CAENspa INDIA Pvt. Ltd.

CAEN for India

A wholly owned subsidiary of ….

CAEN Tools for Discovery

Electronic Instrumentation

April 2023

By Debabrata Basak

CAENspa India Private Limited

CAENspa INDIA Pvt. Ltd.

- CAEN is proud to announce the opening of its new office in India

- with the goal to bring to India the best instrumentation available on the market to address the challenging needs of the Nuclear Physics and Engineering communities and industries

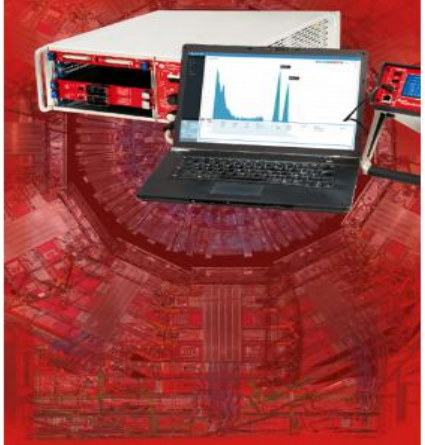
Brands

CAEN SyS
Spectroscopy Division

CAEN SyS develops innovative Radiation Measurements Systems and Spectroscopy Solutions for Nuclear Safety and Nuclear Secuity application.

CAEN
Tools for Discovery

CAEN SpA develops and markets a wide range of High/Low Voltage Power Supply systems and Front-End/Data Acquisition modules for Nuclear and Particle Physics detectors.

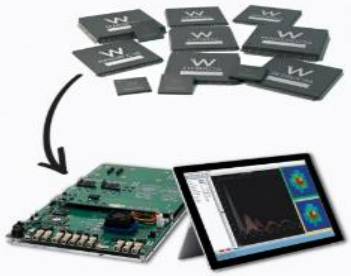


CAENels
Gear For Science

CAENels provides electronic instrumentation for Particle Accelerators and Light Sources. From magnet power supplies to diagnostic electronic instrumentation, from precision current sensors to complex beamline electronic systems.

weeroc

Weeroc designs and provides front-end microelectronics for photodetection, medical imaging, homeland security and space industry.



Brands

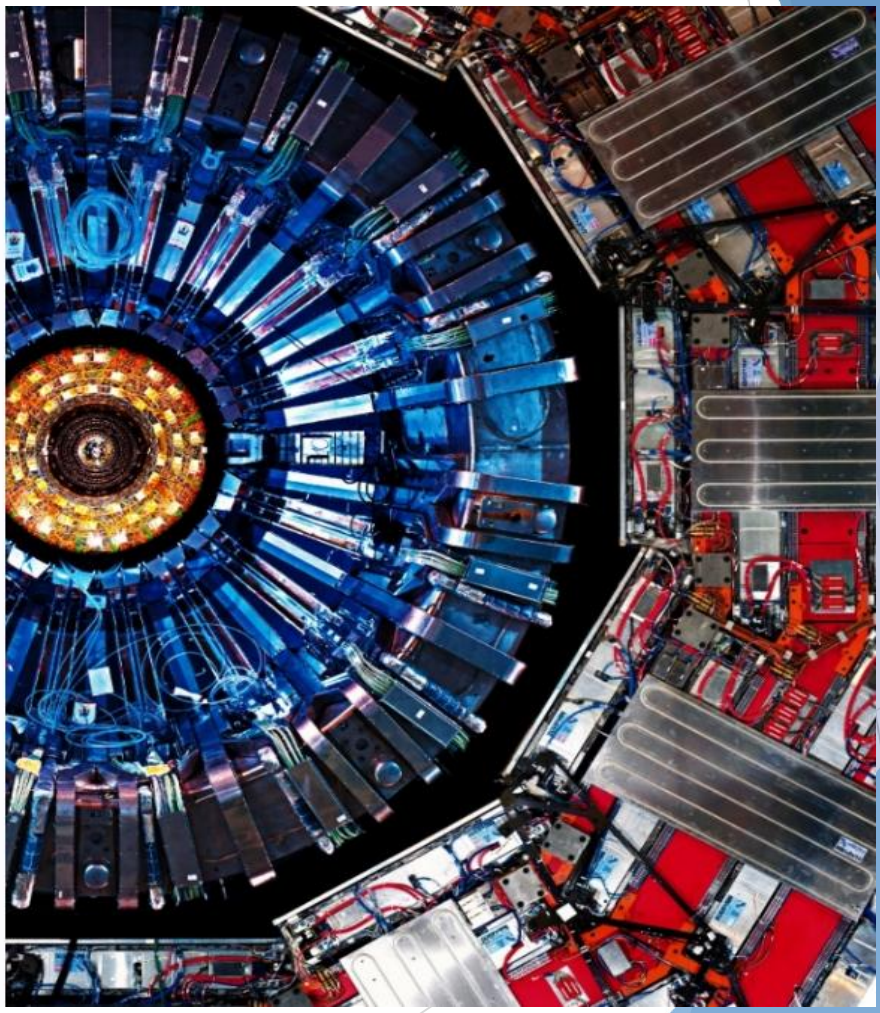
CAEN SyS
Systems and Spectroscopy Solutions

CAEN SyS has a strong knowledge on nuclear measurement, developing Radiation Measurements Systems and Spectroscopy Solutions applied to operations within Nuclear Fuel Facilities, Nuclear Power Plant, Measurements Laboratories and Security premises. CAEN SyS has a strong knowledge on nuclear measurement, developing Radiation Measurements Systems and Spectroscopy Solutions applied to operations within Nuclear Fuel Facilities, Nuclear Power Plant, Measurements Laboratories and Security premises.

