fastAdc Documentation

Release 0.1

CAS

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CHAPTER 1

Fast ADC Application

The Fast ADC application was developed to capture raw data of all ten ADCs channels and to process the information of pulse shaped signals. Each ADC signal is individually process according to the parameters configured by the user and the resulting data available via registers. In addition, 5 virtual channels are available which can be configure to be the sum or subtraction of two (real) ADC channels.

The application was developed under the Simulink environment, using the XFEL Simulink Library. As such, the application can be fully simulated in the Matlab environment using experimental data.

Tests of the system under experimental conditions have indicated that the device can reliably acquire 108000 raw samples, which corresponds to a time window of 1ms, from all 10 channels simultaneously.

In this documentation an overview of the hardware device (taken by the manual by EEE) is presented, as well as its setup in the configuration editor of the Karabo device. For more detail information on the board, firmware and performance results, please visit Fast Electronics Digitizer Overview page.

This chapter will cover the minimum requirements for the device to be operational, which is a **Clock** and **Trigger** signal.



Fig. 1: FastADC Clock and Trigger Karabo parameters

1.1 Clock Sources

The FastADC can accept clock signals from the following sources:

- TclkA (MicroTCA backplane)
- TclkB (MicroTCA backplane)
- Internal Clock (125 MHz)
- Front SMA Connector
- Front Hardlink Connector
- RJ45 SIS8900 RTM Connector

In XFEL, 99% of the FastADC setups use the TclkA or TclkB source, since these lines have a clock signal provided by the Timing Board, which is phase sync with the laser operation at XFEL.

1.2 Trigger Sources

A trigger signal is required to start the operation of the Fast ADC Application. The Fast ADC firmware supports thirteen trigger sources, which can be combine to a single signal: eight from the MLVDS lines in the MicroTCA backplane, four from the Harlink connector, four from SIS8900 RTM RJ45 connector as well as an internal one.

Again, 99% of the XFEL FastADC setups use a trigger source from the MicroTCA Backplane, which is provided by the Timing system.

Raw data

The fast ADC saves raw data from all 10 ADC channels simultaneously. The raw data is saved in the DDR memory available in the SIS8300 board. Some parameters can be tuned by the user to steer the data acquisition, and are presented in the figure below.

The amount of raw data saved with each trigger signal is configured in the *Number of raw samples* property in the Karabo device. It is possible to delay the raw data acquisition by a fixed number of samples after the trigger signal. This parameter is set by adjusting the *Raw Delay* property.

It is also possible to define the period of raw data acquisition (save one sample every N samples), which provides a zoom capability when observing raw data signals. As an example, if this register is set to 1, 2 or 3, the device will show an ADC value only every 2, 3 or 4 samples, respectively. The period of raw data acquisition is configured in the parameter *Skip Samples*. Notice that the parameters delay and period affect all ADCs signals raw data acquisition.

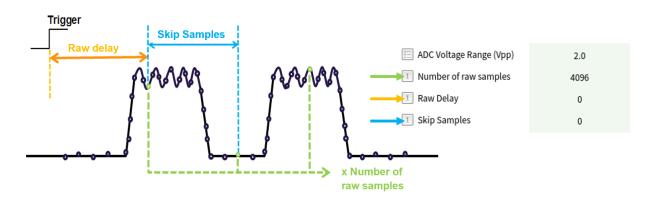


Fig. 1: Example of an ADC signal and configuration parameters for raw data acquisition. The correspondent Karabo parameters are shown on the right.

The previous parameter affects the raw data acquisition for all channels. Nevertheless, to acquire raw data from a specific channel, the correspondent *Enable Raw Data* parameter must be set to TRUE in the channel options. Notice that a *Signal Description* can also be define by the user to easily identify the signal present in that channel.



Fig. 2: Signal description and Enable Raw Data Karabo parameters for Channel 0.

2.1 ADC Range

The ADC range can be configured to be 1.25, 1.5, 1.75 or 2.0 Voltage peak-to-peak. The setting can be changed when the device is not acquiring (STOP state), there is no need to re-initialize the device.



ADC range options.

2.2 Time Axis

A time axis property is available for plotting **Vector XY Graphs** with the Raw data. The values take into account the *Number of raw samples*, *Frequency* and *Skip Samples* values configure in Karabo.

2.3 Virtual Channels

The FastADC includes 5 virtual channels (channel 10 through 14) which can be configured to be the sum or subtraction of two (real) ADC channels. The same features are available in these channels as any other ADC channels (peak integration, bunch pattern peak integration, multibaseline, adc alert, moving average, data voltage conversion, etc.).

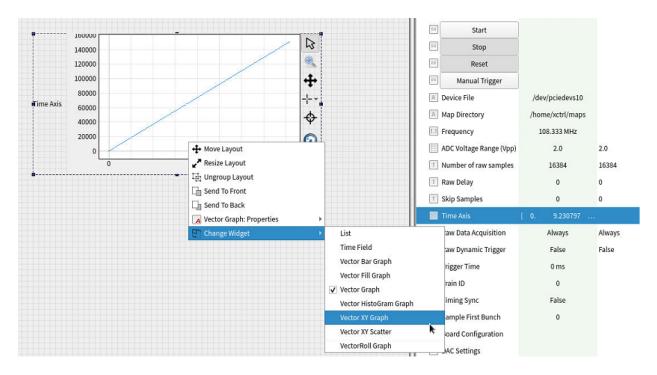


Fig. 3: Time Axis property show in Karabo and the Vector XY Graph option in the Widget. After selecting this option, simply drag the Time axis parameter on top of the widget for the X axis to be updated with the time values.

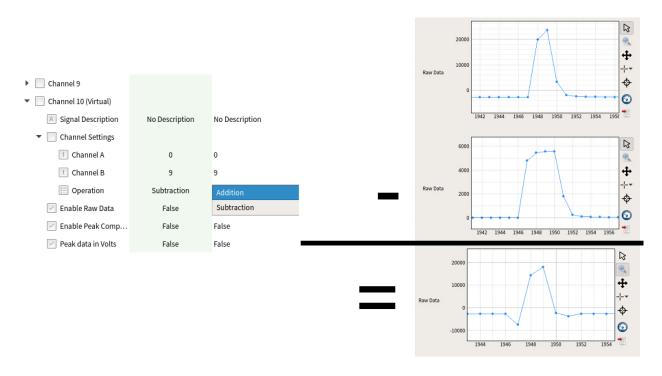


Fig. 4: Configuration of Channel 10 (Virtual). The channel is configure to be subtraction of the ADC signal in channel 0 and channel 9. The raw data graphs are display on the right.

2.3. Virtual Channels 7

Integrator Processing Module

The fast ADC application includes, per ADC channel, an integrator processing module that can calculate the peak values of periodic ADC signals, or can be configured to integrate based on the current bunch pattern as described in the *Bunch Pattern Decoding* section. Each module can be individually configured. The following functionalities are available per ADC channel.

3.1 Convert data to voltage units

Per channel, the Raw and Peak Integration data can be displayed in Voltage levels in Karabo, which taking into account the *ADC Range* configuration. Take note that **the raw values are always saved in the DAQ**.

3.2 ADC Alert

An ADC alert can be configured per channel, which will be raised if the ADC signal goes above/below the user-specified threshold. To clear the alert, either disable it or reconfigure the threshold.

There is a *Global ADC alert* property which is true if any ADC channel alert is raised. To see which channel raised the alert, check the values in *ADC Channels Alert*.

3.3 Signal Integration

To enable an Integrator module for a specific ADC channel, *Enable Peak Computation* must be set to True for that channel. Once enabled, the module waits for a trigger signal to start the calculation.

Peak signal calculation starts with the sample where the trigger signal is detected. It is possible to delay the calculation by a specific amount of data samples, by writing the desired value in the *Pulse Delay* property. For each peak, the module sums up as many ADC samples as specified in the *Peak Samples* property. The *Number of pulses* property configures the number of pulses to process after receiving a trigger, while the *Pulse Period* property specifies the number of samples expected between pulses (thus disentangling between pulses).

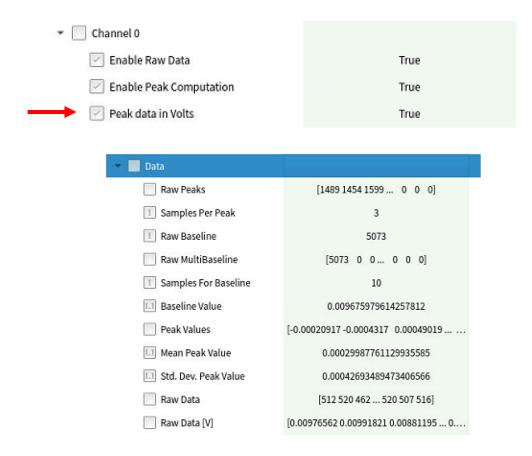


Fig. 1: Property to enable conversion of data to Voltage levels. Notice that all Raw properties are not converted.

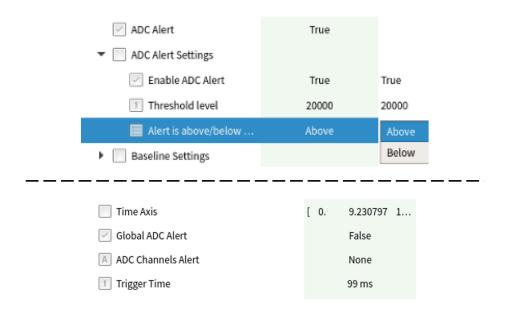


Fig. 2: ADC Alert Settings per channel (top) and Global ADC Alert (bottom).

