

uIO-Stick v2

User guide

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About this document

Scope and purpose

This user guide intends to help getting started with the uIO-Stick v2. The uIO-Stick v2 acts as an interface stick between the PC and EvalBoards of the MOTIX™ MCU devices.

This user guide provides additional information about the layout, interfaces and the pinout of the uIO-Stick v2.

Intended audience

This document is for everyone who works with the uIO-Stick v2.

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Safety precautions

Safety precautions

Note: Please note the following warnings regarding the hazards associated with development systems.

Table 1 Safety precautions

	<p>Caution: The heat sink and device surfaces of the evaluation or reference board may become hot during testing. Hence, necessary precautions are required while handling the board. Failure to comply may cause injury.</p>
	<p>Caution: Only personnel familiar with the drive, power electronics and associated machinery should plan, install, commission and subsequently service the system. Failure to comply may result in personal injury and/or equipment damage.</p>
	<p>Caution: The evaluation or reference board contains parts and assemblies sensitive to electrostatic discharge (ESD). Electrostatic control precautions are required when installing, testing, servicing or repairing the assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with electrostatic control procedures, refer to the applicable ESD protection handbooks and guidelines.</p>
	<p>Caution: A drive that is incorrectly applied or installed can lead to component damage or reduction in product lifetime. Wiring or application errors such as under-sizing the motor, supplying an incorrect or inadequate DC supply, or excessive ambient temperatures may result in system malfunction.</p>
	<p>Caution: The evaluation or reference board is shipped with packing materials that need to be removed prior to installation. Failure to remove all packing materials that are unnecessary for system installation may result in overheating or abnormal operating conditions.</p>

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1 Overview

1.1 Description

The uIO-Stick v2 is an interface device for controlling EvalBoards of the MOTIX™ MCU devices during run time through PC.

It offers a USB connection to the PC, and several different functionalities, for example SPI, CAN, and GPIOs.

The uIO-Stick v2 registers as an HID on the PC, so no driver installation is needed.



Figure 1 **uIO-Stick v2**

1.2 Block diagram

The uIO-Stick v2 contains an XMC4200 microcontroller which provides the necessary hardware interface and handles the protocols. LIN and CAN are implemented as true physical layers (using transceivers), while the digital lines (SPI, GPIOs) provide a 3.3 V or 5 V digital level (configurable by SW). In addition, a boost converter is implemented to generate a 12 V supply for the target device and the integrated LIN transceiver.

