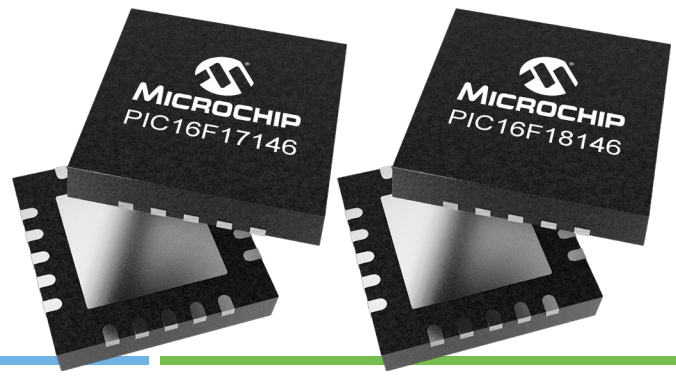


PIC16F17146/PIC16F18146 Family of Microcontrollers (MCUs)



Summary

Simplify connected sensor designs with the compact PIC16F17146 and PIC16F18146 families of MCUs. These devices contain a full suite of peripherals that enables lower cost, low power, higher resolution and increased energy efficiency for sensor applications. They are available in 8- to 40-pin packages and a variety of memory options from 7 KB to 28 KB.

The embedded analog peripherals include a 12-bit differential Analog-to-Digital Converter with Computation (ADCC), two 8-bit Digital-to-Analog Converters (DACs), two Comparators (CMPs) and Zero-Cross Detect (ZCD). For increased flexibility and control, they have a packed lineup of digital peripherals. The full array of digital and analog peripherals makes them excellent for size-constrained, precision-sensor applications to mix and match various sensor types without having to add additional hardware. They are ideal for home automation, industrial process control, automotive and Internet of Things (IoT) systems.

The PIC16F17146 family also includes a built-in operational amplifier (op amp) peripheral for medical applications.

Configurable Analog

For sensing and measurement applications, a full suite of analog features offers signal amplification, filtering and conditioning. It includes a 12-bit differential ADCC, 8-bit DACs, CMPs and ZCD. The smart ADC can achieve high-resolution conversions with automated signal analysis for a real-time system response.

Arrange Your Pin Layout

You can change the Input/Output (I/O) pin layout to maintain pin compatibility with older devices using Peripheral Pin Select (PPS). The PPS peripheral re-routes digital signals to any I/O device pin to fit your design needs.

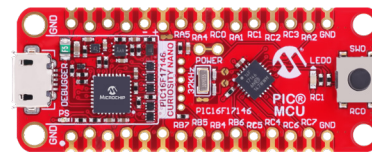
Logic and Interconnection Customization

The PIC16F17146 and PIC16F18146 families allow you to customize the peripherals to fit your application needs. You can interconnect digital peripherals without using external parts, which reduces your PCB footprint and total cost. The Configurable Logic Cell (CLC) is the user-configurable peripheral that integrates external and internal signals as inputs and connects to other on-board peripherals.

Functional Safety

These MCUs are functional safety-ready for industrial, automotive and appliance applications, minimizing cost and development time while increasing reliability and redundancy in designs. These products have integrated safety features and Failure Modes and Diagnostic Analysis (FMEDA) reports. We also provide safety-certified development tools including necessary documentation and manuals.

Getting Started



The PIC16F17146 and PIC16F18146 families are fully supported by our comprehensive development ecosystem, which includes MPLAB® X Integrated Development Environment (IDE) with a built-in GCC compiler to start generating factory-validated C code. The Curiosity Nano Evaluation Kit is ideal for rapid prototyping with an on-board programmer and debugger.

We also offer the MPLAB XC8 Functional Safety Compiler License, which is a TÜV SÜD®-certified compiler package that supports 8-bit PIC® and AVR® MCUs.

Key Features

- 12-bit Analog-to-Digital Converter with Computation (ADCC)
- One general-purpose op amp (only with PIC16F17146 family)
- Two Capture/Compare/PWM (CCP) peripherals
- Up to four 16-bit PWMs
- Two 8-bit DACs (1× internal, 1× external/buffered)
- Two CMPs
- Four Configurable Logic Cells (CLCs)
- Flash Cyclic Redundancy Check (CRC)
- One Numerically Controlled Oscillator (NCO)
- One Complementary Waveform Generator (CWG)
- Zero Cross Detect (ZCD)
- Two EUSARTs with LIN support
- Two Master Synchronous Serial Ports (MSSPs) (I²C or SPI)

Product	Program Memory Size (KB)	Data EEPROM (Bytes)	Max I/O Pins	ADC With Computation	Configurable Logic Cell (CLC/CCL) Modules	Capture/ Compare/ PWM (CCP)	Number of Op Amps
PIC16F18114	7	256	7	Yes	4	1	0
PIC16F18115	14	256	7	Yes	4	1	0
PIC16F18124	7	256	13	Yes	4	1	0
PIC16F18125	14	256	13	Yes	4	1	0
PIC16F18126	28	256	13	Yes	4	1	0
PIC16F18144	7	256	19	Yes	4	1	0
PIC16F18145	14	256	19	Yes	4	1	0
PIC16F18146	28	256	19	Yes	4	1	0
PIC16F17116	14	0	25	No	4	2	2
PIC16F17117	14	0	36	No	4	2	2
PIC16F17119	28	0	36	No	4	2	2
PIC16F17118	28	0	25	No	4	2	2
PIC16F17114	7	256	7	Yes	4	1	1
PIC16F17115	14	256	7	Yes	4	1	1
PIC16F17124	7	256	13	Yes	4	1	1
PIC16F17125	145	256	13	Yes	4	1	1
PIC16F17126	28	256	13	Yes	4	1	1
PIC16F17144	7	256	19	Yes	4	1	1
PIC16F17145	14	256	19	Yes	4	1	1
PIC16F17146	28	256	19	Yes	4	1	1