

FMC125 high pin count FMC ADC

4-channel 8-bit ADC - 5 Gsps

The FMC125 is a Quad-Channel Multi-Mode ADC FMC daughter card, fully compliant with VITA 57.1 Standards. The card provides four 8-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 FMC125 daughter card is mechanically and electrically compliant to the FMC standard as established by ANSI/VITA 57.1. The HPC (high-pin count)-compatible FMC125 has front panel I/O and can be used in a conduction-cooled environment. The design is based on the E2V Quad ADC EV8AQ160 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 FMC125 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	ECC1
Operating temperature	0C to +55C	0C to +55C
Storage temperature	-40C to +85C	-40C to +85C
Humidity	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	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	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
Conformal coating	Optional	Optional

FEATURES:

- Quad - Dual - Single 8-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 or 625Msps 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 FMC125 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.

With the build in DMUX feature of the FMC125 it is possible to adapt the digital output interface to the carrier hardware. When the DMUX feature is enabled each channel has a 16-bit Double Data Rate LVDS bus at 625Mbps (full speed sampling). Without de-multiplexing the digital output interface compromises four 8-bit DDR LVDS busses at 1.25Gbps.

Specifications

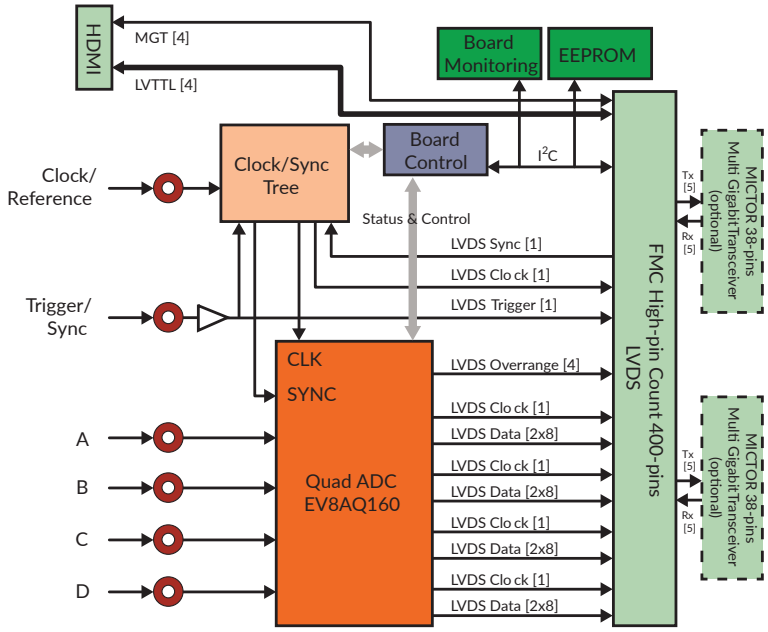
Application
- Direct RF Down conversion
- Software defined radio (SDR)
- RADAR/SONAR
- Ultra Wideband Satellite Digital Receiver
- Medical equipment
- Aerospace and test instrumentation

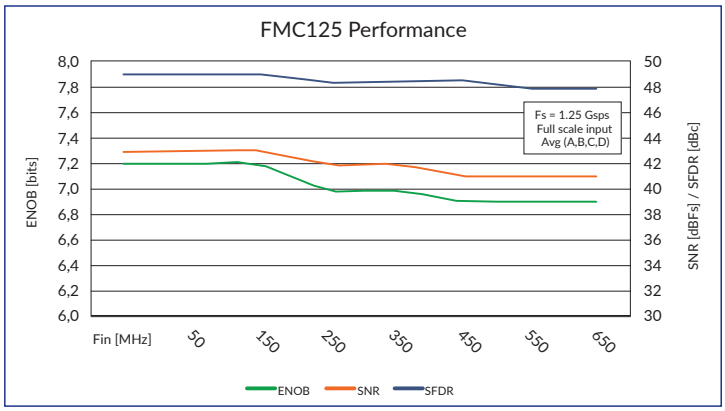
Support
- User Manual
- ML605 reference design available
- Reference firmware design (VHDL)
- Reference ISE project for Virtex-6
- Email support (support@abaco.com)

Performance
- Selectable analog input range (500mVpp / 625mVpp)
- Selectable input bandwidth (500MHz / 600MHz / 1.5GHz / 2.0GHz)
- Individual Gain control (±18%)
- Individual Offset control (±50mV)
- Individual Phase control (±14ps)
- > 60dB channel isolation (crosstalk)

AS9100 Certified

Block diagram





Ordering information

Talk to us about your algorithmic requirements, Abaco Systems is a full-service firmware and software development house. We are a specialist at high performance FFT and Video Processing. Check with us, we may have IP Cores that meet requirements for your application, right off the shelf.

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