

Status and plans for SRS ATCA

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on behalf of SRS-ATCA design team

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Embedded Integrated Control Systems

Agenda

- Scalable Readout System in an ATCA shelf
- Status of development
- Delivered systems
- System experience
- Plans for future

Scalable Readout System in an ATCA shelf

- ATCA offers suitable infrastructure for SRS
 - Back-plane - compact system, connection over backplane
 - Front panel - space for many connectors
 - Rear IOs (RTM) – additional space for connectors
- There is an option for various system sizes
 - 14 slot ATCA (up to 86016 channels)
 - 5 slot ATCA (up to 61440 channels)
 - 2 slot ATCA (up to 12288 channels)

Scalable Readout System in an ATCA shelf

- Up to 11 FEC Boards in the shelf
- 1 SRU Board per shelf
- Connection over standard back-plane
 - p2p gigabit links between FEC and SRU
 - no external cables (maintenance, assembly)
- Scalable (1-board or many shelves)
- Optical and/or Ethernet between shelves
- High performance CPU in the crate (optional)
- In-built remote management and diagnostic (IPMC)

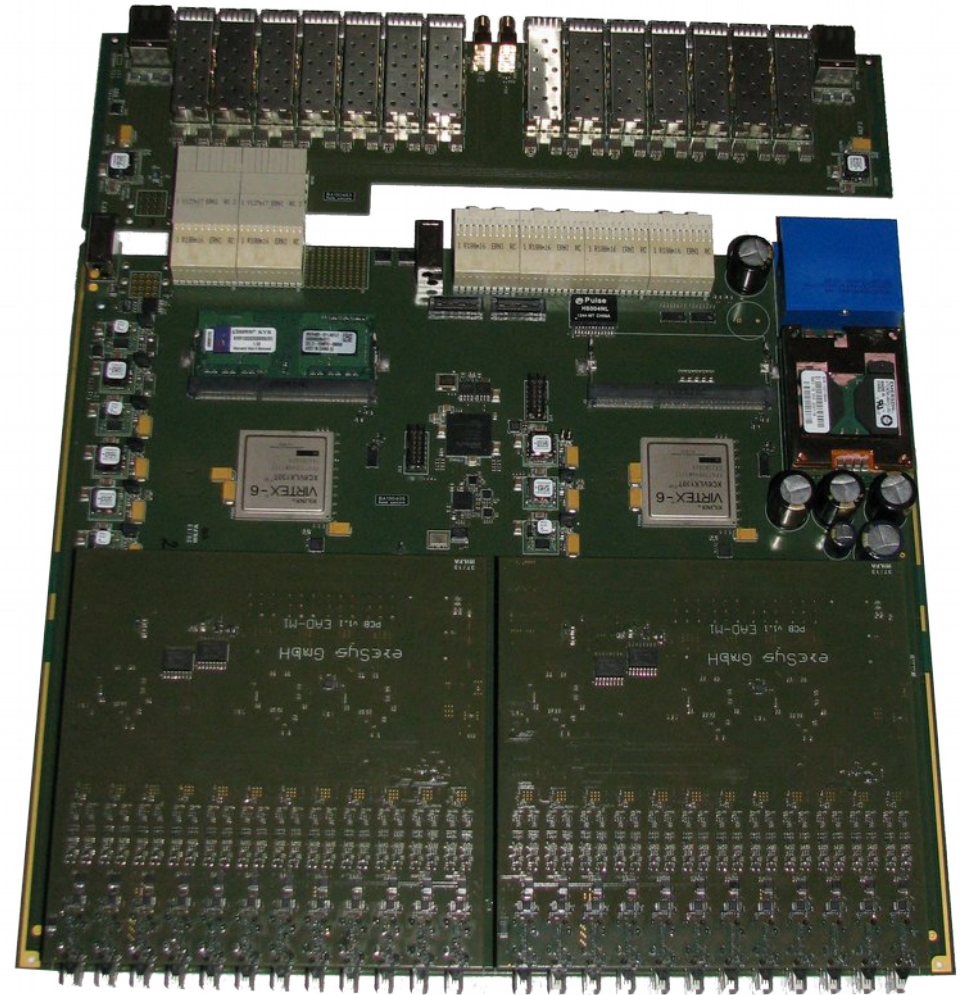
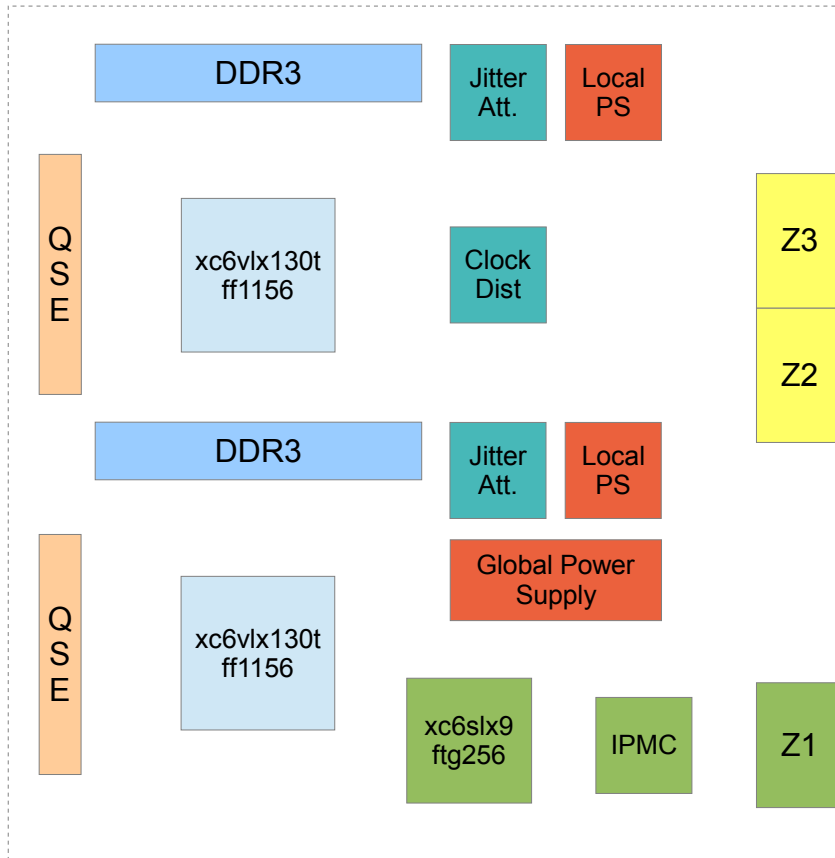
Status of development (1)

