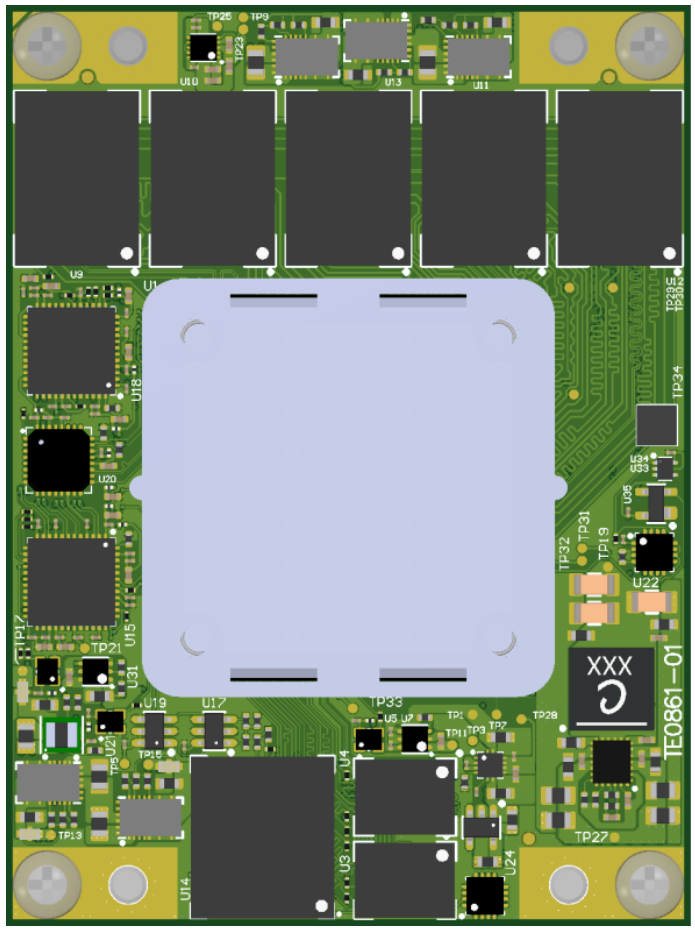

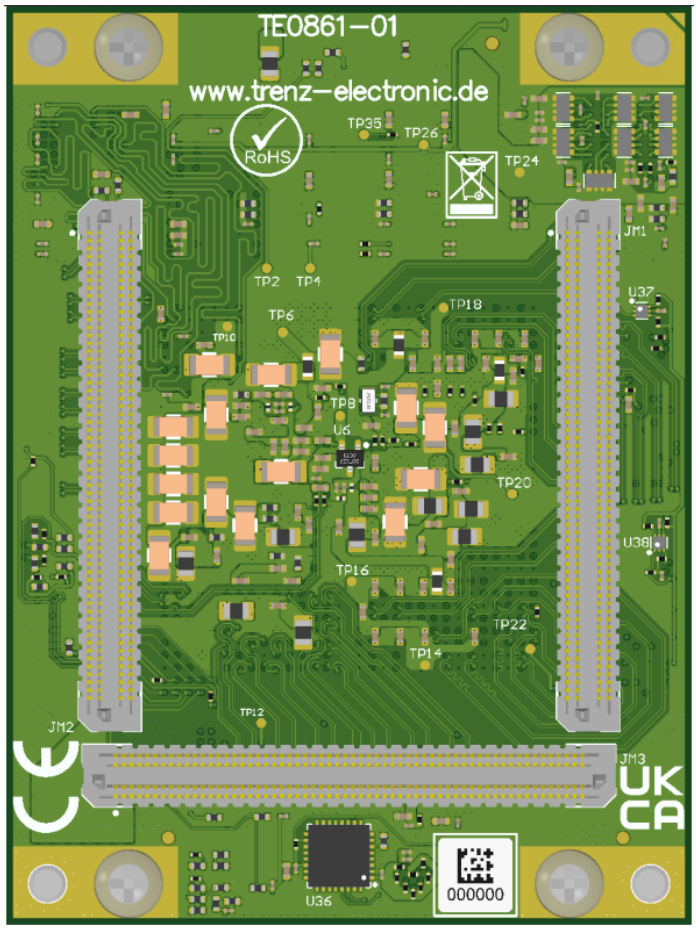

Regarding the usage of our schematics and alike documentation for Trenz module TE0861.

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.

TE0861 is 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: TE0861 – Legal Notices Modules		
A4	Number: TE0861 6BE51QA		Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 1 of 35
Filename: Legal Notices Modules.SchDoc			

REV	Description	
-01	Initial revision	ED/VY

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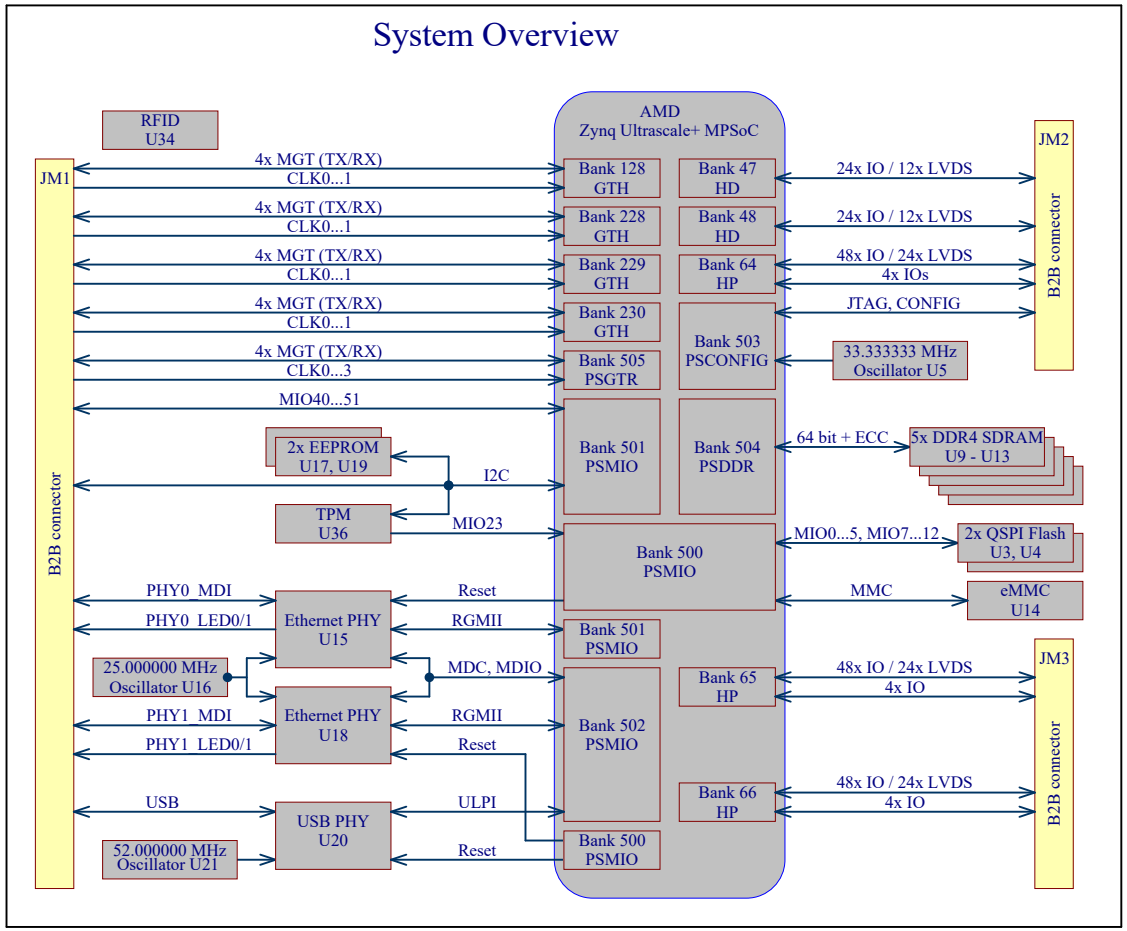
Title: TE0861 – Revision Changes

A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 2 of 35
Filename: Revision_Changes.SchDoc		

System Overview



Supported Voltage Ranges:

Power Rail	Direction	Range	Tolerance	Description	Note
VIN	IN	5 V - 12 V	+/- 10 %	Module main power supply	-
VCCO_47	IN	1.2 V - 3.3 V	1)	HD IO Bank 47	-
VCCO_48	IN	1.2 V - 3.3 V	1)	HD IO Bank 48	-
VCCO_64	IN	1.0 V ... 1.8 V	+/- 5 %	HP IO Bank 64	-
VCCO_65	IN	1.0 V ... 1.8 V	+/- 5 %	HP IO Bank 65	-
VCCO_66	IN	1.0 V ... 1.8 V	+/- 5 %	HP IO Bank 66	-
PSBATT	IN	1.2 V - 1.5 V	-	RTC / BBRAM	-
3V3	OUT	3.3 V	+/- 3 %	Periphery supply	-
1V8	OUT	1.8 V	+/- 3 %	Periphery supply	-

1) +/- 5 %, - 5 % / +3 % for 3.3 V

I2C Addresses:

Device	Address	Note
MPSoC U1H	-	AMD Zynq Ultrascale+ MPSoC PS
B2B JM1A	-	B2B connector
TPM U36	0x2E	Trusted Platform Modul
EEPROM U17	0x50	MAC-EEPROM with user area
EEPROM U19	0x51	MAC-EEPROM with user area

U_DDR4-TERM
DDR4-TERM.SchDoc

U_ZU_POWER
ZU_POWER.SchDoc

U_ZU_PS_POWER
ZU_PS_POWER.SchDoc

U_POWER_1
POWER_1.SchDoc

U_POWER_2
POWER_2.SchDoc

U_POWER_3
POWER_3.SchDoc

U_POWER_4
POWER_4.SchDoc

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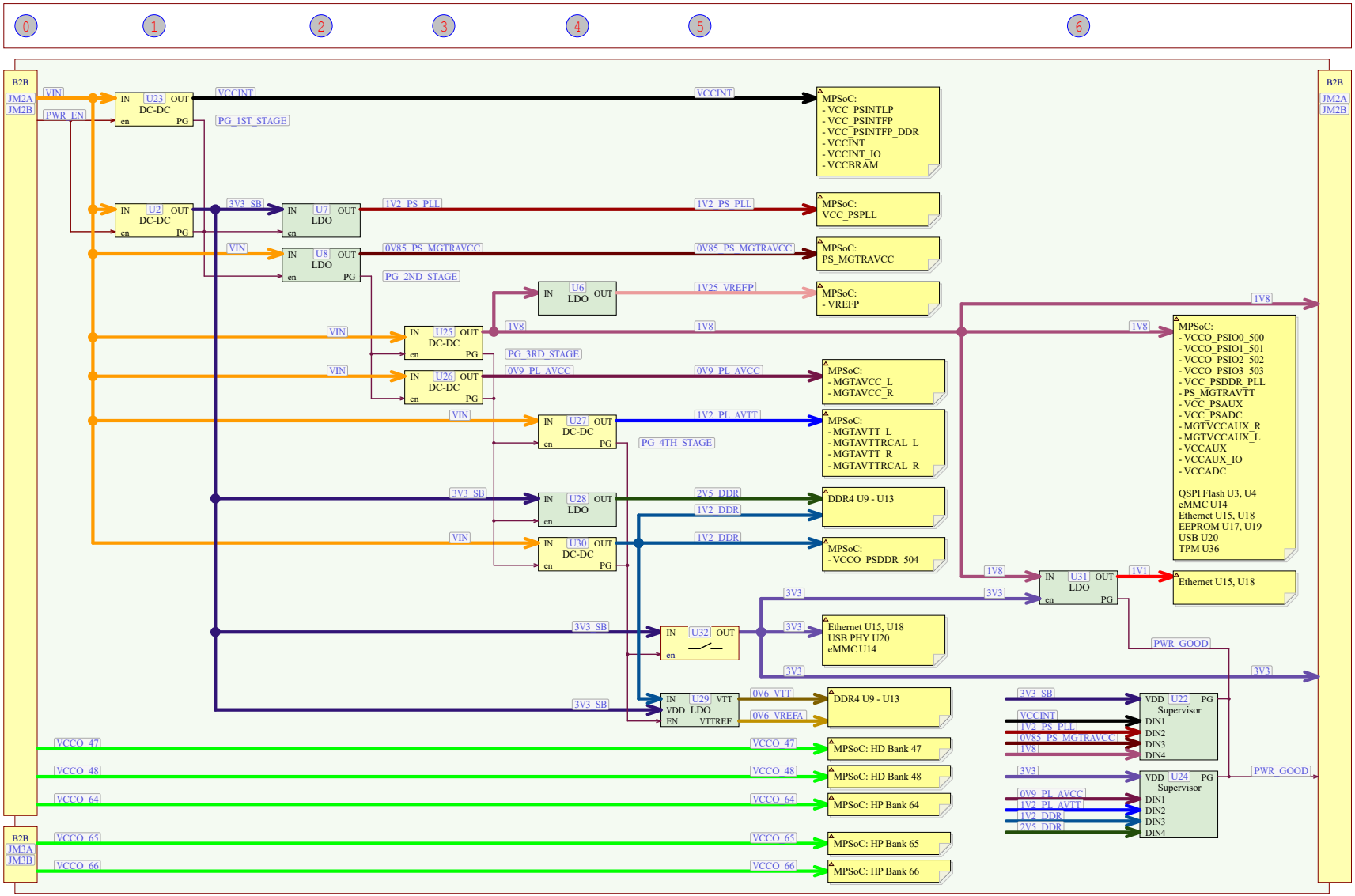
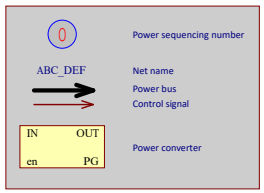
Title: TE0861 – System Overview		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 3 of 35
Filename: TE0861-Overview.SchDoc		

Power Supply and Power Sequencing





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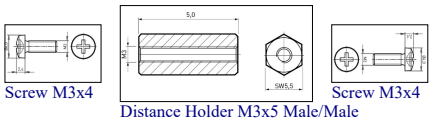
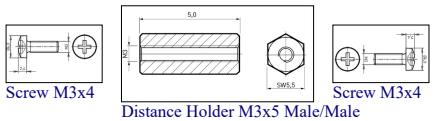
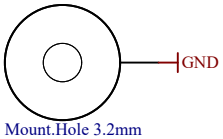
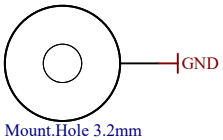
Title: TE0861 – POWER Overview		
A3	Nummer: TE0861 6BE51QA	Rev. 01
Datum: 21.11.2025	Copyright:Trenz Electronic GmbH	Page 4 of 35
Filename: POWER_Overview.SchDoc		

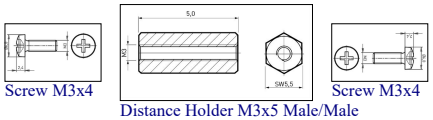
Special notes:

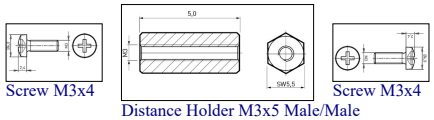












Serial1
Serial
Serialnumber 6,3 x 6.3mm
RoHS1

RoHS Logo on Top Overlay

RoHS-TOPOVERLAY
WEEE1

WEEE Logo on Top Overlay

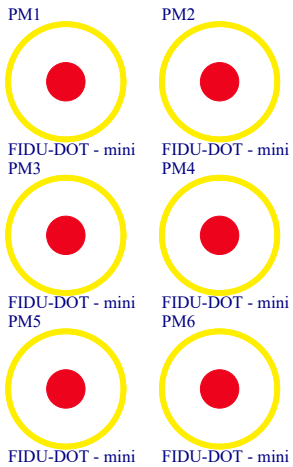
WEEE-TOPOVERLAY
CE1

CE Logo on Top Overlay

CE-TOPOVERLAY
UKCA1

UKCA Logo on Top Overlay

UKCA-TOPOVERLAY



Design drawn by:	ED
Checked by:	MR
Assembly variant:	6BE51QA
Created by:	VG
Modified by:	VG
Modified at:	2026-02-02

