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

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 Software Toolkit: SXIVE SDKs

SXIVE SoftISP 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 quickly be adapted to different imagers and lenses.
+ Rich collection of usage examples making it easy to get started with the software.
+ 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 SXIVE Calibration SDK streamlines the calibration process, making it intuitive and accessible to users of all levels of expertise. With its user-friendly interface, intrinsic calibration becomes a one-click operation.

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

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