- 2-slot ATCA chassis
- 2x EATCA-100
- 2x ERTM-100
- 4x EAD-M1



96 ADC channels = 12288 readout channels

Status of development (2)



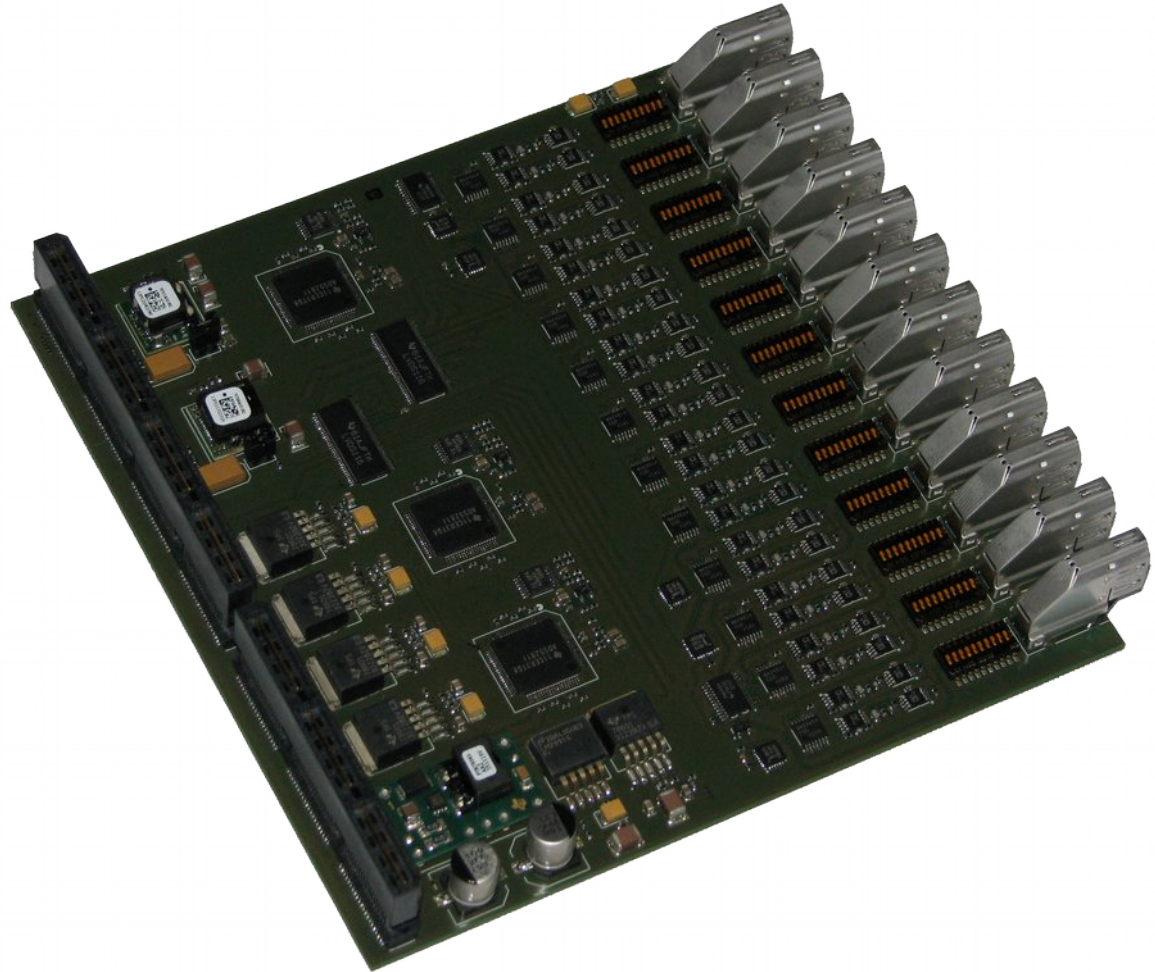
Status of development (3)

- 2x RJ45 for DTC
- 14x SFP/SFP+
- NIM trigger input
- EXT clock input



Status of development (4)

- 3x 8 channel ADCs
- Local power regulators
- 24 analog channels
(12 HDMI)
- Adjustable input filtering

