FMC126 high pin count FMC ADC

4-channel 10-bit ADC - 5 Gsps

The FMC126 is a Quad-Channel Multi-Mode ADC FMC daughter card, fully compliant with VITA 57.1 Standards. The card provides four 10-bit ADC channels that enable simultaneous sampling of 4, 2, or 1 channel with a maximum sample rate of 1.25 Gsps (4-channel mode), 2.5 Gsps (2-channel mode), or 5.0 Gsps (1-channel mode).

The sample clock can be supplied externally through a coax connection or supplied by an internal clock source (optionally locked to an external reference). The clock tree enables cascading of multiple boards for synchronous sampling. Additionally a trigger input for customized sampling control is available.

The FMC126 daughter card is mechanically and electrically compliant to the FMC standard as established by ANSI/VITA 57.1. The HPC (high-pin count)-compatible FMC126 has front panel I/O and can be used in a conduction-cooled environment. The design is based on the E2V Quad ADC EV10AQ190 chip-set having DDR LVDS outputs. The analog signal inputs are available on the front panel on coax connections and have individual calibration circuits for fine-tuning of gain, offset, and phase. The FMC126 allows flexible control on clock source, sampling frequency, and calibration through an I2C communication bus. Furthermore the card is equipped with power supply and temperature monitoring and offers several power-down modes to switch off unused functions.

ANSI/VITA 47	Air-cooled		Conduction-cooled	
	EAC4	EAC6	ECC1	ECC4
Operating temperature	0C to +55C	-40C to +70C	0C to +55C	-40C to +85C
Storage temperature	-40C to +85C	-50C to +100C	-40C to +85C	-55C to +105C
Humidity	95%	95%	95%	95%
Operating vibration	5Hz to 100Hz PSD = 0.04g2/Hz 100 Hz to 1000 Hz PSD = 0.04 gs^2/ Hz 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave	5Hz to 100H PSD = 0.04g2/Hz 100 Hz to 1000 Hz PSD = 0.04 gs^2/ Hz 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave	5 Hz to 100 Hz PSD increasing at 3 dB/ octave 100 Hz to 1000 Hz PSD = 0.1 g2/Hz 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave	5 Hz to 100 Hz PSD increasing at 3 dB/ octave 100 Hz to 1000 Hz PSD = 0.1 g2/Hz 1000 Hz to 2000 Hz PSD decreasing at 6 dB/octave
Operating shock	20g, 11 millisecond, half-sine or 20g, 11 millisecond, terminal sawtooth shock pulses in all three axes	20g, 11 millisecond, half-sine or 20g, 11 millisecond, terminal sawtooth shock pulses in all three axes	40g, 11 millisecond shock half-sine or 40g, 11 millisecond, terminal sawtooth shock pulses in all three axes	40g, 11 millisecond shock half-sine or 40g, 11 millisecond, terminal sawtooth shock pulses in all three axes
Operating altitude	-1500 ft to 60,000 ft (with airflow)	-1500 ft to 60,000 ft (with airflow)	-1500 ft to 60,000 ft	-1500 ft to 60,000 ft
Conformal coating	Optional	Optional	Optional	Optional

FEATURES:

- Quad - Dual - Single 10-Bit Channel Operation
  - 4-Channel 1.25 Gsps A/D conversion Mode
  - 2-Channel 2.50 Gsps A/D conversion Mode
  - 1-Channel 5.00 Gsps A/D conversion Mode
- VITA 57.1-2010 compliant
- 1.5V to 3.3V VADJ operation
- Conduction Cooled
- 1.25Gsps DDR LVDS outputs
- Coax front panel inputs on SSMC connectors
- Single ended AC-coupled analog inputs
- Flexible clock tree enables
  - internal clock
  - external clock
  - cascading multiple boards (optional)
- HPC (high-pin count) compatible
- Mil-I-46058c Conformal Coating Compliant (optional)

abaco SYSTEMS

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The FMC126 comes with an integrated Cross Point Switch allowing flexible mapping of analog inputs to the converters. Unused converters can be placed in standby mode or a full standby mode can place all channels in power saving mode. The digital output interface of the FMC126 compromises four 10-bit DDR LVDS busses at 1.25Gbps (full speed sampling). The build in pattern generation feature on the FMC126 enables training on the carrier hardware.

Specifications

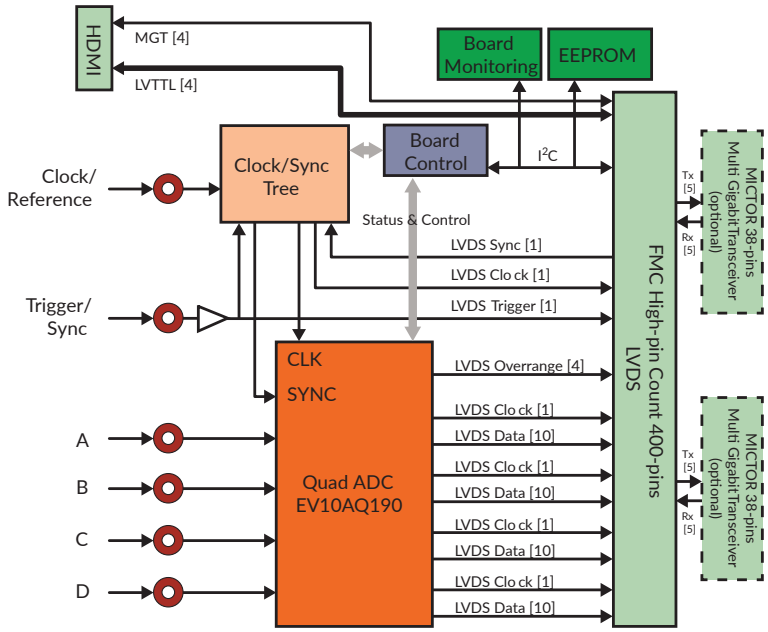
Application
- Direct RF Down conversion
- Software defined radio (SDR)
- RADAR/SONAR
- Ultra Wideband Satellite Digital Receiver
- Medical equipment
- Aerospace and test instrumentation

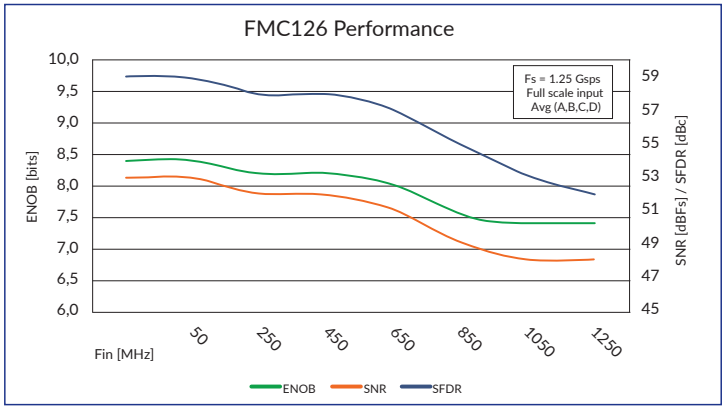
Support
- User Manual
- ML605 reference design available
- Reference firmware design (VHDL)
- Reference ISE project for Virtex-6
- Email support (support@abaco.com)

Performance
- 500mVpp analog input range
- Selectable input bandwidth (1.0GHz / 3.0GHz)
- Individual Gain control (±10%)
- Individual Offset control (±40mV)
- Individual Phase control (±15ps)
- > 60dB channel isolation (crosstalk)

AS9100 Certified

Block diagram





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