# fastAdc Documentation

Release 0.1

CAS

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## Contents

1	Fast	ADC Application	3
	1.1	Clock Sources	3
	1.2	Trigger Sources	4
_	_		_
2	Raw		5
	2.1	ADC Range	6
	2.2	Time Axis	6
	2.3	Virtual Channels	6
3	Integ	rator Processing Module	9
•	3.1	Convert data to voltage units	9
	3.2	ADC Alert	9
	3.3	Signal Integration	9
	3.4		9 11
	3.4 3.5		11
	5.5	Moving Average	12
4	Bunc		15
4	<b>Bunc</b> 4.1		15 15
4		Settings	
4	4.1	Settings    1      Output    1	15
4	4.1 4.2	Settings       1         Output       1         FastADC Calibration       1	15 15
4	4.1 4.2 4.3	Settings       1         Output       1         FastADC Calibration       1         Automatic Peak Integration       1	15 15 17
-	4.1 4.2 4.3 4.4 4.5	Settings       1         Output       1         FastADC Calibration       1         Automatic Peak Integration       1         Conditional and/or Dynamic Raw acquisition       1	15 15 17 17
4	4.1 4.2 4.3 4.4 4.5 <b>Conf</b>	Settings       I         Output       I         FastADC Calibration       I         Automatic Peak Integration       I         Conditional and/or Dynamic Raw acquisition       I         igure a fastAdc device       I	15 15 17 17 18
-	4.1 4.2 4.3 4.4 4.5	Settings       I         Output       I         FastADC Calibration       I         Automatic Peak Integration       I         Conditional and/or Dynamic Raw acquisition       I         igure a fastAdc device       I	15 15 17 17
-	4.1 4.2 4.3 4.4 4.5 <b>Conf</b>	Settings       I         Output       I         FastADC Calibration       I         Automatic Peak Integration       I         Conditional and/or Dynamic Raw acquisition       I         igure a fastAdc device       I         Configuration step by step       I	15 15 17 17 18
5	4.1 4.2 4.3 4.4 4.5 <b>Conf</b> 5.1	Settings       I         Output       I         FastADC Calibration       I         Automatic Peak Integration       I         Conditional and/or Dynamic Raw acquisition       I         igure a fastAdc device       I         Configuration step by step       I         Adc       I	15 15 17 17 18 19
5	4.1 4.2 4.3 4.4 4.5 <b>Conf</b> 5.1 <b>Fast</b>	Settings       1         Output       1         FastADC Calibration       1         Automatic Peak Integration       1         Conditional and/or Dynamic Raw acquisition       1         igure a fastAdc device       1         Configuration step by step       1         Adc       2         Commands       2	15 15 17 17 18 19 19 21
5	4.1 4.2 4.3 4.4 4.5 <b>Conf</b> 5.1 <b>Fast</b> 6.1 6.2	Settings 1   Output 1   FastADC Calibration 1   Automatic Peak Integration 1   Conditional and/or Dynamic Raw acquisition 1   igure a fastAdc device 1   Configuration step by step 1   Adc 2   Commands 2   Properties 2	15 15 17 17 18 19 19 21 22

Contents:

### 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 mininum requirements for the device to be operational, which is a **Clock** and **Trigger** signal.

<ul> <li>Board Configuration</li> </ul>	
EPGA Source Clock	TCLKA
Trigger Source	RX18
Soft Trigger Interval	100 ms



#### 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.

Device File     Map Directory     Frequency	/dev/pciedevs10 /home/xctrl/maps 108.333 MHz	1.25 1.5 1.75	
ADC Voltage Range (Vpp)	2.0	2.0	N
	and the second	and a second	÷

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.

### 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 userspecified 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).

👻 📃 Channel 0	
🔄 Enable Raw Data	True
Enable Peak Computation	True
Peak data in Volts	True
👻 📕 Data	
Raw Peaks	[1489 1454 1599 0 0 0]
I Samples Per Peak	3
1 Raw Baseline	5073
Raw MultiBaseline	[5073 0 0 0 0 0]
1 Samples For Baseline	10
💷 Baseline Value	0.009675979614257812
Peak Values	[-0.00020917 -0.0004317 0.00049019
[1] Mean Peak Value	0.00029987761129935585
🗔 Std. Dev. Peak Value	0.00042693489473406566
Raw Data	[512 520 462 520 507 516]
Raw Data [V]	[0.00976562 0.00991821 0.00881195 0

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

~	ADC Alert		True			
•	ADC Alert Settings					
	Enable ADC Alert		True		True	
	1 Threshold level		20000		20000	
	🔝 Alert is above/below		Above		Above	
•	Baseline Settings				Below	
		- — —				,
_ т	ime Axis		[ 0.	9.23079	97 1	
✓ G	ilobal ADC Alert			False		
AA	DC Channels Alert			None		
1 T	rigger Time			99 ms		

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.

### 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

1 Train ID	1425238724
Timing Sync	True
1 Pre Train Samples	0
1 Sample First Bunch	1200

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.

📃 Raw Data Acquisition	Always	Conditional
🗹 Raw Dynamic Trigger	False	False

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.

## FastAdc

### 6.1 Commands

Key	Displayed Name	Description	Alias	Access Level	Allowed States
dacNode.dac	confi <mark>g Update DAC</mark> 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. FastAdc

## 6.2 Properties

Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_0.ba	aseBianceline			Float	OBSERVER	READONLY	-
	Value	Baseline Value.					
channel_0.ou	utp <b>Bassedhee</b> na.da	ata.baseline		Double	OBSERVER	READONLY	•
	Value	Baseline Value.					
channel 0 or	utp <b>MeachPera</b> kda	ata neakMean		Double	OBSERVER	READONLY	
enamer_o.or	Value	Mean of the Peak pulse (with base line correction).		Double	ODOLKVLK	NER DONEI	
channel 0.01	utpSttdscheDeev.da	ata.peakStd		Double	OBSERVER	READONLY	-
enamer_010	Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).					
channel 0.01	utpRetaschema.da	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of all peak values (with base line correction).					
channel_0.ou	tpRua.sschBanse.da	ata.rawBaseline	e	UInt32	OBSERVER	READONLY	-
	line	Sums of baseline values from hardware					
channel_0.ou	it <b>pRia.sscDenta</b> a.da	ata.rawData Raw data from ADC.		VectorUInt16	OBSERVER	READONLY	
	1	1					

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
Кеу	Name	Description	Allas	Type	Level	Mode	States
-h		ta mari Da alta		Vasta ul Hut20			Siales
channel_0.00	tpRutasschenkas.d			vectorUInt32	OBSERVER	READONLY	
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
		1					
channel 0 or	iti <b>Sitinches</b> na d	ata.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
enumer_0.00	For Base-	Number of	Busenne	e mes 2	ODSERVER		
	line	samples in					
	IIIIC	rawBase-					
		line					
1 1 0	1.0.4		D 1	111	ODGEDUED	DEADONUS	
cnannel_0.ou		ata.samplesPer	геак	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
channel_0.pe	a <b>Méan</b> n Peak			Float	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
		concetion).					
channel_0.pe	alssold Dev.			Float	OBSERVER	READONLY	
enamer_0.pe	Peak Value	Standard		Tiout	ODSERVER	RE/ DOI/EI	
	I Cak value	deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_1.ba	seBianceline			Float	OBSERVER	READONLY	
—	Value	Baseline					
		Value.					
channel 1 or	tp <b>Baselinee</b> na.d	ata baseline		Double	OBSERVER	READONLY	
	Value	Baseline		200010			
	Value	Value.					
		value.					
						Continued o	

