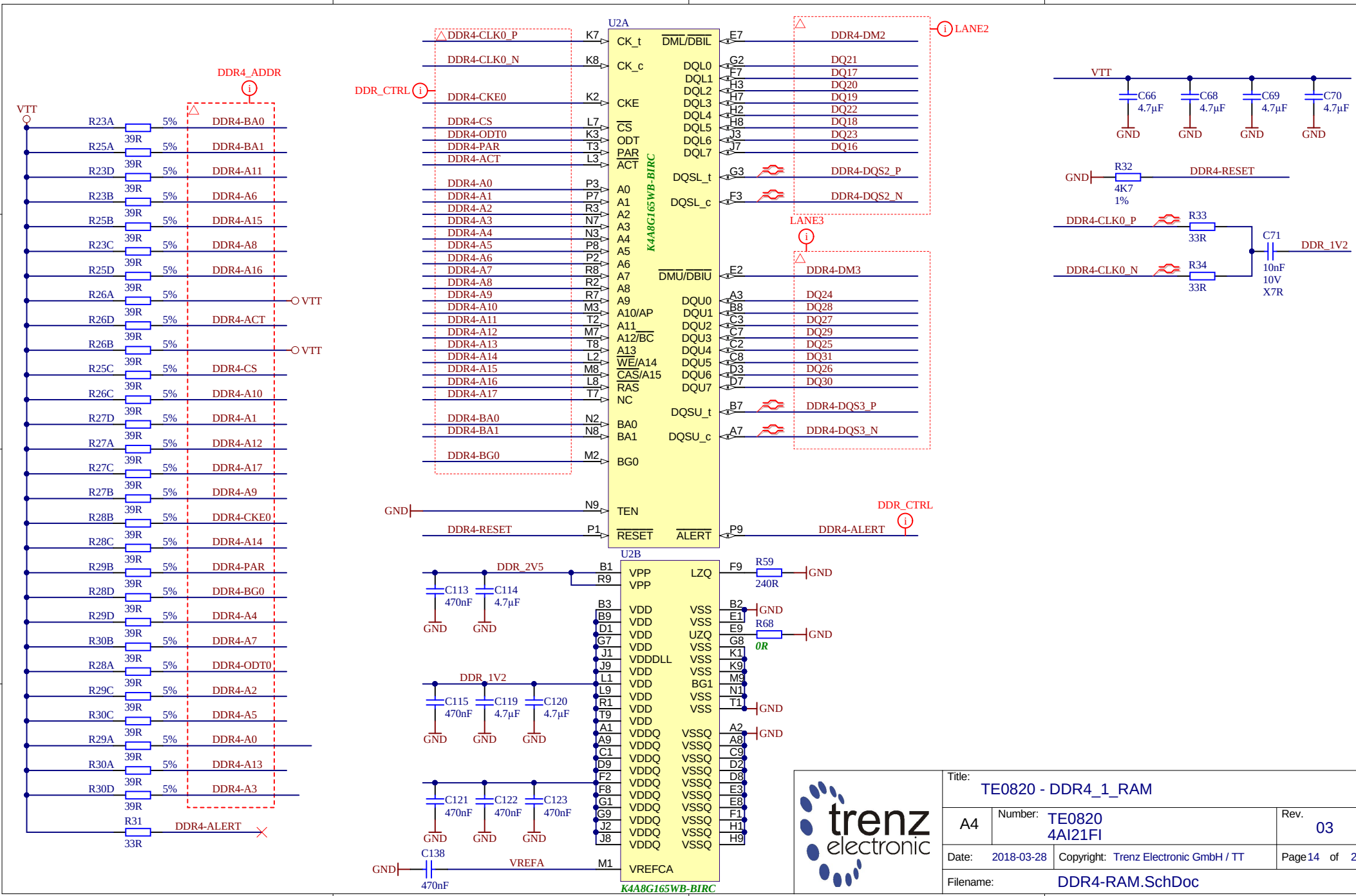
Title: TE0820 - ZU_POWER			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 11 of 21
Filename: ZU_POWER.SchDoc			



trenz electronic	Title: TE0820 - ZU_PS_POWER		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 12 of 21
Filename: ZU_PS_POWER.SchDoc			



trenz electronic	Title: TE0820 - CLK		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH		Page 13 of 21
