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 Schematics and other handouts serve for informational purposes only!

Design drawn by:	ED
Checked by:	MR
Assembly variant:	82I31-A
Created by:	MR
Modified by:	MR
Modified at:	2022-01-19



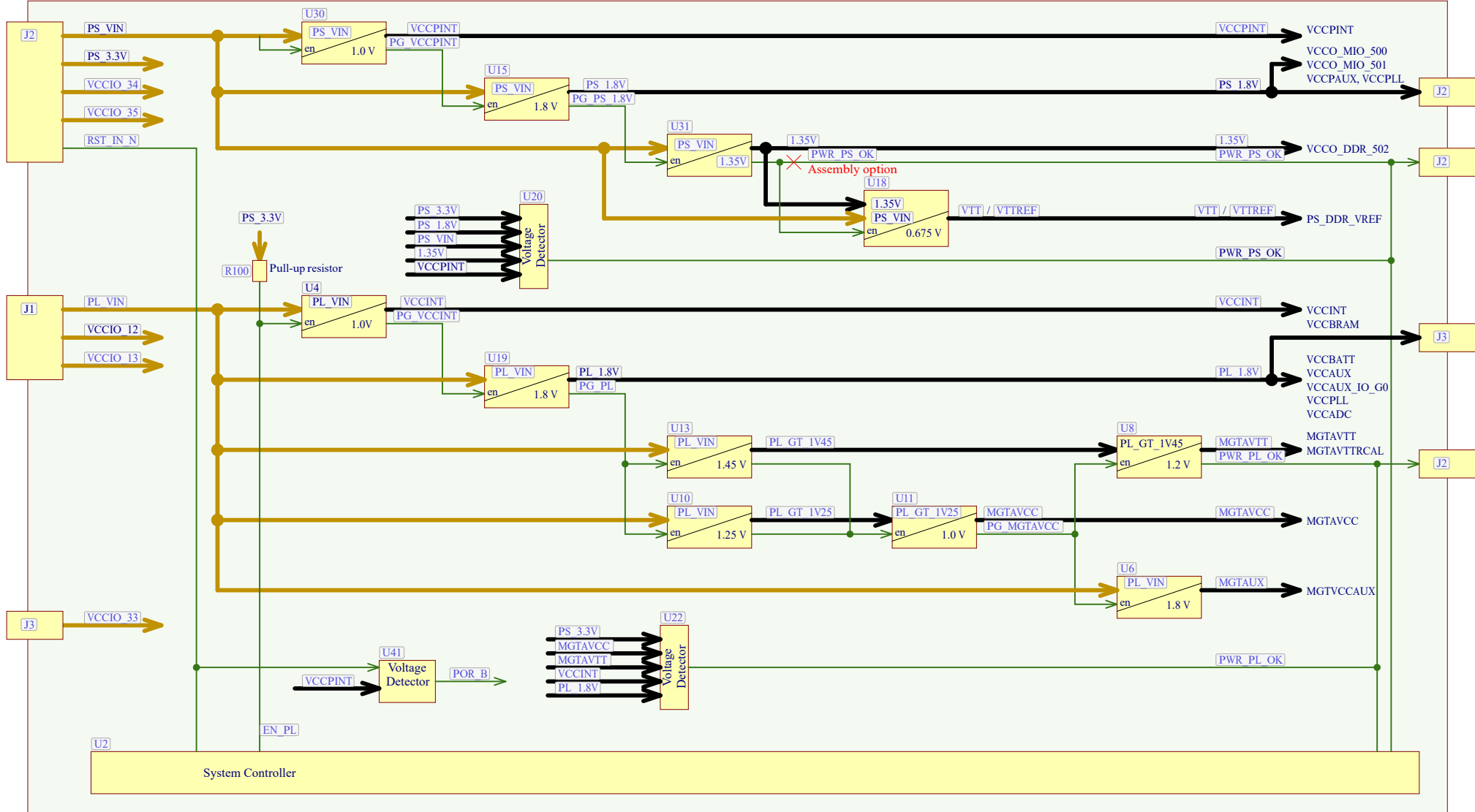
Title: TE0745 - Legal Notices Modules		
A4	Number: TE0745 82I31-A	Rev. 03
Date: 15.06.2023	Copyright: Trenz Electronic GmbH	Page 1 of 26
Filename: Legal Notices Modules.SchDoc		

REV	Description	
-01	Initial revision	
-02	1. MAC EEPROM Address patch fixed on PCB. 2. Lib components update.	
-03	<p>1. Removed serial number S/N. Connected U2 pin 20 to net "BOOTMODE".</p> <p>2. Changed DCDC (U4) from EN63A0Q1 to MP8869SGL-Z and adapted corresponding circuit. Added assembly option to connect U4 to I2C bus via R91/R101 ( I2C address 0x61).</p> <p>3. Increase rated voltage for capacitors C108, C142, C147, C148, and C149 from 6.3 V to 25 V.</p> <p>4. Added diode D3 between signal "RST_IN_N" and "PS_1.8V".</p> <p>5. Added resistor R106 between CPLD U2 pin 25 and signal "RST_IN_N".</p> <p>6. Added option for diode D4 population between signal "PROG_B" and "INIT".</p> <p>7. Changed clock U33 from SiT8008A1-73-XXS-52.000000E to SiT8008BI-73-XXS-52.000000E.</p> <p>8. Added testpoints TP1...43.</p> <p>9. Added voltage monitors U20 and U22 with according circuits.</p> <p>10. Added pull-up resistor R73 for net "PWR_PL_OK".</p> <p>11. Added resistor R103 to optionally connect U31 PG to signal "PWR_PS_OK" or voltage monitor U20.</p> <p>12. Changed supply voltage for VCCPLL from PL_1.8V to PS_1.8V.</p> <p>13. Tied DXP/DXN (U1 pins R14 and R13) directly to GND.</p> <p>14. Added soft start capacitor options C62 for U8 and C78 for U11.</p> <p>15. Added decoupling capacitors</p> <ul style="list-style-type: none"> <li>- C126, C127 for U16,</li> <li>- C129 for U14,</li> <li>- C130 for U19,</li> <li>- C131 for U18,</li> <li>- C144 for U8,</li> <li>- C150 for U11,</li> <li>- C151/C152 for U6,</li> <li>- C153/C154 for U17,</li> <li>- C155/C156 for U32, and</li> <li>- C128 and C157 for U1.</li> </ul> <p>16. Changed voltage rating from 6.3 V to 10 V for 100 uF capacitors.</p> <p>17. Changed voltage rating from 6.3 V to 16 V for 10 uF capacitors.</p> <p>18. Changed voltage rating from 6.3 V to 10 V and size from 0402 to 0603 for capacitors C21 and C29.</p> <p>19. Changed size from 0201 to 0402 for 1 kOhm resistors R104 and R105.</p> <p>20. Added 100 Ohm termination resistors R109 and R110 for MGT_REF_CLKs.</p> <p>21. Changed VCCADC_0 supply from VCCIO_0 to PL_1.8V.</p> <p>22. Added UKCA logo.</p> <p>23. Changed voltage divider R21 and R22 to set threshold to 0.936 V.</p> <p>24. Changed DDR clock termination resistor R9 placement position.</p> <p>25. Changed fiducials to standard fiducial type.</p> <p>26. Update revision history.</p> <p>27. Update schematic template.</p> <p>28. Updated power overview.</p> <p>29. Removed page "ZYNQ.SchDoc" and added pages Legal Notices, System Overview.</p>	ED

	Title: <b>TE0745 - Revision Changes</b>		
	A4	Number: <b>TE0745 82131-A</b>	Rev. <b>03</b>
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# Power-on sequencing:



Title: TE0745 - Power overview		
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Filename: PowerOverview.SchDoc		

Special notes:

UKCA  
UKCA Logo on Top Overlay

CE  
CE Logo on Top Overlay

LOGO1  
TE Logo PRINT Layer

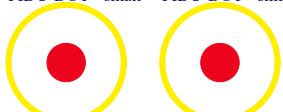
FIDU-DOT - small FIDU-DOT - small



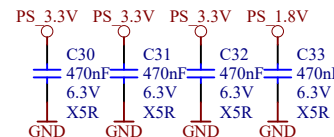
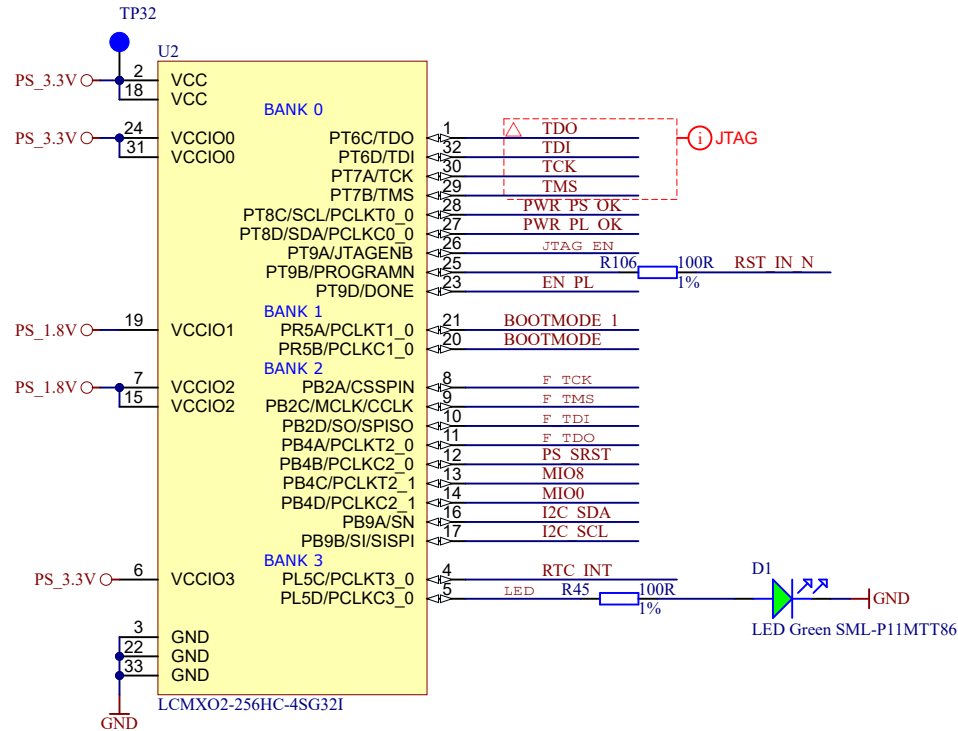
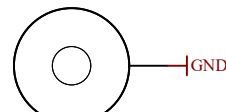
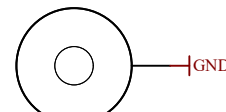
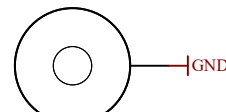
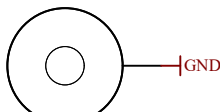
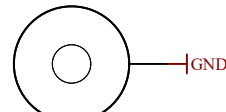
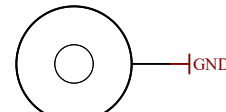
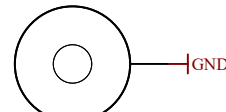
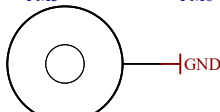
PM1 FIDU-DOT - small PM2 FIDU-DOT - small



