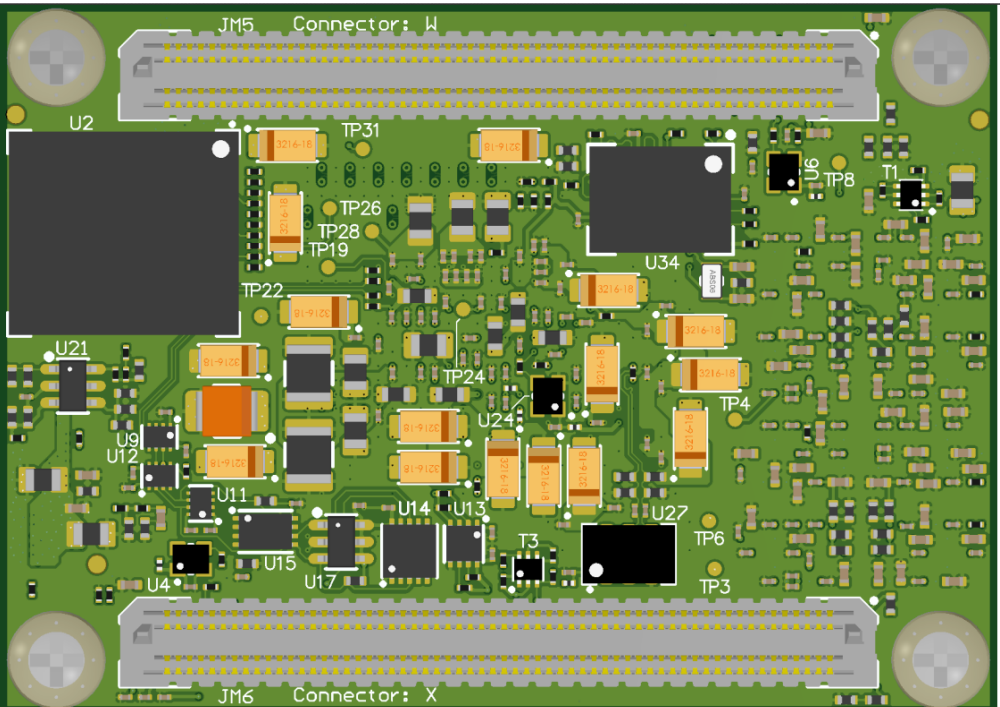
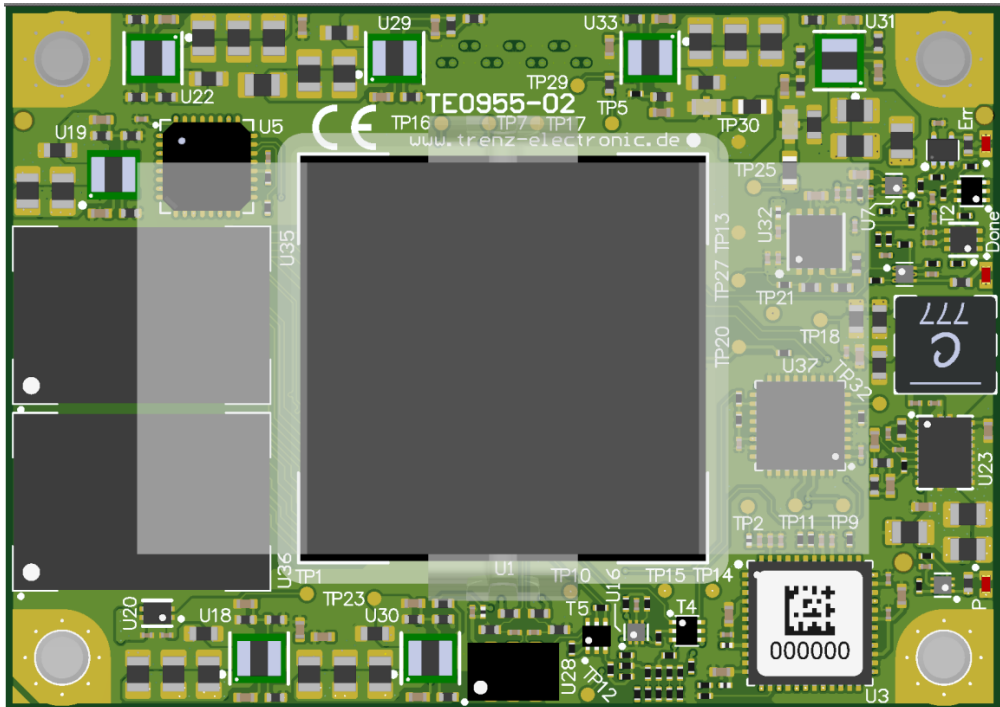




Regarding the usage of our schematics and alike documentation for Trenz module TE0955.

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. TE0955 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: Legal Notices	
		A4	Number: TE0955 EGBE53D
		Date: 19.01.2026	Rev. 02
		Copyright: Trenz Electronic GmbH	Page 1 of 28
		Filename: Legal Notices Modules.SchDoc	

1		2		3		4		
A	REV		Description					
	-01		Initial revision		VY			
	-02		1. Set R156 to assembled and connected to GTYP_AVCC_AUX rail instead of 1V8. Removed patch including R156_NEW. 2. Corrected and updated silkscreen description of Connectors JM5 and JM6 to show also Andromeda connector naming W and X. Removed corresponding schematic notes. 3. Moved serial sticker from bottom to top. Now placed on Ethernet PHY U3. 4. Removed unnecessary zero Ohm R159. 5. Replaced 0402 resistor R157 by 0201 size version. 6. Moved C52 and C74 away from PCB edge/tab. 7. Moved R14, R16, R19, R60, R64, R79, C19,C52 C186 C194, C196, C203 L11 away from ATS holder area. 8. Replaced buffers U7, U10, U16, U25 from 74LVC2G07FZ4-7 to SN74LVC2G07DSF2 9. Added TPM module U37 with corresponding circuits 10. Added option for additional pullups (not fitted: R196, R197) on OM_I2C bus 11. Moved Testpoints: TP7, TP9, TP13, TP16, TP20, TP21, TP27 12. Updated schematic overview page template 13. Added Note that U14, U15 may be removed in future. 14. Added OSPI assembly option (R198, R199) to use MIO12 as dedicated reset instead of ECS#. 15. Change ETH PHY from LAN8830 to LAN8840 to support TSN/PTP		MR			
B								B
C								C
D								D
1		2		3		4		



Title:Revision Changes

A4

Number:TE0955
EGBE53D

Rev.02

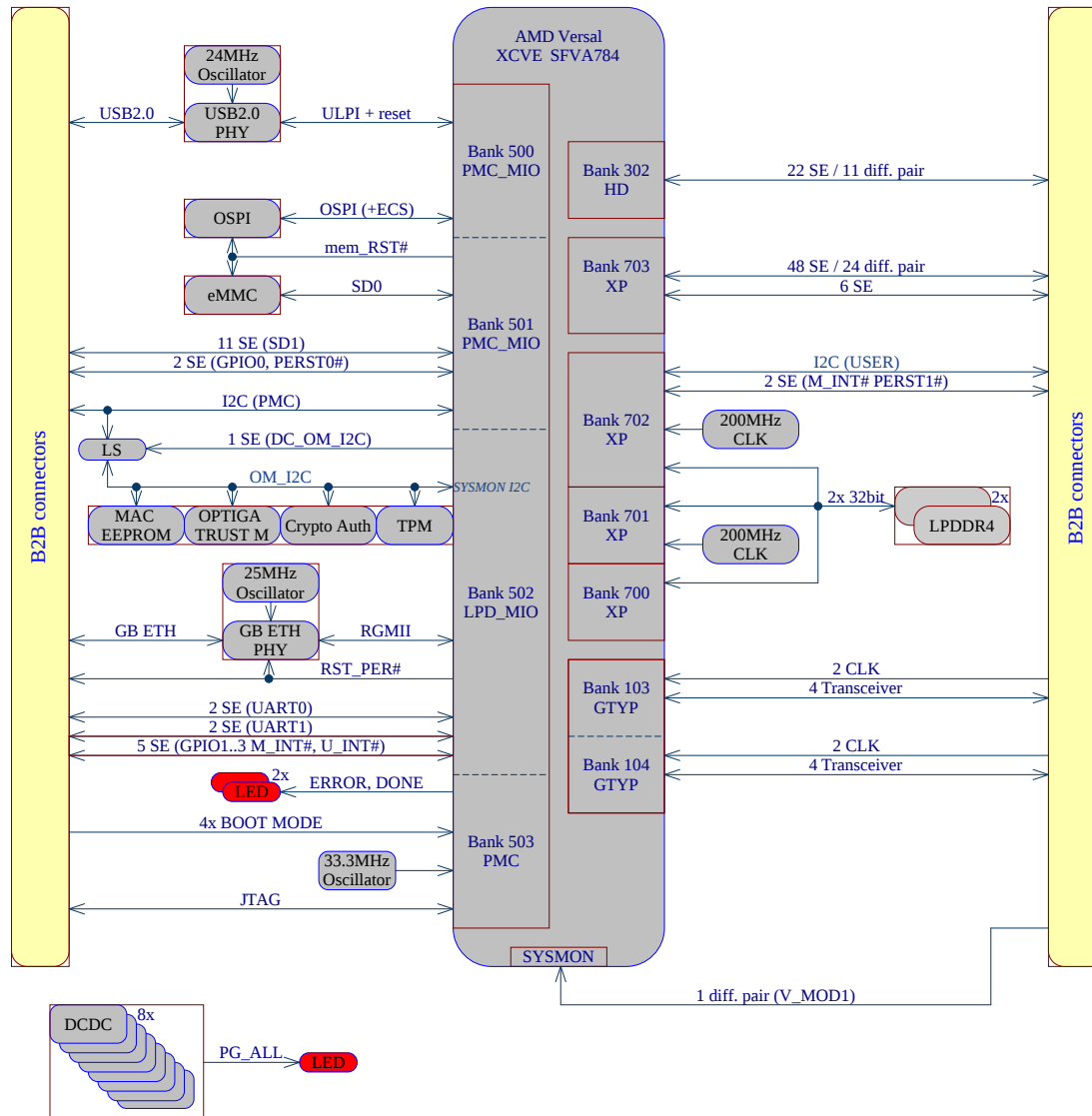
Date:05.02.2026

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Filename:Revision_Changes.SchDoc

Block Diagram:



Supported Voltage Ranges:

Power Rail	Direction	Range	Tolerance	Description	Note
V_MOD1	IN	5V .. 12V	+/-5%	Module main power supply	-
3V3_AO	OUT	3.3V	+/-3%	Always On rail; Periphery supply	Max additional (low ESR) capacitance: 20µF
1V8	OUT	1.8V	+/-3%	Periphery supply	PMC 500 and LPD 502; Max additional (low ESR) capacitance: 40µF
V_IO_W01	IN	1.0V .. 1.5V	+/-5%	IO supply	XPIO Bank 703
V_IO_X3	IN	1.8V .. 3.3V	+/-3%	IO supply	HD Bank 302
V_IO_CFG	IN	1.8V	+/-5%	IO CFG supply	PMC 501 and 503; 3V3 possible, but not recommended. UART signals have 1.8V voltage levels, independent from V_IO_CFG.
V_BAT	IN	1.35V	+/-10%	Supply for Versal BB RAM and RTC	If not used connect to GND

