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Spectrocam

Compact 64-channel SiPM Photodetector Module

SpectroCam is a 64-channel system designed to readout silicon photo-multipliers (SiPM) for scientific instrumentation application. Spectrocam is a stack up of two boards. The front-end board is housing the 64-channel detector (Hamamatsu S13361-6050AE x4) on top side and readout ASICs (Citiroc1A x2) followed by a 15-bit ADC on the bottom side. The backend board embeds a FPGA (Cyclone V) for controlling the ASICs and HV voltage module provided in the kit. Spectrocam comes with open source firmware (Quartus) and open source software in C#. A CAEN high-voltage module is provided in the kit.

Provided software allows system calibration, ASIC programming and data acquisition with graphic user interface providing direct spectrum and flood map.

Detector Read-Out	4 x S13361-6050AE (Not included in the kit) Hamamatsu – 6x6mm2 50um microcells
Number of Channels	64 (2 x Citiroc 1A front-end ASIC)
Signal Polarity	Positive
Sensitivity	Trigger on 1/3 photo-electron with a 10^6 PM gain or 50 fC
High Voltage	CAEN A7585DU – 85V – 10mA max. Temperature compensation
Dynamic Range	Up to 2000 photo-electron
System Dimension	60mm x60mm with 10mm removable mechanical flanks for 3-side abutment 22mm height
Power Consumption	USB self-powered
Outputs	USB 2 output RS-232 output (to be programmed by user) User defined FPGA I/Os (to be programmed by user)
Internal Programmable Features	64 HV adjustement for SiPM (64x8bits), trigger threshold adjustement (10bits), channel by channel gain tuning, 64 Triggers Masks, Trigger Latch, internal temperature sensor, topological & complex trigger (to be programmed by user), high voltage setpoint, number of acquisitions, delay before acquisition (ns)

They are using Spectrocam

CEA/ANDRA – MAUD project
CNRS/ANDRA – ComptonCAM project

More about Spectrocam

Contact Florent PEREZ
Web https://www.weeroc.com
Email florent.perez@weeroc.com
Phone +33 1 85 41 13 90

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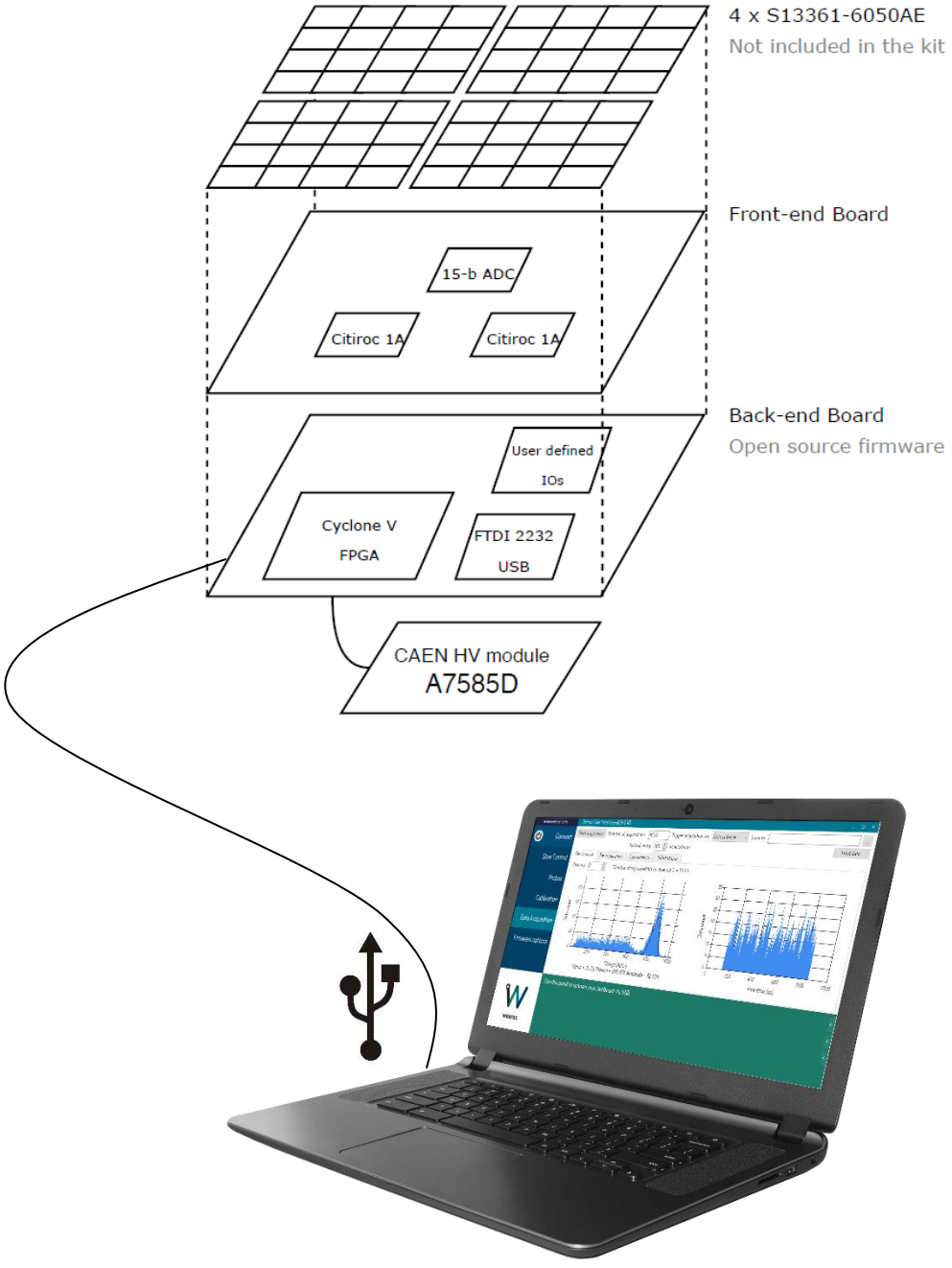

Open-source software (C#, windows 10 only)