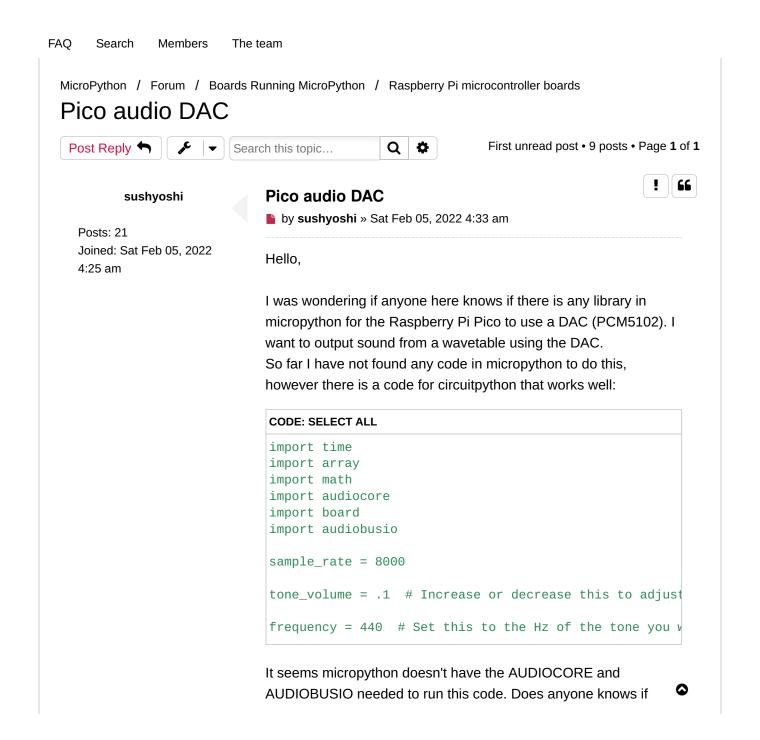


<u>MicroPython Forum (Archive)</u>

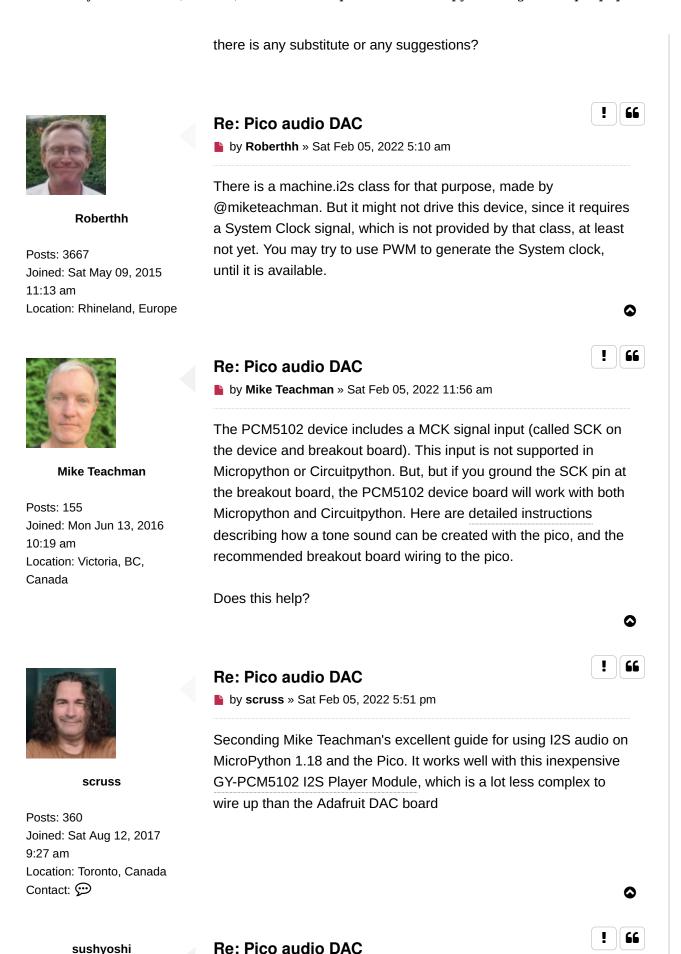
Please see the new forum at GitHub Discussions



1 of 5 7/27/24, 10:15

sushyoshi

Posts: 21



2 of 5 7/27/24, 10:15

by **sushyoshi** » Sun Feb 06, 2022 6:16 am

Joined: Sat Feb 05, 2022 4:25 am

Thanks Mike. That is exactly what I needed. Can confirm that it is working with the cheap chinese module with the PCM5102.

I am working on a project that this is very valuable. Can you tell me what are the advantages of using a DAC over a PWM in terms of sound output? I understand that the DAC will allow a better resolution of sample reproduction, but what about processing power. Do you think using a DAC will be "easier" on the processor than using PWM? I am asking this because I wanted the Pico to be continuously outputting sound while be able to do other thing as well "simultaneously". Sorry if the question is dumb, I am still very new at this.

