

## PRODUCT DESCRIPTION:

The FSM-IMX636 Devkit delivers high resolution, speed, and temporal resolution with “Event Based Sensing” technology in a compact package for prototyping of embedded systems. This Devkit integrates the IMX636-AAMR-C Event-based Vision Sensor released by Sony Semiconductor Solutions, and realized in collaboration between Sony and PROPHESÉE®. Reduce your time-to-market with this complete and easy to integrate assembly for embedded applications, complete with; a sensor board with lens, all needed adapters, accessories and drivers for a jump start. Prototype quickly and capture ultra-fast moving objects, or even vibration frequencies of machine components - at a fragment of the data rate, processing efforts, and power consumption of conventional frame based image sensing.

Accelerate your development by leveraging the PROPHESÉE Metavision® Intelligence Suite. It provides customers with a proven vision toolkit containing computer vision and machine learning supported modules for event data processing, analytics and visualization.

### Features

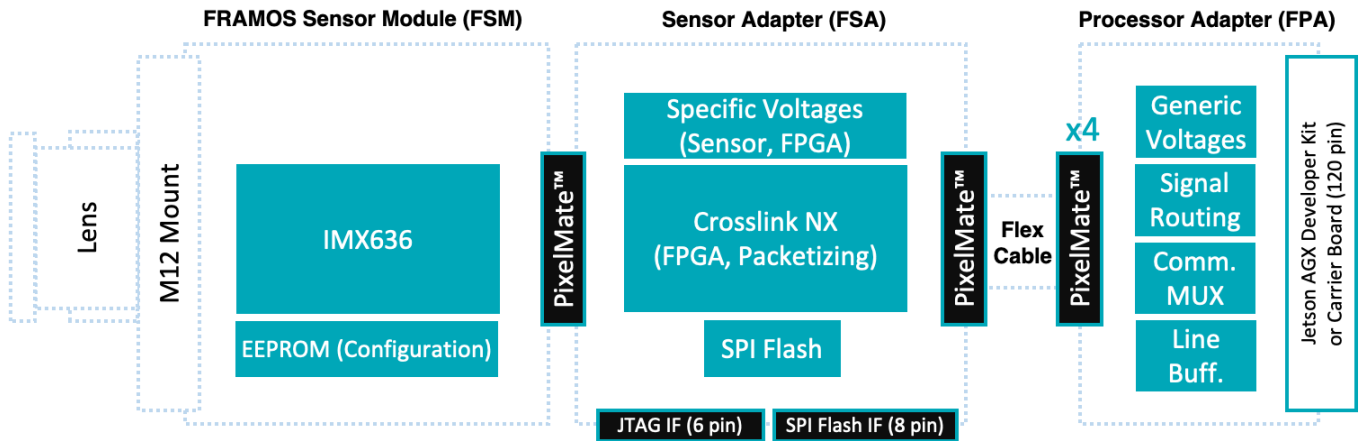
- Sensor module with Sony Event based Vision Sensor (EVS) - IMX636-AAMR-C
- Resolution of 0.9 MP / 720 p with up to 1.06 Billion events per second
- Up to 10k fps Time-Resolution Equivalent, no motion blur by technology
- On-board event packetization creating broad compatibility with embedded processors
- MIPI CSI-2 interface according to PixelMate™ standard for versatile connectivity
- Drivers and Demo Application for NVIDIA® Jetson AGX Xavier™ and NVIDIA® Jetson AGX Orin™
- Prophesee Metavision® Intelligence Suite Vision SDK Support (Plugin)

### Application Examples

- Achieve preventive maintenance by using vibration monitoring to detect hard-to-see mechanical issues
- Guide mobile robots and detect potential obstacles by using event-driven optical flow
- Monitor and count people in retail settings while preserving privacy by avoiding the capture of facial details
- Count and track small high-speed objects such as sparks in welding and metal processing, detect contaminants, or track golf balls



**SYSTEM DIAGRAM:**



**SPECIFICATIONS:**

**Image Sensor**

- Type: IMX636-AAMR-C
- Technology: PROPHESSEE Metavision® Event Vision Sensing (EVS)
- Resolution: HD 1280 x 720 (0.9 MP)
- Optical Size: 1/2.5" (4.86 μm pixel)
- Chromatics: Monochrome

**Optical Attributes**

- Field of View (HxV): 78° x 62°
- Lens Type: 3.5 mm, F#1.8, Miniature lens
- Mount Type: M12

