

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

INDEX LARGE

PAGE(S)	FUNCTION
2	PARALLEL I/O
3	MGT REAL TIME
4	POWER, JTAG, CPLD, IPMC, CLOCK AND ULTRAZED
5	U1 BANK65
6	U1 BANK71
7	U1 CLOCK LVDS
8	U2 BANK65
9	U2 BANK71
10	U2 CLOCK LVDS
11 - 18	U1 HIGH SPEED
19 - 30	U1 FF
31 - 40	POWER SUPPLY
41 - 48	U2 HIGH SPEED
49 - 60	U2 FF
61	CLOCK JITTER CLEANER
62	CLOCK MGT1 + MGT2
63	CLOCK MGT3 + MGT4
64	CLOCK MGT5
65	CLOCK GCK1 + GCK2
66	CLOCK CML FANOUT6 DC
67 - 68	CLOCK CML FANOUT6 AC
69 - 70	CLOCK LUPECL SI591 AC
71 - 72	CLOCK LVDSAC FANOUT8
73 - 76	CLOCK CML FANOUT6 AC
77	CLOCK LUPECL SI591 AC
78	CLOCK JITTER FIXED
79	CLOCK LUPECL SI591 AC
80	CLOCK JITTER LHC
81	CLOCK MULTIPLEXER
82 - 87	CLOCK CML FANOUT6 AC
88 - 89	IPMC
90 - 92	CPLD2
93	BACKPLNE BASE CHANNEL
94	JTAG CONNECTOR
95	CPLD1
96 - 97	CONFIG U1 + U2
98	CLOCK LVDS LVCMOS
99	CLOCK OSC
100	ULTRAZED FELIX FF + RJ45 + PMBUS
101	ULTRAZED CONNECTOR
102	ULTRAZED FF

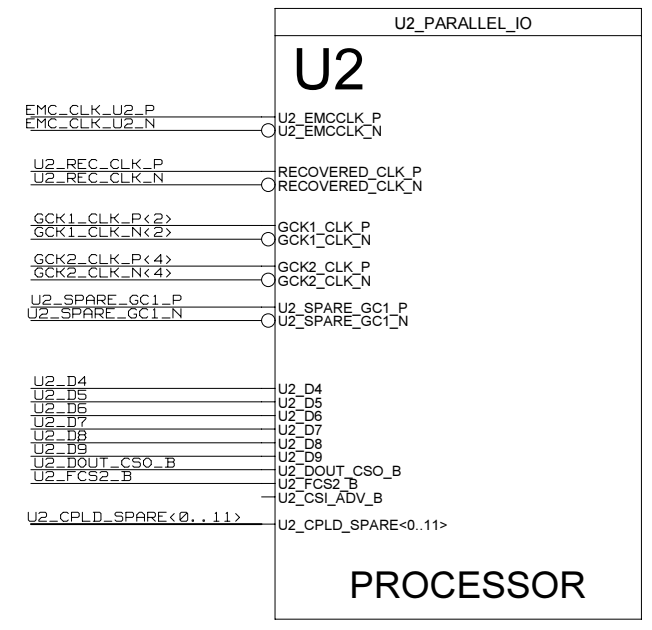
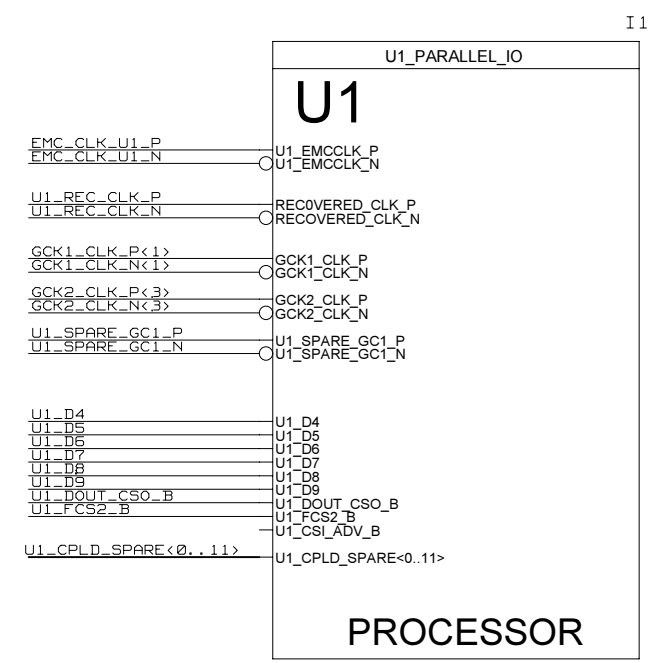
INDEX SMALL

PAGE(S)	FUNCTION
2	PARALLEL I/O
3	MGT REAL TIME
4	POWER, JTAG, CPLD, IPMC, CLOCK AND ULTRAZED
5	U1 BANK65
6	U1 BANK71
7	U1 CLOCK LVDS
8	U2 BANK65
9	U2 BANK71
10 - 17	U1 HIGH SPEED
18	FF_RX
19	FF_RX_TX
20	FF_TX
21 - 29	POWER SUPPLY
30 - 37	U2 HIGH SPEED
38	CLOCK JITTER CLEANER
39	CLOCK MGT1 + MGT2
40	CLOCK MGT3 + MGT4
41	CLOCK MGT5
42	CLOCK GCK1 + GCK2
43	CLOCK CML FANOUT6 AC
44	CLOCK LUPECL SI591 AC
45	CLOCK JITTER CLEANER
46	CLOCK MULTIPLEXER
47 - 48	IPMC
49 - 50	CPLD2
51	BACKPLNE BASE CHANNEL
52	JTAG CONNECTOR
53	CPLD1
54 - 55	CONFIG U1 + U2
56	ULTRAZED FELIX FF + RJ45 + PMBUS
57	ULTRAZED CONNECTOR

CHECKED	U.SCHAEFER	DATE	SIGN	DRAWING TITLE FFEX		
CHECKED						
CHECKED						
DRAWN	BAUSS					
BLOCK TITLE ffex_proto_v1				B. BAUSS Fri Jun 23 12:20:16 2023		
UNIVERSITY OF MAINZ				SIZE C	REV.	DRAWING NO.
				SCALE		PAGE 1 OF 102

ZONE	LTR	DESCRIPTION	DATE	APPR.

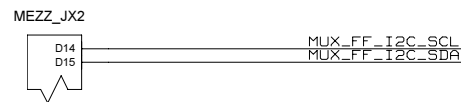
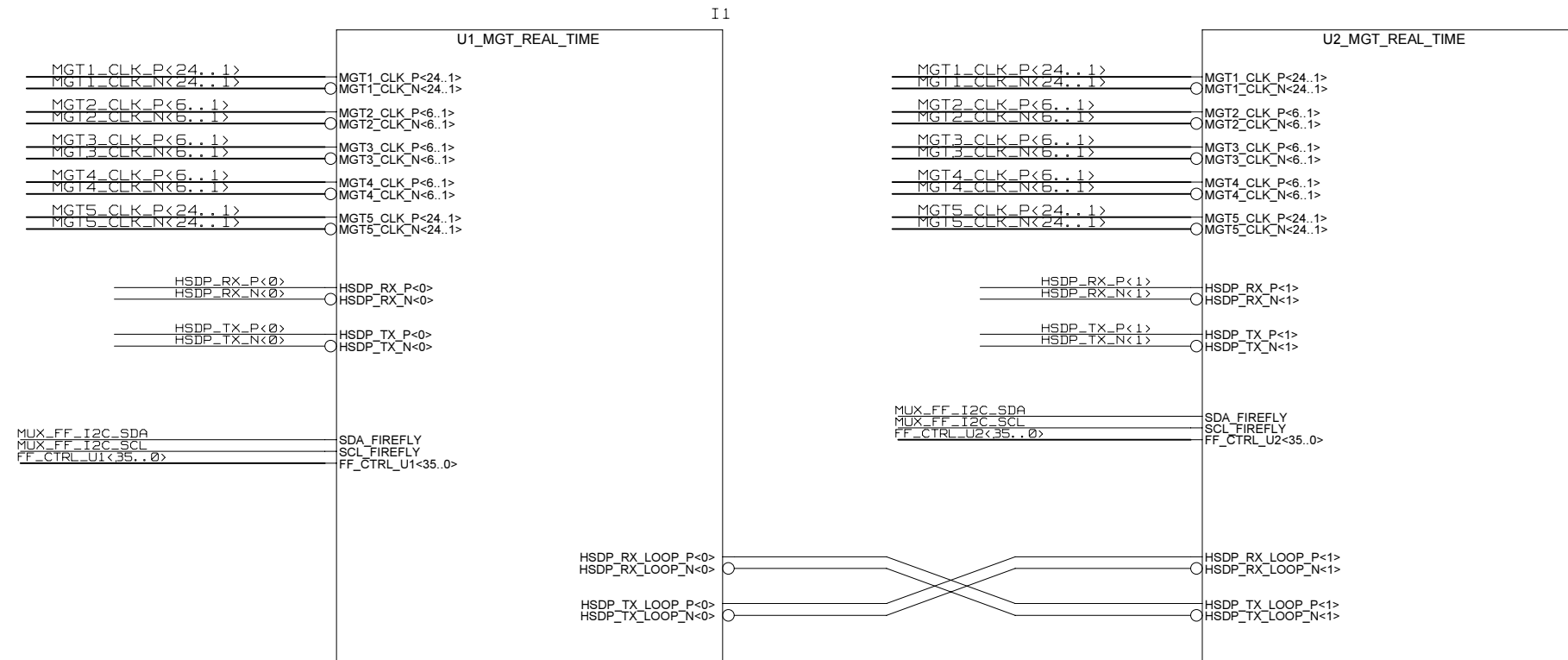
PARALLEL I/O



CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1> <p>B. BAUSS Thu Jun 15 14:37:54 2023</p>
ffex_proto_v1				
UNIVERSITY OF MAINZ				SIZE C REV. DRAWING NO.
SCALE				PAGE 2 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

MGT REAL TIME

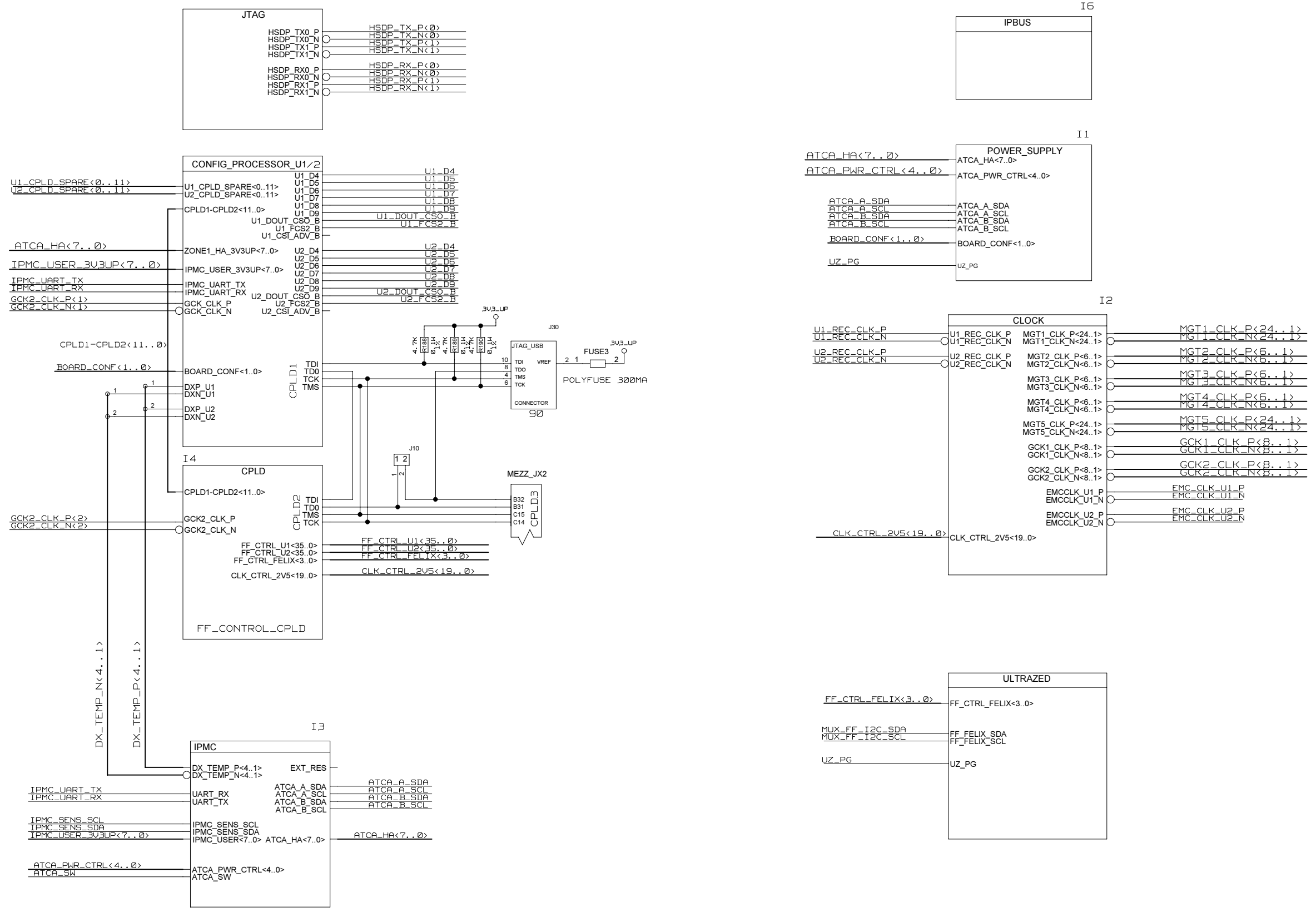


CHECKED	NAME	DATE	SIGN	DRAWING TITLE		
CHECKED	U.SCHAEFER				<h1>FFEX</h1>	
CHECKED						
CHECKED						
DRAWN	BAUSS					
BLOCK TITLE				ffex_proto_v1		
UNIVERSITY OF MAINZ				SIZE C	REV.	DRAWING NO.
				SCALE		PAGE 3 OF 102

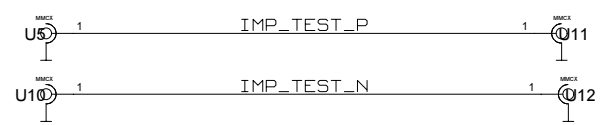
B. BAUSS Fri Aug 18 09:49:33 2023

POWER, CLOCK AND CONTROL

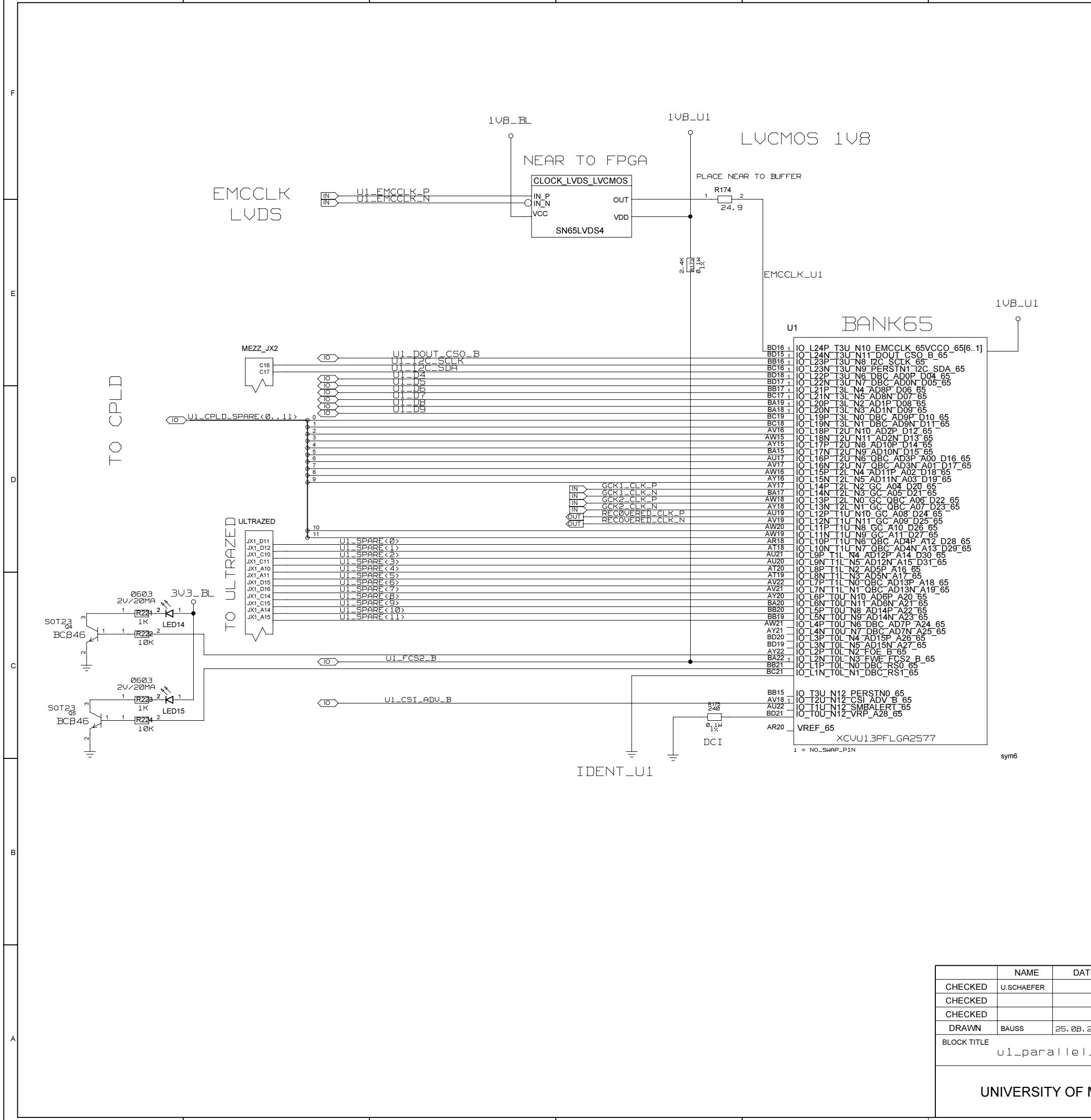
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		FFEX
CHECKED			
CHECKED			
DRAWN	BAUSS		ffex_proto_v1
BLOCK TITLE			
UNIVERSITY OF MAINZ			B. BAUSS Fri Aug 18 09:49:34 2023
SIZE	REV.	DRAWING NO.	
SCALE			PAGE 4 OF 102

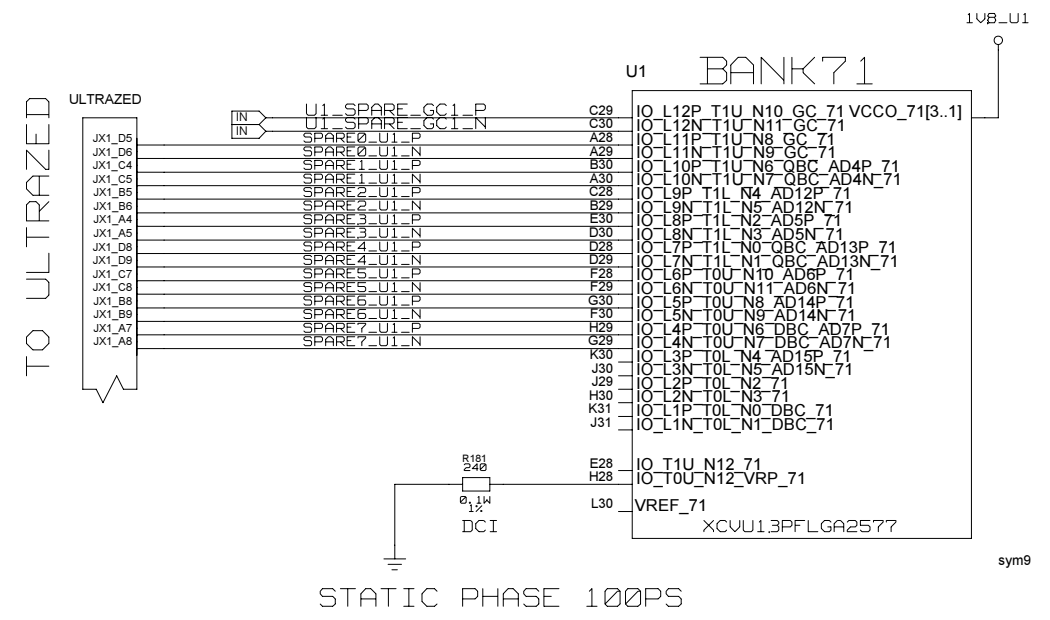


REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1 style="text-align: center;">FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS	25.08.2015		B. BAUSS Fri Aug 18 09:49:25 2023	
BLOCK TITLE				DRAWING NO.	
UNIVERSITY OF MAINZ				SIZE	REV.
				SCALE	PAGE
				5 OF 102	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



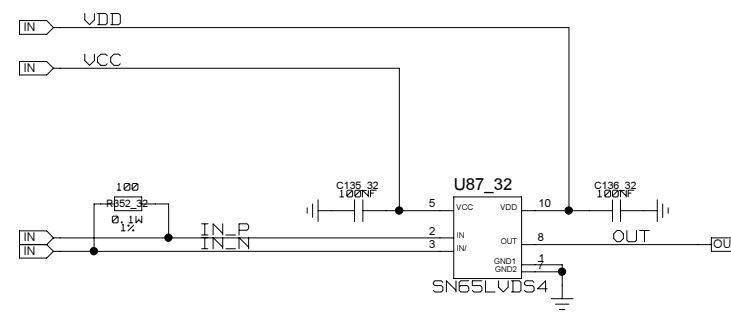
STATIC PHASE 100PS

CHECKED	U.SCHAEFER			DRAWING TITLE FFEX
CHECKED				
CHECKED				
DRAWN	BAUSS	25.08.2015		
BLOCK TITLE u1_parallel_10				B. BAUSS Fri Aug 18 09:49:25 2023
UNIVERSITY OF MAINZ		SIZE C	REV.	DRAWING NO.
		SCALE		PAGE 6 OF 102

REVISIONS

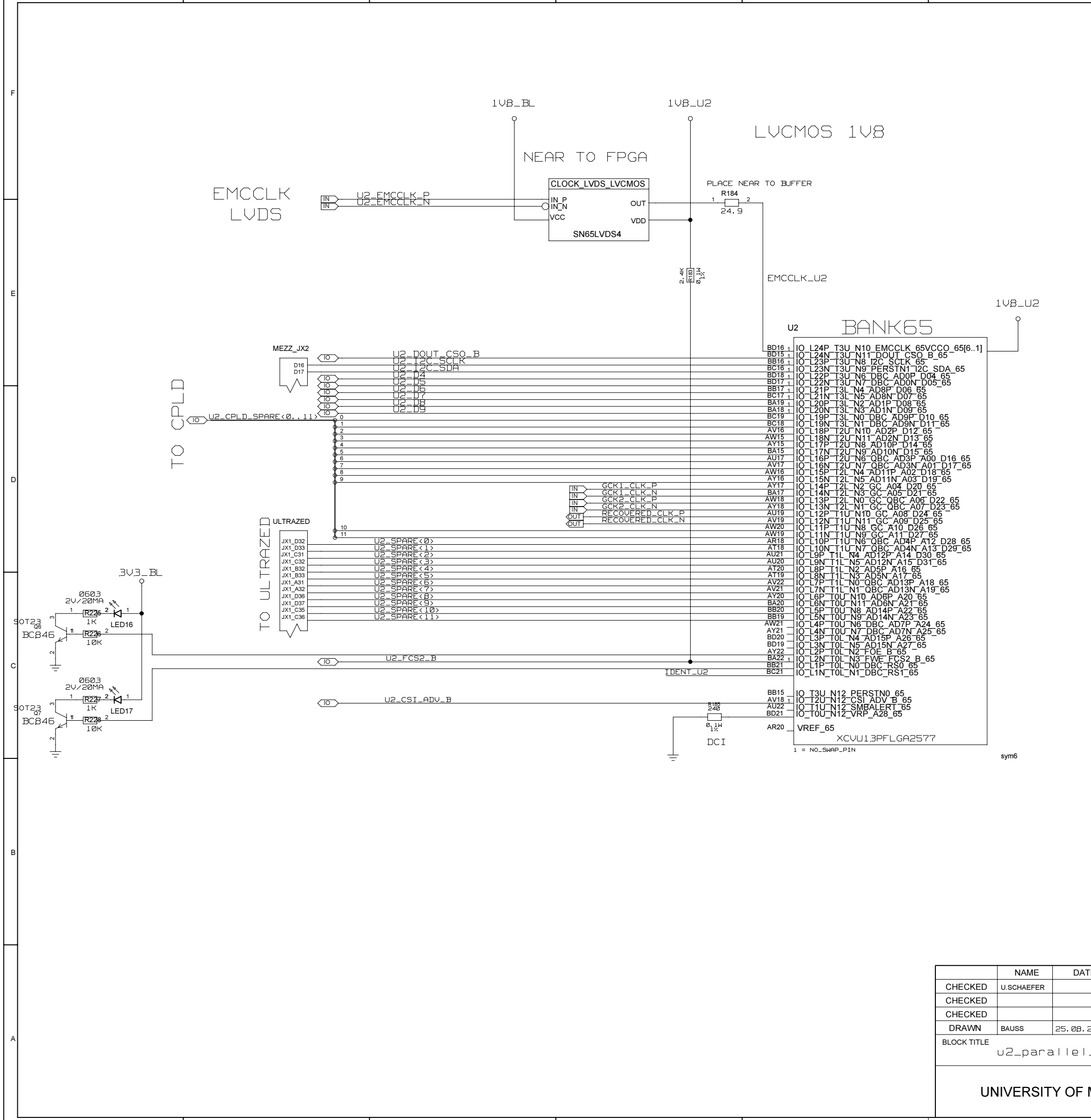
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK_LVDS_LVCMOS



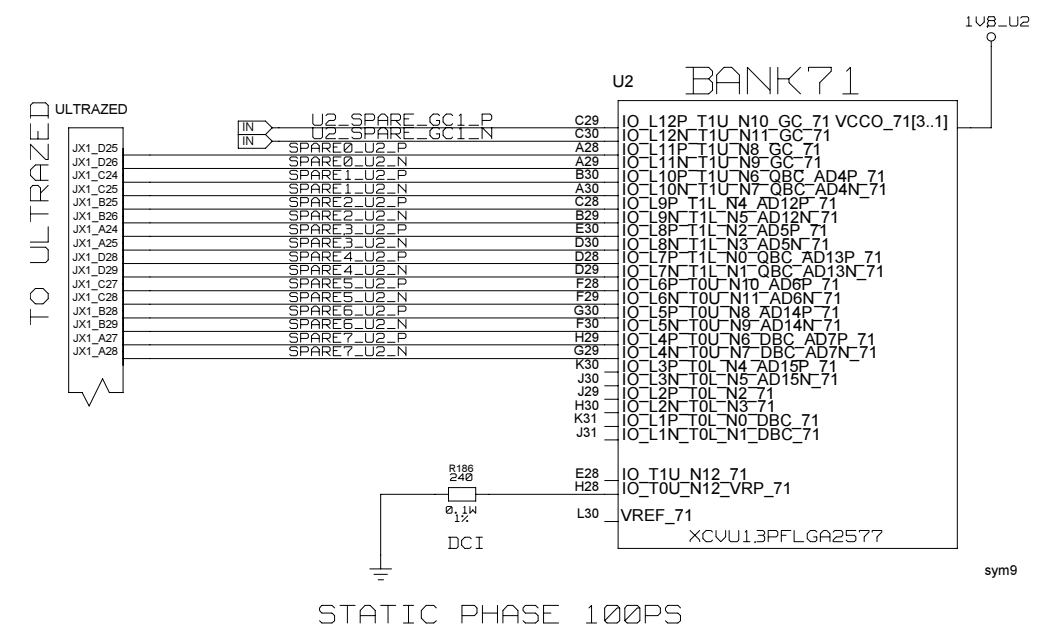
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			FFEX
BLOCK TITLE				
clock_lvds_lvcmos				B. BAUSS Fri Aug 18 09:49:17 2023
UNIVERSITY OF MAINZ			SIZE	DRAWING NO.
			C	
SCALE		PAGE		7 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS	25.08.2015		B. BAUSS Fri Aug 18 09:49:20 2023	
BLOCK TITLE				DRAWING NO.	
UNIVERSITY OF MAINZ				SIZE	PAGE
				C	B OF 102
				SCALE	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

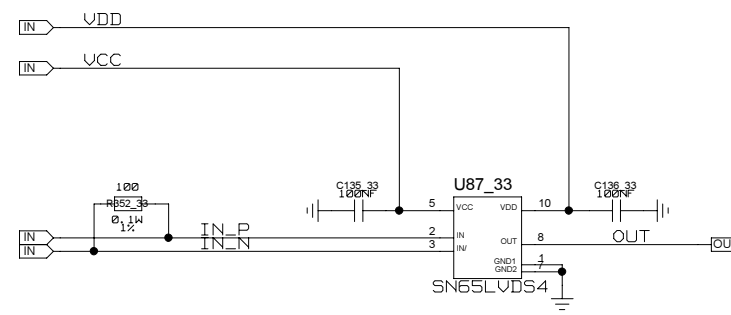


CHECKED	NAME	DATE	SIGN	DRAWING TITLE						
CHECKED	U.SCHAEFER									
CHECKED										
CHECKED										
DRAWN	BAUSS25.08.2015			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: right;">B. BAUSS Fri Aug 18 09:49:20 2023</p>						
BLOCK TITLE										
u2_parallel_10				<table border="1"> <tr> <td>SIZE</td> <td>REV.</td> <td>DRAWING NO.</td> </tr> <tr> <td>C</td> <td></td> <td></td> </tr> </table>	SIZE	REV.	DRAWING NO.	C		
SIZE	REV.	DRAWING NO.								
C										
UNIVERSITY OF MAINZ				<table border="1"> <tr> <td>SCALE</td> <td>PAGE</td> </tr> <tr> <td></td> <td>9 OF 102</td> </tr> </table>	SCALE	PAGE		9 OF 102		
SCALE	PAGE									
	9 OF 102									

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK_LVDS_LVCMOS



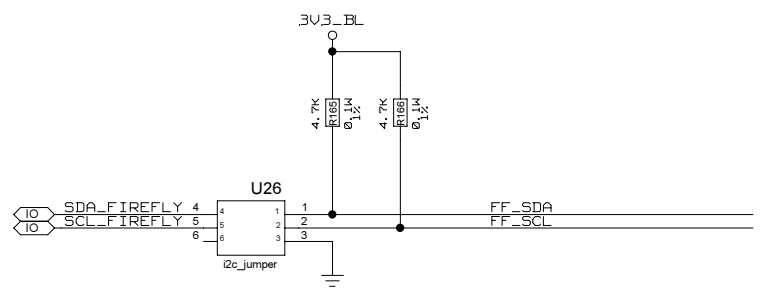
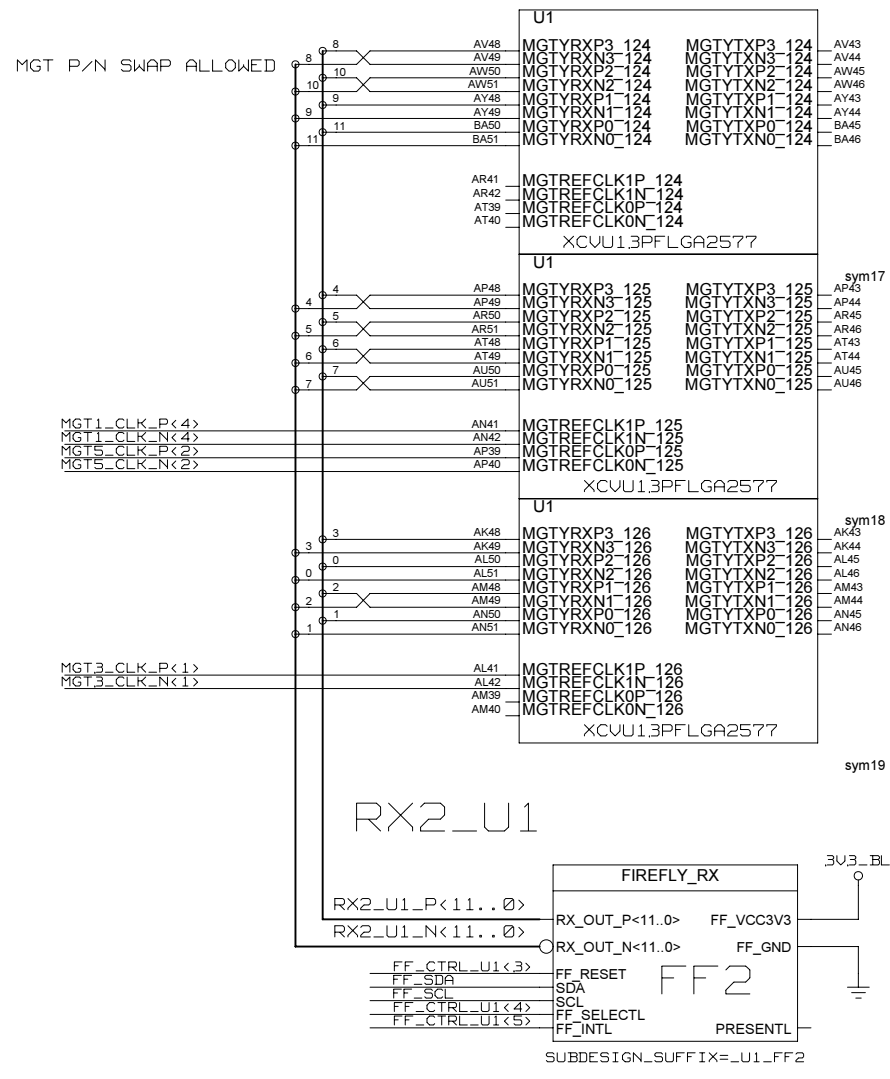
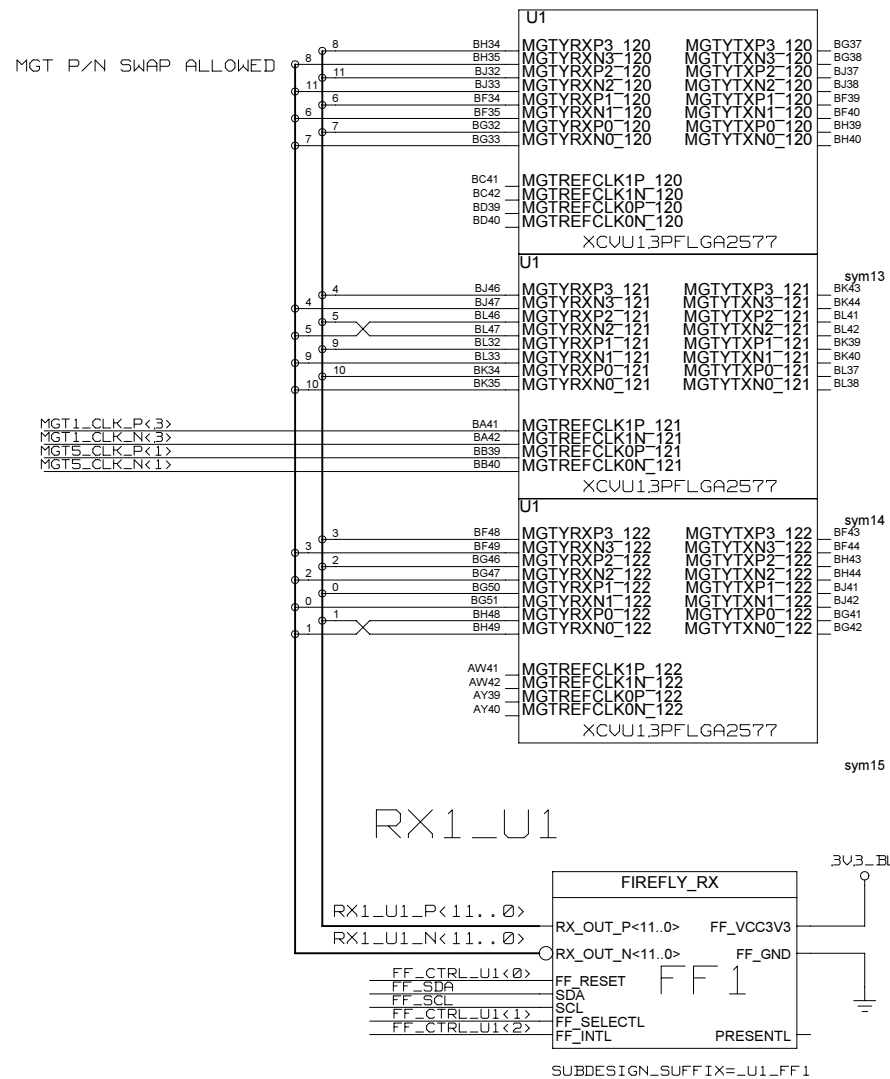
CHECKED	NAME	DATE	SIGN	DRAWING TITLE		
CHECKED	U.SCHAEFER					
CHECKED						
CHECKED						
DRAWN	BAUSS			FFEX		
BLOCK TITLE						
clock_lvds_lvcmos				B. BAUSS Fri Aug 18 09:49:17 2023		
UNIVERSITY OF MAINZ				SIZE	REV.	DRAWING NO.
				SCALE		
				PAGE	10 OF 102	

HIGH SPEED OPTICAL LINKS

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

120, 121, 122

124, 125, 126



- FF_CTRL_U1<35..0>
- MGT1_CLK_P<24..1>
- MGT1_CLK_N<24..1>
- MGT2_CLK_P<6..1>
- MGT2_CLK_N<6..1>
- MGT3_CLK_P<6..1>
- MGT3_CLK_N<6..1>
- MGT4_CLK_P<6..1>
- MGT4_CLK_N<6..1>
- MGT5_CLK_P<24..1>
- MGT5_CLK_N<24..1>

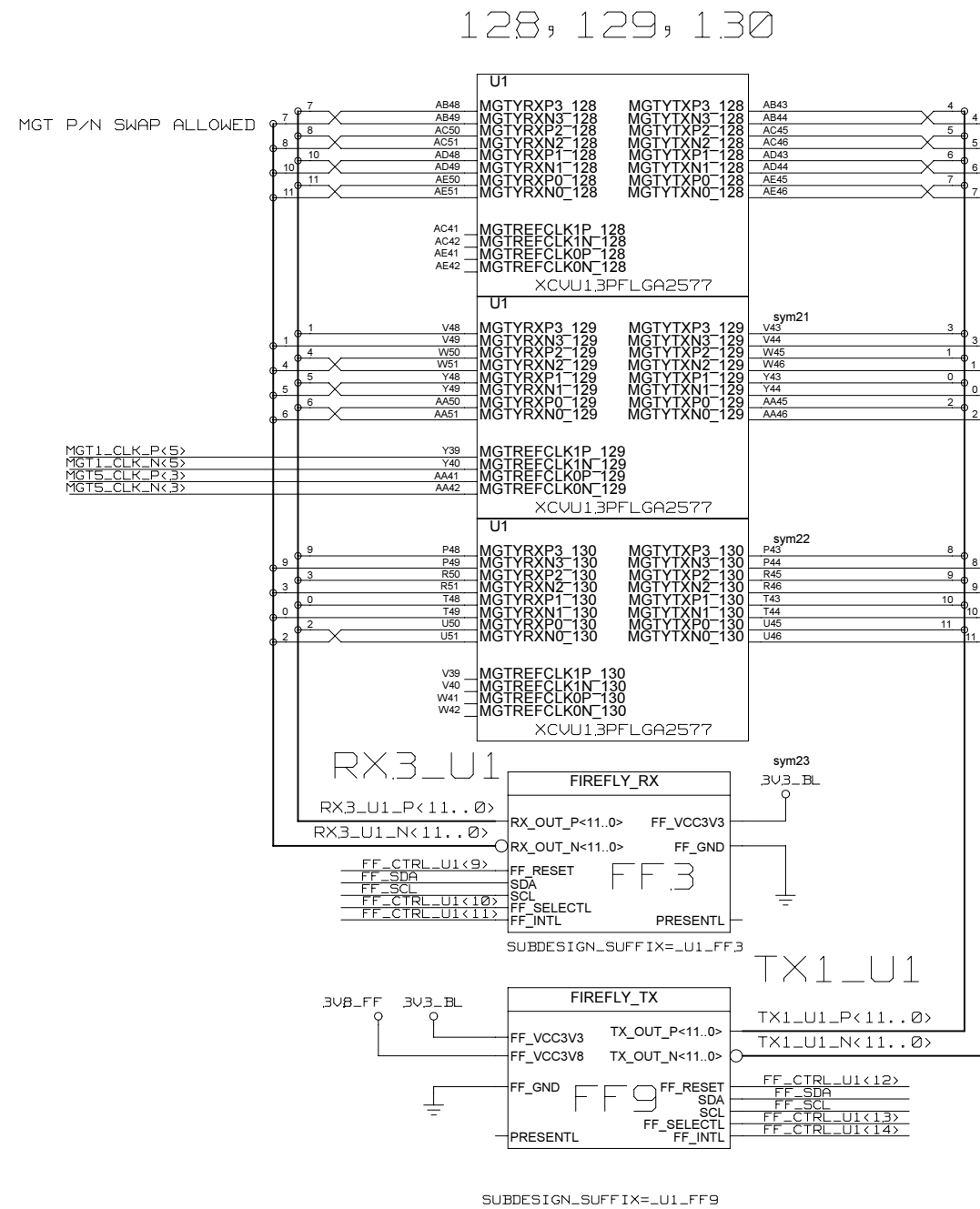
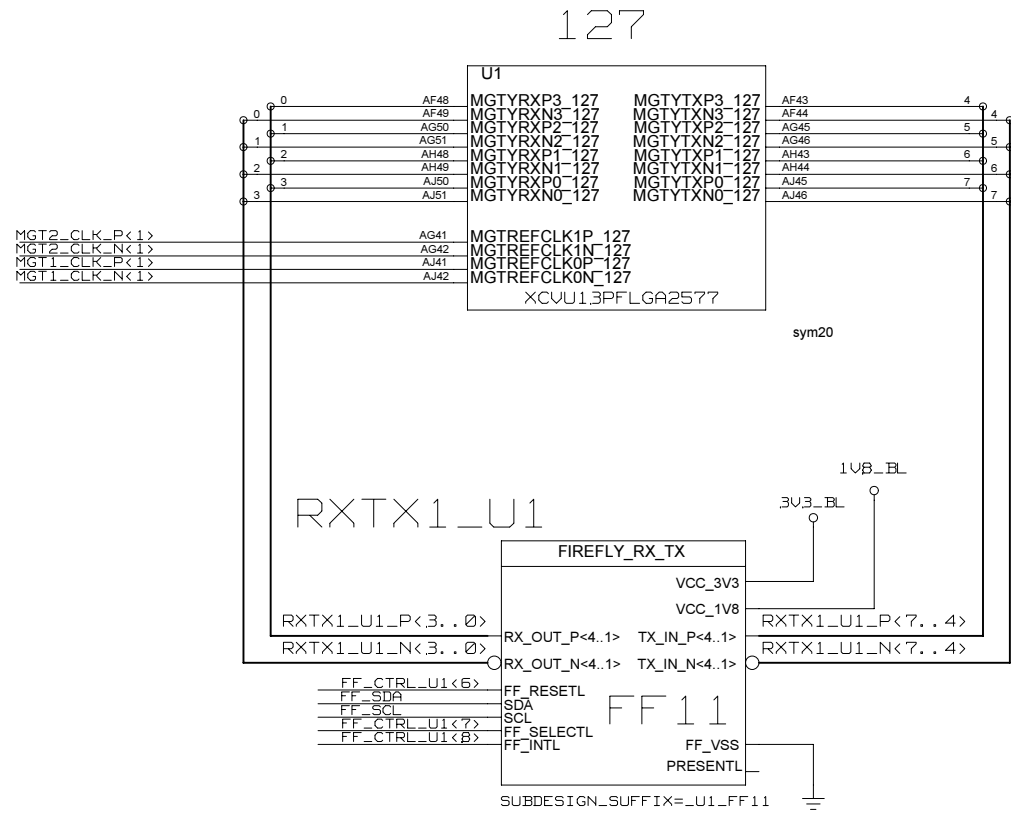
NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			
u1_mgt_real_time			
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		11 OF 102	

FFEX

B. BAUSS Fri Aug 18 09:49:22 2023

HIGH SPEED OPTICAL LINKS

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		

BLOCK TITLE
u1_mgt_real_time

UNIVERSITY OF MAINZ

DRAWING NO. **FFEX**

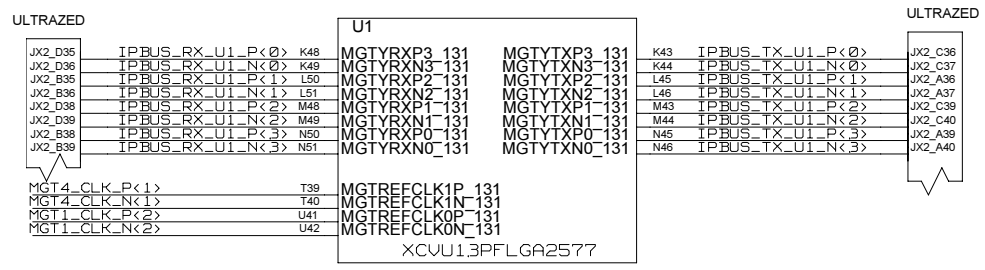
B. BAUSS Fri Aug 18 09:49:22 2023

SIZE **C** REV. DRAWING NO. PAGE 12 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

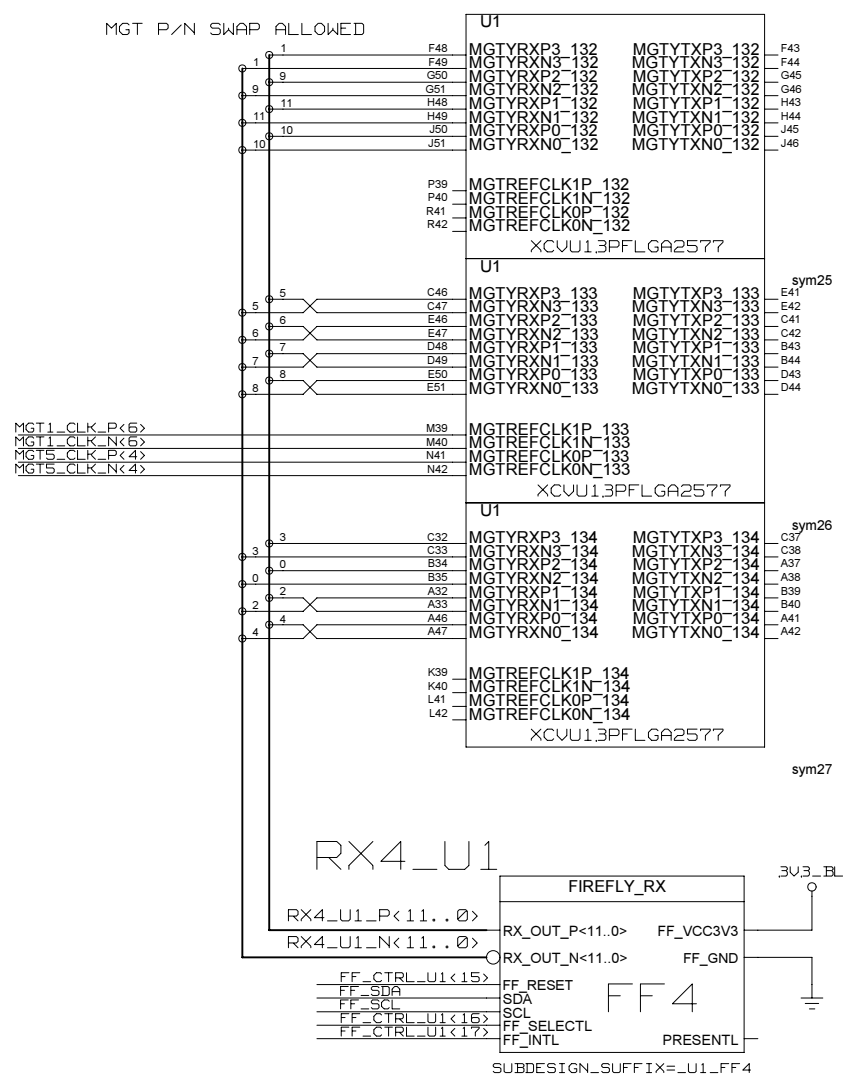
HIGH SPEED OPTICAL LINKS

1.31



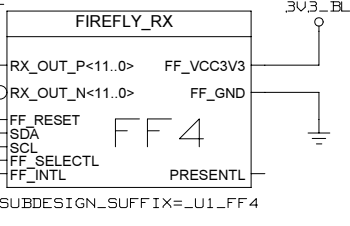
MGT P/N SWAP ALLOWED sym24

1.32, 1.33, 1.34



MGT P/N SWAP ALLOWED

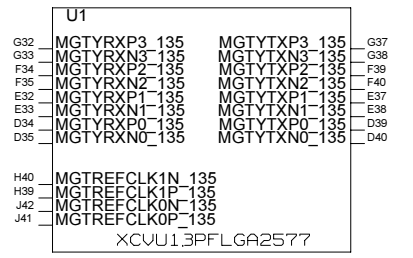
RX4_U1



NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER		<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:23 2023</p>	
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE			SIZE	DRAWING NO.
u1_mgt_real_time			C	
UNIVERSITY OF MAINZ			SCALE	PAGE
				1.3 OF 102

