

# ACQ430FMC Advance Product Specification



*High Performance Simultaneous Data Acquisition*

*Preliminary Product Information*

*Subject to Change*

*CONFIDENTIAL*

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# 1 Product Description

1. ACQ430FMC is an 8 channel, 24 bit simultaneous analog input module.
2. Standard configuration : 32 channels, 128kSPS/channel.
3. VITA 57 FMC module, LPC compliant.
4. 2-wire Differential inputs, high quality instrument amplifier front end with switched input voltage ranges.

## 1.1 Product Variants

- ACQ430FMC : 8 channels, 24 bit resolution, 128kSPS/channel.

## 1.2 Applications

- Instrumentation applications, control and monitoring.
- Acoustic and seismic applications.

## 1.3 Overview

The FMC module standard adds user IO to carrier modules fitted with FPGA resource. D-TACQ recommends modules based on the Xilinx ZYNQ system on chip, combining FPGA resource with a dual-core ARM Cortex A9 and gigabit Ethernet. Compatible modules include

- D-TACQ ACQ10001 : D-TACQ single slot FMC carrier, Z7010
- D-TACQ ACQ20006 : D-TACQ 6 slot FMC carrier, Z7020
- Xilinx ZC702 evaluation board with 2 FMC slots.
- Xilinx Zedboard with 1 FMC Slot.

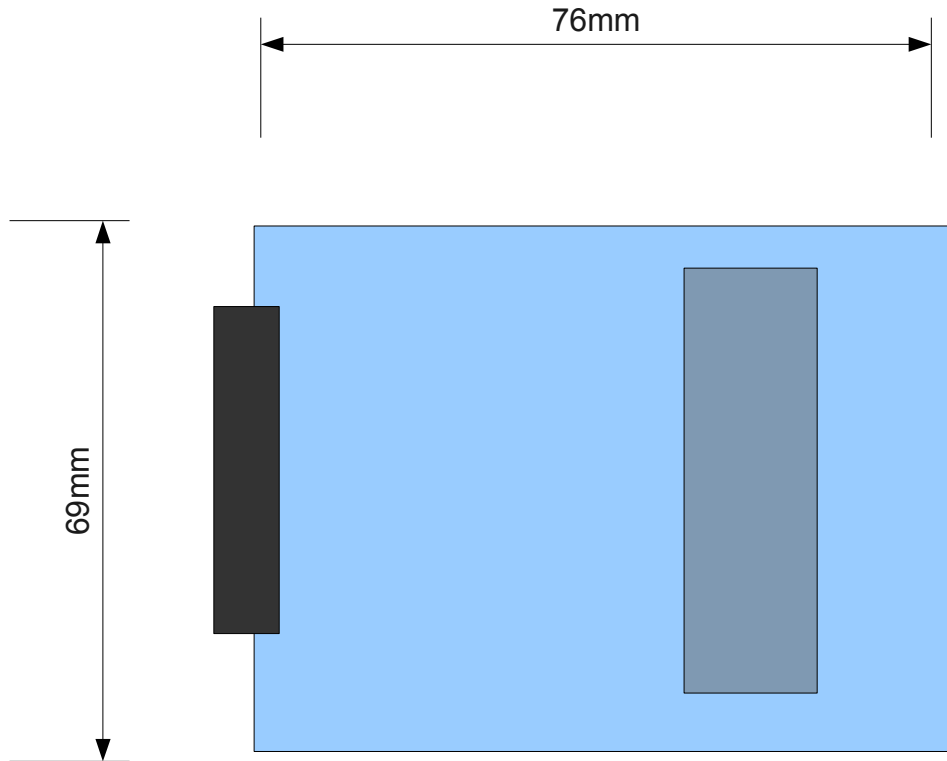
D-TACQ supplies a complete working Intelligent Digitizer appliance including programmable logic and microprocessor system running Linux.

