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Schematics and other handouts serve for informational purposes only!

	Title: TE0823 - Legal notices		
	A4	Number: TE0823 3PIU1ML	Rev. 01
	Date: 2020-10-29	Copyright: Trenz Electronic GmbH / TT	Page 1 of 25
	Filename: Legal Notices Modules.SchDoc		

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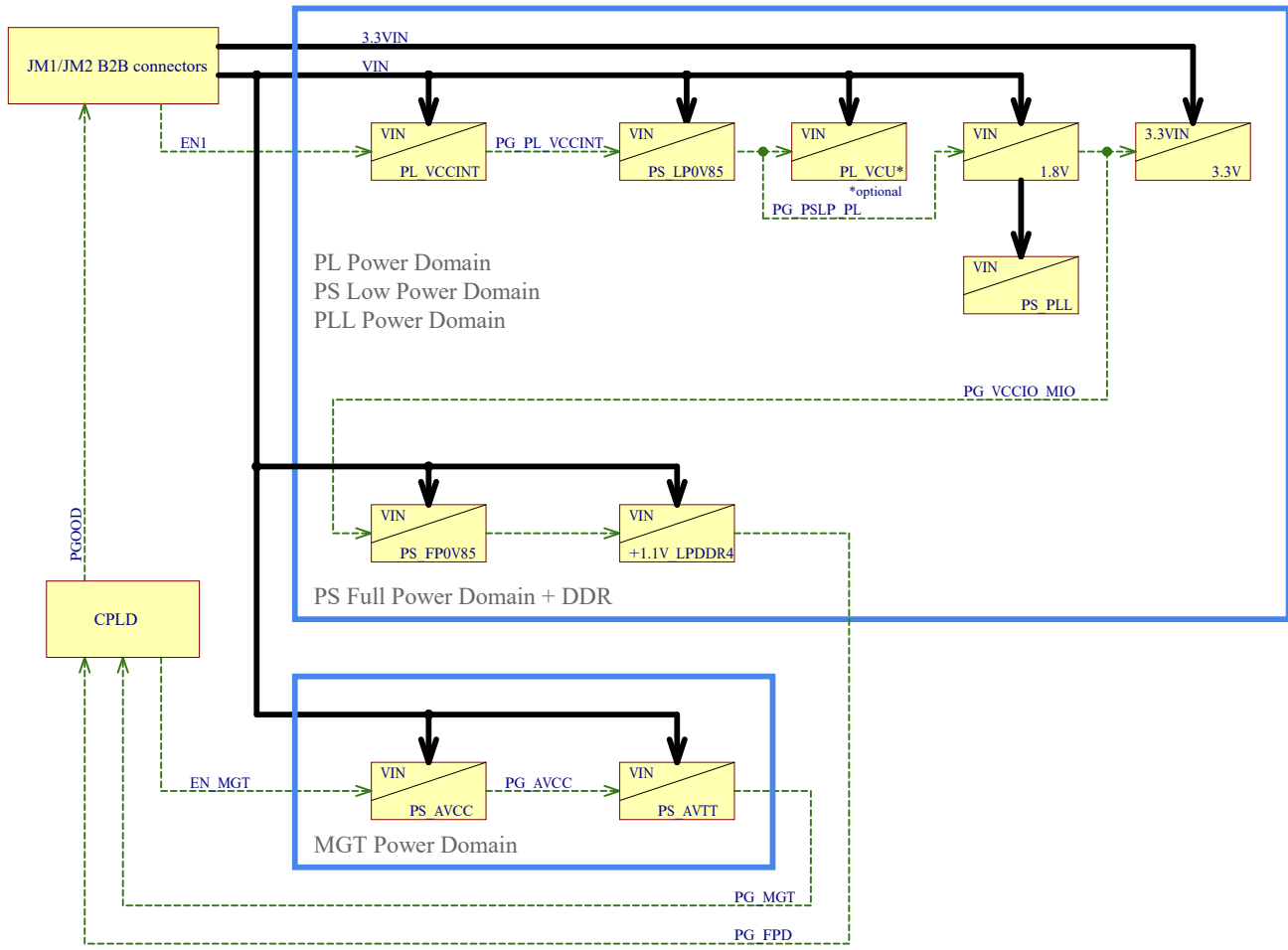
	Title: TE0823 - System Overview		
	A4	Number: TE0823 3PIU1ML	Rev. 01
	Date: 2020-10-29	Copyright: Trenz Electronic GmbH	Page 2 of 25
	Drawn by: VY	Filename: TE0823-Overview.SchDoc	

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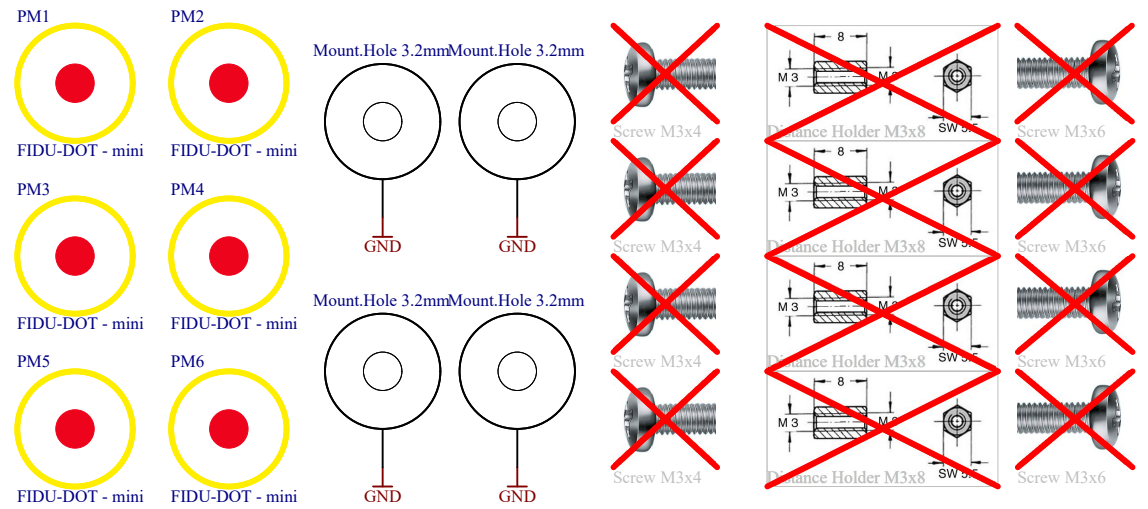
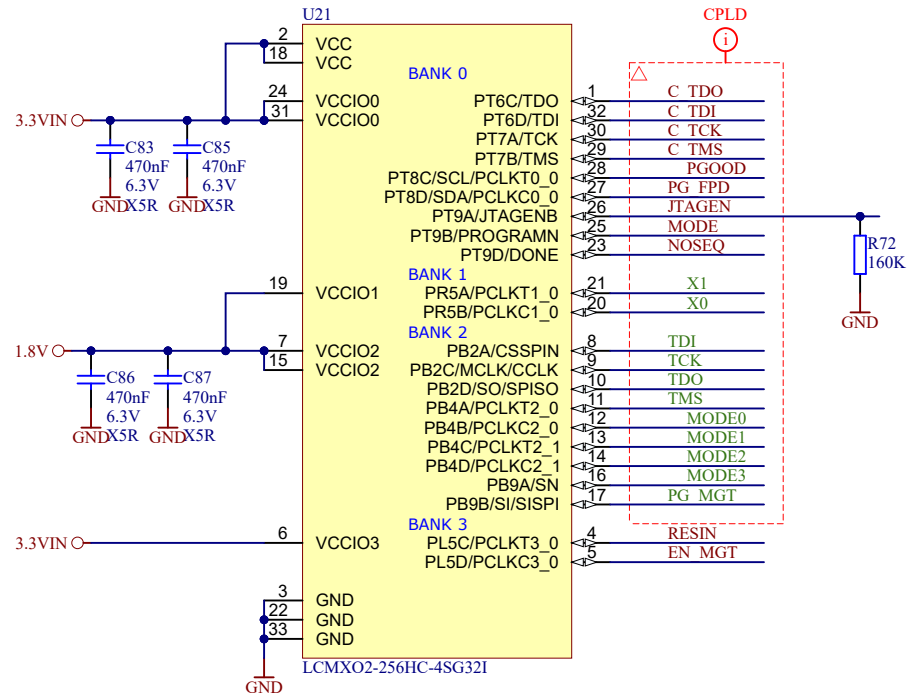
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Title: TE0823 - Power Overview		
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U_USB-PHY USB-PHY.SchDoc	U_B2B-Connectors B2B-Connectors.SchDoc
U_ETH-PHY ETH-PHY.SchDoc	U_eMMC eMMC.SchDoc
U_B_HD B_HD.SchDoc	U_PS_DDR PS_DDR.SchDoc
U_B64 B64.SchDoc	U_ZU_POWER ZU_POWER.SchDoc
U_B65 B65.SchDoc	U_ZU_PS_POWER ZU_PS_POWER.SchDoc
U_B66 B66.SchDoc	U_LPDDR4 LPDDR4.SchDoc
U_CONFIG CONFIG.SchDoc	U_POWER POWER.SchDoc
U_B_MIO B_MIO.SchDoc	U_POWER_1 POWER_1.SchDoc
U_B_PS_GT B_PS_GT.SchDoc	U_HyperRAM HyperRAM.SchDoc
U_CLK CLK.SchDoc	U_Overview TE0823-Overview.SchDoc
U_Revision_Changes Revision_Changes.SchDoc	U_B2B-Connectors_2 B2B-Connectors_2.SchDoc
U_POV TE0823-Power-Overview.SchDoc	U_LN Legal Notices Modules.SchDoc

I2C-Address	Component
0x50	24AA025E48T-I/OT
0x70	SI5338A-B-GMR
0x..	PS MIO



Special notes:

Assembly variant	3PIU1ML
Created by	MR
Modified by	MR
Modified at	2021-08-04
SVN Revision	12046