The calculated values are available in the output channel *Channel X > Output > Schema > Data*. Basic statistics are calculated in Karabo based on these values, including the mean and standard deviation of the peak values. The hardware also provides *Max. ADC Sample* vector, which contains the sample with highest (absolute) ADC value for each integrated peaks.

Another hardware calculated value, **which is not saved in the output channel**, is the *Measured Peak range* (located below the *Pulse Period* parameter). This value shows the difference (in counts or voltage) between the highest and lowest integrated peak.

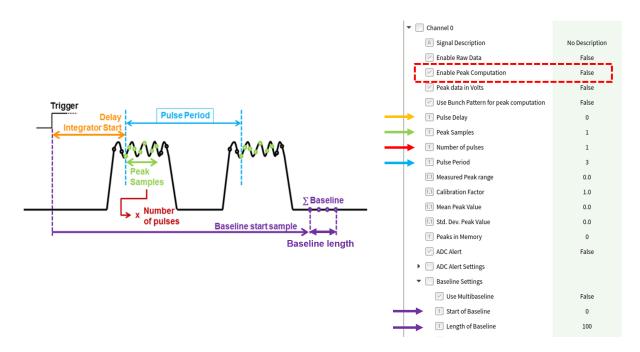


Fig. 3: Example of an ADC signal and of the configuration parameters for the integrator module.

3.4 Baseline Configuration

The integrated values and statistics are calculated taking into account a baseline value. Multiple options for this value are available in the **Baseline Settings** node.

If a fixed baseline is desired, the value of the baseline should be input in the *Fixed Baseline* property, and the *Enable fixed Baseline* boolean should be set to true. Otherwise, the baseline will be calculated over a section of the signal.

A signal based Baseline can be calculate in the following ways:

Standard :: A single baseline value is calculated for the entire train. The *Start of Baseline* value delays the baseline calculation by a set value after the trigger signal.

Dynamic:: This setting is only available when using **Bunch Pattern** for Integration (see *Bunch Pattern Decoding* section). A single baseline value is calculated for the entire train. The *Start of Baseline* value delays the baseline calculation by a set value before the *Sample First Bunch*.

Multi value :: A baseline value is calculated for every pulse integrated. The *Start of Baseline* value delays the baseline calculation by a set value before the first sample used for integrated the pulse.

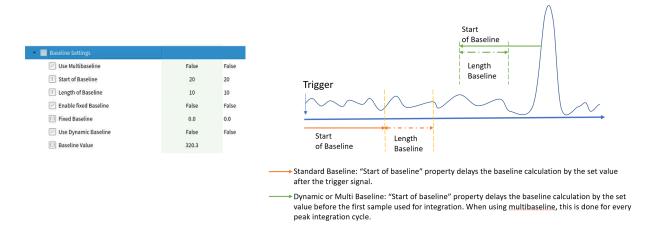


Fig. 4: Baseline calculation and related Karabo Parameters

3.5 Moving Average

The fast ADC firmware implements, per ADC channel, a 128 step moving average filter. The output of this filter, available in the *Moving average settings* node under the name **Moving average**, gives an indication of the order of magnitude of the ADC baseline value. To enable this filter, *Enable Moving average* must be set to '1'.

The firmware also provides values concerning the latest train of pulses received, which are referred to as train statistics. These values get updated whenever a new trigger signal is received. The calculated values are:

- Pulse delay (number of samples between trigger and first pulse),
- Minimum pulse width (in samples),
- Minimum pulse period (in samples),
- Number of pulses in last train.

and are presented in the figure here below:

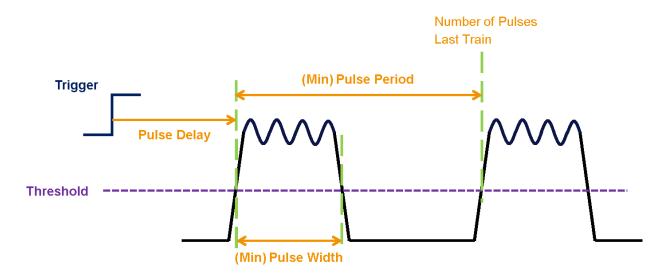


Fig. 5: Values calculated in each train.

To calculate these values, the moving average filter must be enabled and a threshold value configured in the 'ADC Threshold magnitude' property. Whenever the ADC signal goes above or below the threshold value (depending on whether the Moving average value), the firmware starts calculating the aforementioned values.

3.5. Moving Average

Bunch Pattern Decoding

If desired, the FastADC can receive and decode the bunch pattern to know which bunches in a train are going to a specific beamline and/or have a pulse probe laser (PPL). Users can also specify a Max/Min of acceptable bunch charges. When enable and configure, the Bunch IDs and Charges are saved in the DAQ.

In addition, it is also possible to configure the FastADC to use this information to do *Automatic Peak Integration* or *Conditional and/or Dynamic Raw acquisition*.

4.1 Settings

The decoding configuration is done in the device node **Bunch Pattern Settings**. The source of the X-ray bunch pattern to decode (*Light Source* parameter) can be any of SASE1, SASE2, SASE3, SASE1+3 or None. If bunch pattern decoding is enabled and None is selected, only the PPL bunch pattern will be considered. The Bunch pattern logic option defines whether a bunch ID is considered when there are bunches in both the X-ray beam and the PPL patterns (AND) or when there are bunches in either (OR).

Maximum and Minimum bunch charges can also be define.

If configure, during acquisition the Karabo device will update the *First Bunch ID* and *Number of Bunches* parameters in the current Train.

4.2 Output

An output channel is also available, wherein a list containing the of bunch Ids determined by the conditions specified in the "Bunch Pattern Settings" node are output. This is DAQ compatible, but if DAQ recording is required it must be requested separately from the slow data of the device (request "<DeviceId>:bunchPatternNode.output" to be added to the data group.

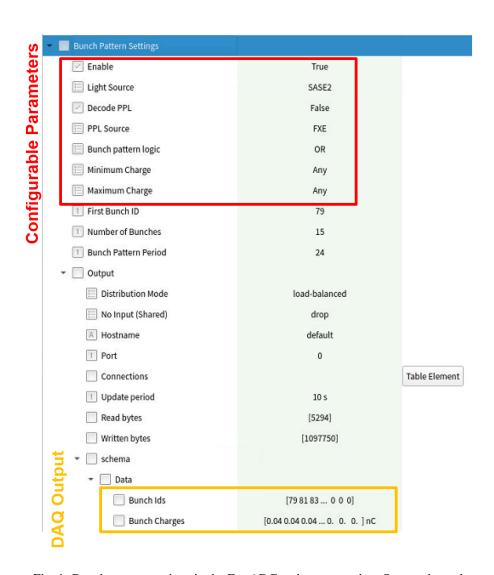


Fig. 1: Bunch pattern settings in the FastADC and correspondent Output channel.

4.3 FastADC Calibration

To use the features described in the following sections, it is require to enable and configure the Bunch Pattern and calibrate the **FastADC**. This is done performing the following steps:

- 1. Stop acquisition of device
- 2. Set Raw Delay and all Peak Delay parameters to 0
- 3. Configure the Bunch Pattern according to your requirements
- 4. Configure the Pre Train Samples parameter if require (see Calibration for early bunches)
- 5. Start acquisition. Take note of the value in the property Sample First Bunch
- 6. Open the **Karabo Trigger Middle Layer Device** of the trigger used by the FastADC (check *Board Configuration > Trigger Source* property. When in doubt, contact Control and/or EEE colleagues)
- 7. Configure Macro P-Event property to be Standard Trigger
- 8. Change the *Target Delay* so that first peak sample (as desired for the peak integration) of the first bunch in the raw trace matches the *Sample First Bunch* value

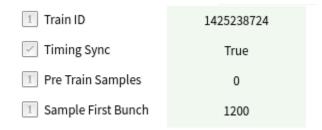


Fig. 2: Pre Train Samples and Sample First Bunch parameter.

4.3.1 Calibration for early bunches

For bunches which are present at the very beginning of the train, like PPL pulses, calibrating the FastADC following the previous section will result in a raw trace with very few samples before the train. This might not be desirable for setups which require data before the train arrives or use a signal based baseline(s).

To surpass this, the FastADC parameter *Pre Train Samples* can be used to configure an offset number of samples to acquire before the train.

4.4 Automatic Peak Integration

Once the FastADC is calibrated (see previous section), channels can enable the *Use the Bunch Pattern for peak computation* feature. In this configuration, the FastADC automatically updates the Peak Integration parameters to integrate all the Bunches present in the Train that match the configuration of the Bunch Pattern.

The parameters *Number of Pulses*, *Pulse Period* and *Pulse Delay* are ignore by the device, since these will be updated by the hardware. The user only needs to specify:

- how many samples per peak the device should consider
- baseline configuration (see Baseline Configuration section)

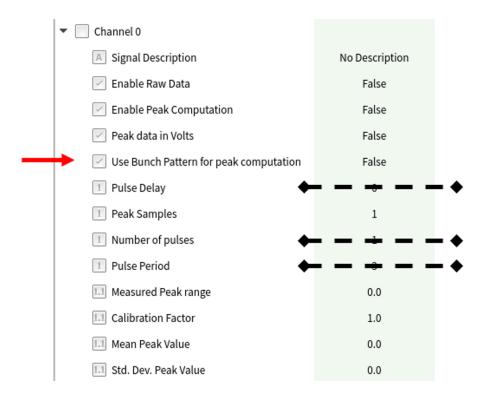


Fig. 3: Enable peak integration with the Bunch Pattern. Crossed are the parameters which are ignore in this setting

4.5 Conditional and/or Dynamic Raw acquisition

With the FastADC calibrated (see *FastADC Calibration*), the property *Raw Data Acquisition* can be set to **Conditional**, meaning that raw data will only be taken if there are bunches in the train which match the configuration of the Bunch Pattern (please note that this applies to **all channels**). This parameter can also be set to *Never*, in case the user is only interested in values from peak integration.

