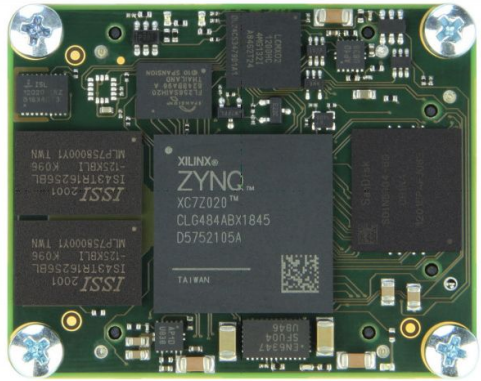

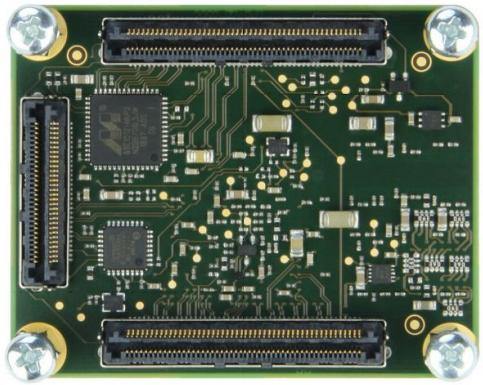

Regarding the usage of our schematics and alike documentation for Trenz module TE0720.

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Schematics and other handouts serve for informational purposes only!

trenz electronic	Title: GigaZee		
	A4	Number: TE0720 61C33MA	Rev. 04
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	Filename: Legal Notices Modules.SchDoc		

REV	Description	
-01	Initial revision	
-02		
-03		
-04	1. Revised power supply circuit, replaced next components: - EN6347QI (U1) by MPM3840GQV-Z, - EP53F8QI (U2, U3) by MPM3834CGPA, - TPS27082LDDCR (Q1) by MP5077GG-Z. 2. Added power supervisor BD39040MUF (U27). Next signal connected to system controller: - 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). 3. Signal MIO8 (U5.E5) connected to system controller (U19.N7) 4. Added pull-down resistors R64 (net ON_1V0) and R65 (net ON_1V8) 5. Revised voltage supervisor U26 circuit: U26.6 (VDD) connected to 3.3VIN, Added protection diode D3 to U26.3 (#MR input) 6. Replaced BKP0603HS (L1, L2, L3, L4, L5, L7, L8) by MPZ0603S121HT000 7. Auxiliary information has been added on Samtec B2B connectors page 8. PCB: Revised layout of power supplies 9. PCB: Revised layout of Samtec B2B signals. The length of the tracks has been changed. Pinout of Samtec B2B connectors not affected 10: PCB: Added option to install Heatsink SuperGrip (c) 11. Added capacitors C7, C8 (100uF, 1V) 12. Changed voltage divider resistors (R21, R61) to set the threshold for U26.	VY
-04A	1. Added note regarding VCCIO34, page B2B-Connectors	VY

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Title: GigaZee - Revision History		
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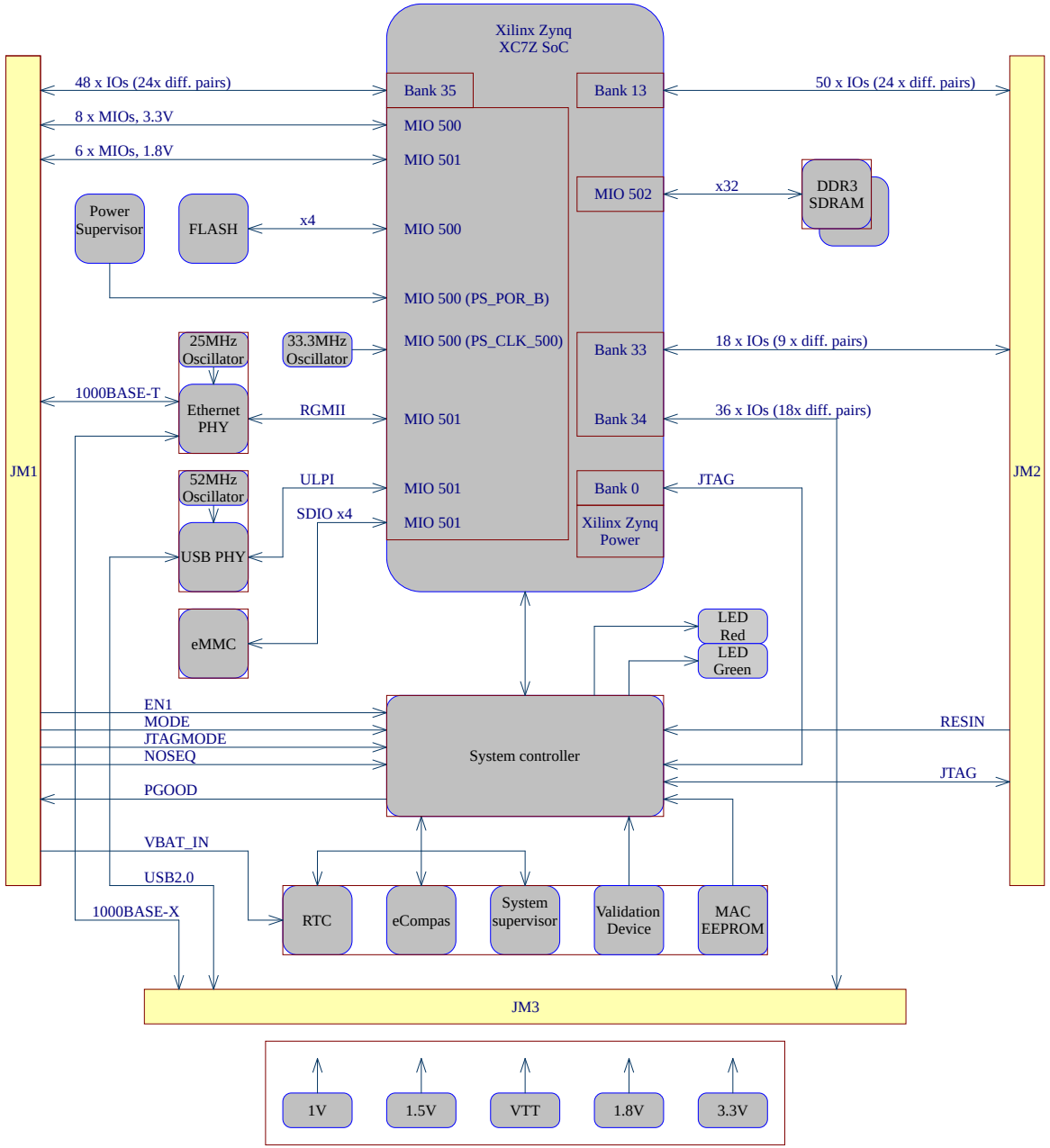
Drawn by: VY	Filename: Revision Changes.SchDoc	



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:

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Title: GigaZee - System Overview			
A4	Number: TE0720 61C33MA		Rev. 04
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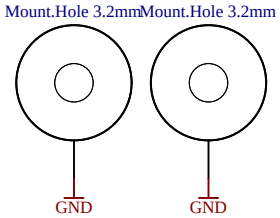
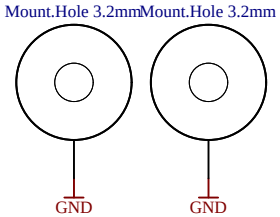
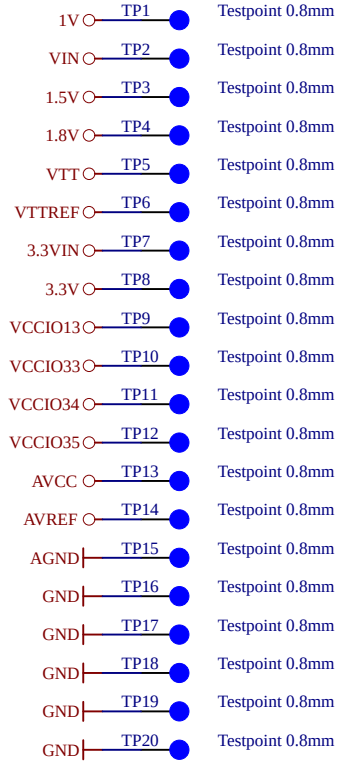
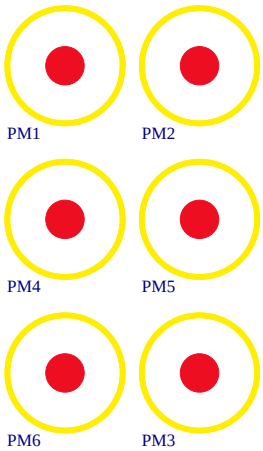
Filename: Overview.SchDoc			









Serial
Serial
Serialnumber 6,3 x 6.3mm

Assembly variant	61C33MA
Created by	MR
Modified by	MR
Modified at	2021-07-06
SVN Revision	Unknown revision