Title: TE0823 - System controller		
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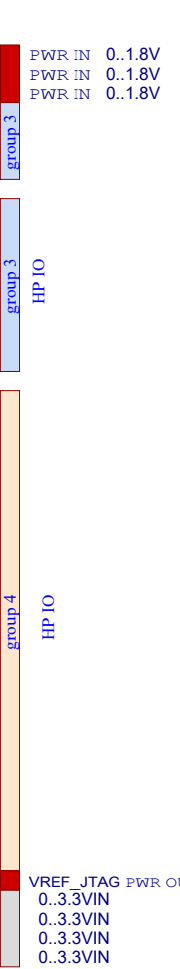
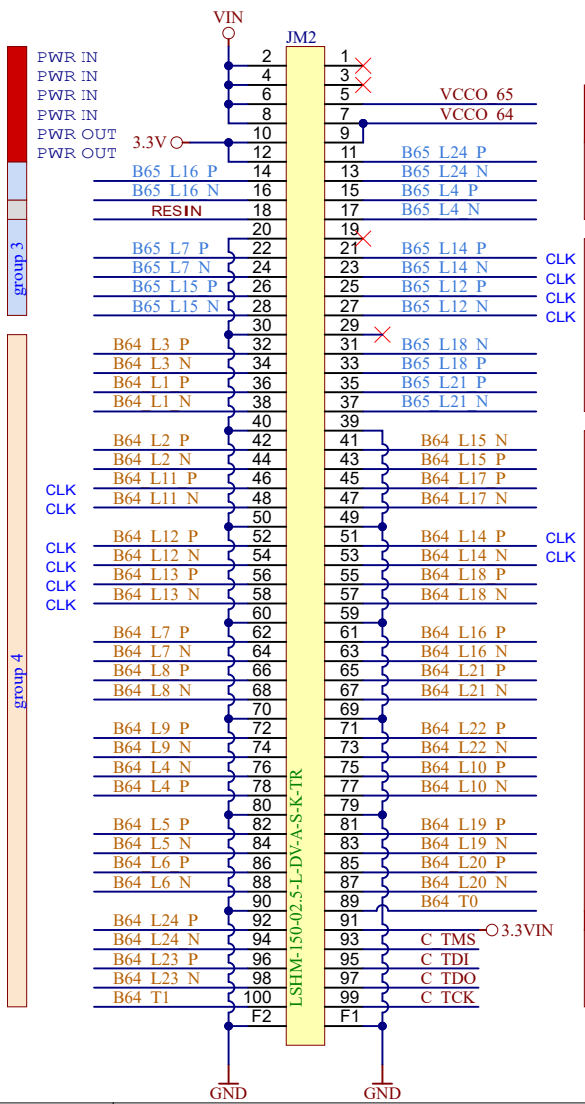
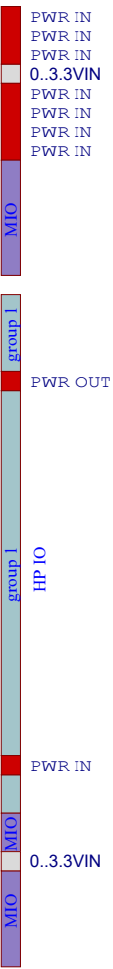
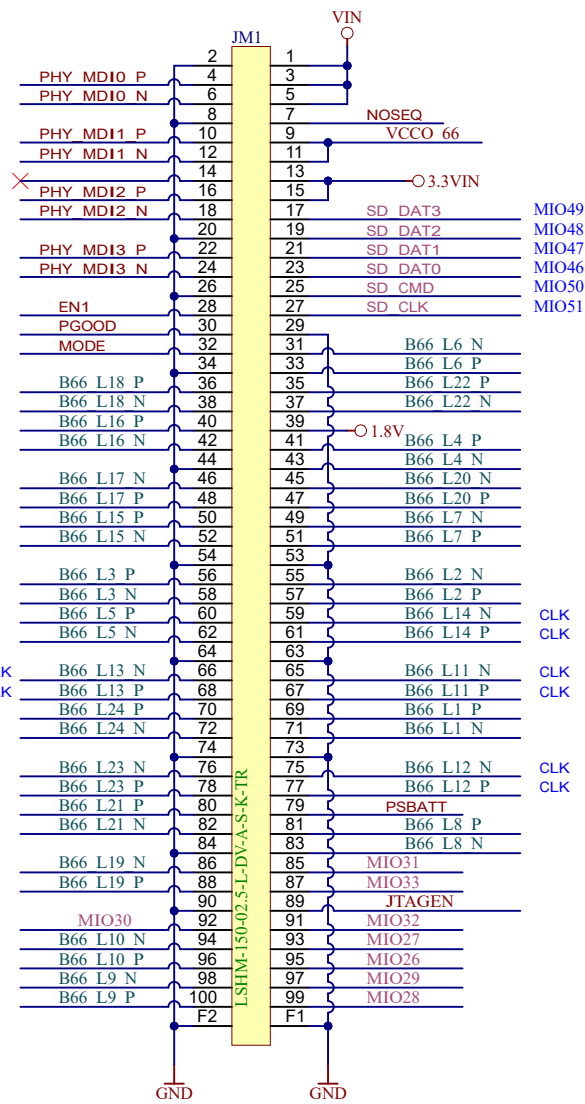
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- VCCO_64 0..1.8V
- VCCO_65 0..1.8V
- VCCO_66 0..1.8V
- MIO 0..3.3V
- group 1 0..VCCO_66
- group 3 0..VCCO_65
- group 4 0..VCCO_64

ETH MDI Copper
 B64(HP) 50 IO, 24 LVDS Pairs
 B65(HP) 18 IO, 9 LVDS Pairs
 B66(HP) 48 IO, 24 LVDS Pairs

0..3.3VIN (PU)



0..3.3VIN (PD)
 0..3.3VIN
 0..3.3VIN

HP IO

group 1

CLK

CLK

CLK

CLK

CLK

CLK

CLK

CLK

CLK

group 1

group 3

group 1

group 3

group 1

group 3

group 1

group 3

group 1

group 3

group 1

group 3

group 1

group 3

group 1

group 3

group 1

HP IO

group 3

HP IO

group 4

HP IO

group 4

HP IO

group 4

HP IO

group 4

HP IO

group 4

HP IO

group 4

Title: TE0823 - B2B Connectors		
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PU - On board pull-up resistor
 PD - On board pull-down resistor

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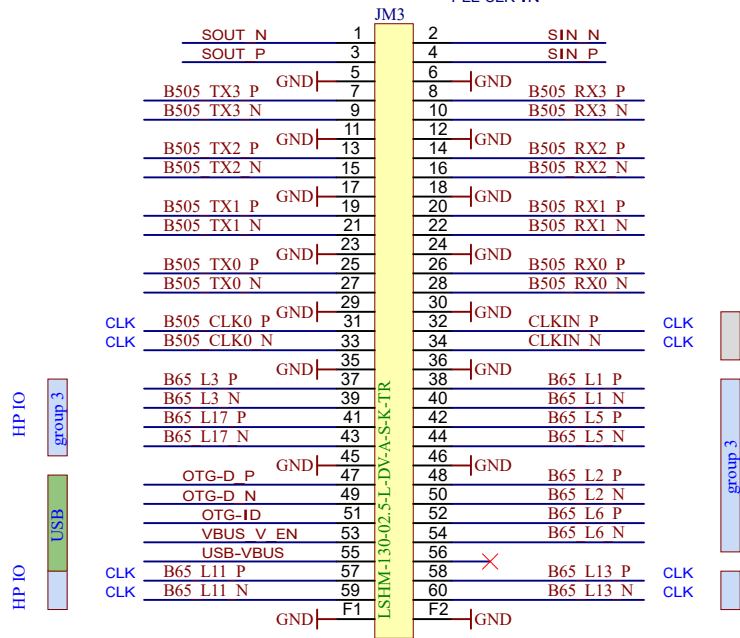
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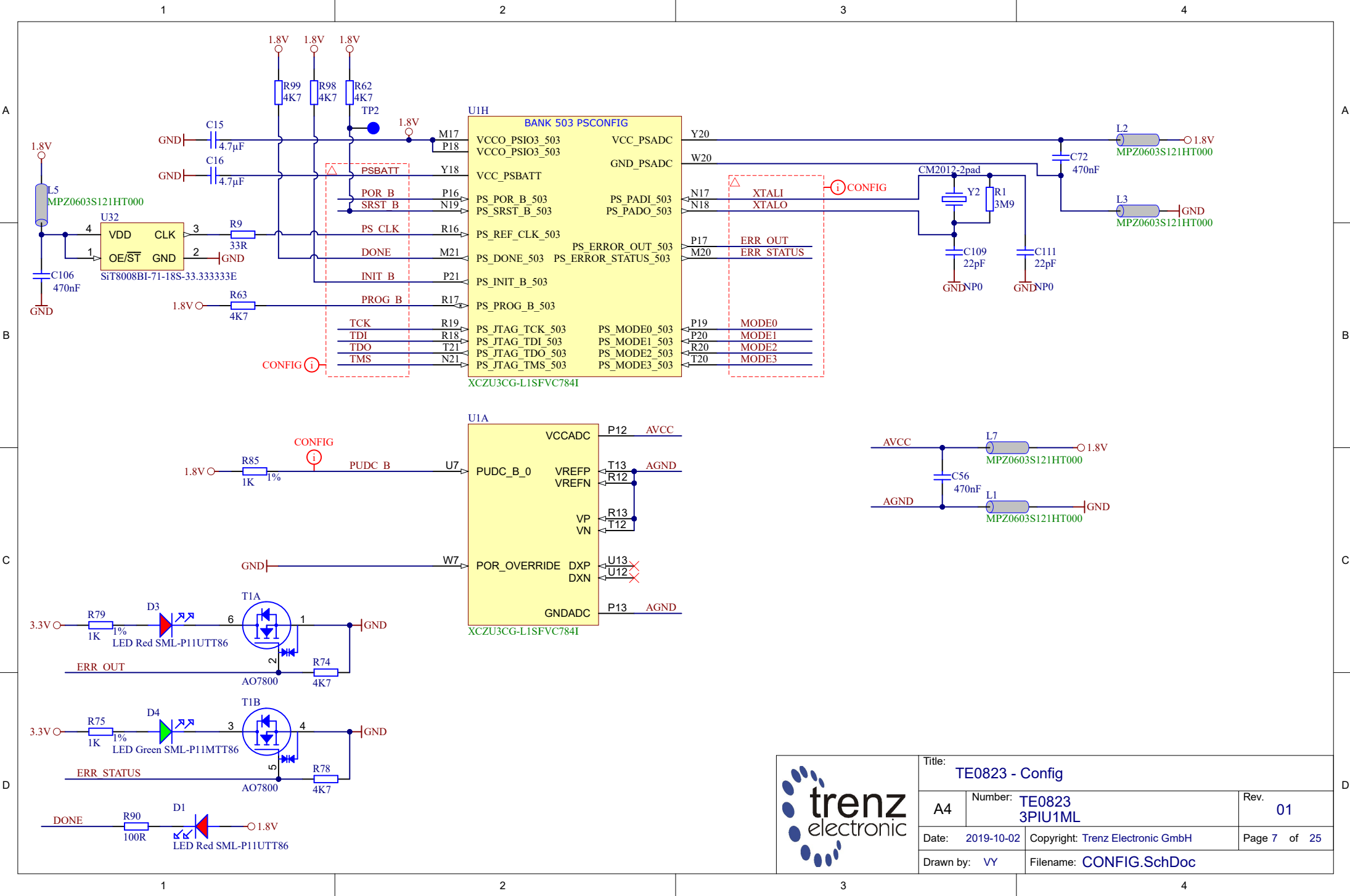
B65(HP) 16 IO, 8 LVDS Pairs
 USB OTG
 ETH SGMII
 PS_GTR 4 Lanes
 PS_GTR CLK IN
 PLL CLK IN

group 3 0..VCCO_65



VCCO64, VCCO65, VCCO66 ->>> max. 1.8V (HP bank's)

