



Contribution ID: 45

Type: **Talk**

Overview of EPICS driver development for data acquisition boards

Wednesday 5 June 2019 12:30 (15 minutes)

During the past year we have developed EPICS drivers for several different data acquisition boards that support sampling rates from 100MHz to GHz range. Common properties of these boards include the MTCA.4 form factor, and with it, PCIe bus, while their differences mostly reside in number of input channels, sampling rates, different driver APIs, etc.

EPICS drivers were structured based on common purpose of these boards –which is digitizing analogue signals, with board-specific functionality added later on. Such common code base approach reduces the amount of code, allows creating standard documentation and shortens the time new users spend on familiarizing themselves with the application. There are different ways of creating drivers with such standardized structure. In the examples presented, we used NDS3 which is a framework based on asyn and targeted towards DAQ devices.

The presentation will give an overview of NDS3 based EPICS drivers for 4 different boards: Teledyne ADQ14 and ADQ7, IOXOS ADC3110 (on IFC1410 carrier), VadaTech AMC523 (with MRT523 RTM and MZ523B mezzanine card).

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Session Classification: IOC Developments

Track Classification: IOC Developments