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14							
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 1.ou	tp <b>vitesch Pera</b> kda	ata.peakMean		Double	OBSERVER	READONLY	
	Value	Mean of					
	varue	the Peak					
		pulse (with					
		base line					
		correction).					
ahannal 1 au	tpSttdscheDea.da	to pool Std		Double	OBSERVER	READONLY	
channel_1.00				Double	UDSERVER	KEADONLI	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_1.ou	tp <b>Retasc</b> hema.da			VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		Inne					
		correction).					
channel_1.ou	tp <b>Rut</b> .wcl <b>Rense</b> .da	ata.rawBaseline	e	UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel_1.ou	tp <b>Rat.sscDenta</b> a.da			VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel 1 ou	tp <b>Rua</b> ssoc <b>Penkas</b> .da	ata rawPeaks		VectorI IInt32	OBSERVER	READONIY	
enumer_1.00	Trans. COLICENSO. UC	Sums of		,			
		raw					
		samples of					
		selected					
		peaks					
		·					
	1	1					

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				from previous			
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name	-			Level	Mode	States
channel 1 ou		ata.samplesFor	Raseline	UInt32	OBSERVER	READONLY	
channel_1.00			Daschille	UIIII.52	ODSERVER	READUREI	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
1		1	D. 1	111	ODGEDUED	DEADONUS	
cnannel_1.ou		ata.samplesPer	геак	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
		r · r · ·					
ahannal 1	a NM A ame Daal-			Float	OBSERVER	READONLY	
channel_1.pe				rioat	ODSEKVER	KEADUNLI	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
channel_1.pe	alssold Dev.			Float	OBSERVER	READONLY	
- 1	Peak Value	Standard					
	i cuit (uiuc	deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_2.ba	seBianceline			Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
ahann -1 0	taDa malfara an a	to hogoling		Double	ODCEDVED		
	tp <b>Butsselinee</b> na.da			Double	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel 2.00	tp <b>Meach Plena</b> kda	ata.peakMean		Double	OBSERVER	READONLY	
2.00	Value	Mean of					
	value	the Peak					
		pulse (with					
		base line					
		correction).					
						Continued o	-

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	1		I – continued				
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 2 or	tpsttdscheDreav.da	ata neakStd		Double	OBSERVER	READONLY	
enamer_2.00	Peak Value	Standard		Double	ODGERVER	KL/IDONEI	
	Peak value						
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel 2 or	tp <b>Retasc</b> hema.da	ata neaks		VectorFloat	OBSERVER	READONLY	
channel_2.00				vectorribat	ODSERVER	READONLI	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		correction).					
channel_2.ou	tp <b>Rua</b> .wch <b>Banse</b> .da	ata.rawBaseline	e	UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel_2.ou	tp <b>RatwcDenta</b> a.da	ata.rawData		VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
		nom / iDC.					
ah ang al - 2 au	4.D. to an Dearland	ta mari Da alaa		Vester Unt22	ODCEDVED		
channel_2.00	tp <b>Rua</b> ssoc <b>Penka</b> s.da			vectorUInt32	OBSERVER	READUNLY	
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
		Pound					
ala are e 1. 0	4.C-4	4a	Daaaliaa	LU <sub>22</sub>	ODCEDVED	DEADONUS	
cnannel_2.00	tp <b>Sutrsches</b> ma.da		Baseline	UInt32	ORSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
ahann -1 0	ta Cartan all and a 1	to comela D	Daalt	LUmt22	ODCEDVED		
channel_2.00	tp <b>Sutrophes</b> ma.da		геак	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
ĺ		-					
	1					Continued o	

Table 1 – continued from previous page	ae	previous p	from	- continued	è	Table
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				from previou		-	
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_2.pe	a <b>RMéan</b> nPeak Value	Mean of the Peak pulse (with base line correction).		Float	OBSERVER	READONLY	
channel_2.pe	a <b>lSSdd</b> Dev. Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).		Float	OBSERVER	READONLY	
channel_3.ba	s <b>dBinæ</b> line Value	Baseline Value.		Float	OBSERVER	READONLY	
channel_3.ou	itp <b>Biasselinee</b> na.da Value	ata.baseline Baseline Value.		Double	OBSERVER	READONLY	
channel_3.ou	tp <b>MeschØrak</b> d Value	ata.peakMean Mean of the Peak pulse (with base line correction).		Double	OBSERVER	READONLY	
channel_3.ou	it <b>fäiti</b> lsch <b>dDæx.d</b> a Peak Value	ata.peakStd Standard deviation of the Peak pulse values (with base line correc- tion).		Double	OBSERVER	READONLY	

Table 1 – continued from previous page

Varia	Diamber of 1	Table	Alian	Turne	A	A = = = = =	Allansed
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_3.ou	tp <b>Retak</b> chema.da	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		correction).					
channel 3.ou	trRua.wclBase.da	ata.rawBaseline	e	UInt32	OBSERVER	READONLY	
_	line	Sums of					
	inite	baseline					
		values					
		from					
		hardware					
channel_3.ou	tp <b>Rua</b> .svc <b>Denta</b> a.da			VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel 3.00	tpRat.wcReates.da	ata.rawPeaks		VectorUInt32	OBSERVER	READONLY	
	T	Sums of					
		raw					
		samples of					
		selected					
		peaks					
channel_3.ou	tp <b>Suursches</b> ma.da	ata.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
	-	rawBase-					
		line					
		mit					
abannal 2	trouting lamo 1	to complex D	Daalz	UInt32	ODCEDVED	READONLY	
channel_3.00		ata.samplesPer	гсак	UIIII.52	ODSEKVER	READUNLY	
	Per Peak						
		samples					
		per peak					
channel_3.pe	alMuteannPeak			Float	OBSERVER	READONLY	
- 1	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		base nne					
		correction).					

Table	1 - continued from	previous page
rabio		i proviouo pugo

Vav	Diamlayrad			from previou		<b>A</b> a a a a a	Allowed
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
1 1 2	Name				Level	Mode	States
channel_3.pe				Float	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_4.ba	seBianceline			Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_4.ou	tp <b>Basselinee</b> na.da			Double	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_4.ou	tp <b>Meach Pleak</b> da			Double	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
channel_4.ou	tpSttlsch@rea.da			Double	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_4.ou	tp <b>Retasc</b> hema.da	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		action					
		correction).					
	I					Continued o	

Table 1 – continued from previous page

	B' I '			· · · · · · · · · · · · · · · · · · ·		•	A 11 '
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 4 or	triRutwe Hamon	ata.rawBaseline	<u>,</u>	UInt32	OBSERVER	READONLY	
channel_4.00	line	Sums of baseline values from hardware	2	Unit52	ODSERVER	KEADONLI	
channel 4 ou	tp <b>RatwocDenta</b> a.da	ata rawData		VectorIIInt16	OBSERVER	READONLY	
enamer_+.ot		Raw data from ADC.		vectoremetre	ODOLKVLK		
channel_4.ou	it <b>jRatwcPtenizs</b> .da	ata.rawPeaks Sums of raw samples of selected peaks		VectorUInt32	OBSERVER	READONLY	
channel 4 or	tr§utmethesna da	ata.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
	For Base- line	Number of samples in rawBase- line					
channel 4 or	tr <b>Sutmethes</b> na da	ata.samplesPerl	Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of samples per peak	Cur	CIII.52	OBOLICULIC		
channel 4 ne	a <b>Méan</b> nPeak			Float	OBSERVER	READONLY	
	Value	Mean of the Peak pulse (with base line correction).					
channel_4.pe	a <b>lssd</b> d Dev. Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).		Float	OBSERVER	READONLY	

<u></u>	Disclosured		1 – continued			A	Allaurad
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_5.ba	s <b>Biaxe</b> line Value	Baseline Value.		Float	OBSERVER	READONLY	
channel_5.ou	tp <b>Batsselinee</b> na.da	ata.baseline		Double	OBSERVER	READONLY	
	Value	Baseline Value.					
channel_5.ou	it <b>jMteschPcra</b> kda Value	ata.peakMean Mean of the Peak pulse (with base line correction).		Double	OBSERVER	READONLY	
channel_5.ou	itp <mark>sitti</mark> sch <b>ddæv.</b> da Peak Value	ata.peakStd Standard deviation of the Peak pulse values (with base line correc- tion).		Double	OBSERVER	READONLY	
channel 5.ou	tp <b>Retasc</b> hema.da	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of all peak values (with base line correction).					
channel 5.or	itr <b>R</b> utawcl <b>R</b> anse-d:	ata.rawBaseline	2	UInt32	OBSERVER	READONLY	
	line	Sums of baseline values from hardware					
channel_5.ou	itp <b>RaisscDenna</b> a.da	ata.rawData Raw data from ADC.		VectorUInt16	OBSERVER	READONLY	
						Continued o	

