



Regarding the usage of our schematics and alike documentation for Trenz module TE0720.

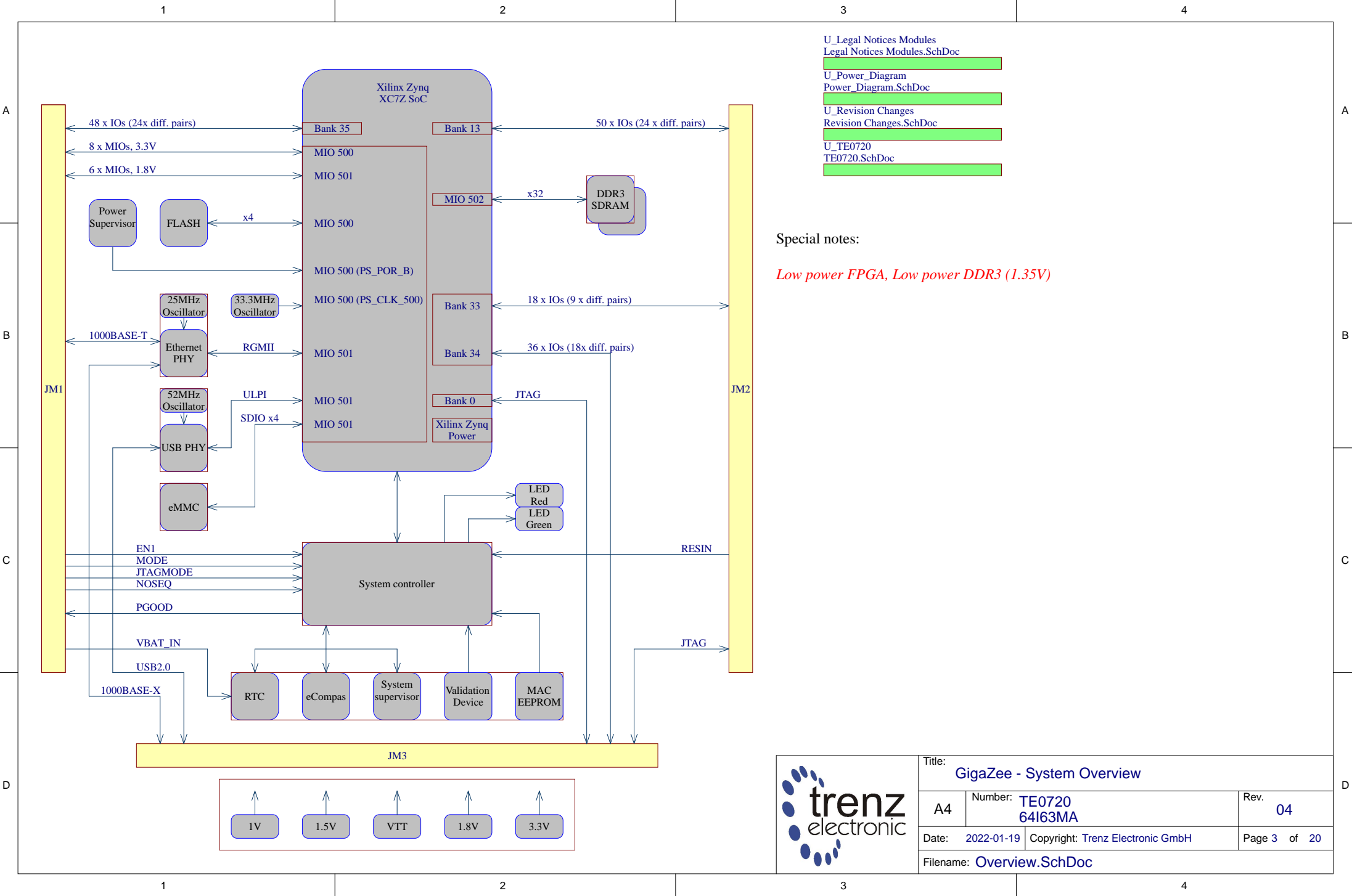
Project is protected under copyright and we strongly and strictly prohibit the reverse engineering or recreation, even if the design is just adapted or modified. TE0720 is protected under such right and in case of plagiarism we will have to do anything necessary in order to protect our assets.

Schematics and other handouts serve for informational purposes only!

	Title: GigaZee		
	A4	Number: TE0720 64I63MA	Rev. 04
	Date: 2022-01-19	Copyright: Trenz Electronic GmbH / TT	Page 1 of 20
	Filename: Legal Notices Modules.SchDoc		


REV	Description	
-01	Initial revision	
-02		
-03		
-04	<p>1. Revised power supply circuit, replaced next components:</p> <ul style="list-style-type: none"> - EN6347QI (U1) by MPM3840GQV-Z, - EP53F8QI (U2, U3) by MPM3834CGPA, - TPS27082LDDCR (Q1) by MP5077GG-Z. <p>2. Added power supervisor BD39040MUF (U27). Next signal connected to system controller:</p> <ul style="list-style-type: none"> - PG_All (U27 - U19.C12) with pull-up resistor R67; - WDEN (U27.13 - U19.C6) with pull-down resistor R80; - WDIN (U27.14 - U19.N8); - WDOUT (U27.16 - U19.M3). <p>3. Signal MIO8 (U5.E5) connected to system controller (U19.N7)</p> <p>4. Added pull-down resistors R64 (net ON_1V0) and R65 (net ON_1V8)</p> <p>5. Revised voltage supervisor U26 circuit: U26.6 (VDD) connected to 3.3VIN, Added protection diode D3 to U26.3 (#MR input)</p> <p>6. Replaced BKP0603HS (L1, L2, L3, L4, L5, L7, L8) by MPZ0603S121HT000</p> <p>7. Auxiliary information has been added on Samtec B2B connectors page</p> <p>8. PCB: Revised layout of power supplies</p> <p>9. PCB: Revised layout of Samtec B2B signals. The length of the tracks has been changed. Pinout of Samtec B2B connectors not affected</p> <p>10. PCB: Added option to install Heatsink SuperGrip (c)</p> <p>11. Added capacitors C7, C8 (100uF, 1V)</p> <p>12. Changed voltage divider resistors (R21, R61) to set the threshold for U26.</p>	VY
-04A	1. Added note regarding VCCIO34, page B2B-Connectors	VY

		Title: GigaZee - Revision History	
		A4	Number: TE0720 64I63MA
Date: 2022-01-19		Copyright: Trenz Electronic GmbH	
Page 2 of 20		Filename: Revision Changes.SchDoc	
Drawn by: VY			



- U_Legal Notices Modules
Legal Notices Modules.SchDoc
- U_Power_Diagram
Power_Diagram.SchDoc
- U_Revision Changes
Revision Changes.SchDoc
- U_TE0720
TE0720.SchDoc

Special notes:
Low power FPGA, Low power DDR3 (1.35V)

			Title: GigaZee - System Overview	
			A4	Number: TE0720 64I63MA
Date: 2022-01-19		Copyright: Trenz Electronic GmbH		Page 3 of 20
Filename: Overview.SchDoc				

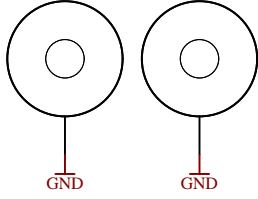
1

2

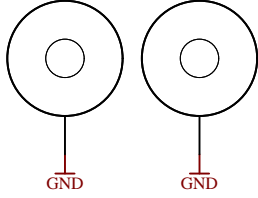
3

4

Mount.Hole 3.2mmMount.Hole 3.2mm



Mount.Hole 3.2mmMount.Hole 3.2mm



- 1V ○ TP1 ● Testpoint 0.8mm
- VIN ○ TP2 ● Testpoint 0.8mm
- 1.5V ○ TP3 ● Testpoint 0.8mm
- 1.8V ○ TP4 ● Testpoint 0.8mm
- VTT ○ TP5 ● Testpoint 0.8mm
- VTTREF ○ TP6 ● Testpoint 0.8mm
- 3.3VIN ○ TP7 ● Testpoint 0.8mm
- 3.3V ○ TP8 ● Testpoint 0.8mm
- VCCIO13 ○ TP9 ● Testpoint 0.8mm
- VCCIO33 ○ TP10 ● Testpoint 0.8mm
- VCCIO34 ○ TP11 ● Testpoint 0.8mm
- VCCIO35 ○ TP12 ● Testpoint 0.8mm
- AVCC ○ TP13 ● Testpoint 0.8mm
- AVREF ○ TP14 ● Testpoint 0.8mm
- AGND | TP15 ● Testpoint 0.8mm
- GND | TP16 ● Testpoint 0.8mm
- GND | TP17 ● Testpoint 0.8mm
- GND | TP18 ● Testpoint 0.8mm
- GND | TP19 ● Testpoint 0.8mm
- GND | TP20 ● Testpoint 0.8mm