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

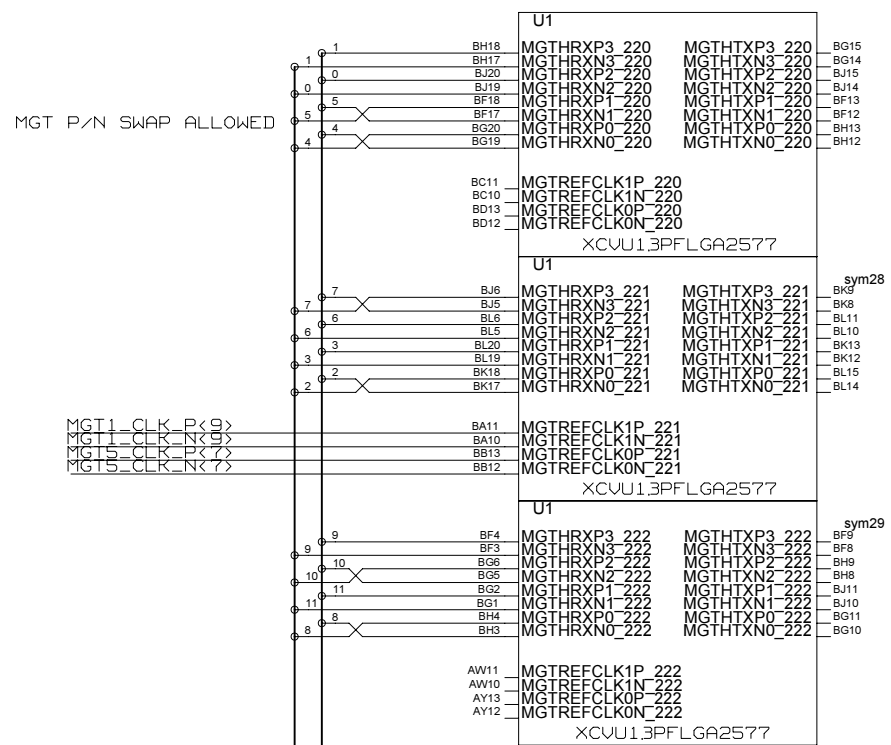


sym46

CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX	
CHECKED	U.SCHAEFER				
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Fri Aug 18 09:24:11 2023	
BLOCK TITLE u1_mgt_real_time					
UNIVERSITY OF MAINZ				SIZE C	DRAWING NO.
				SCALE	PAGE 14 OF 102

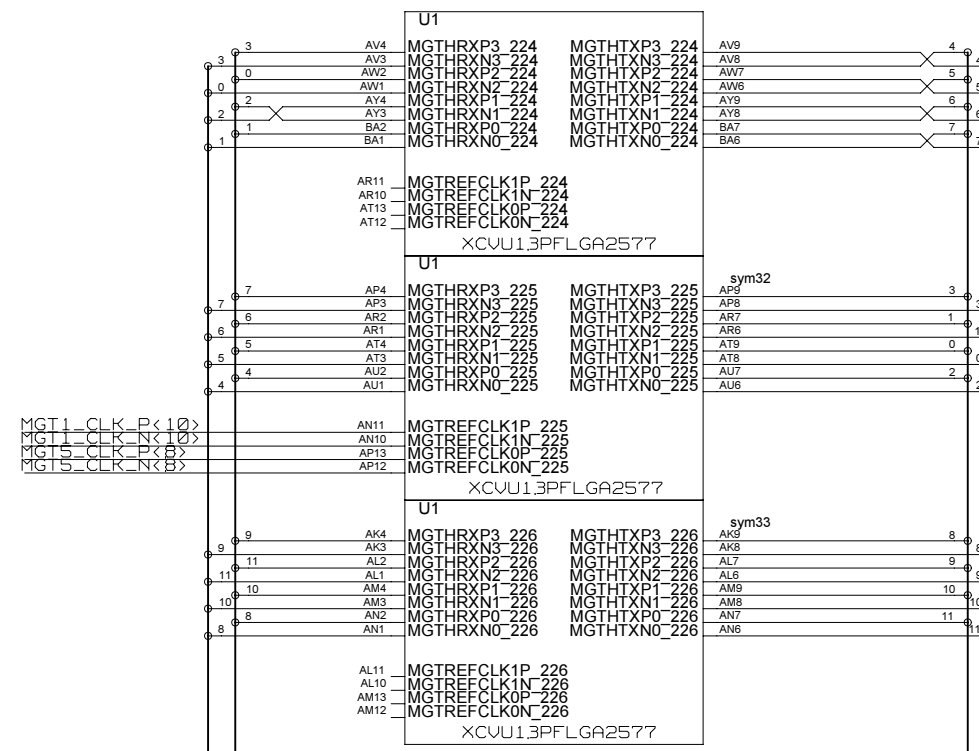
HIGH SPEED OPTICAL LINKS

220, 221, 222



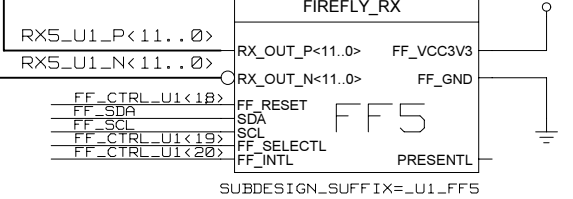
MGT P/N SWAP ALLOWED

224, 225, 226

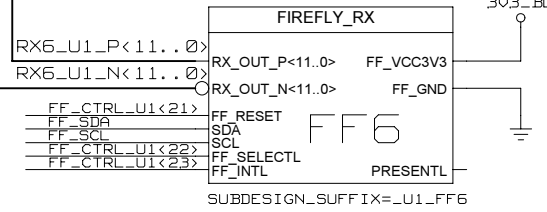


MGT1_CLK_P<10>
MGT1_CLK_N<10>
MGT5_CLK_P<8>
MGT5_CLK_N<8>

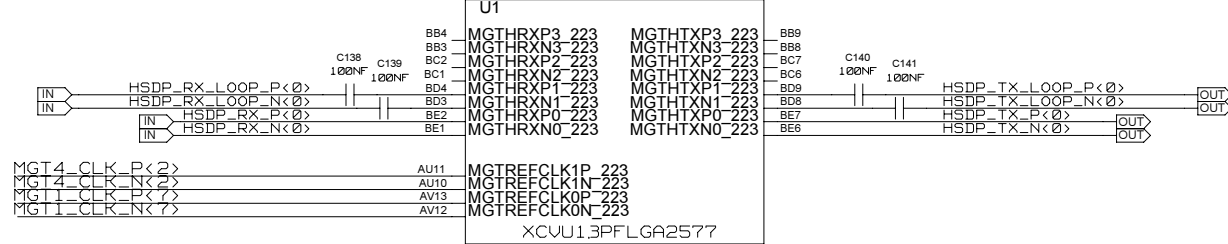
RX5_U1



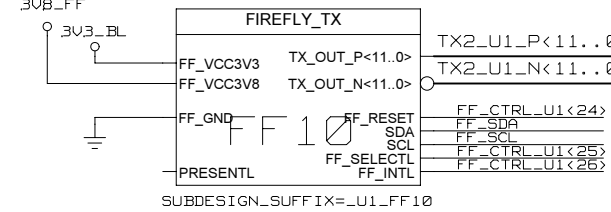
RX6_U1



HSDP
223



TX2_U1



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			
u1_mgt_real_time			
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		15 OF 102	

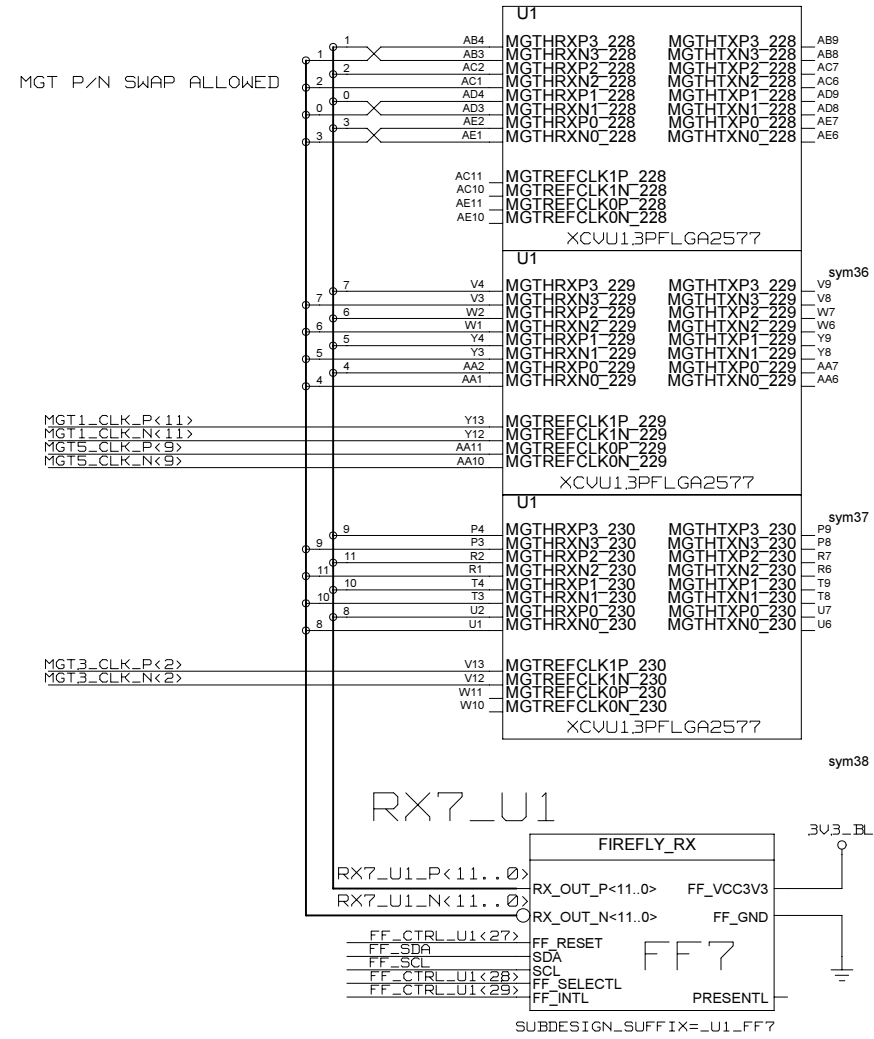
FFEX

B. BAUSS Fri Aug 18 09:49:23 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

HIGH SPEED OPTICAL LINKS

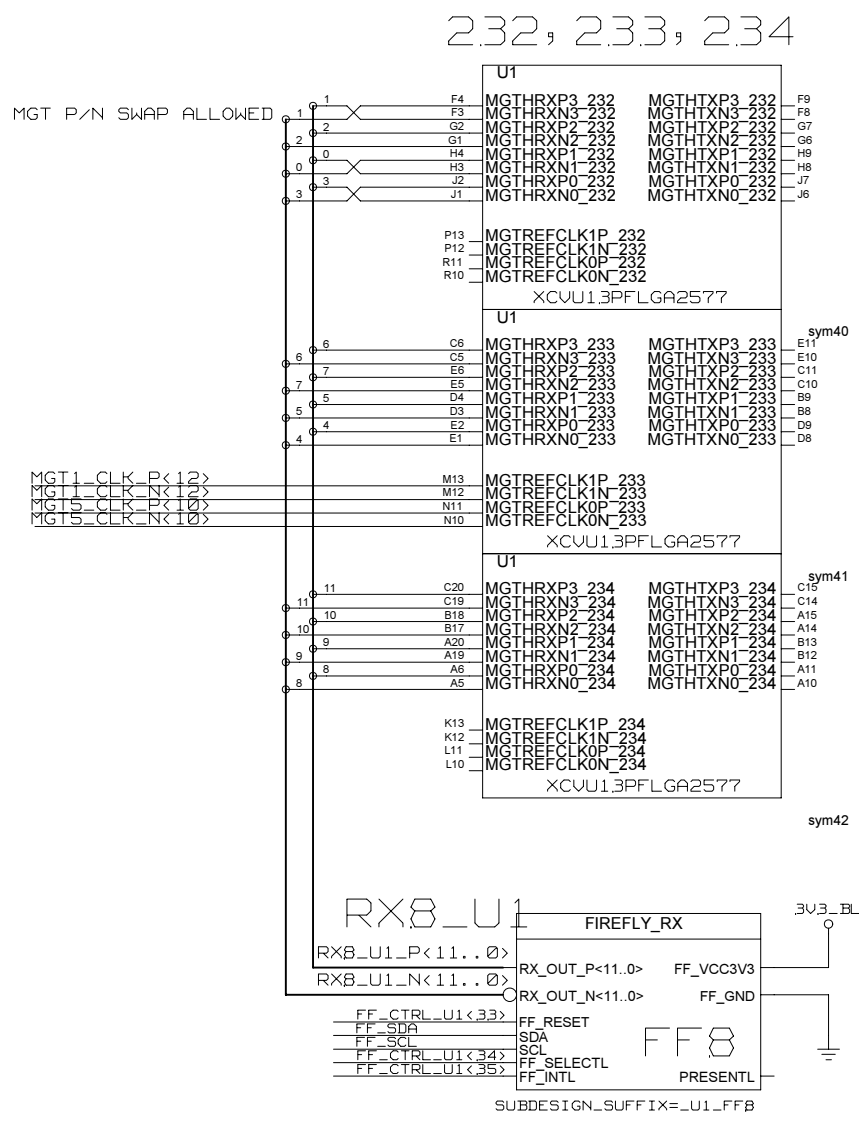
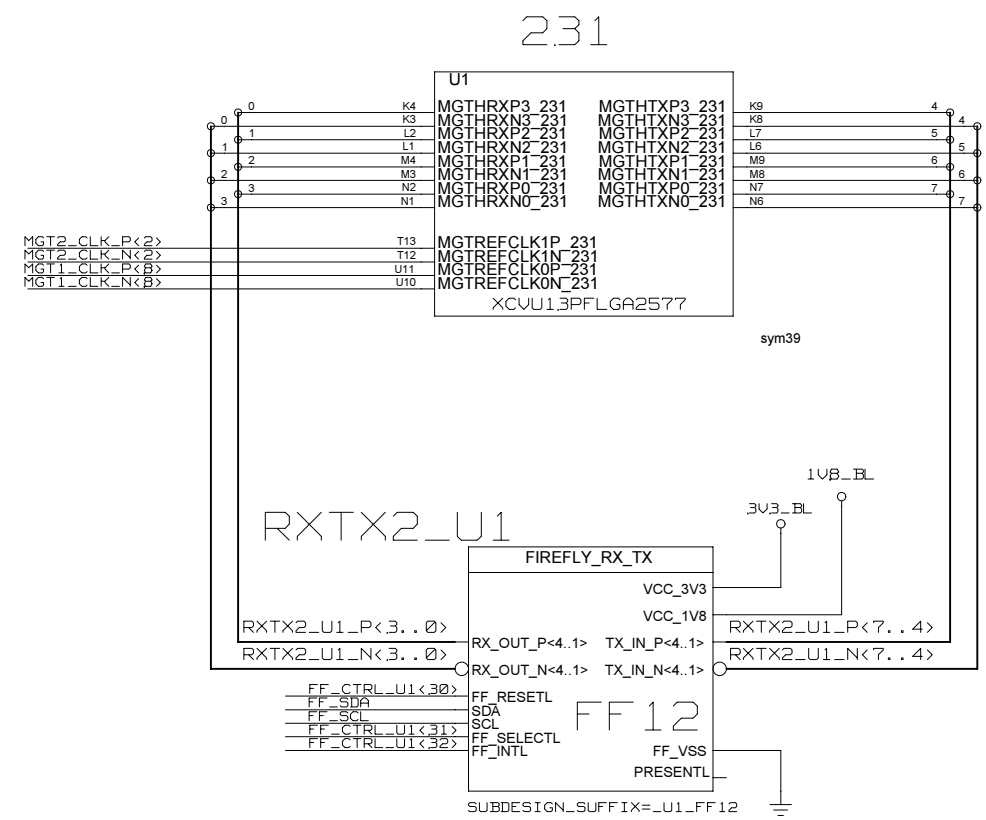
228, 229, 230



CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:23 2023</p>	
CHECKED					
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE				SIZE	DRAWING NO.
u1_mgt_real_time				C	
UNIVERSITY OF MAINZ				SCALE	PAGE
					16 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

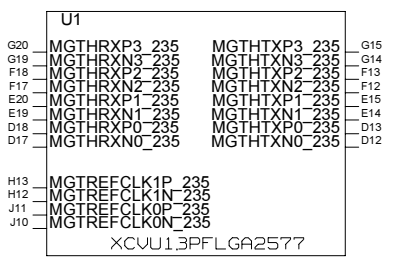
HIGH SPEED OPTICAL LINKS



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:24 2023</p>
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			DRAWING NO.
u1_mgt_real_time			
UNIVERSITY OF MAINZ			SCALE
SIZE	REV.	PAGE	
C		17 OF 102	

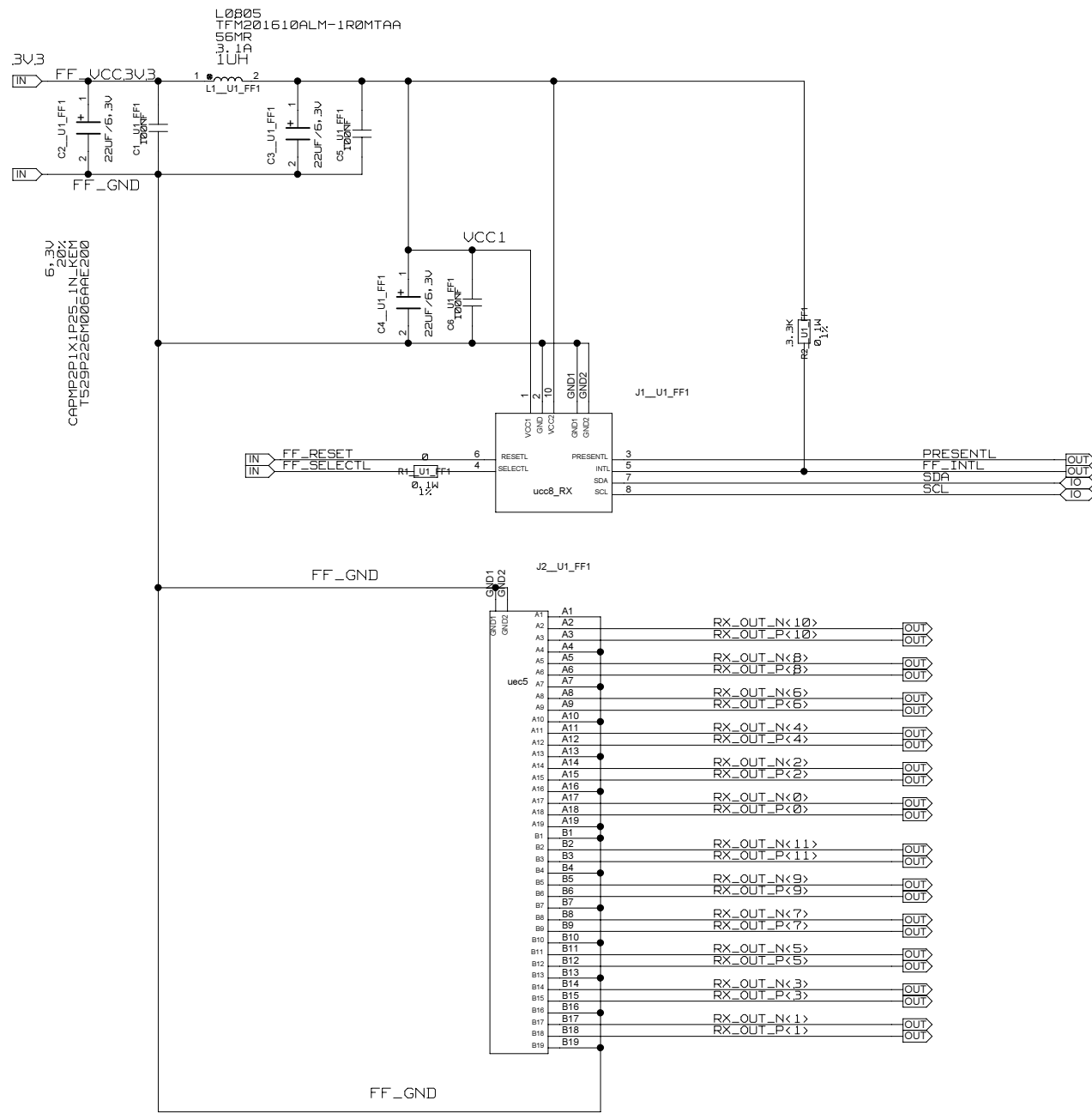
REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.



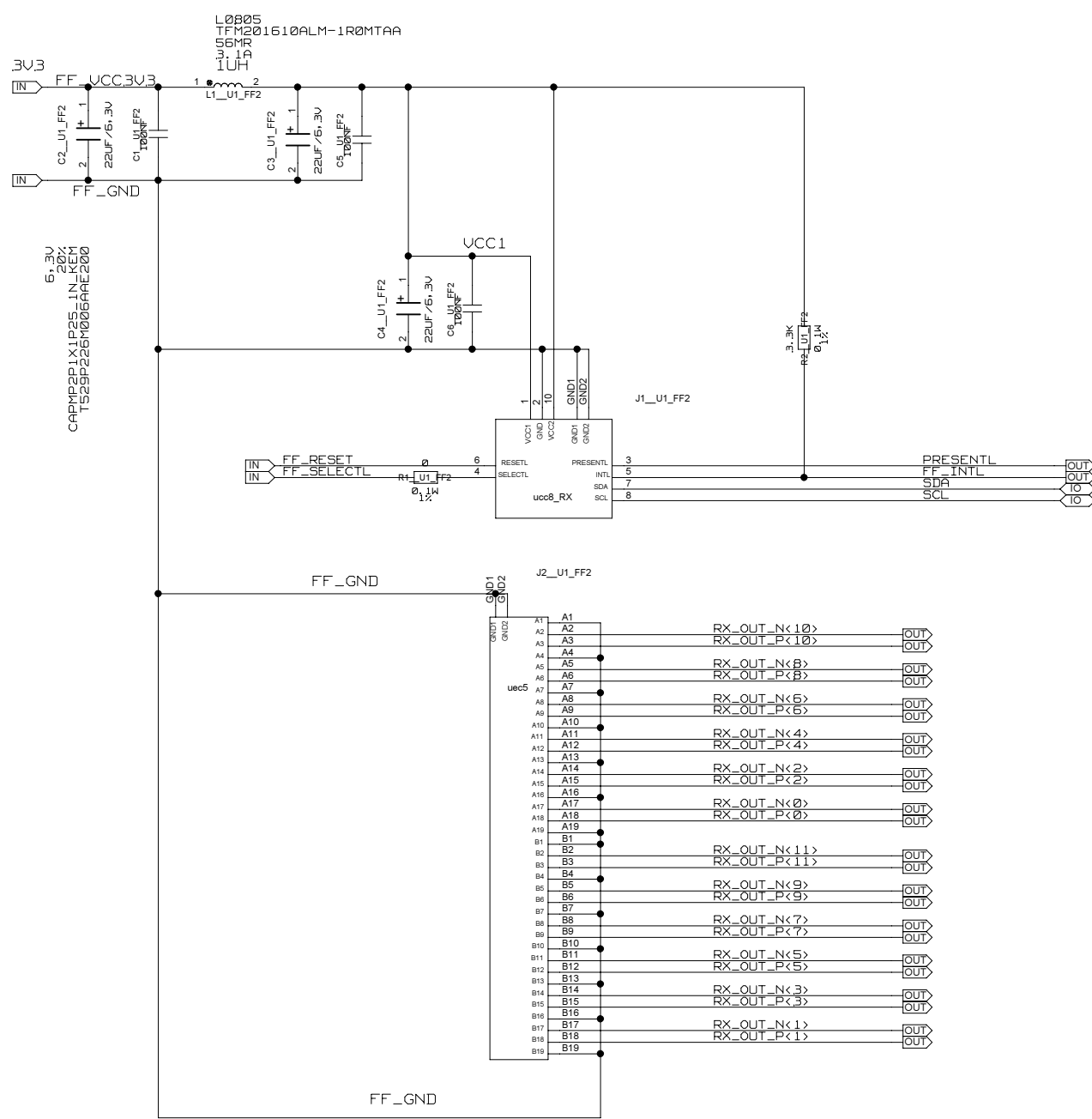
CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE u1_mgt_real_time				B. BAUSS Fri Aug 18 09:24:11 2023
UNIVERSITY OF MAINZ				SIZE C
				REV.
SCALE				PAGE 1B OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



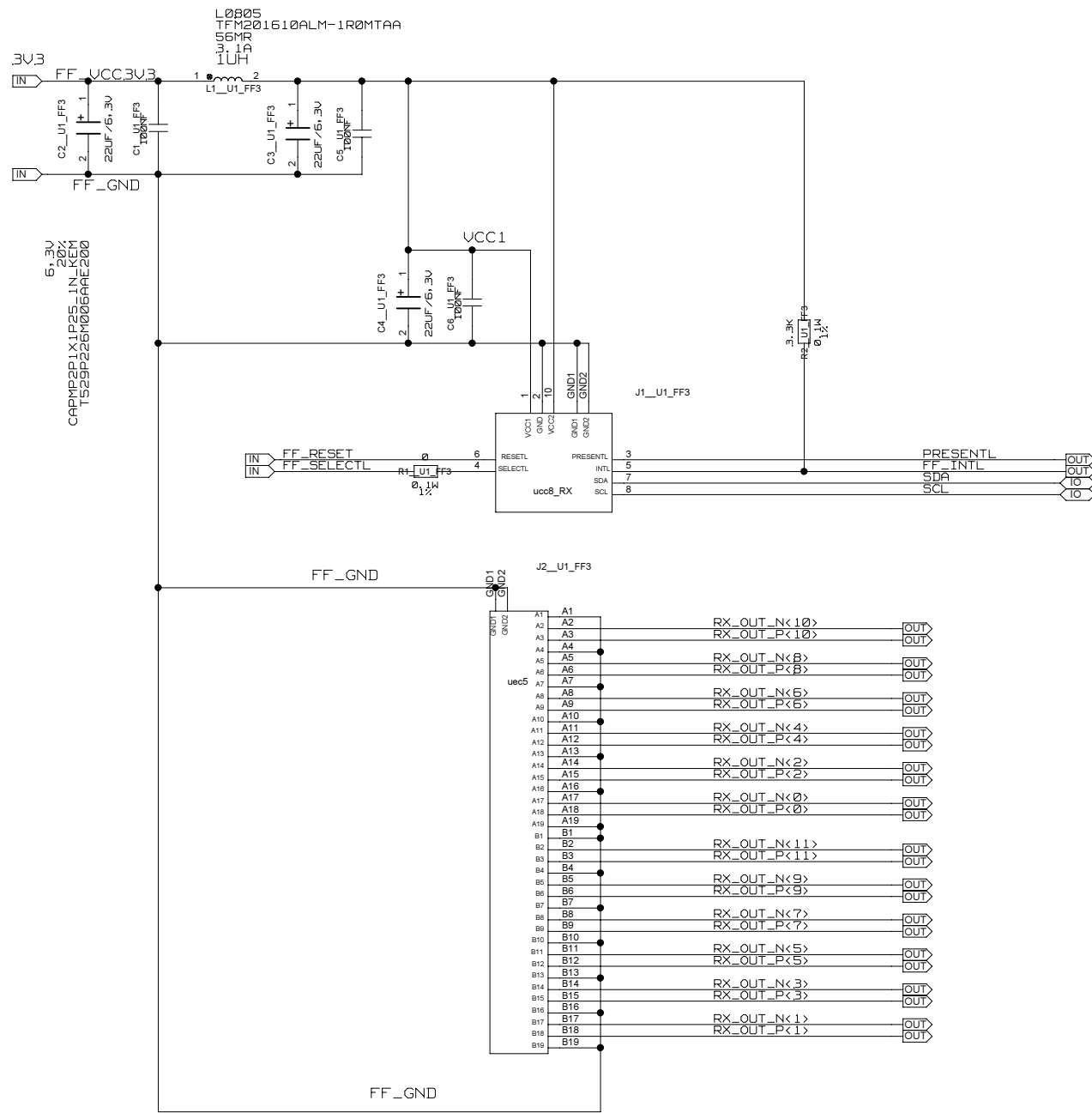
	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER				
CHECKED					
CHECKED					
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Thu Jun 15 14:51:14 2023</p>	
BLOCK TITLE					
firefly_rx				SIZE C	REV.
UNIVERSITY OF MAINZ				DRAWING NO. 	PAGE 19 OF 102
SCALE					

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1 style="text-align: center;">FFEX</h1>	
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE				DRAWING NO.	
firefly_rx				B. BAUSS Thu Jun 15 14:51:14 2023	
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.	
		C			
SCALE				PAGE	
				20 OF 102	

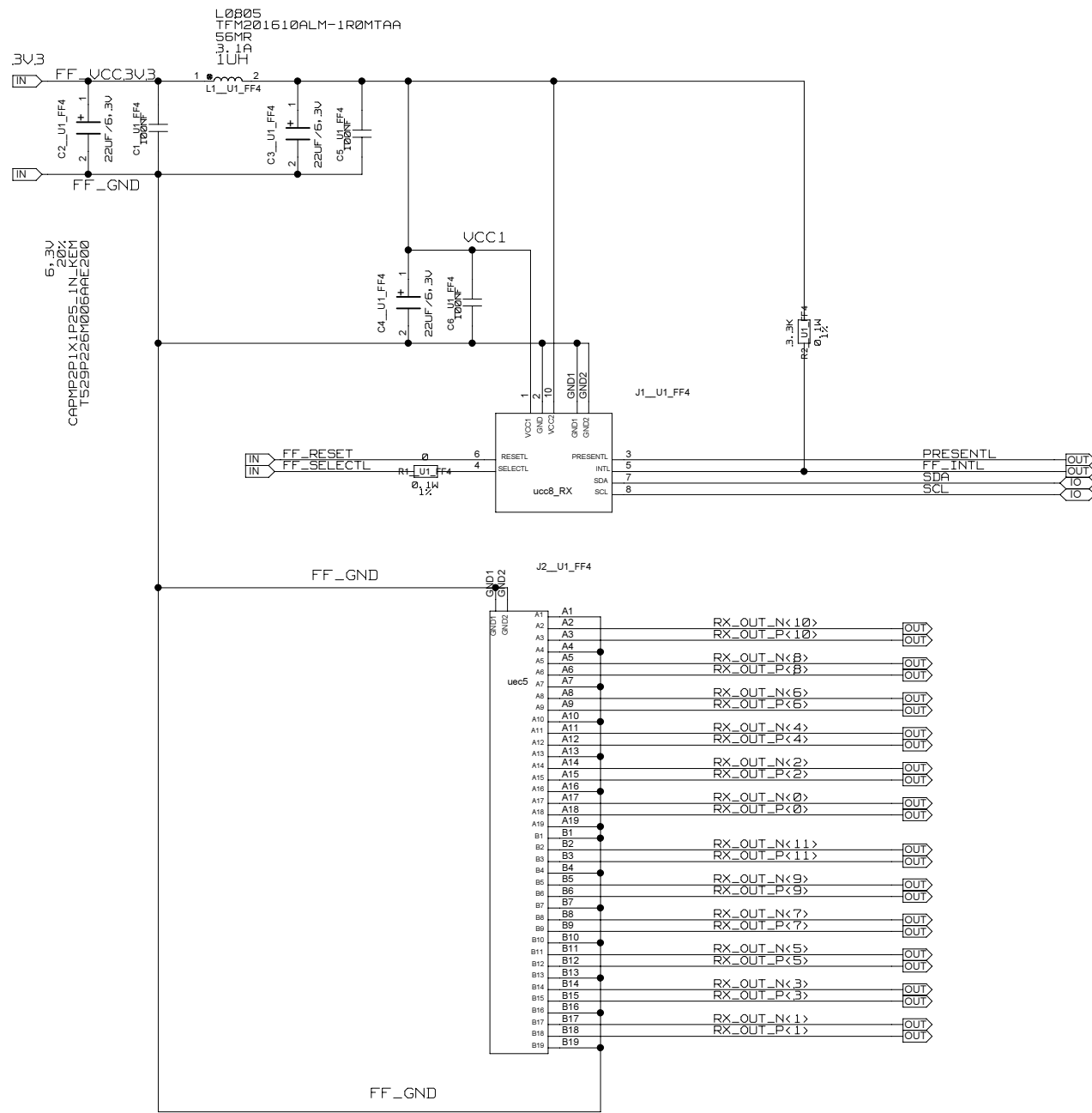
REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				DRAWING NO.
firefly_rx				
UNIVERSITY OF MAINZ				SCALE
B. BAUSS Thu Jun 15 14:51:14 2023				PAGE
				21 OF 102

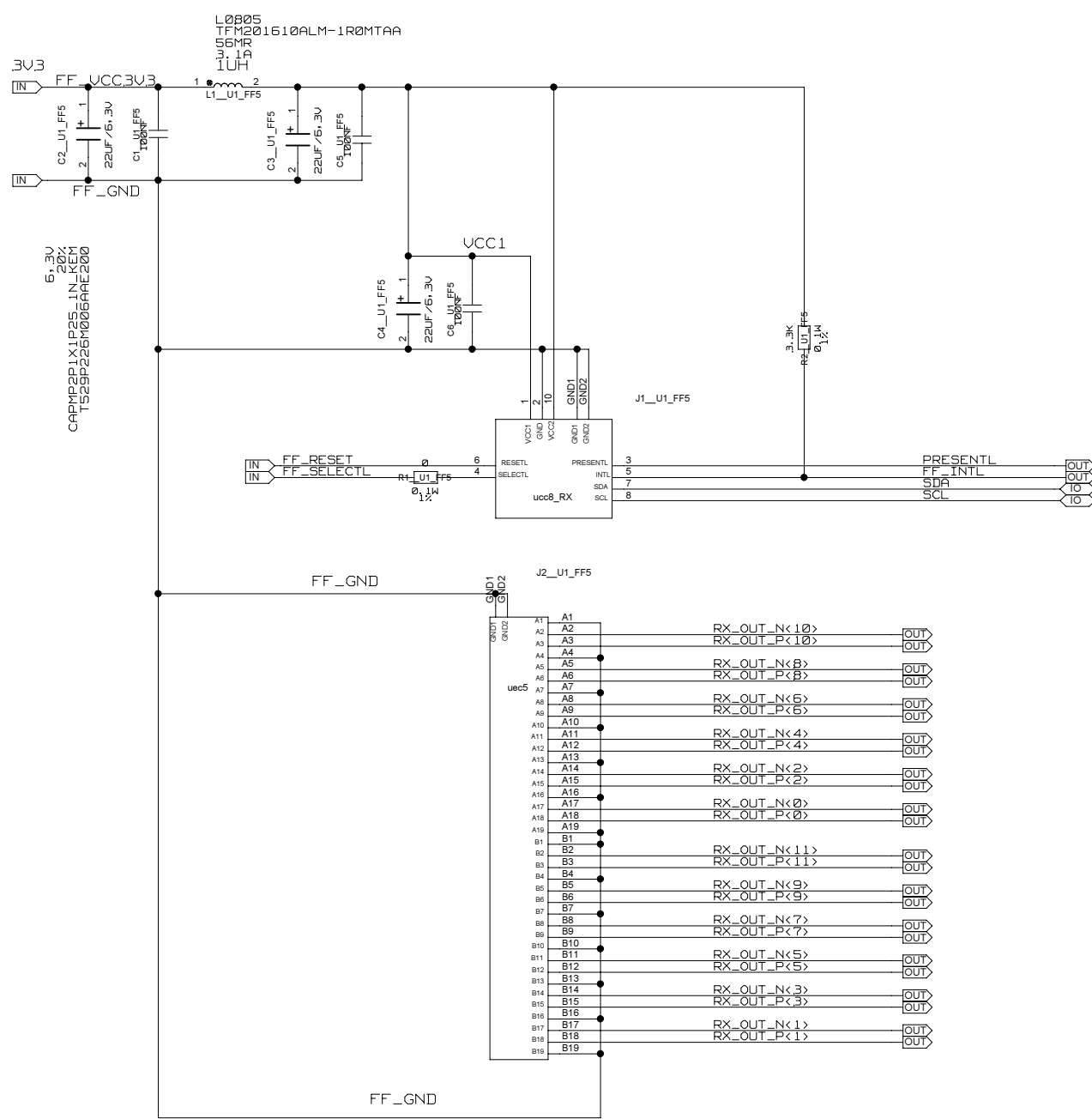
FFEX

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



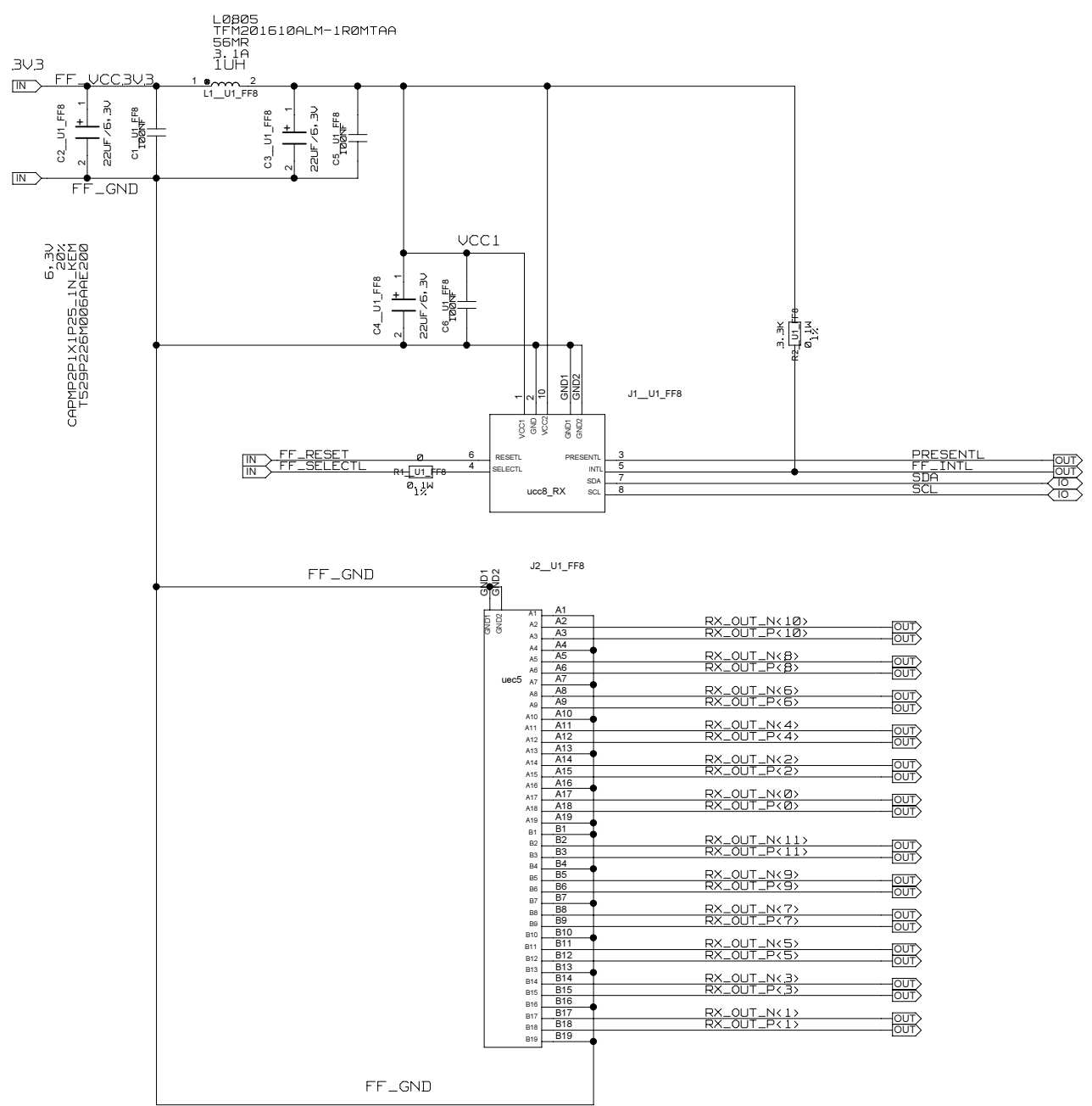
CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS			BLOCK TITLE	
				firefly_rx	
				B. BAUSS Thu Jun 15 14:51:14 2023	
<h2>UNIVERSITY OF MAINZ</h2>				SIZE	DRAWING NO.
				C	
SCALE				PAGE	
				22	102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



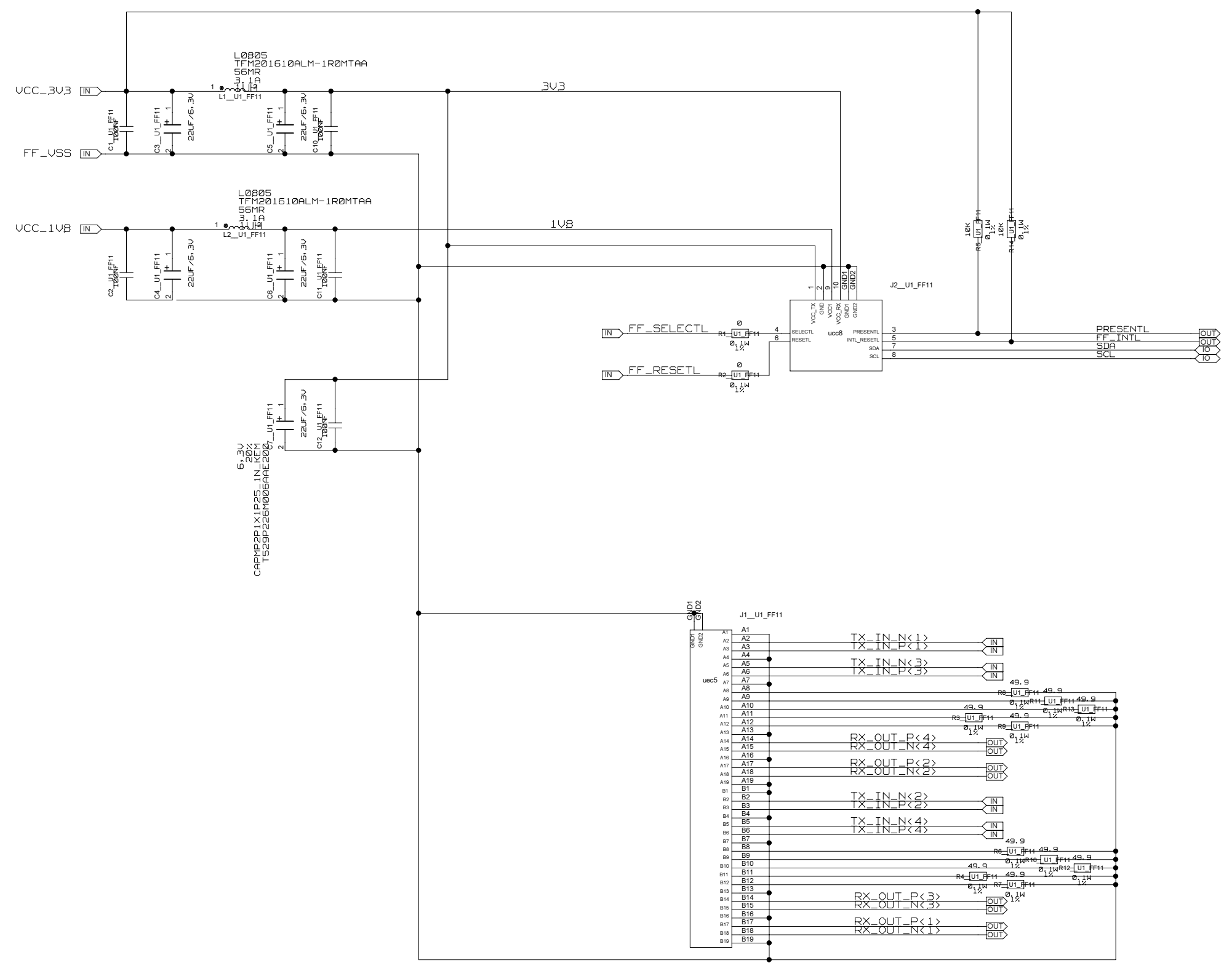
	NAME	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Thu Jun 15 14:51:14 2023
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE firefly_rx				SIZE C
UNIVERSITY OF MAINZ				REV.
SCALE				DRAWING NO.
				PAGE 23 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



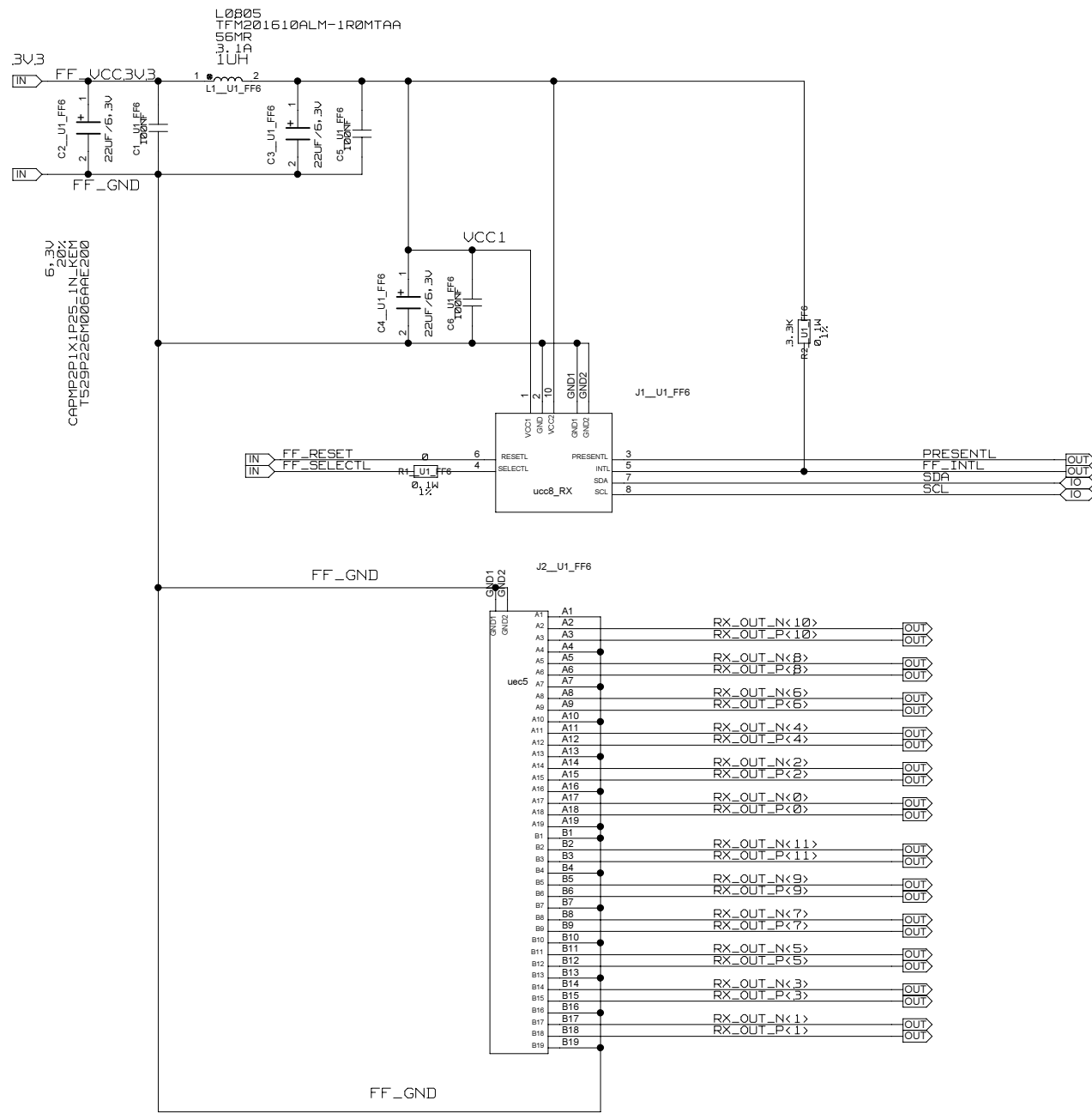
	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: right;">B. BAUSS Thu Jun 15 14:51:14 2023</p>
BLOCK TITLE				
firefly_rx				SIZE C REV. DRAWING NO.
UNIVERSITY OF MAINZ				SCALE PAGE 24 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



