


Regarding the usage of our schematics and alike documentation for Trenz module TE0724.

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. TE0724 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!

| | | | |
|---|---|--|----------------------------|
|  | Title: TE0724 | | |
| | A4 | Number: TE0724 41132-A | Rev. 04 |
| | Date: 2020-08-21 | Copyright: Trenz Electronic GmbH / TT | Page 1 of 17 |
| | Filename: Legal Notices Modules.SchDoc | | |

1

2

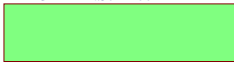
3

4

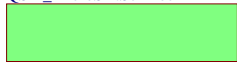
U_J1
J1.SchDoc



U_DDR3
DDR3-RAM.SchDoc



QSPI_MicroSD
QSPI_MicroSD.SchDoc



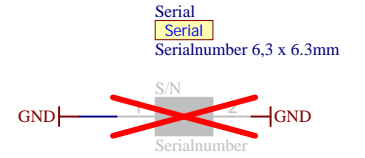
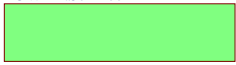
U_ZYNQ
ZYNQ.SchDoc



U_ETH_PHY
ETH-PHY.SchDoc



U_POWER
POWER.SchDoc



A

A

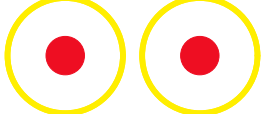
B

B

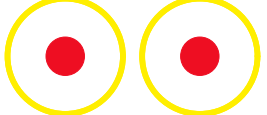
C

C

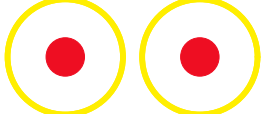
FIDU-DOT - small FIDU-DOT - small



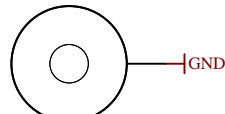
PM1 PM2
FIDU-DOT - small FIDU-DOT - small



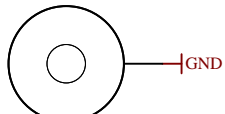
PM3 PM4
FIDU-DOT - small FIDU-DOT - small



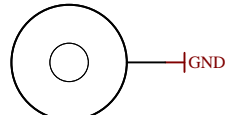
PM5 PM6



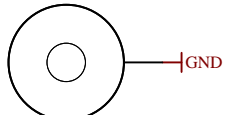
Mount.Hole 2mm



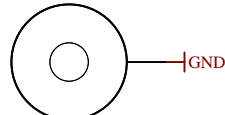
Mount.Hole 2mm



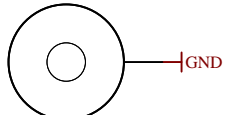
Mount.Hole 2mm



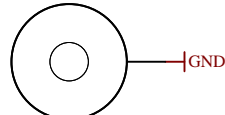
Mount.Hole 2mm



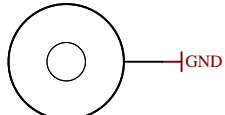
Mount.Hole 2mm



Mount.Hole 2mm



Mount.Hole 2mm



Mount.Hole 2mm

| | |
|-------------------|------------|
| Design drawn by: | MR |
| Checked by: | IG |
| Assembly variant: | 41132-A |
| Created by: | MR |
| Modified by: | MR |
| Modified at: | 2021-03-18 |



| | | |
|-------------------------|---------------------------------------|--------------|
| Title: TE0724 | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 2 of 17 |
| Filename: TE0724.SchDoc | | |

1

2

3

4

D

D

1

2

3

4

A

A

B

B

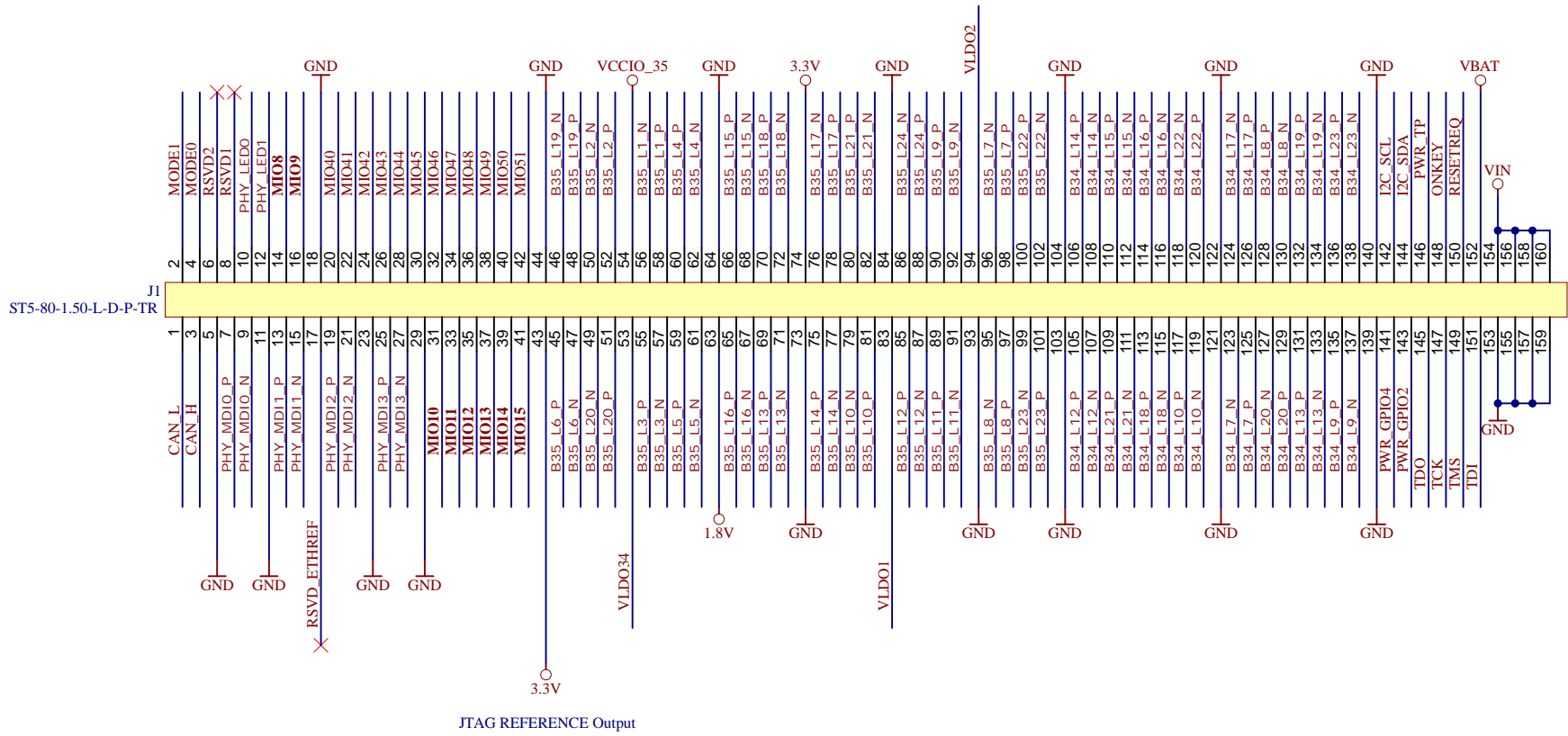
C

C

D

D

MIO0 - 8 I/O 3.3V
 MIO1 - 12 I/O 1.8V
 B34 - 32 I/O 3.3V
 B35 - 24 LVDS or 48 I/O Variable