	Title: TE0823 - B2B Connectors		
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Title: TE0823 - Config		
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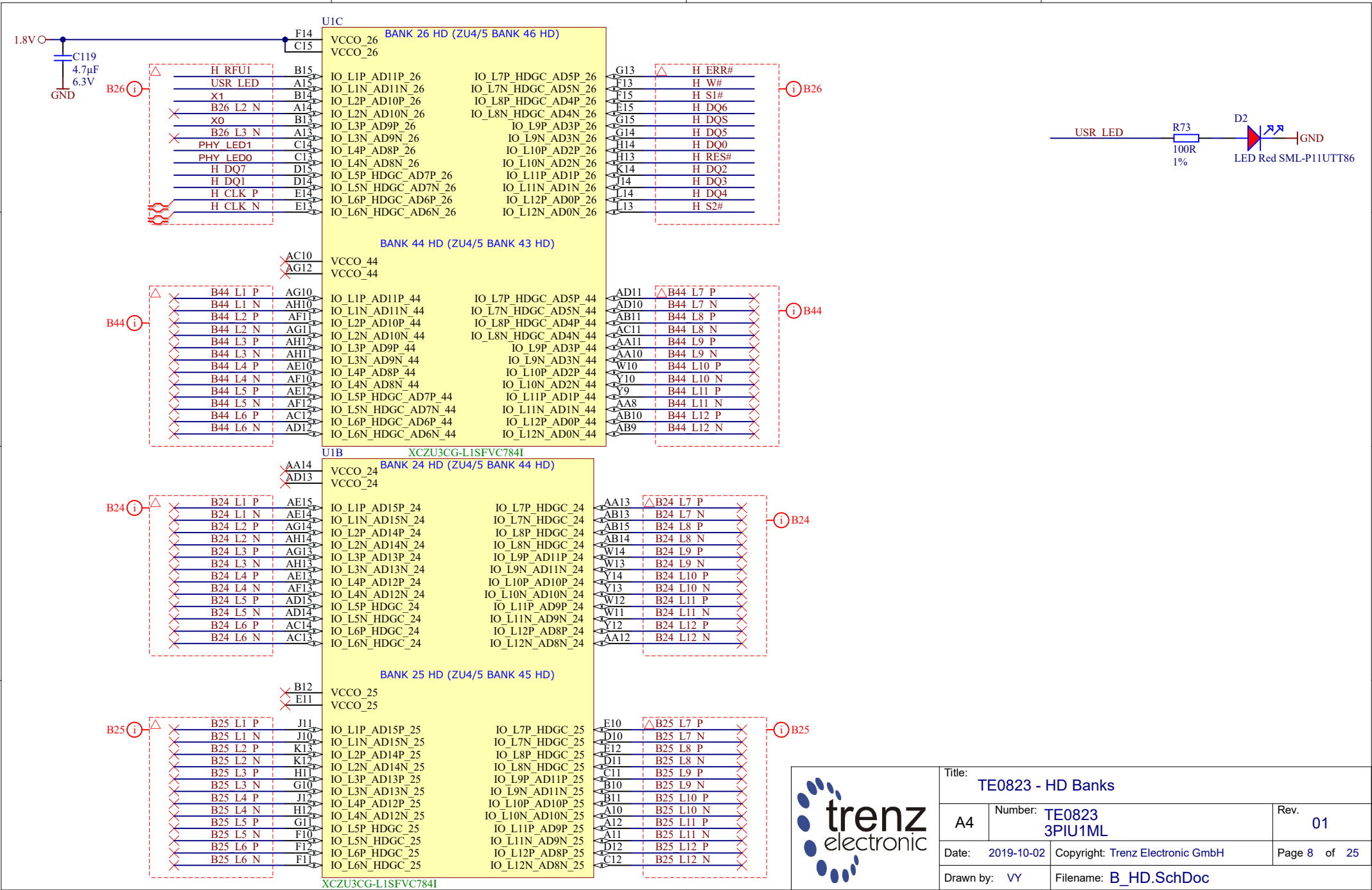
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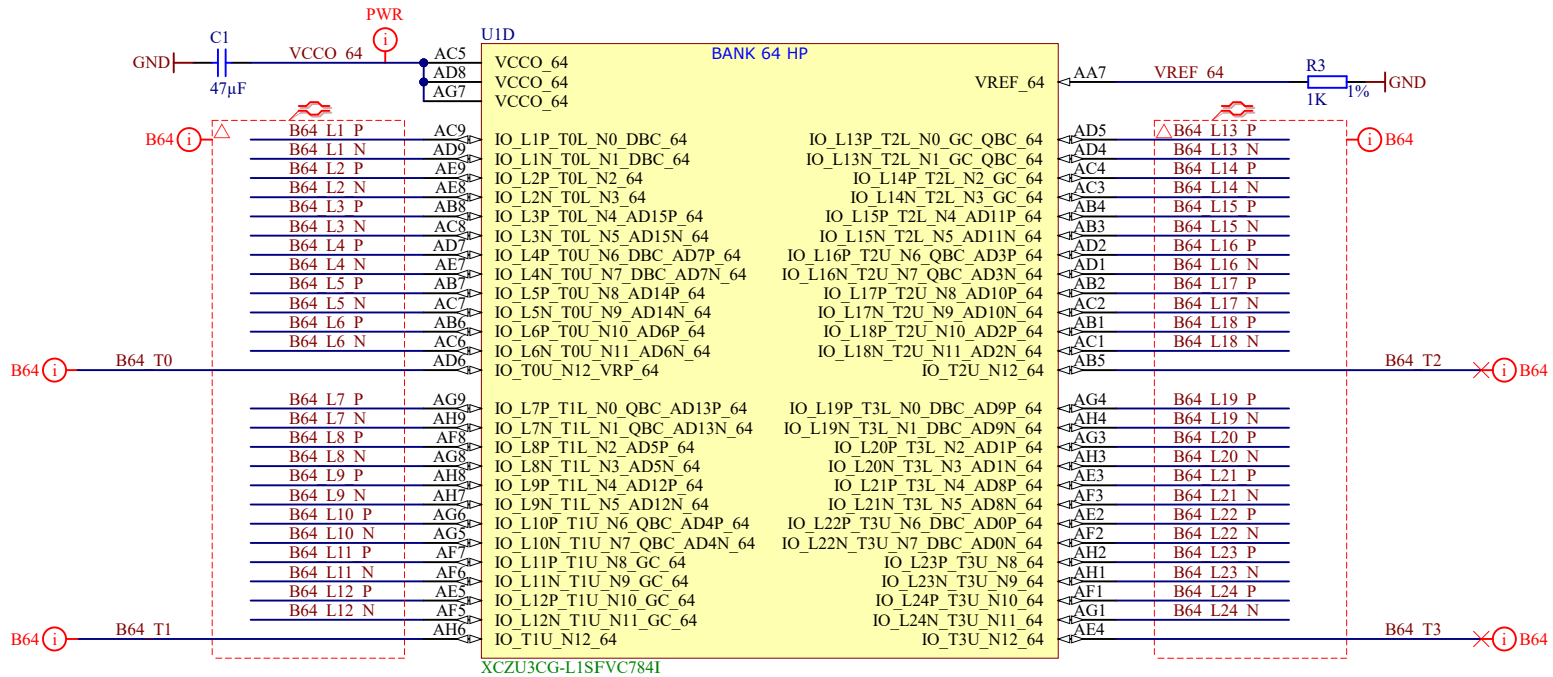
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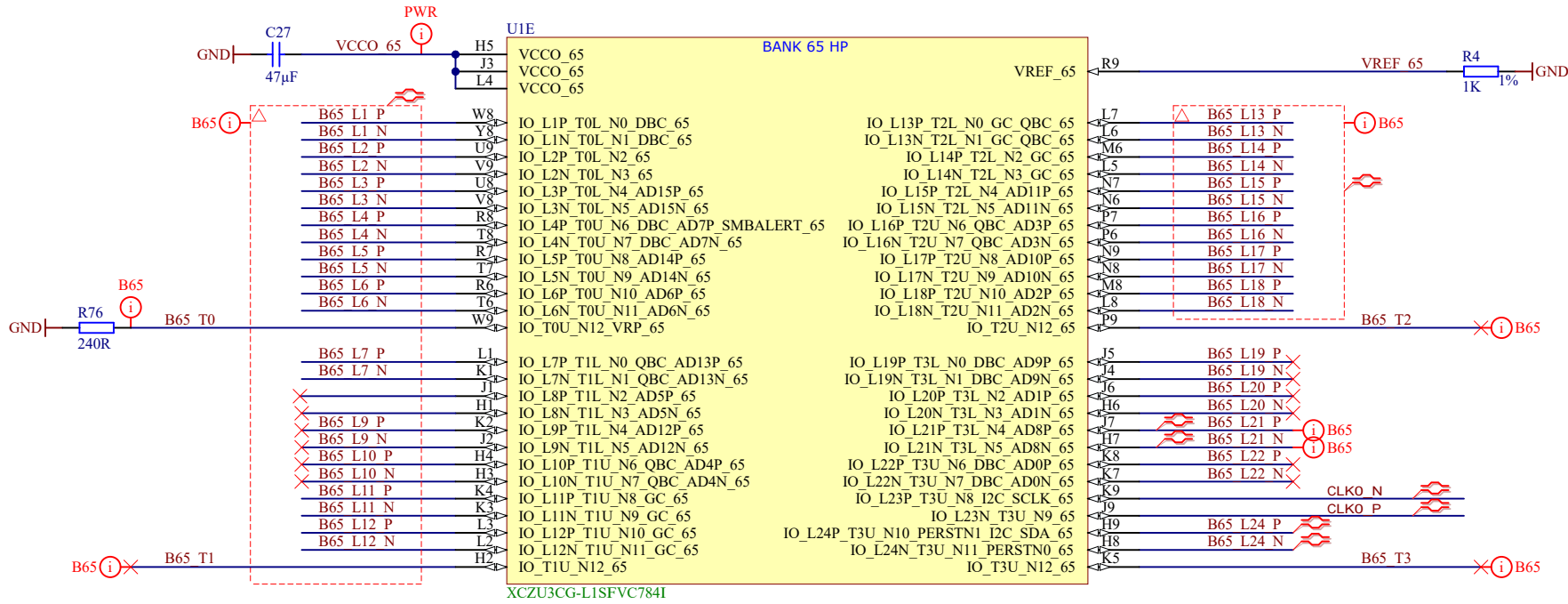
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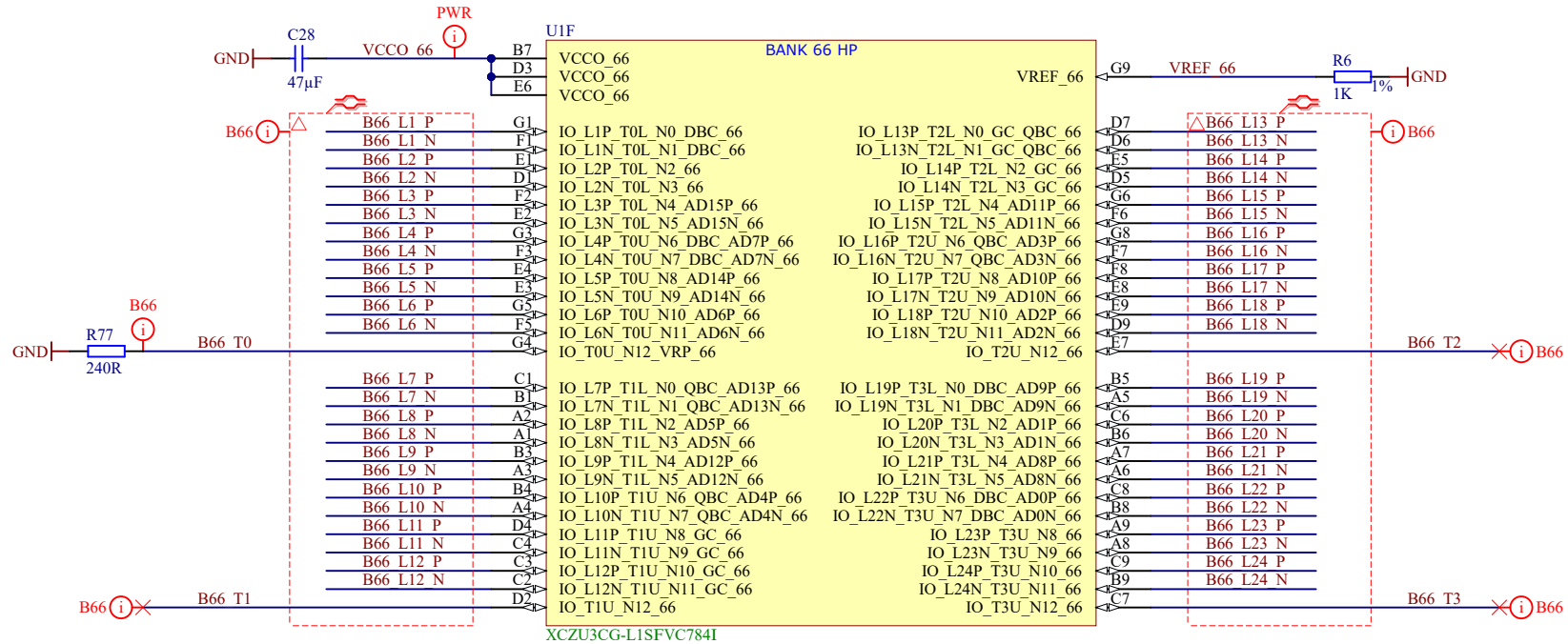