Filename: CLK.SchDoc			


DDR4_ADDR
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
K4A8G165WB-BIRC
DDR4-CLK0_P
DDR4-CLK0_N
DDR_CTRL
DDR4-CKE0
DDR4-CS
DDR4-ODT0
DDR4-PAR
DDR4-ACT
DDR4-A0
DDR4-A1
DDR4-A2
DDR4-A3
DDR4-A4
DDR4-A5
DDR4-A6
DDR4-A7
DDR4-A8
DDR4-A9
DDR4-A10
DDR4-A11
DDR4-A12
DDR4-A13
DDR4-A14
DDR4-A15
DDR4-A16
DDR4-A17
DDR4-BA0
DDR4-BA1
DDR4-BG0
GND
DDR4-RESET
LANE2
DDR4-DM2
DQ21
DQ17
DQ20
DQ19
DQ22
DQ18
DQ23
DQ16
DDR4-DQS2_P
DDR4-DQS2_N
LANE3
DDR4-DM3
DQ24
DQ28
DQ27
DQ29
DQ25
DQ31
DQ26
DQ30
DDR4-DQS3_P
DDR4-DQS3_N
DDR_CTRL
DDR4-ALERT
U2B
DDR_2V5
C113 470nF
C114 4.7µF
R59 240R
R68 0R
DDR_1V2
C115 470nF
C119 4.7µF
C120 4.7µF
C121 470nF
C122 470nF
C123 470nF
C138 470nF
