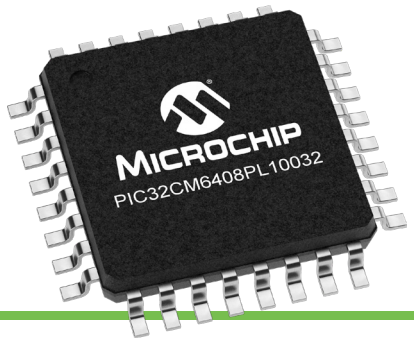
PIC32CM-PL10 Family

5V Low-Power Arm® Cortex®-M0+ Based MCUs for HMI Applications



Summary

The PIC32CM-PL10 family of microcontrollers (MCUs) is equipped with an Arm® Cortex®-M0+ CPU running at up to 24 MHz. Integrating the familiar peripherals used in our 8-bit MCUs and supporting robust 5V operation, this family of MCUs provides an easy path to migrate your 8-bit MCU-based design to 32-bit MCUs.

Bridging the Gap Between 8-bit and 32-bit MCUs

The PIC32CM-PL10 family offers a balanced combination of performance, power efficiency and peripherals, making it an attractive choice for when you are transitioning a design from an 8-bit MCU to a 32-bit MCU. The PIC32CM-PL10 family is pin compatible with the AVR® Dx families of 8-bit MCUs so you can easily migrate your AVR MCU-based hardware designs. They feature familiar peripherals found on 8-bit AVR MCUs, including Multi-Voltage I/O (MVIO), Configurable Custom Logic (CCL) and Event System (EVSYS). These peripherals reduce the need for external components and decrease the BOM and PCB footprint to create compact and cost-efficient designs.

The combination of 5V operation and integrated analog peripherals, such as the Peripheral Touch Controller (PTC), Analog-to-Digital Converter (ADC) and Analog Comparators, makes these MCUs more robust and more immune to noise.

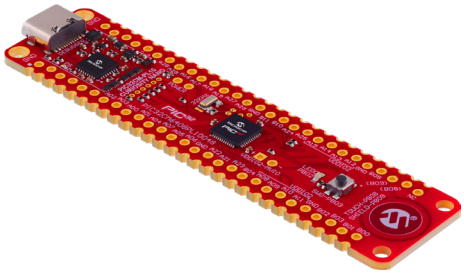
Key Features

- Arm Cortex-M0+ core with speeds up to 24 MHz across the supply voltage of 1.8–5.5V
- Up to 128 KB Flash, 16 KB SRAM
- 20, 28, 32 and 64 pins
- Peripheral Touch Controller (PTC) supporting up to 29 self-capacitance channels
- Multi-Voltage I/O (MVIO)
- Two serial communication interfaces (SPI, I^2C, USART)
- Four-channel Event System (EVSYS)
- Configurable Custom Logic (CCL)
- One 12-bit differential and single-ended Analog-to-Digital Converter (ADC)
- Three 16-bit basic Timer/Counters (TCs)
- One 16-bit Timer/Counter for Control (TCC) with four PWM channels
- One watchdog timer
- Two analog comparators
- External crystal oscillator with failure detection
- Operating voltage: 1.8–5.5V
- Temperature ranges:
  - Industrial: −40–85 °C
  - Extended −40–125°C

Applications

- Capacitive touch
- Appliances and industrial designs in noisy environments
- Companion MCU to larger MCUs or MPUs
- Battery-powered devices

Development Tools



The PIC32CM-PL10 Curiosity Nano Evaluation Kit is the best platform for rapid prototyping with the PIC32M PL10 family of MCUs. It connects seamlessly to MPLAB Extensions for VS Code® and MPLAB® X Integrated Development Environment (IDE) to speed up your development. The PIC32CM-PL10 family is also supported by the MPLAB XC32 compiler and GCC, plus third-party tools that include Keil development tools, Segger debuggers and IAR Embedded Workbench® for Arm.

MPLAB Harmony software development framework reduces development time and simplifies the migration from 8-bit to 32-bit MCUs.

Functional Safety Compliant

Functional Safety Support

The PIC32CM-PL10 family designed in compliance with the ISO 26262 functional safety standard and is recommended for safety-critical applications up to ASIL B. FMEDA reports, safety manuals and other documents are available on request. The ISO 26262 Diagnostics library and IEC 60730 Class B library also support functional safety designs using the PIC32CM-PL10 family. Contact your local Microchip sales office or distributor for more information.

Product Overview

Part Number	Flash (KB)	SRAM (KB)	Number of Pins	I/O Pins	12-bit ADC (Channels)	MVIO	Analog Comparator	External Interrupts	Timer/Counter	Timer/Counter for Control	Event System Channels	Peripheral Touch Controller (Channsels)	Configurable Custom Logic (LUTs)	SERCOM (USART/SPI/I²C)	Packages
PIC32CM3204PL10020	32	4	20	17/16	1(11)	3	2	11	3	1	4	1(11)	1(3)	2	VQFN, SSOP
PIC32CM3204PL10028	32	4	28	23/22	1(16)	4	2	13	3	1	4	1(16)	1(4)	2	VQFN WF, SSOP, SPDIP
PIC32CM3204PL10032	32	4	32	27/26	1(20)	4	2	15	3	1	4	1(32)	1(4)	2	TQFP, VQFN WF
PIC32CM6408PL10028	64	8	28	23/22	1(16)	4	2	13	3	1	4	1(16)	1(4)	2	VQFN WF, SSOP, SPDIP
PIC32CM6408PL10032	64	8	32	27/26	1(20)	4	2	15	3	1	4	1(32)	1(4)	2	TQFP, VQFN
PIC32CM6408PL10048	64	8	48	42/41	1(25)	4	2	16	3	1	4	1(25)	1(4)	2	TQFP, VQFN
PIC32CM6408PL10064	64	8	64	56/55	1(29)	4	2	16	3	1	4	1(29)	1(4)	2	TQFP, VQFN
PIC32CM1216PL10028	128	16	28	23/22	1(16)	4	2	13	3	1	4	1(16)	1(4)	2	VQFN WF, SSOP, SPDIP
PIC32CM1216PL10032	128	16	32	27/26	1(20)	4	2	15	3	1	4	1(32)	1(4)	2	TQFP, VQFN WF
PIC32CM1216PL10048	128	16	48	42/41	1(25)	4	2	16	3	1	4	1(25)	1(4)	2	TQFP, VQFN WF
PIC32CM1216PL10064	128	16	64	56/55	1(29)	4	2	16	3	1	4	1(29)	1(4)	2	TQFP, VQFN WF

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