

1

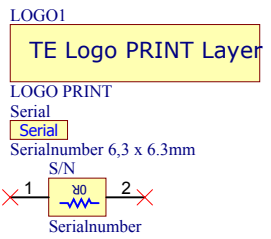
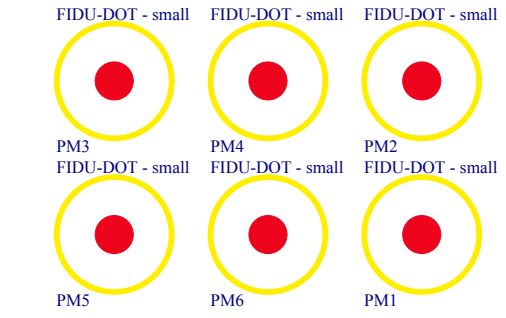
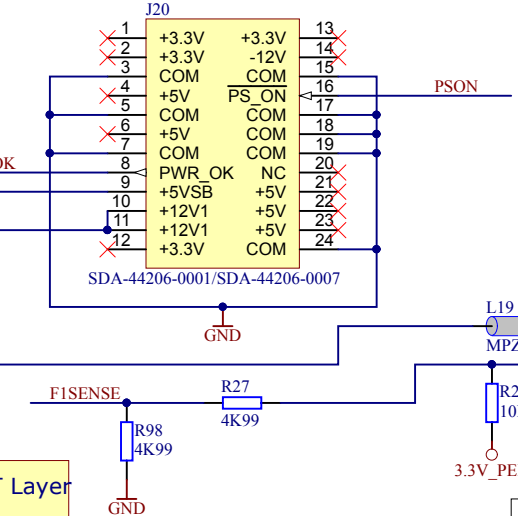
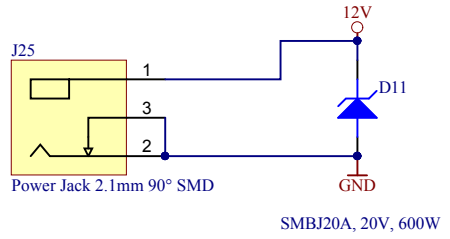
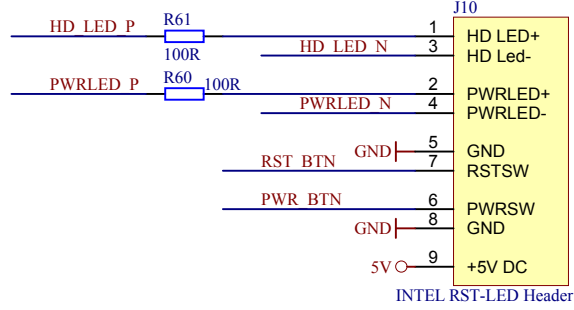
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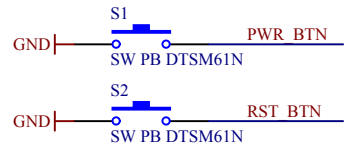
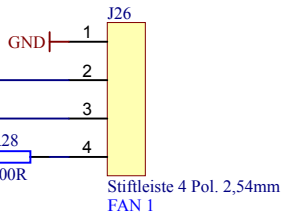
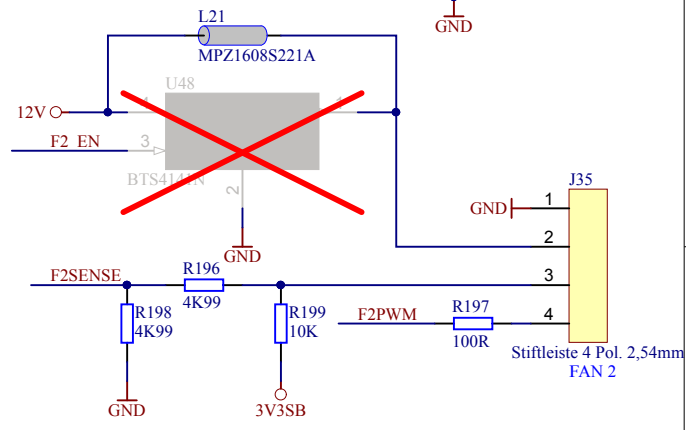
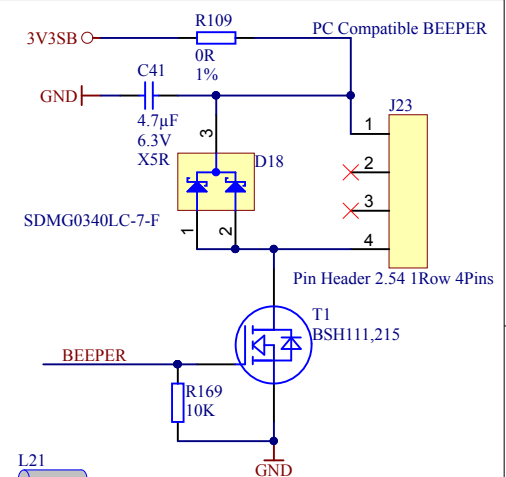
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U_B2B B2B.schdoc	U_DP_PS DP_PS.schdoc
U_USB3-HUB USB3-HUB.SchDoc	U_SATA SATA.schdoc
U_PCIE PCIe.schdoc	U_USB-CONN USB-CONN.schdoc
U_SFP SFP.schdoc	U_USB USB.schdoc
U_SC SC.schdoc	U_USB-PHY USB-PHY.SchDoc
U_SC2 SC2.schdoc	U_ETH-PHY ETH-PHY.SchDoc
U_PMOD PMODE.schdoc	U_I2C_system I2C_system.schdoc
U_XMOD XMOD.schdoc	U_CLK CLK.schdoc
U_Power_1 Power_1.schdoc	U_CLK_MUX CLK_MUX.schdoc
U_Power_2 Power_2.schdoc	U_SD SD.schdoc
U_Power_3 Power_3.schdoc	U_EMMC eMMC.SchDoc
U_Power_4 Power_4.schdoc	U_FIREFLY FireFly.SchDoc
U_FMC FMC.SchDoc	U_MISC MISC.schdoc
U_FMC_PWR FMC_PWR.SchDoc	U_Audio Audio.SchDoc
U_FMC_MISC FMC_MISC.SchDoc	U_BD BD.SchDoc
U_RC Revision_Changes.SchDoc	

INTEL Reset/LED Pinout



Title: TEBF0808 - Mini-ITX Top Sheet		
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U_J1
J1.schdoc
U_J2
J2.schdoc
U_J3
J3.schdoc
U_J4
J4.schdoc



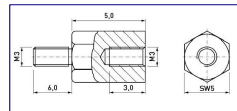
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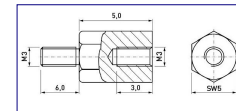
Serrated Washer M3



Nut M3



Distance Holder M3x5 Male/Female



Distance Holder M3x5 Male/Female



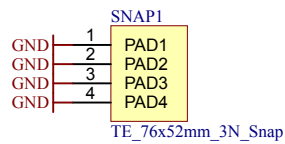
Washer M3



Serrated Washer M3



Nut M3



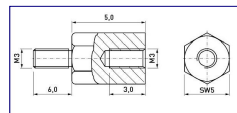
Washer M3



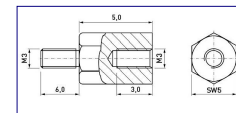
Serrated Washer M3



Nut M3



Distance Holder M3x5 Male/Female



Distance Holder M3x5 Male/Female



Washer M3



Serrated Washer M3



Nut M3



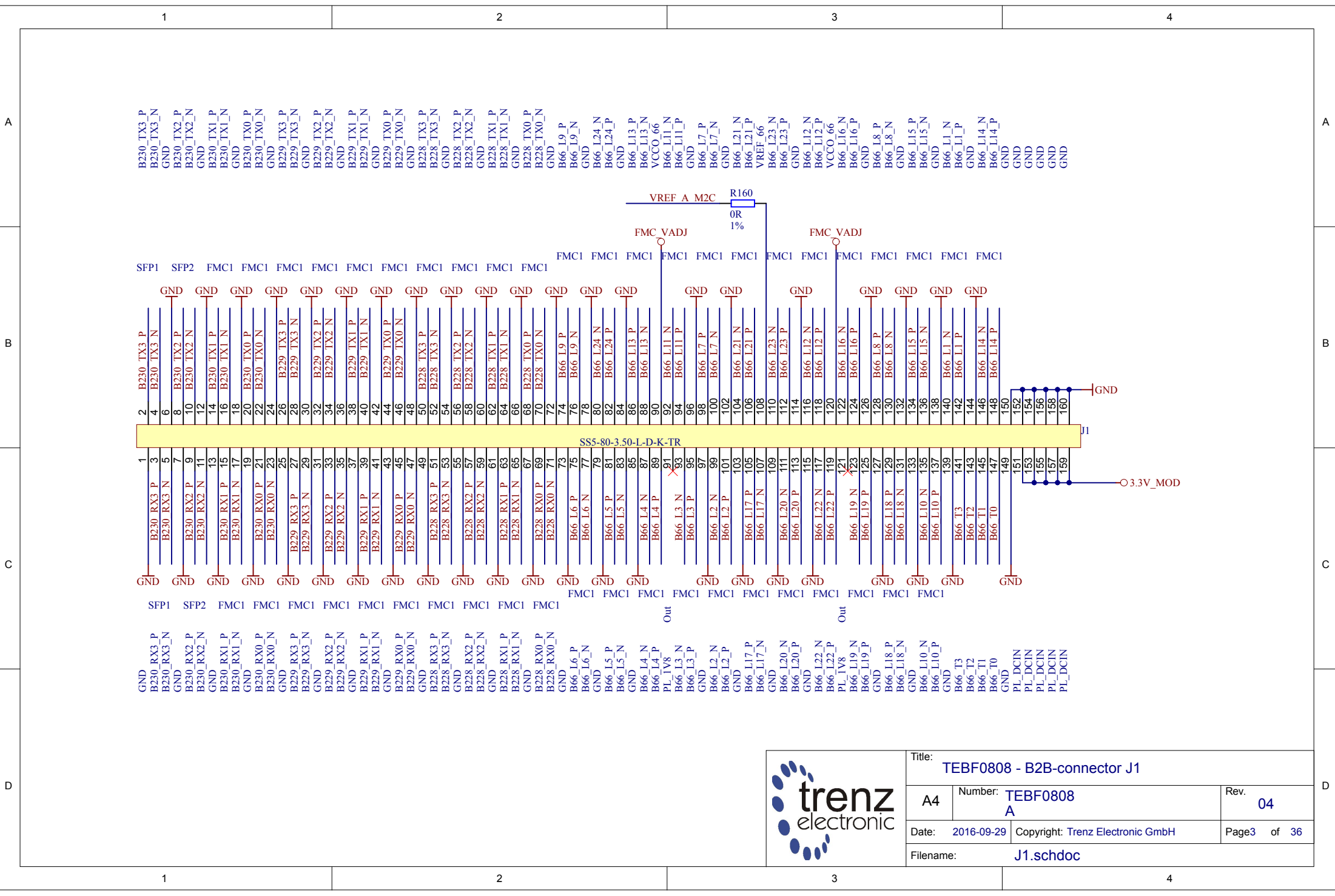
Title: TEBF0808 - B2B-connectors		
A4	Number: TEBF0808 A	Rev. 04
Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page2 of 36
Filename: B2B.schdoc		

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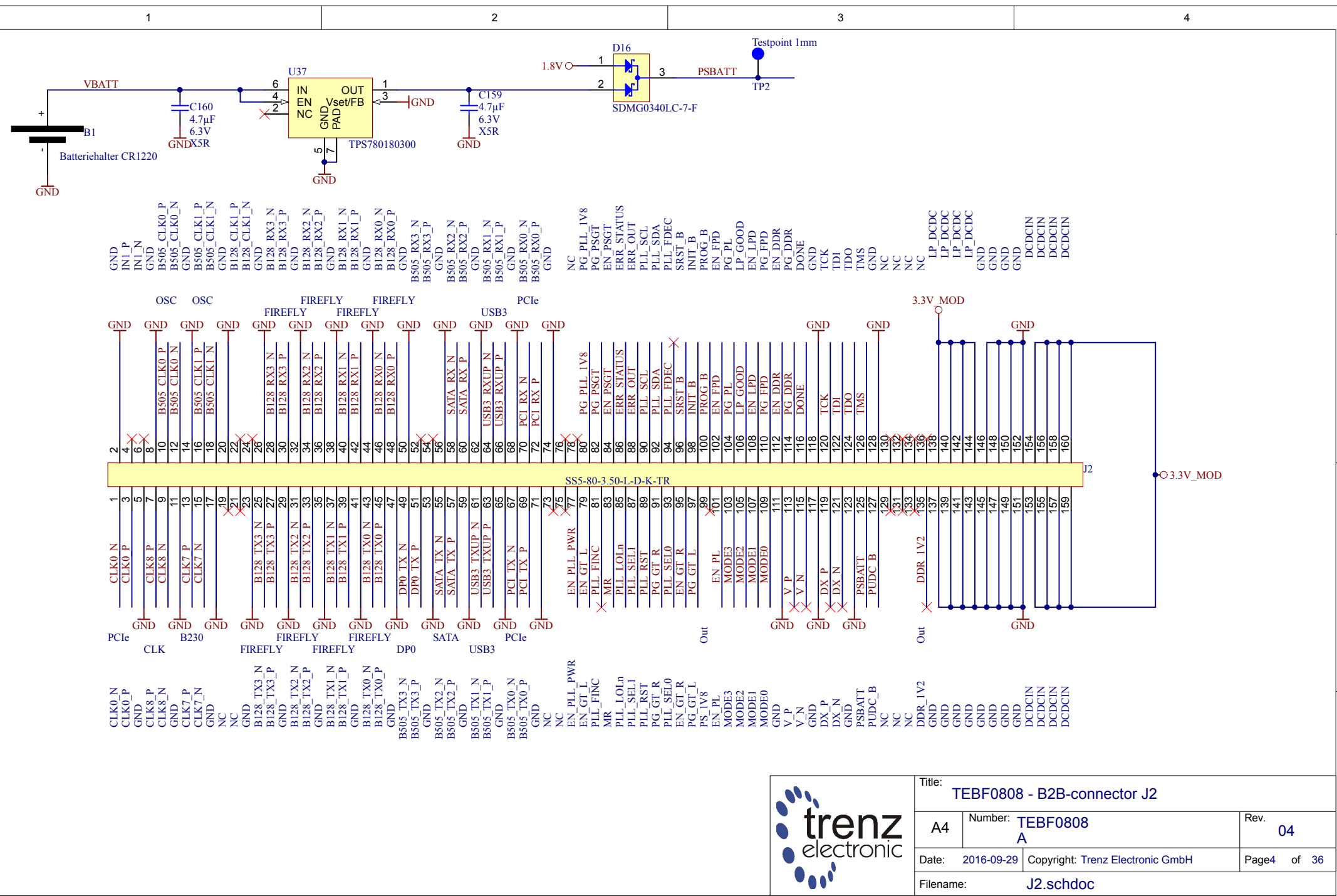
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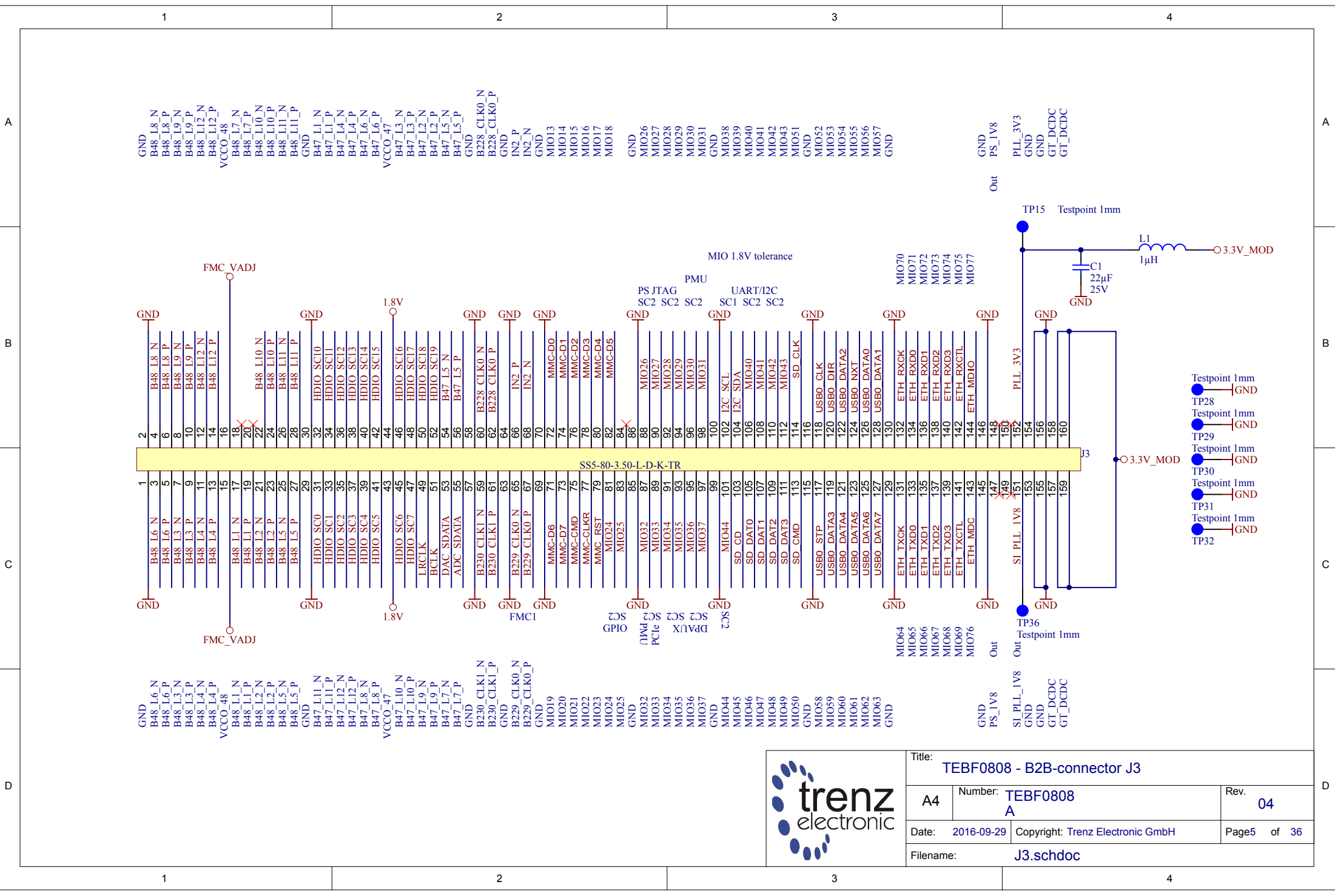


