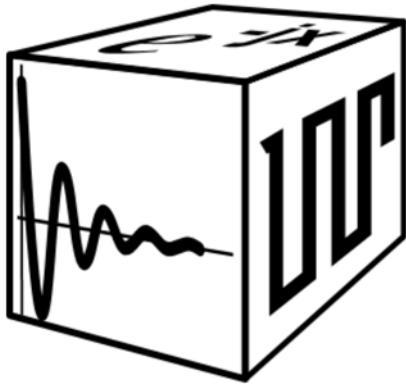


SIGNALBLOX®



CLOCKWORKS

Signal Processing

8 CHANNEL
BALANCED INPUT ADC
MODULE

Summary

The AD2100 module is based on two Analog Devices' ADAU1979 4 channel ADC chips. The ADAU1979 is a mid-level performance ADC and as such represents a good tradeoff in cost, complexity, and performance.

With a balanced input, FS ADC output is achieved with 4.5V RMS (13 dBV or 15 dBu) applied to provide reasonable headroom in most applications without extra attenuation. With the input operate as single ended the maximum ADC output is achieved with 2.25V RMS (7 dBV or 9 dBu). An internal digital gain can be enabled to have the maximum digital level also be 0 dBFS when operated with single ended input.

Each ADC is operated in TDM4 mode and output data appears on the first two I²S output lines of the module. The board uses 3.3V digital and +5V analog power, drawing 7 mA and 30 mA respectively.

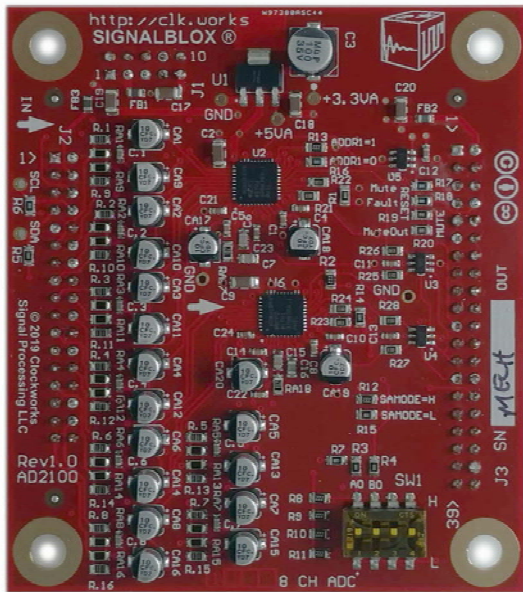
The ADC is controlled via I²C and examples for initializing this from SigmaStudio are included. The board can be modified to operate in a standalone mode for applications outside of a SignalBlox system.

Introduction

Clockworks SignalBlox product series provide a module system of off the shelf hardware for developing signal processing applications. Modules handle 8 channels each, and carriers provide a simple way to parallel modules for channel counts up to 256.

The DigitalBlox products consist of mixed signal modules (ADC, DAC) and DSP modules and/or A²B interface for signal processing. These can be combined with AnalogBlox modules; they have 8 balanced input and outputs. Standard functions from Clockworks include volume control, switching, and single ended/balanced conversion.

All SignalBlox hardware design documentation is released under a Creative Commons CC BY-SA 4.0 license, allowing you to modify the designs to your own needs.



DigitalBlox®

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AD2100 specifications

- Connectors (bottom side .1" centered sockets)
 - 34 pin (analog - 8 balanced channels) input
 - 40 pin (digital - 2 I²S lines operated TDM4) output
 - 10 pin secondary power (left top)
- Size:
 - 75 x 85mm overall and uses 11 mm M3 standoffs (4 layer PCB)
 - 4 mounting holes spaced at 63 x 73 mm (6 mm from each edge).
- Power input:
 - 3.3V digital via primary connectors
 - 5V analog from secondary power plug, local 3.3V LDO for ADAU1979
- Power draw:
 - < 100 mW typical from all supplies
- Control:
 - I²C bus with two switches for address selection for each ADC part, default is 0x22 and 0x72

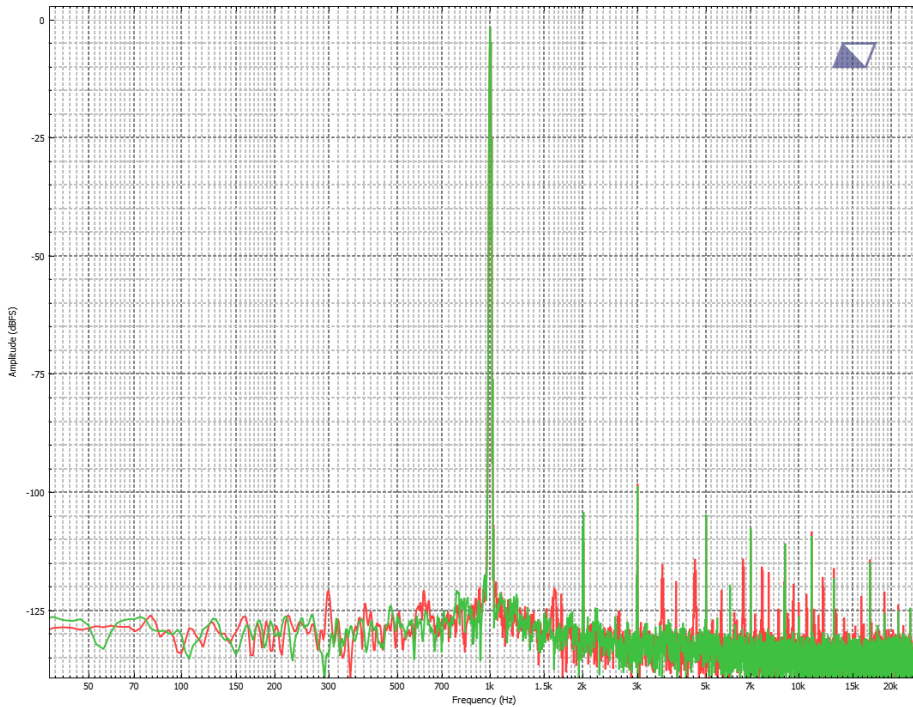
Ordering information

AD2100	8 channel ADC module based on ADAU1979
CC0003	Carrier only: 3 x 2 DigitalBlox module carrier. Does not include mounting hardware for this board nor the modules.
SYS05	Complete system for A ² B: 8 input, 8 output system with CC0003 carrier, AD2100 ADC, DD3100 adapter with A2B Module, DA1100 DAC, input and output connector modules, 7 output power supply (+3.3, +5, +/-15V +/- 5V), ribbon, power, and A2B cables, and mounting hardware for modules. (please see separate datasheet for details)



AD2100 installed on CC0003 carrier along with A²B interface and DAC. Provides 8 input and output channels in an A²B based system.

Typical performance



Balanced input 12 dBV (-1.5 dBFS measured) 16K point FFT.

2nd harmonic -105 dBFS,
3rd harmonic -98.5 dBFS,
5th harmonic -105 dBFS.

48 kHz Fs.

Channel 1 red, channel 8 green.



Balanced input THD+N vs. level, unweighted. 100 Hz HPF used to remove 60 Hz interference.

48 kHz Fs.

Computed DR from AES-17 method (-60 dBFS): 102 dB (unweighted)

-1 dBFS THD+N -91 dB (unweighted)

Channel 1 red, channel 8 green.