Title: TE0724 - B2B connectors J1

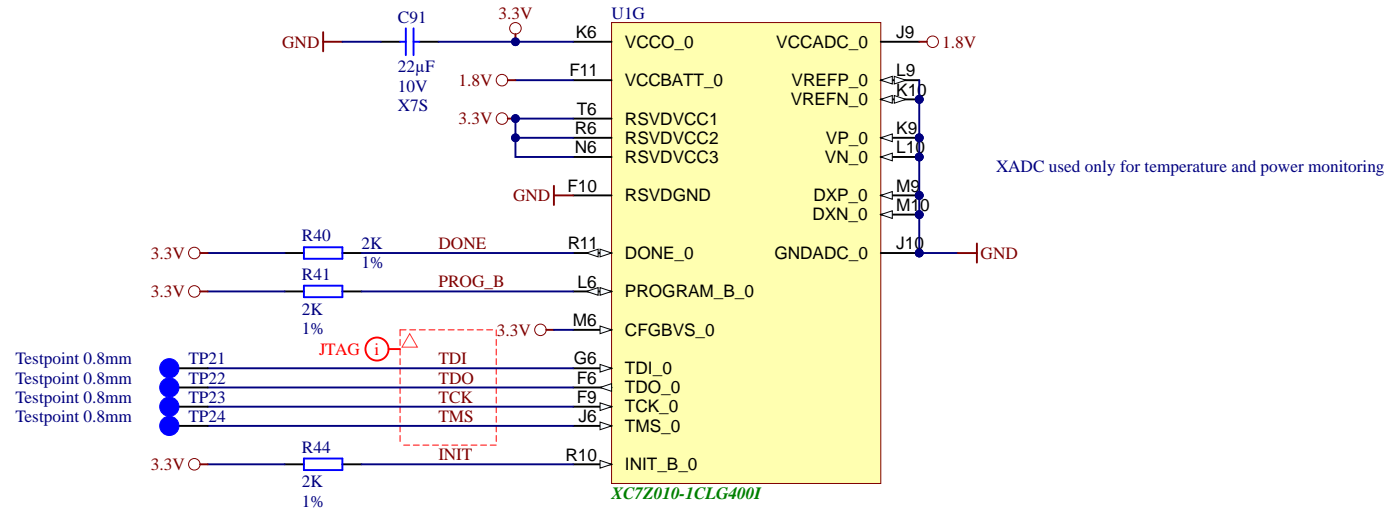
| | | |
|---------------------|---------------------------------------|--------------|
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 3 of 17 |
| Filename: J1.SchDoc | | |

1

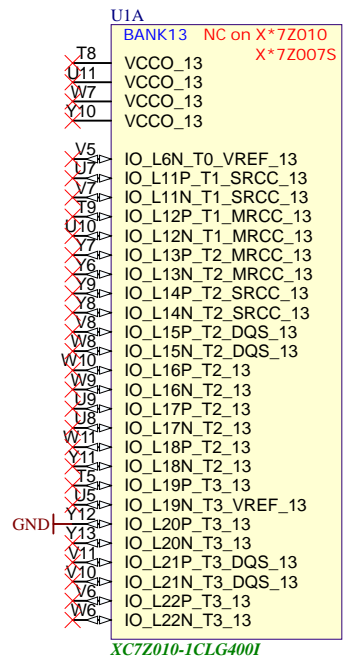
2


3

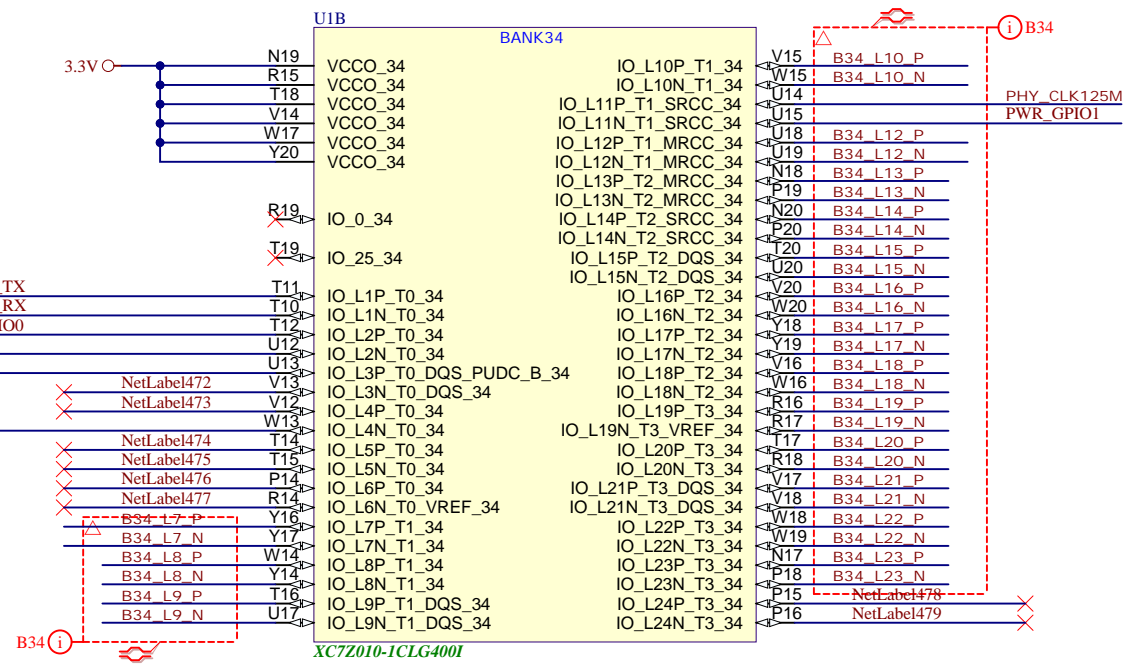
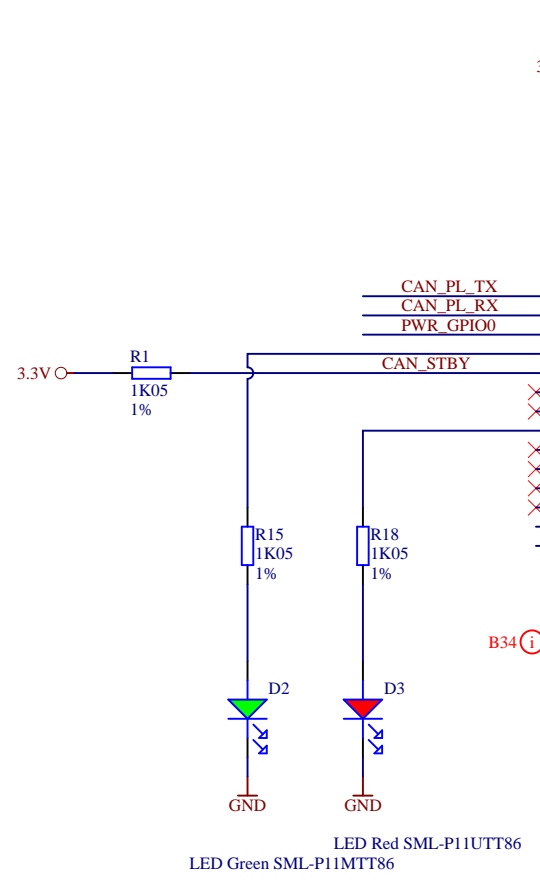
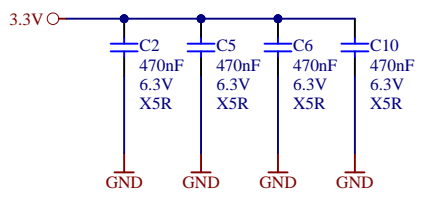
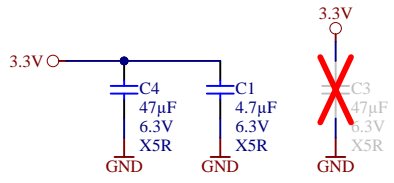
4