Title: **TEBF0808 - B2B-connector J1**

A4	Number: TEBF0808 A	Rev. 04
Date: 2016-09-29	Copyright: Trenz Electronic GmbH	
Filename: J1.schdoc		Page 3 of 36



Title: TEBF0808 - B2B-connector J2		
A4	Number: TEBF0808 A	Rev. 04
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Filename: J2.schdoc		



Title: TEBF0808 - B2B-connector J3		
A4	Number: TEBF0808 A	Rev. 04
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Filename: J3.schdoc		

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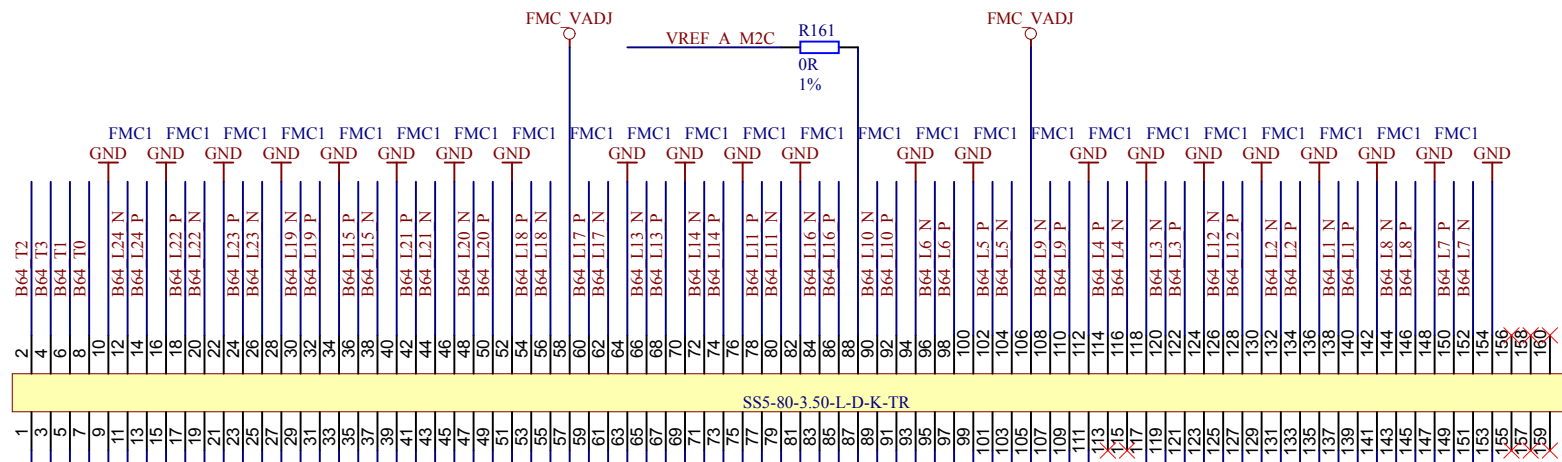
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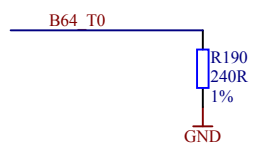
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B64_T2
B64_T3
B64_T1
B64_T0
GND
B64_L24_N
B64_L24_P
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B64_L22_P
B64_L22_N
GND
B64_L23_P
B64_L23_N
GND
B64_L19_N
B64_L19_P
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B64_L15_P
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B64_L21_P
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GND
B64_L18_P
B64_L18_N
VCCO_64
B64_L17_P
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B64_L7_N
GND
NC
NC
NC



B65_T3
B65_T2
B65_T1
B65_T0
GND
B65_L24_P
B65_L24_N
VREF_65
B65_L17_N
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B65_L5_N
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NC
NC



Title: TEBF0808 - B2B-connector J4		
A4	Number: TEBF0808 A	Rev. 04
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Filename: J4.schdoc		

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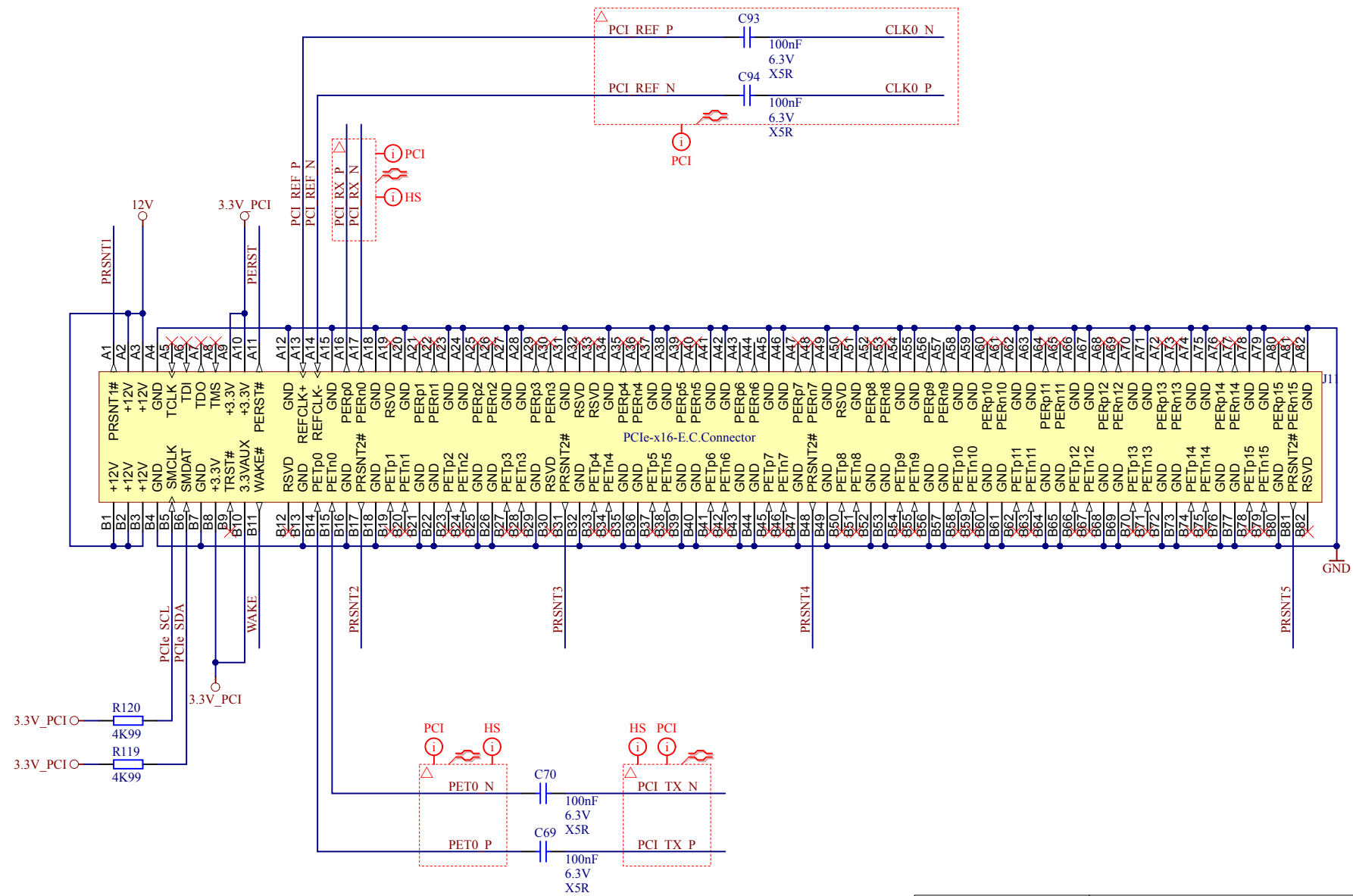
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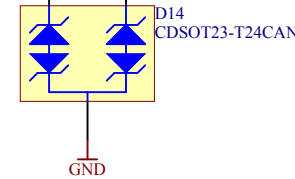
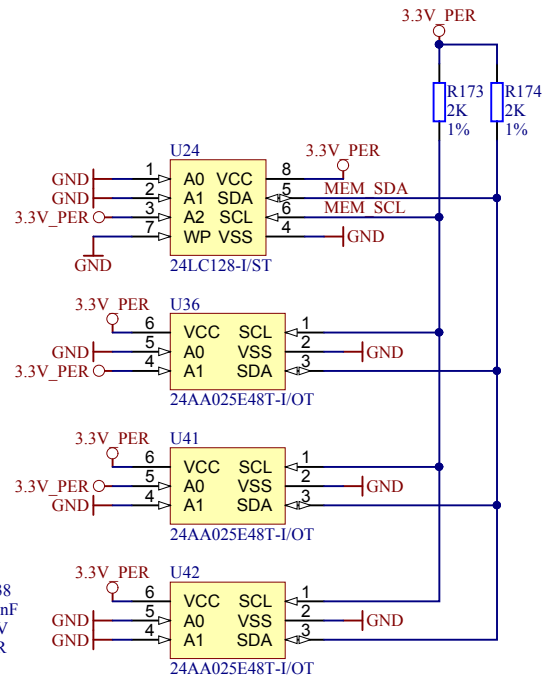
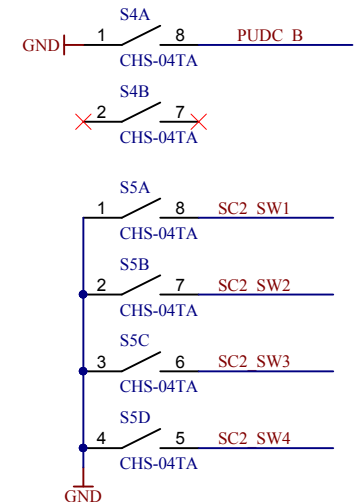
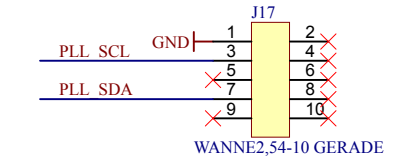
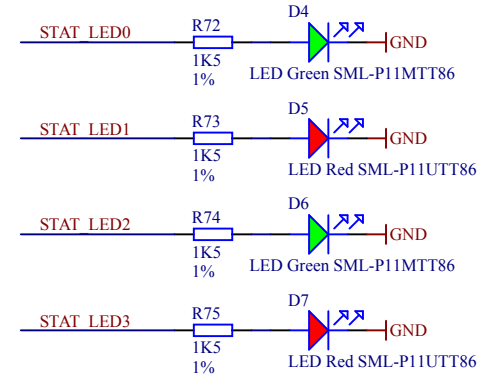
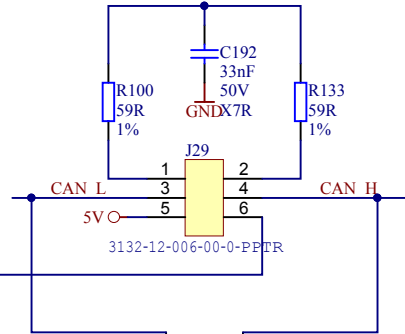
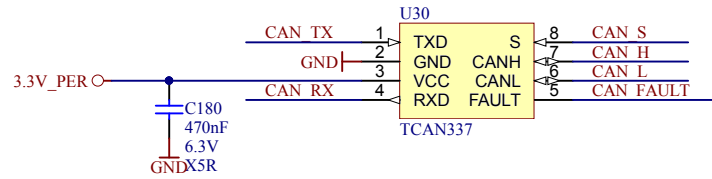
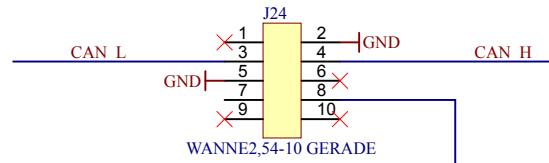
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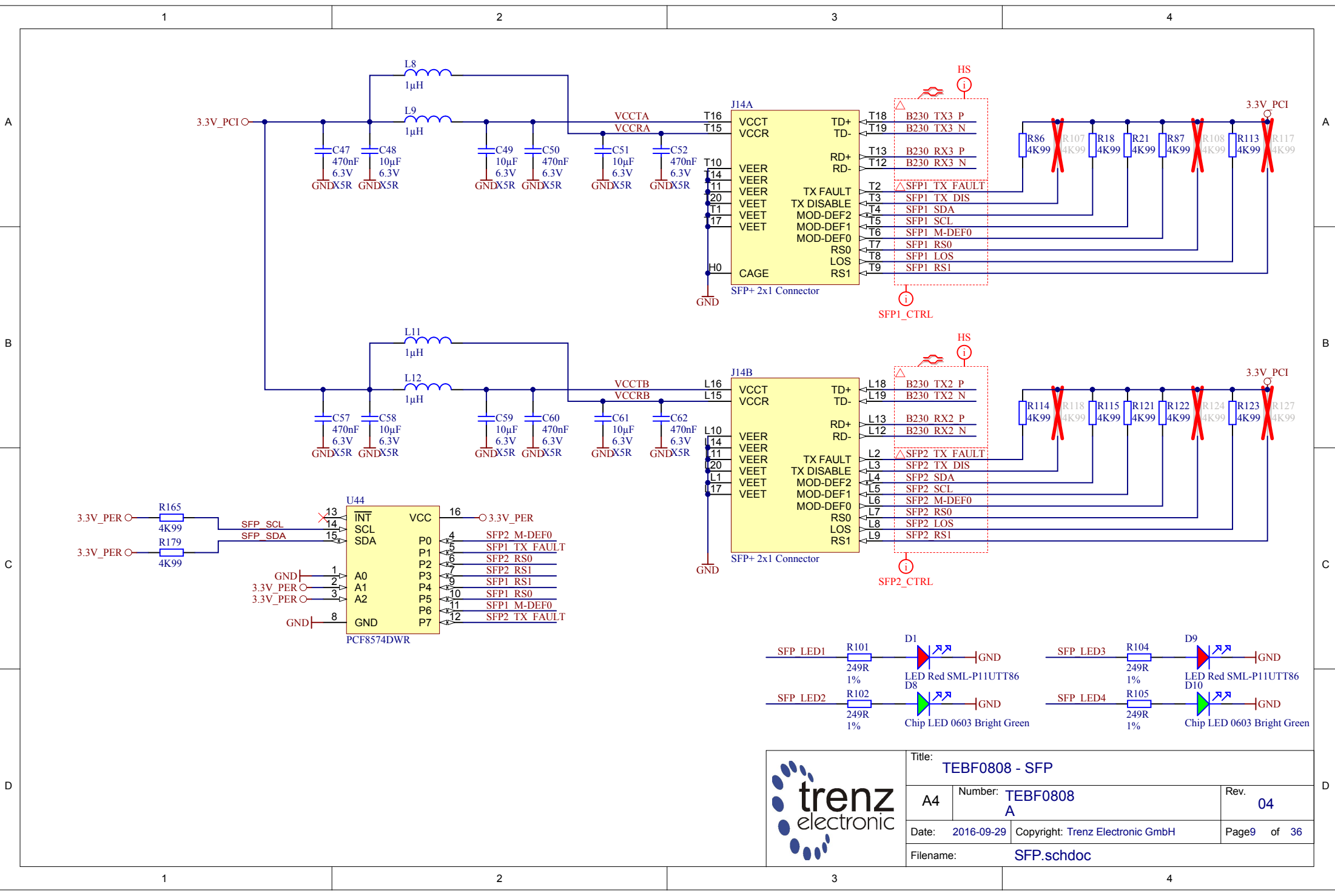
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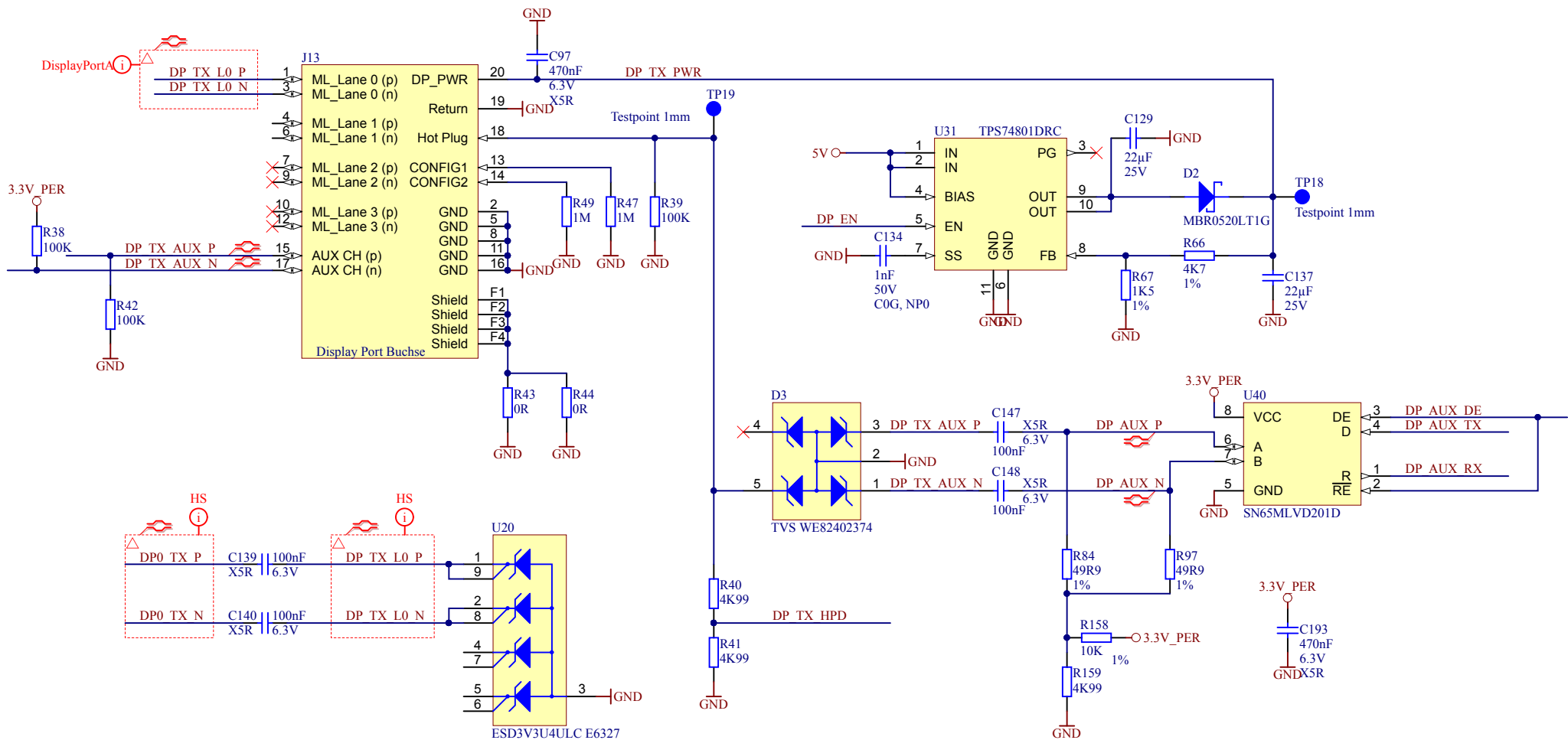
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			A4	Number: TEBF0808 A
Date: 2016-09-29		Copyright: Trenz Electronic GmbH		Page 7 of 36
Filename: PCIe.schdoc				




