

solutions to simplify.

# SmartWave Control

Graz, November 2023

## Instant connection for testing and emulation

Instantly communicate with multitude of devices like ADC, DAC, Sensors...

Operate standard interfaces such as SPI or I2C and flexible GPIOs.

Use the adaptable and powerful configuration possibilities via WebGUI.

Emulate sensors and actuators for validation and testing using SmartWave API.

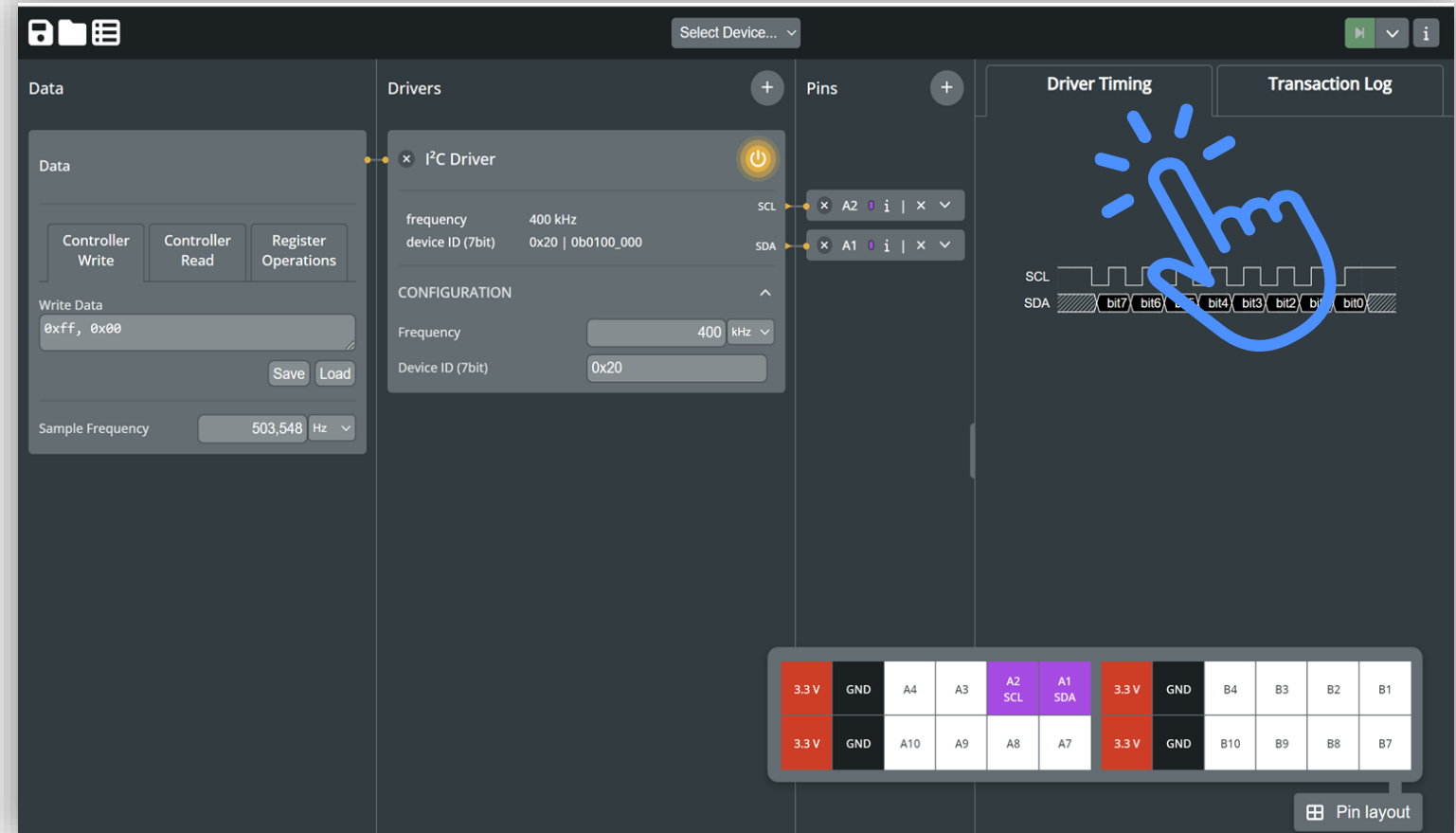


Just one click away ...

