



ObjectVideo® OnBoard™ (v5.0.0.117) on DM6437 EVM

FEATURES

- eXpressDSP™ Algorithm Interface Standard (XDAIS) Compliant
- eXpressDSP™ Multimedia Interface (XDM) Compliant
- Supports 4:2:0 and 4:2:2 planar YUV input frame formats
- Supports multiple video resolutions: QCIF, CIF-NTSC, CIF-PAL, QVGA
- Supports target classification as HUMAN or VEHICLE
- Supports Target Tracking
- Supports maximum and minimum object size filters
- Supports object size change filters
- Supports object shape and direction filters
- Supports Scene Change (Camera Tamper) detection
- Supports Tripwire event detection
- Supports Partial View event detection, including Enters, Exits, Appears, Disappears, Inside, and Loitering events
- Supports stationary target detection, including Left Behind and Taken Away events

- Supports Event Counting features, including Occupancy and Dwell
- Supports Image Stabilization
- Supports Tide Parameters
- Supports Night Enhanced Snapshots
- Supports People-only Classification

DESCRIPTION

ObjectVideo® OnBoard™ is a software product that monitors video feeds for events and alerts you in real-time as events occur. ObjectVideo OnBoard technology performs much of its video analysis on intelligent devices, such as DSPs. ObjectVideo OnBoard may be deployed with the Texas Instruments TMS320DM6437 (DM6437) Evaluation Module (EVM), which is based on DaVinci™ technology.

Product Support

This product was developed by ObjectVideo Product Development. For customer support, contact your system integrator.

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Validation

Validated on DM6437 EVM with Code Composer Studio version 3.3.

Performance Summary

This section describes the performance of the ObjectVideo OnBoard codec. Performance summary data generated using a DM6437 EVM processor.

Table 1. Configuration Table

CONFIGURATION	ID
OnBoard 100, OnBoard 200, OnBoard Start-Up ⁽¹⁾	OnBoard Standard
OnBoard 1000	OnBoard Premium (Standard + Stationary Target + Loitering)
OnBoard ECS	OnBoard Event Counting

(1) This is the default package used for evaluations on the DM6437 EVM.

Table 2. Cycles Information - Profiled on DM6437 EVM

CONFIGURATION ID	DESCRIPTION	AVERAGE (ms/frame)
OnBoard Standard	Default configuration ⁽¹⁾⁽²⁾ with 320x240 resolution	27.54
OnBoard Premium	Default configuration with 320x240 resolution	29.46
OnBoard Event Counting ⁽³⁾	Default configuration with 320x240 resolution	17.25

(1) Default cache configuration (L1D cache: 16KB, L2 cache: 32KB, L1P cache: 32KB).

(2) Tripwire, Scene Change, Enters Partial View, Exits Partial View, Appears in Partial View, Disappears from Partial View, GenerateEvent=ON, GenerateTargetTracking=OFF, GenerateMetadata=OFF, and GenerateMessagePayload=ON. Performance may change based on whether these configurations are enabled or disabled.

(3) These numbers assume the counting algorithms are used with the default configuration.

Table 3. Memory Statistics

CONFIGURATION ID	MEMORY STATISTICS ⁽¹⁾⁽²⁾				TOTAL
	PROGRAM MEMORY	DATA MEMORY			
		INTERNAL ⁽³⁾	EXTERNAL	STACK	
OnBoard Standard	1552	30	17633	25	19493
OnBoard Premium	1552	30	19604	25	21464
OnBoard Event Counting ⁽⁴⁾	1552	30	18270	25	19877

(1) All memory requirements are expressed in kilobytes (1 kilobyte = 1024 bytes).

(2) 5 rules, 3 views, and 2.5 MB video buffer.

(3) IRAM configurations should be 32 KB either in L1 or L2. The rest could be configured as cache.

(4) These numbers assume the counting algorithms are used with the default configuration.

Table 4. Internal Data Memory

CONFIGURATION ID	DATA MEMORY - INTERNAL		
	SHARED		INSTANCE
	CONSTANTS	SCRATCH	
OnBoard Standard	0	30	30
OnBoard Premium	0	30	30
OnBoard Event Counting	0	30	30

Table 5. External Data Memory

CONFIGURATION ID	DATA MEMORY - EXTERNAL		
	SHARED		INSTANCE
	PERSISTENT	SCRATCH	
OnBoard Standard	0	0	17633
OnBoard Premium	0	0	19604
OnBoard Event Counting ⁽¹⁾	0	0	18270

(1) These numbers assume the counting algorithms are used with the default configuration.

Table 6. Server Stack Memory Configuration

CONFIGURATION	STACK SIZE
ObjectVideo OnBoard Server thread attributes	30.0
ObjectVideo OnBoard Server algs	20.0

Notes

- Input Buffers
 - Input Buffer Size = 112.5 kB (for QVGA, YUV420 planar input)
 - Incoming message payload = 256 KB (optional)
- Output buffers: The OVANALYTICS_getbufinfo control call returns sizes for:
 - Storage data buffer
 - Event data buffer
 - Target Tracking data buffer
 - Forensics metadata buffer
- Output message payload buffer = 256 KB (optional)

References

- Installing ObjectVideo OnBoard With TMS320DM6437 EVM ([SPRAAT0](#))
- ObjectVideo OnBoard With the TMS320DM6437 Distributor Guide ([SPRAAS9](#))

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
CIF	Common Intermediate Format
EVM	Evaluation Module
QCIF	Quarter Common Intermediate Format
QVGA	Quarter Video Graphics Array
VGA	Video Graphics Array
XDAIS	eXpressDSP Algorithm Interface Standard
XDM	eXpressDSP Digital Media

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