Title: TEBF0808 - MISC		
A4	Number: TEBF0808 A	Rev. 04
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Filename: MISC.schdoc		



			Title: TEBF0808 - SFP	
			A4	Number: TEBF0808 A
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Filename: SFP.schdoc				



			Title: TEBF0808 - DisplayPort	
			A4	Number: TEBF0808 A
Date: 2016-09-29		Copyright: Trenz Electronic GmbH		Page 10 of 36
Filename: DP_PS.schdoc				

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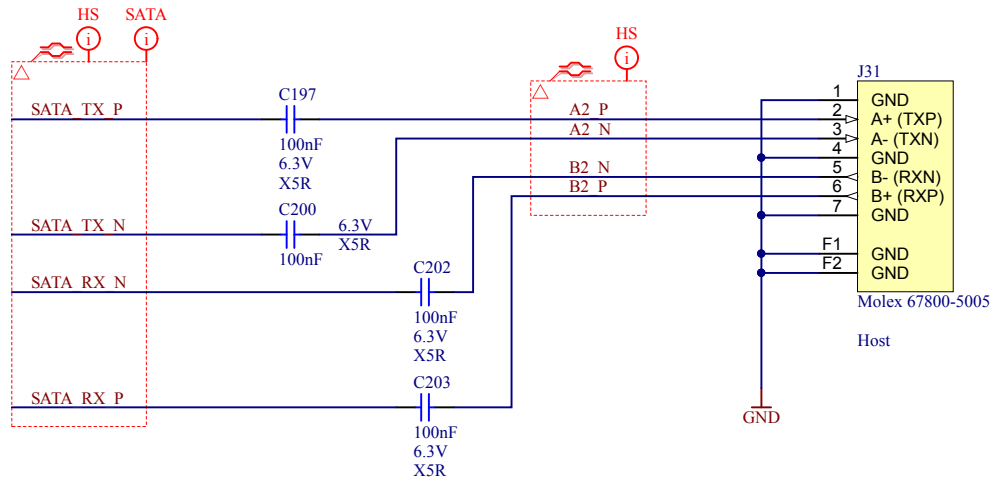
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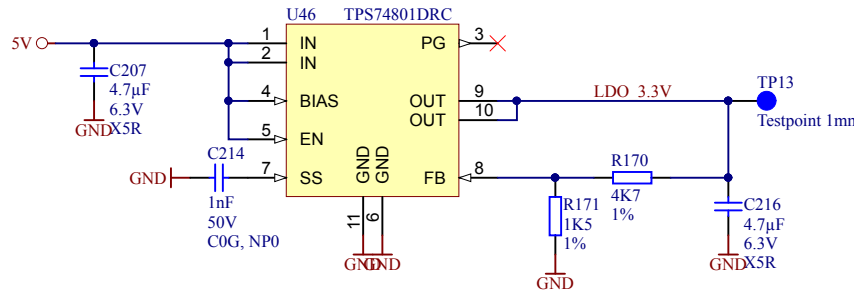
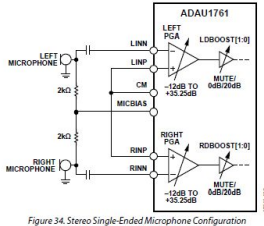
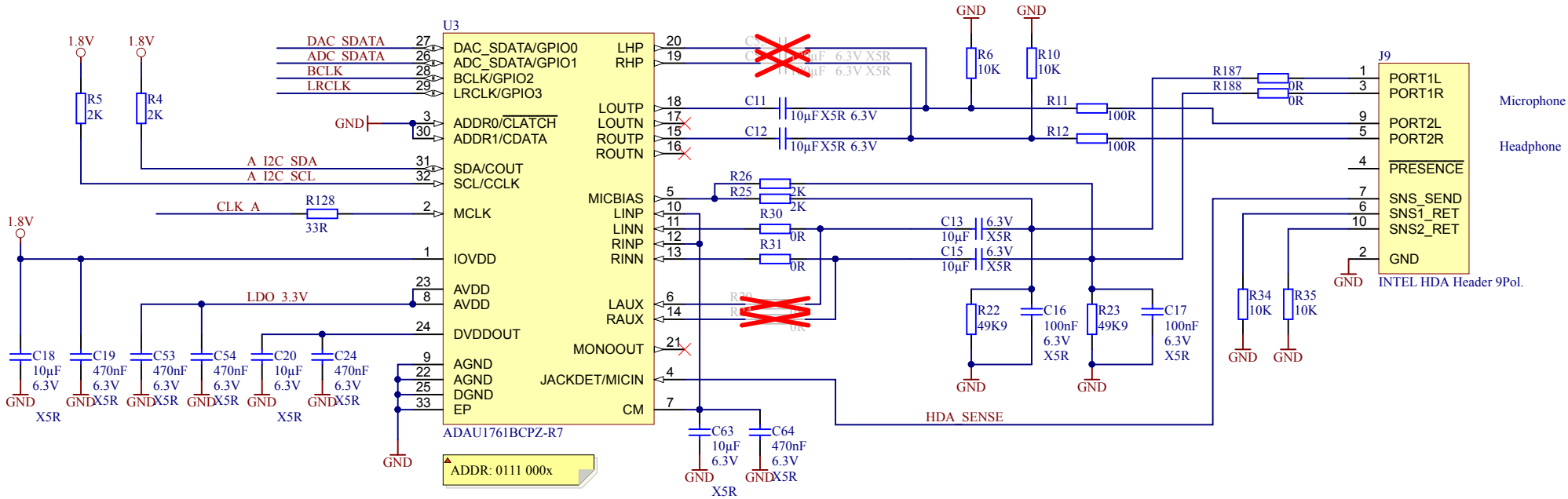
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	A4	Number: TEBF0808 A	Rev. 04
	Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 11 of 36
	Filename: SATA.schdoc		

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	Title: TEBF0808 - Audio		
	A4	Number: TEBF0808 A	Rev. 04
	Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 12 of 36
	Filename: Audio.SchDoc		

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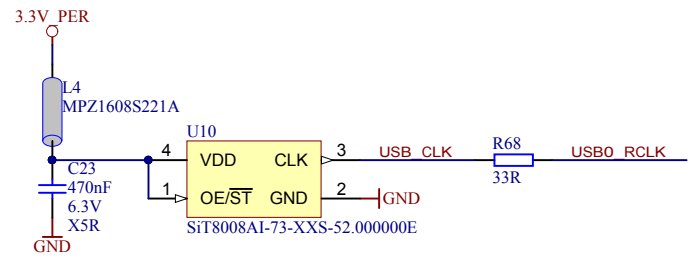
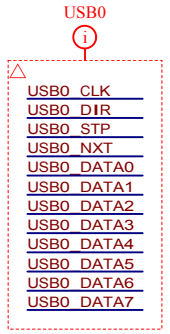
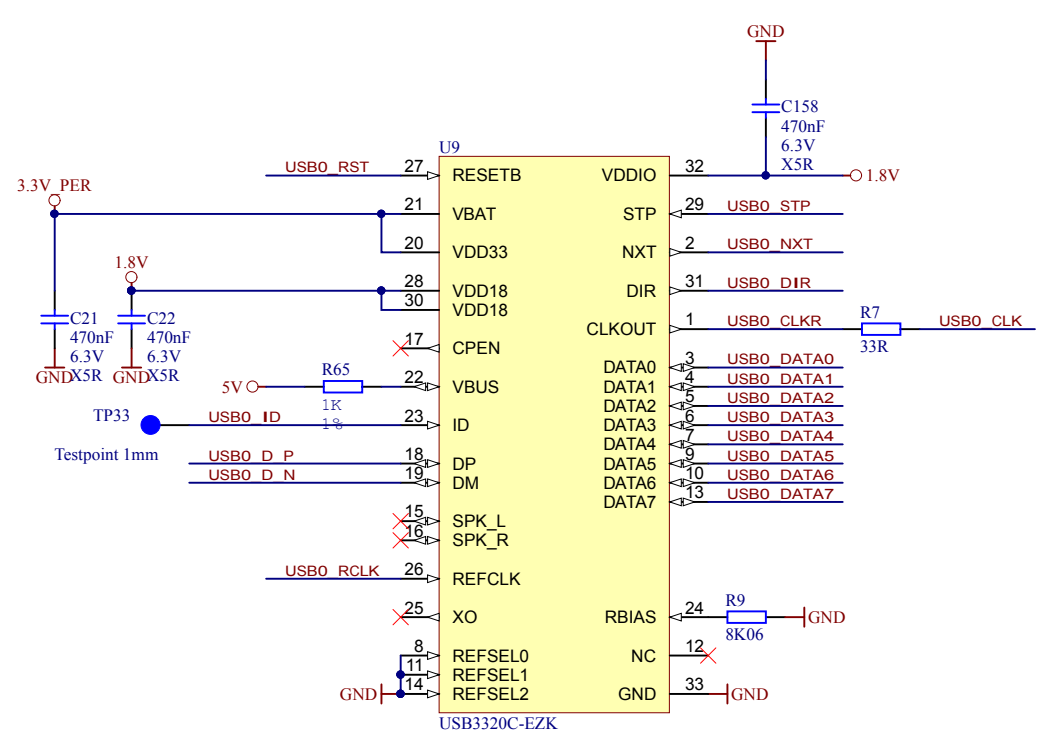
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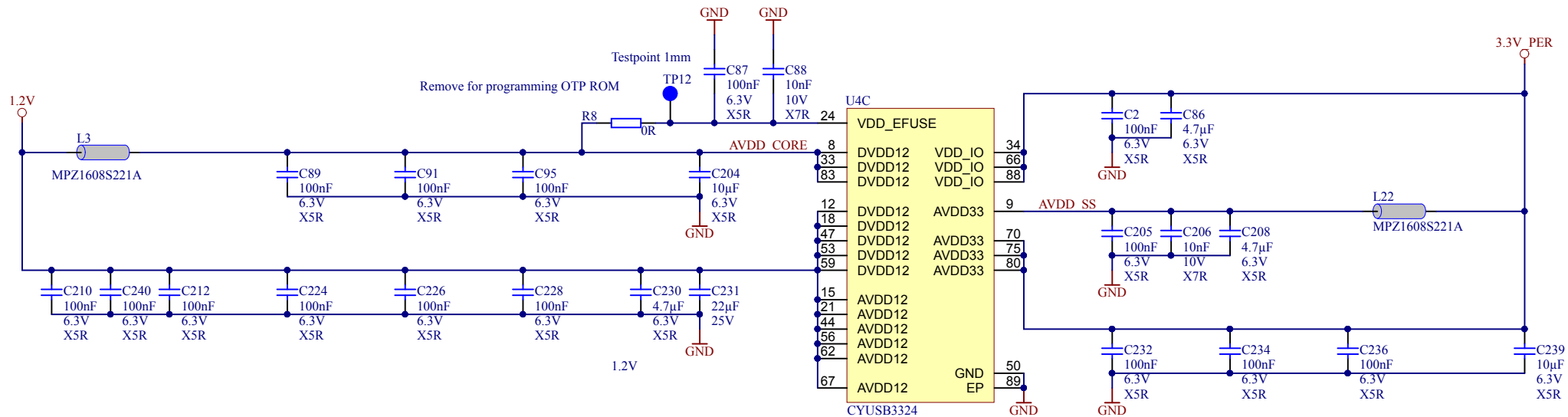
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A4	Number: TEBF0808 A	Rev. 04
Date: 07.05.2019	Copyright: Trenz Electronic GmbH	Page 13 of 36
Filename: USB-PHY.SchDoc		