Table 1 – continued from previous page
Kov	Diaplayed	Description	Alico	Tuno	A	A	Allowed
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_5.0	utpRatwchenks.d	ata.rawPeaks		VectorUInt32	<b>OBSERVER</b>	READONLY	
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
channel_5.0	utpStatmerhesma.d	ata.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
		line					
channel 5 o	utristromema d	ata.samplesPer	Peak	UInt32	OBSERVER	READONLY	-
enamer_3.0	Per Peak	Number of	i vak	01111.52	<b>UDUER VER</b>	KLADUNLI	
	r ci r cak						
		samples					
		per peak					
	884 5 1				ODGEDUED	DEADONU	
channel_5.p	ea <b>lM/&amp;ean</b> nPeak			Float	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		a a manation)					
		correction).					
channel_5.p	a 1664d Day			Float	OBSERVER	READONLY	
channel_5.p		0, 1, 1		Float	OBSERVER	KEADUNLI	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
1	<b>D'</b> 1'			<b>F</b> 1	ODGEDUED	DEADONUS	
channel_6.b				Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
channel_6.0	utp <b>Biassedinee</b> na.d			Double	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
	1	1				Continued o	n novt nago

Table	1 – continued	l from	previous	page
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Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 6.ou	tp <b>MteachPera</b> kda	ata.peakMean		Double	OBSERVER	READONLY	
	Value	Mean of					
	vulue	the Peak					
		pulse (with					
		base line					
		correction).					
		, í					
channel 6 ou	tpSttdscheDea.da	ata peakStd		Double	OBSERVER	READONLY	
enumer_0.0d	Peak Value	Standard		Double	ODOLICILIC	READOINE1	
	I cak value	deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		don).					
abannal 6 au	tpRetaschema.da	to poole		VectorFloat	OBSERVER	READONLY	
channel_0.0u				vectorribat	ODSERVER	KEADONLI	
	Values	Vector of					
		all peak					
		values					
		(with base					
		line					
		correction).					
channel 6 ou	trRutwellRange-d	ata.rawBaseline	<u>,</u>	UInt32	OBSERVER	READONLY	
	line	Sums of	-				
	mit	baseline					
		values					
		from					
		hardware					
channel_6.ou	tp <b>Rua.sscDenta</b> a.da	ata.rawData		VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel 6 ou	tp <b>Ria</b> .wc <b>Peak</b> as.da	ata.rawPeaks		VectorIIInt32	OBSERVER	READONLY	
	-I- many or i o times. (1)	Sums of					
		raw					
		samples of					
		selected					
		peaks					
					1	Continued o	

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 6 or	tr <b>Sumether</b> na d	ata.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
enamer_0.00	For Base-	Number of	Dasenne	0111052	ODGERVER	RE/ IDONE1	
	line	samples in					
		rawBase-					
		line					
		line					
1 1 6		1.5	<b>D</b> 1	X 11	ODGEDUED	DELDONUL	
channel_6.01		ata.samplesPer	Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
		per peak					
channel_6.pe	a <b>Méaa</b> n Peak			Float	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		base line					
		correction).					
1 1 6	100.41			771	ODGEDUED	DEADONUS	
channel_6.pe				Float	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		-					
		values					
		(with base					
		line correc-					
		tion).					
channel_7.ba	seBine			Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
		varue.					
					0.	DELE OVE	
channel_7.01	tp <b>Basselinee</b> na.da			Double	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
1	( ) ( , 1 ) 1 1	1		D. 11	ODGEDUED	DEADONUS	
channel_/.ou	tpMteachPerakd			Double	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		base line					
		correction).					

Table 1	I – continued	from	previous	page
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Key	Displayed	Description	1 – continued Alias	Туре	Access	Access	Allowed
. log	Name	Decemption	7 1100	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Level	Mode	States
channel 7 or	tpsttdscheDrea.da	ata peakStd		Double	OBSERVER	READONLY	Oldioo
enumer_/.ex	Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).		Double			
channel 7.01	tp <b>Retasc</b> hema.da	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of all peak values (with base line correction).					
channel_7.ou	tpRut.sschBanse.da	ata.rawBaseline	e	UInt32	OBSERVER	READONLY	
	line	Sums of baseline values from hardware					
channel_7.ou	atp <b>RuasscDenna</b> a.da	ata.rawData Raw data from ADC.		VectorUInt16	OBSERVER	READONLY	
1 1 7				N IN	ODGEDIVED		
channel_7.ou	tpRatwcPenka.dd	tta.rawPeaks Sums of raw samples of selected peaks		vectorUInt32	OBSERVER	KEADONLY	
channel_7.ou	tp <b>Sutrophes</b> na.da		Baseline	UInt32	OBSERVER	READONLY	
	For Base- line	Number of samples in rawBase- line					
channel_7.ou	tp <b>Sutrophes</b> na.da	ata.samplesPerl	Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of samples per peak					
						Continued o	

Table 1 – continued from previous page

						,	
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 7.pe	a <b>Mutean</b> n Peak			Float	OBSERVER	READONLY	
enannei_/.p	Value	Mean of		11040	oboliti Lit	1001001001	
	value						
		the Peak					
		pulse (with					
		base line					
		correction).					
		concetion).					
1 1 7	10041 D				ODGEDUED		
channel_7.pe		~		Float	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
channel_8.ba	seBianceline			Float	OBSERVER	READONLY	
	Value	Baseline					
		Value.					
		varue.					
abannal 8 au	tp <b>Basselinee</b> na.da	ata hagalina		Double	OBSERVER	READONLY	
channel_6.00				Double	ODSERVER	KEADONLI	
	Value	Baseline					
		Value.					
channel_8.01	tp <b>vite ach Piera</b> kd			Double	OBSERVER	READONLY	
	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		Juse Inte					
		correction).					
channel_8.01	tpsttlscheDea.d	ata.peakStd		Double	OBSERVER	READONLY	
	Peak Value	Standard					
		deviation					
		of the Peak					
		pulse					
		values					
		(with base					
		line correc-					
		tion).					
		uoii <i>j</i> .					

Table 1 – continued from previous page	Table	1 - continued	from	previous	page
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Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
,	Name			J 1 -	Level	Mode	States
channel 8.00	tpRetaschema.d	ata.peaks		VectorFloat	OBSERVER	READONLY	
	Values	Vector of					
	, and b	all peak					
		values					
		(with base					
		line					
		line					
		correction).					
1 1 0	- D - 1D - 1			111.20	ODGEDUED	DEADONUN	
channel_8.ou	-	ata.rawBaseline	2	UInt32	OBSERVER	READONLY	
	line	Sums of					
		baseline					
		values					
		from					
		hardware					
channel_8.ou	tpRutwcDentaa.d			VectorUInt16	OBSERVER	READONLY	
		Raw data					
		from ADC.					
channel_8.ou	tpRua.wcReakas.da			VectorUInt32	OBSERVER	READONLY	
		Sums of					
		raw					
		samples of					
		selected					
		peaks					
channel_8.ou		ata.samplesFor	Baseline	UInt32	OBSERVER	READONLY	
	For Base-	Number of					
	line	samples in					
		rawBase-					
		line					
channel_8.ou		ata.samplesPer	Peak	UInt32	OBSERVER	READONLY	
	Per Peak	Number of					
		samples					
		per peak					
channel_8.pe				Float	OBSERVER	READONLY	
-	Value	Mean of					
		the Peak					
		pulse (with					
		base line					
		correction).					
						Continued o	n novt norr

