

Scalable AI/ML-enabled audio DSP for professional, industrial, robotics and consumer audio designs

The AUD10 audio processor integrates two Hi-Fi 5 audio DSPs, an Arm® Cortex®-M7 MCU, AI/ML acceleration, large on-chip SRAM and flexible analog and digital audio interfaces in a compact 9 x 9 mm package. Designed for professional and semi-professional audio, robotics, industrial audio and consumer/home entertainment applications, AUD10 combines audio processing performance with PCIe and Gigabit Ethernet connectivity for scalable, networked audio designs. It enables advanced audio features such as noise cancellation, sound enhancement and immersive audio.



Target applications

- Professional audio
- Semi-professional audio
- Robotics
- Human-machine interface / voice processing
- Consumer electronics audio
- Dolby Atmos enabled designs
- Active noise cancellation (ANC)
- Audio sound enhancement (ASE) / branded audio
- Avionics / industrial audio

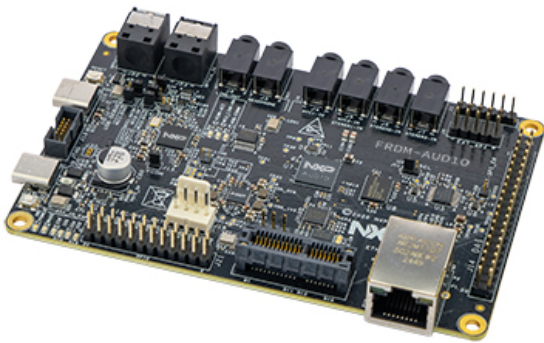
Key features

- Processing
 - Two high-performance HiFi 5 audio DSPs
 - Integrated Arm Cortex-M7 core for audio control middleware
- AI/ML capability
 - Integrated neural network accelerators for AI/ML audio algorithm processing
- Acceleration
 - NXP hardware-based biquad accelerators
- Sample-rate conversion
 - 20 integrated asynchronous sample rate converters
- Analog audio
 - 12 audio ADCs, configurable
- Digital audio I/O
 - Fully programmable digital audio input/output port for multiple interface formats
- Connectivity
 - vPCIe 3.1 compliant interface with 5.0 Gb/s support
 - Additional configurable interface as PCIe with 5.0 Gb/s or Gigabit Ethernet SGMII 1.25 Gb/s
 - Two general-purpose SPI ports
- Memory
 - On-chip SRAM for audio processing workloads
- Package
 - Compact 9 x 9 mm FC-CSP package

Software and tools

- Hardware
 - FRDM-AUD10 development board for evaluation and prototyping
- Software
 - DSP Concepts Audio Weaver Tool support
 - Cadence XtensaXplorer Compiler package

FRDM-AUD10 board



Benefits

- Accelerates development of advanced audio products with integrated DSP processing, AI/ML capabilities and Audio Weaver® support
- Simplifies implementation of sophisticated audio functions through access to a broad ecosystem of audio algorithms and software tools
- Enables scalable designs for professional audio, consumer electronics, robotics and industrial audio platforms using a common processing architecture
- Supports high-channel-count and networked audio systems with integrated PCIe and Gigabit Ethernet connectivity
- Reduces system complexity by combining audio DSPs, control processing, memory and audio interfaces in a compact device
- Provides flexibility to support a wide range of audio formats, interfaces and end-equipment architectures

AUD10 block diagram

