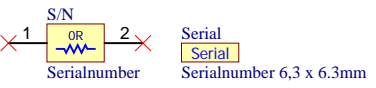
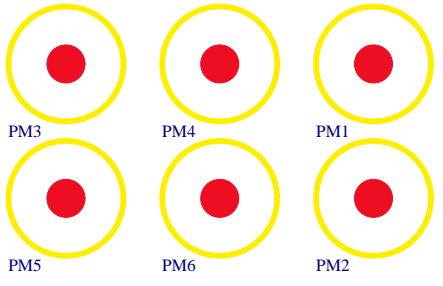
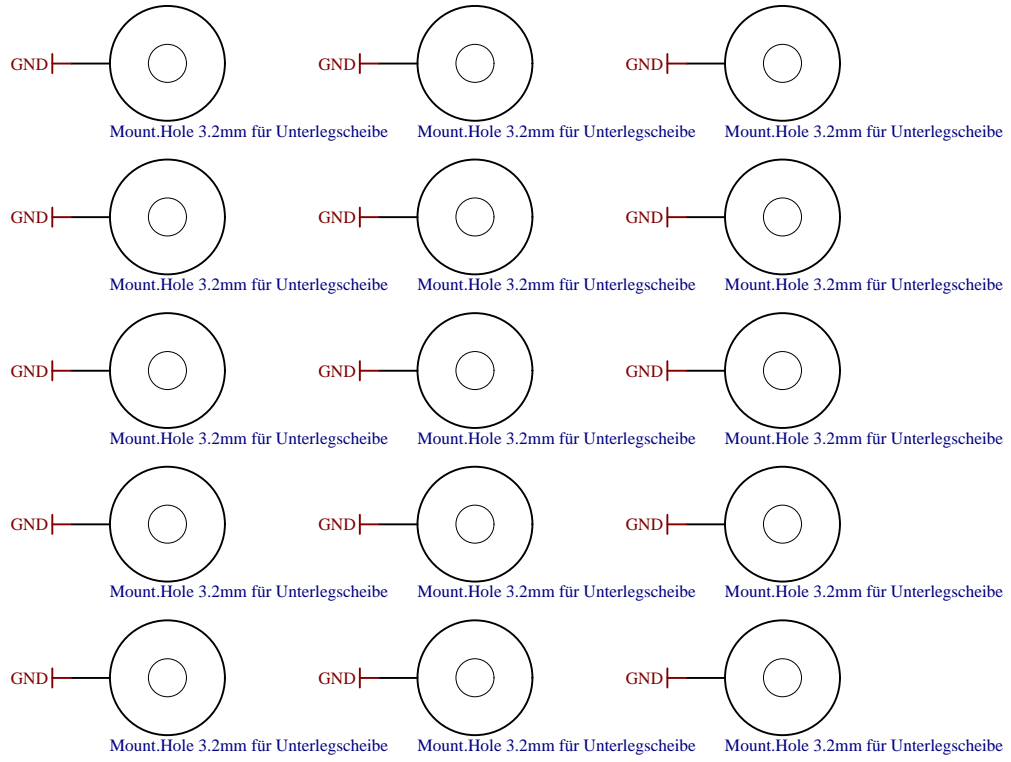


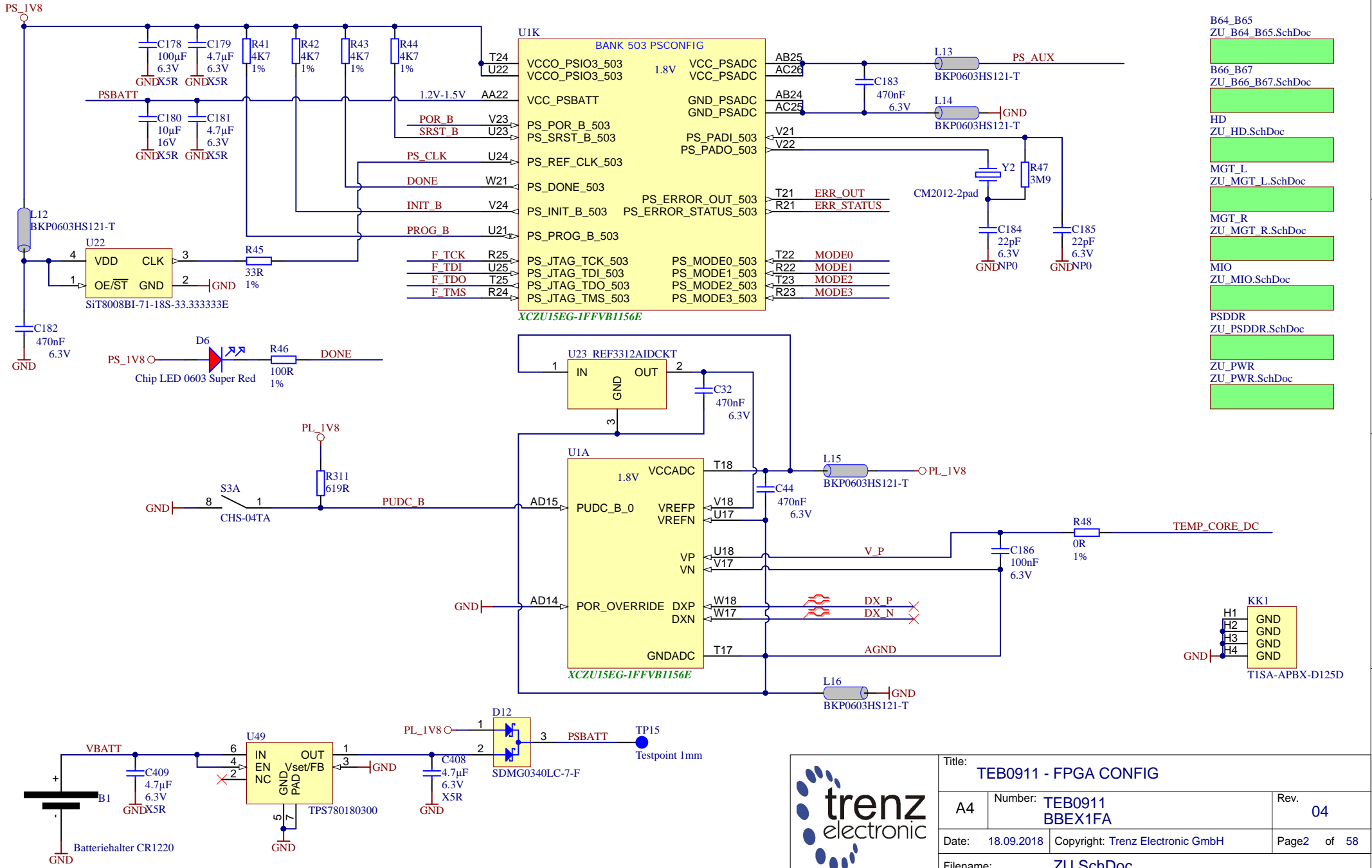
Ethernet Ethernet.SchDoc	U_USBP USB-PHY_SchDoc	U_SC_P SC_POWER.schdoc
U_SFP SFP.SchDoc	U_USBH USB3-HUB.SchDoc	U_POWER_OVERVIEW Power_overview.SchDoc
U_SSD SSD.SchDoc	U_CLK Clock.SchDoc	U_POWER_SEQ PowerUpSequence.SchDoc
U_FrontPanel FrontPanel.SchDoc	U_I2C I2C_system.schdoc	
U_USB USB.SchDoc	U_eMMC eMMC.SchDoc	
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	



LOGO1  
TE Logo PRINT Layer  
LOGO PRINT

Assembly variant	BBEX1FA
Created by	VY
Modified by	VY
Modified at	2019-04-08
SVN Revision	8715

	Title: <b>TEB0911</b>		
	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page1 of 58
	Filename: <b>TEB0911.SchDoc</b>		



- 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 BBEX1FA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page2 of 58
Filename: ZU.SchDoc		

A

B

C

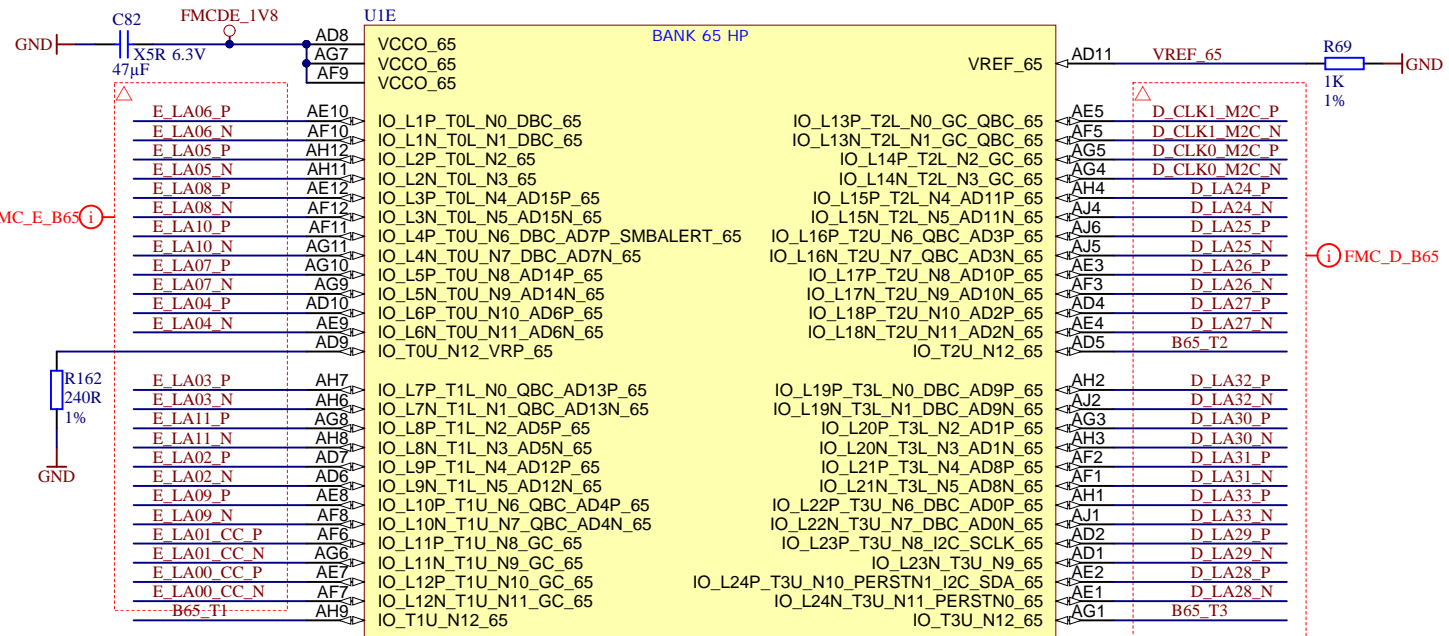
D

A

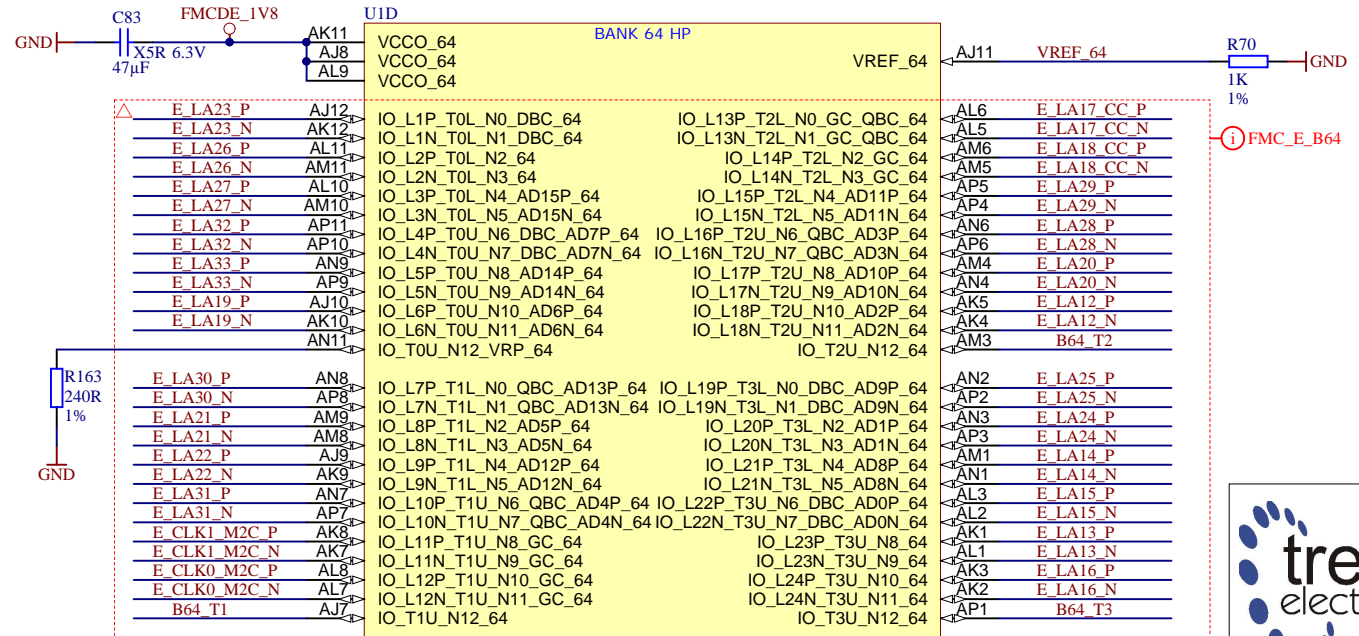
B

C

D



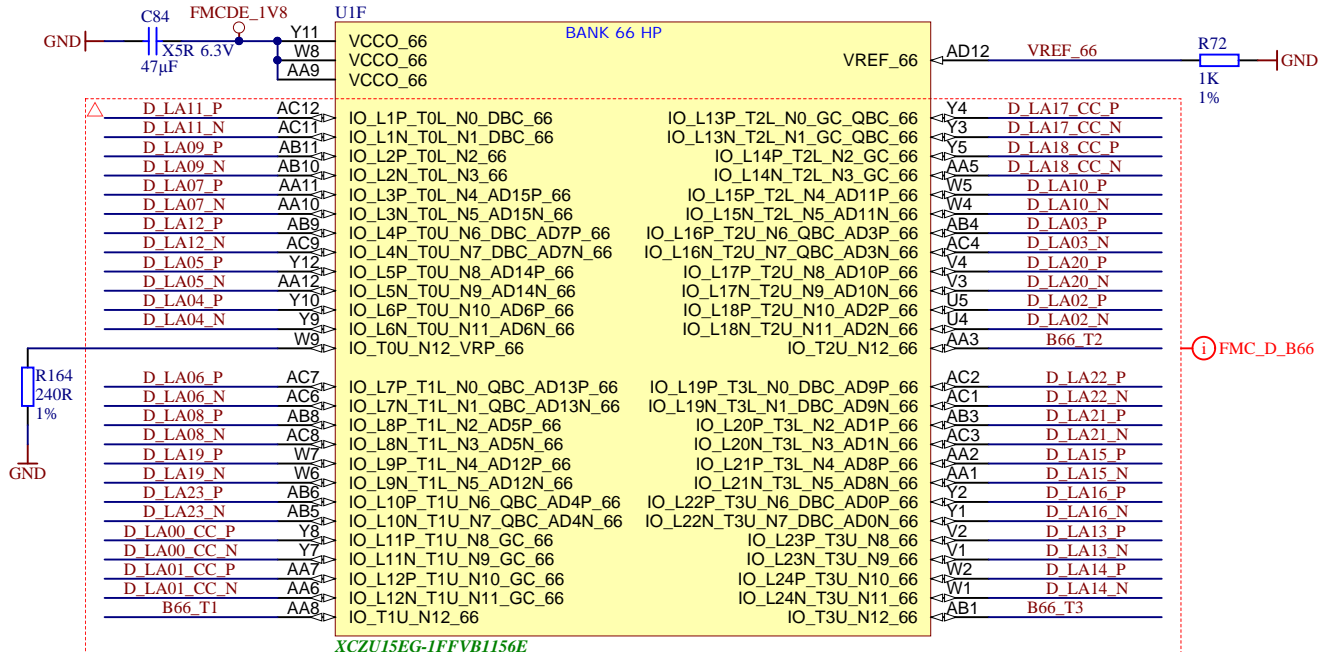
XCZU15EG-1FFVB156E



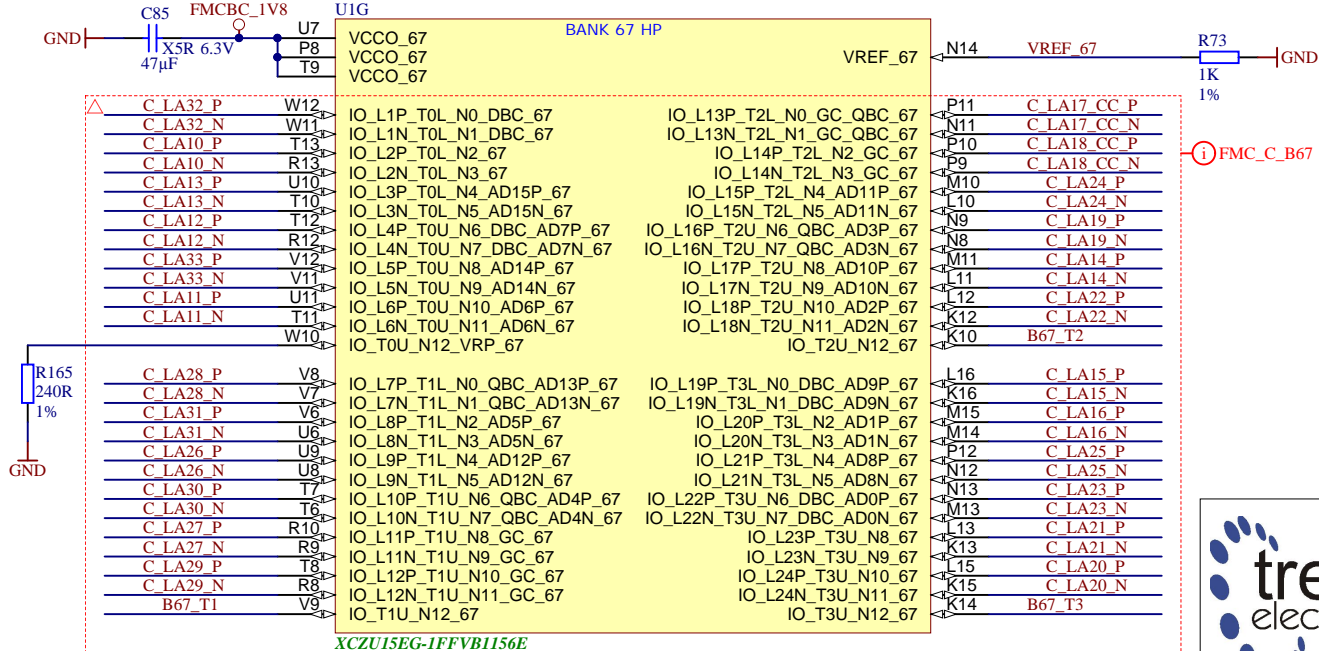
XCZU15EG-1FFVB156E



Title: <b>TEB0911 - FPGA B64 B65</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>3</b> of <b>58</b>
Filename: <b>ZU_B64_B65.SchDoc</b>		



XCZUI5EG-1FFVB156E



XCZUI5EG-1FFVB156E



Title: TEB0911 - FPGA B66 B67		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: ZU_B66_B67.SchDoc		

A

A

B

B

C

C

D

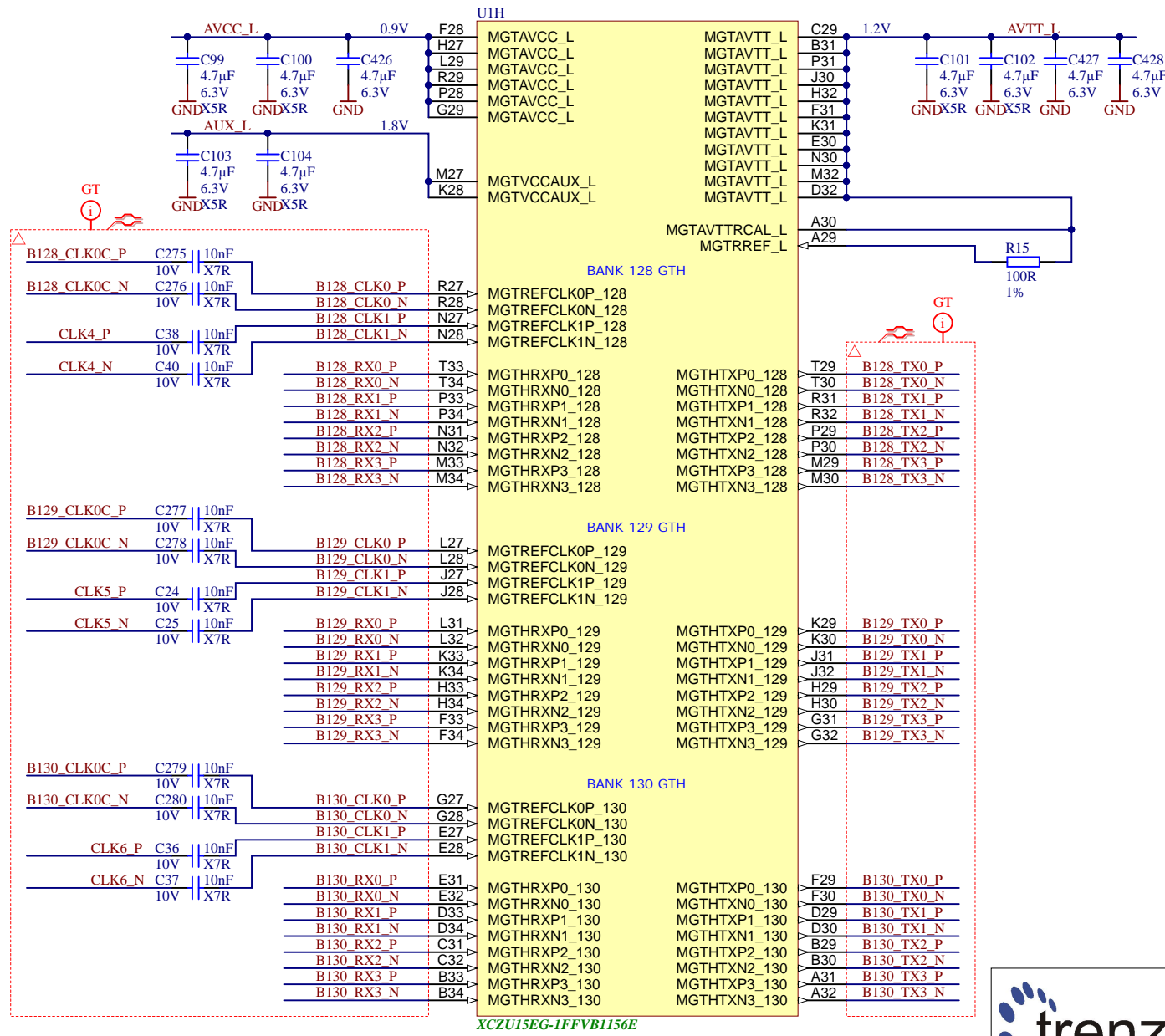
D



*XCZUI5EG-1FFVB156E*

*XCZUI5EG-1FFVB156E*

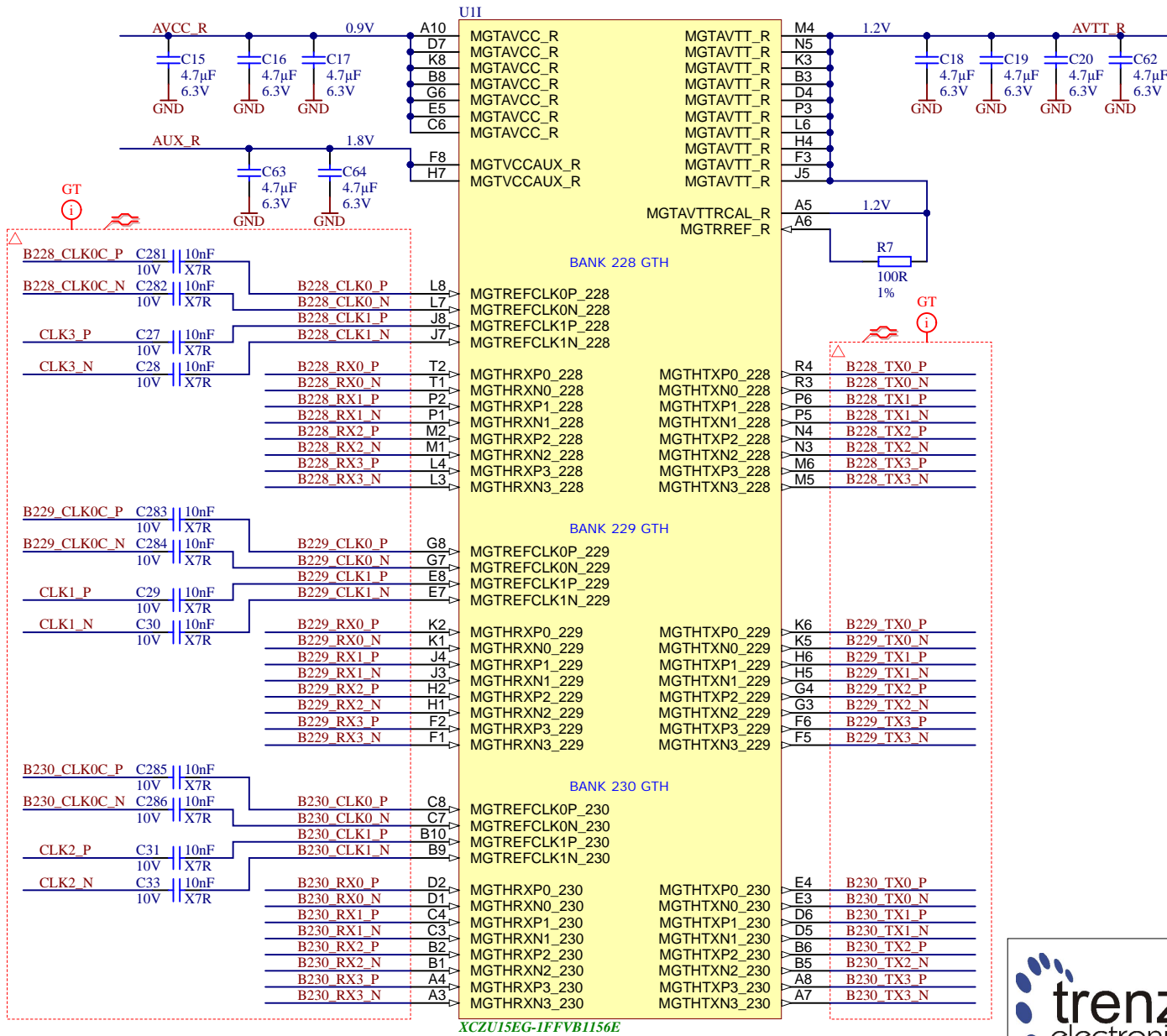
	Title: <b>TEB0911 - FPGA B44 B47-50</b>		
	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>5</b> of <b>58</b>
	Filename: <b>ZU_HD.SchDoc</b>		



XCZU15EG-1FFVB156E



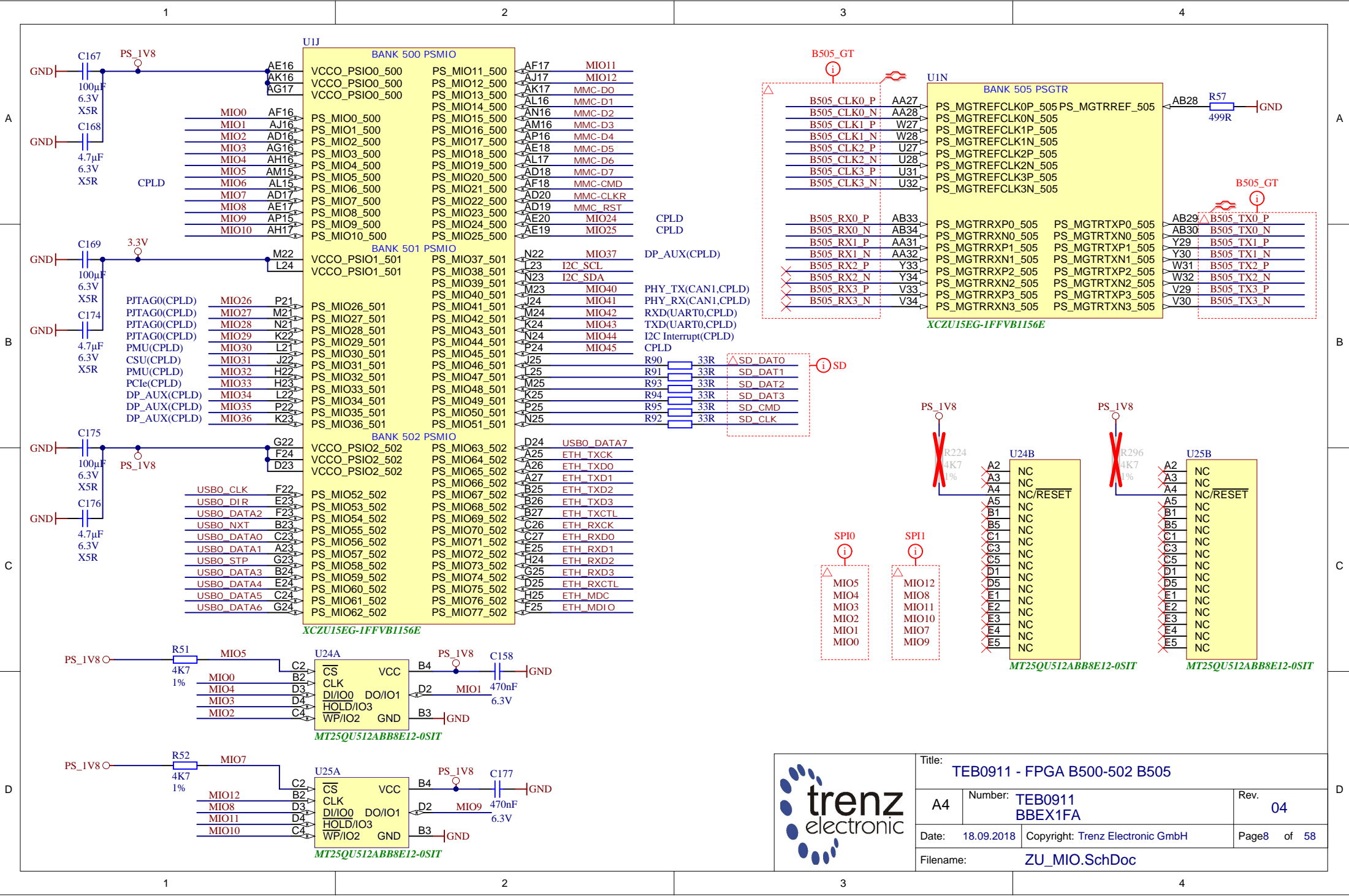
Title: TEB0911 - FPGA B128-130		
A4	Number: TEB0911 BBEX1FA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page6 of 58
Filename: ZU_MGT_L.SchDoc		



XCZU15EG-1FFVB1156E



Title: <b>TEB0911 - FPGA B228-230</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>7</b> of <b>58</b>
Filename: <b>ZU_MGT_R.SchDoc</b>		



Title: <b>TEB0911 - FPGA B500-502 B505</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>8</b> of <b>58</b>
Filename: <b>ZU_MIO.SchDoc</b>		