When Raw Dynamic trigger is true, raw data acquisition will always start at sample number (Sample First Bunch - Raw Delay), meaning that acquisition will have a fix relation (time wise) with the first bunch in the train. This is similar to use the dynamic trigger from the timing system.

Using these features have no affect in the Automatic Peak Integration.



Fig. 4: Conditional and Dynamic Raw Karabo properties

Configure a fastAdc device

Please consider that the following configuration steps should be performed by experts; a wrong setting will result in a device not properly working.

5.1 Configuration step by step

- Configuration
- Set Device File to the latest version of /dev/pciedevs?. Now we have pciedevs6 for SA2 and pciedevs7 for SCS;
- Set **Map Directory** to **/home/xctrl/maps**. This folder contains the configuration xml-files of the firmware registers.
- Change Board Configuration / FPGA Source Clock to TCLKA.
- Instantiate the *fastAdc* device. Now **Train ID** should be updating. If not or the value is some unreasonable number, please contact AE.
- By default, the channels are closed. To enable a channel, set Enable Peak Computation and Enable Raw Data to True.
- After you have done the previous steps correctly, Baseline Value and Mean Peak Value should be updating. If you have a scene, then you should see some noise. However, if nothing for the channel is updating and there is only a flat line in the scene (a single number), you are trapped by a bug in the firmware. Some discussions can be found in the redmine ticket #28462. You can fix it contacting AE. Anyway, the latest device release provides in the configuration editor the option to reset the DDR2 memory (in the SIS8300 board, where the raw ADC data are stored) and/or the ADC chip, clearing the above mentioned firmware bug.

CHAPTER 6

FastAdc

6.1 Commands

Key	Displayed Name	Description	Alias	Access Level	Allowed States
dacNode.dac	parame- ters/memory	Update all DAC parameters in the hardware.		USER	ON
reset	Reset	Resets the device in case of an error		USER	ERROR
start	Start	Instructs device to go to started state		USER	ON
stop	Stop	Instructs device to go to stopped state		USER	ACQUIRING
trigger	Manual Trigger	Sends a software trigger to the hardware (always		USER	ON
22		possible, independent of chosen trigger mode)		Ch	apter 6. FastAdo

6.2 Properties

Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_0.ba	se Bianc eline			Float	OBSERVER	READONLY	
	Value	Baseline Value.					
channel_0.ou	tp Brássedinere na.d			Double	OBSERVER	READONLY	
	Value	Baseline Value.					
channel_0.ou	tp Meach Po akd	ata.peakMean		Double	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
channel 0.or	tpsttlscheDæv.d	ata.peakStd		Double	OBSERVER	READONLY	
	Peak Value	Standard			3=3=11, 211		
	T Guil (uros	deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
-11 0	4-D4-1-1	40 000100		VectorFloat	OBSERVER	READONLY	
channel_0.0t	tpRetaschema.d Values	Vector of		vectorrioat	ODSERVER	KEADONLI	
	values	all peak					
		values					
		(with base					
		line					
		inic					
		correction).					
channel_0.ou	tp R ui.wcl B:ase. d	ata.rawBaseline		UInt32	OBSERVER	READONLY	•
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel 0 or	tp Rua.wcDenta a.d	ata.rawData		VectorI IInt16	OBSERVER	READONI Y	
	Transcription.	Raw data		, 55151 511111	. SESERVER		
		from ADC.					
						Continued o	

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Table 1 – continued from previous page

Key	Displayed	Description		Туре	Access	Access	Allowed
.1 1. 0	Name	D. 1.		M III 120	Level	Mode	States
channei_U.	outp RatuscPenka .d	sta.rawPeaks Sums of raw samples of selected peaks		vectorUInt32	2 OBSERVER	READONLY	
channel 0.0	outpSutrachesma.d	ata.samplesForF	Baseline	UInt32	OBSERVER	READONLY	
_	For Base- line	Number of samples in rawBase- line					
channel_0.	outp Sutraches ma.d	ata.samplesPerP	Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of samples per peak					
channel_0.	pealM tean nPeak			Float	OBSERVER	READONLY	
	Value	Mean of the Peak pulse (with base line correction).					
channel_0.	peal sSdd Dev.			Float	OBSERVER	READONLY	
спашет_0.]	Peak Value	Standard deviation of the Peak pulse values (with base line correction).		Ploat	ODSERVER	READONLI	
channel_1.l	baseBineeline			Float	OBSERVER	READONLY	
_	Value	Baseline Value.					
channel_1.	outp Basselinee na.d	ata.baseline		Double	OBSERVER	READONLY	
·	Value	Baseline Value.					
						Continued	

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Table 1 – continued from previous page

Kov	Dioplayad			Tuno		100000	Allowed
Key	Displayed	Description	Allas	Type	Access	Access	Allowed
	Name	<u> </u>			Level	Mode	States
channel_1.o	utp Meach Pora kd	ata.peakMean		Double	OBSERVER	READONLY	•
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
		'					
channel 1 o	utpsttdscheddeav.d	ata neakStd		Double	ORSERVER	READONLY	,
chamici_1.0	Peak Value	Standard Standard		Double	OBSERVER	KERDONEI	
	reak value						
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
	<u> </u>						
channel_1.o	utpRetaschema.d			VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		inic					
		correction).					
channel_1.o		ata.rawBaseline	2	UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
		naidwaic					
ala a a a a 1 1 1	- L.D. L D	14a		Vantautitud	ODCEDVED	DEADONES	
cnannel_1.0	utp RataseDenta a.d			vectorUInt16	OBSERVER	KEADUNLY	
		Raw data					
		from ADC.					
channel 1.o	utpRutswcPenkas.d	ata.rawPeaks		VectorUInt32	OBSERVER	READONLY	-
_	1	Sums of					
		raw					
		samples of					
		selected					
		peaks					
	•						

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Table 1 – continued from previous page

Key	Displayed	Description Alia		Туре	Access	Access	Allowed
,	Name	'		,,	Level	Mode	States
channel_1.c	utpsutm ches ma.d	ata.samplesForBasel	ine	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
channel_1.c	utp Sutraphes ma.d	ata.samplesPerPeak		UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
channel_1.p	eal Méaa nPeak			Float	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
	100.11			-	OD GEDLIED	DE 1 D 0 1 H 1	
channel_1.p				Float	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse values					
		(with base					
		line correc-					
		tion).					
channel_2.b	ac Dimplina			Float	OBSERVER	READONLY	
chamiei_2.t	Value	Baseline		Tioat	OBSERVER	READONLI	
	value	Value.					
		varue.					
channel 2 c	outp Riasedinee na.d	ata.baseline		Double	OBSERVER	READONLY	
	Value			_ 0.00.0	3232K, DK	12.1201.21	
		Value.					
channel_2.c	outp Meach@ca kd	ata.peakMean		Double	OBSERVER	READONLY	•
_	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
	•				·	Continued	

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Table 1 – continued from previous page

17.	D'		1 – continued	•	<u> </u>	Λ	All -
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 2.ou	tp Sittl sch dDæv. da	ıta.peakStd		Double	OBSERVER	READONLY	
	Peak Value	Standard					
	i can value	deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		tion).					
				***	ODGEDIJED	25.20.27	
channel_2.ou	tp Retas chema.da			VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		inic					
		correction).					
channel_2.ou	tp Rui.wcHeanse. da	ta.rawBaseline	2	UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
				**	OD GETTIE	DE 1 5 22 7 2	
channel_2.ou	tp Ruu.wcDenta a.da			VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel 2.01	tp Rat .wc Penka .da	ta.rawPeaks		VectorUInt32	OBSERVER	READONLY	
2.50	T	Sums of		111010111102	521., 21C		
		raw					
		samples of					
		selected					
		peaks					
channel_2.ou		ıta.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
	-	rawBase-					
		line					
		mic					
1 1 2			D 1	TH 422	ODGEDVES	DEADON	
channel_2.ou		ta.samplesPer	Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
						Continued o	n novt nogo

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Table 1 – continued from previous page

Key	Displayed	Description	Туре	Access	Access	Allowed
	Name			Level	Mode	States
channel_2.pe	a kMéan nPeak		Float	OBSERVER	READONLY	•
	Value	Mean of				
		the Peak				
		pulse (with				
		base line				
		correction).				
channel_2.pe	alssidd Dev.		Float	OBSERVER	READONLY	-
	Peak Value	Standard				
		deviation				
		of the Peak				
		pulse				
		values				
		(with base				
		line correc-				
		tion).				
channel_3.ba			Float	OBSERVER	READONLY	•
	Value	Baseline				
		Value.				
channel_3.ou	tp Basedinee na.da		Double	OBSERVER	READONLY	•
	Value	Baseline				
		Value.				
1 1 2	76 15 11	13.6	D 11	OD GEDLIED	DE 1 D 0 1 H 1	
channel_3.ou	tp Meach Plea kd		Double	OBSERVER	READONLY	
	Value	Mean of				
		the Peak				
		pulse (with				
		base line				
		correction).				
1 1 2		1.00	 B 11	ODGERVES	DEADON	
channel_3.ou	tpSttdscheDrew.da		Double	OBSERVER	READONLY	
	Peak Value	Standard				
		deviation				
		of the Peak				
		pulse				
		values				
		(with base				
		line correc-				
		tion).				