**Synchronization**

- Support on request

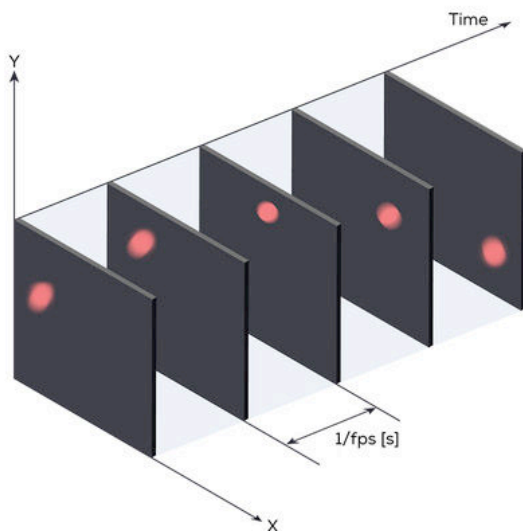
**Event Packetizing on-Board:**

- Buffering and frame packing, from variable to fixed frame size
  - CSI-2 RX - 2 lanes @ 1.5 Gbps/lane
  - CSI-2 TX - 4 lanes @ 1.5 Gbps/lane
- Configuration via I2C bus

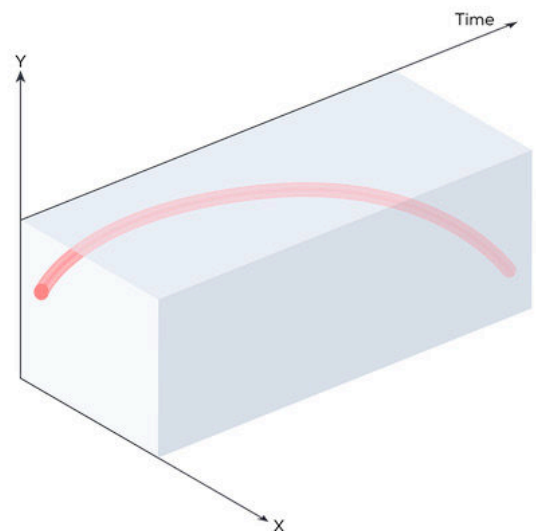
**Event Signal Processing:**

- Pixel Latency: down to <100 μs (depending on light situation and event size)
- Nominal Contrast Threshold: 25%  
Dynamic Range: >86 dB on 5 lux lighting condition
- Max Event Rate: 1.06 Giga-events per second

**FRAME-BASED VISION**



**EVENT-BASED VISION**



**ENVIRONMENT, SAFETY AND MECHANICAL DETAILS:**

**Safety and Compliance**

- CE
- RoHS
- REACH
- WEEE



**Environment And Storage**

Continuous Operating Temperature (Ambient): -30°C to +75°C  
Power Consumption (Under maximum event conditions): <550 mW  
Storage Temperature: -30°C to +80°C