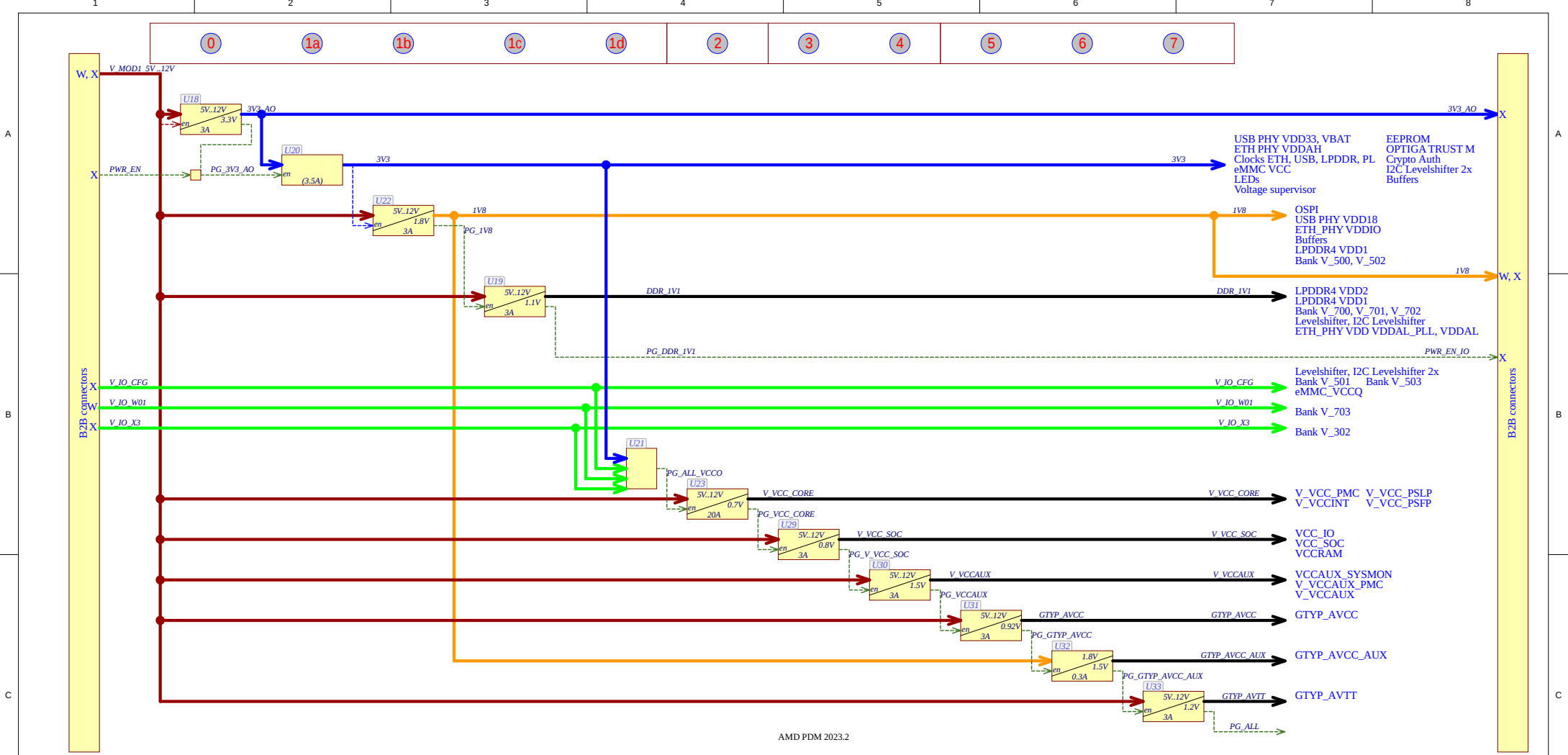
I2C Addresses:

Device	Bus	Address	Note
Versal PL (or PS via EMIO)	U_I2C (PL)	-	USER I2C Bus, B2B pin J2B-D33, J2B-D34 to Baseboard
Versal PMC	M_I2C (PMC)	-	Master
-	M_I2C (PMC)	-	Module I2C Bus, B2B pin J2B-C50, J2B-C51 to Baseboard

Following devices are connected OM_I2C which is connected to M_I2C via Levelshifter (U12) and can be disconnected by PS GPIO

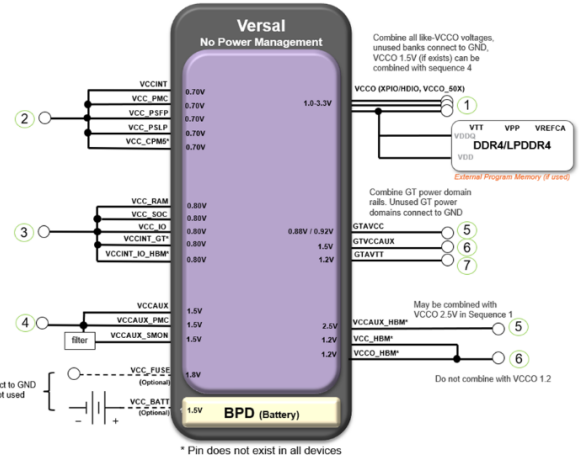
24AA025E48T-I/OT (U17)	OM_I2C	1010011 53H	EEPROM for MAC with user area
SL532AIA010MLUSON10XTMA2 (U14)	OM_I2C	0110000 30H	Crypto Authentication
ATECC608B-MAHCZ-S (U15)	OM_I2C	110000 60H	OPTIGA TRUST M Cryptographic Co-Processor
ST33KTPM213WBZA9 (U37)	OM_I2C	0101110 2EH	STSAFE-TPM 2.0
Versal SYSMON	OM_I2C	software defined	I2C address see reference design

		Title: Overview	
		A4	Number: TE0955 EGBE53D
Date: 24.06.2026	Copyright: Trenz Electronic GmbH	Page 3	of 28
Filename: Overview.SchDoc			



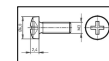
- ETH PHY (U2): 3V3 and 1V8 before 1V1_DDR
- Levelshifter (U25): 1V1_DDR before V_IO_CFG

AMD PDM 2023.2

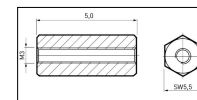


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Datum: 2025-08-22	Copyright: Trenz Electronic GmbH	Page 4 of 28
Filename: Power_Diagram.SchDoc		

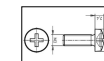
Special notes:



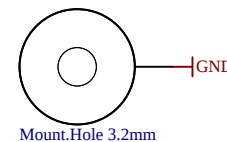
Screw M3x4



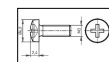
Distance Holder M3x5 Male/Male



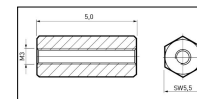
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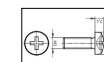
Mount.Hole 3.2mm



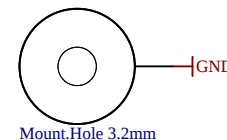
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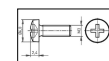
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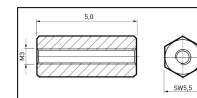
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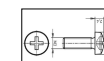
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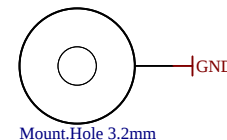
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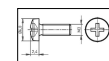
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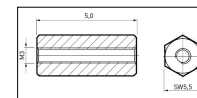
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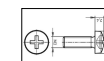
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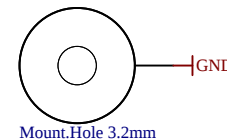
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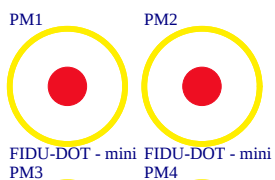
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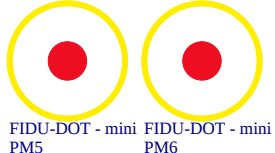
Screw M3x4