VREFA
VTT
C66 4.7µF
C68 4.7µF
C69 4.7µF
C70 4.7µF
R32 4K7 1%
R33 33R
R34 33R
C71 10nF 10V X7R
DDR_1V2
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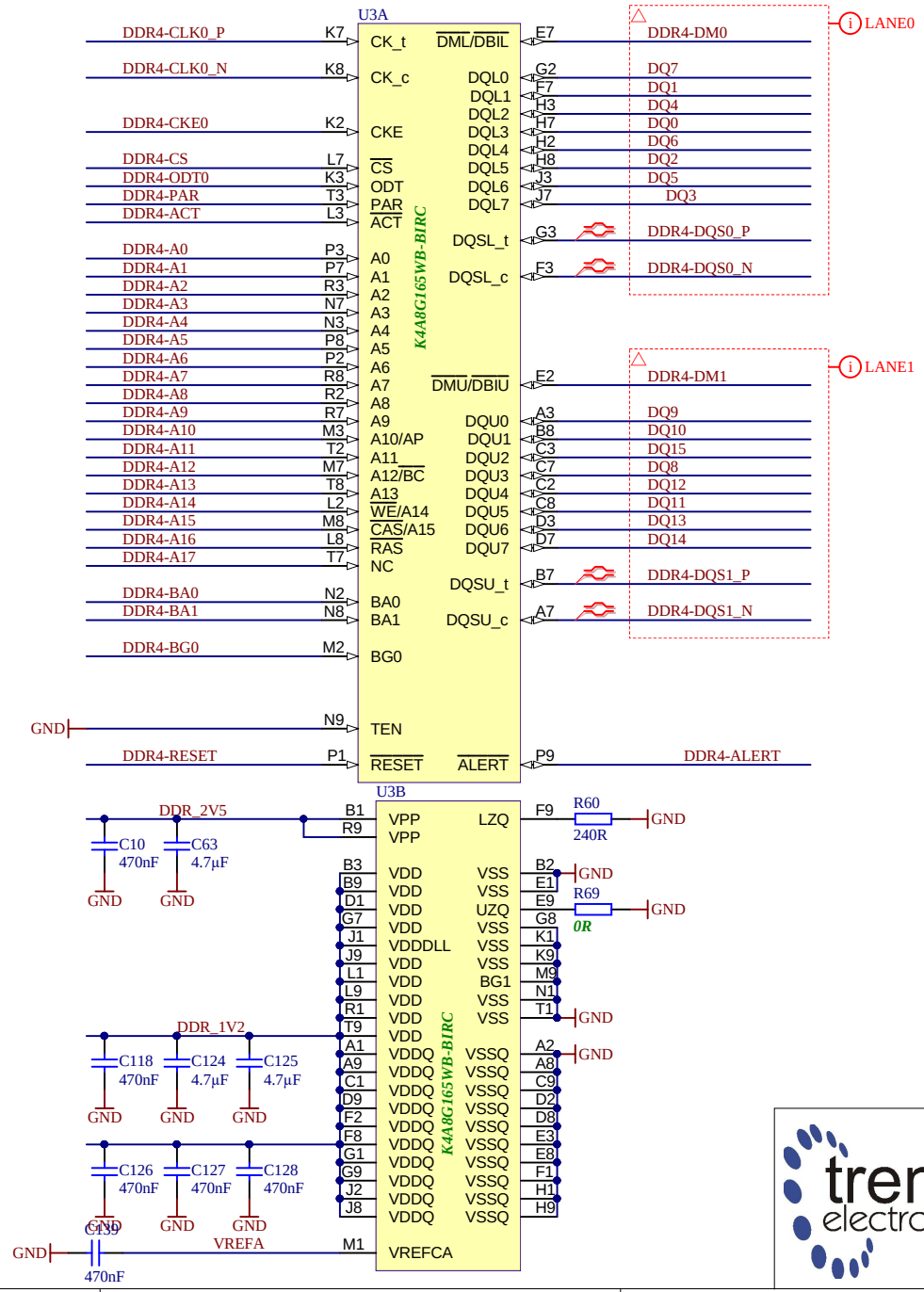
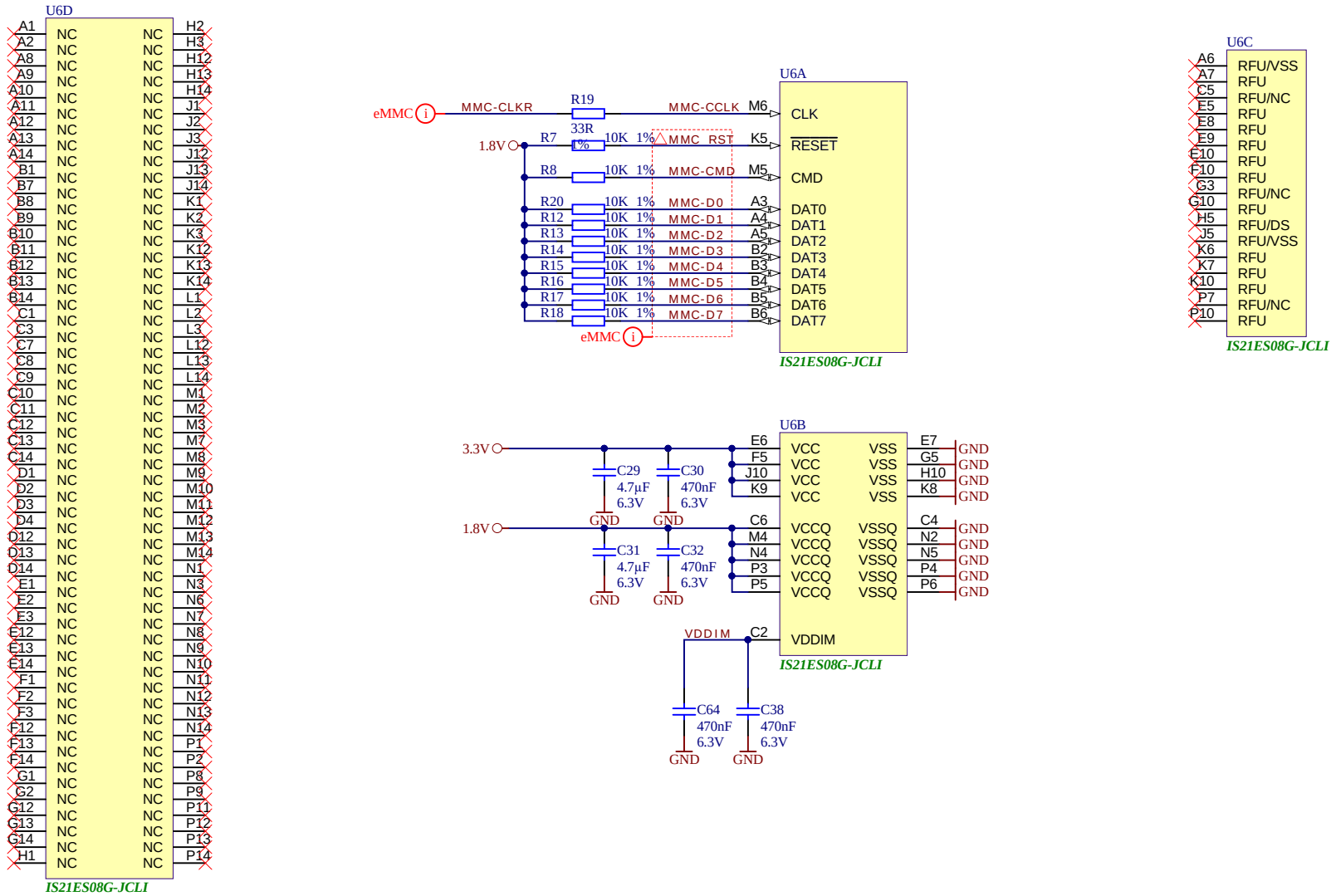
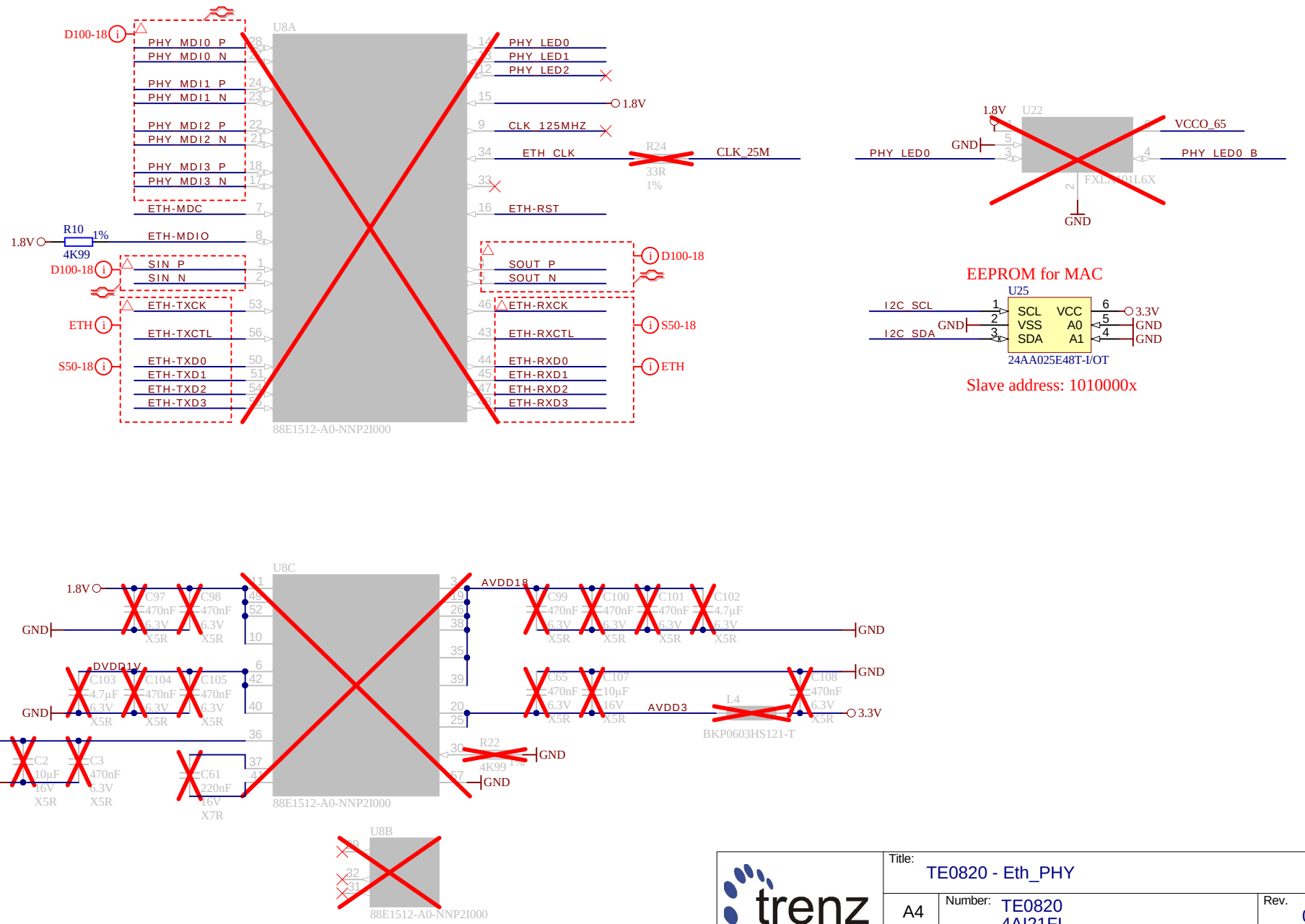
Title: TE0820 - DDR4_1_RAM
A4
Number: TE0820 4AI21FI
Rev. 03
Date: 2018-03-28