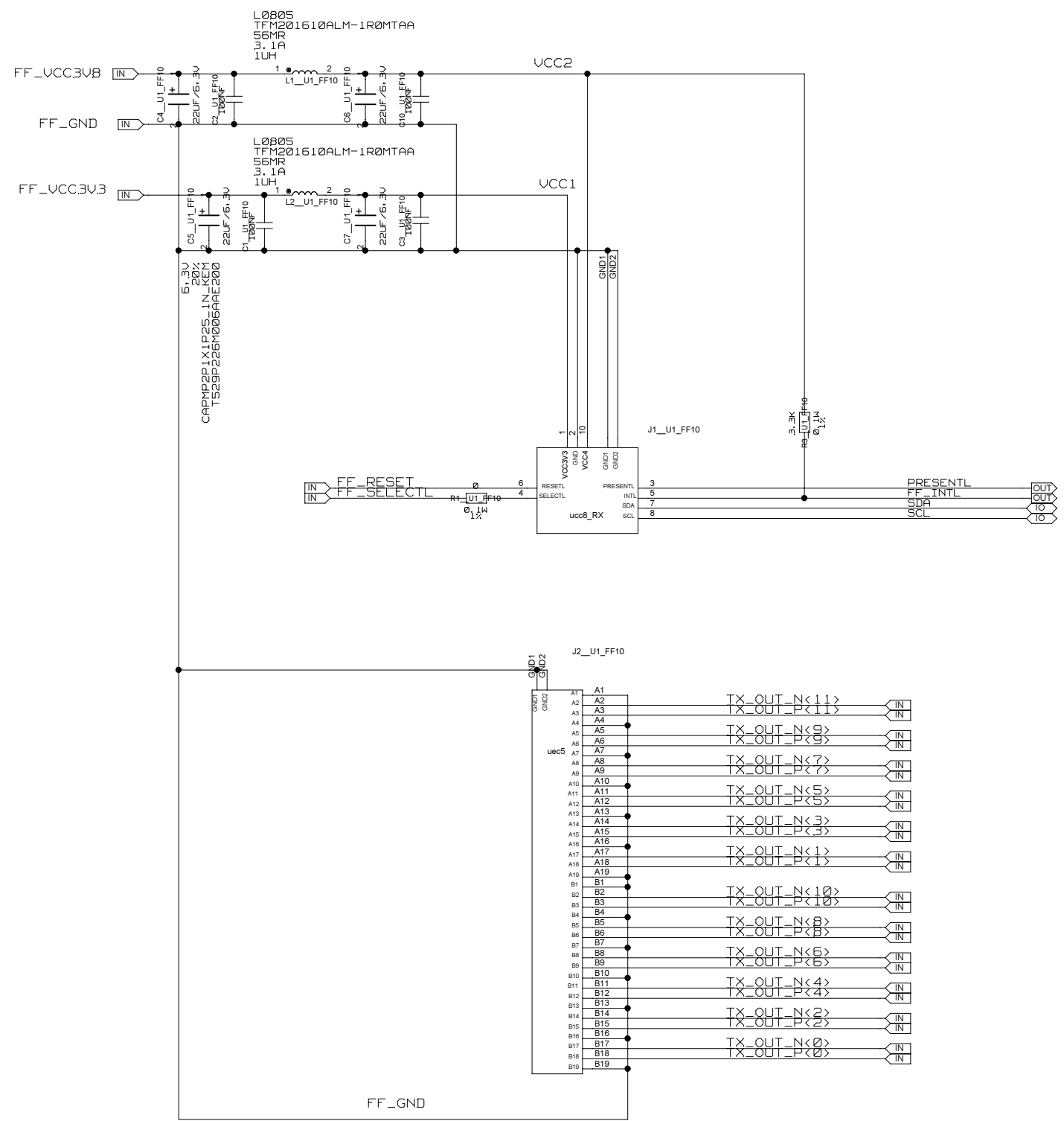
NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER		<h1>FFEX</h1> <p>B. BAUSS Thu Jun 15 14:42:47 2023</p>	
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE			DRAWING NO.	
firefly_rx_tx			DRAWING NO.	
UNIVERSITY OF MAINZ			SIZE	REV.
			C	
SCALE			PAGE	
			25 OF 102	

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



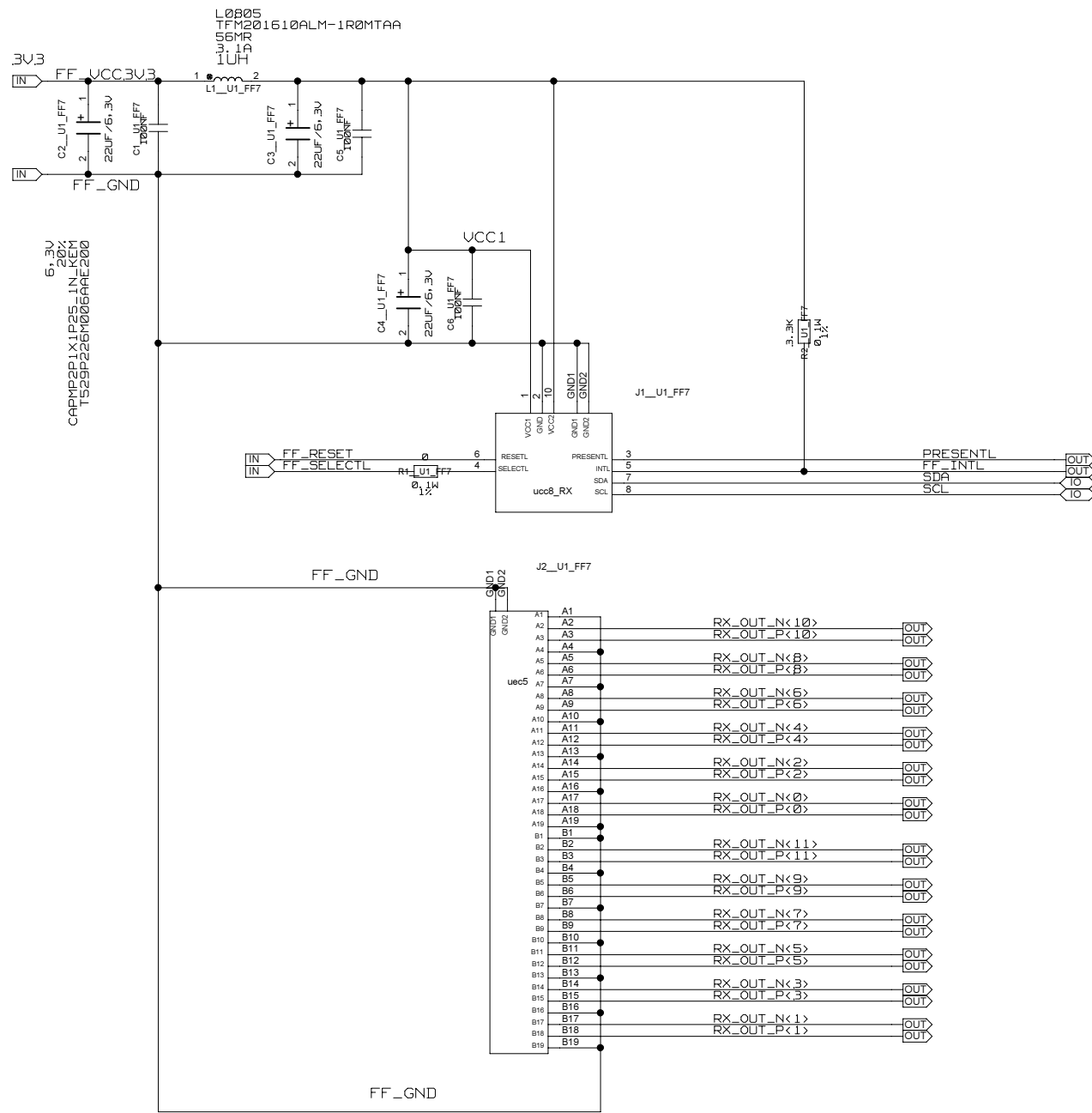
CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS			BLOCK TITLE	
				firefly_rx	
				B. BAUSS Thu Jun 15 14:51:14 2023	
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.	
		C			
SCALE				PAGE	
				26 OF 102	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



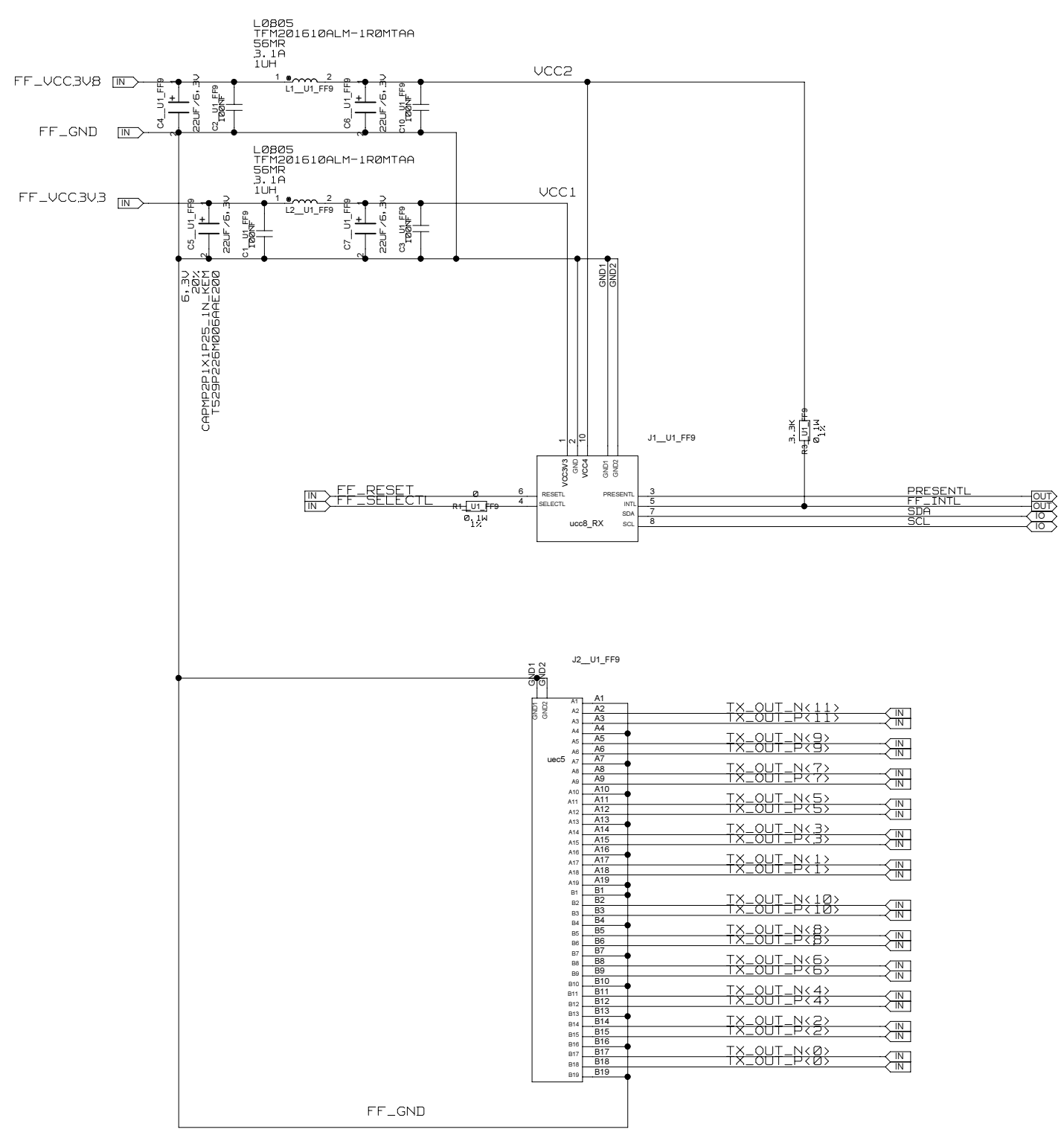
CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: right;">B. BAUSS Thu Jun 15 14:43:51 2023</p>
firefly_tx				
UNIVERSITY OF MAINZ			SIZE C REV. DRAWING NO.	
SCALE			PAGE 27 OF 102	

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



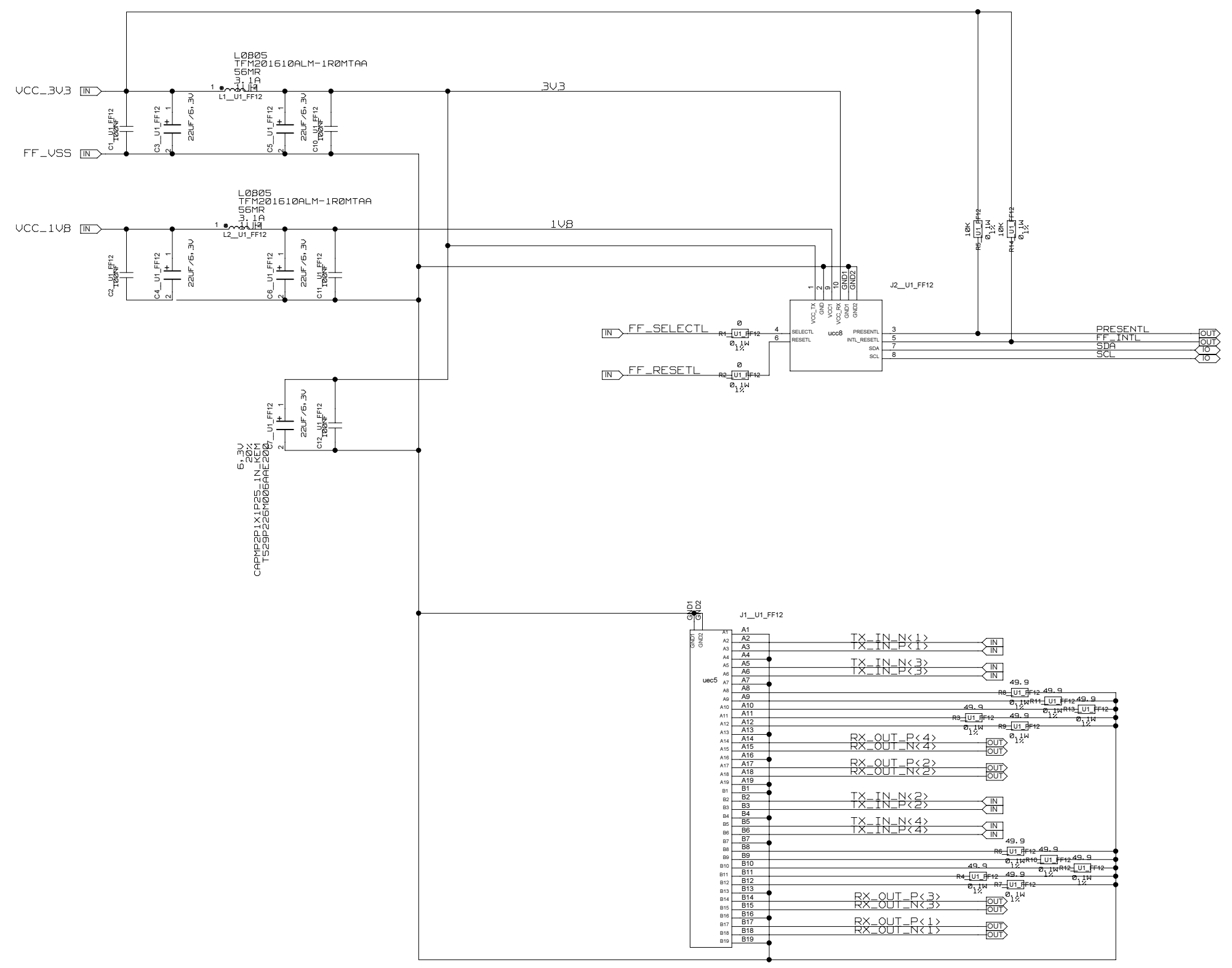
	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			FFEX
BLOCK TITLE				
firefly_rx				B. BAUSS Thu Jun 15 14:51:14 2023
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
SCALE				PAGE
				2B OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			FFEX
BLOCK TITLE				
firefly_tx				B. BAUSS Thu Jun 15 14:43:51 2023
UNIVERSITY OF MAINZ			SIZE	DRAWING NO.
			C	REV.
			SCALE	PAGE
				29 OF 102

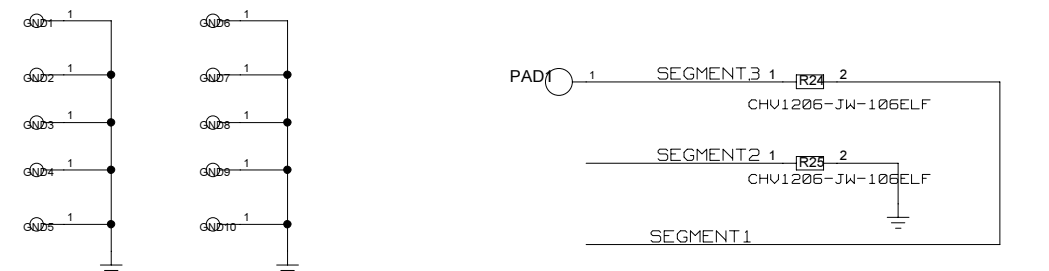
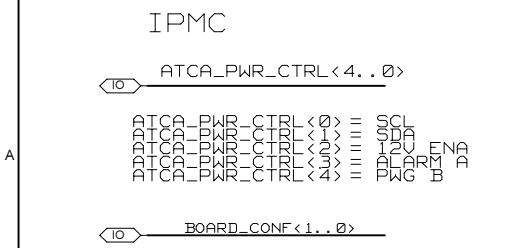
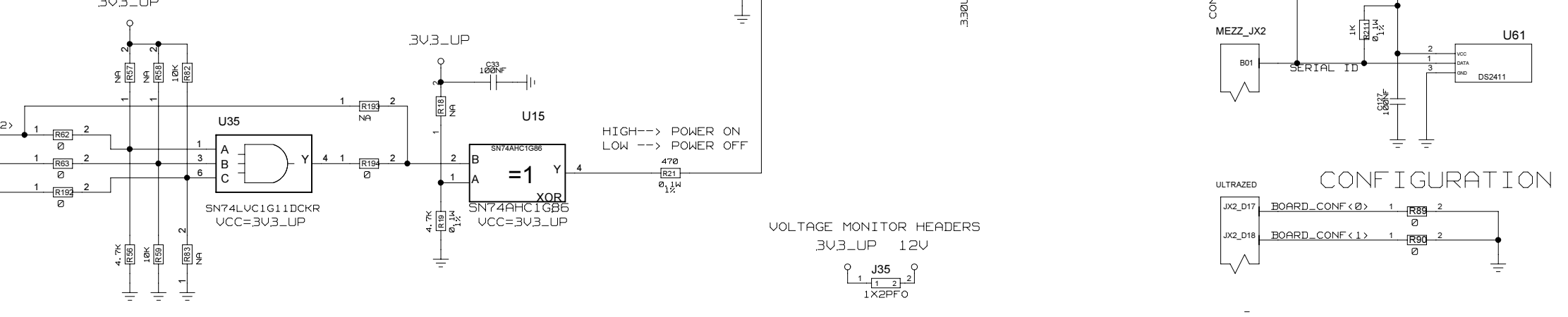
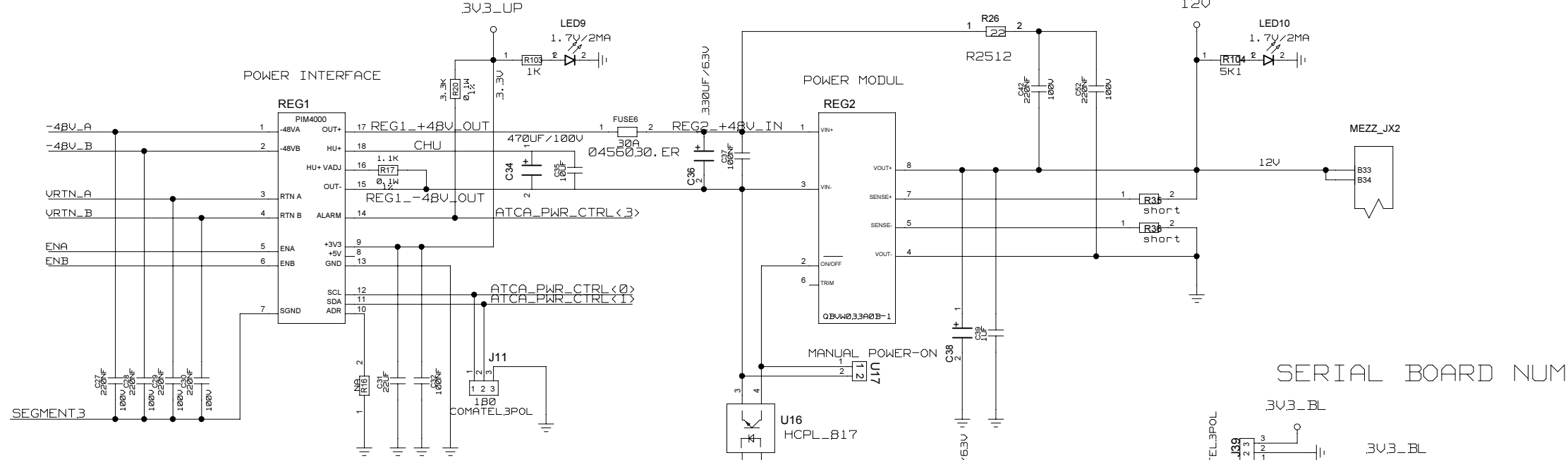
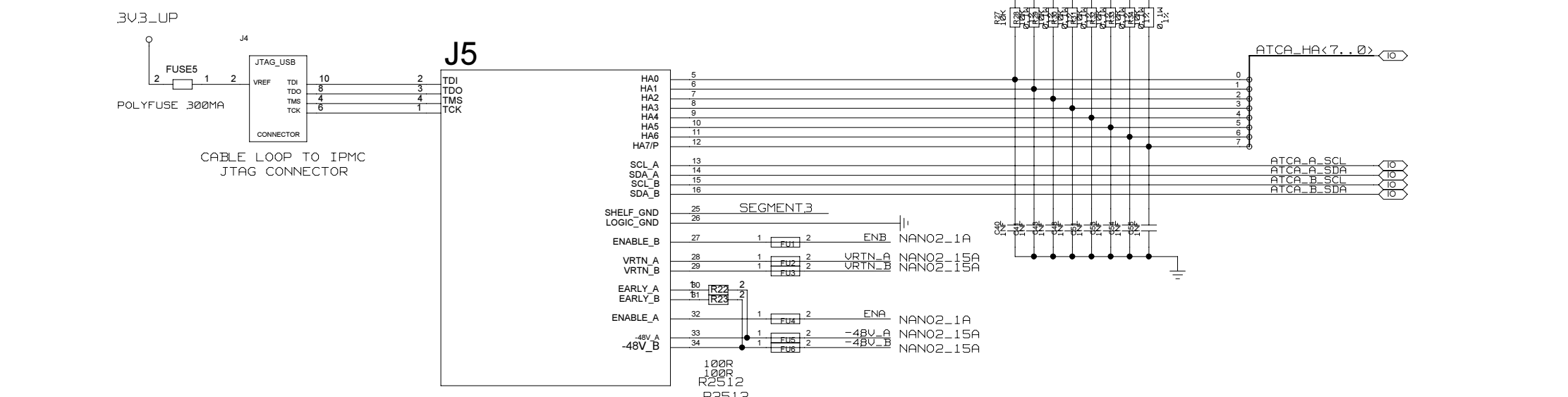
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



	NAME	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Thu Jun 15 14:42:47 2023
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE firefly_rx_tx				SIZE C
UNIVERSITY OF MAINZ				DRAWING NO.
SCALE				PAGE 30 OF 102

ATCA POWER IN & CTRL

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



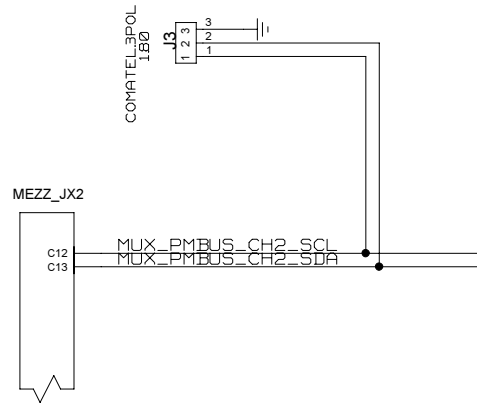
NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE	power_supply		
UNIVERSITY OF MAINZ			FFEX
B. BAUSS Fri Aug 18 09:49:30 2023			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE 31 OF 102	

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

PMBUS CONNECTORS

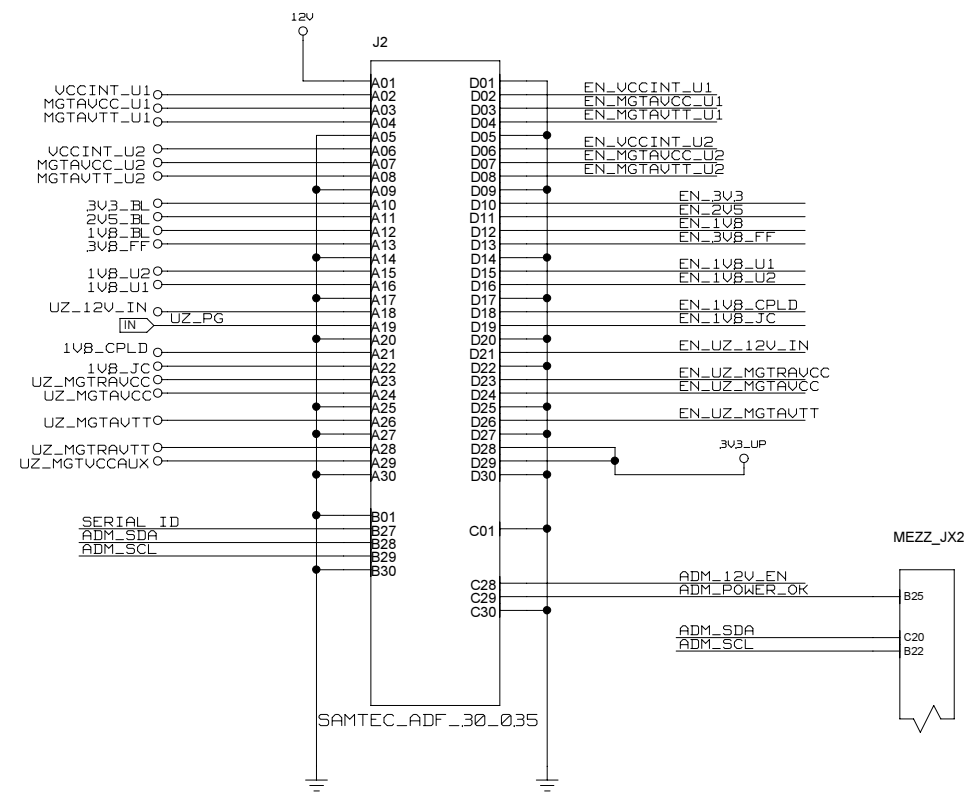
CTRL_MEZZ



CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER				
CHECKED					
CHECKED					
DRAWN	BAUSS			<p style="text-align: center;">FFEX</p> <p style="text-align: right;">B. BAUSS Fri Aug 18 09:49:30 2023</p>	
BLOCK TITLE					
power_supply				SIZE C	REV.
UNIVERSITY OF MAINZ				SCALE	DRAWING NO.
				PAGE 32 OF 102	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

POWER SEQUENCING MEZZ CONNECTOR

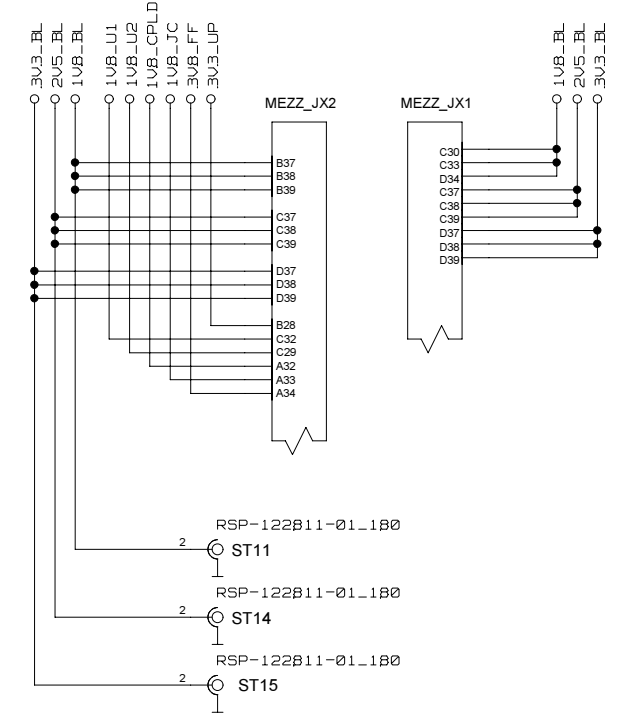
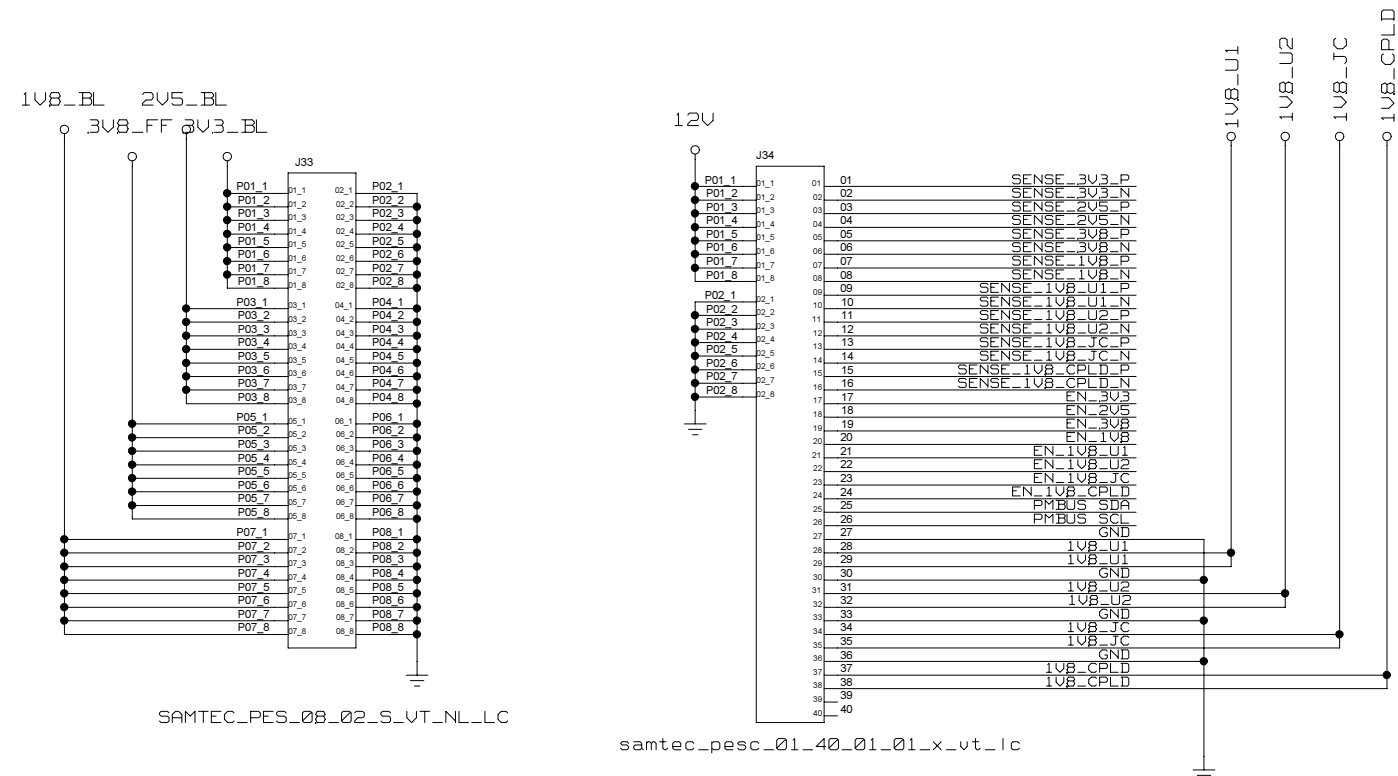


CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Fri Aug 18 09:49:31 2023
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			DRAWING NO.
BLOCK TITLE power_supply				
UNIVERSITY OF MAINZ				SIZE C
SCALE				REV.
PAGE 33 OF 102				

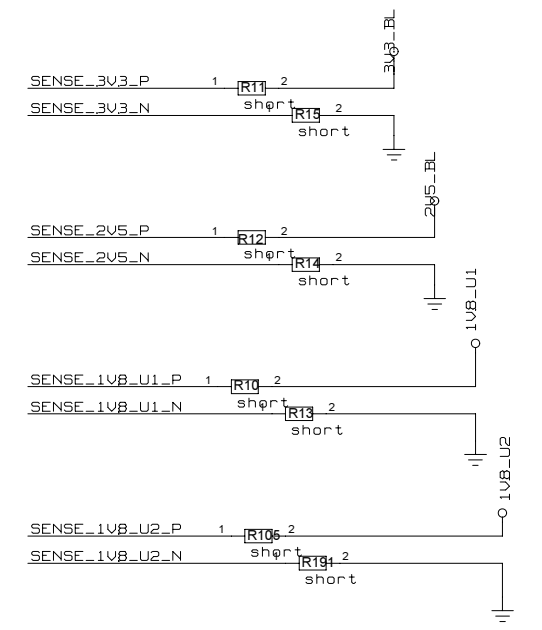
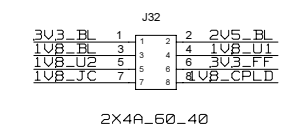
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

BOARDLEVEL

3V3_BL, 2V5_BL, 1V8_BL, 3V8_FF_BIAS, 1V8_U1, 1V8_U2
 1V8_CPLD, 1V8_JC



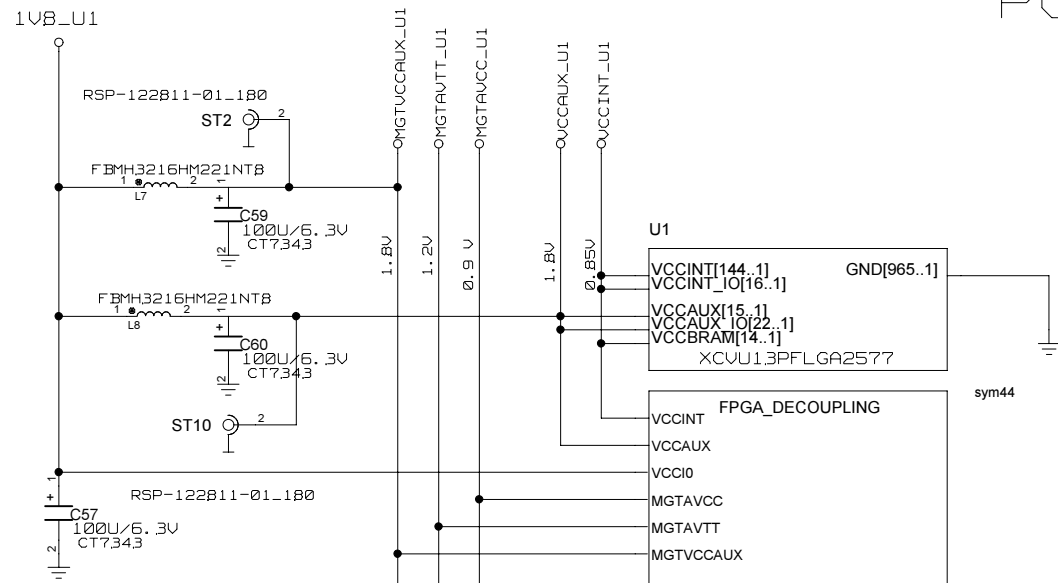
VOLTAGE MONITOR HEADERS



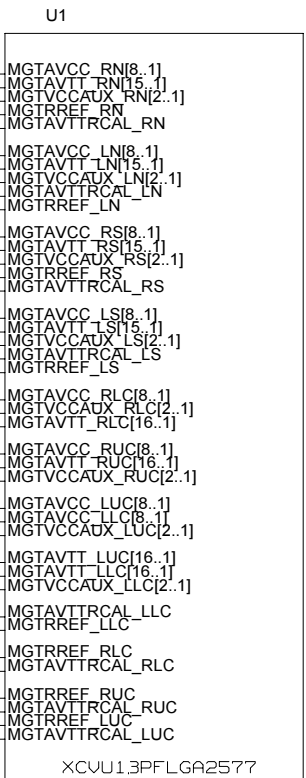
CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:31 2023</p>
power_supply				
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
		SCALE		PAGE
				34 OF 102

POWERSUPPLIES U1

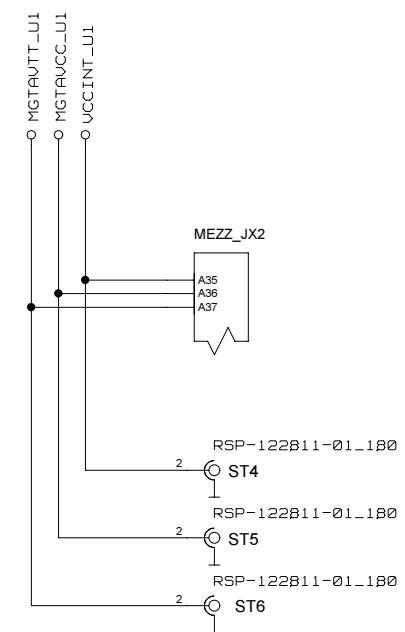
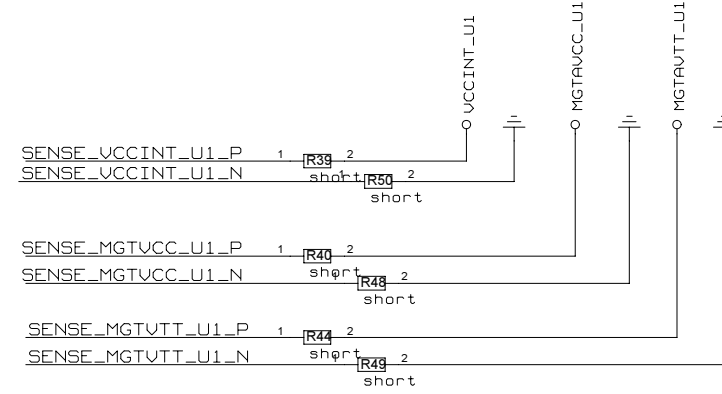
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



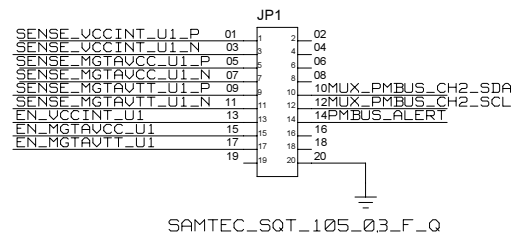
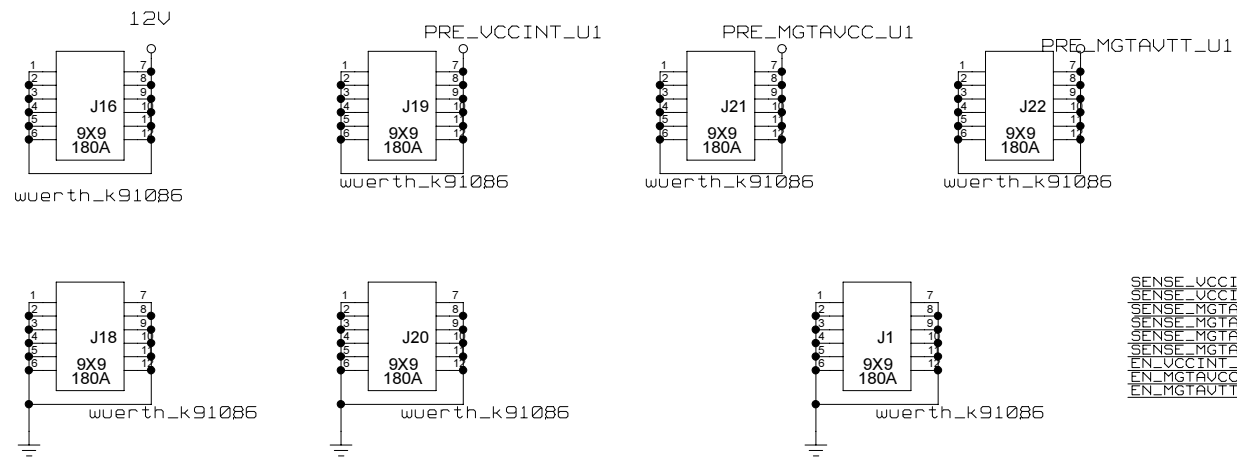
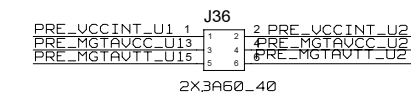
REF_DES_PATTERN=(\$PHYS_DES_PREFIX) [0-9]-A



TRACE LENGTH FROM RESISTOR PINS
TO PIN SAME LENGTH
UG576 SHEET 297



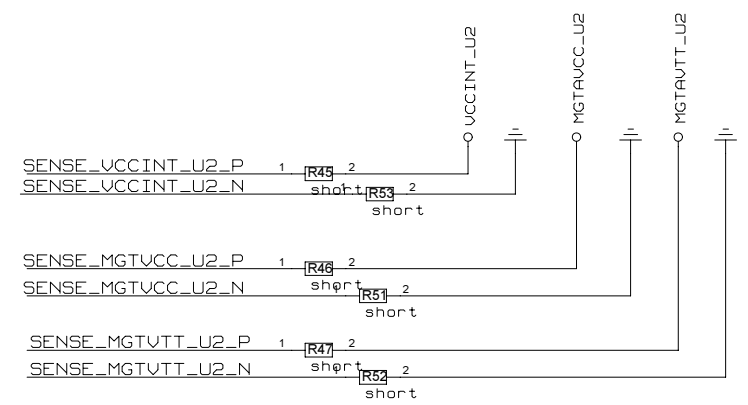
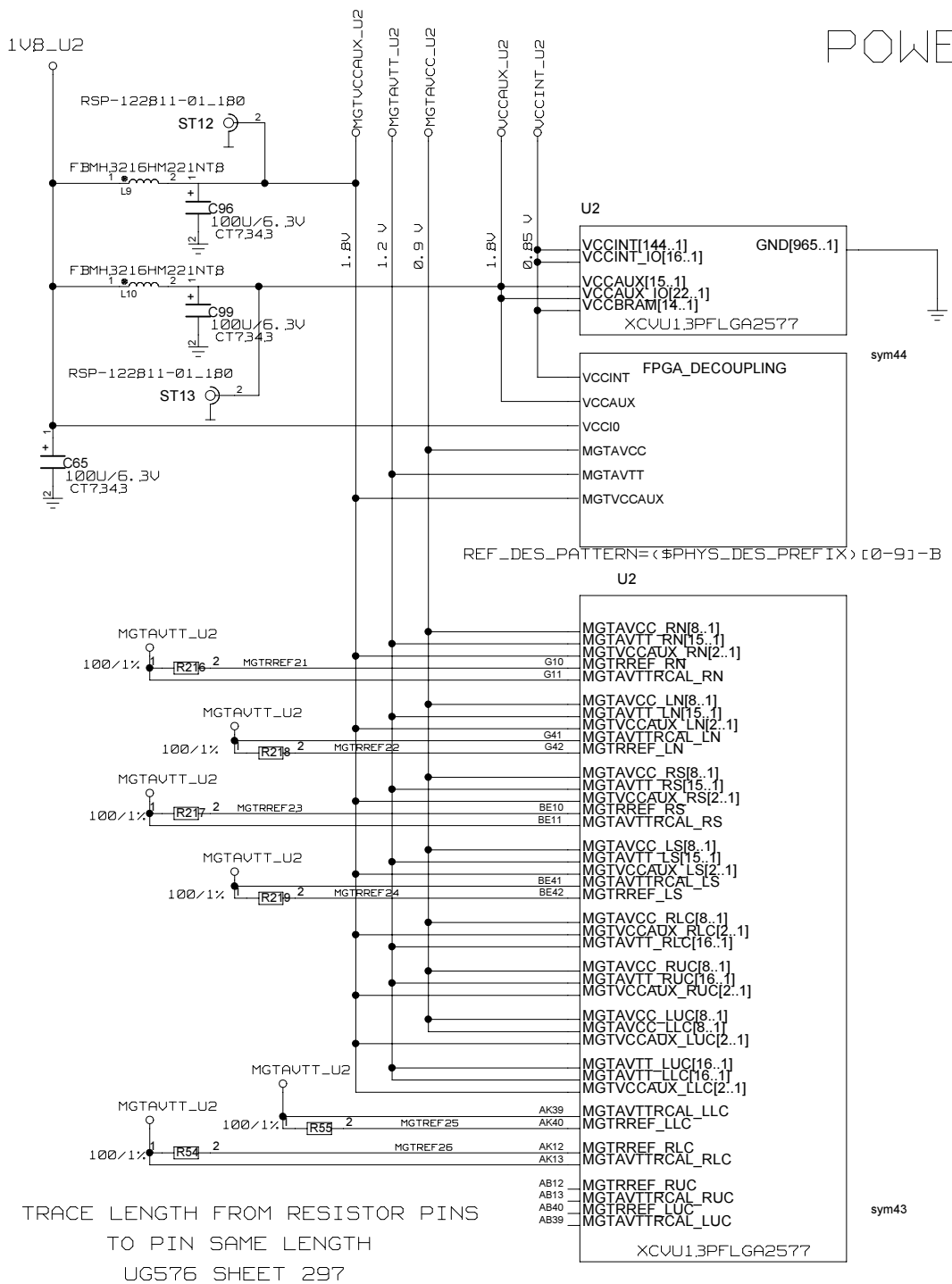
VOLTAGE MONITOR HEADERS



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1>FFEX</h1>
BLOCK TITLE				
power_supply				B. BAUSS Fri Aug 18 09:49:31 2023
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
		SCALE		PAGE
				35 OF 102

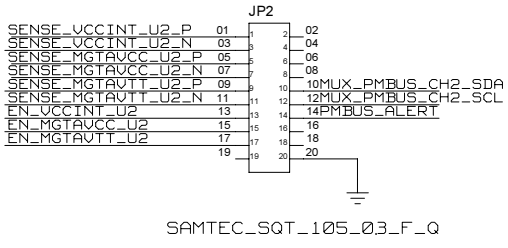
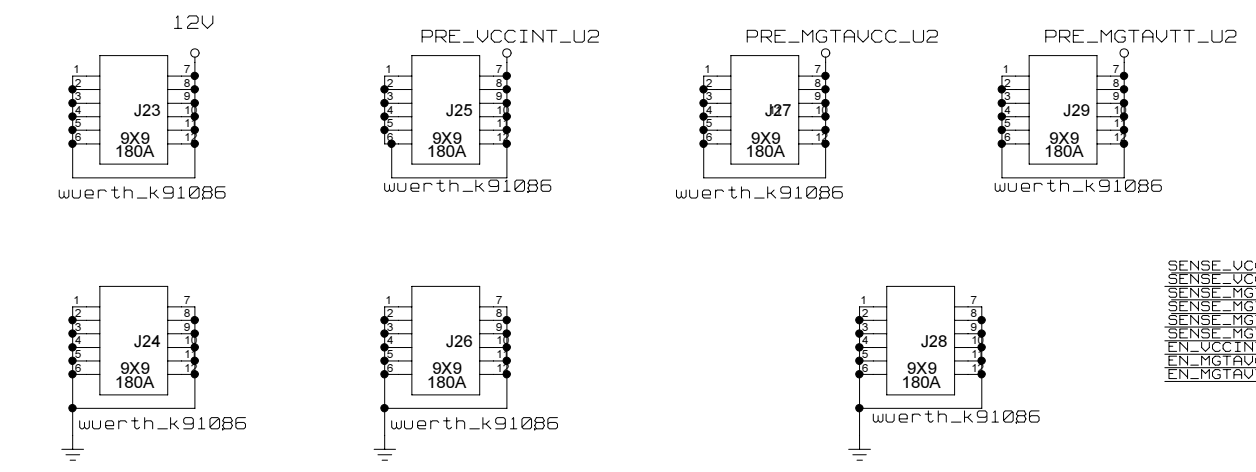
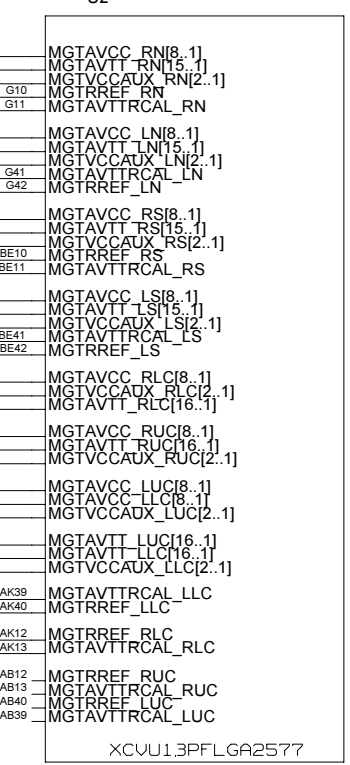
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

POWERSUPPLIES U2



TRACE LENGTH FROM RESISTOR PINS
TO PIN SAME LENGTH
UG576 SHEET 297

REF_DES_PATTERN=(\$PHYS_DES_PREFIX) [0-9] -B



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			power_supply
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE 36 OF 102	

