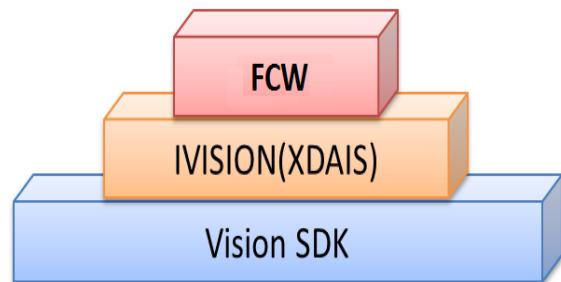




- IVISION (XDAIS) interface compliant.
- Validated on TDA3x EVM.
- Supports estimation of distance of known objects in scene.
- Supports single precision 32 bit floating point format for distance.
- 32 maximum objects can be processed in single call of FCW module.
- Supports user controlled parameters to control between accuracy and run time performance.



## Description

Forward Collision Warning (FCW) module is TI's proprietary Vision and Imaging algorithm implemented on TMS320C66x DSP. FCW module is validated with Code Composer Studio version 5.4.0.00091 and code generation tools version 7.4.19.



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PRODUCT PREVIEW

May 2017

## Performance and Memory Summary

Table 1. Configuration Table

CONFIGURATION	ID
Number of Input Objects = 1	FCW_001

Table 2. Cycle Performance Statistics

CONFIGURATION ID	TEST DESCRIPTION	TI C66X DSP PERFORMANCE STATISTICS	
		MIN (CYCLES PER CALL)	MAX(CYCLES PER CALL)
FCW_001	Pre Recorded Parking Scene	920	1050

Performance is validated by running on TDA2x platform. DDR-532Mhz, DSP-600Mhz. Performance number is heavily dependent on input data.

Table 3. Memory Statistics

CONFIGURATION ID	MAXIMUM INPUT OBJECTS	MEMORY STATISTICS <sup>1</sup>						
		PROGRAM MEMORY	DATA MEMORY					TOTAL
			INTERNAL	EXTERNAL			STACK	
				PERSISTENT	SCRATCH	CONST		
FCW_001	32	7	0	5.4	0	0.1	6	18.1

<sup>1</sup> 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 <sup>2</sup>		
	SHARED		INSTANCE <sup>3</sup>
	CONSTANTS	SCRATCH	
FCW_001	0	0	-

<sup>2</sup> 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. <sup>3</sup> I/O buffers are not included. Some of the instance memory buffers could be scratch. For L1D 16KB is configured as cache, whereas for L2D 128 KB is configured as cache.

## Notes

- I/O buffers:
  - Input buffer size = 1544 bytes
  - Output buffer size = 1696 bytes

## References

- ForwardCollisionWarning\_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

FCW	Forward Collision Warning
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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