

Synaptics Edge AI

Rosenblatt Technology Summit :
The Age of AI Scaling

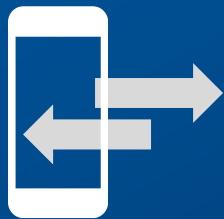
August 2021



Presenter : Satish Ganesan
SVP & Chief Strategy Officer



AI delivers exceptional human experiences by enabling devices to transition from collecting and transferring information to using that information intelligently, instantly and securely



**Interaction
with Devices**



**Identification
of Users**



**Contextual
Awareness**



**Exceptional
Human
Experience**

Delivering Interactive & Intuitive Experiences Everywhere

HOME

It's too cold outside. I'll stay in and watch a movie.

- “Hi John, would you like me to set the temperature to 80°?”
- “I'll turn off lights in the living room.”
- “Here are your favorite movies on Netflix.”
- “Should I make some popcorn?”

PRIVACY RESPONSE AVAILABILITY

WORK

Let's get this meeting started

- “Calling all participants for your 3PM meeting.”
- “Rolling down window shades.”
- “Displaying your presentation on main projector.”
- “Here are the meeting notes I transcribed.”

PRIVACY RESPONSE AVAILABILITY

AUTO

Seth lives near here. Let's pay him a visit.

- “Retrieving Seth's contact information.”
- “Sending address to GPS.”
- “Shall I play 'Seth + Ashley's Road Trip' playlist?”
- “You seem tired. I can drive from here.”

PRIVACY RESPONSE AVAILABILITY

ON THE GO

Check my balance.

- “No problem, I have confirmed your identity.”
- “Here is your current balance.”
- “Would you like to pay your credit card bill?”
- “You appear dehydrated. Here are juice bars near you.”

PRIVACY RESPONSE AVAILABILITY

Why AI at the Edge?

PRIVACY

- User identifiable data stays on device
- Abstracted data sent to cloud



LATENCY

- Enhanced user experience
- Faster response time without cloud network latency



POWER EFFICIENCY

- Reduces amount of irrelevant data transmitted to cloud
- Enables energy-star or battery-powered operation

