Synaptics Edge AI

Rosenblatt Technology Summit: The Age of AI Scaling

August 2022

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SVP & Chief Strategy Officer

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Hundreds of Millions of People are…

EXPERIENCING SYNAPTICS

How you **TOUCH**

How you **SEE**

How you **CONNECT**

How you **PERCEIVE**

How you **ENGAGE**

How you **HEAR**

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PRODUCT LEADERSHIP FOR EVERY EXPERIENCE

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HOW YOU
SENSE

HOW YOU
PERCEIVE & ENGAGE

HOW YOU
CONNECT

Human Interface

- Touch/Proximity Sensing
- Fingerprint Biometrics
- Voice Processing
- Display Drivers

Edge AI

- Speech/Sound Event Detection
- Video Processing
- Open AI Tools
- Computer Vision

Connectivity

- Graphics & Compression
- Wi-Fi & Bluetooth
- Video Interfaces
- GPS

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INDUSTRY STATUS – GROWING ADOPTION

Edge AI is decentralized computing allowing data-driven decisions to be achieved at the point of maximum impact

DEPLOYMENTS

HOME / OFFICE

AUTOMOTIVE

FACTORIES

HEALTHCARE

"Global AI Edge Computing Market is expected to reach ~**$60 Billion** by 2033"

Allied Market Research

CHALLENGES

IMPLEMENTATION EFFICIENCY REQUIRES:

- HARDWARE
- SOFTWARE
- TOOLS
- PARTNERS

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WHY AI AT THE EDGE?

PRIVACY	LATENCY	POWER EFFICIENCY	AVAILABILITY
User Identifiedable Data Remains on Device	Improved Responses / Enhanced User Experience	Reduces Unneccessary Cloud Traffic	Control & AI Independant of Internet Connection

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Intelligently process data locally rather than in the cloud

AI AT THE EDGE (COMPUTING)

Edge-AI Inference Compute Needs and Application Spectrum

LOW	MID	HIGH
SPEECH AND SOUND EVENT DETECTION	**LOW RESOLUTION COMPUTER VISION**	**HIGH RESOLUTION VISION AND VIDEO**

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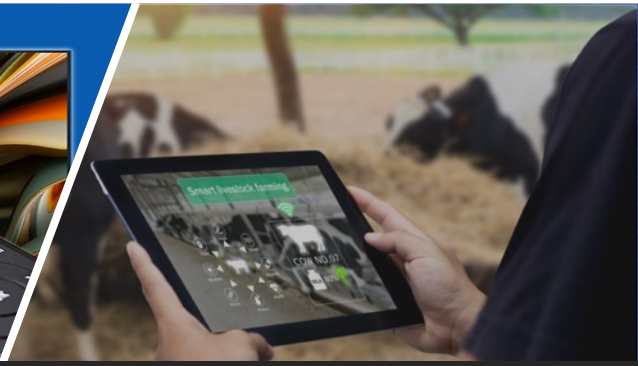
Edge-AI enables a diverse range of new applications

AI AT THE EDGE (POWER)

Compute, memory, AI inferencing capability: More for less power

LOW	MID	HIGH
SUB-MILLIWATT	**MILLIWATTS**	**WATTS**

LOW-COMPUTE, ULTRA-LOW-POWER EDGE AI



Security & Monitoring

SOUND EVENT DETECTION

Breaking Glass • Crying Baby • Firearms
Footsteps • Falling Person

Smart Voice

COMMAND DETECTION

Always-On Voice (AOV) • Wake Word
Hi Google / Alexa / Siri • TV Remote

VOICE ACTIVITY

Calls for Help • Yelling • Screaming

Smart Health

SOUND & SENSING

Stress Indicators • Health Alerts
Safety • Activity Detection • Vital Signs

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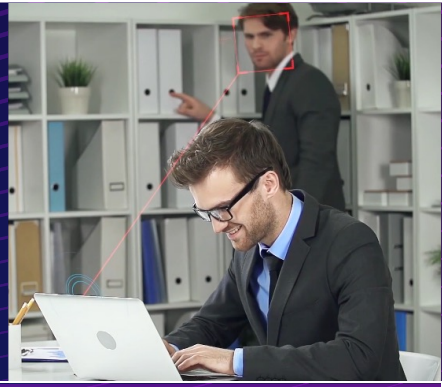
MID COMPUTE, STILL LOW POWER EDGE AI

