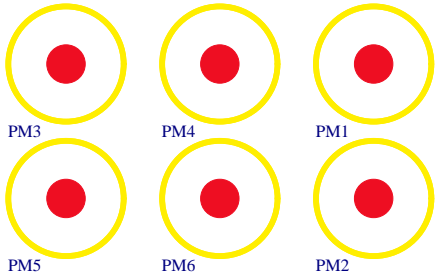


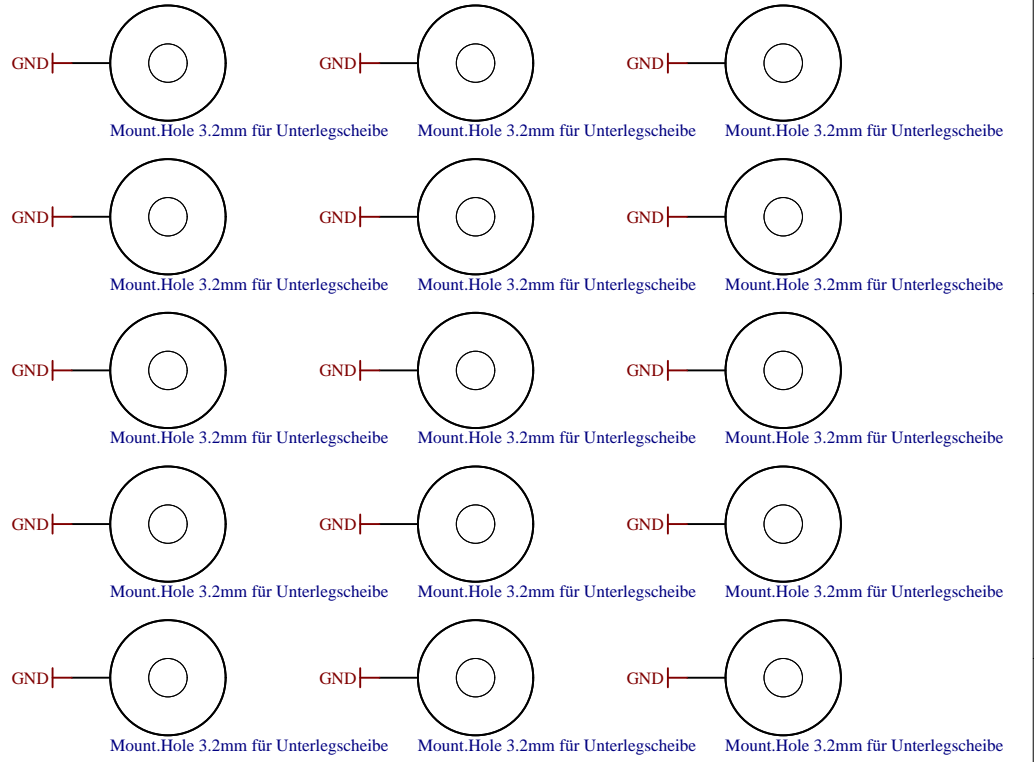
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U_SFP SFP.SchDoc	U_USBH USB3-HUB.SchDoc	U_POWER_OVERVIEW Power_overview.SchDoc
U_SSD SSD.SchDoc	U_CLK Clock.SchDoc	U_POWER_SEQ PowerUpSequence.SchDoc
U_FrontPanel FrontPanel.SchDoc	U_I2C I2C_system.schdoc	
U_USB USB.SchDoc	U_eMMC eMMC.SchDoc	
U_BackPanel BackPanel.SchDoc	U_DDRP DDR_PWR.SchDoc	
U_FMC PWR FMC PWR.SchDoc	U_DDR DDR_SODIMM.SchDoc	
U_ZU ZU.SchDoc	U_CLK2 Clock2.SchDoc	
U_SFP_CTRL SFP_CTRL.SchDoc	U_SC2 SC2.schdoc	
U_SC SC.schdoc	U_MISC MISC.schdoc	
U_UPWR USB3-HUB_PWR.SchDoc	U_PWR_IN PWR_IN.SchDoc	
U_FAN FAN_CON.schdoc	U_REVCH Revision_changes.SchDoc	



~~S/N~~
~~Serialnumber~~

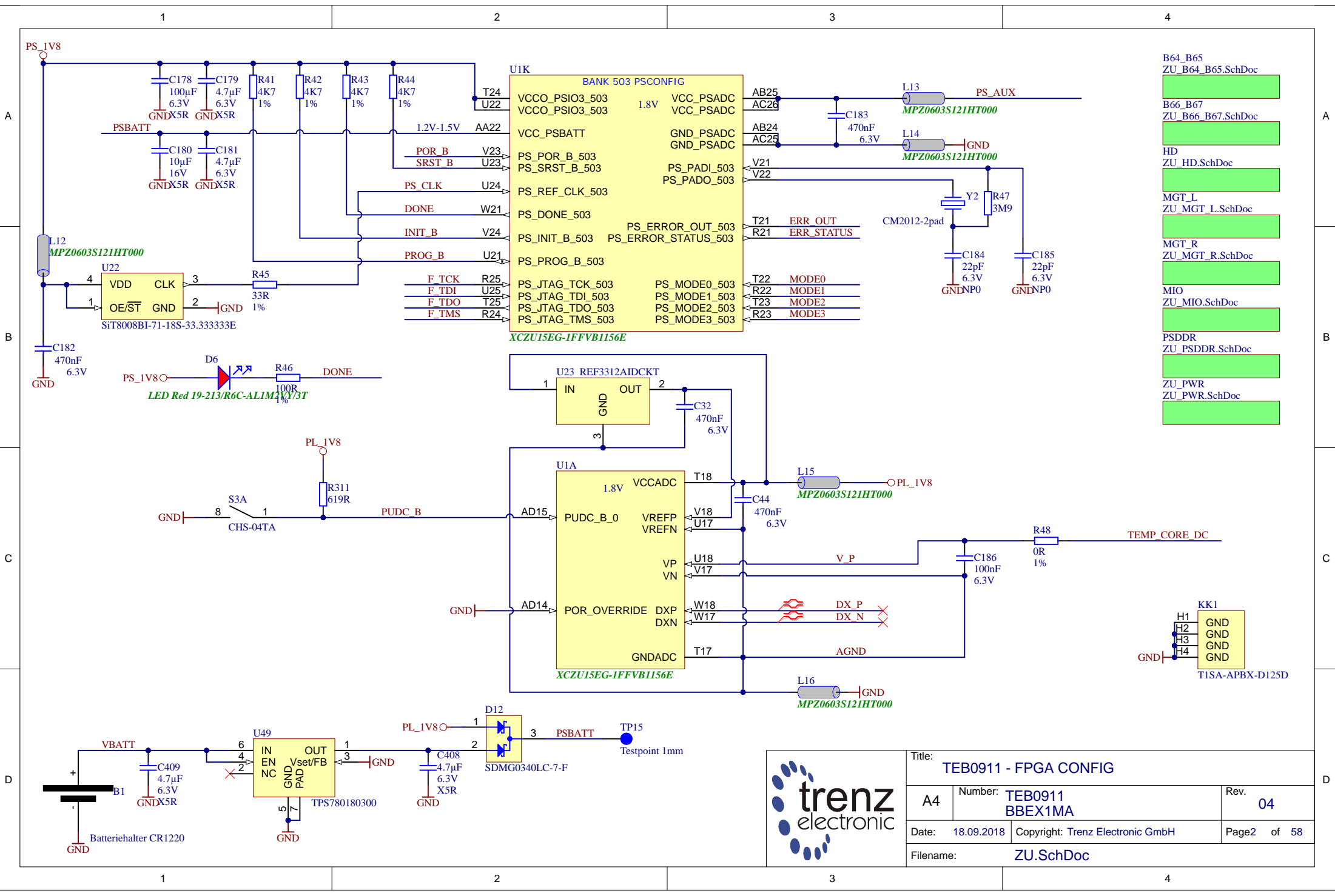
Serial
Serialnumber 6,3 x 6.3mm

LOGO1
TE Logo PRINT Layer
LOGO PRINT

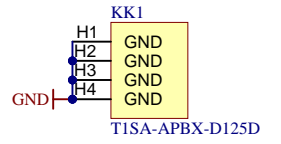


Assembly variant	BBEX1MA
Created by	MR
Modified by	MR
Modified at	2021-10-12
SVN Revision	9077

	Title: TEB0911		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page1 of 58
	Filename: TEB0911.SchDoc		



- B64_B65
ZU_B64_B65.SchDoc
- B66_B67
ZU_B66_B67.SchDoc
- HD
ZU_HD.SchDoc
- MGT_L
ZU_MGT_L.SchDoc
- MGT_R
ZU_MGT_R.SchDoc
- MIO
ZU_MIO.SchDoc
- PSDDR
ZU_PSDDR.SchDoc
- ZU_PWR
ZU_PWR.SchDoc



Title: TEB0911 - FPGA CONFIG		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page2 of 58
Filename: ZU.SchDoc		

A

B

C

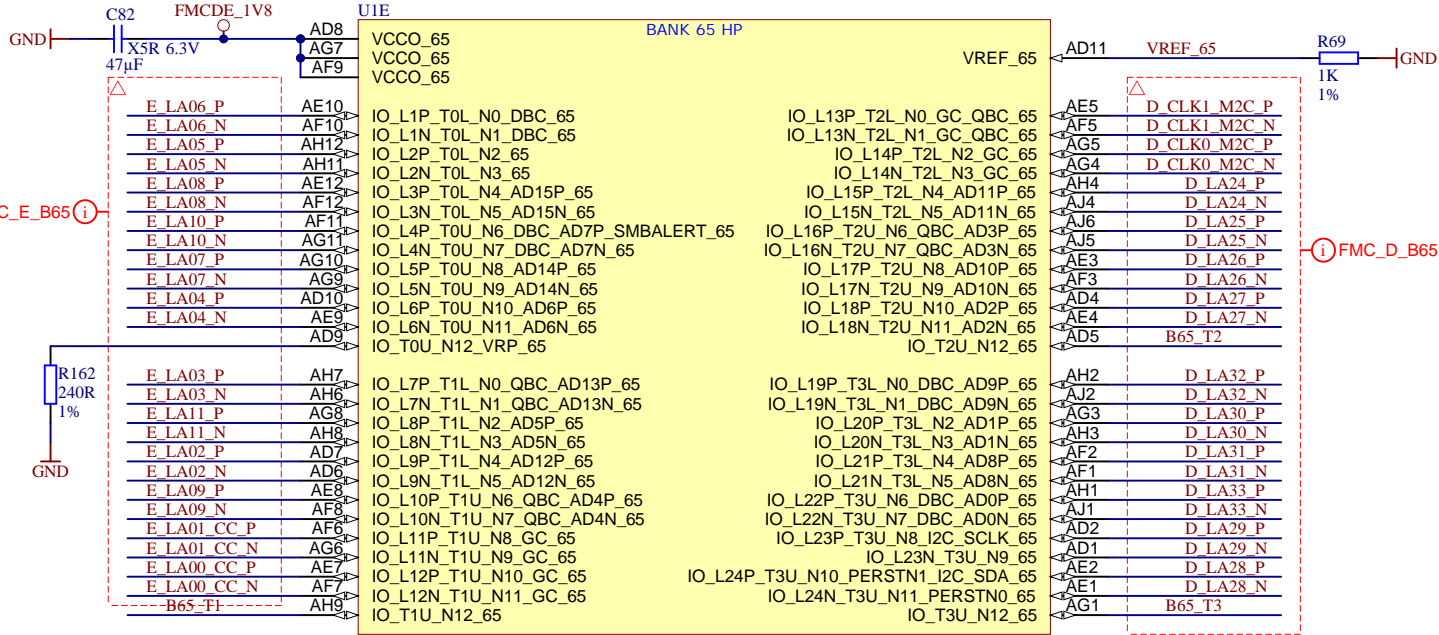
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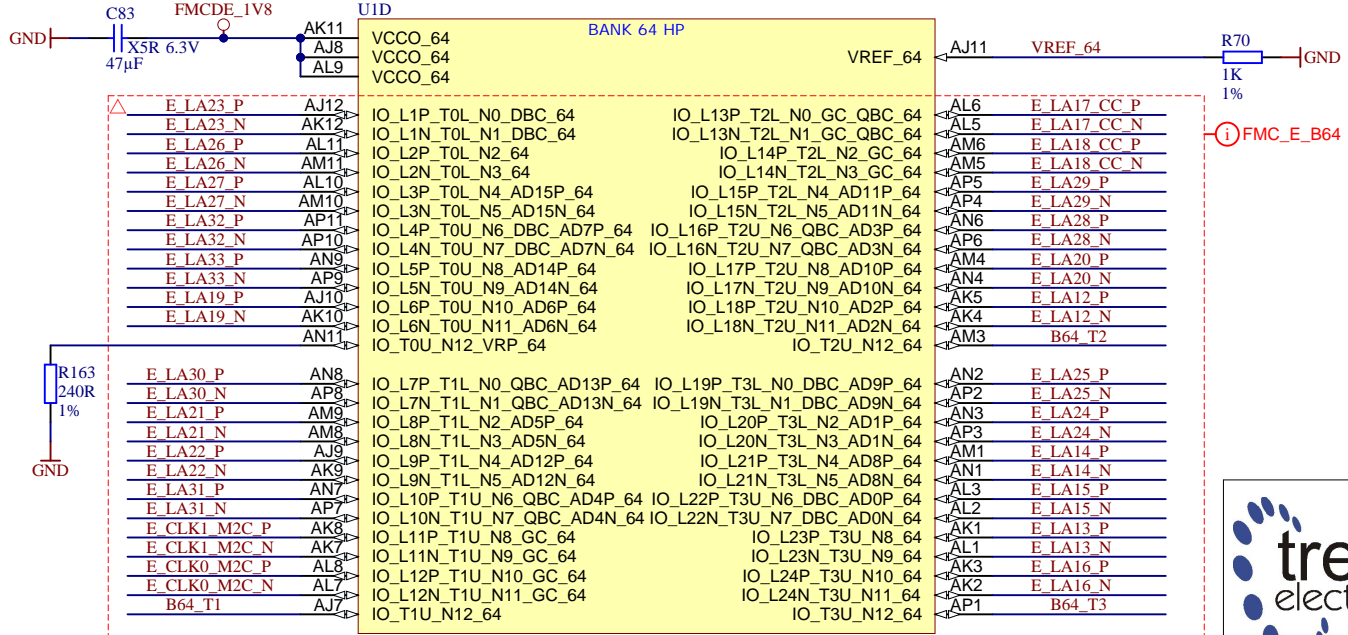
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C

D



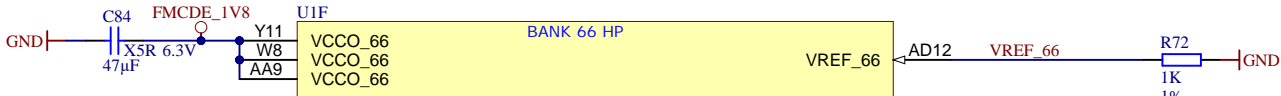
XCZU15EG-1FFVB1156E



XCZU15EG-1FFVB1156E

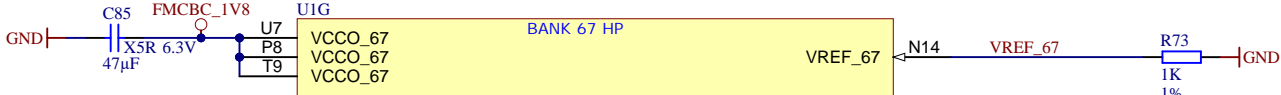


Title: TEB0911 - FPGA B64 B65		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page3 of 58
Filename: ZU_B64_B65.SchDoc		



Bank 66 HP		XCZU15EG-1FFVB1156E	
D LA11 P	AC12	IO_L1P_T0L_N0_DBC_66	IO_L13P_T2L_N0_GC_QBC_66
D LA11 N	AC11	IO_L1N_T0L_N1_DBC_66	IO_L13N_T2L_N1_GC_QBC_66
D LA09 P	AB11	IO_L2P_T0L_N2_66	IO_L14P_T2L_N2_GC_66
D LA09 N	AB10	IO_L2N_T0L_N3_66	IO_L14N_T2L_N3_GC_66
D LA07 P	AA11	IO_L3P_T0L_N4_AD15P_66	IO_L15P_T2L_N4_AD11P_66
D LA07 N	AA10	IO_L3N_T0L_N5_AD15N_66	IO_L15N_T2L_N5_AD11N_66
D LA12 P	AB9	IO_L4P_T0U_N6_DBC_AD7P_66	IO_L16P_T2U_N6_QBC_AD3P_66
D LA12 N	AC9	IO_L4N_T0U_N7_DBC_AD7N_66	IO_L16N_T2U_N7_QBC_AD3N_66
D LA05 P	Y12	IO_L5P_T0U_N8_AD14P_66	IO_L17P_T2U_N8_AD10P_66
D LA05 N	AA12	IO_L5N_T0U_N9_AD14N_66	IO_L17N_T2U_N9_AD10N_66
D LA04 P	Y10	IO_L6P_T0U_N10_AD6P_66	IO_L18P_T2U_N10_AD2P_66
D LA04 N	Y9	IO_L6N_T0U_N11_AD6N_66	IO_L18N_T2U_N11_AD2N_66
	W9	IO_T0U_N12_VRP_66	IO_T2U_N12_66
D LA06 P	AC7	IO_L7P_T1L_N0_QBC_AD13P_66	IO_L19P_T3L_N0_DBC_AD9P_66
D LA06 N	AC6	IO_L7N_T1L_N1_QBC_AD13N_66	IO_L19N_T3L_N1_DBC_AD9N_66
D LA08 P	AB8	IO_L8P_T1L_N2_AD5P_66	IO_L20P_T3L_N2_AD1P_66
D LA08 N	AC8	IO_L8N_T1L_N3_AD5N_66	IO_L20N_T3L_N3_AD1N_66
D LA19 P	W7	IO_L9P_T1L_N4_AD12P_66	IO_L21P_T3L_N4_AD8P_66
D LA19 N	W6	IO_L9N_T1L_N5_AD12N_66	IO_L21N_T3L_N5_AD8N_66
D LA23 P	AB6	IO_L10P_T1U_N6_QBC_AD4P_66	IO_L22P_T3U_N6_DBC_AD0P_66
D LA23 N	AB5	IO_L10N_T1U_N7_QBC_AD4N_66	IO_L22N_T3U_N7_DBC_AD0N_66
D LA00 CC P	Y8	IO_L11P_T1U_N8_GC_66	IO_L23P_T3U_N8_66
D LA00 CC N	Y7	IO_L11N_T1U_N9_GC_66	IO_L23N_T3U_N9_66
D LA01 CC P	AA7	IO_L12P_T1U_N10_GC_66	IO_L24P_T3U_N10_66
D LA01 CC N	AA6	IO_L12N_T1U_N11_GC_66	IO_L24N_T3U_N11_66
B66_T1	AA8	IO_T1U_N12_66	IO_T3U_N12_66

FMC_D_B66



Bank 67 HP		XCZU15EG-1FFVB1156E	
C LA32 P	W12	IO_L1P_T0L_N0_DBC_67	IO_L13P_T2L_N0_GC_QBC_67
C LA32 N	W11	IO_L1N_T0L_N1_DBC_67	IO_L13N_T2L_N1_GC_QBC_67
C LA10 P	T13	IO_L2P_T0L_N2_67	IO_L14P_T2L_N2_GC_67
C LA10 N	R13	IO_L2N_T0L_N3_67	IO_L14N_T2L_N3_GC_67
C LA13 P	U10	IO_L3P_T0L_N4_AD15P_67	IO_L15P_T2L_N4_AD11P_67
C LA13 N	T10	IO_L3N_T0L_N5_AD15N_67	IO_L15N_T2L_N5_AD11N_67
C LA12 P	T12	IO_L4P_T0U_N6_DBC_AD7P_67	IO_L16P_T2U_N6_QBC_AD3P_67
C LA12 N	R12	IO_L4N_T0U_N7_DBC_AD7N_67	IO_L16N_T2U_N7_QBC_AD3N_67
C LA33 P	V12	IO_L5P_T0U_N8_AD14P_67	IO_L17P_T2U_N8_AD10P_67
C LA33 N	V11	IO_L5N_T0U_N9_AD14N_67	IO_L17N_T2U_N9_AD10N_67
C LA11 P	U11	IO_L6P_T0U_N10_AD6P_67	IO_L18P_T2U_N10_AD2P_67
C LA11 N	T11	IO_L6N_T0U_N11_AD6N_67	IO_L18N_T2U_N11_AD2N_67
	W10	IO_T0U_N12_VRP_67	IO_T2U_N12_67
C LA28 P	V8	IO_L7P_T1L_N0_QBC_AD13P_67	IO_L19P_T3L_N0_DBC_AD9P_67
C LA28 N	V7	IO_L7N_T1L_N1_QBC_AD13N_67	IO_L19N_T3L_N1_DBC_AD9N_67
C LA31 P	V6	IO_L8P_T1L_N2_AD5P_67	IO_L20P_T3L_N2_AD1P_67
C LA31 N	U6	IO_L8N_T1L_N3_AD5N_67	IO_L20N_T3L_N3_AD1N_67
C LA26 P	U9	IO_L9P_T1L_N4_AD12P_67	IO_L21P_T3L_N4_AD8P_67
C LA26 N	U8	IO_L9N_T1L_N5_AD12N_67	IO_L21N_T3L_N5_AD8N_67
C LA30 P	T7	IO_L10P_T1U_N6_QBC_AD4P_67	IO_L22P_T3U_N6_DBC_AD0P_67
C LA30 N	T6	IO_L10N_T1U_N7_QBC_AD4N_67	IO_L22N_T3U_N7_DBC_AD0N_67
C LA27 P	R10	IO_L11P_T1U_N8_GC_67	IO_L23P_T3U_N8_67
C LA27 N	R9	IO_L11N_T1U_N9_GC_67	IO_L23N_T3U_N9_67
C LA29 P	T8	IO_L12P_T1U_N10_GC_67	IO_L24P_T3U_N10_67
C LA29 N	R8	IO_L12N_T1U_N11_GC_67	IO_L24N_T3U_N11_67
B67_T1	V9	IO_T1U_N12_67	IO_T3U_N12_67

FMC_C_B67



Title: TEB0911 - FPGA B66 B67		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 4 of 58
Filename: ZU_B66_B67.SchDoc		



XCZUI5EG-1FFVB156E

XCZUI5EG-1FFVB156E



Title: TEB0911 - FPGA B44 B47-50		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page5 of 58
Filename: ZU_HD.SchDoc		

A

A

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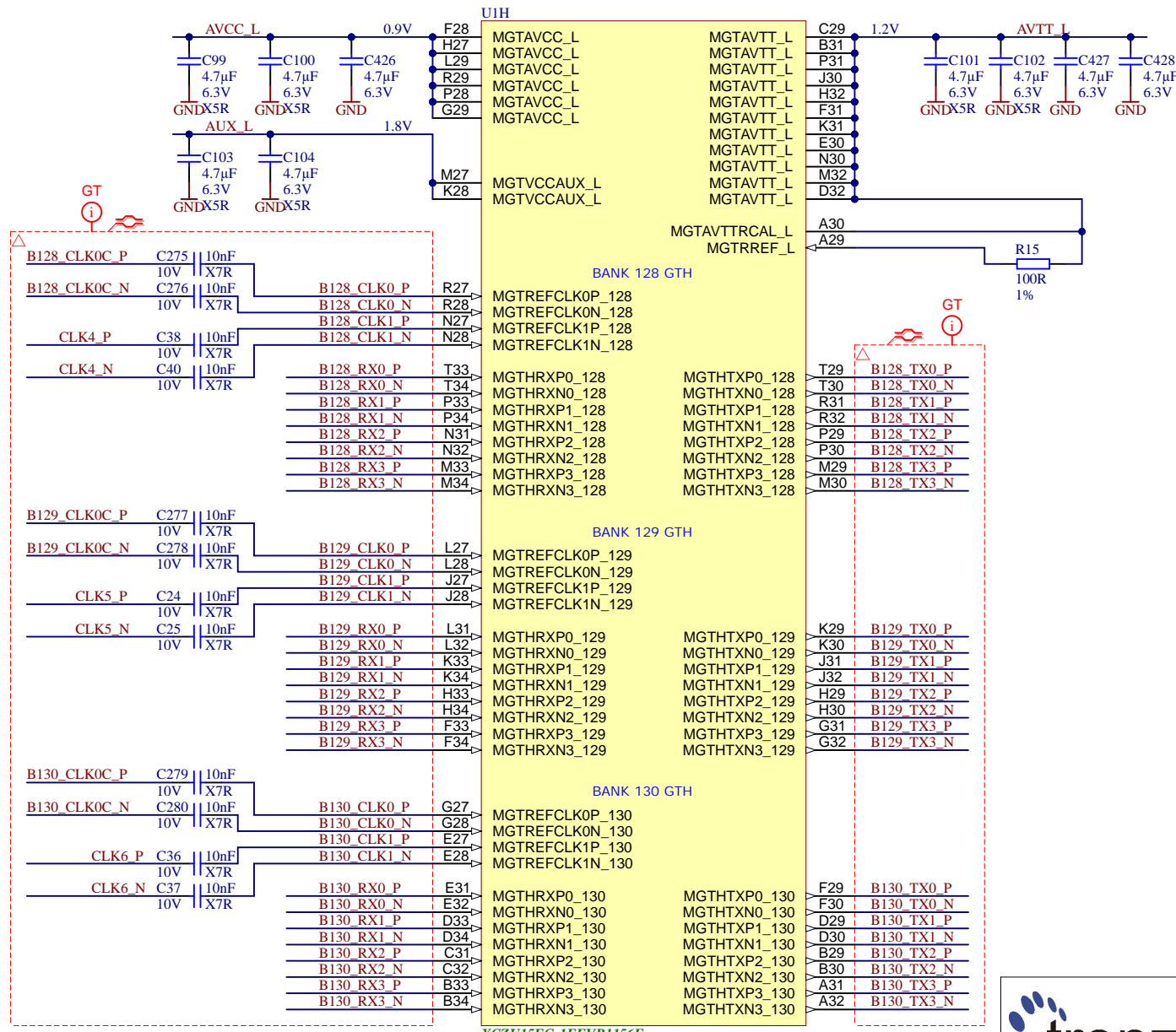
B

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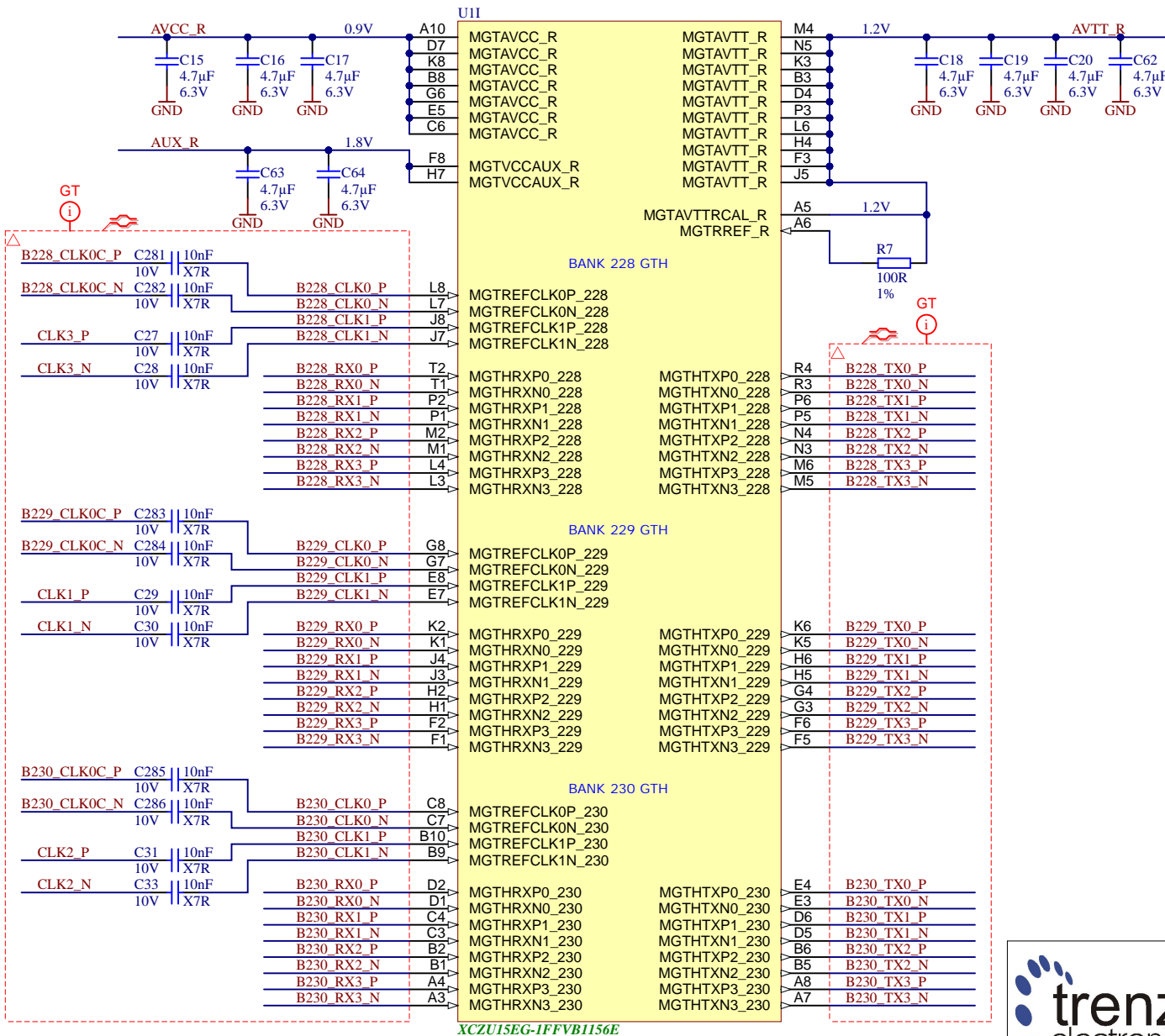
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XCZU15EG-1FFVB156E



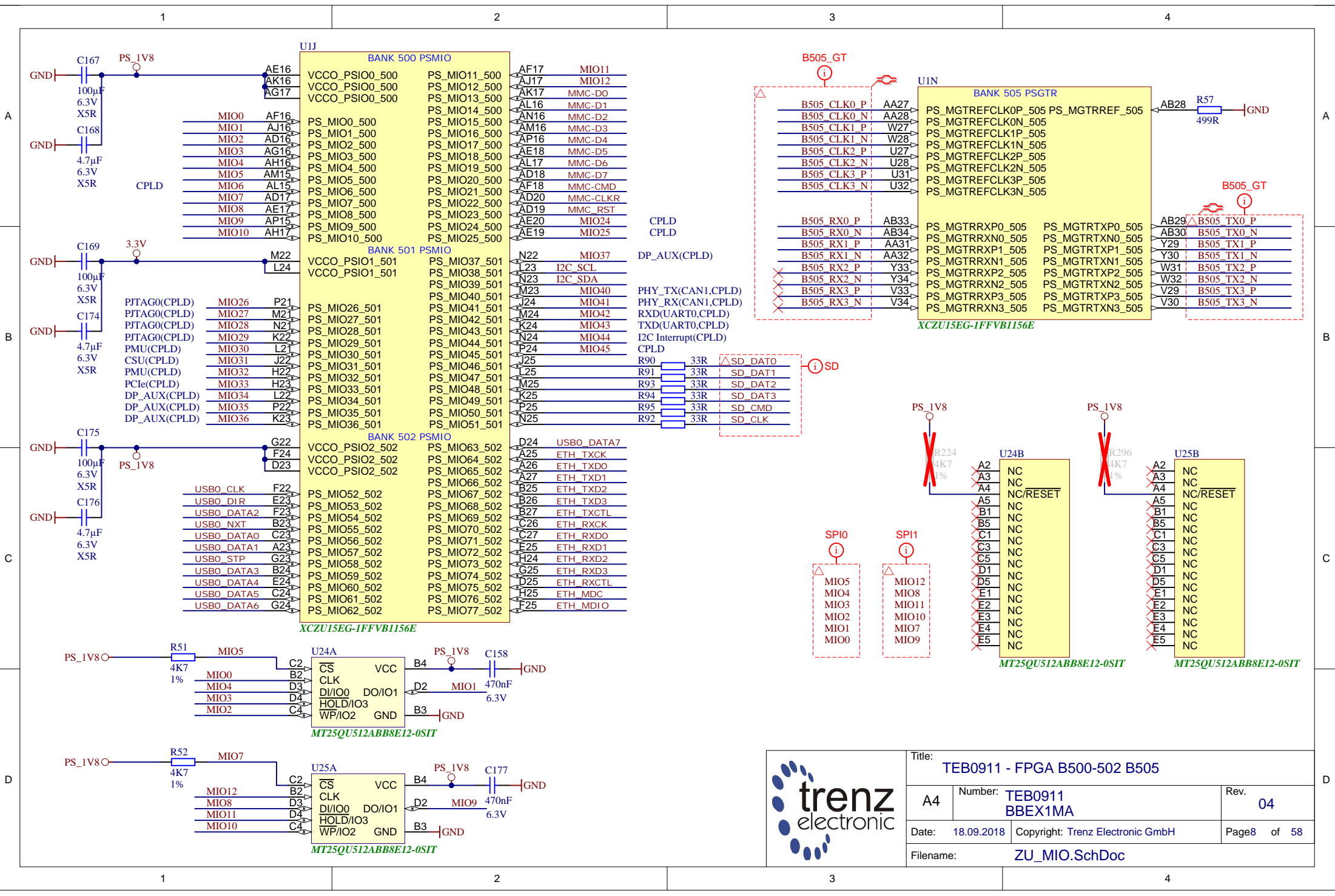
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A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page6 of 58
Filename: ZU_MGT_L.SchDoc		



