

ADC5000

5 GSPS, 4-channel A/D FMC module

- ❖ 4-channel (1.25 GSPS), 2-channel (2.5 GSPS), or 1-channel (5 GSPS) A/D converter
- ❖ Supports multiple clock and reference configurations
- ❖ Versatile and industry-standard VITA 57.1 FMC
- ❖ Perfect for Lyrtech's μ TCA Perseus AMCs



The ADC5000 FPGA mezzanine card (FMC) is a 4-channel, multimode A/D converter that fully complies with VITA 57.1. The FMC is designed around four, 10-bit ADCs that enable simultaneous sampling of one, two or four channels at maximum rate of:

- 1 channel: 5 GSPS
- 2 channels: 2.5 GSPS
- 4 channels: 1.25 GSPS

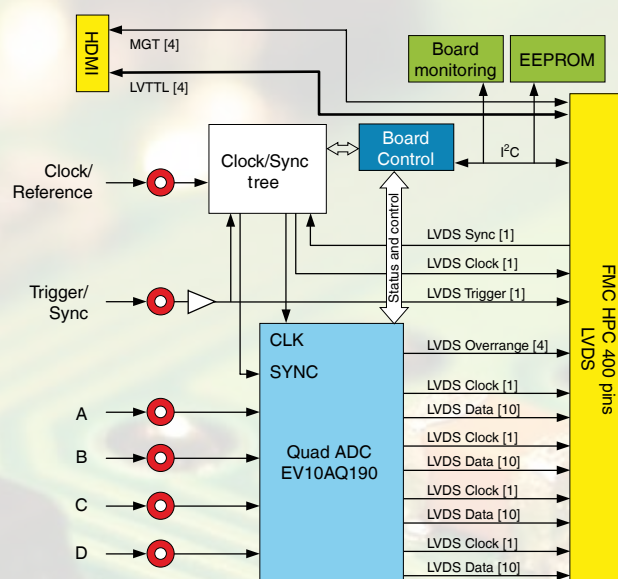
The sampling clock can come from an internal source (that can be locked onto an external reference) or from an external clock. A trigger input is also available for customized sampling control.

The ADC5000 is equipped with a high-pin-count (HPC) connector and front panel I/Os. The analog signal inputs are AC coupled and channel-to-channel shielded, and designed around e2v's EV10AQ190 A/D chip equipped DDR LVDS outputs. Such an advanced technology allows individually fine-tuning the gain, offset and phase of each analog input.

Further, the ADC5000's allows for easy modification of the sampling frequency and flexible calibration through the I²C bus and configurable from an FMC carrier. The card is also equipped with a power supply and temperature monitoring system, as well as several power-down modes to deactivate unused functions.

Features

- Quad, dual or single, 10-bit A/D conversion channels
 - 1-channel, 5 GSPS
 - 2-channel, 2.5 GSPS
 - 4-channel, 1.25 GSPS
- Complies with VITA 57.1
- Front-panel, coaxial inputs on SSMC
- AC-coupled analog inputs
- 400-pin HPC



- Flexible clock tree:
 - Internal clock
 - External clock

Target applications

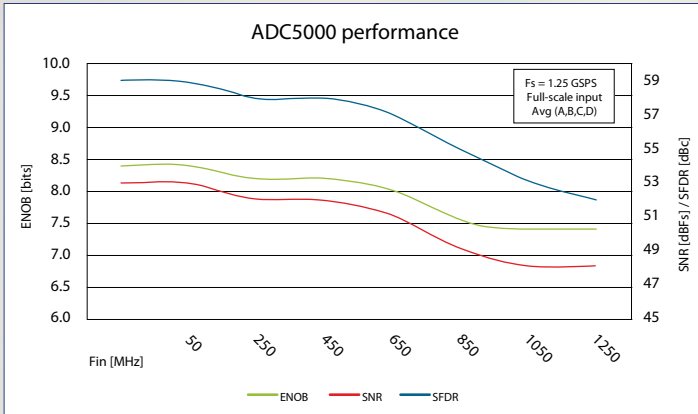
- Direct RF down conversion
- Software-defined radio (SDR)
- Radar, sonar, LIDAR
- Ultra-wideband satellite reception
- Medical equipment
- Aerospace and test instrumentation

Performance

- 500 mV_{pp} analog input range
- Selectable input bandwidth (1 GHz or 3 GHz)
- Individual gain control ($\pm 10\%$)

Infinite possibilities...

- Individual offset control (± 40 mV)
- Individual phase control (± 15 ps)
- > 60 dB channel isolation (crosstalk)



Purchase information

Phone

(1) 418-877-4644

1-888-922-4644

E-mail

info@lyrtech.com

Visit us on the Web at www.lyrtech.com.

Specifications

FMC connectivity

- High-pin-count connector
- LA (00-xx), HA (00-xx), HB (00-xx)
- CLK0: M2C clock

Front panel

- SSMC
- A/D channels $\times 4$
- External trigger
- External reference/sampling clock input

Mechanwwical

- Dimensions: 69.0 mm \times 15.0 mm \times 87.5 mm (W \times H \times D)
- Rugged FMC form factor — designed for conduction cooling, but not tested or implemented. Contact info@lyrtech.com for details.

Standards compliance

- VITA 57.1

Electrical

- 12 V
- 3.3 V
- 2.5 V (V_{adj})

Power consumption

- 3.3 V power supply: maximum TBD W
- 12.0 V power supply: maximum TBD W
- 2.5 V (V_{adj}) power supply: maximum TBD W

Environmental

- Operating temperature: 0°C to 70°C
- Storage temperature: -50°C to 125°C
- Operating humidity: 0 % to 100 %, non-condensing
- Storage humidity: 0 % to 100 %
- Vibration: 0.1 g^2/Hz , 10 Hz to 3 kHz
- Shock: 30 g peak

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