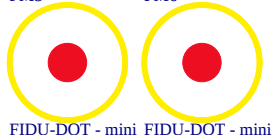
Mount.Hole 3.2mm



FIDU-DOT - mini FIDU-DOT - mini
PM3 PM4



FIDU-DOT - mini FIDU-DOT - mini
PM5 PM6



FIDU-DOT - mini FIDU-DOT - mini

Serial1
Serial
Serialnumber 6,3 x 6.3mm
LOGO1

CE Logo on Top Overlay

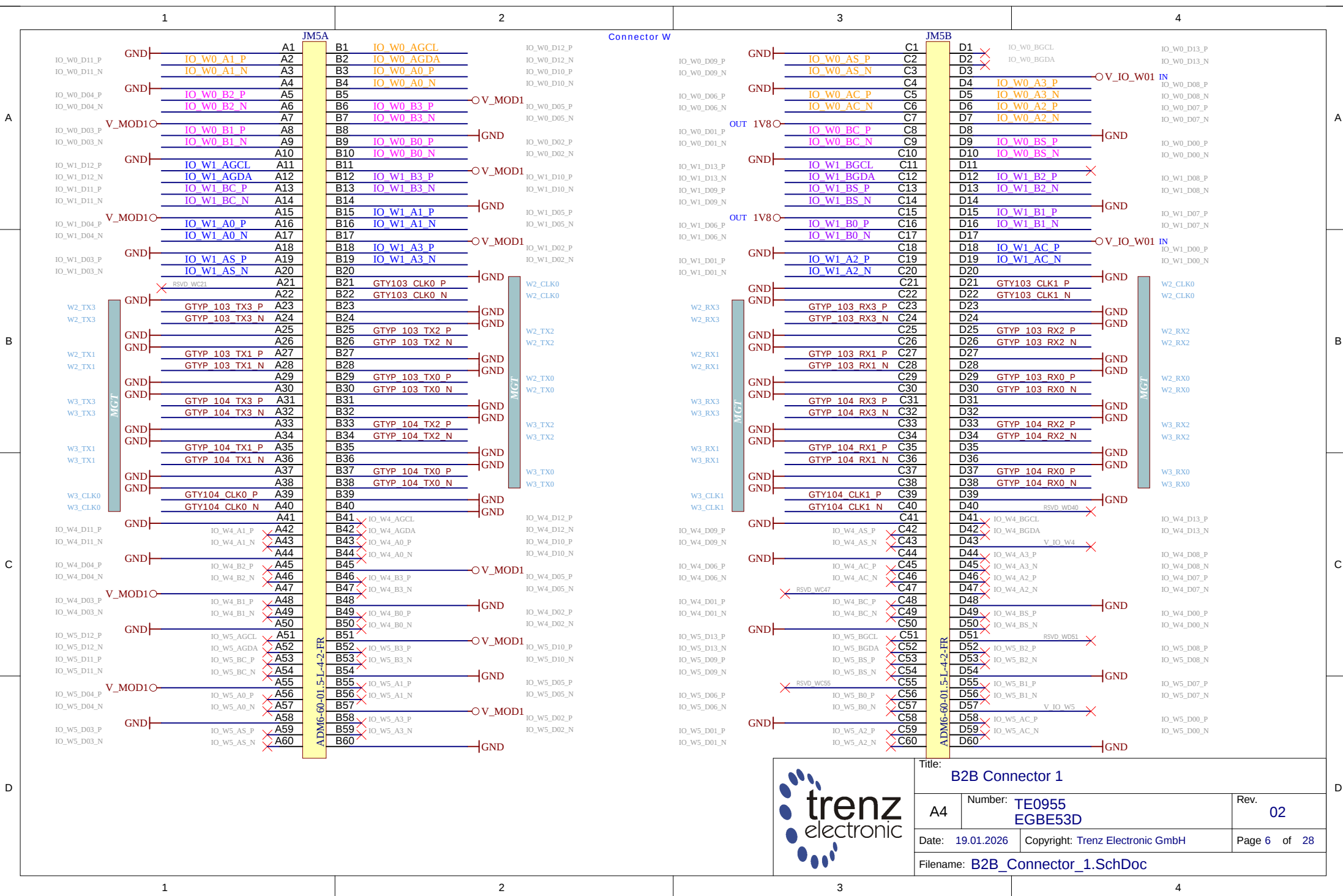
CE-TOPOVERLAY

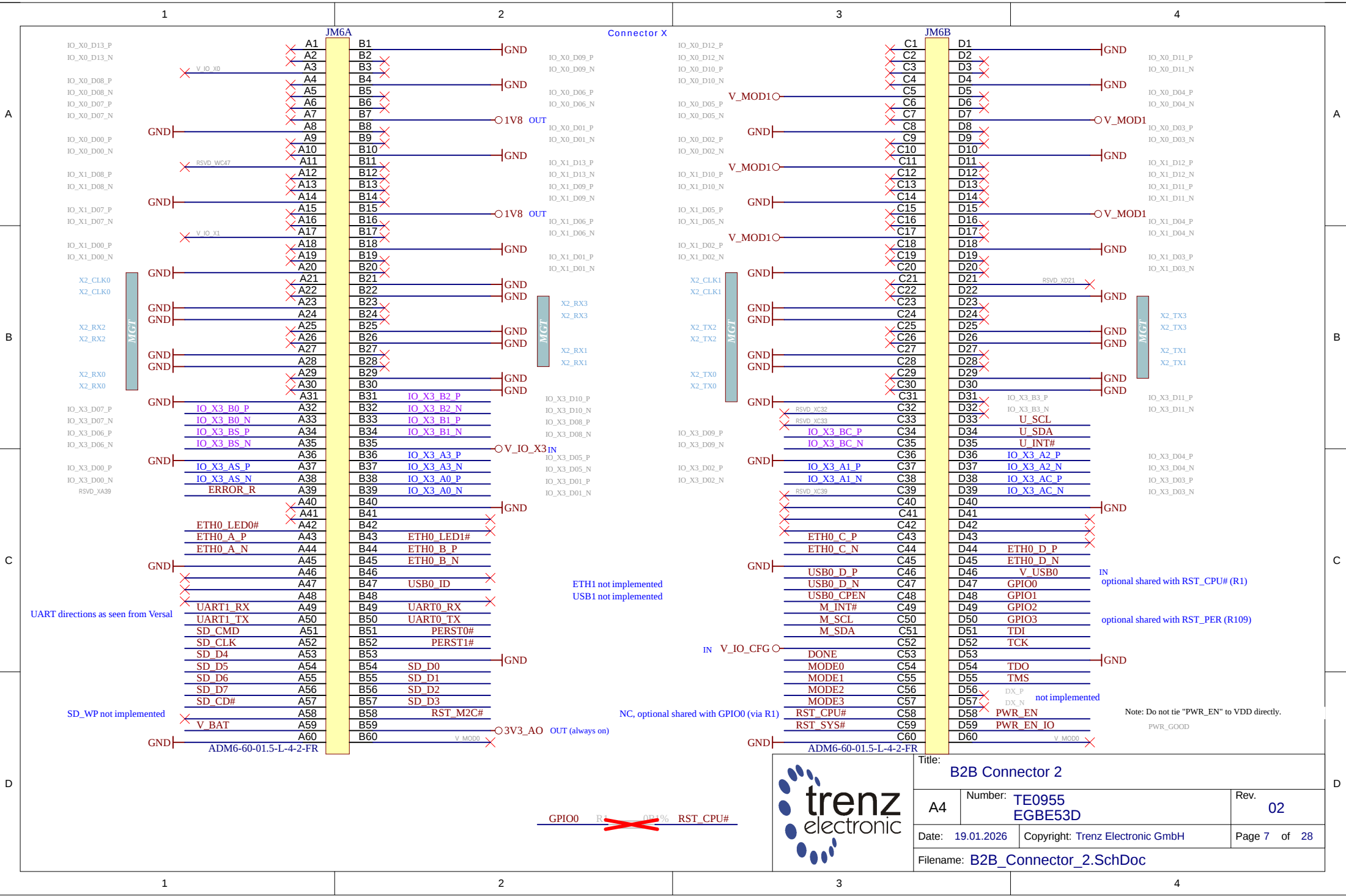
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Checked by: MT
Assembly variant: EGBE53D
Created by: MR
Modified by: MR
Modified at: 2026-04-17



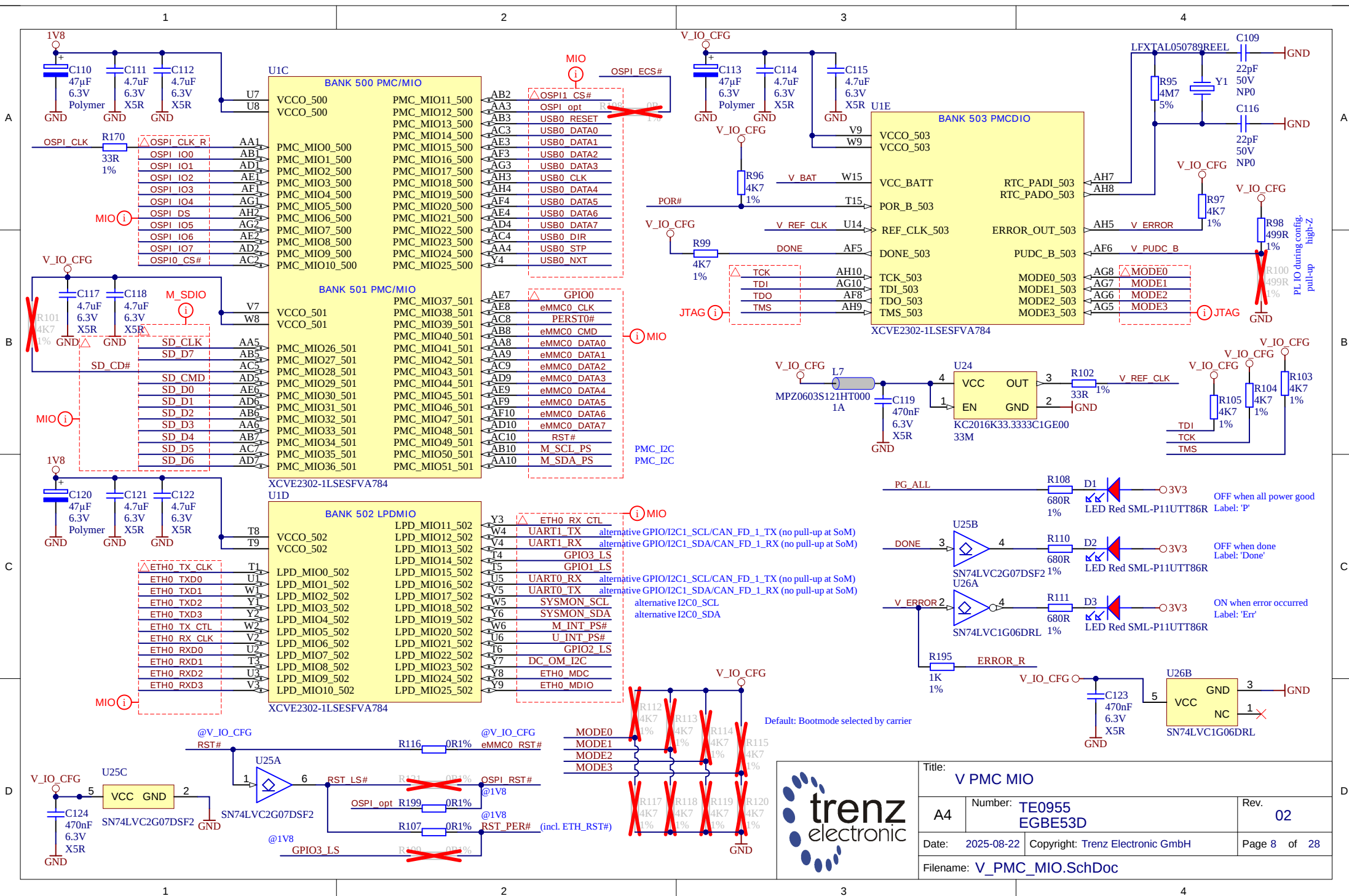
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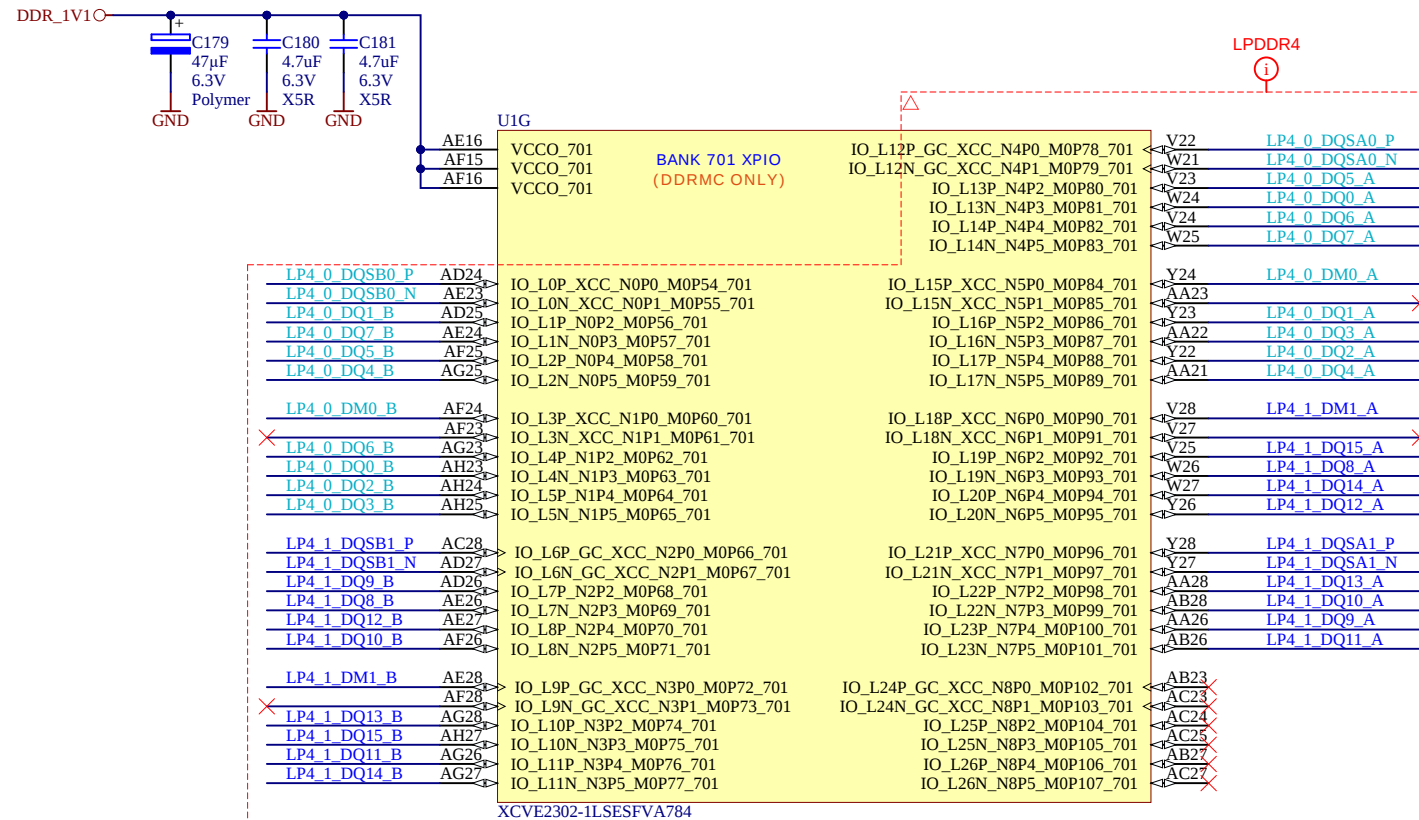
A4	Number: TE0955 EGBE53D	Rev. 02
Date: 19.01.2026	Copyright: Trenz Electronic GmbH	Page 5 of 28
Filename: TE0955.SchDoc		





Title: B2B Connector 2			
A4	Number: TE0955 EGBE53D	Rev. 02	
Date: 19.01.2026		Copyright: Trenz Electronic GmbH	Page 7 of 28
Filename: B2B_Connector_2.SchDoc			





PG313, p.215:
5. If an entire nibble is free
then it can be used for
non-memory designs.

