

# Matrox FDK for Matrox Rapixo CXP Pro >>

Harness the full power and flexibility of FPGAs for image processing

## Matrox FDK at a glance



**Build custom FPGA configurations** for Matrox Rapixo CXP Pro frame grabbers



**Code custom FPGA design components** in C/C++ with Xilinx Vivado HLS tool



**Accelerate creation of custom FPGA configurations** using the Matrox library of ready-made FPGA design components



**Leverage more than 50 optimized image-processing functions** from the Xilinx IP library



**Assemble FPGA configurations quickly** with the graphical Xilinx Vivado IP Integrator

## Image processing offload and acceleration

Matrox® FPGA Development Kit (FDK) provides a library of components that enable development of custom field-programmable gate array (FPGA) configurations for the Matrox Rapixo CXP Pro family of frame grabbers, based on Xilinx Kintex® UltraScale™ devices. The Matrox FDK is used in combination with Xilinx Vivado® Design suite to create FPGA configurations that offload and accelerate image processing functions from the host system.

## Focus on custom image processing functions

Developers with software backgrounds can use the Vivado High-Level Synthesis (HLS) tool to write custom image processing functions as FPGA design components using the C or C++ languages. With the Matrox FDK, developers can focus on creating custom FPGA design components vital to their application rather than the peripheral logic.

## Quick assembly of FPGA design components

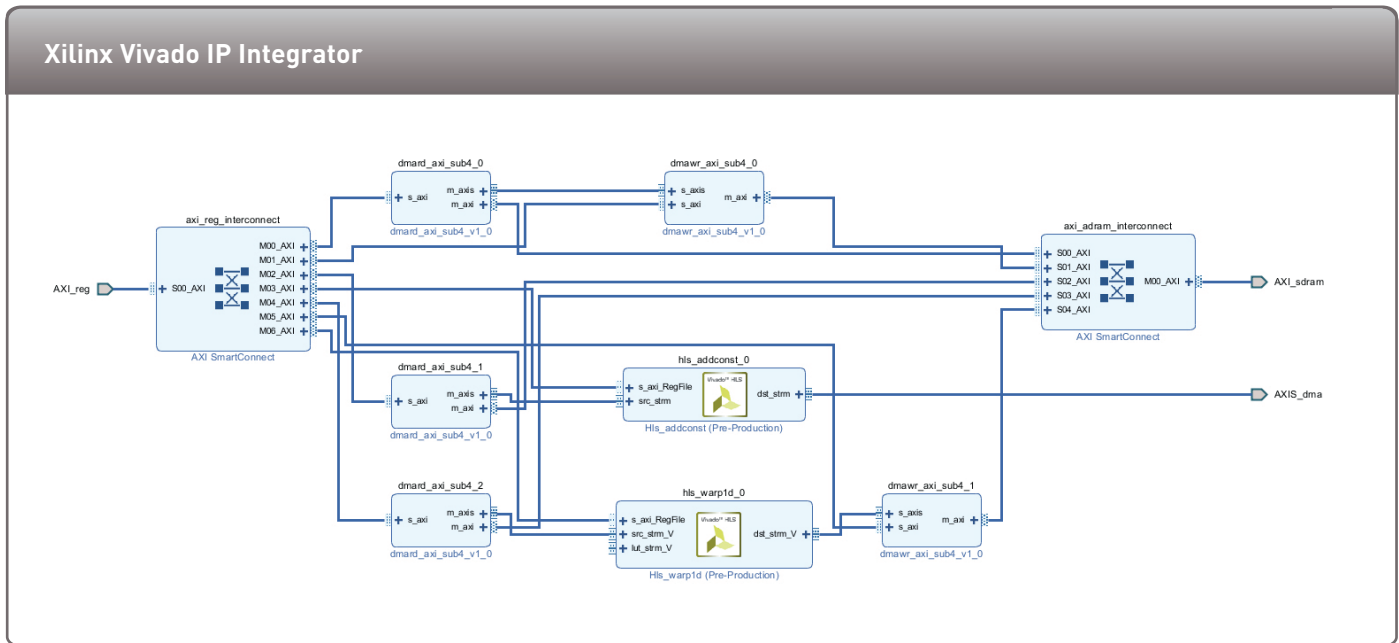
Custom- and ready-made Matrox FPGA design components are graphically combined within the Xilinx Vivado IP Integrator tool to easily create custom FPGA configurations. In addition, Xilinx provides over 50 image-processing functions within their library with their source code. These can be compiled using Vivado HLS into building blocks compatible with the components provided by the Matrox FDK.

