MicroIAS – Micro Infineon Alarm System

Quick Start Guide

About this document

Scope and purpose

The document is the Quick Start Guide for Infineon's Micro IAS. It contains information pertaining to the setup and usage of the MicroIAS.

Intended audience

Customers interested in evaluating the MicroIAS.

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1 MicroIAS

Infineon's MicroIAS is a small form-factor board (Figure 1) designed for the use as sensor fusion based alarm system. It employs a high accuracy pressure sensor (PS), a microphone (MIC) with high SNR and a powerful small form-factor ARM M4F core microcontroller from Quicklogic that processes sensor data from the microphone (listens to glass break) and the pressure sensor (picks up changes in barometric pressure after a glass break happens) and runs sensor fusion algorithms to trigger an alarm.

The MicroIAS board allows a software developer access to all essential interfaces such as UART, SWD (CON1 connector for development and debug), power supply, a manual reset (SW1) and it provides visual aids (LED1 and LED2) for the user to identify power applied (LED1 = green) and alarm triggered (LED2 = red; blinks once for intruder an twice for glass break).

An external power supply with a 3.6V to 6V range must be applied between GND and VCC on CON2 via a small 2-pin micro-cable (included) to produce the board's needed power supply (Figure 2). LED1 (green), will be lit when the board has received the needed supply. The voltage is routed through a small LDO to generate the 1.8V needed to power sensors (MIC and PS) as well as SPI Flash and MCU.

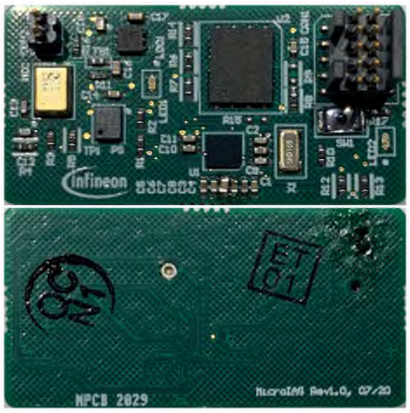

Figure 1 MicroIAS form-factor board – top/bottom view

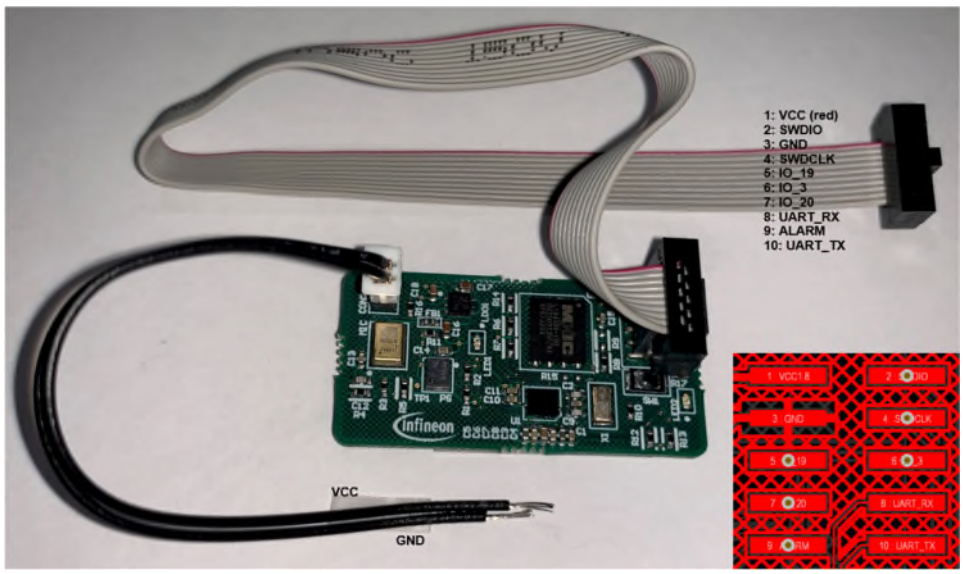

Figure 2 MicroIAS form-factor board connections

2 Start up procedure

2.1 Connecting the MicroIAS

The purpose of the MicroIAS is that of a reference design that can be quickly built into an end application for initial evaluation purposes. This board has a minimal number of test points and connections allowing the user to wire this board directly into the end application for test purposes.

The board comes pre-loaded with a bootloader tailored to using the board for glass-break and intruder functionality.

The board also has been outfitted with all the needed connections (Figure 2) to power and re-program/debug the board as well as adjust sensitivity settings, if so desired. Refer to the more comprehensive *MicroIAS User Guide* for more details on how to re-program, debug and adjust sensitivity settings.

To evaluate the board as is, no connections to CON1 need to be made (the included 10-pin ribbon cable is meant for re-programming and/or debugging with a e.g. J-LINK debugger), follow these few simple steps to setup your form-factor MicroIAS board:

- Connect an external 5V power supply to CON2 via the matching wire pair with receptacle (included in the MicroIAS package). A battery pack, lab power supply or power bank producing a clean 5V output voltage will suffice.

- Onced powered up, LED1 (green), located between the pressure sensor and the LDO should be lit, and indicating that power to the system has been applied. The on-board LDO converts 5V to the required 1.8V for sensors, MCU and flash memory.

- After powering up the MicroIAS, a board reset must be issued. To accomplish that, press SW1 (located below the 2x5 Hirose connector CON1) once. It is recommended to use a pointed object for pressing the small form-factor toggle switch. The red LED to the right of SW1 will light up once within 5s to 6s of releasing the toggle switch SW1.

- By default, the MicroIAS code is set to recognize both glass break (simulated sound via e.g. Vitron and real) and intruder events.

    - Intruder – Pressure change in the room will produce ***one slow blink*** of the red LED (LED2) located right below the 2x5 header (CON1).
    - Glassbreak – Glass break sound + instantaneous pressure change in the room will produce ***2 rapid blinks*** of LED2

Revision history

Document version	Date of release	Description of changes
0.1	08/14/2019	Initial Release
1.0	08/21/2019	Updated figures to reflect proper wire connections on the MicroIAS board
1.1	10/03/2019	Updated connectivity text section to ensure IO19 and IO20 are shunted correctly for proper functionality
1.2	2/27/2020	Updated pin labeling in Figure 2
1.3	3/2/2020	Added reset procedure after power-up in Section 2
1.4	9/15/2020	Restructuring of figures to reflect latest updates of layout and connectivity; updates to start-up procedure section in this document