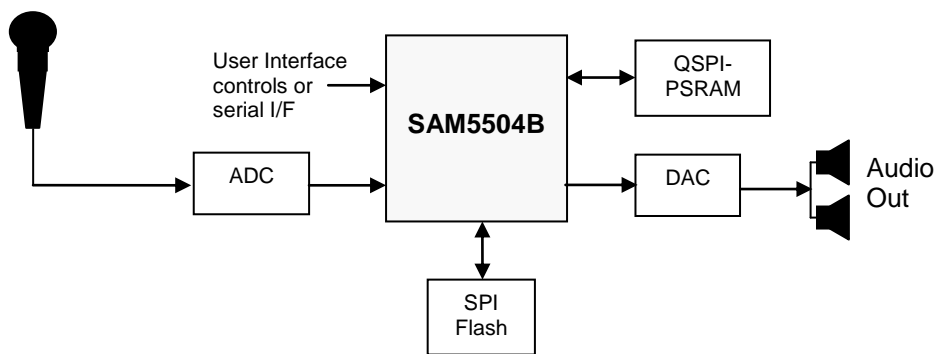
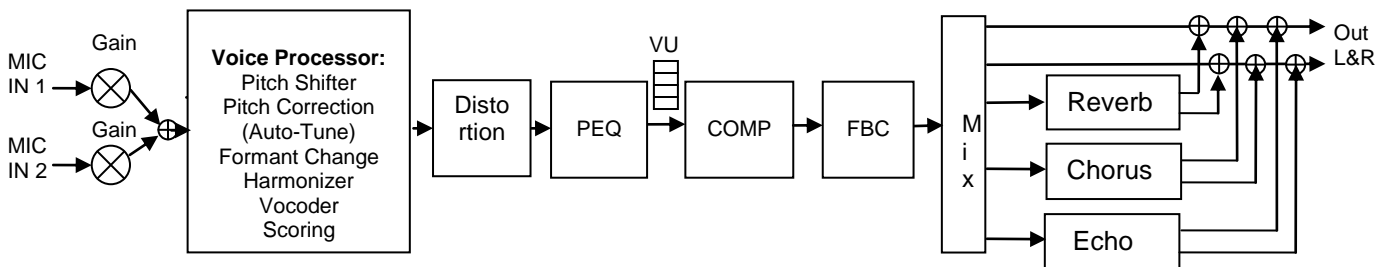


The SAM5504B, driven by the firmware 5504MICFX is a low cost, high quality multi-effect device especially made for Vocal FX applications, like microphones with in-built digital processing, vocal effect units, pre-amplifiers and dedicated Karaoke products. The SAM5504B includes a microcontroller and four 24-bit DSP engines with embedded RAM and in-built eFuses for code protection.

The low-cost hardware consists of SAM5504B + QSPI-PSDRAM + ADC/DAC (SPI-Flash for firmware boot is optional, the firmware can also be loaded by Host CPU via serial I/F at start-up):



### Signal Processing



### Features

- Microphone inputs with individual Gain control, Low-Cut Filter, Noise Gate
- Microphone Effect Processing:
  - high quality Voice-Processor: +/-1 octave, Pitch-Correction (“Auto-Tune”), Harmonizing (Backing Vocals), Formant change (e.g. Male->Female), Funny Effects (Robot-Voice, Mike-Mouse)
  - Microphone Scoring: pitch and level detection and output e.g. to serial I/F
  - Distortion, for effects like Overdrive, Megaphone etc.
  - Tone control: 5 bands Parametric Equalizer (+/- 15dB at ~0.25dB steps)
  - Compressor / Compannder / Limiter
  - high quality Stereo Vocal-Reverb, Stereo Echo and Stereo Chorus effects
- FBC: Feedback cancelling with Frequency Shifter
- 48 KHz sampling rate (12.288 MHz quartz), 24 bit quality

Reference design & Evaluation board: 5504FX-EK

Software available per download: 5504MICFX\_Control software for Effect customization, reference firmware