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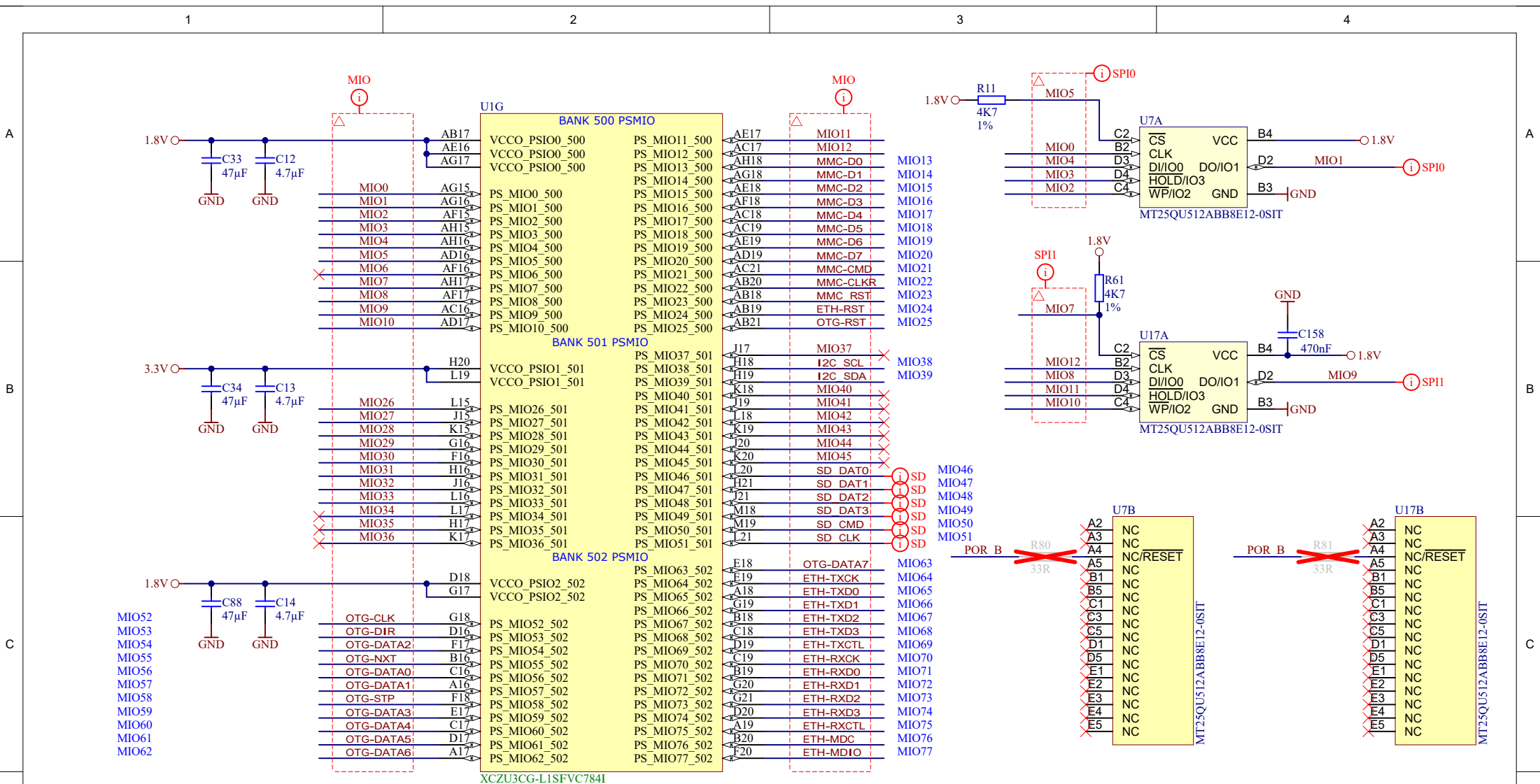
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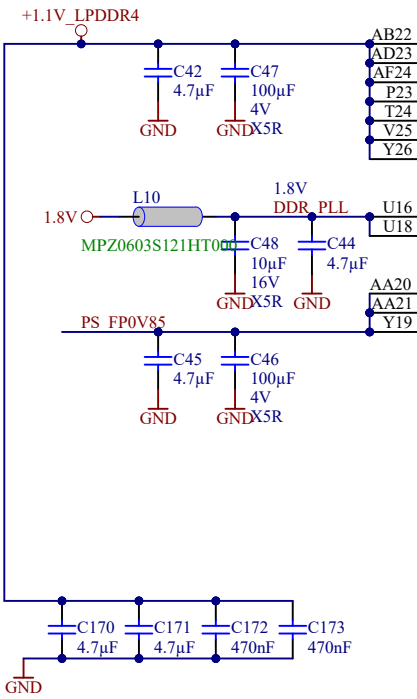
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Title: TE0823 - B66		
A4	Number: TE0823 3PIU1ML	Rev. 01
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		Title: TE0823 - MIO Banks	
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U1I BANK 504 PSDDR


VCCO_PSDDR_504	PS_DDR_CK0_504	W25	LPDDR4_CKA_P
VCCO_PSDDR_504	PS_DDR_CK_N0_504	W26	LPDDR4_CKA_N
VCCO_PSDDR_504	PS_DDR_CKE0_504	V28	LPDDR4_CKE0
VCCO_PSDDR_504	PS_DDR_CK1_504	Y24	LPDDR4_CKB_P
VCCO_PSDDR_504	PS_DDR_CK_N1_504	Y25	LPDDR4_CKB_N
VCCO_PSDDR_504	PS_DDR_CKE1_504	V27	LPDDR4_CKE1
VCC_PSDDR_PLL	PS_DDR_A0_504	W28	LPDDR4_CAA0
VCC_PSDDR_PLL	PS_DDR_A1_504	Y28	LPDDR4_CAA1
VCC_PSDDR_PLL	PS_DDR_A2_504	AB28	LPDDR4_CAA2
VCC_PSDDR_PLL	PS_DDR_A3_504	AA28	LPDDR4_CAA3
VCC_PSDDR_PLL	PS_DDR_A4_504	Y27	LPDDR4_CAA4
VCC_PSDDR_PLL	PS_DDR_A5_504	AA27	LPDDR4_CAA5
VCC_PSINTFP_DDR	PS_DDR_A6_504	Y22	
VCC_PSINTFP_DDR	PS_DDR_A7_504	AA23	
VCC_PSINTFP_DDR	PS_DDR_A8_504	AA22	
VCC_PSINTFP_DDR	PS_DDR_A9_504	AB23	
VCC_PSINTFP_DDR	PS_DDR_A10_504	AA25	LPDDR4_CAB0
VCC_PSINTFP_DDR	PS_DDR_A11_504	AA26	LPDDR4_CAB1
VCC_PSINTFP_DDR	PS_DDR_A12_504	AB25	LPDDR4_CAB2
VCC_PSINTFP_DDR	PS_DDR_A13_504	AB26	LPDDR4_CAB3
VCC_PSINTFP_DDR	PS_DDR_A14_504	AB24	LPDDR4_CAB4
VCC_PSINTFP_DDR	PS_DDR_A15_504	AC24	LPDDR4_CAB5
VCC_PSINTFP_DDR	PS_DDR_A16_504	AC23	
VCC_PSINTFP_DDR	PS_DDR_A17_504	AC22	
PS_DDR_CS_N0_504	PS_DDR_CS_N1_504	W27	LPDDR4_CS0_N
PS_DDR_CS_N0_504	PS_DDR_CS_N1_504	V26	LPDDR4_CS1_N
PS_DDR_BA0_504	PS_DDR_BA1_504	V23	
PS_DDR_BA0_504	PS_DDR_BA1_504	W22	
PS_DDR_BG0_504	PS_DDR_BG1_504	W24	ADDR_CTRL_B
PS_DDR_BG0_504	PS_DDR_BG1_504	V22	
PS_DDR_PARITY_504	PS_DDR_RAM_RST_N_504	Y24	LPDDR4_RST
PS_DDR_ACT_N_504	PS_DDR_ALERT_N_504	U23	
PS_DDR_ACT_N_504	PS_DDR_ALERT_N_504	Y23	
PS_DDR_ACT_N_504	PS_DDR_ALERT_N_504	U25	
PS_DDR_ZQ_504	PS_DDR_ZQ_504	U24	LPDDR4_ZQ
PS_DDR_ODT0_504	PS_DDR_ODT1_504	U28	
PS_DDR_ODT0_504	PS_DDR_ODT1_504	U26	

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U1J BANK 504 PSDDR

LPDDR4_DQ0	AD21	PS_DDR_DQ0_504	PS_DDR_DQ32_504	T22
LPDDR4_DQ1	AE20	PS_DDR_DQ1_504	PS_DDR_DQ33_504	R22
LPDDR4_DQ2	AD20	PS_DDR_DQ2_504	PS_DDR_DQ34_504	P22
LPDDR4_DQ3	AF20	PS_DDR_DQ3_504	PS_DDR_DQ35_504	N22
LPDDR4_DQ4	AH21	PS_DDR_DQ4_504	PS_DDR_DQ36_504	T23
LPDDR4_DQ5	AH20	PS_DDR_DQ5_504	PS_DDR_DQ37_504	P24
LPDDR4_DQ6	AH19	PS_DDR_DQ6_504	PS_DDR_DQ38_504	R24
LPDDR4_DQ7	AG19	PS_DDR_DQ7_504	PS_DDR_DQ39_504	N24
LPDDR4_DQ8	AF22	PS_DDR_DQ8_504	PS_DDR_DQ40_504	H24
LPDDR4_DQ9	AH22	PS_DDR_DQ9_504	PS_DDR_DQ41_504	J24
LPDDR4_DQ10	AE22	PS_DDR_DQ10_504	PS_DDR_DQ42_504	M24
LPDDR4_DQ11	AD22	PS_DDR_DQ11_504	PS_DDR_DQ43_504	K24
LPDDR4_DQ12	AH23	PS_DDR_DQ12_504	PS_DDR_DQ44_504	J22
LPDDR4_DQ13	AH24	PS_DDR_DQ13_504	PS_DDR_DQ45_504	H22
LPDDR4_DQ14	AE24	PS_DDR_DQ14_504	PS_DDR_DQ46_504	K22
LPDDR4_DQ15	AG24	PS_DDR_DQ15_504	PS_DDR_DQ47_504	L22
LPDDR4_DQ16	AC26	PS_DDR_DQ16_504	PS_DDR_DQ48_504	M25
LPDDR4_DQ17	AD26	PS_DDR_DQ17_504	PS_DDR_DQ49_504	M26
LPDDR4_DQ18	AD25	PS_DDR_DQ18_504	PS_DDR_DQ50_504	L25
LPDDR4_DQ19	AD24	PS_DDR_DQ19_504	PS_DDR_DQ51_504	L26
LPDDR4_DQ20	AG26	PS_DDR_DQ20_504	PS_DDR_DQ52_504	K28
LPDDR4_DQ21	AH25	PS_DDR_DQ21_504	PS_DDR_DQ53_504	L28
LPDDR4_DQ22	AH26	PS_DDR_DQ22_504	PS_DDR_DQ54_504	M28
LPDDR4_DQ23	AG25	PS_DDR_DQ23_504	PS_DDR_DQ55_504	N28
LPDDR4_DQ24	AH27	PS_DDR_DQ24_504	PS_DDR_DQ56_504	J28
LPDDR4_DQ25	AH28	PS_DDR_DQ25_504	PS_DDR_DQ57_504	K27
LPDDR4_DQ26	AF28	PS_DDR_DQ26_504	PS_DDR_DQ58_504	H28
LPDDR4_DQ27	AG28	PS_DDR_DQ27_504	PS_DDR_DQ59_504	H27
LPDDR4_DQ28	AC27	PS_DDR_DQ28_504	PS_DDR_DQ60_504	G26
LPDDR4_DQ29	AD27	PS_DDR_DQ29_504	PS_DDR_DQ61_504	G25
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LPDDR4_DQ31	AC28	PS_DDR_DQ31_504	PS_DDR_DQ63_504	J25
PS_DDR_DQS_P0_504	PS_DDR_DQS_P0_504	AF21	PS_DDR_DQ64_504	T28
PS_DDR_DQS_N0_504	PS_DDR_DQS_N0_504	AG21	PS_DDR_DQ65_504	R28
PS_DDR_DQS_P1_504	PS_DDR_DQS_P1_504	AF23	PS_DDR_DQ66_504	P28
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PS_DDR_DQS_P2_504	PS_DDR_DQS_P2_504	AF25	PS_DDR_DQ68_504	P26
PS_DDR_DQS_N2_504	PS_DDR_DQS_N2_504	AG25	PS_DDR_DQ69_504	R25
PS_DDR_DQS_P3_504	PS_DDR_DQS_P3_504	AF26	PS_DDR_DQ70_504	P25
PS_DDR_DQS_N3_504	PS_DDR_DQS_N3_504	AG26	PS_DDR_DQ71_504	L25
PS_DDR_DQS_P4_504	PS_DDR_DQS_P4_504	N23	PS_DDR_DMA0_504	AG20
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PS_DDR_DQS_P7_504	PS_DDR_DQS_P7_504	J26	PS_DDR_DMA6_504	LPDDR4_DMA2
PS_DDR_DQS_N7_504	PS_DDR_DQS_N7_504	J27	PS_DDR_DMA7_504	LPDDR4_DMA3
PS_DDR_DQS_P8_504	PS_DDR_DQS_P8_504	R27	PS_DDR_DMA8_504	LPDDR4_DMA4
PS_DDR_DQS_N8_504	PS_DDR_DQS_N8_504	T27	PS_DDR_DMA9_504	LPDDR4_DMA5