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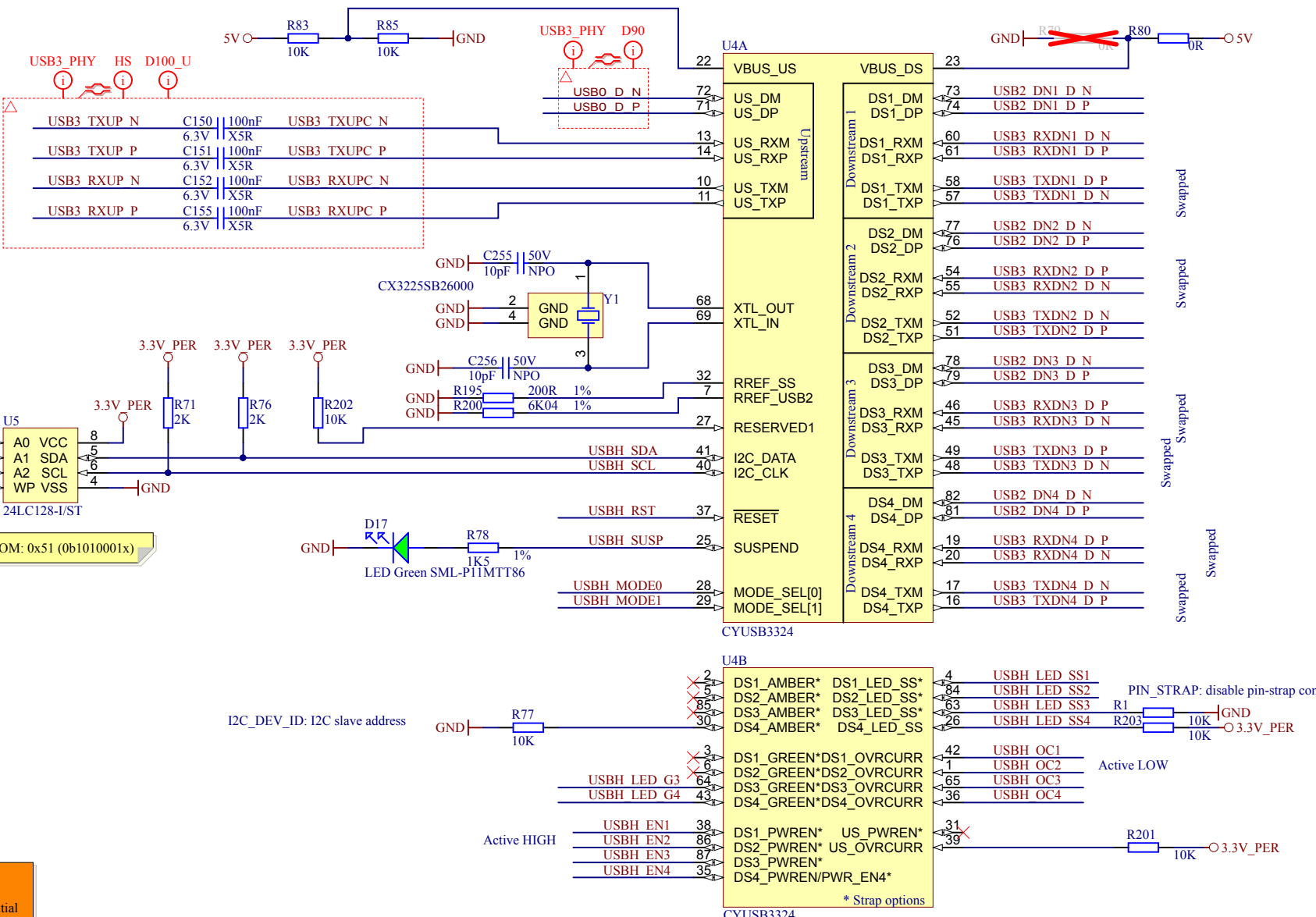
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		Title: TEBF0808 - USB	
		A4	Number: TEBF0808 A
Date: 2016-09-29		Copyright: Trenz Electronic GmbH	
Filename: USB.schdoc		Page 14 of 36	



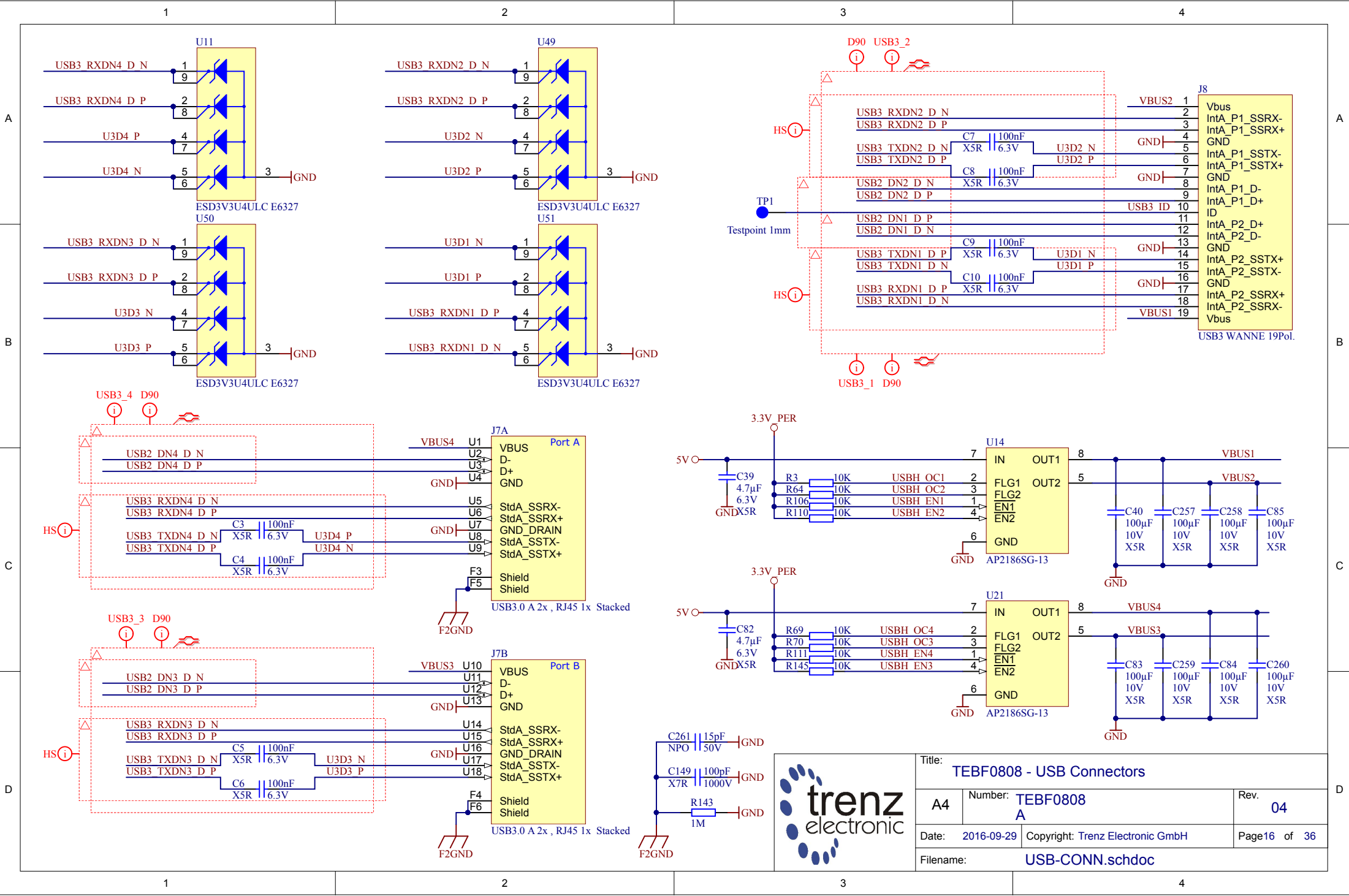
LAYOUT NOTES:
 Each member of a High-Speed differential pair should be no more than 1.25 mm
 Each member of a SuperSpeed differential pair should be no more than 0.13 mm

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

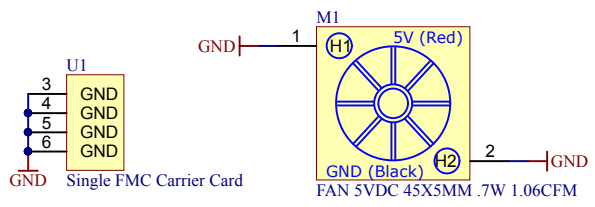
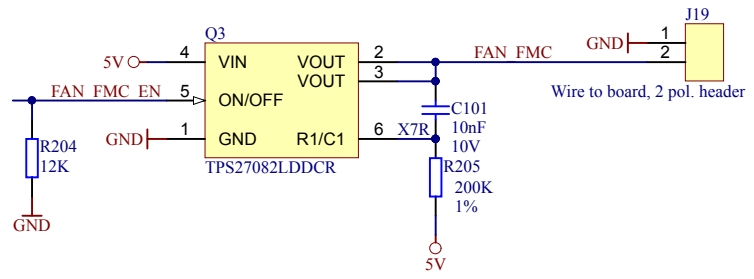
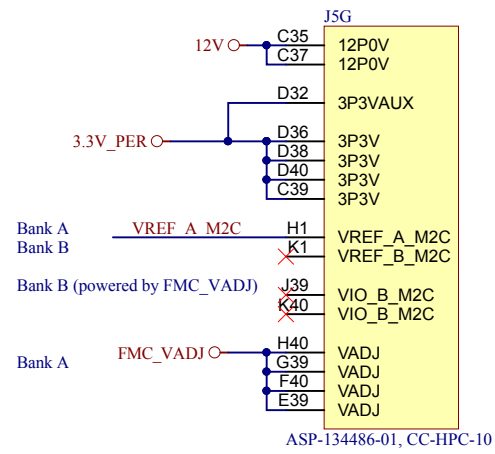
CLK: 0x60 (or 0x58)



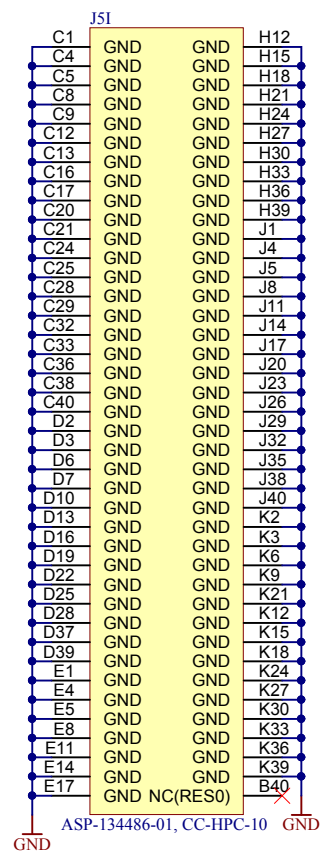
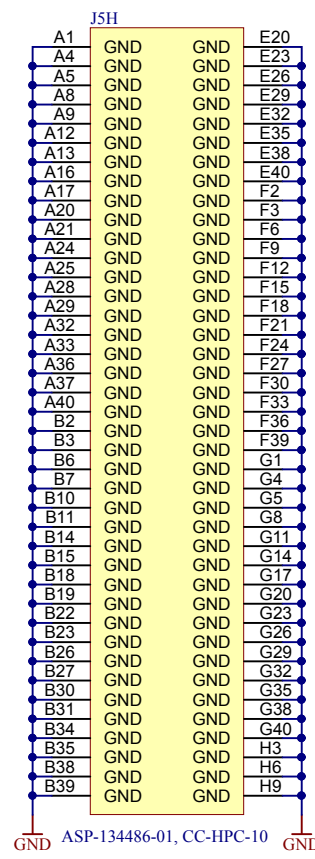
Title: TEBF0808 - USB		
A4	Number: TEBF0808 A	Rev. 04
Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 15 of 36
Filename: USB3-HUB.SchDoc		



Title: TEBF0808 - USB Connectors		
A4	Number: TEBF0808 A	Rev. 04
Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 16 of 36
Filename: USB-CONN.schdoc		

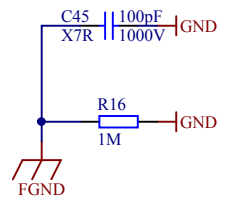
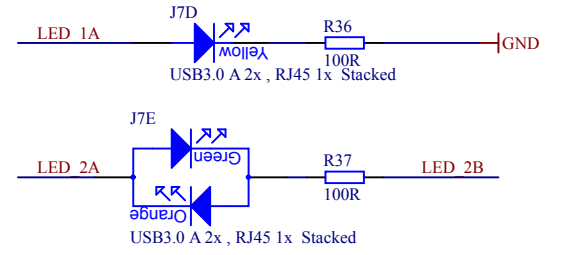
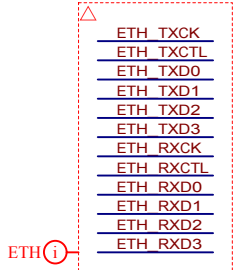
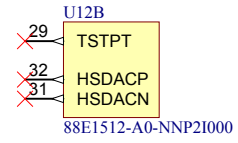
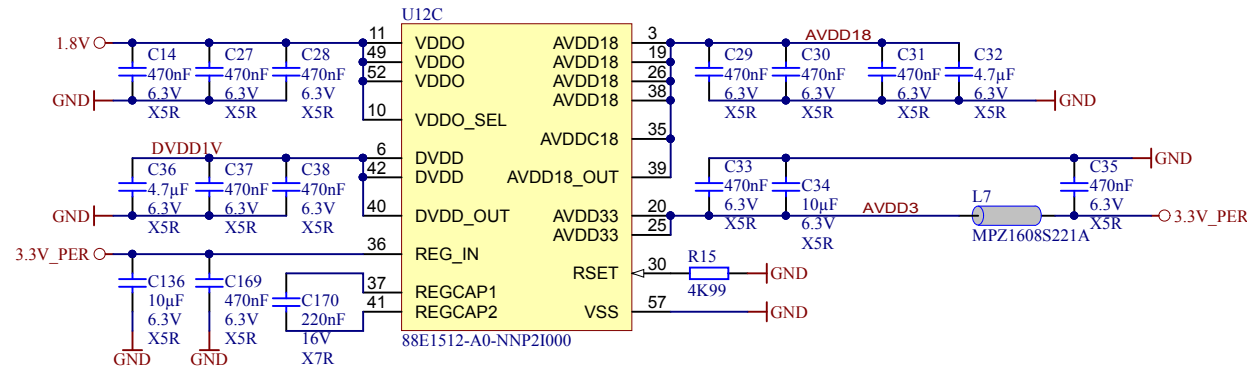
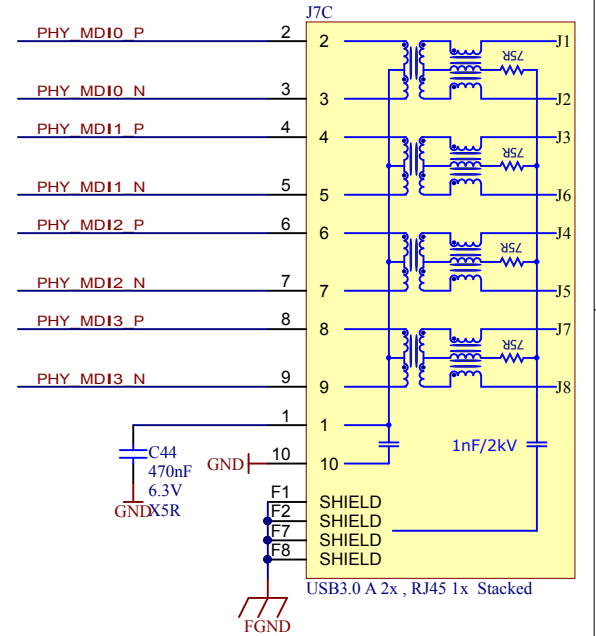
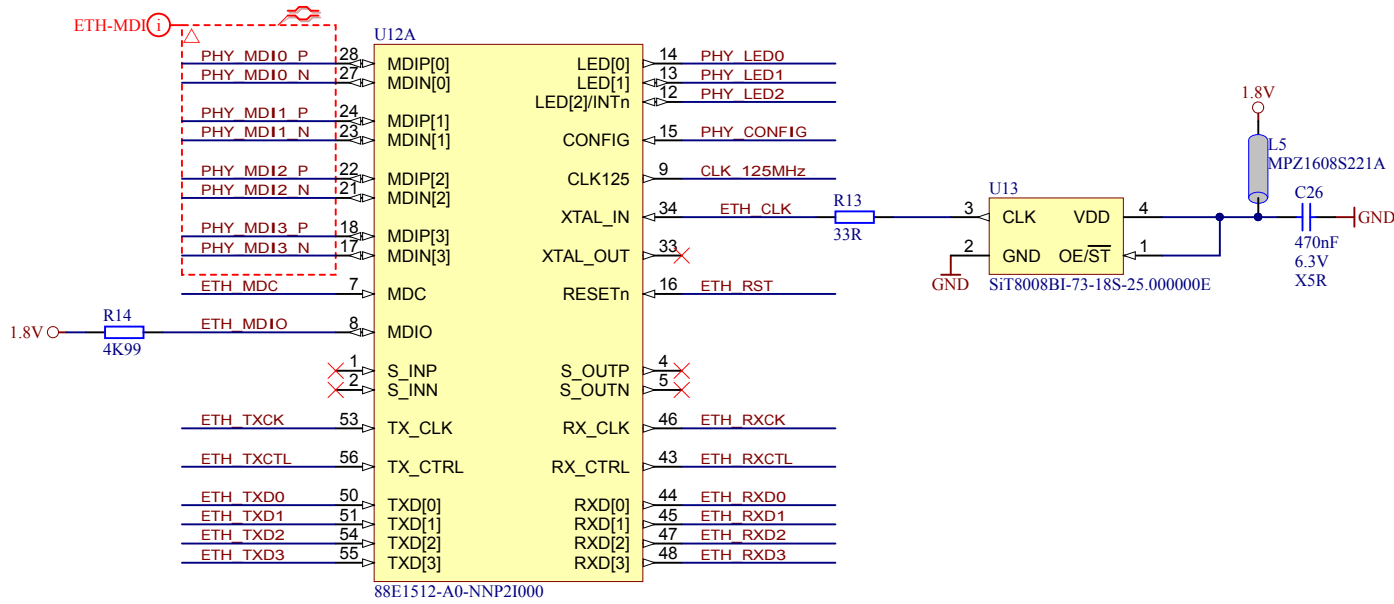


