

PMOD AMP1

This manual provides instruction (in brief) about the use of Digilent PMOD AMP1 module and how it can be interfaced with the Nexys 3 FPGA board. The PMOD AMP1 amplifies low power audio signals to drive either stereo headphones or a monophonic speaker. The speaker is driven from the left (ref. Fig. 1) stereo input (that we will use for the Lab 6).

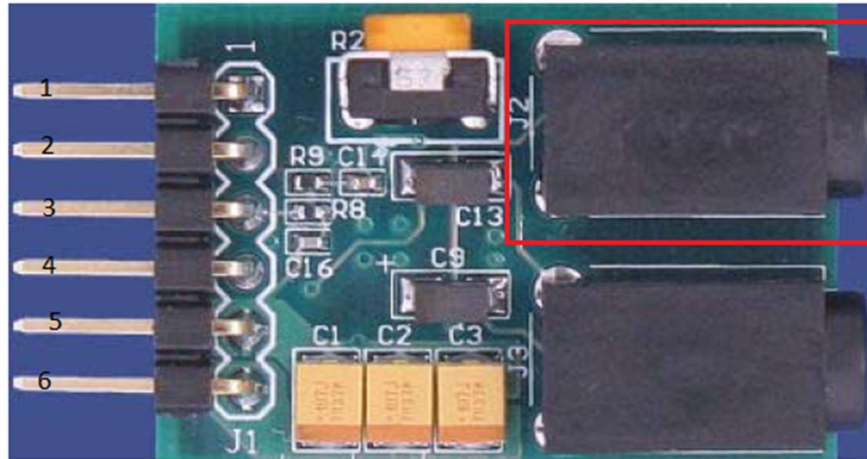


Figure 1: A PMOD AMP1 module

The 3.5mm audio jack circled in red in Fig. 1 can be used to drive a speaker available in the DSL Lab. The pins are numbered as shown in the Fig. 1. Pin 5 is GND and Pin 6 is VCC (3.3V). Pin 1 drives the circled (in red) audio jack and that's where we will provide the frequency signal.

The PMOD connectors on the FPGA can be used to drive the PMOD AMP1 module as shown in Figure 2.

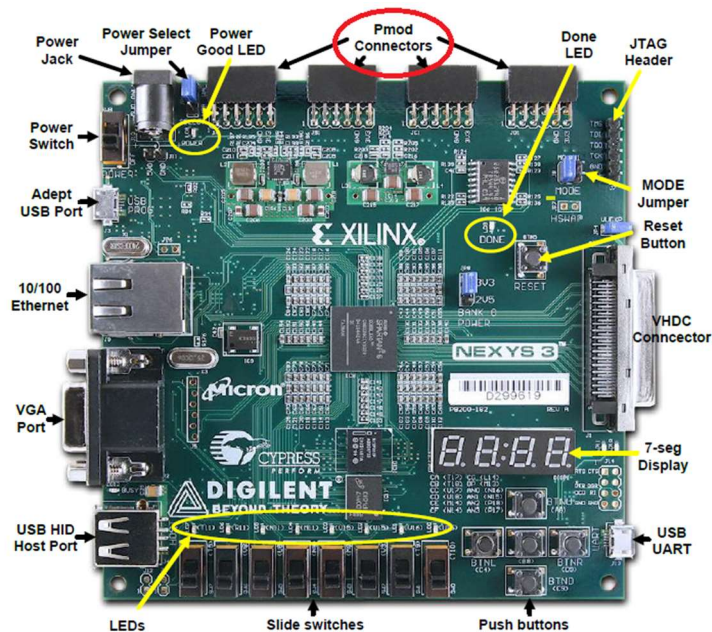


Figure 2: Nexys 3 FPGA with PMOD connectors highlighted

The Nexys 3 board has 4 PMOD connectors named as JA, JB, JC, and JD starting from left in Figure 2. The front view of one the connectors is shown in Figure 3.

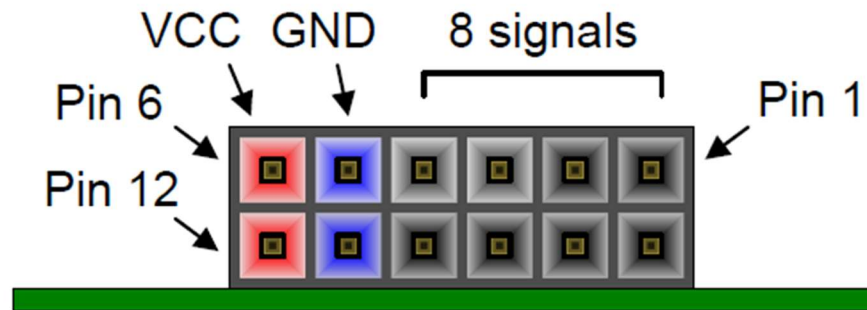


Figure 3: PMOD connector front view

If the PMOD connector in the Figure 3 is JA, then the pins are called JA1, JA2,..., JA12. As an example, we can connect the PMOD AMP1 module (Fig. 1) to the lower row of JA PMOD connector then we are making the following connections:

PMOD AMP1 pin	connected to	FPGA PMOD pin
1	→	JA7
2	→	JA8
3	→	JA9
4	→	JA10
5(GND)	→	JA11(GND)
6(VCC)	→	JA12(VCC)

Then the frequency output (tone output) of the tone generator should be attached to the site corresponding to the pin JA7 (which is M10) in the ucf file. While testing the implementation, a speaker can be connected to the circled (in red) audio jack in Fig. 1 and you can listen to the audio output.

You can refer to the following manuals for more details.

https://reference.digilentinc.com/_media/pmodamp1/pmodamp1_rm_revb.pdf

http://www.ece.utah.edu/~kalla/ECE3700/nexys3_rm.pdf