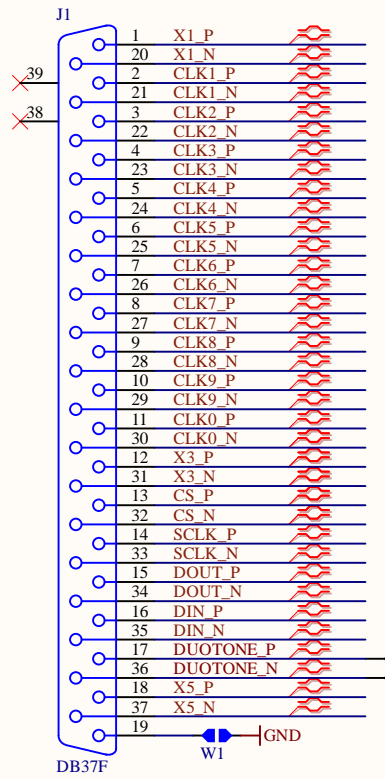
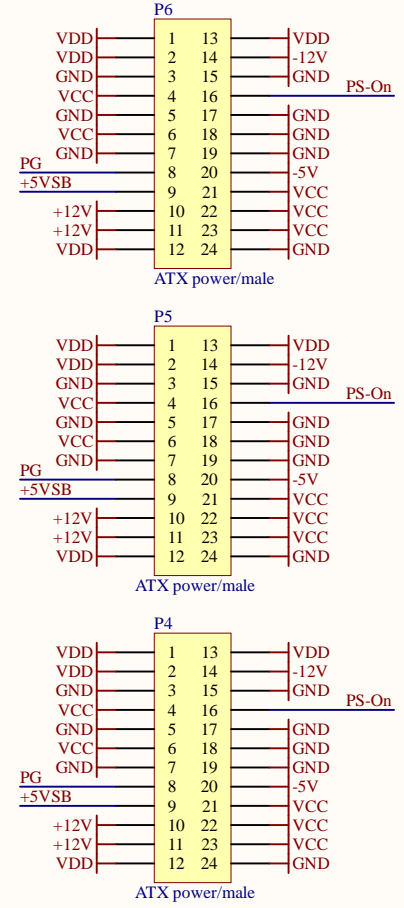


