# JPEG Codec (Encoder and Decoder)

## 1.1 Product Overview

JPEG Codec is a high performance hardware design that can perform the JPEG extended sequential and M-JPEG decoding and encoding. The JPEG codec supports up to 155M pixel/sec encoding for 4:2:2 color format image and 100M pixel/sec decoding for 4:4:4 color format image. Huffman coding with up to 3 tables are supported while the arithmetic coding tool is not supported.

The main features of JPEG Codec are compliant with JPEG extended sequential. The image size up to 32768x32768 is supported for decoding and encoding.

## 1.2 Architecture



It is connected with the system via the 32-bit AMBA3 APB bus for system control and 64-bit AMBA3 AXI bus for data throughput, and takes advantage of on-chip memories to achieve high performance.

## 1.3 JPEG Codec Features

■ Extended sequential ISO/IEC 10918-1 JPEG compliance

■ Max Resolution: 32768x32768

■ Performance

-Encoder, 4:2:0 220M pixel/sec @200MHz

-Decoder, 4:2:0 230M pixel/sec @200MHz

■ Three component in a scan(interleaved only)

■ 8bit or 12bit samples for each component

■ Support 4:2:0 , 4:2:2, 4:4:0, 4:4:4 and 4:0:0 color format

■ Minimum encoding size is 16x16 pixels

■ Support NV12/NV16(CbCr interleaved), NV21/NV61(CrCb)

■ Support ROI(Region of Interested – decoder only)

■ Support 422/444 packed mode for all color formats

■ Encoder partial mode and rotator-mirror

■ Decoder partial mode and rotator-mirror

■ Decoder down-sampler and PPM format