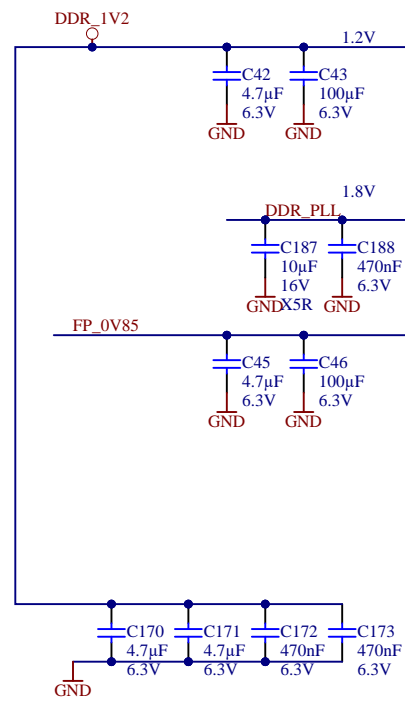
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Title: TEB0911 - FPGA B228-230		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 7 of 58
Filename: ZU_MGT_R.SchDoc		



Title: TEB0911 - FPGA B500-502 B505		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 8 of 58
Filename: ZU_MIO.SchDoc		



UI1

BANK 504 PSSDDR	
AN30	VCCO_PSSDDR_504
AG27	VCCO_PSSDDR_504
AN25	VCCO_PSSDDR_504
AL29	VCCO_PSSDDR_504
AL24	VCCO_PSSDDR_504
AJ24	VCCO_PSSDDR_504
AJ28	VCCO_PSSDDR_504
Y24	VCC_PSDDR_PLL
Y25	VCC_PSDDR_PLL
AE25	VCC_PSINTFP_DDR
AE24	VCC_PSINTFP_DDR
AD24	VCC_PSINTFP_DDR
0.85V	
PS_DDR_CK0_504	PS_DDR_CK0_504
PS_DDR_CK_N0_504	PS_DDR_CK_N0_504
PS_DDR_CKE0_504	PS_DDR_CKE0_504
PS_DDR_CK1_504	PS_DDR_CK1_504
PS_DDR_CK_N1_504	PS_DDR_CK_N1_504
PS_DDR_CKE1_504	PS_DDR_CKE1_504
PS_DDR_A0_504	PS_DDR_A0_504
PS_DDR_A1_504	PS_DDR_A1_504
PS_DDR_A2_504	PS_DDR_A2_504
PS_DDR_A3_504	PS_DDR_A3_504
PS_DDR_A4_504	PS_DDR_A4_504
PS_DDR_A5_504	PS_DDR_A5_504
PS_DDR_A6_504	PS_DDR_A6_504
PS_DDR_A7_504	PS_DDR_A7_504
PS_DDR_A8_504	PS_DDR_A8_504
PS_DDR_A9_504	PS_DDR_A9_504
PS_DDR_A10_504	PS_DDR_A10_504
PS_DDR_A11_504	PS_DDR_A11_504
PS_DDR_A12_504	PS_DDR_A12_504
PS_DDR_A13_504	PS_DDR_A13_504
PS_DDR_A14_504	PS_DDR_A14_504
PS_DDR_A15_504	PS_DDR_A15_504
PS_DDR_A16_504	PS_DDR_A16_504
PS_DDR_A17_504	PS_DDR_A17_504
PS_DDR_CS_N0_504	PS_DDR_CS_N0_504
PS_DDR_CS_N1_504	PS_DDR_CS_N1_504
PS_DDR_BA0_504	PS_DDR_BA0_504
PS_DDR_BA1_504	PS_DDR_BA1_504
PS_DDR_BG0_504	PS_DDR_BG0_504
PS_DDR_BG1_504	PS_DDR_BG1_504
PS_DDR_PARITY_504	PS_DDR_PARITY_504
PS_DDR_RAM_RST_N_504	PS_DDR_RAM_RST_N_504
PS_DDR_ACT_N_504	PS_DDR_ACT_N_504
PS_DDR_ALERT_N_504	PS_DDR_ALERT_N_504
PS_DDR_ZQ_504	PS_DDR_ZQ_504
PS_DDR_ODT0_504	PS_DDR_ODT0_504
PS_DDR_ODT1_504	PS_DDR_ODT1_504

XCZU15EG-1FFVB1156E

ADDR_CMD_CTRL

DDR4-AJ0..16I
DDR4-CS_N0
DDR4-CS_N1
DDR4-BA0
DDR4-BA1
DDR4-BG0
DDR4-BG1
DDR4-PAR
DDR4-ACT
DDR4-ODT0
DDR4-ODT1
DDR4-CKE0
DDR4-CKE1
DDR4-CLK0_P
DDR4-CLK0_N
DDR4-CLK1_P
DDR4-CLK1_N

LANE0	LANE2	LANE4	LANE6	LANE_ECC
DOJ[0..7]	DOJ[16..23]	DOJ[32..39]	DOJ[48..55]	CBJ[0..7]
DDR4-DQS0_P	DDR4-DQS2_P	DDR4-DQS4_P	DDR4-DQS6_P	DDR4-DQS8_P
DDR4-DQS0_N	DDR4-DQS2_N	DDR4-DQS4_N	DDR4-DQS6_N	DDR4-DQS8_N
DDR4-DM0	DDR4-DM2	DDR4-DM4	DDR4-DM6	DDR4-DM8
LANE1	LANE3	LANE5	LANE7	
DOJ[8..15]	DOJ[24..31]	DOJ[40..47]	DOJ[56..63]	
DDR4-DQS3_P	DDR4-DQS5_P	DDR4-DQS7_P	DDR4-DQS9_P	
DDR4-DQS3_N	DDR4-DQS5_N	DDR4-DQS7_N	DDR4-DQS9_N	
DDR4-DM1	DDR4-DM3	DDR4-DM5	DDR4-DM7	



Title: TEB0911 - FPGA B504			
A4	Number: TEB0911 BBEX1MA	Rev. 04	
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 9 of 58	
Filename: ZU_PSDDR.SchDoc			

U1M

BANK 504 PSSDDR	
DQ0	AP20
DQ1	AP18
DQ2	AP19
DQ3	AP17
DQ4	AM20
DQ5	AM19
DQ6	AM18
DQ7	AL18
DQ8	AP22
DQ9	AP21
DQ10	AP24
DQ11	AN23
DQ12	AL2
DQ13	AL22
DQ14	AM23
DQ15	AL23
DQ16	AL20
DQ17	AK20
DQ18	AJ20
DQ19	AK18
DQ20	AG20
DQ21	AH18
DQ22	AG19
DQ23	AG18
DQ24	AG21
DQ25	AH2
DQ26	AG24
DQ27	AG23
DQ28	AK22
DQ29	AJ21
DQ30	AJ22
DQ31	AK23
PS_DDR_DQ0_504	PS_DDR_DQ0_504
PS_DDR_DQ1_504	PS_DDR_DQ1_504
PS_DDR_DQ2_504	PS_DDR_DQ2_504
PS_DDR_DQ3_504	PS_DDR_DQ3_504
PS_DDR_DQ4_504	PS_DDR_DQ4_504
PS_DDR_DQ5_504	PS_DDR_DQ5_504
PS_DDR_DQ6_504	PS_DDR_DQ6_504
PS_DDR_DQ7_504	PS_DDR_DQ7_504
PS_DDR_DQ8_504	PS_DDR_DQ8_504
PS_DDR_DQ9_504	PS_DDR_DQ9_504
PS_DDR_DQ10_504	PS_DDR_DQ10_504
PS_DDR_DQ11_504	PS_DDR_DQ11_504
PS_DDR_DQ12_504	PS_DDR_DQ12_504
PS_DDR_DQ13_504	PS_DDR_DQ13_504
PS_DDR_DQ14_504	PS_DDR_DQ14_504
PS_DDR_DQ15_504	PS_DDR_DQ15_504
PS_DDR_DQ16_504	PS_DDR_DQ16_504
PS_DDR_DQ17_504	PS_DDR_DQ17_504
PS_DDR_DQ18_504	PS_DDR_DQ18_504
PS_DDR_DQ19_504	PS_DDR_DQ19_504
PS_DDR_DQ20_504	PS_DDR_DQ20_504
PS_DDR_DQ21_504	PS_DDR_DQ21_504
PS_DDR_DQ22_504	PS_DDR_DQ22_504
PS_DDR_DQ23_504	PS_DDR_DQ23_504
PS_DDR_DQ24_504	PS_DDR_DQ24_504
PS_DDR_DQ25_504	PS_DDR_DQ25_504
PS_DDR_DQ26_504	PS_DDR_DQ26_504
PS_DDR_DQ27_504	PS_DDR_DQ27_504
PS_DDR_DQ28_504	PS_DDR_DQ28_504
PS_DDR_DQ29_504	PS_DDR_DQ29_504
PS_DDR_DQ30_504	PS_DDR_DQ30_504
PS_DDR_DQ31_504	PS_DDR_DQ31_504
PS_DDR_DQ32_504	PS_DDR_DQ32_504
PS_DDR_DQ33_504	PS_DDR_DQ33_504
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PS_DDR_DQ68_504	PS_DDR_DQ68_504
PS_DDR_DQ69_504	PS_DDR_DQ69_504
PS_DDR_DQ70_504	PS_DDR_DQ70_504
PS_DDR_DQ71_504	PS_DDR_DQ71_504
PS_DDR_DQ72_504	PS_DDR_DQ72_504
PS_DDR_DQ73_504	PS_DDR_DQ73_504
PS_DDR_DQ74_504	PS_DDR_DQ74_504
PS_DDR_DQ75_504	PS_DDR_DQ75_504
PS_DDR_DQ76_504	PS_DDR_DQ76_504
PS_DDR_DQ77_504	PS_DDR_DQ77_504
PS_DDR_DQ78_504	PS_DDR_DQ78_504
PS_DDR_DQ79_504	PS_DDR_DQ79_504
PS_DDR_DQ80_504	PS_DDR_DQ80_504
PS_DDR_DQ81_504	PS_DDR_DQ81_504
PS_DDR_DQ82_504	PS_DDR_DQ82_504
PS_DDR_DQ83_504	PS_DDR_DQ83_504
PS_DDR_DQ84_504	PS_DDR_DQ84_504
PS_DDR_DQ85_504	PS_DDR_DQ85_504
PS_DDR_DQ86_504	PS_DDR_DQ86_504
PS_DDR_DQ87_504	PS_DDR_DQ87_504
PS_DDR_DQ88_504	PS_DDR_DQ88_504
PS_DDR_DQ89_504	PS_DDR_DQ89_504
PS_DDR_DQ90_504	PS_DDR_DQ90_504
PS_DDR_DQ91_504	PS_DDR_DQ91_504
PS_DDR_DQ92_504	PS_DDR_DQ92_504
PS_DDR_DQ93_504	PS_DDR_DQ93_504
PS_DDR_DQ94_504	PS_DDR_DQ94_504
PS_DDR_DQ95_504	PS_DDR_DQ95_504
PS_DDR_DQ96_504	PS_DDR_DQ96_504
PS_DDR_DQ97_504	PS_DDR_DQ97_504
PS_DDR_DQ98_504	PS_DDR_DQ98_504
PS_DDR_DQ99_504	PS_DDR_DQ99_504
PS_DDR_DM0_504	PS_DDR_DM0_504
PS_DDR_DM1_504	PS_DDR_DM1_504
PS_DDR_DM2_504	PS_DDR_DM2_504
PS_DDR_DM3_504	PS_DDR_DM3_504
PS_DDR_DM4_504	PS_DDR_DM4_504
PS_DDR_DM5_504	PS_DDR_DM5_504
PS_DDR_DM6_504	PS_DDR_DM6_504
PS_DDR_DM7_504	PS_DDR_DM7_504
PS_DDR_DM8_504	PS_DDR_DM8_504

XCZU15EG-1FFVB1156E

A

B

C

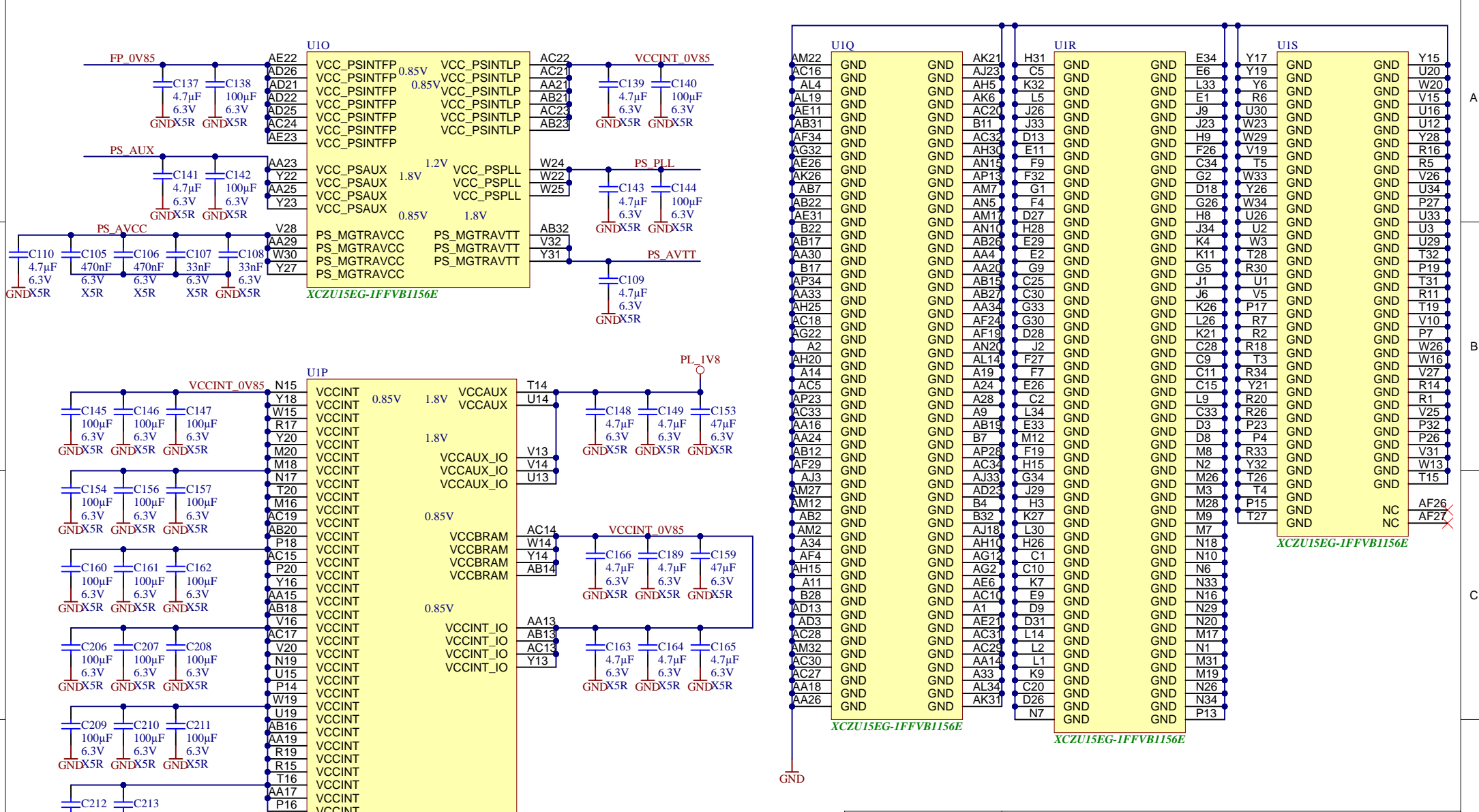
D

A

B

C

D



XCZU15EG-1FFVB1156E

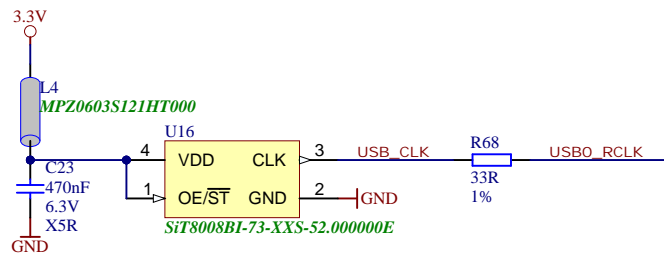
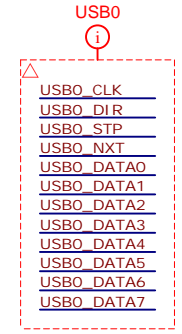
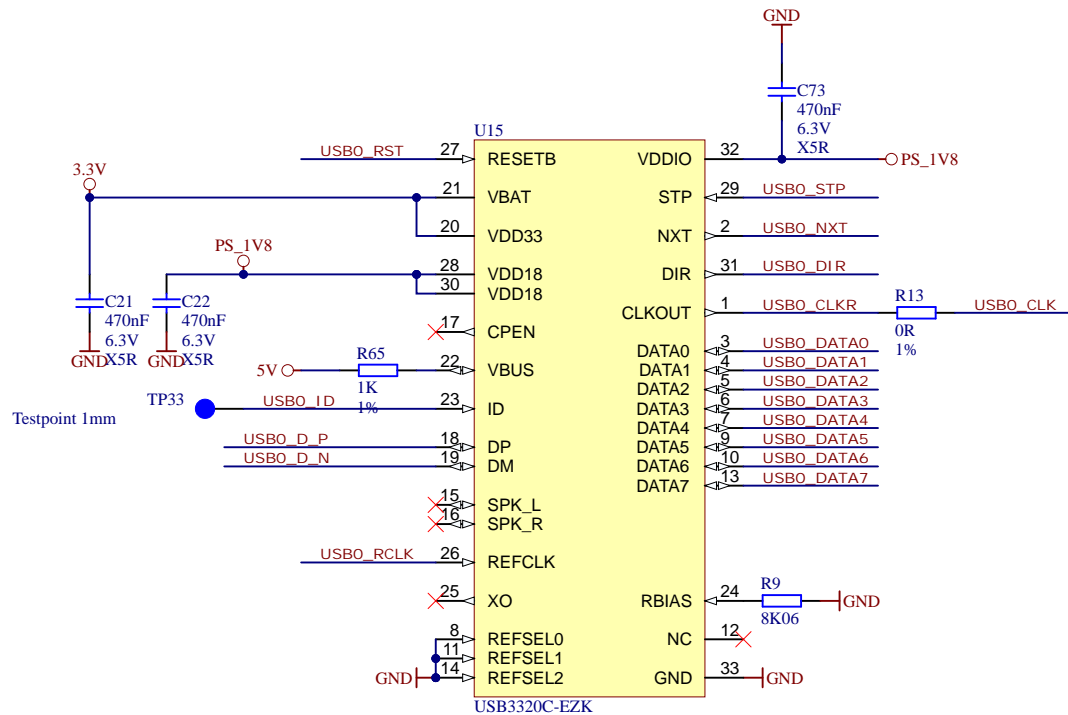
XCZU15EG-1FFVB1156E

XCZU15EG-1FFVB1156E

Capacitors suitable for ZU9EG, ZU15EG



Title: TEB0911 - FPGA POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 10 of 58
Filename: ZU_PWR.SchDoc		



Title: TEB0911 - USB 2.0 PHY		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 11 of 58
Filename: USB-PHY.SchDoc		

A

A

B

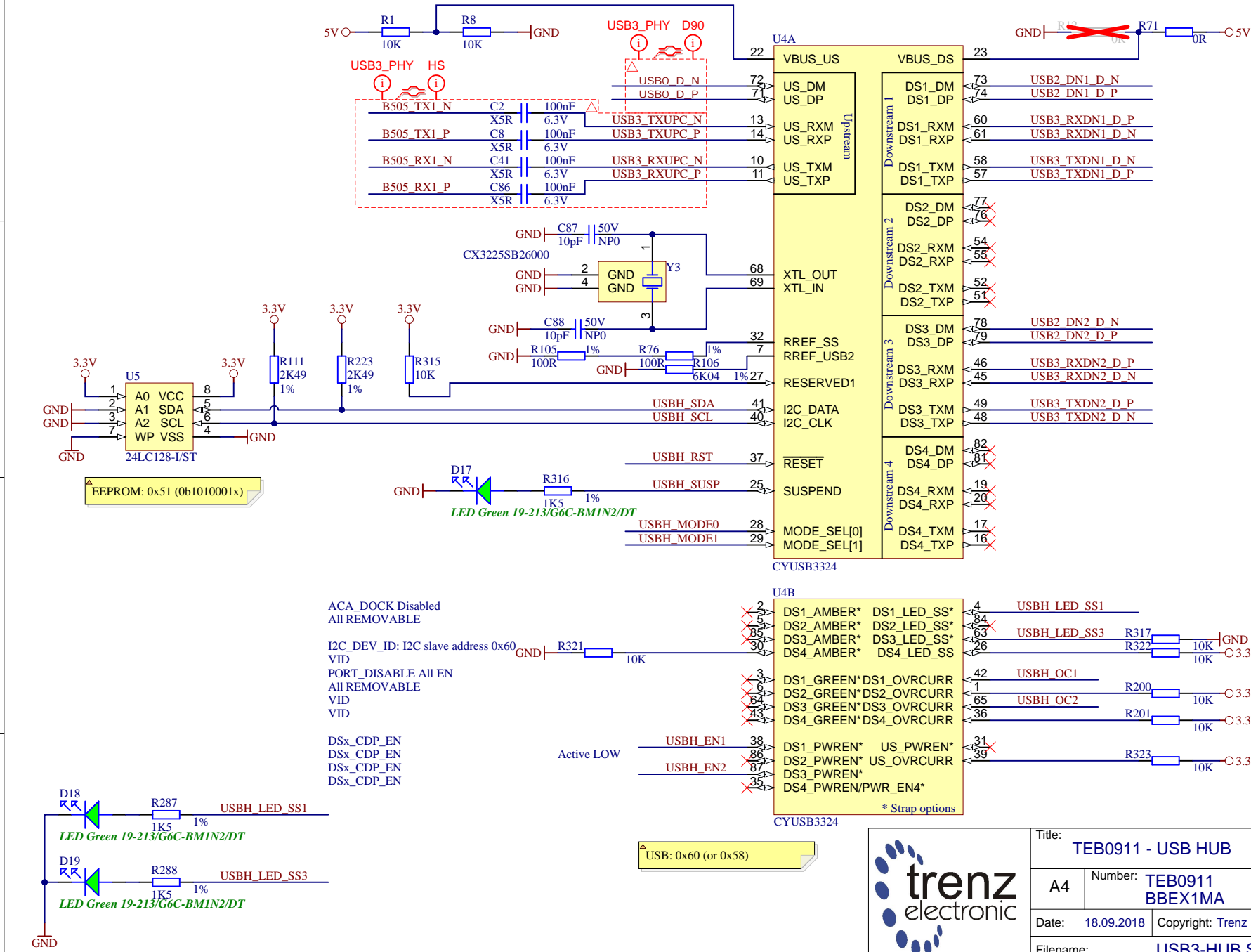
B

C

C

D

D



LAYOUT NOTES:
Each member of a High-Speed differential pair should be no more than 1.25 mm

Each member of a SuperSpeed differential pair should be no more than 0.13 mm

RESETN pin should be held LOW until both supplies become stable.

EEPROM: 0x51 (0b1010001x)

USB: 0x60 (or 0x58)

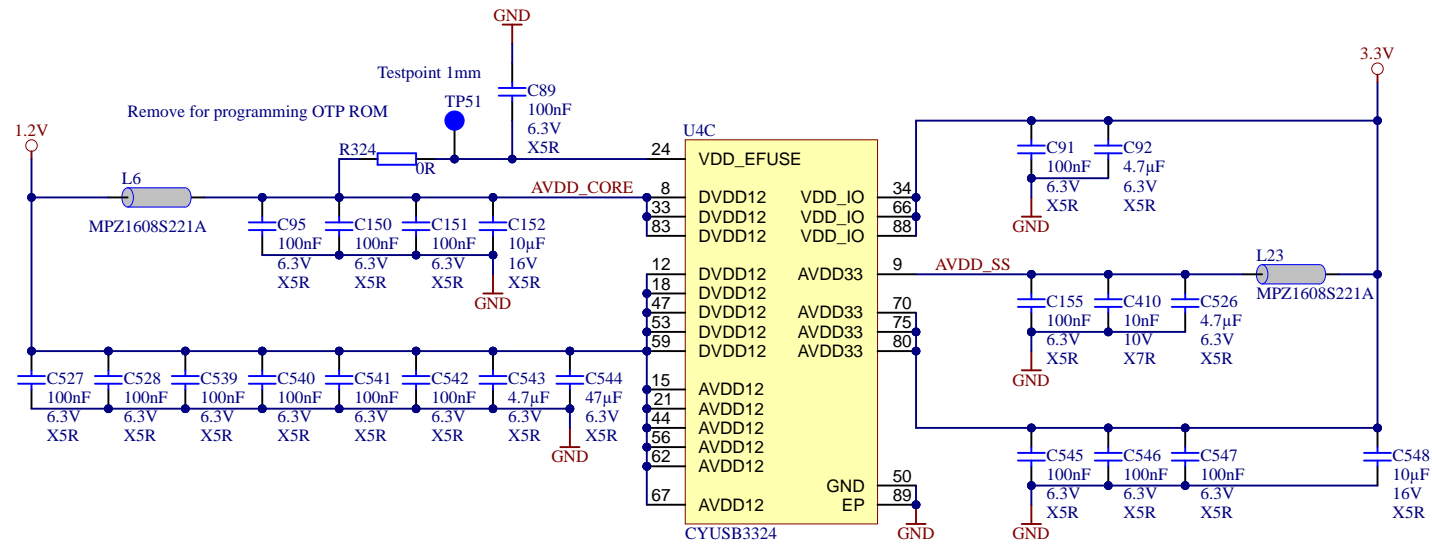
PORT_DISABLE All EN
PWR_EN_SEL Individual
PIN_STRAP config


Active LOW

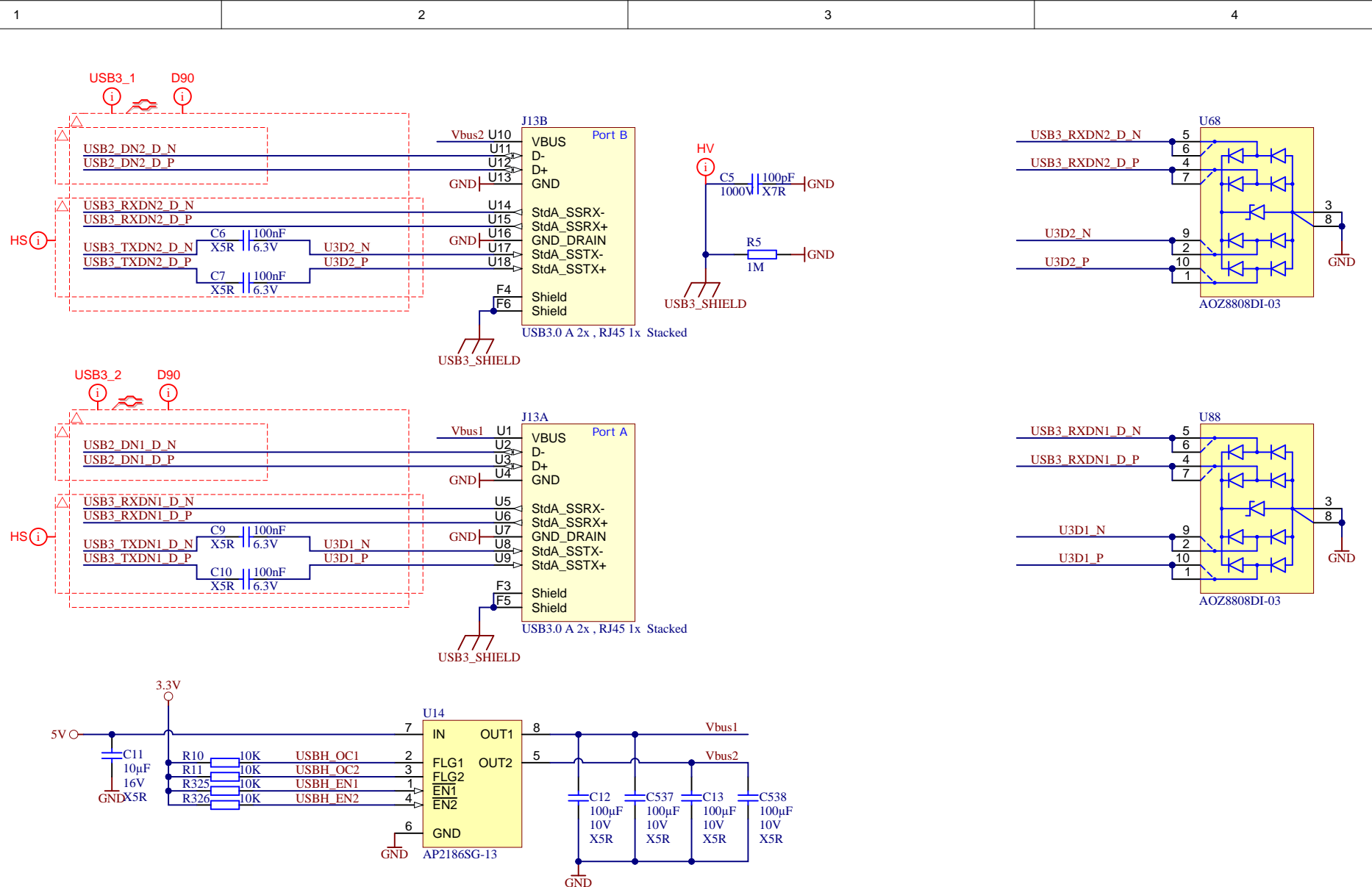
Power enable and overcurrent LOW




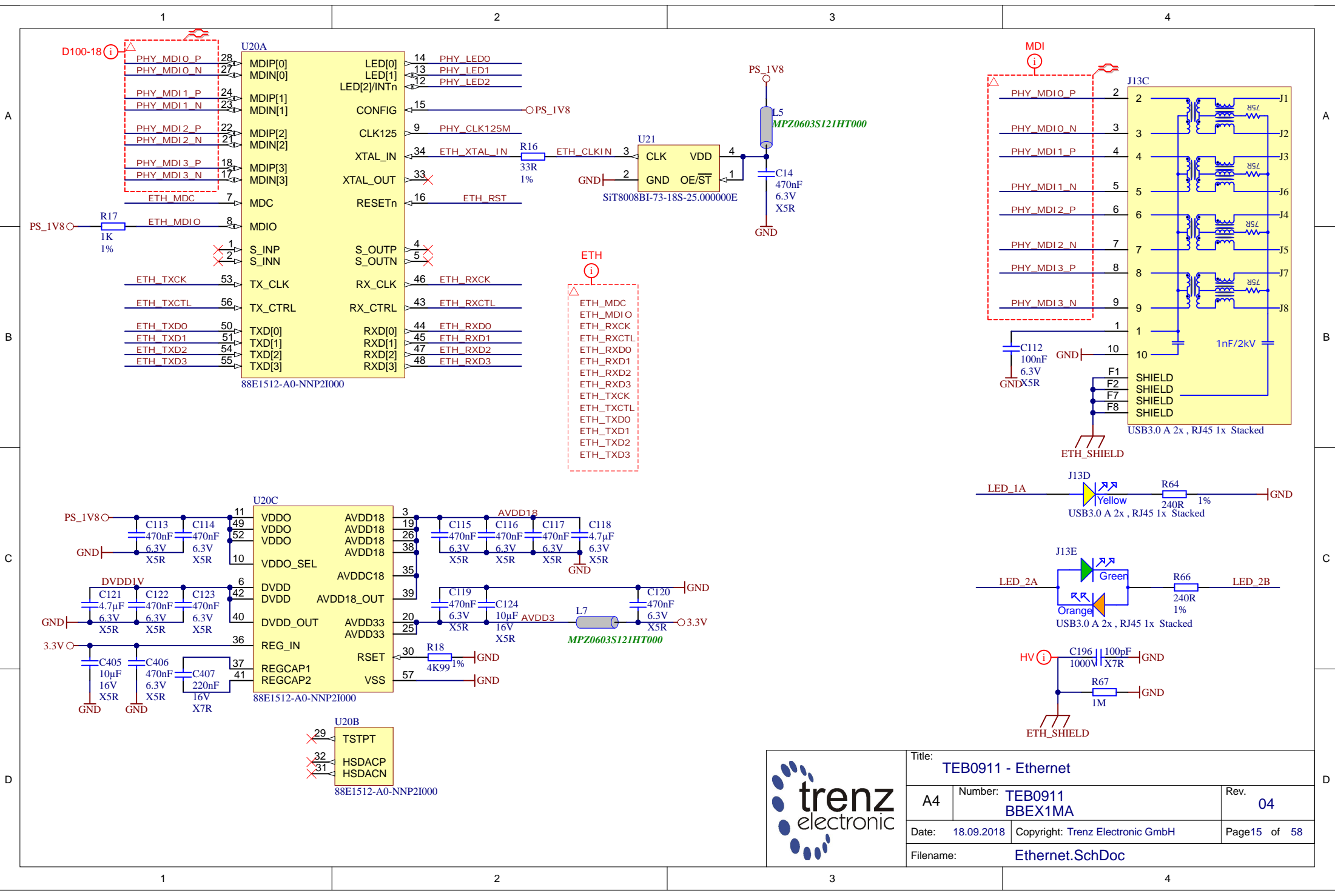
Title: TEB0911 - USB HUB		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 12 of 58
Filename: USB3-HUB.SchDoc		



