

U_SOC
SOC.SchDoc

U_DDR3-RAM
DDR3-RAM.SchDoc

U_CPLD
CPLD.SchDoc

U_USB-PHY
USB-PHY.SchDoc

U_ETH1
ETH1.SchDoc

U_Clock
Clock.SchDoc

U_eMMC
eMMC.SchDoc

U_POWER2
POWER2.SchDoc

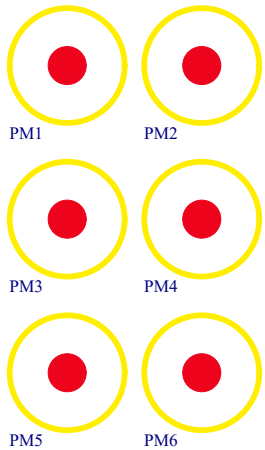
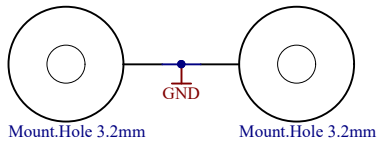
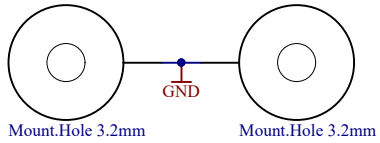
U_Connectors
Connectors.SchDoc

U_Rev_changes
Revision Changes.SchDoc

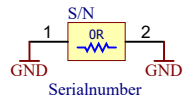
U_POWER
POWER.SchDoc

U_POWER3
POWER3.SchDoc

LOGO1
TE Logo PRINT Layer
LOGO PRINT



Serial
Serialnumber 6,3 x 6.3mm



Assembly variant	92135HA
Created by	VY
Modified by	VY
Modified at	2021-01-20
SVN Revision	8604



Title: Overview		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page1 of 32
Filename: TE0783.SchDoc		

1

2

3

4

A

A

U_HSMC_CONN_J1
HSMC_CONN_J1.SchDoc



U_HSMC_CONN_J2
HSMC_CONN_J2.SchDoc



U_HSMC_CONN_J3
HSMC_CONN_J3.SchDoc



B

B

C

C

D


D

1

2

3

4

			Title: Connectors		
			A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018		Copyright: Trenz Electronic GmbH		Page 2 of 32	
Filename: Connectors.SchDoc					

1

2

3

4

A

A

B

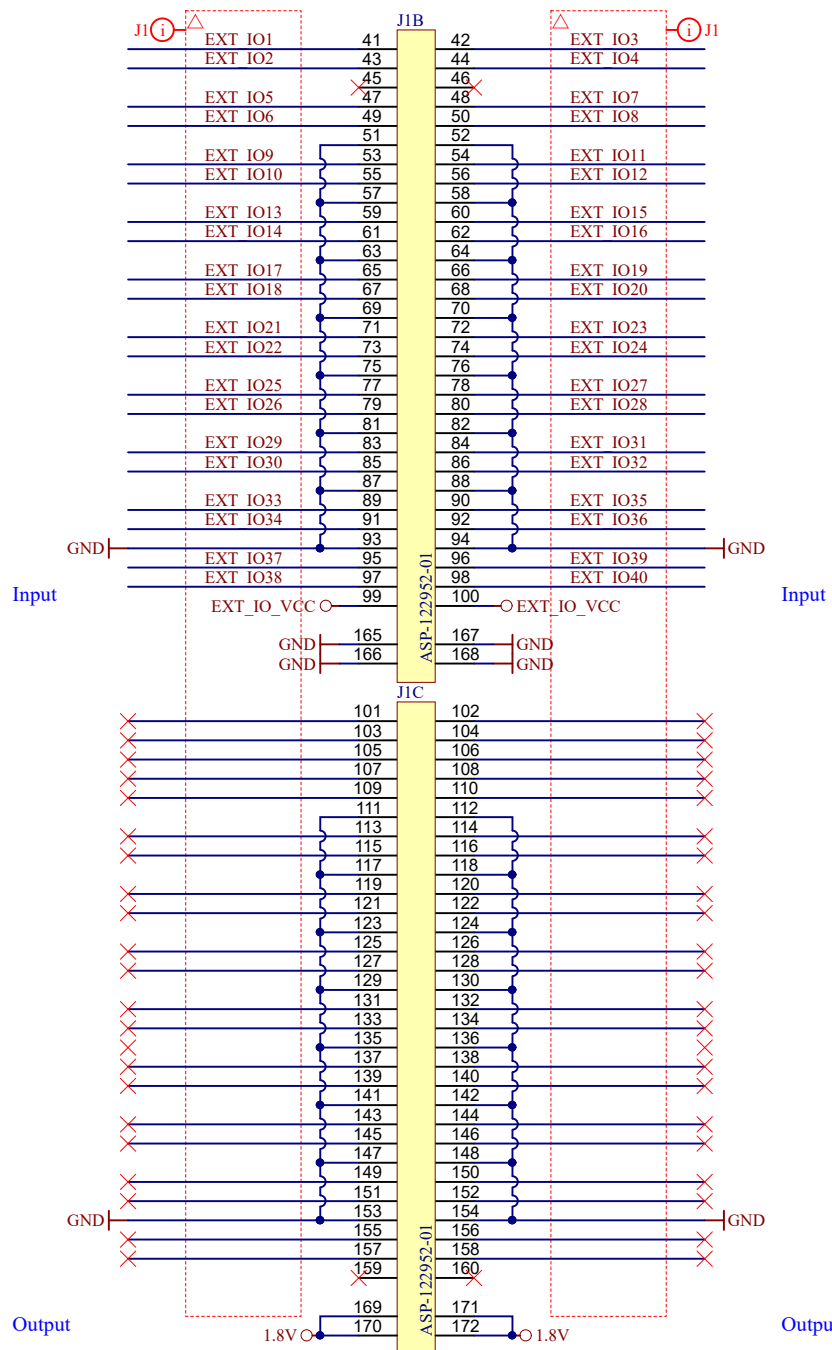
B

C

C

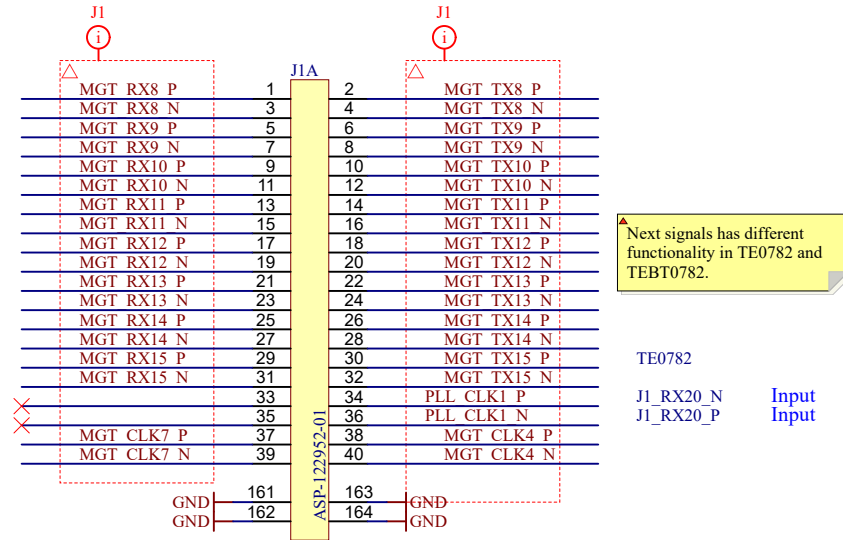
D

D



Next signals has different functionality in TE0782 and TEBT0782.

TE0782
 J1_TX20_N
 J1_TX20_P
 J1_TX21_N
 J1_TX21_P



Next signals has different functionality in TE0782 and TEBT0782.

TE0782
 J1_RX20_N
 J1_RX20_P
 Input
 Input



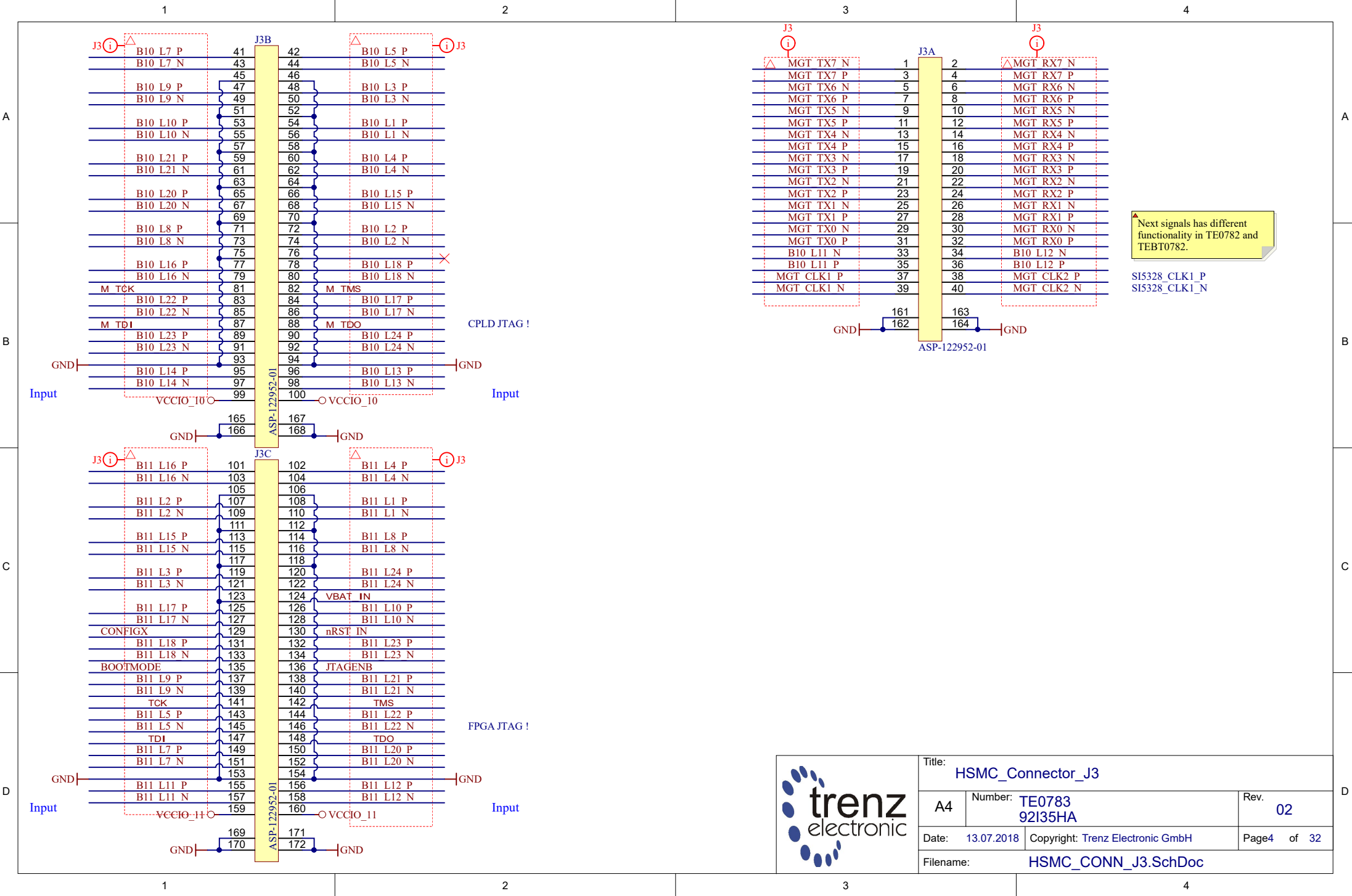
Title: HSMC_Connector_J1		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page3 of 32
Filename: HSMC_CONN_J1.SchDoc		

1

2

3

4



Next signals has different functionality in TE0782 and TEBT0782.

S15328_CLK1_P
S15328_CLK1_N



Title: HSMC_Connector_J3		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page4 of 32
Filename: HSMC_CONN_J3.SchDoc		

A

B

C

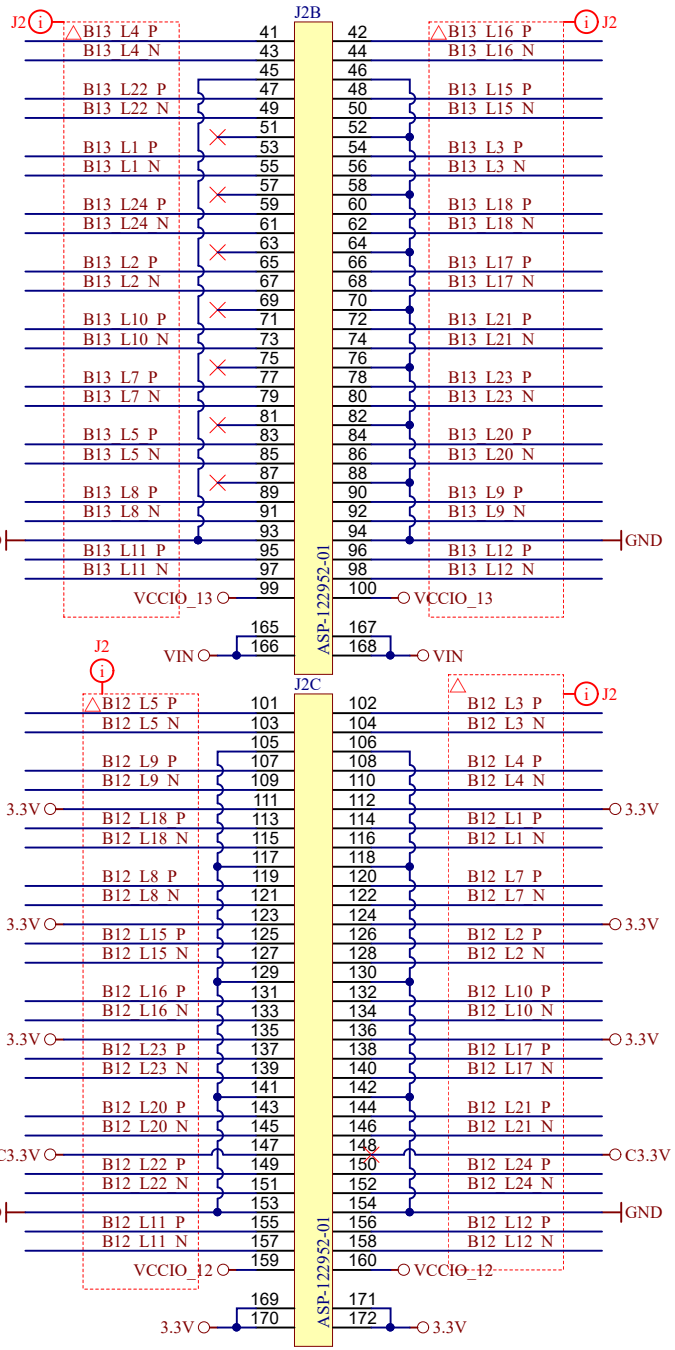
D

A

B

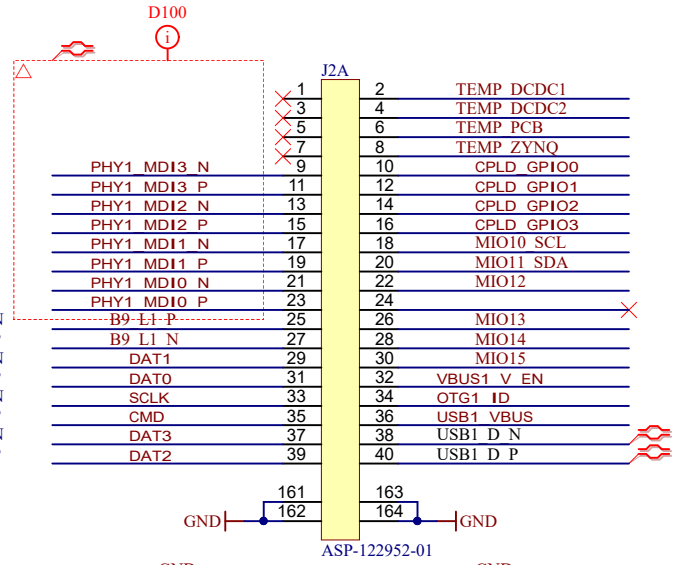
C

D



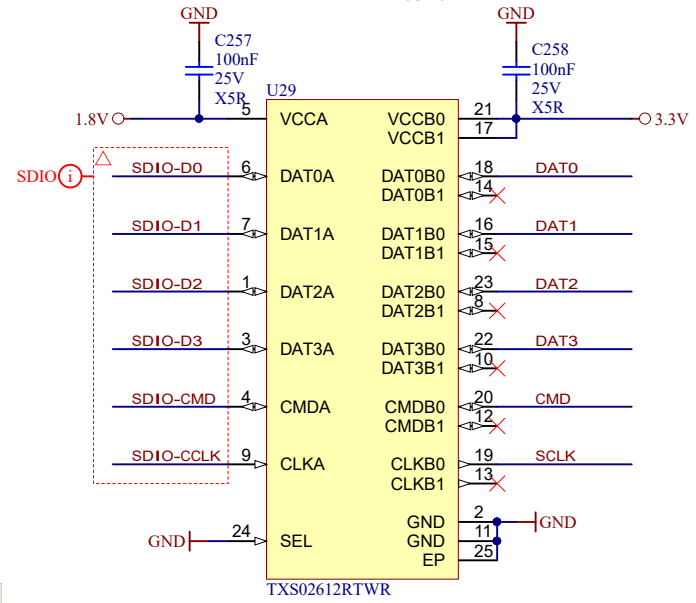
Next signals has different functionality in TE0782 and TEBT0782.

