CAEN
Tools for Discovery

Coming Soon

DT5571

1 Channel 14-bit 200 MS/s Open FPGA Digitizer

Features

- 1 analog input, 14-bit @ 200 MS/s, 50 Ω
- Scope & DPP modes with internal memory buffer
- Open FPGA – user firmware via Sci-Compiler
- USB 2.0 and 10/100 Mb Ethernet interfaces
- Compatible with WaveDump and CoMPASS
- Available as desktop version

Description

The **DT5571** is a high-performance waveform digitizer featuring 14-bit resolution and a 200 MS/s sampling rate on a single analog input. Designed to meet the needs of modern acquisition setups, it combines precision, speed, and flexibility in a streamlined desktop form factor.
Two operating modes are supported: Scope Mode for raw waveform recording, and DPP Mode for real-time on-board signal processing. With software-selectable input polarity and an internal memory buffer, the DT5571 is ideal for reading out scintillators, SiPMs, and other fast detectors.
The module offers USB 2.0 and 10/100 Mb Ethernet interfaces for fast data transfer and remote access. Its Open FPGA architecture enables full customization of acquisition logic via CAEN's **Sci-Compiler**, with a graphical environment accessible to users with no VHDL experience.
It is also fully compatible with **WaveDump2** and **CoMPASS**, supporting both advanced analysis and straightforward configuration. Whether for R&D, prototyping, or education, the DT5571 delivers reliable performance and flexibility in a compact, lab-friendly solution.
The DT5571 is available in desktop version and is ready to support your next acquisition challenge.
In collaboration with Nuclear Instruments.

Technical Specifications

GENERAL

Form Factor: Desktop 257 x 102 x 331 mm3 (WxHxD)

ANALOG INPUT

Channels: 1 BNC type

Impedance: 50 Ω/1 kΩ programmable

Bandwidth: 60 MHz, Programmable DC offset adjustment on each input in the full scale range

Analog Coarse Gain: [x1:x100]

Full Scale Range: [0.015 Vpp: 1.5 Vpp]

DIGITAL I/Os

USER IO 0…2 (LEMO)

- Programmable Digital I/Os, function stated at firmware level.
- Can be used as Trigger, Start, Busy
- Single-ended, Zin / Rt = 50 Ω

DIGITAL CONVERSION

Resolution: 14 bits

Sampling Rate: 200 MS/s

CLOCK GENERATION

200 MHz ADC clock

Clock sources: internal/external

- Internal 25 MHz oscillator
- External 25 MHz – USER IN 0 or SYNC connector

TRIGGER

Trigger Propagation

- Through USER I/Os and Sync Connector

Trigger Source

- Internal/External: managed by the default firmware
- Complex trigger logic: implementable by the user on the open FPGA

Trigger Time Stamp

- Default FW: 32-bit counter, 8 ns resolution, 26-day range
- Custom FW: defined by the firmware design

SYNCHRONIZATION

Clock Propagation: USER I/Os connectors SYNC Connector

Acquisition Synchronization

- Through programmable LEMO
- Through dedicated SYNC Connector

Sync connector allows to cascade multiple units and synchronize them with a single standard CAT5e cable

FPGA

Open FPGA: Xilinx Zynq-7000 SoC Z-7030

MEMORY

1 GByte of memory for list readout on each SoC

Up to 8kS/ch for simultaneous waveform readout

COMMUNICATION INTERFACE

The different readout interface allows to integrate the DT5560SE in existing experimental environment.

Ethernet	USB2.0	Optical Link
1 Gbps	1x mini-USB	• Slots for 2 x 10 Gbps SFP + transceivers • (communication protocol not implemented by default)

FIRMWARE

Default

- Waveform recording and Pulse Height Analysis
- Ethernet/USB communcation

Custom

- Use Sci-Compiler to develop your own firmware

FIRMWARE UPGRADE

Firmware can be upgraded via Ethernet, mini-USB or JTAG mini-USB debugger (on-the-fly)

SOFTWARE

- SCI-55X0 Readout Software to manage the default firmware
- Sci-Compiler for custom firmware development

POWER REQUIREMENTS

- Voltage: 100-240 Vac
- Frequency: 50/60 Hz
- Typ. power consumption: 300 mA @ 220 Vac

Ordering Options

Code	Description	
WDT5571XAAAA	DT5571 - 14 bit 200 MS/s single channel digitizer with Open FPGA	RoHS

Related Software

COMPASS

Multiparametric DAQ Software for Physics Applications

WAVEDUMP2

Open Source Software for Digitizer 2.0 and 1.0 Series

Related Software Libraries

CAEN FELib Library

High level library for CAEN Digitizers 2.0

Related Products

Sci-Compiler

Graphical Programming Language for CAEN Open FPGA Boards

DT5560SE

32 Channel 14 bit 125 MS/s Open FPGA Digitizer

Gallery


CAEN
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ANALOG OUT
GPI/CLK IN
GPO/CLK OUT
ANALOG IN

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