This are DDRC ONLY
pins. therefore not usable!



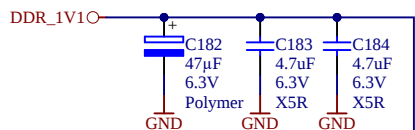
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A4	Number: TE0955 EGBE53D	Rev. 02
Date: 2025-08-22	Copyright: Trenz Electronic GmbH	Page 10 of 28
Filename: V_XPIO_701.SchDoc		

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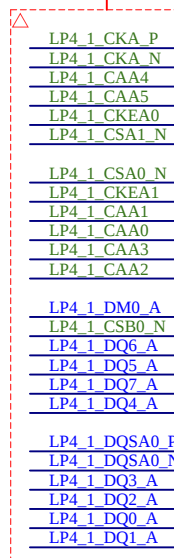
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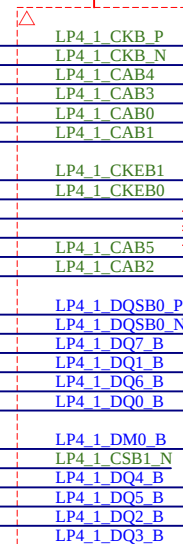
LPDDR4



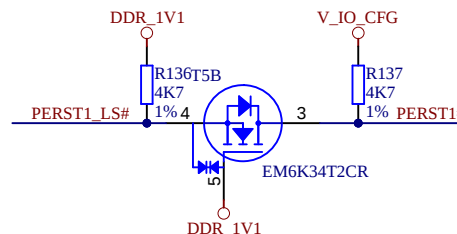
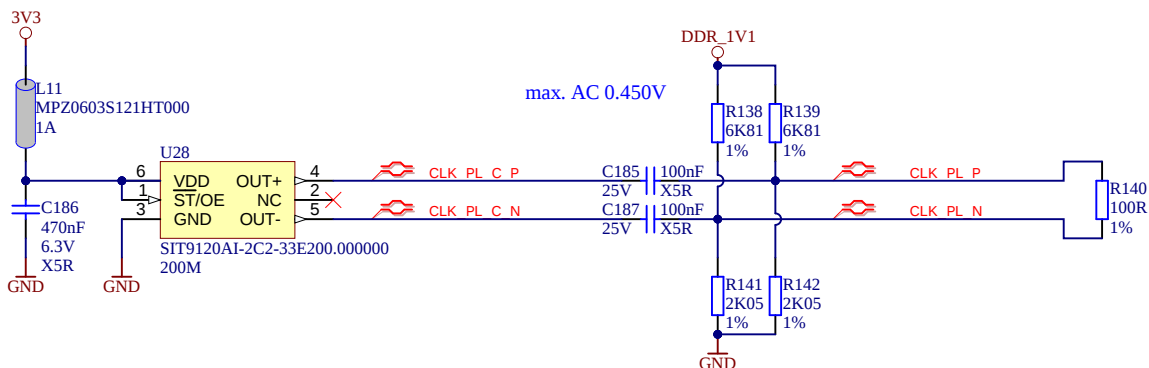
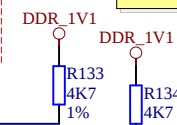
DDRMCMC ONLY:

XCVE2302-1LSESVFA784

LPDDR4



PG313, p.215:
5. If an entire nibble is free then it can be used for non-memory designs.



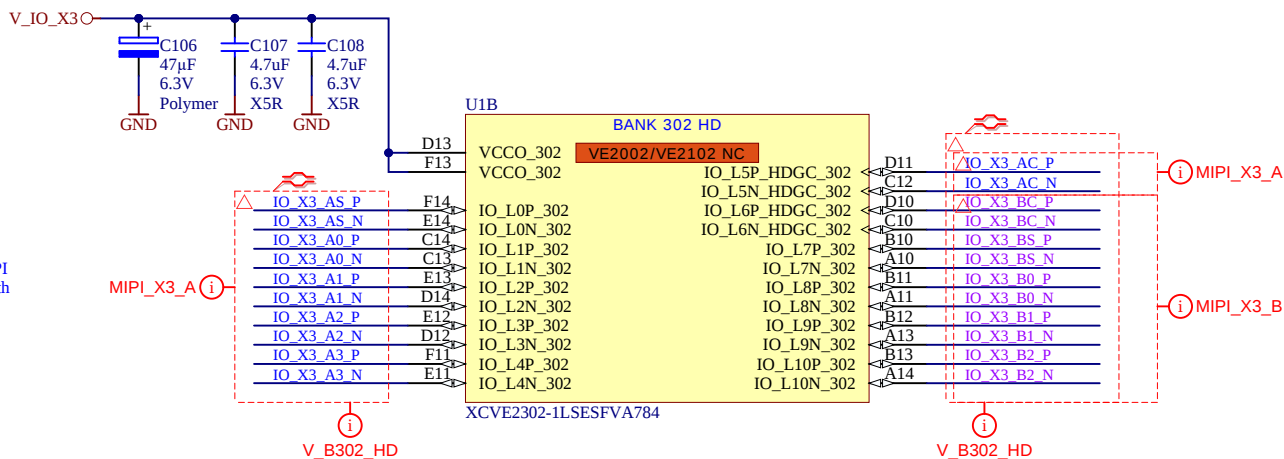
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Date: 2025-08-22	Copyright: Trenz Electronic GmbH		Page 11 of 28
Filename: V XPIO 702.SchDoc			

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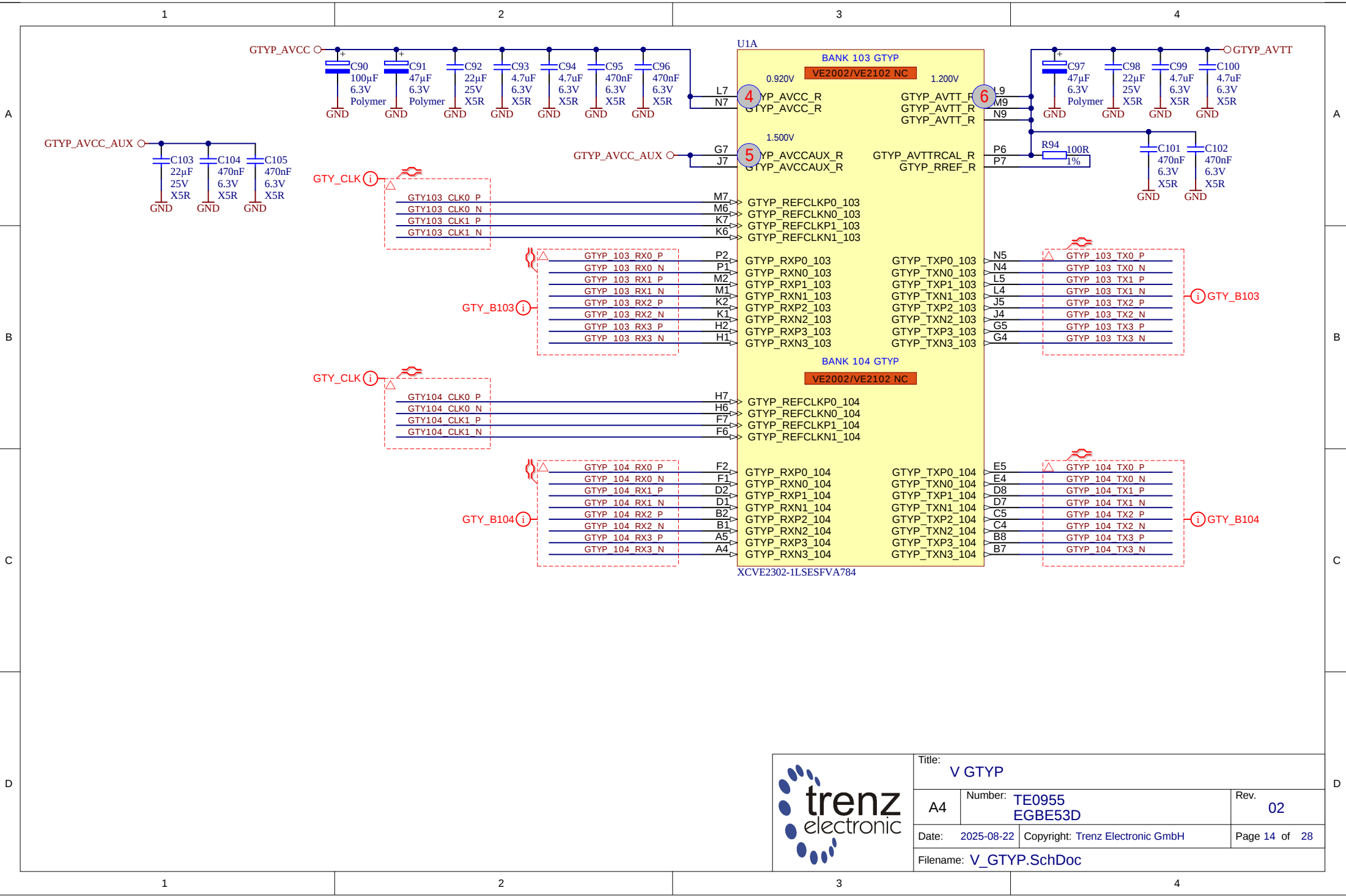
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4



Title: V HD		
A4	Number: TE0955 EGBE53D	Rev. 02
Date: 19.01.2026	Copyright: Trenz Electronic GmbH	Page 13 of 28
Filename: V HD.SchDoc		



1

2

3

4

U1M

U1N

U1O

U1P

A1	GND	GND	D3
A2	GND	GND	D4
A3	GND	GND	D5
A6	GND	GND	D6
A7	GND	GND	D9
A8	GND	GND	D15
A9	GND	GND	D19
A12	GND	GND	D22
A15	GND	GND	D23
A19	GND	GND	D28
A22	GND	GND	E1
A27	GND	GND	E2
A28	GND	GND	E3
B3	GND	GND	E6
B4	GND	GND	E7
B5	GND	GND	E8
B6	GND	GND	E9
B9	GND	GND	E10
B14	GND	GND	E15
B15	GND	GND	E19
B19	GND	GND	E21
B21	GND	GND	E25
B24	GND	GND	F3
C1	GND	GND	F4
C2	GND	GND	F5
C3	GND	GND	F8
C6	GND	GND	F12
C7	GND	GND	F15
C8	GND	GND	F19
C9	GND	GND	F20
C11	GND	GND	F27
C15	GND	GND	G1
C19	GND	GND	G2
C20	GND	GND	G3
C26	GND	GND	G6

XCVE2302-1LSESFVA784

G8	GND	GND	K4
G10	GND	GND	K5
G12	GND	GND	K8
G14	GND	GND	K9
G16	GND	GND	K10
G18	GND	GND	K11
G20	GND	GND	K13
G22	GND	GND	K15
G24	GND	GND	K17
H3	GND	GND	K19
H4	GND	GND	K22
H5	GND	GND	K25
H8	GND	GND	L1
H9	GND	GND	L2
H11	GND	GND	L3
H13	GND	GND	L6
H15	GND	GND	L8
H17	GND	GND	L10
H19	GND	GND	L12
H21	GND	GND	L14
H26	GND	GND	L16
J1	GND	GND	L18
J2	GND	GND	L20
J3	GND	GND	L21
J6	GND	GND	L27
J8	GND	GND	M3
J10	GND	GND	M4
J12	GND	GND	M5
J14	GND	GND	M8
J16	GND	GND	M10
J18	GND	GND	M11
J20	GND	GND	M13
J23	GND	GND	M15
J28	GND	GND	M17
K3	GND	GND	M19