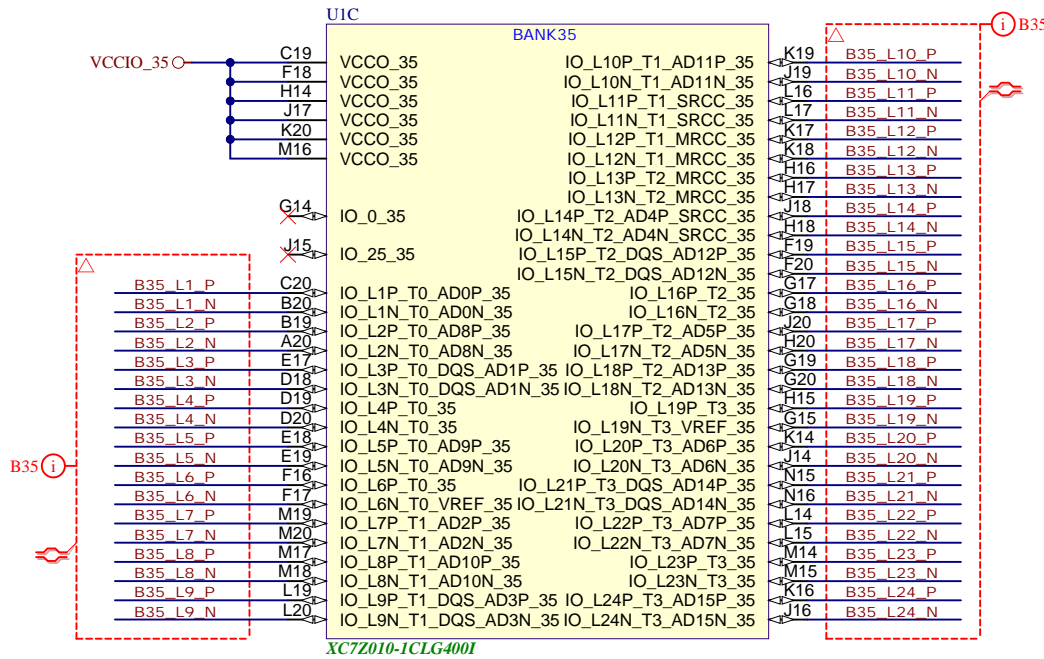
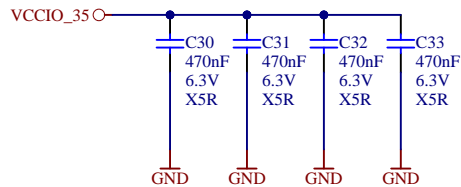
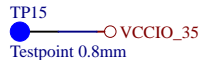
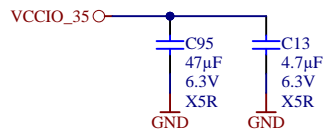

| | | |
|----------------------------|---------------------------------------|--------------|
| Title: TE0724 - Zynq_MISC | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 4 of 17 |
| Filename: ZYNQ_MISC.SchDoc | | |



| | | | |
|---|--------------------------|---------------------------------------|--------------|
|  | Title: TE0724 - Zynq_B13 | | |
| | A4 | Number: TE0724 41132-A | Rev. 04 |
| | Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 5 of 17 |
| | Filename: B13.SchDoc | | |



| | | |
|--------------------------|---------------------------------------|--------------|
| Title: TE0724 - Zynq_B34 | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 6 of 17 |
| Filename: B34.SchDoc | | |

| | | |
|--------------------------|---------------------------------------|--------------|
| Title: TE0724 - Zynq_B35 | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 7 of 17 |
| Filename: B35.SchDoc | | |

1

2

3

4

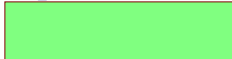
A

A

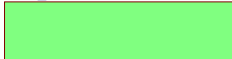
U_B13
B13.SchDoc



U_B500
MIO_B500.SchDoc



U_B501
MIO_B501.SchDoc



U_PS_DDR
PS-DDR.SchDoc



U_MISC
ZYNQ_MISC.SchDoc



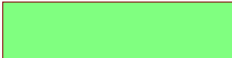
U_B34
B34.SchDoc



U_ZYNQ_POWER
ZYNC_POWER.SchDoc



U_B35
B35.SchDoc



B


B

C

C

D

D

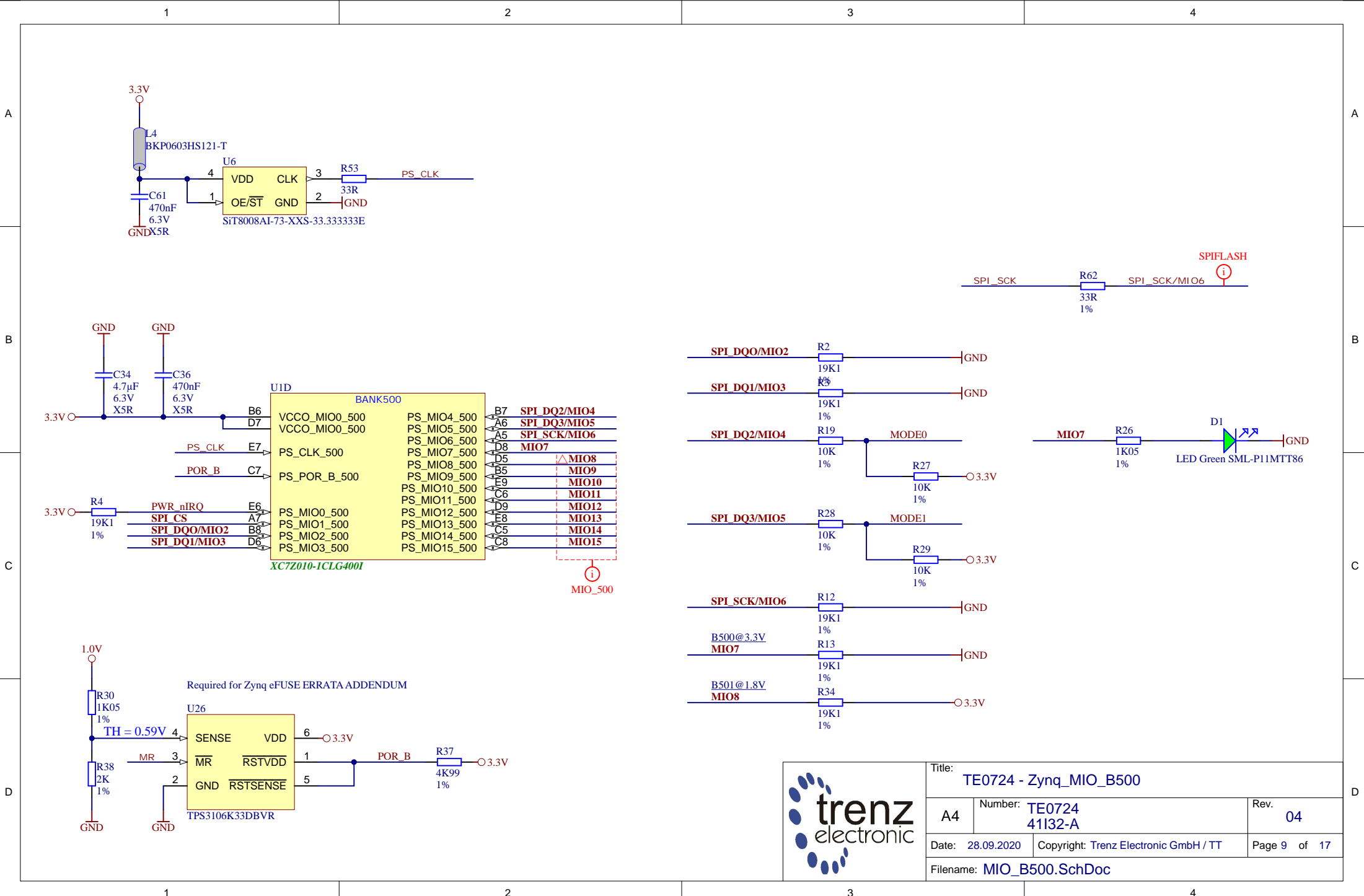
| | | | |
|---|--|---------------------------------------|---------------------------|
|  | | Title: TE0724 - Zynq | |
| | | A4 | Number: TE0724 41132-A |
| Date: 28.09.2020 | | Copyright: Trenz Electronic GmbH / TT | |
| Filename: ZYNQ.SchDoc | | | |
| Page 8 | | of 17 | |