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



PM5 PM6

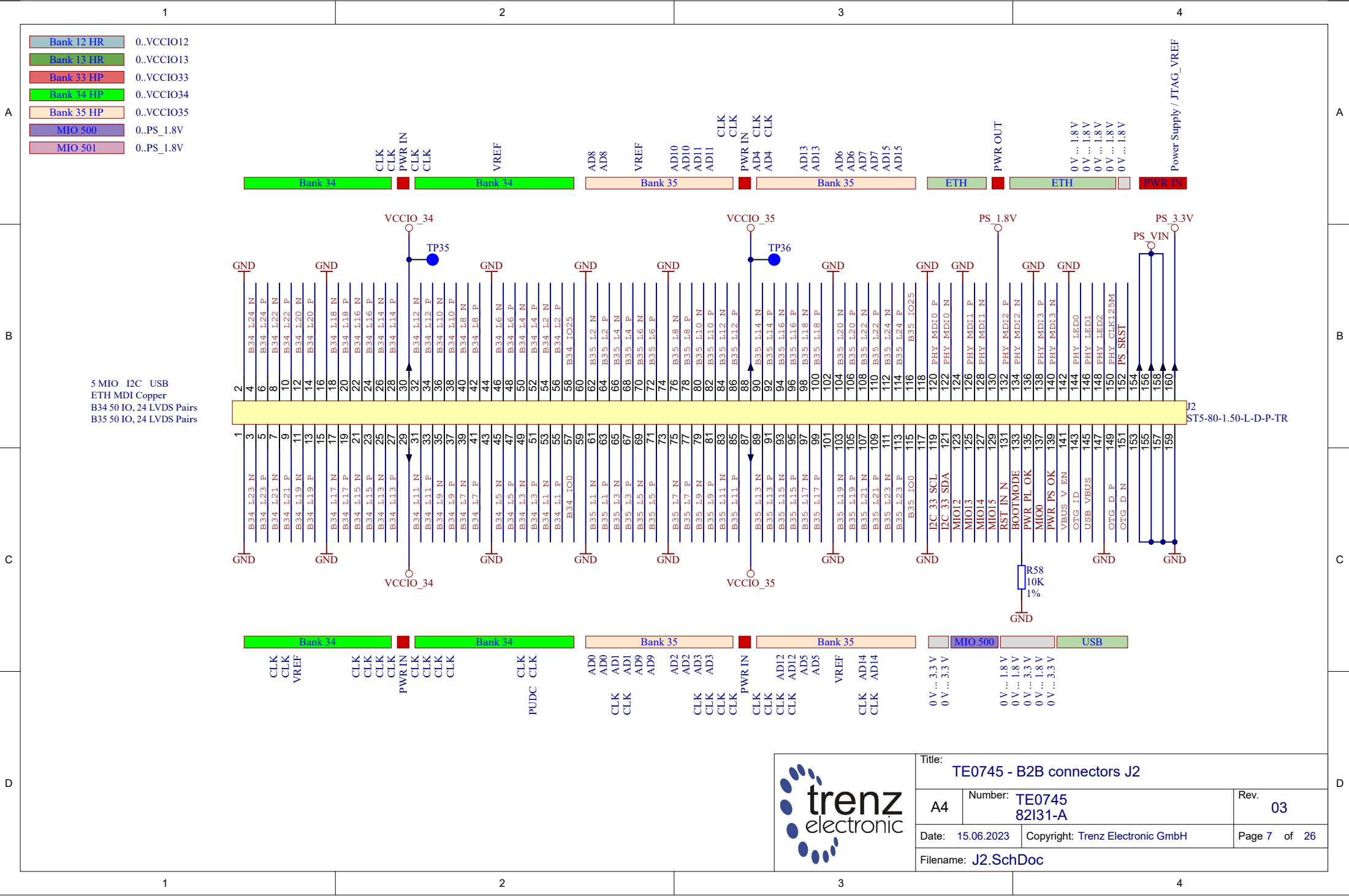


Serial  
Serial  
Serialnumber 6,3 x 6.3mm



Title: TE0745 - System Controller		
A4	Number: TE0745 82131-A	Rev. 03
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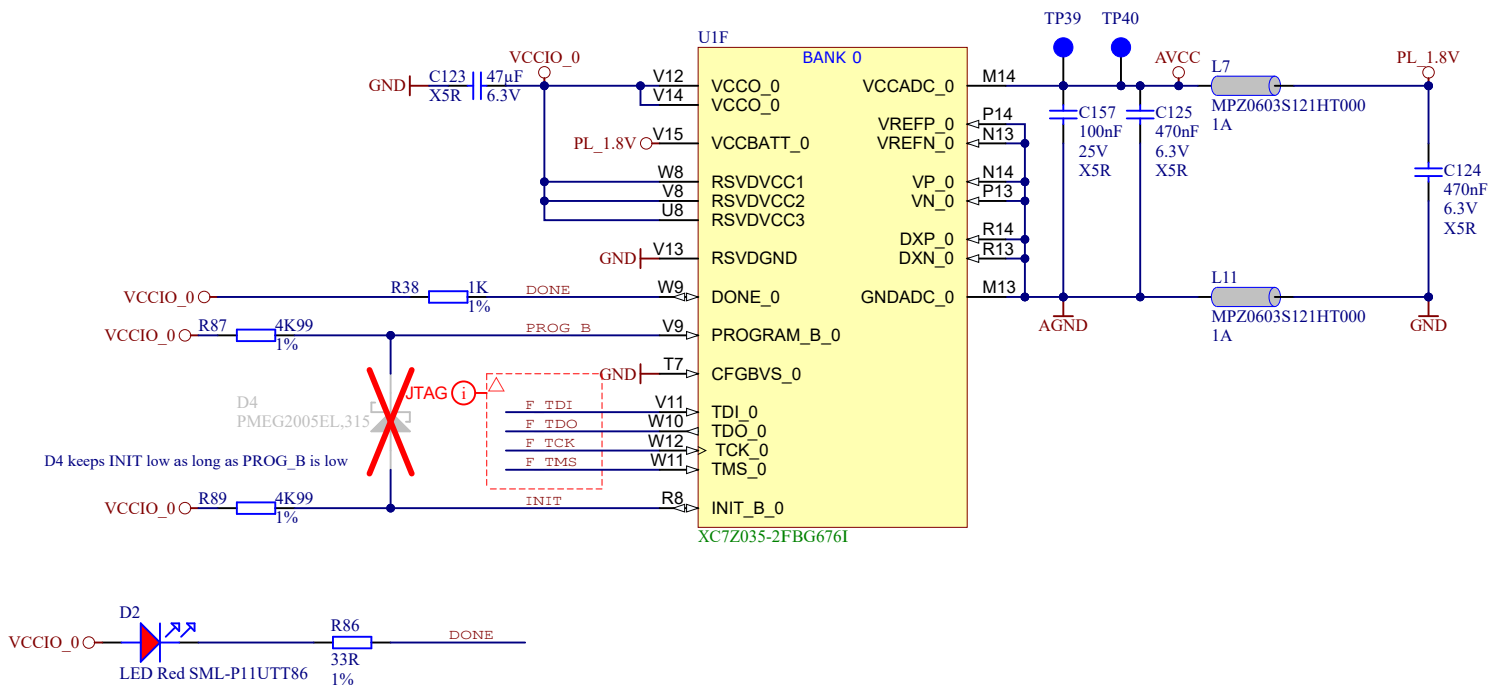
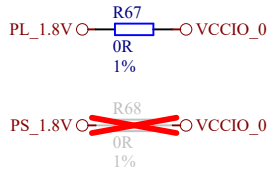




Title: TE0745 - B2B connectors J2		
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Filename: J2.SchDoc		