1 Overview

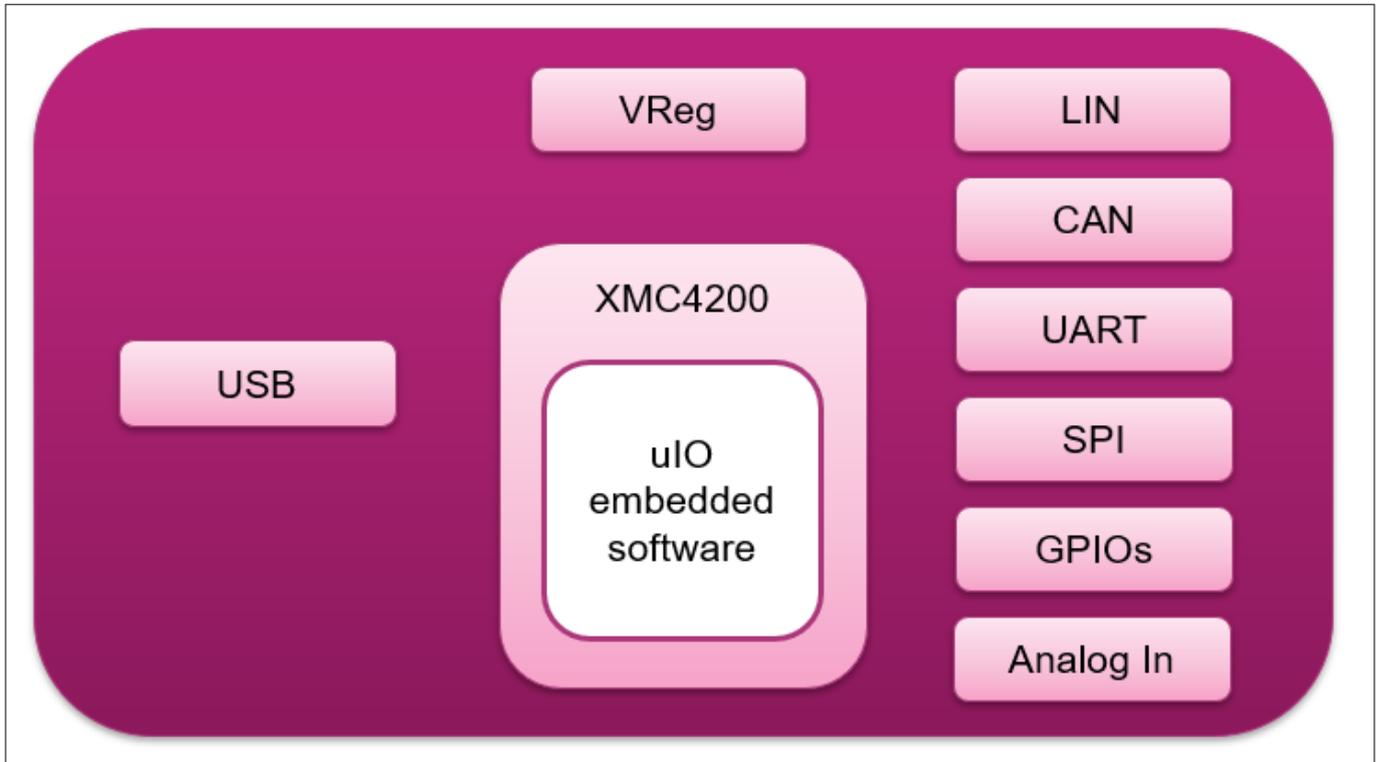


Figure 2 uIO-Stick v2 block diagram

2 Hardware connection

2 Hardware connection

The uIO-Stick v2 can be connected to the user PC via USB. For this purpose, it has a micro-USB socket. A micro-USB cable is not included in the packaging.

For connection to an embedded device, the uIO-Stick offers several different interfaces available on a 16-pin header. The connector cable, included in the packaging, fits to the 16-pin connector on the EvalBoards of the MOTIX™ MCU devices. The following figure and table describe the pinout of the 16-pin connector.

