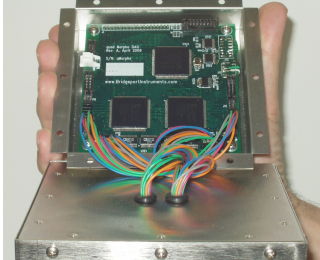


Overview



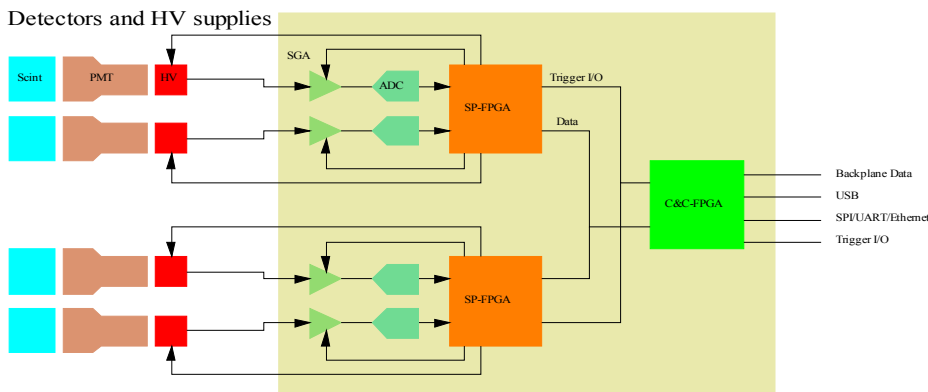
qMorpho embedded into the lid of a 4-detector assembly

The qMorpho is a digital four-channel MCA and coincidence data acquisition unit for use with scintillator detectors.

A single qMorpho connects directly to the host computer; An array of qMorphos connects to the host via a backplane. A common communication protocol and driver software supports both cases.

The signal-processing FPGAs create raw data, such as energies, triggers, time stamps, histograms etc. The open-source C&C FPGA has access to the raw data and users can implement their own code to create a unique instrument.

Architecture



qMorpho with four independent channels. SP-FPGAs compute raw data and control HV. C&C-FPGA enforces coincidences and is user programmable.

Applications

Especially when used with TwinBase HV-supplies the qMorpho allows you to:

- Achieve the best accuracy and speed with your scintillator detectors;
- Make full use of the great precision and speed of LaCl₃ and LaBr₃;
- Operate many detectors synchronously;
- Perform coincidence or gated spectroscopy;
- Build larger systems when used with a backplane;
- Perform real time pulse shape analysis for particle discrimination.

- Small, low-power 4-channel DAQ
 - 3.5" x 3.5"
 - 0.30 W to 0.70 W / channel
- Easy to use and integrate
 - Standalone or use with backplane
 - Interfaces: USB, SPI, UART, Ethernet (w/ daughter card)
 - Auxiliary I/O and HV-control
 - Open source software
- MCA
 - 4 x 2048 channels, 32-bit
 - Best energy resolution and highest histogramming rate for any scintillator
 - Maximum rate: 16 Mcps
- Added features
 - Oscilloscope, List mode, n/γ, α/β discrimination
 - Coincidence tests in C&C-FPGA
 - Open-source C&C-FPGA
 - Sum spectra possible in C&C-FPGA
- Use with backplane for larger systems
 - Easily portable desktop unit (with metal housing)
 - Ideal for embedded systems:
 - Very low power consumption
 - Tight integration with HV supply
 - Programmable I/O for local communication and control
 - Code extensions:
 - Split histogram memory
 - Gain stabilization
 - Sum spectra in C&C-FPGA