SXIVE

solectrix
high end electronics solutions

Rapid Imaging Prototyping System

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SXIVE (Simplified eXtensive Image and Video Engine) is a comprehensive image processing ecosystem consisting of the actual image processing software, a frame grabber board, hardware accelerators, and a variety of apps and plugins. It enables image processing professionals to practice rapid prototyping as well as real-time processing and analysis of images and video streams. With its flexible architecture, SXIVE can be tailored to the requirements of any imaging project and makes it possible to replace hardware components or implement new requirements over the course of the project without having to change the development environment.

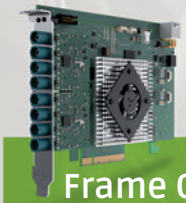
+ Enables a quick start of the prototyping phase
+ Functional and configurable demonstrator from day 1
+ Evaluate sensor, image signal processing (ISP) chain and other demanding image processing algorithms
+ Serves as bridge between prototype and series
+ Suitable for acceptance tests
+ Model-in-the-loop capability
+ In-car installation possible, e.g., for test drives

Build the Perfect Customized Soft ISP for Your Project

+ Halide-based software solution for a customized high-performance ISP that increases image quality, reduces noise and improves sharpness.
+ Up to 8 cameras in parallel, real-time capable with additional GPU acceleration, latency times under 5 ms possible
+ ISP written in C++, supporting many target architectures
  - x86, ARM, CUDA, OpenCL, Hexagon, ...
+ Many Solectrix image processing modules to choose from
  - Every module can be adapted to your needs
+ Recording system for raw and processed image sensor data
+ Customized video stream interfaces
+ Seamless integration into your existing workflows

Our Toolkit: the ISP SDK

+ Custom image enhancement algorithms for even more control over the image processing pipeline. Design your own ISP or use standalone image algorithms!
+ The ISP SDK can be adapted to different imagers and lenses in no time.
+ Rich collection of usage examples making it easy to get started with the software.
+ Numerous output modules that can be integrated into common image processing tools such as gstreamer, ffmpeg, opencv, or a GUI.
+ The ISP SDK is a closed source C++ library that provides optimized image processing algorithms for high-quality results. It comes as a Debian package for easy installation and management of the SDK.
+ CMake integration makes it easy to build and configure your project.
+ Visual Studio Code based development environment



SXIVE System Components

Frame Grabber, e.g., proFRAME

+ Generic frontend for GMSL2/3, FPD-Link III/IV
+ Up to 8 interfaces
+ Capture raw video data
+ Up to 32 Gbit/s video transmission
+ PoC (Power over Coax)

Acceleration

+ RTX
+ Jetson
+ FPGA
+ CUDA
+ TensorRT

Video Engine

+ Sensor integration
+ Alternate image sources
+ Soft ISP
  - Multi-stream output
  - GUI & API
  - Dynamic configuration
  - Plugin architecture

Apps & Plugins

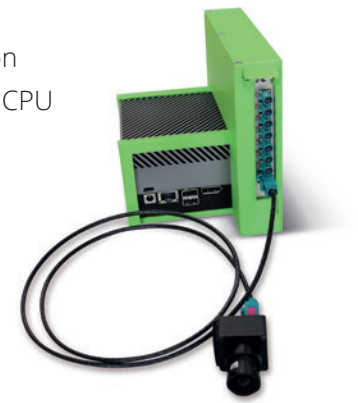
+ AI pre-processing
+ Visualization
+ Video analytics
+ Recording
+ Custom prototyping applications
+ Streaming

SXIVE Hardware Bundles

Fully pre-configured and tested plug & play systems for the prototyping phase.

SXIVE Bundle LT

+ Based on the NVIDIA Jetson AGX Orin platform
+ Ideal for in-car installation
+ 12-core 64-bit ARM v8.2 CPU
+ 2048-core Ampere GPU
+ proFRAME frame grabber module
+ Full Linux development environment



SXIVE Bundle HP

+ Full-blown HPC system for complex image processing evaluation platforms with multi-camera and ISP setups
+ Intel Core i7-11700 CPU
+ NVIDIA GeForce RTX 3060 Ti GPU
+ proFRAME frame grabber module
+ Full Linux development environment