Digitizer Studio

A tool for high channel count applications

TELEDYNE SP DEVICES
Everywhereyoulook™

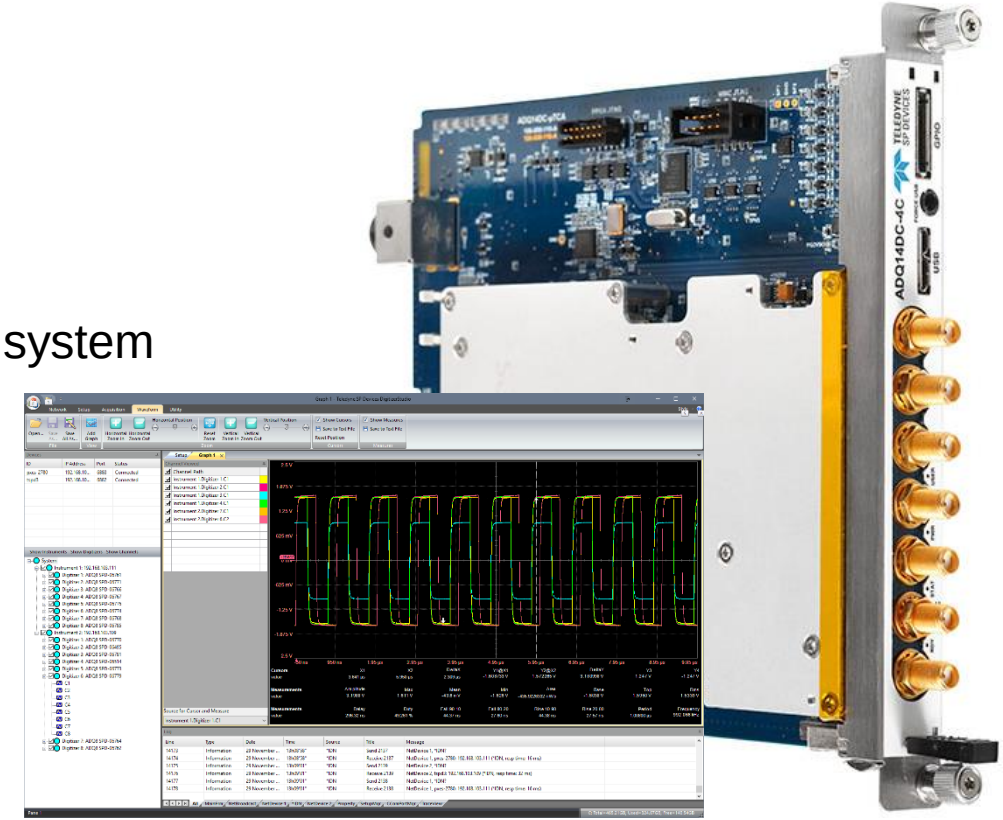
Agenda

ADQ digitizer for MTCA.4

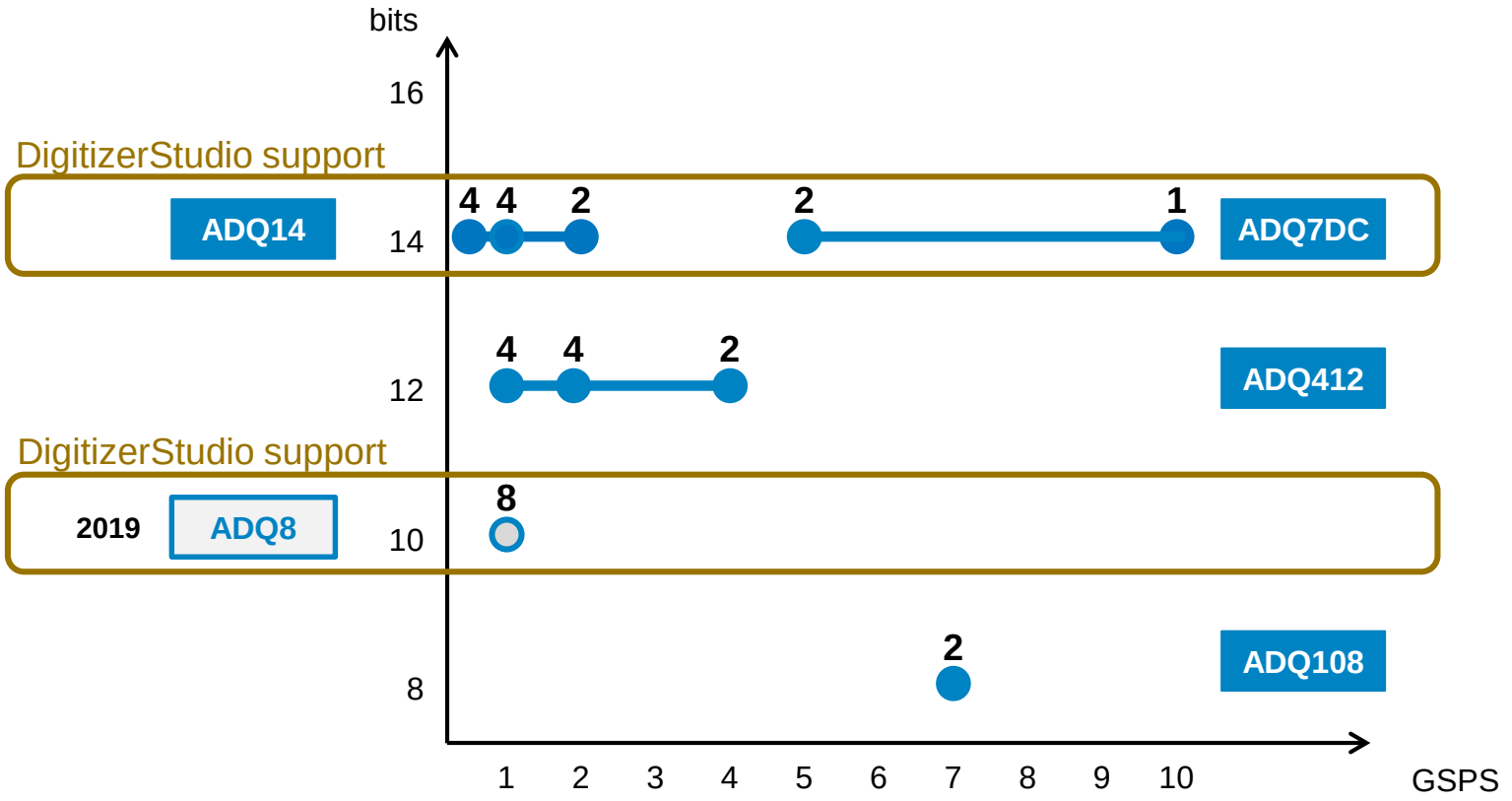
