# SP5600EMU
## Emulationl Kit

**COMING SOON**

# SP5650
## Open FPGA Kit

## Create and Analyze a radioactive source!



## Programming with SCI-Compiler like setup an experiment!



### Ordering Options

| Code | Description |
|------|-------------|
| WSP5600XEMUAA | SP5600EMU – Emulation Kit |

This kit allows the user to perform a series of lab experiments without using a radioactive source and a detector, by simulating the signals produced by the interaction of particles with the detecting unit.

The Emulation kit is based on the CAEN Digital Detector Emulator (DT4800) together with the Digital Multichannel Analyzer (DT5770).

The core of the system is the DT4800, the most compact and cost-effective model of the Detector Emulators family. The unit features one analog output and one digital input. As a Pulser it can generate exponential decay signals with programmable Rise Time and Fall Time up to a rate of 1 Mcps. The rate can be fixed or it can follow a Poissonian distribution. In Emulation mode the unit can reproduce signals from a real energy spectrum. A database of nuclides is provided to generate specific emission lines and Gaussian noise can be added.

The Software interface enables the Emulator to generate an analog output and apply different pulse processing via the MCA.

• No need of radioactive source
• User Friendly Control SW
• γ and ß Spectroscopy
• System Linearity
• Real Energy spectrum emulation
• Noise emulation
• Time distribution Emulation (Poissonian)
• Continuous pre-amplifier emulation
• Pulse processing: Height Analysis and Charge Integration
• Statistic

### Ordering Options

| Code | Description |
|------|-------------|
| WSP5650XAAAA | SP5650 – Open FPGA Kit |

The Open FPGA kit allows the user to perform a series of lab experiments without using radioactive source and detector, by simulating the signals and to create specific processing of pulses.

The Open FPGA kit is based on the CAEN Digital Detector Emulator (DT4800) together with a SCI-Compiler SMART starter pack. The kit allows performing a series of lab experiments without using a radioactive source and a detector, by simulating the signals produced by the interaction of particles within the detecting unit. The core of the system is the DT1260, 60 Ms/s, 12 bit General Purpose board with programmable FPGA. Besides DT4800, splitter, and several delay lines are also provided in the kit to reproduce some experimental situations that offer the possibility to configure the FPGA by using several types of pulse processing.

SCI(entific) Compiler is a Windows-based software designed to generate the firmware for signal processing in a simple way. It is an automatic code generator that, starting from a graphical block diagram, generates a VHDL piece of code that implements the required function.

• Complex trigger logic
• Event Counters
• Single Channel (SCA) and Multi Channel Analyser (MCA)
• Time to Digital Converter
• Replacement for any old logic-based system
• Time tagging logic
• Particle real-time Time of Arrival distribution calculation
• Waveform recording digitizer
• Logic Analyzer

### Physics Experiments

| Kit Model | Statistics | SiPM Characterization | Photons | Cosmic Rays | γ Spectrospopy | ß Spectroscopy | Nuclear Imaging | Environmental Radioactivity Indoor | Environmental Radioactivity Outdoor | Pulse Processing |
|-----------|-----------|----------------------|---------|-------------|----------------|----------------|-----------------|-----------------------------------|-------------------------------------|------------------|
| SP5600EMU Emulation kit | ● | - | - | - | ● | - | - | - | - | ● |
| SP5650 Open FPGA Kit | ● | - | - | - | ● | - | - | - | - | ● |