

Features

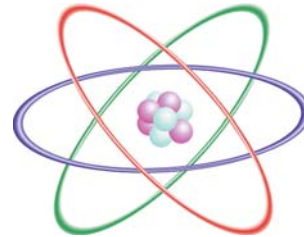
- Wide selection of products from basic building blocks to integrated functions
- User definable architectural parameters
- Rapid run-time reconfiguration

Benefits

- Rapid delivery via verified firm macro
- Synthesized to your target library and performance requirements
- Fully verified functionality and timing
- Compiled RTL simulation model included
- High density, low power

Applications

- Software defined radio
- Cellular basestations
- Multi-function communications devices
- Antenna beamsteering
- Instrumentation
- Real-time signal analysis



Atomic SDR Family *Software Defined Radio*

The Athena Group delivers a family of cores for software defined radio (SDR), ready for your next SoC application.

Today's communications systems demand the flexibility of run-time configuration with the performance and power advantages of a dedicated SoC solution. Athena's Atomic SDR family allows you to specify an optimized solution at design-time and to nearly instantaneously reconfigure that solution at run-time. Athena's Atomic SDR family is suitable for implementation technologies ranging from structured ASICs, to standard-cell ASICs, to FPGAs, and enables your application to realize the power, performance, and area advantages of Athena's patent-pending arithmetic technology in your communication application.

Athena's Atomic SDR family includes functions from basic building blocks to integrated upconverters and downconverters. These functions can be configured to meet the data precision and throughput required by your application, and to provide run-time configurability to target your design to multiple standards, frequencies, and modulation schemes. Athena's Atomic SDR family is summarized in Table 1.

Table 1: Atomic SDR Product Family

Model	Description
DDC-A100	Digital downconverter
DUC-A100	Digital upconverter
DCL-A100	Digital Costas loop
NCO-A100	Numerically controlled oscillator
NCO-M100	Numerically controlled oscillator/mixer
FLT-D100	Programmable decimating FIR filter
FLT-C100	Cascaded Integrator Comb (CIC) filter
FFT-V4K	Variable length FFT/IFFT processor
OFD-A100	OFDM modem
FIR-HP100	High-performance programmable FIR filter
FIR-SP100	Sequential programmable FIR filter

Table 1: Atomic SDR Product Family

Model	Description
FIR-HF100	High-performance fixed-coefficient FIR filter
FIR-SF100	Sequential fixed-coefficient FIR filter
FEC-V100	Viterbi encoder
FEC-V101	Viterbi hard-decision decoder
FEC-V102	Viterbi soft-decision decoder

Product Description

Athena’s Atomic SDR functions support a variety of usage scenarios, ranging from channelization to complete IF-to-bits solutions, as illustrated in Figure 1.

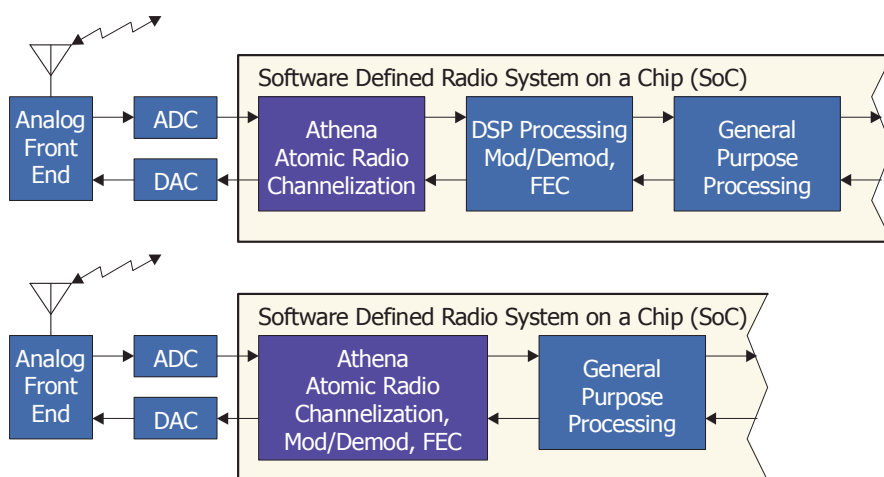


Figure 1: Atomic SDR Family Usage Scenarios

Each Atomic SDR core package is delivered as a firm core optimized to any customer-specified library. The package includes the core, verification suites, timing and simulation models, and documentation.

Athena’s IP cores are designed for efficient implementation and rapid delivery. The company’s proprietary, automated implementation and verification methodology produces synchronous, testable IP cores of the highest quality. All Athena IP cores achieve a score of 95% or better on the OpenMore scale of IP reusability.

About The Athena Group, Inc.

The Athena Group, Inc. of Gainesville, Florida licenses high-performance DSP technology that delivers breakthrough performance, reduced area, and lower power consumption in a broad range of SoC products. Athena’s proprietary technology powers leading edge applications such as secure e-commerce, wireless communications, and video compression. In addition to their high-value application level solutions, Athena also produces a full line of fundamental DSP functions suitable for SoC integration.

Athena was founded in 1986 and is privately held.



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