Thanks

Val

sushyoshi

Posts: 21

Joined: Sat Feb 05, 2022

4:25 am

Re: Pico audio DAC

by sushyoshi » Mon Feb 07, 2022 12:32 am

Hello Mike,

First of all, thank you for your contribution working on this.

I have been going through your example for the sine wave tone and trying to make a use out of it, but so far I have not been successful. Maybe anyone can help me out with the following:

- 1 Can we add user input to the tone player? For example, when I press a push button I would like to be able to change the frequency. Looking at your code what I really need is to have a way to change the data in the sound array, continuously checking for user input.
- 2 Do you have an example of a non-blocking tone player?

I am trying to make sense of how the I2S is working with my very limited coding knowledge. I am open to any input or suggestions. I am really looking forward to seeing this I2S implementation develop, especially the use of micropython for coding sound engines.



Re: Pico audio DAC

3 of 5 7/27/24, 10:15



Mike Teachman

Posts: 155

Joined: Mon Jun 13, 2016

10:19 am

Location: Victoria, BC,

Canada

▶ by **Mike Teachman** » Mon Feb 07, 2022 1:10 am

Sun Feb 06, 2022 6:16 am Can you tell me what are the advantages of using a DAC over a PWM in terms of sound output?

Sorry, I do not have any experience with PWM techniques for audio applications. But, I can say that I2S with a DAC can produce CD audio quality.

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I understand that the DAC will allow a better resolution of sample reproduction, but what about processing power. Do you think using a DAC will be "easier" on the processor than using PWM?

I can not really comment on the PWM processing power, but I2S with a DAC uses very little processing power on a Pico. All the audio sample transfers are done in the background using DMA which has little effect on the processor and the data output bitstream is created with a PIO which also does not use much processing power. The biggest processor load (by far) is reading sample data from a Wav file that is stored on a SD card.

sushyoshi

Posts: 21

Joined: Sat Feb 05, 2022

4:25 am

Re: Pico audio DAC

by **sushyoshi** » Tue Feb 08, 2022 3:02 am

Hello Mike,

Thank you for your answer.

My focus is to play samples from an array of data, with the ability for the user to interface with the array. Kind of like a wavetable sound synthesizer.

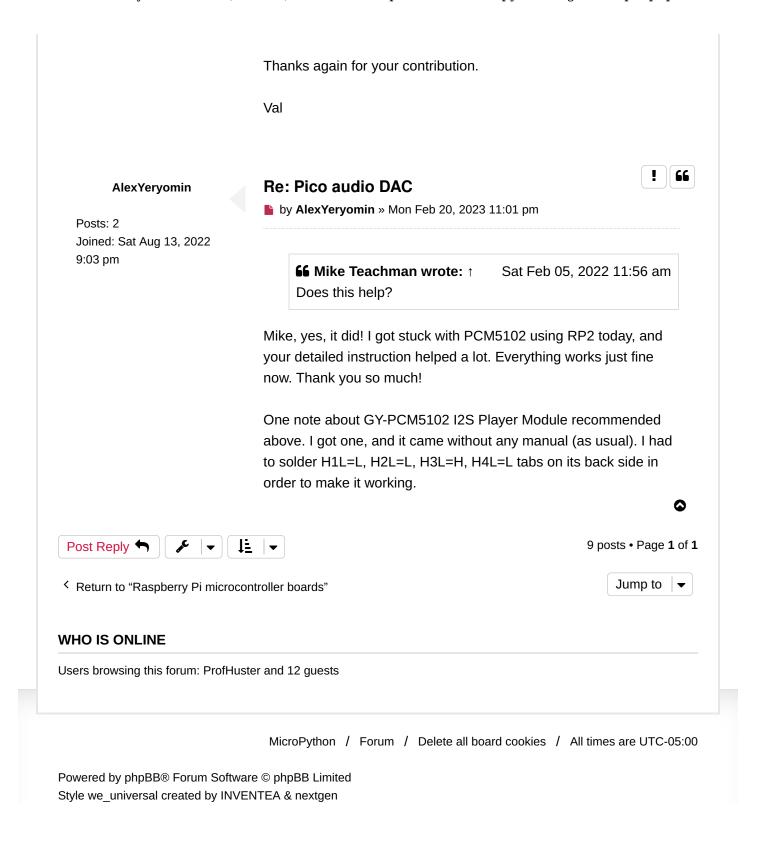
Are you still working on your code? If so I would really appreciate if you could provide an example for playing a tone (like you did with the sine wave) but with the ability of user input to change frequency in real time.

I cannot find any other information about using micropython to achieve this.

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4 of 5



5 of 5 7/27/24, 10:15