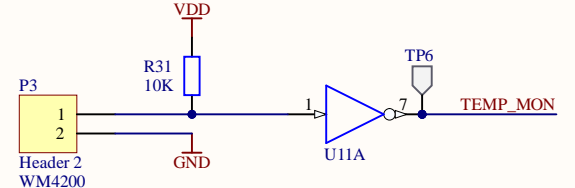
Timing FPGA



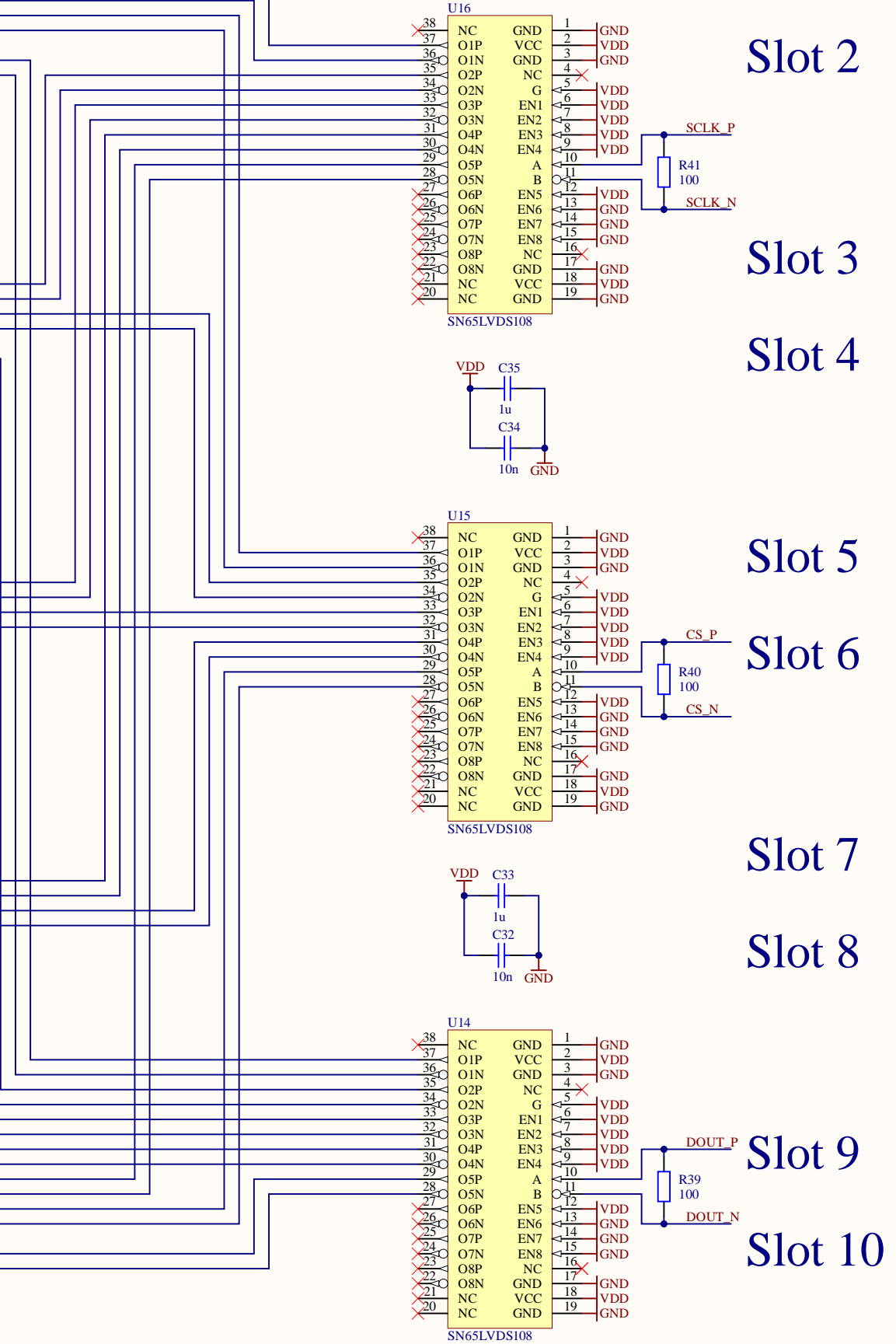
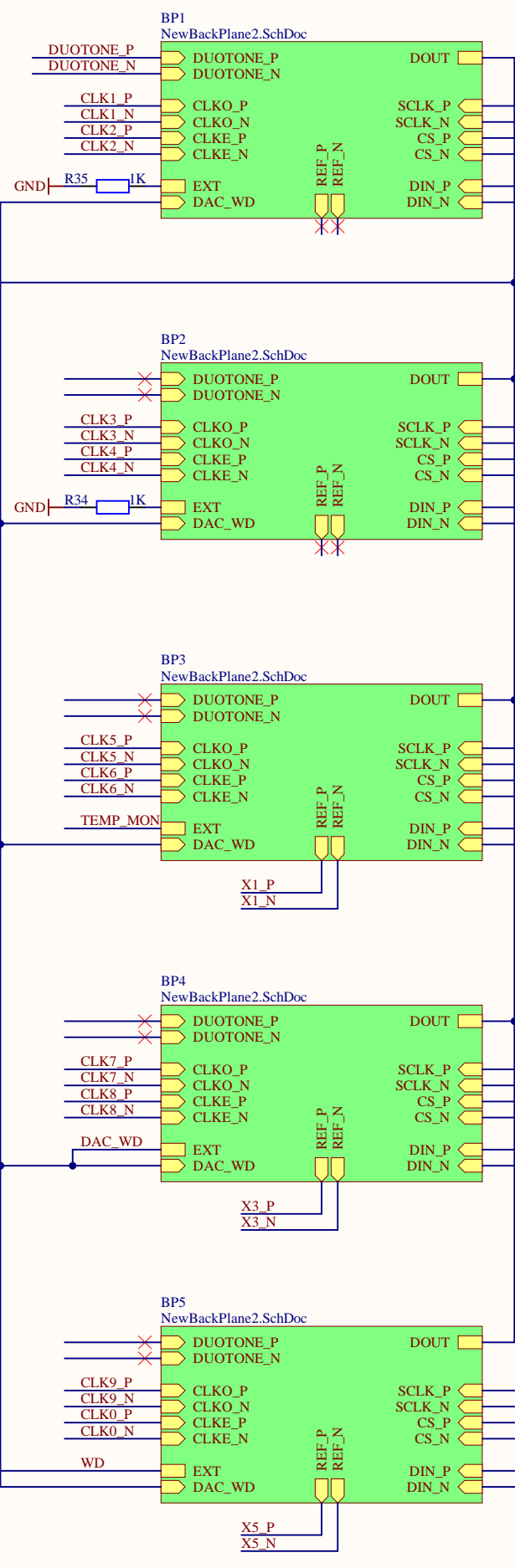
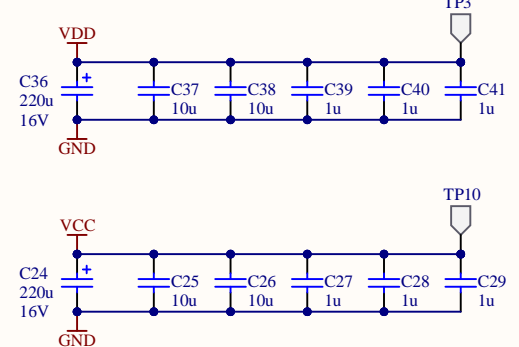
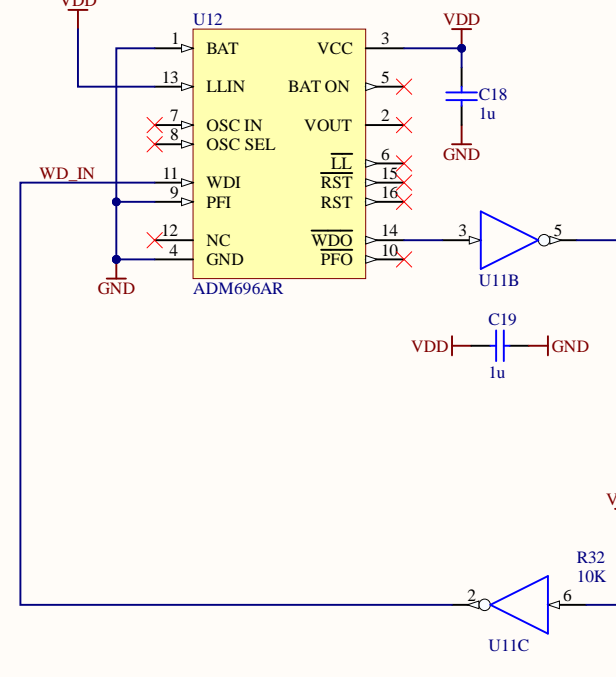
Main Power Terminal



Remote Temperature Switch Monitor Input



Watchdog Circuit (1.6 sec Nominal)

