cronologic

xHPTDC8-PCIe

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Product Brief

www.cronologic.de

Introduction

Our most versatile TDC combines the precision of the xTDC4 with the channel count and flexibility of the HPTDC.

Don't let yourself be restricted to common start configurations! With the xHPTDC8-PCIe your can set up your system any way you like. The device will provide you with an infinite stream of timestamps - one for each input pulse. You may filter them in software as needed - or you let the hardware itself group the measurements into time windows around a trigger pulse in a convenient data structure.

Like the xTDC4-PCIe, the xHPTDC8-PCIe provides very high precision measurements with almost no cycle to cycle jitter. You can expect an RMS error very close to the quantization error. The linearity is also practically perfect.

The PCIe bus master accesses into a ring buffer that is fully controlled by hardware, ensuring low CPU load at high throughput.

Our TiGer timing generator allows you to create digital output pulse patterns on all connectors to control the timing of your experiment.

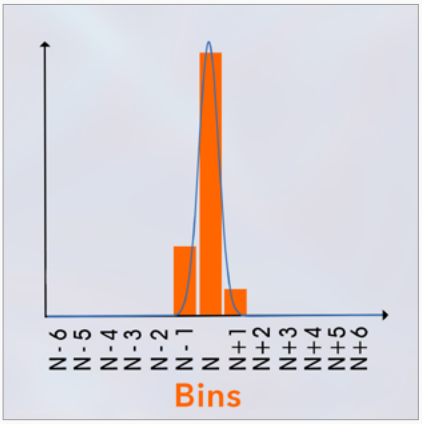
The newly added 18 bit ADC can monitor an analog voltage in your system in sync with the data acquisition or controlled by external pulses.

Technical Data

Optimized for	flexibility + performance
TDC channels @ bin size	8 @13ps
Additional inputs	slow ADC
Connectors	10x LEMO 00
Bin size	12 ps
Double pulse resolution	4 ns
Multihit	unlimited
Dead time between groups	none
Readout rate	48 Hits/s
Range	unlimited
Common start/stop	yes / yes
Number of boards that can be synced	8
Readout interface	PCIe x1
Time base	50 ppb on board

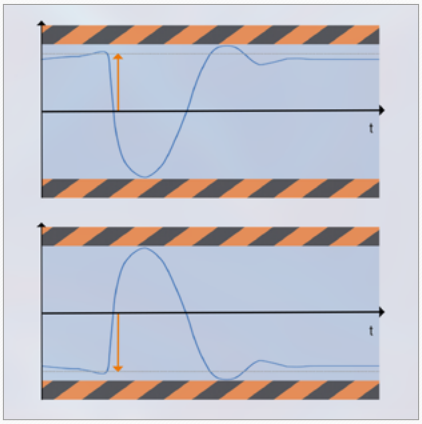
Features

High Precision



The occurring cycle to cycle jitter of the xHPTDC8-PCIe is much lower than the bin size of 13ps. Therefore you can expect an RMS error below 7ps for your measurements.

Bipolar

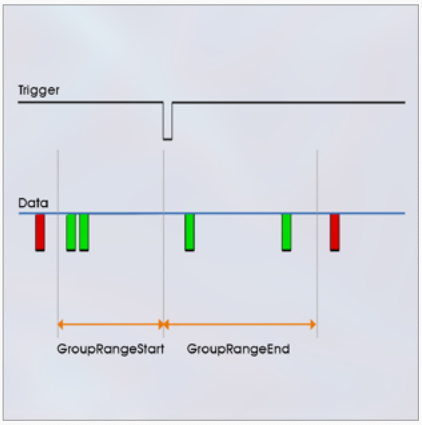


The threshold discriminators can use positive or negative threshold with configurable voltage. This allows you to use the xHPTDC8-PCIe with a wide range of detectors or constant fraction discriminators (CFD).

TiGer Timing Generator

All inputs can also be used to output periodic pulse patterns to control your experimental setup. The exact timing of these is measured by the TDC.

Versatile trigger windows

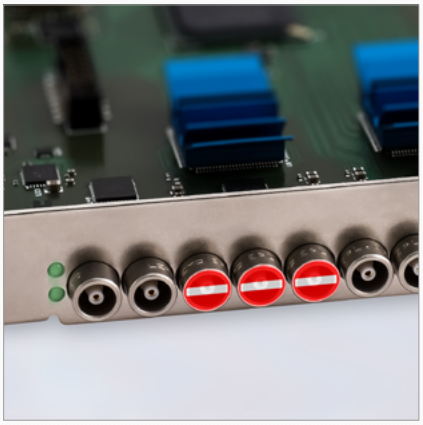


There is no limit in range of time measurement for this TDC. It will output an infinite stream of timestamps for all incoming pulses. In case you prefer common start or common stop the device can output structured data that mimic these modes.

Voltage Monitoring ADC

Measure an analog input signal at defined intervals or triggered by an external signal.

Veto or Gate Inputs



You can block inputs from being measured for a certain period of time relative to an input pulse. This reduces buffering requirements and CPU load.

cronologic
GmbH & Co. KG

Jahnstraße 49
60318 Frankfurt
fon: +49 (0) 69 173 20 256-0
USt‌ID: DE235184378

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