



Atmel Sensor Hub Solutions

The Complete Sensor Ecosystem



The Complete Sensor Hub Ecosystem

In today's connected world, sensors are all around us, and engineers continue to design them into an increasing number of everyday products. Requirements, too, have changed, from simple monitoring to comprehensive interpretations of a device's status. This can require simultaneous analysis and fusion of data from different sensors and sensor types, such as accelerometers, gyroscopes and magnetometers, as well as environment sensors like light level, color, temperature, pressure, humidity, etc. To simplify the task, Atmel® has partnered with leading sensor manufacturers and sensor fusion specialists to provide a complete, easy-to-implement Sensor Hub ecosystem. These data can be used to provide the desired contextual awareness with minimal power consumption and maximum battery life, and are often required in a broad range of products such as smartphones, tablets, ultrabooks, IoT (Internet of Things) enabled devices, gaming, healthcare, and wearable computing.

The Atmel Sensor Hub solution leverages our microcontroller expertise with ultra low power technology, along with capacitive touch-enabled devices, and wireless capabilities. Combined with our industry-leading Atmel Studio development platform, Atmel Software Framework, and Xplained Pro development platform, the Sensor Hub solution provides the technology platform to enable a better user experience and differentiates your product.

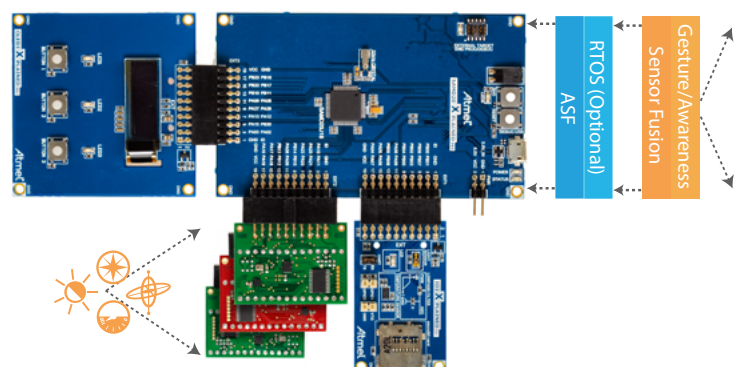
Key Features

- **Complete Development Eco System** – Atmel and its partners provide an environment that delivers a rich selection of hardware, drivers, and example projects that will significantly speed up development. This allows you to focus on your differentiating features, and get your product to market quickly.
- **Ultra-Low Power** — Reduces power by up to 50% when compared to competitive solutions.
- **Product Differentiation** — Differentiating technologies such as capacitive touch and wireless enables your end product to stand out from the competition.

Hardware and Software Support

- The Atmel Xplained Pro boards and our partners' sensor extension boards provide you with everything you need to start designing in minutes.
- **Atmel Studio 6** — the integrated development environment (IDE) for developing and debugging Atmel ARM® Cortex®-M processor-based as well as Atmel AVR® microcontroller applications.
- **Atmel Software Framework (ASF)** — an MCU software library providing a large collection of embedded software for Atmel flash MCUs: megaAVR®, AVR XMEGA®, AVR UC3 and SAM devices.
- **Atmel Gallery** — an online apps store for development tools and embedded software.

Development Environment



Sensor Partners

Atmel has partnered with market-leading sensor manufacturers and sensor software providers to offer complete system solutions running on the Atmel platform. These partners offer innovative solutions and services on the Atmel platform that will reduce your time-to-market and enhance your user's experience.

	World's leading E-compass (Magnetometer) supplier, human presence detection sensor, Synthetic Gyroscope.
	Accelerometer, Gyroscope, Magnetometer (Compass), Barometric Pressure (Altimeter), Motion Sensor Fusion
	CyWee sensor hub solution includes advanced 9/10-axis sensor fusion, gesture recognition, context awareness, and in-door navigation applications.
	Freespace® Sensor Hub solution includes high performance low power sensor fusion, gesture recognition, and a range of 'always on' functions for context aware applications.
	RGB Light Sensors, Ambient Light Sensors, Proximity Sensors, Integrated Proximity and Light sensor
	Accelerometer, Synthetic Gyroscope, Sensor Fusion.
	Six and nine axis sensor solutions including Accelerometer, Magnetometer, Sensor Fusion, eCompass, Inclinator. Sensor reference systems, IMUs, and Flow Sensors
	Environmental Sensing: Humidity & Temperature, Liquid Flow, Mass Flow Meters, Mass Flow Controllers, Differential Pressure
	The SPI FreeMotion™ Library features Context Awareness including how the mobile device is being carried and the posture of the user (sitting, standing, walking, etc.), Sensor Fusion, Virtual Gyro (6-axis), and Pedestrian Dead Reckoning for low-power embedded and wearable applications incorporating accelerometer, gyroscope, magnetometer, barometer and other sensors.

Sensor Hub Devices

Device Family	Key Parameters	Summary Benefit	Applications	Technologies
SAMD20	ARM Cortex M0+ 16-256KB Flash 48-64 pins Down to 70µA/MHz Peripheral Touch Controller	Low Power Flexibility Ease-of-Use Broad product portfolio	Mobile Tablets Ultrabooks IoT Gaming Healthcare Wearables	picoPower® Event system SleepWalking SerCom Self programming
SAM G51 SAM G53	ARM Cortex M4+ FPU 256-512KB Flash 3mm x 3mm WLCSP DMA Down to 100µA/MHz			

For more information: www.atmel.com/SensorHub



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