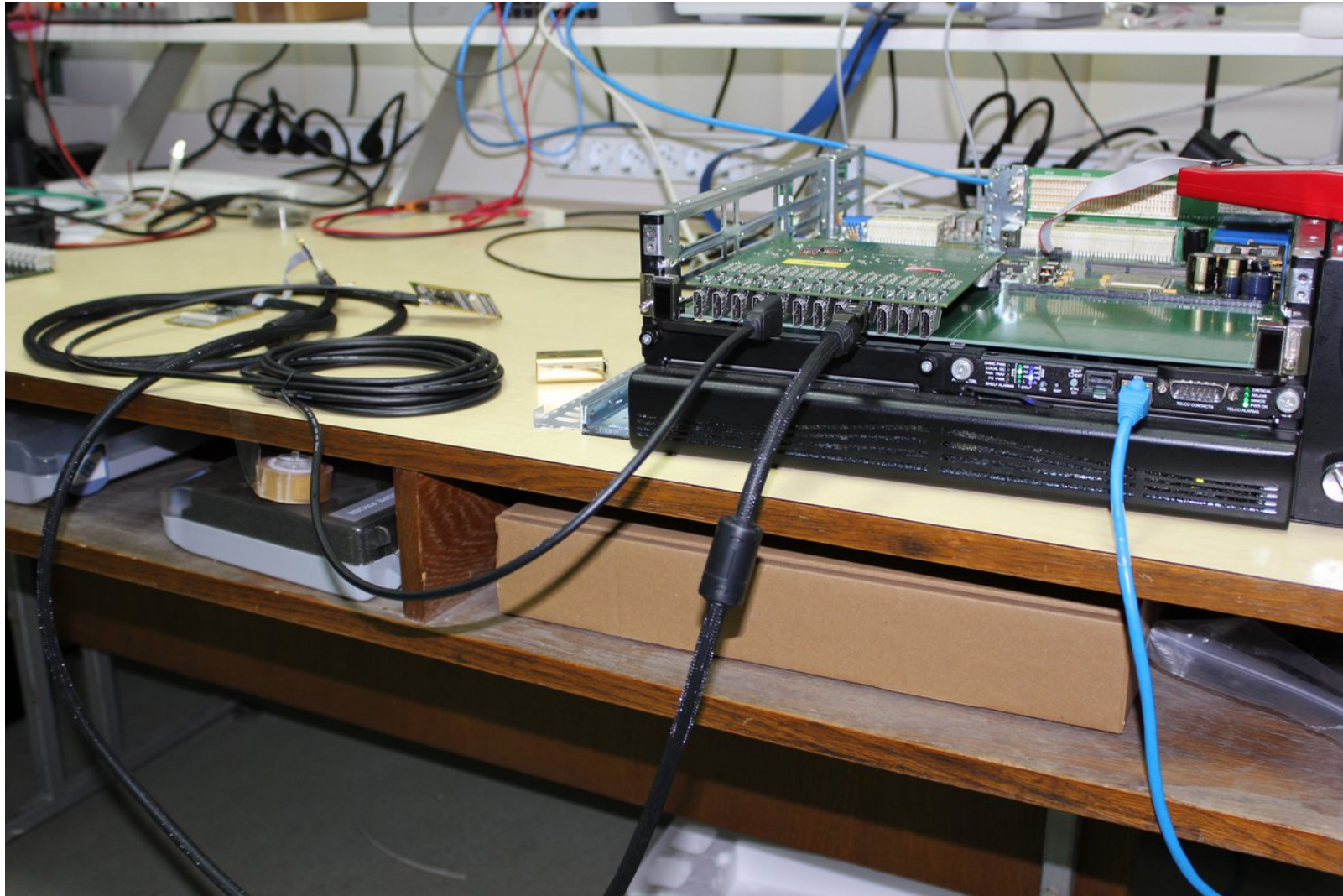


Delivered systems

