

Product Overview

LC823450: Low Power & High-Resolution Audio Processing System-on-Chip (SoC)

For complete documentation, see the data sheet.



LC823450 is an ultra-low power, 32-bit, 192 kHz high-resolution audio-capable signal processing system-on-chip (SoC). It consists of dual ARM Cortex-M3, 32-bit DSP (LPDSP32) core, hard wired MP3 encoder/decoder, and integrated SRAM. It is also equipped with analog peripheral functionality, such as PLLs, class-D stereo HP amplifier, 6-band equalizer and ADCs/DACs. Our proprietary LPDSP32 supports Noise/Echo cancellation, and playback speed control capability for MP3, WMA, AAC and PCM with VBR. With fine-tuned power management and dedicated hard wired audio blocks, LC823450 provides a significantly longer battery life without compromising audio quality, for voice recorders and wearable audio applications.

Features

- ARM® Cortex®-M3 Dual Core
- I2S I/F with 16/24/32-bit, MAX 192 kHz (2-ch x 2) audio functions with 16/24/32-bit, MAX 192 kHz
- Various original DSP codes for audio processing: MP3 codec, FLAC codec, Noise Cancel, Variable speed playback, etc.
- Internal SRAM (1656K byte) for ARM® Cortex®-M3 Dual Core and original DSP
- Hard wired audio functions:MP3 encoder and decoderEQ (6-band equalizer)ASRC (Asynchronous Sample Rate Converter)
- Integrated analog functions:low-power Class D HP amplifierSystem PLLdedicated audio PLL, ADC
- Various interfaces:USB2.0 HS device / host (not OTG)eMMCSD cardSPI, I2C
- Oscillation controller to dynamically switch clock frequency
- ARM® Cortex®-M3 Dual Core and original DSP clock max frequency:160 MHz @1.2 V100 MHz @1.0 V
- 32-bit fixed point, dual-MAC original DSP optimized for audio processing

For more features, see the data sheet

Benefits

- Dual Core and DSP enables parallel processing.
- High-Resolution Audio processing capability with 32-bit 192 kHz
- Possible to reduce DSP codes development cost.Several DSP codes are available with no additional fee such as Noise cancel, Variable speed playback, etc.
- Large scale program can be implemented by large capacity memory.
- Low power audio processing by hard wired audio functions(Reference: 4 mA @128K bps, 44.1 kHz MP3 hardware playback)
- PCB space and cost is reduced by Integrated analog functions.
- Various functions (SBC/AAC codec with the DSP, UART, ASRC) contribute to Bluetooth®audio.
- Switching clock frequency by oscillation controller reduces unnecessary power consumption.
- High processing capability with higher clock frequency.

Applications

- Audio Processing for Potable Audio
- Audio Processing for Wireless Audio
- Audio Processing for High-Resolution Audio