- JX1 Wire to board, 2 pol. housing
- JCT1 Crimp Terminal 4809, 22-30 AWG
- JCT2 Crimp Terminal 4809, 22-30 AWG

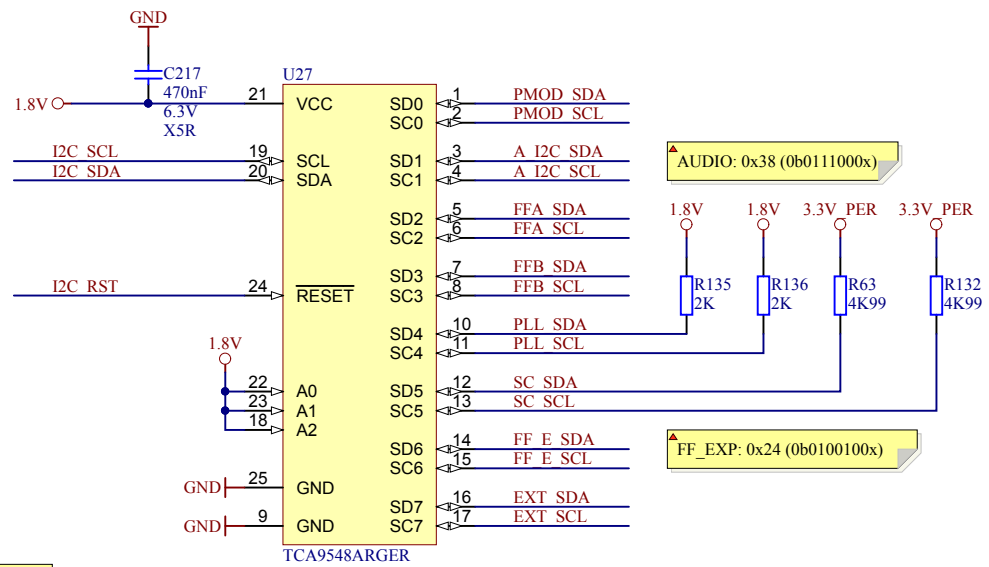
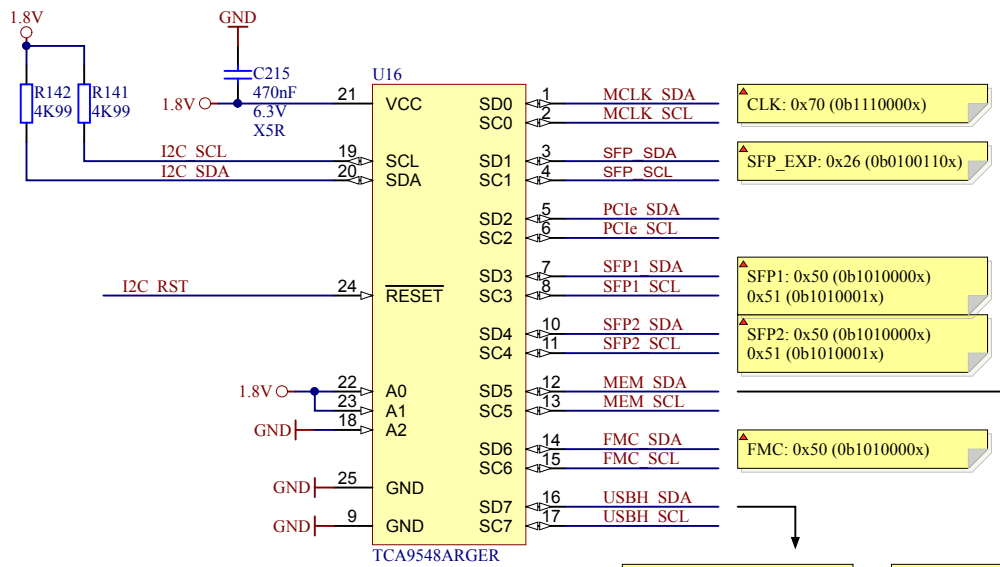
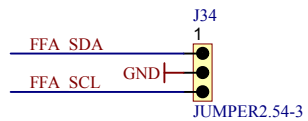


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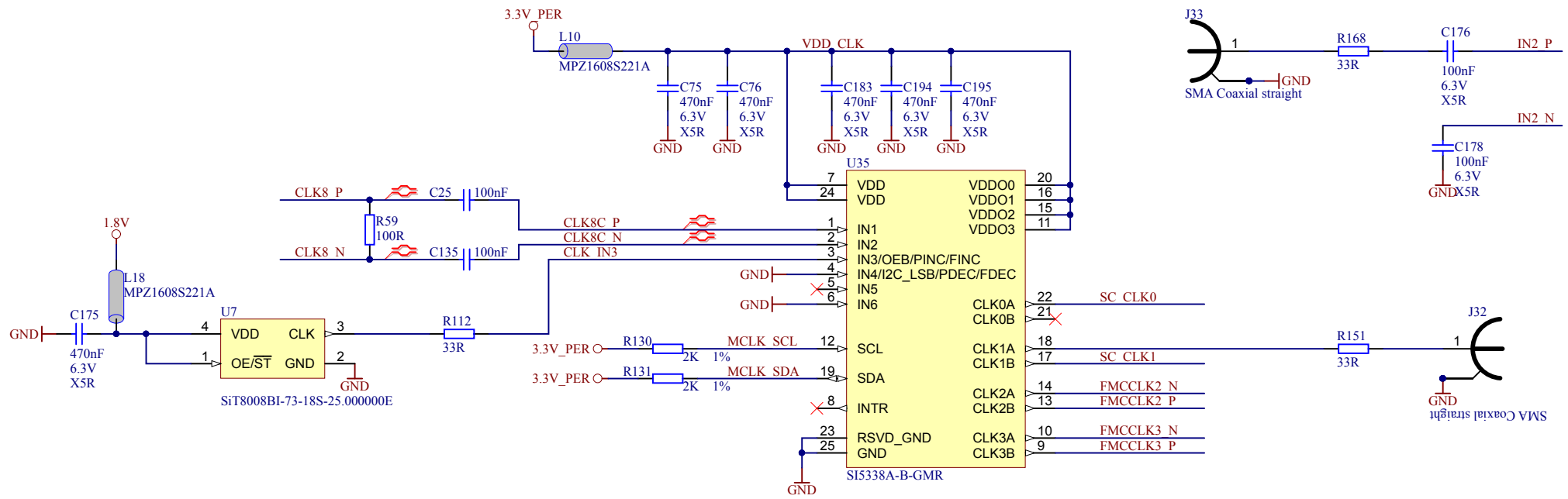
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Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 17 of 36
Filename: FMC PWR.SchDoc		




			Title: TEBF0808 - ETHERNET	
			A4	Number: TEBF0808 A
Date: 2016-09-29		Copyright: Trenz Electronic GmbH		Page 20 of 36
Filename: ETH-PHY.SchDoc				



Title: TEBF0808 - I2C System		
A4	Number: TEBF0808 A	Rev. 04
Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 21 of 36
Filename: I2C_system.schdoc		



	Title: TEBF0808 - CLK		
	A4	Number: TEBF0808 A	Rev. 04
	Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page22 of 36
	Filename: CLK.schdoc		

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A

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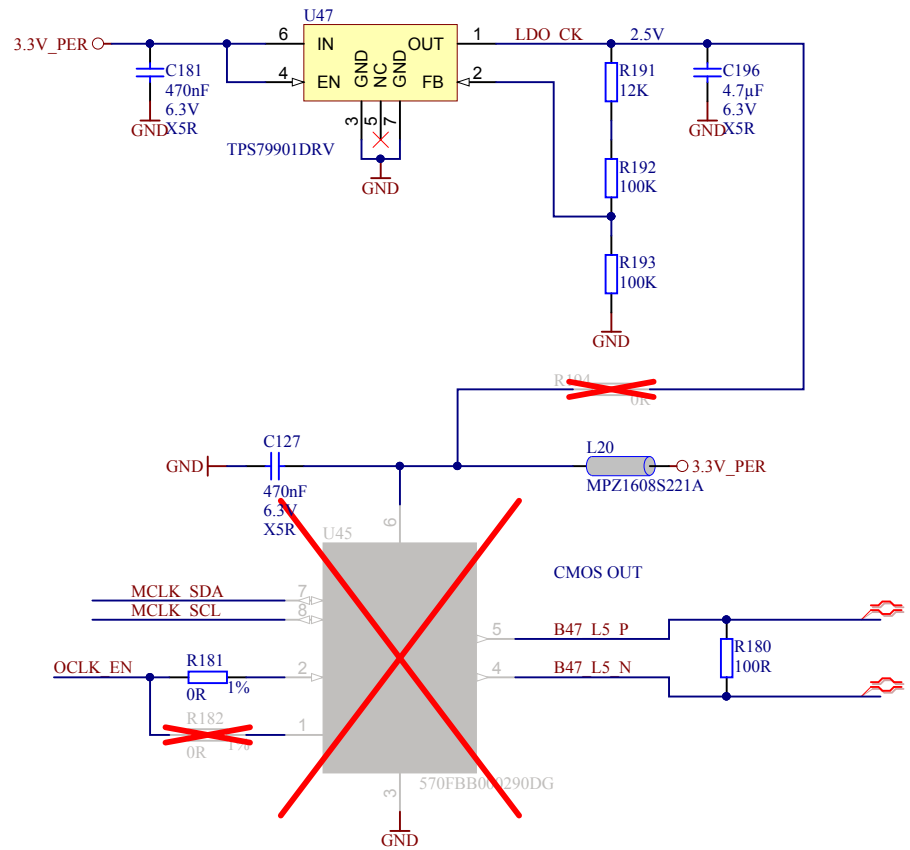
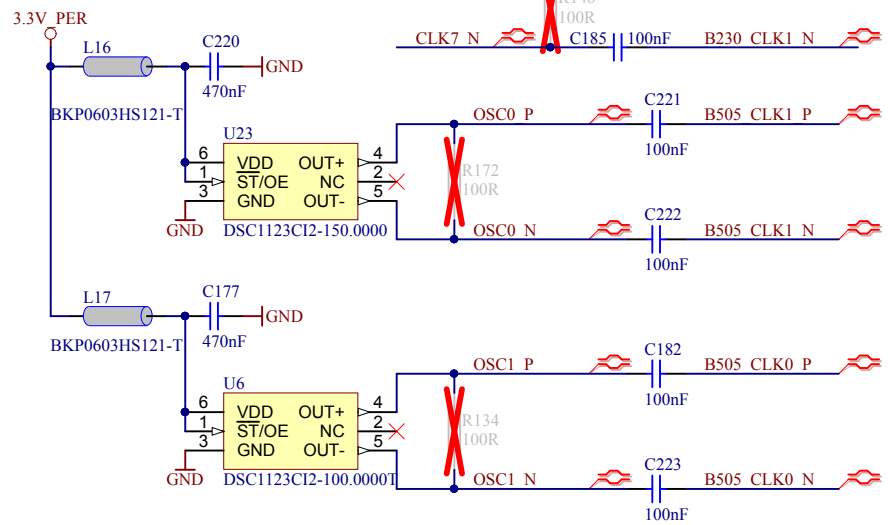
B

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C

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D



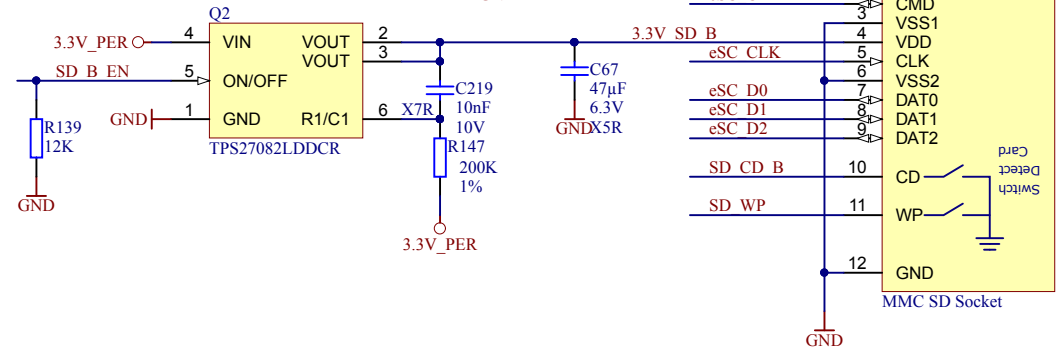
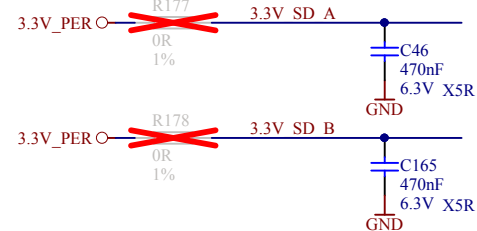
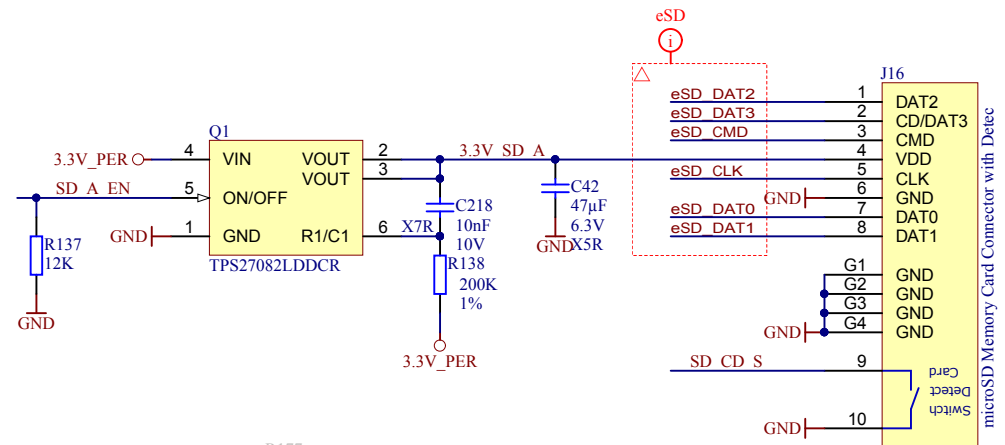
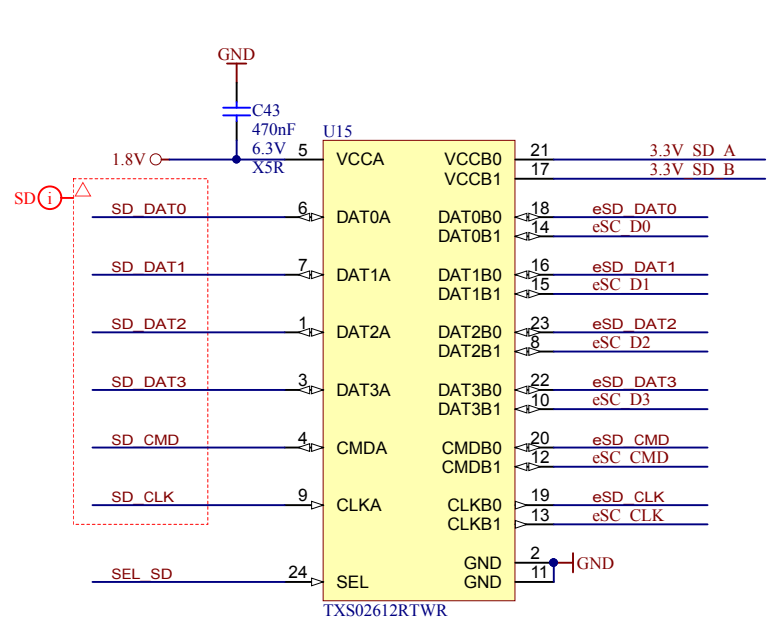
Title: TEBF0808 - CLK		
A4	Number: TEBF0808 A	Rev. 04
Date: 07.05.2019	Copyright: Trenz Electronic GmbH	Page 23 of 36
Filename: CLK_MUX.schdoc		