TE0782
 PHY2_MDI3_N
 PHY2_MDI3_P
 PHY2_MDI2_N
 PHY2_MDI2_P
 PHY2_MDI1_N
 PHY2_MDI1_P
 PHY2_MDI0_N
 PHY2_MDI0_P



Next signals has different functionality in TE0782 and TEBT0782.

TE0782
 CPLD_GPIO4
 CPLD_GPIO5
 OTG2_ID
 USB2_VBUS
 USB2_D_N
 USB2_D_P
 VBUS2_V_EN



SDCARD
 DAT0
 DAT1
 DAT2
 DAT3
 CMD
 SCLK

* - C3.3V: Normally leave unconnected



Title: HSMC_Connector_J2		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page5 of 32
Filename: HSMC_CONN_J2.SchDoc		

1

2

3

4

A

A

U_PS-DDR
PS-DDR.SchDoc



U_B9
B9.SchDoc



U_MIO-BANKS
MIO-BANKS.SchDoc



U_B10
B10.SchDoc



U_HP-BANKS
HP-BANKS.SchDoc



U_B11
B11.SchDoc



B

B

U_FPGA-MGT
FPGA-MGT.SchDoc



U_B12
B12.SchDoc



U_FPGA-CFG
FPGA-CFG.SchDoc



U_B13
B13.SchDoc



C

C

U_FPGA-PWR
FPGA-PWR.SchDoc



D

D



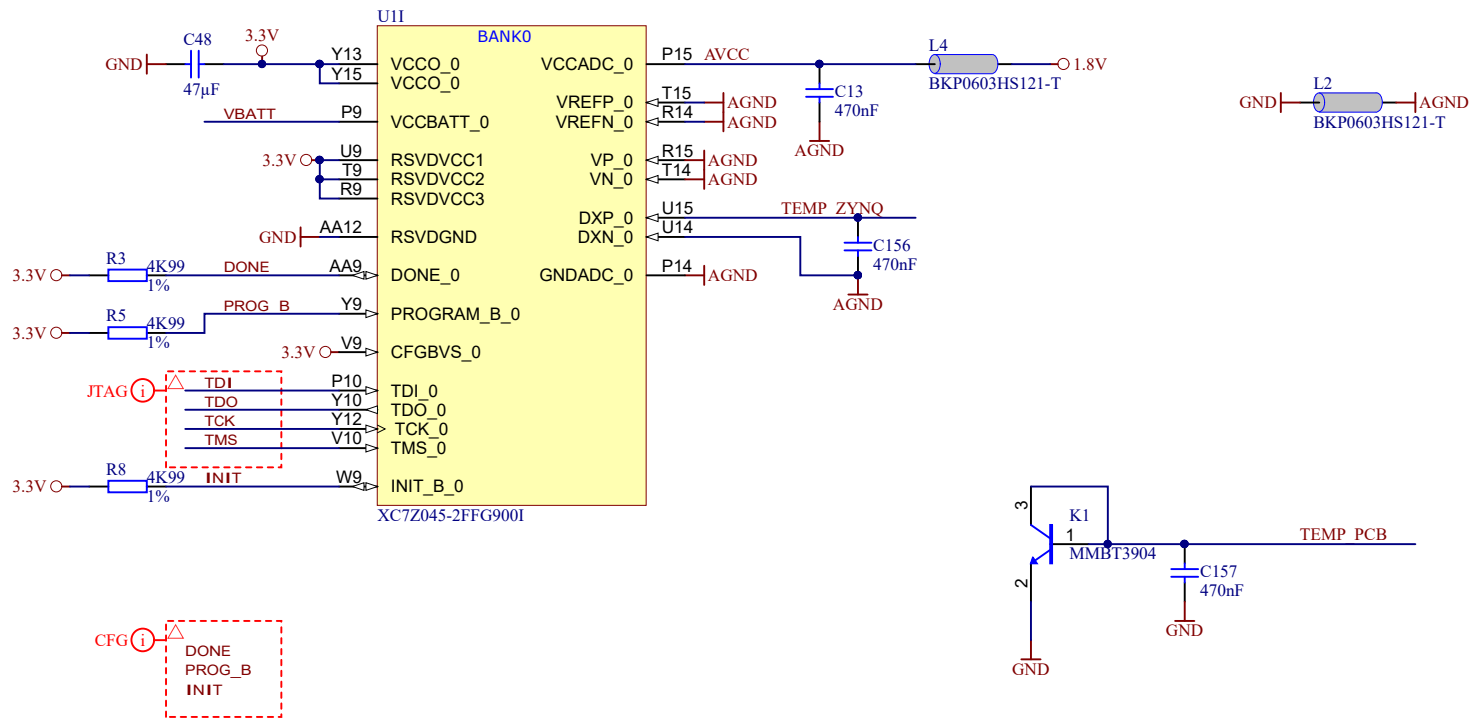
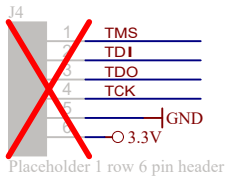
Title: SOC		
A4	Number: TE0783 92I35HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page6 of 32
Filename: SOC.SchDoc		

1

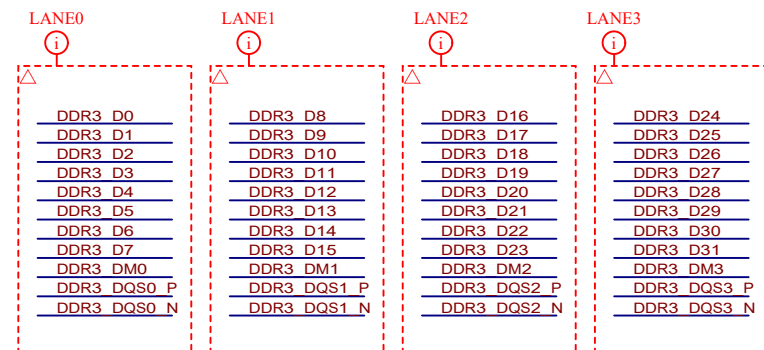
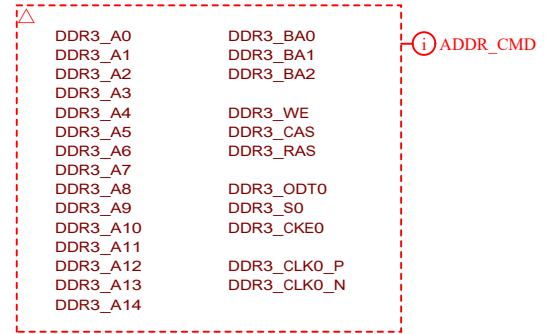
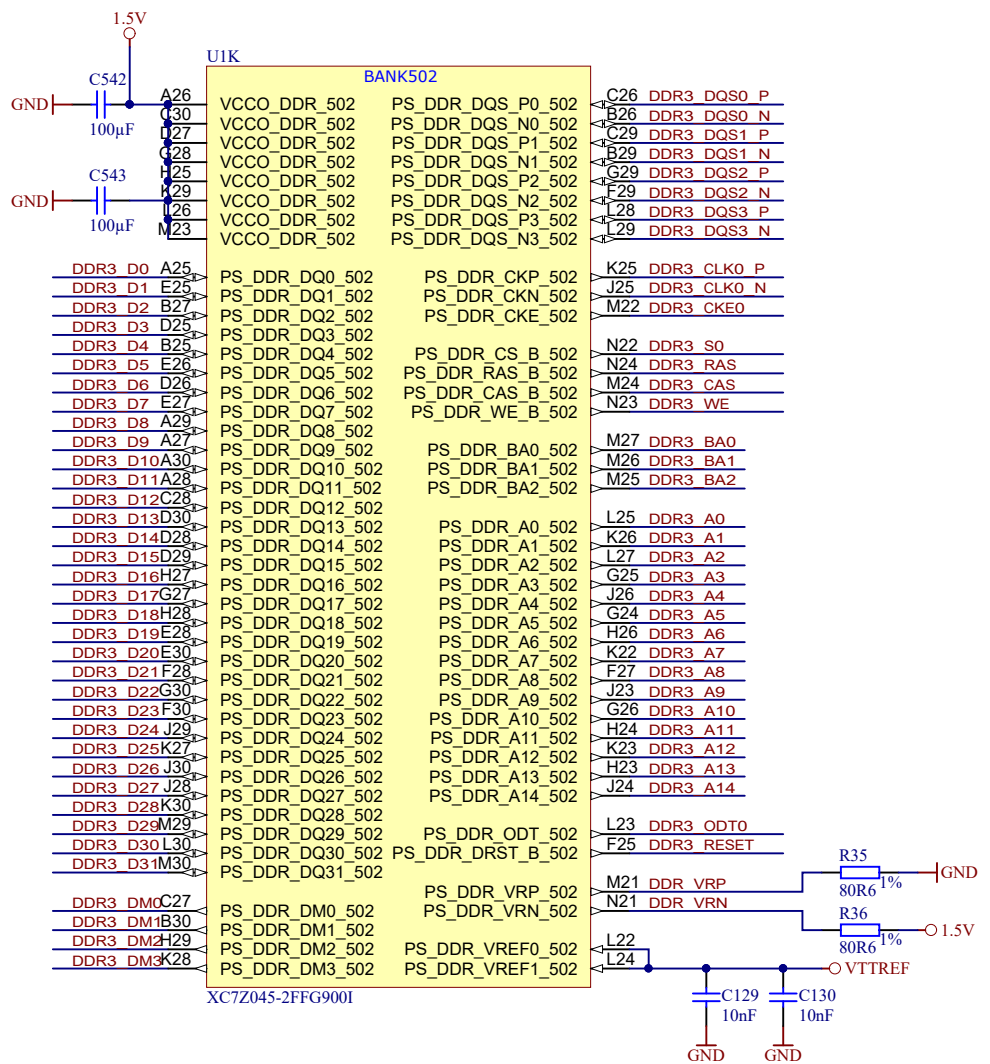
2

3

4



	Title: FPGA Configuration		
	A4	Nummer: TE0783 92135HA	Rev. 02
	Datum: 13.07.2018	Zeichner: Trenz Electronic GmbH	Blatt 7 von 32
	Filename: FPGA-CFG.SchDoc		



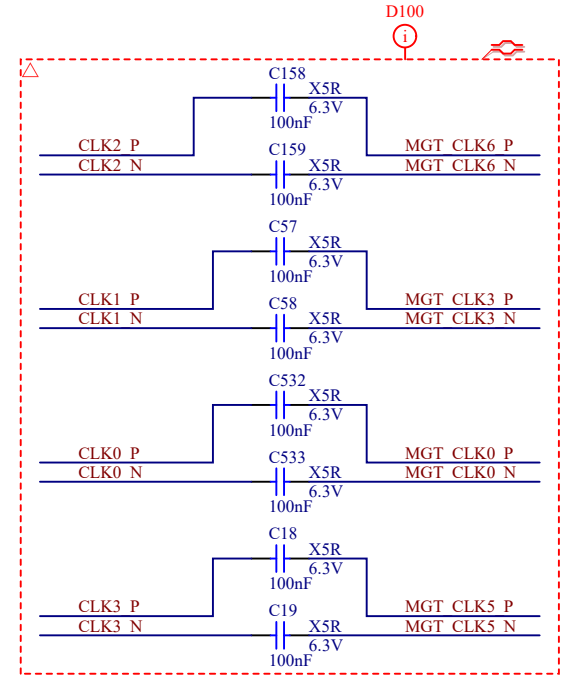
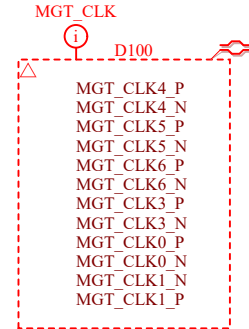
Title: FPGA DDR Banks		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 8 of 32
Filename: PS-DDR.SchDoc		

1

2

3

4



Title: FPGA MGT		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 9 of 32
Filename: FPGA-MGT.SchDoc		