## Table 1 – continued from previous page

Key	Displayed		Alias	Trom previou	Access	Access	Allowed
кеу	Name	Description	Allas	Туре	Level	Access Mode	States
channel_8.pe				Float	OBSERVER	READONLY	
enaniei_oipe	Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).					
1 1.01	75' 1'	, 			ODGEDVED		
channel_9.ba	Selfare line Value	Baseline Value.		Float	OBSERVER	READONLY	
channel_9.ou	t <b>pBatssellnoe</b> rna.da Value	ata.baseline Baseline Value.		Double	OBSERVER	READONLY	
channel 9.ou	tp <b>Meach Pera</b> kda	ata.peakMean		Double	OBSERVER	READONLY	
	Value	Mean of the Peak pulse (with base line correction).					
-h	L.C.H.L. al. Dav. d.	40 m o a la C 4 d		Dauhla	ODCEDVED		
cnannei_9.00	t <b>fåttl</b> sch <b>dbæv.d</b> a Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).		Double	OBSERVER	READONLY	
channel_9.ou	t <b>fRutæ</b> chema.da Values	ata.peaks Vector of all peak values (with base line correction).		VectorFloat	OBSERVER	READONLY	

Table	1 - continued from	n previous page
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Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 9 or	trRutwellemand	ata.rawBaseline	<u>`</u>	UInt32	OBSERVER	READONLY	
channel_9.00	line	Sums of baseline values from hardware		01111.52	ODSERVER	READONEI	
channel_9.ou	tt <b>pRut.sscDenta</b> a.da	ata.rawData Raw data from ADC.		VectorUInt16	OBSERVER	READONLY	
channel_9.ou	tp <b>Rat</b> sscRenkas.da	ata.rawPeaks Sums of raw samples of selected peaks		VectorUInt32	OBSERVER	READONLY	
channel_9.ou	itp <b>Situsçiles</b> ma.da For Base- line	ata.samplesFor Number of samples in rawBase-	Baseline	UInt32	OBSERVER	READONLY	
channel_9.ou	tp <b>Sitrsçiles</b> na.da Per Peak	line ata.samplesPerl Number of samples per peak	Peak	UInt32	OBSERVER	READONLY	
channel_9.pe	a <b>kMéam</b> nPeak Value	Mean of the Peak pulse (with base line correction).		Float	OBSERVER	READONLY	
channel_9.pe	a <b>lssid</b> d Dev. Peak Value	Standard deviation of the Peak pulse values (with base line correc- tion).		Float	OBSERVER	READONLY	

Table 1 – continued from previous page

				Irom previous		-	<u></u>
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
dacNode.dac	DÐAC Data	DAC data memory.		VectorInt32	OBSERVER	READONLY	
dacNode.dac	V <b>Drag</b> e <b>Data</b> age Data	DAC data memory converted to Voltage		VectorDouble	OBSERVER	READONLY	
progress	Progress	The progress of the current action		Int32	OBSERVER	READONLY	
trainId	Train ID	Current train ID as read from the FPGA		UInt64	OBSERVER	READONLY	
triggerTime	Trigger Time	Time between Triggers		Int32	OBSERVER	READONLY	
triggerTimeS	tafrigger Histogram	Histogram of time between Triggers		VectorUInt16	OBSERVER	READONLY	
_connection_	. <b>Botkes</b> s	Brokers must be provided as URLs of format: tcp: // <host>:<po Extra URLs serve as fallback.</po </host>	rt>.	VectorString	USER	INITONLY	

Table 1 – continued from previous	page
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Namechannel_0.baseSitantof BaselineBaselineStarting Sample to calculate the Baseline.channel_0.baseSitdpof Baselinechannel_0.calibrationationEnding Sample of the Baseline calcula- tion.channel_0.calibrationationFactor to be used with all peak values and the	UInt32	Level USER	Mode RECONFIGU	States J <b>ROAN</b> BLE
BaselineStarting Sample to calculate the Baseline.channel_0.bastStdpof Baselinechannel_0.bastStdpEnding Sample of the Baselinechannel_0.caltStdpcalculate tion.channel_0.caltStdpFactor to 	011102	ODER		
Baseline       Ending Sample of the Baseline calcula- tion.         channel_0.calibrationation       Factor         Factor       Factor to be used with all peak values and the				
BaselineEnding Sample of the Baseline calcula- tion.channel_0.calibrationationFactor to be used with all peak values and the	UInt32	USER	RECONFIGU	JKAABLE
Factor to be used with all peak values and the				
be used with all peak values and the	Double	USER	RECONFIGU	JKAANBLE
related mean and std values				
channel_0.enalblaßelakComputation	Bool	USER	RECONFIGU	JKAANBLE
Peak Com- putation Peak com- putation on the FPGA.				
channel_0.enalEneRate DataStreaming	Bool	USER	RECONFIGU	JKAABLE
Raw Data Enable streaming out of raw data.				

## Table 1 – continued from previous page

	D's d		I – continueo			<b>A</b>	A11. 1
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_0.fix				Double	USER	RECONFIG	JKOANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
abarral 0.C	EBabili - F			Bool	USER	RECONFIG	
channel_0.fix	e <b>EBabee</b> ineEna fixed	a Enables		B001	USEK	KECONFIG	UKUENDLE
		Enables the use of a					
	Baseline						
		fixed					
		baseline					
		value.					
channel_0.in	tiBillonday			UInt32	USER	RECONFIG	TRANSIF
channel_0.m	Delay	Time delay		UIII.52	USER	KLEONIIO	
	Delay	between					
		trigger and					
		start of					
		processing					
		algorithm.					
channel 0 m	m <b>Putsbe</b> r of			UInt32	USER	RECONFIG	TONDIE
channel_0.nu		Number of		011132	USEK	KECONFIG	UNINDLE
	pulses						
		pulses					
		expected in each					
		trigger.					
channel 0 ou	tpDisdiidridiotic	nMode		String	USER	INITONLY	
enumer_0.00	Mode	Describes		Sume			
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					

Table 1-c	continued from	previous page
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Table 1 – continued from pre	evious page
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17.				<b>T T T T</b>	<b>A</b>	A	All!
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_1.c	ali <b>brahilonaFreen</b> tor	r		Double	USER	RECONFIG	<b>UKAANBLE</b>
	Factor	Factor to					
		be used					
		with all					
		peak					
		values and					
		the					
		related					
		mean and					
		std values					
	a III a Dia bila Cia ana			Deel	LICED		
channel_1.e	nallen RelakCom Peak Com-	Enable		Bool	USER	RECONFIG	UNANDLE
	putation	peak com-					
		putation on the FPGA.					
		the FPGA.					
abannal 1 a	nal <b>HeRble</b> vDataS	tuaamina		Bool	USER	RECONFIG	
channel_1.e	Raw Data	Enable		DUUI	USEK	RECONFIC	UKANDLE
	Kaw Data						
		streaming out of raw					
		data.					
				Dauhla	LICED	DECONEIC	
channel_1.f	ixelf Base line	IC C 1		Double	USER	RECONFIG	UKANBLE
	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.f	ixe <b>EBabee</b> ineEn			Bool	USER	RECONFIG	UKANBLE
	fixed	Enables					
	Baseline	the use of a					
		fixed					
		baseline					
		value.					
	•	•				Cantinuad	· .