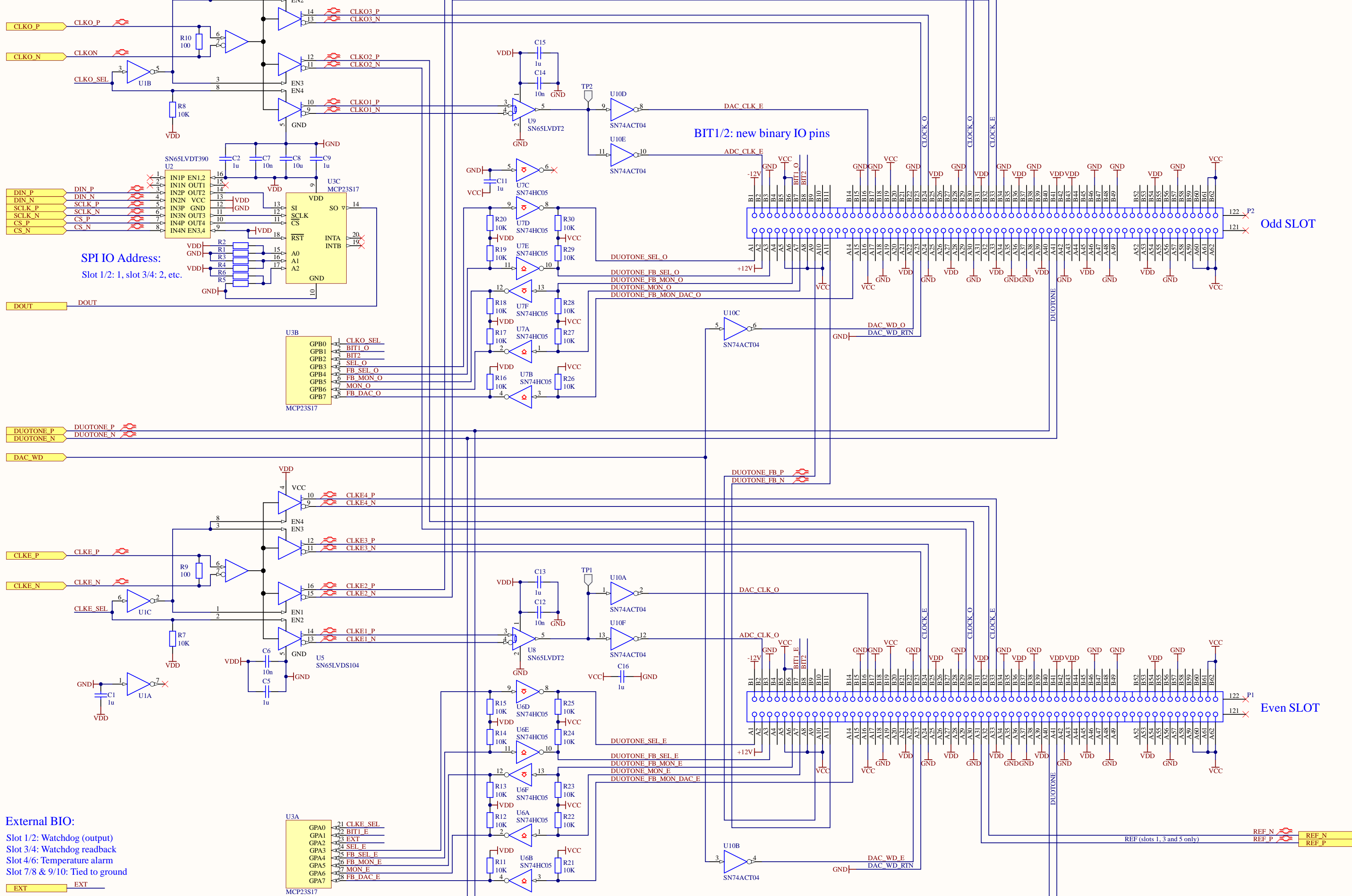


Title			New IO Interface Backplane		
Size	Number	Revision			
C	D2000297	2			
Date:	2/28/2021	Sheet 1 of 2			
File:	C:\Users\...\NewBackplane1.SchDoc	Drawn By:	Daniel Sigg		

New fast LVDS clock lines

- Option 1: Old type TTL ADC/DAC clock (1 per slot)
- Option 2: Fast LVDS clock (1 per slot)
- Option 3: Fast LVDS clock and sync lines (shared on neighboring slots)

