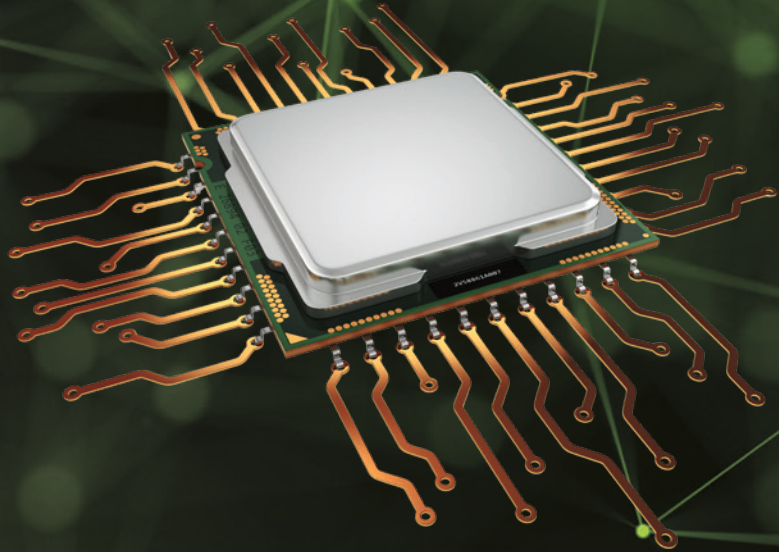


SX/PI I

solectrix
high end electronics solutions

Datasheet

Smart eXtensible
Vision Processing Unit



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.



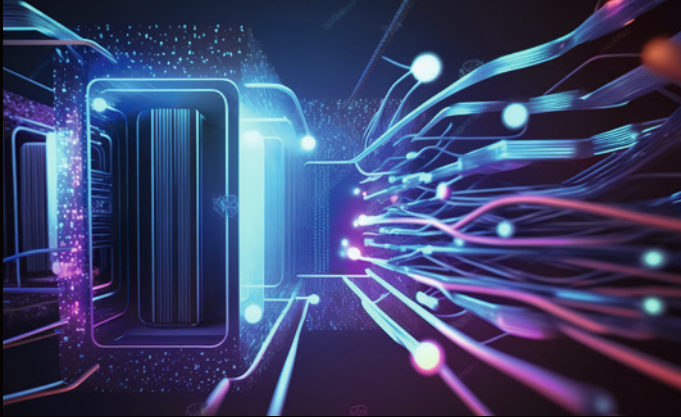
AMD



Application Examples:

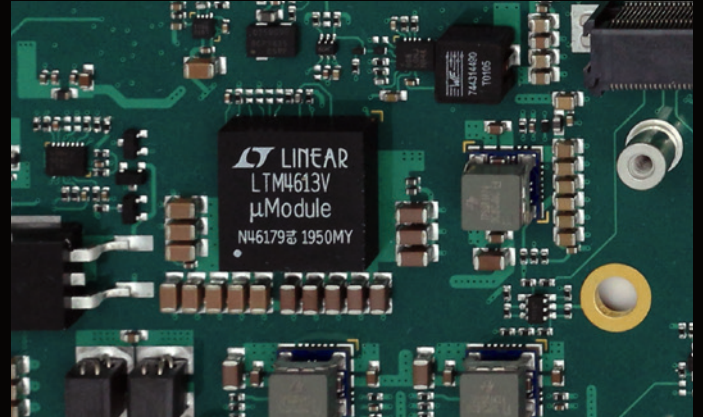
- + Automation
- + Monitoring of construction sites
- + Collision avoidance systems
- + Machine control

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 IP65 protection (IP67 optional)



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.



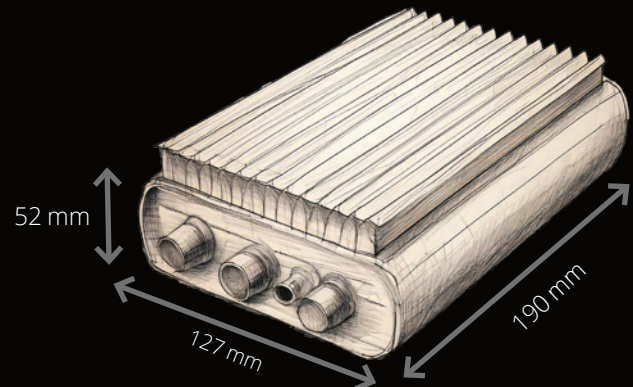
SXVPU 5G Model

An SXVPU model designed for 5G data networks.