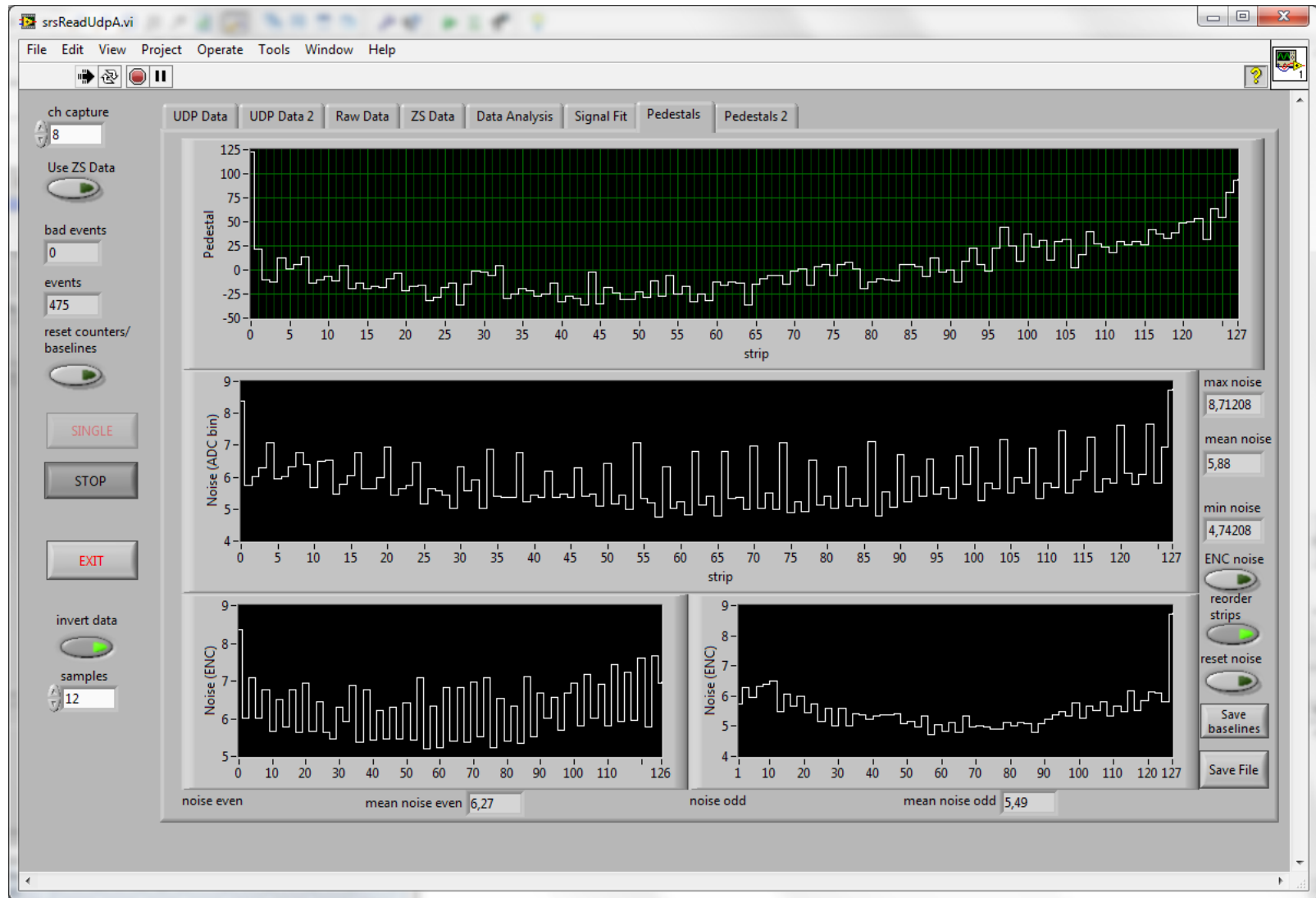
- CERN
- ORNL
- IFIN-HH Bucharest
- UPV Valencia



