

Bi-i™ V401X Video Analytics Module



Stand-alone Reference Design for Multi-core Video Analytics Engine (MVE™)

The Bi-i™ V401X Video Analytics Module implements Eutecus' Multi-core Video Analytics Engine (MVE™) on a small form factor PCB reference design for rapid implementation in IP camera designs and other edge devices or as a stand-alone video analytics device. MVE™ is an easily configurable, compact, high-performance processing architecture that can be used to implement complete video analytics solutions in a single FPGA.

MVE™-enabled devices (intelligent cameras, DVRs and other edge devices) can detect multiple events in parallel (e.g. forbidden zone, lost/abandoned object, loitering, wrong direction in traffic, illegal lane change, etc.) in video streams of up to HD 720p image resolution at 30 frames per second.

Bi-i™ V401X is the first implementation of MVE™ ready for immediate deployment in existing commercial camera designs. It is ideal for manufacturers interested in offering embedded Video Analytics capabilities, or who wish to improve their existing Video Analytics solutions.

Camera manufacturers who implement the Bi-i™ V401X into their camera design will benefit from the power of a robust image processing capability hard-coded into their systems combined with the flexibility of a fully programmable application development environment.

The system is available for stand-alone testing or for rapid integration with other modules via a choice of standard connectors. For application development, the system integrator can simply control the MVE™ from a C++ environment through the system API, or utilize Eutecus' ready-made MVE™ Evaluation Kit 3.0, which requires only configuration through a simple GUI, no programming, to show a wide variety of typical video analytics functions for demonstration purposes.

The design includes the Xilinx Spartan-3A DSP 3400A™ FPGA chip, SDRAM and Flash memory for application programming and storage. Space remains on the FPGA for additional processing requirements such as compression and encoding.

Please contact Eutecus, Inc. about ordering the Bi-i™ V401X for evaluation and to discuss implementation and licensing.

NEW:



Key Bi-i™ V401X VA Module Features:

- Video Analytics (VA) on a single FPGA chip (MVE™ SoC)
- FPGA: Xilinx Spartan-3A DSP 3400A™
- Input video resolution up to HD (720p)
- Multiple event detection at 30fps at full resolution
- Stand alone operation: after configuration no external control is required
- Composite video (NTSC, PAL) or DVI input
- VGA output (SD/HD) with VA results overlaid on original input video flow
- Small form factor implementation - Camera BOM is kept minimal due to single low-cost FPGA
- Multiple connectors for flexible test/verification
- Integration into IP cameras as-is, or customized to fit the specific camera design
- MVE™ Evaluation Kit 3.0 with full software support
- Customizable IP Core selection
- Hardware-based IP encryption
- Full firmware and software upgrade via microSD card

On the reverse side:

Bi-i™ V401X VA Module Technical Specification

Bi-i™ V401X VA Module Components

Bi-i™ V401X VA Module Technical Specification

FPGA - Memory Subsystem:

- Xilinx Spartan XC3SD3400A FPGA
- 16 MB Flash Memory
- 256 MB DDR2 Memory
- 2 GB microSD card for FPGA content

Video I/O Subsystem:

- NTSC/PAL Video (Analog) Input (VGA)
- DVI Video (Digital) Input (VGA, HD 720p)
- Analog RGB Output (SD: VGA; HD: 720p)

Communication and Control:

- High-speed Serial/Parallel Digital I/O
- RS232 Control I/O
- 10/100/1000 MB Ethernet (optional)

Size, Weight & Power (SWaP):

- Size of housing: 87x54x24mm (3.4x2.2x0.9in), size of Bi-i™ V401X single-board VA platform: 77x36x5mm (3.0x1.4x0.2in)
- Weight of module: ~140g, weight of Bi-i™ V401X single-board VA platform: ~20g
- Power consumption: 4 - 5.5 W (for SD/HD video formats - module level), ~3W (FPGA-memory subsystem only)