- Hardware
- Firmware
- Software

System design

- Digitizer Studio controlling a large system
- Trigger a large system



MTCA hardware

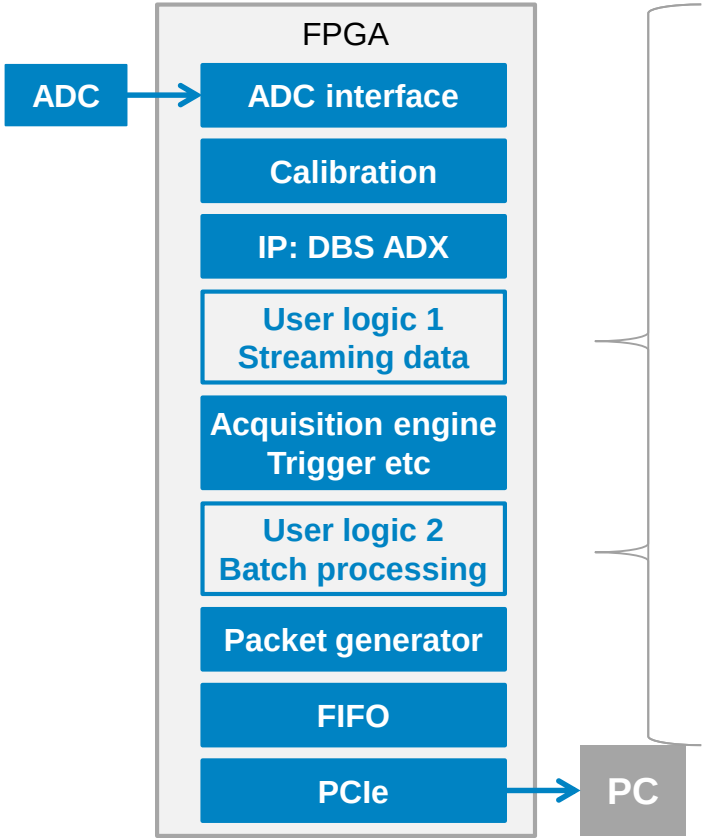


Available

Planned