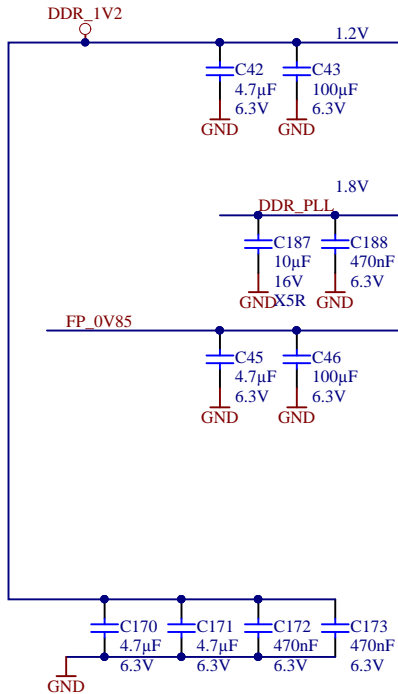


1

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U1L

BANK 504 PSDDR	
AN30	VCCO_PSDDR_504
AG27	PS_DDR_CK0_504
AN25	VCCO_PSDDR_504
AL29	PS_DDR_CK_NO_504
AL24	VCCO_PSDDR_504
AJ24	PS_DDR_CK1_504
AJ28	VCCO_PSDDR_504
	PS_DDR_CK_N1_504
	VCCO_PSDDR_504
	PS_DDR_CKE1_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_A0_504
	PS_DDR_A1_504
	PS_DDR_A2_504
	PS_DDR_A3_504
	PS_DDR_A4_504
	PS_DDR_A5_504
	PS_DDR_A6_504
	PS_DDR_A7_504
	PS_DDR_A8_504
	PS_DDR_A9_504
	PS_DDR_A10_504
	PS_DDR_A11_504
	PS_DDR_A12_504
	PS_DDR_A13_504
	PS_DDR_A14_504
	PS_DDR_A15_504
	PS_DDR_A16_504
	PS_DDR_A17_504
	PS_DDR_CS_N0_504
	PS_DDR_CS_N1_504
	PS_DDR_BA0_504
	PS_DDR_BA1_504
	PS_DDR_BG0_504
	PS_DDR_BG1_504
	PS_DDR_PARITY_504
	PS_DDR_RAM_RST_N_504
	PS_DDR_ACT_N_504
	PS_DDR_ALERT_N_504
	PS_DDR_ZQ_504
	PS_DDR_ODT0_504
	PS_DDR_ODT1_504
AN28	DDR4-CS_N0
AL30	DDR4-CS_N1
AH26	DDR4-BA0
AG26	DDR4-BA1
AK28	DDR4-BG0
AH27	DDR4-BG1
AF20	DDR4-PAR
AF21	DDR4-RESET
AG25	DDR4-ACT
AF22	DDR4-ALERT
AF23	DDR4-ZQ
AM30	DDR4-ODT0
AJ26	DDR4-ODT1

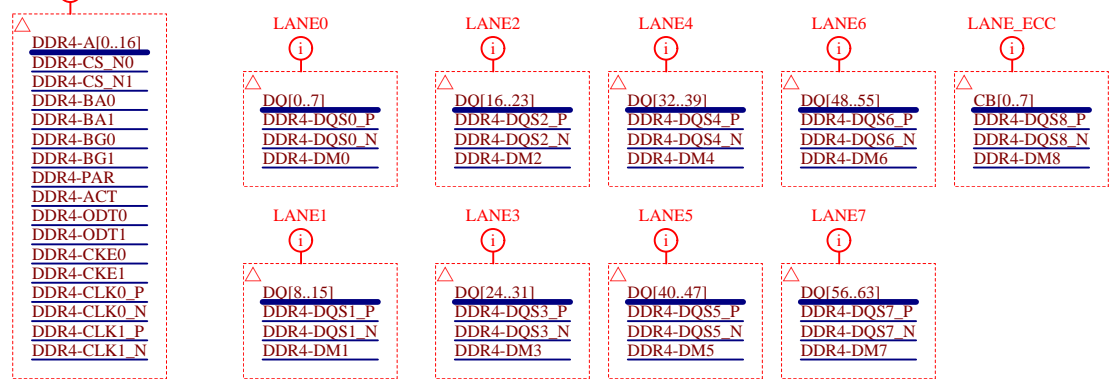
U1M

BANK 504 PSDDR					
DQ0	AP20	PS_DDR_DQ0_504	PS_DDR_DQ32_504	AG31	DQ32
DQ1	AP18	PS_DDR_DQ1_504	PS_DDR_DQ33_504	AG30	DQ33
DQ2	AP19	PS_DDR_DQ2_504	PS_DDR_DQ34_504	AG29	DQ34
DQ3	AP17	PS_DDR_DQ3_504	PS_DDR_DQ35_504	AG28	DQ35
DQ4	AM20	PS_DDR_DQ4_504	PS_DDR_DQ36_504	AJ30	DQ36
DQ5	AM19	PS_DDR_DQ5_504	PS_DDR_DQ37_504	AK29	DQ37
DQ6	AM18	PS_DDR_DQ6_504	PS_DDR_DQ38_504	AK30	DQ38
DQ7	AL18	PS_DDR_DQ7_504	PS_DDR_DQ39_504	AJ29	DQ39
DQ8	AP22	PS_DDR_DQ8_504	PS_DDR_DQ40_504	AE27	DQ40
DQ9	AP21	PS_DDR_DQ9_504	PS_DDR_DQ41_504	AF28	DQ41
DQ10	AP24	PS_DDR_DQ10_504	PS_DDR_DQ42_504	AF30	DQ42
DQ11	AM23	PS_DDR_DQ11_504	PS_DDR_DQ43_504	AF31	DQ43
DQ12	AL21	PS_DDR_DQ12_504	PS_DDR_DQ44_504	AD28	DQ44
DQ13	AL22	PS_DDR_DQ13_504	PS_DDR_DQ45_504	AD27	DQ45
DQ14	AM23	PS_DDR_DQ14_504	PS_DDR_DQ46_504	AD29	DQ46
DQ15	AL23	PS_DDR_DQ15_504	PS_DDR_DQ47_504	AD30	DQ47
DQ16	AL20	PS_DDR_DQ16_504	PS_DDR_DQ48_504	AH33	DQ48
DQ17	AK20	PS_DDR_DQ17_504	PS_DDR_DQ49_504	AJ34	DQ49
DQ18	AJ20	PS_DDR_DQ18_504	PS_DDR_DQ50_504	AH34	DQ50
DQ19	AK18	PS_DDR_DQ19_504	PS_DDR_DQ51_504	AH32	DQ51
DQ20	AG20	PS_DDR_DQ20_504	PS_DDR_DQ52_504	AK34	DQ52
DQ21	AH18	PS_DDR_DQ21_504	PS_DDR_DQ53_504	AK33	DQ53
DQ22	AG19	PS_DDR_DQ22_504	PS_DDR_DQ54_504	AL32	DQ54
DQ23	AG18	PS_DDR_DQ23_504	PS_DDR_DQ55_504	AL31	DQ55
DQ24	AG21	PS_DDR_DQ24_504	PS_DDR_DQ56_504	AG33	DQ56
DQ25	AH21	PS_DDR_DQ25_504	PS_DDR_DQ57_504	AG34	DQ57
DQ26	AG24	PS_DDR_DQ26_504	PS_DDR_DQ58_504	AF32	DQ58
DQ27	AG23	PS_DDR_DQ27_504	PS_DDR_DQ59_504	AF33	DQ59
DQ28	AK22	PS_DDR_DQ28_504	PS_DDR_DQ60_504	AD31	DQ60
DQ29	AJ21	PS_DDR_DQ29_504	PS_DDR_DQ61_504	AD32	DQ61
DQ30	AJ22	PS_DDR_DQ30_504	PS_DDR_DQ62_504	AD34	DQ62
DQ31	AK23	PS_DDR_DQ31_504	PS_DDR_DQ63_504	AD33	DQ63
		PS_DDR_DQ64_504	PS_DDR_DQ65_504	AN31	CB0
		PS_DDR_DQ66_504	PS_DDR_DQ67_504	AP31	CB1
		PS_DDR_DQ68_504	PS_DDR_DQ69_504	AP32	CB2
		PS_DDR_DQ70_504	PS_DDR_DQ71_504	AP33	CB3
		PS_DDR_DQ72_504	PS_DDR_DQ73_504	AM31	CB4
		PS_DDR_DQ74_504	PS_DDR_DQ75_504	AM33	CB5
		PS_DDR_DQ76_504	PS_DDR_DQ77_504	AM34	CB6
		PS_DDR_DQ78_504	PS_DDR_DQ79_504	AL33	CB7
		PS_DDR_DQ80_504	PS_DDR_DQ81_504		
		PS_DDR_DQ82_504	PS_DDR_DQ83_504	AN17	DDR4-DM0
		PS_DDR_DQ84_504	PS_DDR_DQ85_504	AM21	DDR4-DM1
		PS_DDR_DQ86_504	PS_DDR_DQ87_504	AK19	DDR4-DM2
		PS_DDR_DQ88_504	PS_DDR_DQ89_504	AH24	DDR4-DM3
		PS_DDR_DQ90_504	PS_DDR_DQ91_504	AH31	DDR4-DM4
		PS_DDR_DQ92_504	PS_DDR_DQ93_504	AE30	DDR4-DM5
		PS_DDR_DQ94_504	PS_DDR_DQ95_504	AJ31	DDR4-DM6
		PS_DDR_DQ96_504	PS_DDR_DQ97_504	AE34	DDR4-DM7
		PS_DDR_DQ98_504	PS_DDR_DQ99_504	AN34	DDR4-DM8

XCZU15EG-1FFVB1156E

XCZU15EG-1FFVB1156E

ADDR\_CMD\_CTRL



Title: <b>TEB0911 - FPGA B504</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>9</b> of <b>58</b>
Filename: <b>ZU_PSDDR.SchDoc</b>		

1

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A

B

C

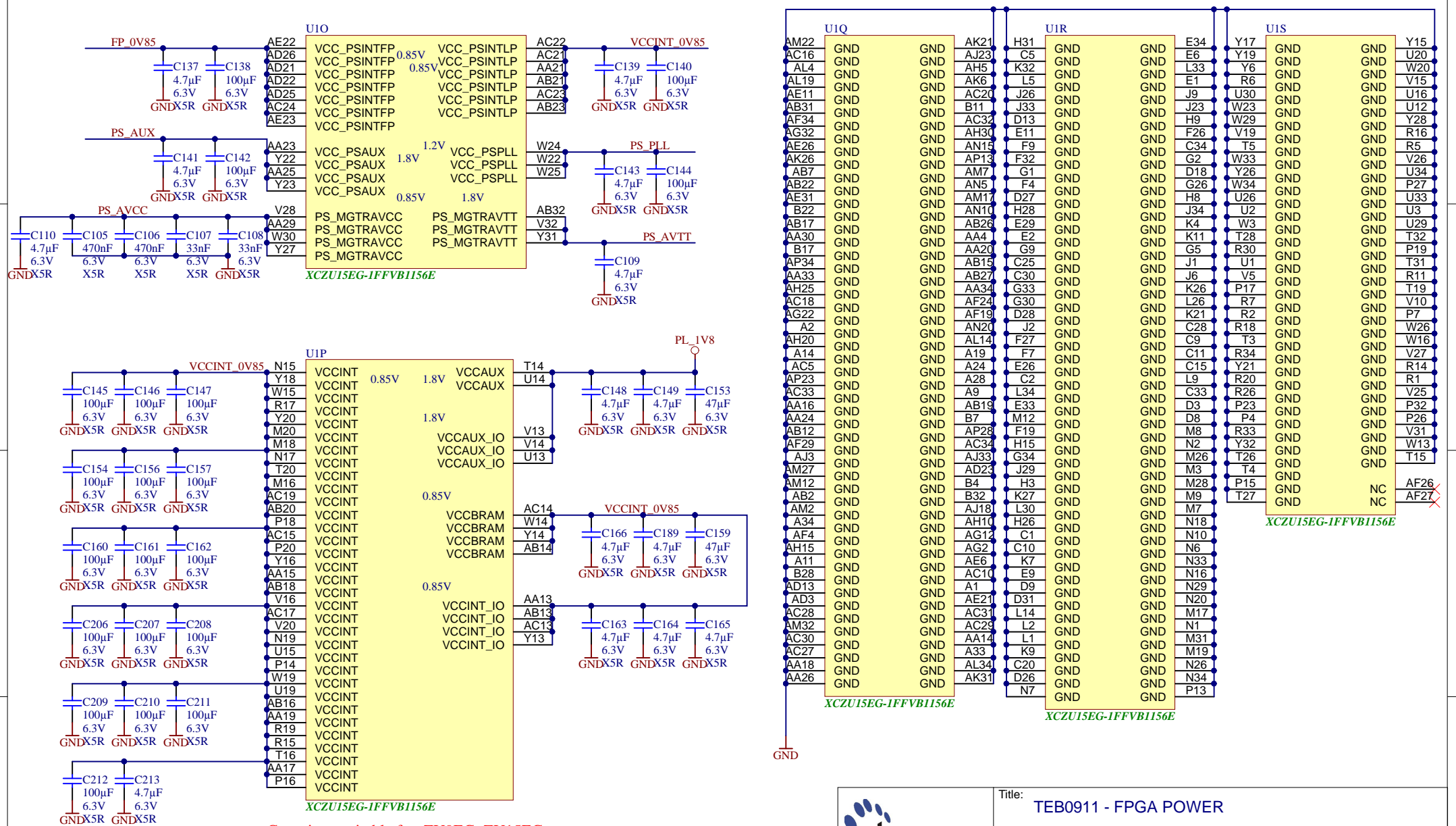
D

A

B

C

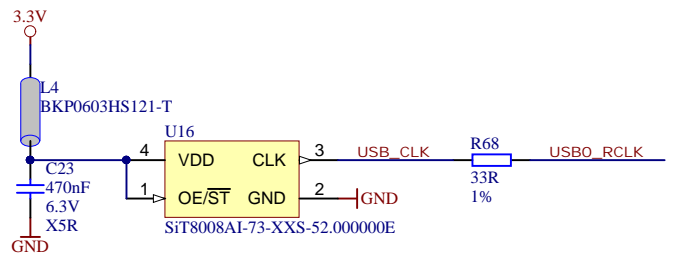
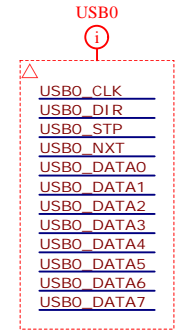
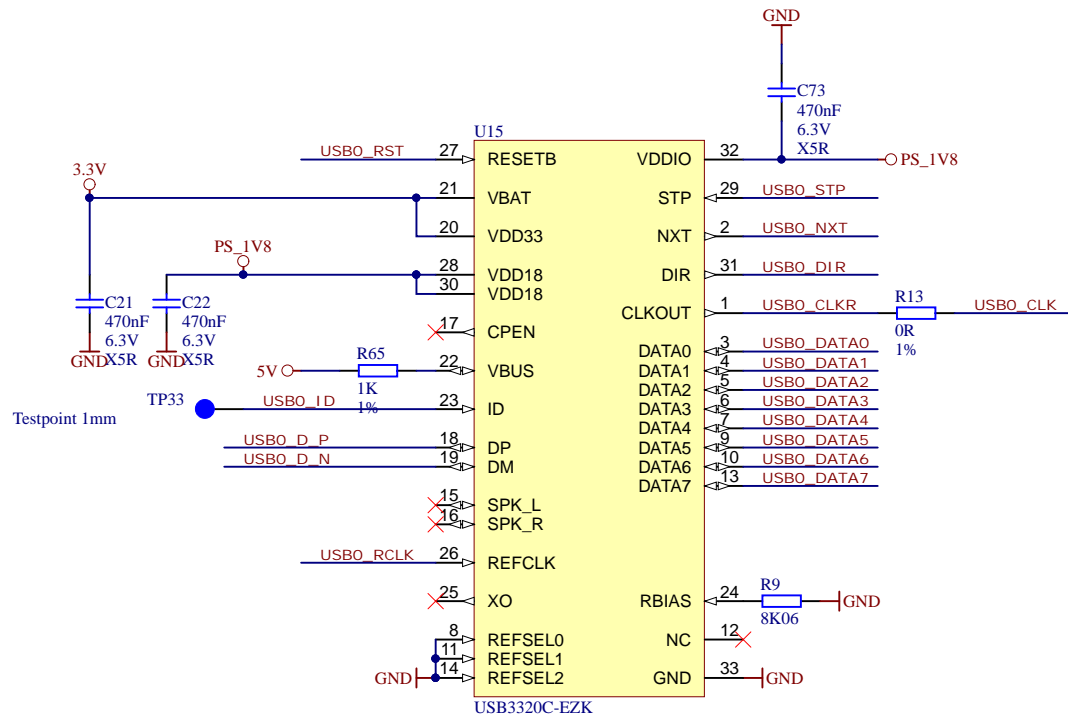
D



Capacitors suitable for ZU9EG, ZU15EG



Title: <b>TEB0911 - FPGA POWER</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>10</b> of <b>58</b>
Filename: <b>ZU_PWR.SchDoc</b>		



Title: TEB0911 - USB 2.0 PHY		
A4	Number: TEB0911 BBEX1FA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 11 of 58
Filename: USB-PHY.SchDoc		

1

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A

A

B

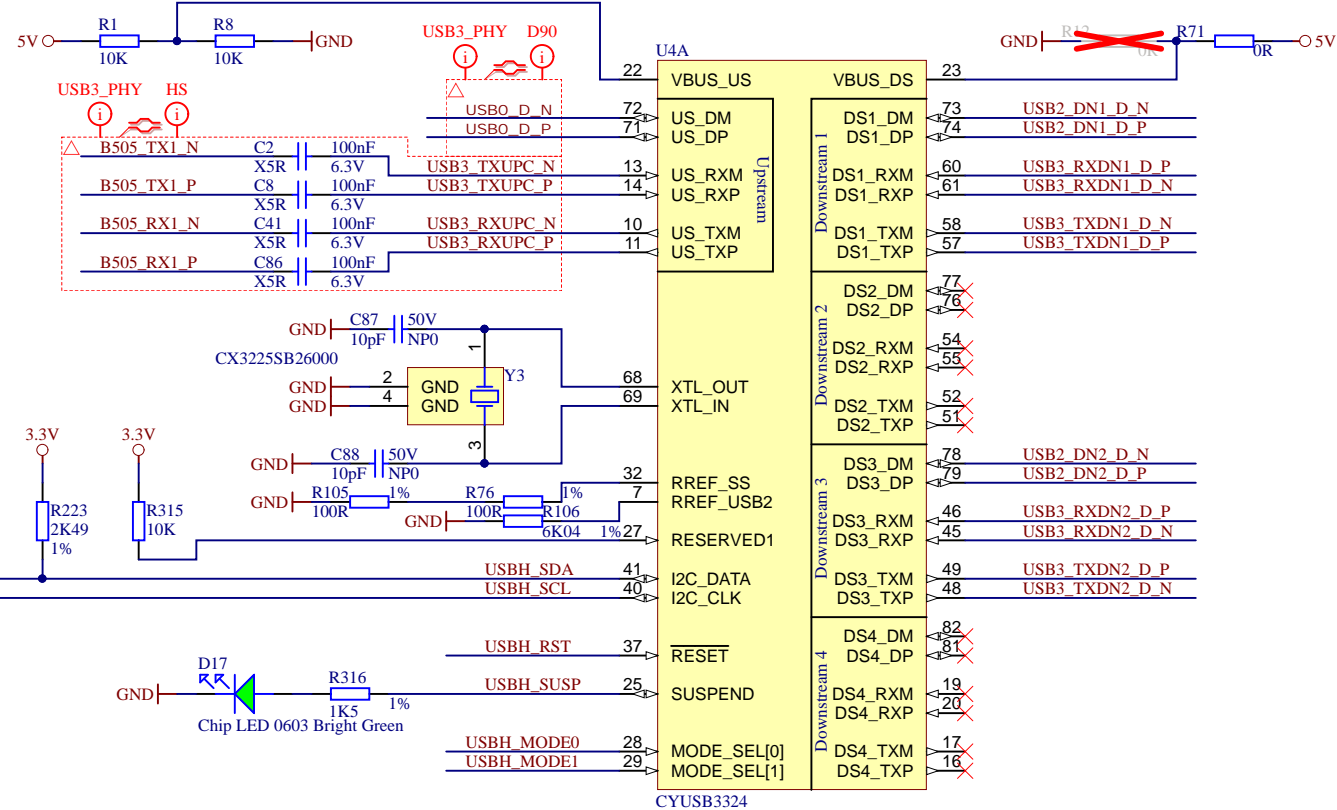
B

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)

ACA\_DOCK Disabled  
 All REMOVABLE  
 I2C\_DEV\_ID: I2C slave address 0x60  
 VID  
 PORT\_DISABLE All EN  
 All REMOVABLE  
 VID  
 VID  
 DSx\_CDP\_EN  
 DSx\_CDP\_EN  
 DSx\_CDP\_EN  
 DSx\_CDP\_EN

PORT\_DISABLE All EN  
 PWR\_EN\_SEL Individual  
 PIN\_STRAP config

Active LOW

Power enable and overcurrent LOW



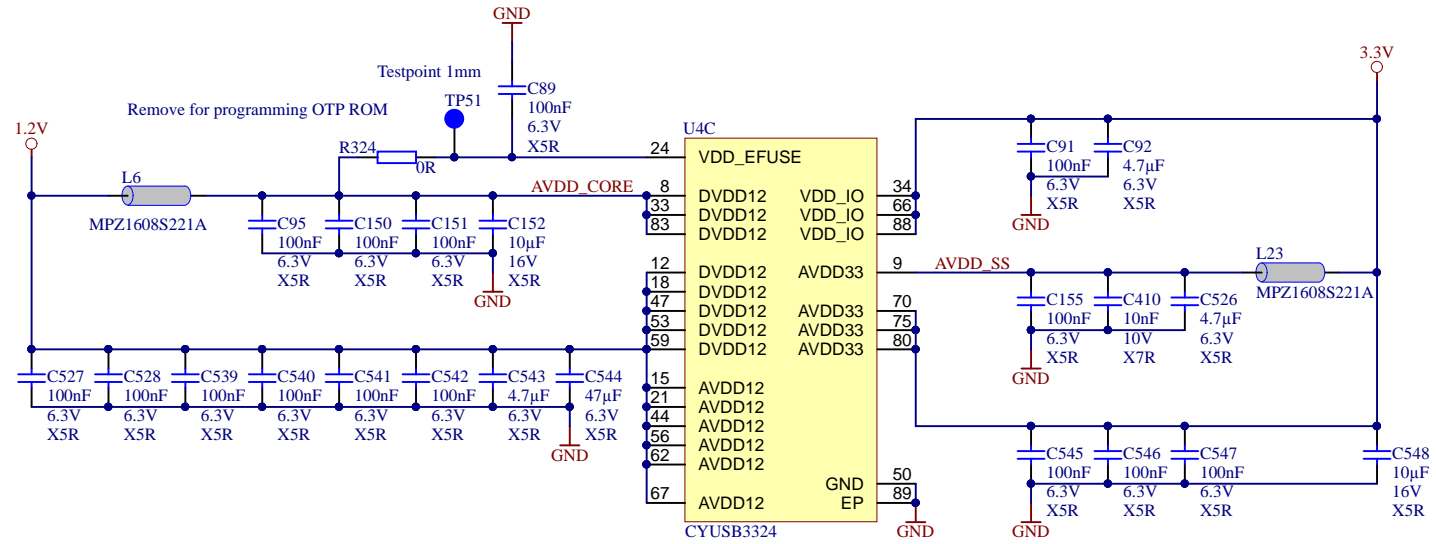
Title: <b>TEB0911 - USB HUB</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>12</b> of <b>58</b>
Filename: <b>USB3-HUB.SchDoc</b>		


1

2

3

4



	Title: <b>TEB0911 - USB HUB</b>		
	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>13</b> of <b>58</b>
	Filename: <b>USB3-HUB_PWR.SchDoc</b>		

1

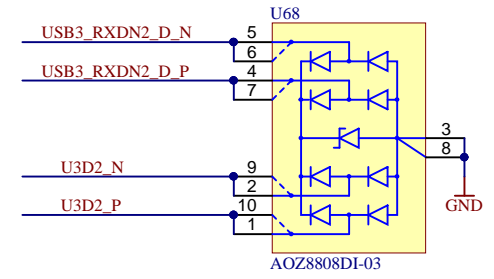
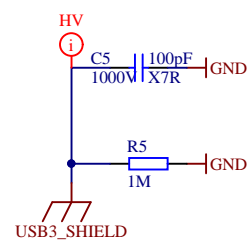
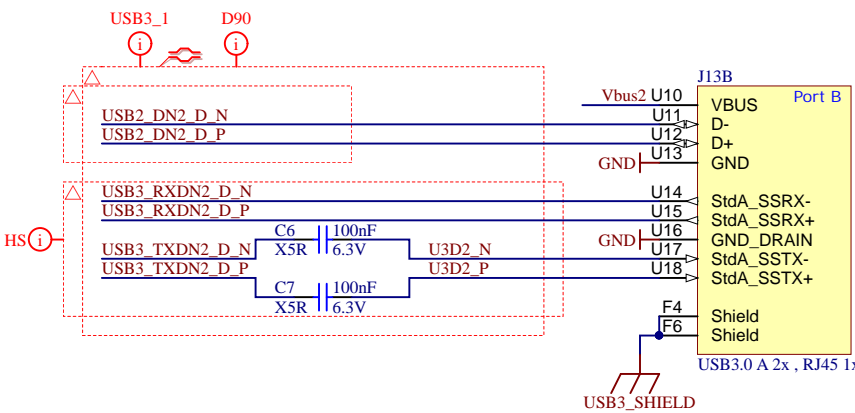
2

3

4

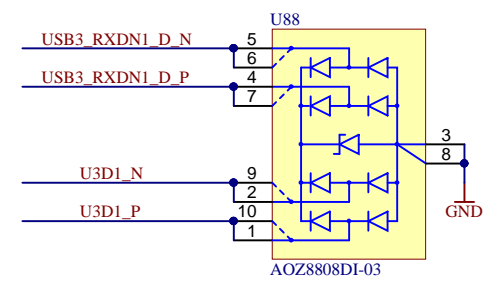
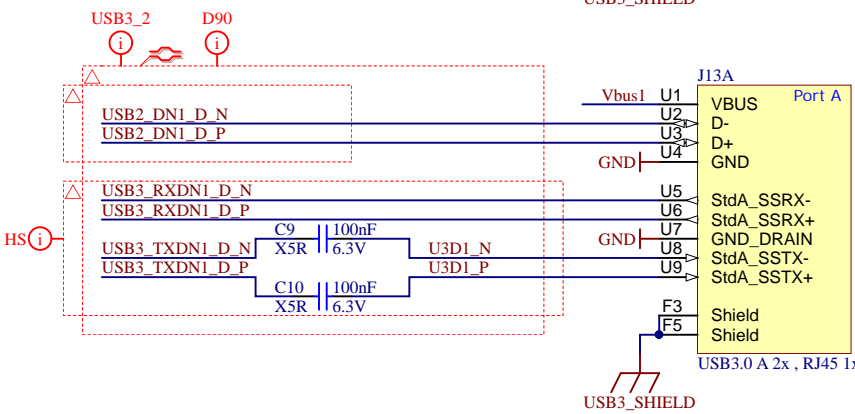
A

A



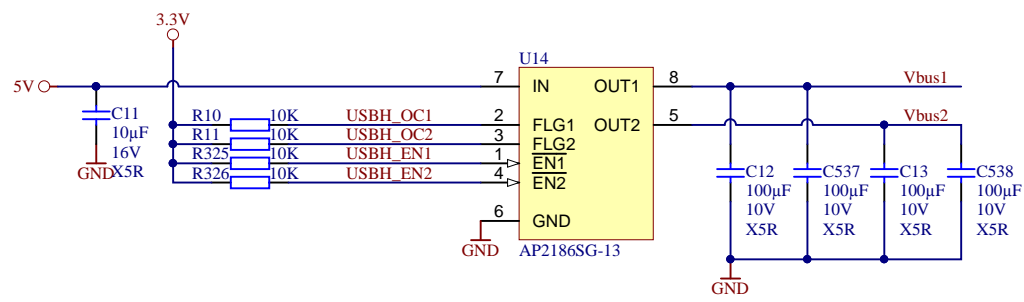
B

B



C

C



D

D



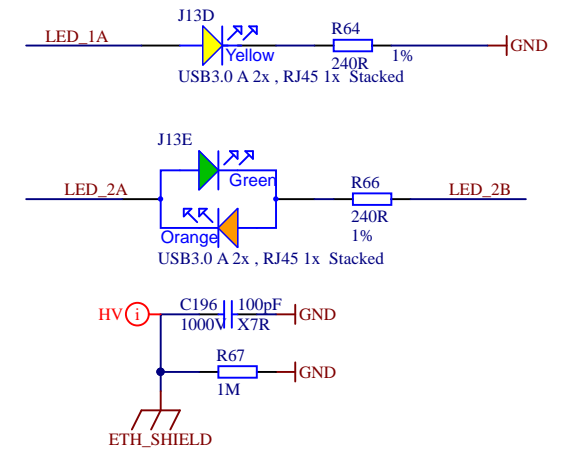
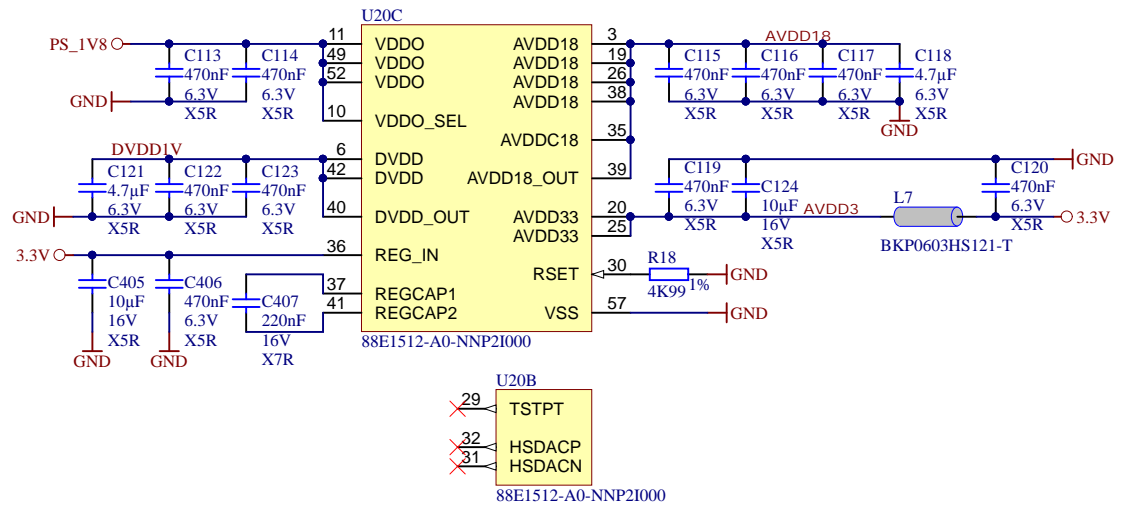
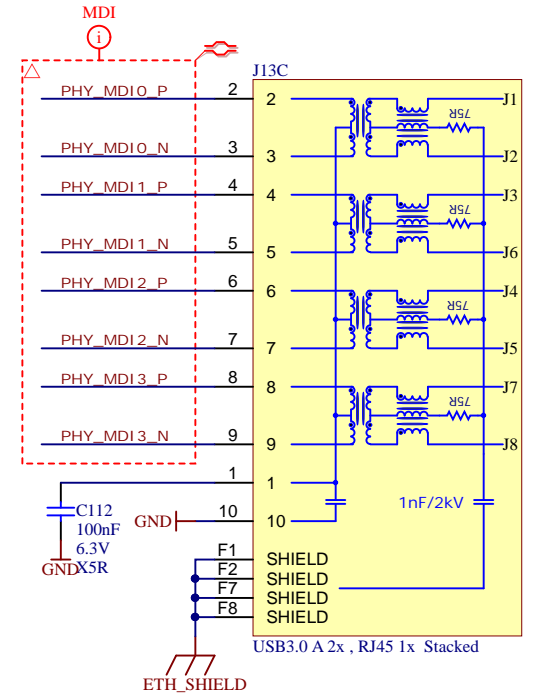
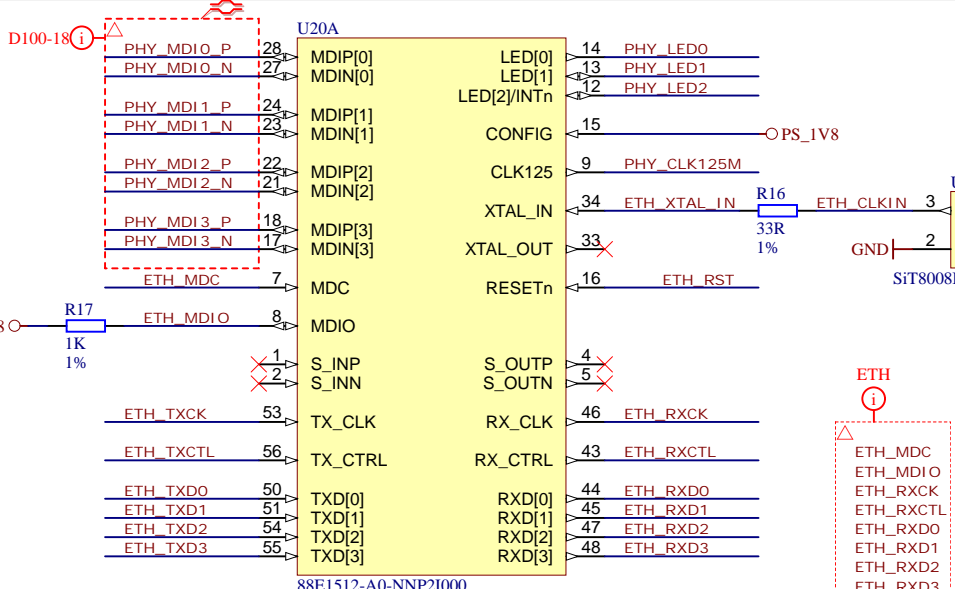
Title: <b>TEB0911 - USB CONNECTORS</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>14</b> of <b>58</b>
Filename: <b>USB.SchDoc</b>		