Table 1	<ul> <li>continued from</li> </ul>	previous page
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.,			1 – continue				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_1.ir	niti <b>R11Dxe</b> lay Delay	Time delay between trigger and start of processing algorithm.		UInt32	USER	RECONFIC	GUIOANBLE
channel_1.n	un <b>iPuulses</b> r of pulses	Number of pulses expected in each trigger.		UInt32	USER	RECONFIC	GUKNANBLE
channel_1.o	utp <b>Disdiidoritioni</b> o Mode	nMode Describes the policy of how to fan-out data to multiple (shared) input channels		String	USER	INITONLY	
channel_1.o	ut <b>filiðstæstmæ</b> rne	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel_1.o	utp <b>NonoIhputS</b> I (Shared)	hared What to do if currently no share-input channel is available for writing to		String	USER	INITONLY	

Table 1 – continued from previous page

			I – continued				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_1.pe	a <b>R\$ah</b> np <b>\$æ</b> m- ples	Number of peak samples in each pulse.		UInt32	USER	RECONFIGU	JKAABLE
channel_1.p	ll <b>sePissi</b> od Period	Number of samples between each pulse.		UInt32	USER	RECONFIGU	JKAABLE
channel_2.ba	se <b>Start</b> t of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIGU	JKAANBLE
channel_2.ba	as <b>d5ttd</b> p of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIGU	JKAABLE
channel_2.ca	li <b>Gabilorafraet</b> tor Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIGU	JKAABLE
channel_2.er	a <b>EnRe</b> lakComp Peak Com- putation	putation Enable peak com- putation on the FPGA.		Bool	USER	RECONFIGU	JKAABLE
channel_2.er	a <b>lifie Rale</b> DataS Raw Data	treaming Enable streaming out of raw data.		Bool	USER	RECONFIGU	JKAABLE

Table	1 – continued	from	previous	page
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			1 – continued				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_2.fix				Double	USER	RECONFIG	UKOANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value will					
		be used for					
		calcula-					
		tions					
		instead of the base					
		line from the h/w.					
channel 2.fix	e <b>EBabtt</b> ineEna	a		Bool	USER	RECONFIG	UKDANBLE
	fixed	Enables					
	Baseline	the use of a					
		fixed					
		baseline					
		value.					
channel_2.ini				UInt32	USER	RECONFIG	UKAABLE
	Delay	Time delay					
		between					
		trigger and start of					
		processing algorithm.					
		argorium.					
channel_2.nu				UInt32	USER	RECONFIG	UKOANBLE
	pulses	Number of					
		pulses					
		expected in					
		each					
		trigger.					
channel_2.ou	tp <b>Dischisbribati</b> o			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

1/au	District	Description	A.I	Turne	A	A	Allanser
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 2.ou	tpHitostonstomerne			String	USER	INITONLY	
	1	The		U			
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel 2 or	tp <b>via</b> noIImputSh	ared		String	USER	INITONLY	
enumer_2.or	(Shared)	What to do		Sung	COLIC	II (II OI (EI	
	(Sharea)	if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		to					
channel 2 ne	al <b>PS:ak</b> npSesm-			UInt32	USER	RECONFIG	TENNELE
channel_2.pe		Number of		Units2	USER	KECONFIO	
	ples						
		peak					
		samples in					
		each pulse.					
channel_2.pt	lls <b>EiPlsse</b> iod			UInt32	USER	RECONFIG	JKOANBLE
	Period	Number of					
		samples					
		between					
		each pulse.					
		Funder Punder					
channel_3.ba	seSSitent of			UInt32	USER	RECONFIG	TENNELE
channel_3.0a		Startin		011132	USEK	KECONFIG	UNHINDLE
	Baseline	Starting					
		Sample to					
		calculate					
		the					
		Baseline.					
channel_3.ba	setStudp of			UInt32	USER	RECONFIG	UKAANBLE
	Baseline	Ending					
	Dusenne	Sample of					
		the					
		Baseline					
		calcula-					
		tion.					

Table	1 – continued	from previous	page
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Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
Ney	Name	Description	Allas	Type	Level	Mode	States
channel 3	calibrationation	1		Double	USER	RECONFIG	
	Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	KECONTIO	
channel_3.	enableRelakCom			Bool	USER	RECONFIG	UKAANBLE
	Peak Com- putation	Enable peak com- putation on the FPGA.					
channel_3.	enal Be Rale Data	Streaming		Bool	USER	RECONFIG	JKOANBLE
	Raw Data	Enable streaming out of raw data.					
channel 3.	fixe <b>FB</b> asteline			Double	USER	RECONFIG	JKOANBLE
	Baseline	If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.					
channel_3.	fixe <b>EBabee</b> ine En	a		Bool	USER	RECONFIG	UKAANBLE
	fixed Baseline	Enables the use of a fixed baseline value.					
						Continued c	

Table 1 – continued from previous page

Kov	Displayed			-		Access	Allowed
Key		Description	Alias	Туре	Access		
	Name				Level	Mode	States
channel_3.i	-			UInt32	USER	RECONFIG	<b>URDANBLE</b>
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
1 1 2	<b>ND</b> 1 1 C				LICED	DECONER	
channel_3.r	um Meuntaber of			UInt32	USER	RECONFIG	<b>UKANBLE</b>
	pulses	Number of					
		pulses					
		expected in					
		each					
		trigger.					
		00					
channel 3.c	outpDisdiistritiotic	nMode		String	USER	INITONLY	
	Mode	Describes					
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					
channel 3.c	utp <b>lutastousumæ</b> me			String	USER	INITONLY	
_	1	The					
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel_3.c	outp <b>Nia</b> noIImputSl			String	USER	INITONLY	
	(Shared)	What to do					
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
	1		1	1			1
		to					

Table	1 - continued from	n previous page
iubio		n proviouo pugo

			1 – continued			Δ.	AU '
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_3.p	eallesaknpsesm-			UInt32	USER	RECONFIG	
_ 1	ples	Number of peak samples in each pulse.					
channel_3.p	uls <b>eiPlsse</b> iod			UInt32	USER	RECONFIG	UKOANBLE
	Period	Number of samples between each pulse.					
channel_4.b	aseSStart of			UInt32	USER	RECONFIG	U <b>RAN</b> BLE
	Baseline	Starting Sample to calculate the Baseline.					
channel_4.b	asetSttdp of			UInt32	USER	RECONFIG	UKDANBLE
	Baseline	Ending Sample of the Baseline calcula- tion.					
channel 4.c	alibrationafronto	r		Double	USER	RECONFIG	UKOANBLE
	Factor	Factor to be used with all peak values and the related mean and std values					
channel_4.e	naber Reaction			Bool	USER	RECONFIG	UKOANBLE
	Peak Com- putation	Enable peak com- putation on the FPGA.					
channel_4.e	nalbertalwDataS	treaming		Bool	USER	RECONFIG	UKOANBLE
	Raw Data	Enable streaming out of raw data.					
	1	1		1	1	Continued of	<b>.</b>

Table 1 – continued from previous page

				from previou		<b>A</b>	A 11
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_4.fix				Double	USER	RECONFIG	JKOANBLE
	Baseline	If fixed					
		baseline is					
		enabled,					
		this value					
		will					
		be used for					
		calcula-					
		tions					
		instead of					
		the base					
		line from					
		the h/w.					
ahannal 4.C	BR abiling F			Deel	USER	RECONFIGU	
channel_4.ftx	e <b>ÆBabee</b> ineEna fixed	i Enables		Bool	USEK	KECONFIG	UKANBLE
		Enables the use of a					
	Baseline						
		fixed					
		baseline					
		value.					
channel_4.ini	tiBillingay			UInt32	USER	RECONFIG	TRANSIE
channel_4.III	Delay	Time delay		Unit32	USER	KECONFIGU	UNMULE
	Delay	between					
		trigger and start of					
		processing					
		algorithm.					
ahannal 4	n Number of			UInt32	USER	RECONFIG	TONIDIE
channel_4.nu		Number of		0111132	USEK	KECONFIG	UNUMBLE
	pulses						
		pulses					
		expected in					
		each					
		trigger.					
channel 4 au	tp <b>Disdiidoribori</b> c	nMode		String	USER	INITONLY	
channel_4.0u	Mode	Describes		Sumg	USER		
	WIDUE	the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					

Table 1-c	continued from	previous page
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	Display			from previou		<b>A a a a a a</b>	Allan!
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_4.ou	t <b>ititstastmæ</b> rne	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel 4 or	tp <b>Nio</b> no <b>IInputS</b> I	ared		String	USER	INITONLY	
	(Shared)	What to do if currently no share-input channel is available for writing to					
channel_4.pe	a <b>RS:ak</b> np <b>Sas</b> m- ples	Number of peak samples in each pulse.		UInt32	USER	RECONFIG	JKAABLE
channel_4.pu	ll <b>seiftsse</b> iod Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	JKAABLE
channel_5.ba	seSitant of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKDAABLE
channel_5.ba	sdSttdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	JKAABLE