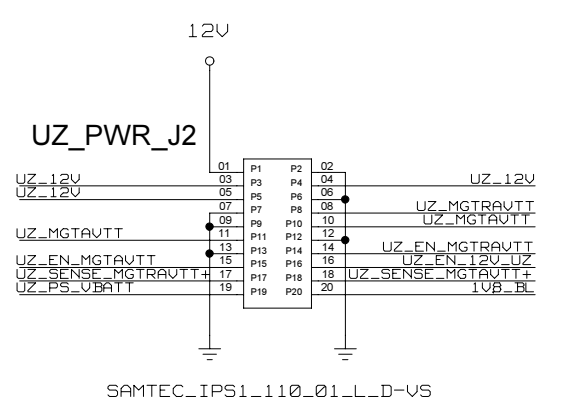
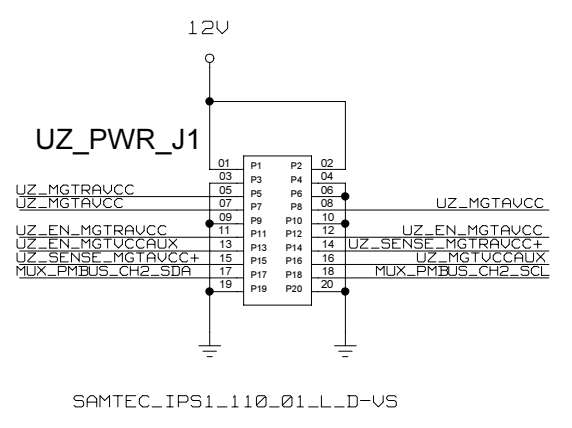
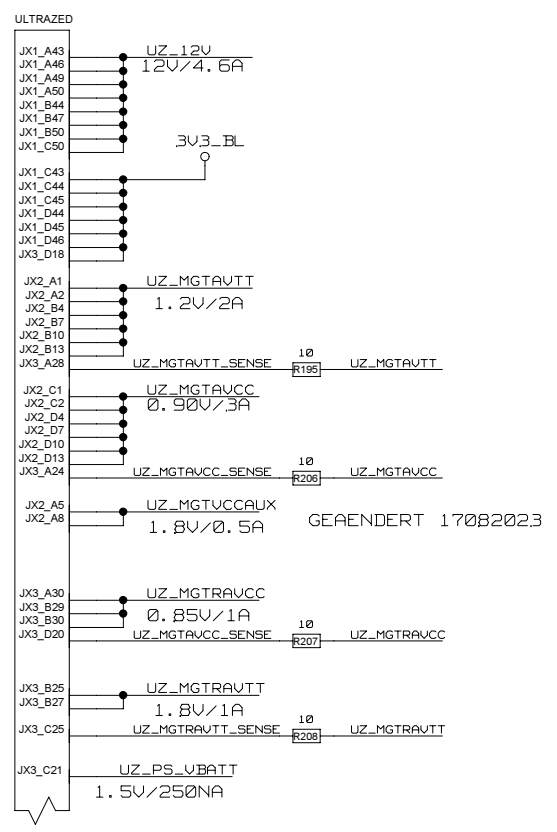
FFEX

B. BAUSS Fri Aug 18 09:49:31 2023

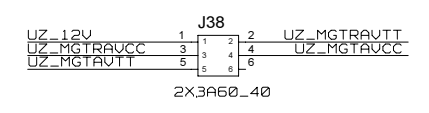
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

ULTRAZED

POWERSUPPLY ULTRAZED



VOLTAGE MONITOR HEADERS



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				DRAWING NO.
power_supply				
UNIVERSITY OF MAINZ				SIZE C
SCALE				REV.
PAGE 37 OF 102				B. BAUSS Fri Aug 18 09:49:32 2023

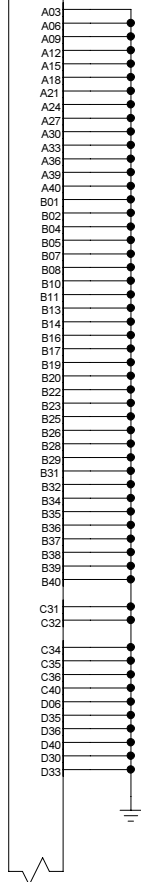
FFEX

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

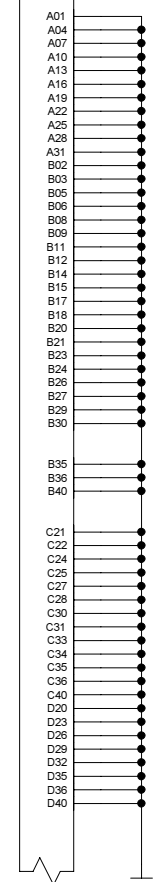
CTRL_MEZZ GND

ULTRAZED GND

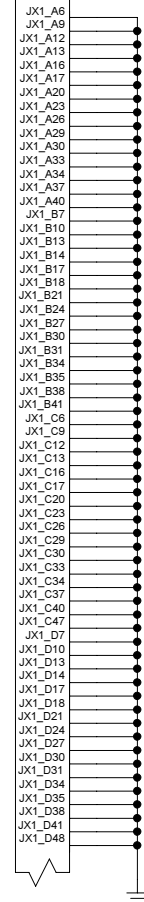
MEZZ_JX1



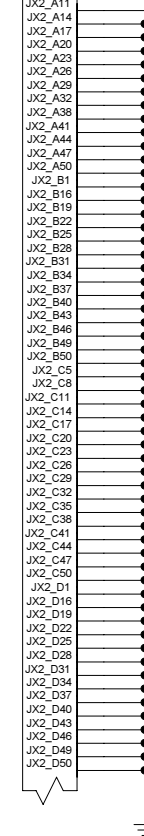
1200 MEZZ_JX2



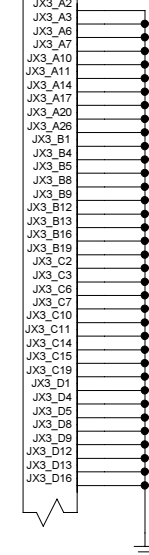
ULTRAZED



ULTRAZED



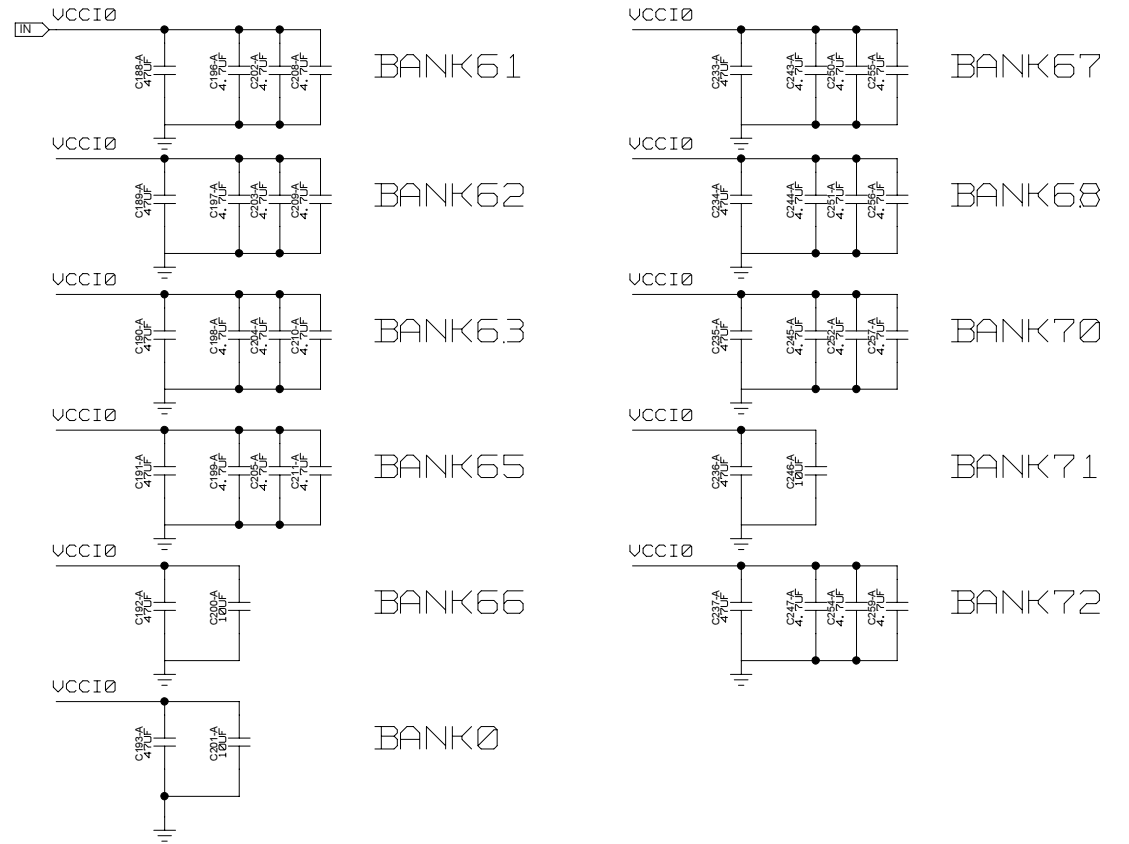
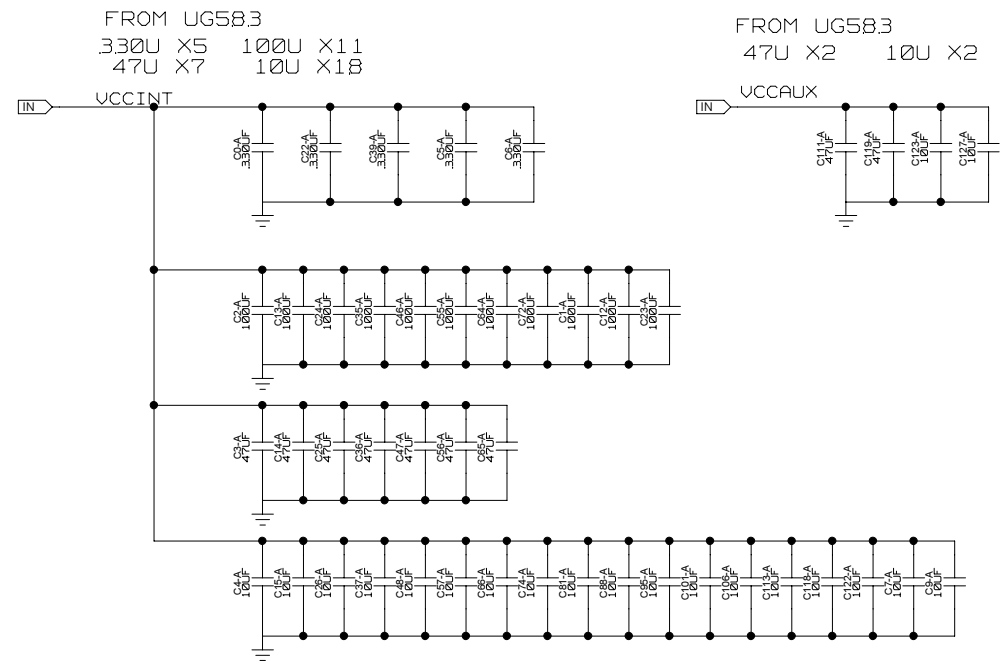
ULTRAZED



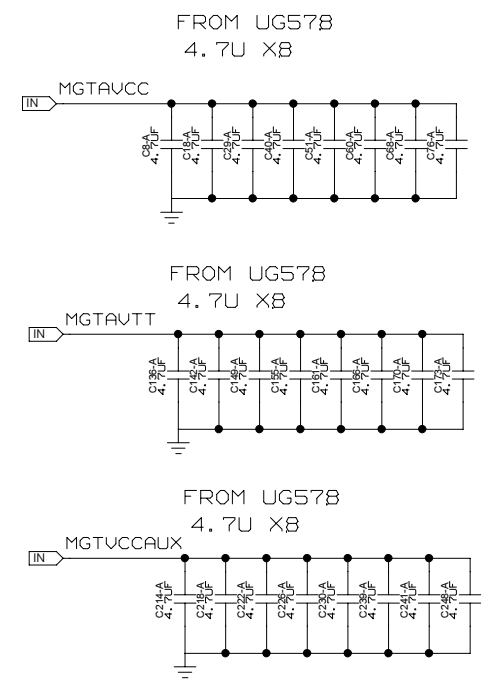
CHECKED	U.SCHAEFER			DRAWING TITLE FFEX B. BAUSS Fri Aug 18 09:49:32 2023
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE power_supply				DRAWING NO.
UNIVERSITY OF MAINZ				SCALE
				PAGE 3B OF 102

VCCINT VCCAUX VCCIO DECOUPLING

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



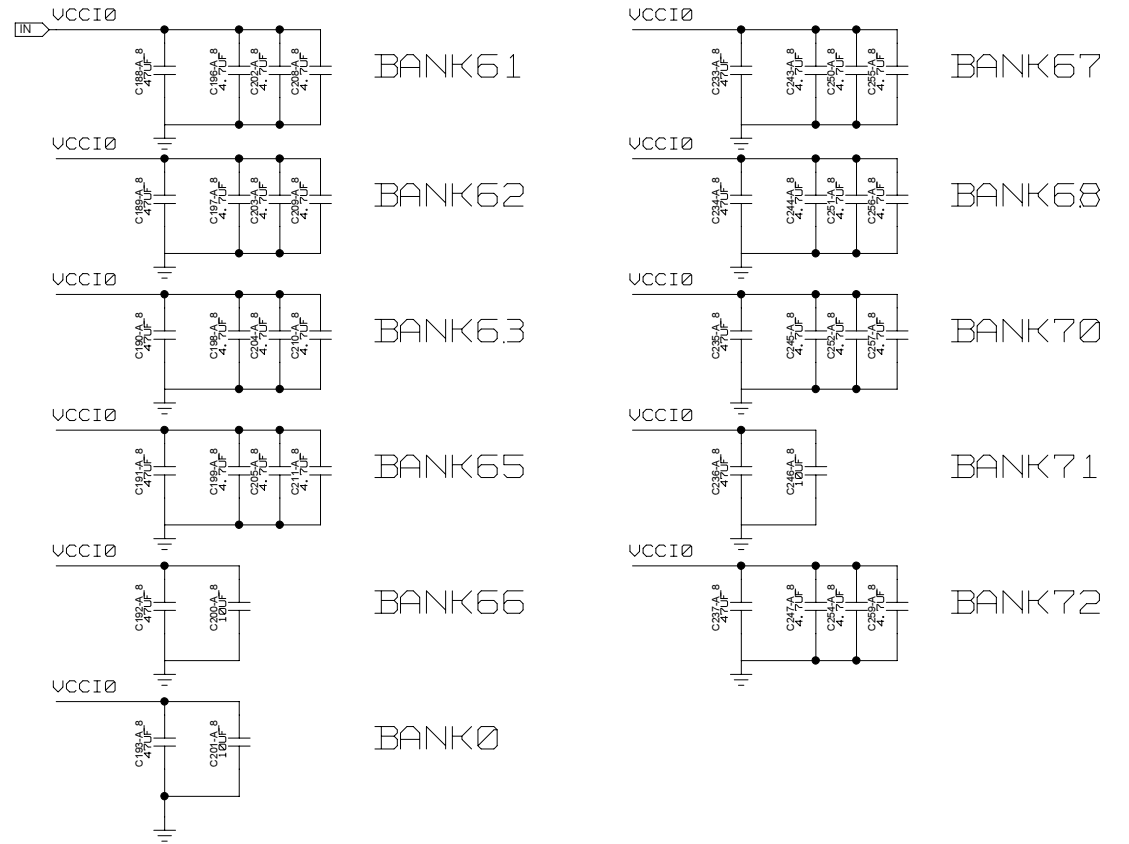
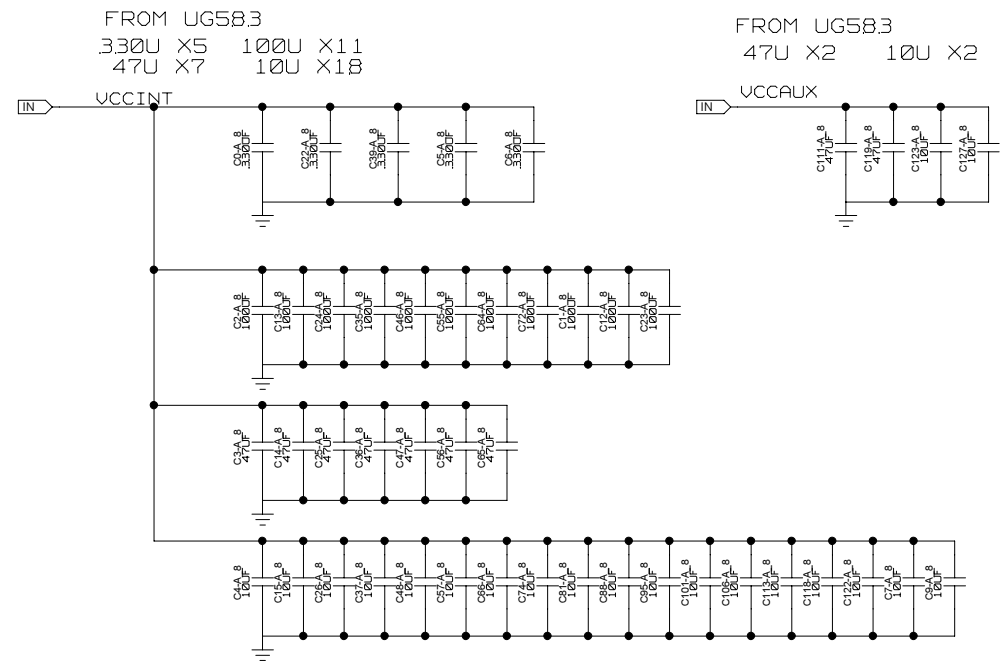
MGT DECOUPLING



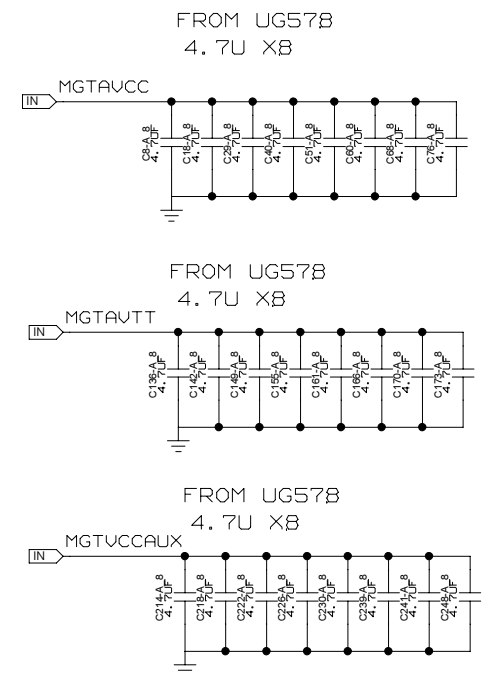
	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			FFEX	
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Fri Aug 18 09:49:18 2023	
BLOCK TITLE				SIZE	DRAWING NO.
fpga_decoupling				C	
UNIVERSITY OF MAINZ				SCALE	PAGE
					39 OF 102

VCCINT VCCAUX VCCIO DECOUPLING

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



MGT DECOUPLING



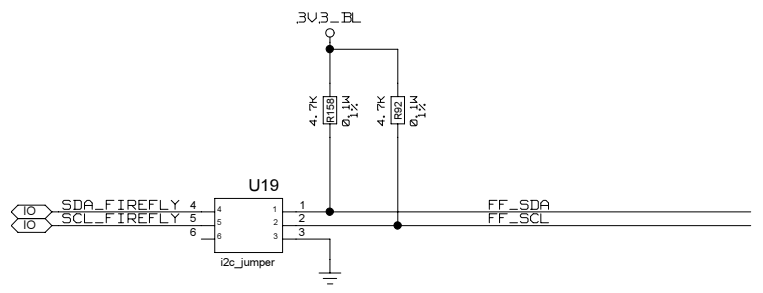
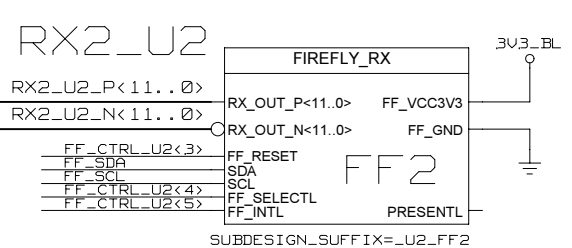
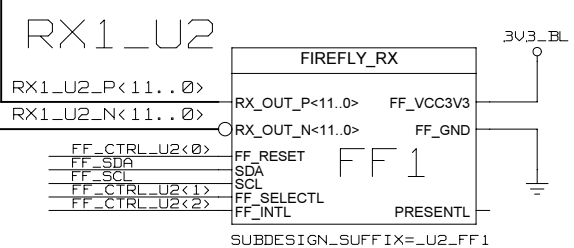
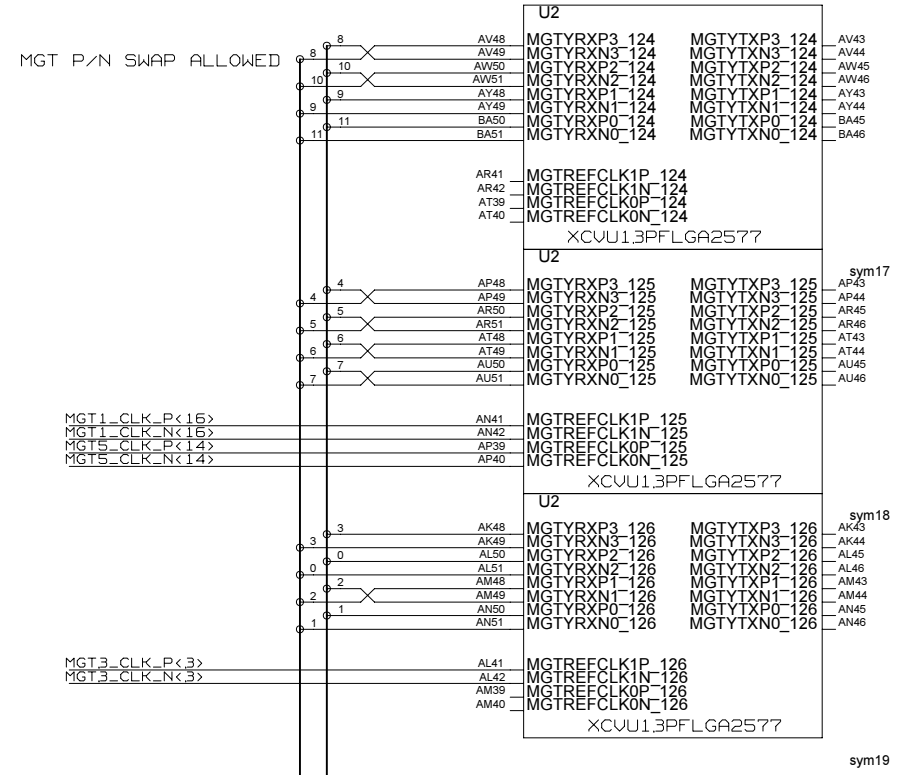
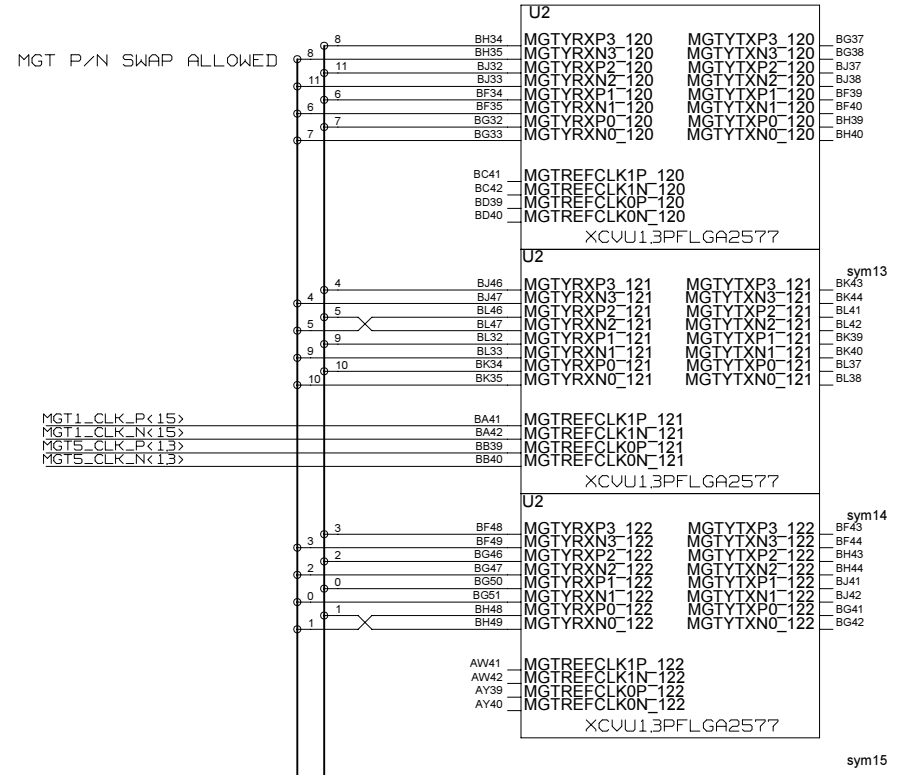
	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			FFEX	
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Fri Aug 18 09:49:18 2023	
BLOCK TITLE				SIZE	DRAWING NO.
fpga_decoupling				C	
UNIVERSITY OF MAINZ				SCALE	PAGE
					40 OF 102

HIGH SPEED OPTICAL LINKS

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE

120, 121, 122

124, 125, 126



- FF_CTRL_U2<35..0>
- MGT1_CLK_P<24..1>
- MGT1_CLK_N<24..1>
- MGT2_CLK_P<6..1>
- MGT2_CLK_N<6..1>
- MGT3_CLK_P<6..1>
- MGT3_CLK_N<6..1>
- MGT4_CLK_P<6..1>
- MGT4_CLK_N<6..1>
- MGT5_CLK_P<24..1>
- MGT5_CLK_N<24..1>

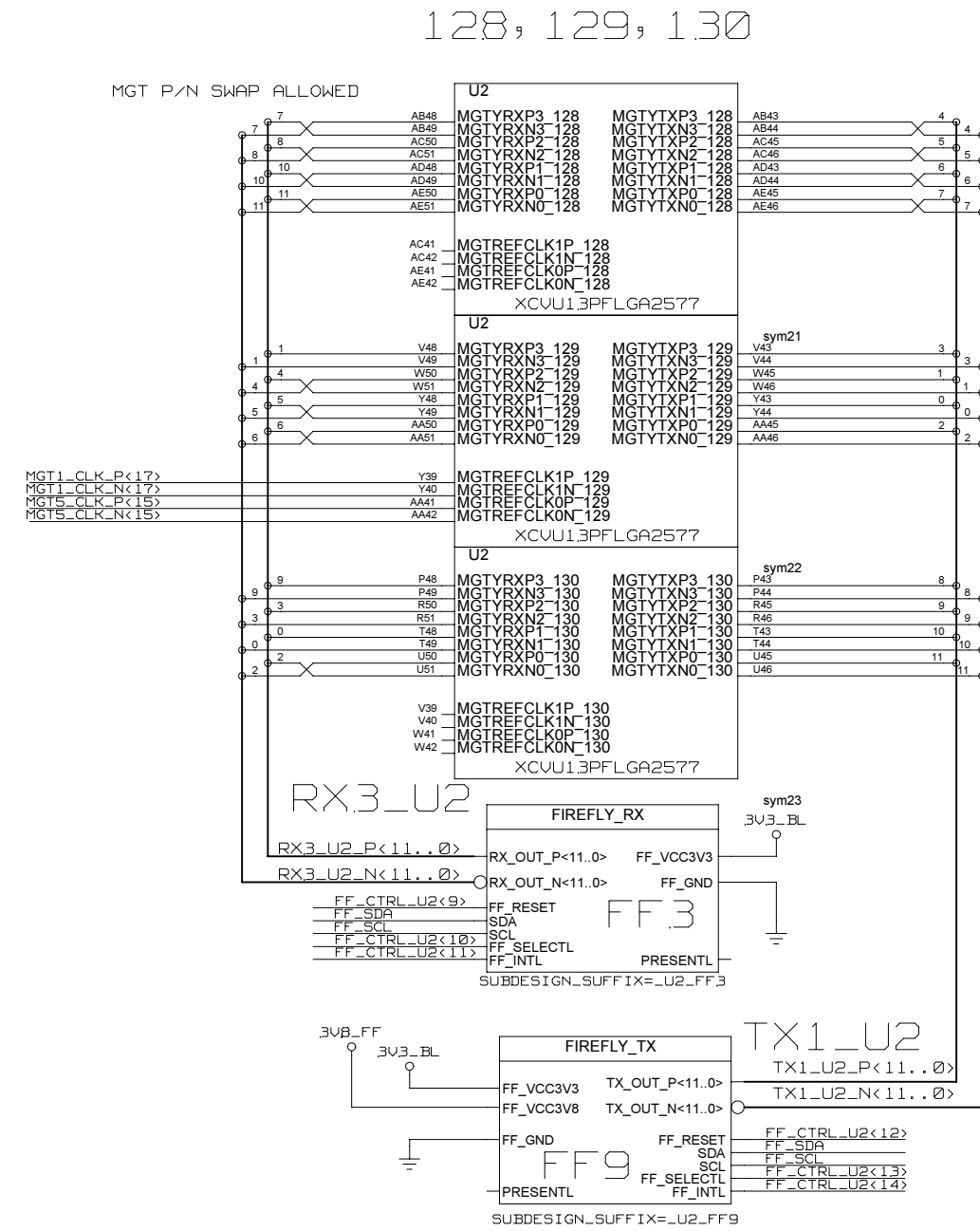
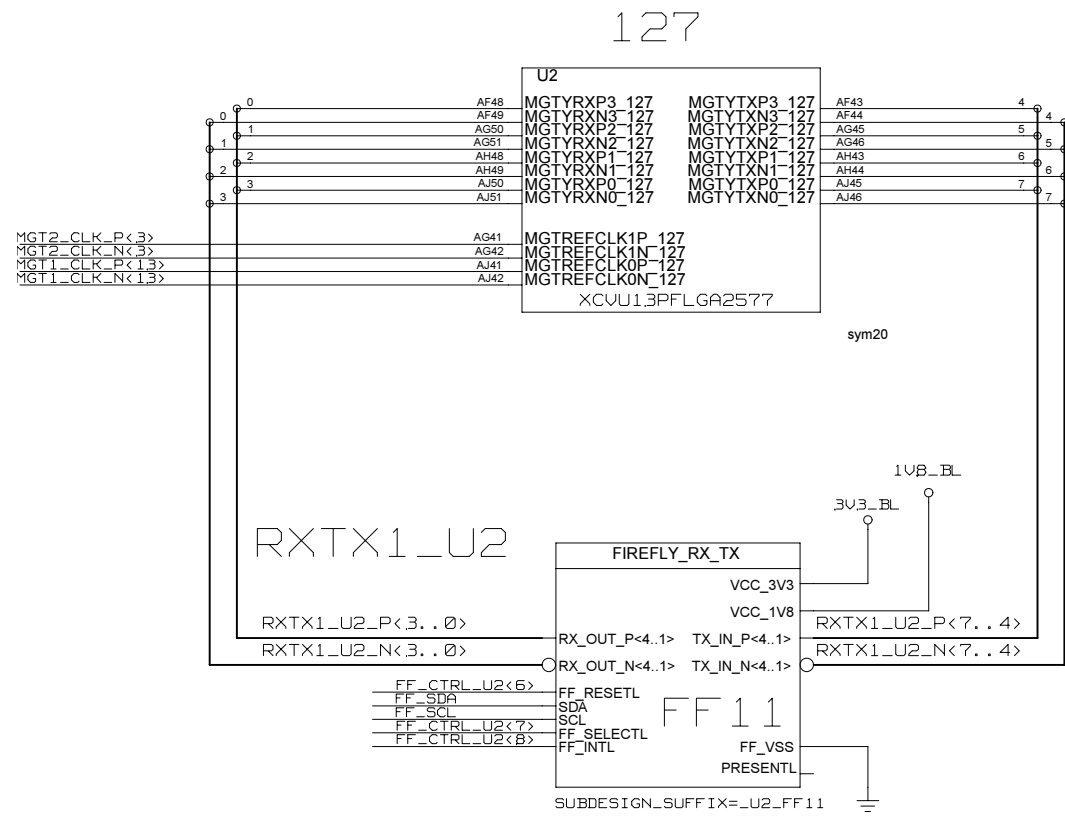
NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			
u2_mgt_real_time			
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		41 OF 102	

FFEX

B. BAUSS Fri Aug 18 09:49:20 2023

HIGH SPEED OPTICAL LINKS

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			
u2_mgt_real_time			
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		42 OF 102	

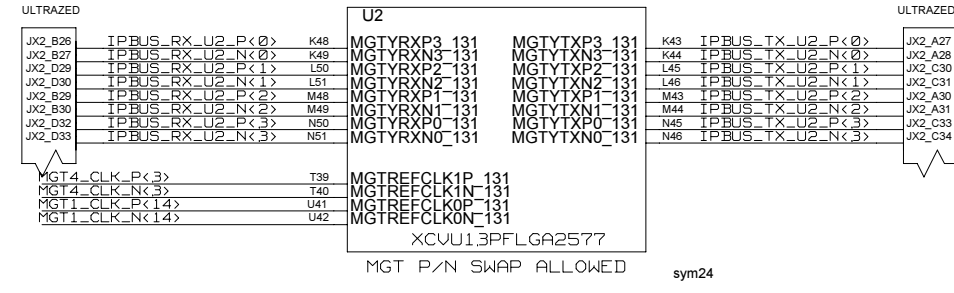
FFEX

B. BAUSS Fri Aug 18 09:49:20 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

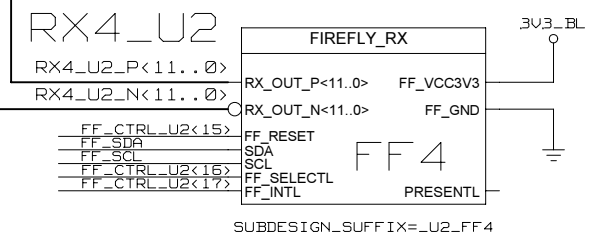
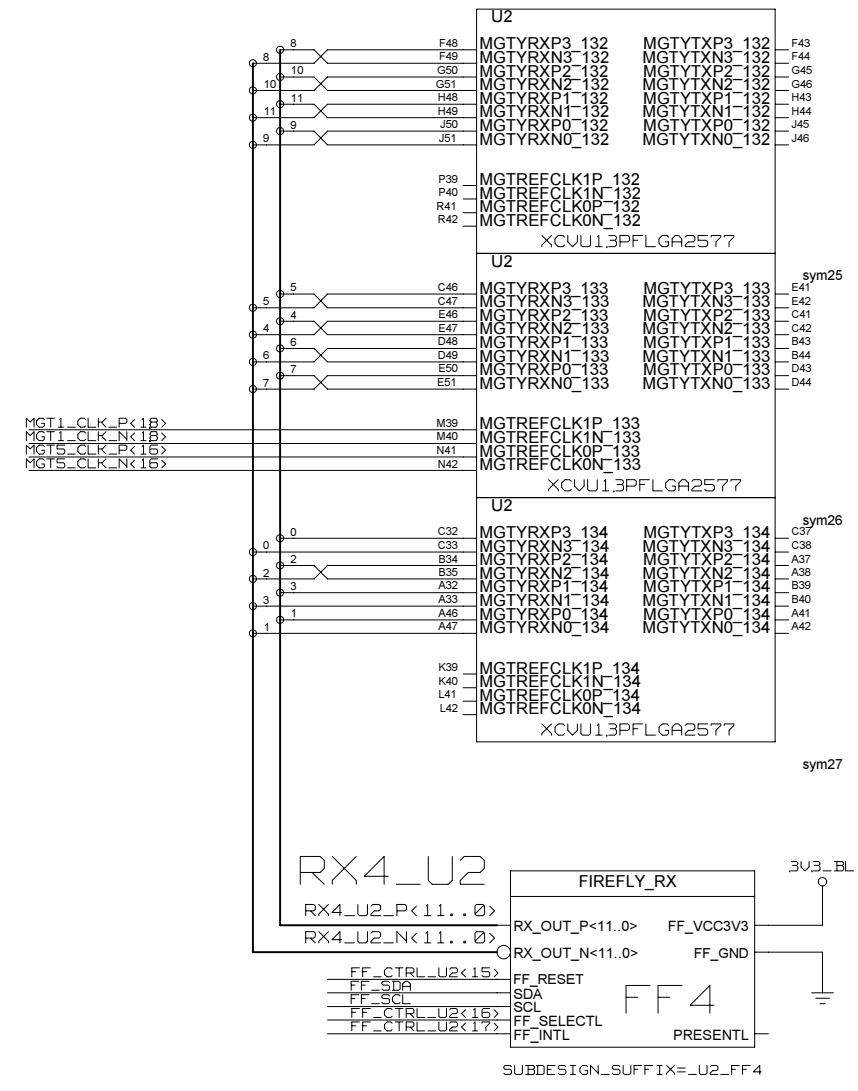
HIGH SPEED OPTICAL LINKS

1.31



MGT P/N SWAP ALLOWED

1.32, 1.33, 1.34



NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER		FFEX	
CHECKED				
CHECKED				
DRAWN	BAUSS		DRAWING NO.	
BLOCK TITLE			PAGE	
u2_mgt_real_time			43 OF 102	
UNIVERSITY OF MAINZ			SIZE	REV.
			C	
			SCALE	

FFEX

B. BAUSS Fri Aug 18 09:49:21 2023

DRAWING NO. PAGE 43 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

U2

G32	MGTYRXP3_135	MGTYXP3_135	G37
G33	MGTYRXN3_135	MGTYXN3_135	G38
F34	MGTYRXP2_135	MGTYXP2_135	F39
F35	MGTYRXN2_135	MGTYXN2_135	F40
E32	MGTYRXP1_135	MGTYXP1_135	E37
E33	MGTYRXN1_135	MGTYXN1_135	E38
D34	MGTYRXP0_135	MGTYXP0_135	D39
D35	MGTYRXN0_135	MGTYXN0_135	D40

H40 MGTREFCLK1N_135
H39 MGTREFCLK1P_135
J42 MGTREFCLK0N_135
J41 MGTREFCLK0P_135

XCVU13PFLGA2577

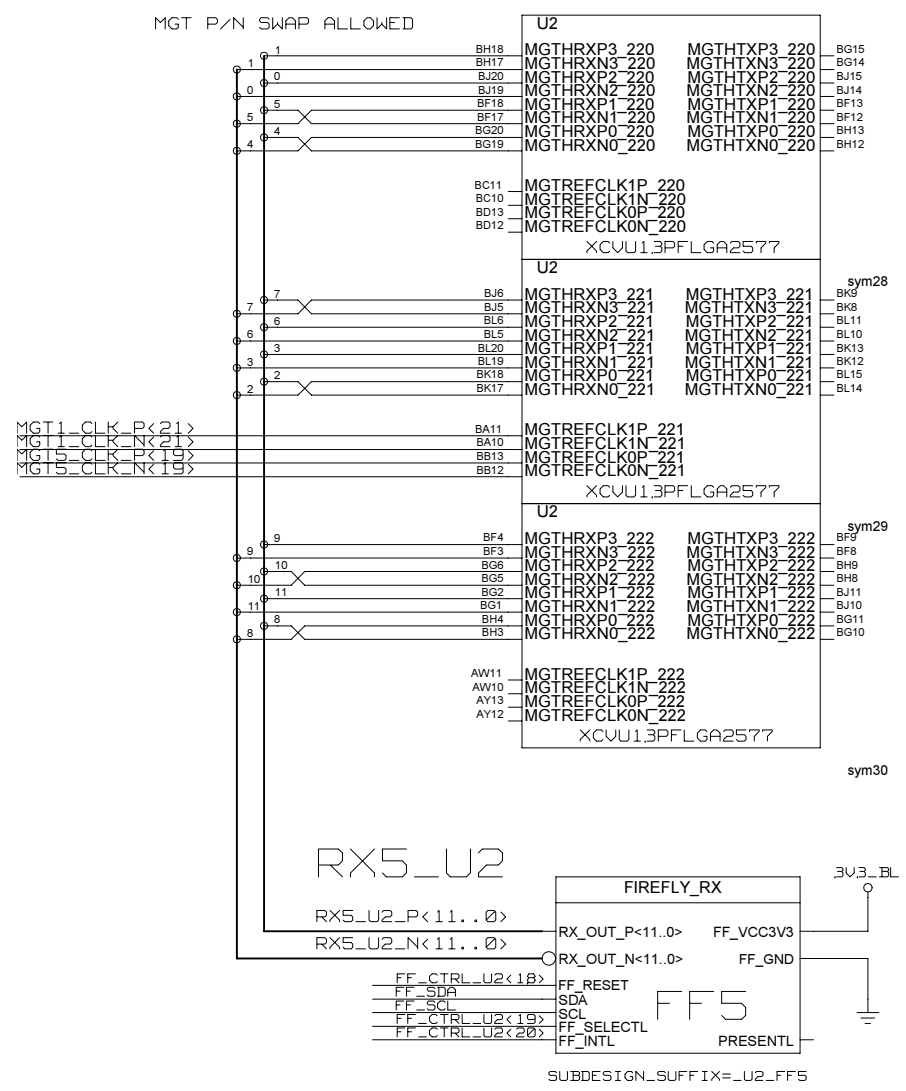
sym46

CHECKED	NAME	DATE	SIGN	DRAWING TITLE						
CHECKED	U.SCHAEFER									
CHECKED										
CHECKED										
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: right; font-size: small;">B. BAUSS Fri Aug 18 09:24:12 2023</p>						
BLOCK TITLE										
u2_mgt_real_time				<table border="1"> <tr> <td>SIZE</td> <td>REV.</td> <td>DRAWING NO.</td> </tr> <tr> <td>C</td> <td></td> <td></td> </tr> </table>	SIZE	REV.	DRAWING NO.	C		
SIZE	REV.	DRAWING NO.								
C										
UNIVERSITY OF MAINZ				<table border="1"> <tr> <td>SCALE</td> <td>PAGE</td> </tr> <tr> <td></td> <td>44 OF 102</td> </tr> </table>	SCALE	PAGE		44 OF 102		
SCALE	PAGE									
	44 OF 102									

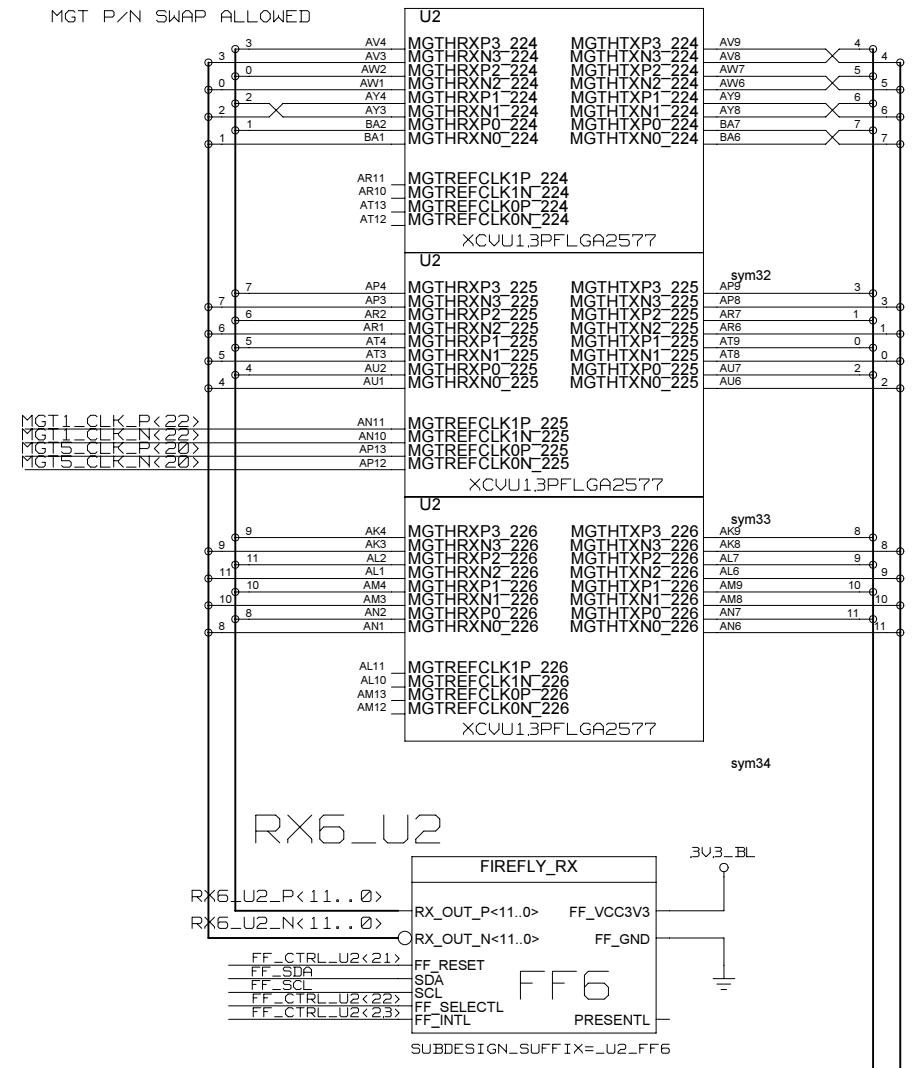
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

HIGH SPEED OPTICAL LINKS

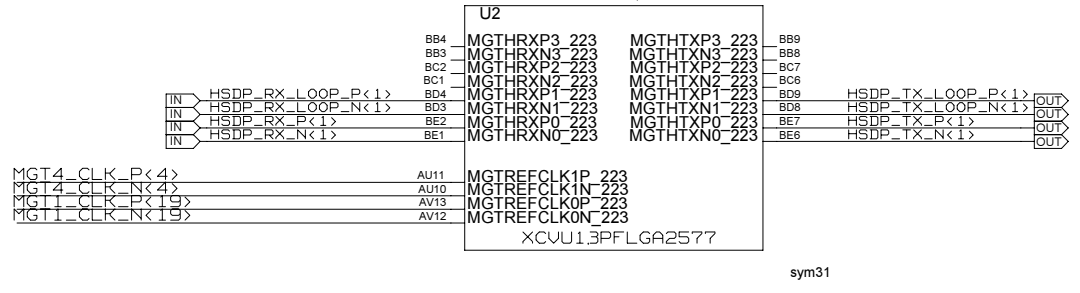
220, 221, 222



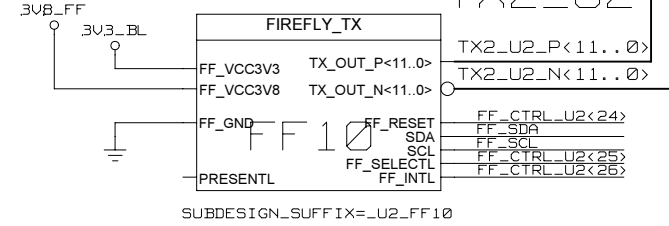
224, 225, 226



HSDP
223



TX2_U2

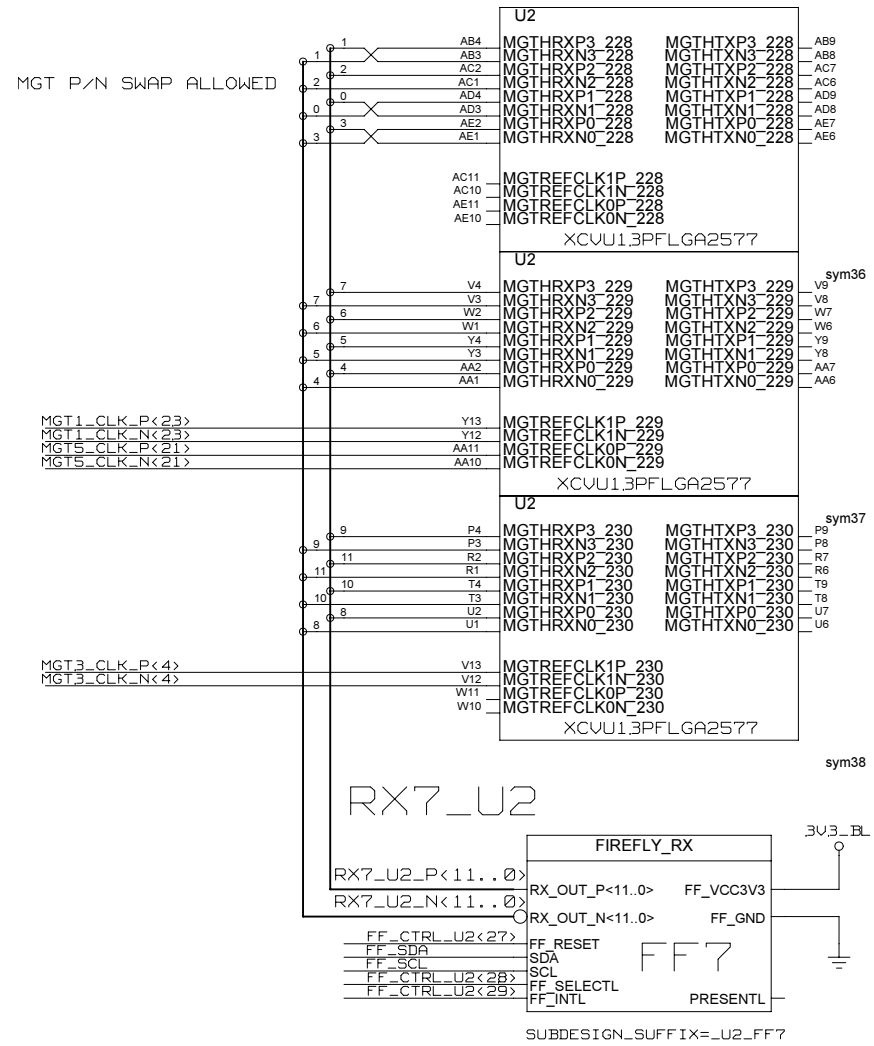


NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			FFEX B. BAUSS Fri Aug 18 09:49:21 2023
u2_mgt_real_time			
UNIVERSITY OF MAINZ		SIZE	DRAWING NO.
		SCALE	PAGE
			45 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