1

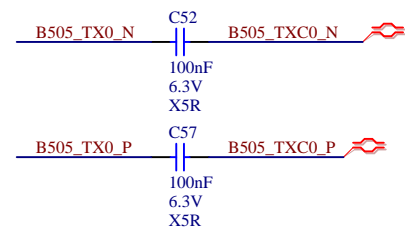
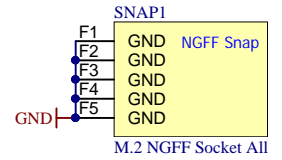
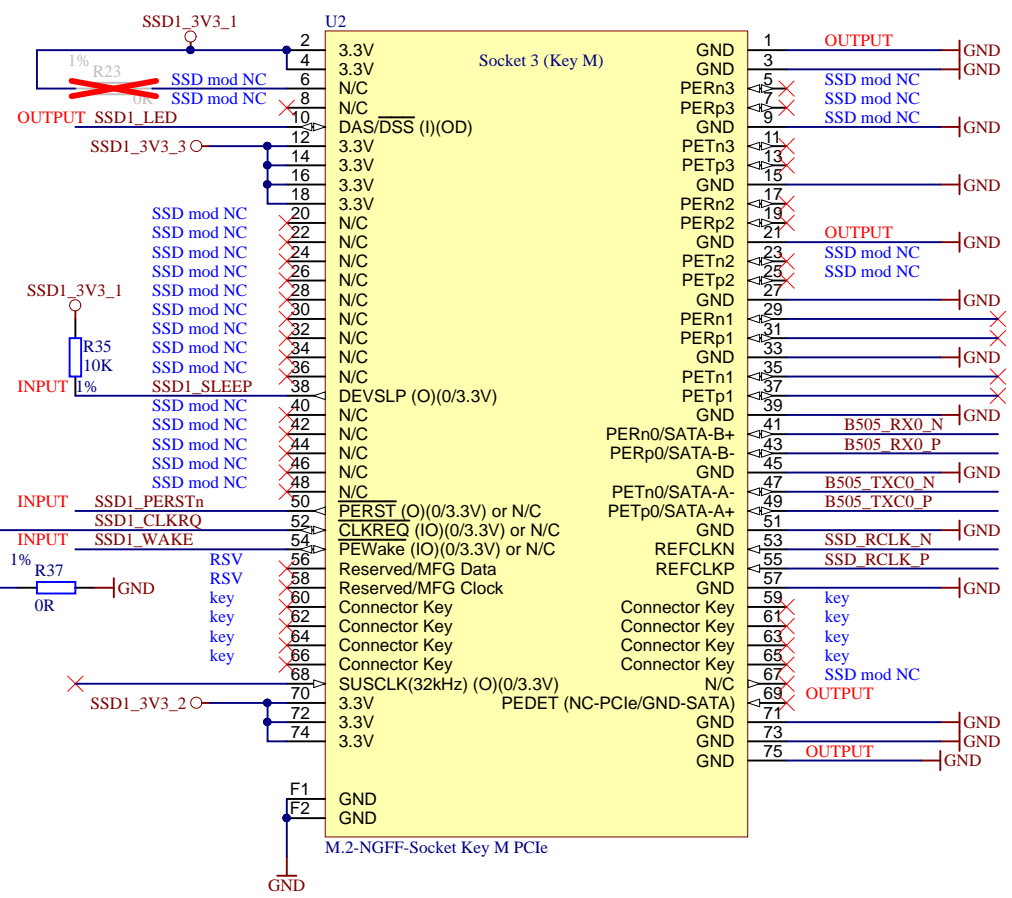
2

3

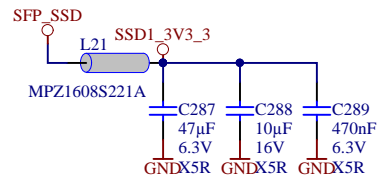
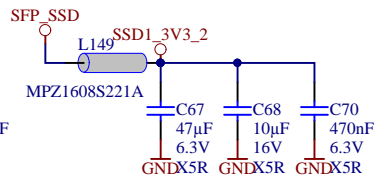
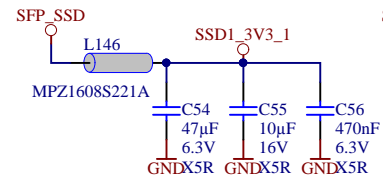
4



Title: <b>TEB0911 - Ethernet</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>15</b> of <b>58</b>
Filename: <b>Ethernet.SchDoc</b>		

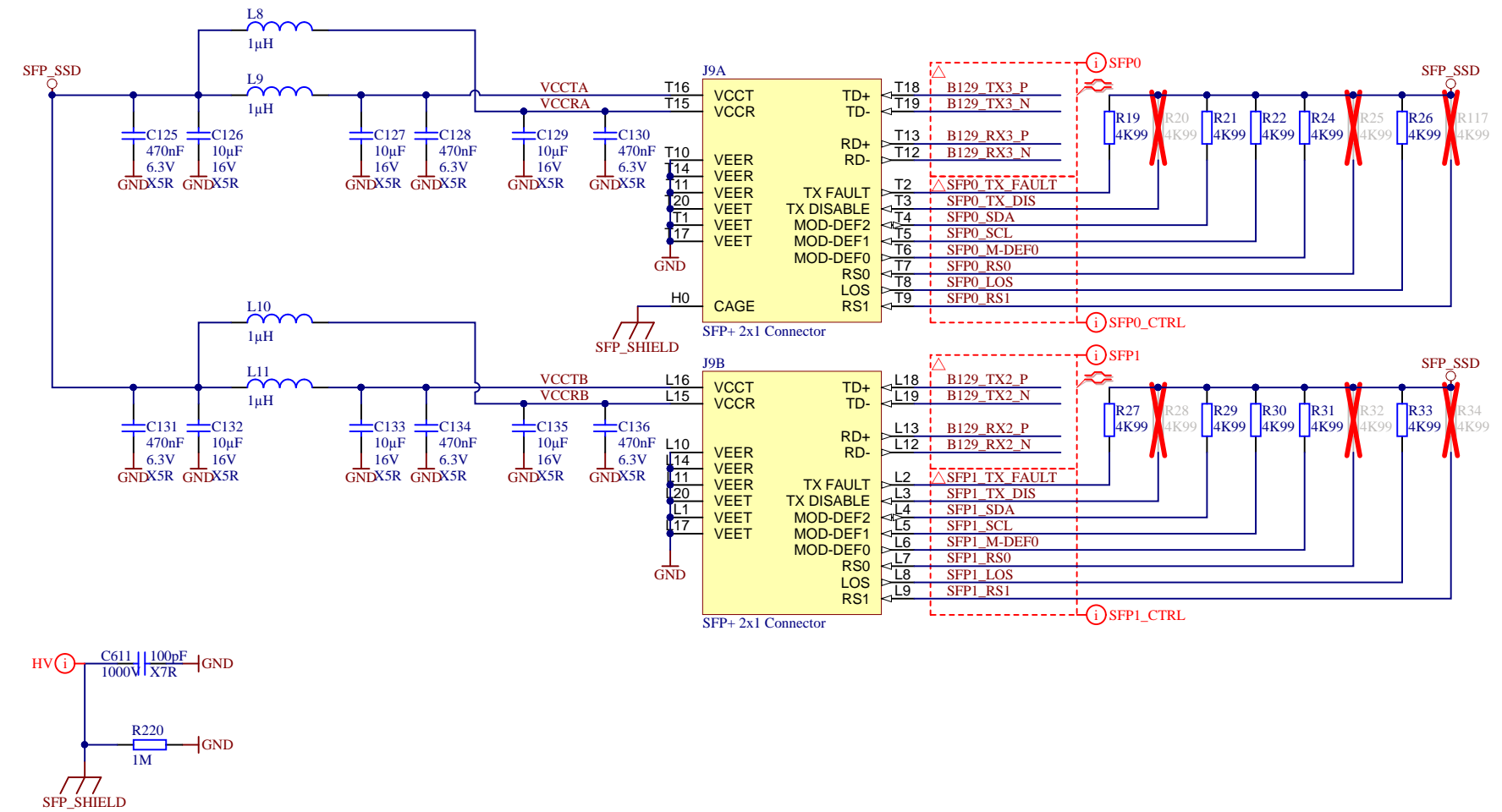



MECH1  
 M.2 NGFF SMD-Abstandsbolzen - M3 - 1.5mm

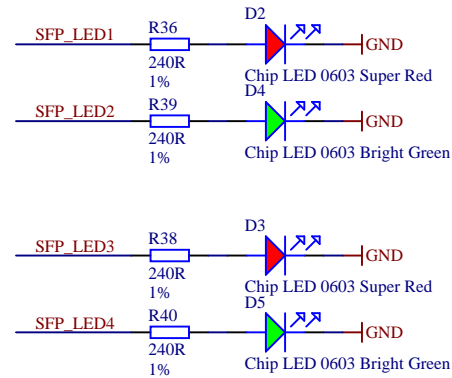
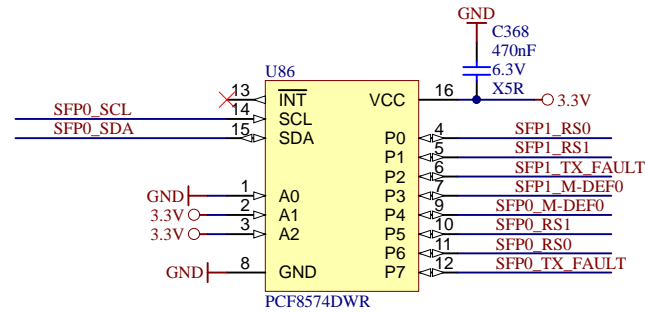



Title: TEB0911 - SSD		
A4	Number: TEB0911 BBEX1FA	Rev. 04
Date: 18.09.2018	Copyright: Trenz Electronic GmbH	Page 16 of 58
Filename: SSD.SchDoc		

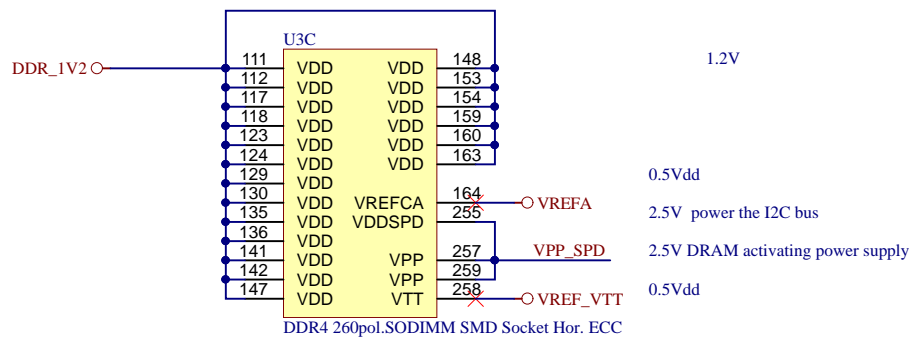
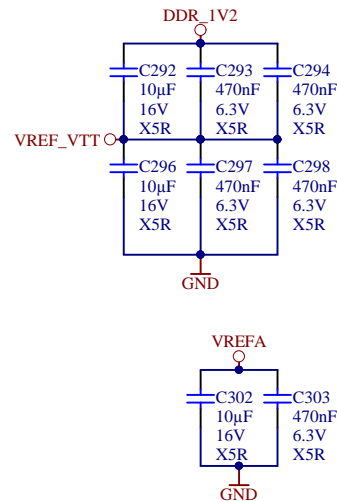
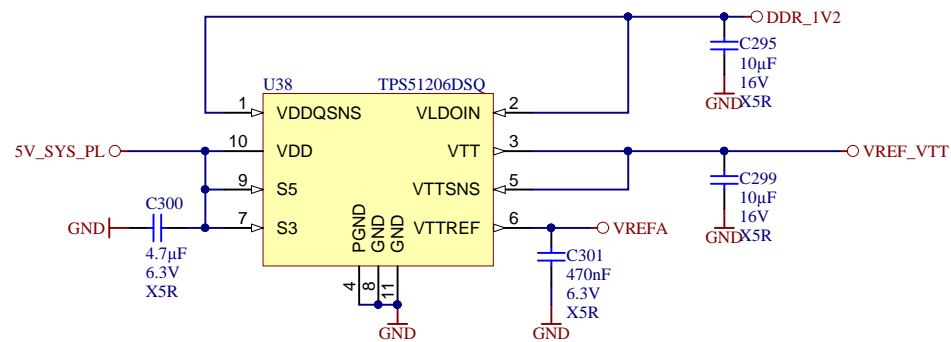
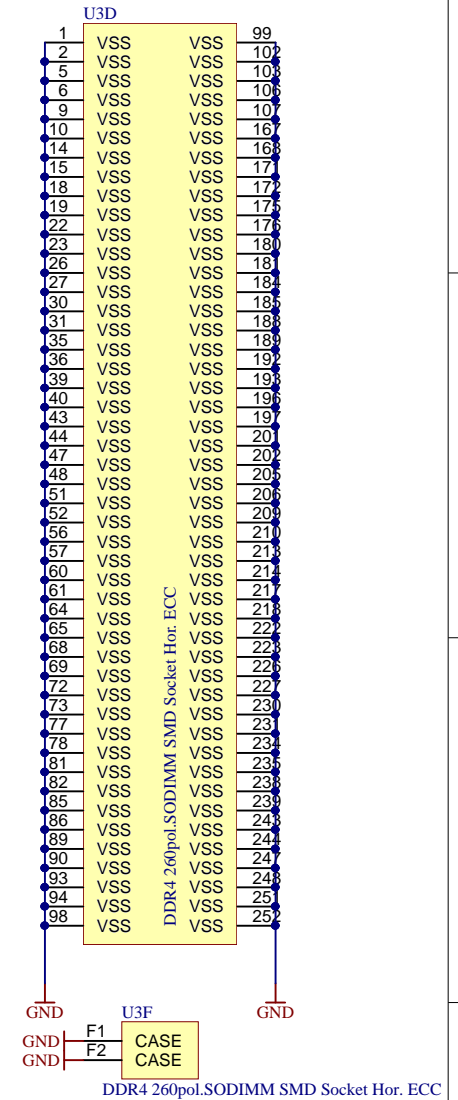
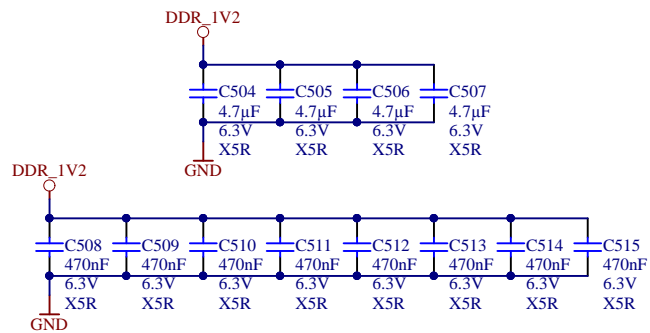
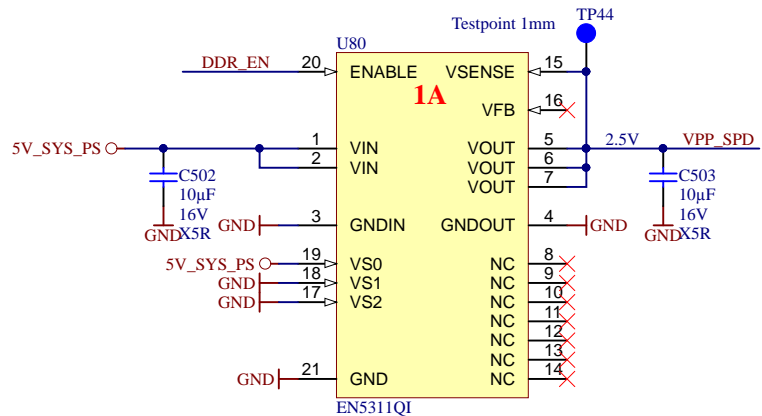




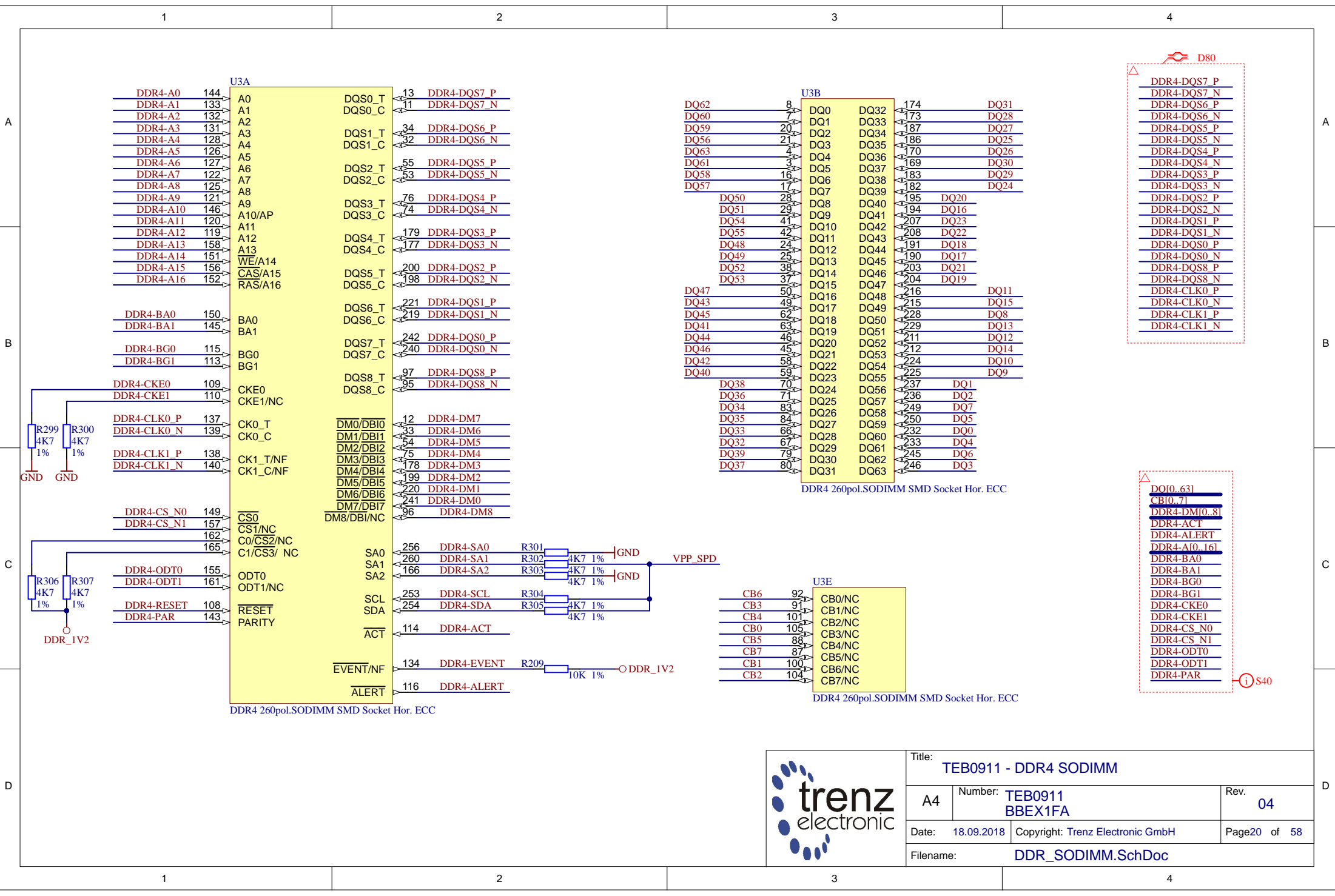
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	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>17</b> of <b>58</b>
	Filename: <b>SFP.SchDoc</b>		



	Title: <b>TEB0911 - SFP</b>		
	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>18</b> of <b>58</b>
	Filename: <b>SFP_CTRL.SchDoc</b>		

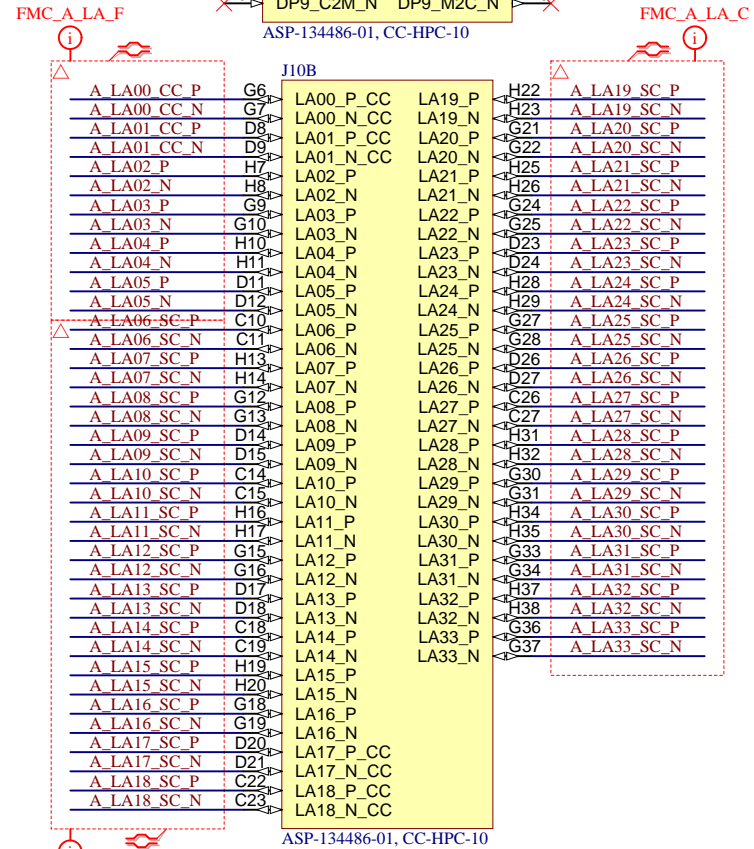
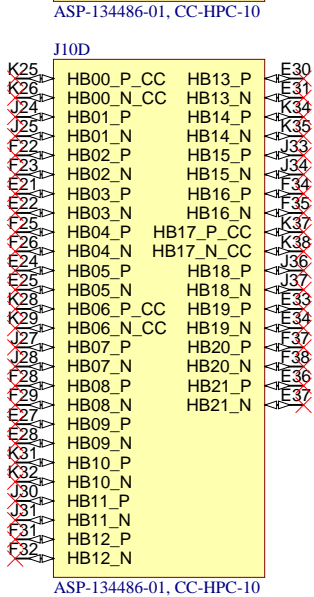
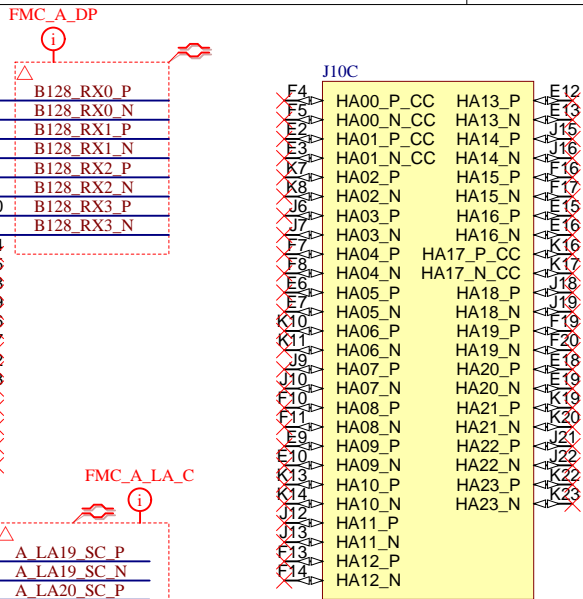
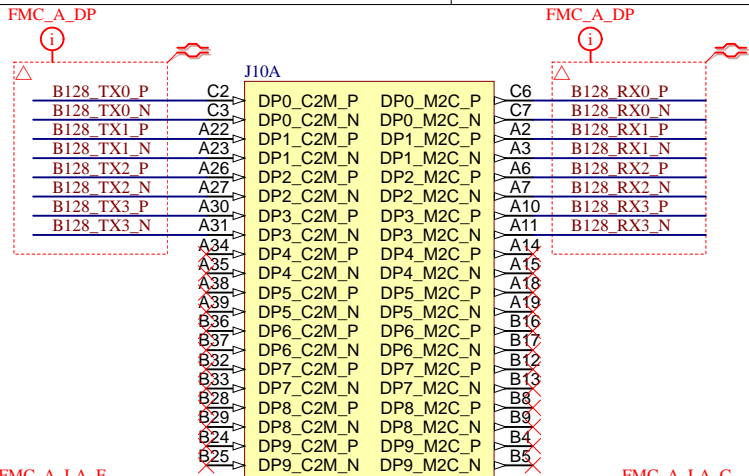


Title: TEB0911 - DDR POWER		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: DDR_PWR.SchDoc		



Title: **TEB0911 - DDR4 SODIMM**

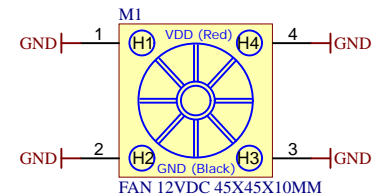
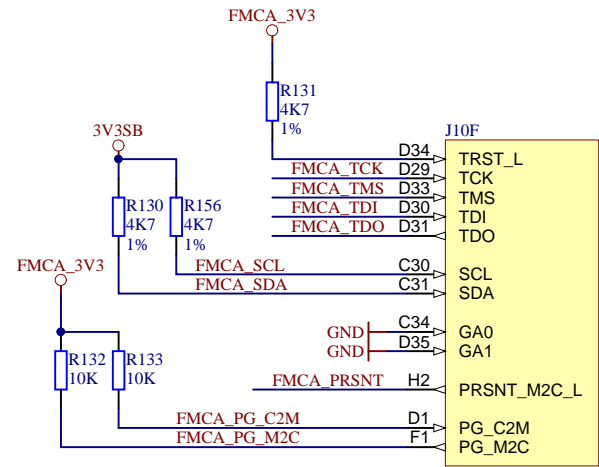
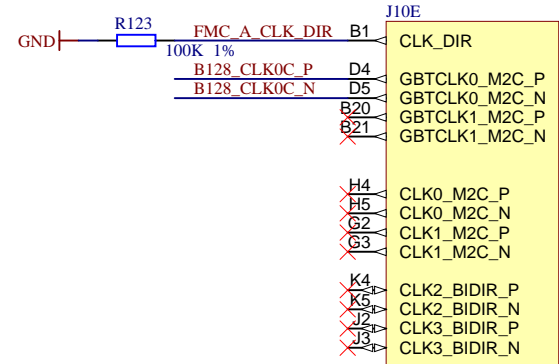
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Date: <b>18.09.2018</b>	Copyright: Trenz Electronic GmbH	Page20 of 58
Filename: <b>DDR_SODIMM.SchDoc</b>		



FMC\_A\_LA\_C

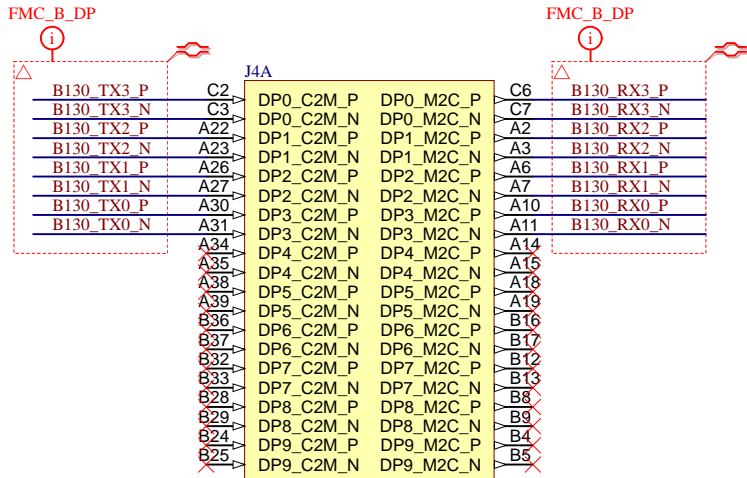
U10  
SNAP

Single FMC Commercial Baseboard Snap

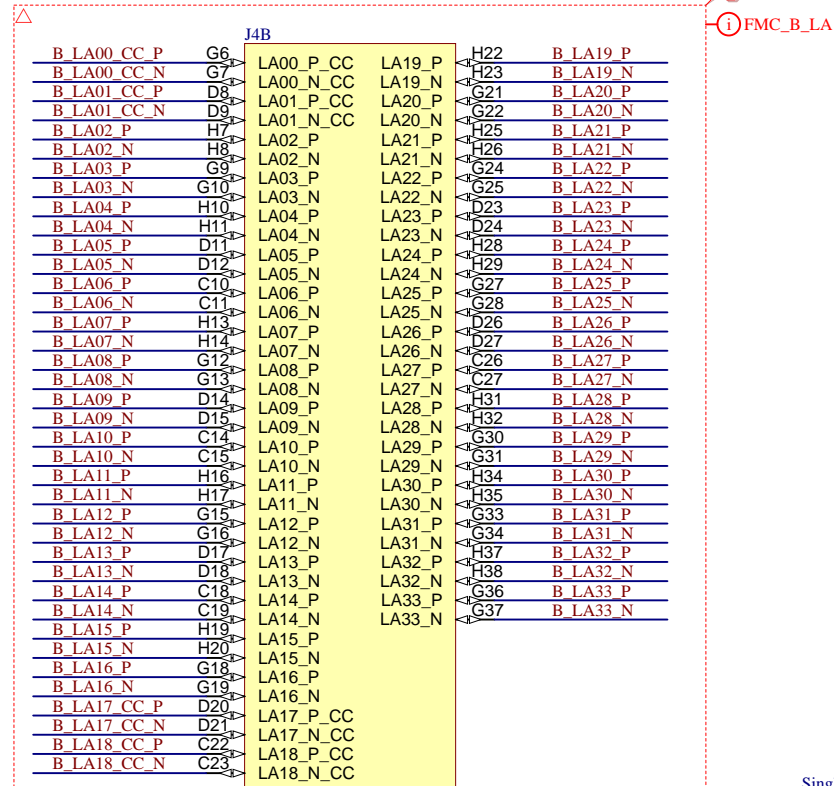


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A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page21 of 58
Filename: <b>FMC_A.SchDoc</b>		

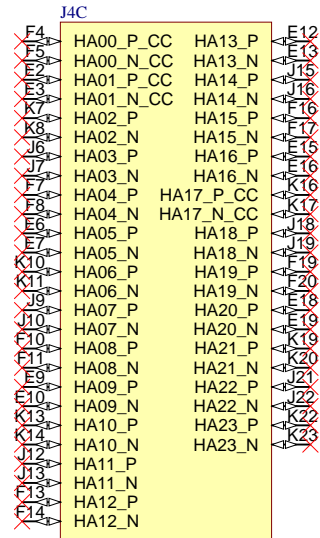




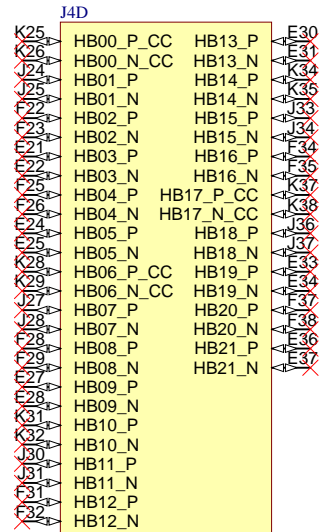
ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10



