

WaveDump

Readout Application for CAEN Digitizer 1.0



Features

- Console-based application for waveform acquisition and real-time display
- Multi-channel waveform visualization
- Advanced board configuration mode:
 - Global board settings
 - Individual threshold and DC offset adjustment
 - ADC calibration required by 725, 730, and 751 Digitizer families
- Advanced mathematical processing: amplitude spectra and FFT analysis
- Support for 742 board configuration and DRS4 chip corrections
- Family-specific function settings (e.g., Decimation for 724 and 740 series)
- Data export in multiple formats: ASCII and binary
- Open-source C code with Visual Studio project — freely available to developers

Description

WaveDump is a console-based readout application designed for CAEN digitizers 1.0 running Waveform Recording firmware. It enables users to configure a single digitizer board through a plain-text configuration file — specifying parameters and acquisition instructions — and to start or stop data taking at any time. During operation, WaveDump displays readout information and trigger rates in real time, allowing immediate verification of the acquisition status. Beyond basic acquisition control, WaveDump offers integrated post-processing capabilities, including FFT analysis and amplitude histogram generation. Acquired data can be saved in ASCII or binary format for offline analysis, and waveforms can be plotted graphically through the Gnuplot third-party utility (www.gnuplot.info).

WaveDump also serves as a well-structured reference implementation in C, demonstrating best practices for interfacing with CAEN libraries and building efficient readout pipelines. It is an ideal starting point for developers who wish to create custom acquisition software tailored to the full capabilities of their digitizer hardware. Source files and the Visual Studio project are available for free download.

NOTE: WaveDump does not support DPP (Digital Pulse Processing) firmware.

Supported Operating Systems: Windows, Linux

Language: C

Supported Products: Digitizer 1.0 in VME, NIM, and Desktop form factor

Communication Interfaces: USB, Optical Link, Ethernet, VME

Required Dependencies: CAENDigitizer, CAENComm, CAENVMELib, Gnuplot (Linux only)

Applications

- Signal inspection and waveform recording
- Research and development of detector prototypes
- Data collection for offline statistical analysis
- Beam monitoring
- Sensor readout and detector performance characterization
- Lida

Related Products

V1720



8 Input Channel 12bit 250 MS/s Digitizer

DT5740D



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

VX1720



8 Input Channel 12bit 250 MS/s Digitizer

VX1725 / VX1725S



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

V1730 / V1730S



16/8 Channel 14 bit 500 MS/s Digitizer

VX1742



32+2 Channel 12bit 5 GS/s Switched Capacitor Digitizer

DT5724



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

DT5761



1 Input Channel 10 bit 4 GS/s Digitizer

DT5740



32 Input Channel 12 bit 62.5MS/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

N6761



1 Channel 10 bit 4 GS/s Digitizer

V1751



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

DT5751



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

N6720



4 Channel 12 bit 250 MS/s Digitizer

N6740D



32 Channel 12bit 62.5 MS/s Digitizer

V1761



2 Input Channel 10 bit 4GS/s Digitizer

VX1740



64 Input Channel 12bit 62.5 MS/s Digitizer

DT5725 / DT5725S



8 Input Channel 14-bit 250 MS/s Digitizer

VX1761



2 Input Channel 10 bit 4GS/s Digitizer

V1724



8 Input Channel 14 bit 100 MS/s Digitizer

N6724



2/4 Channel 14 bit 100 MS/s Digitizer

N6742



16+1 Channel 12bit 5 GS/s Switched Capacitor Digitizer

DT5720



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

DT5730 / DT5730S



8 Input Channel 14 bit 500 MS/s Digitizer

N6740



32 Channel 12bit 62.5 MS/s Digitizer

N6730 / N6730S



8 Channel 14-bit 500 MS/s Digitizer

VX1740D



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

VX1730 / VX1730S



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

N6725 / N6725S



8 Channel 14-bit 250 MS/s Digitizer

DT5742



16+1 Channel 12 bit 5 GS/s Switched Capacitor Digitizer

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

V1740



64 Input Channel 12 bit 62.5 MS/s Digitizer

VX1751



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

V1742



32+2 Channel 12bit 5 GS/s Switched Capacitor Digitizer

V1725 / V1725S



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

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