XCVE2302-1LSESFVA784

M24	GND	GND	R8
N1	GND	GND	R10
N2	GND	GND	R12
N3	GND	GND	R14
N6	GND	GND	R16
N8	GND	GND	R20
N10	GND	GND	R25
N12	GND	GND	T2
N14	GND	GND	T7
N16	GND	GND	T10
N18	GND	GND	T13
N20	GND	GND	T19
N22	GND	GND	T22
N26	GND	GND	T27
P3	GND	GND	U4
P4	GND	GND	U9
P5	GND	GND	U12
P8	GND	GND	U15
P9	GND	GND	U16
P10	GND	GND	U20
P11	GND	GND	U21
P13	GND	GND	U24
P15	GND	GND	V1
P17	GND	GND	V6
P19	GND	GND	V8
P21	GND	GND	V11
P23	GND	GND	V14
P28	GND	GND	V19
R1	GND	GND	V26
R2	GND	GND	W3
R3	GND	GND	W7
R4	GND	GND	W10
R5	GND	GND	W13
R6	GND	GND	W16
R7	GND	GND	W18

XCVE2302-1LSESFVA784

W20	GND	GND	AC21
W22	GND	GND	AC26
W23	GND	GND	AD3
W28	GND	GND	AD8
Y5	GND	GND	AD13
Y11	GND	GND	AD18
Y13	GND	GND	AD23
Y15	GND	GND	AD28
Y17	GND	GND	AE5
Y19	GND	GND	AE10
Y21	GND	GND	AE15
Y25	GND	GND	AE20
AA2	GND	GND	AE25
AA7	GND	GND	AF2
AA12	GND	GND	AF7
AA14	GND	GND	AF12
AA16	GND	GND	AF17
AA18	GND	GND	AF22
AA20	GND	GND	AF27
AA27	GND	GND	AG4
AB4	GND	GND	AG9
AB9	GND	GND	AG14
AB11	GND	GND	AG19
AB13	GND	GND	AG24
AB16	GND	GND	AH1
AB19	GND	GND	AH6
AB22	GND	GND	AH11
AB24	GND	GND	AH16
AC1	GND	GND	AH21
AC6	GND	GND	AH26
AC12	GND	GND	AH28
AC15	GND	GND	V17
AC18	GND	GND	V18

XCVE2302-1LSESFVA784

RSVDGND

RSVDGND



Title: V GND		
A4	Number: TE0955 EGBE53D	Rev. 02
Date: 2025-08-22	Copyright: Trenz Electronic GmbH	Page 16 of 28
Filename: V_GND.SchDoc		

1

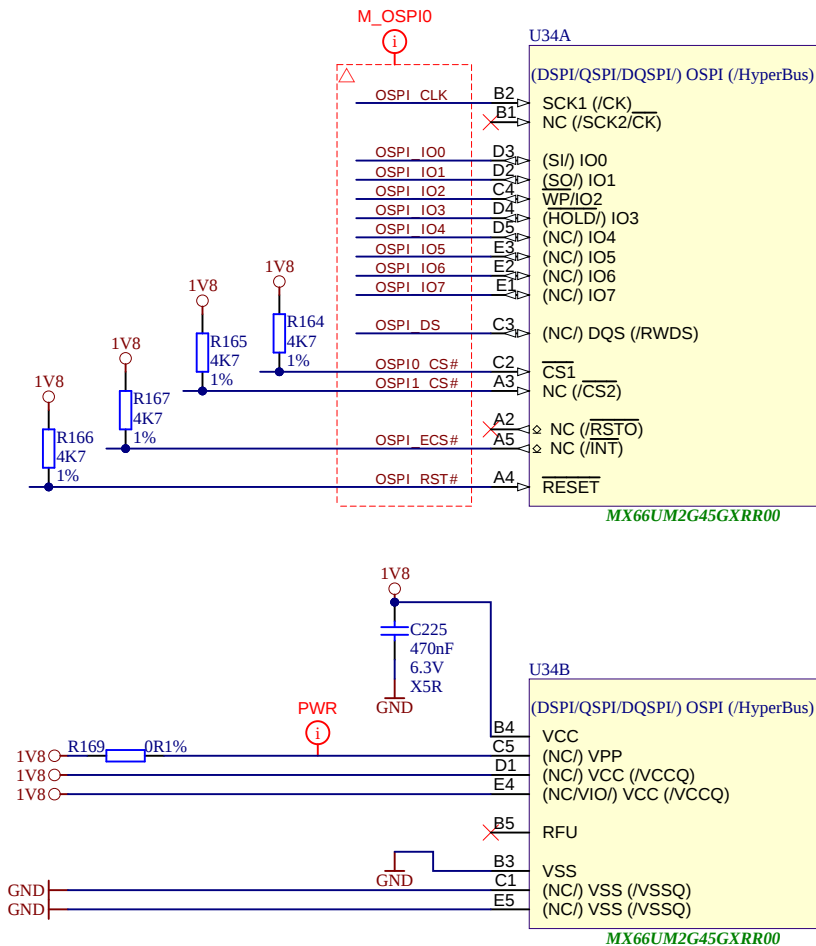
2

3

4

OSPI	
PMC Bank 0	
MIO 0	OSPI: ospi_clk
MIO 1	OSPI: ospi_io[0]
MIO 2	OSPI: ospi_io[1]
MIO 3	OSPI: ospi_io[2]
MIO 4	OSPI: ospi_io[3]
MIO 5	OSPI: ospi_io[4]
MIO 6	OSPI: ospi_ds
MIO 7	OSPI: ospi_io[5]
MIO 8	OSPI: ospi_io[6]
MIO 9	OSPI: ospi_io[7]
MIO 10	OSPI: ospi0_cs_b
MIO 11	OSPI: ospi1_cs_b
MIO 12	GPIO 0: gpio_0_pin[12]

for dedicated OSPI_RST# or optional OSPI_ECS#, see R121, R198, R199



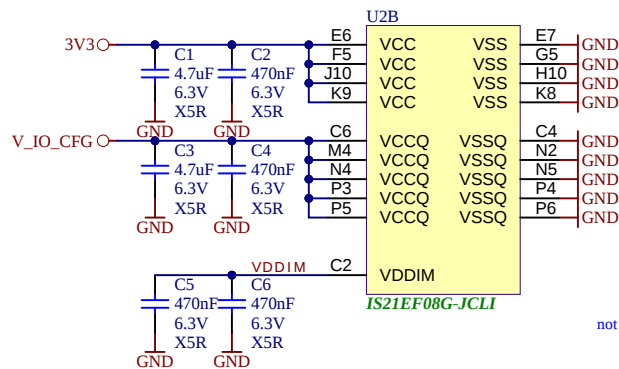
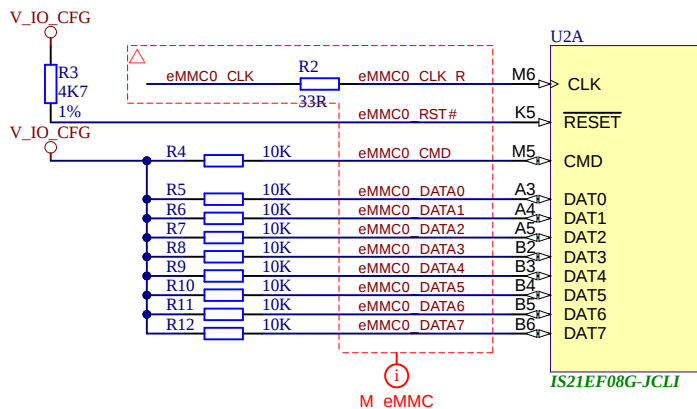
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Date: 2025-08-22	Copyright: Trenz Electronic GmbH		Page 17 of 28
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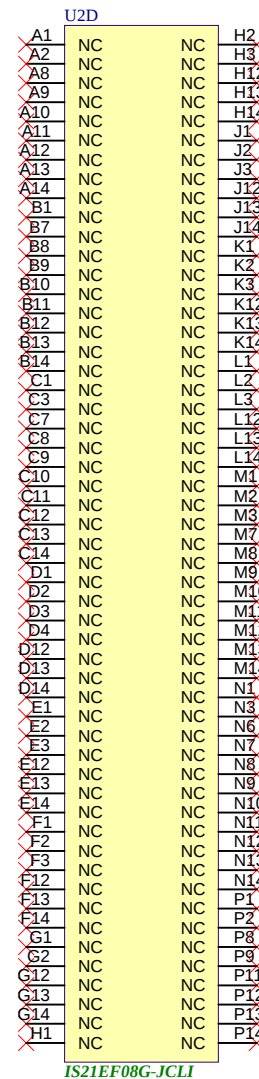
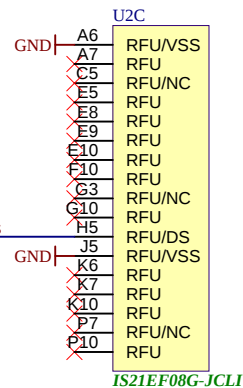
2

3

4



not implemented



Title: eMMC		
A4	Number: TE0955 EGBE53D	Rev. 02
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1