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Title: GigaZee - TE0720		
A4	Number: TE0720 61C33MA	Rev. 04
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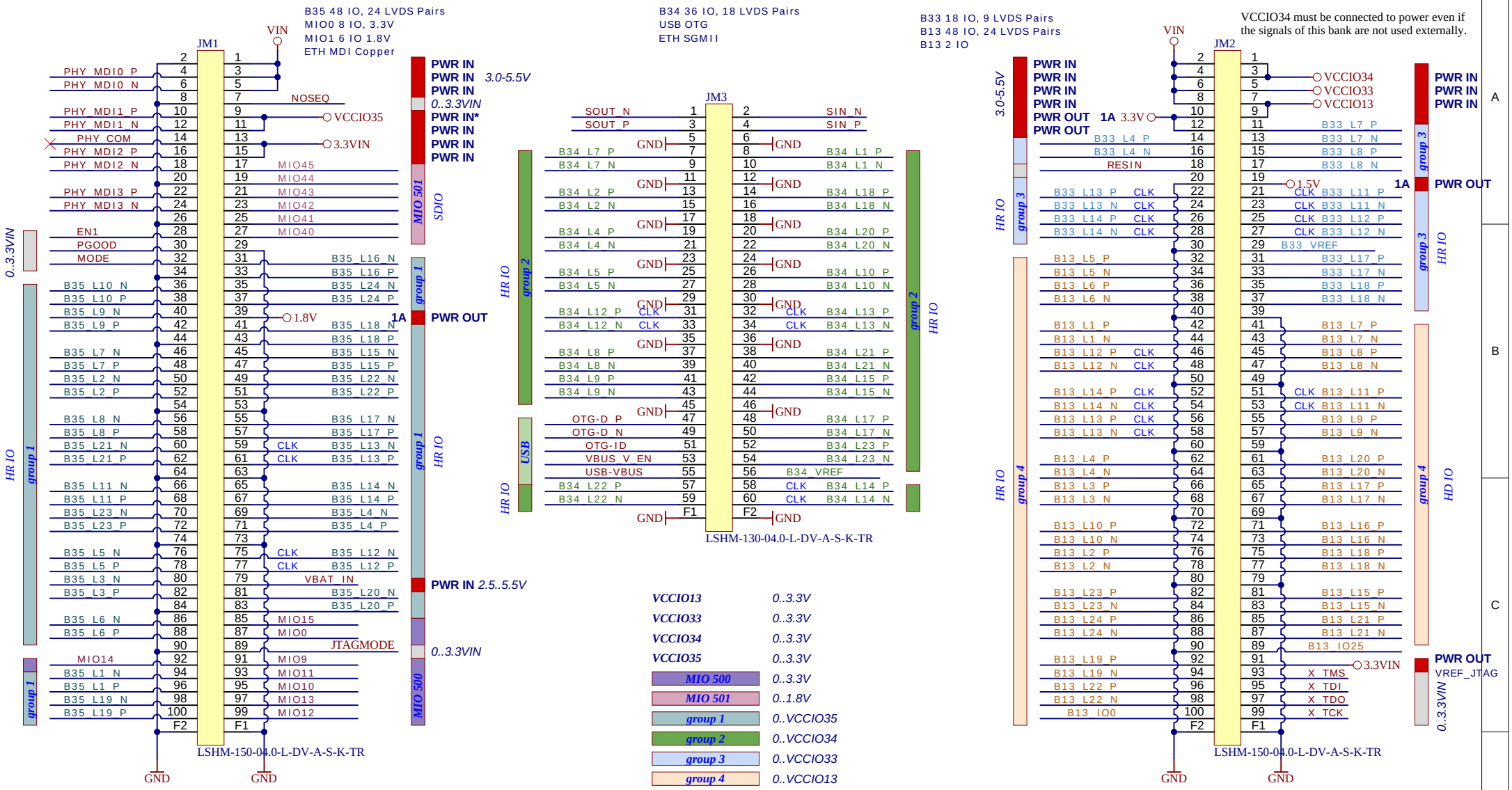
Drawn by: VY	Filename: TE0720.SchDoc	

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 SGMII

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.

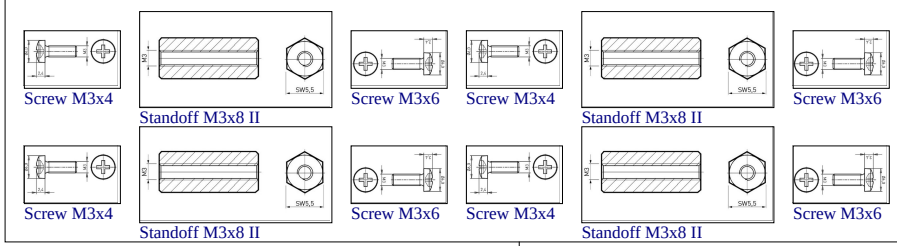


LSHM-150-04.0-L-DV-A-S-K-TR

LSHM-130-04.0-L-DV-A-S-K-TR

LSHM-150-04.0-L-DV-A-S-K-TR

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



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Title: GigaZee - B2B Connector			
A4	Number: TE0720 61C33MA		Rev. 04
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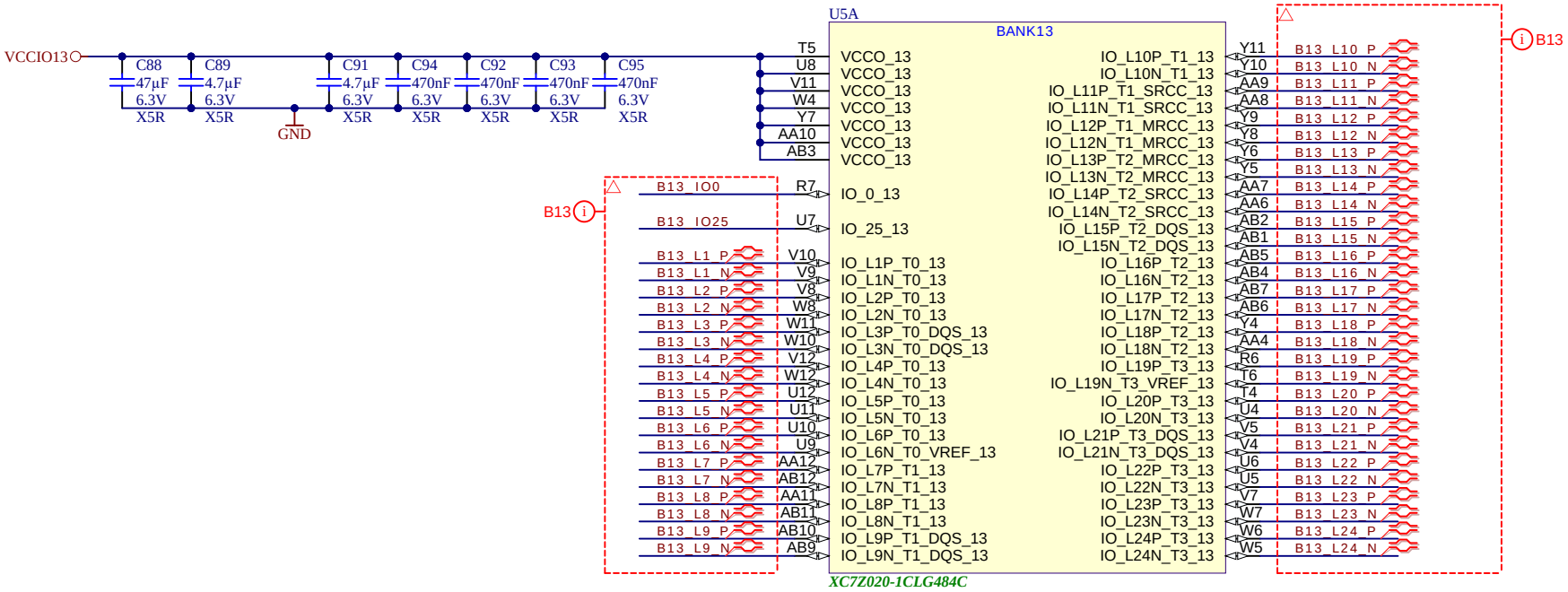
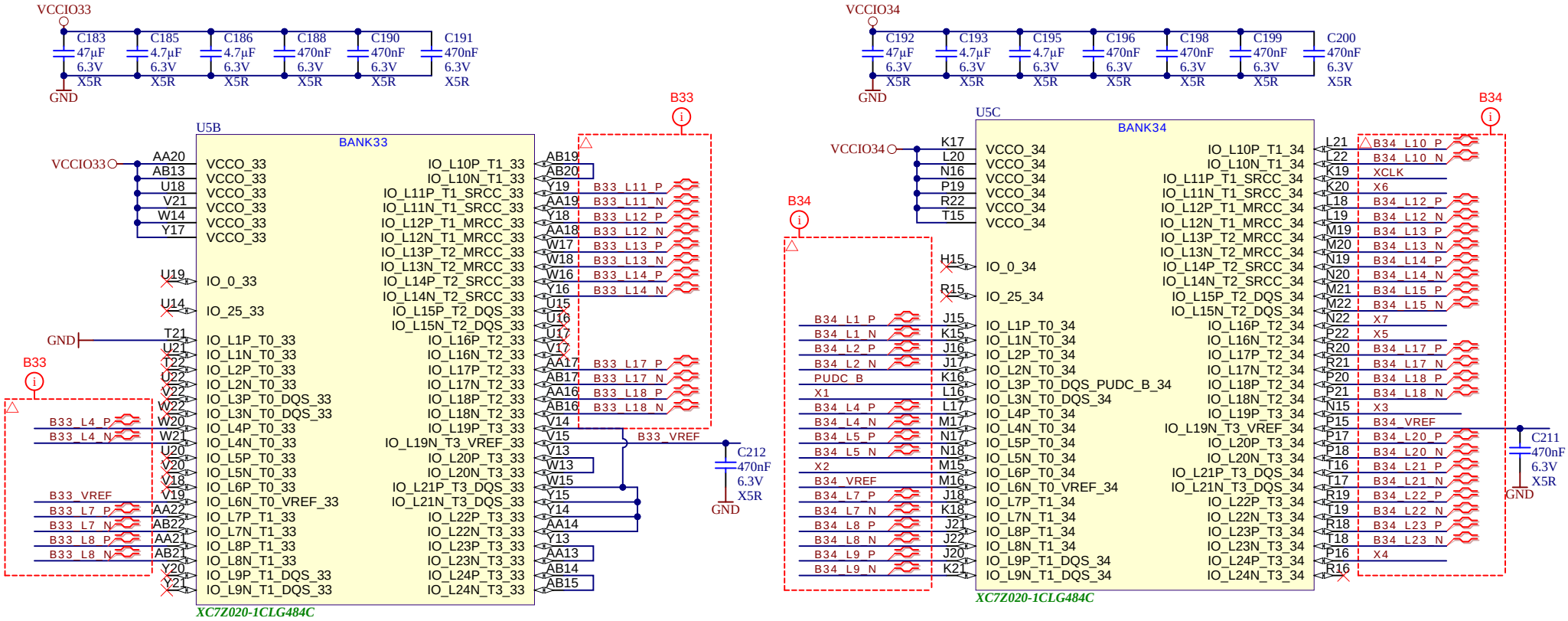
Filename: B2B-Connectors.SchDoc			



trenz electronic	Title: GigaZee - B13		
A4	Number: TE0720 61C33MA		Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH		Page6 of 20
Filename: B13.SchDoc			



trenz electronic	Title: GigaZee - B33 - B34		
A4	Number: TE0720 61C33MA		Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH		Page7 of 20
Filename: B33-B34.SchDoc			

