

# FSP201

## 6-AXIS SENSOR HUB

Our FSP201 provides superior planar heading and 6-axis IMU performance ideal for high-volume, cost-conscious consumer robots, XR, 3D audio, and other motion-based devices. The FSP201 is an application-specific standard product (ASSP) integrating Hillcrest's high-performance sensor hub software into a low-power 32-bit ARM Cortex M23 MCU.

In robots, our Interactive Calibration software helps the FSP201 achieve consistently superior performance, even with low-cost sensors. With Stabilized Game Rotation Vector, digital experiences are smooth and life-like. This two chip solution lets manufacturers choose between various sensor suppliers, making them resilient to supply chain disruption.

By addressing common sensor anomalies with advanced algorithms that are continually perfected through rigorous testing, our motion sensors deliver more accurate dynamic heading than the competition. This small, adaptive component benefits developers and integrators with reduction in development time, reduced BOM cost, and the highest precision and quality. We've built a deep, flexible sensor platform so you can focus on innovating in other product areas. Leave the sensor fusion to the experts.

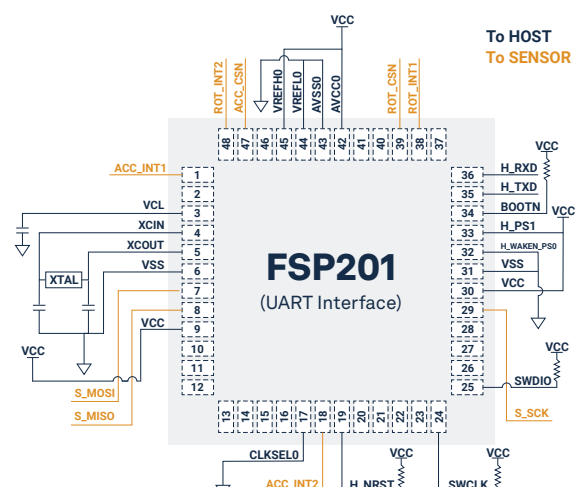


## FEATURE HIGHLIGHTS

- ✓ **MotionEngine 6-Axis Sensor Fusion** – Provides raw, calibrated and fused sensor orientation data with best-in-class heading accuracy and stability
- ✓ **Choose Your Sensor** – Low-cost MEMS sensors from top sensor vendors are supported
- ✓ **Improved Performance** – Working with our specialized Interactive Calibration software, top performance is achieved even with low-cost sensors
- ✓ **Stabilized Game Rotation Vector** – Corrects orientation drift slowly and imperceptibly to the user to maintain immersion
- ✓ **Dynamic Calibration** – Our algorithms constantly monitor changes in sensor performance and temperature during live operation to deliver the highest performance
- ✓ **Intelligent Power Management** – Manages sensor states to conserve power without sacrificing quality of motion data
- ✓ **Auto-Centering** – Dynamically recenters the soundstage in 3D audio applications to eliminate drift
- ✓ **Flexible Integration** – I2C and simplified UART communication is available

## KEY PRODUCT ATTRIBUTES

<b>SAMPLING RATE (FUUSED OUTPUTS)</b>	Up to 400 Hz
<b>MAX RATE ANGLE</b>	$\pm 2000^\circ/\text{sec}$
<b>PACKAGE</b>	LQFP(48)
<b>DIMENSIONS</b>	7.0 x 7.0mm





# FSP201

## 6-AXIS SENSOR HUB

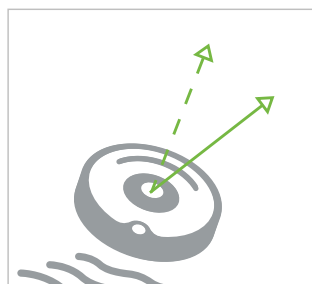
### PERFECT FOR YOUR ROBOTICS APPLICATION

The FSP201 is optimized for service and ground-roving robots such as floor cleaners, lawnmowers, and garden products that employ Simultaneous Localization And Mapping (SLAM) or other intelligent navigation solutions.

The combination of our MotionEngine sensor fusion software and a variety of external 6-axis sensors delivers superior heading performance even when the surface is not level. The FSP201 also provides features that enable bump and inclination detection, eliminating the cost of additional motion sensors or switches.

Systems designers can choose from a variety of sensors to best match performance and cost requirements. Our Interactive Calibration algorithms allow those sensors to maintain excellent performance in the field over time.

The FSP201 is simple to design into your product. The automatic UART mode requires no software configuration and the optional factory calibration algorithm is built-in. Calibration is done at board test or product final test with simple motions, and does not require costly jigs, motorized turntables or gimbals.



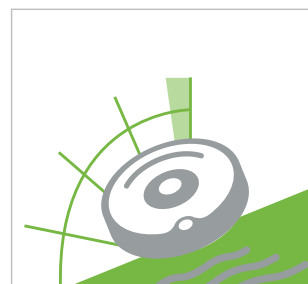
**PRECISE HEADING ACCURACY**

Configurable sampling rates up to 400Hz offer design tradeoffs with power consumption



**TILT INDEPENDENT HEADING**

Allows for proper heading output when surface is uneven



**ACCURATE TILT INFORMATION**

Inclination detection provides 3DOF robot orientation, allowing detection of ground surface and device issues



**SIMPLE FACTORY CALIBRATION**

Optional factory calibration requiring no specialized equipment; calibration algorithm built-in

**Please contact us to learn more.**

### About Ceva

At Ceva, we are passionate about bringing new levels of innovation to the smart edge. Our wireless communications, sensing and Edge AI technologies are at the heart of some of today's most advanced smart edge products. From Bluetooth connectivity, Wi-Fi, UWB and 5G platform IP for ubiquitous, robust communications, to scalable Edge AI NPU IPs, sensor fusion processors and embedded application software that make devices smarter, we have the broadest portfolio of IP to connect, sense and infer data more reliably and efficiently. We deliver differentiated solutions that combine outstanding performance at ultra-low power within a very small silicon footprint. Our goal is simple - to deliver the silicon and software IP to enable a smarter, safer, and more interconnected world. This philosophy is in practice today, with Ceva powering more than 17 billion of the world's most innovative smart edge products from AI-infused smartwatches, IoT devices and wearables to autonomous vehicles and 5G mobile networks.