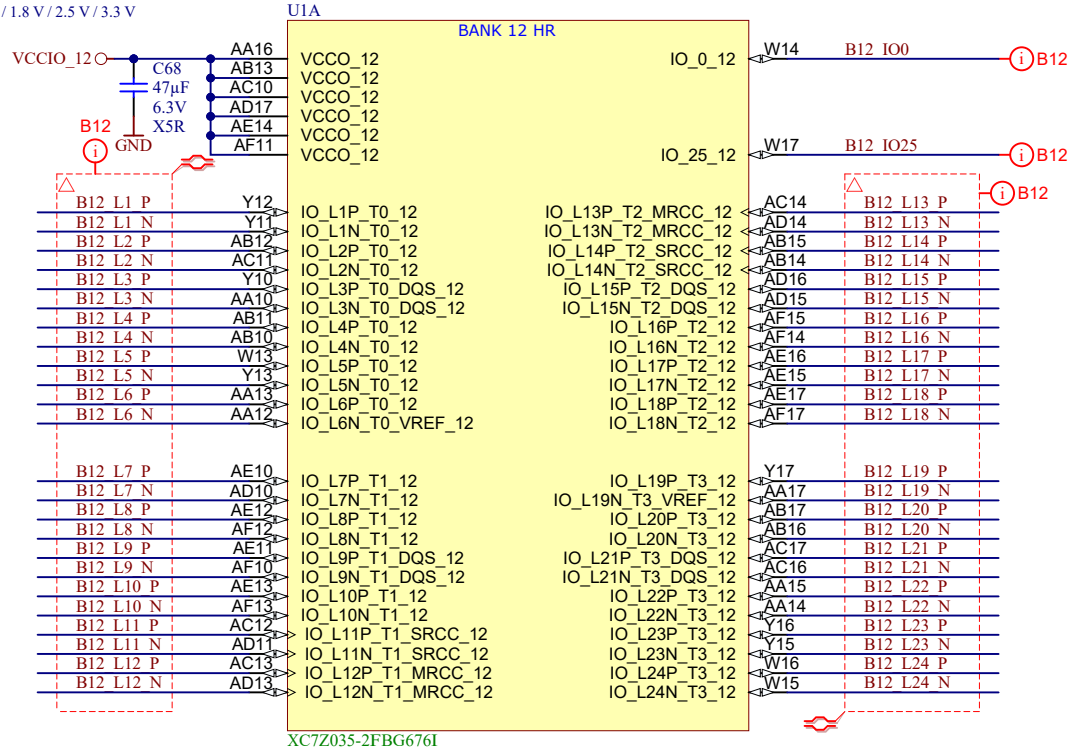






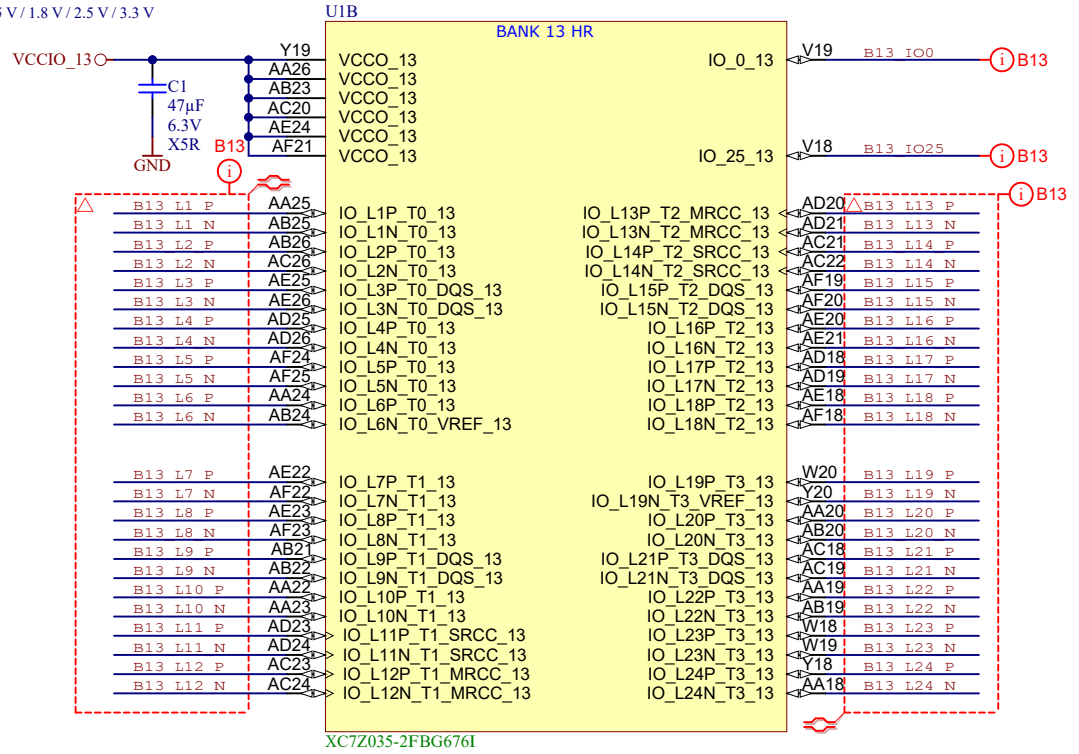
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	A4	Number: TE0745 82I31-A	Rev. 03
	Date: 10.05.2023	Copyright: Trenz Electronic GmbH	
	Filename: ZYNQ_MISC.SchDoc		Page 9 of 26

HR  
1.2 V/1.35 V/1.5 V/1.8 V/2.5 V/3.3 V



Title: TE0745 - Zynq_B12		
A4	Number: TE0745 82I31-A	Rev. 03
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Filename: B12.SchDoc		

