Introducing Microchip's Smallest, Lowest-Cost PIC32 Microcontrollers

First PIC32 MCUs with Audio and Capacitive-touch Peripherals

Summary

Even small, cost-sensitive designs can add advanced audio processing and human interface features with the new PIC32MX1 and MX2 microcontrollers (MCUs). These new low pin-count MCUs are Microchip's smallest and lowest-cost PIC32 MCUs packing 61 DMIPS performance at just 40 MHz, and the first to offer Microchip's Charge Time Measurement Unit (CTMU) for mTouch™ capacitive touch buttons, Peripheral Pin Select (PPS) for digital pin remapping and I2S for audio CODEC support.

The new PIC32MX1 and MX2 MCUs let you add high performance 32-bit processing capability for high-quality audio, touch-sensing, graphics and USB communication, while reducing the size and cost of your design. Even though providing some of the industry's smallest package options, these devices integrate up to 32 KB Flash and 8 KB of RAM; two I2S audio CODEC interfaces; mTouch capacitive touch-sensing; an 8-bit Parallel Master Port (PMP) for graphics or external memory; an on-board 1 Msps ADC, as well as full speed USB 2.0 and other serial communication peripherals and are available in 28- to 44-pin packages as small as 5x5 mm (36-pin VTLA).

These new devices also help you to save space and simplify lay-out with the flexibility of digital pin remapping (PPS), while maintaining compatibility with the 16-bit PIC24 family giving you an easy migration to the 61 DMIPS processing power of the PIC32 MIPS 32-bit architecture.

PIC32MX1 and MX2 Features

- Two I2S interfaces for audio processing and playback
- Charge Time Measurement Unit (CTMU) supports mTouch capacitive touch buttons and sliders
- 8-bit Parallel Master Port (PMP) interface for graphics or external memory
- 10-bit, 1 Msps, 13-channel Analog-to-Digital Converter (ADC)
- USB 2.0 and serial communication peripherals
- Peripheral Pin Select (PPS) for digital pin remapping
- Up to 32 KB Flash, 3 KB Boot ROM and 8 KB of SRAM
- Pin-compatible with 16-bit PIC24F MCUs for easy migration to 32-bit processing

- One of the smallest 32-bit microcontrollers in the market – 28- to 44-pin packages with 28 pin devices down to 5x5 mm (36-pin VTLA)
- 28-pin SPDIP through-hole package option for ease of migration of legacy designs to 32-bit performance

Applications

- USB connected devices needing more performance
- Compact, cost-sensitive 32-bit applications
- High-quality audio play-back docks
- mTouch capacitive touch buttons and sliders or advanced sensors
- Intelligent sensors using the 1 Msps ADC and the 61 DMIPS of performance to do advanced signal analysis with USB and serial connectivity options
- Consumer, industrial, medical and automotive applications

Fast-Start Development Tools

- MPLAB® Starter Kit for PIC32MX1XX/2XX (DM320013)
- PIC32MX CTMU Evaluation Board (AC323027)
- PIC32MX220F032D Plug-In Module (MA320011) for Explorer 16

MICROCHIP

Development Tools

Get started with easy to use development tools from Microchip.

MPLAB® Starter Kit for PIC32MX1XX/2XX (DM320013)

A complete solution for exploring the low-cost, high-performance PIC32MX1/MX2 devices. Features Include: 24-bit audio playback, integrated programmer debugger, USB-powered, 2″ color TFT display (220 x 176 pixel), mTouch™ slider and buttons, PIC32MX220F032 with 32 KB of Flash, 8 KB RAM and Micro SDHC Flash card.

This kit is perfect for development of basic user interfaces with mTouch buttons and high quality audio. The board is pre-loaded with demo code for an audio player. Simply download a free copy of MPLAB IDE and the demo code source from the web to jump start your development effort.

PIC32MX Cap Touch CTMU Evaluation Board (AC323027)

Designed to facilitate the development of capacitive touch-based applications based on Microchip's Charge Time Measurement Unit integrated in select PIC32-series microcontrollers. This evaluation board includes: PICkit™ serial interface via an on-board ICSP™ header, on-board PIC32MX220F032, USB connector (for power only), 16-bit LED display and a 24-pin header that can be used to interface the 2-channel and 4-channel slider plug-in boards, the 12-matrix key plug-in board and the 8-direct key plug-in board. These plug-in boards are included in the mTouch™ Capacitive Touch Evaluation Kit (DM183026-2) sold separately.

PIC32MX220F032D Plug-In Module for Explorer 16 (MA320011)

Enables development using a PIC32 device with an Explorer 16 development board. This PIM features the PIC32MX220F032D running at 40 MHz (61 DMIPS) with 32 KB of Flash, 8 KB of RAM, USB device support and I^{2}S.

For More Information

Start adding audio and touch-screen capabilities to your cost-sensitive designs today at: www.microchip.com/pic32.

MICROCHIP

www.microchip.com/pic32

Visit our web site for additional product information and to locate your local sales office.

Microchip Technology Inc. · 2355 W. Chandler Blvd. · Chandler, AZ 85224-6199

Microcontrollers • Digital Signal Controllers • Analog • Memory • Wireless

DS61177A