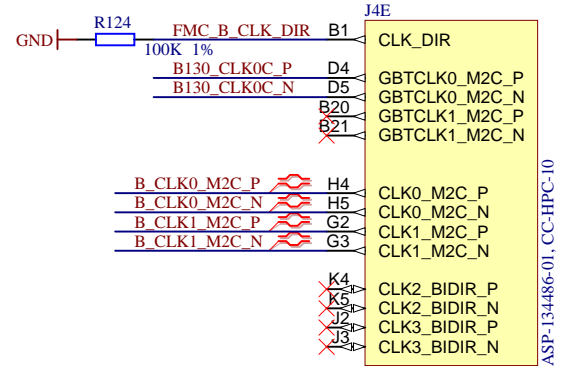
ASP-134486-01, CC-HPC-10



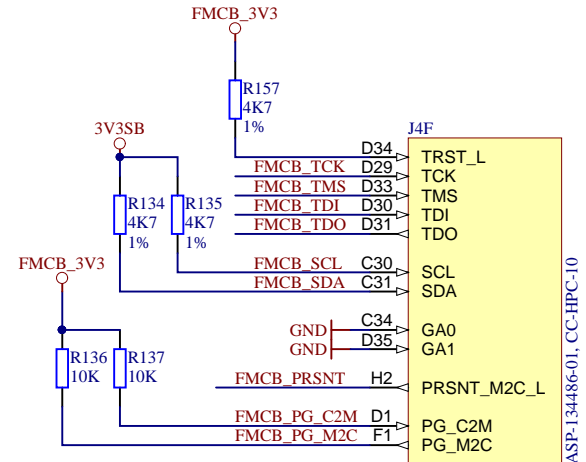
ASP-134486-01, CC-HPC-10



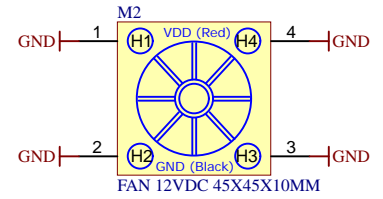
Single FMC Commercial Baseboard Snap



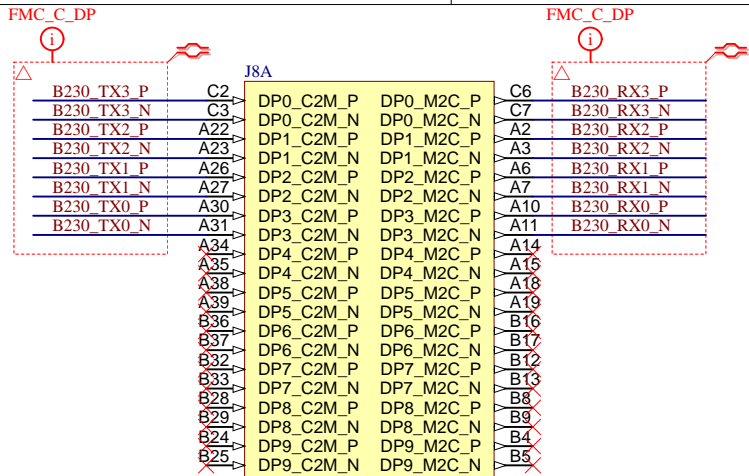
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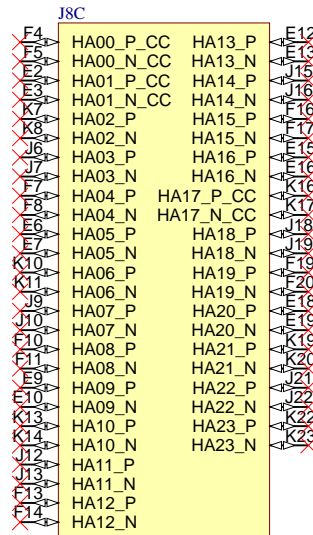
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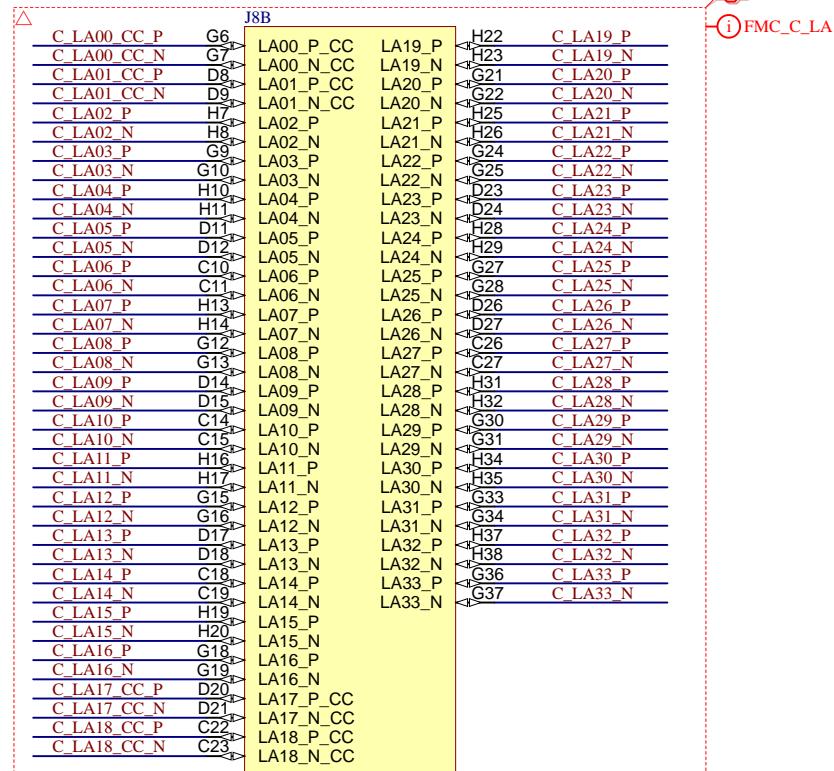
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Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page22 of 58
Filename: <b>FMC_B.SchDoc</b>		



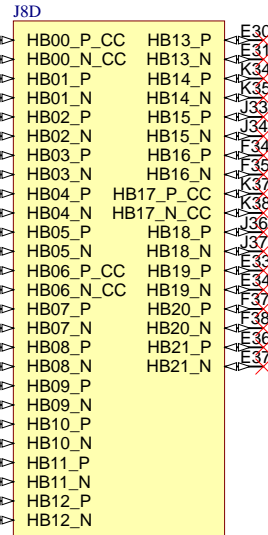
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ASP-134486-01, CC-HPC-10



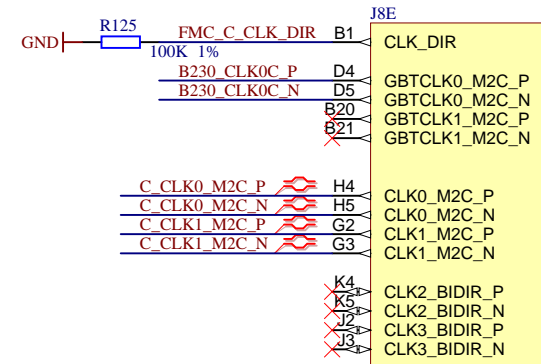
ASP-134486-01, CC-HPC-10



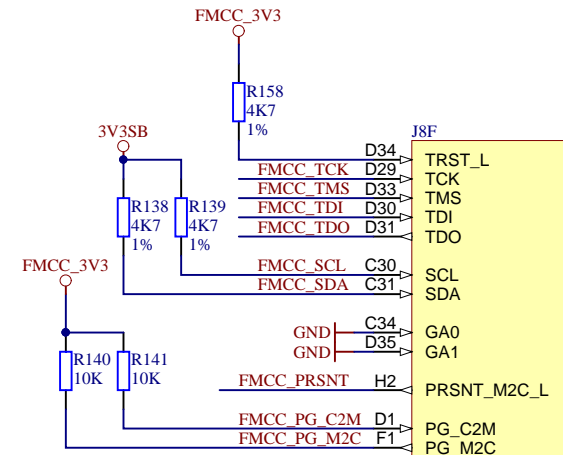
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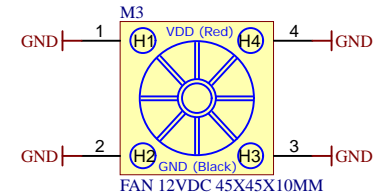
Single FMC Commercial Baseboard Snap



ASP-134486-01, CC-HPC-10



ASP-134486-01, CC-HPC-10



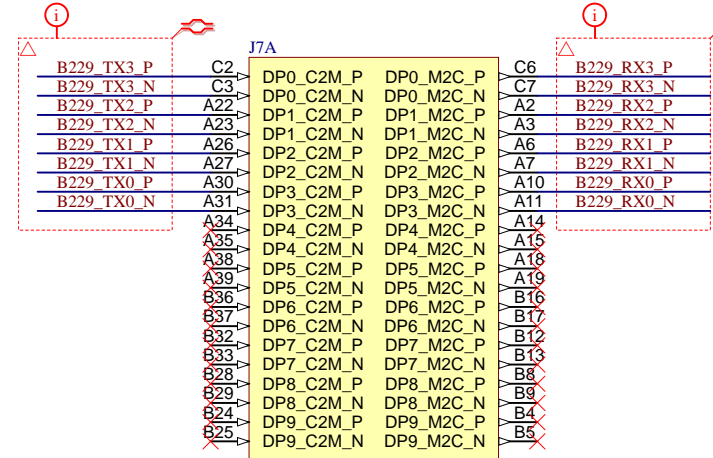
FAN 12VDC 45X45X10MM

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Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>23</b> of <b>58</b>
Filename: <b>FMC_C.SchDoc</b>		

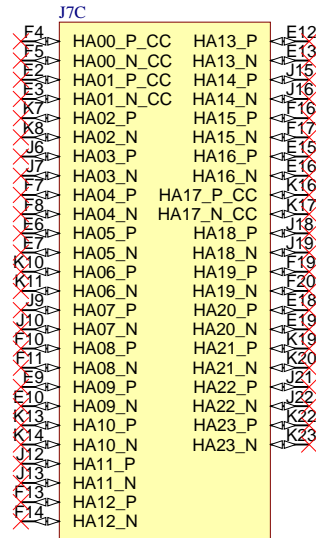


FMC\_D\_DP

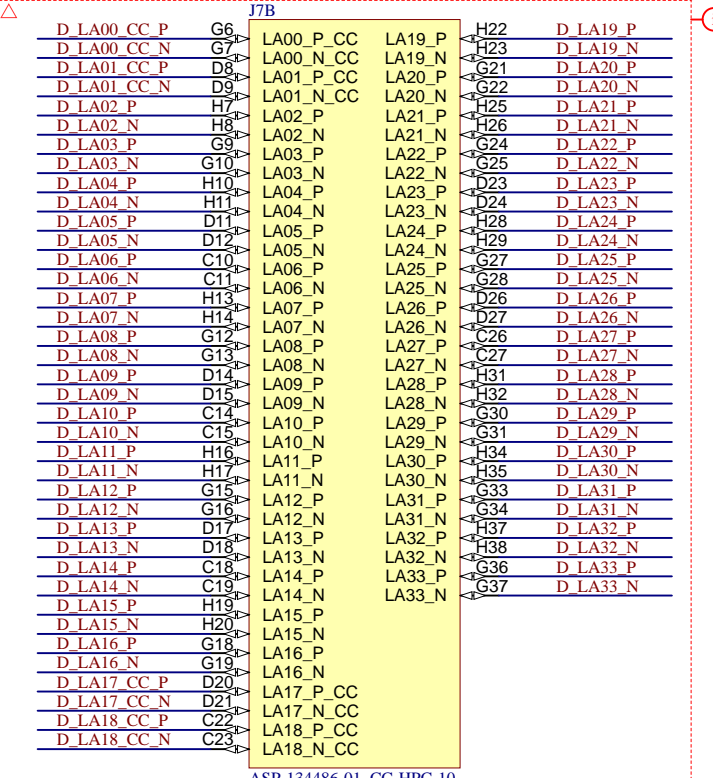
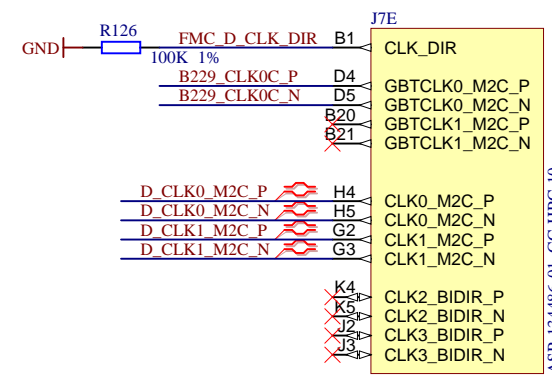
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ASP-134486-01, CC-HPC-10

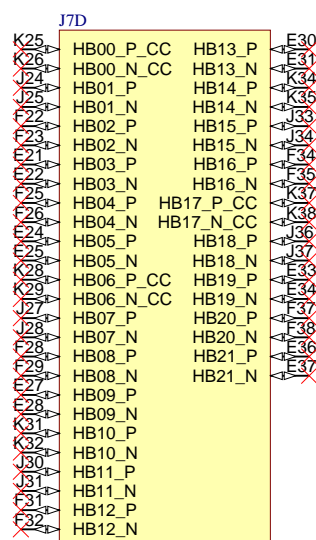


ASP-134486-01, CC-HPC-10

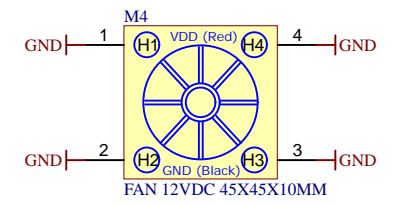
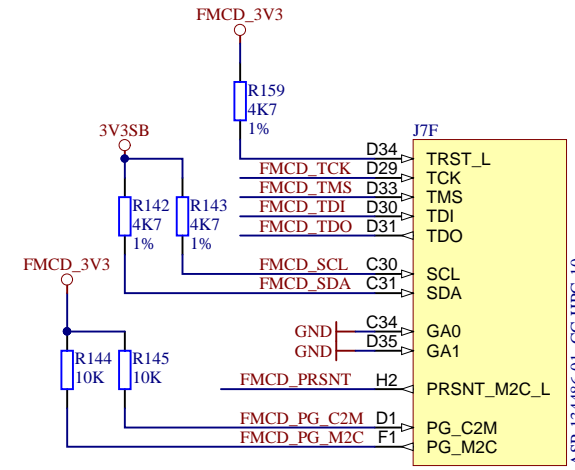


ASP-134486-01, CC-HPC-10

FMC\_D\_LA



ASP-134486-01, CC-HPC-10



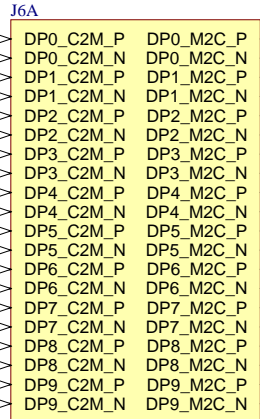
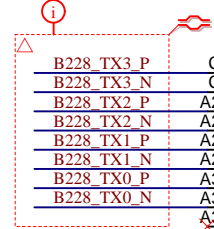
Single FMC Commercial Baseboard Snap



Title: TEB0911 - FMC D		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: FMC_D.SchDoc		

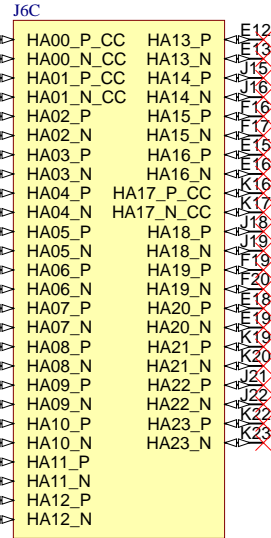
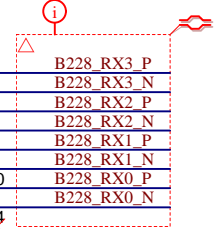


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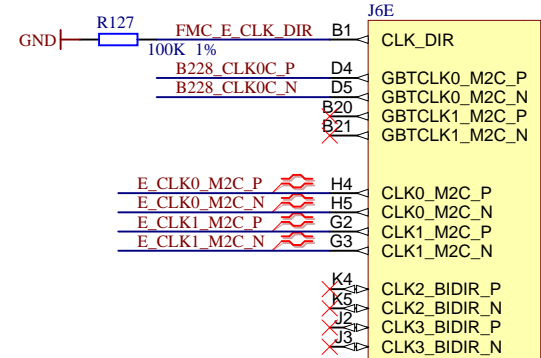


ASP-134486-01, CC-HPC-10

FMC\_E\_DP

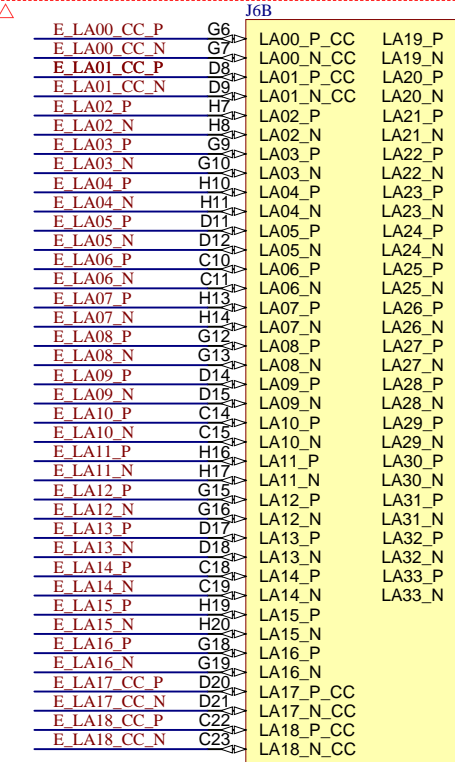


ASP-134486-01, CC-HPC-10

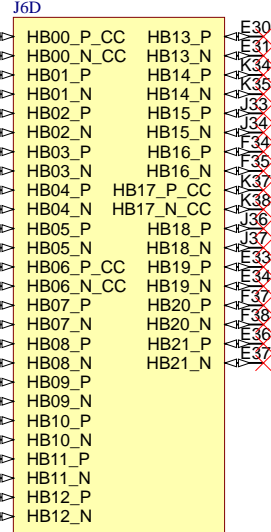


ASP-134486-01, CC-HPC-10

FMC\_E\_LA



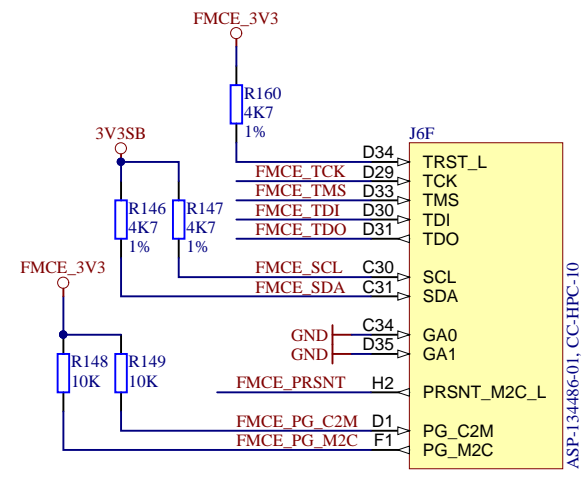
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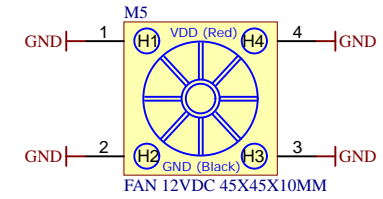
ASP-134486-01, CC-HPC-10

U7 SNAP

Single FMC Commercial Baseboard Snap



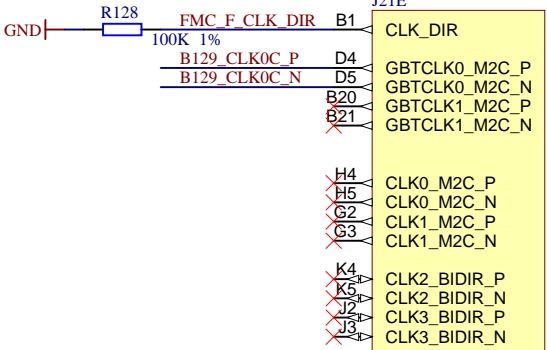
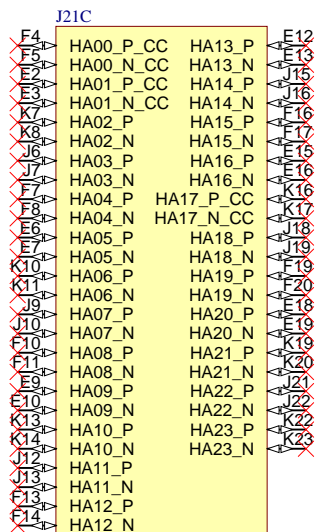
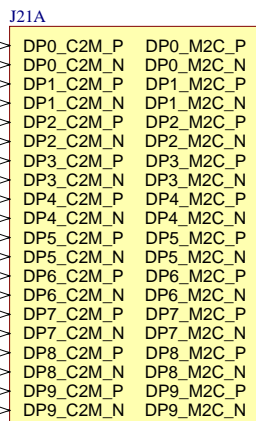
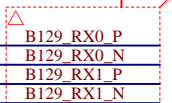
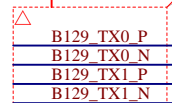
ASP-134486-01, CC-HPC-10



Title: TEB0911 - FMC E		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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FMC\_F\_DP

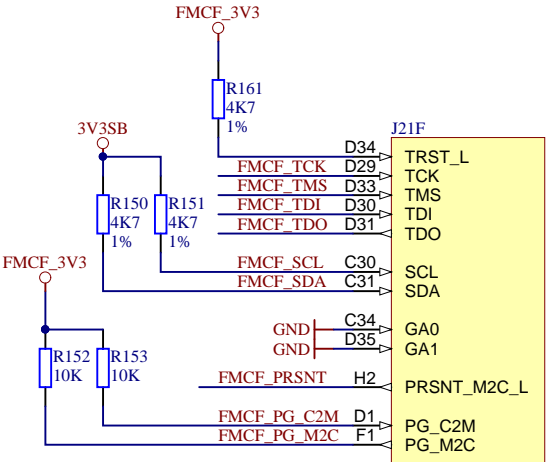
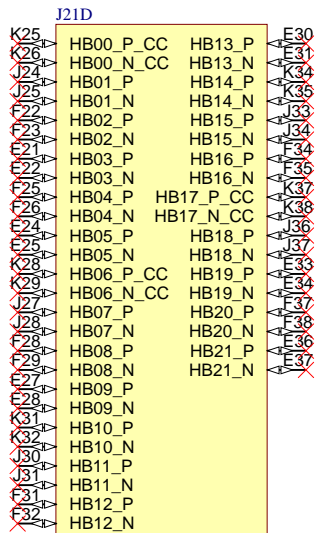
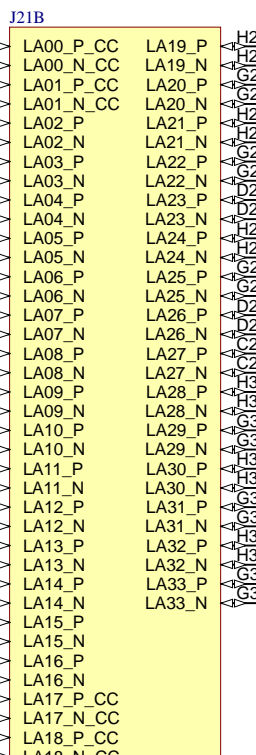
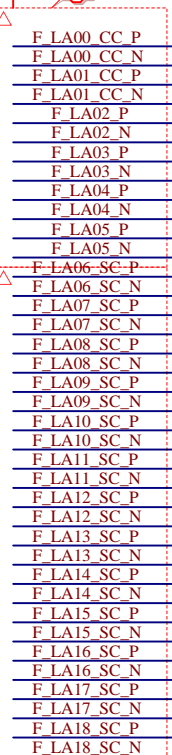
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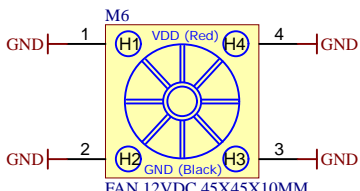
ASP-134486-01, CC-HPC-10

FMC\_F\_LA\_F

FMC\_F\_LA\_C



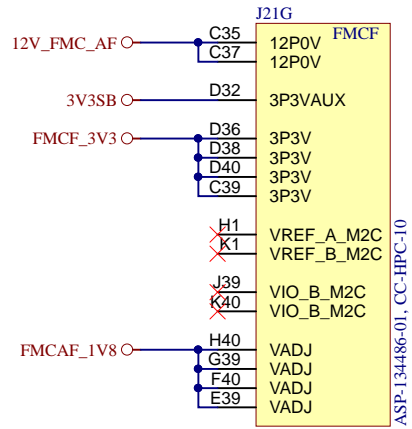
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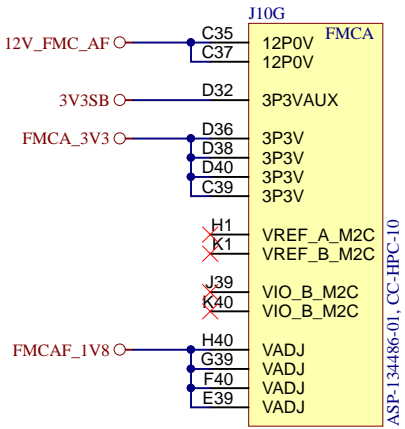
Single FMC Commercial Baseboard Snap



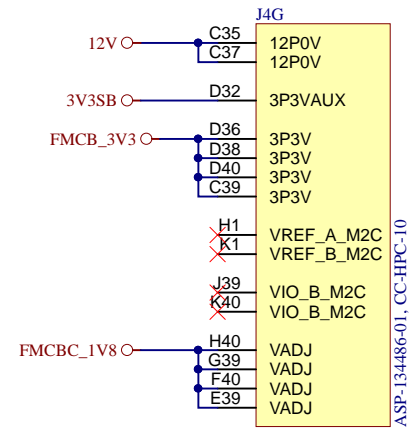
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Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>26</b> of <b>58</b>
Filename: <b>FMC_F.SchDoc</b>		



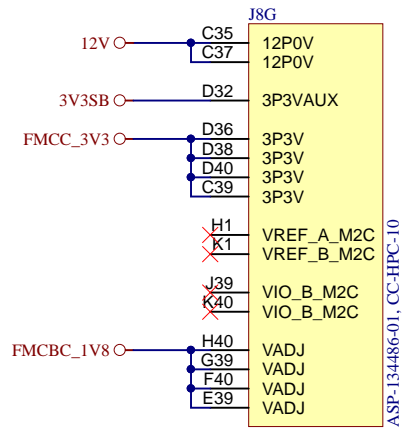
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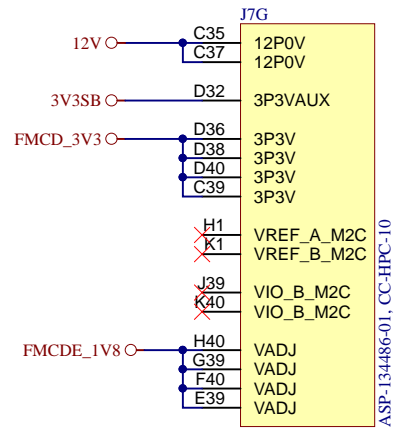
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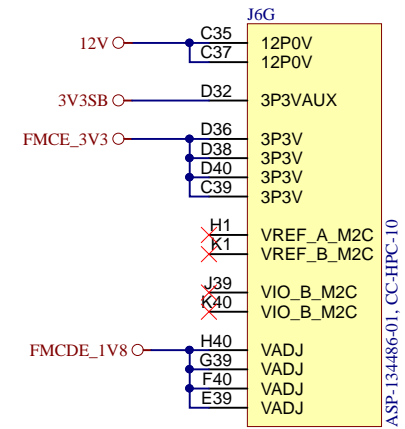
ASP-134486-01, CC-HPC-10



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



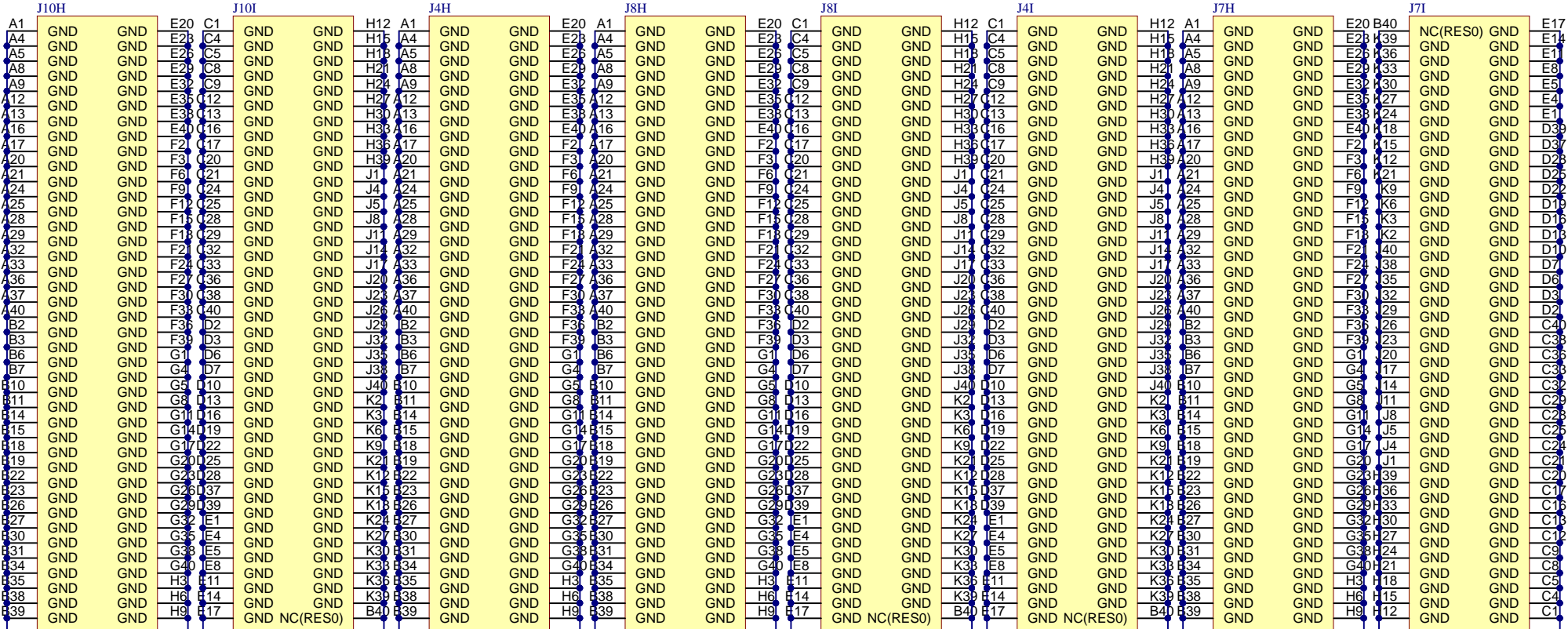
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Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>27</b> of <b>58</b>
Filename: <b>FMC PWR.SchDoc</b>		

1

2

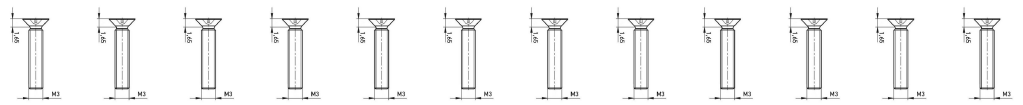
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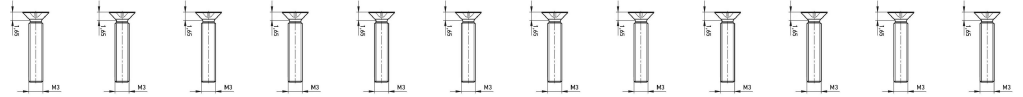