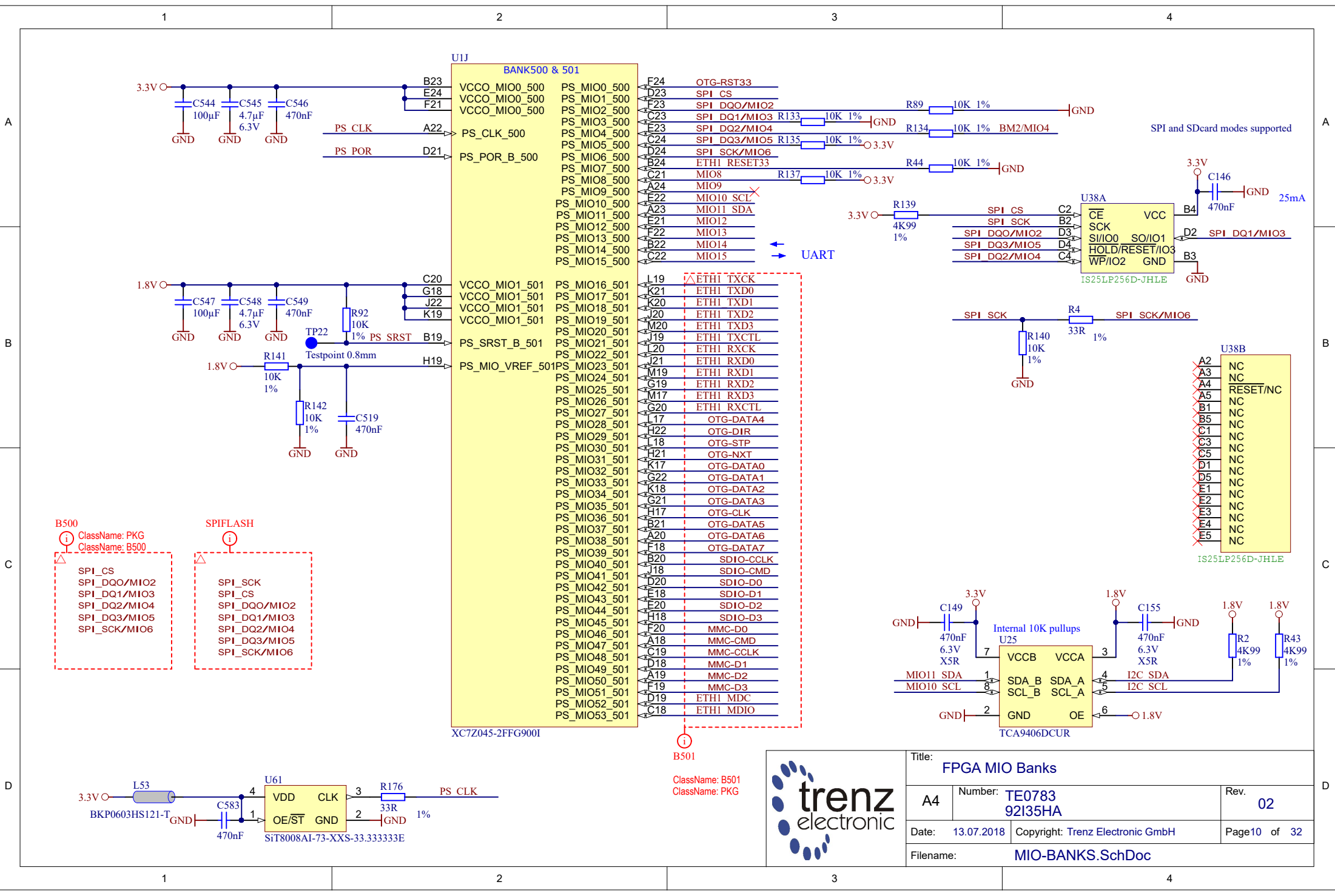
D

1

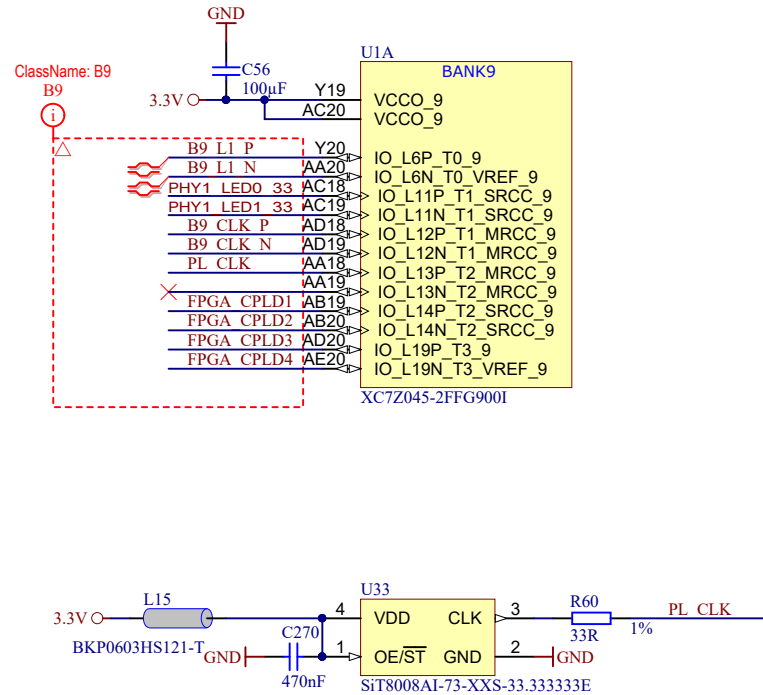
2

3

4

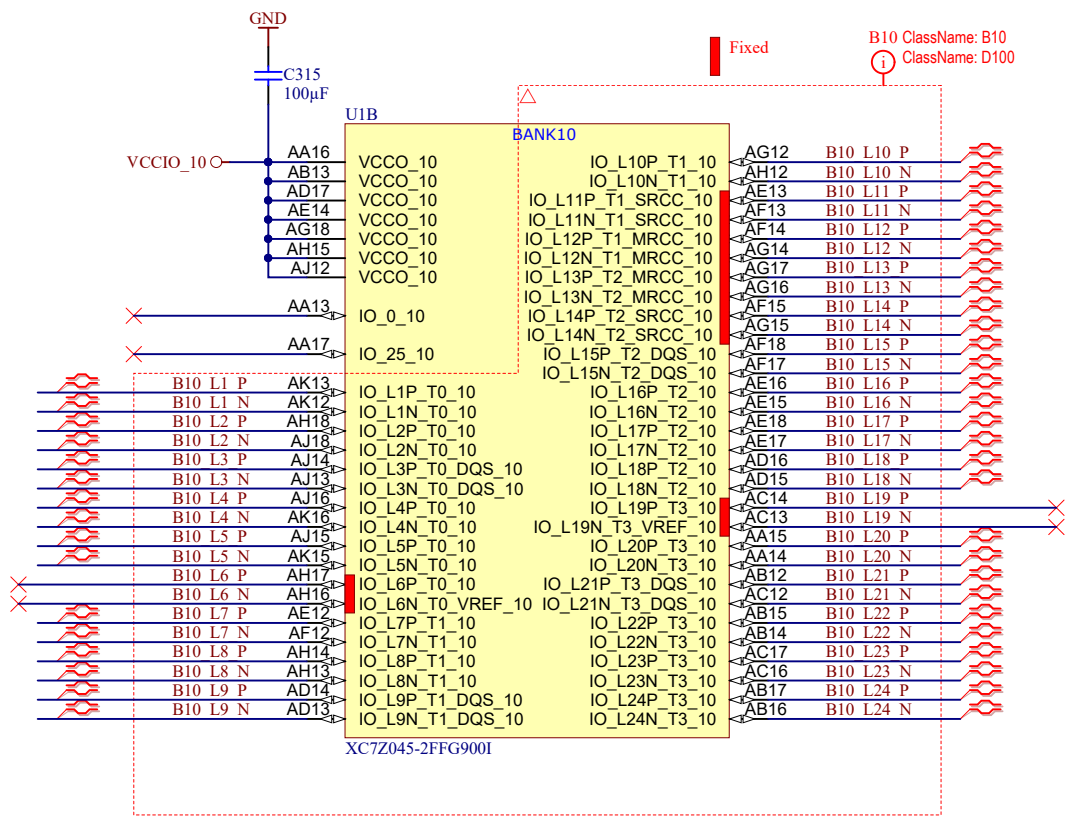


Title: FPGA MIO Banks		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 10 of 32
Filename: MIO-BANKS.SchDoc		

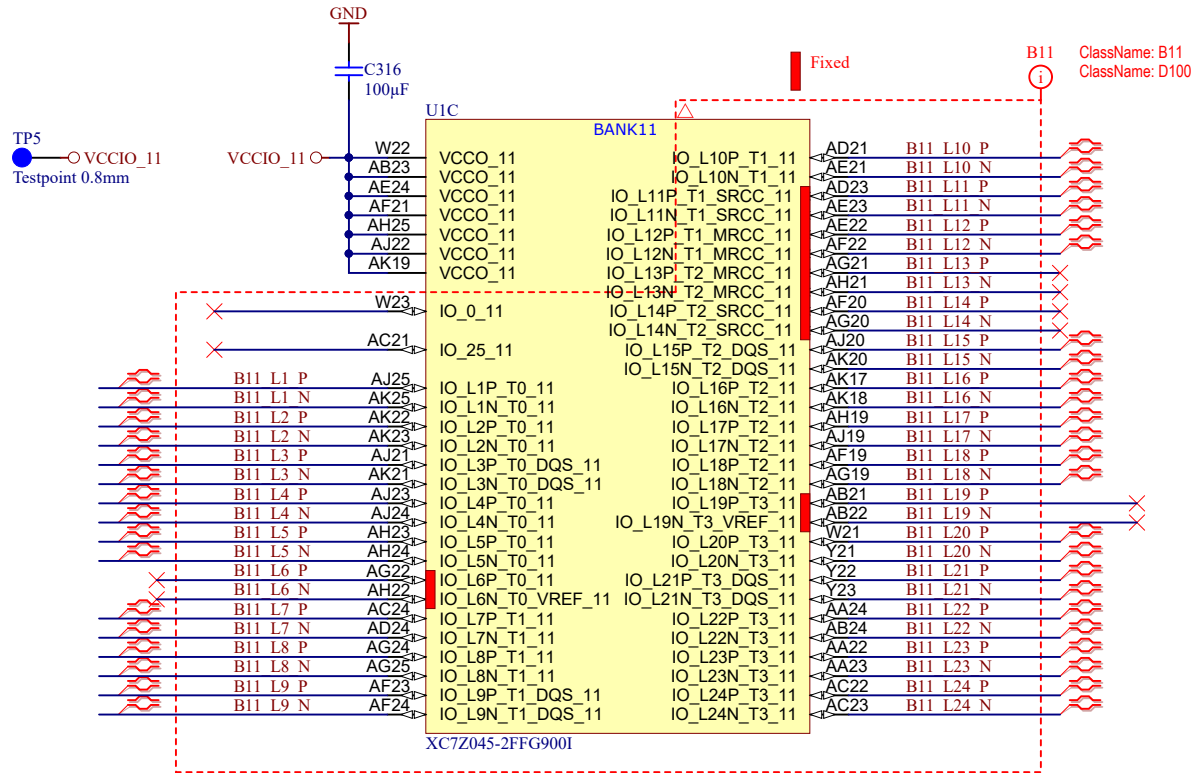


Title: FPGA B9		
A4	Number: TE0783 92I35HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 11 of 32
Filename: B9.SchDoc		


TP4
 ● ○ VCCIO_10
 Testpoint 0.8mm

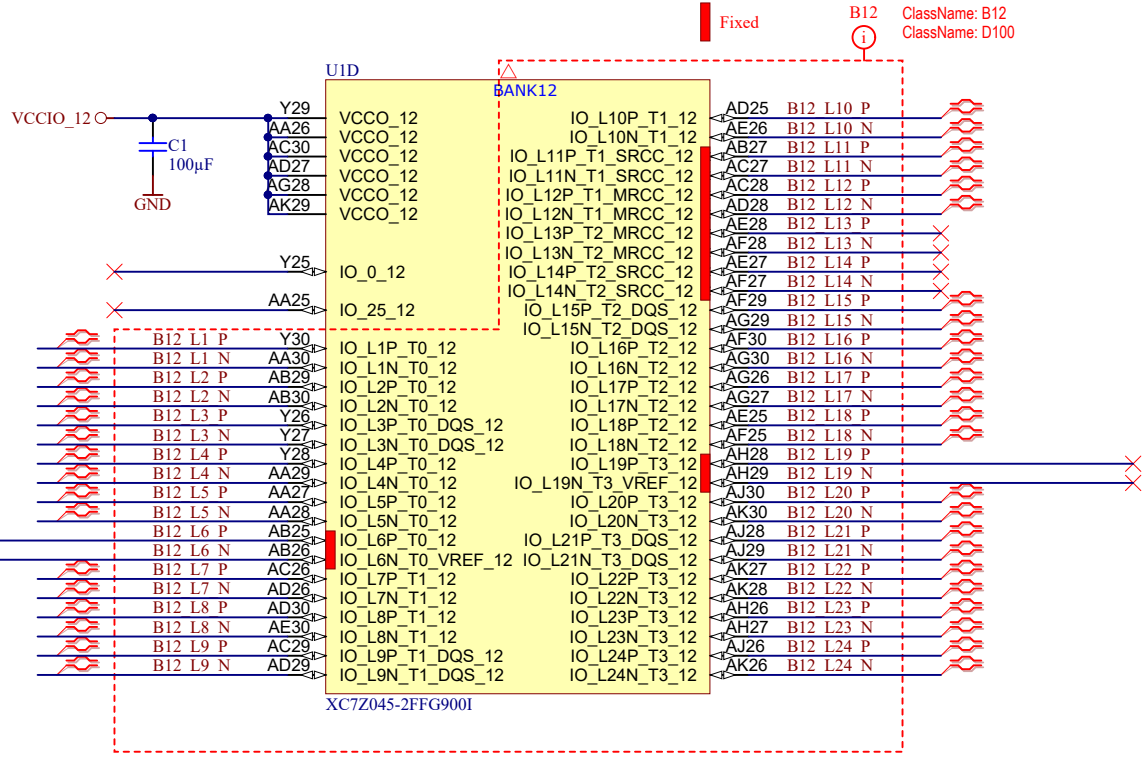


Title: FPGA B10		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 12 of 32
Filename: B10.SchDoc		



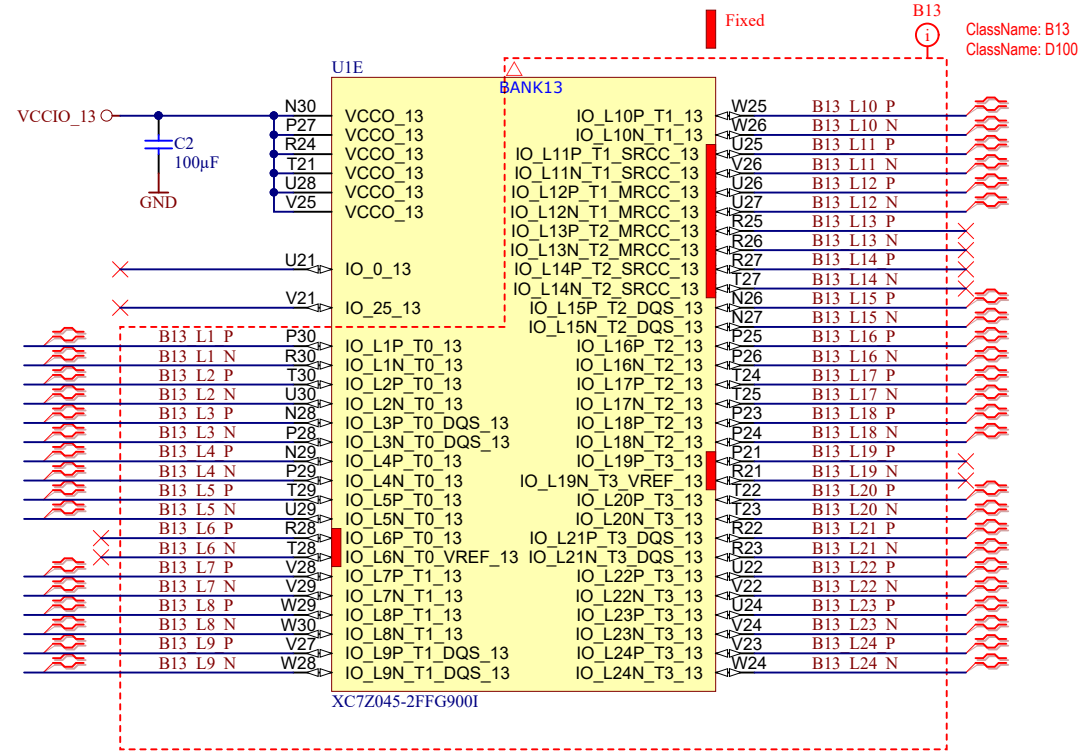
	Title: FPGA B11		
	A4	Number: TE0783 92135HA	Rev. 02
	Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 13 of 32
	Filename: B11.SchDoc		

