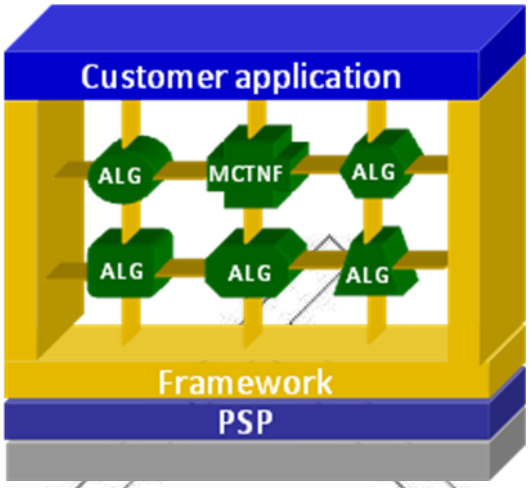
- **IVIDNF1 interface compliant**
- **Validated on DM388 EVM**
- **Progressive type picture noise filtering supported**
- **Input picture width as multiples of 16 and height multiple of 2 is supported**
- **Only single past reference frame supported**
- **User controllable filter parameter supported**
- **Only pixel motion vector supported**
- **Unrestricted motion vector search is supported**
- **YUV420 semi-planar as chroma format supported**



Description

MCTNF or Motion Compensated Temporal Noise Filter is TI's proprietary Video Noise Filter algorithm implemented on DM388. MCTNF implementation is validated with Code Composer Studio version 5.1.0.09000 and code generation tools version 5.0.5.

Performance and Memory Summery

Table 1. Configuration Table

CONFIGURATION	ID
One past reference frame, pixel motion vector, block size of 8x8 pixels.	MCTNF_001
One past reference frame, pixel motion vector, block size of 8x8 pixels with loop filtering enabled with boundary strength of '2'.	MCTNF_002

CONFIGURATION ID	TEST DESCRIPTION	HDVICP2 PERFORMANCE STATISTICS	
		MIN (MHZ)	MAX(MHZ)
MCTNF_001	intotree_p1920x1080_25fps_420pl_250fr.yuv	182	183
MCTNF_002	intotree_p1920x1080_25fps_420pl_250fr.yuv	188	189

Table 2. Memory Statistics - Generated with Code Generation Tools Version 4.5.1

CONFIGURATION ID	RESOLUTION	MEMORY STATISTICS[1]						
		PROGRAM MEMORY	DATA MEMORY					TOTAL
			INTERNAL	EXTERNAL			STACK	
				PERSISTENT	SCRATCH	CONST		
MCTNF_001	1920x1080	13	2	68	0	57	2	142

[1] All memory requirements are expressed in kilobytes (1 K-byte = 1024 bytes) and there could be a variation of around 1-2% in the numbers.

Table 3. Internal Data Memory Split-up

CONFIGURATION ID	DATA MEMORY – INTERNAL[2]		
	SHARED		INSTANCE[3]
	CONSTANTS	SCRATCH	
MCTNF_001	0	2	2

[2] Internal memory refers to on chip memory. All memory requirements are expressed in kilobytes and there could be a variation of around 1-2% in numbers.
[3] I/O buffers are not included. Some of the instance memory buffers could be scratch.

notes

- I/O buffers:
  - Input buffer size = 148.5 K-bytes (CIF, one YUV420 SP) unfiltered raw data
  - Output buffer size = 148.5 K-bytes (CIF, one YUV420 SP) filtered raw data
  - Total data memory for N non pre-emptive instances = Constants + Runtime Tables + Scratch + N * (Instance + I/O buffers + Stack)
- Total data memory for N pre-emptive instances = Constants + Runtime Tables + N * (Instance + I/O buffers + Stack + Scratch)

references

- MCTNF_DM388_UserGuide.pdf

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

CIF	Common Intermediate Format
DMA	Direct Memory Access
DMAN3	DMA Manager
EVM	Evaluation Module
MV	Motion Vector
QCIF	Quarter Common Intermediate Format
QVGA	Quarter Video Graphics Array
SQCIF	Sub Quarter Common Intermediate Format
UMV	Unrestricted Motion Vectors
VGA	Video Graphics Array
XDM	eXpressDSP Digital Media

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