

# JPEG XS Encoder/Decoder

Powered by original computing algorithm "DMNA" based on mathematical methods

## 1 Abstract

TMC's JPEG XS encoder / decoder IP is Visually LossLess compression / decompression hardware RTL core that complies with ISO/IEC-21122-1 (JPEG XS).

The logic gate count and internal memory capacity are optimized to reduce cost and power consumption.

## 2 Features

*- Next-generation mezzanine compression for large screens and ultra-low latency -*

- JPEG XS (ISO/IEC21122-1) specifications
  - Compliant with the "JPEG XS" standard standardized in 2019
- Visually LossLess compression & decompression
  - Visually lossless due to the effect of mezzanine compression
- Ultra Low latency
  - Delay from input to output of the order of a few lines
  - Less than 1ms delay using high-speed transmission lines
- Various image formats supported
  - RGB, YCbCr 4:4:4/4:2:2/4:0:0, 8/10/12 bit
- Configurable compression ratio
  - 1/2 to 1/20 compression ration in Byte unit
  - Constant Bit Rate method controlled per frame

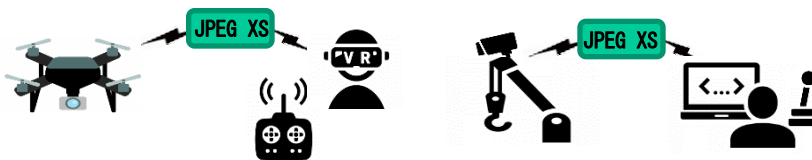
## 3 Specification

**JPEG XS**  
 DMNA

- Compression format
  - JPEG XS (ISO/IEC21122-1)  
 Supported profiles: Light 422.10 , Light444.12 , Main422.10 , Main444.12 , High444.12
- Compression and decompression throughput
  - 4pixel/clock
- Image size (width x height)
  - 32 x 4 pixels to 8192 x 4320 pixels (changeable on request)
- Image formats and bit depth
  - format : RGB, YCbCr 4:4:4/4:2:2/4:0:0 , bit depth : 8/10/12 bit
- Image data, compressed data interface
  - AXI4-Stream , image data : 144bit/clock , compressed data 128bit/clock

JPEG XS is expected to be applied to:

- Remote controlling and self driving vehicles using camera images such as: drones, robots, automobiles, infrastructure inspection machines, etc.
- Remote diagnosis for medical use
- High-resolution VR/AR equipment
- Game contents
- High-quality content streaming



**Note** Specifications are subject to change without notice

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