A

A

B

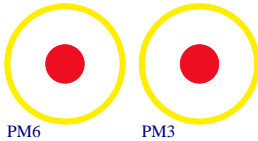
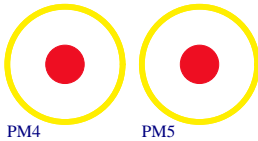
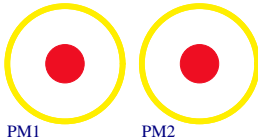
B

C

C

D

D



Serial

 Serialnumber 6,3 x 6.3mm

Assembly variant	64I63MA
Created by	MR
Modified by	VY
Modified at	2022-04-04
SVN Revision	13140



Title: GigaZee - TE0720		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 4 of 20
Drawn by: VY	Filename: TE0720.SchDoc	

1

2

3

4

B35 48 IO, 24 LVDS Pairs
 MIO0 8 IO, 3.3V
 MIO1 6 IO 1.8V
 ETH MDI Copper

B34 36 IO, 18 LVDS Pairs
 USB OTG
 ETH SGMI I

B33 18 IO, 9 LVDS Pairs
 B13 48 IO, 24 LVDS Pairs
 B13 2 IO

VCCIO34 must be connected to power even if the signals of this bank are not used externally.

A

A

B

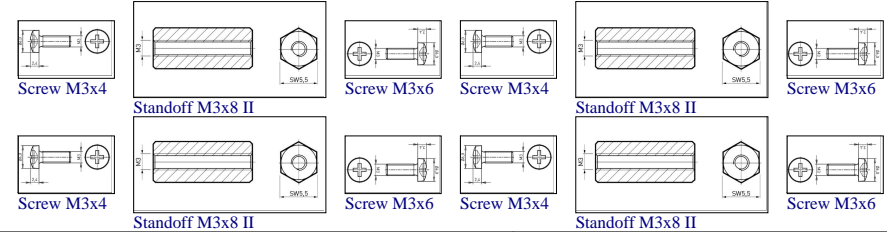
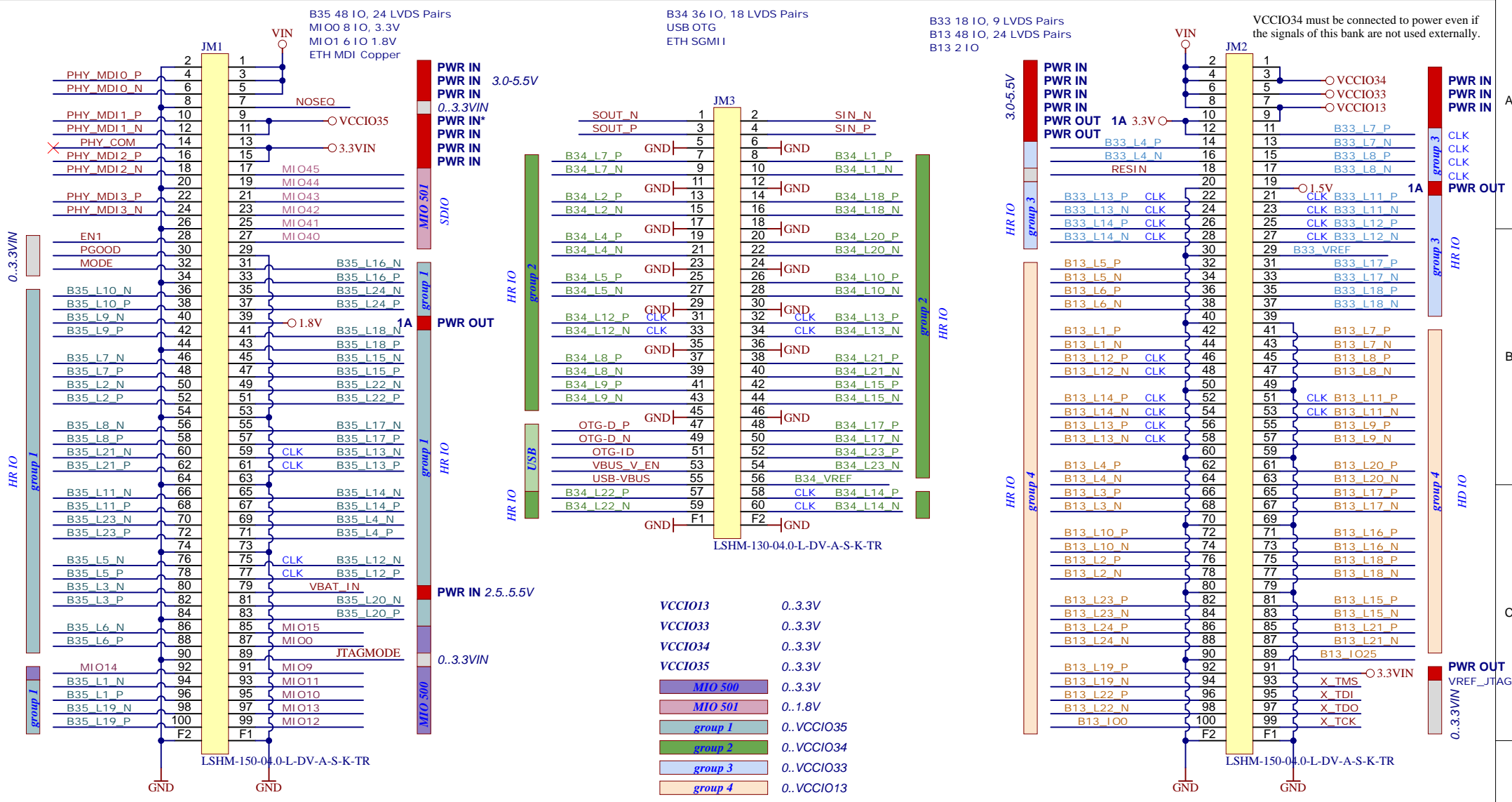
B

