



LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY

LIGO Laboratory / LIGO Scientific Collaboration

LIGO-T1600606-v1

LIGO

December 29, 2016

ADC and DAC Channel Usage for SQZ

Rich Abbott, Peter Fritschel, Daniel Sigg

Distribution of this document:
LIGO Scientific Collaboration

This is an internal working note
of the LIGO Laboratory.

California Institute of Technology
LIGO Project – MS 18-34
1200 E. California Blvd.
Pasadena, CA 91125
Phone (626) 395-2129
Fax (626) 304-9834
E-mail: info@ligo.caltech.edu

Massachusetts Institute of Technology
LIGO Project – NW22-295
185 Albany St
Cambridge, MA 02139
Phone (617) 253-4824
Fax (617) 253-7014
E-mail: info@ligo.mit.edu

LIGO Hanford Observatory
P.O. Box 159
Richland WA 99352
Phone 509-372-8106
Fax 509-372-8137

LIGO Livingston Observatory
P.O. Box 940
Livingston, LA 70754
Phone 225-686-3100
Fax 225-686-7189

<http://www.ligo.caltech.edu/>

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	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	SQZ-WFS_A_DC		Segs 1-4	DC Outputs of WFS
	DB9_6	21-24	SQZ-WFS_B_DC		Segs 1-4	
	DB9_7	25	Unused			
		26	Unused			
		27	Unused			
		28	Unused			
	DB9_8	29-30	Unused			
		31	Duotone (DAC)			
		32	Duotone			

Card	AA/AI conn.	ADC/DAC Chns.	Signal	
ADC 1	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	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-SA_SERVO_ERR, CM Servo, I monitor	
		26	SQZ-SA_SERVO_CTRL, CM Servo, Fast monitor	
		27	SQZ-SA_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 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	MCL PZT Tip-tilt 1: pitch
		10	MCL PZT Tip-tilt 1: yaw
		11	MCL PZT Tip-tilt 2: pitch
		12	MCL PZT Tip-tilt 3: yaw
	DB9_4	13-15	Unused
		16	Duotone

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			