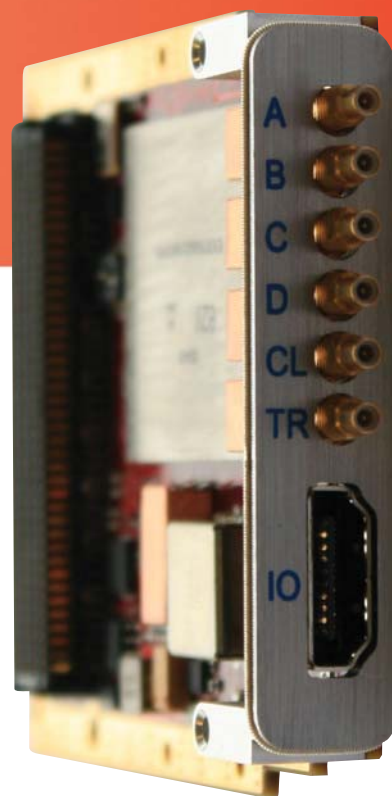


Nutaq ADC5000

5 GPS, 4-channel A/D FMC module
PRODUCT SHEET




Nutaq[®] Defense

QUEBEC

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Nutaq ADC5000

- **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 Nutaq RD'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 A/D converters that enable simultaneous sampling of one, two or four channels at maximum rates 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.

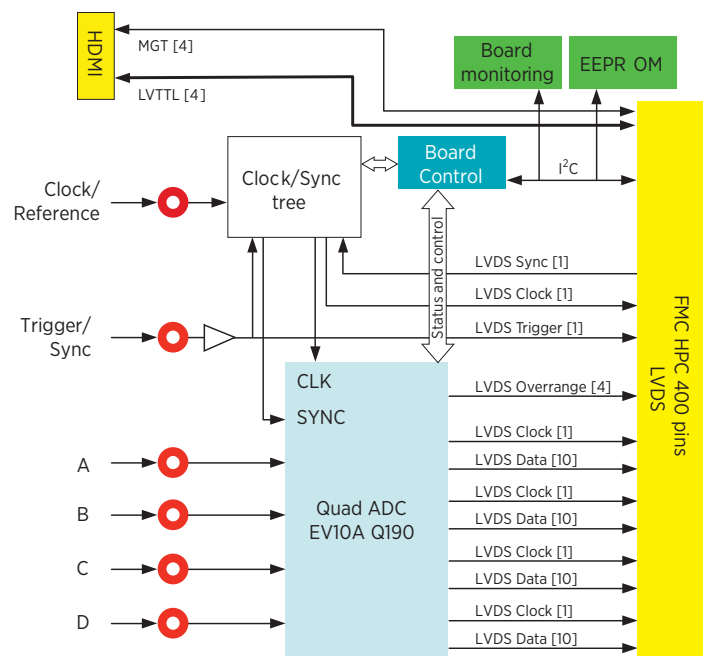
Further, the ADC5000's allows for easy modification of the sampling frequency and flexible calibration through the I²C bus and configurable from an FMC carrier. The card is also equipped with a power supply and temperature monitoring system, as well as several power-down modes to deactivate unused functions.

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

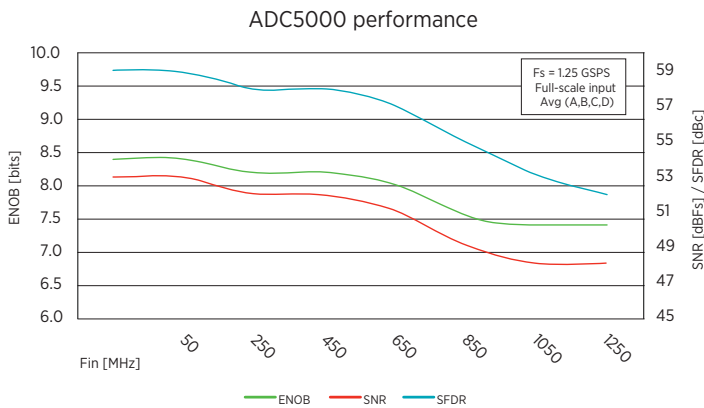


TARGET APPLICATIONS

- Direct RF down conversion
- Software-defined radio (SDR)
- Radar, LIDAR
- Ultrawideband (UWB)
- Satellite communications (SATCOM)
- Aerospace and test instrumentation

PERFORMANCE

- 500 mV_{pp} analog input range
- Selectable input bandwidth (1 GHz or 3 GHz)
- Individual gain control (310%)
- Individual offset control (340 mV)
- Individual phase control (315 ps)
- > 60 dB channel isolation (crosstalk)



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 ×4
- External trigger
- External reference/sampling clock input

Mechanical

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

Standards compliance

- VITA 57.1
- Frequency range
- Reference clock: 10–100 MHz
- Sample clock: 400–2500 MHz

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 g²/Hz, 10 Hz to 3 kHz
- Shock: 30 g peak



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