BLUMIND

AI for Everyone, Everywhere

Application Brief

Always on KWD for Wearables

Always-on Key Word Detection for Wearables

Adding trigger key word detection (KWD) to wearable electronics can significantly increase product usability for clients and is a high value-added feature. However, adding KWD in space constrained and power limited products presents a significant engineering challenge. For edge AI, analog compute which draws inspiration from the evolution of brain power, is a compelling solution. Blumind is the leader in all analog edge AI with its AMPL™ technology (see side bar).

Integrated solution

Blumind takes a holistic approach to achieve the highest total system value for clients. We consider the system level power, size, and cost targets to achieve the most efficient solution. For KWD our all-analog approach reduces system power to ~10% that of our nearest competitors, Blumind's <20µW includes the analog microphone and an integrated 2-second audio buffer. Our end-to-end analog approach saves area, power, and cost at the *system level*, allowing clients to differentiate their products.

Ease of Deployment

Blumind offers high integration ASSP devices and Chiplet/IP solutions for System in package and semi-custom integration options. All our products use standard PyTorch or TensorFlow software tool flows with a simple remapping of the results to our all-analog architecture. Contact us to find our more.

Blumind AMPL™ Technology

Blumind's AMPL technology is unique. The Blumind all-analog approach delivers the lowest power solution while the inherently parallel architecture delivers ultra-low latency for real time applications, all in a tiny footprint.

No high-speed clocks, ADCs, DACs, or specialty memory are used. AMPL technology is built in standard advance CMOS with a roadmap to leading edge process nodes.

By exploiting advanced CMOS device physics Blumind create single transistor neurons that are small and power efficient.

The AMPL architecture was built from the ground up to address analog compute challenges of variations in process, temperature, voltage, and long-term drift and our results are impressive.

Standard PyTorch and TensorFlow software tools are used to create the parameters for the powerful AMPL neural network.