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Title: **TE0823 - PS_DDR**

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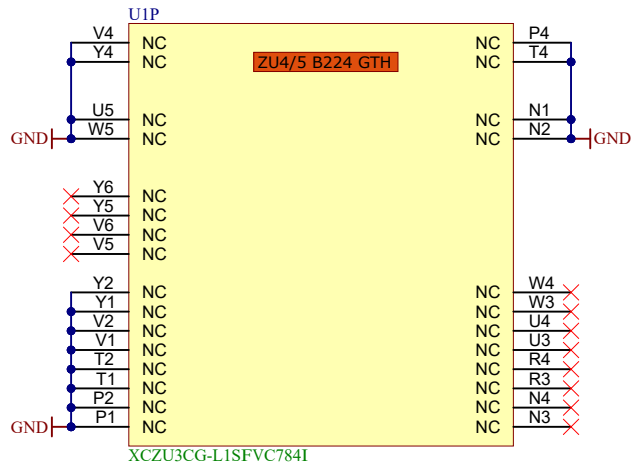
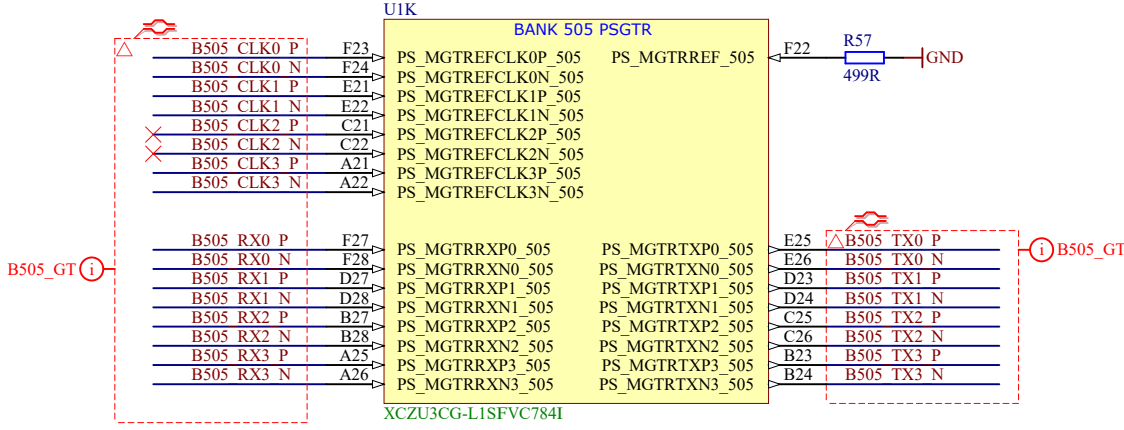
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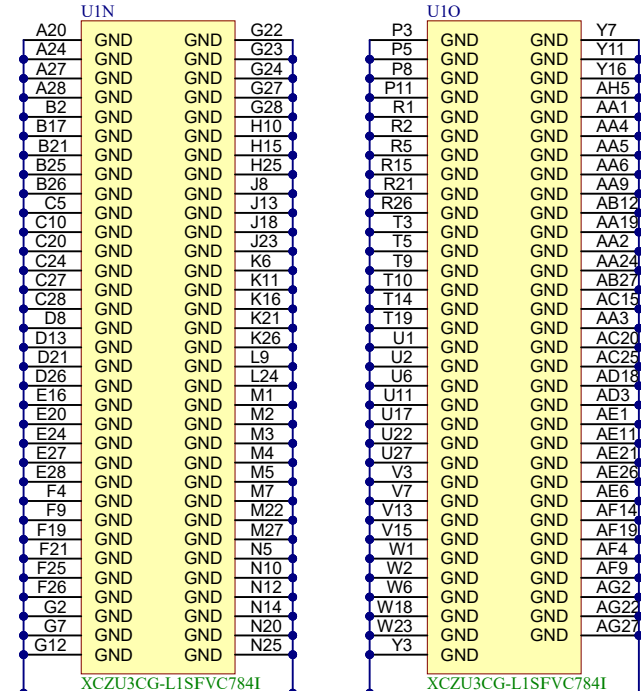
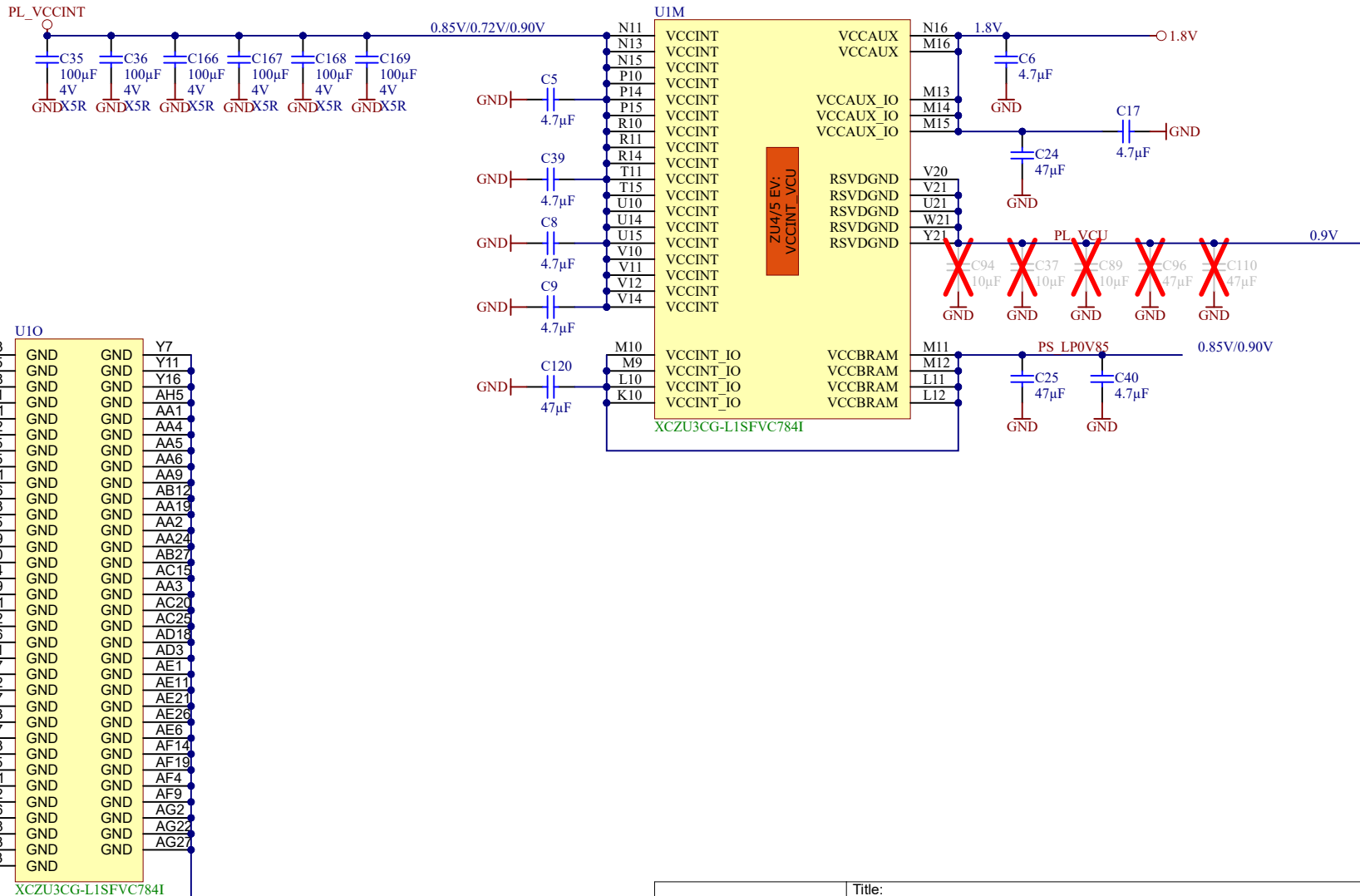
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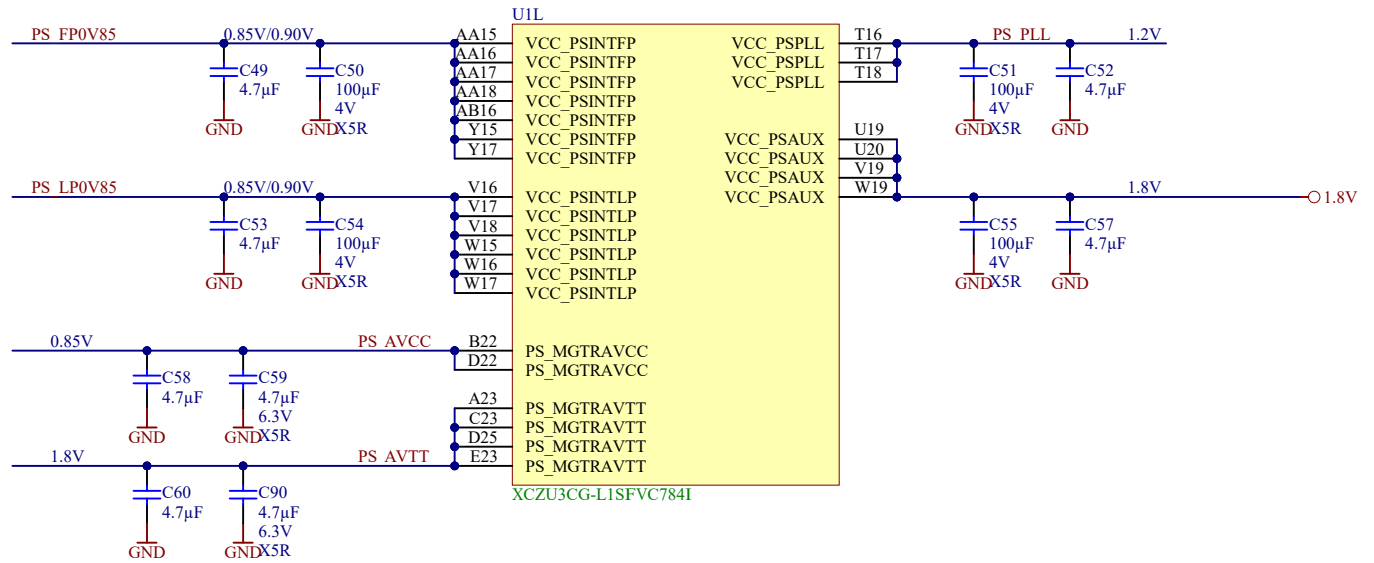
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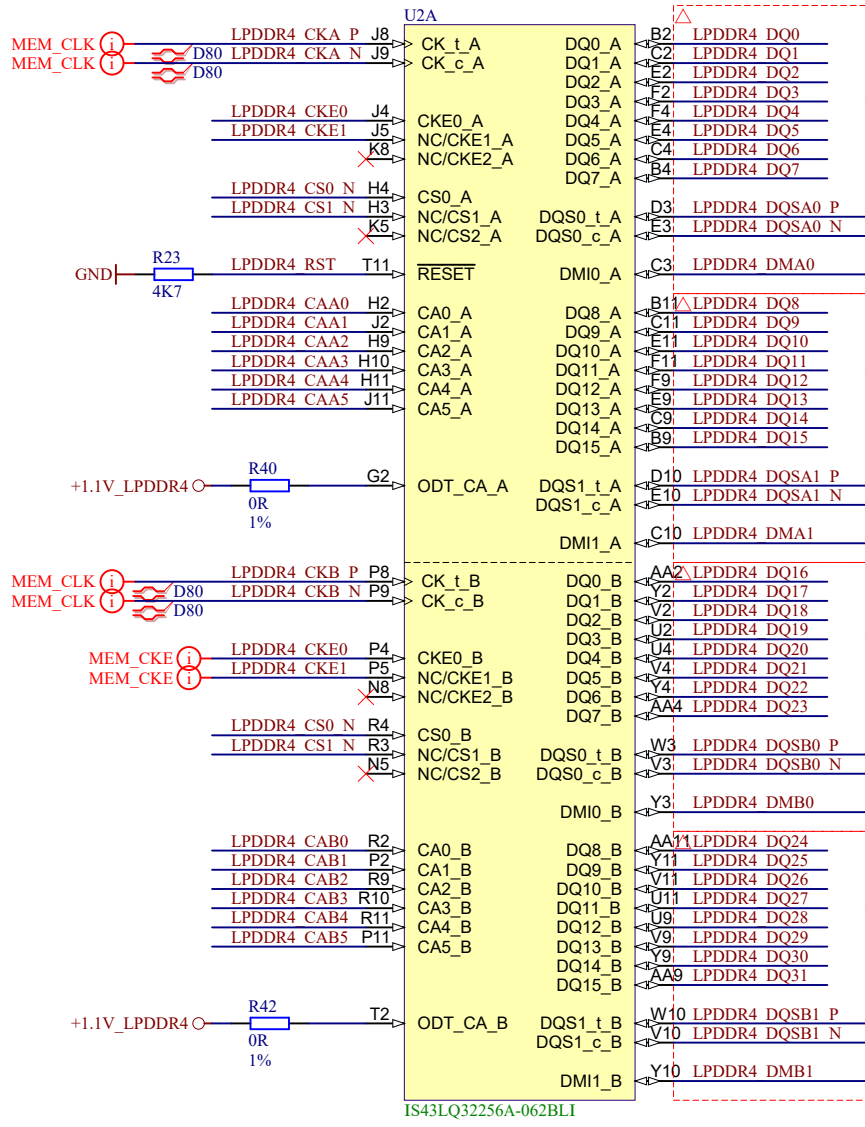
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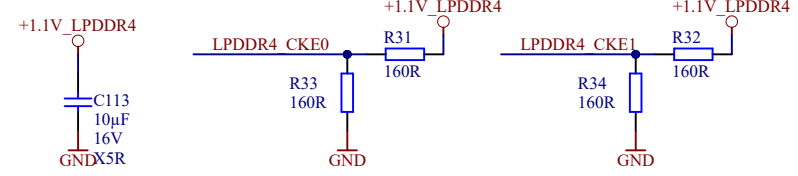
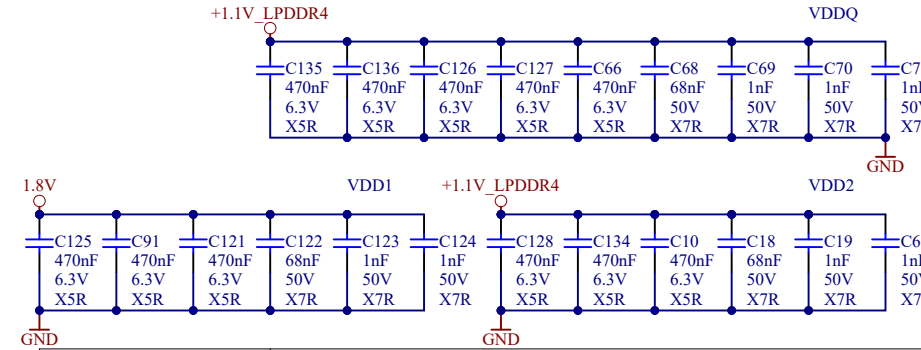
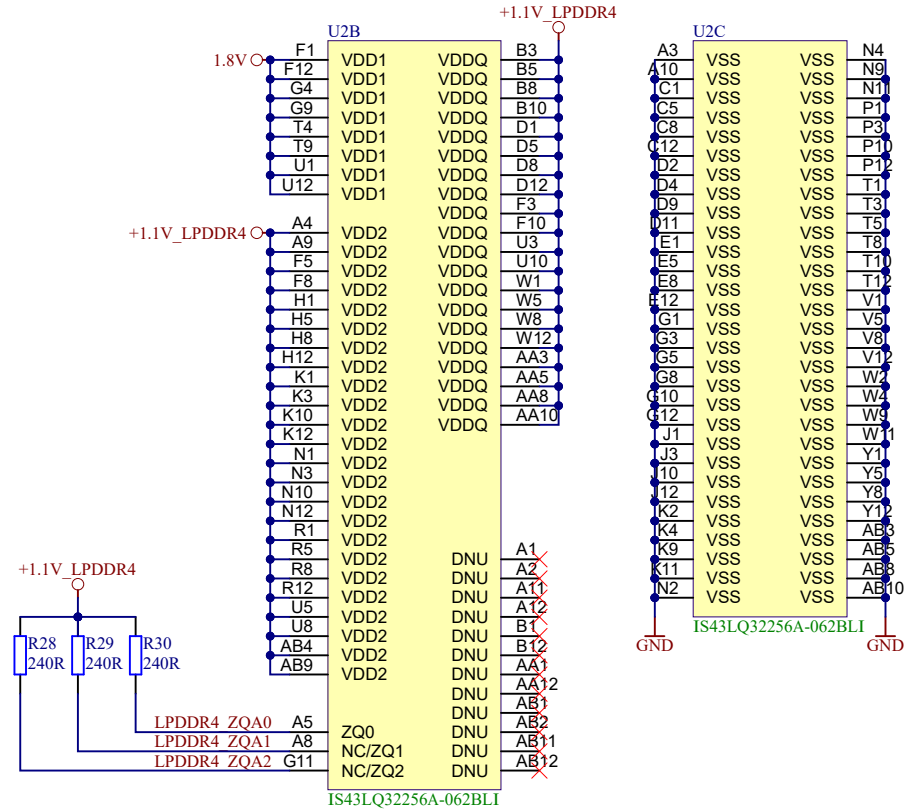