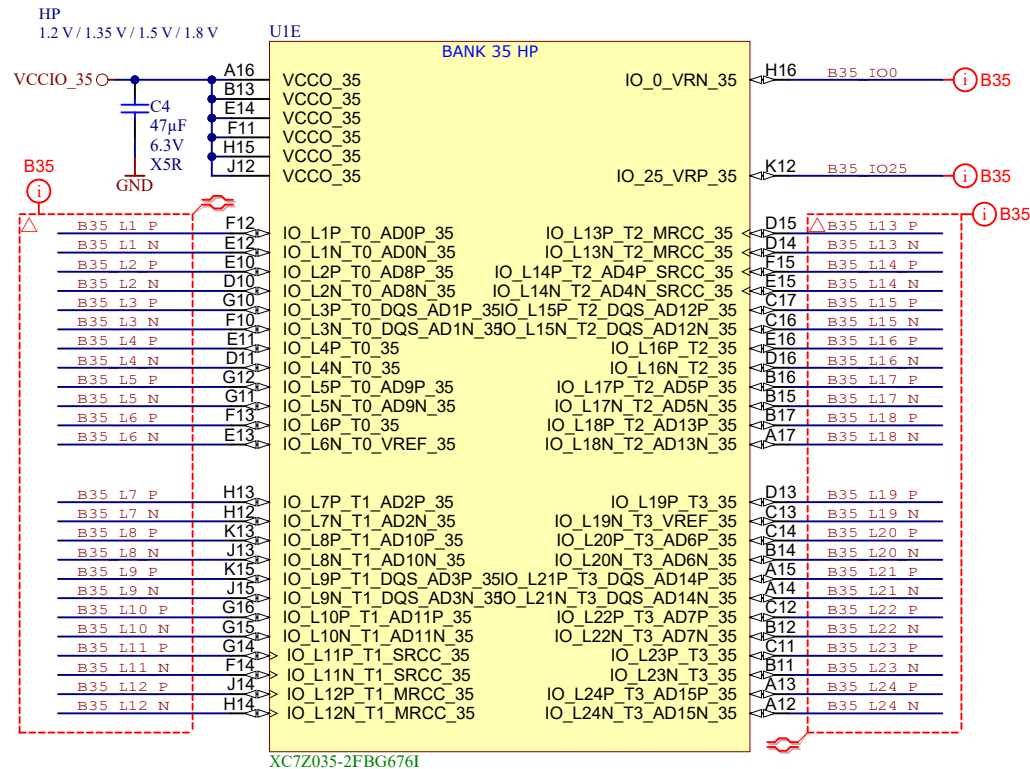
HR  
 1.2V/1.35V/1.5V/1.8V/2.5V/3.3V




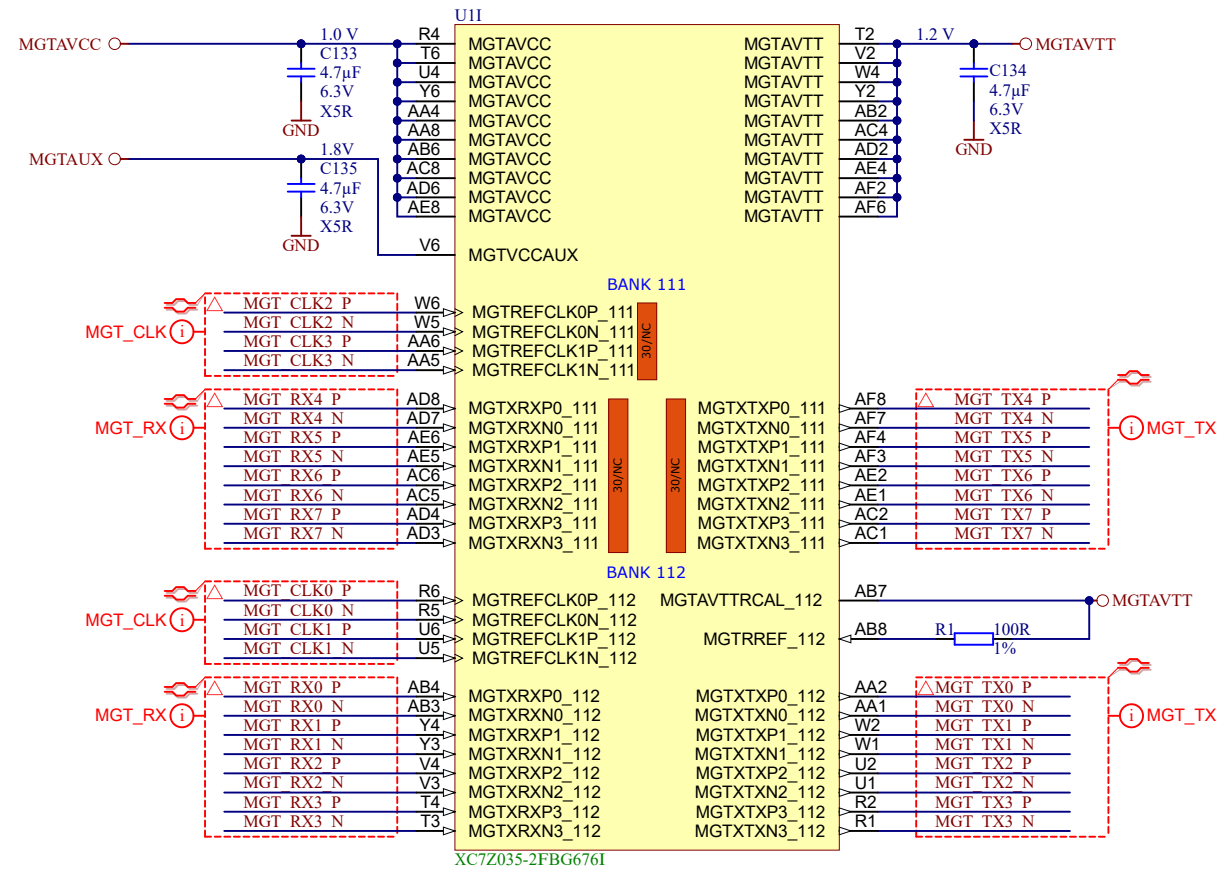
Title: TE0745 - Zynq_B13		
A4	Number: TE0745 82I31-A	Rev. 03
Date: 22.05.2023	Copyright: Trenz Electronic GmbH	Page 11 of 26
Filename: B13.SchDoc		



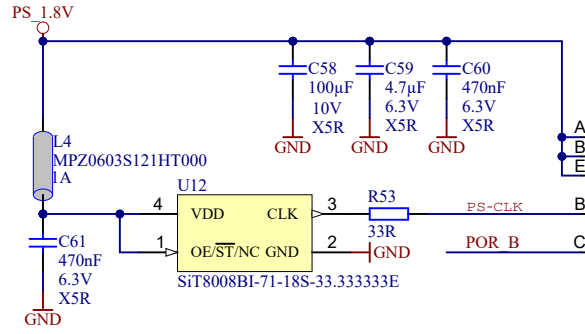




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		A4	Number: TE0745 82I31-A
Date: 22.05.2023		Copyright: Trenz Electronic GmbH	
Filename: B35.SchDoc		Page 14 of 26	



Title: TE0745 - Zynq_MGT		
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Date: 22.05.2023	Copyright: Trenz Electronic GmbH	Page 15 of 26
Filename: FPGA_MGT.SchDoc		



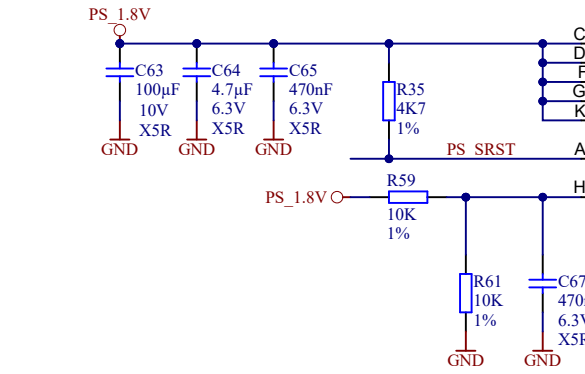
U1G

BANK 500 & 501

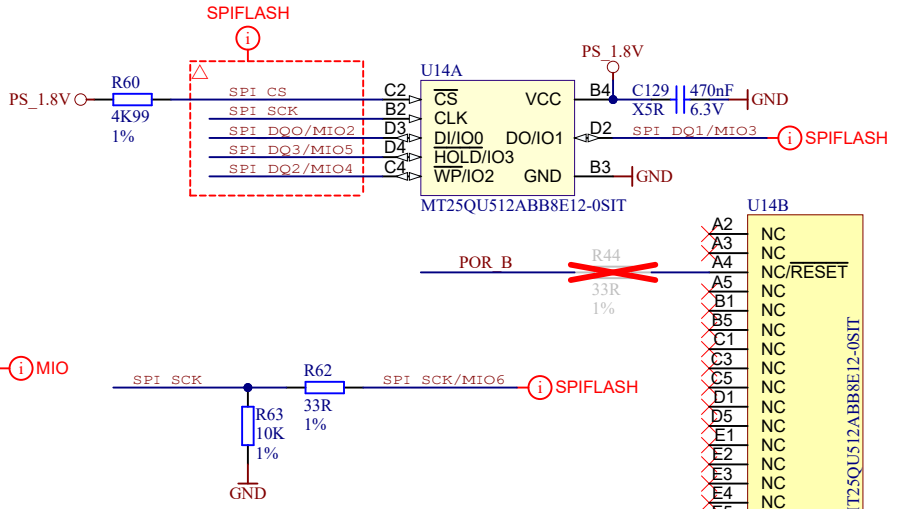
A26	VCCO_MIO0_500	PS_MIO0_500	E26	MIO0
B23	VCCO_MIO0_500	PS_MIO1_500	D26	SPI CS
E24	VCCO_MIO0_500	PS_MIO2_500	E25	SPI DQ0/MIO2
		PS_MIO3_500	D25	SPI DQ1/MIO3
		PS_MIO4_500	F24	SPI DQ2/MIO4
		PS_MIO5_500	C26	SPI DQ3/MIO5
		PS_MIO6_500	F23	SPI SCK/MIO6
		PS_MIO7_500	E23	MIO7
		PS_MIO8_500	A24	MIO8
		PS_MIO9_500	D24	MIO9
		PS_MIO10_500	A25	I2C SCL
		PS_MIO11_500	B26	I2C SDA
		PS_MIO12_500	A23	MIO12
		PS_MIO13_500	B25	MIO13
		PS_MIO14_500	D23	MIO14
		PS_MIO15_500	C24	MIO15

MIO Bank Voltage	MIO7 Bank0	MIO8 Bank1
2.5 V, 3.3 V	0	0
1.8 V	1	1

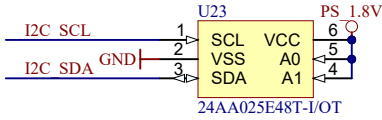
BOOT MODE	MIO5	MIO4	MIO3
JTAG Boot Mode	0	0	0
NOR Boot	0	0	1
NAND	0	1	0
Quad-SPI	1	0	0
SD Card	1	1	0



C20	VCCO_MIO1_501	PS_MIO16_501	G21	ETH TXCK
D17	VCCO_MIO1_501	PS_MIO17_501	G17	ETH TXD0
F21	VCCO_MIO1_501	PS_MIO18_501	G20	ETH TXD1
G18	VCCO_MIO1_501	PS_MIO19_501	G19	ETH TXD2
K18	VCCO_MIO1_501	PS_MIO20_501	H19	ETH TXD3
		PS_MIO21_501	F22	ETH TXCTL
		PS_MIO22_501	G22	ETH RXCK
		PS_MIO23_501	F20	ETH RXD0
		PS_MIO24_501	J19	ETH RXD1
		PS_MIO25_501	F19	ETH RXD2
		PS_MIO26_501	H17	ETH RXD3
		PS_MIO27_501	F18	ETH RXCTL
		PS_MIO28_501	J18	OTG DATA4
		PS_MIO29_501	E20	OTG DIR
		PS_MIO30_501	K19	OTG STP
		PS_MIO31_501	E21	OTG NXT
		PS_MIO32_501	K17	OTG DATA0
		PS_MIO33_501	E22	OTG DATA1
		PS_MIO34_501	J16	OTG DATA2
		PS_MIO35_501	D19	OTG DATA3
		PS_MIO36_501	K16	OTG CLK
		PS_MIO37_501	D20	OTG DATA5
		PS_MIO38_501	D21	OTG DATA6
		PS_MIO39_501	C21	OTG DATA7
		PS_MIO40_501	C22	MIO40
		PS_MIO41_501	C19	MIO41
		PS_MIO42_501	F17	MIO42
		PS_MIO43_501	D18	MIO43
		PS_MIO44_501	F18	MIO44
		PS_MIO45_501	C18	MIO45
		PS_MIO46_501	E17	MIO46
		PS_MIO47_501	B19	MIO47
		PS_MIO48_501	B21	MIO48
		PS_MIO49_501	A18	MIO49
		PS_MIO50_501	B22	MIO50
		PS_MIO51_501	B20	MIO51
		PS_MIO52_501	A20	ETH MDC
		PS_MIO53_501	A19	ETH MDIO

