**Stellamar** ™
Digital solutions for an analog world

Customizable, Digitally Synthesizable ADC
For Microsemi FPGAs

Overview

The Digital ADC is a digital core which provides analog functionality with all the benefits of a digital design process: shorter design cycles, lower risk, established design and layout tools, digital test methodology and portability across process technologies. The digital nature makes it an ideal fit for use with Microsemi FPGAs in harsh environments.

The design is implemented with a small number of digital gates and only an LVDS input cell, a digital output cell and a few external passive components.
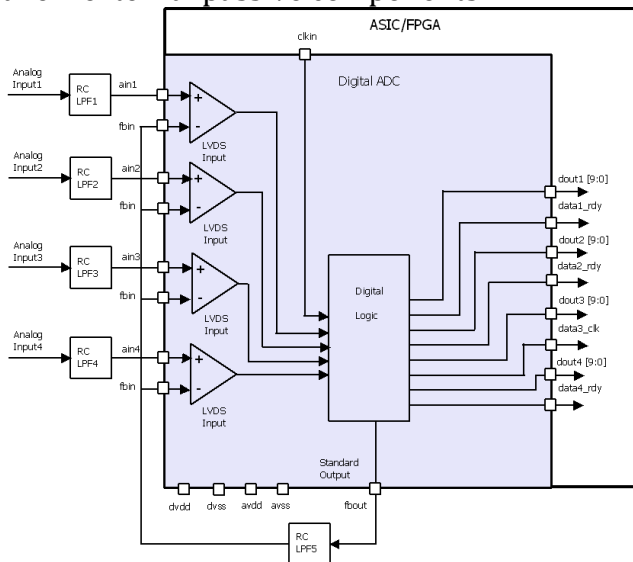
Example 4 channel Digital ADC Block Diagram

Features:

- ADC embeddable on FPGA
- Suitable for radiation environments

Options
- Up to 14 bit selectable resolution
- Select bandwidth
- Select number of channels

Benefits
- Up to 68% smaller and consumes 50% less power than equivalent analog ADC
- Extremely low drift
- Oversampling
- No missing codes

Applications:

- State of health system monitoring in space
- Industrial controls
- Voice communications
- Acceleration
- Touch control
- Military
- Avionics

The Digital ADC family provides up to 14 bits and up to 100kHz of bandwidth (depending on requirements) making it an ideal fit for both low frequency sensors and high quality voice.

The benefits of the digital implementation also include low voltage and low power process technologies where the Digital ADC excels in portable applications.

Alternative digital process technologies enable the Digital ADC to be used in high reliability and radiation environments where analog implementations are problematic.

Sample Device Utilization

Family	Device	Package	Single Port RAMs	Tiles	Available	Utilization
ProASIC3L	M1A3P1000L	208 PQFP	4	2500	24,576	10.17%
Axcelerator	RTAX1000S	352 CQFP	4	3,698	18,144	20.38%
Axcelerator	AX1000	352 CQFP	4	3,692	18,144	20.35%
Igloo	AGL400V2	144 FBGA	4	8,098	9,216	87.87%

Deliverables

- Complete IP Datasheet
- Microsemi optimized netlist
- Encrypted RTL source code in verilog or VHDL
- Complete Implementation Guide Documentation

About Stellamar

Stellamar *is* a full service design, consulting and IP licensing firm specializing in digital and mixed signal applications, with particular deep domain expertise in creating solutions that enable analog functions to be implemented in a digital environment.

As an Microsemi Solutions Partner, Stellamar licenses Digital ADC cores for use with Microsemi FPGAs. In addition to the Digital ADC Family, Stellamar's future product portfolio will contain fully Digital DC-DC converter controllers and Digital Clock Multiplier replacements for analog PLLs.

Stellamar will work closely with the customer to determine optimal requirements. Once your system requirements are understood, Stellamar has the ability to create a customized digital solution to minimize board space and power consumption at a fraction of the cost and time of a custom analog solution.

September 1, 2011

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Document version 1.0

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