Table 1	- continued from	previous page
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Displayed Name	Description	Alias	Туре	Access	Access	Allowed
				Level	Mode	States
ali <b>6ratiloraFreet</b> or			Double	USER	RECONFIG	UKOANBLE
Factor	Factor to be used with all peak values and the related mean and std values					
			Bool	USER	RECONFIG	UKAANBLE
Peak Com- putation	Enable peak com- putation on the FPGA.					
nal <b>HeRole</b> /DataS	treaming		Bool	USER	RECONFIG	UKAANBLE
Raw Data	Enable streaming out of raw data.					
xe <b>dfBæxe</b> line			Double	USER	RECONFIG	UKDANBLE
Baseline	If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.					
xe <b>lBabbb</b> ineEna fixed Baseline	Enables Enables the use of a fixed baseline value.		Bool	USER	RECONFIG	UKAABLE
	nalblatelekComp Peak Com- putation nalblatelekeVDataS Raw Data xelfBaxeline Baseline	be used with all peak values and the related mean and std values nabinFeltkCom- putation Peak Com- putation Peak Com- putation Peak Com- putation on the FPGA. nabinFbace/DataS treaming out of raw data. xeffBasteline Baseline If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w. xeffBastelineEna fixed Baseline Enables the use of a fixed baseline	be used with all peak values and the related mean and std valuesmabinHoldsPeak Computation putationPeak Computation putation pacePeak Computation putation pacePeak Computation putation pacePeak Computation putation pacePeak Computation putation pacePeak Computation putation streaming out of raw data.Raw Data BaselineIf fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.xetBlabidineEna fixed Baselinefixed baselineBaselinethe use of a fixed baseline	be used with all peak values and the related mean and std valuesBooladdarbeld.Com Peak Com- putationEnable peak com- putation on the FPGA.BooladdbeRblev.DataStreaming Raw DataEnable streaming out of raw data.Booladdberblev.DataStreaming streaming out of raw data.Booladdberblev.DataStreaming streaming out of raw data.Booladdberblev.DataStreaming streaming out of raw data.Booladdberblev.DataStreaming streaming out of raw data.Doublestreaming out of raw data.Doubleaddberblev.DataStreaming streaming out of raw data.Doublestreaming out of raw data.Doublestreaming out of raw data.Doublestreaming out of raw data.Doublestreaming out of raw data.Doublestreaming out of raw data.Doublestreaming baselineBool	be used with all peak values and the related mean and std valuesBoolUSERabbaffoldsComputation Peak Com- putationBoolUSERPeak Com- putation on the FPGA.BoolUSERRaw DataEnable streaming out of raw data.BoolUSERRaw DataEnable streaming out of raw data.BoolUSERRaw DataIf fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.DoubleUSERxcetBastetineEna fixed BaselineEnables the use of a fixed baselineBoolUSER	be used with all peak values and the related mean and std values       Bool       USER       RECONFIG         Peak Com- putation       Enable peak com- putation on the FPGA.       Bool       USER       RECONFIG         Raw Data       Enable streaming out of raw data.       Bool       USER       RECONFIG         Raw Data       Enable streaming out of raw data.       Double       USER       RECONFIG         Raw Data       Enable streaming out of raw data.       Double       USER       RECONFIG         Reconsplit       If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.       Bool       USER       RECONFIG

.,	· ·		1 – continue				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_5.i	niti <b>R11Dxe</b> lay Delay	Time delay between trigger and start of processing algorithm.		UInt32	USER	RECONFIC	GUKAABLE
channel_5.n	un <b>?Pudsbe</b> r of pulses	Number of pulses expected in each trigger.		UInt32	USER	RECONFIC	GUKNANBLE
channel_5.c	utp <b>Disdiidoritioni</b> o Mode	nMode Describes the policy of how to fan-out data to multiple (shared) input channels		String	USER	INITONLY	
channel_5.c	ut <b>iliostase</b> me	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel_5.c	utp <b>NionoIhpputS</b> I (Shared)	hared What to do if currently no share-input channel is available for writing to		String	USER	INITONLY	

Table 1 – continued from previous page

				from previou			
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_5.pd	al <b>PS:ak</b> np <b>Ses</b> m-			UInt32	USER	RECONFIGU	JKAANBLE
	ples	Number of peak samples in each pulse.					
channel_5.pt	ulstelPlsseiod			UInt32	USER	RECONFIGU	JKAABLE
	Period	Number of samples between each pulse.					
channel_6.ba	aseSSittantt of			UInt32	USER	RECONFIGU	JKAABLE
	Baseline	Starting Sample to calculate the Baseline.					
channel_6.ba	asetSntdp of			UInt32	USER	RECONFIGU	JKAANBLE
	Baseline	Ending Sample of the Baseline calcula- tion.					
channel_6.ca	li <b>6iahiloraffært</b> or Factor	Factor to be used with all peak values and the related mean and std values		Double	USER	RECONFIG	JKOANBLE
channel_6.er	a <b>BaRe</b> lekComp Peak Com- putation	putation Enable peak com- putation on the FPGA.		Bool	USER	RECONFIG	JKAABLE
channel_6.er	a <b>lin Raw</b> DataS Raw Data	treaming Enable streaming out of raw data.		Bool	USER	RECONFIG	JRANBLE

Table	1 – continued	from	previous	page
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	-		1 – continued				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_6.fi	xe <b>d Bæxe</b> line Baseline	If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.		Double	USER	RECONFIG	UKAABLE
channel_6.fi	xe <b>ÆBabbt</b> ineEn: fixed Baseline	a Enables the use of a fixed baseline value.		Bool	USER	RECONFIG	UKAABLE
channel_6.ir	iti <b>RiDæl</b> ay Delay	Time delay between trigger and start of processing algorithm.		UInt32	USER	RECONFIG	UKAABLE
	un <b>MPuulses</b> er of pulses	Number of pulses expected in each trigger.		UInt32	USER	RECONFIG	UKAABLE
channel_6.o	utp <b>Disdiisbritbati</b> o Mode	nMode Describes the policy of how to fan-out data to multiple (shared) input channels		String	USER	INITONLY	

Table 1 – continued from previous page

1/ai	Diaute !!	Death	A 1:	T	A	A	
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel 6.0u	tp <b>Hiostostme</b> me			String	USER	INITONLY	
	-	The		-			
		hostname					
		to which					
		connecting					
		clients will					
		be routed					
		to					
channel 6 ou	tp <b>Nia</b> no <b>IInputS</b> ł	ared		String	USER	INITONLY	
channel_0.00		What to do		Sumg	USER		
	(Shared)						
		if currently					
		no					
		share-input					
		channel					
		is available					
		for writing					
		-					
		to					
channel_6.pe	al <b>PS:ak</b> np <b>Sæs</b> m-			UInt32	USER	RECONFIG	J <b>RAANBLE</b>
	ples	Number of					
	-	peak					
		samples in					
		each pulse.					
		caen puise.					
1				UInt32	USER	DECONEICI	
channel_6.pt				UInt32	USER	RECONFIG	JKANBLE
	Period	Number of					
		samples					
		between					
		each pulse.					
		-					
channel_7.ba	seSStartt of			UInt32	USER	RECONFIG	JKOANBLE
	Baseline	Starting		511132			
	Dascille						
		Sample to					
		calculate					
		the					
		Baseline.					
channel_7.ba	seESttdp of			UInt32	USER	RECONFIG	JKAANBLE
	Baseline	Ending					
	Dascille	U U					
		Sample of					
		the					
		Baseline					
		calcula-					
		tion.					