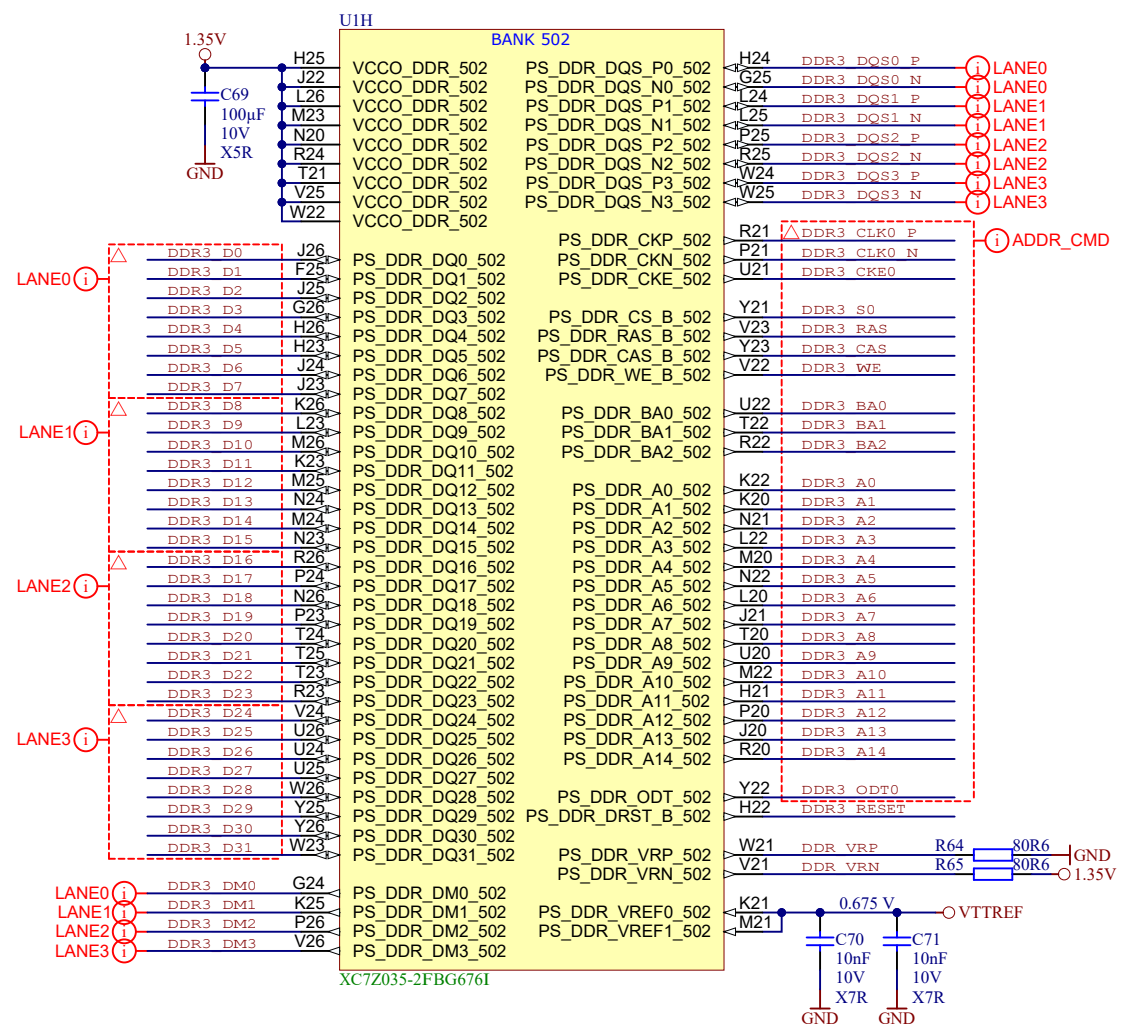


EEPROM for MAC  
Slave ADDR:  
0x53=0b1010011



Title: TE0745 - Zynq_MIO_Banks		
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Filename: MIO_B500.SchDoc		

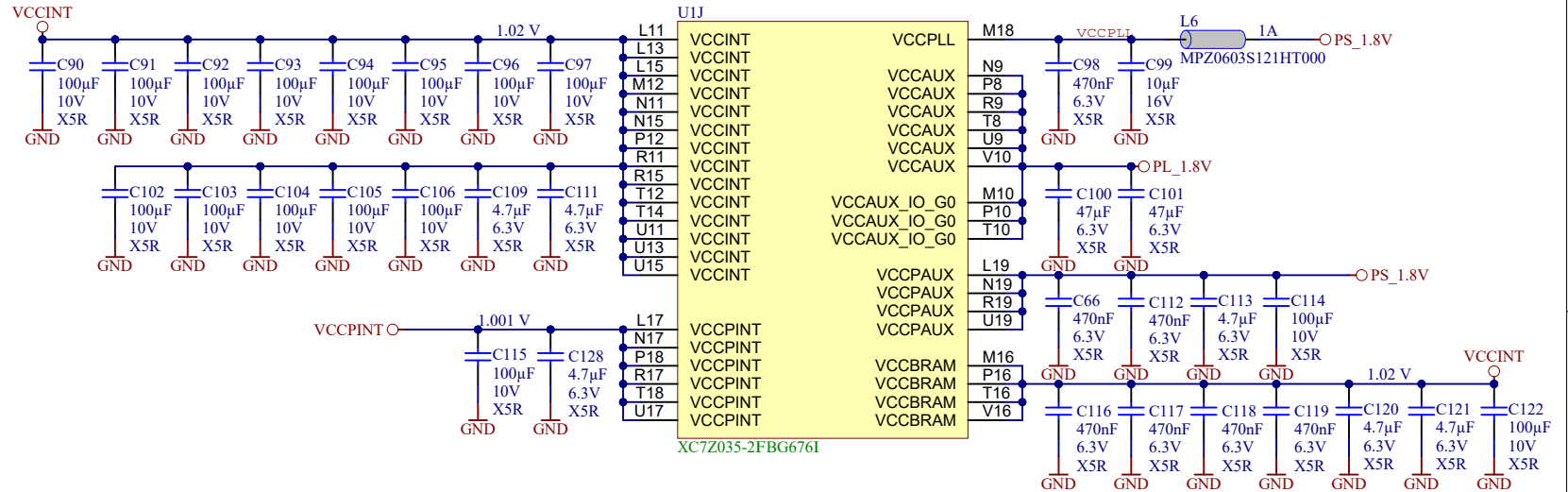
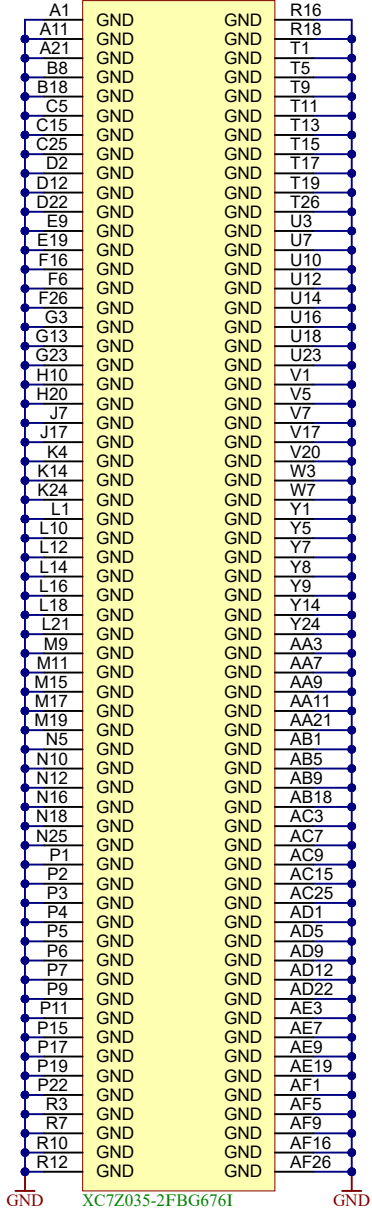




**trenz electronic**

Title: TE0745 - Zynq_PS_DDR		
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Filename: PS-DDR.SchDoc		