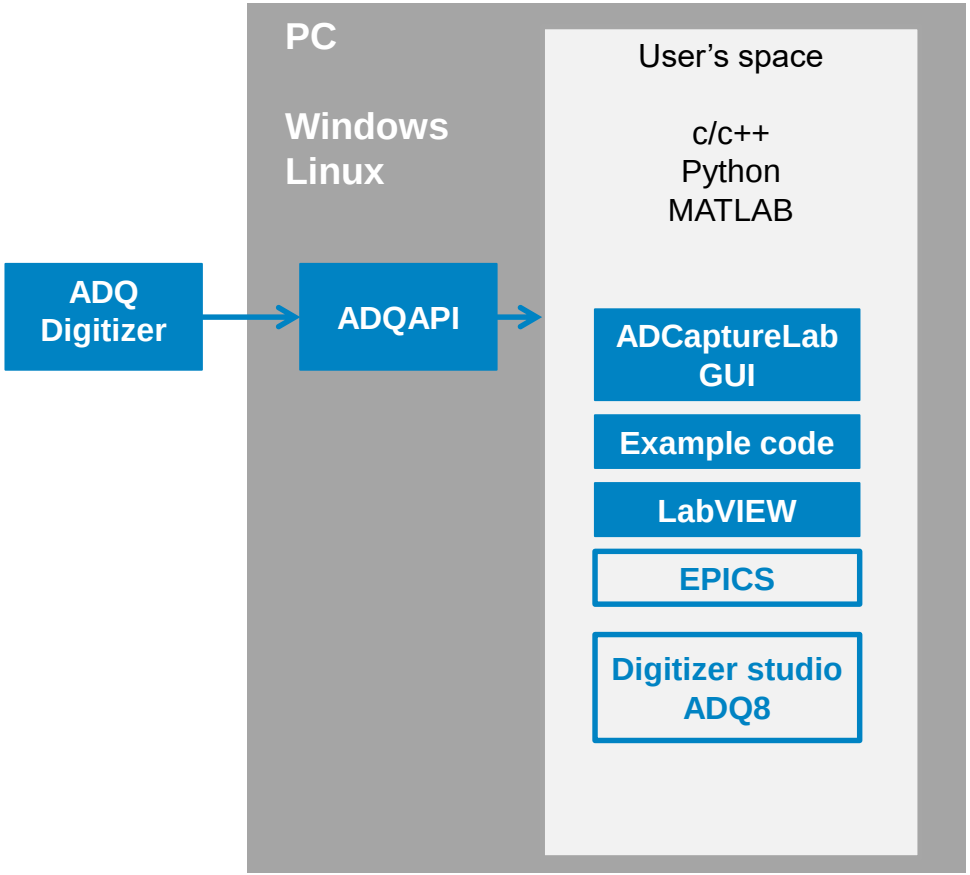
8 Channels

Firmware



- Framework
  - Standard function
- Application specific firmware
  - FWDAQ
  - FWPD
  - FWATD
  - FWSDR
- Custom firmware blocks
  - Streaming data
  - Batch data