Copyright: Trenz Electronic GmbH / TT
Page 14 of 21
Filename: DDR4-RAM.SchDoc



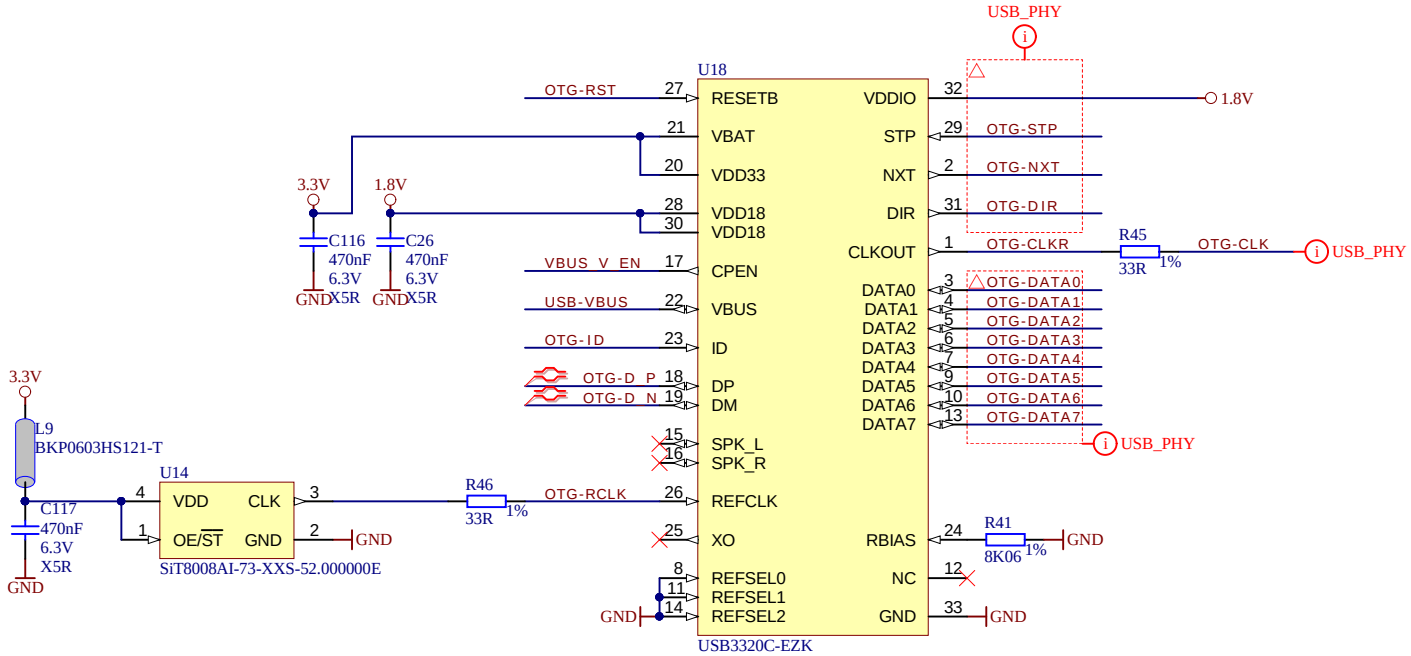
Title:	TE0820 - DDR4_2_RAM		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 15 of 21
Filename:	DDR4-RAM_2.SchDoc		



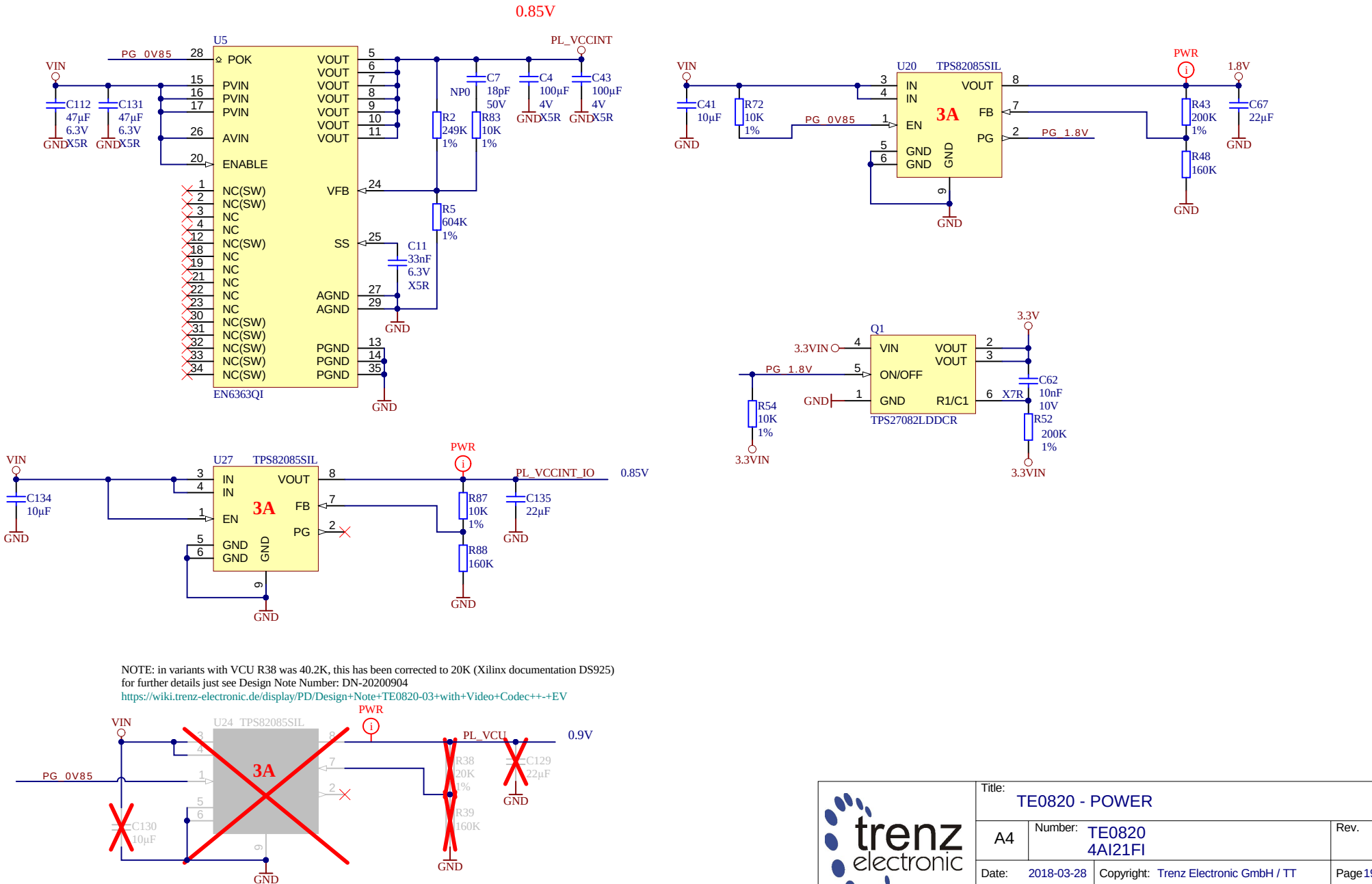
	Title: TE0820 - eMMC		
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT		Page 16 of 21