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Title: GigaZee - B35			
A4	Number: TE0720 61C33MA		Rev. 04
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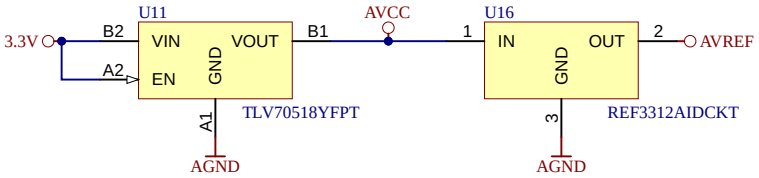
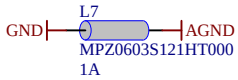
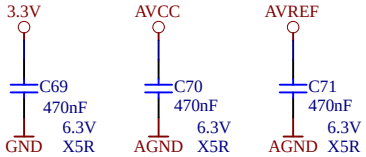
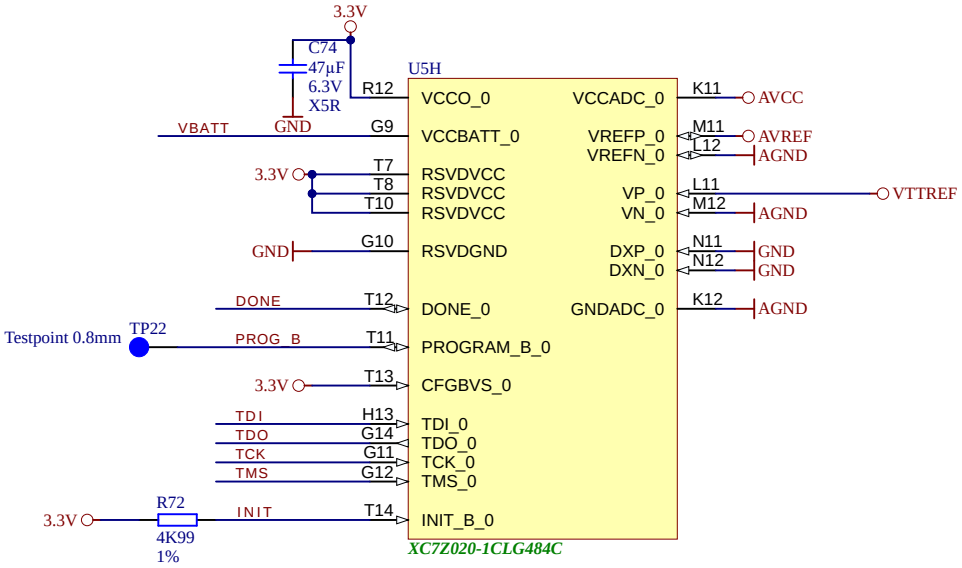
Filename: B35.SchDoc			









trenz electronic	Title: GigaZee - B0		
	A4	Number: TE0720 61C33MA	Rev. 04
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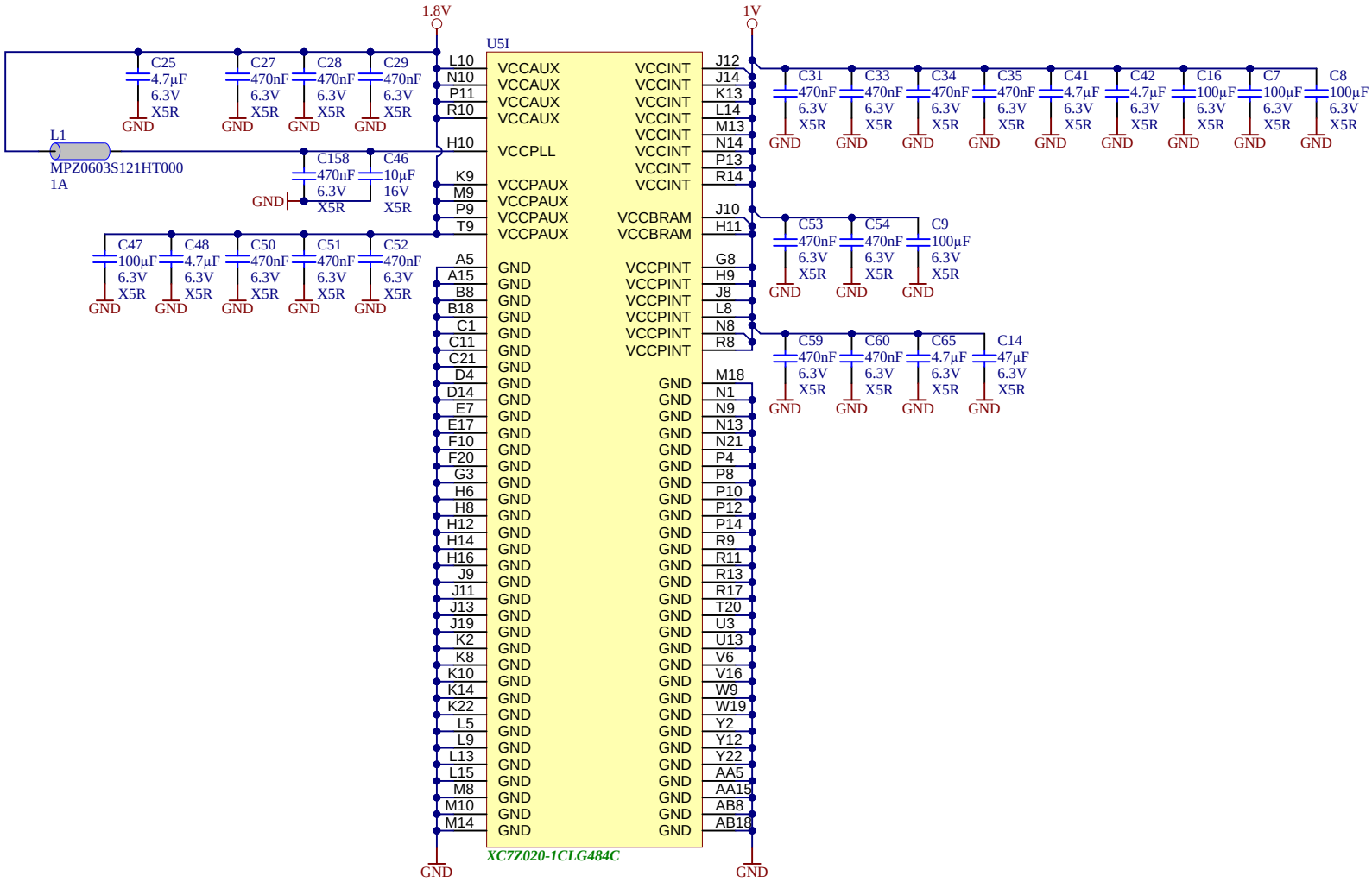
	Filename: FPGA-MISC.SchDoc		



