SWS61111

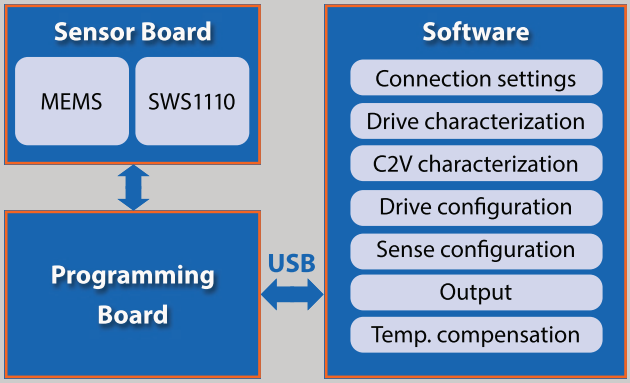
MEMS Inertial Sensor Devolpment Platform

The SWS61111 is a generic development platform for capacitive MEMS accelerometers and gyroscopes. With its hardware boards and its software suite, it provides an easy to use platform to characterize a MEMS inertial sensing device using high performance electronics.

The SWS61111 is based on the SWS1110, a high performance, configurable inertial sensor interface ASIC that contains all the infrastructure necessary to produce a fully integrated sensor solution. The SWS61111 significantly reduces sensor development time and allows for prototypes in the shortest amount of time.

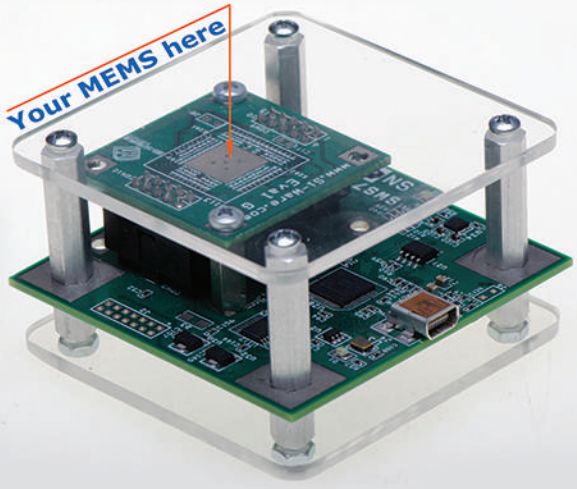
Key Features

- Interfacing 1-axis gyroscope or accelerometer
- High performance capacitive sensing front-end
- Programmability to cover broad range of sensing element designs
- High resolution ADC for capacitance digitization
- Gyro drive actuation loop with programmable Automatic Level Control (ALC) and tunable frequency range
- High voltage actuation option
- Digital output
- 3 point quadratic temperature compensation
- Integrated tunable bandwidth output filter
- USB powered and operated
- Flexible connectivity between ASIC and sensing element



Benefits

- Early characterization of MEMS inertial sensors
- Evaluation of the SWS1110 high performance interface ASIC
- Early prototype/proof of concept



Platform Specifications

Parameter	Condition	Min	Typ	Max	Units
Front End					
Supported Nominal Capacitance		0.25		15	pF
Differential Capacitance Range	Low-voltage operation High-voltage operation			1.5 0.85	pF pF
Input Noise	At max gain setting assuming parasitic capacitance = 50 pF		50		zF/ Hz
ADC Dynamic Range	in 100 BW		100		dB
Actuation Voltage		4		8	V
Supported Drive Frequency		1.9		30	KHz
Output Bandwidth		4		420	HZ
ASIC Output Resolution	Two's complement format		24		Bit

Interested In Volume Production?

The SWS61111 is based on the SWS1110 high performance configurable interface ASIC that can readily be used with a broad range of MEMS devices. Please contact SWS for more information.

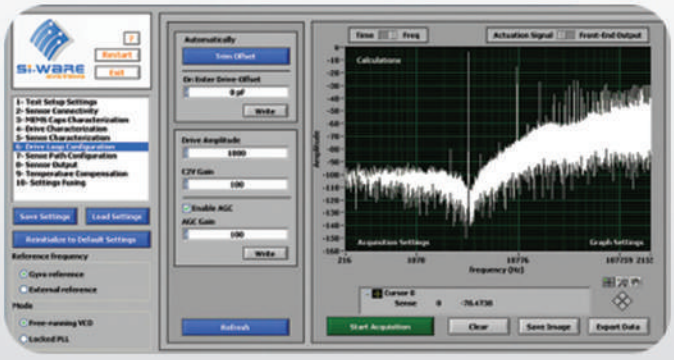
Key Features Frequently Asked Questions

How do I interface my MEMS device with the SWS61111?
SWS provides flexible solutions for the interfacing of carious MEMS devise to the SWS61111. The daughter board can be customized to fit a specific MEMS device/package. SWS works with its customers to design and fabricate a custom daughter board that best fits to a particular MEMS device.

What is the effect of parasitics?
The MEMS device and the ASIC have been placed on the same board, with no sockets, in order to reduce effect of parasitics. In addition, the ASIC includes SWS' proprietary technology to largely mitigate harmful coupling effects. While enhanced performance can be achieved with integration of both dies in the same package, SWS has successfully demonstrated high performance using a two-chip solution.

Does the SWS61111 support closed-loop operation?
No, but the SWS1110 ASIC does. Contact SWS if closed-loop operation is required.

What if my sensing element is not compatible with the SWS61111?
The SWS1110 ASIC on the platform has more functionality and capability than supported by the SWS61111 software. Please contact SWS to discuss your requirements.



Software

The easy-to-use GUI will help you explore different ASIC capabilities, including:

- Capacitive sensing front-end trimming
- Drive loop trimming
- Sense path trimming
- Demodulation phase trimming
- Output filter trimming
- Temperature compensation/calibration
- ROM fusing

For more information about this product or about our sales and business models please contact us:

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