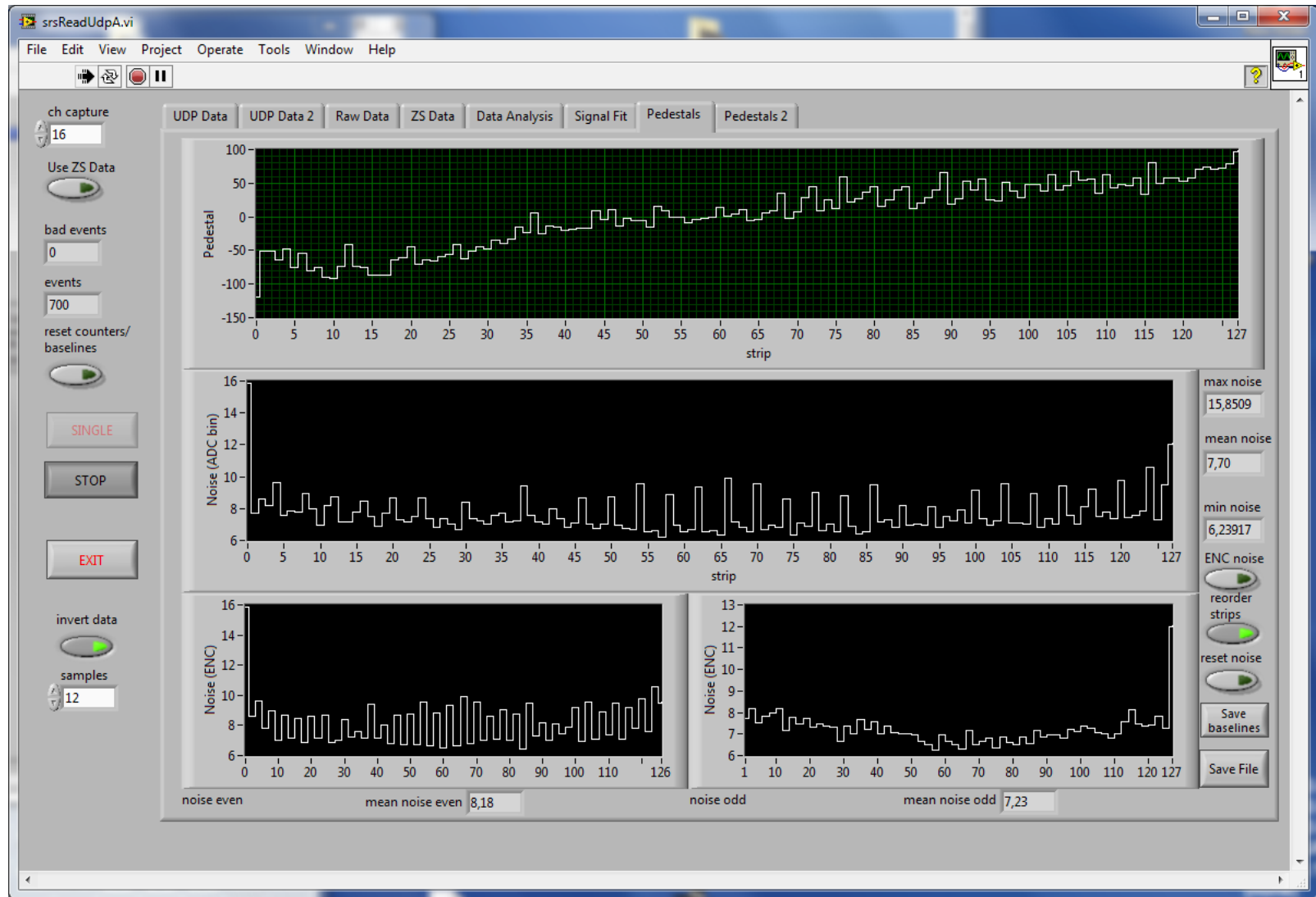
System experience (1)



