START YOUR EVENT-BASED VISION EXPLORATION WITH PROPHESEE 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		GenX320ES
GexX320ES CM2 dimension	mm	8 x 8 x 5
Lens Model		SND2636A1SD-8M • 1.8 mm • f/2.8
#Connector pins		30
Control Interface		I²C
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 GenX320ES module for STM32 devices with S-Mount lens*
- 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

PROPHESEE GENX320 - KIT FOR STM32

- 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 GenX320ES 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	ULP PASSIVE	ULP ACTIVE	CPI STREAMING	CPI STREAMING	MIPI STREAMING
Sub-system			100kEPS CPI @10MHz	1MEPS CPI @10MHz	10MEPS MIPI @800MHz
Pixel array	3x3 GCD	3x3 GCD	320x320 pixels	320x320 pixels	320x320 pixels
Digital ICN + CPU	Powered down	Powered, Clocked	Powered, Clocked	Powered, Clocked	Powered, Clocked
Digital readout	Powered down	Powered, Gated	Powered, Clocked	Powered, Clocked	Powered, Clocked
Digital ESP + Output I/F	Powered down	Powered, Gated	Powered, Clocked	Powered, Clocked	Powered, Clocked
	Total: 36μW	Total: 1.4mW	Total: 3mW	Total: 4.8mW	Total: 22.8mW

*The table refers to the sensor and not the system power. The current system aims for straightforward implementation but introduces additional power consumption.

ORDERING CODES AND BRIEF DESCRIPTION

PAKC5X320ESSTM32: ASSEMBLY KIT - CCAM5 GENX320ES - STM32