TP1
 VCCIO_12
 Testpoint 0.8mm



Title: FPGA B12		
A4	Number: TE0783 92I35HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 14 of 32
Filename: B12.SchDoc		

TP2
 ● ○ VCCIO_13
 Testpoint 0.8mm



Title: FPGA B13		
A4	Number: TE0783 92I35HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 15 of 32
Filename: B13.SchDoc		

1

2

3

4

U_B33
B33.SchDoc



U_B34
B34.SchDoc



U_B35
B35.SchDoc



U_DDR3-RAM-PL1
DDR3-RAM-PL1.SchDoc



U_DDR3-RAM-PL2
DDR3-RAM-PL2.SchDoc



A

A

B


B

C

C

D

D

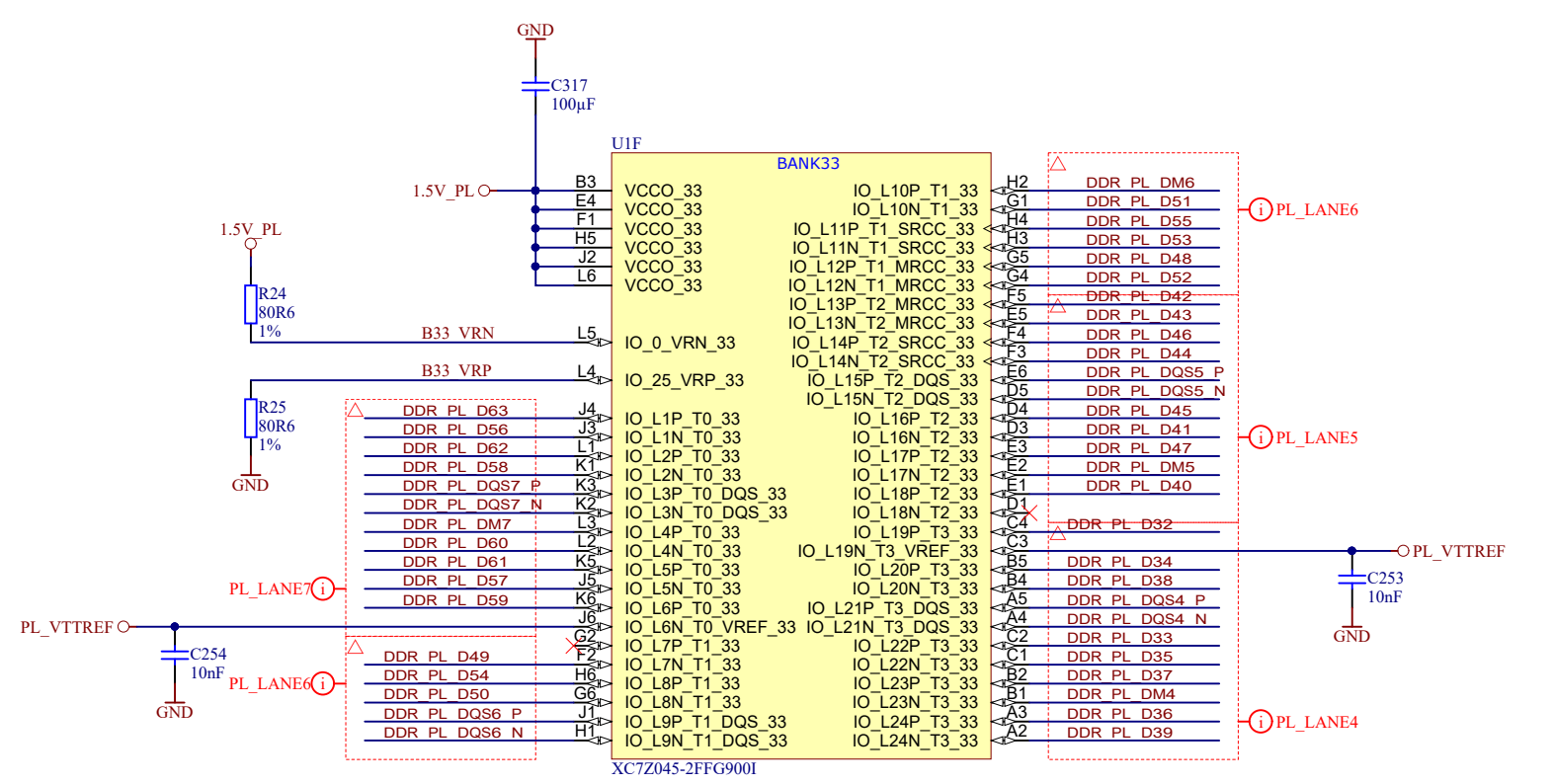
	Title: FPGA HP Banks		
	A4	Number: TE0783 92I35HA	Rev. 02
	Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 16 of 32
	Filename: HP-BANKS.SchDoc		

1

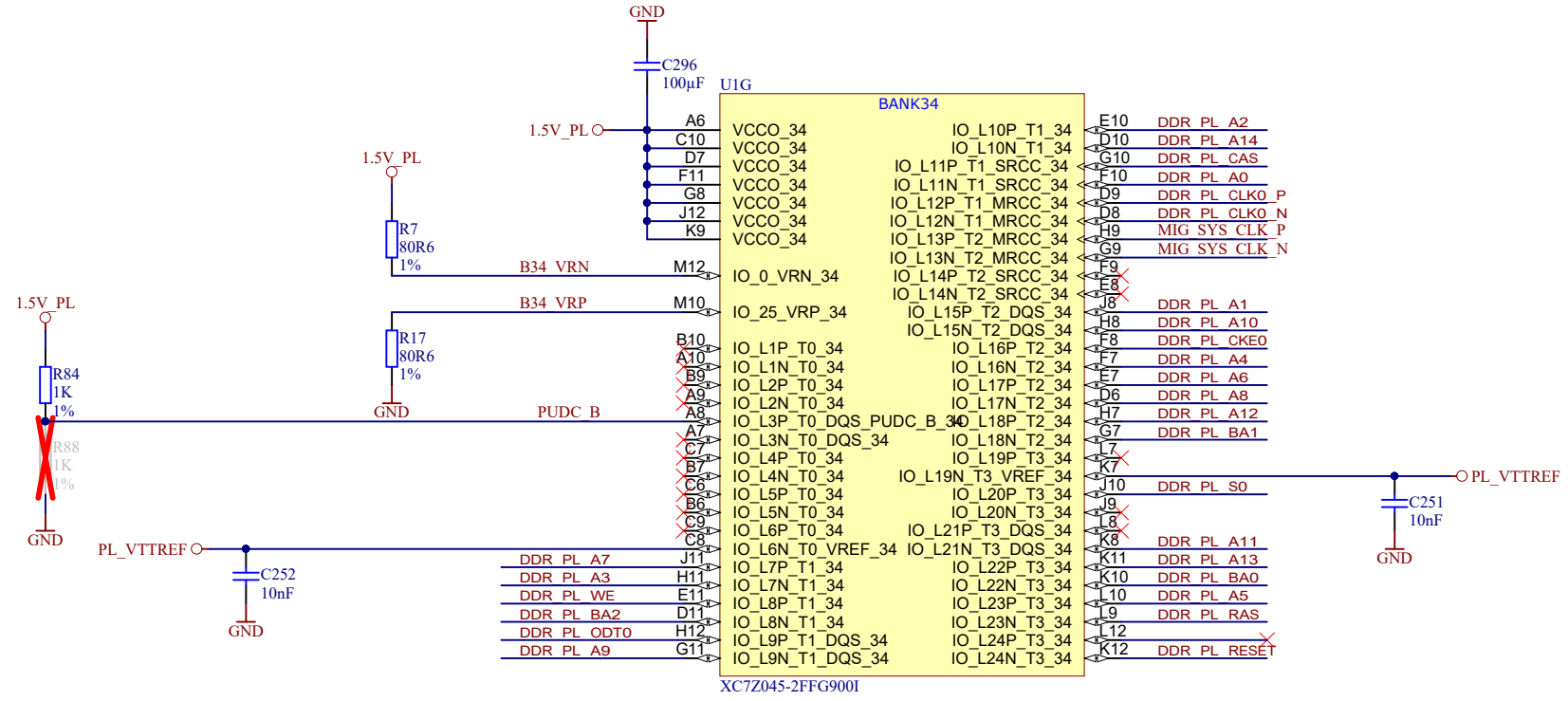
2

3

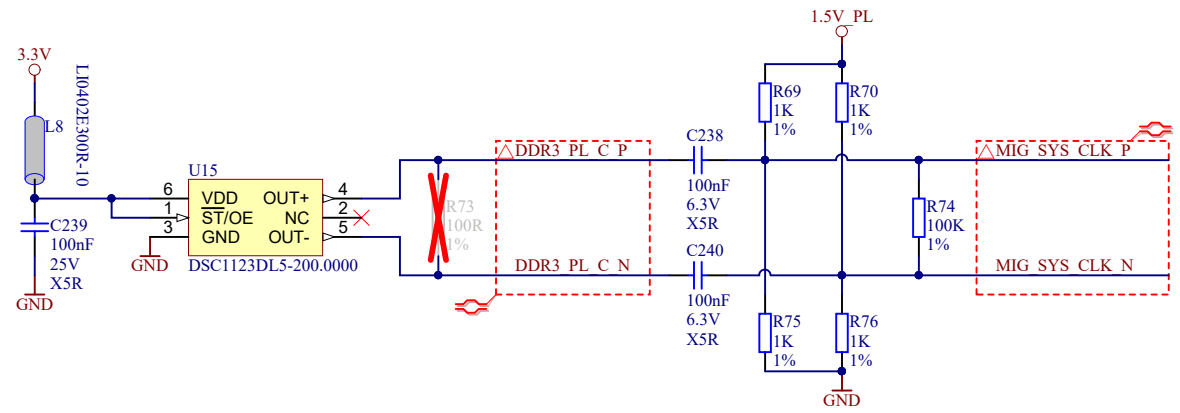
4



Title: FPGA B33		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 17 of 32
Filename: B33.SchDoc		



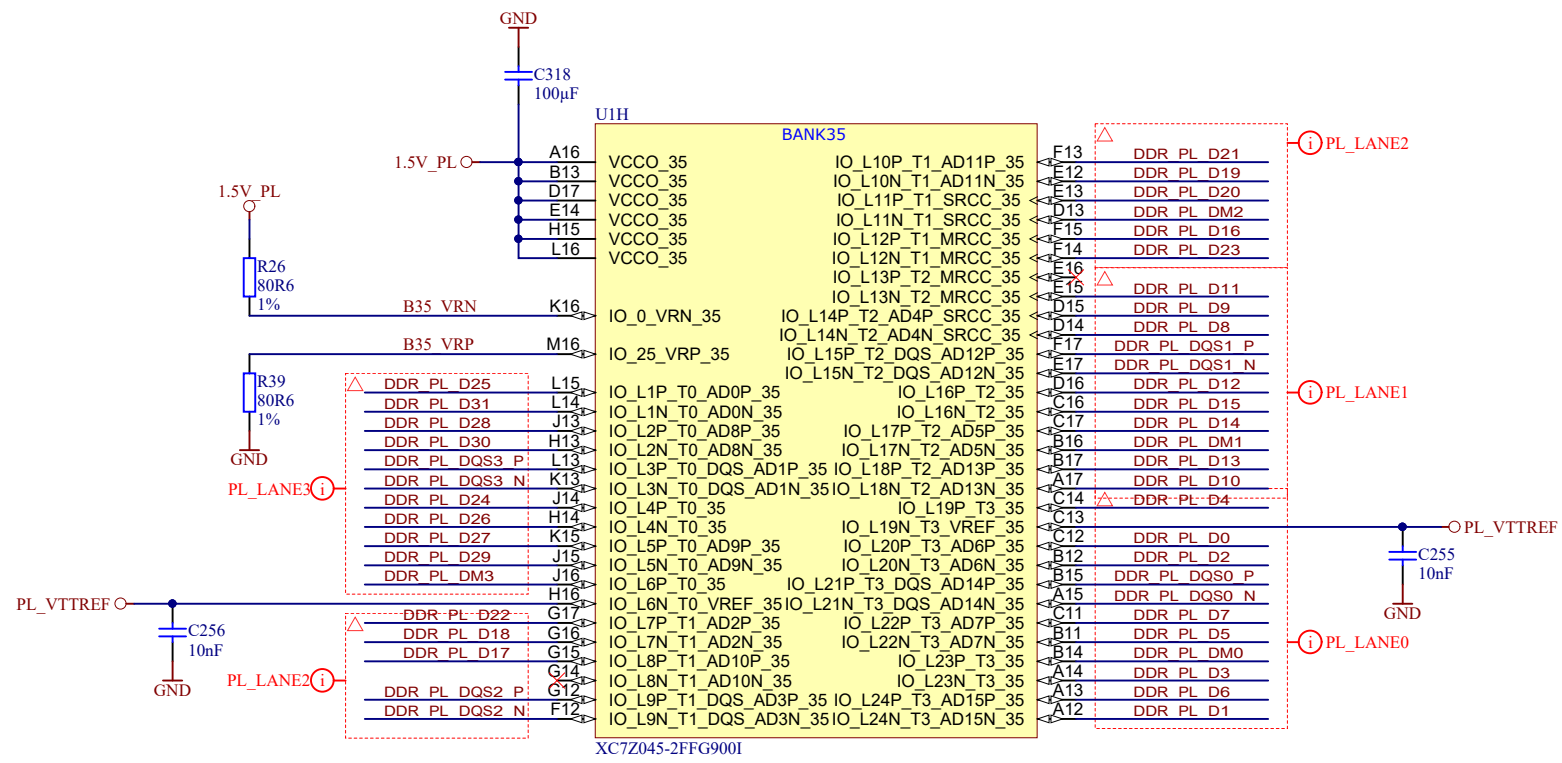

XC7Z045-2FFG900I



Check clock source. R74 100R changed to 100K

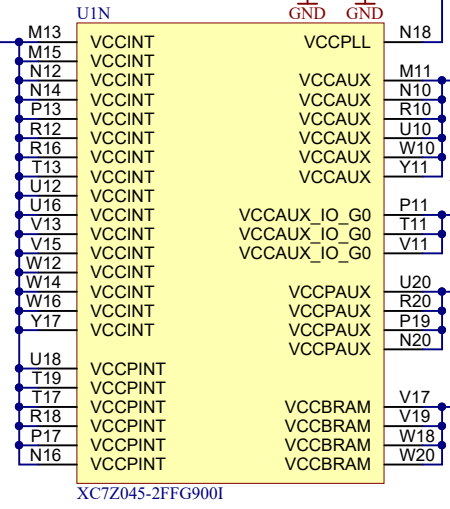
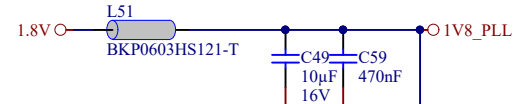
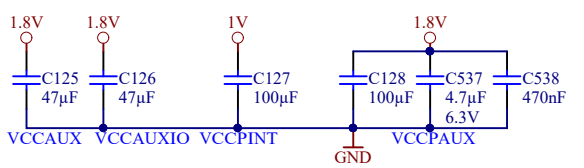
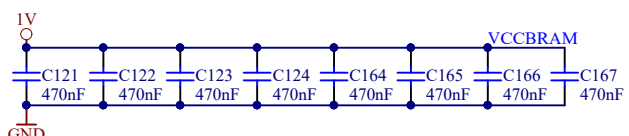
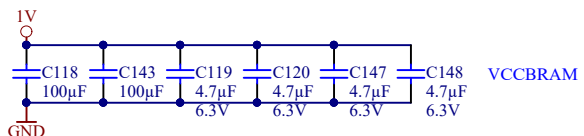
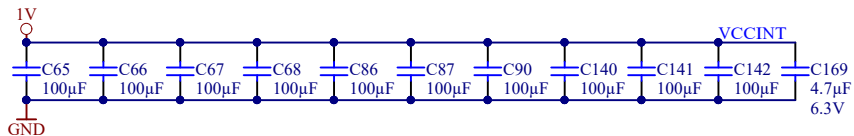
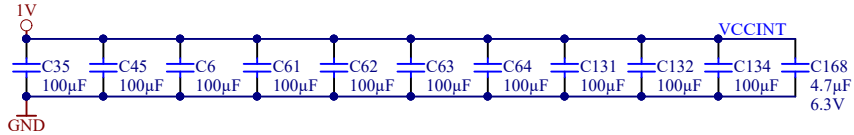


