

- Validated on SIMCOP and M3 based platform of DM812x, DM385 IPNC
- JPEG encoder shall comply with T.81/ISO DIS 10918-1 standard for encoding images in baseline sequential mode
- Comply with specification JPEG File Interchange Format Version 1.02
- Encoding of images in YUV4:2:0 NV12 format shall be supported
- Encoding of images in YUV4:2:2 interleaved format shall be supported
- JPEG encoder shall encode images with size up to 16 Mpixels
- Support EXIF and JFIF Headers
- JPEG Encoder shall support generation and insertion of thumbnail (compressed JPEG format) in JFIF extension compliant header in the generated jpeg bitstream when JFIF marker is requested
- The encoder shall support custom quantization tables
- The encoder shall support custom Huffman tables

description

JPEG is the popular image compression standard from the Joint Photographic Experts Group. This JPEG Encoder is validated on the SIMCOP based M3 Platform of DM812x.

summary of performance

Table 1. Configuration Table

CONFIGURATION	ID
Baseline	JPEG_ENC_001

Table 2. Cycles Information – Profiled on DM812x IPNC with Code Generation Tools
Version 4.9.2

CONFIGURATION ID	PERFORMANCE STATISTICS (IN MEGA CYCLES PER SEC) ¹		
	TEST DESCRIPTION ²	AVERAGE ³	PEAK ⁴
JPEG_ENC_001	Well Lit scene encoded at 1920x1080@30, quality factor 85 with JFIF Header.	172	216

¹ Measured with M3@480MHz, SIMCOP@480MHz, DDR@400MHz, L3@400MHz. A deviation of 1-2% can be there in the reported numbers.

² restartInterval is automatically set to 8 MCU

³ Based on average cycles for 1 second @ 30 fps.

⁴ Based on worst case cycles



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notes

- I/O buffers:

references

- ISO/IEC JTC 1/SC 29 (2009-05-07). ["ISO/IEC JTC 1/SC 29/WG 1 – Coding of Still Pictures"](#)
- JPEG Encoder on SIMCOP and M3 based platform User's Guide (literature number: SPRXYZ)

glossary

Constants	Elements that go into .const memory section
Scratch	Memory space that can be reused across different instances of the algorithm
Shared	Sum of Constants and Scratch
Instance	Persistent-memory that contains persistent information - allocated for each instance of the algorithm

acronyms

DMA	Direct Memory Access
SIMCOP	Still Image Co-Processor
DCT	Discrete Cosine Transform H/w Block
VLCDJ	Variable Length Coding and Decoding for JPEG H/w Block
RM	Resource Manager
MSP	Multimedia Service Provider
APP Marker	Application Marker Eg: EXIF, JFIF
EXIF	Exchangeable Image file format
JFIF	JPEG File Interchange Format

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