trenz electronic	Title: GigaZee - FPGA Power		
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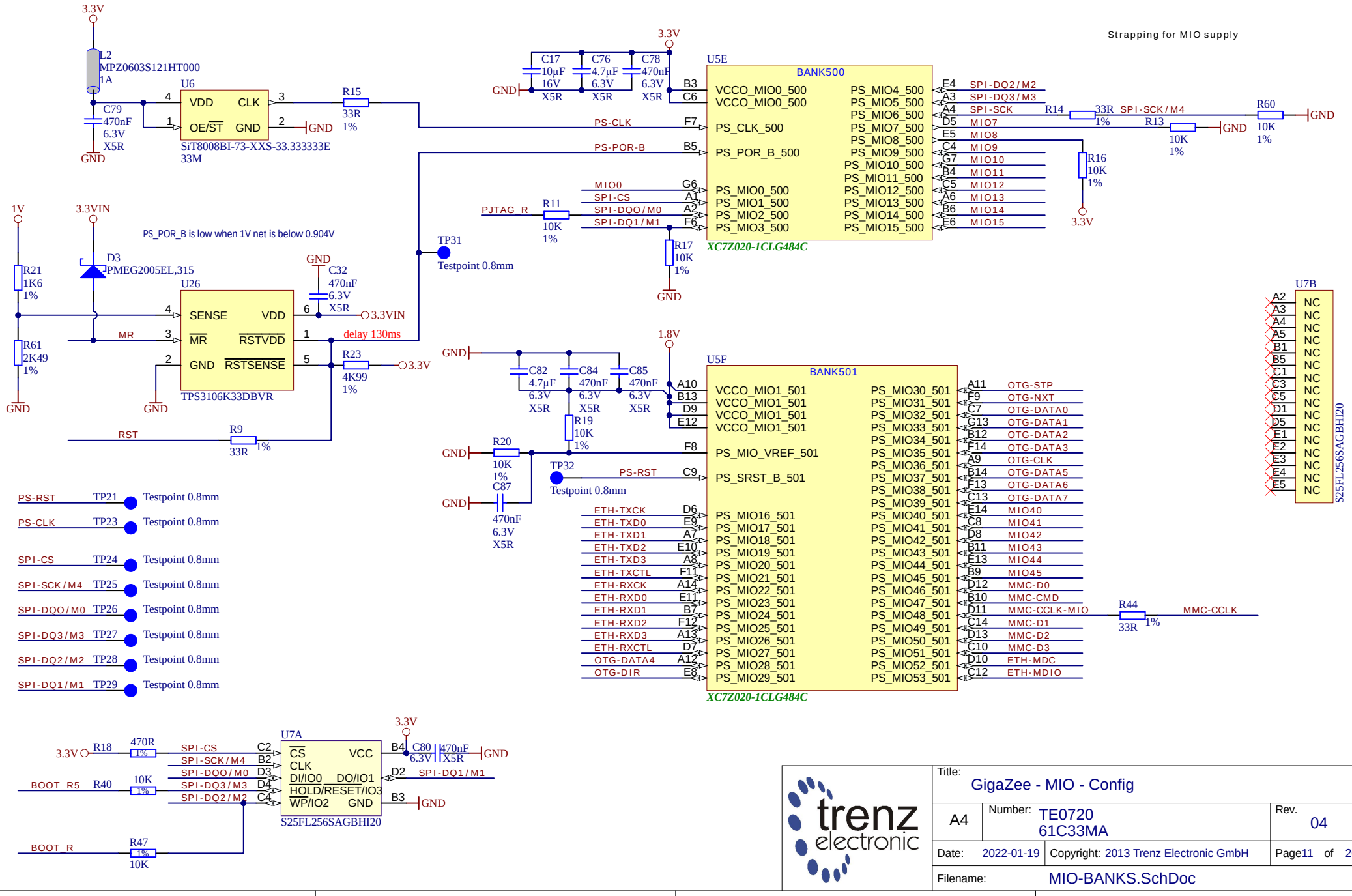
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH		Page10 of 20
Filename: FPGA-PWR.SchDoc			


Strapping for MIO supply
PS_POR_B is low when 1V net is below 0.904V
BANK500
BANK501
XC7Z020-1CLG484C
TPS3106K33DBVR
SiT8008BI-73-XXS-33.333333E
S25FL256SAGBHI20
Testpoint 0.8mm
delay 130ms
Title: GigaZee - MIO - Config
A4
Number: TE0720 61C33MA
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Date: 2022-01-19
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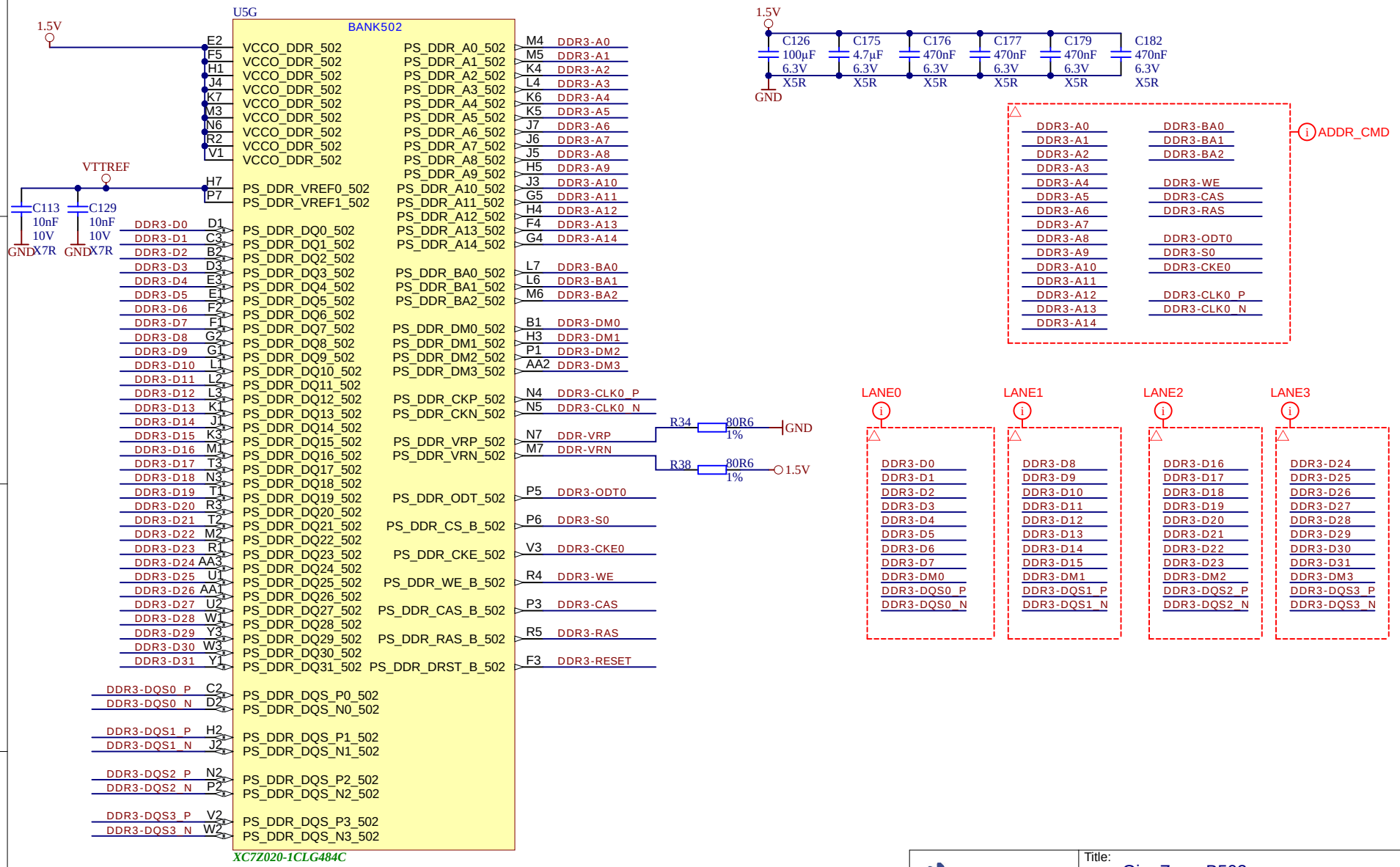
Filename: MIO-BANKS.SchDoc


U5G
BANK502
XC7Z020-1CLG484C
1.5V
VTTREF
GND
C113 10nF 10V X7R
C129 10nF 10V X7R
C126 100µF 6.3V X5R
C175 4.7µF 6.3V X5R
C176 470nF 6.3V X5R
C177 470nF 6.3V X5R
C179 470nF 6.3V X5R
C182 470nF 6.3V X5R
R34 80R6 1%
R38 80R6 1%
ADDR_CMD
LANE0
LANE1
LANE2
LANE3
Title: GigaZee - B502
A4
Number: TE0720 61C33MA
Rev. 04
Date: 2022-01-19
Copyright: 2013 Trenz Electronic GmbH
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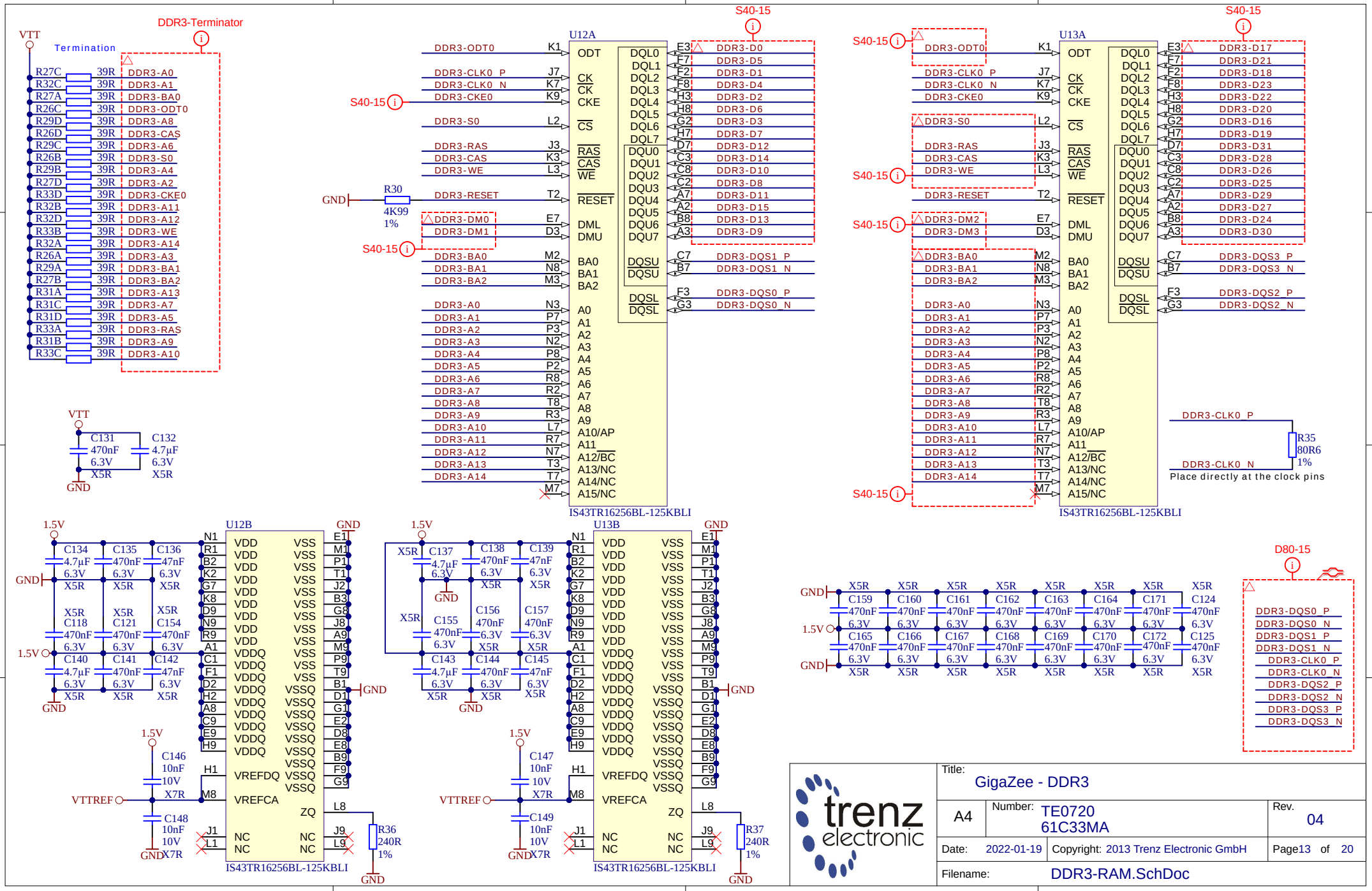
Filename: PS-DDR.SchDoc