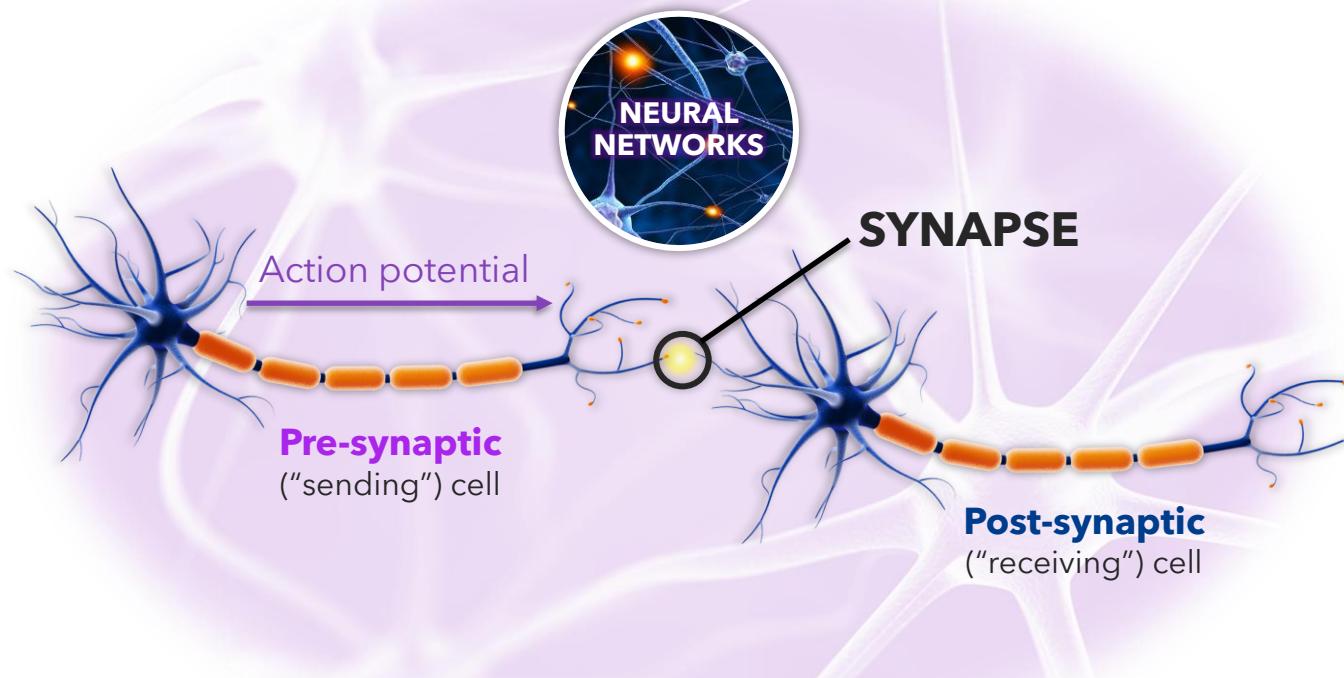


AVAILABILITY

- Control and AI functionality not dependent on internet connection availability



Synaptics' Deep Roots in AI & Neural Networks



1986 - Synaptics founded to commercialize analog neural network chips for ultra-low power pattern matching

Products for Every Experience

HOW YOU
TOUCH & TALK

HOW YOU
CONNECT

HOW YOU
PERCEIVE & ENGAGE

HUMAN INTERFACE

CONNECTIVITY

EDGE AI



| Touch Sensing

| Fingerprint Biometrics

| Docks & Adapters

| Wi-Fi & Bluetooth

| Audio Processing

| Video Processing

| Voice Processing

| Display Drivers

| Video Interfaces

| GPS

| Open AI Tools

| Computer Vision

Many Products Already Integrate AI Functionality

TOUCH
GESTURES
1992



FINGERPRINT
BIOMETRIC MATCHING
2013



VOICE & AUDIO
WAKEWORD
2017



IMAGING & VIDEO
SUPER-RESOLUTION
OBJECT DETECTION
2019

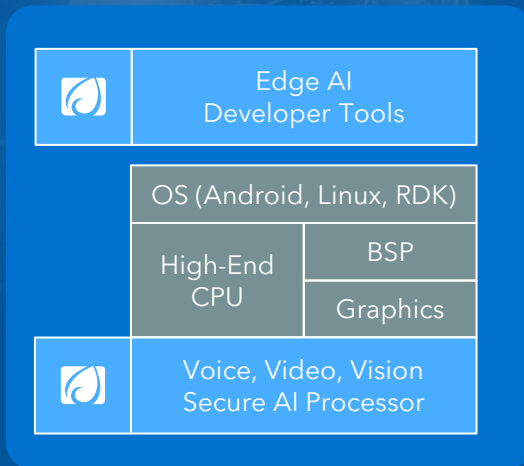
Inspired by our mission to engineer exceptional experiences when interacting with smart devices