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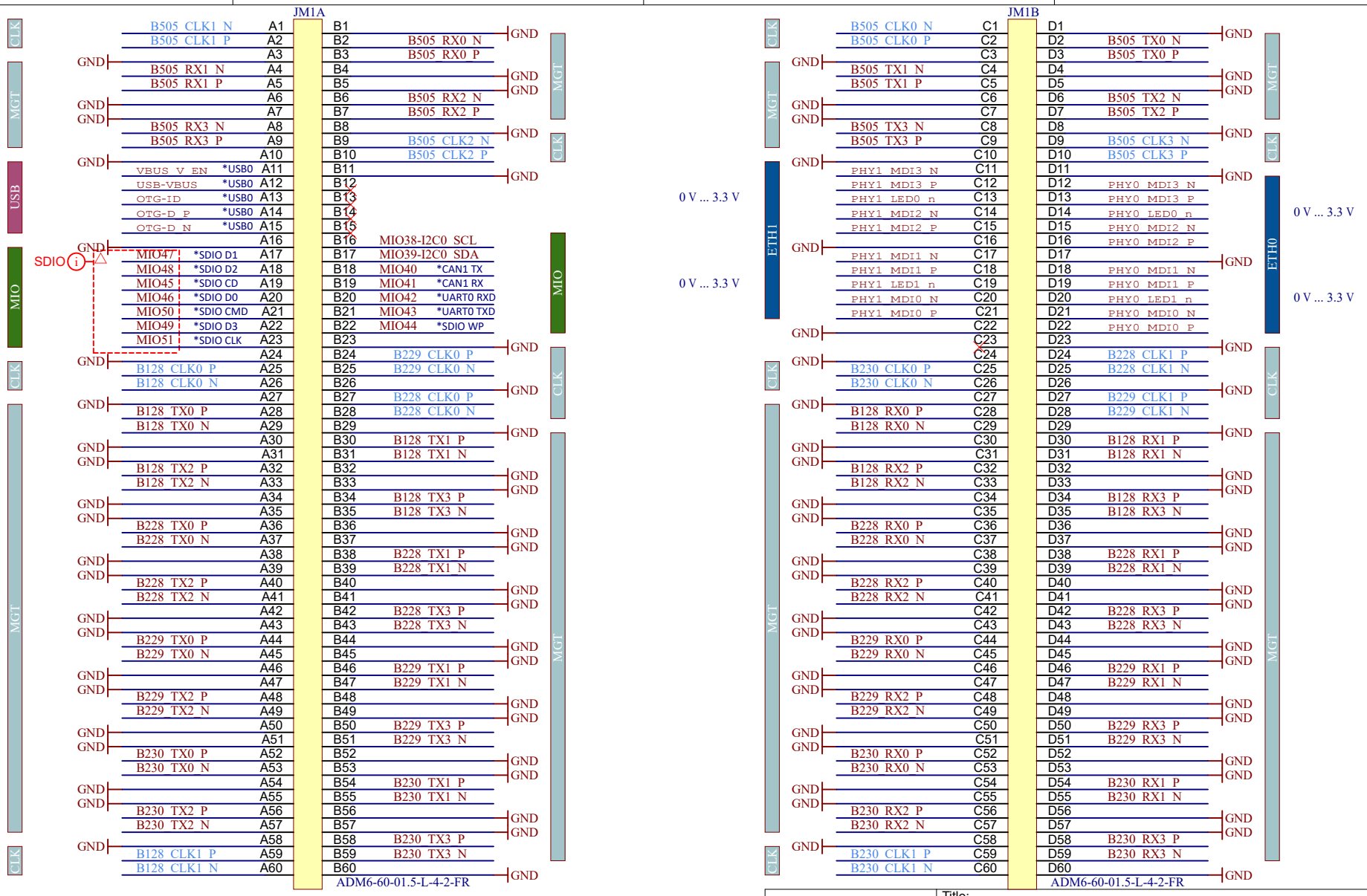
Title: TE0861		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 5 of 35
Filename: TE0861.SchDoc		



Title: TE0861 – Connector JM1

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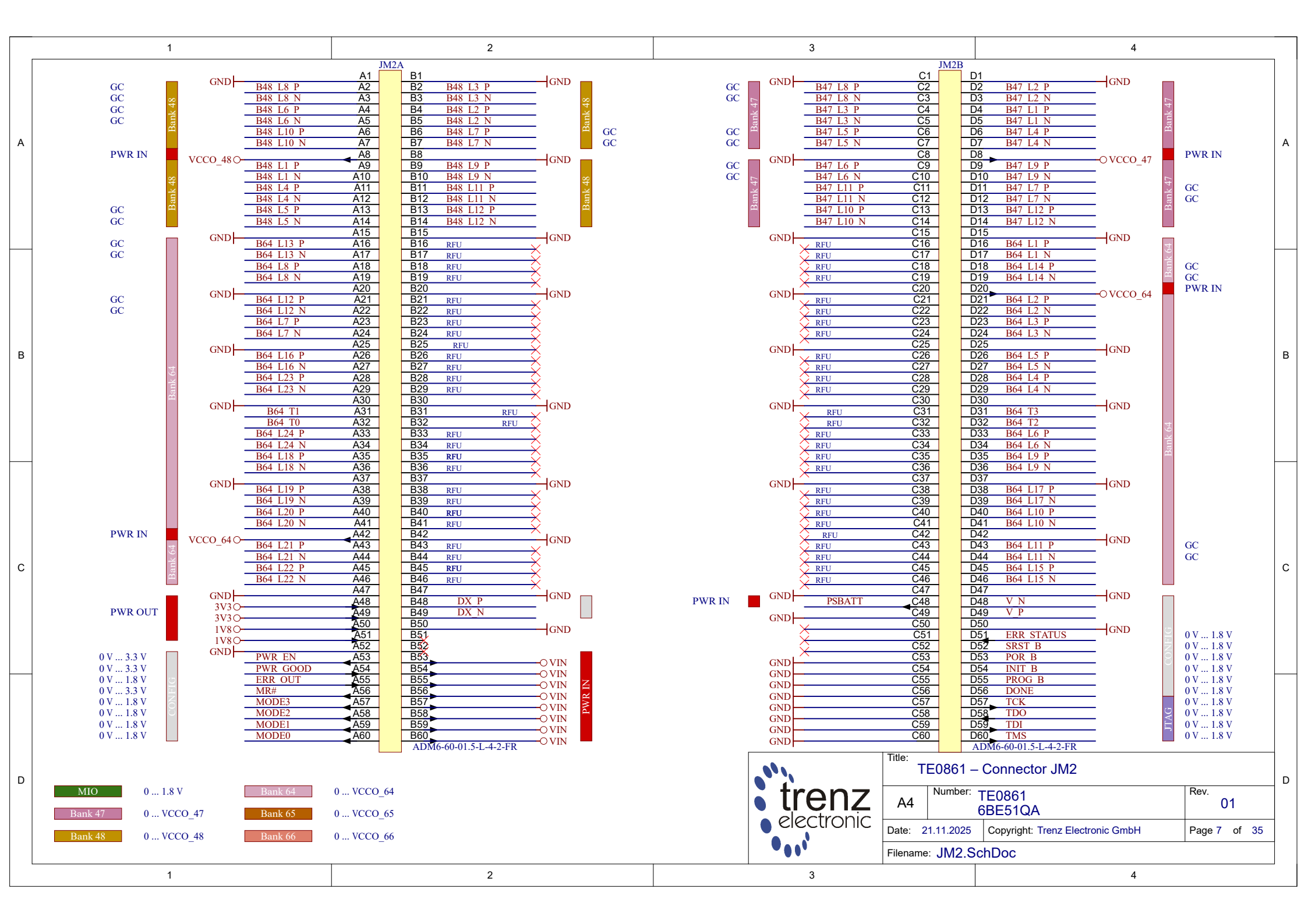
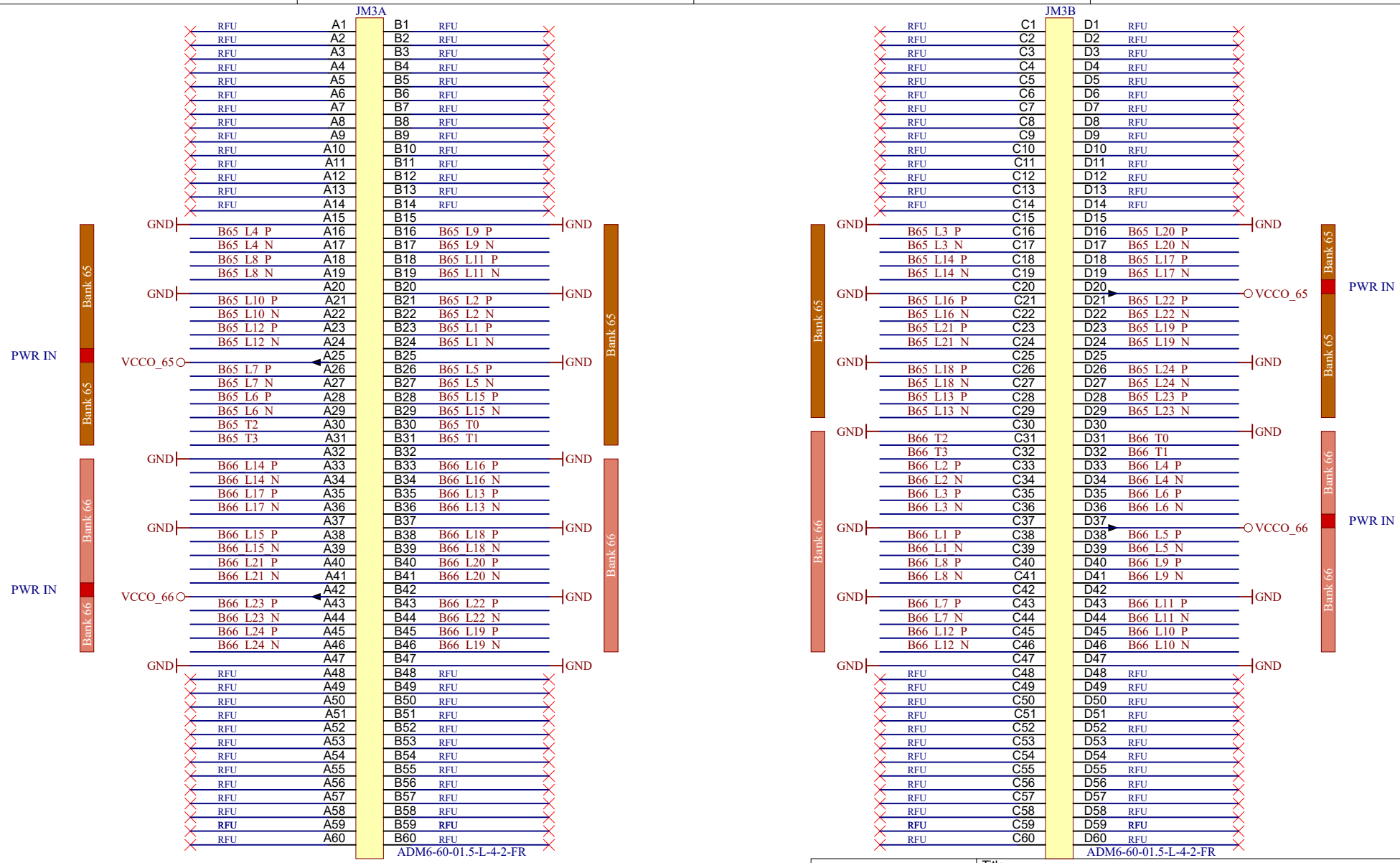
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 6 of 35
Filename: JM1.SchDoc		


JM2A
JM2B
ADM6-60-01.5-L-4-2-FR
ADM6-60-01.5-L-4-2-FR
PWR IN
PWR OUT
PWR IN
PWR IN
PWR IN
VCCO_48
VCCO_64
VCCO_47
VCCO_64
PSBATT
Bank 48
Bank 64
Bank 47
CONFIG
JTAG
MIO 0 ... 1.8 V
Bank 47 0 ... VCCO_47
Bank 48 0 ... VCCO_48
Bank 64 0 ... VCCO_64
Bank 65 0 ... VCCO_65
Bank 66 0 ... VCCO_66
Title: TE0861 – Connector JM2
A4
Number: TE0861 6BE51QA
Rev. 01
Date: 21.11.2025
Copyright: Trenz Electronic GmbH
Page 7 of 35
Filename: JM2.SchDoc



Title: TE0861 – Connector JM3

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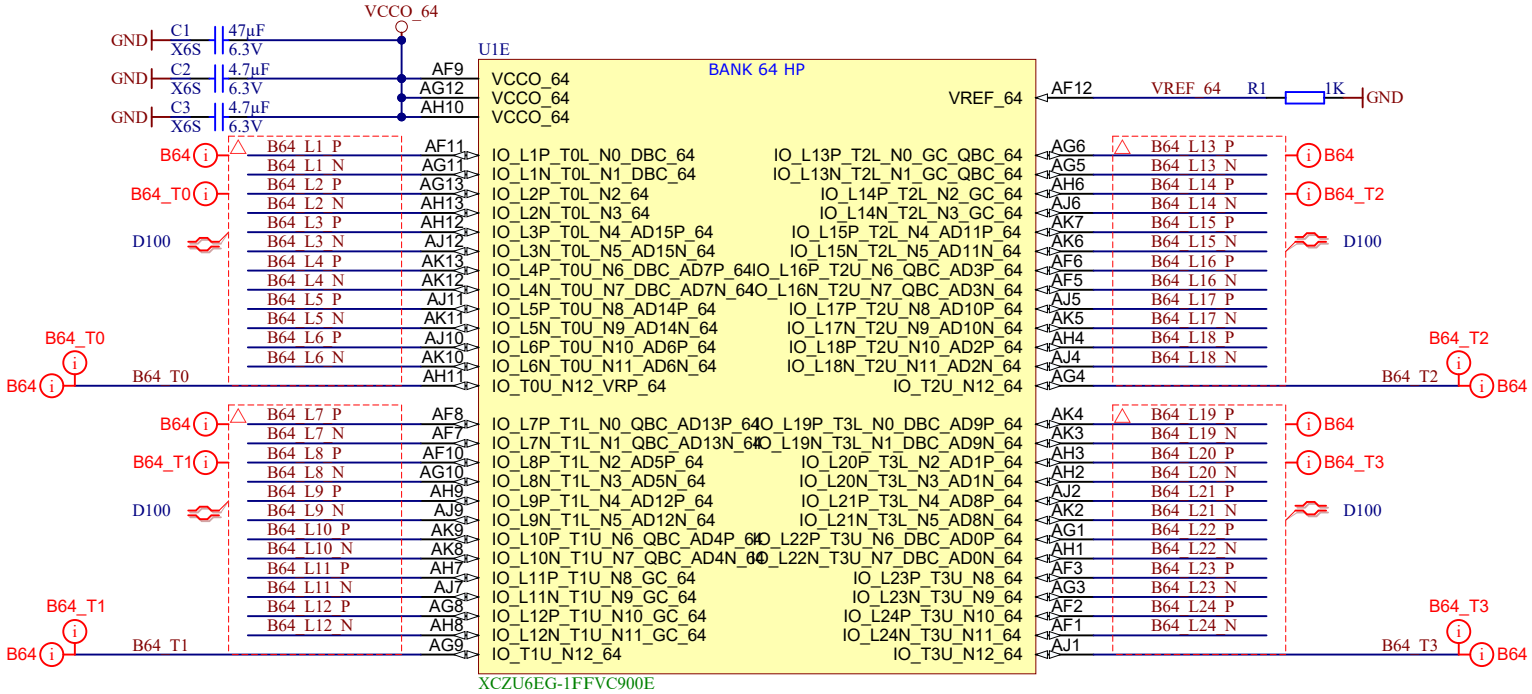
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 8 of 35
Filename: JM3.SchDoc		