Brands

CAEN
Tools for Discovery

CAEN SpA provides a complete range of High/Low Voltage Power Supply systems and Front-End/Data Acquisition modules which meet IEEE Standards for Nuclear and Particle Physics. Extensive Research and Development capabilities allowed CAEN SpA to play an important long term role in this field. CAEN activities have always been at the forefront of technology, thanks to years of intensive collaborations with the most important Research Centres of the world. CAEN products appeal to a wide range of customers including engineers, scientists and technical professionals who all trust them to achieve their goals faster and more effectively.



Brands

CAENels
Gear For Science

CAEN ELS is a leading company in the design of power supplies and state-of-the-art complete electronic systems for the Physics research world, having its main focus on dedicated solutions for the particle accelerator community and high-end industrial applications.

Thanks to the longstanding engineering, manufacturing and maintenance experience of CAEN SpA, CAEN ELS has become a strategic and reliable partner for the community, being able to integrate its products and solutions with direct support to the customers and their installations.

Brands

weeroc

High-end Microelectronics Design

Weeroc is a spin-off company from Omega laboratory (IN2P3/CNRS French governmental agency for fundamental research in astrophysics, particle physics and nuclear physics) and today offers a full range of products to read out almost any kind of detector. In particular, it provides off-the-shelf programmable analog and mixed front-end ASICs for photon and particle detectors readout, together with Testboards specifically designed for each ASIC.

Weeroc main customers are the major actors in the fields of:

- Medical imaging
- Homeland security
- Nuclear protection
- Scientific instrumentation
- Space (launchers and satellites)

Products Overview

Power Supply Systems
•Universal Multichannel System
•VME – NIM Power Supplies
•Stand Alone Power Supply
•EASY (Embedded Assembly System)
•Low Voltage Power supplies
•Magnet Power Supplies

Modular Pulse Processing
•Analog
•Digital
•Digitizers
•Read Out system

Digital Spectroscopy
•Digital Multi Channel Analysers
•Digital Systems for Charge Integration
•Tube Base Multichannel Analysers
•Measurement Systems

Educational
•Kits
•Experiments
•Scientific Papers

Some Relevant Products

Power Supplies

- Universal Multichannel Power Supply System
- High Density Boards
- Boards for GEM, RPC
- Magnet Power Supplies
  - Bipolar
  - Unipolar
  - 4-Quadrant

