Contribution ID: **192** Type: **oral**

White Rabbit FMC mezzanine as an interface for the new 10G WR-NIC to remote WR DAQ nodes

Thursday, 26 September 2024 17:01 (17 minutes)

The White Rabbit protocol (WR), developed at CERN for the distribution of sub-nanosecond timing to thousands of nodes distributed over large geographic areas, is becoming increasingly
reliable and is being utilized in various contexts, notably in modern multi-messenger astronomy experiments in progress such as KM3NeT, CTAO and ET.
Currently, WR supports connectivity with 1 Gb/s Ethernet, both point-to-point and through WR-compliant network switches. Electronics compatible for data acquisition are primarily
proprietary development tailored to specific applications. The WR community is already planning new developments toward a full 10 GB/s infrastructure, with plans for a new PCIe NIC
board to connect PCs to the WR network. INFN-Bologna and Perugia (University and INFN) are designing a set of low-cost electronic boards enabling versatile management and readout
of common sensors or actuators using WR technology for time-synchronization. We propose a lightweight dedicated mezzanine board, named Air-Plane, to complement the upcoming new
NIC board and facilitate interface between legacy WR Node as well as with non-WR remote cards. This modular and highly scalable design will streamline the implementation of data
acquisition systems in testing scenarios, such as ET mirror suspensions developments.
In this contribution, we present the conceptual design of Air-Plane and its realization plan presented as parto of the M2TECH project, recently submitted to the HORIZON-INFRA-2024-TECH-01-01 call.

Primary authors: Dr BAWAJ, Mateusz (University of Perugia); TRAVAGLINI, Riccardo (Istituto Nazionale di Fisica Nucleare); CHIARUSI, Tommaso (Istituto Nazionale di Fisica Nucleare)

Presenter: TRAVAGLINI, Riccardo (Istituto Nazionale di Fisica Nucleare)

Session Classification: Hardware & Software Developments 2