trenz electronic	Title: TE0861 – B64		
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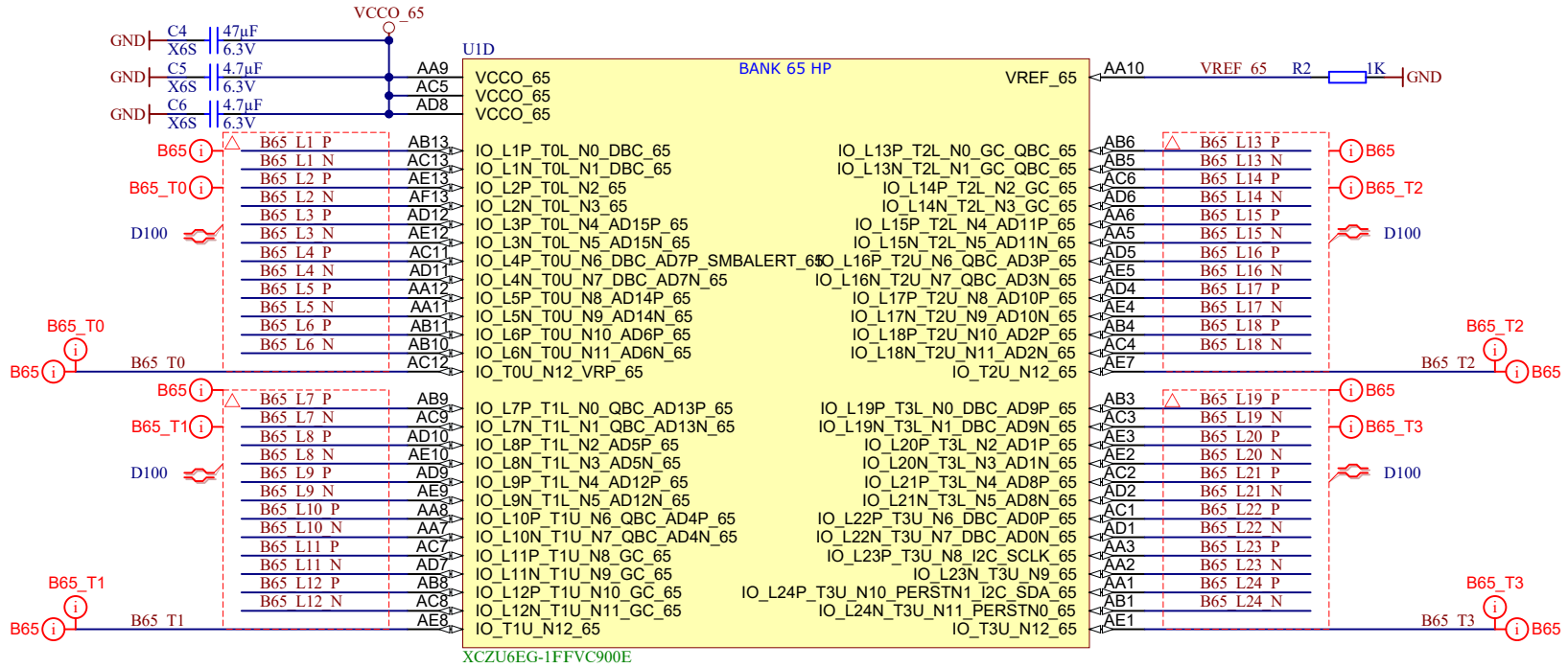
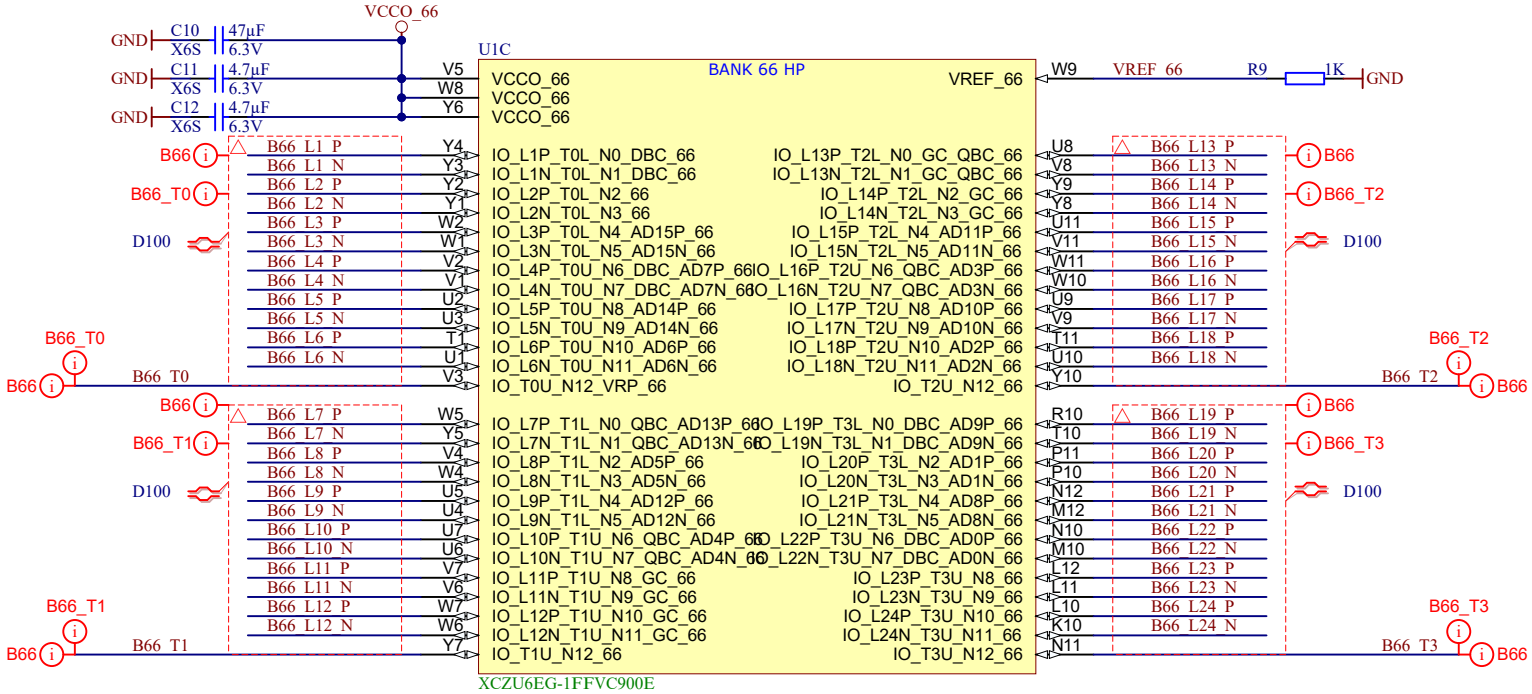
	Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 9 of 35
	Filename: B64.SchDoc		



trenz electronic	Title: TE0861 – B65		
A4	Number: TE0861 6BE51QA		Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 10 of 35
Filename: B65.SchDoc			



trenz electronic	Title: TE0861 – B66		
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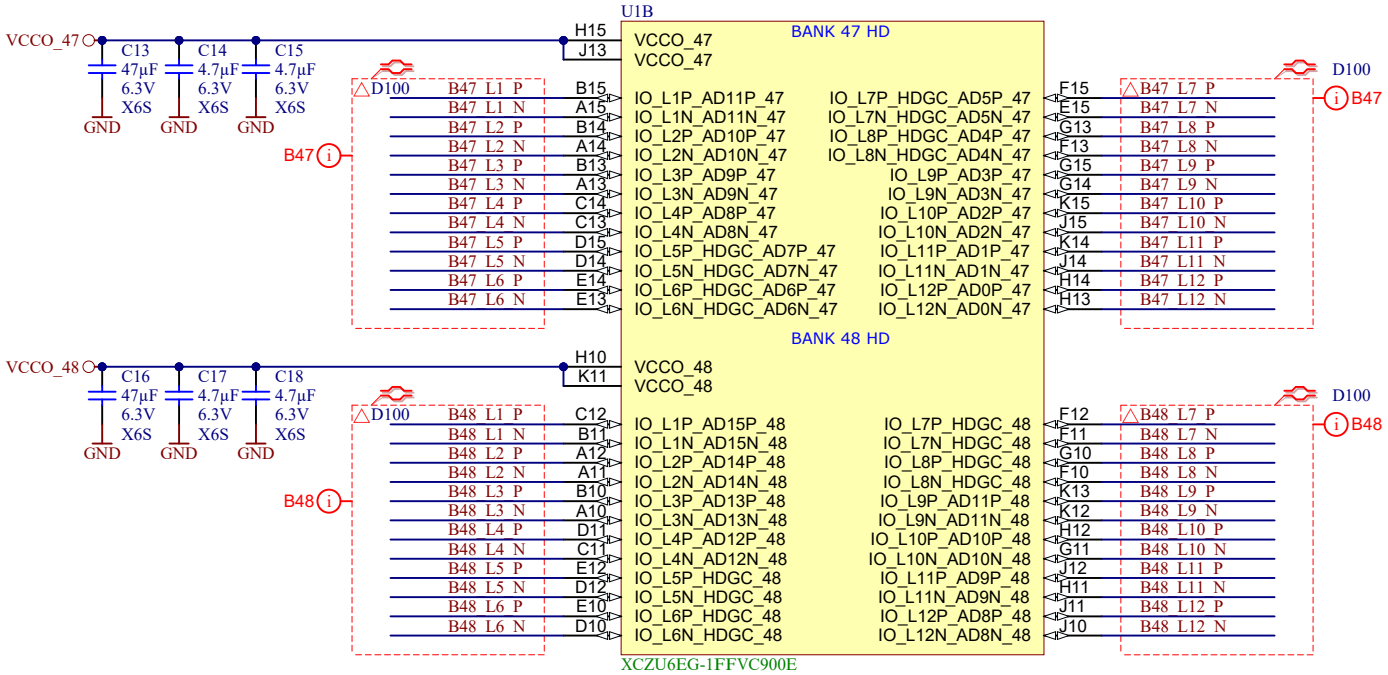
	Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 11 of 35
	Filename: B66.SchDoc		



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Title: TE0861 – B_HD		
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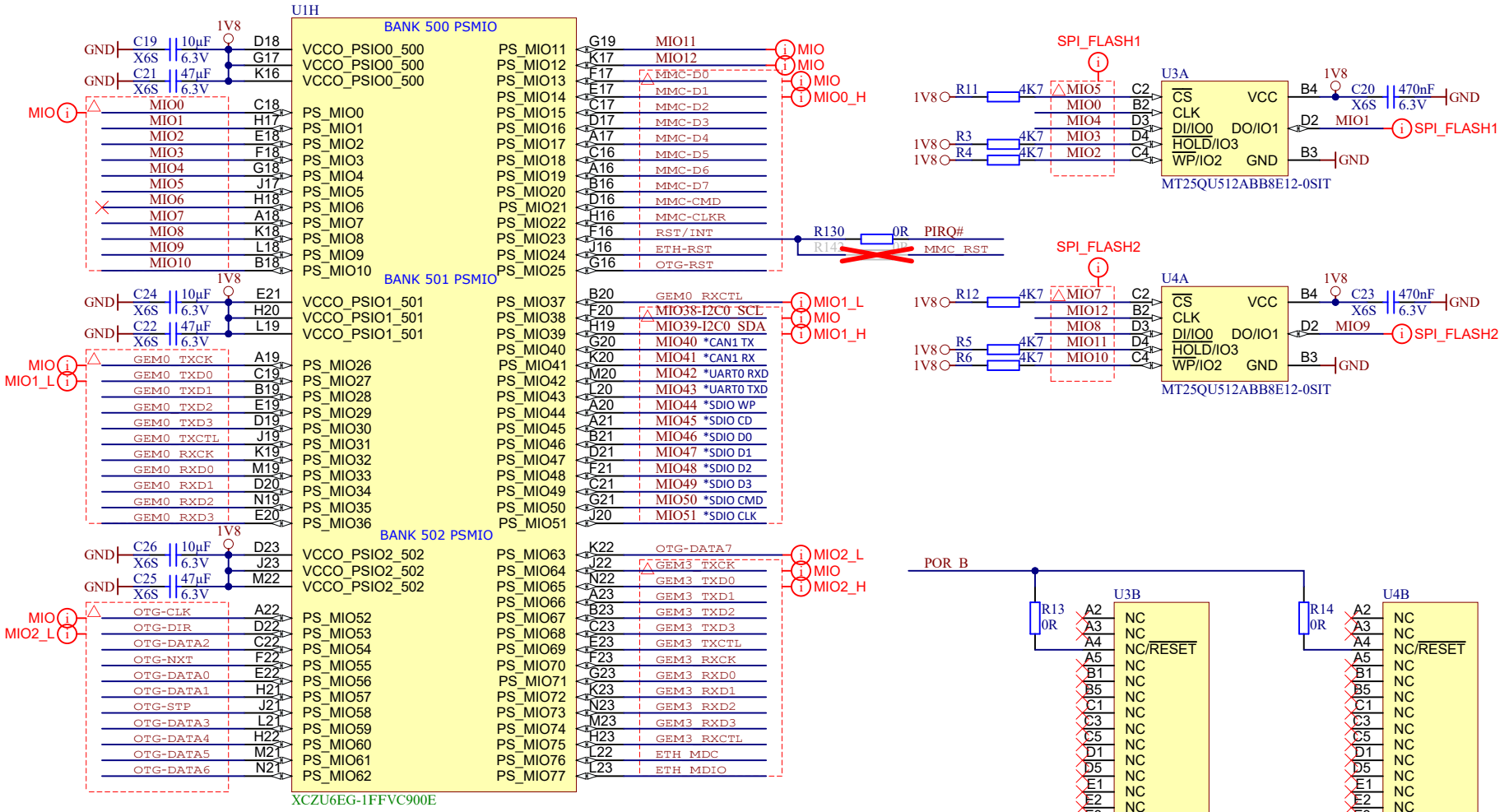
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 12 of 35
Filename: B_HD.SchDoc		



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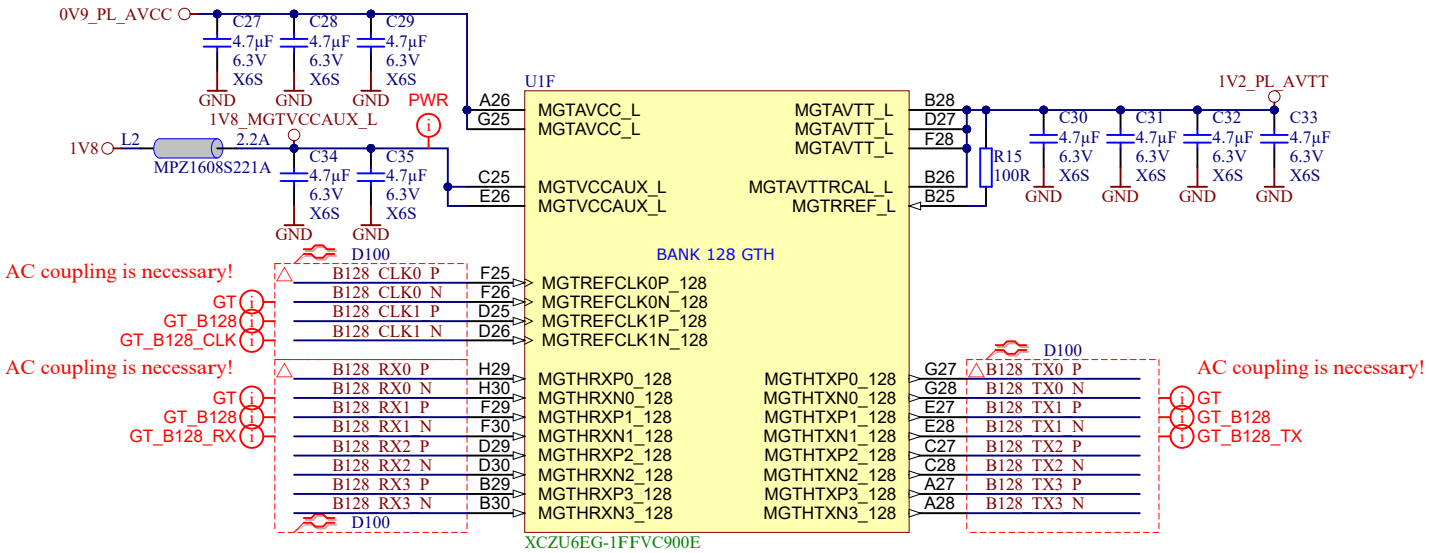
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 13 of 35
Filename: B_MIO.SchDoc			



trenz electronic	Title: TE0861 – B_GT_L		
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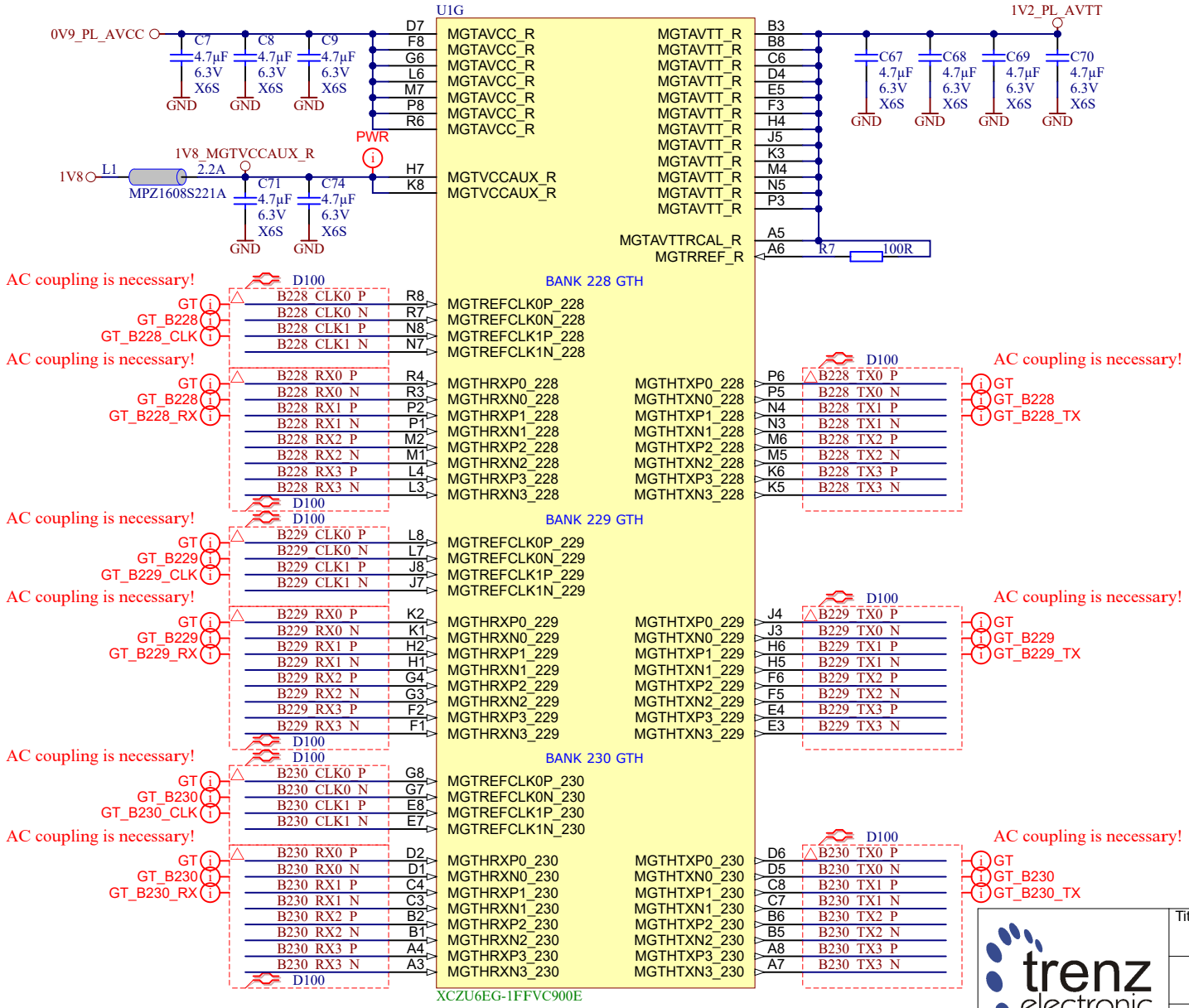
	Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 14 of 35
	Filename: B_GT_L.SchDoc		