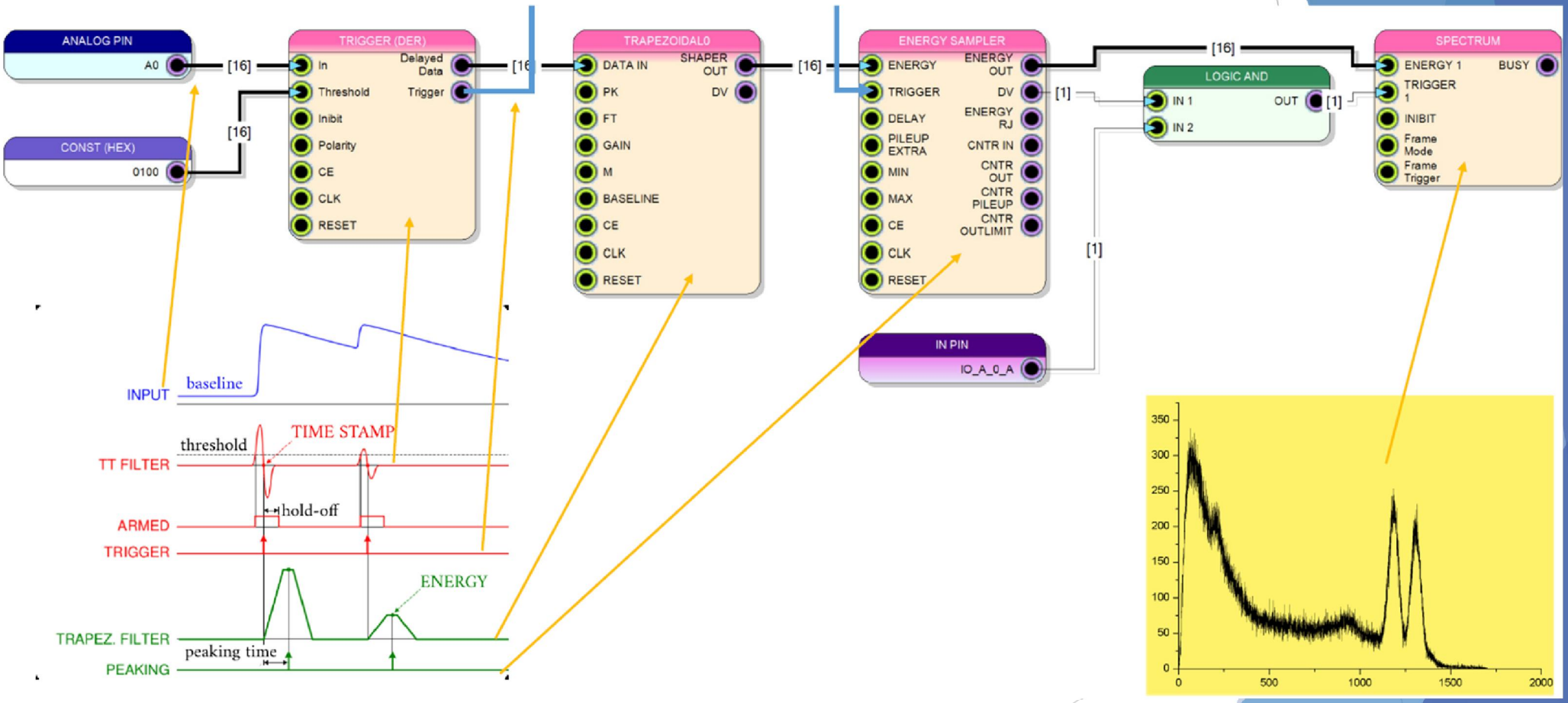
Digital Acquisition Systems

- 1st Generation Digitizer – 15 years of success
- Up to 5 GHz
- Up to 64 Ch
- Up to 16 bit
- PHA, PSD, QDC, CFD, Waveform, DAW, ZLE
- Fixed Firmware
- User friendly software

Digital Acquisition Systems

- 2nd Generation Digitizer
- Up to 1 GHz
- Up to 128 Ch
- Up to 16 bit
- PHA, PSD, QDC, CFD, Waveform, DAW, ZLE
- Open FPGA

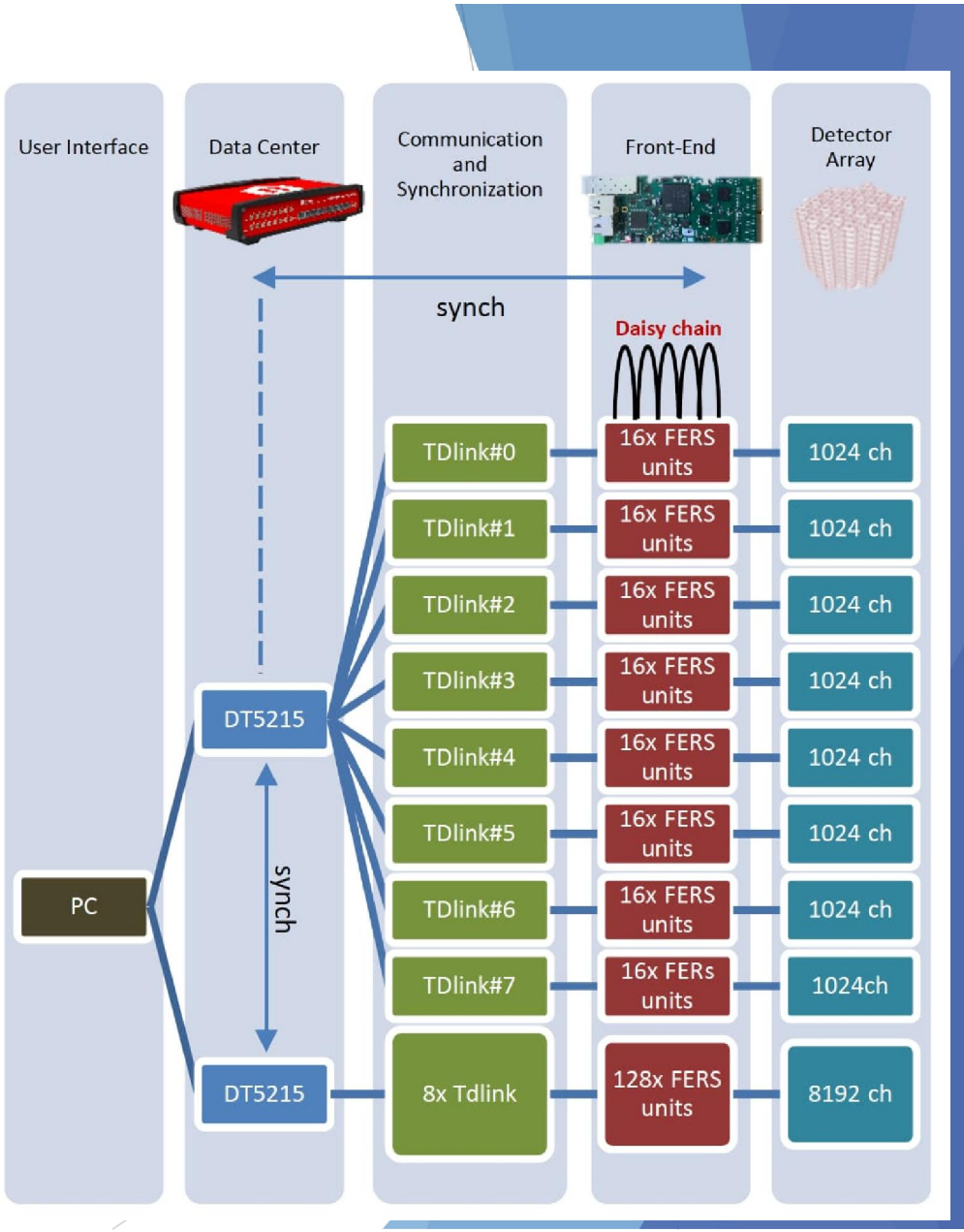
Open FPGA: Sci Compiler: An example: Implementation of PHA