C

C

D

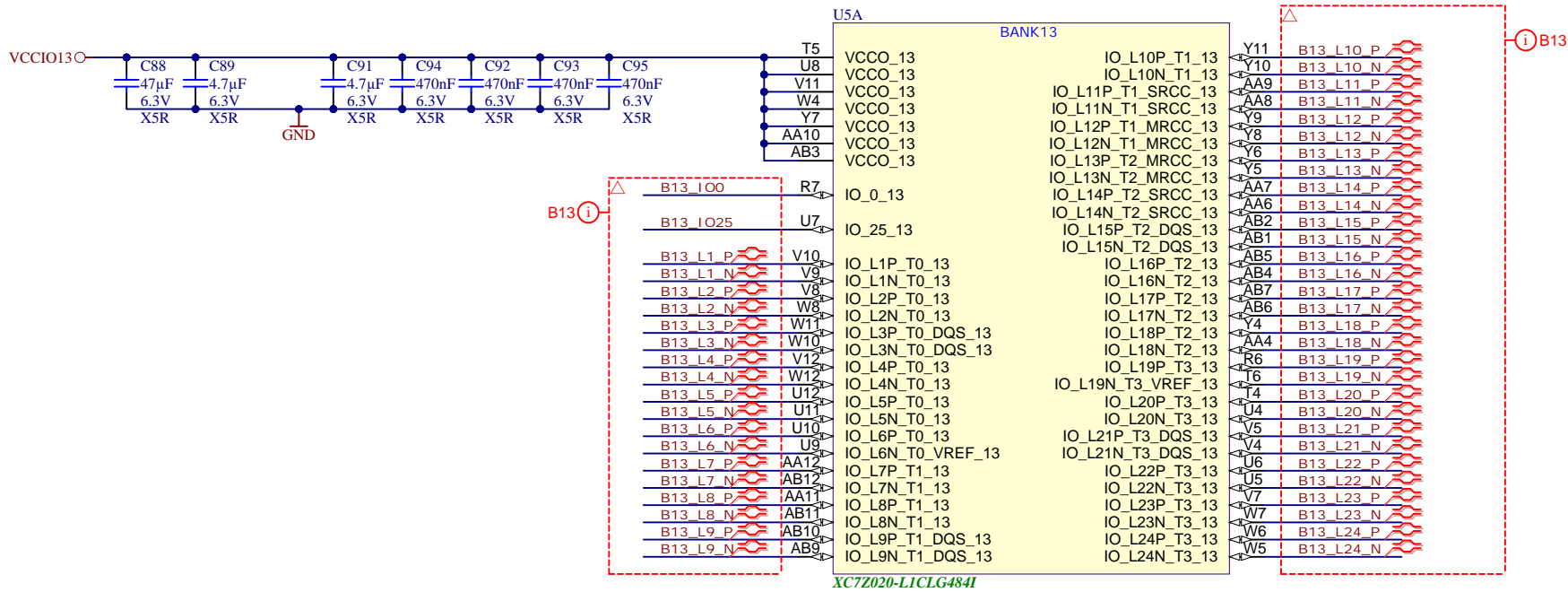
D



- VCCIO13 0..3.3V
- VCCIO33 0..3.3V
- VCCIO34 0..3.3V
- VCCIO35 0..3.3V
- MIO 500 0..3.3V
- MIO 501 0..1.8V
- group 1 0..VCCIO35
- group 2 0..VCCIO34
- group 3 0..VCCIO33
- group 4 0..VCCIO13



Title: GigaZee - B2B Connector		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page5 of 20
Filename: B2B-Connectors.SchDoc		



Title: GigaZee - B13		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page6 of 20
Filename: B13.SchDoc		

1

2

3

4

A

A

B

B

C

C

D

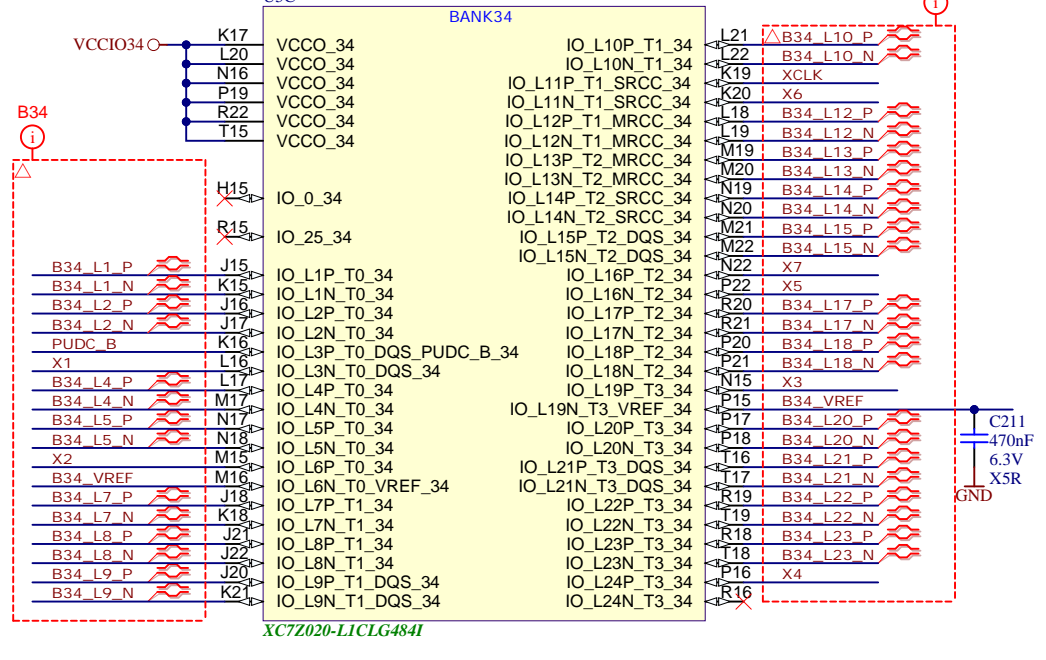
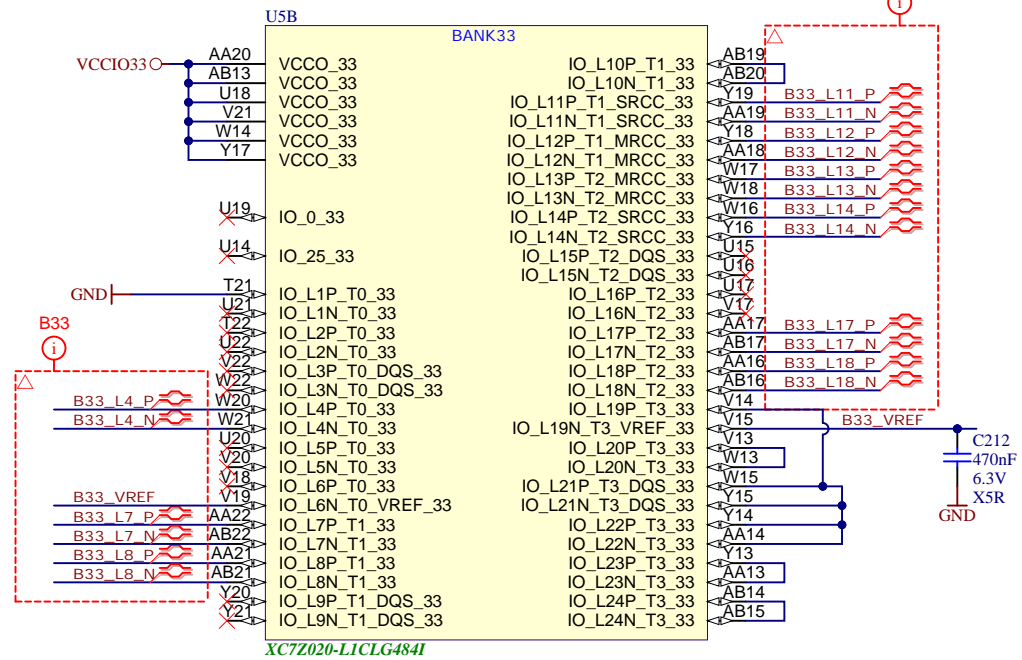
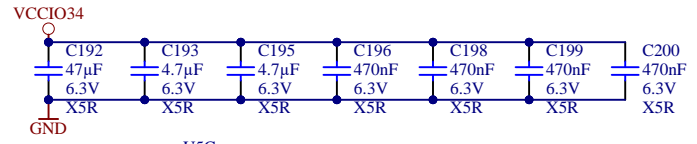
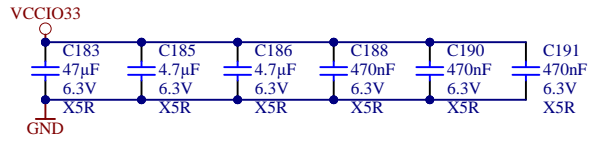
D