Title: TE0861 – B_GT_R			
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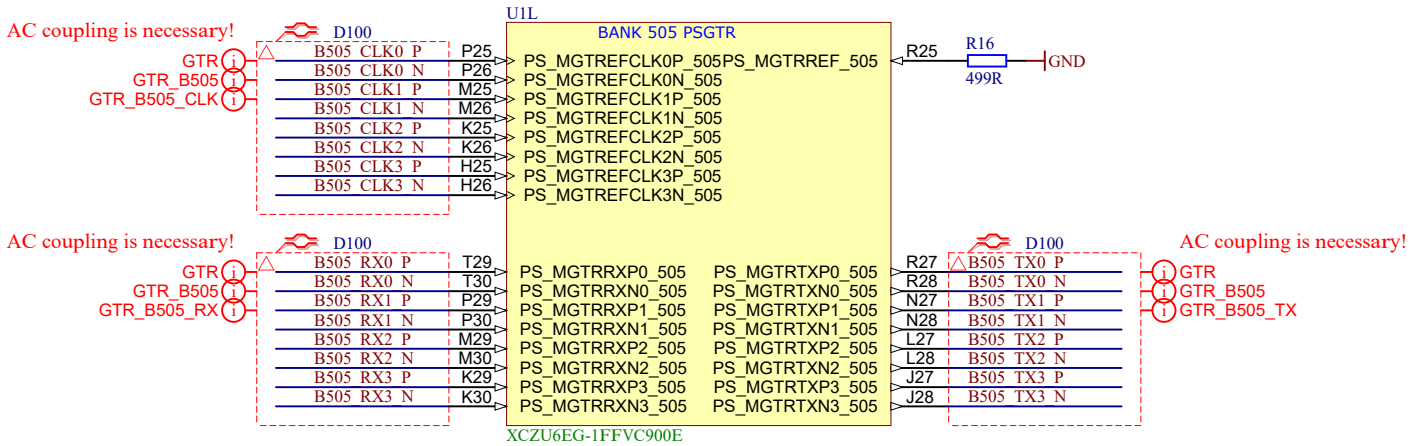
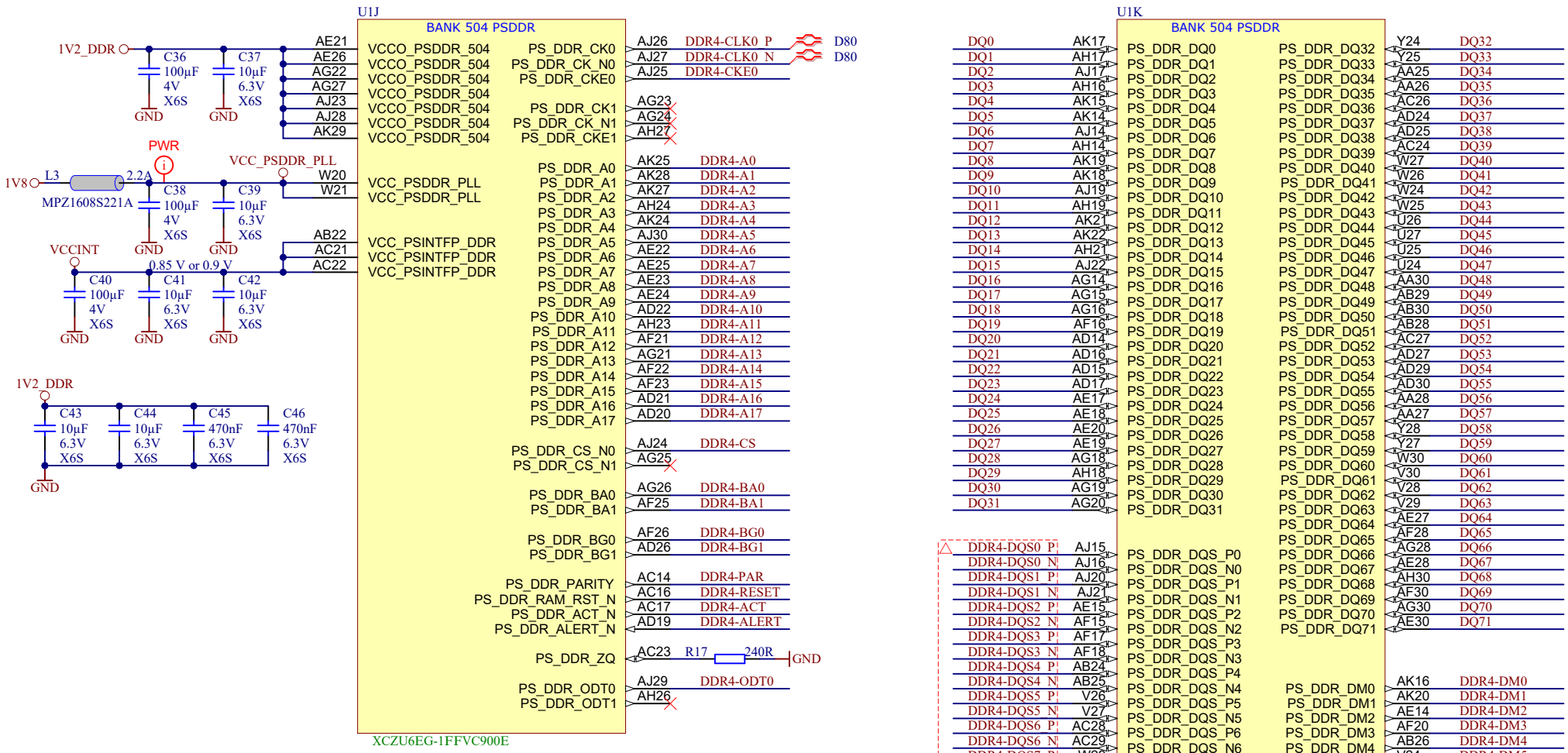
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 15 of 35
Filename: B_GT_R.SchDoc			



trenz electronic	Title: TE0861 – B_PS_GT		
	A4	Number: TE0861 6BE51QA	Rev. 01
	Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 16 of 35
	Filename: B_PS_GT.SchDoc		



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Title: TE0861 – PS_DDR		
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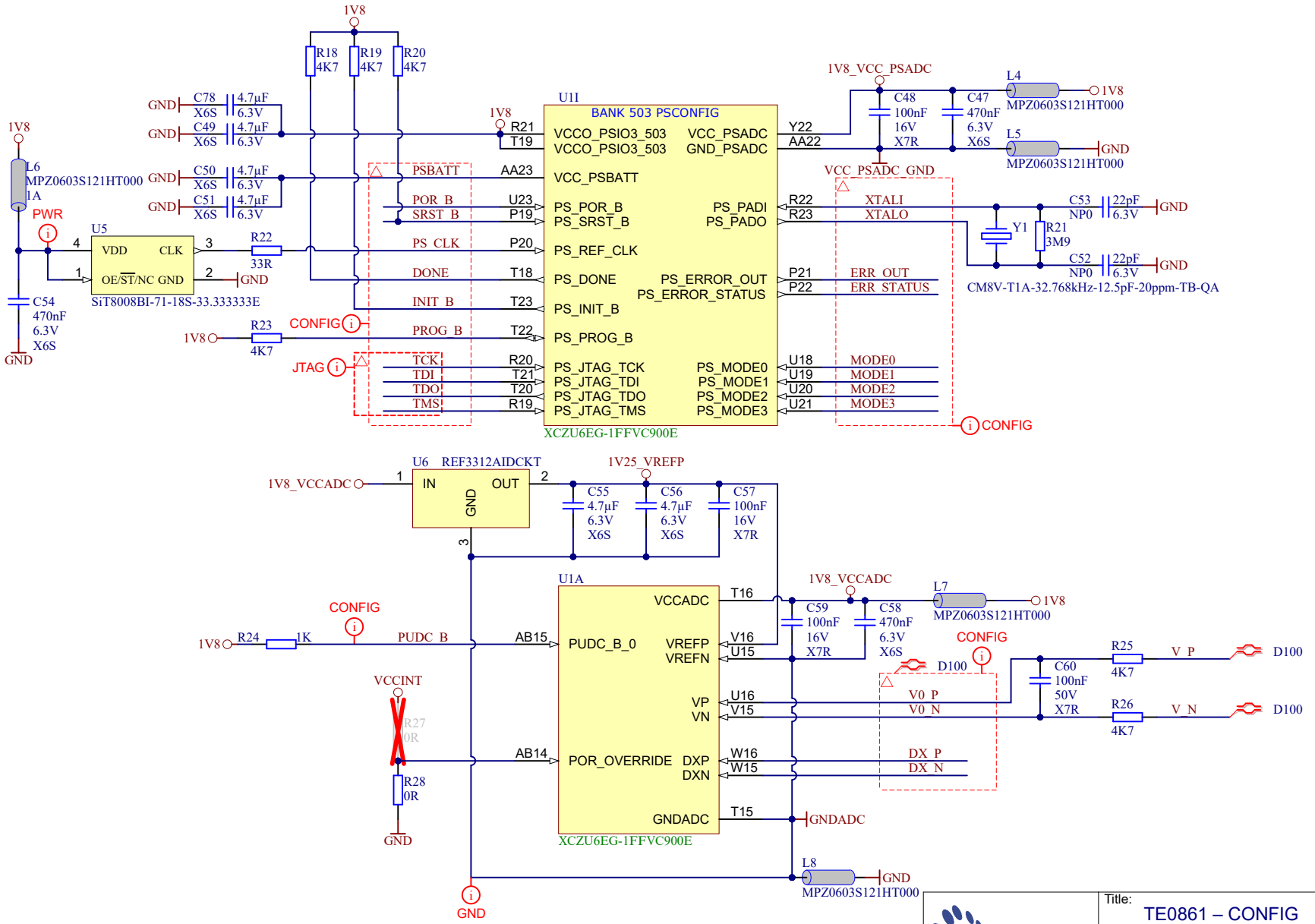
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 17 of 35
Filename: PS_DDR.SchDoc		



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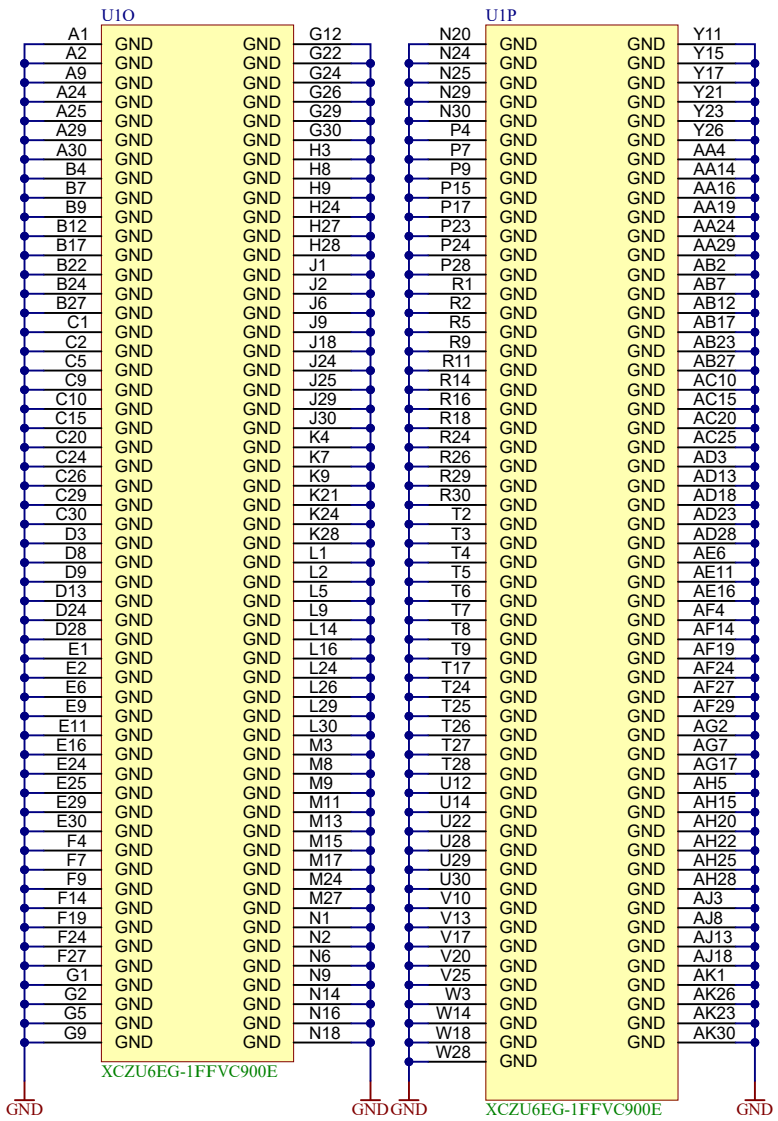
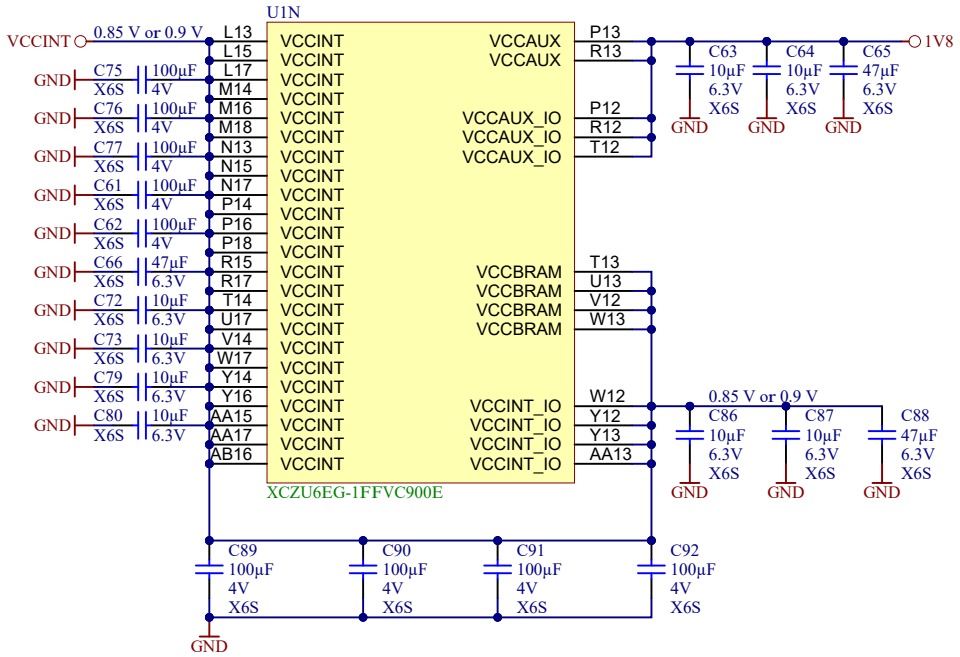
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 18 of 35
Filename: CONFIG.SchDoc			