Synaptics Edge AI Solution for Smart Home Devices

Customer Applications



Scalable Edge AI SoC Platform



Analytics / Enhancement



Industry Leading Performance

Open AI Development Tools
Compatible with Industry Standards

Secure Processing of Voice/Video/Vision AI

Leader in Secure Voice/Video/Vision Edge AI SoCs

Creating Enhanced In-Home Experiences

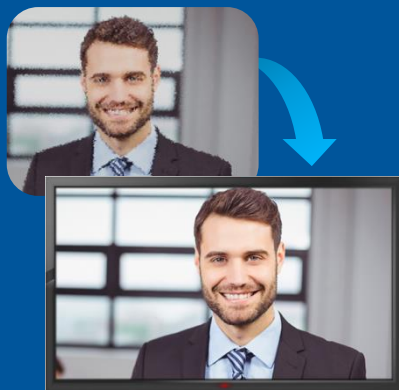
AI Applications

Logo Identification



Adidas
Women's
Track Jacket

Enhanced Picture Quality



Home Trainer



Keep your arms
parallel to the
floor

AI Models

Object
Detection

Super
Resolution
Image/Video
Enhancement

Body Pose
Estimation

Voice ID

*Custom
AI Model*



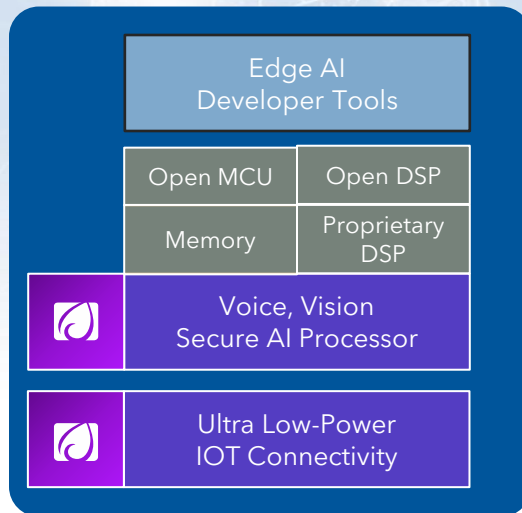
Integrated in the **Synaptics Framework** and Accelerated on the NPU

Katana Low Power Edge AI Platform

Customer Applications



Scalable Edge AI SoC Platform



Analytics



Optimized Combination of Performance / Flexibility / Power

Open AI Development Tools
Compatible with Industry Standards

Superior RF Performance
with Low Power Support

Leader in Secure, Voice/Video/Vision Edge AI SoCs

Targeting An Underserved, Explosive Market

Products where Accessing Power is Difficult

- Retrofits in existing sites
- Brownfield installations
- Remote and outdoor sites



Requires power from:



Batteries



Energy Harvesting

Unmet Industry Needs



Long battery life (2+ years)



Zero maintenance



Rapid, easy deployment

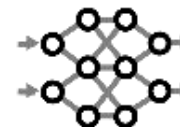


Low cost

Required Solution



Ultra-low energy per inference



Flexible, easy-to-use endpoint AI platform



Integrated wireless connectivity

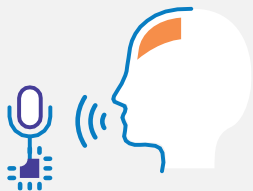
Low Power Edge AI Market Potential

Just Scratching the Surface

TODAY

Primarily Voice Sensors

Smart Voice



Smart Home



FUTURE

Smart Vision, TinyML or Equivalent devices

Smart Buildings



Smart Retail



Industry 4.0



ABIresearch[®]
TRUSTED INTELLIGENCE SINCE 1990

TinyML Device Shipments to Grow to 2.5 Billion in 2030, Up From 15 Million in 2020

ABI Research's latest whitepaper explores why TinyML is the next big opportunity in tech

Source: [IHS, Synaptics estimates]

