

**INtelligent, Fast, Interconnected and Efficient devices, for frontier exploitation in Research and Industry**

Funding Scheme: FP7-PEOPLE-2012-ITN

Grant Agreement number: 317446

Project acronym: INFIERI



**DELIVERABLE NAME: *High Speed Link System Integration***

**DELIVERABLE REF. N°: 3.1**

**WORK PACKAGE: 3**

**NATURE OF THE DELIVERABLE:**  P = Prototype,  D = Demonstrator

**BENEFICIARY(IES) CONTRIBUTOR(S): FOM, CERN**

**AUTHOR(S) NAME(S) & EMAIL(S): Antonio Pellegrino <antonio@nikhef.nl>**

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**DELIVERY DATE FROM ANNEX 1: 48**

**DISSEMINATION LEVEL: RE**

**PU** = Public N/A IN THE INFIERI CONTEXT

**PP** = Restricted to other programme participants (including the Commission Services) N/A IN THE INFIERI CONTEXT

**RE** = Restricted to a group specified by the consortium (including the Commission Services) **HIGHLY SUGGESTED IN THE INFIERI CONTEXT**

**CO** = Confidential, only for members of the consortium (including the Commission Services) **HIGHLY SUGGESTED IN THE INFIERI CONTEXT**

### **Abstract:**

We built and commissioned complete data acquisition systems based on the fast serializers and transmitters designed for usage in the LHCb experiment as part of the INFIERI deliverable 3.5. In one application (Scintillation Fibers Tracker) we constructed a prototype back-end electronics consisting of a MiniDAQ system based on the AMC40 architecture and in another application (LHCb Vertex Locator) we demonstrated the Gigabit Wireline Transmitter (GWT) data-transmission performance taking measurements with the Measurements Speedy Pixel Detector Readout (SPIDR)-readout system developed at Nikhef and capable of a single VeloPix readout at full speed of 20.48 Gbps when all four GWT links are active.

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Period covered: from 01/02/2013 to 31/01/2017

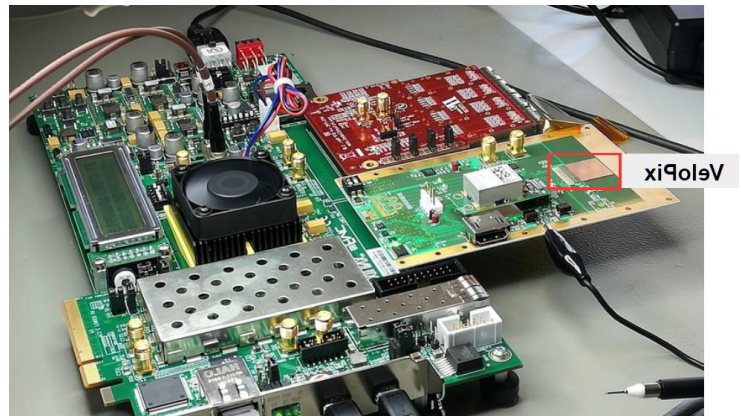
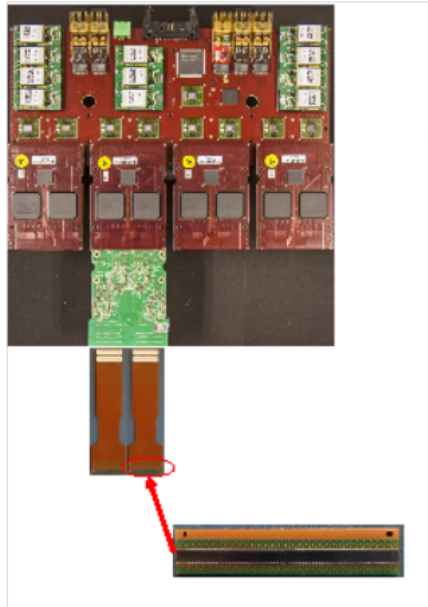
Project website: <http://infieri-network.eu>

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## Talks

- [1] E. Dall' Occo, *Progress Report on Pixel Detector for LHCb VELO Upgrade*, 7<sup>th</sup> INFIERI Workshop, Lisbon, 14 April 2016
- [5] E. Dall' Occo, *LHCb VELO Upgrade: Testbeam Results*, Nikhef Jamboree, Groningen, 13 December 2016
- [6] E. Dall' Occo, *Update on Timepix3 Telescope and Grazing Angles Results*, 5<sup>th</sup> Beam Telescope and Test Beams Workshop, Barcelona, 24-27 January 2017

## Publications:

- [1] T. Poikela et al., "The VeloPix ASIC", 2017 JINST 12 C01070.
- [2] J. Visser et al., "SPIDR: a read-out system for Medipix3 & Timepix3", 2015 JINST 10 C12028.
- [3] W. Vink, "LHCb Scintillating Fiber detector Front end electronics Design & Test", <https://cds.cern.ch/record/2198699>