1

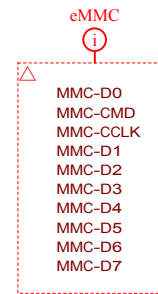
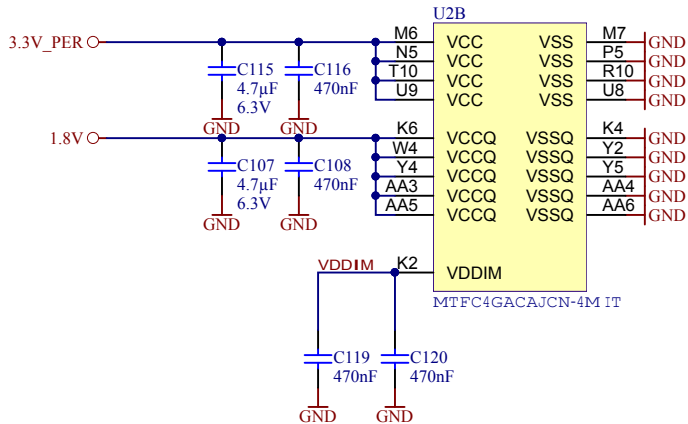
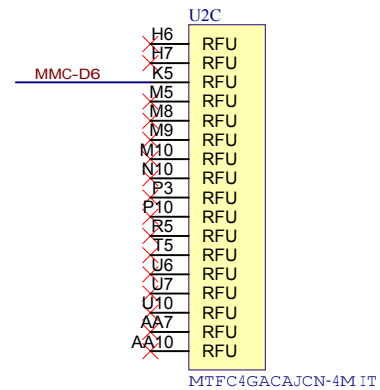
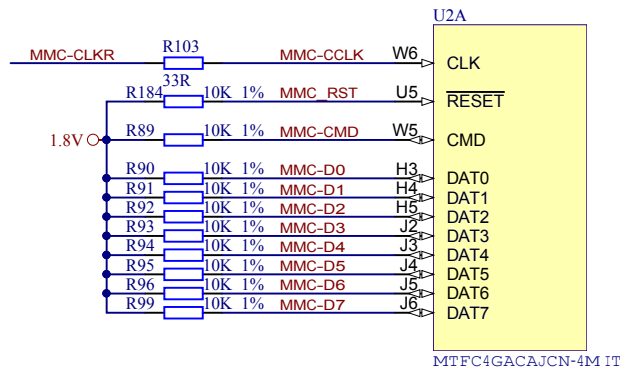
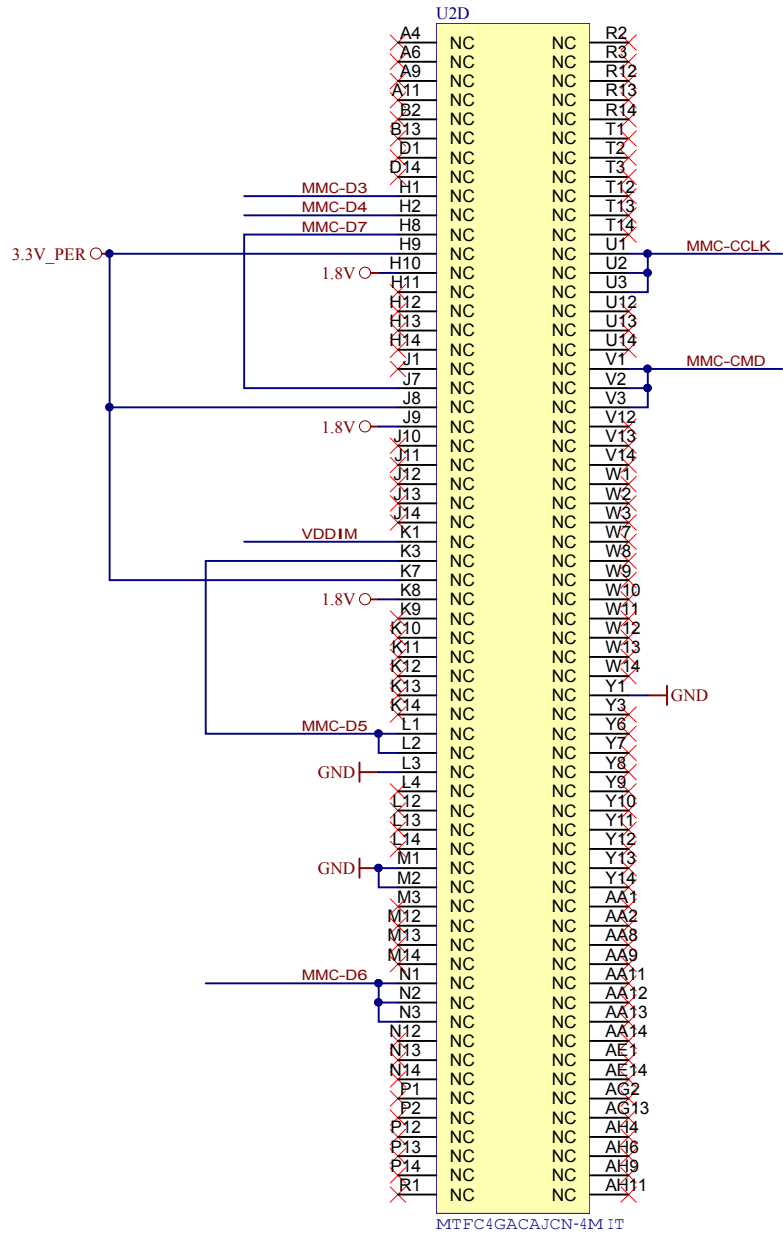
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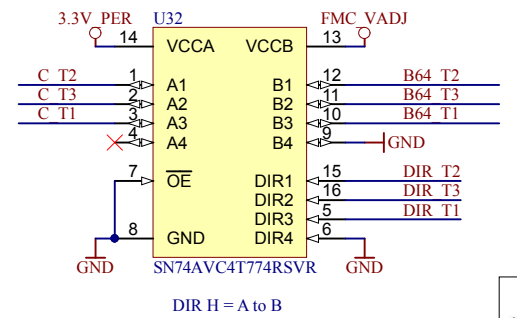
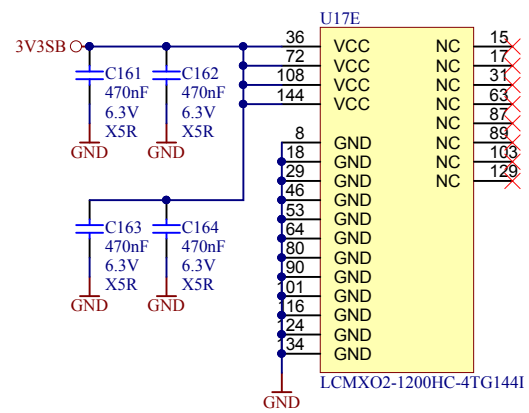
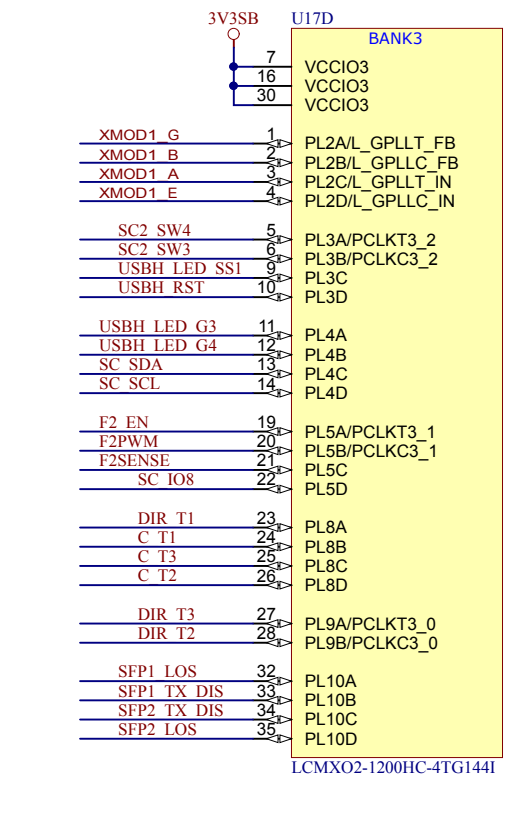
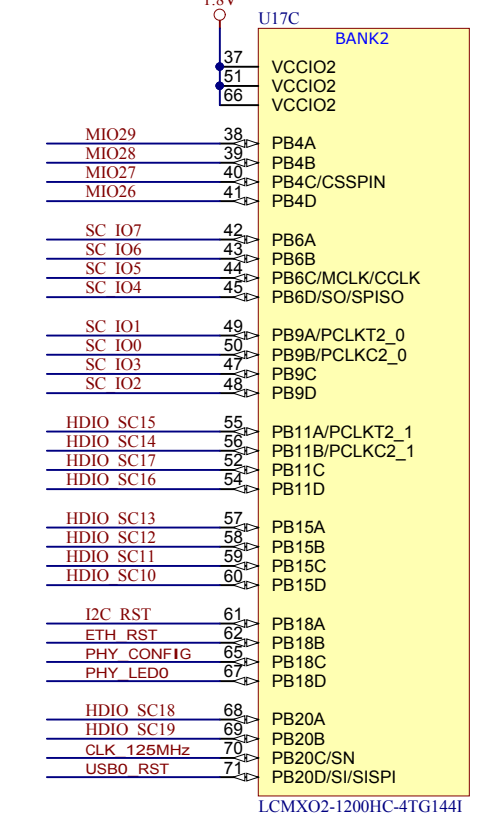
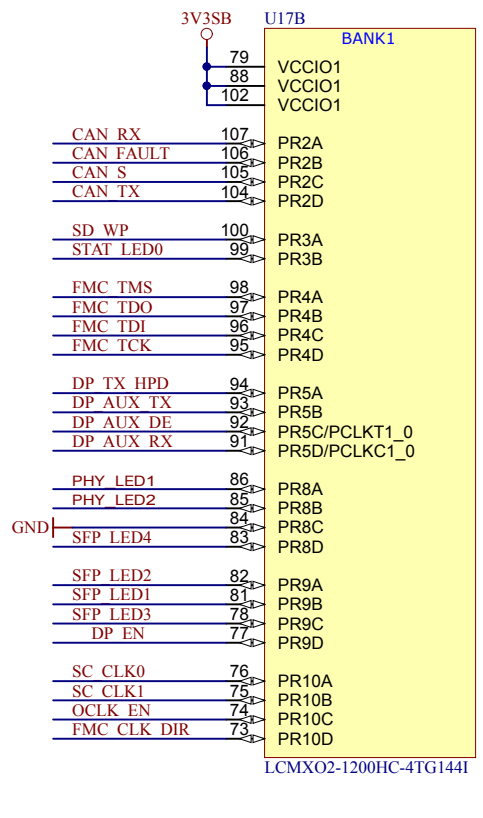
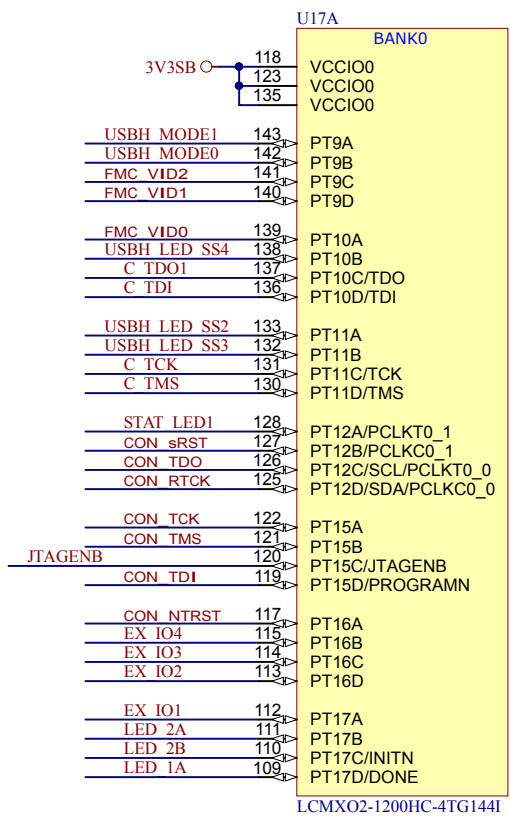


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LAYOUT NOTES:
 Signal trace length skew constraints
 - Mismatch within DAT0DAT7 < 250 mil
 - CLK to DAT0-7 mismatch < 250 mil
 - CLK to CMD mismatch < 250 mil
 - CLK to RST_N mismatch < 1000 mil

		Title: TEBF0808 - eMMC	
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Pin 84 PR8C "GND": REV04