UIK



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Filename: ZYNC_POWER.SchDoc		

A

A

B

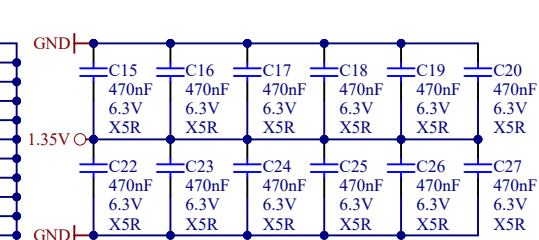
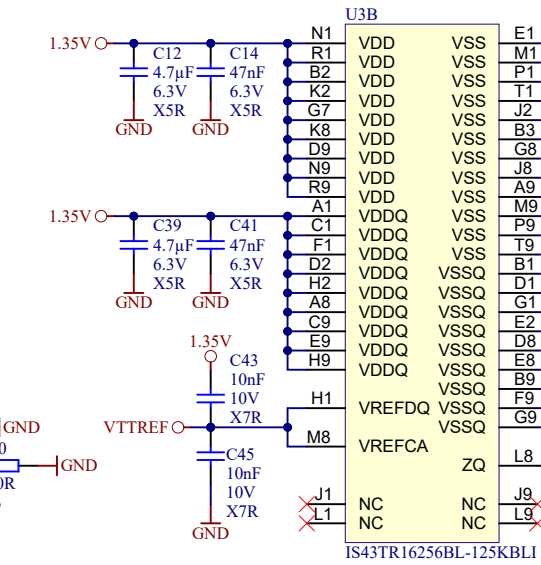
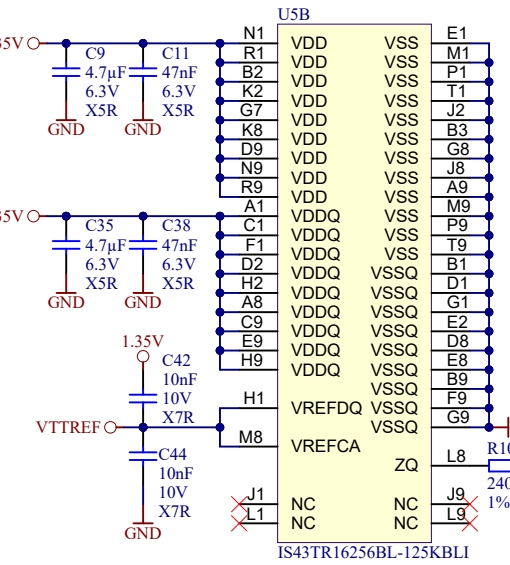
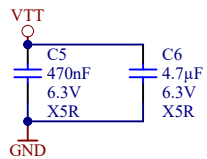
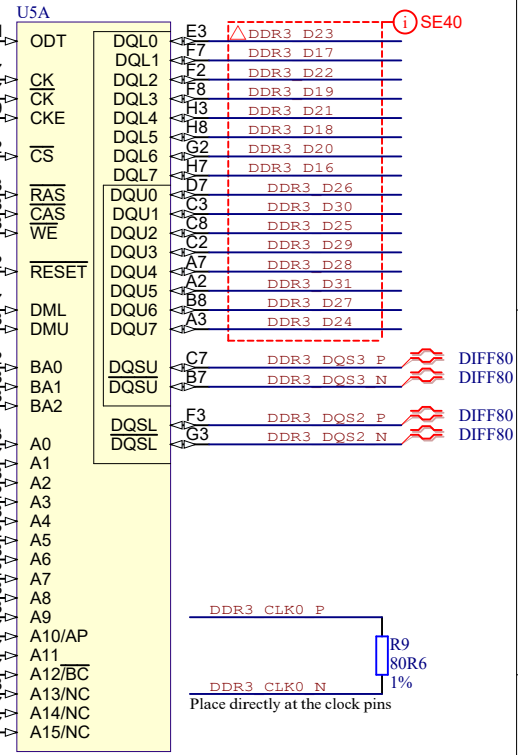
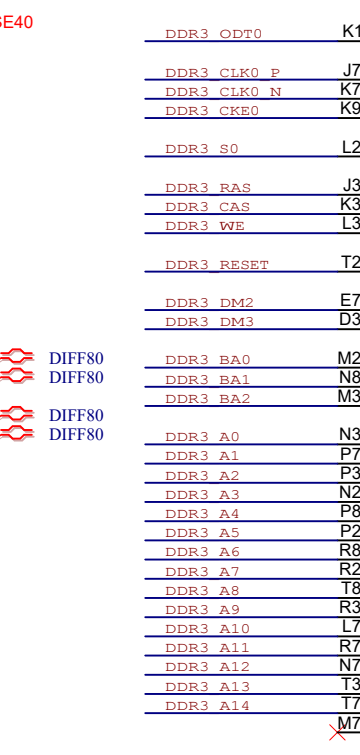
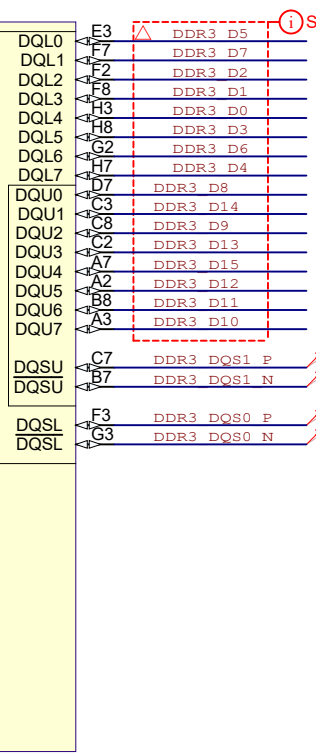
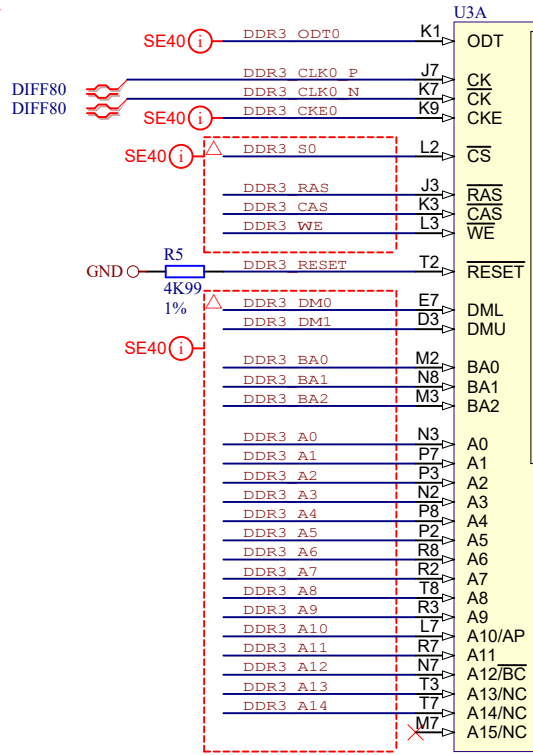
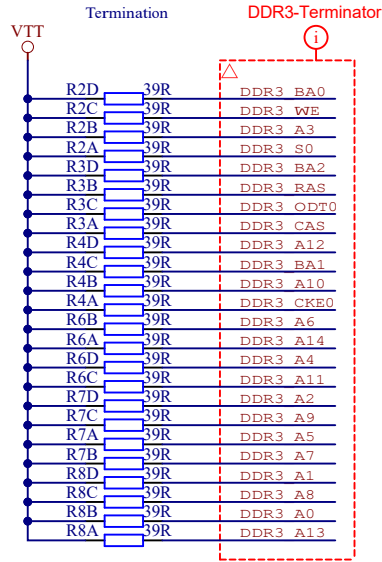
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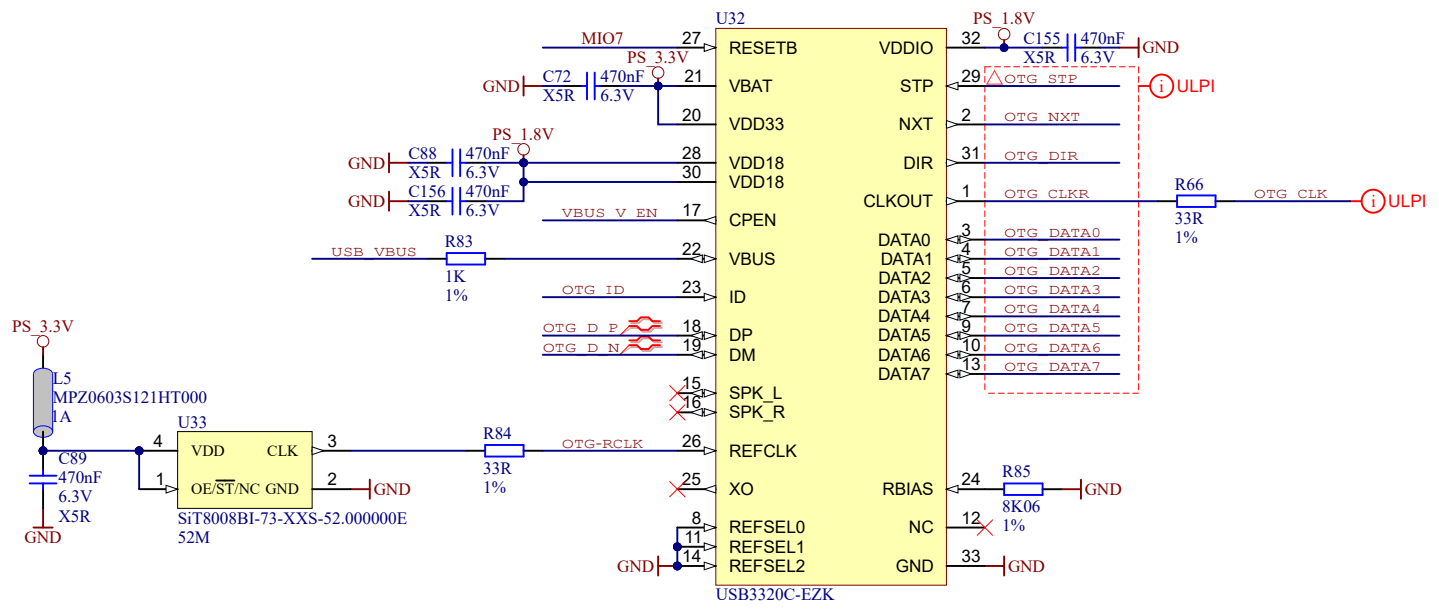
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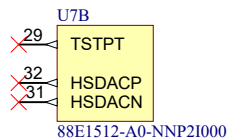
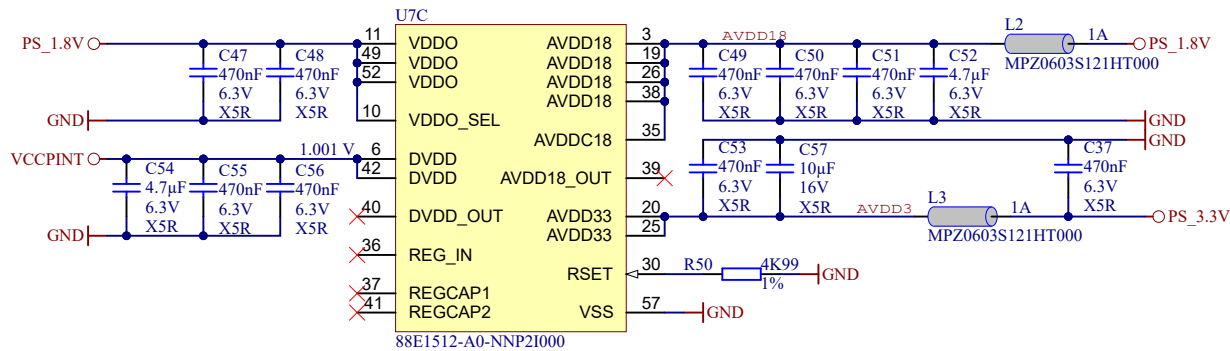
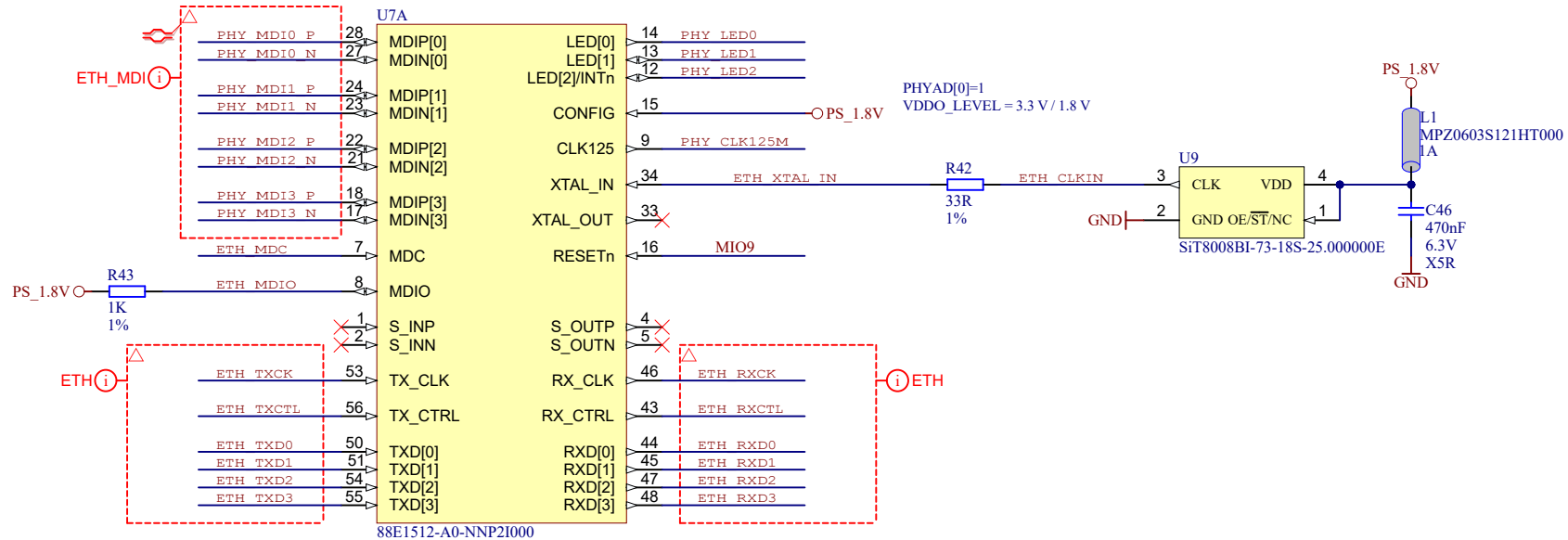
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Title: TE0745 - DDR3 RAM		
A4	Number: TE0745 82I31-A	Rev. 03
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Filename: DDR3-RAM.SchDoc		