DDR3-Terminator
Termination
VTT
R27C 39R DDR3-A0
R32C 39R DDR3-A1
R27A 39R DDR3-BA0
R26C 39R DDR3-ODT0
R29D 39R DDR3-A8
R26D 39R DDR3-CAS
R29C 39R DDR3-A6
R26B 39R DDR3-S0
R29B 39R DDR3-A4
R27D 39R DDR3-A2
R33D 39R DDR3-CKE0
R32B 39R DDR3-A11
R32D 39R DDR3-A12
R33B 39R DDR3-WE
R32A 39R DDR3-A14
R26A 39R DDR3-A3
R29A 39R DDR3-BA1
R27B 39R DDR3-BA2
R31A 39R DDR3-A13
R31C 39R DDR3-A7
R31D 39R DDR3-A5
R33A 39R DDR3-RAS
R31B 39R DDR3-A9
R33C 39R DDR3-A10
S40-15
U12A
DDR3-ODT0 K1 ODT
DDR3-CLK0_P J7 CK
DDR3-CLK0_N K7 CK
DDR3-CKE0 K9 CKE
DDR3-S0 L2 CS
DDR3-RAS J3 RAS
DDR3-CAS K3 CAS
DDR3-WE L3 WE
R30 4K99 1%
DDR3-RESET T2 RESET
DDR3-DM0 E7 DML
DDR3-DM1 D3 DMU
DDR3-BA0 M2 BA0
DDR3-BA1 N8 BA1
DDR3-BA2 M3 BA2
DDR3-A0 N3 A0
DDR3-A1 P7 A1
DDR3-A2 P3 A2
DDR3-A3 N2 A3
DDR3-A4 P8 A4
DDR3-A5 P2 A5
DDR3-A6 R8 A6
DDR3-A7 R2 A7
DDR3-A8 T8 A8
DDR3-A9 R3 A9
DDR3-A10 L7 A10/AP
DDR3-A11 R7 A11
DDR3-A12 N7 A12/BC
DDR3-A13 T3 A13/NC
DDR3-A14 T7 A14/NC
M7 A15/NC
DQL0 DQL1 DQL2 DQL3 DQL4 DQL5 DQL6 DQL7
DQU0 DQU1 DQU2 DQU3 DQU4 DQU5 DQU6 DQU7
DQSU DQSU DQSL DQSL
E3 DDR3-D0
F7 DDR3-D5
F2 DDR3-D1
F8 DDR3-D4
H3 DDR3-D2
H8 DDR3-D6
G2 DDR3-D3
H7 DDR3-D7
D7 DDR3-D12
C3 DDR3-D14
C8 DDR3-D10
C2 DDR3-D8
A7 DDR3-D11
A2 DDR3-D15
B8 DDR3-D13
A3 DDR3-D9
C7 DDR3-DQS1_P
B7 DDR3-DQS1_N
F3 DDR3-DQS0_P
G3 DDR3-DQS0_N
IS43TR16256BL-125KBLI
U13A
DDR3-ODT0 K1 ODT
DDR3-CLK0_P J7 CK
DDR3-CLK0_N K7 CK
DDR3-CKE0 K9 CKE
DDR3-S0 L2 CS
DDR3-RAS J3 RAS
DDR3-CAS K3 CAS
DDR3-WE L3 WE
DDR3-RESET T2 RESET
DDR3-DM2 E7 DML
DDR3-DM3 D3 DMU
DDR3-BA0 M2 BA0
DDR3-BA1 N8 BA1
DDR3-BA2 M3 BA2
DDR3-A0 N3 A0
DDR3-A1 P7 A1
DDR3-A2 P3 A2
DDR3-A3 N2 A3
DDR3-A4 P8 A4
DDR3-A5 P2 A5
DDR3-A6 R8 A6
DDR3-A7 R2 A7
DDR3-A8 T8 A8
DDR3-A9 R3 A9
DDR3-A10 L7 A10/AP
DDR3-A11 R7 A11
DDR3-A12 N7 A12/BC
DDR3-A13 T3 A13/NC
DDR3-A14 T7 A14/NC
M7 A15/NC
DQL0 DQL1 DQL2 DQL3 DQL4 DQL5 DQL6 DQL7
DQU0 DQU1 DQU2 DQU3 DQU4 DQU5 DQU6 DQU7
DQSU DQSU DQSL DQSL
E3 DDR3-D17
F7 DDR3-D21
F2 DDR3-D18
F8 DDR3-D23
H3 DDR3-D22
H8 DDR3-D20
G2 DDR3-D16
H7 DDR3-D19
D7 DDR3-D31
C3 DDR3-D28
C8 DDR3-D26
C2 DDR3-D25
A7 DDR3-D29
A2 DDR3-D27
B8 DDR3-D24
A3 DDR3-D30
C7 DDR3-DQS3_P
B7 DDR3-DQS3_N
F3 DDR3-DQS2_P
G3 DDR3-DQS2_N
IS43TR16256BL-125KBLI
VTT
C131 470nF 6.3V X5R
C132 4.7µF 6.3V X5R
GND
DDR3-CLK0_P
R35 80R6 1%
DDR3-CLK0_N
Place directly at the clock pins
1.5V
U12B
C134 4.7µF 6.3V X5R
C135 470nF 6.3V X5R
C136 47nF 6.3V X5R
C118 470nF 6.3V X5R
C121 470nF 6.3V X5R
C154 470nF 6.3V X5R
C140 4.7µF 6.3V X5R
C141 470nF 6.3V X5R
C142 47nF 6.3V X5R
VDD VSS
VDDQ VSSQ
VREFDQ
VREFCA
ZQ
NC NC
C146 10nF 10V X7R
C148 10nF 10V X7R
VTTREF
R36 240R 1%
U13B
C137 4.7µF 6.3V X5R
C138 470nF 6.3V X5R
C139 47nF 6.3V X5R
C155 470nF 6.3V X5R
C156 470nF 6.3V X5R
C157 470nF 6.3V X5R
C143 4.7µF 6.3V X5R
C144 470nF 6.3V X5R
C145 47nF 6.3V X5R
C147 10nF 10V X7R
C149 10nF 10V X7R
R37 240R 1%
C159 C160 C161 C162 C163 C164 C171 C124 470nF 6.3V X5R
C165 C166 C167 C168 C169 C170 C172 C125 470nF 6.3V X5R
D80-15
DDR3-DQS0_P
DDR3-DQS0_N
DDR3-DQS1_P
DDR3-DQS1_N
DDR3-CLK0_P
DDR3-CLK0_N
DDR3-DQS2_P
DDR3-DQS2_N
DDR3-DQS3_P
DDR3-DQS3_N
trenz electronic
Title: GigaZee - DDR3
A4
Number: TE0720 61C33MA
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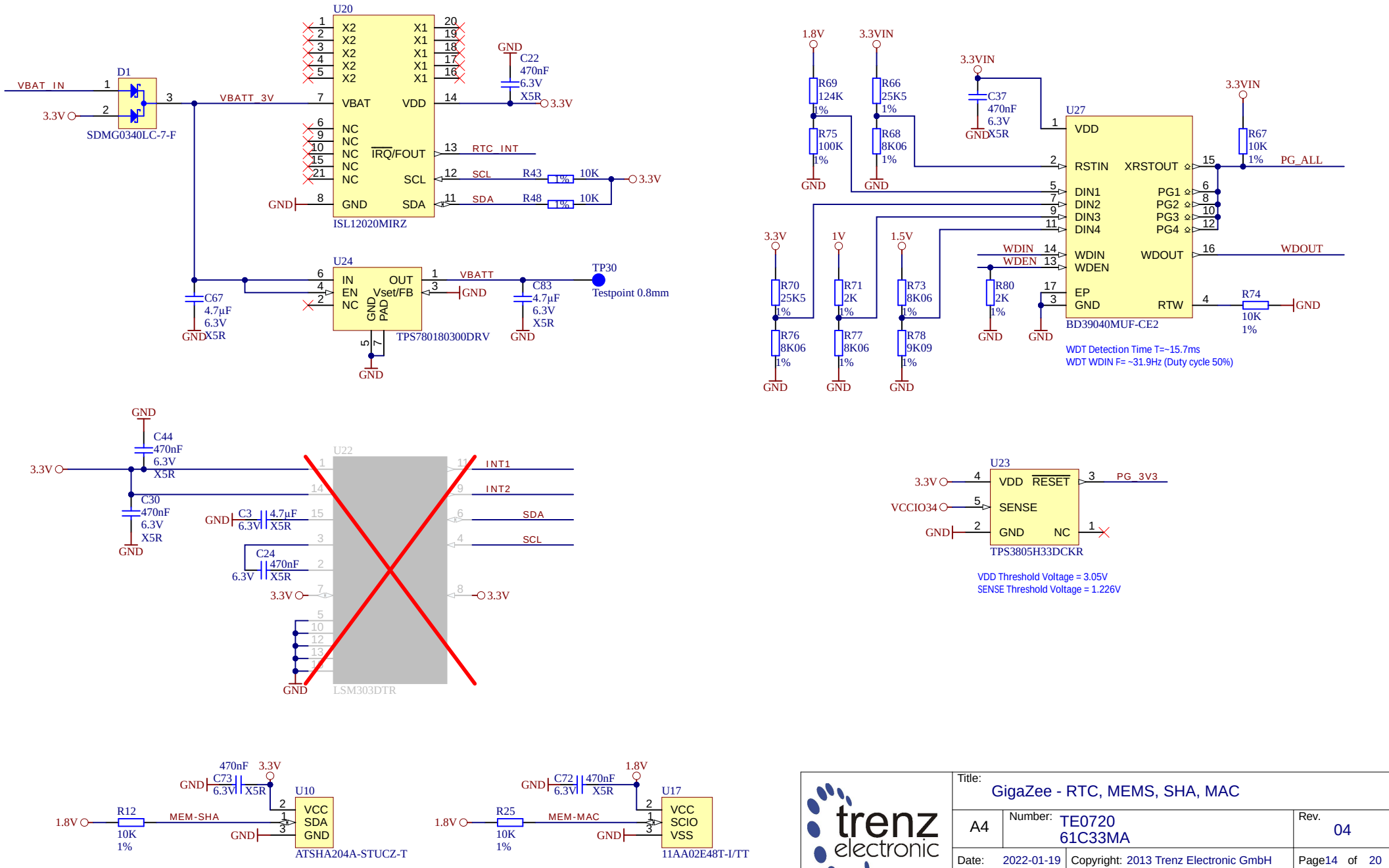
Filename: DDR3-RAM.SchDoc



