Who we are

Background

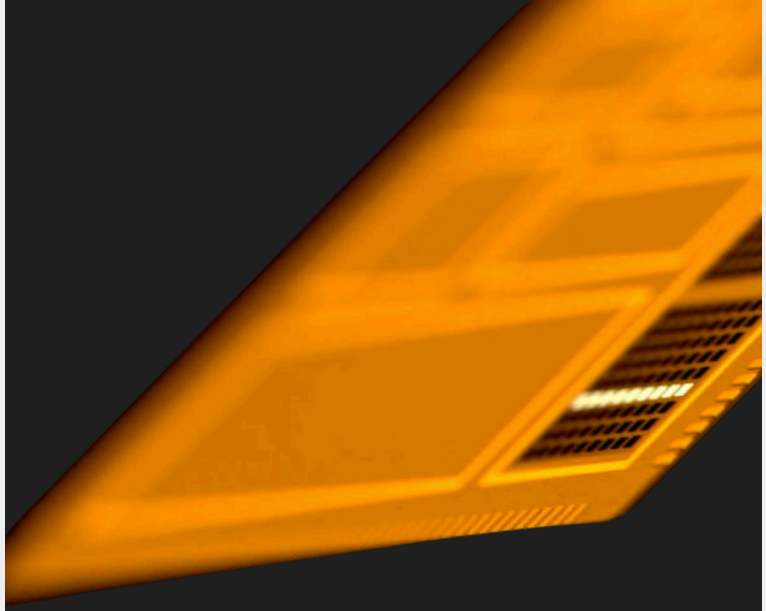
Synthara is a Swiss semiconductor IP company based in Zurich, backed by venture funds such as Vsquared Ventures, OTB Ventures, Onsight Ventures, and HTGF. Our backers also include semiconductor pioneers: Sean Mitchell (Movidius founder, Synthara Chairman), Hermann Hauser (ARM founder), and Joerg Sperling (semiconductor investor). Silicon Catalyst, Intel Ignite, Deeptech Labs, the Swiss National Science Foundation, Innosuisse, SERI, the University of Zurich, and the European Space Agency.

Mission

Synthara's mission is to enable our customers to achieve orders-of-magnitude improvements in energy efficiency and throughput in their processors

Team

Synthara was founded in 2019 by Dr. Manu V Nair (CEO) and Dr. Alessandro Aimar (CTO), based on their work at the Institute of Neuroinformatics (University of Zürich and ETH Zürich). We are now a growing team of over 20 employees. Explore our openings and join our team! Reach us at: **apply@synthara.ai**



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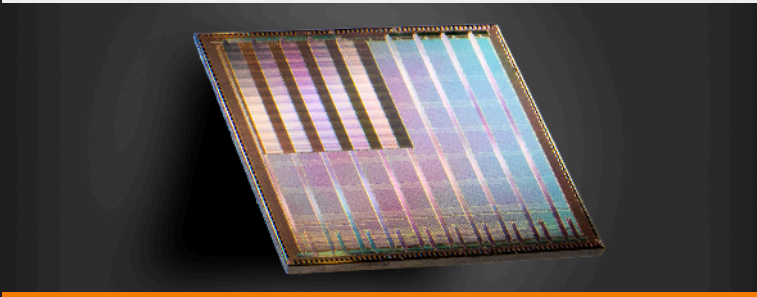
Synthara

Unleashing in-memory computing

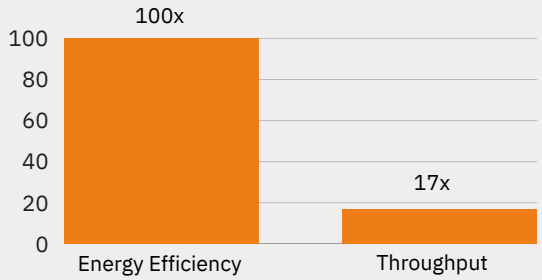


ComputeRAM enables all chipmakers to rapidly and seamlessly transition to an era of **100x** more energy-efficient and faster computing

Benchmarking a ComputeRAM-MCU

On TinyML workloads such as **keyword spotting, visual wake words, anomaly detection and image classification.**

ComputeRAM MCU vs Conventional one



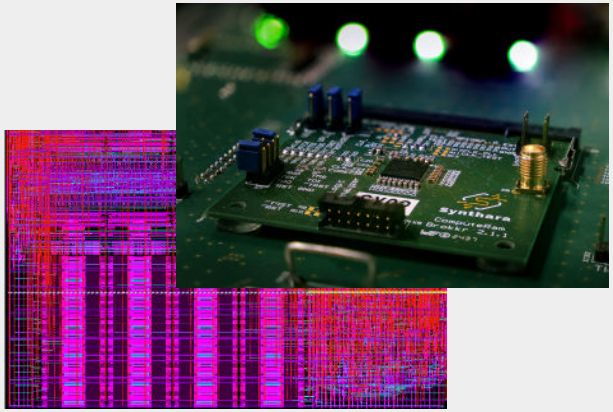
All ComputeRAM benchmarks ran on an MCU with a Cortex-M0, DMA, and multiple ComputeRAM banks. For modeling details, contact contact-us@synthara.ai.

How does ComputeRAM improves performance?

- In-memory computing reduces interconnect activity, lowering energy consumption and increasing throughput.
- ComputeRAM's custom digital datapaths are significantly more efficient than conventional ones, achieving higher compute density.
- Offloading matrix operations to ComputeRAM reduces CPU instruction load by over 200x.

Our flagship product: ComputeRAM

- **Silicon-proven** SRAM IP product macro with digital in-memory computing capability.
- ComputeRAM enables ASICs that **outperform** conventional solutions by more than **10x** (both TOPs/mm2 and TOPs/s/W)



Product highlights

- Key performance metrics
  - Compute efficiency - 20 TOP/s/W
  - Higher compute density than NPUs
- Parametric design that allows tuning of all key properties of the macro
- Bit accurate computation
- Supports INT8 and INT16 data types
- Software development kit for MCUs
  - Cross-platform (ARM, RISC-V, x86)
  - Supports AI and DSP layers

Applications

ComputeRAM has a wide range of applications ranging from bare-metal embedded platforms to high-performance accelerators.
Our customers are often using ComputeRAM for enabling the next generation of **ultra-low power AI-rich products** - wearables, IoT and smart sensing.

Use case value propositions

- Noise cancellation mode battery life increases by 2-3x and becomes comparable to conventional
- Processors that do not require cooling for robotic and drone applications
- Enables massive improvement in compute efficiency and density making processors for smart glasses viable
- Enables MCUs that outperformAI accelerators