Title: FPGA B34		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 18 of 32
Filename: B34.SchDoc		

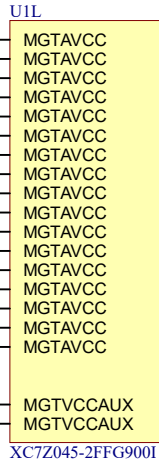



Title: FPGA B35		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 19 of 32
Filename: B35.SchDoc		

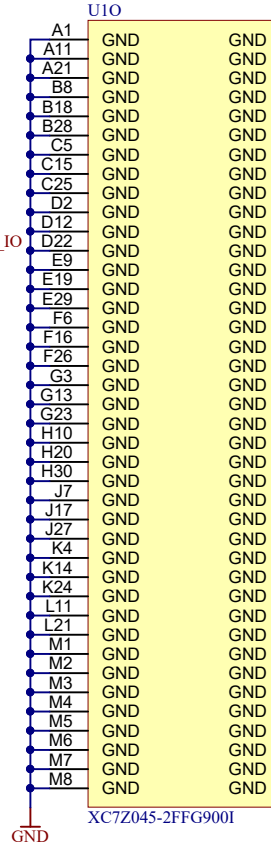
Capacitors suitable for XC7Z100



XC7Z045-2FFG9001

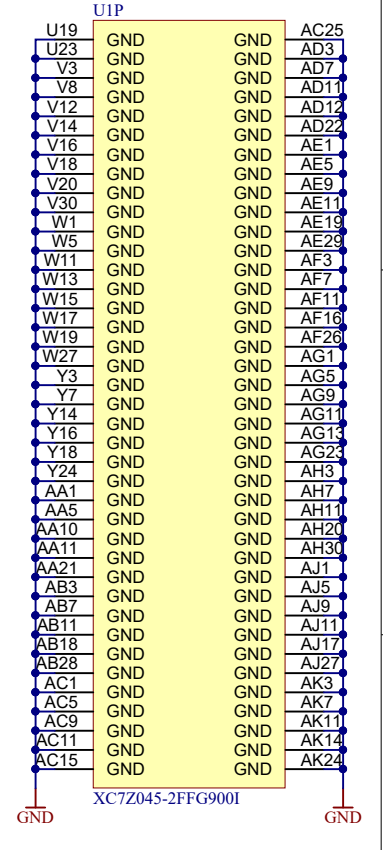


XC7Z045-2FFG9001



U10

XC7Z045-2FFG9001



UIP

XC7Z045-2FFG9001



Title: ZYNQ POWER		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page20 of 32
Filename: FPGA-PWR.SchDoc		

A

A

B

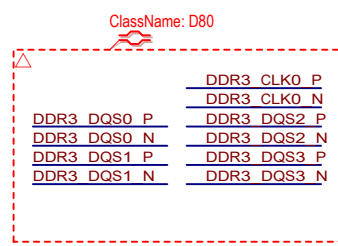
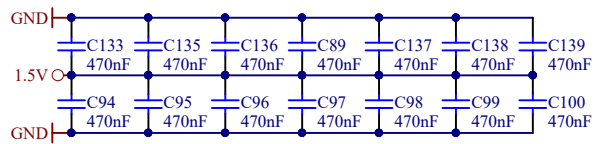
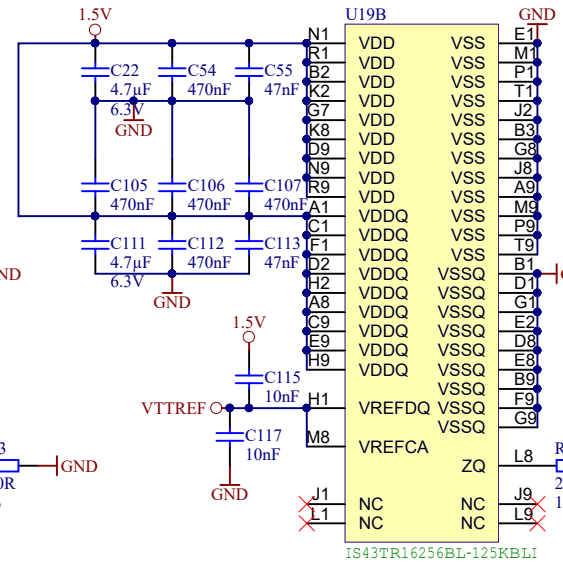
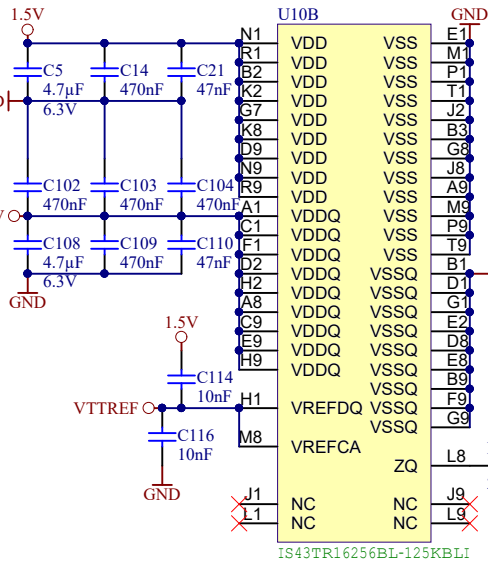
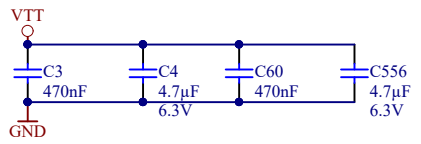
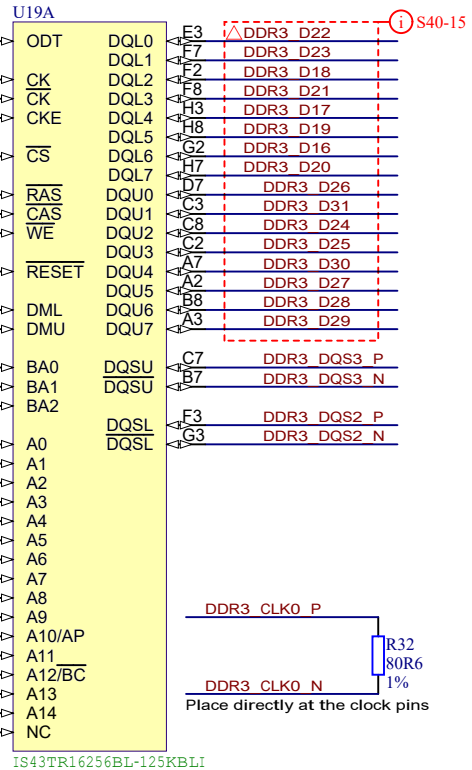
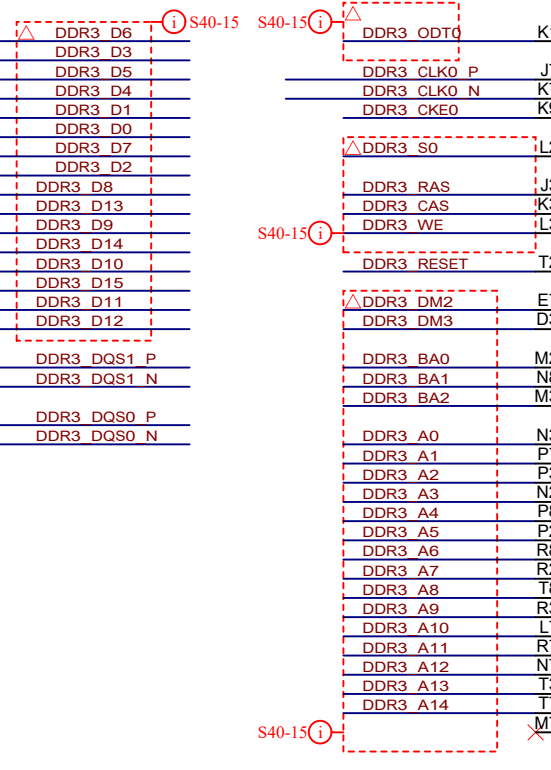
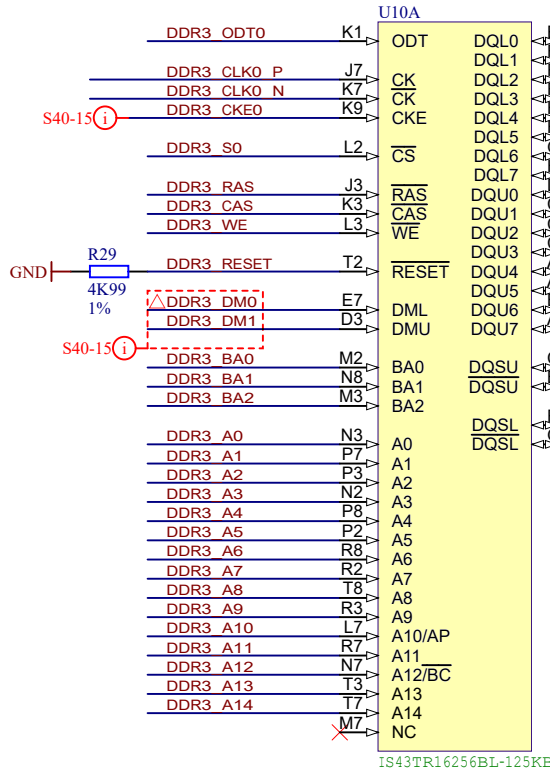
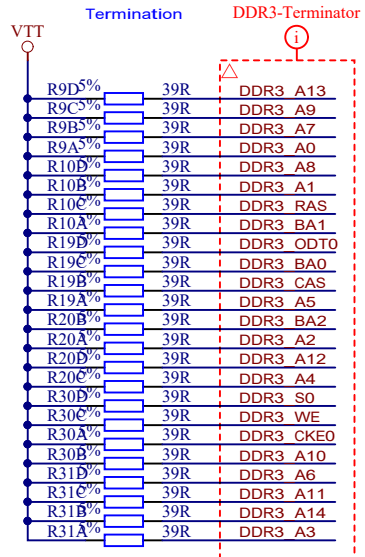
B

C

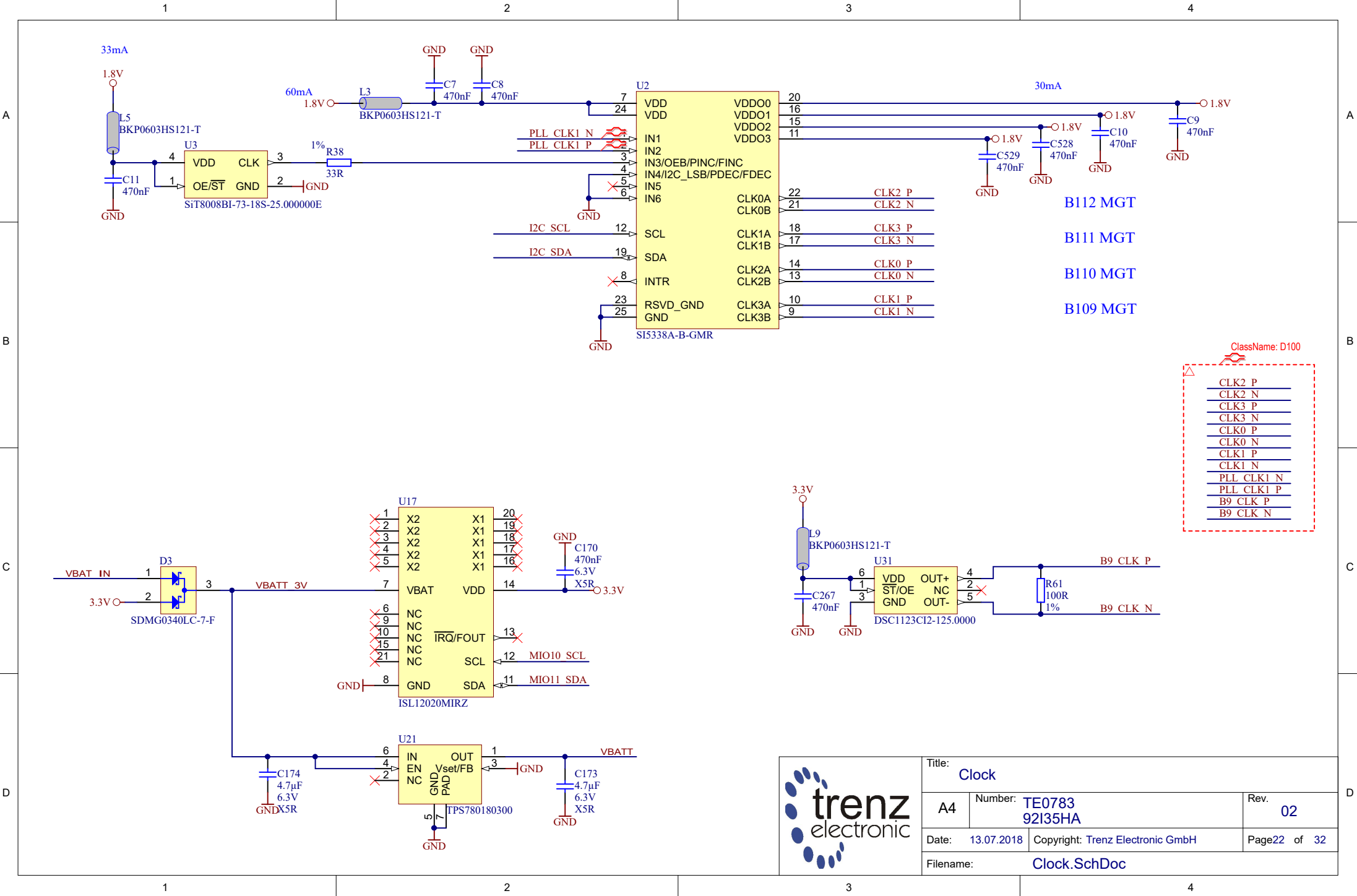
C

D

D



Title: DDR3 RAM PS		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 21 of 32
Filename: DDR3-RAM.SchDoc		



trenz electronic

Title: Clock		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page22 of 32
Filename: Clock.SchDoc		

