

## SmartMotion™ Server: The Motion Processing Engine for Enhanced STB and Smart TV Applications

### GENERAL DESCRIPTION

New generation Set-Top Boxes (STBs) and Smart TVs (DTVs) will be providing more varied types of digital entertainment and information from a multitude of sources. As a result, consumers will need easier, more effective ways to navigate rich user interfaces, interact with apps, and control content.

Running on standard CPU platforms, InvenSense's SmartMotion™ Server is the motion processing engine for digital entertainment. SmartMotion Server delivers advanced gesture recognition and motion processing capabilities for applications running on the Smart TV. It recognizes different device capabilities and enables communication between SmartMotion-enabled devices and applications, by providing a standard interface for remote devices, smartphones, and applications running on the Smart TV.

Delivering on the promise and value of motion control, InvenSense's SmartMotion Server is a key component of the MoveaTV™ platform, providing Pay TV ecosystem partners a single, unified platform on which to create a complete motion-enabled entertainment experience for consumers.

### APPLICATIONS

- User Interface Navigation with Natural In-Air Pointing and Gesture Recognition
- Advanced Intuitive Menus and Program Guide Navigation
- Motion-Based Gaming
- Gesture-Based User Authentication

### BENEFITS

- Increase ARPU with Compelling Motion-Driven Games and New Revenue Generating Services
- Create Easy-to-Use Next-Generation Motion-Driven User Interfaces with User Friendly Point-and-Click and Gesture-Based Navigation
- Vastly Improve User Experience with Motion-Enabled Widgets and Apps
- Attract New Consumers and Improve Retain Current Subscribers With Improved Offerings
- Advanced Custom Gesture Recognition for User Authentication

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### FEATURES

In-Air Point-and-Click

- Low Latency High Accuracy
- Triggered and Live Pointing Mode
- Optimized In-Air Experience With Easy Click and Tremor Cancellation

### GESTURE RECOGNITION

- Database of 10 Predefined Gestures
- Multiuser and Multidevice Support
- Customizable User Sign-On Gestures

### DYNAMIC ROTATIONS

- Smart Cohabitation with Gesture Recognition Using User Intent Anticipation
- Along Three Different Axes: Yaw, Pitch and Roll
- Optimized Complimentarity Between Punctual Gestures and Dynamic Rotations

### ORIENTATION

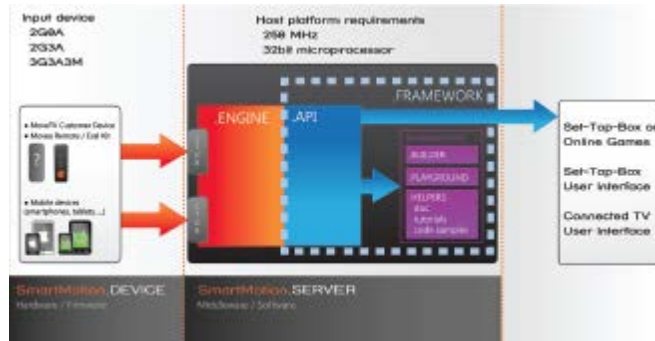
- 3D Orientation

### SUPPORTED OPERATING SYSTEMS

- Embedded Linux
- Windows XP, Vista, 7, 8
- Supported CPUs: Intel Atom, ARM Cortex A7/8/9/15



## SMARTMOTION SERVER ARCHITECTURE AND INTEGRATION



SMARTMOTION SERVER API MODULE FEATURES	
Plugin-Based Architecture	<ul style="list-style-type: none"> <li>Configurable Set of Plugins</li> <li>3<sup>rd</sup> Party Plugins Supported</li> </ul>
Supported Protocols	<ul style="list-style-type: none"> <li>RF4CE</li> <li>Ethernet / WiFi</li> <li>HID</li> <li>Bluetooth</li> <li>Protocols Extensibility Through 3<sup>rd</sup> Party Plugins</li> </ul>
Modules	<p><b>SmartMotion Features are Separated into Modules</b></p> <ul style="list-style-type: none"> <li>In-Air Pointing</li> <li>Advanced Gesture Recognition</li> <li>3D Orientation</li> <li>Dynamic Rotation</li> </ul> <p><b>Functionality</b></p> <ul style="list-style-type: none"> <li>All Functionality Implemented as Methods in Corresponding Module</li> <li>Each Module Can Be Activated/Deactivated During Runtime</li> <li>Configuration Via XML Files</li> </ul> <p><b>Communication</b></p> <ul style="list-style-type: none"> <li>Each Module Can Trigger/Listen for Notifications</li> </ul>
Language	<ul style="list-style-type: none"> <li>C/C++, Java</li> </ul>
Device	<ul style="list-style-type: none"> <li>6- and 9-Axis Remote Control and Smartphone</li> </ul>

SPECIFICATIONS	
Frequency	100 Hz
Sensitivity	30 Mickeys/Deg
Roll Compensation	Full Dynamic (6-Axis)
Pointer Ballistic	Integrated Dynamic Gain
Tremor Cancellation	>90%
Gyro Bias Correction	Real Time