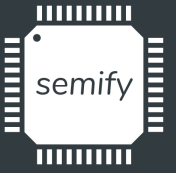
Use SmartWave without any software installation

Intuitive and powerful User Interface

Supports easy collaboration within teams



# Main Features



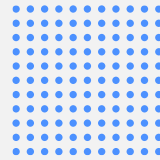
## Standard interfaces

Out of the box support of widely used, industry-standard interfaces like SPI and I2C.



## Configurable IO Voltage

Selectable IO voltage for the Pmod™ connector between 1.8 or 5.0 Volts.



## GPIO

Flexible GPIOs provide dynamic interfacing capabilities across a wide range of devices



## Pmod™ compatible

Directly connect DIGILENT Pmod™ based extension boards.



## Everything in view

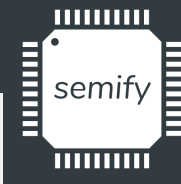
Display showing pin assignments and status information for improved usability and user experience.



## Trigger Button

User configurable trigger button for better usability at the place where it is needed.

# Spec Parameters



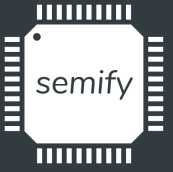
USB Interface	Micro USB
Display	
Trigger Button	
Pmod™ compatible connectors	2
Digital IO channels – GPIOs	16
Drivers SPI, I2C	Two for each interface

Max Interface speed	40MHz
Output Voltage	1.8 - 5.0V
Waveform samples	1 MSamples
Dimensions (WxHxD)	86x67x32mm

Full datasheet can be found  
<https://www.semify-eda.com/smartwave-datasheet>



# Control SmartWave from Code



## Unlock your test & debugging possibilities with SmartWave API

### Accelerate Your Work

Automate repetitive tasks by writing your own custom scripts.

### Automate testing

Validation Test. Manufacturing Test. Integrate the unique capabilities of SmartWave into your automated testing environment.

```
1 """  
2 Test script to check I2C communication setup  
3 """  
4 import sys  
5 import os  
6 import logging  
7 import time  
8 from datetime import datetime  
9 from typing import Union, Optional  
10 import numpy as np  
11  
12 # TODO: Change SmartWaveAPI import when the GPIO config has been added to the python package  
13 from src.SmartWaveAPI import SmartWave  
14 from src.SmartWaveAPI.definitions import PinOutputType  
15  
16  
17 def gpio_high_low(gpio_a, gpio_b) -> None:  
18     """  
19     Test if SDA and SCL can be pulled-down or up.  
20  
21     :param gpio_a: SmartWave GPIO_A object  
22     :param gpio_b: SmartWave GPIO_B object  
23     :return: None  
24     """
```

