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ADC and DAC Channel Usage for SQZ

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1 Purpose

This document lists the specific ADC and DAC channels used within the SQZ I/O expansion chassis. In the following tables, the entries given in the ‘Signal’ column are *not* meant to be the exact DAQ channel name for that signal (though they may be); rather the entries are intended as descriptors to identify the actual hardware channel that is connected to a given ADC/DAC channel.

The reference document for the actual DAQ channel names is [T1000264](#), *List of ISC Photodetectors in Advanced LIGO*.

2 SQZ-IO I/O Chassis

Card	AA/AI conn.	ADC/DAC Chns.	Signal	
ADC 0	DB9_1	1-4	SQZ TT1	Tip-Tilt BOSEM sensor signals
	DB9_2	5-8	SQZ TT2	
	DB9_3	9-12	SQZ TT1	Tip-Tilt Coil driver readbacks
	DB9_4	13-16	SQZ TT1	
	DB9_5	17-20	VOPO SUS	AOSEM
	DB9_6	21-22		
		23	Unused	
		24	Unused	
	DB9_7	25-28	VOPO SUS	Coil driver readbacks
	DB9_8	29-30		
		31	Duotone (DAC)	
		32	Duotone	

Card	AA/AI conn.	ADC/DAC Chns.	Signal			
ADC 1	DB9_1	1	SQZ-WFS_A_RF	Seg 1	Q-phase	
		2			I-phase	
		3		Seg 2	Q-phase	
		4			I-phase	
	DB9_2	5		SQZ-WFS_B_RF	Seg 3	Q-phase
		6				I-phase
		7			Seg 4	Q-phase
		8				I-phase
	DB9_3	9	SQZ-WFS_B_RF	Seg 1	Q-phase	
		10			I-phase	
		11		Seg 2	Q-phase	
		12			I-phase	
	DB9_4	13		SQZ-WFS_B_RF	Seg 3	Q-phase
		14				I-phase
		15			Seg 4	Q-phase
		16				I-phase
	DB9_5	17-20	Unused			
	DB9_6	21-24	Unused			
	DB9_7	25	Unused			
		26	Unused			
		27	Unused			
		28	Unused			
	DB9_8	29	Unused			
		30	Unused			
		31	Unused			
		32	Unused			

Card	AA/AI conn.	ADC/DAC Chns.	Signal		
ADC 2	DB9_1	1	SQZ-HD_A_DC		
		2	SQZ-HD_B_DC		
		3	SQZ-HD_DIFF_DC		
		4	Unused		
	DB9_2	5	SQZ-HD_DIFF	RF3	Q-phase
		6			I-phase
		7	SQZ-OMC_TRANS	RF3	Q-phase
		8			I-phase
	DB9_3	9	SQZ-SHG_TRANS	RF35	Q-phase
		10			I-phase
		11	SQZ-OPO_REFL	RF80	Q-phase
		12			I-phase
	DB9_4	13	SQZ-CLF_REFL	RF6	Q-phase
		14			I-phase
		15	Unused		Q-phase
		16			I-phase
	DB9_5	17	SQZ-OPO_SERVO_ERR, CM Servo, I monitor		
		18	SQZ-OPO_SERVO_CTRL, CM Servo, Fast monitor		
		19	SQZ-OPO_SERVO_SLOW, CM Servo, Slow monitor		
		20	Unused		
	DB9_6	21	SQZ-SHG_SERVO_ERR, CM Servo, I monitor		
		22	SQZ-SHG_SERVO_CTRL, CM Servo, Fast monitor		
		23	SQZ-SHG_SERVO_SLOW, CM Servo, Slow monitor		
		24	Unused		
	DB9_7	25	SQZ-LO_SERVO_ERR, CM Servo, I monitor		
		26	SQZ-LO_SERVO_CTRL, CM Servo, Fast monitor		
		27	SQZ-LO_SERVO_SLOW, CM Servo, Slow monitor		
		28	Unused		
	DB9_8	29	SQZ-CLF_SERVO_ERR, CM Servo, I monitor		
		30	SQZ-CLF_SERVO_CTRL, CM Servo, Fast monitor		
		31	SQZ-CLF_SERVO_SLOW, CM Servo, Slow monitor		
		32	Unused		

Card	AA/AI conn.	ADC/DAC Chns.	Signal		
ADC 3	DB9_1	1	SQZ-LL_MIXER		
		2	SQZ-LL_PZT		
		3	SQZ-LL_EOMRMS		
		4	SQZ-LL_SLOW		
	DB9_2	5	SQZ-LL_PD_LF		4 ch Generic PD interface: ISCT6
		6	SQZ-SHG_TRANS_LF		
		7	Unused		
		8	Unused		
	DB9_3	9	SQZ-CLF_REFL_LF		DC Outputs
		10	SQZ-OPO_REFL_LF		
		11	Unused		
		12	Unused		
	DB9_4	13	SQZ-LL_FIBR_REJECTED_LF		DC Monitors
		14	SQZ-LL_FIBR_TRANS_LF		
		15	SQZ-LASER_IR_LF		
		16	SQZ-SHG_LAUNCH_LF		
	DB9_5	17	SQZ-CLF_LAUNCH_LF		DC Monitors
		18	SQZ-SEED_LAUNCH_LF		
		19	SQZ-LO_LAUNCH_LF		
		20	SQZ-OPO_TRANS_LF		
	DB9_6	21	SQZ-CLF_FIBR_TRANS_LF		DC Monitors
		22	SQZ-SHG_FIBR_TRANS_LF		
		23	Unused		
		24	Unused		
	DB9_7	25	SQZ-EXTRA_AI_1		
		26	SQZ-EXTRA_AI_2		
		27	SQZ-EXTRA_AI_3		
		28	SQZ-EXTRA_AI_4		
	DB9_8	29			
		30			
		31			
		32			

Card	AA/AI conn.	ADC/DAC Chs.	Signal
DAC 0	DB9_1	1-4	SQZ TT1 Coil drives (UL, LL, UR, LR)
	DB9_2	5-8	SQZ TT2 Coil drives (UL, LL, UR, LR)
	DB9_3	9-12	VOPO SUS coil drivers (H1, H2, H3, V1, V2, V3)
	DB9_4	13-14	
		15	Unused
		16	Duotone

Card	AA/AI conn.	ADC/DAC Chs.	Signal
DAC 1	DB9_1	1	SQZ-EXTRA_AO_1
		2	SQZ-EXTRA_AO_2
		3	SQZ-OPO-PZT
		4	SQZ-OMC-PZT
	DB9_2	5	SQZ-OPO_SERVO_EXC
		6	SQZ-SHG_SERVO_EXC
		7	SQZ-LO_SERVO_EXC
		8	SQZ-CLF_SERVO_EXC
	DB9_3	9-12	Unused
	DB9_4	13-14	Unused
		15	Unused
		16	Unused

3 Summary

Below is a summary of the number of I/O cards, unused channels, and available I/O slots for the SQZ I/O Expansion Chassis. This assumes there are a total of 10 slots available in the I/O chassis for ADC and/or DAC cards. For the unused ADC channel column, the number in parentheses is the subset of these channels that are available Anti-Alias (AA) chassis on free DB9 connectors; the other channels are found on AA DB9 connectors which are only partially used.

I/O Chassis	# ADC cards	# DAC cards	Unused ADC chans	Unused DAC chans	Available I/O slots
Vertex: SQZ	2	1			
Totals	2	1			