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How To Program PIC Microcontrollers Using SDCC 2

How To Program PIC Microcontrollers Using SDCC

In this video, I go over how to get started using a PIC microcontroller as well as programming and uploading your first program on GNU/Linux!

I go over what PIC microcontrollers are, how they work, and the advantages/disadvantages of PIC chips.

I explain the IC itself, how we can wire it to the programmer. I used a PicKit2 in this video (note that the PicKit3 drivers might not work on Linux). The program is written in C, I used SDCC as the compiler, and PK2CMD to upload to the IC. I also have a demo of the blink circuit at the end.

Most tutorials I could find were for MPLab and other Windows only IDE's, so I wanted to showcase how it could be done on other OSes.

For this video, I used the PIC18F2550, you can follow along with many other PIC12, PIC14, PIC16 or PIC18 devices that are supported.

Timestamps:

00:00 - Introduction

00:17 - What is PIC?

00:49 - PIC Advantages and Disadvantages

03:17 - Why Follow Along

03:42 - PIC Product Lines

04:08 - The PIC 18F2550

05:17 - How do we upload our programs? A look at the PicKit2 programmer.

06:39 - Pinouts of the PicKit and IC

08:14 - Wiring the programmer to the Microcontroller

10:20 - Installing the software on Linux

11:57 - PicKit detection test

12:11 - Example code files

12:52 - Header files and options, sdcc includes

15:56 - Datasheet and I/O on the Microcontroller

19:09 - Blink example program explanation

21:09 - Compiling programs using SDCC

22:03 - A look at the assembly file

23:41 - A look at the binary HEX file

24:06 - Uploading hex files to the chip using pk2cmd

25:10 - Wiring the circuit to run our program

27:45 - Updating our programs

28:50 - Continuing further

29:36 - Concluding remarks

Links:

The datasheets, pinouts and documentation on the chips shown in the video are all from Microchip's website.

PIC 18F2550: https://bit.ly/359hgKc

PicKit 2: https://bit.ly/2Y6i6Gn

SDCC project: https://bit.ly/3aCEgCM

SDCC examples: https://bit.ly/2y3N9bd

Thanks for watching! I hope you found this video useful!

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Production Remarks and Rants:

- This video took quite a while to put together from the multiple cameras and audio tracks I was working with. I had to do some drastic color correction for many scenes in this, to get it looking better, brighter and at a proper white balance! As a result, there are a few glitches of transitions and short clips where the effects did not get applied.

- This video originally had background music, I asked a couple of friends, and Bruce suggested removing any background music because “it was too distracting”. If you don't agree with the change, please comment and tag him.

- There is some distortion in the first camera clips from the mp3 compression the mic uses (it was an

Olympus recorder), and I was probably too close to it. I applied more drastic noise suppression in the second half so there's less static. My XLR interface isn't working, so I couldn't use the mic I normally use for audio recording. Usually I put music to hide the noise, but removed it this time.

- Everything except the Linux logo in the thumbnail is from this video, though I had to mess with the contrast a bit

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Music by Approaching Nirvana:

https://approachingnirvana.com

https://open.spotify.com/artist/3sS2Q...

http://youtube.com/user/approachingni...

Intro: Their Story (Animals)

Outro: Glimpse of Winter (Blocking the Sky)

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