

# PIC18 "K42" Microcontroller Family

High-Performance 8-bit MCUs with Peripherals to Simplify Complex Designs

The PIC18F "K42" MCU family consists of ten highly integrated products—ranging from 16–128 KB of Flash memory with package options covering 28–48 pins. This family is equipped with a comprehensive and rich set of Core Independent Peripherals (CIPs) and Intelligent Analog features allowing for many functional tasks to be done in hardware—minimizing code, validation time, core overhead and power consumption. The MCUs feature a 12-bit Analog-to-Digital Converter with Computation (ADC<sup>2</sup>), Direct Memory Access (DMA), a Vector Interrupt (VI) Controller and other system enhancements. They are ideal for an extensive range of applications and markets, including automotive, industrial control, Internet of Things (IoT), medical and white goods.



## High Integrated Peripherals

These MCUs offer a full suite of Core Independent Peripherals for safety-critical applications, such as Cyclic Redundancy Check with Memory Scan, Windowed Watchdog Timer, 24-bit Signal Measurement Timer, Hardware Limit Timer, Complementary Waveform Generation, up to eight hardware PWMs and multiple communications interfaces. They include a Configurable Logic Cell which integrates hardware functions to simplify and accelerate many common tasks.

## Maximum Performance

The Direct Memory Access (DMA) controller eliminates the need for CPU involvement in data transfers between all memory spaces and peripherals, thereby reducing the number of interrupts and improving peripheral performance. The Vectored Interrupt (VI) reduces response time by providing hardware-ensured interrupt latency.

## Enhanced System Features

Memory Access Partition (MAP) supports customers in data protection and bootloader applications. Device Information Area (DIA) is a dedicated memory space for factory programmed device ID and peripheral calibration values. Additionally, the MCUs have improved serial communications, including UART with support for Asynchronous, DMX, DALI and LIN protocols along with higher-speed, standalone I<sup>2</sup>C and SPI serial communication interfaces.

## Intelligent Analog Functions

This family offers intelligent analog peripherals including Zero Cross Detect (ZCD), on-chip comparator and 12-bit ADC<sup>2</sup> saving both board space and BOM costs.

## 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.

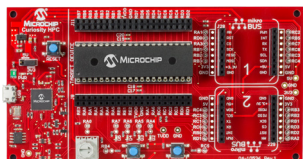
To further reduce your time to market, the PIC18F "K42" family seamlessly integrates with MPLAB<sup>®</sup> Code Configurator (MCC) for a modern embedded development experience. MCC is a free, graphical programming environment that generates seamless, easy-to-understand C code. Using an intuitive interface, MCC enables and configures a rich set of peripherals and functions specific to any application. Find out more at [www.microchip.com/MCC](http://www.microchip.com/MCC).



## Key Features

- 64 MHz internal oscillator
- Up to 128 KB Flash program memory
- Up to 1 KB Data EEPROM
- Up to 8K of SRAM
- Vectored Interrupt (VI) capability
- Direct Access Memory (DMA) controllers
- Memory Access Partition (MAP)
- Device Information Area (DIA)
- Windowed Watch Dog Timer (WWDT)
- Configurable Logic Cell (CLC)
- Peripheral Pin Select (PPS)
- 12-bit ADC with Computation (ADC<sup>2</sup>), up to 43 channels
- Two comparators
- Zero Cross Detect (ZCD)
- On-chip temperature indicator
- Data Signal Modulator (DSM)
- 5-bit Digital-to-Analog Converter (DAC)
- 10-bit PWMs with complementary waveform generation
- UART, SPI and I<sup>2</sup>C
- Broad range of packages in 28, 40 and 48 pins

## Development with Curiosity Development Boards



Curiosity Development Boards are cost-effective, 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 and MPLAB Xpress development environments, the Curiosity platform includes an integrated programmer/debugger, and requires no additional hardware to get started.

Curiosity High Pin Count (HPC) Development Board (DM164136) supports the PIC18F "K42" family, as well as other Microchip 28- and 40-pin PIC<sup>®</sup> MCUs with low-voltage programming.

## Products

Part Number	Pin Count	Program Flash (KB)	Data EEPROM (B)	RAM (B)	I/O Pins	12-bit ADC <sup>2</sup> (ch)	Comps	8-bit/16-bit Timers	SMT	CCP/10-bit PWM	ZCD/CWG	NCO/DSM	CLC	CRC with Memory Scan and WWDT	UART/I <sup>2</sup> C/SPI	DMA (ch)	VI	PPS/PMD/MAP	Packages
PIC18(L)F24K42	28	16	256	1,024	25	24	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F25K42	28	32	256	2,048	25	24	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F26K42	28	64	1,024	4,096	25	24	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F27K42	28	128	1,024	8,192	25	24	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	SPDIP, SOIC, SSOP, UQFN, QFN
PIC18(L)F45K42	40/44	32	256	2,048	36	35	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	PDIP, UQFN, QFN, TQFP
PIC18(L)F46K42	40/44	64	1,024	4,096	36	35	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	PDIP, UQFN, QFN, TQFP
PIC18(L)F47K42	40/44	128	1,024	8,192	36	35	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	PDIP, UQFN, QFN, TQFP
PIC18(L)F55K42	48	32	1,024	2,048	44	43	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	UQFN, TQFP
PIC18(L)F56K42	48	64	1,024	4,096	44	43	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	UQFN, TQFP
PIC18(L)F57K42	48	128	1,024	8,192	44	43	2	3/3	Y	4/4	1/3	1/1	4	Y	2/2/1	2	Y	Y/Y/Y	UQFN, TQFP

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