

START YOUR EVENT-BASED VISION EXPLORATION WITH PROPHESSEE GENX320 KIT FOR STM32. DEMONSTRATES LOW-POWER AND LOW END-TO-END LATENCY EVENT PROCESSING ON LOW COST MCU BASED PLATFORM



# GENX320 KIT FOR STM32



PARAMETER	UNIT	SPECIFICATION
Sensor Model		GenX320
GexX320 COB dimension	mm	8 x 8 x 5
Lens Model		SND2636A1SD-8M • 1.8 mm • f/2.8
#Connector pins		30
Control Interface		I <sup>2</sup> C
Data Interface		Parallel – STM32 Digital Camera Interface (DCMI)
Lens Mount		M12
Minimum object aperture		f/2.8
Focal Length		1.8 mm
HFoV/VFoV	deg	58
DFoV	deg	76
IR cut filter		No
Integrated EEPROM		Yes (256Kbit)

## FEATURES

- Development kit Prophesee GenX320 module for STM32 devices with S-Mount lens\*
- This kit has been optimized for plug and play use with STM32-F7 platform
- Integrates Prophesee GenX320 1/5" format 320x320 event-based vision sensor:
  - 320x320 array of 6.3µm contrast detection pixels
  - High-speed event data output (equivalent to >10kfps time resolution) with row-level 1µs-precision time stamping
  - 0.05 lux Low light cutoff with high dynamic range >120dB
- The GenX320 sensor is connected through the STM32 DCMI parallel interface
- Low pixel latency and low transfer latency
- Suitable for the development of low-power embedded applications with hard real time constraints
- Delivered with an application to visualize events on the 4.3" WQVGA TFT LCD programmed in Flash. The source code delivered for free

\* The STM32F746G discovery kit is not included. It can be purchased on <https://www.st.com/en/evaluation-tools/stm32-discovery-kits.html>

# PROPHESSEE GENX320 - KIT FOR STM32 - COB



## APPLICATIONS

- AR/VR/XR
- Eye tracking
- Gesture recognition
- IoT
- AI on the Edge and Machine Learning
- Always on cameras
- Healthcare (privacy) cameras
- Wearables
- Smart Home



## DESCRIPTION

Connected to the STM32 Digital Camera Interface parallel interface, the GenX320 mounted with a S-Mount optic offers a configurable and powerful solution for diverse embedded vision applications. This development platform allows for experimenting with the power of high-speed and low latency event-based vision. At the heart the GenX320 is a 320x320 6.3µm pixel BSI stacked event-based Metavision® sensor, designed for embedded vision and many power-sensitive applications. The GenX320 was designed with the explicit goal to improve integrability and usability in at-the-edge vision systems. This includes event data pre-processing and formatting, data interface compatibility and low- latency connectivity to different processing platforms including latest low-power, neuromorphic processors. The sensor has been optimized for very low power operation, featuring a hierarchy of application-specific power modes. The GenX320 contains an integrated Event Signal Processing (ESP) pipeline which includes timestamping, filtering, throughput regulation and data formatting functions. An Event Rate Controller (ERC) allows to cap the output event rate to a programmable limit. A Spatio-Temporal Contrast filter (STC) detects and removes redundant bursts and trails of events triggered by high contrast features in the scene. An Anti-Flicker (AFK) filter detects and filters events generated by flickering lights. The stop-band frequency can be set in the range of 50-500 Hz with arbitrary spans.

## SENSOR LOW POWER MODES

MODE	ULTRA LOW POWER	LOW POWER STANDBY	LOW POWER MONITOR	CPI STREAMING	CPI STREAMING	MIPI STREAMING
<b>Sub-system</b>				100kEPS CPI @10MHz	1MEPS CPI @10MHz	10MEPS MIPI @800MHz
<b>Pixel array</b>	3x3 GCD		320x320 pixels	320x320 pixels	320x320 pixels	320x320 pixels
<b>Digital ICN + CPU</b>	Powered down	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked
<b>Digital readout</b>	Powered down	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked
<b>Digital ESP + Output I/F</b>	Powered down	Powered, Gated	Powered, Gated	Powered, Clocked	Powered, Clocked	Powered, Clocked
	<b>Total: 36µW</b>	<b>Total: 1.8mW</b>	<b>Total: 2.9mW</b>	<b>Total: 3mW</b>	<b>Total: 4.8mW</b>	<b>Total: 22.8mW</b>

## ORDERING CODES AND BRIEF DESCRIPTION

**PAKC5X320CDMPSTM32: ASSEMBLY KIT - CCAM5 GENX320MP COB - STM32**