Make Intelligence Smarter

Speck™, an all-in-one dynamic vision SoC



About Speck™

SynSense

Speck[™] is a fully event-driven neuromorphic vision SoC. Speck[™] supports large-scale spiking convolutional neural networks (sCNNs) with a fully asynchronous chip computational architecture.

Speck[™] is fully configurable with up to a capacity of 320k neurons and integrates a state-of-art dynamic vision sensor (DVS), enabling fully event-driven, real-time, highly integrated solutions for a range of visual applications. For most applications, Speck[™] provides intelligent visual processing at milli-Watt power levels, and with a response latency of down to a few ms.

Features

Power consumption <5mW

100-1000x lower than GPU solutions An AA battery can power Speck[™] for up to 100 days Fully-asynchronous, always-on

Privacy security

On-chip vision processing, no video stream recorded or transmitted For privacy-sensitive applications

Application latency <5ms

Real-time human interaction Low latency / fast reaction use cases

Ultra-light weight

World's lightest complete smart vision system Ubiquitous vision processing for any device

Gesture recognition

with just a Speck[™] of intelligence

Gesture recognition

Speck[™], a dynamic vision SoC integrating sensing and computing, can capture, recognize and judge dynamic gestures with ultra-low latency with the milliwatt level power consumption, enabling efficient and accurate gesture recognition applications.

Speck[™] enables handsfree gesture recognition for applications such as handsfree gesture recognition for smart home applications, smartphones, smartwatches, and more.

Simple gestures enable easy and convenient handsfree control for a range of applications.

Specifications

Hardware parameters

Circuit	Asynchronous digital circuit
Resolution	128*128
Neurons	320,000
Integration	19,800/mm²

Application parameters

Recognition distance	0.3m - 1m
Illumination range	10lux - 3,000lux
Dynamic range	90dB
Power consumption	<5mW

Applications

Smart home

Environment: Air conditioners, curtains, lamps and lanterns Multimedia: TV, audio Furniture: Toilets, cabinets, etc.

Smart toy

Remote control cars Drones / flying machines Interactive dolls Smart cockpit

Electronics

Computers, pads

SynSense

Audio Air conditioning Lighting

Ultra-low power consumption

Key benefits

Ultra low cost System cost <\$7

Fast response Response time <50ms (typical applications)

User friendly Good adaptability to different gesture rates and ranges, with few user limitations

Highly integrated

On-chip integration of sensors and processors High neuron density **Privacy** Pure end-to-end computing of data streams: no data transfer to the cloud

Power consumption <5mW (typical applications)



