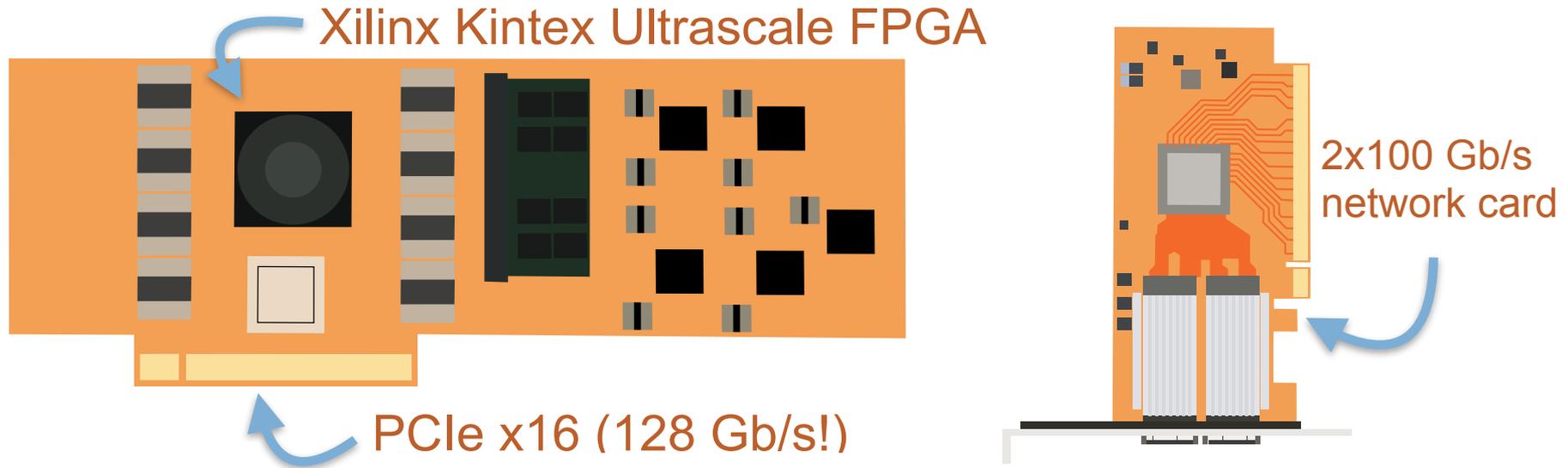


# FELIX Goes to the DUNEs

## FELIX-based readout of the Single-Phase ProtoDUNE detector

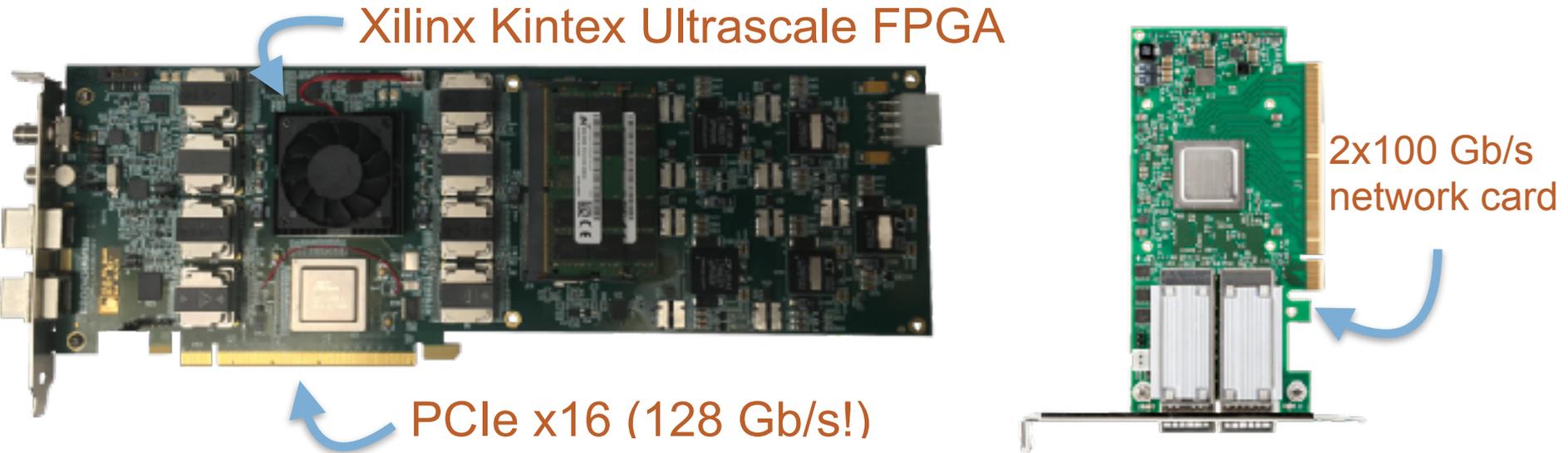
(Front-End Link eXchange)



