# The MityDSP Vision Development Kit (VDK)

## Jump start your custom vision project.

- Complete framework
- Focus on algorithm development
- Off-the-shelf hardware
- Quick transition to production

If your application requires a custom camera with some up-front processing, the VDK provides an complete customization-ready framework that gives you access to:

- FPGA for low-level control and processing
- DSP for image processing
- $\odot$  ARM for communications and UI

And lets you integrate the sensor of your choice into the platform.

The VDK's Software Development Kit provides examples of adding your own custom DSP or FPGA vision algorithms, as well as the development environment to do so.



### **Applications:**

- O Machine Vision
- Quality Control
- Semiconductor Inspection
- Image Processing (DSP and FPGA)

And for those with depth requirements, Critical Link also offers a Stereo Vision Development Kit.



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#### How It Works.

The system is designed to route raw video data from the camera sensor board into the MityDSP-L138F SoM. The FPGA captures the input data and performs optional user defined algorithm(s) on the video data, then routes the data to the DSP core of the OMAP-L138 processor via the UPP interface.

The DSP can then perform additional processing, and notifies the ARM core that the final processed video data is available via a DSPLINK shared memory interface. The ARM accepts the data and updates the local frame buffer with the needed results using a Qt drawing framework.

The full imaging data path and infrastructure are provided, freeing you to focus on your custom algorithms. Fewer headaches and faster time to market.

#### Block diagram with key subcomponents, interfaces, and data flow. Industrial IO Carrier Board with Camera Expansion Board MitvDSP-L138F Xilinx Spartan 6 LX16 OMAPL138 674X+ DSP CORE FPGA ALGOR 1 ALGOR 1 IMAGE DATA UPP SENSOR HS ALGOR 2 Scatter Е ALGOR 2 FIFO Gather ASYNC FIFO LV DMA D engine CLK ALGOR 3 ALGOR 3 ALGOR N ALGOR N EMIFA Results DV **TFP410** Control Logic Control Logic DVI Transmitte DSPLINK Qt Control Application LCDC Compile CTLR Time Linux Frame Buffer LCD Routing LCD Display Logic OMAPL138 ARM 9 Core

#### Industrial IO development Kit Baseboard:

- MityDSP-L138F System on Module (SoM)
- O Audio Output
- OVI Video Output
- O 10/100 Networking
- O CAN Bus Interface
- O UART Expansion Port (RS232 or RS485)

### Industrial Camera Expansion Board:

O Provides interface to Included Sensor

#### Available camera options:

- O MT9V032 Monochrome WVGA
- MT9V032 Color WVGA
- MT9M001 Monochrome XGA
- MT9P021 Monochrome 5 MP
- MT9P021 Color 5 MP

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