MEM_DQ_L0

MEM_DQ_L1

MEM_DQ_L2

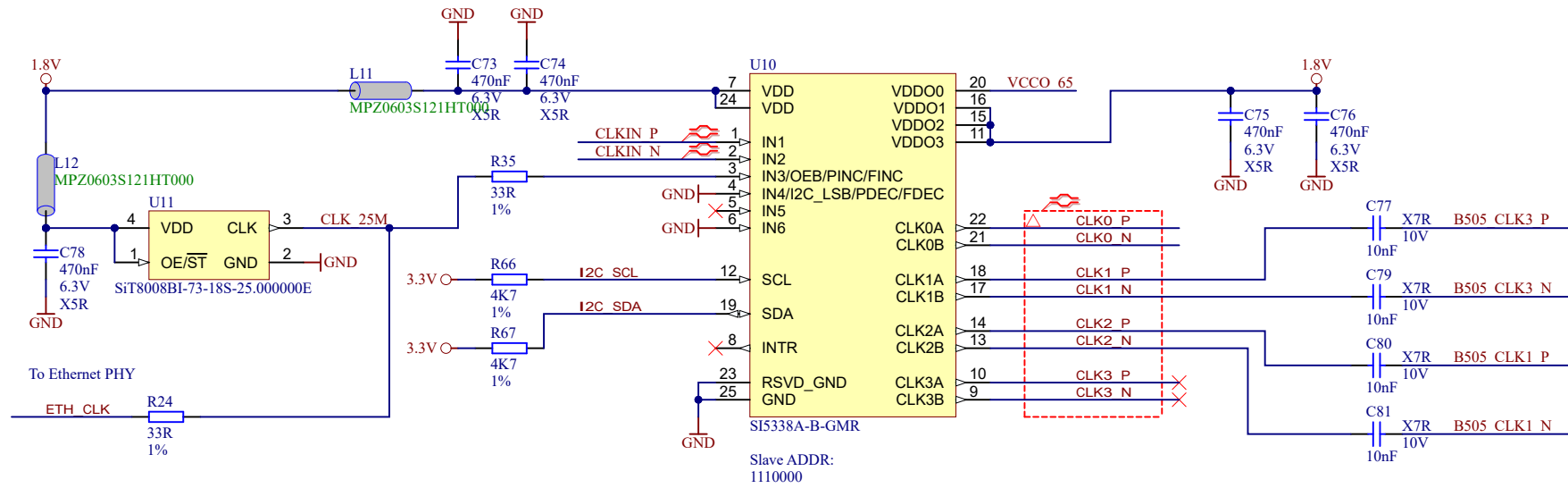
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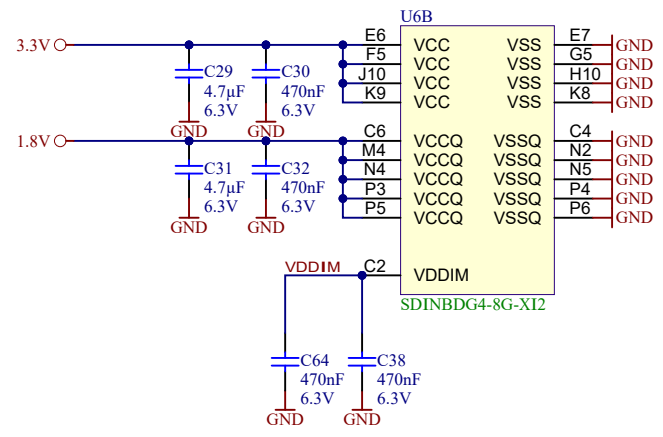
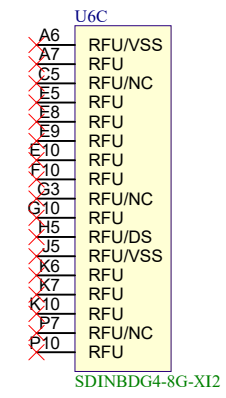
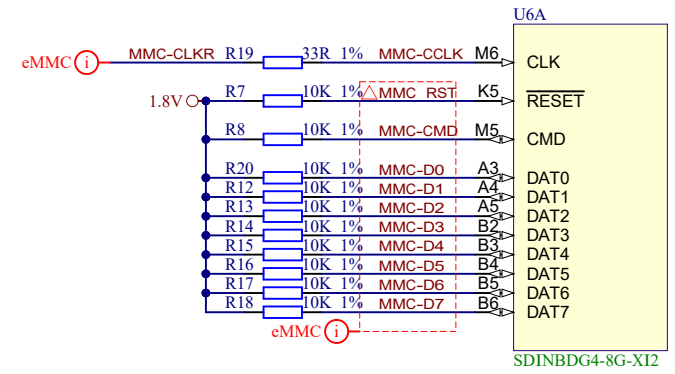
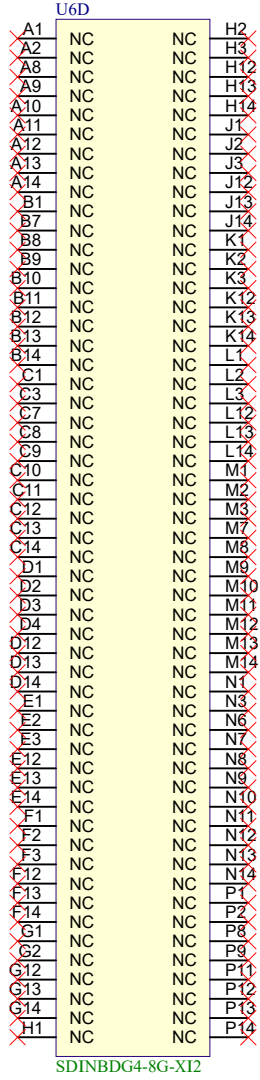