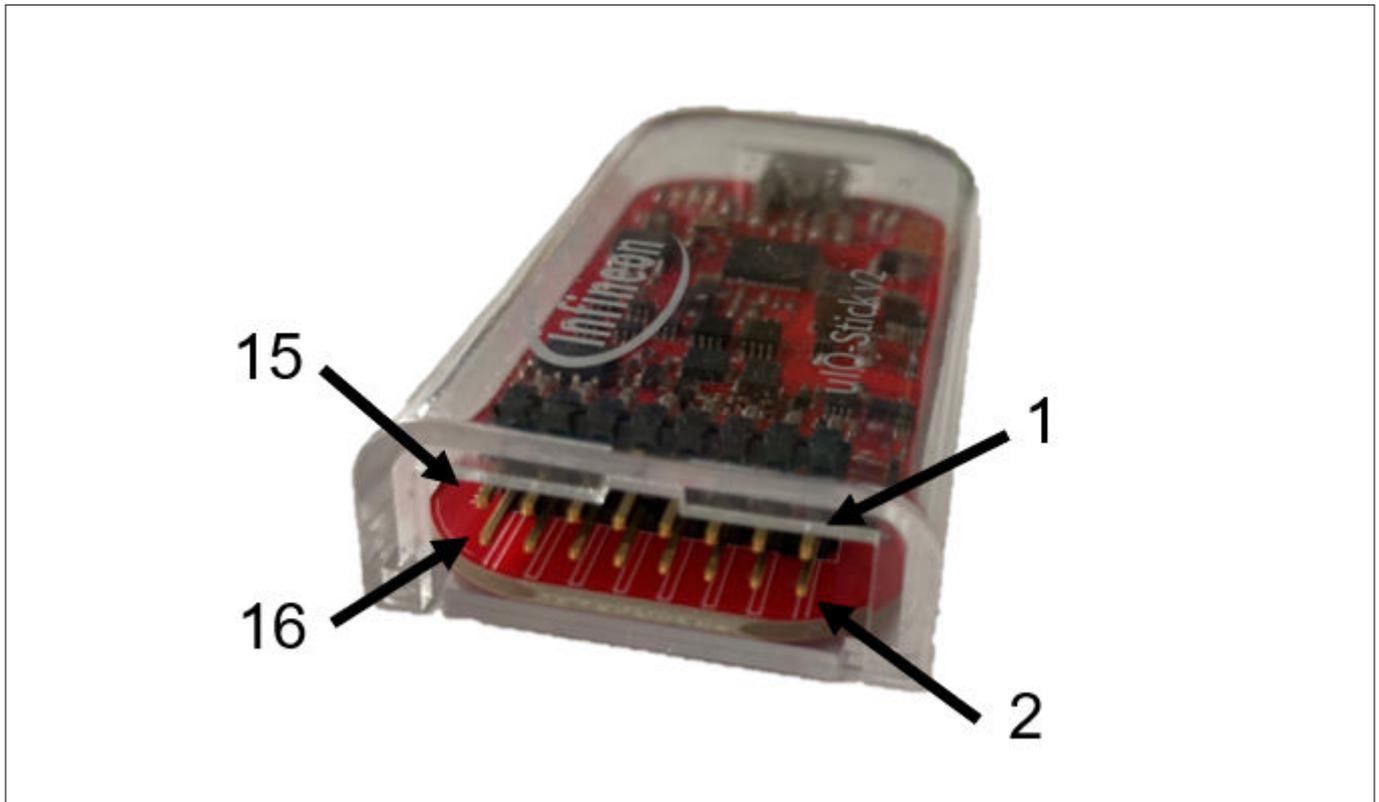


Figure 3 uIO-Stick v2 pinout - image

Table 2 Pinout of uIO-Stick v2

Pin 15: SPI MOSI	Pin 13: SPI MISO	Pin 11: SPI CLK	Pin 9: SPI CS	Pin 7: Reset	Pin 5: LIN	Pin 3: CANL, RXD	Pin 1: CANH, TXD
Pin 16: Analog In	Pin 14: GPIO0	Pin 12: GPIO1	Pin 10: GPIO2	Pin 8: GPIO3	Pin 6: VS	Pin 4: 5V	Pin 2: GND

Additional remarks:

- Pin 2 - GND: the common ground connection to the target system
- Pin 5 - LIN: can be directly connected to a LIN network; is the LIN bus connection to the LIN transceiver implemented in the uIO-Stick v2
- Pin 6 - VS: can either be driven from the implemented boost converter on the uIO-Stick v2 (+12 V) or can be overridden by an external supply, for example the supply of the target device. This pin is also used to internally drive the LIN transceiver available on the uIO-Stick v2
- Pin 7 - Target Reset: intended to drive the reset input of the target device

3 Comparison of uIO-Stick and uIO-Stick v2

3 Comparison of uIO-Stick and uIO-Stick v2

The following table gives a comparison between uIO-Stick and uIO-Stick v2.

Table 3

Feature	uIO-Stick	uIO-Stick v2
Connection to PC	USB-A plug	Micro-USB socket
Connection to target device	16-pin socket	16-pin socket
Interface UART	Not available	Available
Interface RS232	Available	Not available
Interface CAN	Not available	Available
Interface LIN	Available	Available
Interface Reset line	Available	Available
Interface SPI	Available	Available
Interface GND	Available	Available
Interface 5 V	Available	Available
Interface 12 V	Available	Available
Interface 4 GPIOs	Available	Available
Interface Analog Input	Available	Available
Logical level 3.3 V and 5 V (SW selectable)	Available	Available

4 Software

For detailed information about software supported by uIO-Stick v2, please visit www.infineon.com/uio-v2.

5 Acronyms

The following acronyms and terms are used within this document.

Table 4 Acronyms

Acronyms	Name
CAN	Controller area network
CANH	Controller area network high
CANL	Controller area network low
CLK	Clock
CS	Chip select
GND	Ground
GPIO	General-purpose input/output
HID	Human interface device
LIN	Local interconnect network
MISO	Master in, slave out
MOSI	Master out, slave in
RXD	Receive data
SPI	Serial peripheral interface
SW	Software
TXD	Transmit data
USB	Universal serial bus
UART	Universal asynchronous receiver-transmitter
VS	Supply voltage

Revision history

Document version	Date of release	Description of changes
Rev. 1.00	2023-05-30	Initial document release

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