Software



Getting started and verify that the ADQ is installed and connected

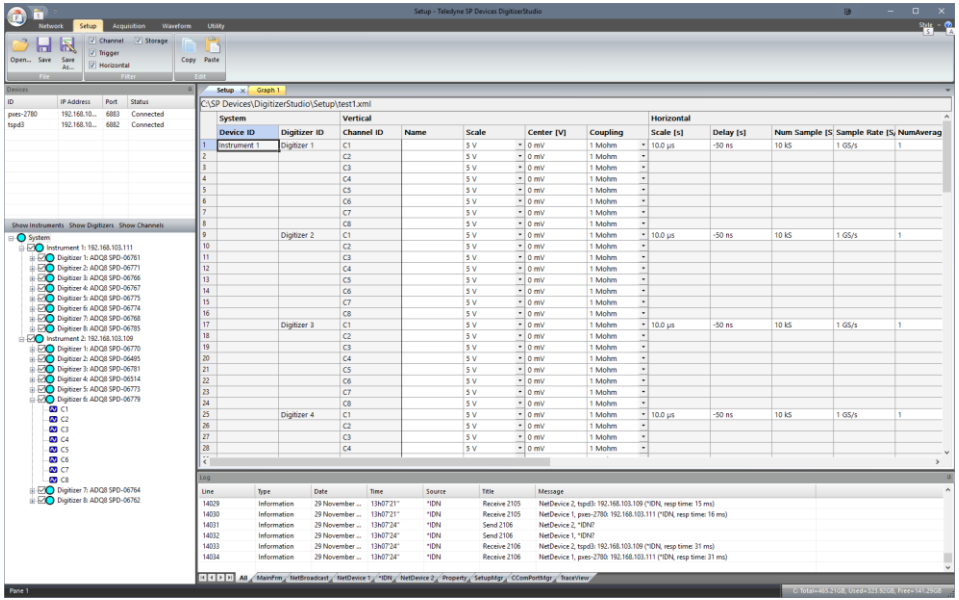
Getting started with programming

Platform based generalization

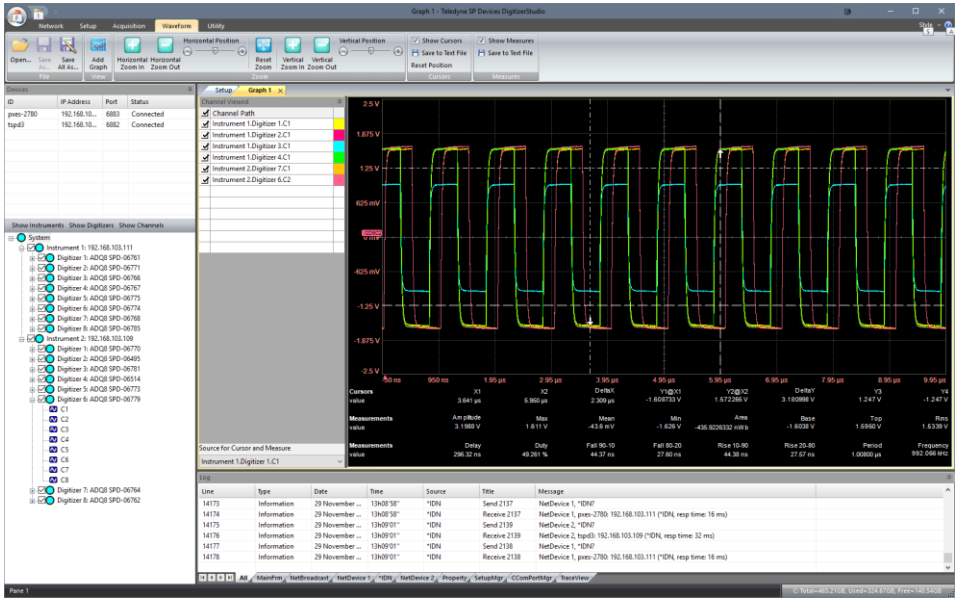
Controlling multi-channels system with multiple chassis

