

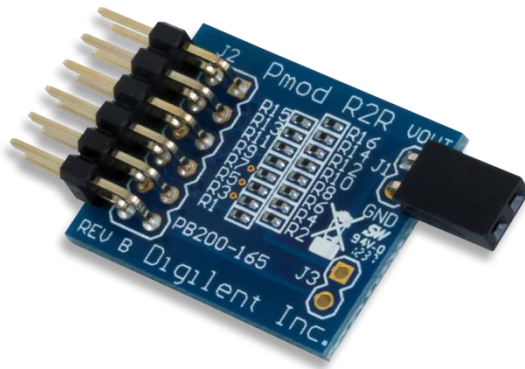
PmodR2R™ Reference Manual

Revised April 12, 2016

This manual applies to the PmodR2R rev. B

Overview

The Digilent PmodR2R is an 8-bit Digital-to-Analog converter. It may not look as sleek and professional as some of the other DACs that are out there, but on a fundamental level that is easy to see, this Pmod does exactly the same thing as its counterparts.



Features include:

- 8-bit digital-to-analog conversion
- Convert data at up to 25MHz
- Easy attachment of oscilloscopes to illustrate the data conversion process
- Small PCB size for flexible designs 1.0" x 0.8" (2.54 cm x 2.0 cm)
- 2x6-pin Pmod port with GPIO interface
- Follows Digilent Interface Specification Type 1

The PmodR2R.

1 Functional Description

The PmodR2R accepts 8 bits in parallel, either at a logic low or high voltage, which then go through a resistor ladder to output a desired voltage. The "R2R" resistor ladder is one of the most popular ways that digital-to-analog converters take a set of digital inputs and create a single analog output, requiring just two resistor values of R and 2*R. Because this Pmod only uses 10K Ω and 20K Ω resistors, very little current is drawn from the input pins.

2 Interfacing with the Pmod

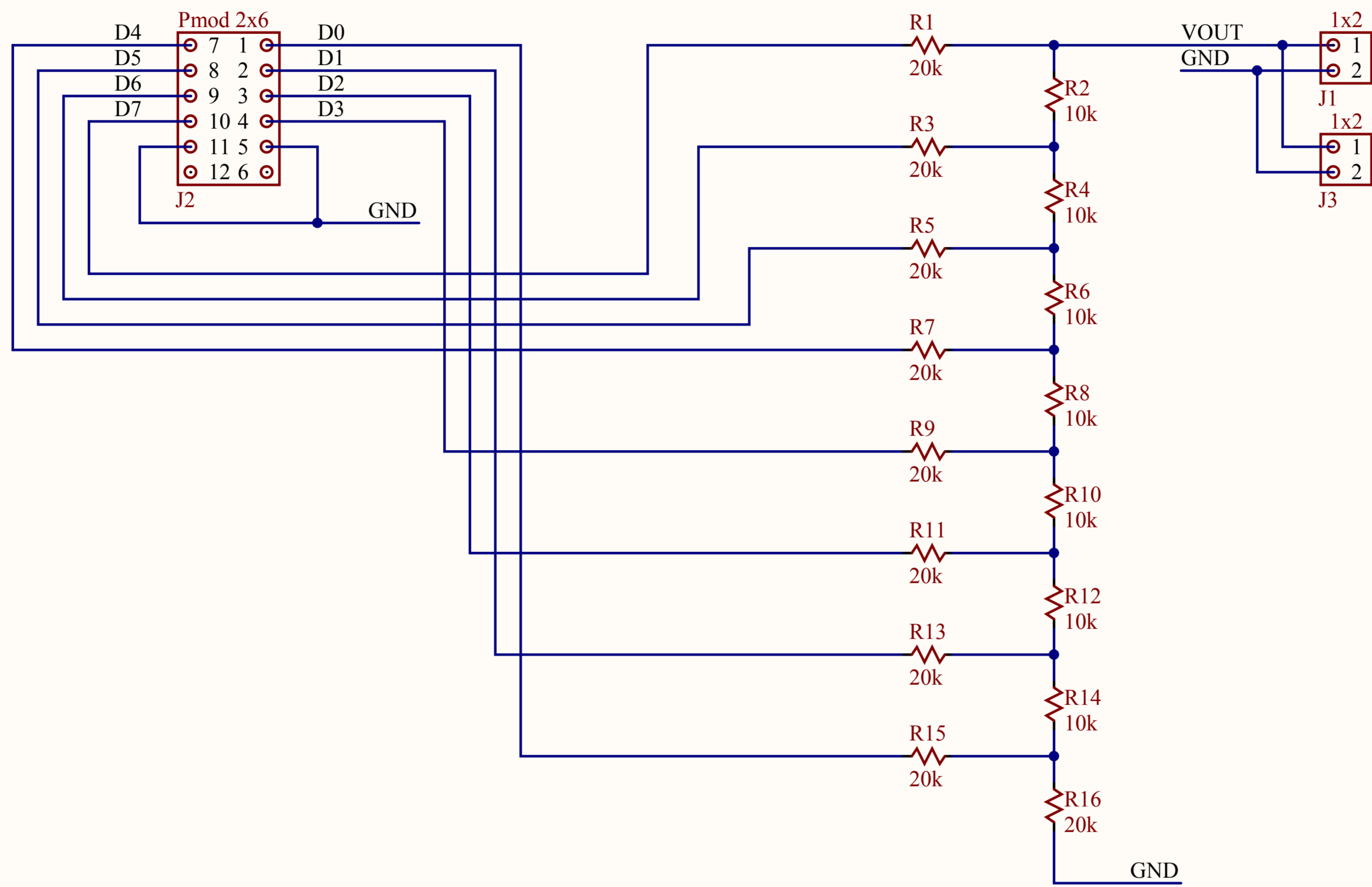
The PmodR2R communicates with the host board via the GPIO protocol. Each of the 8 input pins are expected to send out either a logic high or logic low voltage signal in such a way that represents the desired binary ratio of the full analog output.

Header J1			
Pin Number (top row)	Description	Pin Number (bottom row)	Description
1	Data Bit 0	7	Data Bit 4
2	Data Bit 1	8	Data Bit 5
3	Data Bit 2	9	Data Bit 6
4	Data Bit 3	10	Data Bit 7
5	Ground	11	Ground
6	VCC	12	VCC

Table 1. Pinout description table.

3 Physical Dimensions

The pins on the pin header are spaced 100 mil apart. The PCB is 1 inch long on the sides parallel to the pins on the pin header and 0.8 inches long on the sides perpendicular to the pin header.



Title Pmod R2R		Rev B.0 Copyright
Circuit		 www.digilentinc.com
Doc#	200-165	
Engineer	CC	
Author	GMA	
Date	8/21/2008	
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