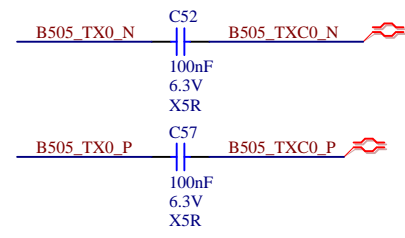
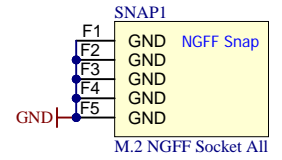
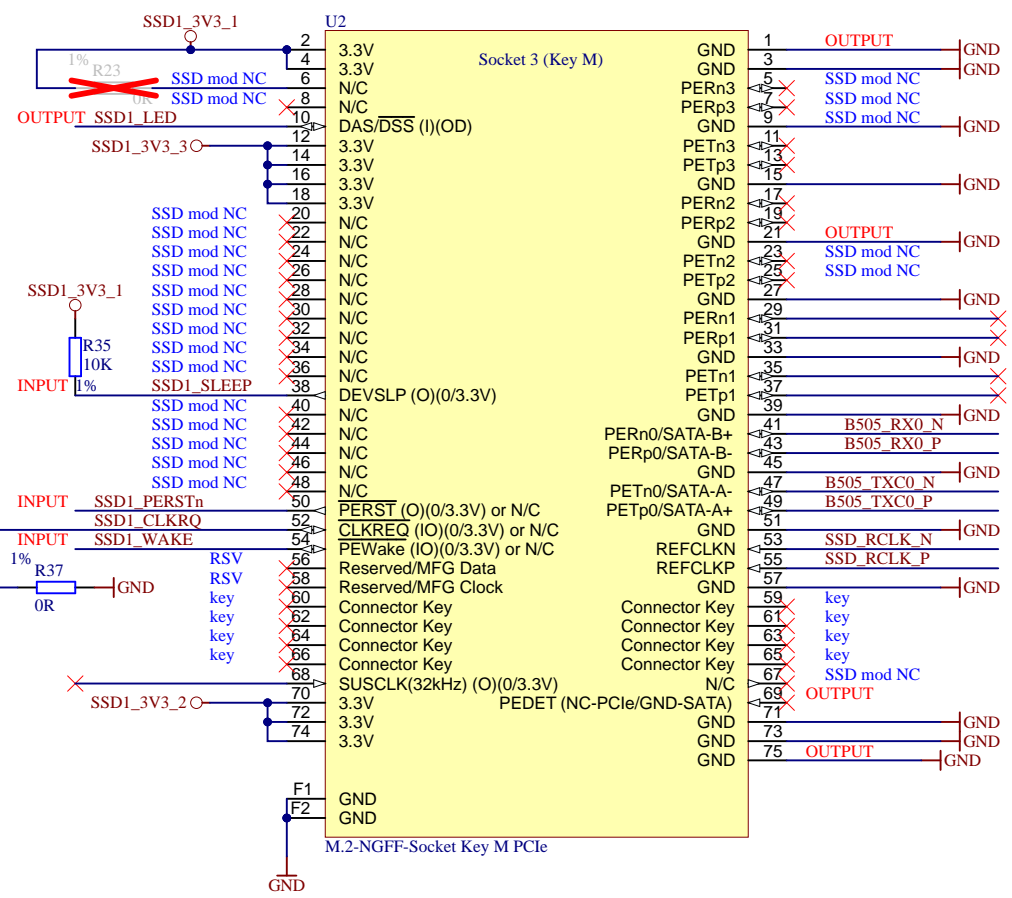
	Title: TEB0911 - USB HUB		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 13 of 58
	Filename: USB3-HUB_PWR.SchDoc		



		Title: TEB0911 - USB CONNECTORS	
		A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH	
Filename: USB.SchDoc		Page 14 of 58	

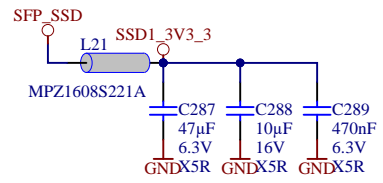
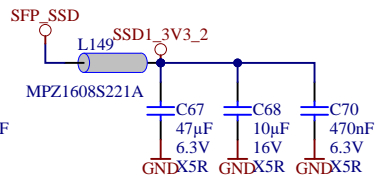
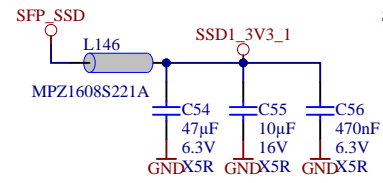


Title: TEB0911 - Ethernet		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 15 of 58
Filename: Ethernet.SchDoc		

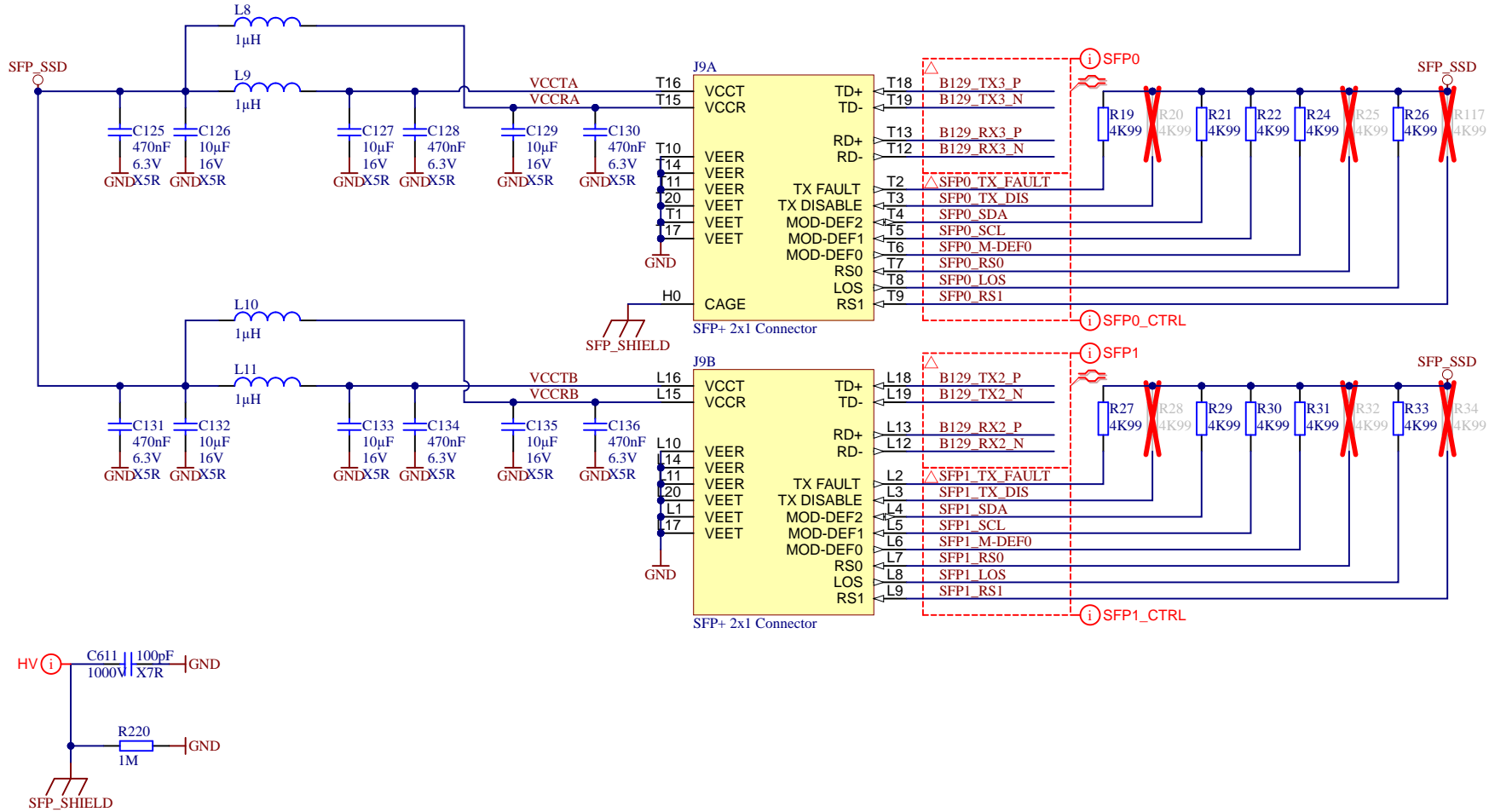



MECH1

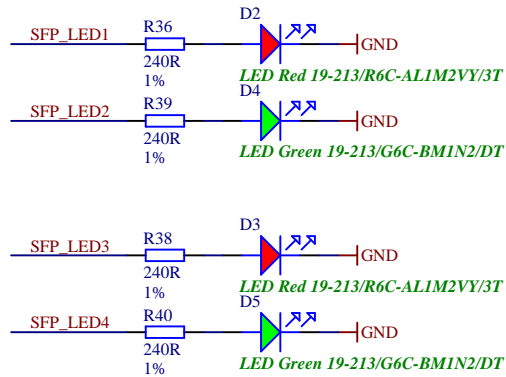
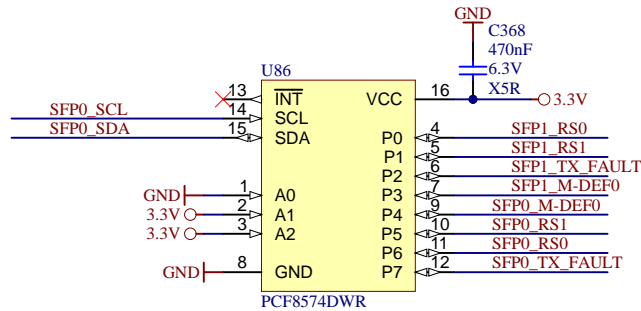
 M.2 NGFF SMD-Abstandsbolzen - M3 - 1.5mm



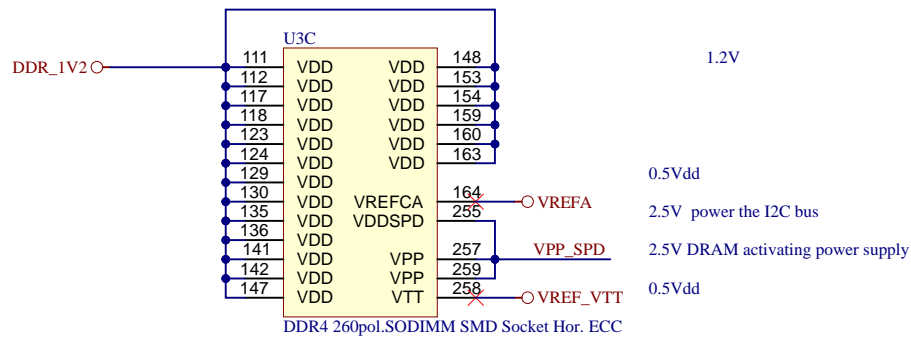
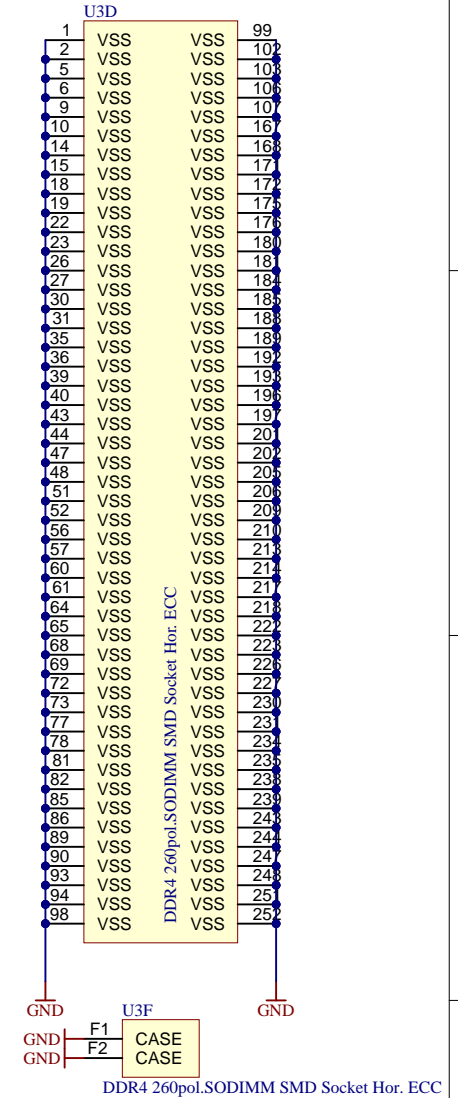
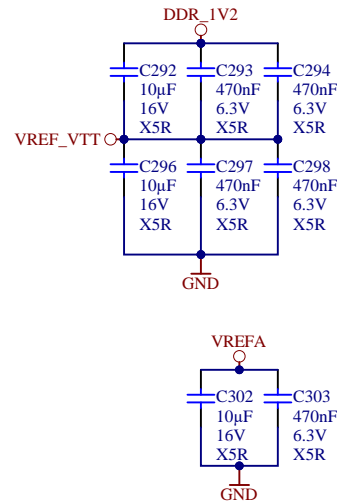
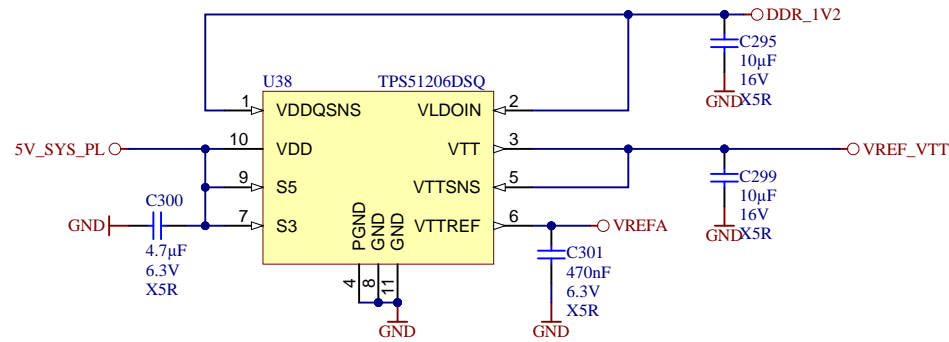
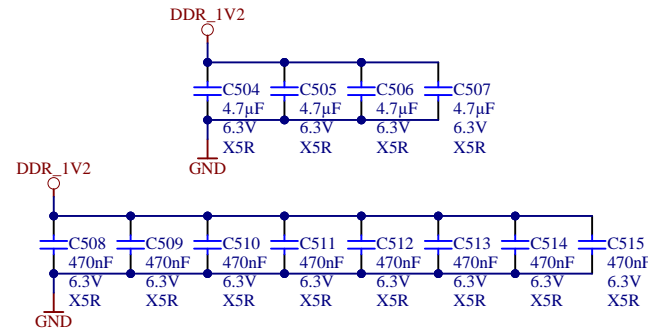
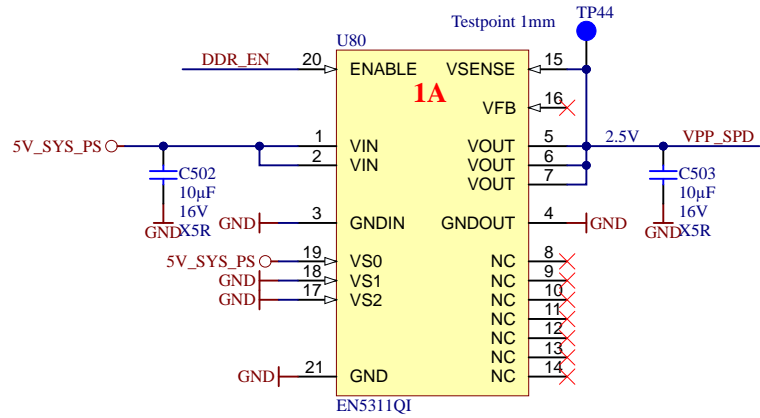
Title: TEB0911 - SSD		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 16 of 58
Filename: SSD.SchDoc		



	Title: TEB0911 - SFP		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 17 of 58
	Filename: SFP.SchDoc		

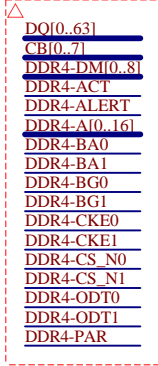
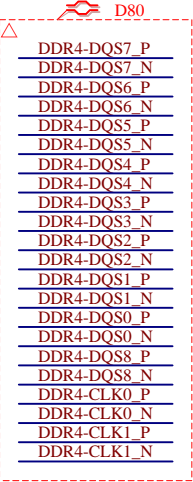
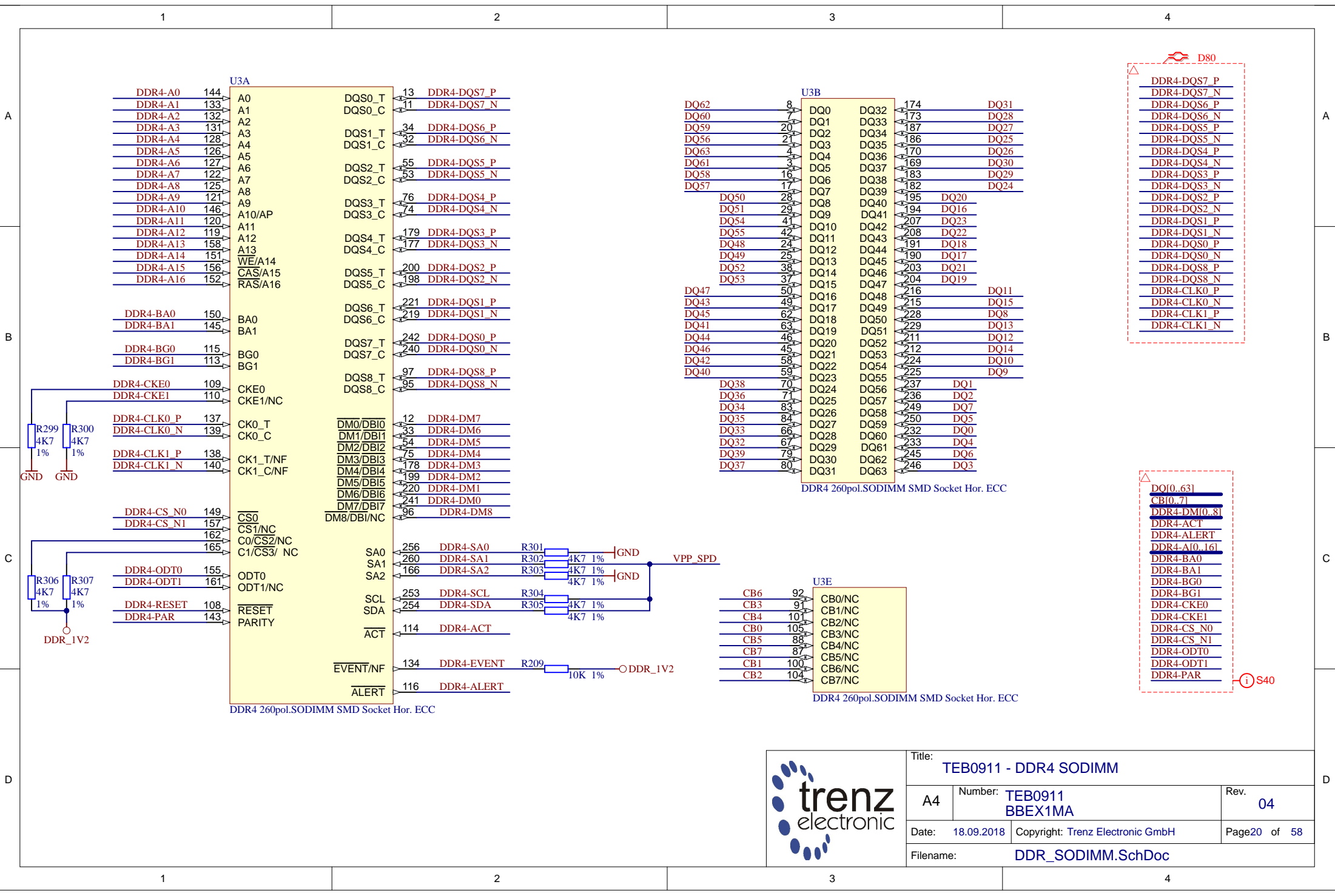


	Title: TEB0911 - SFP		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 18 of 58
	Filename: SFP_CTRL.SchDoc		

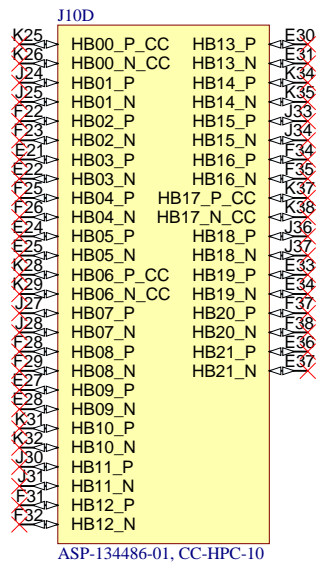
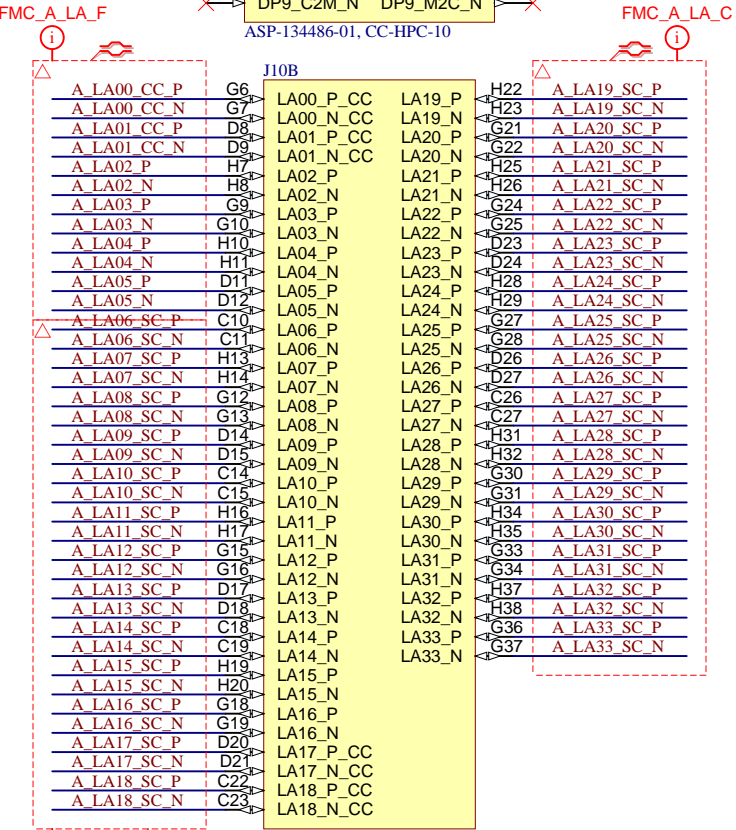
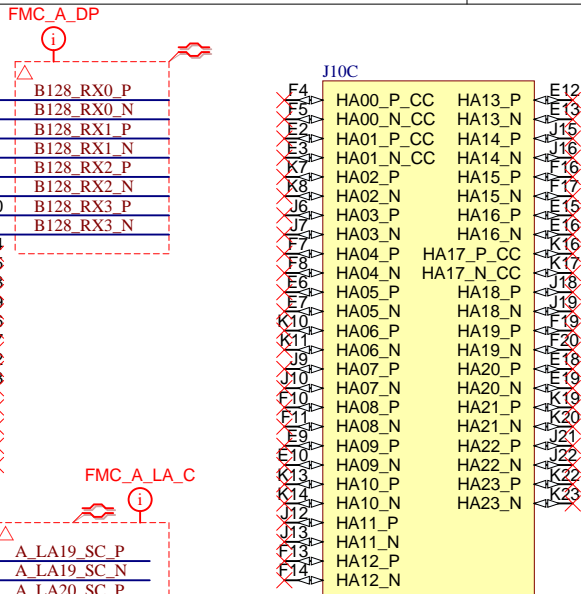
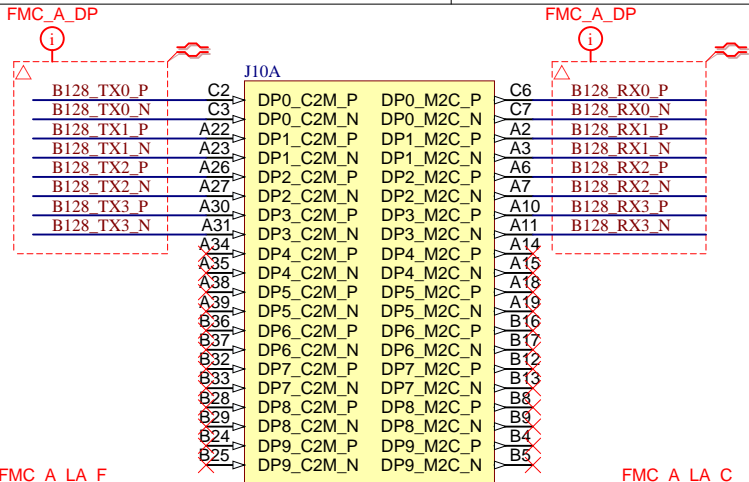


Title: **TEB0911 - DDR POWER**

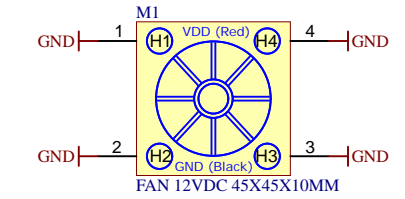
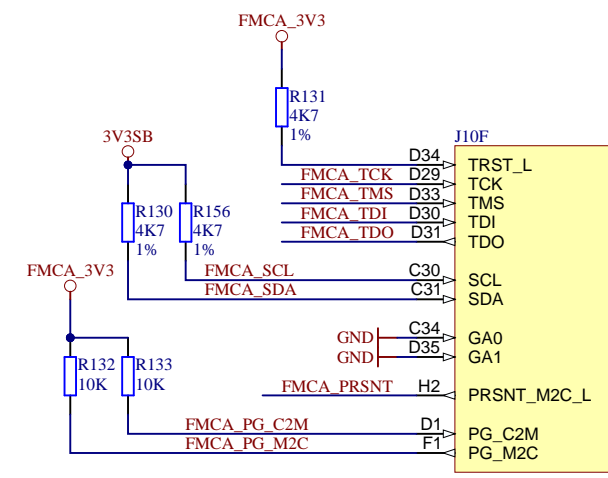
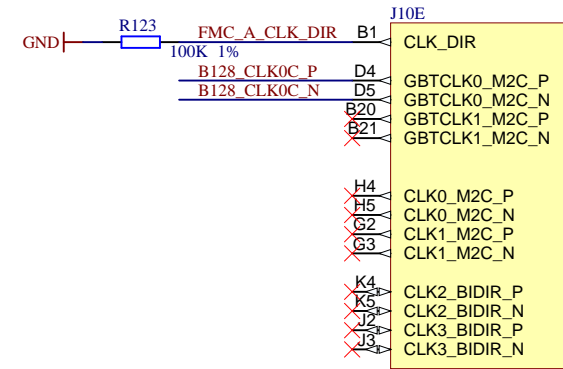
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	
Filename: DDR_PWR.SchDoc		Page19 of 58



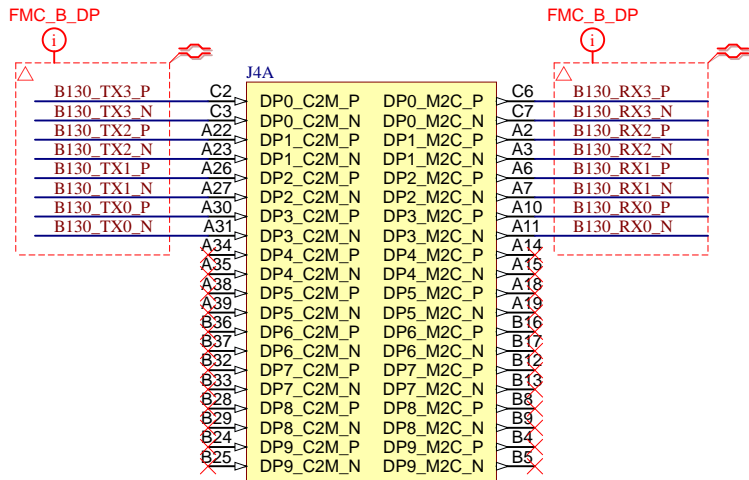
Title: TEB0911 - DDR4 SODIMM		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page20 of 58
Filename: DDR_SODIMM.SchDoc		



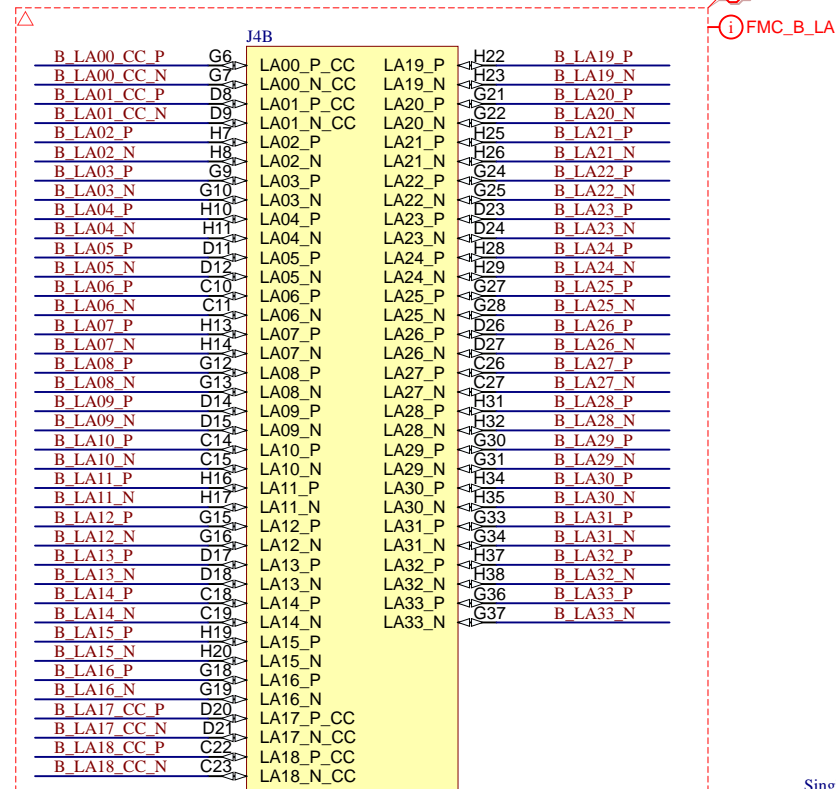
Single FMC Commercial Baseboard Snap



Title: TEB0911 - FMC A		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 21 of 58
Filename: FMC_A.SchDoc		