1

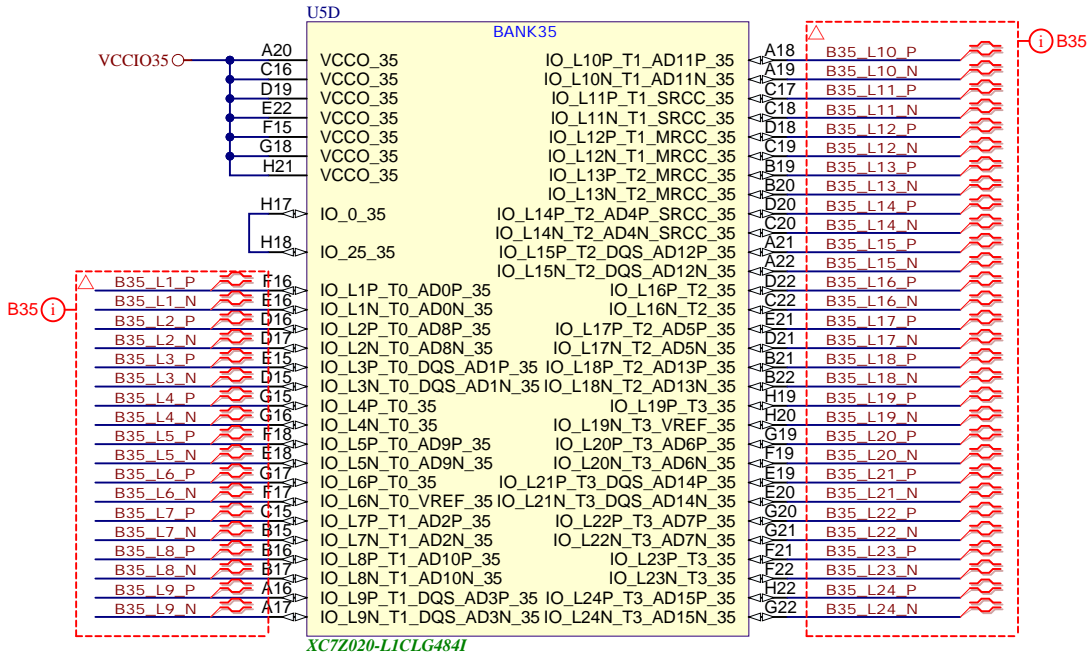
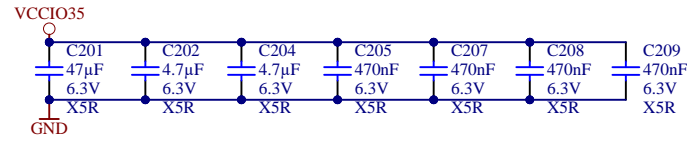
2

3

4



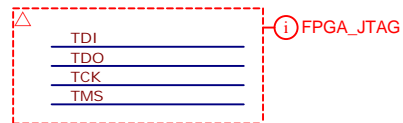
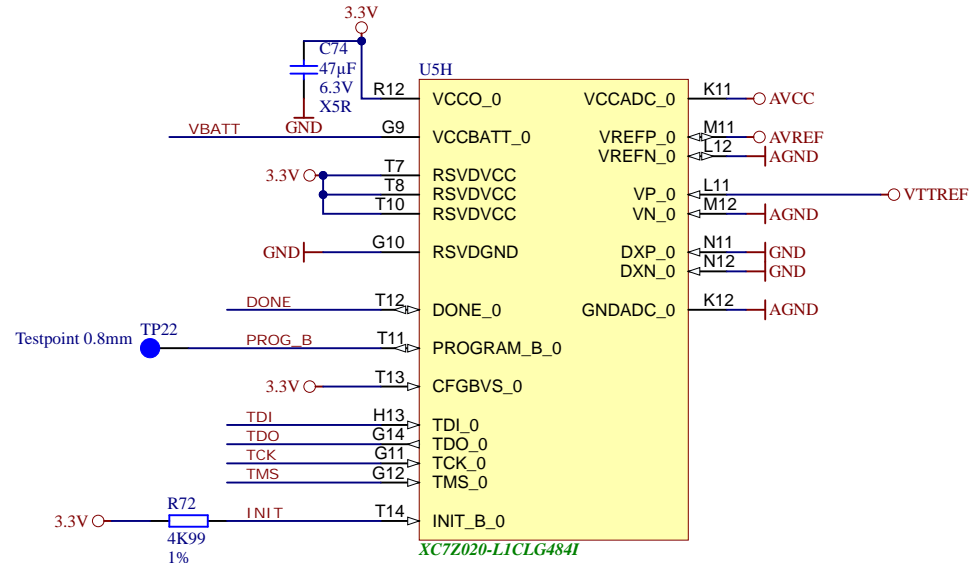
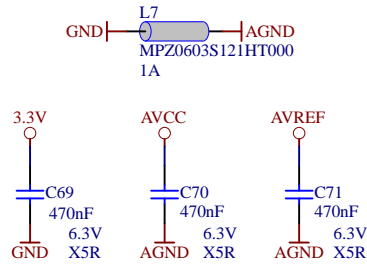
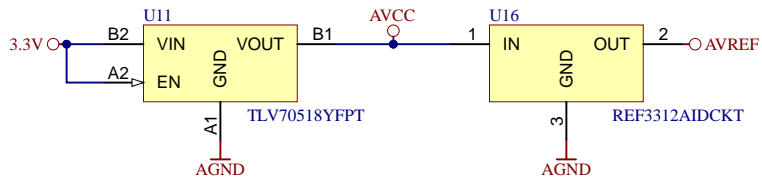
Title: GigaZee - B33 - B34		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page7 of 20
Filename: B33-B34.SchDoc		




