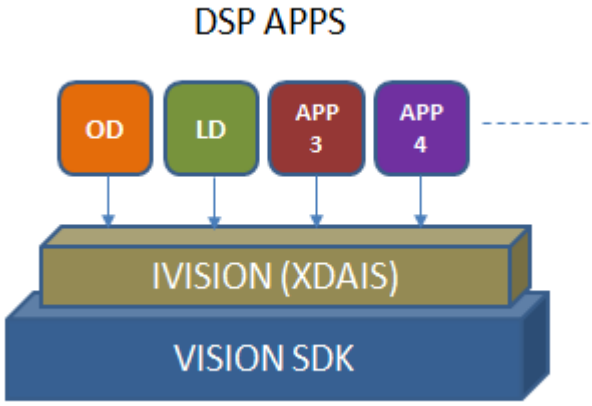
- **IVISION (XDAIS) interface compliant**
- **Validated on TDA2x EVM**
- **Supports Stereo-Vision post-processing**



Description

Stereo-vision post-processing module is TI's proprietary Vision and Imaging algorithm implemented on TMS320C66x DSP. This module is validated with Code Composer Studio version 5.5.0.00077 and code generation tools version 7.4.2.

Performance and Memory Summery

Table 1. Configuration Table

CONFIGURATION	ID
Stereo-vision post-processing	STEREOVISION_001

Table 2. Performance Statistics

CONFIGURATION ID	TEST DESCRIPTION	TI C66X DSP PERFORMANCE STATISTICS	
		MIN (MEGA-CYCLES)	MAX(MEGA-CYCLES)
STEREOVISION_001	DIM=640x360 pixels smoothingStrength= STEREOVISION_TI_SMOOTHING_STRENGTH_NONE Rest of parameters' value don't matter	17.5	17.5

[1] Performance is validated by running on TDA2x platform. DDR-532Mhz, DSP-600Mhz

Table 3. Memory Statistics

CONFIGURATION ID	RESOLUTION	MEMORY STATISTICS[1]						
		PROGRAM MEMORY	DATA MEMORY					TOTAL
			INTERNAL	EXTERNAL			STACK	
				PERSISTENT	SCRATCH	CONST		
STEREOVISION 001	640x360	15.8	24	0.16	450	0.14	5.39	496

[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 4. Internal Data Memory Split-up

CONFIGURATION ID	DATA MEMORY – INTERNAL[2]		
	SHARED		INSTANCE[3]
	CONSTANTS	SCRATCH	
STEREOVISION_001	0	20	-

[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. L1D memory is split into 24kb of SRAM, 8kb of cache. L2 memory is split as 224kb of SRAM and 64 kb of cache. Executing object detection module along with other DSP algorithm which requires different L1D configuration could hinder performance. ST requires 24kb of internal memory, which has to be allocated in L2 SRAM. Executing stereovision post processing module along with other DSP algorithm which requires different L2 configuration could hinder performance.

[3] I/O buffers are not included. Some of the instance memory buffers could be scratch.

notes

- I/O buffers:
  - Input buffer size = 225 K-bytes (For 640x360 resolution)
  - Output buffer size = TBD
  - External scratch memory of 450 KB is for 640x360 resolution. Memory requirement is given by the formula: WIDTH x HEIGHT x 2 bytes.
  - 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

- StereoVision_DSP_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

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