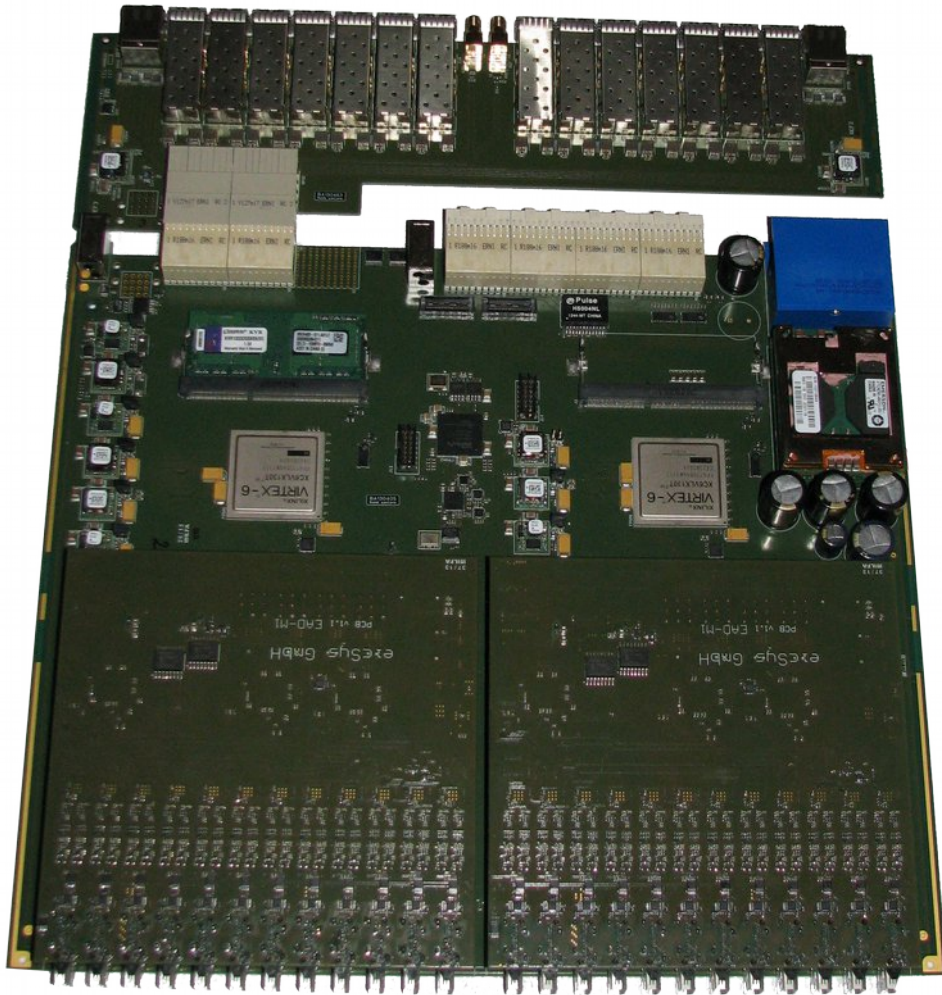
System experience (2)



System experience (3)



Plans for future(1)



Redesign of Carrier

- Bug fixes
- Virtex 7 upgrade ?
- Clock distribution improvements
- Minor functional improvements
- New management

Plans for future(1)

Redesign of RTM

- Bug fixes
- 10G version of RTM ?