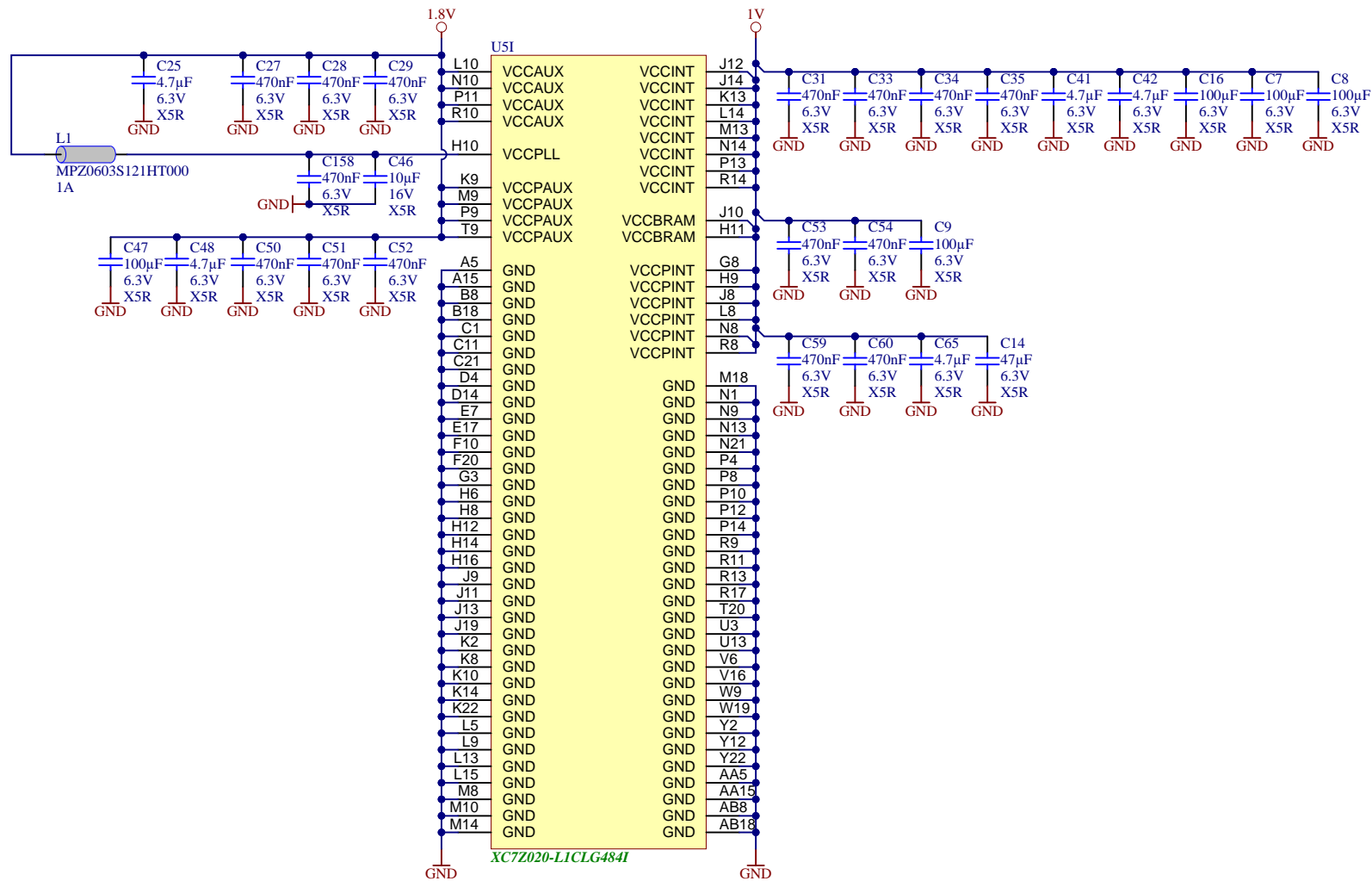
XC7Z020-L1CLG484I



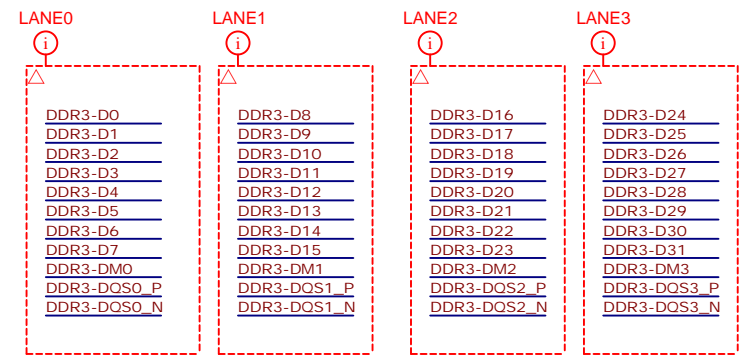
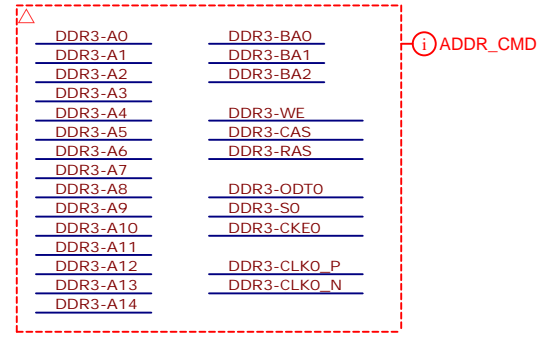
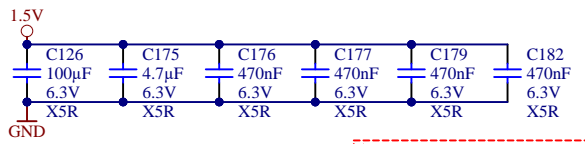
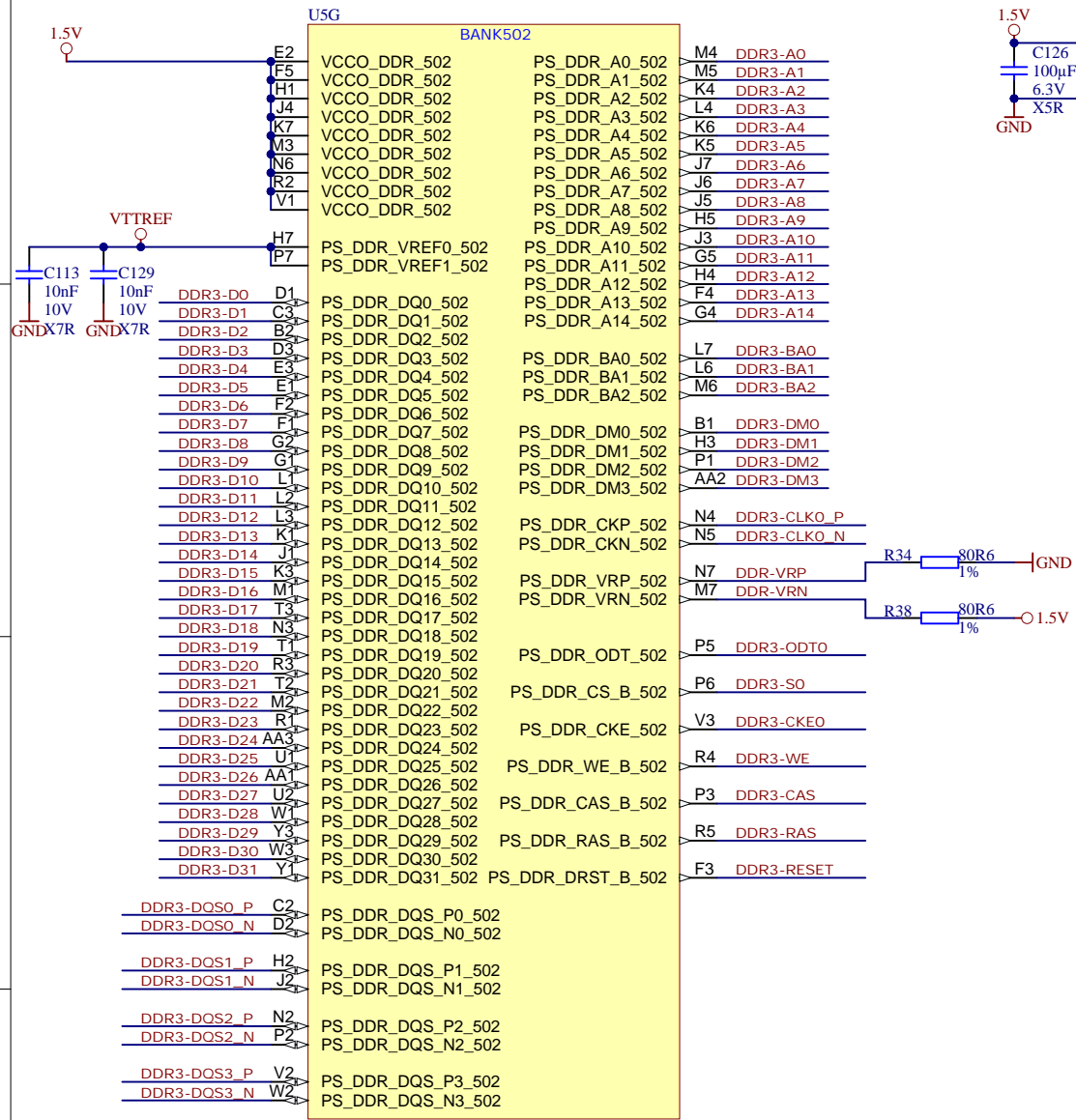
Title: GigaZee - B35		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page8 of 20
Filename: B35.SchDoc		




		Title: GigaZee - B0	
		A4	Number: TE0720 64I63MA
Date: 2022-01-19		Copyright: 2013 Trenz Electronic GmbH	
Page 9		of 20	
Filename: FPGA-MISC.SchDoc			