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Table 1 – continued from previous page

Key	Displayed	Description		Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_3.	outp lutalc hema.d	ata.peaks		VectorFloat	OBSERVER	READONLY	•
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		correction).					
channel_3.	outp RatwelRease. d	ata.rawBaseline	;	UInt32	OBSERVER	READONLY	•
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel_3.	outp Rui.wcDenta a.d			VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
.1 1 . 2	. (D.) D 1 1	D. I.		N III 122	ODCEDVED	DEADONIA	-
cnannei_3.	outp Rat.wcPenka .d	Sums of		vectorUInt32	OBSERVER	READONLY	
		raw					
		samples of selected					
		peaks					
channel 3	outp Sutrschesma.d	ata samplesFor	Baseline	UInt32	OBSERVER	READONLY	•
	For Base-	Number of	2.0.5011110	J1111.52	SESER, ER		
	line	samples in					
	inic	rawBase-					
		line					
channel_3.	outpSutmphesma.d	ata.samplesPerF	Peak	UInt32	OBSERVER	READONLY	•
	Per Peak	Number of					
		samples					
		per peak					
channel_3.	pealM tean nPeak			Float	OBSERVER	READONLY	,
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
						Continued o	

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Table 1 – continued from previous page

I/au	Diaminus			•	s page	A	Allanna al
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_3.pe	alssidd Dev.			Float	OBSERVER	READONLY	•
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		tion).					
.11.41	D'1'			Ti	ODCEDVED	DEADONIX	
channel_4.ba		5		Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_4.ou	tp Brasselinee na.da	ata.baseline		Double	OBSERVER	READONLY	•
	Value	Baseline					
		Value.					
		varae.					
ahannal 4 au	tp Vitesch Pera kda	oto maal-Maan		Double	OBSERVER	READONLY	,
channel_4.00	-			Double	ODSERVER	KEADONLI	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
		correction).					
	0.1.1.5.1	10.1		5 11	OD GEDI JED	25.20.27	
channel_4.ou	tpSttdscheDev.da			Double	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_4.ou	tpRetaschema.da	ata.peaks		VectorFloat	OBSERVER	READONLY	•
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		correction).					
		<u> </u>					
	1						

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Table 1 – continued from previous page

Key	Displayed	Description		Туре	Access	Access	Allowed
	Name	-			Level	Mode	States
channel_4.ou	tp Rua.wch&anse. da	ta.rawBaseline		UInt32	OBSERVER	READONLY	•
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel 4 or	tp Rui.wcDenna a.da	ata rawData		VectorI IInt16	OBSERVER	PEADONI V	-
chamici_4.00	rtpraa.werzanaar.ea	Raw data		vector officing	ODSLKVLK	READONET	
		from ADC.					
channel_4.ou	tpRutswcPlentkas.da	nta.rawPeaks		VectorUInt32	OBSERVER	READONLY	•
	1	Sums of					
		raw					
		samples of					
		selected					
		peaks					
ala a a a a 1 - 4	4.0-411 1	45 55 T) 1!	111422	ODGEDVED	DEADOMA	,
channel_4.ou	For Base-	nta.samplesForE Number of	Baseline	UInt32	OBSERVER	READONLY	
	line	samples in					
	inie	rawBase-					
		line					
channel_4.ou	tpSutm ches ma.da	nta.samplesPerP	Peak	UInt32	OBSERVER	READONLY	-
	Per Peak	Number of					
		samples					
		per peak					
channel_4.pe	alM tean nPeak			Float	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with base line					
		vase iiie					
		correction).					
		correction).					
channel_4.pe	alssidd Dev.			Float	OBSERVER	READONLY	-
pc	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					

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Table 1 – continued from previous page

Key	Displayed Name	Description		Type	Access Level	Access Mode	Allowed States
channel_5.	baseBine line			Float	OBSERVER	READONLY	
	Value	Baseline Value.					
channel_5.	outp Biasedhee ma.d	ata.baseline		Double	OBSERVER	READONLY	
	Value	Baseline Value.					
channel 5	outp Mtesch-Pe akd	ata neakMean		Double	OBSERVER	READONLY	
enamei_3.	Value	Mean of the Peak pulse (with base line		Bouote	OBSERVER	KL/IDONE!	
		correction).					
channel 5.	outpattlscheDew.d	ata.peakStd		Double	OBSERVER	READONLY	•
_	Peak Value	Standard deviation of the Peak pulse values (with base line correc-					
1 1.5	D. 11	tion).		XI (T)	ODGEDVED	DE A DON'T	
cnannei_3.	outp Retast chema.d Values	Vector of all peak values (with base line		VectorFloat	OBSERVER	READONLY	
		correction).					
channel_5.outpRasschBase-data.rawBaseline			2	UInt32	OBSERVER	READONLY	
	line	Sums of baseline values from hardware					
channel_5.	outp Ria.wcDenta a.d	ata.rawData Raw data from ADC.		VectorUInt16	OBSERVER	READONLY	
	1						

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Table 1 – continued from previous page

Key	Displayed	Description Alia		Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_5.c	outp Rat.wcPenka s.d	ata.rawPeaks		VectorUInt32	OBSERVER	READONLY	
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
-h1 <i>5</i> .	t. C-t all a see a	lete complex For Deco	1:	UInt32	OBSERVER	DEADONIA	
cnannei_5.0		ata.samplesForBase Number of	iine	UInt32	OBSERVER	READONLY	
	For Base-						
	line	samples in					
		rawBase-					
		line					
channel_5.c	outpsutm ches ma.d	ata.samplesPerPeak		UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
channel_5.p	pealMoteann Peak			Float	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
channel_5.	pealsStdd Dev.			Float	OBSERVER	READONLY	•
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
.1 1 . 6 . 1	D'1'			El	ODGEDVED	DEADOMA	
channel_6.t	oaseBinneline	Baseline		Float	OBSEKVER	READONLY	
	Value	Value.					
		value.					
channel_6.c	outp Butsædinere na.d	ata.baseline		Double	OBSERVER	READONLY	
_	Value	Baseline					
		Value.					
	•					Continued	

Table 1 – continued from previous page

Vov	Dioplessed		Alias	•		100000	Allouised
Key	Displayed	Description	Allas	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_6.d	outp Meach Poca kd			Double	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
		correction).					
channal 6	outp SttdscheDreav. d	ata paakStd		Double	OBSERVER	READONLY	
chamiei_0.c	Peak Value	Standard		Double	ODSERVER	KEADONLI	
	Peak value						
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		, , , , , , , , , , , , , , , , , , ,					
channel 6.0	outpRetaschema.d	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
	, ara-cs	all peak					
		values					
		(with base					
		line					
		IIIIC					
		correction).					
channel_6.c	outp Rat .wel Base. d		•	UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel 6.0	outp Ruit.wcDenta a.d	ata.rawData		VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel 6.0	outp Rat.wcRenka .d	ata.rawPeaks		VectorUInt32	OBSERVER	READONLY	
J. J		Sums of		. 55157 6 111132	J J J J J J J J J J J J J J J J J J J		
		raw					
		1					
		samples of					
		selected					
		peaks					
						Continued o	

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_6.ou	tp Sutmçhesma.da		Baseline	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
channel 6 or	tp Sutmçhes ma.da	ta camplecDer	Dank	UInt32	ORSERVER	READONLY	
channel_0.00	Per Peak	Number of	reak	Omt32	ODSERVER	READONLI	
	1 CI I Cak	samples					
		per peak					
		F F					
channel_6.pe	a lMéan nPeak			Float	OBSERVER	READONLY	
_	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
1 1 6	100/41 D			T7 .	ODGEDIZED	DEADONIX	
channel_6.pe	al ssid d Dev. Peak Value	Standard		Float	OBSERVER	READONLY	
	Peak value	deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		ĺ					
channel_7.ba				Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
1 1 7	(D, # :	. 1 1		D 12	ODGEDIZES	DEADONA	
channel_7.ou	tp Brássedinee na.da			Double	OBSERVER	READONLY	
	Value	Baseline Value.					
		value.					
channel 7 or	tp Mtesch Pra kda	ata.peakMean		Double	OBSERVER	READONLY	
	Value	Mean of		Bodole	OBOLICALIA	TEL ID OT ET	
		the Peak					
		pulse (with					
		base line					
		correction).					
						Continued	

Table 1 – continued from previous page

			ı – continued				
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel 7 or	tpsttdschebrea.da	ata neakStd		Double	OBSERVER	READONLY	
chamici_7.00	Peak Value	Standard Standard		Dodole	ODSERVER	KEMDONEI	
	Peak value						
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		tion).					
channel_7.ou	tpRetaschema.da	ta.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					ı
		line					
		correction).					
channel_7.ou	itp Ria i.wch &ase. da	ta.rawBaseline	2	UInt32	OBSERVER	READONLY	
_	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel 7 or	tp Rut.wcDenta a.da	ata rawData		VectorI IInt16	OBSERVER	READONI Y	
chamici_7.00	TIP GOLDS CLICATION C. C.C.			vectoremere	ODSERVER	KEMDONEI	
		Raw data					
		from ADC.					
channel 7.ou	tpRua.wcPenhas.da	ta.rawPeaks		VectorUInt32	OBSERVER	READONLY	•
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
		*					
ahannal 7	itp Sutm¢hes na.da	to comples E-	Dagalina	UInt32	ODCEDVED	READONLY	
channel_/.ot			Daseime	UIIII32	ODSEKVEK	KEADUNLY	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
		11110					
channel_7.ou	tp Sutrophes na.da		Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
						O	n novt nago

