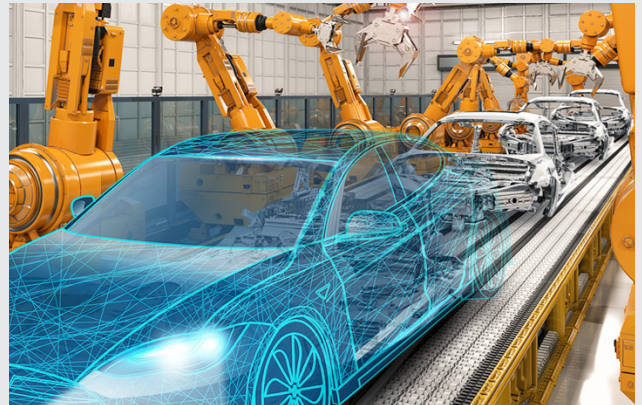


# PIC18-Q84 Family of Microcontrollers

Increase System Capability With CAN FD and Core Independent Peripherals

## Summary

The PIC18-Q84 family of Microcontrollers (MCUs) expands the 8-bit PIC® MCUs by combining an extensive array of Core Independent Peripherals (CIPs) with Controller Area Network Flexible Data Rate (CAN FD). These MCUs contain time-saving CIPs in up to 48-pins with up to 128 KB of Flash memory. The family offers increased flexibility with customizable timers and automated analog signal analysis for real-time response. Additionally, they include industry standard features like the JTAG Boundary Scan, 32-bit Cyclic Redundancy Check (CRC) with memory scan on boot for added system safety. You can benefit greatly by saving time, as it is significantly easier to configure a hardware-based peripheral, as opposed to writing and validating an entire software routine, to accomplish a task.



## System Features

- Controller Area Network Flexible Data-Rate (CAN FD) module
  - Supports Data bit rate up to 10 Mbps
  - Backward Compatible to Support: CAN 2.0A, 2.0B
  - Meets ISO11898-1:2015
- Direct Memory Access (DMA)
  - Controller eliminates the need for CPU involvement in data transfers
  - Improves system performance and reduces power consumption
- Vectored Interrupts (VI)
  - Provides faster response times with fixed latency reducing software overhead
- Serial communications
  - UART with support for Asynchronous, DMX, DALI and LIN
  - I<sup>2</sup>C and SPI

## Critical Safety

- Functional Safety Ready
- 32-bit Cyclic Redundancy Check with Memory Scan (CRC/SCAN)
- Ensure the integrity of the memory with scan on boot
- Windowed Watchdog Timer (WWDT)
- JTAG boundary scan - addresses assembly circuit complexity

## Flexibility

- 12-bit ADC with Computation (ADCC) with context switching
  - Helps accelerate common tasks normally done in software
  - Provides accurate and timely analog signal acquisition
- Universal Timer (UTMR)
  - Two 16-bit timers – customizable, combine to make 32-bit timer
  - Includes legacy timers
- 16-bit Dual PWMs – Dual Independent outputs
  - Deliver advanced capabilities beyond those found on standard PWM modules
  - Innovative features allow the user to easily adjust setting with greater precision
- Configurable Logic Cells (CLC)
  - Configurable peripheral for creating custom hardware-based logic functions
  - Connects to peripherals for hardware customization with unprecedented ease

## Faster Time to Market

Core Independent Peripherals provide you with the ability to accomplish tasks in hardware while freeing up the CPU to do other tasks or go to sleep. This reduces power consumption, allows for deterministic response time and decreases firmware development and validation time.

To further reduce your time to market, we have designed the PIC18-Q84 products to seamlessly integrate with MPLAB® Code Configurator (MCC) for a modern embedded development experience. MCC is a free, graphical programming environment that generates seamless, easy-to-understand C code to be inserted into your project. Using an intuitive interface, it enables and configures a rich set of peripherals and functions specific to your application. Find out more at [microchip.com/MCC](http://microchip.com/MCC).

## Features

- 64 MHz internal oscillator
- Up to 128 KB Flash program memory
- Up to 12.8 KB Data SRAM and 1K Data EEPROM
- CAN FD module
- 12-bit ADCC (ADC with Computation) and context switching - up to 43 ch.
- Two 16-bit Universal Timers (UTMR)
- 32-bit CRC with scan
- 8-bit buffered DAC
- Two comparators
- Zero Cross Detect (ZCD)
- Complementary Waveform Generator (CWG)
- Data Signal Modulator (DSM)
- -40°C to +125°C operating temperature range
- 1.8V to 5.5V operation voltage range
- Available in 28-, 40- and 48-pins

## Develop With Curiosity Development Boards



Take your next idea to market with a cost-effective development board that you can keep in your pocket. With full program and debug capabilities, the Curiosity Nano Evaluation Board (DM182030) offers complete support for your next design.

Curiosity Development Boards are fully integrated MCU development platforms targeted at first-time users, Makers and those seeking a feature-rich rapid prototyping board. Designed from the ground-up to take full advantage of Microchip's MPLAB X IDE development environments, Curiosity includes an integrated programmer/debugger and requires no additional hardware to get started.

Curiosity High Pin Count (HPC) Development Board (DM164136) supports the PIC18-Q84 family, as well as a number of other Low Voltage Programming (LVP)-enabled 8-bit PIC MCUs in 28- to 40-pins. [microchip.com/curiosity](http://microchip.com/curiosity)

## Products

Device	Program Flash Memory (KB)	Data EEPROM (B)	Data SRAM (KB) (bytes)	I/O Pins/Peripheral Pin Select	12-bit ADCC w/ context Switching (ch)	8-bit DAC	Comparator	Universal Timer (UTMR)	8-bit/ (with HLT)/16-bit Timer	Window Watchdog Timer (WWDT)	CCP/16-bit PWM	CWG/NCO	Complimentary Logic Cell (CLC)	Comparators/Zero Cross Detect (ZCD)	Direct Memory Access (DMA)	Memory Access Partition/ Device Information Area	Vectored Interrupts (VI)	CAN FD	JTAG	UART/ with Protocols	I <sup>2</sup> C/SPI	Peripheral Module Disable	Temperature Indicator	Packages
PIC18F26Q84/83 <sup>1</sup>	64	1024	8	25/Y	24	1	2	2	3/3	Y	3/4	3	8	Y	8	Y	Y	Y	Y	2/3	1/2	Y	Y	SPDIP, SOIC, SSOP, VQFN
PIC18F27Q84/83	128	1024	12.8	25/Y	24	1	2	2	3/3	Y	3/4	3	8	Y	8	Y	Y	Y	Y	2/3	1/2	Y	Y	SPDIP, SOIC, SSOP, VQFN
PIC18F46Q84/83	64	1024	8	35/Y	35	1	2	2	3/3	Y	3/4	3	8	Y	8	Y	Y	Y	Y	2/3	1/2	Y	Y	PDIP, VQFN, TQFP
PIC18F47Q84/83	128	1024	12.8	35/Y	35	1	2	2	3/3	Y	3/4	3	8	Y	8	Y	Y	Y	Y	2/3	1/2	Y	Y	PDIP, VQFN, TQFP
PIC18F56Q84/83	64	1024	8	43/Y	43	1	2	2	3/3	Y	3/4	3	8	Y	8	Y	Y	Y	Y	2/3	1/2	Y	Y	VQFN, TQFP
PIC18F57Q84/83	128	1024	12.8	43/Y	43	1	2	2	3/3	Y	3/4	3	8	Y	8	Y	Y	Y	Y	2/3	1/2	Y	Y	VQFN, TQFP

1 : Q83 products support only CAN 2.0

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