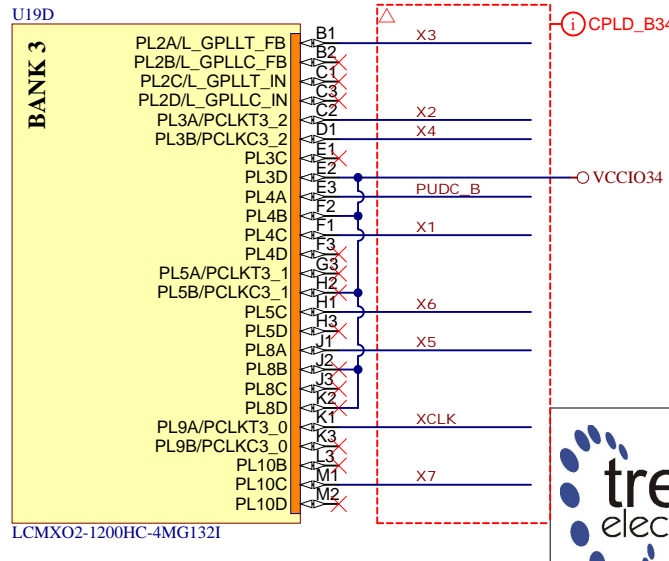
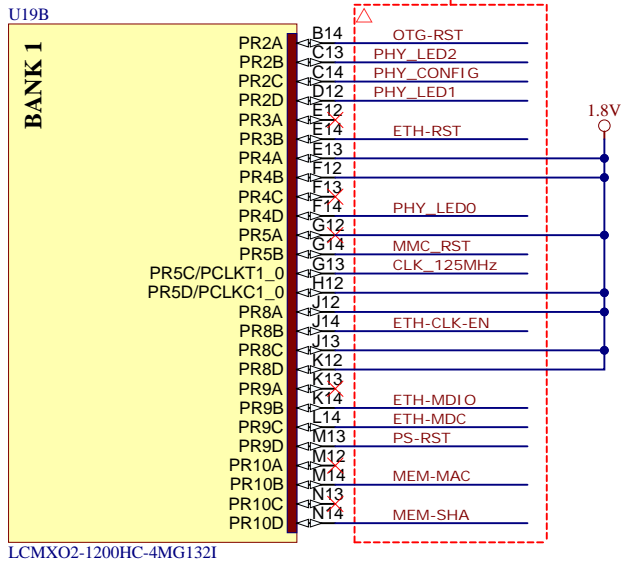
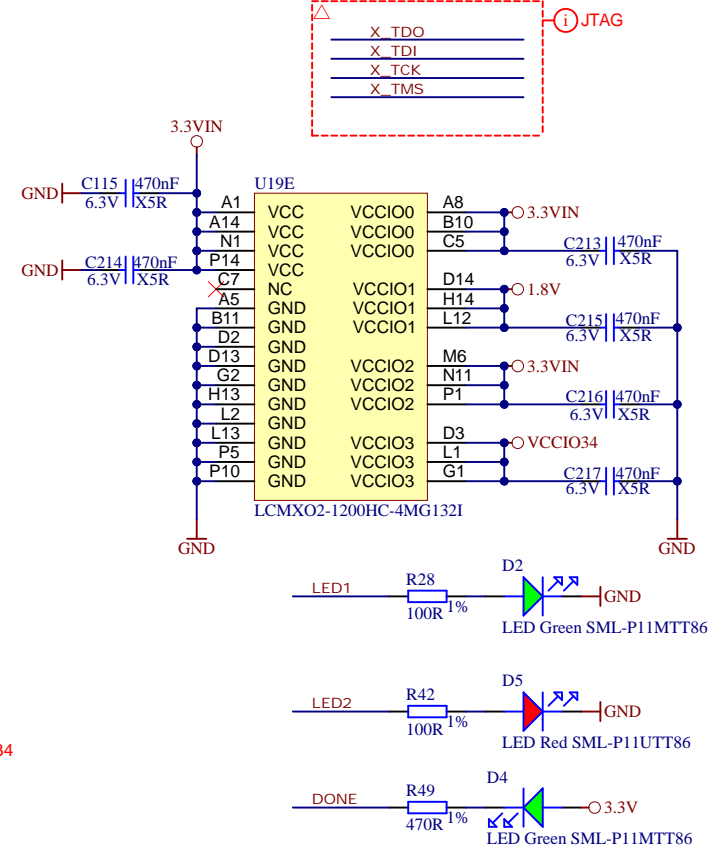
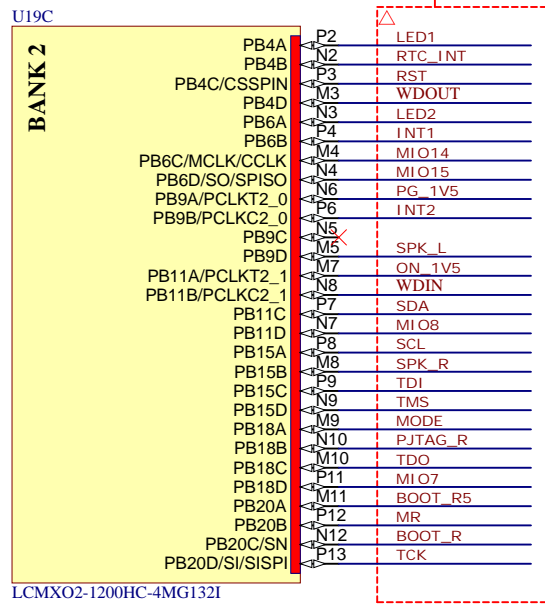
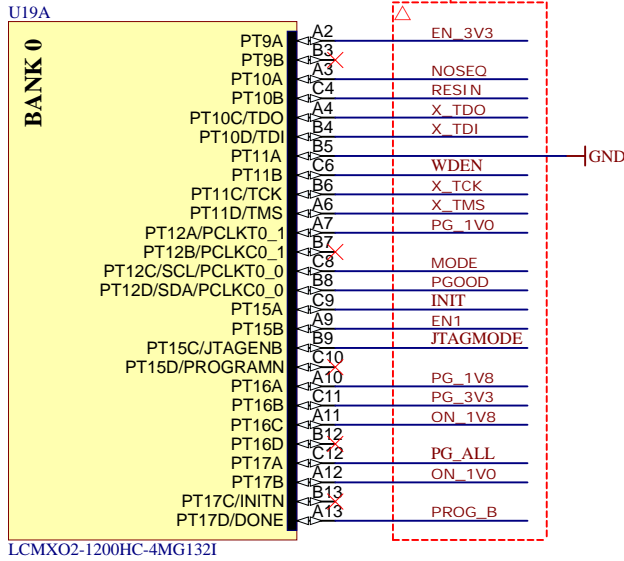


	Title: GigaZee - FPGA Power		
	A4	Number: TE0720 64I63MA	Rev. 04
	Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 10 of 20
	Filename: FPGA-PWR.SchDoc		