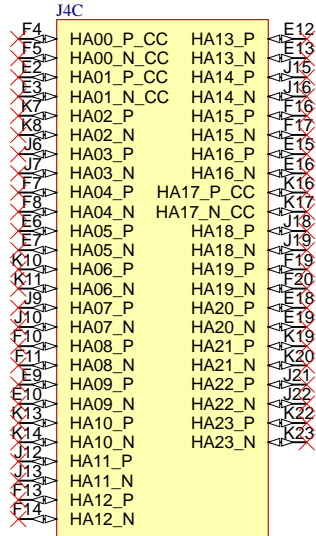
ASP-134486-01, CC-HPC-10



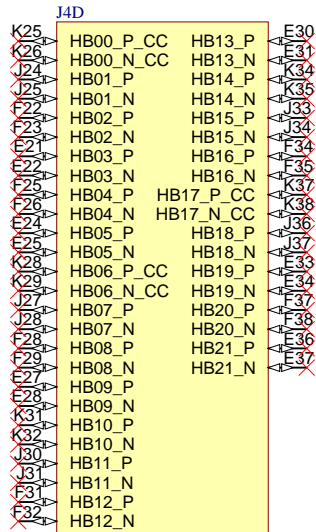
ASP-134486-01, CC-HPC-10



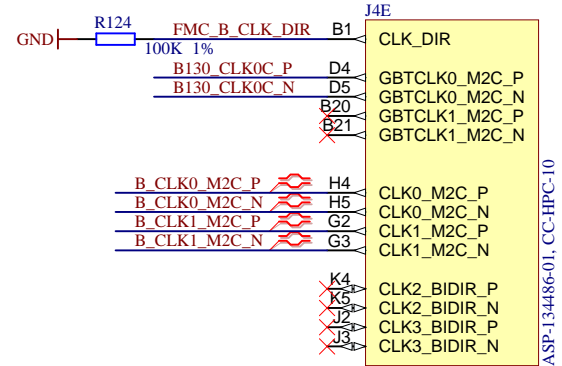
Single FMC Commercial Baseboard Snap



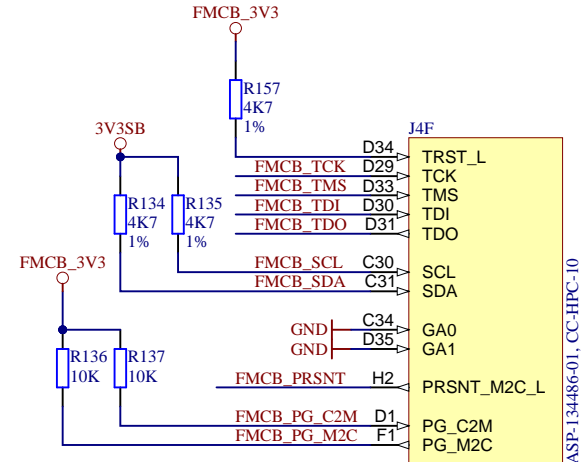
ASP-134486-01, CC-HPC-10



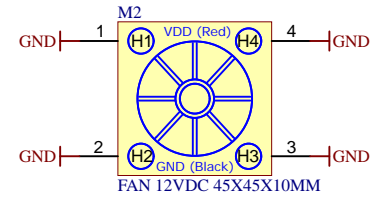
ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10



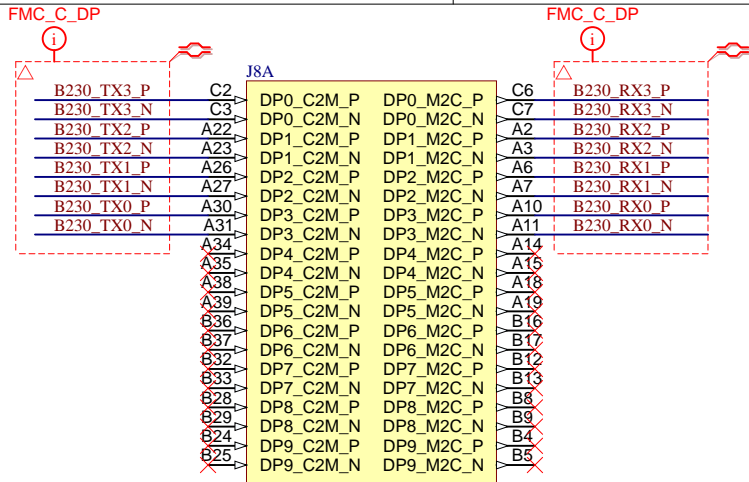
ASP-134486-01, CC-HPC-10



FAN 12VDC 45X45X10MM

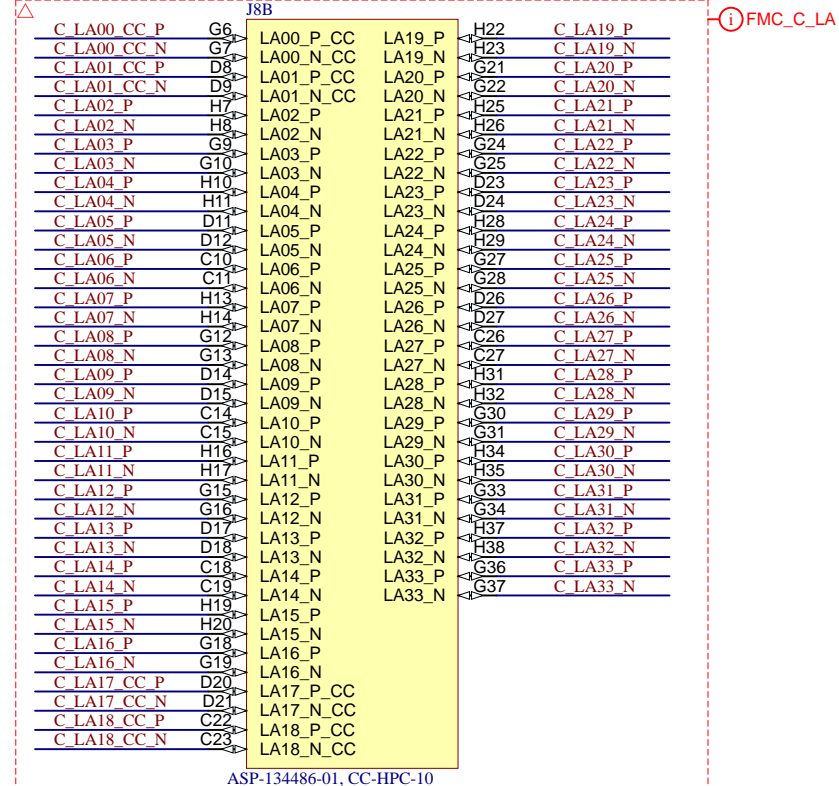


Title: TEB0911 - FMC B		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 22 of 58
Filename: FMC_B.SchDoc		



ASP-134486-01, CC-HPC-10

ASP-134486-01, CC-HPC-10

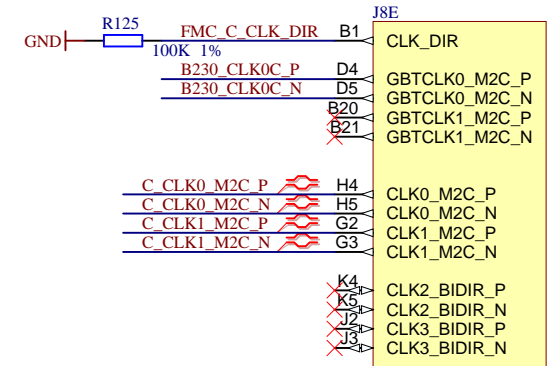


ASP-134486-01, CC-HPC-10

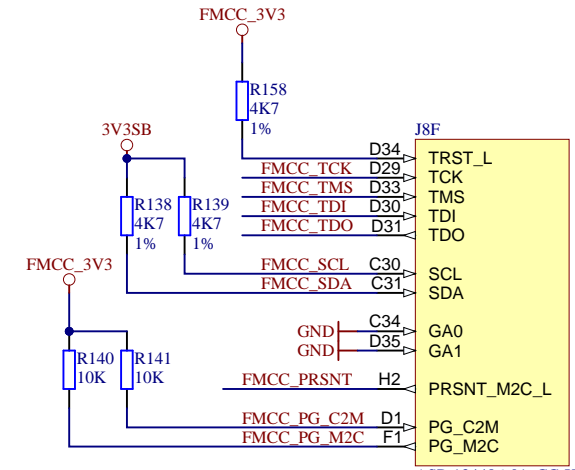
ASP-134486-01, CC-HPC-10



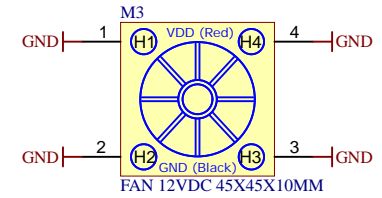
Single FMC Commercial Baseboard Snap



ASP-134486-01, CC-HPC-10



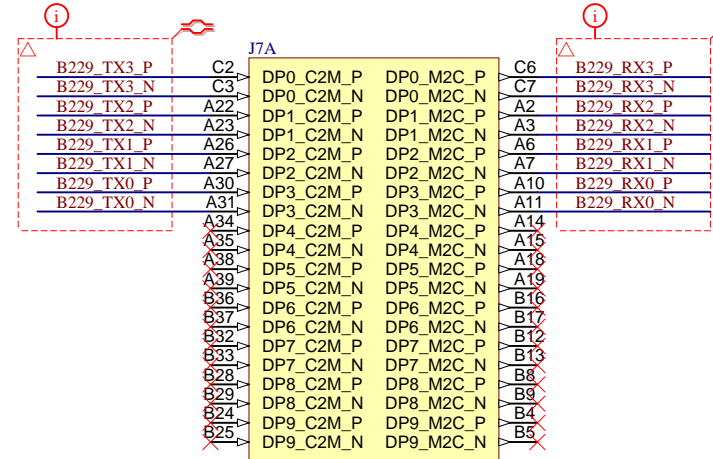
ASP-134486-01, CC-HPC-10



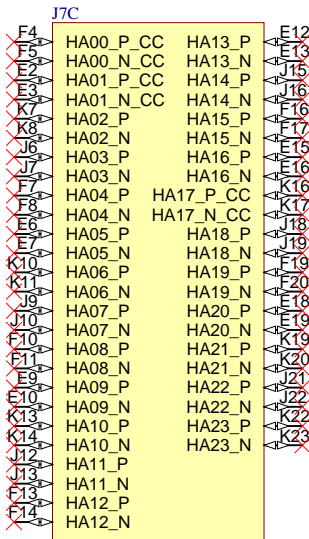
Title: TEB0911 - FMC C		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 23 of 58
Filename: FMC_C.SchDoc		

FMC_D_DP

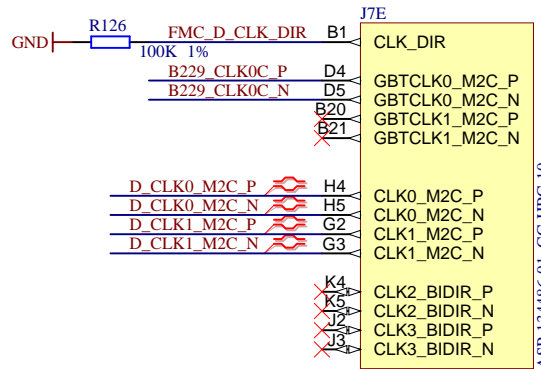
FMC_D_DP



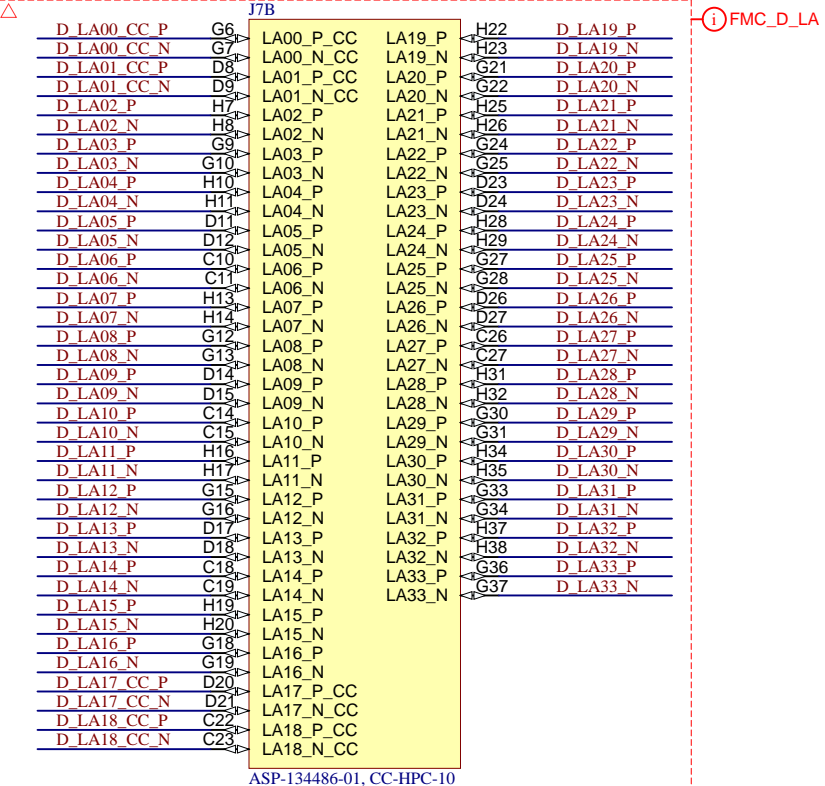
ASP-134486-01, CC-HPC-10



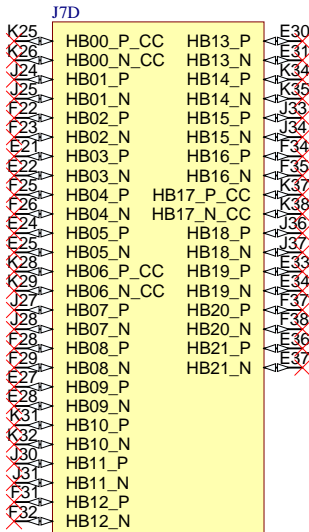
ASP-134486-01, CC-HPC-10



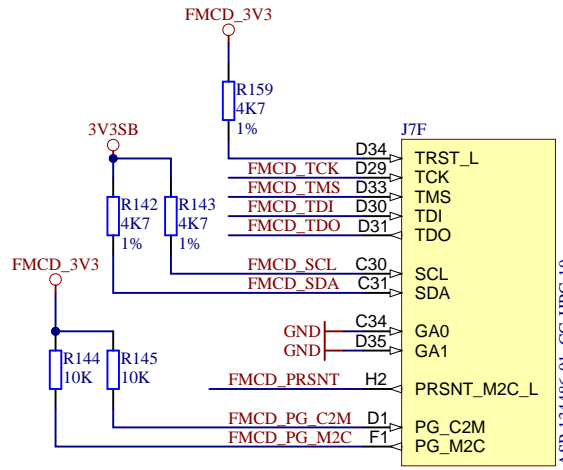
ASP-134486-01, CC-HPC-10



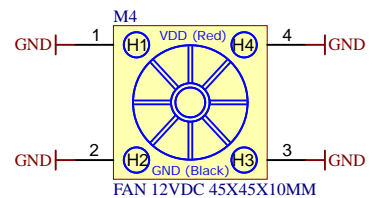
ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10

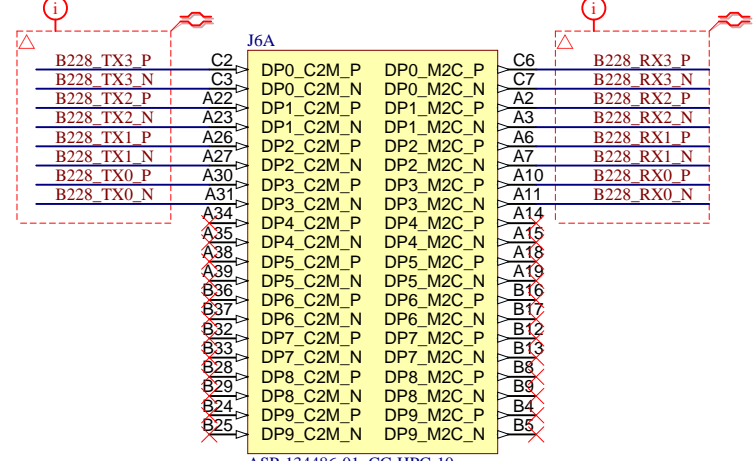


Single FMC Commercial Baseboard Snap



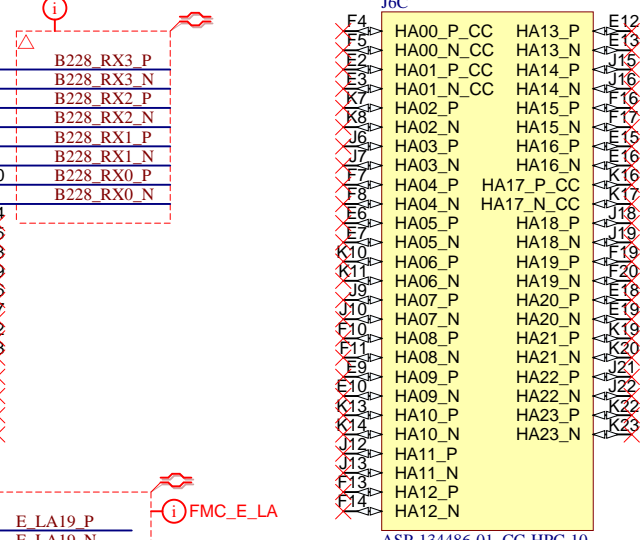
Title: TEB0911 - FMC D		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page24 of 58
Filename: FMC_D.SchDoc		

FMC_E_DP

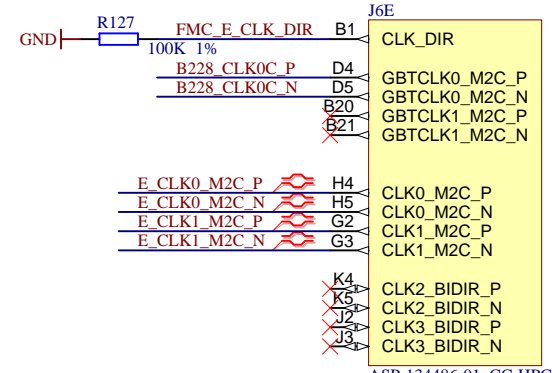


ASP-134486-01, CC-HPC-10

FMC_E_DP

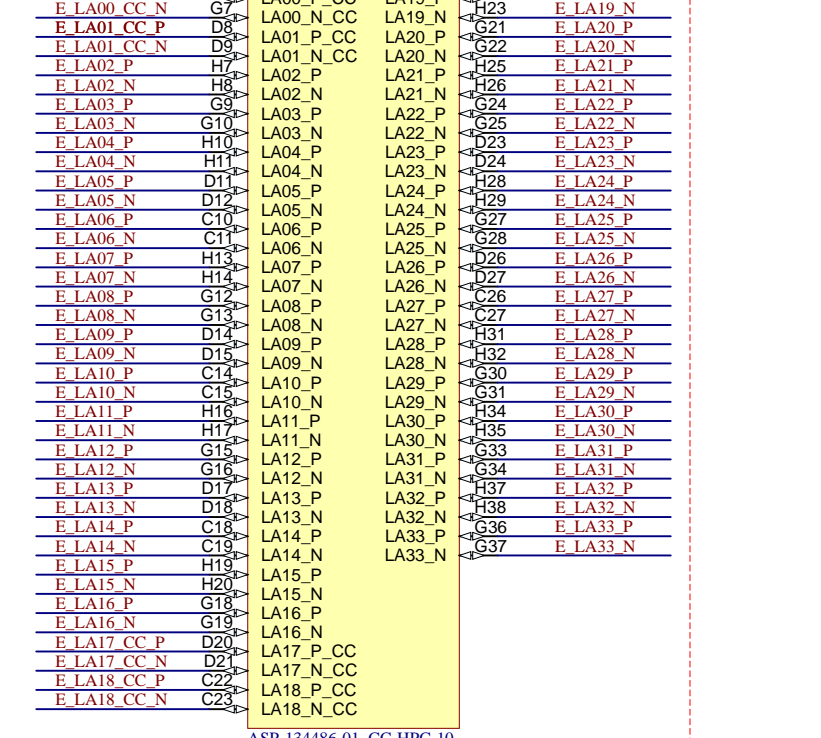


ASP-134486-01, CC-HPC-10

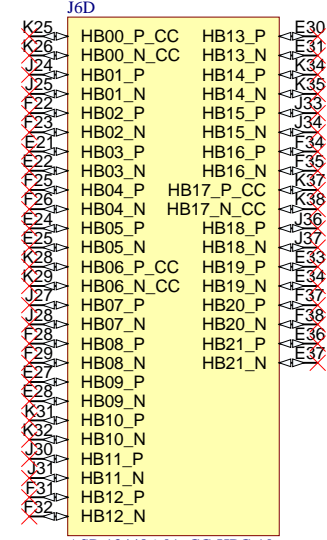


ASP-134486-01, CC-HPC-10

FMC_E_LA



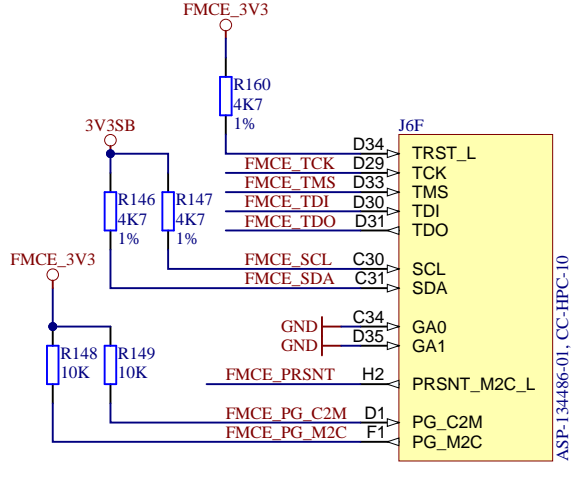
ASP-134486-01, CC-HPC-10



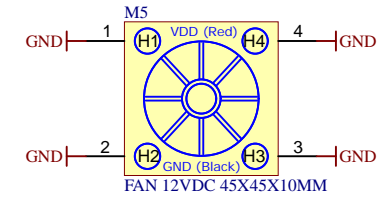
ASP-134486-01, CC-HPC-10

U7 SNAP

Single FMC Commercial Baseboard Snap



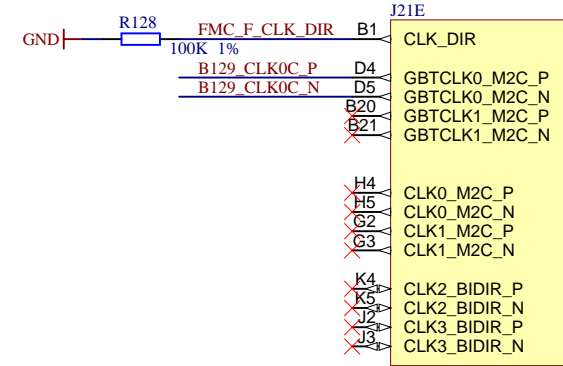
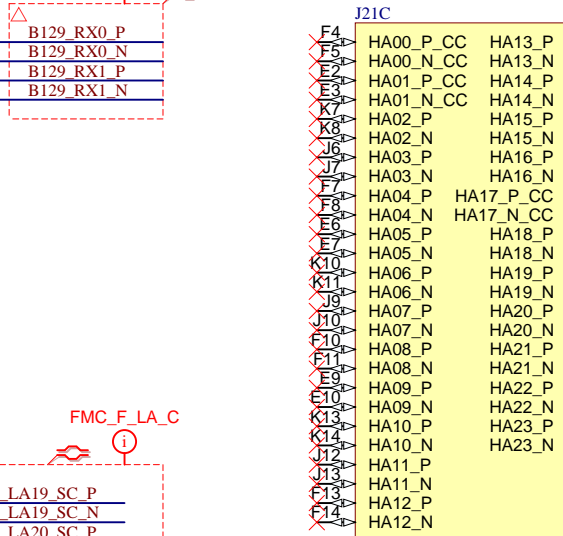
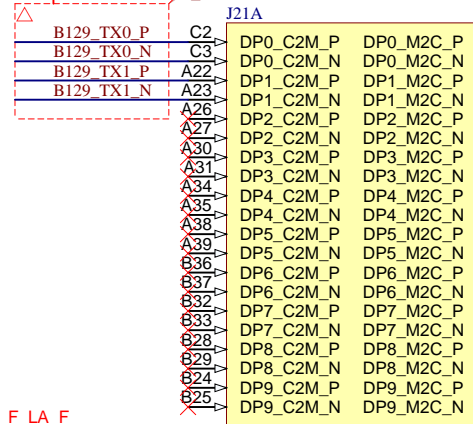
ASP-134486-01, CC-HPC-10



Title: TEB0911 - FMC E		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 25 of 58
Filename: FMC_E.SchDoc		

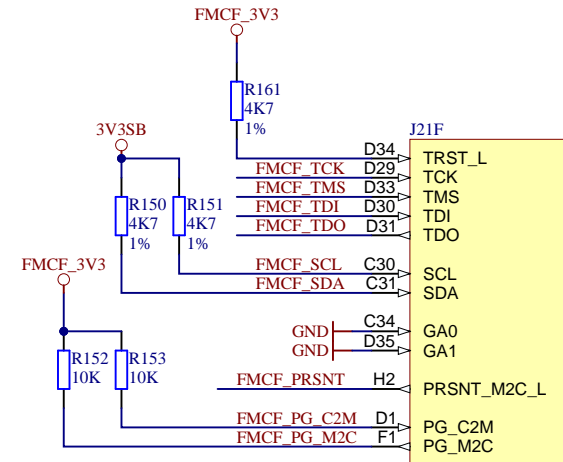
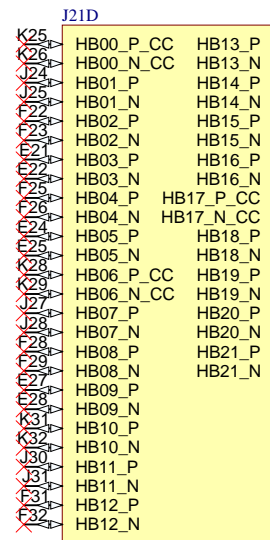
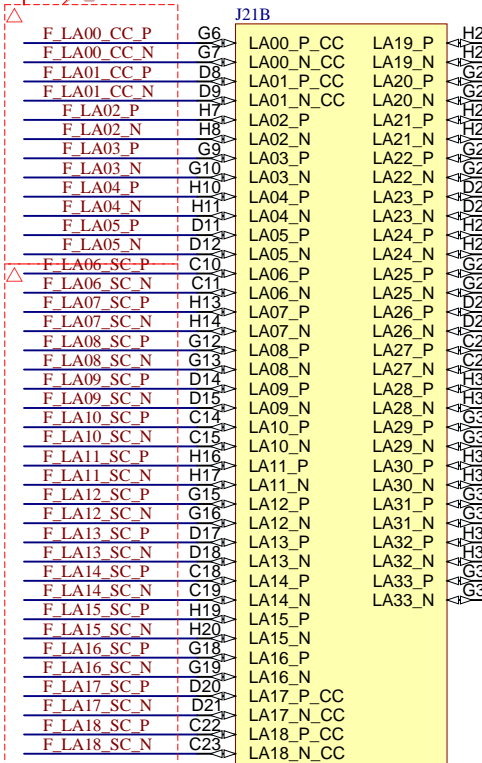
FMC_F_DP

FMC_F_DP



FMC_F_LA_F

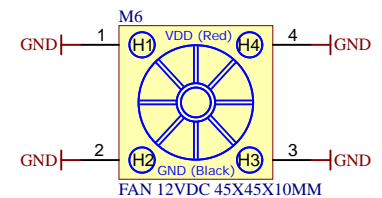
FMC_F_LA_C

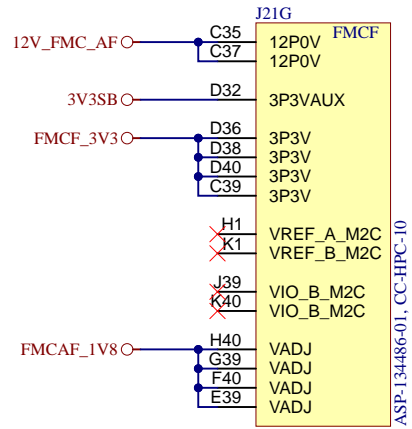


Single FMC Commercial Baseboard Snap

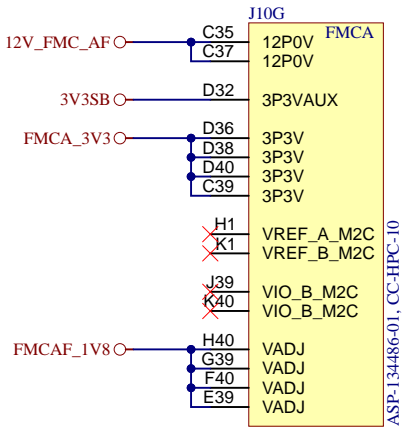


Title: TEB0911 - FMC F		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 26 of 58
Filename: FMC_F.SchDoc		

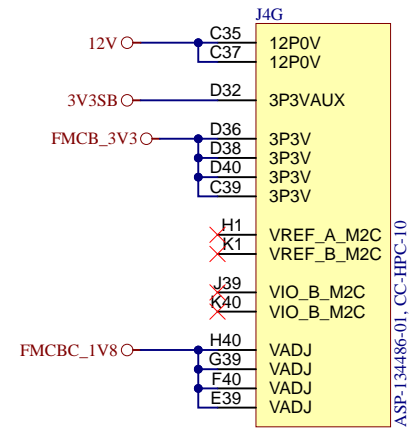




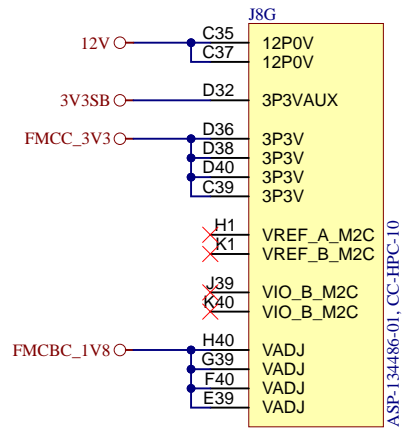
ASP-134486-01, CC-HPC-10



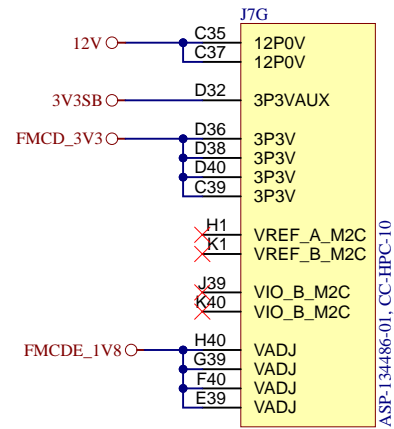
ASP-134486-01, CC-HPC-10



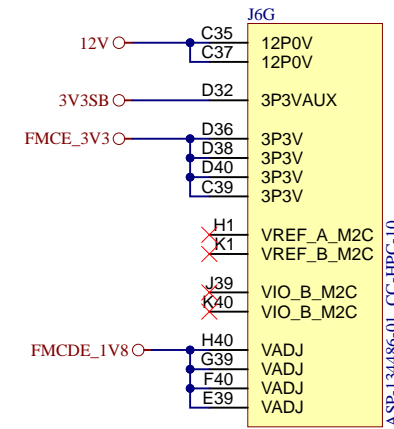
ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10

- FMC_A
- FMC_A.SchDoc
- FMC_B
- FMC_B.SchDoc
- FMC_C
- FMC_C.SchDoc
- FMC_D
- FMC_D.SchDoc
- FMC_E
- FMC_E.SchDoc
- FMC_F
- FMC_F.SchDoc
- FMC_GND
- FMC_GND.SchDoc
- FMC_GND2
- FMC_GND2.SchDoc
- FMC_MECH
- FMC_MECH.SchDoc



Title: TEB0911 - FMC POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 27 of 58
Filename: FMC PWR.SchDoc		