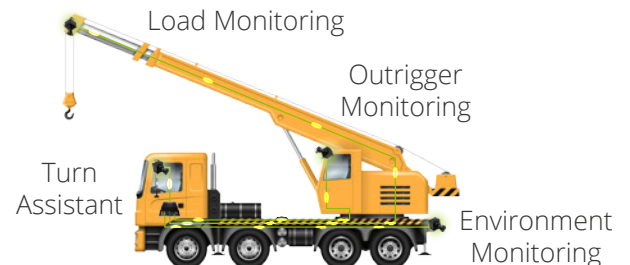
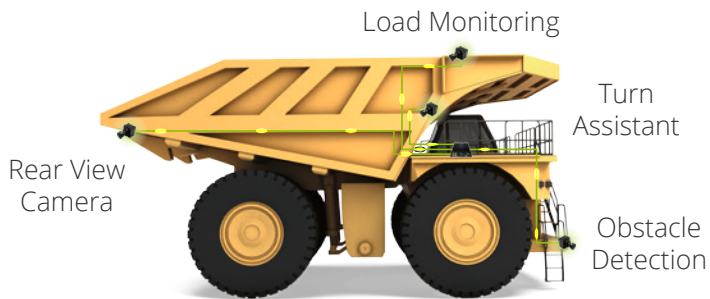
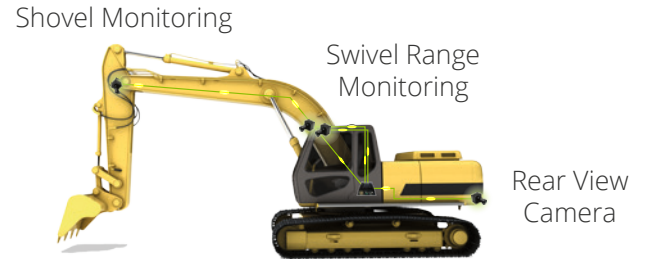


SXVPU Custom Model

A special design perfectly suited for your application.



SXVPU Use Case Examples



Technical Data



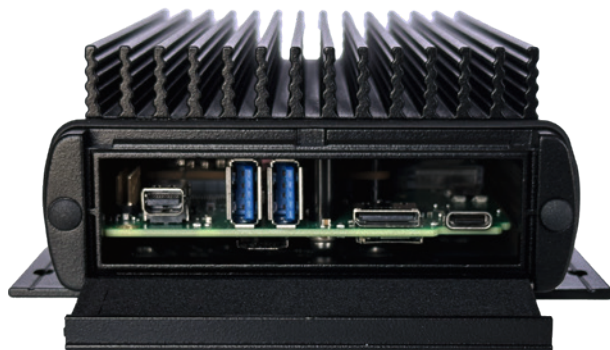
Specifications

| | |
|------------------------------------|---|
| 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 | 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 (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 (during development phase 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 |
| 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



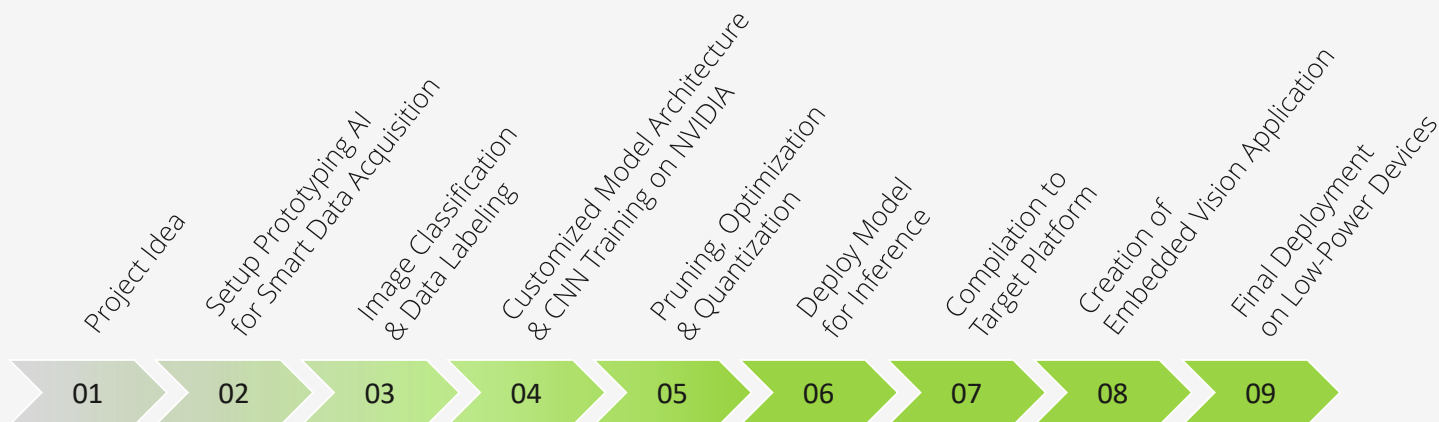
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AI Development Support

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



Customer Contributions

Solectrix Contributions