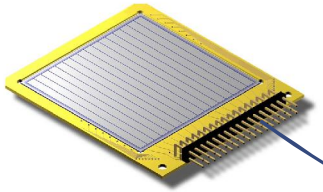
Digital Acquisition Systems

State of the Art: FERS-5200

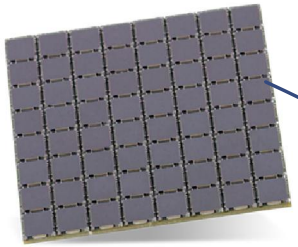
FERS-5200 is a Front-End Readout System designed to read out large arrays of detectors, such as SiPMs, multi-anode PMTs, Silicon Strip detectors, Wire Chambers, GEM, Gas Tubes and others. FERS is a **highly-scalable** distributed platform. Each unit is a small card which houses 64 or 128 channels and includes Front End electronics, A/D converters, trigger logic, synchronization, local memory and readout interface.



FERS-5200 “flavours”

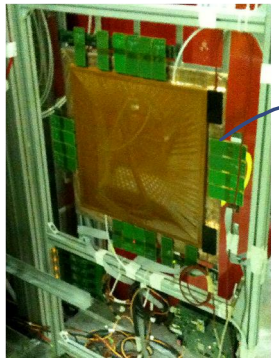


Silicon Strip Detectors

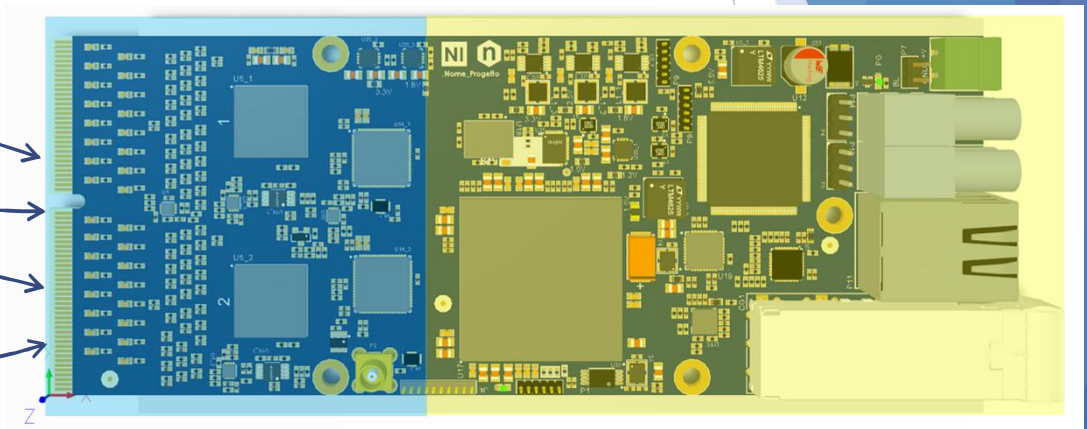


SiPM

Multi- wire chambers



Micromegas, GEMs



APPLICATION -SPECIFIC COMMON INFRASTRUCTURE

Same infrastructure, different Front-Ends
quick integration of different ASICs

Products in Science Projects

Custom Developments: Case History

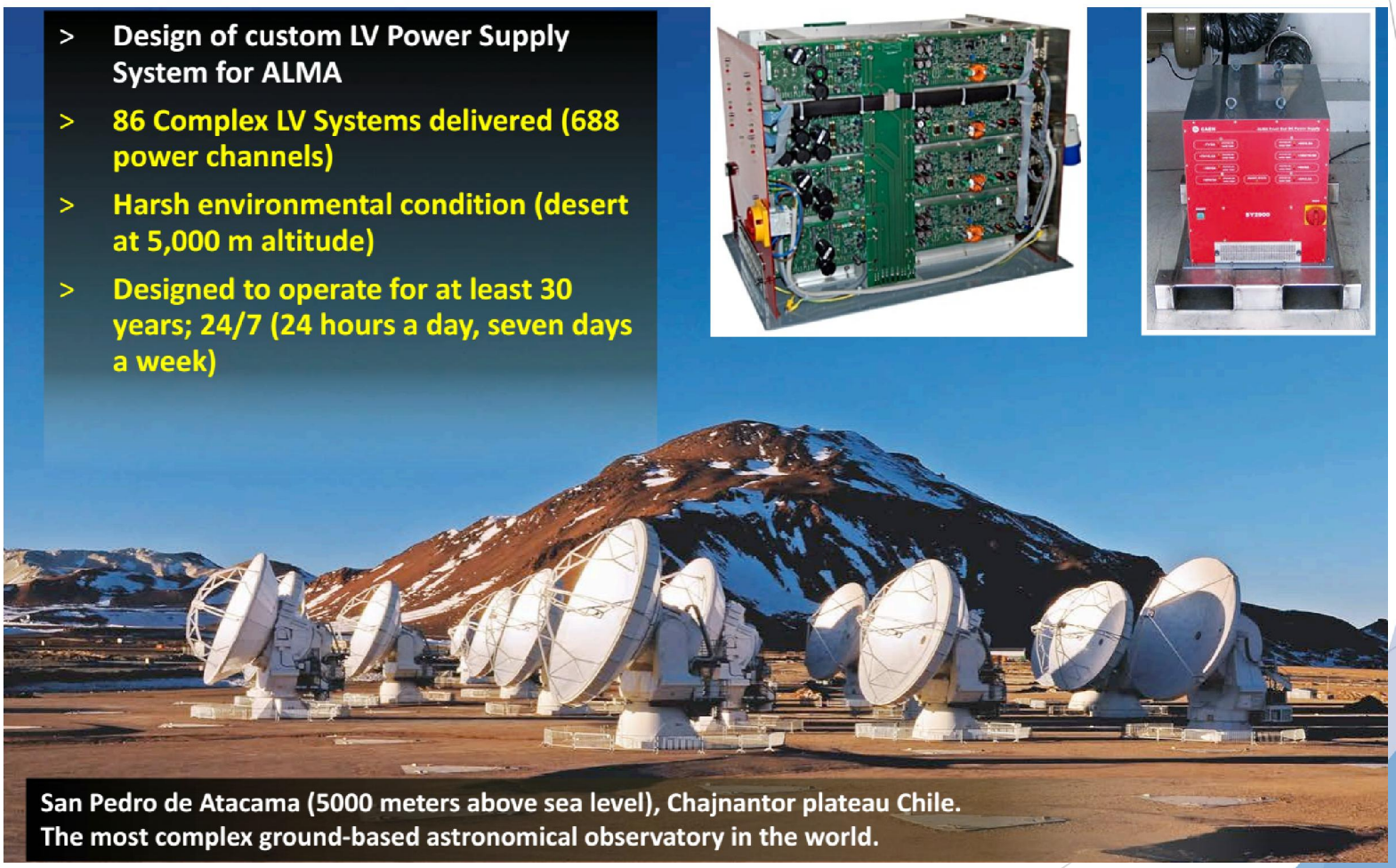
Strong capability to manage complex custom solutions

- High Voltage
- Digital and Analog Pulse Processing

Products in Science Projects

LV Power Supply for ALMA (ESO)

