DMVAL (Video Analytics Algorithms) on DMVA3 Data Sheet

FEATURES

- **Supports following video analytics algorithms**
  - **-Intelligent Motion Detection**
  - **-Object Counting**
  - **-Trip Zone**
  - **-Camera Tamper Detection**
  - **-Streaming Meta Data Information**
- **Supports detection of people and vehicles in scene of scope**
- **Supports resolution of 320x240**
- **Supports 5 different sensitivity levels for Trip Zone and Object Counting algorithm**
- **Supports configurability of people and vehicle size**
- **Supports Camera Tamper Detection algorithm execution in parallel with any other algorithm**
- **Supports user configurability to define the zones in Trip Zone and object counting algorithm. Currently maximum two zones can be configured.**

DESCRIPTION

DMVAL is TI's video analytics offering. This DMVAL library is validated on DMVA3 with Code Generation Tool version TMS470 5.0.5.

Performance Summary

This section describes the performance of the DMVAL (Video Analytics Algorithms) on DMVA3.

Table 1. Configuration Table

CONFIGURATION	ID
Trip Zone (1)	DMVAL_CONF_01(2)
Intelligent motion detection (1)	DMVAL_CONF_02(2)
Object counting (1)	DMVAL_CONF_03(2)
Streaming meta data (1)	DMVAL_CONF_04(2)
Camera Tamper Detection(1)	DMVAL_CONF_05(2)

(1) Control parameters:
People in view and Vehicle in view
Minimum People and vehicle size: 6/12 and 30/24 (Width/Height)
Maximum People and vehicle size: 24/54 and 90/72 (Width/Height)
Sensitivity as '5'
(2) Performance numbers varies greatly with configuration selected.

Table 2. Cycles Information – Profiled on DMVA3(1)

CONFIGURATION ID	TEST DESCRIPTION	AVERAGE PROCESS CALL	PEAK PROCESS CALL	AVERAGE MC (2)	PEAK MC (2)
DMVAL_CONF_01	Old madrass traffic view @ 15ps	4.7	5.6	0.7	1.4
DMVAL_CONF_02	Old madrass traffic view @ 15ps	4.2	5.1	0.4	1.0
DMVAL_CONF_03	Old madrass traffic view @ 15ps	4.4	5.0	0.5	1.2
DMVAL_CONF_04	Old madrass traffic view @ 15ps	4.7	5.6	0.7	1.3
DMVAL_CONF_05	Tamper move blocks lights view @15fps	0.7	1.9	0.1	0.3

(1) Mhz per 320x240 picture, measured on Media controller using DMVA3 IPNC having Cortex-A8 @ 600MHZ, Media controller @ 200Mhz, ISS @400MHz, L3 interconnect @ 200 MHz and DDR3 @ 400 MHz and there could be a variation of around 1-2% in the numbers
(2) MC (Media controller) will call semaphore pend while DMVAL is running on VCOP. This column shows the actual Media controller usage

Table 3. Memory Statistics - Generated with Code Generation Tool version TMS470 5.0.5

CONFIGURATION ID	MEMORY STATISTICS(1)				TOTAL
	PROGRAM MEMORY	DATA MEMORY			
		INTERNAL	EXTERNAL	STACK	
DMVAL_CONF_01	160	0	2470	8	2638
DMVAL_CONF_02	160	0	2439	8	2607
DMVAL_CONF_03	160	0	2470	8	2638
DMVAL_CONF_04	160	0	2545	8	2713
DMVAL_CONF_05	160	0	380	8	548

(1) All memory requirements are expressed in kilobytes (1K-byte = 1024 bytes).

Table 4. Internal Data Memory Split-Up

CONFIGURATION ID	DATA MEMORY - INTERNAL		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
ALL	0	0	0

Table 5. External Data Memory Split-Up

CONFIGURATION ID	DATA MEMORY - EXTERNAL		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
ALL	0	0	0

Notes

- None

References

- None

Glossary

TERM	DESCRIPTION
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

ACRONYM	DESCRIPTION
TZ	Trip Zone algorithm
OC	Object Count algorithm
IMD	Intelligent motion detect Algorithm
SMD	Streaming Meta Data Algorithm
CTD	Camera tamper detection algorithm
DMVAL	Digital Media Video Analytic Library