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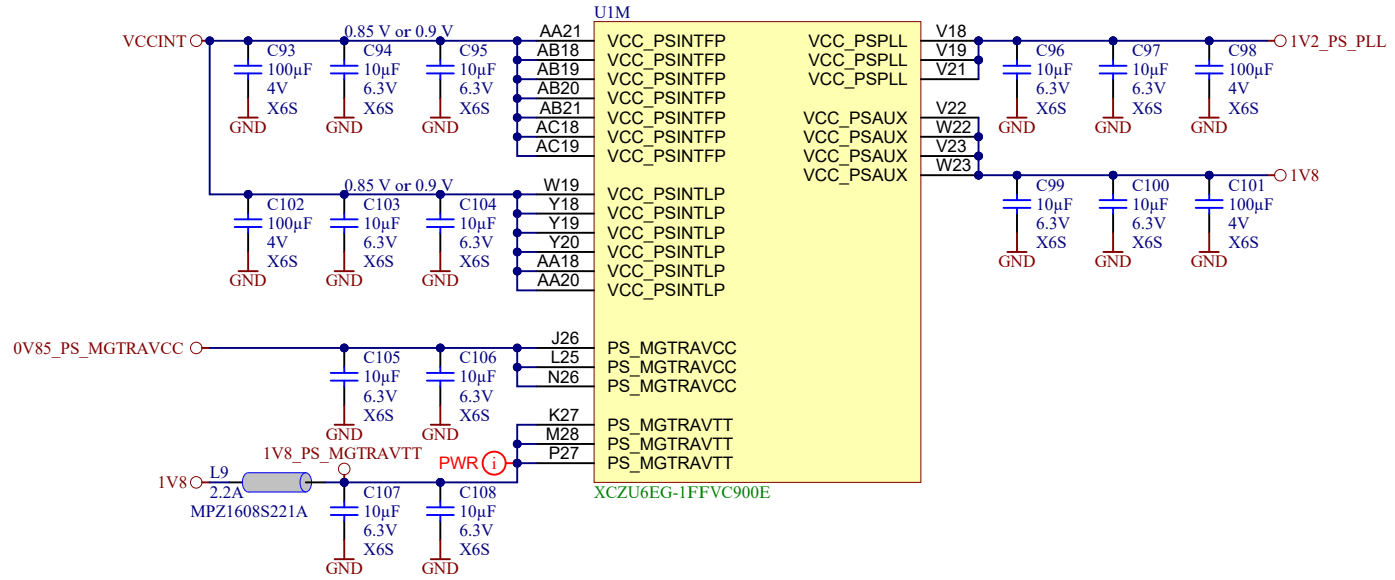
Title: TE0861 – ZU_POWER			
A4	Number: TE0861 6BE51QA		Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 19 of 35
Filename: ZU_POWER.SchDoc			



trenz electronic	Title: TE0861 – ZU_PS_POWER	
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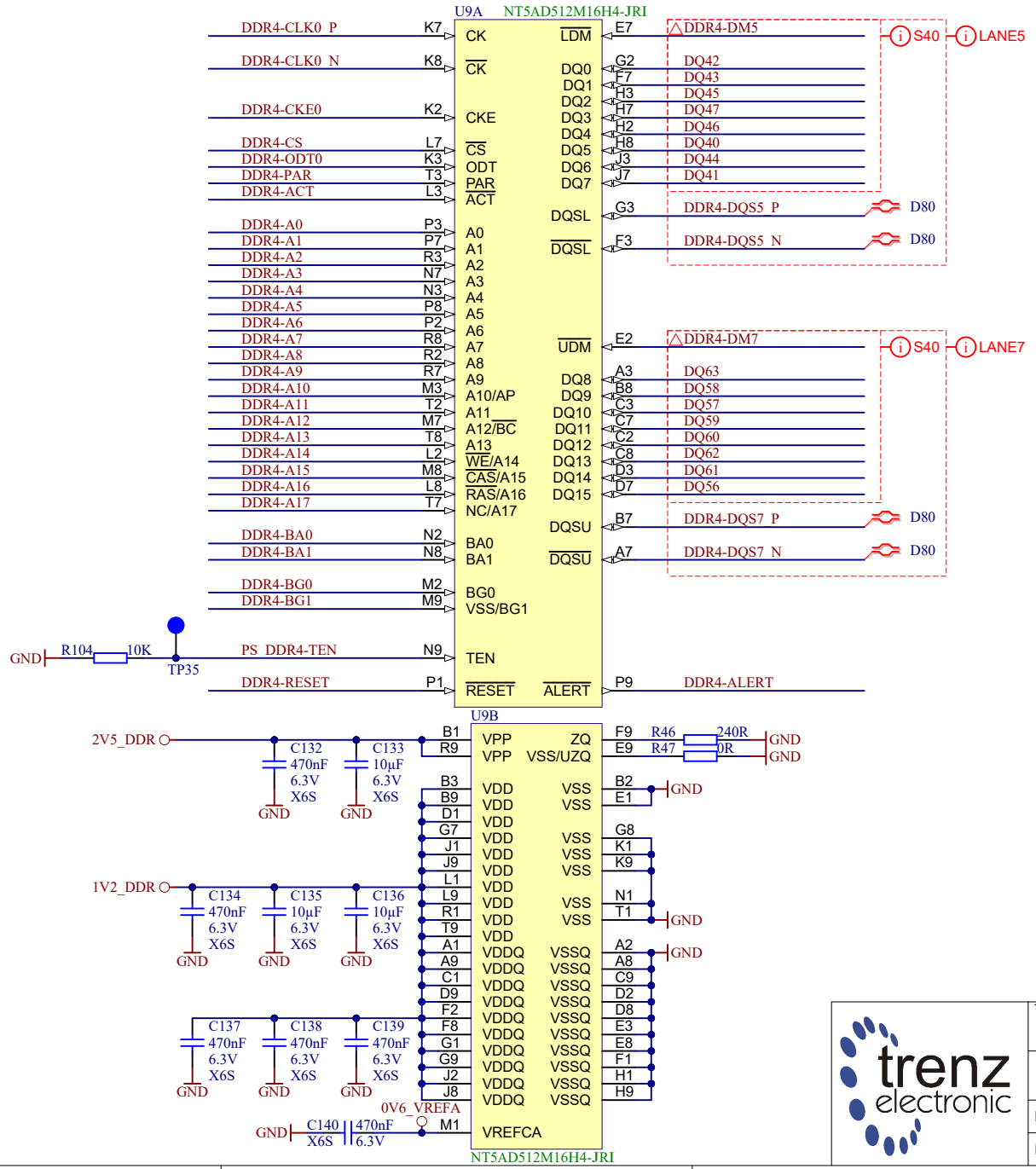
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 20 of 35
Filename: ZU_PS_POWER.SchDoc		



Title: TE0861 – DDR4-RAM_1			
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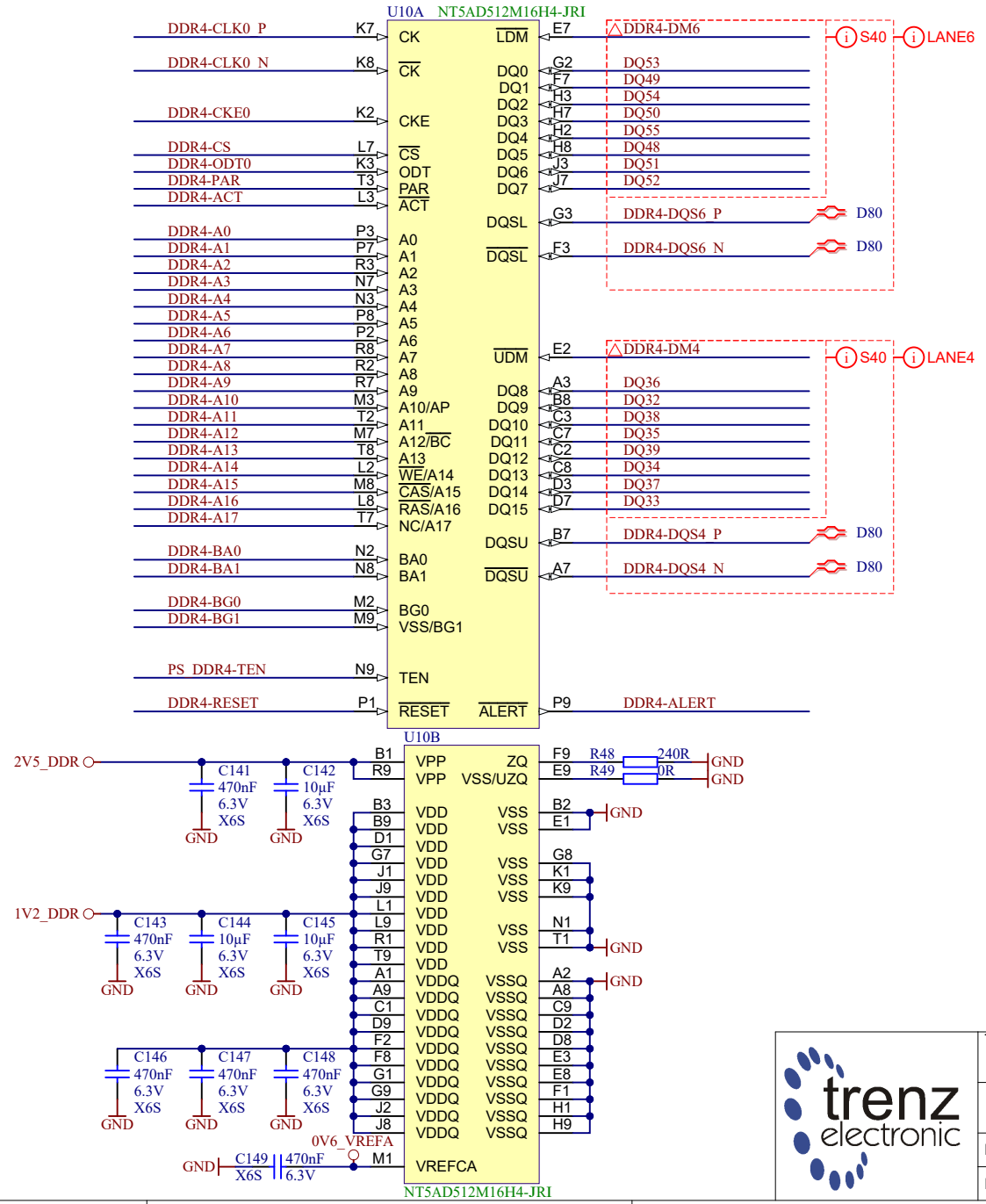
Date: 23.01.2026	Copyright: Trenz Electronic GmbH		Page 21 of 35
Filename: DDR4-RAM_1.SchDoc			



trenz electronic	Title: TE0861 – DDR4-RAM_2		
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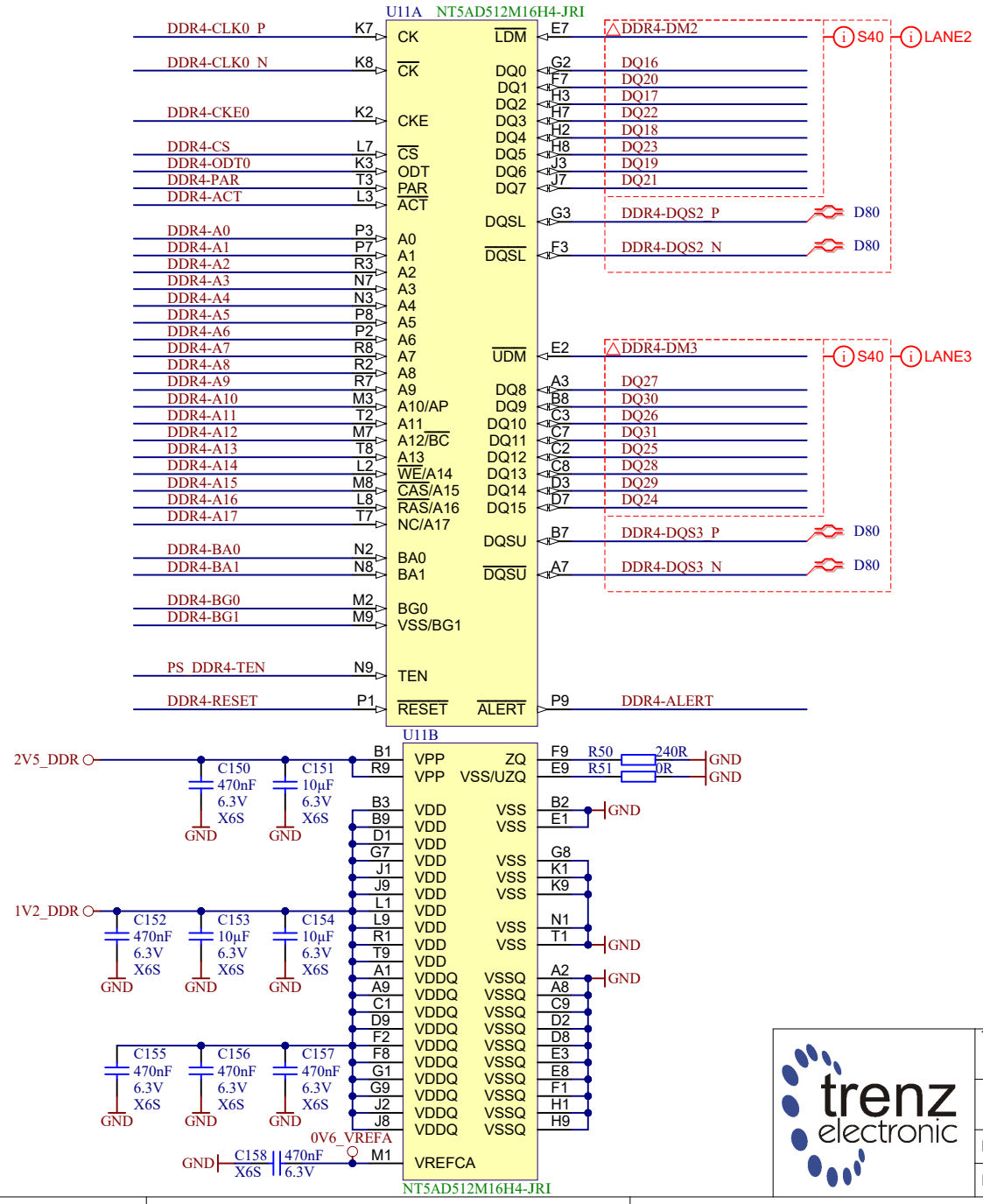
	Date: 23.01.2026	Copyright: Trenz Electronic GmbH	Page 22 of 35
	Filename: DDR4-RAM_2.SchDoc		



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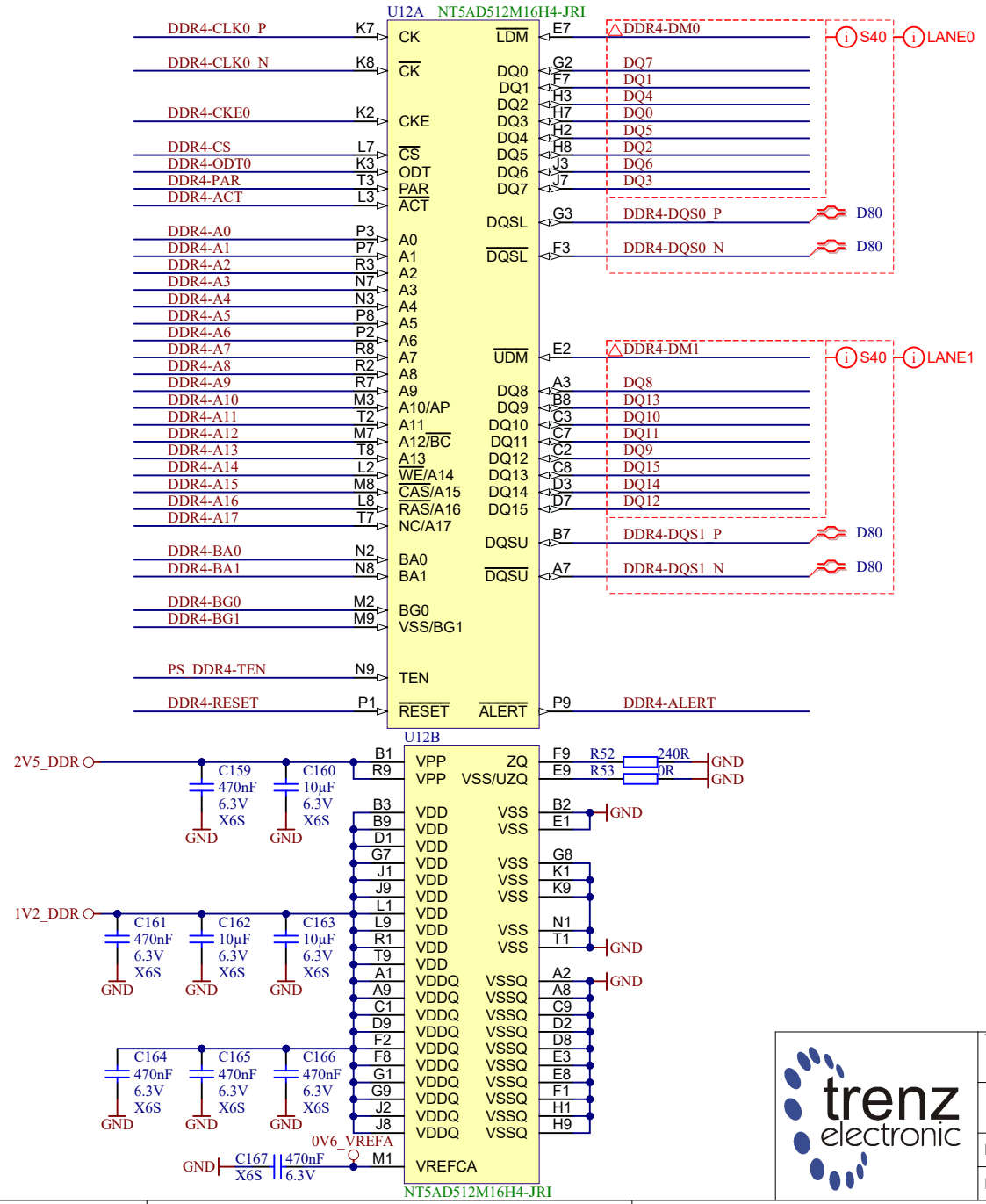
Date: 23.01.2026	Copyright: Trenz Electronic GmbH		Page 23 of 35
Filename: DDR4-RAM_3.SchDoc			



