ZEBRA
CAPTURE YOUR EDGE

Aurora **FDK** for Zebra **Rapixo Pro**

Harness the full power and flexibility of FPGAs for image processing

Overview

Image processing offload and acceleration

Aurora - FPGA Development Kit (FDK) provides a library of components that enable development of custom field-programmable gate array (FPGA) configurations for Zebra Rapixo CXP frame grabbers, based on Xilinx Kintex® UltraScale™ devices, and the Zebra Rapixo CL Pro frame grabbers, based on Xilinx Kintex™-7 devices. In both instances, the Aurora 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 Aurora 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 Aurora 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 Aurora 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 both models of the Zebra Rapixo 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.

Aurora FDK at a glance

Build custom FPGA configurations for Zebra Rapixo Pro frame grabbers

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

Accelerate creation of custom FPGA configurations using Aurora Imaging's library, formerly Matrox Imaging Library (MIL), of ready-made FPGA design components

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

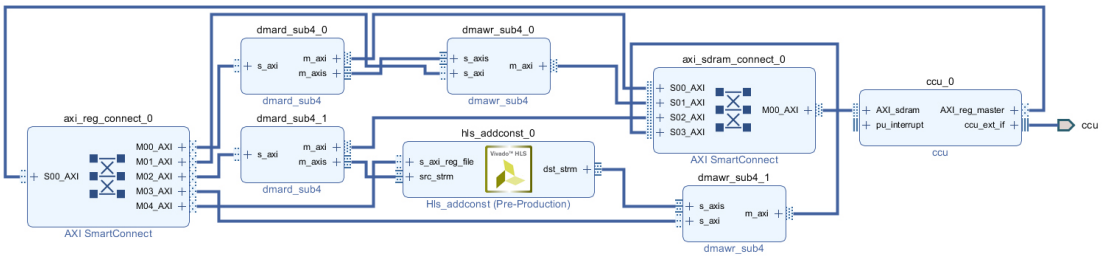
Assemble FPGA configurations quickly with the graphical Xilinx Vivado IP Integrator

Overview (cont.)

Xilinx Vivado IP Integrator

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

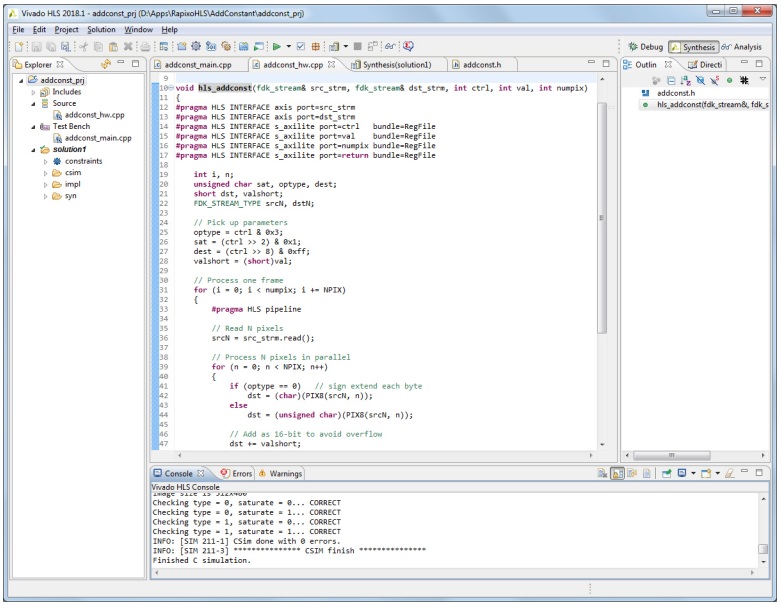
Xilinx Vivado IP Integrator



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.

Xilinx Vivado HLS



Specifications

Supported environment

- 64-bit Microsoft® Windows® 7 and 10

Ordering Information

Part number	Description
Hardware	
RAPPROFDK	Aurora FDK for Zebra Rapixo Pro. Must be ordered with 6x IMGPROSERV for personalized training and/or support. Requires Xilinx Vivado Design suite.
Additional requirements (sold separately)	
Compatible hardware	Zebra Rapixo CXP
	Zebra Rapixo CL Pro
Compatible software	Aurora Imaging Library or Aurora Imaging Library-Lite
	Xilinx Vivado Design Suite – HLx Editions[1]
Operating system support	Windows 7 (64-bit)
	Windows 10 (64-bit)

Endnotes:
1. Purchased from Xilinx Inc.

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