

SXV/PI I

solectrix
high end electronics solutions

Datasheet

Smart eXtensible Vision Processing Unit



Supported by:



Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag



The Intelligent Solution for Industrial Vehicle Technology

SXVPU

SXVPU is an AI-powered imaging platform designed to tackle challenges like object recognition and machine learning integration through its efficient real-time processing of high-resolution video streams up to 4K.

With its specialized AMD-based hardware architecture and support for multiple cameras and sensors, SXVPU

is set up to use impeccable image data straight from the sensor for processing by neural networks or conventional algorithms before encoding the data for transmission via Ethernet.

The result is a perfect solution for viewing and vision applications in mobile automation.



AMD



Application Examples:

+ Automation

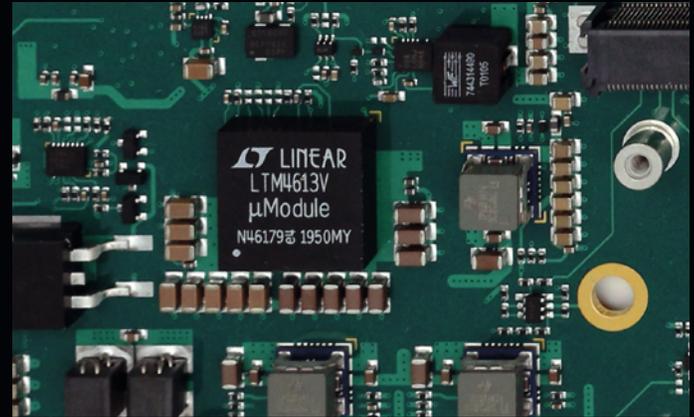
+ Monitoring of construction sites

+ Collision avoidance systems

+ Machine control

www.solectrix.de + www.sxvpu.de

Modular Approach for Ample Flexibility



System Performance

- + High computing power and efficiency of up to 10 TOPS per watt
- + H.264 / H.265 codec for up to 4K video streaming
- + Low latency for real-time processing of video streams
- + 24/7 safeguarded operation

Customizable HW

- + Flexibility on all interfaces for various environments
- + Scalable processing and versatile hardware acceleration
- + Easy configuration and simplified system integration
- + Housing with IP67 protection



Expandable SW + Intelligent Apps

- + Seamless integration of neural networks and machine learning models
- + Fast and efficient development with Linux® OS
- + Tailored processing for industrial vehicle applications
- + Support for common frameworks & industry standards

Optional Bird's-Eye View Application

- + Gives an overview of a vehicle's surroundings
- + Object detection algorithms
- + Blending of image data from multiple sources
- + Supports up to 8 cameras

Available Models

SXVPU AI Model

An AI-accelerated model that offers seamless integration of neural networks for AI vision applications.



SXVPU Wi-Fi Model

A wireless system variant for use within a Wi-Fi network that meets the need for isolated operation.



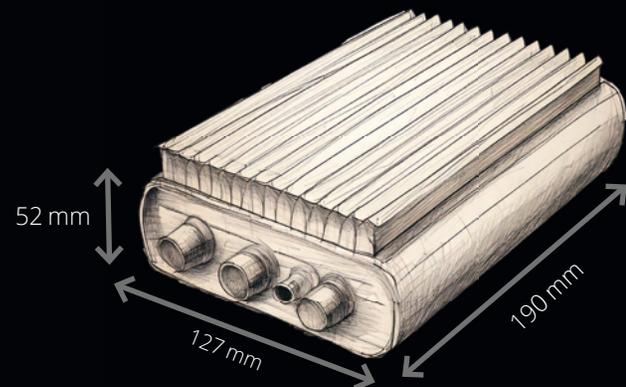
SXVPU 5G Model

An SXVPU model designed for 5G data networks.

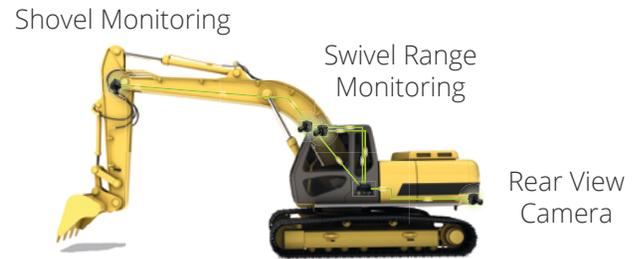


SXVPU Custom Model

A special design perfectly suited for your application.



SXVPU Use Case Examples



Technical Data



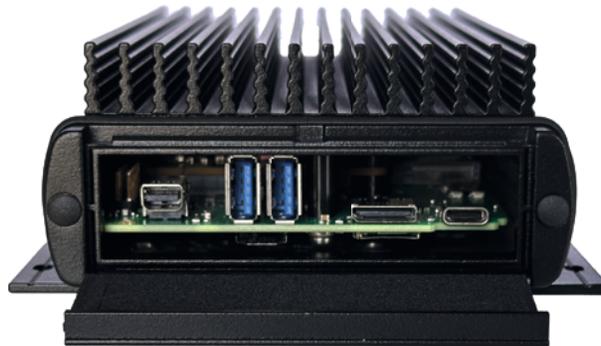
Specifications

AI Accelerator (in SXVPU AI Model)	26 TOPS
CPU	Quad-core Arm® Cortex®-A53 MPCore™ up to 1.5 GHz
GPU	Mali™-400 MP2 up to 667 MHz
Chipset	SoC integrated
Trusted Platform Module (TPM)	Infineon 2.0, Security TPM2.0 supporting IEC62443
System Memory	DDR4 4 GB onboard 64-bit
Storage	eMMC 16 GB, 64 MB QSPI FLASH
Expansion	M.2 Key M, 22 mm × 42 mm (PCIe Gen2 x4)
Construction	Universal aluminium profile enclosure Pressure compensation element
Protection Class	IP67 (dev kit: IP65)
Operating Temperature	-40 °C to +75 °C (65 °C w/ max. performance, 85 °C w/ min. performance)
Weight (net/gross)	1.2 kg (2.65 lb) / 1.5 kg (3.31 lb)
OS Support	PetaLinux (Yocto-based)
Mounting	Wall brackets



Front Interfaces

Camera Input	4× GMSL2 via SMA connectors (FAKRA connectors optional)
Ethernet/PoE	1× 10/100/1000 Mbps Ethernet with hardware timestamping (IEEE 1588)
Digital I/O	1× CAN 2.0 1× General Purpose Input 12 V / 24 V 1× Status LED (RGB)
Power Supply	9 to 36 VDC + 1× Power Enable Input



Rear Interfaces (available on the dev kit only!)

Display	1× Mini-DisplayPort Connector (DP++)
USB	2× USB 3.2 Gen1
Expansion	1× OCuLink 2 (PCIe Gen3 x4)
Debug	1× Debug USB with 3× UART + JTAG
Power Supply	1× Battery Socket
Storage	1× MicroSD Card Slot

For Quick Results: The SXVPU Dev Kit

Contents:

- + SXVPU
- + 4x HDR camera
 - + IP69k protection
 - + 3 MPix at 60 fps
 - + Lens FOV H 118°
 - + 2 m cable
- + Ethernet cable
- + Power supply unit with cable
- + Rugged carrying case



solectrix GmbH

Dieter-Streng-Str. 4
90766 Fürth
Germany

+49 (0) 911-30 91 61-0
automotive@solectrix.de

AI Development Support

- + AI model design
- + Application development
- + System implementation



Customer Contributions

Solectrix Contributions