A

B

C

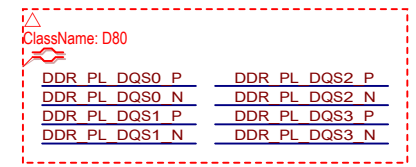
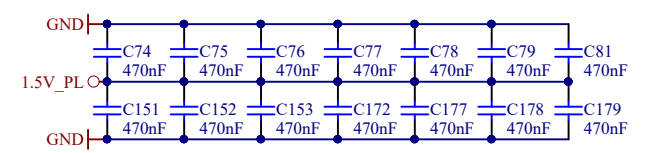
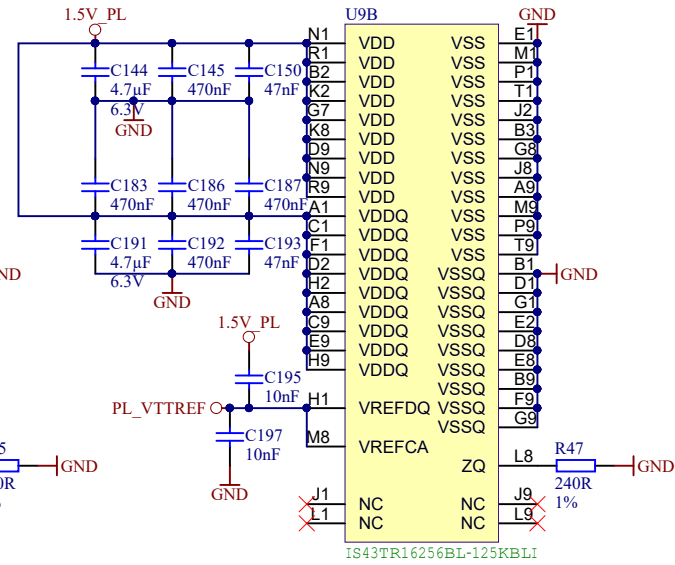
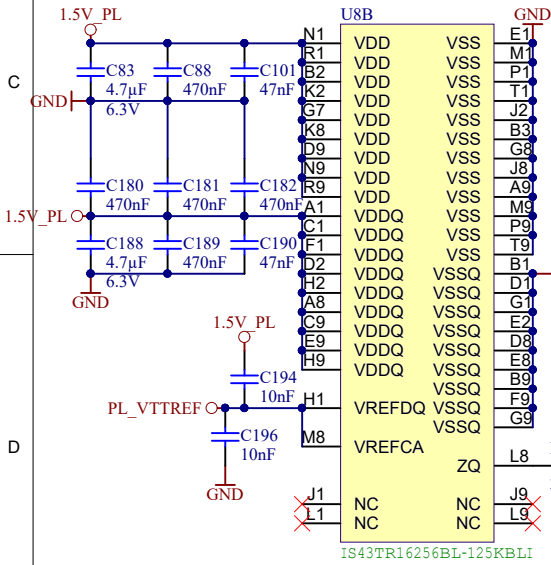
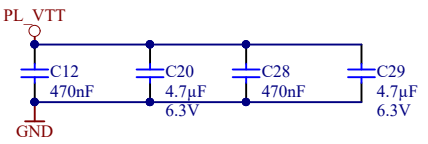
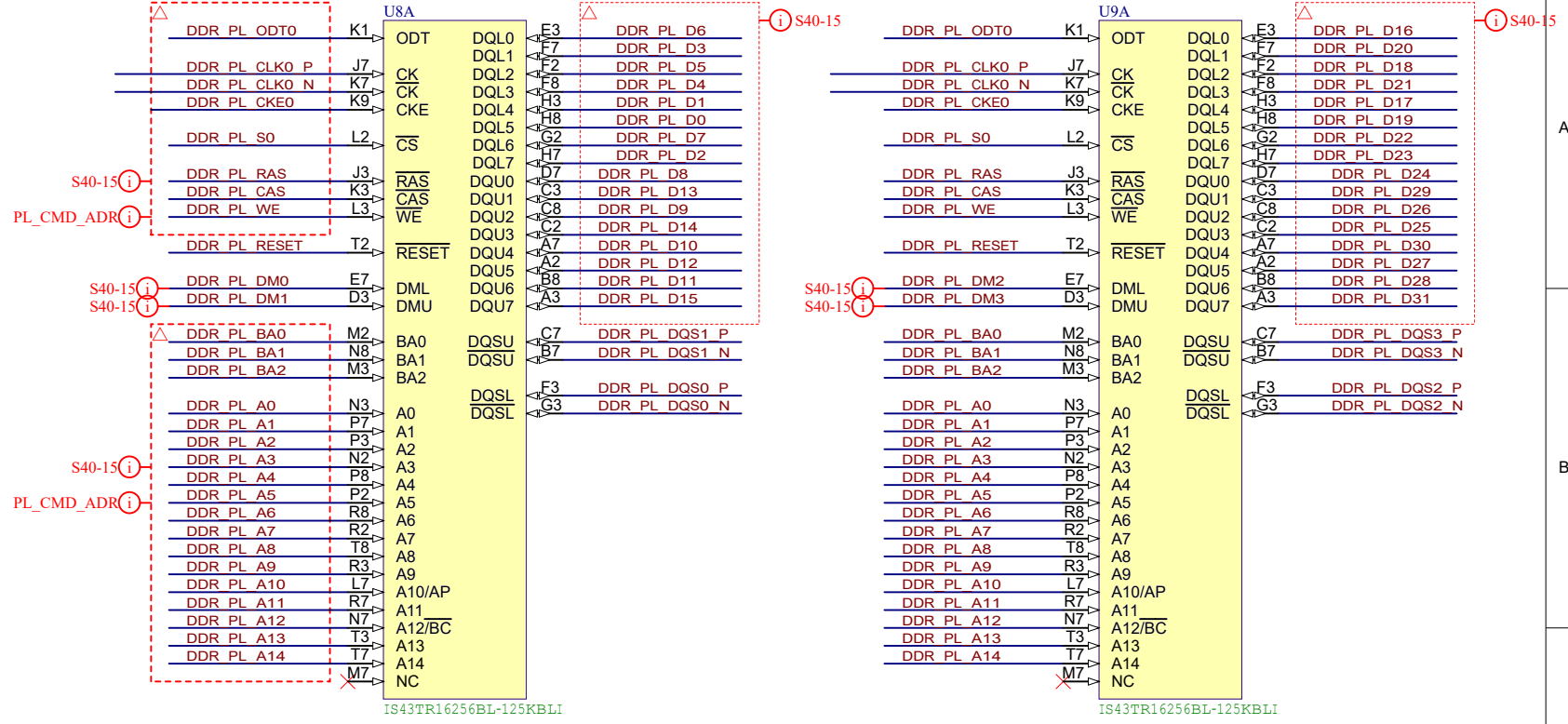
D

A

B

C

D



Title: DDR3 RAM PL		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 23 of 32
Filename: DDR3-RAM-PL1.SchDoc		

A

B

C

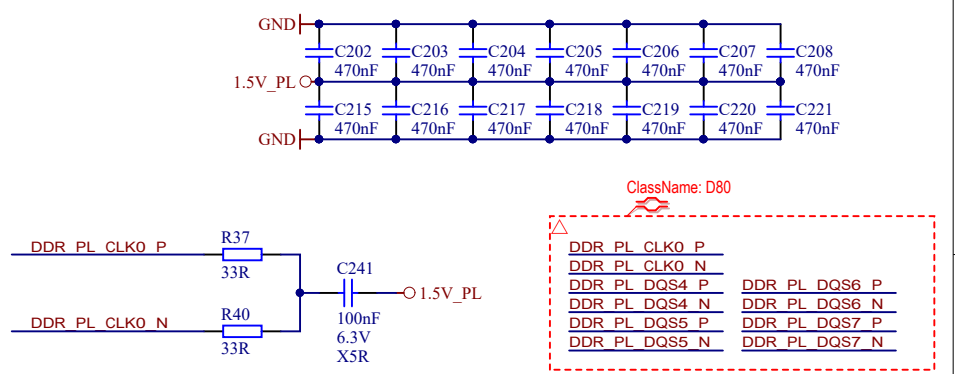
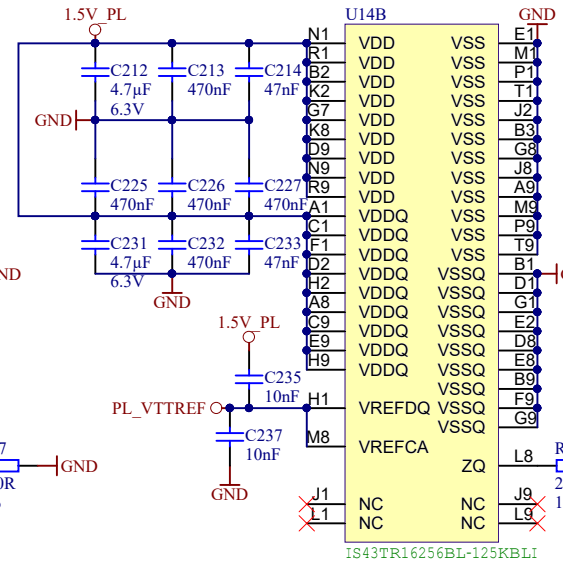
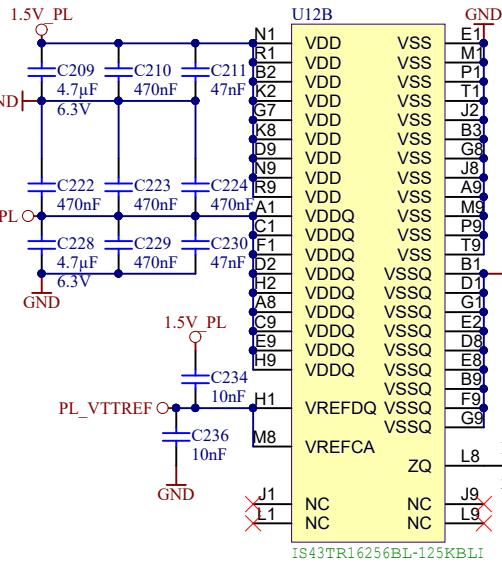
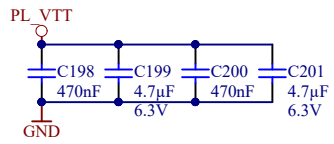
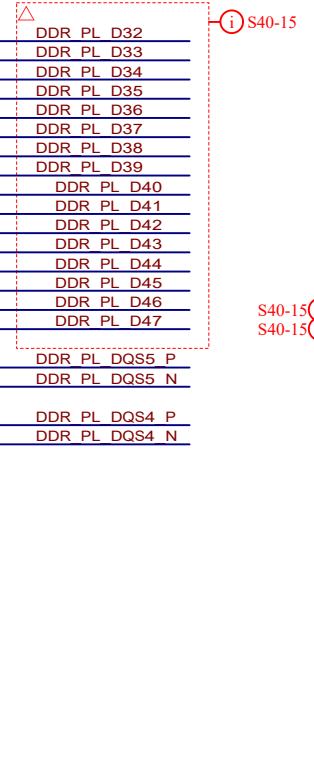
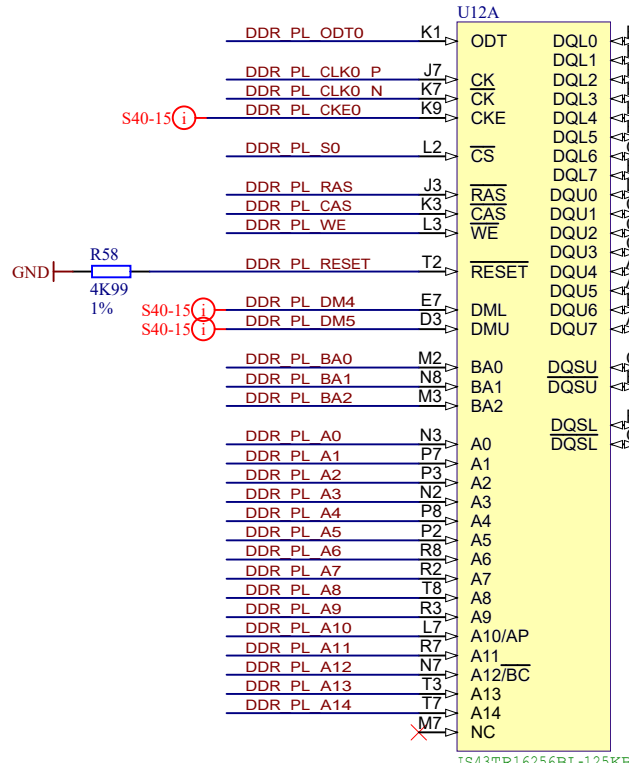
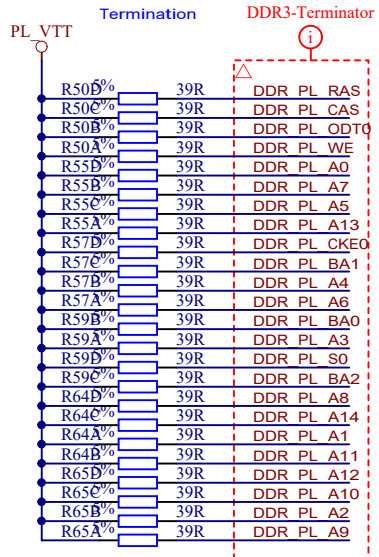
D

A

B

C

D



Place directly at the clock pins



Title: DDR3 RAM PL		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 24 of 32
Filename: DDR3-RAM-PL2.SchDoc		

A

B

C

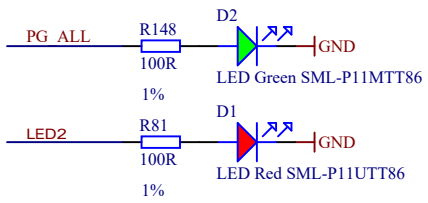
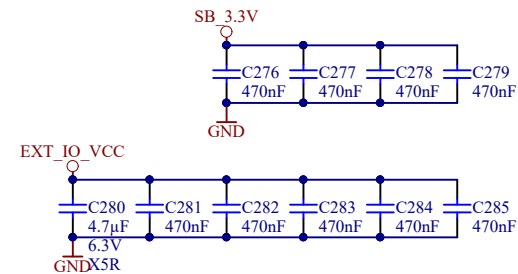
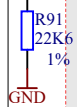
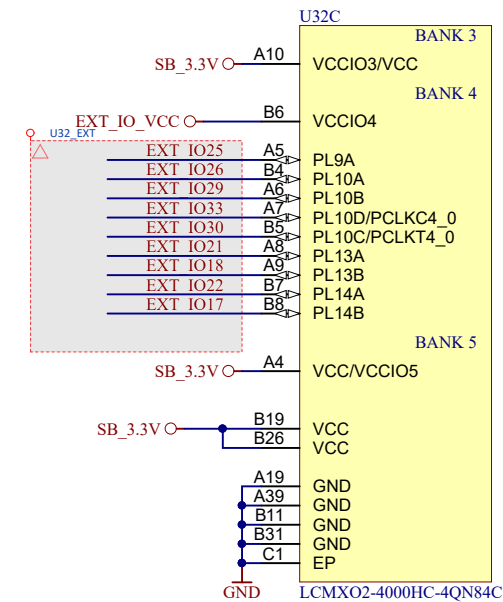
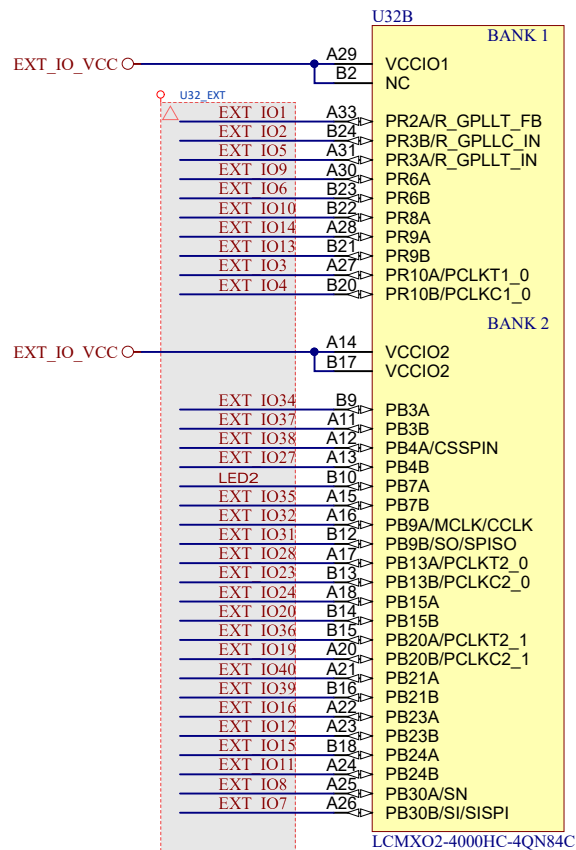
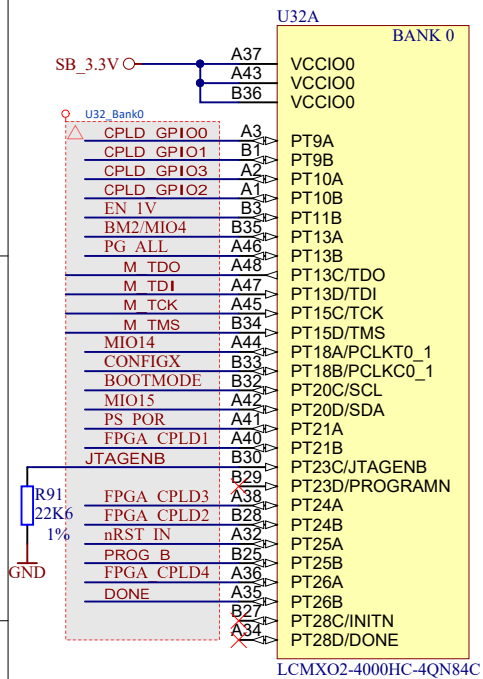
D