2

3

4

A

A

B

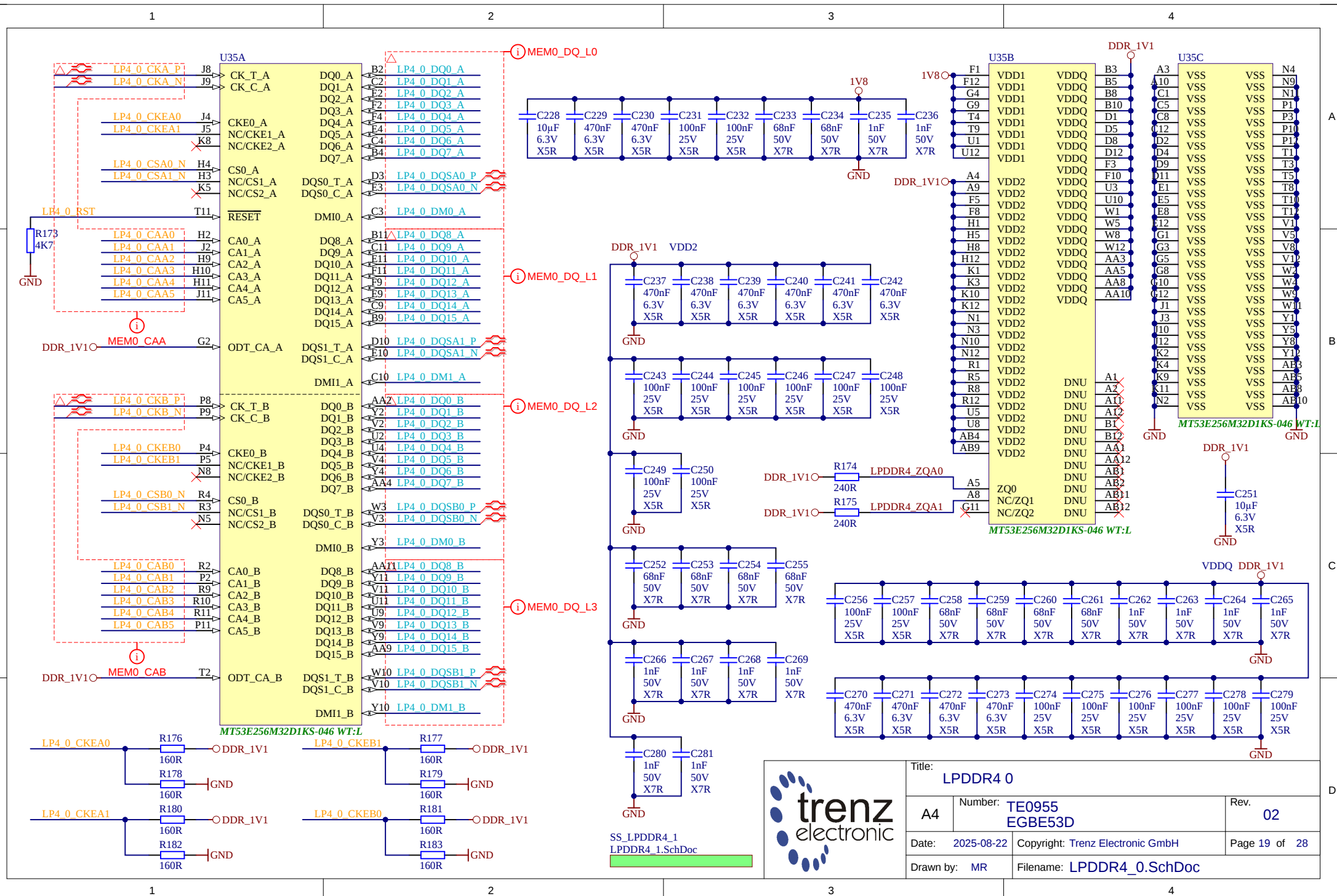
B

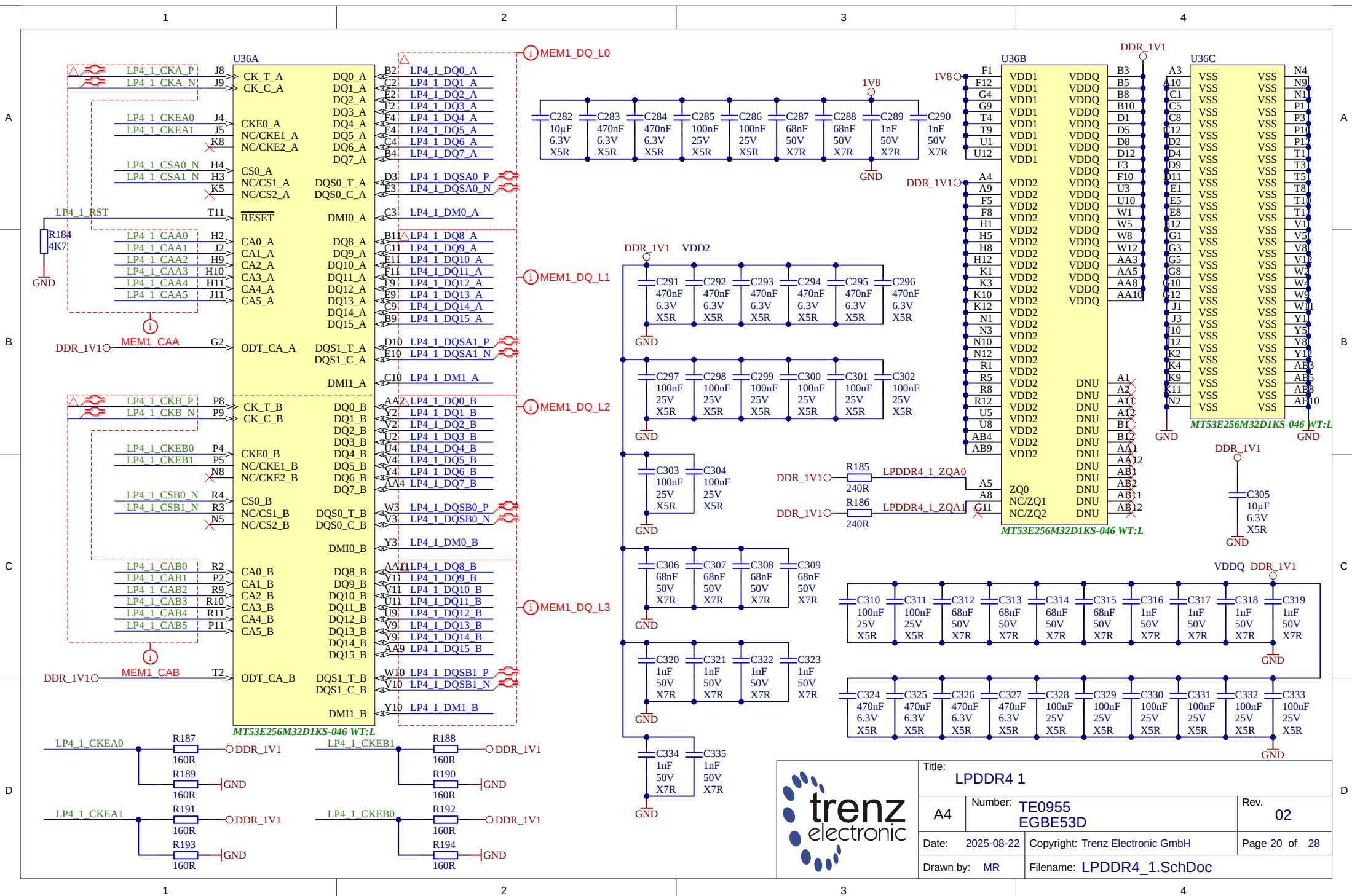
C

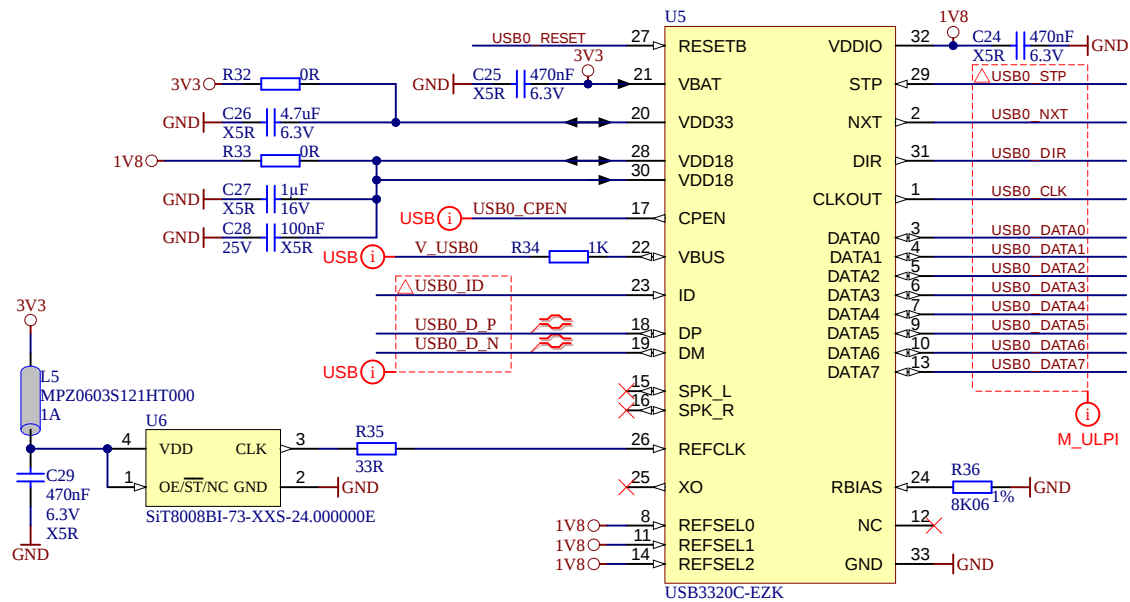
C

D

D





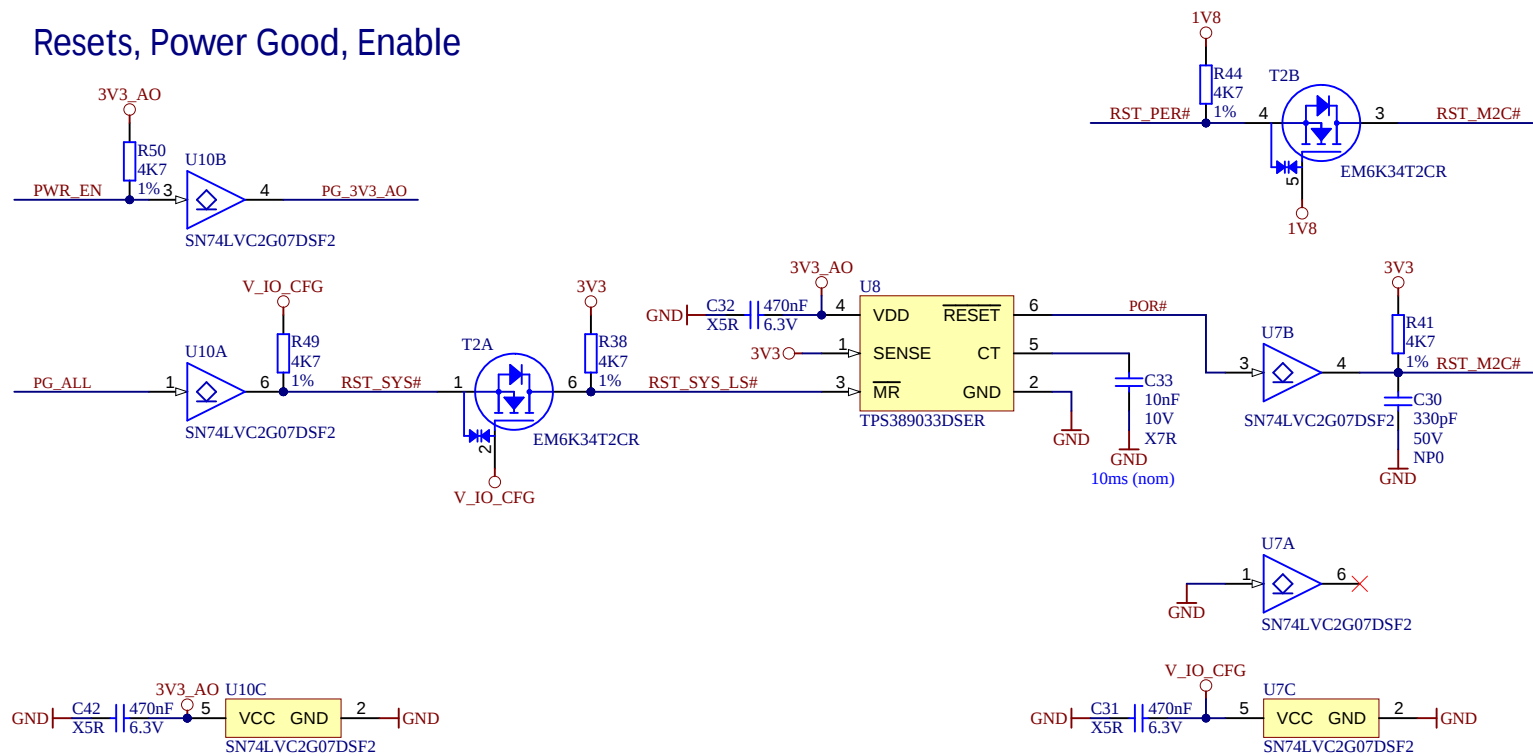


	R32	R33	C26	C28
USB3320	0R	0R	4.7 μ F	0.1 μ F
USB3340	DNP	DNP	1 μ F	1 μ F

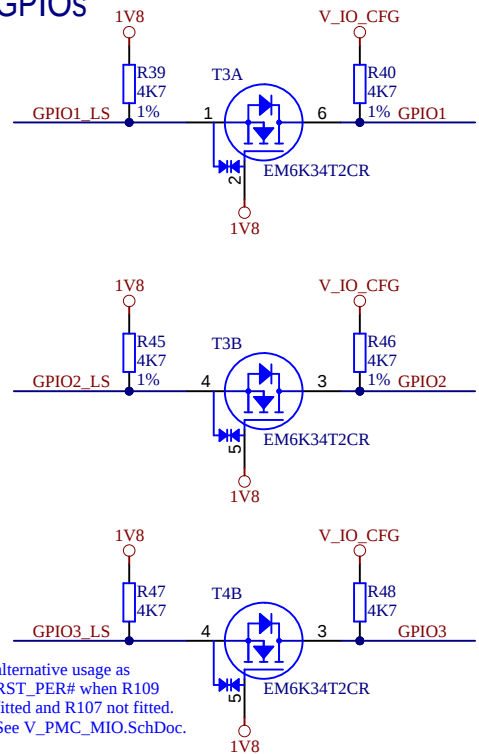


Title: USBPHY		
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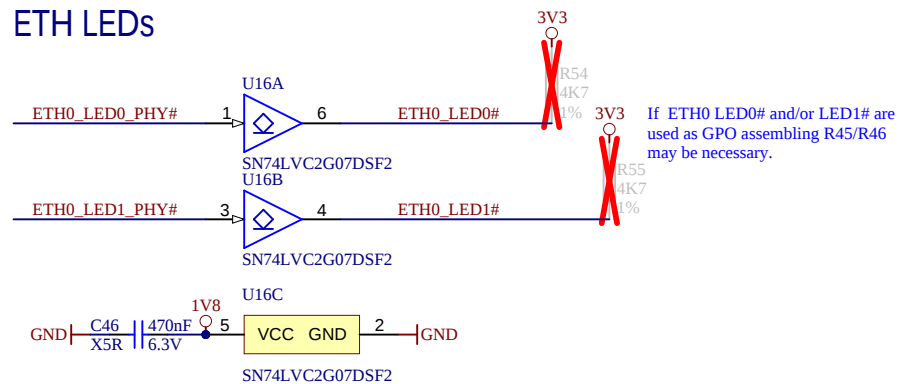
Resets, Power Good, Enable