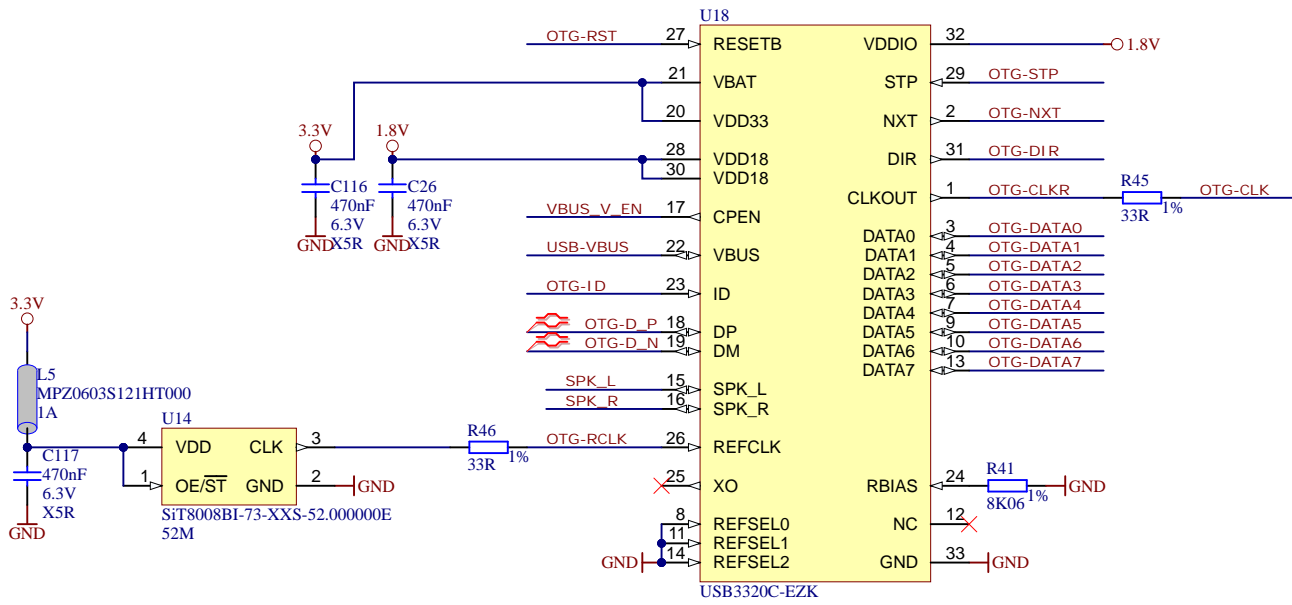


XC7Z020-L1CLG484I

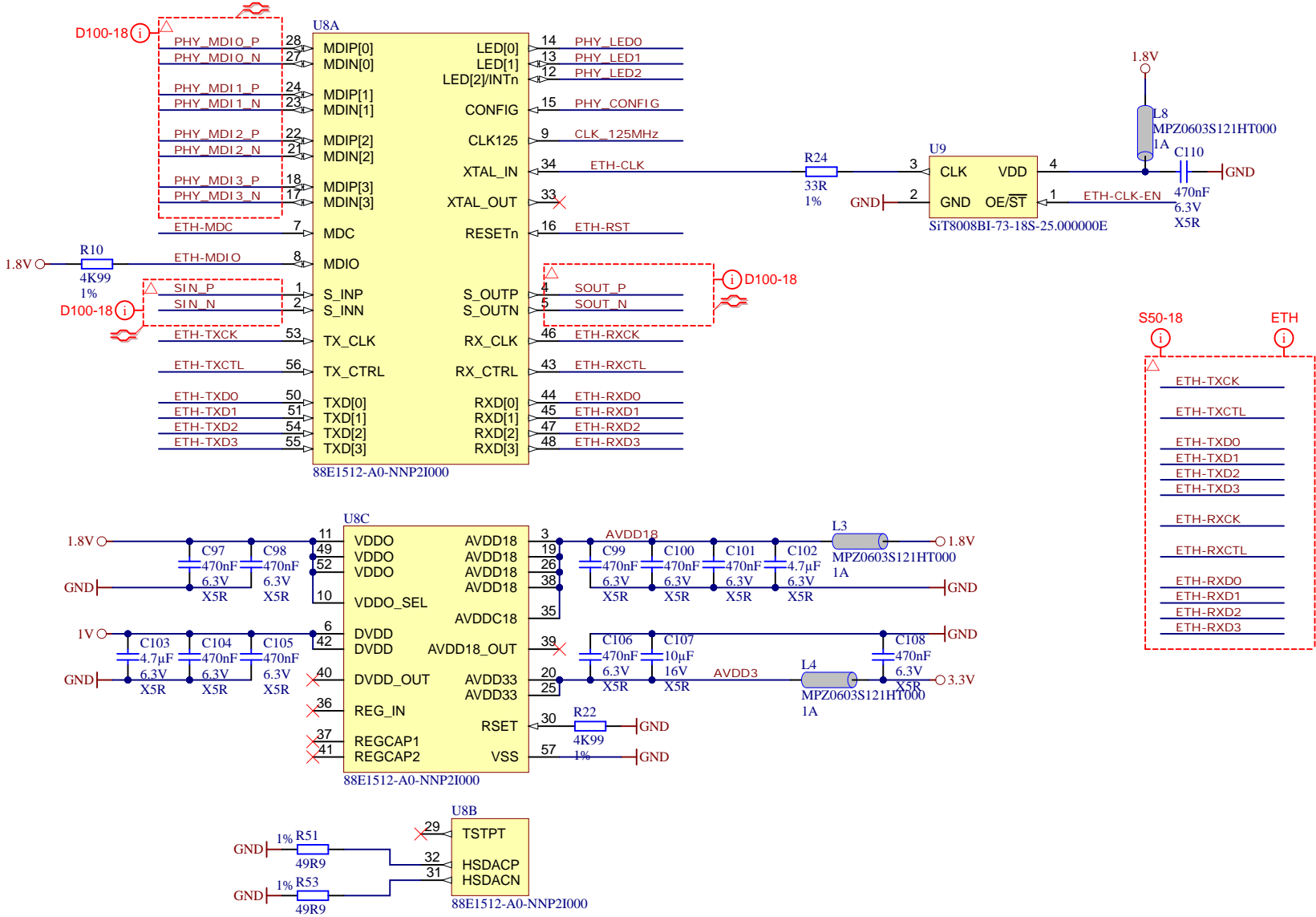
			Title: GigaZee - B502	
			A4	Number: TE0720 64I63MA
Date: 2022-01-19		Copyright: 2013 Trenz Electronic GmbH		Page 12 of 20
Filename: PS-DDR.SchDoc				



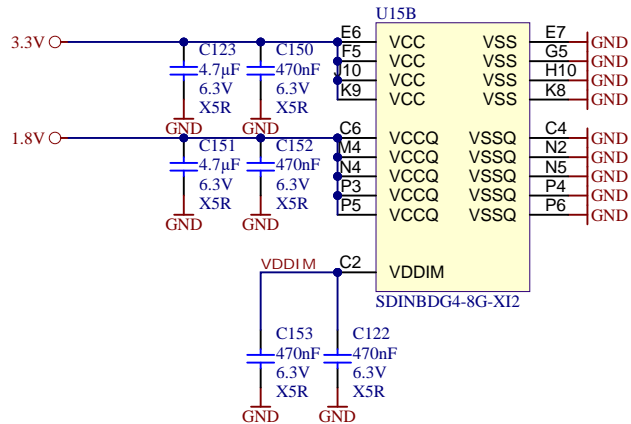
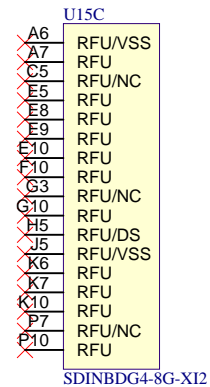
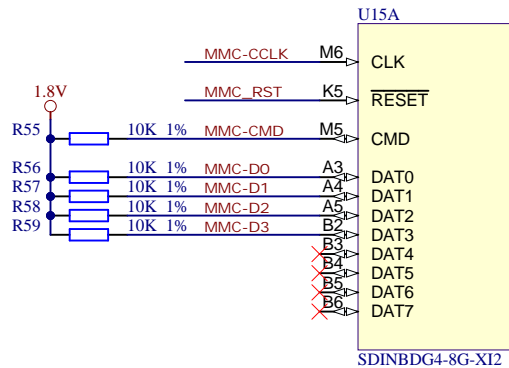
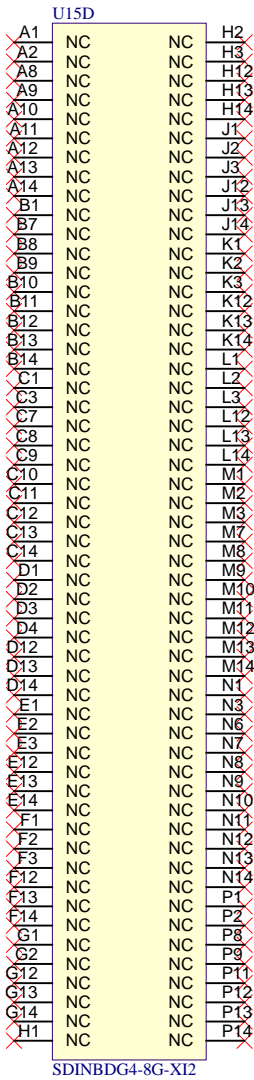
Title: GigaZee - System Controller		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 15 of 20
Filename: SystemController.SchDoc		



	Title: GigaZee - USB		
	A4	Number: TE0720 64I63MA	Rev. 04
	Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 16 of 20
	Filename: USB-PHY.SchDoc		

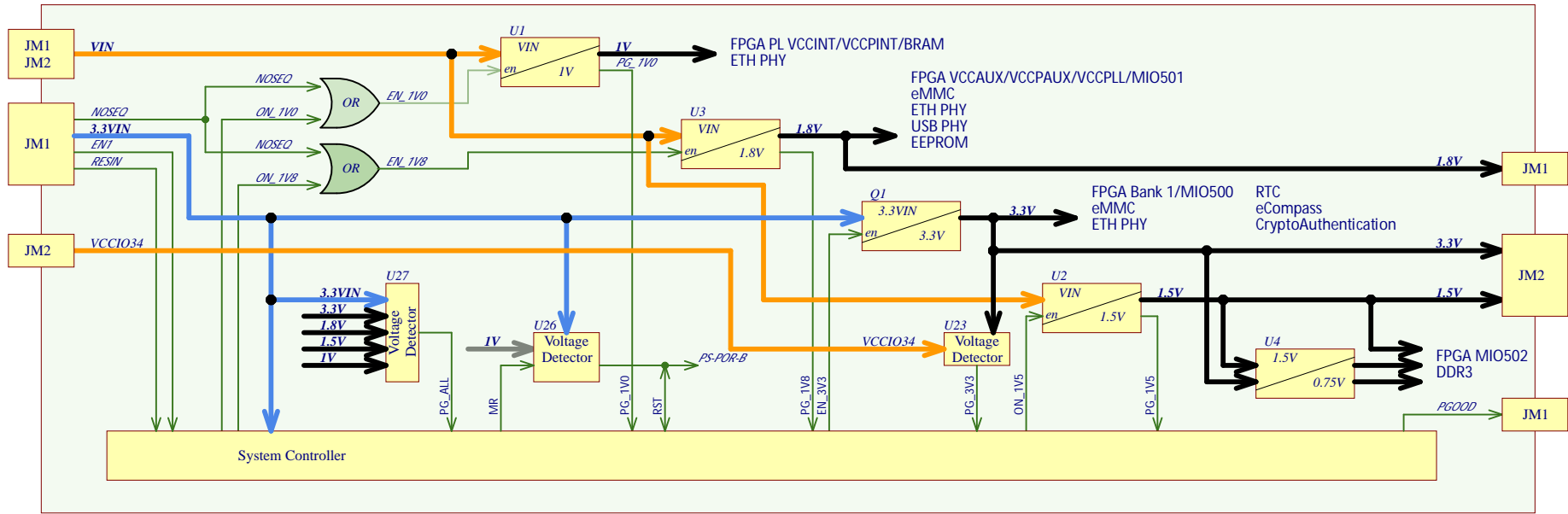


Title: GigaZee - Ethernet		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 17 of 20
Filename: ETH-PHY.SchDoc		