LVDS lines are swapped to account for inverter in TTL clock signal

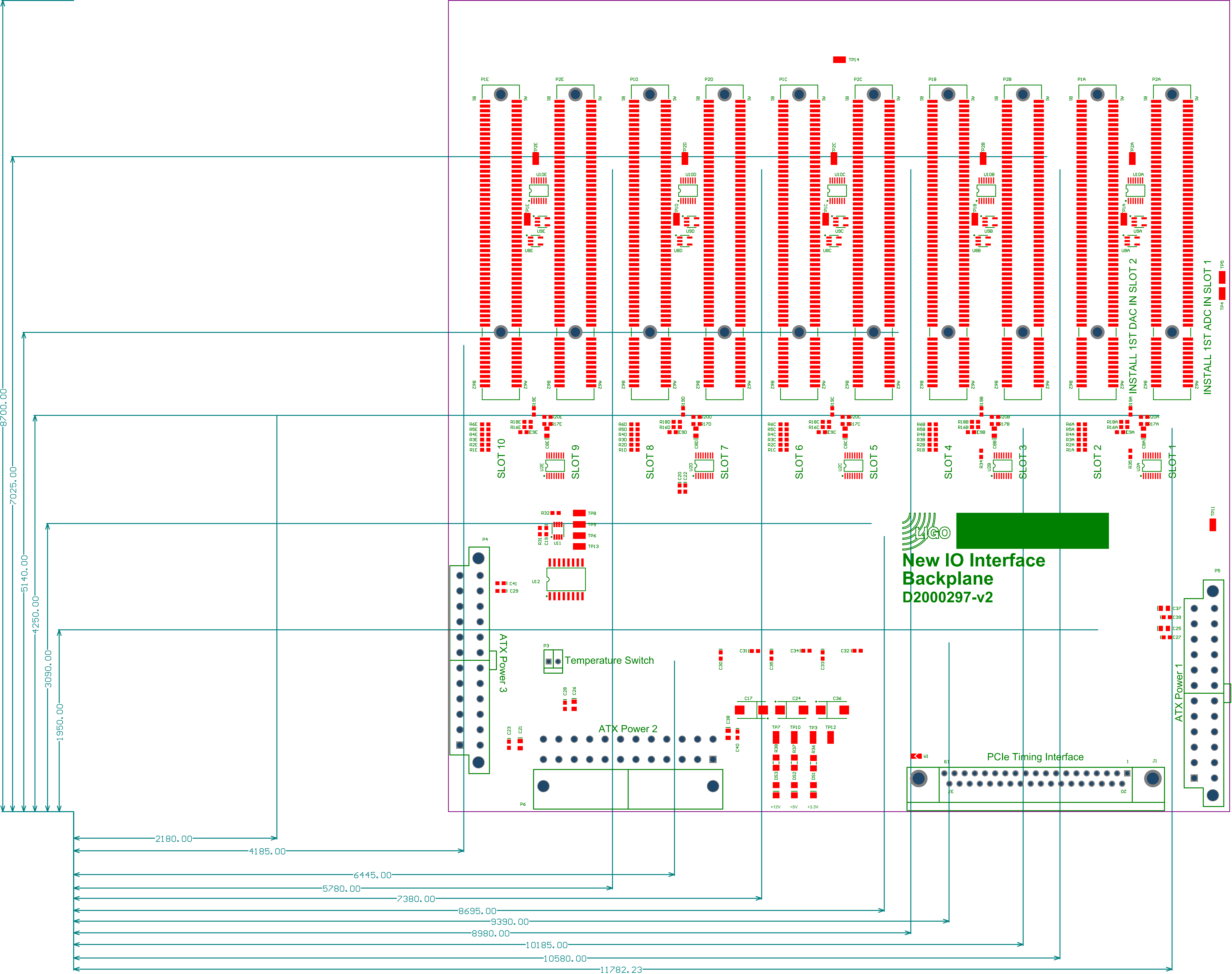


SPI IO Address:
Slot 1/2: 1, slot 3/4: 2, etc.

