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## Product Brief – JN5139-EK010

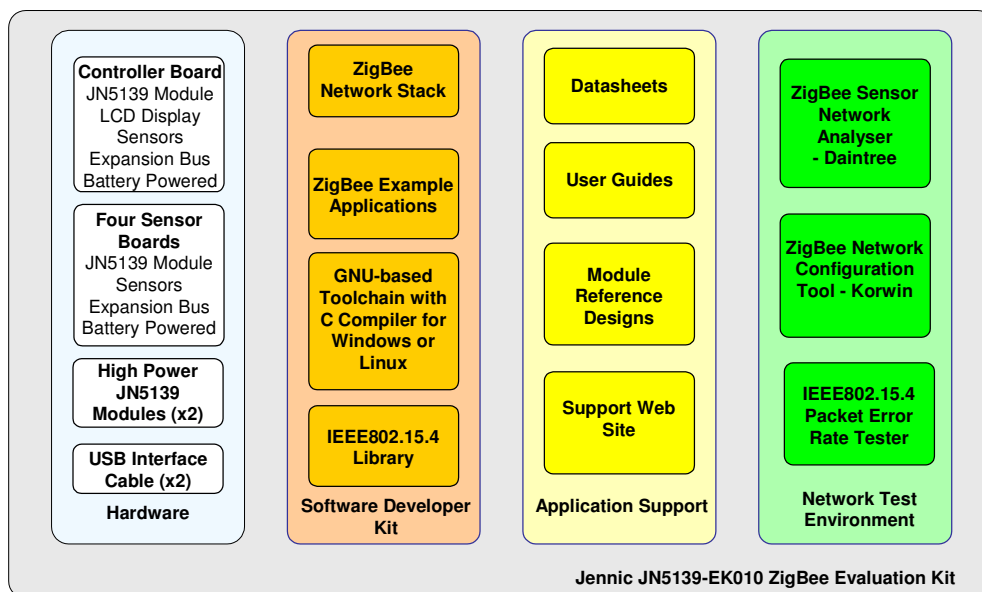
### ZigBee Evaluation Kit

#### Overview

Jennic's ZigBee evaluation kit provides all the software tools and hardware required to develop and monitor wireless sensor network products. Complex tree or mesh network topologies are supported providing reliable coverage over large areas, greater distances and up to 65,536 nodes, larger than a simple network protocol will allow. Jennic's ZigBee stack API enables rapid application development by providing a simple programming interface to the standard ZigBee network layer.

The kit contains one controller board with display, and four sensor boards. Each board features temperature, humidity and light level sensors and the JN5139 device implemented on a compact reference module. Two high power modules are provided for extended range testing. Expansion boards and ZigBee enabled modules allow networks of any size to be easily constructed.

#### Block Diagram



#### Benefits

- Rapid prototyping and development of wireless applications
- Create applications by simply customising the example
- Allows development of ZigBee Network 1.0 compliant applications
- Standard 'C' development environment
- Simple API

#### Applications

- Wireless sensor networks
- Home automation
- Consumer products
- Commercial building automation
- Industrial control
- Medical control and monitoring
- Toys and gaming peripherals

#### Features:

##### ZigBee network stack

- Tree, mesh network options
- ZigBee v1.0 specification
  - ZigBee device object (ZDO)
  - Application support sub-layer (APS)
  - Network layer (NWK)
  - Security service sub-layer (SSL)
- Simplified programming interface
- Library builds for co-ordinator, router and end-device
- ZigBee compliant platform

##### Embedded operating system

- Simple task scheduler
- Round robin scheme

##### Hardware

- 1 controller board with LCD display
- 4 sensor boards
- Each board contains wireless enabled temperature, humidity and light sensors and switches
- Controller and sensor boards include JN5139 module
- 2 high power JN5139 modules for extended range

##### Software development kit

- GNU-based toolchain  
ANSI C, C++ compiler, Debugger, Flash programmer, CodeBlocks IDE
- Wireless network libraries
- Microcontroller and peripheral libraries
- Application examples
- Home control demonstration