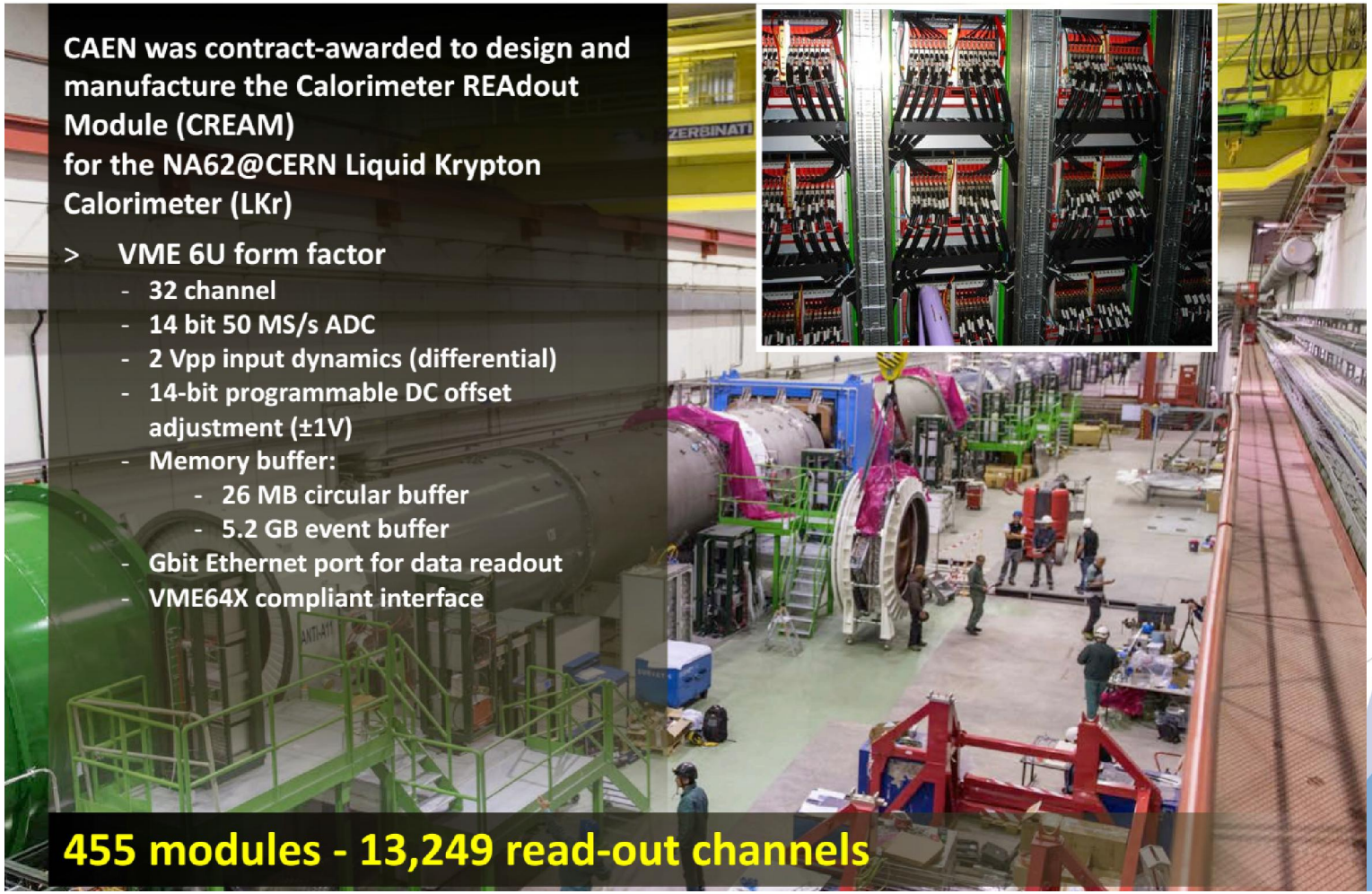
- Design of custom LV Power Supply System for ALMA
- 86 Complex LV Systems delivered (688 power channels)
- Harsh environmental condition (desert at 5,000 m altitude)
- Designed to operate for at least 30 years; 24/7 (24 hours a day, seven days a week)



San Pedro de Atacama (5000 meters above sea level), Chajnantor plateau Chile.
The most complex ground-based astronomical observatory in the world.