Table 1 – continued from previous pag	ae
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Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
5	Name				Level	Mode	States
channel_7.cali				Double	USER	RECONFIG	JKOANBLE
	Factor	Factor to be used with all peak values and the related mean and					
		std values					
channel_7.ena				Bool	USER	RECONFIG	JKAABLE
	Peak Com- putation	Enable peak com- putation on the FPGA.					
channel_7.ena				Bool	USER	RECONFIG	JKAABLE
	Raw Data	Enable streaming out of raw data.					
channel_7.fixe	<b>#Base</b> line			Double	USER	RECONFIG	JKAABLE
	Baseline	If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.					
channel_7.fixe	EBabee ineEna	a l		Bool	USER	RECONFIG	JKOANBLE
	fixed Baseline	Enables the use of a fixed baseline value.					
						Continued o	

Table 1 – continued from previous page

Key	Displayed	Description	Alias	Type	Access	Access	Allowed
Ney	Name	Description	Allas	туре	Level	Mode	States
ah an a 1 7 in				LU <sub>24</sub> 22			
channel_7.in	iti <b>muke</b> tay Delay	Time delay between trigger and start of processing algorithm.		UInt32	USER	RECONFIG	UKANBLE
channel 7.nu	man and the second s			UInt32	USER	RECONFIG	UKANBLE
_	pulses	Number of pulses expected in each trigger.					
channel 7.01	tp <b>Dischistrition</b> ic	nMode		String	USER	INITONLY	
	Mode	Describes the policy of how to fan-out data to multiple (shared) input channels		Sumg			
channel_7.ou	t <b>ftiastostmæ</b> rne	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel_7.ou	t <b>pNio</b> no <b>IInputS</b> I (Shared)	ared What to do if currently no share-input channel is available for writing to		String	USER	INITONLY	

Table	1 - continued from	n previous page
iubio		n proviouo pugo

17			1 – continued				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 7.r	ealesatapsesm-			UInt32	USER	RECONFIG	UKOANBLE
_ 1	ples	Number of peak samples in each pulse.					
channel_7.p	ulselPleseiod			UInt32	USER	RECONFIG	UKAANBLE
_ 1	Period	Number of samples between each pulse.					
channel_8.b	base <b>Sitart</b> of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	UKAABLE
channel_8.b	oaseEstdp of			UInt32	USER	RECONFIG	UKOANBLE
	Baseline	Ending Sample of the Baseline calcula- tion.					
channel 8.c	alibrationation	l t		Double	USER	RECONFIG	UKDANBLE
	Factor	Factor to be used with all peak values and the related mean and std values					
channel_8.e	ena BerkkCom			Bool	USER	RECONFIG	UKAANBLE
	Peak Com- putation	Enable peak com- putation on the FPGA.					
channel 8.e	enal <b>EleRak</b> o Datas	treaming		Bool	USER	RECONFIG	UKAABLE
	Raw Data	Enable streaming out of raw data.					
	1	1	1	1	1	Continued	

Table 1 – continued from previous page

			A 11	-			A 11 I
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_8.fix	e <b>FB</b> æsteline			Double	USER	RECONFIG	JKOANBLE
	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.fix	e <b>ÆBabee</b> ineEna	a		Bool	USER	RECONFIG	JKAABLE
	fixed	Enables					
	Baseline	the use of a					
		fixed					
		baseline					
		value.					
		value.					
channel_8.in	tiBillowlay			UInt32	USER	RECONFIGU	INARI F
channel_0.m	•	Time delay		UIIII.52	USER	RECONTIO	
	Delay	Time delay					
		between					
		trigger and					
		start of					
		processing					
		algorithm.					
		C					
channel 8.nu	m <b>NPuuhsbe</b> r of			UInt32	USER	RECONFIGU	JKOANBLE
	pulses	Number of					
	P 41000	pulses					
		expected in					
		each					
		trigger.					
1	Didition			Ct al a c	LICEP		
channel_8.ou	tpDisdistritionic			String	USER	INITONLY	
	Mode	Describes					
		the policy					
		of how to					
		fan-out					
		data to					
		multiple					
		(shared)					
		input					
		channels					

Table 1 – continued from previous
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Kau	Distant		1 – continued			A	Alland
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_8.ou	t <b>fðiðstostimæ</b> rne	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel 8.ou	tp <b>via</b> no <b>ImputS</b> h	nared		String	USER	INITONLY	
_	(Shared)	What to do if currently no share-input channel is available for writing to					
channel_8.pe	a <b>RS:ak</b> np <b>Sas</b> m- ples	Number of peak samples in each pulse.		UInt32	USER	RECONFIG	JKAABLE
channel_8.pu	ll <b>seffiss</b> iod Period	Number of samples between each pulse.		UInt32	USER	RECONFIG	JKAABLE
channel_9.ba	seSSitentt of Baseline	Starting Sample to calculate the Baseline.		UInt32	USER	RECONFIG	JKOAABLE
channel_9.ba	sdSitdp of Baseline	Ending Sample of the Baseline calcula- tion.		UInt32	USER	RECONFIG	JKAABLE

Table 1 – continued from pre	evious page
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Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Level	Mode	States
channel 9.ca	librationation			Double	USER	RECONFIG	
	Factor	Factor to be used with all peak values and the related mean and std values					
channel_9.en	a <b>ElnRe</b> kkComp			Bool	USER	RECONFIG	JKOANBLE
	Peak Com- putation	Enable peak com- putation on the FPGA.					
channel_9.en	a <b>berkale</b> vDataS	treaming		Bool	USER	RECONFIG	JKAANBLE
	Raw Data	Enable streaming out of raw data.					
channel_9.fix	e <b>FB</b> æsteline			Double	USER	RECONFIG	JKOANBLE
	Baseline	If fixed baseline is enabled, this value will be used for calcula- tions instead of the base line from the h/w.					
channel_9.fix	te <b>HBabbe</b> ineEna fixed Baseline	Enables the use of a fixed baseline value.		Bool	USER	RECONFIG	JKAABLE

.,			1 – continue				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel_9.i	niti <b>RlDæ</b> lay Delay	Time delay between trigger and start of processing algorithm.		UInt32	USER	RECONFIC	GUKAABLE
channel_9.r	num <b>?Puilses</b> er of pulses	Number of pulses expected in each trigger.		UInt32	USER	RECONFIC	GUKNANBLE
channel_9.c	out <b>fDitsdiisbritionti</b> o Mode	nMode Describes the policy of how to fan-out data to multiple (shared) input channels		String	USER	INITONLY	
channel_9.c	outp <b>Hiastostmæ</b> rne	The hostname to which connecting clients will be routed to		String	USER	INITONLY	
channel_9.c	outp <b>Nic</b> no <b>lInputS</b> I (Shared)	hared What to do if currently no share-input channel is available for writing to		String	USER	INITONLY	

Table 1 – continued from previous page

1/au	Diamleural	Deserietie	Alian	Tuna	A	Acces	
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
channel_9.pe	alleSsaknpSeesm-			UInt32	USER	RECONFIG	JKOANBLE
- 1	ples	Number of					
	pies						
		peak					
		samples in					
		each pulse.					
channel_9.pu	lsPetPlesciod			UInt32	USER	RECONFIG	UKOANBLE
- 1	Period	Number of					
	1 Uniou	samples					
		between					
		each pulse.					
config.fpgaC	loERGA			String	USER	INITONLY	
2.10	Source	Source					
	Clock	Clock to					
		FPGA					
		operations.					
config.softTr	igStönfte Trig-			UInt32	USER	RECONFIG	UKAANBLE
	ger Interval	Interval					
	C	between					
		software					
		generated					
		triggers in					
		milli					
		seconds.					
config.trigge	STrikoper			String	USER	INITONLY	
conng.urgge		Source of		Jung			
	Source						
		trigger for					
		algorithm					
		(RX17 to					
		TX20 -					
		Backplane;					
		Front1-4 -					
		Harlink					
		Front					
		Panel).					
dacNode dac	C J2AcSSafciples			UInt32	USER	RECONFIG	TRANSIF
un indiad		Number of					
	Samples	clock					
		cycles per					
		Samples.					
		-					
				1	1		

