

# chipKIT™ PGM Programmer/Debugger Reference Manual

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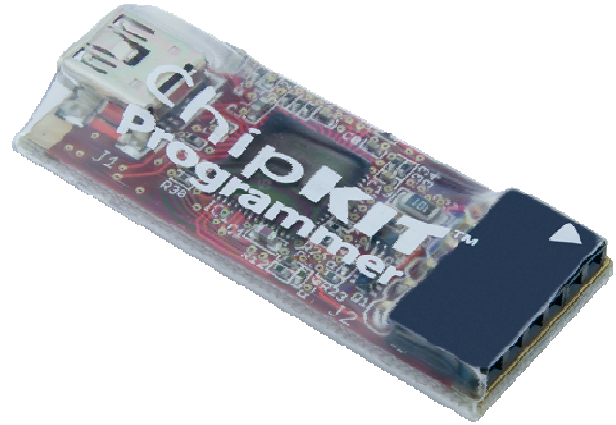
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## Overview

The chipKIT PGM is a simple, low cost, module that supports in-system programming and debugging of applications written for Microchip PIC based microcontroller boards such as the chipKIT™ and Cerebot boards.

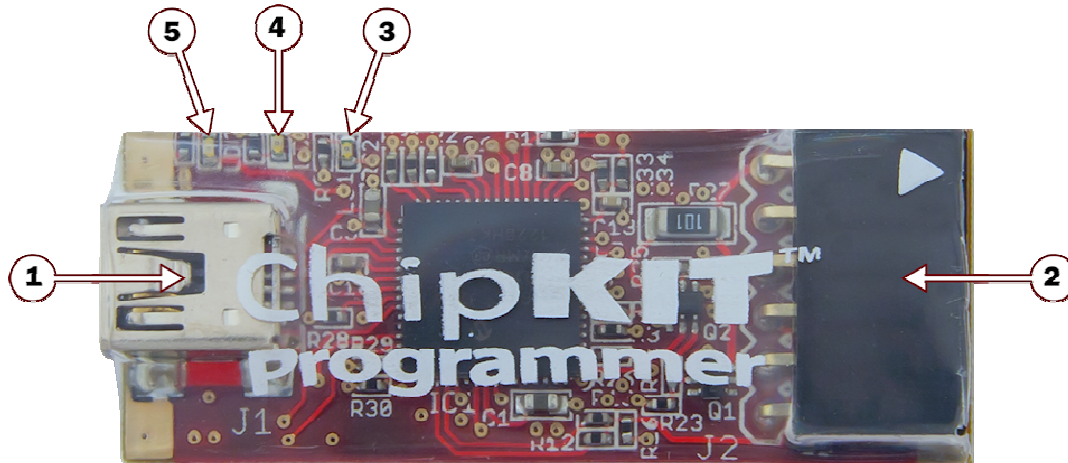
The chipKIT PGM is designed to work with the MPLAB® and MPLAB® X development environments available from Microchip. This allows the chipKIT boards, for example, to be used as a more traditional microcontroller development platform using the professional tools available from Microchip.

The chipKIT PGM can also be used to enable in-system debugging of sketches developed using the Arduino™ compatible MPIDE development environment.



## chipKIT PGM Hardware Overview

The chipKIT PGM has the following features:



1. USB Connector

This is a standard mini USB connector. Use the provided cable to connect the chipKIT PGM to an available USB port on the PC workstation.

2. Programming Connector

Connect the chipKIT PGM to the target board using this connector. The white triangle marker indicates the Pin 1 end of the connector.

3. Status LED

This LED indicates that the chipKIT PGM has connected to the target device and is ready for use.

4. Activity LED

This LED is an activity indicator. It blinks when the programmer/debugger software is communicating with the target device.

5. Power LED

This LED illuminates when the chipKIT PGM is receiving power via the USB port from the host PC.

## Using the chipKIT PGM

The chipKIT PGM uses a programmer/debugger circuit licensed from Microchip. Use of the chipKIT PGM requires a supported version of either the MPLAB IDE or the MPLAB X IDE from Microchip. The licensed debugger is supported in version 8.63 or later of the MPLAB IDE and all versions of the MPLAB X IDE.

The MPLAB or MPLAB X IDE can be downloaded from the Microchip web site at: [www.microchip.com/mplab](http://www.microchip.com/mplab). These software suites include a free evaluation copy of the Microchip C32 compiler for use with the PIC32 microcontroller family.

The appropriate version of the IDE should be downloaded from the Microchip web site and installed. This will install the necessary software and drivers to enable use of the chipKIT PGM.

Once the desired version of MPLAB has been installed, connect the supplied USB cable to the mini-USB connector on the chipKIT PGM and to an available USB port on the PC.

Connect the chipKIT PGM to the ICSP port on the target board and start the MPLAB IDE.

The chipKIT PGM behaves similarly to the Microchip PICkit3 Programmer/Debugger and can be used in a similar way.

In the MPLAB IDE, select **Licensed Debugger** from either the **Programmer.Select Programmer** menu or the **Debugger.Select Tool** menu. The IDE will connect to the device and identify that it is a 'chipKIT Programmer by Digilent'. When the licensed debugger is selected, the MPLAB IDE will check the version number of the firmware running on the debugger and offer to update it if it is out of date with the version of MPLAB being used.

At this point, the chipKIT PGM is ready for use.

## Debugging MPIDE Sketches using the chipKIT PGM

For detailed information on how to use the chipKIT PGM and the MPLAB IDE to debug MPIDE sketches, please refer to the document "Debugging chipKIT with MPLAB IDE" available on the chipKIT wiki: [www.chipKIT.org/wiki](http://www.chipKIT.org/wiki).

This document is in the Application Notes section at the bottom of the Documentation page on the wiki.