Table 1 – continued from previous page

Key	Displayed	Description		Type	Access	Access	Allowed
. to y	Name	Booonplion	7 11100	1,00	Level	Mode	States
ahannal 7	.pealMteannPeak			Float	OBSERVER	READONLY	Otates
chaimei_/		Mannaf		rioat	OBSERVER	KEADONLI	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
channel_7.	pealssidd Dev.			Float	OBSERVER	READONLY	•
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		,					
		line correc-					
		tion).					
1 10	1 75' 1'			771	ODGEDVED	DE L DOMES	-
channel_8	.baseBineeline			Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_8.	.outp Brassedinere na.d			Double	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_8.	.outp Meach Pera kd	ata.peakMean		Double	OBSERVER	READONLY	•
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
		correction).					
ahannal 0	outs@ttloch Da 1	ata paal-Ctd		Double	ODCEDVED	DEADOM V	•
channel_8	outpattlscheDew.d			Double	OBSERVER	KEADUNLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
	1	1		I.	I.	Continued	

Table 1 – continued from previous page

Key	Displayed	Description		Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_8.	.outp Retas chema.d			VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		correction).					
channel_8.	outp Rat welleane.d	ata.rawBaseline		UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel_8.	.outp RatasecDenta a.d			VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel_8.	outp Ratwchenks .d			VectorUInt32	OBSERVER	READONLY	
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
-h1 0	4.C-411	-t1E) 1:	UInt32	ODCEDVED	DEADONIA	
cnannei_8.	outp Sutrophes ma.d		3aseiine	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
		rawBase- line					
		inie					
channel 8	outp Sutraphes na.d	ata samplesPerF	Peak	UInt32	OBSERVER	READONLY	
chamici_o.	Per Peak	Number of	Cak	Omt32	OBSERVER	KERDONEI	
	1 CI I Cak	samples					
		per peak					
		Per pour					
channel 8.	pealM tean nPeak			Float	OBSERVER	READONLY	
	Value	Mean of			3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -		
		the Peak					
		pulse (with					
		base line					
		correction).					
						Continued o	

Table 1 – continued from previous page

Vov	Diaplayad			Tuno		100000	Allouised
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_8.pe	alssidd Dev.			Float	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_9.ba	se Binxe line			Float	OBSERVER	READONLY	
	Value	Baseline		= 1000	3232111211		
	, arac	Value.					
		value.					
-h1 O	4.D.41E	4. 1 1		Davida!	ODGEDVED	DEADOMA	-
cnannel_9.ou	tp Brassedinee ma.da			Double	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_9.ou	tp Mteach Pora kda	ata.peakMean		Double	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		base fine					
		correction).					
channel_9.ou	tpSittlscheDæv.da			Double	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_9.ou	tp Retak chema.da			VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		11110					
		correction).					

Table 1 – continued from previous page

			i – continued				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 9 or	trRutwelleman-de	ta.rawBaseline	3	UInt32	OBSERVER	READONLY	
Chamici_9.0t	line	Sums of baseline values from hardware		Omt32	OBSERVER	READONET	
channel_9.ou	tpRui.wcDentaa.da	ata.rawData Raw data from ADC.		VectorUInt16	OBSERVER	READONLY	
channel_9.ou	tpRataschenkas.da	ata.rawPeaks Sums of raw samples of selected peaks		VectorUInt32	OBSERVER	READONLY	
channel 9.01	iti Sitmches na.da	ta.samplesFor	Baseline	UInt32	OBSERVER	READONLY	•
_	For Base- line	Number of samples in rawBase- line					
channel_9.ou	tp Sitrsches na.da Per Peak	ata.samplesPer Number of samples per peak	Peak	UInt32	OBSERVER	READONLY	
channel_9.pe	a RMeam nPeak Value	Mean of the Peak pulse (with base line correction).		Float	OBSERVER	READONLY	
channel_9.pe	a ßsd d Dev. Peak Value	Standard deviation of the Peak pulse values (with base line correction).		Float	OBSERVER	READONLY	

Table 1 – continued from previous page

17	D: 1 -		1 – continued	•	<u> </u>	A	A II
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
dacNode.dac	Data Data			VectorInt32	OBSERVER	READONLY	•
		DAC data					
		memory.					
		literiory.					
dacNode.dac	175145G-151414			VastorDaubl	e OBSERVER	READONLY	,
dacinode.dac		DAC 1.4		vectorDouble	ODSERVER	KEADONLI	
	age Data	DAC data					
		memory					
		converted					
		to Voltage					
progress	Progress			Int32	OBSERVER	READONLY	-
1 0	C	The					
		progress of					
		the current					
		action					
trainId	Train ID			UInt64	OBSERVER	READONLY	
		Current					
		train ID as					
		read from					
		the FPGA					
triggerTime	Trigger			Int32	OBSERVER	READONLY	-
urgger rime	Time	Time		111132	OBSERVER	REI ID OT ET	
	Time	between					
		Triggers					
T' C	. T.				ODCEDVED	DEADONIX	
triggerTimeS		***		vectorUInt16	OBSERVER	READONLY	
	Histogram	Histogram					
		of time					
		between					
		Triggers					
connection	.bBokkers			VectorString	USER	INITONLY	
		Brokers					
		must be					
		provided as					
		URLs of					
		format:					
		tcp:					
		// <host>:<po< td=""><td>rt>.</td><td></td><td></td><td></td><td></td></po<></host>	rt>.				
		Extra					
		URLs					
		serve as					
		fallback.					

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_0.ba	seStatt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKOANBLE
channel_0.ba	sæstdp of Baseline	Ending		UInt32	USER	RECONFIGU	J RAN BLE
	Baseinie	Sample of the Baseline calculation.					
channel_0.ca	li GahiloraFæt o			Double	USER	RECONFIGU	JINANBLE
	Factor	Factor to be used with all peak values and the related mean and std values					
channel_0.er	a lde Re lekCom			Bool	USER	RECONFIGU	J RAN BLE
	Peak Computation	Enable peak computation on the FPGA.					
channel_0.er	al HeRbile /DataS	treaming		Bool	USER	RECONFIGU	JKANBLE
	Raw Data	Enable streaming out of raw data.					

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
1 toy	Name	Boodinplion	7 11140	1,00	Level	Mode	States
channel_0.fi				Double	USER	RECONFIGU	
enamer_o.n.	Baseline	If fixed		Double	COLK	RECOLUTION	SKAROLL
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
ahannal 0.5	xe ÆBabæ ineEn:			Bool	USER	RECONFIGU	TIDINATO I E
channel_U.II	fixed	a Enables		וטטם	USEK	KECUNFIU	
	Baseline	the use of a					
	Dascinic	fixed					
		baseline					
		value.					
channel_0.in	iti RliDse lay			UInt32	USER	RECONFIGU	J K)AN BLE
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
channel 0 m	um NPunhsbe r of			UInt32	USER	RECONFIGU	JKNANBLE.
	pulses	Number of		2 2222 2			
	r	pulses					
		expected in					
		each					
		trigger.					
ahannal O	utp Disdiidriboti o	nModa		Ctring	USER	INITONLY	
chamiei_0.0	Mode	Describes		String	USEK	INITOINLI	
	MIOUE	the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
	1				1	Continued	

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
channel ()	Name .outp Hiostostome me			String	Level USER	Mode INITONLY	States
channel_0	.outproussussumerne	The hostname to which connecting clients will be routed to		Sunig	USER	INITOINLI	
channel_0	.outp Nia no linputS l	nared		String	USER	INITONLY	
	(Shared)	What to do if currently no share-input channel is available for writing to					
channel_0	.pealPScaknpScasm-			UInt32	USER	RECONFIG	U K)AN BLE
	ples	Number of peak samples in each pulse.					
channel_0	.puls ePissi od Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	UKANBLE
channel_1	.baseStatt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKAABLE
channel_1	.basæstdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	UKABLE

Table 1 – continued from previous page

1/	Discolarios		Al:			Λ	A II al
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_1	.caliloraliloralFeorto	or		Double	USER	RECONFIG	J K)AN BLE
	Factor	Factor to					
		be used					
		with all					
		peak					
		values and					
		the					
		related					
		mean and					
		std values					
channel_1	.ena lHnReh kCom	putation		Bool	USER	RECONFIG	J RAN BLE
	Peak Com-	Enable					
	putation	peak com-					
		putation on					
		the FPGA.					
ahannal 1	.ena lHeRble Data	Straamina		Bool	USER	RECONFIG	TIDINATO I E
channel_1	Raw Data	Enable Enable		BOOI	USEK	KECONFIG	UNAMDLE
	Raw Data						
		streaming					
		out of raw					
		data.					
channel_1	.fixe lfBæxe line			Double	USER	RECONFIG	JKANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
channel 1	.fixe ÆBabb ineEr	 1a		Bool	USER	RECONFIG	J KAN BLE
*	fixed	Enables					
	Baseline	the use of a					
	Duscinic	fixed					
		baseline					
		value.					
		value.					
							