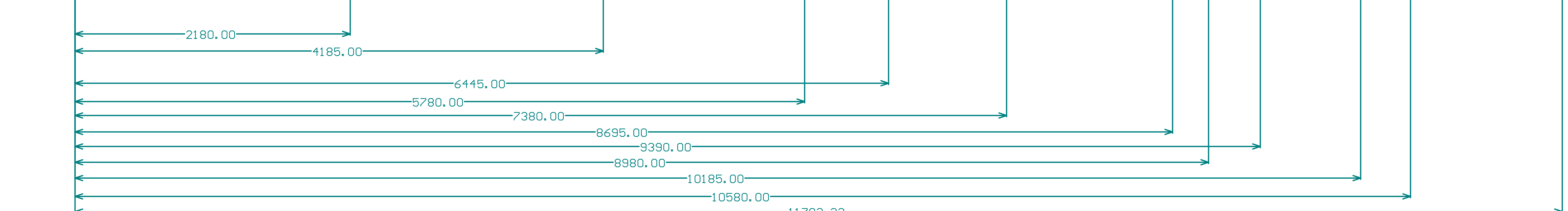
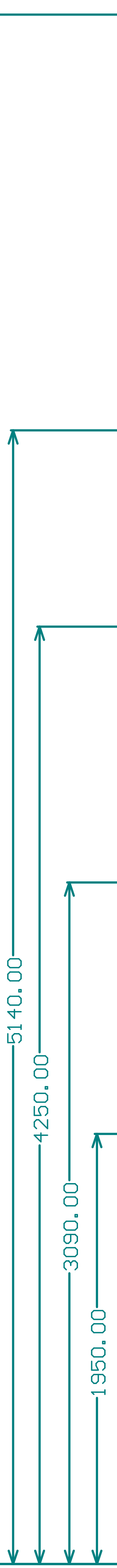
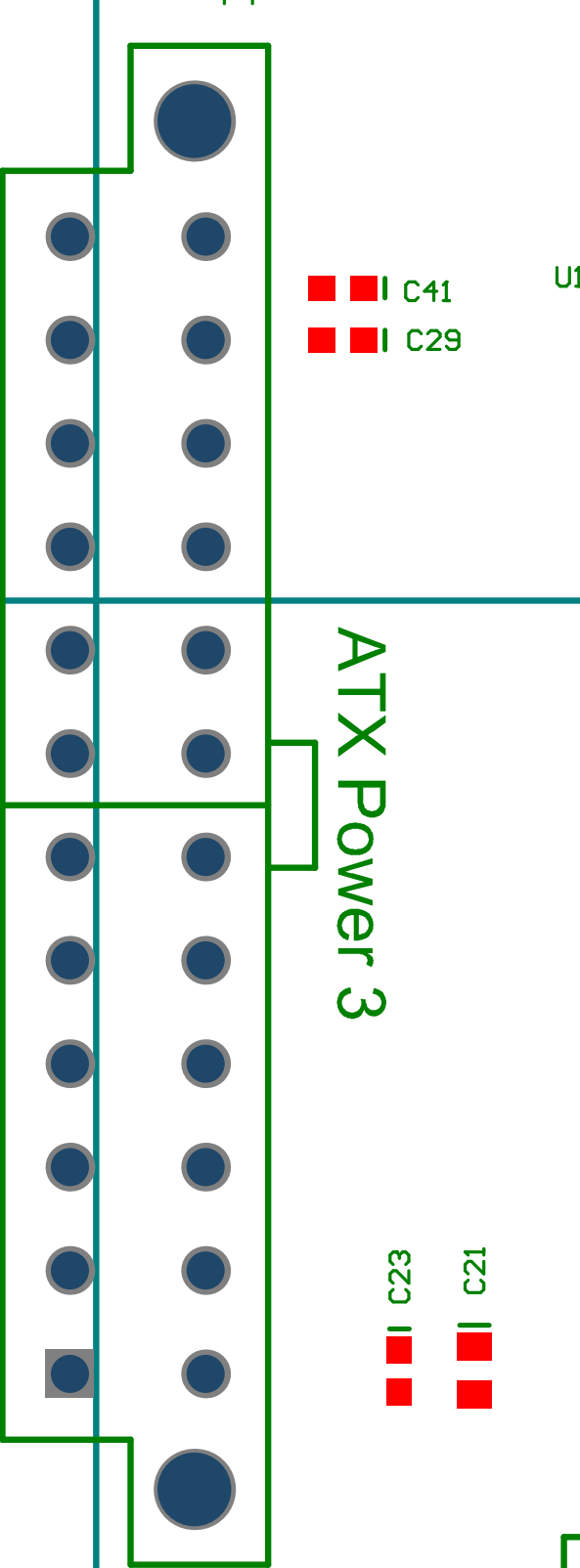
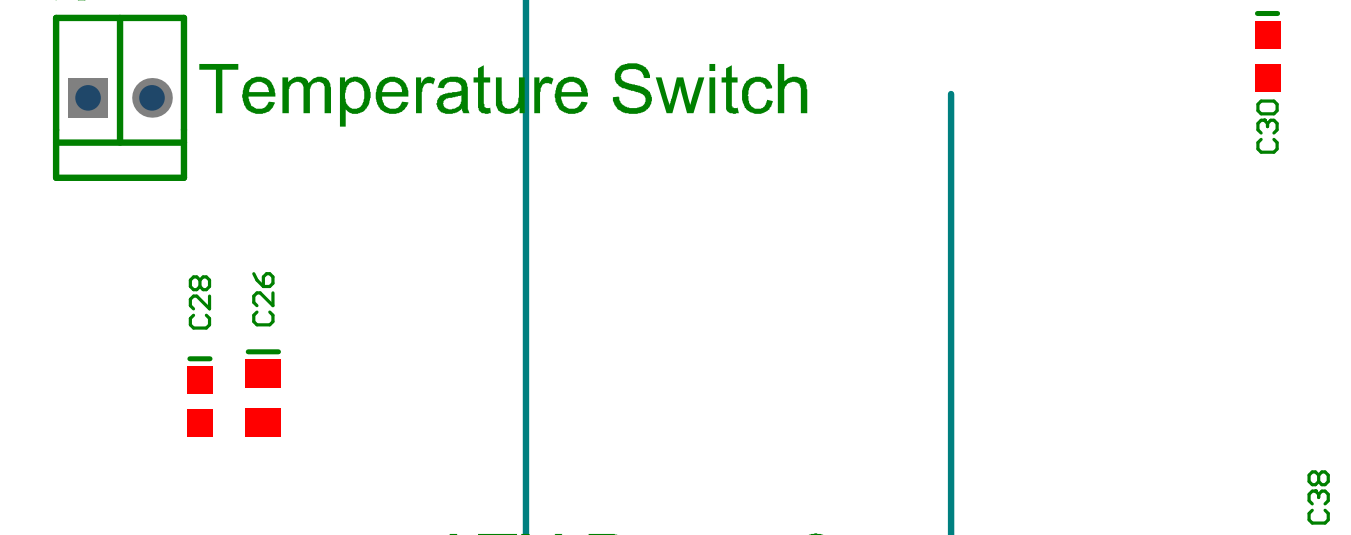
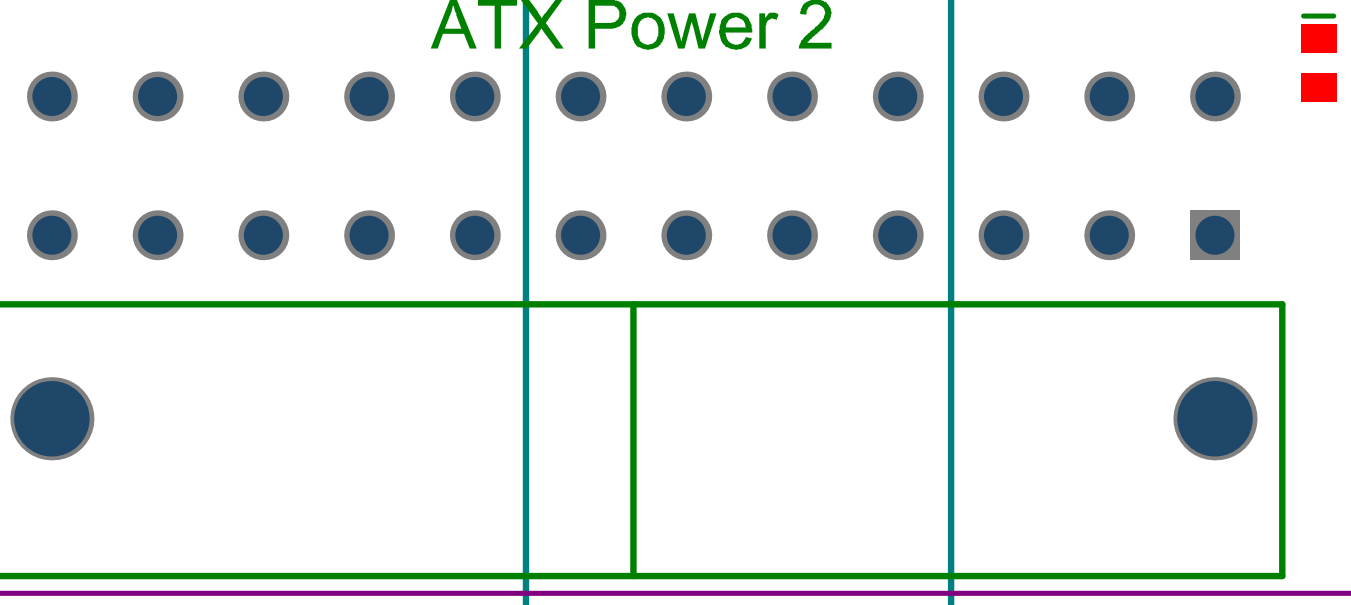
