

# PIC24H/dsPIC® DSC Peripheral Library

## Summary

The PIC24H/dsPIC Digital Signal Controller (DSC) Peripheral Library provides a set of functions for setting up and controlling the operation of all the peripheral modules available in the PIC24H microcontrollers and dsPIC DSCs, as well as functions for interfacing with an external LCD. The dsPIC30F Peripheral Library serves as a convenient layer of abstraction over the specific details of the peripherals and their associated control and status registers.

The PIC24H/dsPIC DSC Peripheral Library supports the following hardware peripheral modules:

- Timers
- Input capture
- Output compare
- Quadrature Encoder Interface (QEI)
- Motor control PWM
- Real Time Clock Calendar (RTCC)
- Cyclic Redundancy Check (CRC)
- I/O ports and external interrupts
- Reset
- UART
- SPI
- I<sup>2</sup>C™
- Data Converter Interface (DCI)
- 10-bit A/D converter
- 12-bit A/D converter
- CAN
- Functions for controlling an external LCD through configurable I/O port pins are also provided

## Features

Key features of the PIC24H/dsPIC DSC Peripheral Library include:

- A library file for each device from the PIC24/dsPIC DSC families, including functions corresponding to peripherals present in that particular device.
- C include files that enable pre-defined constants for passing parameters to various library functions, as well as a file for each peripheral module.
- Functions in pre-compiled libraries that may be called from an application program written in either MPLAB® C30 C Compiler or PIC24H/dsPIC DSC assembly languages.
- C source code is included to customize functions to specific application requirements.
- Pre-defined constants in the C include files eliminate the need to refer to the details and structure of every special function register, while initializing peripherals or checking status bits.

## Resource Requirements

- Program memory: The PIC24H/dsPIC DSC Peripheral Library functions are optimized for efficient program memory usage.
  - Since the functions are in the form of libraries, the actual program memory requirements depend on the functions being called by the application, as well as on the specific PIC24H or dsPIC DSC being used.
- Data memory: The vast majority of the functions do not use RAM at all.
  - Each of the remaining functions use less than 10 bytes of RAM.

## Devices Supported

- All processors in the PIC24H/dsPIC DSC families