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## Bi-i V301F Vision System

### Ultra High-Speed, Stand-Alone, Intelligent, Real-Time Image Processing

Among the fastest and most powerful vision systems in the world, **Bi-i V301F** advances the award-winning Bi-i series of intelligent cameras by using an **FPGA** to offload the on-board DSP. The DSP – working in parallel with the FPGA – is freed up to perform more intelligent algorithms while the FPGA performs the computationally intensive image pre-processing tasks.

Based on the same Cellular Visual Technology developed for different US government agencies and research universities in several countries, the Bi-i V301F's extraordinary speed and versatility can be harnessed for multitarget tracking applications, security and surveillance programs, industrial process control and machine vision tasks, and any application requiring ultra-fast image processing.

Powered by the latest generation of high-performance Texas Instruments DSPs and Xilinx FPGAs, the Bi-i V301F is a self-contained vision system; no external hardware (frame grabber or PC) is needed.

#### Key Features

- ▲ High-resolution CMOS sensor with 40-MHz pixel rate (grayscale or color).
- ▲ Embedded high-performance (up to 1 GHz) Texas Instruments DSP.
- ▲ Embedded Xilinx FPGA for high-speed image pre-processing.
- ▲ Supports the cross-platform InstantVision software libraries developed for Signal and Image Flow Processing, Multitarget Tracking, and Feature Classification.
- ▲ Easy-to-use Windows C++ Software Development Kit for Texas Instruments Code Composer Studio and Windows.
- ▲ Windows and Linux API for rapid application development.



#### Ultra Fast...



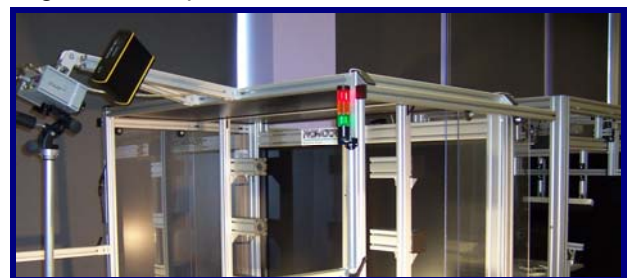
#### Security/Surveillance

A wide variety of motion classifications on multiple objects simultaneously.



#### Multitarget Tracking


Tracks any number of targets simultaneously;  
6 targets at 300 fps.



#### Process Control

Monitoring and fault detection in automated production systems.

## Bi-i Software




**InstantVision ISE Full**

SI Lib	MTT Lib
SIF Lib	FC Lib

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Eutecus, Inc. offers an extensive modularized software environment for the creation of image processing applications and their subsequent stand-alone operation on the **Bi-i Intelligent Vision System** and **other platforms**. The Bi-i operating and development software is an easy-to-use Windows environment enabling rapid application development.

The **InstantVision Integrated Software Environment (IV ISE)** contains a **Software Development Kit (SDK)** with associated tools and interfaces, plus a set of powerful platform-independent libraries; all these packaged into the Bi-i Introductory Kit and Bi-i Developer Kit with optional IV ISE library add-ons.

**InstantVision**  
Software to See and Detect Instantly

## Specifications

Sensor: IBIS5A	Sensor type	Grayscale or color (Bayer pattern)
	Resolution	1280x1024 pixel at full resolution, arbitrary ROI windowing, 1:2 electrical zooming capability
	Optical format	2/3"
	Frame rate	27.5 fps at full resolution; 100 fps at 640x480; 1,000 fps at 128x128; frame rate proportional to image size
	Data format	8 bit
	Sensor pixel size	6.7x6.7 $\mu\text{m}$
	Minimal integration time	8 $\mu\text{sec}$
	Dynamic range	64 dB
FPGA	FPGA type	Xilinx Spartan-3
	External FPGA memory	32 MB SDRAM
Processors	Fixed-point 32-bit CPU	Texas Instruments TMS320C6415T DSP series, @ up to 1 GHz and 8000 MIPS processing power
	Optional 32-bit floating-point processor	Texas Instruments TMS320C6711 DSP @ up to 250 MHz and 1500 MFLOPS processing power
	Memory	4 MB Flash, 64 MB SDRAM
	Communication processor	Etrax 100LX System-on-Chip from Axis
Software	Basic package	Development and runtime environment for Windows, <b>Free InstantVision image processing library</b>
	Optional add-ons	API interface for Windows and Linux, SDK, Full complement of <b>InstantVision software libraries</b>
	Programmability	Native script language, C++ using Texas Instruments Code Composer Studio
Other	Interfaces	100 Mbit Ethernet; 2 USB 1.1; 2 RS232 Serial lines
	Optics	C/CS-mount lenses
	Data storage	Optional USB flash drive (up to 1 GB)
	Power supply/Consumption	10-16V DC/6W
	Dimensions (WxHxD)	165mm x 58mm x 115mm (without optics)