

SAMD21 Machine Learning Evaluation Kit With Bosch IMU

Summary

The SAMD21 Machine Learning Evaluation Kit makes it easy to explore embedded machine learning solutions for vibration and motion data. With Microchip's ML partners, solutions for anomaly detection and event classification can be realized. The Machine Learning Plugin in MPLAB® X Integrated Development Environment (IDE) simplifies the data collection process, so that live sensor data can be quickly collected for use in Cartesiam's NanoEdge AI Studio and/or the Edge Impulse Studio.



Step-by-Step Guides

- [Machine learning plug-in](#)
- [Fan anomaly detection with cartesiam](#)
- [Smart dumbbell with edge impulse](#)

Kit Contents

- 1x SAM IoT WG Development Board (EV75S95A)
- 1x MikroE 6DOF IMU 2 Click Board (Bosch BMI160)

SAM IoT WG Development Board

The SAM-IoT WG Development Board features the SAMD21G18 Arm® Cortex®-M0+ based 32-bit Microcontroller (MCU), an ATECC608A CryptoAuthentication™ secure element IC and the fully certified ATWINC1510 Wi-Fi® network controller, so you can quickly and easily connect your embedded application to Google's Cloud IoT core platform. The on-board debugger allows you to program and debug the MCU without any additional hardware. Use the mikroBUS™ socket to expand your design with your choice of MikroElektronika click Boards™. The SAM-IoT WG development board is a small and easily expandable demonstration and development platform for IoT solutions.

MikroE 6DOF IMU 2 Click Board

6DOF IMU 2 click is a mikroBUS add-on board with Bosch's BMI160 low power Inertial Measurement Unit (IMU). The BMI160 is capable of precise acceleration and angular rate (gyroscopic) measurement. The IMU consists of a state-of-the-art 3-axis, low-g accelerometer, and a low-power 3-axis gyroscope, designed for 6-axis and 9-axis applications. The BMI160 also includes built-in Power Management Unit (PMU) for advanced power management and power-saving modes, as well as allocated FIFO buffer of 1024 bytes for handling external sensor data.

6DOF IMU 2 click communicates with the target MCU through the I²C or SPI bus (user-selectable), with additional functionality provided by the INT pin (for enhanced autonomous motion detection). The board is designed to use a 3.3 power supply only.