

All-in-one  
Always-on  
KitKat 4.4  
Zero power\*

\*Well, almost (200µA)

**SENtral**<sup>A</sup>  
SENSOR FUSION COPROCESSOR for ANDROID™



SENtral-A™ is the first ultra-low power sensor hub to support all Android 4.4 KitKat-compliant sensors, providing a full solution of processing plus algorithms in one tiny and efficient package.

SENtral-A embeds the complete range of KitKat sensor features in hardware on a low-power coprocessor, allowing smartphone OEMs to support always-on context-aware applications such as Google Now — without having to worry about power consumption.

### Outperforming the competitors

Competitive solutions come in two forms: MCU-based sensor hubs running third party 4.4 KitKat sensor algorithms licensed from specialized software companies, and MEMS sensors that run a bulk of the KitKat sensor algorithms on the mobile device's app processor.

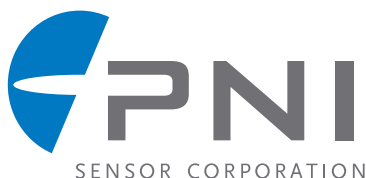
SENtral-A offers a single solution with both the

enabling hardware and software for KitKat and “always on” operation of the highest performance motion, context and location algorithms.

### Lowest power sensor hub

In direct benchmarking against FLASH-based sensor hub microcontrollers (MCUs) with on board floating point units (FPUs), SENtral-K operates at <10x power. SENtral can routinely run over 140,000 floating point operations per second at ~200µAmps average current consumption at 1.8V, which is unlike anything else in the market today.

SENtral-A can accommodate up to 6 different sensor inputs and is the only sensor hub in the market that can run all KitKat sensors simultaneously for under 200µAmps.



## Performance specifications\*





Accuracy	2° rms	
Max Data Update Rate	Max output rate of gyro	
Outputs	<ul style="list-style-type: none"> <li>• Heading, pitch and roll</li> <li>• Rotation matrix</li> <li>• Quaternions</li> <li>• 9 degrees of freedom (DOF)                (3-axis gyro + 3-axis accelerometer + 3-axis magnetometer)</li> <li>• 6DOF                (accelerometer + gyro or accelerometer + magnetometer)</li> <li>• Gravity</li> <li>• Linear acceleration</li> <li>• Step detect/count</li> <li>• Significant motion</li> <li>• Calibrated sensor</li> <li>• Uncalibrated sensor</li> <li>• Data batching</li> <li>• Timestamp</li> </ul>	
Supply Voltage (V <sub>DD</sub> )	1.6 – 3.3 VDC	
Current Consumption	9-axis sensor fusion	< 150 µA at 7 Hz Kalman update rate Mag @ 7 Hz Accel @ 100 Hz Gyro @ 95 Hz
	Standby	5 µA
I <sup>2</sup> C Interface Frequency	100 – 3400 KHz	
Dimensions	1.6 x 1.6 x 0.5 mm	

\*subject to change

### Availability

Please contact [sales@pnicorp.com](mailto:sales@pnicorp.com).

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	9-AXIS (3:3:3)
	KITKAT 4.4 OPTIMIZED
	LOW POWER
	HIGH RESOLUTION

PNI SENSOR CORPORATION is the leader in the exacting science of producing pinpoint location, heading and orientation technology for the consumer, military, and scientific communities. Building on decades of patented sensor and algorithm development, PNI offers highly accurate geomagnetic sensors and sensor fusion technology. Its products are used in consumer electronics, including the Wii U Game Pad, and robotics, surveying, navigation and automotive applications across the globe. To learn more, please visit [www.pnicorp.com](http://www.pnicorp.com).