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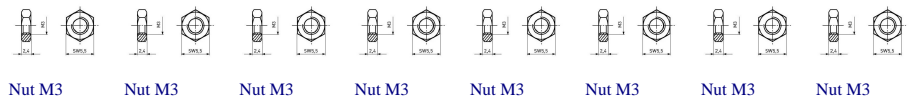
GND



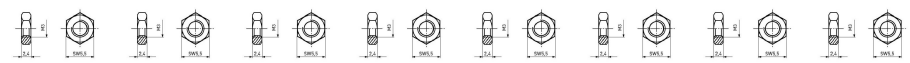
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Screw M3x6 C.Head    Screw M3x6 C.Head    Screw M3x6 C.Head    Screw M3x6 C.Head    Screw M3x6 C.Head    Screw M3x6 C.Head    Screw M3x6 C.Head    Screw M3x6 C.Head



Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3



Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3    Nut M3



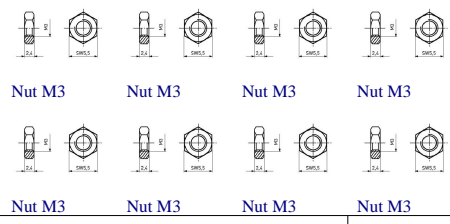
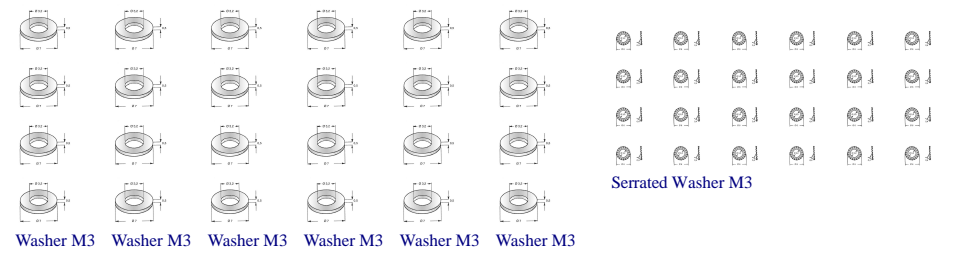
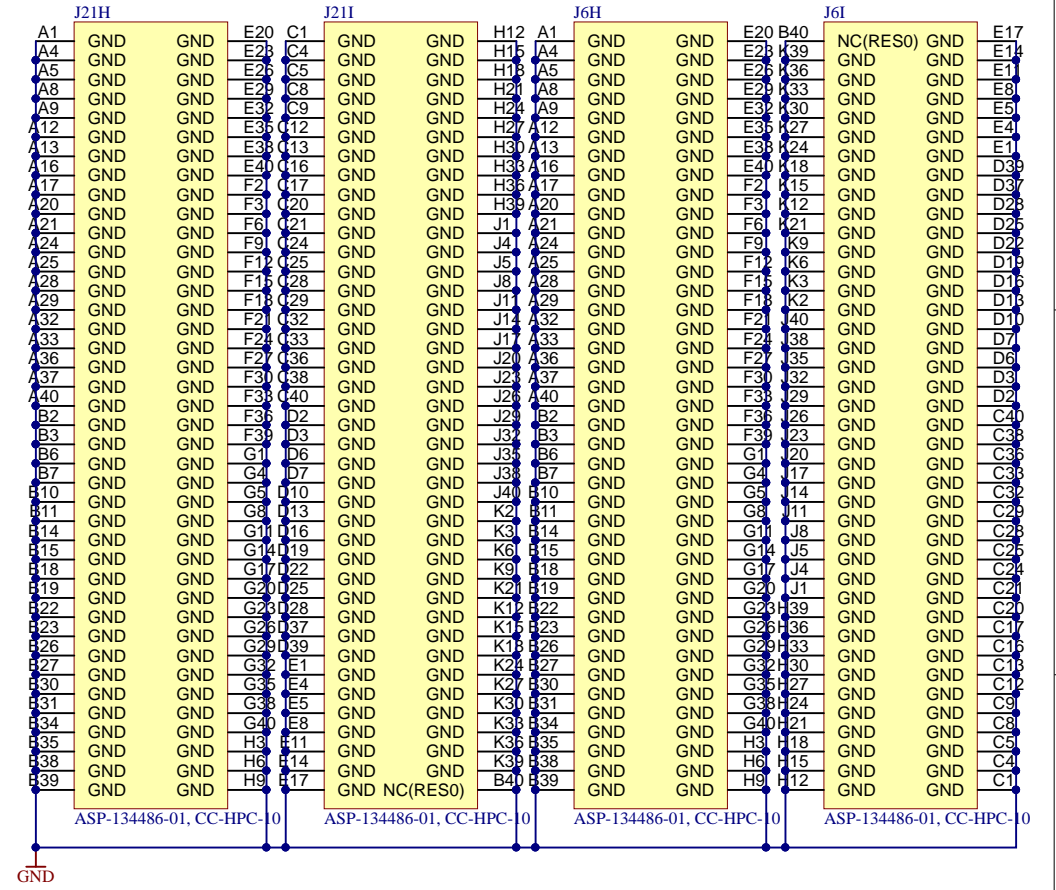
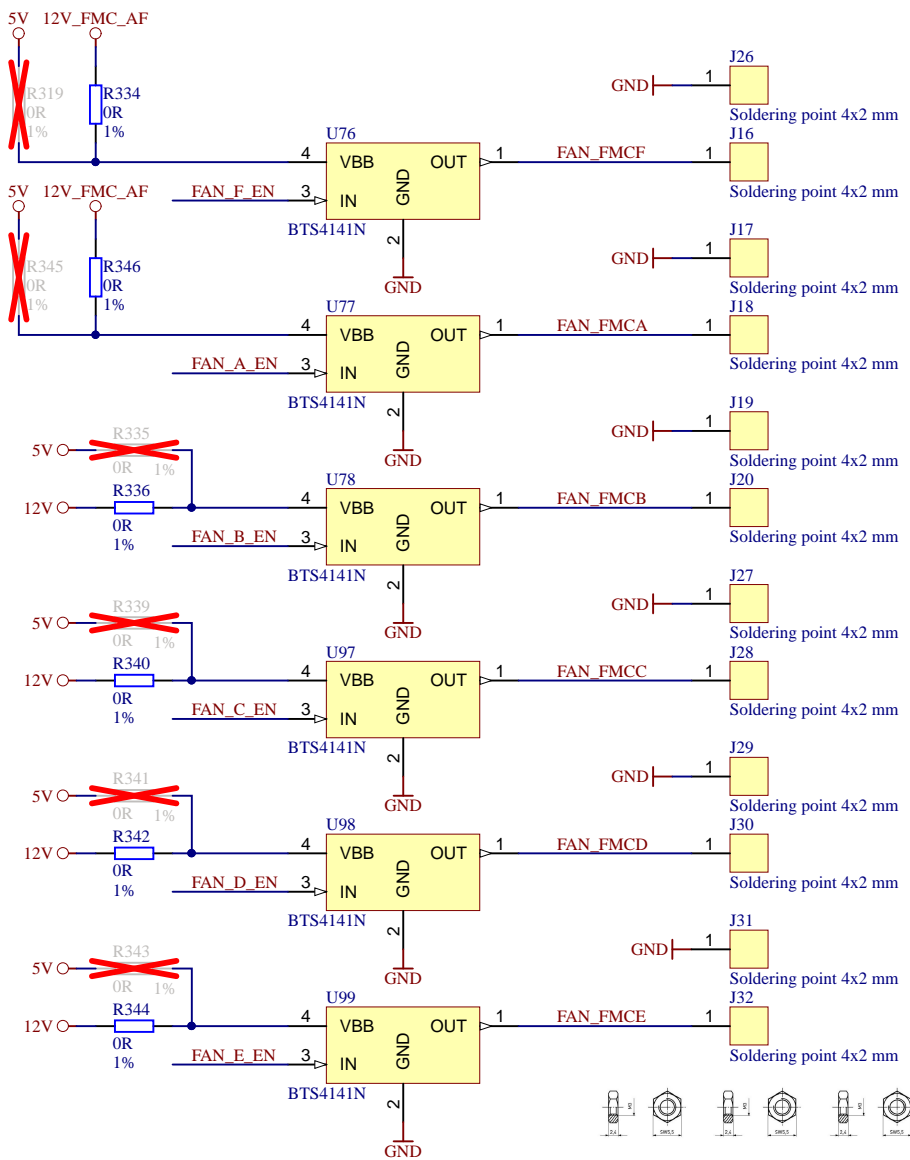
Title: <b>TEB0911 - FMC GND</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>28</b> of <b>58</b>
Filename: <b>FMC_GND.SchDoc</b>		

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Title: <b>TEB0911 - FMC GND FAN</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>29</b> of <b>58</b>
Filename: <b>FMC GND2.SchDoc</b>		

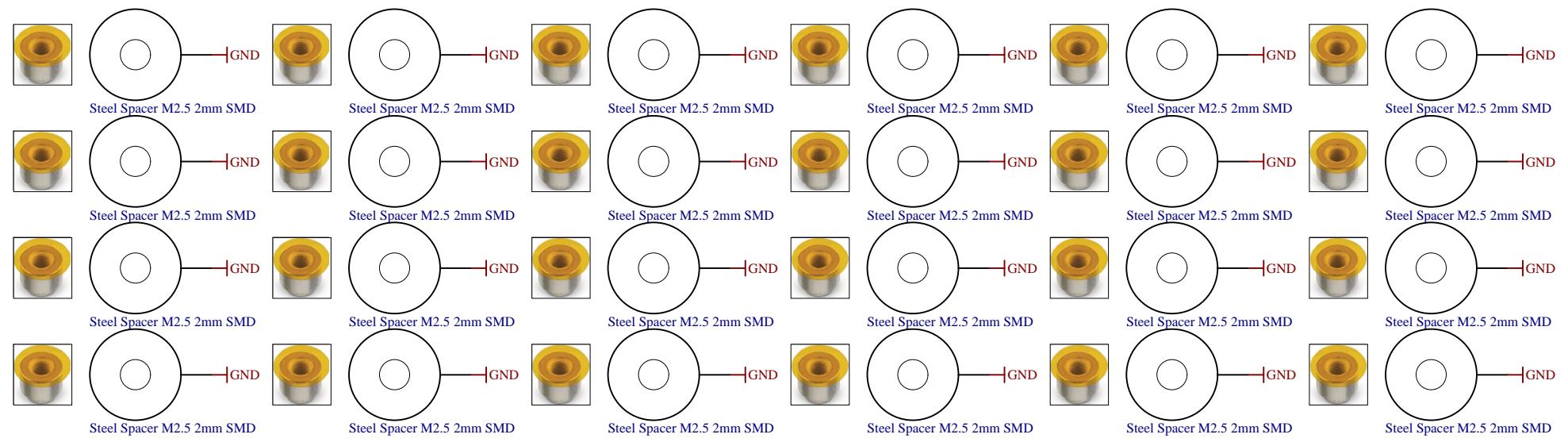
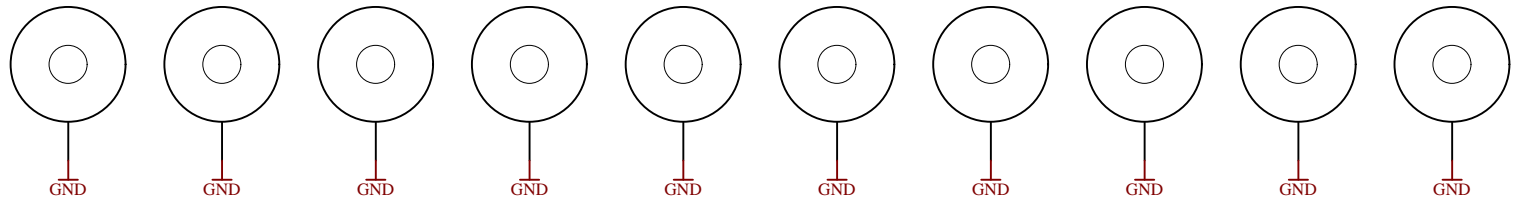
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Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm Mount.Hole 3.2mm



	Title: <b>TEB0911 - FMC MECH</b>		
	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>30</b> of <b>58</b>
	Filename: <b>FMC_MECH.SchDoc</b>		

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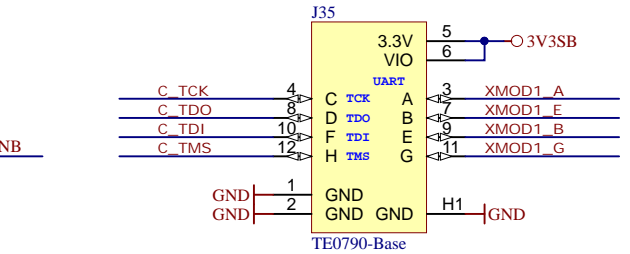
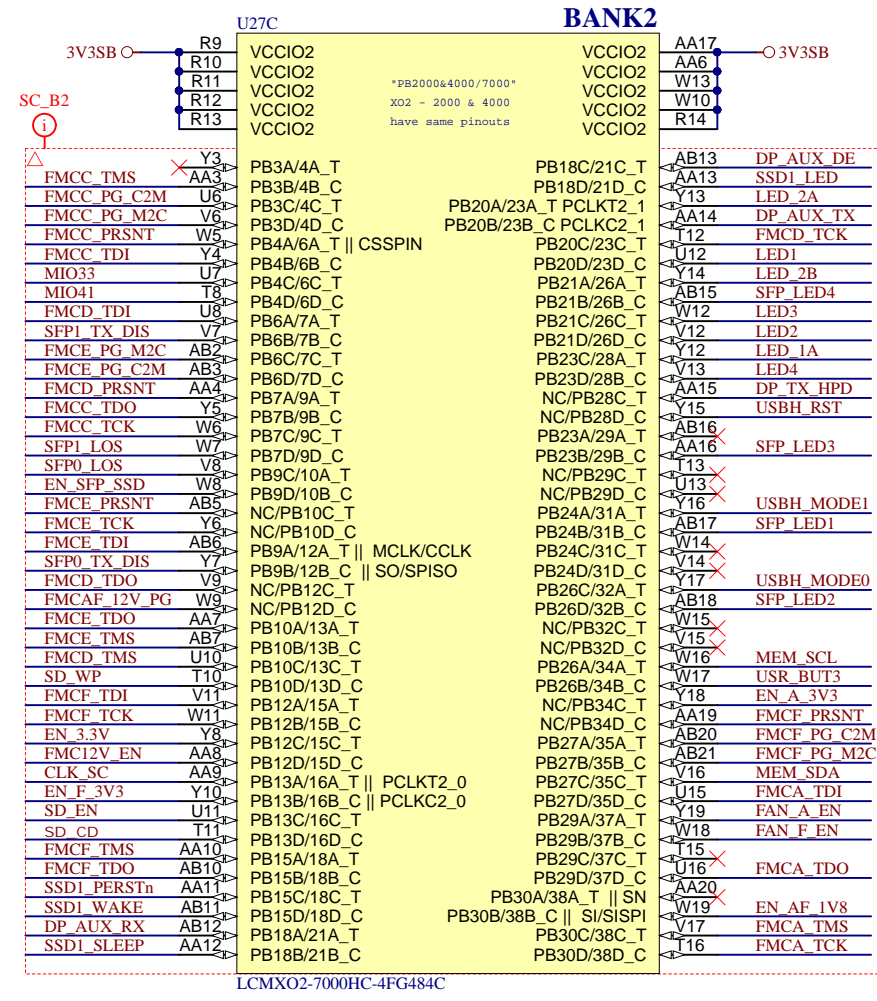
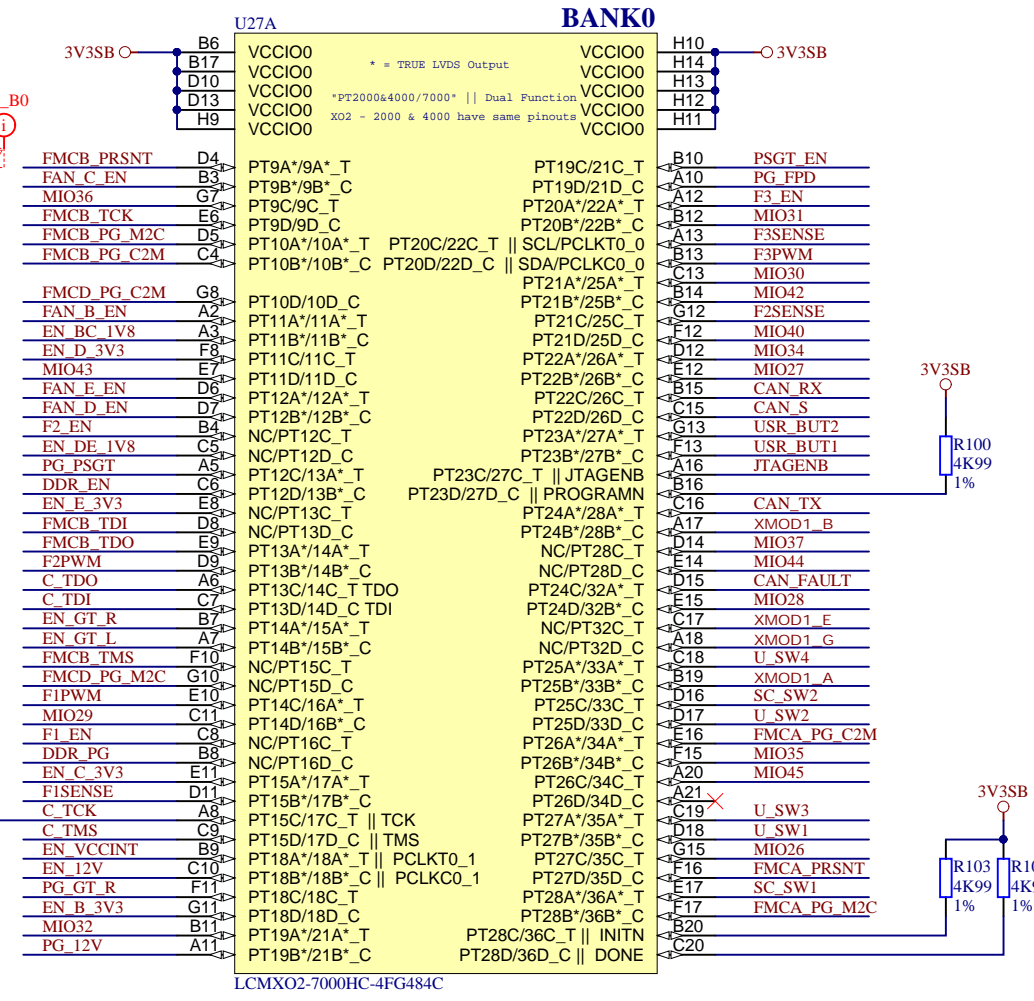
D

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Title: <b>TEB0911 - CPLD</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
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Filename: <b>SC.schdoc</b>		

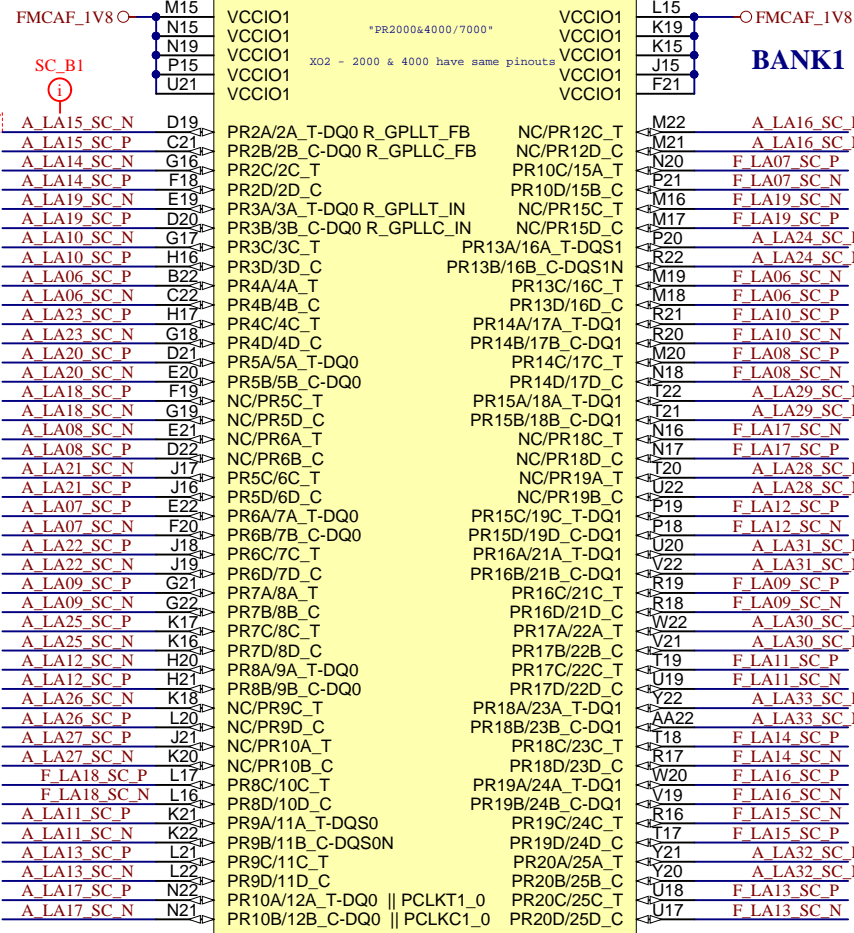
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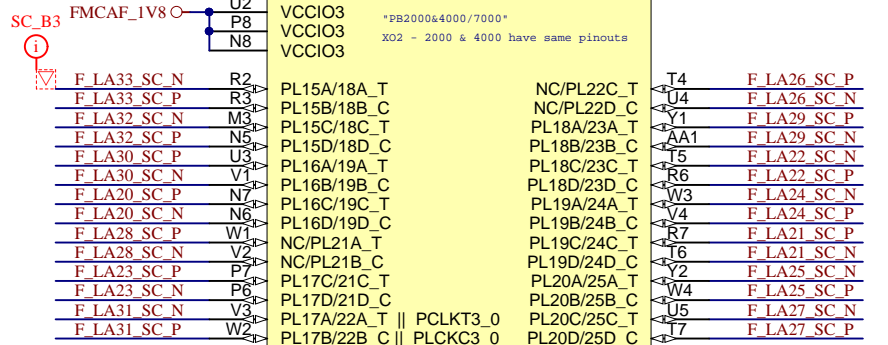
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U27B



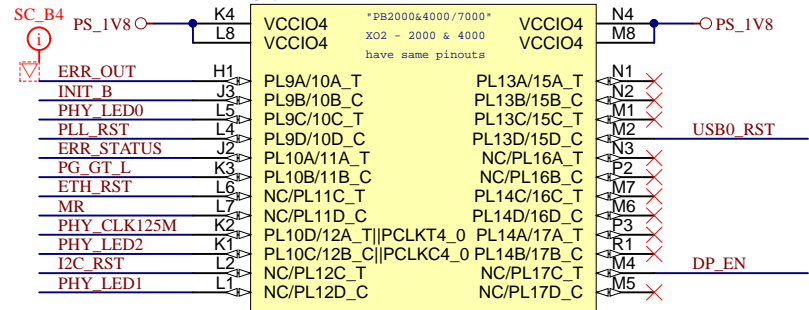
LCMX02-7000HC-4FG484C

U27D



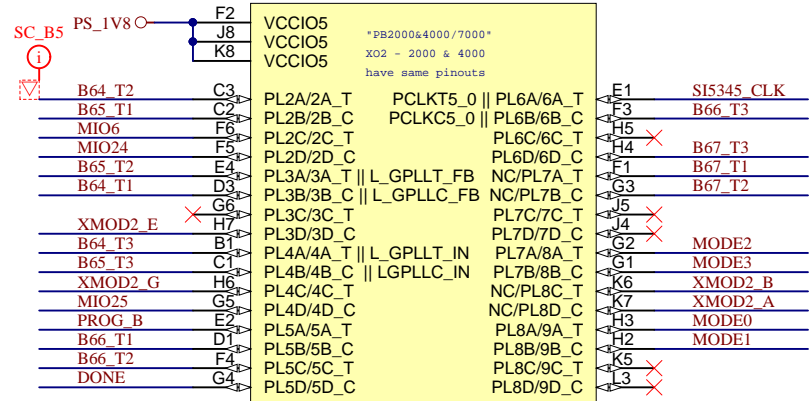
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U27E

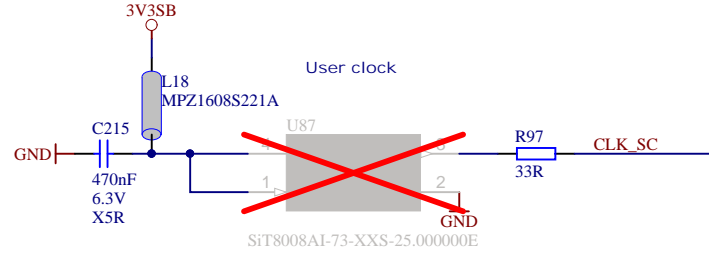


LCMX02-7000HC-4FG484C

U27F



LCMX02-7000HC-4FG484C



**trenz electronic**

Title: **TEB0911 - CPLD**

A4	Number: <b>TEB0911 BBE1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>32</b> of <b>58</b>
Filename: <b>SC2.schdoc</b>		

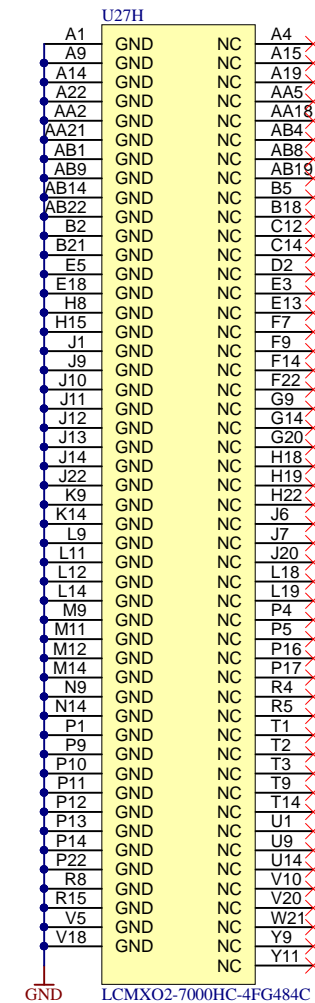
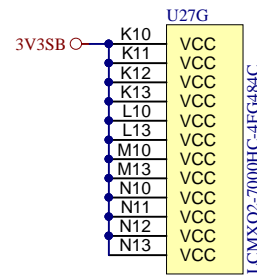
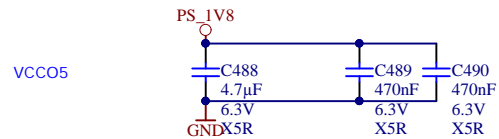
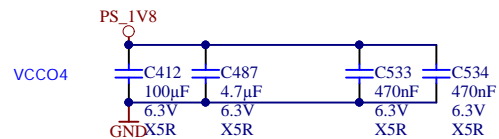
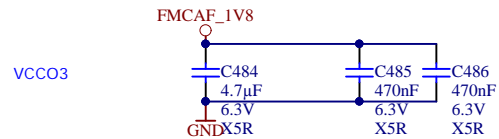
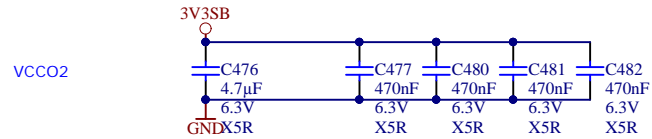
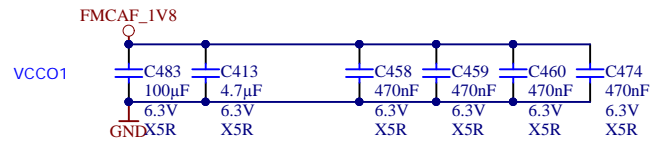
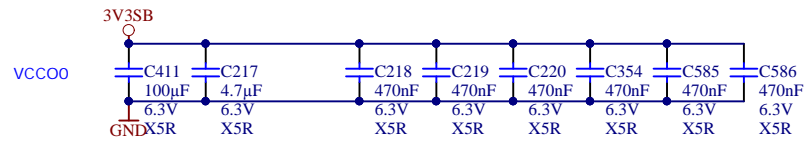
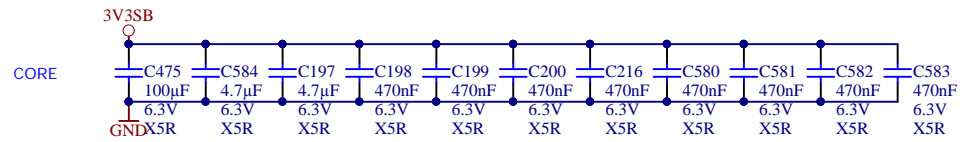
1

