

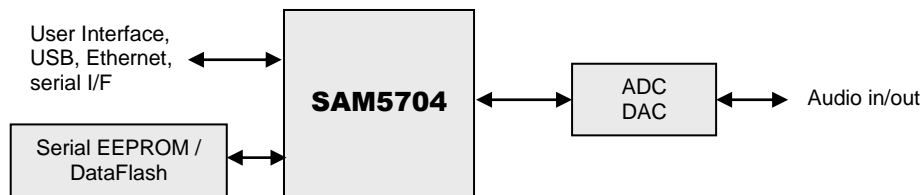
5704XOVER

Crossover 2in/6out Firmware for SAM5704

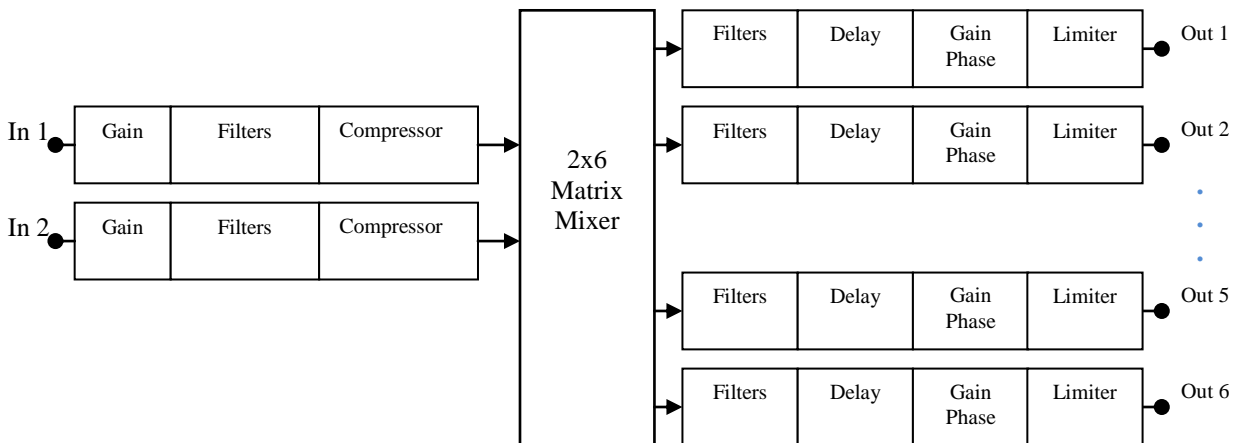
The SAM5704, driven by the firmware 5704XOVER described in this short form, is a low cost high quality Audio Processing device for loudspeaker crossover processing, fully controllable via serial I/F, USB or Ethernet.

The SAM5704 includes a Microcontroller and four 24bit DSP with 56bit MAC capacity for filter calculations , 40k (32k + 4*2k) 24bit embedded RAM for Delay lines, and eFuses for code protection. It provides digital interfaces for serial data input and output. Also it provides plenty of general IO pins for user interface.

Low cost hardware consists of only three ICs, the SAM5704, a small low cost serial EEPROM, DataFlash® or QSPI-NOR Flash for firmware boot load, and Audio CODEC/ADC/DAC:



All modules shown in the signal processing synoptic below can be processed by only one SAM5704. This is just an example of a possible configuration, other configuration are possible. A Graphical DSP Designer Software (available Q2 2015) will allow to easily modify and store the desired DSP module configuration.



Features

- 2 Audio input channels and 6 Audio output channels, 24bit
- Filters (12 band of 2nd order filter, selectable: High/Low-Pass, Band-Pass/Band-Stop, Peak/Notch), Compressor/Limiter on each input
- Filters (see above), Channel-Delay, Phase Invert and Limiter on each output
- Channel-Delay max. 500ms in on-chip RAM
- 2x6 Matrix Mixer, connects each input channel to each output channel
- all Audio processing with 24 bit quality
- 48kHz sampling rate (@ 12.288 MHz quartz), 96KHz or 192KHz possible at limited Audio processing
- all Audio processing parameters fully controllable by serial interface, USB or Ethernet
- User interface (switches, LCD display) can be directly connected to SAM5704

Other configurations are possible, e.g. 1 Audio IN, 3 Audio OUT at 96KHz etc.

Other Chip Derivatives

SAM5808: 8 DSPs, e.g. 2IN x 6OUT channels at 96KHz sampling rate, 64k (48k + 8*2k) 24bit embedded RAM

SAM5716: 16 DSPs, e.g. 2IN x 6OUT channels at 192KHz sampling rate, 80k (48k + 16*2k) 24bit embedded RAM