1

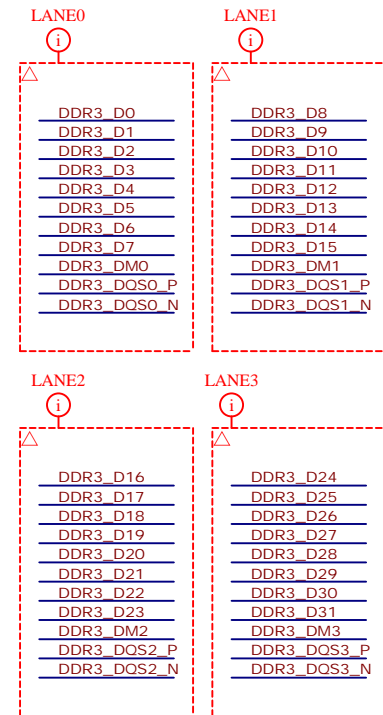
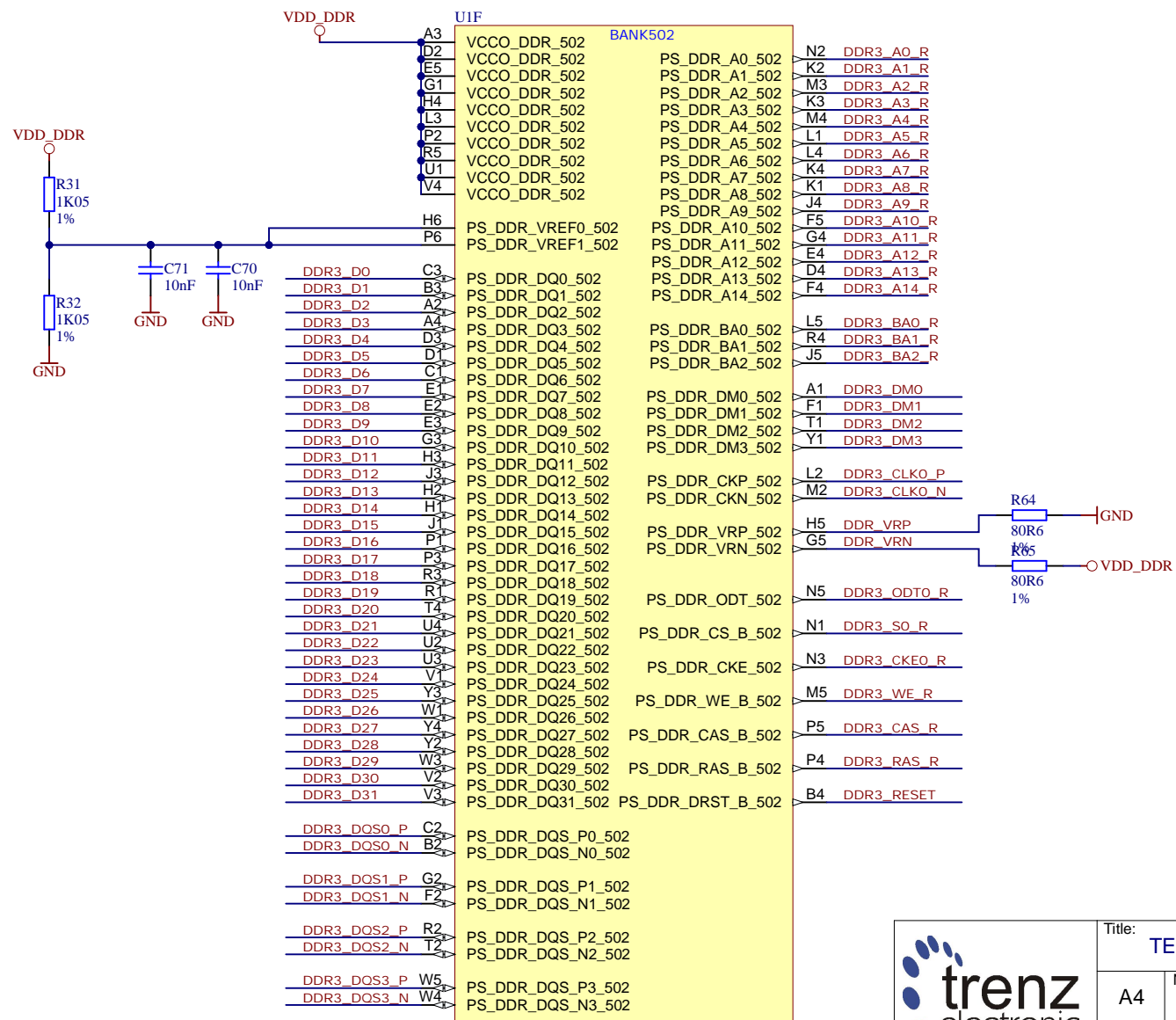
2

3

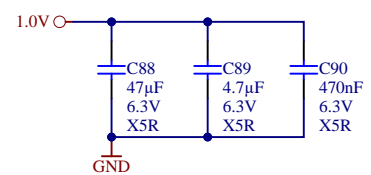
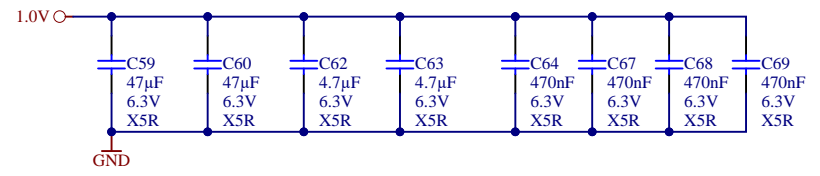
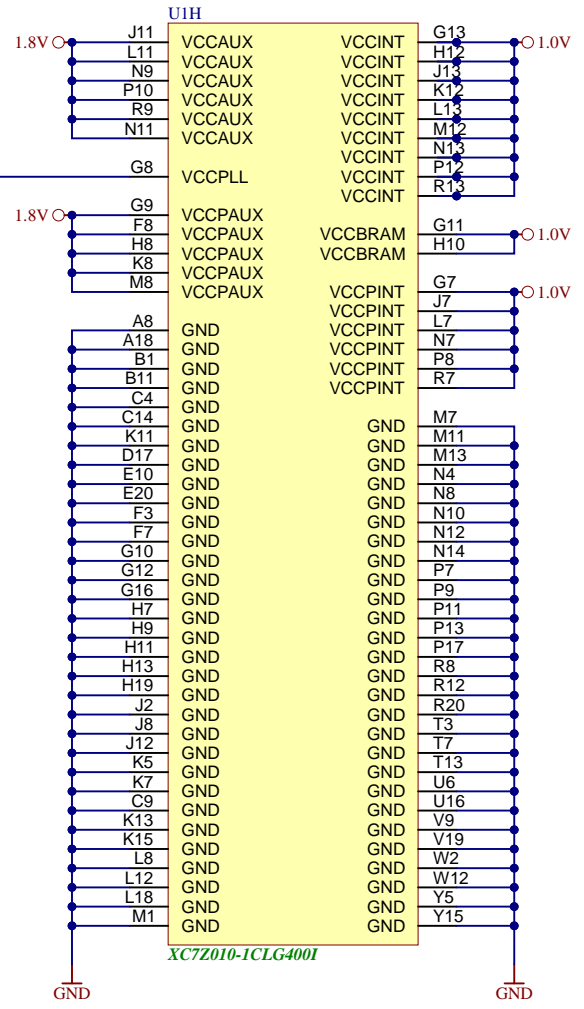
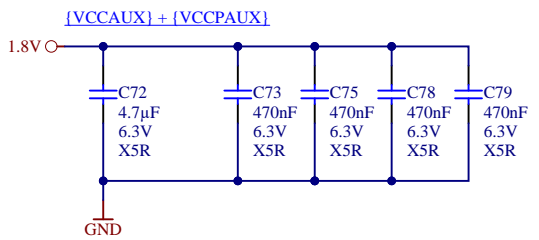
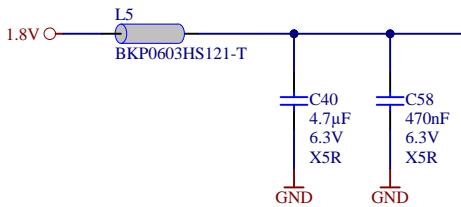
4