## Xilinx Vivado HLS

The Vivado HLS tool is designed for software application developers and FPGA designers seeking a more direct path to FPGA hardware. The Vivado HLS compiler is a high-level synthesis tool that lets developers compile C/C++ algorithms directly into optimized logic, ready for use with FPGA devices found on the Matrox Rapixo CXP Pro. The Vivado HLS tools enable highly iterative, software-oriented design methods for quick development of FPGA hardware modules from C/C++ source code. Several example functions are provided with the FDK; those can be used as-is or as a model for creating custom processing units.

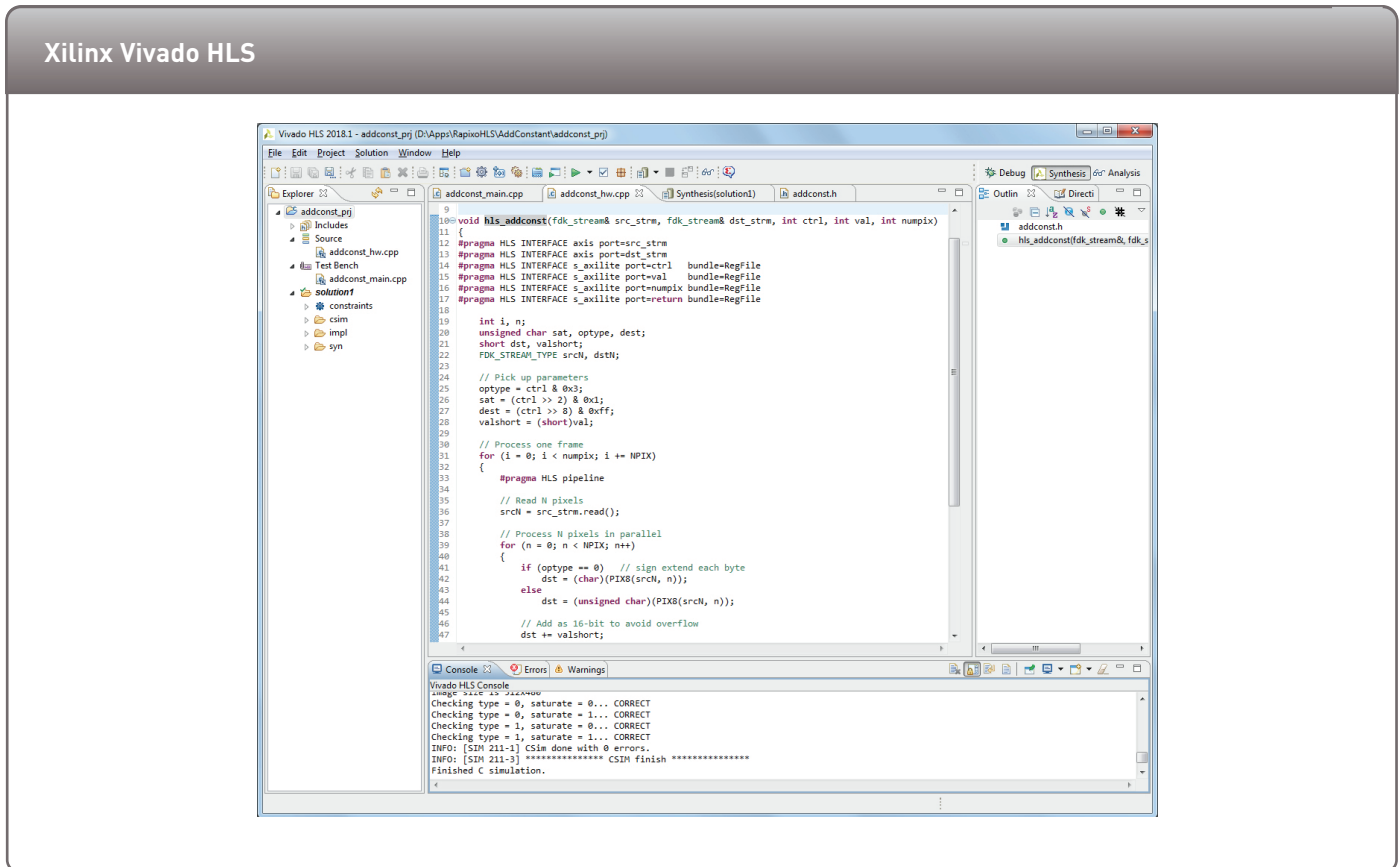
## Xilinx Vivado IP Integrator

Custom- and ready-made Matrix FPGA design components are graphically combined within the Xilinx Vivado IP Integrator tool to easily create custom FPGA configurations.



## Xilinx Vivado HLS

Developers with software backgrounds can use the Xilinx Vivado HLS tool to write custom image processing functions as FPGA design components using C or C++ languages.



## The Matrox Imaging Advantage



### Assured Quality & Longevity

We adhere to industry best practices in all hardware manufacturing and software development; product designs pay careful attention to component selection to secure consistent long-term availability. Matrox Imaging is able to meet Copy Exact and Revision Change Control procurement requirements in particular circumstances, backed by our dedicated team of QA specialists.



### Trusted Industry Standards

Matrox Imaging champions industry standards in our design and production. We leverage these standards to deliver quality compatible products, protecting our customers' best interests by ensuring our hardware and software components work with as many third-party products as possible.



### Comprehensive Customer Support

Our devoted front-line support and applications teams are on call to offer timely product installation, usage, and integration assistance. Matrox Professional Services delivers deep technical assistance to help customers develop their particular applications in a timely fashion. Services include personalized training and device interfacing as well as application feasibility, prototyping, troubleshooting, and debugging.