Title: GigaZee - RTC, MEMS, SHA, MAC			
A4	Number: TE0720 61C33MA		Rev. 04
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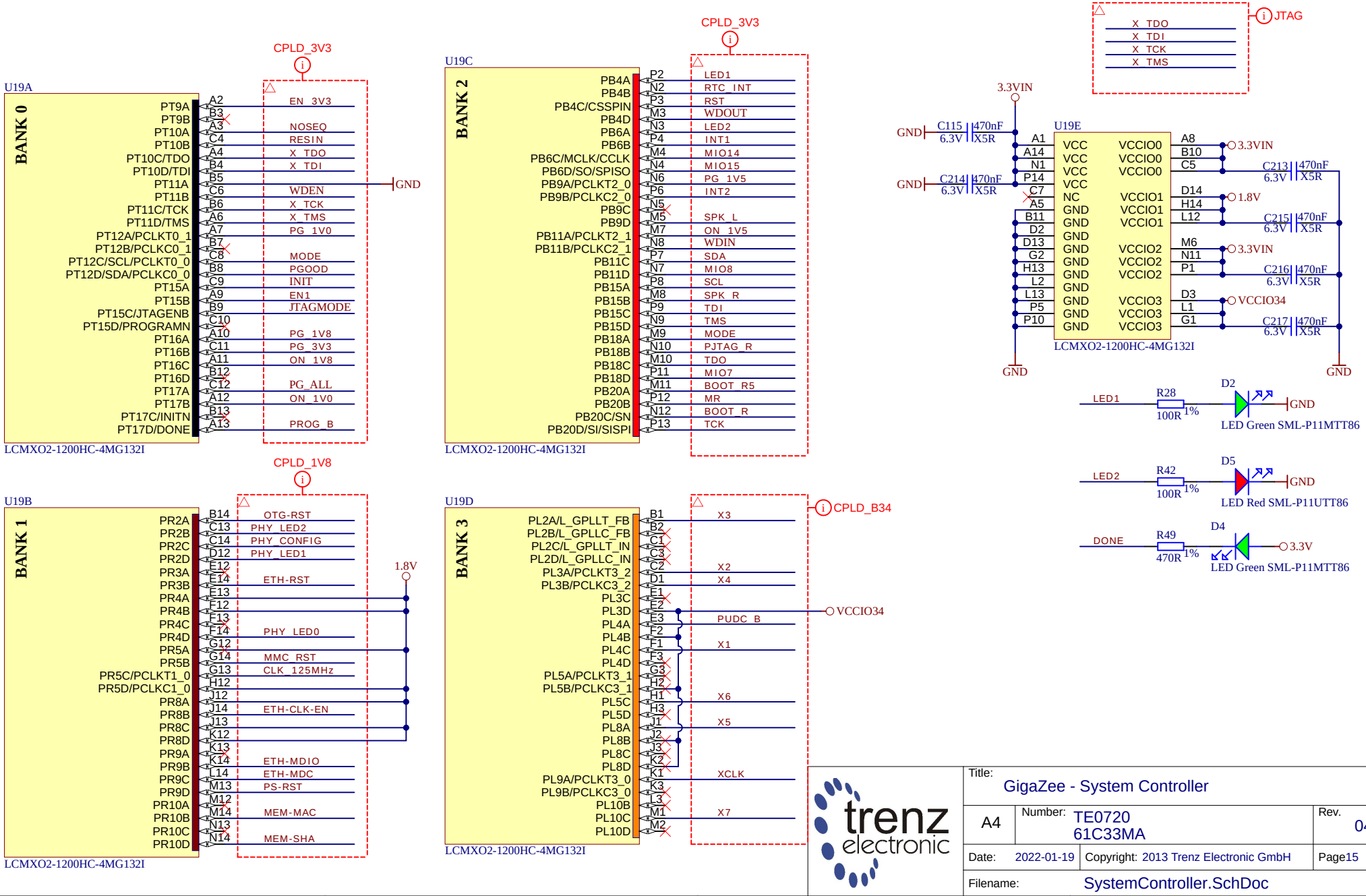
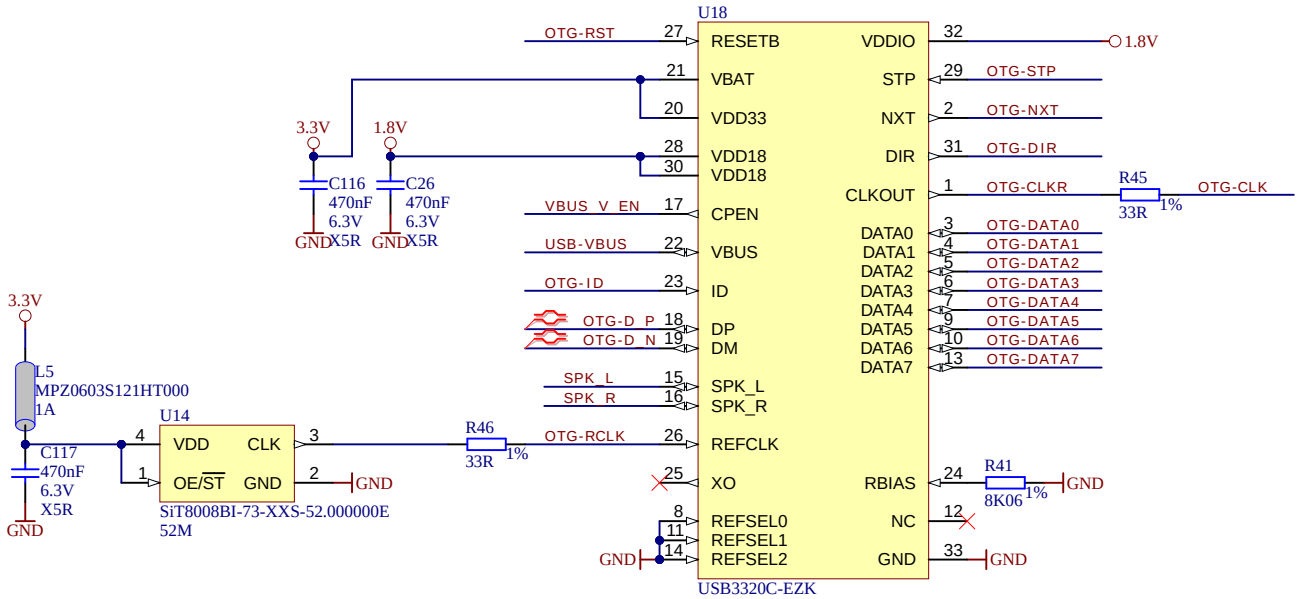
Filename: SENSOR-RTC.SchDoc			



Title: GigaZee - System Controller			
A4	Number: TE0720 61C33MA		Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH		Page15 of 20
Filename: SystemController.SchDoc			