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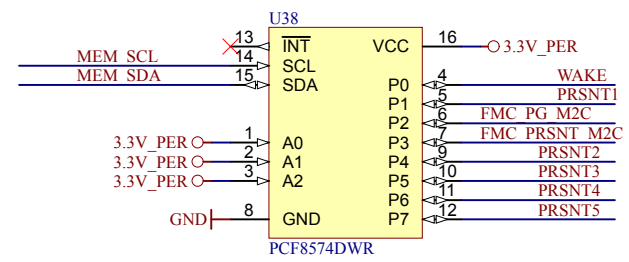
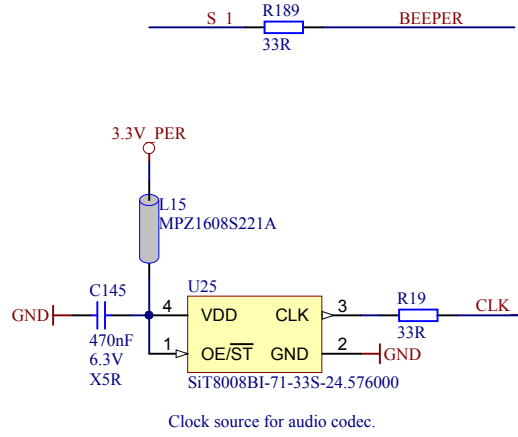
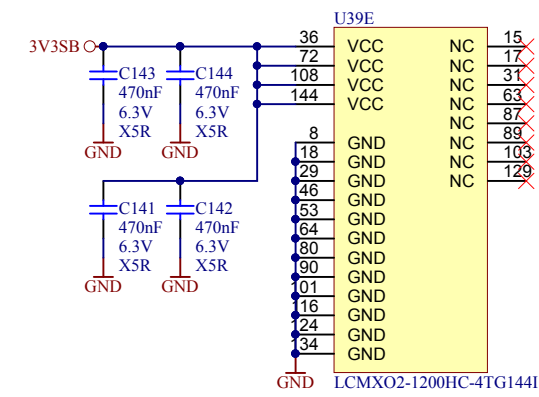
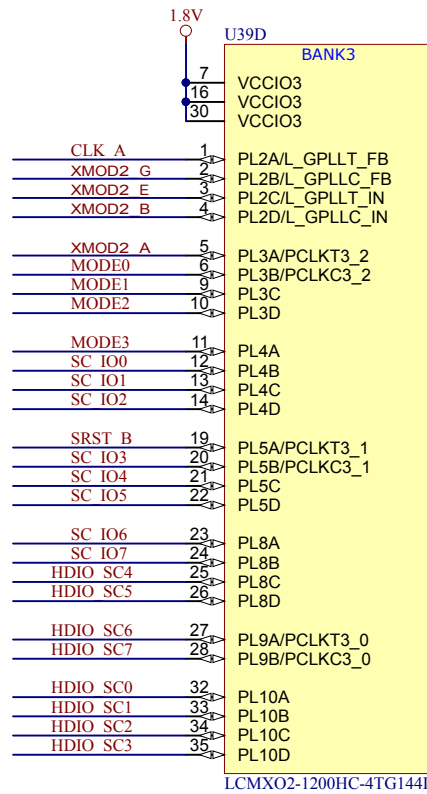
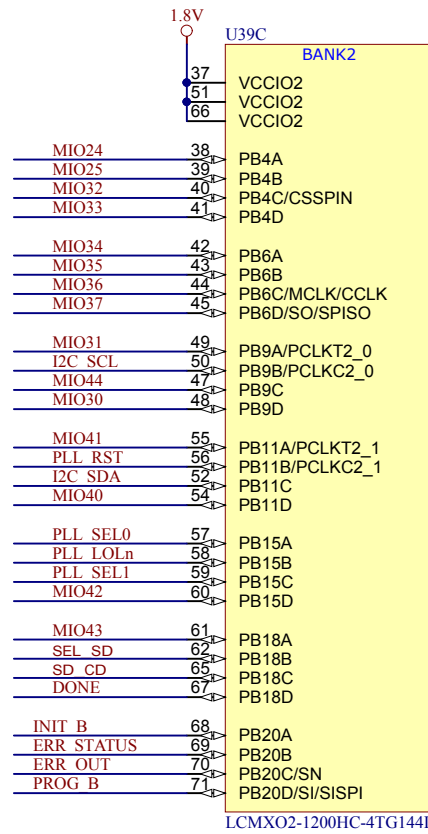
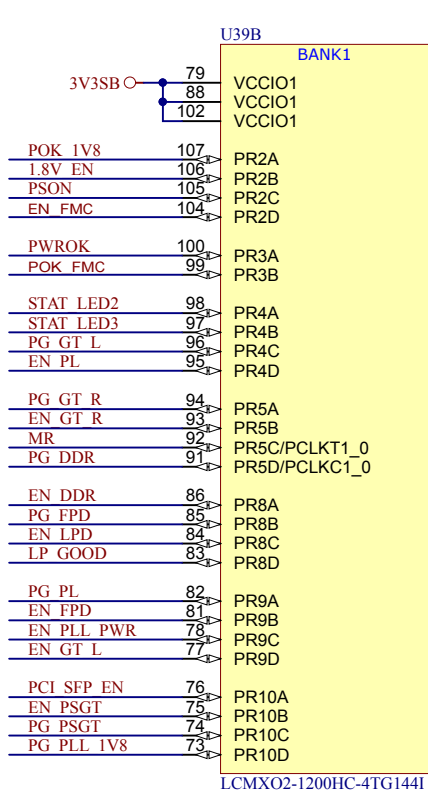
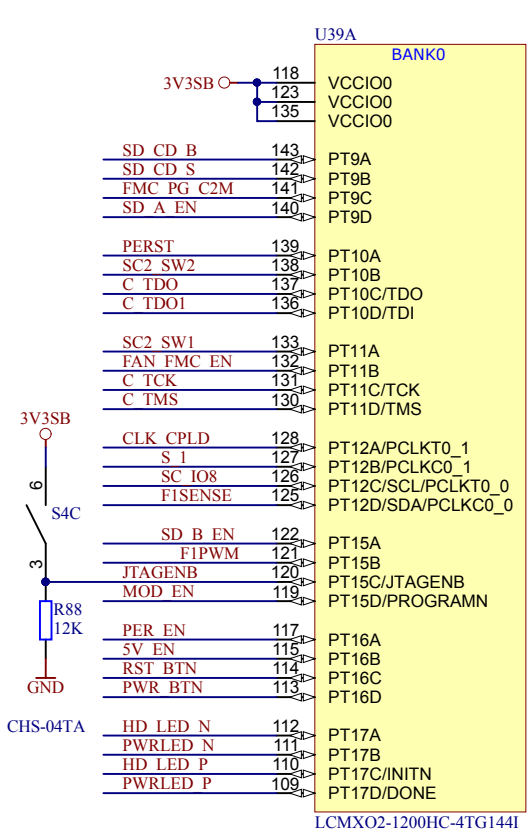
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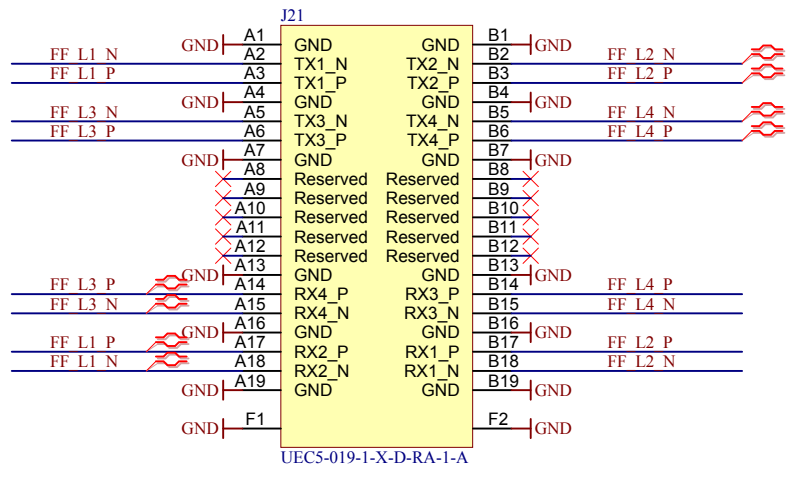
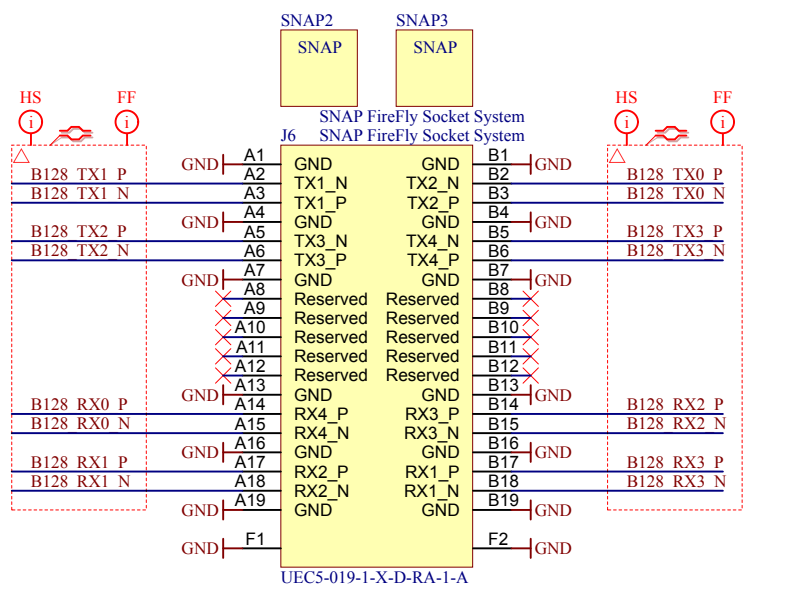
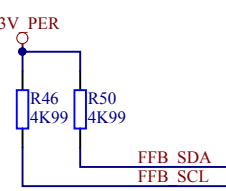
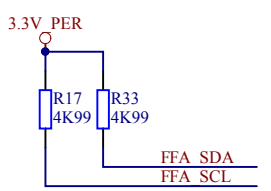
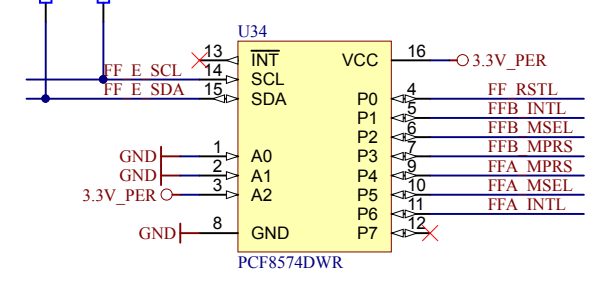
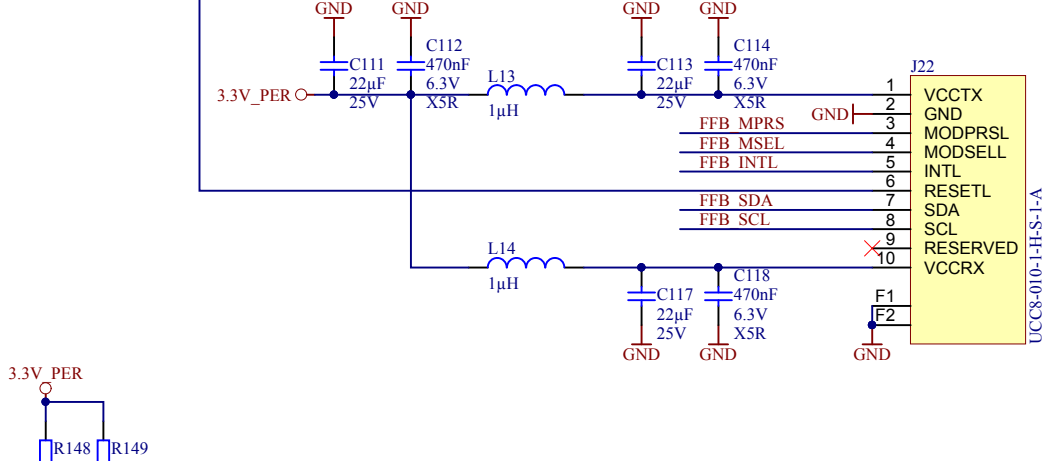
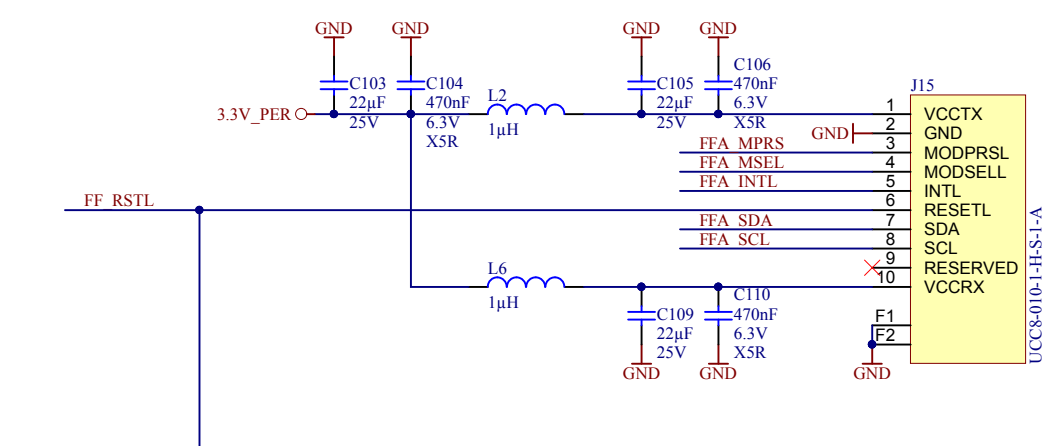
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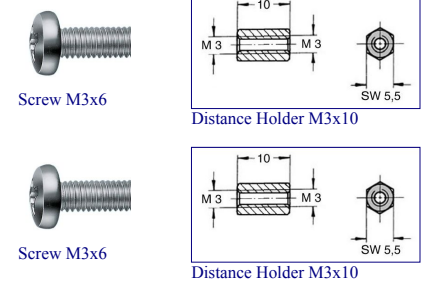
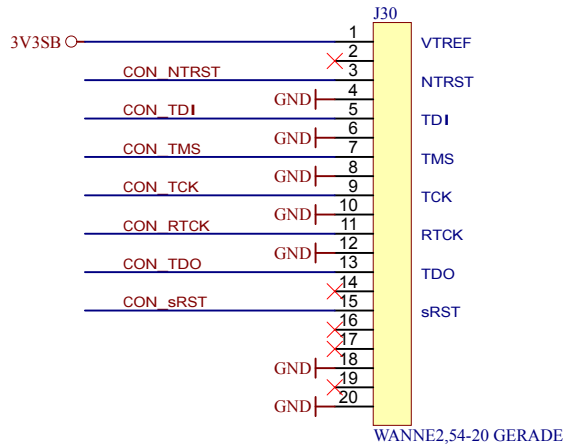
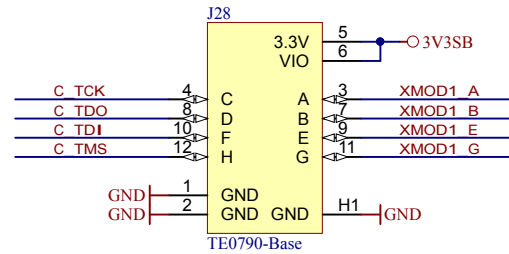
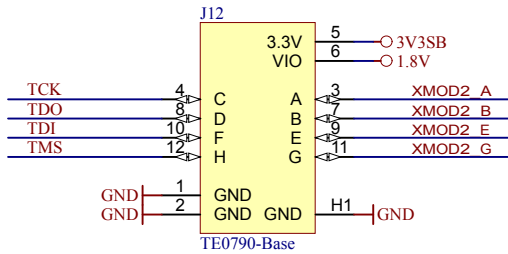
D



Title: TEBF0808 - CPLD_2		
A4	Number: TEBF0808 A	Rev. 04
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Title: TEBF0808 - FireFly		
A4	Number: TEBF0808 A	Rev. 04
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Filename: FireFly.SchDoc		



Title: TEBF0808 - XMOD JTAG		
A4	Number: TEBF0808 A	Rev. 04
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Filename: XMOD.schdoc		

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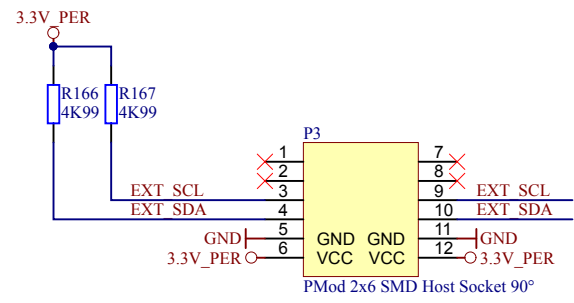
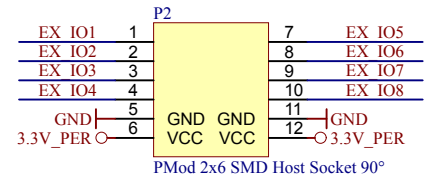
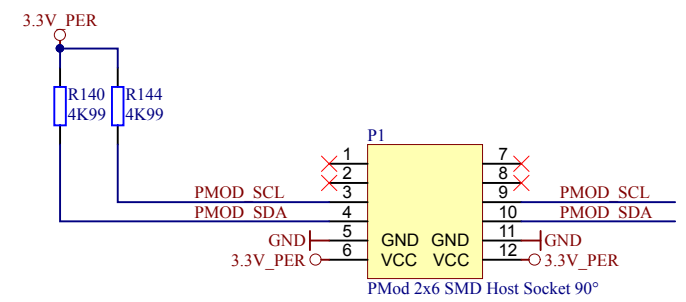
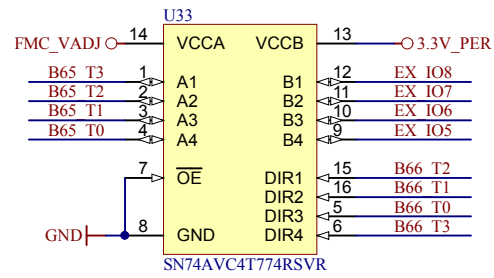
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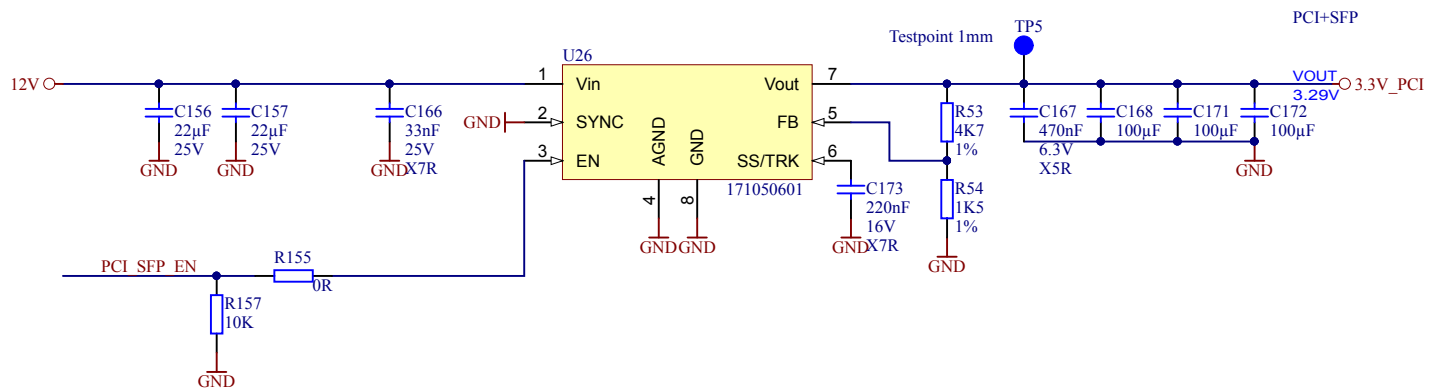
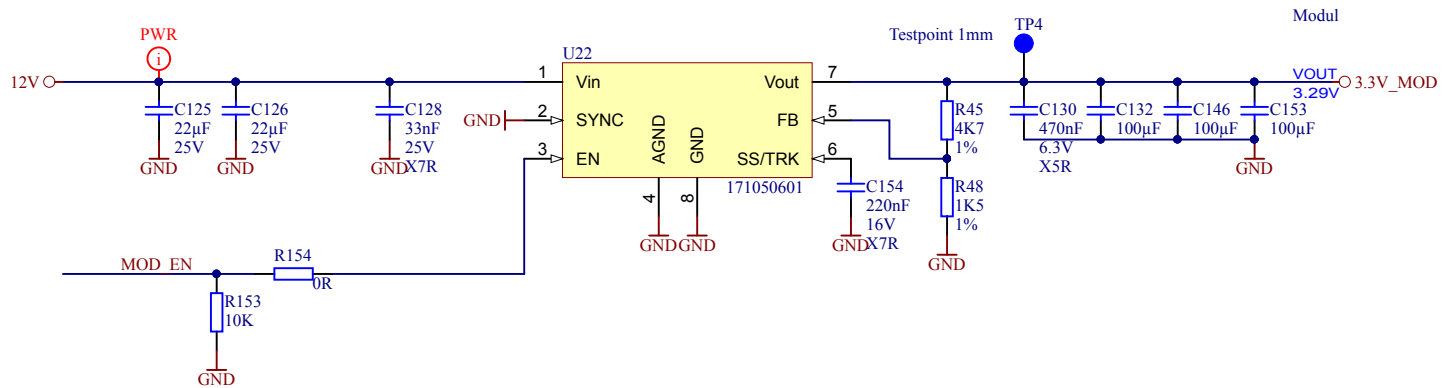
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	A4	Number: TEBF0808 A	Rev. 04
	Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 30 of 36
	Filename: PMODE.schdoc		