HIGH SPEED OPTICAL LINKS

228, 229, 230

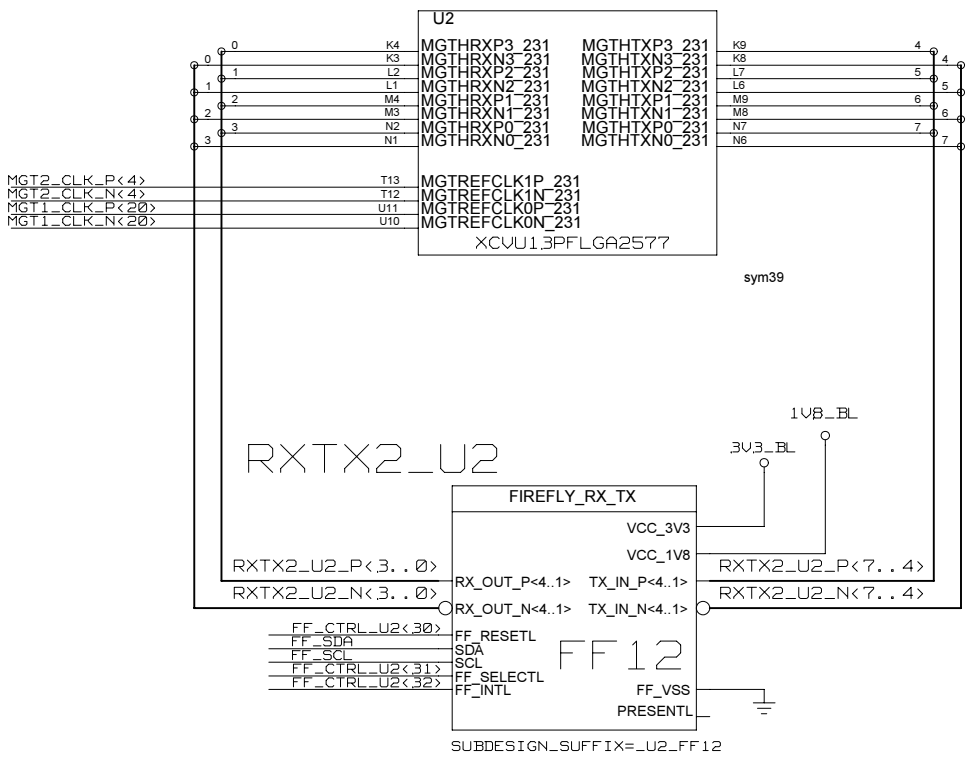


CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Fri Aug 18 09:49:21 2023	
BLOCK TITLE					
UNIVERSITY OF MAINZ				C	REV.
				SCALE	PAGE
				46	102

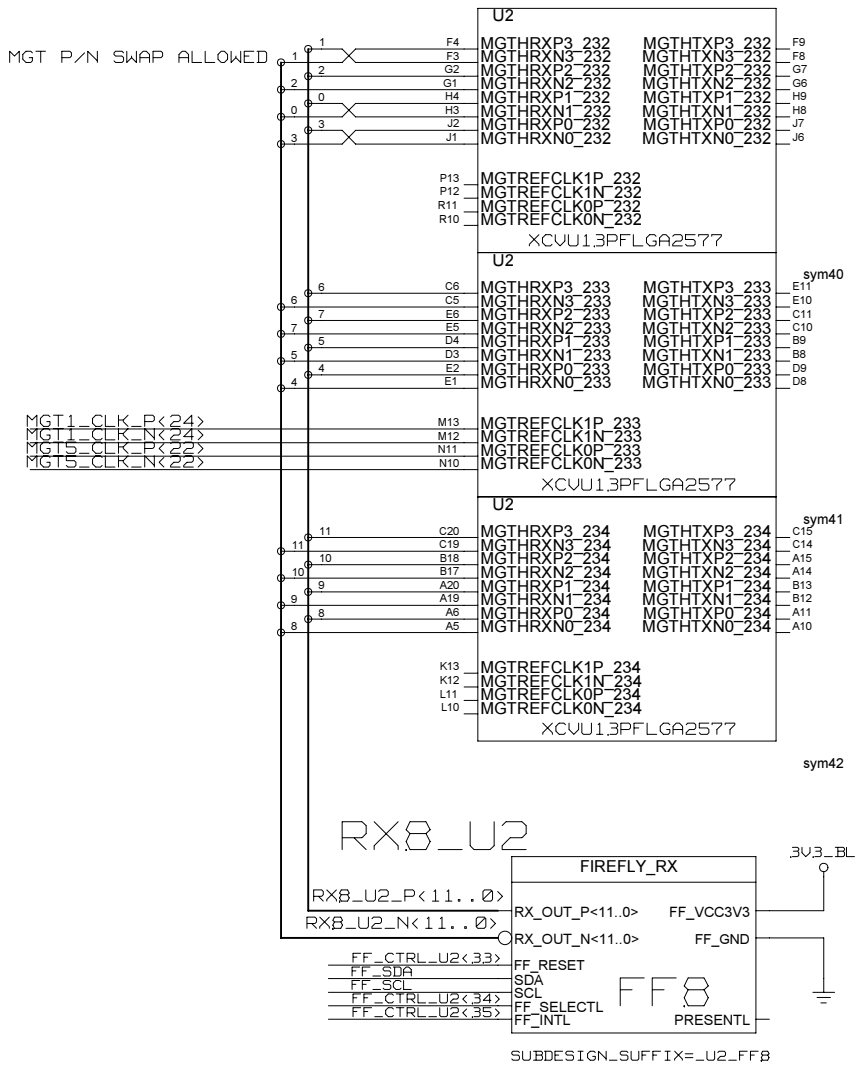
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

HIGH SPEED OPTICAL LINKS

231

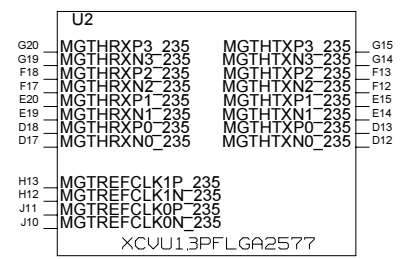


232, 233, 234



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:22 2023</p>
BLOCK TITLE				
u2_mgt_real_time				SIZE C REV. DRAWING NO.
UNIVERSITY OF MAINZ				SCALE PAGE 47 OF 102

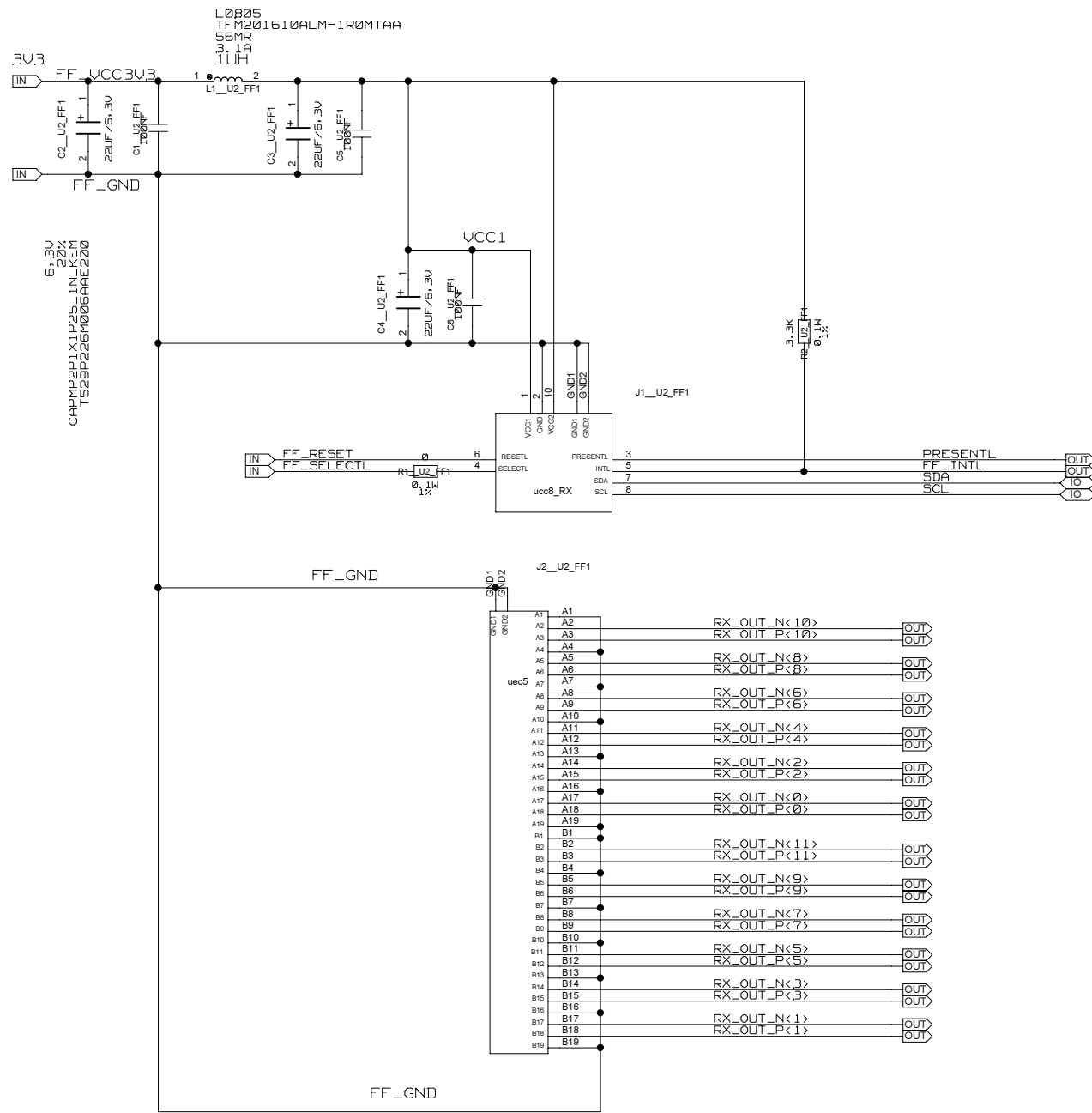
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



sym45

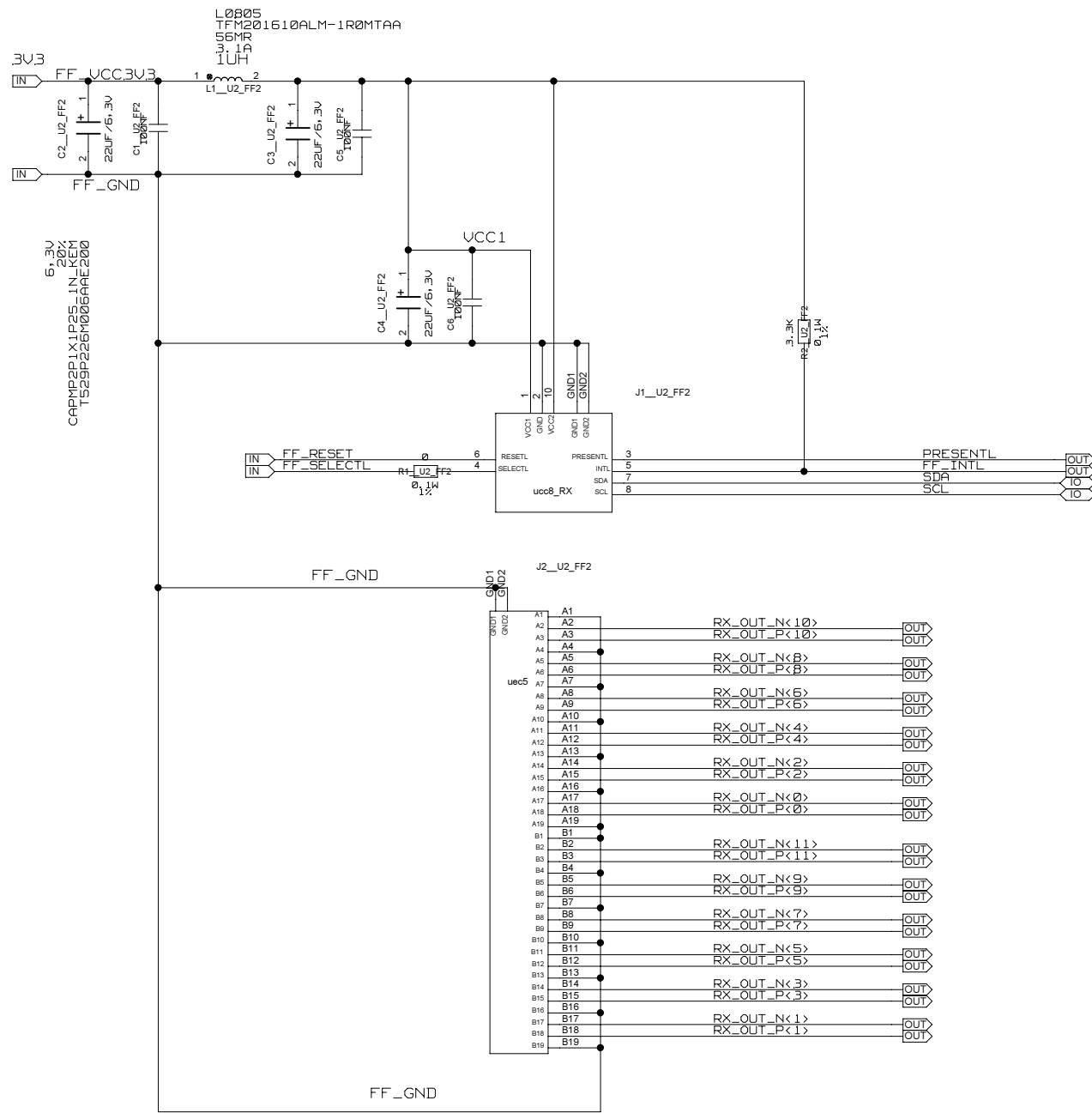
CHECKED	NAME	DATE	SIGN	DRAWING TITLE		
CHECKED	U.SCHAEFER					
CHECKED						
CHECKED						
DRAWN	BAUSS			<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:24:12 2023</p>		
BLOCK TITLE						
u2_mgt_real_time				SIZE	REV.	DRAWING NO.
UNIVERSITY OF MAINZ				C		
				SCALE		PAGE
						4B OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



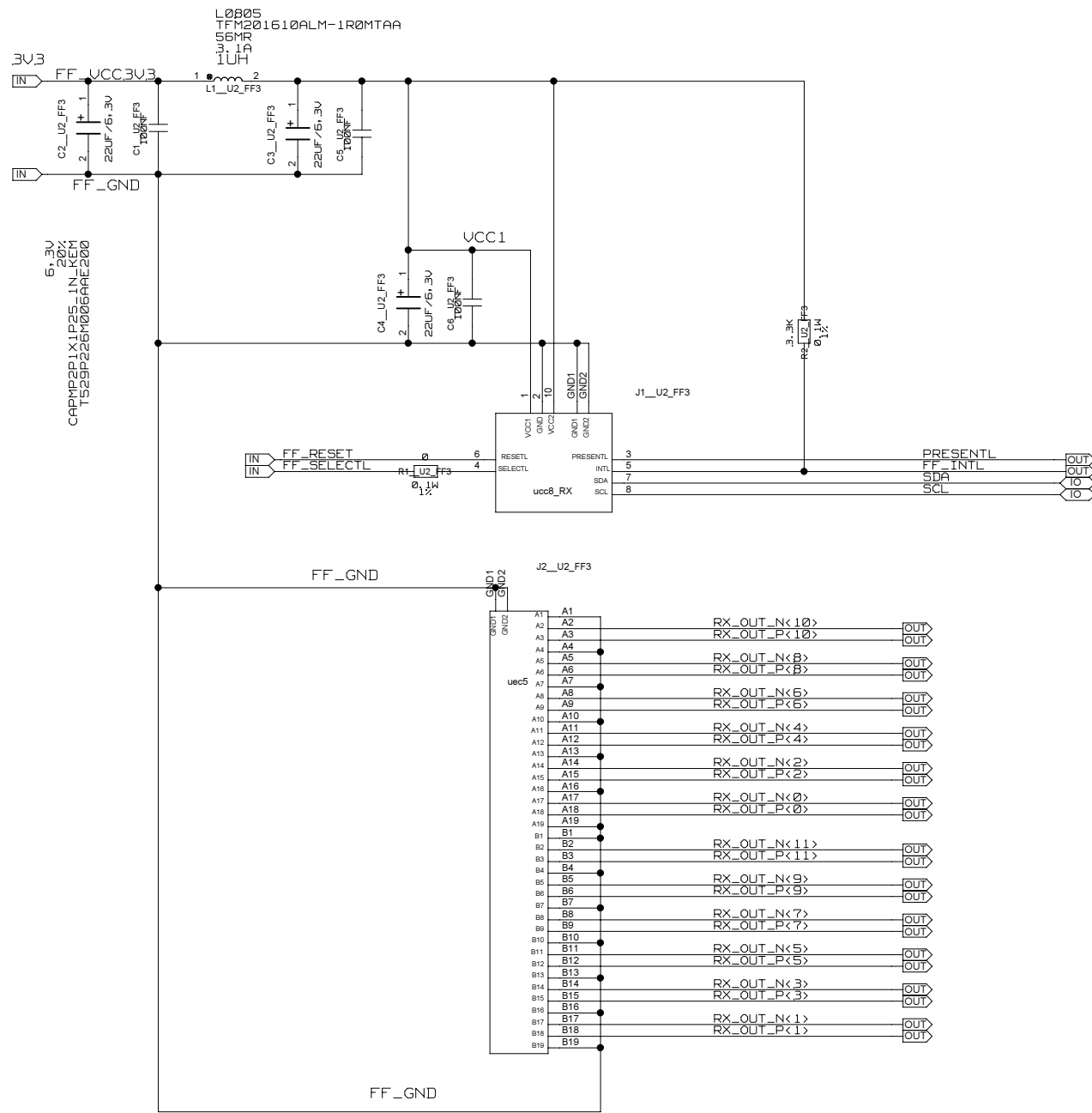
	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			FFEX
BLOCK TITLE				
firefly_rx				B. BAUSS Thu Jun 15 14:51:14 2023
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
SCALE				PAGE
				49 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



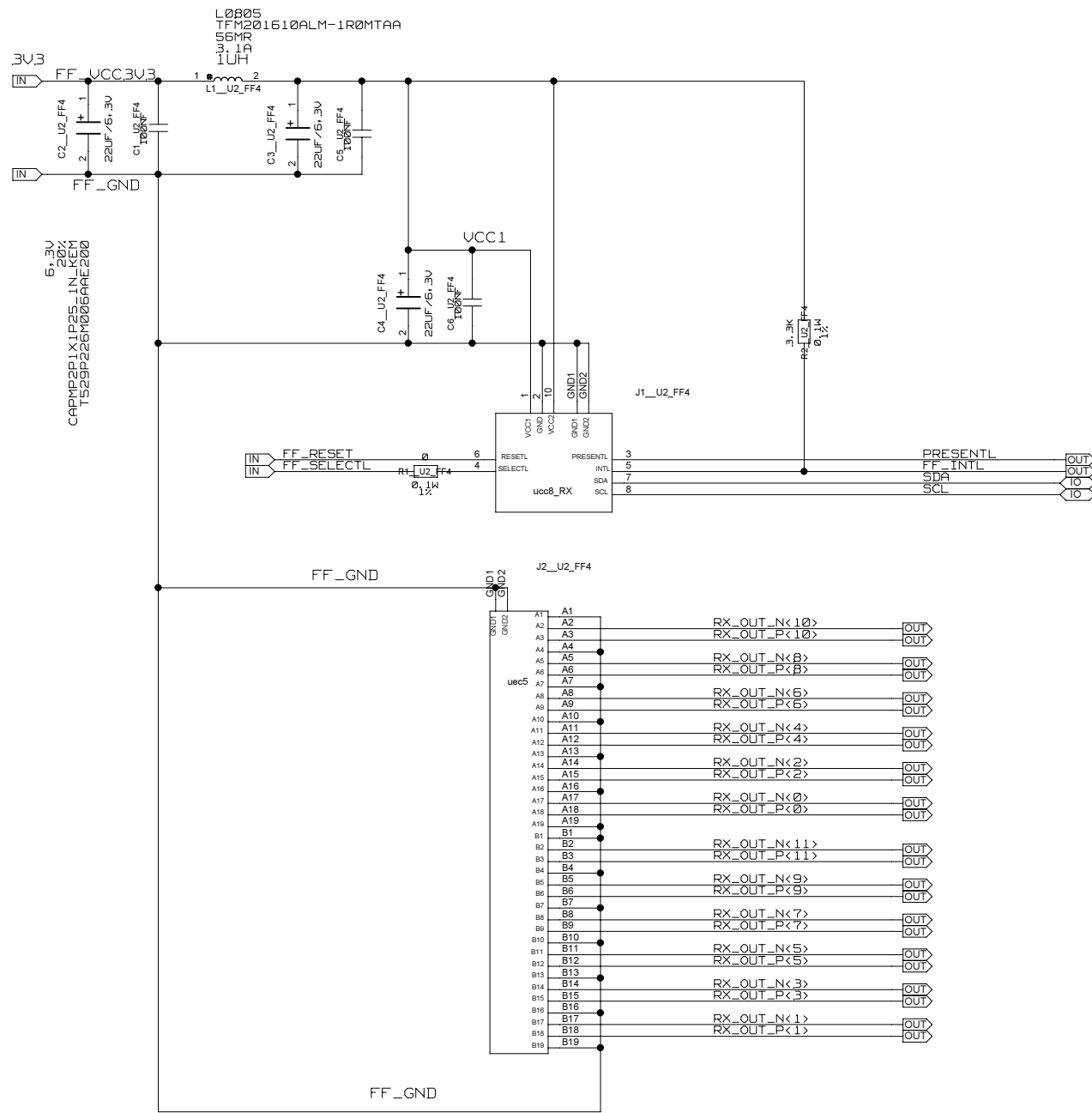
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Thu Jun 15 14:51:14 2023</p>
BLOCK TITLE				
firefly_rx				SIZE C REV. DRAWING NO.
UNIVERSITY OF MAINZ				SCALE PAGE 50 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



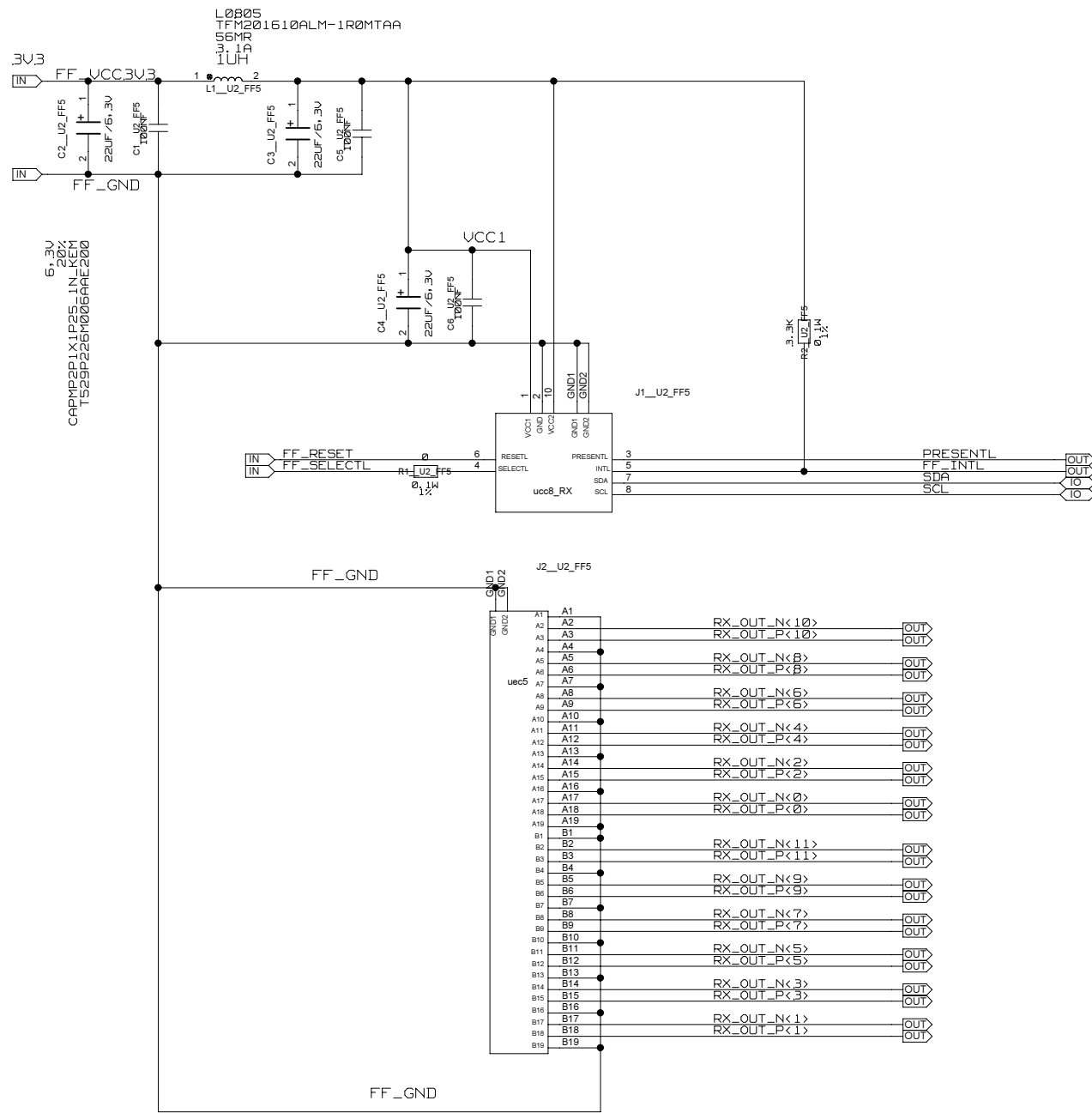
	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: right;">B. BAUSS Thu Jun 15 14:51:14 2023</p>
BLOCK TITLE				
firefly_rx				SIZE C REV. DRAWING NO.
UNIVERSITY OF MAINZ				SCALE PAGE 51 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



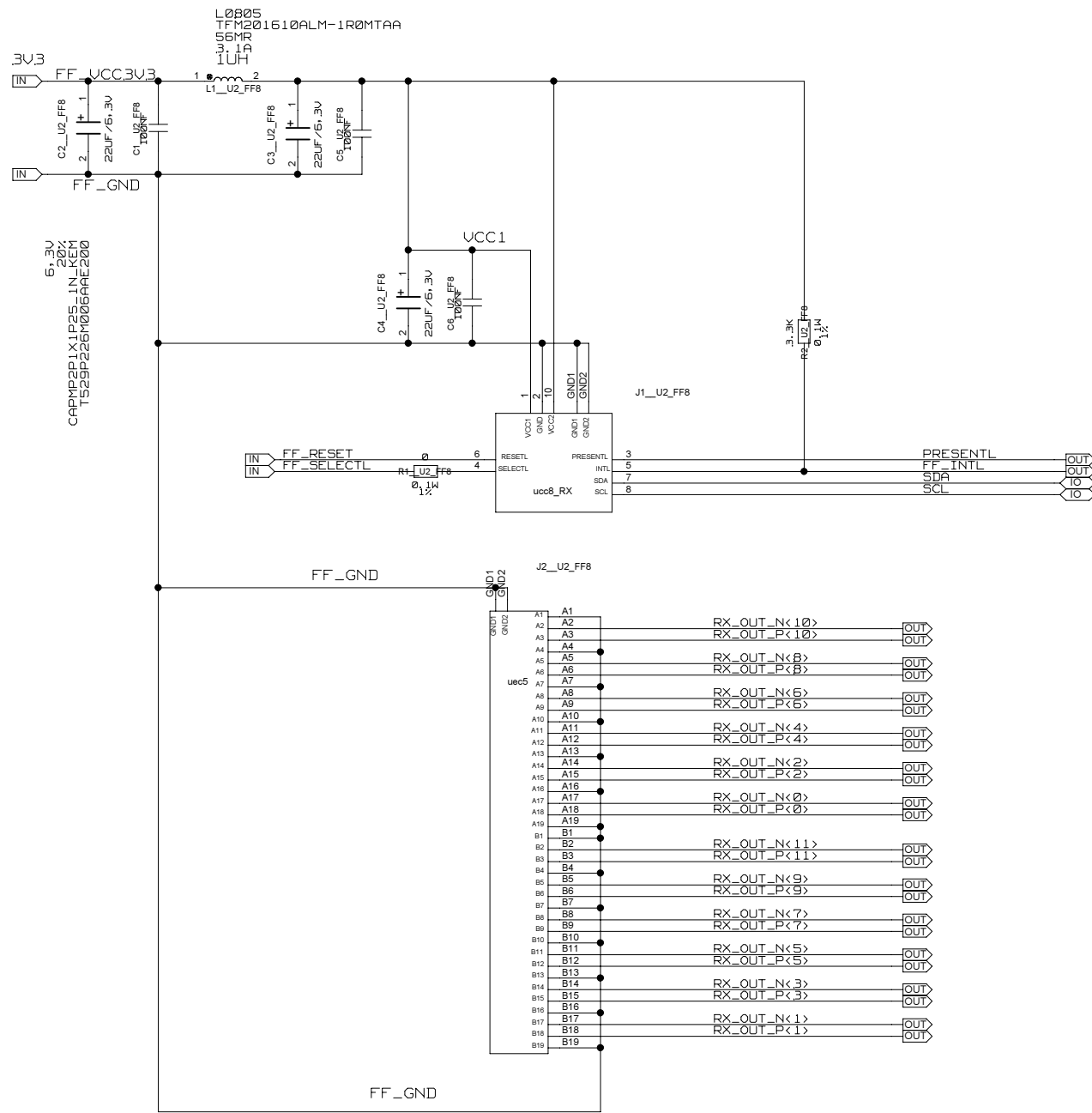
	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Thu Jun 15 14:51:14 2023	
BLOCK TITLE				SIZE	DRAWING NO.
UNIVERSITY OF MAINZ				C	
				SCALE	PAGE
					52 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



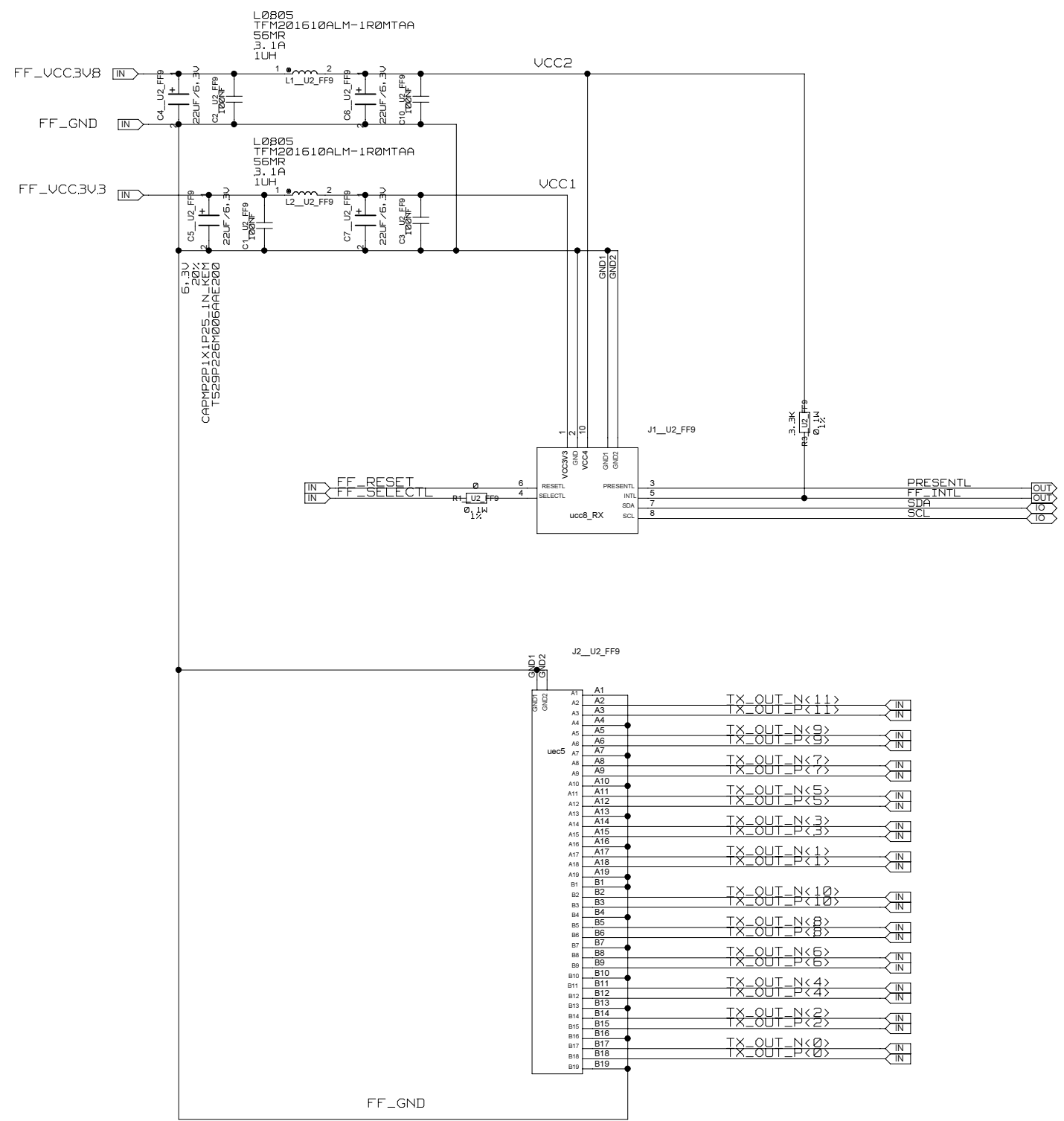
	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Thu Jun 15 14:51:14 2023	
BLOCK TITLE					DRAWING NO.
firefly_rx					
UNIVERSITY OF MAINZ				SIZE	REV.
				C	
SCALE					PAGE
					53 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



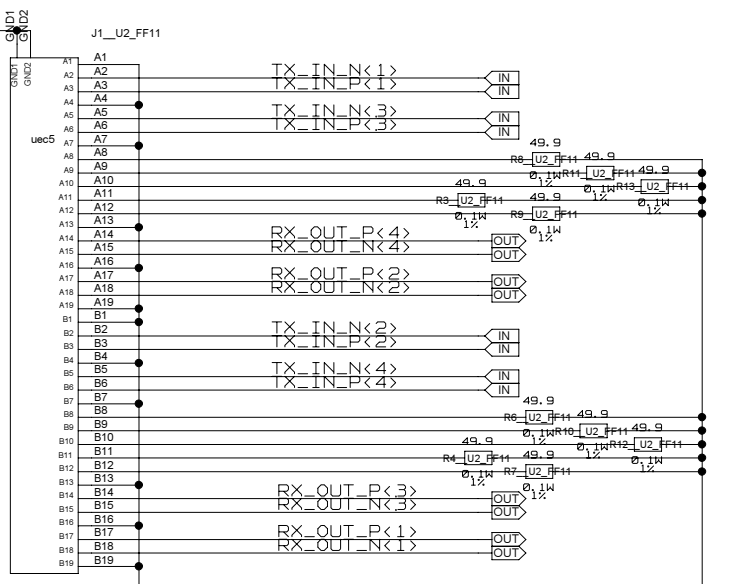
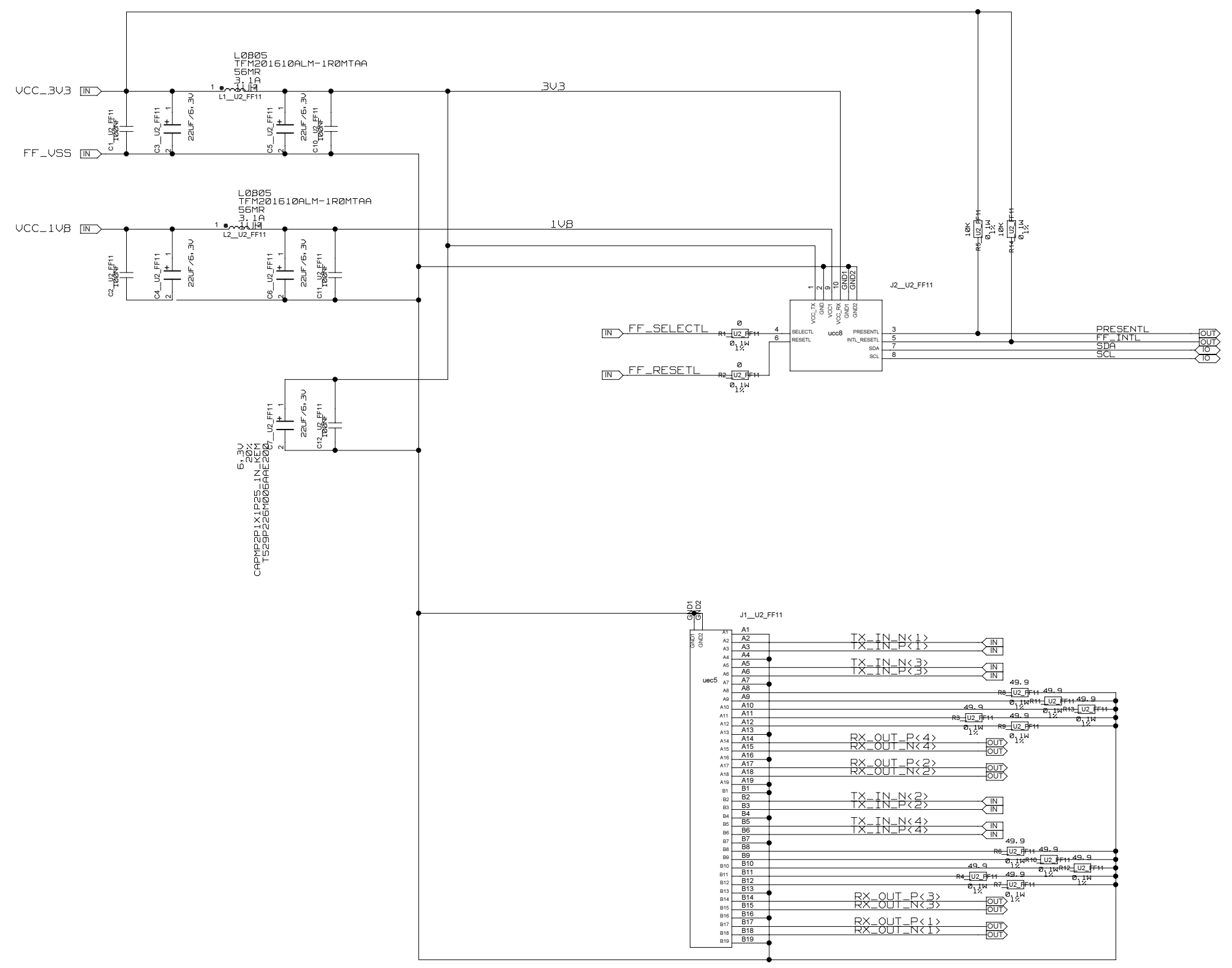
CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Thu Jun 15 14:51:14 2023
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE firefly_rx				SIZE C
UNIVERSITY OF MAINZ				REV.
SCALE				DRAWING NO.
				PAGE 54 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



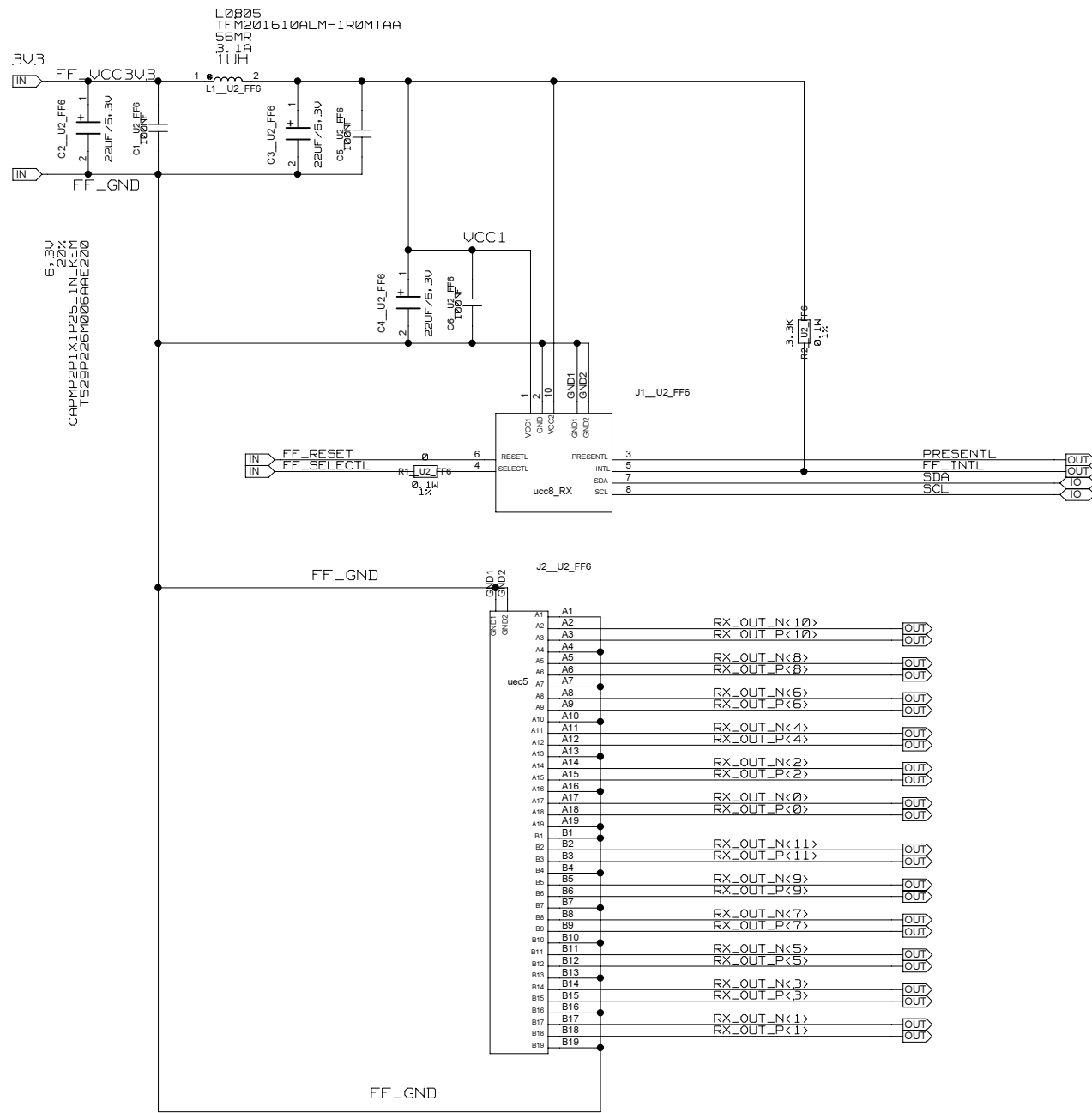
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Thu Jun 15 14:43:51 2023</p>
BLOCK TITLE				
firefly_tx				SIZE C
UNIVERSITY OF MAINZ				REV.
				DRAWING NO.
SCALE				PAGE 55 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



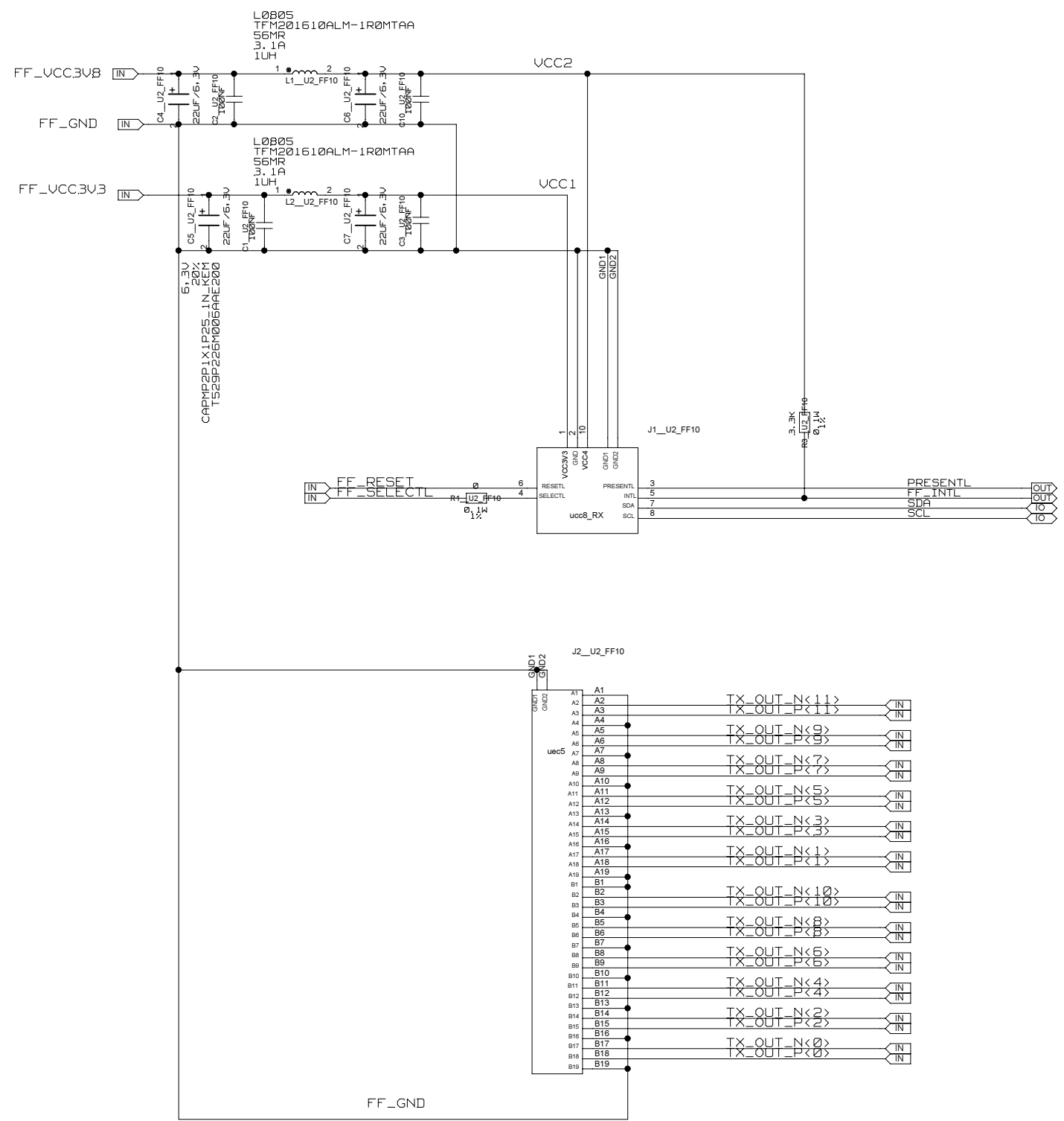
CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Thu Jun 15 14:42:47 2023</p>
firefly_rx_tx				
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
SCALE				PAGE
				56 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