# FELIX Goes to the DUNE

## FELIX-based readout of the Single-Phase ProtoDUNE detector

(Front-End Link eXchange)



# FELIX Goes to the DUNEs

FELIX-based readout of the Single-Phase ProtoDUNE detector

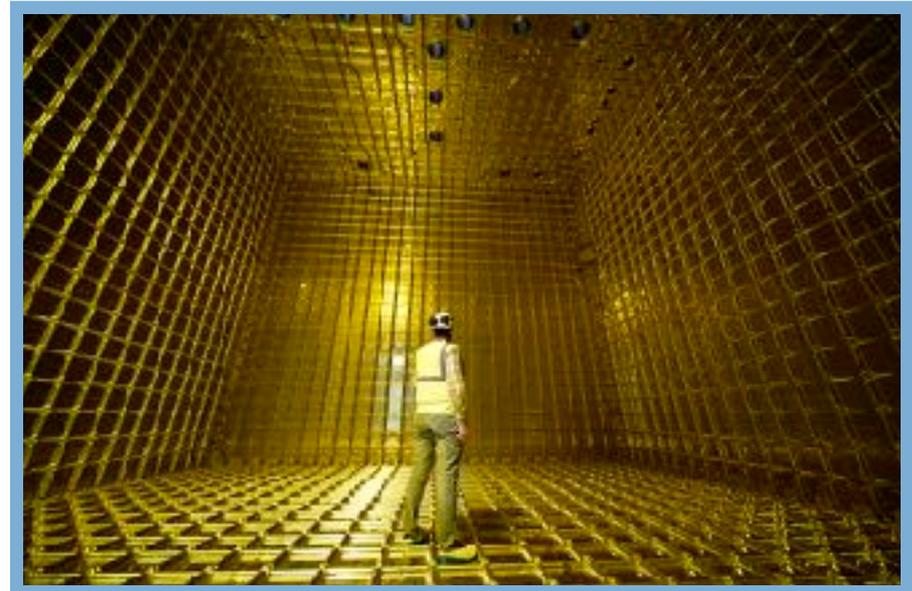
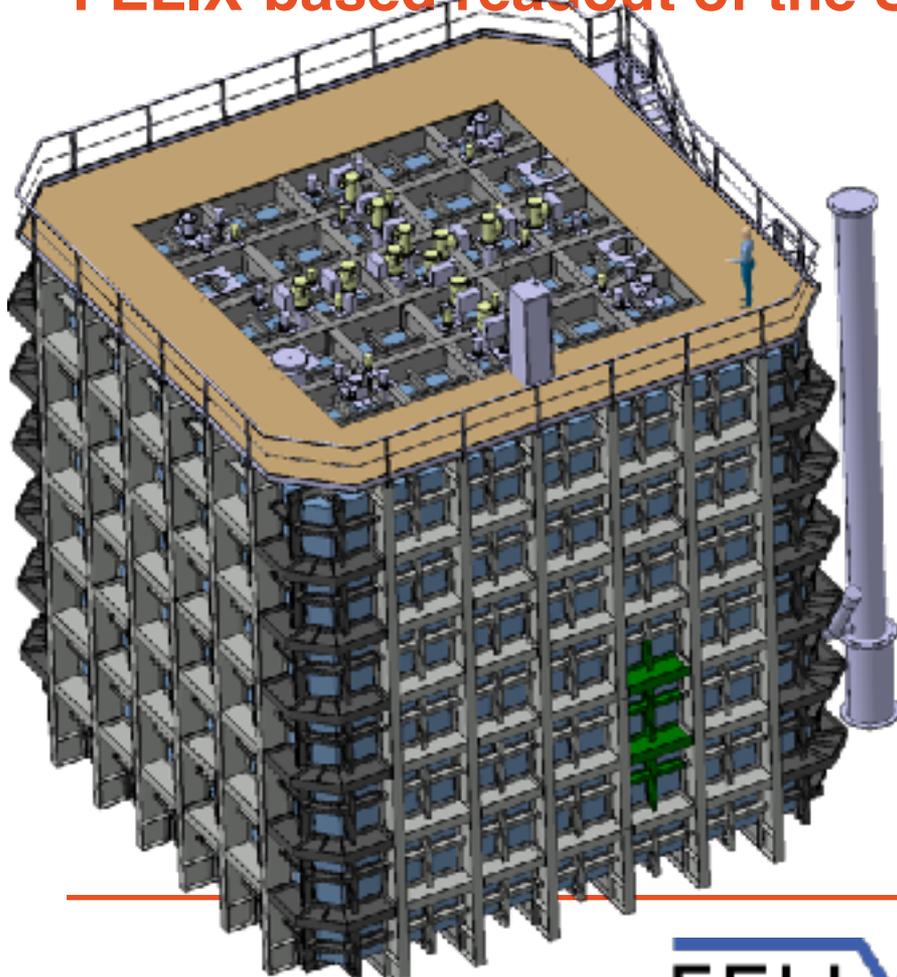
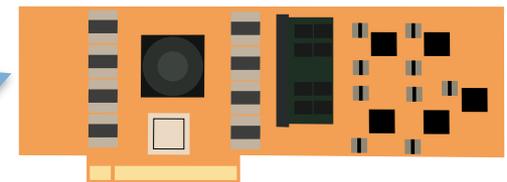