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Title: GigaZee - USB		
A4	Number: TE0720 61C33MA	Rev. 04
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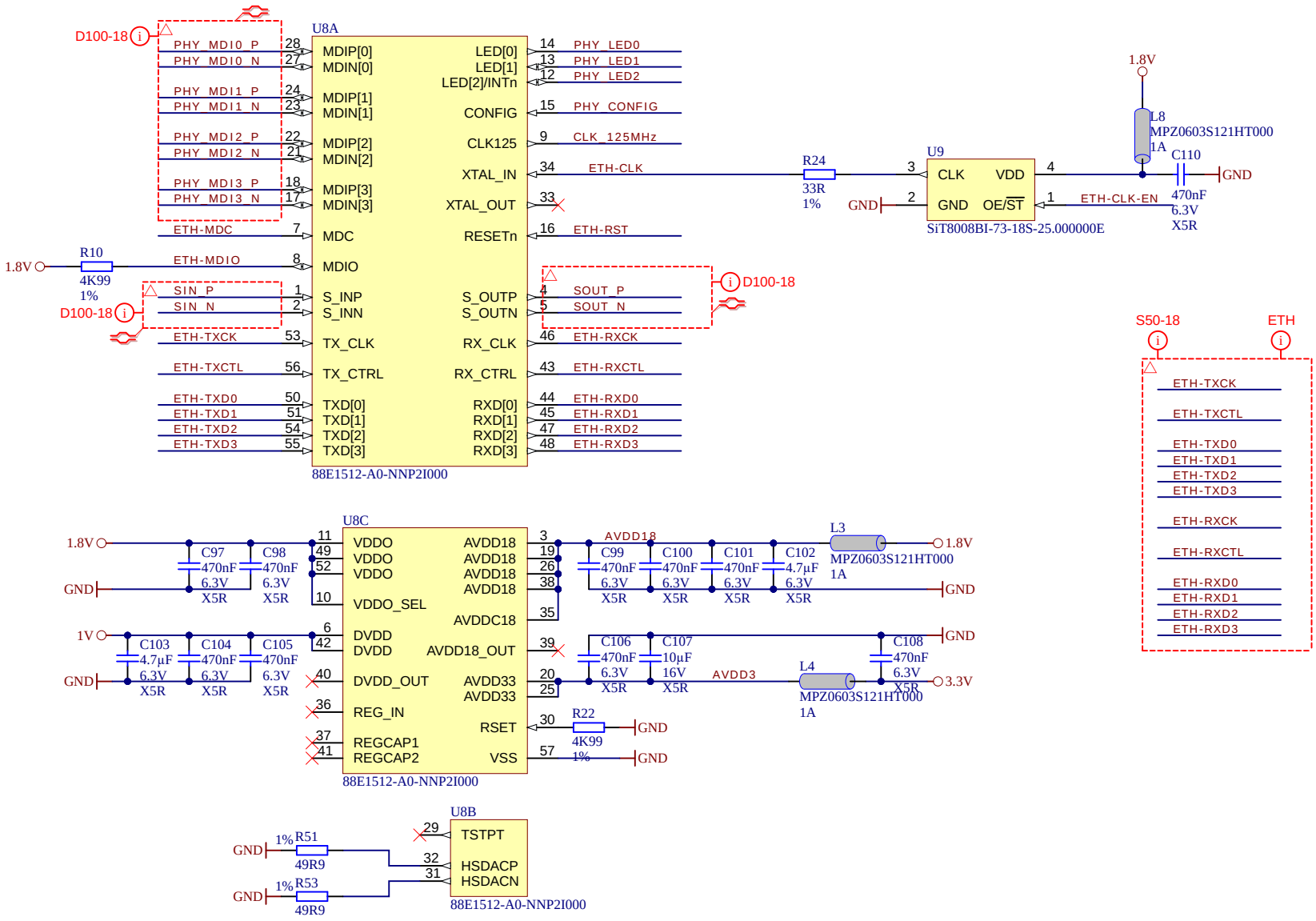
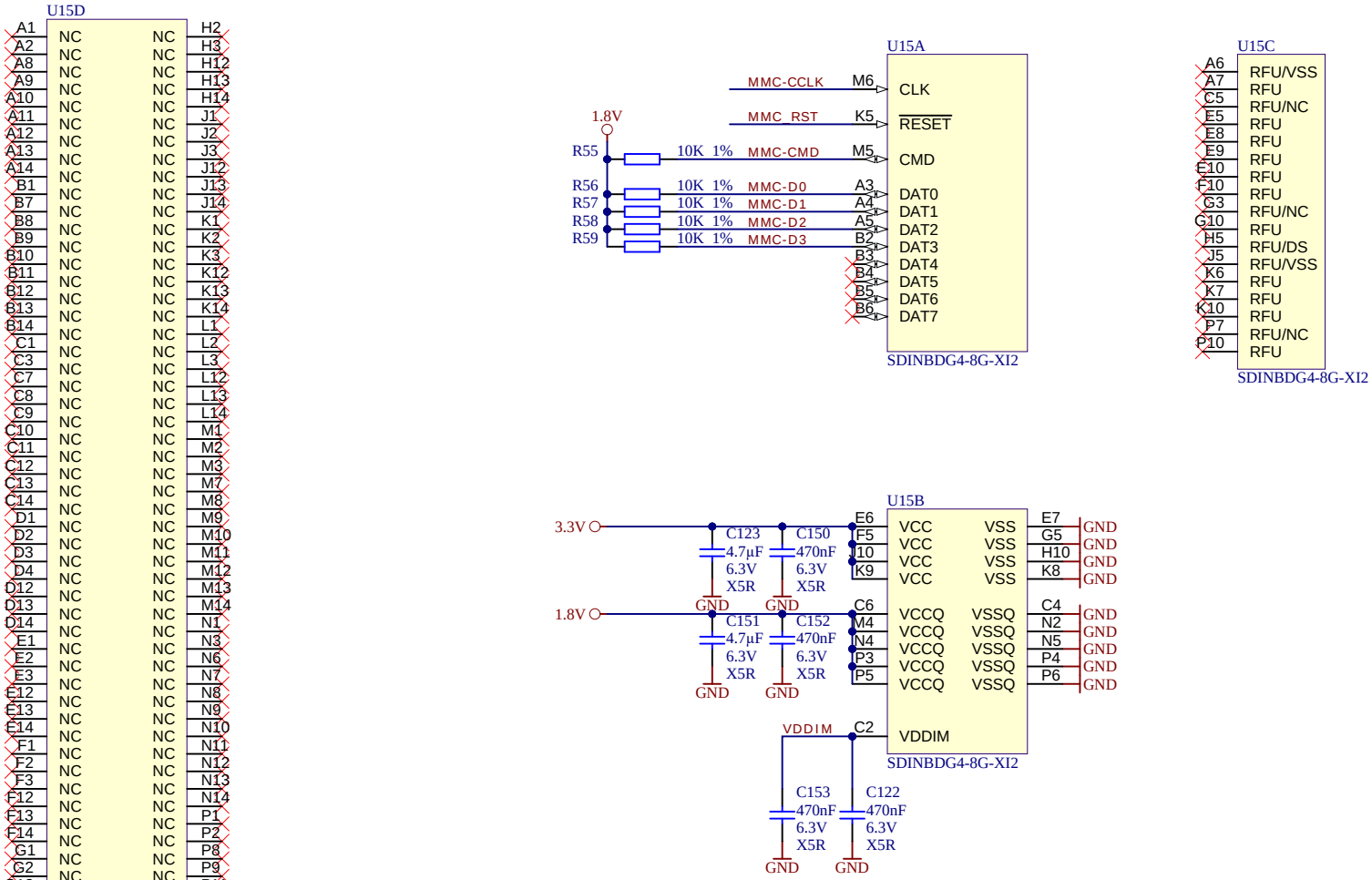
Filename: USB-PHY.SchDoc		



trenz electronic	Title: GigaZee - Ethernet		
A4	Number: TE0720 61C33MA		Rev. 04
Date: 2022-01-19	Copyright: 2013 Trenz Electronic GmbH		Page17 of 20
Filename: ETH-PHY.SchDoc			



trenz electronic	Title: GigaZee - eNAND		
	A4	Number: TE0720 61C33MA	Rev. 04
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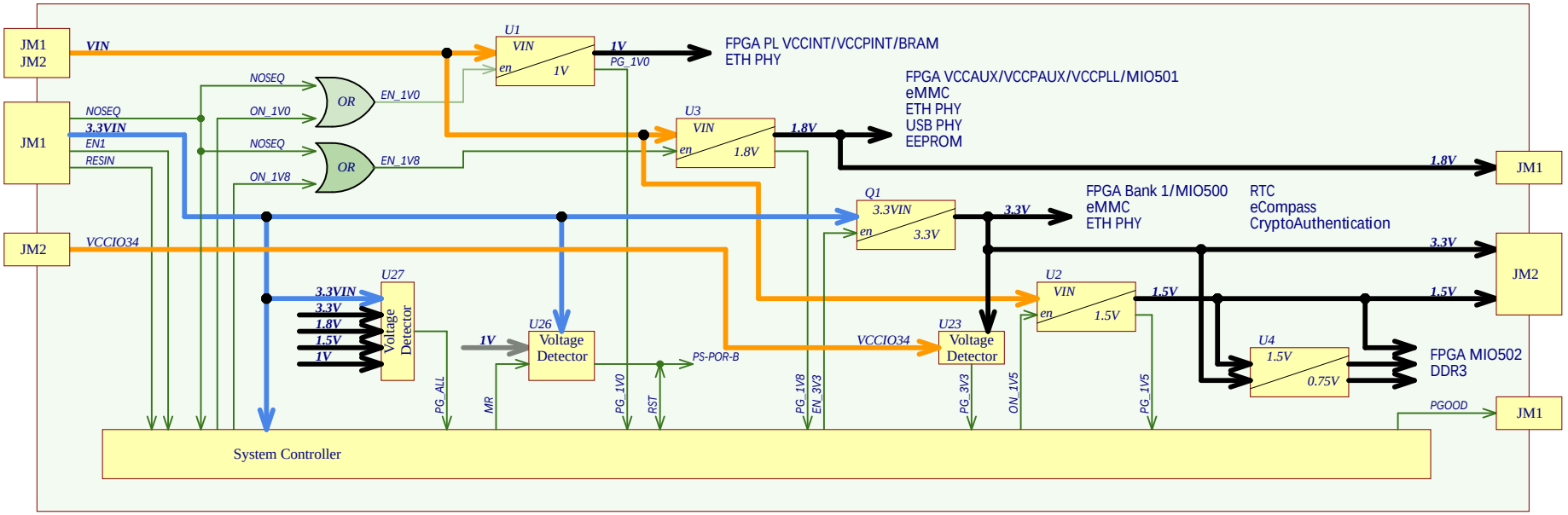
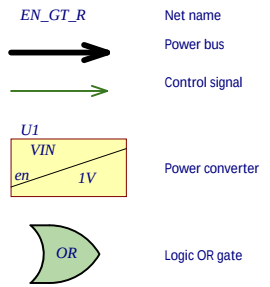
	Filename: eMMC.SchDoc		