DigitzerStudio set-up and plot

Set-up acquisition



View result



DigitzerStudio – DigitzerController

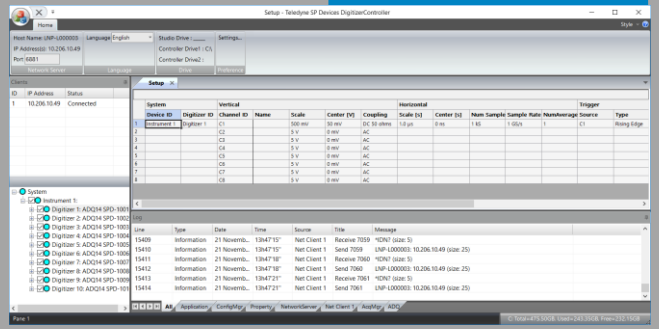
Master PC

DigitizerStudio

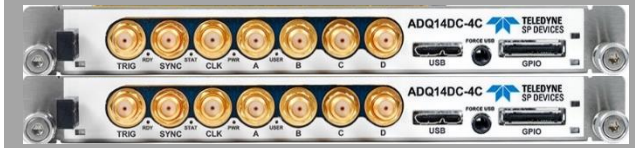
Network

Remote Chassis

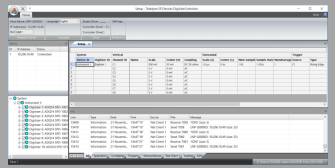
DigitizerController



Remote Chassis

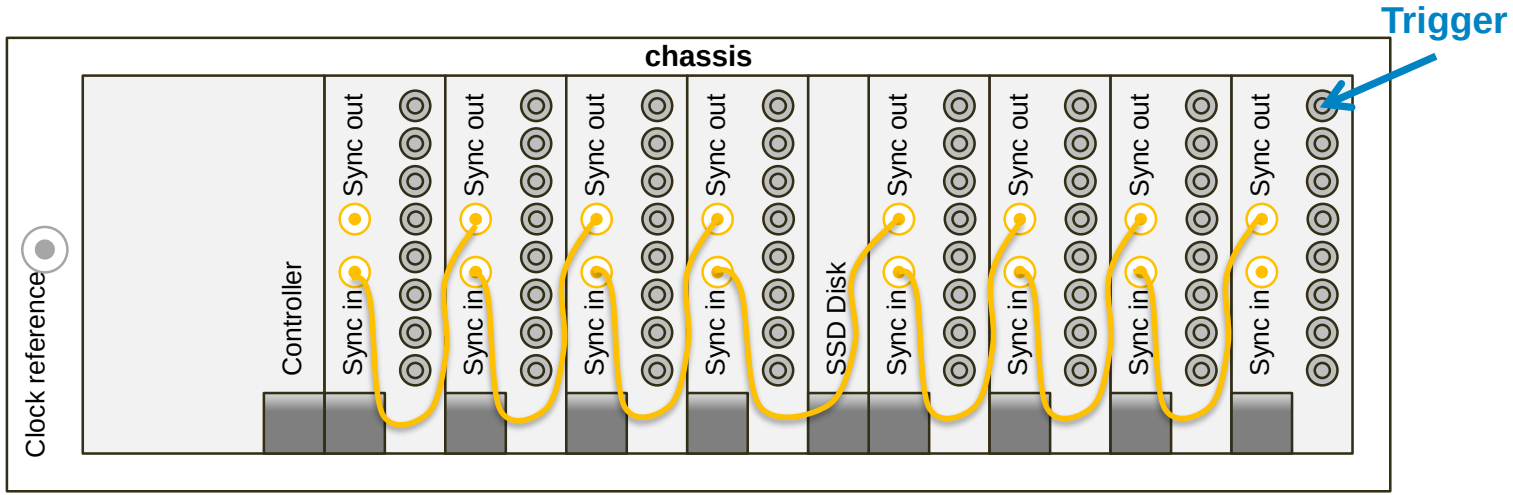


DigitizerController



Trigger method for large systems

Use one channel as trigger for interpolation of trigger timing <25ps
Chassis clock reference for timing alignment
Factory calibration timing between ADQ modules
Daisy chain trigger distribution
Calculate trigger position for each channel 200 ps system skew



Summary of solutions for large systems

Hardware: ADQ–MTCA.4 (10 – 14 bits, 1 – 10 GSPS)

Control software: DigitizerStudio

System design: Daisy chain trigger for synchronization to 200 ps