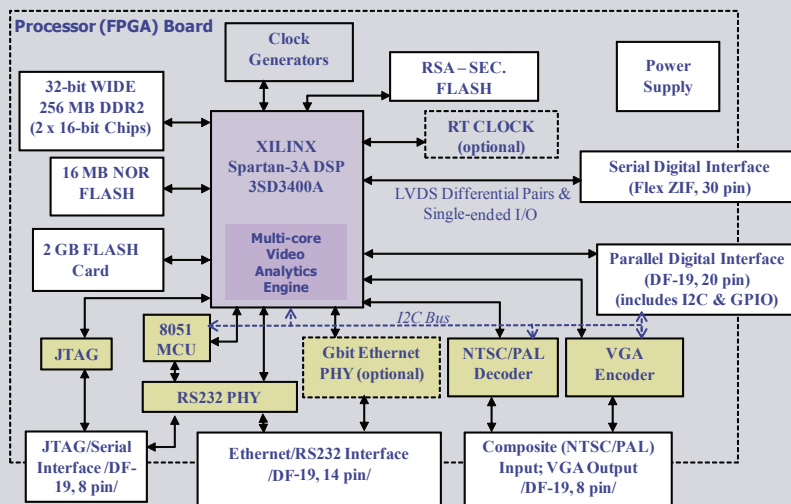
Miscellaneous:

- Real-time clock with external battery backup (optional)
- High-density flex-cable connectors for module-module interfaces
- JTAG connector for test and debug

Contact Eutecus, Inc.
for more information and ordering.

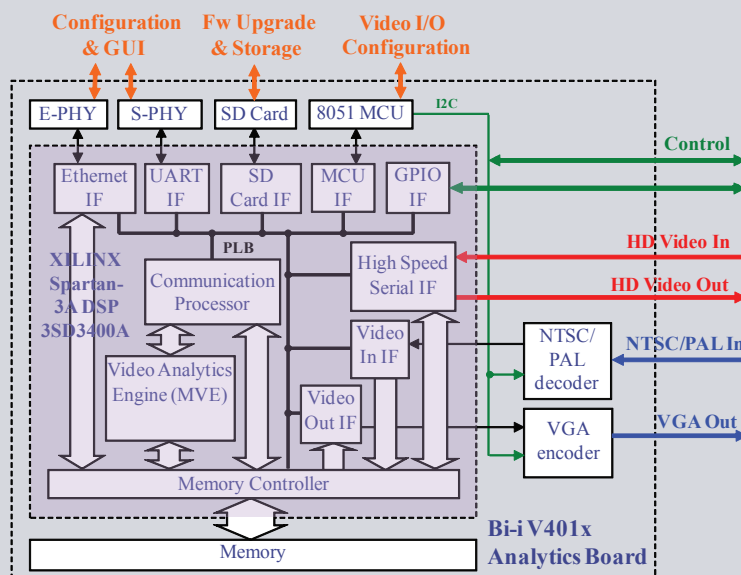
Bi-i™ V401X VA Module Hardware Components and Communication Architecture

Bi-i™ V401X Hardware Block Diagram



The modular, single-board, standalone design enables the easy and flexible derivation of simplified hardware configurations for specific application domains.

Bi-i™ V401X Communication Diagram



The communication interfaces support both analog and digital I/O. Image acquisition, processing and display can be performed at both SD and HD video resolution.

Eutecus develops and delivers firmware and software capabilities in the area of improved high-speed image flow analytics for commercial and military applications. The core IP of Eutecus is based on its proprietary Cellular Visual Technology (CVT™) enabling real time, bio-inspired and massively parallel visual computing. Mimicking the operation of the human eye, CVT™ yields significant improvements beyond the current state of the art in applications primarily in the areas of Security, Surveillance and Reconnaissance.

Eutecus, Inc.
1936 University Avenue, Suite 360
Berkeley, CA 94704

Email: info@eutecus.com
Tel: +1 (510) 540-9603
Fax: +1 (510) 649-7808