PRODUCT OVERVIEW

The Marvell® 88PM819S is a high fidelity audio codec for mobile applications. This device offers an ultra-low power Hi-Fi architecture designed to allow extended hours of pristine quality music playback.

BLOCK DIAGRAM
# KEY FEATURES AND BENEFITS

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<th>FEATURES</th>
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| **Interface to Host Processor** | • I²C host control interface supporting fast / high speed modes  
• Dedicated interrupt lines to host processor  
• One 3 or 4-wire TDM audio interface, I²S compatible |
| **DAC and Audio Outputs** | • 2-channel 24-bit Hi-Fi linear phase oversampling path with:  
  • 2-channel 120dB DR, 100dB SNR, Hi-Fi sigma-delta D/A  
  • Sigma-delta stereo PDM interface for external stereo Class-D audio amplifier  
  • Hi-Fi stereo headphones / mono ear-piece Class-G amplifier  
  • Capless output (ground referenced)  
  • Multi-level charge pump dual supply  
  • Low power audio playback: 7.5mW (2x0.1mW output power playback)  
  • Maximum output power (single ended headphone driver):  
    • 25mW @ 32 Ω (1% THD)  
    • 42mW @ 16 Ω (1% THD)  
    • 40mW @ 8 Ω (1% THD)  
  • Maximum output power (differential ear-piece driver):  
    • 100mW @ 32 Ω (1% THD)  
  • Short Detection with auto-retry |
| **ADC and Audio Inputs** | • AC/DC coupling selectable for internal and external microphone inputs  
• 4-channel high quality sigma-delta A/D converters with 95dB dynamic range  
• Four concurrent independent decimation channels  
• Four digital microphone interfaces supporting multiple microphone applications (4 concurrent independent channels)  
• Five analog microphone interfaces with up to four simultaneous microphone support  
  • 3 differential  
  • 5 single-ended  
  • Single-ended or quasi-differential interface for external microphone  
• Voice Activity Detection |
| **Audio Digital Signal Processing Unit** | • Low jitter audio PLL with 12.288MHz output  
• Internal 20-bit down sampling and 24-bit oversampling @ 192kHz processing  
• Two mixed digital/analog volume controls dedicated to HS/EP  
  • Digital: from -91dB to +36dB with 0.5dB steps, soft ramp and zero-crossing control  
  • Analog: from 0dB to -9dB with 1dB steps and -12, -15, -18, -24, -31 and -40dB  
• Two digital volume controls dedicated to PDM from -91dB to +36dB with 0.5dB steps, with soft ramp and zero-crossing control  
• Noise Gate |
| **Miscellaneous** | • 8kHz - 16kHz - 32kHz - 48kHz - 96kHz - 192kHz data rate over TDM interface  
• DC microphone coupling  
• Headset Pop/Click robustness at power up/down:  
  • offset <100µV  
• Headphone Load Detection  
• Input clock: 32768kHz, from 12.288MHz to 52MHz |
| **Package** | • 42-lead eWLP, 3.08mm x 3.08mm, 0.4mm pitch |