

COMPASS

**Multiparametric
DAQ Software for
Physics Applications**



Features

- Software for simultaneous DPP acquisition, including **DPP-PHA**, **DPP-PSD** and **DPP-QDC**
- Multi-board management
- Synchronization of multiple boards even from different families, Time Correlation between different channels
- Simultaneous plot of waveforms, energy, time, PSD, and TOF spectra
- Energy calibration
- Digital Constant Fraction Discrimination for fine time stamp interpolation (pico second intrinsic resolution)
- Selectable filters on energy, time and PSD
- Advanced data saving options:
 - Data from board is recorded for the whole acquisition run
 - Time ordered recording of channels acquired data (list mode)
 - Spectra saving
- Data can be retrieved offline for additional filtering and analysis
- ROOT format data saving

Description

CAEN Multi-Parameter Spectroscopy Software (CoMPASS) is the DAQ software from CAEN able to implement a Multiparametric Data Acquisition for Physics Applications: the detectors can be connected directly to the digitizers/MCAs inputs and the software acquires energy, timing, and PSD spectra at the same time.

CoMPASS software has been designed as a user-friendly interface to manage the acquisition with all the CAEN DPP algorithms. It allows an easy setting of the acquisition parameters and to display up to six different plots and histograms at the same time.

CoMPASS can manage multiple boards and allows an easy synchronization of multiboard systems. Among the most important features, CoMPASS allows to implement event correlation between different channels (in hardware and/or software), apply energy, PSD and time selections, calculate and show the acquisition statistics (trigger rates, data throughput, percentage of discarded events due to the selections, etc...), perform a basic mathematical analysis of the recorded spectra (ROI selection, background subtraction, peak fitting, etc), save the output data files (raw data, lists, waveforms, spectra) and use the saved files to run offline with different processing parameters.

For user familiar with the ROOT Analysis Framework, CoMPASS provides also the possibility of saving the output files (lists, waveforms and spectra) in the ROOT TTree format for an easy post processing with user-made analysis code. CoMPASS software supports CAEN **x720**, **x724**, **x725**, **x730**, **x740D**, **x751**, **2730**, **2740** and **2745** digitizer families running the **DPP-PSD**, **DPP-QDC** and **DPP-PHA**, the **x780** / **x781** / **x782** MCA families and the Pulse Processor **DT5790**.

Applications

- Nuclear spectroscopy
- Clover detectors
- HPGe, Silicon Drift Detectors
- Neutron physics with scintillation detectors
- Multiple boards synchronization
- Homeland security
- Precise Timing for Time of Flight measurements

Related Software

DPP-QDC



Digital Pulse Processing for Charge Integration in High Density Systems

Related Firmware

DPP-PHA



Digital Pulse Processing for the Pulse Height Analysis

DPP-PSD



Digital Pulse Processing for Charge Integration and Pulse Shape Discrimination

Related Products

N6724



2/4 Channel 14 bit 100 MS/s Digitizer

V1724



8 Input Channel 14 bit 100 MS/s Digitizer

DT2740



64 Input Channel 16 bit 125 MS/s Digitizer

DT5725 / DT5725S



8 Input Channel 14-bit 250 MS/s Digitizer

DT2745



64 Channel 16 bit 125 MS/s Digitizer with Programmable Input Gain

DT2751



16 Input Channel 14 bit 1 GS/s Digitizer with Programmable Input Gain

DT5730 / DT5730S



8 Input Channel 14 bit 500 MS/s Digitizer

DT5720



4/2 Input Channel 12bit 250 MS/s Digitizer

N6730 / N6730S



8 Channel 14-bit 500 MS/s Digitizer

VX1730 / VX1730S



16/8 Input Channel 14 bit 500 MS/s Digitizer

N6781



Dual/Quad Digital Multi Channel Analyzer - NIM

N6725 / N6725S



8 Channel 14-bit 250 MS/s Digitizer

V2745



64 Channel 16 bit 125 MS/s Digitizer with Programmable Input Gain

DT2730



32/16 Input Channel 14 bit 500 MS/s Digitizer with Programmable Analog Gain

VX2730



32/16 Input Channel 14 bit 500 MS/s Digitizer with Programmable Analog Gain

VX1751



4/8 Input Channel 10 bit 2/1 GS/s Digitizer

V1725 / V1725S



16/8 Input Channel 14-bit 250 MS/s Digitizer

DT5790



Dual Digital Acquisition System for Charge Integration and Pulse Shape Discrimination

V1720



8 Input Channel 12bit 250 MS/s Digitizer

DT5740D



32 Input Channel 12 bit 62.5MS/s Digitizer supporting DPP-QDC firmware

VX2751



16 Input Channel 14 bit 1 GS/s Digitizer with Programmable Input Gain

DT5781



Dual/Quad Digital Multi Channel Analyzer - Desktop

N6780



Dual Digital Multi Channel Analyzer (HV & Preamplifier PS) - NIM

VX1725 / VX1725S



16/8 Input Channel 14-bit 250 MS/s Digitizer

VX2745



64 Input Channel 16 bit 125 MS/s Digitizer with Programmable Input Gain

DT5724



4/2 Input Channel 14 bit 100 MS/s Digitizer

V2740



64 Channel 16 bit 125 MS/s Digitizer

VX2740



64 Input Channel 16 bit 125 MS/s Digitizer

VX1720



8 Input Channel 12bit 250 MS/s Digitizer

VX1724



8 Input Channel 14 bit 100 MS/s Digitizer

V1740D



64 Input Channel 12 bit 62.5 MS/s Digitizer supporting DPP-QDC firmware

V1751



4/8 Input Channel 10 bit 2/1 GS/s Digitizer

DT5751



2/4 Input Channel 10 bit 2/1 GS/s Digitizer

N6740D



32 Channel 12bit 62.5 MS/s Digitizer

N6720



4 Channel 12 bit 250 MS/s Digitizer

DT5780



Dual Digital Multi Channel Analyzer (HV & Preamplifier PS) - Desktop

V1782



Octal Digital Multi Channel Analyzer

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