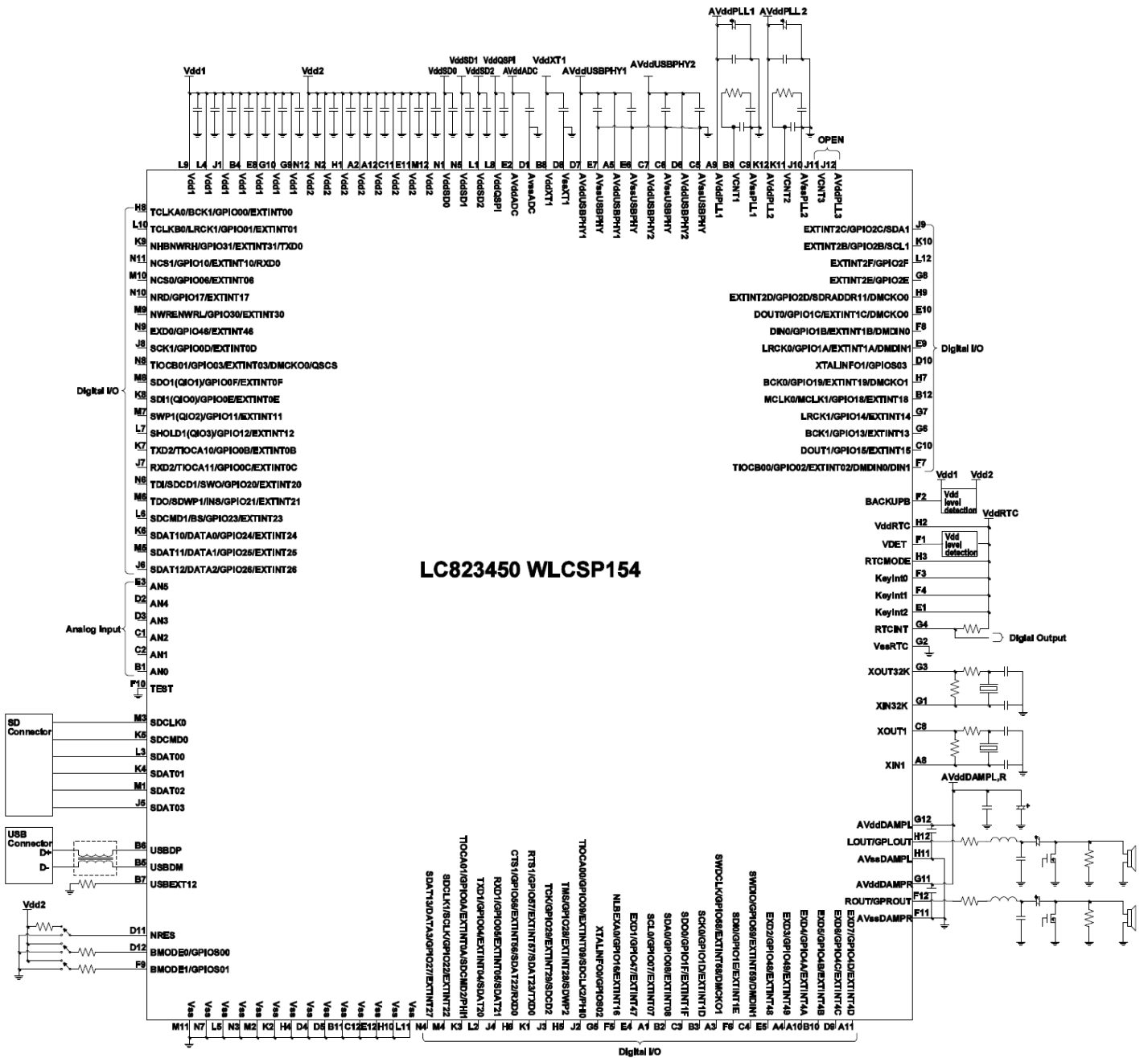
End Products

- IC Recorders
- Wireless headsets
- Other portable audio devices
- High Resolution Audio players
- Wireless speakers

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	DSP Core (bits)	Coprocesor Type	MIPS	Dynamic Range (dB)	RAM (kB)	I _{standby} Typ (µA)	Audio Inputs	Audio Outputs	Package Type
LC823450RAH-2H	12.8473	Pb-free Halide free non AEC-Q and PPAP	Active	32	-	160	-	1656	-	2	2	LFBGA240 11x11, 0.65P
LC823450TA-2H	10.6664	Pb-free Halide free non AEC-Q and PPAP	Active	32	-	160	-	1656	-	2	2	TQFP-128 / TQFP-128L
LC823450XTBG	11.1197	Pb-free Halide free non AEC-Q and PPAP	Active	32	-	160	-	1656	-	2	2	WLCSP-154
LC823450XDTBG	11.1197	Pb-free Halide free non AEC-Q and PPAP	Active	32	-	160	-	1656	-	2	2	WLCSP-154

Application Diagram



For more information please contact your local sales support at www.onsemi.com.

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