##### Network test tools

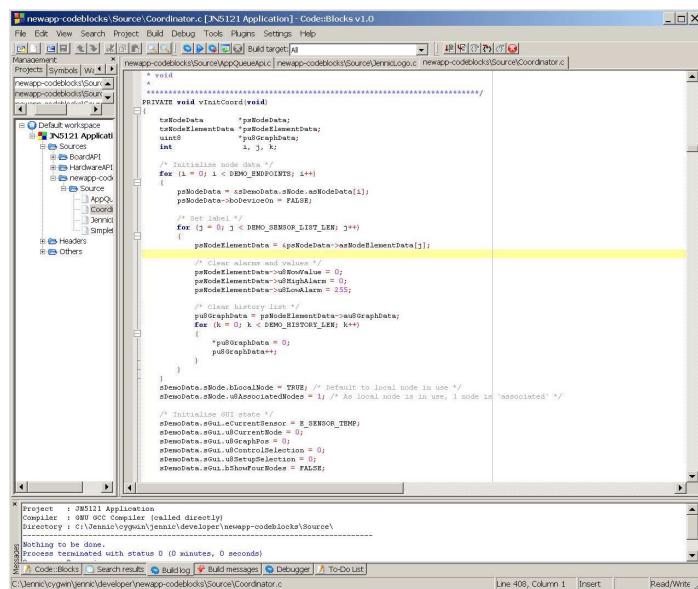
- Daintree Networks' Sensor Network

## Developer Kit and Example Application Software

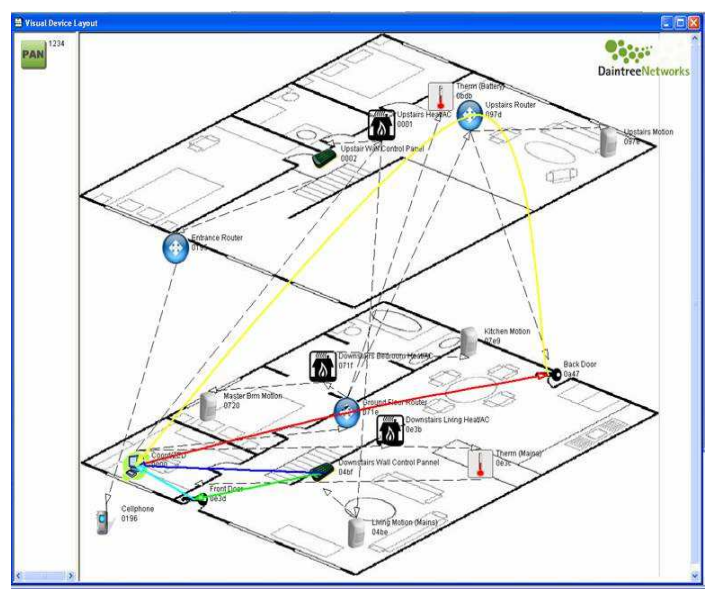
A demonstrator of a home automation system is included that monitors data from remote sensors and displays the results onto the controller's LCD display, while commands sent between the nodes activate control signals. This is provided as an example to be directly used as the basis for many product developments.

The software development environment includes a complete tool suite for application development and debug, including compiler, assembler, debugger and flash programmer. Library builds for co-ordinator, routers and end-devices with different network configurations are provided. CodeBlocks IDE integrates the toolchain into an easy to use development environment. A comprehensive documentation package is backed by Jennic's support website.

## CodeBlocks IDE



## Daintree Sensor Network Analyser



## Network Test Tools

The kit includes PC-based test tools for analysis, monitoring and control of mesh networks.

Daintree Networks' Sensor Network Analyser provides advanced data capture, monitoring and analysis capabilities for wireless sensor networks. The basic edition provides detailed decode capability for IEEE802.15.4, while the advanced versions add ZigBee networking and visualisation capabilities.