

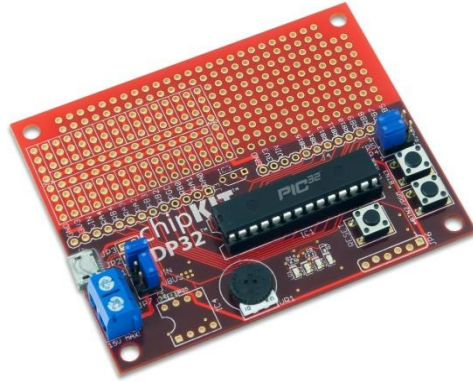
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Note: This document applies to the chipKIT™ DP32 and mpide-0023-xxxx-20130203-test or newer.

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Overview

The chipKIT DP32 is the first chipKIT™ rapid prototype project board from Digilent. The chipKIT™ DP32 comes pre-programmed with an MPIDE compatible bootloader for use with the MPIDE development platform. Follow these instructions to update MPIDE for seamless MPIDE operations with the chipKIT™ DP32.



What you need:

- A chipKIT™ DP32.
- A USB cable.
- A computer running Windows, Linux, or MacOS
- An installed version of MPIDE mpide-0023-xxxx-20130203-test or newer.
- This companion DP32-MPIDE-UPDATE zip file.

Installing MPIDE

If you don't already have MPIDE installed, got to <http://chipkit.s3.amazonaws.com/index.html> and download MPIDE mpide-0023-xxxx-20130203-test or newer. Make sure you download the appropriate MPIDE for the operating system you are using. Once downloaded you will need to unzip or decompress MPIDE. At the root of the newly created directory you will find the MPIDE executable. Also, in a temporary directory, unzip this companion DP32-MPIDE-UPDATE zip file. For the update process we will be focusing on the "hardware" subdirectory in DP32-MPIDE-UPDATE as well as the "hardware" directory in MPIDE. The other directories contain in DP32-MPIDE-UPDATE are helpful files but not necessary for the chipKIT™ DP32 MPIDE update.

Updating MPIDE to support the chipKIT™ DP32

Go to the root directory of your MPIDE installation. This will be the directory where the MPIDE executable exists. In this directory there is a "hardware" subdirectory. The MPIDE "hardware" subdirectory parallels the "hardware" directory found in DP32-MPIDE-UPDATE. For all references for updating MPIDE to support the chipKIT™ DP32 will be made in reference to the "hardware" directory in both MPIDE and DP32-MPIDE-UPDATE. In this process we will be adding 1 directory with 2 files, replacing 1 file, and updating 1 file.

Adding the chipKIT™ DP32 Variants directory

Board definition files are placed in the MPIDE variants directory under "hardware\pic32\variants". If you go to your existing MPIDE installation you will see subdirectories such as "Uno32", "Max32" and a

bunch of others. You will need to copy the DP32 subdirectory from DP32-MPIDE-UPDATE to the MPIDE variants. When you are done you should now have in your MPIDE variants directory a DP32 subdirectory with the 2 files Board_Data.c and Board_Defs.h files in it.

Modifying your boards.txt file

In order for MPIDE to find the chipKIT™ DP32 information, boards.txt must be modified by adding the chipKIT™ DP32 entry. Go to your MPIDE installation and find boards.txt at hardware\pic32\boards.txt. Open that file in a simple text editor such as Wordpad. Notepad is okay, but the existing file will look like one long line instead of a well formatted file; but you can use Notepad if you just ignore the bad formatting. Really any text editor will do. DP32-MPIDE-UPDATE also has a boards.txt located at "hardware\pic32\boards.txt", you will need to copy the entry in the DP32-MPIDE-UPDATE boards.txt into the MPIDE's board.txt without deleting any of the already existing entries in the MPIDE boards.txt. I typically just insert the DP32-MPIDE-UPDATE board entry before the first line in the MPIDE boards.txt. Save and close the updated MPIDE boards.txt.

Replacing avrdude.conf

This file describes to MPIDE how to upload a sketch to your chipKIT™. In reality, MPIDE spawns Avrdude telling Avrdude where the sketch's HEX image is and points to avrdude.conf which contains, based on processor type, all of the ugly details of how to upload the image. This is a very complex file, but it must contain an entry for the processor that your board uses. The chipKIT™ DP32 uses a Microchip 32MX250F128B processor. Replace MPIDE's copy of avrdude.conf at "hardware\tools\avr\etc\avrdude.conf" with the one found in DP32-MPIDE-UPDATE at "hardware\tools\avr\etc\avrdude.conf". Don't worry; all of your old processors will be supported as the new file contains all of the supported processors. My only word of caution is if you have added your own processor types, you will need to reapply your changes; this is very unlikely for the average users. However if you did, you would know what I am talking about.

That is it...

Your MPIDE is updated to support the chipKIT™ DP32.

What are the other files in DP32-MPIDE-UPDATE for?

Under the Arduino directory is a ToggleBlink sketch. This is just a sketch that you can add to your MPIDE Sketch directory as a simple application to blink 2 of the LEDs on the chipKIT™ DP32.

Under the Bootloaders directory is the chipKIT™ DP32 bootloader HEX image. Your chipKIT™ DP32 comes with the bootloader already preprogrammed on it; so you do not need to install it. However, should you use MPLAB® or MPLAB®-X to directly program your chipKIT™ DP32 you would wipe out your bootloader. This is a copy of the bootloader so you can restore it should you choose to use MPLAB® or MPLAB®-X.