EM MICROELECTRONIC

A COMPANY OF THE SWATCH GROUP

FACT SHEET | EM7180SFP

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Ultra Low Power Sensor Fusion Platform

General Description

The Sensor Fusion Platform (SFP) is small form factor integrated module containing a EM7180 SENtral Sensor Fusion Coprocessor, BMX055 9-degree-of-freedom (9-DOF) system in a package (3-axis gyroscope/accelerometer/ magnetometer) and a ST24256 32KB EEPROM containing the module firmware.

The SENtral Sensor Fusion Coprocessor fully controls and processes data from BMX055 9-DOF sensor. The primary data output from SFP are quaternions, which uniquely define device orientation, or Euler angles (heading, pitch, and roll). The quaternions easily can be also converted to the rotation vector, and the rotation matrix. Raw or calibrated sensor data are also provided to external Host which can control individual sensor rates and power states of the platform. External Host CPU can communicate with the SFP over high-speed I2C bus and obtain both fusion result and raw sensor data.

Applications

l Robotics, Automation

l Sports activity (e.g. golf-swing)

l Motion-tracking-system

l Navigation systems

l Activity trackers

l Orientation-estimation (e.g. for binoculars)

l Air (remote) pointing devices

l Position identification (window handle)

Features

l EM7180 SENtral state of the art sensor fusion coprocessor

l Ultra low power consumption: standby and still states reduce system power consumption dramatically

l VDD from 2.4V to 3.3V

l Industry leading heading and tracking accuracy

l 9 axis sensing with Bosch BMX055: 3-axis gyroscope, 3-axis accelerometer and 3-axis magnetometer

l Variety of outputs for accelerated application development
· Quaternions
· Heading, Pitch, Roll
· Calibrated and raw sensor data

l Small Form Factor module - 10.16mm x 10.28mm

l I2C interface – 100 to 3400kbps - Standard, Fast, Fast Plus, and High Speed modes

l Host CPU driver source code available

Current Consumption

Supply Current

Parameter	Symbol	Conditions	Typ	Unit
Moving - with ative gyro	IDDM	VDD=2.4V	7.9	mA
Still - with active accelerometer	IDDST	VDD=2.4V	300	µA

Block Diagram