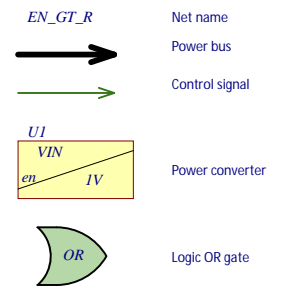
Title: GigaZee - eNAND		
A4	Number: TE0720 64I63MA	Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 18 of 20
Filename: eMMC.SchDoc		

Power-on sequencing:



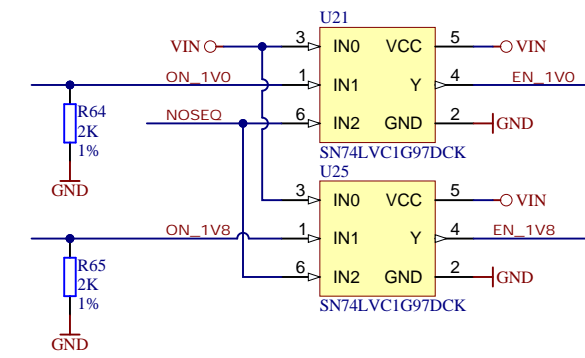
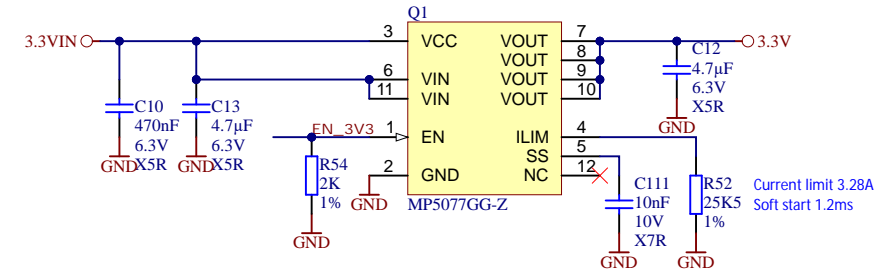
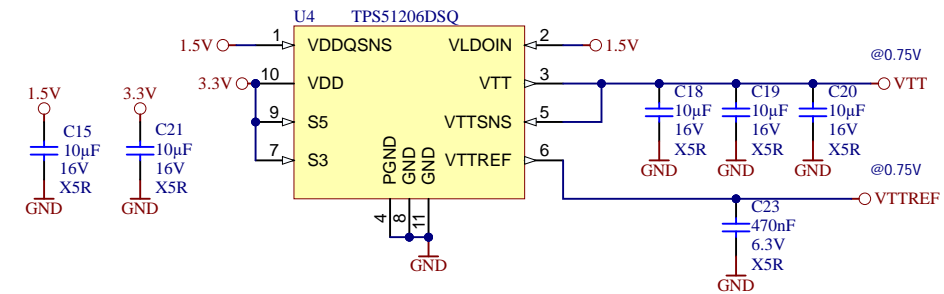
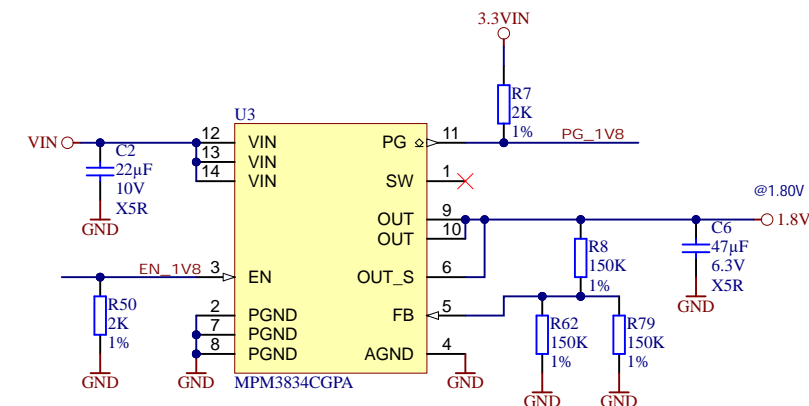
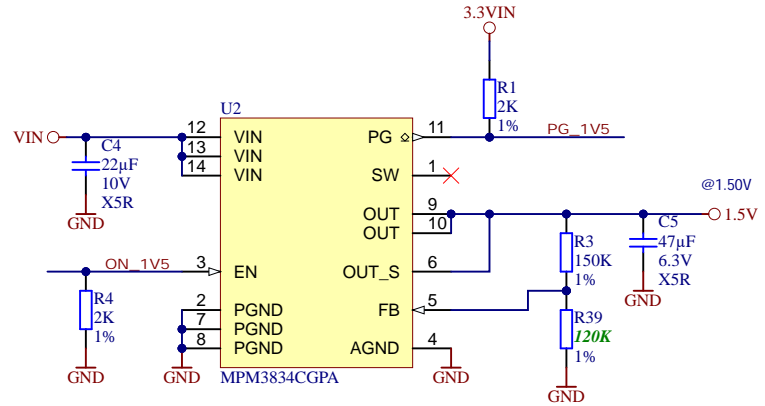
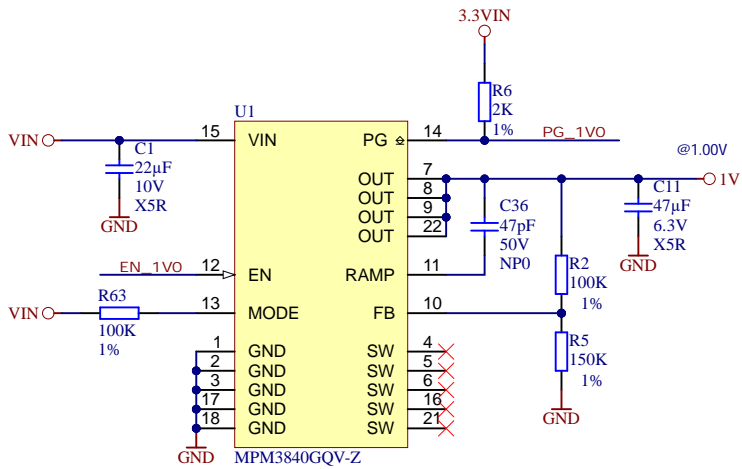
Recommended Operating Conditions

Power Rail	Direction	Range	Tolerance	Description	Note
VIN	IN	3.3 - 5V	+/-5%	Micromodule Power	Mandatory
3.3VIN	IN	3.3V	+/-5%	Micromodule Power	Mandatory
VCCIO13	IN	1.2 - 3.3V	+/-5%	HR IO Bank13	Mandatory
VCCIO33	IN	1.2 - 3.3V	+/-5%	HR IO Bank33	-
VCCIO34	IN	1.2 - 3.3V	+/-5%	HR IO Bank34	Mandatory
VCCIO35	IN	1.2 - 3.3V	+/-5%	HR IO Bank35	-
VBAT_IN	IN	2.5 - 5V	+/-5%	RTC	-
1.8V	OUT	1.8V	+/-5%	For Carrier card Periphery	-
3.3V	OUT	3.3V	+/-5%	For Carrier card Periphery	-
DDR_PWR	OUT	1.5V	+/-5%	For Carrier card Periphery	-
VREF_JTAG	OUT	3.3V	+/-5%	For Carrier card Periphery	Connected to 3.3VIN



Title: **GigaZee - Power Diagram**

A4	Number: TE0720 64I63MA	Rev. 04
Date: 28.10.2022	Copyright: Trenz Electronic GmbH / TT	Page 19 of 20
Filename: Power_Diagram.SchDoc		



	Title: GigaZee - Power		
	A4	Number: TE0720 64I63MA	Rev. 04
	Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH	Page 20 of 20
	Filename: Power.SchDoc		