A

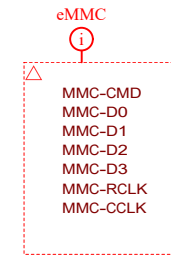
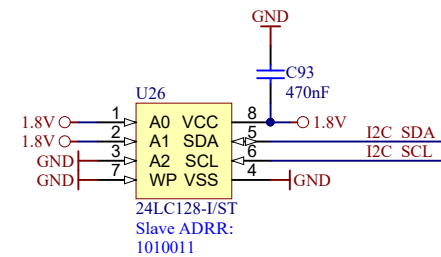
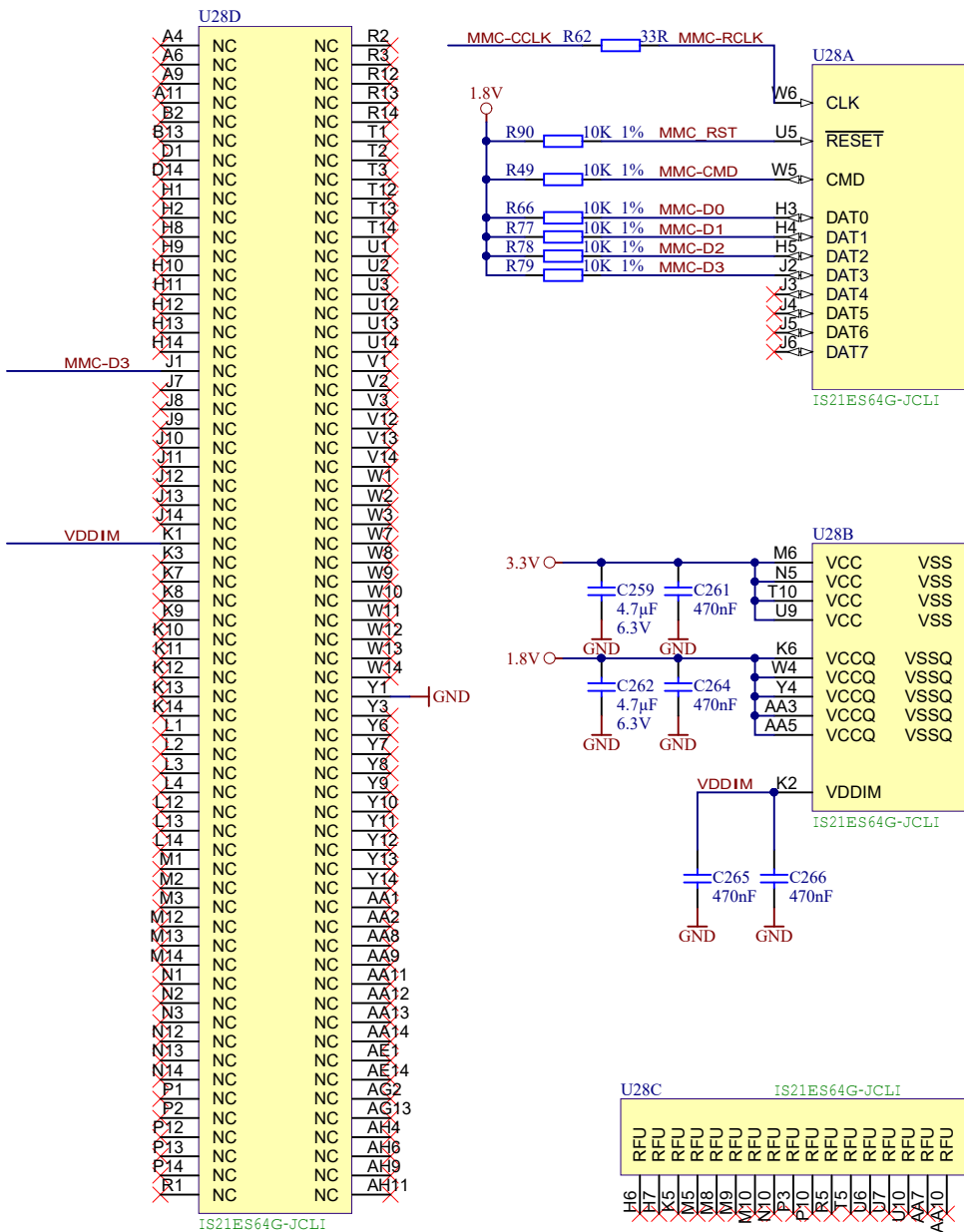

B

C

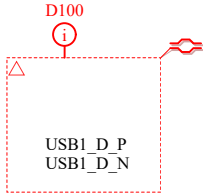
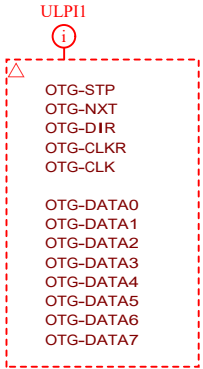
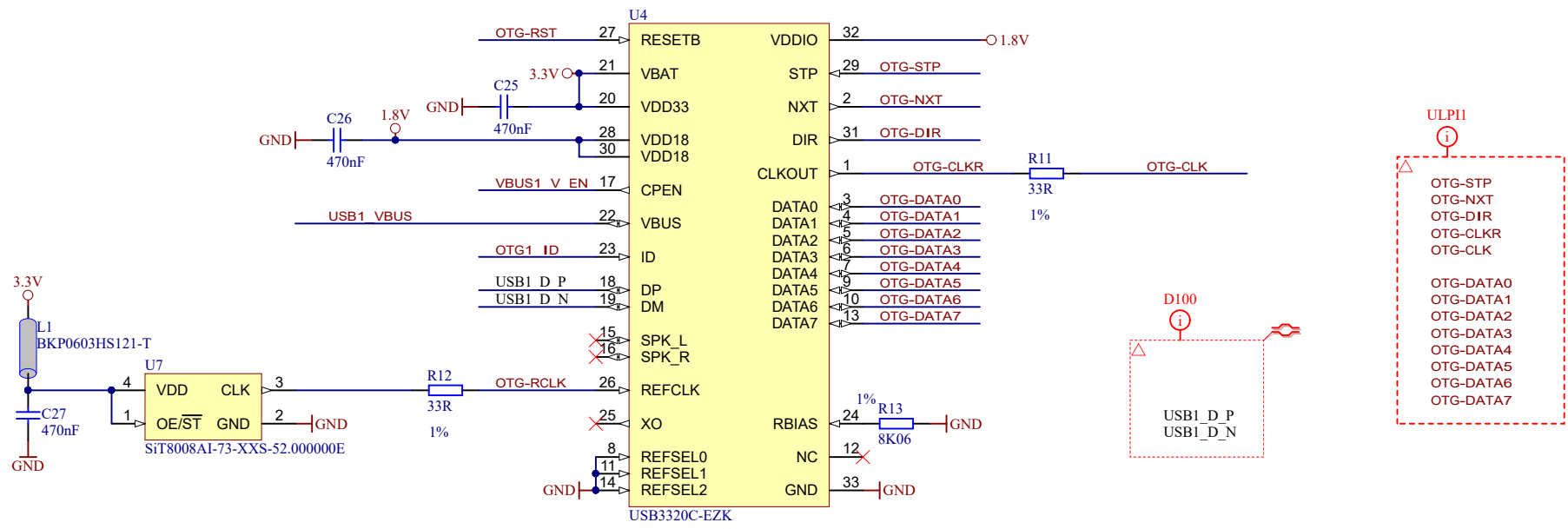
D



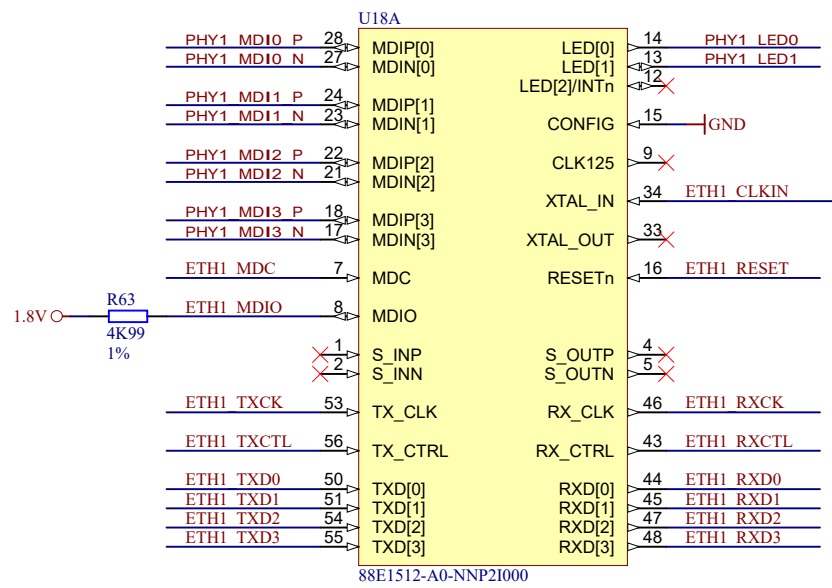
Title: CPLD		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 25 of 32
Filename: CPLD.SchDoc		

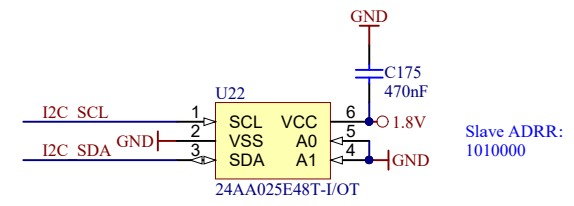
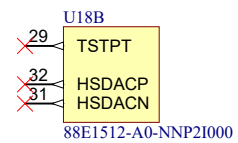
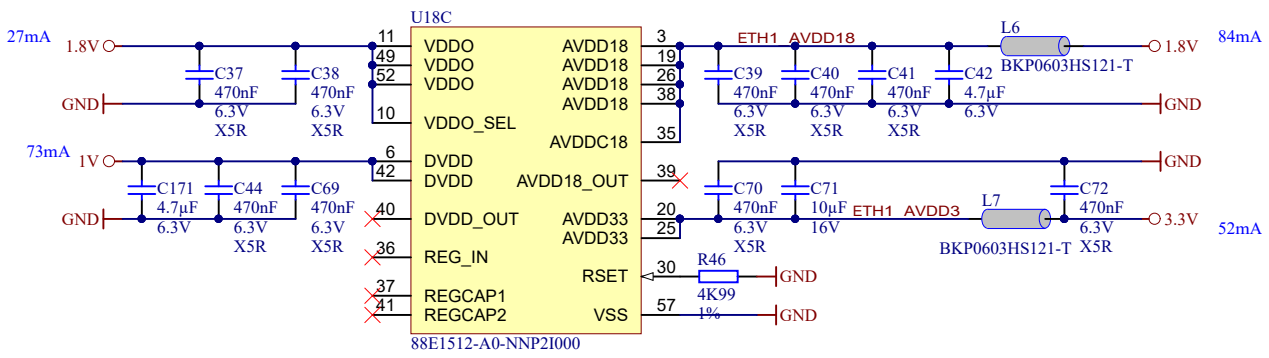
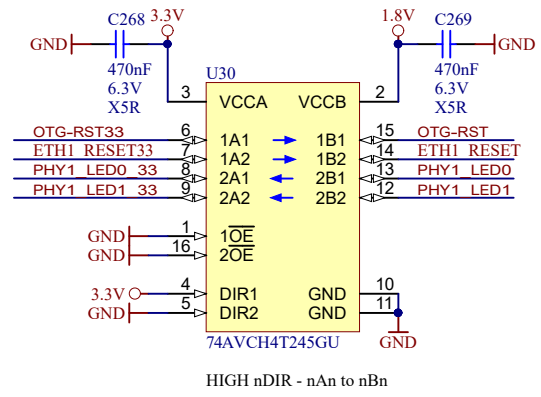
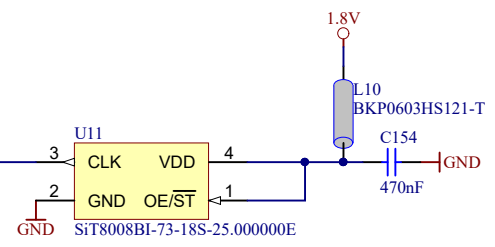
Title: eMMC		
A4	Number: TE0783 92I35HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 26 of 32
Filename: eMMC.SchDoc		