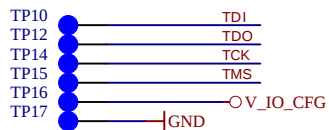
GPIOs



ETH LEDs

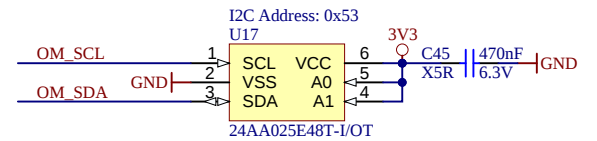
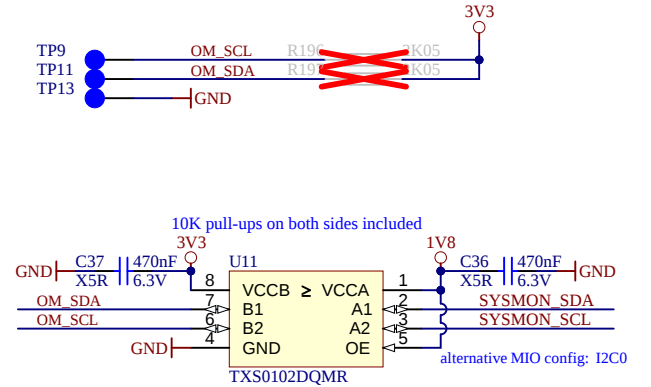
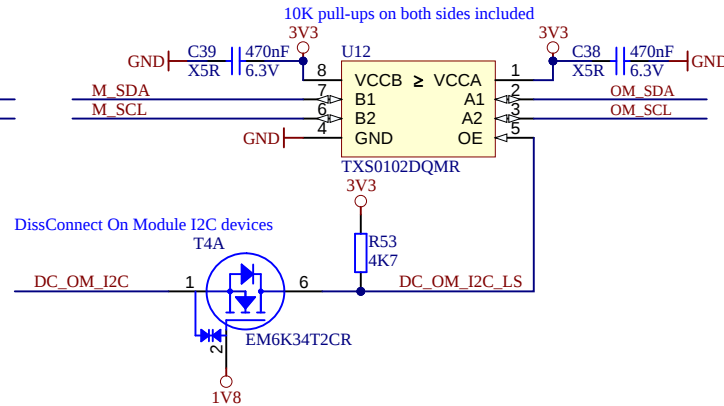
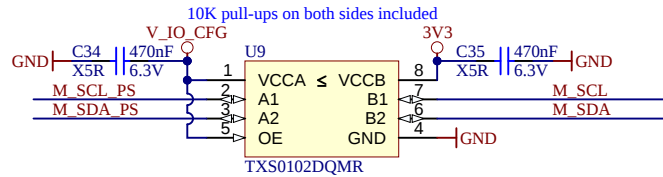
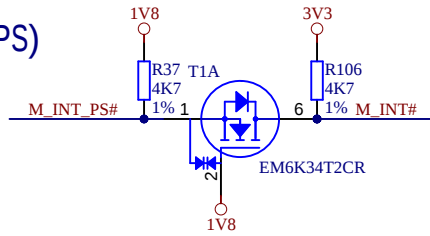


JTAG Testpoints

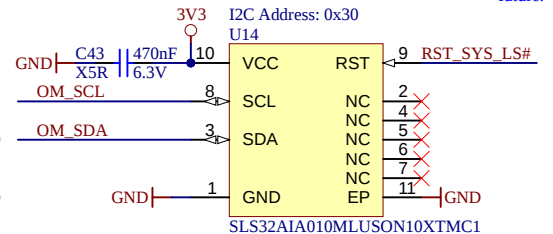
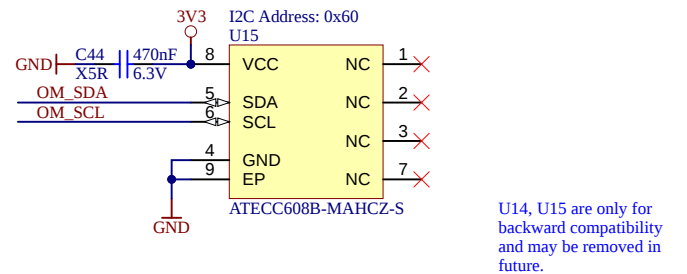
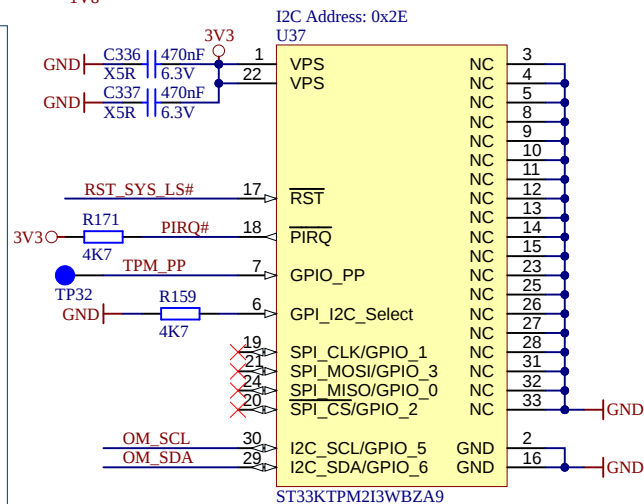
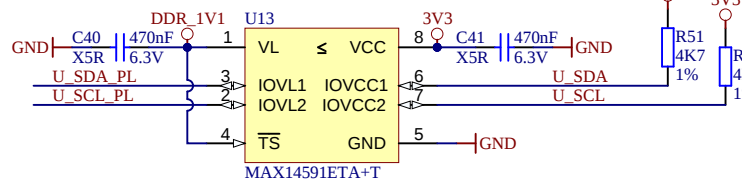
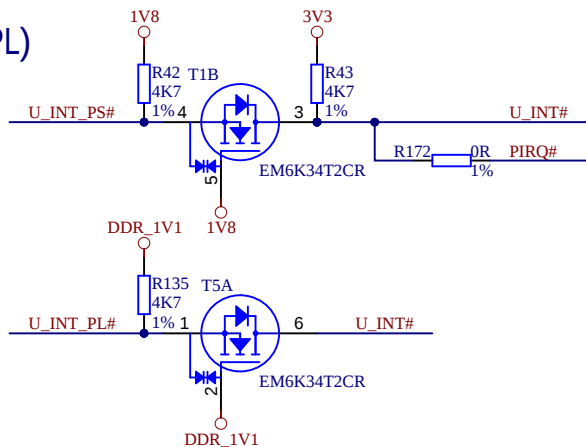


Title: MISC 0		
A4	Number: TE0955 EGBE53D	Rev. 02
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I2C (PMC/PS)



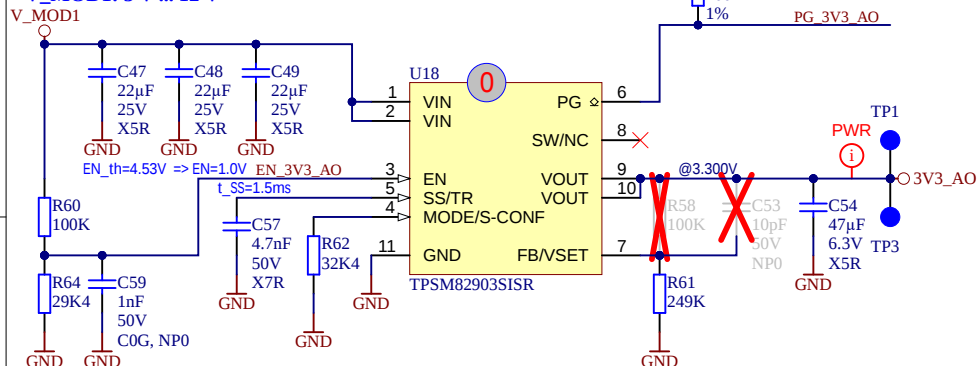
User I2C (PL)



Title: MISC 1			
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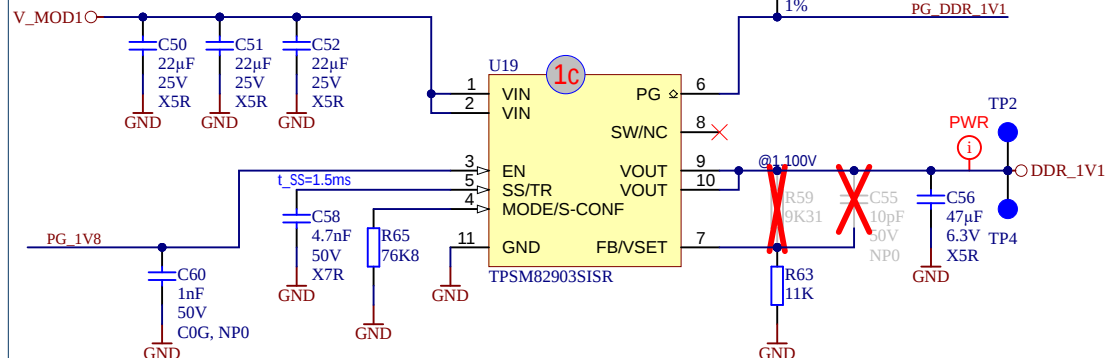
Always ON

V_MOD1: 5 V ... 12 V



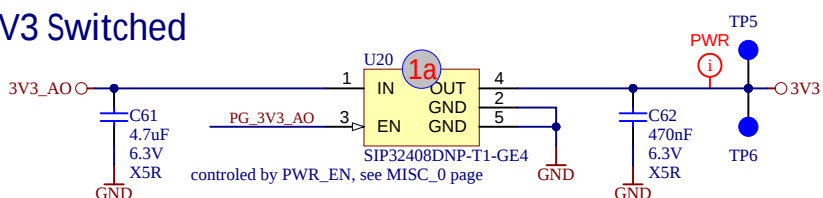
Vset; forced PWM; output discharge; $f_{SW}=2.5\text{MHz}$

VCCO



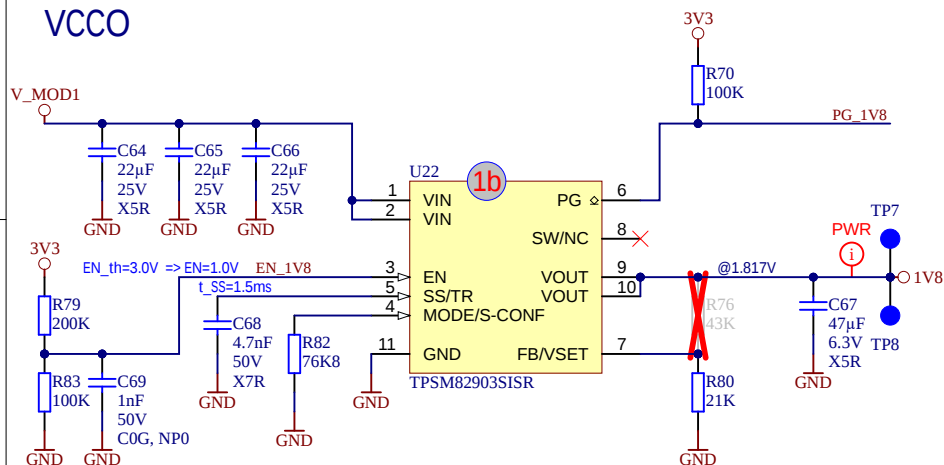
Vset; forced PWM; output discharge; $f_{SW}=1.0\text{MHz}$