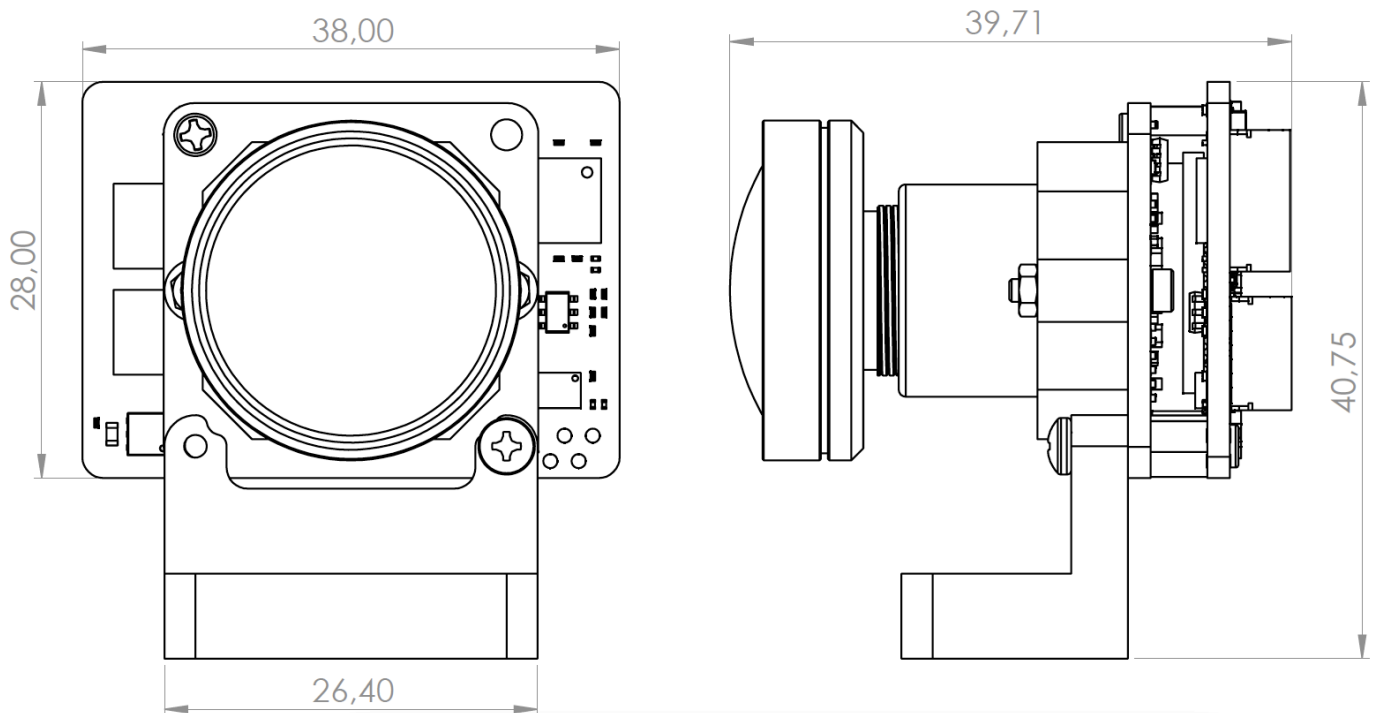
**Physical Attributes**

Mechanical size (H x W x D): 28 x 38 x 39.71 mm  
Weight: 51.2 g

Modifications to optical attributes, form, function, or performance, are supported on a per project basis.

Further documentation on the mechanical and electrical interfaces, technical drawings, and 3D models are provided on request at: [support@framos.com](mailto:support@framos.com)

**MECHANICAL DRAWING:**



**SOFTWARE AND DRIVER:**

The IMX636 Event Based Vision Sensor, realized in collaboration between Sony and PROPHESEE, uses a standard V4L2 driver with added support for Crosslink-NX built within the kernel. It further comes with an additional plugin, leveraging the powerful Prophesee Metavision® software suite to process and visualize event data from the image sensor. Additionally, 10 ready made custom software controls are included to assist while evaluating the IMX636 in your embedded systems environments.

**DRIVER PACKAGE CONTENT AND IMPLEMENTED FUNCTIONS:**

**Scope of the Package**

- Platform and device drivers for Linux for Tegra
- NVIDIA® Jetpack 5.1 / L4T 35.2.1
- V4L2 based subdevice drivers (low-level C API)
- Metavision® Intelligence Suite plugin
- Displaying examples using Metavision® Intelligence Suite (separate download)

**Supported Platforms**

- NVIDIA® Jetson AGX Orin™ Developer Kit
- NVIDIA® Jetson AGX Xavier™ Developer Kit

**Parameterization**

- Sensor Controls: ROI, all Biases
- Packetizer: H/V-Blankings
- Operation Mode: Master (\*\*Slave)

**PROPHESEE plugin support**

Based on Metavision® 3.1.2, supports:

- Crosslink-NX blankings through Horizontal/Vertical blanking controls
- Analog Region of Interest (ROI)
- Digital cropping control
- Bias controls for tuning event generation thresholds
- Serial number discovery through EEPROM
- Analytics information (acquired, processed, dropped frames data)

\*\*Slave mode is supported at the image sensor level and can be implemented on request.



**ORDERING INFORMATION:**

**Order Code:** FSM-IMX636E/TXA\_Devkit-Single-V1A

Bill of materials outlining the items contained in this order code are shown below. To order or request additional information, please contact: [sales@framos.com](mailto:sales@framos.com)

Item	Description	Qty
FSM-IMX636E-000-V1A	FRAMOS Sensor Module with Sony® IMX636 integrated	1
FPL-10006624, M12-Mount	Lens mount assembled with passive alignment	1
FPL-300588, M12-Lens	Optic lens (screwed in, not focused, not glued)	1
FSA-FT27/A-001-V1A	FRAMOS Sensor Adapter with Crosslink NX FPGA	1
FMA-MNT-TRP1/4-V1C	Tripod Adapter with screws (attached)	1
FMA-FC-150/60-V1A	Flex Cable, PixelMate™ (CSI-2), 150 mm	1
FMA-CBL-FL-150/8-V1A	Cable (included for flashing)	
FPA-4.A/TXA-V1B	FRAMOS Processor Adapter	1
Quick Start Guide	Printed in box with instructions, references and disclaimers	1

**Note** Applicable NVIDIA® Jetson™ Developer Kit not included.