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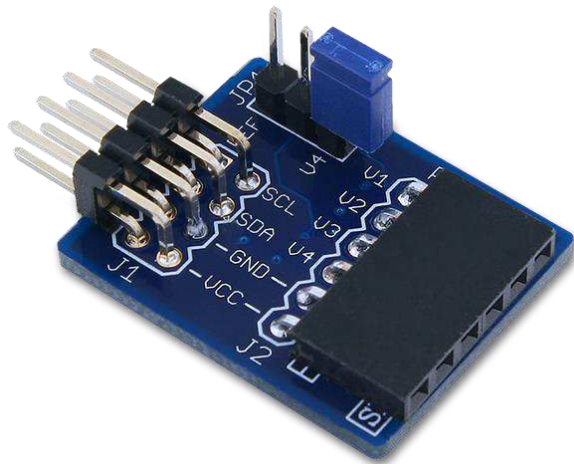

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PmodAD2™ Reference Manual

Revised May 24, 2016
This manual applies to the PmodAD2 rev. A

Overview

The PmodAD2 is an analog-to-digital converter powered by the Analog Devices AD7991. Users may communicate with the board through I²C to configure up to 4 conversion channels at 12 bits of resolution.

The PmodAD2.

Features include:

- Up to four 12-bit analog to digital converter channels
- On-board 2.048 V voltage reference
- Jumper selectable reference input
- Small PCB size for flexible designs (1.0 in × 0.8 in)(2.5 cm × 2.0 cm)
- Follows Digilent Interface Specification
- Library and example code available in resource center

1 Functional Description

The PmodAD2 utilizes Analog Devices® AD7991 to provide up to four channels of 12-bit analog-to-digital conversion.

2 Interfacing with the Pmod

The PmodAD2 communicates with the host board via the I²C protocol. System boards are able to call the Pmod by sending out the device address of 0b0101000 followed by the appropriate read or write bit. If a write bit is chosen, users may then configure the on-board chip to only use certain channels or may immediately start reading the 12 bits of data from the 16-bit data register if the read bit is sent.

Unlike other devices that use I²C, no addresses are associated with these two registers; only the read/write bit at the end of the slave address distinguishes between the two registers. By default, all four channels have analog-to-

digital conversions performed on them sequentially with the supply voltage VCC acting as the voltage reference for the ADC.

After each conversion is performed, the device places itself into power-down mode. Upon a read command, the device will wake itself up and prepare for a conversion, which takes approximately 0.6 µs. The actual conversion process takes approximately 1.0 µs.

Pin	Signal	Description
1 & 5	SCL	Serial Clock
2 & 6	SDA	Serial Data
3 & 7	GND	Power Supply Ground
4 & 8	VCC	Power Supply (3.3V/5V)

Table 1. Pinout description table.

Any external power applied to the PmodAD2 must be within 2.7V and 5.5V; however, it is recommended that the Pmod is operated at 3.3V.

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.