SMART HOME / BUILDING

Fallen Person Detection ● Minimum Activity Detection

EVERYDAY EXPERIENCES

Auto Screen Lock ● Display Dimming & On/Off Privacy Presence Detection ● Location Tracking



PERSON DETECTION

Tracking ● Counting

INDUSTRY 4.0

Predictive Maintenance ● Safety Equipment Usage ● Productivity Sensing ● Process Optimization Meter Reading

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HIGH COMPUTE: A/C POWERED

SMART MONITOR

Interactive Displays
Home Video Conferencing ● Smart Signage ● Gender ● Age ● Context Awareness

SECURITY CAMERA

Image Quality Enhancement
Low Light Conditions ● Motion Blur Removal ● Rain/Fog Removal ● Resolution Enhancement

Perception
Person, Pet, Vehicle, Activity, Package Detection

VIDEO PROCESSING

Television & Set-top Box
● Super Resolution ● Content Analysis ● Object Detection ● User Personalization ● Secure (DRM Ready)

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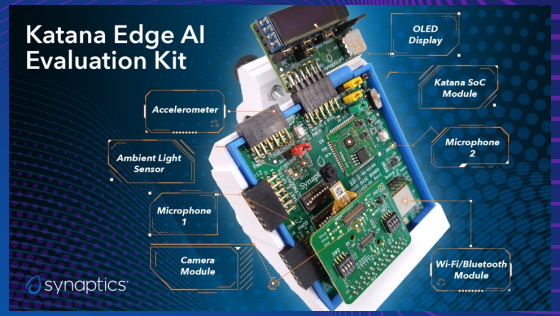
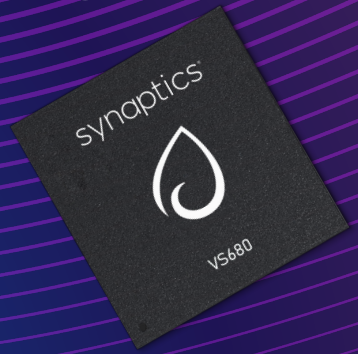
EDGE AI PORTFOLIO SPANNING LOW TO HIGH





LOW

Ultra-Low-Power Edge AI

- Low-Power DSP
- Audio / Voice AI Optimized
- Neural Network Accelerator
- Full AI Toolchain

MID

Low-Power Edge AI

- Multi-Core AI Processor
- Vision / Audio / Voice AI Optimized
- Neural Network Accelerator
- Full AI Toolchain

HIGH

Edge SoC

- SyNAP AI framework (7 TOPS)
- 12MP dual camera ISP
- HDMI in/out (4Kp60)
- Android support

EDGE AI SOLUTIONS UNDERPINNED BY SYNAPTICS WIRELESS CONNECTIVITY

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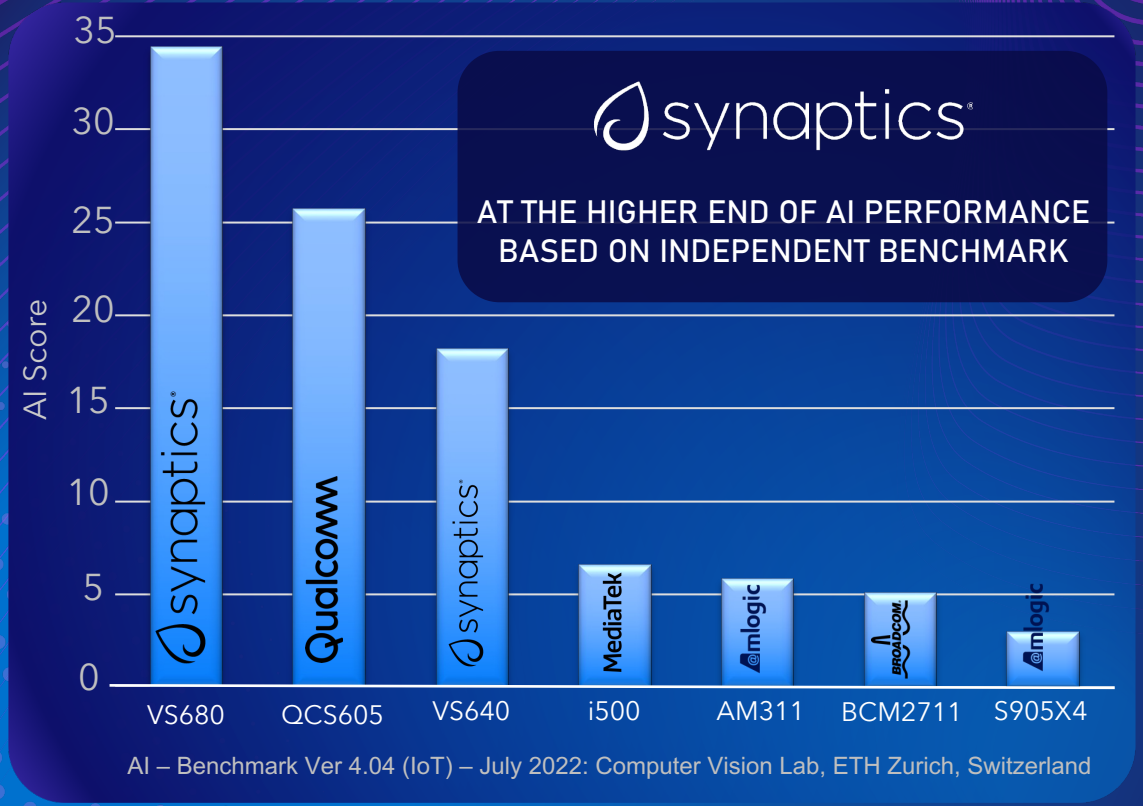
HIGH COMPUTE NOW BEST-IN-CLASS



