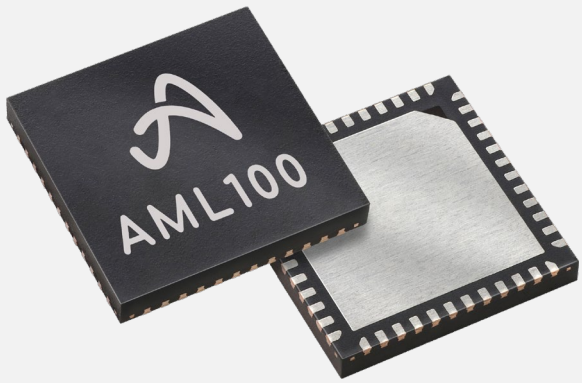
AML100 AnalogML™ Chip Product Brief

AML100 General Description

The AML100 extends battery life by up to 20x over traditional digital always-on systems. As the first product in Aspinity's analog machine learning (analogML™) core family, the AML100 is the only machine learning chip to intelligently reduce the amount of data that moves through the always-on system while the data are still analog. It keeps the higher-power digital components asleep unless important data are detected. By performing machine learning in analog, the AML100 eliminates the digitization, digital processing, and transmission of irrelevant noise, reducing always-on system power by >95% to unlock the potential of thousands of new applications running on battery.

Features

- World's first fully analog machine learning chip
- Processes natively analog data
- Uses near-zero power to inference and to detect events
- Consumes ≤20µA when always-sensing
- Intelligently reduces analog data by 100x
- Supports up to 4 analog sensors
- Easy to integrate into current digital architectures
- 7mm x 7mm 48-pin QFN package



Benefits of Using the AML100

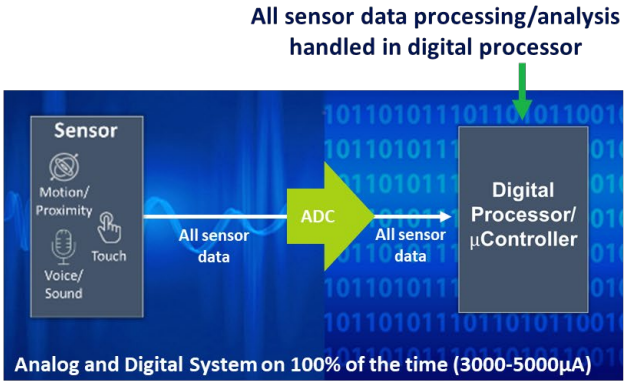
- Reduces always-on system power by >95%
- Extends battery life by 20x
- Enables many new always-on products and applications
- Field-programmable functionality addresses wide range of always-on applications

Target Applications

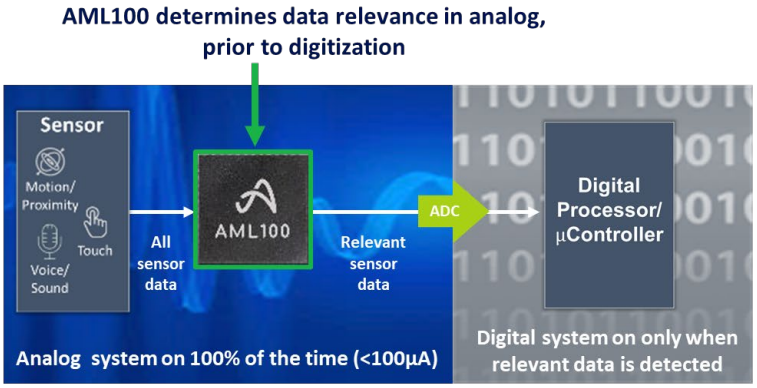
- Intrusion and other surveillance sensors for home and commercial security systems
- Voice-enabled smart home and wearable devices
- Anomaly detection for preventative and predictive maintenance
- Heartrate and other biometric monitoring

Using the AML100

The AML100 is the first chip in the system to analyze data, before the digital core and/or the cloud. The AML100 determines data relevance while the data are still analog and turns the digital core on only when needed, resulting in a 95% reduction in always-on system power. The chip is fully programmable within software and the can be configured for signal conditioning, sensor interfacing, feature extraction, a neural network, and data compression, among other functions, for a complete always-on edge-processing solution that optimizes power and footprint.



Traditional Always-On Architecture



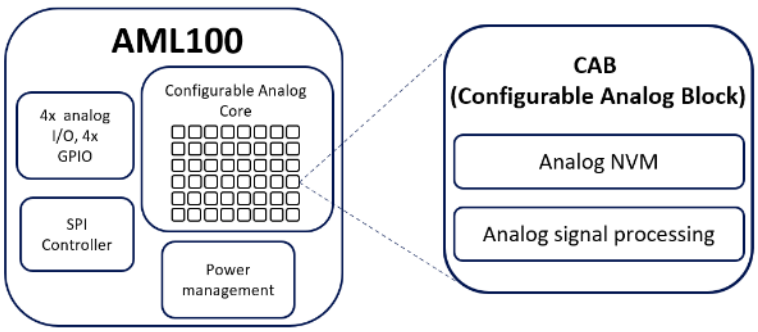
Aspinity AML100 Architecture

AML100 Functional Blocks

The AML100 incorporates an array of configurable analog blocks (CABs) that are programmed via software.

Within each CAB:

- Analog NVM (non-volatile memory) stores parameters (neural network weights, filter bandwidth, etc.)
- An extensive on-chip library of circuit elements can be selected, arranged, and used as needed for specific signal processing tasks (e.g., sensor interfacing, spectral analysis, neural network, etc.)



Contact Us

To start using the AML100 in your next always-on design, please contact sales@aspinity.com or visit www.Aspinity.com