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Title: **TE0823 - LPDDR4**

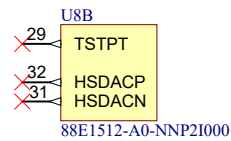
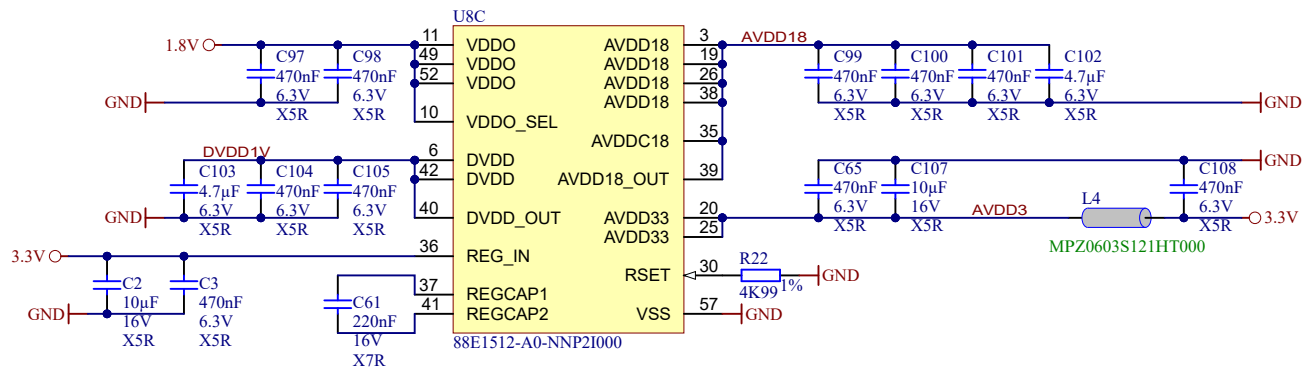
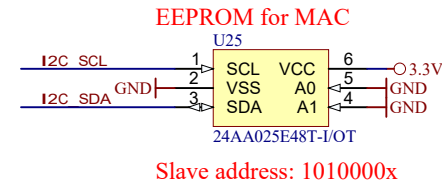
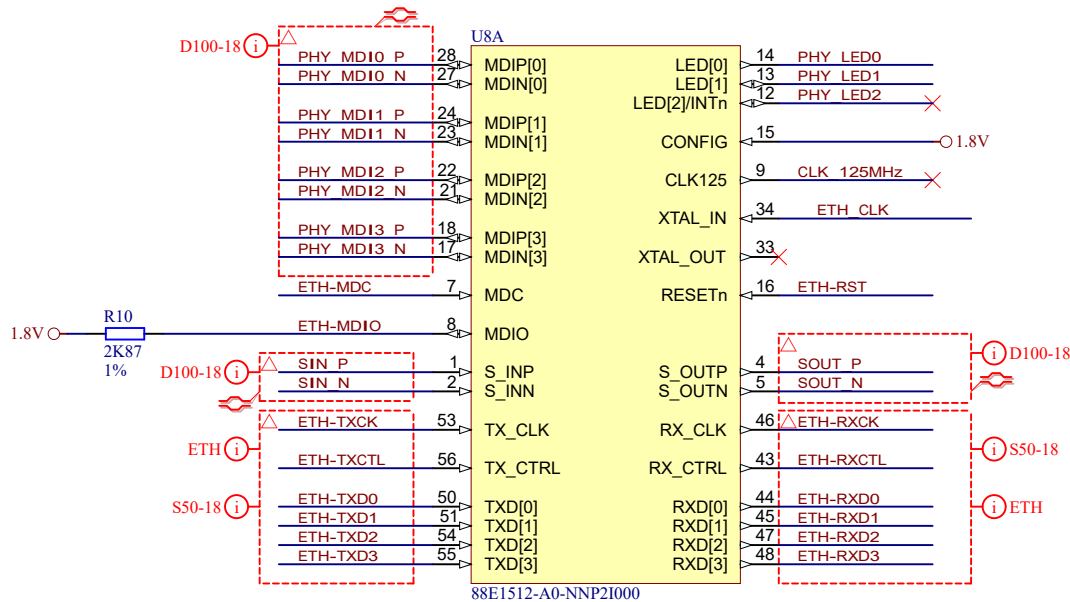
A4	Number: TE0823 3PIU1ML	Rev. 01
Date: 2019-10-02	Copyright: Trenz Electronic GmbH	Page 17 of 25
Drawn by: VY	Filename: LPDDR4.SchDoc	



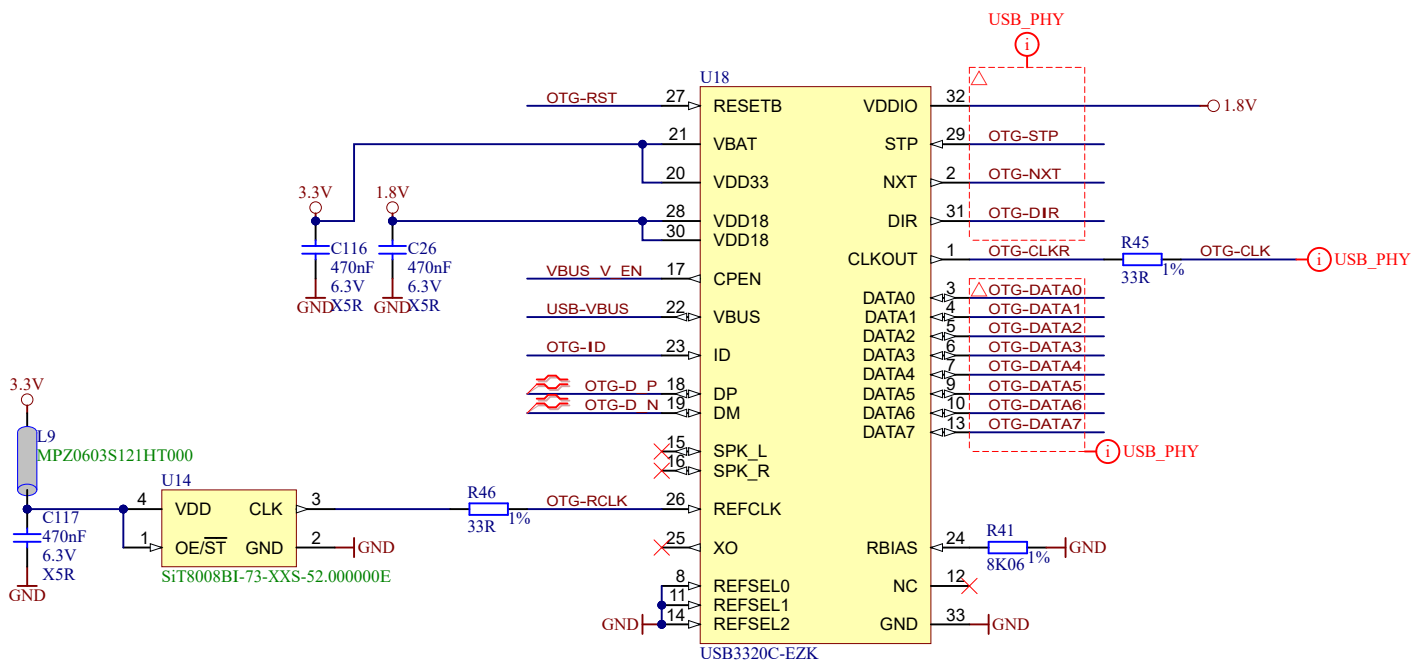
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		A4	Number: TE0823 3PIU1ML
Date: 2019-10-02		Copyright: Trenz Electronic GmbH	
Rev. 01		Page 18 of 25	
Drawn by: VY		Filename: CLK.SchDoc	





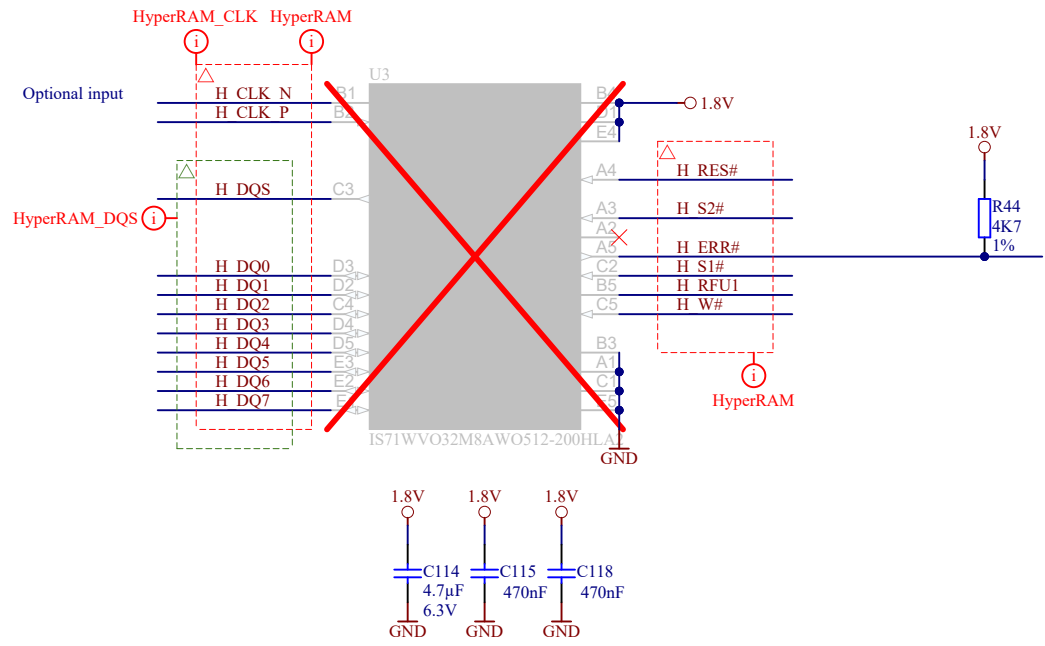
Title: TE0823 - eMMC		
A4	Number: TE0823 3PIU1ML	Rev. 01
Date: 2019-10-02	Copyright: Trenz Electronic GmbH	Page 19 of 25
Drawn by: VY	Filename: eMMC.SchDoc	



