

## Features

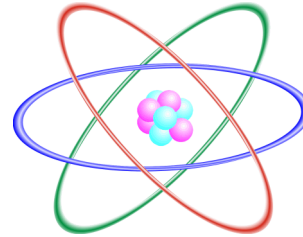
- Converts between RGB, YCbCr, YUV, and YIQ.
- Selectable data precision 4 - 12 bits.
- High-speed performance: up to 100 million conversions/second
- Synchronous implementation with single clock domain.

## Benefits

- Supports high definition video.
- Low power/computation compared to programmable microprocessor.
  - No instruction set processor overhead.
  - Clock rate ~3 MHz for 30 fps CIF video applicatio
- Better power, performance characteristics than microprocessors.
- Coupled with a microprocessor, enables more computation with less power than microprocessor-only solution.

## Applications

- JPEG (lossy and lossless), MPEG, and H.261/H.263 video codecs.
- Low power digital still and video cameras.
- Video conferencing
- Digital television.

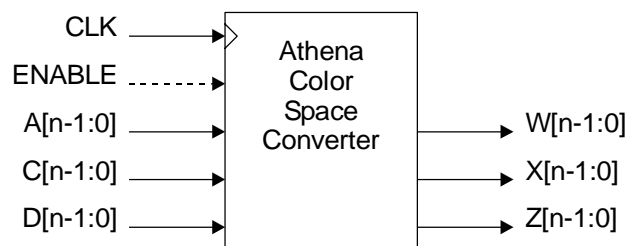


## Athena Color Space Converter Atomic DSP Family

### Description

The Athena color space converter operates on RGB, YCbCr, YUV, and YIQ formats in most image and video applications including JPEG, MPEG, and H.261/H.263 video codecs. The converter accepts data in precisions ranging from four to 12 bits per color (bpc) to support both video or image data in the range of six to eight bpc and scanned images having up to 12 bpc.

Data is written to the converter's three input ports and read from its three output ports. The converter is a feed-through system with a fixed processing latency and offers an optional register enable to control the input, output, and pipeline registers.



**Figure 1: Athena Color Space Converter Block Diagram**

### Operation

Figure 1 shows a block diagram of the Athena Color Space Converter.

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## **Atomic DSP Family**

Incredibly small and power efficient, the entire family of Athena digital signal processing (DSP) accelerator cores is designed specifically for computationally intensive system-on-a-chip applications. Additional products are in development for the wireless and broadband communications markets. These new processors will join Athena's complete DSP semiconductor IP library designed for power-sensitive applications requiring extraordinary performance.

## **Delivery**

Each Atomic DSP 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, 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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