

Course Digital Signal Processing using microcontroller 32-Bit Arm Cortex-M3

Includes:

- I²C audio codec module
- PC loudspeaker with power supply and cable
- Multimedia course SO4206-9B, "Digital signal processing with a 32-bit ARM Cortex M3 microcontroller"

Training contents:

- System components for digital signal processing: Trainees get an overview of the importance of digital signal processing. During the course, they learn about the components of a digital signal processing system, their classifications and how they work. The individual sections illustrate the fundamental aspects of the theory behind digital transfer functions and how they are implemented.
- Simple transfer functions: This section develops the fundamentals of digital signal processing and includes carrying out the first experiments with simple transfer functions.
- Signal synthesis: The experiment sections are concerned with the synthesis of various signal shapes with the help of digital resonators and discrete integrators. The knowledge learned is put to use in practical experiments.
- Signal analysis: Fourier transformation is a fundamental technique in signal processing. It concerns the conversion of signals from the time domain to the frequency domain. Trainees get an idea of how FFT (fast Fourier transformation) works and how to use it in practical experiments involving the ARM CORTEX M3 module.
- Signal processing: Trainees learn the fundamentals behind designing digital filters. This involves them implementing in practice the theoretical basics for calculating the features of digital filters using design software and thereby creating their own DSP systems with the 32-bit ARM CORTEX M3 module.
- DSP applications: The final section illustrates some possible applications in the sphere of digital audio signal processing, which can be tried out by trainees in practical experiments.