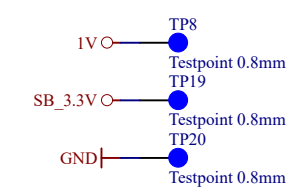
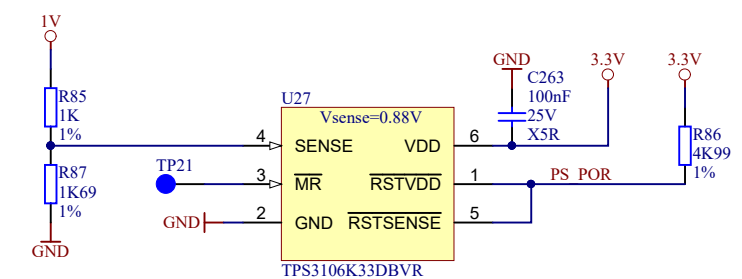
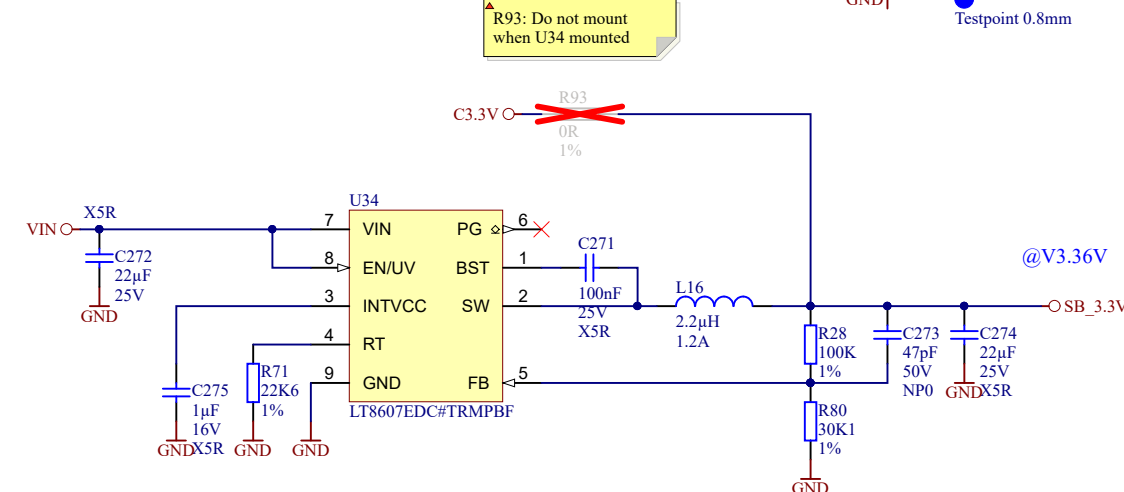
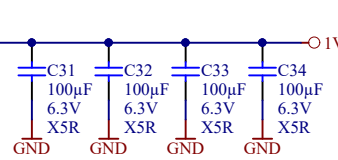
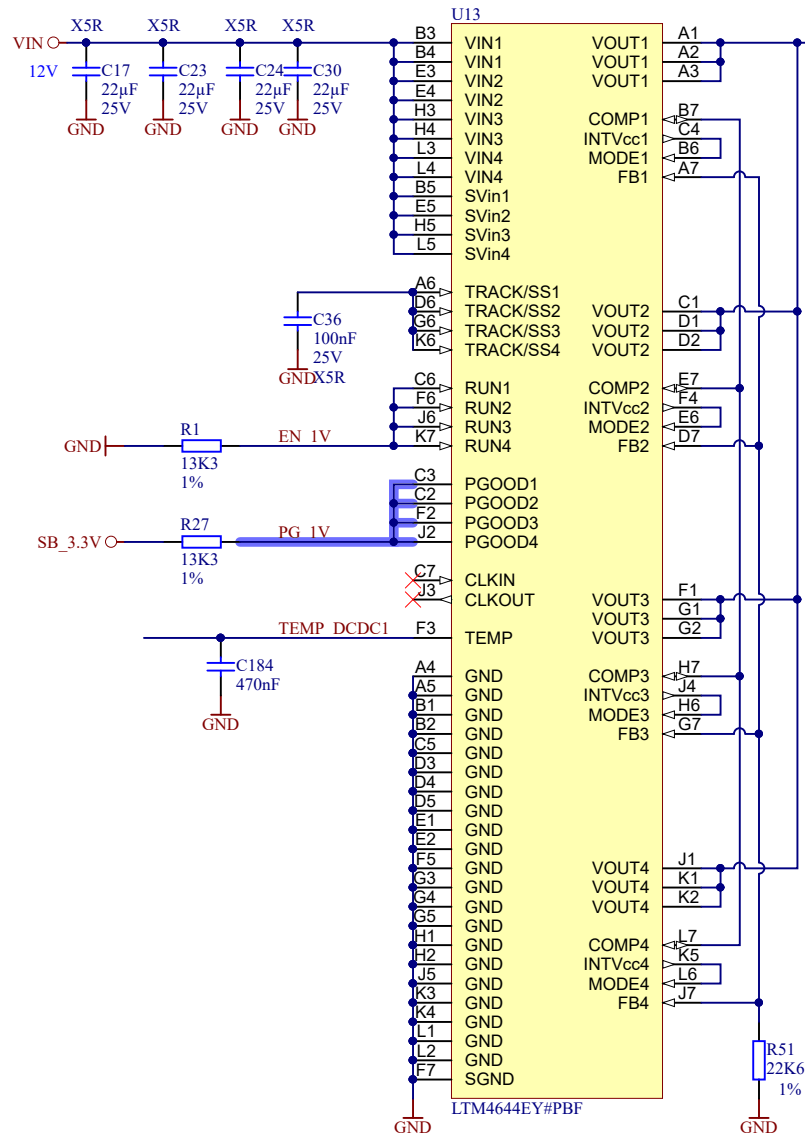
	Title: USB-PHY		
	A4	Number: TE0783 92135HA	Rev. 02
	Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 27 of 32
	Filename: USB-PHY.SchDoc		



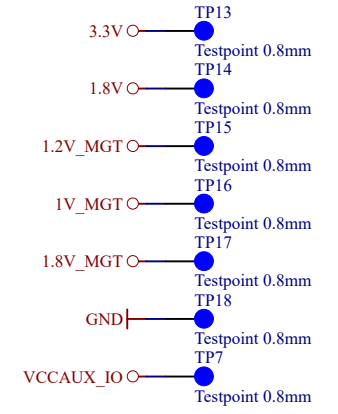
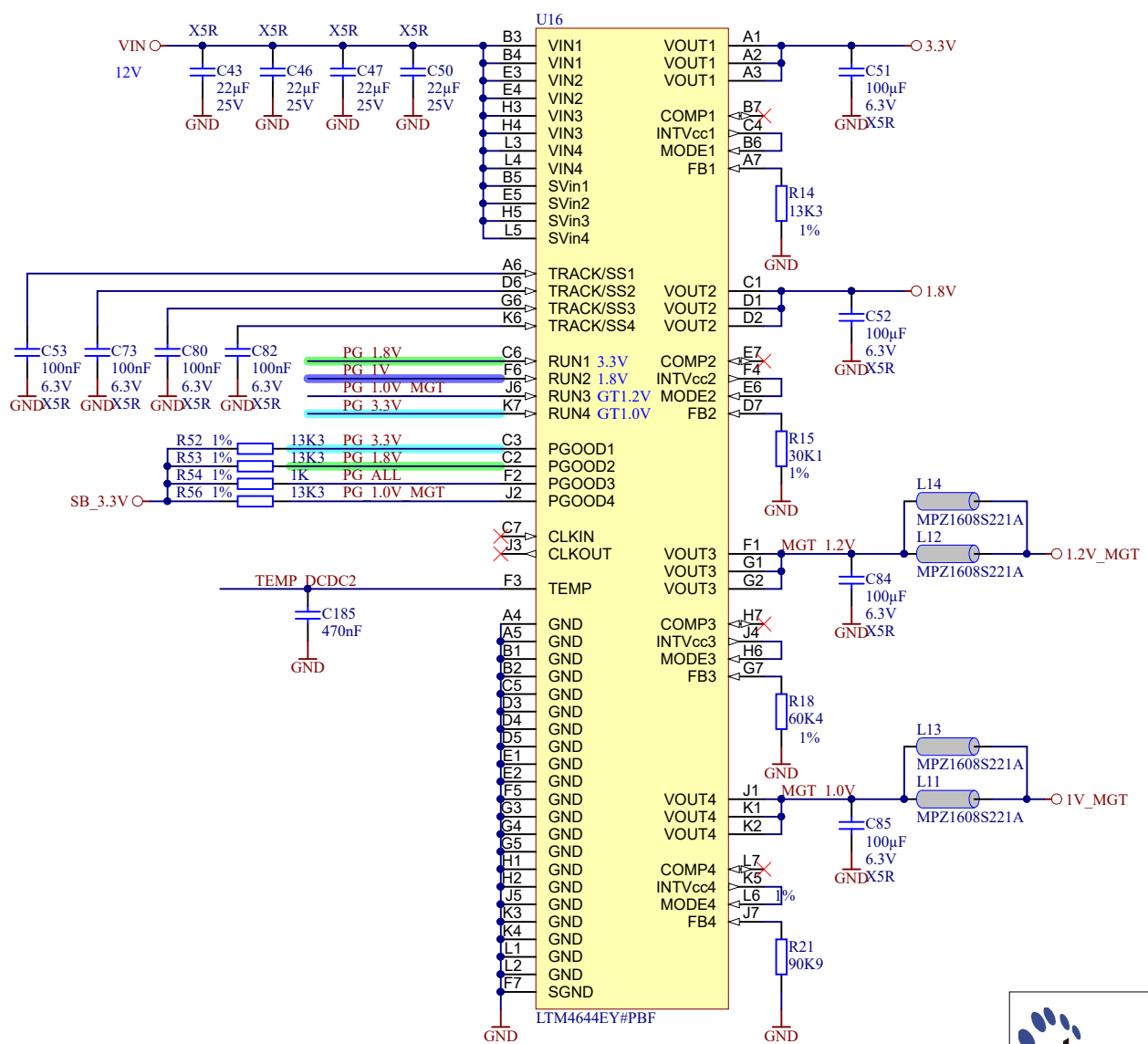
B9



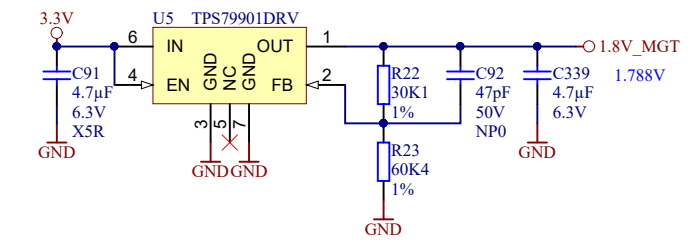
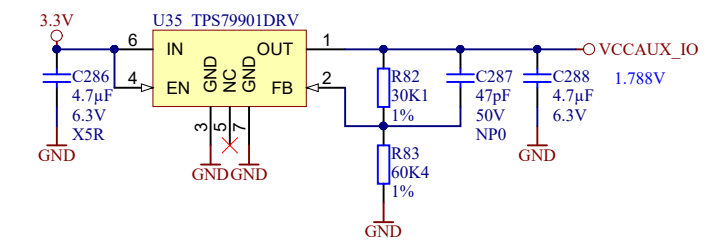
	Title: ETH_PHY1		
	A4	Number: TE0783 92135HA	Rev. 02
	Date: 13.07.2018	Copyright: Trenz Electronic GmbH	
	Page 28 of 32	Page 28 of 32	
Filename: ETH1.SchDoc			




	Title: POWER	
	A4	Number: TE0783 92135HA
	Date: 13.07.2018	Copyright: Trenz Electronic GmbH
	Filename: POWER.SchDoc	Rev. 02



CLK 666.67 and faster - VCCAUX_IO 2.0V



			Title: POWER 2	
			A4	Number: TE0783 92135HA
Date: 13.07.2018		Copyright: Trenz Electronic GmbH		Page30 of 32
Filename: POWER2.SchDoc				

1

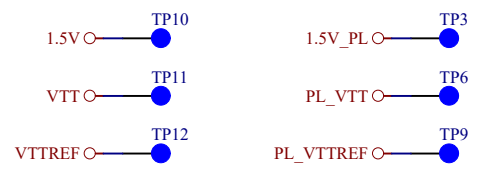
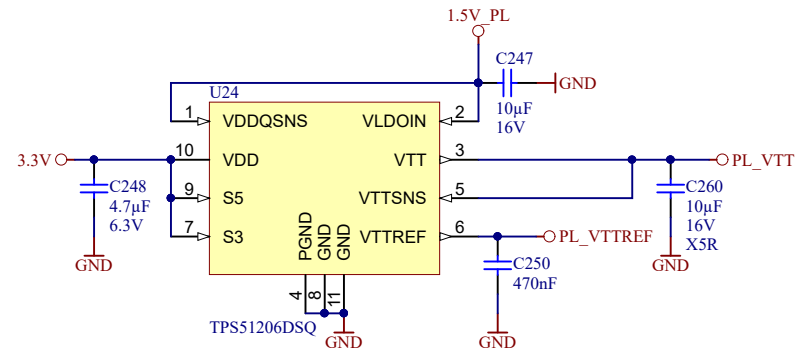
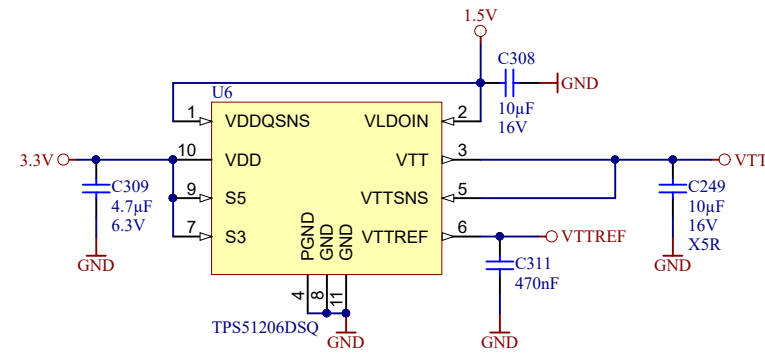
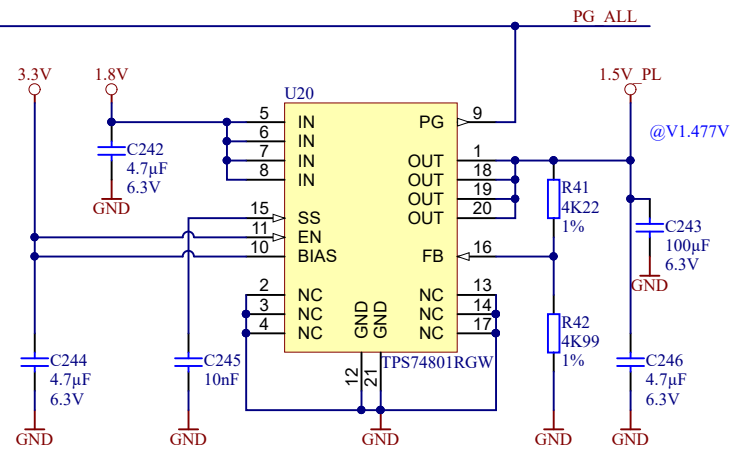
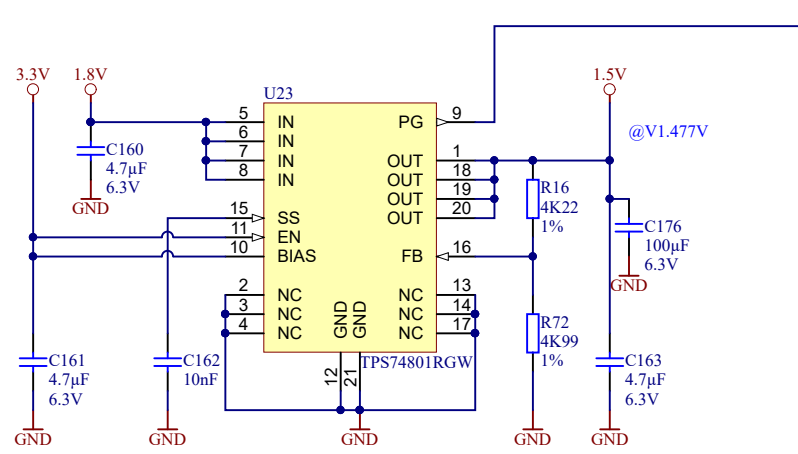
2

3

4

DDR3 PS

DDR3 PL



Title: POWER 2		
A4	Number: TE0783 92135HA	Rev. 02
Date: 13.07.2018	Copyright: Trenz Electronic GmbH	Page 31 of 32
Filename: POWER3.SchDoc		

1

2

3

4

1

2

3

4

REV. 02:

1) Changed power-up sequence: 3.3V next to 1.8V. MGT power domain next to 3.3V

A

A

B


B

C

C

D

D

		Title: Revision Changes	
		A4	Number: TE0783 92I35HA
Date: 13.07.2018		Copyright: Trenz Electronic GmbH / TT	
Filename: Revision Changes.SchDoc		Page 32 of 32	

1

2

3

4