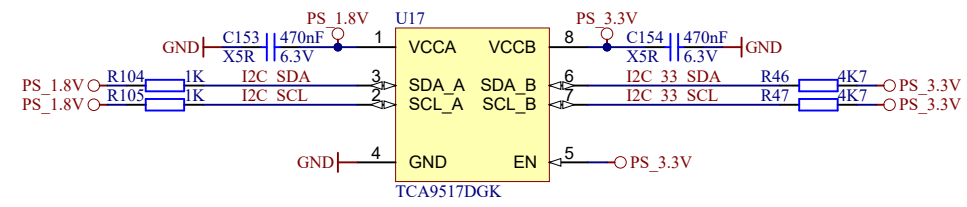
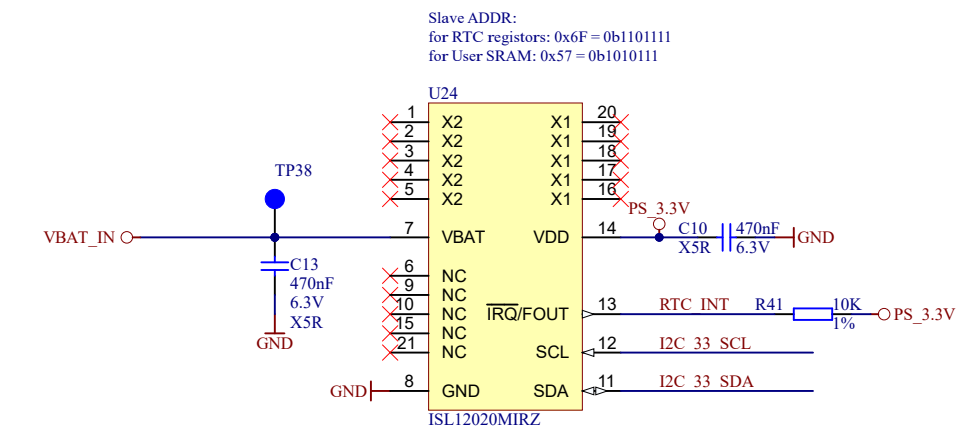



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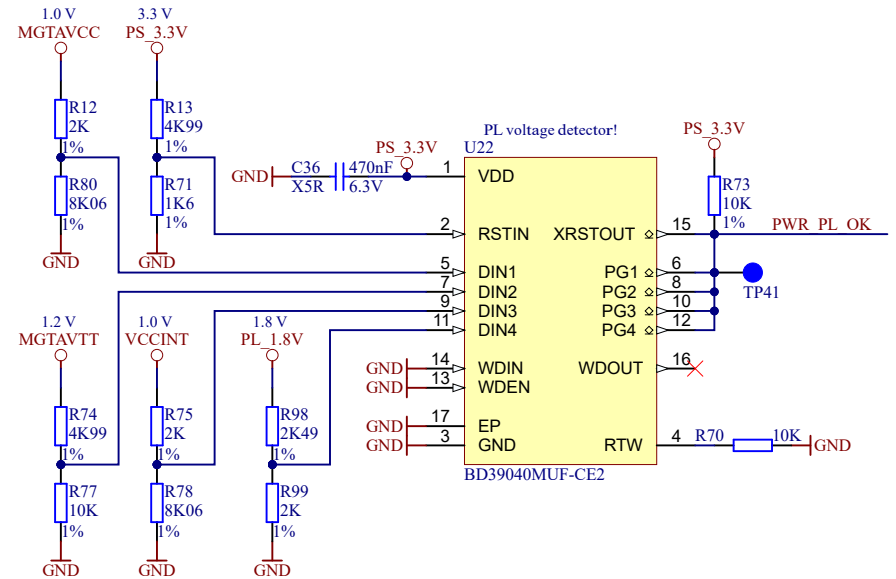
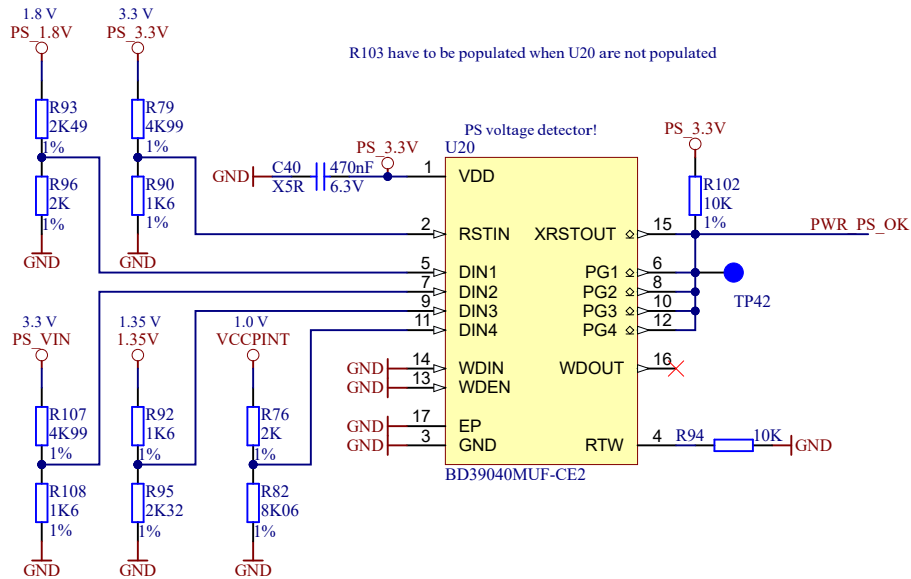
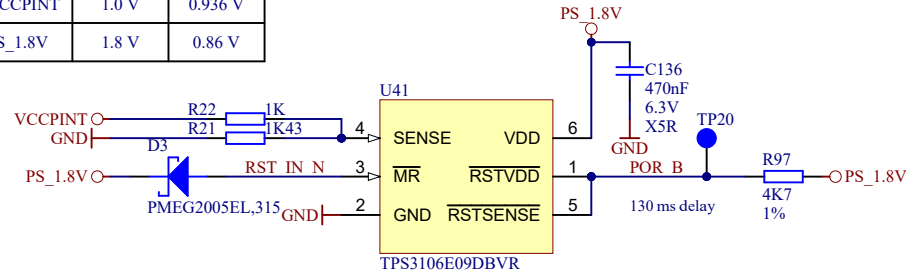
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		A4	Number: TE0745 82131-A
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Filename: ETH-PHY.SchDoc		Page 21 of 26	



Title: <b>TE0745 - RTC</b>		
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Date: <b>22.05.2023</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>23</b> of <b>26</b>
Filename: <b>SENSOR-RTC.SchDoc</b>		

Net Name	Voltage Rail	Low Detect
VCCPINT	1.0 V	0.936 V
PS_1.8V	1.8 V	0.86 V



R103 have to be populated when U20 are not populated

PS voltage detector!

