PmodDA4™ Digital To Analog Converter Reference Manual

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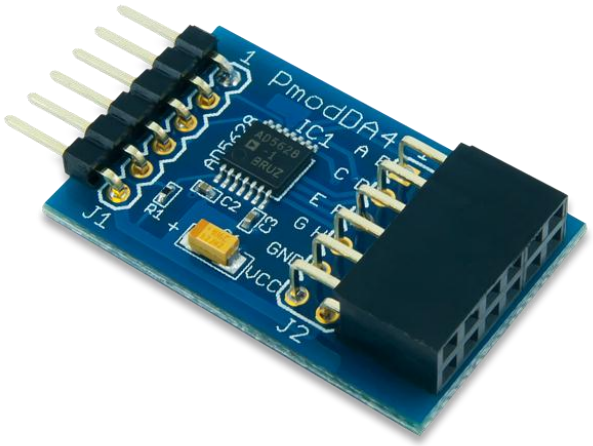
Overview

Engineered around the Analog Devices AD5628 Digital to Analog Converter, the Digilent PmodDA4 provides 8 channels of D/A conversion at 12 bits of resolution. The PmodDA4 can be used with Digilent system boards as well as a growing number of third-party boards equipped with Digilent Pmod™ connectors.



Features include:

- Analog Devices AD5628 low power, octal, 12-bit, buffered voltage-output DAC
- High-speed DSP compatible
- Low power consumption
- Power-down function capability
- 6-pin Pmod connector with 3-wire Serial interface
- 12-pin output connector

Functional Description

The PmodDA4 can produce an analog output ranging from 0V to 2.5V when operated with a 3.3V power supply. It has eight D/A conversion channels, each with a 12-bit converter that can process separate digital signals.

To produce outputs, simply send commands to the eight D/A converters via the SPI serial bus. (Note: Always send this SPI data to the device as a 32-bit word.) You can send D/A converter settings to individual D/A converters or all eight D/A converters at once.

For a description of the signals on the interface connectors J1 and J2, see Table 1. For more detailed information, users should refer to the PmodDA4 schematic available on the Digilent web site.

Digital Interface – J1	
1	SYNC
2	DIN
3	Not Connected (NC)
4	SCLK
5	GND
6	VCC
Analog Interface – J2	
1	VOUTA
2	VOUTB
3	VOUTC
4	VOUTD
5	VOUTE
6	VOUTF
7	VOUTG
8	VOUTH
9, 10	GND
11, 12	VCC

Table 1. ***Interface Connector Signal Descriptions***

Power Supply

In most cases, the PmodDA4 is powered by the system board to which it is connected. The power and ground connections are on pins five and six of the Pmod connector J1. Alternatively, you can power the PmodDA4 from an external power supply connected to pins 9-12 of the analog interface connector J2.

Note: If you supply power from an external source, you must remove the power select jumper on the system board to disconnect the power from the system board to J1. Damage may result if two power supplies are connected at the same time.

In general, Digilent engineers suggest providing 3.3V to power Pmods. You can operate the PmodDA4 at any power supply voltage between 2.7V and 5.5V. However, be sure to exercise caution when using any voltage greater than 3.3V. Using a voltage higher than 3.3V could result in damage to your host board.

For detailed information about the AD5628, including Input Register data formatting, please refer to the AD5628 Data Sheet available at http://www.analog.com/AD5628.