HaiLa BSC2000 RF Evaluation Chip

Product Brief

Overview

HaiLa's passive backscatter technology paves the way for a new paradigm in IoT applications by offering an ultra-low power, radio-less communication channel for wireless sensors while leveraging existing Wi-Fi RF infrastructure. The BSC2000 RF Evaluation Chip includes the analog front end and digital baseband functionality for sensor data collection and transmission at a power efficiency that extends the life of battery-operated sensors well beyond the benchmark set by other low-power radio architectures.

As IoT proliferation continues, billions of connected sensors will transmit data from machines, industrial facilities, living spaces, wearables, and other environments creating an enormous demand for battery power. Across a wide range of different applications, system developers and infrastructure operators who need to support high volumes of sensor connectivity face the challenge of how to manage this in an efficient way. For wireless sensors, the implications of battery usage and waste management, as well as life-cycle maintenance costs are key concerns. HaiLa's solution solves these IoT sensor deployment and maintenance challenges in a more sustainable way.

The BSC2000 RF Evaluation Chip is based on HaiLa's passive backscatter technology, providing an extremely efficient, low-power communication link for battery-powered sensors. HaiLa's technology significantly extends sensor battery life, reduces IoT deployment operating costs and battery waste, and offers a path towards ubiquitous ambient IoT in the future where sensor batteries could be eliminated altogether.

Additionally, HaiLa's technology provides a way to extend the edge connectivity capabilities of Wi-Fi beyond the current protocol definitions and gives end-users lower total cost of ownership for wireless sensor deployment in a WLAN environment.

Block Diagram
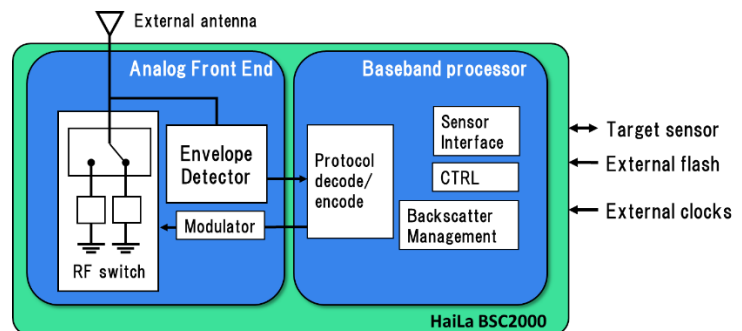
Features and Benefits

- Backscatter data rate
  - 1 Mbps
- Modulation format
  - BPSK
- Operating frequency band
  - 2.4GHz
- Infrastructure
  - 802.11 (1 Mbps DSSS)
- Sensor interface
  - SPI
- Average Power Consumption
  - 25µW
- Package
  - QFN36
- Supports simplified sensor tag
  - BSC2000
  - antenna, external clocks, SPI, flash

Applications

- Building automation
- Smart homes
- Consumer electronics
- Industrial sensor network