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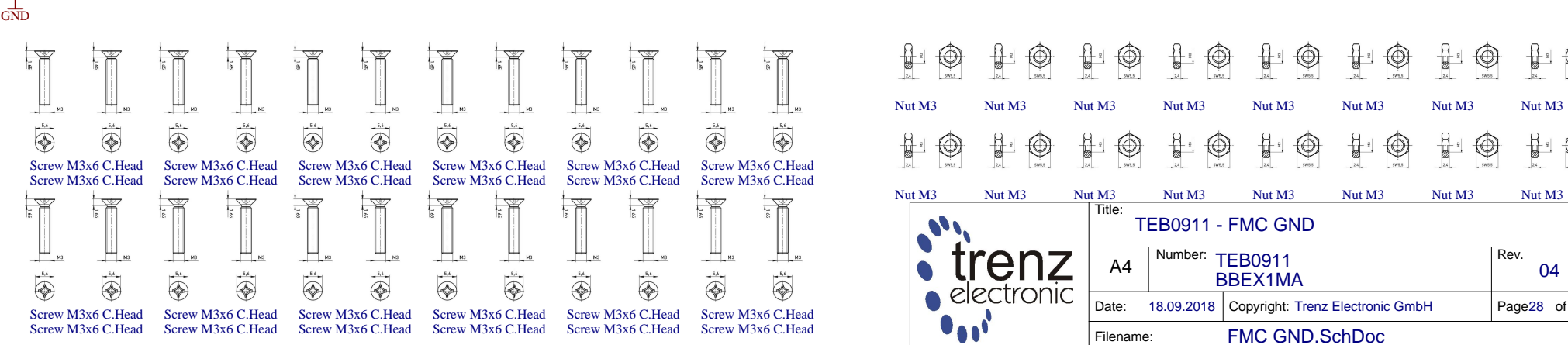
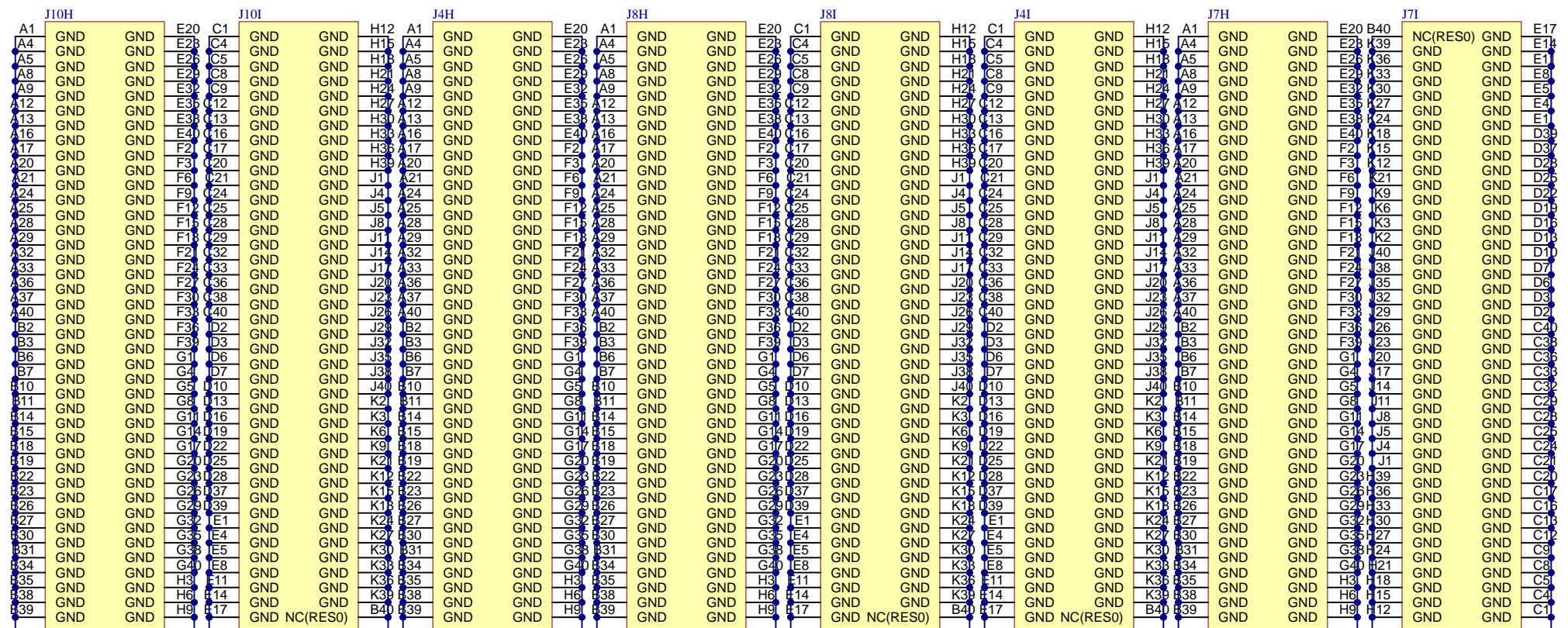
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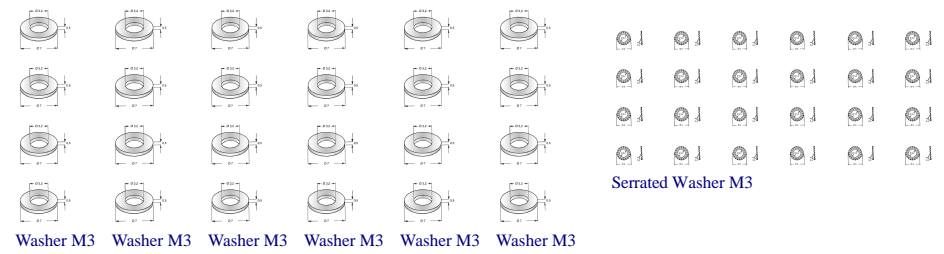
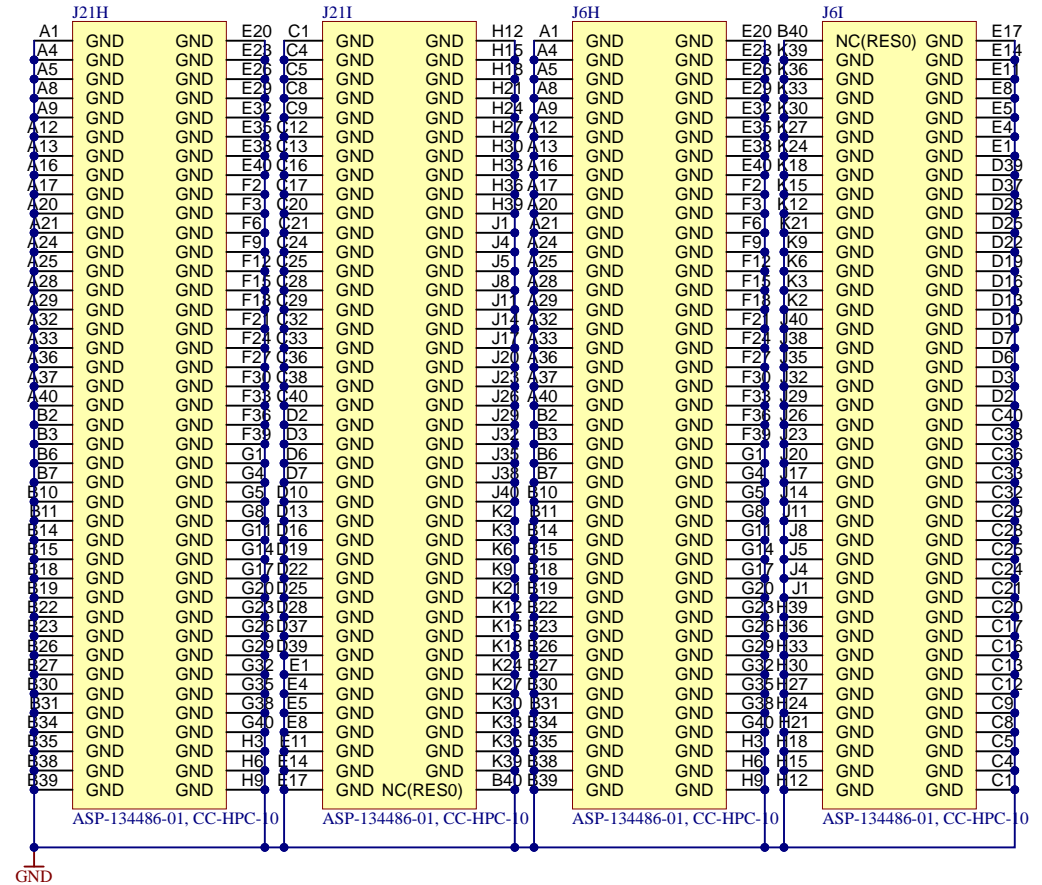
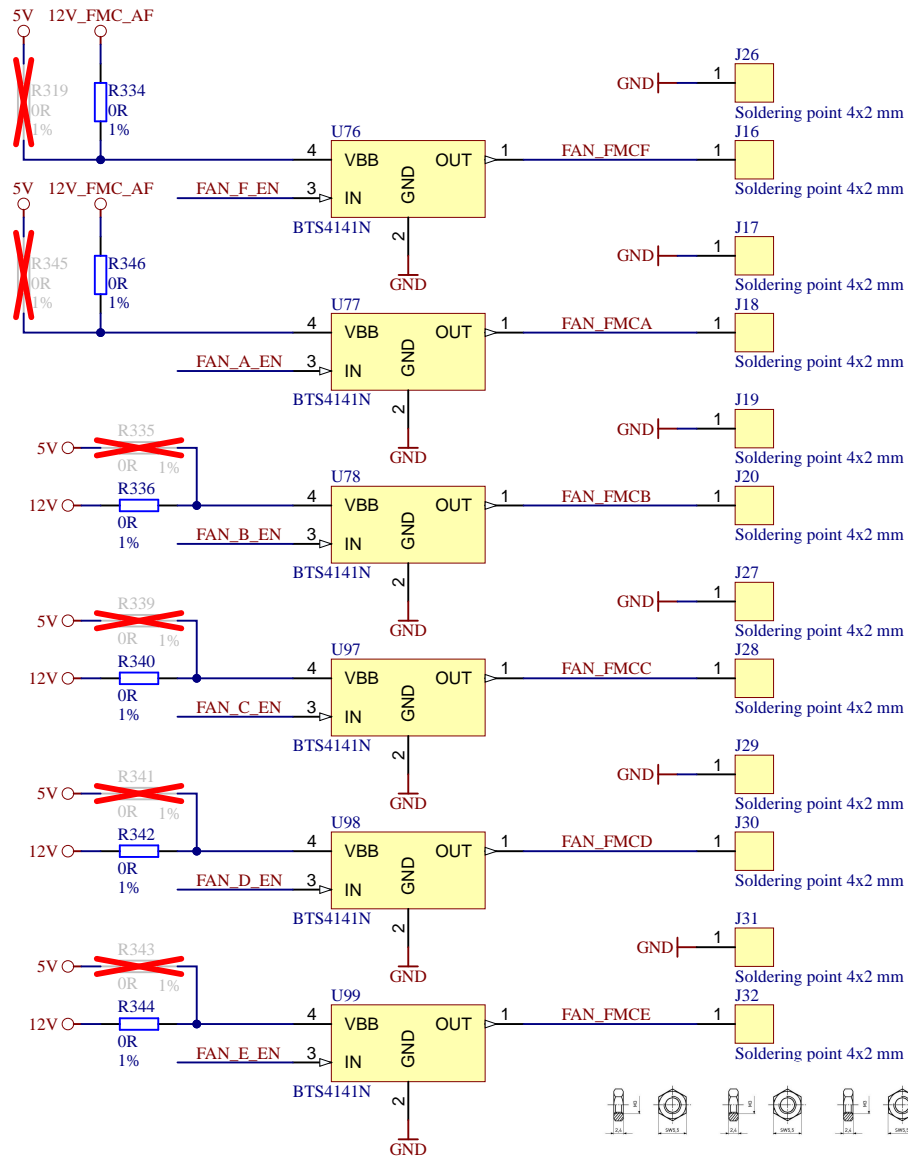
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A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 28 of 58
Filename: FMC GND.SchDoc		

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Title: **TEB0911 - FMC GND FAN**

A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 29 of 58
Filename: FMC GND2.SchDoc		

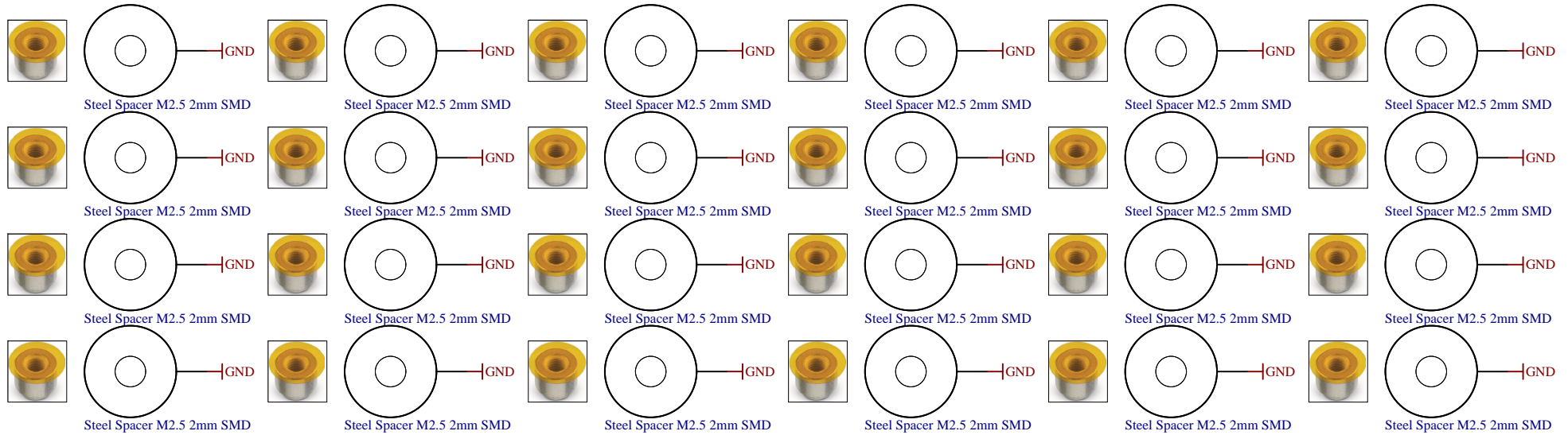
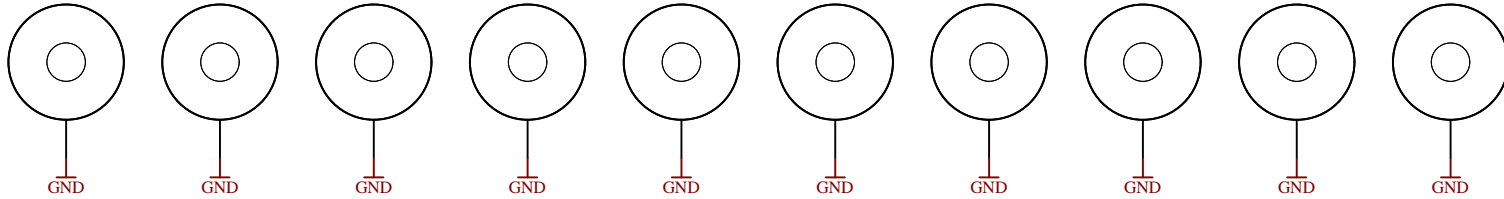
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Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm



	Title: TEB0911 - FMC MECH		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 30 of 58
	Filename: FMC_MECH.SchDoc		

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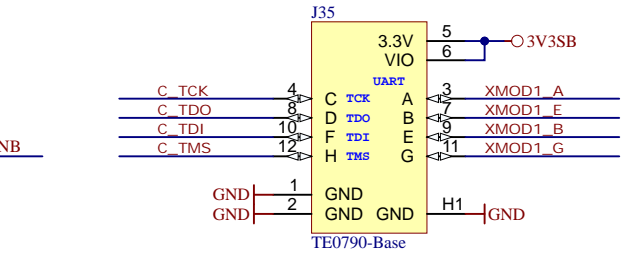
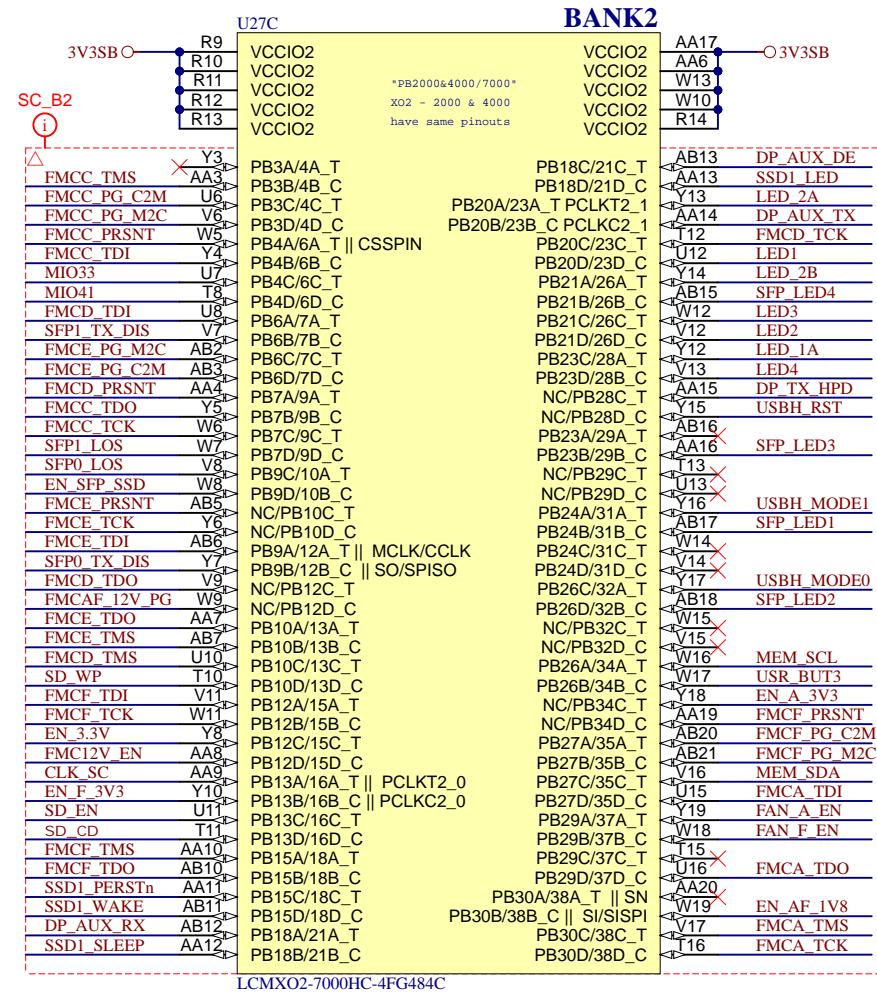
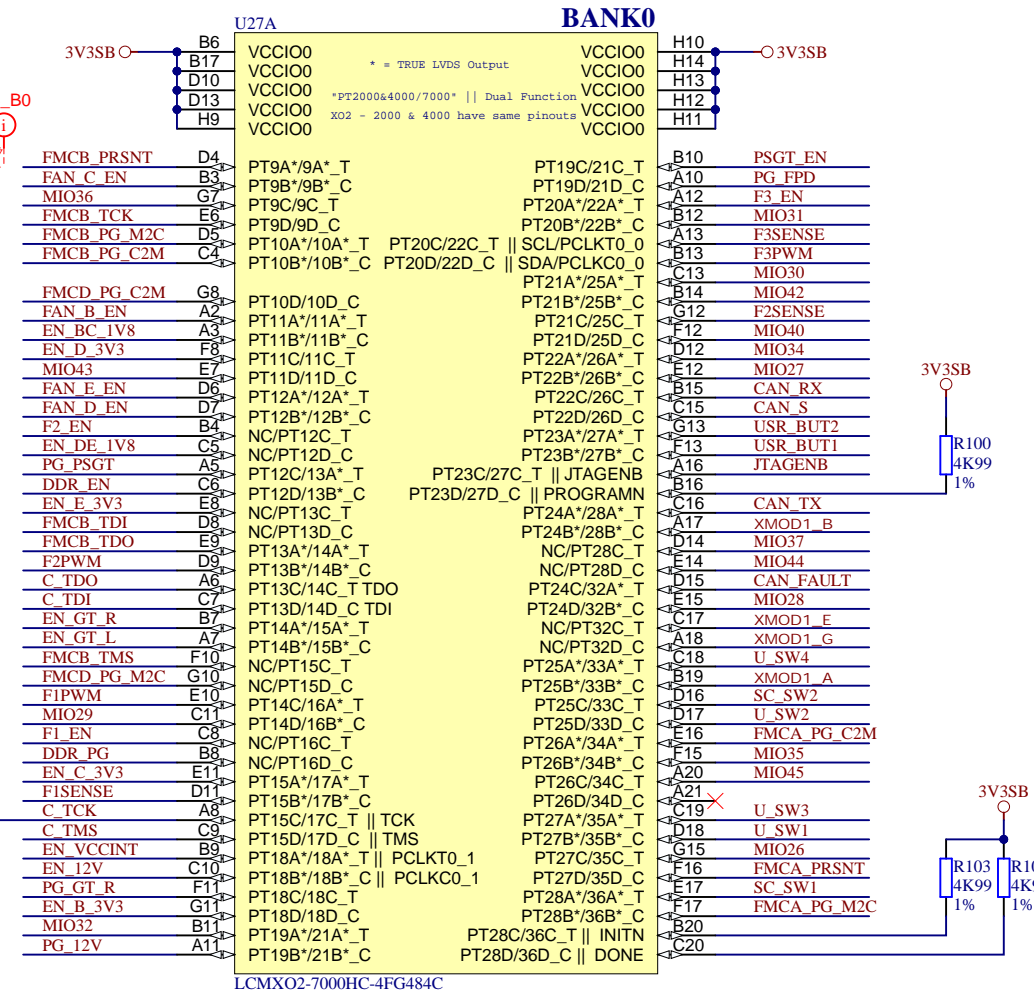
D

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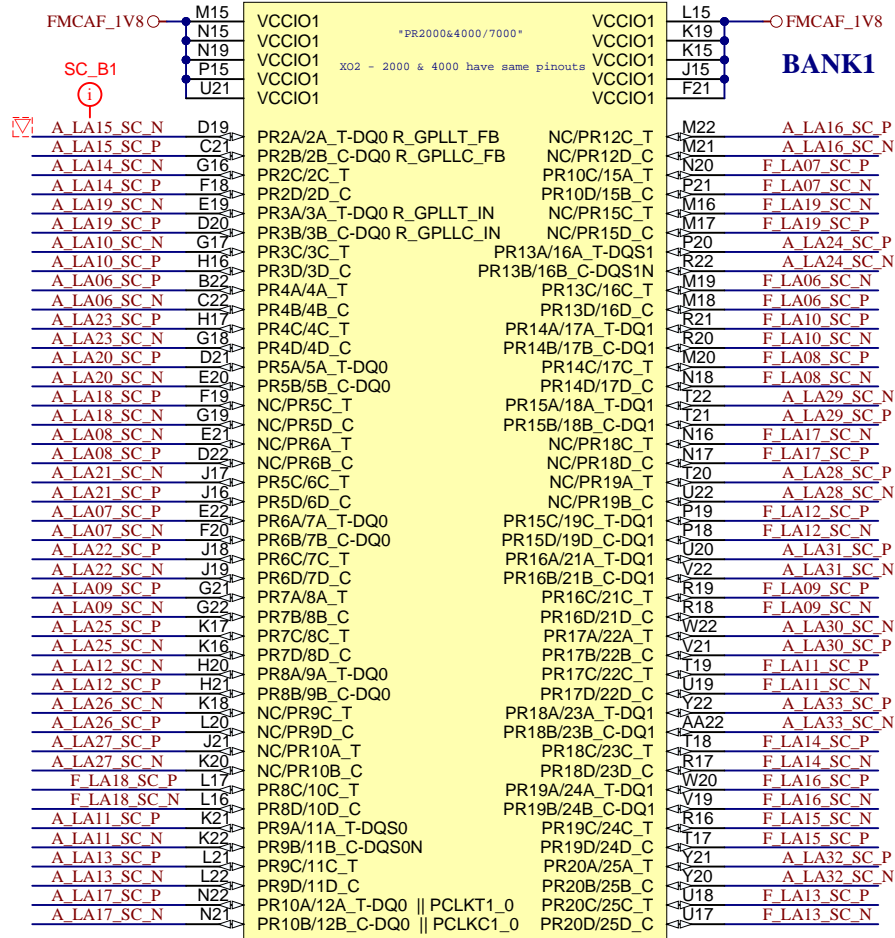
C

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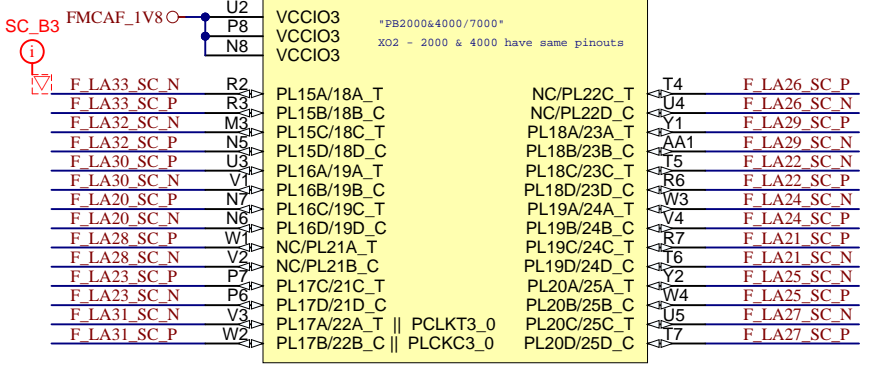
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A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 31 of 58
Filename: SC.schdoc		

U27B



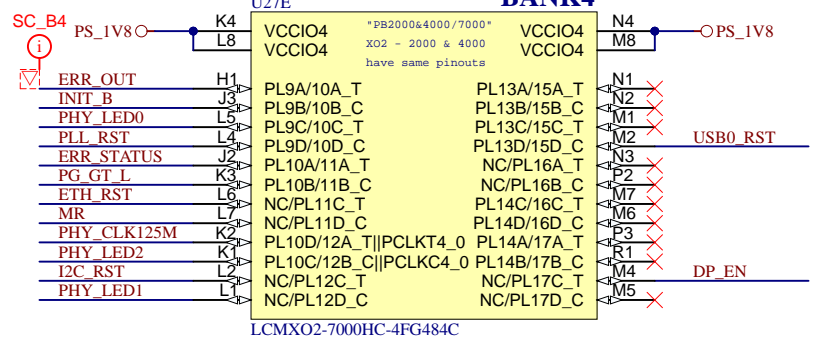
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U27D



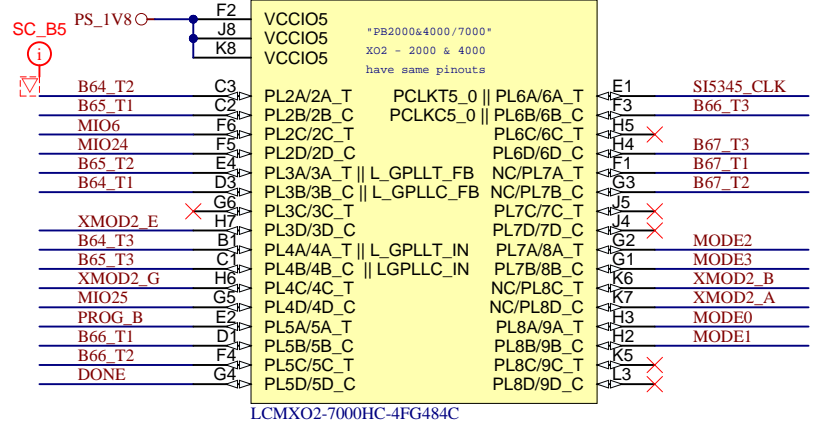
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U27E BANK4

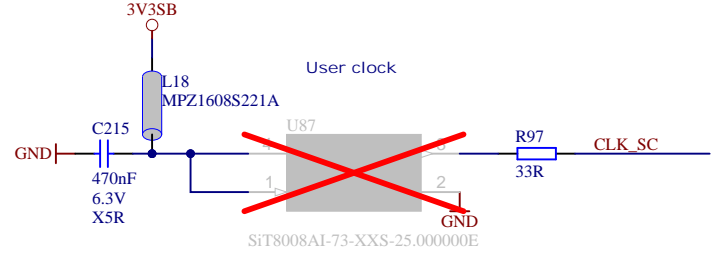


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U27F BANK5



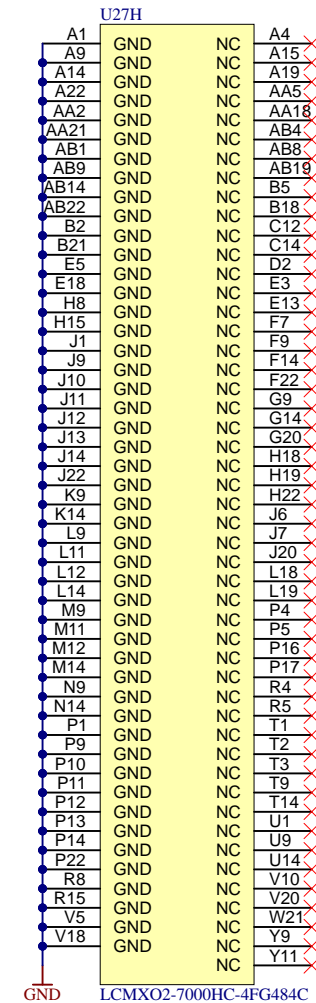
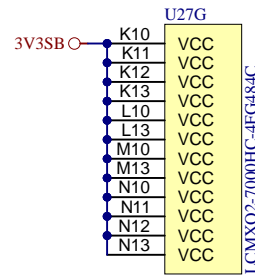
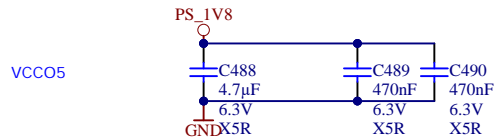
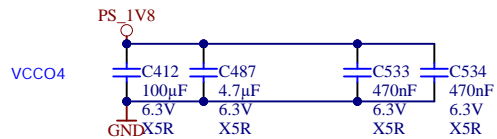
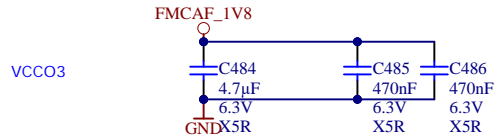
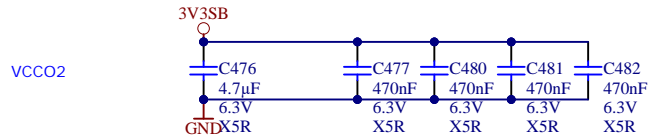
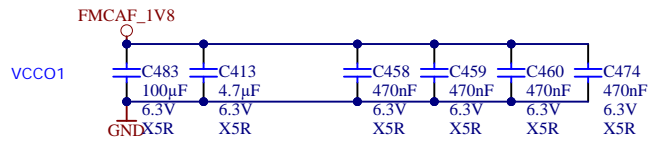
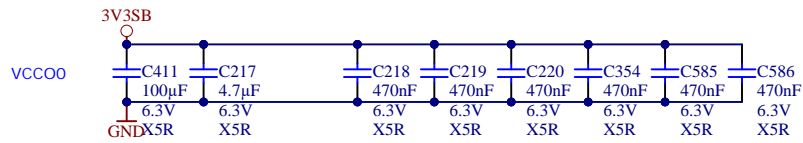
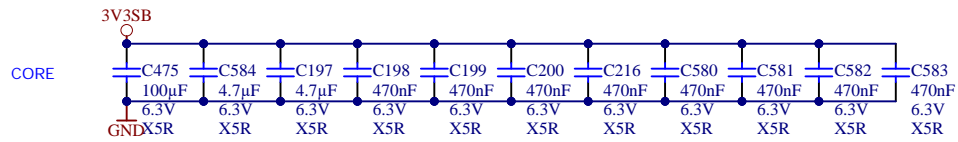
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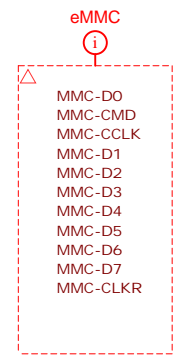
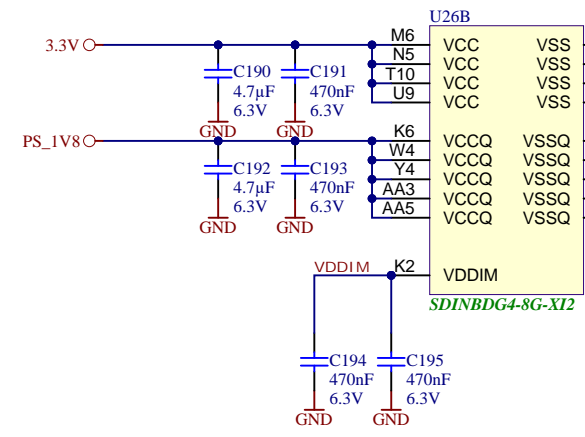
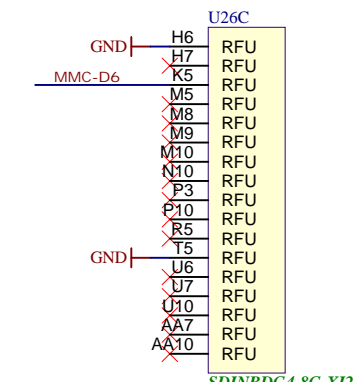
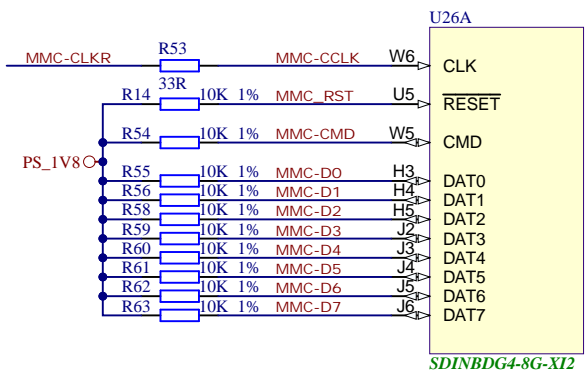
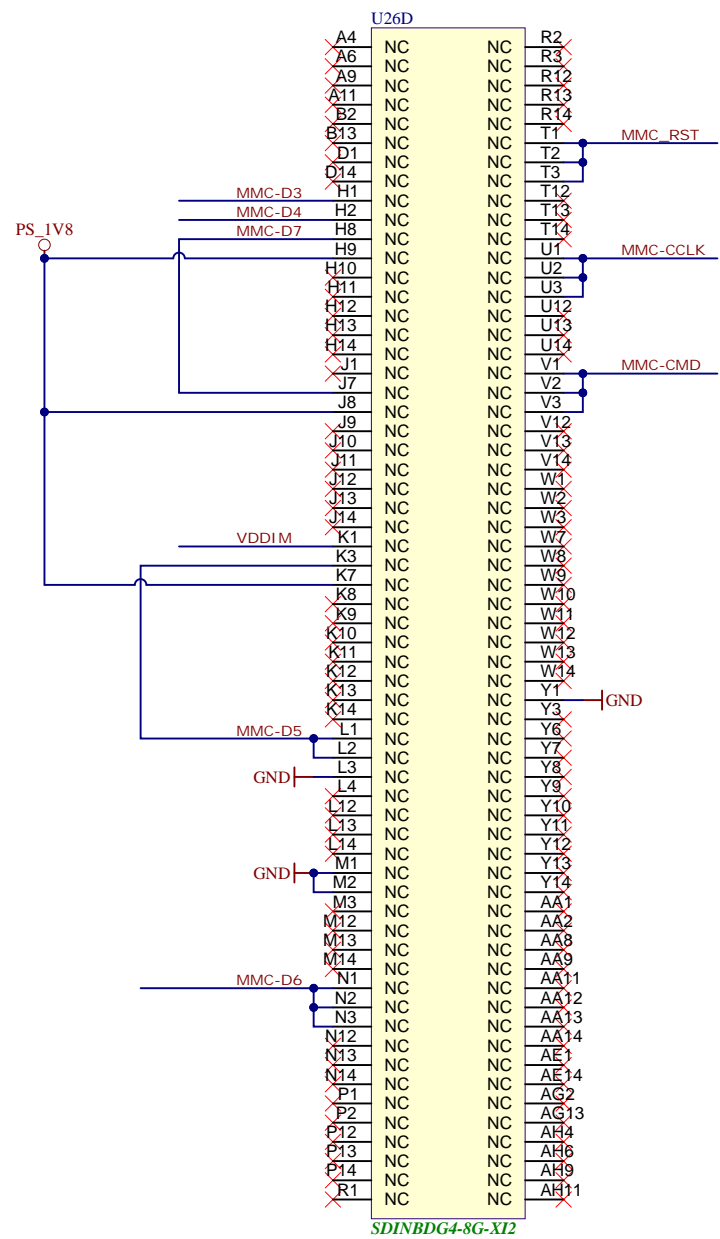
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Title: **TEB0911 - CPLD**