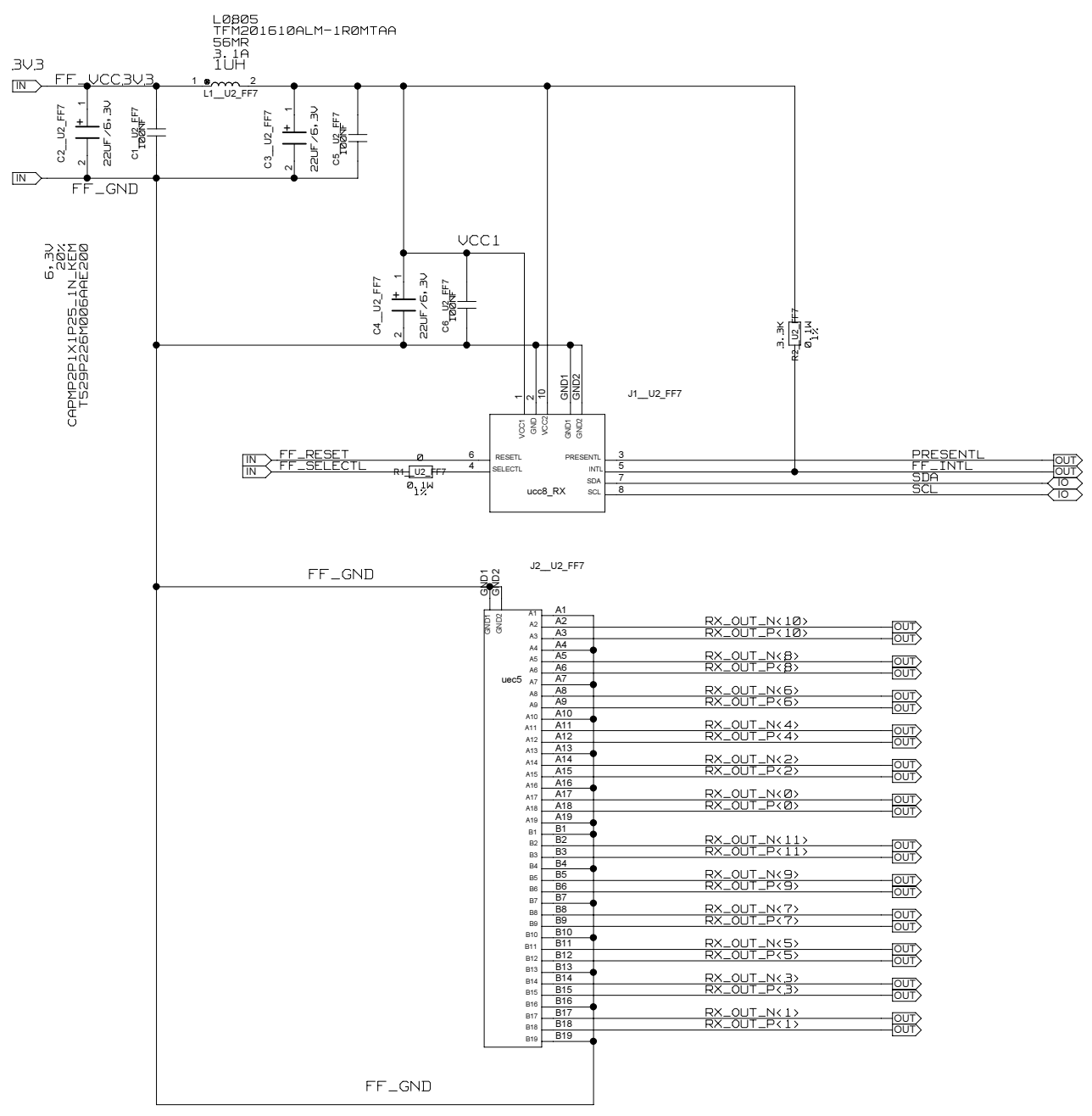
	NAME	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Thu Jun 15 14:51:14 2023
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE firefly_rx				
UNIVERSITY OF MAINZ		SIZE C	REV.	DRAWING NO.
SCALE				PAGE 57 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



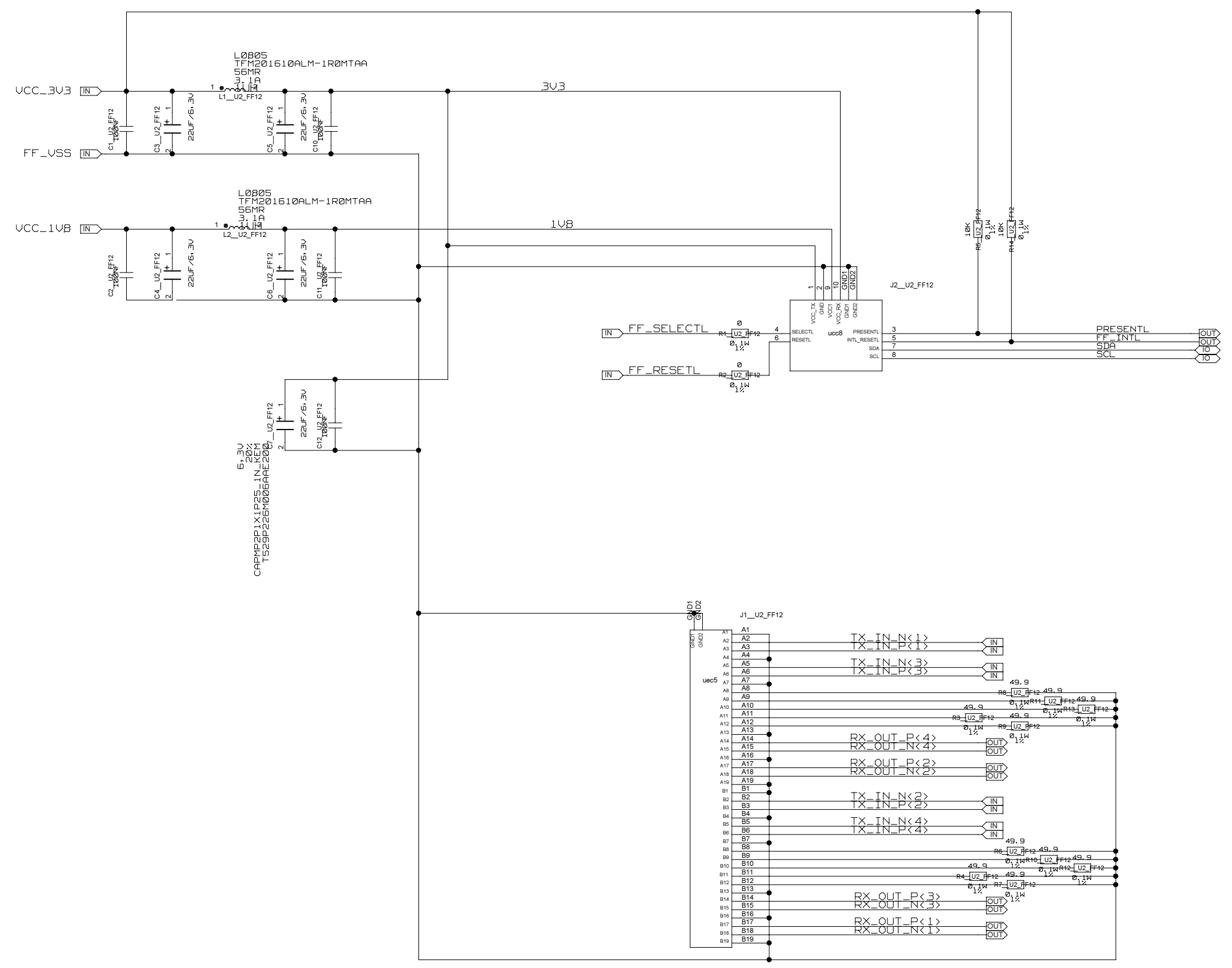
CHECKED	NAME	DATE	SIGN	DRAWING TITLE		
CHECKED	U.SCHAEFER					
CHECKED						
CHECKED						
DRAWN	BAUSS			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Thu Jun 15 14:43:51 2023</p>		
BLOCK TITLE						
firefly_tx				SIZE C	REV.	DRAWING NO.
UNIVERSITY OF MAINZ				SCALE	PAGE 58 OF 102	

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: right;">B. BAUSS Thu Jun 15 14:51:14 2023</p>
firefly_rx				
UNIVERSITY OF MAINZ		SIZE C	REV.	
SCALE				PAGE 59 OF 102

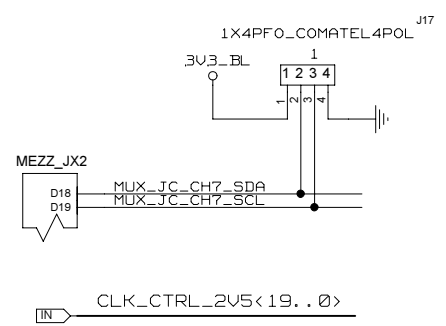
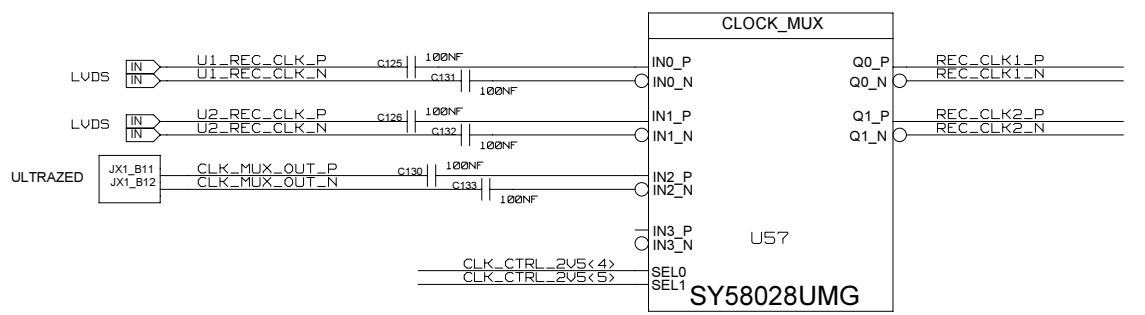
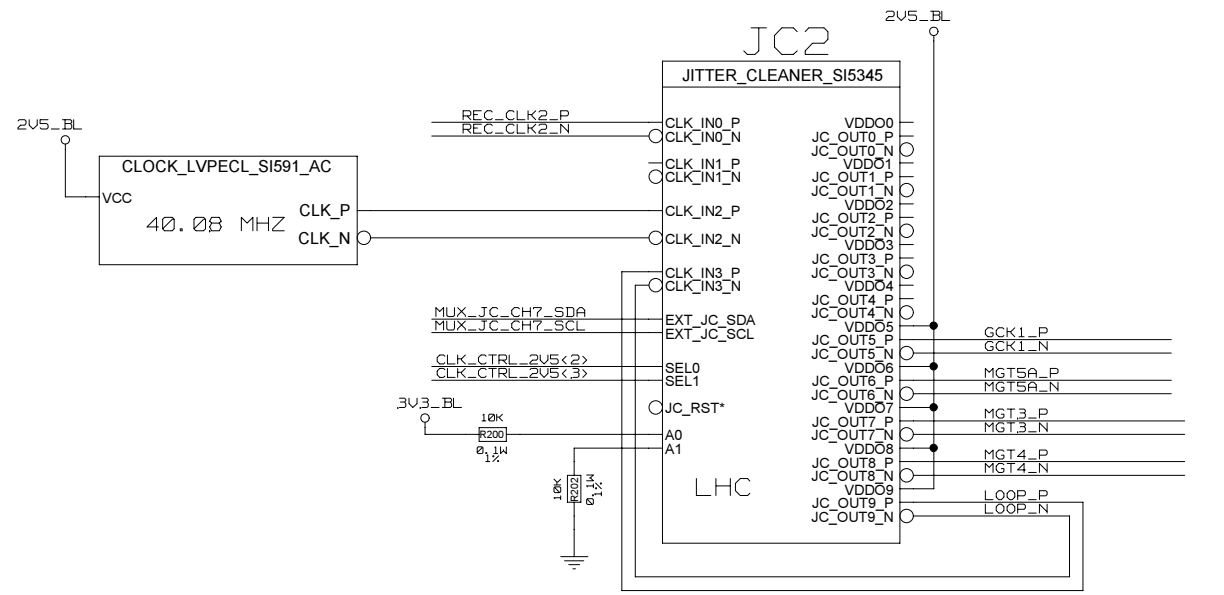
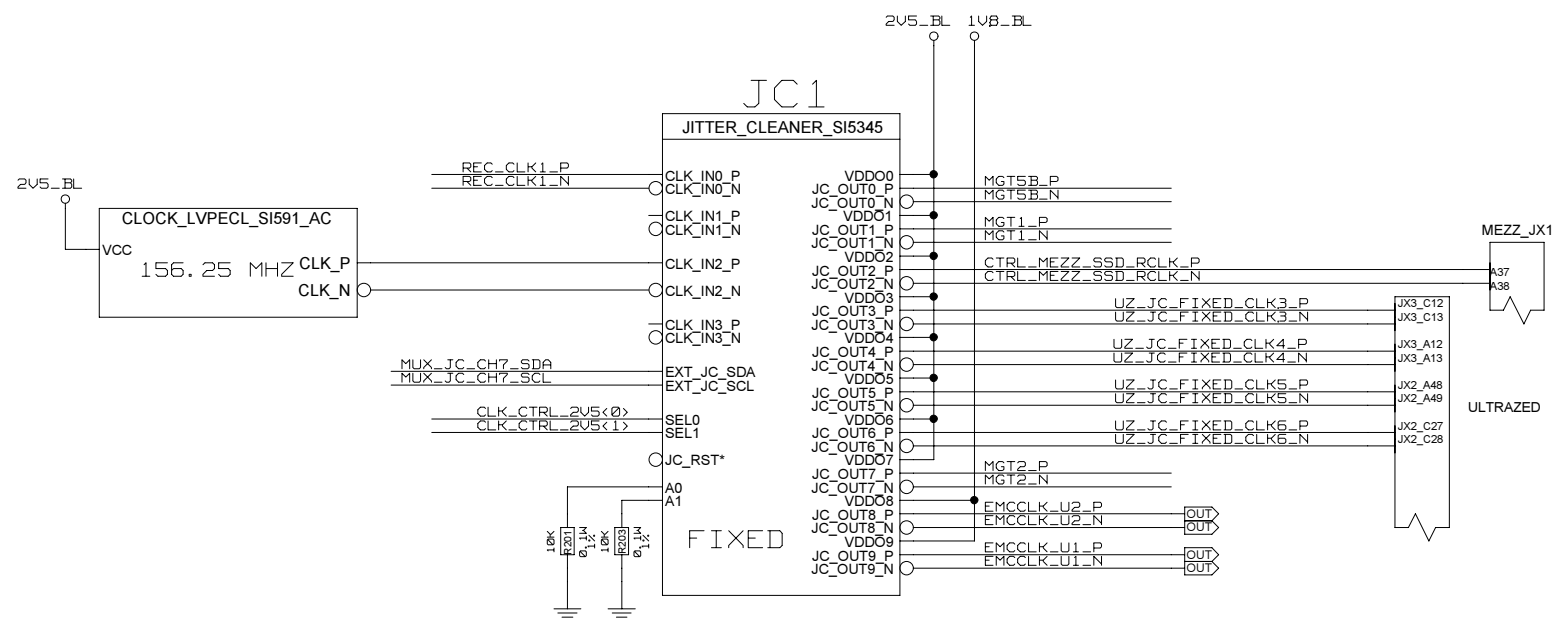
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	U.SCHAEFER			DRAWING TITLE	
CHECKED					
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE				DRAWING NO.	
firefly_rx_tx					
UNIVERSITY OF MAINZ				DATE	B. BAUSS Thu Jun 15 14:42:47 2023
SIZE	C	REV.		DRAWING NO.	
SCALE				PAGE	60 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

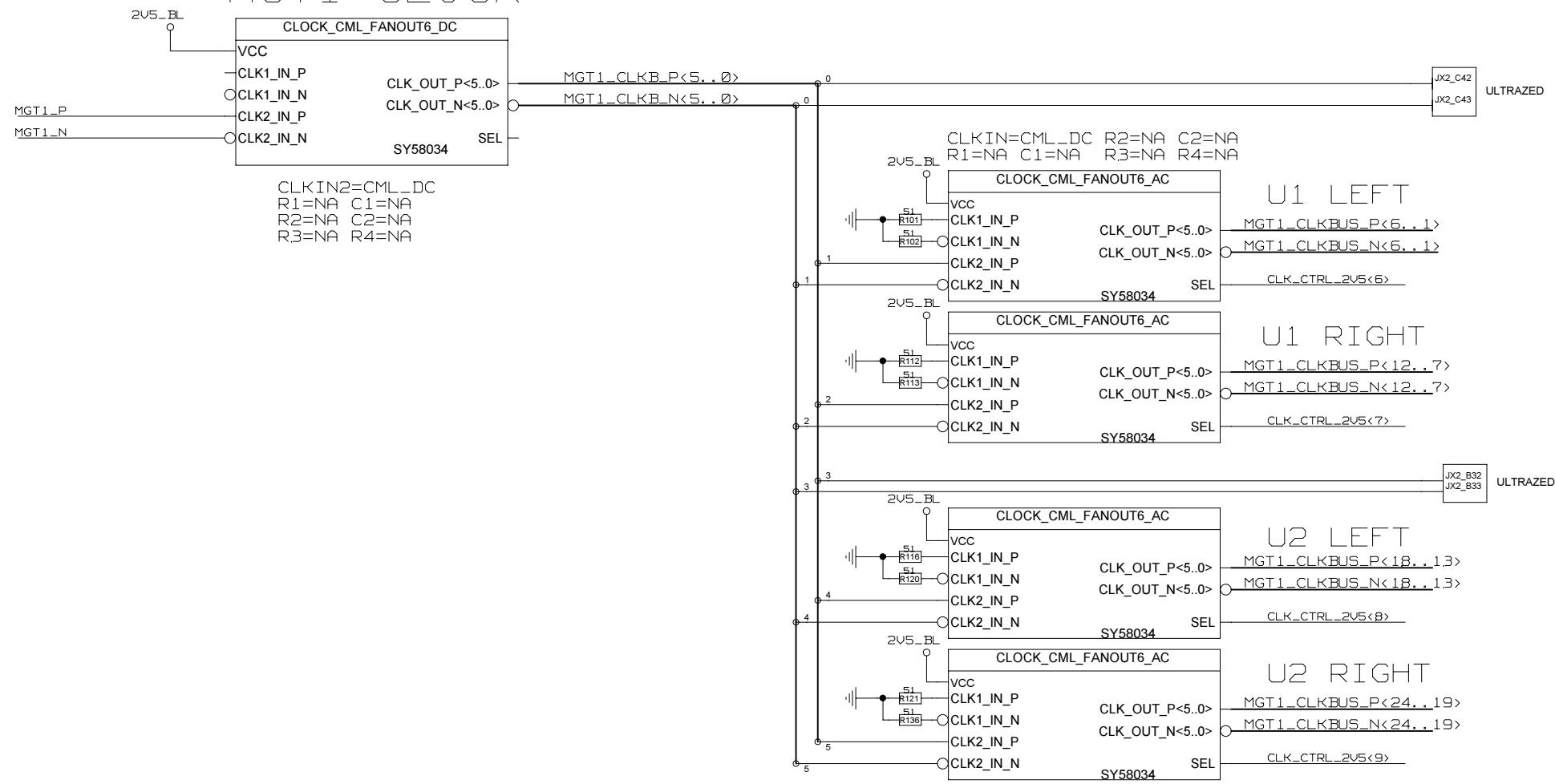
JITTER CLEANER



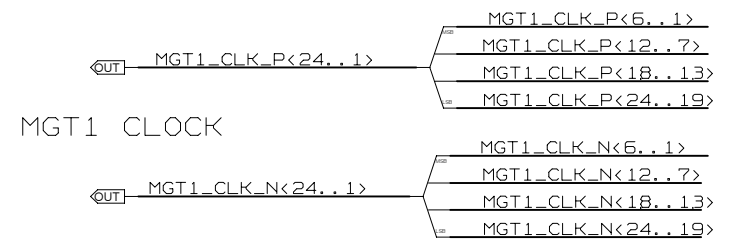
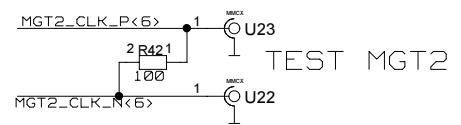
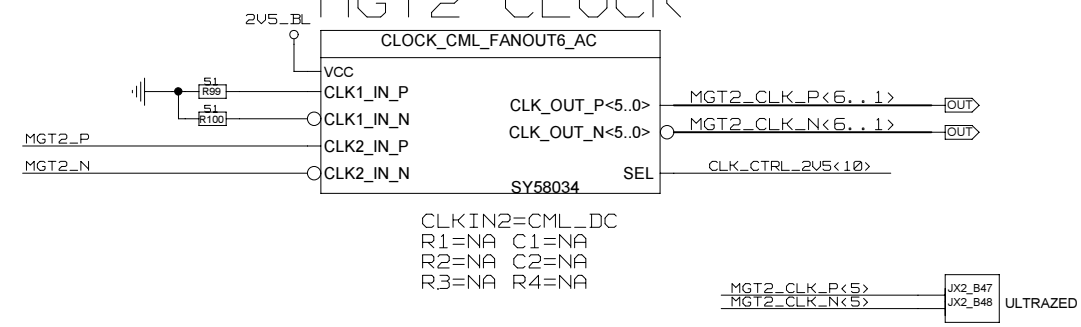
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1>FFEX</h1>
BLOCK TITLE				
UNIVERSITY OF MAINZ				B. BAUSS Fri Aug 18 09:49:28 2023
SCALE		REV.	DRAWING NO.	
PAGE		PAGE		
61 OF 102		61 OF 102		

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE

MGT1 CLOCK



MGT2 CLOCK



UPDATE PICK & PLACE DATA FOR FANOUT

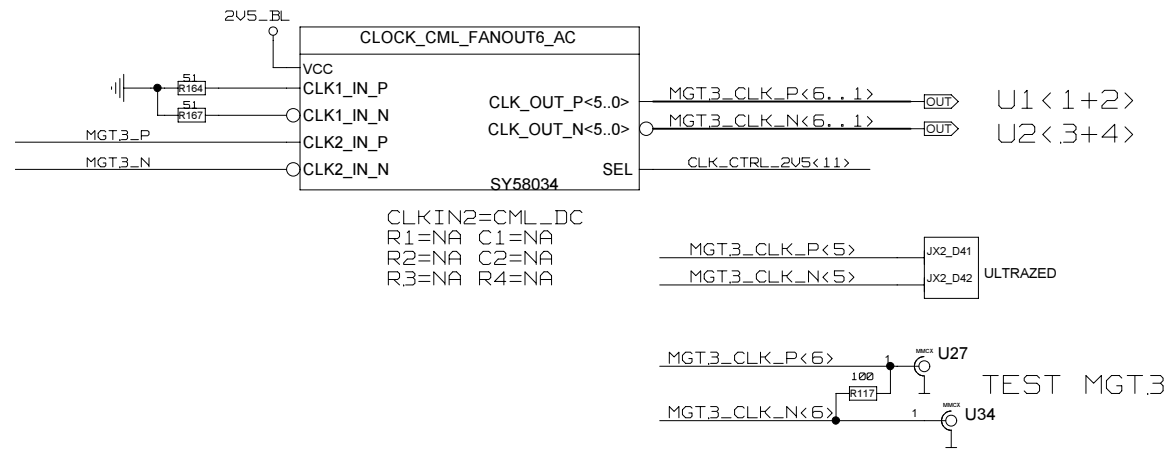
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			FFEX
CHECKED				
CHECKED				
DRAWN	BAUSS			BLOCK TITLE
				c lock
				UNIVERSITY OF MAINZ
SIZE		REV.	DRAWING NO.	
SCALE			PAGE	
			62 OF 102	

FFEX

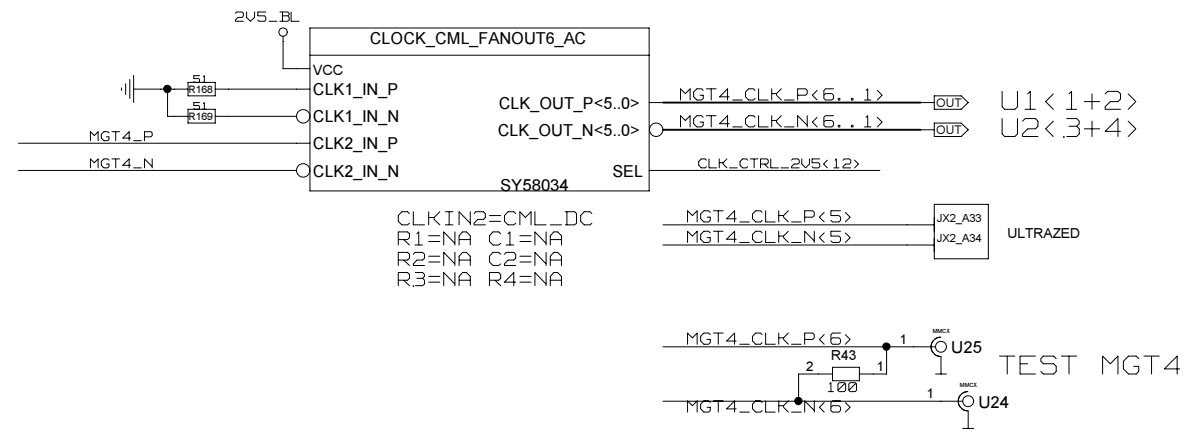
B. BAUSS Fri Aug 18 09:49:28 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

MGT.3 LHC CLEANED CLOCK



MGT4 LHC CLEANED CLOCK

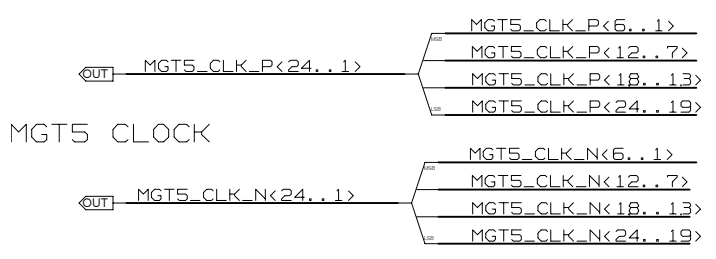
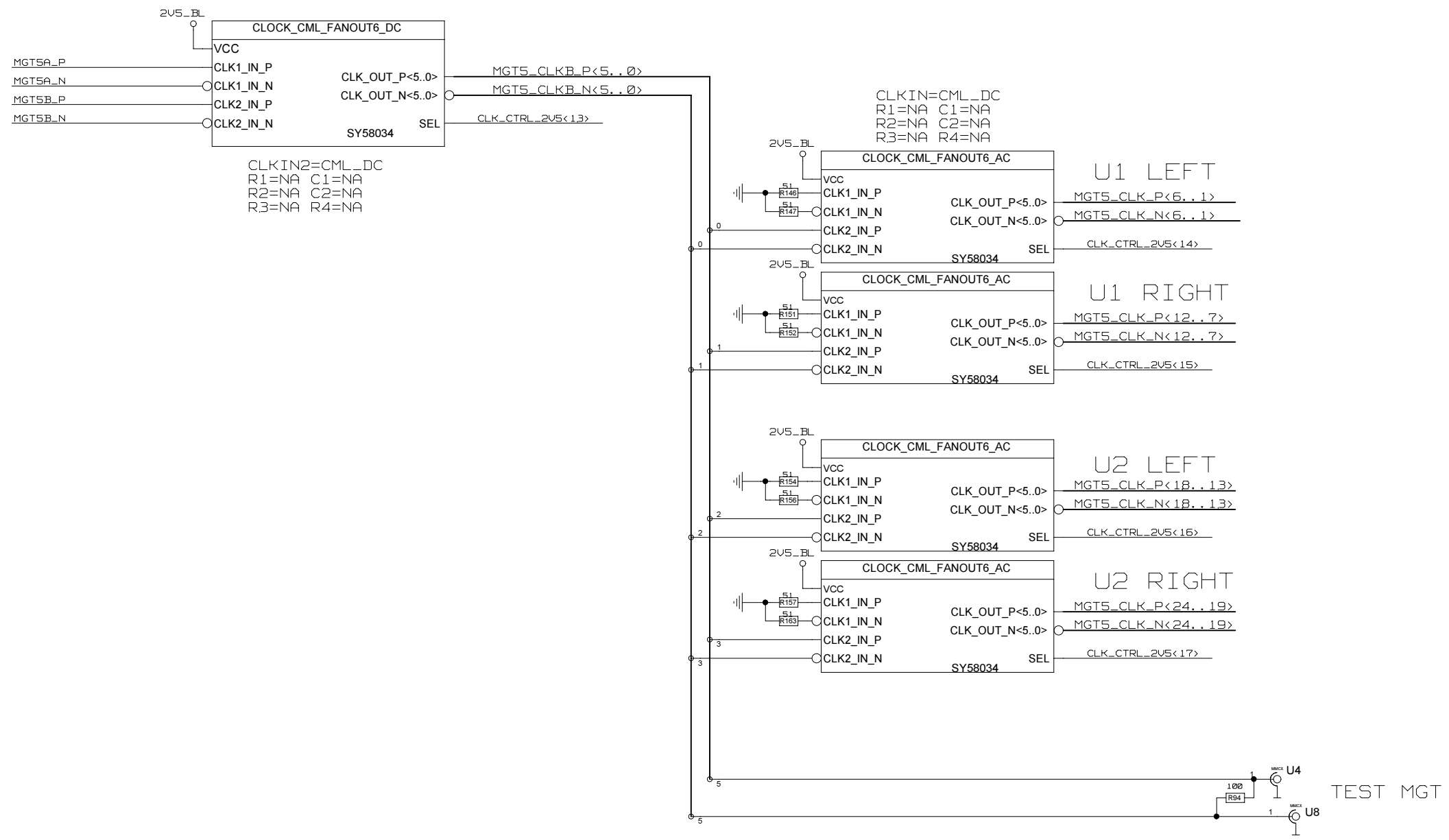


CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				DRAWING NO.
CLOCK				
UNIVERSITY OF MAINZ				SIZE C
SCALE				REV.
PAGE 63 OF 102				DATE B. BAUSS Fri Aug 18 09:49:29 2023

FFEX

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE

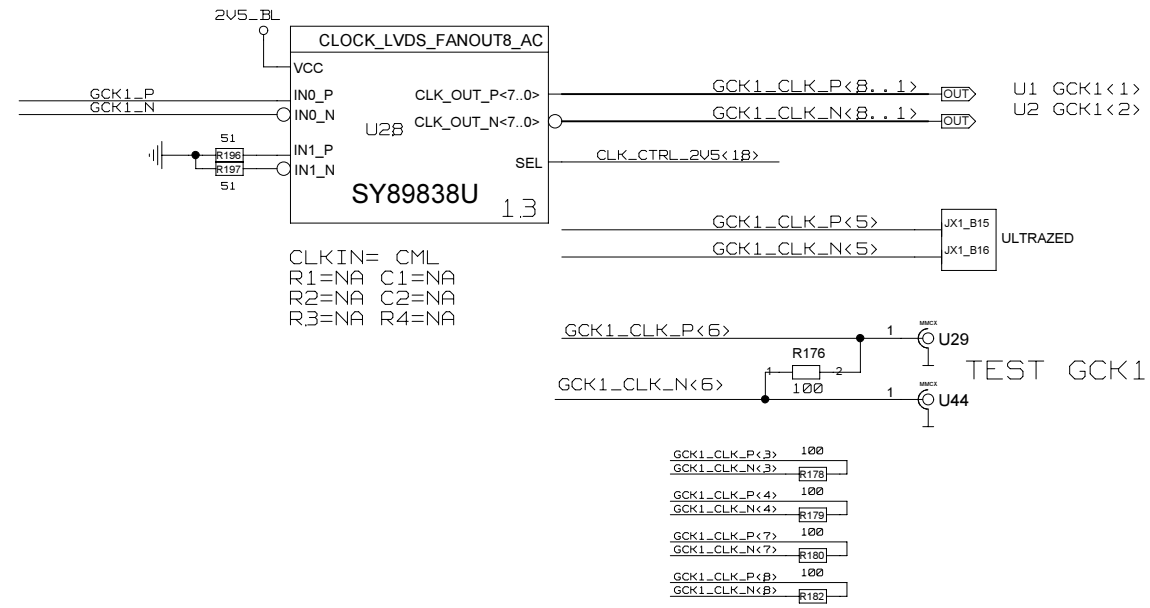
MGT5 CLOCK



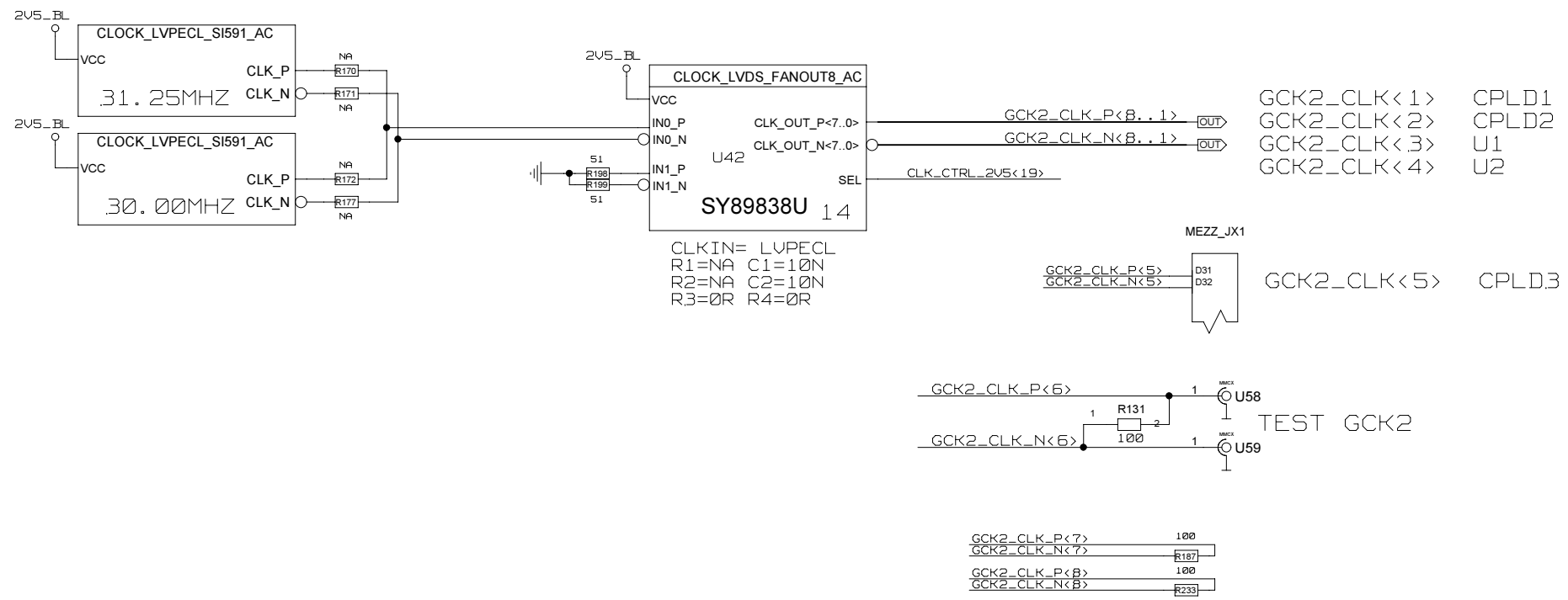
CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Fri Aug 18 09:49:29 2023</p>	
CHECKED					
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE				DRAWING NO.	
clock				SIZE	REV.
UNIVERSITY OF MAINZ				SCALE	PAGE
					64 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

GCK1 LHC CLEANED CLOCK



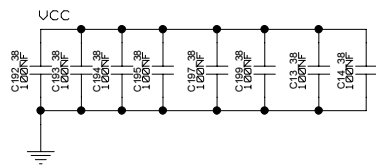
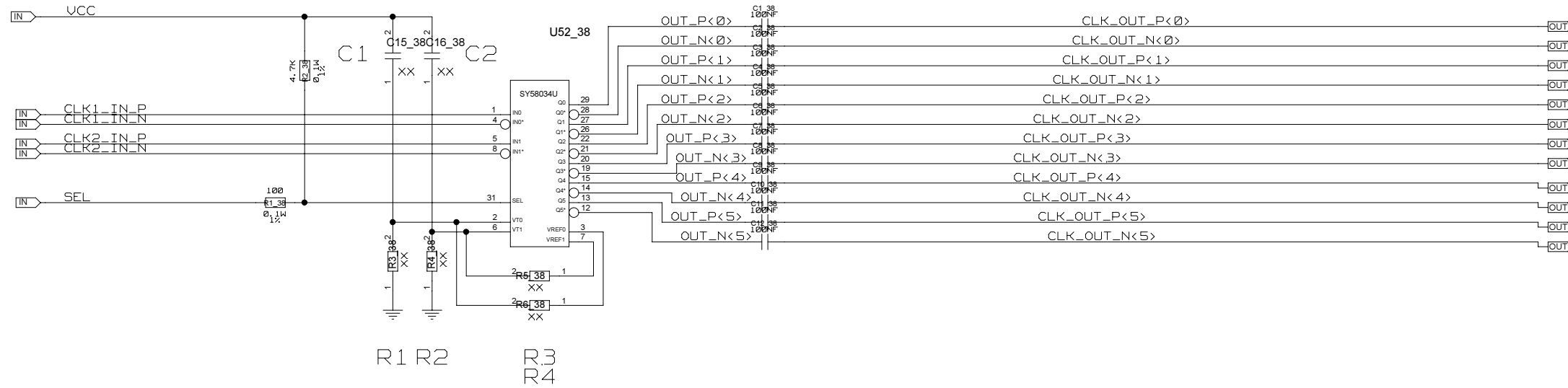
GCK2 INEPENDENT CLOCK



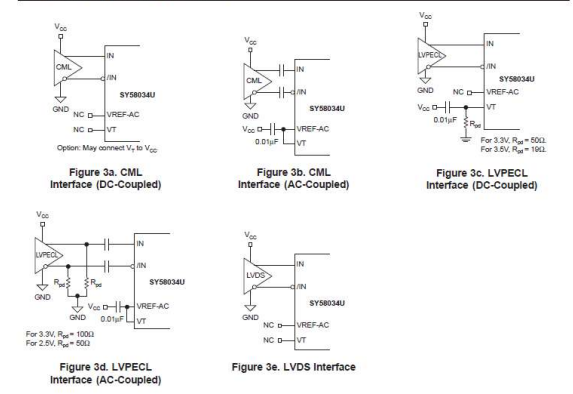
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			FFEX B. BAUSS Fri Aug 18 09:49:29 2023
BLOCK TITLE				
CLOCK				SIZE C REV. DRAWING NO.
UNIVERSITY OF MAINZ				SCALE PAGE 65 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



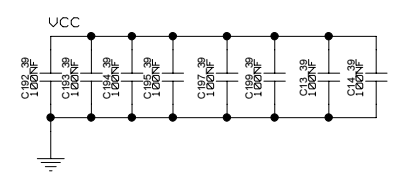
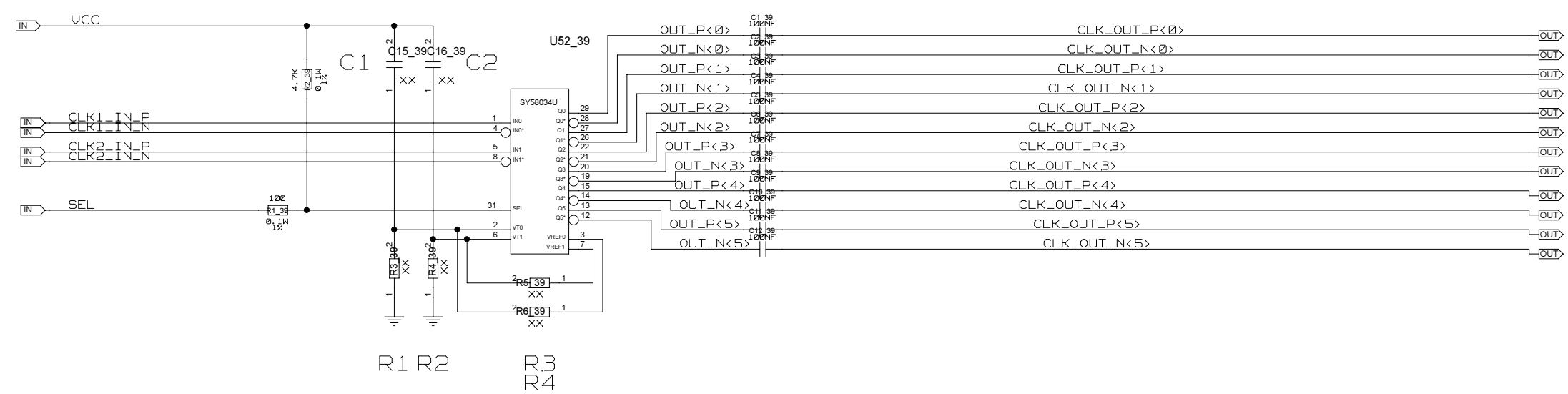
INPUT INTERFACE APPLICATIONS



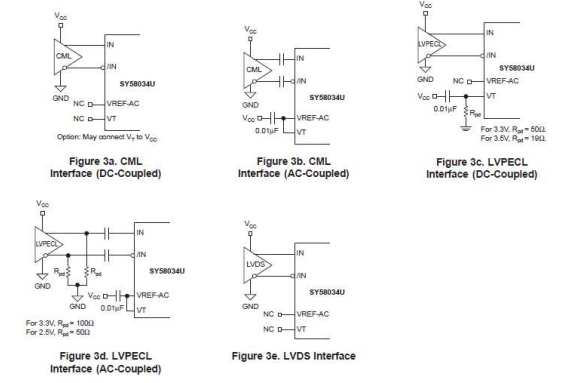
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Fri Aug 18 09:49:16 2023</p>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
SCALE				PAGE
				67 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



INPUT INTERFACE APPLICATIONS

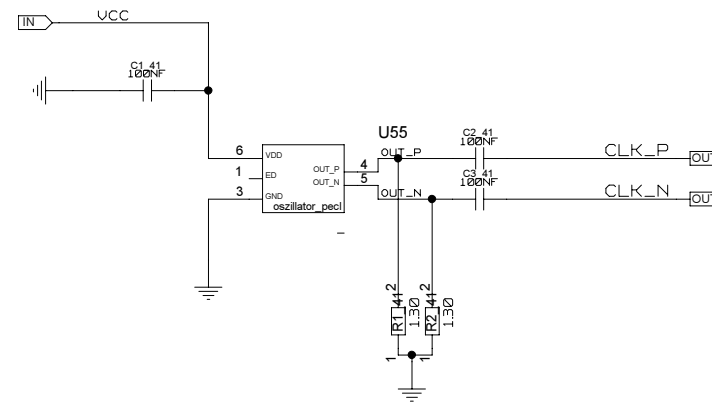


CHECKED	NAME	DATE	SIGN	DRAWING TITLE						
CHECKED	U.SCHAEFER									
CHECKED										
CHECKED										
DRAWN	BAUSS			<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:16 2023</p>						
BLOCK TITLE										
clock_cml_fanout6_ac				<table border="1"> <tr> <td>SIZE</td> <td>REV.</td> <td>DRAWING NO.</td> </tr> <tr> <td>C</td> <td></td> <td></td> </tr> </table>	SIZE	REV.	DRAWING NO.	C		
SIZE	REV.	DRAWING NO.								
C										
UNIVERSITY OF MAINZ				<table border="1"> <tr> <td>SCALE</td> <td>PAGE</td> </tr> <tr> <td></td> <td>6B OF 102</td> </tr> </table>	SCALE	PAGE		6B OF 102		
SCALE	PAGE									
	6B OF 102									

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK_LVPECL_SI591_AC

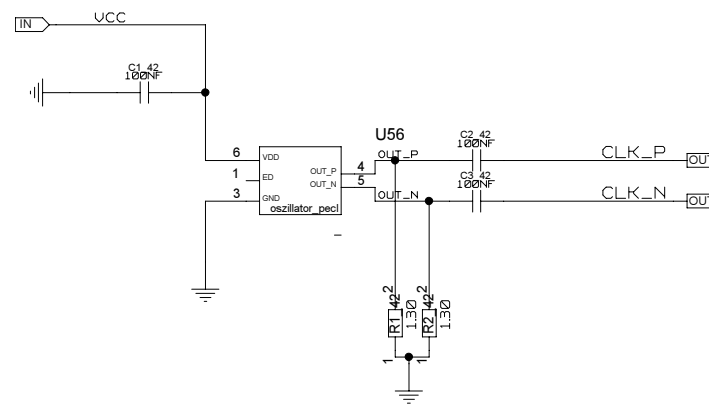


CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE clock_lvpecl_si591_ac				B. BAUSS Fri Aug 18 09:49:17 2023
UNIVERSITY OF MAINZ		SIZE C	REV.	DRAWING NO.
SCALE				PAGE 69 OF 102

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

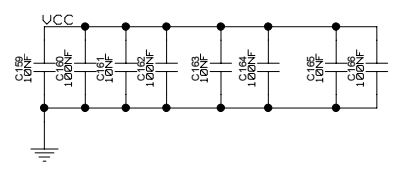
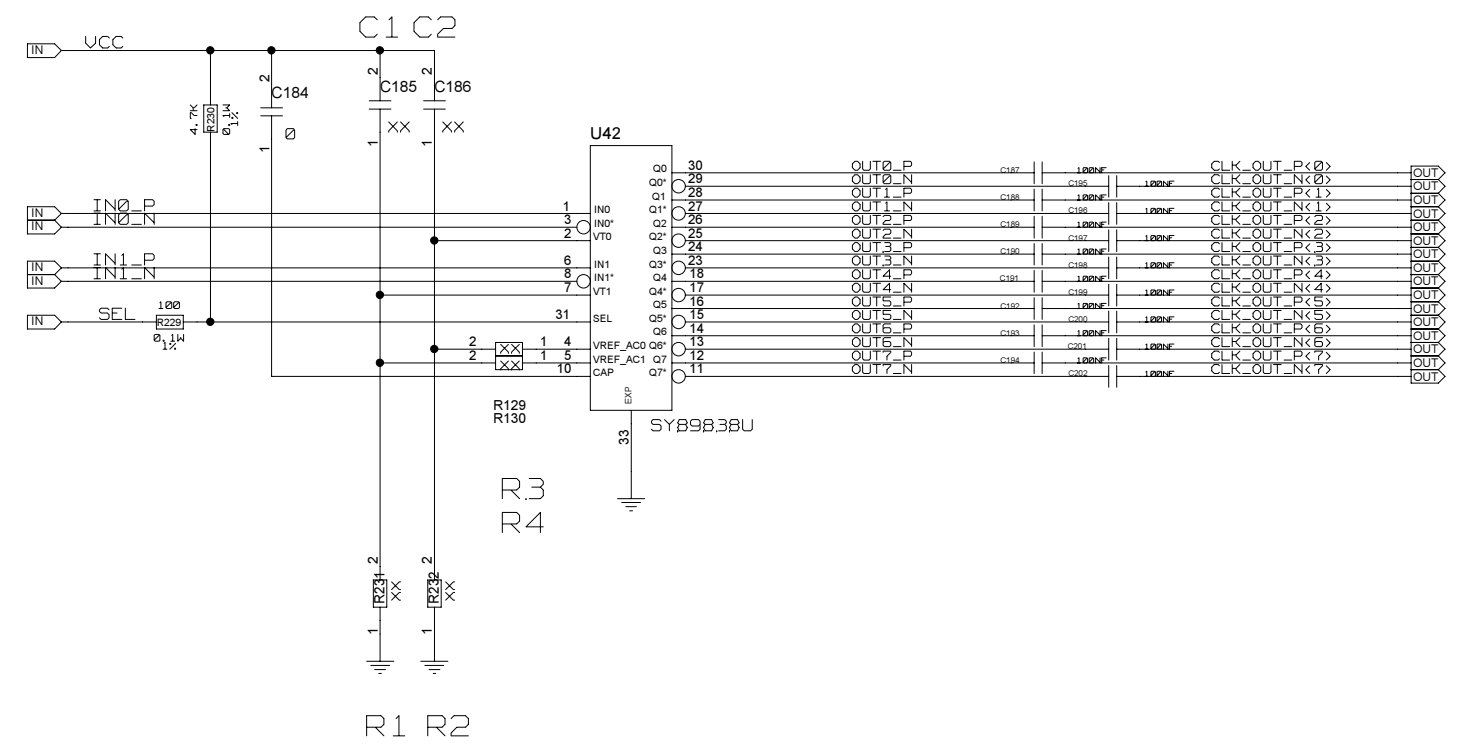
CLOCK_LVPECL_SI591_AC



CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE clock_lvpecl_si591_ac				B. BAUSS Fri Aug 18 09:49:17 2023
UNIVERSITY OF MAINZ		SIZE C	REV.	DRAWING NO.
SCALE				PAGE 70 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

