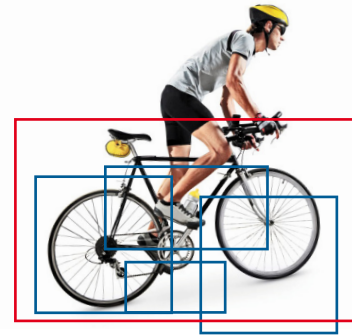


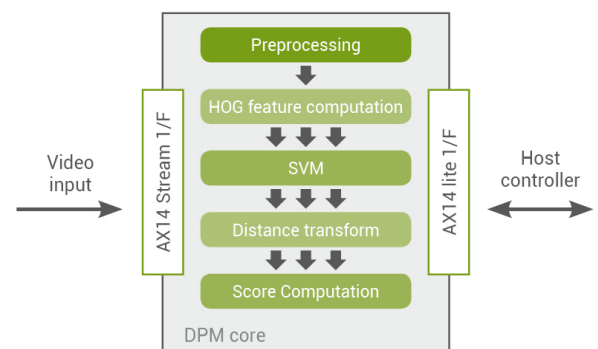
# DPM Deformable Part Model Detector

## GENERAL DESCRIPTION

DPM is a learning-based object detection IP core, developed for embedded vision applications. It uses a star-structured part-based model, defined by a root filter plus a set of parts filters and associated deformation models. This approach leads to a flexible and efficient object detector that achieves state of the art results on the PASCAL and INRIA person datasets. User-defined classifiers can be loaded via software API. In order to detect objects in an arbitrary range, the core accepts in input a pyramid of images. Detection results are stored into an internal buffer, ready for the host controller read-out.



## ARCHITECTURE



## APPLICATIONS

- Video surveillance
- Robot navigation
- Traffic monitoring
- Content based indexing
- Advanced machine vision applications

### CORE FEATURES

Xilinx® family target	Zynq®-7000 AP SoC
Design file format	Encrypted VHDL (XPS Pcore)
Register interface	ARM AMBA AXI4 compliant
Input interface	AXI4 Stream slave
Input format	RGB/YUV Image size up to 1280x1024 Support for image pyramid
Template size	Up to 96x128
Components	2 components, 1 root + 6 parts for each component
Classifier	Runtime loadable
Input data rate	> 120 Mpixels per second
Throughput	> 170 Giga MAC/sec
Speed up	120x wrt PC-based implementation (Intel Xeon 2.66 GHz, 8 MB RAM)
Algorithm	The implementation is based on "Fel-zerwalb et al, Object Detection with Discriminatively Trained Part Based Models, PAMI 2010"
Additional items	SW drivers, API and post processing library available

## IMPLEMENTATION STATISTICS FOR XILINX FPGAS

Family (Device)	Fmax (MHz)	FFs	LUTs	BRAM18	DSP48A	Design Tools
Zynq®-7000 (XC7045-2)	240	78,945	58,556	604	702	ISE® 14.7

### eVS CONTACTS:

eVS embedded Vision Systems Srl  
c/o Computer Science Park  
Strada Le Grazie, 15, 37134 - Verona, Italy  
tel/fax: +39 045 8027027

web: [www.embeddedvisionsystems.it](http://www.embeddedvisionsystems.it)  
email: [info@evsys.it](mailto:info@evsys.it)  
To request a quotation:  
email: [sales@evsys.it](mailto:sales@evsys.it)