Table 1 – cor	ntinued from	previous page
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Displayed Name cDStelMode DAC Data	Description	Alias	Туре	Access Level	Access Mode	Allowed States
cD <b>Stal&amp;fo</b> de DAC Data						Judica
DAC Data			Bool	USER	RECONFIG	
Mode	False: binary offset; True: 2 comple- ment					
EiDAC File			String	USER	RECONFIG	URDANBLE
	File with DAC values.		ounig	COLIN		
cSIDpASCamŞikep			UInt32	USER	RECONFIG	UKOANBLE
Samples	Number of DAC samples to be in output.					
cTilDggerInter-			Bool	USER	RECONFIG	UKAANBLE
nal Trigger	Enable DAC Internal Trigger.					
cTi <b>DggCrPatio</b> d nal Trigger Period	Period of internal DAC Trigger.		UInt32	USER	RECONFIG	URDANBLE
abl <b>EDA</b> C DAC	Enable DAC channel.		Bool	USER	RECONFIG	UKDANBLE
lta <b>škilnags</b> cept Conver- sion (y- intercept)	Value of intercept for converting DAC to Voltage value		Double	USER	RECONFIG	UKAABLE
	cThDggCrInter- nal Trigger cThDggCrPatiod nal Trigger Period ablEDatCe DAC	comple- mentcFIDAC FileFile with DAC values.cSIDPSCamplesNumber of DAC samplesSamplesNumber of DAC samples to be in output.cTIDpSpCr Inter- nal TriggerEnable DAC Internal Trigger.cTIDpSpCrIPatiod nal TriggerPeriod of internal DAC Trigger.cTIDpSpCrIPatiod nal TriggerPeriod of internal DAC Channel.ablEDAAGE DACEnable DAC rrigger.blEDAAGE OAC channel.Value of intercept for converting DAC to Voltage	complementcFIDAC FileFile with DAC values.cFIDAC FileFile with DAC values.cSIDAXAmSikap SamplesNumber of DAC samples to be in output.cTIDAXCr Inter- nal TriggerEnable DAC Internal Trigger.cTIDAXCr Phetiood nal TriggerPeriod of internal DAC Trigger.cTIDAXCr Phetiood nal TriggerPeriod of internal DAC DAC Trigger.cTIDAXCe DAC nal TriggerPeriod of internal DAC Trigger.cTIDAXCe DAC DAC DAC tintercept interceptEnable DAC channel.	complementcomplementcFIDAC FileFile with DAC values.StringcSIDpSCam\$Play SamplesNumber of DAC samples to be in output.UInt32CTIDgSer Internal Trigger nal TriggerEnable DAC Internal Trigger.BoolCTIDgSer Particod nal Trigger PeriodPeriod of internal DAC Trigger.BoolDate DAC samplesDeriod of internal DAC Trigger.DoubleDAC DAC internal DAC rigger.Double	complementcomplementFile with DAC values.StringUSERFile with DAC values.StringUSERSamplesNumber of DAC samples to be in output.UInt32USERCHDggCr Inter- nal TriggerEnable DAC Internal Trigger.BoolUSERCHDggCr Inter- nal TriggerPeriod of internal DAC Trigger.BoolUSERCHDggCr Inter- nal TriggerPeriod of internal DAC Trigger.BoolUSERChDggCr Inter- nal TriggerPeriod of internal DAC Trigger.DoubleUSERChDggCr Inter- nal TriggerPeriod of internal DAC Trigger.DoubleUSERConver- sion intercept for converting DAC to VoltageDoubleUSER	complementcomplementcFIDeAC FileFile with DAC values.StringUSERRECONFIGSIDPSCamphing SamplesNumber of DAC samples to be in output.UInt32USERRECONFIGCTIDeger Inter- nal Trigger PeriodEnable DAC Internal Trigger.BoolUSERRECONFIGCTIDeger Inter- nal Trigger PeriodPeriod of internal DAC Trigger.UInt32USERRECONFIGCTIDeger PeriodPeriod of internal DAC Trigger.BoolUSERRECONFIGDAC Internal DAC Trigger.Period of internal DAC Trigger.UInt32USERRECONFIGDAC Trigger.Period of internal DAC Trigger.BoolUSERRECONFIGDAC trigger.DoubleUSERRECONFIGDAC trintercept for converting DAC to VoltageDoubleUSERRECONFIG

## Table 1 – continued from previous page

17	<b>B</b> !				· -		
Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
	Name				Level	Mode	States
dacNode.volt				Double	USER	RECONFIG	J <b>KAABLE</b>
	Conversion	Value of					
	(slope)	slope for					
		converting					
		DAC to					
		Voltage					
		value					
delay	Raw Delay			UInt32	USER	RECONFIG	TRANBLE
deluy	Ruw Deluy	Time delay		0111052	COLIC	illeoin io	
		between					
		trigger and					
		start of raw					
		data acqui-					
		sition.					
deviceFile	Device File			String	USER	RECONFIG	רוורז כד פו ימוו
devicerne	Device File	Device		Sung	USER	RECONFIG	
		driver file					
		to access					
		the					
		hardware					
		(e.g.					
		/dev/pciedevs	\$9).				
mapDirectory	Map Direc-			String	USER	RECONFIG	JERROR
	tory	Folder					
		where all					
		xml					
		mapping					
		files are					
		located.					
numberRawS				UInt32	USER	RECONFIG	JKAABLE
	of raw	Number of					
	samples	raw					
		samples to					
		aquire, per					
		channel,					
		with each					
		start of raw					
		data acqui-					
		sition.					

Table 1 – continued from previous pa	ge
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Allowed
10100
States
DANBLE

Table 1 – continued from previous page

				from previou		_	
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 2 or	tpCio.coprepseiosi	on		Int32	EXPERT	INITONLY	
		Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB					
channel_2.ou		Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_3.ou	tfQ@xqqnqxxiosi	on Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		Int32	EXPERT	INITONLY	
channel_3.ou		Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_4.ou	tpûkosoporepsesioesi	on Configures when the data is com- pressed (-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			Level	Mode	States
channel_4.o	ut <b>fRørp</b> ort	Port number for TCP connection	UInt32	EXPERT	INITONLY	
channel_5.o	utpûløænpmenseise	fon Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB	Int32	EXPERT	INITONLY	
channel_5.0	ut <b>fRutp</b> ort	Port number for TCP connection	UInt32	EXPERT	INITONLY	
channel_6.o	utpûløænprepseios	ion Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB	Int32	EXPERT	INITONLY	
channel_6.0	ut <b>fRørp</b> ort	Port number for TCP connection	UInt32	EXPERT	INITONLY	n nevt nage

Table 1 – continued from previous page

			I – continued				
Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
channel 7 or	tp£10.00.00000000000000000000000000000000	on		Int32	EXPERT	INITONLY	
	ц <del>и</del> ллирициясов	Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		111.52		INTOINET	
channel_7.ou		Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_8.ou	tpີຟະດາງາາຖະແຫ່ວຍນັ	on Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		Int32	EXPERT	INITONLY	
channel_8.ou		Port number for TCP connection		UInt32	EXPERT	INITONLY	
channel_9.ou	tpOotxrprrqรหร่องรั	on Configures when the data is com- pressed (-1 = off, 0 = always, >0 = threshold in MB		Int32	EXPERT	INITONLY	

Table 1 – continued from previous	page
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Key	Displayed	Description	Alias	Туре	Access	Access	Allowed
1	Name			111.422	Level	Mode	States
channel_9.0	utplanport	Port number for TCP connection		UInt32	EXPERT	INITONLY	
interfaces	interfaces			VectorString	EXPERT	READONLY	
performance	St <b>Etnistbde.Pe</b> nbl	e		Bool	EXPERT	RECONFIG	JRABLE
	formance Indicators	Enables some statistics to follow the performance of an individual device					
	C414-4:			UInt32	EXPERT	READONLY	
-	StMistics.maxE event loop latency	Maximum time interval between posting a message on the central event loop and processing it within averaging interval.					
performance	St <b>Missürsuma</b> xP latency	rocessingLater Maximum processing latency within averaging interval.	ю	UInt32	EXPERT	READONLY	

Table 1 – continued from previous p	page
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Key	Displayed Name	Description	Alias	Туре	Access Level	Access Mode	Allowed States
performance	St <b>Missizging</b> ss problems	agingProblems If true, there is a problem consuming broker messages		Bool	EXPERT	READONLY	
C.		_		111 (22	EVDEDT		
performance	StNistibe.nuofiN messages	Aessages Number of messages received within averaging interval.		UInt32	EXPERT	READONLY	
performance	StRtisticssprgce latency	ssingLatency 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	

## CHAPTER 7

Indices and tables