The first test results with the Christiansen TDC in the Datimizer setup.

The test setup:

To test the Datimizer we build a small system, which is capable of generating al signals needed for the test and reading the data from the Datimizer.
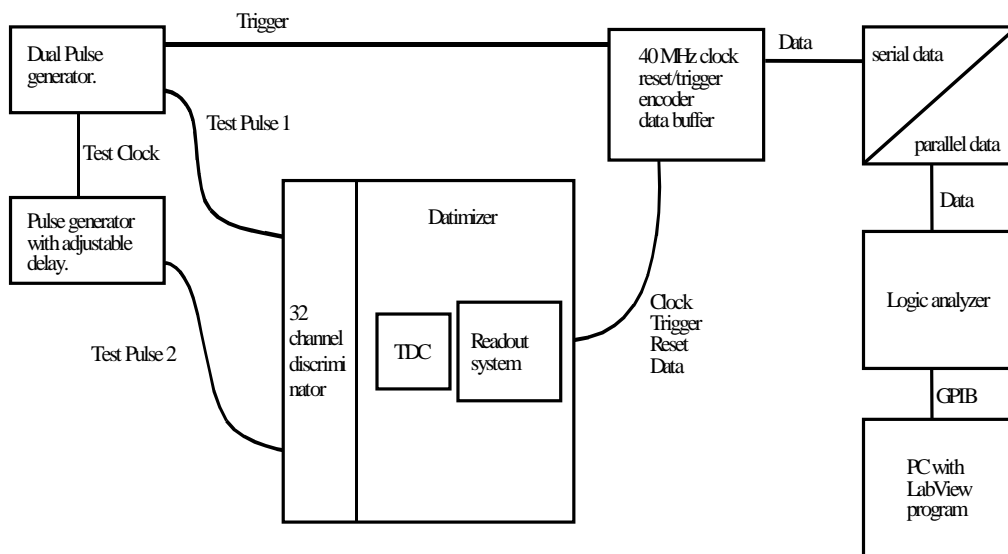The setup system is drawn in figure 1.

Figure 1: The test set-up.

The test set-up is build around a PC with LabView.

For this measurement the TDC is set-up to calculate the difference between channel time and trigger time. The test pulse generator is not synchronised with the 40 MHz clock. These two facts made it impossible to measure the channel resolution.
The problem was the trigger resolution. In the readout system as well as in the TDC the trigger resolution is 25 nsec. This problem is solved by using a second pulse generator with build in delay option on a second input channel. By calculating the difference between these channels the combined resolution of two channels is measured.
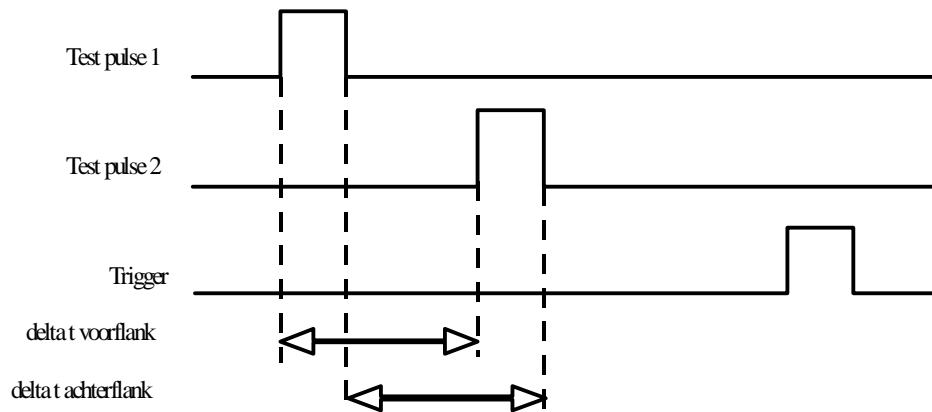The test sequence is drawn in figure 2.

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Figure 2: Test pulse sequence.

Test results:

	rising edge	falling edge
Datimizer number	521	521
first channel	0	0
second channel	16	16
mean	1039,981	1007,642
standard deviation	0,495	0,415

In the table all information about the Datimizer, channels, mean value and the standard deviation is given.
On the next page two histograms are drawn of these measurements.

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Delta t rising edge

nsec

Delta t falling edge

nsec

3

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