Example: Low Power Presence Detection

Privacy Protected Image Sensing

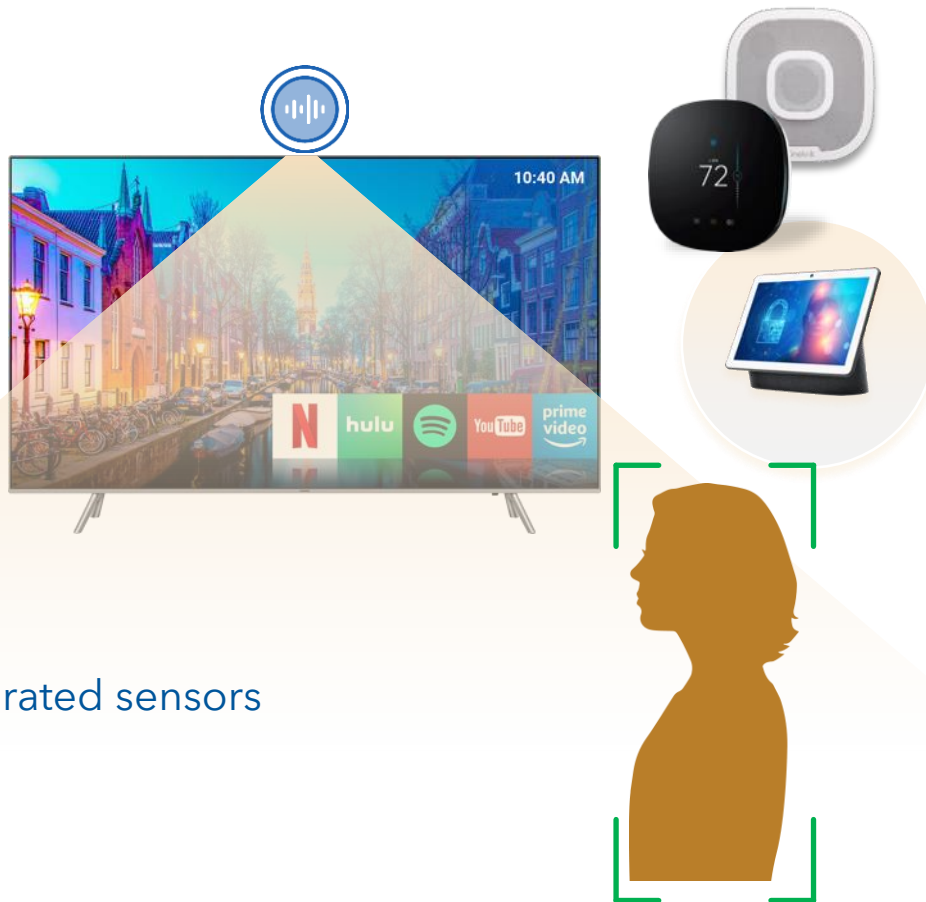
- All image data stays on device

Wide range of use cases

- Wake on Approach
- Dim/Turn off/Lock on leave
- Adaptive User Interface: Adults vs. Kids

Enables battery powered and energy star rated sensors

- Smart home, laptops, CE



Example: Smart Buildings with Battery Powered Camera

People/Object awareness

- Detect the presence of a human/object

People/Object counting

- Accurate count of people entering and leaving a space

Applications: Security, Space Utilization, Social Distancing, Traffic Counting

- Doorbell, cameras

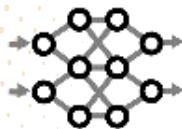


Synaptics is Well Positioned to Capture Market

Solving Critical Challenges to Enable Market Growth



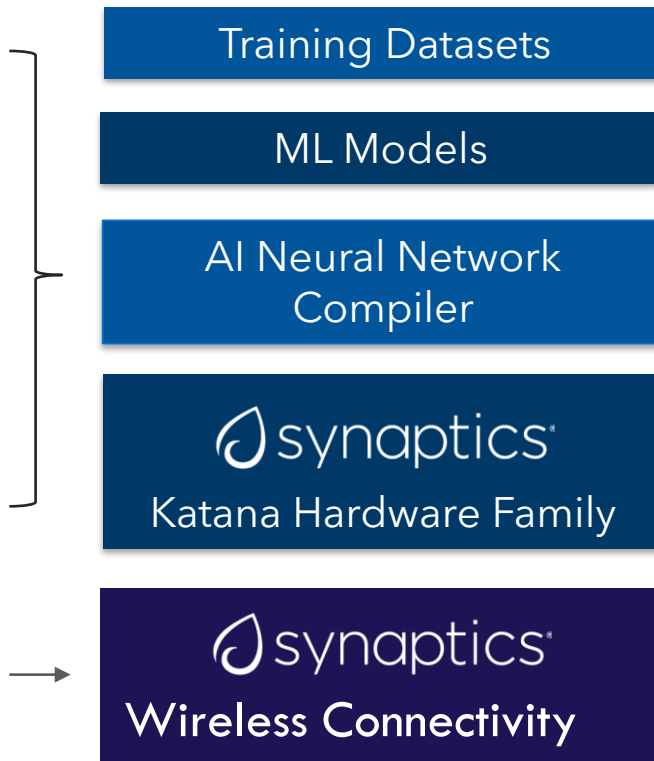
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Engineering Exceptional Experiences