

# Digital Audio Solutions

## Wide Range of Audio Solutions Ranging From Bluetooth® to USB

Adding high-quality digital to your application with the right mix of performance and price is easy with Microchip's 32-bit MCUs. They deliver the best-in-class performance, peripherals and software libraries to assist you with your design.

With the broad portfolio of MCUs ranging from entry level to high performance and a wide range of digital audio solutions ranging from USB audio, decoders/encoders, to Bluetooth audio/data/voice. Microchip's 32-bit MCUs are a perfect fit for many digital audio applications.

## Digital Audio Devices

### PIC32MX1/2/5

- Up to 72 MHz performance
- Up to 512 KB Flash, 64 KB RAM
- I<sup>2</sup>S, I<sup>2</sup>C and SPI
- USB full speed host/device/OTG
- 28–100 pins

### PIC32MX3/4 Series

- Up to 120 MHz performance
- Up to 512 KB Flash, 128 KB RAM
- I<sup>2</sup>S, I<sup>2</sup>C and SPI
- USB full speed host/device/OTG
- 64–124 pins

### SAM D51/E5x Series

- Up to 120 MHz performance
- Up to 1 MB Flash, 256 KB RAM
- I<sup>2</sup>S, I<sup>2</sup>C and SPI
- USB full speed host/device
- 48–124 pins

### SAM D21 Series

- Up to 48 MHz performance
- Up to 256 KB Flash, 32 KB RAM
- I<sup>2</sup>S, I<sup>2</sup>C and SPI
- USB full speed device
- 32–64 pins

### PIC32MZ EF Series

- Up to 252 MHz performance
- 2 MB Flash, 512 KB RAM
- I<sup>2</sup>S, I<sup>2</sup>C and SPI
- USB high speed host/device/OTG
- 64–144 pins

### SAM S70/E70 Series

- Up to 300 MHz performance
- Up to 2 MB Flash, 384 KB RAM
- I<sup>2</sup>S, TDM, I<sup>2</sup>C and SPI
- USB full speed host/device
- 48–144 pins

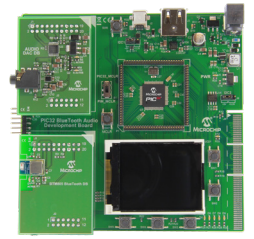
## Applications

- Portable speakers
- Multiple speakers
- Gaming headsets
- Professional voice headsets
- Sporting headsets
- Karaoke machines
- Kiosks
- Docking stations
- USB microphones
- USB speakers
- USB headsets
- Audio tone generation
- SD card based audio players
- Audio DSP processing
- Audio encoding/decoding
- High resolution audio

## Development Tools

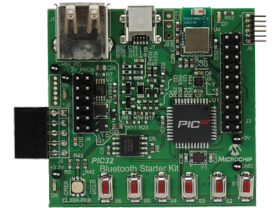
**PIC32 Bluetooth Audio Development Kit (DV320032):** This kit delivers the hardware and software needed to develop digital audio docking applications with USB or Bluetooth connectivity. Preloaded demo code enables audio streaming via USB or Bluetooth. Key features include:

- On-board PIC32MX450/470 and PIM headers
- Bluetooth HCI daughter board
- 192 kHz 24-bit AKM DAC daughter board
- USB Type A and Mini B interfaces
- High-quality 2" color LCD



**PIC32 Bluetooth Starter Kit (DV320018):** This kit features all the hardware required to get up and running with a Bluetooth SPP data connection. Combine this kit with one of the audio codec daughter cards to create a low-cost, entry-level Bluetooth streaming audio application. Key features include:

- On-board entry-level PIC32MX270F256D
- Bluetooth HCI module
- 3-axis accelerometer for motion tracking
- LED and buttons for application development
- Headers to connect to audio codec daughter cards



**SAM E70 Xplained Ultra (DM320113):** This kit features all the hardware for many digital audio applications including a high-performance SAM E70 for DSP processing.

- On-board high-performance SAM E70
- X32 Daughter Board Interface for audio codecs or Bluetooth modules
- Graphics card interface
- LED and buttons for application development



**SAM E54 Curiosity Ultra (DM320210):** This kit features all the hardware for many digital audio applications ranging from Bluetooth to USB audio.

- On-board high-performance SAM E54
- X32 Daughter Board Interface for audio codecs or Bluetooth modules
- Graphics card interface
- LED and buttons for application development

**Multimedia Expansion Board II (DM320005-5):** A highly integrated, compact and flexible development platform. Integrates with the PIC32MZ DA (DM320008) for digital audio.



## Plug-In Modules, Audio Codec Boards and Bluetooth Modules

- PIC32MZ2048EF 144-pin PIM (MA320018)
- PIC32 Audio Codec Daughter Card (AC320100)
- BM64 Bluetooth Stereo Audio Module (AC320032-3)
- PIC32 Audio Codec Daughter Card - AK4954 (AC324954)
- PIC32MX270F256 PIM (MA320013)
- PIC32MX270F512L PIM (MA320017)
- PIC32 Audio DAC Daughter Board (AC320032-2)
- PIC32 Audio Codec Daughter Card - WM8904 (AC328904)
- PIC32 Audio Codec Daughter Card - AK7755 (AC327755)

## Digital Audio Additional Information

Digital Audio Landing Page: [www.github.com/Microchip-MPLAB-Harmony/audio](http://www.github.com/Microchip-MPLAB-Harmony/audio)

MPLAB® Harmony: [www.microchip.com/mplab/mplab-harmony/mplab-harmony-v3](http://www.microchip.com/mplab/mplab-harmony/mplab-harmony-v3)

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