Photo: Maximilien Brice / CERN

1/6th of  
the data

96 Gb/s



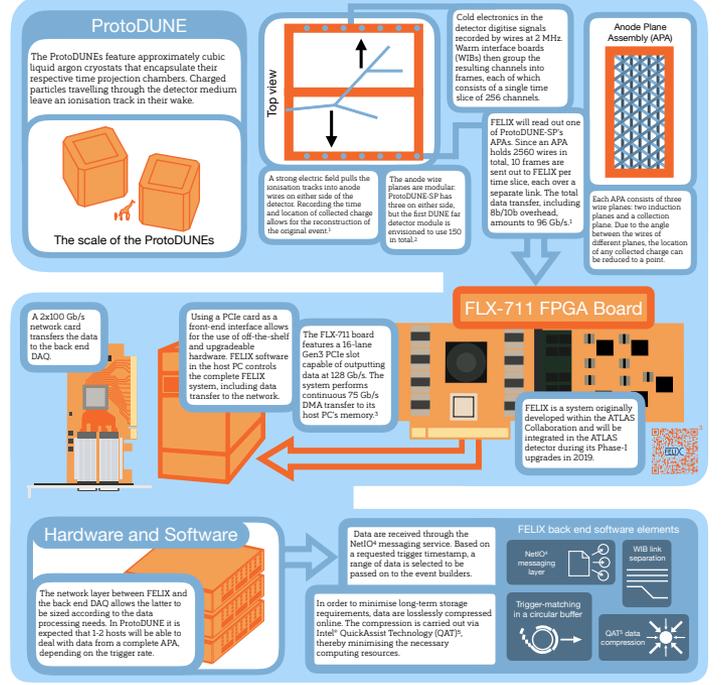
## FELIX Goes to the DUNES

IEEE Real Time 2018 – Colonial Williamsburg, VA

### FELIX-based readout of the Single-Phase ProtoDUNE detector

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The ProtoDUNE detectors at CERN are prototypes for the far detector of DUNE, an upcoming neutrino experiment in the USA. They are meant to validate the technology behind large liquid argon argon time projection chambers at full scale and will receive SPS beam particles from August until November 2018. The FELIX (Front-End Link eXchange) data acquisition system is envisioned to read out one sixth of the single-phase ProtoDUNE detector (ProtoDUNE-SP). It is based on the concept that a thin interface between the detector front-end and commodity servers provides superior system flexibility and longevity.



**Conclusion**

FELIX is a cutting-edge solution for long-living systems that require capable and flexible data acquisition. Its generally applicable hardware ensures the longevity of the system and allows for the use of more complex software. The challenges faced within the ProtoDUNE-SP project have been as good as overcome: on a single link, the nominal design requirements have been exceeded. The system is now moving towards data taking stability in expectation of the SPS beam at the end of August.

**Acknowledgements**

FELIX is a system originally developed within the ATLAS Collaboration and will be integrated in the ATLAS detector during its Phase-I upgrades in 2019.

**References**

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**Logos:** DUNE (DEEP UNDERGROUND NEUTRINO EXPERIMENT), CERN, Nikhef

