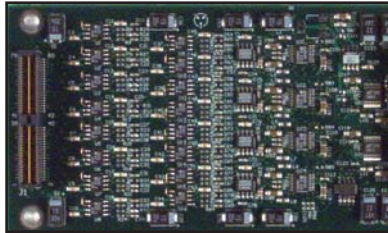




## OP5340 Analog Input Module

Simultaneous 16-channel, 16-bit Analog Input with Signal Conditioning Mezzanine Module for OP5130 and OP5220 (Type B) Carrier



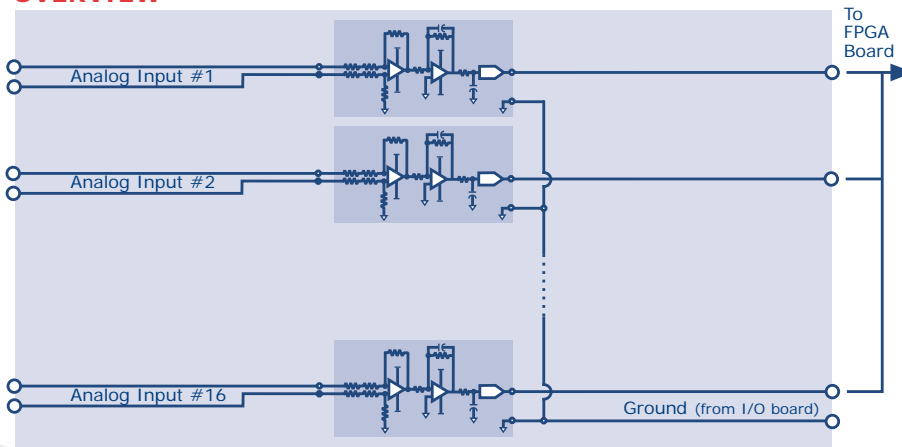
- Up to 16 differential analog Input channels, one 16-bit ADC per channel
- Simultaneous sampling on all channels. Eliminates skew errors inherent in multiplexed channels
- Up to 500 kS/s update rate per channel. Total throughput of 8 MS/s.
- Independent programmable ranges from +/- 100 mV to +/- 16 Volt, with software calibration (gain and offset)

- On-board signal conditioning
- Library of drag-and-drop RT-LAB blocks for Simulink™

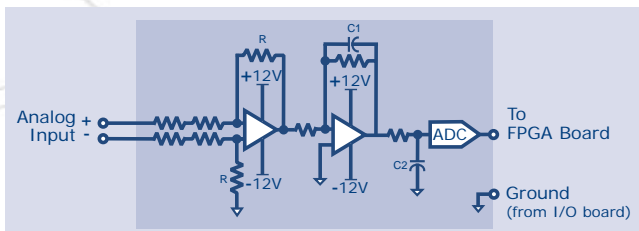
The **OP5340** is one of a range of function modules for the OP5000 FPGA I/O system from Opal-RT Technologies. It allows up to 16 analog signals to be sampled simultaneously through a single module. Given that both the OP5130 External FPGA Processor, and the passive OP5220 carrier can accommodate up to two mezzanine modules, it allows up to 32 signals to be captured per carrier. Several carriers can be connected to a single board slot on a simulator via the OP5110 or OP5120 I/O interface.

The **OP5340** features 16 differential channels with individual 16-bit Analog-to-Digital Converters (ADC), which ensures simultaneous signal capture from multiple channels, thus eliminating the skew errors associated with multiplexed channels. Each ADC can sample up to 500 kS/s, giving a total throughput of 8 Ms/s. On-board signal conditioning provides offsets and gains from +/- 100 mV to +/- 16 V as well as over-voltage protection.

### OVERVIEW



### CHANNEL DETAIL



### TECHNICAL SPECIFICATIONS

#### Analog Input

Number of channels: 16 differential  
Resolution: 16 bits  
Acquisition time for 16 channels: 2.0  $\mu$ s  
Type of ADC: 8 x Dual Serial Access

#### Nominal Input Ranges (V)

Positive Full Scale	Negative Full Scale
+100.0	-100.0
+20.0	-20.0
+10.0	-10.0
+5.0	-5.0
+1.0	-1.0

#### Step Response (without filter)

STEP SIZE	ACCURACY	
	$\pm 20.0$ V	0.26 $\mu$ s

#### DC Transfer Characteristics

No. missing codes resolution: 14 bits min.  
INL:  $\pm 8$  LSB max.  
DNL:  $\pm 1.5$  LSB typ. (0 to 70°C)  
CMRR, DC to 60 Hz: 60 dB at 10 kHz

#### Dynamic Characteristics

Bandwidth  
Small signal (-3 dB): 820 kHz  
Large signal (1% THD): 55 kHz  
System noise:  
1.8 LSBrms (including quantization)

#### Calibration

Programmable gain and offset calibration for each A/D. Calibration factors are stored in on-board non-volatile memory. Recommended warm-up time: 5 min. Calibration interval: 1 year

#### Physical Dimensions

6.73 cm x 12.70 cm (2.65" x 5.00")  
I/O connector:

80-pin hi-speed header to carrier

#### Environmental

Operating temperature: 0 to 70°C  
Storage temperature: -55 to 85°C  
Relative humidity:  
10 to 90%, noncondensing  
Maximum altitude: 2,000 m

#### Pinouts

See channel pinout information for OP5130 and OP5220



**Our engineers can develop any signal-matching solution to incorporate your hardware into the simulation system. Contact us at 1-877-935-2323 or e-mail : info@opal-rt.com to discuss your signal conditioning**

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