

ASYGN Revolutionizes Ultra-Low-Power Embedded AI with Its ColibryNPU Microcontroller

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Summary

- ColibryNPU, a RISC-V microcontroller with a neural accelerator, demonstrates the best energy

efficiency in the MLPerf Tiny v1.4 – Visual Wake Words benchmark, with a record-low consumption of just 22.2 μ J per inference.

- With ColibryNPU, ASYGN delivers an AI processing solution for embedded vision that consumes less than 1 mW.

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With ColibryNPU, we are making embedded AI accessible for applications that were previously impossible to power, such as autonomous sensors or connected devices in constrained environments.”

Daniel Saias, CEO of ASYGN

- At one inference per second, a system integrating ColibryNPU can operate for over 3 years on a single CR2032 coin cell battery (220 mAh).

ASYGN, a French company specializing in high-performance integrated circuit design, today announces the outstanding results of its ColibryNPU microcontroller on the MLPerf Tiny v1.4 benchmark. Published on July 7, 2026, these results position ColibryNPU as the most energy-efficient solution on the market for embedded AI, achieving a record-low energy consumption of 22.2 μ J per

inference on the "Human Detection in an Image" – Visual Wake Word test. This performance enables AI processing in a wide range of sectors, including IoT, wearables, medical devices, and the toy market.

ColibryNPU: A Solution Designed for TinyML and Embedded Vision Applications

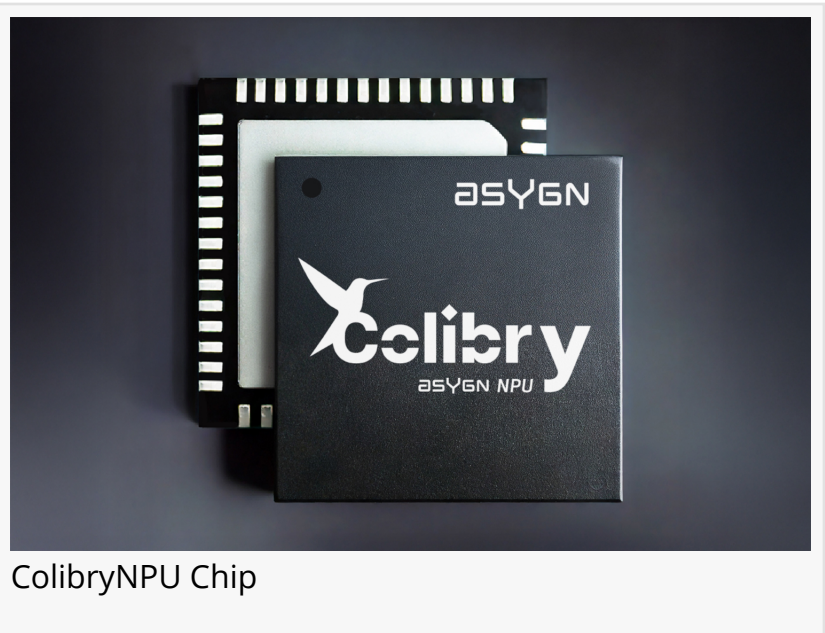
Build for TinyML and ultra-low-power applications, the ColibryNPU enables processing of all types of sensor data (video, audio, environmental signals, etc.) with unmatched energy efficiency. It integrates into ultra-compact, lightweight systems powered by small solar panels or standard batteries. Thanks to its Near-Memory Computing architecture (tightly coupled memory and



ASYGN Logo

compute blocks), this 32-bit RISC-V microcontroller with a neural accelerator offers:

- Real-time video processing under 1 milliwatt, at several frames per second.
- Unprecedented autonomy: A CR2032 button cell battery (220 mAh) could power the system continuously for over 3 years on the Visual Wake Word use case, performing one inference per second.
- High-performance computing: 8 compute blocks perform up to 2 MAC (Multiply-Accumulate) operations per clock cycle, delivering a peak performance of 9.6 GOps/s—more than sufficient for most TinyML applications, where extreme model precision is not required.
- A dedicated video processing interface, featuring an Image Signal Processor (ISP) accelerator.



ColibryNPU Chip

Performance Validated by MLPerf Tiny

The MLPerf Tiny benchmark, the global standard for objectively evaluating embedded AI hardware solutions, confirms ColibryNPU's unrivaled energy efficiency. Unlike other solutions, which require extensive research to compare performance, MLPerf Tiny provides a standardized methodology for measuring latency and energy consumption per inference. The full results of the v1.4 benchmark are available on the official page:

<https://mlcommons.org/benchmarks/inference-tiny/>

Availability

ColibryNPU is now available in an evaluation version. For more information:

<https://asygn.com/contact/?subject=ai>.

About ASYGN

ASYGN is based in Grenoble, also known as the French Silicon Valley, and has specialized in ASIC design for over 18 years. The company designs analog and digital architectures that make electronic systems more efficient, precise, and energy-efficient. Across its four main activities: Inertial, RFID, RF, and AI, ASYGN offers both custom design services and products. Its technologies have been deployed in satellites, automotive systems, and industrial environments, combining aerospace-grade reliability with scalable commercial design.

Thomas Gillot

ASYGN

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