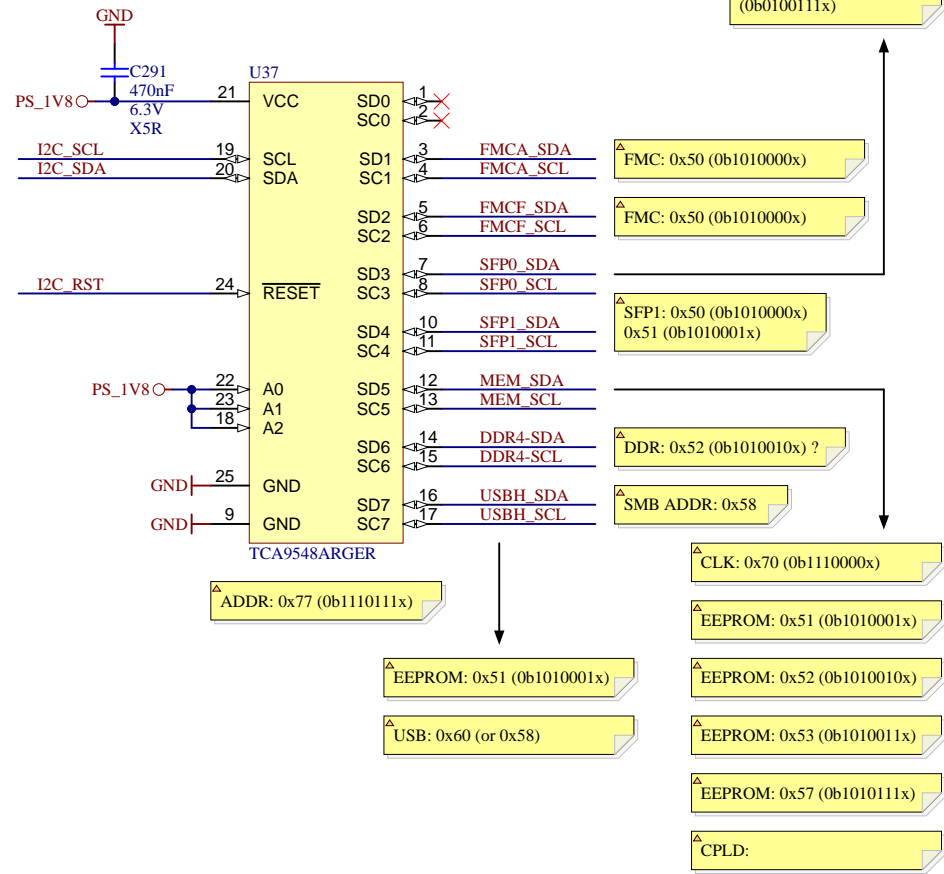
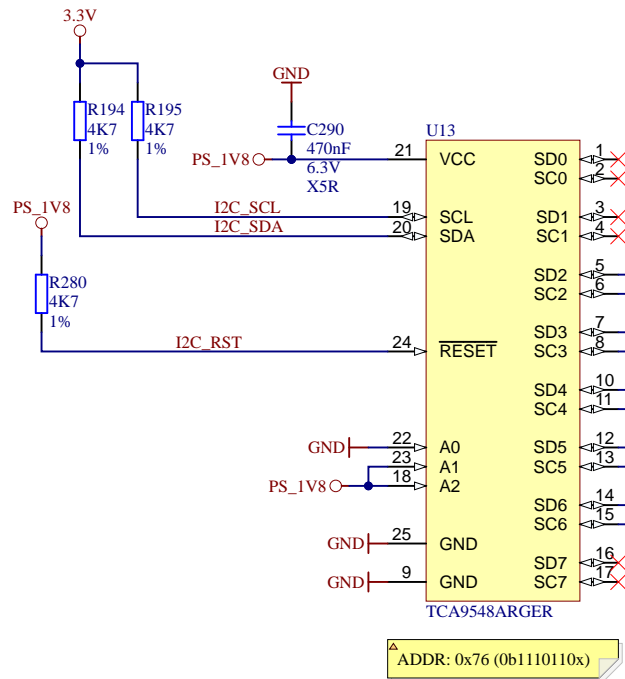
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 32 of 58
Filename: SC2.schdoc		



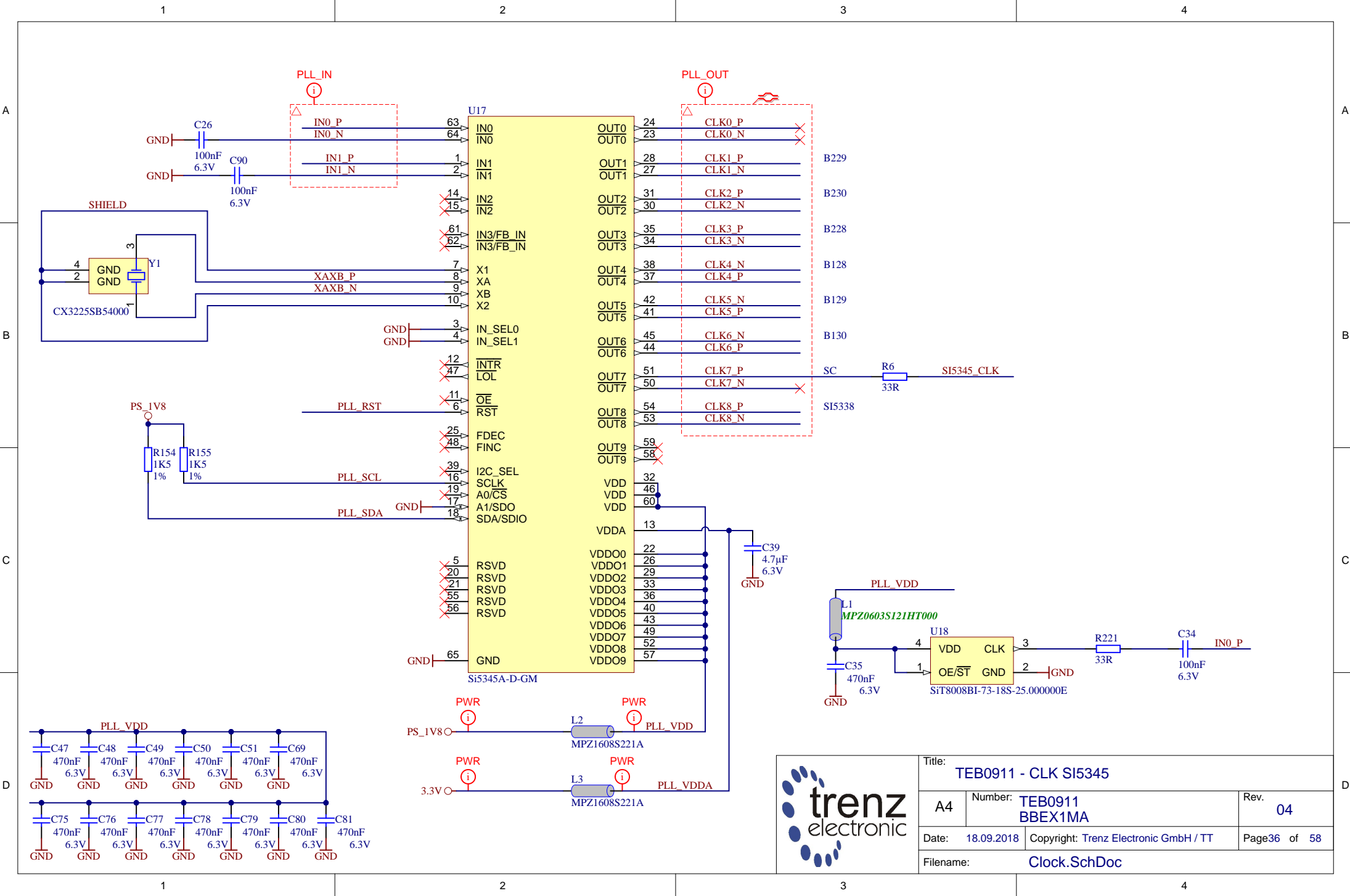
Title: TEB0911 - CPLD		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	
Page 33 of 58		
Filename: SC_POWER.schdoc		



Title: TEB0911 - eMMC		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 34 of 58
Filename: eMMC.SchDoc		

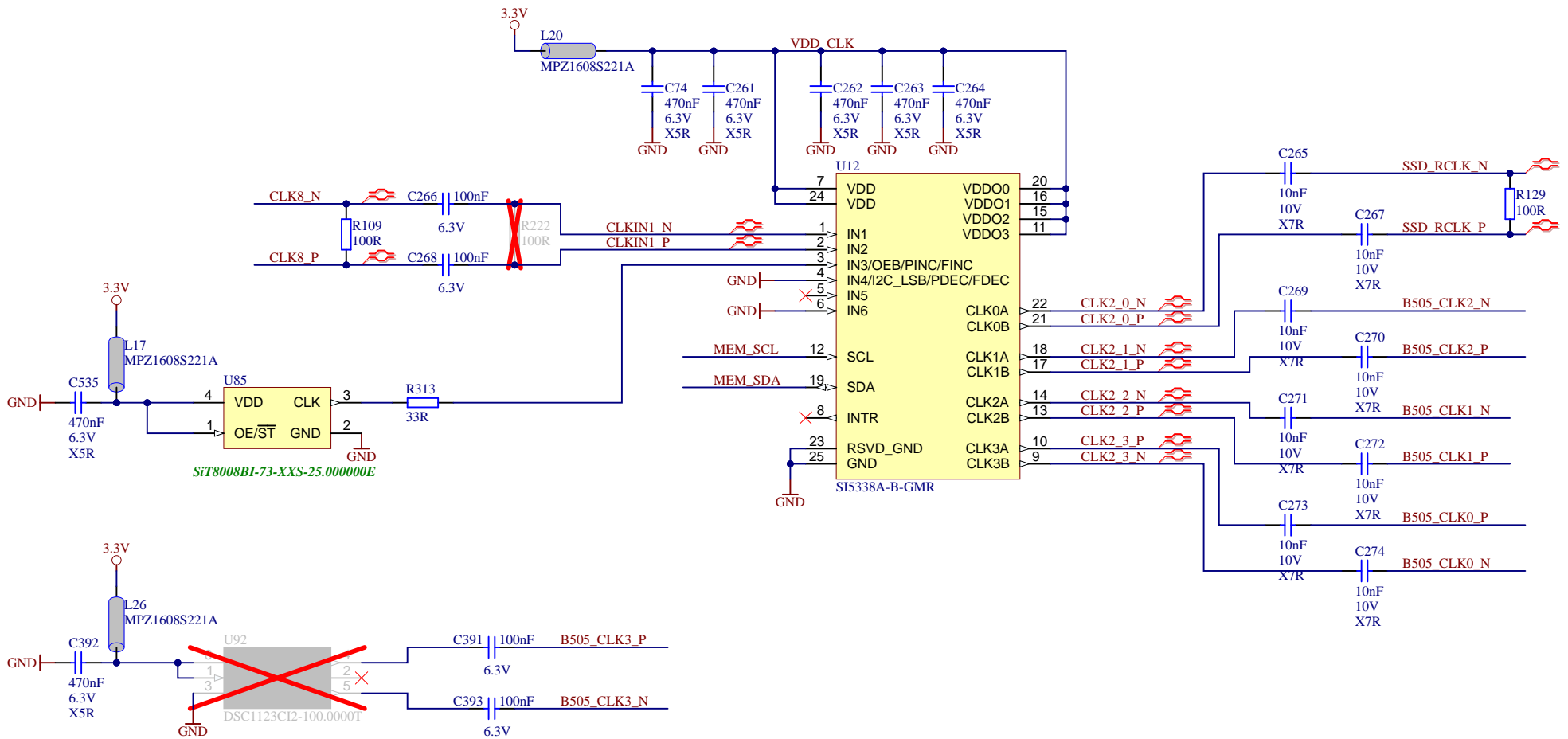



	Title: TEB0911 - I2C System		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 35 of 58
	Filename: I2C_system.schdoc		

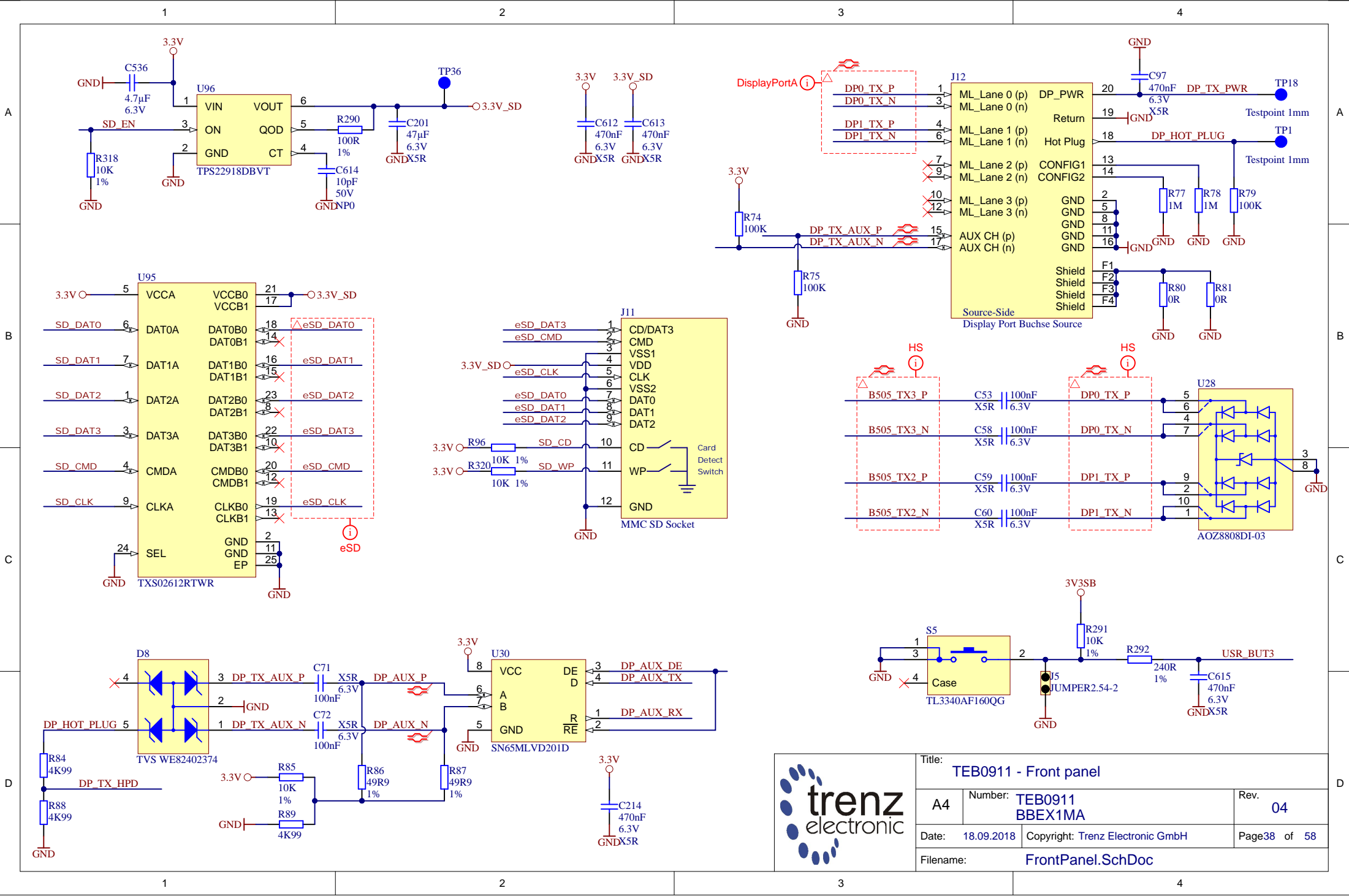


Title: TEB0911 - CLK SI5345		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH / TT	Page 36 of 58
Filename: Clock.SchDoc		

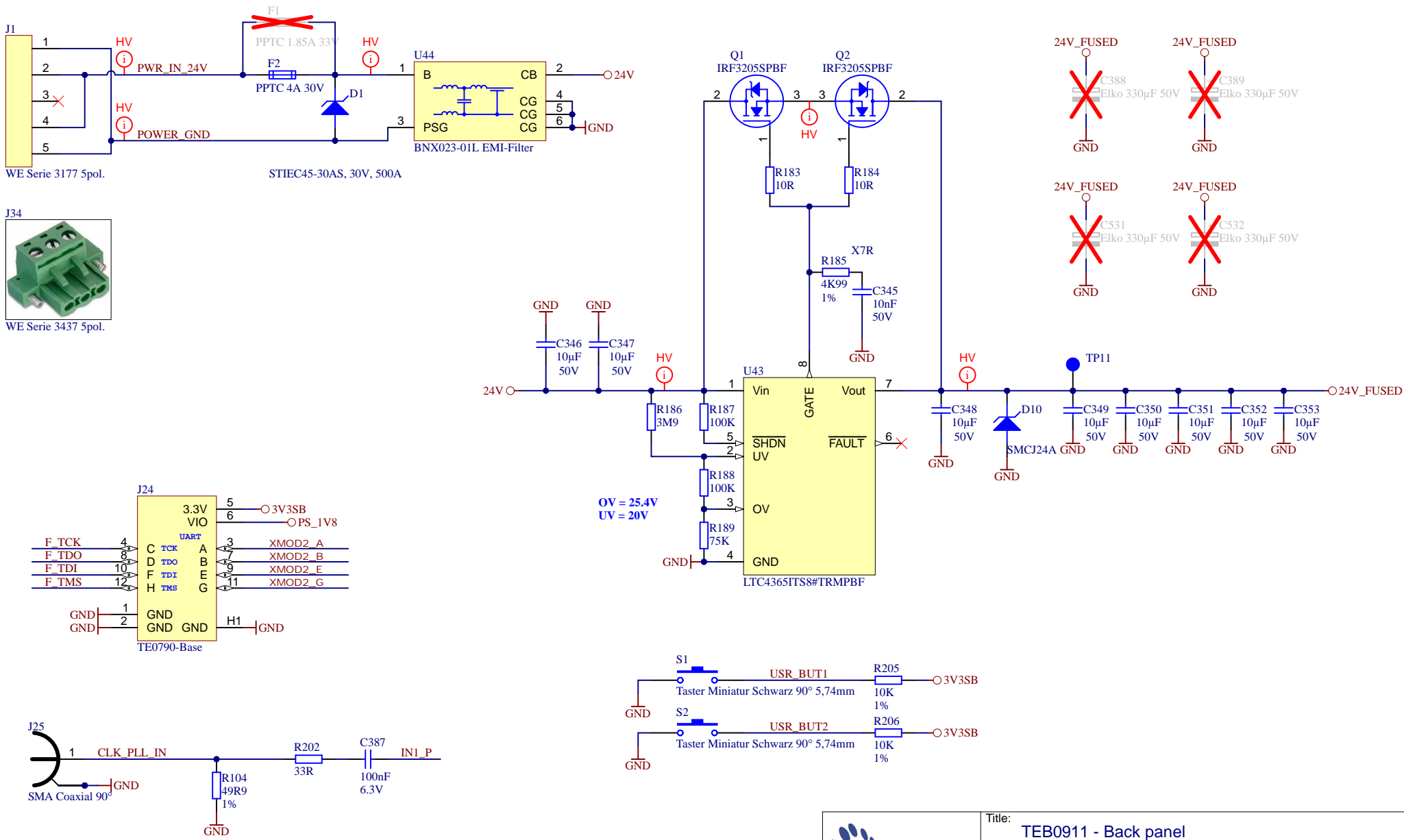




		Title: TEB0911 - CLK SI5338	
		A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH	Rev. 04
Filename: Clock2.SchDoc		Page 37 of 58	



Title: TEB0911 - Front panel		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 38 of 58
Filename: FrontPanel.SchDoc		



Title: TEB0911 - Back panel		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 39 of 58
Filename: BackPanel.SchDoc		

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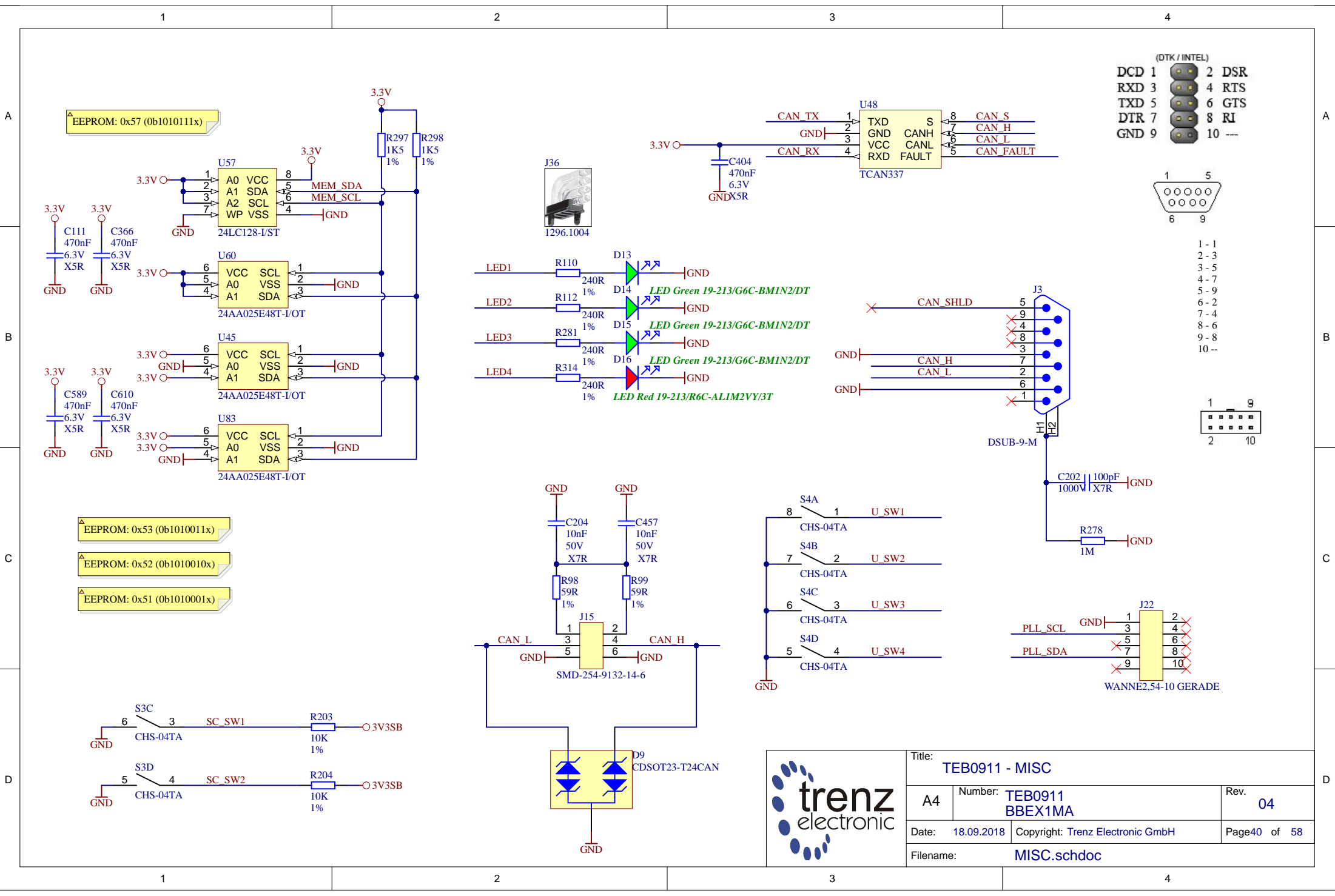
D

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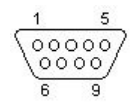
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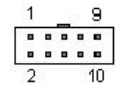


(DTK / INTEL)

DCD 1	2	DSR
RXD 3	4	RTS
TXD 5	6	GTS
DTR 7	8	RI
GND 9	10	---

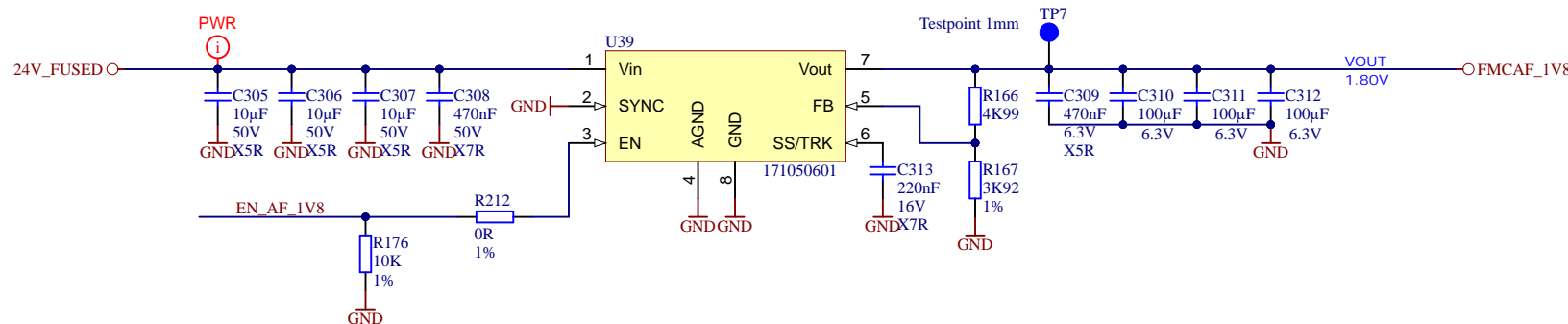
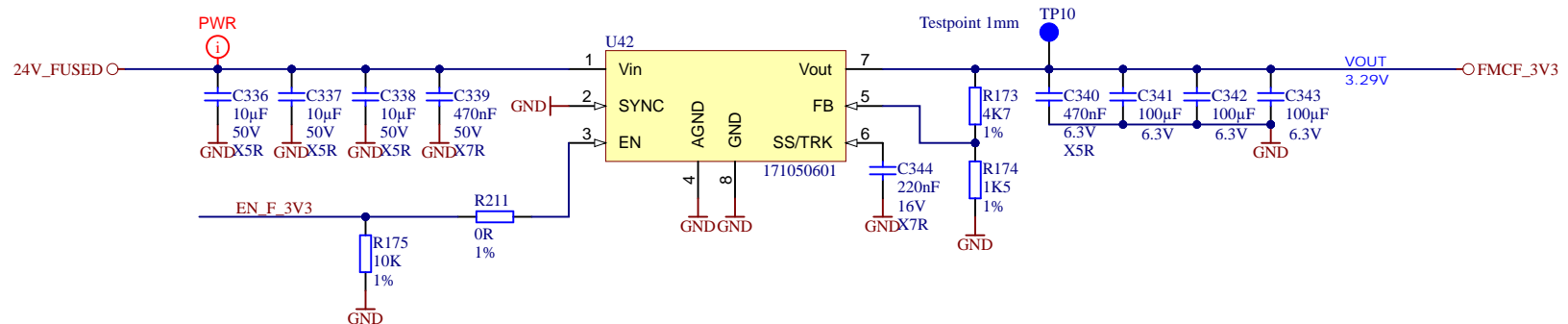
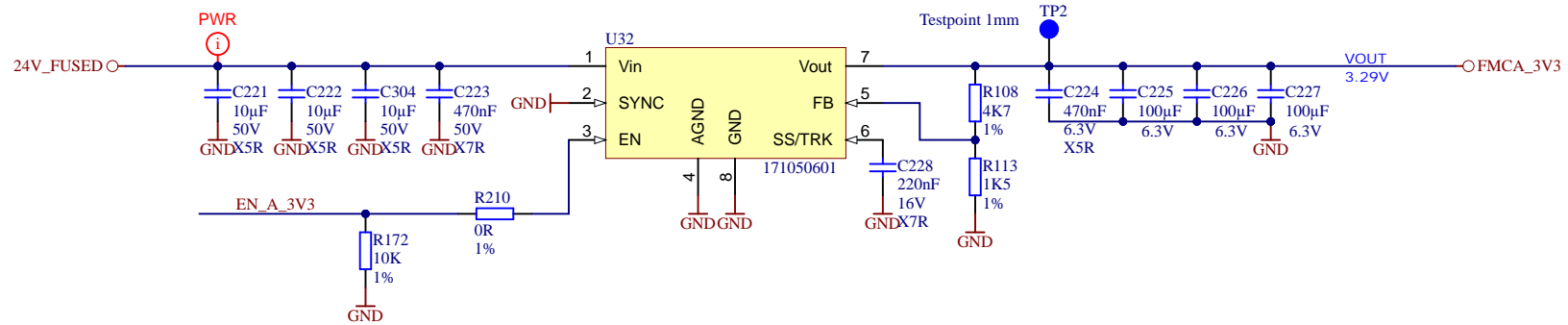



