cronologic

Ndigo6G-12

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Product Brief

Introduction

The Ndigo6G-12 offers 6400Msps sample rate, 12 bits resolution and a greatly improved readout rate of 6000MB/s.

The unit is a combined ADC/TDC board for the acquisition of pulses in time of flight applications. It builds on the established Platform of the Ndigo5G-10 but takes it to the next level both in performance and flexibility.

The Ndigo6G-12 was specifically designed for time of flight applications like LIDAR or TOF mass spectrometry. Pulse arrival times can be measured with an accuracy down to 5 ps together with information on pulse shape such as area or amplitude.

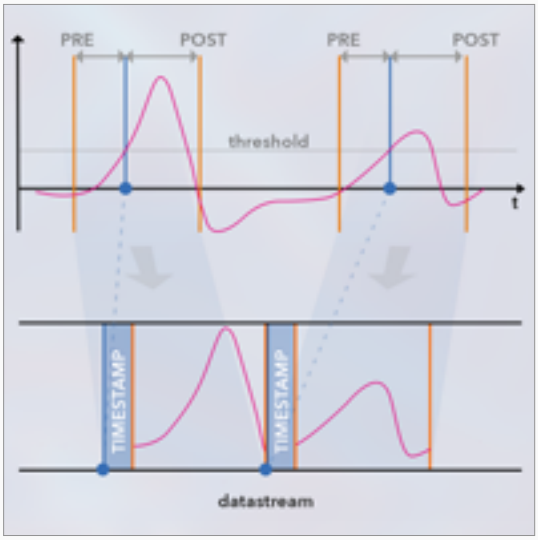
Four channels with 1600 Msps at 12 Bit resolution can be acquired independently or combined to two or four channels or one channel with higher dynamic range or up to 6400 Msps.

Technical Data

Optimized for	TOF applications
ADC channels	4
TDC channels	4
Gating channels	4
Connectors	10x LEMO 00
Sample rate single channel	6400 Msps
Sample rate multi channel	1600 Msps
Resolution	12 bits
Double pulse resolution	typically 4ns
Maximum bandwith	TBD
TDC bin size	12 ps
Multihit	unlimited
Dead time between Groups	none
TDC readout rate	30 Mhits/s total; 11,6 Mhits/s
ADC readout rate	approx. 6000 MByte/s
Range	106 d
Common start/stop	yes / yes
Number of boards that can be event-synchronized	8
Readout interface	PCIe3 x8
Time base	50 ppb on board or external 10 MHz clock
On-board calibration data storage	✓
Adjustable trigger windows	✓
Overlapping events possible	✓
Easy to use Windows C API	✓
In-system firmware update	✓

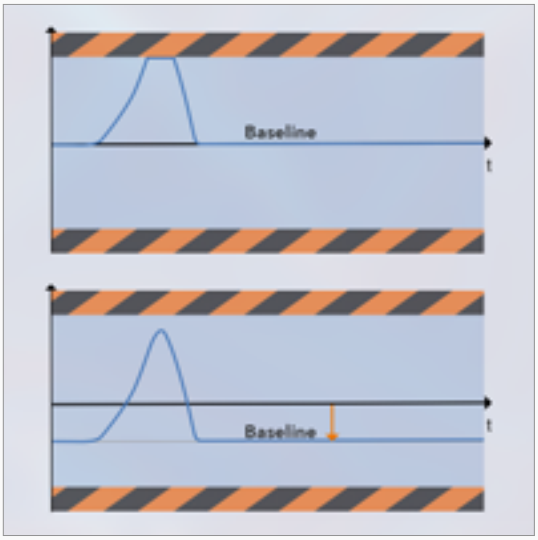
Features

Zero suppression



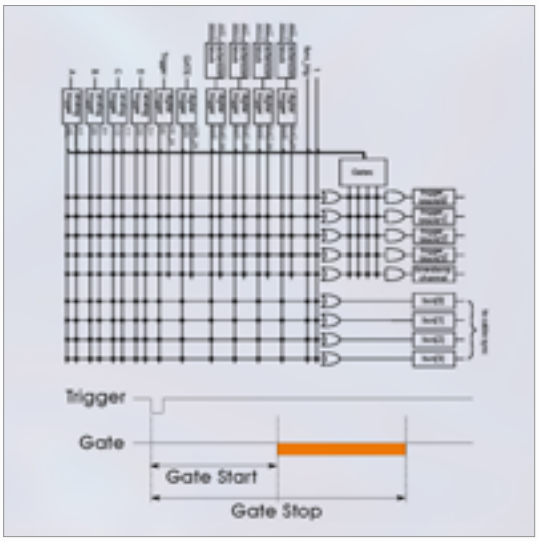
Detect pulses above a certain threshold and only acquire the relevant data to massively reduce the amount of data that needs to be copied and analysed.

Configurable DC Offset



When acquiring unipolar pulses, shift the baseline to the edge of the ADC range to double your dynamic range compared with conventional ADC boards.

Flexible Utility Functions



A multitude of useful details help you to create a highly integrated setup with a minimum of external components. Using the integrated TiGer timing pattern generator can provide digital pulse patterns to control your experiment or internal triggers. Use gate and veto functions with our gating logic. This also works across channels or from the additional digital input with a flexible trigger matrix.

Streaming Architecture

Don't pay for expensive memory upgrades! The buffers of the Ndigo6G-12 are only limited by the size of your main memory. Data is streamed at a rate of 6000MByte/s concurrently to data acquisition. There is no dead time and latency is minimized.