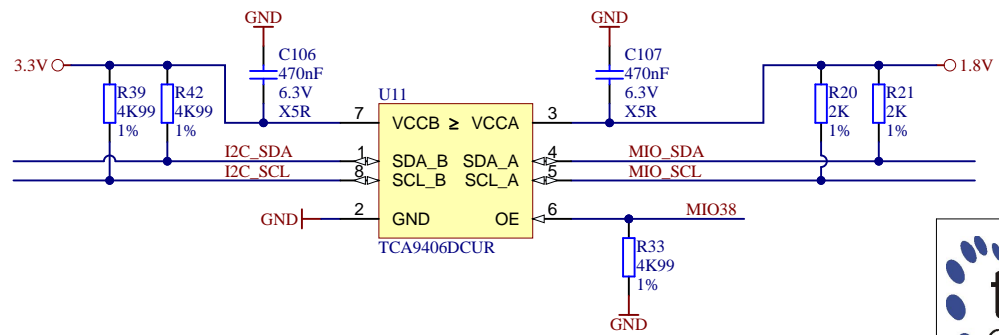
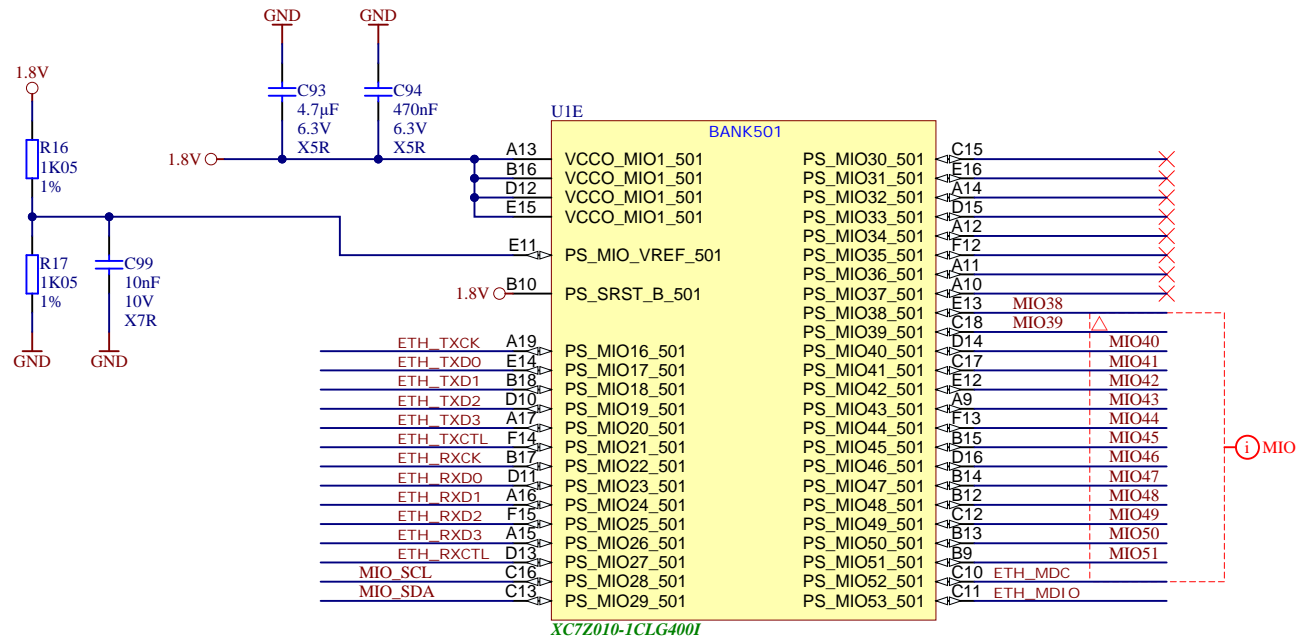

| | | | | | |
|---|--|---------------------------------------|-------------------------------|------------------------|---------|
|  | | | Title: TE0724 - Zynq_MIO_B500 | | |
| | | | A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | | Copyright: Trenz Electronic GmbH / TT | | Page 9 of 17 | |
| Filename: MIO_B500.SchDoc | | | | | |



| | | |
|-----------------------------|---------------------------------------|---------------|
| Title: TE0724 - Zynq_PS_DDR | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 10 of 17 |
| Filename: PS-DDR.SchDoc | | |



| | | |
|-----------------------------|---------------------------------------|---------------|
| Title: TE0724 - Zynq_Power | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 11 of 17 |
| Filename: ZYNC_POWER.SchDoc | | |

| | | |
|-------------------------------|---------------------------------------|---------------|
| Title: TE0724 - Zynq_MIO_B501 | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 12 of 17 |
| Filename: MIO_B501.SchDoc | | |

A

B

C

D

A

B

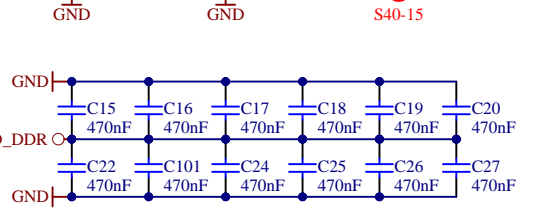
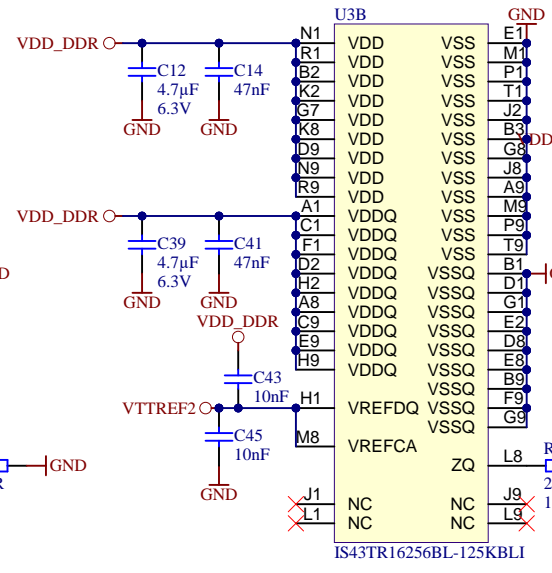
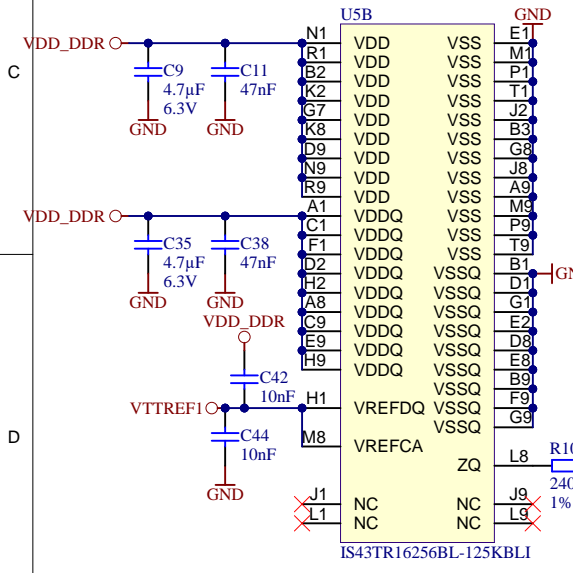
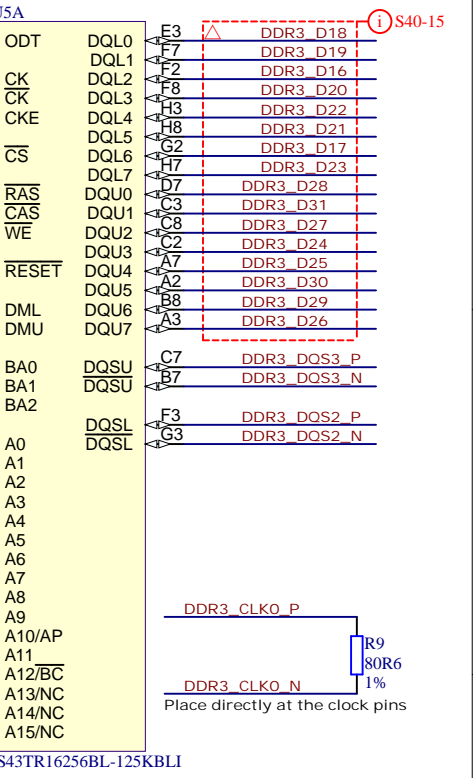
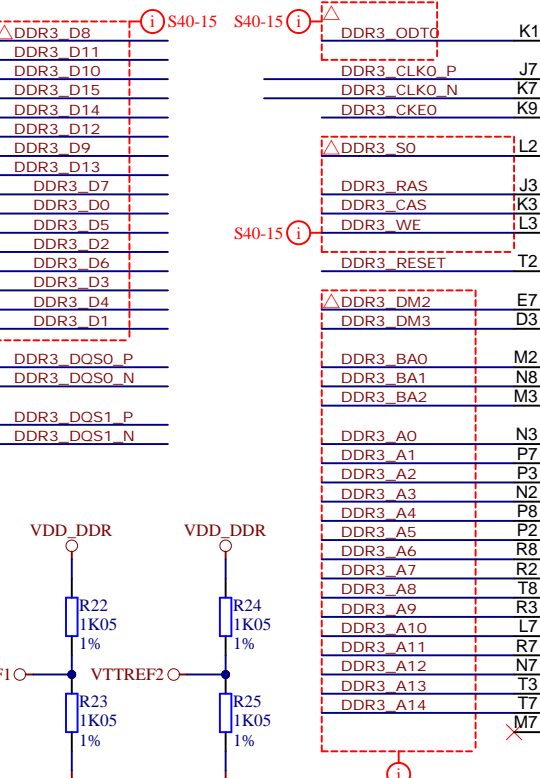
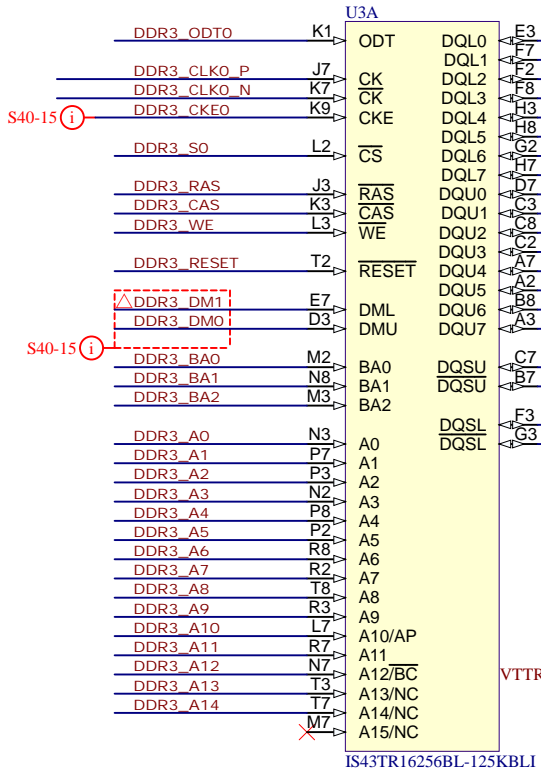
C