Table 1 – continued from previous page

Key	Displayed	Description	Type	Access	Access	Allowed
	Name			Level	Mode	States
channel_1.	initi RiDsel ay		UInt32	USER	RECONFIG	J KAN BLE
	Delay	Time delay				
		between				
		trigger and				
		start of				
		processing				
		algorithm.				
channel_1.	num NPunhsbe r of		UInt32	USER	RECONFIG	J KAN BLE
	pulses	Number of				
		pulses				
		expected in				
		each				
		trigger.				
channel_1.	outp Distribuition i	nMode	String	USER	INITONLY	
	Mode	Describes				
		the policy				
		of how to				
		fan-out				
		data to				
		multiple				
		(shared)				
		input				
		channels				
channel 1.	outp hiostostose me		String	USER	INITONLY	
_		The				
		hostname				
		to which				
		connecting				
		clients will				
		be routed				
		to				
channel 1.	outphia no limputS	nared	String	USER	INITONLY	
	(Shared)	What to do				
		if currently				
		no				
		share-input				
		channel				
		is available				
		for writing				
		to				
		10				

Table 1 – continued from previous page

Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_1	.pealPScaknpScsm-			UInt32	USER	RECONFIGU	
	ples	Number of peak samples in each pulse.					
channel_1	.puls ePisc iod Period	Number of samples between each pulse.		UInt32	USER	RECONFIGU	UKAABLE
channel_2	.baseStart of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIGU	UKANBLE
channel_2	.basd Sitd p of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIGU	J RAN BLE
channel_2	.cali brahilomFaut o Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIGU	JKANBLE
channel_2	.ena HnRbk Com Peak Com- putation	putation Enable peak computation on the FPGA.		Bool	USER	RECONFIGU	JRANBLE
channel_2	.ena HaRaw Data Raw Data	Streaming Enable streaming out of raw data.		Bool	USER	RECONFIGU	

Table 1 – continued from previous page

Kov	Displayed		Aliac	•		Access	Allowed
Key		Description	Allas	Туре	Access		
1 100	Name			D 11	Level	Mode	States
channel_2.fi				Double	USER	RECONFIG	JIKNANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
		(iii) iii v					
channel 2 fi	xe ÆBabe ineEna	1		Bool	USER	RECONFIG	DKNANRIF
211d111101_2.111	fixed	Enables		2001	JOLIC	indeprint for	
	Baseline	the use of a					
	Buscinic	fixed					
		baseline					
		value.					
		varue.					
channel_2.in	tiDHDadov			UInt32	USER	RECONFIG	TENTRIE
Chamici_2.m	Delay	Time delay		Omto	USEK	RECONTIO	
	Delay	between					
		trigger and					
		start of					
		processing					
		algorithm.					
-h1 2	ND_1.1			111422	LICED	DECONETC	TROVIDI E
cnannel_2.ni	m NPuntabe r of	No.		UInt32	USER	RECONFIG	UKANBLE
	pulses	Number of					
		pulses					
		expected in					
		each					
		trigger.					
.1 1. 2	(D) 400 00 0	. M. 1.		Chair	LICED	INTERNATION	
channel_2.or	tp Disdistriboti o			String	USER	INITONLY	
	Mode	Describes					
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
					_	Continued o	

Table 1 – continued from previous page

1/	Disable of		1 – Continued	•		A	A II I
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 2.ou	tpHiostostomæme			String	USER	INITONLY	
_	1	The					
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel_2.ou	tp Nic no llmputS l	ared		String	USER	INITONLY	
	(Shared)	What to do					
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		to					
ahann-1 2 ···	o IPG olm of			UInt32	USER	DECONEIG	TOADIT
cnannei_2.pe	al PS:ak npSesm-	, , , , , ,		UIMI32	USEK	RECONFIG	UKANDLE
	ples	Number of					
		peak					
		samples in					
		each pulse.					
		ransa r					
channel_2.pu	1d DiD loveriod			UInt32	USER	RECONFIGU	TENVIDI E
chamici_2.pu		Nh c		Omisz	USEK	RECONTIO	
	Period	Number of					
		samples					
		between					
		each pulse.					
		_					
channel_3.ba	se Sitant t of			UInt32	USER	RECONFIGU	J RAN BLE
511u111101_5.0a	Baseline	Starting		011102			
	Dascille						
		Sample to					
		calculate					
		the					
		Baseline.					
channel_3.ba	se End p of			UInt32	USER	RECONFIGU	TRANSIF
chamici_5.0a	Baseline	Endina			OSLIC	ILCOM IO	MINDLL
	Dascille	Ending					
		Sample of					
		the					
		Baseline					
		calcula-					
		tion.					
		1011.					
						0 - 1 - 1	n next nage

Table 1 – continued from previous page

Vov	Diaplayed		Alico			100000	Allowed
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_3	.cali GrahiloraFron o			Double	USER	RECONFIG	J KAN BLE
	Factor	Factor to					
		be used					
		with all					
		peak					
		values and					
		the					
		related					
		mean and					
		std values					
		sta varues					
channel 3	.ena ldnæb lækCom	unutation		Bool	USER	RECONFIGU	TENNETE
Citatifici_J	Peak Com-	Enable		Door	OSLK	ILLCOIN IO	
	putation	peak com-					
	patation	putation on					
		the FPGA.					
		the 11 G/1.					
channel 3	.ena lHeRble /Data	Streaming		Bool	USER	RECONFIG	J KOAN BLE
•	Raw Data	Enable		2001	0021	11200112101	
		streaming					
		out of raw					
		data.					
channel 3	.fixe lfBæxe line			Double	USER	RECONFIG	J KNAN BLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from the h/w.					
		the n/w.					
channal 2	.fixe ÆBable ineEn	19		Bool	USER	RECONFIG	TOWNETE
Citatifici_3	fixed	Enables		Bool	USEK	RECONFIG	
	Baseline	the use of a					
	Dascille	fixed					
		baseline					
		value.					
		value.					

Table 1 – continued from previous page

Vov	Diaplaced			<u> </u>	<u> </u>	100000	Allouised
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_3.in	iti PilDæ lay			UInt32	USER	RECONFIG	UKNANBLE
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
channel 3.nu	m NPunhsbe r of			UInt32	USER	RECONFIG	J K)AN BLE
•	pulses	Number of		0111102	0021	1120011110	
	puises						
		pulses					
		expected in					
		each					
		trigger.					
channel 3.or	tpDitsthistoritionic	nMode		String	USER	INITONLY	
	Mode	Describes				01,21	
	Wiode	the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
channel_3.ou	tp Hostostowe me			String	USER	INITONLY	
		The					
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel_3.ou	tp Nic no llmputS l	nared		String	USER	INITONLY	
	(Shared)	What to do					
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		to					

Table 1 – continued from previous page

Key	Displayed Name	Description	Alias	Type	Access Level	Access Mode	Allowed States
channel 3.r	eal PS:ak np S:as m-			UInt32	USER	RECONFIG	
о	ples	Number of peak samples in each pulse.		0.11102	0021		
channel_3.p	ouls erPssci od Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	UKAABLE
channel_4.b	baseSitentt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	UKOABLE
channel_4.b	asdSitdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	UKAABLE
channel_4.c	rali tirationaFact or Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIG	UKOANBLE
channel_4.e	enalde Rollek Com Peak Com- putation	entation Enable peak computation on the FPGA.		Bool	USER	RECONFIG	UKOABLE
channel_4.e	enal HeRalw DataS Raw Data	treaming Enable streaming out of raw data.		Bool	USER	RECONFIG	

Table 1 – continued from previous page

Kov	Dieployed		Aliac	•		Access	Allowed
Key	Displayed	Description	Alias	Туре	Access		
1 1 4 2	Name			D 11	Level	Mode	States
channel_4.fix		Y0.0 1		Double	USER	RECONFIG	JIKANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
channel 4.fix	e ÆBabb ineEna	ı		Bool	USER	RECONFIG	J K)AN BLE
/2	fixed	Enables					
	Baseline	the use of a					
		fixed					
		baseline					
		value.					
channel_4.in	ti RUDse lav			UInt32	USER	RECONFIG	JKOANBLE
	Delay	Time delay					
	_ = 5.5.5	between					
		trigger and					
		start of					
		processing					
		algorithm.					
		argorium.					
channel 4 nu	m NPunhabs er of			UInt32	USER	RECONFIGU	TINANBI F
	pulses	Number of		01111.02	COLIC	ALCOIN IO	- MAINUJUL
	paises	pulses					
		expected in					
		each					
		trigger.					
		uiggei.					
channel 4 ou	t pDistribuitioti o	nMode		String	USER	INITONLY	
511d111101_4.00	Mode	Describes		Sums	SSER	IIIIOII	
	111000	the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
						Continued o	_

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
channel 4	Name .outp Hostostome me			String	Level USER	Mode INITONLY	States
channel_4	.output.sussimariic	The hostname to which connecting clients will be routed to		Sunig	COLK	INTONE	
channel 4	.outp Nia no IImputS l	nared		String	USER	INITONLY	
	(Shared)	What to do if currently no share-input channel is available for writing to					
channel_4	.pealPScalmpScsm-			UInt32	USER	RECONFIG	J K)AN BLE
	ples	Number of peak samples in each pulse.					
channel_4	.puls ePissi od Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	UKANBLE
channel_5	.baseSitatt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKAABLE
channel_5	.basdStdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	UKABLE