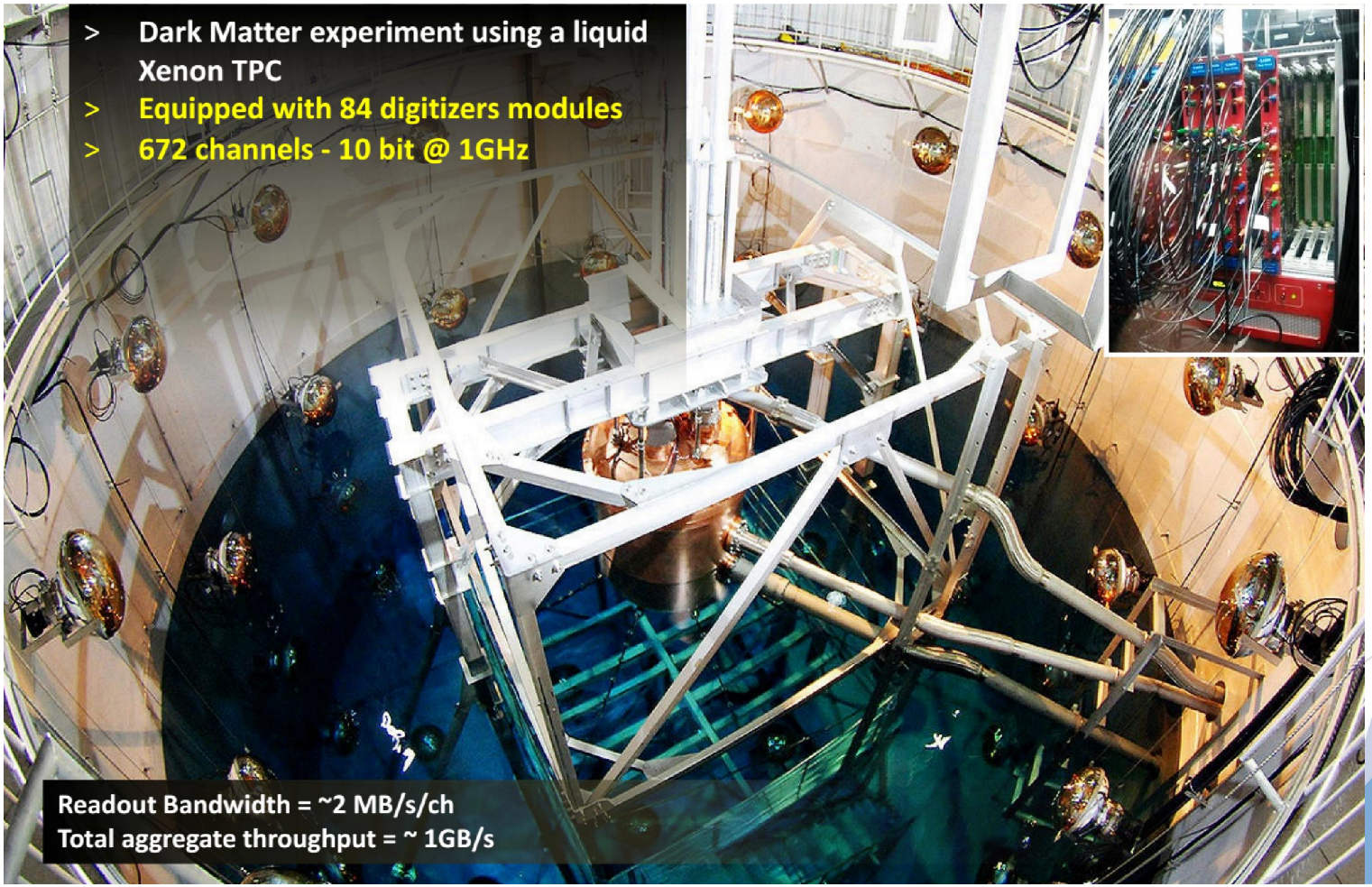
Products in Science Projects

NA62@CERN



Products in Science Projects

XMass @ Kamioka, Japan



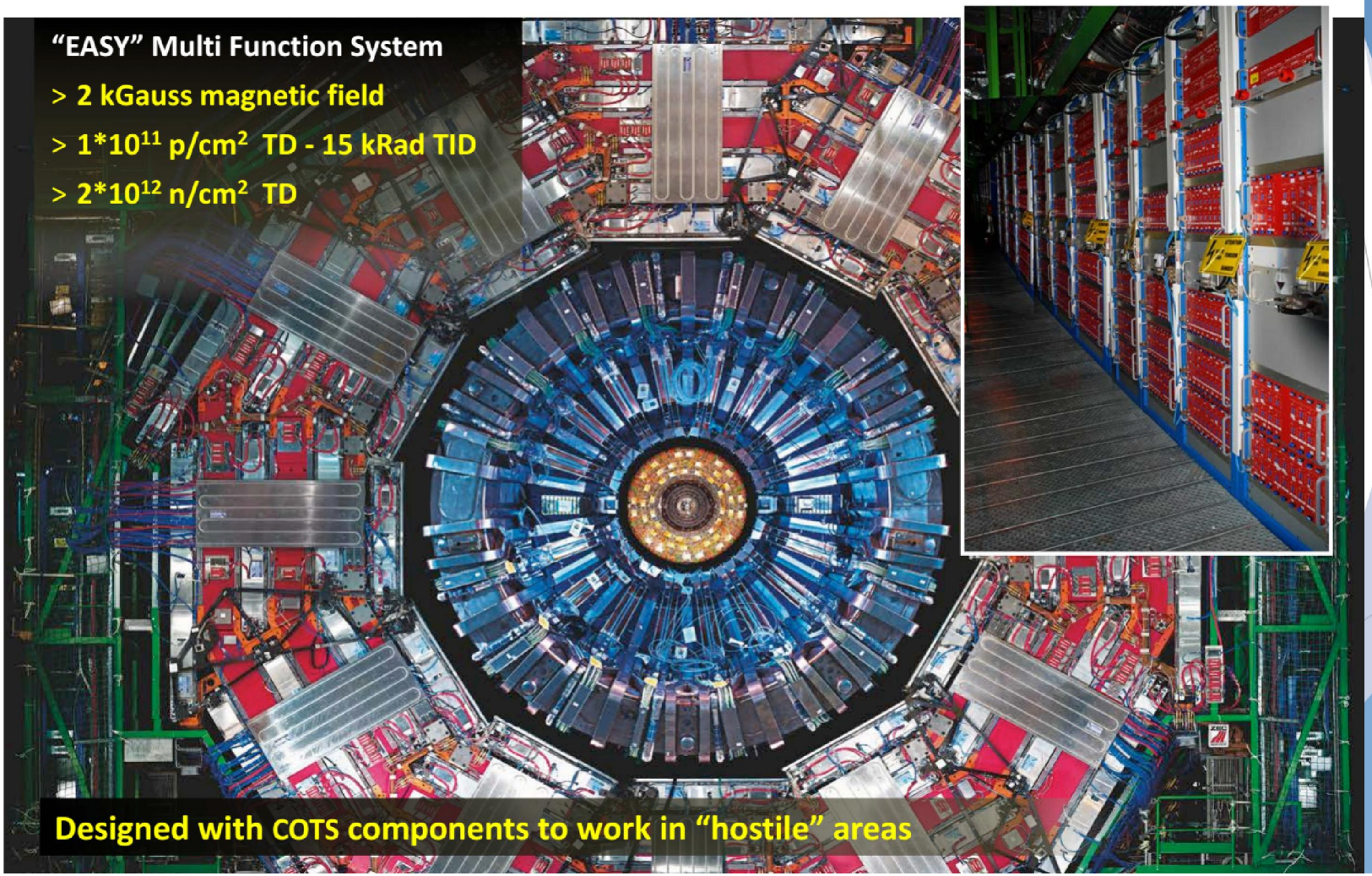
Products in Science Projects

International Atomic Energy Agency

The Fast Neutron Collar (FNCL) is a liquid scintillator-based instrument developed as an efficient NDA (non destructive assay - test) tool for verification of modern NPP's Fresh Fuel Rods

