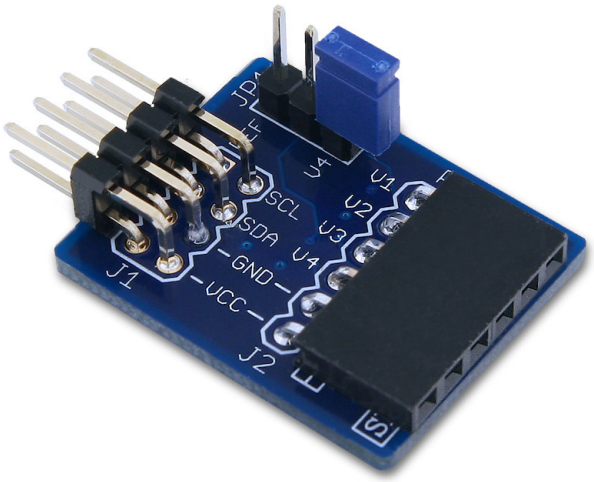
PmodAD2™ Reference Manual

Revision: August 30, 2011
Note: This document applies to REV A of the board.

DIGILENT®
www.digilentinc.com
1300 NE Henley Court, Suite 3
Pullman, WA 99163
(509) 334 6306 Voice | (509) 334 6300 Fax

Overview

The PmodAD2 is an analog-to-digital converter module with up to four channels at 12-bit resolution powered by the Analog Devices AD7991.



Features include:

- up to four analog to digital converter channels
- up to 12-bit resolution
- on-board 2.048V voltage reference
- ability to choose the voltage reference
- I^2C interface

Functional Description

The PmodAD2 uses an 8-pin connector that allows communication via I^2C. The PmodAD2 also has a 6-pin connector that allows up to four analog inputs or up to three analog inputs and a voltage reference.

Interface

All communications with the device must specify a device address and a flag indicating whether the communication is a read or a write. This is followed by the actual data transfer. For details on read and write procedures please see the AD7991 datasheet.

Device configuration is performed by writing to the configuration register within the device. This allows you to choose which channels are converting data, whether or not there is an external reference voltage, and whether or not there is bit trial or sample delay.

To read data from the conversion result, see "Reading from the AD7991/AD7995/AD7999" in the AD7991 datasheet.

Interface Connector Signal Description

Connector J1 – I2C Communications		
Pin	**Signal**	**Description**
1, 2	SCL	I2C Clock
3, 4	SDA	I2C Data
5, 6	GND	Power Supply Ground
7, 8	VCC	Power Supply (3.3V)

The I^2C interface standard uses two signal lines. These are I^2C data (SDA) and I^2C clock (SCL). These signals map to the serial data (SDA) and serial clock (SCL), respectively, on the AD7991.

Analog Inputs and V_{Ref}

The PmodAD2 allows for up to four analog inputs, VIN1 – VIN4. To use the input VIN4, the jumper JP1 must be set to V4.

The configuration register has a REF_SEL bit that, when enabled, allows a voltage other than the supply voltage to be used as the reference. If REF_SEL is enabled, and if JP1 is set to REF, V_{Ref} from the on-board voltage reference generator is 2.048V. If JP1 is set to V4, V_{Ref} is the voltage at input VIN4.

Connector J2 – Analog Input		
Pin	**Signal**	**Description**
1	VIN1	Analog Input 1
2	VIN2	Analog Input 2
3	VIN3	Analog Input 3
4	VIN4	Analog Input 4
5	GND	Power Supply Ground
6	VCC	Power Supply (3.3V)