Table 1 – continued from previous page

1/	Diamles ad		Aliaa			Λ	Allaal
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_5	.cali CrahiloraFeert o			Double	USER	RECONFIG	UKNANBLE
	Factor	Factor to					
		be used					
		with all					
		peak					
		values and					
		the					
		related					
		mean and					
		std values					
channel 5	.ena lHeRe lakCom	unutation		Bool	USER	RECONFIG	I IZNANBI E
Chamici_J	Peak Com-	Enable		Door	OSLIC	RECONTIO	UMMDLL
	putation	peak com-					
	putation	putation on					
		the FPGA.					
		the TT G/A.					
channel_5	.ena lHeRble Data	Streaming		Bool	USER	RECONFIG	J RAN BLE
	Raw Data	Enable					
		streaming					
		out of raw					
		data.					
channel_5	.fixe lfBæxe line			Double	USER	RECONFIG	UKNANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
channel_5	.fixe ÆBabee ineEn	na		Bool	USER	RECONFIG	J RAN BLE
	fixed	Enables					
	Baseline	the use of a					
		fixed					
		baseline					
		value.					
		1					

Table 1 – continued from previous page

Vov	Diaplaced		Alice	•	<u> </u>	100000	Allouised
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_5.in				UInt32	USER	RECONFIG	UKOANBLE
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
channel_5.nu	m NPunhsbe r of			UInt32	USER	RECONFIG	UKOANBLE
	pulses	Number of					
		pulses					
		expected in					
		each					
		trigger.					
		uiggui.					
channal 5 av	tp Disdiistrilioti o	nMode		String	USER	INITONLY	
chamei_5.00				String	USEK	INITONLY	
	Mode	Describes					
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
	***			g .	TIGED	D.H.M.O.H.H.	
channel_5.ou	tp Hostosume me			String	USER	INITONLY	
		The					
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
ala a a a a 1 - 5	4.NI4 W /C1	4		Ctuin	LICED	INITONIA	
cnannel_5.ot	tp Nic no IInputS l			String	USER	INITONLY	
	(Shared)	What to do					
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		to					

Table 1 – continued from previous page

Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_5.	pealPSaknpSasm-			UInt32	USER	RECONFIGU	J RAN BLE
	ples	Number of peak samples in each pulse.					
channel_5	puls ePissi od Period	Number of samples between each pulse.		UInt32	USER	RECONFIGU	UKAABLE
channel_6.	baseStart of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIGU	UKANBLE
channel_6	bas dStdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIGU	J RAN BLE
channel_6.	cali titatilorafran to Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIGU	JKANBLE
channel_6	ena ldin Rela Com- Peak Com- putation	putation Enable peak computation on the FPGA.		Bool	USER	RECONFIGU	JRANBLE
channel_6	ena HnRaw Data Raw Data	Streaming Enable streaming out of raw data.		Bool	USER	RECONFIGU	UKANBLE

Table 1 – continued from previous page

17.	l D'			Trom previo	<u> </u>	Λ	All - '
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 6.fi	xe lfBæxe line			Double	USER	RECONFIGU	J RAN BLE
cnannei_6.n	Baseline	If fixed baseline is enabled, this value will be used for calculations instead of the base line from		Double	USER	RECONFIGU	JKANBLE
channel_6.fi	xe ÆBabb lineEn			Bool	USER	RECONFIGU	J KA BLE
	fixed Baseline	Enables the use of a fixed baseline value.					
channel_6.in	niti RtiDæ lay Delay	Time delay between trigger and start of processing algorithm.		UInt32	USER	RECONFIGU	J RAN BLE
channel_6.n	um Puitsbe r of pulses	Number of pulses expected in each trigger.		UInt32	USER	RECONFIGU	J KAN BLE
channel_6.o	utpDisdiiduitiotid Mode	onMode Describes the policy of how to fan-out data to multiple (shared) input channels		String	USER	INITONLY	n novt nago

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
1 1 6	Name				Level	Mode	States
channel_6	.outp Hostastmæ me	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel_6	outphianoImput6l (Shared)	what to do if currently no share-input channel is available for writing to		String	USER	INITONLY	
channel_6	.pea R%ak np %zs m- ples	Number of peak samples in each pulse.		UInt32	USER	RECONFIG	JKAABLE
channel_6	.puls PPsx iod Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	JRANBLE
channel_7	.baseStatt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKAABLE
channel_7	.basæstdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	JKANBLE

Table 1 – continued from previous page

1/	Displayed		Aliaa			Λ	A II
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_7	.cali brahilomFron t	or		Double	USER	RECONFIG	J K)AN BLE
	Factor	Factor to					
		be used					
		with all					
		peak					
		values and					
		the					
		related					
		mean and					
		std values					
channel 7	.ena lEnPe lekCom	putation		Bool	USER	RECONFIG	J KAN BLE
	Peak Com-	Enable					
	putation	peak com-					
	1	putation on					
		the FPGA.					
channel_7	ena ldarkalw Data.			Bool	USER	RECONFIG	J KAN BLE
	Raw Data	Enable					
		streaming					
		out of raw					
		data.					
channel 7	.fixedFBæædeline			Double	USER	RECONFIGU	J RNAN BLE
chamei_,	Baseline	If fixed		Dodoic	CSER	TRECOTATION	
	Buschile	baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
channel 7	.fixe ÆBabet ineEr	 1a		Bool	USER	RECONFIG	J KNAN BLE
	fixed	Enables					
	Baseline	the use of a					
	Zastinie	fixed					
		baseline					
		value.					
		varae.					

Table 1 – continued from previous page

Vov	Diaplaced		Alice	<u> </u>	<u> </u>	100000	Allouised
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_7.in				UInt32	USER	RECONFIG	UKANBLE
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
channel_7.nu	m NPunhsbe r of			UInt32	USER	RECONFIG	UKNANBLE
	pulses	Number of					
		pulses					
		expected in					
		each					
		trigger.					
		88					
channel 7.01	tp Disdridariboti o	nMode		String	USER	INITONLY	
	Mode	Describes				1	
	Wiode	the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
channel 7.01	tp Hostosume me			String	USER	INITONLY	
•11d111101_7101	ф	The		Sumg	CSZI	11 (11 01 (21	
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel_7.ou	tp via no IlmputS l			String	USER	INITONLY	
	(Shared)	What to do					
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		to					

Table 1 – continued from previous page

Key	Displayed Name	Description	Alias	Type	Access Level	Access Mode	Allowed States
channel 7.p	ealPSvarknpScasm-			UInt32	USER	RECONFIG	
-	ples	Number of peak samples in each pulse.		C.I.i.c.2	0021	1207.13	
channel_7.p	uls ePisc iod Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	UKAABLE
channel_8.b	aseSitaatt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	J KAN BLE
channel_8.b	asdSitdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	UKNANBLE
channel_8.ca	ali Gahiloraffært or Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIG	JKANBLE
channel_8.e	na Haffeld Comp Peak Computation	entation Enable peak computation on the FPGA.		Bool	USER	RECONFIG	JKANBLE
channel_8.e	na lHerRole DataS Raw Data	treaming Enable streaming out of raw data.		Bool	USER	RECONFIG	

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
1.0)	Name	2 cccpac	7 11140	.,,,,,	Level	Mode	States
channel_8.fi				Double	USER	RECONFIGU	
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
channel_8.fi	xe ÆBabæ ineEn	a.		Bool	USER	RECONFIGU	JKANBLE
_	fixed	Enables					
	Baseline	the use of a					
		fixed					
		baseline					
		value.					
channel_8.in				UInt32	USER	RECONFIGU	J KAN BLE
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
1 1.0	ND 1.1 C			TH +20	LICED	DECONEC	TWADLE
channel_8.ni	um Neuhsbe r of	Number of		UInt32	USER	RECONFIGU	UKANBLE
	pulses	Number of					
		pulses expected in					
		each					
		trigger.					
		uiggei.					
channel 8.01	utp Ditsthiistriibioti o	nMode		String	USER	INITONLY	
	Mode	Describes					
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
						Continued	

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
.1 1 . 0	Name			Ct.	Level	Mode	States
channel_8	.outp Hostassume me	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel 8	.outp hia no limputS l	ared		String	USER	INITONLY	
	(Shared)	What to do if currently no share-input channel is available for writing to					
channel_8	.pealPScaknpScasm-			UInt32	USER	RECONFIG	UKNANBLE
	ples	Number of peak samples in each pulse.					
channel_8	.puls ePissi od Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	UKANBLE
channel_9	.baseSitatt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKAABLE
channel_9	.basdSatdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	UKABLE

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_9.c	cali ticatilorafract or Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIG	U KAA BLE
channel_9.e	ena lde Re lekComp			Bool	USER	RECONFIGU	J KAN BLE
	Peak Computation	Enable peak computation on the FPGA.					
channel_9.e	enal EleRble DataS	treaming		Bool	USER	RECONFIG	J KAN BLE
	Raw Data	Enable streaming out of raw data.					
channel_9.f	ixe lFBæxd eline			Double	USER	RECONFIG	J RAN BLE
	Baseline	If fixed baseline is enabled, this value will be used for calculations instead of the base line from the h/w.					
channel_9.f	fixe tBasst ineEna fixed Baseline	Enables the use of a fixed baseline value.		Bool	USER	RECONFIG	JIOANBLE

