

Fortemedia offers the FM1182, a single chip voice processor with SAM (small array microphone) technology that delivers industry-best voice quality with echo cancellation and noise suppression. This device is ideal for portable Bluetooth devices, USB speakerphones, and as a solution for the personal computer ("PC") to have embedded speakerphone functionality.

The low-power feature allows FM1182 to be used in portable wireless hands-free devices. The industry leading echo cancellation will enable speakerphone functions to be added to Bluetooth headsets and other small form-factor devices.

With an integrated USB audio interface, designers can minimize BOM costs in offering a USB speakerphone. Also, with the FM1182, any PC or monitor can become a hands-free communication device allowing users to run PC telephony applications. The FM1182 can also convert traditional telephones into USB telephones that will enable users to connect to the PC as another means of communication.

Application Summary:

- Portable Bluetooth device (mobile phone, headset, speakerphone, etc.)
- Hands-free car kit
- USB speakerphone/PC speakerphone
- Embedded speakerphone for PC/notebook monitor

FM1182 features array microphone with beam-forming to suppress non-stationary noise by 20dB. Its superior acoustic echo cancellation performance, up to 60dB, allows a very short distance (4cm) between the placement of the microphone and speaker, even while the speaker delivers 120dB throughput.

FM1182 supports dynamic range control, noise suppression for both voice input and output to increase voice intelligibility, and full duplex performance.

For Bluetooth applications, the FM1182 provides a serial port interface that supports all formats.

Key Features:

- Highly integrated single chip solution
- Powerful acoustic echo cancellation (60dB AEC)
- Extremely low power consumption (35mW)

- Requires only single power supply
- Small form factor
- Supports 1 & 2 microphone modes
- Differential inputs/outputs to reduce RF interference and increase noise immunity
- Dynamic range control to increase voice intelligibility and full duplex
- UART interface to external controller
- Serial port interface supports u-Law, A-Law, and linear PCM format

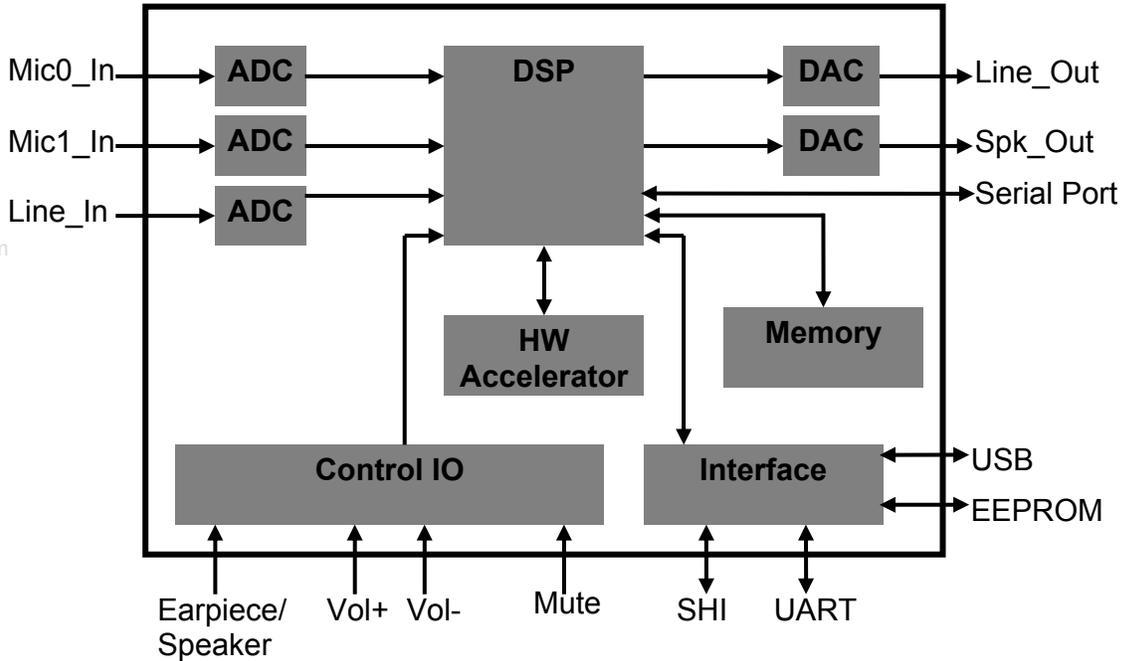
Performance:

- Adaptive Step-Sized Sub-band process with dedicated Non-Linear Filter delivers 60dB AEC performance
- Array microphone with beam-forming to suppress non-stationary noise (20dB)
- Superior full-duplex
- Noise suppression (Mic_in), 12dB
- Side tone cancellation (25 to 35dB)
- Acoustic echo tail length coverage: 64-100ms

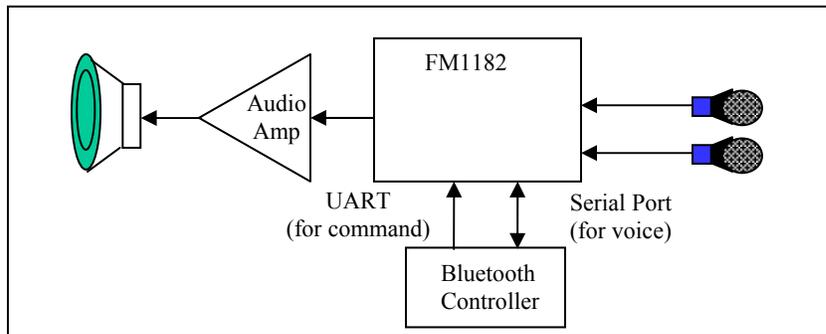
Hardware Details:

- Up to 40 MIPs 16-bit DSP
- 3 analog input channels
 - Programmable gain control
 - On-chip microphone amplifier
 - 84dB SNR
 - 120-3400Hz for 8KHz sampling rate
- 2 analog output channels
 - Programmable gain control
 - 8KHz sampling rate
 - Speaker_out: 84dB SNR
 - Line_out: 76dB SNR (single-ended)
- Supports 2 Clock Inputs:
 - 4.096MHz clock
 - 13MHz clock
- USB 1.1 port (slave mode) for voice data
- Separate voltage source for digital interface circuitry (1.8V or 3.3V)
- Power down: <180uW, wakeup time less than 100mS
- Hardware Accelerator for Voice Applications
- Mic_in, Line_in PGA range: -2dB to +26dB
- Line_out, Spk_out PGA range: -29dB to 2dB
- Available Packages: 48-pin BGA & 48-pin LQFP

FM1182 Block Diagram



FM1182 Bluetooth Application Block Diagram



FM1182 USB Application Block Diagram