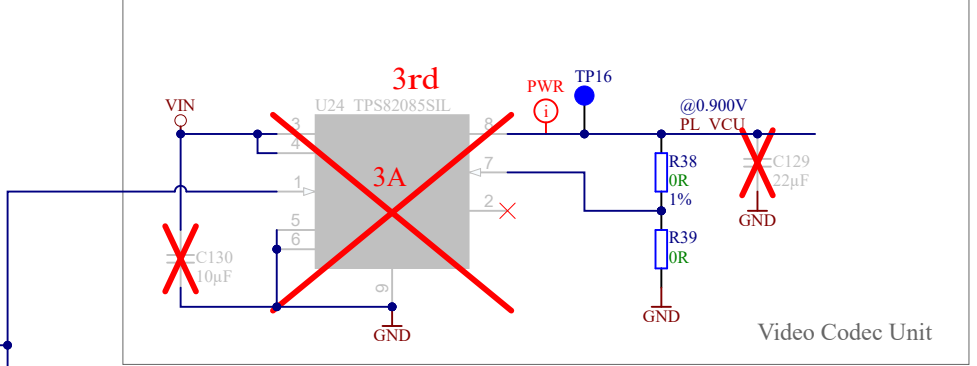
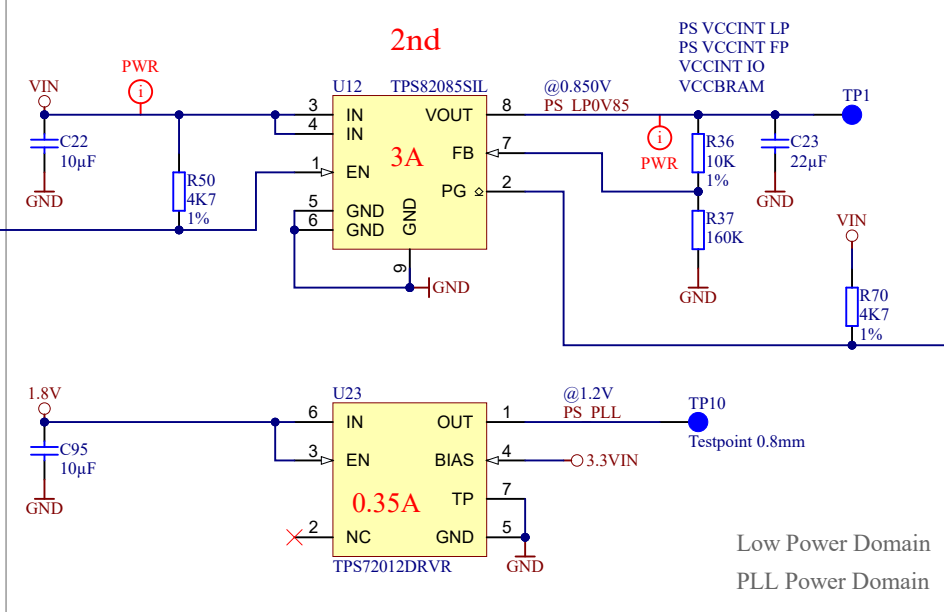
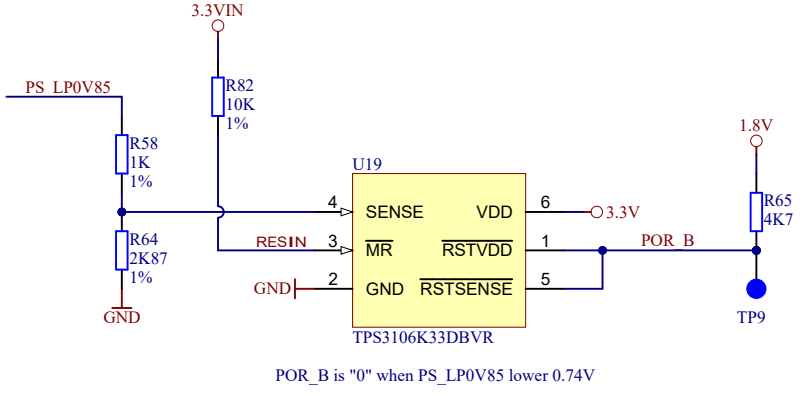
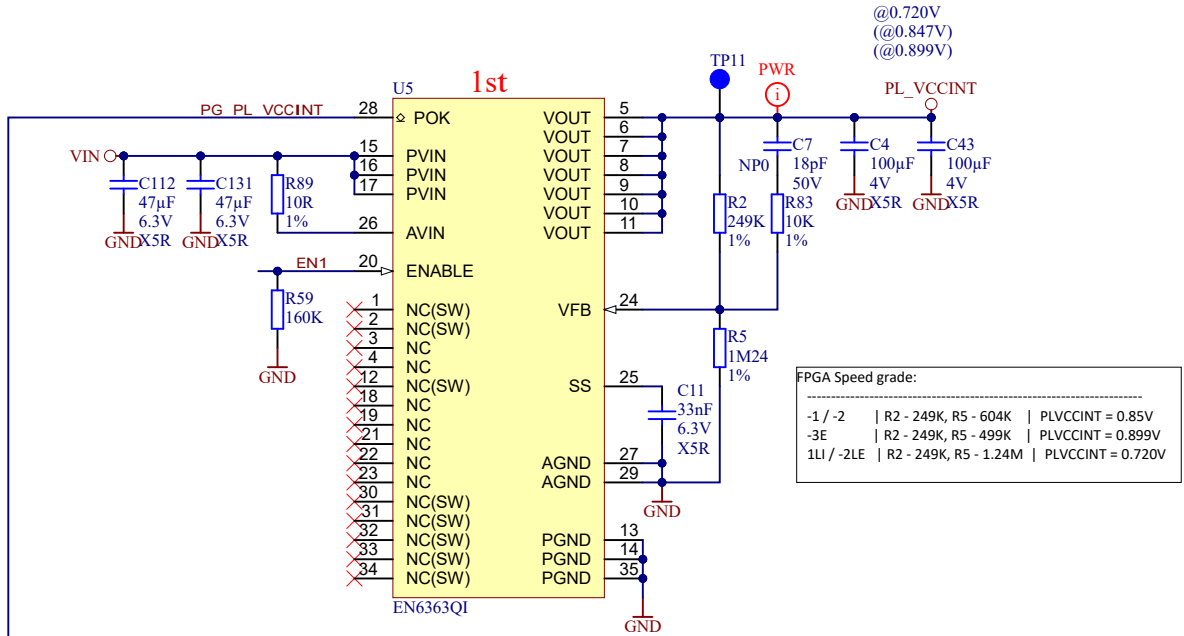
Title: TE0823 - Ethernet PHY		
A4	Number: TE0823 3PIU1ML	Rev. 01
Date: 2019-10-02	Copyright: Trenz Electronic GmbH	Page 20 of 25
Drawn by: VY	Filename: ETH-PHY.SchDoc	



	Title: TE0823 - USB2.0 PHY		
	A4	Number: TE0823 3PIU1ML	Rev. 01
	Date: 2019-10-02	Copyright: Trenz Electronic GmbH	Page 21 of 25
	Drawn by: VY	Filename: USB-PHY.SchDoc	



Title: TE0823 - HyperRAM/HyperFLASH		
A4	Number: TE0823 3PIU1ML	Rev. 01
Date: 2019-10-02	Copyright: Trenz Electronic GmbH	Page 22 of 25
Drawn by: VY	Filename: HyperRAM.SchDoc	



	Title: TE0823 - POWER PL		
	A4	Number: TE0823 3PIU1ML	Rev. 01
Date: 2019-10-02	Copyright: Trenz Electronic GmbH		Page 23 of 25
Drawn by: VY	Filename: POWER.SchDoc		

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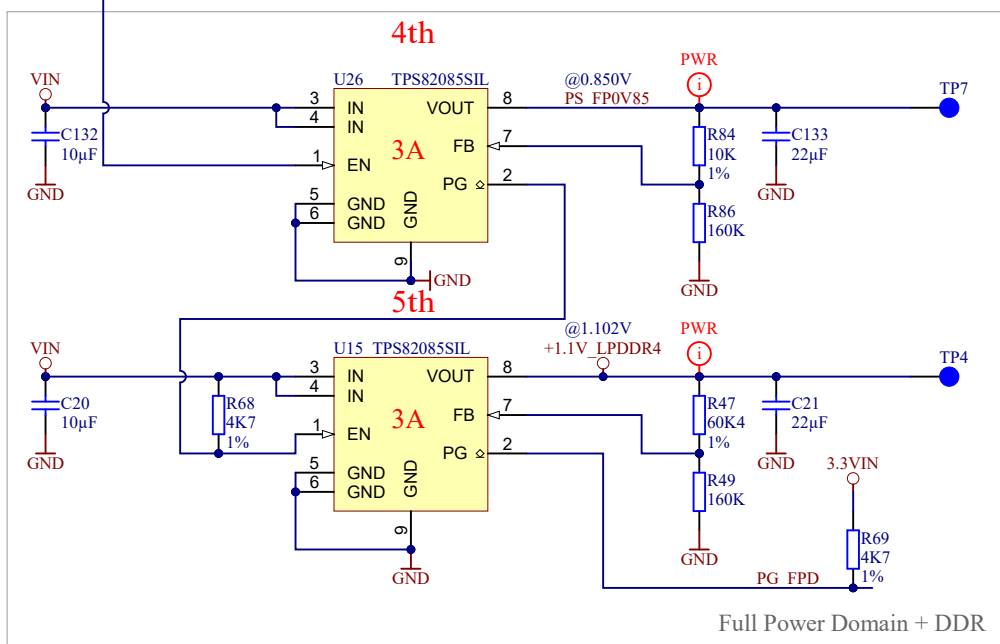
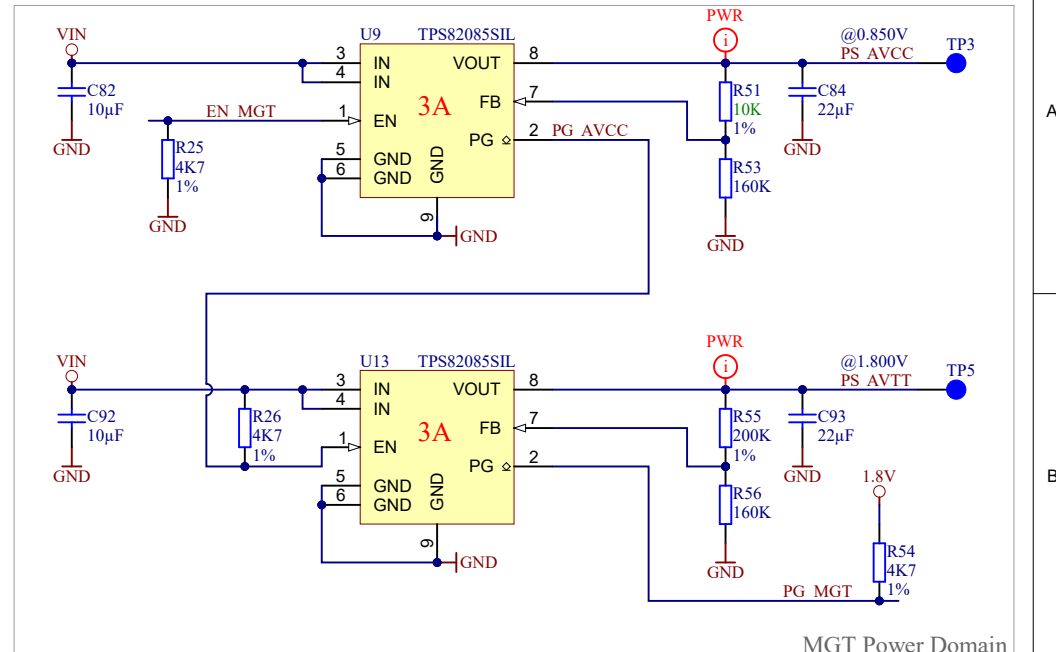
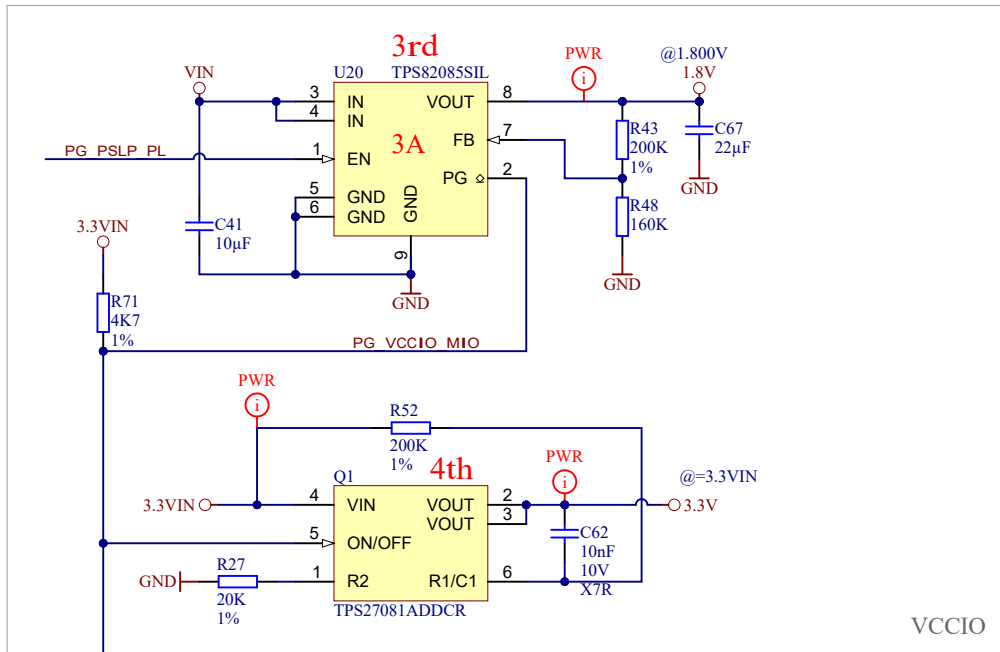
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Title: TE0823 - POWER PS_DDR		
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Date: 2019-10-02	Copyright: Trenz Electronic GmbH	
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Drawn by: VY	Filename: POWER_1.SchDoc	

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Revision 01a (01.07.2020):

1. VY: R38 value was changed to 20K (was: 40K2) to set VCU 0.9V

Revision 01b (29.10.2020):

- 1. VY: added block diagram
- 2. VY: added page "Legal notices"
- 3. VY: R51 value was changed to 10K (was: 20K) to set PS_VCU 0.85V

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	Title: TE0823 - Revision Changes List		
	A4	Number: TE0823 3PIU1ML	Rev. 01
	Date: 2019-10-02	Copyright: Trenz Electronic GmbH	Page 25 of 25
	Drawn by: VY	Filename: Revision Changes.SchDoc	

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