Table 1 – continued from previous page

I/au	ا اد دینمامیات		1 – Continued	•		Λ	Allance of
	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
channel_9.initil				UInt32	USER	RECONFIGU	J KAN BLE
1	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
channel_9.num				UInt32	USER	RECONFIG	J RAN BLE
r	pulses	Number of					
		pulses					
		expected in					
		each					
		trigger.					
channel_9.outp	Diediidariliatio	nMode		String	USER	INITONLY	
	Mode	Describes		Sumg	USLK	INTIONEI	
l L	vioue						
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
		Chamicis					
ahannal O aytul	At htms://www.no.co			Ctain a	USER	INITONLY	
channel_9.outpl	ru ostosumæne	Til		String	USEK	INITONLI	
		The					
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel_9.outp	Mt no Ilmutol	pared		String	USER	INITONLY	
		What to do		Sumg	USEK	INITOINLI	
((Shared)						
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		to					
		10					

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name	-			Level	Mode	States
channel_9.pe	a lPS:ak np S:a sm-			UInt32	USER	RECONFIGU	J K)AN BLE
	ples	Number of peak samples in each pulse.					
channel_9.pu	ls effssi od Period	Number of samples between each pulse.		UInt32	USER	RECONFIGU	JKAABLE
config.fpgaC	lo ER GA Source Clock	Source Clock to FPGA operations.		String	USER	INITONLY	
config.softTr	ig Sönf te Trig- ger Interval	Interval between software generated triggers in milli seconds.		UInt32	USER	RECONFIGU	JRABLE
config.trigge	Source	Source of trigger for algorithm (RX17 to TX20 - Backplane; Front1-4 - Harlink Front Panel).		String	USER	INITONLY	
dacNode.dac	CPAGSatiples cles per Samples	Number of clock cycles per Samples.		UInt32	USER	RECONFIGU	JRABLE

Table 1 – continued from previous page

	5		1 – continued	•			A.I
Key	Displayed	Description	Alias	Type	Access	Access	Allowed
	Name				Level	Mode	States
dacNode.dacI	OStal Mode			Bool	USER	RECONFIG	JKNANBLE
	DAC Data	False:					
	Mode	binary					
		offset;					
		True: 2					
		comple-					
		ment					
dacNode.dacF	ZIDA C IZILa			String	USER	RECONFIG	TIDIATO LE
dacinode.daci	THEAC FILE	F21 24		Sumg	USEK	RECONFIG	JIMANDLE
		File with					
		DAC					
		values.					
dacNode.dacS	SID ASCambikin			UInt32	USER	RECONFIG	JKANBLE
	Samples	Number of			_ ·- ·-		· · ·
	zumpres	DAC					
		samples to					
		be in					
		output.					
dacNode.dacT	TiDgAger Inter-			Bool	USER	RECONFIG	J RAN BLE
	nal Trigger	Enable					
		DAC					
		Internal					
		Trigger.					
1 22 1 1 7	775 + G 78 - 1 - 1			***	TYGER	DEGOVERG!	TENETE .
dacNode.dacT				UInt32	USER	RECONFIGU	JRANBLE
	nal Trigger	Period of					
	Period	internal					
		DAC					
		Trigger.					
		1116601.					
dacNode.enab	JED-MC			Bool	USER	RECONFIGU	TOWNETE
uacinoue.enab		Englis		BOOI	USEK	RECONFIG	
	DAC	Enable					
		DAC					
		channel.					
dacNode.volta	a Scilitagic ept			Double	USER	RECONFIGU	JKNANBLE
	Conver-	Value of					
	sion (y-	intercept					
	intercept)	for					
	miercepi)						
		converting					
		DAC to					
		Voltage					
		value					
						Continued o	

Table 1 – continued from previous page

Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
1. N. 1 1				D : 1.1.		RECONFIG	
dacNode.volt	Conversion (slope)	Value of slope for converting DAC to Voltage value		Double	USER	RECONFIG	J KANBLE
delay	Raw Delay	Time delay between trigger and start of raw data acqui- sition.		UInt32	USER	RECONFIG	U RAN BLE
deviceFile	Device File	Device driver file to access the hardware (e.g.	59).	String	USER	RECONFIG	JERROR
mapDirectory	Map Directory	Folder where all xml mapping files are located.		String	USER	RECONFIG	JERROR
numberRawS	a hipha ber of raw samples	Number of raw samples to aquire, per channel, with each start of raw data acquisition.		UInt32	USER	RECONFIG	J KAN BLE

Table 1 – continued from previous page

Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
skipSamples	Skip Sam- ples	If 1/2/3/, show only every 2nd/3rd/4th/. raw ADC value (i.e. "zoom out").		UInt32	USER	RECONFIGU	J R)A NBLE
channel_0.ou	tрОфларн ары өкі	on Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		Int32	EXPERT	INITONLY	
channel_0.ou	t iRuip ort	Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_1.ou	tpOotenprepssissi	on Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		Int32	EXPERT	INITONLY	
channel_1.ou	t pRuip ort	Port number for TCP connection		UInt32	EXPERT	INITONLY	

Table 1 – continued from previous page

17	D:		ı – continued			Ι Δ	All '
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 2 o	utpūo.coprepseios	ion		Int32	EXPERT	INITONLY	
channel_2.0	u į tuvini į ir i į ir i ir i	Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		IIIt32	EATERT	INTONE	
channel_2.o		Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_3.o	utptilo.coprepseies	configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		Int32	EXPERT	INITONLY	
channel_3.o		Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_4.o	utpOdo.coprepseios	configures when the data is compressed (-1) off, 0 = always, >0 threshold in MB		Int32	EXPERT	INITONLY	

Table 1 – continued from previous page

Key	Displayed	Description		Туре	Access	Access	Allowed
,	Name			1,760	Level	Mode	States
channel_4.ou				UInt32	EXPERT	INITONLY	
		Port number for TCP connection					
channel 5.01	tpCoorparesses	nion		Int32	EXPERT	INITONLY	
_		Configures when the data is compressed (-1 = off, 0 = always, >0 = threshold in MB					
channel_5.ou	tpRurport	Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel 6.01	tpūoumpnepsisios	nion		Int32	EXPERT	INITONLY	
		Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB					
channel_6.ou	tµRumport	Port number for TCP connection		UInt32	EXPERT	INITONLY	

Table 1 – continued from previous page

Key	Displayed	Description		Type	Access	Access	Allowed
Ney		Description	Alias	туре			
	Name			T	Level	Mode	States
channel_/.c	outp Coorrangsseis s			Int32	EXPERT	INITONLY	
		Configures					
		when the					
		data is					
		com-					
		pressed (-1					
		=					
		off, 0 =					
		always, >0					
		= threshold					
		in MB					
channel_7.0	outp Rum ort			UInt32	EXPERT	INITONLY	
		Port					
		number for					
		TCP					
		connection					
channel 8 a	outp Cioucoparepsecio s	non		Int32	EXPERT	INITONLY	
channer_o.c	o cipal de la constantina della constantina dell	Configures		111132	E2XI EXXI	INTONE	
		when the					
		data is					
		com-					
		pressed (-1					
		=					
		off, 0 =					
		always, >0					
		= threshold					
		in MB					
		III IVID					
channel_8.0	outr D rtrtort			UInt32	EXPERT	INITONLY	
Chamiei_6.0	Juipunpon	Port		01111.52	LAILKI	INTIONLI	
		number for					
		TCP					
		connection					
channel_9.0	outp Coorannesseis s			Int32	EXPERT	INITONLY	
		Configures					
		when the					
		data is					
		com-					
		pressed (-1					
		=					
		off, 0 =					
		always, >0					
		= threshold					
		in MB					
-		•		-	-	0	n novt nago

Table 1 – continued from previous page

channel_9.outr	Displayed Name Rumport	Port	Alias	Type UInt32	Access Level EXPERT	Access Mode INITONLY	Allowed States
channel_9.outr		I		UInt32			States
	Rarport	I		UInt32	EXPERT	INITONLY	
	Tunip 011	I		C 11110 =	2111 2111		
interfaces		 			l		
interfaces							
interfaces		number for					
interfaces		TCP			ļ		
interfaces		connection					
interfaces							
interfaces	interfaces			VectorString	EXPERT	READONLY	
	interfaces			vectorsumg	EXIEKI	KEADONLI	
performance\$t	Etnistlides.Pnable	•		Bool	EXPERT	RECONFIGU	JRABLE
	formance	Enables					
	Indicators	some					
	indicators						
		statistics to					
		follow the			ļ		
		performance					
		of an					
		 					
		individual					
		device					
performance\$t	Mistics.maxE	ventLoopLater	icv	UInt32	EXPERT	READONLY	
	event loop	Maximum		0111102		1021201121	
		 					
-	latency	time					
		interval			ļ		
		between					
		posting a					
		message					
		on the			ļ		
		central					
		event loop			ļ		
		and			ļ		
		processing			ļ		
					ļ		
		it			ļ		
		within			ļ		
		averaging			ļ		
		interval.			ļ		
		mul val.			ļ		
						DE 1 5 5 7 7 7	
performance\$t			ıcy	UInt32	EXPERT	READONLY	ı
]]	latency	Maximum			ļ		
		processing			ļ		
		latency			ļ		
		within			ļ		
					ļ		
		averaging			ļ		
		1	I			i l	
		interval.			I		
		interval.					

Table 1 – continued from previous page

Key	Displayed	Description	Туре	Access	Access	Allowed
	Name			Level	Mode	States
	StMissizegingss problems StMissibe.nusfil	agingProblems If true, there is a problem consuming broker messages Messages	Bool UInt32	EXPERT	READONLY READONLY	
	messages	Number of messages received within averaging interval.				
	StRusticssjirgce latency	Average time interval between remote message sending and processing it in this device.	Float	EXPERT	READONLY	
useTimeserv	erUse Time- server	Unused - whether device connects to time server is configured via 'time- ServerId'	Bool	ADMIN	INITONLY	

Indices and tables