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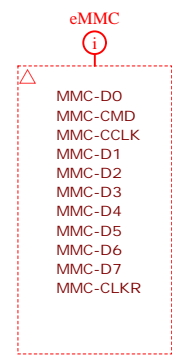
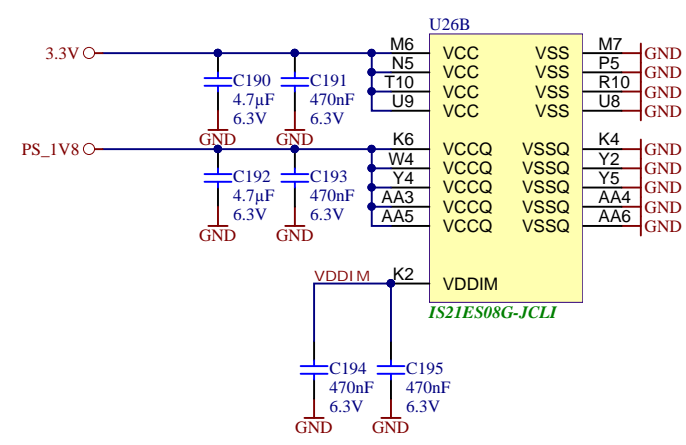
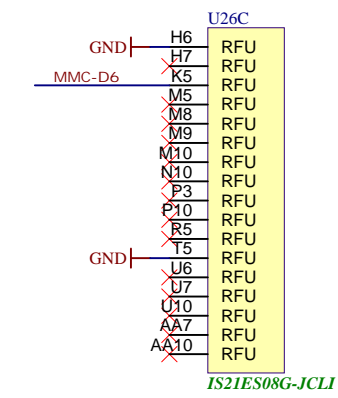
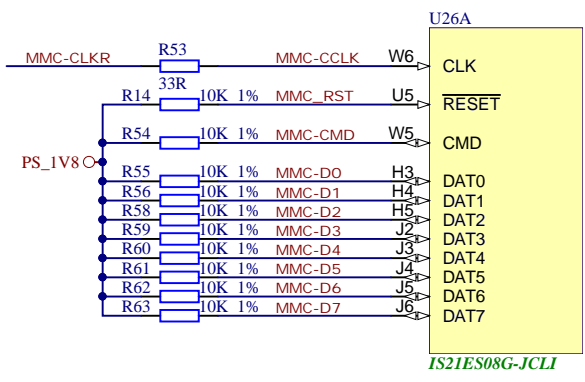
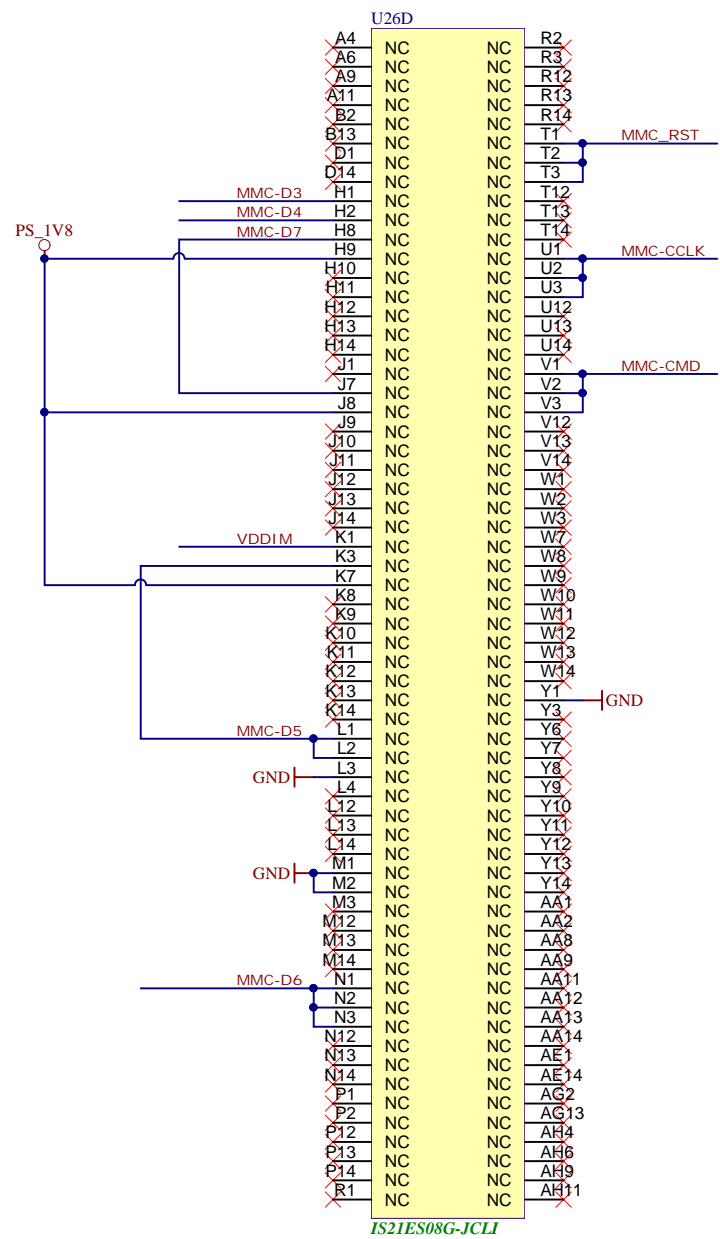
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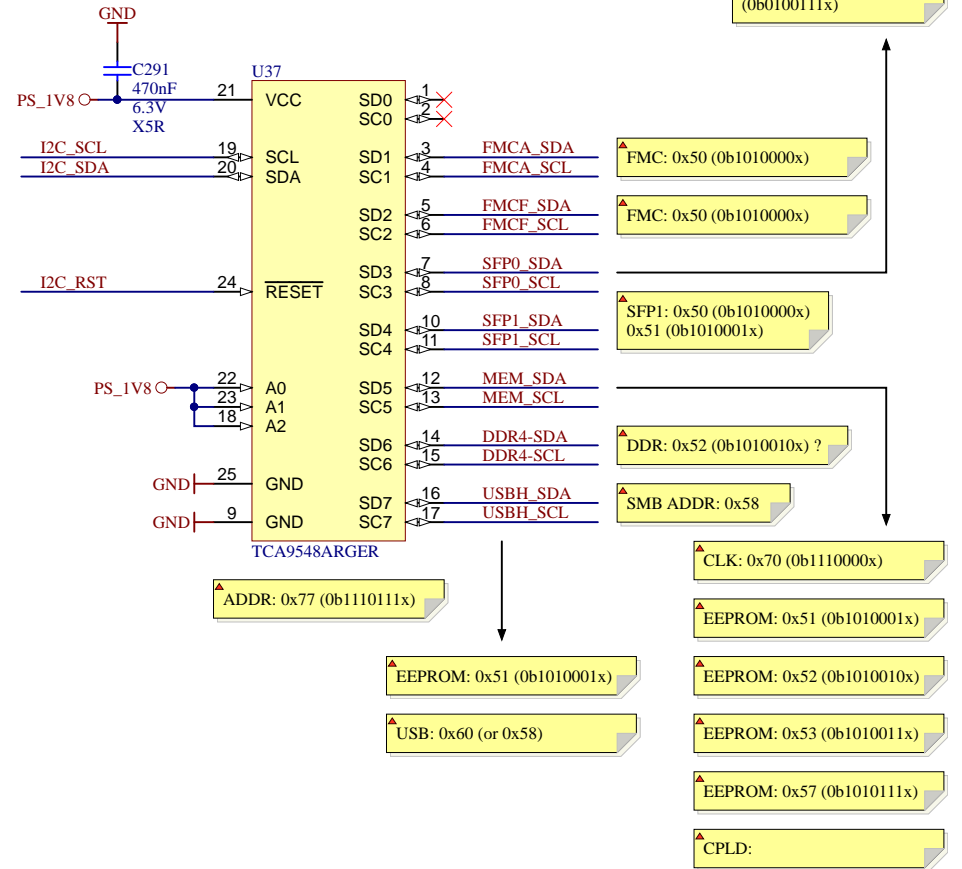
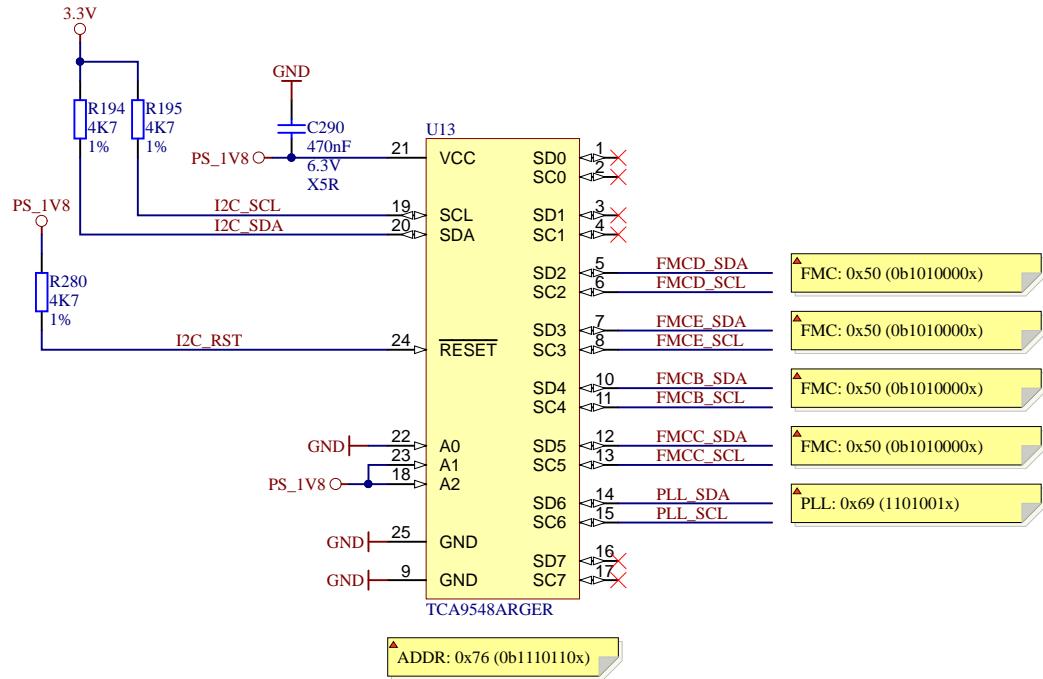




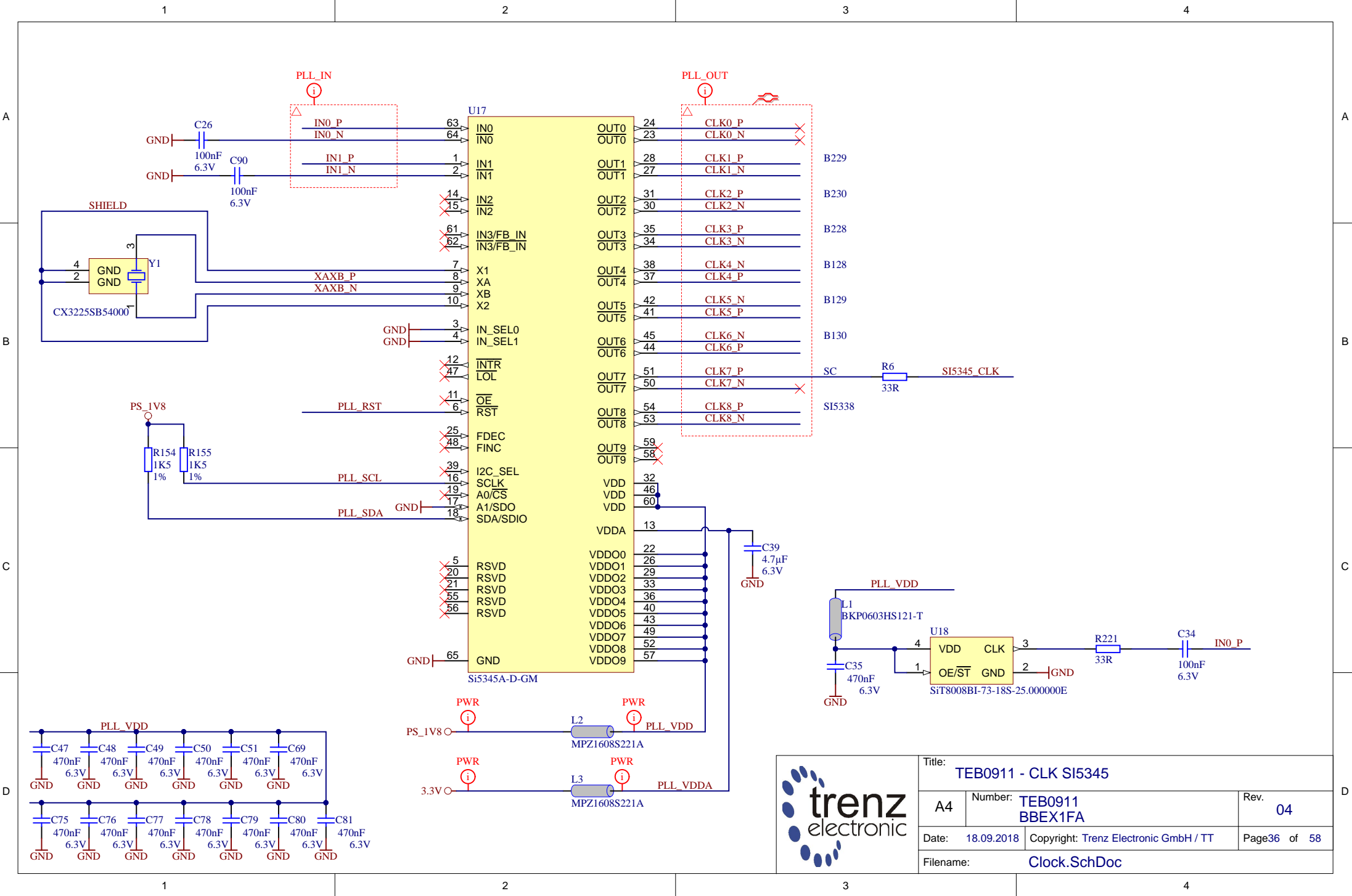
Title: TEB0911 - CPLD		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: SC_POWER.schdoc		



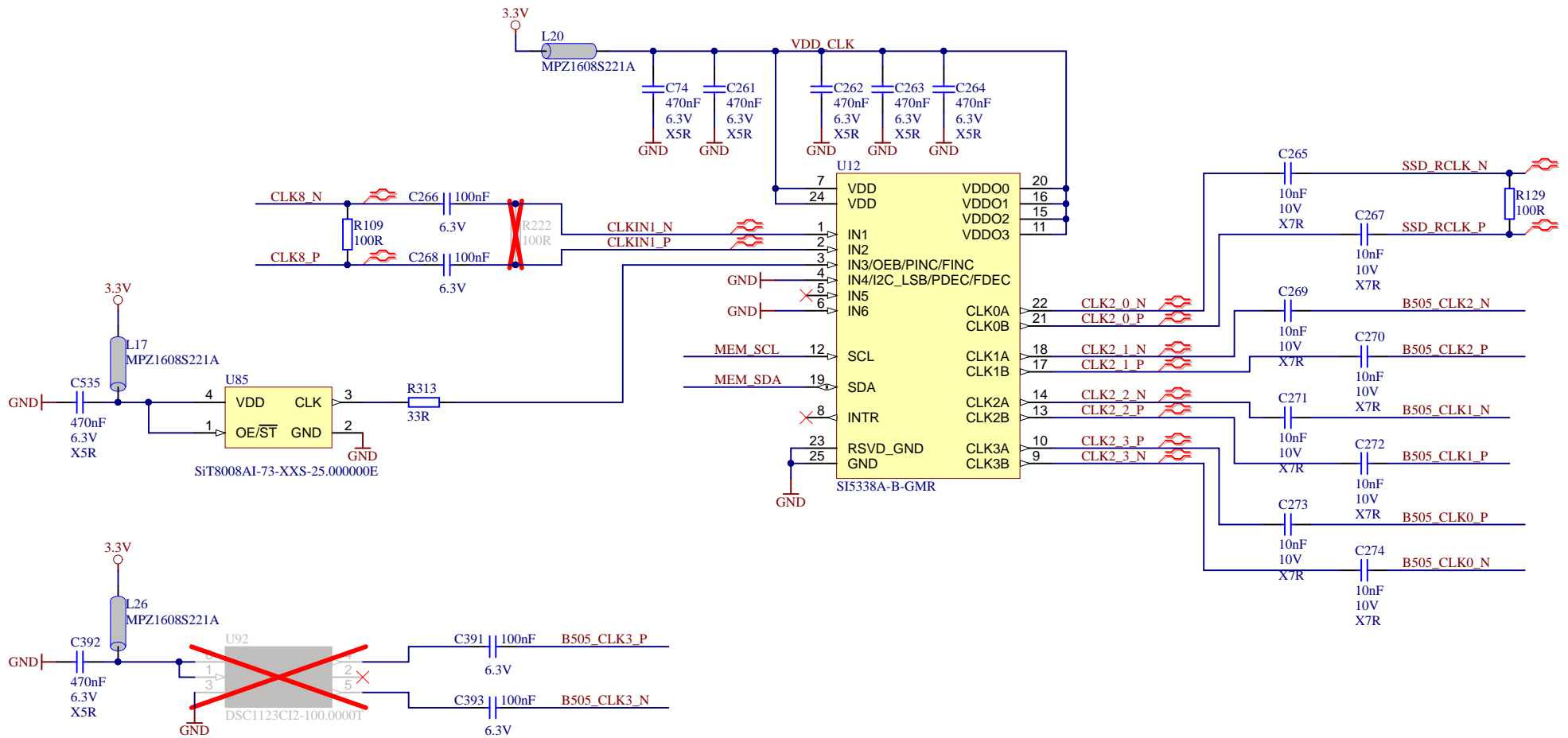
Title: <b>TEB0911 - eMMC</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>34</b> of <b>58</b>
Filename: <b>eMMC.SchDoc</b>		




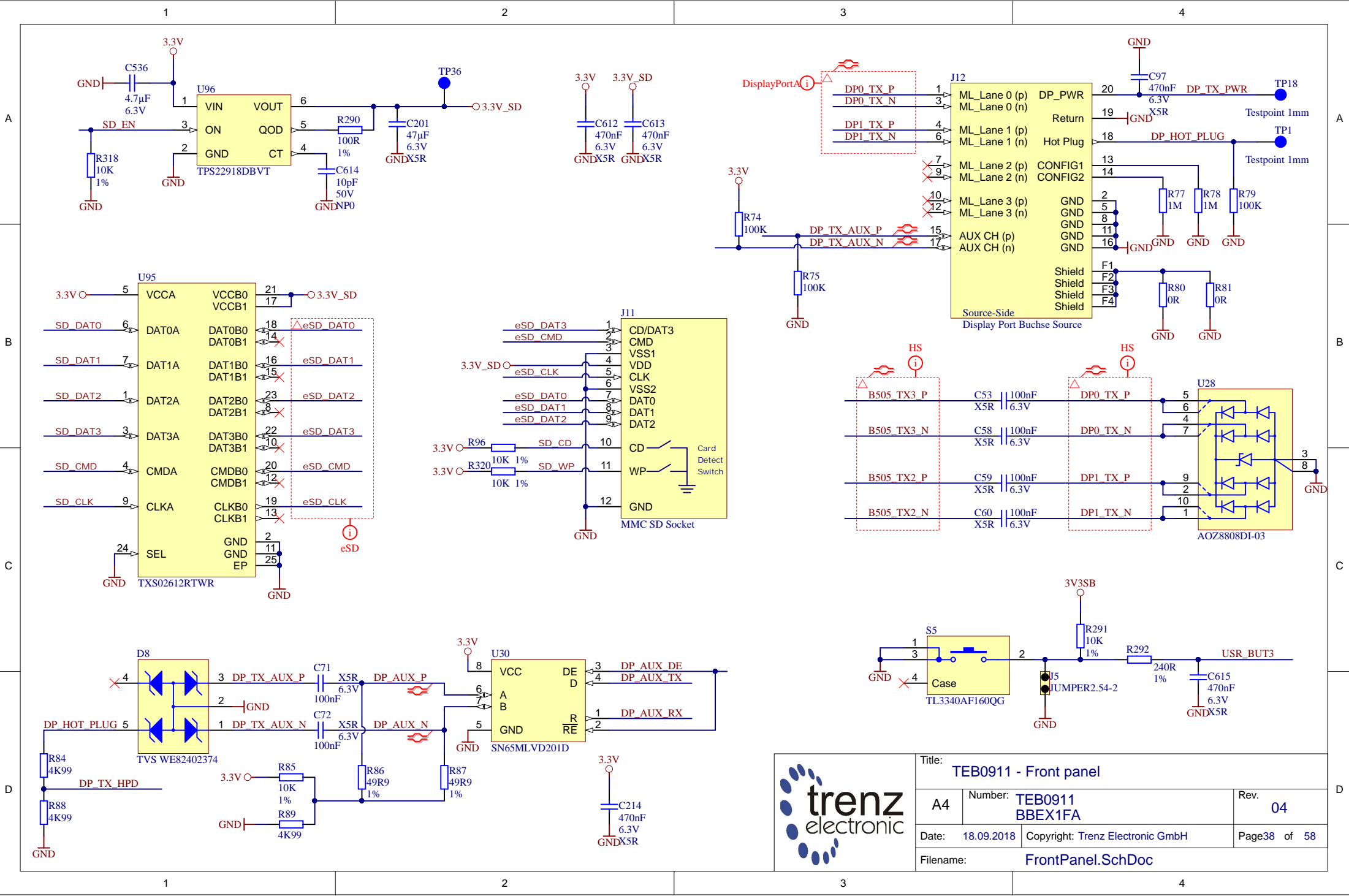
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	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>35</b> of <b>58</b>
	Filename: <b>I2C_system.schdoc</b>		




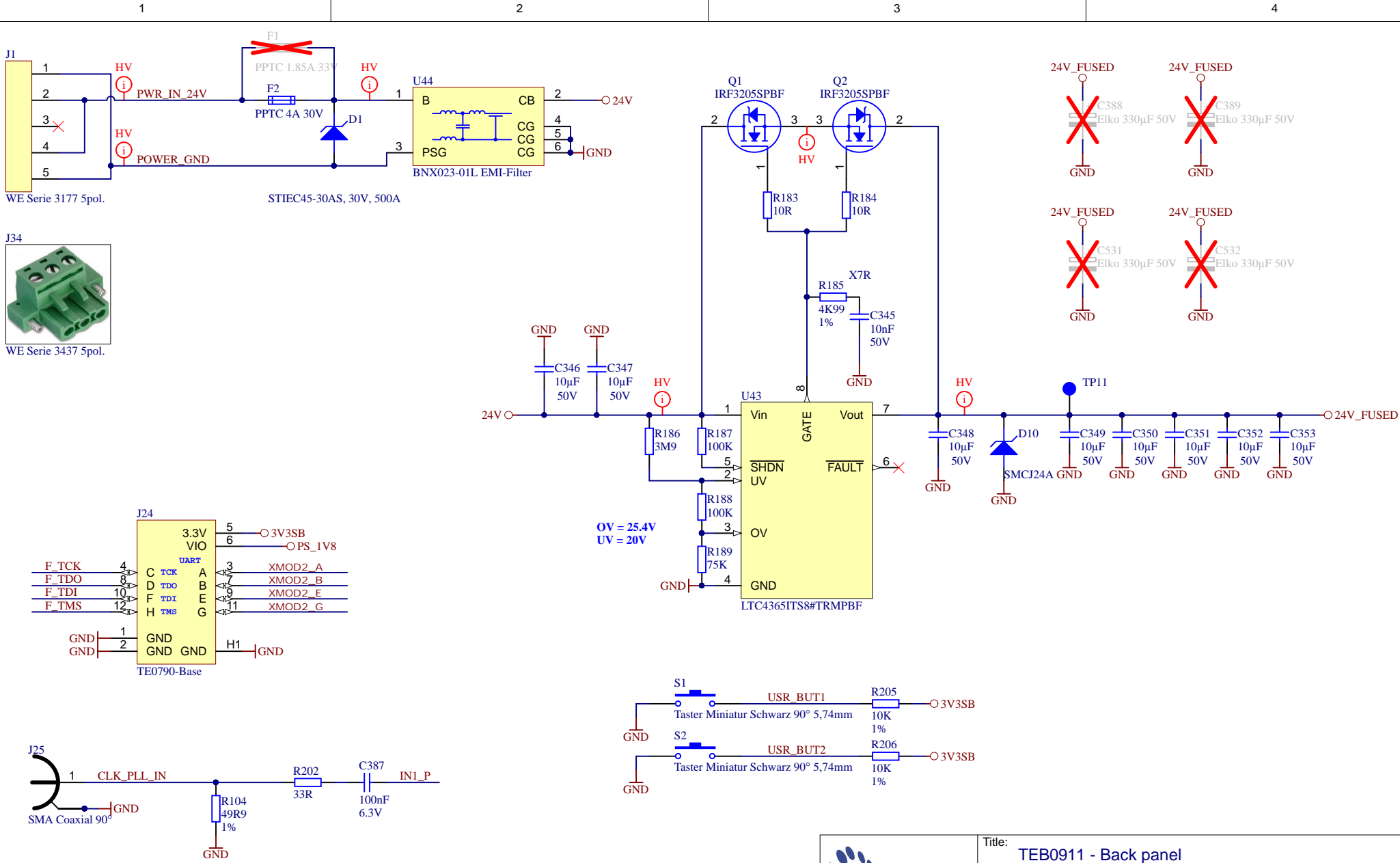
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A4	Number: <b>TEB0911 BBEX1FA</b>		Rev. <b>04</b>	
Date: <b>18.09.2018</b>		Copyright: <b>Trenz Electronic GmbH / TT</b>		Page <b>36</b> of <b>58</b>
Filename: <b>Clock.SchDoc</b>				



		Title: TEB0911 - CLK SI5338	
		A4	Number: TEB0911 BBEX1FA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH	
Filename: Clock2.SchDoc		Page 37 of 58	



			Title: TEB0911 - Front panel	
			A4	Number: TEB0911 BBEX1FA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Rev. 04
Filename: FrontPanel.SchDoc		Page 38 of 58		



Title: TEB0911 - Back panel		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: BackPanel.SchDoc		

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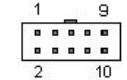
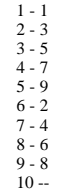
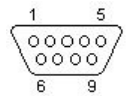
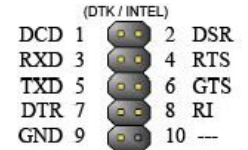
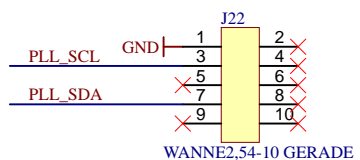
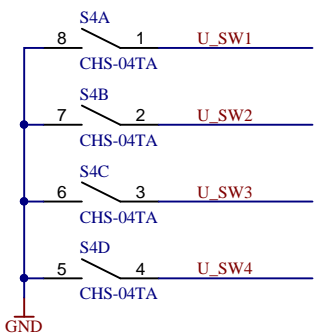
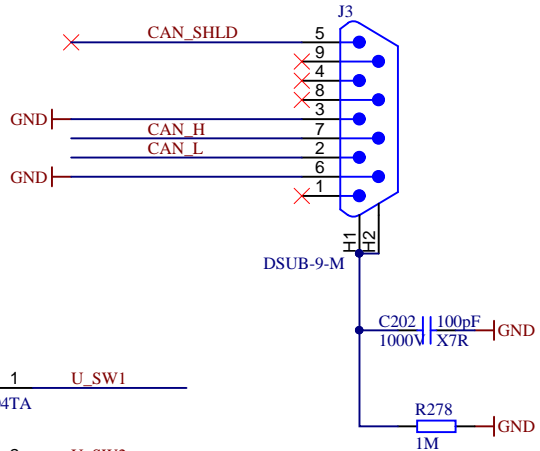
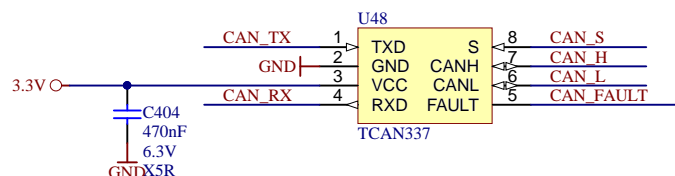
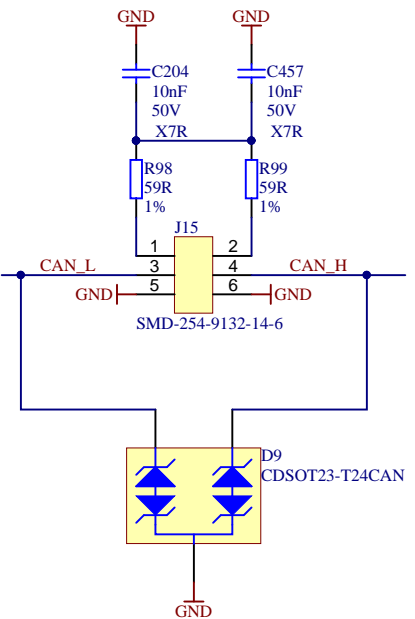
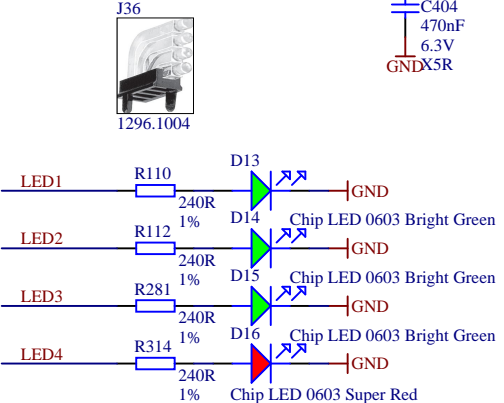
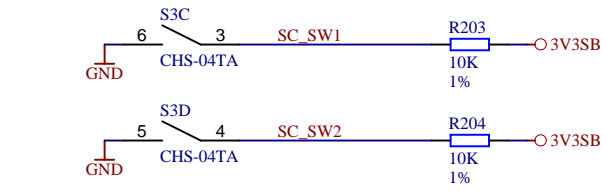
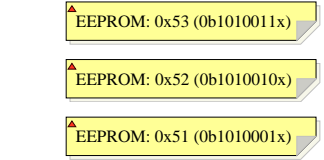
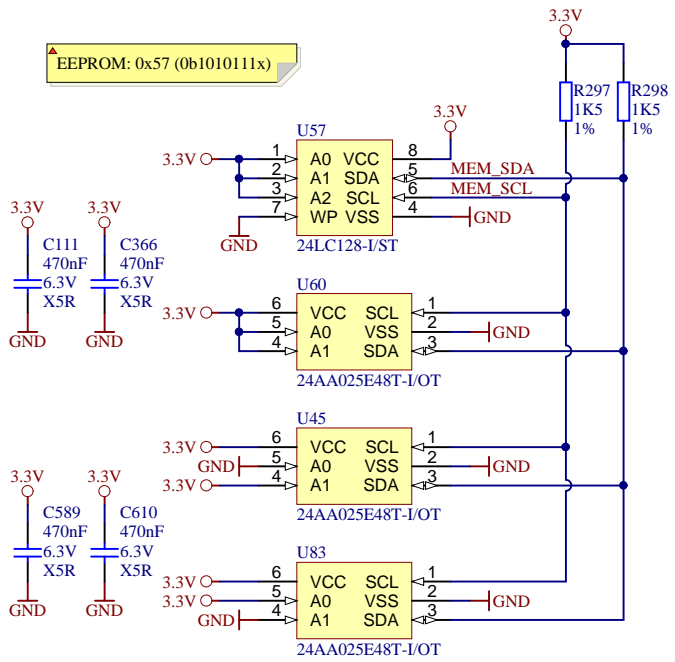
D

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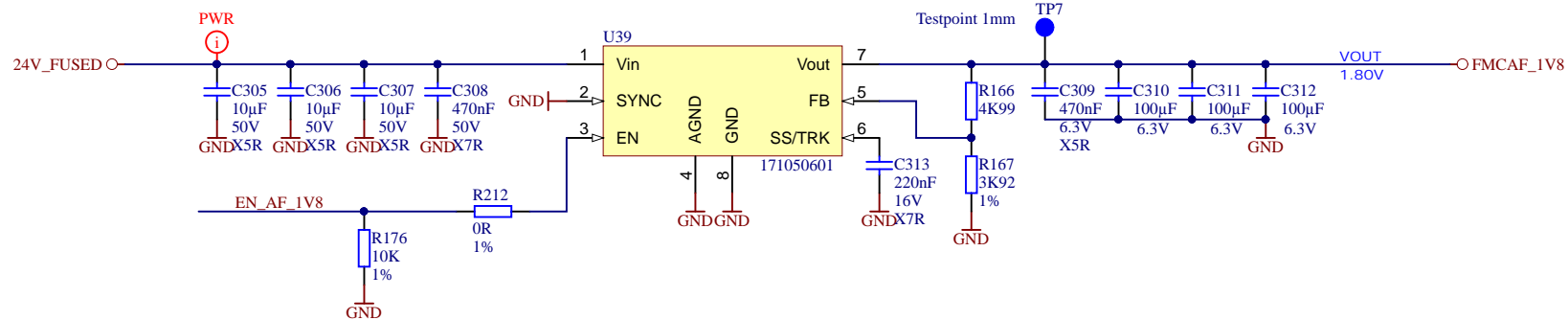
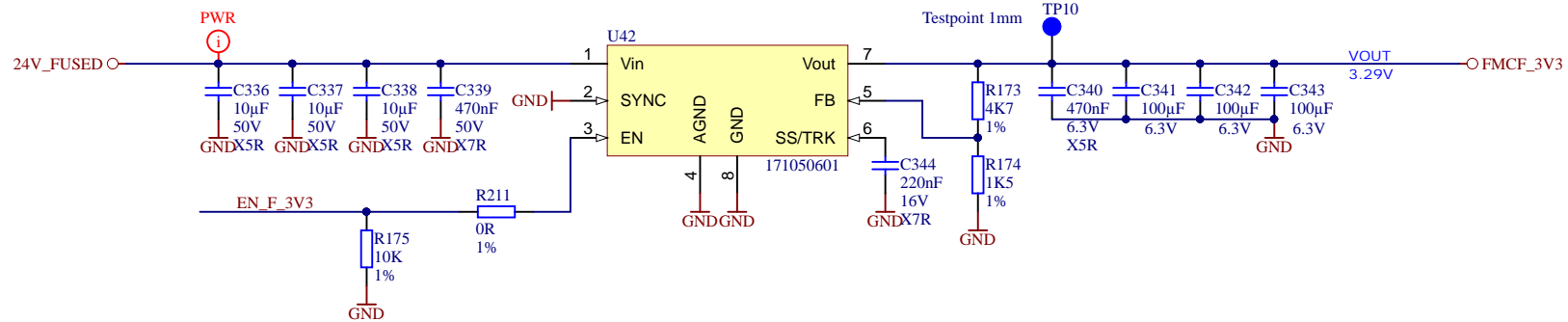
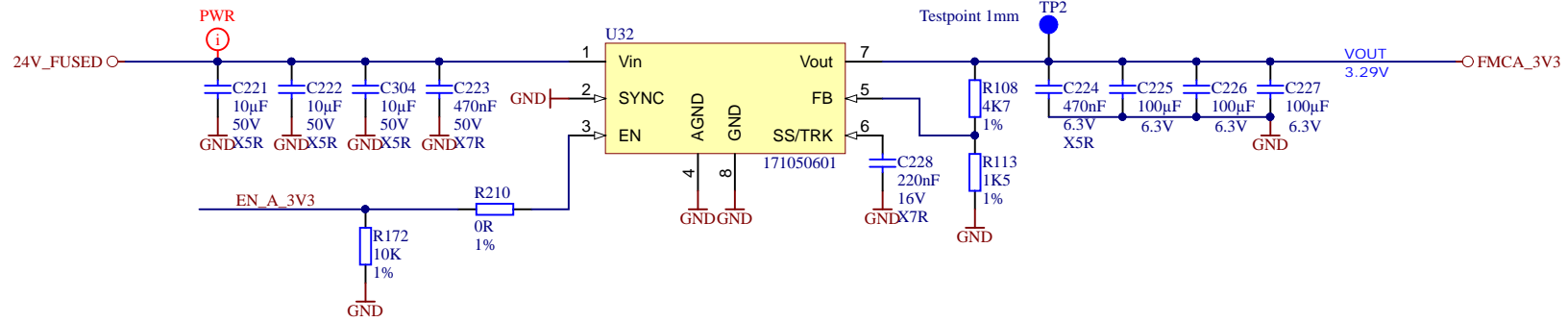
C


