

Features

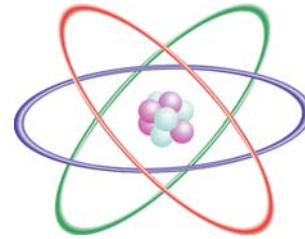
- Video input preprocessor
- Dynamic filter switching
- Multiple filter per frame processing

Benefits

- High-performance, low cost
- Proven implementation
- Suitable for implementation in FPGA, structured ASIC, or standard cell ASIC
- Enables use of large matched filter databases
- Based on tapeout proven FFT-V4K

Applications

- Automatic target recognition (ATR)
- Positive visual friend or foe identification
- Robotics
- Computer vision
- Surveillance
- Image recognition



AVXCOR

Athena Video Cross Correlator

Athena delivers the world's fastest video cross correlator powered by the world's most efficient Fast Fourier Transform core. Cross correlation systems using matched filters is the methodology of choice for automatic target recognition (ATR), surveillance, and advanced visual identification friend or foe applications. Whatever your application, the Athena AVXCOR delivers unprecedented performance, low power, and a small footprint. Scalable in both performance and image size, the AVXCOR has the flexibility and throughput to tackle nearly any video cross correlation task.

The AVXCOR has the horsepower to generate multiple cross correlation surfaces per video frame, and allows the cross correlation filters to be changed on a frame-by-frame basis, enabling rapid searches of large filter databases. The AVXCOR is ready to power your next generation application with its unbeatable combination of performance and cost.

Product Description

The AVXCOR can be configured for variable frame sizes, throughput rates, and cross correlation surfaces per frame. Starting with 14-bit, 256x256 input at 30 frames per second and eight cross-correlation surfaces per frame, the AVXCOR can be configured to support frame sizes of 1024x1024 or larger, higher frame rates, and even more cross correlation surfaces per frame. Available now in FPGA, the AVXCOR may also be implemented using technologies including structured ASICs as well as standard cell ASICs.

Athena's AVXCOR video cross correlator uses a flow-through architecture with a dedicated video data input and cross correlation surface output, as shown in Figure 1. The AVXCOR includes an input preprocessor that removes the DC component from the input data prior to cross correlation processing. This preprocessing stage may be augmented with additional functions such as median filtering, if desired. The Athena FFT-V4K processor, at the heart of the AVXCOR, generates the cross correlation at a throughput rate that can be configured to

meet application requirements, and the efficiency of the FFT-V4K allows many of these cores to be implemented in a single device. Frame buffering is performed using commodity synchronous static RAMs to minimize cost and maximize performance.

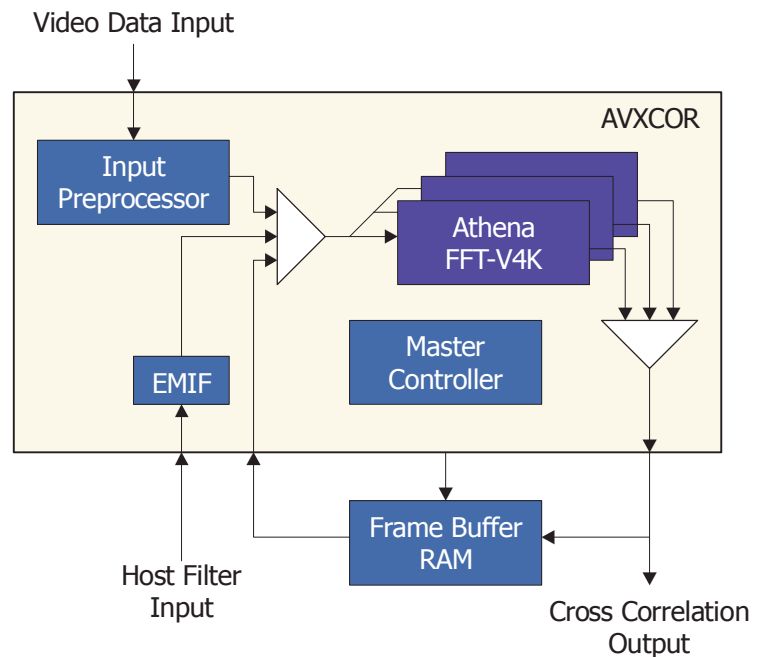


Figure 1: AVXCOR Block Diagram

Delivery

Athena's IP cores are designed for efficient implementation and rapid delivery. The company's proprietary, wholly 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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