Filename: eMMC.SchDoc			



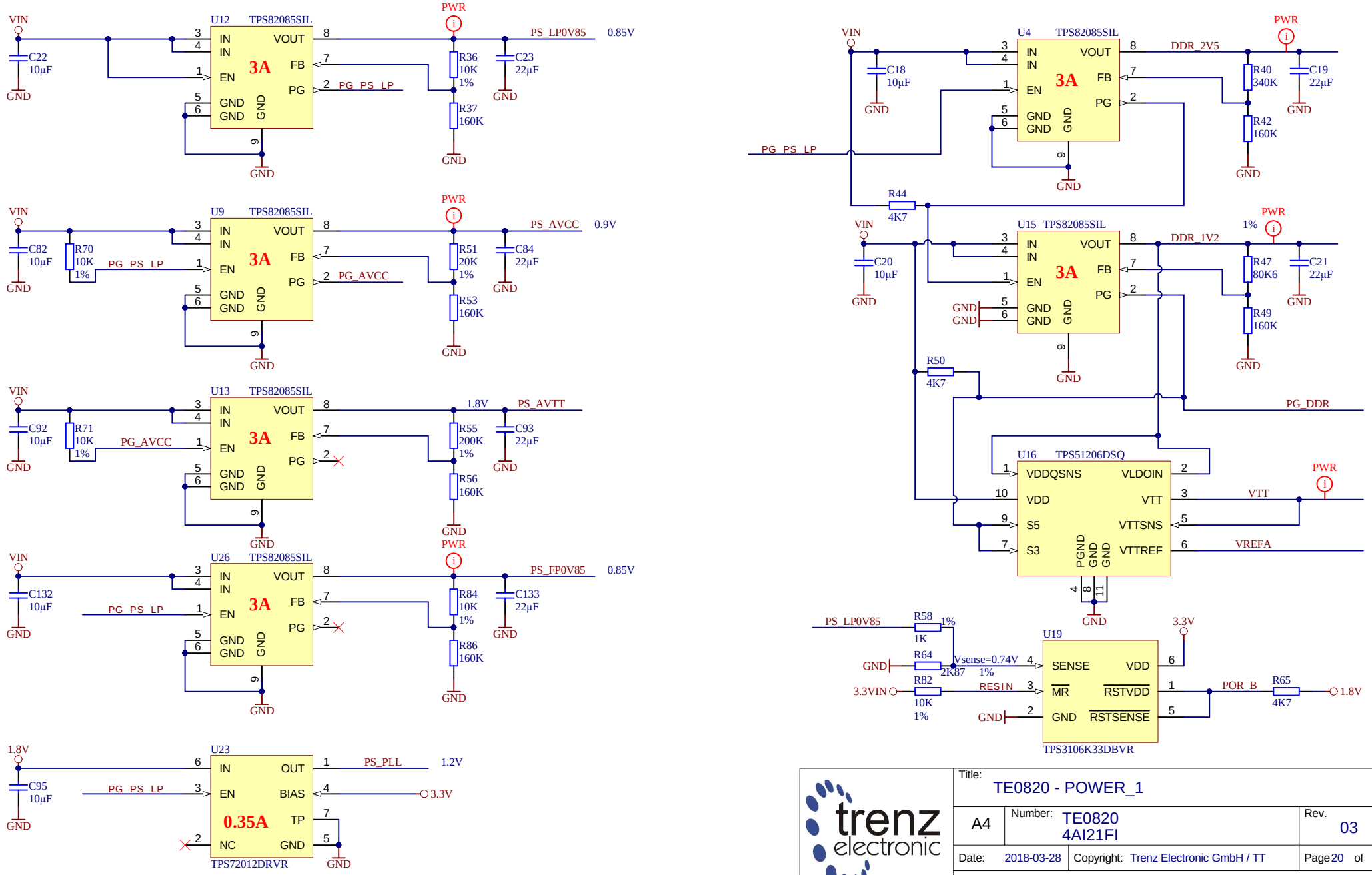
Title: TE0820 - Eth_PHY			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH		Page 17 of 21
Filename: ETH-PHY.SchDoc			



Title: TE0820 - USB_PHY			
A4	Number: TE0820 4AI21FI		Rev. 03
Date: 2018-03-28	Copyright: 2015 Trenz Electronic GmbH		Page 18 of 21
Filename: USB-PHY.SchDoc			



Title: TE0820 - POWER			
A4	Number: TE0820 4AI21FI		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 4AI21FI		Rev. 03
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.

trenz electronic	Title: TE0820 - Revision Changes		
	A4	Number: TE0820 4AI21FI	Rev. 03
	Date: 2018-03-28	Copyright: Trenz Electronic GmbH / TT	Page 21 of 21
	Filename: Revision Changes.SchDoc		