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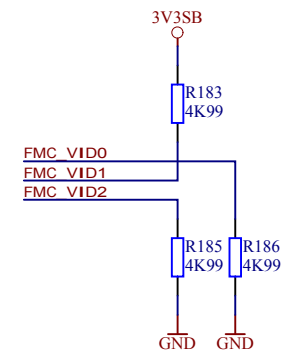
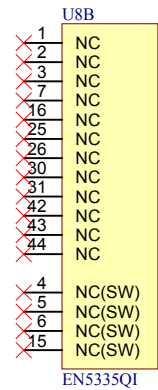
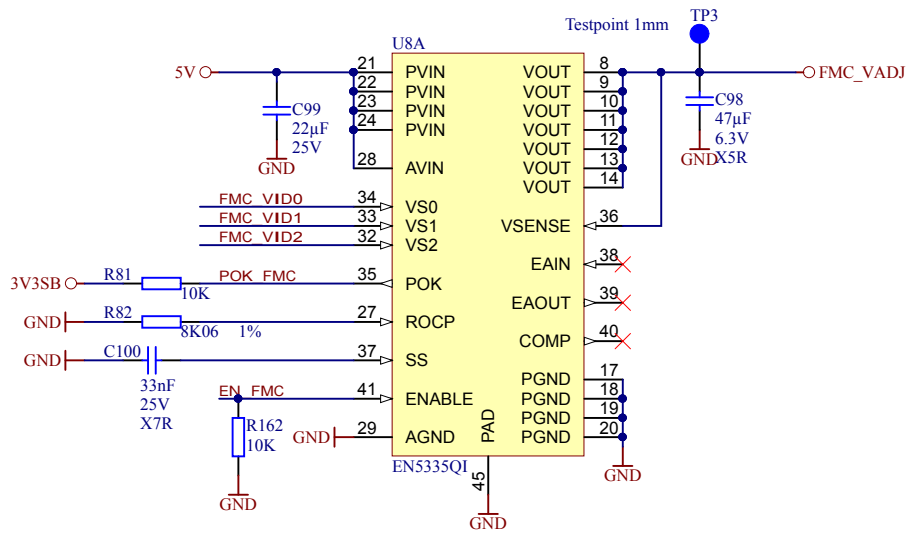
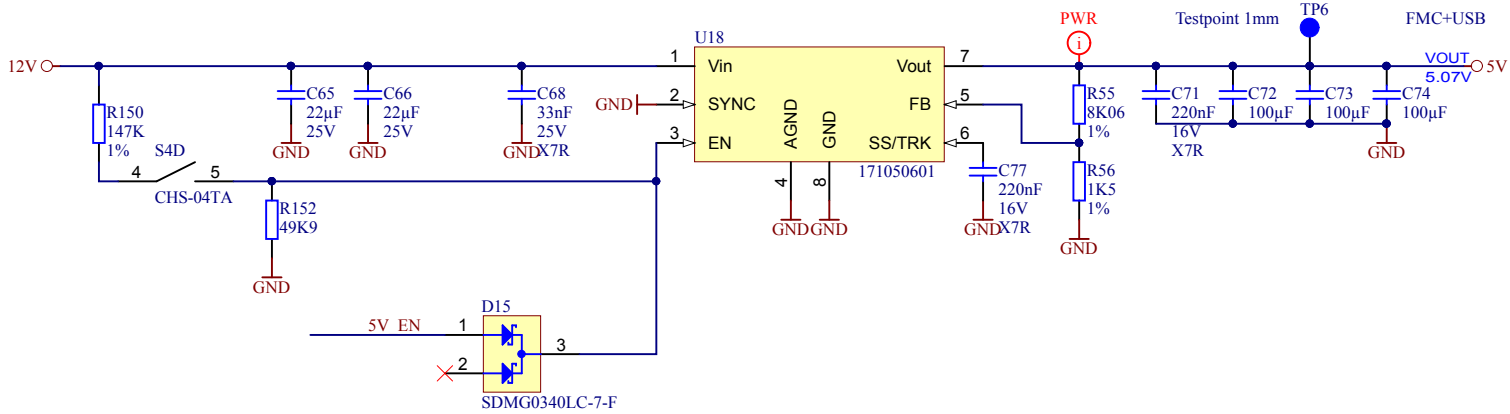
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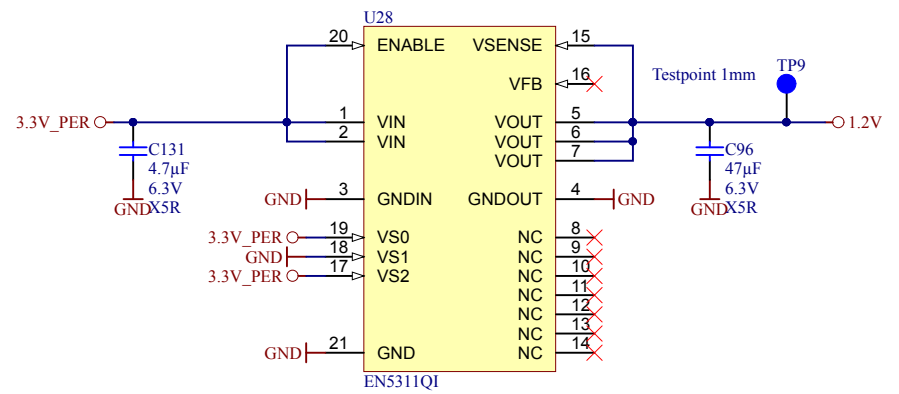
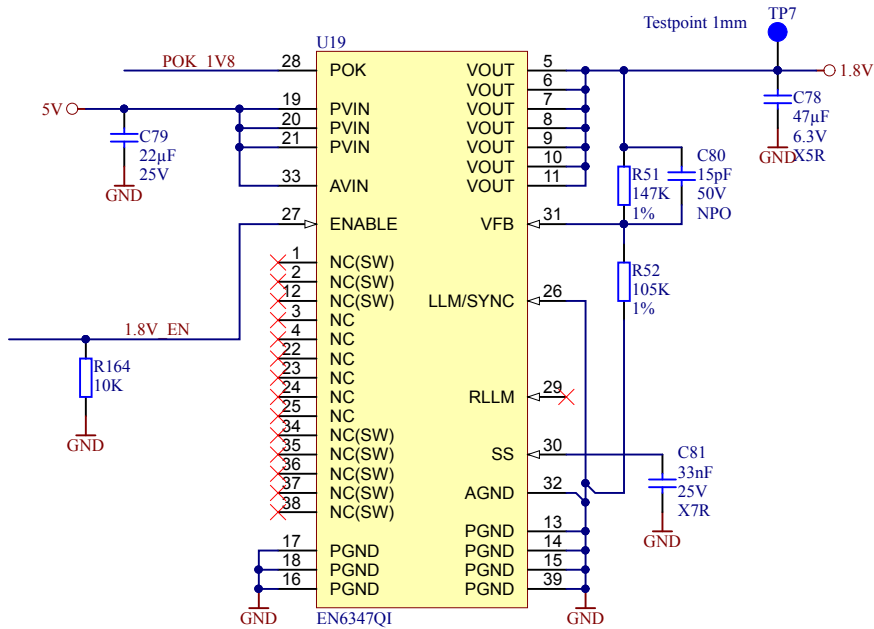
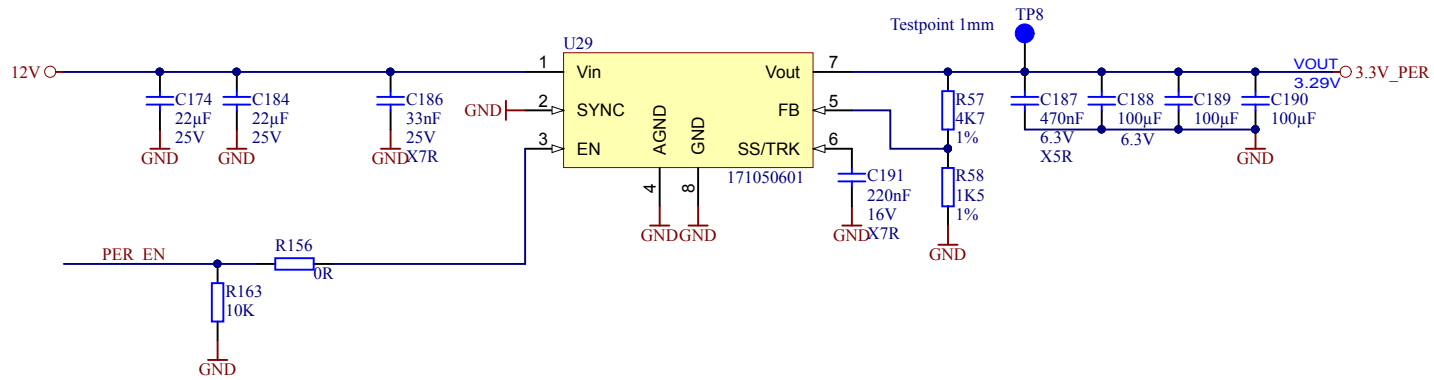



		Title: TEBF0808 - Power	
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Date: 2016-09-29		Copyright: Trenz Electronic GmbH	
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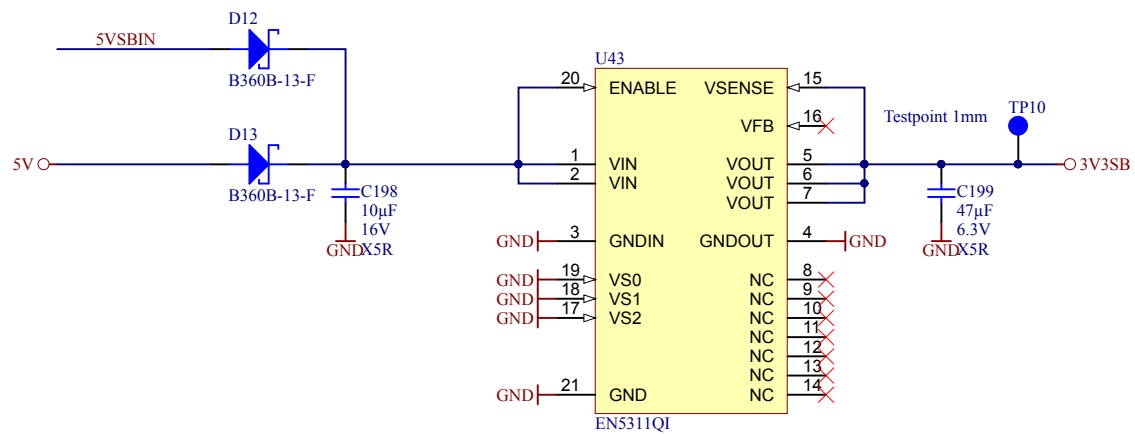



VS2	VS1	VS0	Output Voltage
0	1	0	1.8V
0	1	1	1.5V
1	0	0	1.25V
1	0	1	1.2V

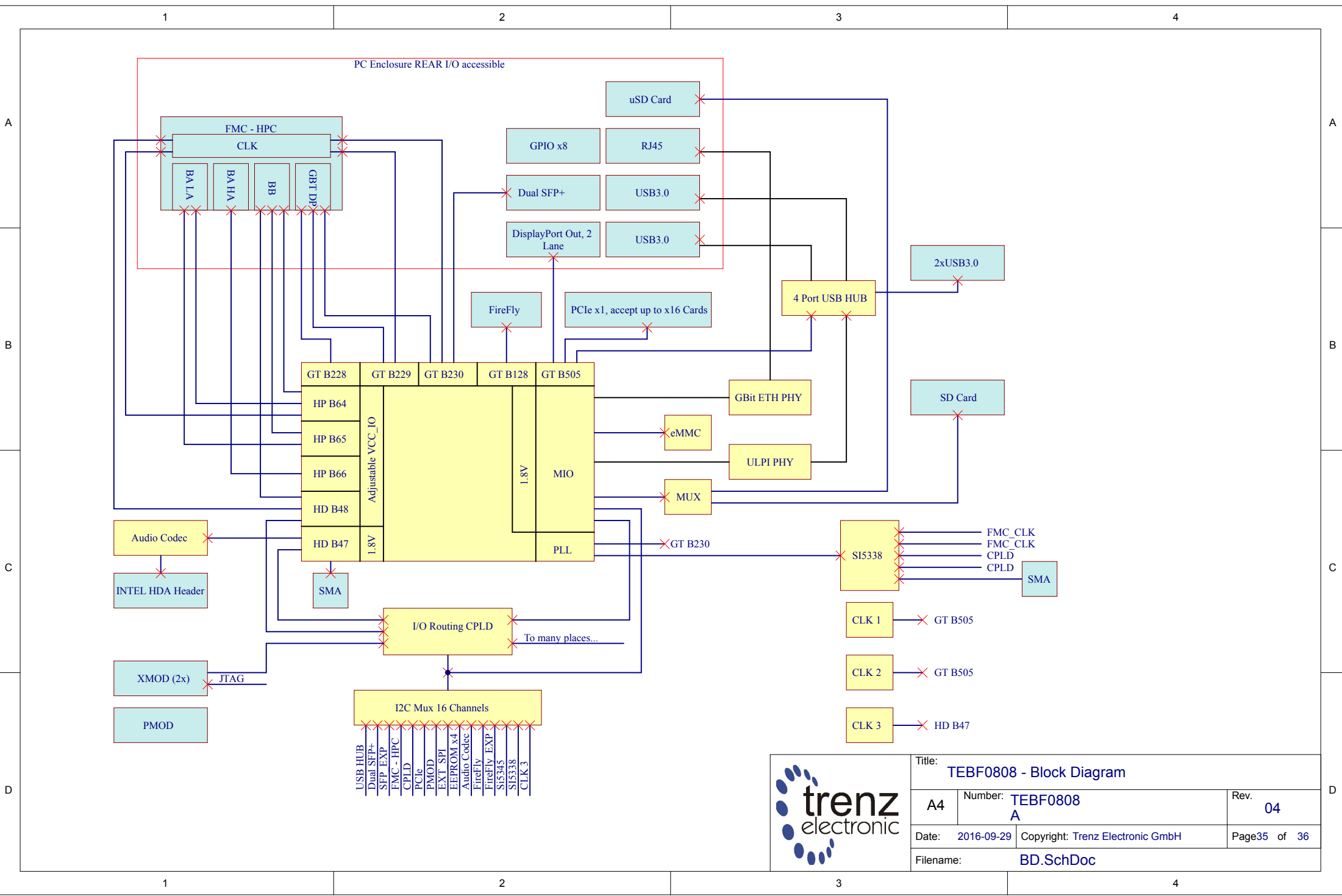
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A4	Number: TEBF0808 A	Rev. 04
Date: 2016-09-29	Copyright: Trenz Electronic GmbH	Page 32 of 36
Filename: Power_2.schdoc		



		Title: TEBF0808 - Power	
		A4	Number: TEBF0808 A
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Filename: Power_3.schdoc		Page 33 of 36	



		Title: TEBF0808 - Power	
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Filename: Power_4.schdoc		Page 34 of 36	



Title: TEBF0808 - Block Diagram		
A4	Number: TEBF0808 A	Rev. 04
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REV03

- 1) Added 2.5V option for clock source U45
- 2) Net B64_T0 terminated via 240 Ohm resistor to GND.
- 3) Nets B64_T1..T3 connected to CPLD
- 4) Nets SFP#_LOS and SFP#TX_DIS connected to CPLD (# = 1..2)
- 5) Added 4-pin connector for FAN2 (12V). Added high side switch like option for FAN without control signals.
- 6) Added net SC_IO8 between CPLD1 and CPLD2 (Bank 3V3_SB)
- 7) Deleted USB3.0 port (J18)
- 8) Port USB2.0 replaced to USB3.0 (J8, front panel)
- 9) Replaced USB HUB USB5537B to CYUSB3324 (U4)

REV04:

- 1) P and N lanes swapped in FMC clock signal pairs B228_CLK0 and B229_CLK0
- 2) Added additional FAN connector (J35)
- 3) New control circuit for external beeper
- 4) Layout and routing improvements
- 10.08.2018:
- 5) Resistors R130-131, R173-174 replaced from 4.99k to 2k
- 26.03.2019
- 6) VY: Resistor R65 replaced from 8.06k to 1k (assembly variant "A")
- 7) VY: Page 21: EEPROM I2C address correction
- 8) VY: Clock source U6 (100Mhz) polulated (assembly variant "A")

A

A

B

B

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C

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D

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	Title: TEBF0808 - Revision history		
	A4	Number: TEBF0808 A	Rev. 04
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	Filename: Revision_Changes.SchDoc		