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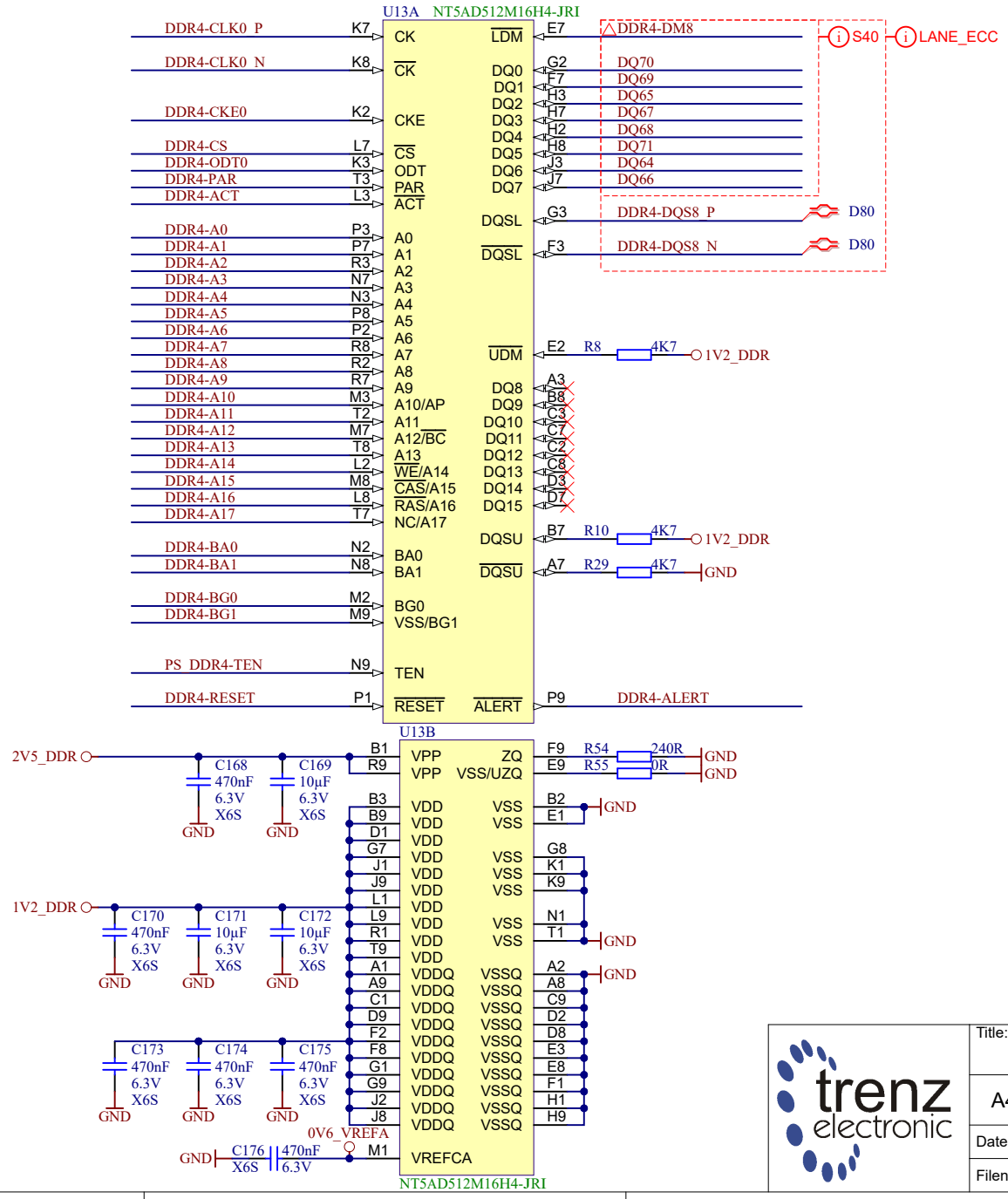
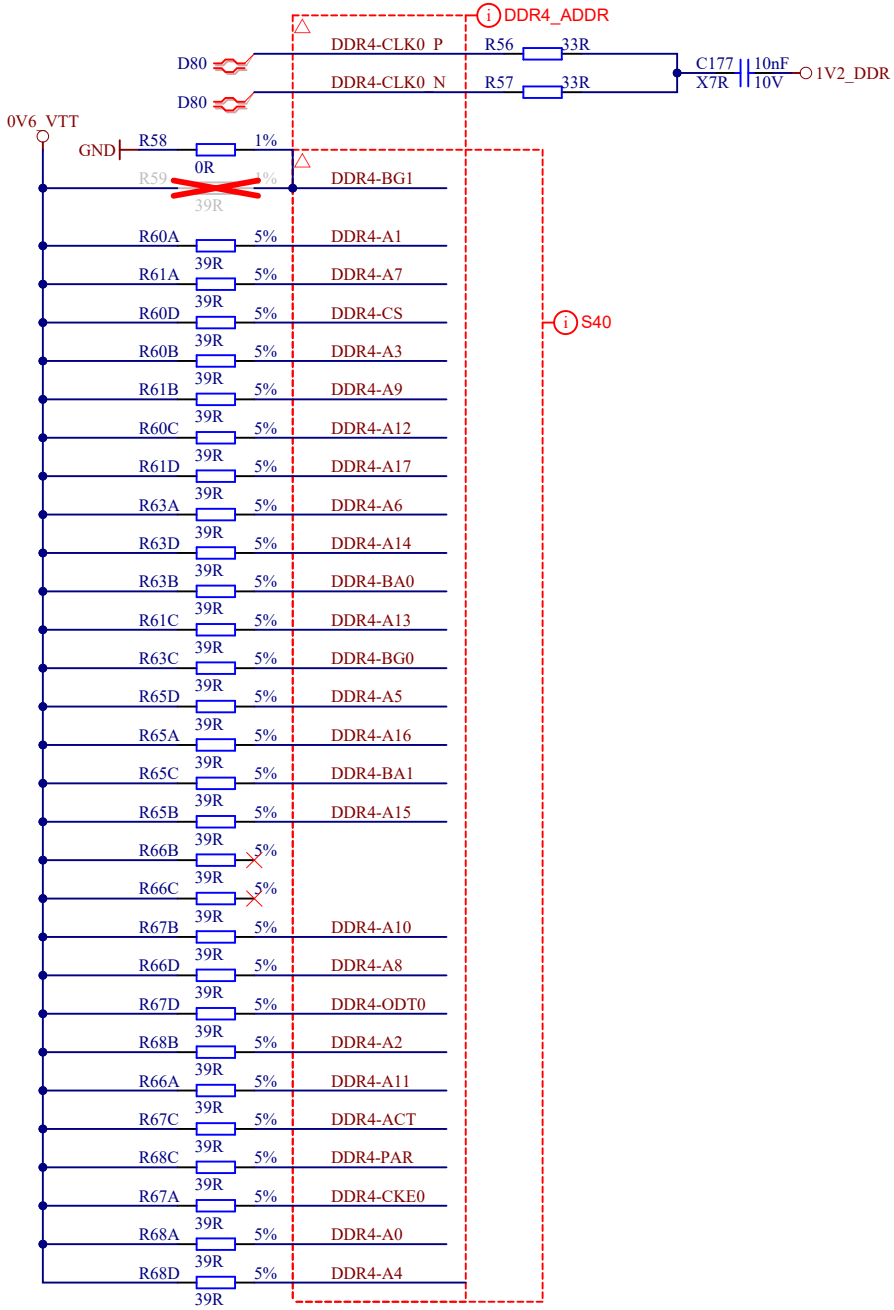
Title: TE0861 – DDR4-RAM_4			
A4	Number: TE0861 6BE51QA		Rev. 01
Date: 23.01.2026	Copyright: Trenz Electronic GmbH		Page 24 of 35
Filename: DDR4-RAM_4.SchDoc			



Title: TE0861 – DDR4-RAM_5			
A4	Number: TE0861 6BE51QA		Rev. 01
Date: 23.01.2026	Copyright: Trenz Electronic GmbH		Page 25 of 35
Filename: DDR4-RAM_5.SchDoc			



Title: TE0861 – DDR4-TERM			
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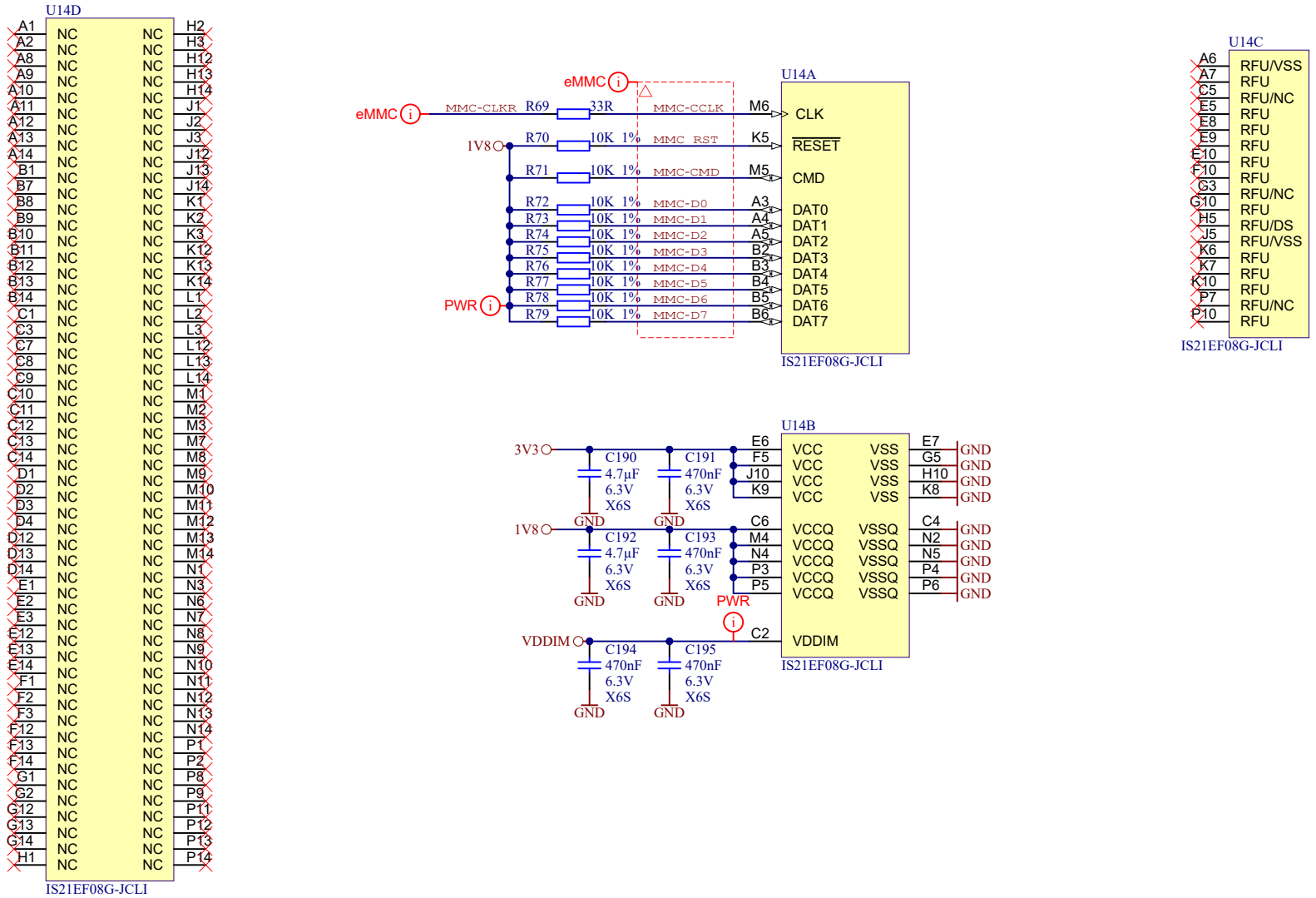
Date: 21.11.2025	Copyright: Trenz Electronic GmbH		Page 26 of 35
Filename: DDR4-TERM.SchDoc			



