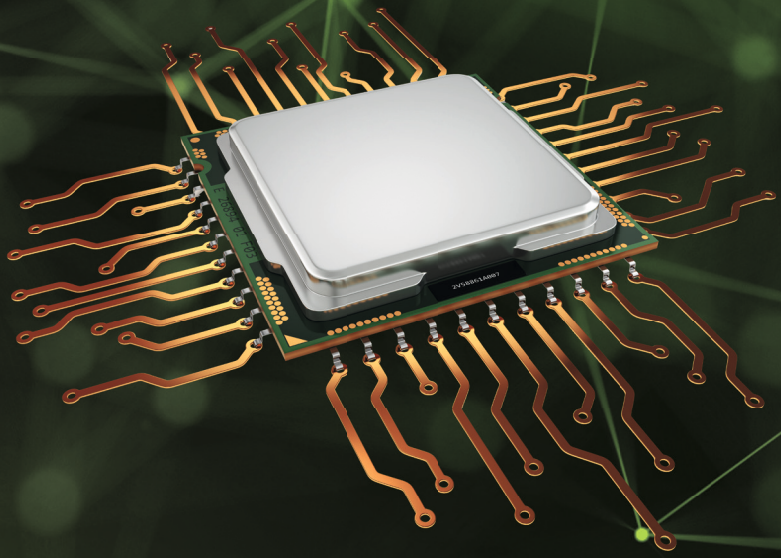
SXVPU

solectrix
high end electronics solutions

Datasheet

Smart eXtensible Vision Processing Unit



The Intelligent Solution for Industrial Vehicle Technology

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.

Application Examples:

+ Automation
+ Monitoring of construction sites
+ Collision avoidance systems
+ Machine control

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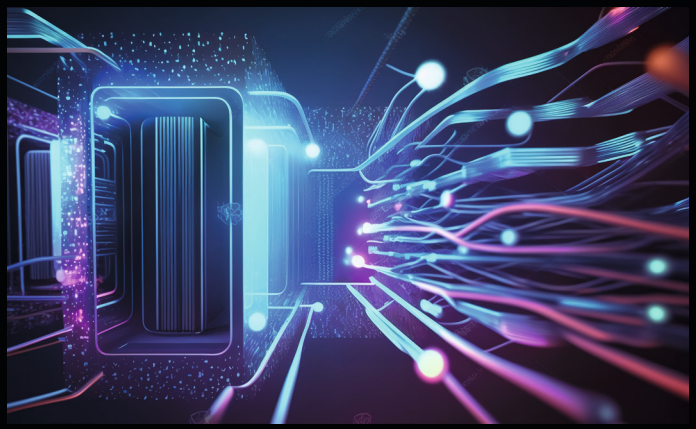
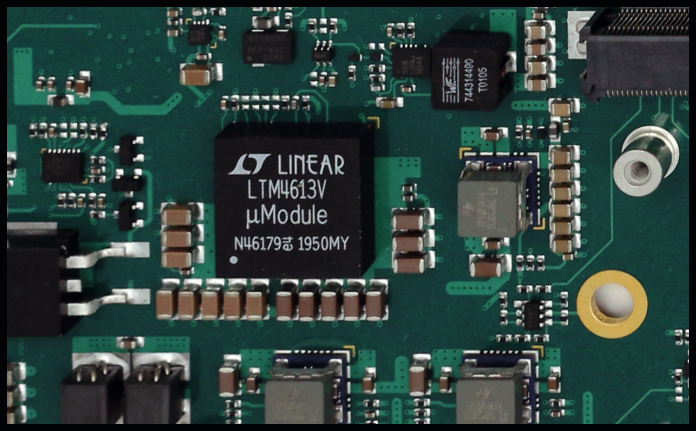
Modular Approach for Ample Flexibility



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



Customizable HW

+ Flexibility on all interfaces for various environments
+ Scalable processing and versatile hardware acceleration
+ Easy configuration and simplified system integration

Expandable SW

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

Intelligent Apps

+ Optimized for processing data from various sensors
+ High flexibility in the integration of neural networks
+ Tailored processing for industrial vehicle applications

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System Features and Available Models

+ Flexibility, adaptability, robustness
+ 24/7 safeguarded operation
+ H.264/H.265 codec up to 4K video streaming via Ethernet
+ Low latency
+ High performance and efficiency in processing visual data
+ Housing with IP65 protection

