Project

"Digital filter for audio frequencies, basing on a multi processor system - degree dissertation " (2002)

Principal:

      Laboratory for measurement and test engineering, university of applied sciences, Cologne/Germany

Description:

      For performances and for experiments, a digital filter for audio signals was developed in teamwork with a fellow student.

      The filter works in stand allone mode, so all neccessary settings can be made at the device itselve, without connecting to a host PC.

      For entries there are keys and a rotary encoder. A graphic pixel display enables a intuitial user guidance via context menu.

      Characteristic parameters of digital filters are tunable, modifications at specific parameters get immediate audibly.


Hardware:

      The system is based on two parallel working 32-bit digital signal processors (Analog Devices ADSP-21061) and an audio codec (Analog Devices AD 1847), as well as an interfaceboard for connecting the peripheral components (clock, power supply, control elements, display, I/Os, etc.)

      All components are placed in a housing, constructed using stainless steel sheets and aluminium corner profiles.

Software:

      I/O routines, real-time filter synthesis and signal processing was programmed in C and Assembler.

      As development environment was used Keil µVision and Analog Devices VDSP.

top layer interfaceboard
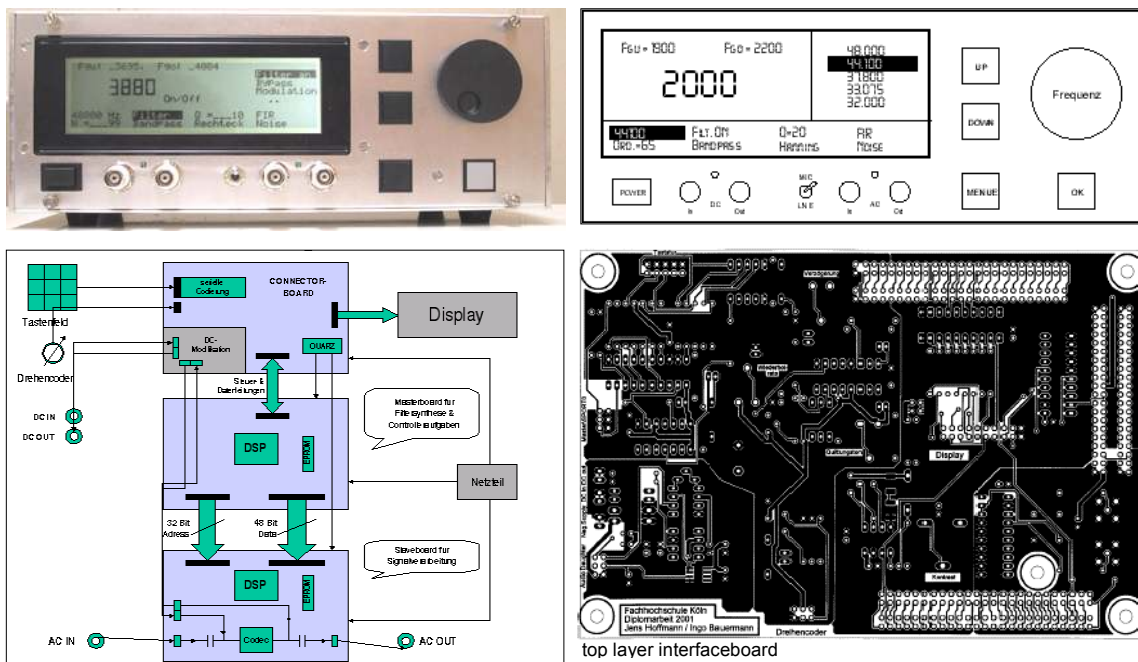
The complete degree dissertation is downloadable under:

http://www.nt.fh-koeln.de/fachgebiete/gms/diplomarbeiten/diplom/jh_ib/diplom_jh_ib.htm