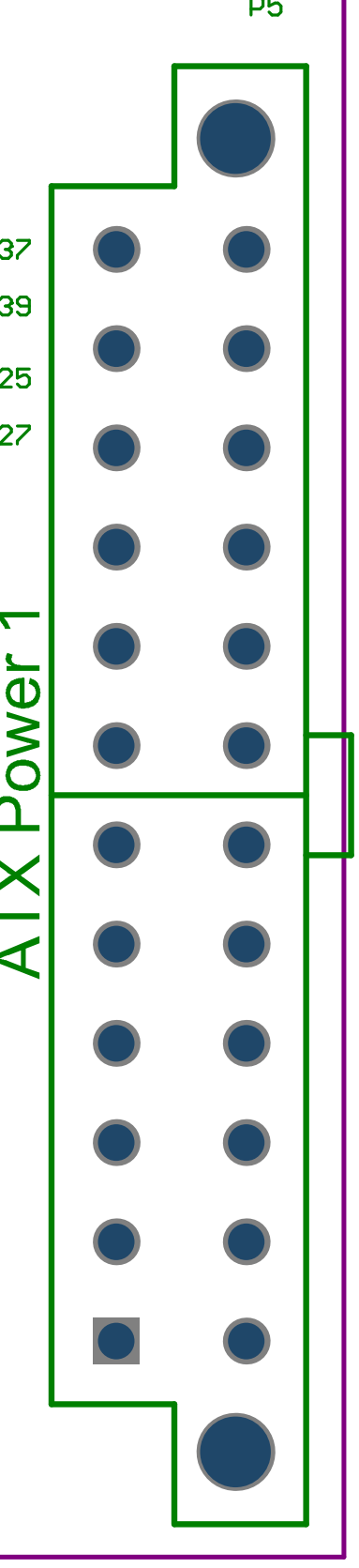
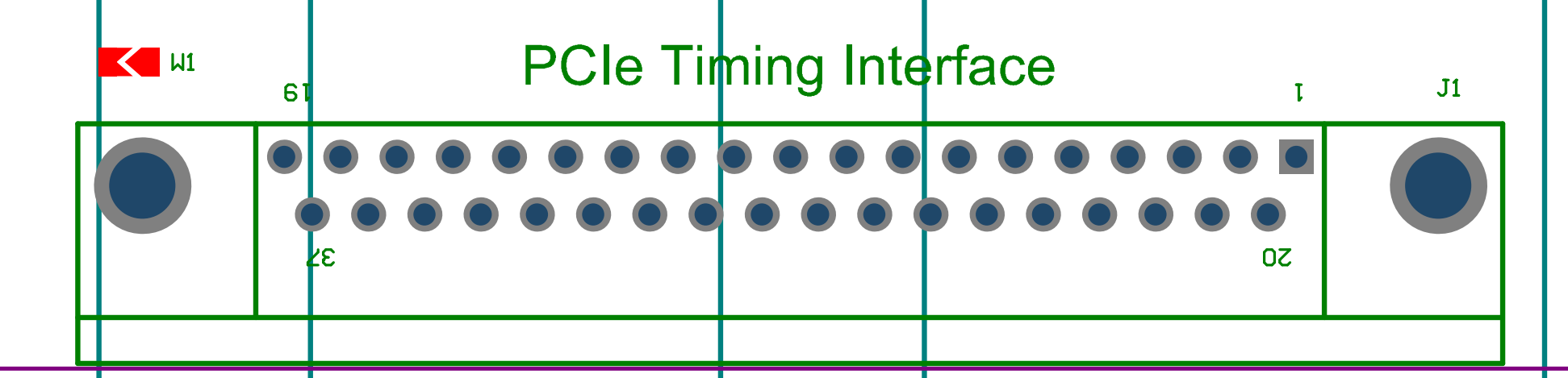
External BIO:
Slot 1/2: Watchdog (output)
Slot 3/4: Watchdog readback
Slot 4/6: Temperature alarm
Slot 7/8 & 9/10: Tied to ground