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	-
VCCIO33	IN	1.2 - 3.3V	+/-5%	HR IO Bank33	-
VCCIO34	IN	1.5 - 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



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Title: GigaZee - Power Diagram			
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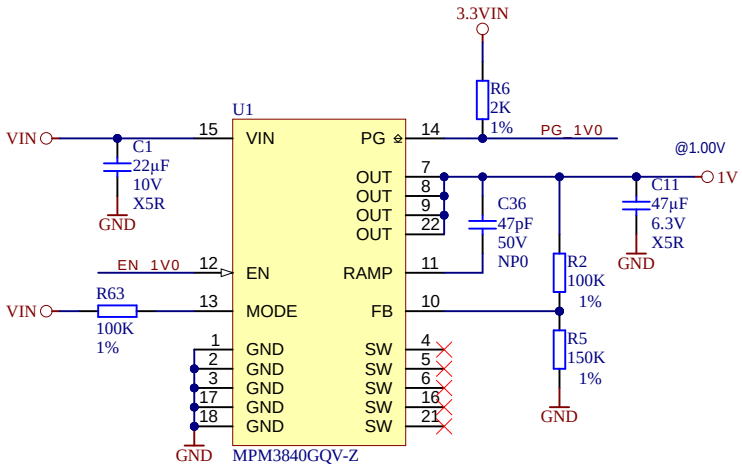
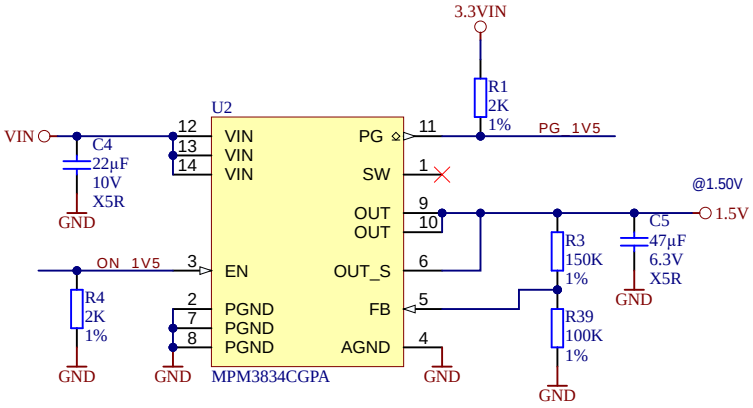
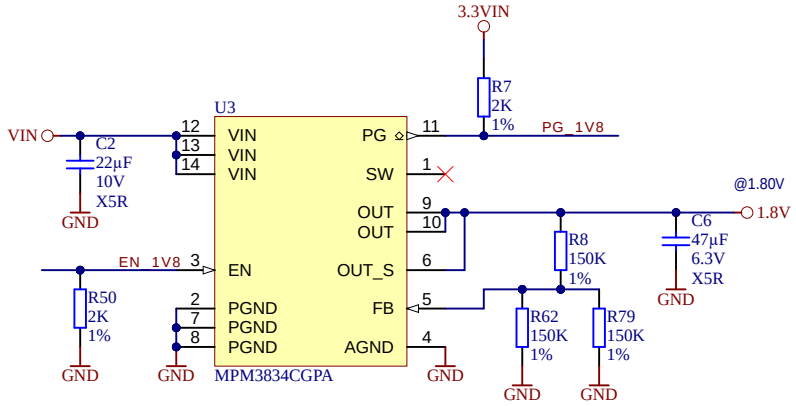
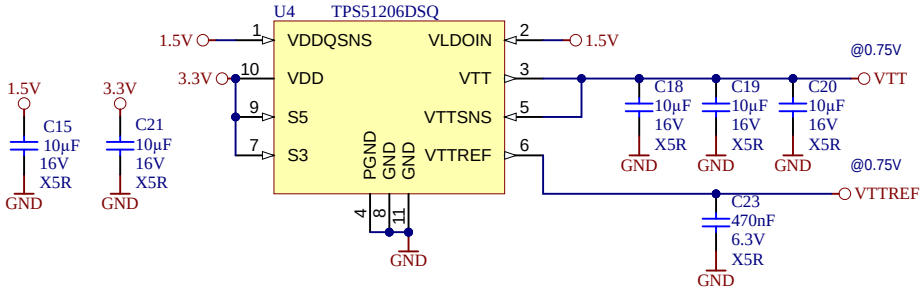
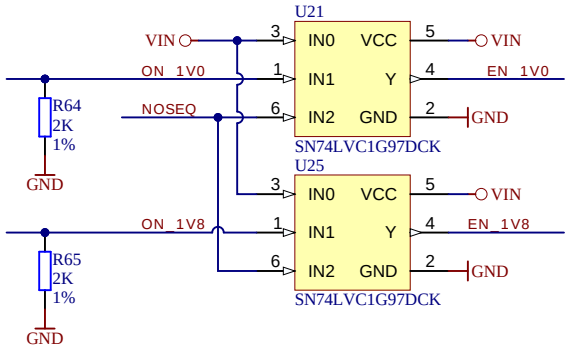
Filename: Power_Diagram.SchDoc			

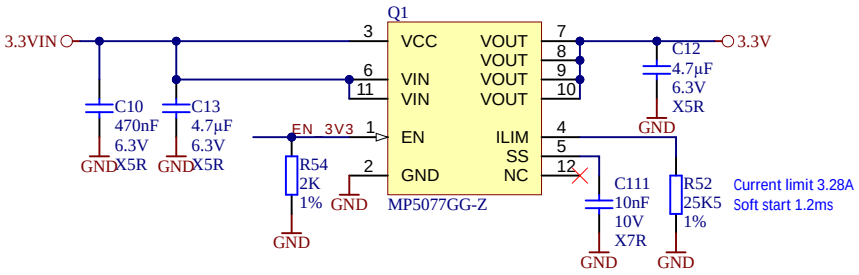

3.3VIN
R6
2K
1%
PG_1V0
U1
VIN
C1
22µF
10V
X5R
GND
15
VIN
PG
14
OUT
OUT
OUT
OUT
7
8
9
22
C36
47pF
50V
NP0
@1.00V
1V
C11
47µF
6.3V
X5R
EN_1V0
12
EN
RAMP
11
R63
100K
1%
13
MODE
FB
10
R2
100K
1%
R5
150K
1%
1
2
3
17
18
GND
GND
GND
GND
GND
SW
SW
SW
SW
SW
4
5
6
16
21
MPM3840GQV-Z

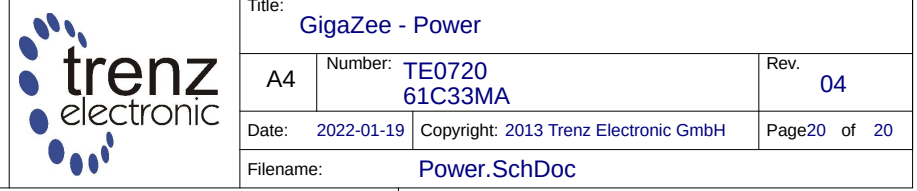

3.3VIN
R1
2K
1%
PG_1V5
U2
VIN
C4
22µF
10V
X5R
GND
12
13
14
VIN
VIN
VIN
PG
SW
11
1
@1.50V
1.5V
OUT
OUT
9
10
C5
47µF
6.3V
X5R
ON_1V5
3
EN
OUT_S
6
R3
150K
1%
R4
2K
1%
2
7
8
PGND
PGND
PGND
FB
5
R39
100K
1%
AGND
4
MPM3834CGPA


3.3VIN
R7
2K
1%
PG_1V8
U3
VIN
C2
22µF
10V
X5R
GND
12
13
14
VIN
VIN
VIN
PG
SW
11
1
@1.80V
1.8V
OUT
OUT
9
10
C6
47µF
6.3V
X5R
EN_1V8
3
EN
OUT_S
6
R8
150K
1%
R50
2K
1%
2
7
8
PGND
PGND
PGND
FB
5
R62
150K
1%
R79
150K
1%
AGND
4
MPM3834CGPA


U4
TPS51206DSQ
1.5V
C15
10µF
16V
X5R
GND
3.3V
C21
10µF
16V
X5R
GND
1.5V
1
VDDQSNS
VLDOIN
2
1.5V
3.3V
10
VDD
VTT
3
@0.75V
VTT
9
S5
VTTSNS
5
7
S3
VTTREF
6
PGND
GND
GND
4
8
11
C18
10µF
16V
X5R
C19
10µF
16V
X5R
C20
10µF
16V
X5R
GND
GND
GND
@0.75V
VTTREF
C23
470nF
6.3V
X5R
GND


U21
VIN
3
IN0
VCC
5
VIN
ON_1V0
1
IN1
Y
4
EN_1V0
R64
2K
1%
NOSEQ
6
IN2
GND
2
GND
SN74LVC1G97DCK
U25
3
IN0
VCC
5
VIN
ON_1V8
1
IN1
Y
4
EN_1V8
R65
2K
1%
6
IN2
GND
2
GND
SN74LVC1G97DCK
GND


Q1
3.3VIN
C10
470nF
6.3V
X5R
GND
C13
4.7µF
6.3V
X5R
GND
3
VCC
VOUT
7
6
11
VIN
VIN
VOUT
VOUT
8
9
10
C12
4.7µF
6.3V
X5R
3.3V
GND
EN_3V3
1
EN
ILIM
4
R54
2K
1%
2
GND
GND
5
SS
12
GND
NC
MP5077GG-Z
C111
10nF
10V
X7R
GND
R52
25K5
1%
GND
Current limit 3.28A
Soft start 1.2ms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