D

ADDR-CTRL-R ADDR-CTRL

Termination

| | | | | |
|-------------|-----|----|------|------------|
| DDR3_A0_R | R47 | 1% | 33R | DDR3_A0 |
| DDR3_A1_R | R48 | 1% | 33R | DDR3_A1 |
| DDR3_A2_R | R49 | 1% | 33R | DDR3_A2 |
| DDR3_A3_R | R51 | 1% | 33R | DDR3_A3 |
| DDR3_A4_R | R52 | 1% | 33R | DDR3_A4 |
| DDR3_A5_R | R54 | 1% | 33R | DDR3_A5 |
| DDR3_A6_R | R55 | 1% | 33R | DDR3_A6 |
| DDR3_A7_R | R56 | 1% | 33R | DDR3_A7 |
| DDR3_A8_R | R57 | 1% | 33R | DDR3_A8 |
| DDR3_A9_R | R58 | 1% | 33R | DDR3_A9 |
| DDR3_A10_R | R59 | 1% | 33R | DDR3_A10 |
| DDR3_A11_R | R61 | 1% | 33R | DDR3_A11 |
| DDR3_A12_R | R66 | 1% | 33R | DDR3_A12 |
| DDR3_A13_R | R67 | 1% | 33R | DDR3_A13 |
| DDR3_A14_R | R68 | 1% | 33R | DDR3_A14 |
| DDR3_RAS_R | R69 | 1% | 33R | DDR3_RAS |
| DDR3_CAS_R | R70 | 1% | 33R | DDR3_CAS |
| DDR3_WE_R | R71 | 1% | 33R | DDR3_WE |
| DDR3_BA0_R | R73 | 1% | 33R | DDR3_BA0 |
| DDR3_BA1_R | R74 | 1% | 33R | DDR3_BA1 |
| DDR3_BA2_R | R75 | 1% | 33R | DDR3_BA2 |
| DDR3_CKE0_R | R76 | 1% | 33R | DDR3_CKE0 |
| DDR3_S0_R | R77 | 1% | 33R | DDR3_S0 |
| DDR3_ODT0_R | R78 | 1% | 33R | DDR3_ODT0 |
| | R5 | | | DDR3_RESET |
| | | | 4K99 | GND |
| | | | 1% | |

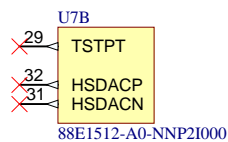
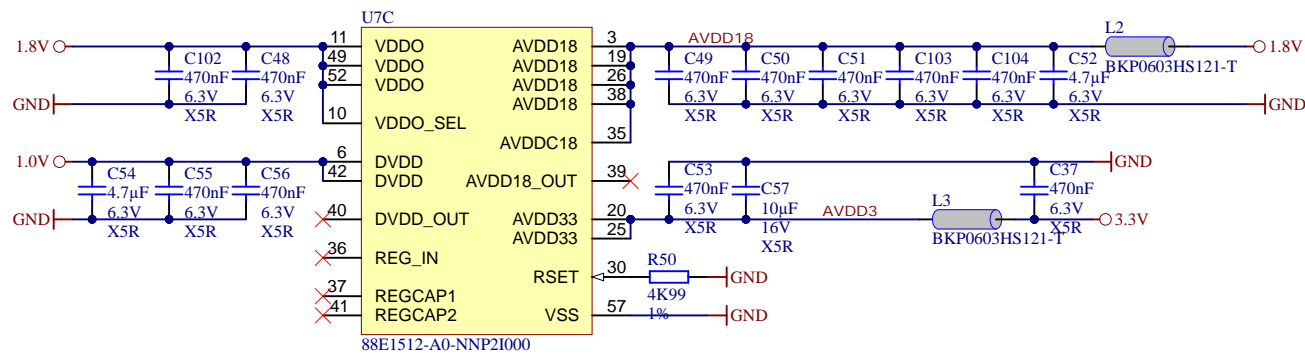
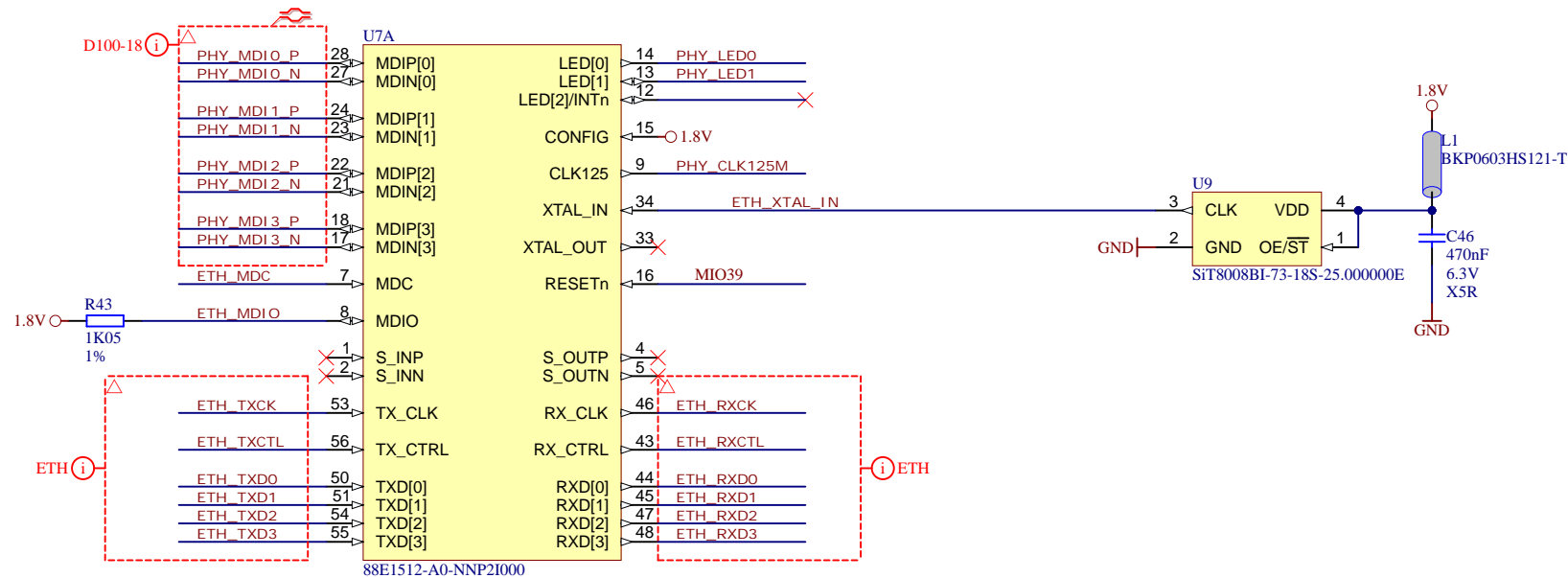