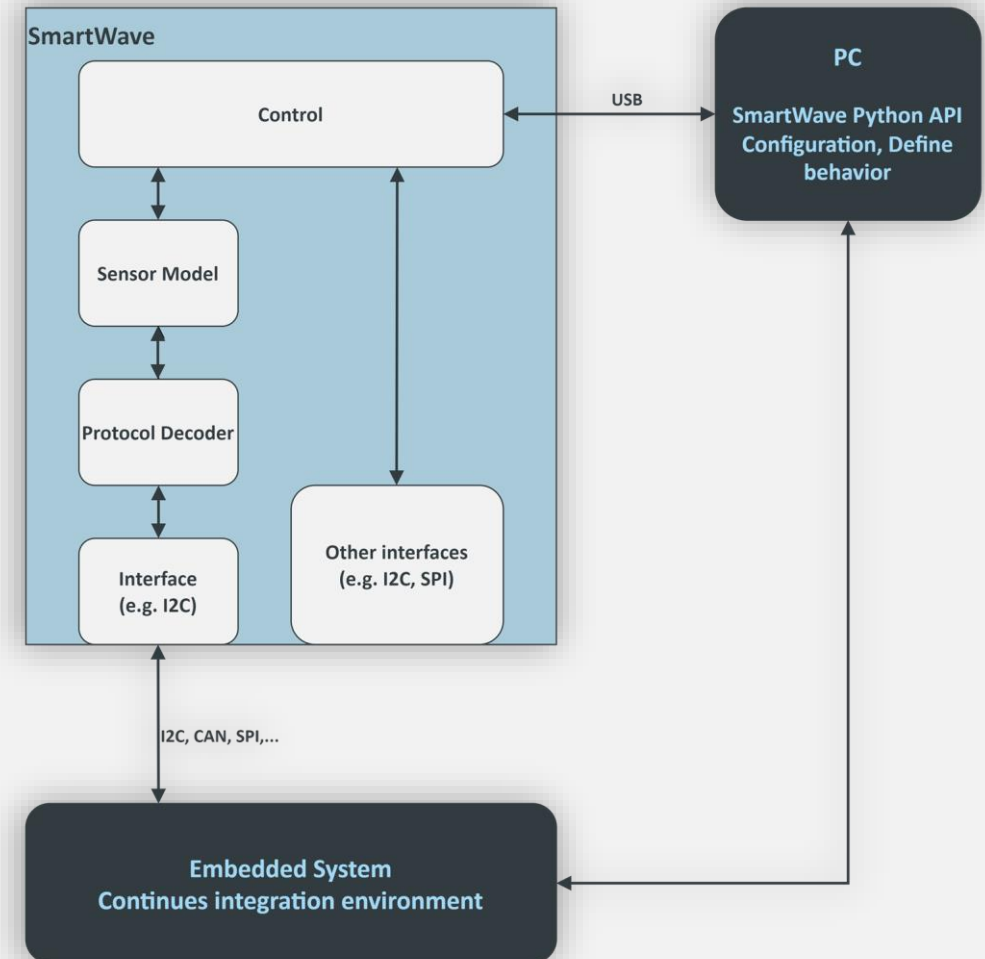
## Use SmartWave API and configurable sensor emulation module

### Emulate all types of sensors

Precise and adaptable sensor emulation controlled through the robust SmartWave API. Supported by internal protocol decoder.

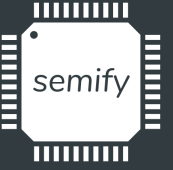
### Automate embedded testing

Enabling developers to create, test, and refine embedded systems with unparalleled accuracy and efficiency.





