SkuTek Instrumentation

Where Science Meets Industry

Chickadee-32

32-Channel Digitizer with 10G Streaming Readout

32-Channel Digitizer — Rear Transition Module
1 GbE (FPGA)
Digital HDMI
32 Analog inputs
2 Analog outputs
1 GbE (Linux)
4 * NIM in
10 G Ethernet
Optical TTCL
4 * NIM out
USB-2 (Linux)
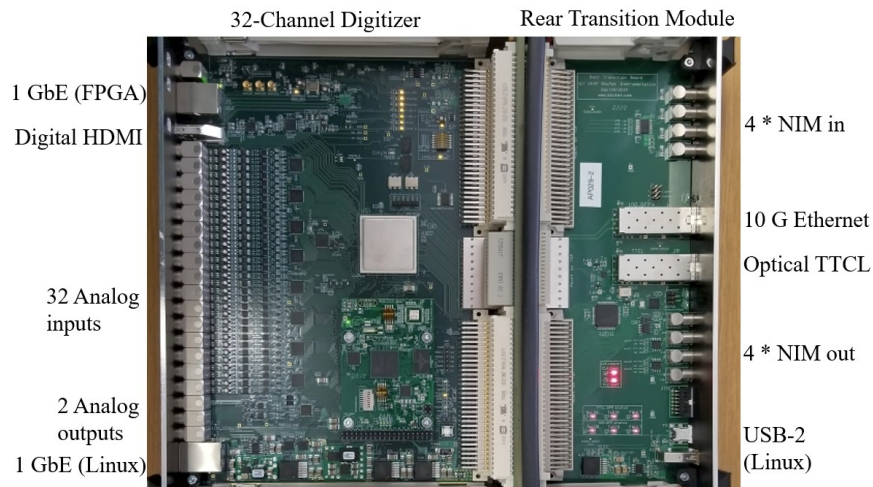
CHK-32-10G is a high performance data acquisition system with embedded Linux. Standard GammaSphere firmware has been ported to this digitizer. It is serving all 32 channels. The firmware can also integrate the HPGe signal with several running windows, in order to perform pole-zero compensation of the RC-reset preamplifier signal. GammaSphere BGO scintillators are also served with the same firmware. Other scintillators can be used as well: CsI(Tl), NaI(Tl), LYSO, or BC400. Sub-nanosecond time resolution can be achieved with the latter.

Chickadee-32 Specifications

Channel Count	32
Bit Resolution	14
Sampling Frequency (MHz)	100
Analog Inputs	LEMO (Max 2Vpp input)
Waveform Length	Up to: 81.92 μs (100MHz)
Trigger Modes	Group Multiplicity, Free Trigger, TTCL external (when used with SkuTek rear transition module) Leading Edge or Constant Fraction Trigger Algorithms
Real-Time Pulse Processing	Same real-time processing features as Digital GammaSphere *(developed in collaboration with Argonne National Lab)*

Data Products	Waveforms, Digital GammaSphere pulse processing headers Additional customization available on a contract-basis
Analog Outputs	**N/A**
Readout Options	Internal Storage 1 Gbps streaming ethernet 10 Gbps streaming ethernet (when used with SkuTek rear transition module)
Physical Dimensions (cm)	Standard VME
Weight (kg)	0.85
Form Factor	Rack Mount VME (note: no VME readout. Streaming ethernet is used)
Digital I/O	2 LEMO Input 4 LEMO Output
Synchronization	Sync Timestamp Input (ideal for White Rabbit or GPS pulse-per-second) External Clock Input Greta Timing and Control Link (TTCL) (when used with SkuTek rear transition module)
Computer Interfaces	USB Gigabit Ethernet
Detector Bias	**N/A**
Power	VME
User Interface	EPICS
API	EPICS Register Configuration via Python Remote Procedure Calls
Operating System	Embedded Linux

About SkuTek Instrumentation

We are a small company dedicated to serving physics researchers worldwide. We specialize in high-speed Data Acquisition systems and Digital Pulse Processing electronics. Our product line comprises the whole data acquisition chain: detectors, digitizers, firmware pulse processing, and data management for scientific big-data applications.

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www.skutek.com Email: info@skutek.com