ClassName: D80

| |
|-------------|
| DDR3_CLK0_P |
| DDR3_CLK0_N |
| DDR3_DQS0_P |
| DDR3_DQS0_N |
| DDR3_DQS1_P |
| DDR3_DQS1_N |
| DDR3_DQS2_P |
| DDR3_DQS2_N |
| DDR3_DQS3_P |
| DDR3_DQS3_N |



| | | |
|---------------------------|----------------------------------|---------------|
| Title: TE0724 - DDR3 RAM | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 2017-05-30 | Copyright: Trenz Electronic GmbH | Page 13 of 17 |
| Filename: DDR3-RAM.SchDoc | | |



| | | | |
|---|--|---------------------------------------|---------------------------|
|  | | Title: TE0724 - ETH_PHY | |
| | | A4 | Number: TE0724 41132-A |
| Date: 28.09.2020 | | Copyright: Trenz Electronic GmbH / TT | |
| Filename: ETH-PHY.SchDoc | | | |
| Page 14 of 17 | | | |

1

2

3

4

A

A

B

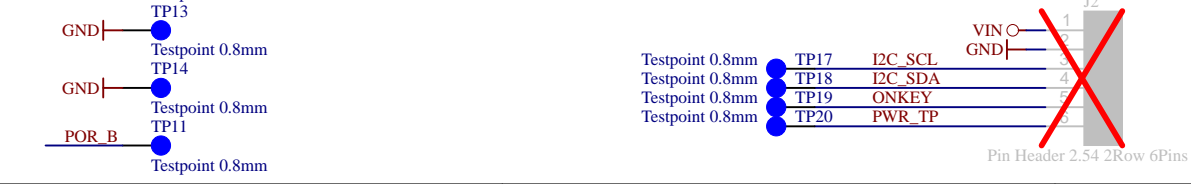
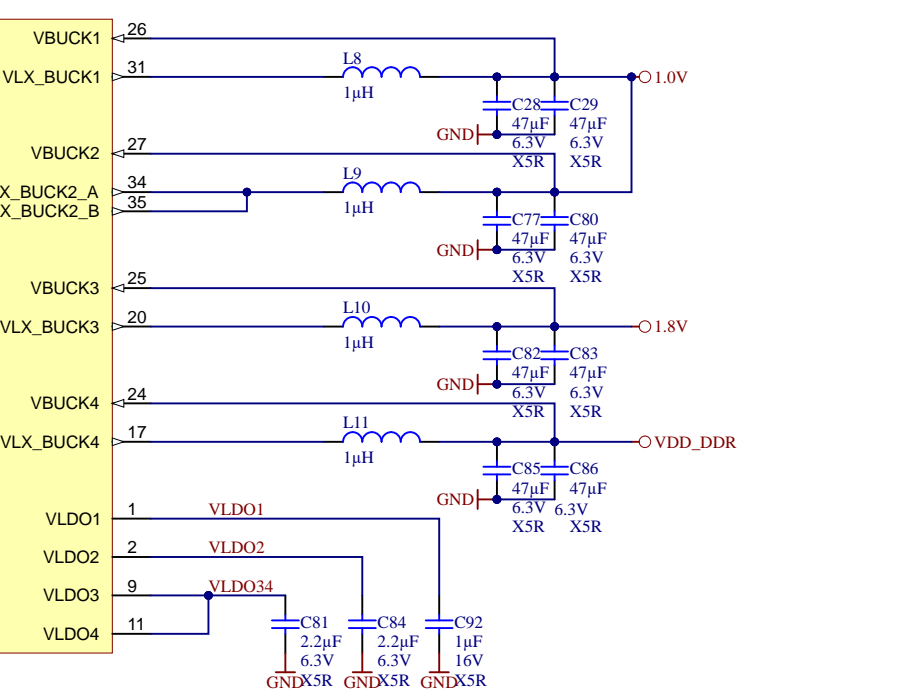
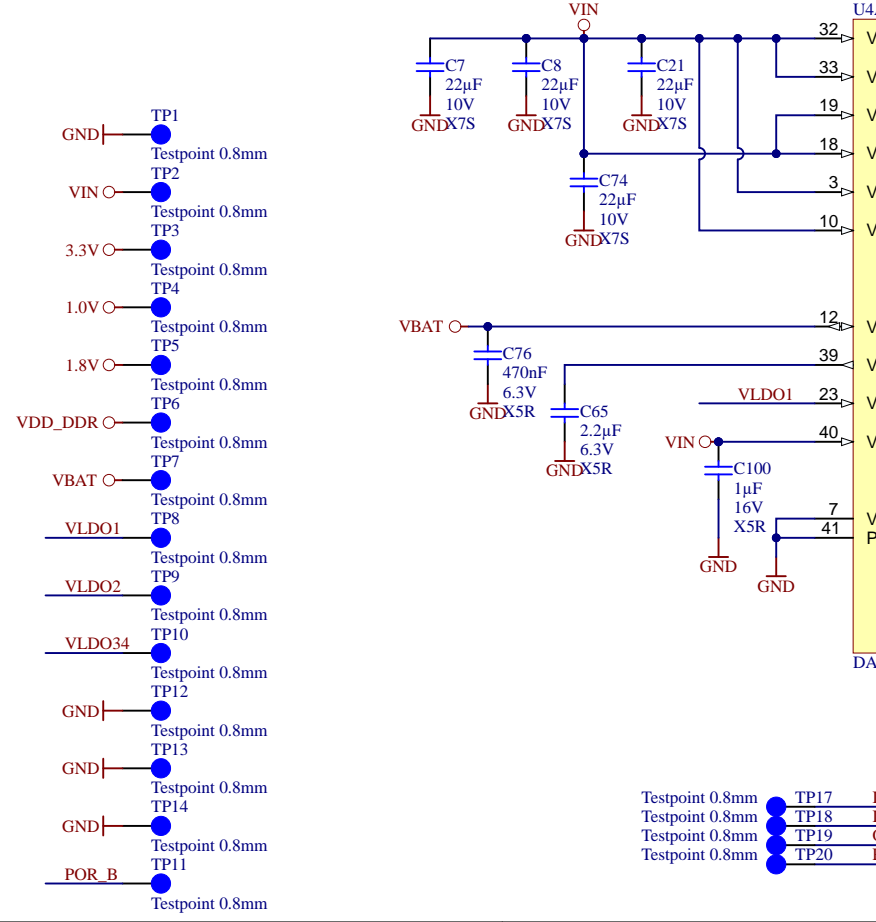
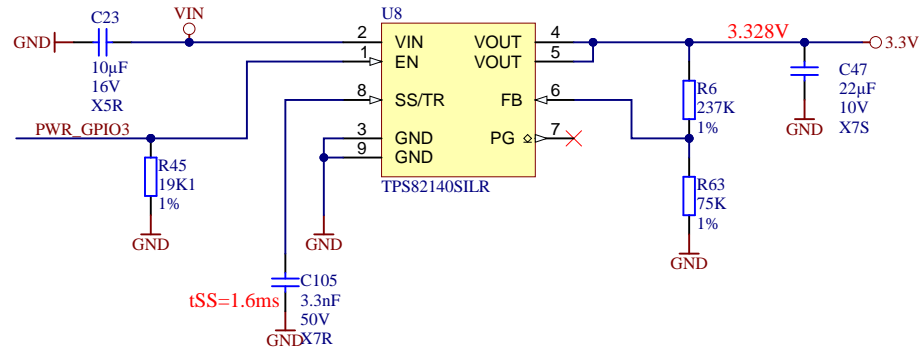
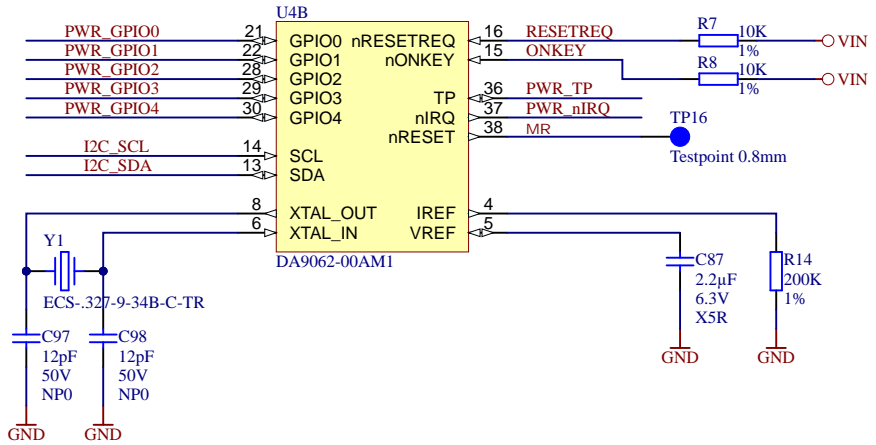
B