3V3 Switched



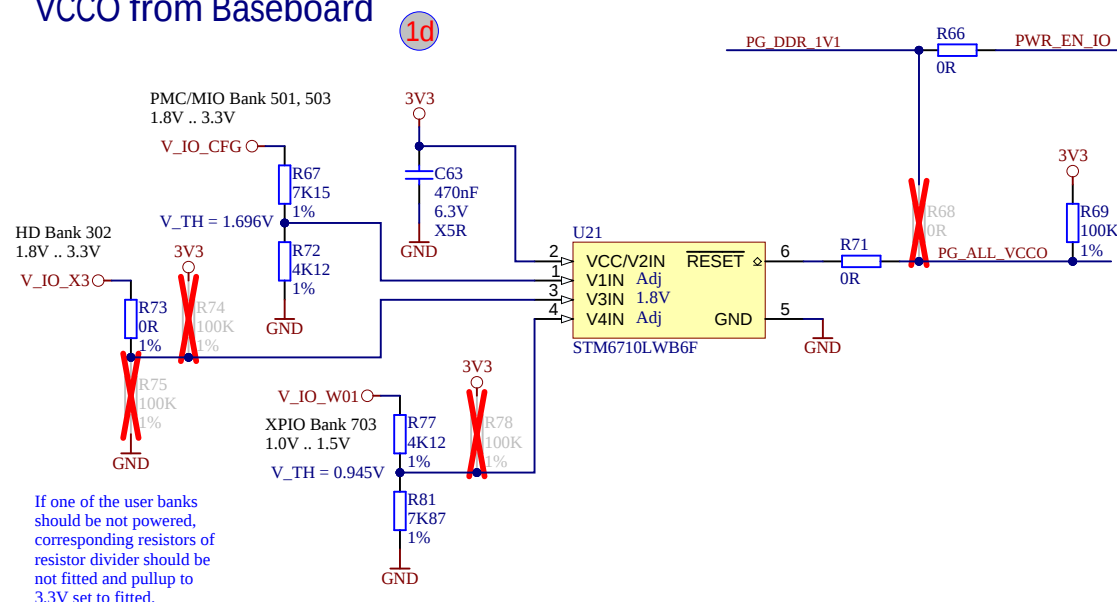
controlled by PWR_EN, see MISC_0 page

VCCO



Vset; forced PWM; output discharge; $f_{SW}=1.0\text{MHz}$

VCCO from Baseboard

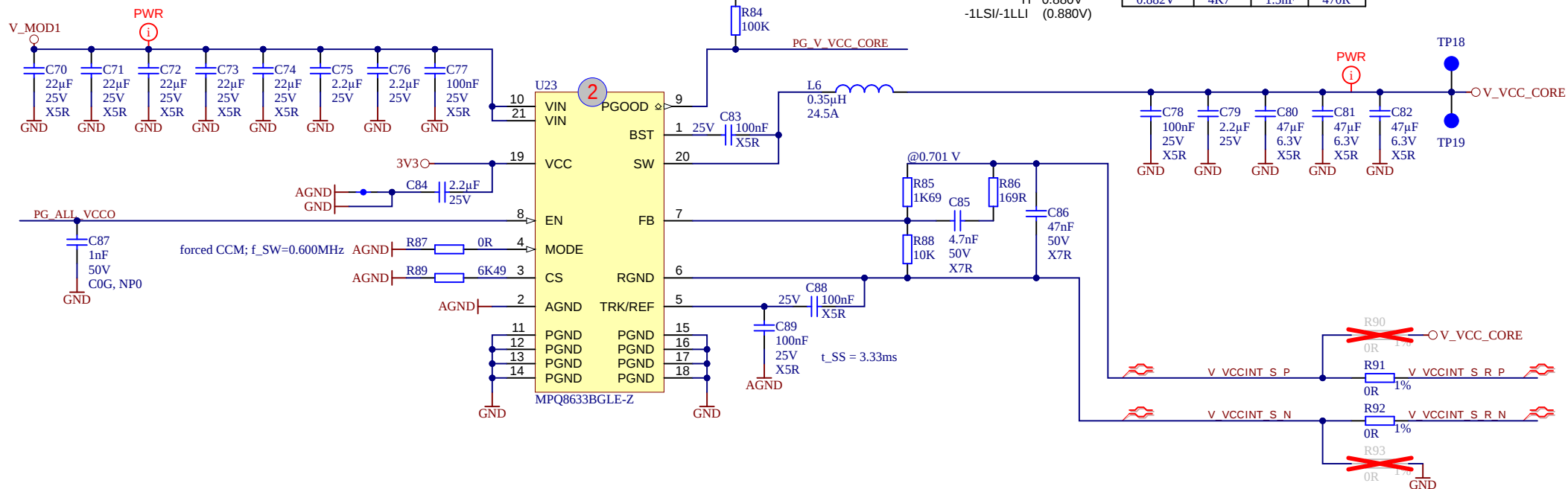


If one of the user banks should be not powered, corresponding resistors of resistor divider should be not fitted and pullup to 3.3V set to fitted.



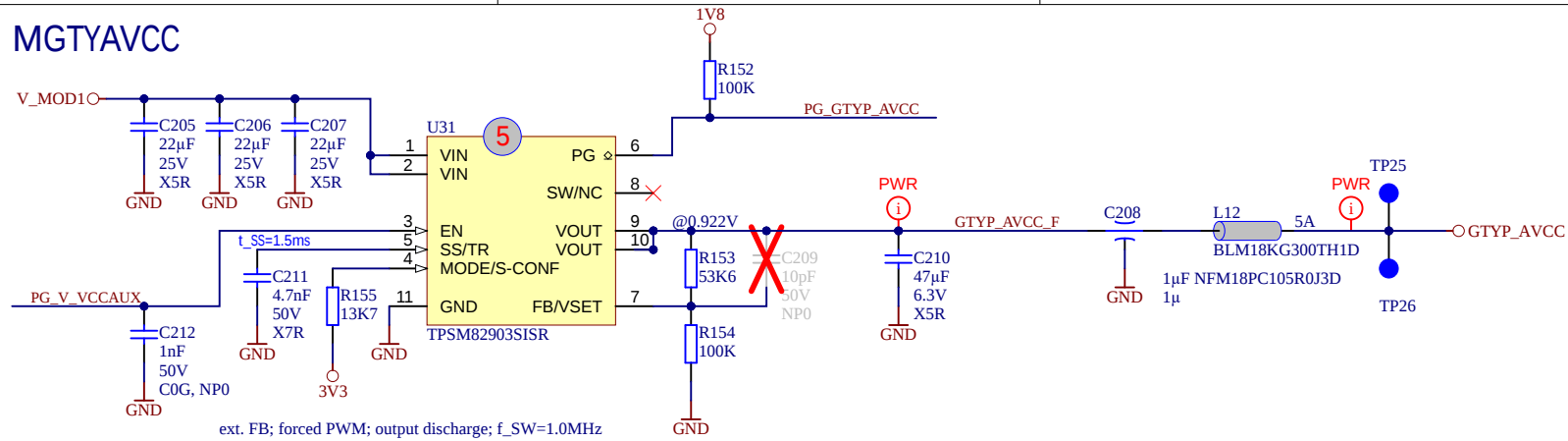
Title: Power 1		
A4	Number: TE0955 EGBE53D	Rev. 02
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Filename: Power_1.SchDoc		

VCCINT, VCC_PSLP, VCC_PSFP, VCC_PMC

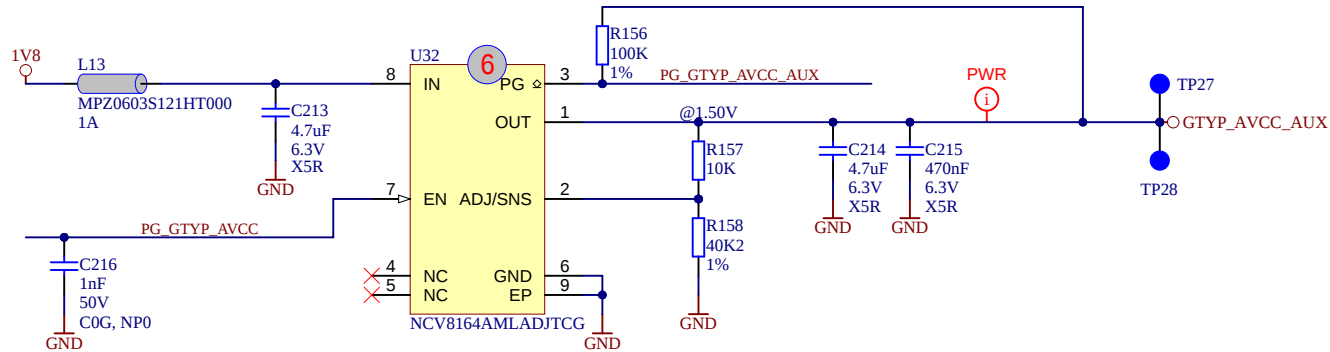


Title: Power 2		
A4	Number: TE0955 EGBE53D	Rev. 02
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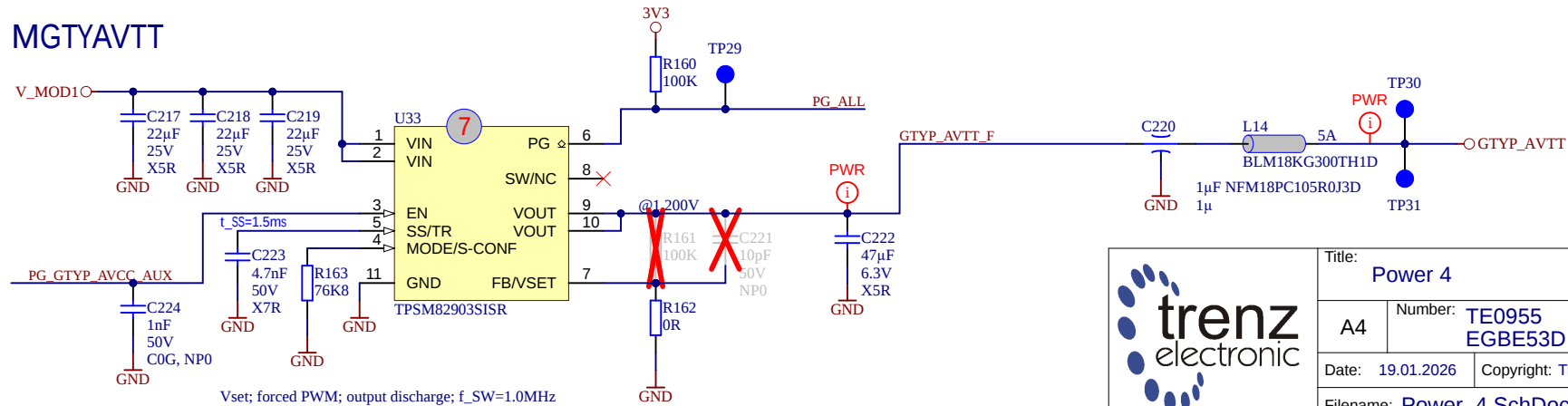
MGTYAVCC



MGTYAVCCAUX



MGTYAVTT



Title: Power 4		
A4	Number: TE0955 EGBE53D	Rev. 02
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