

# New generic method for measuring the time of arrival of an electrical signal



## Reference

PICOTI [D02759]

## Key words

TDC, TDL, TIME OF FLIGHT, LIDAR, PICONSECOND,



## APPLICATIONS

- TEP-Scan, Hadrontherapy, FLIM
- Depth sensing – LIDAR
- High Energy Physics
- Photon counting



## TARGET MARKETS

- TDC providers
- Manufacturer of Electronics/photonics devices
- Embedded systems developers

## Technology readiness level

TRL 5



## INTELLECTUAL PROPERTY

Working on a patent registration



## LABORATORIES

- IP2I / CNRS / Université de LYON

## DESCRIPTION

In the field of measurement and more particularly for the detection of events, a high degree of precision in the timing is fundamental. This precision can be obtained by implementing TDC - Time to Digital Converter on computer chips. Different methods are now available to achieve picosecond precision, and now the challenge is to achieve picoseconds at a moderate cost.

A solution based on a VHDL code implemented on an FPGA, or software code in post-processing on a computer (or on embedded system) has been developed, showing that we can achieve a very high temporal resolution with a simple and inexpensive implementation.

## COMPETITIVE ADVANTAGES FOR AFM

- Time resolution measured of the order of 1ps RMS
- Ease of implementation
- Cost reduction: Code on a single FPGA or code improvement of commercial TDC
- Short dead time between two measurements: a few ns
- Significant reduction in FPGA resource consumption
- Generic solution that can be adapted to the configuration of use

## STAGE OF DEVELOPMENT

Working proof of concept prototype available

## PARTNERSHIP TYPE

PULSALYS is looking for industrial partners for the commercialization of the technology.



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