# Customization Capabilities



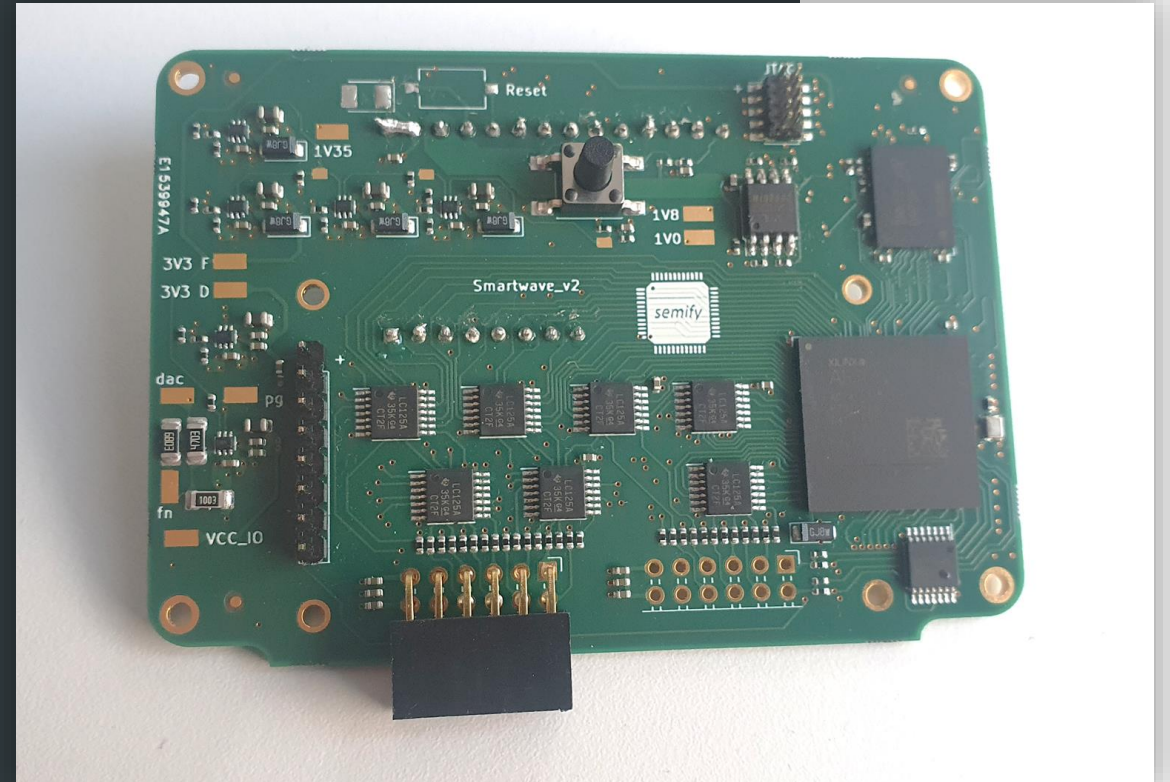
## Customization Capabilities

### Advanced FPGA Platform

Enables fast customization ensuring unparalleled performance and adaptability

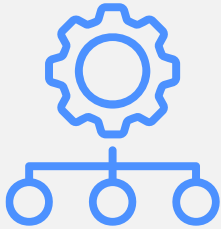
### Ready for new Features

WebGUI-Software enabled to receive adapted functionality without installation





## Not limited to online access



### Web-based

Providing simplest access and fastest availability of new functionality.



### Local-Server-based

Ensuring faster access and enhanced security.

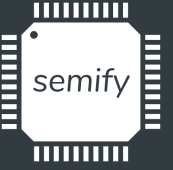


### Local-Machine-based

Ensuring independent access without the need of a network connection

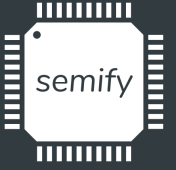
See the Product Video

[https://youtu.be/zTY3Z\\_TezyA](https://youtu.be/zTY3Z_TezyA)



## Increase the Interface - Portfolio

- I2S (Audio interface)
- CAN (Controller Area Network)
- Modbus
- SMBus (includes PMBus and Smart Battery)



## What other customers already asked...

### **Is there a software API available?**

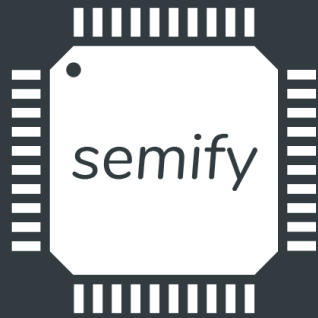
→ A software API is released. It is implemented in Python and can be installed via “pip install SmartWaveAPI”

### **Is there an external trigger input available?**

→ It is planned to implement an external trigger input

### **How long does the customization for a new interface take?**

→ There is no general valid answer possible but due the layered and modular architecture it is easy to implement new or modify existing interfaces



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## Contact Information

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