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Title: TEB0911 - MISC		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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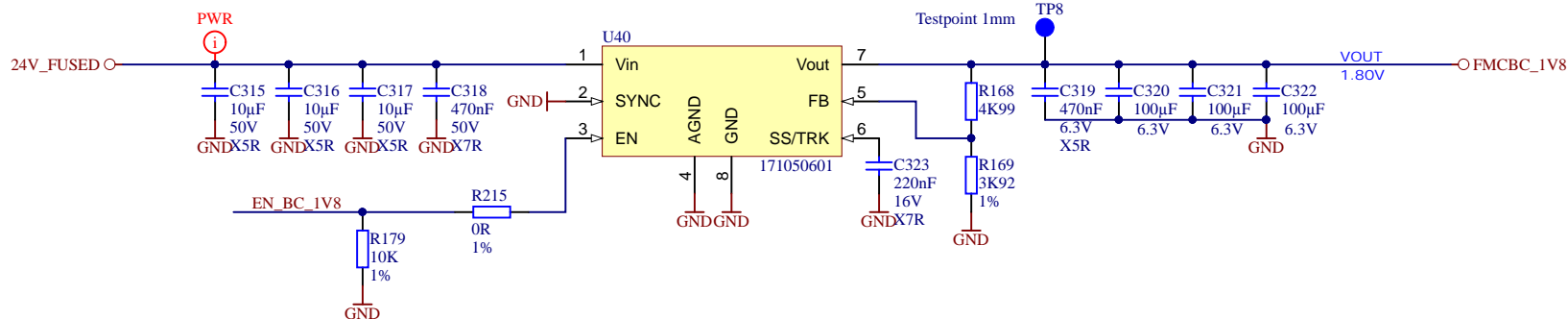
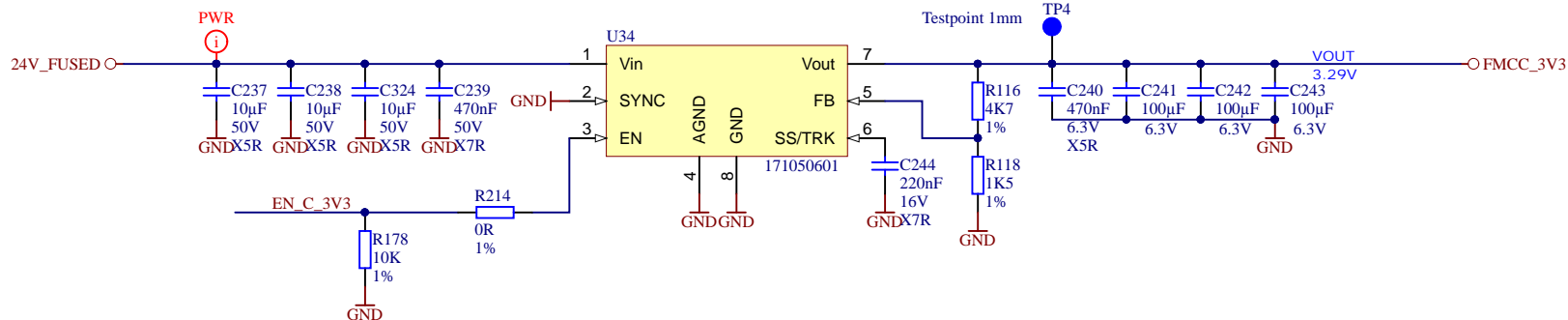
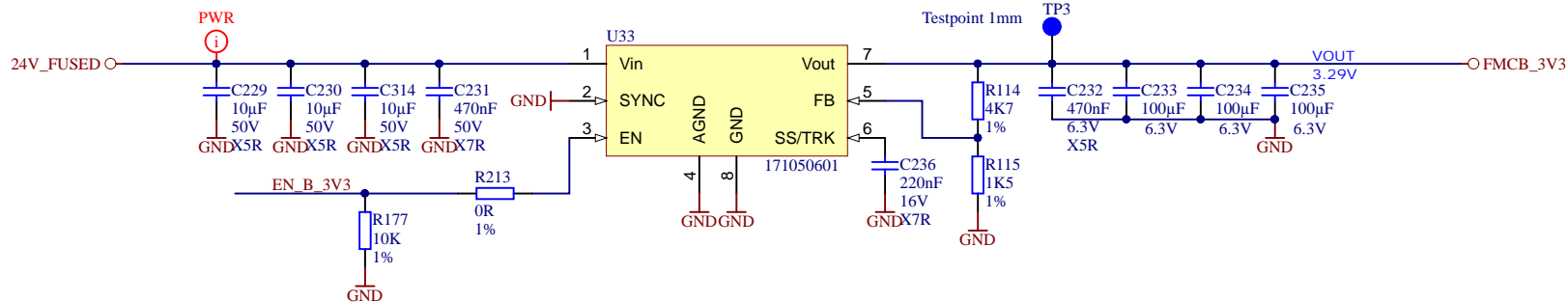
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		A4	Number: TEB0911 BBEX1FA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH	Rev. 04
Filename: POWER_1.schdoc		Page 41 of 58	


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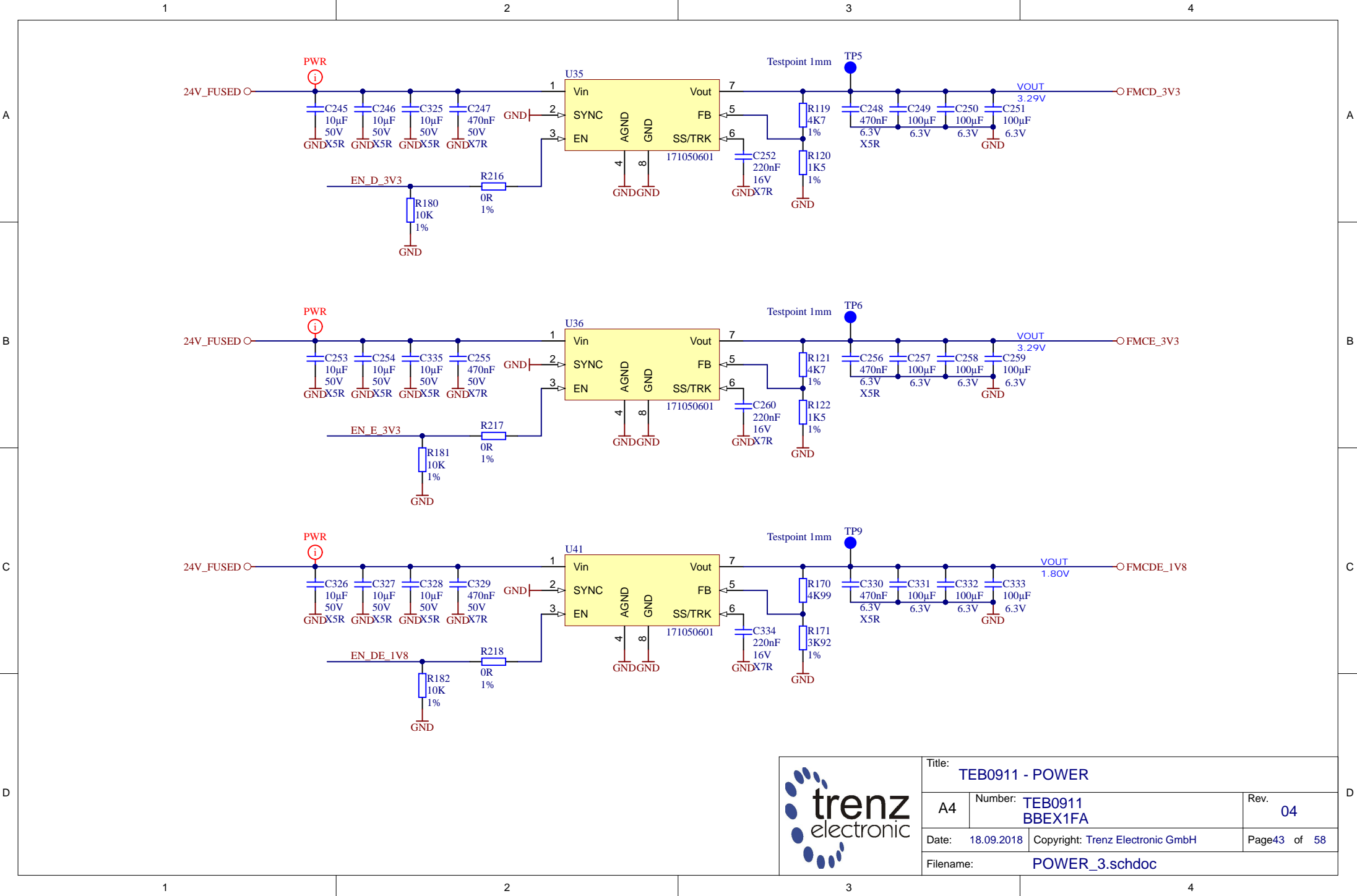
	Title: <b>TEB0911 - POWER</b>		
	A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
	Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>42</b> of <b>58</b>
	Filename: <b>POWER_2.schdoc</b>		

1

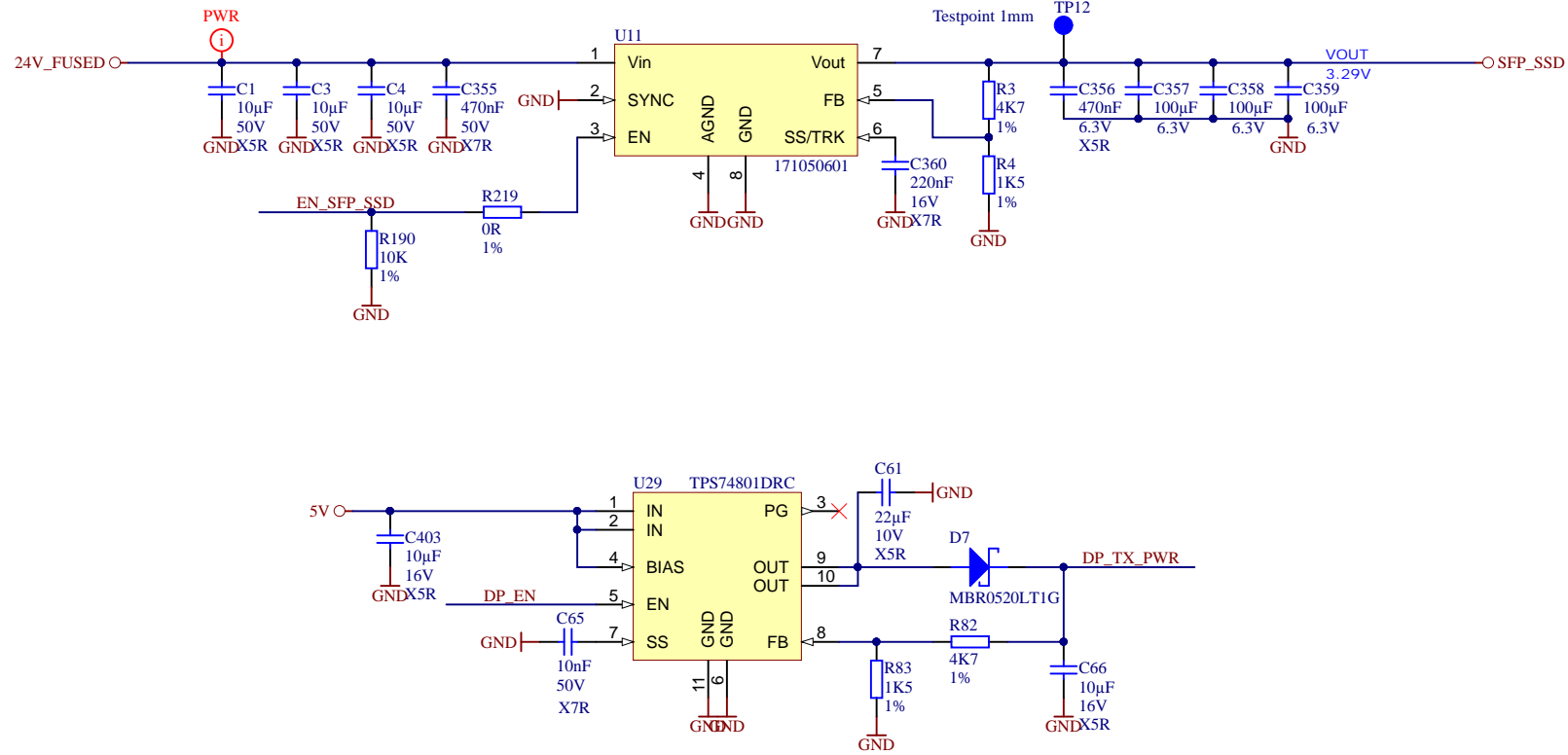
2


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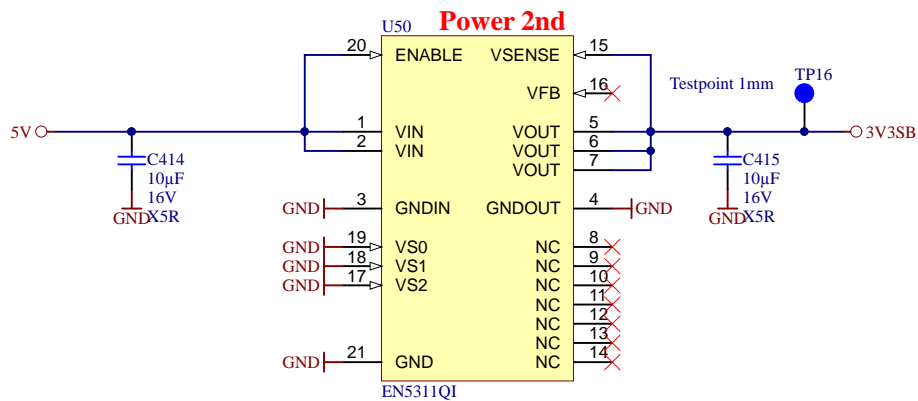
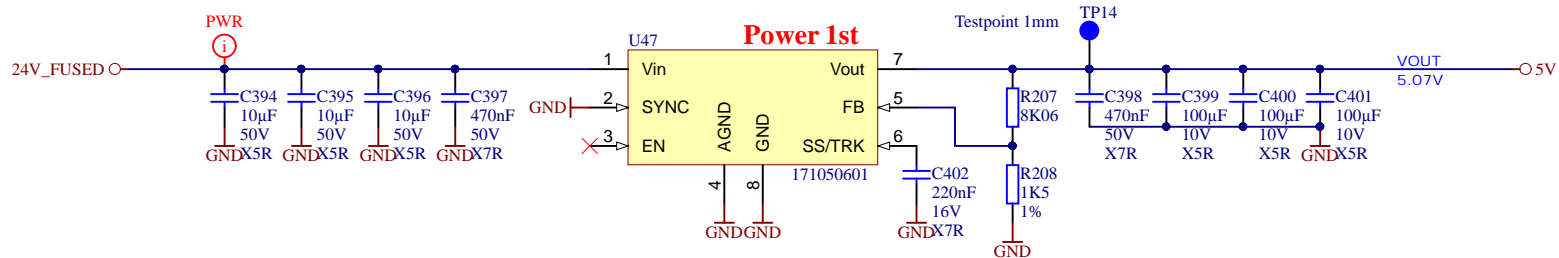
4




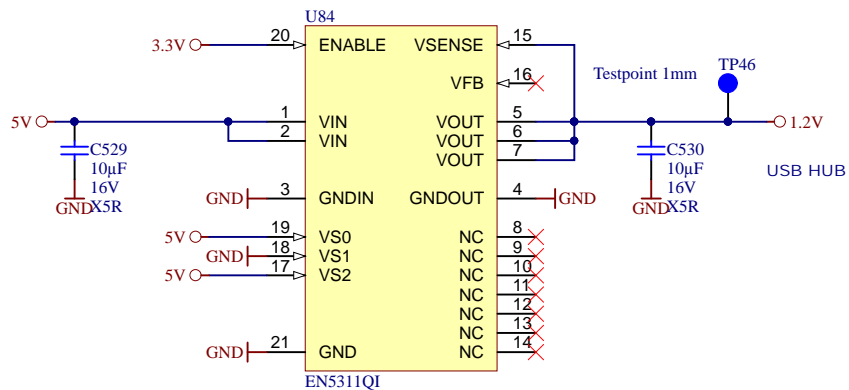
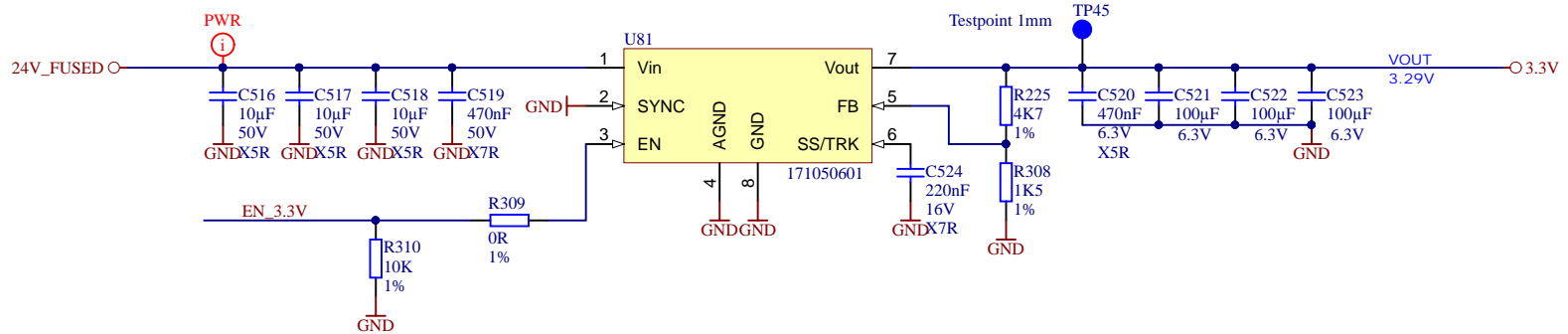
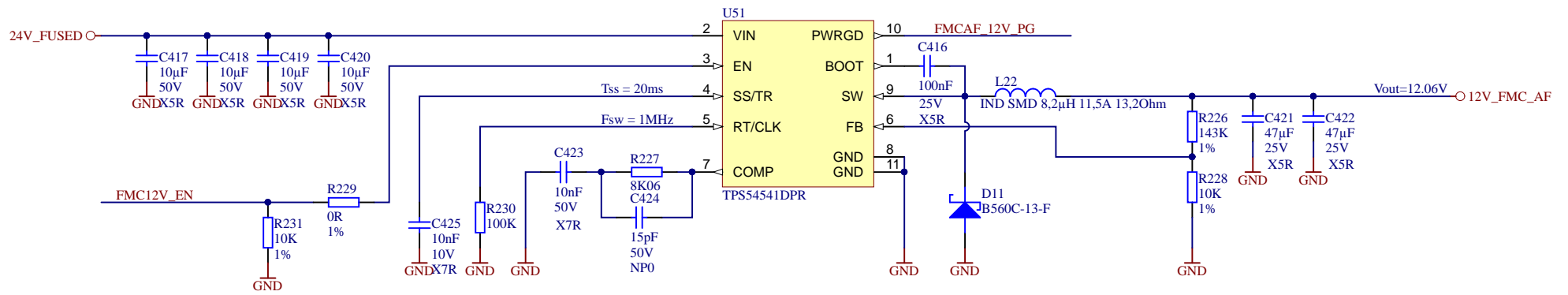
Title: <b>TEB0911 - POWER</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH</b>	Page <b>43</b> of <b>58</b>
Filename: <b>POWER_3.schdoc</b>		




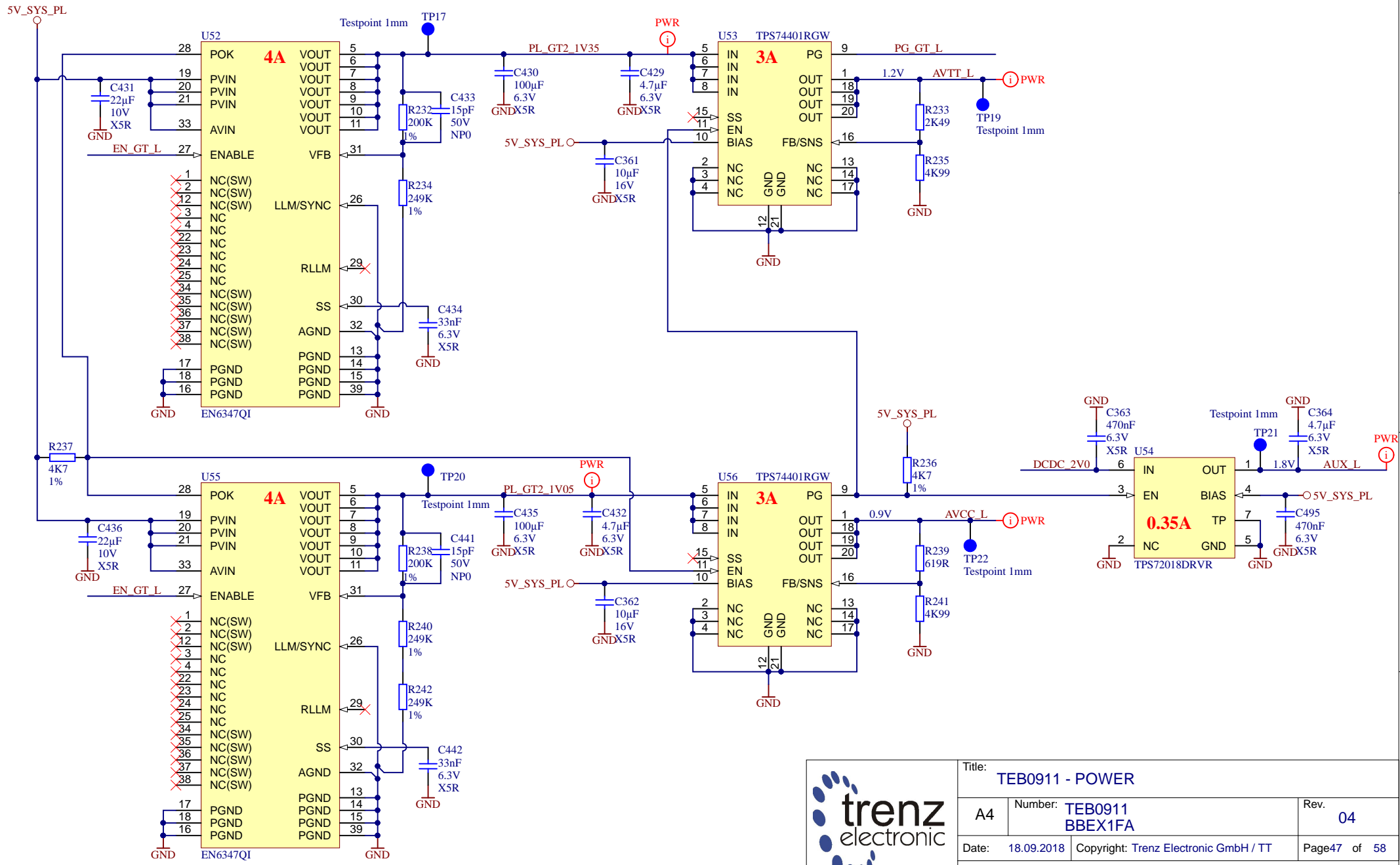
			Title: <b>TEB0911 - POWER</b>	
			A4	Number: <b>TEB0911 BBEX1FA</b>
Date: <b>18.09.2018</b>		Copyright: <b>Trenz Electronic GmbH</b>		Page <b>44</b> of <b>58</b>
Filename: <b>POWER_4.schdoc</b>				



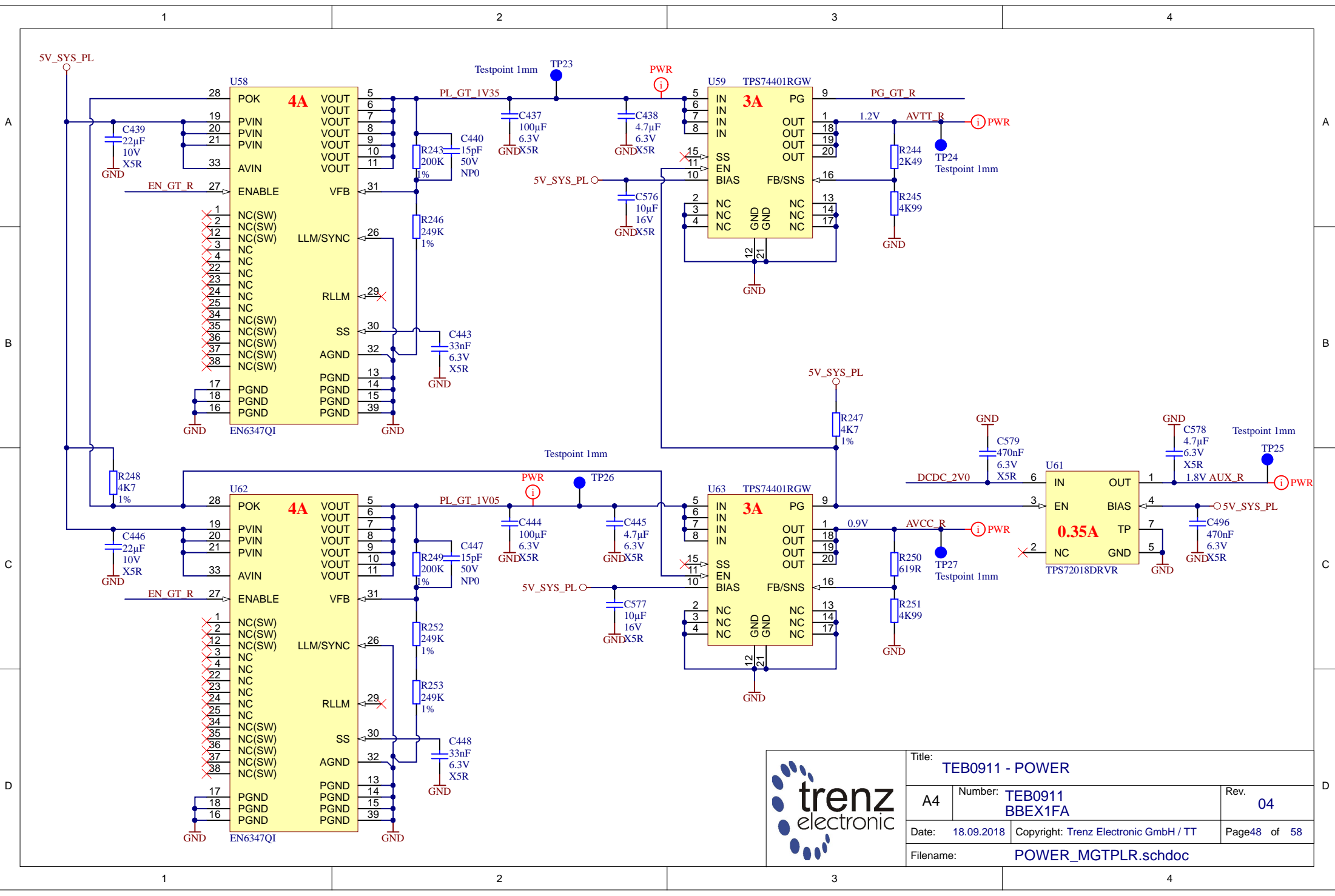
			Title: TEB0911 - POWER	
			A4	Number: TEB0911 BBEX1FA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 45 of 58
Filename: POWER_5.schdoc				



			Title: TEB0911 - POWER	
			A4	Number: TEB0911 BBEX1FA
Date: 18.09.2018		Copyright: Trenz Electronic GmbH		Page 46 of 58
Filename: POWER_6.SchDoc				

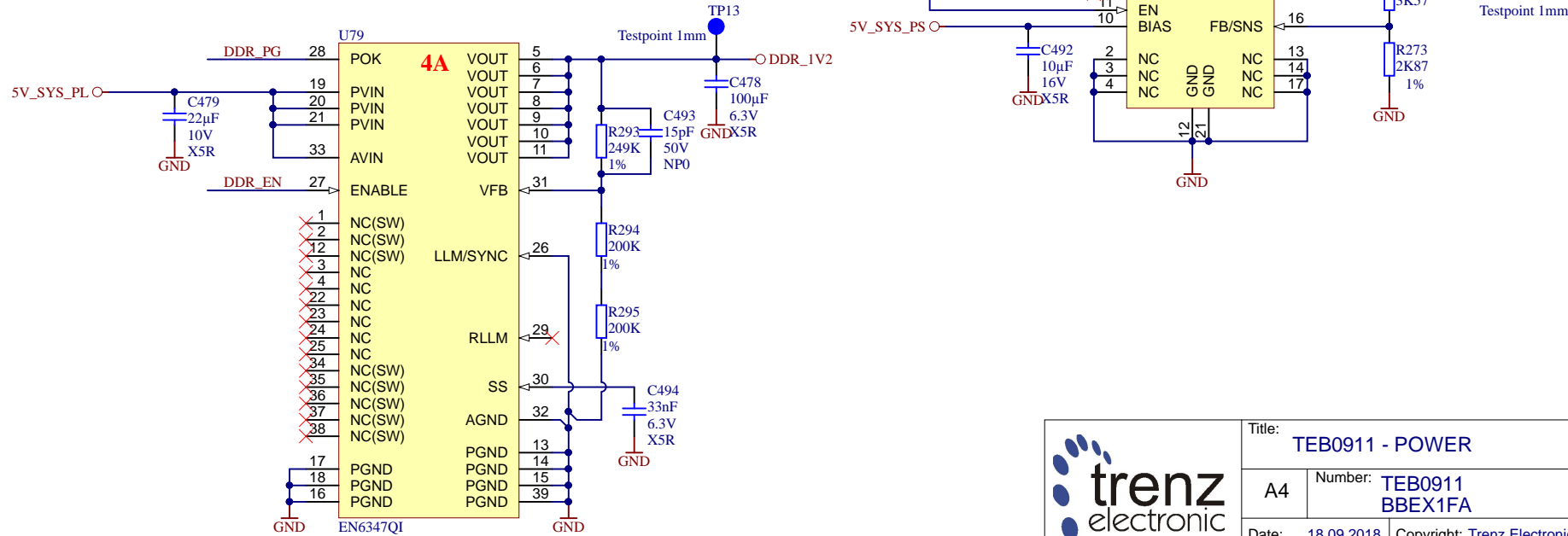
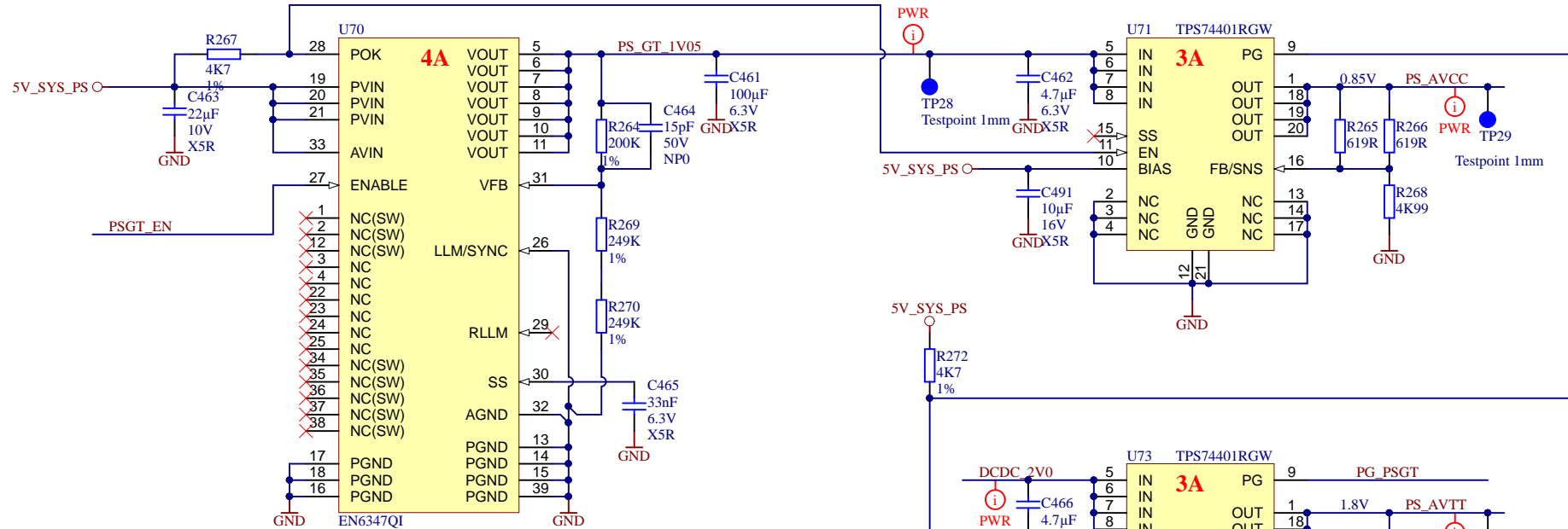


