



MicroAI™ Atom for ESP32

Frequently Asked Questions

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General Questions:

Can I run this SDK on ESP32 boards other than the ESP-WROVER-KIT?

That is possible, but not without additional code development. This SDK has code that accesses I/O and in particular, the SD card that is present on the WROVER board. In order to replace that functionality with another means of storing model data, additional code would need to be written.

Where do I install the SDK files and folders?

The SDK can be installed anywhere on your computer, but it is advised to install it at the same directory level as the ESP-IDF example files (as shown in the SDK document). One of the example folders, “common_components”, is referenced by the SDK, but could also easily be moved to the desired directory along with this SDK.

What is the configuration file “sdkconfig” used for?

This file is specific to the ESP32 environment and contains a number of configuration options used when compiling the code. Additionally, the file “Kconfig.projbuild” adds a few I/O assignments to the general sdkconfig for this system, including the I2C interface. Do not edit these files directly, rather use the “menuconfig” python script to invoke the text-based menu for editing.

Can the configuration files on the SD card be edited while inserted in the board?

At this time, the SD card must be removed from the board (with power off) and inserted into a computer for editing the configuration files.

What forms of network connectivity are provided?

The WROVER kit provides a WiFi interface only, so that is the connection method that is provided.

When I connect by board via USB port on my laptop, there are 2 COM ports recognized. Which one do I use?

The WROVER board provides 2 COM ports and as such, they may both be displayed on the computer’s device manager screen. Typically, the second port listed is the one that is assigned to the terminal interface. Therefore, use that port number when programming and monitoring the output.

Will MicroAI™ be able to detect anomalies that happen over long periods of time?

This will depend on how long the AI model is trained, as well as the frequency of change.

APM-specific Questions:

How do I use sensors other than the ones listed?

If the sensors use the same I2C interface, then you can use the provided routines to read them. Each sensor requires its own unique address, so be sure there are no duplicates. Other digital communication interfaces would require additional code routines.

If you wish to read a different analog sensor, you can replace the existing input with the new signal and modify the filtering routine as needed. Otherwise, additional code would be required to provide the proper interface.

Can I pass different sensor channel data to the AI Engine (other than what is currently assigned)?

Absolutely! This SDK is intended to allow you to easily assign whatever channels you wish to be processed by the AI Engine.

What is the limit of devices or channels that can be processed on a single MicroAI™ deployment?

Currently, the MicroAI™ SDK supports up to 5 channels. Fully licensed versions support an unlimited number (the total depends upon system resources).

Security-specific Questions:

What data is used for determining security?

The data that is monitored for purposes of determining security breaches is proprietary. This is also why there is a Security Library file.

When an alert is generated from one of the 5 security channels, how do I know what failed?

If any of the channels that are processed by the AI Engine fail, this represents an abnormality in the system behaviour. All channels are equally vital in determining normal versus abnormal behaviour.

If I launch an attack simulation right after an attack as just completed, will the AI Engine detect this?

It depends. However, it is probably best to wait 20 minutes before running another attack script so the device behaviour can settle.

What happens if the IoT Security AI model is trained while an attack is occurring or while a backdoor has already been exploited?

It is important that when the MicroAI™ model is being trained, there are no recent or currently exploited vulnerabilities. These will make the predictive analysis inaccurate.