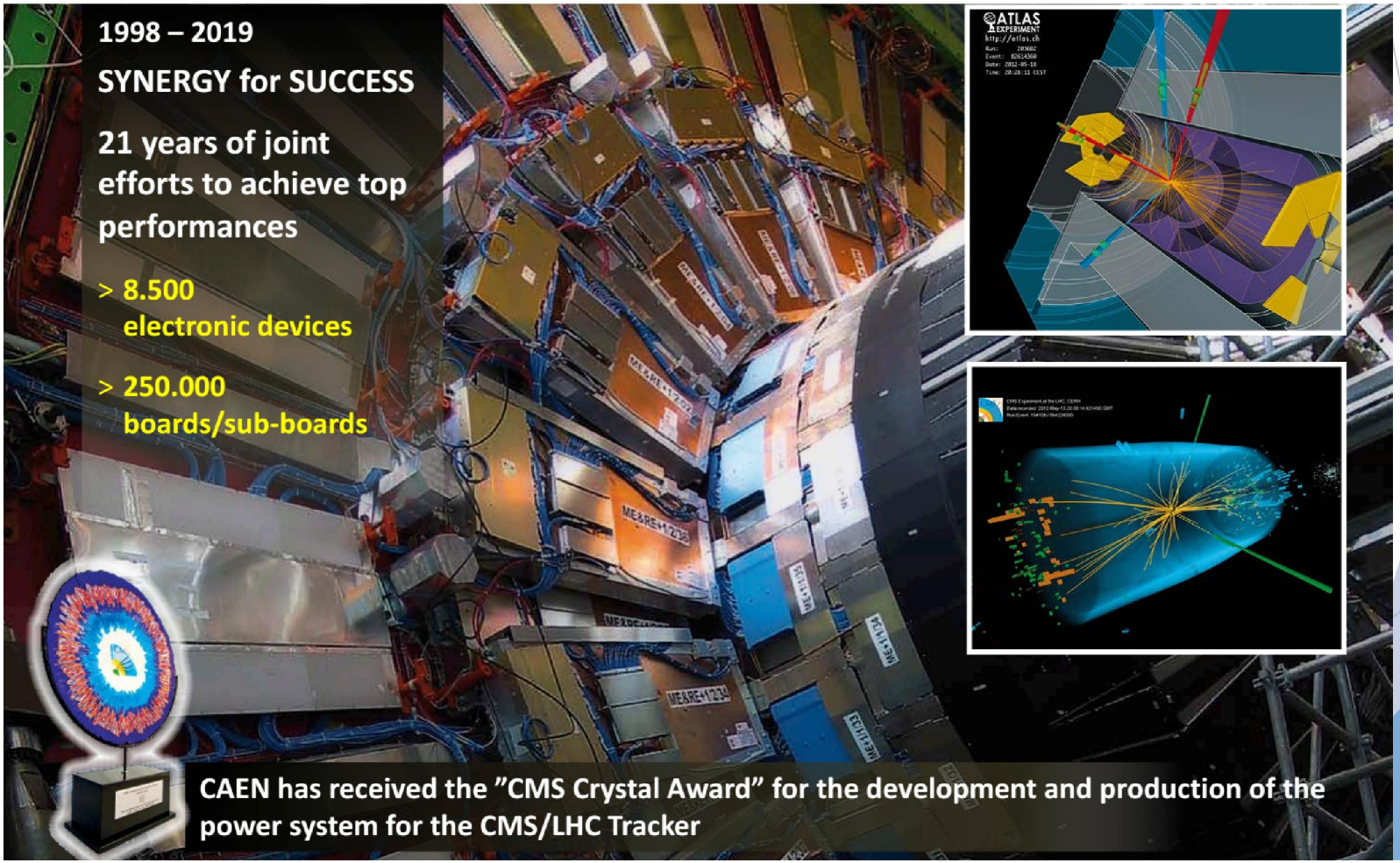
Products in Science Projects

CERN/LHC Electronics in Hostile Environments



Products in Science Projects

CAEN & LHC Experiments



CAENspa India Private Limited

- Headquarter: Mumbai, with local offices in Kolkata and Kota
- Brands: CAEN  , CAENSys  , CAENels  , Weeroc 

- Benefit for the user:
  - direct contact with CAEN
  - no intermediate agent
  - highly qualified team at your servive
  - future development plan in India…

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https://www.caen-india.in/

THANK YOU