*Tested: July 2022

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BEST IN CLASS WIRELESS CONNECTIVITY

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Best in Connectivity | Performance | Power

Wi-Fi

World's Best CMOS RF Technology

Multiple Generations of Combo Solutions

Industry Leading Performance

Bluetooth

Proven IP Used By Mobile Industry

HADM (High Accuracy Distance Management)

Best-in-class WLAN/BT Coexistence

GPS

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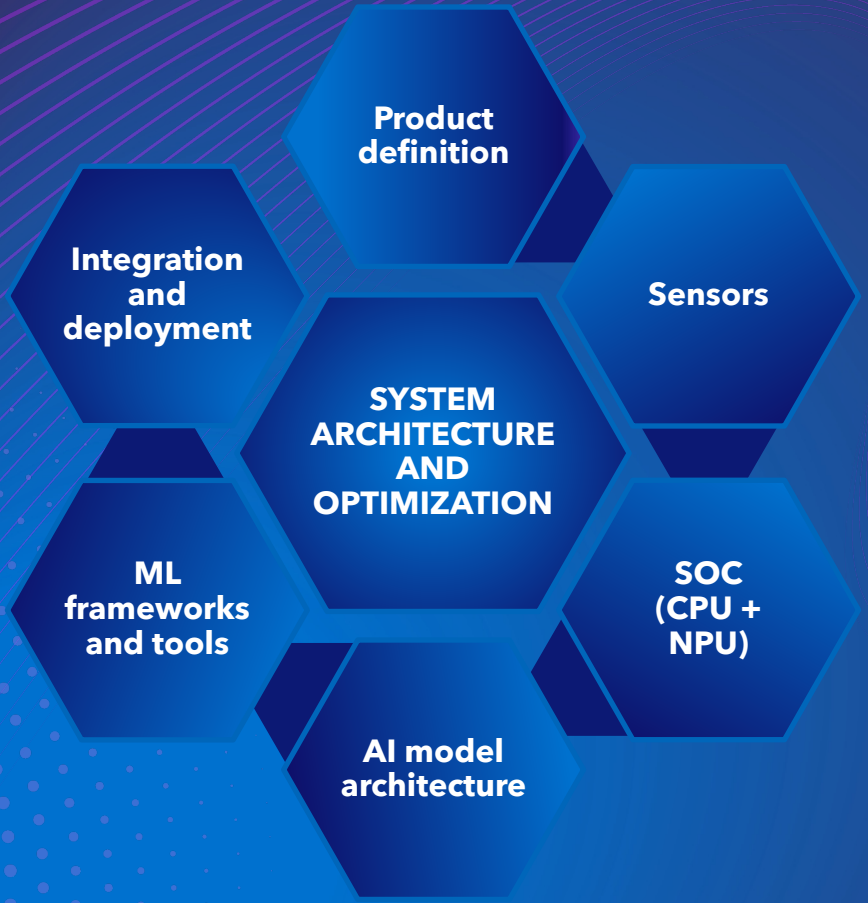
SYNAPTICS IS DEMYSIFYING EDGE AI DEVELOPMENT