- 1-1
- 2-3
- 3-5
- 4-7
- 5-9
- 6-2
- 7-4
- 8-6
- 9-8
- 10--

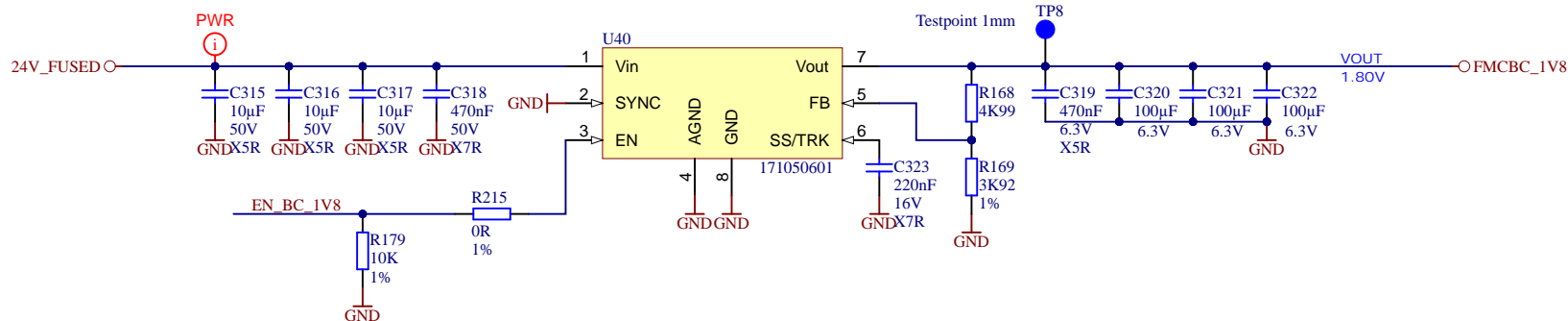
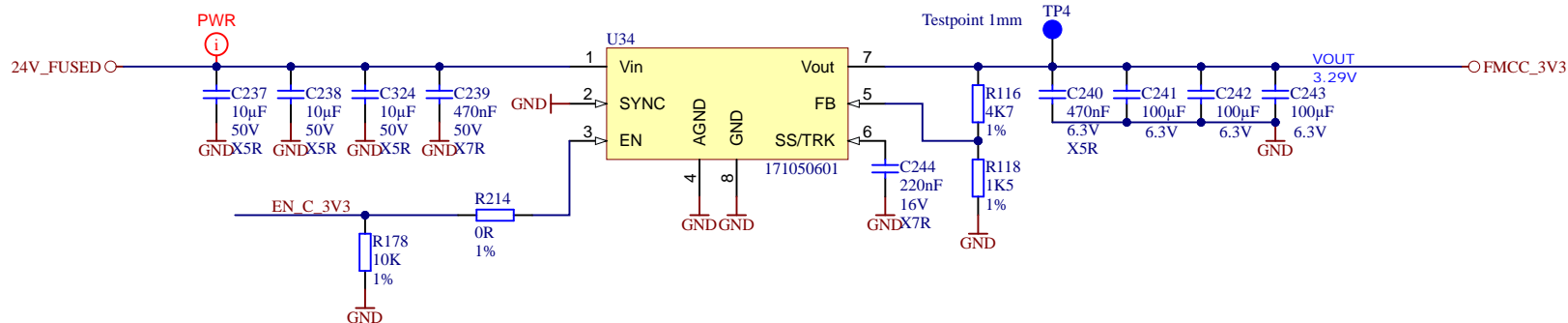
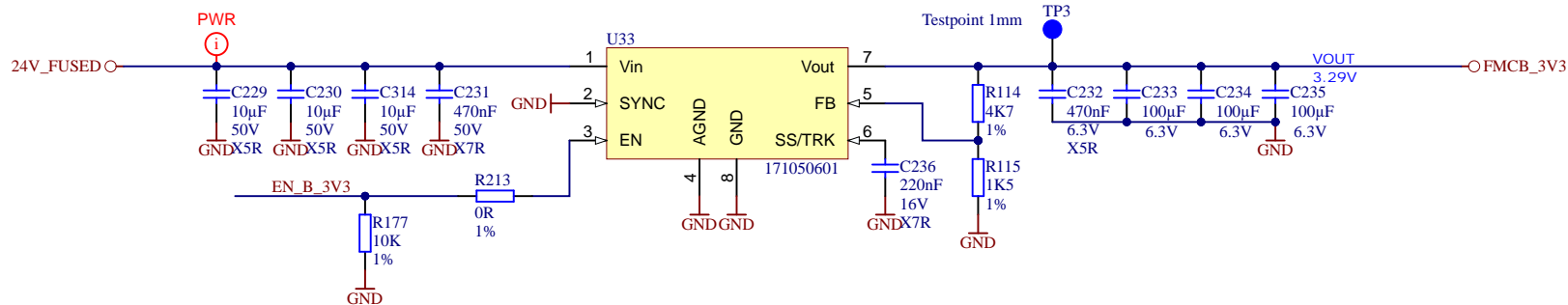



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Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 40 of 58
Filename: MISC.schdoc		

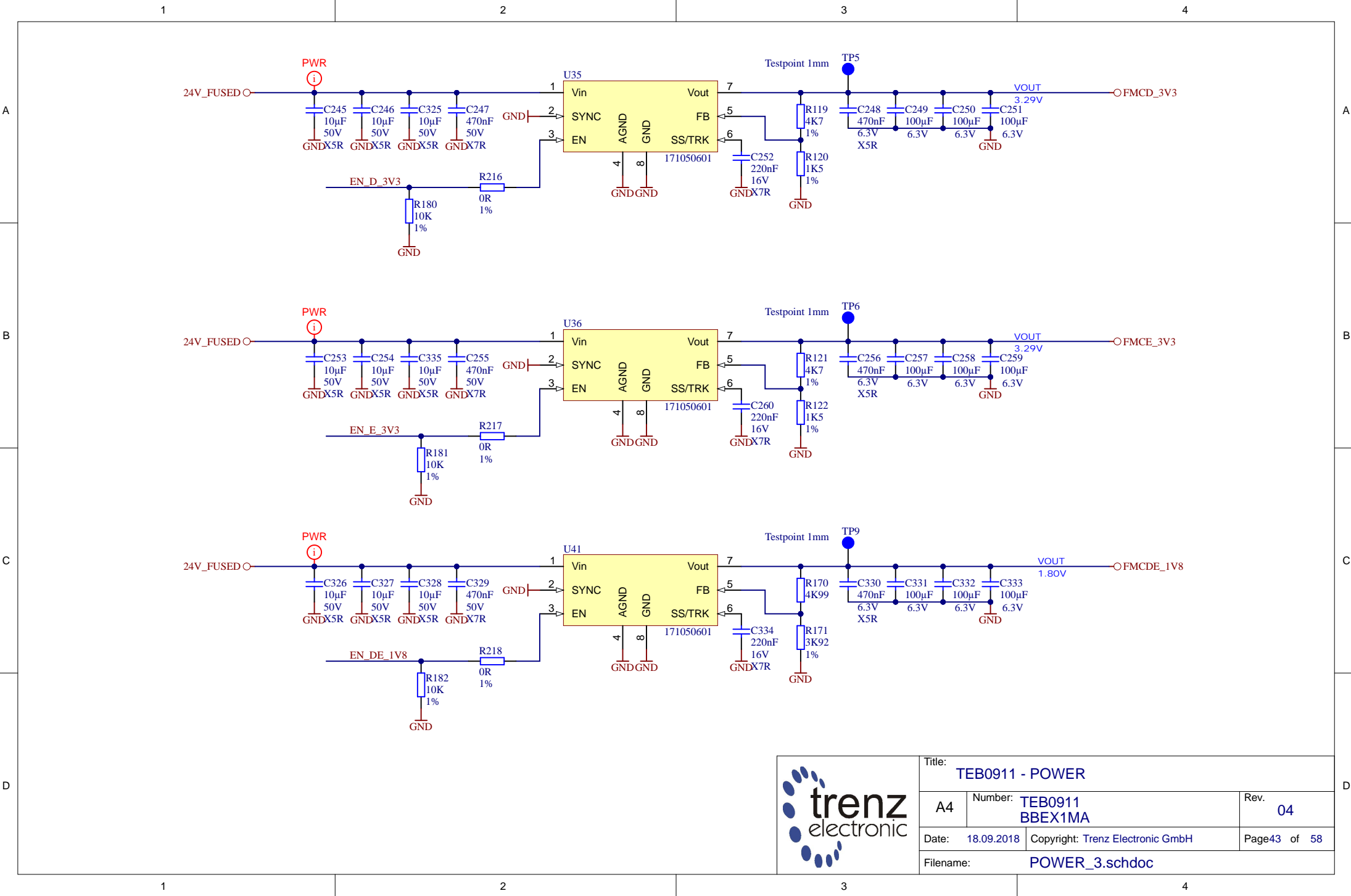





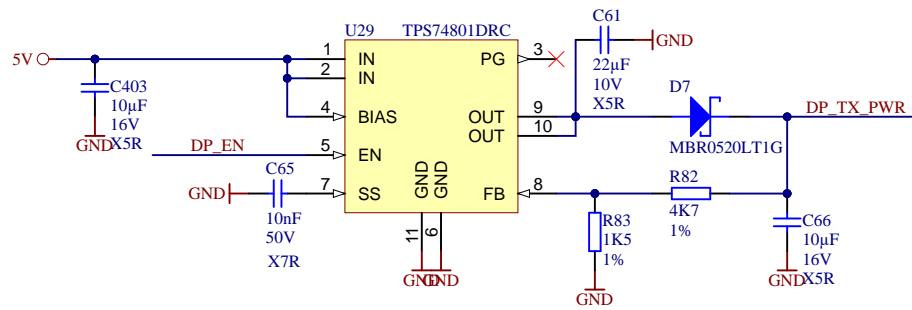
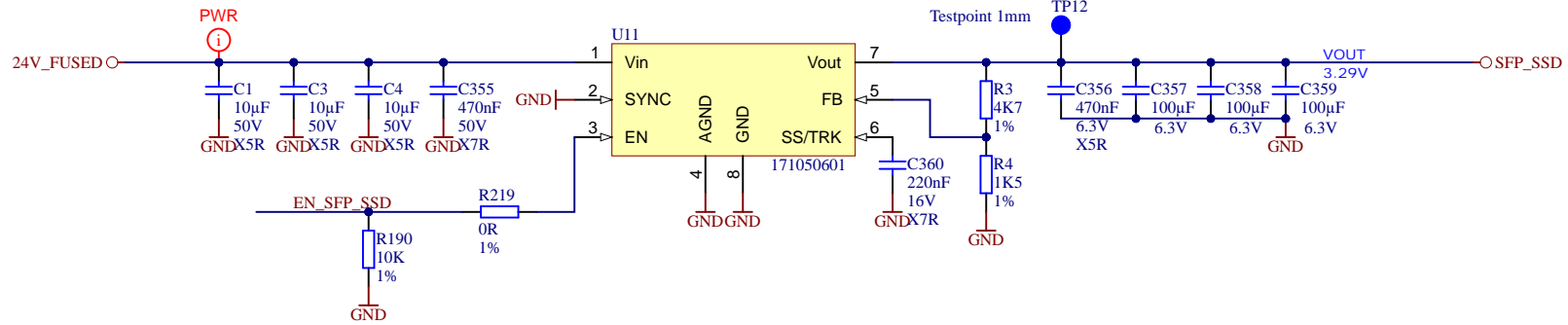
			Title: TEB0911 - POWER	
			A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 41 of 58
Filename: POWER_1.schdoc				




			Title: TEB0911 - POWER	
			A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 42 of 58
Filename: POWER_2.schdoc				



			Title: TEB0911 - POWER	
			A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 43 of 58
Filename: POWER_3.schdoc				



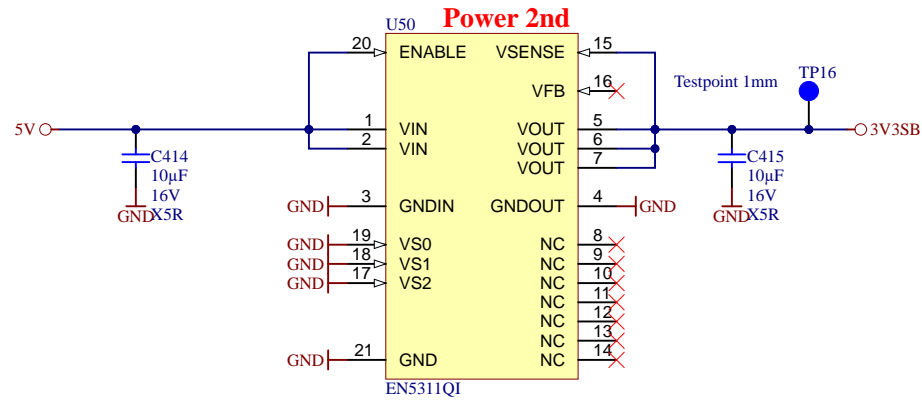
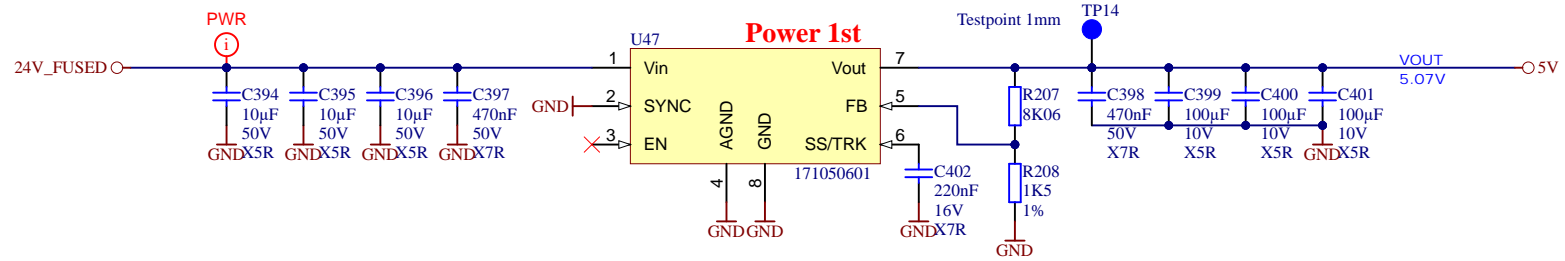
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			A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 44 of 58
Filename: POWER_4.schdoc				


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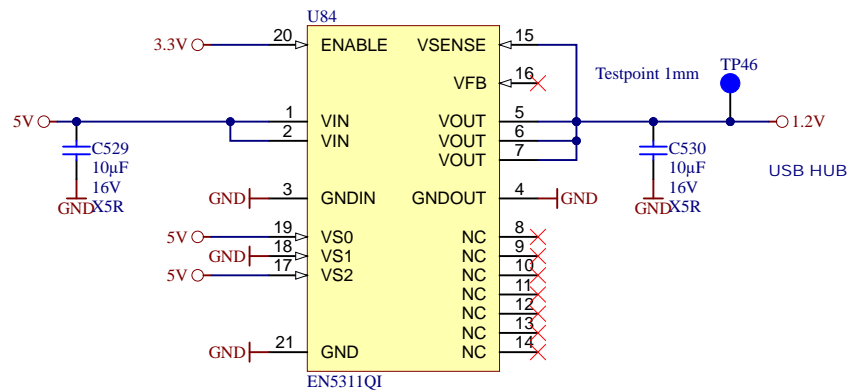
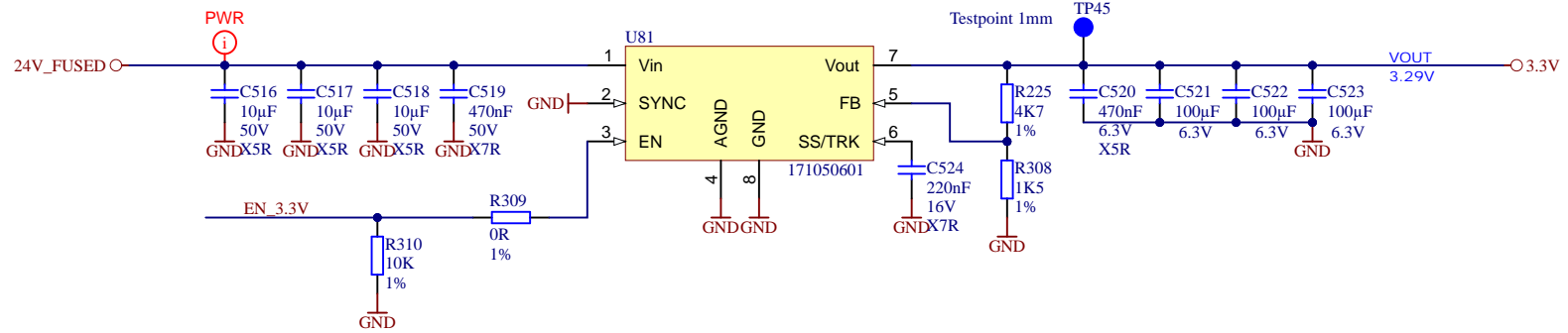
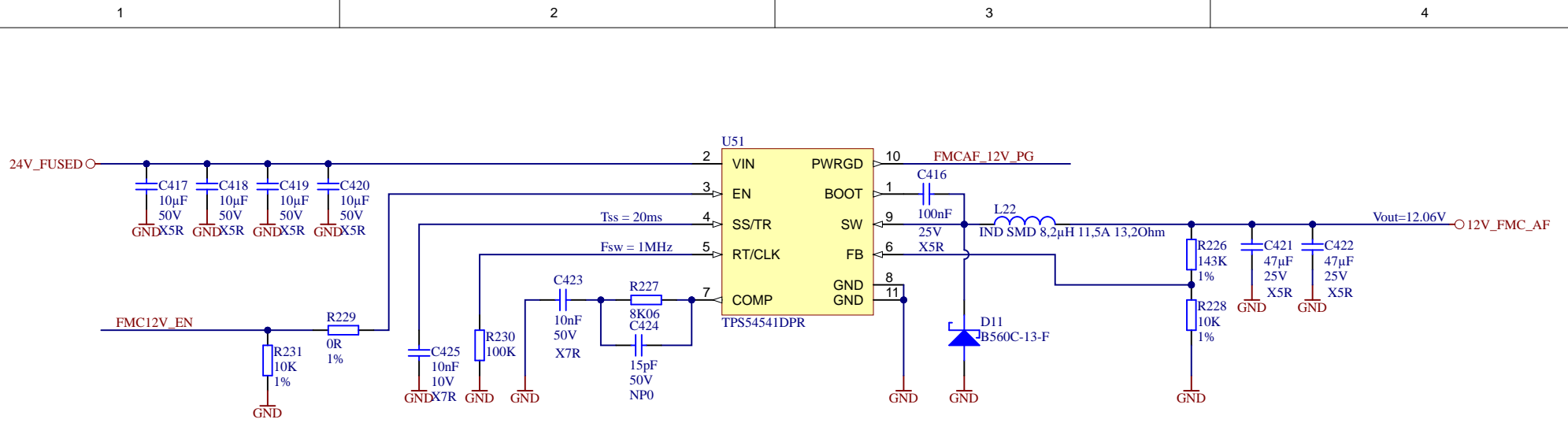
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			A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 45 of 58
Filename: POWER_5.schdoc				


1

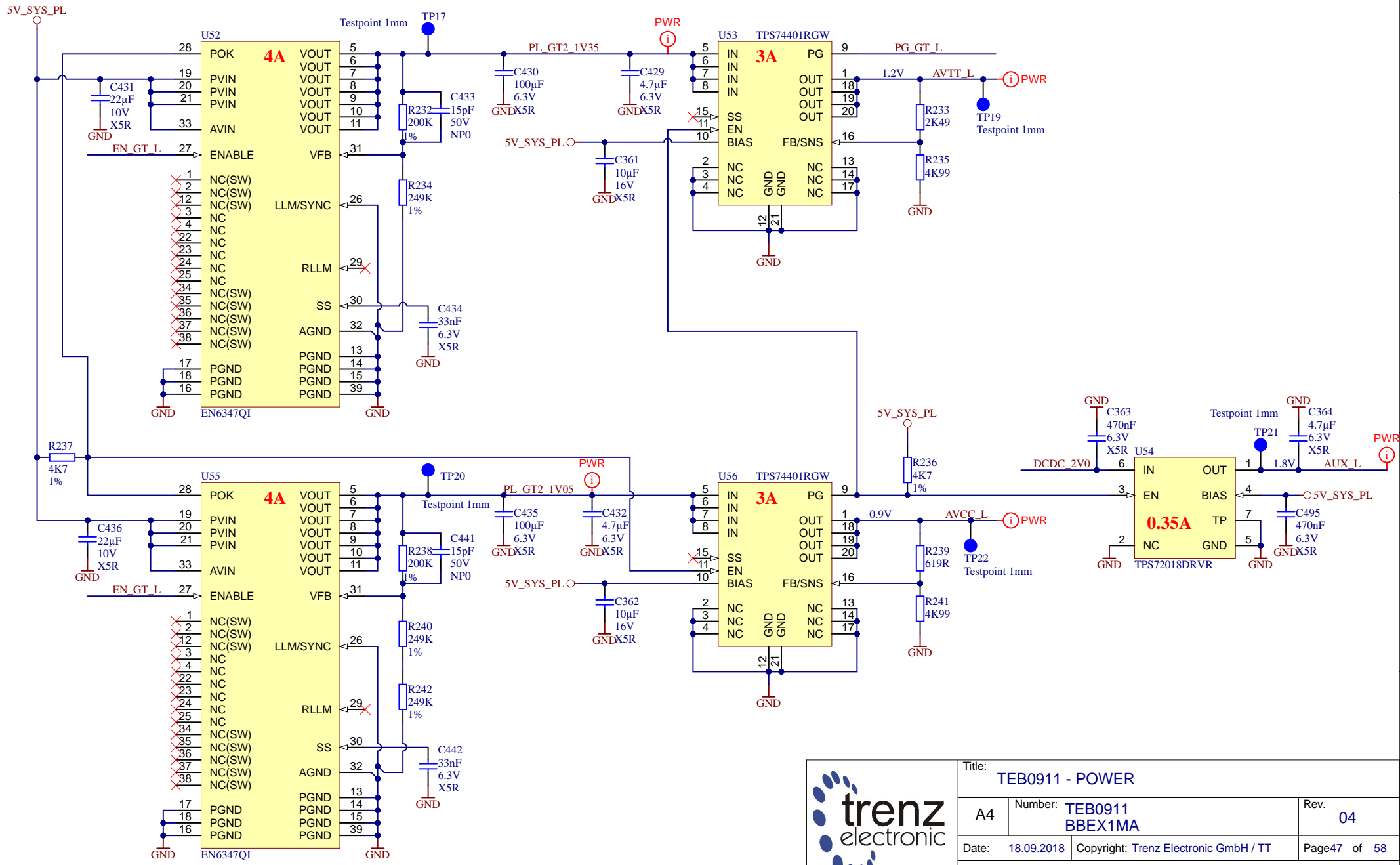
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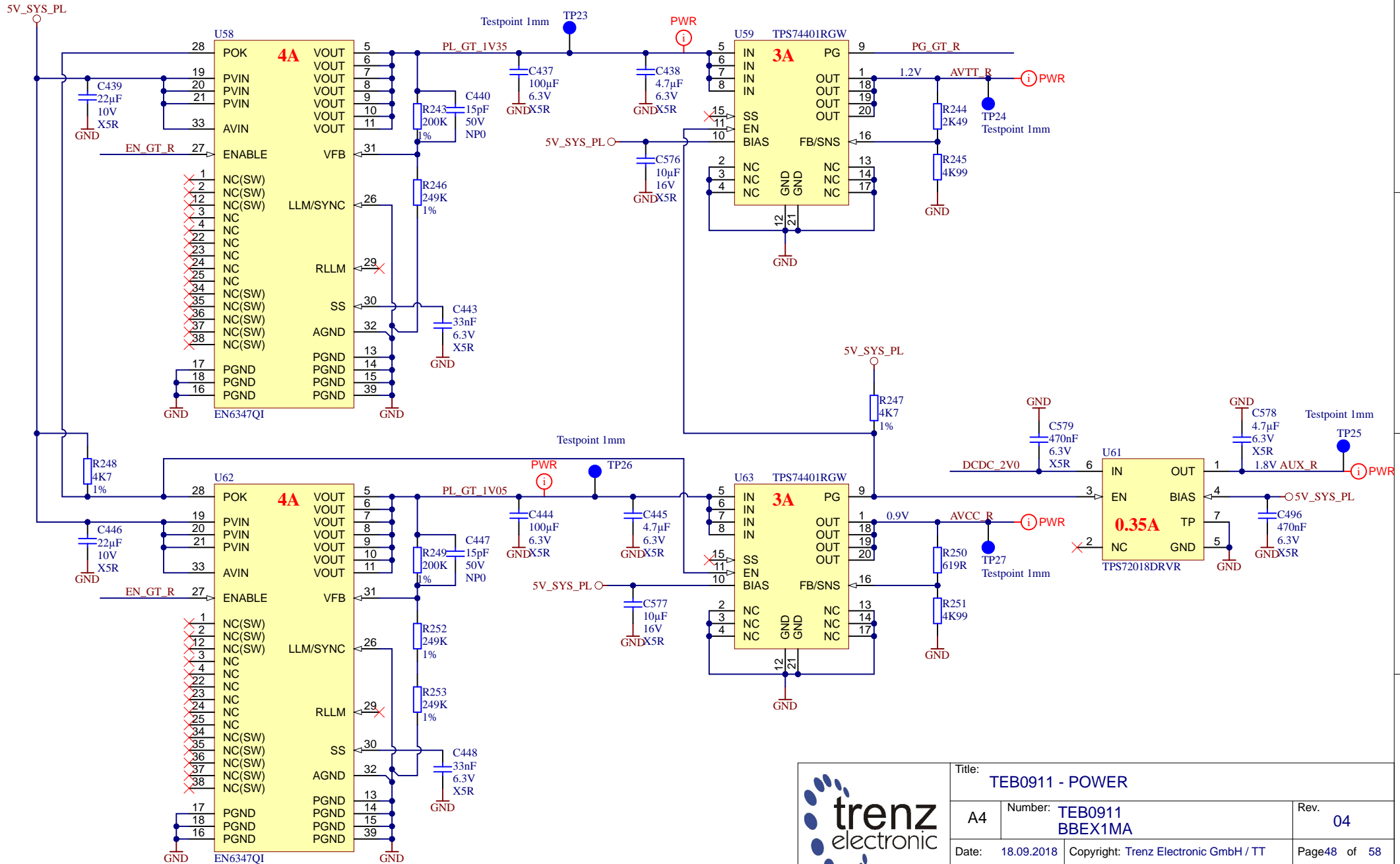
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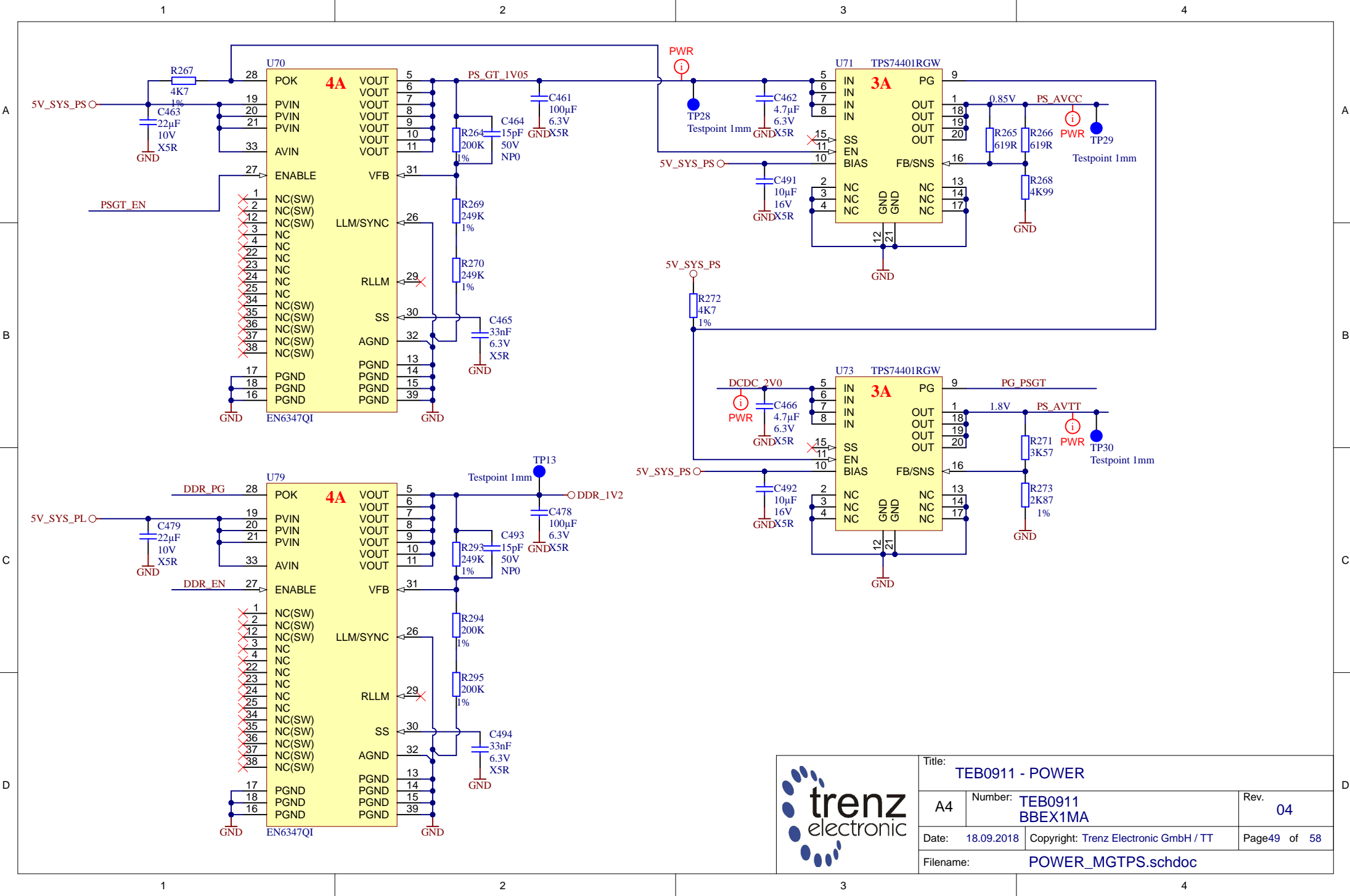
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		A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH	
Page 46 of 58		Page 46 of 58	
Filename: POWER_6.SchDoc			



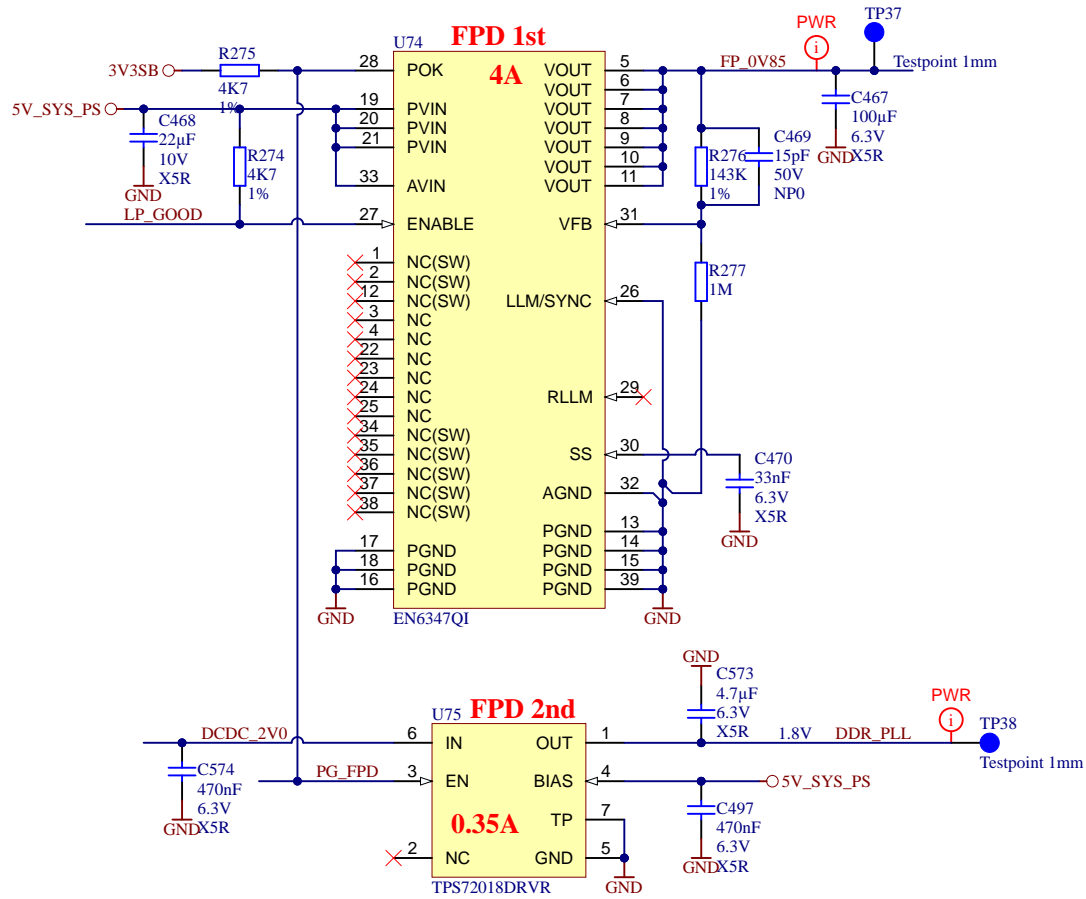
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A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH / TT	Page 47 of 58
Filename: POWER_MGTPLL.schdoc		