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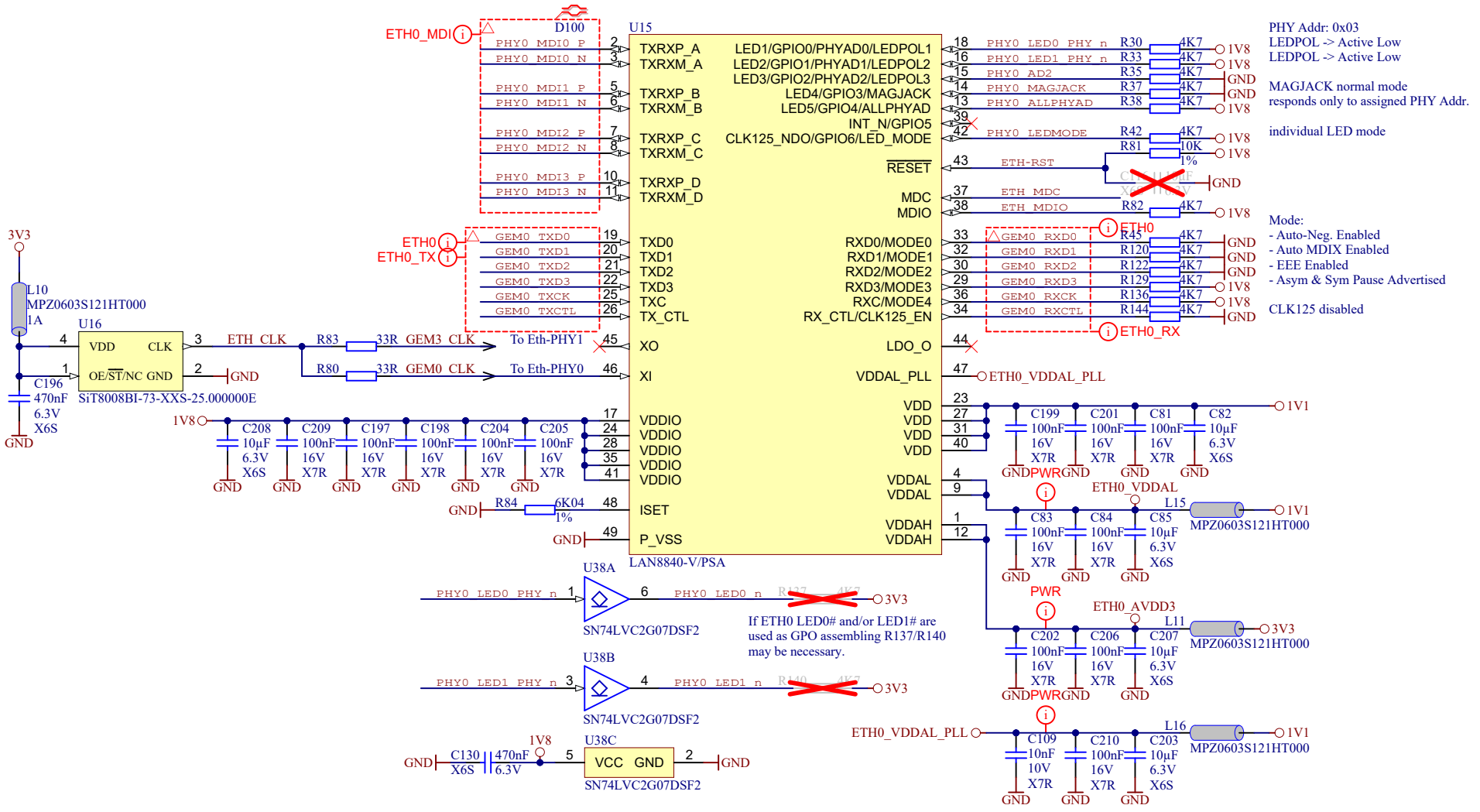
Title: TE0861 – eMMC		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 27 of 35
Filename: eMMC.SchDoc		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D100
U15
PHY0_MDI0_P
PHY0_MDI0_N
PHY0_MDI1_P
PHY0_MDI1_N
PHY0_MDI2_P
PHY0_MDI2_N
PHY0_MDI3_P
PHY0_MDI3_N
TXRXP_A
TXRXM_A
TXRXP_B
TXRXM_B
TXRXP_C
TXRXM_C
TXRXP_D
TXRXM_D
LED1/GPIO0/PHYAD0/LEDPOL1
LED2/GPIO1/PHYAD1/LEDPOL2
LED3/GPIO2/PHYAD2/LEDPOL3
LED4/GPIO3/MAGJACK
LED5/GPIO4/ALLPHYAD
INT_N/GPIO5
CLK125_NDO/GPIO6/LED_MODE
RESET
MDC
MDIO
PHY0_LED0_PHY_n
PHY0_LED1_PHY_n
PHY0_AD2
PHY0_MAGJACK
PHY0_ALLPHYAD
PHY0_LEDMODE
ETH-RST
ETH_MDC
ETH_MDIO
R30
R33
R35
R37
R38
R42
R81
R82
4K7
10K
1%
1V8
GND
PHY Addr: 0x03
LEDPOL -> Active Low
LEDPOL -> Active Low
MAGJACK normal mode
responds only to assigned PHY Addr.
individual LED mode
ETH0
ETH0_TX
GEM0_TXD0
GEM0_TXD1
GEM0_TXD2
GEM0_TXD3
GEM0_TXCK
GEM0_TXCTL
TXD0
TXD1
TXD2
TXD3
TXC
TX_CTL
RXD0/MODE0
RXD1/MODE1
RXD2/MODE2
RXD3/MODE3
RXC/MODE4
RX_CTL/CLK125_EN
GEM0_RXD0
GEM0_RXD1
GEM0_RXD2
GEM0_RXD3
GEM0_RXCK
GEM0_RXCTL
R45
R120
R122
R129
R136
R144
ETH0_RX
Mode:
- Auto-Neg. Enabled
- Auto MDIX Enabled
- EEE Enabled
- Asym & Sym Pause Advertised
CLK125 disabled
3V3
L10
MPZ0603S121HT000
1A
U16
VDD
CLK
OE/ST/NC
GND
ETH_CLK
R83
33R_GEM3_CLK
To Eth-PHY1
R80
33R_GEM0_CLK
To Eth-PHY0
C196
470nF
6.3V
X6S
SiT8008BI-73-XXS-25.000000E
XO
XI
LDO_O
VDDAL_PLL
ETH0_VDDAL_PLL
VDDIO
VDD
VDDAL
VDDAH
C208
C209
C197
C198
C204
C205
C199
C201
C81
C82
C83
C84
C85
C202
C206
C207
C109
C210
C203
10µF
100nF
10nF
16V
10V
X7R
X6S
1V1
PWR
ETH0_VDDAL
ETH0_AVDD3
L15
L11
L16
MPZ0603S121HT000
R84
6K04
ISET
P_VSS
LAN8840-V/PSA
U38A
U38B
U38C
SN74LVC2G07DSF2
If ETH0 LED0# and/or LED1# are used as GPO assembling R137/R140 may be necessary.
C130
470nF
6.3V
VCC
GND
U17
SCL
SDA
VSS
A0
A1
C211
R85
R86
1K
MIO38-I2C0_SCL
MIO39-I2C0_SDA
24AA025E48T-I/OT
EEPROM for MAC
Slave address: 1010000
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Title:
TE0861 – ETH0-PHY
A4
Number:
TE0861
6BE51QA
Rev.
01
Date:
21.11.2025
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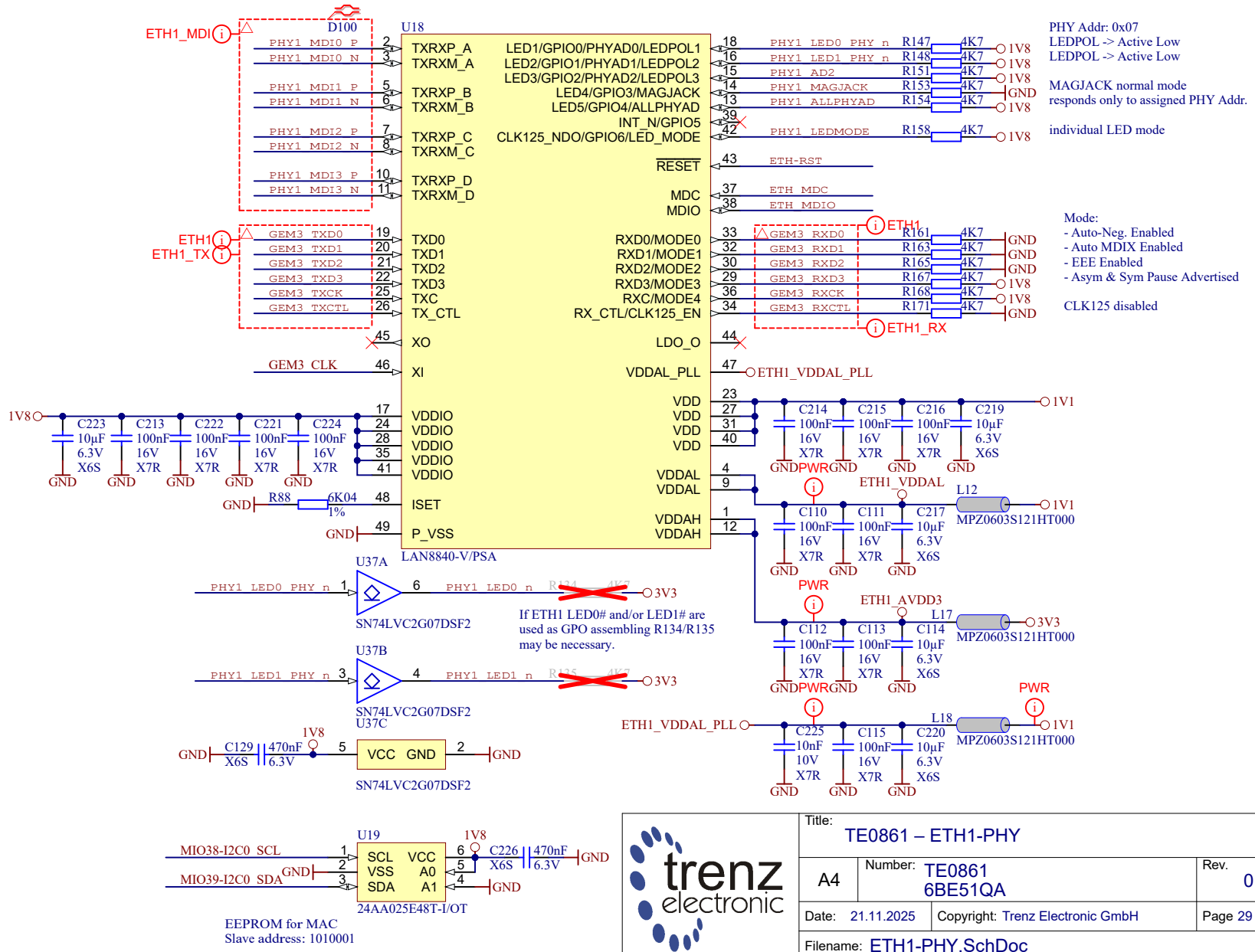
Page 28 of 35
Filename:
ETH0-PHY.SchDoc


U18
LAN8840-V/PSA
D100
ETH1_MDI
PHY1_MDI0_P
PHY1_MDI0_N
PHY1_MDI1_P
PHY1_MDI1_N
PHY1_MDI2_P
PHY1_MDI2_N
PHY1_MDI3_P
PHY1_MDI3_N
TXRXP_A
TXRXM_A
TXRXP_B
TXRXM_B
TXRXP_C
TXRXM_C
TXRXP_D
TXRXM_D
ETH1
ETH1_TX
GEM3_TXD0
GEM3_TXD1
GEM3_TXD2
GEM3_TXD3
GEM3_TXCK
GEM3_TXCTL
TXD0
TXD1
TXD2
TXD3
TXC
TX_CTL
XO
XI
GEM3_CLK
VDDIO
ISET
P_VSS
R88
6K04
1%
LED1/GPIO0/PHYAD0/LEDPOL1
LED2/GPIO1/PHYAD1/LEDPOL2
LED3/GPIO2/PHYAD2/LEDPOL3
LED4/GPIO3/MAGJACK
LED5/GPIO4/ALLPHYAD
INT_N/GPIO5
CLK125_NDO/GPIO6/LED_MODE
RESET
MDC
MDIO
RXD0/MODE0
RXD1/MODE1
RXD2/MODE2
RXD3/MODE3
RXC/MODE4
RX_CTL/CLK125_EN
LDO_O
VDDAL_PLL
VDD
VDDAL
VDDAH
PHY1_LED0_PHY_n
PHY1_LED1_PHY_n
PHY1_AD2
PHY1_MAGJACK
PHY1_ALLPHYAD
PHY1_LEDMODE
ETH-RST
ETH_MDC
ETH_MDIO
R147
R148
R151
R153
R154
R158
R161
R163
R165
R167
R168
R171
4K7
1V8
GND
ETH1_RX
PHY Addr: 0x07
LEDPOL -> Active Low
LEDPOL -> Active Low
MAGJACK normal mode
responds only to assigned PHY Addr.
individual LED mode
Mode:
- Auto-Neg. Enabled
- Auto MDIX Enabled
- EEE Enabled
- Asym & Sym Pause Advertised
CLK125 disabled
ETH1_VDDAL_PLL
C223 10µF 6.3V X6S
C213 100nF 16V X7R
C222 100nF 16V X7R
C221 100nF 16V X7R
C224 100nF 16V X7R
C214 100nF 16V X7R
C215 100nF 16V X7R
C216 100nF 16V X7R
C219 10µF 6.3V X6S
C110 100nF 16V X7R
C111 100nF 16V X7R
C217 10µF 6.3V X6S
C112 100nF 16V X7R
C113 100nF 16V X7R
C114 10µF 6.3V X6S
C225 10nF 10V X7R
C115 100nF 16V X7R
C220 10µF 6.3V X6S
L12
L17
L18
MPZ0603S121HT000
1V1
3V3
PWR
ETH1_VDDAL
ETH1_AVDD3
U37A
U37B
U37C
SN74LVC2G07DSF2
If ETH1 LED0# and/or LED1# are used as GPO assembling R134/R135 may be necessary.
C129 470nF 6.3V X6S
U19
MIO38-I2C0_SCL
MIO39-I2C0_SDA
SCL
SDA
VCC
VSS
A0
A1
C226 470nF 6.3V X6S
24AA025E48T-I/OT
EEPROM for MAC
Slave address: 1010001
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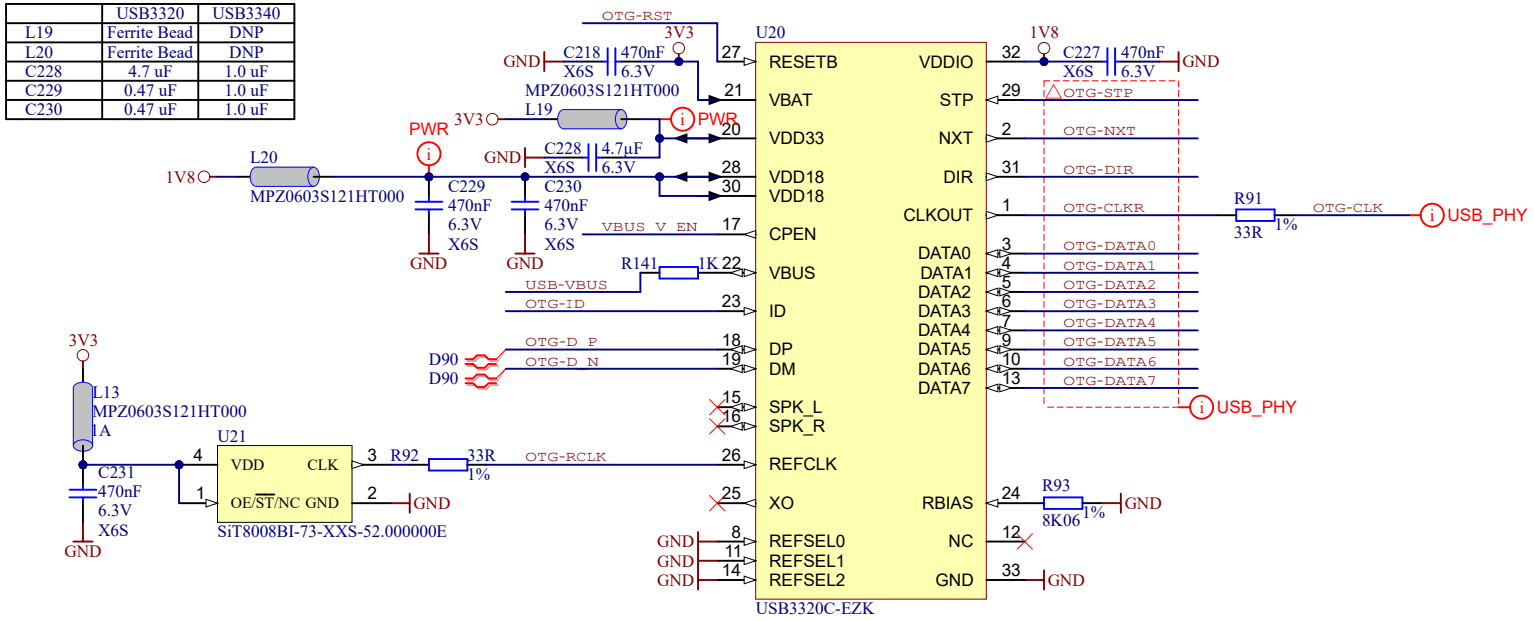
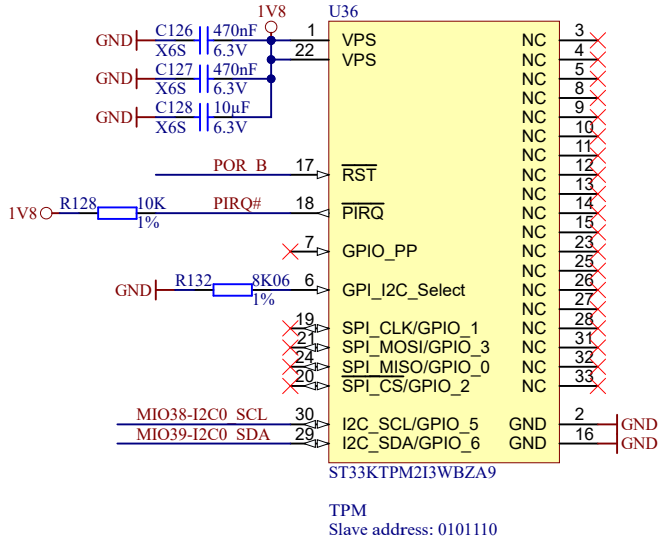
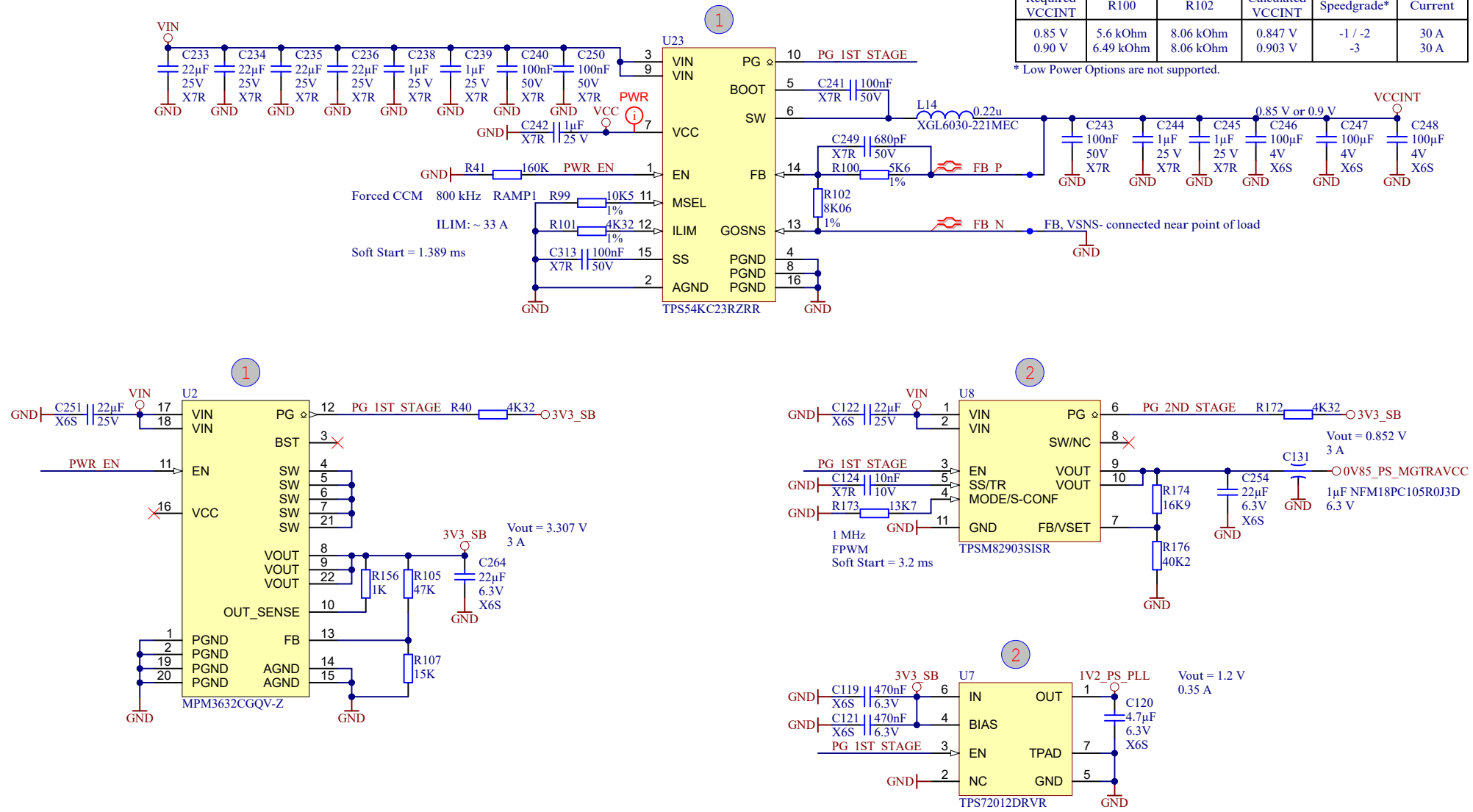
Title: TE0861 – ETH1-PHY
A4
Number: TE0861 6BE51QA
Rev. 01
Date: 21.11.2025
Copyright: Trenz Electronic GmbH
Page 29 of 35
Filename: ETH1-PHY.SchDoc