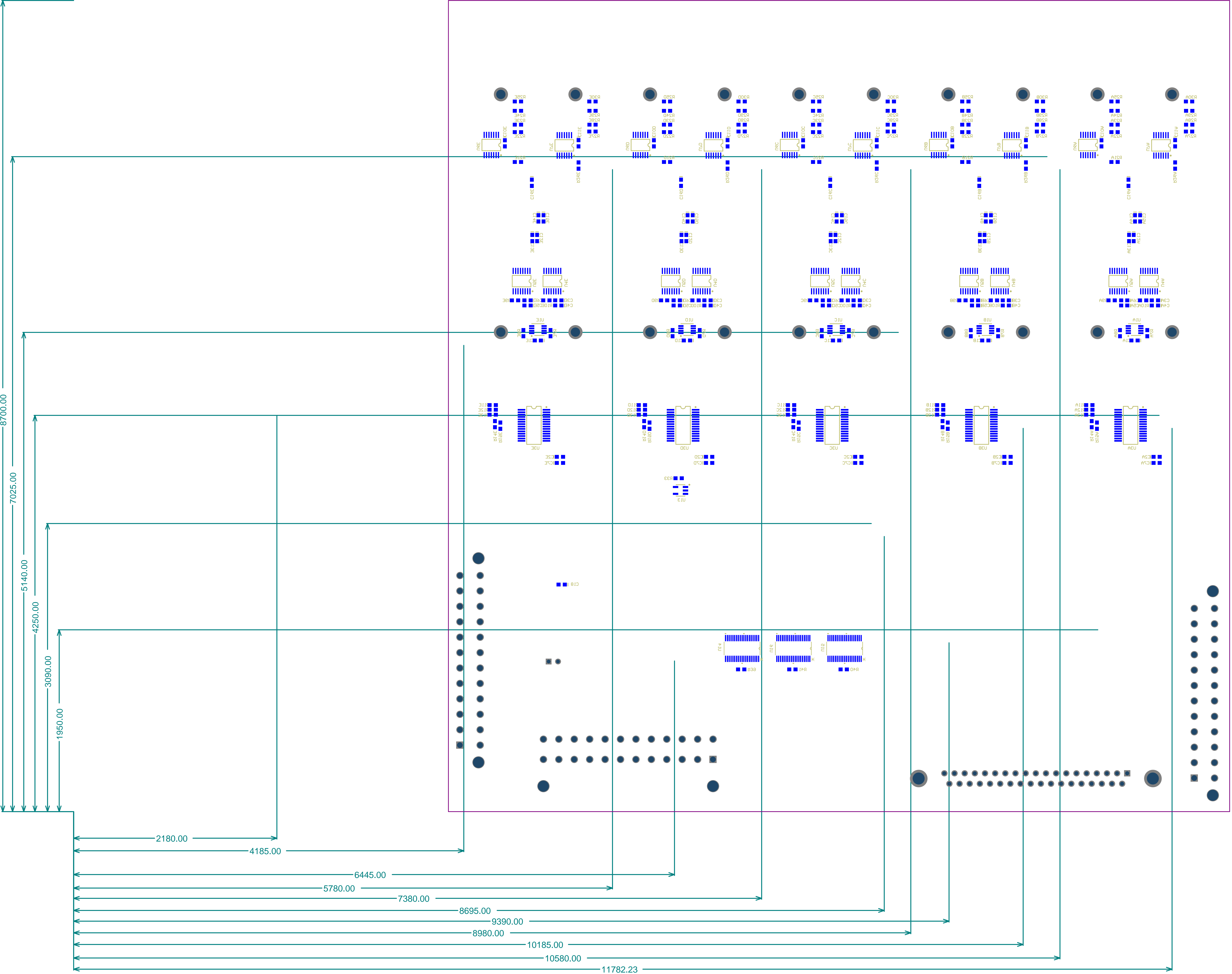
IO pins are 3.3V only

Title			New IO Interface Backplane		
Size	Number	D2000297		Revision	2
C					
Date:	2/28/2021	Sheet	2of 2		
File:	C:\Users\d... \NewBackplane2.SchDoc	Drawn By:	Daniel Sigg		



New IO Interface Backplane D2000297-v2





Bill of Materials

LIGO Project

D2000297

Revision 2

Project: NewBackplane.PrjPcb
 Author: Daniel Sigg

Number of boards	90
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Report Date: 2/28/2021 4:45 PM
 Print Date: 28-Feb-21 4:46:06 PM