SXVPU AI Model

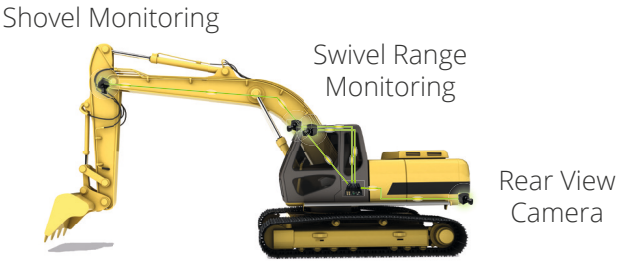
This AI-accelerated SXVPU model is a complete solution for AI vision applications, offering seamless integration of neural networks.

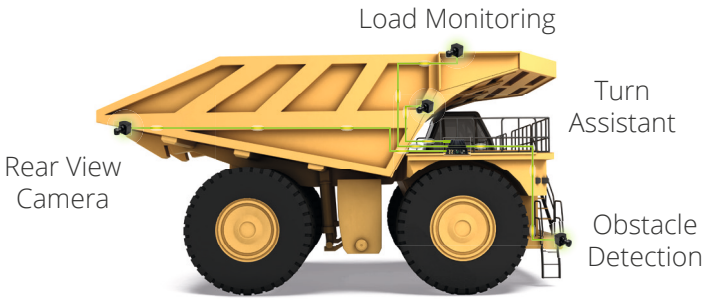
Solectrix AI development support:
+ AI model design
+ Application development
+ System implementation

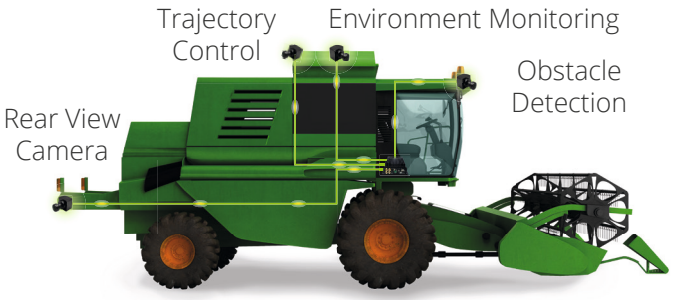
SXVPU Wireless Model

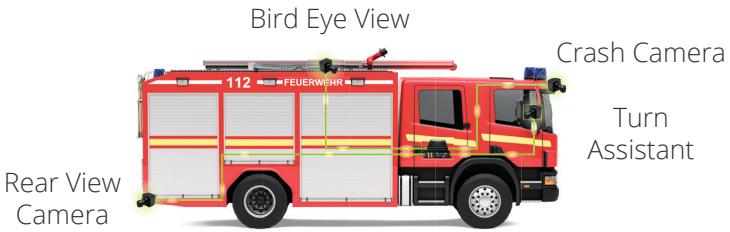
This SXVPU model is a wireless system variant that meets the need for isolated operation.

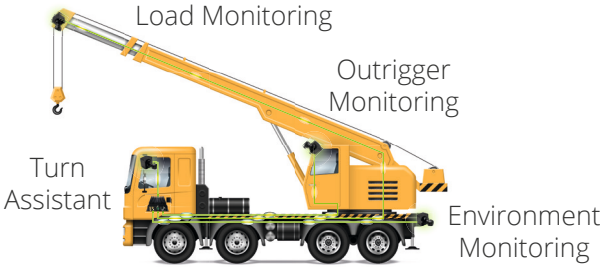
SXVPU Use Case Examples







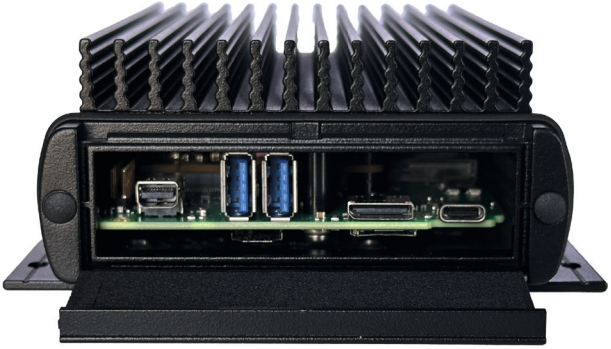




Technical Data

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	IP65 (IP67 optional)
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
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 (during development phase only)	
Display	1× HDMI 1.4/2.0 via 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
Memory	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

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