PL voltage detector!

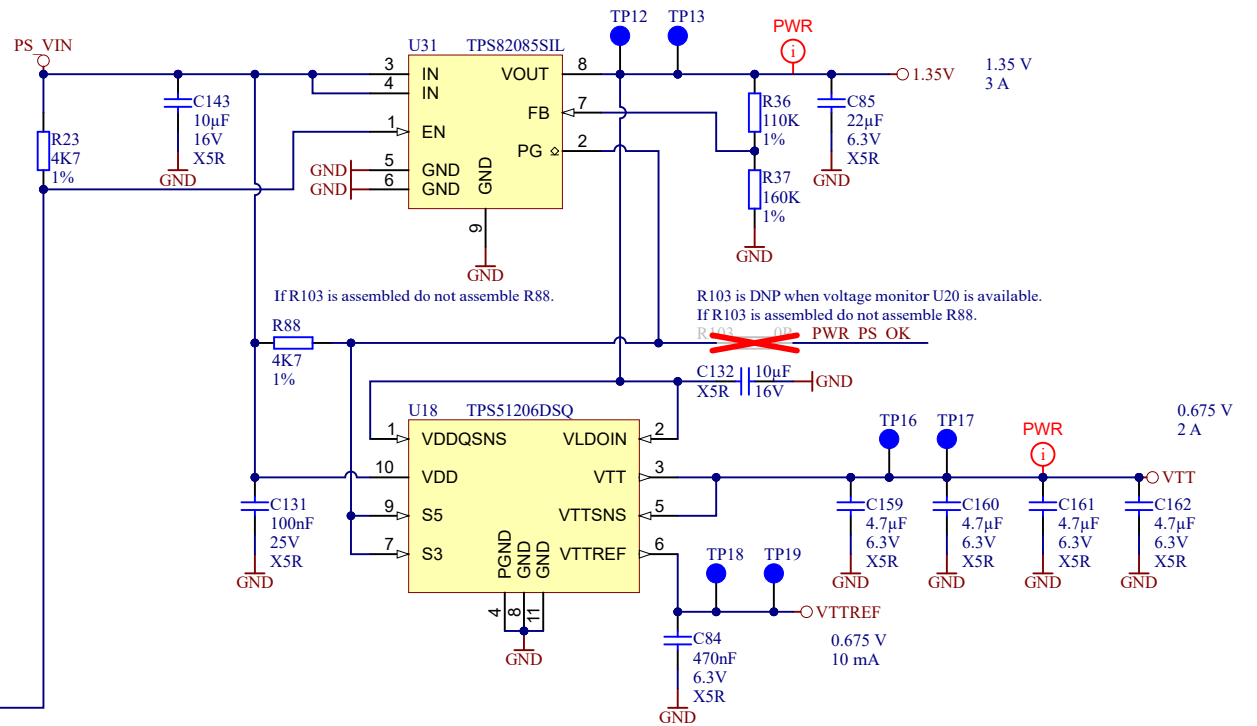
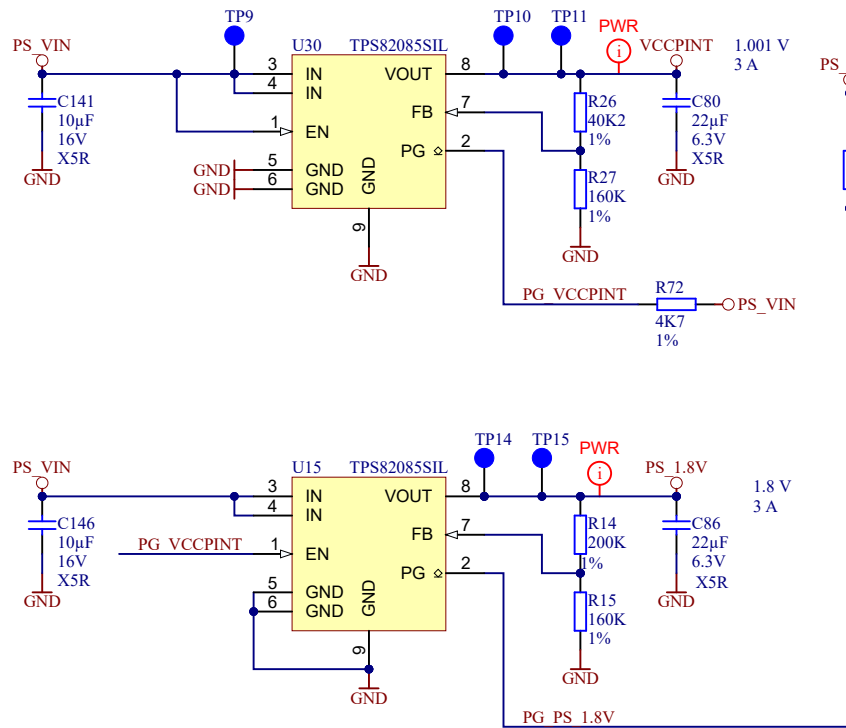
Net Name	Voltage Rail	Low Detect	High Detect
PS_3.3V	3.3 V	2.97 V	3.62 V
PS_1.8V	1.8 V	1.62 V	1.98 V
PS_VIN	3.3 V	2.97 V	3.62 V
1.35V	1.35 V	1.22 V	1.49 V
VCCPINT	1.0 V	0.90 V	1.10 V


Net Name	Voltage Rail	Low Detect	High Detect
PS_3.3V	3.3 V	2.97 V	3.62 V
MGTAVCC	1.0 V	0.90 V	1.10 V
MGTAVTT	1.2 V	1.08 V	1.32 V
VCCINT	1.0 V	0.90 V	1.10 V
PL_1.8V	1.8 V	1.62 V	1.98 V

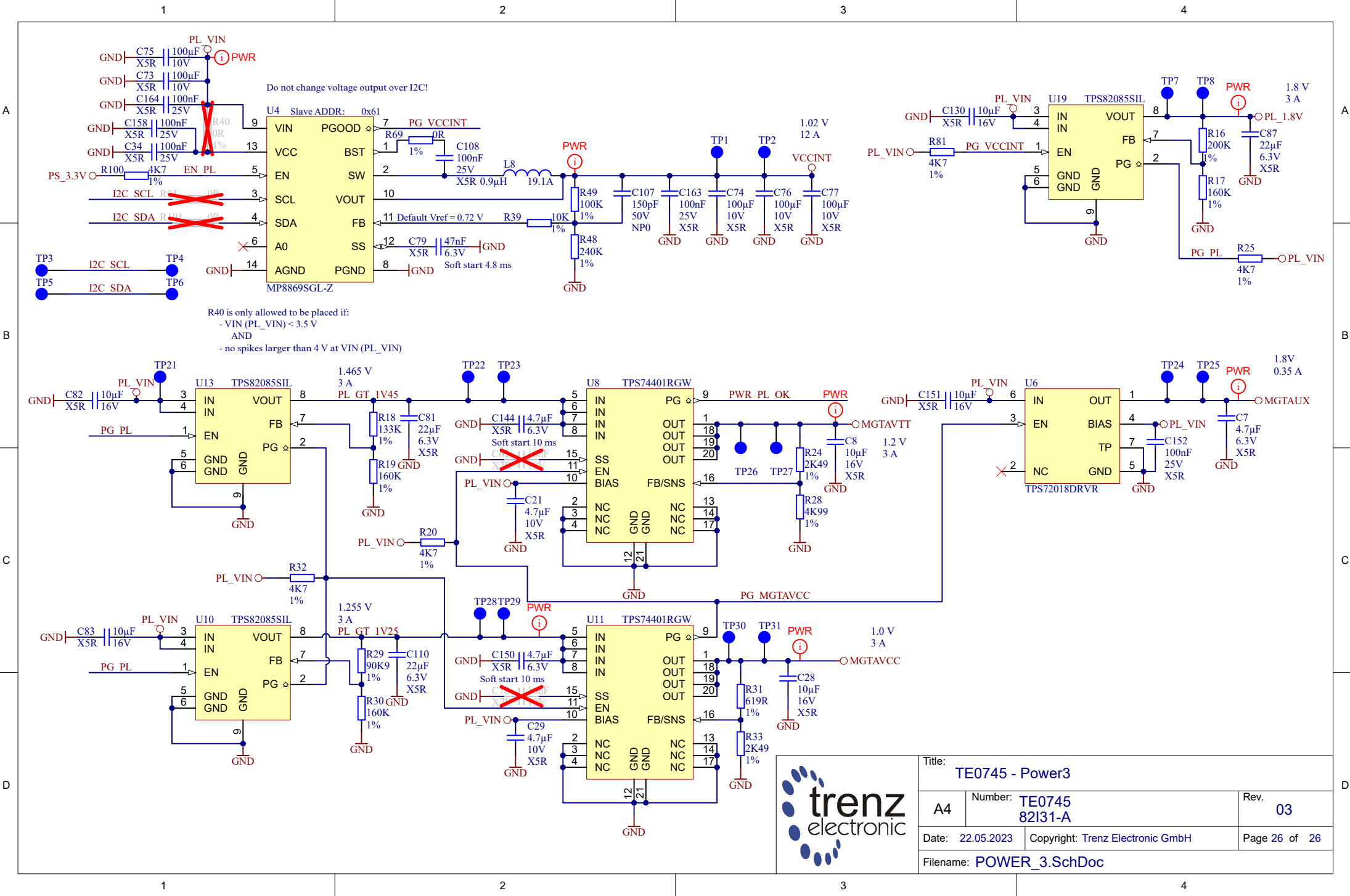
Title: **TE0745 - Power**

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