Quantity	Distributor	Part Number	Comment	Description	Designator	Footprint	Assem bl Twr	Extr	Exces	Ad	Quantity to Or
63 Digi-Key		587-3247-1-ND	1u	Capacitor, surface mount	C1A, C1B, C1C, C1D, C1E, C2A, C2B, C2C, C2D, C2E, C4A, C4B, C4C, C4D, C4E, C5A, C5B, C5C, C5D, C5E, C9A, C9B, C9C, C9D, C9E, C10A, C10B, C10C, C10D, C10E, C11A, C11B, C11C, C11D, C11E, C13A, C13B, C13C, C13D, C13E, C15A, C15B, C15C, C15D, C15E, C16A, C16B, C16C, C16D, C16E, C18, C19, C20, C23, C27, C28, C29, C31, C33, C35, C39, C40, C41	CC1608-0603		0	5%	284	5960
29 Digi-Key		490-9666-1-ND	10n	Capacitor, surface mount	C3A, C3B, C3C, C3D, C3E, C6A, C6B, C6C, C6D, C6E, C7A, C7B, C7C, C7D, C7E, C12A, C12B, C12C, C12D, C12E, C14A, C14B, C14C, C14D, C14E, C22, C30, C32, C34	CC1608-0603		0	5%	131	2750
10 Digi-Key		445-14419-1-ND	10u	Capacitor, surface mount	C8A, C8B, C8C, C8D, C8E, C21, C25, C26, C37, C38	CC2013-0805		0	5%	45	950
1 Digi-Key		399-3905-1-ND	47u	Tantalum capacitor, surface mount	C17	TC7343-2917		5	0%	5	100
2 Digi-Key		399-10409-1-ND	220u	Tantalum capacitor, surface mount	C24, C36	TC7343-2917		0	5%	9	190
3 Digi-Key		160-1406-1-ND	Yellow	Panel mount LED	DS1, DS2, DS3	LED-1206		0	5%	14	284
1 Digi-Key		A32130-ND	DB37F	Receptacle Assembly, 37 Position, Right Angle, .318 Series	J1	DB37F-RA	TH	1	0%	1	91
10 Digi-Key		A112714-ND		PCI Backplane Connector	P1A, P1B, P1C, P1D, P1E, P2A, P2B, P2C, P2D, P2E	PCL_Backplane_SMD		0	5%	45	945
1 Digi-Key		WM4200	Header 2	Header, 2-Pin	P3	WM4200	TH	1	0%	1	91
2 Digi-Key		23-0039299246-ND	ATX power/male	Header, 12-Pin, Dual row, ATX power, board	P4, P5	ATX24Pin_M	TH	1	0%	1	181
1 Digi-Key		WM21362-ND	ATX power/male	Header, 12-Pin, Dual row, ATX power, board right-angle	P6	ATX24PIN_M_RA	TH	1	0%	1	91
15			NL	Resistor, surface mount	R1A, R1C, R1E, R2B, R2D, R3B, R3C, R4A, R4D, R4E, R5D, R5E, R6A, R6B, R6C	CR1608-0603		0	5%	68	1420
17 Digi-Key		311-1.00KHRCT-ND	1K	Resistor, surface mount	R1B, R1D, R2A, R2C, R2E, R3A, R3D, R3E, R4B, R4C, R5A, R5B, R5C, R6D, R6E, R34, R35	CR1608-0603		0	5%	77	1610
113 Digi-Key		311-10.0KHRCT-ND	10K	Resistor, surface mount	R7A, R7B, R7C, R7D, R7E, R8A, R8B, R8C, R8D, R8E, R11A, R11B, R11C, R11D, R11E, R12A, R12B, R12C, R12D, R12E, R13A, R13B, R13C, R13D, R13E, R14A, R14B, R14C, R14D, R14E, R15A, R15B, R15C, R15D, R15E, R16A, R16B, R16C, R16D, R16E, R17A, R17B, R17C, R17D, R17E, R18A, R18B, R18C, R18D, R18E, R19A, R19B, R19C, R19D, R19E, R20A, R20B, R20C, R20D, R20E, R21A, R21B, R21C, R21D, R21E, R22A, R22B, R22C, R22D, R22E, R23A, R23B, R23C, R23D, R23E, R24A, R24B, R24C, R24D, R24E, R25A, R25B, R25C, R25D, R25E, R26A, R26B, R26C, R26D, R26E, R27A, R27B, R27C, R27D, R27E, R28A, R28B, R28C, R28D, R28E, R29A, R29B, R29C, R29D, R29E, R30A, R30B, R30C, R30D, R30E, R31, R32, R33	CR1608-0603		0	5%	509	10680
13 Digi-Key		311-100HRCT-ND	100	Resistor, surface mount	R9A, R9B, R9C, R9D, R9E, R10A, R10B, R10C, R10D, R10E, R39, R40, R41	CR1608-0603		0	5%	59	1230
1 Digi-Key		311-220FRCT-ND	220	Resistor, surface mount	R36	CR3216-1206		5	0%	5	100
1 Digi-Key		311-453FRCT-ND	453	Resistor, surface mount	R37	CR3216-1206		5	0%	5	100
1 Digi-Key		311-1.74KFRCT-ND	1.74K	Resistor, surface mount	R38	CR3216-1206		5	0%	5	100
22 Digi-Key		36-5017CT-ND	Testpoint	Testpoint,SMD, micro miniature	TP1A, TP1B, TP1C, TP1D, TP1E, TP2A, TP2B, TP2C, TP2D, TP2E, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14	TP2		0	5%	99	2079
6 Digi-Key		296-13278-1-ND	SN74LVC3G04	Triple inverter	U1A, U1B, U1C, U1D, U1E, U11	SSO-G8/SM8		0	5%	27	567
5 Digi-Key		296-46334-1-ND	SN65LVDT390	Quad LVDS Receiver with 100 Ohm termination	U2A, U2B, U2C, U2D, U2E	TSSOP16		0	5%	23	473
5 Digi-Key		MCP23S17T-E/SSCT-ND	MCP23S17	16-Bit I/O Expander with Serial Interface	U3A, U3B, U3C, U3D, U3E	SSO-G28/C6.8		0	5%	23	473
10 Digi-Key		296-26359-1-ND	SN65LVDS104	1:4 LVDS Clock Fanout Buffer	U4A, U4B, U4C, U4D, U4E, U5A, U5B, U5C, U5D, U5E	TSSOP16		0	5%	45	945
10 Digi-Key		296-SN74HC05APWRCT-ND	SN74HC05	Hex Inverter with Open-Drain Outputs	U6A, U6B, U6C, U6D, U6E, U7A, U7B, U7C, U7D, U7E	TSSOP14		0	5%	45	945
10 Digi-Key		296-6896-1-ND	SN65LVDT2	Single LVDS Receiver with 100 Ohm termination	U8A, U8B, U8C, U8D, U8E, U9A, U9B, U9C, U9D, U9E	SO-G5/E2.4		0	5%	45	945
5 Digi-Key		296-4352-1-ND	SN74ACT04	Hex Inverter	U10A, U10B, U10C, U10D, U10E	TSSOP14		0	5%	23	473
1 Digi-Key		ADM696ARZ-ND	ADM696AR	Microprocessor Supervisory Circuit	U12	SO-G16W		5	0%	5	95
1 Digi-Key		296-6919-1-ND	SN65LVDS1	Single LVDS Driver	U13	SO-G5/E2.4		5	0%	5	95
3 Digi-Key		296-48655-1-ND	SN65LVDS108	1:8 LVDS Clock Fanout Buffer	U14, U15, U16	TFSOP38		0	5%	14	284
362	Total pieces										

Summary per Board	
Total # of unique parts	29
SMT Placements per board	357
Thru-Hole placement per board	5
Fine pitch placement per board	0
BGA placement per board	0
Mechanical placement per board	0