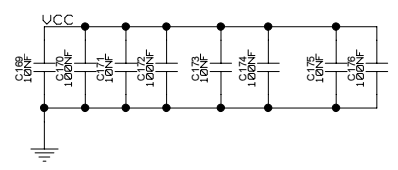
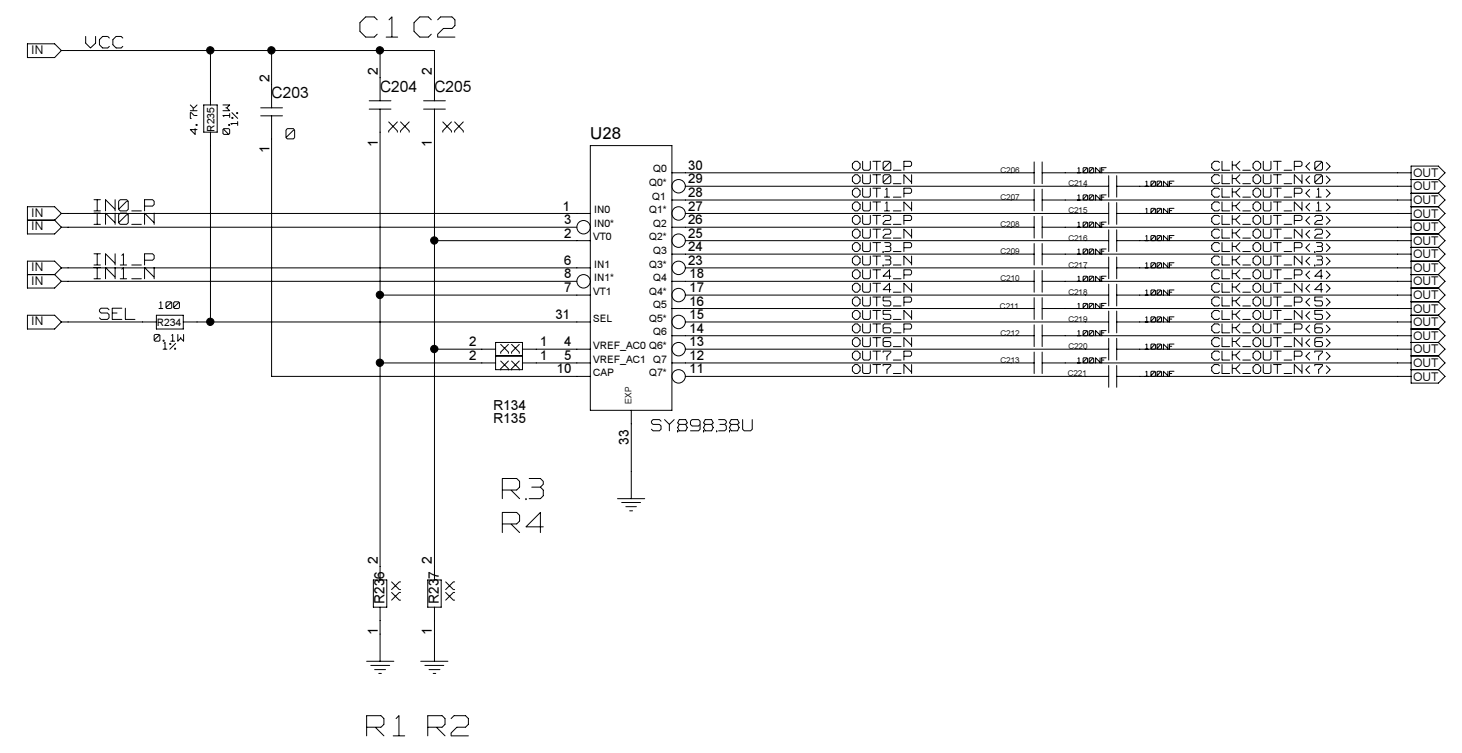
CLOCK_LVDSAC_FANOUT8



CHECKED	U.SCHAEFER	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Fri Aug 18 09:49:18 2023
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE clock_lvds_fanout8_ac				SIZE C
UNIVERSITY OF MAINZ				REV.
SCALE				DRAWING NO.
				PAGE 71 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK_LVDSAC_FANOUT8

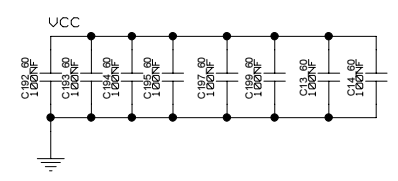
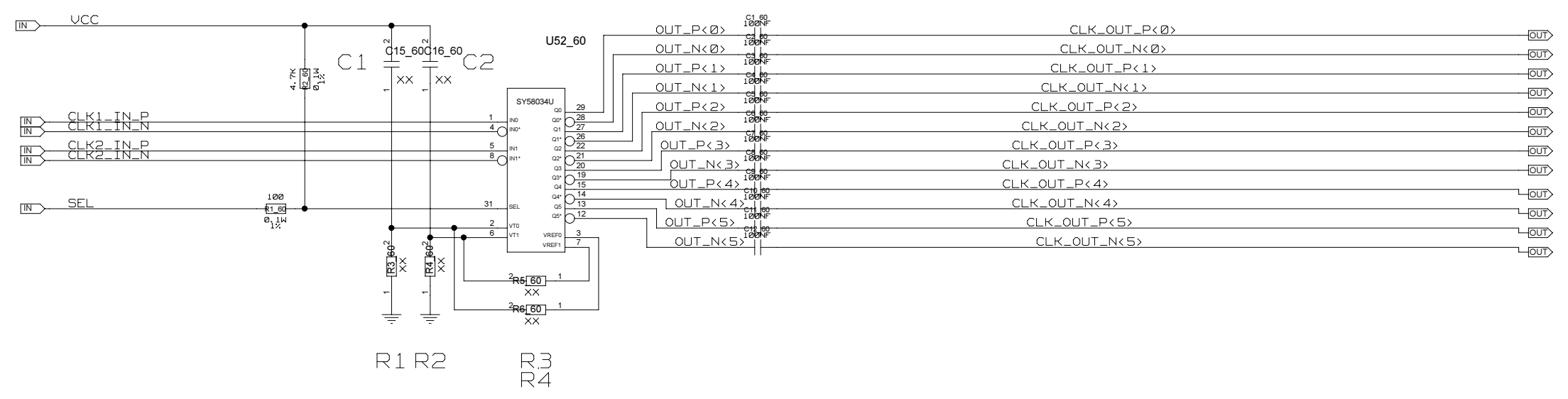


CHECKED	NAME	DATE	SIGN	DRAWING TITLE		
CHECKED	U.SCHAEFER			<h1>FFEX</h1>		
CHECKED						
CHECKED						
DRAWN	BAUSS			BLOCK TITLE		
				clock_lvds_fanout8_ac		
UNIVERSITY OF MAINZ				SIZE	REV.	DRAWING NO.
				C		
				SCALE		PAGE
						72 OF 102

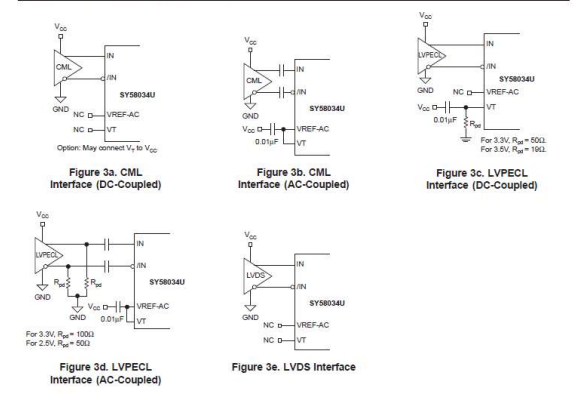
B. BAUSS Fri Aug 18 09:49:18 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



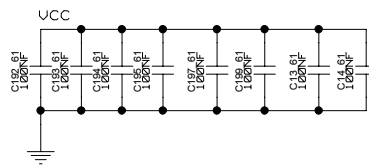
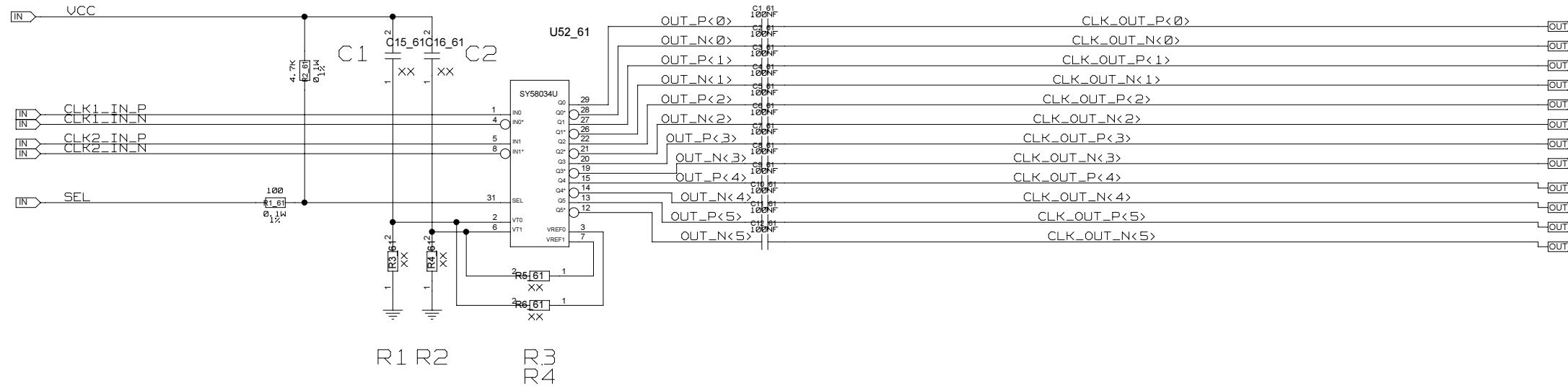
INPUT INTERFACE APPLICATIONS



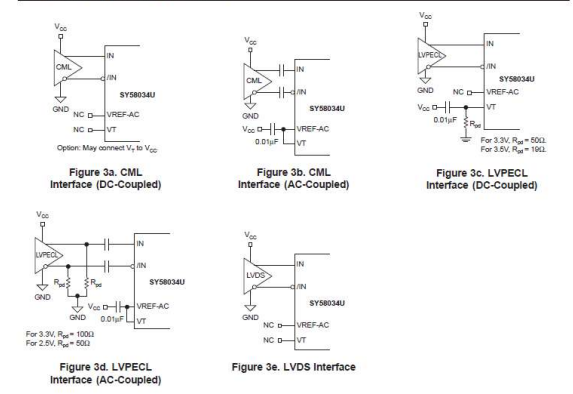
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Fri Aug 18 09:49:16 2023</p>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
SCALE				PAGE
				73 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



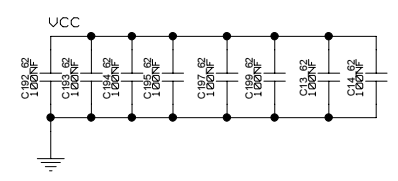
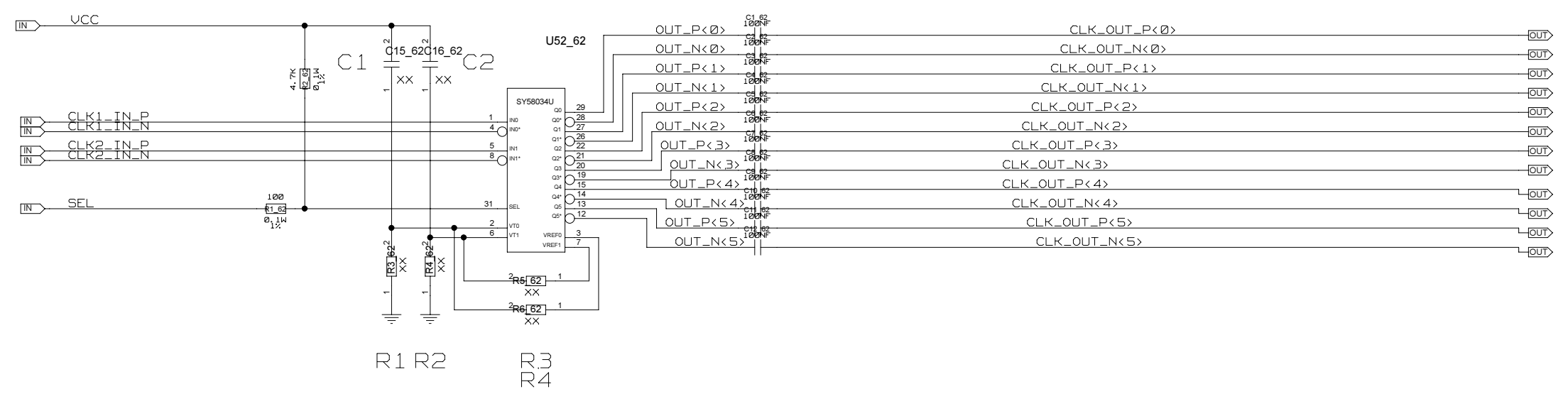
INPUT INTERFACE APPLICATIONS



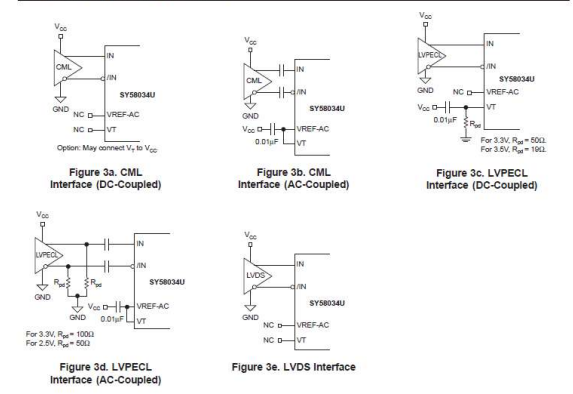
CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ				B. BAUSS Fri Aug 18 09:49:16 2023
SIZE	REV.	DRAWING NO.		PAGE
C				
SCALE				

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



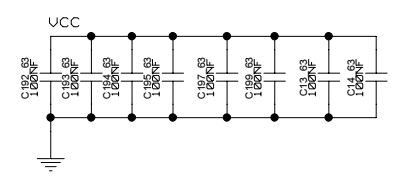
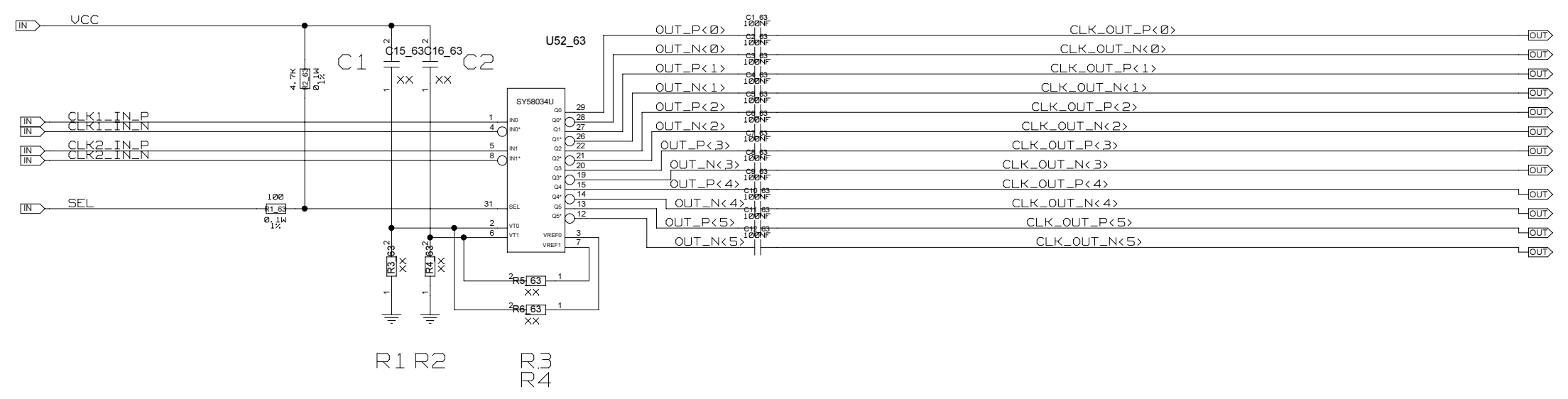
INPUT INTERFACE APPLICATIONS



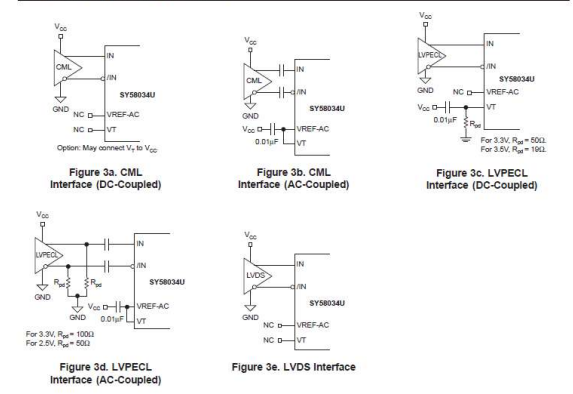
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:16 2023</p>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
		SCALE		PAGE
				75 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



INPUT INTERFACE APPLICATIONS

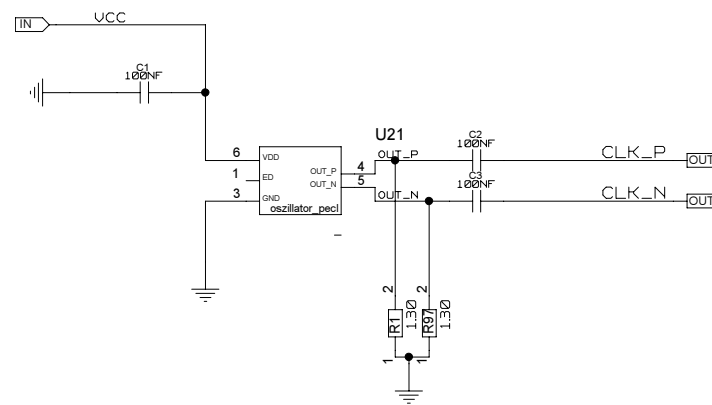


CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ				B. BAUSS Fri Aug 18 09:49:16 2023 SIZE C REV. DRAWING NO.
SCALE				PAGE 76 OF 102

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

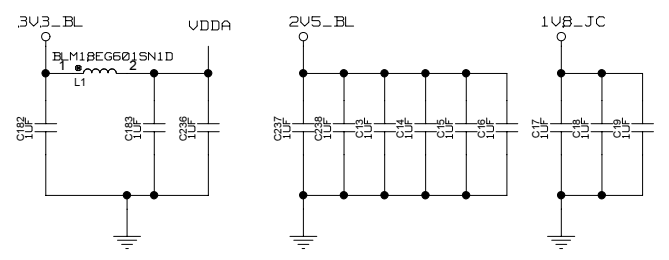
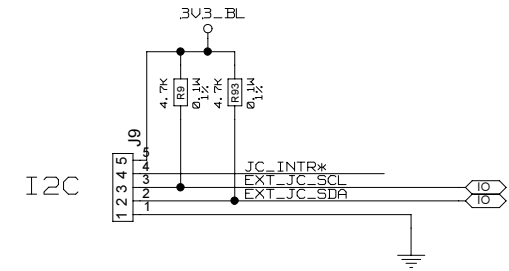
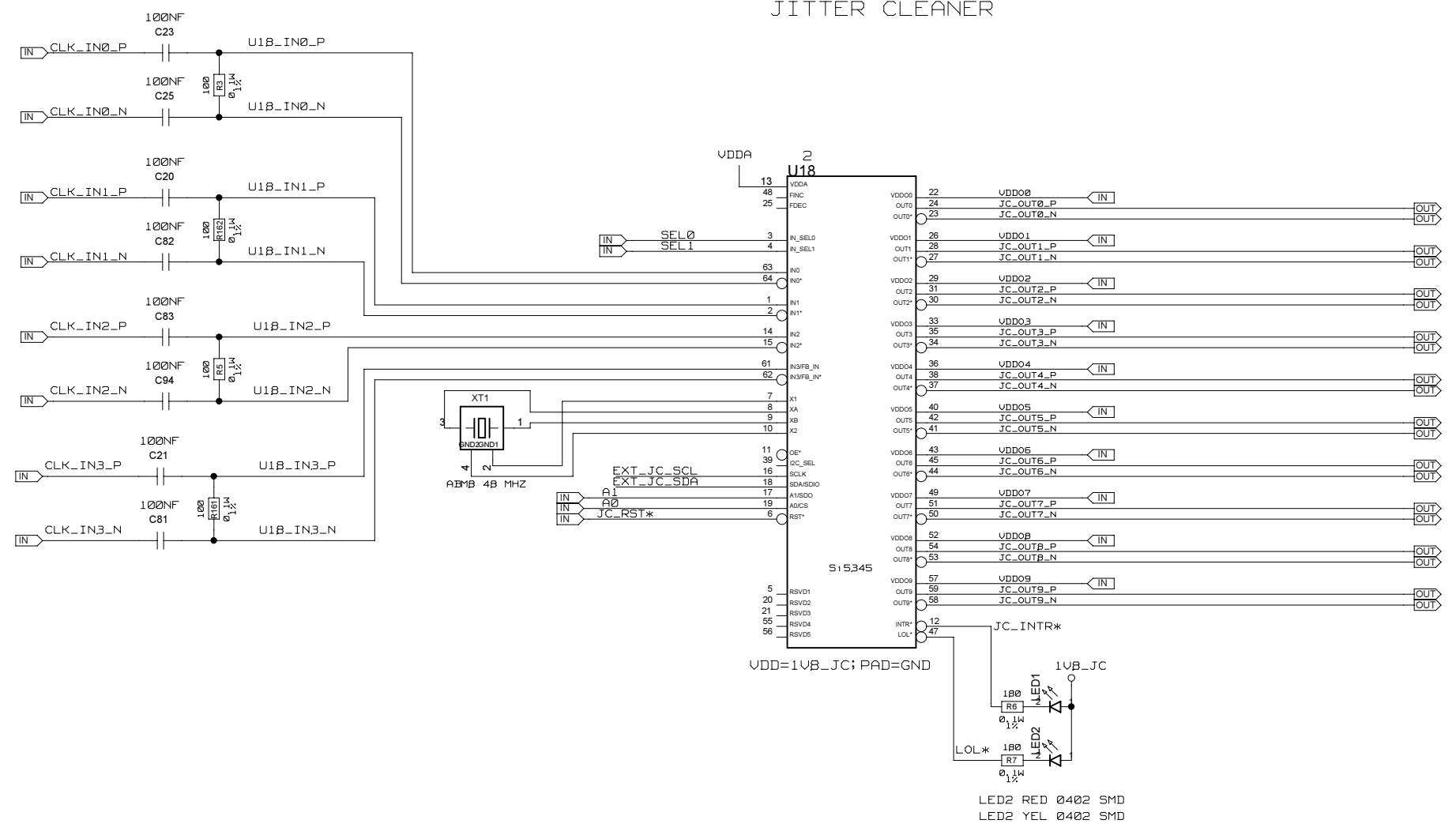
CLOCK_LVPECL_SI591_AC



CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE clock_lvpecl_si591_ac				B. BAUSS Fri Aug 18 09:49:17 2023
UNIVERSITY OF MAINZ		SIZE C	REV.	DRAWING NO.
SCALE		PAGE 77 OF 102		

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

JITTER CLEANER



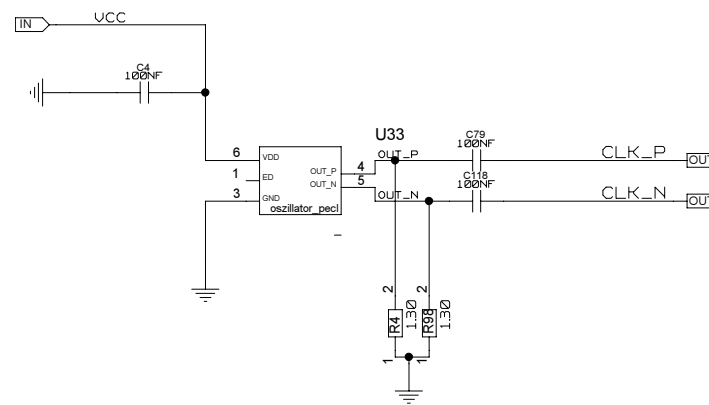
CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER				
CHECKED					
CHECKED					
DRAWN BAUSS				FFEX	
BLOCK TITLE jitter_cleaner_s15345					
UNIVERSITY OF MAINZ				SIZE C	DRAWING NO.
				SCALE	PAGE 7B OF 102

B. BAUSS Fri Aug 18 09:49:18 2023

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

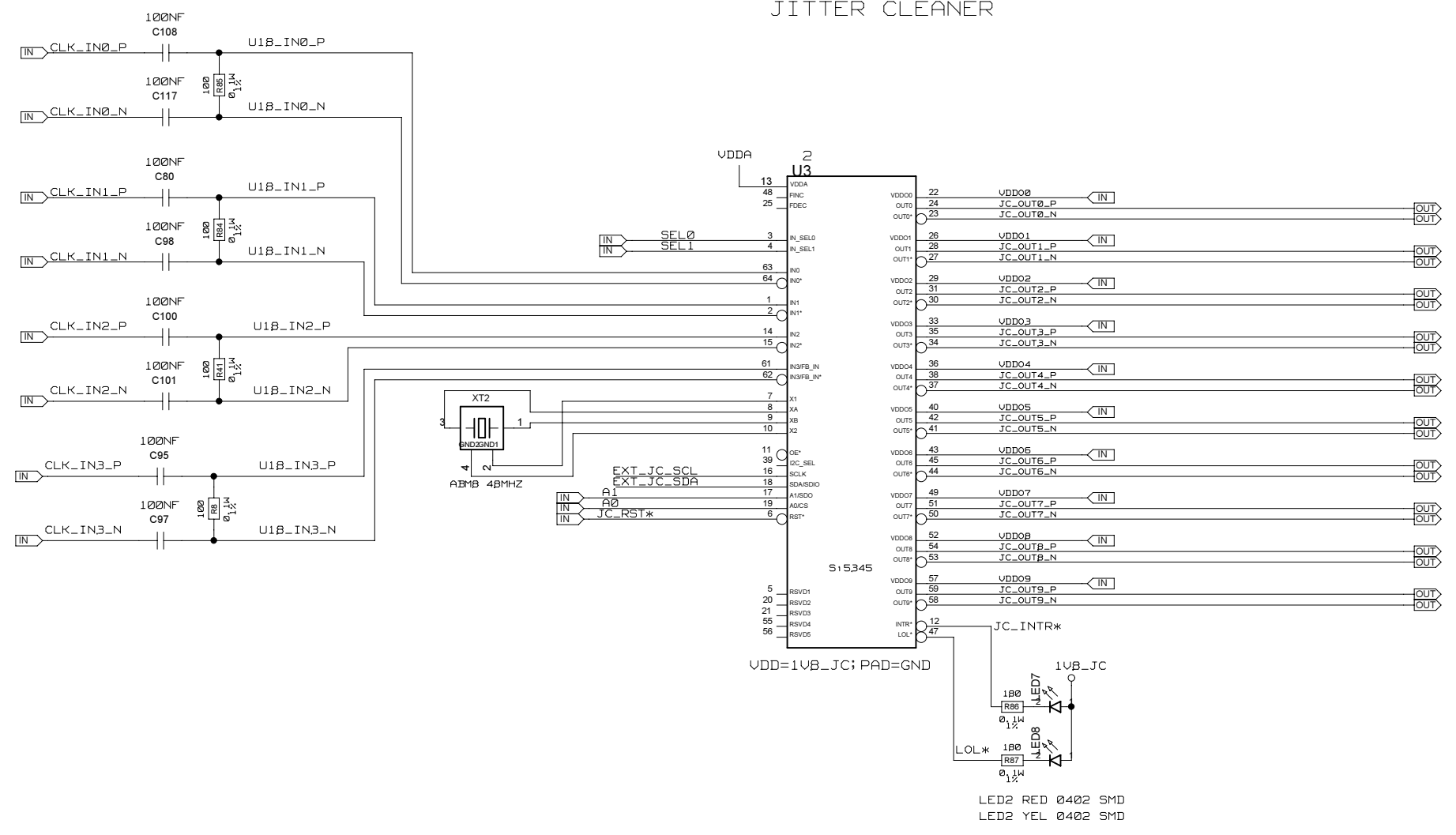
CLOCK_LVPECL_SI591_AC



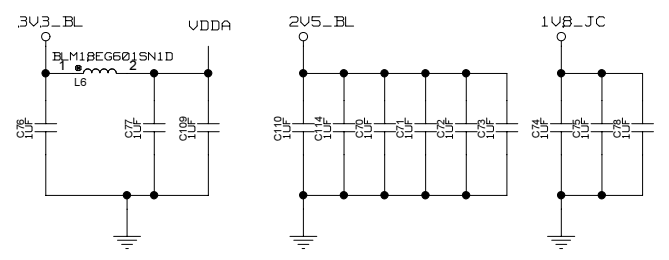
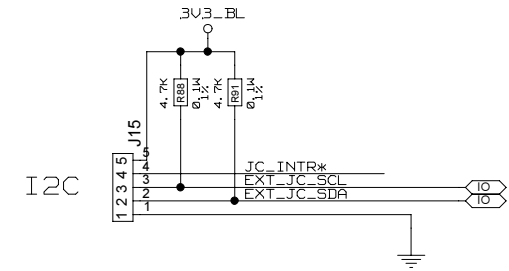
CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE clock_lvpecl_si591_ac				B. BAUSS Fri Aug 18 09:49:17 2023
UNIVERSITY OF MAINZ		SIZE C	REV.	DRAWING NO.
SCALE				PAGE 79 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

JITTER CLEANER



LED2 RED 0402 SMD
LED2 YEL 0402 SMD



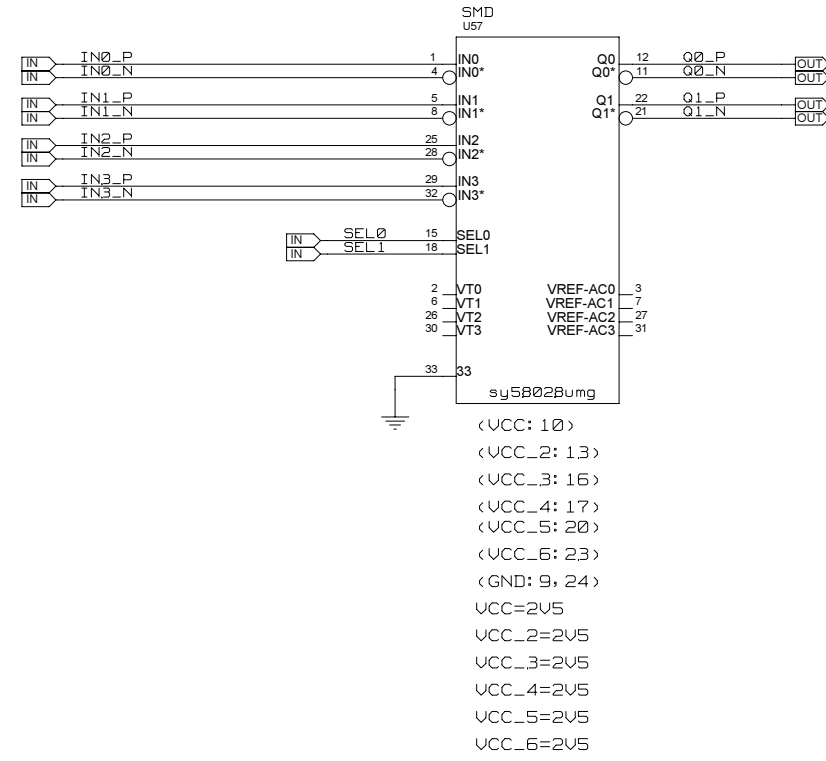
CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER				
CHECKED					
CHECKED					
DRAWN BAUSS				<h1>FFEX</h1>	
BLOCK TITLE jitter_cleaner_s15345					
UNIVERSITY OF MAINZ				SIZE C	DRAWING NO.
				SCALE	PAGE 80 OF 102

FFEX

B. BAUSS Fri Aug 18 09:49:18 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

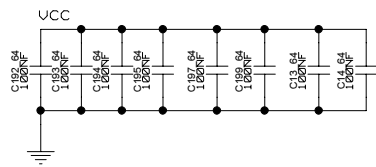
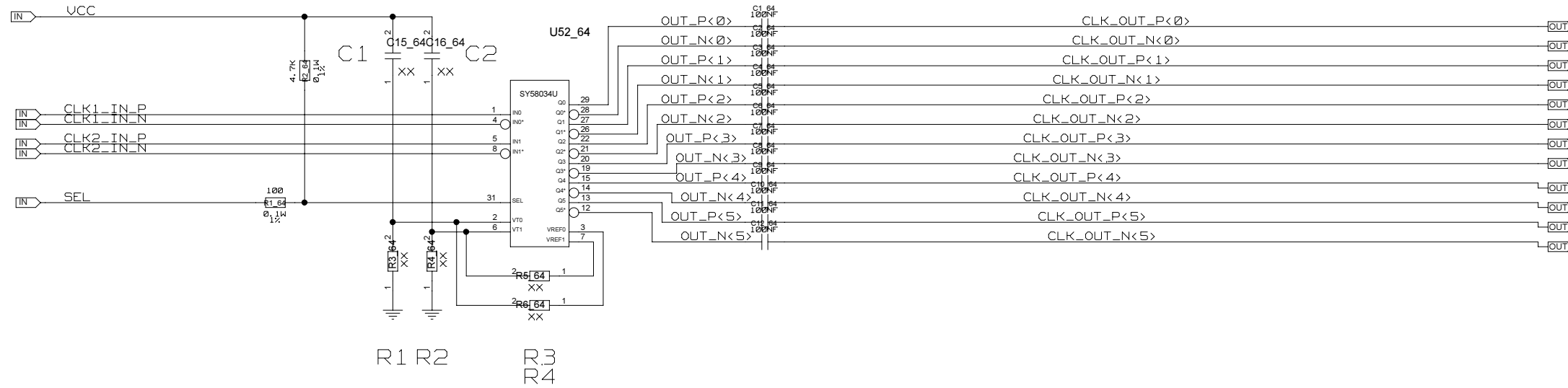
LVDS



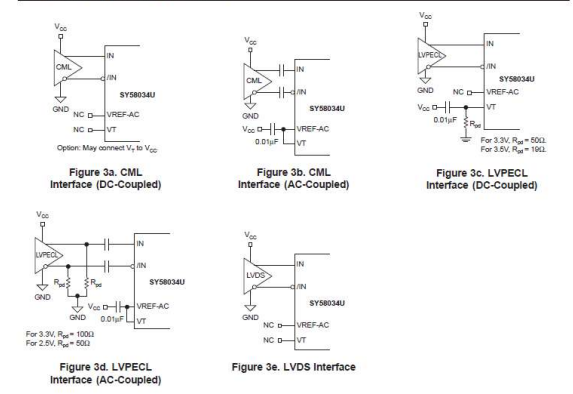
CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER				
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Fri Aug 18 09:49:19 2023</p>	
clock_mux					
UNIVERSITY OF MAINZ			SIZE	REV.	DRAWING NO.
			C		
			SCALE		PAGE
					B1 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



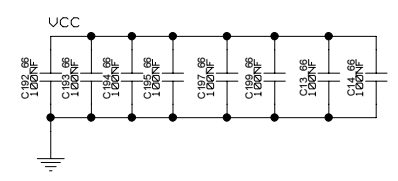
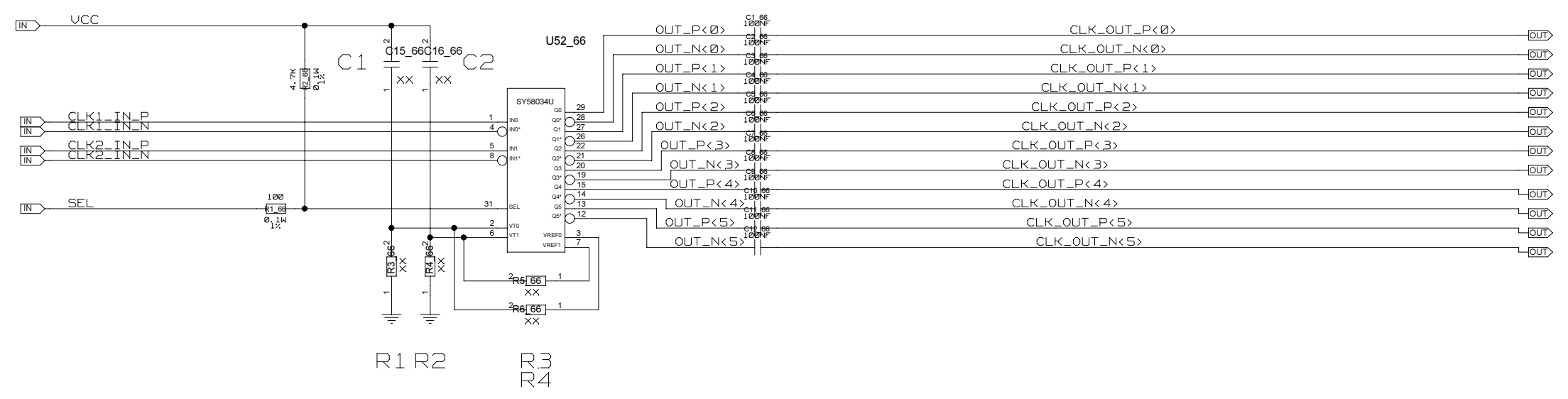
INPUT INTERFACE APPLICATIONS



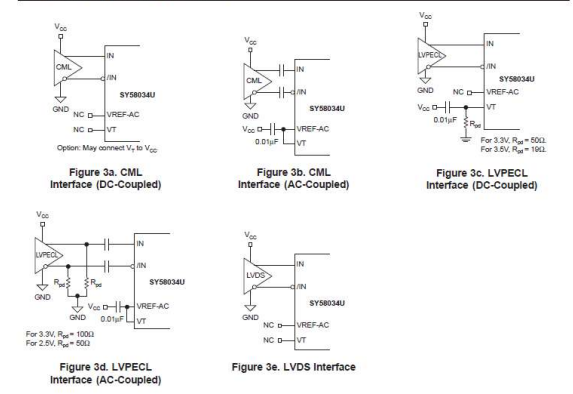
	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			<h1>FFEX</h1>
BLOCK TITLE				
clock_cml_fanout6_ac				B. BAUSS Fri Aug 18 09:49:16 2023
UNIVERSITY OF MAINZ	SIZE	REV.	DRAWING NO.	
	C			
SCALE				PAGE
				B2 OF 102

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE

CLOCK CML FANOUT6 AC



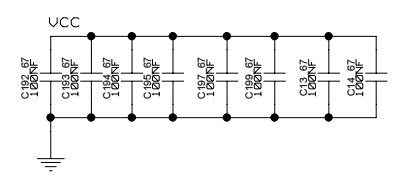
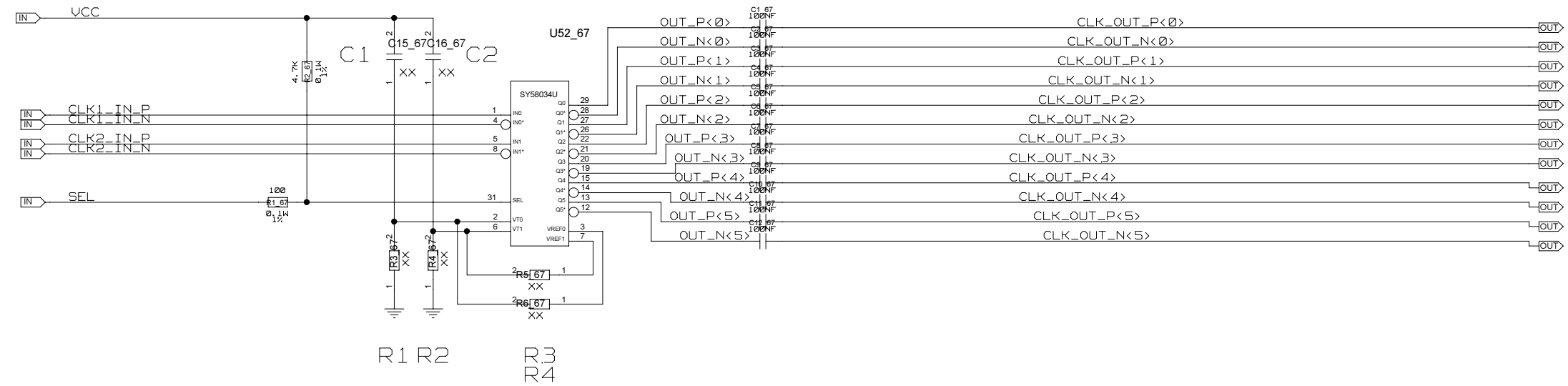
INPUT INTERFACE APPLICATIONS



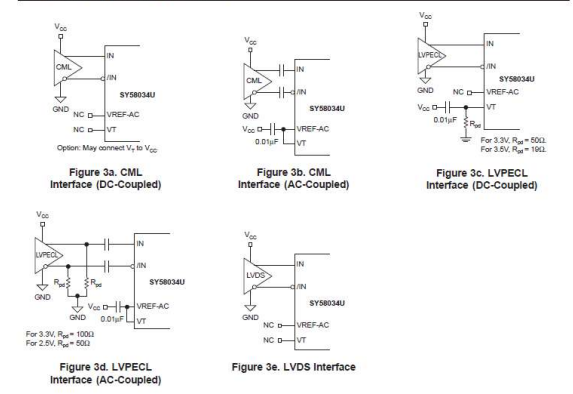
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ				B. BAUSS Fri Aug 18 09:49:16 2023 SIZE C REV. DRAWING NO.
SCALE				PAGE B3 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



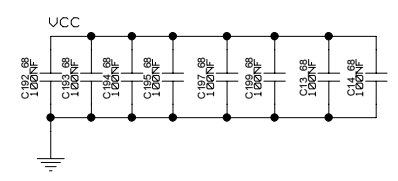
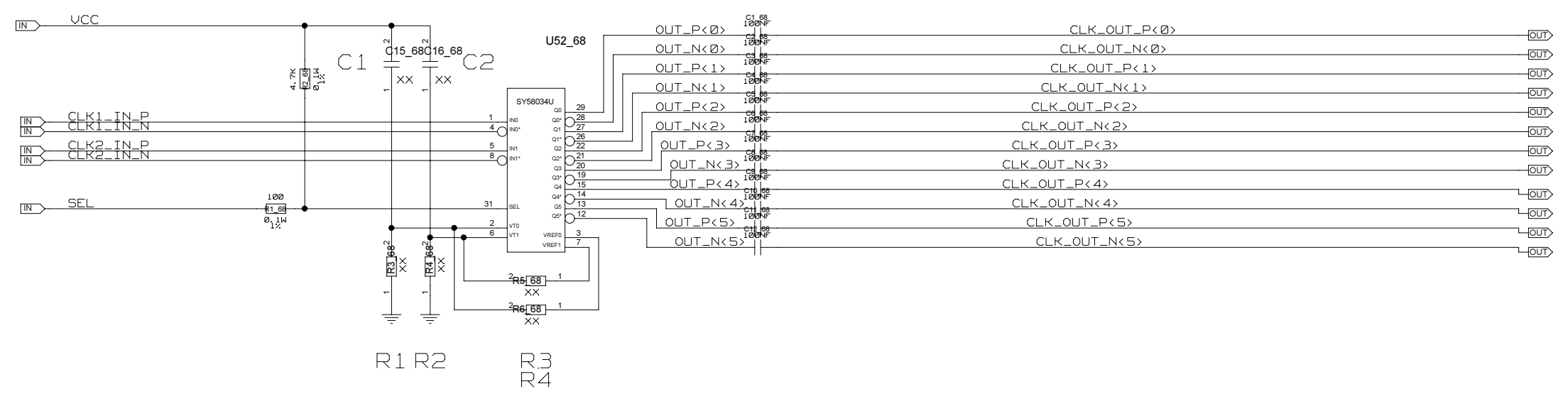
INPUT INTERFACE APPLICATIONS



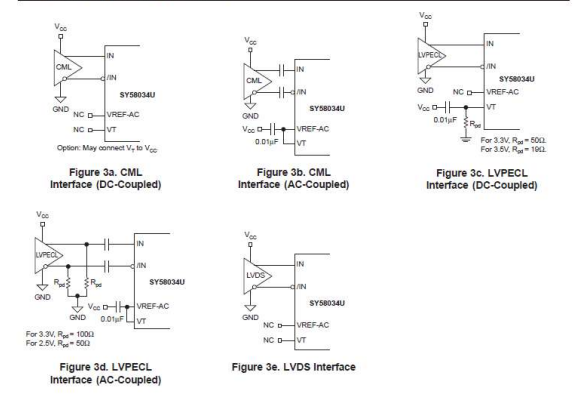
CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ				B. BAUSS Fri Aug 18 09:49:16 2023
SIZE	REV.	DRAWING NO.		PAGE
C				
SCALE				

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



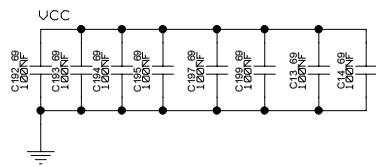
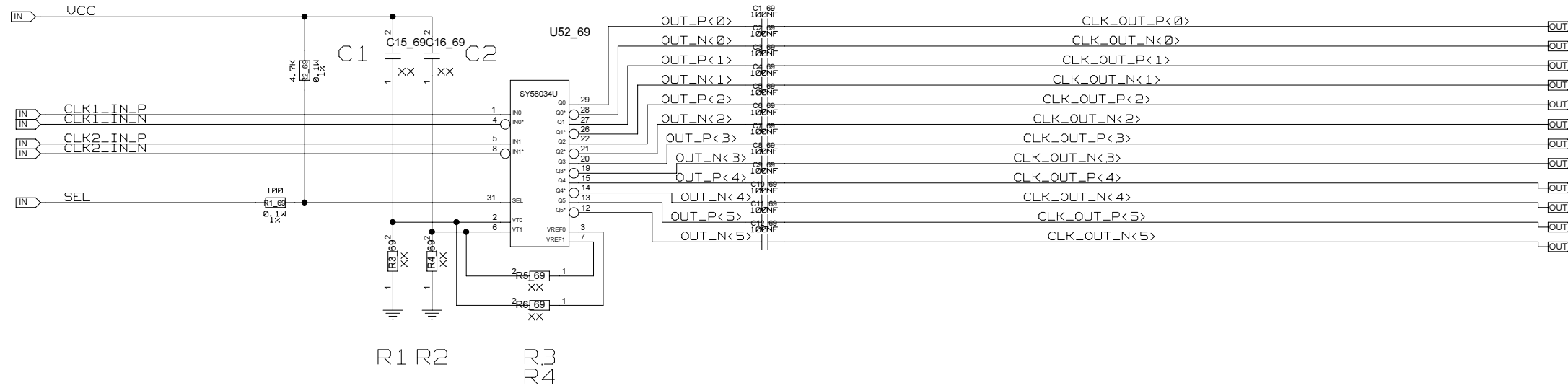
INPUT INTERFACE APPLICATIONS



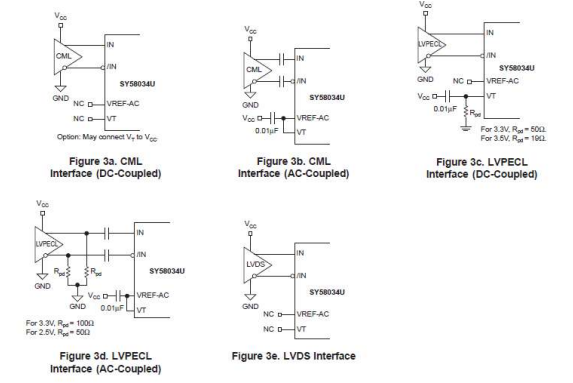
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ				B. BAUSS Fri Aug 18 09:49:16 2023 SIZE C REV. DRAWING NO.
SCALE				PAGE 85 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK CML FANOUT6 AC



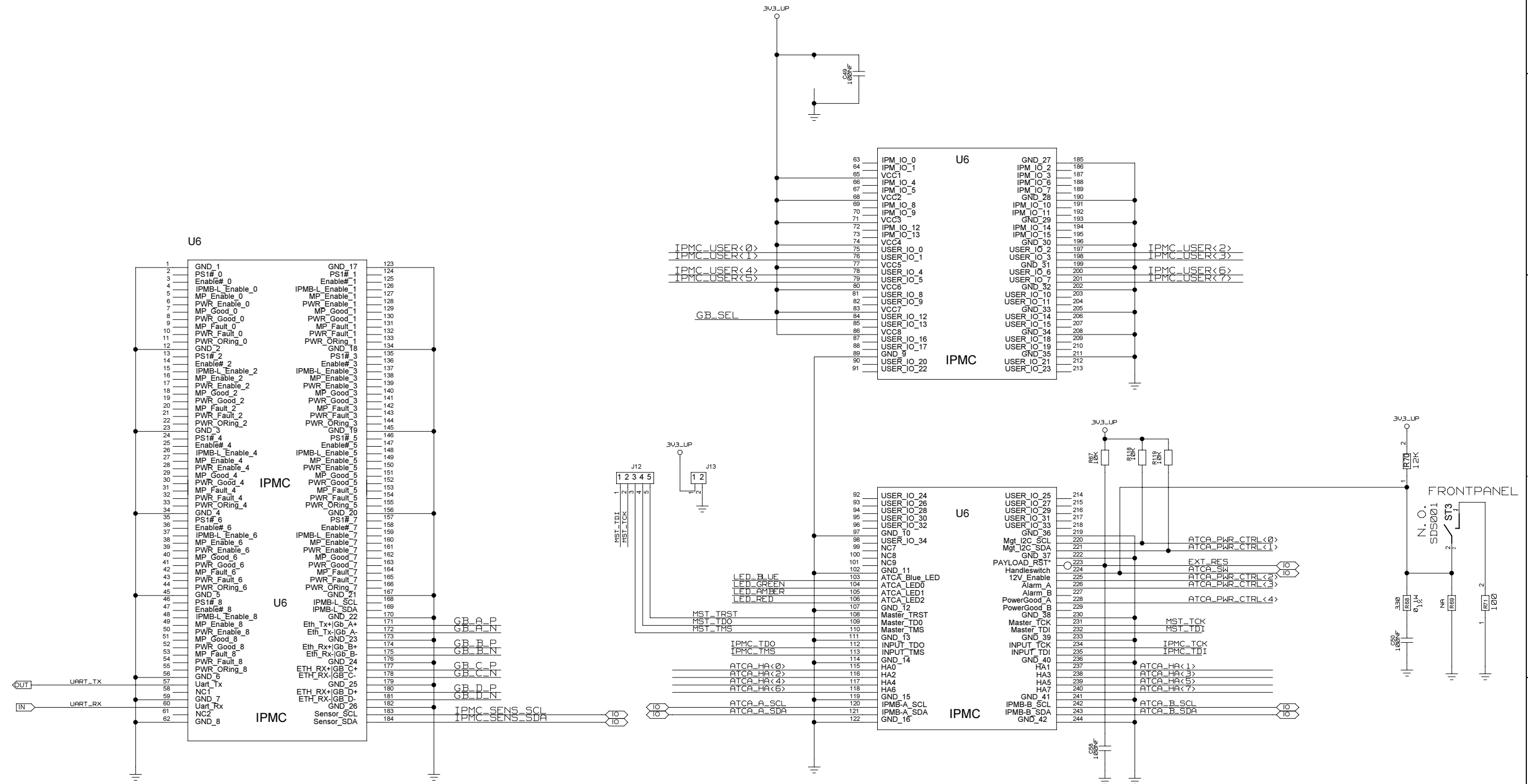
INPUT INTERFACE APPLICATIONS



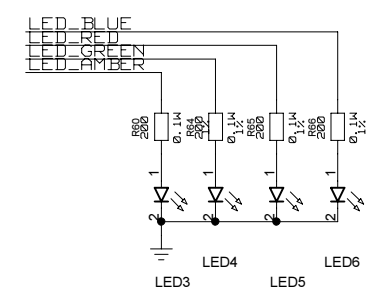
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:16 2023</p>
clock_cml_fanout6_ac				
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
		SCALE		PAGE
				B5 OF 102