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Engaged with a diverse range of ecosystem partners to enable rapid application development and deployment

imagimob

EDGE IMPULSE

PILOT.AI

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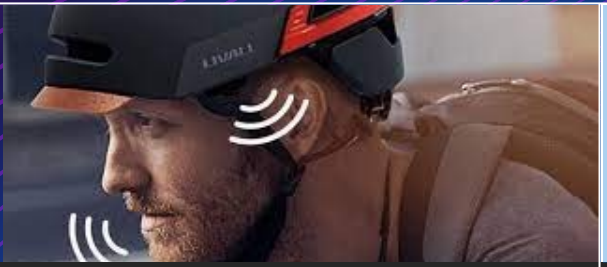
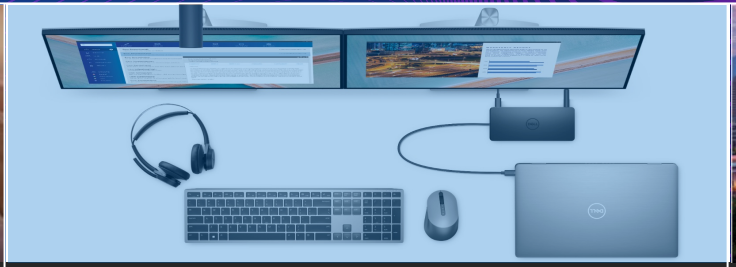
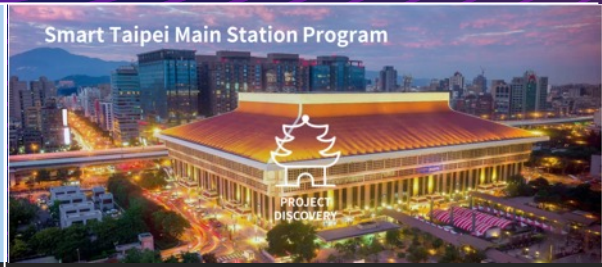
INFUSING AI INTO SYNAPTICS CORE PRODUCTS



SMART VOICE CONTROL
Keyword Detection



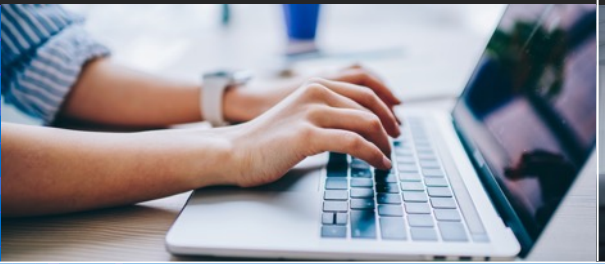
UNIVERSAL DOCKING
Enterprise Productivity & Video Compression



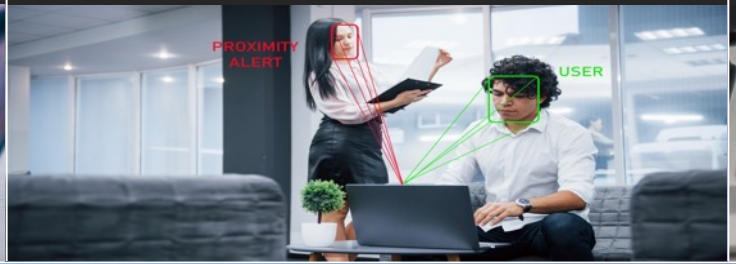
MULTIMEDIA SoCs
Context Aware Advertising

ENGINEERING EXCEPTIONAL EXPERIENCES

TOUCHPADS
Accidental Contact (Palm rejection)



VISUAL SENSING
Human Presence Detection



FINGERPRINT
Matching Algorithm

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SUMMARY

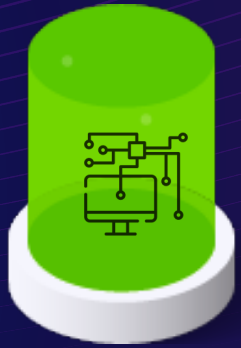
AI WILL BECOME INTEGRAL ACROSS OUR PORTFOLIO

AI Ecosystem Development

Algorithm & Training Expertise

SUCCESS IN AI REQUIRES:

Best-In-Class HW For Power & Performance



Best-In-Class Connectivity

Market Is Nascent & Evolving, Synaptics Is At The Forefront of Innovation in Edge AI

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