Title:	TE0861 – USB-PHY
A4	Number: TE0861 6BE51QA
Rev.	01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH
Page 30 of 35	
Filename:	USB-PHY.SchDoc



trenz electronic	Title: TE0861 – TPM		
	A4	Number: TE0861 6BE51QA	Rev. 01
	Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 31 of 35
	Filename: TPM.SchDoc		



Required VCCINT	R100	R102	Calculated VCCINT	Speedgrade*	Current
0.85 V 0.90 V	5.6 kOhm 6.49 kOhm	8.06 kOhm 8.06 kOhm	0.847 V 0.903 V	-1 / -2 -3	30 A 30 A

* Low Power Options are not supported.

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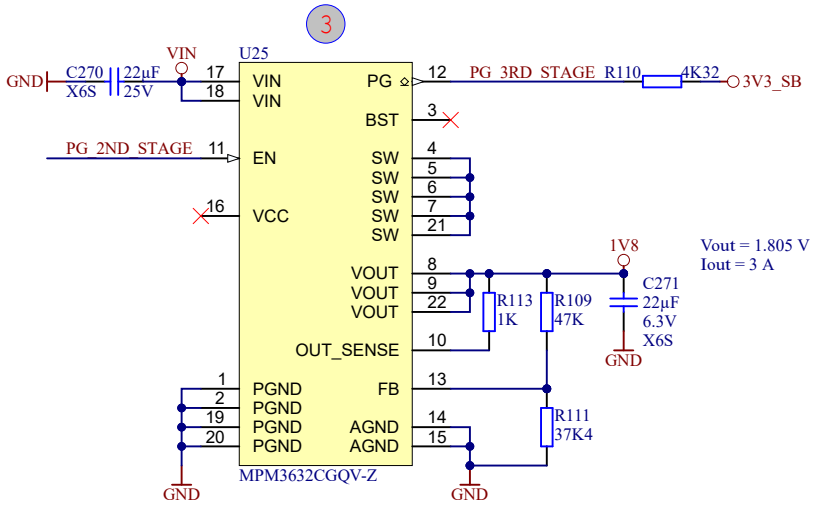
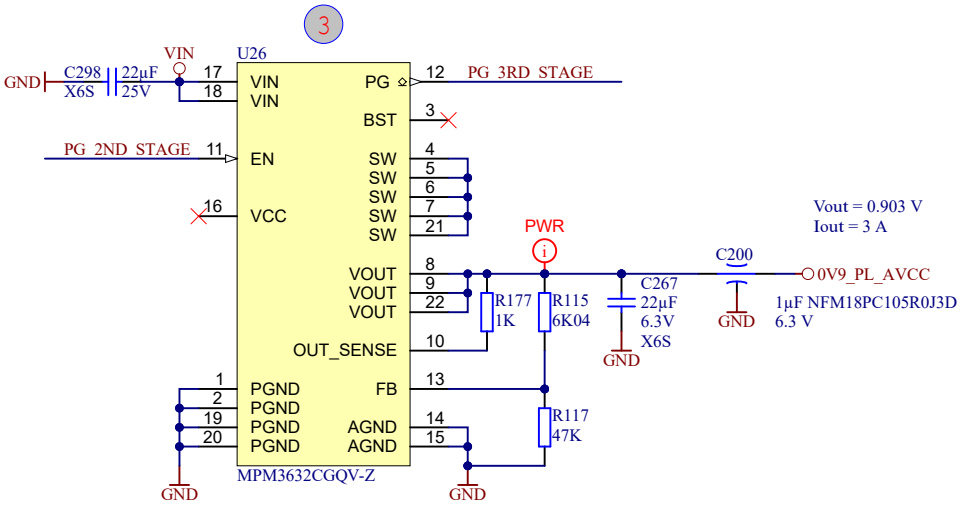
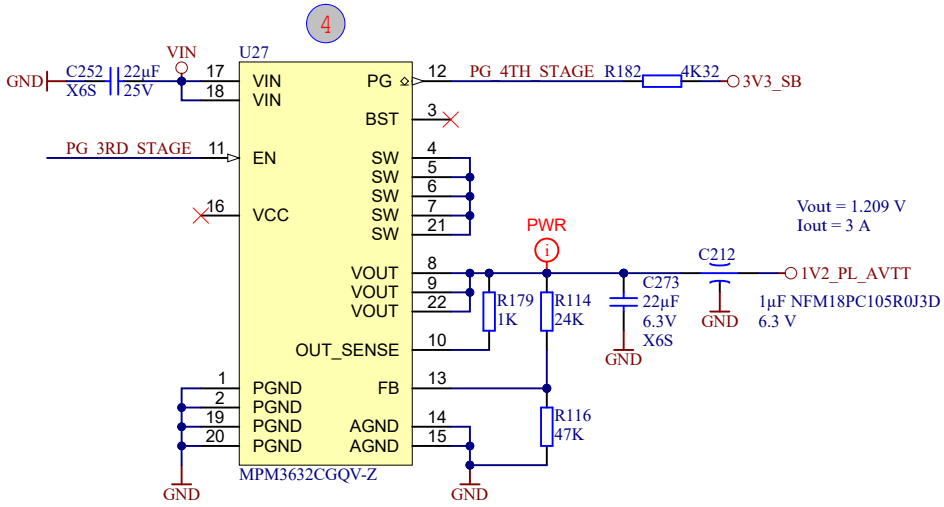
Title: TE0861 – POWER 1		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 32 of 35
Filename: POWER_1.SchDoc		







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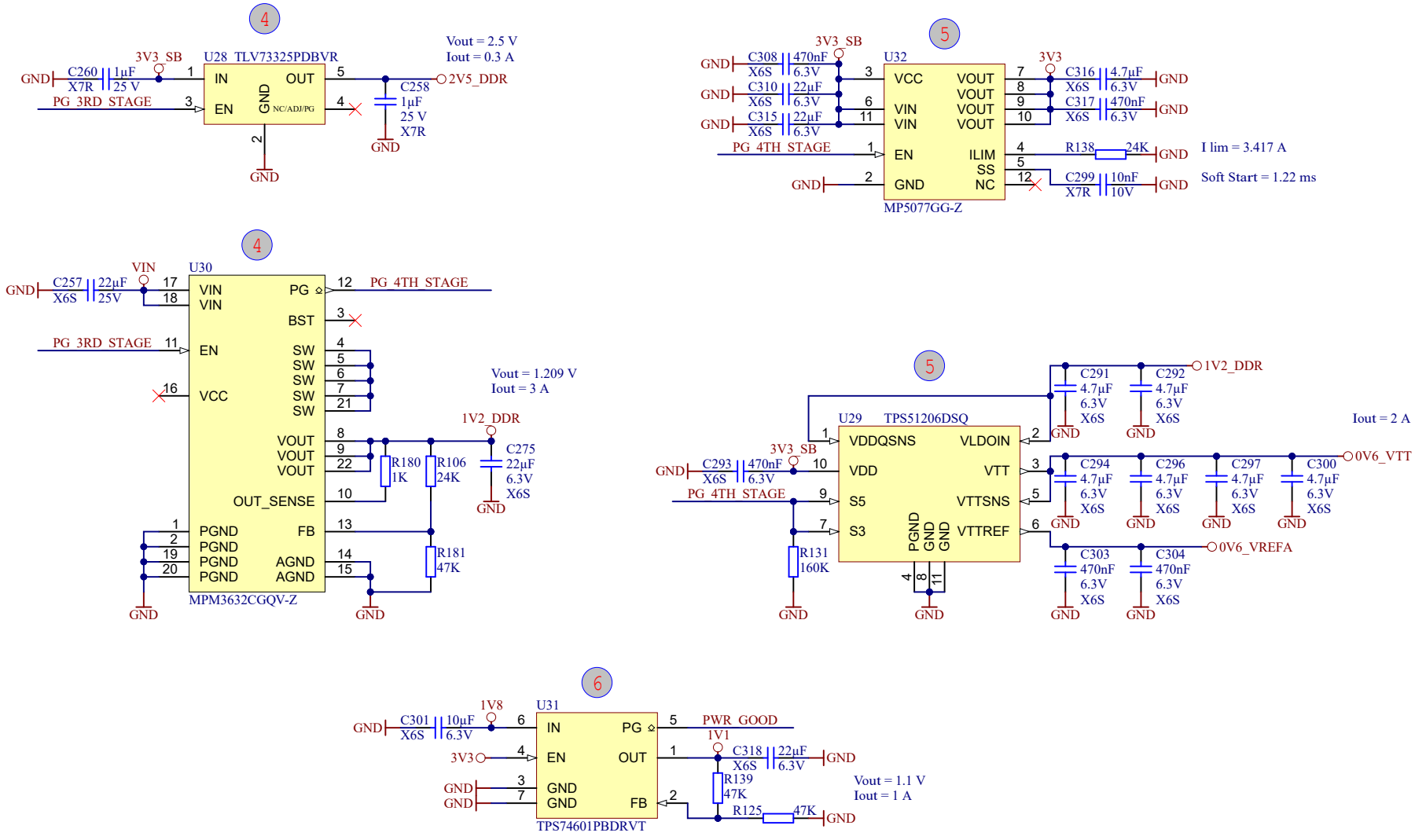
Title: TE0861 – POWER 2		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 33 of 35
Filename: POWER_2.SchDoc		



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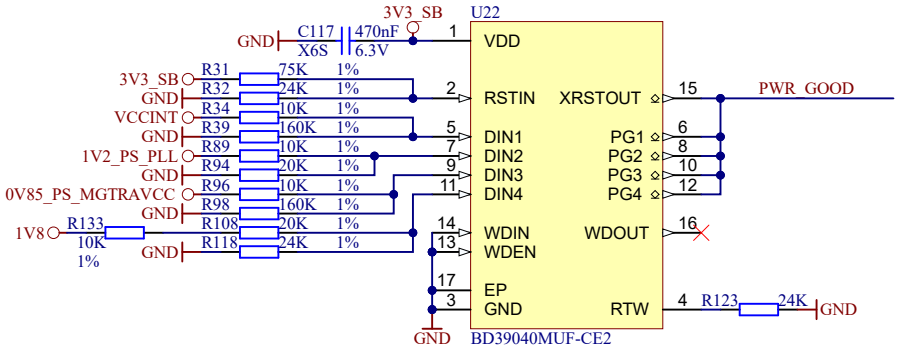
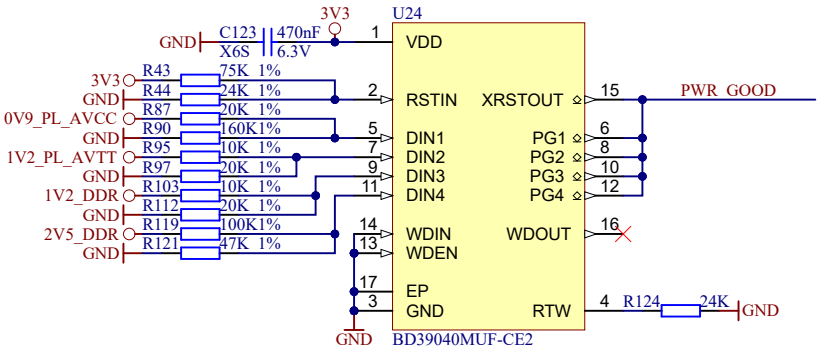
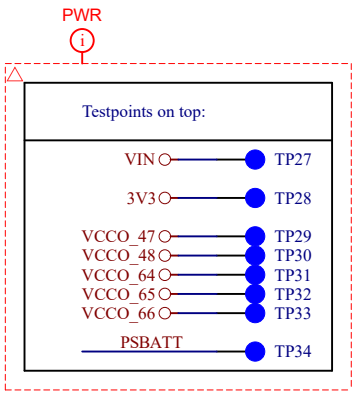
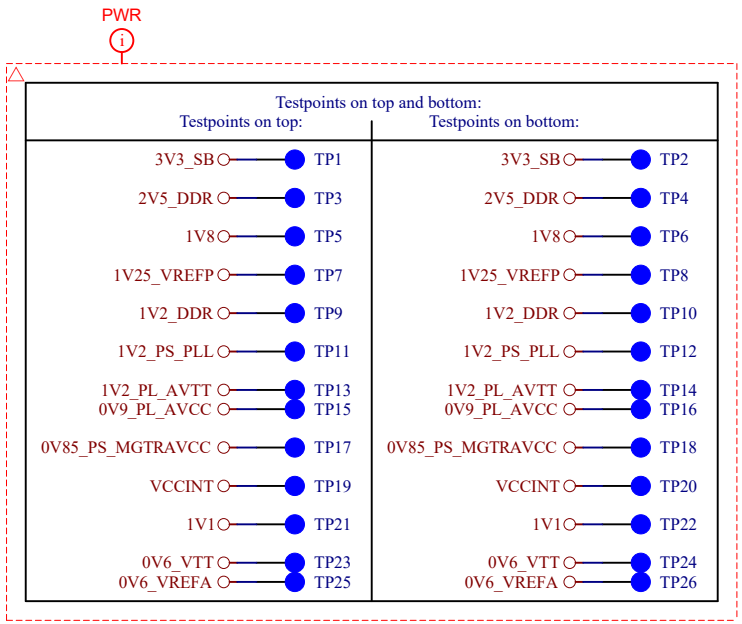
Title: TE0861 – POWER 3		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 34 of 35
Filename: POWER_3.SchDoc		

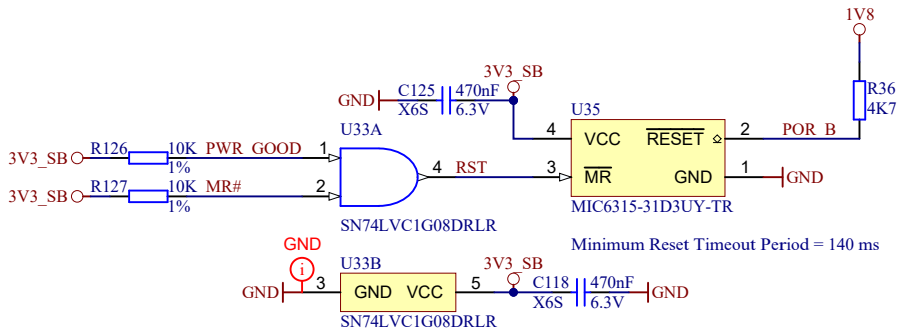


VCCINT	R34	R39
0.85 V	10 kOhm	160 kOhm
0.90 V	20 kOhm	160 kOhm









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Title: TE0861 – POWER 4		
A4	Number: TE0861 6BE51QA	Rev. 01
Date: 21.11.2025	Copyright: Trenz Electronic GmbH	Page 35 of 35
Filename: POWER_4.SchDoc		