C

C

D

D



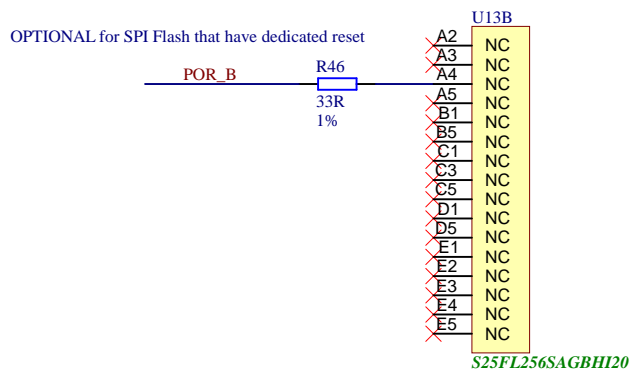
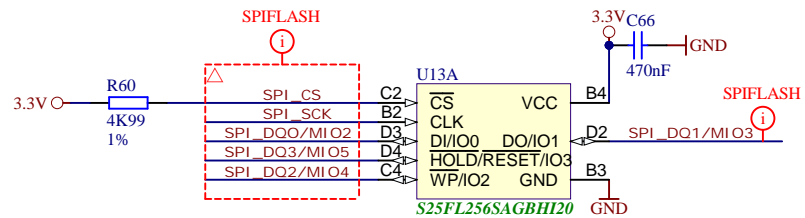
| | | |
|------------------------|---------------------------------------|---------------|
| Title: TE0724 - Power | | |
| A4 | Number: TE0724 41132-A | Rev. 04 |
| Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 15 of 17 |
| Filename: POWER.SchDoc | | |

1

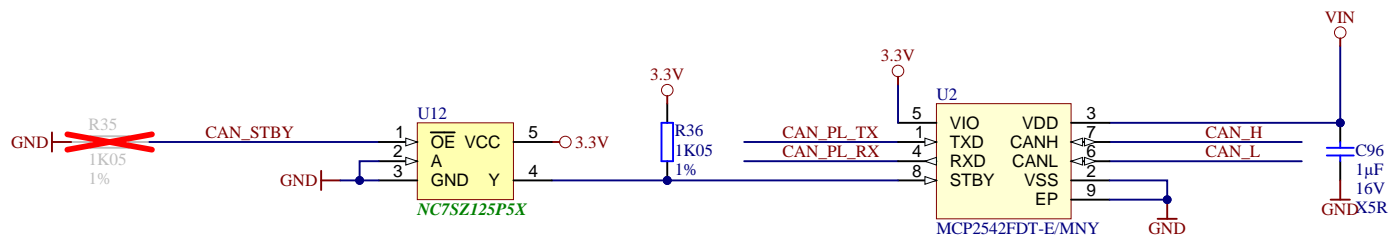
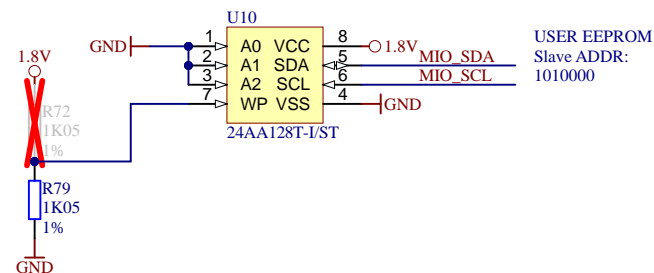
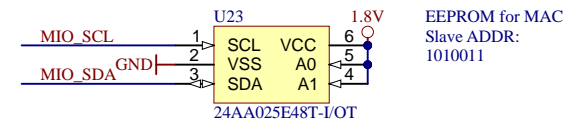
2


3

4



Optional EEPROM Memories



| | | | |
|---|--|---------------------------------------|---------------------------|
|  | | Title: TE0724 - QSPI MicroSD | |
| | | A4 | Number: TE0724 41132-A |
| Date: 28.09.2020 | | Copyright: Trenz Electronic GmbH / TT | |
| Filename: QSPI_MicroSD.SchDoc | | | |

1

2

3

4

1

2

3

4

REV02

- 1) New I2C translator U11: TCA9406DCUR
- 2) Fixed boot mode connection. Mode0 pulled-up by R27 and Mode 1 pulled-up by R33
- 3) Green LED D3 replaced to Red LED
- 4) C91 changed from 47 to 22uF
- 5) C3 not fitted
- 6) C105 deleted, C47 replaced from 10 to 22uF (EP53A7HQI output capacitor)
- 7) PWR_GPIO3 (EP53A7HQI enable) pulled down by R45 (19.1 kOhm)
- 8) DONE, INIT, PROG_B pulled-up to 3.3V
- 9) Added testpoints: JTAG, PMIC (I2C, ONKEY, TP)
- 10) J2 changed to 2 row 6-pin header. To J2 added ONKEY, PWR_TP, VIN
- 11) Mounting holes changed from 2mm to 2.2mm

REV02A

- 1) PCB revision: all vias are epoxy filled and copper capped. No mask openings on vias. No electrical changes

REV03


- 1) Replace DCDC U8 by TPS82140

21.02.2020 MR

- 2) update from Lib (Sch symbol of I2C levelshifter corrected)

REV04

- 1) Replaced I2C pullups by 2K R20 and R21.
- 2) Connected WP (pin 7) of EEPROM (U10) via R79 to GND, alternative R72 can be assembled for write protection.
- 3) Changed C7, C8, C21, C47, C74, C91 to same size X7S.
- 4) Moved following components slightly away from FPGA: C28, C29, C77, C80, R2, R12, R18, R43, R47, R51, R54, R57, R62, L8, L9.
- 5) Replaced DDR3 from IM4G16D3FABG-125I to IS43TR16256BL-125KBLI
- 6) Replaced Flash from S25FL256SAGBH120 to IS25LP512M-RHLE
- 7) Set S/N to not fitted.
- 8) Added legal notices for Trenz modules.
- 9) Full update from Library.

| | | | | |
|---|--|---|--|-----------------------------|
|  | | Title: TE0724 - Revision changes | | |
| | | A4 | Number: TE0724 41132-A | Rev. 04 |
| | | Date: 28.09.2020 | Copyright: Trenz Electronic GmbH / TT | Page 17 of 17 |
| Filename: Revision changes.SchDoc | | | | |