Plans for future(2)



Redesign of ADC

- Bug fixes
- Mechanical improvements
- Clocking improvement
- Simplification of input stage config and overall configuration

Plans for future(3)

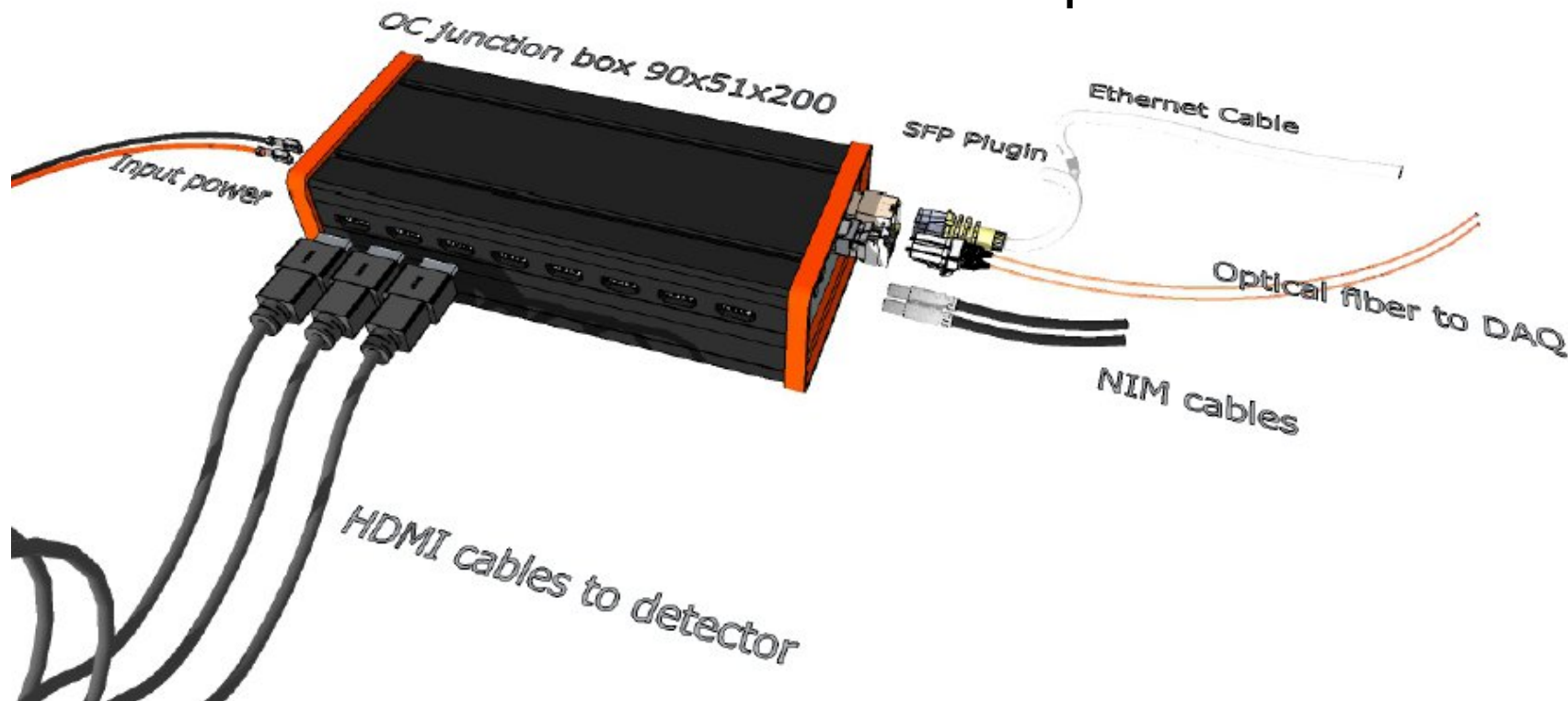


- Start-up full system
- Missing elements:
 - SRU equivalent

Plans for future(4)

OCA box design

Discussion on specification has started



Thank you for your attention