## 1.4 Glossary

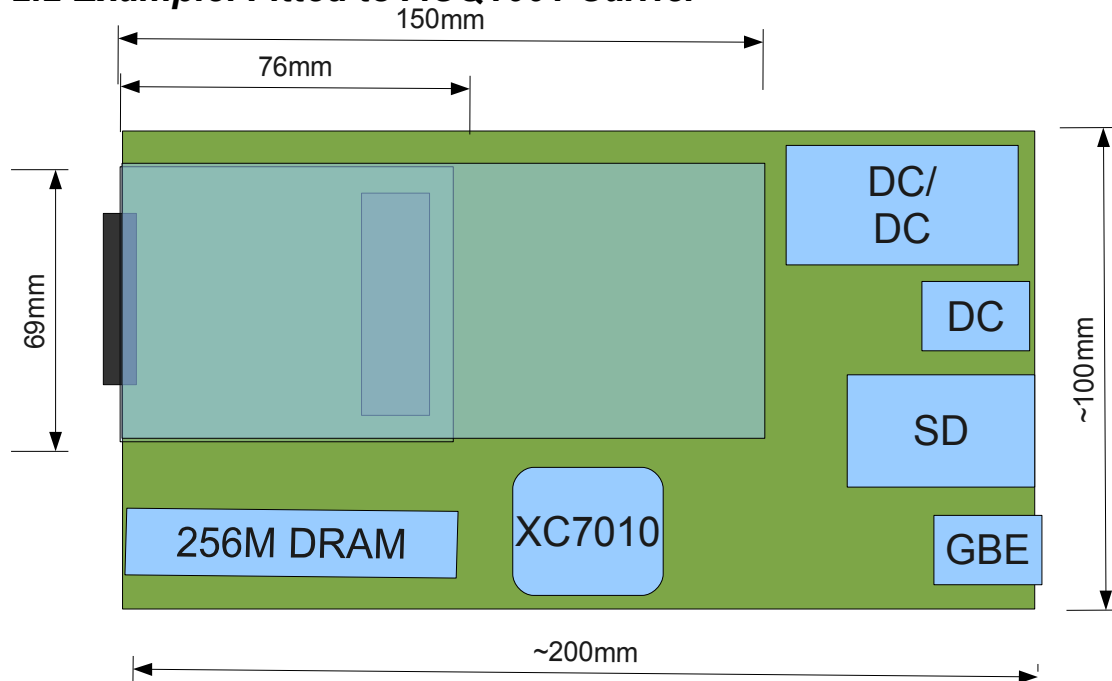
- FMC: Vita 57 FPGA Mezzanine Card
- CPCI: Compact PCI, PICMG 2.0r3
- LPC : FMC Low pin count wiring standard.
- ULPC: FMC Ultra low pin count (D-TACQ).
- Extended, E : FMC Extended size module (D-TACQ).

## 2 Physical

### 2.1 Standard FMC Module



### 2.2 Example: Fitted to ACQ1001 Carrier



Carrier accomodates 1 x FMC eg ACQ430FMC or an extended size module.

## 3 Interface Specification.

### 3.1 Front Panel Connector

- 68 Pin VHDCI
- Pinout compatible with D-TACQ BNCPANEL, SMAPANEL.

#### 3.1.1 Pinout.

Pin	Function	Pin	Function
1	0V	35	0V
2	0V	36	0V
3	AI01+	37	AI01-
4	AI02+	38	AI02-
5	AI03+	39	AI03-
6	AI04+	40	AI04-
7	AI05+	41	AI05-
8	AI06+	42	AI06-
9	AI07+	43	AI07-
10	AI08+	44	AI08-
11		45	
12		46	
13		47	
14		48	
15		49	
16		50	
17		51	
18		52	
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32		66	
33		67	
34		68	

## 4 ACQ430FMC Electrical Specification.

#	Parameter	Value
1	Number of Channels	8
2	Sample Rate	128 kHz, per channel simultaneous
3	Resolution	24 bits
4	Coupling	DC, Differential Input
5	Input Impedance	100K
6	Input Voltage Range	±6 V
7	Input Voltage Withstand	±30V
8	Offset Error	0.01% FS
9	Gain Error	0.01 %FS
10	INL	±0.002% FS
11	DNL	NOT QUOTED
12	CMRR	>60dB FS @ 1 kHz
13	THD	-106 dB
14	SINAD	NOT QUOTED
15	SFDR	107 dBc*
16	SNR	104 dB* * Typical values measured at full scale with a 9.76kHz input
17	Analog Input BW	80kHz
18	Crosstalk	<90dB @ 1kHz FS Input
19	Digital Filter:Pass Band	0.453 Fsample
	Digital Filter:3dB	0.490 Fsample
	Digital Filter:Stop Band	0.547 Fsample
	Digital Filter:Attenuate	95 dB

## 5 ACQ1001 FMC Carrier Specification.

#	Parameter	Value
1	Formfactor	approx 200mm x 100mm
2	Power source	External DC 12V, 1A
3	Power Consumption	12W Max
4	SOC Type	Z7010, dual-core ARM A9, Gigabit Ethernet
5	FPGA Resource	80 DSP Slices, 100 GMAC/s
6	FMC Socket	Standard FMC, Low Pin Count LPC Fits D-TACQ Extended modules
7	DRAM	256MB, soldered
8	Data IO	RS232,SD Card, USB OTG
9	Signal IO	CLK, TRG inputs, two digital outputs SMA or LEMO
10	Digital Expansion	PIM Socket
11	Digital IOS	10 on 10 way ribbon header.