IPMC CONNECTOR MOLEX_87782-3003

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE



- ATCA_HA<7..0>
- ATCA_PWR_CTRL<4..0>
- IPMC_USER<7..0>



NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			
UNIVERSITY OF MAINZ			
1 pmc			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		BB OF 102	

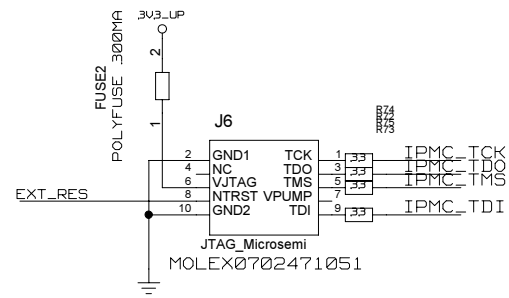
FFEX

B. BAUSS Fri Aug 18 09:49:27 2023

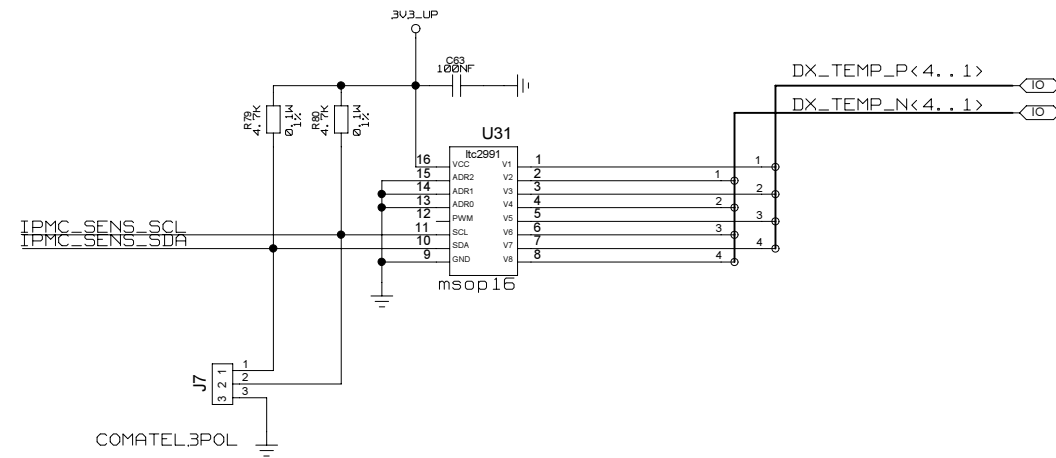
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

IPMC CONTROL

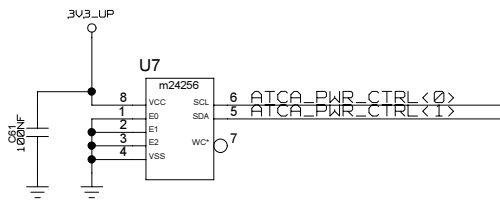
IPMC JTAG PORT
FRONTPANEL



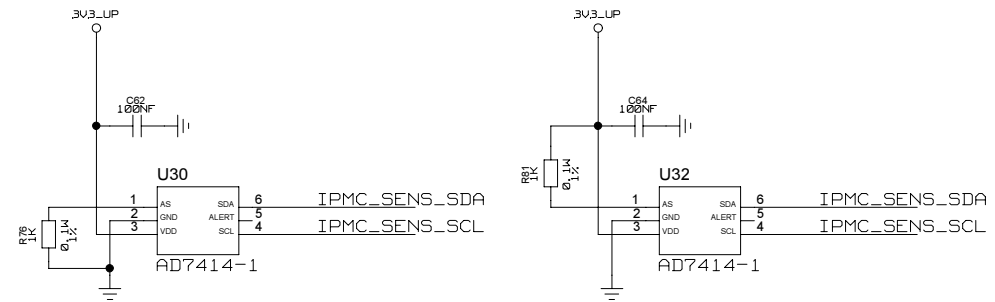
I2C FPGA TEMPERATURE



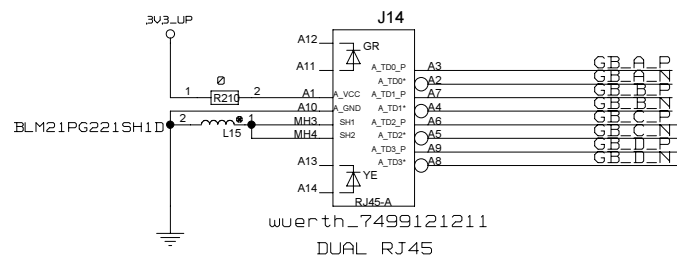
MEMORY



I2C BOARDTEMP



RJ45 FRONTPANEL



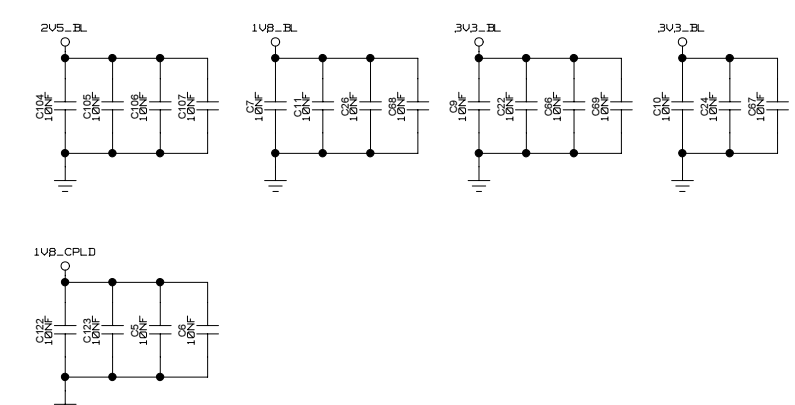
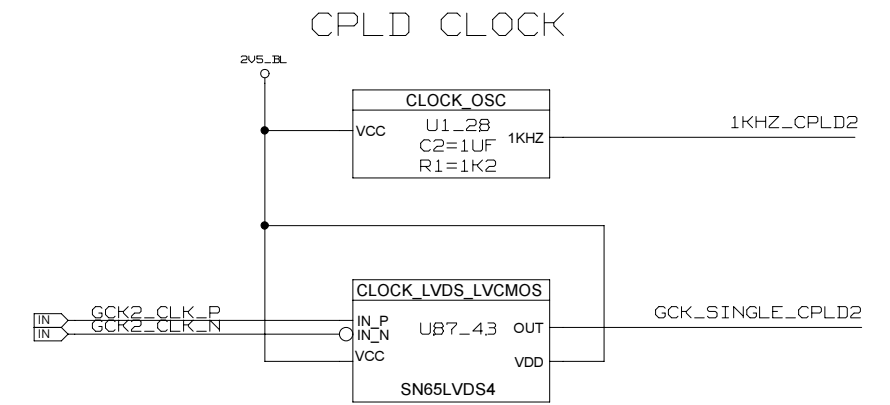
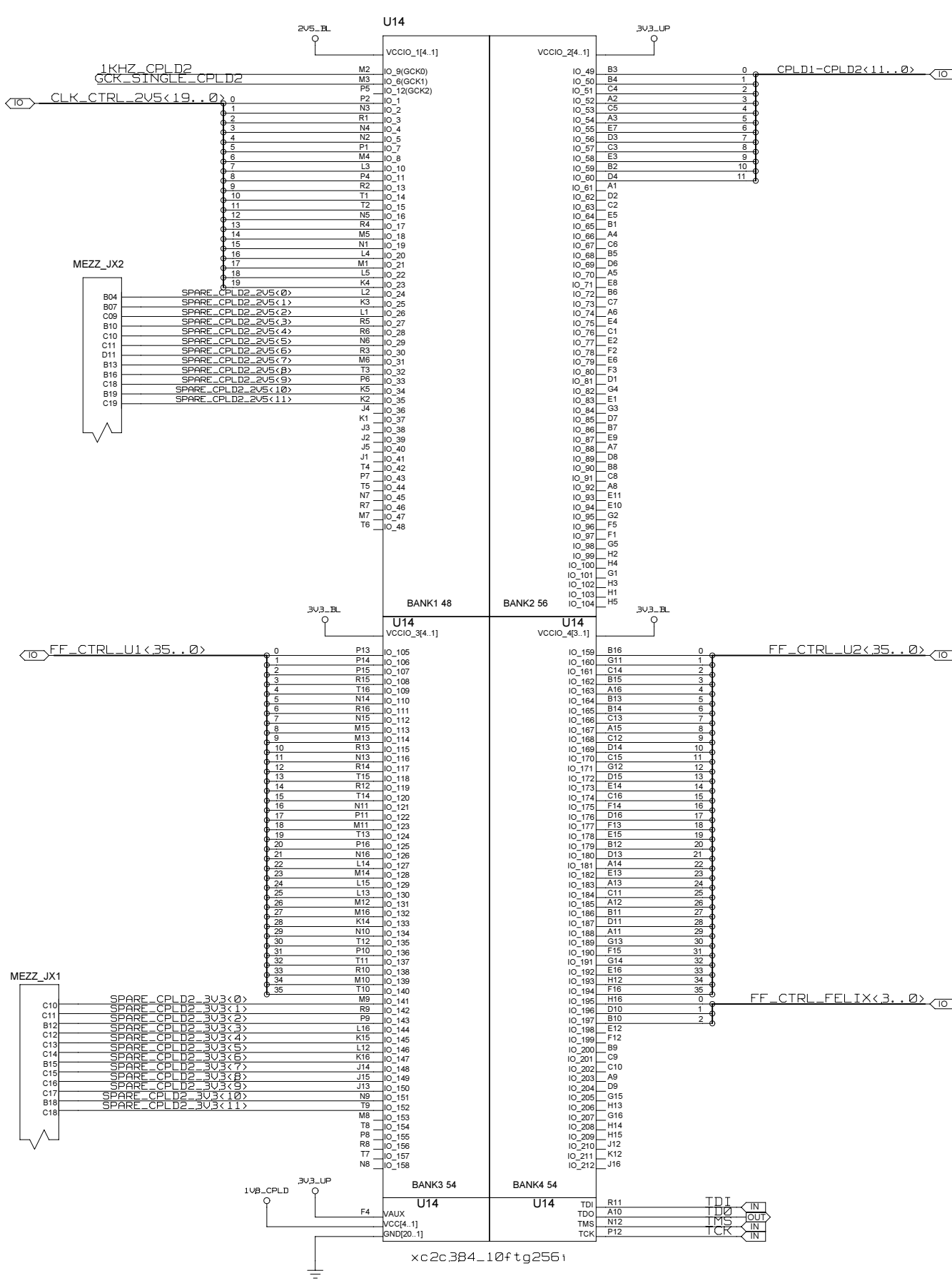
CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			FFEX
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				1pmc
UNIVERSITY OF MAINZ				SIZE C
				SCALE
				REV.
				DRAWING NO.
				PAGE 89 OF 102

FFEX

B. BAUSS Fri Aug 18 09:49:28 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

FF_CONTROL AND CTRL CPLD2



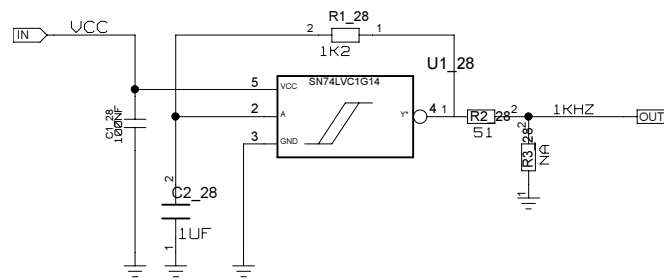
NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS	22.07.2015	
BLOCK TITLE			
cpld			
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		90 OF 102	

FFEX

B. BAUSS Fri Aug 18 09:49:27 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK_OSC

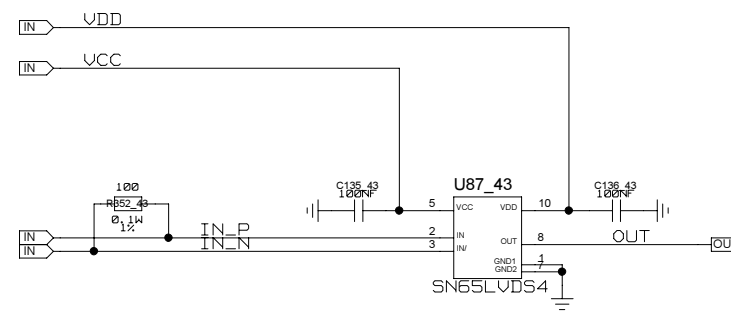


CHECKED	NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER			<h1>FFEX</h1>	
CHECKED					
CHECKED					
DRAWN	BAUSS			B. BAUSS Fri Aug 18 09:49:17 2023	
BLOCK TITLE				SIZE	DRAWING NO.
<h2>UNIVERSITY OF MAINZ</h2>				C	REV.
				SCALE	PAGE 91 OF 102

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

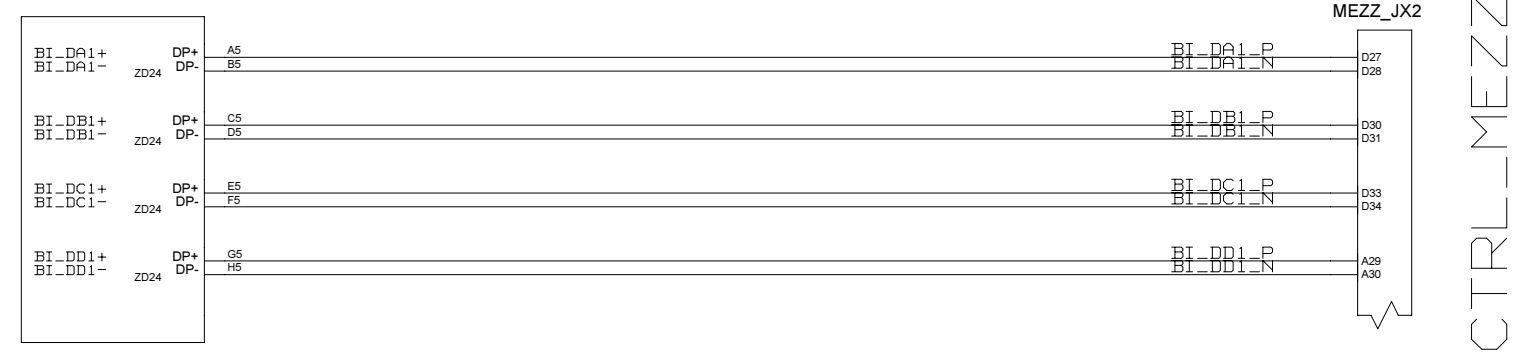
CLOCK_LVDS_LVCMOS



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			FFEX
BLOCK TITLE				
clock_lvds_lvcmos				B. BAUSS Fri Aug 18 09:49:17 2023
UNIVERSITY OF MAINZ			SIZE	DRAWING NO.
			C	
SCALE				PAGE
				92 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

BACKPLANE BASE CHANNEL 1



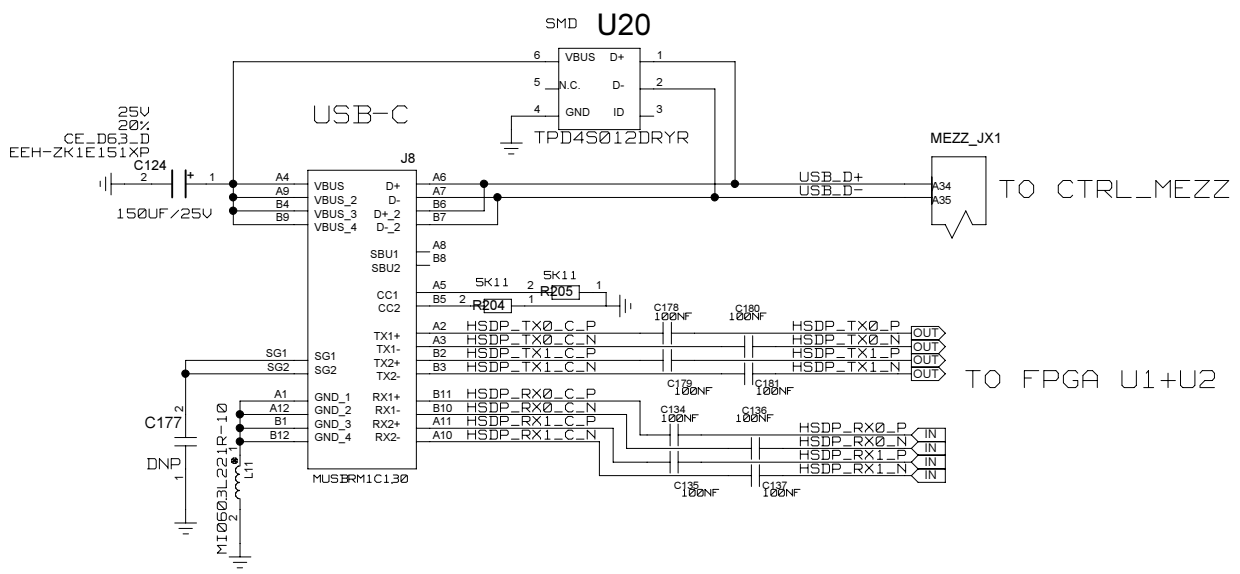
CHECKED	NAME	DATE	SIGN	DRAWING TITLE FFEX
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE ipbus				
UNIVERSITY OF MAINZ				
SIZE C	REV.	DRAWING NO.		
SCALE			PAGE 93 OF 102	

B. BAUSS Fri Aug 18 09:49:26 2023

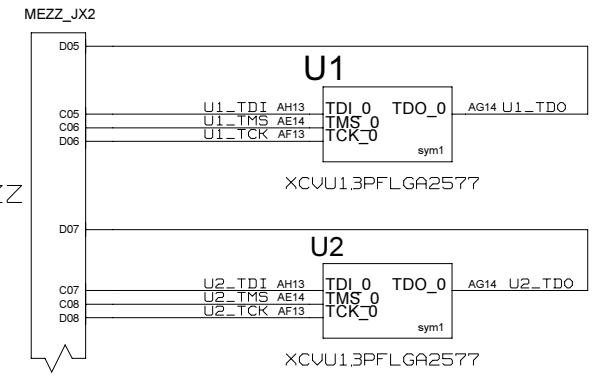
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

USB JTAG INPUT

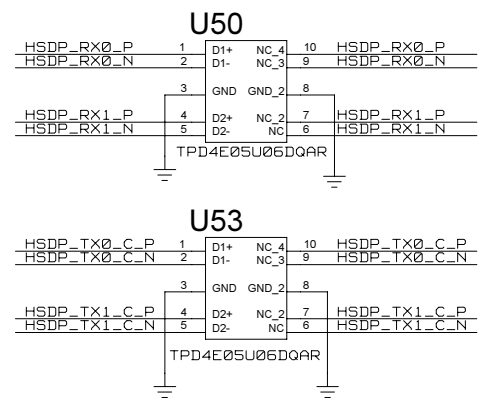
JTAG CHAIN



FROM CTRL_MEZZ



ESD PROTECTION

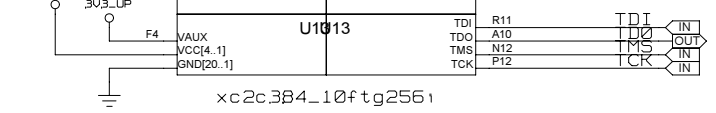
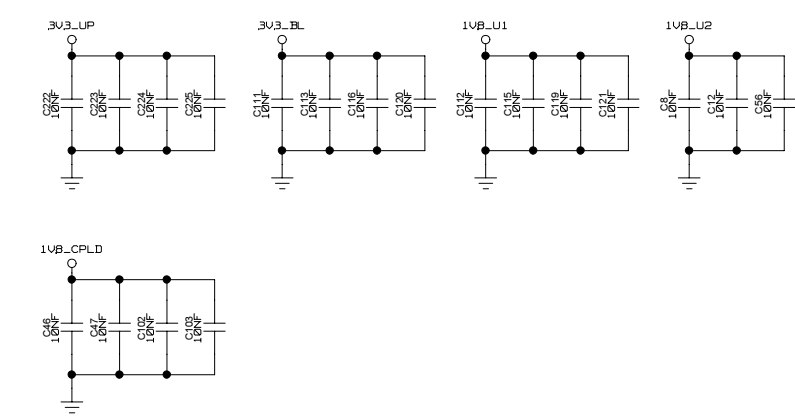
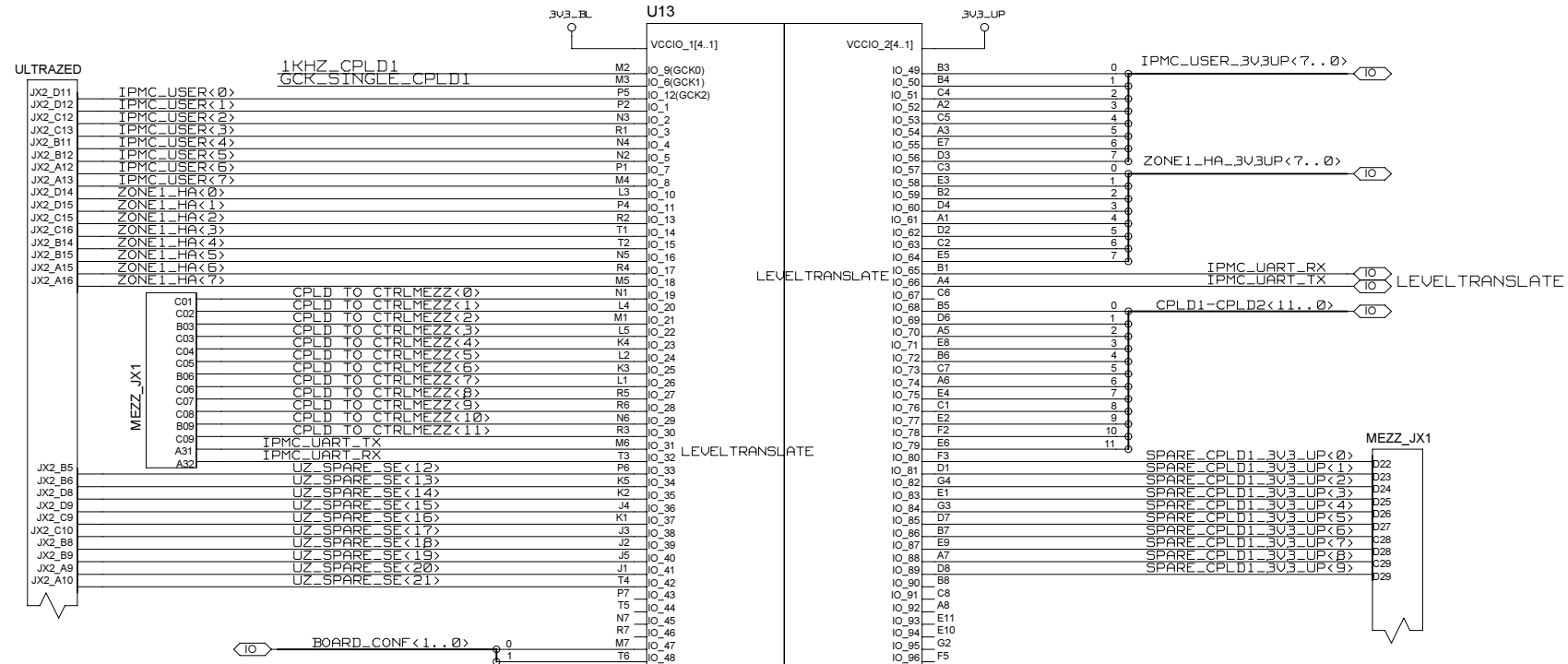
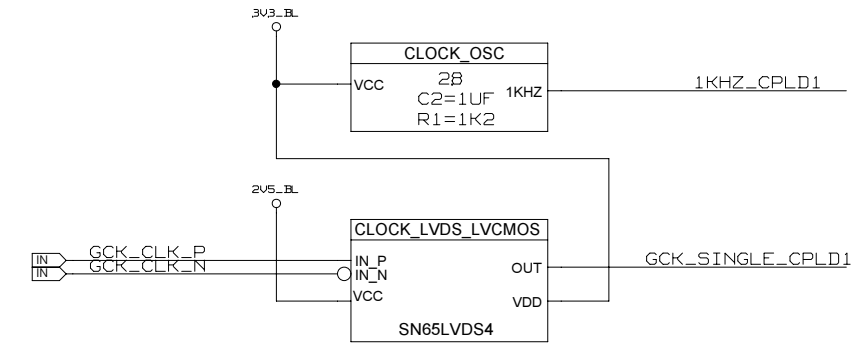


CHECKED	U.SCHAEFER			DRAWING TITLE
CHECKED				
CHECKED				
DRAWN	BAUSS	08.06.2017		
BLOCK TITLE				<h1 style="text-align: center;">FFEX</h1> <p style="text-align: center;">B. BAUSS Fri Aug 18 09:49:25 2023</p>
jtag				
UNIVERSITY OF MAINZ				
SIZE	REV.	DRAWING NO.		PAGE
C				
SCALE				

FPGA CONFIG CPLD1

REVISIONS			
ZONE	LTR	DESCRIPTION	DATE

CPLD CLOCK



xc2c384-10ftg256-1

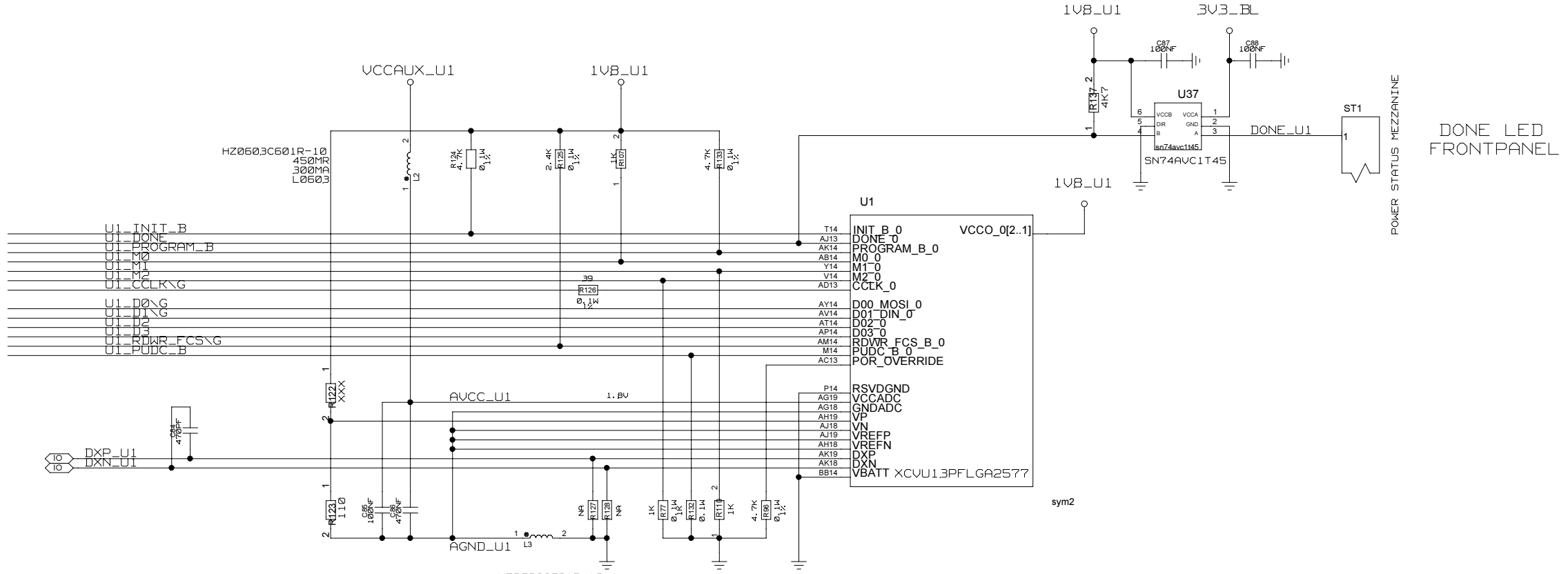
NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			
config_processor_u1			
UNIVERSITY OF MAINZ			
SIZE	REV.	DRAWING NO.	
C			
SCALE		PAGE	
		95 OF 102	

FFEX

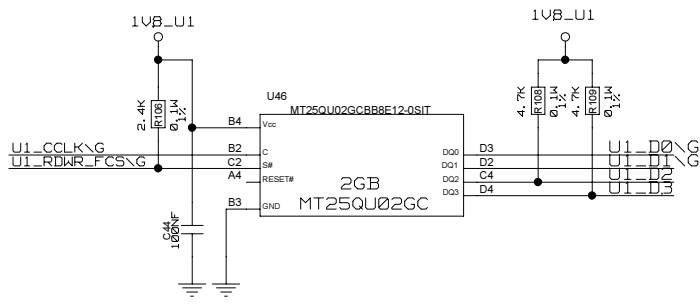
B. BAUSS Fri Aug 18 09:49:26 2023

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CONFIG U1



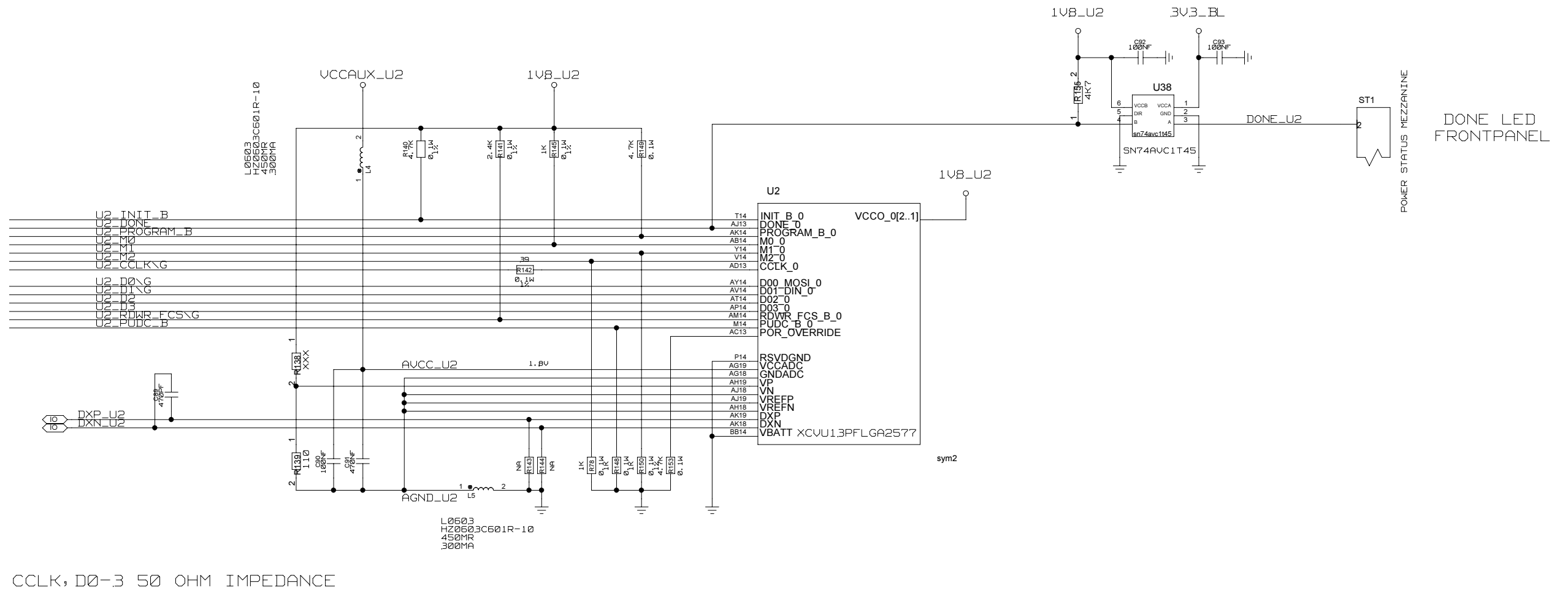
SPI NOR FLASH MEMORY AVOID STUBS



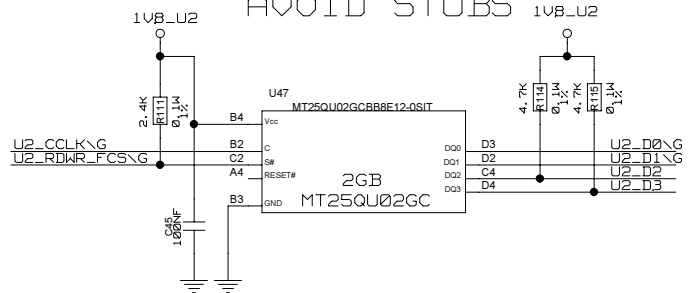
NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER		FFEX
CHECKED			
CHECKED			
DRAWN	BAUSS		
BLOCK TITLE			B. BAUSS Fri Aug 18 09:49:26 2023
UNIVERSITY OF MAINZ			SIZE C REV. DRAWING NO.
SCALE			PAGE 96 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CONFIG U2



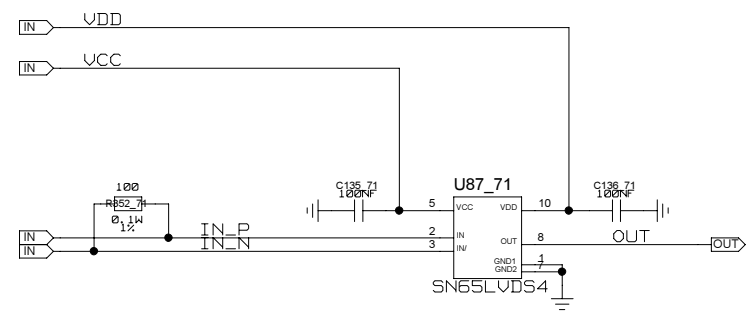
SPI NOR FLASH MEMORY AVOID STUBS



NAME	DATE	SIGN	DRAWING TITLE	
CHECKED	U.SCHAEFER		<h1>FFEX</h1>	
CHECKED				
CHECKED				
DRAWN	BAUSS		BLOCK TITLE	
			config_processor_u1	
			B. BAUSS Fri Aug 18 09:49:27 2023	
UNIVERSITY OF MAINZ		SIZE	REV.	DRAWING NO.
		C		
		SCALE		PAGE
				97 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

CLOCK_LVDS_LVCMOS

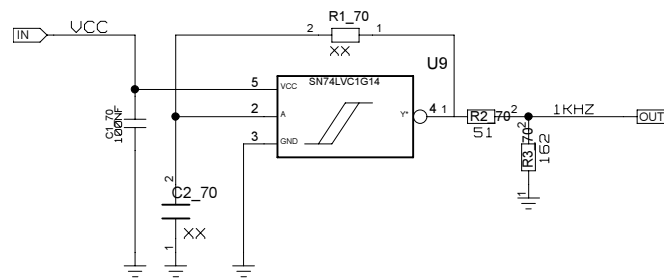


CHECKED	NAME	DATE	SIGN	DRAWING TITLE		
CHECKED	U.SCHAEFER					
CHECKED						
CHECKED						
DRAWN	BAUSS			FFEX		
BLOCK TITLE						
clock_lvds_lvcmos				B. BAUSS Fri Aug 18 09:49:17 2023		
UNIVERSITY OF MAINZ				SIZE	REV.	DRAWING NO.
				SCALE		
				PAGE	98 OF 102	

REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPR.

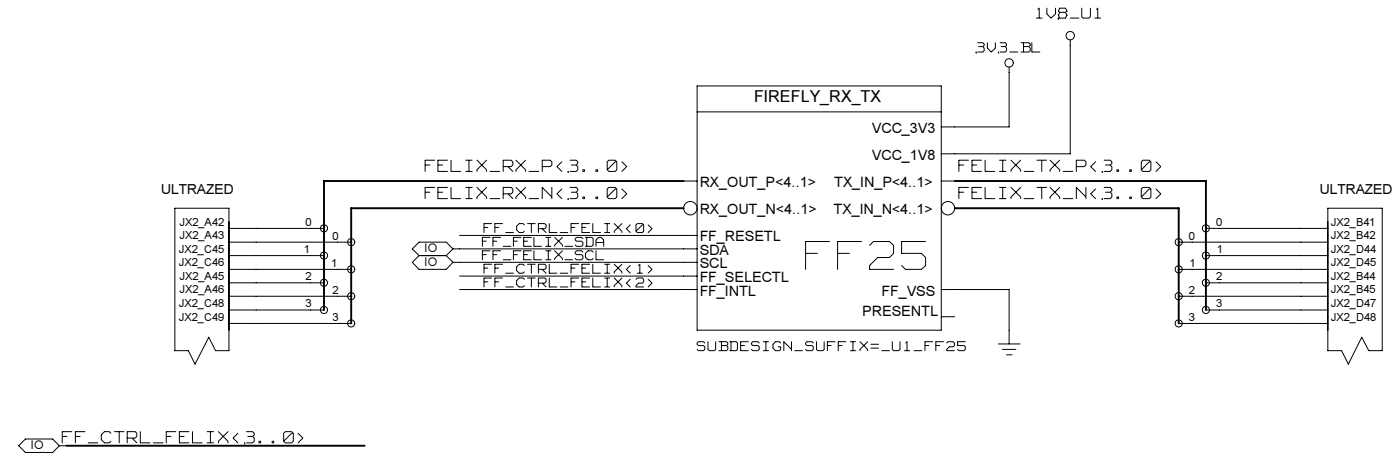
CLOCK_OSC



CHECKED	U.SCHAEFER	DATE	SIGN	DRAWING TITLE FFEX	
CHECKED					
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE clock_osc				B. BAUSS Fri Aug 18 09:49:17 2023	
UNIVERSITY OF MAINZ				SIZE C	DRAWING NO.
				SCALE	PAGE 99 OF 102

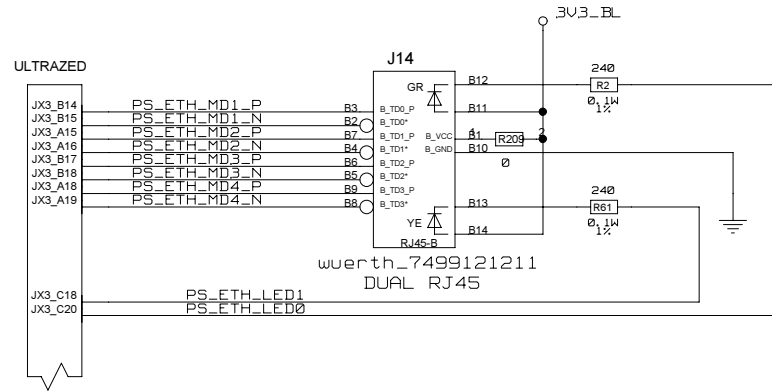
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

ULTRAZED_FELIX_FIREFLY

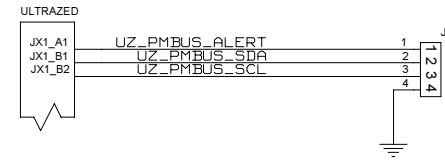


ULTRAZED TO MAINBOARD RJ45

ULTRAZED MAINBOARD



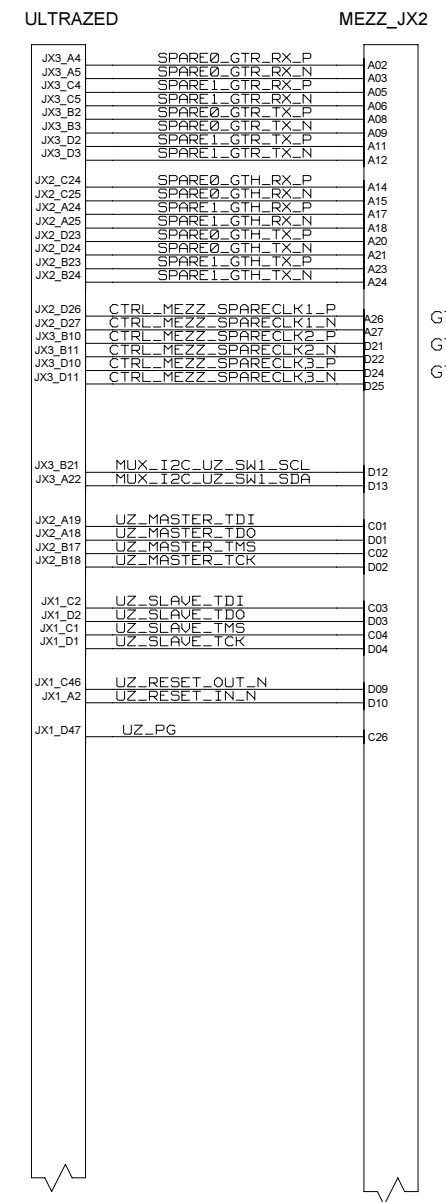
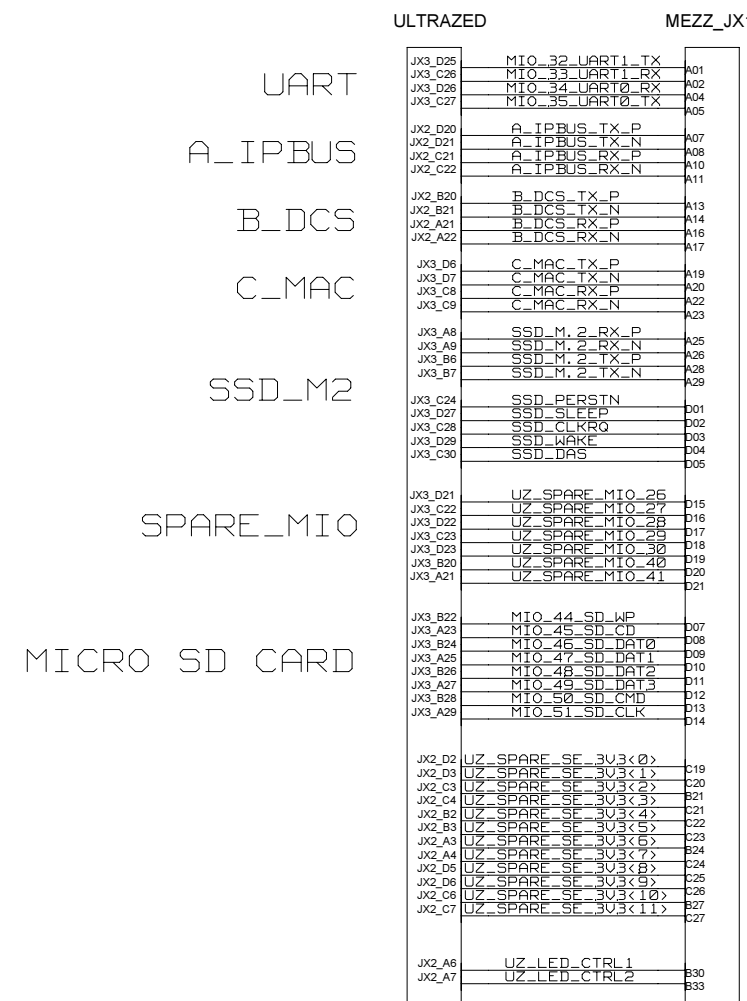
ULTRAZED PMBUS



CHECKED	NAME	DATE	SIGN	DRAWING TITLE
CHECKED	U.SCHAEFER			
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE				<h1>FFEX</h1> <p>B. BAUSS Fri Aug 18 09:49:19 2023</p>
ultrazed				
UNIVERSITY OF MAINZ				
SIZE	REV.	DRAWING NO.		PAGE
C				
SCALE				

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.

ULTRAZED TO CTRL MEZZ CONNECTION

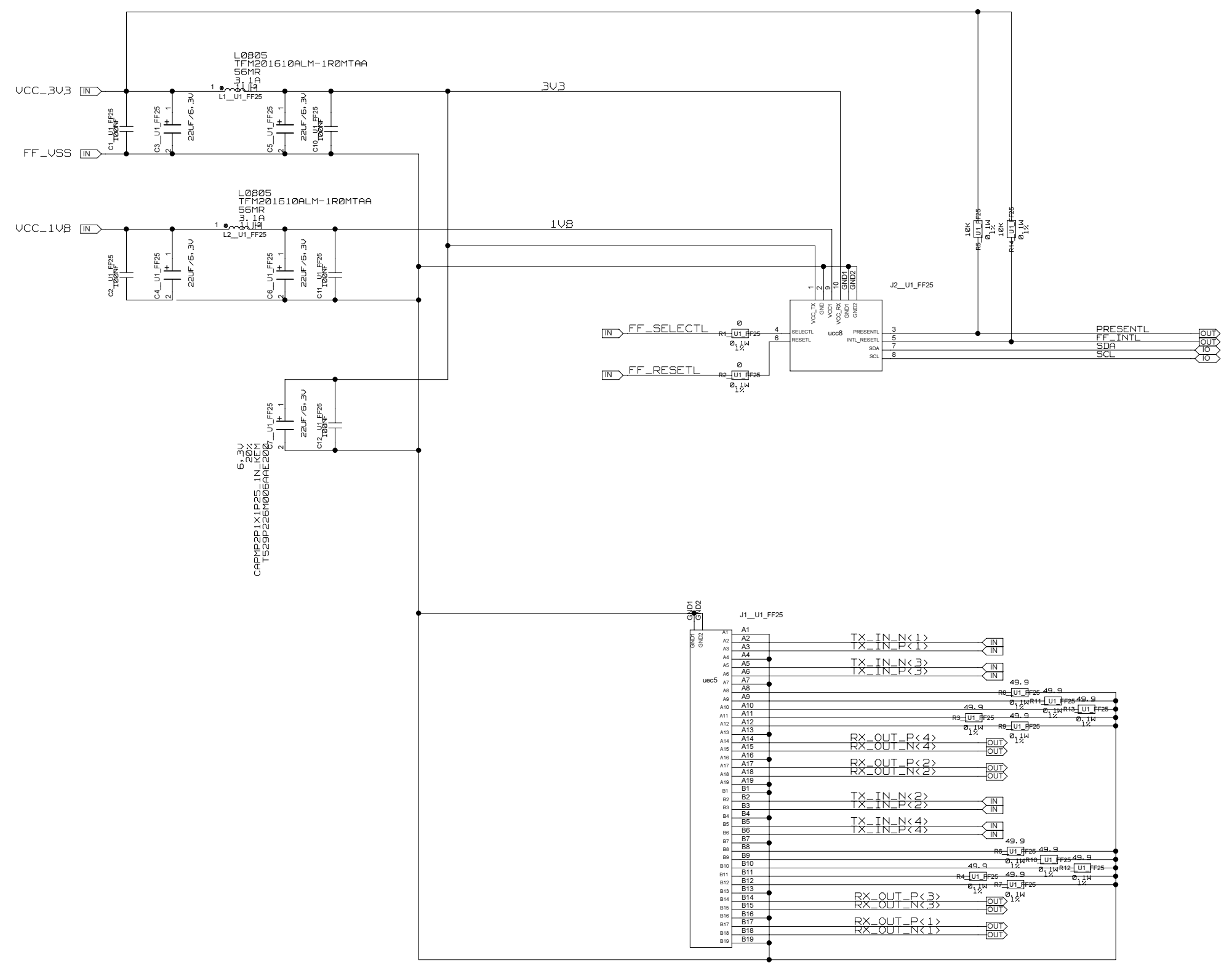


SPARE UZ GTR
 SPARE UZ GTH
 SPARE CLOCK
 MUX I2C
 MASTER_JTAG
 SLAVE_JTAG
 RESET
 PG_OUT

← UZ_PG

CHECKED	U.SCHAEFER	DATE	SIGN	DRAWING TITLE FFEX B. BAUSS Fri Aug 18 09:49:19 2023
CHECKED				
CHECKED				
DRAWN	BAUSS			
BLOCK TITLE ultrazed				SIZE C
UNIVERSITY OF MAINZ				REV.
SCALE				DRAWING NO.
				PAGE 101 OF 102

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPR.



CHECKED	U.SCHAEFER	DATE	SIGN	DRAWING TITLE	
CHECKED					
CHECKED					
DRAWN	BAUSS				
BLOCK TITLE				DRAWING NO.	
firefly_rx_tx					
UNIVERSITY OF MAINZ				SIZE	REV.
				SCALE	PAGE
				102 OF 102	

FFEX

B. BAUSS Thu Jun 15 14:42:47 2023