### Tailored Customer Training

Matrox Vision Academy comprises online and on-premises training for our vision software tools. On-premises intensive training courses are regularly held at Matrox headquarters, and can also be customized for onsite delivery. Vision Academy online training platform hosts a comprehensive set of on-demand videos available when and where needed.



### Long-Standing Global Network

Matrox Imaging customers benefit from a global network of distributors who offer complementary products and support, and integrators who build customized vision systems. These relationships are built on years of mutual trust and span the globe, ensuring customer access to only the best assistance in the industry.

## Specifications

### Supported environment

- 64-bit Microsoft® Windows® 7 / 10

## Ordering Information

### Hardware

Part number	Description
RAPCXPPROFDK	Matrox FDK for Matrox Rapixo Pro.

### Additional requirements (sold separately)

Compatible hardware	<a href="#">Matrox Rapixo CXP Pro</a>
Compatible software	<a href="#">Matrox Imaging Library (MIL) 10 or MIL-Lite 10</a> <a href="#">Xilinx Vivado Design Suite – HLx Editions<sup>1</sup></a>
Operating system support	Windows 7 (64-bit) Windows 10 (64-bit)

Endnotes:

1. Purchased from Xilinx Inc.



### **About Matrox Imaging**

Founded in 1976, Matrox is a privately held company based in Montreal, Canada. Imaging, Graphics, and Video divisions provide leading component-level solutions, leveraging the others' expertise and industry relations to provide innovative, timely products.

Matrox Imaging is an established and trusted supplier to top OEMs and integrators involved in machine vision, image analysis, and medical imaging industries. The components consist of smart cameras, vision controllers, I/O cards, and frame grabbers, all designed to provide optimum price-performance within a common software environment.

#### **Contact Matrox**

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