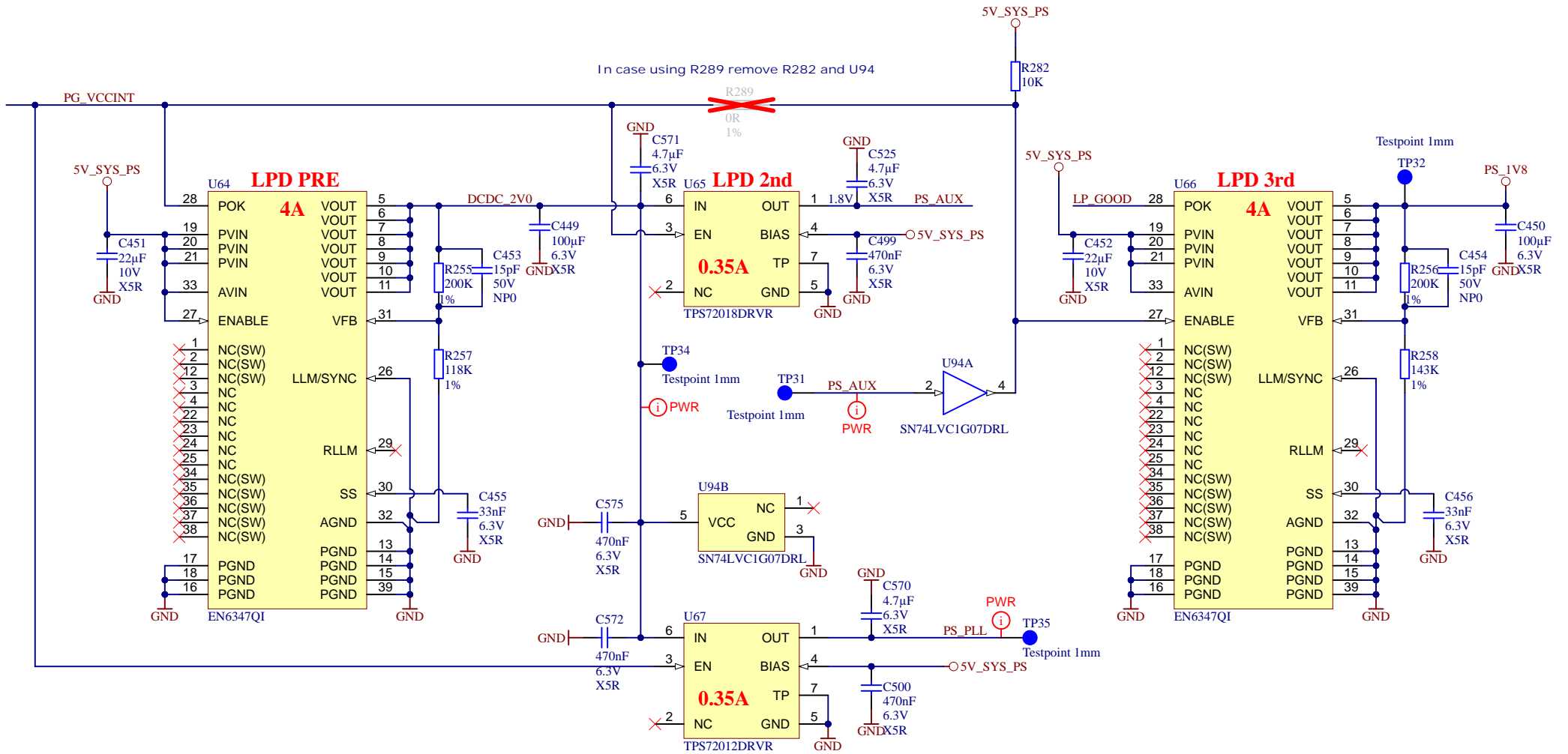
Title: TEB0911 - POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH / TT	Page 48 of 58
Filename: POWER_MGTPLR.schdoc		



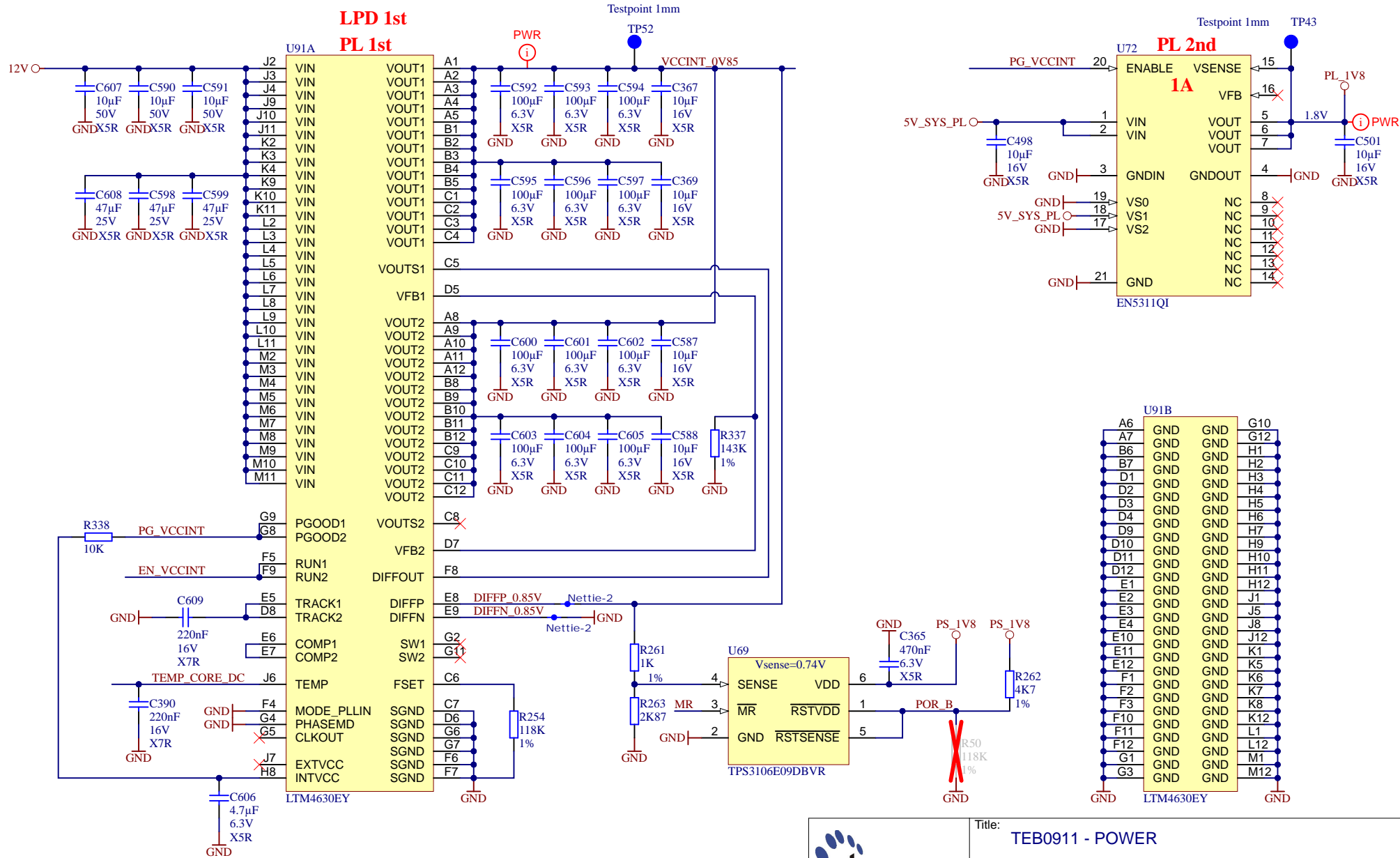
Title: TEB0911 - POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH / TT	Page 49 of 58
Filename: POWER_MGTPS.schdoc		



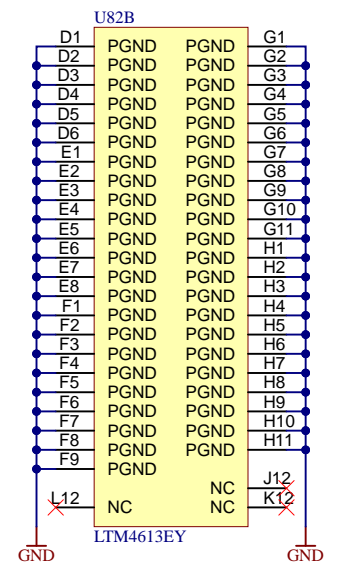
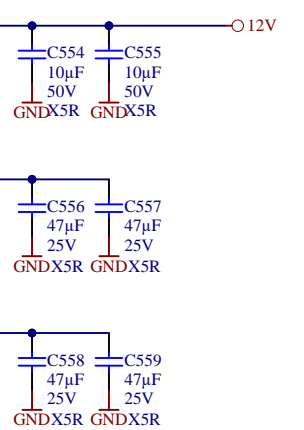
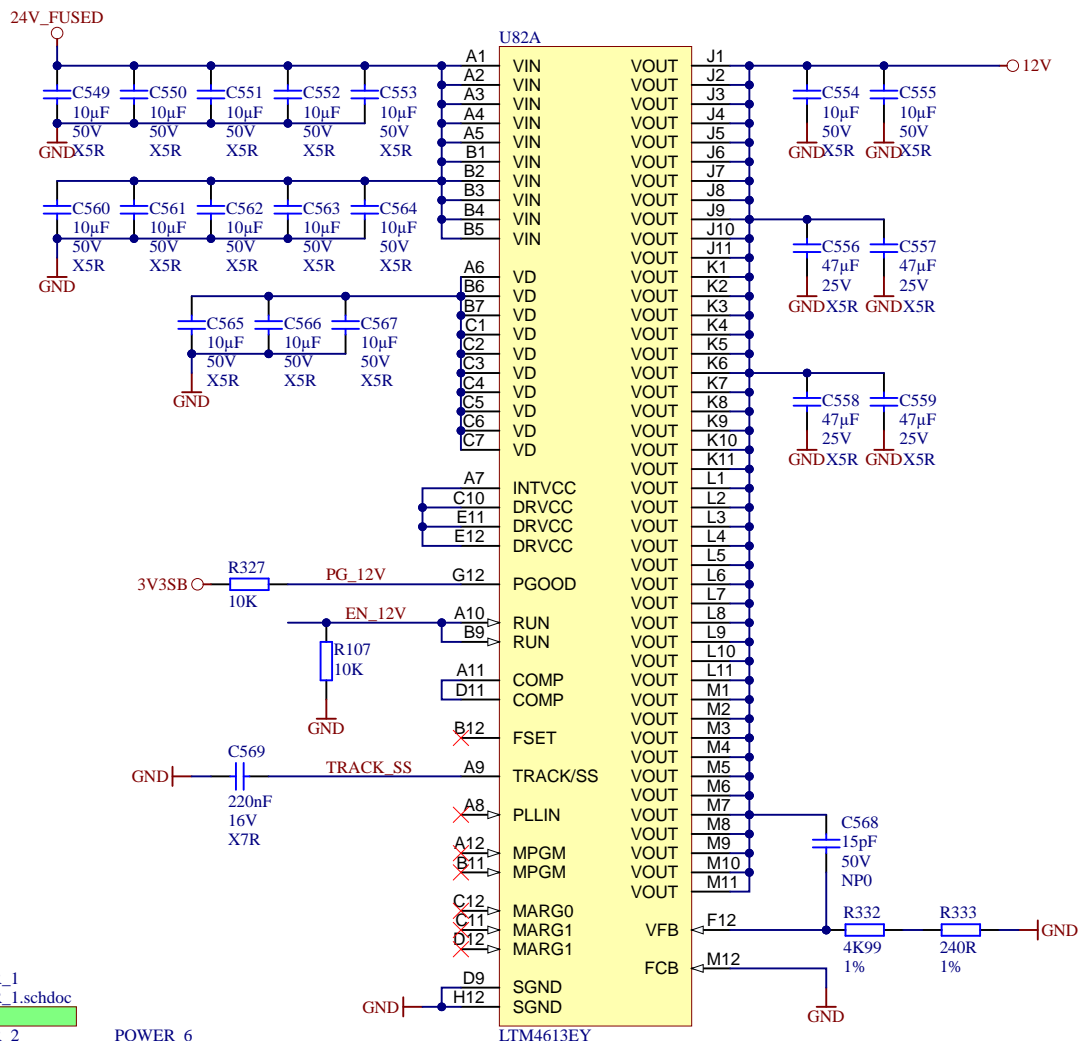
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			A4	Number: TEB0911 BBEX1MA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH / TT		Page50 of 58
Filename: POWER_PSFP.schdoc				



Title: TEB0911 - POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH / TT	Page 51 of 58
Filename: POWER_PSLP.schdoc		



Title: TEB0911 - POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 52 of 58
Filename: PWR_CORE.SchDoc		



- POWER_1
- POWER_1.schdoc
- POWER_2
- POWER_2.schdoc
- POWER_3
- POWER_3.schdoc
- POWER_4
- POWER_4.schdoc
- POWER_5
- POWER_5.schdoc
- POWER_6
- POWER_6.schdoc
- PWR_SYS
- PWR_SYS.SchDoc
- PWR_CORE
- PWR_CORE.SchDoc



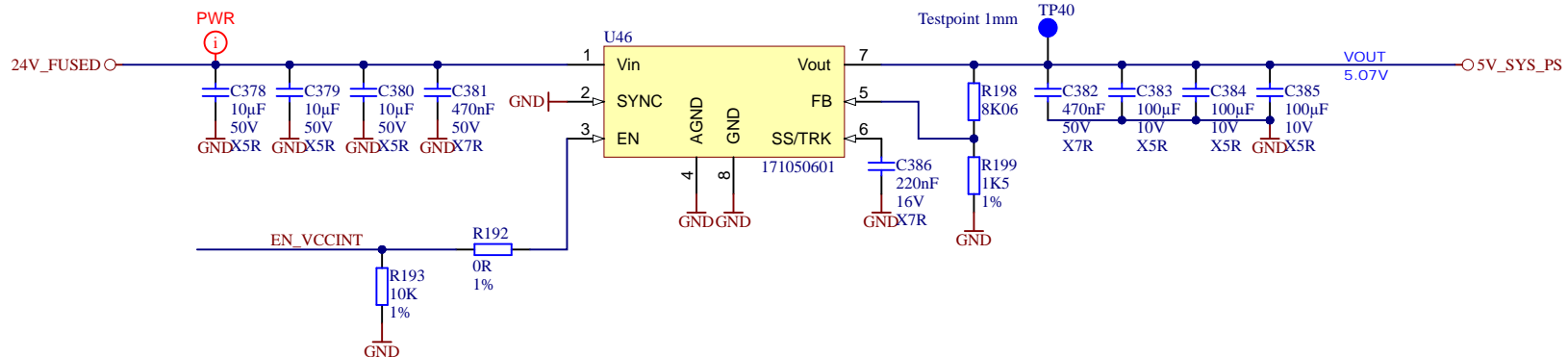
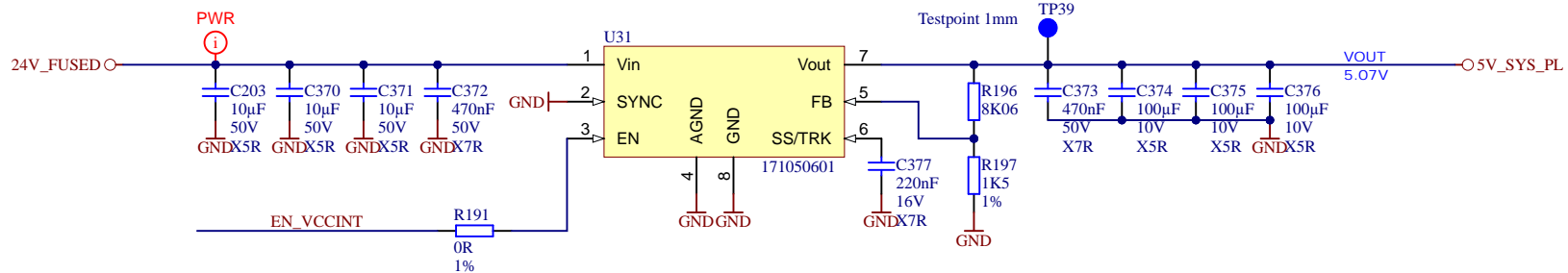
Title: TEB0911 - POWER		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 53 of 58
Filename: PWR_IN.SchDoc		

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- POWER_MGTPS
POWER_MGTPS.schdoc
- POWER_MGTPLR
POWER_MGTPLR.schdoc
- POWER_MGTPLL
POWER_MGTPLL.schdoc
- POWER_PSF P
POWER_PSF P.schdoc
- POWER_PSLP
POWER_PSLP.schdoc

	Title: TEB0911 - POWER	
	A4	Number: TEB0911 BBEX1MA
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH
	Filename: PWR_SYS.SchDoc	

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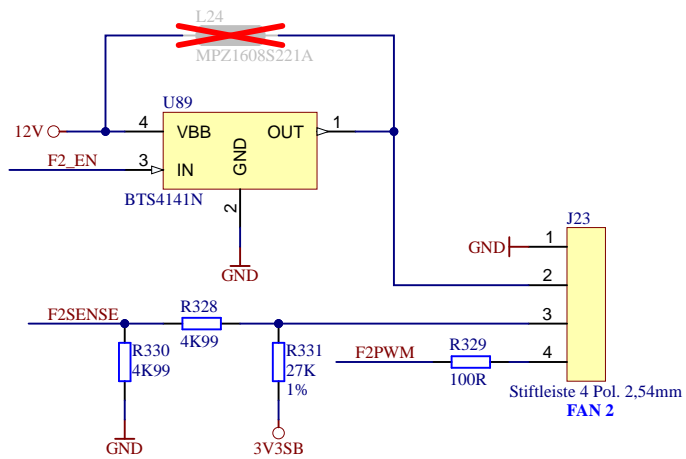
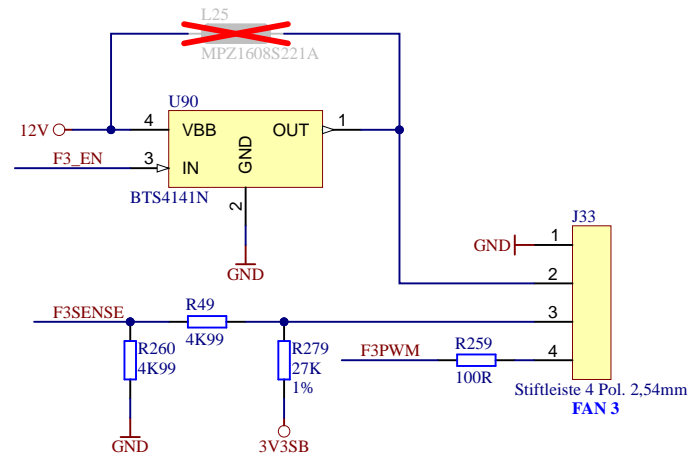
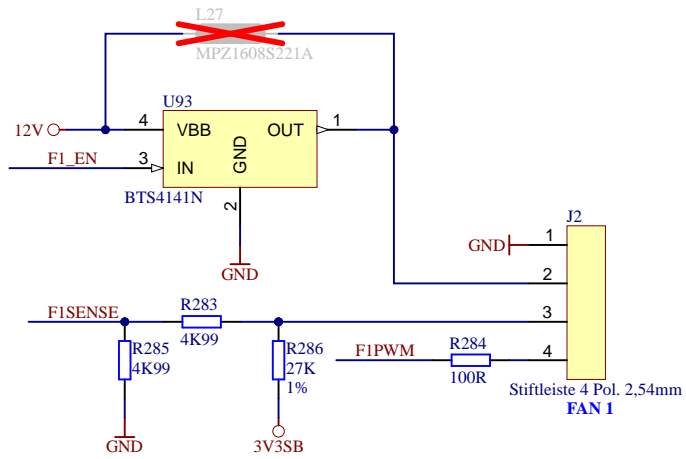
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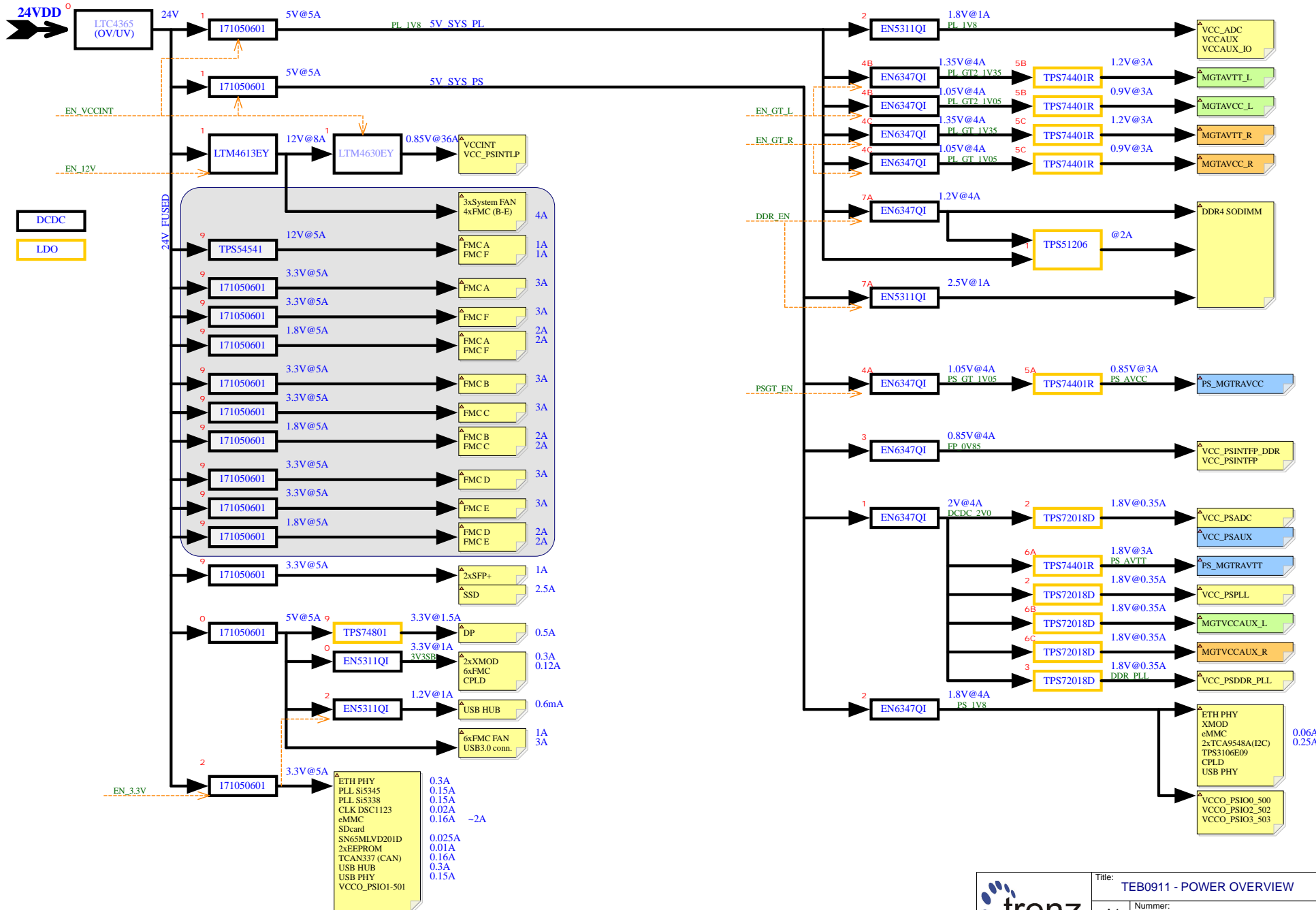
Title: TEB0911 - FAN connectors		
A4	Number: TEB0911 BBEX1MA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page55 of 58
Filename: FAN_CON.schdoc		

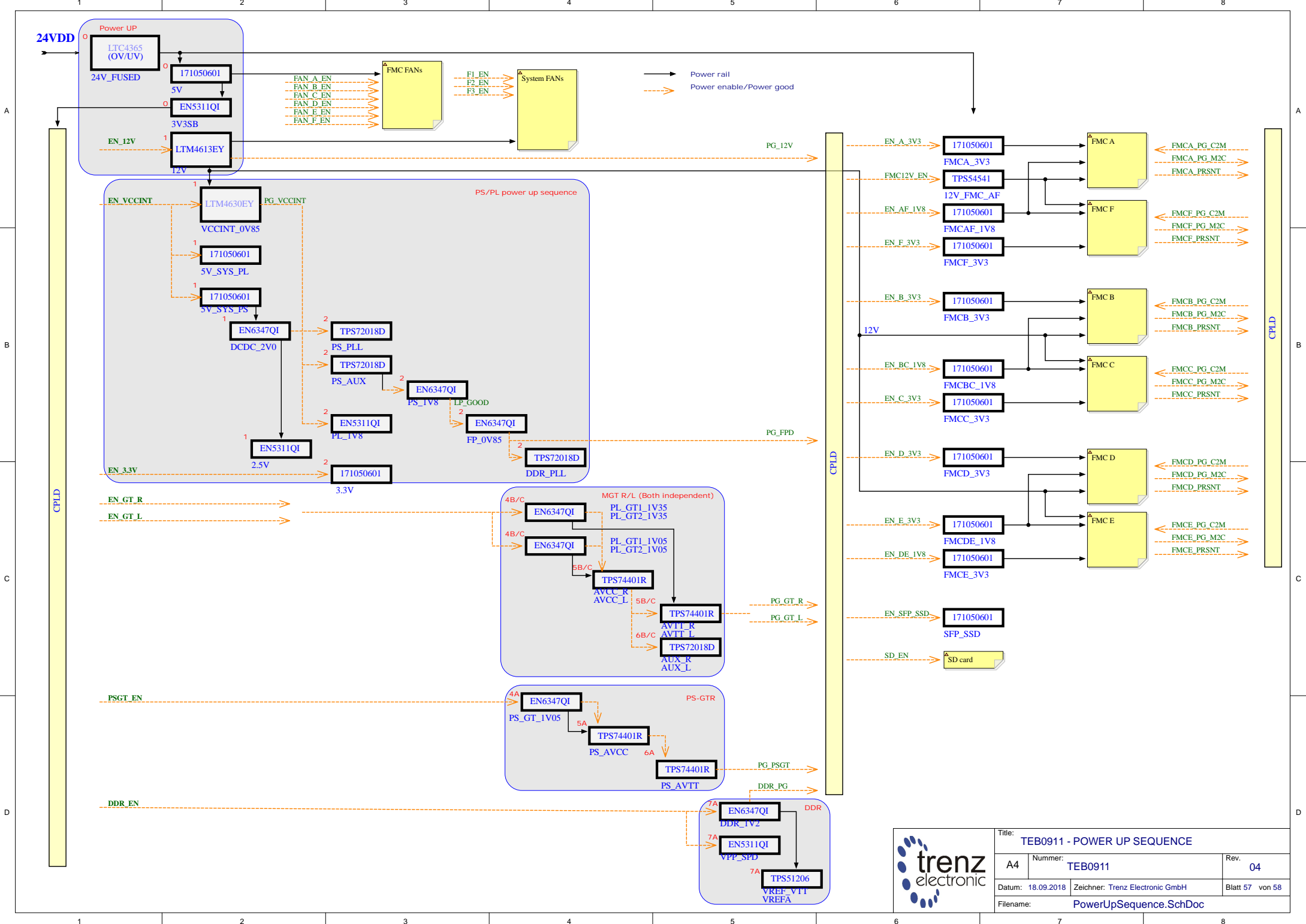
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Title: TEB0911 - POWER UP SEQUENCE		
A4	Number: TEB0911	Rev. 04
Datum: 18.09.2018	Zeichner: Trenz Electronic GmbH	Blatt 57 von 58
Filename: PowerUpSequence.SchDoc		

REV02:

- 1. 2 CPLDs replaced with LCMXO2-7000HC-4FG484C (U27)
- 2. Single SFP connector removed. MGT lanes B129_TX/RX_1 connected to FMC F
- 3. DCDC U45 (power supply of 2xSFP and 1xSFP connectors) removed. 2xSFP powered by U11.
- 4. HDMI: lane B505_TX2 connected to DP1_TX and lane B505_TX3 to DP0_TX.
- 5. Supervisor U69 TPS3106E33 replaced with TPS3106E09
- 6. U17 (Si5345): IN_SEL0/1 disconnected from CPLD and connected to GND
- 7. Added new clock source U87 (SiT8008AI-73-XXS-25.000000E). Connected to CPLD. Not fitted
- 8. I2C pull-ups R154/R155: changed from 4.7k to 1.5kOhm
- 9. FAN: R285, R330, R260 changed to 27K (F*SENSE)
- 10. Added fuse F2 (4A). Fuse F1 (1.85A) "not fitted"
- 11. C354 (PWR_IN_24V/GND) deleted
- 12. Removed clock loop-back OUT9P/N - IN2P/N (U17, Si5345)
- 13. OUT7 (P) of U17 (clock source Si5345) connected to CPLD U27 Bank 5.
- 14. Signal SD Card detect SD_CD connected to CPLD, MIO45 connected to CPLD
- 15. Signals FMC*_PG_C2M(M2C) pulled-up to 3V3SB (was FMC*_3V3)
- 16. CLK_OUT U15 (USB PHY), serial resistor value R13 changed from 33 to 0 Ohm
- 17. EN5311QI: Cout value changed from 22uF to 10uF
- 18. BOM optimization
- 19. Added connections from CPLD to FMC A and F (x_LA06_SC - x_LA33_SC)
- 20. Net EN_VCCINT connected also to DCDC U31 (5V_SYS_PL) and U46 (5V_SYS_PS)
- 21. Added 2 2kb EEPROM (U45/U43)
- 22. Added power-up sequencing
- 23. MIO6 connected to CPLD
- 24. Signals EN_SFP was renamed to EN_SFP_SSD, 12V_FMC was renamed to 12V_FMC_AF, FMC12V_PG to FMCAF_12V_PG
- 25. Nets names F_LA02/03/04 was swapped.

REV03:

- 1. Signals C_LA27_P/N swapped: C_LA27_P connected to pin R10 (IO_L11P_T1U_N8_GC_67), C_LA27_N connected to R9 (IO_L11N_T1U_N9_GC_67) of U1 (XCZU9EG-1FFVB1156)

REV03a (17.11.2017):


- 1. Flash N25Q256A11E1240E changed to N25Q512A11G1240E.

REV04:

- 1. Added SDIO level translator TXS02612RTWR (U95) and 33Ω series resistors on SDIO lines from FPGA side.
- 2. Added user button S5 and jumper J5 (connected to U27 pin W17).
- 3. New FAN switches U76-78/U97-99: BTS4141N.
- 4. New FANs: AFB04512MA. Was added an option to use 5V or 12V (default) power rail.
- 5. Replaced EOL components:
 - TPS27082LDDCR -> TPS22918DBVT (U96)
 - ESD3V3U4ULCE6327XTSA1 -> AOZ8808DI-03 (U28)
- 6. New SFP+ connector: 2007492-5 instead of 1-2007492-5

REV04a (30.08.2019):

- 1. Resistor R65 (USB VBUS) replaced by 1K.

	Title: TEB0911 - REVISION CHANGES		
	A4	Number: TEB0911 BBEX1MA	Rev. 04
	Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 58 of 58
	Filename: Revision_changes.SchDoc		