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. A SXIVE-based setup consists 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
+ Real-time capable, latency under 5 ms possible
+ ISP written in C++, supporting many target architectures

The Customized Image Processing Solution

SXIVE SoftISP SDK – Image Signal Processing Toolkit

+ Custom algorithms for even more control over the image processing pipeline. Design your own ISP or use standalone image algorithms!
+ The SDK can quickly be adapted to different imagers and lenses.
+ Rich collection of usage examples for an easy start.
+ CMake integration makes it easy to build and configure your project.

SXIVE Calibration SDK

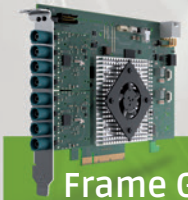
+ Correction of the incoming image regarding color, lens distortion and lens shading to produce a flawless picture.
+ Automated operation: The streamlined calibration process is intuitive and accessible to users of all levels of expertise. Intrinsic calibration becomes a one-click operation.

SXIVE Sensor Configuration Tool (Open Source)

+ Add their layout and configure the countless registers of modern image sensors via a convenient on-screen interface.
+ Avoid the need for three-way NDAs: Procurement and implementation of confidential sensor-specific data is left to the user.

iQ-Analyzer-X (by Image Engineering)

+ Evaluate camera image quality for the essential performance factors such as resolution, noise, color accuracy, lens distortion, dynamic range, and texture loss.
+ Uses AI-powered detection tools to automatically detect test targets.
+ Analyze video files from live streams, integrated cameras, and capture servers.
+ Supports numerous test charts, incl. TE42 multipurpose series and custom-made charts. Closely adheres to international standards from ISO, IEEE, IEC, and VCX.



Components of a SXIVE-Based System

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.

Hardware 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

Hardware Bundle HP

+ Full-blown HPC system for complex image processing evaluation platforms with multi-camera and ISP setups
+ Intel Core i7-12700E CPU
+ NVIDIA GeForce RTX 4070 Ti SUPER GPU
+ proFRAME frame grabber module
+ Full Linux development environment