Title: <b>TEB0911 - POWER</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH / TT</b>	Page <b>47</b> of <b>58</b>
Filename: <b>POWER_MGTPLL.schdoc</b>		

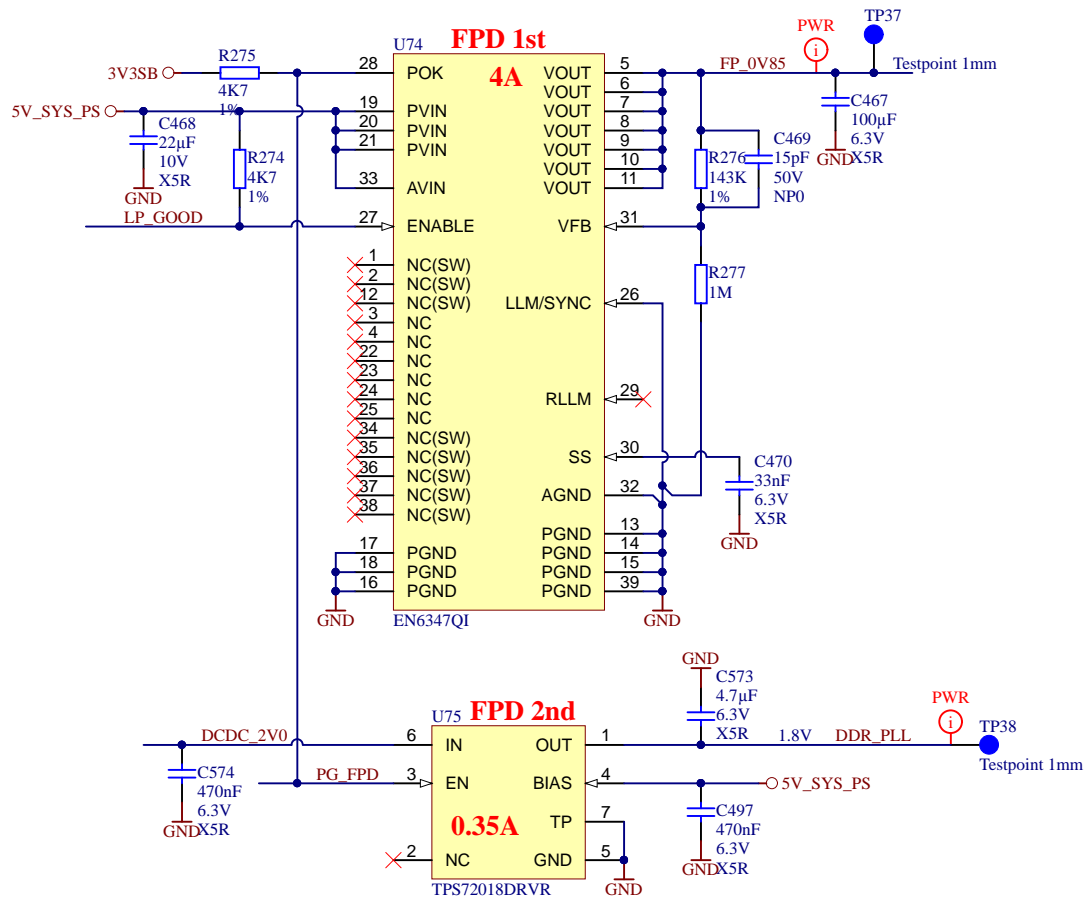



Title: <b>TEB0911 - POWER</b>		
A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH / TT</b>	Page <b>48</b> of <b>58</b>
Filename: <b>POWER_MGTPLR.schdoc</b>		

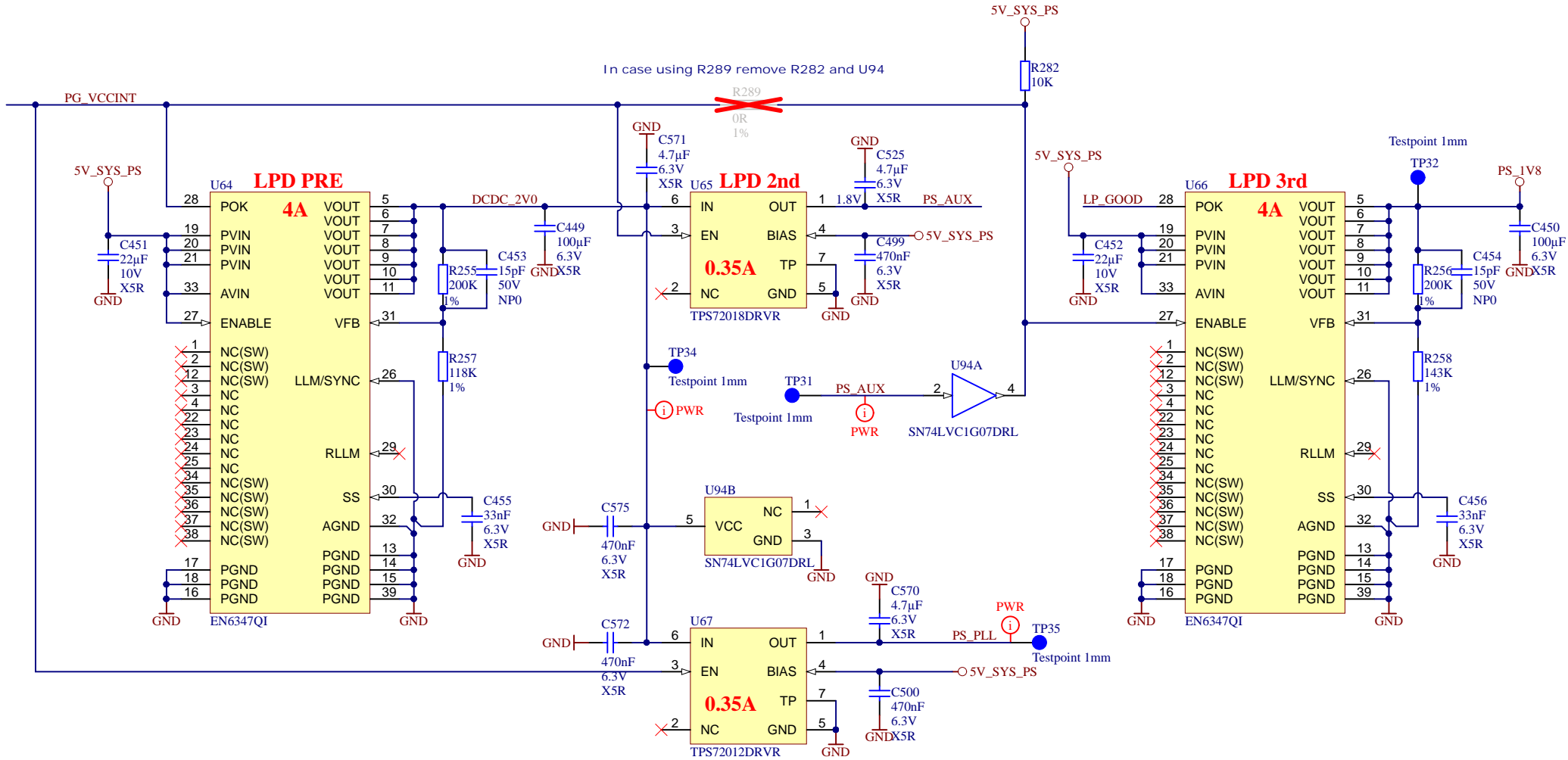




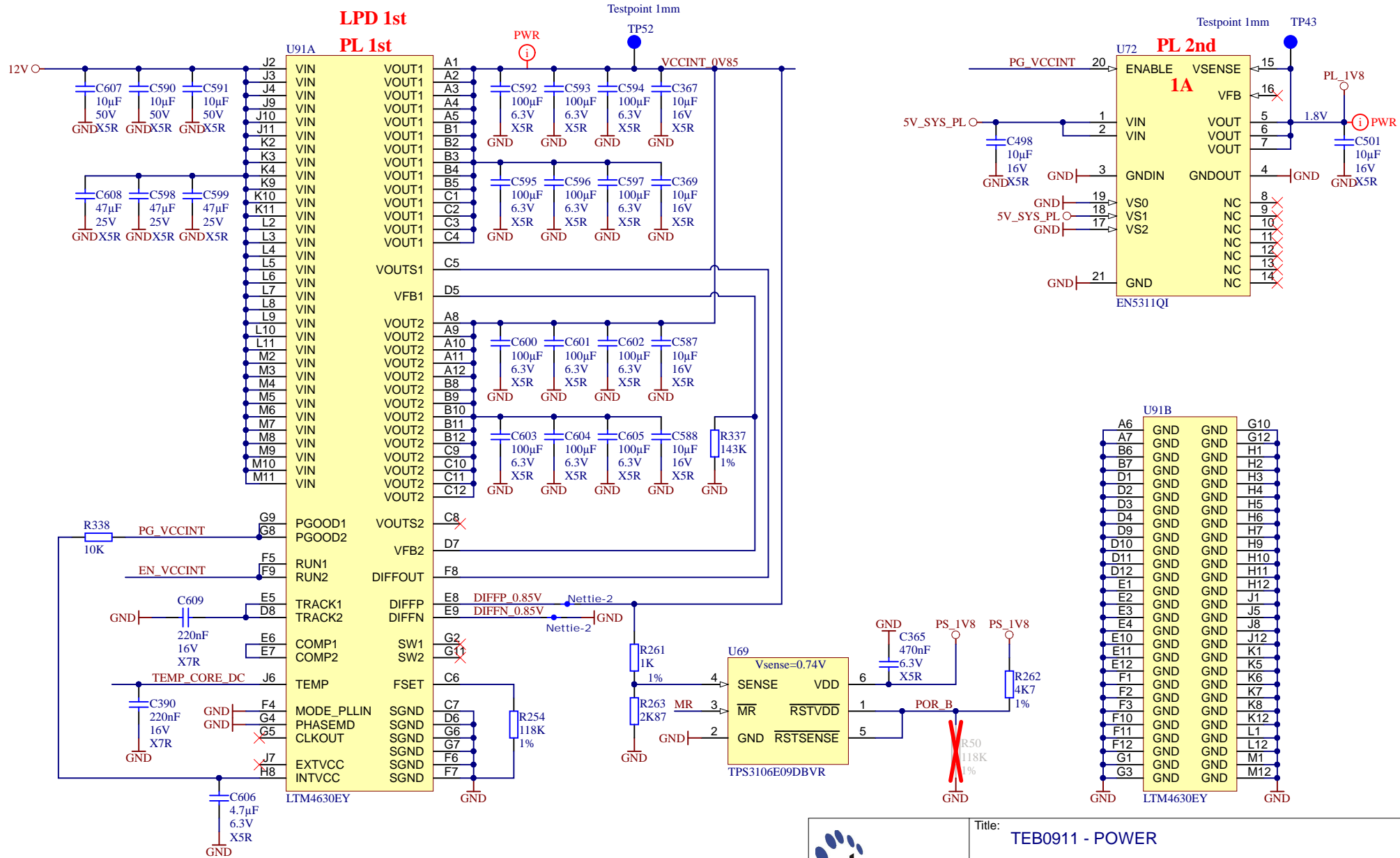
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A4	Number: <b>TEB0911 BBEX1FA</b>	Rev. <b>04</b>
Date: <b>18.09.2018</b>	Copyright: <b>Trenz Electronic GmbH / TT</b>	Page <b>49</b> of <b>58</b>
Filename: <b>POWER_MGTPS.schdoc</b>		



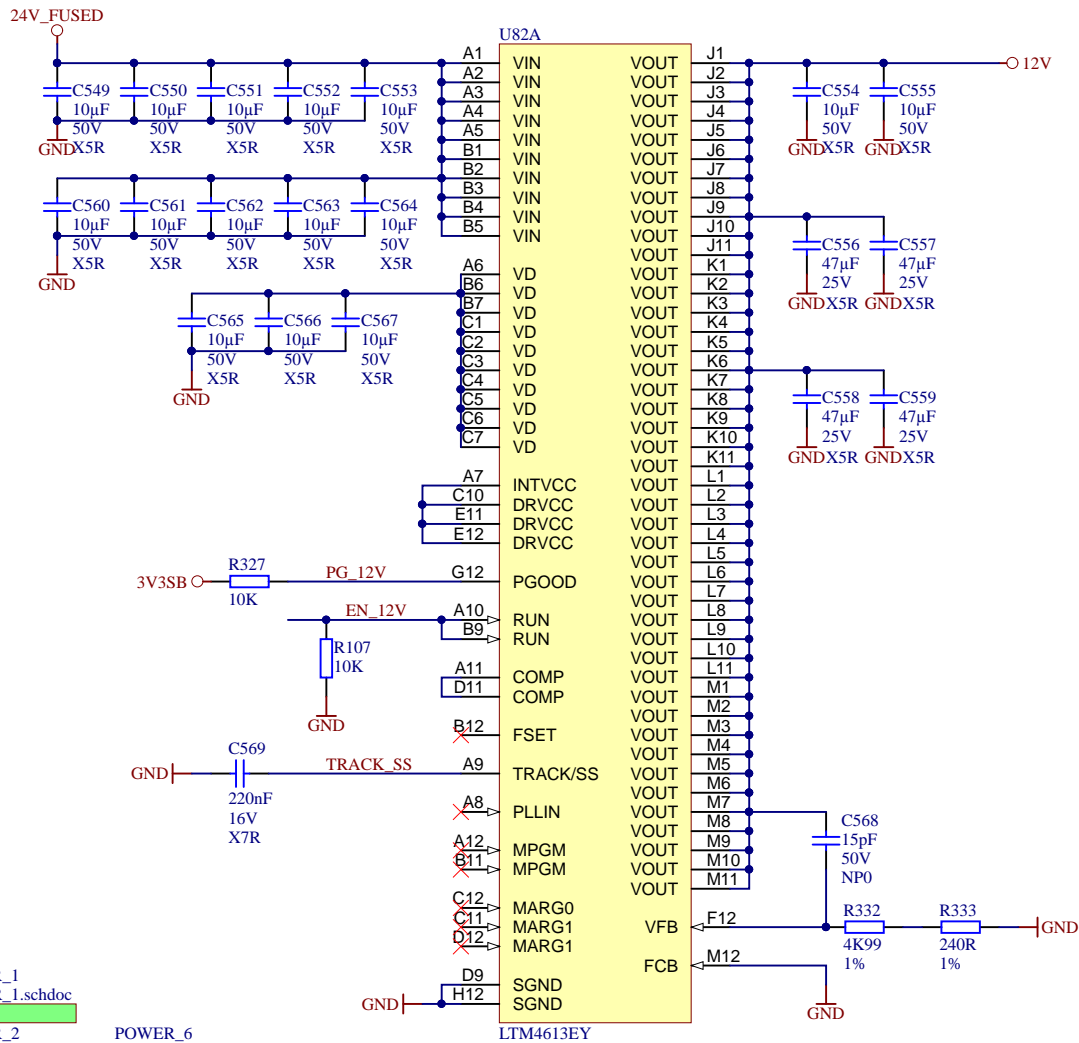
			Title: TEB0911 - POWER	
			A4	Number: TEB0911 BBEX1FA
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Filename: POWER_PSFP.schdoc				



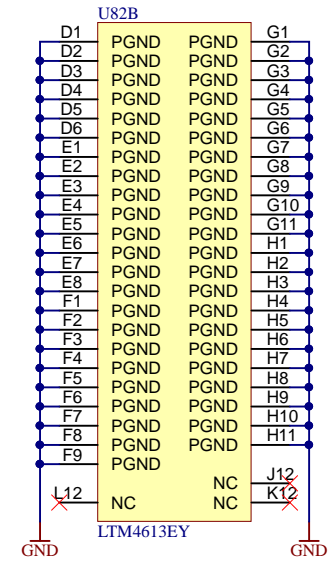
Title: TEB0911 - POWER		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: POWER_PSLP.schdoc		




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	Filename: <b>PWR_CORE.SchDoc</b>		



- 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  
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- PWR\_SYS  
PWR\_SYS.SchDoc
- PWR\_CORE  
PWR\_CORE.SchDoc



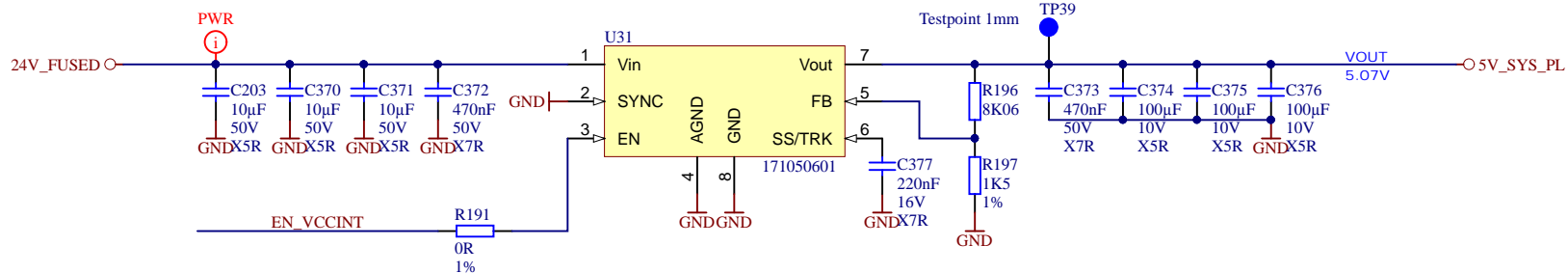
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			A4	Number: TEB0911 BBEX1FA
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Filename: PWR_IN.SchDoc				

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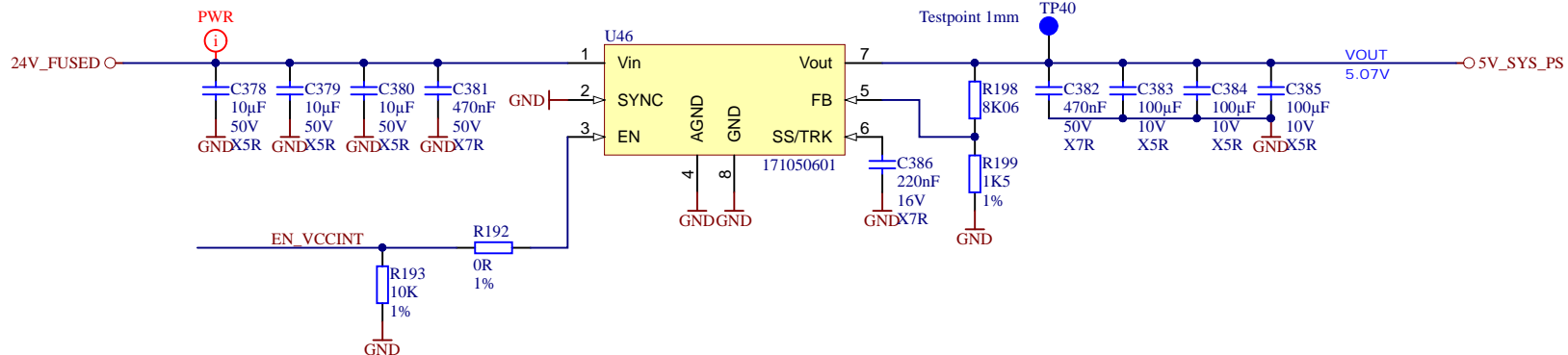
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- POWER\_MGTPS  
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- POWER\_MGTPLR  
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- POWER\_MGTPLL  
POWER\_MGTPLL.schdoc
- POWER\_PSF  
POWER\_PSF.schdoc
- POWER\_PSLP  
POWER\_PSLP.schdoc



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A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: PWR_SYS.SchDoc		

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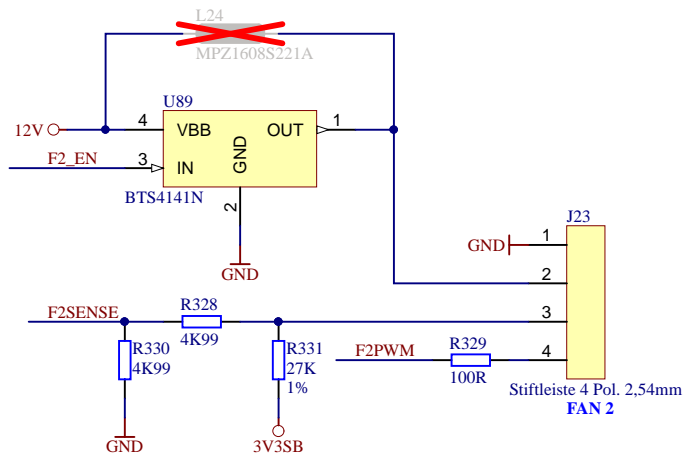
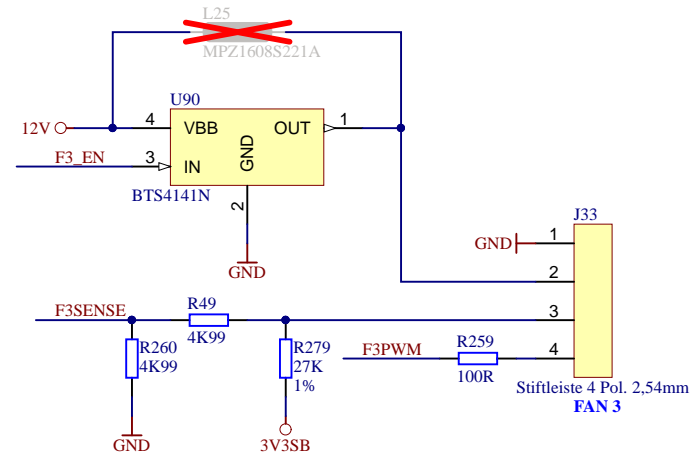
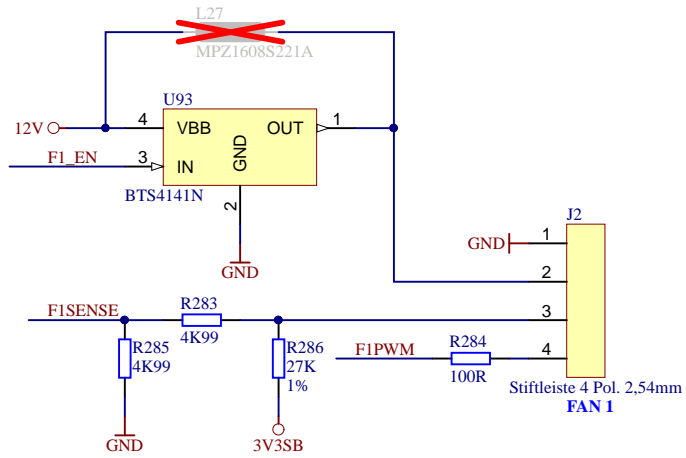
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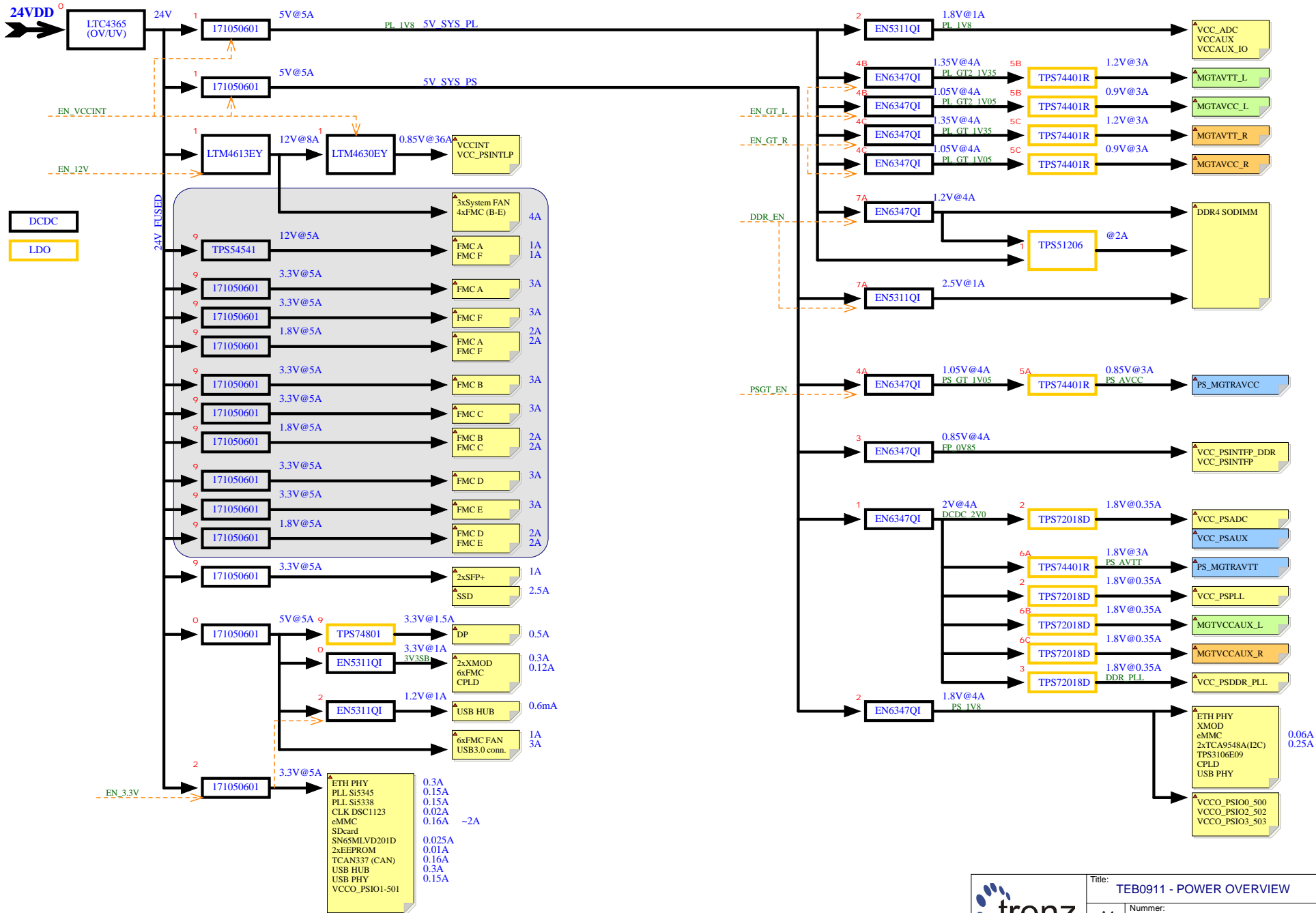
Title: TEB0911 - FAN connectors		
A4	Number: TEB0911 BBEX1FA	Rev. 04
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Filename: FAN_CON.schdoc		

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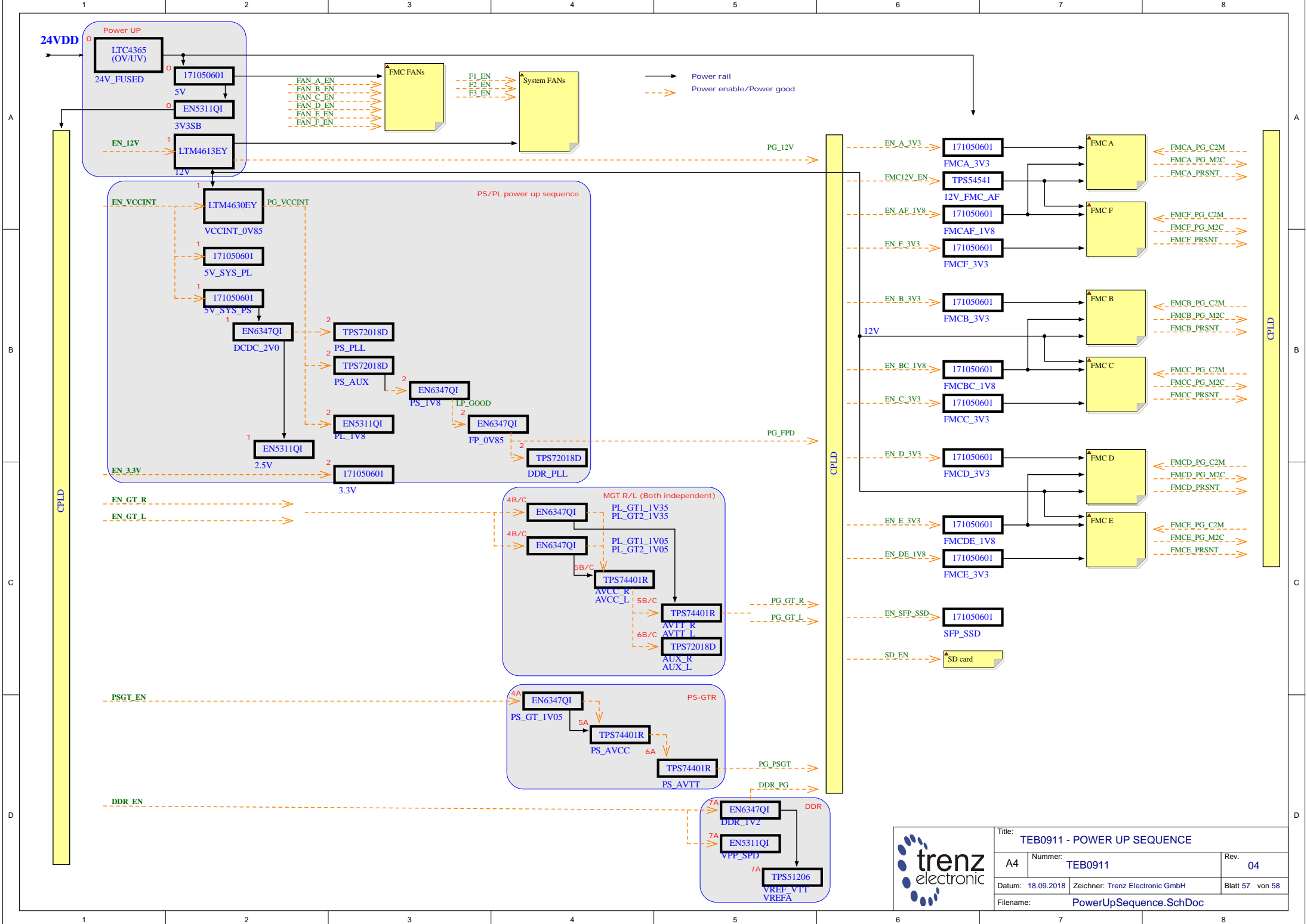
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Title: TEB0911 - POWER UP SEQUENCE		
A4	Number: TEB0911	Rev. 04
Datum: 18.09.2018	Zeichner: Trenz Electronic GmbH	Blatt 57 von 58
Filename: PowerUpSequence.SchDoc		

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\_SELO/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: <b>TEB0911 - REVISION CHANGES</b>		
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	Filename: <b>Revision_changes.SchDoc</b>		